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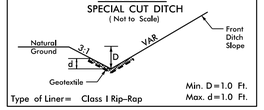
WETHERILL ENGINEERING
1223 Jones Franklin Road
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

PROJECT REFERENCE NO.	SHEET NO.
U-2525C	2D-2
R/W SHEET NO.	

HYDRAULICS ENGINEER
1/10/2018
NORTH CAROLINA PROFESSIONAL SEAL 23993 ENGINEER MAJID S. PIRA
DocuSigned by: Majid S. Pira

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

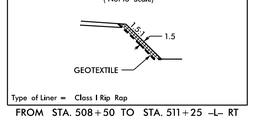
DETAIL AN
SPECIAL CUT DITCH
(Not to Scale)



Type of Liner= Class I Rip-Rap

FROM STA. 441+00 TO STA. 442+00 –L– LT

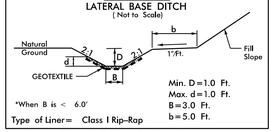
DETAIL AO
ROCK PLATING
(Not to Scale)



Type of Liner = Class I Rip Rap

FROM STA. 508+50 TO STA. 511+25 –L– RT

DETAIL AP
LATERAL BASE DITCH
(Not to Scale)

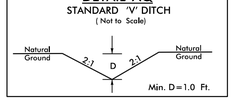


*When B is < 6.0'

Type of Liner= Class I Rip-Rap

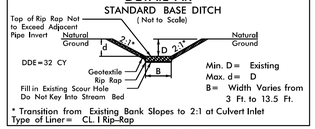
FROM STA. 471+42 TO STA. 472+95 –L– LT
FROM STA. 22+50 TO STA. 24+50 –Y6RPB– LT

DETAIL AQ
STANDARD 'V' DITCH
(Not to Scale)



FROM STA. 26+30 –LACFLY– LT

DETAIL AR
STANDARD BASE DITCH
(Not to Scale)

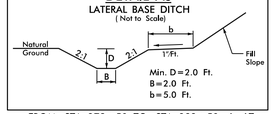


* Transition from Existing Bank Slopes to 2:1 at Culvert Inlet

Type of Liner= CL. I Rip-Rap

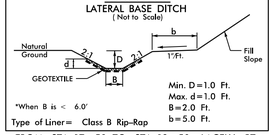
–Y6– STA. 32+44 (RT)

DETAIL AS
LATERAL BASE DITCH
(Not to Scale)



FROM STA. 279+50 TO STA. 282+50 –L– LT

DETAIL AT
LATERAL BASE DITCH
(Not to Scale)

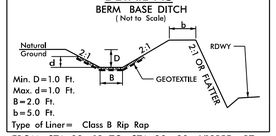


*When B is < 6.0'

Type of Liner= Class B Rip-Rap

FROM STA. 17+50 TO STA. 19+50 –LACFLY– RT

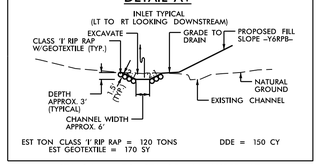
DETAIL AU
BERM BASE DITCH
(Not to Scale)



Type of Liner= Class B Rip Rap

FROM STA. 22+12 TO STA. 29+38 –Y13RPD– RT

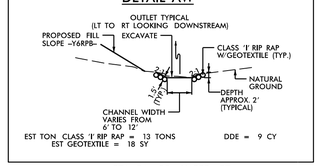
DETAIL AV



EST TON CLASS 'I' RIP RAP = 120 TONS
EST GEOTEXTILE = 170 SY
DDE = 150 CY

STA. 24+44 TO STA. 25+44 –Y6RPB– LT

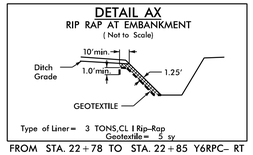
DETAIL AW



EST TON CLASS 'I' RIP RAP = 13 TONS
EST GEOTEXTILE = 18 SY
DDE = 9 CY

STA 26+90 –Y6RPB– RT

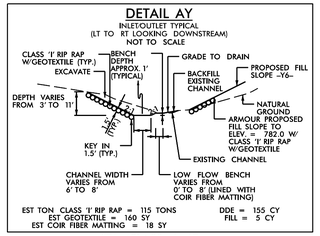
DETAIL AX
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= 3 TONS,CL I Rip-Rap
Geotextile= 5 sy

FROM STA. 22+78 TO STA. 22+85 Y6RPC– RT

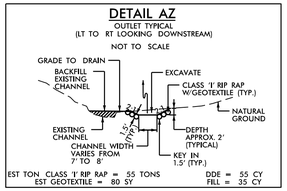
DETAIL AY



EST TON CLASS 'I' RIP RAP = 115 TONS
EST GEOTEXTILE = 160 SY
EST COIR FIBER MATTING = 18 SY
DDE = 155 CY
FILL = 5 CY

STA 471+23 –L– LT

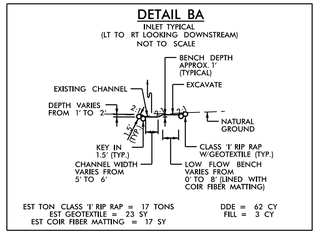
DETAIL AZ
(LT TO RT LOOKING DOWNSTREAM)
NOT TO SCALE



EST TON CLASS 'I' RIP RAP = 55 TONS
EST GEOTEXTILE = 80 SY
DDE = 55 CY
FILL = 35 CY

STA 472+86 –L– RT

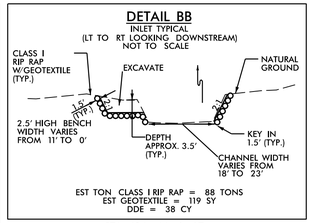
DETAIL BA
INLET TYPICAL
(LT TO RT LOOKING DOWNSTREAM)
NOT TO SCALE



EST TON CLASS 'I' RIP RAP = 17 TONS
EST GEOTEXTILE = 23 SY
EST COIR FIBER MATTING = 17 SY
DDE = 62 CY
FILL = 3 CY

STA 21+80 –Y6– RT

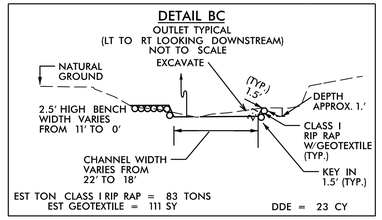
DETAIL BB
INLET TYPICAL
(LT TO RT LOOKING DOWNSTREAM)
NOT TO SCALE



EST TON CLASS I RIP RAP = 88 TONS
EST GEOTEXTILE = 119 SY
DDE = 38 CY

STA 494+44 –L– LT

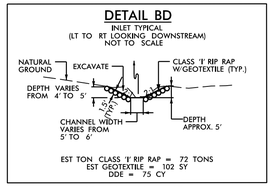
DETAIL BC
OUTLET TYPICAL
(LT TO RT LOOKING DOWNSTREAM)
NOT TO SCALE



EST TON CLASS I RIP RAP = 83 TONS
EST GEOTEXTILE = 111 SY
DDE = 23 CY

STA 492+38 –L– RT

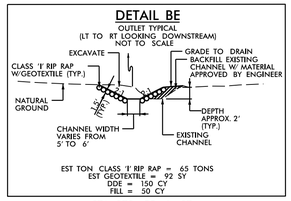
DETAIL BD
INLET TYPICAL
(LT TO RT LOOKING DOWNSTREAM)
NOT TO SCALE



EST TON CLASS 'I' RIP RAP = 72 TONS
EST GEOTEXTILE = 102 SY
DDE = 75 CY

STA 384+80 –L– LT

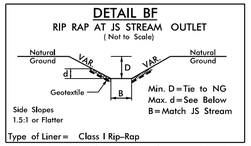
DETAIL BE
OUTLET TYPICAL
(LT TO RT LOOKING DOWNSTREAM)
NOT TO SCALE



EST TON CLASS 'I' RIP RAP = 65 TONS
EST GEOTEXTILE = 92 SY
DDE = 150 CY
FILL = 50 CY

STA 379+55 –L– RT

DETAIL BF
RIP RAP AT JS STREAM OUTLET
(Not to Scale)

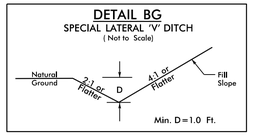


Side Slopes
1.5:1 or Flatter

Type of Liner= Class I Rip-Rap

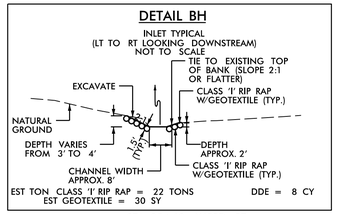
STA 278+80 –L– RT; d=3.5'; Length=45'; DDE=24 CY
STA 505+15 –L– LT; d=1.5'; Length=29'; DDE=10 CY
STA 530+95 –L– RT; d=3.5'; Length=19'; DDE=12 CY

DETAIL BG
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM STA. 17+50 TO STA. 18+50 –Y13RPA– RT

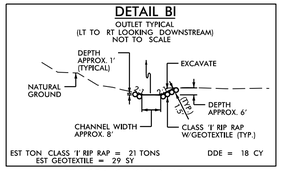
DETAIL BH
INLET TYPICAL
(LT TO RT LOOKING DOWNSTREAM)
NOT TO SCALE



EST TON CLASS 'I' RIP RAP = 22 TONS
EST GEOTEXTILE = 30 SY
DDE = 8 CY

STA 25+60 –Y6RPD– RT

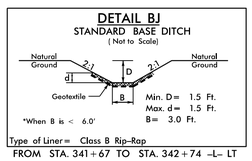
DETAIL BI
OUTLET TYPICAL
(LT TO RT LOOKING DOWNSTREAM)
NOT TO SCALE



EST TON CLASS 'I' RIP RAP = 21 TONS
EST GEOTEXTILE = 29 SY
DDE = 18 CY

STA 25+60 –Y6RPD– LT

DETAIL BJ
STANDARD BASE DITCH
(Not to Scale)

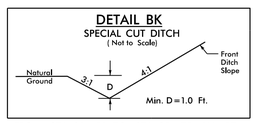


*When B is < 6.0'

Type of Liner= Class B Rip-Rap

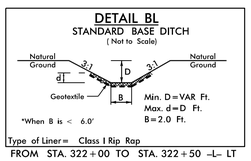
FROM STA. 341+67 TO STA. 342+74 –L– LT

DETAIL BK
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 32+50 TO STA. 35+75 –Y4– RT
FROM STA. 38+00 TO STA. 41+50 –Y4– RT

DETAIL BL
STANDARD BASE DITCH
(Not to Scale)

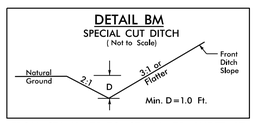


*When B is < 6.0'

Type of Liner= Class I Rip Rap

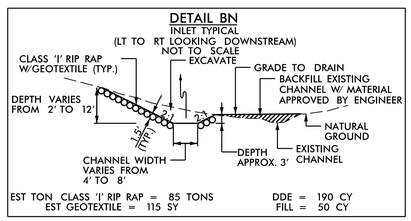
FROM STA. 322+00 TO STA. 322+50 –L– LT

DETAIL BM
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 11+75 TO STA. 14+75 –Y4DET– LT
FROM STA. 12+50 TO STA. 15+50 –Y4DET– RT
FROM STA. 19+25 TO STA. 22+75 –Y4DET– LT
FROM STA. 18+75 TO STA. 20+25 –Y4DET– RT
FROM STA. 16+25 TO STA. 19+00 –Y5DET– LT
FROM STA. 16+25 TO STA. 17+25 –Y5DET– RT

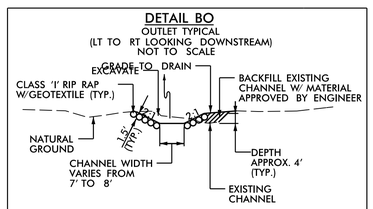
DETAIL BN
INLET TYPICAL
(LT TO RT LOOKING DOWNSTREAM)
NOT TO SCALE



EST TON CLASS 'I' RIP RAP = 85 TONS
EST GEOTEXTILE = 115 SY
DDE = 190 CY
FILL = 50 CY

STA 363+75 –L– LT

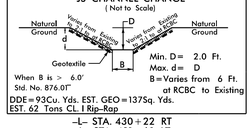
DETAIL BO
OUTLET TYPICAL
(LT TO RT LOOKING DOWNSTREAM)
NOT TO SCALE



EST TON CLASS 'I' RIP RAP = 45 TONS
EST GEOTEXTILE = 70 SY
DDE = 42 CY
FILL = 33 CY

STA 365+60 –L– RT

DETAIL BP
JS CHANNEL CHANGE
(Not to Scale)

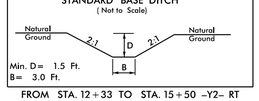


When B is > 6.0'
Std. No. 876.01"

DDE=93Cu. Yds. EST. GEO=137Sq. Yds.
EST. 62 Tons CL. I Rip-Rap

–L– STA. 430+22 RT
–L– STA. 431+60 LT

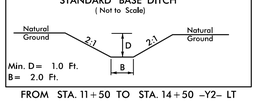
DETAIL RR1
STANDARD BASE DITCH
(Not to Scale)



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

FROM STA. 12+33 TO STA. 15+50 –Y2– RT

DETAIL RR2
STANDARD BASE DITCH
(Not to Scale)



Min. D= 1.0 Ft.
B= 2.0 Ft.

FROM STA. 11+50 TO STA. 14+50 –Y2– LT

8/17/99
1/2/2018
USER:PRIDGEN
u2525c_rdy_psh_02D-02_drainage-details.dgn