PROJECT: B-4194

TIP

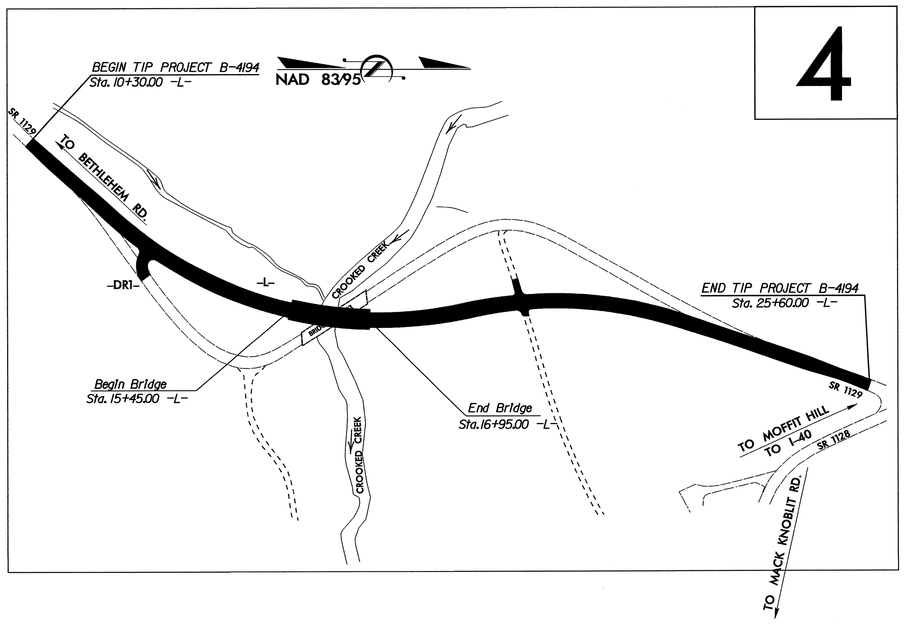
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

McDOWELL COUNTY

LOCATION: BRIDGE NO. 103 OVER CROOKED CREEK

TYPE OF WORK: GRADING, PAVING, DRAINAGE, BRIDGE, AND GUARDRAIL.



4

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4194	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	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	
1630.01	Riser Basin	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-B	
	Wattle	
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	
	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	

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

GRAPHIC SCALE

0
PLANS
0
PROFILE (HORIZONTAL)
0
PROFILE (VERTICAL)

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

Prepared In the Office of:

ROADSIDE ENVIRONMENTAL UNIT
1 South Wilmington St.
Raleigh, NC 27611

2006 STANDARD SPECIFICATIONS

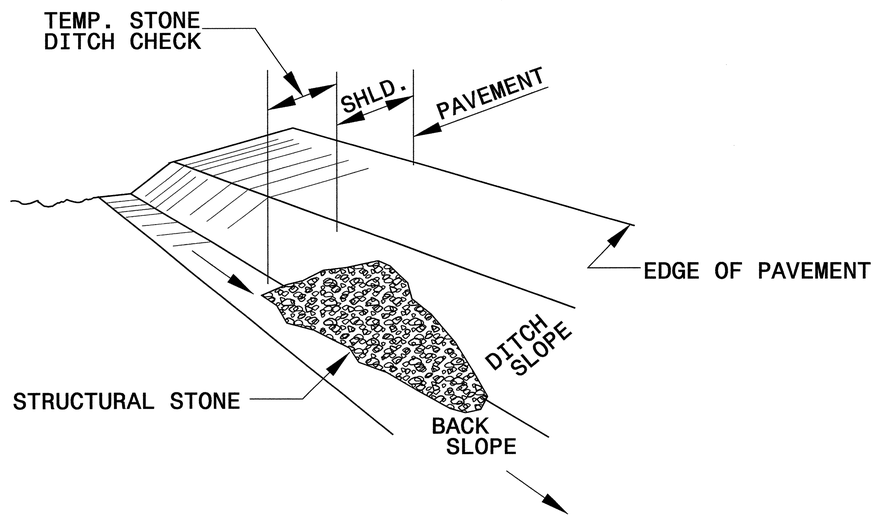
Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated July 18, 2006 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

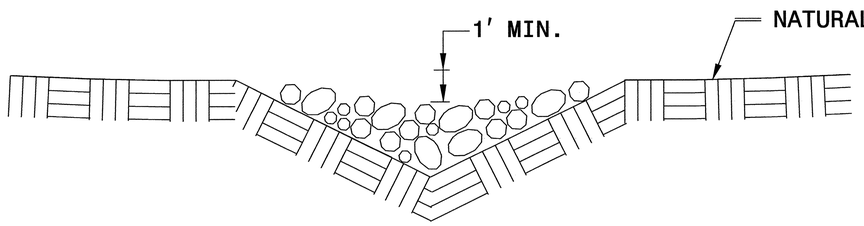
1605.01	Temporary Silt Fence	1630.05	Temporary Diversion
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.02	Silt Basin Type B		

PROJECT REFERENCE NO.	SHEET NO.
B-4194	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

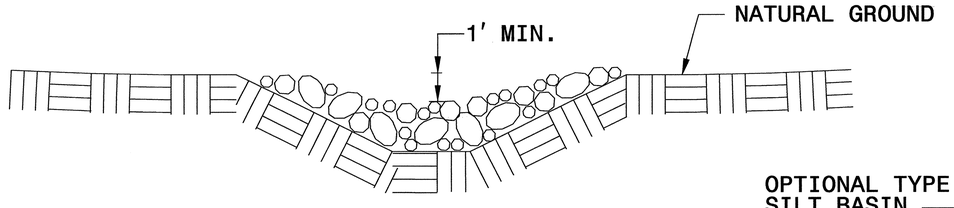
TEMPORARY ROCK SILT CHECK TYPE 'B' DETAIL



ISOMETRIC VIEW



CROSS SECTION VEE DITCH

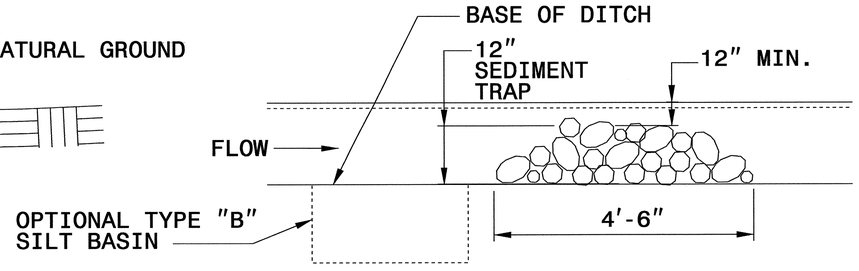


CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

USE CLASS 'B' EROSION CONTROL STONE FOR STRUCTURAL STONE.

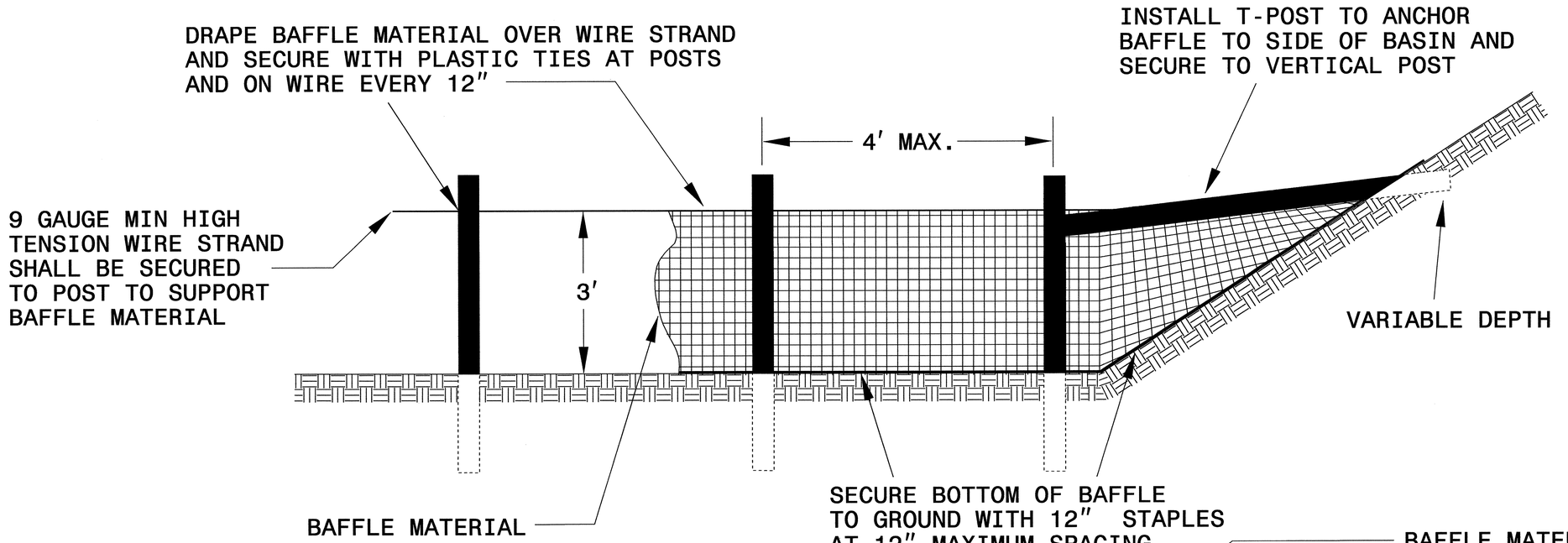
THE ENGINEER MAY DIRECT THE OPTION OF CLASS "A" STONE FOR SITES HAVING LESS THAN ONE (1) ACRE DRAINAGE AREA AND A DITCH GRADE LESS THAN 3%.

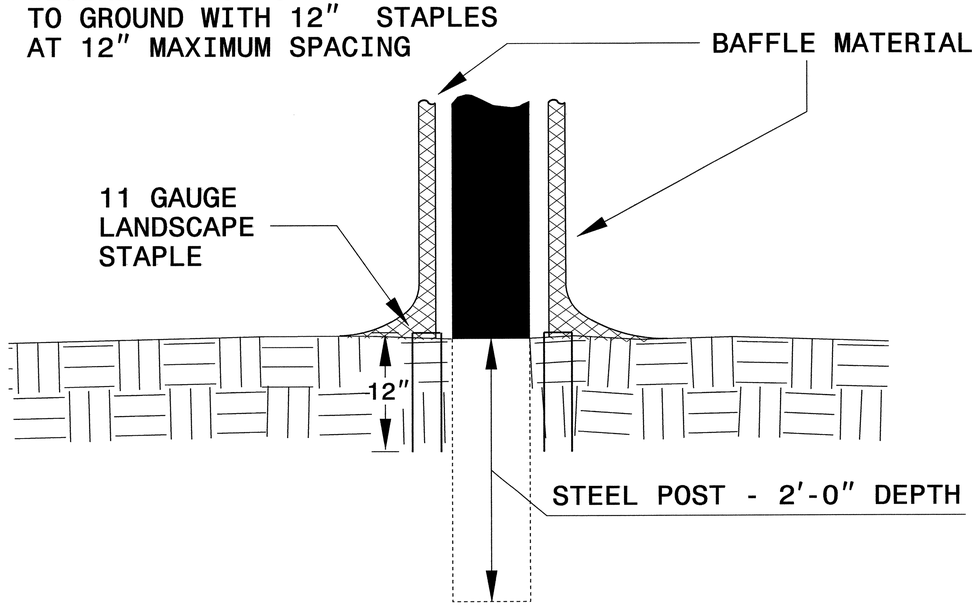


ELEVATION VIEW

PROJECT REFERENCE NO.	SHEET NO.
B-4194	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

COIR FIBER BAFFLE DETAIL



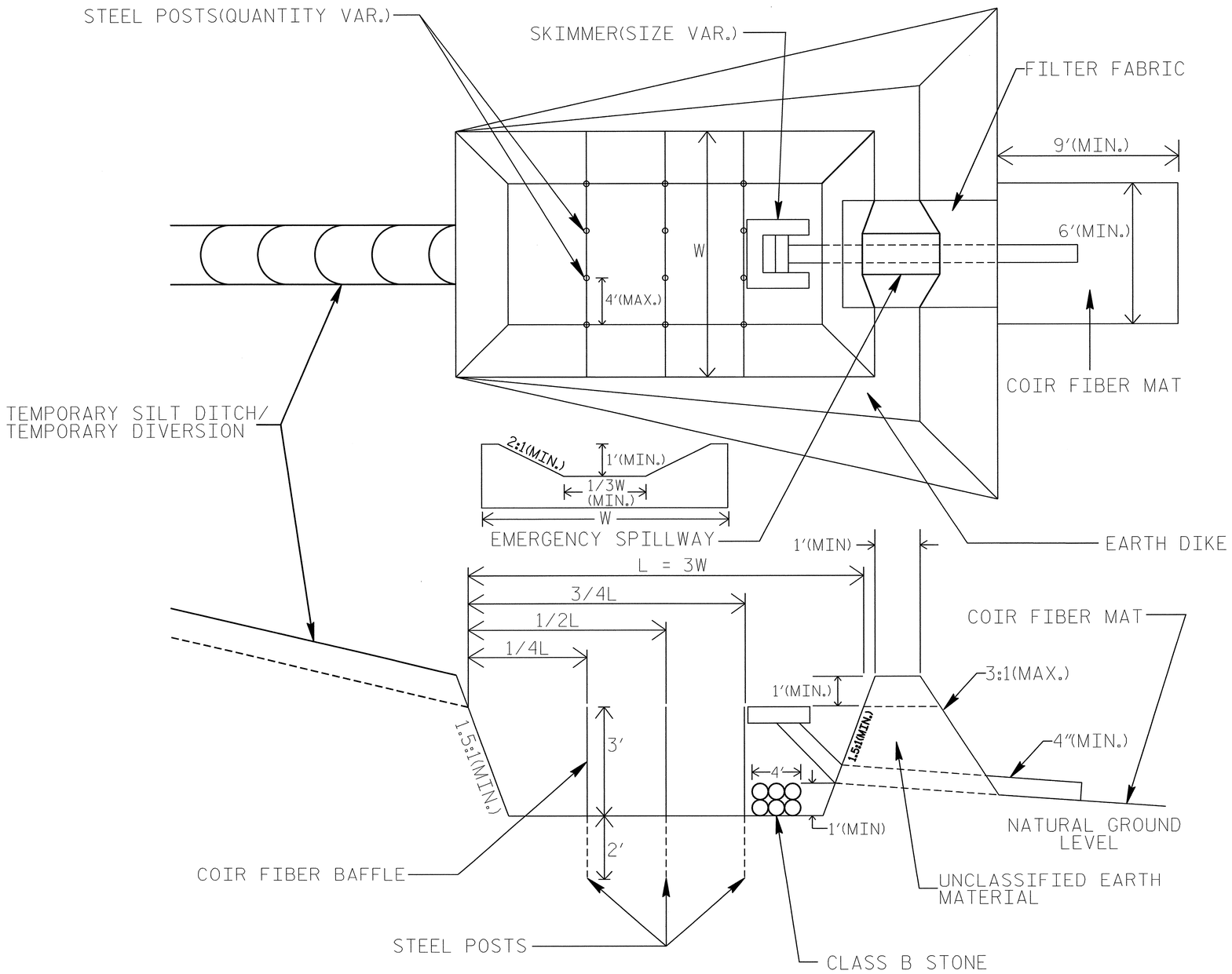


BAFFLE MATERIAL SHALL BE SECURED TO THE BOTTOM AND SIDES OF BASIN USING 12″ LANDSCAPE STAPLES

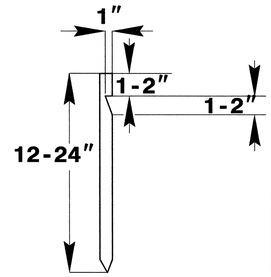
NOTE: INSTALL THREE(3) COIR FIBER BAFFLES IN SILT BASINS AND SEDIMENT DAMS AT DRAINAGE OUTLETS WITH A SPACING OF ¼ THE BASIN LENGTH. TWO(2) COIR FIBER BAFFLES CAN BE INSTALLED IN SILT BASINS AND DAMS LESS THAN 20 FT. IN LENGTH WITH A SPACING OF 1/3 THE BASIN LENGTH.

PROJECT REFERENCE NO.	SHEET NO.
B-4194	EC-2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

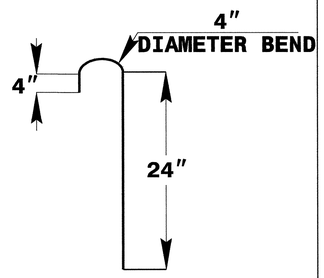
SKIMMER BASIN WITH BAFFLES DETAIL



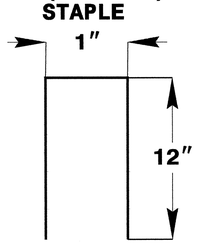
2" x 2" (nominal)
WOODEN STAKE



#10 STEEL
REINFORCEMENT BAR



1" (nominal)
STAPLE

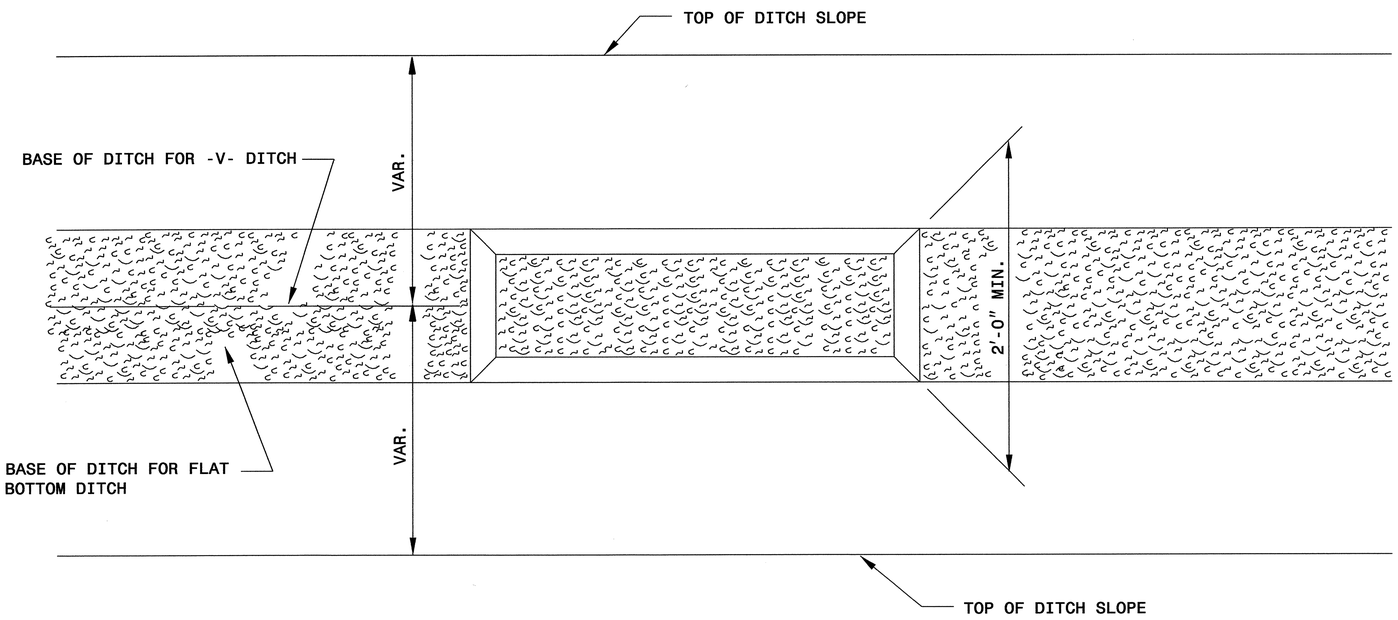


COIR FIBER MAT ANCHOR OPTIONS

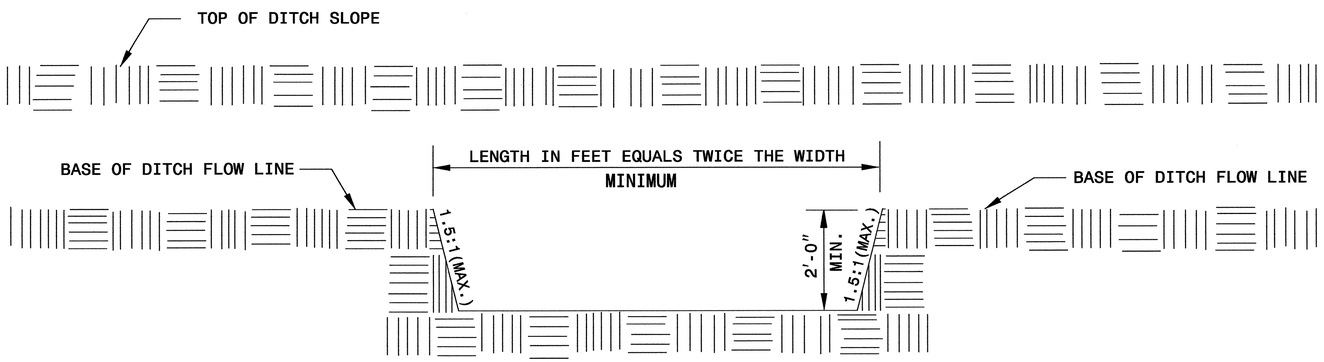
NOTES:
1. SEED AND PLACE MATTING FOR EROSION CONTROL ON SIDESLOPES.
2. LIMIT EARTH DIKE HEIGHT TO 5 FT.

PROJECT REFERENCE NO.	SHEET NO.
B-4194	EC-2C
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SILT BASIN 'B' DETAIL



PLAN



ELEVATION

PROJECT REFERENCE NO.	SHEET NO.
B-4194	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	19+75	21+50	LT	280
				SUBTOTAL	280
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					1050
				TOTAL	1330
				SAY	1350

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	12+25	12+75	RT	35
4	-L-	19+75	24+75	RT	735
				SUBTOTAL	770
		ADDITIONAL PSRM TO BE INSTALLED			0
				TOTAL	770
				SAY	800

PROJECT REFERENCE NO.	SHEET NO.
B-4194	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4

EXCAVATE TO EL. 1440 BENEATH STRUCTURE SEE CROSS SECTIONS

REMOVE ROADWAY FILL GRADE TO NATURAL GROUND SEE CROSS SECTIONS

PROP. PAVEMENT REMOVAL

-L- POT Sta. 10+00.00

-L- POT STA 10+30.00

BEGIN TIP PROJECT B-4194

HOWARD H. LAVENDER, et ux
DB 100 - PG 388
DB 273 - PG 534
1

-L-
PI Sta 15+68.09
△ = 55° 36' 52.1" (LT)
D = 8° 40' 52.2"
L = 640.63'
T = 348.08'
R = 660.00'
SE = .06
RO = 126'
CURVE WIDENING = 2'

PI Sta 20+49.91
△ = 32° 00' 13.4" (RT)
D = 8° 40' 52.2"
L = 368.66'
T = 189.28'
R = 660.00'
SE = .06
RO = 126'
CURVE WIDENING = 2'

DETAIL E
CUT DITCH
(Not to Scale)
Natural Ground, 2:1, d, b, 4:1 or Flatter, Front Ditch Slope
Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
Type of Liner= Class 'B' Rip-Rap
FROM -L- STA. 18+75 TO 19+50 RT.

NAD 83/95

NOTE: UTILIZE TEMPORARY ROCK SILT CHECK TYPE – A AND/OR SKIMMER BASIN AS STILLING BASIN WHERE APPLICABLE.

NOTES: SEE SHEET 5 FOR -L- & -DRI- PROFILES
SEE SHEET S-1 THRU S- FOR STRUCTURE PLANS
SBG = SHOULDER BERM GUTTER

DETAIL F
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground, 2:1, D, 2:1, b, 1'/Ft., Fill Slope
Min. D= 1.5 Ft.
b= 3 Ft.
FROM -L- STA. 17+25 TO STA. 19+25 LT.

SKETCH SHOWING BRIDGE IN RELATION TO PAVEMENT
B-77, SBG, 24", 13', 52', 18', 24', 3', 5', 13', 24', B-77, SBG, B-77

-BL- 1 PINC 9+02.78
-L- POT Sta 11+67.38 (10.29' LT)

-L- PC STA 12+20.00

NCDOT GPS B4194-2
PINC 17+62.64 =
-L- POC Sta 19+37.98 (157.67' LT) =
-TI- 101 PINC 6+86.20
ELEV= 1449.11'

-L- PRC STA 18+60.63

-DRI- POT STA 10+00.00
-L- POC Sta. 13+00.00

30 x 10 x 3
ID 4.3C

PLACE SHOULDER BERM GUTTER FROM BRIDGE TO STA. 18+00 LT.

PLACE SHOULDER BERM GUTTER FROM STA. 15+20 LT. TO BRIDGE

Begin Bridge
-L- Sta. 15+45.00

Begin Slab
-L- Sta. 15+30.59

BEGIN PROP 2'6" SBG
-L- STA. 10+50

END PROP 2'6" SBG
-L- STA. 11+75

-DRI- PC STA 10+12.15

-DRI- PT STA 10+55.64
-DRI- POT STA 10+76.15
END CONSTRUCTION

WILLIAM B. HARRIS
DB 247 - PG 515
2

RODNEY WHALEY
DB 322 - PG 109
3

JENNIFER HAUSER
DB 629 - PG 867
4

GENE A. MAUNEY, et ux
DB 346 - PG 463
5

CHARLES TURNER, et ux
DB 350 - PG 431
6

Toe Protection See Detail 'A' CL B Riprap Est. 55 Tons Filter Fabric Est. 100 SY

Lateral 'V' Ditch See Detail 'D' Class B Riprap Est. 79 Tons Filter Fabric Est. 242 SY Est. DDE 79 CY

Prop. Earth Berm See Sht. 2 for Detail

Lateral 'V' Ditch See Detail 'D' Class B Riprap Est. 104 Tons Filter Fabric Est. 292 SY Est. DDE 119 SY

Lateral 'V' Ditch See Detail 'E' Est DDE 48 CY

Special 'V' Ditch See Detail 'E' Class B Riprap Est. 35 Tons Filter Fabric Est. 98 SY

End Slab
-L- Sta. 17+09.41

End Bridge
-L- Sta. 16+95.00

CLASS B RIPRAP
EST. 2 TONS
FILTER FABRIC
EST. 7 SY

GRADE TO DRAIN AS DIRECTED BY THE ENGINEER

-L- PT STA 22+29.29

-L- POT Sta. 25+80.00

-L- POT STA 25+60.00
END TIP PROJECT B-4194

BM2
-BL- STA 12+94.70 (103.95' RT)
-L- STA 15+07.06 (154.20' RT)
ELEV= 1459.46'

BM3
-BL- STA 22+73.11 (45.17' RT)=
-L- STA 23+75.55 (35.72' RT)
ELEV= 1476.12'

-BL- 4 POT 24+62.35
-L- Sta. 25+73.04
17.033' Rt.

HOWARD H. LAVENDER, et ux
DB 100 - PG 388
DB 273 - PG 534
1

RUTH LAVENDER
DB 154 - PG 171

DETAIL A
TOE PROTECTION
(Not to Scale)
Natural Ground, d, 2:1 or FLATTER, Fill Slope, Filter Fabric
d= 2 Ft.
Type of Liner= Class B Rip-Rap
EST. 55 TONS. EST. 100 S.Y. FF
FROM -L- STA. 13+50 TO STA. 14+00 RT.
ALSO USE IN TRANSITION TO LATERAL 'V' DITCH FROM 14+00 TO 14+50 RT

54 x 18 x 3
2 inch Skimmer
with 1.625 inch
Orifice Diameter
6 ft. weir
ID 4.1C

60 x 17 x 3
2 inch Skimmer
with 1.625 inch
Orifice Diameter
8 ft. weir
ID 4.2C

DETAIL D
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground, d, 2:1, b, 1'/Ft., Fill Slope, Filter Fabric
Min. D= 2 Ft.
Max. d= 1.5 Ft.
b= 3 Ft.
Type of Liner= Class B Rip-Rap
FROM -L- STA. 16+50 TO STA. 18+75 RT.
FROM -L- STA. 14+50 TO STA. 16+16 RT.

DESIGN EXCEPTION REQUIRED
FOR DESIGN SPEED (45 MPH)
& HORIZONTAL STOPPING SIGHT DISTANCE

PROJECT REFERENCE NO.	SHEET NO.
B-4194	EC-5/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L-

PI Sta 15+68.09
Δ = 55° 36' 52.1" (LT)
D = 8° 40' 52.2"
L = 640.63'
T = 348.08'
R = 660.00'
SE = .06
RO = 126'
CURVE WIDENING = 2'

PI Sta 20+49.91
Δ = 32° 00' 13.4" (RT)
D = 8° 40' 52.2"
L = 368.66'
T = 189.28'
R = 660.00'
SE = .06
RO = 126'
CURVE WIDENING = 2'

DETAIL E
CUT DITCH
(Not to Scale)

Natural Ground, 2:1, d, T, D, 4:1 or Flatter, Front Ditch Slope, Filter Fabric
Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
Type of Liner= Class 'B' Rip-Rap

FROM -L- STA. 18+75 TO 19+50 RT.

NAD 83/95

NOTE:
UTILIZE TEMPORARY ROCK SILT CHECK TYPE - A AND/OR SKIMMER BASIN AS STILLING BASIN WHERE APPLICABLE.

NOTES: SEE SHEET 5 FOR -L- & -DRI- PROFILES
SEE SHEET S-1 THRU S- FOR STRUCTURE PLANS
SBG = SHOULDER BERM GUTTER

DETAIL F
LATERAL 'V' DITCH
(Not to Scale)

Natural Ground, 2:1, D, 2:1, b, 1'/Ft., Fill Slope
Min. D= 1.5 Ft.
b= 3 Ft.

FROM -L- STA. 17+25 TO STA. 19+25 LT.

SKETCH SHOWING BRIDGE IN RELATION TO PAVEMENT

-L- POT Sta. 10+00.00
-L- POT STA 10+30.00
BEGIN TIP PROJECT B-4194
-L- POT STA 25+80.00
-L- POT STA 25+60.00
END TIP PROJECT B-4194
-L- PT STA 22+29.29
-DRI- POT STA 10+00.00
-L- POC Sta. 13+00.00
-DRI- PC STA 10+12.15
-DRI- PT STA 10+55.64
-DRI- POT STA 10+76.15
END CONSTRUCTION
-BL- 1 PINC 9+02.78
-L- POT Sta 11+67.38 (10.29' LT)
-L- PC STA 12+20.00
NCDOT GPS B4194-2
PINC 17+62.64 =
-L- POC Sta 19+37.98 (157.67' LT) =
-TI- 101 PINC 6+86.20
ELEV= 1449.11'
-L- PRC STA 18+60.63
-BL- 2 PINC 13+39.59
-L- POC Sta 15+84.78 (70.05' RT)
-BL- 4 POT 24+62.35
-L- Sta. 25+73.04
17.033' Rt.

HOWARD H. LAVENDER, et ux
DB 100 - PG 388
DB 273 - PG 534 (1)

WILLIAM B. HARRIS
DB 247 - PG 515 (2)

RODNEY WHALEY
DB 322 - PG 109 (3)

JENNIFER HAUSER
DB 629 - PG 887 (4)

GENE A. MAULNEY, et ux
DB 346 - PG 463 (5)

CHARLES TURNER, et ux
DB 350 - PG 431 (6)

ADA E. LAVENDER
DB 81 - PG 549

RUTH LAVENDER
DB 154 - PG 171

BM2
-BL- STA 12+94.70 (103.95 RT)=
-L- STA 15+07.06 (154.20' RT)
ELEV= 1459.92'

BM3
-BL- STA 22+73.11 (45.12' RT)=
-L- STA 23+75.55 (35.72' RT)
ELEV= 1475.12'

EXCAVATE TO EL. 1440 BENEATH STRUCTURE SEE CROSS SECTIONS

REMOVE ROADWAY FILL GRADE TO NATURAL GROUND SEE CROSS SECTIONS

PROP. PAVEMENT REMOVAL

20 x 8 x 3
1.5 inch Skimmer
with .625 inch
Orifice Diameter
4 ft. weir
ID 4.1F

30 x 10 x 3
ID 4.3C

54 x 18 x 3
2 inch Skimmer
with 1.625 inch
Orifice Diameter
6 ft. weir
ID 4.1C

60 x 17 x 3
2 inch Skimmer
with 1.625 inch
Orifice Diameter
8 ft. weir
ID 4.2C

PLACE SHOULDER BERM GUTTER FROM STA. 15+20 LT. TO BRIDGE

PLACE SHOULDER BERM GUTTER FROM BRIDGE TO STA. 18+00 LT.

GRADE TO DRAIN AS DIRECTED BY THE ENGINEER

DETAIL A
TOE PROTECTION
(Not to Scale)

Natural Ground, d, 2:1 or FLATTER, Fill Slope, Filter Fabric
d= 2 Ft.
Type of Liner= Class B Rip-Rap

EST. 55 TONS. EST. 100 S.Y FF
FROM -L- STA. 13+50 TO STA. 14+00 RT.
ALSO USE IN TRANSITION TO LATERAL 'V' DITCH FROM 14+00 TO 14+50 RT

DETAIL D
LATERAL 'V' DITCH
(Not to Scale)

Natural Ground, 2:1, d, T, D, 2:1, b, 1'/Ft., Fill Slope, Filter Fabric
Min. D= 2 Ft.
Max. d= 1.5 Ft.
b= 3 Ft.
Type of Liner= Class B Rip-Rap

FROM -L- STA. 16+50 TO STA. 18+75 RT.
FROM -L- STA. 14+50 TO STA. 16+16 RT.

DESIGN EXCEPTION REQUIRED
FOR DESIGN SPEED (45 MPH)
& HORIZONTAL STOPPING SIGHT DISTANCE