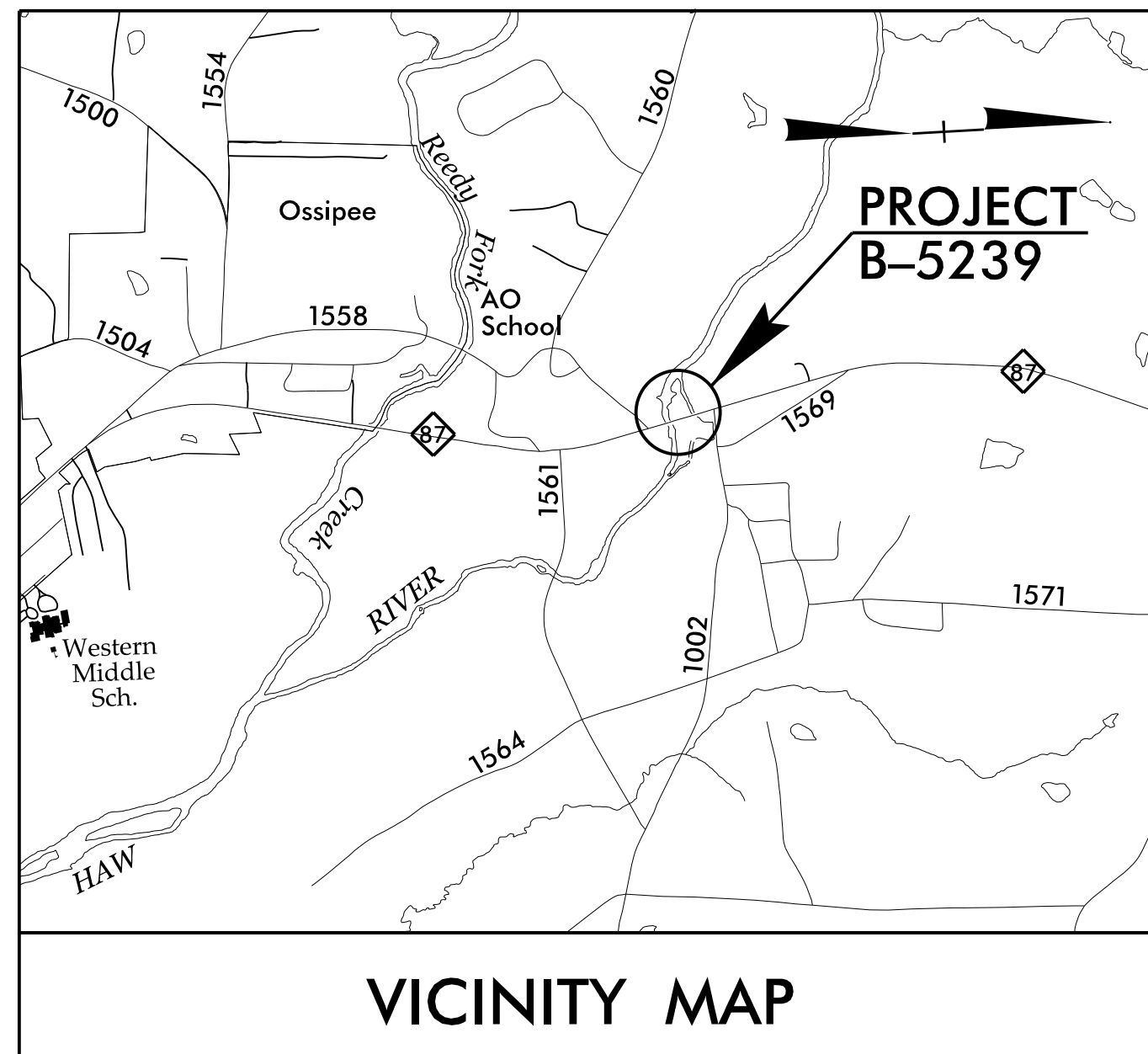


**This electronic collection of documents is provided
for the convenience of the user
and is Not a Certified Document –**

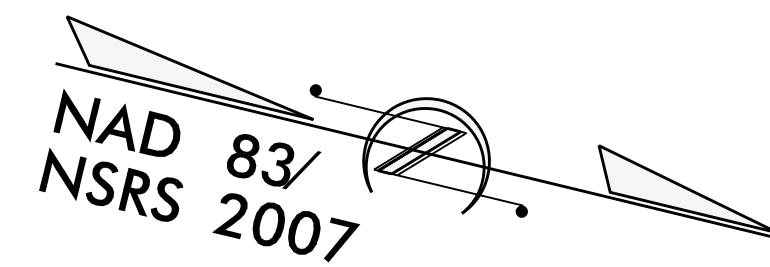
**The documents contained herein were originally issued
and sealed by the individuals whose names and license
numbers appear on each page, on the dates appearing
with their signature on that page.**

**This file or an individual page
shall not be considered a certified document.**

TIP PROJECT: B-5239



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



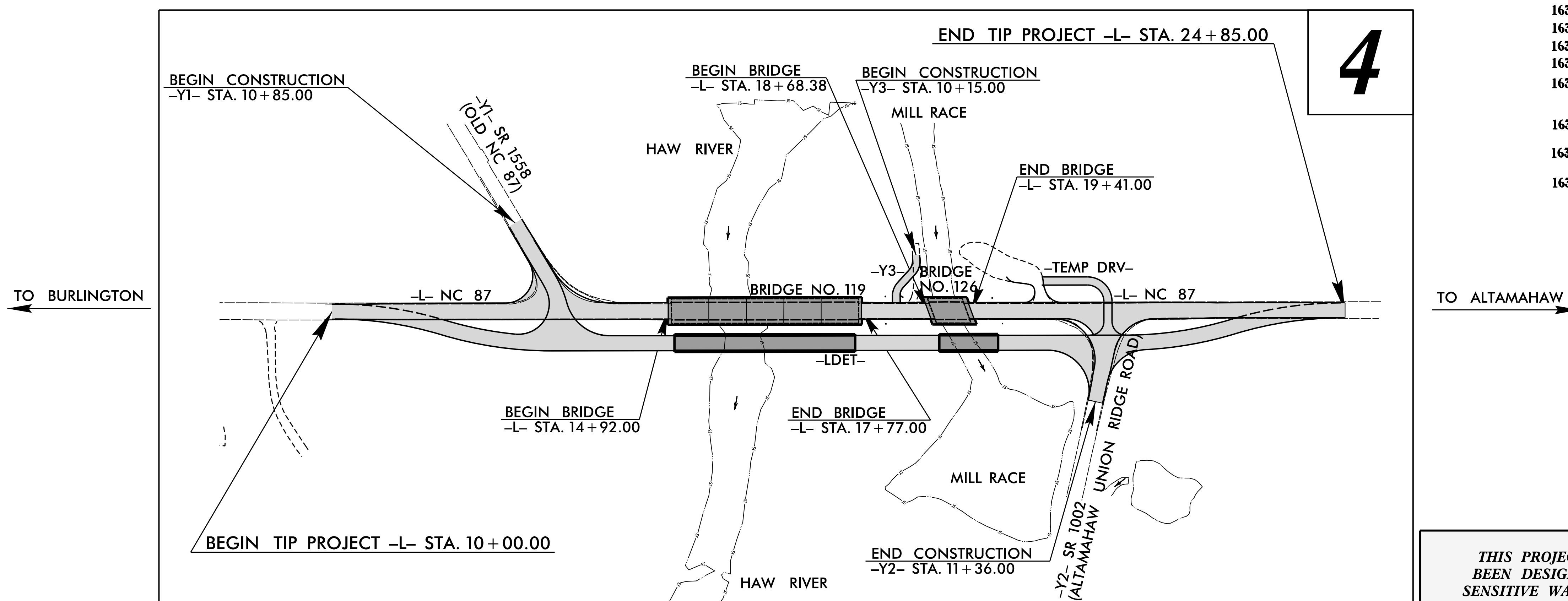
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5239	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
42841.1.1	BRSTP-0087(29)	PE	
42841.1.2.2		RW & UTILITIES	

**LOCATION: BRIDGE NO. 126 OVER MILL RACE
& NO. 119 OVER HAW RIVER ON NC 87**

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURES

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	no
1630.05	Temporary Diversion	— TD —
1605.01	Temporary Silt Fence	— III — III — III —
1606.01	Special Sediment Control Fence	— ZZZ — ZZZ — ZZZ —
1622.01	Temporary Berms and Slope Drains	— T —
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	— W —
	Wattle/Coir Fiber Wattle with Polyacrylamide (PAM)	— W —
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	U
1635.02	Rock Pipe Inlet Sediment Trap Type-B	U
1630.04	Stilling Basin	▭
1630.06	Special Stilling Basin	▭
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	▭
	Tiered Skimmer Basin	▭
	Infiltration Basin	▭
	Safety Fence	— S —
	Flagging	— F —



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

**THIS PROJECT HAS
BEEN DESIGNED TO
SENSITIVE WATERSHED
STANDARDS.**

**ENVIRONMENTALLY
SENSITIVE AREA(S) EXIST
ON THIS PROJECT**
*Refer To E. C. Special Provisions
for Special Considerations.*

GRAPHIC SCALE



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 1, 2016 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER RESOURCES.

Prepared In the Office of:

HDR HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

Designed by:

Kathleen Bell, EI 3918
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, CPESC, CPSWQ

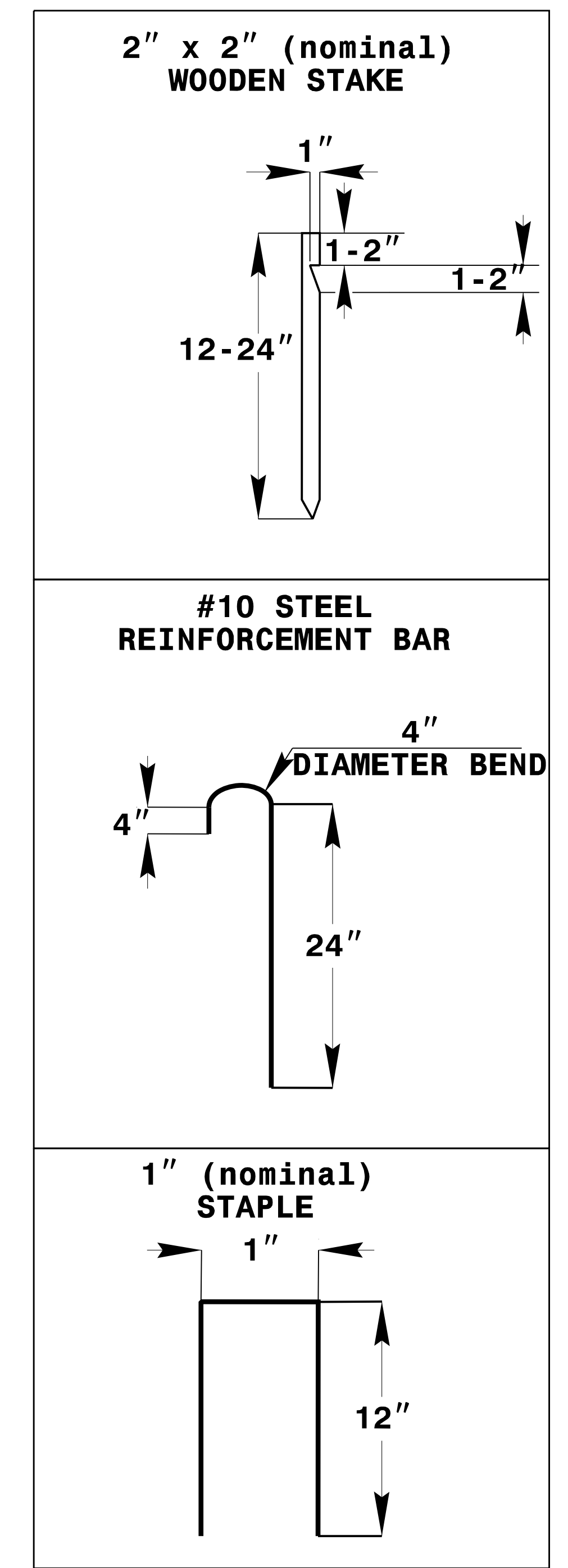
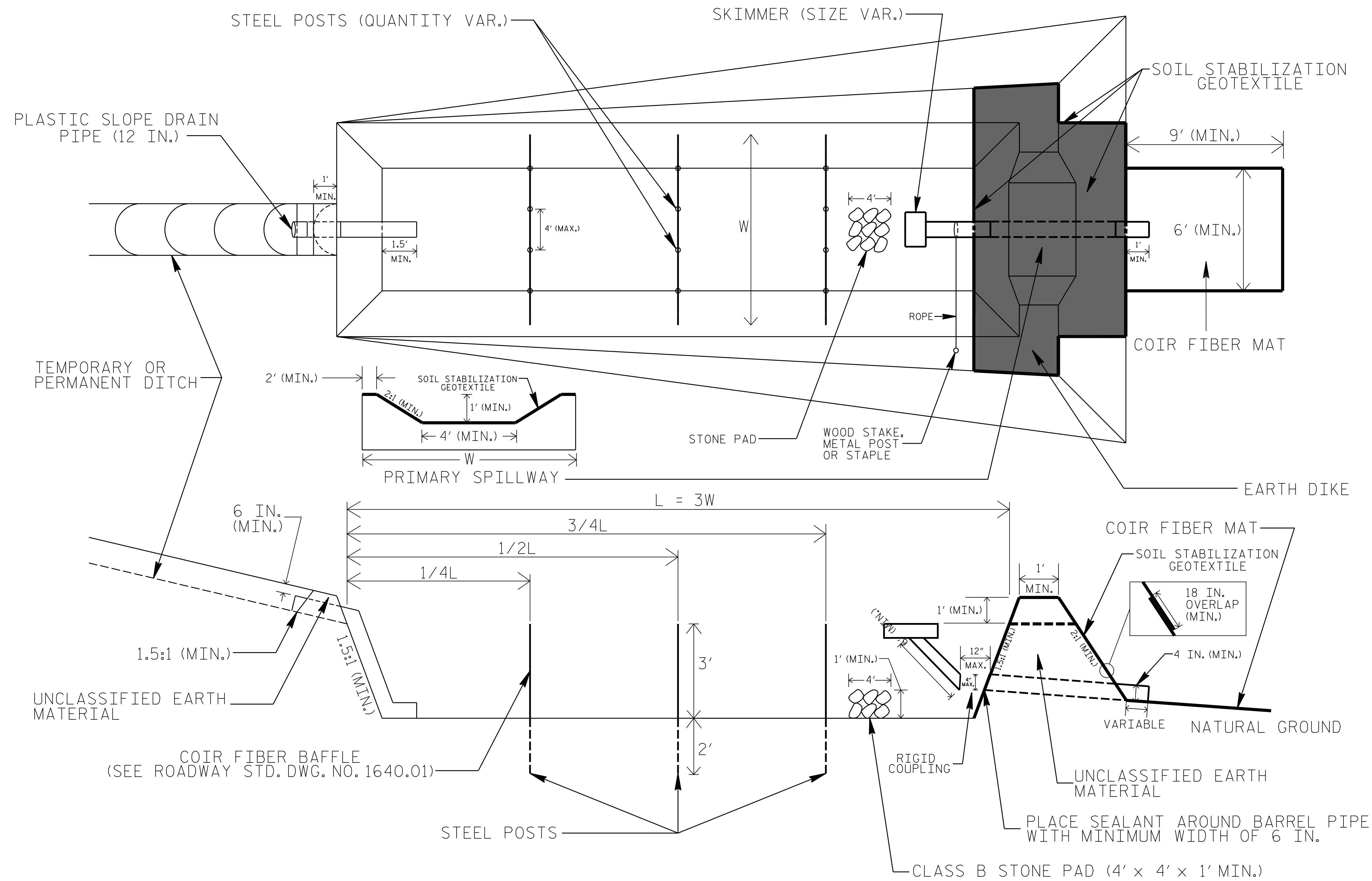
Roadway Standard Drawings

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. B-5239	SHEET NO. EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SKIMMER BASIN WITH BAFFLES DETAIL




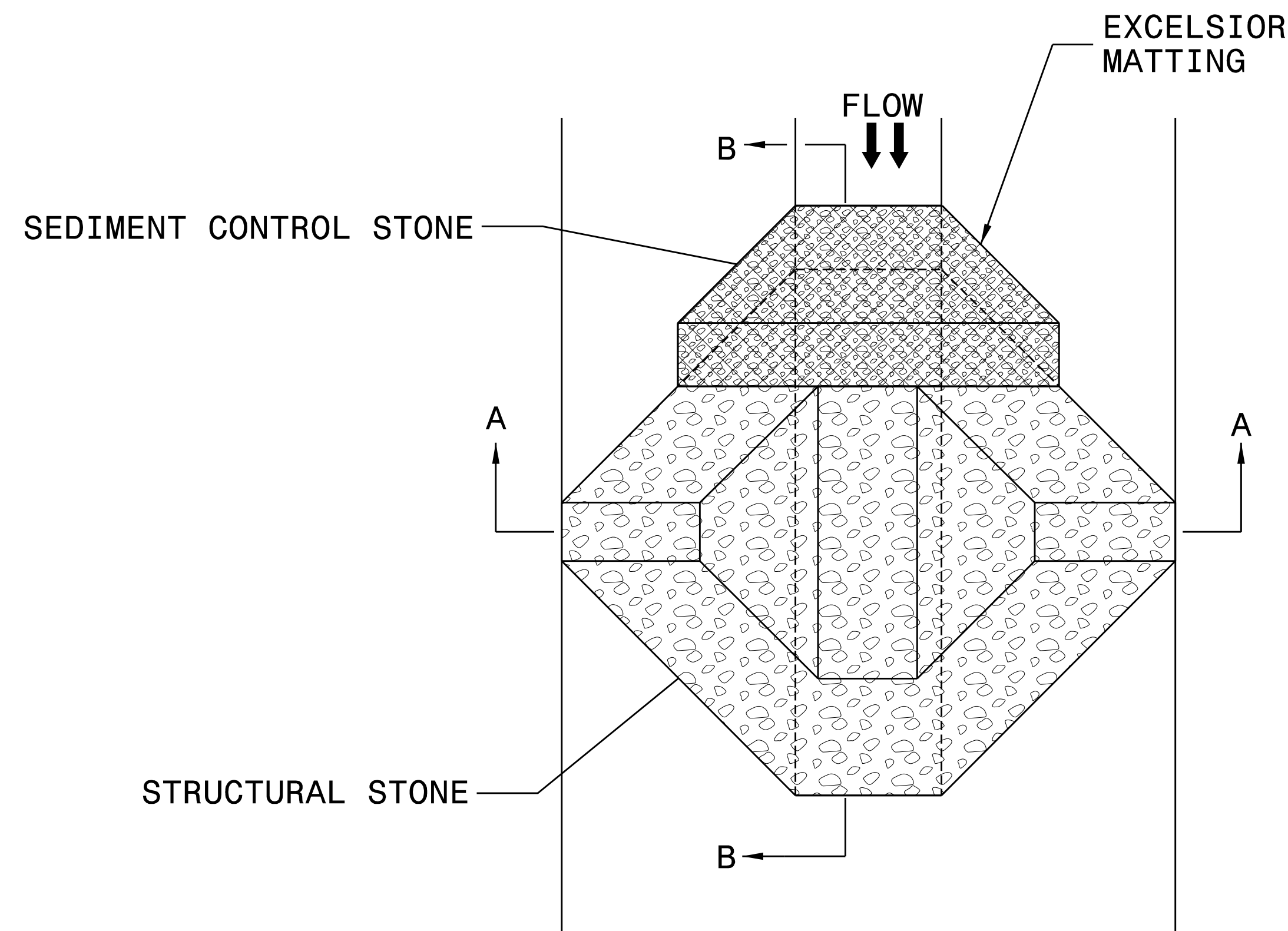
NOTES

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 $Q/0.8$, 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

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

PROJECT REFERENCE NO. B-5239	SHEET NO. EC-2B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	



PLAN

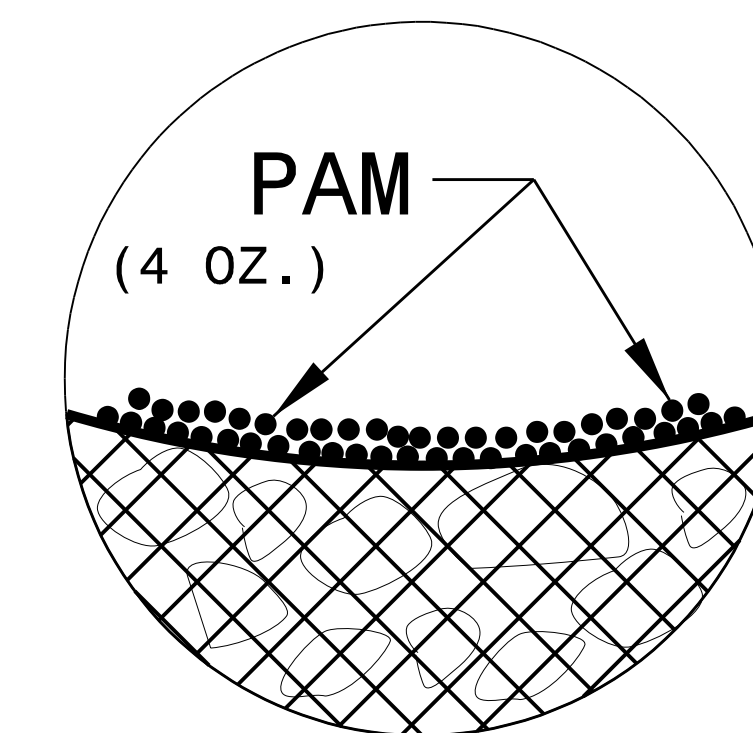
NOTES:

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

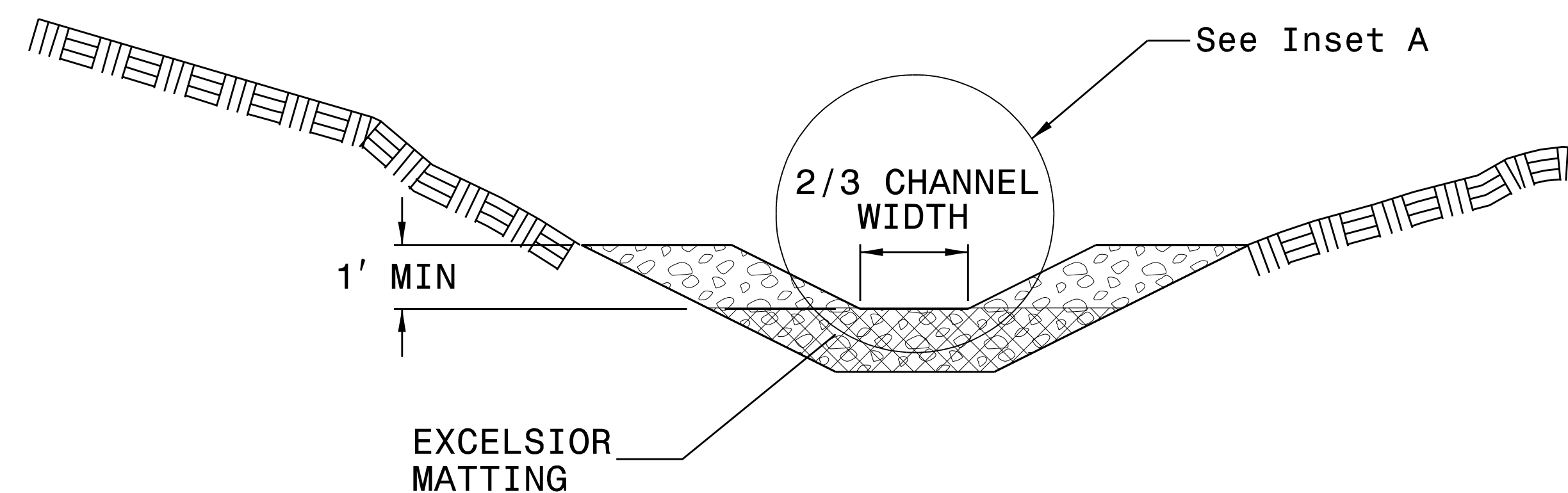
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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.

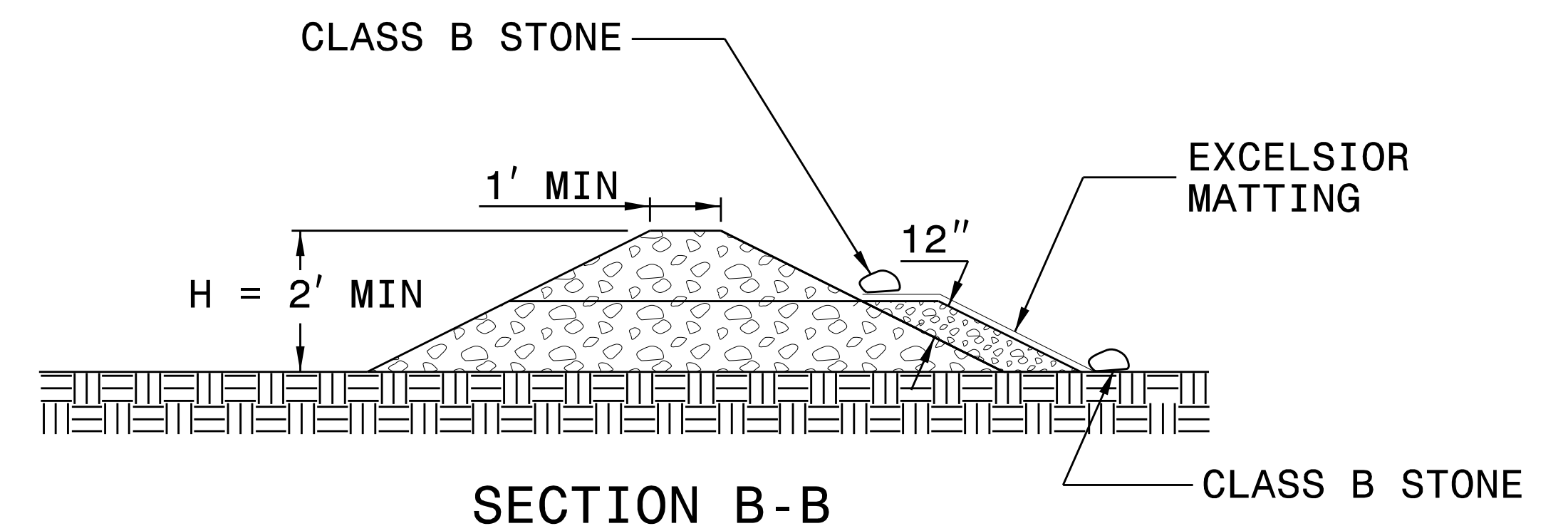
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A




SECTION A-A

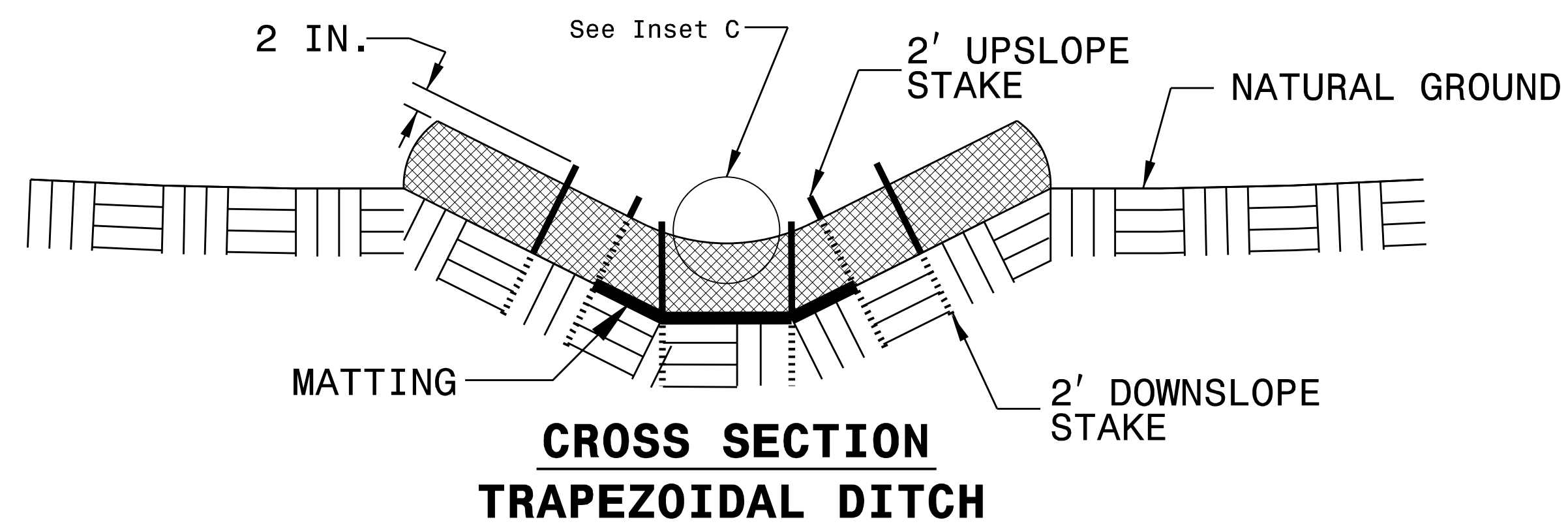
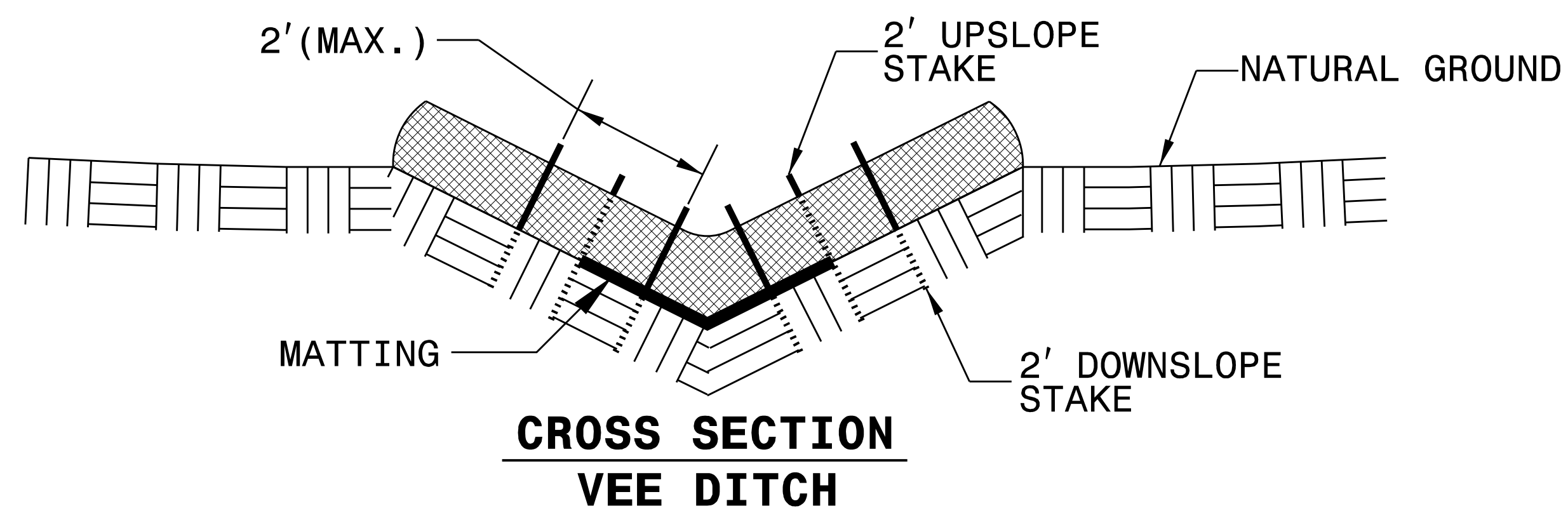
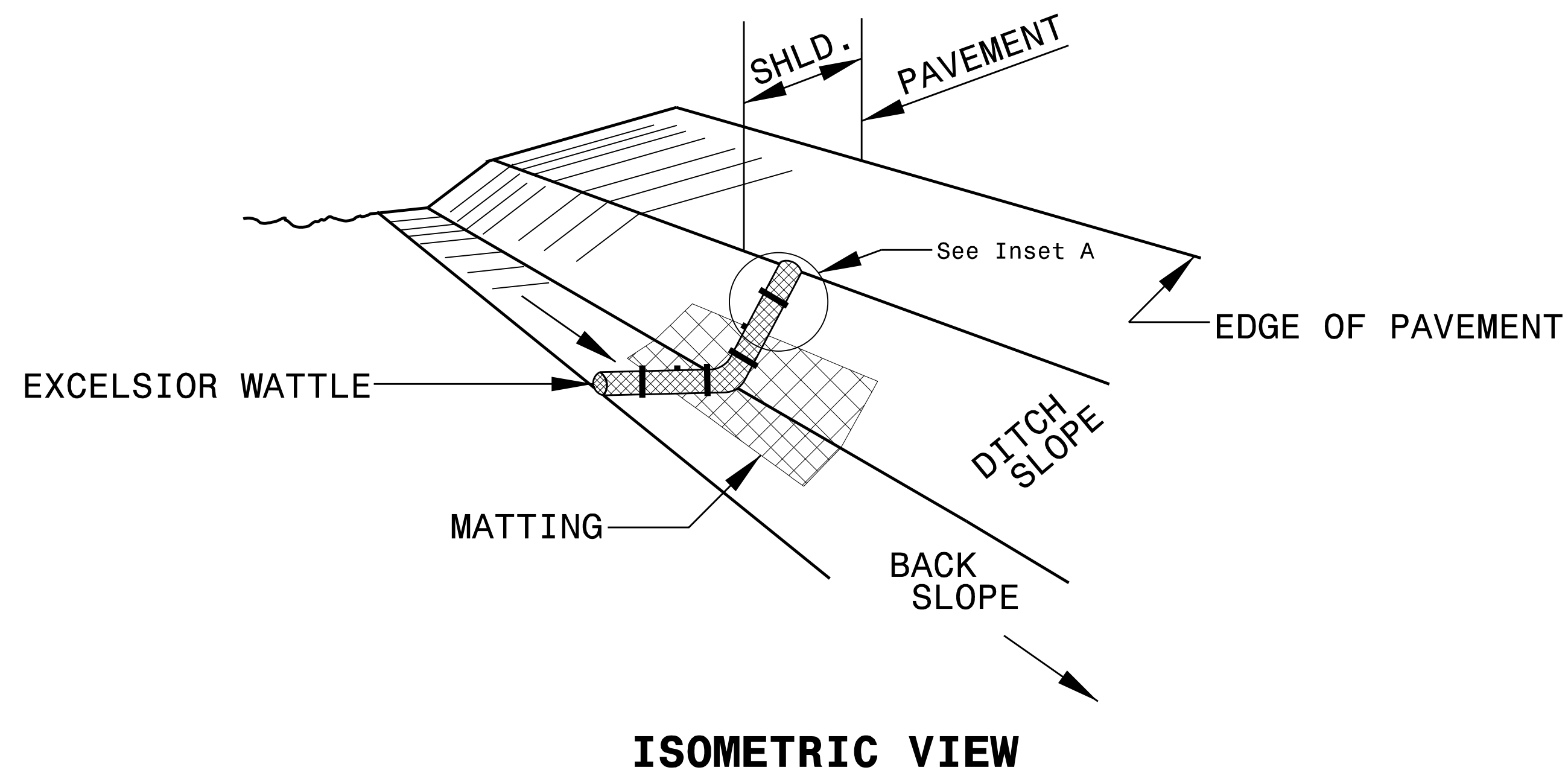


SECTION B-B

NOT TO SCALE

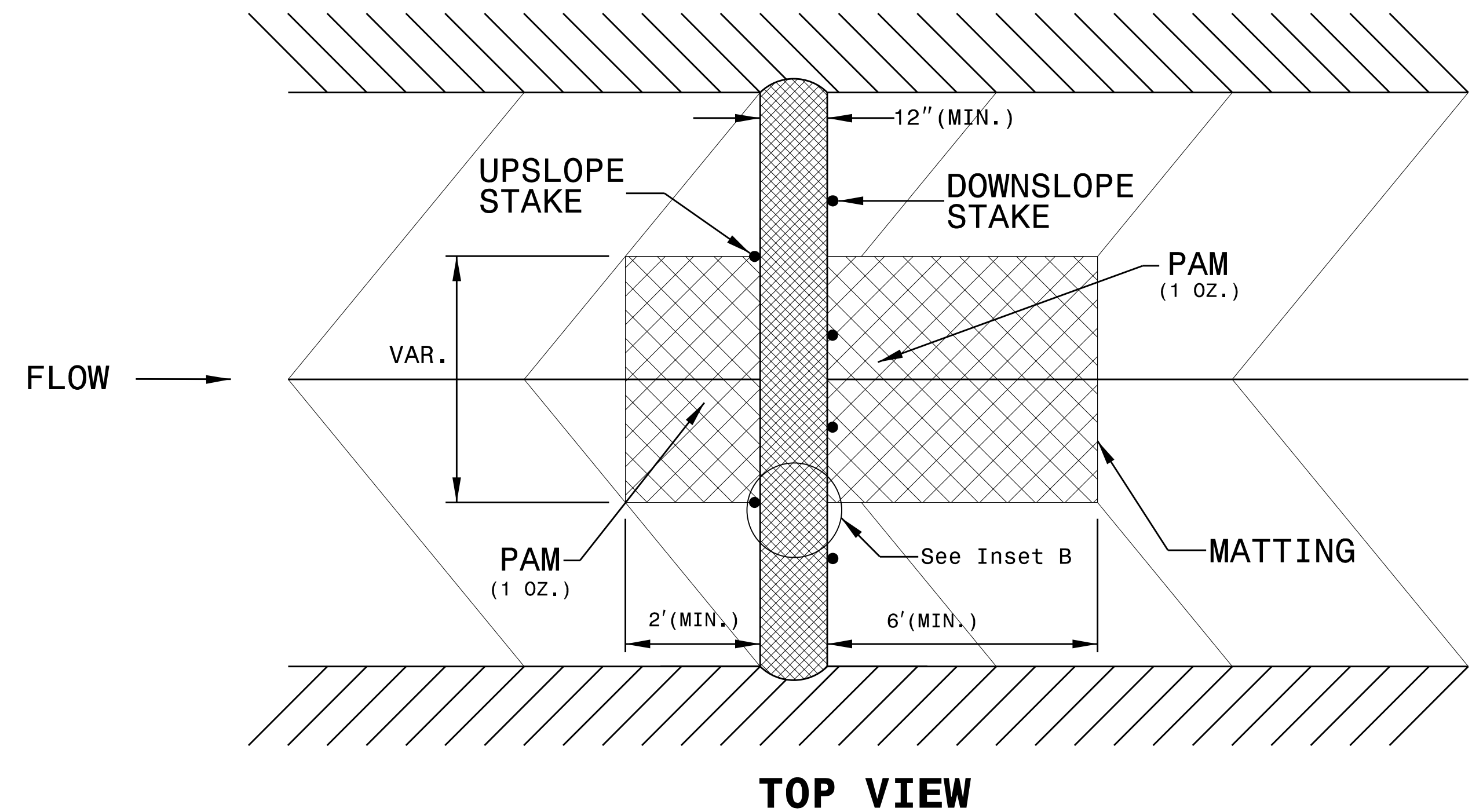
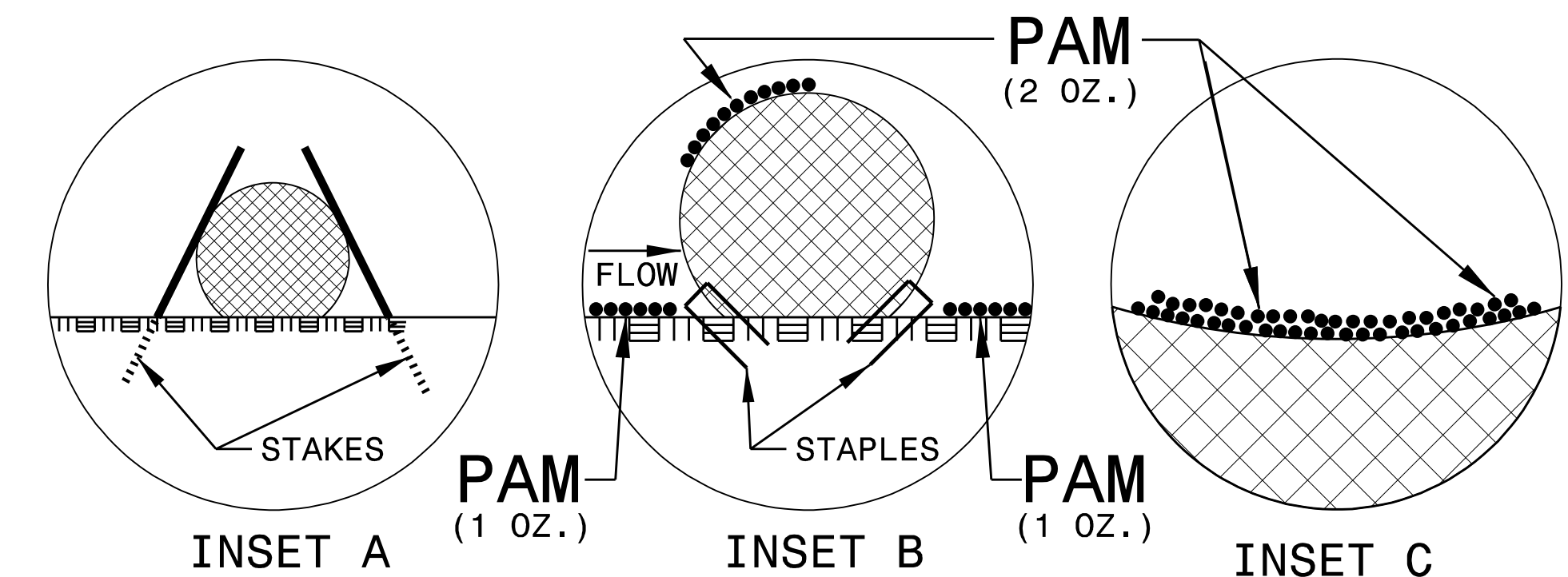
PROJECT REFERENCE NO. <i>B-5239</i>	SHEET NO. <i>EC-2C</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	

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.



DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

HDR HDR Engineering, Inc. of the Carolinas
555 Fayetteville St., Suite 900, Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO. <i>B-5239</i>	SHEET NO. <i>EC-3</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION SUMMARY SHEET

MATTING IN DITCHES

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	12+35	12+75	LT	120
4	-L-	19+57	20+50	RT	100
4	-L-	20+61	22+00	LT	270
4	-L-	22+00	23+00	LT	105
4	-YI-	11+00	11+50	RT	85
5	-LDET-	13+00	14+70	RT	345
5	-LDET-	22+00	24+55	RT	360
TOTAL FOR DITCHES					1385 SY

MATTING ON SLOPES

4	-L-	14+00	14+67	LT	135
4	-L-	14+20	14+67	RT	90
4	-L-	18+00	18+52	LT	175
4	-L-	18+00	18+73	RT	350
4	-L-	19+50	20+00	RT	60
5	-LDET-	14+50	15+00	RT	110
5	-LDET-	14+50	15+00	LT	55
5	-LDET-	17+67	19+00	RT	520
5	-LDET-	17+67	18+87	LT	135
TOTAL FOR SLOPES					1630 SY
TOTAL FOR DITCHES					1385 SY
MISC. MATTING TO BE INSTALLED AS DIRECTED BY ENGINEER					10610 SY
TOTAL					13625 SY
TOTAL					13700 SY

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	11+00	12+35	LT	320
4	-L-	12+50	14+00	RT	560
4	-L-	14+00	14+50	RT	85
4	-YI-	11+00	11+25	LT	35
5	-LDET-	10+46	11+50	RT	55
TOTAL					1055 SY
GAY					1100 SY

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES


PROJECT REFERENCE NO. <i>B-5239</i>	SHEET NO. <i>EC-3A</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	

<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.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 5

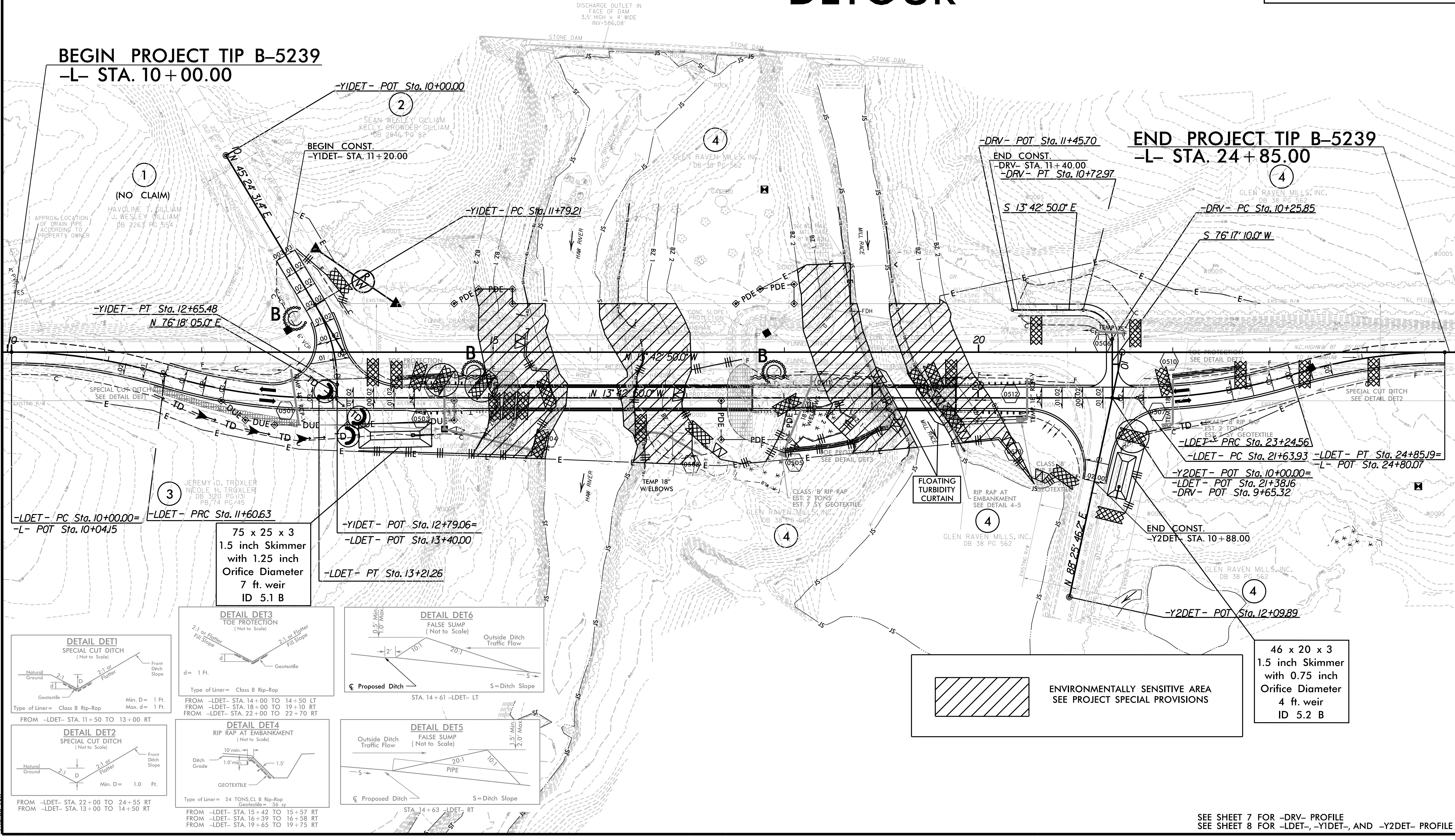
NOTE: PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

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

PROJECT REFERENCE NO.	SHEET NO.
B-5239	EC-4CONST.5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	

NAD 83/NSRS 2007

DETOUR



BEGIN PROJECT TIP B-5239
-L- STA. 10+00.00

END PROJECT TIP B-5239
-L- STA. 24+85.00

-LDET- PC Sta. 10+00.00=
-L- POT Sta. 10+04.15

75 x 25 x 3
1.5 inch Skimmer
with 1.25 inch
Orifice Diameter
7 ft. weir
ID 5.1 B

-YIDET- POT Sta. 12+79.06=
-LDET- POT Sta. 13+40.00

-LDET- PT Sta. 13+21.26

-DRV- POT Sta. 11+45.70
END CONST.
-DRV- STA. 11+40.00
-DRV- PT Sta. 10+72.97

-DRV- PC Sta. 10+25.85

-LDET- PC Sta. 21+63.93 -LDET- PT Sta. 24+85.19=
-L- POT Sta. 24+80.07

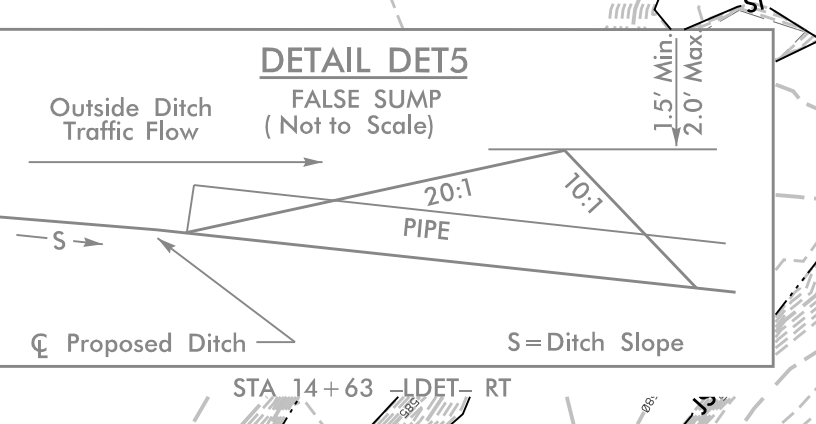
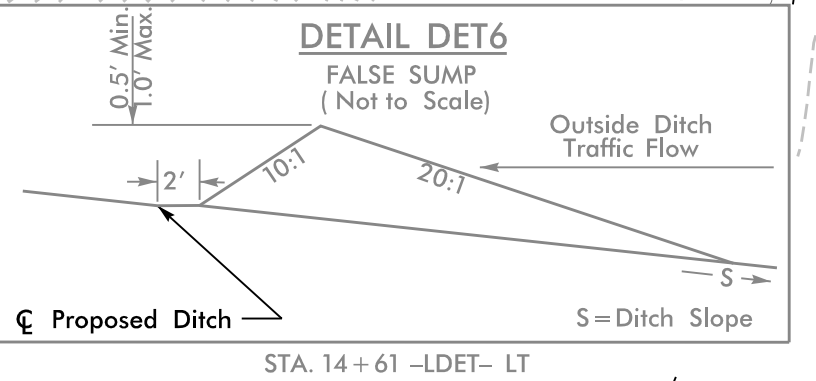
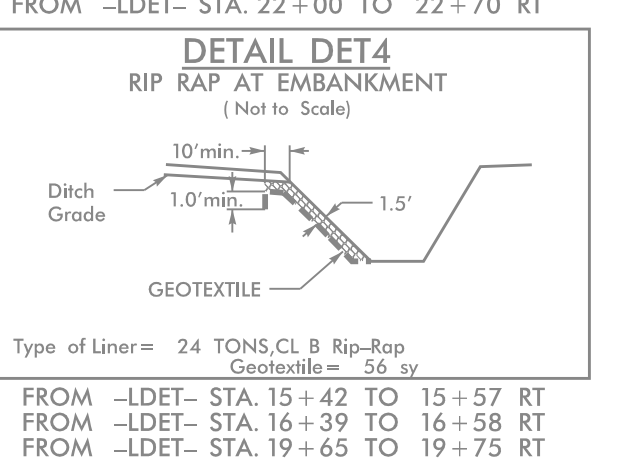
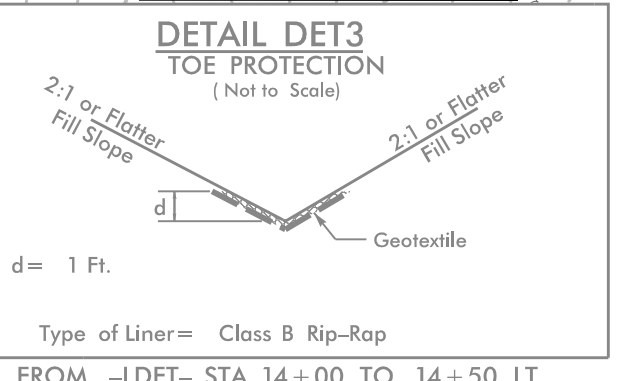
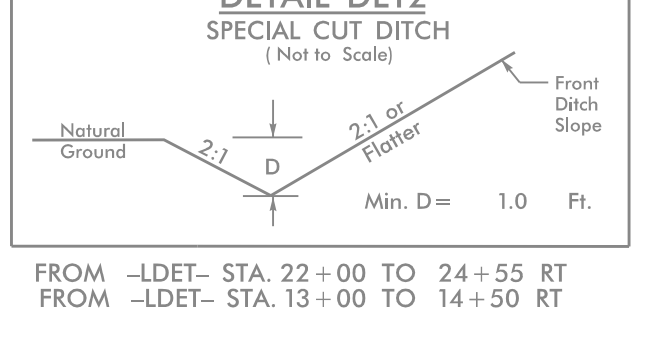
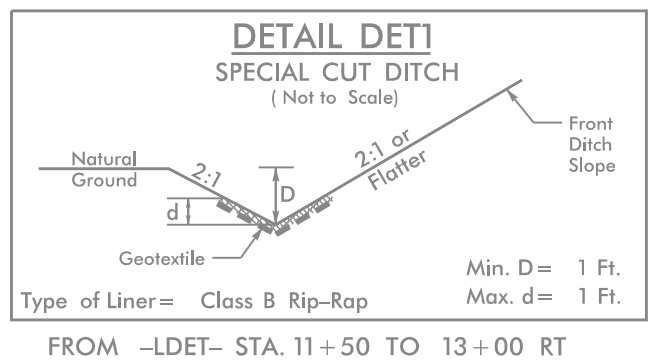
-Y2DET- POT Sta. 10+00.00=
-LDET- POT Sta. 21+38.16
-DRV- POT Sta. 9+65.32

END CONST.
-Y2DET- STA. 10+88.00

-Y2DET- POT Sta. 12+09.89

46 x 20 x 3
1.5 inch Skimmer
with 0.75 inch
Orifice Diameter
4 ft. weir
ID 5.2 B

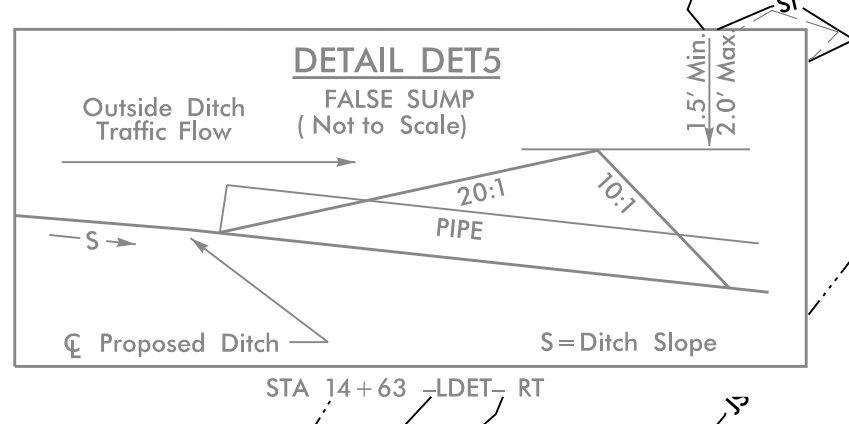
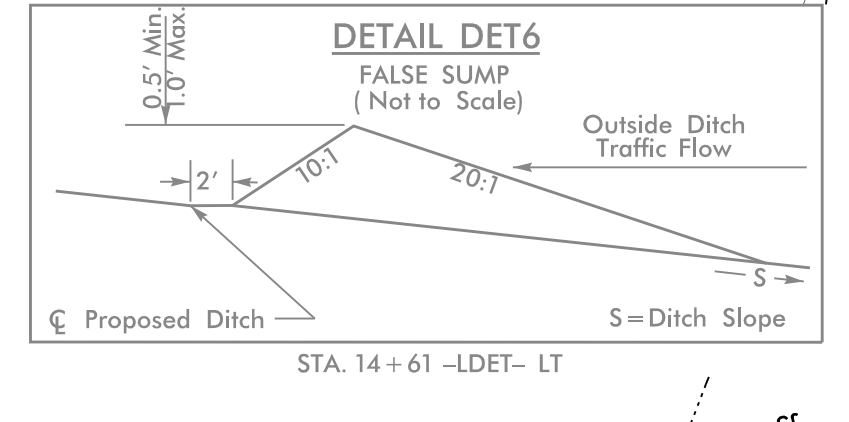
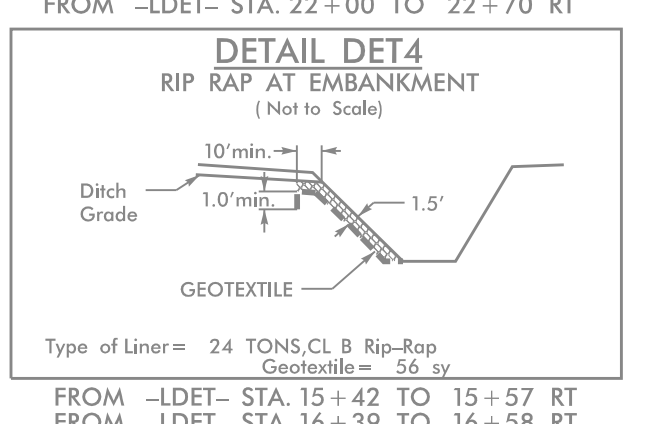
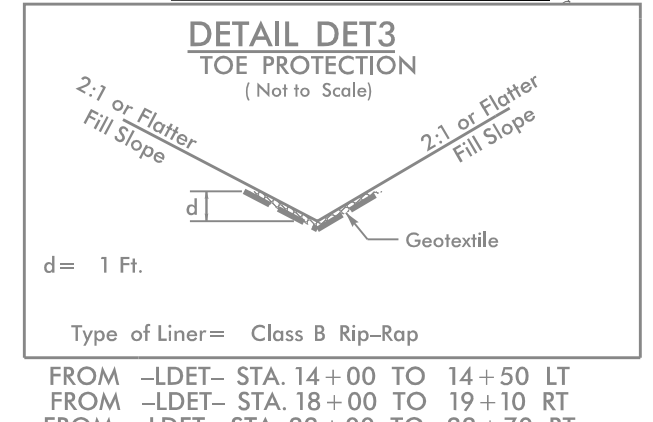
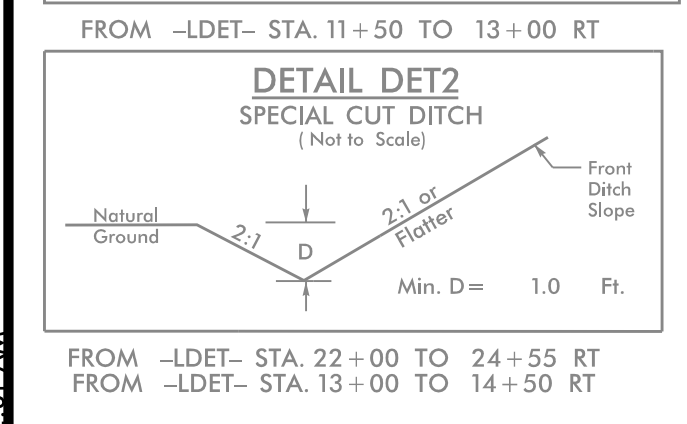
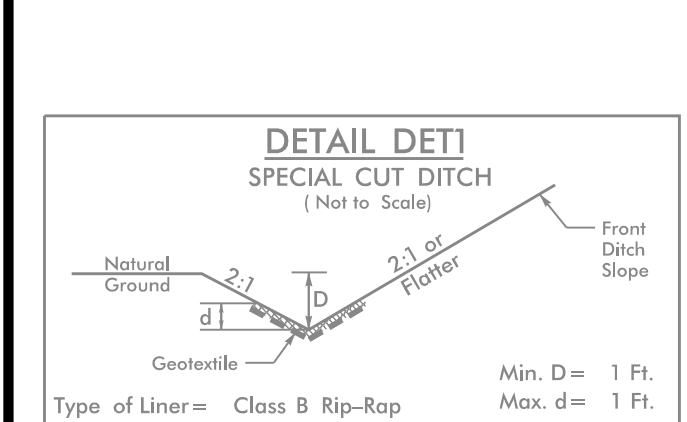
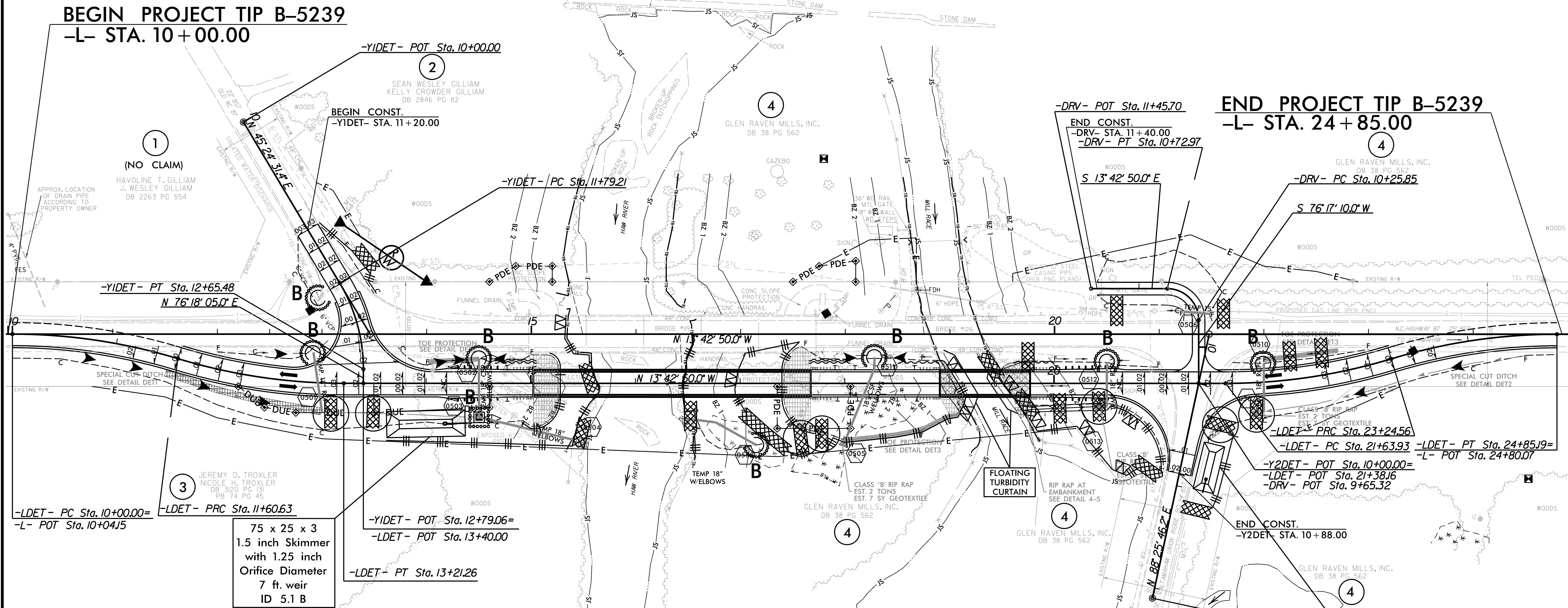
 ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS



PROJECT REFERENCE NO.	SHEET NO.
B-5239	EC-5/CONST.5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83/NSRS 2007

DETOUR




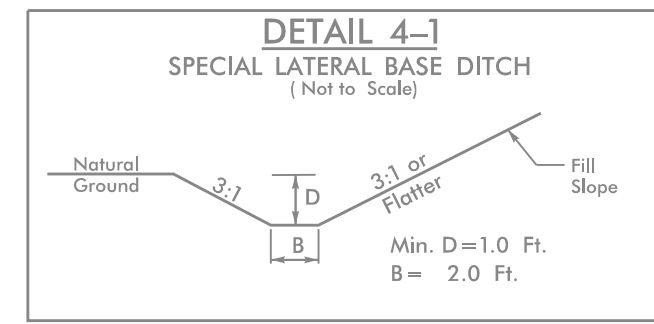
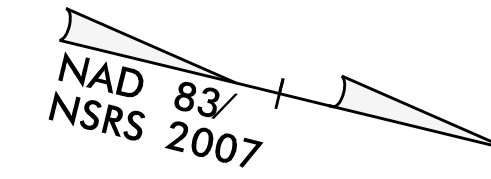
75 x 25 x 3
1.5 inch Skimmer
with 1.25 inch
Orifice Diameter
7 ft. weir
ID 5.1 B

Place Matting for Erosion Control
on Slope as Work Allows.
Sta. 14+50 -LDET- to Sta. 15+00 -LDET- RT
Sta. 14+50 -LDET- to Sta. 15+00 -LDET- LT
Sta. 17+67 -LDET- to Sta. 18+87 -LDET- RT
Sta. 17+67 -LDET- to Sta. 19+00 -LDET- LT

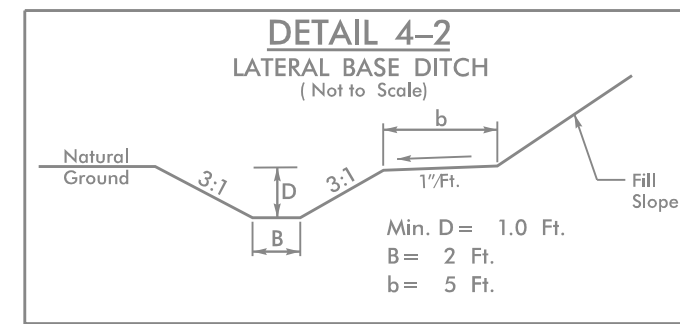
46 x 20 x 3
1.5 inch Skimmer
with 0.75 inch
Orifice Diameter
4 ft. weir
ID 5.2 B

81799
10/18/2017
B5239_EC_PSH.dgn
9:27:01 AM

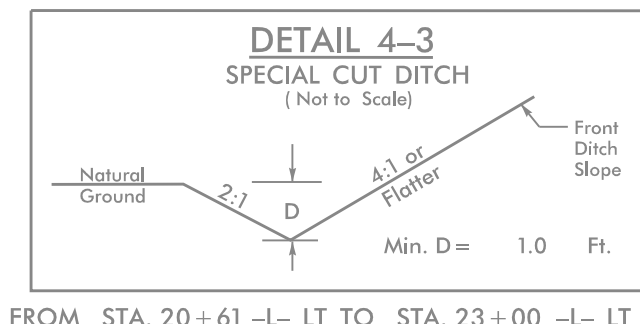
PROJECT REFERENCE NO.	SHEET NO.
B-5239	EC-6CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	



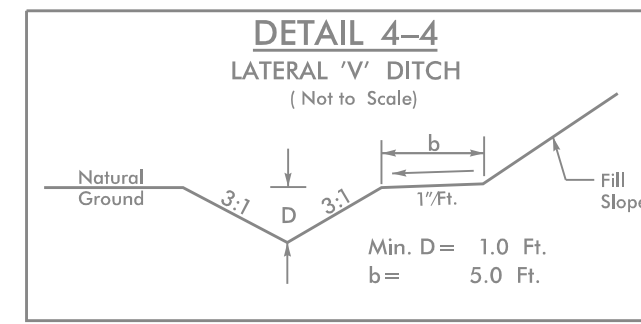
FROM STA. 12+50 -L- RT TO STA. 14+00 -L- RT



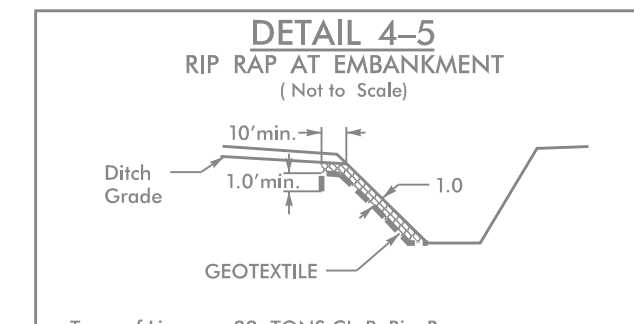
FROM STA. 14+00 -L- RT TO STA. 14+50 -L- RT
DDE = 44 CY



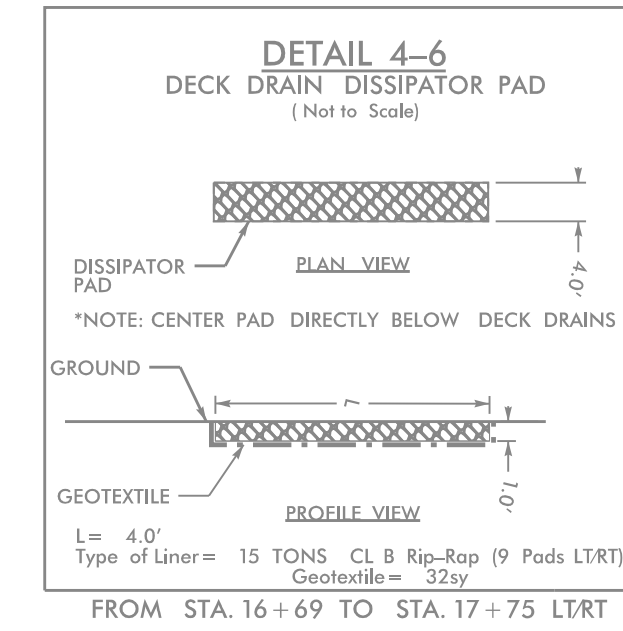
FROM STA. 20+61 -L- LT TO STA. 23+00 -L- LT



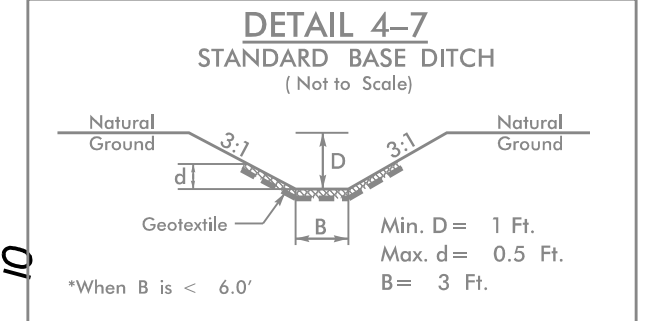
FROM STA. 19+57 -L- RT TO STA. 20+50 -L- RT
DDE = 41 CY



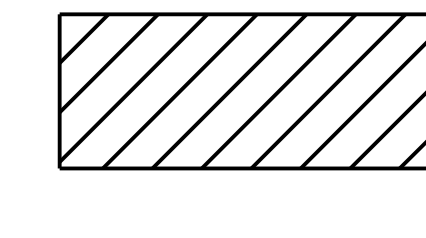
Type of Liner = 22 TONS, CL B Rip-Rap
Geotextile = 48 sy
FROM STA. 15+54 TO STA. 15+75 -L- RT
FROM STA. 19+50 TO STA. 19+60 -L- RT



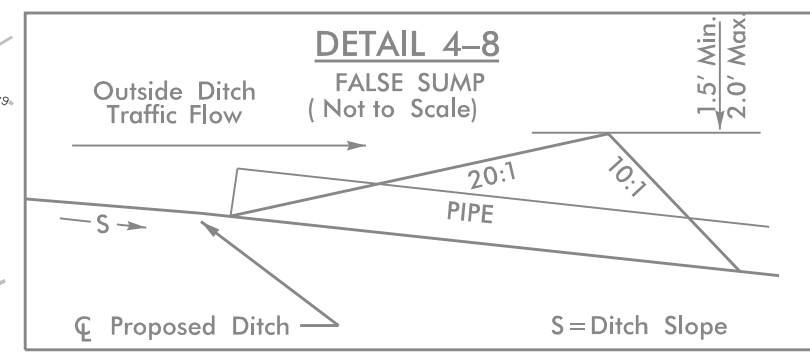
FROM STA. 16+69 TO STA. 17+75 LT/RT



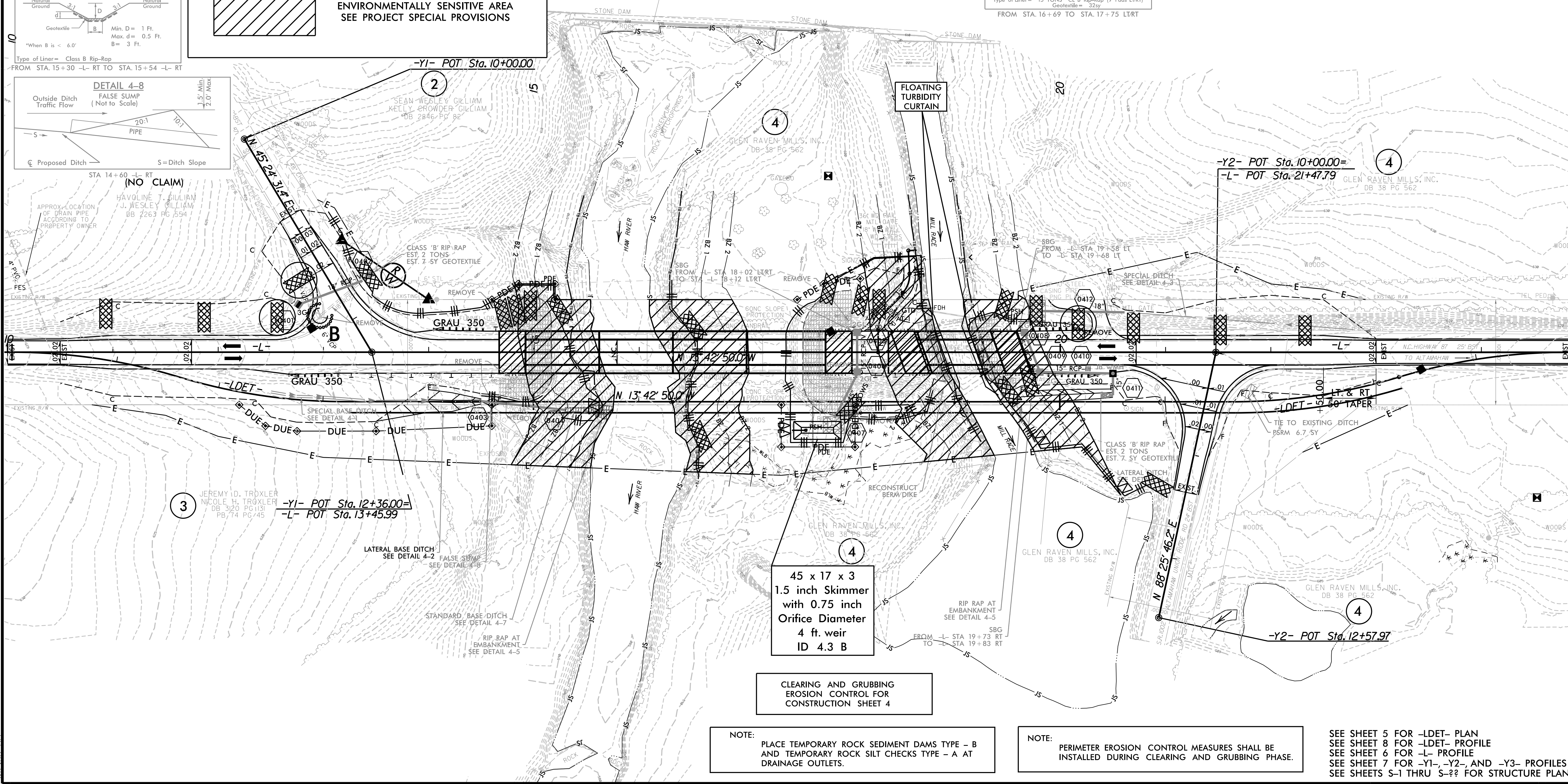
Type of Liner = Class B Rip-Rap
FROM STA. 15+30 -L- RT TO STA. 15+54 -L- RT



ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS



STA 14+60 -L- RT
(NO CLAIM)




45 x 17 x 3
1.5 inch Skimmer
with 0.75 inch
Orifice Diameter
4 ft. weir
ID 4.3 B

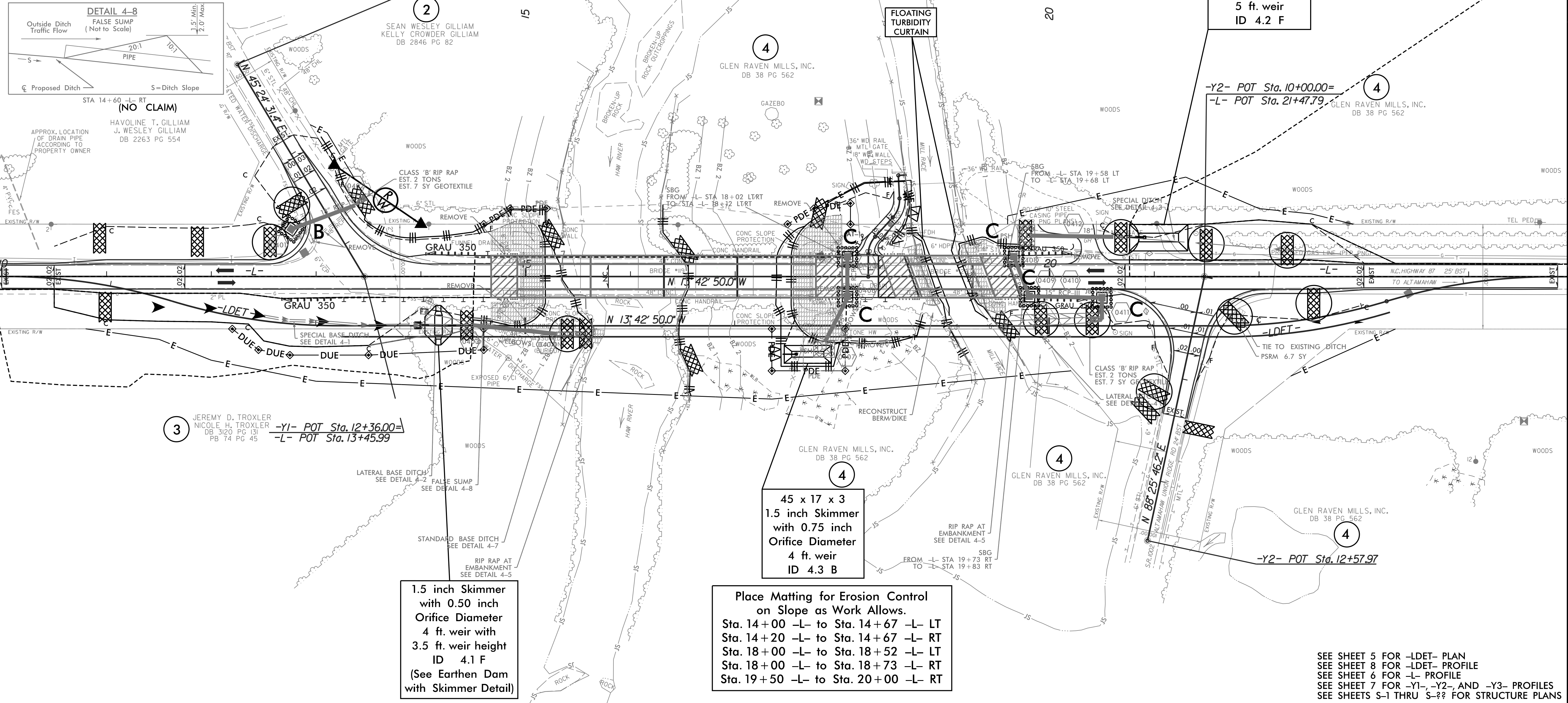
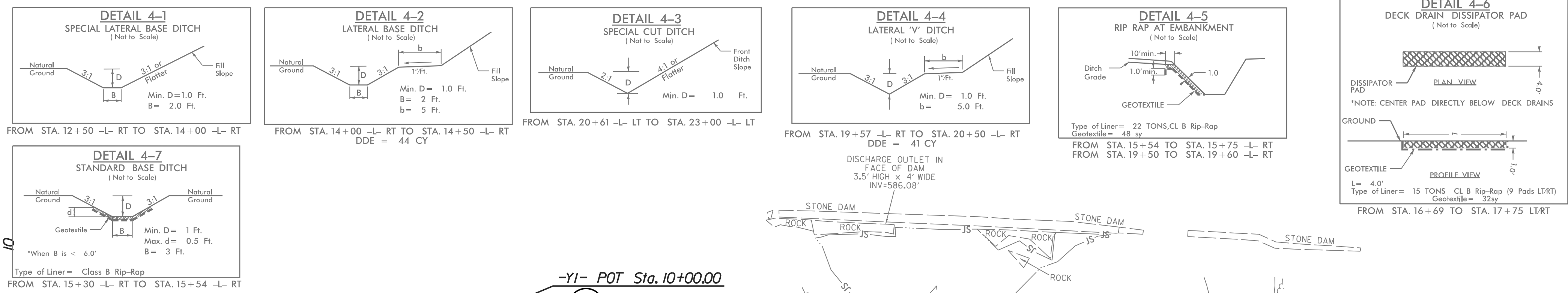
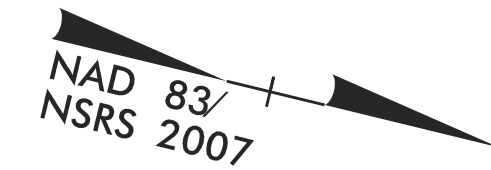
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

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

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE
INSTALLED DURING CLEARING AND GRUBBING PHASE.

SEE SHEET 5 FOR -LDET- PLAN
SEE SHEET 8 FOR -LDET- PROFILE
SEE SHEET 6 FOR -L- PROFILE
SEE SHEET 7 FOR -Y1-, -Y2-, AND -Y3- PROFILES
SEE SHEETS S-1 THRU S-?? FOR STRUCTURE PLANS

PROJECT REFERENCE NO.	SHEET NO.
B-5239	EC-7/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St. Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	



55 x 25 x 3
1.5 inch Skimmer
with 1.0 inch
Orifice Diameter
5 ft. weir
ID 4.2 F

45 x 17 x 3
1.5 inch Skimmer
with 0.75 inch
Orifice Diameter
4 ft. weir
ID 4.3 B

1.5 inch Skimmer
with 0.50 inch
Orifice Diameter
4 ft. weir with
3.5 ft. weir height
ID 4.1 F
(See Earthen Dam
with Skimmer Detail)

Place Matting for Erosion Control
on Slope as Work Allows.
Sta. 14+00 -L- to Sta. 14+67 -L- LT
Sta. 14+20 -L- to Sta. 14+67 -L- RT
Sta. 18+00 -L- to Sta. 18+52 -L- LT
Sta. 18+00 -L- to Sta. 18+73 -L- RT
Sta. 19+50 -L- to Sta. 20+00 -L- RT

SEE SHEET 5 FOR -LDET- PLAN
SEE SHEET 8 FOR -LDET- PROFILE
SEE SHEET 6 FOR -L- PROFILE
SEE SHEET 7 FOR -Y1-, -Y2-, AND -Y3- PROFILES
SEE SHEETS S-1 THRU S-?? FOR STRUCTURE PLANS

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