09/08/99

TIP PROJECT: BD-5114T

CONTRACT: DN00217

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

VICINITY MAP

●—●—● DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

JACKSON COUNTY

LOCATION: BRIDGE NO. 220 OVER CULLOWHEE CREEK ON SR 1166 (PARKER FARM RD.)

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BD-5114T	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
45360.1.20	BRZ-1166(9)	P.E.
45360.2.20	BRZ-1166(9)	R/W
45360.3.FD20	BRZ-1166(9)	CONST.

Vaughn & Melton
Consulting Engineers

■ Asheville, North Carolina
828·253·2796

☐ Charlotte, North Carolina
704·357·0488

☐ Tri-Cities, Tennessee
423·467·8401

☐ Knoxville, Tennessee
865·546·5800

☐ Middlesboro, Kentucky
606·248·6600

☐ Spartanburg, South Carolina
864·574·4775

GRAPHIC SCALES

DESIGN DATA

ADT 2000 = 50
ADT 2025 = 100

V = 30 MPH

FUNCT. CLASS = RURAL LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT BD-5114T = .053 MI
LENGTH STRUCTURE TIP PROJECT BD-5114T = .012 MI
TOTAL LENGTH OF TIP PROJECT BD-5114T = .065 MI

Prepared In the Office of:
VAUGHN & MELTON
1318-F PATTON AVE.
ASHEVILLE NC, 28806
FOR THE NORTH CAROLINA DIVISION OF HIGHWAYS

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
OCTOBER 21, 2011

LETTING DATE:

HARDY WILLIS, PE
PROJECT ENGINEER

AARON C. CARVER, PE
PROJECT DESIGN ENGINEER

NCDOT CONTACT:
JOSH DEYTON, PE
PROJECT ENGINEER - ROADWAY DESIGN

HYDRAULICS ENGINEER

SEAL 033023
BRADLEY S. RIDNOUR

1/31/14
Bradley S Ridnour, PE
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SEAL 030453
AARON C. CARVER

1/31/14
SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
BD-5114T	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030453 ENGINEER AARON C. CARVER 12/31/13

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, TYPICAL SECTIONS, AND WEDGING DETAILS
3	SUMMARY OF QUANTITIES
3A	SUMMARY OF DRAINAGE QUANTITIES, SUMMARY OF GUARDRAIL, AND ASPHALT PAVEMENT REMOVAL SUMMARY
3B	EARTHWORK SUMMARY
4	PLAN SHEET
5	RIGHT OF WAY PLAN
TMP-1 THRU TMP-3	TRAFFIC CONTROL AND PAVEMENT MARKING PLANS
SD-1	SPECIAL SIGN DESIGN
EC-1 THRU EC-2	EROSION CONTROL PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS
X-0	CROSS-SECTION SUMMARY
X-1 THRU X-2	CROSS-SECTIONS
S-0	STRUCTURE COVER SHEET
S-1 THRU S-15	STRUCTURE PLANS

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-12

GRADE LINE:
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 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.

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 WESTERN CAROLINA UNIVERSITY AND FRONTIER COMMUNICATIONS.

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 17, 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 - Method 'A'
DIVISION 4 - MAJOR STRUCTURES	
422.11	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 8 - INCIDENTALS	
815.03	Pipe Underdrain and Blind Drain
840.25	Anchorage for Frames
840.29	Frames and Narrow Slot Flat Grates
840.36	Traffic Bearing Grated Drop Inlet
840.37	Steel Grate and Frame
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
876.02	Guide for Rip Rap at Pipe Outlets

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

3/15/06

PROJECT REFERENCE NO.	SHEET NO.
BD-5114T	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

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
- Swamp Marsh
- 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 Marker — RW
- 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 Utility Easement — PUE

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Wheel Chair Ramp — WCR
- Proposed Wheel Chair Ramp Curb Cut — WCC
- Curb Cut for Future Wheel Chair Ramp — CCFR
- 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 — HH
- 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:

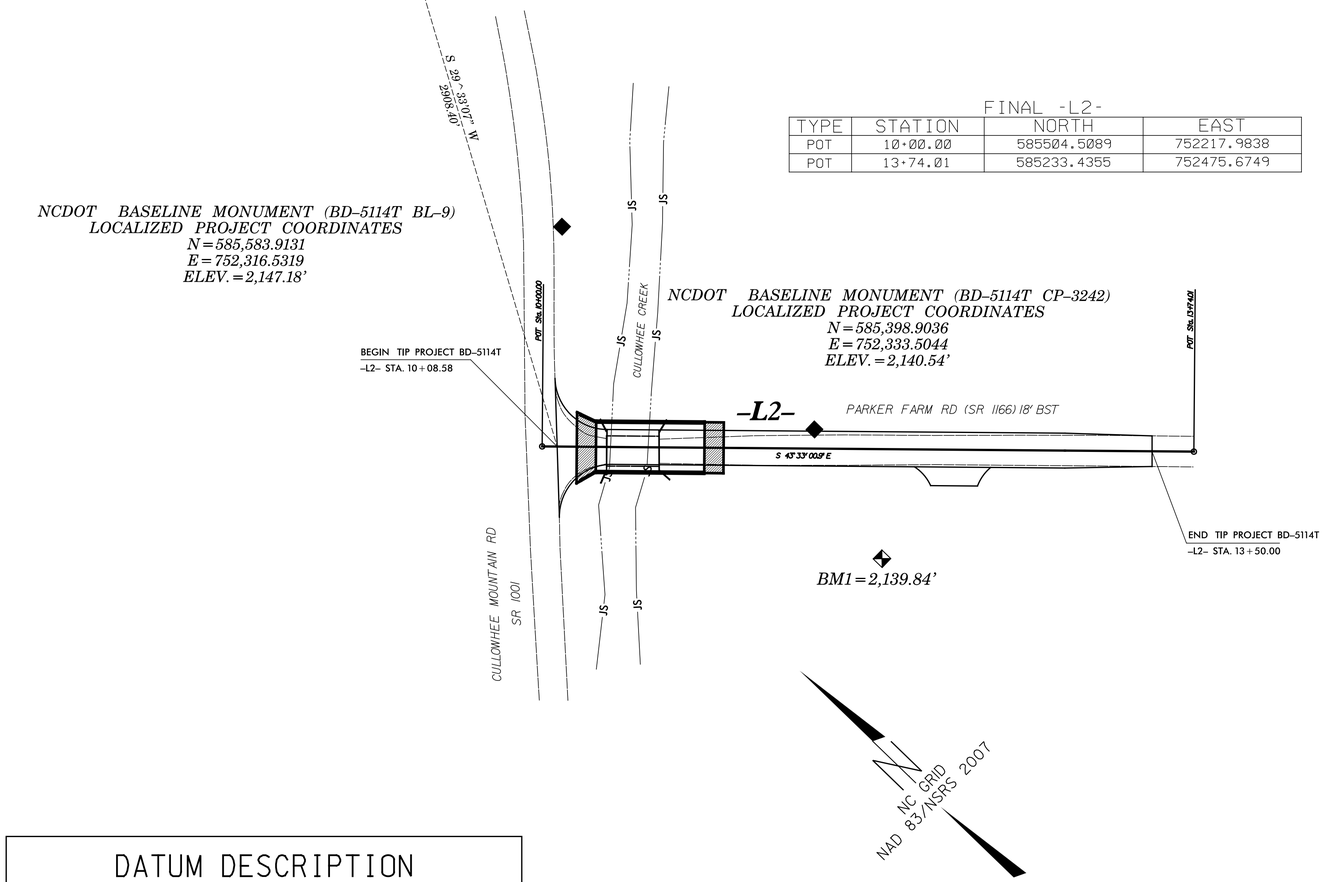
- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

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
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.



PROJECT REFERENCE NO.	SHEET NO.
BD-5114T	1-C

Location and Surveys

SURVEY CONTROL SHEET BD-5114T

```
BL
   POINT          DESC.            NORTH            EAST          ELEVATION          L2 STATION        OFFSET
------------ ---------------- ---------------- ---------------- ---------------- ---------------- ----------------
8                        BL-8     585216.8087      751956.4025          2141.47          10+28.29        387.81 RT
9                        BL-9     585583.9131      752316.5319          2141.18          10+10.35        126.13 LT
3242                  CP-3242     585398.9036      752333.5044          2140.54          11+56.13         10.96 LT

****************************************
BM1        ELEVATION = 2139.84
N 585319       E 752307
L2 STATION 11+96.00 63 RIGHT
RR SPIKE IN BASE 19" SYCAMORE
****************************************
```

FINAL PROPOSED RIGHT OF WAY MONUMENT PSD

ALIGN	STATION	OFFSET	NORTH	EAST
L2	10+06.99	-90.00	585561.4490	752288.0320
L2	10+17.00	-90.00	585514.1969	752294.9260
L2	10+20.00	-35.00	585514.1281	752257.1306
L2	10+21.00	35.00	585465.1740	752207.0857
L2	10+24.00	95.00	585421.6603	752165.6664
L2	10+14.05	95.00	585428.8744	752158.8085
L2	11+30.00	-35.00	585434.4034	752332.9196
L2	11+50.00	35.00	585371.6786	752295.9654
L2	12+00.00	-24.50	585376.4323	752373.5359
L2	12+00.00	25.50	585341.9816	752337.2962

FINAL PROPOSED PERMANENT UTILITY EASEMENT

ALIGN	STATION	OFFSET	NORTH	EAST
L2	10+15.39	116.46	585413.1148	752144.1806
L2	10+20.52	198.68	585352.7480	752088.1245
L2	10+54.64	-113.18	585542.8873	752337.6598
L2	10+59.70	-300.00	585667.9372	752476.5477
L2	10+78.80	-35.00	585471.5116	752297.6433
L2	10+91.80	35.00	585413.8603	752255.8662
L2	11+42.16	-33.18	585424.3362	752339.9786
L2	11+62.50	32.63	585364.2519	752306.2955
L2	11+65.91	43.69	585354.1602	752300.6290

FINAL -L2-

TYPE	STATION	NORTH	EAST
POT	10+00.00	585504.5089	752217.9838
POT	13+74.01	585233.4355	752475.6749

NCDOT GPS MONUMENT (BD-5114T GPS-22)
LOCALIZED PROJECT COORDINATES
N=588,028.3277
E=753,658.3542
ELEV.=2,153.88'

NCDOT BASELINE MONUMENT (BD-5114T BL-9)
LOCALIZED PROJECT COORDINATES
N=585,583.9131
E=752,316.5319
ELEV.=2,147.18'

NCDOT BASELINE MONUMENT (BD-5114T CP-3242)
LOCALIZED PROJECT COORDINATES
N=585,398.9036
E=752,333.5044
ELEV.=2,140.54'

BM1=2,139.84'

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS-22"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 588028.3277(ft) EASTING: 753658.3542(ft)
ELEVATION: 2153.88(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99977423257
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-22" TO -L2- STATION 10+08.58 IS
S 29°33'07" W 2908.40'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NCDOT BASELINE MONUMENT (BD-5114T BL-8)
LOCALIZED PROJECT COORDINATES
N=585,216.8087
E=751,956.4025
ELEV.=2,141.47'

NOTE: DRAWING NOT TO SCALE

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/*

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   BD-5114T_LS_CONTROL_120508.TXT

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

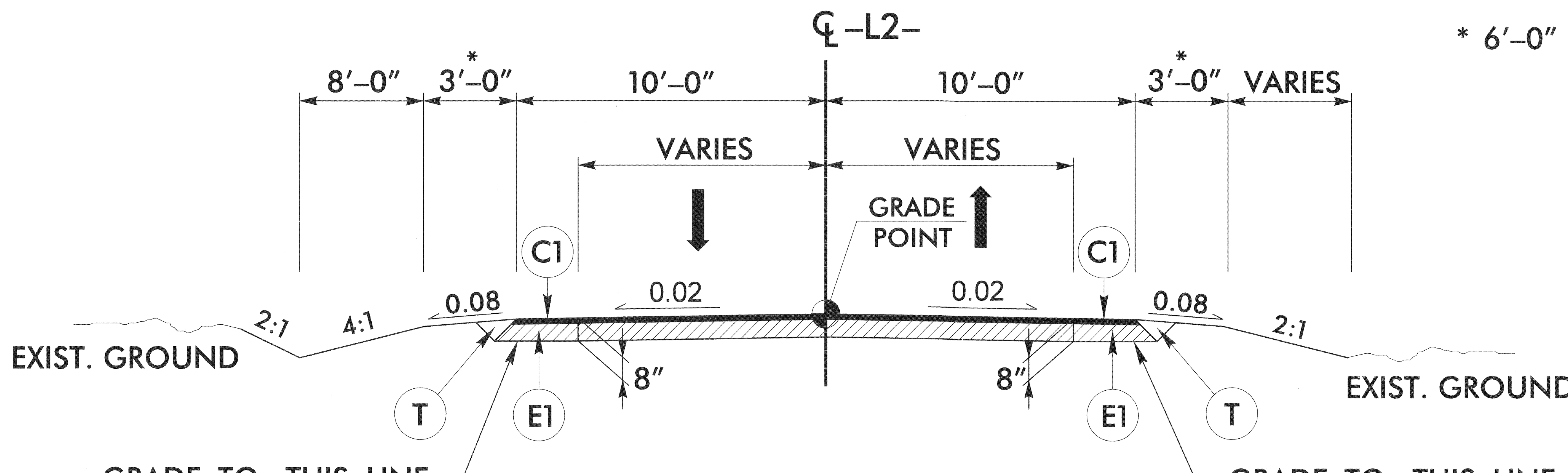
◆ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

PROJECT REFERENCE NO.	SHEET NO.
BD-5114T	2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

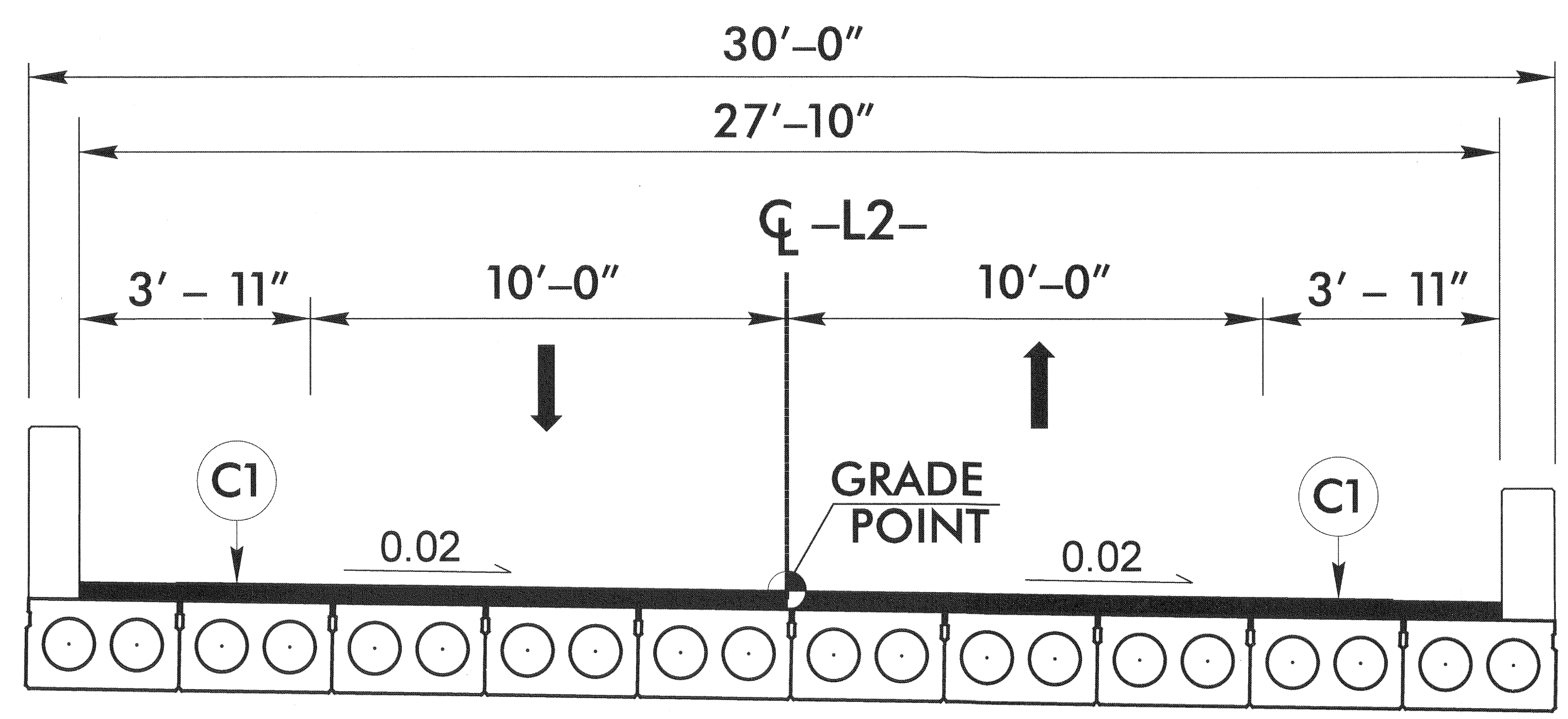
* 6'–0" WITH GUARDRAIL



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

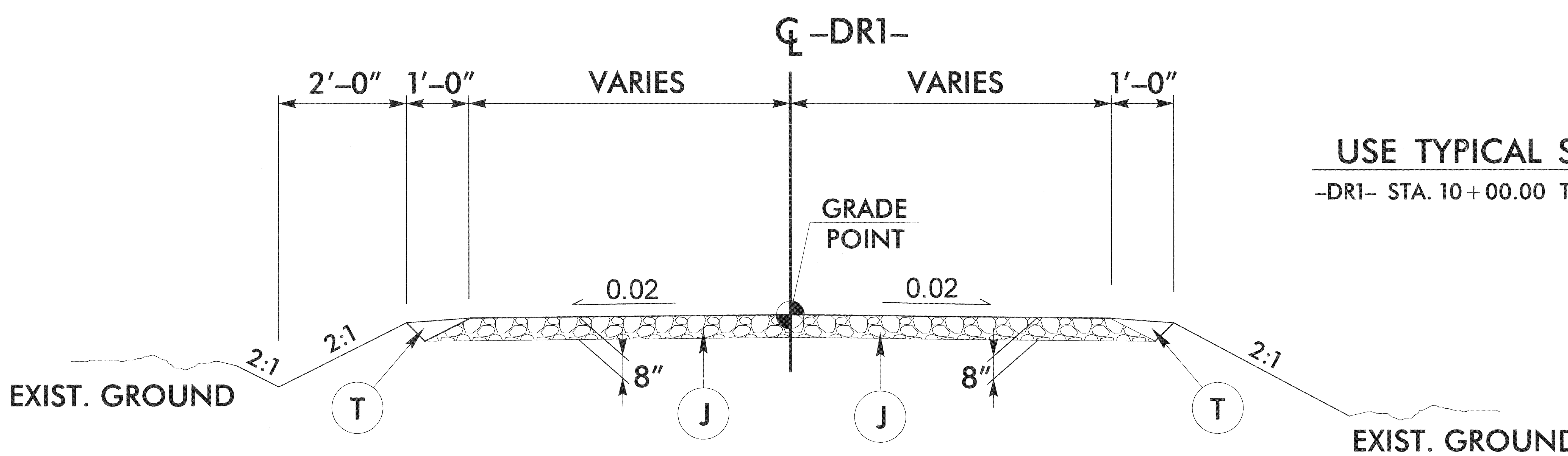
-L2- STA. 10+08.58 (BEGIN PROJECT) TO STA. 10+30.88 (BEGIN BRIDGE)
-L2- STA. 10+93.13 (END BRIDGE) TO STA. 13+50.00 (END PROJECT)



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

-L2- STA. 10+30.88 (BEGIN BRIDGE) TO
-L2- STA. 10+93.13 (END BRIDGE)



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

-DR1- STA. 10+00.00 TO -DR1- STA. 10+20.73

	PAVEMENT SCHEDULE
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
J	8" AGGREGATE BASE COURSE
T	EARTH MATERIAL

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

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
BD-5114T	3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

Line Item	Sec No.	Quantity	Unit	Description
0000100000-N	800	1	LS	Mobilization
0000400000-N	801	1	LS	Construction Surveying
0043000000-N	226	1	LS	Grading
0050000000-E	226	0.1	Acres	Supplementary Clearing & Grubbing
0057000000-E	226	50	CY	Undercut Excavation
0195000000-E	265	50	CY	Select Granular Material
0196000000-E	270	50	SY	Geotextile for Soil Stabilization
0318000000-E	300	5	Tons	Foundation Conditioning Material, Minor Strs
0320000000-E	300	15	SY	Foundation Conditioning Geotextile
0372000000-E	310	32	LF	18" RC Pipe (Class III)
1099700000-E	505	50	Tons	Class IV Subgrade Stabilization
1121000000-E	520	20	Tons	Aggregate Base Course
1220000000-E	545	50	Tons	Incidental Stone Base
1489000000-E	610	180	Tons	Asphalt Conc Base Course Type B25.0B
1519000000-E	610	150	Tons	Asphalt Conc Surface Course Type S9.5B
1575000000-E	620	20	Tons	Asphalt Binder for Plant Mix
2286000000-N	840	1	EA	Masonry Drainage Structures
2407000000-N	840	1	EA	Steel Frame with Two Grates, STD 840.37
2556000000-E	846	18	LF	Shoulder Berm Gutter
3030000000-E	862	25	LF	Steel BM Guardrail
3150000000-N	862	5	EA	Additional Guardrail Posts
3165000000-N	SP	2	EA	Guardrail Anchor Units, Type 350 TL-2
3180000000-N	862	2	EA	Guardrail Anchor Units, TYPE III (Shop Curved)
3215000000-N	862	2	EA	Guardrail Anchor Units, TYPE III
3270000000-N	SP	2	EA	Guardrail Anchor Units, TYPE 350
3649000000-E	876	2	Tons	Rip Rap, Class B
3656000000-E	876	7	SY	Geotextile for Drainage
4116100000-N	904	1	EA	Sign Erection, Relocation, Type E (Ground Mounted)
4400000000-E	1110	152	SF	Work Zone Signs (Stationary)
4405000000-E	1110	96	SF	Work Zone Signs (Portable)
4410000000-E	1110	79	SF	Work Zone Signs (Barricade Mounted)
4445000000-E	1145	48	LF	Barricades (Type III)
4430000000-N	1130	20	EA	Drums
4450000000-N	1150	20	HR	Flagger (By Hour)
4810000000-E	1205	2,826	LF	Paint Pavement Markings Lines (4")
4835000000-E	1205	42	LF	Paint Pavement Markings Lines (24")
6000000000-E	1605	775	LF	Temporary Silt Fence
6012000000-E	1610	15	Tons	Sediment Control Stone
6015000000-E	1615	0.5	Acres	Temporary Mulching
6018000000-E	1620	50	Lbs	Seed For Temporary Seeding
6021000000-E	1620	0.25	Tons	Fertilizer For Temporary Seeding
6030000000-E	1630	10	CY	Silt Excavation
6036000000-E	1060	750	SY	Matting for Erosion Control
6042000000-E	1632	70	LF	1/4" Hardware Cloth
6084000000-E	1660	0.10	Acres	Seeding & Mulching
6090000000-E	1661	50	Lbs	Seed For Repair Seeding
6093000000-E	1661	0.25	Tons	Fertilizer For Repair Seeding
6096000000-E	1662	50	Lbs	Seed for Supplemental Seeding
6108000000-E	1665	0.25	Tons	Fertilizer Topdressing
6117000000-N	SP	7	EA	Response for Erosion Control
				STRUCTURAL ITEMS
0030000000-N	SP	1	LS	Reinforced Bridge Approach Fill - Sub Regional Tier
8035000000-N	402	1	LS	Removal of Existing Structure
8121000000-N	412	1	LS	Unclassified Structure Excavation
8182000000-E	420	43.5	CY	Class A Concrete (Bridge)
8210000000-N	422	1	LS	Bridge Approach Slabs
8217000000-E	425	5278	Lbs	Reinforcing Steel (Bridge)
8364000000-E	450	140	LF	HP12X53 Steel Piles
8847000000-E	SP	1509	SF	Generic Retaining Wall (Sheet Pile)
8505000000-E	460	120.25	LF	Vertical Concrete Barrier Rail
8608000000-E	876	215	Tons	Rip Rap Class II (2'-0" Thick)
8622000000-E	876	240	SY	Geotextile For Drainage
8657000000-N	430	1	LS	Elastomeric Bearings
8762000000-E	430	600	LF	3'-0" X 2'-0"" Prestressed Concrete Cored Slabs.

COMPUTED BY: JRB	DATE: 02-03-12
CHECKED BY: ACC	DATE: 02-03-12

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RIGHT OF WAY AREA DATA

PARCEL NO.	PROPERTY OWNERS NAMES	TOTAL ACREAGE	AREA TAKEN (sf)	AREA REMAINING RT. (Acre)	AREA REMAINING LT. (Acre)	CONST. EASE. (sf)	PERM. DRAIN. EASE. (sf)	TEMP. DRAIN. EASE. (sf)
7	CHARLES D. AND ELOISE STALLINGS	3.73	1176	–	3.703			
8	GRADY C. AND HARRIET PARKER	20.55	1283	–	20.521			
9	GENERATIONS LAND COMPANY, LLC	1.86	726	1.843				
10	JONITA S. FLOYD	1.16	1235	1.132				

PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS

LINE	LOCATION	ASPHALT REMOVAL	ASPHALT BREAK-UP	CONCRETE REMOVAL	CONCRETE REMOVAL
-L2-	10+09 TO 10+36	88			
-L2-	10+67 TO 13+50	565			
	TOTAL	653			
	SAY	660			

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

SUB-REGIONAL & REGIONAL LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	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	36" .079	42" .109	48" .109	R.C. PIPE (CLASS III) 15"	18"	24"	30"	36"	42"	48"	R.C. PIPE (CLASS IV) 12"	15"	18"	24"	30"	36"	42"	48"	**" R. C. PIPE (CLASS V)	**" R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	**" R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. 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 CATCH BASIN	DROP INLET		T.B.D.I. STD. 840.36	T.B.D.I. FRAME WITH TWO GRATES STD. 840.37				CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
-L2- 11+17	RT	4-1		2141.54	2138.88																																												1										1	1								
-L2- 11+17	RT	4-1	OUT		2138.88	2138.03																						32																																								
TOTAL																												32																					1										1	1								

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.)	GRATED DROP INLET (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

"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 STRAIGHT	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPROACH END	WARRANT POINT TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W APPROACH END	W TRAILING END	ANCHORS XI MOD	XI	GRAU 350	TYPE III	GRAU 350 TYPE TL-2	TYPE III SHOP CURVED	B-77	BIC	AT-1	IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-L2-	10+15.46	10+22.18	RT	50	18.75		10+22.18		2.5	6		50		1			1	1		1										
-L2-	10+09.02	10+21.71	LT	50	18.75			10+21.71	2	6	50		1				1	1		1										
-L2-	10+93.13	11+49.38	LT	56.25			10+93.13		4	6	25		0.5						1											
-L2-	10+93.13	11+49.38	RT	56.25				10+93.13	4	6		25		0.5					1											
		SUBTOTAL		212.5	37.5												2	2	2	2										
		LESS DEDUCTIONS FOR ANCHORS																												
		GRAU-350 2 @ 50'=		-100																										
		GRAU-350 TYPE TL-2 2 @ 25'=		-50																										
		TYPE III 2 @ 18.75'=		-37.5																										
		TYPE III (SHOP CURVED) 2 @ 18.75'=			-37.5																									
		PROJECT TOTALS:		25	0																									
		SAY:		25																										
		ADDITIONAL GUARDRAIL POSTS=5 EA.																												

COMPUTED BY: CBC DATE: 02-03-12
CHECKED BY: CBC DATE: 02-03-12

PROJECT REFERENCE NO.	SHEET NO.
BD-5114T	3-B

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
SUMMARY NO.1					
–L2– STA. 10+08.58 TO STA. 10+30.88 (BEG. BRIDGE)	31		0		31
SUBTOTAL SUMMARY NO.1	31		0		31
SUMMARY NO.2					
–L2– STA. 10+93.13 (END BRIDGE) TO STA. 13+50.00	141		159	18	
SUBTOTAL SUMMARY NO.2	141		159	18	
PROJECT SUBTOTAL	172		159	18	31
BORROW IN LIEU OF WASTE				18	–18
GRAND TOTAL	172		159		13
SAY	177				

CONTINGENCY ITEMS:

INCIDENTAL STONE = 50 TONS

UNDERCUT EXCAVATION = 50 CY

SELECT GRANULAR MATERIAL = 50 CY

CLASS IV SUBGRADE STABILIZATION = 50 TONS

GEOTEXTILE FOR SOIL STABILIZATION = 50 SY

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".

8/17/99

REVISIONS

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS-22"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 588028.3277(ft) EASTING: 753658.3542(ft)
ELEVATION: 2153.88(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99977423257
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-22" TO -L2- STATION 10+08.58 IS S 29°33'07" W 2908.40'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

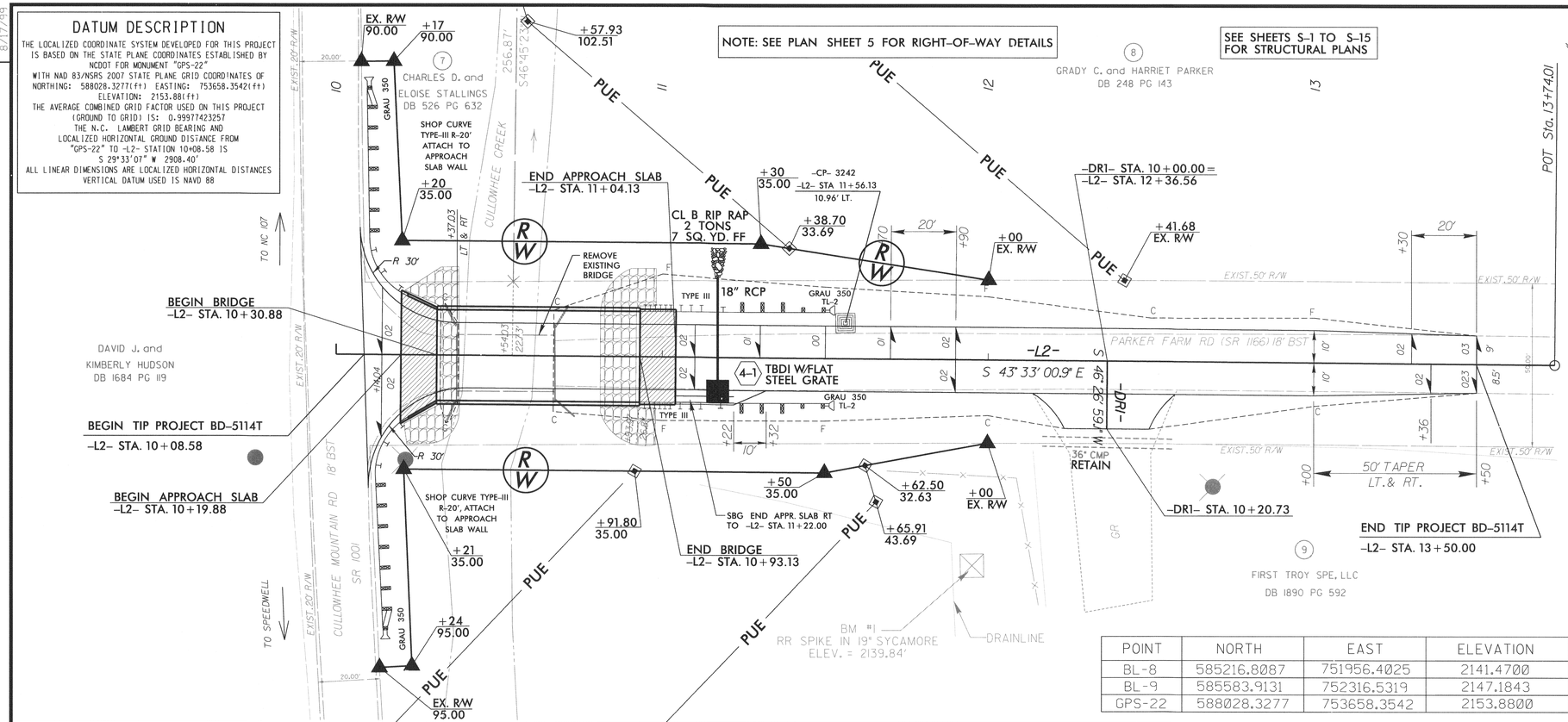
NOTE: SEE PLAN SHEET 5 FOR RIGHT-OF-WAY DETAILS

SEE SHEETS S-1 TO S-15 FOR STRUCTURAL PLANS

PROJECT REFERENCE NO.	SHEET NO.
BD-5114T	4
R/W SHEET NO.	

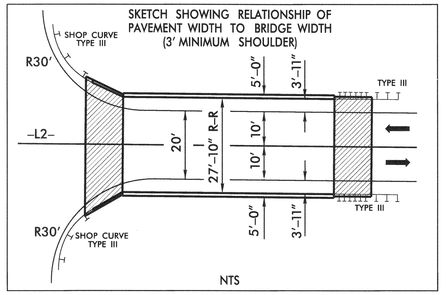
ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 030453 ENGINEER AARON C. CARVER — 9/11/13

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 033023 ENGINEER BRADLEY S. RIDNOUR — 9/11/13 — Bradley S. Ridnour, PE



POINT	NORTH	EAST	ELEVATION
BL-8	585216.8087	751956.4025	2141.4700
BL-9	585583.9131	752316.5319	2147.1843
GPS-22	588028.3277	753658.3542	2153.8800

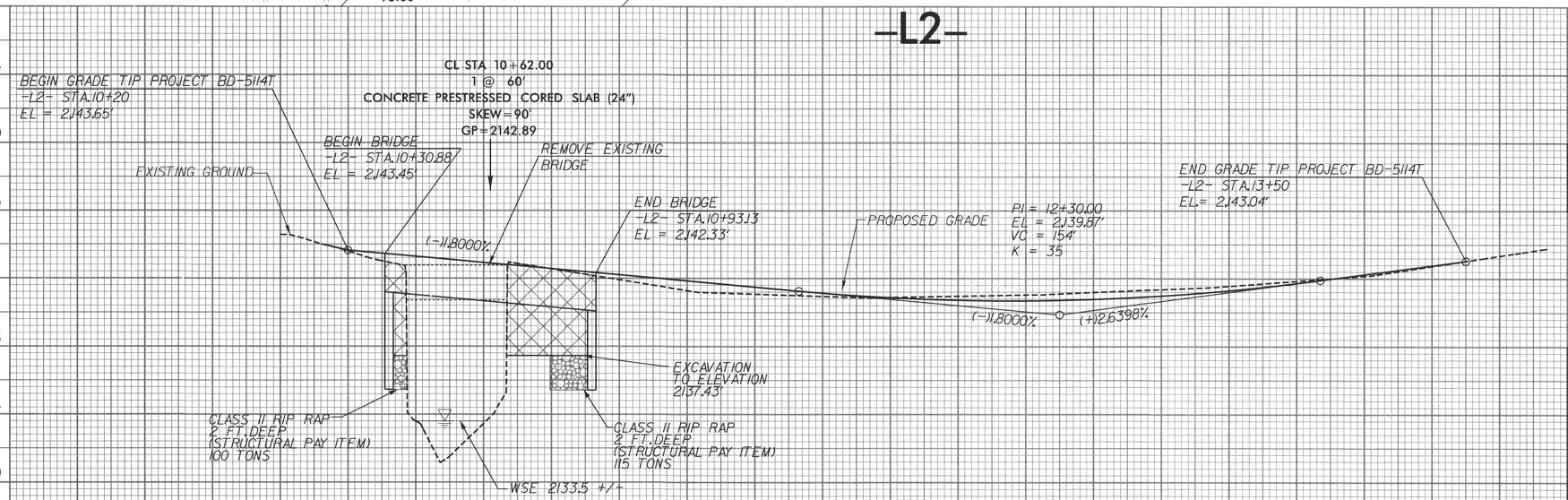
SKETCH SHOWING RELATIONSHIP OF PAVEMENT WIDTH TO BRIDGE WIDTH (3' MINIMUM SHOULDER)



NTS

V&M Vaughn & Melton Consulting Engineers
Asheville, North Carolina 828-253-2796
Charlotte, North Carolina 704-357-0468
Tri-Cities, Tennessee 423-467-8400
Knoxville, Tennessee 865-546-5800
Middlesboro, Kentucky 606-248-5600
Spartanburg, South Carolina 864-574-4775

-L2-



BM #1
N 585319.469 E 752307.109
ELEVATION = 2139.84'
-L2- STA 11+95.52 62.9' RT

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 3110 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 2142.33 FT
BASE DISCHARGE	= 4600 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 2143.31 FT
OVERTOPPING DISCHARGE	= 1784 CFS
OVERTOPPING FREQUENCY	= 5 +/- YRS
OVERTOPPING ELEVATION	= 2140.38 FT
DATE OF SURVEY	= 7/5/2011
W.S. ELEVATION AT DATE OF SURVEY	= 2133.5 FT

$$$$SYSTIME$$$$
$$$$ENGINEER$$$$

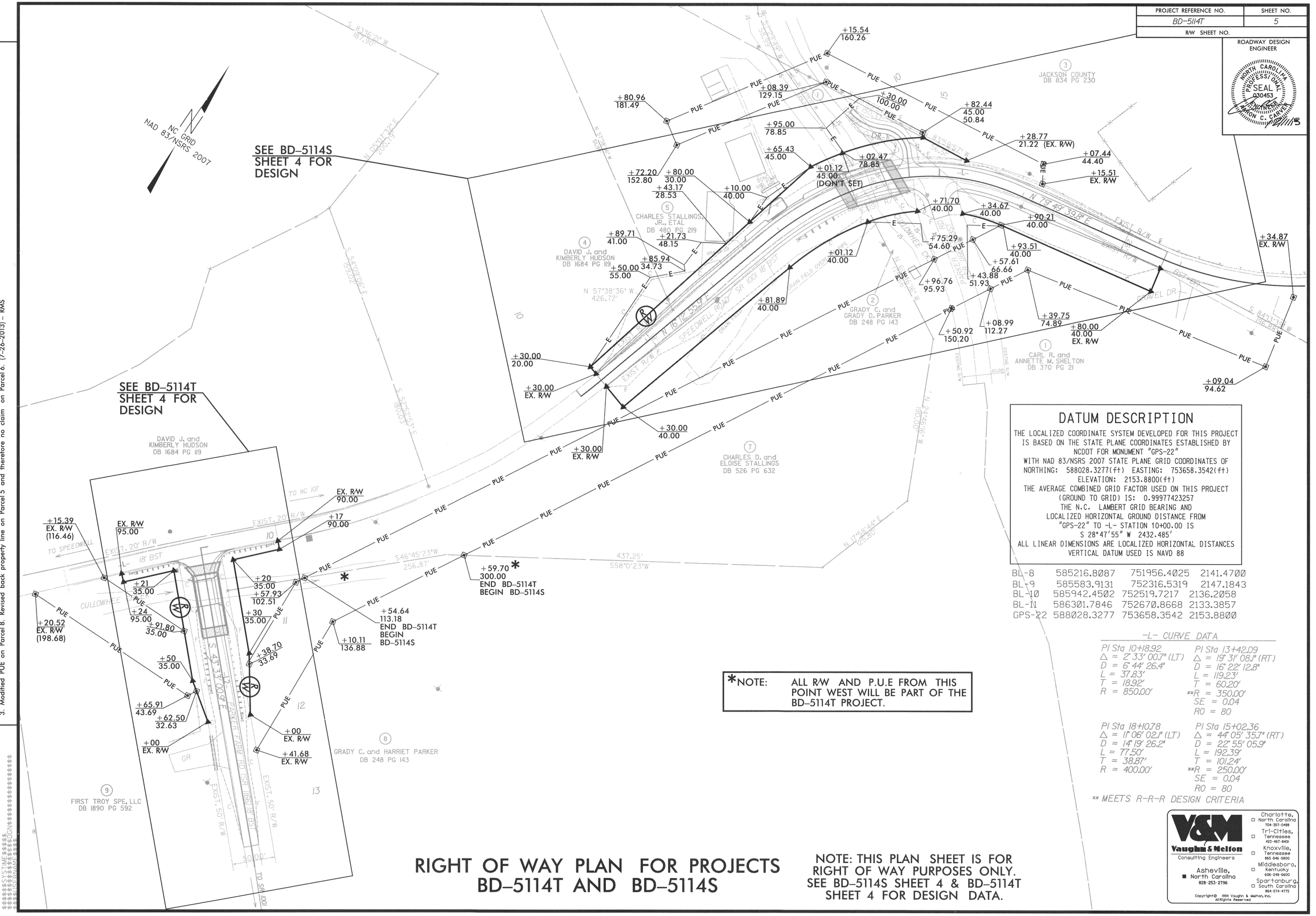
PROJECT REFERENCE NO.	SHEET NO.
BD-5114T	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

SEAL 030453 ENGINEER AARON C. CARVER

REVISIONS

1. Reduced PUE on Parcel 1, 3, 5 & 6. (6-18-2012) - RMS
2. Combined Parcels 9 & 10 into Parcel 9 and Changed Owner to First Troy SPE, LLC (4-23-2013) - JCG
3. Modified PUE on Parcel 8. Revised back property line on Parcel 5 and therefore no claim on Parcel 6. (7-26-2013) - RMS



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS-22"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 588028.3277(ft) EASTING: 753658.3542(ft)
ELEVATION: 2153.8800(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99977423257
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-22" TO -L- STATION 10+00.00 IS S 28°47'55" W 2432.485'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

BL-8	585216.8087	751956.4025	2141.4700
BL-9	585583.9131	752316.5319	2147.1843
BL-10	585942.4502	752519.7217	2136.2058
BL-11	586301.7846	752670.8668	2133.3857
GPS-22	588028.3277	753658.3542	2153.8800

*NOTE: ALL R/W AND P.U.E FROM THIS POINT WEST WILL BE PART OF THE BD-5114T PROJECT.

-L- CURVE DATA

PI Sta 10+18.92
Δ = 2° 33' 00.7" (LT)
D = 6° 44' 26.4"
L = 37.83'
T = 18.92'
R = 850.00'

PI Sta 13+42.09
Δ = 19° 31' 08.1" (RT)
D = 16° 22' 12.8"
L = 119.23'
T = 60.20'
**R = 350.00'
SE = 0.04
RO = 80

PI Sta 18+10.78
Δ = 11° 06' 02.1" (LT)
D = 14° 19' 26.2"
L = 77.50'
T = 38.87'
R = 400.00'

PI Sta 15+02.36
Δ = 44° 05' 35.7" (RT)
D = 22° 55' 05.9"
L = 192.39'
T = 101.24'
**R = 250.00'
SE = 0.04
RO = 80

** MEETS R-R-R DESIGN CRITERIA

RIGHT OF WAY PLAN FOR PROJECTS BD-5114T AND BD-5114S

NOTE: THIS PLAN SHEET IS FOR RIGHT OF WAY PURPOSES ONLY. SEE BD-5114S SHEET 4 & BD-5114T SHEET 4 FOR DESIGN DATA.

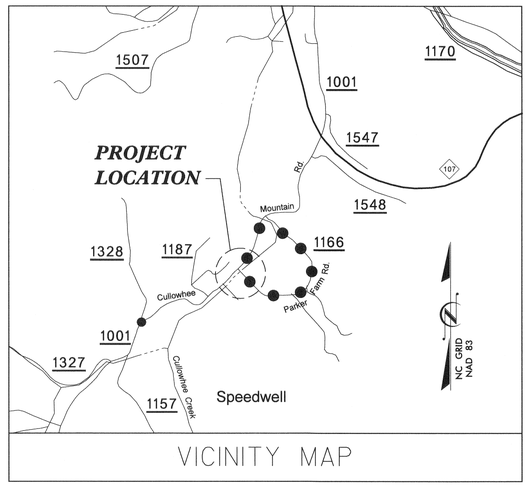
Vaughn & Melton
Consulting Engineers
Asheville, North Carolina 828-253-2796
Charlotte, North Carolina 704-357-0488
Tri-Cities, Tennessee 423-467-8401
Knoxville, Tennessee 865-546-6800
Middlesboro, Kentucky 606-248-6600
Spartanburg, South Carolina 864-574-4775

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

JACKSON COUNTY

DIVISION 14



VICINITY MAP

OFF-SITE DETOUR ROUTE

LOCATION: BRIDGE NO. 220 OVER CULLOWHEE CREEK ON SR 1166 (PARKER FARM RD.)

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

N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1580 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1580
1020 BIRCH RIDGE DRIVE, RALEIGH, NC 27610 (DELIVERY)
PHONE: (919) 250-4094 FAX: (919) 250-4098

J. S. BOURNE, P.E. — *STATE TRAFFIC MANAGEMENT ENGINEER*
LLOYD D. BROWN, P.E. — *TRAFFIC CONTROL PROJECT ENGINEER*
AARON CARVER, P.E. — *TRAFFIC CONTROL PROJECT DESIGN ENGINEER*
AARON CARVER, P.E. — *TRAFFIC CONTROL DESIGN ENGINEER*

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

INDEX OF SHEETS

LEGEND

GENERAL

NORTH ARROW

TRAFFIC CONTROL DEVICES

BARRICADE (TYPE III)

TEMPORARY SIGNING

STATIONARY SIGN

V&M Vaughn & Melton — Consulting Engineers
Asheville, North Carolina 828-253-2796
Charlotte, North Carolina 704-357-0488

PROJECT ENGINEER LLOYD D. BROWN, P.E.
DESIGN ENGINEER AARON CARVER, P.E.

APPROVED: [signature]
DATE: December 27, 2012

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 20119 ENGINEER LLOYD D. BROWN

SHEET NO.
TMP-1

TIP PROJECT: BD-5114T

12/26/2012
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User:mafferguson

PROJ. REFERENCE NO.	SHEET NO.
BD-5114T	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
1101.03	TEMPORARY ROAD CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1130.01	DRUMS
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.08	PAVEMENT MARKINGS - SYMBOLS & WORD MESSAGES
1205.12	PAVEMENT MARKINGS - BRIDGES

TRANSPORTATION OPERATIONS

CONSTRUCTION

REMOVE AND REPLACE EXISTING STRUCTURE AND APPROACHES ALONG THE EXISTING ROADWAY ALIGNMENT AS SHOWN IN THE CONSTRUCTION PLANS.

TMP DESIGN PARAMETERS

TRAFFIC WILL BE DETOURED OFF-SITE DURING THE CONSTRUCTION PERIOD.

THE OFF-SITE DETOUR WILL INCLUDE SR 1001 AND SR 1116 (SEE SHEET TMP-2).

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) PROVIDE PERMANENT SIGNING.

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 R-11-2 ATTACHED OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

PAVEMENT MARKINGS

G) INSTALL PAVEMENT MARKINGS (PAINT) ON THE FINAL SURFACE OF THE ENTIRE PROJECT.

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

LOCAL NOTES

1. NOTIFY JACKSON COUNTY EMERGENCY SERVICES AND PUBLIC SCHOOLS AT LEAST ONE MONTH PRIOR TO ROAD CLOSURE.

V&M Vaughn & Melton Consulting Engineers
Asheville, North Carolina 828-253-2796
Charlotte, North Carolina 704-357-0488
Tri-Cities, Tennessee 423-467-8401
Knoxville, Tennessee 865-546-5800
Middlesboro, Kentucky 606-248-6600
Spartanburg, South Carolina 864-574-4775

APPROVED: [signature] DATE: 10/27/12

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 20119 ENGINEER LLOYD D. BROWN

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

ROADWAY STANDARD DRAWINGS
GENERAL NOTES &
TRANSPORTATION OPERATIONS

12/26/2012
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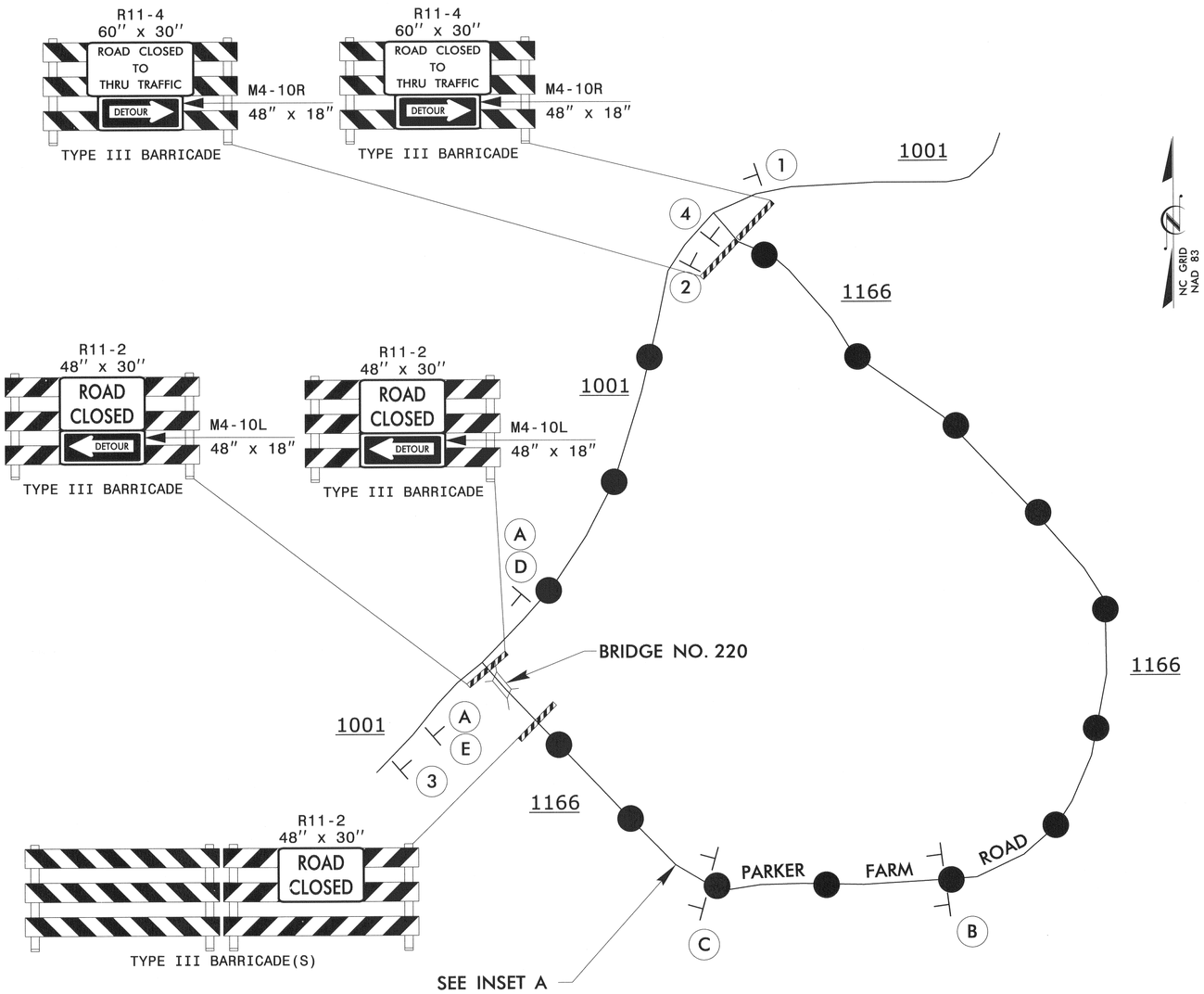
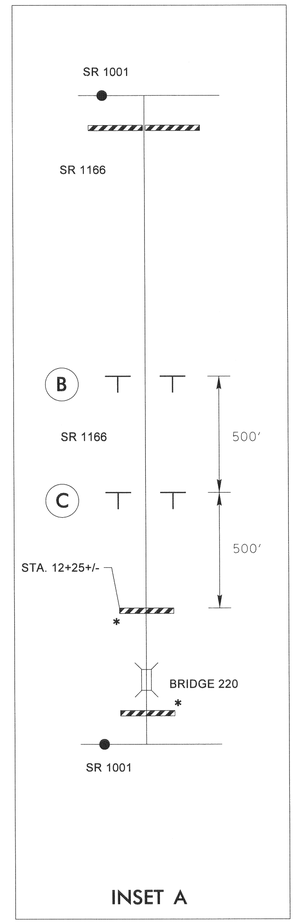
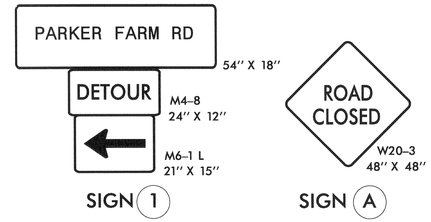
User:mafergu

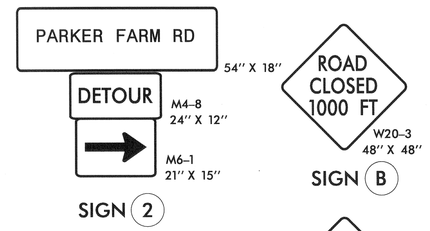
PROJ. REFERENCE NO.	SHEET NO.
BD-5114T	TMP-2

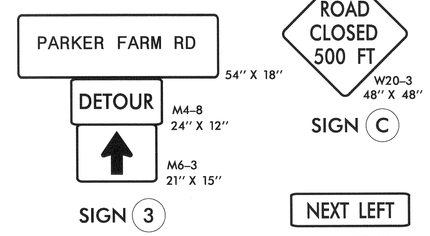


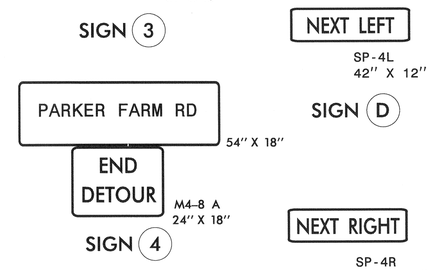
OFF-SITE DETOUR











PHASING

STEP 1: - INSTALL OFF-SITE DETOUR ROUTE SIGN ASSEMBLIES FOR THE CLOSING OF SR 1166 (PARKER FARM ROAD, -L-).

- USING ROADWAY STANDARD DRAWING NO. 1101.03, SHEETS 1 OF 9 AND 2 OF 9, CLOSE SR 1166 (PARKER FARM ROAD, -L-) TO THRU TRAFFIC.

STEP 2: - REMOVE THE EXISTING STRUCTURE AND CONSTRUCT THE PROPOSED STRUCTURE AND ROADWAY UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE AND PLACE FINAL PAVEMENT MARKINGS ON SR 1166 (PARKER FARM ROAD, -L-) FROM STATION 10+08 +/- -L- TO STATION 13+50 +/- -L-. (SEE CONSTRUCTION PLANS).

STEP 3: - REMOVE ALL TRAFFIC CONTROL DEVICES, SIGNING AND DETOUR ROUTE SIGNING.

- OPEN TO FINAL TRAFFIC PATTERN.

NOTES:
- ALL DETOUR SIGN LOCATIONS ARE APPROXIMATE.
- ALL DETOUR SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE NOTED.
- TRAFFIC CONTROL DEVICES (A) THROUGH (E) SHALL BE INSTALLED ACCORDING TO ROADWAY STANDARD DRAWING 1101.03, SHEET 1 OF 9.
- TRAFFIC CONTROL DEVICES (1) THROUGH (4) SHALL BE INSTALLED AS PER ENGINEER'S INSTRUCTIONS, AND AS SHOWN HEREON.

* SEE ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 1 OF 9 AND 2 OF 9, FOR ADDITIONAL WORK ZONE SIGNS.

V&M Vaughn & Melton Consulting Engineers
Asheville, North Carolina 828-253-2796
Charlotte, North Carolina 704-357-0488
Tri-Cities, Tennessee 423-467-8401
Knoxville, Tennessee 865-546-5800
Middlesboro, Kentucky 606-248-6600
Spartanburg, South Carolina 864-574-4775

APPROVED: DATE: 12/27/12

SEAL

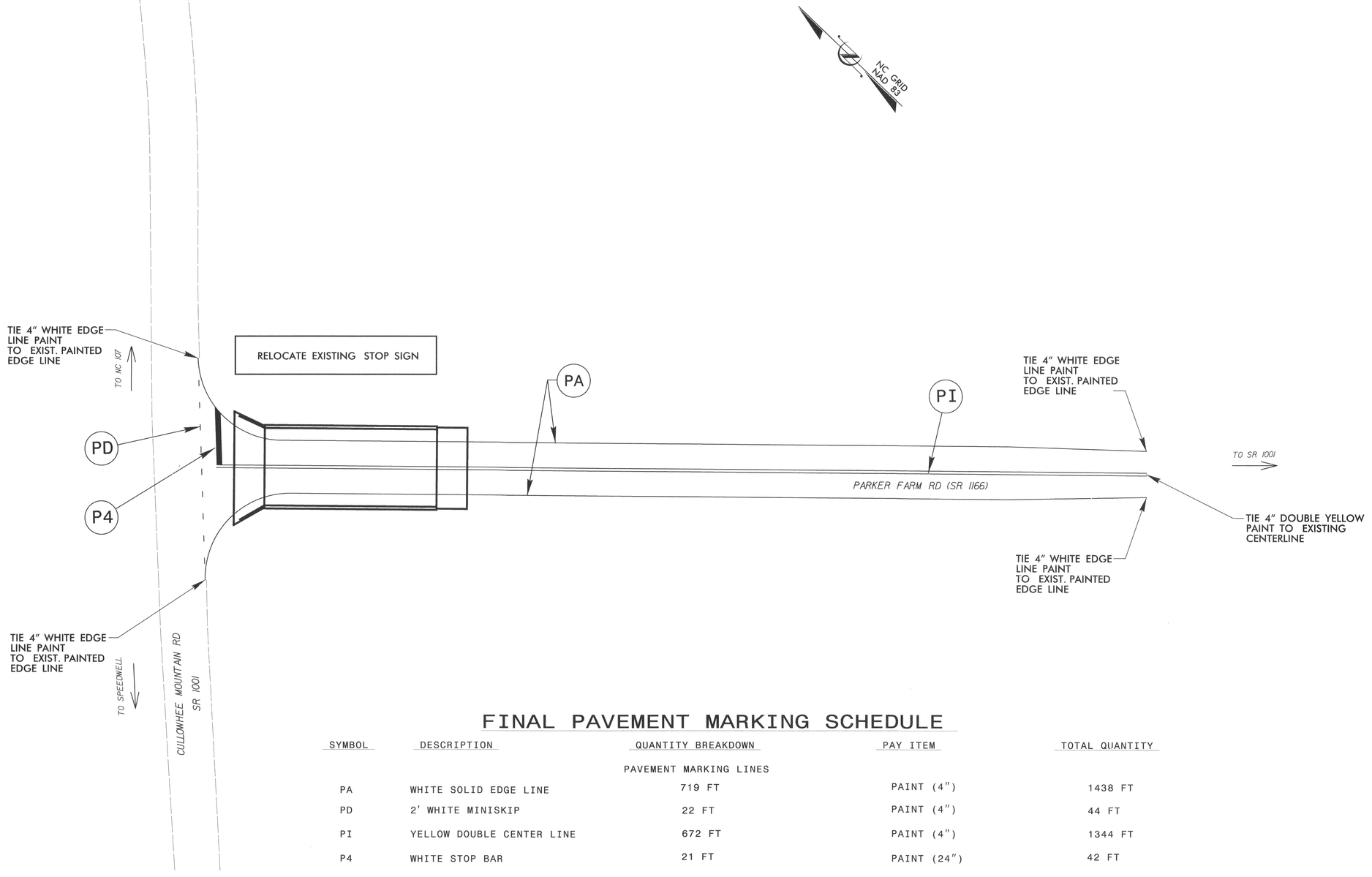
NORTH CAROLINA PROFESSIONAL SEAL 20119 ENGINEER LLOYD D. BROWN

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

TEMPORARY TRAFFIC CONTROL DETAIL, PHASING NOTES, OFF-SITE DETOUR SIGNING AND ROAD CLOSURE

12/26/2012
S:\transportation\3093i-58 Jackson 220\Traffic\TrafficControl\TCP\BD-5114T_TC_tmp-2.dgn
User:mafergu

PROJ. REFERENCE NO.	SHEET NO.
BD-5114T	TMP-3



FINAL PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION	QUANTITY BREAKDOWN	PAY ITEM	TOTAL QUANTITY
		PAVEMENT MARKING LINES		
PA	WHITE SOLID EDGE LINE	719 FT	PAINT (4")	1438 FT
PD	2' WHITE MINISKIP	22 FT	PAINT (4")	44 FT
PI	YELLOW DOUBLE CENTER LINE	672 FT	PAINT (4")	1344 FT
P4	WHITE STOP BAR	21 FT	PAINT (24")	42 FT

SCALE: 1" = 20'

V&M
Vaughn & Melton
Consulting Engineers
Asheville, North Carolina 828-253-2796
Charlotte, North Carolina 704-357-8488
Tri-Cities, Tennessee 423-467-8401
Knoxville, Tennessee 865-546-5800
Middlesboro, Kentucky 606-248-6600
Spartanburg, South Carolina 864-574-4775

APPROVED: _____ DATE: 12/19/2013

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 20119 ENGINEER LLOYD D. BROWN

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

TRAFFIC CONTROL PAVEMENT MARKING & SIGNING PLAN

PROJ. REFERENCE NO.	SHEET NO.
BD-5114T	SD-1

SIGN NUMR: PARKER FARM RD
TYPE: D Ground
QUANTITY: 1

BACKG. COLOR: Orange
COPY COLOR: Black

DESIGN BY: ACC
PROJECT ID: BD-5114T

CHK BY:
DIV: 14

STD #:
DATE: DEC. 20,2012

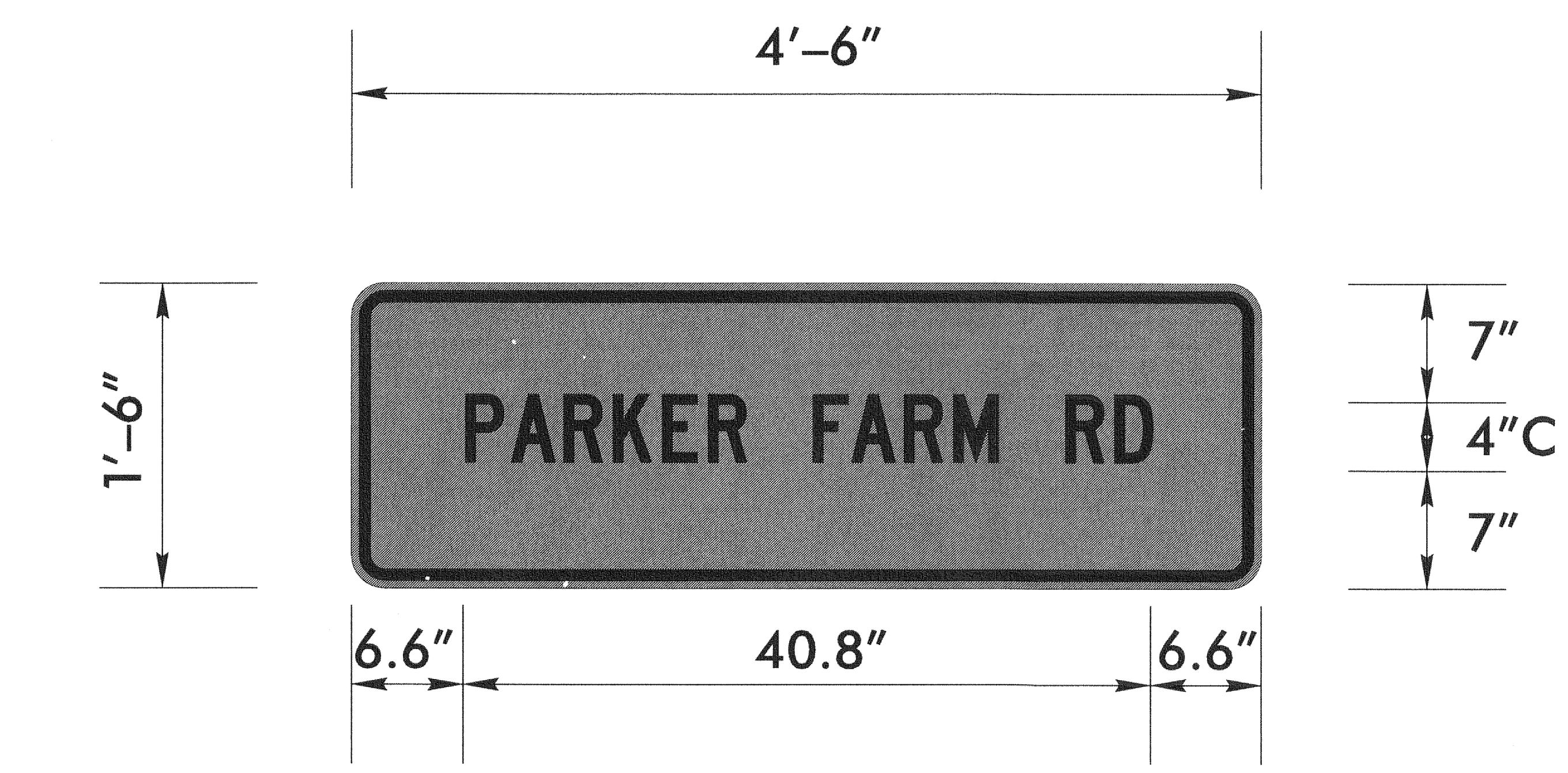
SIGN WIDTH: 4'-6"
HEIGHT: 1'-6"
TOTAL AREA: 6.8 Sq.Ft.

MAT'L: 0.063 in.(1.6 mm) ALUMINUM

BORDER TYPE: FLUSH
RECESS: 0.47"
WIDTH: 0.63"
RADII: 1.5"

NO. Z BARS:
LENGTH: in.

SYMBOL	X	Y	WID	HT



BORDER
R=1.5"
TH=0.63"
IN=0.47"

Panel Style: construction_guide.ssi
M.U.T.C.D.: 2009 Edition

USE NOTES: 1,3,4,6

1. Legend and border shall be direct applied encapsulated lens reflective sheeting.
2. Legend and border shall be direct applied enclosed lens reflective sheeting.
3. Shields shall be encapsulated lens reflective sheeting on 0.8mm aluminum and demountable.
4. Background shall be encapsulated lens reflective sheeting.
5. Background shall be enclosed lens reflective sheeting.
6. Center arrows vertically on sign.

Letter spacings are to start of next letter

		P	A	R	K	E	R		F	A	R	M		R	D		Series/Size Text Length
	6.6	2.7	3.1	2.9	2.9	2.7	2.2	4	2.3	3.1	2.9	2.6	4	2.9	2.2	6.6	C 2000/4 40.8

Spacing Factor is 1 unless specified otherwise

FILENAME: GS40_ENGL

APPROVED: DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 20119 ENGINEER LLOYD D. BROWN

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

SPECIAL SIGN DESIGN

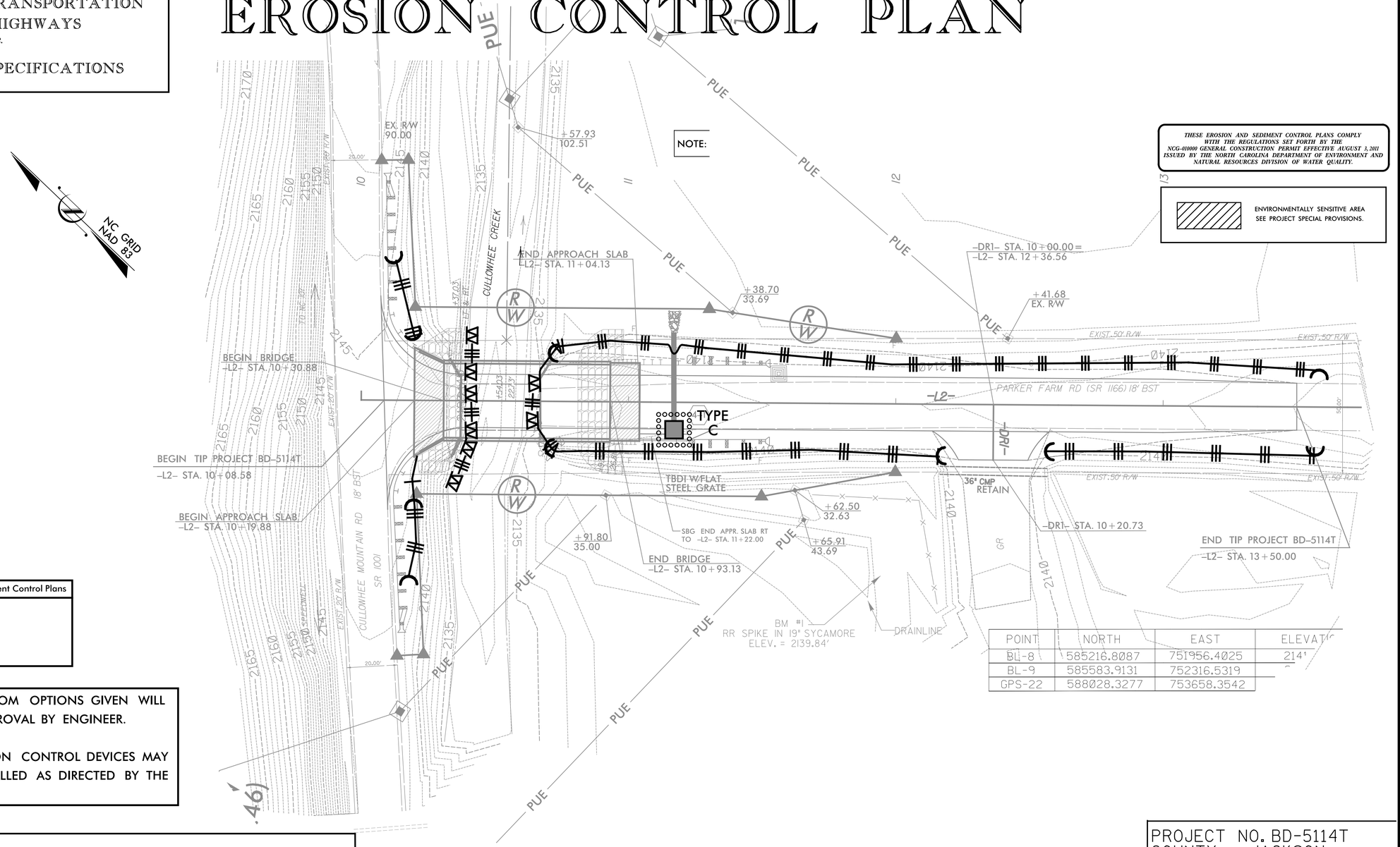
$$$$$$SYSTIME$$$$$ $$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$ $$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
BD-5114T	EC-1/CONST.4
R/W SHEET NO.	

ROADSIDE ENVIRONMENTAL UNIT
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

2012 STANDARD SPECIFICATIONS

EROSION CONTROL PLAN



POINT	NORTH	EAST	ELEVATION
BL-8	585216.8087	751956.4025	214'
BL-9	585583.9131	752316.5319	
GPS-22	588028.3277	753658.3542	

Level III-A: Designer of Erosion and Sediment Control Plans

Aaron C. Carver, P.E.
Date Issued: May 2, 2007
Date Expires: December 31, 2013
Certification Number: 302

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

Std. #	Description	Symbol
	Wattle with Polyacrylamide (PAM)	
	Wattle	
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1632.03	Rock Inlet Sediment Trap Type C	or

PROJECT NO. BD-5114T
COUNTY JACKSON
STATION: 10+62.00

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE #220 ON SR 1166
OVER CULLOWHEE CREEK

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

PROJECT REFERENCE NO.	SHEET NO.
BD-5114T	EC-2
R/W SHEET NO.	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

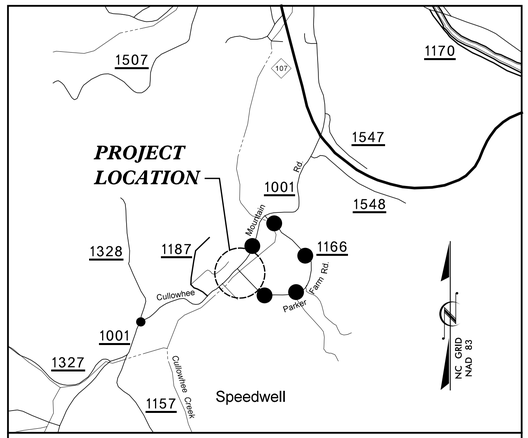
SOIL STABILIZATION TIMEFRAMES

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.

09/08/99

TIP PROJECT: BD–5114T

See Sheet 1A For Index of Sheets
See Sheet 1B For Standard Symbology Sheet



VICINITY MAP N.T.S.

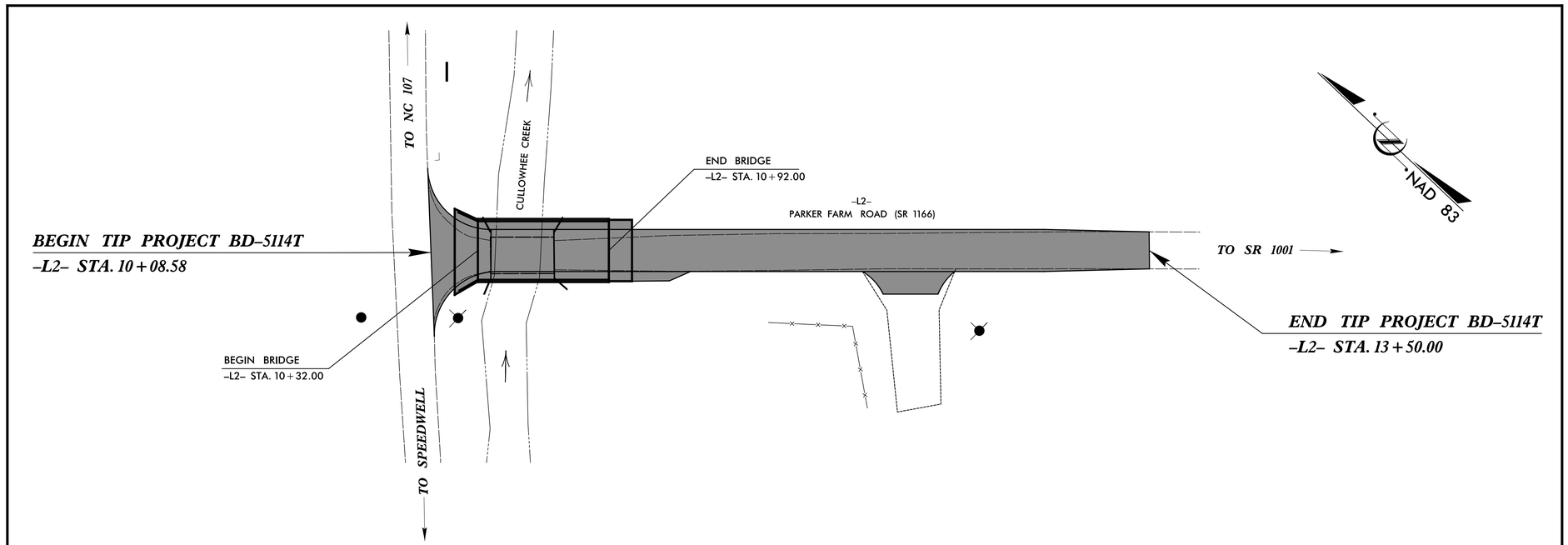
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

T.I.P. NO.	SHEET NO.
BD–5114T	UO–1

UTILITIES BY OTHERS PLANS
JACKSON COUNTY

LOCATION: BRIDGE #220 OVER CULLOWHEE CREEK ON SR 1001 (SPEEDWELL ROAD)

TYPE OF WORK: AERIAL POWER AND TELEPHONE



GRAPHIC SCALES

50 25 0 50 100
PLANS

INDEX OF SHEETS

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

UTILITY OWNERS ON PROJECT

(1) POWER – WESTERN CAROLINA UNIVERSITY
(2) TELEPHONE – FRONTIER COMMUNICATIONS

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER REECE M. SCHULER
12/10/13

V&M
Vaughn & Melton
Consulting Engineers
3089-L Beam Road
Charlotte, NC 28217
704-357-0488

PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES ENGINEERING SECTION
1591 MAIL SERVICES CENTER
RALEIGH NC 27699-1591
PHONE (919) 250-4128
FAX (919) 250-4119

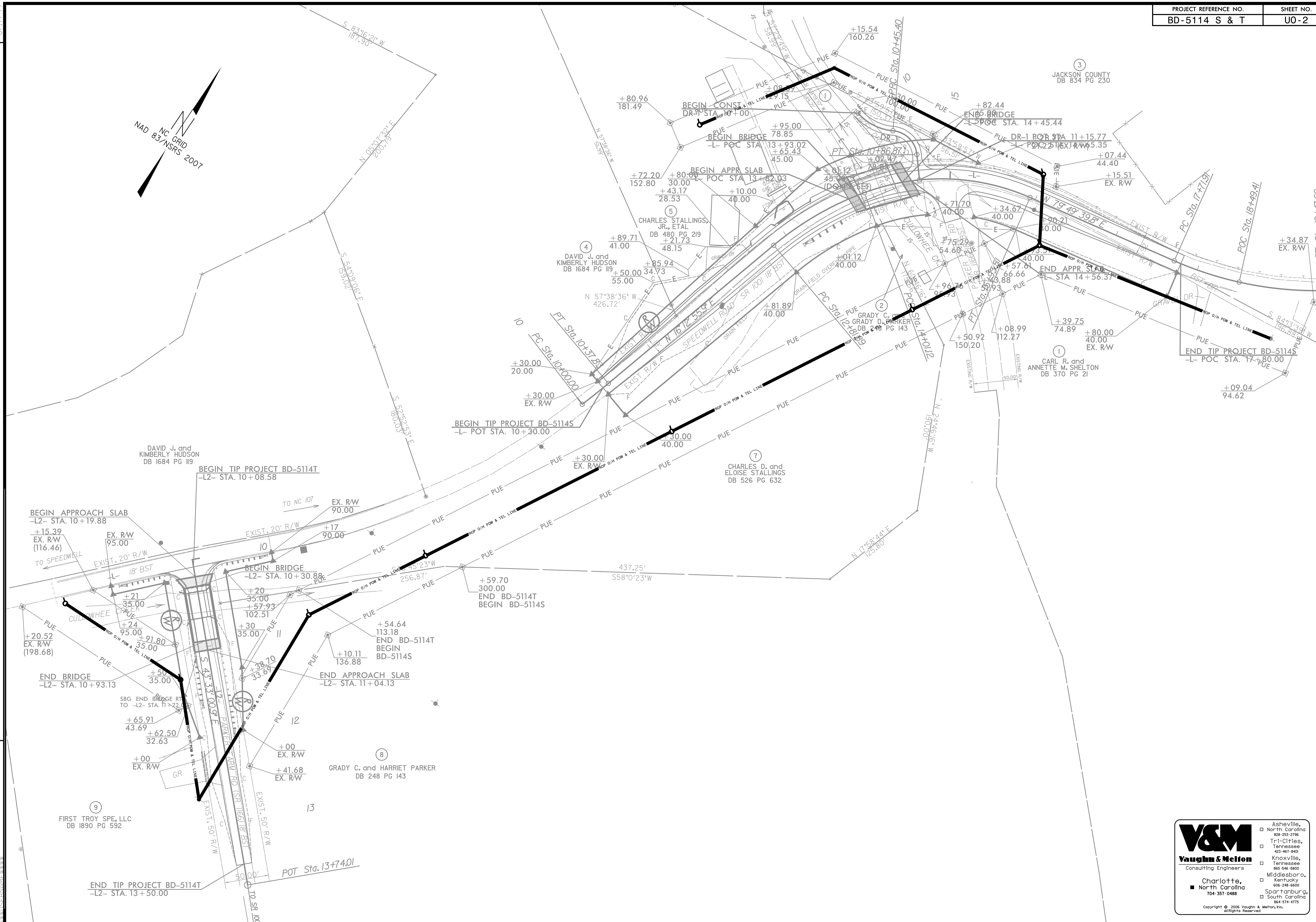
Roger Worthington, P.E. — *UTILITIES SECTION ENGINEER*
Xxxxx Xxxxx, P.E. — *UTILITIES SQUAD LEADER PROJECT ENGINEER*
Reece Schuler, PE — *UTILITIES PROJECT DESIGNER*

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

PROJECT REFERENCE NO.	SHEET NO.
BD-5114 S & T	U0-2

REVISIONS

1. Reduced PUE on Parcel 1, 3, 5, & 6. (6-18-2012) - RMS
2. Combined Parcels 9 & 10 into Parcel 9 and Changed Owner to First Troy SPE, LLC (4-23-2013) - JCG
3. Modified PUE on Parcel 8. Revised back property line on Parcel 5 and therefore no claim on Parcel 6. (7-26-2013) - RMS



NC GRID
NAD 83/NSRS 2007
JACKSON COUNTY
DB 834 PG 230
BEGIN CONST.
BEGIN BRIDGE
-L- POC STA. 13+93.02
BEGIN APPR. SLAB
-L- POC STA. 13+82.03
END BRIDGE
-L- POC STA. 14+45.44
END APPR. SLAB
-L- STA. 14+56.37
CHARLES STALLINGS, JR., ETAL
DB 480 PG 219
DAVID J. and KIMBERLY HUDSON
DB 1684 PG 119
GRADY C. and HARRIET PARKER
DB 248 PG 143
CARL R. and ANNETTE M. SHELTON
DB 370 PG 21
END TIP PROJECT BD-5114S
-L- POC STA. 17+80.00
BEGIN TIP PROJECT BD-5114S
-L- POT STA. 10+30.00
CHARLES D. and ELOISE STALLINGS
DB 526 PG 632
BEGIN TIP PROJECT BD-5114T
-L2- STA. 10+08.58
BEGIN APPROACH SLAB
-L2- STA. 10+19.88
BEGIN BRIDGE
-L2- STA. 10+30.88
END BRIDGE
-L2- STA. 10+93.13
END APPROACH SLAB
-L2- STA. 11+04.13
END BD-5114T
BEGIN BD-5114S
FIRST TROY SPE, LLC
DB 1890 PG 592
END TIP PROJECT BD-5114T
-L2- STA. 13+50.00
POT Sta. 13+74.01
TO SR 1001
TO NC 107
TO SPEEDWELL
SPEEDWELL ROAD SR 1001 18' BST
CULLOWHEE CREEK
EXIST. 20' R/W
EXIST. 50' R/W

Vaughn & Melton
Consulting Engineers
Charlotte, North Carolina 704-357-0488
Asheville, North Carolina 828-253-2796
Tri-Cities, Tennessee 423-467-8401
Knoxville, Tennessee 865-546-5800
Middlesboro, Kentucky 606-248-6600
Spartanburg, South Carolina 864-574-4775

COMPUTED BY: CBC DATE: 02-03-12
CHECKED BY: RMS DATE: 02-03-12

PROJECT REFERENCE NO.	SHEET NO.
BD-5114T	X-0

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

CROSS SECTION SUMMARY

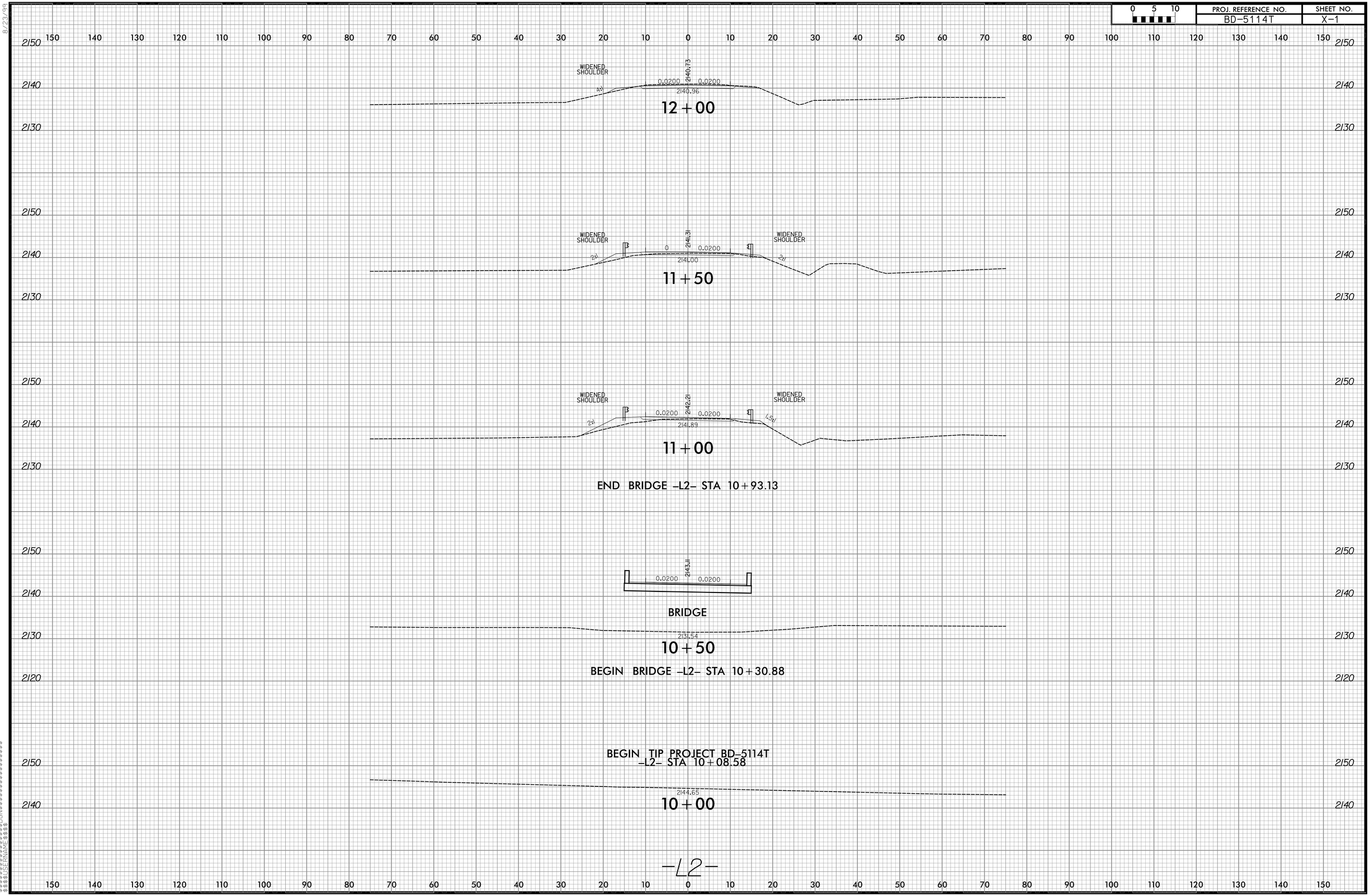
IN CUBIC YARDS

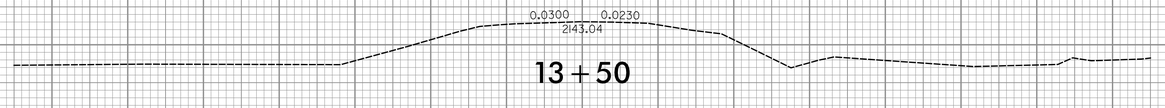
-L2- LOCATION	UNCLASSIFIED EXCAVATION	EMBT
10+08.58	0	0
10+30.88 BEGIN BRIDGE	31	0
10+93.13 END BRIDGE	16	58
11+00	8	34
11+50	12	31
12+00	26	13
12+50	41	2
13+00	38	0
13+50	0	0

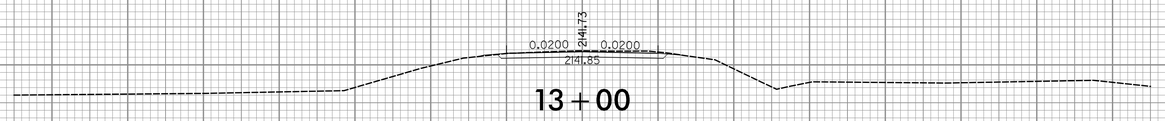
NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT.

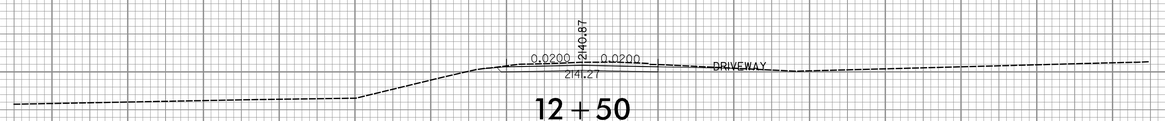
Approximate quantities only. Unclassified excavation, borrow excavation, fine grading, clearing and grubbing, and removal of existing pavement will be paid for at the contract lump sum price for "grading".

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
▮▮▮▮▮	BD-5114T	X-1









8/23/99

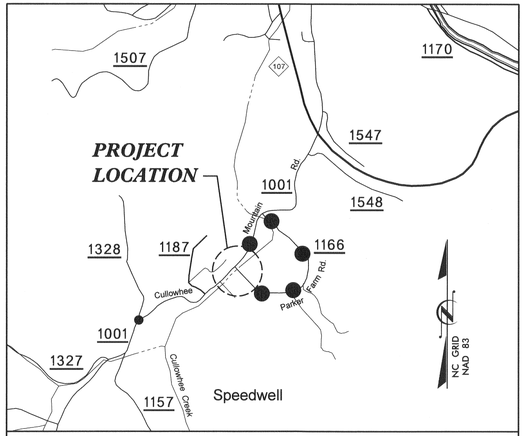
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	BD-5114T	X-2

END TIP PROJECT BD-5114T
-L2- STA 13 + 50.00

-L2-

TIP NO: BD-5114T

CONTRACT: DN00087



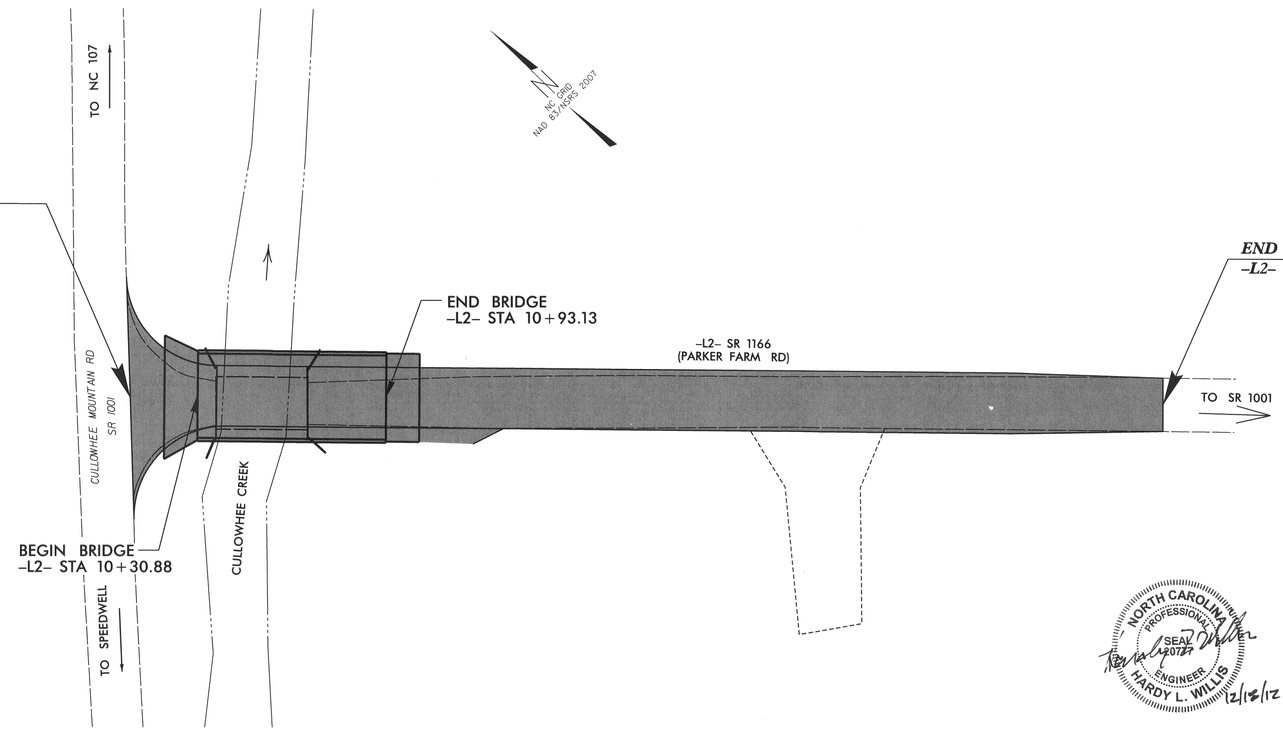
VICINITY MAP

DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
JACKSON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BD-5114T		

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
45360.1.20	BRZ-1166(9)	P.E.
45360.3.20	BRZ-1166(9)	CONST.



STRUCTURE

NORTH CAROLINA PROFESSIONAL SEAL 040724 ENGINEER HARDY L. WILLIS 12/18/12

Vaughn & Melton
Consulting Engineers

Asheville, North Carolina 828-253-2796
Charlotte, North Carolina 704-357-0488
Tri-Cities, Tennessee 423-467-8401
Knoxville, Tennessee 865-546-5800
Middlesboro, Kentucky 606-248-6600
Spartanburg, South Carolina 864-574-4775

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DESIGN DATA

ADT 2000 = 50
ADT 2025 = 100

V = 30 MPH

FUNCT. CLASS = RURAL LOCAL

PROJECT LENGTH

LENGTH ROADWAY OF F.A. PROJECT BRZ-1166(9) = .054 MI
LENGTH STRUCTURE OF F.A. PROJECT BRZ-1166(9) .011 MI
TOTAL LENGTH OF STATE PROJECT = .065 MI

Prepared In the Office of:
VAUGHN & MELTON
1318-F PATTON AVE.
ASHEVILLE NC, 28806
FOR THE NORTH CAROLINA DIVISION OF HIGHWAYS

2012 STANDARD SPECIFICATIONS

LETTING DATE :
MARCH 28, 2013

HARDY WILLIS, PE
PROJECT ENGINEER

AARON CARVER, PE
PROJECT DESIGN ENGINEER

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

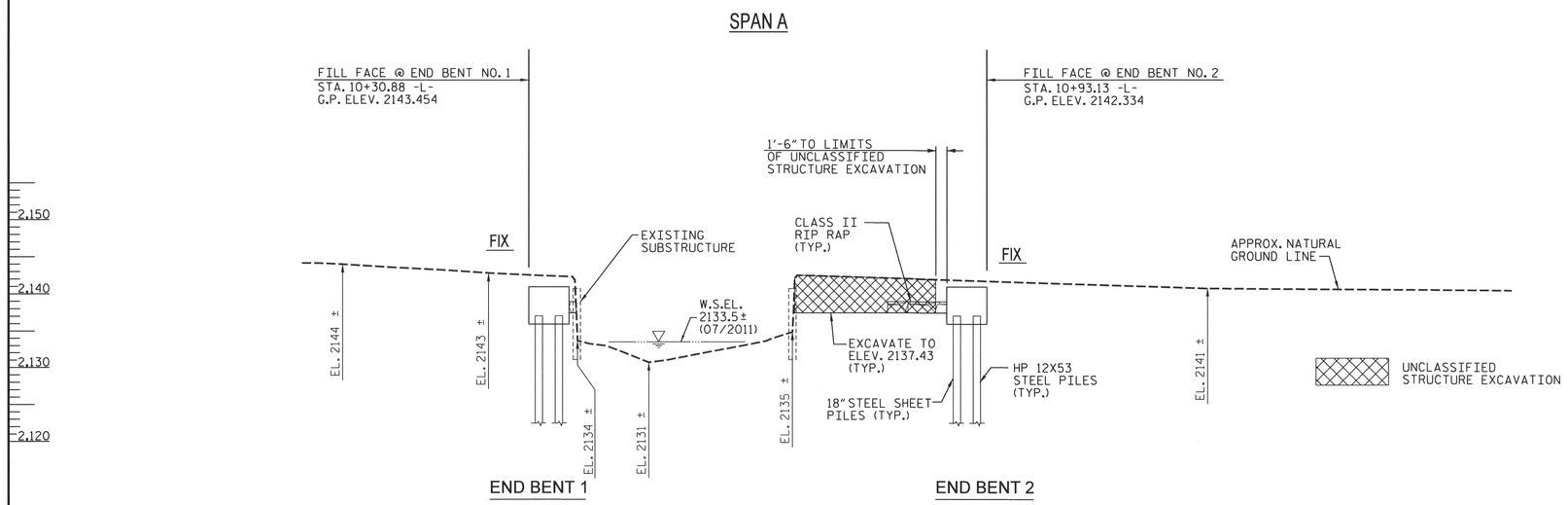
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

JOSH DEYTON *P.E.*
STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR *DATE*

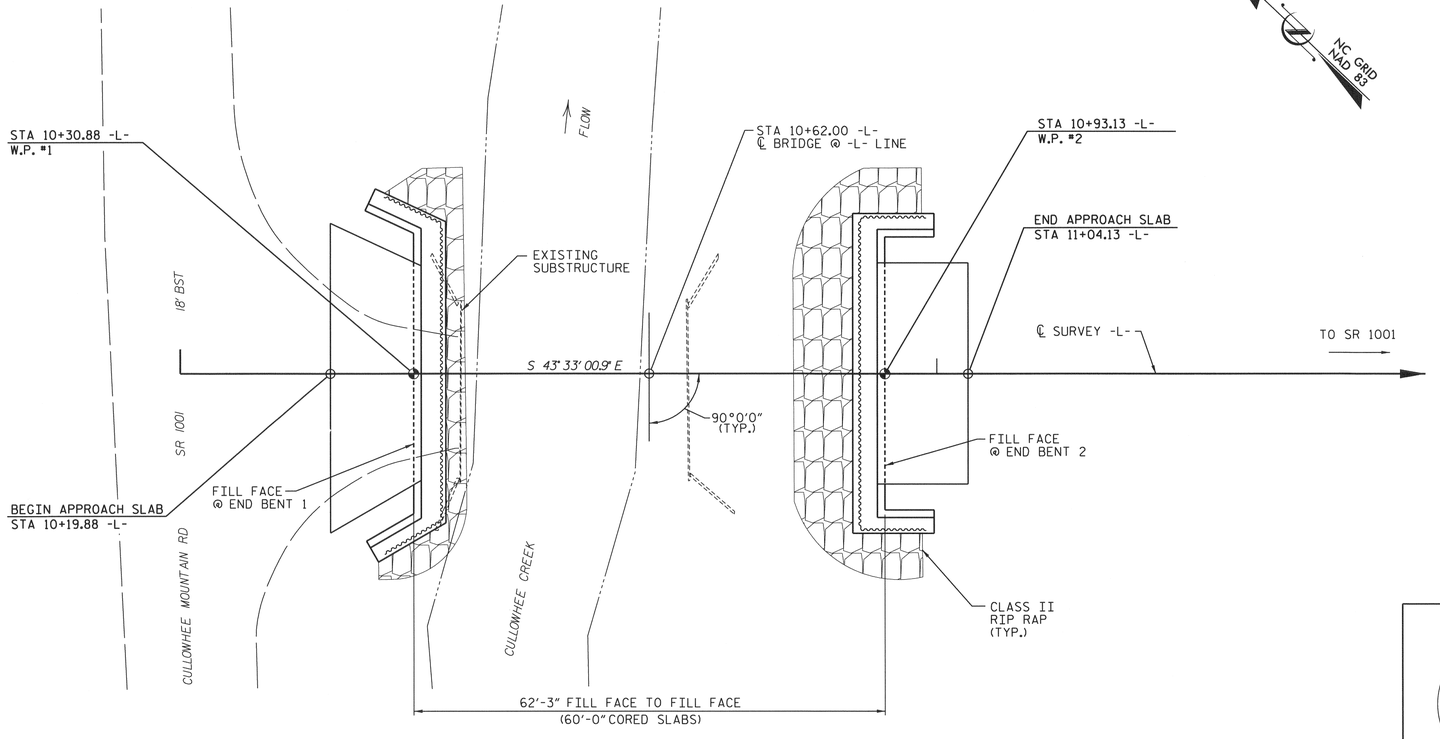
FEDERAL AID NO. BRZ-1166(9)



SECTION ALONG ℄ SURVEY -L-

SECTIONS AT END BENTS ARE AT RIGHT ANGLES.

THE APPROXIMATE NATURAL GROUND ELEVATIONS SHOWN ARE ALONG THE EDGE OF THE BRIDGE ON THE UPSTREAM SIDE.



PLAN ALONG ℄ SURVEY -L-

NOTES: END BENTS ARE PARALLEL.

PILES ARE NOT SHOWN IN PLAN VIEW FOR CLARITY.

PI = 12+30.00
EL = 2,139.87'
VC = 154'

GRADE DATA -L-

NORTH CAROLINA PROFESSIONAL SEAL 29776 ENGINEER HARDY L. WILLIS 12/18/12

I HEREBY CERTIFY THAT THESE PLANS ARE THE AS-BUILT PLANS.

V&M Vaughn & Melton Consulting Engineers
Asheville, North Carolina 828-253-2796
Charlotte, North Carolina 704-357-0488
Tri-Cities, Tennessee 423-467-8401
Knoxville, Tennessee 865-546-5800
Middlesboro, Kentucky 606-248-6600
Spartanburg, South Carolina 864-574-4775

DRAWN BY: MAF DATE: 10/2012
CHECKED BY: HLW DATE: 10/2012

PROJECT NO. BD-5114T

JACKSON COUNTY

STATION: 10+62.00 -L-

SHEET 1 OF 2 REPLACES BRIDGE NO. 220

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

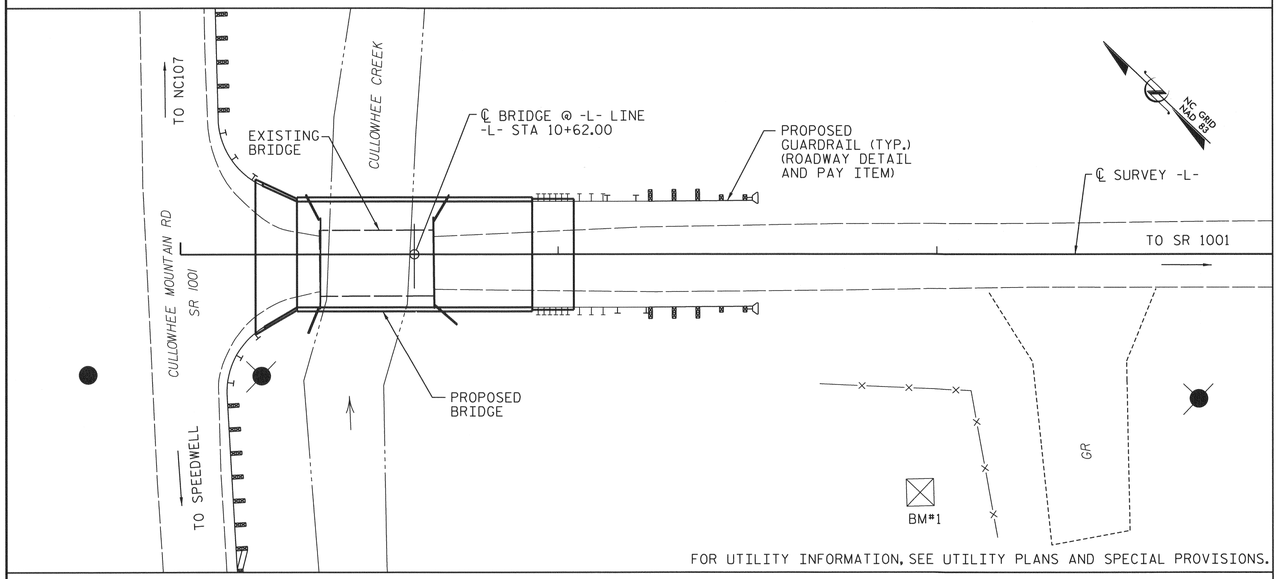
GENERAL DRAWING

FOR BRIDGE on SR 1166
(PARKER FARM RD.)
over CULLOWHEE CREEK
Between SR 1001 and SR 1001

OCT. 2012

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			15

BM#1 N 585319.4689 E 752307.1089 ELEV. = 2139.84 -L- STATION 11+95.52 62.90' RT



LOCATION SKETCH

GENERAL NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE "STANDARD NOTES" SHEET

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

THE EXISTING STRUCTURE, CONSISTING OF A SINGLE SPAN, 30 FOOT LONG TIMBER DECK ON STEEL I-BEAMS, 18-FEET WIDE, ON WOOD PILES AND VERTICAL ABUTMENTS ,AND LOCATED AT THE PROPOSED STRUCTURE,SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18, EVALUATING SCOUR AT BRIDGES."

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 25 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO. 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 95 TONS PER PILE.

DRIVE PILES AT END BENT NO. 1 TO A REQUIRED DRIVING RESISTANCE OF 158 TONS PER PILE.

PILES AT END BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 95 TONS PER PILE.

DRIVE PILES AT END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 158 TONS PER PILE.

PZ-27 SHEET PILES SHALL BE PLACED IN FRONT OF HP12X53 PILES FOR STABILITY AT END BENTS NO. 1 AND NO. 2.

SHEET PILES SHALL BE INSTALLED TO AN ELEVATION OF 2127.0 FT. OR REFUSAL AS DIRECTED BY THE ENGINEER AT END BENT NO. 1 TO ACCOUNT FOR SCOUR IMPACT AT END BENT NO. 1.

SHEET PILES SHALL BE INSTALLED TO AN ELEVATION OF 2124.0 FT. OR REFUSAL AS DIRECTED BY THE ENGINEER AT END BENT NO. 2 TO ACCOUNT FOR SCOUR IMPACT AT END BENT NO. 2.

SHEET PILES ARE DESIGNED FOR A SCOUR ELEVATION OF 2130.0 FT. AT END BENT NO. 1 AND 2132.5 FT. AT END BENT NO. 2.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 10+60".

HYDRAULIC DATA

DESIGN DISCHARGE	= 3110 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 2142.33 FT
BASE DISCHARGE	= 4600 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 2143.31 FT

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 1784 CFS
OVERTOPPING FREQUENCY	= 5 YRS
OVERTOPPING ELEVATION	= 2140.38 FT
DRAINAGE AREA	= 18.4 SQ MI

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES		18" STEEL SHEET PILES		VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" x 2'-0" PRESTRESSED CONCRETE CORED SLAB UNIT	
	LUMP SUM	LUMP SUM	CU. YARDS	LUMP SUM	LBS.	NO.	LIN. FT.	NO.	SQ. FT.	LIN. FT.	TONS	SQ. YARDS	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE										120.25			LUMP SUM	10	600.0
END BENT 1		LUMP SUM	22.0		2,794	5	65	40	713		100	110			
END BENT 2		LUMP SUM	21.5		2,484	5	75	39	796		115	130			
TOTAL	LUMP SUM	LUMP SUM	43.5	LUMP SUM	5,278	10	140	79	1,509	120.25	215	240	LUMP SUM	10	600.0

NORTH CAROLINA PROFESSIONAL SEAL 20727 ENGINEER HARDY L. WILLIS 12/18/12

PROJECT NO. BD-5114T

JACKSON COUNTY

STATION: 10+62.00 -L-

SHEET 2 OF 2

V&M Vaughn & Melton Consulting Engineers
Asheville, North Carolina 828-253-2796
Charlotte, North Carolina 704-357-0488
Tri-Cities, Tennessee 423-467-8401
Knoxville, Tennessee 865-546-5800
Middlesboro, Kentucky 606-248-6600
Spartanburg, South Carolina 864-574-4775

DRAWN BY: MAF DATE: 10/2012

CHECKED BY: HLW DATE: 10/2012

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE on SR 1166
(PARKER FARM RD.)
over CULLOWHEE CREEK
Between SR 1001 and SR 1001

OCT. 2012

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-2

TOTAL SHEETS 15

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER
								MOMENT					SHEAR					MOMENT						
							LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93(Inv)	N/A	**1**	1.33	--	1.75	0.275	1.33	60'	EL	29.5	0.52	**1.33**	60'	EL	**5.9**	0.80	0.275	1.37	60'	EL	29.5	
		HL-93(Opr)	N/A	--	1.725	--	1.35	0.275	1.73	60'	EL	29.5	0.52	1.72	60'	EL	5.9	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	**2**	1.601	57.643	1.75	0.275	1.69	60'	EL	29.5	0.52	**1.6**	60'	EL	**5.9**	0.80	0.275	1.74	60'	EL	29.5	
		HS-20(Opr)	36.000	--	2.076	74.723	1.35	0.275	2.19	60'	EL	29.5	0.52	2.08	60'	EL	5.9	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.745	50.557	1.4	0.275	4.55	60'	EL	29.5	0.52	4.63	60'	EL	5.9	0.80	0.275	3.74	60'	EL	29.5	
		SNGARBS2	20.000	--	2.867	57.338	1.4	0.275	3.48	60'	EL	29.5	0.52	3.33	60'	EL	5.9	0.80	0.275	2.87	60'	EL	29.5	
		SNAGRIS2	22.000	--	2.748	60.46	1.4	0.275	3.34	60'	EL	29.5	0.52	3.11	60'	EL	5.9	0.80	0.275	2.75	60'	EL	29.5	
		SNCOTTS3	27.250	--	1.866	50.841	1.4	0.275	2.27	60'	EL	29.5	0.52	2.31	60'	EL	5.9	0.80	0.275	1.87	60'	EL	29.5	
		SNAGGRS4	34.925	--	1.588	55.465	1.4	0.275	1.93	60'	EL	29.5	0.52	1.95	60'	EL	5.9	0.80	0.275	1.59	60'	EL	29.5	
		SNS5A	35.550	--	1.551	55.139	1.4	0.275	1.89	60'	EL	29.5	0.52	1.99	60'	EL	5.9	0.80	0.275	1.55	60'	EL	29.5	
		SNS6A	39.950	--	1.435	57.347	1.4	0.275	1.74	60'	EL	29.5	0.52	1.83	60'	EL	5.9	0.80	0.275	1.44	60'	EL	29.5	
		SNS7B	42.000	--	1.367	57.434	1.4	0.275	1.66	60'	EL	29.5	0.52	1.81	60'	EL	5.9	0.80	0.275	1.37	60'	EL	29.5	
	TTST	TNAGRIT3	33.000	--	1.754	57.887	1.4	0.275	2.13	60'	EL	29.5	0.52	2.17	60'	EL	5.9	0.80	0.275	1.75	60'	EL	29.5	
		TNT4A	33.075	--	1.765	58.389	1.4	0.275	2.15	60'	EL	29.5	0.52	2.1	60'	EL	5.9	0.80	0.275	1.77	60'	EL	29.5	
		TNT6A	41.600	--	1.456	60.551	1.4	0.275	1.77	60'	EL	29.5	0.52	1.96	60'	EL	5.9	0.80	0.275	1.46	60'	EL	29.5	
		TNT7A	42.000	--	1.469	61.714	1.4	0.275	1.79	60'	EL	29.5	0.52	1.88	60'	EL	5.9	0.80	0.275	1.47	60'	EL	29.5	
		TNT7B	42.000	--	1.535	64.463	1.4	0.275	1.87	60'	EL	29.5	0.52	1.76	60'	EL	5.9	0.80	0.275	1.53	60'	EL	29.5	
		TNAGRIT4	43.000	--	1.45	62.329	1.4	0.275	1.76	60'	EL	29.5	0.52	1.7	60'	EL	5.9	0.80	0.275	1.45	60'	EL	29.5	
		TNAGT5A	45.000	--	1.361	61.247	1.4	0.275	1.65	60'	EL	29.5	0.52	1.71	60'	EL	5.9	0.80	0.275	1.36	60'	EL	29.5	
		TNAGT5B	45.000	**3**	1.34	60.282	1.4	0.275	1.63	60'	EL	29.5	0.52	1.61	60'	EL	5.9	0.80	0.275	**1.34**	60'	EL	**29.5**	

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

1.
2.
3.
4.

(#) CONTROLLING LOAD RATING

(1) DESIGN LOAD RATING (HL-93)

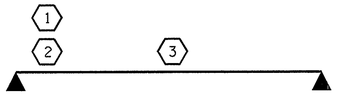
(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY

FOR SPAN A

PROJECT NO. BD-5114T

JACKSON COUNTY

STATION: 10+62.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR 60' CORED SLAB UNIT 90° SKEW

(NON-INTERSTATE TRAFFIC)

NORTH CAROLINA PROFESSIONAL SEAL 15779 ENGINEER JOHN R. DUGGINS, JR.
10/19/12

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			15

ASSEMBLED BY :	BMATHEW	DATE : 12/2011
CHECKED BY :	HKIM	DATE : 01/12
DRAWN BY : CVC	6/10	
CHECKED BY : DNS	6/10	

19-OCT-2012 14:22
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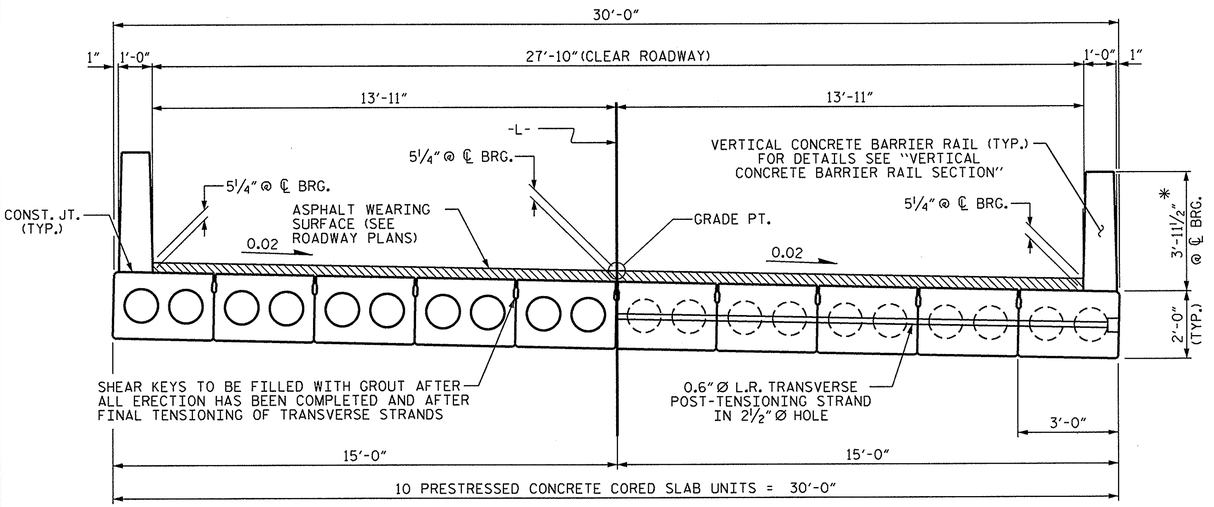
jduggins

STD. NO. 24LRFR1_90S_60L



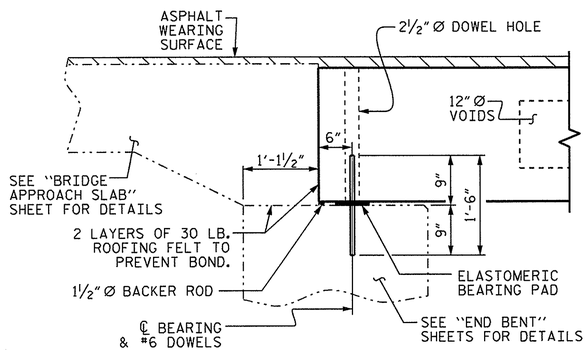
HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

HALF SECTION
THROUGH VOIDS

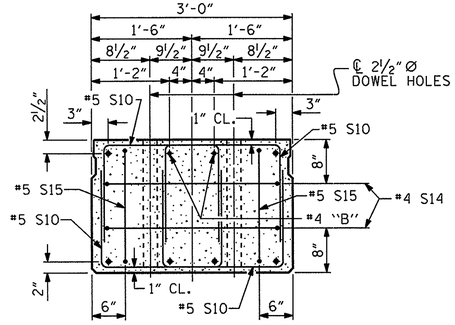
TYPICAL SECTION

* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS, SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.

FIXED END

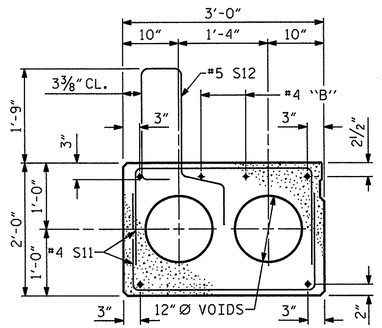


SECTION AT END BENT



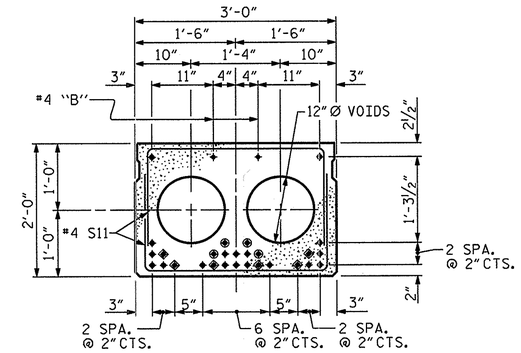
END ELEVATION

SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.



EXTERIOR SLAB SECTION

(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



INTERIOR SLAB SECTION (60' UNIT)

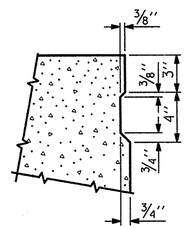
(24 STRANDS REQUIRED)

0.6'' Ø LOW RELAXATION STRAND LAYOUT

◈ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 12'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

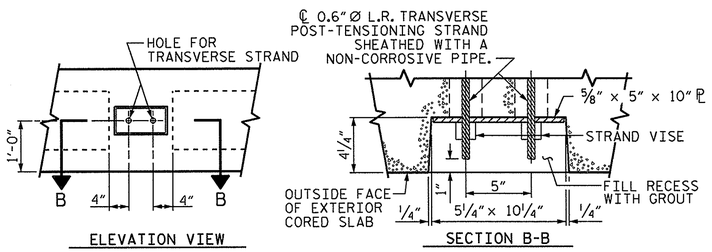
◉ OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND



SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.



GROUTED RECESS AT END OF POST-TENSIONED STRAND-CORED SLABS

PROJECT NO. BD-5114T

JACKSON COUNTY

STATION: 10+62.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

3'-0'' X 2'-0'' PRESTRESSED CONCRETE CORED SLAB UNIT

NORTH CAROLINA PROFESSIONAL SEAL 15779 ENGINEER JOHN R. DUGGINS, JR.
10/19/12

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			15

ASSEMBLED BY :	BMATHEW	DATE :	11/2011
CHECKED BY :	H KIM	DATE :	01/2012
DRAWN BY : MAA	6/10	REV. 12/11	MAA/AAC
CHECKED BY : MKT	7/10		

19-OCT-2012 14:20
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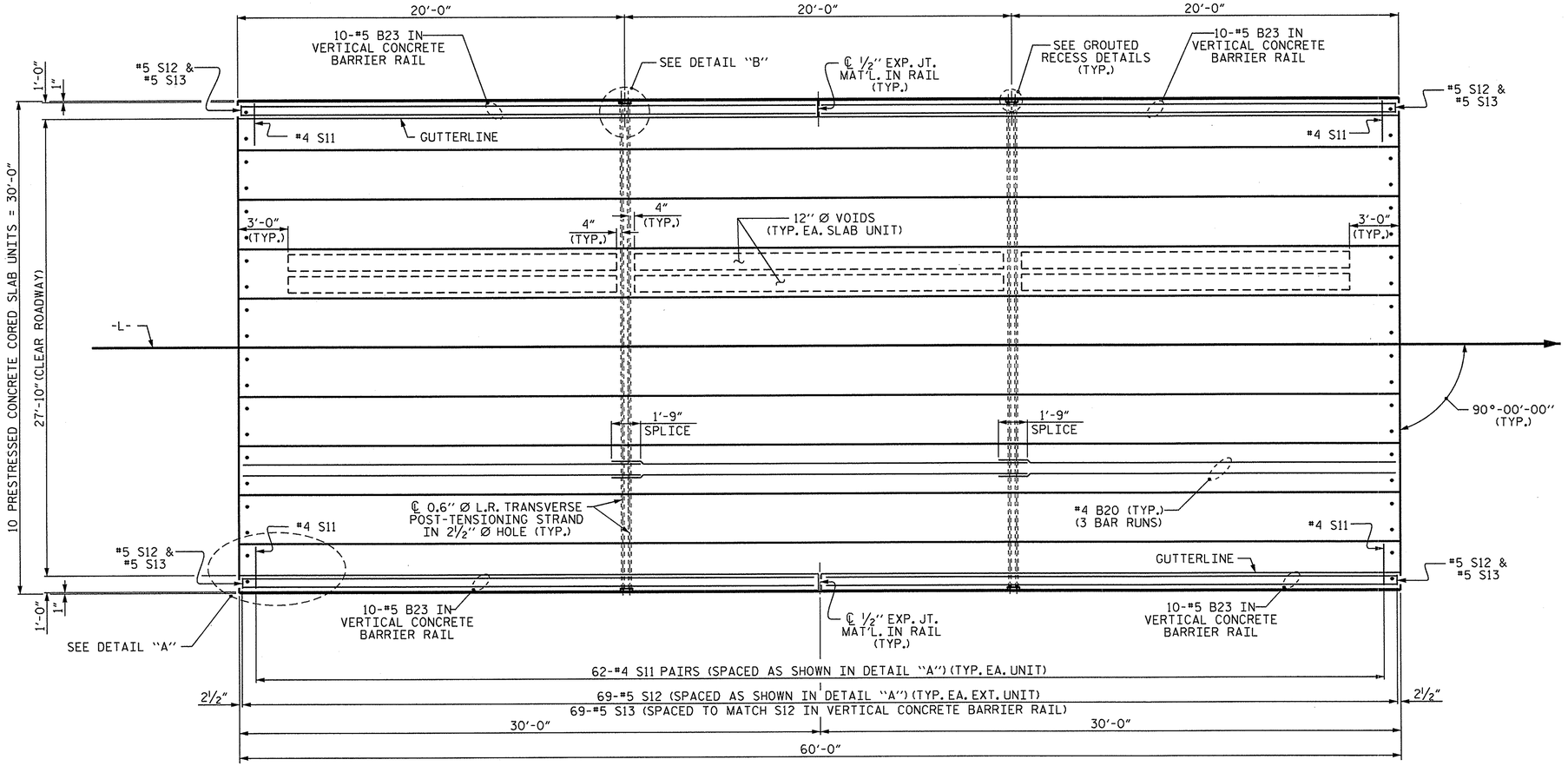
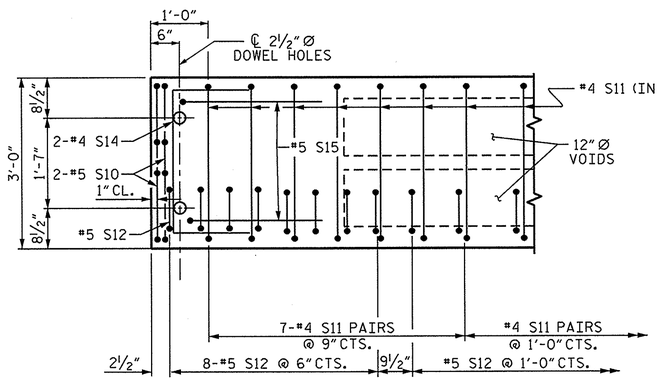
jduggins

STD. NO. 24PCS4_30_90S

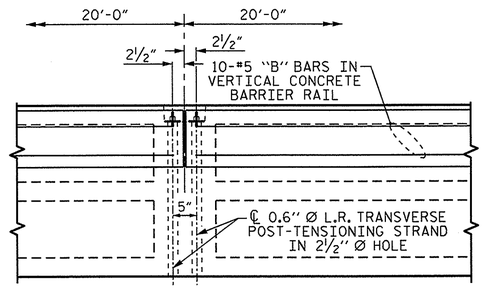


PLAN OF UNIT



DETAIL "A"

NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS.



DETAIL "B"

#4 S11 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUTED RECESS AND 2½" Ø TRANSVERSE POST-TENSIONING STRAND HOLES

ASSEMBLED BY :	BMATHEW	DATE :	12/2011
CHECKED BY :	H KIM	DATE :	01/2012
DRAWN BY : MAA	6/10	REV. 12/5/11	MAA/AAC
CHECKED BY : MKT	7/10		

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jduggins

PROJECT NO. BD-5114T

JACKSON COUNTY

STATION: 10+62.00 -L-

SHEET 2 OF 3

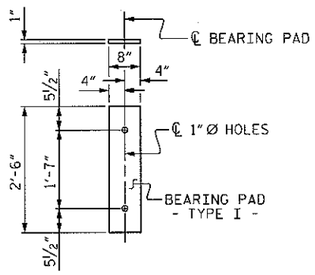
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 60' UNIT 27'-10" CLEAR ROADWAY 90° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 15779 ENGINEER JOHN R. DUGGINS, JR.
10/19/12

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			15

STD. NO. 24PCS_30_90S_60L



FIXED END
(TYPE I - 20 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

BILL OF MATERIAL FOR ONE 60' CORED SLAB UNIT

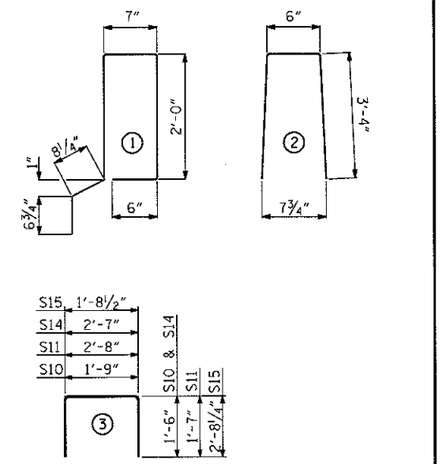
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B20	6	#4	STR	21'-2"	85	21'-2"	85
S10	8	#5	3	4'-9"	40	4'-9"	40
S11	124	#4	3	5'-10"	483	5'-10"	483
*S12	69	#5	1	6'-4"	456		
S14	4	#4	3	5'-7"	15	5'-7"	15
S15	4	#5	3	7'-1"	30	7'-1"	30
REINFORCING STEEL			LBS.		653		653
*EPOXY COATED REINFORCING STEEL			LBS.		456		
6000 P.S.I. CONCRETE			CU. YDS.		10.2		10.2
0.6"Ø L.R. STRANDS			No.		24		24

DEAD LOAD DEFLECTION AND CAMBER

	3'-0" x 2'-0"
60' CORED SLAB UNIT	0.6"Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	3⅜" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	½" ↓
FINAL CAMBER	2⅞" ↑

** INCLUDES FUTURE WEARING SURFACE

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS 60' UNIT	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
*B23	40	40	#5	STR	29'-7"	1234
*S13	138	138	#5	2	7'-2"	1032
*EPOXY COATED REINFORCING STEEL				LBS.		2266
CLASS AA CONCRETE				CU.YDS.		16.2
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		120.25

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
60' UNITS	2⅜"	3'-8⅝"

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2½"Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAILS SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

GROOVED CONTRACTION JOINTS, ½" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

TRANSVERSE POST TENSIONING OF THE CORED SLAB UNITS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

MAINTAIN A SYMMETRIC TENSION FORCE BETWEEN EACH PAIR OF TRANSVERSE POST TENSIONING STRANDS IN THE DIAPHRAGM.

THE #4 S11 STIRRUPS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO THE GROUTED RECESS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

CONCRETE RELEASE STRENGTH

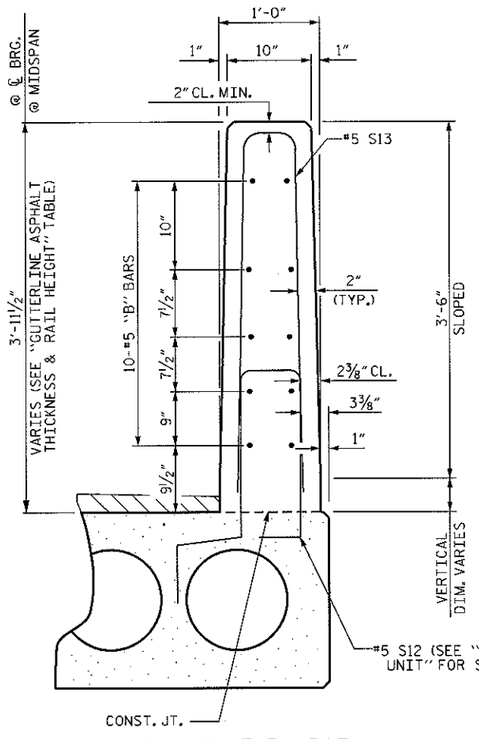
UNIT	PSI
60' UNITS	4800

CORED SLABS REQUIRED

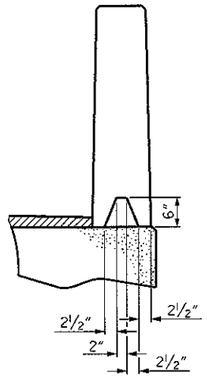
	NUMBER	LENGTH	TOTAL LENGTH
60' UNIT			
EXTERIOR C.S.	2	60'-0"	120'-0"
INTERIOR C.S.	8	60'-0"	480'-0"
TOTAL	10		600'-0"

GRADE 270 STRANDS

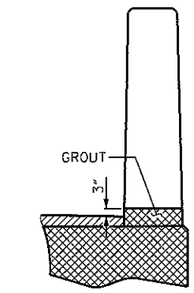
	0.6"Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950



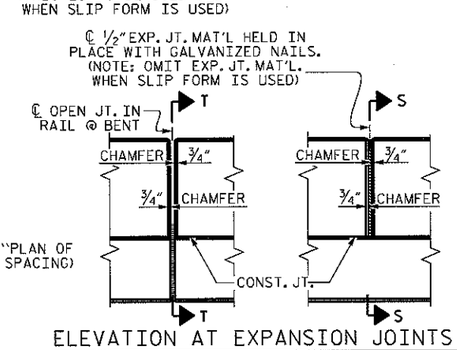
SECTION THRU RAIL



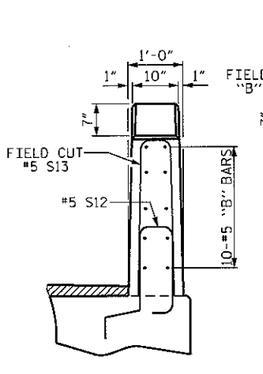
SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)



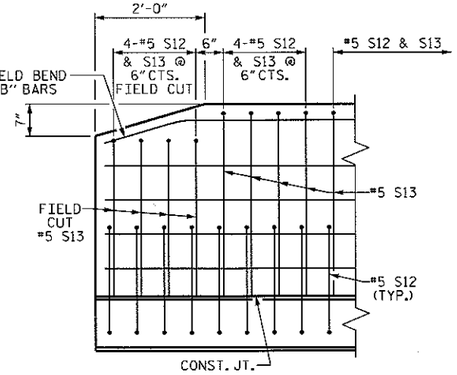
SECTION T-T
AT OPEN JOINT AT BENT
(THIS IS TO BE USED WHERE FOAM JOINT IS NOT USED)



ELEVATION AT EXPANSION JOINTS



END VIEW



SIDE VIEW

END OF RAIL DETAILS

VERTICAL CONCRETE BARRIER RAIL DETAILS

ASSEMBLED BY :	BMATHEW	DATE :	12/2011
CHECKED BY :	H KIM	DATE :	01/2012
DRAWN BY : MAA	6/10	REV. 12/11	MAA/AAC
CHECKED BY : MKT	7/10		

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amlee

NORTH CAROLINA PROFESSIONAL SEAL 17230 ENGINEER WAEL S. ARAFAT

Wael S. Arafat 11-18-13

PROJECT NO. BD-5114T
JACKSON COUNTY
STATION: 10+62.00 -L-

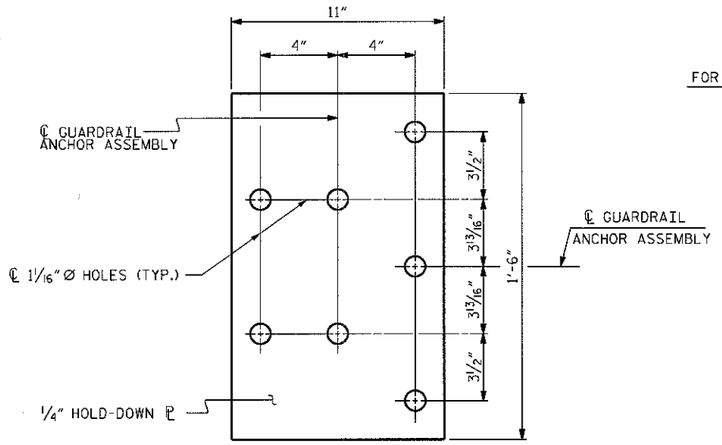
SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

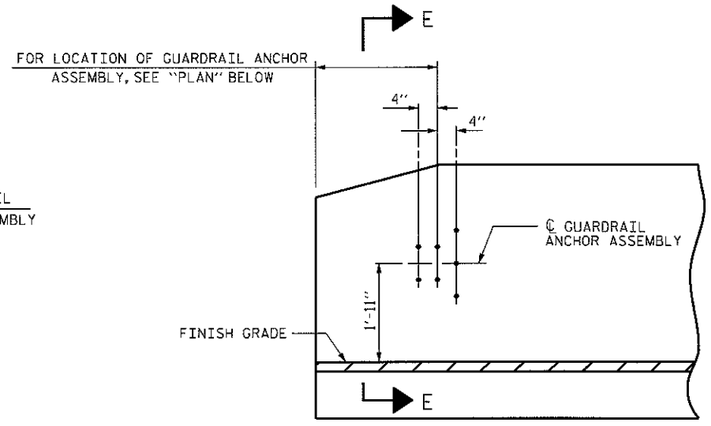
STANDARD
3'-0" X 2'-0"
PRESTRESSED CONCRETE
CORED SLAB UNIT

REVISIONS NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1	AML	11-18-13	3			S-6
2			4			TOTAL SHEETS 15

STD. NO. 24PCS3_30_90S



PLAN



ELEVATION

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

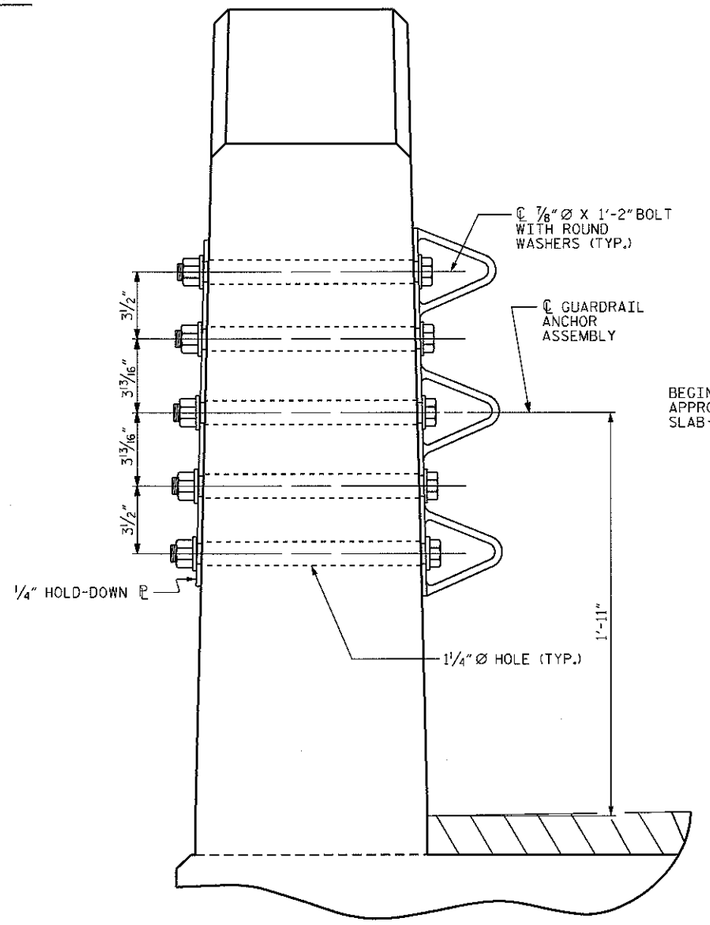
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

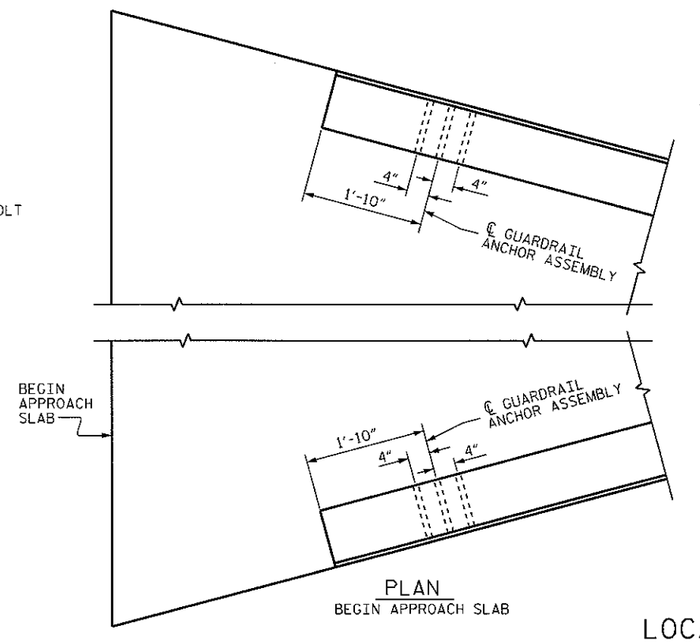
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

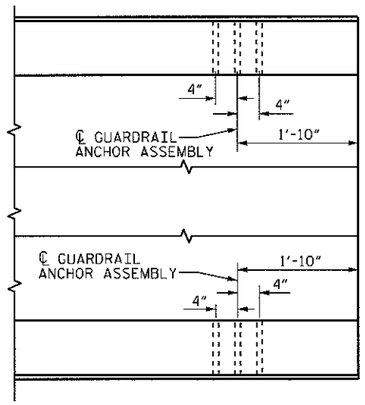


SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS

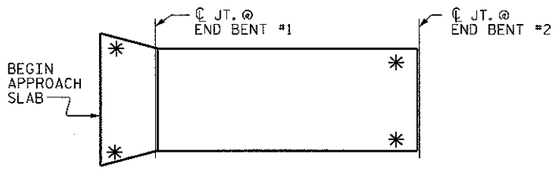


PLAN
BEGIN APPROACH SLAB



PLAN
END BENT #2

LOCATION OF ANCHORS FOR GUARDRAIL



SKETCH SHOWING POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

NORTH CAROLINA PROFESSIONAL SEAL 17230 ENGINEER WAEL S. ARAFAT

Wael S. Arafat 11-18-13

PROJECT NO. BD-5114T
JACKSON COUNTY
STATION: 10+62.00-L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
GUARDRAIL ANCHORAGE FOR VERTICAL CONCRETE BARRIER RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1	AML	11-18-13	3			TOTAL SHEETS
2			4			15

ASSEMBLED BY : H. T. BARBOUR	DATE : 9-28-12	ADDED 5/6/10	
CHECKED BY : J.R. DUGGINS	DATE : 9-12	REV. 10/1/11	MAA/GM
DRAWN BY : MAA 5/10		REV. 12/5/11	MAA/GM
CHECKED BY : GM 5/10			

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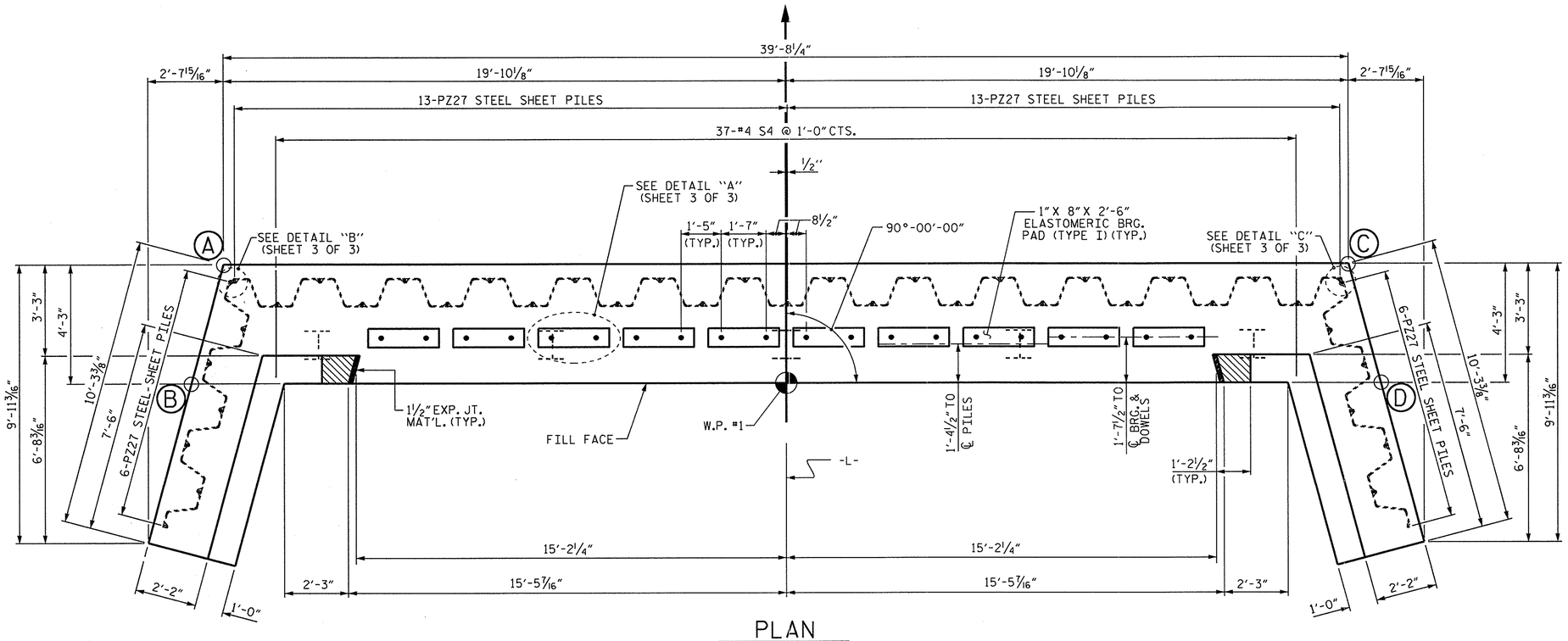
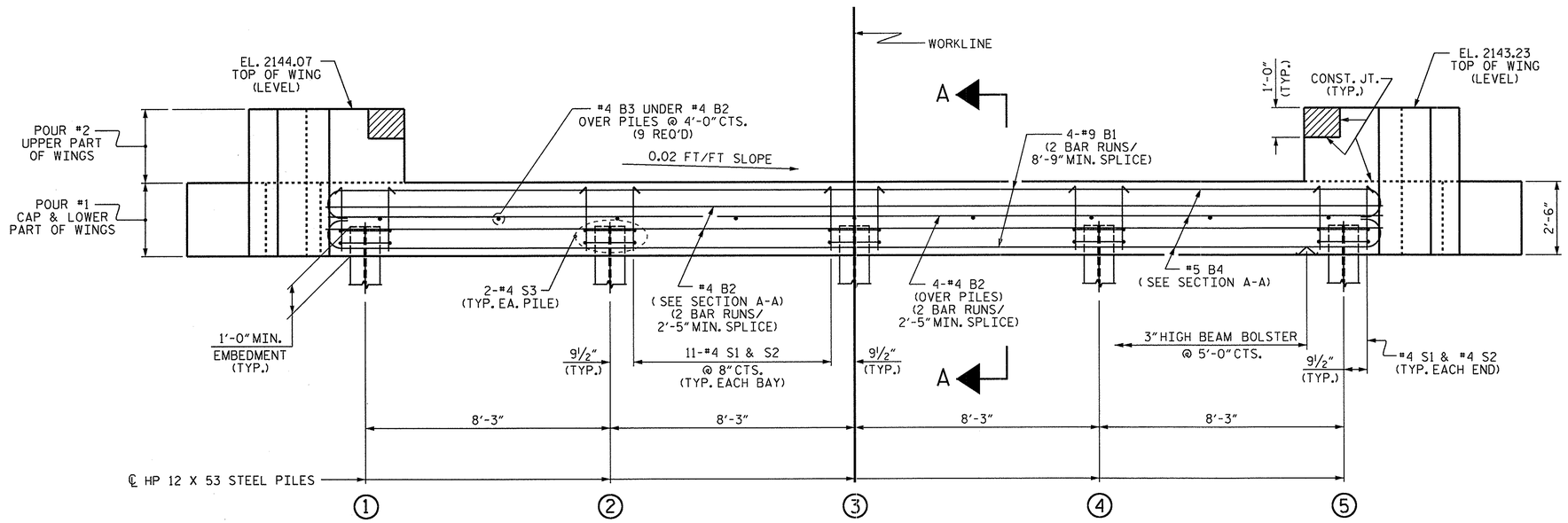
amlee

(SHT 1) STD. NO. GRA3



PLAN



ELEVATION

SHEET PILES NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 3 OF 3.

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 3 OF 3.

FOR WING DETAILS, SEE SHEET 2 OF 3.

	TOP OF CAP ELEVATIONS	BOTT. OF CAP ELEVATIONS
A	2141.30	2138.80
B	2141.32	2138.82
C	2140.51	2138.01
D	2140.48	2137.98

TOP OF PILE ELEVATIONS	
①	2139.74
②	2139.57
③	2139.41
④	2139.24
⑤	2139.08

PROJECT NO. BD-5114T

JACKSON COUNTY

STATION: 10+62.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT # 1

NORTH CAROLINA PROFESSIONAL SEAL 15779 ENGINEER JOHN R. DUGGINS, JR.
12/10/12

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			15

DRAWN BY : B.N. GRADY DATE : 3/2012
CHECKED BY : J.R. DUGGINS DATE : 10/12

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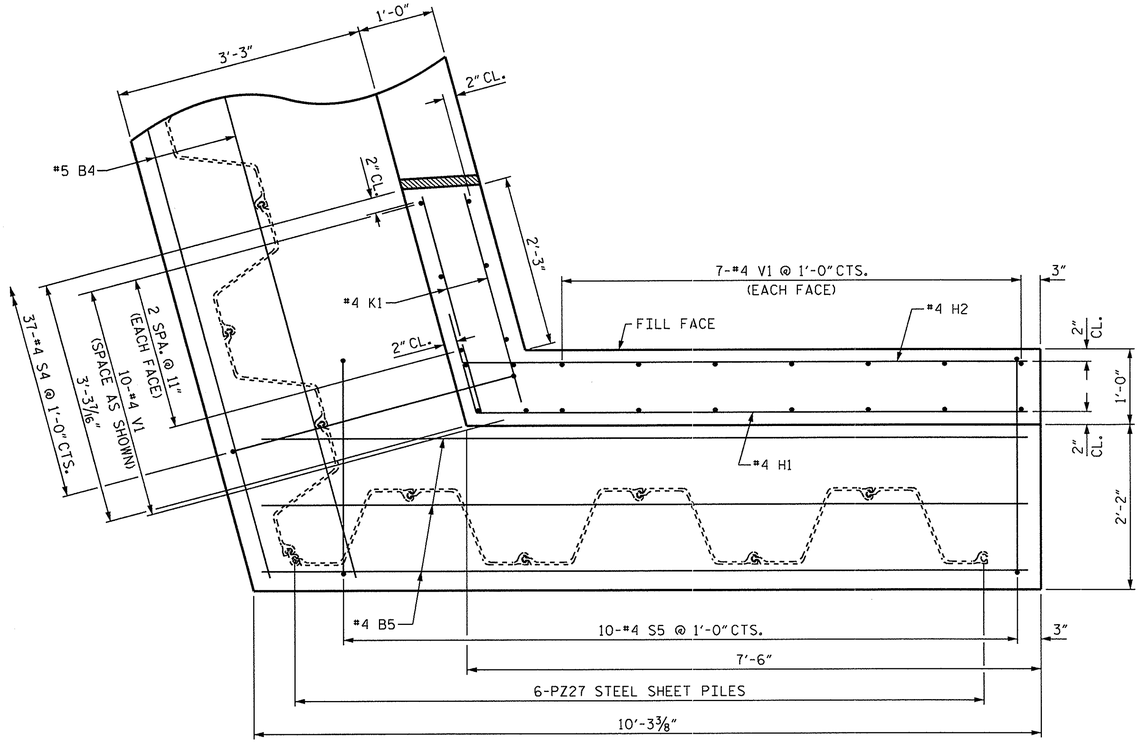
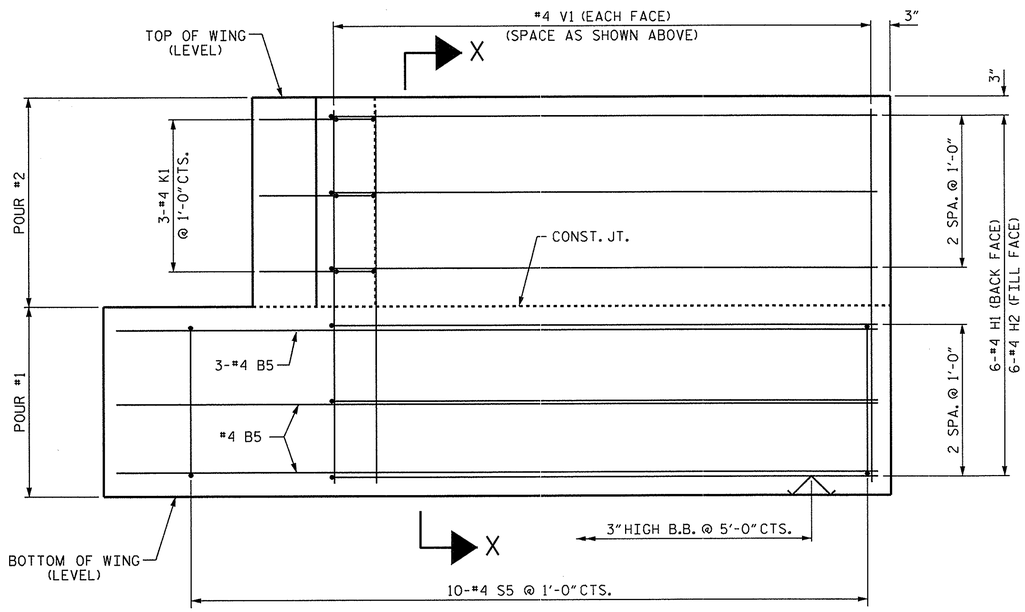
jduggins



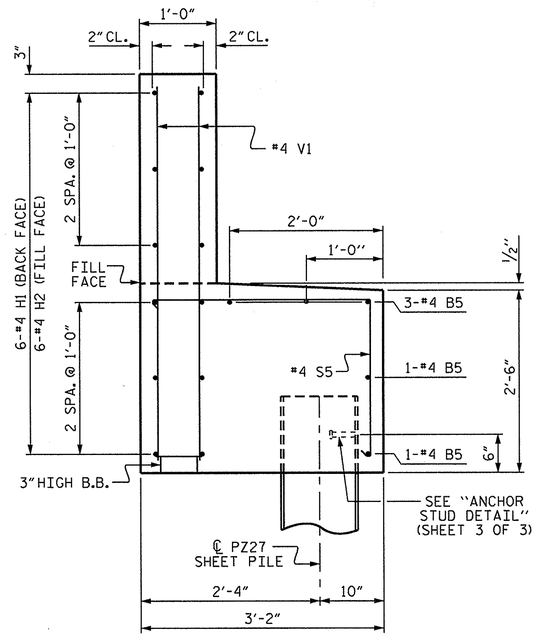
PLAN OF WING

(LEFT WING SHOWN, RIGHT WING SIMILAR)



ELEVATION OF WING

(SHEET PILES NOT SHOWN FOR CLARITY)



SECTION X-X

PROJECT NO. BD-5114T

JACKSON COUNTY

STATION: 10+62.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT # 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			15

NORTH CAROLINA PROFESSIONAL SEAL 15779 ENGINEER JOHN R. DUGGINS, JR.
12/10/12

DRAWN BY : B.N. GRADY DATE : 3/2012
CHECKED BY : J.R. DUGGINS DATE : 10/12

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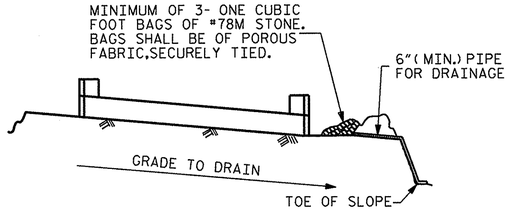
jduggins

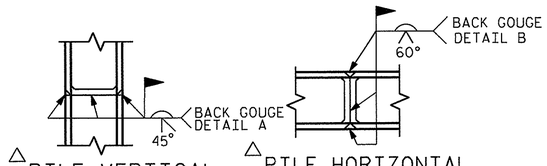


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

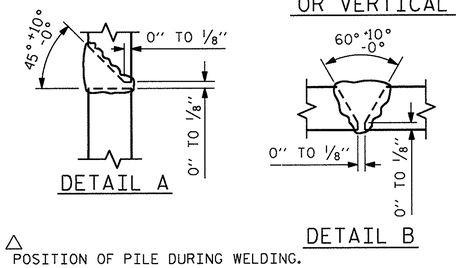
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



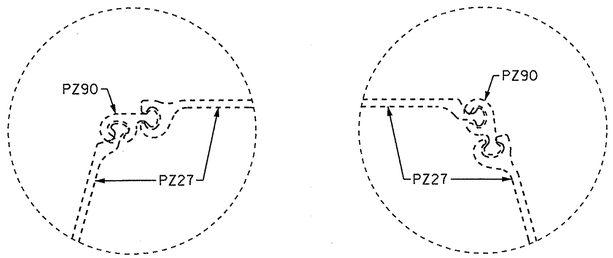
△ PILE VERTICAL

△ PILE HORIZONTAL OR VERTICAL



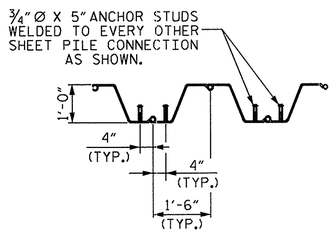
△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

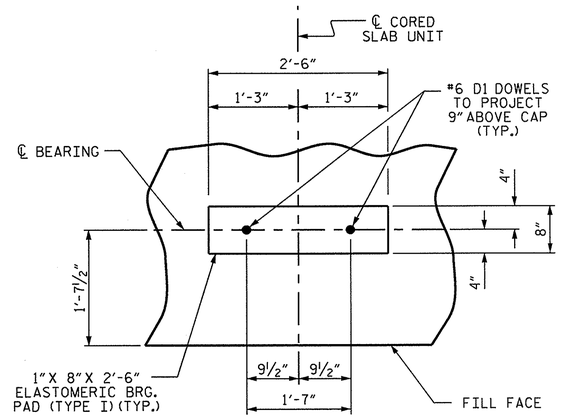


DETAIL "B"

DETAIL "C"

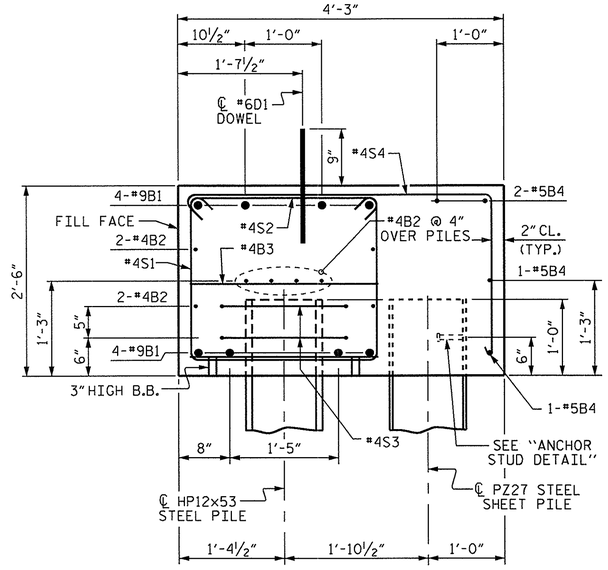


ANCHOR STUD DETAIL



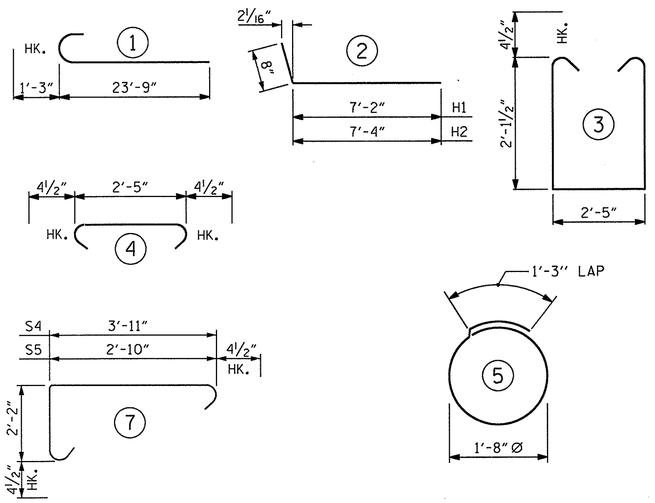
DETAIL "A"

END BENT #1 SHOWN, END BENT #2 SIMILAR BY ROTATION



SECTION A-A

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	16	#9	1	25'-0"	1360
B2	16	#4	STR	20'-9"	222
B3	9	#4	STR	2'-5"	15
B4	4	#5	STR	39'-4"	164
B5	10	#4	STR	9'-11"	66
D1	20	#6	STR	1'-6"	45
H1	12	#4	2	7'-10"	63
H2	12	#4	2	8'-0"	64
K1	12	#4	STR	2'-11"	23
S1	46	#4	3	7'-5"	228
S2	46	#4	4	3'-2"	97
S3	10	#4	5	6'-6"	43
S4	37	#4	7	6'-10"	169
S5	20	#4	7	5'-9"	77
V1	48	#4	STR	4'-11"	158

REINFORCING STEEL 2794 LBS.

CLASS A CONCRETE BREAKDOWN

POUR #1 CAP & LOWER PART OF WINGS 19.9 C.Y.

POUR #2 UPPER PART OF WINGS 2.1 C.Y.

TOTAL CLASS A CONCRETE 22.0 C.Y.

HP 12 X 53 STEEL PILES
NO: 5 LIN. FT.= 65

18" STEEL SHEET PILES
NO. PZ27 = 38
NO. PZ90 = 2
TOTAL NO. = 40 713 SQ. FT.

DRAWN BY : B.N. GRADY DATE : 3/2012
CHECKED BY : J.R. DUGGINS DATE : 10/12

10-DEC-2012 12:14
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jduggins

PROJECT NO. BD-5114T
JACKSON COUNTY
STATION: 10+62.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT #1

NORTH CAROLINA PROFESSIONAL SEAL 15779 ENGINEER JOHN R. DUGGINS JR.
12/10/12

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			15

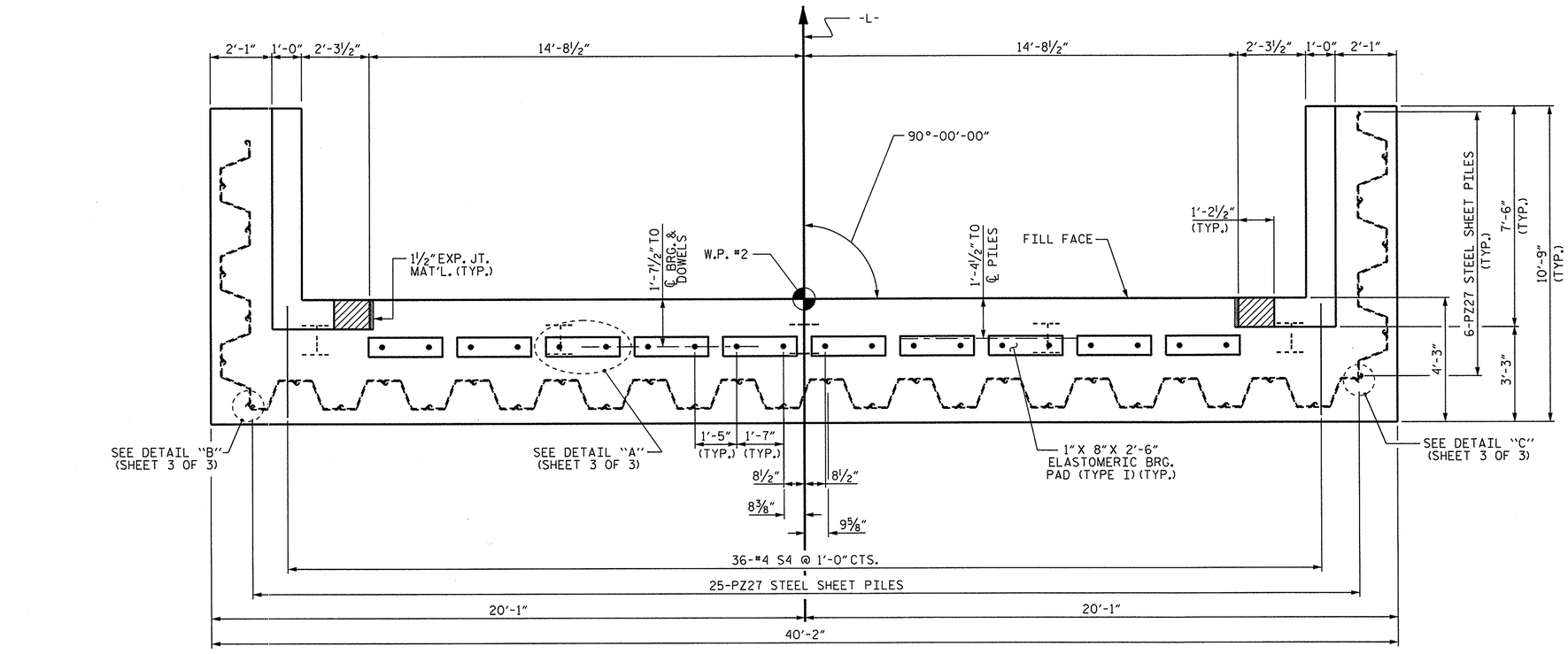
NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

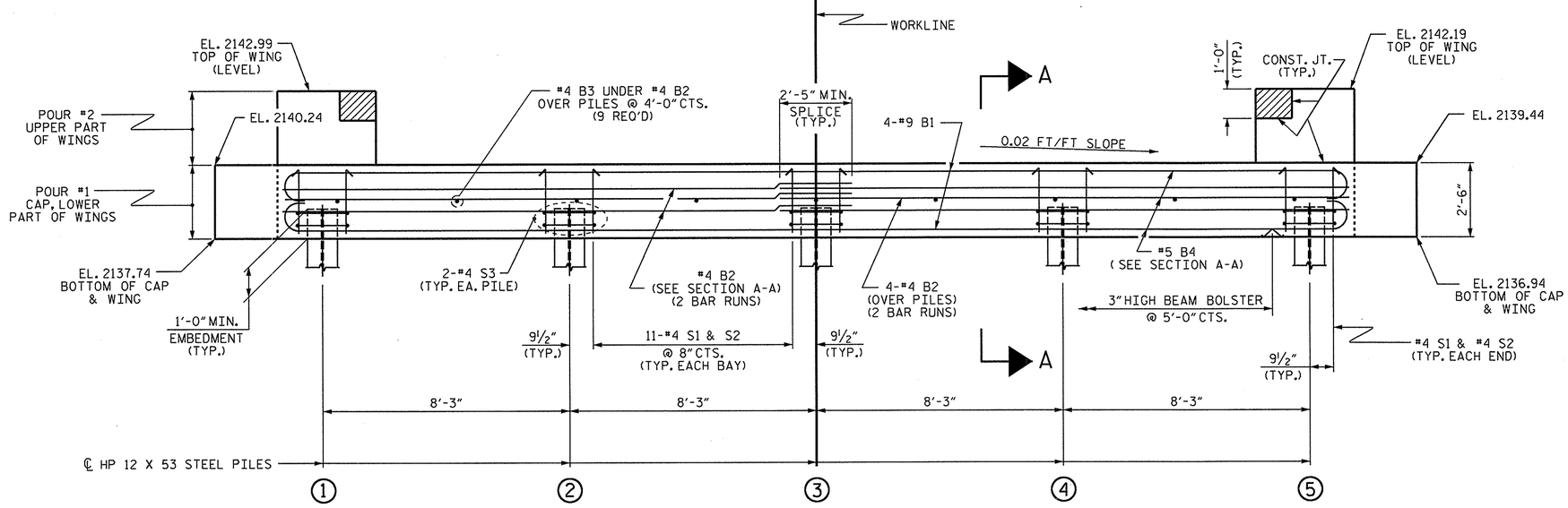
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 3 OF 3.

FOR WING DETAILS, SEE SHEET 2 OF 3.



PLAN



ELEVATION

SHEET PILES NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 3 OF 3.

TOP OF PILE ELEVATIONS	
①	2138.68
②	2138.51
③	2138.35
④	2138.18
⑤	2138.02

PROJECT NO. BD-5114T

JACKSON COUNTY

STATION: 10+62.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT # 2

NORTH CAROLINA PROFESSIONAL SEAL 15779 ENGINEER JOHN R. DUGGINS, JR.
10/19/12

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			15

DRAWN BY : B.N. GRADY DATE : 3/2012
CHECKED BY : J.R. DUGGINS DATE : 10/12

19-OCT-2012 14:16
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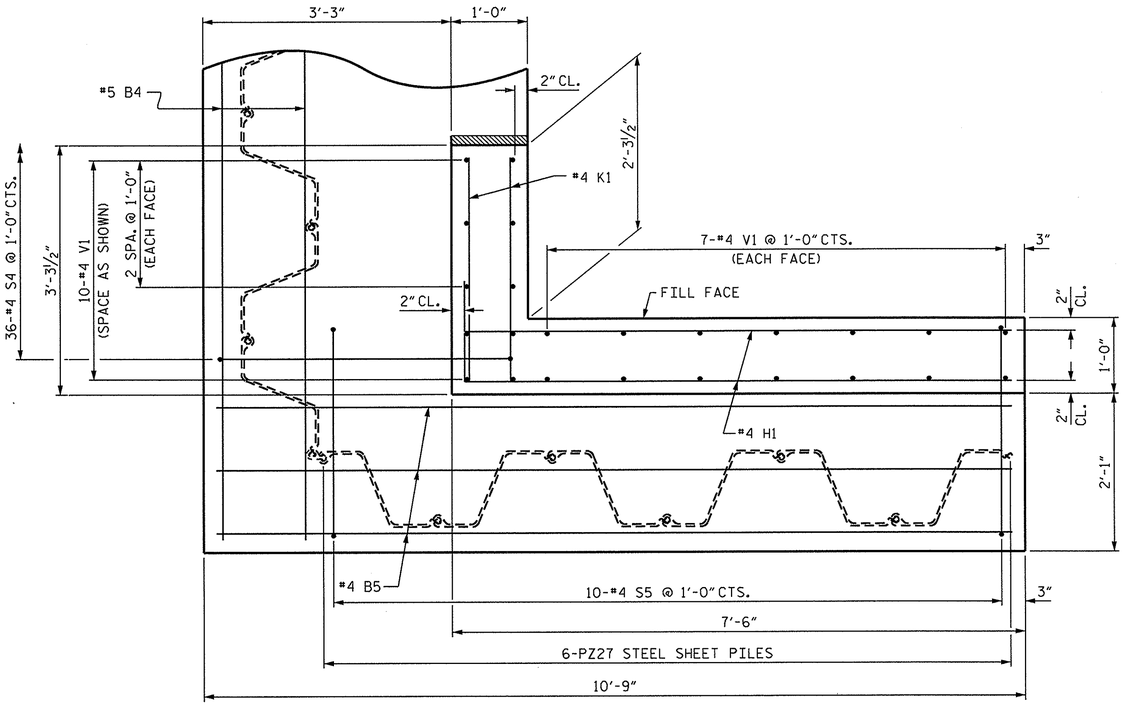
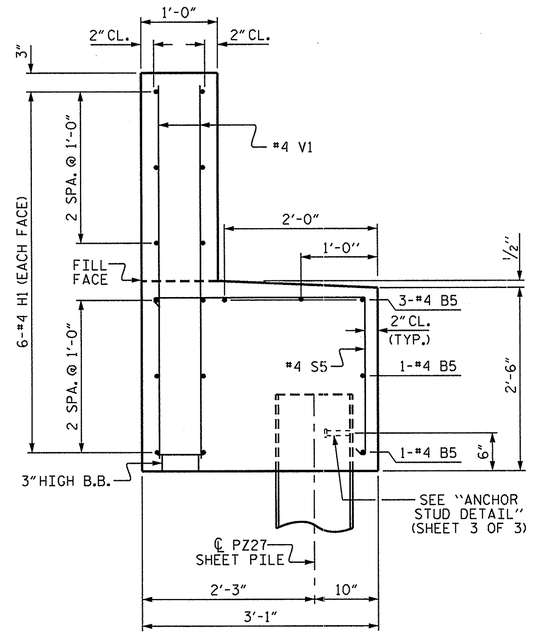
jduggins

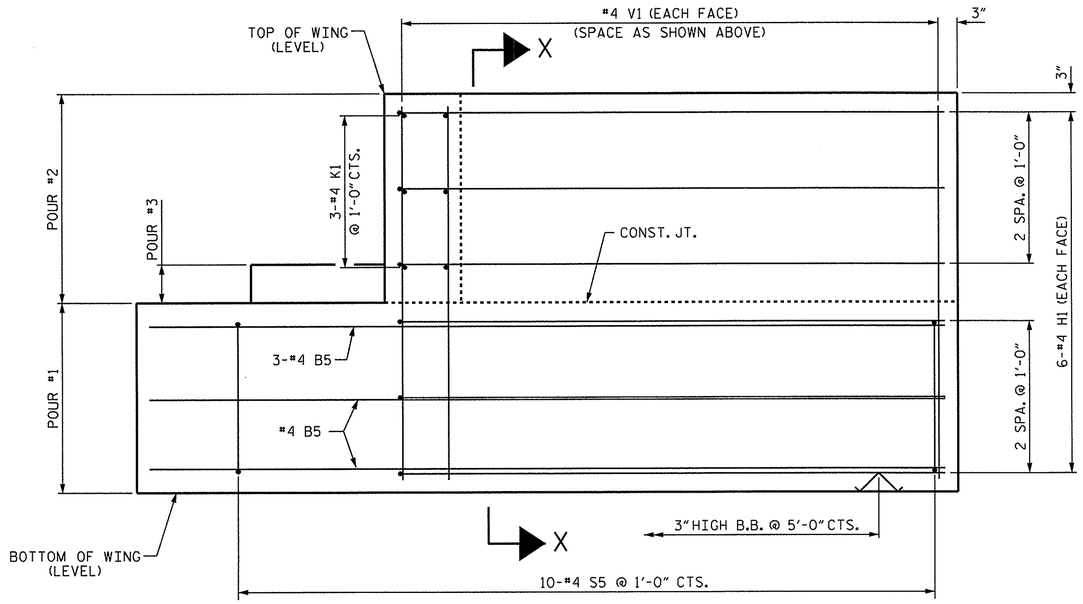


PLAN OF WING

(RIGHT WING SHOWN, LEFT WING SIMILAR)



SECTION X-X



ELEVATION OF WING

(SHEET PILES NOT SHOWN FOR CLARITY)

PROJECT NO. BD-5114T

JACKSON COUNTY

STATION: 10+62.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT # 2

NORTH CAROLINA PROFESSIONAL SEAL 15779 ENGINEER JOHN R. DUGGINS, JR.
10/19/12

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			15

DRAWN BY :	B.N. GRADY	DATE : 3/2012
CHECKED BY :	J.R. DUGGINS	DATE : 10/12

19-OCT-2012 14:15
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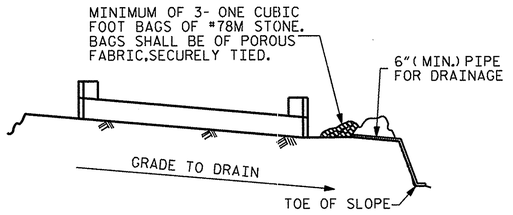
jduggins

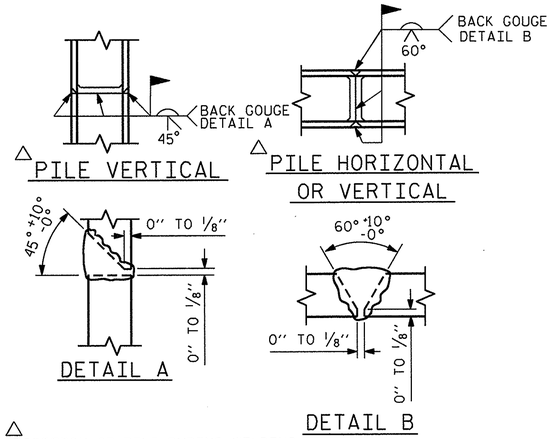


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

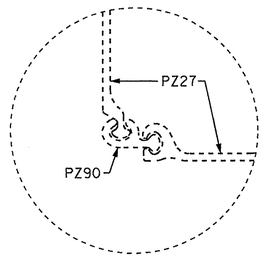
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

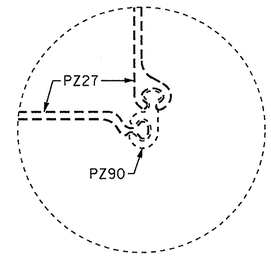


△ POSITION OF PILE DURING WELDING.

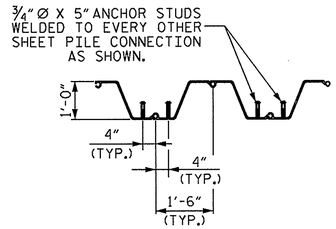
PILE SPLICE DETAILS



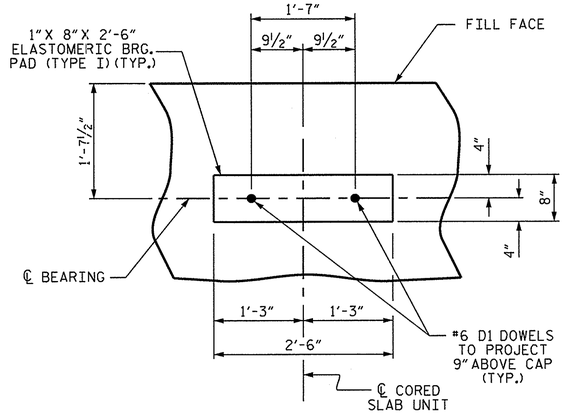
DETAIL "B"



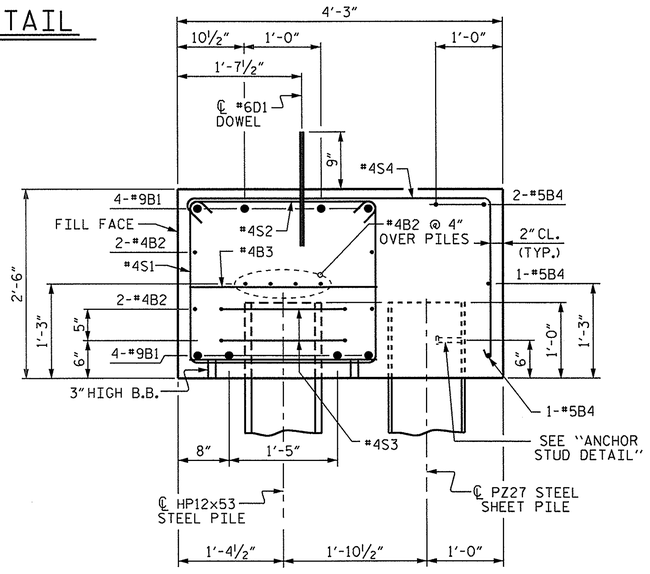
DETAIL "C"



ANCHOR STUD DETAIL

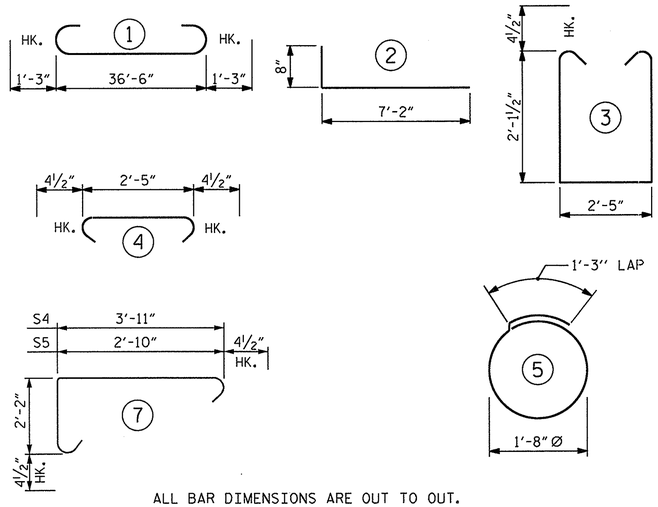


DETAIL "A"



SECTION A-A

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL
END BENT #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	39'-0"	1061
B2	16	#4	STR	19'-9"	211
B3	9	#4	STR	2'-5"	15
B4	4	#5	STR	39'-10"	166
B5	10	#4	STR	10'-5"	70
D1	20	#6	STR	1'-6"	45
H1	24	#4	2	7'-10"	126
K1	12	#4	STR	2'-11"	23
S1	46	#4	3	7'-5"	228
S2	46	#4	4	3'-2"	97
S3	10	#4	5	6'-6"	43
S4	36	#4	7	6'-10"	164
S5	20	#4	7	5'-9"	77
V1	48	#4	STR	4'-11"	158

REINFORCING STEEL (FOR ONE END BENT) 2484 LBS.

CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)

POUR #1	CAP & LOWER PART OF WINGS	19.5 C.Y.
POUR #2	UPPER PART OF WINGS	2.0 C.Y.
TOTAL CLASS A CONCRETE		21.5 C.Y.

HP 12 X 53 STEEL PILES
NO: 5 LIN. FT.= 75

18" STEEL SHEET PILES
NO. PZ27 = 37
NO. PZ90 = 2
TOTAL NO. = 39 796 SQ. FT.

PROJECT NO. BD-5114T
JACKSON COUNTY
STATION: 10+62.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT #2

NORTH CAROLINA PROFESSIONAL SEAL 15779 ENGINEER JOHN R. DUGGINS, JR.
10/19/12

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			15

DRAWN BY : B.N. GRADY DATE : 3/2012
CHECKED BY : J.R. DUGGINS DATE : 10/12

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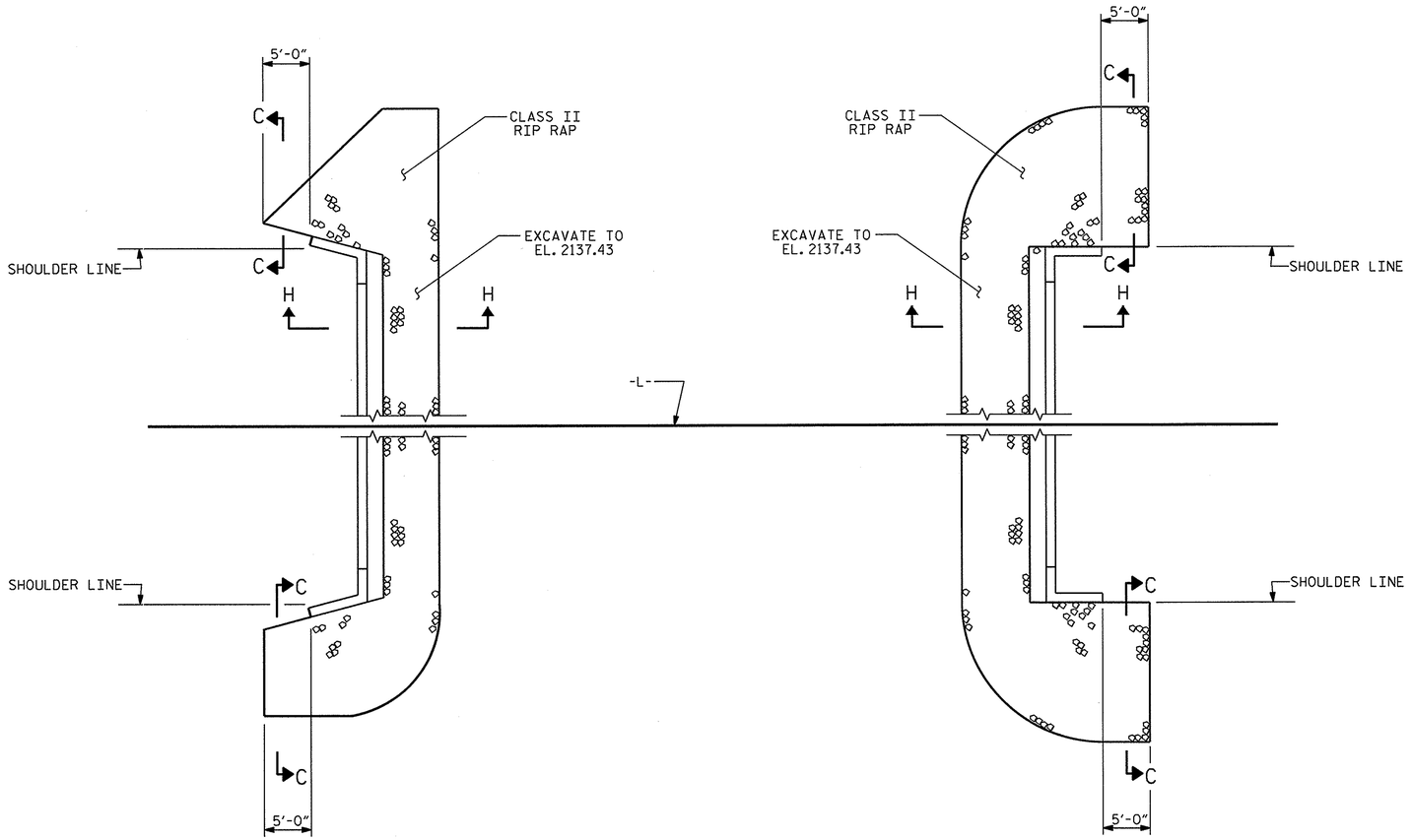
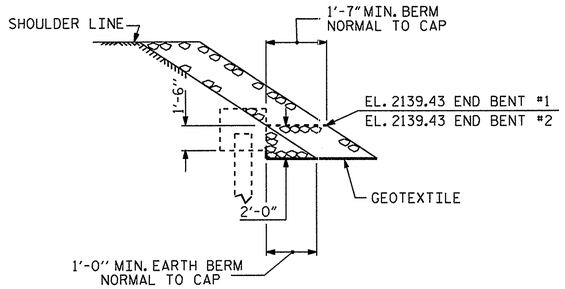
jduggins



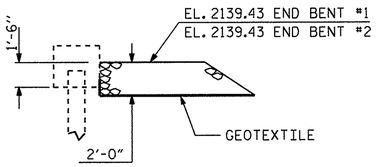
NOTES:

PLACE RIP RAP ALONG STREAM BANKS AS SHOWN.

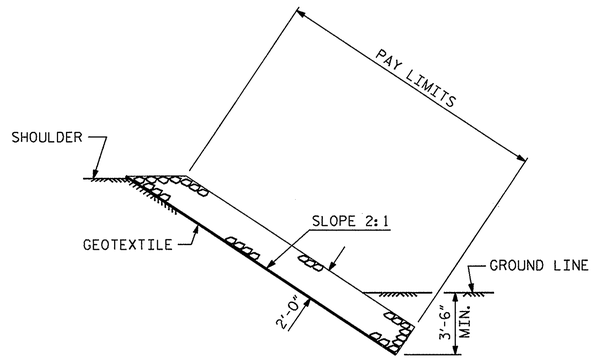
ESTIMATED QUANTITIES		
BRIDGE @ STA. 10+62.00-L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	100	110
END BENT 2	115	130
TOTAL	215	240



SECTION H-H



℄ SECTION
BERM RIP RAPPED



SECTION C-C

PROJECT NO. BD-5114T

JACKSON COUNTY

STATION: 10+62.00-L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

RIP RAP DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 15779 ENGINEER JOHN R. DUGGINS, JR.
10/19/12

ASSEMBLED BY : H. T. BARBOUR	DATE : 9-28-12
CHECKED BY : J.R. DUGGINS	DATE : 10-12
DRAWN BY : REK 1/84	REV. 5/1/06R TLA/GM
CHECKED BY : RDU 1/84	REV. 10/1/11 MAA/GM
	REV. 12/21/11 MAA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			15

19-OCT-2012 14:14
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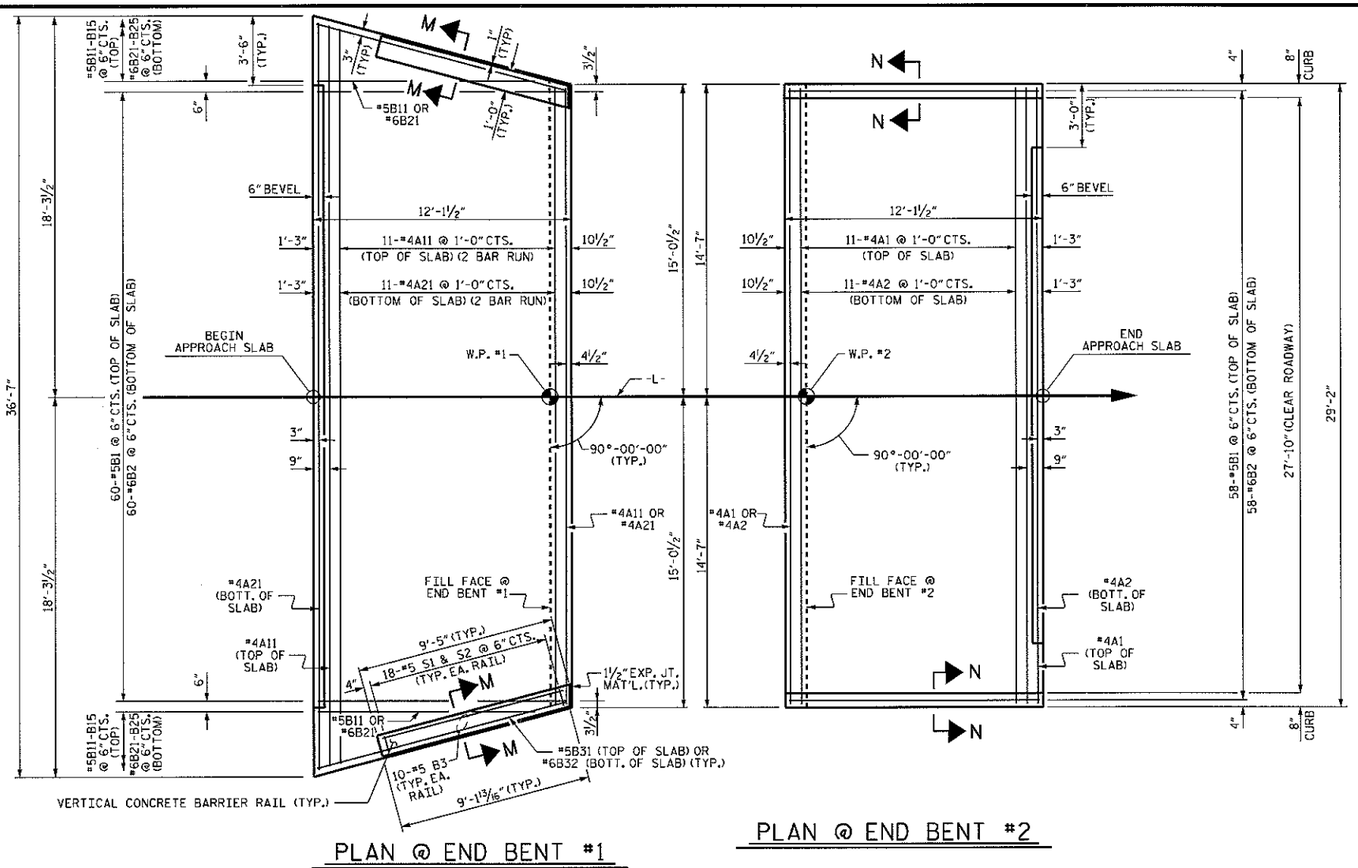
jduggins



NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY PLANS.

GEOTEXTILE SHALL BE TYPE I IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

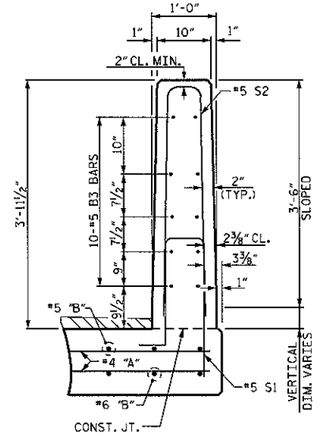
#78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT REQUIRED.

THE COST OF THE VERTICAL CONCRETE BARRIER RAILS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE BID FOR BRIDGE APPROACH SLABS.



SECTION M-M
FOR "END OF RAIL DETAILS", SEE SHEET S-6.

BILL OF MATERIAL

APPROACH SLAB AT EB #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A11	13	#4	STR	19'-1"	166
A21	13	#4	STR	18'-11"	164
* B1	60	#5	STR	11'-2"	699
B2	60	#6	STR	11'-8"	1051
* B3	20	#5	STR	8'-10"	184
* B11	2	#5	STR	10'-6"	22
* B12	2	#5	STR	8'-8"	18
* B13	2	#5	STR	6'-9"	14
* B14	2	#5	STR	4'-11"	10
* B15	2	#5	STR	3'-0"	6
B21	2	#6	STR	10'-6"	32
B22	2	#6	STR	8'-8"	26
B23	2	#6	STR	6'-9"	20
B24	2	#6	STR	4'-11"	15
B25	2	#6	STR	3'-0"	9
* B31	2	#5	STR	12'-2"	25
B32	2	#6	STR	12'-2"	37
* S1	36	#5	4	5'-11"	222
* S2	36	#5	5	7'-2"	269

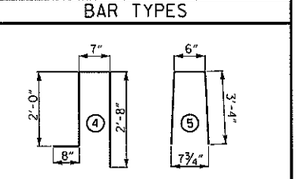
REINFORCING STEEL	LBS.	1354
* EPOXY COATED REINFORCING STEEL	LBS.	1635
CLASS AA CONCRETE	C.Y.	23.0

APPROACH SLAB AT EB #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	13	#4	STR	28'-10"	250
A2	13	#4	STR	28'-10"	250
* B1	58	#5	STR	11'-2"	676
B2	58	#6	STR	11'-8"	1016

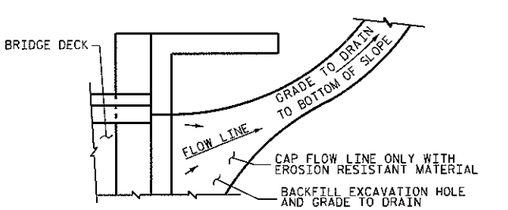
REINFORCING STEEL	LBS.	1266
* EPOXY COATED REINFORCING STEEL	LBS.	926
CLASS AA CONCRETE	C.Y.	18.1

BAR TYPES



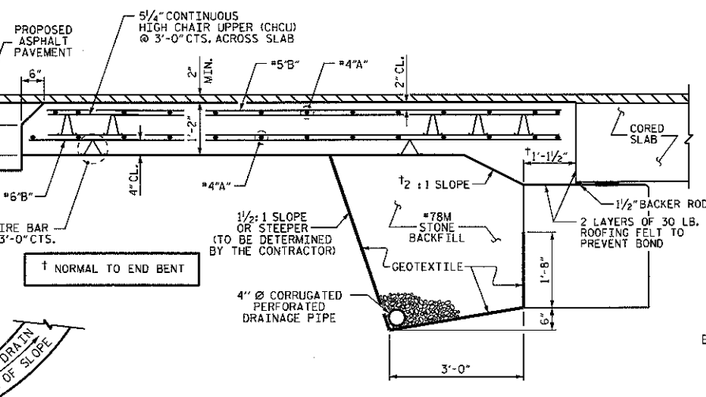
ALL BAR DIMENSIONS ARE OUT TO OUT

MINIMUM SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"

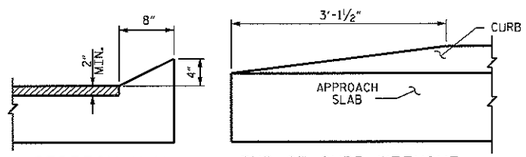


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

TEMPORARY DRAINAGE DETAIL



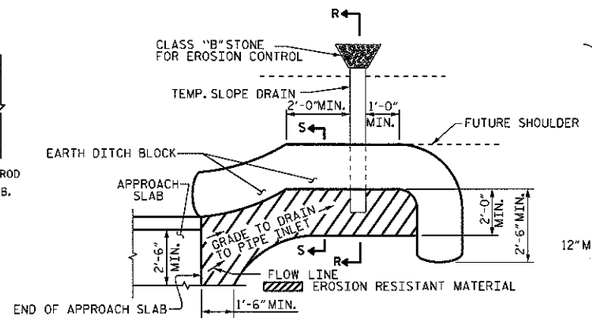
SECTION THRU SLAB



SECTION N-N

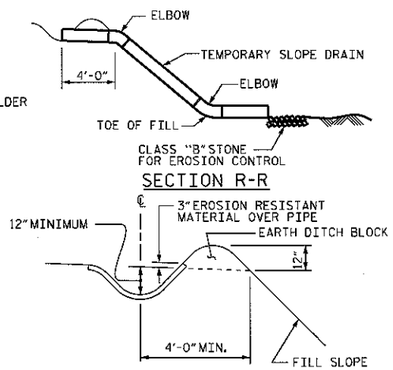
END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS



NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE I OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

PLAN VIEW



SECTION R-R

SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

BRIDGE NO. BD-5114T
JACKSON COUNTY
STATION: 10+62.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT (SUB-REGIONAL TIER) 90° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 17230 ENGINEER WAEL S. ARAFAT
Wael S. Arafat 11-18-13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1	AML	11-18-13	3			TOTAL SHEETS
2			4			15

ASSEMBLED BY : BMATHEW	DATE : 01/2012
CHECKED BY : J. R. DUGGINS	DATE : 10/2012
DRAWN BY : SHS/MAA 5-09	REV. 12-11 MAA/AAC
CHECKED BY : BCH 5-09	

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STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF	
STRUCTURAL STEEL - AASHTO M270 GRADE 36	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION	
GRADE 60	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR	
UNTREATED - EXTREME FIBER STRESS	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

ENGLISH

JANUARY, 1990

STD. NO. SN

REV. 6-16-95 EEM (J) RGW REV. 5-7-03 RWW (J) JTE REV. 10-1-11 MAA (J) GM
REV. 8-16-99 RWW (J) LES REV. 5-1-06 TLA (J) GM