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STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3622B	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

THIS PROJECT CONTAINS  
EROSION CONTROL PLANS  
FOR CLEARING AND  
GRUBBING PHASE OF  
CONSTRUCTION.

TOTAL DISTURBED AREA = 517,492 SQ. FT.  
= 11.88 ACRES

CLEARING LIMIT SHALL BE PERFORMED BY THE LIMITS ESTABLISHED BY METHOD II  
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
PLAN FOR PROPOSED  
HIGHWAY EROSION CONTROL

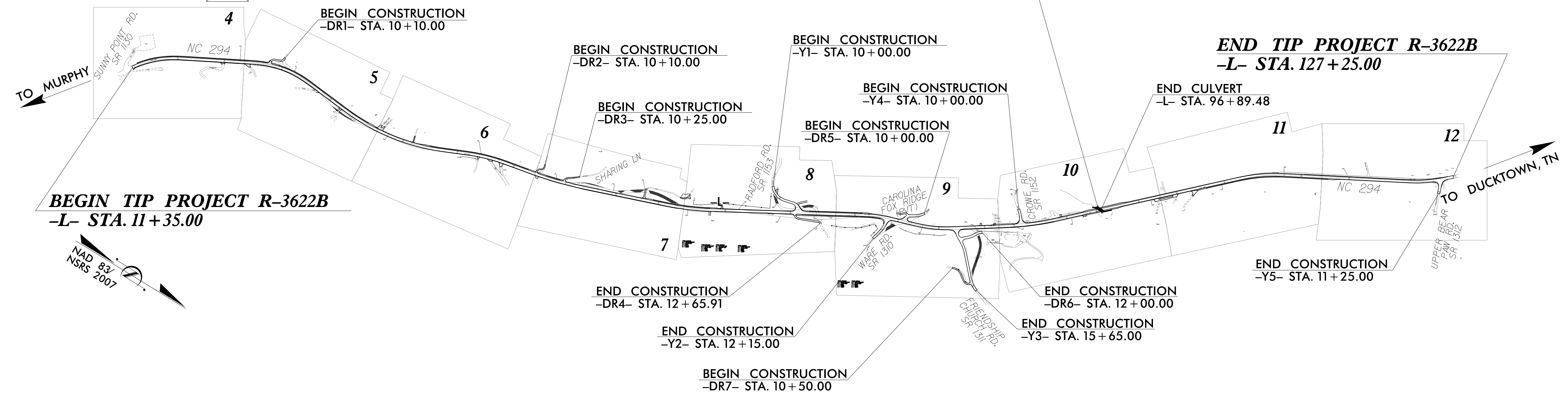
**CHEROKEE COUNTY**

LOCATION: NC 294 FROM SR 1130 (SUNNY POINT ROAD)  
TO SR 1312 (UPPER BEAR PAW ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURES

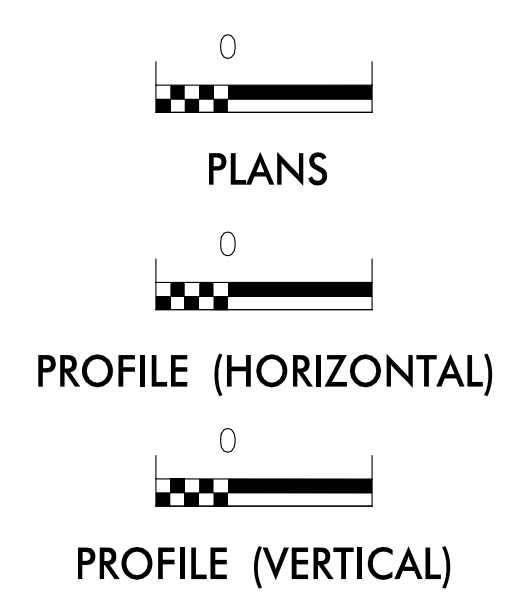
**EROSION AND SEDIMENT CONTROL MEASURES**

Std. #	Description	Symbol
1630.05	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	▲▲▲
1622.01	Temporary Berms and Slope Drains	—
1630.02	Silt Basin Type B	▨
1633.01	Temporary Rock Silt Check Type-A	▩
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	▩
1633.02	Temporary Rock Silt Check Type-B	▩
	Wattle/Coir Fiber Wattle	⤴
	Wattle/Coir Fiber Wattle with Polyacrylamide (PAM)	⤴
1634.01	Temporary Rock Sediment Dam Type-A	▩
1634.02	Temporary Rock Sediment Dam Type-B	▩
1635.01	Rock Pipe Inlet Sediment Trap Type-A	⤴
1635.02	Rock Pipe Inlet Sediment Trap Type-B	⤴
1630.04	Stilling Basin	▭
1630.06	Special Stilling Basin	▭
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.05	Type C	C
	Skimmer Basin	▭
	Tiered Skimmer Basin	▭
	Infiltration Basin	▭



**TIP PROJECT: R-3622B**

**GRAPHIC SCALE**



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER RESOURCES.

Prepared in the Office of:  
**VAUGHN & MELTON**  
1318F PATTON AVENUE  
ASHEVILLE, NC 28806  
**2012 STANDARD SPECIFICATIONS**

Designed by:  
**MICHAEL CLARK** 3376  
NAME LEVEL III CERTIFICATION NO.

Reviewed in the Office of:  
**ROADSIDE ENVIRONMENTAL UNIT**  
1 South Wilmington St.  
Raleigh, NC 27611  
**2012 STANDARD SPECIFICATIONS**

Reviewed by:  
**JENNIFER PARISH, EI**

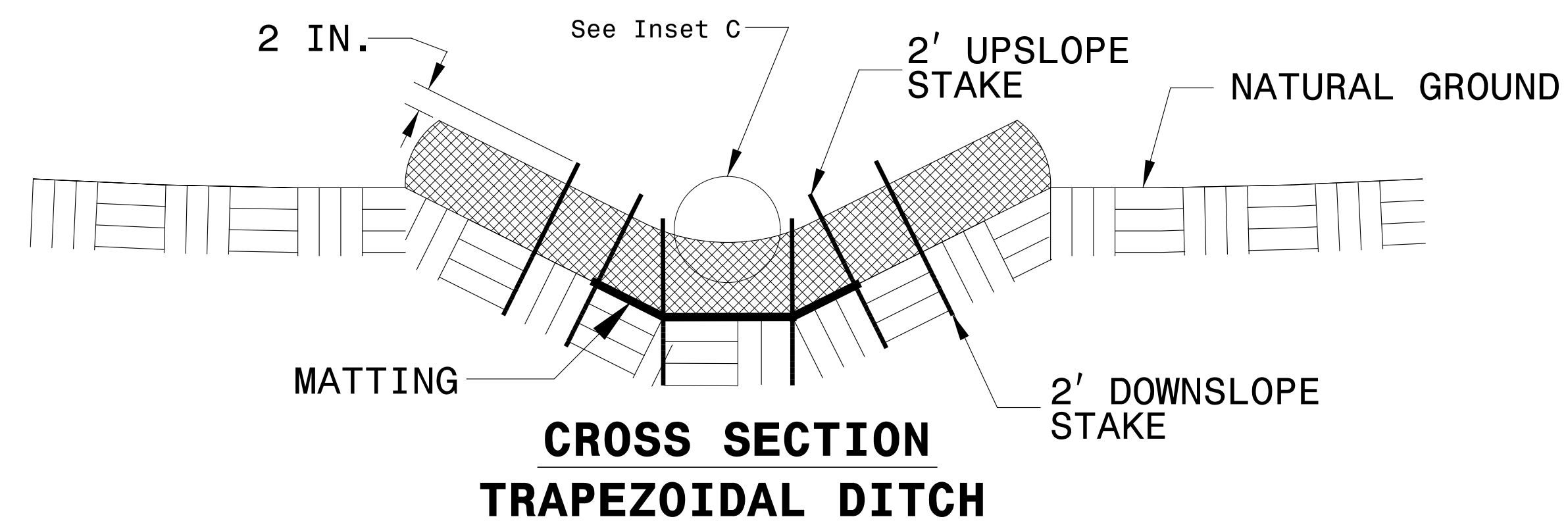
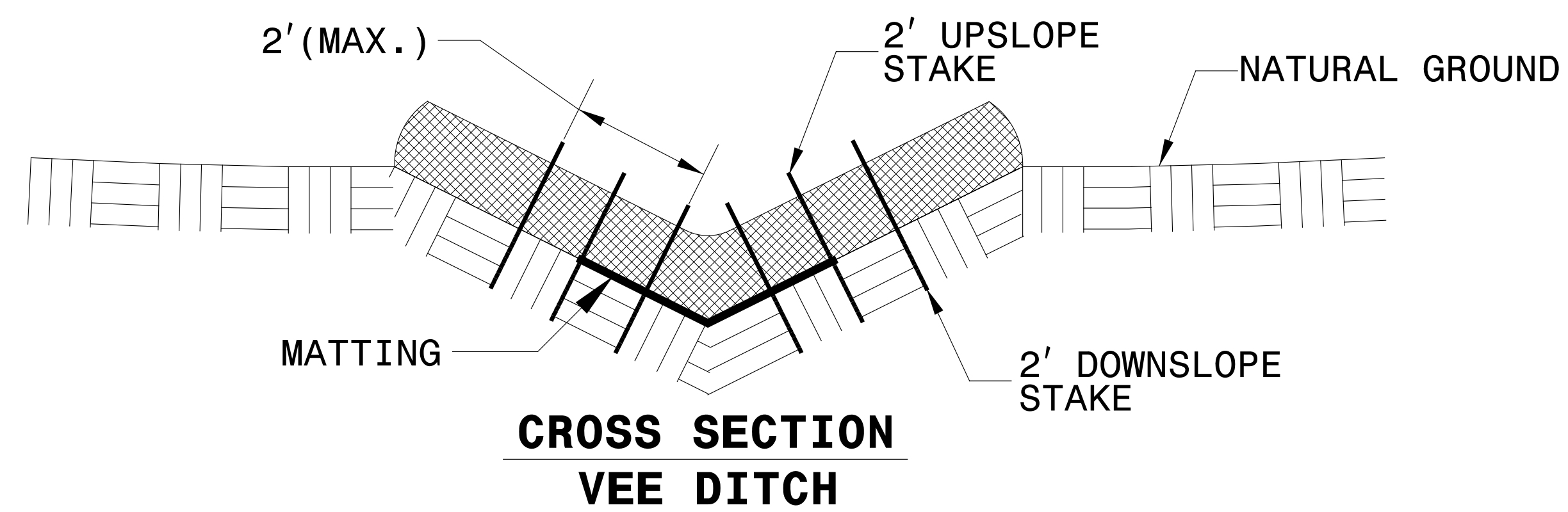
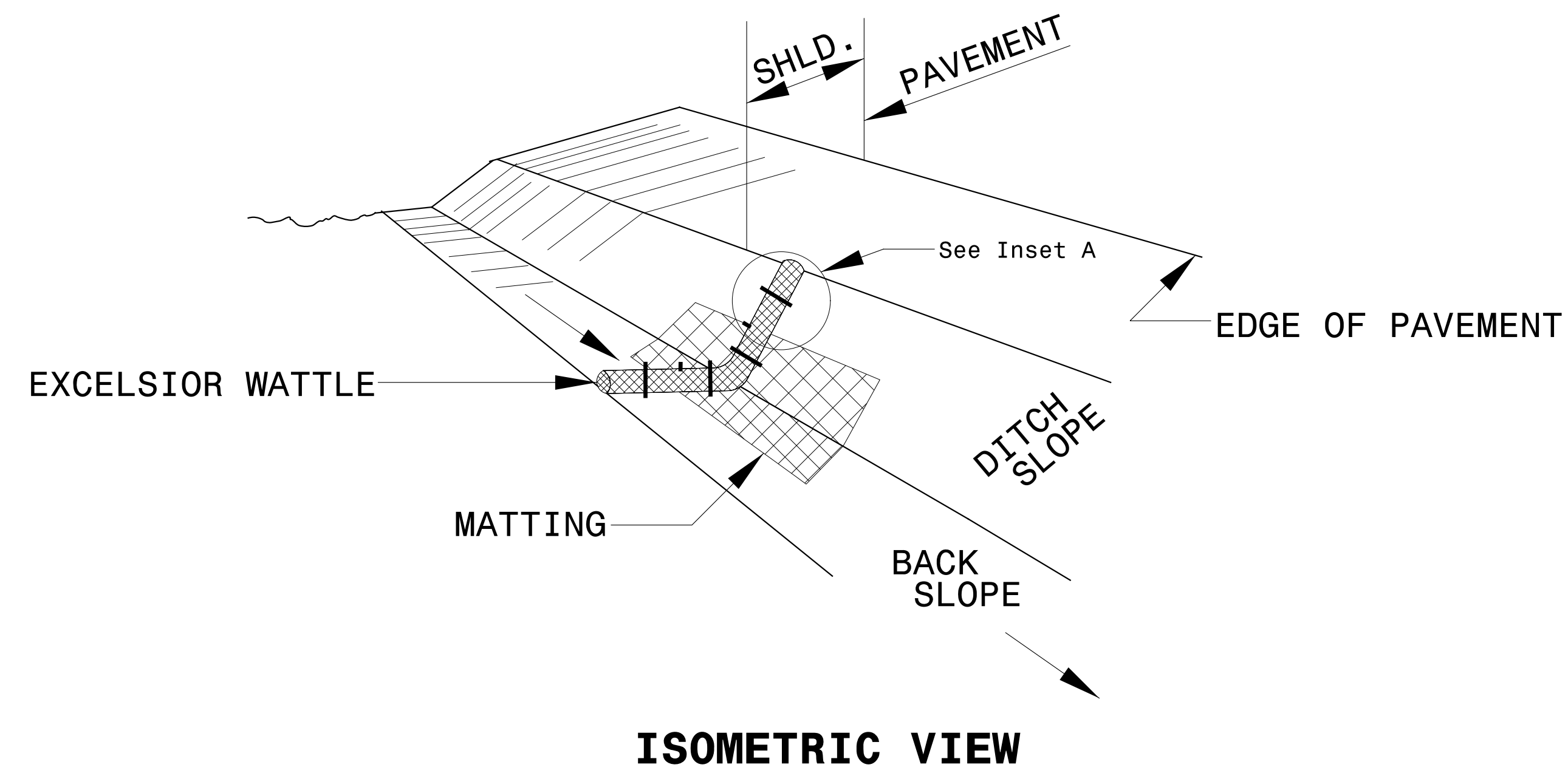
Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01 Railroad Erosion Control Detail	1632.01 Rock Inlet Sediment Trap Type A
1605.01 Temporary Silt Fence	1632.02 Rock Inlet Sediment Trap Type B
1606.01 Special Sediment Control Fence	1632.03 Rock Inlet Sediment Trap Type C
1607.01 Gravel Construction Entrance	1633.01 Temporary Rock Silt Check Type A
1622.01 Temporary Berms and Slope Drains	1633.02 Temporary Rock Silt Check Type B
1630.01 Riser Basin	1634.01 Temporary Rock Sediment Dam Type A
1630.02 Silt Basin Type B	1634.02 Temporary Rock Sediment Dam Type B
1630.03 Temporary Silt Ditch	1635.01 Rock Pipe Inlet Sediment Trap Type A
1630.04 Stilling Basin	1635.02 Rock Pipe Inlet Sediment Trap Type B
1630.05 Temporary Diversion	1640.01 Coir Fiber Baffle
1630.06 Special Stilling Basin	1645.01 Temporary Stream Crossing
1631.01 Matting Installation	

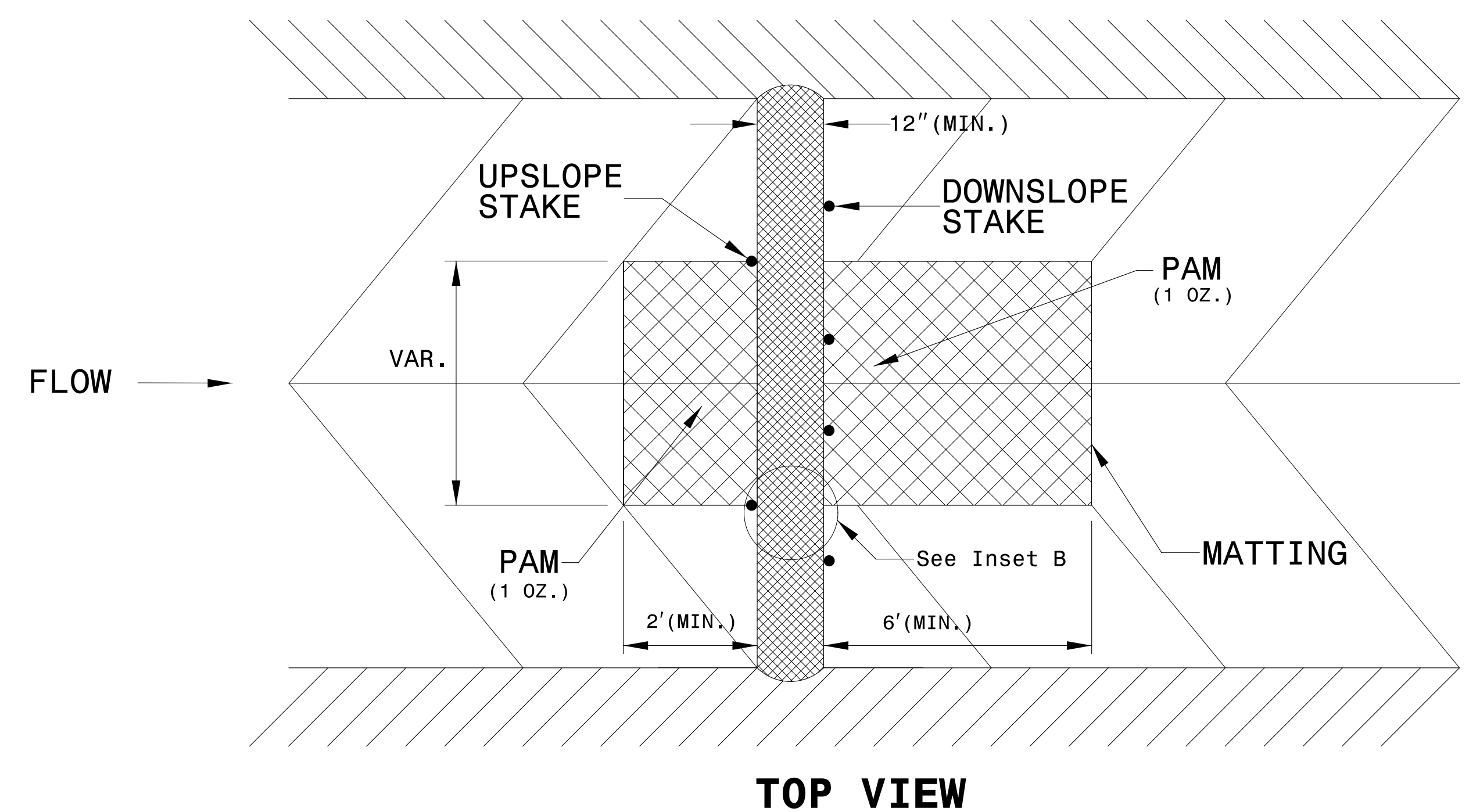
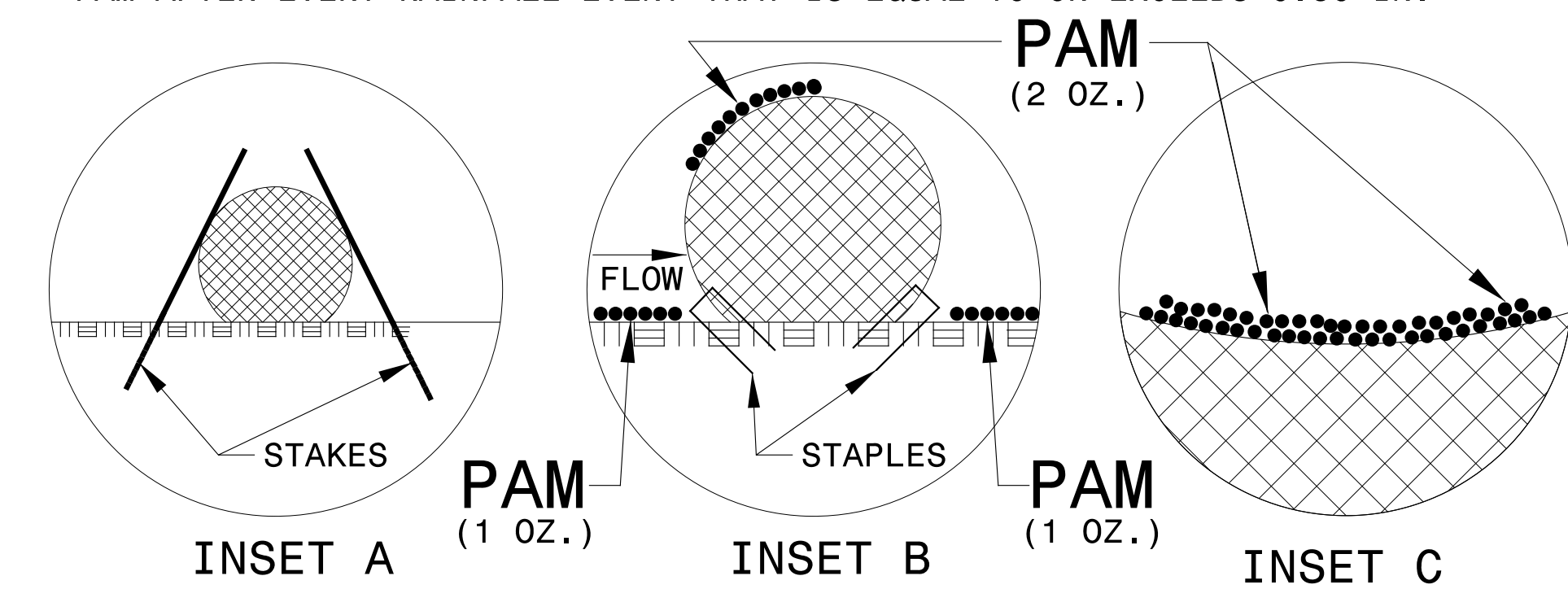
PROJECT REFERENCE NO. R-3622B		SHEET NO. EC-2	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

# WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



**NOTES:**

- USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.
- USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
- ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.
- INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.
- PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.
- INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
- INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.
- PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.
- INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



PROJECT REFERENCE NO. R-3622B	SHEET NO. EC-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM) DETAIL

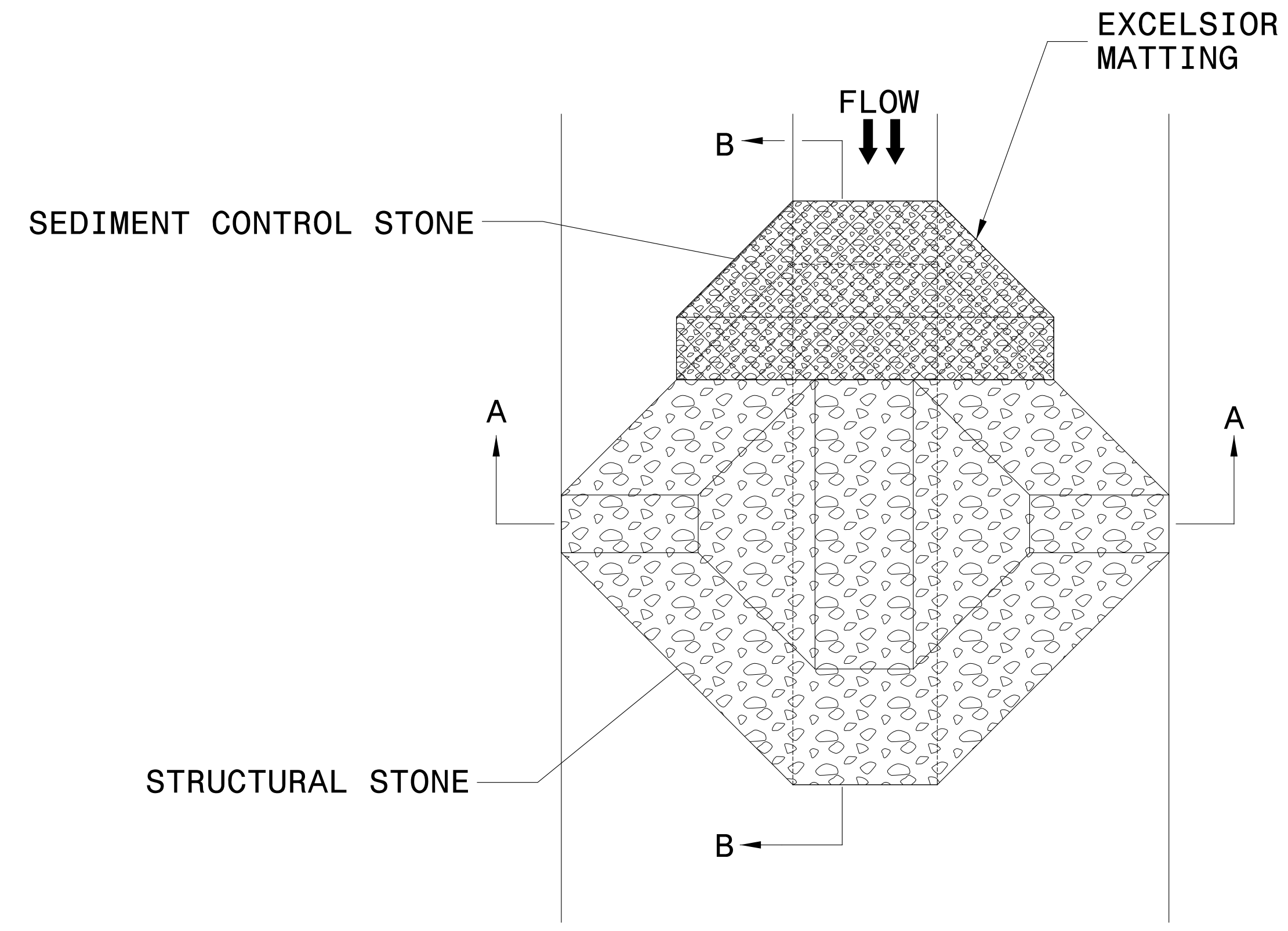
**NOTES:**

INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.

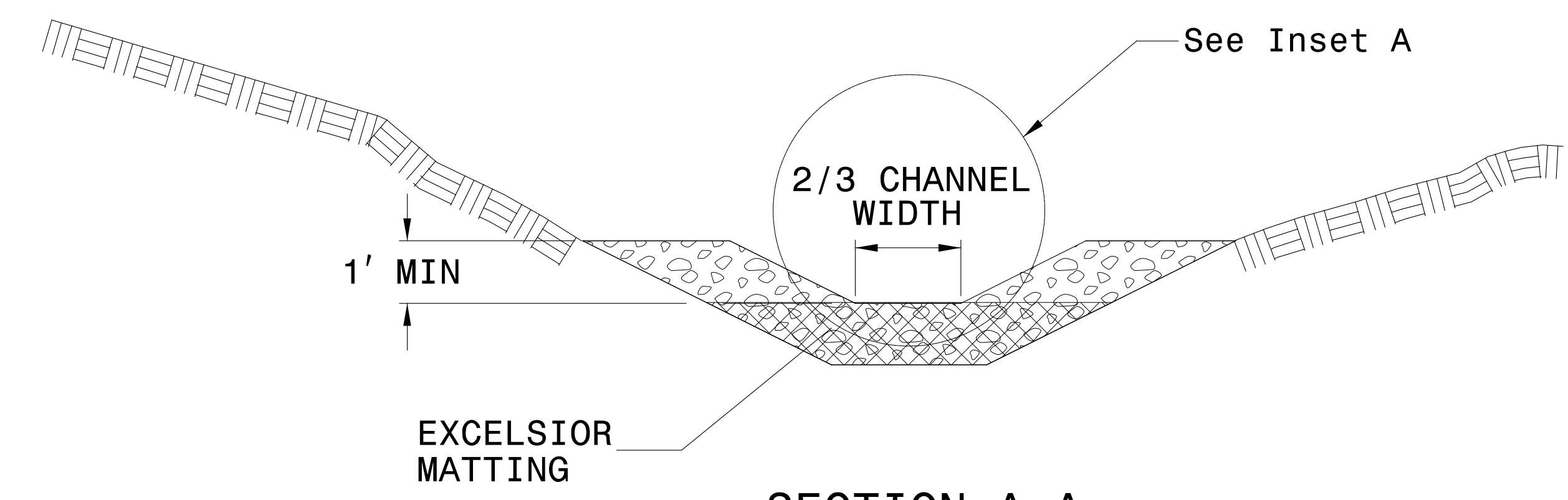
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

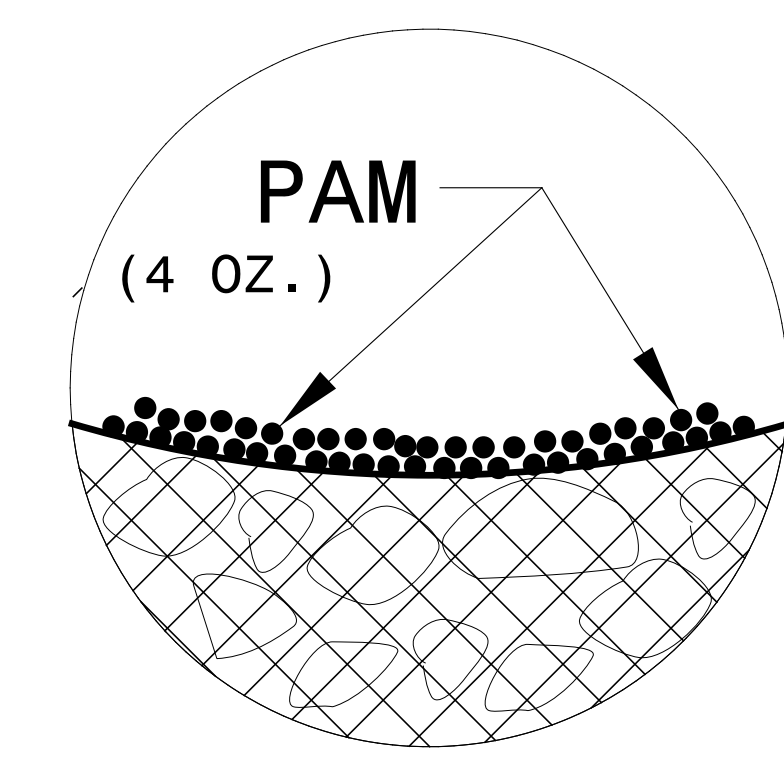
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



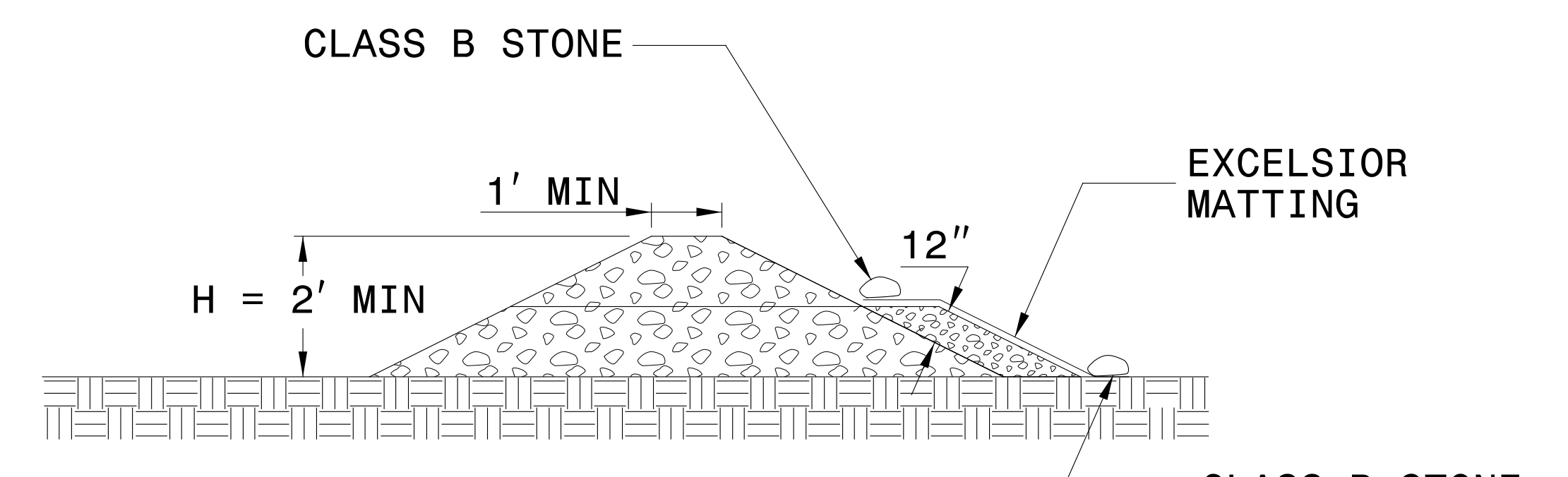
PLAN



SECTION A-A



INSET A



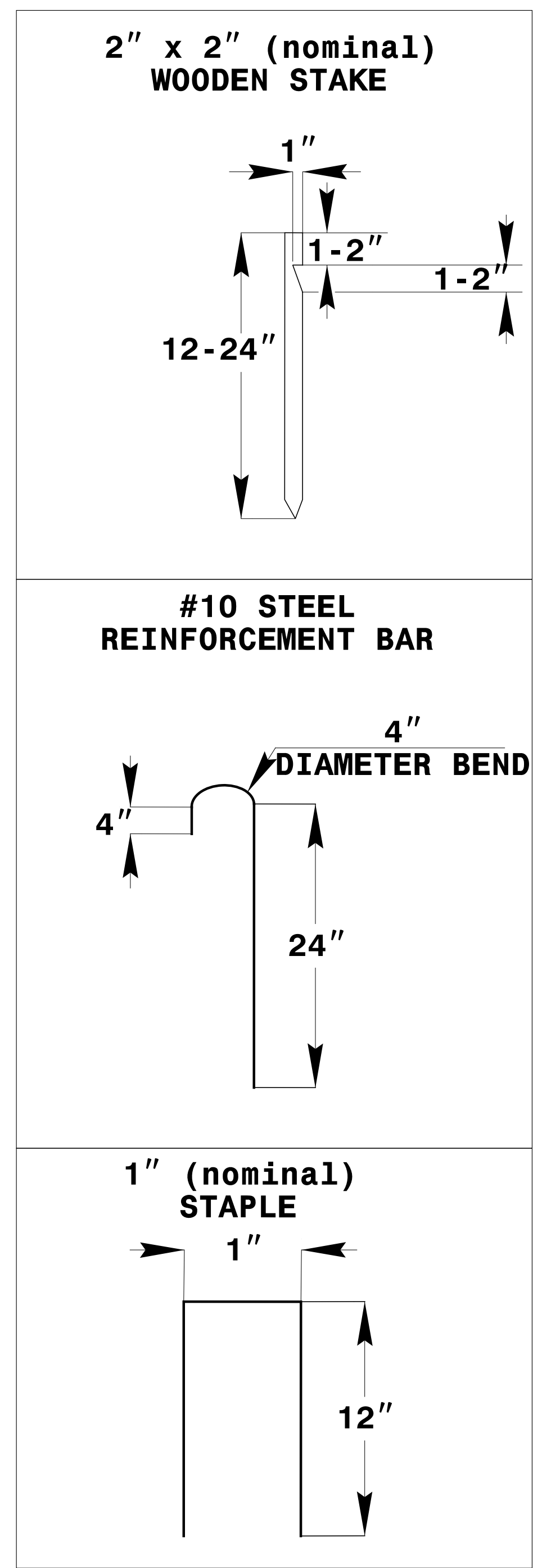
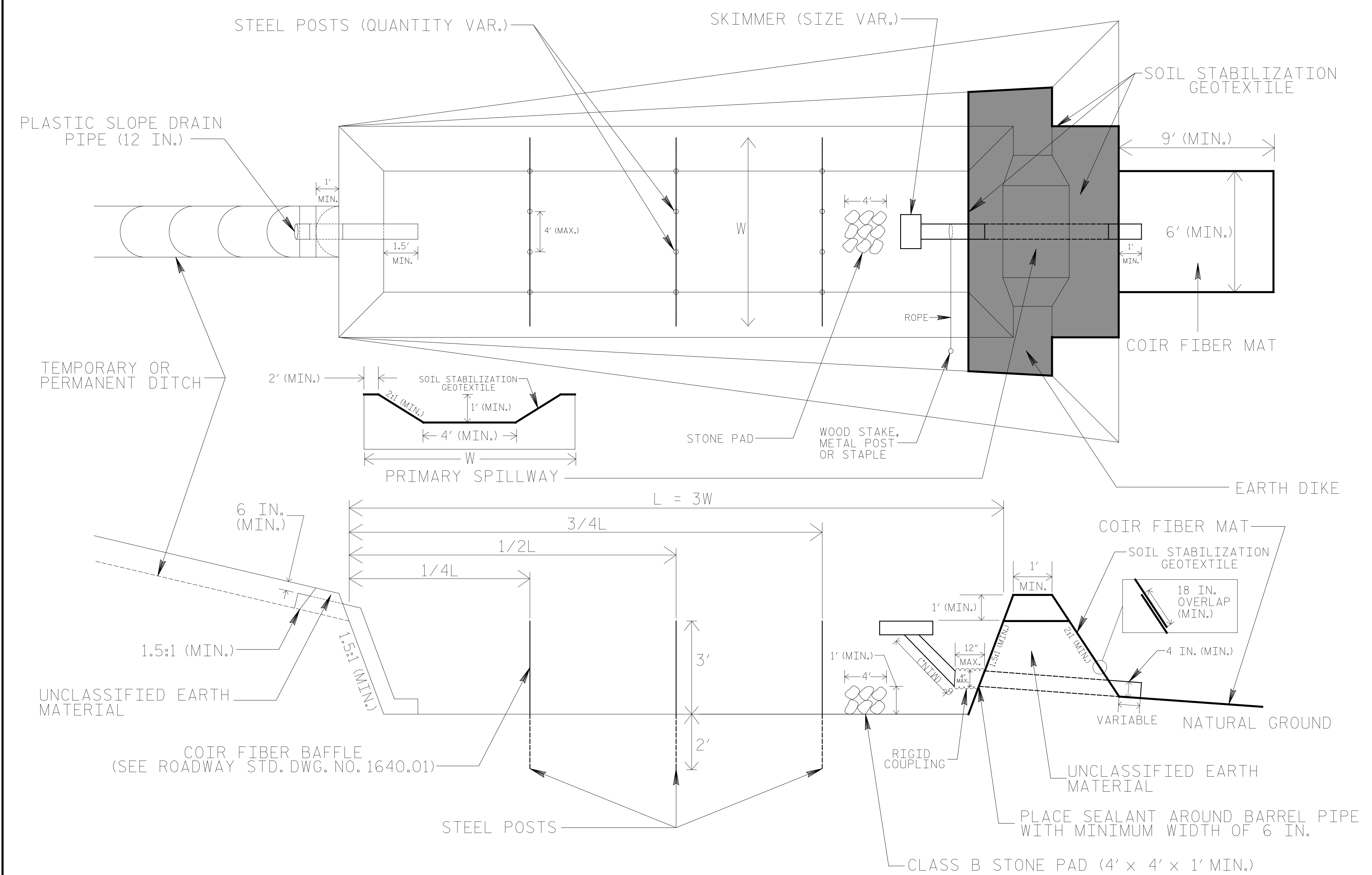
SECTION B-B

NOT TO SCALE



PROJECT REFERENCE NO. <i>R-3622B</i>	SHEET NO. <i>EC-2B</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# SKIMMER BASIN WITH BAFFLES DETAIL



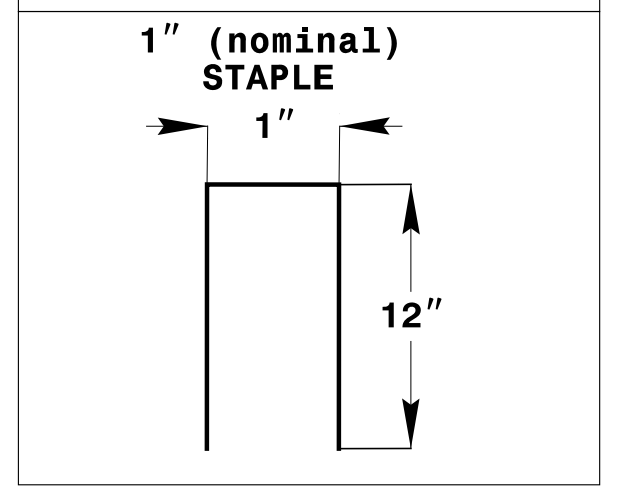
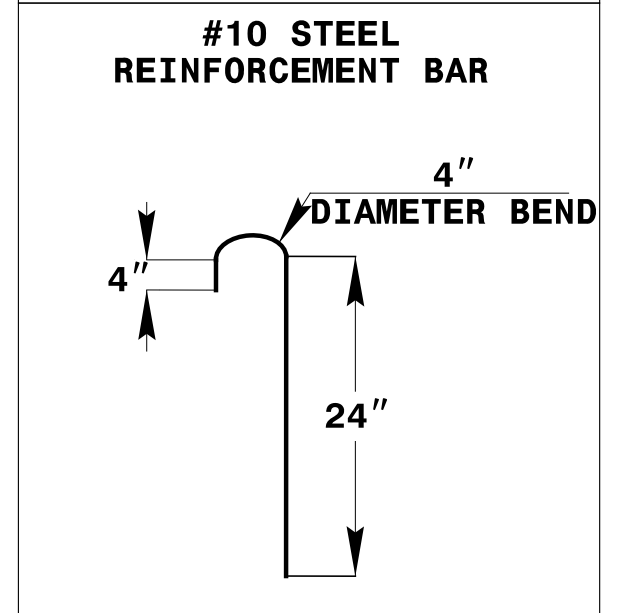
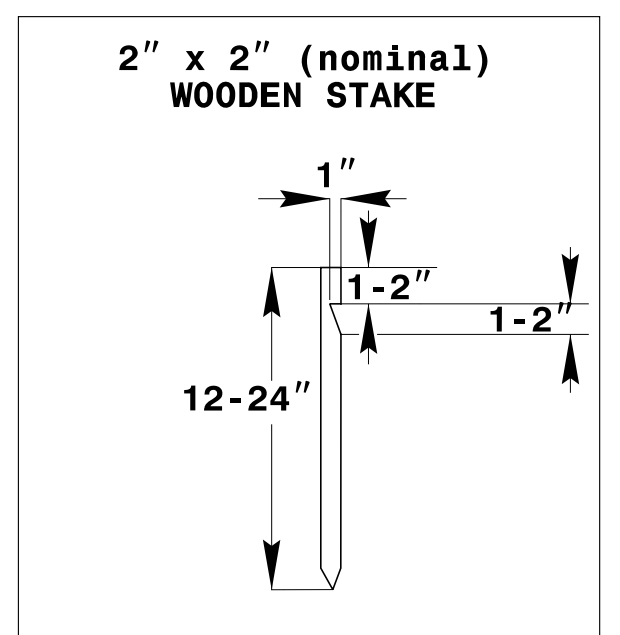
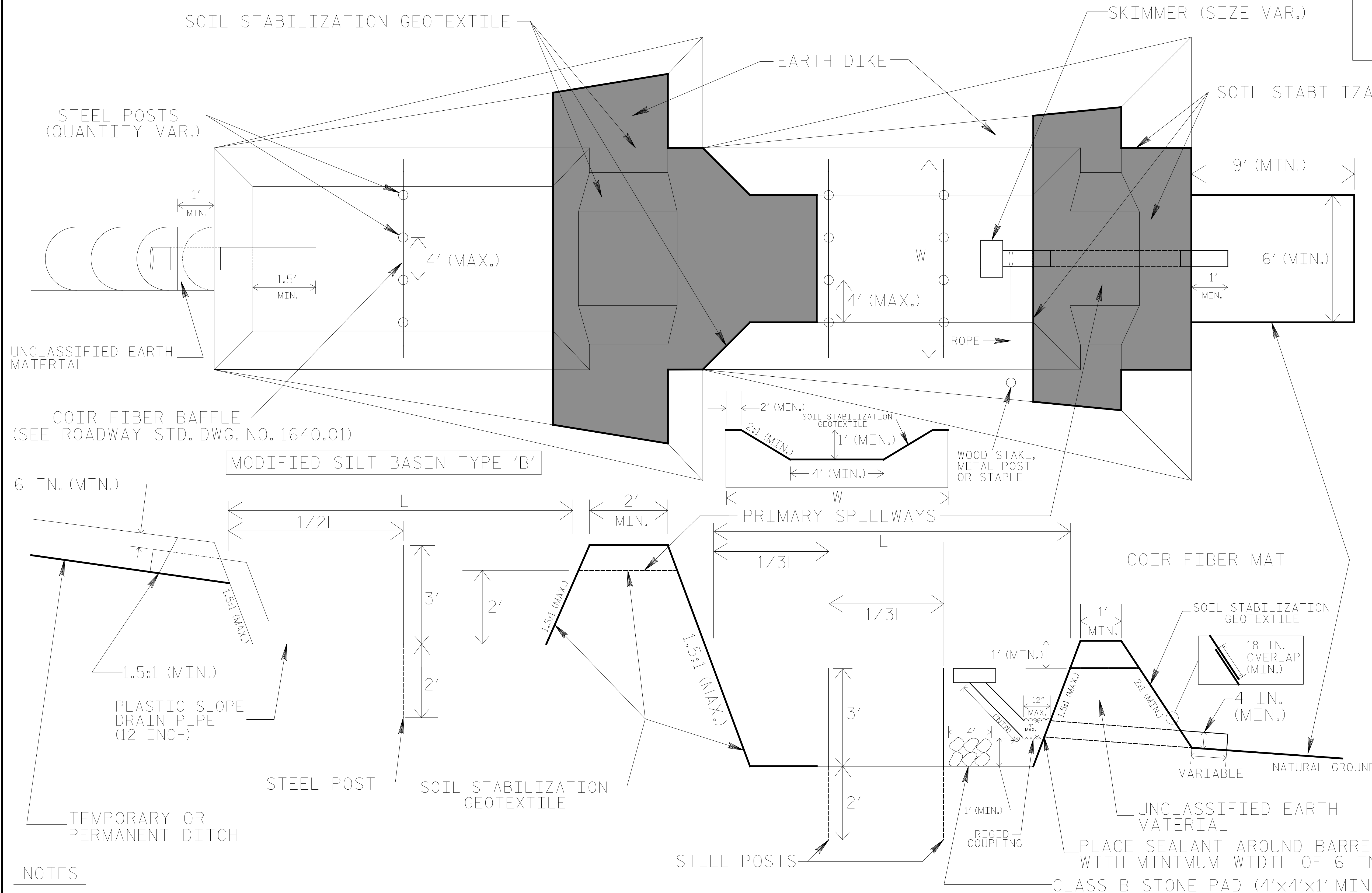
## NOTES

1. SEED AND PLACE MATTING FOR EROSION CONTROL ON INTERIOR AND EXTERIOR SIDESLOPES.
2. LIMIT EARTH DIKE HEIGHT TO 5 FT.
3. FOR BASIN DEPTH OF 3 FT., THE MINIMUM BASIN WIDTH SHALL BE 9 FT.
4. DETERMINE PRIMARY SPILLWAY WEIR LENGTH (FT.) USING  $Q/0.4$ , WHERE Q IS FLOW RATE (CFS) INTO BASIN.
5. PLASTIC SLOPE DRAIN PIPE AT INLET OF BASIN MAY BE REPLACED BY FILTRATION GEOTEXTILE OR TARP AS DIRECTED.
6. SOIL STABILIZATION GEOTEXTILE FOR PRIMARY SPILLWAY SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

NOT TO SCALE

# TIERED SKIMMER BASIN DETAIL

PROJECT REFERENCE NO. R-3622B	SHEET NO. EC-2C
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



**COIR FIBER MAT ANCHOR OPTIONS**

**NOTES**

1. SEED AND PLACE MATTING FOR EROSION CONTROL ON INTERIOR AND EXTERIOR SIDESLOPES OF BASINS.
2. LIMIT HEIGHT OF EARTH DIKES TO 5 FT.
3. ADDITIONAL MODIFIED SILT BASINS TYPE 'B' MAY BE NEEDED DEPENDING ON SLOPE.
4. FOR BASIN DEPTHS OF 3FT., THE MINIMUM BASIN WIDTHS SHALL BE 9 FT.
5. DETERMINE PRIMARY SPILLWAY WEIR LENGTHS (FT.) USING  $Q/0.4$ , WHERE Q IS FLOW RATE (CFS) INTO UPPER BASIN.
6. SOIL STABILIZATION GEOTEXTILE FOR PRIMARY SPILLWAYS SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

NOT TO SCALE

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

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## SOIL STABILIZATION SUMMARY SHEET

### MATTING FOR EROSION CONTROL

### PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
5&6	L	30+00	37+00	RT	1965
6	L	38+50	40+00	RT	210
6	L	41+50	44+00	RT	330
6&7	L	45+50	52+00	RT	1140
7	L	51+00	52+00	LT	115
7	L	56+00	59+00	LT	315
			SUBTOTAL		4075
	MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER				54,925
			TOTAL		59,000
			SAY		65,000

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
8	L	61+00	63+00	RT	980
8	L	63+00	70+50	RT	1225
9&10	L	79+00	92+00	RT	980
10	L	92+00	94+00	RT	210
8	L	65+50	72+00	LT	1080
9	L	78+00	87+00	LT	1760
10	L	93+00	93+50	LT	160
			SUBTOTAL		6395
	ADDITIONAL PGRM TO BE INSTALLED				1155
			TOTAL		7550
			SAY		7700

PROJECT REFERENCE NO. <i>R-3622B</i>	SHEET NO. <i>EC-3A</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

***SOIL STABILIZATION TIMEFRAMES***

<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES, AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.



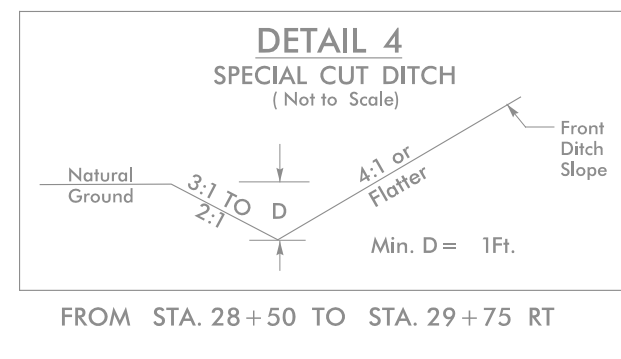
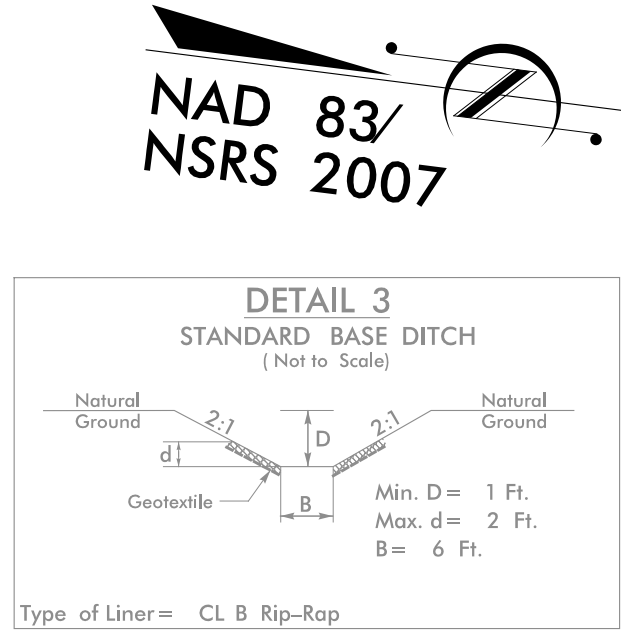
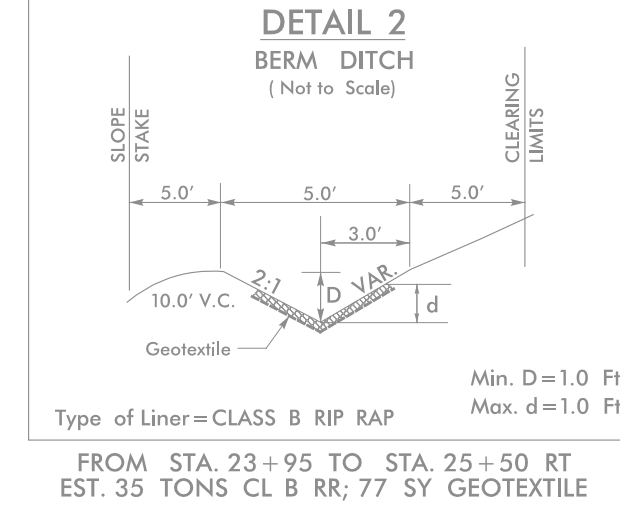
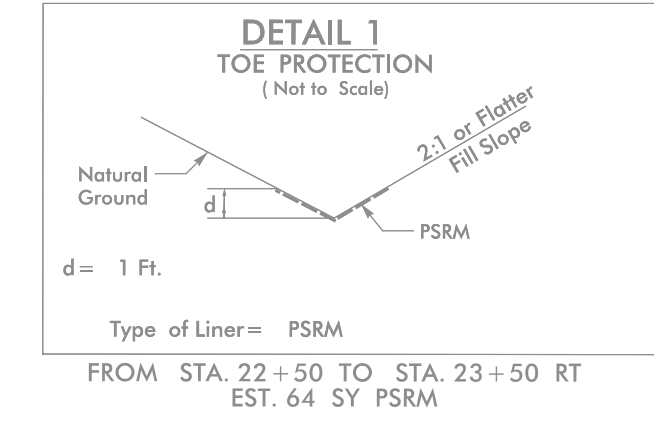


**V&M**  
Vaughn & Melton  
Consulting Engineers

Charlotte, North Carolina 104-357-0488  
Tri-Cities, Tennessee 423-467-8400  
Knoxville, Tennessee 865-646-6800  
Middlesboro, Kentucky 606-248-6600  
Asheville, North Carolina 828-253-2796  
Spartanburg, South Carolina 864-514-4775

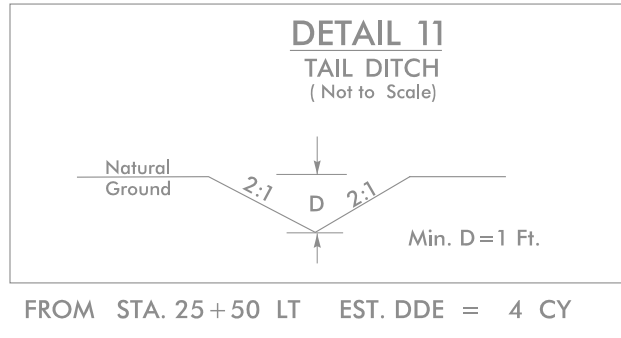
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PROJECT REFERENCE NO. R-3622B	SHEET NO. EC-5/CONST.5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

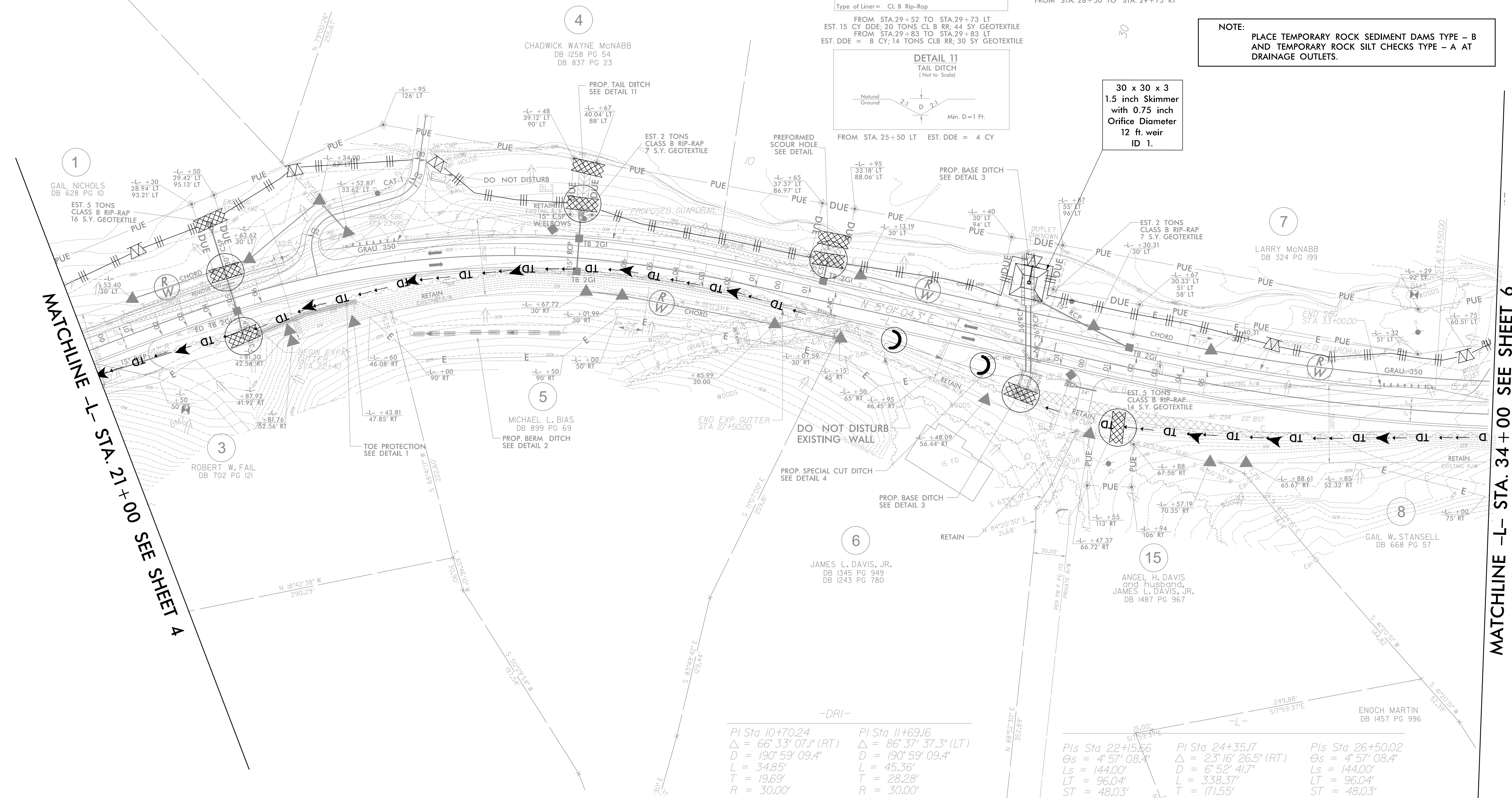


CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 5

NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.



30 x 30 x 3  
1.5 inch Skimmer  
with 0.75 inch  
Orifice Diameter  
12 ft weir  
ID 1.



MATCHLINE -L- STA. 21+00 SEE SHEET 4

MATCHLINE -L- STA. 34+00 SEE SHEET 6

-DRI-

PI Sta 10+70.24 Δ = 66° 33' 07.1" (RT) D = 190° 59' 09.4" L = 34.85' T = 19.69' R = 30.00'	PI Sta 11+69.16 Δ = 86° 37' 37.3" (LT) D = 190° 59' 09.4" L = 45.36' T = 28.28' R = 30.00'
---	---

PIs Sta 22+15.66 Os = 4° 57' 08.4" Ls = 144.00' LT = 96.04' ST = 48.03'	PI Sta 24+35.17 Δ = 23° 16' 26.5" (RT) D = 6° 52' 41.7" L = 338.37' T = 171.55' R = 833.00'	PIs Sta 26+50.02 Os = 4° 57' 08.4" Ls = 144.00' LT = 96.04' ST = 48.03'
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PIs Sta 31+03.64 Os = 1° 46' 13.4" Ls = 110.00' LT = 73.34' ST = 36.67'	PI Sta 35+41.13 Δ = 25° 22' 50.9" (LT) D = 3° 13' 07.9" L = 788.50' T = 400.83' R = 1,780.00'	PIs Sta 39+65.48 Os = 1° 46' 13.4" Ls = 110.00' LT = 73.34' ST = 36.67'
---	--	---

SEE SHEET 14 FOR -L- PROFILE  
SEE SHEET 22 FOR -DRI- PROFILE

1. ADDED PUE (8-14-2013)





**V&M**  
**Vaughn & Melton**  
 Consulting Engineers

Charlotte, North Carolina 704-357-0488  
 Tri-Cities, Tennessee 423-467-8401  
 Knoxville, Tennessee 865-546-5800  
 Middleboro, Kentucky 606-248-6600  
 Asheville, North Carolina 828-253-2196  
 Spartanburg, South Carolina 864-574-4775

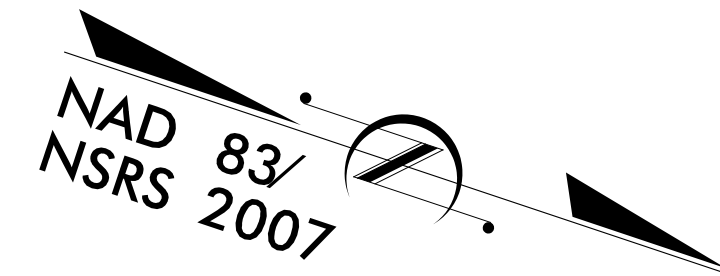
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PROJECT REFERENCE NO. R-3622B	SHEET NO. EC-7/CONST.7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CLEARING AND GRUBBING  
 EROSION CONTROL FOR  
 CONSTRUCTION SHEET 7

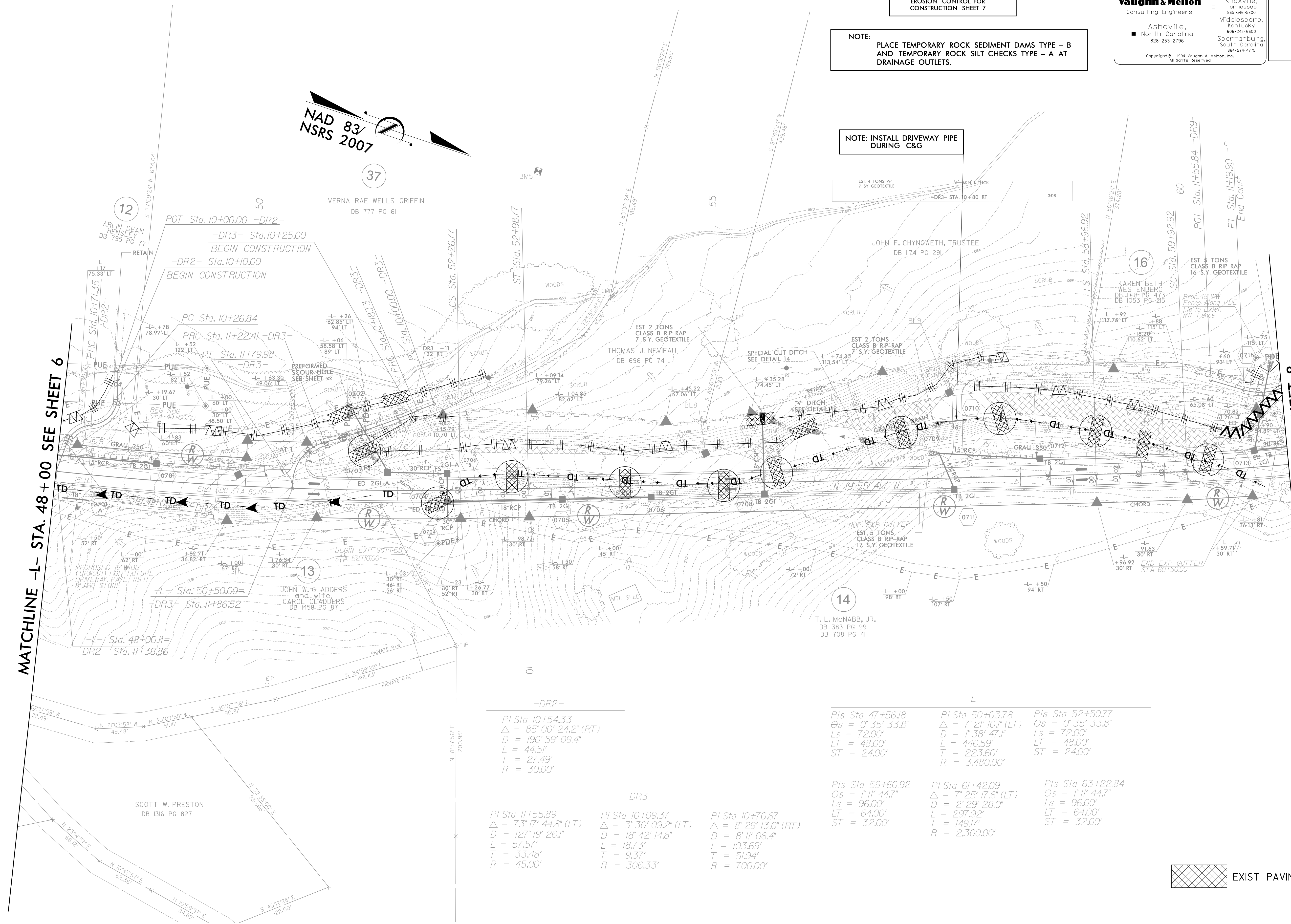
NOTE:  
 PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B  
 AND TEMPORARY ROCK SILT CHECKS TYPE - A AT  
 DRAINAGE OUTLETS.

NOTE: INSTALL DRIVEWAY PIPE  
 DURING C&G



MATCHLINE -L- STA. 48 + 00 SEE SHEET 6

MATCHLINE -L- STA. 61 + 00 SEE SHEET 8



-DR2-  
 PI Sta 10+54.33  
 $\Delta = 85^{\circ}00'24.2''$  (RT)  
 $D = 190^{\circ}59'09.4''$   
 $L = 44.51'$   
 $T = 27.49'$   
 $R = 30.00'$

-DR3-  

PI Sta 11+55.89 $\Delta = 73^{\circ}17'44.8''$ (LT) $D = 127^{\circ}19'26.1''$ $L = 57.57'$ $T = 33.48'$ $R = 45.00'$	PI Sta 10+09.37 $\Delta = 3^{\circ}30'09.2''$ (LT) $D = 18^{\circ}42'14.8''$ $L = 18.73'$ $T = 9.37'$ $R = 306.33'$	PI Sta 10+70.67 $\Delta = 8^{\circ}29'13.0''$ (RT) $D = 8^{\circ}11'06.4''$ $L = 103.69'$ $T = 51.94'$ $R = 700.00'$
--	--	---

-L-  

Pls Sta 47+56.18 $\Delta = 0^{\circ}35'33.8''$ $Ls = 72.00'$ $L = 48.00'$ $ST = 24.00'$	PI Sta 50+03.78 $\Delta = 7^{\circ}21'10.1''$ (LT) $D = 1^{\circ}38'47.1''$ $L = 446.59'$ $T = 223.60'$ $R = 3,480.00'$	Pls Sta 52+50.77 $\Delta = 0^{\circ}35'33.8''$ $Ls = 72.00'$ $L = 48.00'$ $ST = 24.00'$
---	--	---

-L-  

Pls Sta 59+60.92 $\Delta = 1^{\circ}11'44.7''$ $Ls = 96.00'$ $L = 64.00'$ $ST = 32.00'$	PI Sta 61+42.09 $\Delta = 7^{\circ}25'17.6''$ (LT) $D = 2^{\circ}29'28.0''$ $L = 297.92'$ $T = 149.17'$ $R = 2,300.00'$	Pls Sta 63+22.84 $\Delta = 1^{\circ}11'44.7''$ $Ls = 96.00'$ $L = 64.00'$ $ST = 32.00'$
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EXIST PAVING TO BE REMOVED

1. ADDED PUE (3-14-2013)

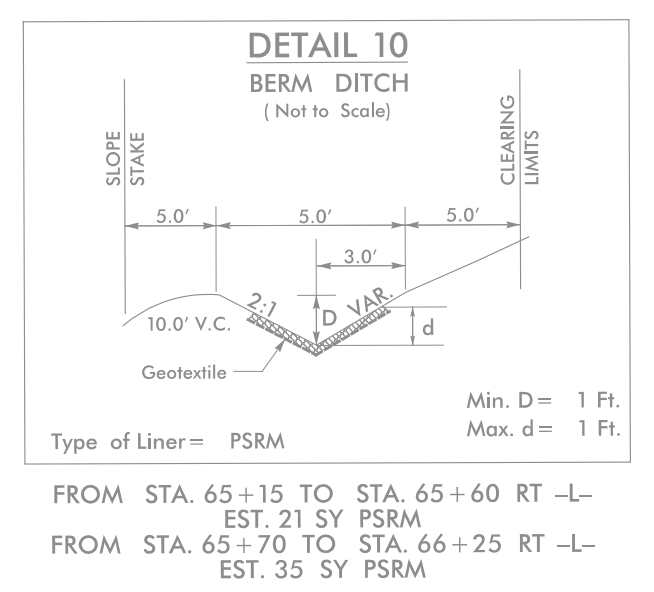
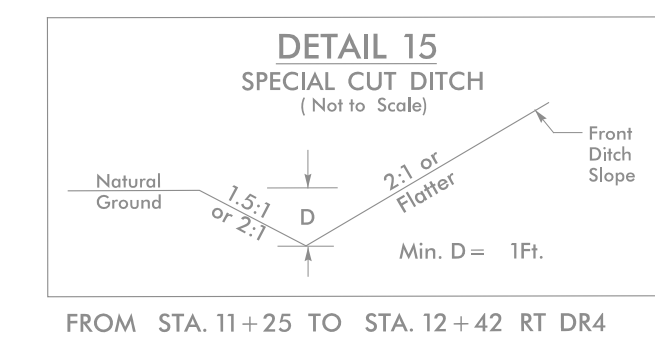
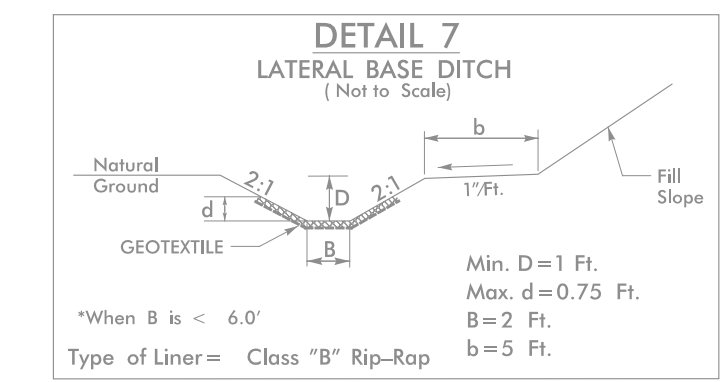
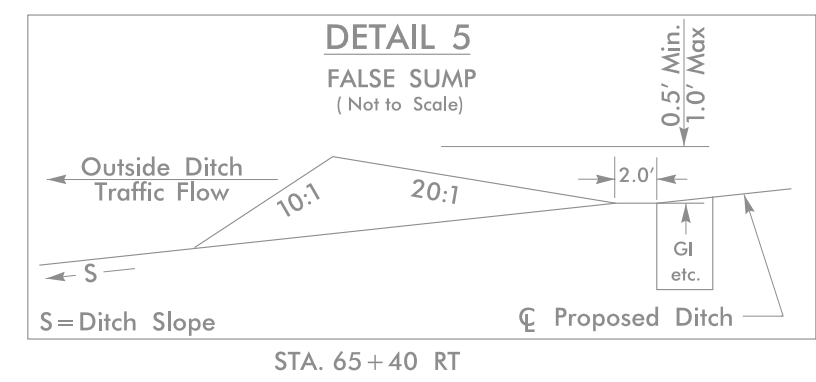
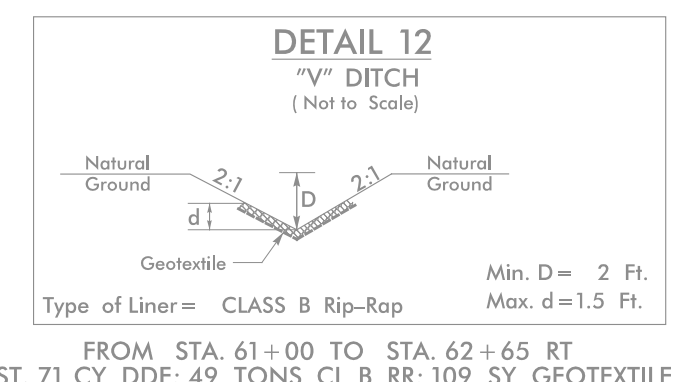


CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 8

NOTE:  
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B  
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT  
DRAINAGE OUTLETS.

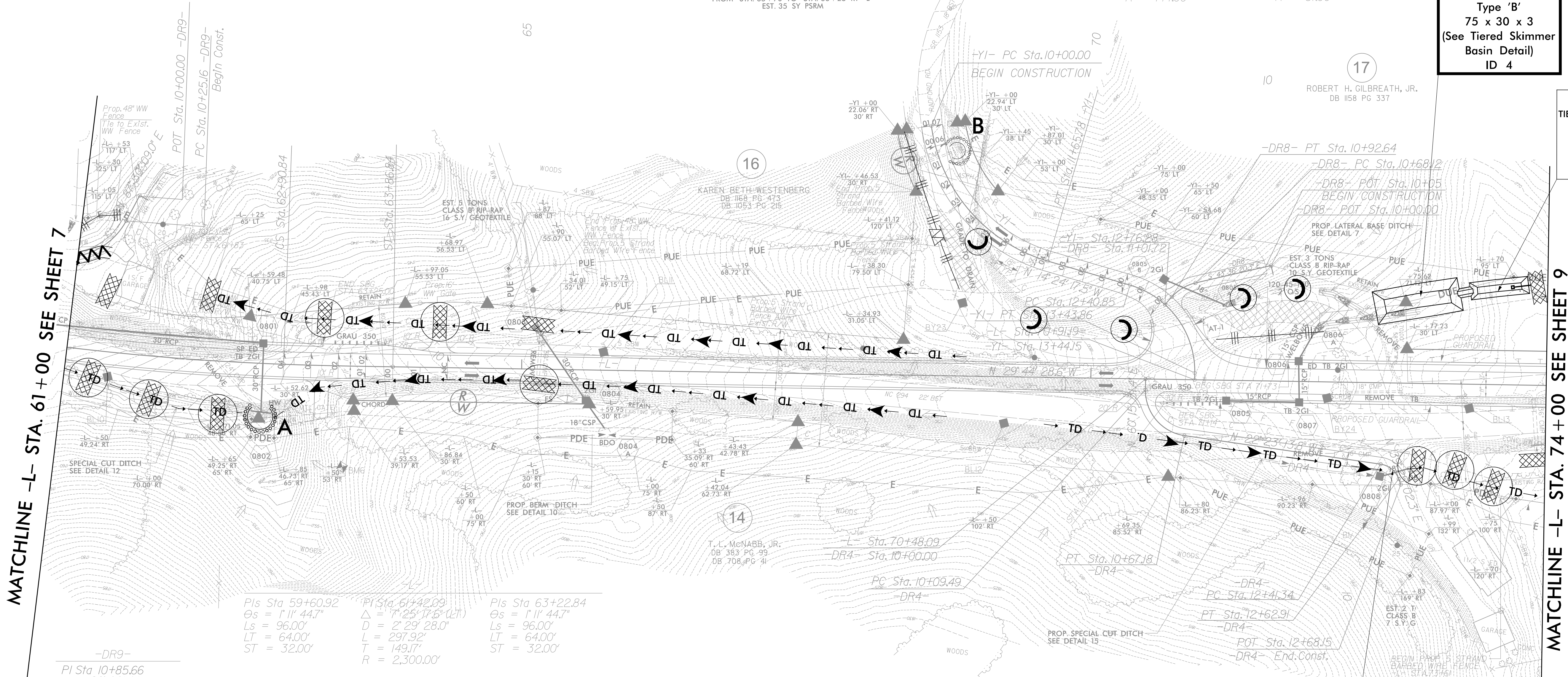
Modified Silt Basin  
Type 'B'  
75 x 30 x 3  
(See Tiered Skimmer  
Basin Detail)  
ID 4

50 X 15 X 3  
TIERED SKIMMER BASIN  
1.5 inch Skimmer  
with 0.625 inch  
Orifice Diameter  
12 ft. weir  
ID 5.



-YI-  
PI Sta 10+93.44  
 $\Delta = 65' 57'' 36.5''$  (LT)  
D = 39' 47'' 19.4"  
L = 165.78'  
T = 93.44'  
R = 144.00'

PI Sta 12+93.44  
 $\Delta = 66' 39'' 05.0''$  (RT)  
D = 70' 44'' 07.9"  
L = 94.23'  
T = 53.26'  
R = 81.00'



-DR9-	-DR4-	-DR8-
PI Sta 10+85.66 $\Delta = 90' 28'' 09.5''$ (RT) D = 95' 29'' 34.7" L = 94.74' T = 60.49' R = 60.00'	PI Sta 59+60.92 $\Delta = 1' 11'' 44.7''$ Ls = 96.00' LT = 64.00' ST = 32.00'	PI Sta 61+42.09 $\Delta = 7' 25'' 17.6''$ (LT) D = 2' 29'' 28.0" L = 297.92' T = 149.17' R = 2,300.00'

PI Sta 10+44.66 $\Delta = 82' 38'' 45.3''$ (LT) D = 143' 14'' 22.0" L = 57.70' T = 35.17' R = 40.00'	PI Sta 12+53.31 $\Delta = 61' 48'' 16.1''$ (RT) D = 286' 28'' 44.0" L = 21.57' T = 11.97' R = 20.00'	PI Sta 10+80.78 $\Delta = 35' 07'' 06.9''$ (LT) D = 143' 14'' 22.0" L = 24.52' T = 12.66' R = 40.00'
---	---	---

Sta. = 72+81 TO  
73+79 -L- LT  
Q<sub>s</sub> = 6.1 cfs  
V<sub>s</sub> = 6.4 cfs  
d = 0.4 ft.  
s = 0.109 ft./ft.  
n = 0.04  
DA = 3.3 ac.

NOTE: INSTALL DRIVEWAY PIPE  
DURING C&G

EXIST PAVING TO BE REMOVED

SEE SHEET 22 FOR -YI- PROFILE  
SEE SHEET 23 FOR -DR4- PROFILE  
SEE SHEET 17 FOR -L- PROFILE

8/17/99

1. ADDED PUE (3-14-2013)

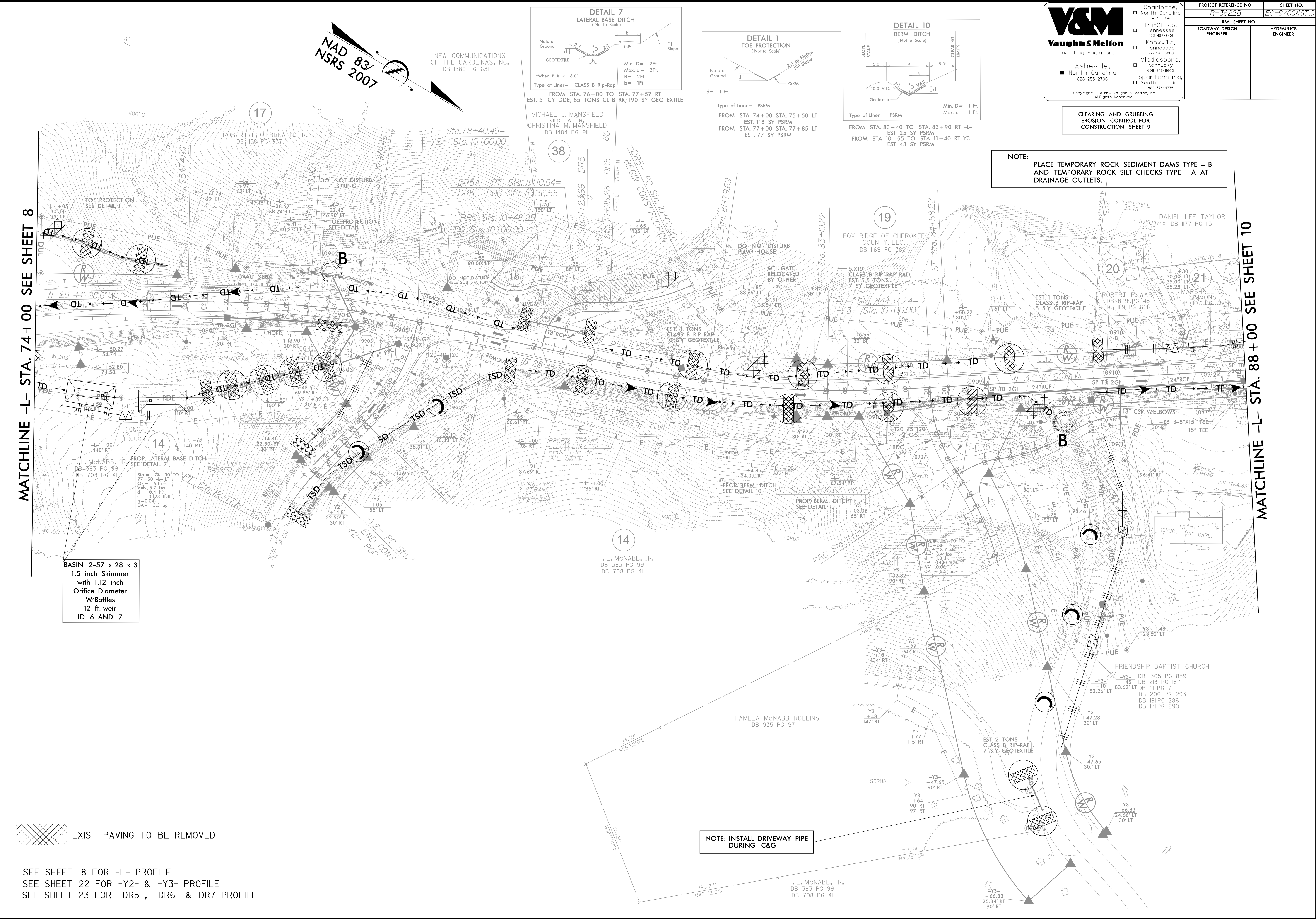
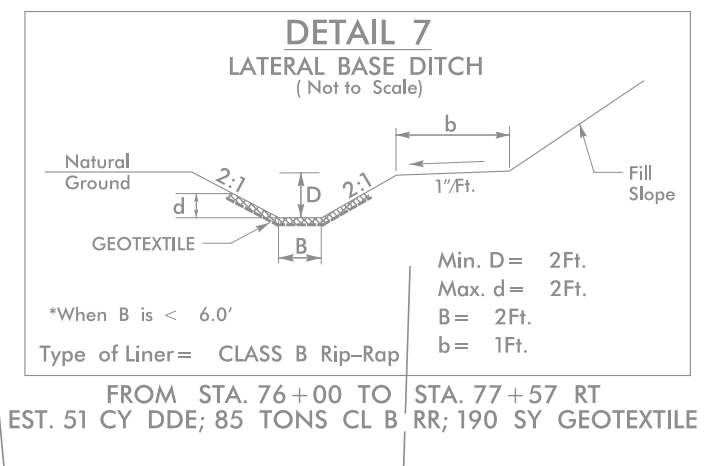
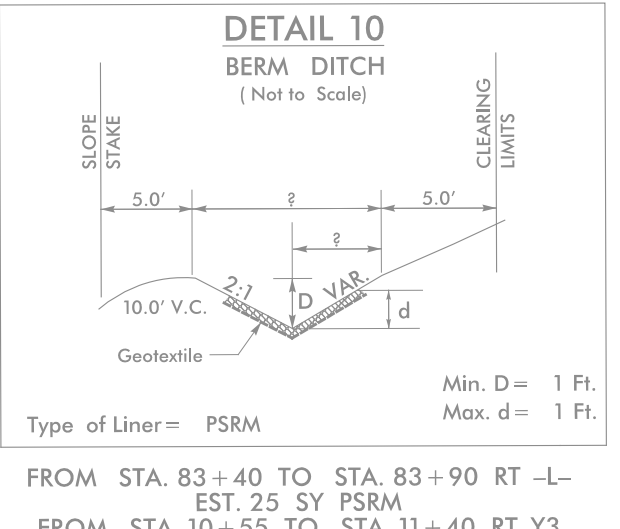
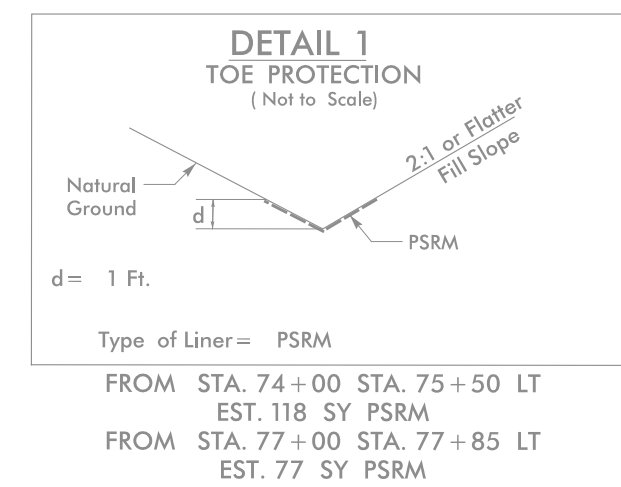
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BY \$\$\$\$\$\$  
CHECKED \$\$\$\$\$\$  
DATE TIME \$\$\$\$\$\$  
BY \$\$\$\$\$\$  
CHECKED \$\$\$\$\$\$



<p>Charlotte, North Carolina Tri-Cities, Tennessee Knoxville, Tennessee Middlesboro, Kentucky Asheville, North Carolina Spartanburg, South Carolina</p>	PROJECT REFERENCE NO. R-3622B	SHEET NO. EC-97/CONST.9
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 9**

**NOTE:**  
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.



8/17/99

I. ADDED PUE (3-14-2013)

\$\$\$ TIME \$\$\$  
\$\$\$ CONSTRUCTION \$\$\$  
\$\$\$ MAINTENANCE \$\$\$  
\$\$\$ OTHER \$\$\$

EXIST PAVING TO BE REMOVED  
 SEE SHEET 18 FOR -L- PROFILE  
 SEE SHEET 22 FOR -Y2- & -Y3- PROFILE  
 SEE SHEET 23 FOR -DR5-, -DR6- & DR7 PROFILE





8/17/99

# CULVERT CONSTRUCTION SEQUENCE PHASE 1 AND 2 STA. 96+65.44 -L-

### PHASE 1:

1. INSTALL PERIMETER EROSION CONTROL DEVICES PRIOR TO CONSTRUCTION AS SHOWN IN THE CLEAR AND GRUBBING PHASE.
2. SHIFT TRAFFIC TO ONE LANE, TWO WAY PATTERN ON THE DOWNSTREAM SIDE OF THE PROPOSED CULVERT.
3. EXTEND 60" CMP APPROXIMATELY 24 LF AND CONSTRUCT IMPERVIOUS DIKE A TO DIVERT THE STREAM AROUND THE CONSTRUCTION.
4. CONSTRUCT UPSTREAM SIDE OF CULVERT AND PROPOSED CHANNEL IMPROVEMENTS.
5. PLACE FLOWABLE FILL IN THE EAST BARREL OF THE EXISTING 60" CMP.
6. CONSTRUCT A PORTION OF THE PROPOSED ROADWAY SUFFICIENT TO ALLOW TRAFFIC THROUGH THE SITE AS DESCRIBED IN THE TRAFFIC CONTROL PHASING.

### PHASE 2:

1. SHIFT TRAFFIC TO ONE LANE, TWO WAY PATTERN ON THE UPSTREAM SIDE OF THE PROPOSED CULVERT.
2. CONSTRUCT DOWNSTREAM SIDE OF CULVERT AND ANY NECESSARY OUTLET CHANNEL IMPROVEMENTS.
3. CONSTRUCT A PORTION OF THE PROPOSED ROADWAY SUFFICIENT TO ALLOW TRAFFIC THROUGH THE SITE AS DESCRIBED IN THE TRAFFIC CONTROL PHASING.

### NOTES:

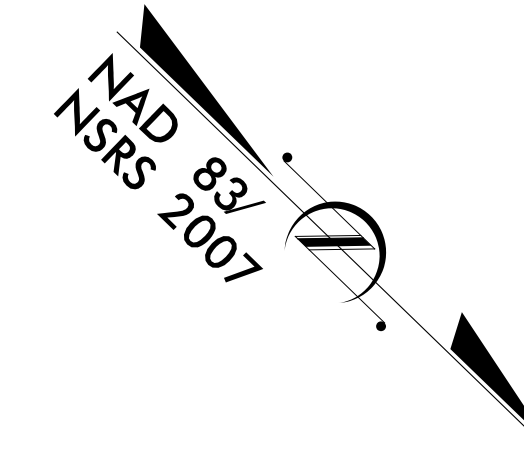
1. CULVERT CONSTRUCTION SHALL BE PERFORMED IN ONLY DRY OR ISOLATED SECTIONS OF CHANNEL.
2. IMPERVIOUS DIKES ARE TO BE USED TO ISOLATE WORK FROM STREAM FLOW AS NECESSARY.
3. ALL GRADED AREAS SHALL BE STABILIZED WITHIN 24 HOURS.
4. MAINTENANCE OF STREAM FLOW OPERATIONS SHALL BE INCIDENTAL TO THE WORK. THIS INCLUDES POLETHYLENE SHEETING, DIVERSION PIPES, PUMPS AND HOSES.
5. THE CONTRACTOR SHALL NOT PUMP SEDIMENT-LADEN WATER DIRECTLY INTO STREAM. FOR DE-WATERING OF CULVERT SITES, THE CONTRACTOR SHALL FILTER SEDIMENT-LADEN WATER THROUGH SPECIAL STILLING BASIN. LOCATION OF THE SPECIAL STILLING BASIN TO BE APPROVED BY THE ENGINEER.

Charlotte, North Carolina 704-357-0498  
 Tri-Cities, Tennessee 423-461-8401  
 Knoxville, Tennessee 865-546-5800  
 Middlesboro, Kentucky 606-248-6600  
 Spartanburg, South Carolina 864-574-4775

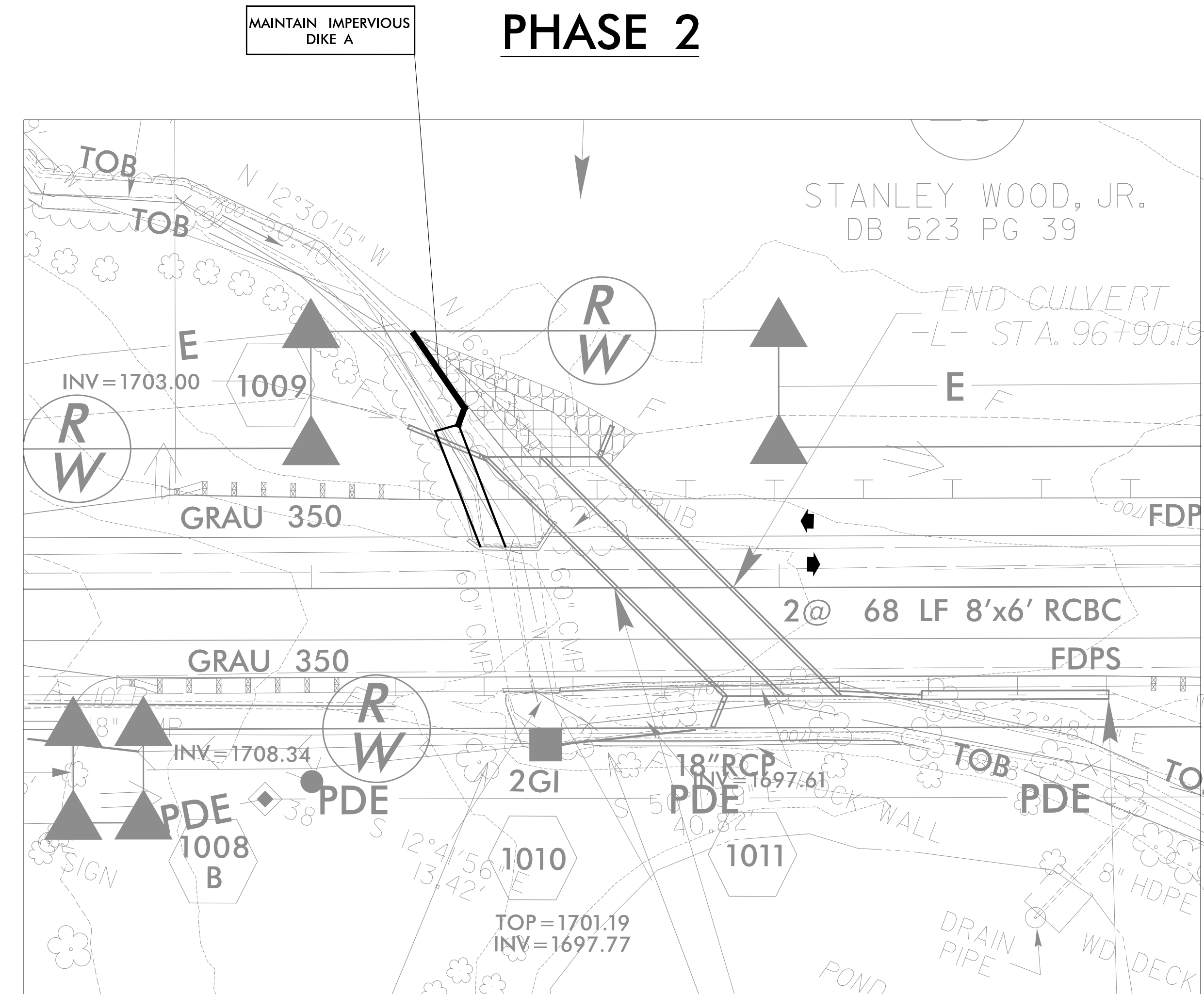
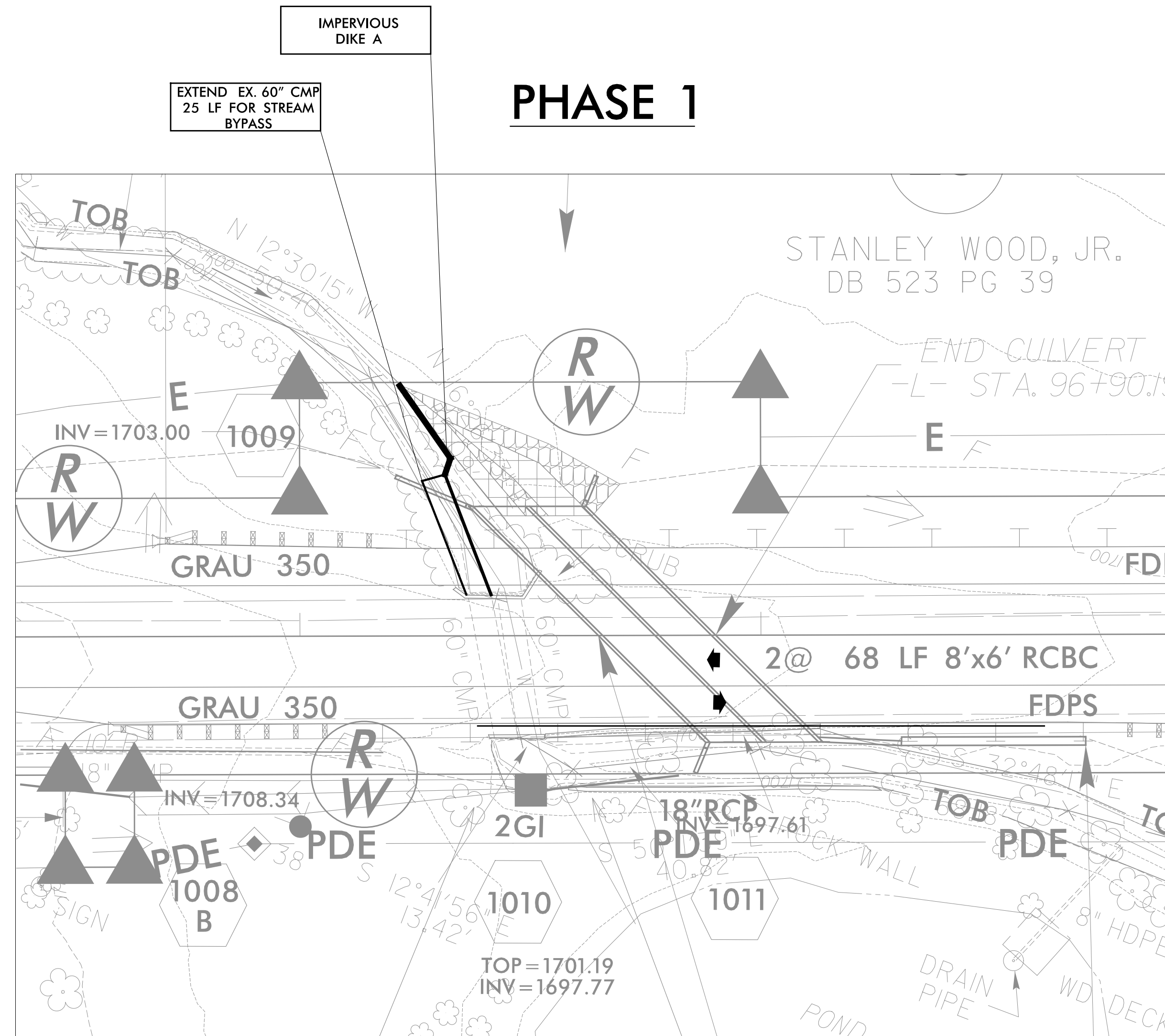
Asheville, North Carolina 828-253-2796

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PROJECT REFERENCE NO. R-3622B	SHEET NO. EC-II/CONST.10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



REVISIONS



SYSTEMS TIME \$\$\$\$\$\$  
\$\$\$\$\$ CULVERT \$\$\$\$\$\$  
\$\$\$\$\$ END \$\$\$\$\$\$

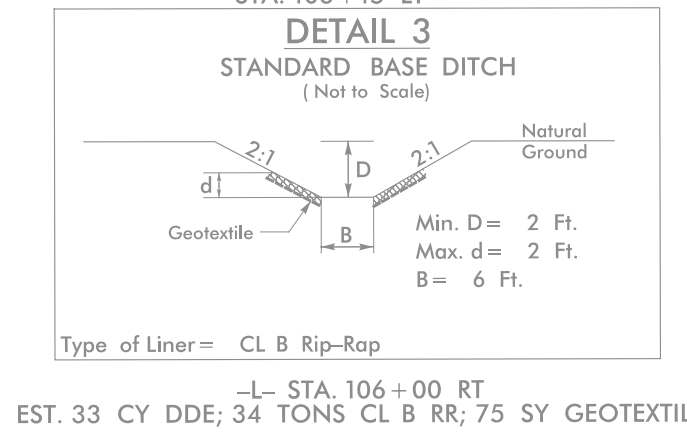
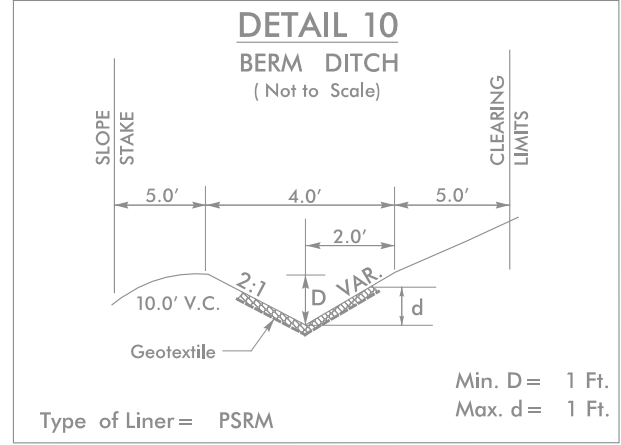
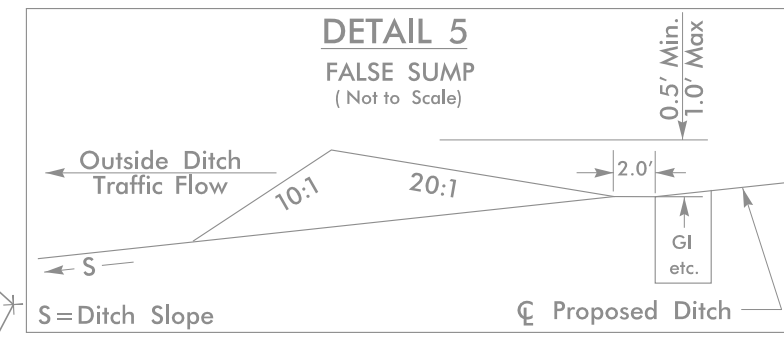
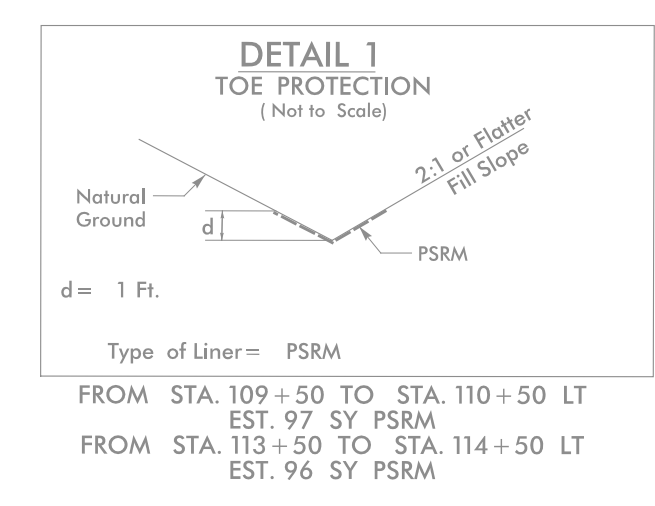
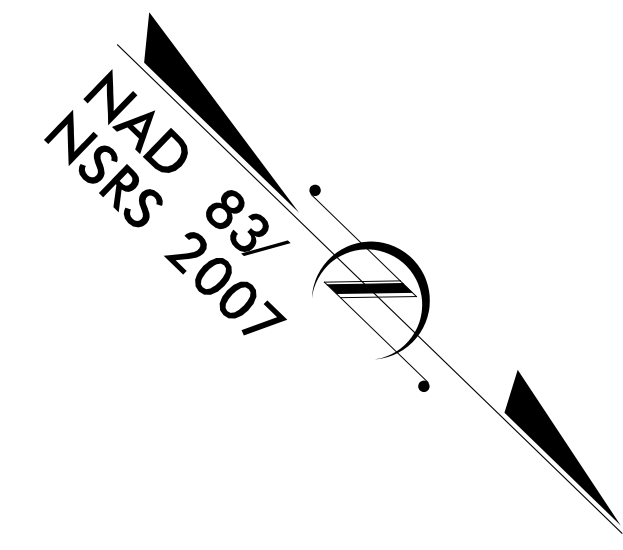






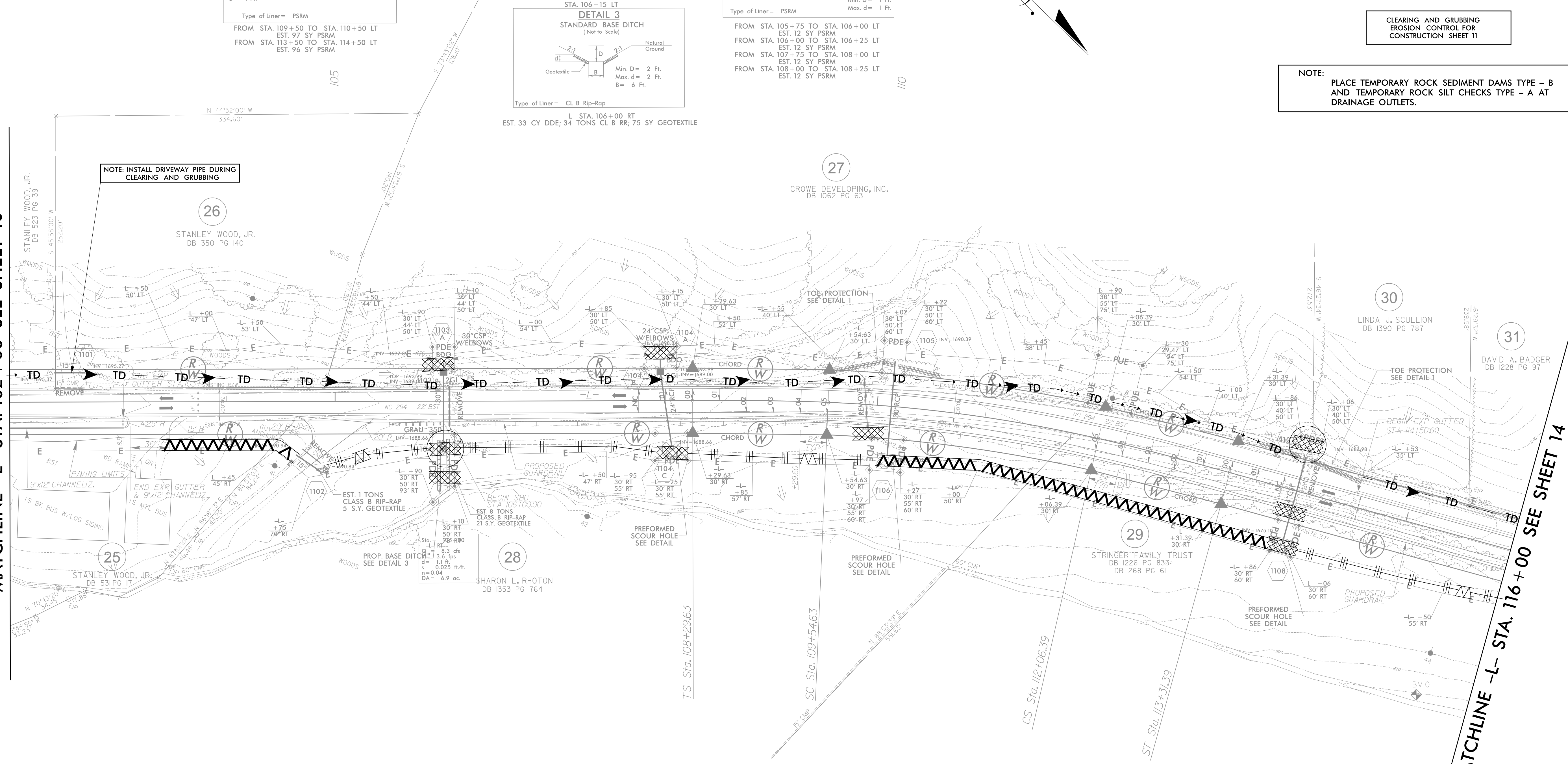
Charlotte, North Carolina 104-351-0488  
 Knoxville, Tennessee 423-467-8401  
 Middleboro, Kentucky 606-248-8600  
 Spartanburg, South Carolina 864-574-4775

PROJECT REFERENCE NO. R-3622B	SHEET NO. EC-13/CONST11
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



MATCHLINE -L- STA. 102+00 SEE SHEET 10

MATCHLINE -L- STA. 116+00 SEE SHEET 14



EXIST PAVING TO BE REMOVED

DATE PLOTTED: 11/11/11 10:58 AM





8/17/99

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Asheville, North Carolina  
 828-253-2796

Charlotte, North Carolina  
 104-357-0488

Tri-Cities, Tennessee  
 423-467-8401

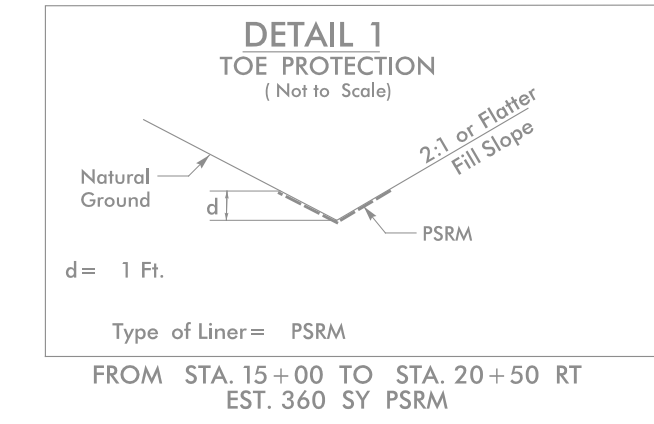
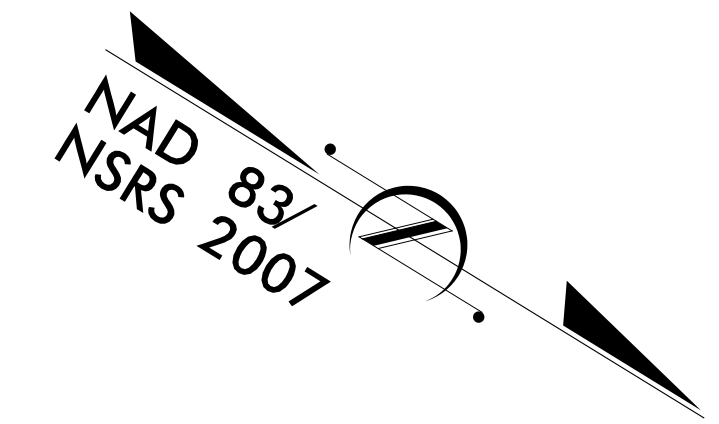
Knoxville, Tennessee  
 606-248-6600

Middlesboro, Kentucky  
 606-248-6600

Spartanburg, South Carolina  
 864-574-4775

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PROJECT REFERENCE NO. R-3622B	SHEET NO. EC-15/CONST-4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



Place Matting for Erosion Control  
 on Slope as Work Allows.  
 Sta. 11+50 - 21+00

REVISIONS



STA. 11+35.00  
 N TIP PROJECT R-3622B  
 - STA. 11+09.00  
 GIN CONSTRUCTION

NOTE: LIMIT CLEARING & GRUBBING TO  
 RW OR SLOPE LIMITS FOR PARCEL 2.

MATCHLINE -L- STA. 21+00 SEE SHEET 16

**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "SMOKEY" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 521488.4600(ft) EASTING: 448118.6300(ft) ELEVATION: 1807.451(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99979974

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "SMOKEY" TO -L- STATION 10+00.00 IS  
 S 20°05'53" E 5725.99'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
 VERTICAL DATUM USED IS NAVD 88

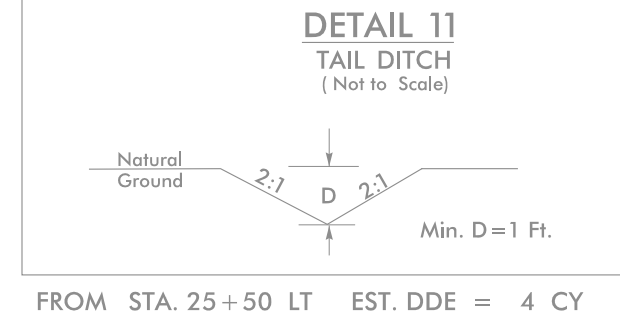
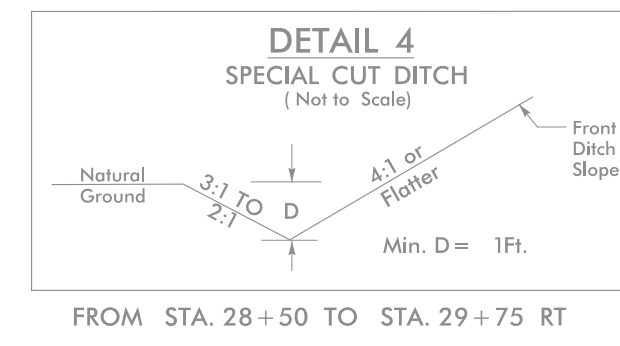
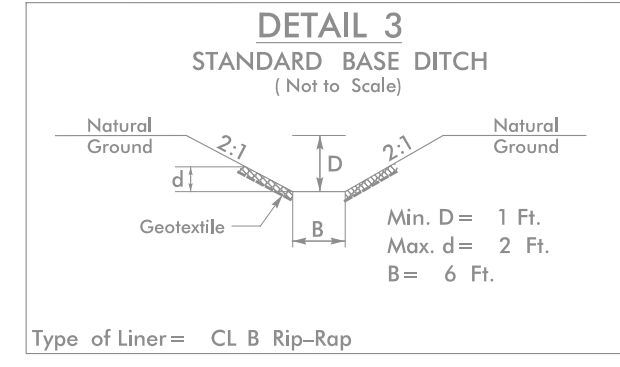
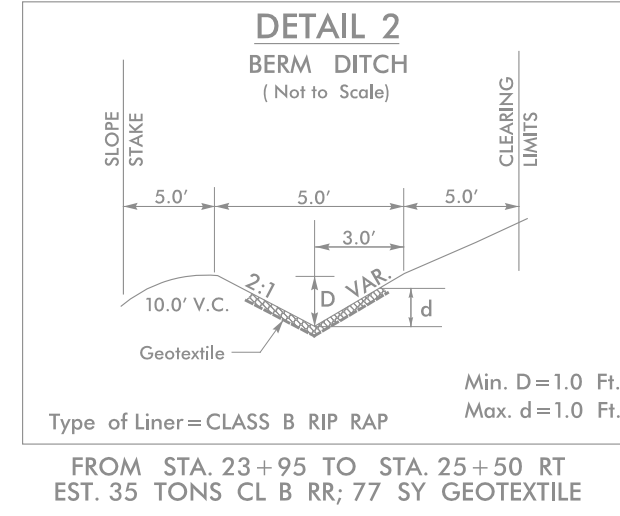
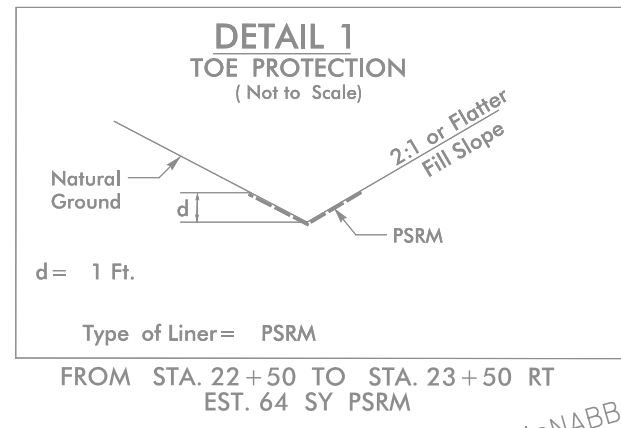
-L-

PI Sta 11+47.07 $\Theta_s = 4^\circ 57' 01.3"$ $L_s = 144.00'$ $LT = 96.04'$ $ST = 48.03'$	PI Sta 13+35.67 $\Delta = 19^\circ 09' 33.1" (RT)$ $D = 6^\circ 52' 31.8"$ $L = 278.66'$ $T = 140.64'$ $R = 833.33'$	PI Sta 15+21.73 $\Theta_s = 4^\circ 57' 01.3"$ $L_s = 144.00'$ $LT = 96.04'$ $ST = 48.03'$
--	---	--

1. ADDED PUE (3-14-2013)

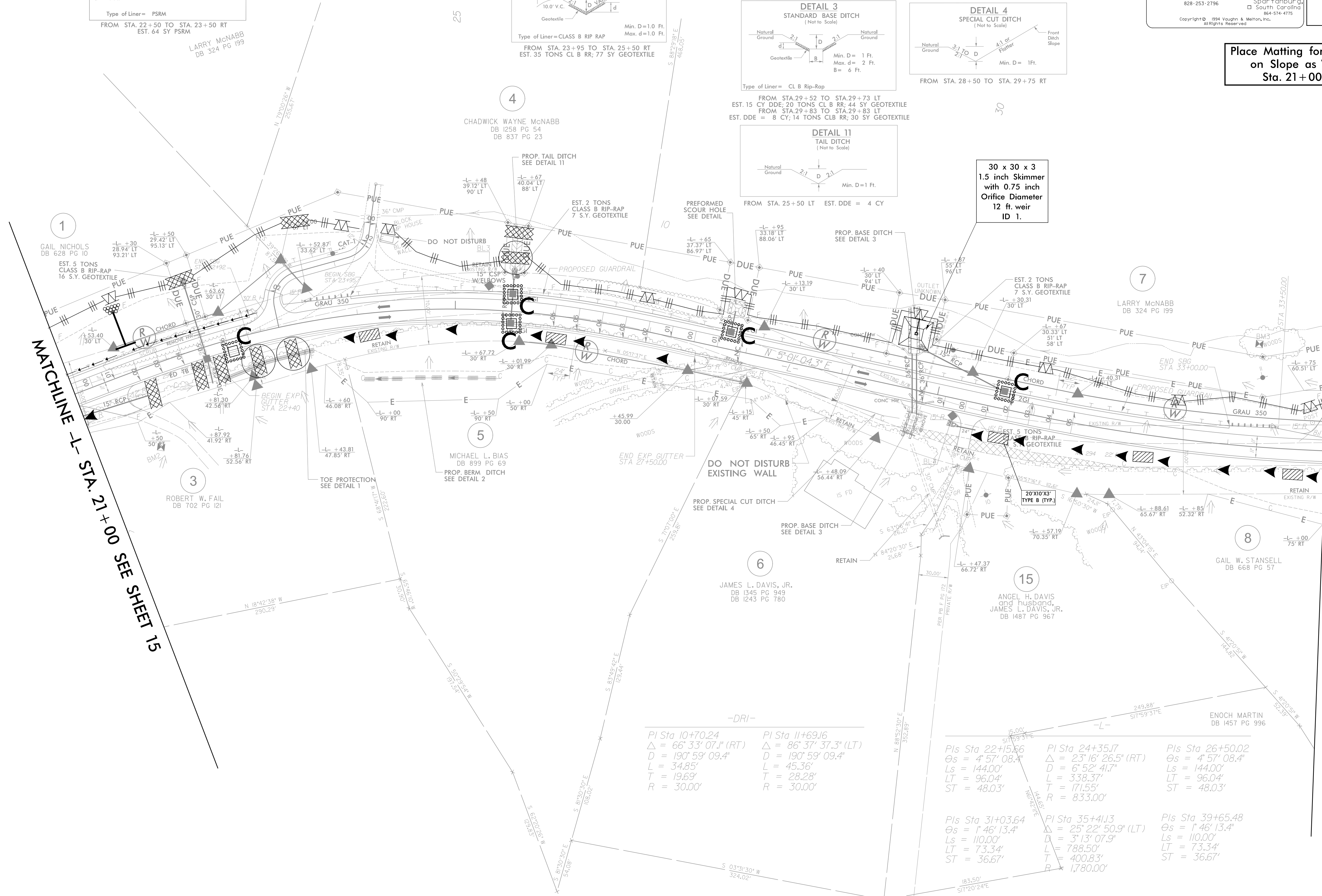


NAD 83/ NSRS 2007



Place Matting for Erosion Control on Slope as Work Allows.  
Sta. 21+00 - 34+00

30 x 30 x 3  
1.5 inch Skimmer  
with 0.75 inch  
Orifice Diameter  
12 ft. weir  
ID 1.



MATCHLINE -L- STA. 21+00 SEE SHEET 15

MATCHLINE -L- STA. 34+00 SEE SHEET 17

-DRI-

PI Sta 10+70.24 $\Delta = 66' 33'' 07.1''$ (RT) $D = 190' 59'' 09.4''$ $L = 34.85'$ $T = 19.69'$ $R = 30.00'$	PI Sta 11+69.16 $\Delta = 86' 37'' 37.3''$ (LT) $D = 190' 59'' 09.4''$ $L = 45.36'$ $T = 28.28'$ $R = 30.00'$	PIs Sta 22+15.66 $\Delta = 4' 57'' 08.4''$ $Ls = 144.00'$ $LT = 96.04'$ $ST = 48.03'$	PI Sta 24+35.17 $\Delta = 23' 16'' 26.5''$ (RT) $D = 6' 52'' 41.7''$ $L = 338.37'$ $T = 171.55'$ $R = 833.00'$	PIs Sta 26+50.02 $\Delta = 4' 57'' 08.4''$ $Ls = 144.00'$ $LT = 96.04'$ $ST = 48.03'$
PIs Sta 31+03.64 $\Delta = 1' 46'' 13.4''$ $Ls = 110.00'$ $LT = 73.34'$ $ST = 36.67'$	PI Sta 35+41.13 $\Delta = 25' 22'' 50.9''$ (LT) $D = 3' 13'' 07.9''$ $L = 788.50'$ $T = 400.83'$ $R = 1,780.00'$	PIs Sta 39+65.48 $\Delta = 1' 46'' 13.4''$ $Ls = 110.00'$ $LT = 73.34'$ $ST = 36.67'$		

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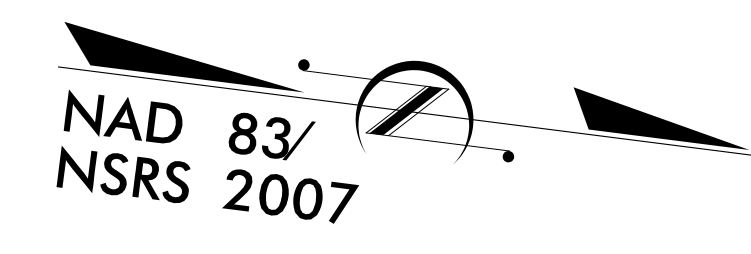
Charlotte, North Carolina 704-357-0488  
 Tri-Cities, Tennessee 423-467-8401  
 Knoxville, Tennessee 865-546-4800  
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PROJECT REFERENCE NO. R-3622B	SHEET NO. EC-17/CONST.6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Place Matting for Erosion Control  
 on Slope as Work Allows.  
 Sta. 34+00 - 48+00

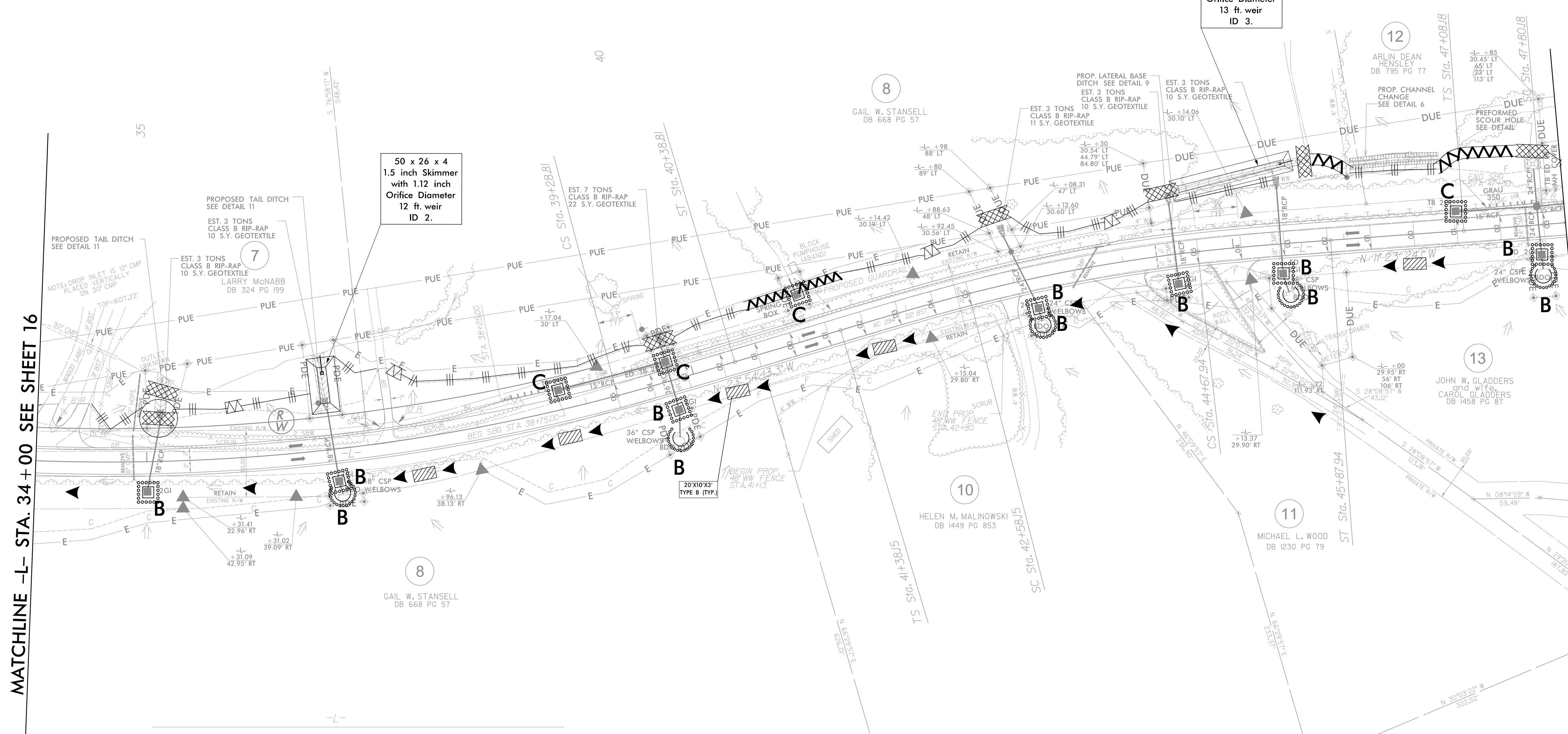


110 x 20 x 3  
 1.5 inch Skimmer  
 with 1.12 inch  
 Orifice Diameter  
 13 ft. weir  
 ID 3.

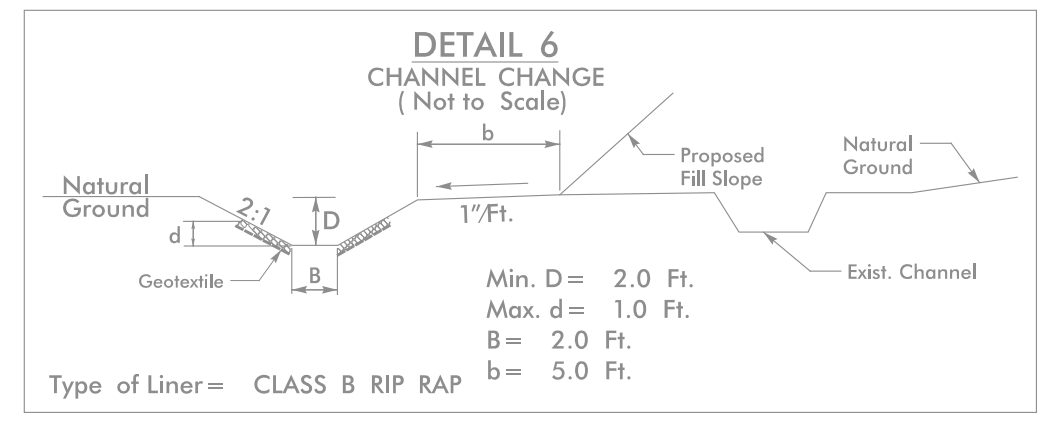
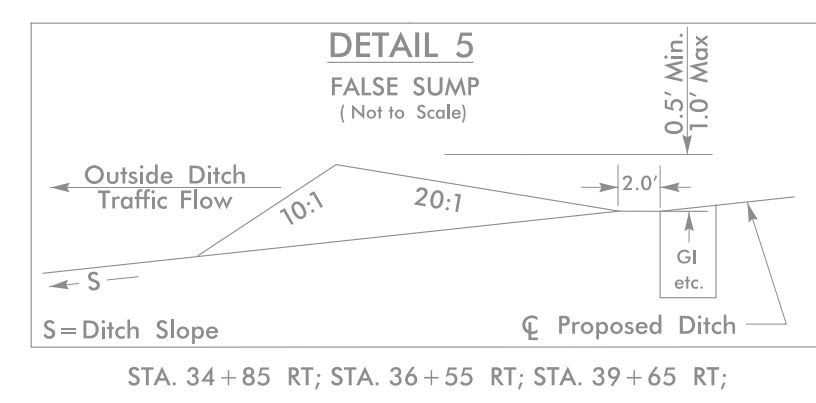
50 x 26 x 4  
 1.5 inch Skimmer  
 with 1.12 inch  
 Orifice Diameter  
 12 ft. weir  
 ID 2.

MATCHLINE -L- STA. 34+00 SEE SHEET 16

MATCHLINE -L- STA. 48+00 SEE SHEET 18



Pls Sta 31+03.64 Θs = 1° 46' 13.4" Ls = 110.00' LT = 73.34' T = 400.83' ST = 36.67'	Pls Sta 35+41.13 Δ = 25° 22' 50.9" (LT) D = 3' 13' 07.9" L = 788.50' T = 105.06' R = 1,780.00'	Pls Sta 39+65.48 Θs = 1° 46' 13.4" Ls = 110.00' LT = 73.34' T = 400.83' ST = 36.67'
Pls Sta 42+18.15 Θs = 2° 16' 36.0" Ls = 120.00' LT = 80.01' ST = 40.01'	Pls Sta 43+63.21 Δ = 7° 57' 37.3" (RT) D = 3' 47' 39.9" L = 209.79' T = 105.06' R = 1,510.00'	Pls Sta 45+07.94 Θs = 2° 16' 36.0" Ls = 120.00' LT = 80.01' ST = 40.01'
Pls Sta 47+56.18 Θs = 0° 35' 33.8" Ls = 72.00' LT = 48.00' ST = 24.00'	Pls Sta 50+03.78 Δ = 7° 21' 10.1" (LT) D = 1' 38' 47.1" L = 446.59' T = 223.60' R = 3,480.00'	Pls Sta 52+50.77 Θs = 0° 35' 33.8" Ls = 72.00' LT = 48.00' ST = 24.00'

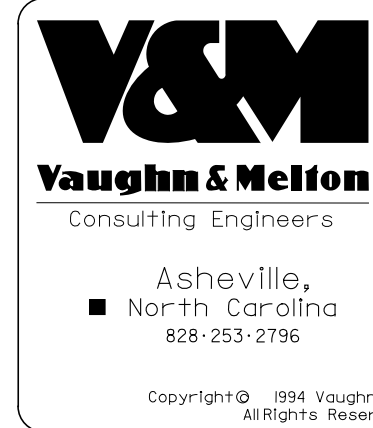


1. ADDED PUE (3-14-2013)

SEE SHEET 15 FOR -L- PROFILE







Charlotte,  
North Carolina  
704-357-0489

Tri-Cities,  
Tennessee  
423-467-8401

Knoxville,  
Tennessee  
865-546-5800

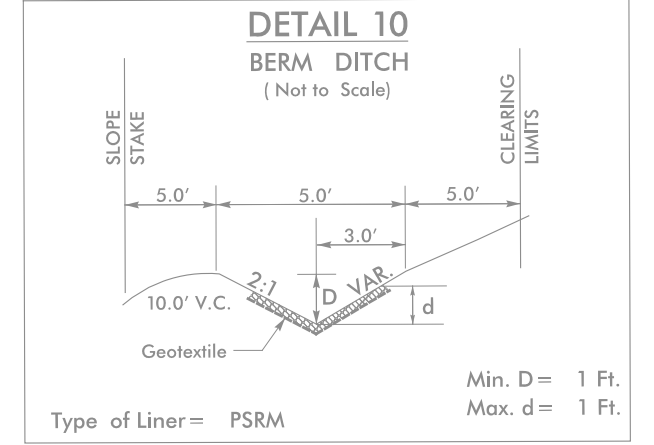
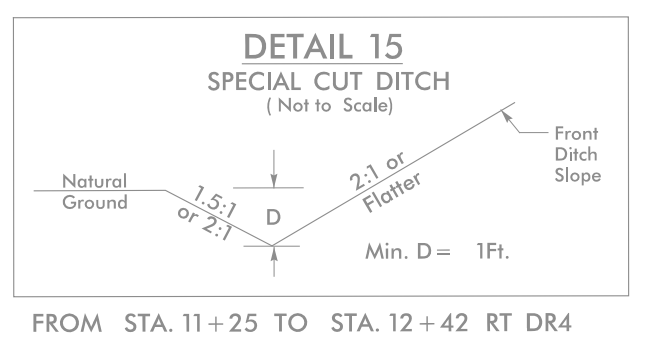
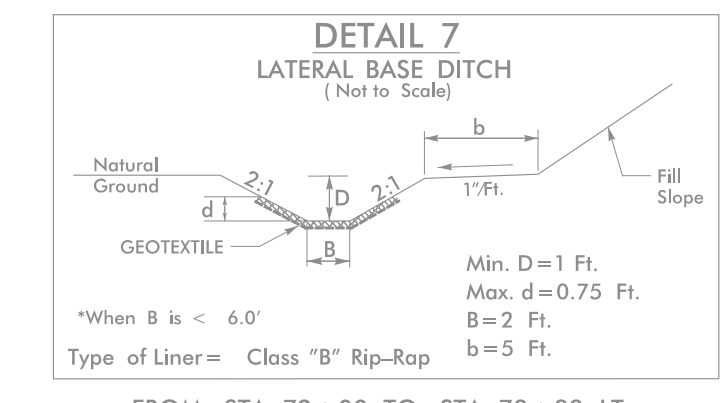
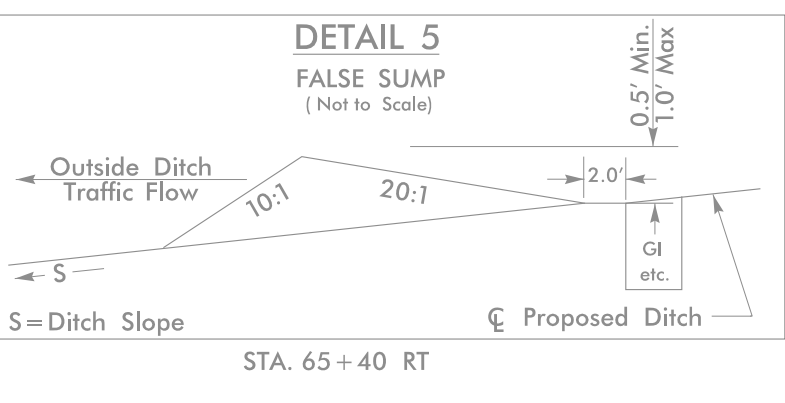
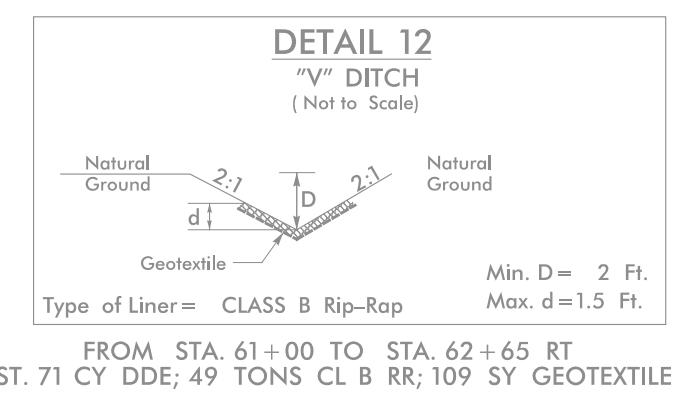
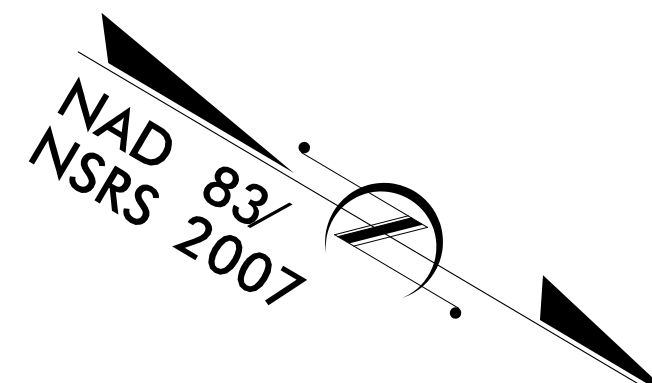
Middlesboro,  
Kentucky  
606-248-1600

Spartanburg,  
South Carolina  
864-574-4775

Asheville,  
North Carolina  
828-253-2796

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PROJECT REFERENCE NO. R-3622B	SHEET NO. EC-19/CONSTR
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



-YI-

PI Sta 10+93.44	PI Sta 12+93.44
Δ = 65° 57' 36.5" (LT)	Δ = 66° 39' 05.0" (RT)
D = 39° 47' 19.4"	D = 70° 44' 07.9"
L = 165.78'	L = 94.23'
T = 93.44'	T = 53.26'
R = 144.00'	R = 81.00'

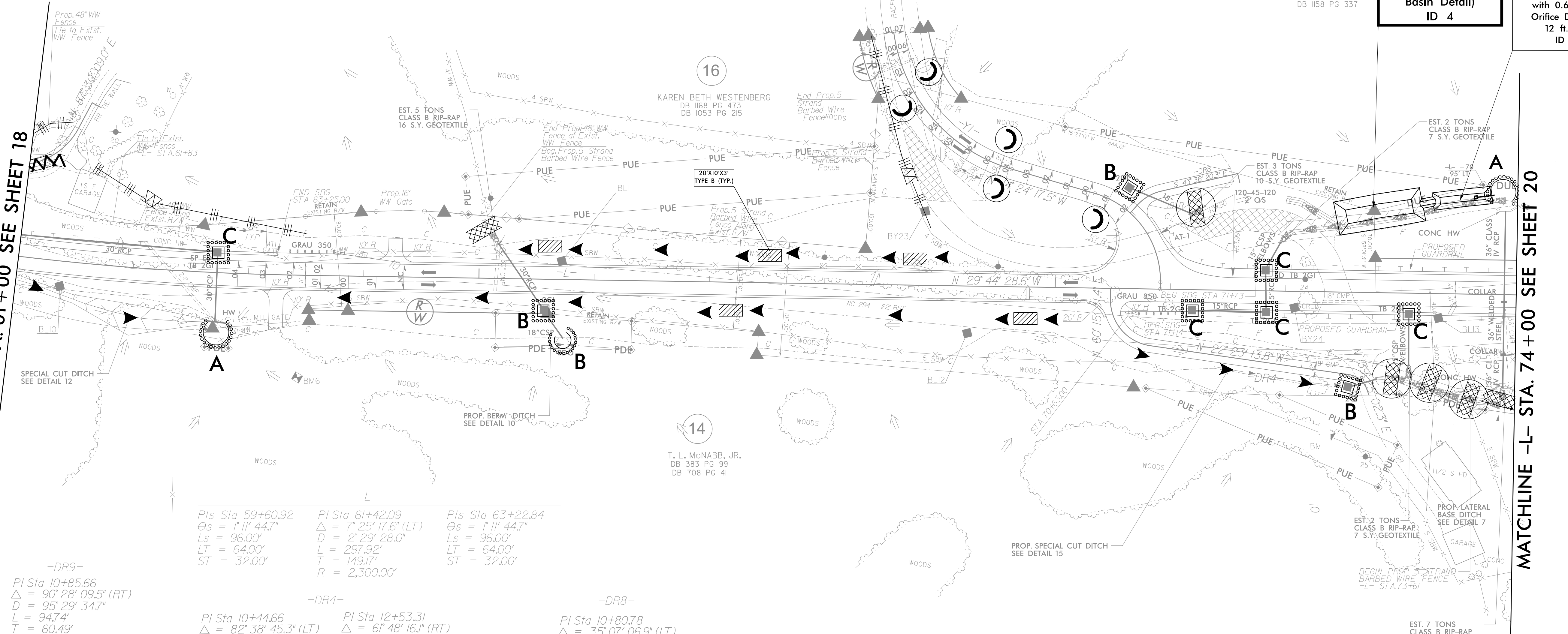
Place Matting for Erosion Control on Slope as Work Allows.  
Sta. 61+00 - 74+00

Modified Silt Basin  
Type 'B'  
75 x 30 x 3  
(See Tiered Skimmer Basin Detail)  
ID 4

50 X 15 X 3  
TIERED SKIMMER BASIN  
1.5 inch Skimmer  
with 0.625 inch  
Orifice Diameter  
12 ft. weir  
ID 5.

MATCHLINE -L- STA. 61+00 SEE SHEET 18

MATCHLINE -L- STA. 74+00 SEE SHEET 20



-L-

PIs Sta 59+60.92	PI Sta 61+42.09	PIs Sta 63+22.84
Θs = 1° 11' 44.7"	Δ = 7° 25' 17.6" (LT)	Θs = 1° 11' 44.7"
Ls = 96.00'	D = 2° 29' 28.0"	Ls = 96.00'
LT = 64.00'	L = 297.92'	LT = 64.00'
ST = 32.00'	T = 149.17'	ST = 32.00'
	R = 2,300.00'	

-DR4-

PI Sta 10+44.66	PI Sta 12+53.31
Δ = 82° 38' 45.3" (LT)	Δ = 61° 48' 16.1" (RT)
D = 143° 14' 22.0"	D = 286° 28' 44.0"
L = 57.70'	L = 21.57'
T = 35.17'	T = 11.97'
R = 40.00'	R = 20.00'

-DR8-

PI Sta 10+80.78
Δ = 35° 07' 06.9" (LT)
D = 143° 14' 22.0"
L = 24.52'
T = 12.66'
R = 40.00'

-DR9-

PI Sta 10+85.66
Δ = 90° 28' 09.5" (RT)
D = 95° 29' 34.7"
L = 94.74'
T = 60.49'
R = 60.00'

EXIST PAVING TO BE REMOVED

SEE SHEET 22 FOR -YI- PROFILE  
SEE SHEET 23 FOR -DR4- PROFILE  
SEE SHEET 17 FOR -L- PROFILE

8/17/99

1. ADDED PUE (3-14-2013)

VS TIME 5:43 PM 3/14/2013

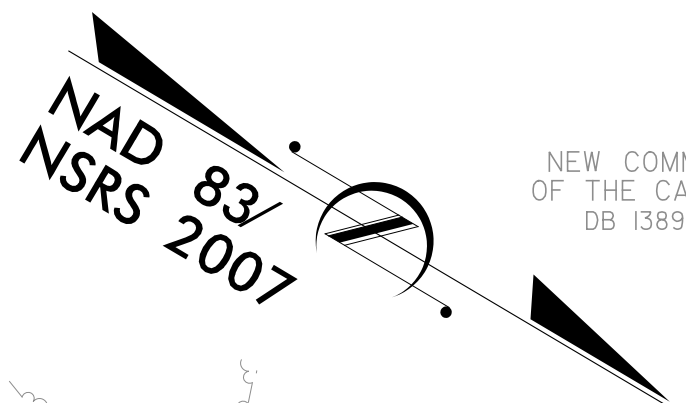
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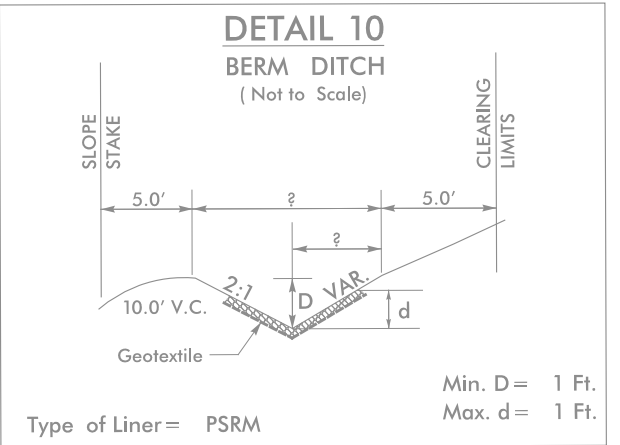
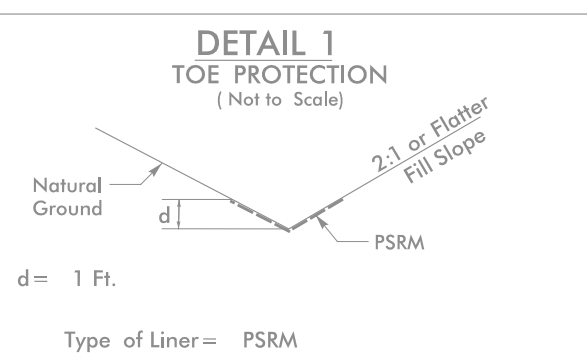
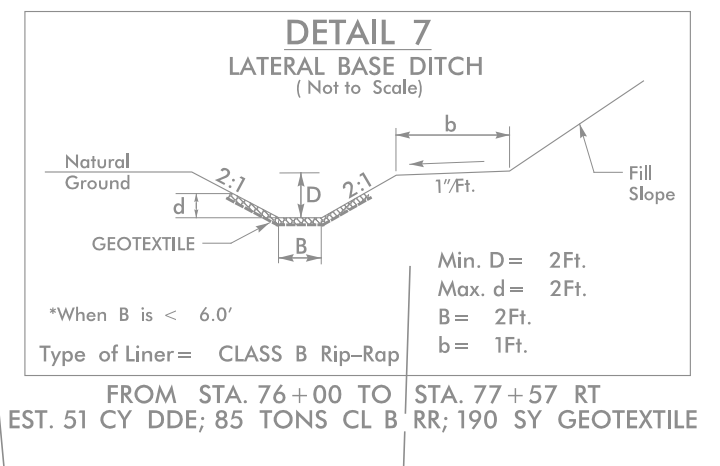
For Slopes Excavated Greater Than 10 feet  
 Install Matting for Erosion Control on  
 Entire Slope as Work Allows.

Place Matting for Erosion Control  
 on Slope as Work Allows.  
 Sta. 74+00 - 88+00

8/17/99

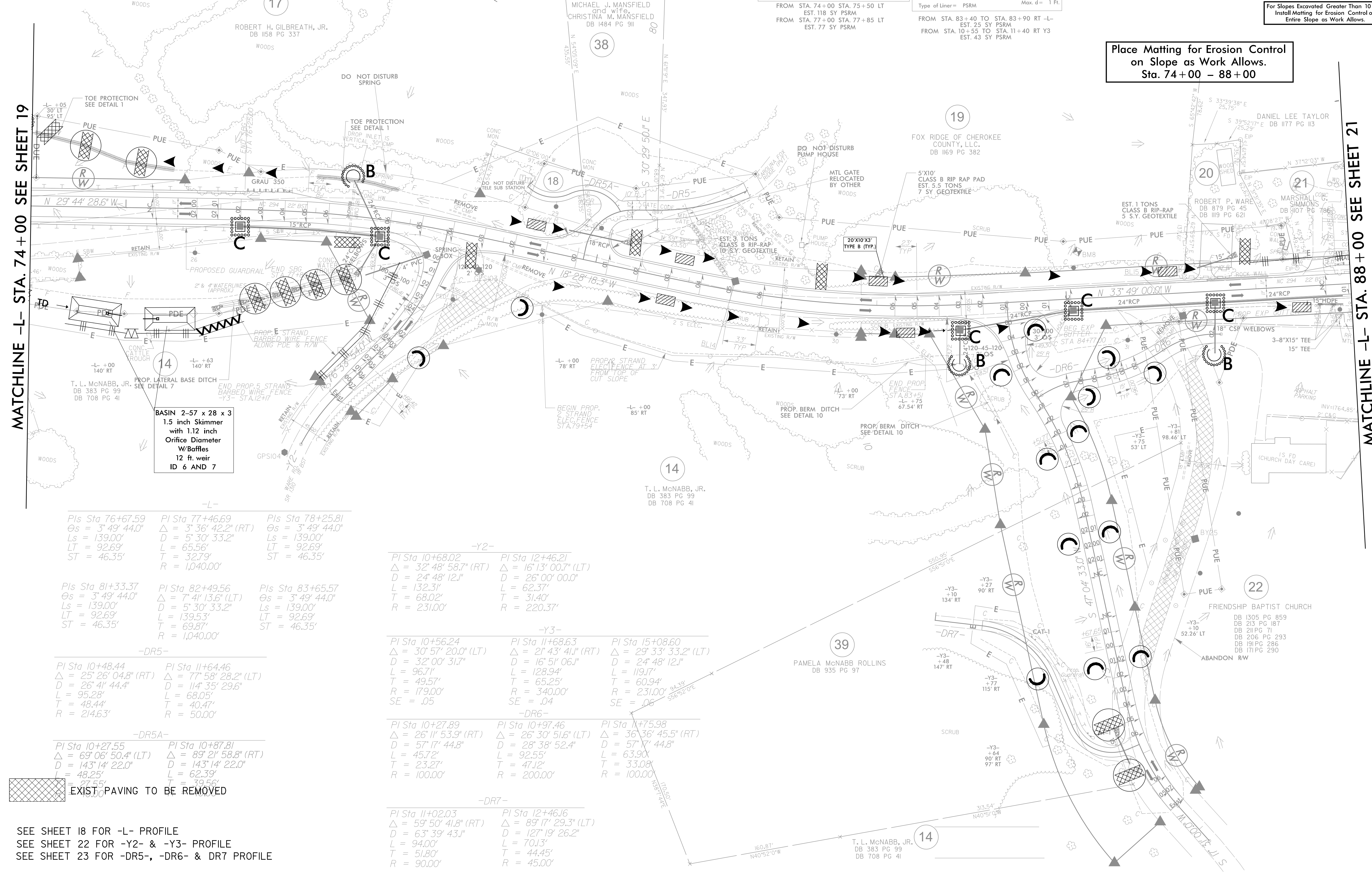


NEW COMMUNICATIONS OF THE CAROLINAS, INC.  
 DB 1389 PG 631



MATCHLINE -L- STA. 74+00 SEE SHEET 19

MATCHLINE -L- STA. 88+00 SEE SHEET 21



**BASIN 2-57 x 28 x 3**  
 1.5 inch Skimmer  
 with 1.12 inch  
 Orifice Diameter  
 W/Baffles  
 12 ft. weir  
 ID 6 AND 7

-L-

Pls Sta 76+67.59	Pls Sta 77+46.69	Pls Sta 78+25.81
Os = 3' 49' 44.0"	Δ = 3' 36' 42.2" (RT)	Os = 3' 49' 44.0"
Ls = 139.00'	D = 5' 30' 33.2"	Ls = 139.00'
LT = 92.69'	L = 65.56'	LT = 92.69'
ST = 46.35'	T = 32.79'	ST = 46.35'
	R = 1,040.00'	

Pls Sta 81+33.37	Pls Sta 82+49.56	Pls Sta 83+65.57
Os = 3' 49' 44.0"	Δ = 7' 41' 13.6" (LT)	Os = 3' 49' 44.0"
Ls = 139.00'	D = 5' 30' 33.2"	Ls = 139.00'
LT = 92.69'	L = 139.53'	LT = 92.69'
ST = 46.35'	T = 69.87'	ST = 46.35'
	R = 1,040.00'	

-DR5-

PI Sta 10+48.44	PI Sta 11+64.46
Δ = 25' 26' 04.8" (RT)	Δ = 77' 58' 28.2" (LT)
D = 26' 41' 44.4"	D = 114' 35' 29.6"
L = 95.28'	L = 68.05'
T = 48.44'	T = 40.47'
R = 214.63'	R = 50.00'

-DR5A-

PI Sta 10+27.55	PI Sta 10+87.81
Δ = 69' 06' 50.4" (LT)	Δ = 89' 21' 58.8" (RT)
D = 143' 14' 22.0"	D = 143' 14' 22.0"
L = 48.25'	L = 62.39'
T = 27.55'	T = 39.56'
R = 193.00'	R = 193.00'

-Y2-

PI Sta 10+68.02	PI Sta 12+46.21
Δ = 32' 48' 58.7" (RT)	Δ = 16' 13' 00.7" (LT)
D = 24' 48' 12.1"	D = 26' 00' 00.0"
L = 132.31'	L = 62.37'
T = 68.02'	T = 31.40'
R = 231.00'	R = 220.37'

-Y3-

PI Sta 10+56.24	PI Sta 11+68.63	PI Sta 15+08.60
Δ = 30' 57' 20.0" (LT)	Δ = 21' 43' 41.1" (RT)	Δ = 29' 33' 33.2" (LT)
D = 32' 00' 31.7"	D = 16' 51' 06.1"	D = 24' 48' 12.1"
L = 96.71'	L = 128.94'	L = 119.17'
T = 49.57'	T = 65.25'	T = 60.94'
R = 179.00'	R = 340.00'	R = 231.00'
SE = .05	SE = .04	SE = .06

-DR6-

PI Sta 10+27.89	PI Sta 10+97.46	PI Sta 11+75.98
Δ = 26' 11' 53.9" (RT)	Δ = 26' 30' 51.6" (LT)	Δ = 36' 36' 45.5" (RT)
D = 57' 17' 44.8"	D = 28' 38' 52.4"	D = 57' 7' 44.8"
L = 45.72'	L = 92.55'	L = 63.90'
T = 23.27'	T = 47.12'	T = 33.08'
R = 100.00'	R = 200.00'	R = 100.00'

-DR7-

PI Sta 11+02.03	PI Sta 12+46.16
Δ = 59' 50' 41.8" (RT)	Δ = 89' 17' 29.3" (LT)
D = 63' 39' 43.1"	D = 127' 19' 26.2"
L = 94.00'	L = 70.13'
T = 51.80'	T = 44.45'
R = 90.00'	R = 45.00'

EXIST PAVING TO BE REMOVED

SEE SHEET 18 FOR -L- PROFILE  
 SEE SHEET 22 FOR -Y2- & -Y3- PROFILE  
 SEE SHEET 23 FOR -DR5-, -DR6- & DR7 PROFILE

1. ADDED PUE (3-14-2013)



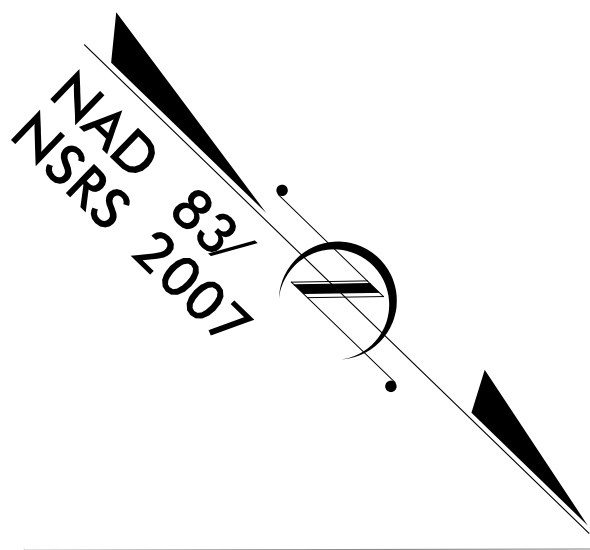
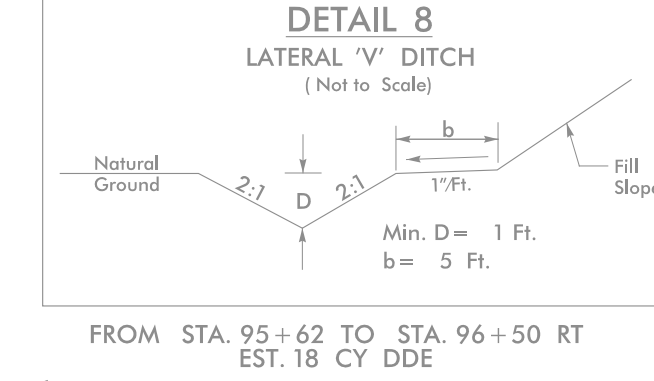
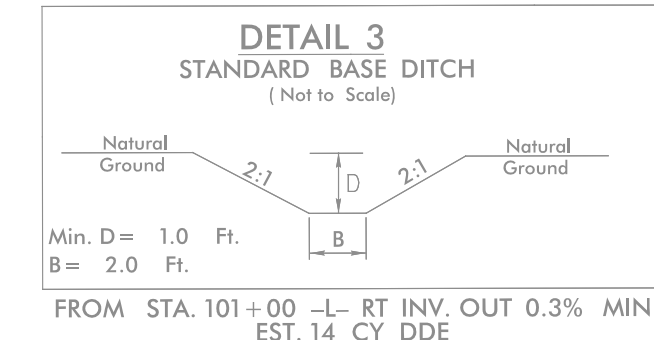
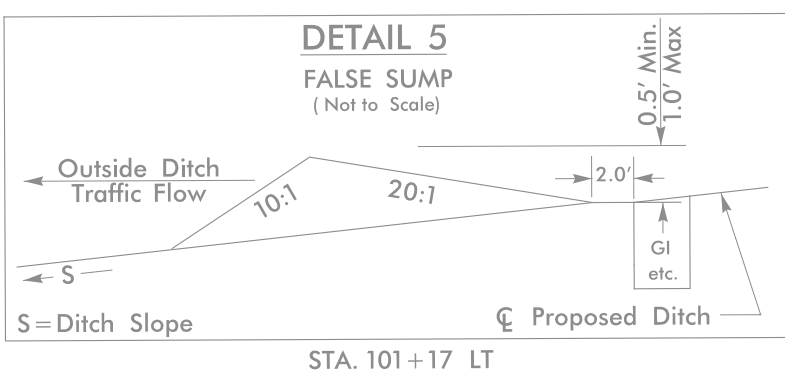
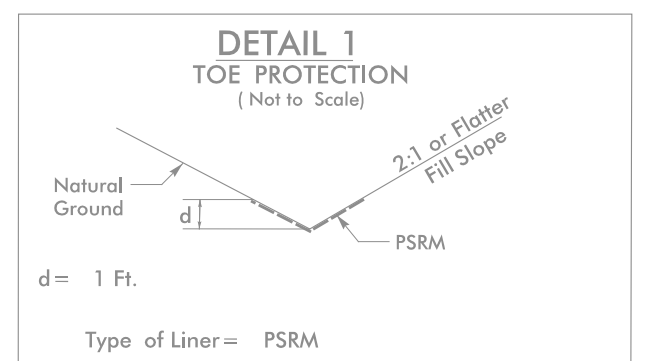
8/17/99

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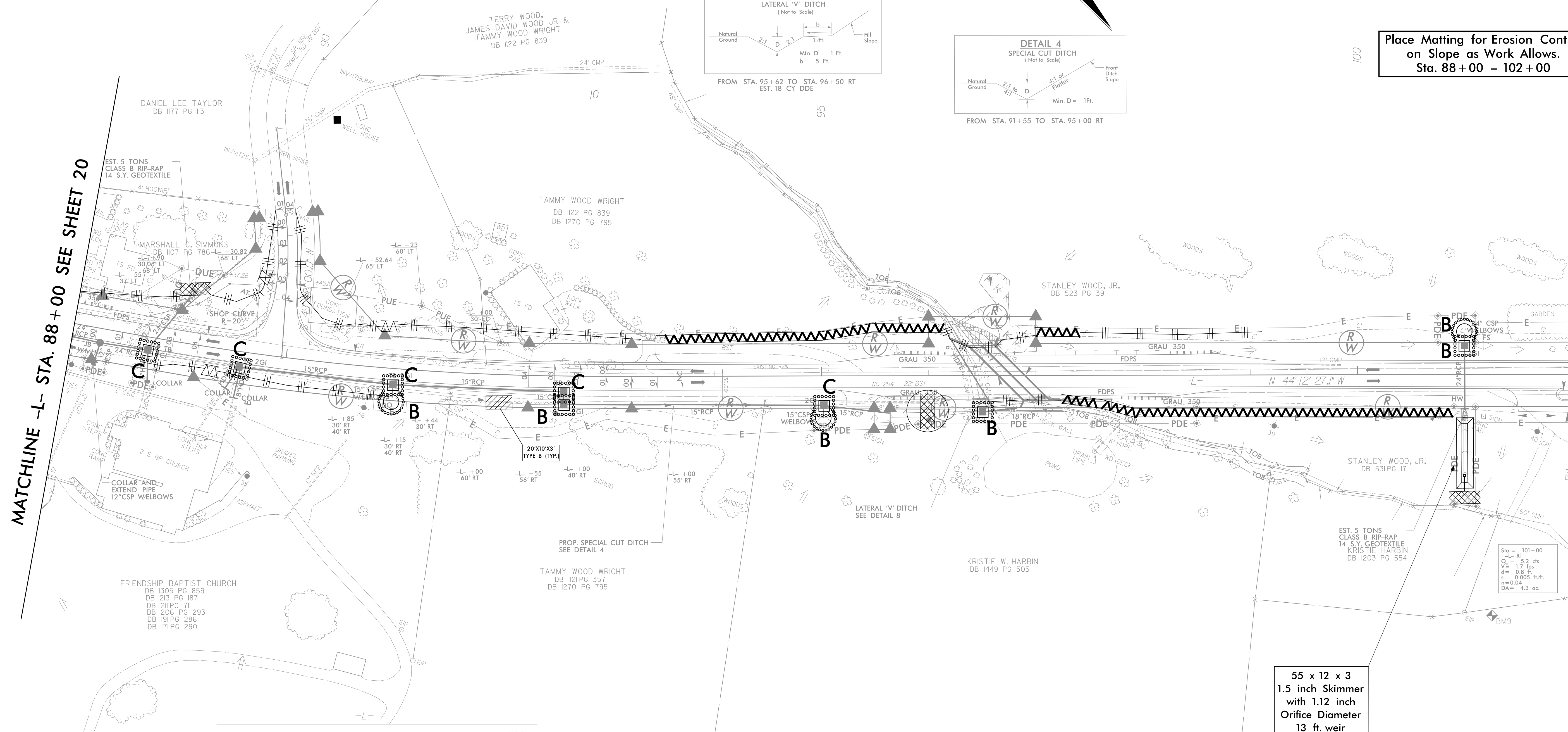
PROJECT REFERENCE NO. R-3622B	SHEET NO. EC-21/CONST.10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



Place Matting for Erosion Control  
on Slope as Work Allows.  
Sta. 88+00 - 102+00

MATCHLINE -L- STA. 88+00 SEE SHEET 20

MATCHLINE -L- STA. 102+00 SEE SHEET 22



<p>Pls Sta 88+85.47 Os = 1' 11" 44.7" Ls = 96.00' LT = 64.00' ST = 32.00'</p>	<p>Pls Sta 90+72.41 Δ = 7' 42" 28.8" (LT) D = 2' 29" 28.0" L = 309.42' T = 154.94' R = 2,300.00'</p>	<p>Pls Sta 92+58.89 Os = 1' 11" 44.7" Ls = 96.00' LT = 64.00' ST = 32.00'</p>
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-Y4-

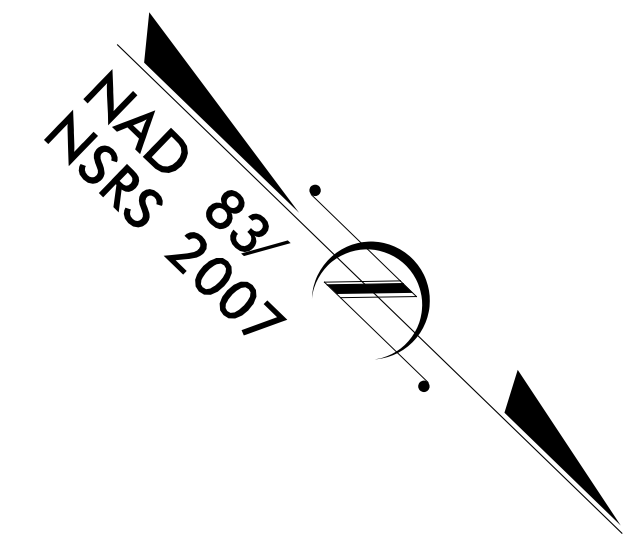
<p>Pls Sta 11+08.44 Δ = 9' 57" 00.0" (RT) D = 18' 00" 00.0" L = 55.28' T = 27.71' R = 318.31'</p>
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55 x 12 x 3  
1.5 inch Skimmer  
with 1.12 inch  
Orifice Diameter  
13 ft. weir  
ID 8.

EXIST PAVING TO BE REMOVED

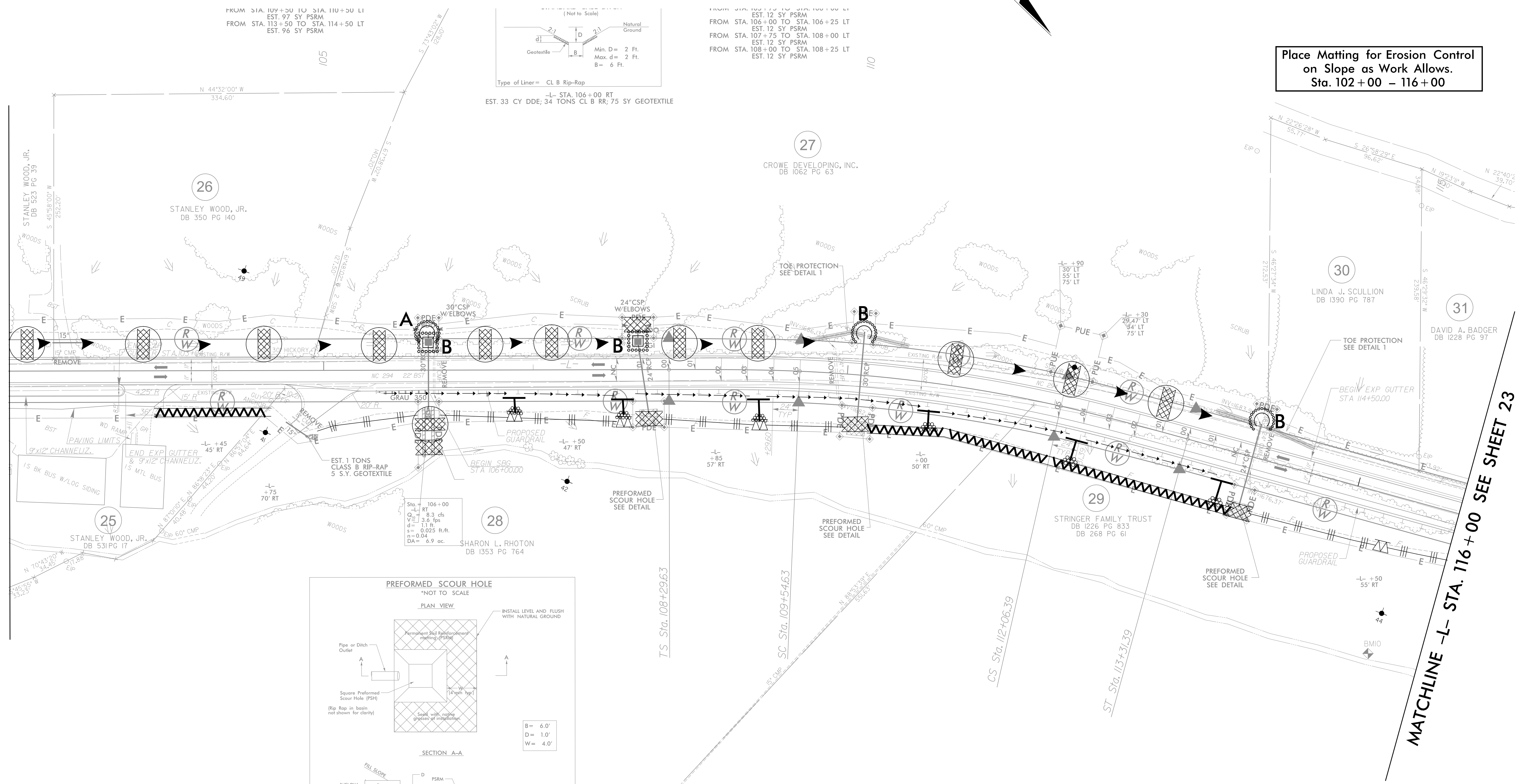
SEE SHEET 19 FOR -L- PROFILE  
SEE SHEET 22 FOR -Y4- PROFILE

1. ADDED PUE (3-14-2003)

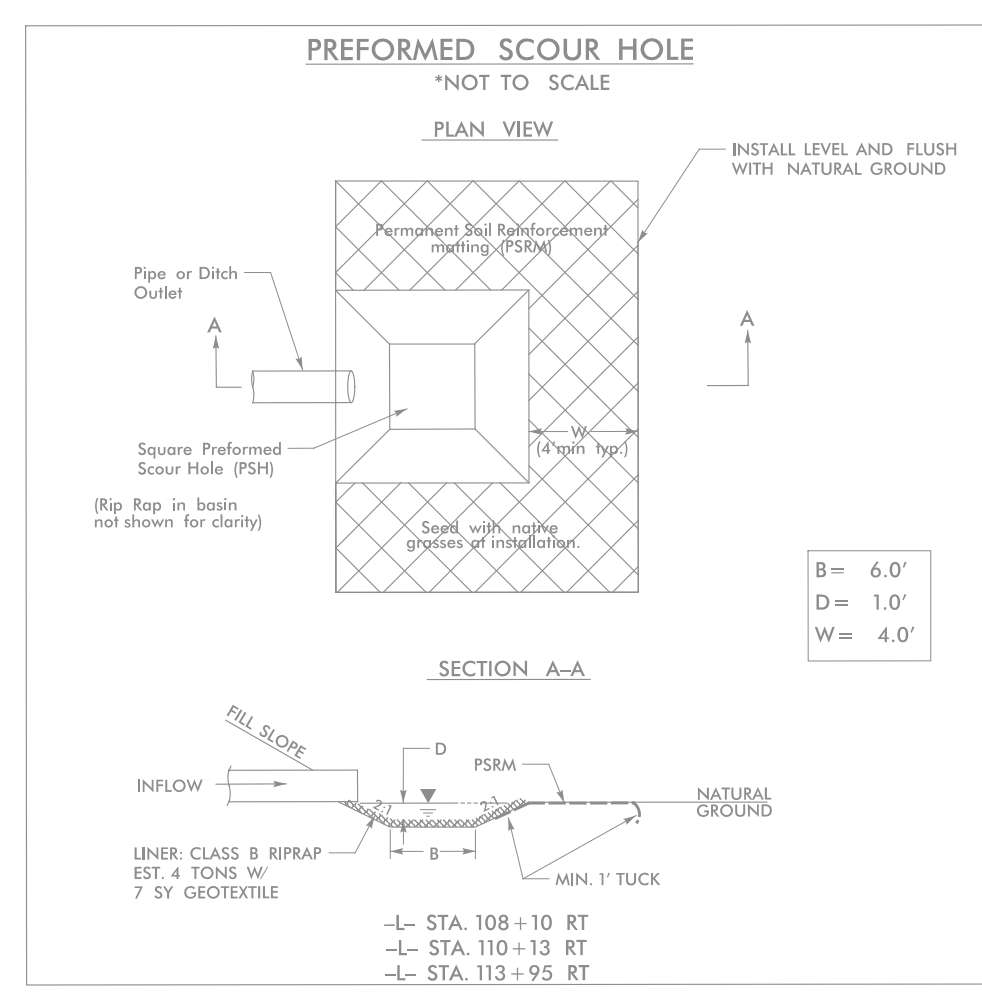
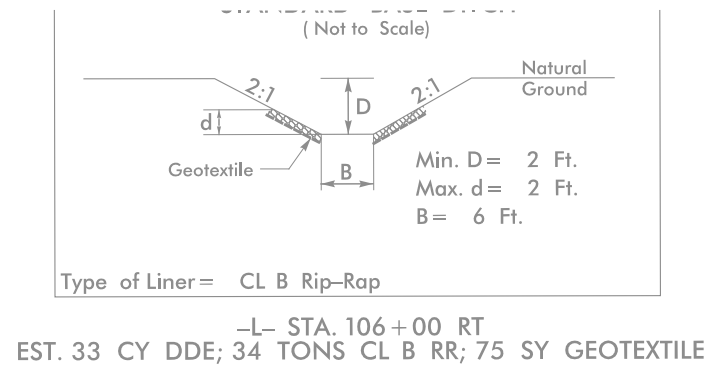


MATCHLINE -L- STA. 102 + 00 SEE SHEET 21

MATCHLINE -L- STA. 116 + 00 SEE SHEET 23



**Place Matting for Erosion Control on Slope as Work Allows. Sta. 102 + 00 - 116 + 00**



-L-

PIs Sta 109+12.97	PI Sta 110+80.85	PIs Sta 112+48.06
$\theta_s = 2^\circ 34' 34.5''$	$\Delta = 10^\circ 22' 39.5'' (RT)$	$\theta_s = 2^\circ 34' 34.5''$
$L_s = 125.00'$	$D = 4' 07' 19.2''$	$L_s = 125.00'$
$LT = 83.34'$	$L = 251.76'$	$LT = 83.34'$
$ST = 41.67'$	$T = 126.23'$	$ST = 41.67'$
	$R = 1,390.00'$	

EXIST PAVING TO BE REMOVED

SEE SHEET 19 FOR -L- PROFILE  
SEE SHEET 22 FOR -Y4- PROFILE

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