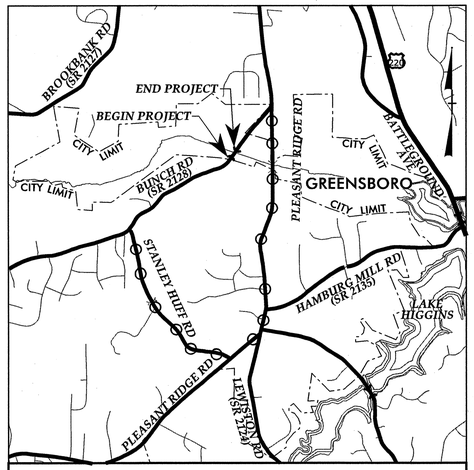
TIP PROJECT: B-4756

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP

OFF SITE DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GUILFORD COUNTY

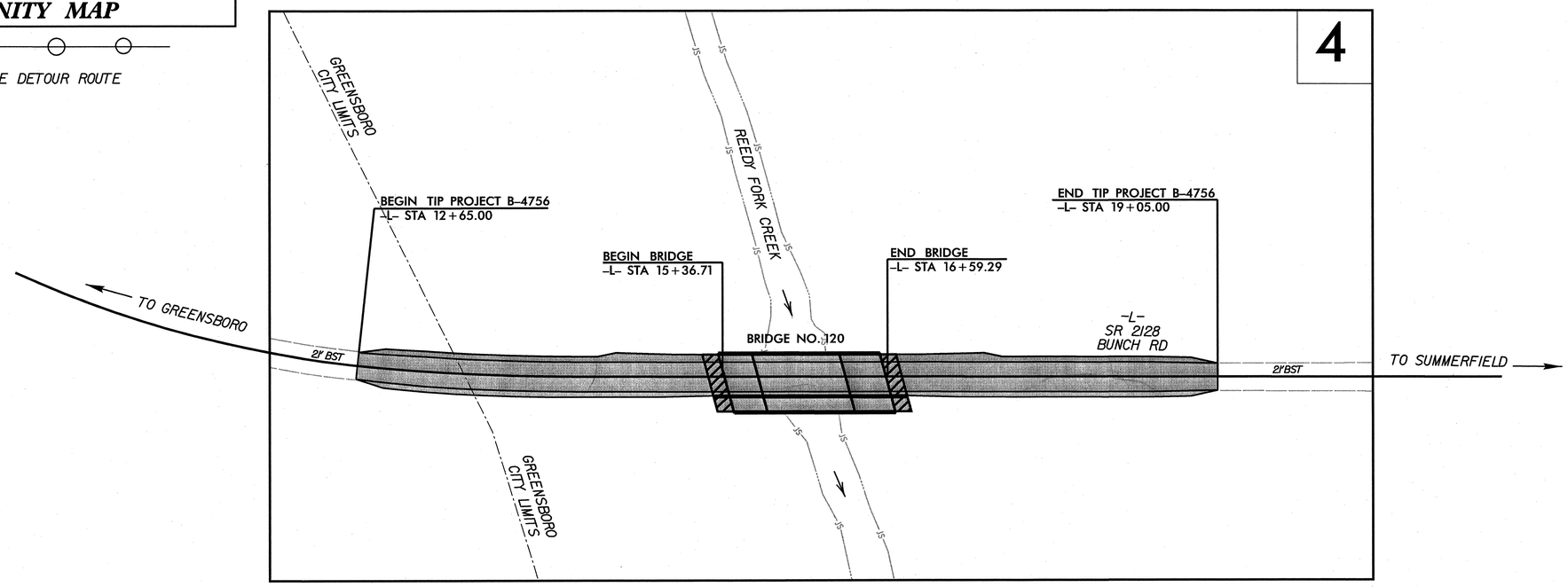
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4756	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
38528.1.1	BRZ-2128(1)	P.E.
38528.2.1	BRZ-2128(1)	ROW/UTIL
38528.3.FD1	BRZ-2128(1)	CONSTRUCTION

LOCATION: BRIDGE NO. 120 OVER REEDY FORK CREEK ON SR 2128 (BUNCH ROAD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE

NC GRID
NAD 83/NSRS 2007



NCDOT CONTACT:

BRENDA MOORE, P.E.
PROJECT ENGINEER
ROADWAY DESIGN UNIT

CONTRACT: C203306

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8/21/2013

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2013 = 1100
ADT 2035 = 1700
DHV = 12%
D = 60%
T = 8% *
V = 50 MPH
* (TTST 1% + DUAL 7%)
FUNC CLASS = LOCAL RURAL
SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4756	=	0.098 MILES
LENGTH STRUCTURE TIP PROJECT B-4756	=	0.023 MILES
TOTAL LENGTH OF TIP PROJECT B-4756	=	0.121 MILES

PLANS PREPARED FOR THE NCDOT BY: Kimley-Horn and Associates, Inc.
© 2013
Post Office Box 33068
Raleigh, North Carolina 27636
PE NO. F-0102

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
OCTOBER 19, 2012

LETTING DATE:
NOVEMBER 19, 2013

JEFFREY W. MOORE, P.E.
PROJECT ENGINEER

J. JASON PACE, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 032615 ENGINEER JASON D. LAWING
8-21-13
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24436 ENGINEER JEFFREY W. MOORE
8-21-13
SIGNATURE: P.E.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT REFERENCE NO.	SHEET NO.
B-4756	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 24436 8-26-12 ENGINEER JEFFREY W. MOORE

38528.3.FD1 (B-4756)
GUILFORD COUNTY

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
2	TYPICAL SECTIONS, PAVEMENT SCHEDULE, AND MISCELLANEOUS DETAILS
2-A	STRUCTURE ANCHOR UNIT DETAIL
3	SUMMARY OF QUANTITIES
3-A	SUMMARY OF DRAINAGE QUANTITIES
3-B	SUMMARY OF GUARDRAIL, SUMMARY OF PAVEMENT REMOVAL, AND EARTHWORK SUMMARY, AND SUMMARY OF SUBSURFACE DRAINAGE
4	PLAN SHEET
5	PROFILE SHEET
TMP-1THRU TMP-2	TRAFFIC CONTROL PLANS
SD-1	SPECIAL SIGN DESIGN
PMP-1	PAVEMENT MARKING PLAN
EC-1 THRU EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION PLAN
SIGN-1 THRU SIGN-2	SIGNING PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1A	CROSS SECTION SUMMARY SHEET
X-1 THRU X-5	CROSS SECTIONS
S-1 THRU S-27	STRUCTURE PLANS

GENERAL NOTES: 2012 SPECIFICATIONS
EFFECTIVE: 01-17-12
REVISED: 07/30/12

GRADE LINE:
GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01.

UNDERDRAINS:

UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY THE ENGINEER.

GUARDRAIL:

THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

END BENTS:

THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE:

Piedmont Natural Gas and AT&T

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY CONTRACT.

2012 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
422.11	Reinforced Bridge Approach Fills - Sub Regional Tier
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.03	Pipe Underdrain and Blind Drain
840.00	Concrete Base Pad for Drainage Structures
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation In Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units

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PROJECT REFERENCE NO.	SHEET NO.
B-4756	1-B

Note: Not to Scale

**S.U.E. = Subsurface Utility Engineering*

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Known Soil Contamination: Area or Site
- Potential Soil Contamination: Area or Site

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite R/W Marker — RW
- Proposed Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Booth
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- Recorded U/G Telephone Cable — T
- Designated U/G Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Recorded U/G Fiber Optics Cable — T FO
- Designated U/G Fiber Optics Cable (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

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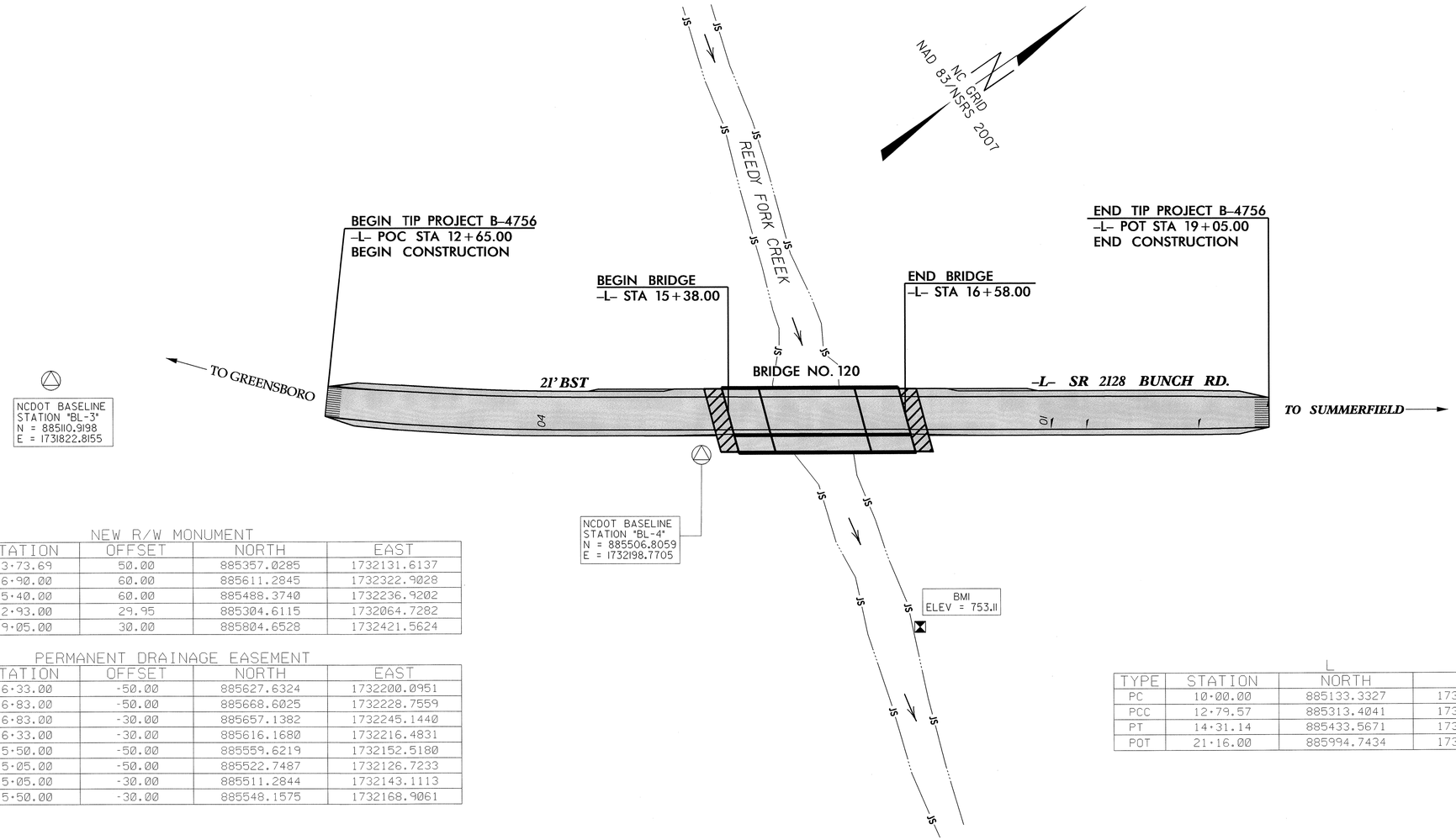
8/6/2013

PROJECT REFERENCE NO.	SHEET NO.
B-4756	1C
Location and Surveys	

B-4756 SURVEY CONTROL SHEET



NEW R/W MONUMENT

ALIGN	STATION	OFFSET	NORTH	EAST
L	13+73.69	50.00	885357.0285	1732131.6137
L	16+90.00	60.00	885611.2845	1732322.9028
L	15+40.00	60.00	885488.3740	1732236.9202
L	12+93.00	29.95	885304.6115	1732064.7282
L	19+05.00	30.00	885804.6528	1732421.5624

PERMANENT DRAINAGE EASEMENT

ALIGN	STATION	OFFSET	NORTH	EAST
L	16+33.00	-50.00	885627.6324	1732200.0951
L	16+83.00	-50.00	885668.6025	1732228.7559
L	16+83.00	-30.00	885657.1382	1732245.1440
L	16+33.00	-30.00	885616.1680	1732216.4831
L	15+50.00	-50.00	885559.6219	1732152.5180
L	15+05.00	-50.00	885522.7487	1732126.7233
L	15+05.00	-30.00	885511.2844	1732143.1113
L	15+50.00	-30.00	885548.1575	1732168.9061

L

TYPE	STATION	NORTH	EAST
PC	10+00.00	885133.3327	1731820.9090
PCC	12+79.57	885313.4041	1732033.0545
PT	14+31.14	885433.5671	1732125.3559
POT	21+16.00	885994.7434	1732517.9291

BASELINE DATA

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
3	BL-3	885110.9198	1731822.8155	780.36	OUTSIDE PROJECT LIMITS	
4	BL-4	885506.8059	1732198.7705	760.30	15+33.24	18.17 RT
1	B4756-1	887061.6750	1733475.3110	812.96	OUTSIDE PROJECT LIMITS	
2	B4756-2	888132.3070	1733389.8090	828.75	OUTSIDE PROJECT LIMITS	

BENCHMARK DATA

```
*************************************
BM1        ELEVATION = 753.11
N 885544       E 1732381
BL STATION 11+81.00 128 RIGHT
RR SPIKE IN 15" BIRCH
*************************************
*************************************
BM2        ELEVATION = 768.32
N 886076       E 1732637
BL STATION 5+00.00
 N 40°10'11.13" E  DIST   1262.92
RR SPIKE IN 28" PINE
*************************************
```

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "B4756-1"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 887061.6750(ft) EASTING: 1733475.3110(ft)
ELEVATION: 812.96'(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999971050
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4756-1" TO -L- STATION 12+65 IS
S 39°31'41.18" 2,280.96'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTES

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING NCDOT PROJECT CONTROL DATA AT:*
HTTS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/PAGES/DEFAULT.ASPX

THE FILES TO BE FOUND ARE AS FOLLOWS:
b4756_ls_control.txt

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

NOTE: DRAWING NOT TO SCALE

12/01/2005

12-SEP-2013 11:13
R:\Roadway\Proj\b4756_ls_lc.dgn
$$$$USERNAME$$$$

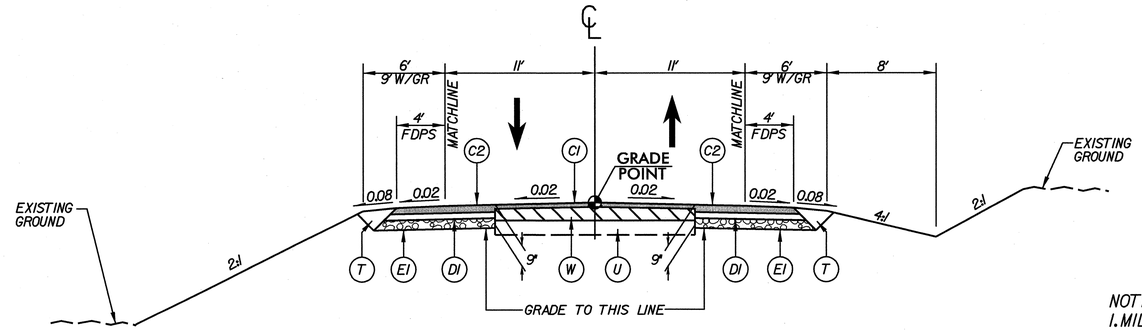
PROJECT REFERENCE NO.	SHEET NO.
B-4756	2

Kimley-Horn and Associates, Inc.
P.O. BOX 33068
RALEIGH, N.C. 27636-3068

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24436 ENGINEER JEFFREY W. MOORE
8-21-13

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON
8/23/13

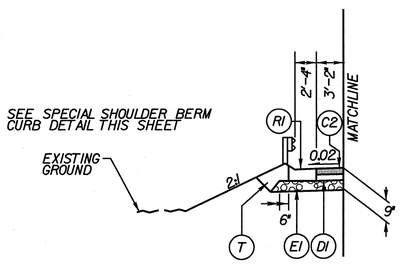
-L- SR 2128 (BUNCH ROAD)



TYPICAL SECTION NO. 1

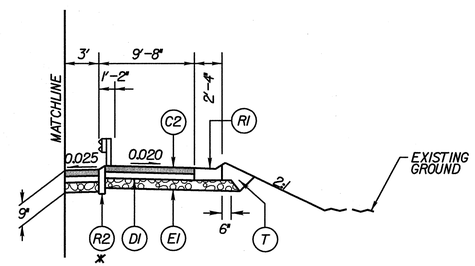
-L- STA 12+65.00 TO 13+75.00
-L- STA 16+75.00 TO 19+05.00

NOTES
1. MILL NOTCH TO KEY-IN SF9.5A FROM -L- STA 12+65.00 TO STA 12+90.00 AND -L- STA 18+80.00 TO STA 19+05.00
2. TIE TO EXISTING SHOULDER POINT -L- STA 17+50.00 TO 18+50.00 RT (SEE CROSS-SECTIONS)
3. PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE INDICATED



TYPICAL SECTION NO. 1A

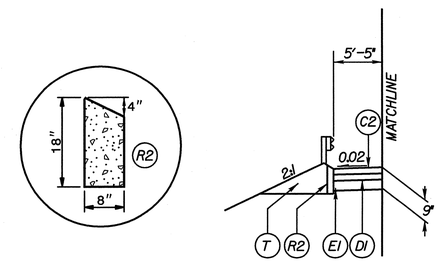
USE IN CONJUNCTION WITH TYPICAL SECTIONS 1 & 2
-L- STA 16+65.00 TO 16+86.00 (LT)



TYPICAL SECTION NO. 1B

USE IN CONJUNCTION WITH TYPICAL SECTION 1

-L- STA 16+77.00 TO 16+82.00 (RT)
* -L- STA 16+73.19 TO 16+92.19 (RT)



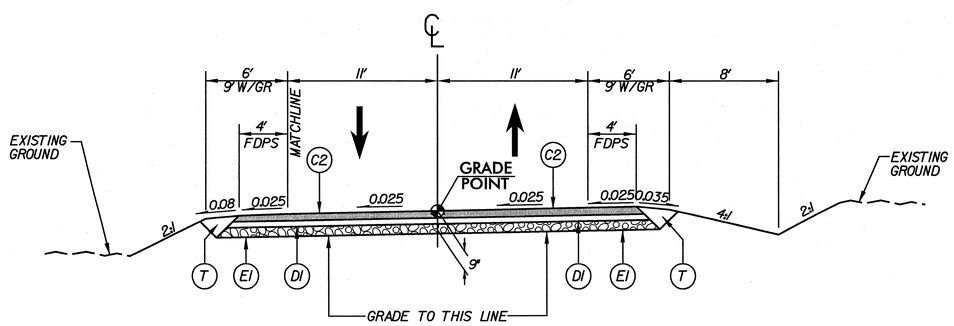
DETAIL SHOWING SPECIAL SHOULDER BERM CURB (SBC) ON TOP OF SUBGRADE

USE IN CONJUNCTION WITH TYPICAL SECTIONS 1 & 2
-L- STA 15+20.33 TO 15+21.33 (LT)
-L- STA 15+10.58 TO 15+29.58 (RT)

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.25" ASPHALT CONCRETE SURFACE COURSE TYPE SF9.5A, AT AN AVERAGE RATE OF 138 LBS. PER SQ.YD.
C2	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE TYPE SF9.5A, AT AN AVERAGE RATE OF 138 LBS. PER SQ.YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1" IN DEPTH OR GREATER THAN 1.5" IN DEPTH.
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ.YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2.5" OR GREATER THAN 4" DEPTH
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ.YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" OR GREATER THAN 5.5" DEPTH
R1	PROPOSED SHOULDER BERM GUTTER
R2	SPECIAL SHOULDER BERM CURB (SEE DETAIL THIS SHEET)
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL W)

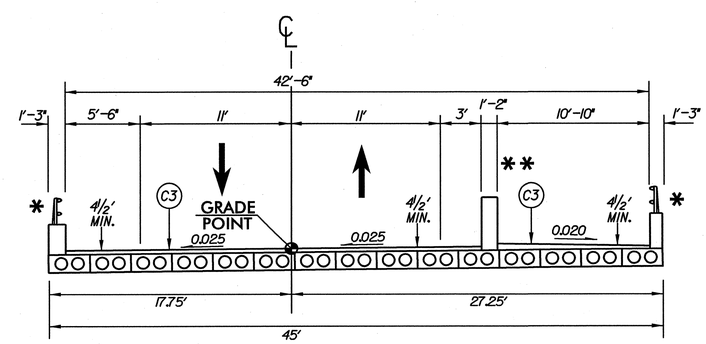
-L- SR 2128 (BUNCH ROAD)



TYPICAL SECTION NO. 2

-L- STA 13+75.00 TO 15+36.71 (BEGIN BRIDGE)
-L- STA 16+59.29 (END BRIDGE) TO 16+75.00

-L- SR 2128 (BUNCH ROAD)

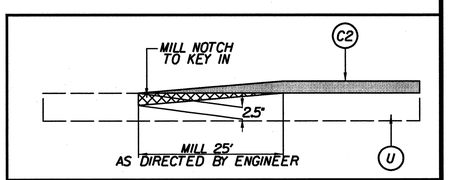


BRIDGE TYPICAL SECTION NO. 1

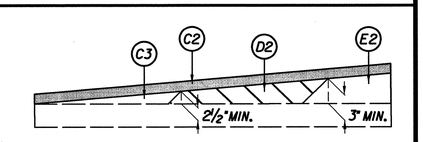
-L- STA 15+36.71 TO 16+59.29

* MINIMUM 54" BRIDGE RAIL TO BE DESIGNED BY STRUCTURE DESIGN UNIT

** FLAT FACE BARRIER EXTENDS ACROSS SLAB



INCIDENTAL MILLING DETAIL



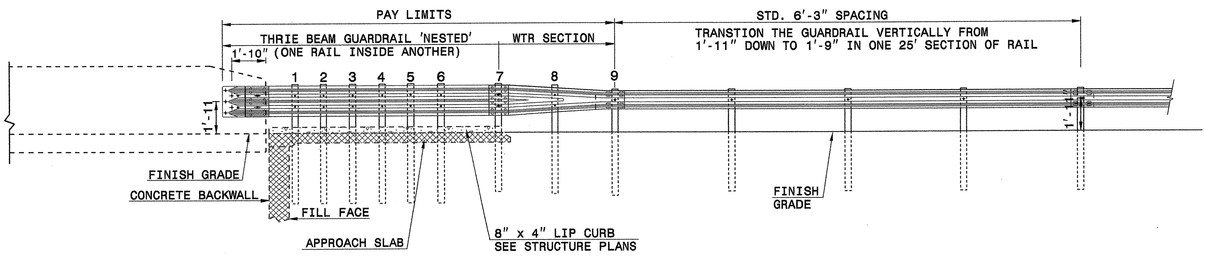
DETAIL W SHOWING METHOD OF WEDGING

K:\RAL_Roadway\011036185 - B-4756\Roadway\Proj\B4756_rdy_typ.dgn
8/22/2013

$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

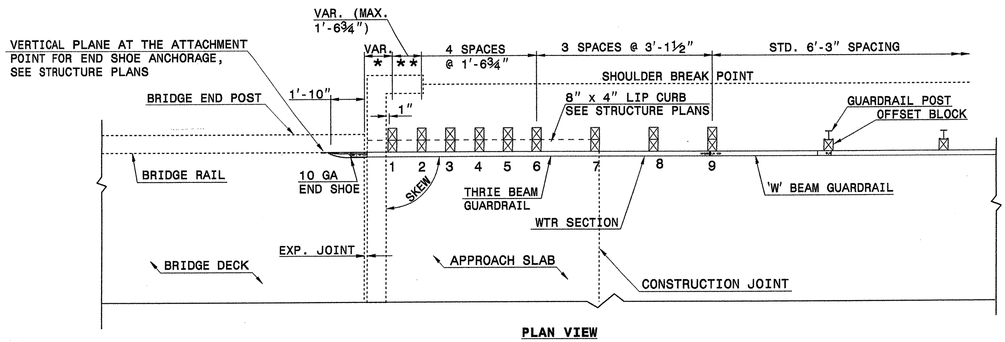
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER



ELEVATION

NOTE:
- **POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- *THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
- -SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
- -MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
- -LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
- -SEE SHEET 5 FOR POST SECTIONS 1 THRU 9.



PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862d03

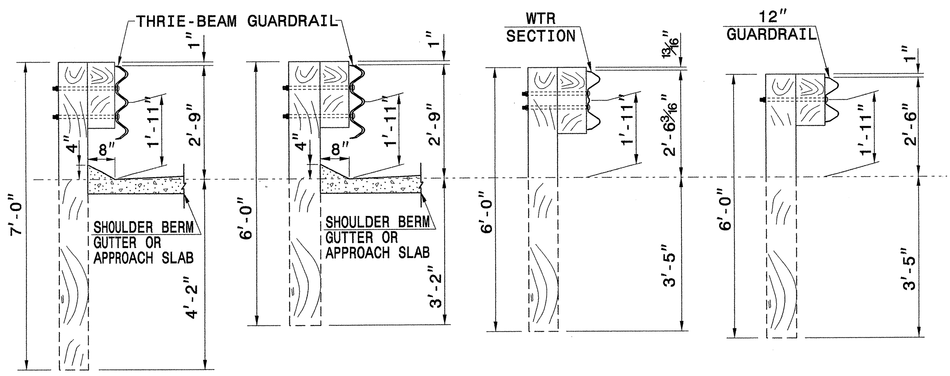
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

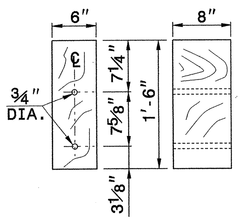
SHEET 2 OF 7
862d03

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

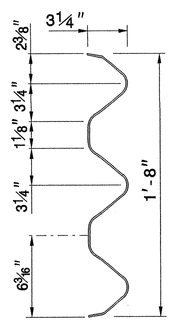
ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III



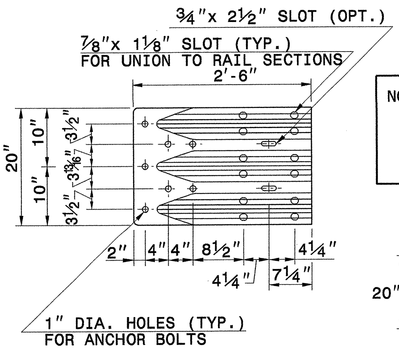
SECTION OF THRIE BEAM POSTS 1 THRU 6 | **SECTION OF THRIE BEAM POST 7** | **SECTION OF WTR BEAM POST 8** | **SECTION OF 'W' BEAM POST 9**



THRIE BEAM OFFSET BLOCK

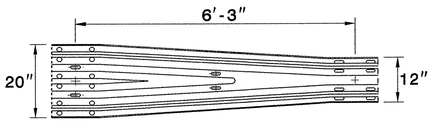


THRIE-BEAM SECTION

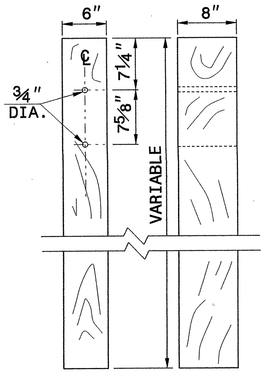


END SHOE

NOTE: THE MID POST AND OFFSET BLOCK OF THE WTR SECTION WILL REQUIRE SPECIAL BOLT HOLE DRILLING IN THE THRIE BEAM OFFSET BLOCK AND LINE POST.



WTR SECTION
ELEVATION VIEW



THRIE BEAM LINE POST

SHEET 3 OF 7
862d03

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III

SHEET 3 OF 7
862d03

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: J. HOWERTON DATE: 06-22-12
MODIFIED BY: DATE:
CHECKED BY: DATE: 11/13/12
FILE SPEC.:

PROJECT REFERENCE NO. B-4756
SHEET NO. 2-A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C203306

SUMMARY OF QUANTITIES - B-4756

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0030000000-N	SP	Lump Sum		BRIDGE APPROACH FILL - SUB REGIONAL TIER, STATION ******* (15+98 -L-)
0036000000-E	225	350	CY	UNDERCUT EXCAVATION
0043000000-N	226	Lump Sum		GRADING
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
0195000000-E	265	350	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	450	SY	GEOTEXTILE FOR SOIL STABILIZA-TION
0318000000-E	300	10	TON	FOUNDATION CONDITIONING MATE-RIAL, MINOR STRUCTURES
0320000000-E	300	20	SY	FOUNDATION CONDITIONING GEO-TEXTILE
0448300000-E	310	40	LF	18" RC PIPE CULVERTS, CLASS IV
0588000000-E	310	20	LF	18" CS PIPE CULVERTS, 0.064" THICK
0636000000-E	310	2	EA	*** CS PIPE ELBOWS, ***** THICK (18", 0.064")
1220000000-E	545	1,000	TON	INCIDENTAL STONE BASE
1330000000-E	607	120	SY	INCIDENTAL MILLING
1489000000-E	610	230	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1498000000-E	610	250	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
1525000000-E	610	430	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
1575000000-E	620	60	TON	ASPHALT BINDER FOR PLANT MIX
1693000000-E	654	500	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
2000000000-N	806	5	EA	RIGHT OF WAY MARKERS
2022000000-E	815	11.5	CY	SUBDRAIN EXCAVATION
2033000000-E	815	8.5	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	50	LF	6" PERFORATED SUBDRAIN PIPE
2070000000-N	815	1	EA	SUBDRAIN PIPE OUTLET
2077000000-E	815	6	LF	6" OUTLET PIPE
2286000000-N	840	2	EA	MASONRY DRAINAGE STRUCTURES
2367000000-N	840	2	EA	FRAME WITH TWO GRATES, STD 840.29
2556000000-E	846	30	LF	SHOULDER BERM GUTTER
2752000000-E	SP	45	LF	GENERIC PAVING ITEM SPECIAL SHOULDER BERM CURB
3030000000-E	862	175	LF	STEEL BM GUARDRAIL
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3215000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE III
3270000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3656000000-E	876	1,300	SY	GEOTEXTILE FOR DRAINAGE
3659000000-N	SP	1	EA	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON
4072000000-E	903	79	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
4096000000-N	904	2	EA	SIGN ERECTION, TYPE D
4102000000-N	904	1	EA	SIGN ERECTION, TYPE E
4155000000-N	907	7	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
4400000000-E	1110	557	SF	WORK ZONE SIGNS (STATIONARY)
4410000000-E	1110	183	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4445000000-E	1145	144	LF	BARRICADES (TYPE III)
4810000000-E	1205	4,160	LF	PAINT PAVEMENT MARKING LINES (4")
6000000000-E	1605	1,275	LF	TEMPORARY SILT FENCE
6006000000-E	1610	150	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	120	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	355	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	1.5	ACR	TEMPORARY MULCHING
6018000000-E	1620	100	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	1.25	TON	FERTILIZER FOR TEMPORARY SEED-ING
6024000000-E	1622	200	LF	TEMPORARY SLOPE DRAINS
6029000000-E	SP	300	LF	SAFETY FENCE
6030000000-E	1630	160	CY	SILT EXCAVATION
6036000000-E	1631	3,000	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	375	SY	COIR FIBER MAT
6038000000-E	SP	85	SY	PERMANENT SOIL REINFORCEMENT MAT
6042000000-E	1632	265	LF	1/4" HARDWARE CLOTH
6070000000-N	1639	12	EA	SPECIAL STILLING BASINS
6071012000-E	SP	30	LF	COIR FIBER WATTLE
6071020000-E	SP	25	LB	POLYACRYLAMIDE (PAM)
6071030000-E	1640	50	LF	COIR FIBER BAFFLE
6071050000-E	SP	1	EA	*** SKIMMER (1-1/2")
6084000000-E	1660	1.5	ACR	SEEDING & MULCHING
6087000000-E	1660	0.8	ACR	MOWING
6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	1	TON	FERTILIZER TOPDRESSING
6114500000-N	1667	10	MHR	SPECIALIZED HAND MOWING
6117000000-N	SP	18	EA	RESPONSE FOR EROSION CONTROL
6123000000-E	1670	0.1	ACR	REFORESTATION

RD244542

COMPUTED BY:	BV	DATE:	4/17/2012
CHECKED BY:	JDL	DATE:	4/17/2012

PROJECT NO.	SHEET NO.
B-4756	3-A

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

STATION	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL
SHEET 4							
16+71 -L-	LT	401		761.2	758.2		
16+71 -L-	LT	401	402		758.2	757.8	0.01
16+80 -L-	RT	402		761.7	757.8		
16+80 -L-	RT	402	403		757.8	752.0	0.27
16+97 -L-	RT	403					
SHEET TOTALS							

SIZE / THICKNESS OR GAUGE:

STATION	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C.S. PIPE 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"
16+71 -L- (401-402)																															40					
16+80 -L- (402-403)															20																					
SHEET TOTALS															20																40					

STATION	** " R.C. PIPE (CLASS V)	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CATCH BASIN
16+71 -L- (401)								1								
16+80 -L- (402)								1								
SHEET TOTALS								2								

STATION	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	TRAFFIC BEARING G.D.I. STD. 840.35	STEEL GRATE AND FRAME STD. 840.37	PREFORMED SCOUR HOLE	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	C.S. PIPE ELBOWS NO. & SIZE	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
16+71 -L- (401)											1			1					
16+80 -L- (402)				1										1					
16+80 -L- (402-403)															2 @ 18"				
16+97 -L- (403)													1						
SHEET TOTALS				1							1		1	2	2 @ 18"				

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I.(N.S.)	(NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

COMPUTED BY: J. JOHNSON DATE: 04/16/2013
CHECKED BY: J. PACE DATE: 04/16/2013

PROJECT REFERENCE NO.	SHEET NO.
B-4756	3-B

Kimley-Horn and Associates, Inc.
P.O. BOX 33068
RALEIGH, N.C. 27636-3068

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL BERM WIDTH	FLARE LENGTH		W		ANCHORS									IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	XI	GRAU 350	M-350	TYPE III	CAT-1	VI MOD	BIC	AT-1	EA	G	NG				
-L-	14+52.25	15+33.50	LT	81.25				15+33.50	5.5	9		50		1			1		1											
-L-	13+48.32	15+29.57	RT	181.25			15+29.57		4	9	50		1				1		1											
-L-	16+53.50	17+34.75	LT	81.25			16+53.50		5.5	9	50		1				1		1											
-L-	16+74.00	17+55.25	RT	81.25				16+74.00	4	9		50		1			1		1											
			SUBTOTAL	425																										
	LESS ANCHOR	DEDUCTIONS																												
	GRAU 350	4 @ 50.00'	=	200.00																										
	TYPE-111	4 @ 18.75'	=	75.00																										
			TOTAL	150													4		4											
			SAY	175													4		4											

ADDITIONAL GUARDRAIL POSTS = 5 EA

SUMMARY OF EARTHWORK
IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
PHASE 1					
-L- STA 12+65.00 TO STA 15+36.71	9		905	896	0
-L- STA 16+59.29 TO STA 19+05.00	11		194	183	0
TOTAL	20		1099	1079	0
LOSS DUE TO CLEARING & GRUBBING	0				
PROJECT TOTALS	20		1099	1079	
EST. FOR REPLACING TOPSOIL ON BORROW PITS				54	
GRAND TOTALS	20			1133	
SAY	21			1200	
CONTINGENCY UNDERCUT = 350 CY					

NOTE: APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING."

NOTE: EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

REMOVAL OF EXISTING ASPHALT PAVEMENT

LINE	STATION TO STATION	LOCATION	SQ. YDS.
-L-	13+75 TO 15+46	CL	390
-L-	16+51 TO 16+75	CL	58
TOTAL			448
SAY			460

SUMMARY OF SUBSURFACE DRAINAGE

LINE	STATION	STATION	LOCATION LT/RT/CL	DRAIN TYPE* UD/BD/SD	LF
CONTINGENCY				UD	50
				TOTAL LF:	50

*UD = UNDERDRAIN
*BD = BLIND DRAIN
*SD = SUBSURFACE DRAIN

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8/12/2013

-L-	
PI Sta 11+41.11	PI Sta 13+55.41
Δ = 19° 11' 00.2" (LT)	Δ = 5° 06' 30.5" (LT)
D = 6° 51' 42.4"	D = 3° 22' 13.2"
L = 279.57'	L = 151.57'
T = 141.11'	T = 75.84'
R = 835.00'	R = 1,700.00'
DS = 50 MPH	DS = 50 MPH
SE = EXIST	SE = 0.05
RO = EXIST	RO = 120'

Kimley-Horn and Associates, Inc.
P.O. BOX 33068
RALEIGH, N.C. 27636-3068

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
B-4756	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 24436 ENGINEER JEFFREY W. MOORE 8-21-13

NORTH CAROLINA PROFESSIONAL SEAL 032615 ENGINEER JASON D. LAWING INC 8-21-13

NC GRID NAD 83/NSRS 2007

REVISIONS

-L- PC Sta. 10+00.00

-L- POC Sta. 12+65.00
BEGIN TIP PROJECT B-4756
BEGIN CONSTRUCTION

-L- PCC Sta. 12+79.57

-L- PT Sta. 14+31.14

-L- POT Sta. 19+05.00
END TIP PROJECT B-4756
END CONSTRUCTION

-L- POT Sta. 21+16.00

-BL-3

-BL-4

-BL-5

BM #1

BM #2

STANLEY A BOYD & HALLIE H BOYD DB 614 PG 2065

LOUIS B HOFFMAN & MARJORIE K HOFFMAN DB 3545 PG 687

CITY OF GREENSBORO DB 616 PG 81

CITY OF GREENSBORO DB 3285 PG 941

WOODS

REEDY FORK CREEK

BUNCH RD - SR 2128

50' TAPER (50:1)

TOE PROTECTION SEE DETAIL 1 EST 50 SY PSRM

TOE PROTECTION SEE DETAIL 1 EST 35 SY PSRM

CLASS II RIP RAP (STRUCTURE ITEM)

REMOVE EXIST BRIDGE (STRUCTURE ITEM)

INSTALL SHOULDER BERM GUTTER FROM STA. 16+67 TO 16+86 -L- (LT)

PIPE CLEAN-OUT -L-

8" RCP-NF N 34° 58' 29.5" E

PREFORMED SCOUR HOLE OUTLET PROTECTION CLASS 'B' RIP RAP EST 8 TONS EST 16 SY FF EST 25 SY PSRM SEE DETAIL 2

RETAIN EXIST 24" RCP

INSTALL SHOULDER BERM GUTTER FROM STA. 16+77 TO 16+82 -L- (RT)

CLASS II RIP RAP (STRUCTURE ITEM)

BEGIN SBC STA 15+20.33
END SBC STA 15+21.33

BEGIN BRIDGE
-L- Sta. 15+36.71

END BRIDGE
-L- Sta. 16+59.29

GRAU 350 TL-3

50:1 TAPER

5.5' TYPE III

4' PS

5.5' PS

-L-
N 34° 58' 29.5" E

42.5'

TYPE III

BEGIN SBC STA 15+10.58
END SBC STA 15+29.58

BEGIN SBC STA 16+73.19
END SBC STA 16+92.19

BEGIN APPROACH SLAB
-L- Sta. 15+25.75

END APPROACH SLAB
-L- Sta. 16+70.25

SKETCH SHOWING RELATIONSHIP OF BRIDGE TO PAVEMENT AND SHOULDERS

DETAIL 1
TOE PROTECTION
(Not to Scale)

Natural Ground

2:1 or Flatter Fill Slope

d

PSRM

d = 2 Ft.

Type of Liner = PSRM

FROM STA. 12+80 TO STA. 13+50 -L- (LT)
FROM STA. 13+00 TO STA. 13+50 -L- (RT)

DETAIL 2
PREFORMED SCOUR HOLE
*NOT TO SCALE

PLAN VIEW

INSTALL LEVEL AND FLUSH WITH NATURAL GROUND

Permanent Soil Reinforcement matting (PSRM)

Pipe or Ditch Outlet

Square Preformed Scour Hole (PSH)

(Rip Rap in basin not shown for clarity)

Seed with native grasses at installation

(4 mm typ.)

B = 4 ft
D = 1.5 ft
W = 4 ft

SECTION A-A

PIPE (d = 15" OR 18")

FILL SLOPE

INFLOW

PSRM

NATURAL GROUND

LINER: CLASS B RIPRAP WITH FILTER FABRIC

MIN. 1' TUCK

308

STA. 16+97 -L- (RT)

SEE S-1 THRU S-27 FOR STRUCTURE PLANS
SEE SHEET NO.5 FOR -L- PROFILE

K:\RAL_Roadway\0110361B5 - B-4756\Roadway\Proj\B4756_rdy_pshD4.dgn

8/21/2013

PROJECT REFERENCE NO.	SHEET NO.
B-4756	5

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

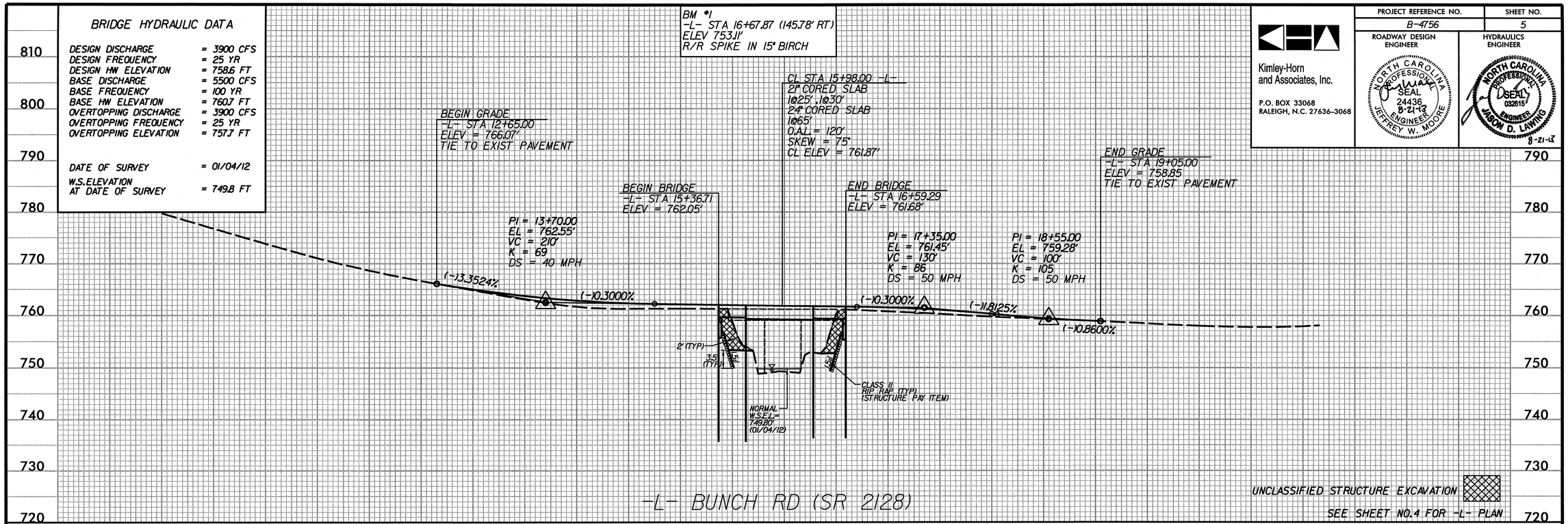
Kimley-Horn and Associates, Inc.
P.O. BOX 33068
RALEIGH, N.C. 27636-3068

NORTH CAROLINA PROFESSIONAL SEAL 24436 ENGINEER JEFFREY W. MOORE 8-21-13

NORTH CAROLINA PROFESSIONAL SEAL 032615 ENGINEER JASON D. LEWING 8-21-13

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 3900 CFS
DESIGN FREQUENCY	= 25 YR
DESIGN HW ELEVATION	= 758.6 FT
BASE DISCHARGE	= 5500 CFS
BASE FREQUENCY	= 100 YR
BASE HW ELEVATION	= 760.7 FT
OVERTOPPING DISCHARGE	= 3900 CFS
OVERTOPPING FREQUENCY	= 25 YR
OVERTOPPING ELEVATION	= 757.7 FT
DATE OF SURVEY	= 01/04/12
W.S. ELEVATION AT DATE OF SURVEY	= 749.8 FT



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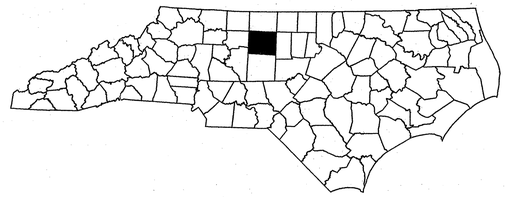
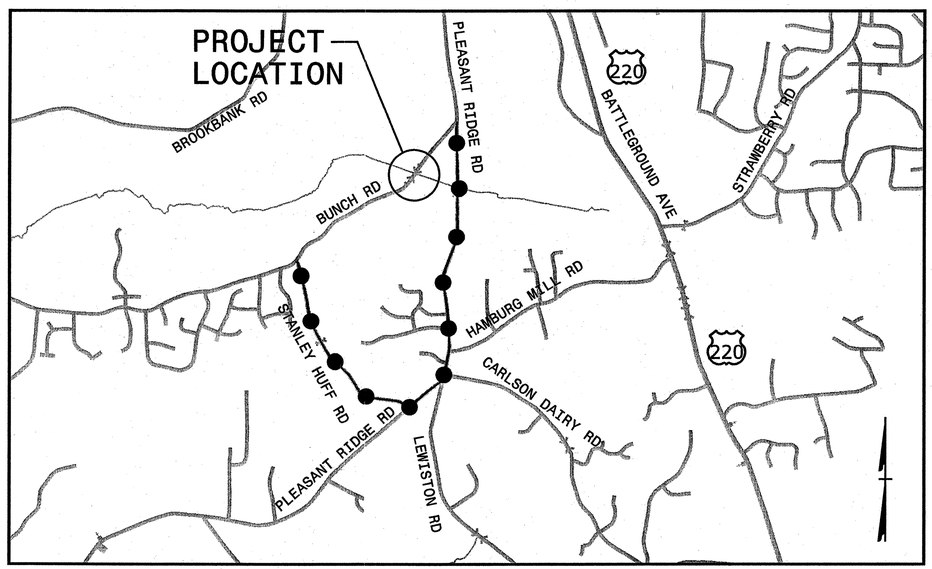
8/21/2013

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

GUILFORD COUNTY





VICINITY MAP

OFFSITE DETOUR

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-1B	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES, GENERAL NOTES AND PHASING)
TMP-2	ROAD CLOSURE
SD-1	SPECIAL SIGN DESIGN

SHEET NO.
TMP-1

B-4756

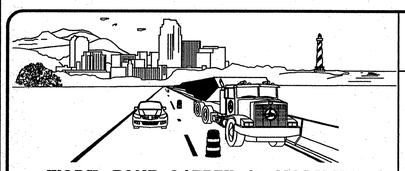
TIP PROJECT:

Kimley-Horn and Associates, Inc.

MATTHEW WEST, P.E. *TRAFFIC CONTROL PROJECT ENGINEER*
JASON PACE, P.E. *TRAFFIC CONTROL PROJECT DESIGN ENGINEER*
DAVID SHINBARA *TRAFFIC CONTROL DESIGN ENGINEER*

APPROVED:
DATE:
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 000876 ENGINEER MATTHEW S. WEST 7/19/13



WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
PHONE: (919) 773-2800 FAX: (919) 771-2745

J. S. BOURNE, P.E. *STATE TRAFFIC MANAGEMENT ENGINEER*
JOSEPH ISHAK, P.E. *TRAFFIC CONTROL PROJECT ENGINEER*
BEN SCHOENBAUER, P.E. *TRAFFIC CONTROL PROJECT DESIGN ENGINEER*
ALLA LYUDMIRSKAYA *TRAFFIC CONTROL DESIGN ENGINEER*

DIVISION OF HIGHWAYS * STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION * WORK ZONE TRAFFIC CONTROL

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7/19/2013

PROJ. REFERENCE NO.	SHEET NO.
B-4756	TMP-1A

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.03	TEMPORARY ROAD CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.12	PAVEMENT MARKINGS - BRIDGES

LEGEND

GENERAL

NORTH ARROW

TRAFFIC CONTROL DEVICES

BARRICADE (TYPE III)

TEMPORARY SIGNING

STATIONARY SIGN

APPROVED:_____ DATE:_____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 029870 ENGINEER MATTHEW S. WEST 7/19/13

DIVISION OF HIGHWAYS * STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION * WORK ZONE TRAFFIC CONTROL

ROADWAY STANDARD DRAWINGS & LEGEND

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PROJ. REFERENCE NO.	SHEET NO.
B-4756	TMP-1B

MANAGEMENT STRATEGIES

REMOVAL AND REPLACEMENT OF THE EXISTING STRUCTURE WILL BE COMPLETED DURING A TEMPORARY ROAD CLOSURE OF BUNCH ROAD WHILE USING AN OFF SITE DETOUR ROUTE ALONG STANLEY HUFF ROAD AND PLEASANT RIDGE ROAD. LOCAL TRAFFIC WILL BE MAINTAINED DURING CONSTRUCTION.

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TRAFFIC PATTERN ALTERATIONS

A) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

B) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

C) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

D) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

E) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

F) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

PAVEMENT MARKINGS AND MARKERS

G) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

PHASING NOTES

USING ROADWAY STANDARD DRAWING NUMBER 1101.03, SHEET 1 OF 9, SHEET TMP-2, AND SHEET SD-1, PERFORM THE FOLLOWING:

STEP 1: INSTALL ALL ROAD CLOSURE AND DETOUR SIGNING, INCLUDING BARRICADES. CLOSE SR 2128 (BUNCH RD) AND PLACE TRAFFIC ONTO OFF-SITE DETOUR.

STEP 2: WITHIN THE ROAD CLOSURE, REMOVE EXISTING BRIDGE #120 AND CONSTRUCT THE PROPOSED BRIDGE AND APPROACHES AS SHOWN IN THE CONSTRUCTION PLANS.

STEP 3: WITHIN THE ROAD CLOSURE, INSTALL ALL FINAL PAVEMENT MARKINGS.

STEP 4: REMOVE ALL TRAFFIC CONTROL SIGNING AND DEVICES AND RE-OPEN SR 2128 (BUNCH RD) TO THE FINAL TRAFFIC PATTERN.

APPROVED:_____ DATE:_____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 023070 ENGINEER MATTHEW S. WEST 7/19/13

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

TRANSPORTATION OPERATIONS PLAN

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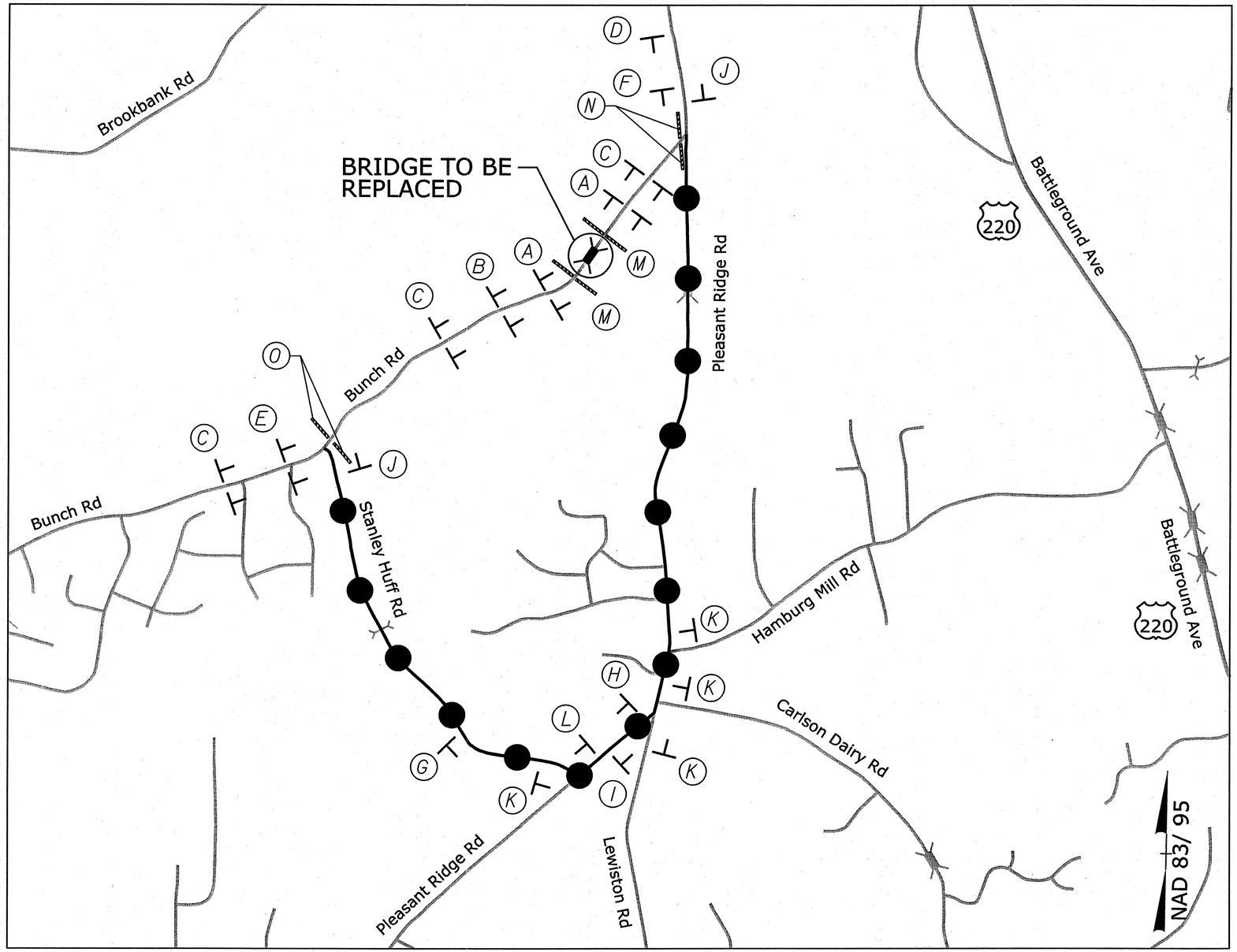
PROJ. REFERENCE NO.	SHEET NO.
B-4756	TMP-2



SCALE: 1" = 800'

(A) ROAD CLOSED 500 FT — W20-3B 48" X 48"

(B) ROAD CLOSED 1000 FT — W20-3C 48" X 48"

(C) ROAD CLOSED AHEAD — W20-3A 48" X 48"

(D) ROAD CLOSED AHEAD — W20-3A 48" X 48"; NEXT RIGHT — SP-4R 42" X 12"

(E) DETOUR AHEAD — W20-2 48" X 48"

(F) BUNCH RD — SEE SHEET SD-1; DETOUR — M4-8 24" X 12"; M6-3 21" X 15"

(G) BUNCH RD — SEE SHEET SD-1; DETOUR — M4-8 24" X 12"; M5-1 M 21" X 15"

(H) BUNCH RD — SEE SHEET SD-1; DETOUR — M4-8 24" X 12"; M6-2 21" X 15"

(I) BUNCH RD — SEE SHEET SD-1; DETOUR — M4-8 24" X 12"; M6-2 L 21" X 15"

(J) END DETOUR — M4-8 A 24" X 18"

(K) BUNCH RD — SEE SHEET SD-1; DETOUR — M4-8 24" X 12"; M6-1 L 21" X 15"

(L) BUNCH RD — SEE SHEET SD-1; DETOUR — M4-8 24" X 12"; M6-1 21" X 15"

NOTE:
REFER TO RSD 1101.03 SHEET 1 OF 9 FOR ADVANCE WARNING SIGNAGE AND BARRICADE PLACEMENT

LEGEND
DETOUR ROUTE
STATIONARY SIGN

(M) R11-2 48" X 30" — ROAD CLOSED — TYPE III BARRICADE(S)

(N) R11-4 60" x 30" — ROAD CLOSED TO THRU TRAFFIC; DETOUR — M4-10L 48" x 18" — TYPE III BARRICADE

(O) R11-4 60" x 30" — ROAD CLOSED TO THRU TRAFFIC; DETOUR — M4-10R 48" x 18" — TYPE III BARRICADE

APPROVED:_____ DATE:_____

SEAL — NORTH CAROLINA PROFESSIONAL SEAL 029476 ENGINEER MATTHEW S. [illegible] 7/19/13

DIVISION OF HIGHWAYS — STATE OF NORTH CAROLINA — DEPARTMENT OF TRANSPORTATION — WORK ZONE TRAFFIC CONTROL

ROAD CLOSURE

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7/19/2013

PROJ. REFERENCE NO.	SHEET NO.
B-4756	SD-1

SIGN NUMBER: SD-1
TYPE: STATIONARY
QUANTITY: SEE PLANS

SIGN WIDTH: 3'-0"
HEIGHT: 1'-0"
TOTAL AREA: 3.0 Sq.Ft.

BORDER TYPE: INSET
RECESS: 0.5"
WIDTH: 0.5"
RADII: 2"

NO. Z BARS:
LENGTH:

BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

SYMBOL	X	Y	WID	HT

MAT'L: 0.080" (2.0 mm) ALUMINUM

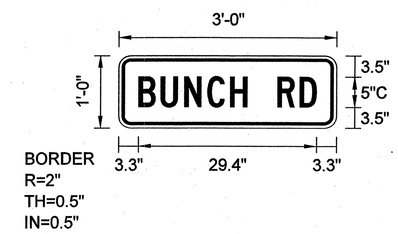
DESIGN BY: none
PROJECT ID: ID

CHECKED BY:
DIV: DIV

DATE: May 22, 2013

USE NOTES: 1,2

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be NC GRADE B fluoresent orange retroreflective sheeting.



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

		B	U	N	C	H		R	D																		Series/Size Text Length
	3.3	3.7	3.9	3.8	3.8	2.8	5	3.7	2.8	3.3																	C 2000 29.4

FILENAME: B-4756_SD1

NORTH CAROLINA D.O.T. SIGN DETAIL

APPROVED:_____ DATE:_____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 039176 ENGINEER MATTHEW S. ... 7/19/13

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

SPECIAL SIGN DESIGN

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7/19/2013

T.I.P.: B-4756

CONTRACT: C203306

TIP NO.	SHEET NO.
B-4756	PMP-1

APPROVED: [signature]
DATE: 7/25/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
GUILFORD COUNTY

LOCATION: Bridge NO. 120 OVER REDDY CREEK ON SR 2128 (BUNCH ROAD)

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION
	PAINT (4")
PI	YELLOW DOUBLE CENTER
PA	WHITE EDGELINE

GENERAL NOTES

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
ALL	PAINT	NONE

B) PLACE TWO APPLICATIONS OF PAINT PAVEMENT MARKINGS ON THE FINAL WEARING SURFACE. PLACE THE SECOND APPLICATION OF PAINT UPON SUFFICIENT DRYING TIME OF THE FIRST.

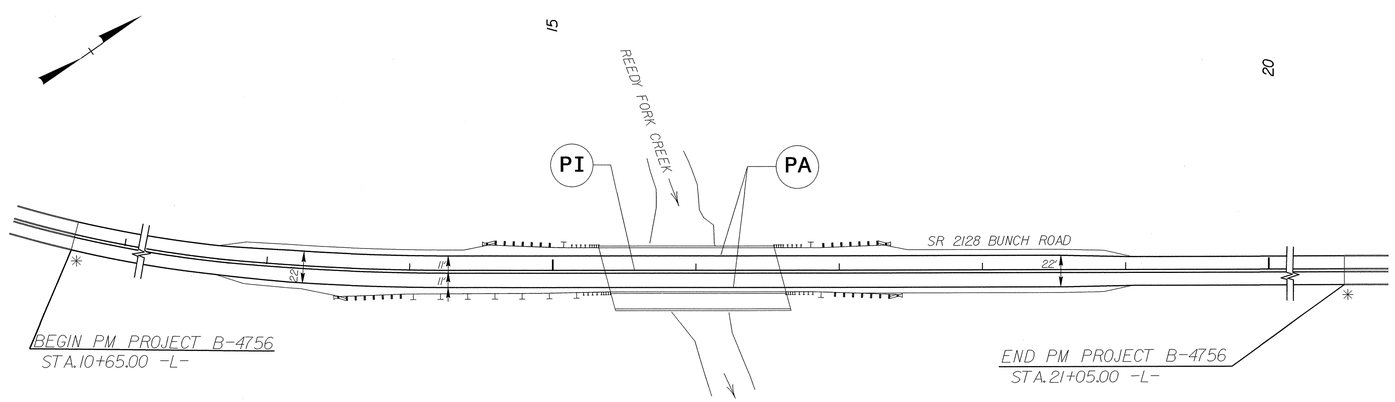
C) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

D) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

E) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

F) MARKERS ARE TO BE PLACED ACCORDING TO THE ROADWAY STANDARD DRAWINGS.

PAVEMENT MARKING DETAIL



* PAVEMENT MARKING EXTENDED BEYOND CONSTRUCTION LIMITS TO REPLACE DAMAGED MARKINGS

PLAN PREPARED BY: N.C.D.O.T. SIGNING AND DELINEATION UNIT

SUSAN B. KUNZ — SIGNING & DELINEATION REGIONAL ENGINEER

STACEY W. JOHNS — SIGNING & DELINEATION DESIGN ENGINEER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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s_johns

TIP PROJECT: B-4756

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4756	EC-1	

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

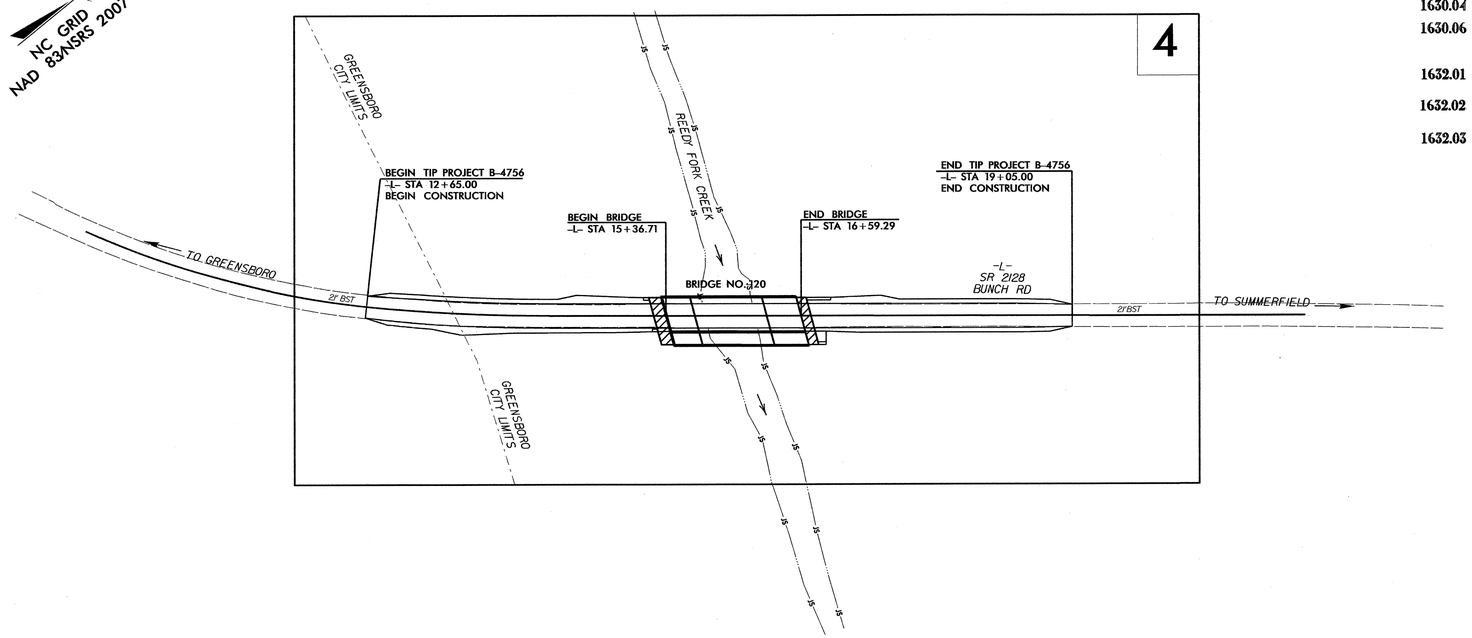
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

GUILFORD COUNTY

LOCATION: BRIDGE NO. 120 OVER REEDY FORK CREEK ON SR 2128 (BUNCH ROAD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE

NC GRID
NAD 83/NSRS 2007



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	
1630.02	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	EW CFW
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
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	
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	

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

0
PLANS

0
PROFILE (HORIZONTAL)

0
PROFILE (VERTICAL)

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

Prepared In the Office of:

ROADSIDE ENVIRONMENTAL UNIT

1 South Wilmington St.
Raleigh, NC 27611

2012 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 January 2012 and the latest revison 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		

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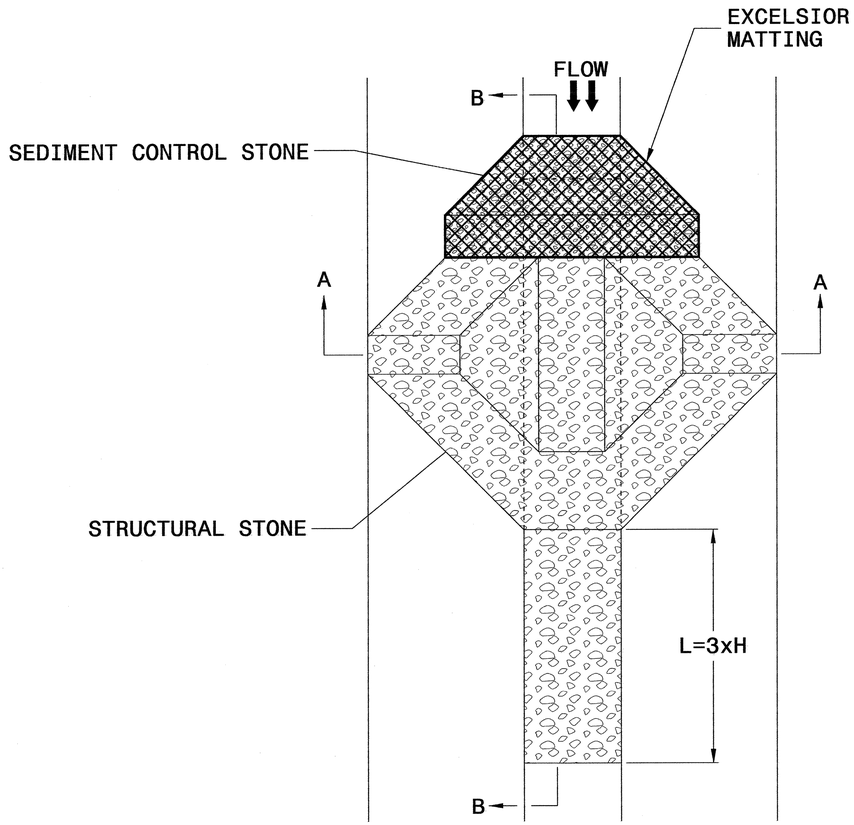
wjenkins@ncdot.gov
$$$$USERNAME$$$$
RELEASED FOR REVIEW 7/18

PROJECT REFERENCE NO.	SHEET NO.
B-4756	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



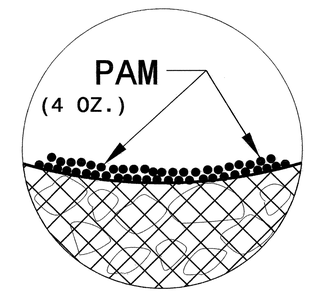
PLAN

NOTES

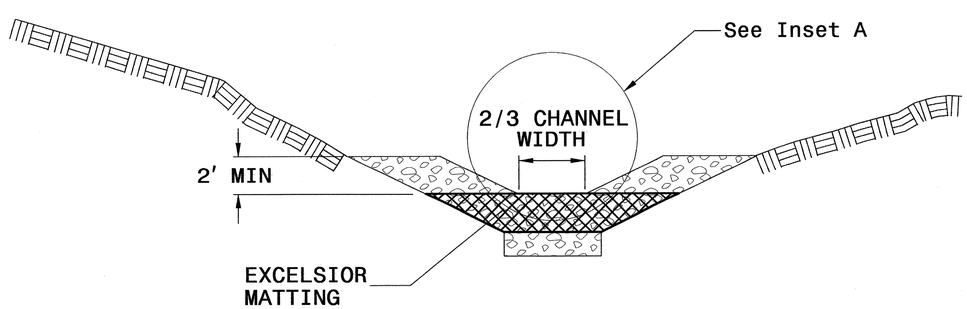
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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.

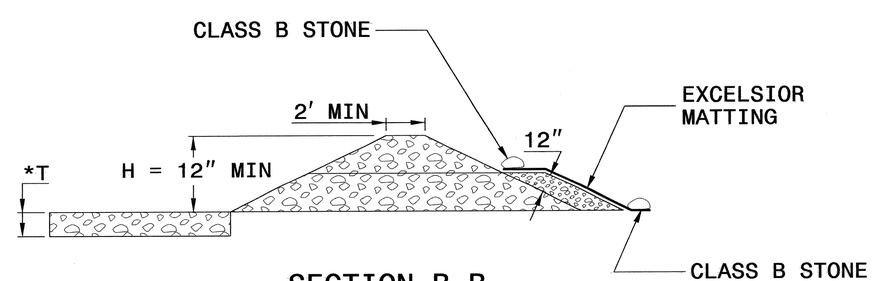
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



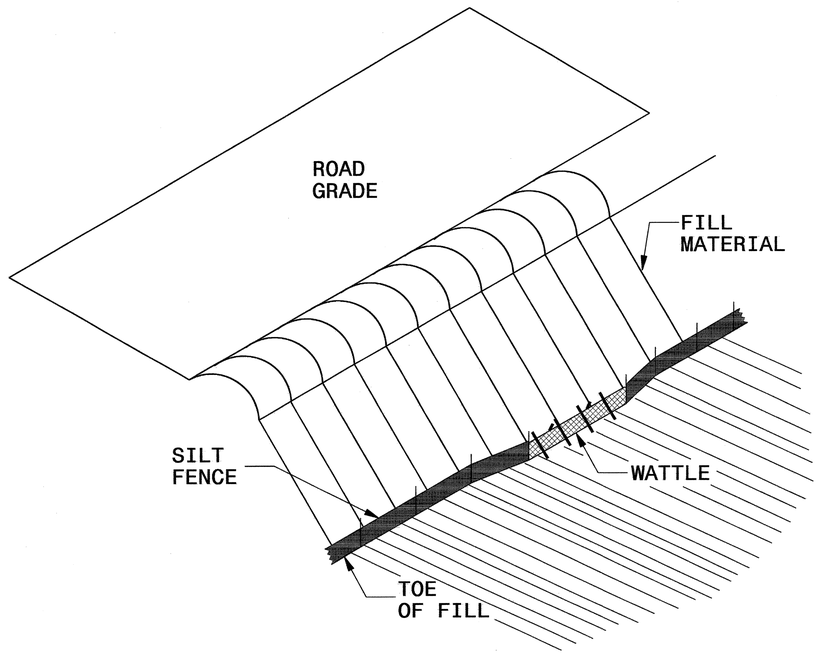
SECTION B-B

*T = 12" MIN., 18" MAX.

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-4756	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SILT FENCE COIR FIBER WATTLE BREAK DETAIL



ISOMETRIC VIEW

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLE ON TOE OF SLOPE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

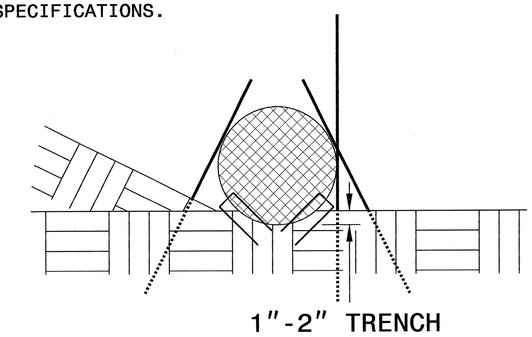
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

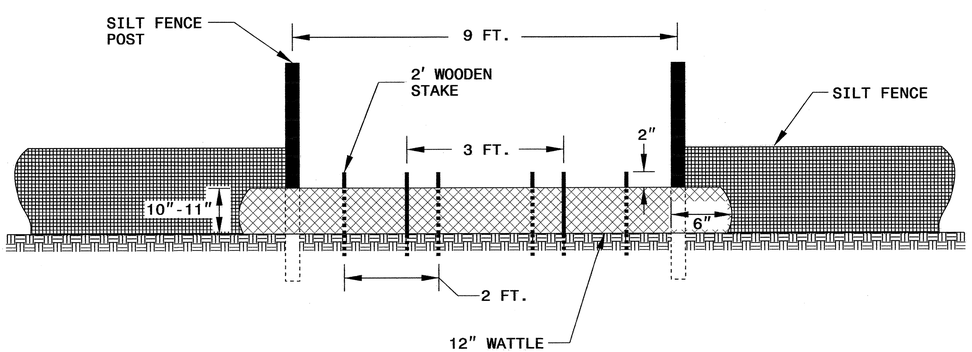
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.

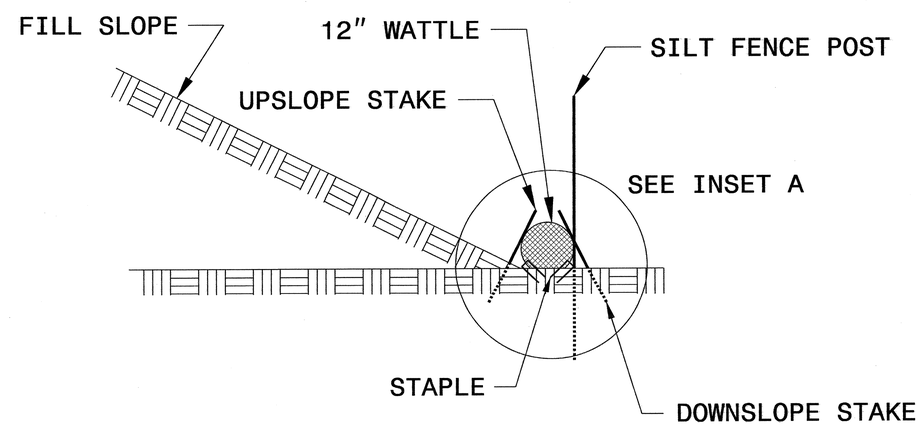
INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

INSET A





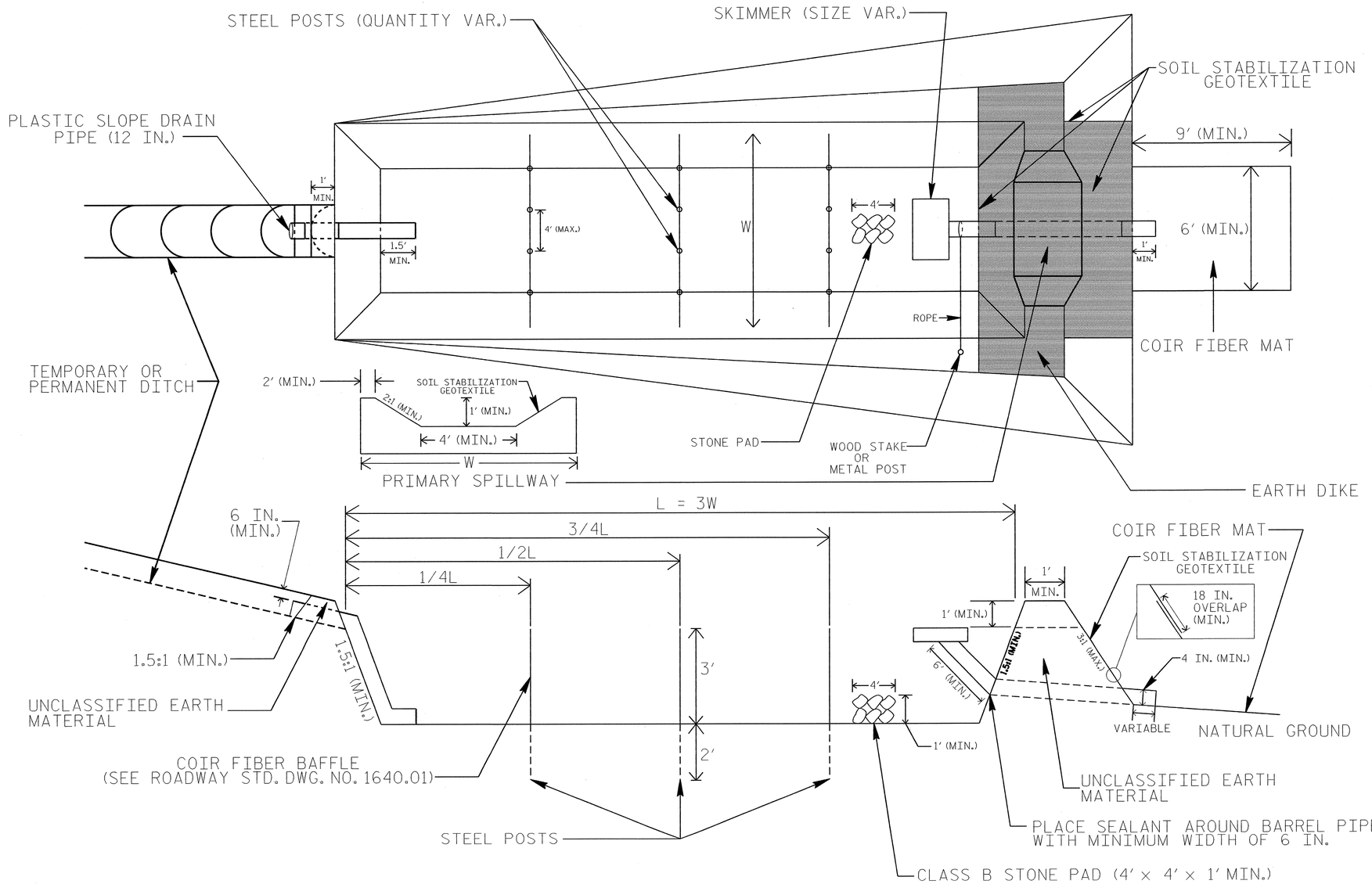
VIEW FROM SLOPE

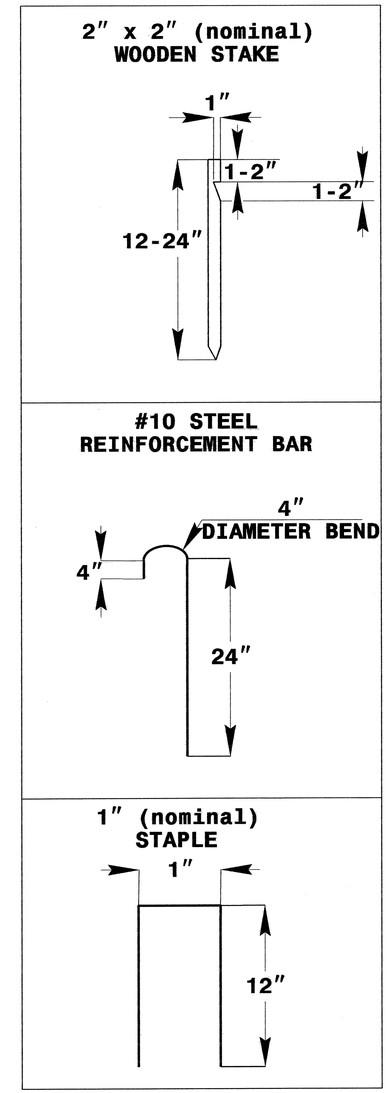


SIDE VIEW

PROJECT REFERENCE NO.	SHEET NO.
B-4756	EC-2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SKIMMER BASIN WITH BAFFLES DETAIL





COIR FIBER MAT ANCHOR OPTIONS

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/0.4, 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

PROJECT REFERENCE NO.	SHEET NO.
B-4756	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
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.

PROJECT REFERENCE NO.	SHEET NO.
B-4756	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

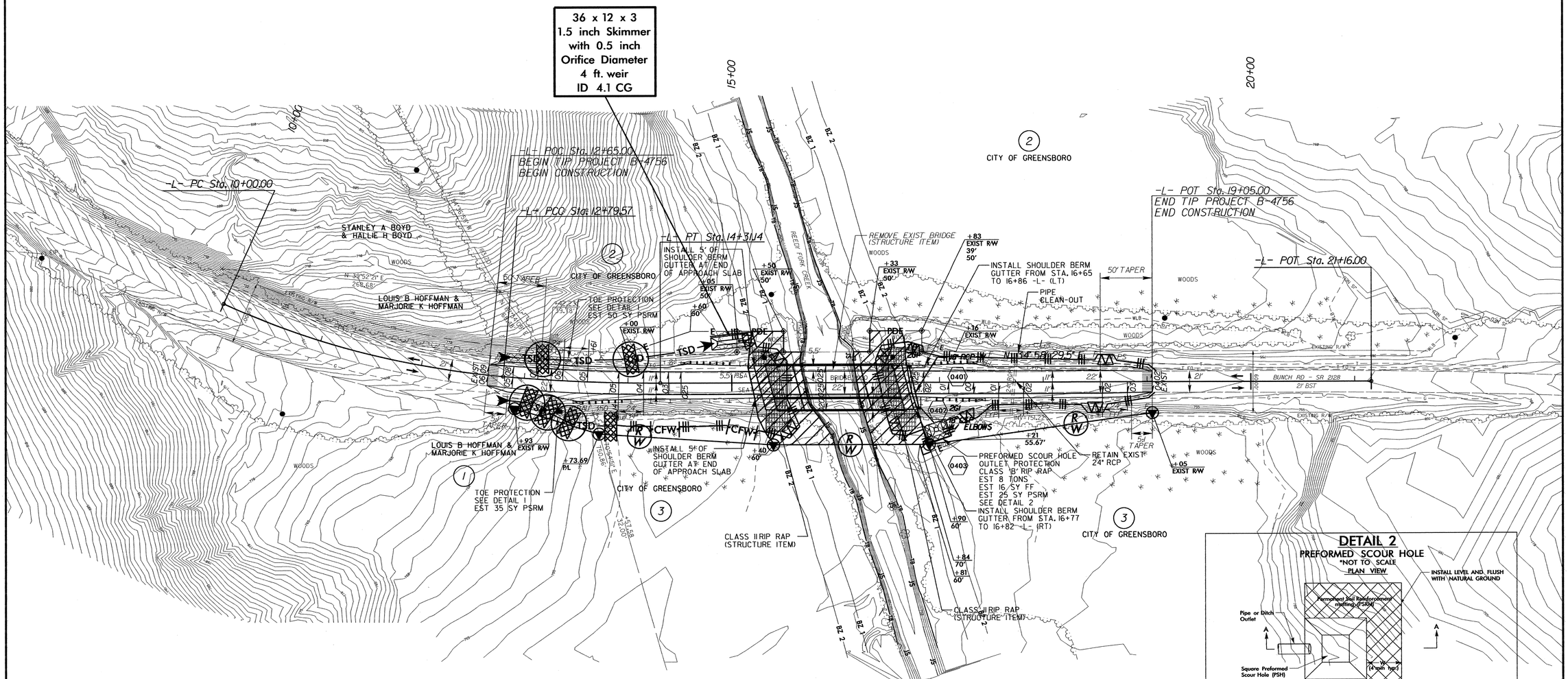
ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

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

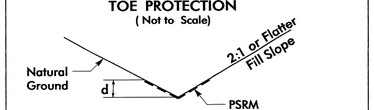
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

NC GRID
NAD 83/NSRS 2007

NOTE:
UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.



DETAIL 1
TOE PROTECTION
(Not to Scale)



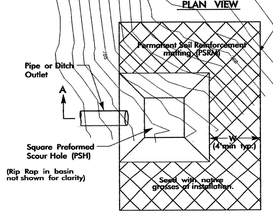
d= 2 Ft.

Type of Liner= PSRM

FROM STA. 12+80 TO STA. 13+50 –L– (LT)
FROM STA. 13+00 TO STA. 13+50 –L– (RT)

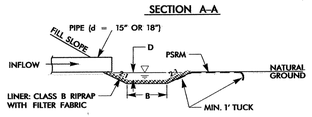
DETAIL 2
PREFORMED SCOUR HOLE
*NOT TO SCALE

PLAN VIEW



B= 4 ft
D= 1.5 ft
W= 4 ft

SECTION A-A



308

STA. 16+97 –L– (RT)

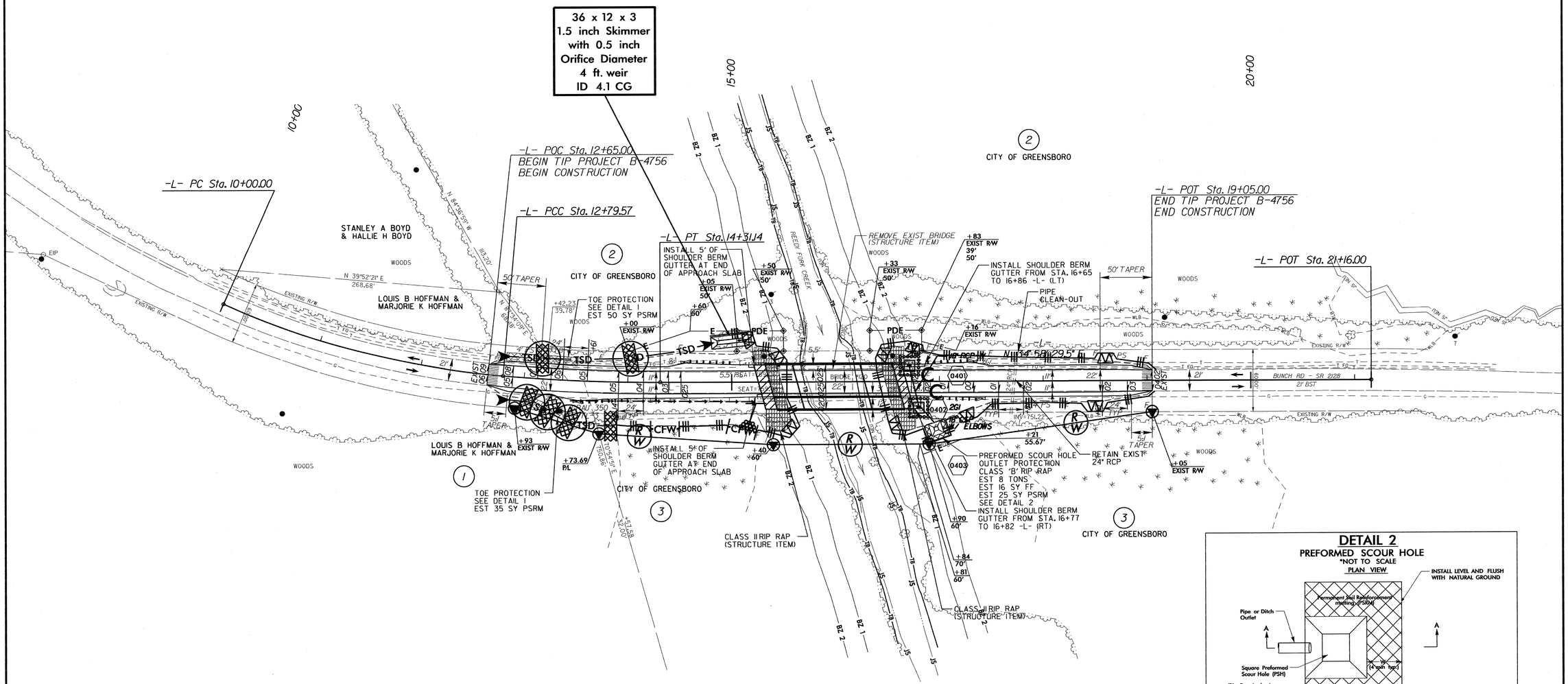
$FILE$
$DATE$

PROJECT REFERENCE NO.	SHEET NO.
B-4756	EC-5/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

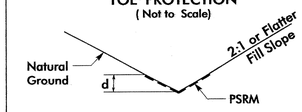
Place Matting for Erosion Control on Slopes Adjacent to Permitted Wetlands as Work Allows.

NC GRID NAD 83/NSRS 2007

NOTE: UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.



DETAIL 1
TOE PROTECTION
(Not to Scale)



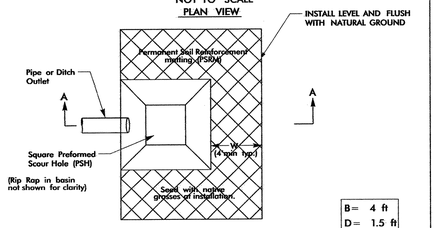
d= 2 Ft.

Type of Liner= PSRM

FROM STA. 12+80 TO STA. 13+50 -L- (LT)
FROM STA. 13+00 TO STA. 13+50 -L- (RT)

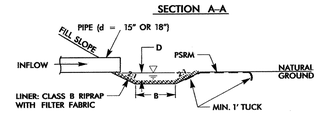
DETAIL 2
PREFORMED SCOUR HOLE
*NOT TO SCALE

PLAN VIEW



B= 4 ft
D= 1.5 ft
W= 4 ft

SECTION A-A



308

STA. 16+97 -L- (RT)

$FILE$

$DATE$

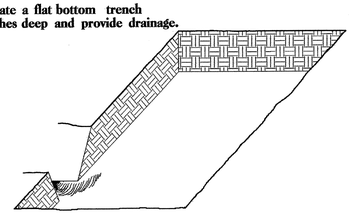
PROJECT REFERENCE NO.	SHEET NO.
B-4756	RF-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PLANTING DETAILS

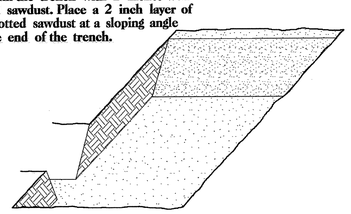
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

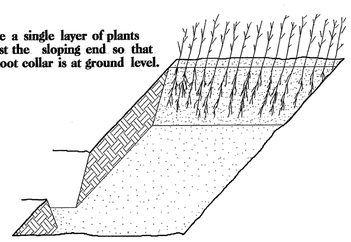
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



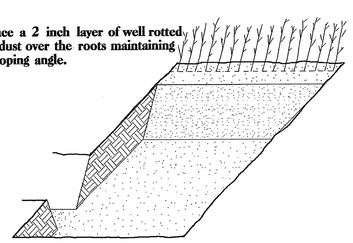
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

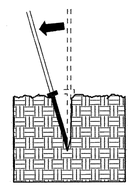


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

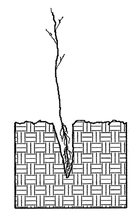


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

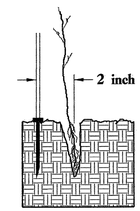
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



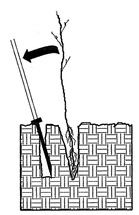
1. Insert planting bar as shown and pull handle toward planter.



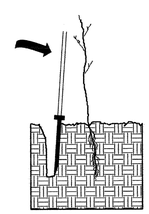
2. Remove planting bar and place seedling at correct depth.



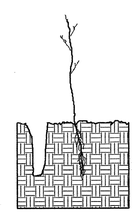
3. Insert planting bar 2 inches toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



5. Push handle forward firming soil at top.



6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.

KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.

ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

REFORESTATION

☐ TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

40% BETULA NIGRA	RIVER BIRCH	12 in - 18 in BR
30% QUERCUS RUBRA	NORTHERN RED OAK	12 in - 18 in BR
30% PINUS TAEDA	LOBLOLLY PINE	12 in - 18 in BR

REFORESTATION DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

T.I.P.: B-4756

CONTRACT: C203306

TIP NO.	SHEET NO.
B-4756	SIGN-1

APPROVED: [illegible]

DATE: 7/25/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

SIGNING PLAN
GUILFORD COUNTY

LOCATION: BRIDGE NO. 120 OVER REEDY FORK CREEK ON SR 2128 (BUNCH ROAD).

SUMMARY OF QUANTITIES

ITEM NO. DESC. NO.	ITEM NO. SECT. NO.	ITEM DESCRIPTION	QUANTITY	UNIT
4072000000	903	SUPPORTS, 3 LB STEEL U-CHANNEL	79	L.F.
4096000000	904	SIGN ERECTION, TYPE D	2	EA.
4102000000	904	SIGN ERECTION, TYPE E	1	EA.
4155000000	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	7	EA.

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
904.10	ORIENTATION OF GROUND MOUNTED SIGNS
904.50	MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

GENERAL NOTES

- SIGNS FURNISHED BY STATE
- ALL TYPE 'D' SIGNS SHALL BE MOUNTED ON TWO U-CHANNEL POSTS UNLESS OTHERWISE INDICATED ON THE PLANS.
- SIGNING PLANS DO NOT INCLUDE TEMPORARY CONSTRUCTION SIGNING. SEE TRAFFIC CONTROL PLANS
- WHEN NOT STATIONED OR DIMENSIONED ON PLANS, ALL 'E' AND 'F' SIGNS SHALL BE FIELD LOCATED BY THE ENGINEER
- ALL EXISTING SIGNS ON "U" CHANNEL POST WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE NOTED ON PLANS.
- THE BACKGROUND FOR TYPE E & F SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.
- SEE ROADWAY PLANS FOR GUARD/GUIDE RAIL DETAILS.

SIGN NUMBER: 301,302 BACKG COLOR: Green
TYPE: D COPY COLOR: White
QUANTITY: 2
SIGN WIDTH: 4'-0"
HEIGHT: 2'-0"
TOTAL AREA: 8.0 Sq.Ft.
BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 1"
RADII: 3"
NO. Z BARS:
LENGTH:

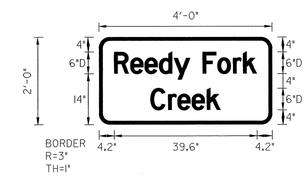
SYMBOL	X	Y	WID	HT

MAT'L: 0.125" (3.2 mm) ALUMINUM

USE NOTES: 1,2

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.

DESIGN BY: S.JOHNS CHECKED BY: S.KUNZ DATE: Jul 08, 2013
PROJECT ID: B-4756 DIV: 7



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

																										Series/Size Text Length
	R	e	e	d	y		F	o	r	k																D 2000
4.2	4.5	4	4	4.1	4.5	3.5	4.1	4.3	2.8	3.8	4.2															39.6
	C	r	e	e	k																					D 2000
14.3	4.9	2.6	4	4.1	3.8	14.3																				19.5

FILENAME: B-4756_Sgn_SGN NORTH CAROLINA D.O.T. SIGN DETAIL

"E" SIGNS

(401) QUANTITY REQ'D 1

SPEED LIMIT 45

30 X 36
R2-1

ONE "U" POST PER SIGN

PLAN PREPARED BY: N.C.D.O.T. SIGNING AND DELINEATION UNIT

SUSAN B. KUNZ SIGNING & DELINEATION REGIONAL ENGINEER

STACEY JOHNS SIGNING & DELINEATION DESIGN ENGINEER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT NOTES

1	DISPOSAL OF SIGN SYSTEM, U-CHANNEL

INDEX

SHEET NO.	DESCRIPTION
SIGN-1	TITLE SHEET, SIGN DESIGNS, E SIGNS, & NOTES
SIGN-2	SIGN DETAIL SHEET

22-Jul-2013 16:14
s:\Hydro\Proj\B4756\Traffic\Signing\CADD\Signing Layout Plans\B-4756_Sgn_SGN.dgn
sjohns

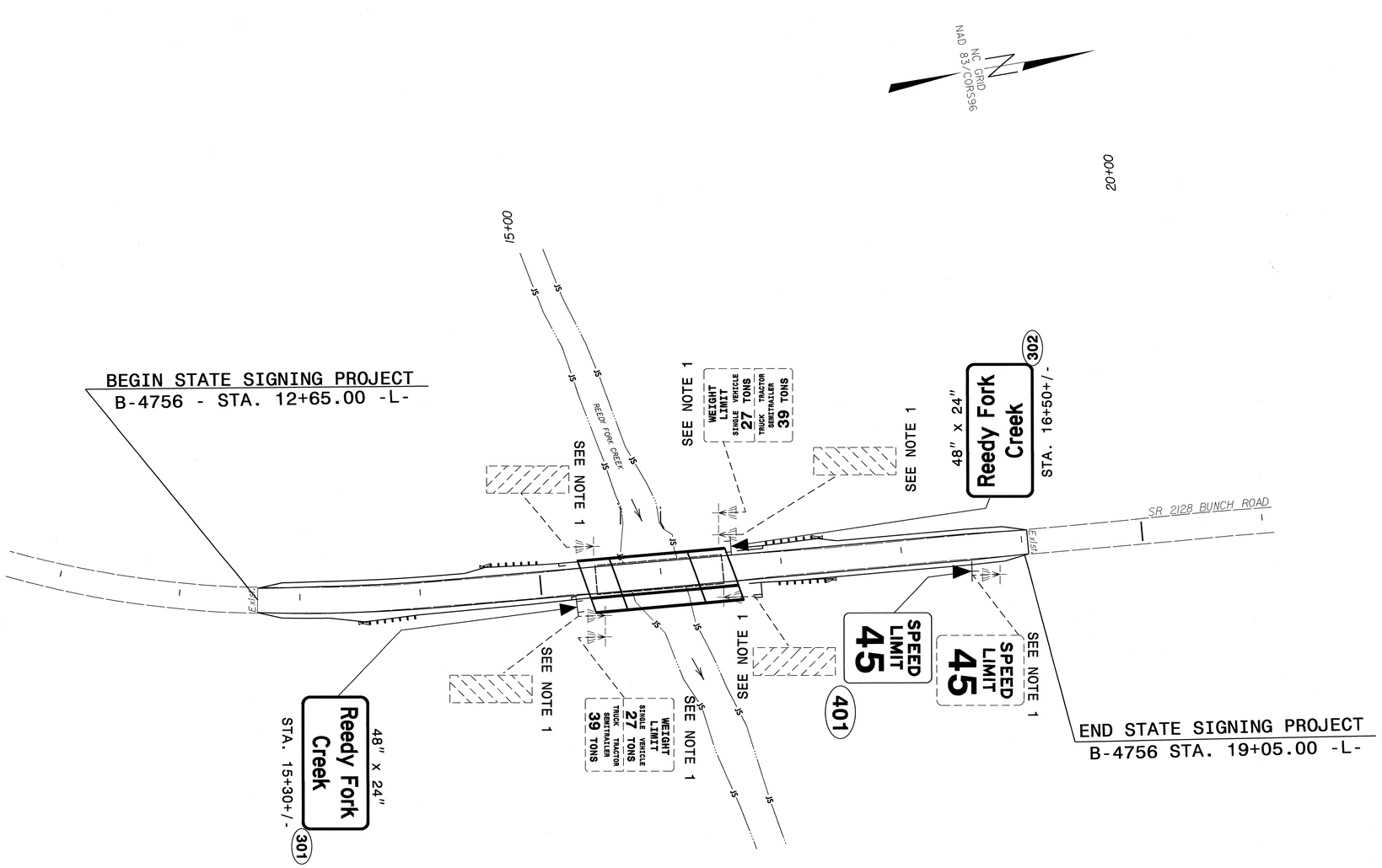
TIP NO.	SHEET NO.
B-4756	SIGN-2

APPROVED: RLWit

DATE: 7/25/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING



PAY ITEM NOTES

1 DISPOSAL OF SIGN SYSTEM, U-CHANNEL

SIGN DETAIL SHEET

22-JUL-2013 16:15
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sjohns AT TE2749:1

TIP PROJECT: B-4756

T.I.P. NO.	SHEET NO.
B-4756	UO-1

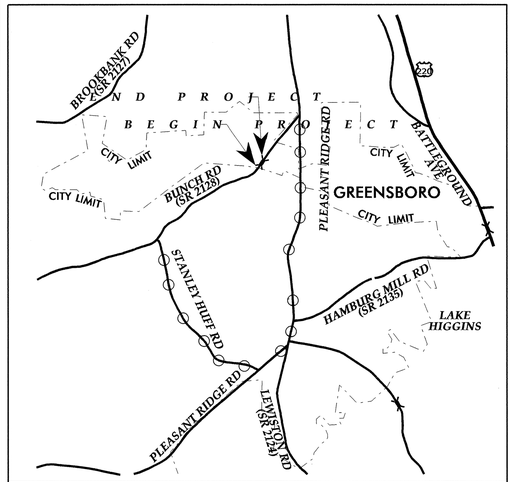
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS
GUILFORD COUNTY

LOCATION: BRIDGE NO. 120 OVER REEDY CREEK ON SR 2128 (BUNCH ROAD)

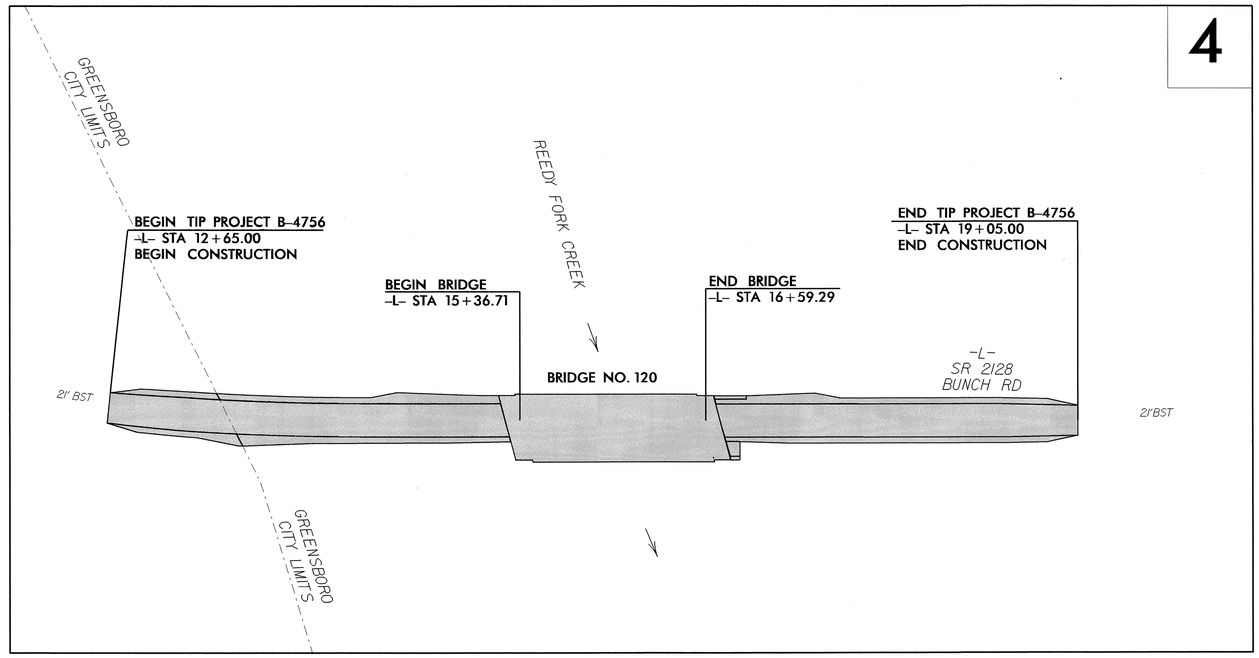
TYPE OF WORK: UTILITY RELOCATION

NC GRID
NAD 83/NSRS 2007



VICINITY MAP

OFF SITE DETOUR ROUTE



UCC

UTILITY COORDINATION CONSULTANTS
P.O. BOX 450
MINERAL SPRINGS, N.C.28108
704 844-9093

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UO-1	TITLE SHEET
UO-2	UTILITY BY OTHERS PLAN SHEETS

UTILITY OWNERS ON PROJECT

(A) PIEDMONT NATURAL GAS——GAS
(B) AT&T——COMMUNICATIONS

PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES UNIT
UTILITIES ENGINEERING
1555 MAIL SERVICES CENTER
RALEIGH NC 27699-1555
PHONE (919) 707-6690
FAX (919) 250-4151

Roger Worthington, P.E. — UTILITIES SECTION ENGINEER
Steve McKee, P.E. — UTILITIES SQUAD LEADER PROJECT ENGINEER
Jamshid Hafshejani — UTILITIES PROJECT DESIGNER

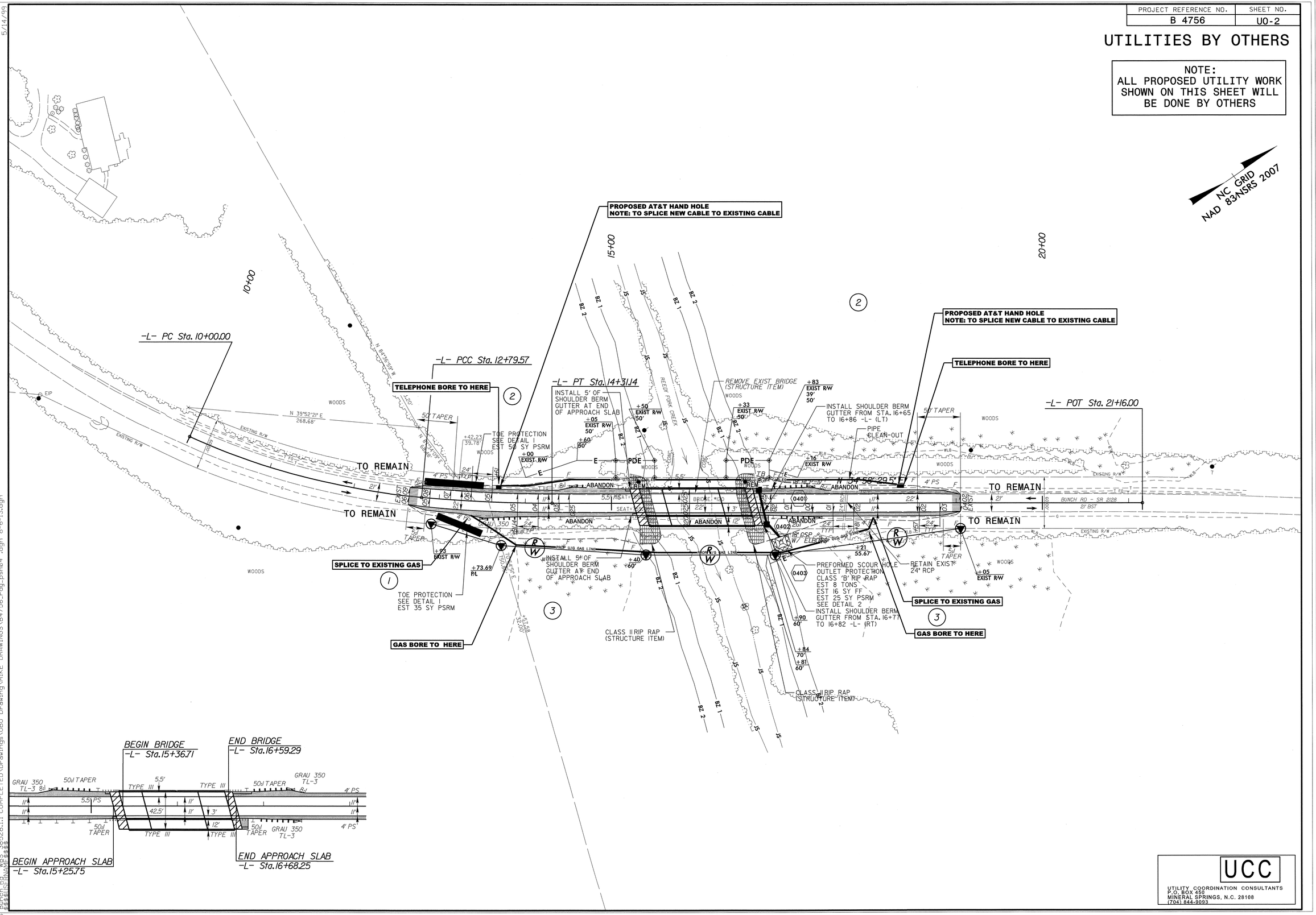
05-AUG-2013 15:46
R:\Utilities\Rdy_Ut\Proj\B-4756 UBO Consultant\B4756_rdy_tsh.dgn
$$$USERNAME$$$

PROJECT REFERENCE NO.	SHEET NO.
B 4756	U0-2

UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS

NC GRID
NAD 83/NSRS 2007



UCC
UTILITY COORDINATION CONSULTANTS
P.O. BOX 450
MINERAL SPRINGS, N.C. 28108
(704) 844-9093

06-AUG-2013 14:15
B4756_rdy_psh04.dgn
USER NAME = scottcr
4756 B 06-AUG-2013 14:15 R:\Roadway\Proj\B4756_rdy_psh04.dgn 8-6-13.dgn
5/14/99

Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

PROJ. REFERENCE NO.	SHEET NO.
B-4756	X-1A

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

CROSS-SECTION SUMMARY

Note: Embankment Column Does Not Include Backfill For Undercut.

STATION	UNCLASSIFIED EXCAVATION AREAS (SQ. FT.)	EMBANKMENT AREAS (SQ. FT.)	UNCLASSIFIED EXCAVATION VOLUMES (CU. YARDS)	EMBANKMENT VOLUMES (CU. YARDS)	STATION	UNCLASSIFIED EXCAVATION AREAS (SQ. FT.)	EMBANKMENT AREAS (SQ. FT.)	UNCLASSIFIED EXCAVATION VOLUMES (CU. YARDS)	EMBANKMENT VOLUMES (CU. YARDS)	STATION	UNCLASSIFIED EXCAVATION AREAS (SQ. FT.)	EMBANKMENT AREAS (SQ. FT.)	UNCLASSIFIED EXCAVATION VOLUMES (CU. YARDS)	EMBANKMENT VOLUMES (CU. YARDS)
-L-														
12+65	0.11	0.09	0	0										
13+00	2.78	2.18	2	1										
13+50	0.01	66.11	3	63										
14+00	0	108.18	0	161										
14+50	0	121.36	0	213										
15+00	0	68.63	0	176										
15+33	6.20	132.39	4	123										
15+36.71	0	118.07	0	17										
16+59.29	9.21	13.06	0	0										
17+00	0	49.48	7	47										
17+50	0	19.75	0	64										
18+00	0.04	10.49	0	28										
18+50	1.19	6.65	1	16										
19+00	1.84	0.72	3	7										
19+05	0.03	0	0	0										

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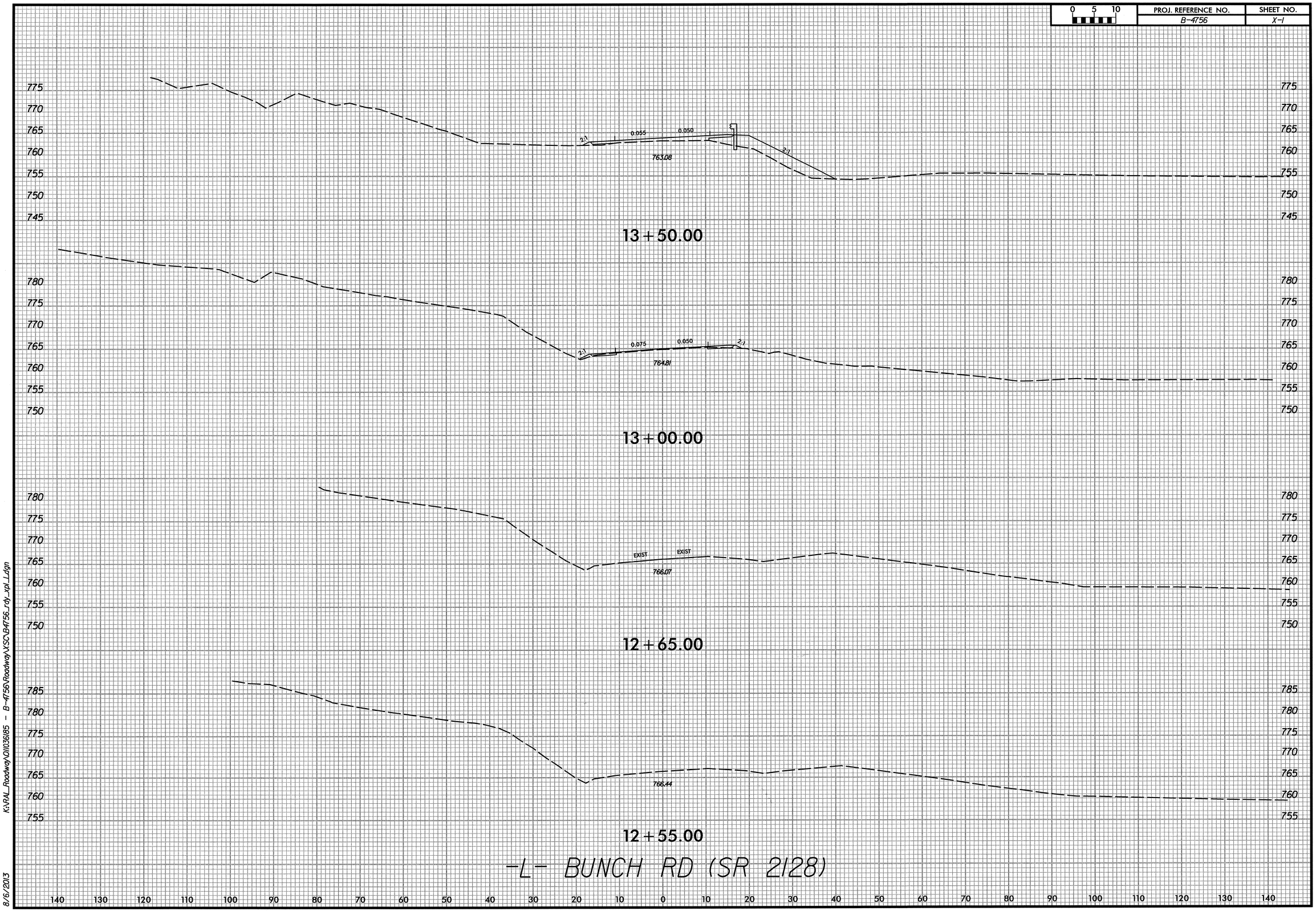
8/6/2013

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4756	X-1



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8/6/2013

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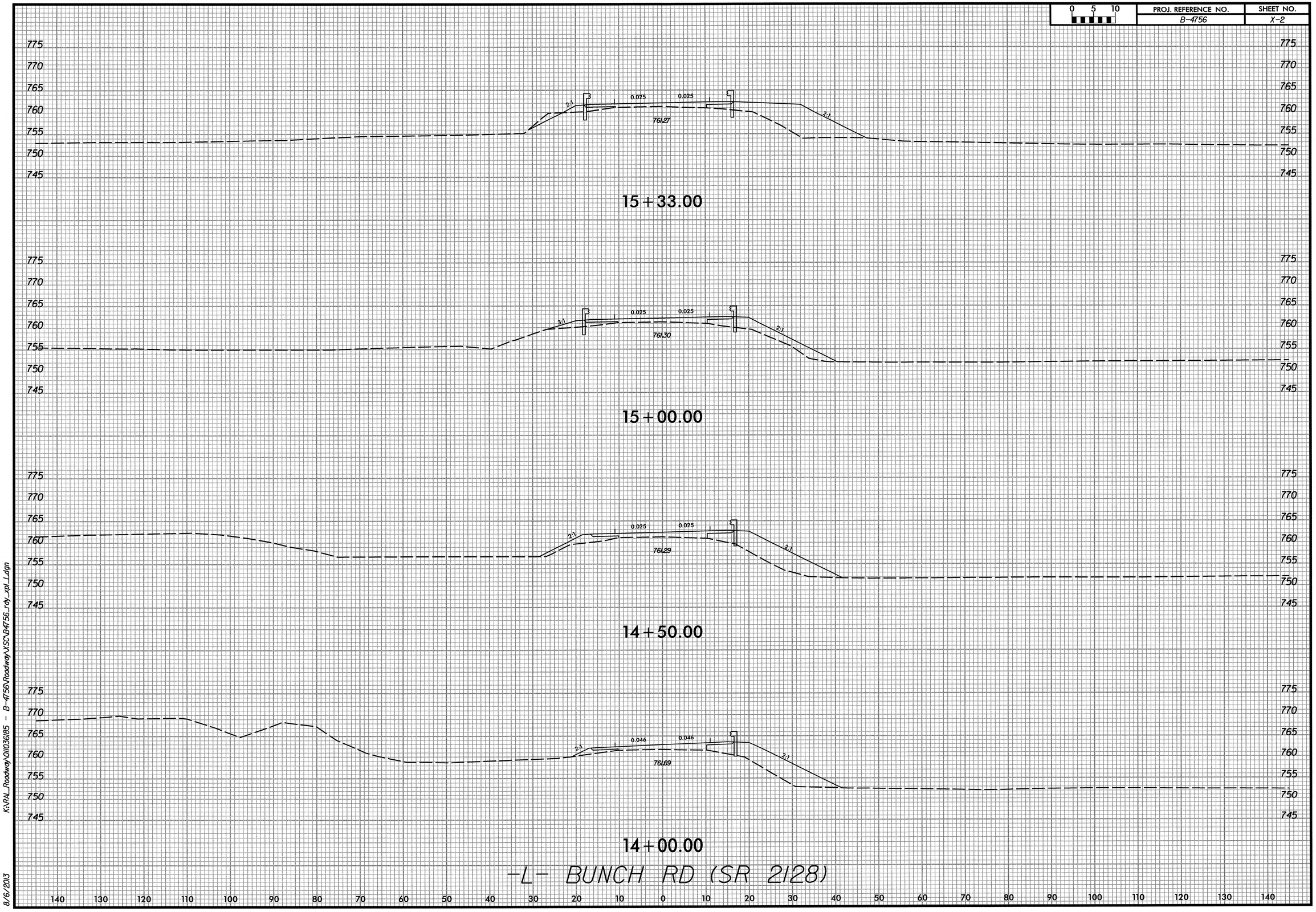

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8/6/2013

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
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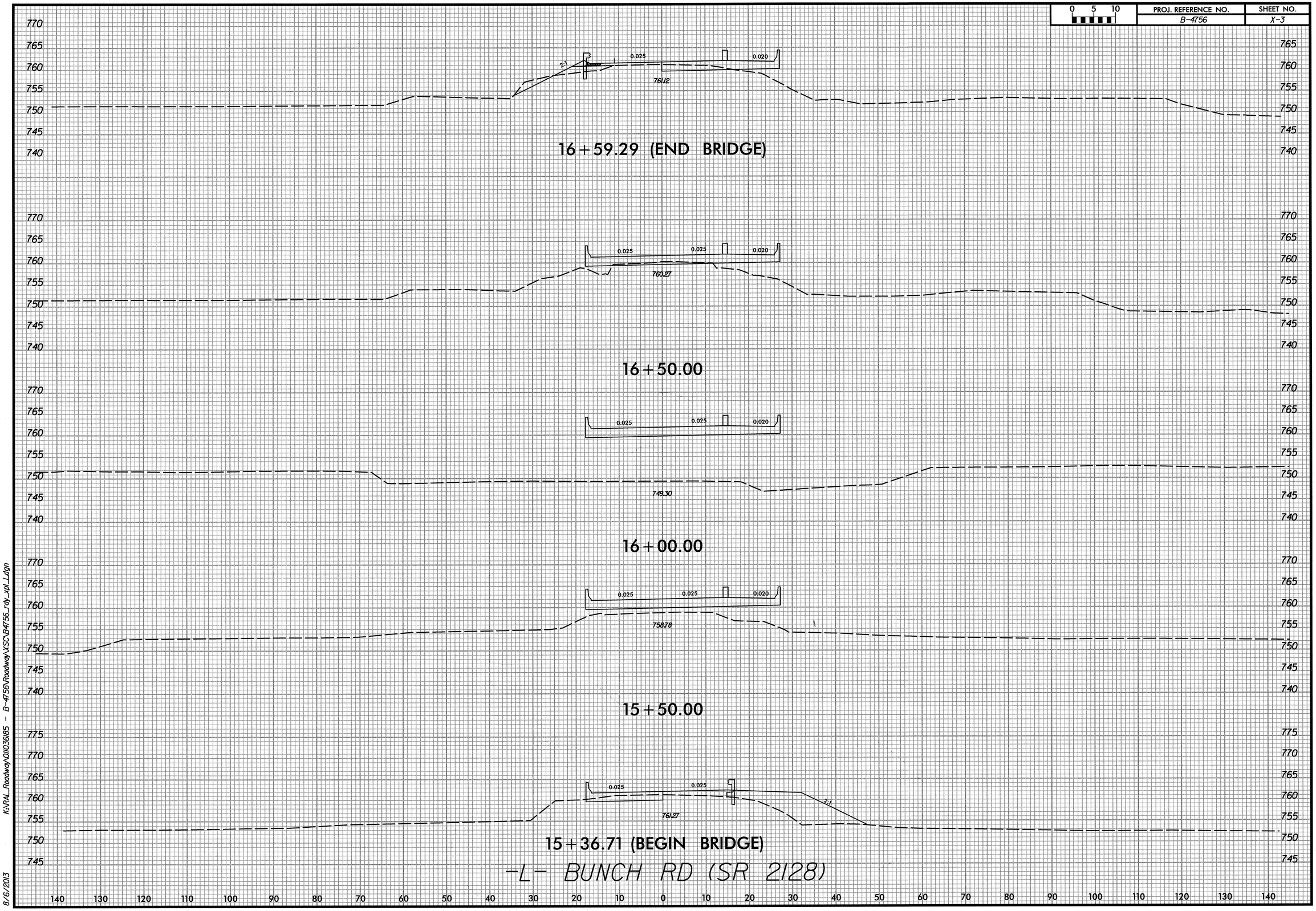

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8/6/2013

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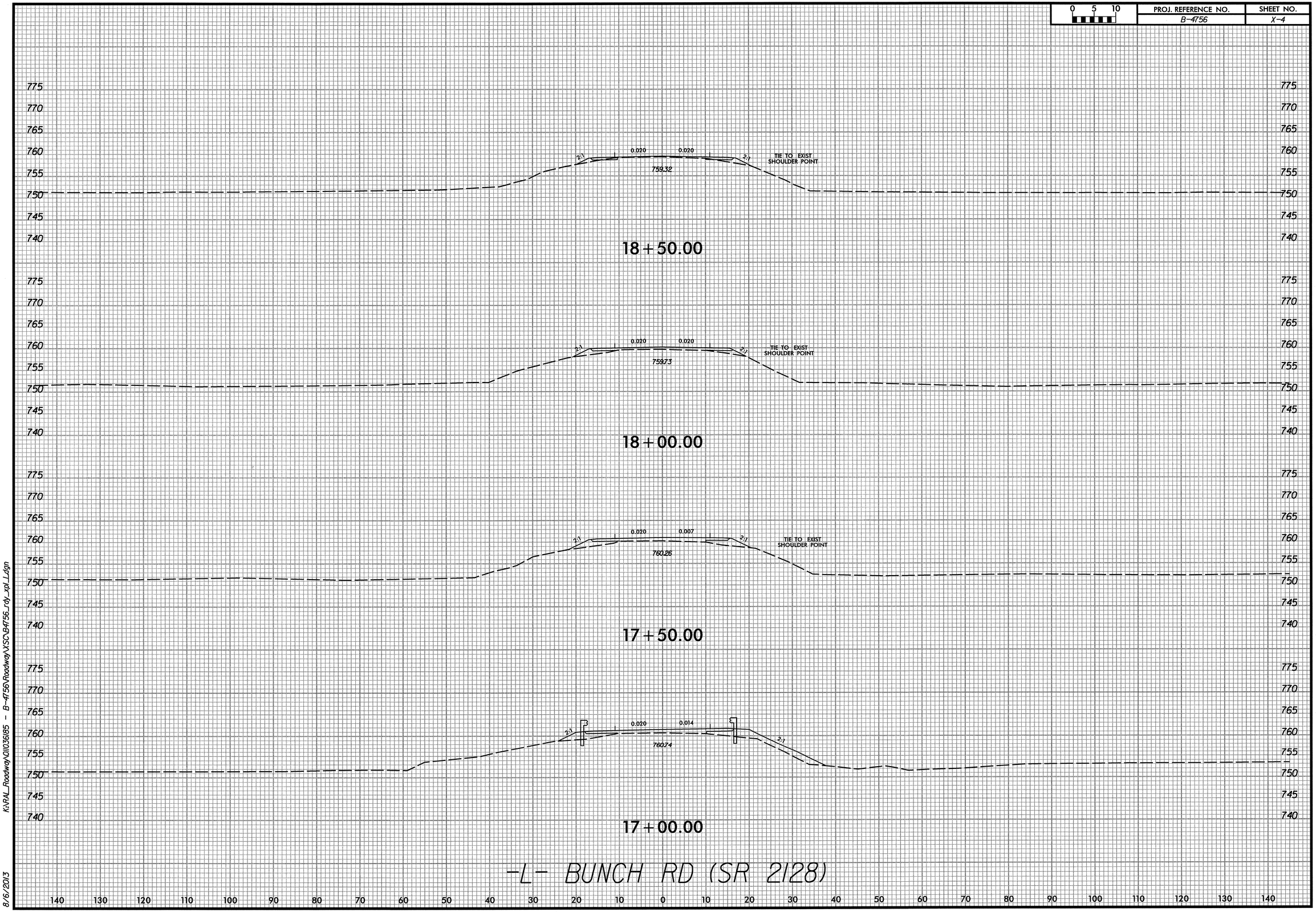

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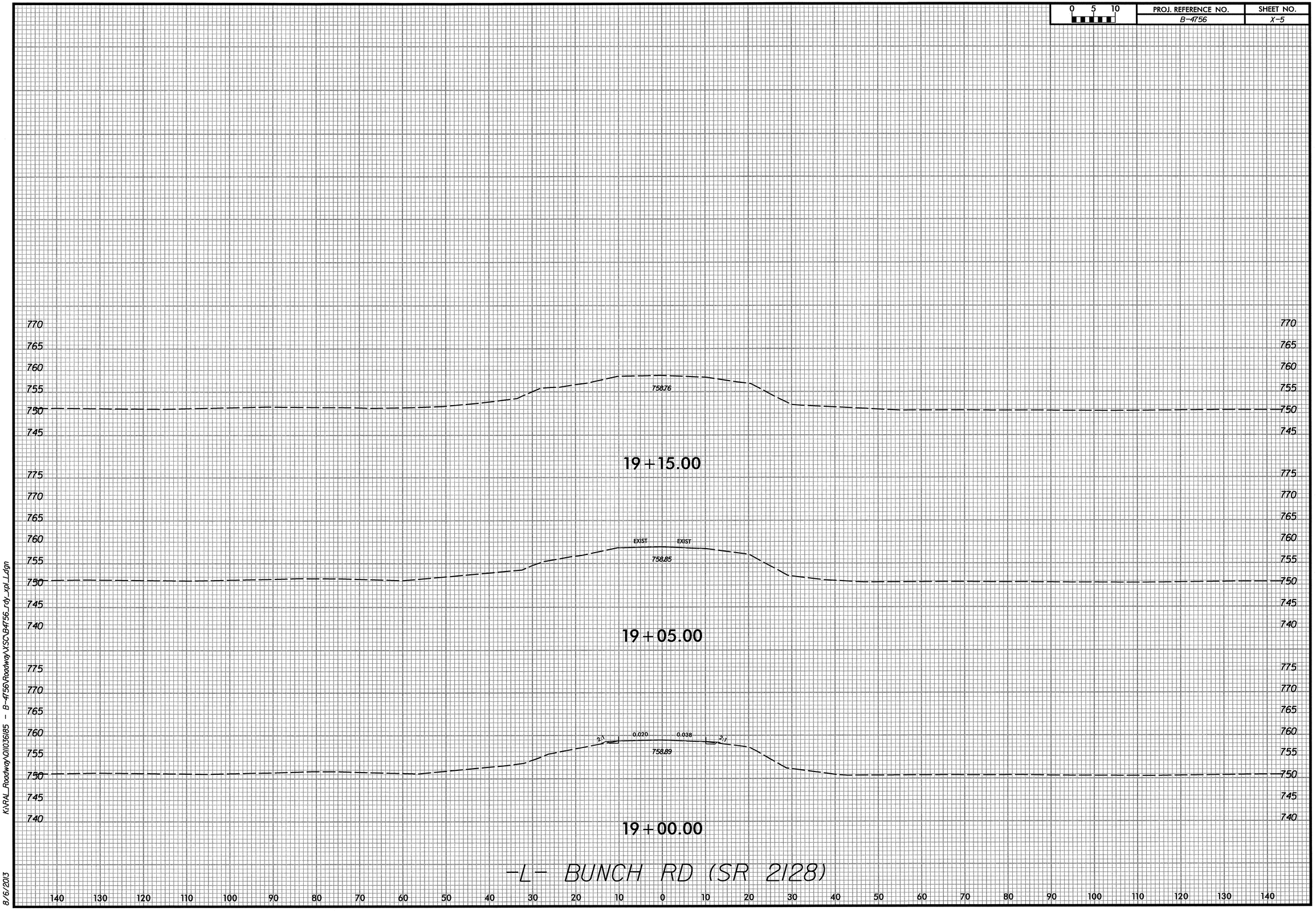
8/6/2013

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4756	X-5



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8/6/2013