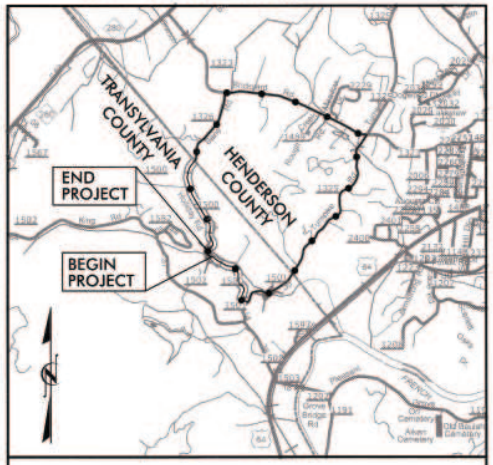
CONTRACT: DN00146 PROJECT: 17BP.14.R.13

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



VICINITY MAP

DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

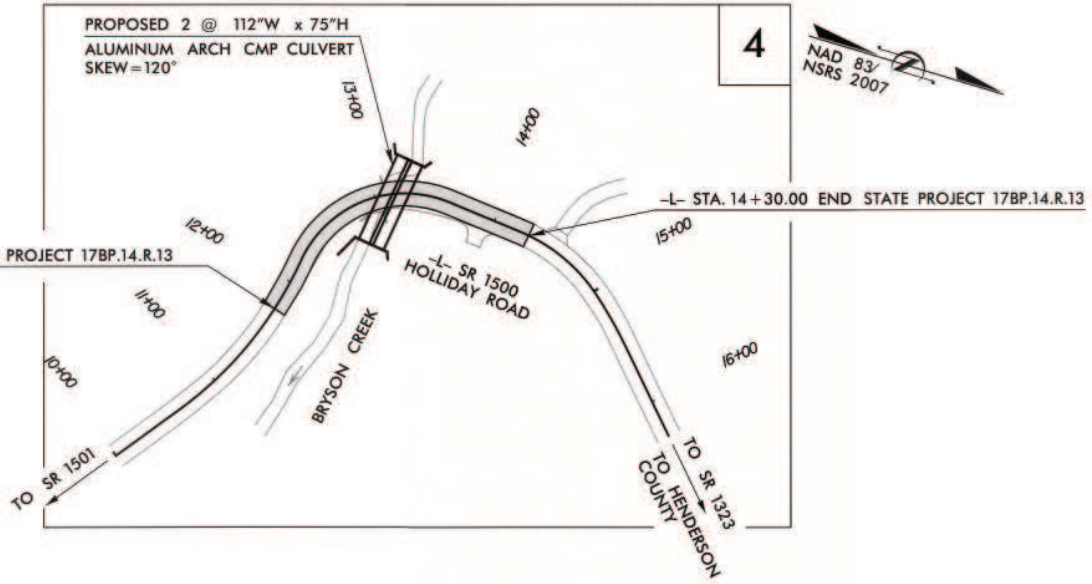
TRANSYLVANIA COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.13	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
17BP.14.R.13		PE
17BP.14.R.13		ROW & UTIL
17BP.14.R.13		CONSTR

LOCATION: BRIDGE NO. 141 ON SR 1500 (HOLLIDAY ROAD) OVER BRYSON CREEK

TYPE OF WORK: PAVING, GRADING, GUARDRAIL, DRAINAGE AND CULVERT



GRAPHIC SCALES

PLANS: 20 10 0 20 40
PROFILE (HORIZONTAL): 20 10 0 20 40
PROFILE (VERTICAL): 5 2.5 0 5 10

DESIGN DATA

ADT 2013 = 300
ADT 2033 = 460
DHV = N/A %
D = N/A %
T = 6 % *
V = 30 MPH
* TTST = N/A DUAL 6%
FUNC CLASS = LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT 17BP.14.R.13 = 0.043 mi.
LENGTH STRUCTURE PROJECT 17BP.14.R.13 = 0.005 mi.
TOTAL LENGTH PROJECT 17BP.14.R.13 = 0.048 mi.

Prepared for NCDOT in the Office of:
moffatt & nichol
2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JANUARY 11, 2013
LETTING DATE: N/A

TIM REID, P.E.
PROJECT ENGINEER

TRENT HUFFMAN, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
moffatt & nichol
SEAL 026696
SIGNATURE P.E. 10/16/13

ROADWAY DESIGN ENGINEER
moffatt & nichol
SEAL 015869
SIGNATURE P.E. 10/16/13

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION

10/15/2013
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thuffman

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.13	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 015869 ENGINEER T. R. REID

12/16/13

moffatt & nichol

INDEX OF SHEETS

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
2	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2-A	STRUCTURE ANCHOR UNITS - STANDARD 862.03
3	SUMMARY OF QUANTITIES
3-A	SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY PARCEL INDEX, RIP RAP SUMMARY
4	PLAN SHEET
5	PROFILE SHEET
TMP-1 THRU TMP-3	TRANPORTATION MANAGEMENT PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1, EC-3 THRU EC-6	EROSION CONTROL PLAN
UD-1 THRU UD-2	UTILITIES PLANS BY OTHERS
X-A THRU X-6	CROSS-SECTION SUMMARY, CROSS-SECTIONS
C-1 THRU C-3	CULVERT PLANS

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 01-30-2012

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED 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
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

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.

SUBSURFACE PLANS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE:

COMPORIUM - Telephone & CTV

RIGHT-OF-WAY MARKERS:

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

EFF. 01-17-2012
REV. 10-30-2012

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 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
862.01	Guardrail Placement
862.02	Guardrail Installation
876.01	Rip Rap In Channels

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.13	1-8

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 — PCM
- 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
- Well
- 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 — T
- 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.

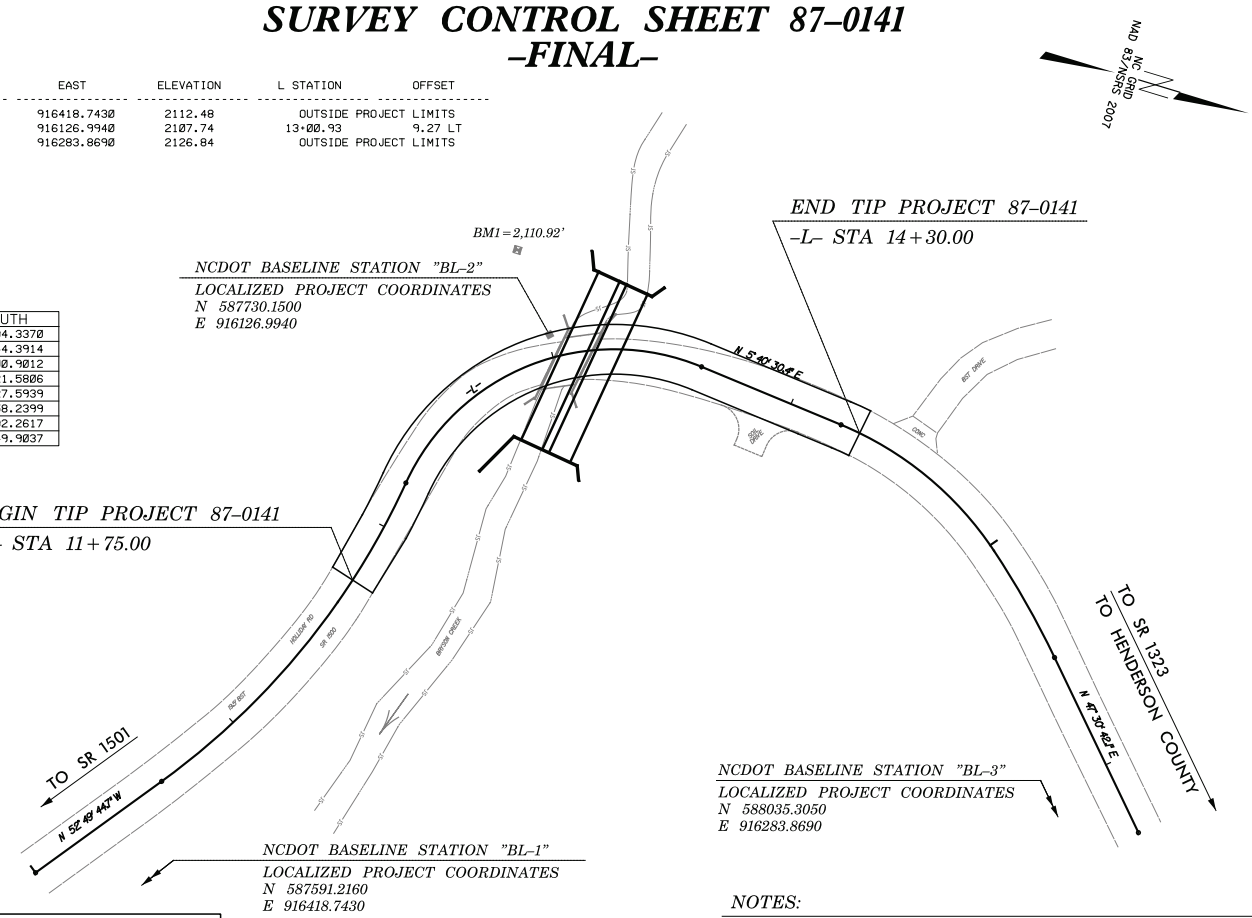
PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.13	1-C
Location and Surveys	

SURVEY CONTROL SHEET 87-0141
-FINAL-

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1	587591.2160	916418.7430	2112.48	OUTSIDE PROJECT LIMITS	
2	BL-2	587730.1500	916126.9940	2107.74	13+00.93	9.27 LT
3	BL-3	588035.3050	916283.8690	2126.84	OUTSIDE PROJECT LIMITS	

****
BM1 ELEVATION - 2110.92
N 587708 E 916098
L STATION 12+98.44 46 LEFT
RR SPIKE IN 15" POPLAR
****

TYPE	STATION	NORTH	SOUTH
POT	10+00.00	587595.1897	916394.3370
PC	10+62.68	587633.0605	916344.3914
PRC	12+19.62	587692.2163	916200.9012
PT	13+60.98	587792.4977	916121.5806
PC	14+21.79	587853.0095	916127.5939
PCC	15+02.70	587926.6200	916158.2399
PT	15+52.14	587962.4445	916192.2617
POT	16+30.31	588015.2420	916249.9037



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY OTHERS FOR MONUMENT "BL-1"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 587591.216(ft) EASTING: 916418.743(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999776677
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-1" TO -L- 11+75.00 STATION IS N 62° 11' 55.31" W 196.9457'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

FINAL ROW MARKER AND IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	SOUTH
L	12+60.00	-24.78	587685.2261	916149.8904
L	13+27.00	-75.00	587738.8109	916052.1924
L	13+42.00	-75.00	587765.5259	916047.0890
L	13+60.98	-30.00	587795.4643	916091.7276
L	14+00.00	-25.00	587833.8003	916100.5619
L	14+35.00	25.00	587861.2158	916154.0558
L	14+00.00	41.00	587827.2737	916166.2384
L	13+50.00	40.00	587782.3455	916161.1404
L	12+12.00	60.00	587750.3590	916217.8976
L	12+12.00	25.01	587715.8071	916212.3808

GEOIDAL MODEL -
NOTE: DRAWING NOT TO SCALE

NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/

THE FILES TO BE FOUND ARE AS FOLLOWS:
87-0141_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.

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PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.13	2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 015869 ENGINEER E. REED

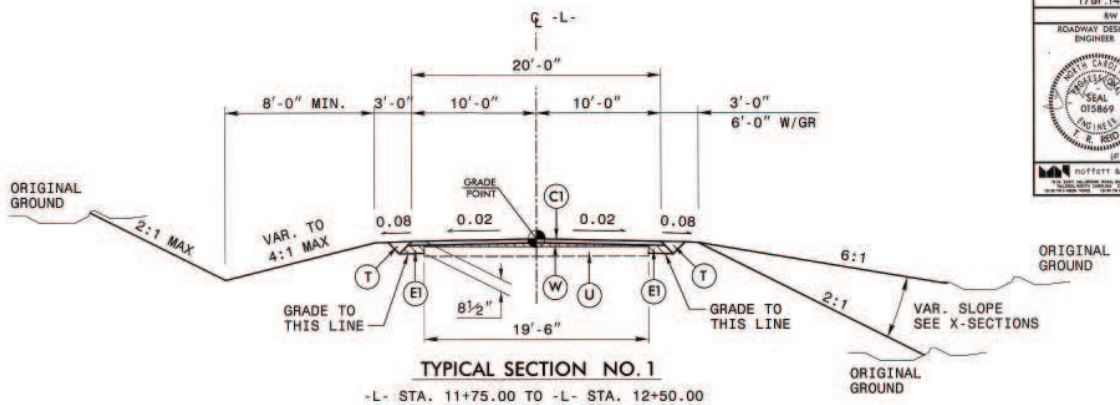
moffatt & nichol

PAVEMENT SCHEDULE

(FINAL PAVEMENT DESIGN)

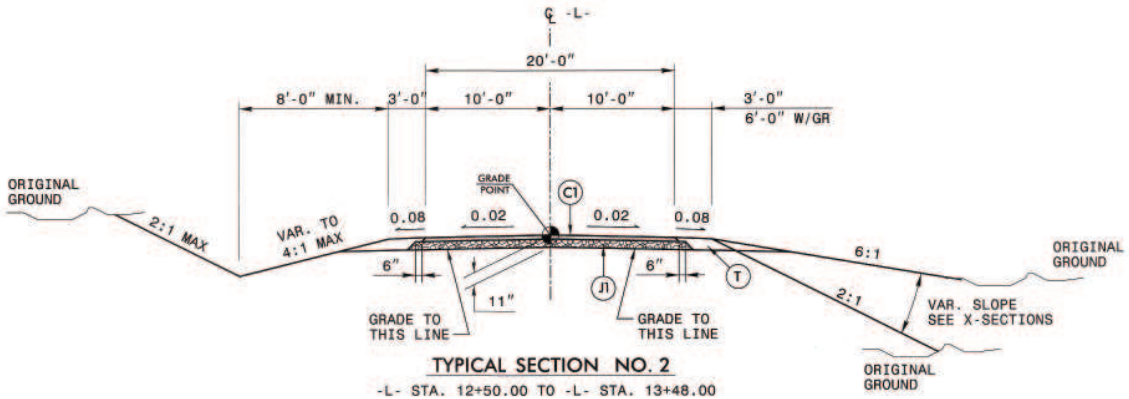
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
E1	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 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" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
J1	PROP. 8" AGGREGATE BASE COURSE.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL ON THIS SHEET)

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



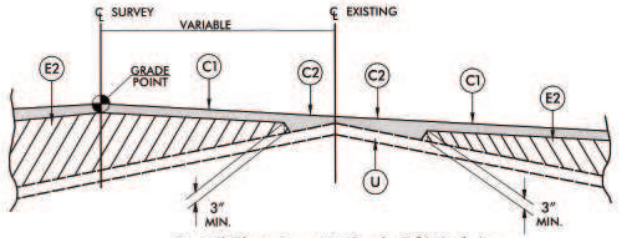
TYPICAL SECTION NO. 1

-L- STA. 11+75.00 TO -L- STA. 12+50.00
-L- STA. 13+48.00 TO -L- STA. 14+30.00



TYPICAL SECTION NO. 2

-L- STA. 12+50.00 TO -L- STA. 13+48.00



Detail Showing Method Of Wedging

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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

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:
FILE SPEC.:

PROJECT REFERENCE NO. 17BP.14.R.13
SHEET NO. 2-A

12/86/97

COMPUTED BY: C. POWELL DATE: 10/1/2013
CHECKED BY: T. HUFFMAN DATE: 10/14/2013

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.13	3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - 17BP.14.R.13

Item Number	Sec #	Qunatity	Unit	Description
0000100000-N	800	1	LS	Mobilization
0000400000-N	801	1	LS	Construction Surveying
0043000000-N	226	1	LS	Grading
0050000000-E	226	1	ACR	Supplemental Clearing and Grubbing
0057000000-E	226	50	CY	Undercut Excavation
0195000000-E	265	50	CY	Select Granular Matrial
1121000000-E	520	110	TON	Aggregate Base Course
1220000000-E	545	50	TON	Incidental Stone Base
1489000000-E	610	20	TON	Asphalt Conc Base Course, Type B 25.0 B
1525000000-E	610	120	TON	Asphalt Conc Surface Course, Type S 9.5 A
1575000000-E	620	10	TON	AsphBinder for Plant Mix PG64-22
3030000000-E	862	250	LF	Steel Beam Guardrail
3150000000-N	862	4	EA	Additional Guardrail Posts
3165000000-E	SP	4	EA	Guardrail Anchor Units, Type 350 (TL-2)
4400000000-E	1110	407	SF	Work Zone Signs (Stationary)
4410000000-E	1110	119	SF	Work Zone Signs (Barricade Mounted)
4445000000-E	1145	80	LF	Barricades (Type III)
4810000000-E	1205	2,060	LF	Paint Pavement Marking Lines (4")
6000000000-E	1605	450	LF	Temporary Silt Fence
6009000000-E	1610	10	TON	Stone for Erosion Control, Class B
6012000000-E	1610	45	TON	Sediment Control Stone
6015000000-E	1615	0.5	ACR	Temporary Mulching
6018000000-E	1620	50	LB	Seed for Temporary Seeding
6021000000-E	1620	0.25	TON	Fertilizer for Temporary Seeding
6024000000-E	1622	200	LF	Temporary Slope Drains
6036000000-E	1631	1,200	SY	Matting for Erosion Control
6038000000-E	SP	250	SY	Permanent Soil Reinforcing Mat
6042000000-E	1632	60	LF	1/4" Hardware Cloth
6045000000-E	SP	280	LF	42" Temporary Pipe
6070000000-N	1639	2	EA	Special Stilling Basins
6084000000-E	1660	0.5	ACR	Seeding & Mulching
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	0.25	TON	Fertilizer Topdressing
6111000000-E	SP	90.00	LF	Impervious Dike
6117000000-N	1675	7	EA	Response for Erosion Control

10/6/2013
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thuffman

COMPUTED BY: DGM DATE: 01-03-13
CHECKED BY: TEH DATE: 01-03-13

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.13	3-A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RIGHT OF WAY AREA DATA

PARCEL NO.	PROPERTY OWNERS NAMES	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RT.	AREA REMAINING LT.	CONST. EASE.	PERM. DRAIN. EASE.	TEMP. DRAIN. EASE.
1	FRANK GILLILAND AND JUDY GILLILAND	1.09 AC	2,366 SF	-	1.04 AC	239 SF	-	-
2	EULA W. MORGAN AND OTIS GAYNARD MORGAN	17.49 AC	3,495 SF	-	17.41 AC	1,173 SF	-	-
3	MICHAEL S. KILPATRICK, JR.	5.60 AC	1,414 SF	-	5.57 AC	1,184 SF	-	-

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD²
-L-	12+50	13+48	CL	177.48
			TOTAL:	177.48
			SAY:	180

SUMMARY OF EARTHWORK

ALIGNMENT	STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
-L-	11+75.00	14+30.00	67	519	452	
SUBTOTALS:			67	519	452	
SHOULDER MATERIAL				58	58	
PROJECT TOTALS:			67	577	510	
5% TO REPLACE TOPSOIL ON BORROW PIT					26	
GRAND TOTALS:			67		536	
SAY:			75		580	

EST 50 CY UNDERCUT
EST 50 CY SELECT GRANULAR MATERIAL
EST 50 TON INCIDENTAL STONE

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.

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

"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

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. 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	XIII	CAT-1	VI MOD	BIC	TL-2	EA	G	NG				
L	12+54.86	14+13.64	LT	158.78			13+40.24	13+18.83	4	7													2							CULVERT / FILL WARRANT
L	11+93.77	13+77.14	RT	183.37			12+42.10	12+91.78	4	7													2							CULVERT / FILL WARRANT
TOTAL				342.15																			4							
LESS ANCHOR DEDUCTIONS																														
GRAU-350 (TYPE TL-2)		4 @ 25.0		-100.00																										
GRAND TOTALS				242.15																										
																							4							
SAY				250																										

ADDITIONAL GUARDRAIL POSTS = 4

12/86/87
10/5/2013
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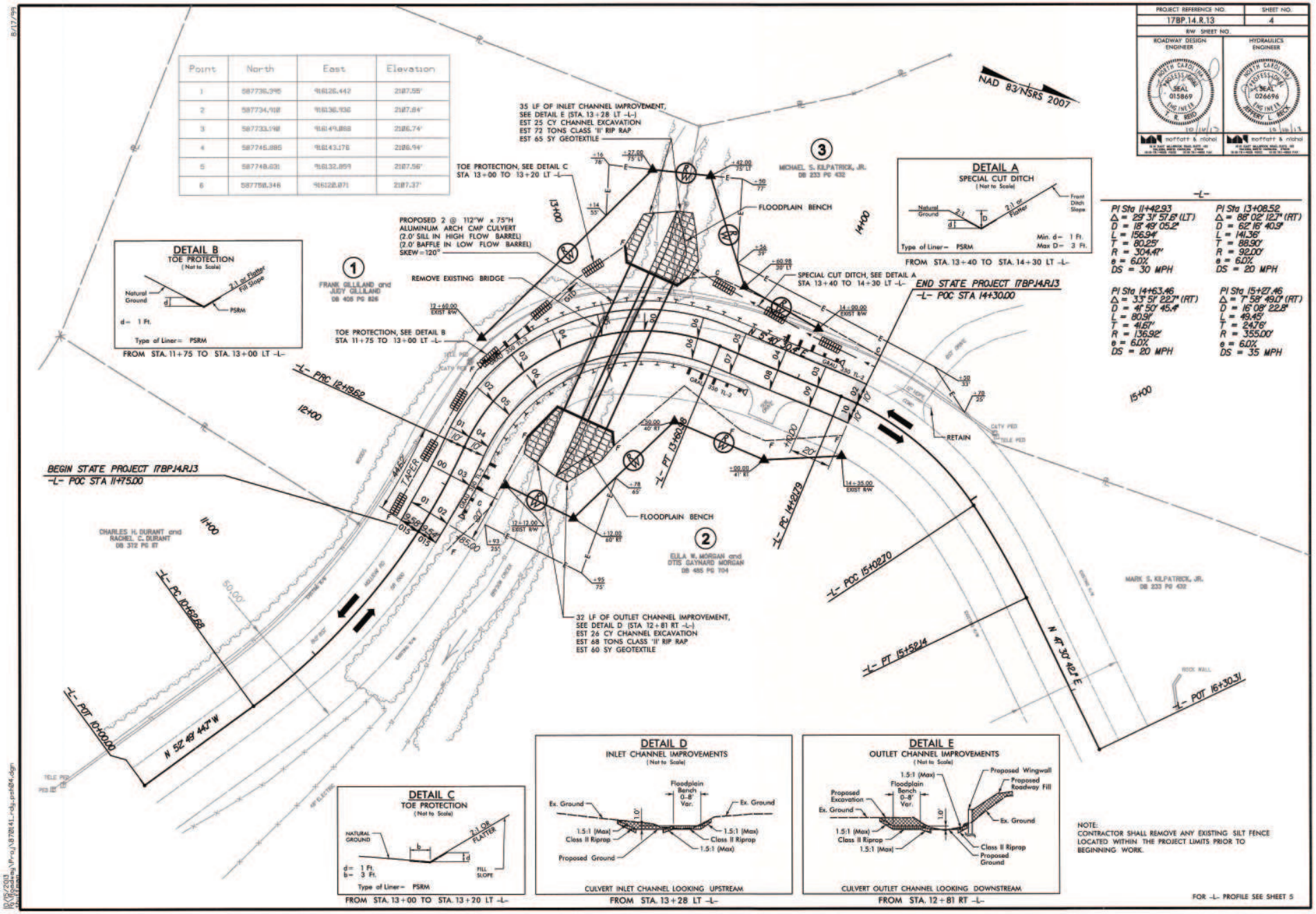
dgn_Plotting


PROJECT REFERENCE NO. 17BP.14.R.13
SHEET NO. 4
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 015869 ENGINEER R. REID
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 026696 ENGINEER L. BECK
10/10/13
moffatt & nichol
NAD 83/NSRS 2007
Point | North | East | Elevation
1 | 587736.395 | 916126.442 | 2187.95'
2 | 587734.918 | 916136.936 | 2187.84'
3 | 587733.198 | 916149.868 | 2186.74'
4 | 587745.885 | 916143.178 | 2186.94'
5 | 587748.631 | 916132.859 | 2187.56'
6 | 587758.346 | 916122.871 | 2187.37'
35 LF OF INLET CHANNEL IMPROVEMENT, SEE DETAIL E (STA. 13+28 LT -L-)
EST 25 CY CHANNEL EXCAVATION
EST 72 TONS CLASS 'II' RIP RAP
EST 65 SY GEOTEXTILE
TOE PROTECTION, SEE DETAIL C STA 13+00 TO 13+20 LT -L-
PROPOSED 2 @ 112"W x 75"H ALUMINUM ARCH CMP CULVERT (2.0' SILL IN HIGH FLOW BARREL) (2.0' BAFFLE IN LOW FLOW BARREL) SKEW = 120°
REMOVE EXISTING BRIDGE
TOE PROTECTION, SEE DETAIL B STA 11+75 TO 13+00 LT -L-
FLOODPLAIN BENCH
SPECIAL CUT DITCH, SEE DETAIL A STA 13+40 TO 14+30 LT -L-
END STATE PROJECT 17BP.14.R.13
-L- POC STA 14+30.00
RETAIN
BEGIN STATE PROJECT 17BP.14.R.13
-L- POC STA 11+75.00
-L- PRC 12+19.62
-L- PC 10+62.88
-L- POT 10+00.00
N 52° 49' 44.7" W
-L- PT 13+60.28
-L- PC 14+20.79
-L- POC 15+02.70
-L- PT 15+52.14
N 47° 30' 42.2" E
-L- POT 16+30.31
32 LF OF OUTLET CHANNEL IMPROVEMENT, SEE DETAIL D (STA 12+81 RT -L-)
EST 26 CY CHANNEL EXCAVATION
EST 68 TONS CLASS 'II' RIP RAP
EST 60 SY GEOTEXTILE
1 FRANK GILLELAND and JUDY GILLELAND DB 408 PG 826
2 ELLA W. MORGAN and OTIS GAYNARD MORGAN DB 485 PG 704
3 MICHAEL S. KILPATRICK, JR. DB 233 PG 432
CHARLES H. DURANT and RACHEL C. DURANT DB 372 PG 87
MARK S. KILPATRICK, JR. DB 233 PG 432
DETAIL A
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground
2:1
d
b
2:1 or Flatter
Front Ditch Slope
Type of Liner= PSRM
Min. d= 1 Ft.
Max D= 3 Ft.
FROM STA. 13+40 TO STA. 14+30 LT -L-
DETAIL B
TOE PROTECTION
(Not to Scale)
Natural Ground
d
2:1 or Flatter Fill Slope
PSRM
d= 1 Ft.
Type of Liner= PSRM
FROM STA. 11+75 TO STA. 13+00 LT -L-
DETAIL C
TOE PROTECTION
(Not to Scale)
NATURAL GROUND
b
d
2:1 OR FLATTER
FILL SLOPE
d= 1 Ft.
b= 3 Ft.
Type of Liner= PSRM
FROM STA. 13+00 TO STA. 13+20 LT -L-
DETAIL D
INLET CHANNEL IMPROVEMENTS
(Not to Scale)
Floodplain Bench 0-8' Var.
Ex. Ground
1.0'
1.5:1 (Max)
Class II Riprap
Proposed Ground
CULVERT INLET CHANNEL LOOKING UPSTREAM
FROM STA. 13+28 LT -L-
DETAIL E
OUTLET CHANNEL IMPROVEMENTS
(Not to Scale)
1.5:1 (Max)
Floodplain Bench 0-8' Var.
Proposed Wingwall
Proposed Roadway Fill
Proposed Excavation
Ex. Ground
1.0'
1.5:1 (Max)
Class II Riprap
Proposed Ground
CULVERT OUTLET CHANNEL LOOKING DOWNSTREAM
FROM STA. 12+81 RT -L-
-L-
PI Sta 11+42.93
Δ = 29° 31' 57.6" (LT)
D = 18° 49' 05.2"
L = 156.94'
T = 80.25'
R = 304.41'
e = 6.0%
DS = 30 MPH
PI Sta 13+08.52
Δ = 88° 02' 12.7" (RT)
D = 62° 16' 40.9"
L = 141.36'
T = 88.90'
R = 92.00'
e = 6.0%
DS = 20 MPH
PI Sta 14+63.46
Δ = 33° 51' 22.7" (RT)
D = 4° 50' 45.4"
L = 80.91'
T = 41.67'
R = 136.92'
e = 6.0%
DS = 20 MPH
PI Sta 15+27.46
Δ = 7° 58' 49.0" (RT)
D = 16° 08' 22.8"
L = 49.45'
T = 24.76'
R = 355.00'
e = 6.0%
DS = 35 MPH
NOTE:
CONTRACTOR SHALL REMOVE ANY EXISTING SILT FENCE LOCATED WITHIN THE PROJECT LIMITS PRIOR TO BEGINNING WORK.
FOR -L- PROFILE SEE SHEET 5
8/17/99
10/05/2013
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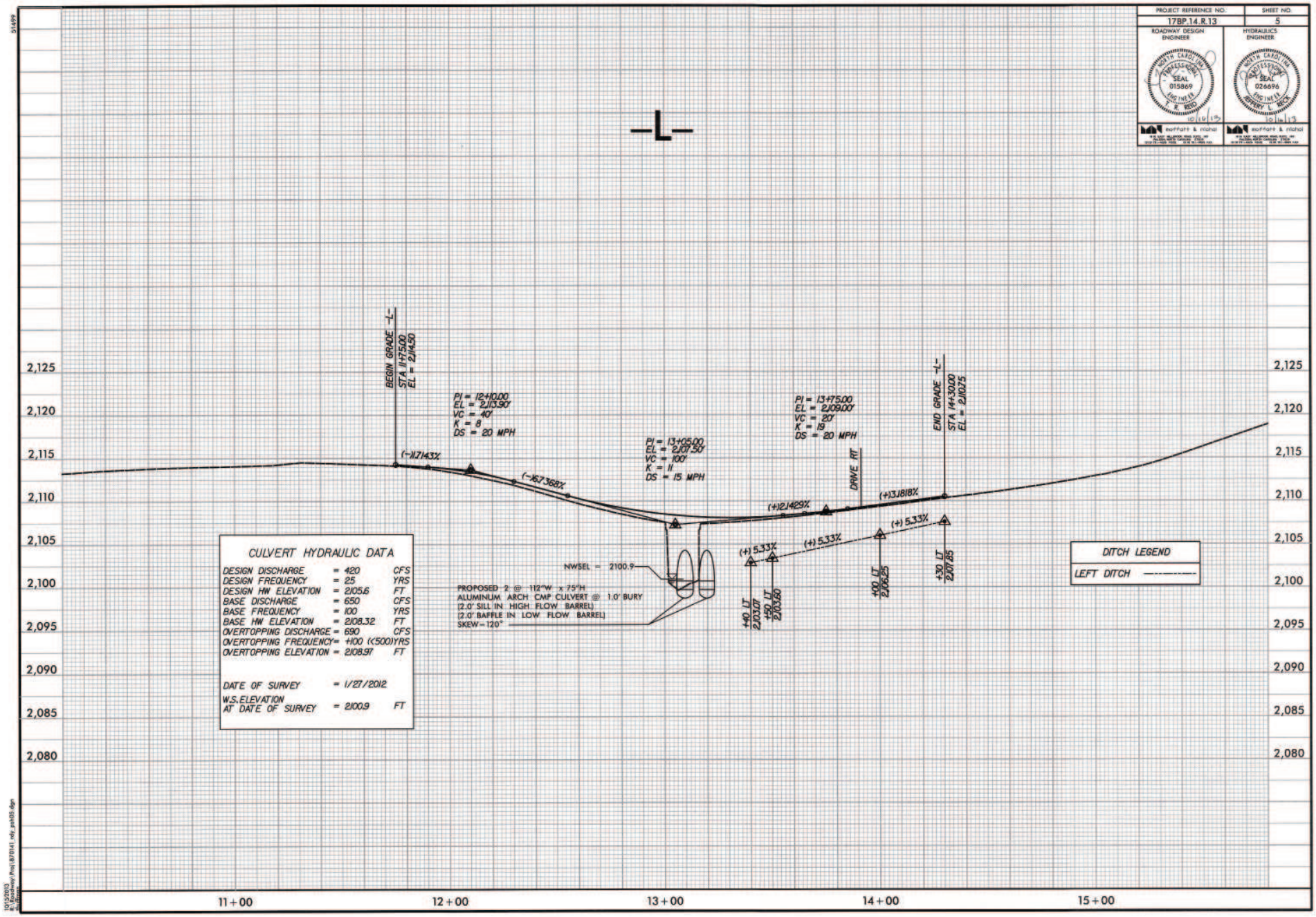
PROJECT REFERENCE NO.
17BP.14.R.13
SHEET NO.
5
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
SEAL 015869
SEAL 026696
10/16/13
10/16/13
moffatt & nichol
moffatt & nichol
-L-
BEGIN GRADE -L-
STA 11+75.00
EL = 2114.50
PI = 12+10.00
EL = 2113.90'
VC = 40'
K = 8
DS = 20 MPH
PI = 13+05.00
EL = 2107.50'
VC = 100'
K = 11
DS = 15 MPH
PI = 13+75.00
EL = 2109.00'
VC = 20'
K = 19
DS = 20 MPH
END GRADE -L-
STA 14+30.00
EL = 2110.75
DRIVE FIT
(-)1.7143%
(-)67.368%
(+)2.1429%
(+)13.1818%
(+) 5.33%
(+) 5.33%
(+) 5.33%
(+) 5.33%
+40 LT
2103.07
+90 LT
2103.60
+100 LT
2106.25
+30 LT
2107.85
NWSEL = 2100.9
PROPOSED 2 @ 112"W x 75"H
ALUMINUM ARCH CMP CULVERT @ 1.0' BURY
(2.0' SILL IN HIGH FLOW BARREL)
(2.0' BAFFLE IN LOW FLOW BARREL)
SKEW = 120°
CULVERT HYDRAULIC DATA
DESIGN DISCHARGE = 420 CFS
DESIGN FREQUENCY = 25 YRS
DESIGN HW ELEVATION = 2105.16 FT
BASE DISCHARGE = 650 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 2108.32 FT
OVERTOPPING DISCHARGE = 690 CFS
OVERTOPPING FREQUENCY = +100 (<500) YRS
OVERTOPPING ELEVATION = 2108.97 FT
DATE OF SURVEY = 1/27/2012
W.S. ELEVATION AT DATE OF SURVEY = 2100.9 FT
DITCH LEGEND
LEFT DITCH
2,125
2,120
2,115
2,110
2,105
2,100
2,095
2,090
2,085
2,080
11+00
12+00
13+00
14+00
15+00

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.13	TMP-1

RAMEY KEMP & ASSOCIATES, INC.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

TRANSYLVANIA COUNTY

BRIDGE NO. 141 ON SR 1500 (HOLIDAY ROAD)

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 ADVANCE WORKING SIGNS FOR FACILITIES ≤ 55 MPH
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION
1264.01	OBJECT MARKERS TYPES
1264.02	OBJECT MARKERS INSTALLATION

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS. LEGEND AND INDEX OF SHEETS
TMP-2	GENERAL NOTES, PHASING
TMP-3	DETOUR SIGNING

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- WORK AREA
- REMOVAL

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM
- SKINNY DRUM
- TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW PANEL (TYPE C)
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022609 MERRICK A. DUDAL, III

6/1/13

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

ROADWAY STANDARD DRAWINGS INDEX OF SHEETS & LEGEND

CONTRACT: DN00146 PROJECT: 17BP.14.R.13

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.13	TMP-2

RAMEY KEMP ASSOCIATES, INC.

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWING, 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 ENGINEERING.

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.

SIGNING

B) INSTALL ADVANCED 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 AND DEVICES 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.

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

PAVEMENT MARKINGS AND MARKERS

G) INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKERS
SR 1500 (HOLLIDAY ROAD)	PAINT	NONE

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

I) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS.

J) PASSING ZONE WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

PHASING

PHASE I

PRIOR TO ANY CONSTRUCTION OPERATIONS, PLACE AND COVER OFF-SITE DETOUR SIGNING AS SHOWN ON TMP-3 AND IN ACCORDANCE WITH RSD 1101.03 (SHEET 1 OF 9).

PHASE II

USING OFF-SITE DETOUR, UNCOVER DETOUR SIGNS, CLOSE -L- (SR 1500 / HOLLIDAY ROAD) TO TRAFFIC AND CONSTRUCT CULVERTS, APPROACHES AND ROADWAY UP TO AND INCLUDING FINAL LAYER OF SURFACE COURSE.

PHASE III

UPON COMPLETION OF CULVERTS, APPROACHES AND ROADWAY, PLACE FINAL PAVEMENT MARKING IN ACCORDANCE WITH RSD 1205.02. REMOVE BARRICADES AND DETOUR SIGNS AND OPEN -L- (SR 1500/ HOLLIDAY ROAD) TO TRAFFIC.

APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022609 ENGINEER PATRICK A. DUDAL

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

GENERAL NOTES AND PHASING

10/1/2003
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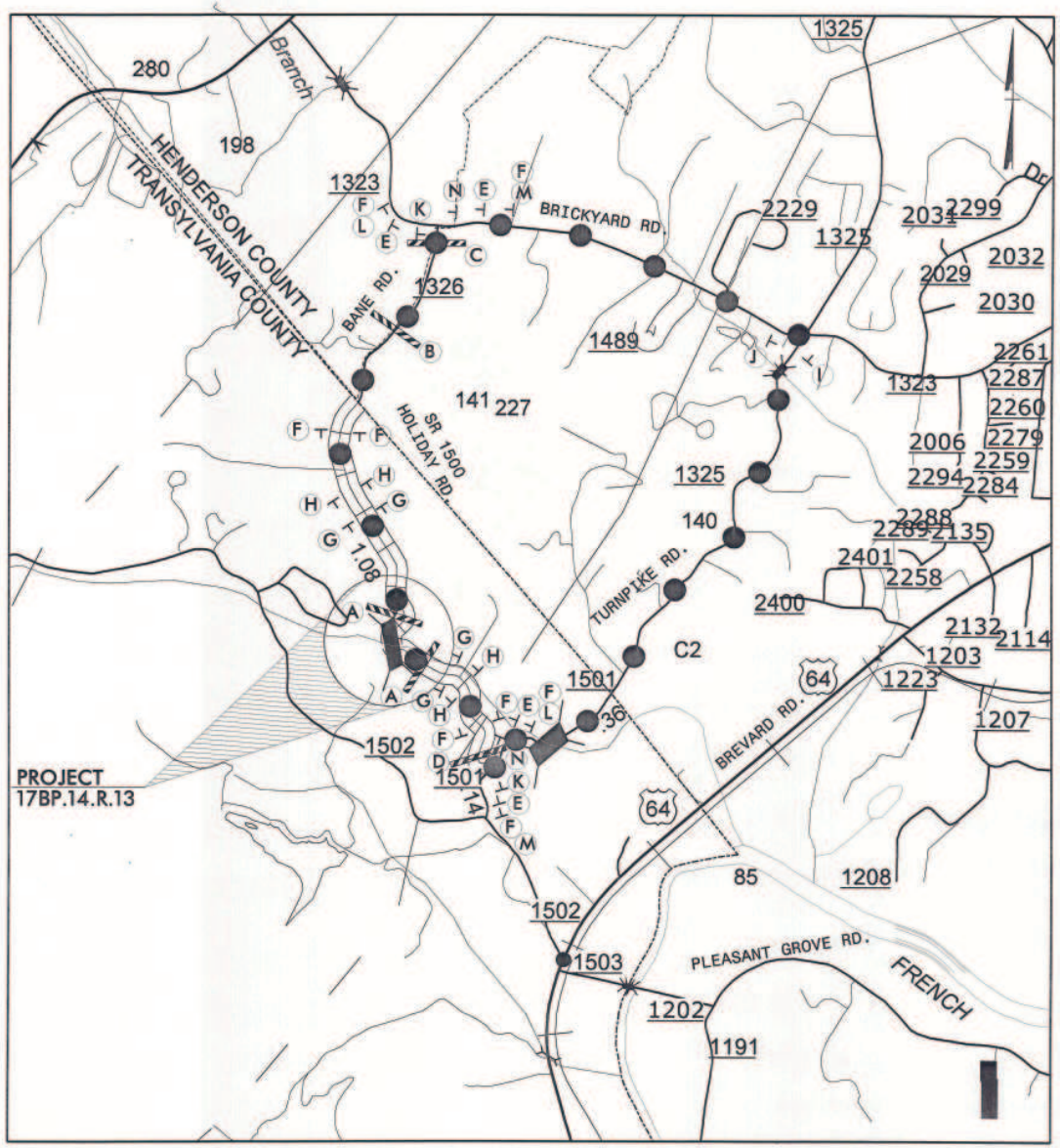
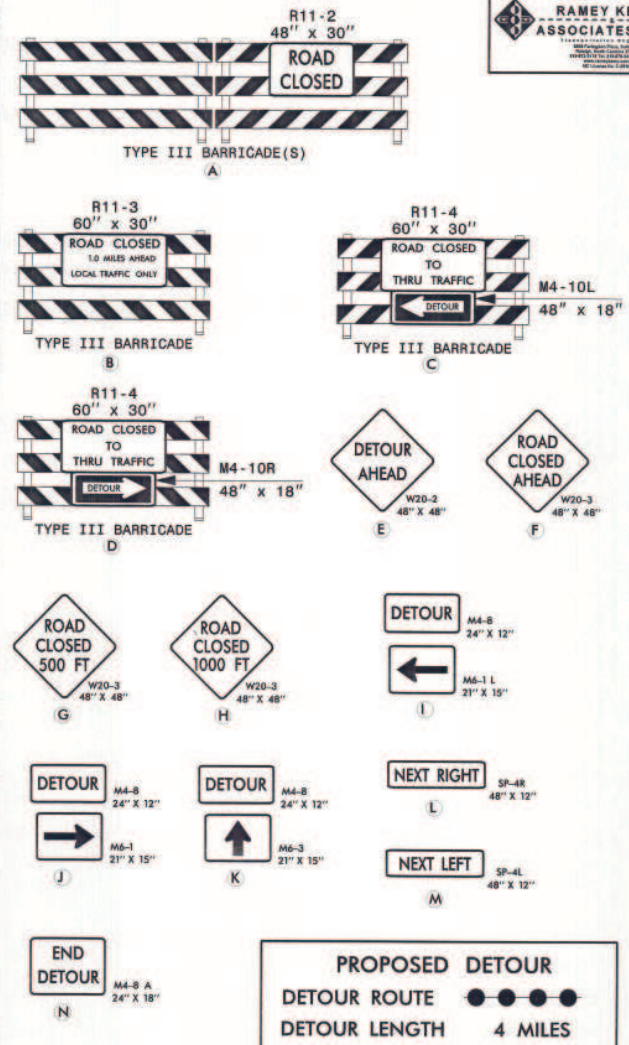
PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.13	TMP-3

RAMEY KEMP & ASSOCIATES, INC.





PROPOSED DETOUR

DETOUR ROUTE ●-●-●-●

DETOUR LENGTH 4 MILES

APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER MERRICK & DUGAL, III

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

DETOUR SIGNING

CONTRACT: DN00146 PROJECT: 17BP.14.R.13

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.13	PMP-01

APPROVED: _____

DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 015869 ENGINEER T. R. REID

10/16/13

moffatt & nichol
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLANS

LOCATION: BRIDGE NO. 141 ON SR 1500 (HOLLIDAY ROAD) OVER BRYSON CREEK

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
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS

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
SR 1500	PAINT	NONE

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

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

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

PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION
PA - WHITE EDGE LINE (4")	PAINT
PI - YELLOW DOUBLE CENTER LINE (4")	PAINT

INDEX

SHEET NO.	DESCRIPTION
PMP-1	PAVEMENT MARKING PLAN COVER SHEET NOTES & SCHEDULE
PMP-2	PAVEMENT MARKING DETAIL

8/17/09

R:\R-2303 Holliday\Design\Roadway\PMP\pmp_8170141_rdy_pmp01.dgn

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.13	PMP-02

APPROVED: _____

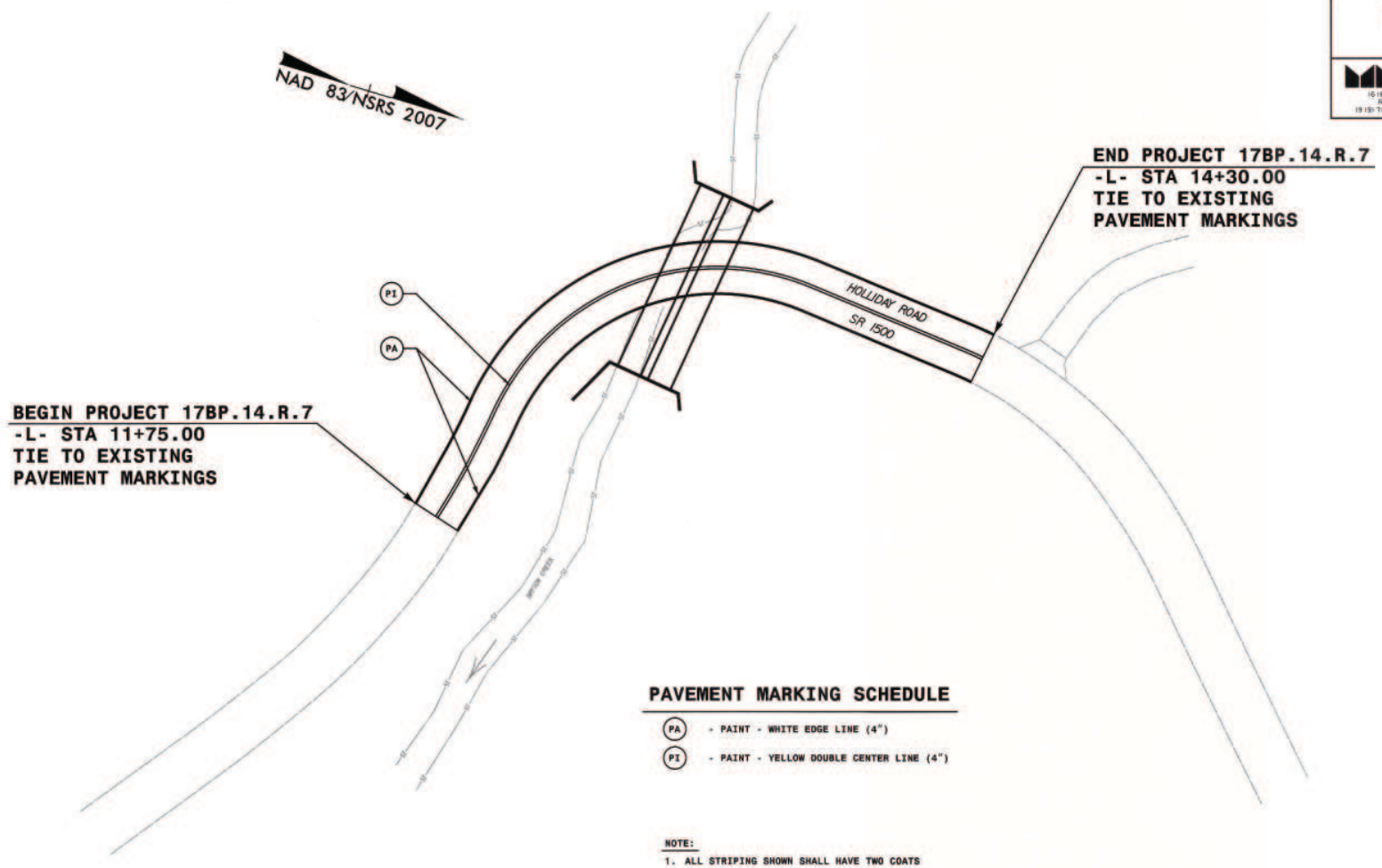
DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15869 T. R. REID

10/16/13

moffatt & nichol
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX



PAVEMENT MARKING SCHEDULE

(PA) - PAINT - WHITE EDGE LINE (4")

(PI) - PAINT - YELLOW DOUBLE CENTER LINE (4")

NOTE:

1. ALL STRIPING SHOWN SHALL HAVE TWO COATS

PAVEMENT MARKING DETAIL
HOLLIDAY ROAD

8/17/99

10/16/2013
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CONTRACT: DN00146 PROJECT: 17BP.14.R.13

BRIDGE 870141

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.13	EC-1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
17BP.14.R.13		PE
17BP.14.R.13		ROW & UTIL
17BP.14.R.13		CONSTR

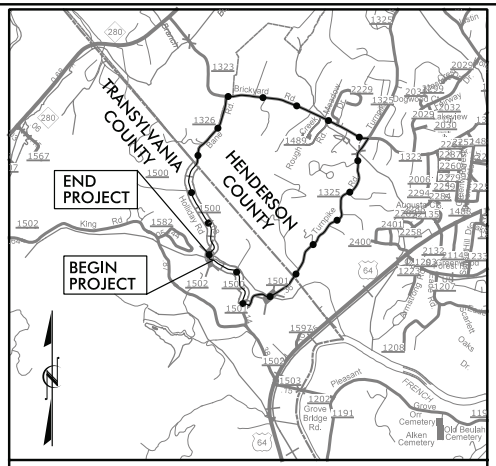
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

TRANSYLVANIA COUNTY

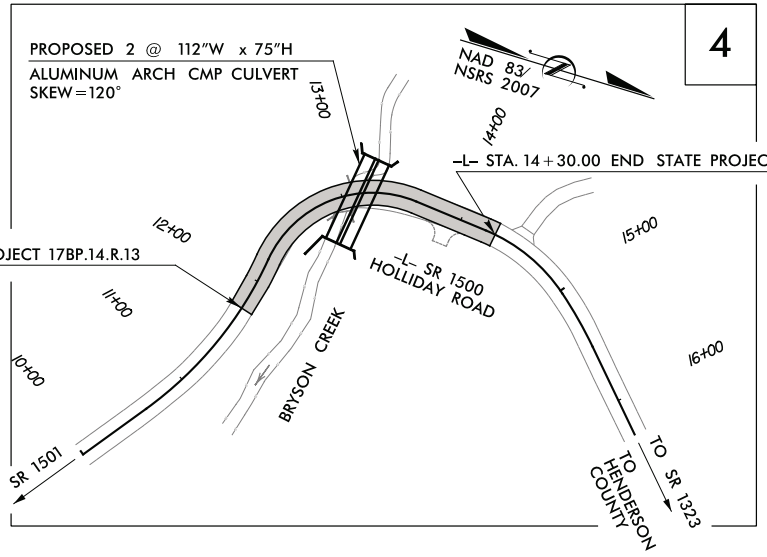
LOCATION: BRIDGE NO. 141 ON SR 1500 (HOLLIDAY ROAD) OVER BRYSON CREEK

TYPE OF WORK: PAVING, GRADING, GUARDRAIL, DRAINAGE AND CULVERT



VICINITY MAP

DETOUR



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	WF / WFP
	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.

GRAPHIC SCALE

10 0 20
PLANS
10 0 20
PROFILE (HORIZONTAL)
2.5 0 5
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 BY: moffatt & nichol
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

DESIGN BY: *GREGORY W. BRICKHAM, PE*
NCDOT LEVEL III: DESIGNER OF EROSION AND SEDIMENT CONTROL PLANS CERT #3006

REVIEWED BY: *JEFFREY L. RECK, PE*
NCDOT LEVEL III-A: DESIGNER OF EROSION AND SEDIMENT CONTROL PLANS CERT #132

Prepared for 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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10/15/2013
Richard Reck

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.13	EC-3

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	11+75	13+20	LT	231
4	-L-	13+40	14+40	LT	305
4	-L-	12+93	14+30	RT	348
4	-L-	11+75	12+93	RT	172
				SUBTOTAL	1056
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					100
				TOTAL	1156
				SAY	1200

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	11+75	13+00	LT	112
4	-L-	13+00	13+20	LT	18
4	-L-	13+40	14+30	LT	90
				SUBTOTAL	220
		ADDITIONAL PSRM TO BE INSTALLED			10
				TOTAL	230
				SAY	250

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.13	EC-3A

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.

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.13	EC-4\CONST-4

Point	North	East	Elevation
1	587736.395	916126.442	2107.55'
2	587734.910	916136.936	2107.84'
3	587733.190	916149.088	2106.74'
4	587745.885	916143.176	2106.94'
5	587748.631	916132.859	2107.56'
6	587750.348	916120.071	2107.37'

NAD 83/NSRS 2007

35 LF OF INLET CHANNEL IMPROVEMENT,
SEE DETAIL E (STA 13+28 LT –L–)
EST 25 CY CHANNEL EXCAVATION
EST 72 TONS CLASS 'II' RIP RAP
EST 65 SY GEOTEXTILE

TOE PROTECTION, SEE DETAIL C
STA 13+00 TO 13+20 LT –L–

SILT FENCE

SPECIAL SEDIMENT CONTROL FENCE

PROPOSED 2 @ 112"W x 75"H ALUMINUM ARCH CMP CULVERT (2.0' SILL IN HIGH FLOW BARREL) (2.0' BAFFLE IN LOW FLOW BARREL) SKEW = 120°

REMOVE EXISTING BRIDGE

TOE PROTECTION, SEE DETAIL B
STA 11+75 TO 13+00 LT –L–

SPECIAL SEDIMENT CONTROL FENCE

–L– PRC 12+19.62

BEGIN STATE PROJECT 17BP.14.R.13
–L– POC STA 11+75.00

–L– PC 10+62.88

–L– POT 10+00.00

N 52° 49' 44.7" W

–L– PT 13+60.98

–L– PC 14+21.79

SPECIAL SEDIMENT CONTROL FENCE

FLOODPLAIN BENCH

SILT FENCE

32 LF OF OUTLET CHANNEL IMPROVEMENT,
SEE DETAIL D (STA 12+81 RT –L–)
EST 26 CY CHANNEL EXCAVATION
EST 68 TONS CLASS 'II' RIP RAP
EST 60 SY GEOTEXTILE

FLOODPLAIN BENCH

SILT FENCE

SILT FENCE

SILT FENCE

SILT FENCE

FLOODPLAIN BENCH

SILT FENCE

SPECIAL CUT DITCH, SEE DETAIL A
STA 13+40 TO 14+30 LT –L–

Temporary Rock Silt Check Type A 1.5ft weir height
FROM STA. 13+40 TO STA. 14+30 LT –L–

Temporary Rock Silt Check Type A 3.0 ft. weir height

Temporary Rock Silt Check Type A 2.0 ft. weir height

END STATE PROJECT 17BP.14.R.13
–L– POC STA 14+30.00

–L– PCC 15+02.70

–L– PT 15+59.14

N 47° 30' 42.2" E

–L– POT 16+30.31

RETAIN

ROCK WALL

FRANK GILLILAND and JUDY GILLILAND
DB 405 PG 826

CHARLES H. DURANT and RACHEL C. DURANT
DB 372 PG 117

EULA W. MORGAN and OTIS GAYNARD MORGAN
DB 485 PG 704

MICHAEL S. KILPATRICK, JR.
DB 233 PG 432

MARK S. KILPATRICK, JR.
DB 233 PG 432

HOLLIDAY RD

SR 1509

BRYSON CREEK

TELE PED

ELECTRIC

CATV PED

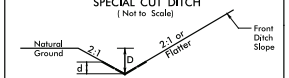
TELE PED

–L–

PI Sta 11+42.93	PI Sta 13+08.52
Δ = 29° 31' 57.6" (LT)	Δ = 88° 02' 12.7" (RT)
D = 18° 49' 05.2"	D = 62' 16' 40.9"
L = 156.94'	L = 141.36'
T = 80.25'	T = 88.90'
R = 304.47'	R = 92.00'
e = 6.0%	e = 6.0%
DS = 30 MPH	DS = 20 MPH

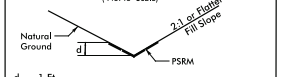
PI Sta 14+63.46	PI Sta 15+27.46
Δ = 33° 51' 22.7" (RT)	Δ = 7° 58' 49.0" (RT)
D = 41° 50' 45.4"	D = 16° 08' 22.8"
L = 80.91'	L = 49.45'
T = 41.67'	T = 24.76'
R = 136.92'	R = 355.00'
e = 6.0%	e = 6.0%
DS = 20 MPH	DS = 35 MPH

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



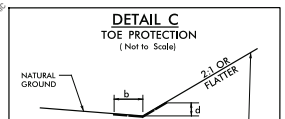
Min. d= 1 Ft.
Max D= 3 Ft.
Type of Liner= PSRM

DETAIL B
TOE PROTECTION
(Not to Scale)



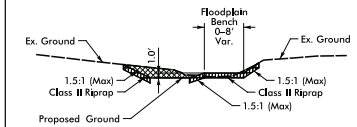
d= 1 Ft.
Type of Liner= PSRM
FROM STA. 11+75 TO STA. 13+00 LT –L–

DETAIL C
TOE PROTECTION
(Not to Scale)



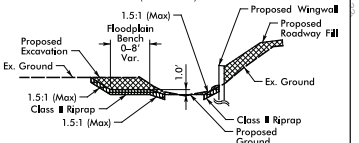
d= 1 Ft.
b= 3 Ft.
Type of Liner= PSRM
FROM STA. 13+00 TO STA. 13+20 LT –L–

DETAIL D
INLET CHANNEL IMPROVEMENTS
(Not to Scale)



CULVERT INLET CHANNEL LOOKING UPSTREAM
FROM STA. 13+28 LT –L–

DETAIL E
OUTLET CHANNEL IMPROVEMENTS
(Not to Scale)



CULVERT OUTLET CHANNEL LOOKING DOWNSTREAM
FROM STA. 12+81 RT –L–

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.13	EC-5\CONST-4

CULVERT CONSTRUCTION SEQUENCE

1. INSTALL PORTABLE STILLING BASIN FOR PUMPED EFFLUENT
2. INSTALL IMPERVIOUS DIKES AND TEMPORARY 2 @ 42" HDPE
3. REMOVE EXISTING BRIDGE AND ROADWAY EMBANKMENT
4. CONSTRUCT NEW 2 @ 112"X75" ALUMINUM ARCH CMP CULVERT
   A. CONSTRUCT LB CSP ARCH FIRST, SHIFT TEMPORARY PIPES INSIDE LB
   B. CONSTRUCT LA CSP ARCH
5. COMPLETE U/S & D/S CHANNEL IMPROVEMENTS
6. REMOVE IMPERVIOUS DIKES AND TEMPORARY 2 @ 42" HDPE

NAD 83/NSRS 2007

CONSTRUCT NEW 2 @ 112"X 75" ALUMINUM ARCH CMP CULVERT

REMOVE EXISTING BRIDGE

IMPERVIOUS DIKE

IMPERVIOUS DIKE

140 LF TEMPORARY 2 @ 42" HDPE DIVERSION PIPE

PORTABLE STILLING BASIN

1 FRANK GILLILAND and JUDY GILLILAND DB 405 PG 826

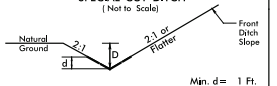
2 EULA W. MORGAN and OTIS GAYNARD MORGAN DB 485 PG 704

3 MICHAEL S. KILPATRICK, JR. DB 233 PG 432

CHARLES H. DURANT and RACHEL C. DURANT DB 372 PG 117

MARK S. KILPATRICK, JR. DB 233 PG 432

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



Min. d= 1 Ft.
Max D= 3 Ft.
Type of Liner= PSRM

FROM STA. 13+40 TO STA. 14+30 LT –L–

DETAIL B
TOE PROTECTION
(Not to Scale)

d= 1 Ft.
Type of Liner= PSRM

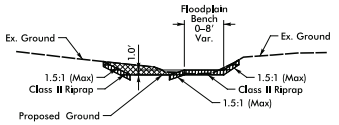
FROM STA. 11+75 TO STA. 13+00 LT –L–

DETAIL C
TOE PROTECTION
(Not to Scale)

d= 1 Ft.
b= 3 Ft.
Type of Liner= PSRM

FROM STA. 13+00 TO STA. 13+20 LT –L–

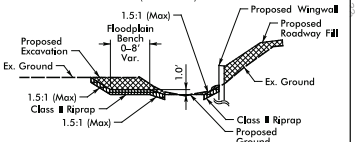
DETAIL D
INLET CHANNEL IMPROVEMENTS
(Not to Scale)



CULVERT INLET CHANNEL LOOKING UPSTREAM

FROM STA. 13+28 LT –L–

DETAIL E
OUTLET CHANNEL IMPROVEMENTS
(Not to Scale)



CULVERT OUTLET CHANNEL LOOKING DOWNSTREAM

FROM STA. 12+81 RT –L–

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.13	EC-6\CONST-4

Point	North	East	Elevation
1	587736.395	916126.442	2107.55'
2	587734.910	916136.936	2107.84'
3	587733.190	916149.088	2106.74'
4	587745.885	916143.176	2106.94'
5	587748.631	916132.859	2107.56'
6	587750.348	916120.071	2107.37'

NAD 83/NSRS 2007

35 LF OF INLET CHANNEL IMPROVEMENT,
SEE DETAIL E (STA. 13+28 LT –L–)
EST 25 CY CHANNEL EXCAVATION
EST 72 TONS CLASS 'II' RIP RAP
EST 65 SY GEOTEXTILE

TOE PROTECTION, SEE DETAIL C
STA 13+00 TO 13+20 LT –L–

SILT FENCE

SPECIAL SEDIMENT CONTROL FENCE

PROPOSED 2 @ 112"W x 75"H
ALUMINUM ARCH CMP CULVERT
(2.0' SILL IN HIGH FLOW BARREL)
(2.0' BAFFLE IN LOW FLOW BARREL)
SKEW=120°

REMOVE EXISTING BRIDGE

TOE PROTECTION, SEE DETAIL B
STA 11+75 TO 13+00 LT –L–

FLOODPLAIN BENCH

SPECIAL CUT DITCH, SEE DETAIL A
STA 13+40 TO 14+30 LT –L–

Temporary Rock Silt Check Type A 1.5ft weir height

Temporary Rock Silt Check Type A 3.0 ft. weir height

Temporary Rock Silt Check Type A 2.0 ft. weir height

SPECIAL SEDIMENT CONTROL FENCE

SILT FENCE

FLOODPLAIN BENCH

SILT FENCE

32 LF OF OUTLET CHANNEL IMPROVEMENT,
SEE DETAIL D (STA 12+81 RT –L–)
EST 26 CY CHANNEL EXCAVATION
EST 68 TONS CLASS 'II' RIP RAP
EST 60 SY GEOTEXTILE

RETAIN

MICHAEL S. KILPATRICK, JR.
DB 233 PG 432

FRANK GILLILAND and
JUDY GILLILAND
DB 405 PG 826

CHARLES H. DURANT and
RACHEL C. DURANT
DB 372 PG 117

EULA W. MORGAN and
OTIS GAYNARD MORGAN
DB 485 PG 704

MARK S. KILPATRICK, JR.
DB 233 PG 432

BEGIN STATE PROJECT 17BP.14.RJ3
–L– POC STA 11+75.00

END STATE PROJECT 17BP.14.RJ3
–L– POC STA 14+30.00

–L– PRC 12+19.62

–L– PC 10+62.88

–L– POT 10+00.00

N 52° 49' 44.7" W

–L– PT 13+60.98

–L– PC 14+21.79

–L– PCC 15+02.70

–L– PT 15+52.14

N 47° 30' 42.1" E

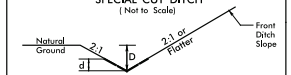
–L– POT 16+30.31

–L–

PI Sta 11+42.93	PI Sta 13+08.52
Δ = 29° 31' 57.6" (LT)	Δ = 88° 02' 12.7" (RT)
D = 18° 49' 05.2"	D = 62° 16' 40.9"
L = 156.94'	L = 141.36'
T = 80.25'	T = 88.90'
R = 304.47'	R = 92.00'
e = 6.0%	e = 6.0%
DS = 30 MPH	DS = 20 MPH

PI Sta 14+63.46	PI Sta 15+27.46
Δ = 33° 51' 22.7" (RT)	Δ = 7° 58' 49.0" (RT)
D = 41° 50' 45.4"	D = 16° 08' 22.8"
L = 80.91'	L = 49.45'
T = 41.67'	T = 24.76'
R = 136.92'	R = 355.00'
e = 6.0%	e = 6.0%
DS = 20 MPH	DS = 35 MPH

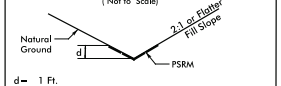
DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



Type of Liner= PSRM
Min. d= 1 Ft.
Max D= 3 Ft.

FROM STA. 13+40 TO STA. 14+30 LT –L–

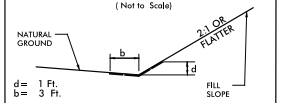
DETAIL B
TOE PROTECTION
(Not to Scale)



d= 1 Ft.
Type of Liner= PSRM

FROM STA. 11+75 TO STA. 13+00 LT –L–

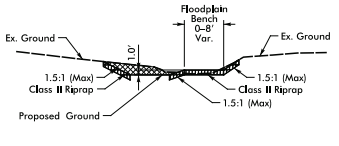
DETAIL C
TOE PROTECTION
(Not to Scale)



d= 1 Ft.
b= 3 Ft.
Type of Liner= PSRM

FROM STA. 13+00 TO STA. 13+20 LT –L–

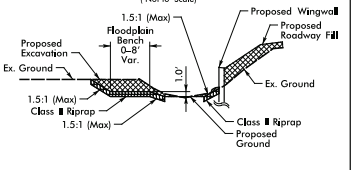
DETAIL D
INLET CHANNEL IMPROVEMENTS
(Not to Scale)



CULVERT INLET CHANNEL LOOKING UPSTREAM

FROM STA. 13+28 LT –L–

DETAIL E
OUTLET CHANNEL IMPROVEMENTS
(Not to Scale)



CULVERT OUTLET CHANNEL LOOKING DOWNSTREAM

FROM STA. 12+81 RT –L–

8/17/99

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thuffman

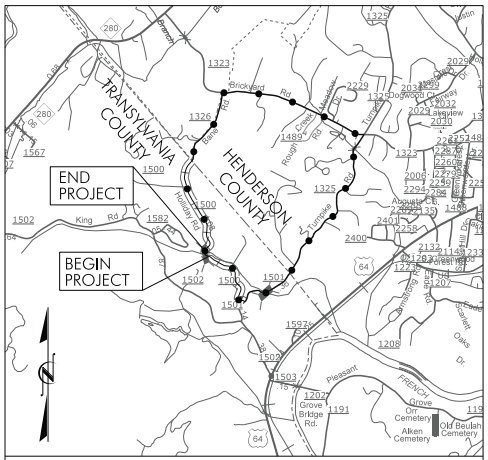
T.I.P. NO.	SHEET NO.
17BP.14.R.13	UO–1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS
TRANSYLVANIA COUNTY

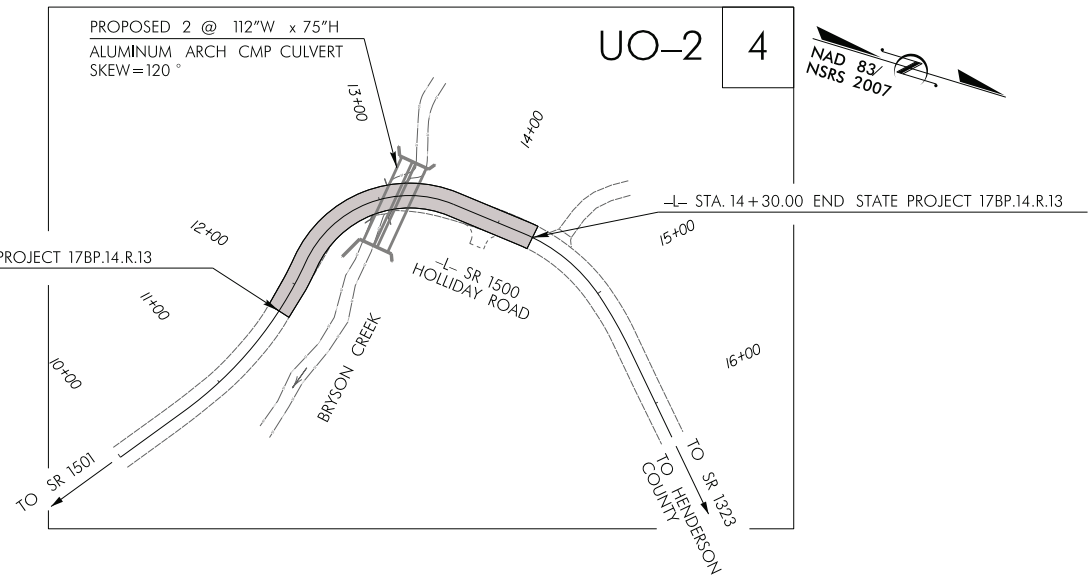
LOCATION: BRIDGE NO. 141 ON SR 1500 (HOLLIDAY ROAD) OVER BRYSON CREEK AND CULVERT

TYPE OF WORK: UTILITIES BY OTHERS



VICINITY MAP

DETOUR



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	UTILITIES BY OTHERS PLAN SHEETS

UTILITY OWNERS ON PROJECT

(1) TELEPHONE & CATV – COMPORIUM

UTILITIES BY OTHER PLANS PREPARED BY:
DAVIS • MARTIN • POWELL
ENGINEERS & SURVEYORS
6415 OLD PLANK RD., HIGH POINT, NC 27265
PHONE: (336)886-4821 FAX: (336)886-4458
WWW.DMP-INC.COM LICENSE: F-0245

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

CONTRACT: DN00146

PROJECT: 17BP.14.R.13

09/08/99

30-SEP-2013 15:23
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Davis-Martin-Powell and Associates

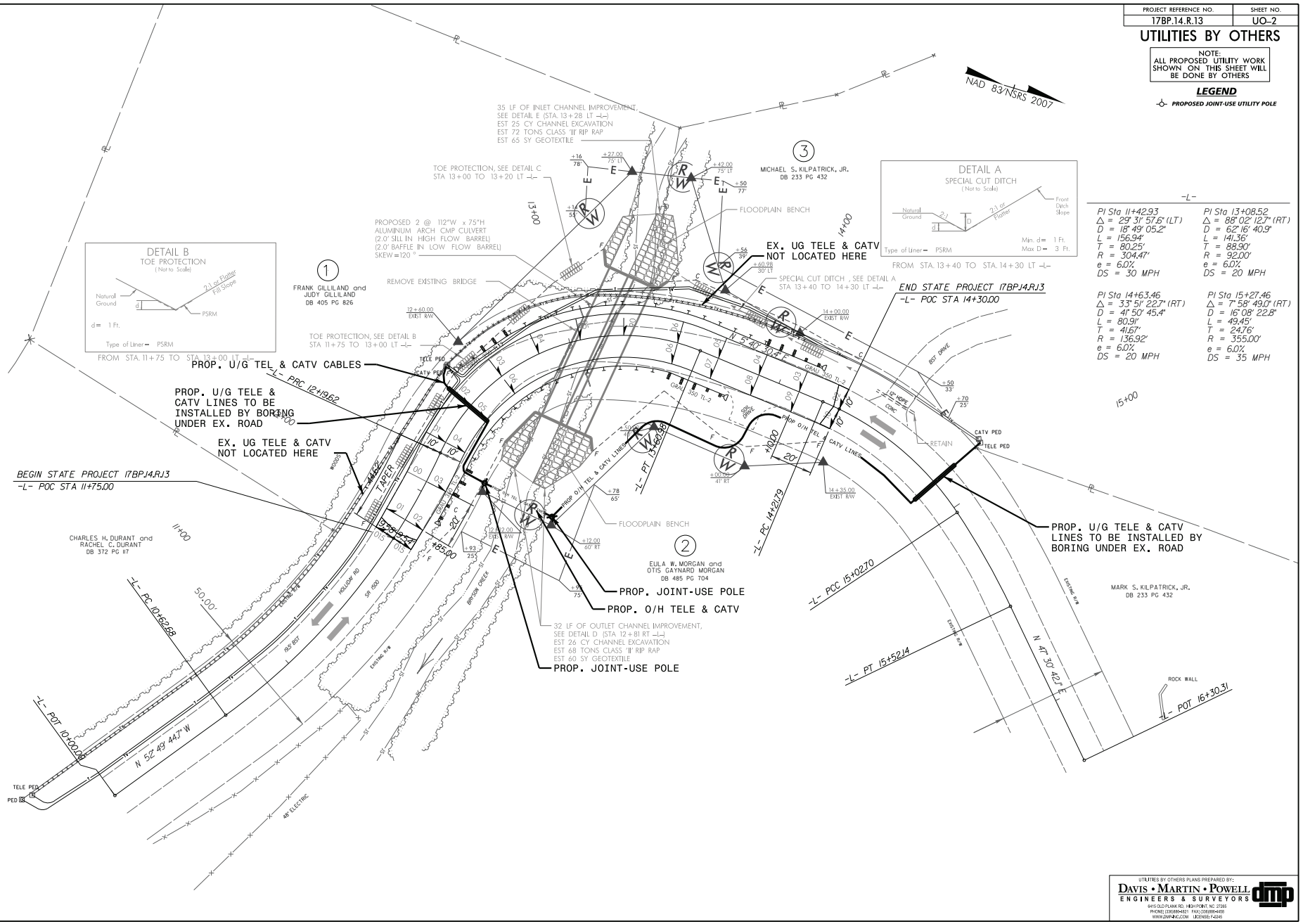
PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.13	UO-2

UTILITIES BY OTHERS

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

LEGEND

PROPOSED JOINT-USE UTILITY POLE



-L-

PI Sta 11+42.93	PI Sta 13+08.52
Δ = 29° 31' 57.6" (LT)	Δ = 88° 02' 12.7" (RT)
D = 18° 49' 05.2"	D = 62° 16' 40.9"
L = 156.94'	L = 141.36'
T = 80.25'	T = 88.90'
R = 304.47'	R = 92.00'
e = 6.0%	e = 6.0%
DS = 30 MPH	DS = 20 MPH

PI Sta 14+63.46	PI Sta 15+27.46
Δ = 33° 51' 22.7" (RT)	Δ = 7° 58' 49.0" (RT)
D = 41° 50' 45.4"	D = 16° 08' 22.8"
L = 80.91'	L = 49.45'
T = 41.67'	T = 24.76'
R = 136.92'	R = 355.00'
e = 6.0%	e = 6.0%
DS = 20 MPH	DS = 35 MPH

UTILITIES BY OTHERS PLANS PREPARED BY:
DAVIS • MARTIN • POWELL
ENGINEERS & SURVEYORS
8415 OLD PLANK RD. HIGH POINT, NC 27265
PHONE: (336)889-4821 FAX: (336)889-4499
WWW.DMP-INC.COM LICENSE: F-0245

8/17/99

30-SEP-2013 15:23
P:\2011\102013\Civil\17BP.14.R.13_ut_rdy4_UO2_psh.dgn
Davis-Martin-Powell and Associates

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.14.R.13	X-1

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

10/6/2013
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Shuffman

8/23/99

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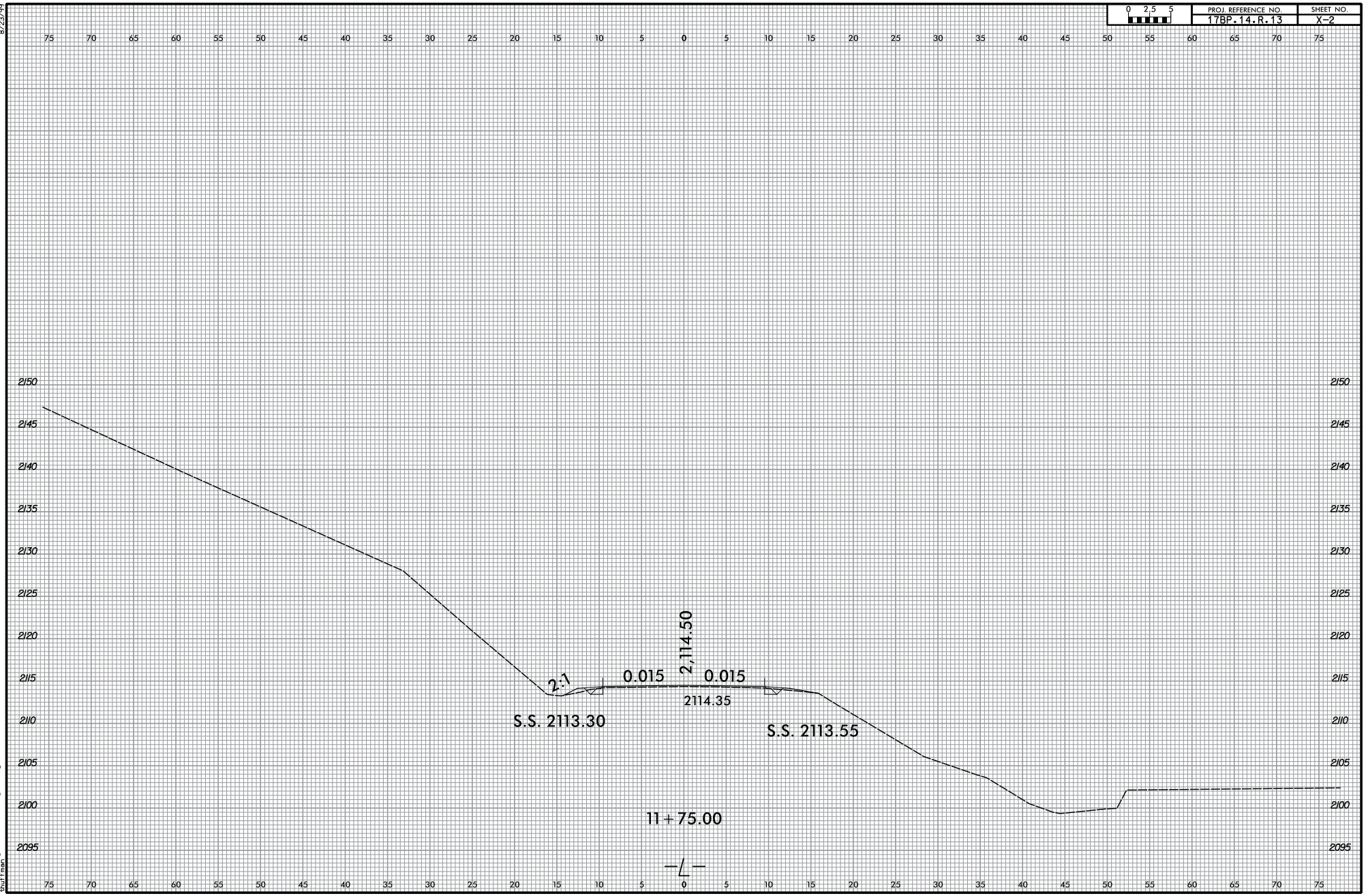

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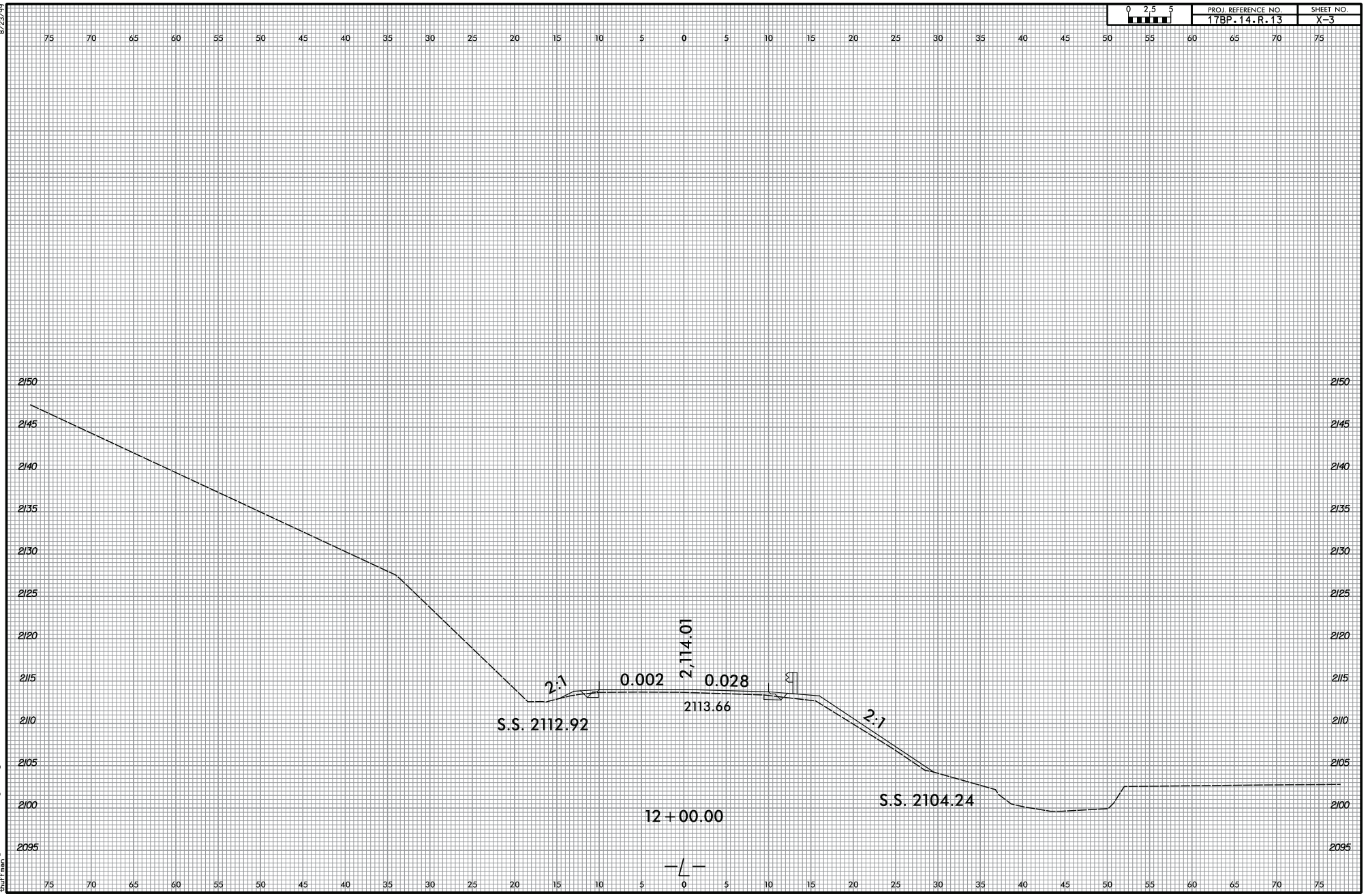

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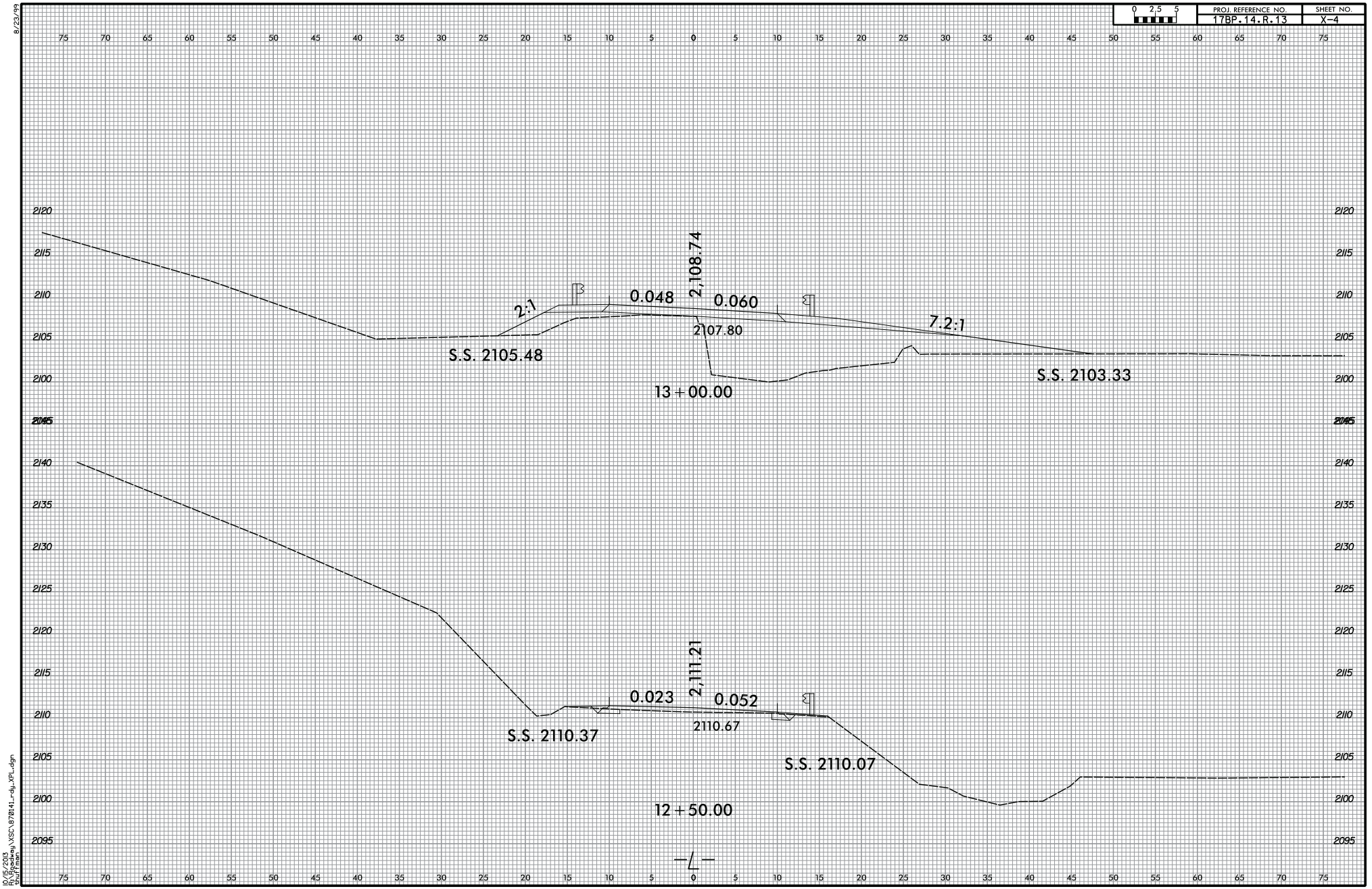

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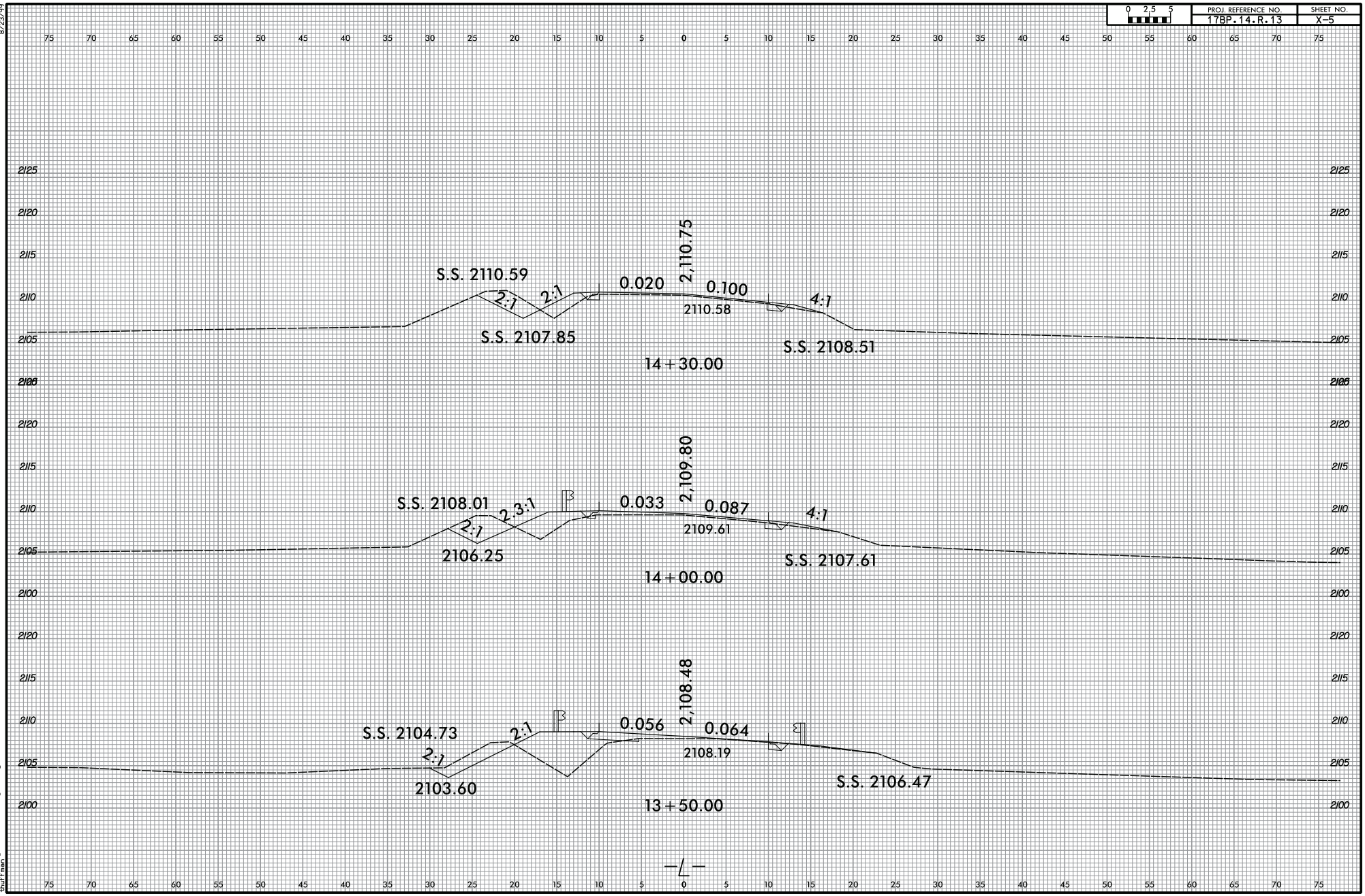

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Shuffman

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.14.R.13	X-6

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

2120
2115
2110
2105
2100

EX. CONCRETE
DRIVEWAY

2111.19

14+50.00

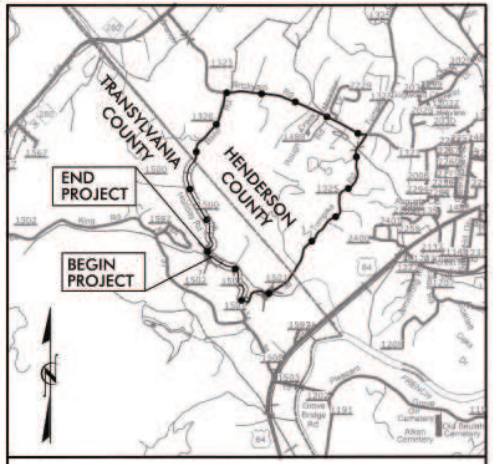
-L-

10/5/2013
R:\Roadway\XSC\B78141_rdy_XPL.dgn
bhuffman

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

PROJECT: 17BP.14.R.13

CONTRACT: DN00146



VICINITY MAP

DETOUR

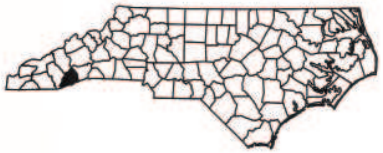
STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

TRANSYLVANIA COUNTY

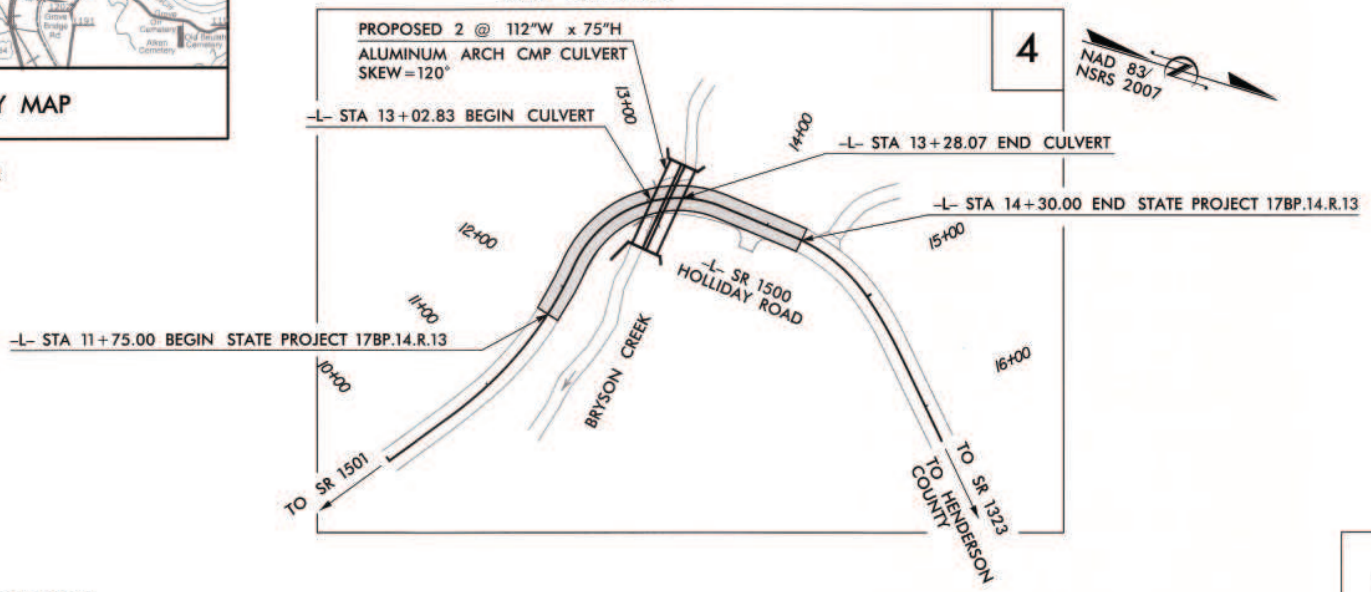
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.13	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
17BP.14.R.13		PE
17BP.14.R.13		ROW & UTIL
17BP.14.R.13		CONST.



LOCATION: BRIDGE NO. 141 ON SR 1500 (HOLLIDAY ROAD) OVER BRYSON CREEK

TYPE OF WORK: PAVING, GRADING, GUARDRAIL, DRAINAGE AND CULVERT



CULVERT

STRUCTURE DESIGN ENGINEER

moffatt & nichol

SEAL 026433

SIGNATURE: P.E.

DESIGN DATA

ADT 2013 = 300
ADT 2033 = 460
DHV = N/A %
D = N/A %
T = 6 % *
V = 30 MPH
* TTST = N/A DUAL 6%
FUNC CLASS = LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY OF PROJECT 17BP.14.R.13 = 0.043 mi.
LENGTH STRUCTURE OF PROJECT 17BP.14.R.13 = 0.005 mi.
TOTAL LENGTH OF STATE PROJECT 17BP.14.R.13 = 0.048mi.

Prepared for NCDOT In the Office of:

moffatt & nichol

2012 STANDARD SPECIFICATIONS

LETTING DATE :
N/A

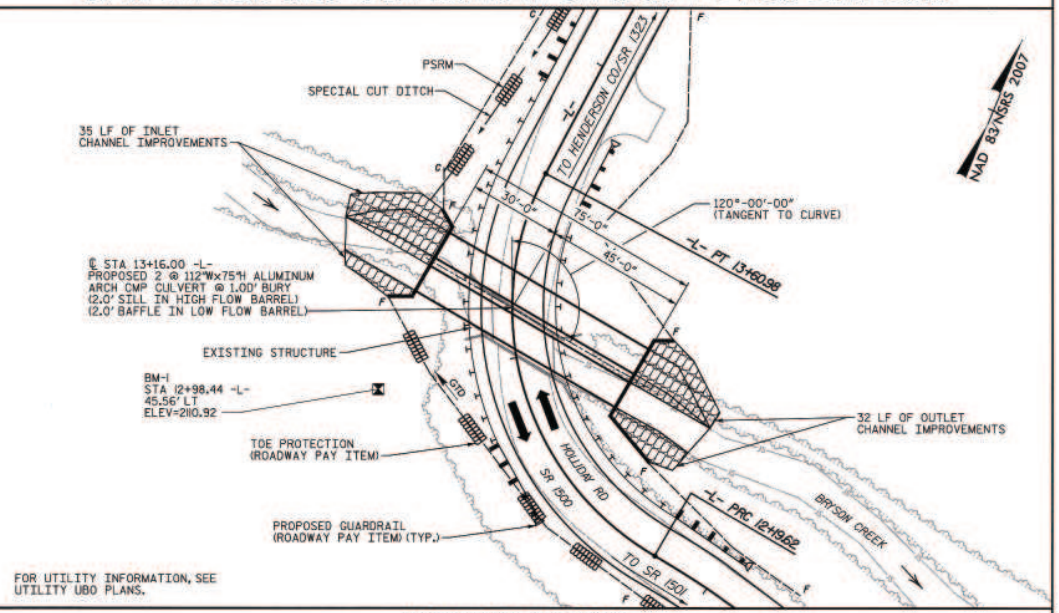
TIM REID, P.E.
PROJECT ENGINEER

MIKELE WINTERS, P.E.
PROJECT DESIGN ENGINEER

STRUCTURES MANAGEMENT UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610

10/16/2013
R:\Structures\870141_str_tsh.dgn
thuffman

TBM BM-1 RR SPIKE IN 15"POPLAR LOCATED AT STA 12+98.44 -L-; 45.56' LT, EL 2110.92



FOR UTILITY INFORMATION, SEE UTILITY UBO PLANS.

LOCATION SKETCH

HYDRAULIC DATA

DESIGN DISCHARGE	= 420 CFS
FREQUENCY OF DESIGN FLOOD	= 25 YR.
DESIGN HIGH WATER ELEVATION	= 2105.6
DRAINAGE AREA	= 0.88 SQ MI
BASIC DISCHARGE (Q 100)	= 650 CFS
BASIC HIGH WATER ELEVATION	= 2108.32

OVERTOPPING FLOOD DATA

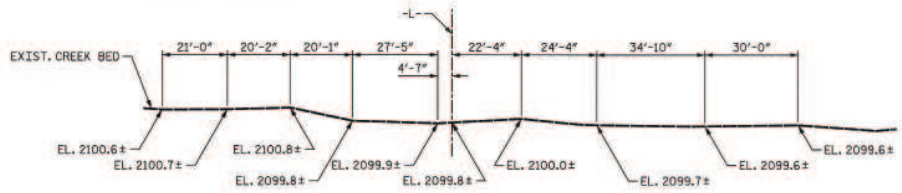
OVERTOPPING DISCHARGE	= 690 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 100+ YR.
OVERTOPPING FLOOD ELEVATION	= 2108.97

GRADE DATA

GRADE POINT ELEV. @ STATION 13+16.00	= 2108.41
BED ELEV. @ STATION 13+16.00	= 2099.80
ROADWAY SLOPES	= 2:1

TOTAL STRUCTURE QUANTITIES

STRUCTURE REMOVAL	LUMP SUM
CULVERT EXCAVATION	LUMP SUM
FOUNDATION CONDITIONING MATERIAL	100.0 TONS
ALUMINIUM ARCH CMP CULVERTS	LUMP SUM



PROFILE ALONG ℄ CULVERT

DRAWN BY : C. POWELL DATE : 12/2012
CHECKED BY : M. WINTERS DATE : 12/2012
DESIGN ENGINEER OF RECORD : M. WINTERS DATE : 12/2012

NOTES:

1. ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
2. DESIGN FILL = 3.8'
3. FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTE SHEET.
4. DUAL ALUMINIUM ARCH CMP CULVERTS, HEADWALLS AND WINGWALLS SHALL BE CONSTRUCTED PER THESE PLANS AND PER MANUFACTURE'S RECOMMENDATIONS. PAYMENT FOR ALL COSTS ASSOCIATED WITH THE ARCH PIPES, HEADWALLS AND WINGWALLS SHALL BE A SUBSIDIARY OBLIGATION OF ITEM "ALUMINUM ARCH CMP CULVERTS".
5. ALL MATERIALS SHALL MEET THE REQUIREMENTS OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES DATED JULY 2012.
6. THE DETAILS SHOWN ARE FOR GENERAL LAYOUT ONLY. THE SUPPLIER SHALL PROVIDE DESIGNS AND DETAILS THAT MEET THE REQUIREMENTS OF AASHTO SECTION 12, AND ARE SEALED BY A NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER.
7. UNLESS OTHERWISE INDICATED, THE SUPPLIER SHALL DESIGN, DETAIL, AND FURNISH ALL STRUCTURAL ELEMENTS AND HARDWARE.
8. GUARDRAIL POST LOCATIONS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER TO ENSURE ADEQUATE COVER FOR INSTALLATION.
9. THE EXISTING STRUCTURE CONSISTING OF 1 TIMBER SPAN, 16'-0"; CLEAR ROADWAY WIDTH, 19'-3" AND TIMBER FLOOR ON TIMBER SUBSTRUCTURE AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.
10. REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.
11. THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.
12. THE HEAD WALL AND WING FOOTINGS ARE DESIGNED FOR A FACTORED RESISTANCE OF 1.5 TSF. CHECK FIELD CONDITIONS FOR THE REQUIRED RESISTANCE OF 3.5 TSF JUST BEFORE CONSTRUCTION.
13. BACKFILL WITH SELECT MATERIAL, CLASS VI MEETING THE REQUIREMENTS OF SECTION 1016 OF THE STANDARD SPECIFICATIONS.
14. TEMPORARY SHORING MAY BE REQUIRED FOR THE CULVERT AND WALL CONSTRUCTION.
15. TEMPORARY COFFERDAMS MAY BE REQUIRED FOR CONSTRUCTION OF CULVERT FOUNDATIONS.
16. NO WAITING PERIOD IS REQUIRED FOR CONSTRUCTION.
17. SETTLEMENT OF THE ROADWAY APPROACH EMBANKMENT IS ANTICIPATED. PLACEMENT OF ROADWAY EMBANKMENT SHALL BE DONE SOON AFTER CONSTRUCTION HAS STARTED TO ALLOW FOR SETTLEMENT WITHIN THE EMBANKMENT TO OCCUR PRIOR TO SURFACE COURSE CONSTRUCTION SO AS NOT TO DELAY THE COMPLETION OF THE PROJECT.
18. FOR CULVERT DIVERSION DETAILS, SEE EROSION CONTROL PLANS.
19. FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
20. FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
21. FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
22. ALUMINUM ARCHED PIPE SHALL BE 112" X 75" 8-GAUGE AND EXHIBIT A 3" X 1" CORRUGATION PATTERN. MATERIAL SHALL COMPLY WITH AASHTO M197 AND ASTM B744 AND PIPE SHALL BE MANUFACTURED ACCORDING TO AASHTO M196 AND ASTM B745. DESIGN SHALL MEET ASTM B790 LENGTH OF PIPE SHALL BE 75' FROM HEADWALL TO HEADWALL, AND MEET BASEWALL AT A 90 DEGREE ANGLE.
23. FREE ENDS OF PIPE SHALL BE RE-ROLLED TO AN ANNULAR CONFIGURATION AND BANDS SHALL BE 2.0' WIDE WITH A CONTINUOUS NEOPRENE GASKET, 2.0' WIDE AND 3/8" THICK.
24. INTEGRAL HEADWALL SYSTEM SHALL BE FABRICATED OF ALUMINUM STRUCTURAL PLATE AS SPECIFIED IN ASTM B746, AND SHALL BE 0.150" THICK EXHIBITING A 9" X 2.5" CORRUGATION PATTERN. BASEWALLS SHALL BE FULLY ASSEMBLED AND CONTINUOUSLY WELDED INSIDE AND OUT TO THE ENDS OF A 6' SECTION OF A 112" X 75" 8-GAUGE ALUMINIUM PIPE. BASEWALL SHALL BE 9' WIDE X 9' HIGH WITH 9.0' WINGWALLS AT 45 DEGREE ANGLE ON EVERY CORNER.
25. A REPRESENTATIVE OF THE MANUFACTURER SHALL BE ON THE SITE TO AID IN THE ASSEMBLY AND INSTALLATION OF THE CULVERT AND HEADWALL SYSTEM FOR THE LENGTH OF THE PROJECT.

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. 17BP.14.R.13
TRANSYLVANIA COUNTY
STATION: 13+16.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE No. 141

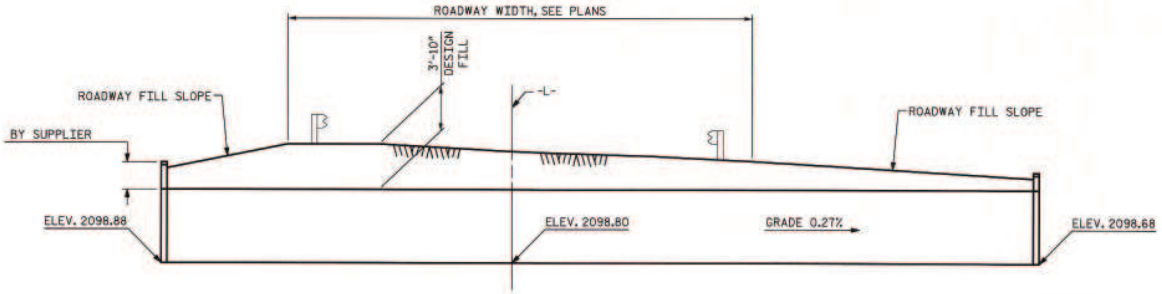
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DOUBLE BARREL ALUMININUM ARCH CMP CULVERT 112 IN. X 75 IN. 120° SKEW

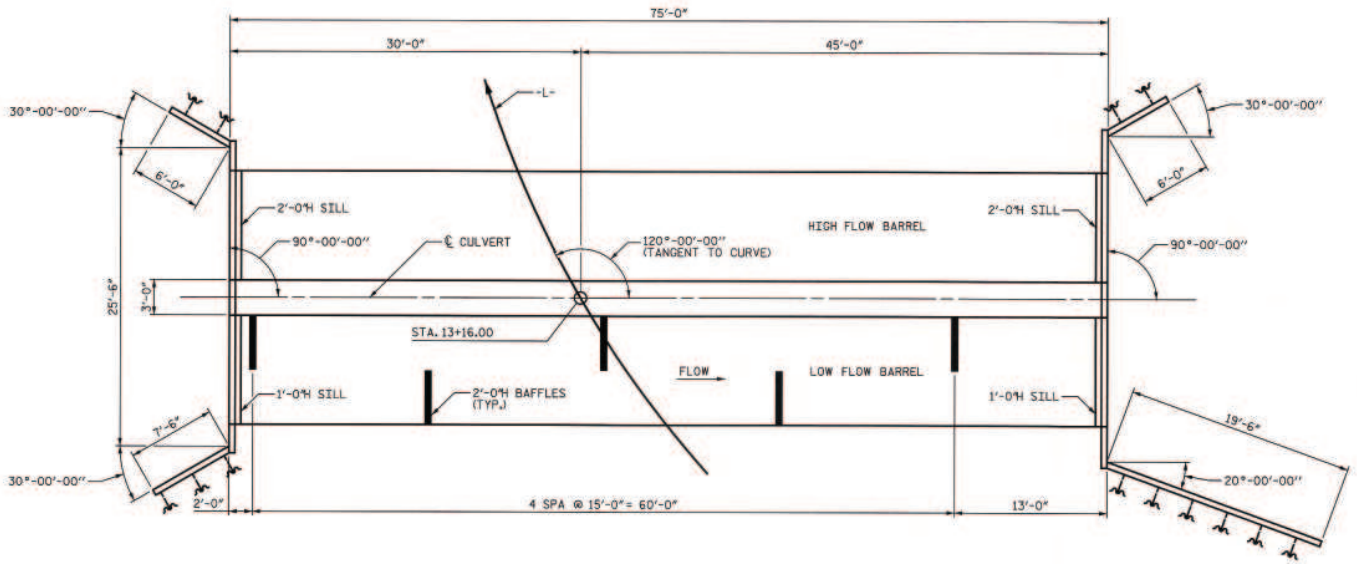
moffatt & nichol
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

NORTH CAROLINA PROFESSIONAL SEAL 026433 ENGINEER MICHAEL E. WINTERS
8/14/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-1
1			3			TOTAL SHEETS
2			4			3



CULVERT SECTION NORMAL TO ROADWAY



PLAN VIEW

PROJECT NO. 17BP.14.R.13
TRANSYLVANIA COUNTY
STATION: 13+16.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DOUBLE BARREL
ALUMINUM ARCH
CMP CULVERT
112 IN. X 75 IN.
120° SKEW

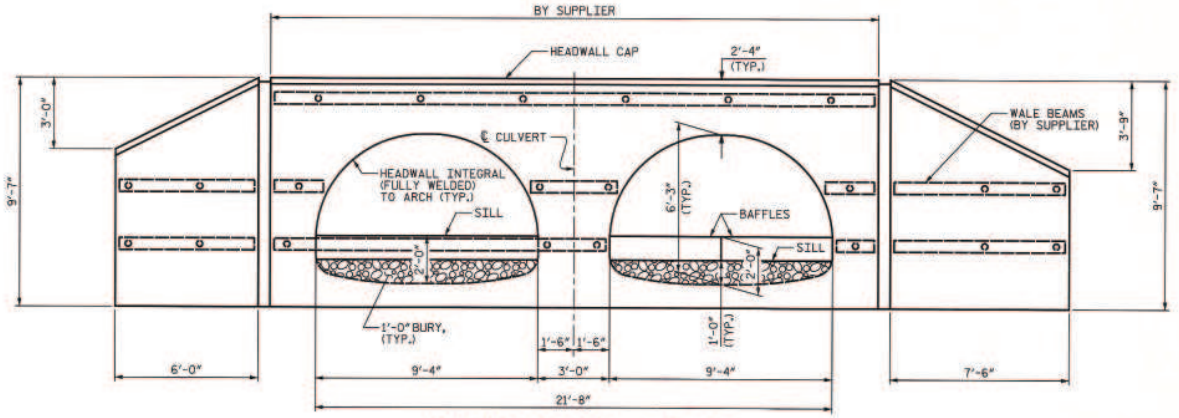
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-2
1			3			TOTAL SHEETS
2			4			3

moffatt & nichol
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4669 FAX

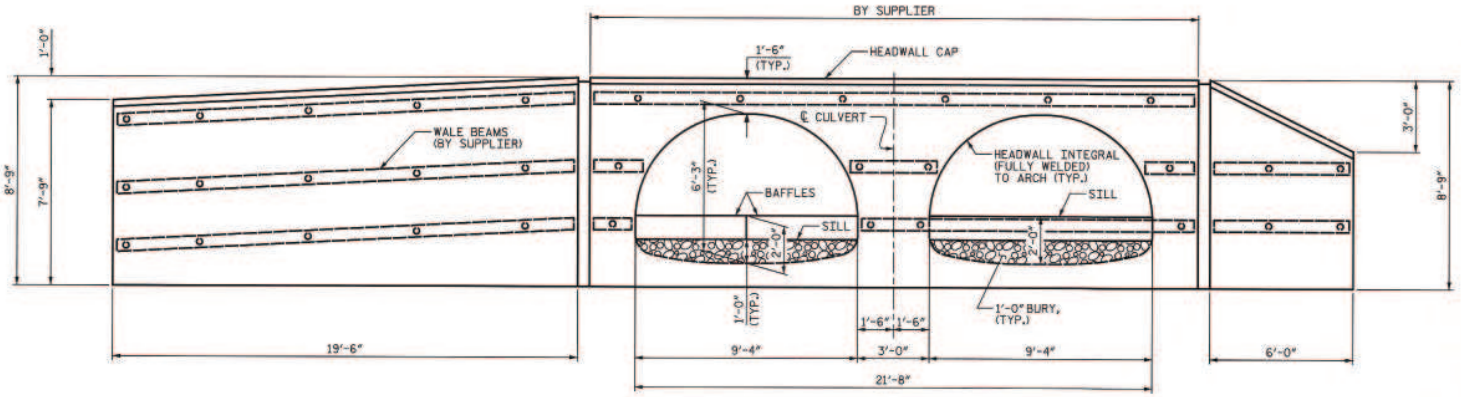
NORTH CAROLINA PROFESSIONAL SEAL 026433 ENGINEER MIKELE E. WINTERS

ASSEMBLED BY : C. POWELL	DATE : 12/2012		SPECIAL
CHECKED BY : M. WINTERS	DATE : 04/2013		
DESIGN ENGINEER OF RECORD : M. WINTERS	DATE :		
DRAWN BY : RALPH D. UNDERWOOD	DATE : MAY 1971		STANDARD
CHECKED BY : JOEL A. JOHNSON	DATE : JULY 1971		

REVISED 11-19-99 BY M.M. CHECKED BY R.W.W.
REDRAWN NOV. 1990 BY TSS CHECKED BY ARB



END ELEVATION - INLET



END ELEVATION - OUTLET

PROJECT NO. 17BP.14.R.13
TRANSYLVANIA COUNTY
STATION: 13+16.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DOUBLE BARREL
ALUMINUM ARCH
CMP CULVERT
112 IN. X 75 IN.
120° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-3
1			3			TOTAL SHEETS
2			4			3

moffatt & nichol
1616 EAST MILLBROOK ROAD, SUITE 160
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REVISED 11-19-99 BY M.M. CHECKED BY R.W.W.
REDRAWN NOV. 1990 BY TSS CHECKED BY ARB