PROJECT REFERENCE NO.	SHEET NO.
R-2519B	2D-2
R/W SHEET NO.	

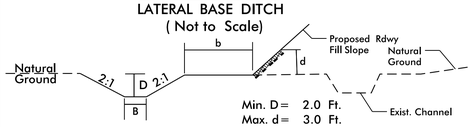
HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 20329 ENGINEER JIMMY B. BILLINGS

DocuSigned by: Jimmy B. Billings 9/19/2014

DETAIL 'AE–LT'

LATERAL BASE DITCH
(Not to Scale)



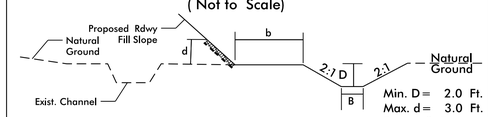
Min. D = 2.0 Ft.
Max. d = 3.0 Ft.
B = 6.0 Ft.
b = 5.0 Ft.

Type of Liner = CLASS I RIP RAP

FROM STA. 156 + 00 TO STA. 157 + 65 –L– LT

DETAIL 'AE–RT'

LATERAL BASE DITCH
(Not to Scale)



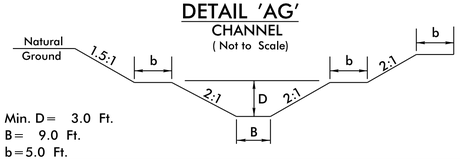
Min. D = 2.0 Ft.
Max. d = 3.0 Ft.
B = 6.0 Ft.
b = 5.0 Ft.

Type of Liner = CLASS I RIP RAP

FROM STA. 152 + 00 TO STA. 154 + 63 –L– RT

DETAIL 'AG'

CHANNEL
(Not to Scale)

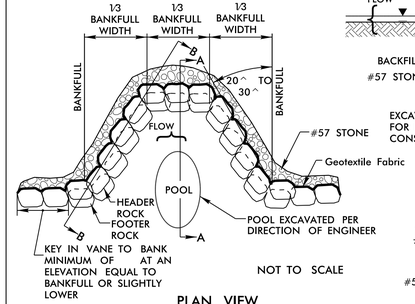


Min. D = 3.0 Ft.
B = 9.0 Ft.
b = 5.0 Ft.

FROM STA. 126 + 00 TO STA. 127 + 00 –L– LT

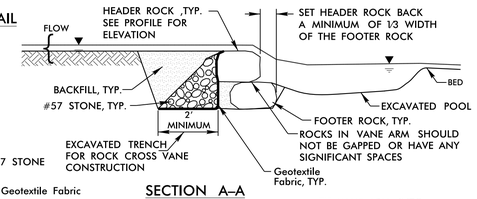
DETAIL 'AF'

ROCK CROSS VANE DETAIL

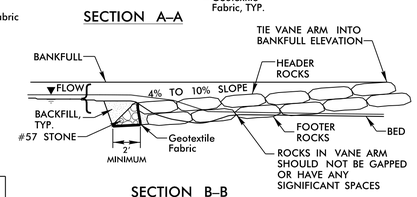


NOT TO SCALE

PLAN VIEW



SECTION A–A



SECTION B–B

STATION	BOULDER DIMENSIONS (FT) HEIGHT	LENGTH	WIDTH	1/3 BANKFULL WIDTH(FT)
125 + 80 –L– LT	2	4	3	7
127 + 20 –L– LT	2	4	3	7
152 + 52 –L– RT	2	4	3	5
153 + 50 –L– RT	2	4	3	5
154 + 50 –L– RT	2	4	3	5
154 + 70 –L– RT	2	4	3	5
156 + 70 –L– LT	2	4	3	5
157 + 64 –L– LT	2	4	3	5
STREAM STATION				
12 + 01	2	4	3	5
13 + 30	2	4	3	5
14 + 33	2	4	3	5

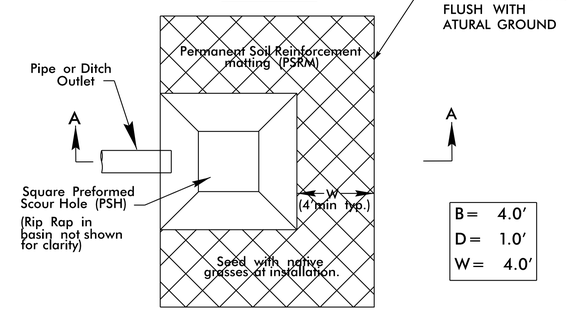
NOTES:
1. DEEPEST PART OF POOL TO BE IN LINE WITH WHERE VANE ARM TIES INTO BANKFULL.
2. DO NOT EXCAVATE POOL TOO CLOSE TO FOOTER BOULDERS.
3. CLASS "A" STONE CAN BE USED TO REDUCE VOIDS BETWEEN HEADERS AND FOOTERS.
4. COMPACT BACKFILL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINEER.
5. POOL DEPTH SHOULD BE 2 TO 3 TIMES BANKFULL DEPTH.

DETAIL 'AH'

PREFORMED SCOUR HOLE

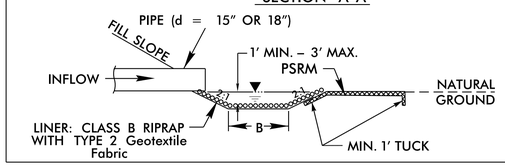
*NOT TO SCALE

PLAN VIEW



B = 4.0'
D = 1.0'
W = 4.0'

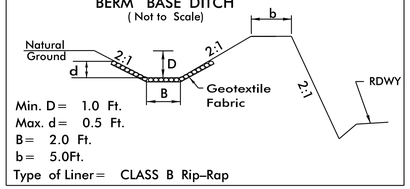
SECTION A–A



STA. 246 + 30 –L– LT
STA. 337 + 90 –L– LT
STA. 324 + 70 –L– RT

DETAIL 'AI'

BERM BASE DITCH
(Not to Scale)



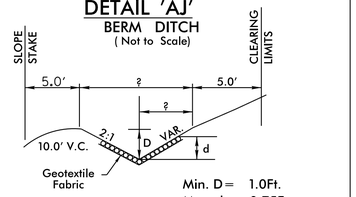
Min. D = 1.0 Ft.
Max. d = 0.5 Ft.
B = 2.0 Ft.
b = 5.0Ft.

Type of Liner = CLASS B Rip–Rap

FROM STA. 169 + 50 TO STA. 172 + 50 –L– RT
FROM STA. 10 + 50 TO STA. 11 + 60 –DR10– LT

DETAIL 'AJ'

BERM DITCH
(Not to Scale)



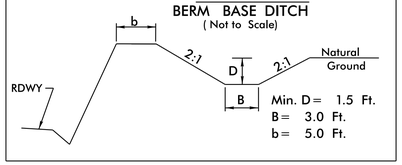
Min. D = 1.0Ft.
Max. d = 0.75Ft.

Type of Liner = CLASS B RIP RAP

FROM STA. 172 + 50 TO STA. 176 + 25 –L– RT

DETAIL 'AK'

BERM BASE DITCH
(Not to Scale)

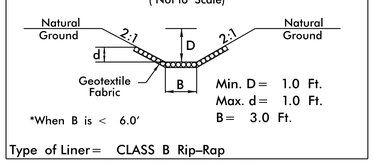


Min. D = 1.5 Ft.
B = 3.0 Ft.
b = 5.0 Ft.

FROM STA. 177 + 00 TO STA. 179 + 00 –L– RT
FROM STA. 195 + 80 TO STA. 198 + 00 –L– RT

DETAIL 'AL'

STANDARD BASE DITCH
(Not to Scale)



Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
B = 3.0 Ft.

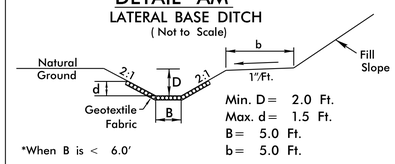
*When B is < 6.0'

Type of Liner = CLASS B Rip–Rap

STA. 183 + 88 –L– RT
STA. 10 + 50 –DR15– RT

DETAIL 'AM'

LATERAL BASE DITCH
(Not to Scale)



Min. D = 2.0 Ft.
Max. d = 1.5 Ft.
B = 5.0 Ft.
b = 5.0 Ft.

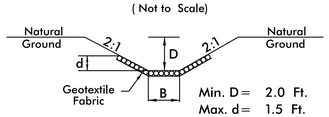
*When B is < 6.0'

Type of Liner = CLASS II RIP RAP

FROM STA. 212 + 50 TO STA. 214 + 00 –L– RT

DETAIL 'AN'

STANDARD BASE DITCH
(Not to Scale)



Min. D = 2.0 Ft.
Max. d = 1.5 Ft.
B = 5.0 Ft.

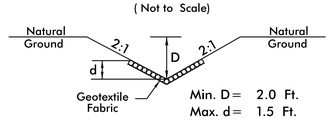
*When B is < 6.0'

Type of Liner = CLASS II Rip–Rap

STA. 214 + 08 –L– RT
FROM STA. 123 + 00 TO STA. 123 + 50 –L– RT
FROM STA. 243 + 80 TO STA. 244 + 10 –L– RT

DETAIL 'AO'

STANDARD 'V' DITCH
(Not to Scale)



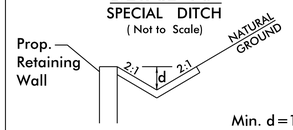
Min. D = 2.0 Ft.
Max. d = 1.5 Ft.

Type of Liner = CLASS B Rip–Rap

FROM STA. 23 + 84–L– TO STA. 25 + 06 –L–

DETAIL 'AP'

SPECIAL DITCH
(Not to Scale)



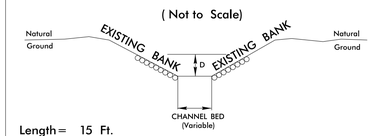
Min. d = 1.0 FT

Type of Liner = PAVED CONCRETE

FROM STA. 198 + 00 TO STA. 201 + 50 –L– LT

DETAIL 'AQ'

18" PIPE OUTLET CHANNEL
(Not to Scale)

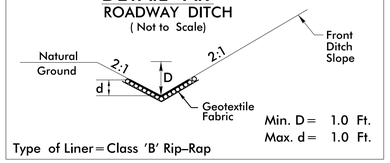


Length = 15 Ft.
D = 2.0 Ft.
Est. = 7 Tons of Class 1 Rip–Rap, 11 SY GEOTEXTILE

STA. 206 + 50–L–LT

DETAIL 'AR'

ROADWAY DITCH
(Not to Scale)



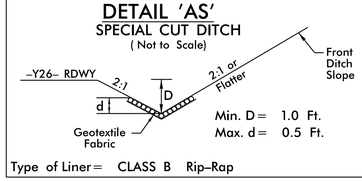
Min. D = 1.0 Ft.
Max. d = 1.0 Ft.

Type of Liner = Class 'B' Rip–Rap

FROM STA. 10 + 00 TO STA. 13 + 50 –Y24– RT

DETAIL 'AS'

SPECIAL CUT DITCH
(Not to Scale)



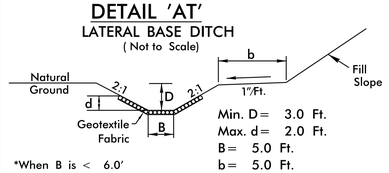
Min. D = 1.0 Ft.
Max. d = 0.5 Ft.

Type of Liner = CLASS B Rip–Rap

FROM STA. 300 + 50 TO STA. 301 + 00 –L– LT
FROM STA. 10 + 00 TO STA 14 + 12 –DR14–
FROM STA. 11 + 63 TO STA. 12 + 88 –Y26– LT

DETAIL 'AT'

LATERAL BASE DITCH
(Not to Scale)



Min. D = 3.0 Ft.
Max. d = 2.0 Ft.
B = 5.0 Ft.
b = 5.0 Ft.

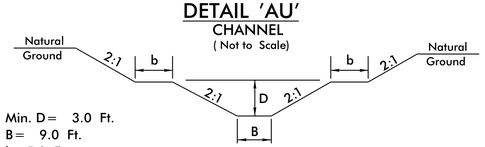
*When B is < 6.0'

Type of Liner = CLASS I RIP RAP

FROM STA. 302 + 05 TO STA. 302 + 50 –L– RT

DETAIL 'AU'

CHANNEL
(Not to Scale)

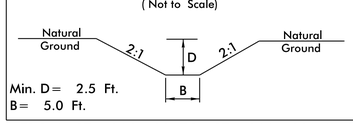


Min. D = 3.0 Ft.
B = 9.0 Ft.
b = 5.0 Ft.

FROM STA. 122 + 00 TO STA. 124 + 00 –L– LT

DETAIL 'AV'

STANDARD BASE DITCH
(Not to Scale)

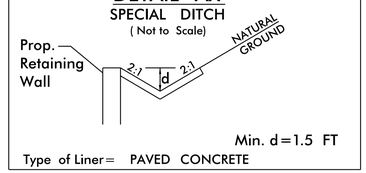


Min. D = 2.5 Ft.
B = 5.0 Ft.

FROM STA. 299 + 30 TO STA. 300 + 30 –L– RT

DETAIL 'AX'

SPECIAL DITCH
(Not to Scale)



Min. d = 1.5 FT

Type of Liner = PAVED CONCRETE

FROM STA. 305 + 00 TO STA. 308 + 50 –L– RT

8/17/99

17-SEP-2014 10:40
R:\Hydraulics\Hydraulic_Details\Hydraulic_details.dgn
$$$$USERNAME$$$$