8/17/99

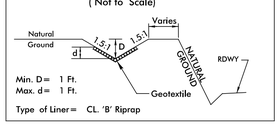
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-2409C	EC-19/CONST9
R/W SHEET NO.	
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER	

ICA Engineering
5121 Kingdom Way, Suite 100
Raleigh, NC 27607
NC License No: P0258

LEVEL III CERTIFIED BY:
STACEY H. BAILEY, PE
CERTIFICATION NUMBER: 3074
ISSUED: APRIL 8, 2015

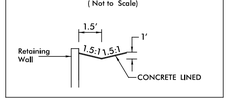
DETAIL D
BERM 'V' DITCH
(Not to Scale)



Min. D= 1 Ft.
Max. d= 1 Ft.
Type of Liner= CL 'B' Riprap

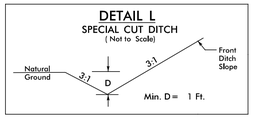
FROM STA. 74+05 TO STA. 76+45 L LT

DETAIL J
PAVED DITCH
(Not to Scale)



FROM STA. 67+75 TO STA. 68+66 -L- LT
FROM STA. 68+65 TO STA. 69+62 -L- RT

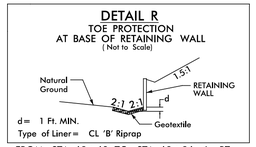
DETAIL L
SPECIAL CUT DITCH
(Not to Scale)



Min. D= 1 Ft.

FROM STA. 72+25 TO STA. 73+00 -L- RT

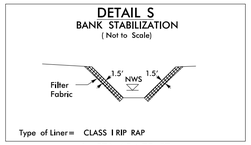
DETAIL R
TOE PROTECTION
AT BASE OF RETAINING WALL
(Not to Scale)



d= 1 Ft. MIN.
Type of Liner= CL 'B' Riprap

FROM STA. 68+62 TO STA. 68+86 -L- RT

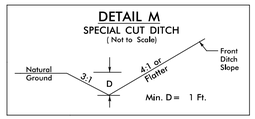
DETAIL S
BANK STABILIZATION
(Not to Scale)



Type of Liner= CLASS I RIP RAP

-L- STA. 69+79 RT

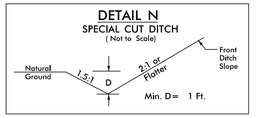
DETAIL M
SPECIAL CUT DITCH
(Not to Scale)



Min. D= 1 Ft.

FROM STA. 69+25 TO STA. 69+75 -L- LT

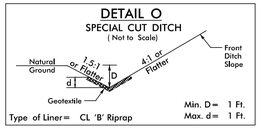
DETAIL N
SPECIAL CUT DITCH
(Not to Scale)



Min. D= 1 Ft.

FROM STA. 69+00 TO STA. 69+25 -L- LT
FROM STA. 71+50 TO STA. 72+25 -L- RT

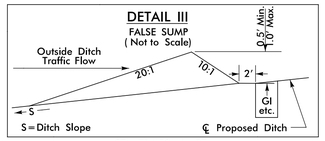
DETAIL O
SPECIAL CUT DITCH
(Not to Scale)



Min. D= 1 Ft.
Max. d= 1 Ft.
Type of Liner= CL 'B' Riprap

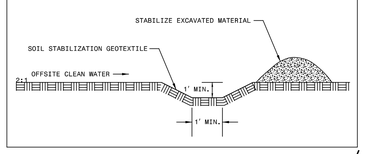
FROM STA. 69+75 TO STA. 70+60 -L- LT

DETAIL III
FALSE SUMP
(Not to Scale)



STA. 71+50 -L- RT
STA. 73+75 -L- LT

CLEAN WATER DIVERSION
→→ CWD →→ CWD →→ CWD →→ CWD →
(Not to Scale)



-L-
PI Sta 67+91.46
△ = 58° 54' 09.1" (LT)
D = 19° 05' 54.9"
L = 308.41'
T = 169.40'
R = 300.00'
SE = 0.08
DS = 30 MPH

-L-
PI Sta 70+73.68
△ = 26° 25' 24.1" (RT)
D = 12° 43' 56.6"
L = 207.53'
T = 105.64'
R = 450.00'
SE = 0.08
DS = 40 MPH

4
LBM INDUSTRIES, INC.
DB 428 PG 262
FILE 7 PG 435

-L-
PI Sta 73+62.95
△ = 6° 15' 03.5" (RT)
D = 5° 43' 46.5"
L = 109.10'
T = 54.60'
R = 1,000.00'
SE = 0.06
DS = 40 MPH

-L-
PI Sta 75+70.15
△ = 6° 09' 16.9" (LT)
D = 6° 21' 58.3"
L = 96.68'
T = 48.39'
R = 900.00'
SE = 0.06
DS = 40 MPH

-L-
PI Sta 77+14.69
△ = 16° 17' 45.5" (RT)
D = 11° 27' 33.0"
L = 142.21'
T = 71.59'
R = 500.00'
SE = 0.08
DS = 40 MPH

UTILIZE BERM DITCH AS CLEAN WATER DIVERSION DITCH UNTIL ROADWAY CUT SLOPES ARE STABILIZED

-L- POT 78+73.82

-L- PC 75+21.76

-L- PT 76+18.44

-L- PC 76+43.10

-L- PC 69+68.04
SPECIAL CUT DITCH W/CLASS B RIPRAP
EST. 23 TONS
EST. 52 SY GT
SEE DETAIL O

-L- PT 71+75.57

TRENCHLESS INSTALLATION 24" WELDED STEEL

-L- PC 66+22.06

SPECIAL CUT DITCH SEE DETAIL M

-L- PT 69+30.48

BEGIN 166' TAPER LT
-L- STA 68+66.26

CLASS B RIPRAP
EST 2 TONS
EST 7 SY GT

SPECIAL CUT DITCH SEE DETAIL N

PROPOSED RETAINING WALL NO. 6

END 250' TAPER LT
-L- STA 67+00

TOP OF RETAINING WALL DITCH SEE DETAIL J

-MATCHLINE: STA 66+00 SEE SHEET 8

PROPOSED GUARDRAIL

BEGIN SBG
STA. 69+49 -L- RT

SBG FROM STA. 68+66
TO STA. 69+05 -L- LT

TOP OF RETAINING WALL DITCH SEE DETAIL J

SBG FROM STA. 67+54
TO STA. 67+75 -L- LT

GOES TO DI IN RESORT PARKING LOT

-DRI- PC 11+50.55

-DRI- PT 12+16.94

-DRI- POT 12+80.59

TOE PROTECTION @ BASE OF WALL W/CLASS B RIPRAP
SEE DETAIL R
EST 5 TONS
EST 11 SY GT

CLASS B RIPRAP
EST 2 TONS
EST 7 SY GT

PROPOSED RETAINING WALL NO. 5

5
INDIAN CREEK RESORTS, LLC
DB 68 PG 808
FILE 2, SHEET 355A
FILE 10, SHEET 969

6
INDIAN CREEK RESORTS, LLC
DB 38 PG 840
FILE 2 SLID 355A

-DRI-
PI Sta 11+86.79
△ = 39° 49' 58.5" (RT)
D = 60° 00' 00.0"
L = 66.39'
T = 36.23'
R = 100.00'

LOTS 1-8
SECTION ONE
CATATOGA FALLS COTTAGES
(EXCEPTION)
FILE 10, SLIDE 971

24" CSP B GAGE W/CLASS B RIPRAP
W/COUPLING WELD & LUG W/SLEEVE GASKETS

SPECIAL CUT DITCH SEE DETAIL L

CLASS B RIPRAP
EST 2 TONS
EST 7 SY GT

BANK STABILIZATION SEE DETAIL S
CLASS I RIPRAP
EST 7 TONS
EST 15 SY GT

TRENCHLESS INSTALLATION 24" WELDED STEEL

CLASS I RIPRAP
EST 7 TONS
EST 15 SY GT

BERM V DITCH W/CLASS B RIPRAP
SEE DETAIL D
EST 35 TONS
EST 78 SY GT
EST DDE = 90 CY

END SBG
STA. 75+11 -L- RT

-L- PT 74+17.45

-L- PT 77+85.31

END PROJECT R-2409C
-L- POC 77+00.00

6
INDIAN CREEK RESORTS, LLC
DB 38 PG 840
FILE 2 SLID 355A

WOODS
INDIAN CREEK
WATER FALL
US 64
N 56° 28' 29.9" E
N 40° 10' 44.4" E
N 46° 20' 01.2" E
N 40° 04' 57.7" E
EXISTING R/W
PROPOSED GUARDRAIL
NO FIELD SURVEY RECORD
PUE
RETAIN

NOTE: INSTALL EROSION CONTROL MATTING ON ALL SLOPES 2:1 OR STEEPER

NOTE: CONTRACTOR SHALL PROVIDE INLET PROTECTION FOR PARTIALLY INSTALLED STORM DRAIN. THIS MEASURE SHOULD BE INSTALLED AT THE END OF EACH WORKING DAY.

NOTE: CONTRACTOR SHALL MAINTAIN ALL DEVICES AS PROJECT IS BROUGHT UP TO GRADE.

NOTE: CONTRACTOR SHALL PROVIDE GROUND COVER ON EXPOSED SLOPES WITHIN 7 CALENDAR DAYS, AFTER ANY PHASE OF GRADING.

NOTE: ALL EROSION CONTROL DEVICES SHOWN ARE LOCATED WITHIN EXISTING R/W OR EASEMENT

NOTE: INSTALL MATTING FOR EROSION CONTROL IN PROPOSED DITCH LINES EXCEPT WHERE PERMANENT LINERS ARE SPECIFIED ON THE PLANS OR DIRECTED OTHERWISE BY THE ENGINEER.

FINAL EROSION CONTROL FOR CONSTRUCTION SHEET 9

FOR -L- PROFILE SEE SHEET 15

10/1/2015
R:\Hydraulics\Erosion Control\cadd\R2409C_hyd_final_psh19.dgn
Ko & Associates, P.C.