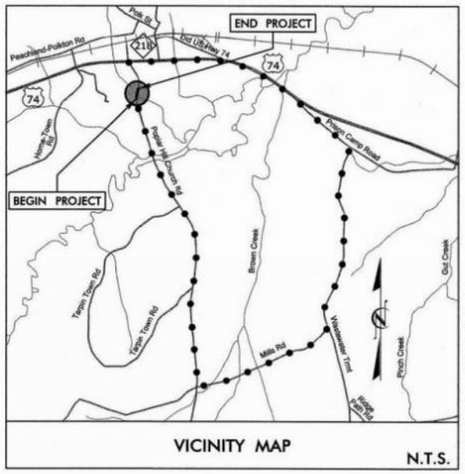
TIP PROJECT: BD-5110Y

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



VICINITY MAP N.T.S.

FINAL PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ANSON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BD-5110Y	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
45356.1.25	BRZ-1250(3)	P.E.
45356.2.25	BRZ-1250(3)	R/W & UTILITIES
45356.3.25	BRZ-1250(3)	CONST.

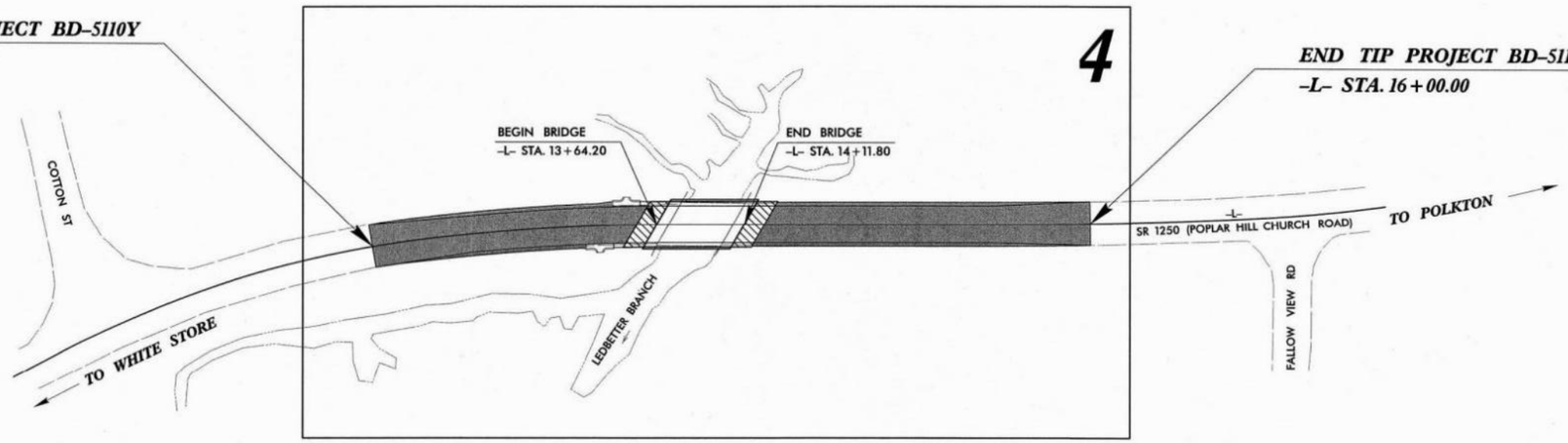
LOCATION: BRIDGE #151 OVER LEDBETTER BRANCH ON SR 1250 (POPLAR HILL CHURCH ROAD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE & STRUCTURE

NAD 83 NSRS 2007

BEGIN TIP PROJECT BD-5110Y
-L- STA. 12+09.00

END TIP PROJECT BD-5110Y
-L- STA. 16+00.00



CONTRACT:

FINAL PLANS
7/20/2012

GRAPHIC SCALES

PLANS: 20 10 0 20 40
PROFILE (HORIZONTAL): 20 10 0 20 40
PROFILE (VERTICAL): 4 2 0 4 8

DESIGN DATA

ADT 2012 = 350
ADT 2035 = 650
DHV = N/A
D = N/A
T = 6%
V = 40 MPH

FUNC. CLASSIFICATION: LOCAL

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT BD-5110Y = 0.065 MILES

LENGTH OF STRUCTURE TIP PROJECT BD-5110Y = 0.009 MILES

TOTAL LENGTH OF TIP PROJECT BD-5110Y = 0.074 MILES

NCDOT CONTACT: LOUIS MITCHELL, PE
Division Construction Manager

PLANS PREPARED FOR THE NCDOT BY:
STV/RALPH WHITEHEAD ASSOCIATES, INC.
1000 West Morehead St., Ste. 200, Charlotte NC, 28208
NC License Number F-0991

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JANUARY 24, 2012

LETTING DATE: SEPTEMBER 5, 2012

NIKKI T. HONEYCUTT, PE
PROJECT ENGINEER

RICHARD A. ODYNSKI, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 038013 ENGINEER JAMIN C. MORRISON
SIGNATURE: P.E. 7/20/12

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 039234 ENGINEER NIKKI T. HONEYCUTT
SIGNATURE: P.E. 7/20/12

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

PROJECT REFERENCE NO.	SHEET NO.
BD-5110Y	1-A
R/W SHEET NO.	

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 039234 ENGINEER NIKKI I. HONEYCUTT

20346.12

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
2	DETAIL SHEET
3	SUMMARIES AND TYPICALS
4	PLAN AND PROFILE SHEET
TCP-1 THRU TCP-2	TRAFFIC CONTROL PLANS
UC-1 THRU UC-3	UTILITY PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS
EC-1 THRU EC-4	EROSION CONTROL PLANS
X-1 THRU X-3	CROSS-SECTIONS

GENERAL NOTES

GENERAL NOTES: 2012 SPECIFICATIONS
EFFECTIVE: 01-01-2012

GRADE LINE:
GRADING AND SURFACING:

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

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

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.

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.

RIGHT-OF-WAY MARKERS:

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

STANDARD DRAWINGS

2012 ROADWAY ENGLISH STANDARD DRAWINGS EFF. January, 2012

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
846.01	Concrete Curb, Gutter and Curb & Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
DIVISION 11 - WORK ZONE TRAFFIC CONTROL	
1110.01	Stationary Work Zone Signs - Mounting Height & Lateral Clearance
1145.01	Barricades - Type III
DIVISION 16 - EROSION CONTROL AND ROADSIDE DEVELOPMENT	
1605.01	Temporary Silt Fence
1606.01	Special Sediment Control Fence
1607.01	Gravel Construction Entrance
1622.01	Guide for Temporary Berms and Slope Drains
1630.06	Special Stilling Basin

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7/20/2012

PROJECT REFERENCE NO.	SHEET NO.
BD-5110Y	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 — IP
- Property Corner
- Property Monument — CM
- Parcel/Sequence Number — 23
- 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
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

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

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite 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
- Proposed Temporary Utility Easement — TUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Wheel Chair Ramp — WCR
- 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 — TUTL
- 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.

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7/20/2012

PROJECT REFERENCE NO.	SHEET NO.
BD-5110Y	2
R/W SHEET NO.	

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 039234 ENGINEER NIKKI T. HONEYCUTT
23JUL12

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

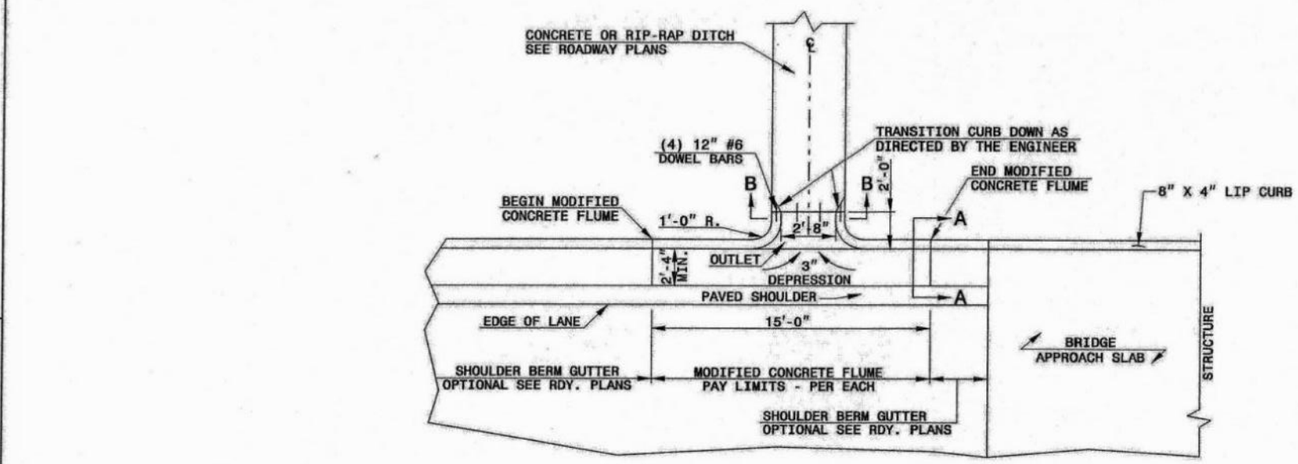
ENGLISH DETAIL DRAWING FOR

MODIFIED CONCRETE FLUME

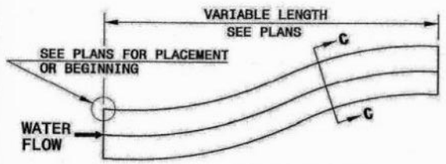
WITH CONCRETE OR RIP-RAP DITCH

SHEET 1 OF 1

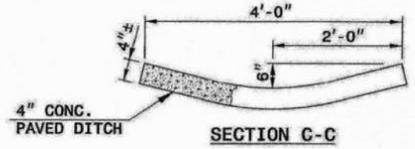
MODFLMDTCH



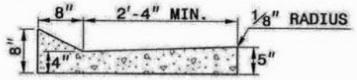
PLAN VIEW



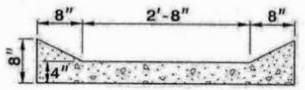
DOWNGRADE OR SAG



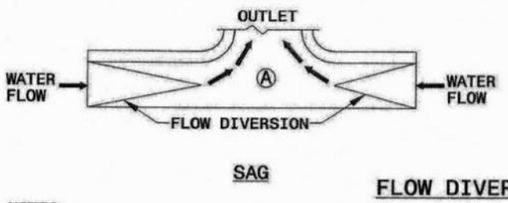
SECTION C-C



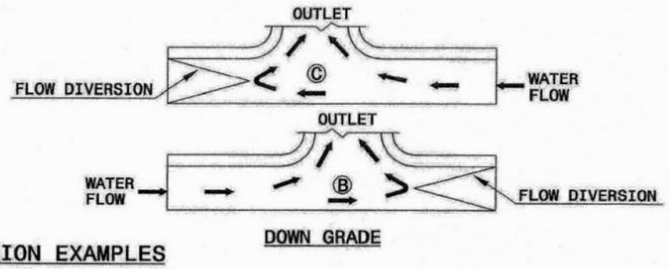
SECTION A-A



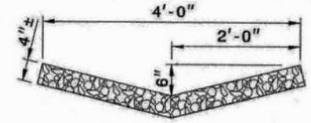
SECTION B-B



SAG



DOWN GRADE



RIP-RAP LINED DITCH

FLOW DIVERSION EXAMPLES

NOTES:

- CONSTRUCT MODIFIED CONCRETE FLUME AND SHOULDER BERM GUTTER IN ACCORDANCE WITH THIS DETAIL.
- CONSTRUCT CONCRETE DITCH IN ACCORDANCE WITH STD. DWG. NO. 850.01.
- CONSTRUCT RIP RAP LINED DITCH IN ACCORDANCE WITH THIS DETAIL, IF CALLED FOR IN PLANS.
- CONCRETE OR RIP RAP LINED DITCH SHALL BE THE TYPE AND LENGTH SPECIFIED BY THE ROADWAY PLANS. THE DITCH SHALL TERMINATE AS SHOWN ON THE PLANS. IF NO TERMINATION IS INDICATED PLACE RIP-RAP AT THE END OF THE DITCH AS INDICATED BY STD. DWG. 876.02 FOR AN 18" PIPE. TRANSITIONS FROM THE DITCH TO TERMINATION SHALL BE AS DIRECTED BY THE ENGINEER.
- MODIFICATIONS SHALL BE AS DICTATED BY SITE CONDITIONS AND DIRECTED BY THE ENGINEER.

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

ENGLISH DETAIL DRAWING FOR

MODIFIED CONCRETE FLUME

WITH CONCRETE OR RIP-RAP DITCH

SHEET 1 OF 1

MODFLMDTCH

7/20/2012 R:\Roadway\Proj\BD5110Y_rdy_ash02.dgn

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
BD-5110Y	3
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 039234 ENGINEER RALPH T. HONEYCUTT

PAVEMENT DESIGN ENGINEER

PAVEMENT DESIGN PROVIDED BY NCDOT

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

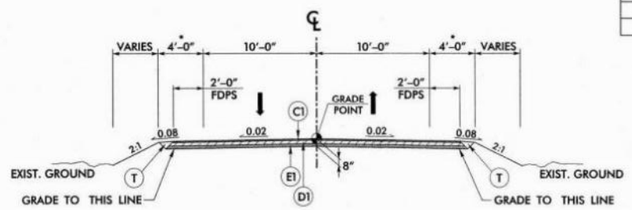
EARTHWORK SUMMARY (IN CUBIC YARDS)

CHAIN	FROM STATION	TO STATION	SIDE	UNCL. EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
-L-	12+09.00	13+64.20	LT & RT	95		2		93
SUBTOTAL SUMMARY NO. 1				95		2		93
-L-	14+11.80	16+00.00	LT & RT	86		7		79
SUBTOTAL SUMMARY NO. 2				86		7		79
SUBTOTAL SUMMARY 1-2				181		9		171
LOSS DUE TO CLEARING AND GRUBBING				-224				224
PROJECT TOTAL				-43		9		276
WASTE IN LIEU OF BORROW								53
ESTIMATE 5% FOR TOPSOIL ON BORROW PITS								14
GRAND TOTAL				-43		9		290
SAY				0		10		300

NOTE: Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

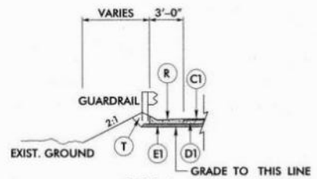
Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, Breaking of Existing Pavement, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

	PAVEMENT SCHEDULE
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
D1	PROP. APPROX. 3.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.
E1	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
R	CONCRETE SHOULDER BERM GUTTER
T	EARTH MATERIAL



TYPICAL SECTION
-L- STA. 12+09.00 TO 13+64.20 (BEGIN BRIDGE)
-L- STA. 14+11.80 (END BRIDGE) TO 16+00.00

* 7'-0" WITH GUARDRAIL
** ALL PAVEMENT SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
*** SEE DETAIL A FOR SHOULDER BERM GUTTER LOCATION



DETAIL A
-L- STA. 13+55.35 LT TO 13+59.26 LT
-L- STA. 13+40.48 RT TO 13+47.11 RT

* W MEASURED FROM "N" AT THE BEGINNING OF THE ANCHOR TO "N" AT THE END OF THE ANCHOR.
"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	ANCHORS: B-77	ANCHORS: GRAU 350	ANCHORS: M-350	ANCHORS: TYPE III	ANCHORS: CAT-1	ANCHORS: VI MOD	ANCHORS: BIC	ANCHORS: AT-1	IMPACT ATTENUATOR TYPE 350: EA	IMPACT ATTENUATOR TYPE 350: G	IMPACT ATTENUATOR TYPE 350: NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-L-	12+74.50	13+56.86	RT	81.25			13+56.86		2.33-3.00	5.33-6.00	50.00'		0.67'				1		1											
-L-	12+91.01	13+71.43	LT	81.25				13+71.43	2.43-3.82	5.43-6.82		50.00'		1.00'			1		1											
-L-	14+04.63	14+85.87	RT	81.25				14+04.63	2.42-3.42	5.42-6.42		50.00'		1.00'			1		1											
-L-	14+18.97	15+00.21	LT	81.25			14+18.97		2.42-3.42	5.42-6.42	50.00'		1.00'				1		1											
			TOTAL:	325.0													4		4											
			TOTAL ANCHOR LENGTH:	275.0																											
			TOTAL GUARDRAIL LENGTH:	50.0																											
			SAY:	50.0																											

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7/23/2012

PROJECT REFERENCE NO.	SHEET NO.
BD-5110Y	4

R/W SHEET NO.

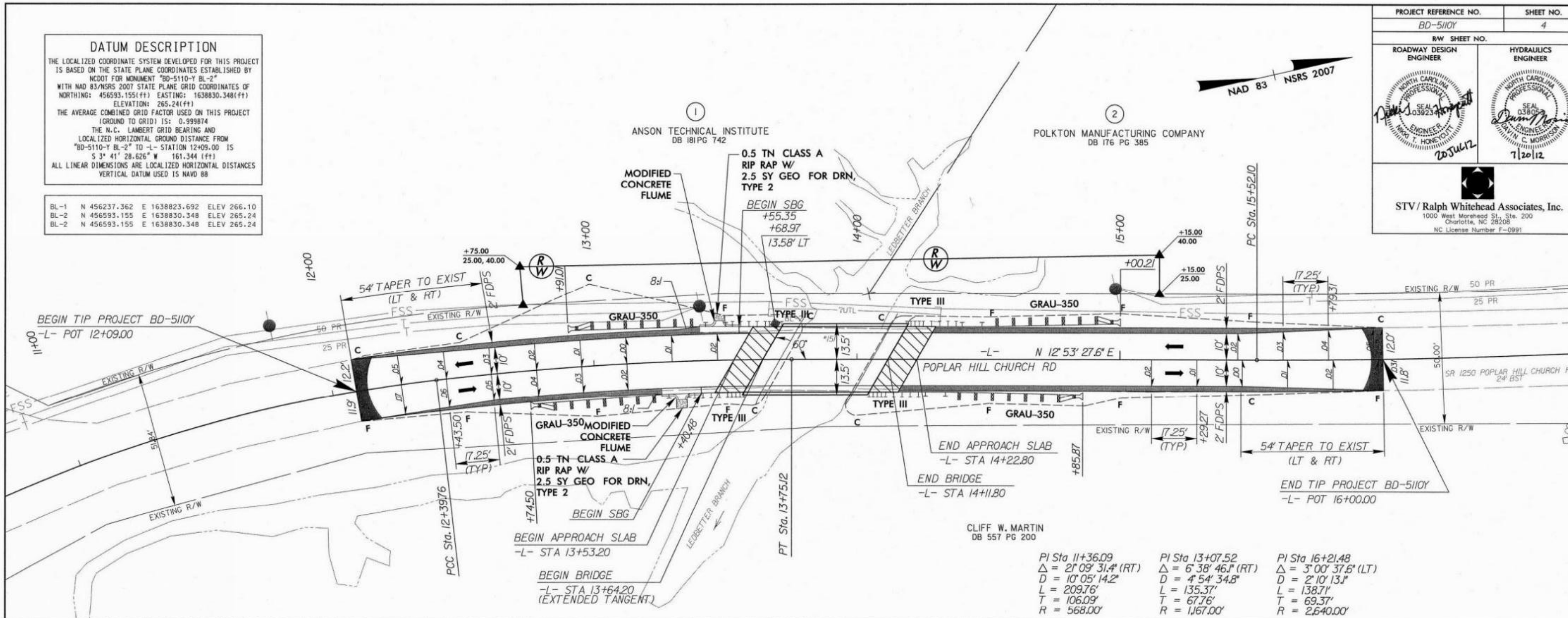
ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

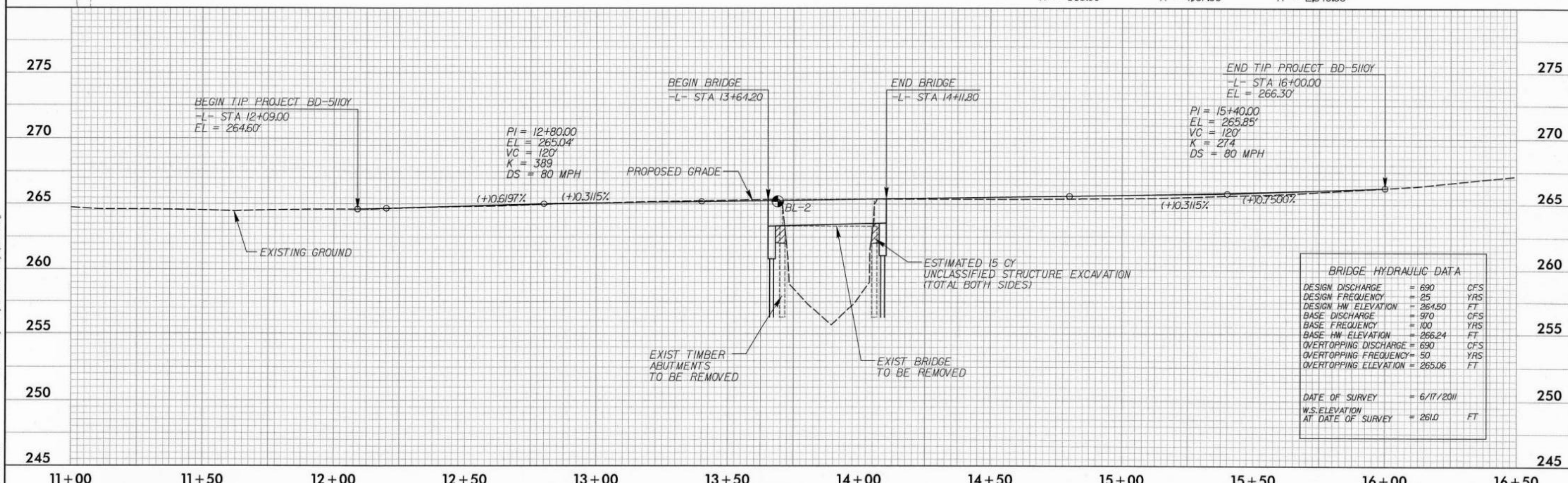
DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "BD-5110-Y BL-2"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 456593.155(ft) EASTING: 1638830.348(ft)
ELEVATION: 265.24(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999874
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BD-5110-Y BL-2" TO -L- STATION 12+09.00 IS
S 3° 41' 28.626" W 161.344 (ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

BL-1	N 456237.362	E 1638823.692	ELEV 266.10
BL-2	N 456593.155	E 1638830.348	ELEV 265.24
BL-2	N 456593.155	E 1638830.348	ELEV 265.24



PI Sta 11+36.09	PI Sta 13+07.52	PI Sta 16+21.48
Δ = 21° 09' 31.4" (RT)	Δ = 6° 38' 46.1" (RT)	Δ = 3° 00' 37.6" (LT)
D = 10° 05' 14.2"	D = 4° 54' 34.8"	D = 2° 10' 13.1"
L = 209.76'	L = 135.37'	L = 138.71'
T = 106.09'	T = 67.76'	T = 69.37'
R = 568.00'	R = 1,167.00'	R = 2,640.00'



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 690	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 264.50	FT
BASE DISCHARGE	= 970	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 266.24	FT
OVERTOPPING DISCHARGE	= 690	CFS
OVERTOPPING FREQUENCY	= 50	YRS
OVERTOPPING ELEVATION	= 265.06	FT
DATE OF SURVEY	= 6/17/2011	
W.S. ELEVATION AT DATE OF SURVEY	= 261.0	FT

R:\Roadway\Pro\BD5110Y_rdy_psh04.dgn

7/20/2012

DETOUR ROUTE

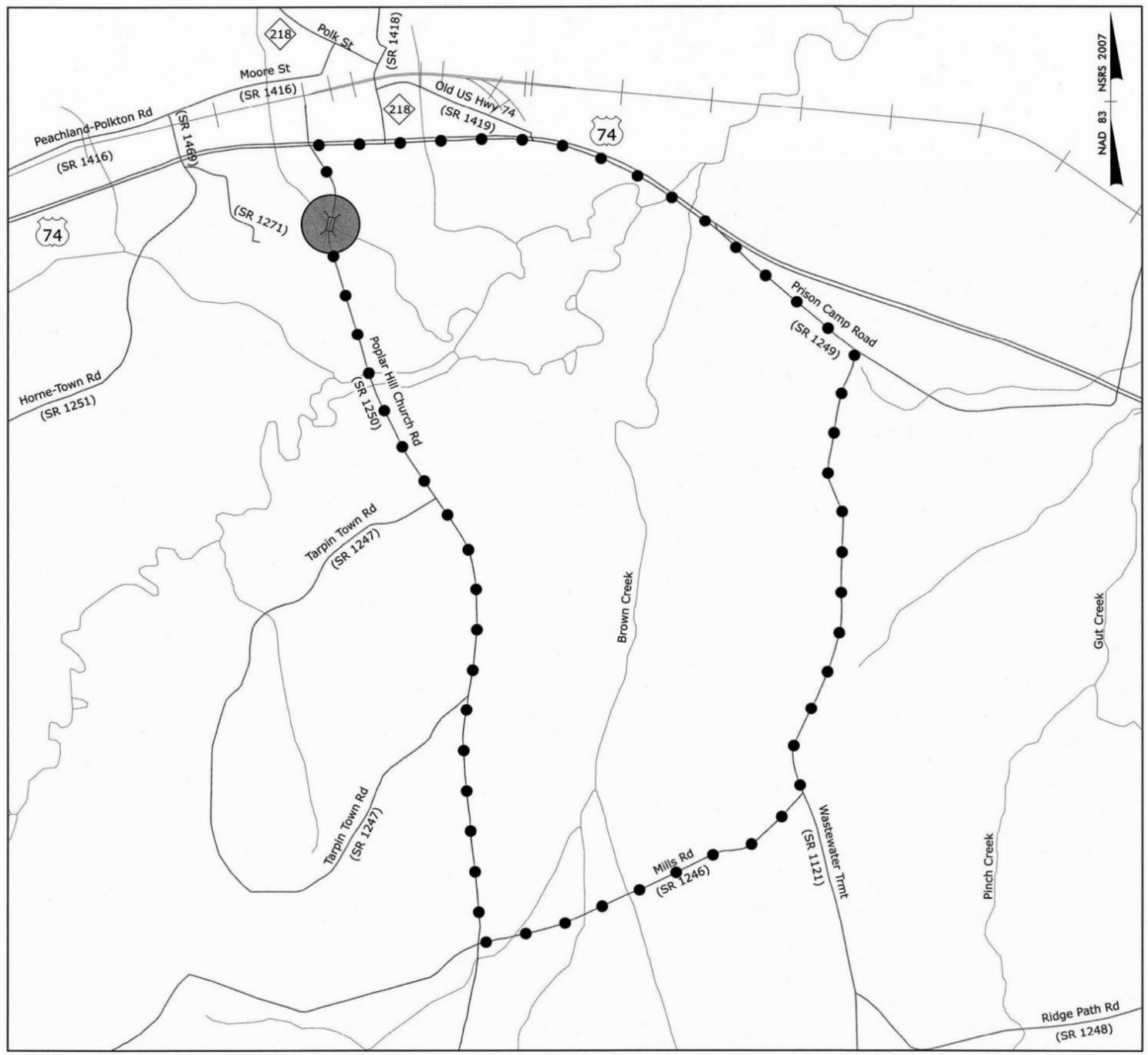
PROJECT REFERENCE NO.	SHEET NO.
BD-5110Y	TCP-1
R/W SHEET NO.	

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St. Ste. 200
Charlotte, NC 28208
NC License Number F-0991

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 039234 ENGINEER NIKKI T. HONEYCUTT

2/24/12



1000 500 0 1000 2000

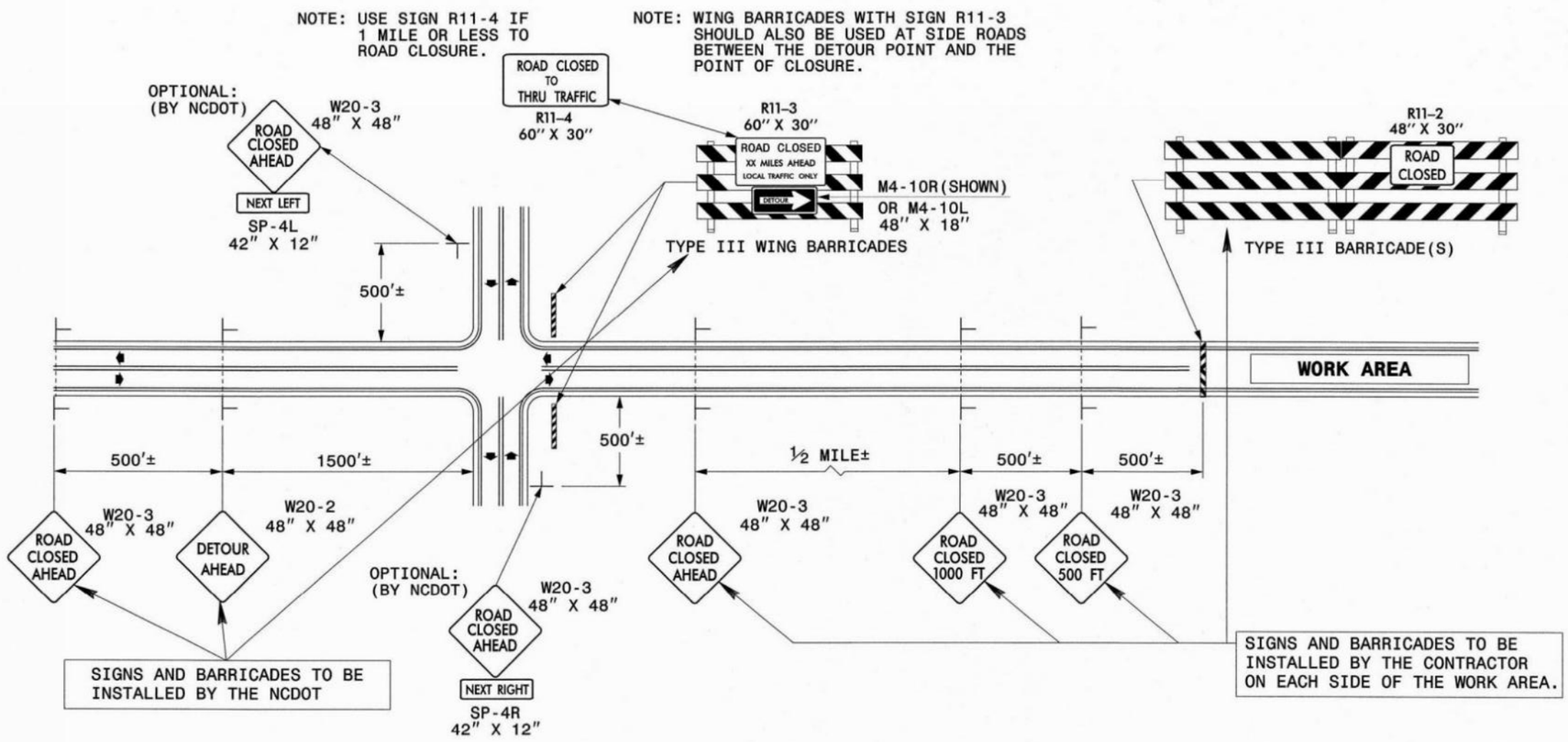
Scale: 1" = 1000'

7/20/2012 R:\Traffic\Traffic Control\TCP\BD5110Y_rdy_tcp01.dgn

PROJECT REFERENCE NO.	SHEET NO.
BD-5110Y	TCP-2
R/W SHEET NO.	

TEMPORARY ROAD CLOSURE

CLOSURE BEYOND DETOUR POINT



GENERAL NOTES

1-IF NECESSARY USE THIS STD. FOR TWO-LANE, TWO-WAY, AND MULTILANE DIVIDED AND UNDIVIDED ROADWAYS.

2-INSTALLATION OF DETOUR ROUTING PANELS, TEMPORARY ROUTE MARKERS, DESTINATION SIGNS, AND ANY NECESSARY MODIFICATIONS TO EXISTING OR PROPOSED REGULATORY OR WARNING SIGNS WILL BE MADE BY NCDOT FORCES UNLESS OTHERWISE DESIGNATED IN THE PLANS. PROVIDE A MINIMUM 21 CALENDAR DAY NOTICE TO STATE FORCES BEFORE A ROADWAY IS CLOSED TO TRAFFIC SUCH THAT THE NECESSARY PROVISIONS CAN BE MADE TO INSTALL DETOUR ROUTE SIGNS, INFORM LOCAL EMERGENCY AND LAW ENFORCEMENT PERSONNEL, SCHOOLS, OR ANY OTHER PARTIES AFFECTED BY THE ROAD CLOSURE.

3-INSTALL SIGNS BEFORE THE BARRICADES WHEN CLOSING THE ROADWAY TO TRAFFIC. REMOVE BARRICADES BEFORE SIGNS WHEN OPENING THE ROADWAY TO TRAFFIC. INSTALL/REMOVE SIGNS AND BARRICADES WITHIN THE SAME CALENDAR DAY.

4-USE ADDITIONAL TYPE III BARRICADES IN STAGGERED LOCATIONS SUPPLEMENTED WITH SIGN R11-4 "ROAD CLOSED TO THRU TRAFFIC" IN THE EVENT THAT TRAFFIC MUST BE MAINTAINED BEYOND THE DETOUR POINT.

5-DO NOT DISPLAY FRACTIONS OR DECIMALS ON SIGN R11-3 "ROAD CLOSED XX MILES AHEAD".

6-POSITION WING BARRICADES ON THE SHOULDERS AND SLOPE THE STRIPES DOWNWARD IN THE DIRECTION TOWARD WHICH TRAFFIC MUST TURN IN DETOURING.

7-USE PORTABLE SIGNS IF ROAD CLOSURE IS TO BE IMPLEMENTED FOR LESS THAN ONE DAY OR FOR EMERGENCIES.

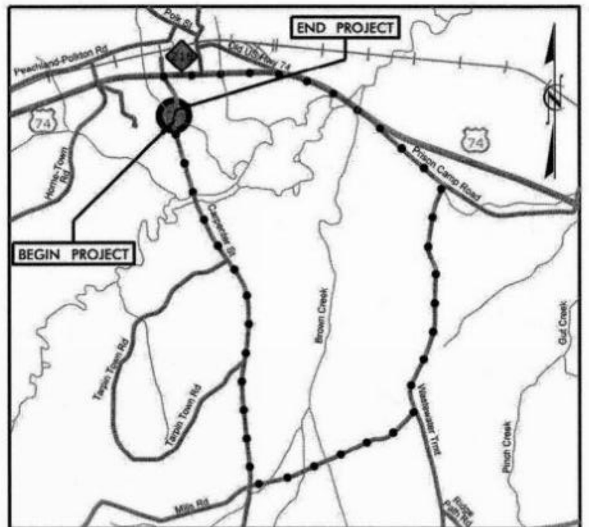
LEGEND

- ├ STATIONARY SIGN
- ⬮ DIRECTION OF TRAFFIC FLOW

7/20/2012 RAJTraffic\Traffic\Control\TCP\BD5110Y_rdy_tcp02.dgn

TIP PROJECT: BD-5110Y

T.I.P. NO.	SHEET NO.
BD-5110Y	UC-1



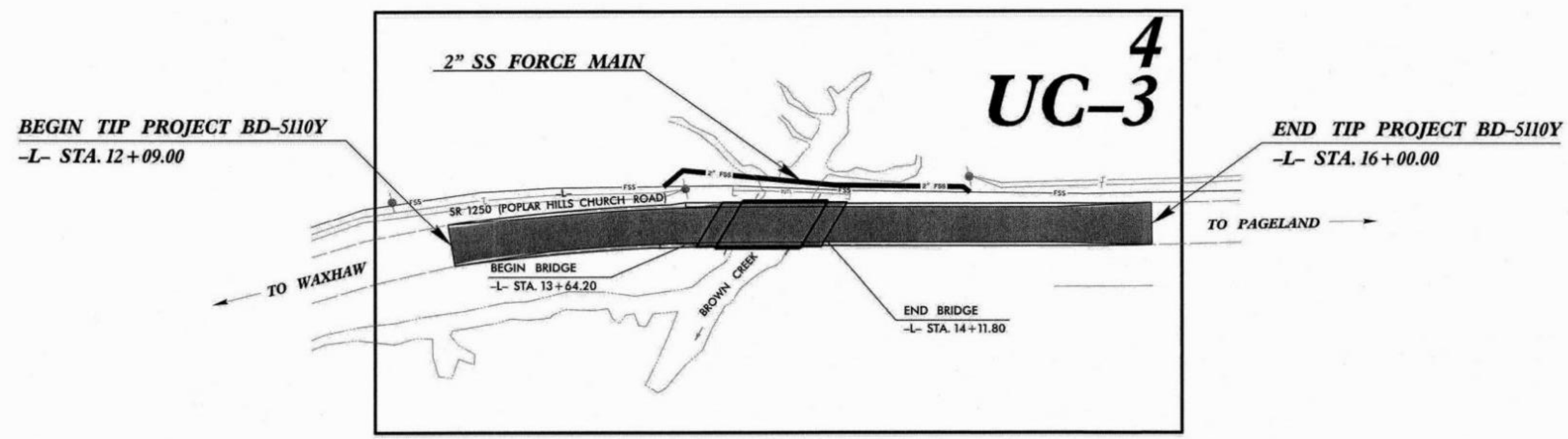
VICINITY MAP N.T.S.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION PLANS
ANSON COUNTY

LOCATION: BRIDGE #151 OVER BRANCH OF BROWN CREEK ON SR 1250 (POPLAR HILL CHURCH ROAD)

TYPE OF WORK: UTILITY CONSTRUCTION



INDEX OF SHEETS

SHEET NO.	*DESCRIPTION*
UC-1	*TITLE SHEET*
UC-2	*SYMBOLOGY SHEET*
UC-3	*UTILITY PLAN AND PROFILE SHEET*

WATER AND SEWER OWNERS ON PROJECT

(1) SEWER - ANSON COUNTY UTILITIES

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER REECE M. SCHULER

7-20-12

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

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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*

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

Vaughn & Melton
Consulting Engineers
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
Charlotte, North Carolina 704-357-0488

PROJECT REFERENCE NO.	SHEET NO.
BD-5110Y	UC-2

DESIGNED BY: RMS
DRAWN BY: CBC
CHECKED BY: RMS
APPROVED BY:
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE: (919)250-4128
FAX: (919)250-4119

NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER REECE M. SCHULER
7-20-12
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

Water

- Proposed Back Flow Preventor — PBFP
- Relocate Back Flow Preventor — RBFP
- Existing Water Valve — WV
- Proposed Valve — GV
- Proposed Tapping Valve — TGV
- Existing Water Meter — WM
- Proposed Water Meter — PWM
- Proposed Water Meter / Vault — PWM
- Relocate Water Meter — RWM
- Remove Water Meter — REM WM
- Existing Hydrant — H
- Prop Hydrant — PFH
- Relocate Hydrant — RFH
- Remove Hydrant — REM FH

- Proposed RPZ Back Flow Preventor — PRPZ
- Relocate RPZ Back Flow Preventor — RRPZ
- 45° Bend w/Thrust Block
- Water Plug
- Water Cross
- Water Plug
- Water Reducer
- Water Tee
- Water Pump Station — PS(W)
- Water Thrust Block
- Blow Off Valve — BO
- Air Release Valve — AR
- Water Line Stop — LS
- Water Line Stop w Bypass — LS/BP

Utility By Other Symbols

- Proposed Tel Pole
- Proposed Power Pole
- Proposed Joint Use Power, Tel Pole
- Proposed Joint Use Power, CATV Pole
- Proposed Joint Use Power, Tel, CATV Pole
- Proposed Joint Use Tel, CATV Pole

Sewer

- Existing Manhole — MH
- Proposed UT Manhole
- Remove UT Manhole — REM UT MH
- Abandon Utility Manhole — ABAND MH
- Sewer Line Stop — LS
- Sewer Line Stop w Bypass — LS/BP
- U/G Sanitary Sewer Line — SS

- Sewer Cross
- Sewer Plug
- Sewer Reducer
- Sewer Tee
- Sewer Pump Station — PS(SS)
- Sewer Thrust Block

- PUE Monument
- Concrete Pier — CP
- Steel Pile Pier — SP
- Test Hole (SUE)
- Prop Utility Vault — UV

PROJECT REFERENCE NO.	SHEET NO.
BD-5110Y	UC-3

DESIGNED BY:	RMS
DRAWN BY:	CBC
CHECKED BY:	RMS
APPROVED BY:	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE:(919)250-4128
FAX:(919)250-4119

NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER REECE M. SCHULER

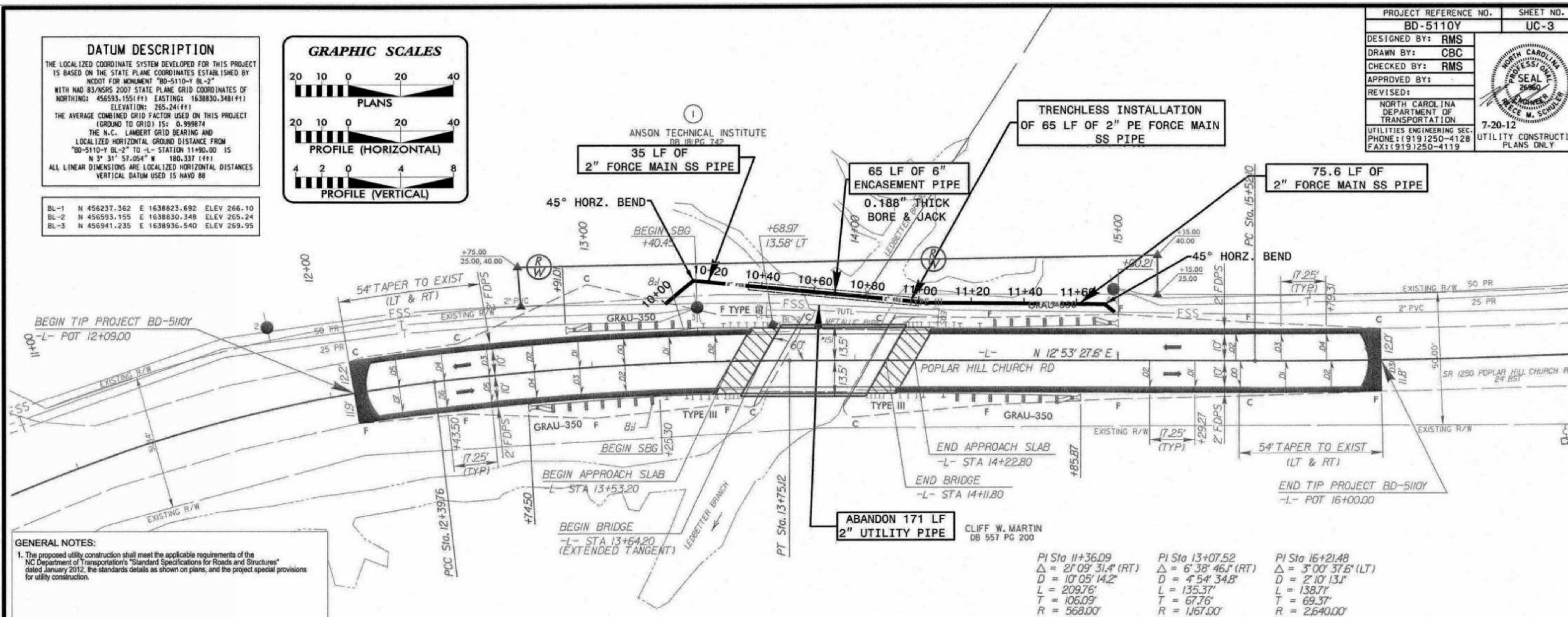
7-20-12

UTILITY CONSTRUCTION PLANS ONLY

DATUM DESCRIPTION

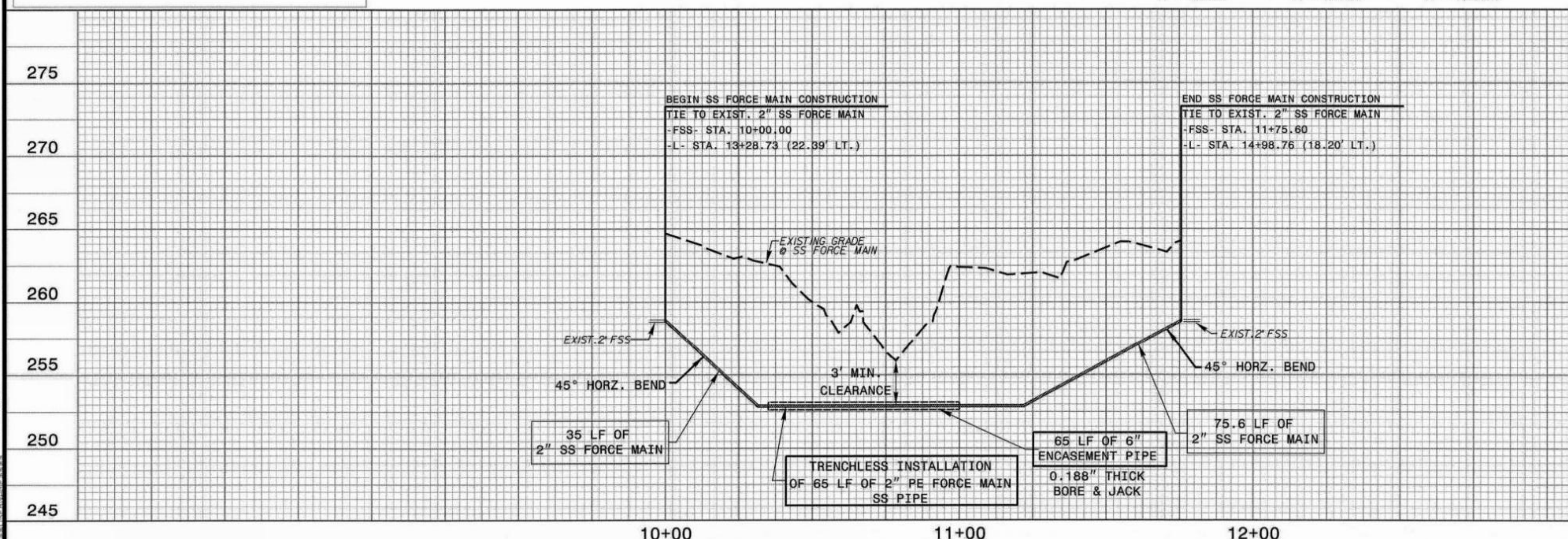
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "BD-5110-Y BL-2"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 456593.155(ft) EASTING: 1638830.348(ft)
ELEVATION: 265.24(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999874
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BD-5110-Y BL-2" TO -L- STATION 11+90.00 IS N 3° 31' 57.054" W 180.337 (ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

BL-1	N 456237.362	E 1638823.692	ELEV 266.10
BL-2	N 456593.155	E 1638830.348	ELEV 265.24
BL-3	N 456941.235	E 1638936.540	ELEV 269.95

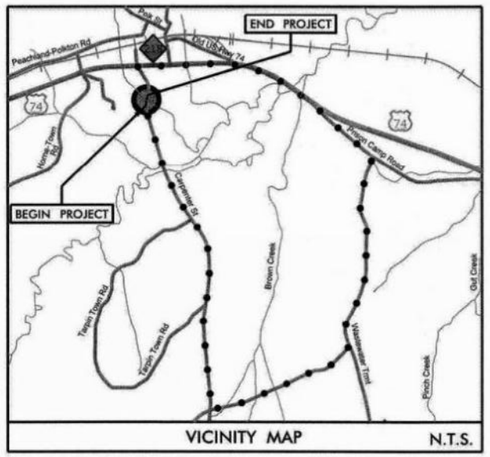


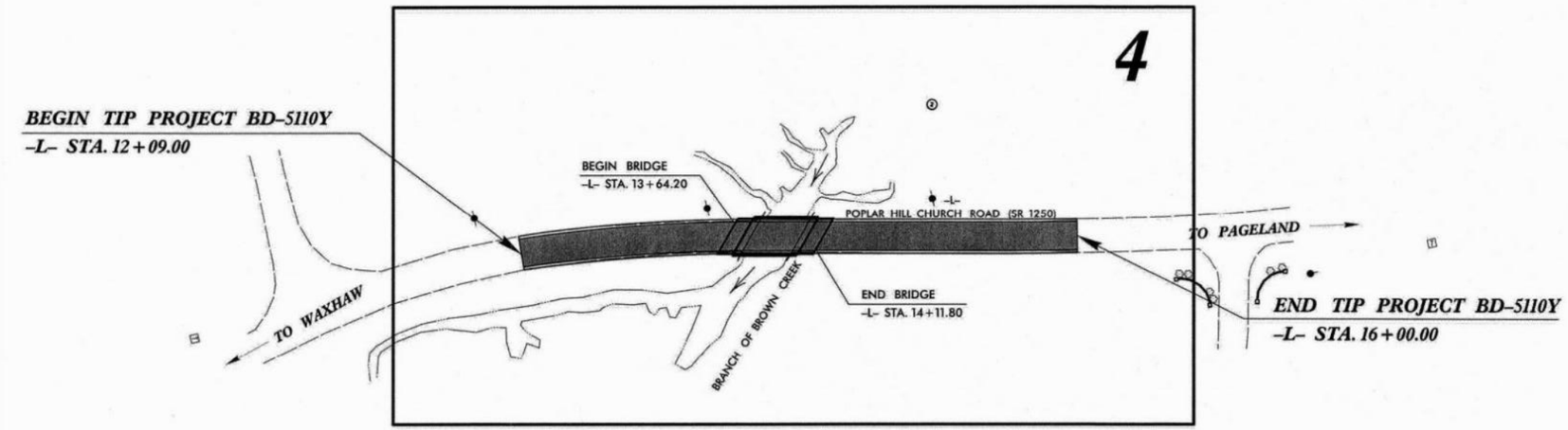
GENERAL NOTES:

1. The proposed utility construction shall meet the applicable requirements of the NC Department of Transportation's "Standard Specifications for Roads and Structures" dated January 2012, the standards details as shown on plans, and the project special provisions for utility construction.



Vaughn & Melton Consulting Engineers
Charlotte, North Carolina 704-357-0488
Asheville, North Carolina
Tri-Cities, Tennessee
Knoxville, Tennessee
Middlesboro, Kentucky
Spartanburg, South Carolina





09/08/99

TIP PROJECT: BD-5110Y

T.I.P. NO.	SHEET NO.
BD-5110Y	UO-1

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS
ANSON COUNTY

LOCATION: BRIDGE #151 OVER BRANCH OF BROWN CREEK ON SR 1250 (POPLAR HILL CHURCH ROAD)

TYPE OF WORK: AERIAL TELEPHONE

GRAPHIC SCALES

INDEX OF SHEETS

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

UTILITY OWNERS ON PROJECT

(1) TELEPHONE – WINDSTREAM COMMUNICATIONS

SEAL
26950
REECE M. SCHULER
7-20-12

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-5110Y	U0-2

UTILITIES BY OTHERS

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

V&M Vaughn & Melton Consulting Engineers
Asheville, North Carolina 828-253-2796
Tri-Cities, Tennessee 423-467-8403
Knoxville, Tennessee 865 546 6800
Middlesboro, Kentucky 606-248-5600
Charlotte, North Carolina 704-357-0488
Spartanburg, South Carolina 864-574-4775

REVISIONS 8/17/99

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "BD-5110-Y BL-2"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 456593.155(ft) EASTING: 1638830.348(ft)
ELEVATION: 265.24(ft)
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N 3° 31' 57.054" W 180.337 (ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

BL-1	N 456237.362	E 1638823.692	ELEV 266.10
BL-2	N 456593.155	E 1638830.348	ELEV 265.24
BL-3	N 456941.235	E 1638936.540	ELEV 269.95

NAD 83/NSRS 2007 NC GRID

(1) ANSON TECHNICAL INSTITUTE DB 181 PG 742

(2) POLKTON MANUFACTURING COMPANY DB 176 PG 385

REMOVE EXISTING POLE TO NEW LOCATION 5' LT

BEGIN TIP PROJECT BD-5110Y -L- POT 12+09.00

54' TAPER TO EXIST (LT & RT)

BEGIN SBG +40.45

+68.97 13.58' LT

LEIBETTER BRANCH

PC Sta. 15+52.10

END TIP PROJECT BD-5110Y -L- POT 16+00.00

END APPROACH SLAB -L- STA 14+22.80

END BRIDGE -L- STA 14+11.80

BEGIN APPROACH SLAB -L- STA 13+53.20

BEGIN BRIDGE -L- STA 13+64.20 (EXTENDED TANGENT)

PCC Sta. 12+39.76

PT Sta. 13+75.12

POPLAR HILL CHURCH RD -L- N 12° 53' 27.6" E

SR 1250 POPLAR HILL CHURCH RD 24' BST

CLIFF W. MARTIN DB 557 PG 200

WATER IS NOT FLOWING.

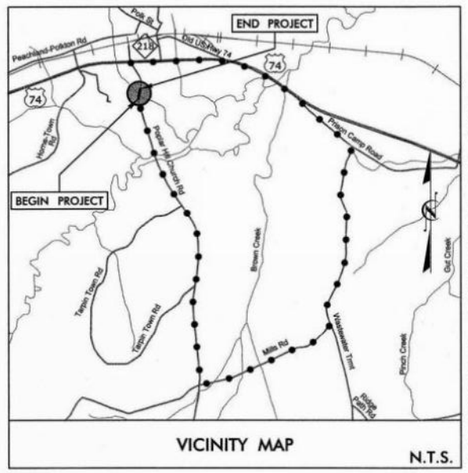
PI Sta 11+36.09	PI Sta 13+07.52	PI Sta 16+21.48
Δ = 21° 09' 31.4" (RT)	Δ = 6° 38' 46.1" (RT)	Δ = 3° 00' 37.6" (LT)
D = 10° 05' 14.2"	D = 4° 54' 34.8"	D = 2° 10' 13.1"
L = 209.76'	L = 135.37'	L = 138.71'
T = 106.09'	T = 67.76'	T = 69.37'
R = 568.00'	R = 1,167.00'	R = 2,640.00'

TIP PROJECT: BD-5110Y

CONTRACT:

EROSION CONTROL PLANS

7/20/2012



EROSION CONTROL PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

ANSON COUNTY

LOCATION: BRIDGE #151 OVER LEDBETTER BRANCH ON SR 1250 (POPLAR HILL CHURCH ROAD)

NAD 83 NSRS 2007

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BD-5110Y	EC-1	EC-4

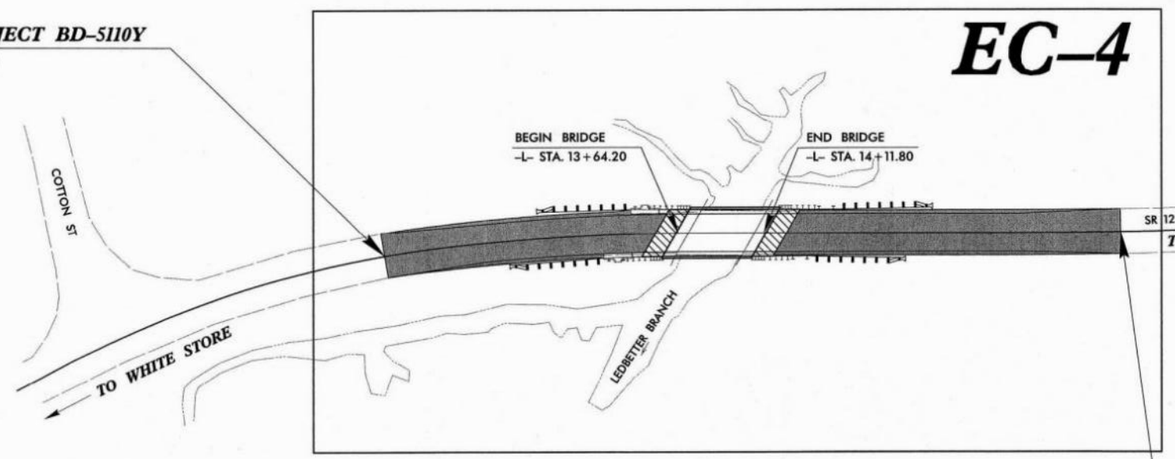
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
45356.1.25	BRZ-1250(3)	P.E.
45356.2.25	BRZ-1250(3)	R/W & UTILITIES
45356.3.25	BRZ-1250(3)	CONST.

EROSION AND SEDIMENT CONTROL MEASURES

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N.C. Department of Transportation - Raleigh, N.C., dated January 2012 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1607.01	Gravel Construction Entrance	
1622.01	Temporary Berms and Slope Drains	
1630.01	Riser Basin	
1630.03	Temporary Silt Ditch	TSD
1630.04	Stilling Basin	
1630.05	Temporary Diversion	TD
1630.06	Special Stilling Basin	
1632.01	Rock Inlet Sediment Trap Type A	A
1632.02	Rock Inlet Sediment Trap Type B	B
1632.03	Rock Inlet Sediment Trap Type C	C
1633.01	Temporary Rock Silt Check Type-A	
1633.02	Temporary Rock Silt Check Type-B	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
SP	Silt Basin Type B	
SP	Skimmer Basin	
SP	Tiered Skimmer Basin	
SP	Infiltration Basin	
SP	Wattle	
SP	Coir Fiber Matting	

BEGIN TIP PROJECT BD-5110Y
-L- STA. 12+09.00



END TIP PROJECT BD-5110Y
-L- STA. 16+00.00

These Erosion and Sediment Control Plans comply with the regulations set forth by the NCG010000 general construction permit effective August 3, 2011 issued by the North Carolina Department of Environment and Natural resources Division of Water Quality.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

Refer To E. C. Special Provisions for Special Considerations.

GRAPHIC SCALE

20 10 0 20 40

PLANS

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

Level III Designer
Davin Morrison, PE #3126

NORTH CAROLINA PROFESSIONAL SEAL 036058 ENGINEER DAVIN C. MORRISON
7/20/12

Prepared In the Office of:

STV/RALPH WHITEHEAD ASSOCIATES, INC.
1000 West Morehead St., Ste. 200, Charlotte NC, 28208
NC License Number F-0991
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2012 STANDARD SPECIFICATIONS

PROJECT REFERENCE NO.	SHEET NO.
BD-5110Y	EC-2
R/W SHEET NO.	

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

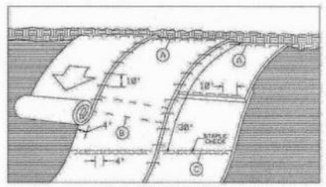
HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 038093 ENGINEER KEVIN C. MORRISON

7/20/12

MATTING INSTALLATION DETAIL

MATTING IN DITCHES



MATTING ON SLOPES

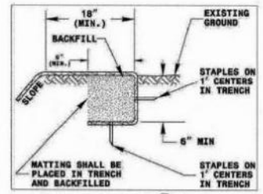


DIAGRAM (A)

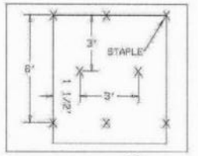


DIAGRAM (B)

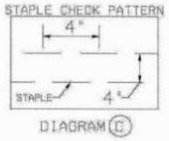


DIAGRAM (C)

NOTES:

THIS DETAIL APPLIES TO STRAW, EXCELSIOR, AND PERMANENT SOIL REINFORCEMENT MAT (PSRM) INSTALLATION.

STAPLES SHALL BE NO. 11 GAUGE STEEL WIRE FORMED INTO A "U" SHAPE WITH A MINIMUM THROAT WIDTH OF 1 INCH AND NOT LESS THAN 6 INCHES IN LENGTH.

7/20/2012 R:\Roadway\Pro\NEC\BD5110Y_rdy_EC02.dgn

PROJECT REFERENCE NO.	SHEET NO.
BD-5110Y	EC-3
R/W SHEET NO.	

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St. Ste. 200
Charlotte, NC 28208
NC License Number F-0991

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 038083 ENGINEER KEVIN C. MORRISON
7/20/12

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL (FOR SLOPE STABILIZATION)

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
				SUBTOTAL	120
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					15
				TOTAL	135
				SAY	135

COIR FIBER MATTING (FOR FLOODPLAIN BENCH)

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
				SUBTOTAL	20
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					5
				TOTAL	25
				SAY	25

7/20/2012 R:\Roadway\Proj\EC\BD5110Y_rdy_EC03.dgn

PROJECT REFERENCE NO.	SHEET NO.
BD-5110Y	EC-4
R/W SHEET NO.	

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 038063 ENGINEER KEVIN C. MORRISON
7/20/12

NAD 83 NSRS 2007

(1) ANSON TECHNICAL INSTITUTE
DB 181 PG 742

(2) POLKTON MANUFACTURING COMPANY
DB 176 PG 385

CLIFF W. MARTIN
DB 557 PG 200

FLOATING TURBIDITY CURTAIN

Place Matting for Erosion Control on Slope as Work Allows

Place Coir Fiber Matting on Floodplain Bench.

Place Matting for Erosion Control on Slope as Work Allows

TEMP. SILT FENCE (TYP.)

SPECIAL SEDIMENT CONTROL FENCE OUTLETS SPACED MAX 50FT A PART (TYP.)

12+00 13+00 14+00 15+00

LEDBETTER BRANCH

WATER IS NOT FLOWING.

EXISTING R/W 50 PR 25 PR 2' PVC FSS

SR 1250 POPLAR HILL CHURCH RD 24' BST

FALLOW VIEW ROAD 20' BST

15" CMP

BK WALL

NAIL

50.00'

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.

R:\Roadway\Pro\EC\BD5110Y_rdy_EC04.dgn

7/20/2012

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BD-5110Y	X-1

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

270
265
260
255

265.08
0.007
0.027
265.11

13+00

265
260
255

264.84
0.036
0.056
264.81

12+50

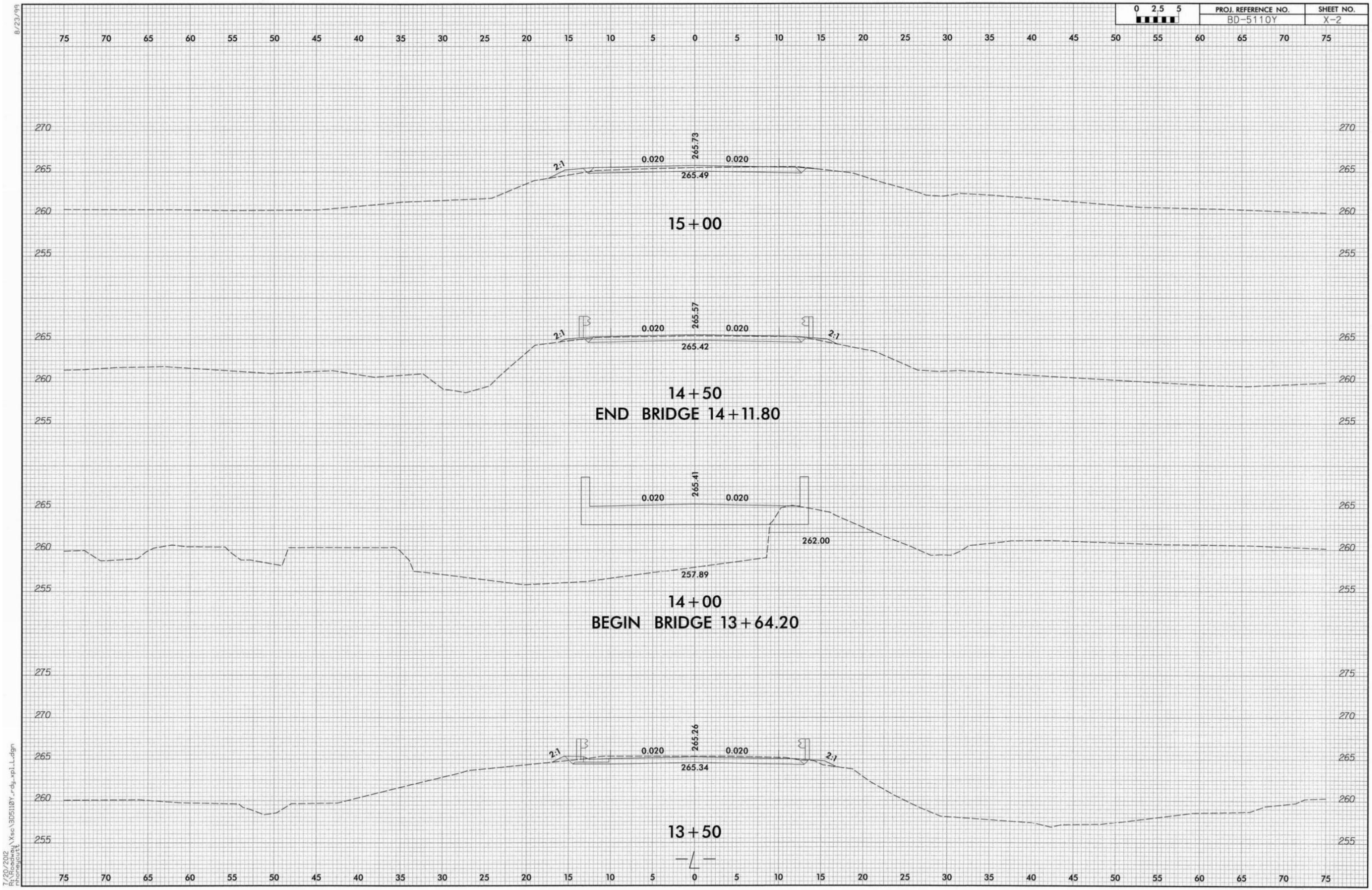
265
260
255

264.58

12+00

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

7/20/2012
R:\Projects\Xsc\BD5110Y_rdy_xs1_1.dgn
mhoneycutt



PROJ. REFERENCE NO.
BD-5110Y
SHEET NO.
X-2
0 2.5 5
8/23/99
15+00
265.73
265.49
0.020
0.020
2:1
14+50
END BRIDGE 14+11.80
265.57
265.42
14+00
BEGIN BRIDGE 13+64.20
265.41
262.00
257.89
13+50
265.26
265.34
7/20/2012

8/23/99

0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
BD-5110Y	X-3

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

275
270
265
260
255

267.22

16+50

0.052 266.30 0.031 2:1
266.30

16+00

2:1 0.023 265.97 0.002
265.76

15+50

7/20/2012
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rhoneycutt

F.A. PROJECT BRZ-1250(3)

13+50 14+00

270 260 250

SPAN A

FILL FACE @ END BENT #1
STA. 13+64.20
GRADE PT. EL. 265.30

FIX

EL. 265.0±

UNCLASSIFIED STRUCTURE EXCAVATION (TYP.)

EL. 261.5±

EL. 259.0±

EL. 257.0±

EL. 256.0±

N.W.S. EL. 261.0

EXISTING STRUCTURE (TYP.)

FILL FACE @ END BENT #2
STA. 14+11.80 -L-
GRADE PT. EL. 265.45

APPROXIMATE EXISTING GROUND LINE

HP 12X53 STEEL PILES (TYP.)

STEEL SHEET PILES (TYP.)

END BENT #1

END BENT #2

GRADE DATA

(+)0.3115% △ (+)0.7500%

PI = 15+40.00 -L-
EL. = 265.85
VC = 120'

NAD 83 | NSRS 2007

SECTION ALONG -L-

PLAN

PILES AND SHEET PILES NOT SHOWN FOR CLARITY

EXISTING STRUCTURE (TYP.)

LEDBETTER BRANCH

TO SR 1246

EXTENDED TANGENT

W.P. #1
STA. 13+64.20

BEGIN APPROACH SLAB
STA. 13+53.50 -L-

FILL FACE

120°-00'-00" (TYP.)

BRIDGE I.D.
STA. 13+88.00 -L-

PT STA. 13+75.12 -L-

W.P. #2
STA. 14+11.80 -L-

END APPROACH SLAB
STA. 14+22.65 -L-

-L-

TO US 74

FILL FACE

23'-9⅝"

23'-9⅜"

47'-7¾" (FILL FACE TO FILL FACE)

NOTE : W. P. #1 IS LOCATED ON AN EXTENDED TANGENT

HORIZONTAL CURVE DATA

PI Sta 13+07.52
Δ = 6° 38' 46.1" (RT)
D = 4° 54' 34.8"
L = 135.37'
T = 67.76'
R = 1,167.00'

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VIPUL A. PATEL

7/7/12

PROJECT NO. BD-5110Y

ANSON COUNTY

STATION: 13+88.00 -L-

SHEET 1 OF 2 REPLACES BRIDGE #151

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER LEDBETTER BRANCH ON SR 1250 (POPLAR HILL CH. RD.) BETWEEN US-74 AND SR 1246

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

DRAWN BY : J. G. KHARVA DATE : 06-05-12
CHECKED BY : B. C. HUNT DATE : 06-20-12

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jpadams

BENCH MARK :
NCDOT MONUMENT "BD-5110Y BL-2"
(N 456593.155, E 1638830.348)
BASELINE POINT (-L- STA. 13+68.96, 13.58' LT) ELEVATION : 265.24

HYDRAULIC DATA

DESIGN DISCHARGE	=	690 C.F.S.
FREQUENCY OF DESIGN FLOOD	=	25 YR.
DESIGN HIGH WATER ELEVATION	=	264.50
DRAINAGE AREA	=	1.5 SQ.MI.
BASE DISCHARGE (Q100)	=	970 C.F.S.
BASE HIGH WATER ELEVATION	=	266.24

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	=	690 C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	=	50 YRS.
OVERTOPPING FLOOD ELEVATION	=	265.06

NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO. 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 70 TONS PER PILE.

DRIVE PILES AT END BENT NO. 1 TO A REQUIRED DRIVING RESISTANCE OF 117 TONS PER PILE.

STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT NO.1. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

IF NECESSARY, PREDRILL PILE LOCATIONS AT END BENT NO. 1 TO ELEVATION 247.0 WITH EQUIPMENT WILL RESULT IN A MAXIMUM PREDRILLING DIAMETER OF 18". FOR PREDRILLING FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 70 TONS PER PILE.

DRIVE PILES AT END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 117 TONS PER PILE.

STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT NO.2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

IF NECESSARY, PREDRILL PILE LOCATIONS AT END BENT NO. 2 TO ELEVATION 247.0 WITH EQUIPMENT WILL RESULT IN A MAXIMUM PREDRILLING DIAMETER OF 18". FOR PREDRILLING FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PZ-27 SHEET PILES ARE TO BE PLACED ON STREAM SIDE OF HP 12X53 PILES END BENT NO. 1.

SHEET PILES ARE INSTALLED TO REFUSAL BELOW ELEVATION 255.0 AT END BENT NO. 1.

USE 4.0 FT. WIDE BY 4.0 FT. DEEP DEADMAN AT END BENT NO. 1. SEE STRUCTURE PLANS FOR DETAILS.

PZ-27 SHEET PILES ARE TO BE PLACED ON STREAM SIDE OF HP 12X53 PILES END BENT NO. 2.

SHEET PILES ARE INSTALLED TO REFUSAL BELOW ELEVATION 255.0 AT END BENT NO. 2.

USE 4.0 FT. WIDE BY 4.0 FT. DEEP DEADMAN AT END BENT NO. 2. SEE STRUCTURE PLANS FOR DETAILS.

ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

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

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.

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 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.

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.

THE BRIDGE IS LOCATED IN SEISMIC ZONE 1.

THE EXISTING STRUCTURE CONSISTING OF 1 SPAN @ 35'-6" WITH A STEEL PLANK DECK COVERED WITH ASPHALT ON STEEL I-BEAMS AND A SUBSTRUCTURE CONSISTING OF TIMBER CAPS, TIMBER PILES AND STEEL CRUTCH BENTS SHALL BE REMOVED.

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

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

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES", MAY, 2001.

FOR UTILITY INFORMATION, SEE ROADWAY PLANS.

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 14+05.50 -L-."

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.

STRUCTURE TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL	HP 12x53 STEEL PILES		STEEL PILE POINTS	PREDRILLING FOR PILES	VERTICAL CONCRETE BARRIER RAIL	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS		18" STEEL SHEET PILES
	LUMP SUM	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	LBS.	NO.	LIN. FT.	EACH	LIN. FT.	LIN. FT.	LUMP SUM	NO.	LIN. FT.	SQ. FT.
SUPERSTRUCTURE				LUMP SUM							90.29	LUMP SUM	9	405.0	
END BENT #1			17.9		2534	155	5	75	5	70					309.2
END BENT #2			19.0		2554	155	5	75	5	70					347.4
TOTAL	LUMP SUM	LUMP SUM	36.9	LUMP SUM	5088	310	10	150	10	140	90.29	LUMP SUM	9	405.0	656.6

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VIPUL A. PATEL
7/9/12

PROJECT NO. BD-5110Y
ANSON COUNTY
STATION: 13+88.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STRUCTURE TOTAL BILL OF MATERIAL AND STRUCTURE NOTES

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

DRAWN BY : J. G. KHARVA DATE : 6/12
CHECKED BY : J. P. ADAMS DATE : 06/20/12

09-JUL-2012 11:59
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jpodoms

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	1.179	--	1.75	0.251	1.48	45'	EL	21.923	0.654	**1.18**	45'	EL	**8.769**	0.80	0.251	1.20	45'	EL	21.923	
		HL-93(Opr)	N/A	--	1.529	--	1.35	0.251	1.92	45'	EL	21.923	0.654	1.53	45'	EL	8.769	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	1.36	48.973	1.75	0.251	1.82	45'	EL	21.923	0.654	**1.36**	45'	EL	**8.769**	0.80	0.251	1.47	45'	EL	21.923	
		HS-20(Opr)	36.000	--	1.763	63.484	1.35	0.251	2.36	45'	EL	21.923	0.654	1.76	45'	EL	8.769	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.873	38.783	1.4	0.251	4.44	45'	EL	21.923	0.654	3.59	45'	EL	8.769	0.80	0.251	2.87	45'	EL	21.923	
		SNGARBS2	20.000	--	2.321	46.427	1.4	0.251	3.59	45'	EL	21.923	0.654	2.69	45'	EL	8.769	0.80	0.251	2.32	45'	EL	21.923	
		SNAGRIS2	22.000	--	2.277	50.09	1.4	0.251	3.48	45'	EL	17.538	0.654	2.55	45'	EL	8.769	0.80	0.251	2.28	45'	EL	21.923	
		SNCOTTS3	27.250	--	1.434	39.088	1.4	0.251	2.22	45'	EL	21.923	0.654	1.81	45'	EL	8.769	0.80	0.251	1.43	45'	EL	21.923	
		SNAGGRS4	34.925	--	1.266	44.231	1.4	0.251	1.96	45'	EL	21.923	0.654	1.6	45'	EL	8.769	0.80	0.251	1.27	45'	EL	21.923	
		SNS5A	35.550	--	1.234	43.856	1.4	0.251	1.91	45'	EL	21.923	0.654	1.67	45'	EL	8.769	0.80	0.251	1.23	45'	EL	21.923	
		SNS6A	39.950	--	1.162	46.437	1.4	0.251	1.8	45'	EL	21.923	0.654	1.57	45'	EL	8.769	0.80	0.251	1.16	45'	EL	21.923	
		SNS7B	42.000	3	1.108	46.54	1.4	0.251	1.71	45'	EL	21.923	0.654	1.61	45'	EL	8.769	0.80	0.251	**1.11**	45'	EL	**21.923**	
	TTST	TNAGRIT3	33.000	--	1.427	47.083	1.4	0.251	2.21	45'	EL	21.923	0.654	1.83	45'	EL	8.769	0.80	0.251	1.43	45'	EL	21.923	
		TNT4A	33.075	--	1.442	47.687	1.4	0.251	2.23	45'	EL	21.923	0.654	1.74	45'	EL	8.769	0.80	0.251	1.44	45'	EL	21.923	
		TNT6A	41.600	--	1.21	50.352	1.4	0.251	1.87	45'	EL	21.923	0.654	1.71	45'	EL	8.769	0.80	0.251	1.21	45'	EL	21.923	
		TNT7A	42.000	--	1.234	51.826	1.4	0.251	1.91	45'	EL	21.923	0.654	1.59	45'	EL	8.769	0.80	0.251	1.23	45'	EL	21.923	
		TNT7B	42.000	--	1.285	53.952	1.4	0.251	1.99	45'	EL	21.923	0.654	1.52	45'	EL	8.769	0.80	0.251	1.28	45'	EL	21.923	
		TNAGRIT4	43.000	--	1.224	52.616	1.4	0.251	1.89	45'	EL	21.923	0.654	1.46	45'	EL	8.769	0.80	0.251	1.22	45'	EL	21.923	
		TNAGT5A	45.000	--	1.138	51.23	1.4	0.251	1.76	45'	EL	21.923	0.654	1.52	45'	EL	8.769	0.80	0.251	1.14	45'	EL	21.923	
		TNAGT5B	45.000	--	1.111	50.015	1.4	0.251	1.72	45'	EL	21.923	0.654	1.38	45'	EL	8.769	0.80	0.251	1.11	45'	EL	21.923	

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-5110Y

ANSON COUNTY

STATION: 13+88.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR
45' CORED SLAB UNIT
60° SKEW & 120° SKEW
(NON-INTERSTATE TRAFFIC)

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VIPUL A. PATEL
7/7/12

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

ASSEMBLED BY :	B.C. HUNT	DATE : 5/2012
CHECKED BY :	J.P. ADAMS	DATE : 7/2012
DRAWN BY : CVC	6/10	
CHECKED BY : DNS	6/10	

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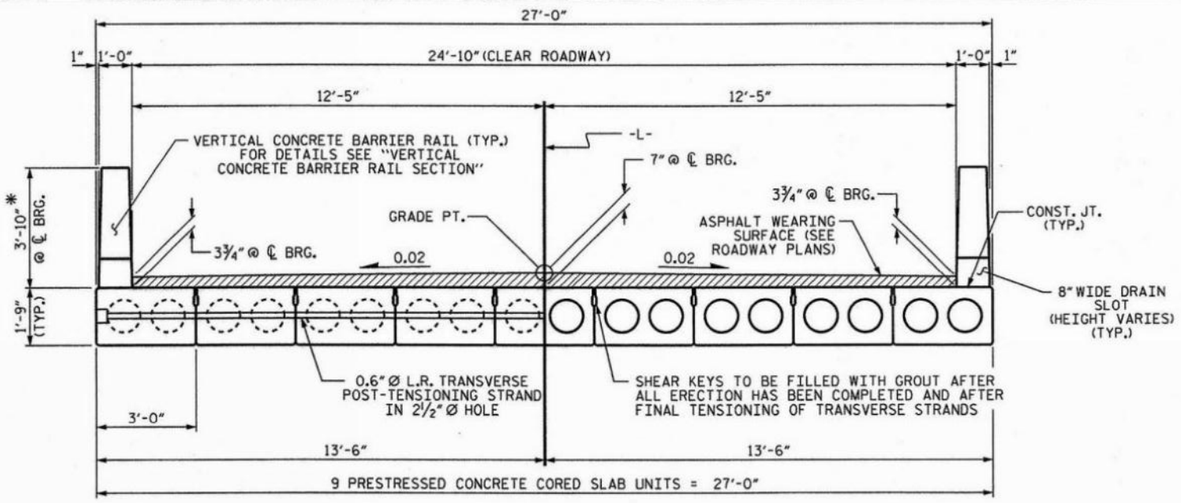
jpadams

STD. NO. 21LRFR1_60&120S_45L



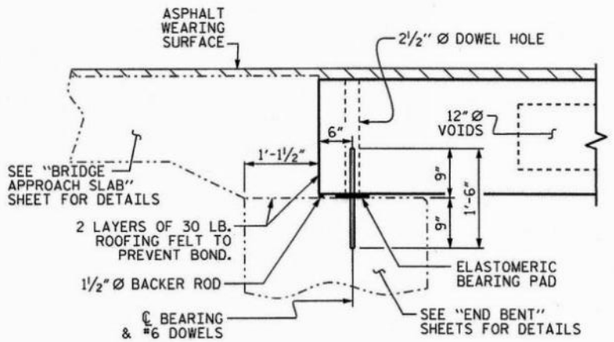
HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

HALF SECTION
THROUGH VOIDS

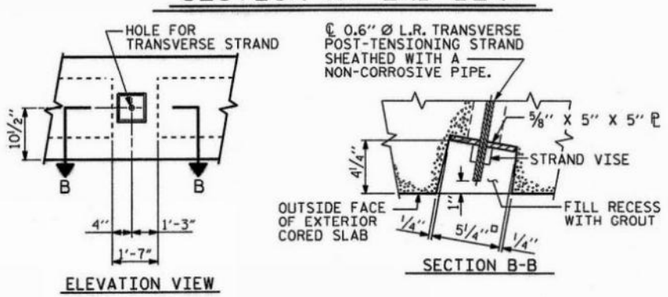
TYPICAL SECTION

* - 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.

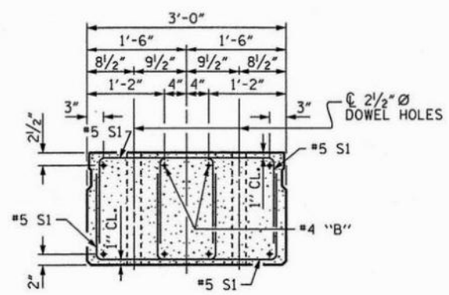
FIXED END



SECTION AT END BENT

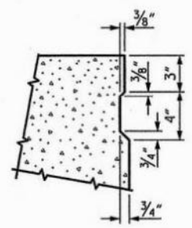


GROUTED RECESS AT END OF POST-TENSIONED STRAND OF CORED SLABS



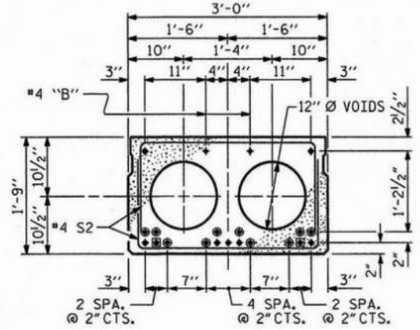
END ELEVATION

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.



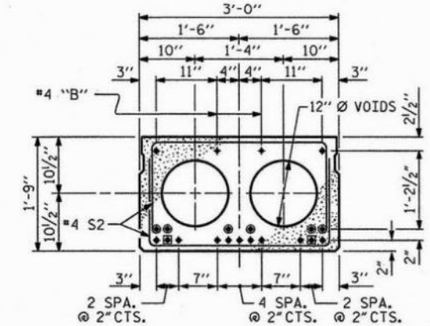
SHEAR KEY DETAIL

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



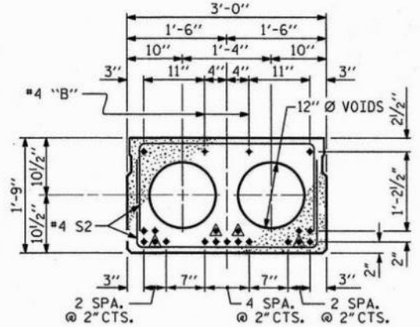
INTERIOR SLAB SECTION (25', 30' & 35' UNIT)

(9 STRANDS REQUIRED)



INTERIOR SLAB SECTION (40' & 45' UNIT)

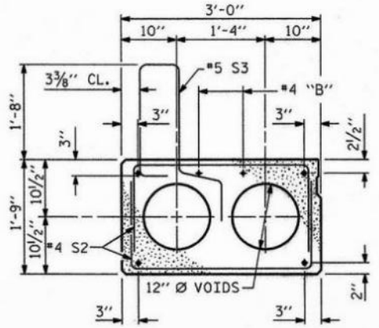
(13 STRANDS REQUIRED)



INTERIOR SLAB SECTION (50' & 55' UNIT)

(19 STRANDS REQUIRED)

0.6" Ø LOW RELAXATION STRAND LAYOUT



EXT. SLAB SECTION

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

▲ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

▣ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-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

PROJECT NO. BD-5110Y
ANSON COUNTY
STATION: 13+88.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
120° SKEW

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

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VIPUL A. PATEL
7/9/12

ASSEMBLED BY :	B.C. HUNT	DATE :	5/2012
CHECKED BY :	J.P. ADAMS	DATE :	7/2012
DRAWN BY :	DGE 5/09	REV. 12/11	MAA/AAC
CHECKED BY :	BCH 6/09		

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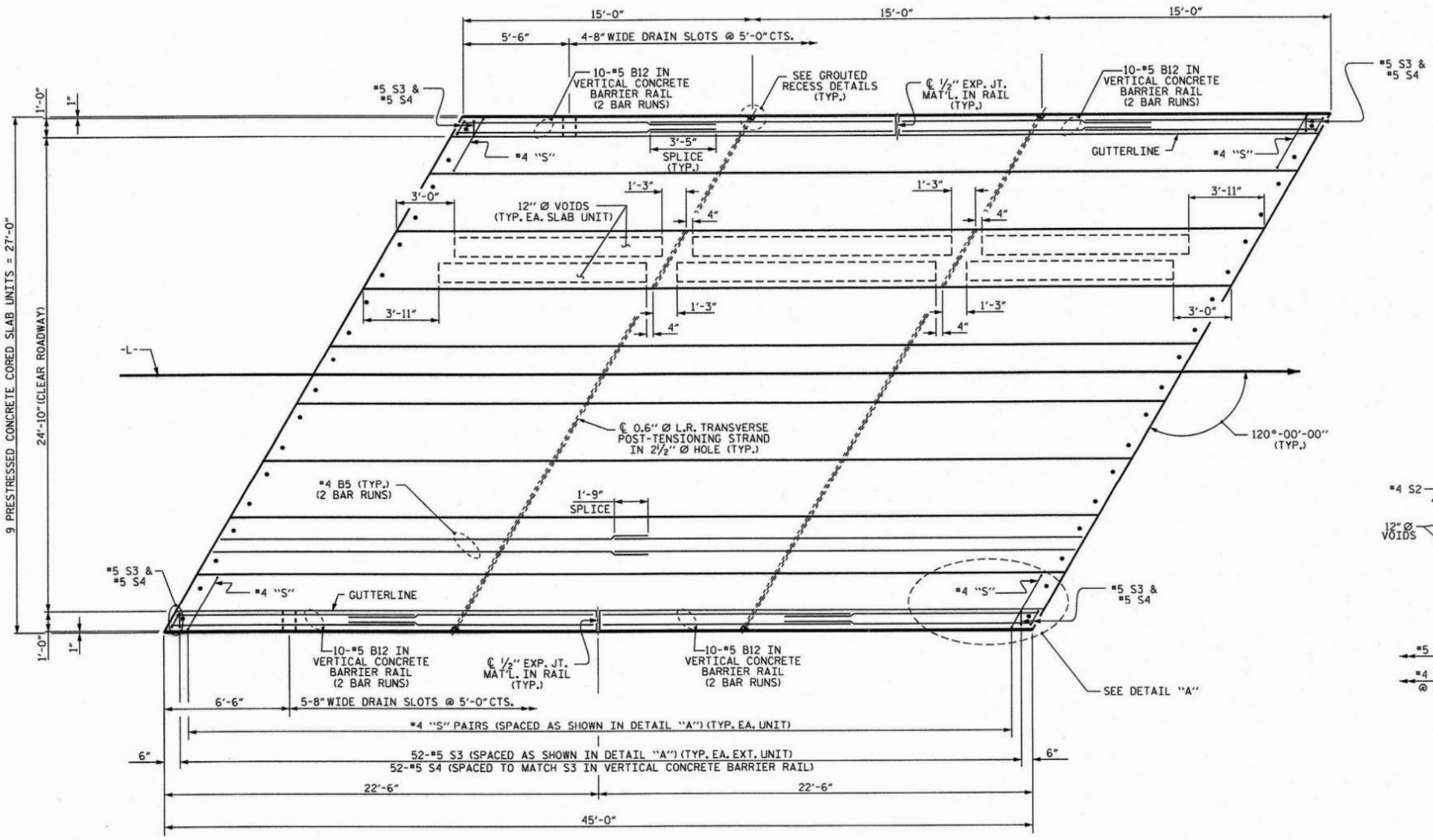
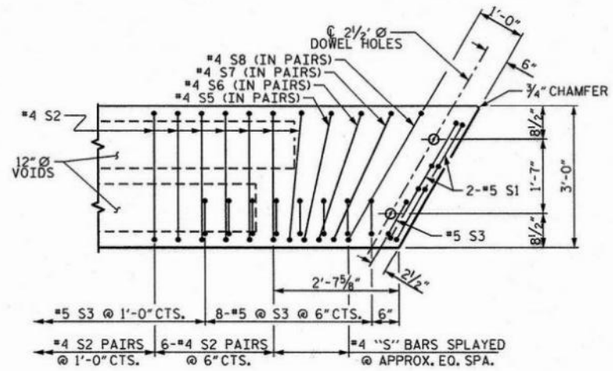
STD. NO. 21"PCS2_27_120S



PLAN OF UNIT



DETAIL "A"

NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

PROJECT NO. BD-5110Y

ANSON COUNTY

STATION: 13+88.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 45' UNIT 24'-10" CLEAR ROADWAY 120° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 23171 ENGINEER PAUL A. PATEL

7/9/12

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			14

ASSEMBLED BY :	B.C. HUNT	DATE :	5/2012
CHECKED BY :	J.P. ADAMS	DATE :	7/2012
DRAWN BY : DGE 5/09	REV. 12/5/11 MAA/AAC		
CHECKED BY: BCH 6/09			

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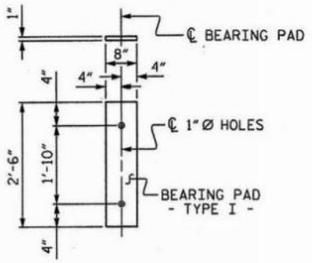
STD. NO. 21"PCS_27_120S_45L



FIXED END
(TYPE I - 18 REQ'D)

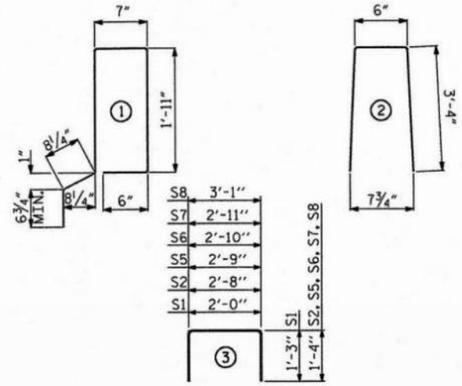
ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

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

CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
45' UNIT			
EXTERIOR C.S.	2	45'-0"	90'-0"
INTERIOR C.S.	7	45'-0"	315'-0"
TOTAL	9		405'-0"

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

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.

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

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

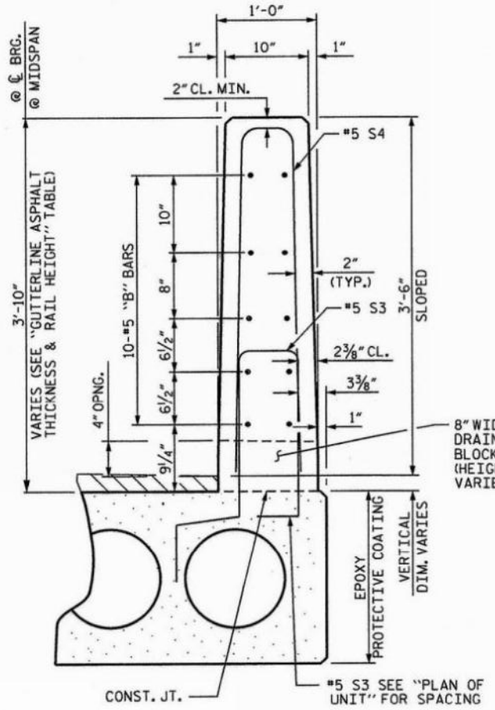
APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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.

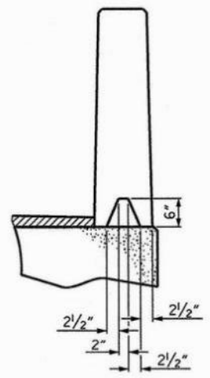
TRANSVERSE POST TENSIONING OF THE CORED SLAB UNITS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

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.

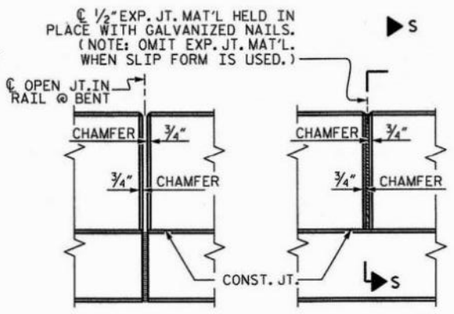
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.



ELEVATION AT EXPANSION JOINTS



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



VERTICAL CONCRETE BARRIER RAIL SECTION

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	45' UNIT					
*B12	80	80	#5	STR	13'-0"	1085
* S4	108	108	#5	2	7'-2"	807
*EPOXY COATED REINFORCING STEEL				LBS.		1892
CLASS AA CONCRETE				CU.YDS.		11.8
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN.FT.		90.29

BILL OF MATERIAL FOR ONE 45' CORED SLAB UNIT							
				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B5	4	#4	STR	23'-3"	62	23'-3"	62
S1	8	#5	3	4'-6"	38	4'-6"	38
S2	92	#4	3	5'-4"	328	5'-4"	328
* S3	54	#5	1	6'-2"	347		
S5	4	#4	3	5'-5"	14	5'-5"	14
S6	4	#4	3	5'-6"	15	5'-6"	15
S7	4	#4	3	5'-7"	15	5'-7"	15
S8	4	#4	3	5'-9"	15	5'-9"	15
REINFORCING STEEL			LBS.		487		487
*EPOXY COATED REINFORCING STEEL			LBS.		347		
6500 P.S.I. CONCRETE			CU. YDS.		6.6		6.6
0.6"Ø L.R. STRANDS			No.		13		13

DEAD LOAD DEFLECTION AND CAMBER	
	3'-0" x 1'-9"
40' & 45' CORED SLAB UNIT	0.6"Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1¼" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	⅛" ↓
FINAL CAMBER	1⅛" ↑

** INCLUDES FUTURE WEARING SURFACE

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
24'-10" CLEAR ROADWAY	ASPHALT OVERLAY THICKNESS	RAIL HEIGHT
	@ MID-SPAN	@ MID-SPAN
	NORMAL CROWN SECTION	
25', 30' & 35' UNITS	3⅜"	3'-9⅝"
40' & 45' UNITS	2⅝"	3'-8⅞"
50' & 55' UNITS	1½"	3'-7¾"

CONCRETE RELEASE STRENGTH	
UNIT	PSI
25', 30' & 35' UNITS	4000
40' & 45' UNITS	4000
50' & 55' UNITS	4900

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VIMAL A. PATEL
7/9/12

PROJECT NO. BD-5110Y
ANSON COUNTY
STATION: 13+88.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
120° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			14

STD. NO. 21"PCS3_27_120S

ASSEMBLED BY : B.C. HUNT	DATE : 5/2012	
CHECKED BY : J.P. ADAMS	DATE : 7/2012	
DRAWN BY : DGE 5/09	REV. 12/11	MAA/AAC
CHECKED BY : BCH 6/09		

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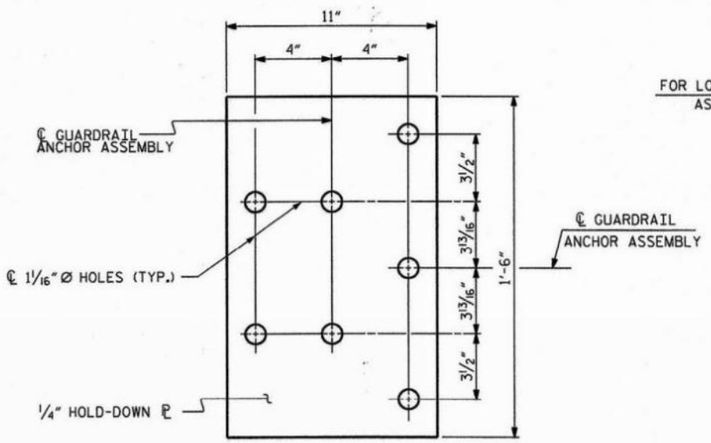
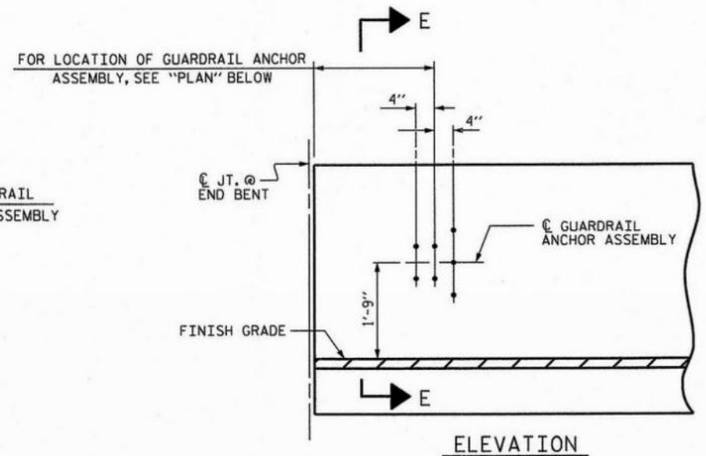


PLAN



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.)

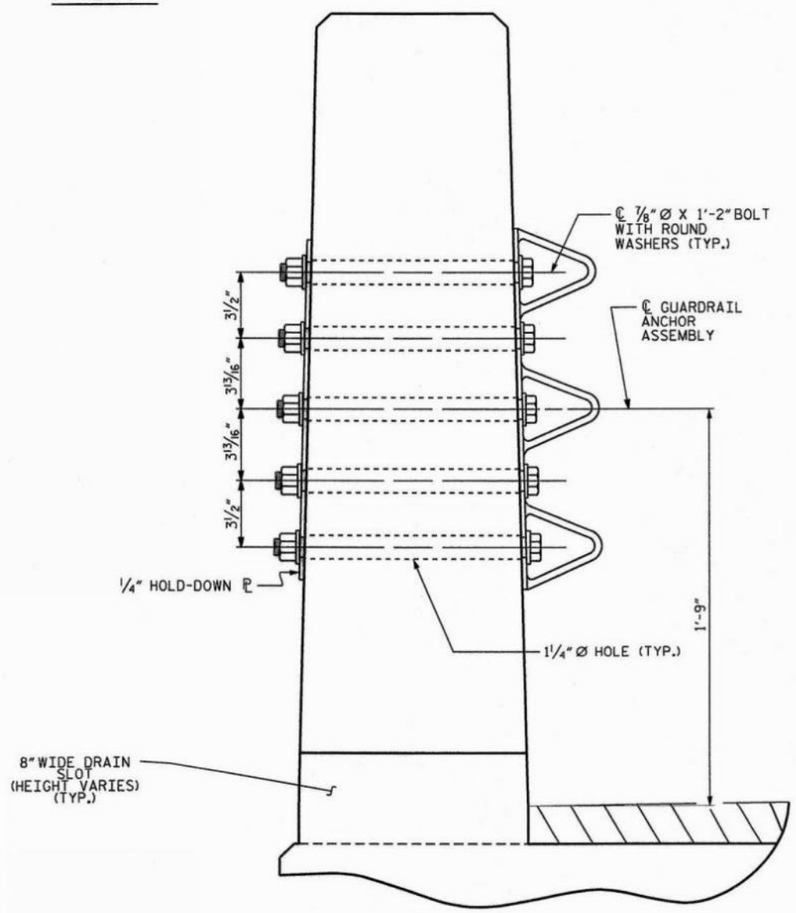
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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.

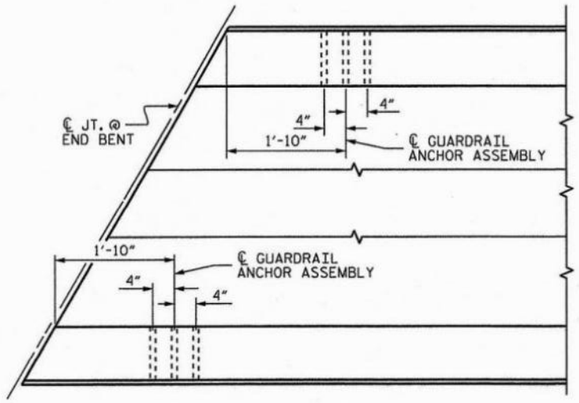
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

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

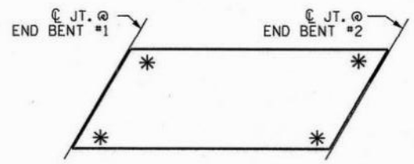
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENT

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. BD-5110Y

ANSON COUNTY

STATION: 13+88.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
GUARDRAIL ANCHORAGE FOR VERTICAL CONCRETE BARRIER RAIL

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VIPUL A. PATEL
7/9/12

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			14

ASSEMBLED BY : J. G. KHARVA	DATE : 7/12
CHECKED BY : V.A. PATEL	DATE : 7/12
DRAWN BY : MAA 5/10	ADDED 5/6/10
CHECKED BY : GM 5/10	REV. 10/1/11 MAA/GM
	REV. 12/5/11 MAA/GM

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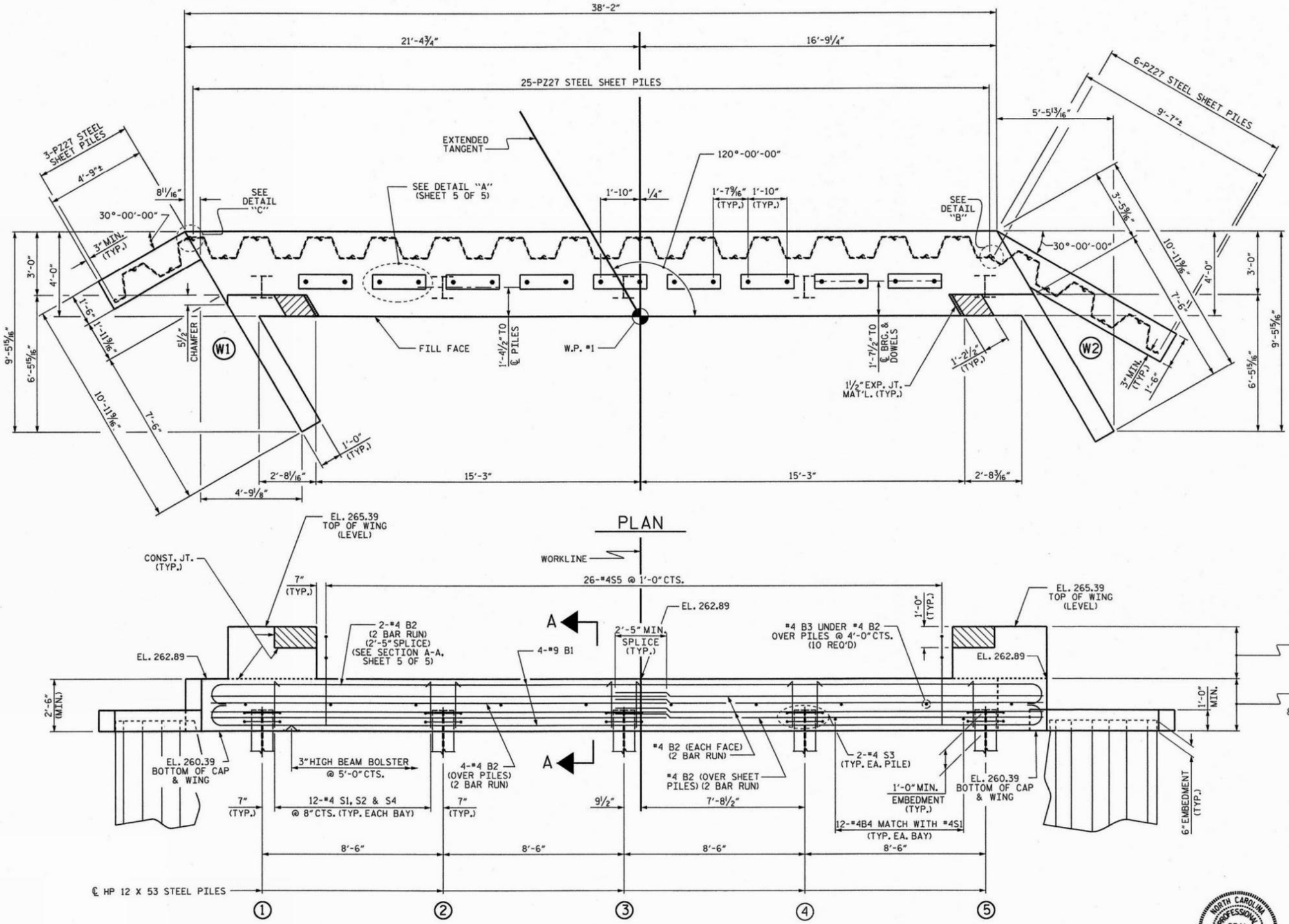
(SHT 2) STD. NO. GRA3



NOTES

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

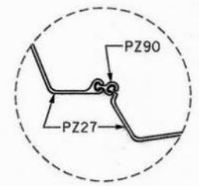
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 5 OF 5.

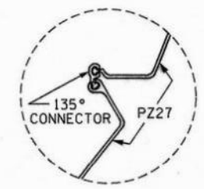
FOR STEEL SHEET PILES, SEE SPECIAL PROVISIONS.

STEEL SHEET PILES SHALL BE EMBEDDED A MINIMUM OF 6" INTO END BENT CAP.

THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR BRIDGE APPROACH FILLS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.



DETAIL "B"



DETAIL "C"

PROJECT NO. BD-5110Y

ANSON COUNTY

STATION: 13+88.00 -L-

SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			14

ASSEMBLED BY : J.P. ADAMS DATE : 6/11/12
CHECKED BY : H.A. LOCKLEAR DATE : 7/3/12

DRAWN BY : DGE 01/10
CHECKED BY : MKT 01/10

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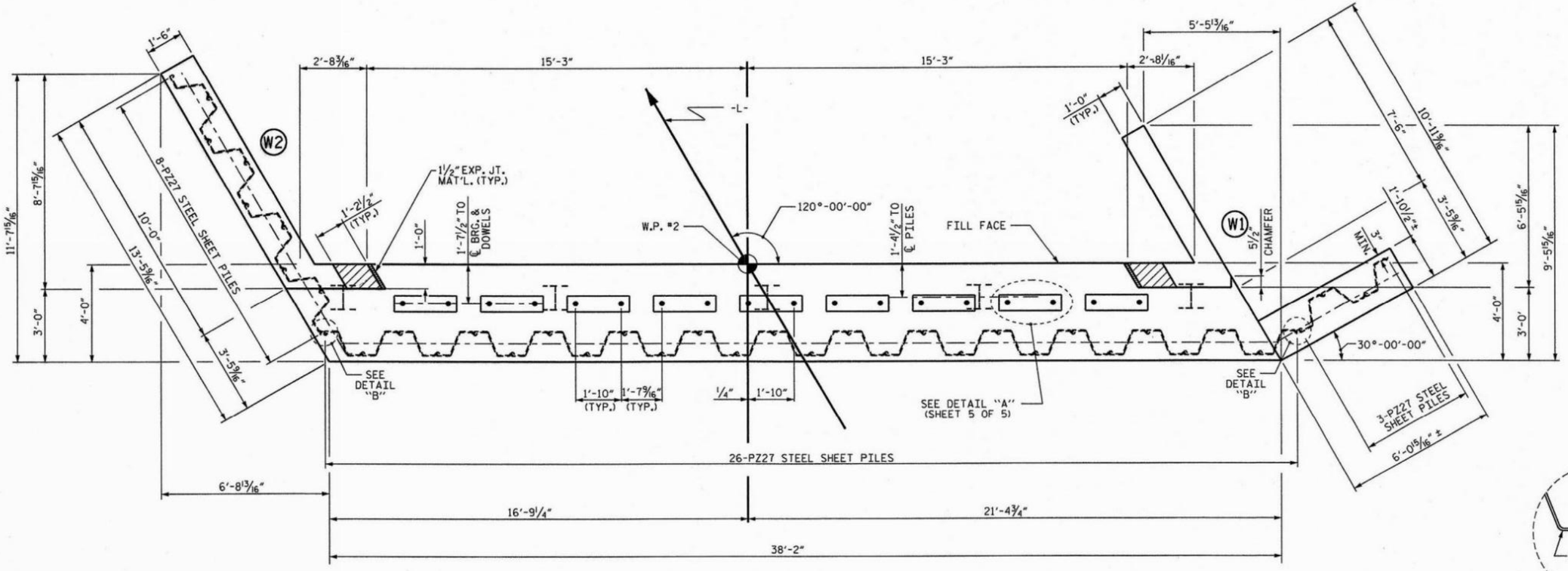
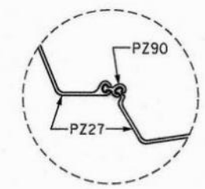
NORTH CAROLINA PROFESSIONAL SEAL 28371 ENGINEER VIPUL A. PATEL
7/9/12

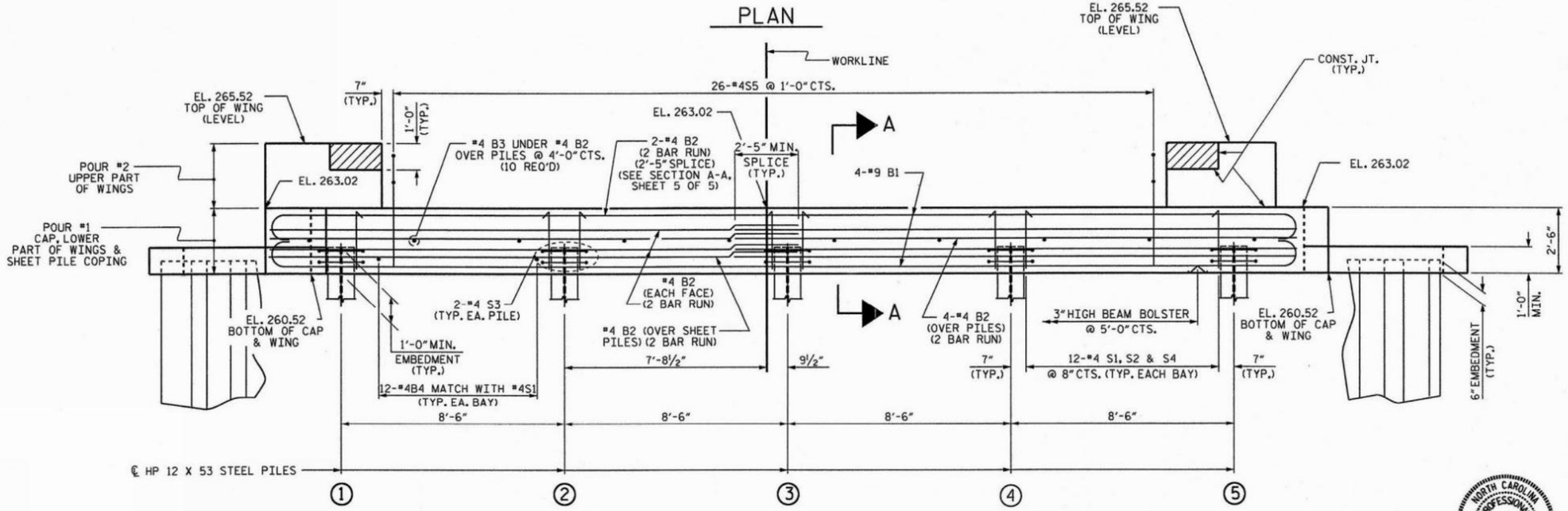
STD. NO. EB_27_120S



PLAN



DETAIL "B"



ELEVATION

WINGS NOT SHOWN FOR CLARITY. FOR SECTION A-A, SEE SHEET 5 OF 5.

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VIPUL A. PATEL
7/9/12

PROJECT NO. BD-5110Y
ANSON COUNTY
STATION: 13+88.00 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			14

ASSEMBLED BY : J.P. ADAMS DATE : 6/13/12
CHECKED BY : H.A. LOCKLEAR DATE : 7/3/12
DRAWN BY : DGE 01/10
CHECKED BY : MKT 01/10

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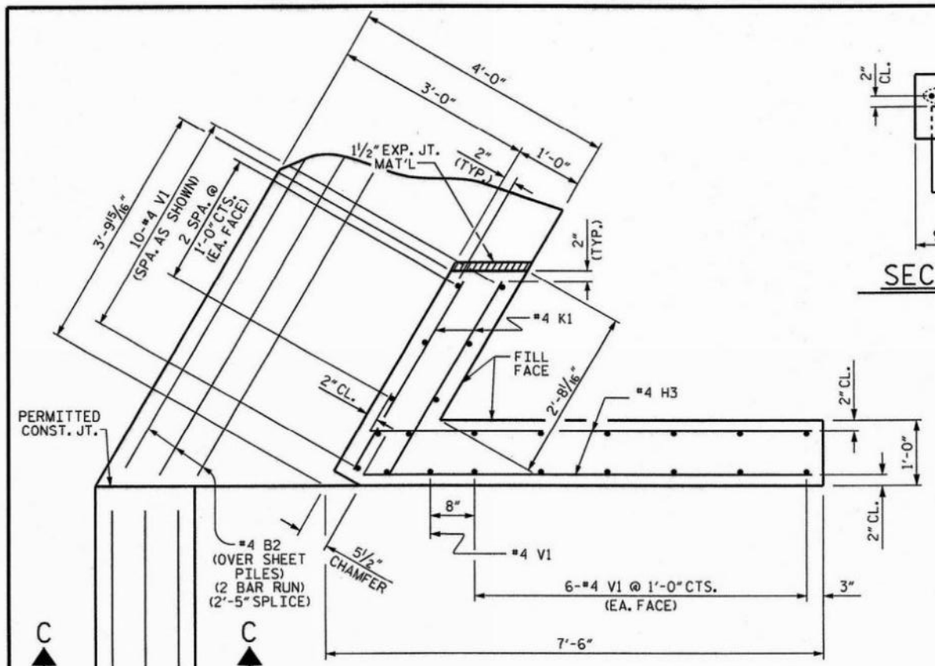
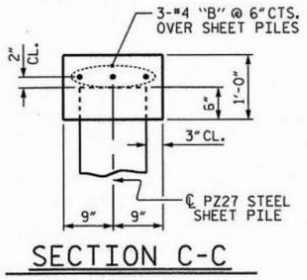
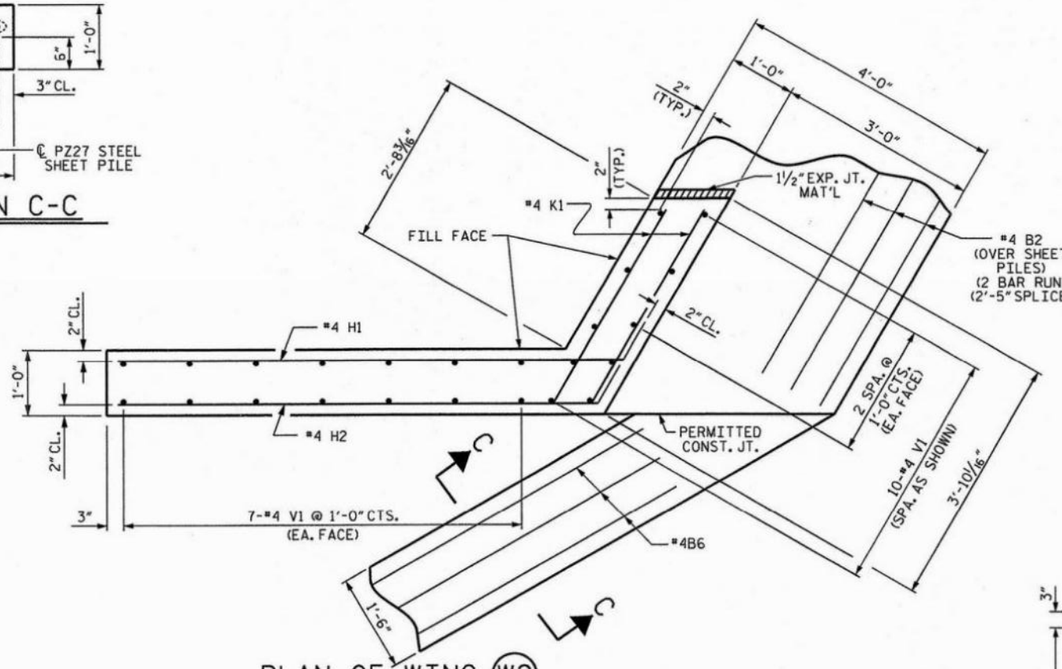
STD. NO. EB_27_120S



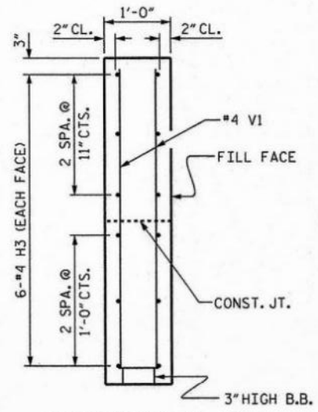
PLAN OF WING (W1)



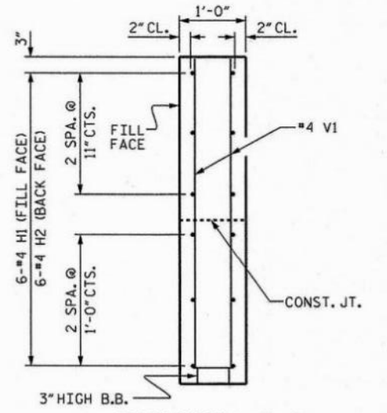
SECTION C-C



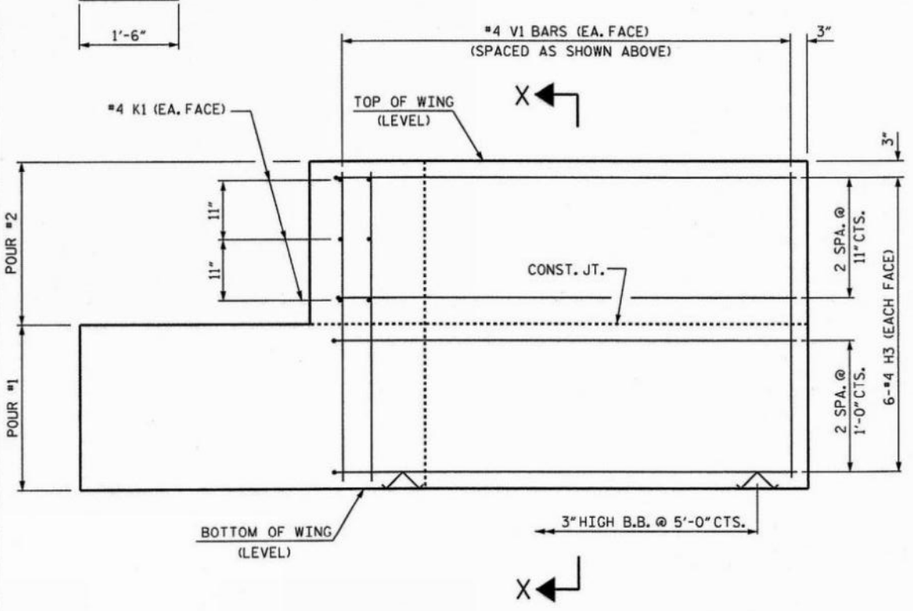
PLAN OF WING (W2)



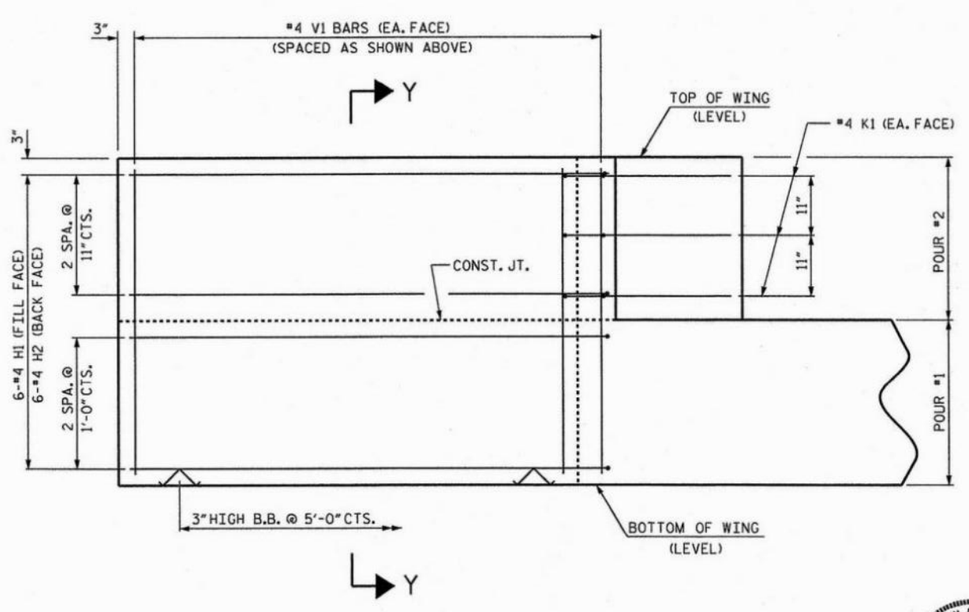
SECTION X-X



SECTION Y-Y



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

WING DETAILS

ASSEMBLED BY : J.P. ADAMS DATE : 6/13/12
CHECKED BY : H.A. LOCKLEAR DATE : 7/3/12
DRAWN BY : DGE 12/09
CHECKED BY : MKT 01/10

09-JUL-2012 11:59
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jpadams

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VIPUL A. PATEL
7/7/12

PROJECT NO. BD-5110Y
ANSON COUNTY
STATION: 13+88.00 -L-

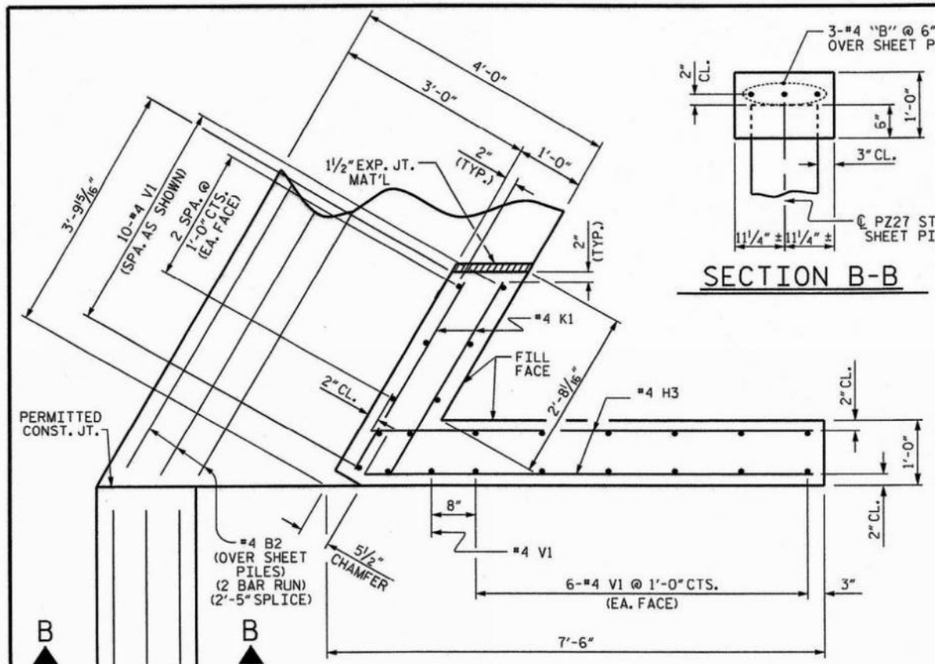
SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

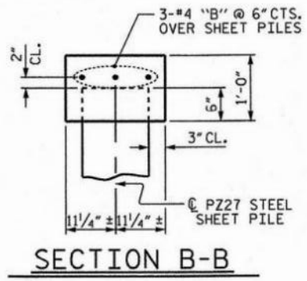
SUBSTRUCTURE
END BENT 1
WING DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			14

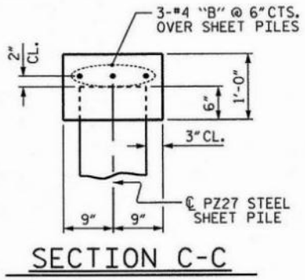
STD. NO. EB_27_120S



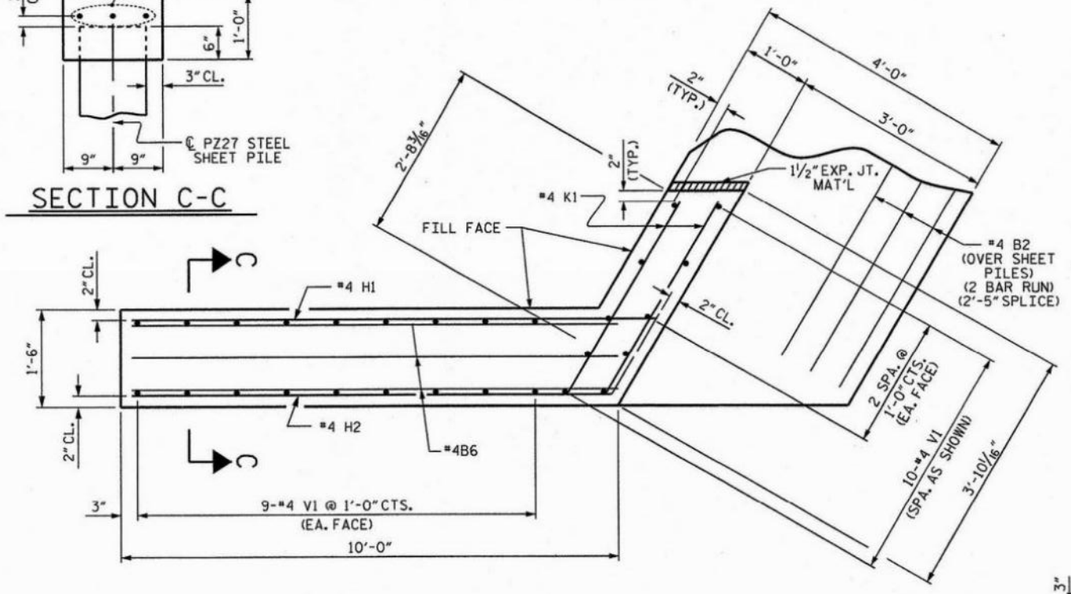
PLAN OF WING (W1)

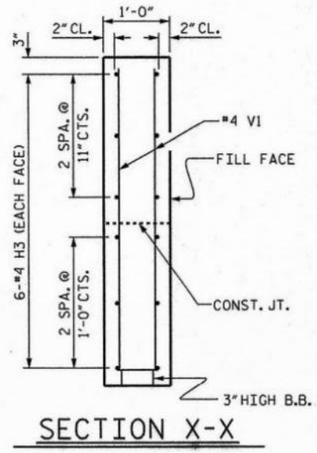


SECTION B-B

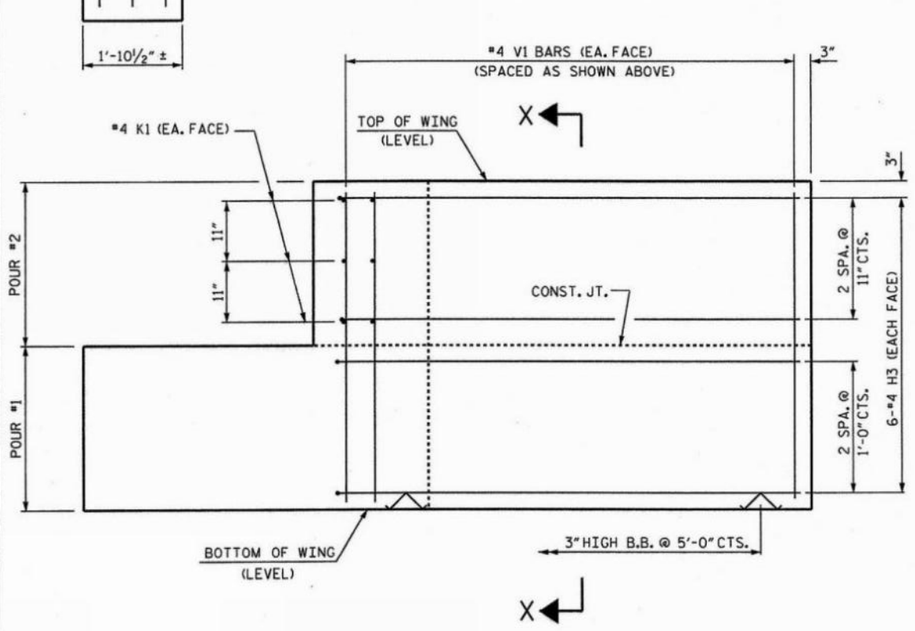


SECTION C-C

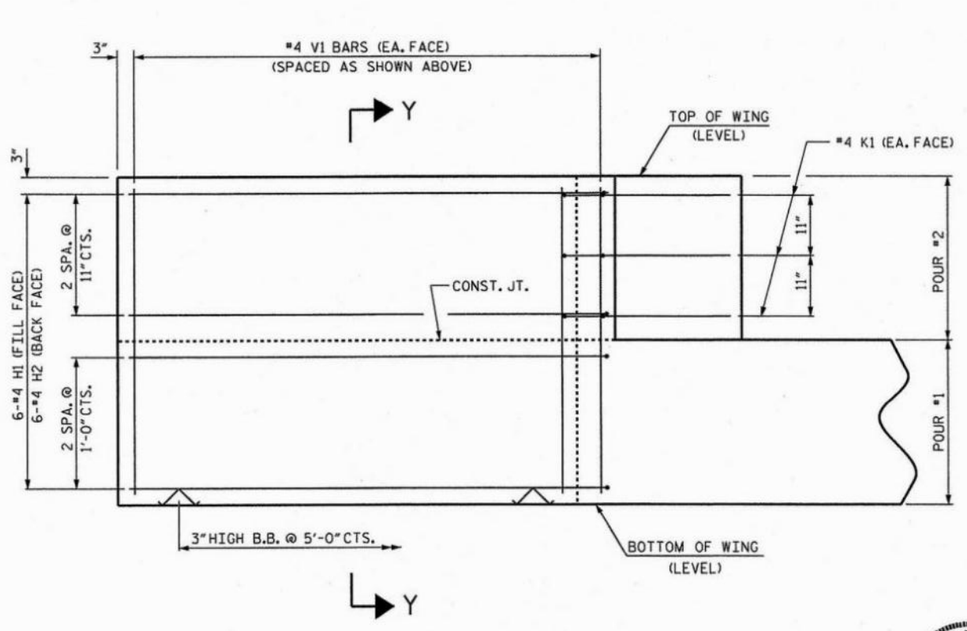




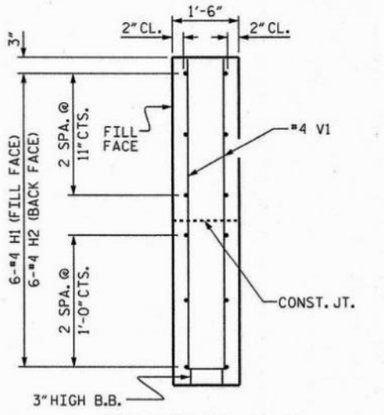
SECTION X-X



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION Y-Y

WING DETAILS

ASSEMBLED BY : J.P. ADAMS	DATE : 6/13/12
CHECKED BY : H.A. LOCKLEAR	DATE : 7/3/12
DRAWN BY : DGE 12/09	
CHECKED BY : MKT 01/10	

09-JUL-2012 11:59
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jpadams

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VIPUL A. PATEL
7/9/12

PROJECT NO. BD-5110Y
ANSON COUNTY
STATION: 13+88.00 -L-

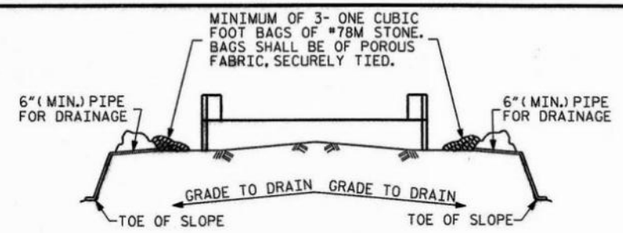
SHEET 4 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 2
WING DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			14

STD. NO. EB_27_120S

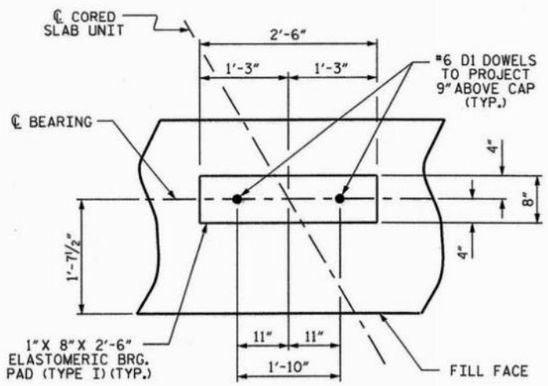


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

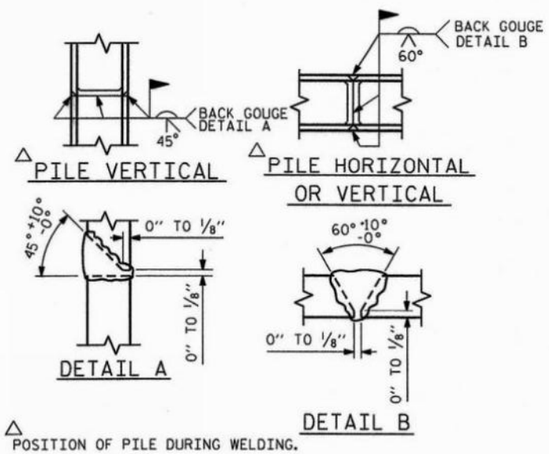
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



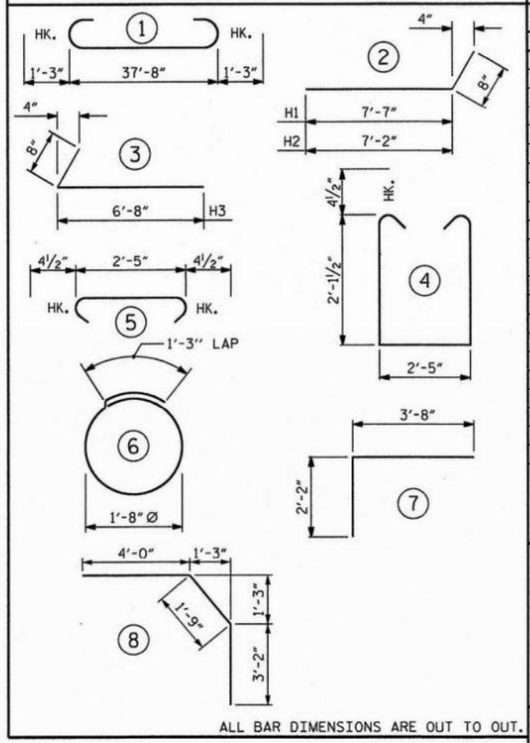
DETAIL "A"

(END BENT 1 SHOWN, END BENT 2 SIMILAR BY ROTATION)

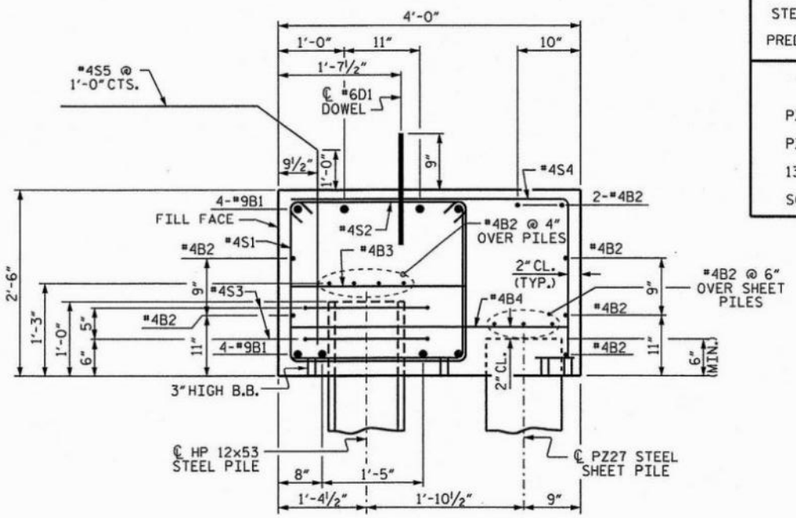


△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT.



SECTION A-A

BILL OF MATERIAL — END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	40'-2"	1093
B2	28	#4	STR	20'-2"	377
B3	10	#4	STR	2'-5"	16
B4	48	#4	STR	3'-8"	118
B5	3	#4	STR	4'-4"	9
B6	3	#4	STR	7'-0"	14
D1	18	#6	STR	1'-6"	41
H1	6	#4	2	8'-3"	33
H2	6	#4	2	7'-10"	31
H3	12	#4	3	7'-4"	59
K1	12	#4	STR	3'-3"	26
S1	48	#4	4	7'-5"	238
S2	48	#4	5	3'-2"	102
S3	10	#4	6	6'-6"	43
S4	48	#4	7	5'-10"	187
* S5	26	#4	8	8'-11"	155
V1	47	#4	STR	4'-8"	147

REINFORCING STEEL (FOR ONE END BENT) 2534 LBS.

EPOXY REINFORCING STEEL (FOR ONE END BENT) 155 LBS.

CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)

POUR #1 CAP, LOWER PART OF WINGS & COPING 16.0 C.Y.

POUR #2 UPPER PART OF WINGS 1.9 C.Y.

TOTAL CLASS A CONCRETE 17.9 C.Y.

END BENT 1
HP 12 X 53 STEEL PILES
NO: 5 LIN. FT.= 75

STEEL PILE POINTS 5 EA.

PREDRILLING FOR PILES = 70 LIN. FT.

END BENT 1
18" STEEL SHEET PILES

PZ27 NO. = 34

PZ90 NO. = 1

135° CONNECTOR NO. = 1

SQ. FT. = 309.2

BILL OF MATERIAL — END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	40'-2"	1093
B2	28	#4	STR	20'-2"	377
B3	10	#4	STR	2'-5"	16
B4	48	#4	STR	3'-8"	118
B5	3	#4	STR	5'-8"	11
B6	3	#4	STR	9'-9"	20
D1	18	#6	STR	1'-6"	41
H1	6	#4	2	8'-3"	33
H2	6	#4	2	7'-10"	31
H3	12	#4	3	7'-4"	59
K1	12	#4	STR	3'-3"	26
S1	48	#4	4	7'-5"	238
S2	48	#4	5	3'-2"	102
S3	10	#4	6	6'-6"	43
S4	48	#4	7	5'-10"	187
* S5	26	#4	8	8'-11"	155
V1	51	#4	STR	4'-8"	159

REINFORCING STEEL (FOR ONE END BENT) 2554 LBS.

EPOXY REINFORCING STEEL (FOR ONE END BENT) 155 LBS.

CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)

POUR #1 CAP, LOWER PART OF WINGS & COPING 16.4 C.Y.

POUR #2 UPPER PART OF WINGS 2.6 C.Y.

TOTAL CLASS A CONCRETE 19.0 C.Y.

END BENT 2
HP 12 X 53 STEEL PILES
NO: 5 LIN. FT.= 75

STEEL PILE POINTS 5 EA.

PREDRILLING FOR PILES = 70 LIN. FT.

END BENT 2
18" STEEL SHEET PILES

PZ27 NO. = 37

PZ90 NO. = 2

SQ. FT. = 347.4

PROJECT NO. BD-5110Y

ANSON COUNTY

STATION: 13+88.00 -L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1 & 2 DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			14

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER PAUL A. PATEL
7/9/12

ASSEMBLED BY : J.P. ADAMS	DATE : 6/12/12
CHECKED BY : H.A. LOCKLEAR	DATE : 7/3/12
DRAWN BY : DGE 12/09	
CHECKED BY : MKT 01/10	

09-JUL-2012 11:59
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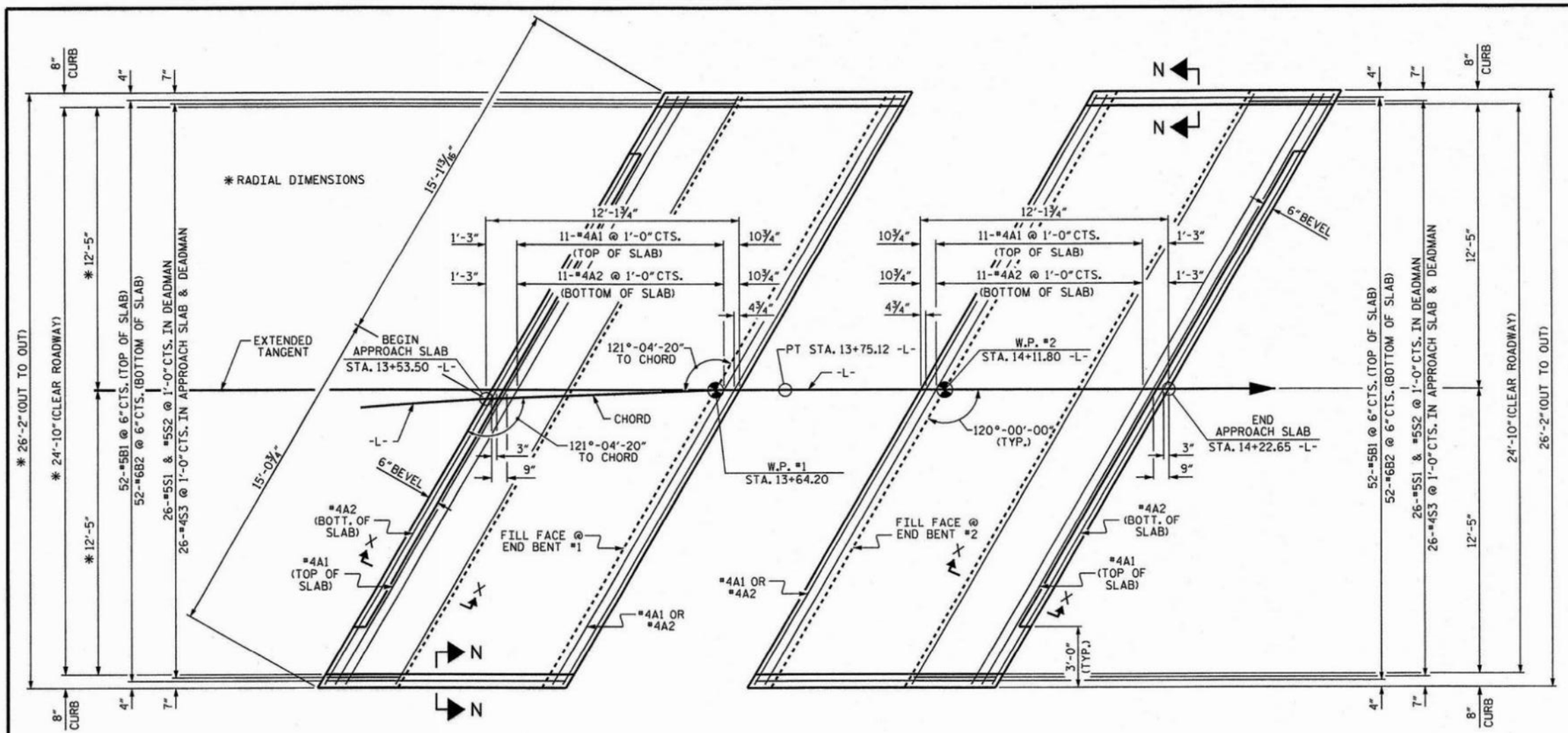
jpadams

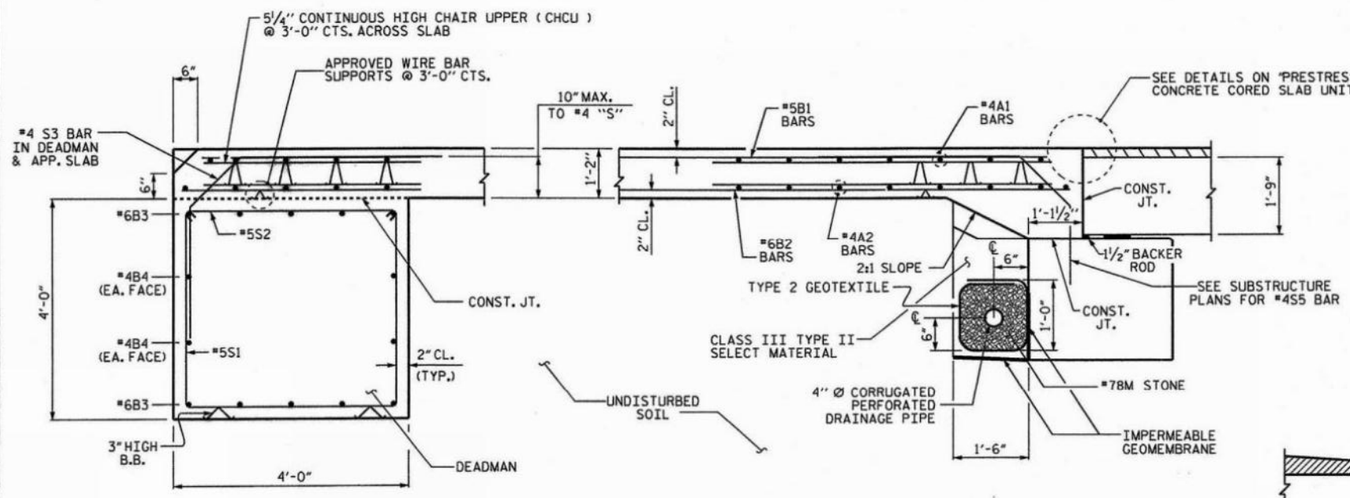
STD. NO. EB_27_120S



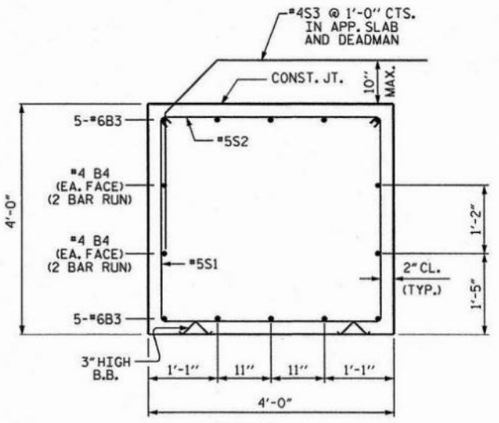
PLAN @ END BENT #1

ARC OFFSETS ARE NEGLIGIBLE AND NOT SHOWN AT APPROACH SLAB 1.

PLAN @ END BENT #2

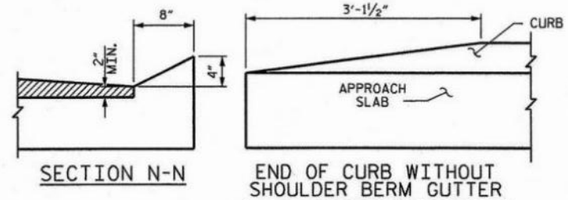


SECTION THRU SLAB



SECTION X-X

(APP. SLAB NOT SHOWN)

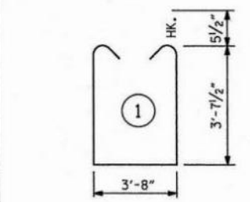


SECTION N-N

END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

APPROACH SLAB AT EB #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	13	#4	STR	29'-9"	258
A2	13	#4	STR	29'-9"	258
* B1	52	#5	STR	11'-1"	601
B2	52	#6	STR	11'-7"	905
B3	10	#6	STR	29'-9"	447
B4	8	#4	STR	15'-10"	85
S1	26	#5	1	11'-10"	321
S2	26	#5	2	4'-7"	124
* S3	26	#4	3	7'-5"	129
REINFORCING STEEL				LBS.	2140
* EPOXY COATED REINFORCING STEEL				LBS.	988
CLASS AA CONCRETE					
POUR #1 DEADMAN				C. Y.	17.9
POUR #2 APPROACH SLAB				C. Y.	15.4
TOTAL				C. Y.	33.3

APPROACH SLAB AT EB #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	13	#4	STR	29'-9"	258
A2	13	#4	STR	29'-9"	258
* B1	52	#5	STR	11'-1"	601
B2	52	#6	STR	11'-7"	905
B3	10	#6	STR	29'-9"	447
B4	8	#4	STR	15'-10"	85
S1	26	#5	1	11'-10"	321
S2	26	#5	2	4'-7"	124
* S3	26	#4	3	7'-5"	129
REINFORCING STEEL				LBS.	2140
* EPOXY COATED REINFORCING STEEL				LBS.	988
CLASS AA CONCRETE					
POUR #1 DEADMAN				C. Y.	17.9
POUR #2 APPROACH SLAB				C. Y.	15.4
TOTAL				C. Y.	33.3

SPLICE LENGTHS

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

PROJECT NO. BD-5110Y

ANSON COUNTY

STATION: 13+88.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT
(SUB-REGIONAL TIER)
(120° SKEW)

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VIPUL A. PATEL
7/9/12

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			14

DRAWN BY : J.P. ADAMS DATE : 7/2/12
CHECKED BY : J. G. KHARVA DATE : 7/12

09-JUL-2012 11:59
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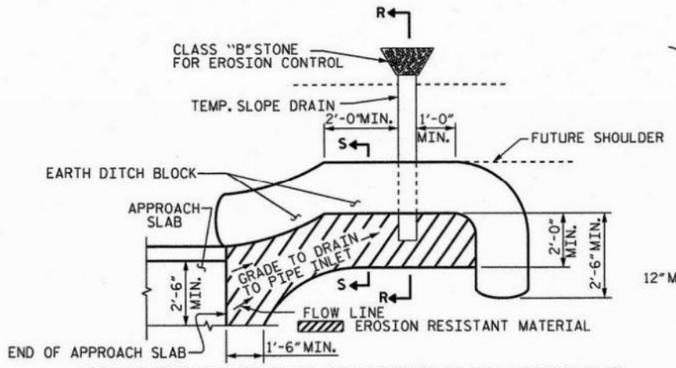
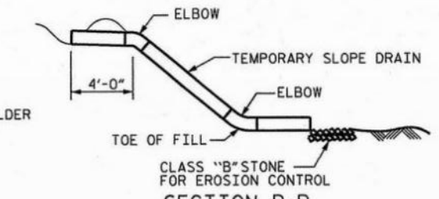
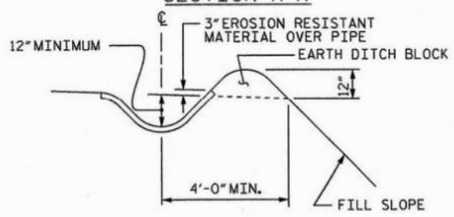


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 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



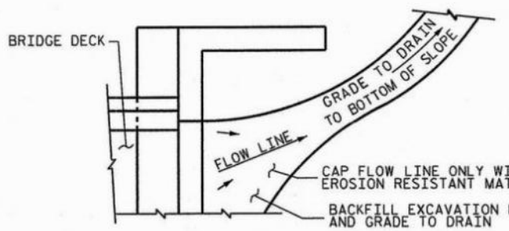
SECTION R-R



SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



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

NOTES

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.

IMPERMEABLE GEOMEMBRANE, 4 Ø DRAINAGE PIPE, CLASS III TYPE II SELECT MATERIAL, 6" COMP. A.B.C. & #78M STONE SHALL BE PAID FOR UNDER LUMP SUM PRICE BID FOR BRIDGE APPROACH SLABS.

THE COST OF THE DEADMAN INCLUDING REINFORCING STEEL AND CONCRETE SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR BRIDGE APPROACH APPROACH SLABS.

ARC OFFSETS AT APPROACH SLAB #1 ARE NEGLIGIBLE.

APPROACH SLAB GROOVING IS NOT REQUIRED.

PROJECT NO. BD-5110Y

ANSON COUNTY

STATION: 13+88.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

BRIDGE APPROACH SLAB DETAILS

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

NORTH CAROLINA PROFESSIONAL SEAL 23171 ENGINEER VIRAL A. PATEL
7/9/12

STD. NO. BAS4

ASSEMBLED BY : J.P. ADAMS		DATE : 7/2/2012	
CHECKED BY : J. G. KHARVA		DATE : 7/12	
DRAWN BY : FCJ	11/88	REV. 5/7/03	RWW/JTE
CHECKED BY : ARB	11/88	REV. 5/1/06RRR	MAA/KMM
		REV. 10/1/11	MAA/GM

09-JUL-2012 11:59
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jpadams

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 EEW W RGW REV. 5-7-03 RWW W JTE REV. 10-1-11 MAA W GM
REV. 8-16-99 RWW W LES REV. 5-1-06 TLA W GM

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