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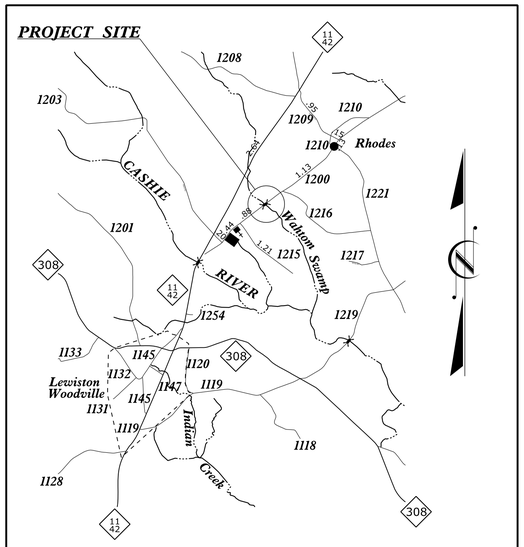
09/08/99

TIP PROJECT: B–5106

CONTRACT:

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BERTIE COUNTY

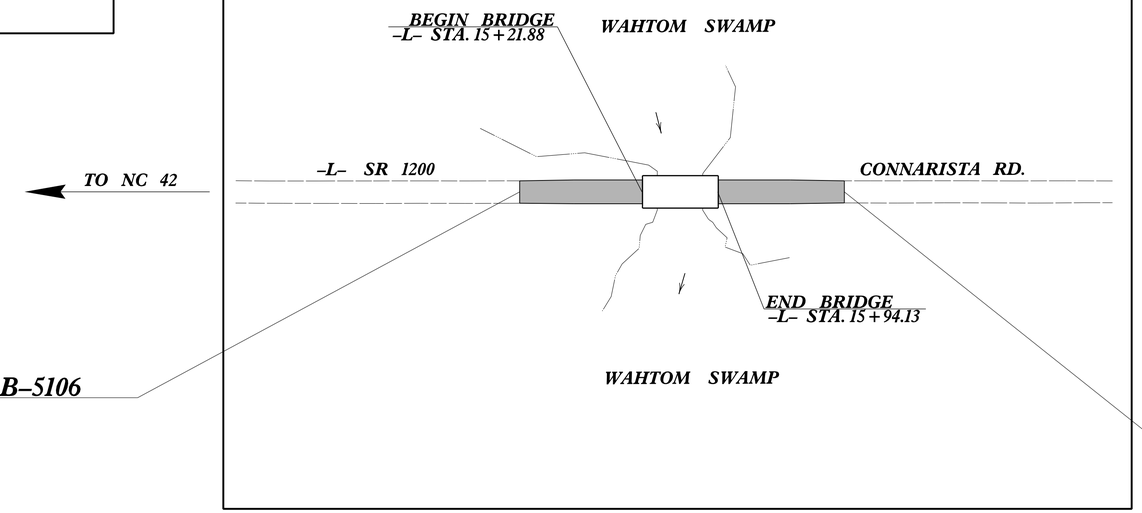
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B–5106	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
42243.1.1	BRSTP–1200(7)	PE
42243.1.1	BRSTP–1200(7)	UTIL., ROW
42243.1.1	BRSTP–1200(7)	CONST.

LOCATION: BRIDGE NO. 148 OVER WAHTOM SWAMP ON SR 1200 (CONNARISTA RD.)

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

4



GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2015 = 775
ADT 2035 = 1135
DHV = 10 %
D = 60 %
T = 6 % *
V = 55 MPH
* TTST = 2% DUAL 4%
FUNC CLASS = LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B–5106	=	0.043 MILES
LENGTH STRUCTURE TIP PROJECT B–5106	=	0.014 MILES
TOTAL LENGTH TIP PROJECT B–5106	=	0.057 MILES

WETHERILL ENGINEERING

Prepared for the North Carolina Department of Transportation in the Office of:
1223 JONES FRANKLIN ROAD
SUITE 164
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:

EDWARD G. WETHERILL, PE
PROJECT ENGINEER

BOB A. MAY, PE
PROJECT DESIGN ENGINEER

NCDOT CONTACT: JOHN S. ABEL, JR.
DIVISION 1 BRIDGE PROGRAM MANAGER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 023993 ENGINEER MAX PRICE

PE 10/13/2015

SIGNATURE:

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A MAY

10/13/2015

SIGNATURE:

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

10/12/2015
11:30:33 AM
P:\2015\1505.01\B-5106 Bertie 148\Roadway\Proj\B5106_Rdy_psh01_tsh.dgn

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-5106	1-A

ROADWAY DESIGN ENGINEER
Bob A. May
NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A. MAY
10/13/2015

GENERAL NOTES: 2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 10-31-2014

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

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

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

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

UNDERDRAINS:

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

GUARDRAIL:

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

TEMPORARY SHORING:

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

SUBSURFACE PLANS:

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

END BENTS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE BERTIE COUNTY PUBLIC WORKS, CENTURYLINK ((252) 332-8011), ROANOKE ELECTRIC MEMEBERSHIP CORP. ((252) 536-9344)

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

2012 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II Modified
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
422.10	Reinforced Bridge Approach Fills
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
815.03	Pipe Underdrain and Blind Drain
840.00	Concrete Base Pad for Drainage Structures
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
876.02	Guide for Rip Rap at Pipe Outlets

INDEX OF SHEETS

10/12/2015
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12/05/11

PROJECT REFERENCE NO.	SHEET NO.
B-5106	1-B

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

PROJECT REFERENCE NO.	SHEET NO.
B-5106	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A. MAY 10/13/2015

WETHERILL ENGINEERING
1223 Jones Franklin Rd. Suite 164
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

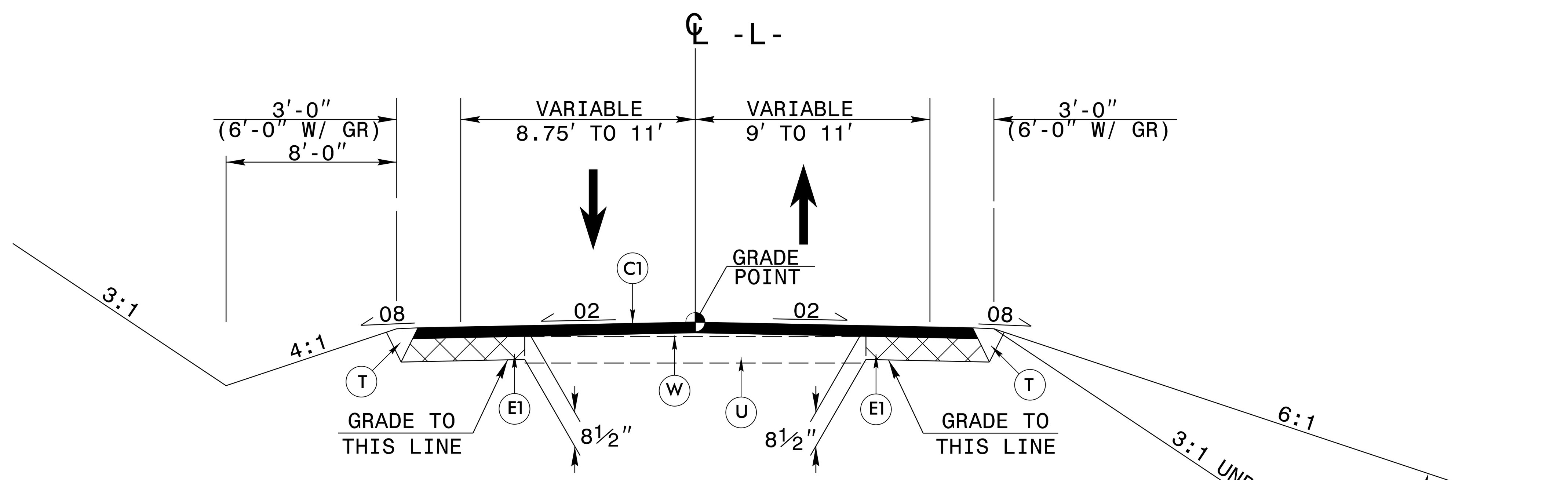
PAVEMENT SCHEDULE

FINAL PAVEMENT DESIGN

C1	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	T	EARTH MATERIAL.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2″ IN DEPTH.	U	EXISTING PAVEMENT.
E1	PROP. APPROX. 5½″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL)
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3″ IN DEPTH OR GREATER THAN 5½″ IN DEPTH.		

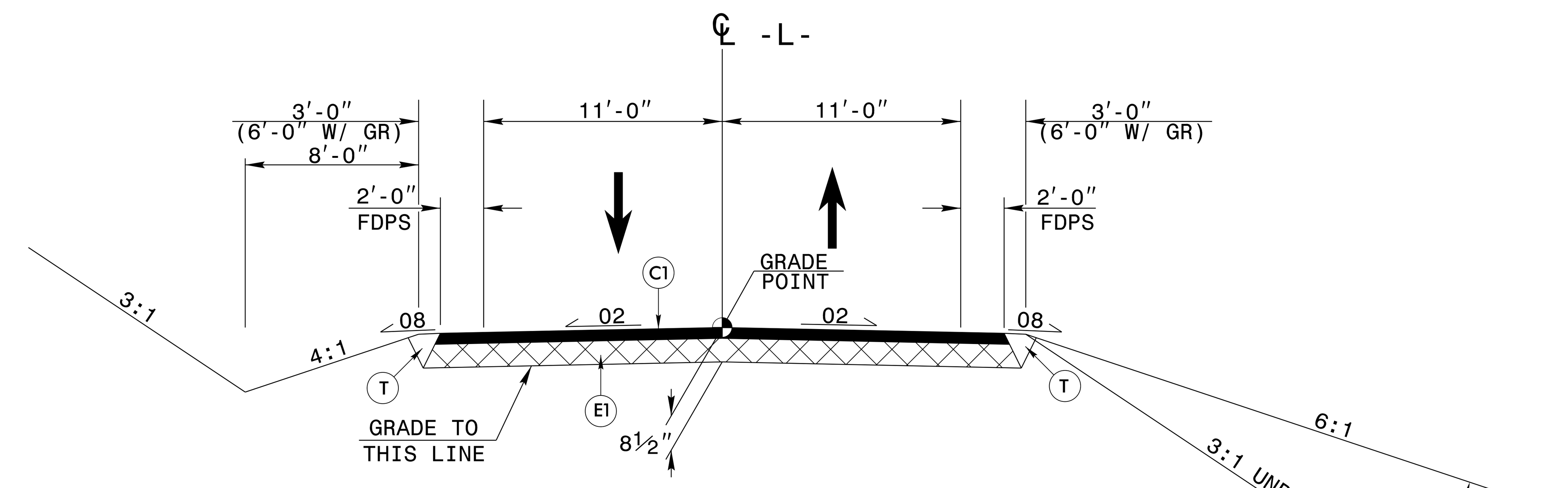
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

NOTE: UTILIZE INCIDENTAL MILLING TO MAKE PAVEMENT TIE-INS
-L- STA. 14+10.00 TO -L- STA. 14+95.94
-L- STA. 16+58.45 TO -L- STA. 17+10.00



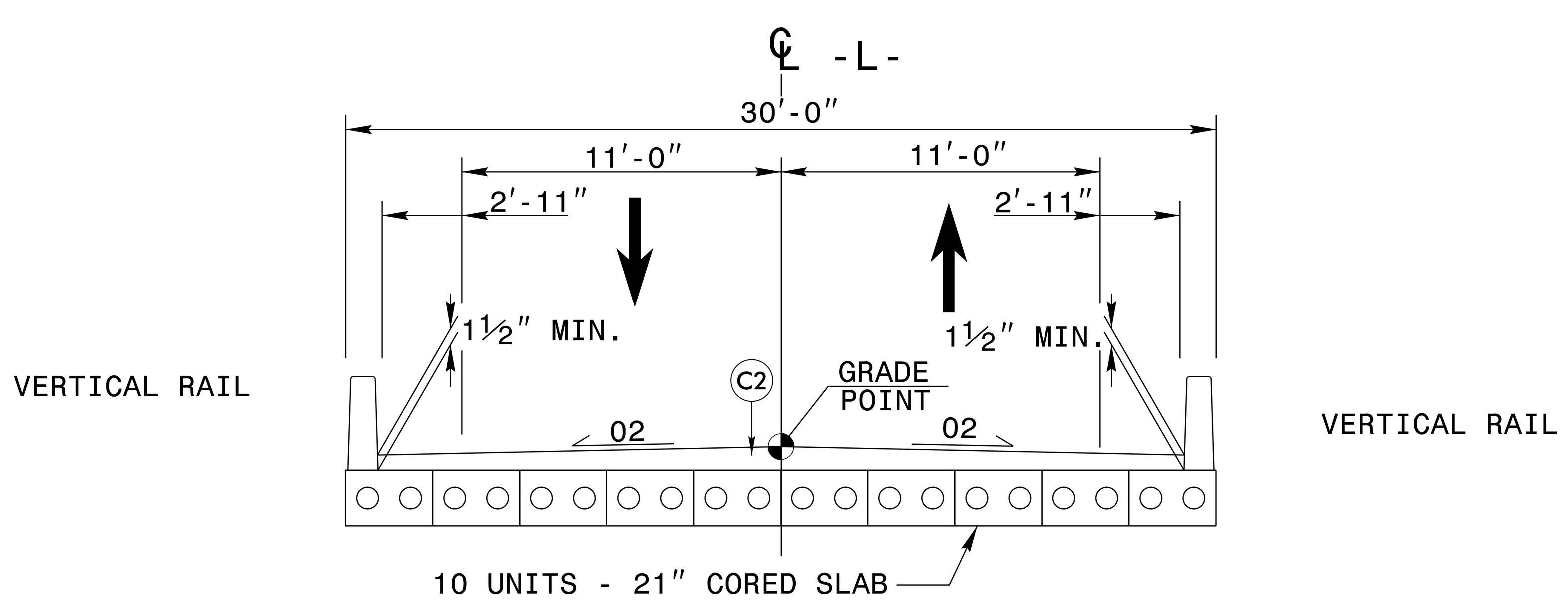
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AS FOLLOWS:
-L- STA. 14+10.00 TO -L- STA. 15+05.00
-L- STA. 16+10.00 TO -L- STA. 17+10.00



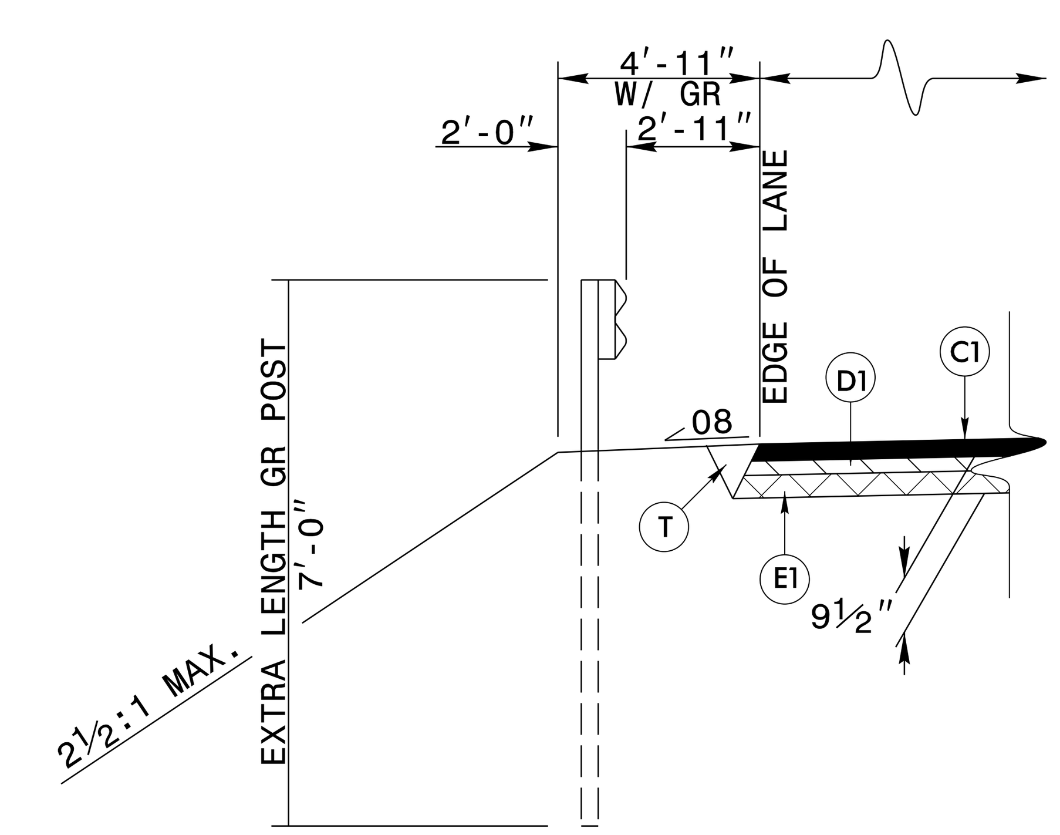
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS:
-L- STA. 15+05.00 TO -L- STA. 15+21.88 (BEGIN BRIDGE)
-L- STA. 15+94.13 (END BRIDGE) TO -L- STA. 16+10.00



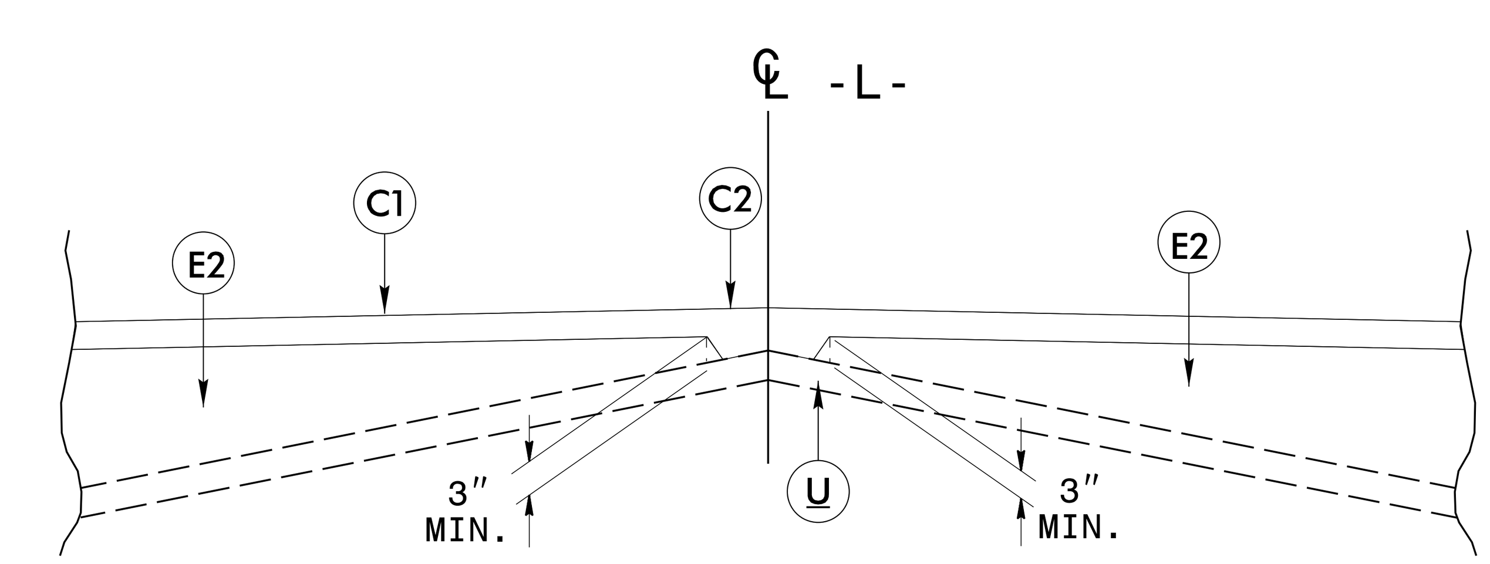
TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AS FOLLOWS:
-L- STA. 15+21.88 TO -L- STA. 15+94.13



PARTIAL TYPICAL SECTION

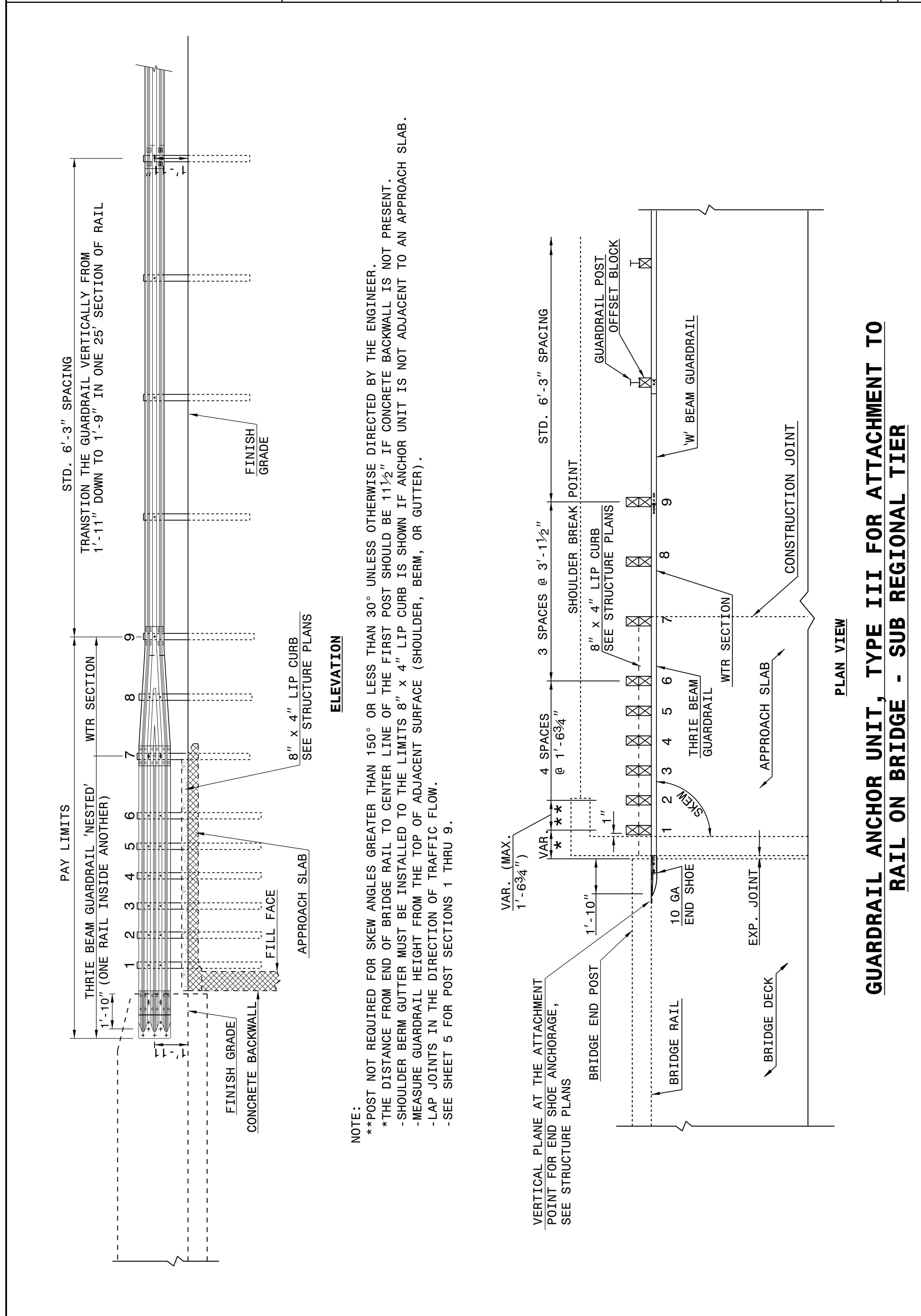
USE IN CONJUNCTION W/ TYPICAL SECTION NO. 1 & 2 AS FOLLOWS:
-L- STA. 14+40.63 TO -L- STA. 15+21.88 RT.
-L- STA. 15+94.13 TO -L- STA. 16+75.38 RT.
-L- STA. 15+94.13 TO -L- STA. 16+75.38 LT.



Detail Showing Method of Wedging

PROJECT REFERENCE NO.	SHEET NO.
B-5106	2C-1

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ENGLISH DETAIL DRAWING FOR STRUCTURE ANCHOR UNITS GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER
SHEET 2 OF 7 862d03

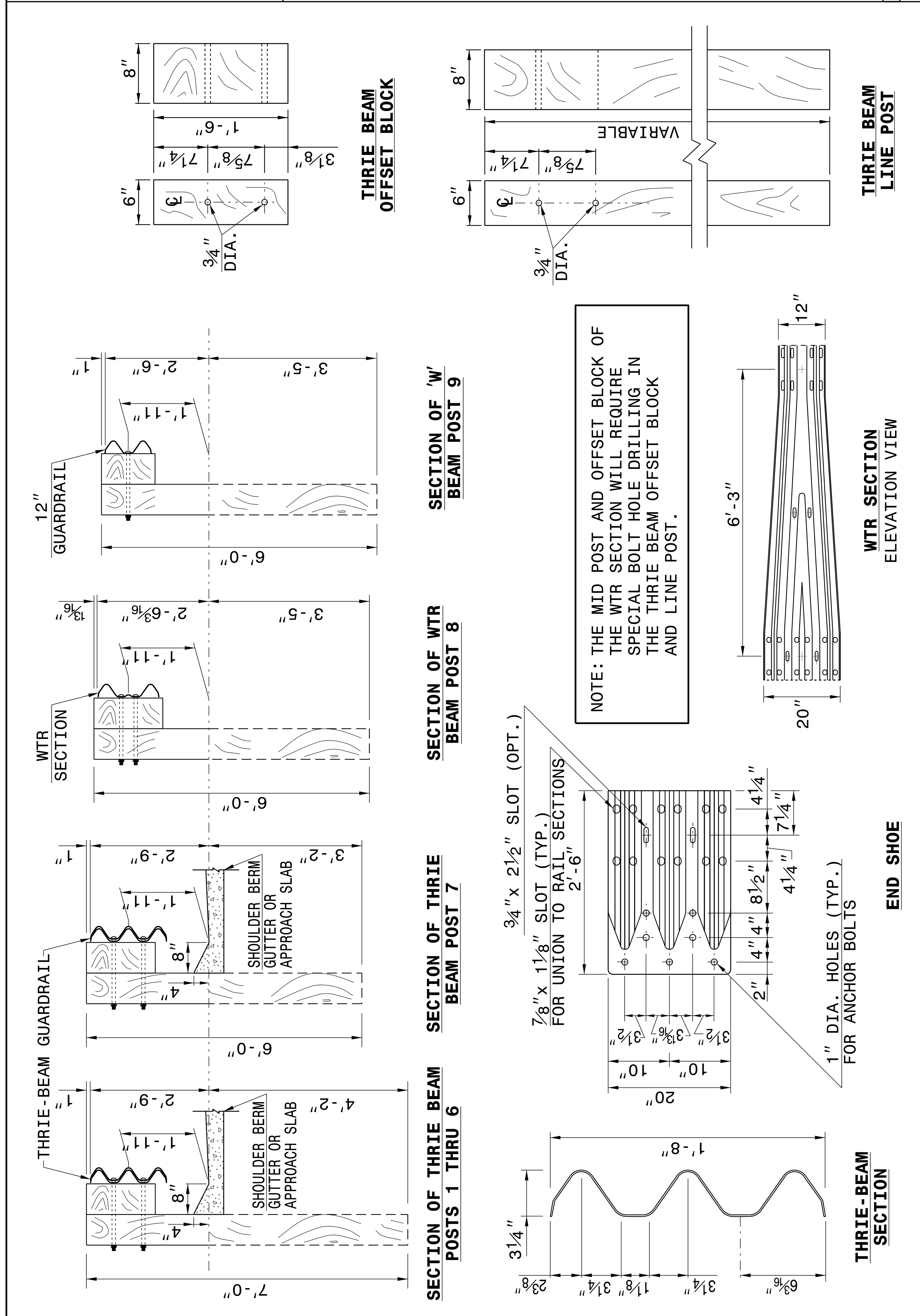

GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER
ELEVATION
PLAN VIEW
STD. 6'-3" SPACING
TRANSTION THE GUARDRAIL VERTICALLY FROM 1'-11" DOWN TO 1'-9" IN ONE 25' SECTION OF RAIL
PAY LIMITS
THRIE BEAM GUARDRAIL 'NESTED' (ONE RAIL INSIDE ANOTHER)
WTR SECTION
FINISH GRADE
CONCRETE BACKWALL
FILL FACE
APPROACH SLAB
8" x 4" LIP CURB SEE STRUCTURE PLANS
NOTE:
**POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
-SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
-MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE SHEET 5 FOR POST SECTIONS 1 THRU 9.
VERTICAL PLANE AT THE ATTACHMENT POINT FOR END SHOE ANCHORAGE, SEE STRUCTURE PLANS
BRIDGE END POST
BRIDGE RAIL
BRIDGE DECK
EXP. JOINT
10 GA. END SHOE
4 SPACES @ 1'-6¾"
3 SPACES @ 3'-1½"
SHOULDER BREAK POINT
GUARDRAIL POST OFFSET BLOCK
'W' BEAM GUARDRAIL
THRIE BEAM GUARDRAIL
CONSTRUCTION JOINT
SKEW
VAR. (MAX. 1'-6¾")

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

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

SHEET 2 OF 7 **862d03**

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ENGLISH DETAIL DRAWING FOR STRUCTURE ANCHOR UNITS GUARDRAIL ANCHOR UNIT, TYPE III
SHEET 3 OF 7 862d03


THRIE BEAM OFFSET BLOCK
THRIE BEAM LINE POST
VARIABLE
¾" DIA.
NOTE: THE MID POST AND OFFSET BLOCK OF THE WTR SECTION WILL REQUIRE SPECIAL BOLT HOLE DRILLING IN THE THRIE BEAM OFFSET BLOCK AND LINE POST.
WTR SECTION ELEVATION VIEW
SECTION OF 'W' BEAM POST 9
SECTION OF WTR BEAM POST 8
SECTION OF THRIE BEAM POST 7
SECTION OF THRIE BEAM POSTS 1 THRU 6
SHOULDER BERM GUTTER OR APPROACH SLAB
END SHOE
¾" x 2½" SLOT (OPT.)
⅞" x 1⅛" SLOT (TYP.) FOR UNION TO RAIL SECTIONS
1" DIA. HOLES (TYP.) FOR ANCHOR BOLTS
THRIE-BEAM SECTION
THRIE-BEAM GUARDRAIL
12" GUARDRAIL
WTR SECTION

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

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

SHEET 3 OF 7 **862d03**

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

SEE TITLE BLOCK

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

COMPUTED BY: bam DATE:
CHECKED BY: DATE:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
L 14+10.00	L 15+21.88	11	38	27	
SUBTOTALS:		11	38	27	
L 15+94.13	L 17+10.00	9	39	30	
SUBTOTALS:		9	39	30	
PROJECT SUBTOTALS:		20	77	57	
LOSS DUE TO CLEARING & GRUBBING					
PROJECT TOTALS:		20	77	57	
5% TO REPLACE TOPSOIL ON BORROW PIT				3	
GRAND TOTALS:		20	77	60	
SAY:		100		100	

CONTINGENCY PAY ITEMS
UNDERCUT EXCAVATION = 100 CY
SELECT GRANULAR MATERIAL = 100 CY
GEOTEXTILE FOR SOIL STABILIZATION = 150 SY
SUBDRAIN EXCAVATION = 23 CY
SUBDRAIN COURSE AGGREGATE = 17 CY
6" PERFORATED SUBDRAIN PIPE = 100 LF
SUBDRAIN PIPE OUTLET = 1 EACH
6" OUTLET PIPE = 6 LF
GEOTEXTILE FOR SUBSURFACE DRAINS = 100 SY

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD²
L	15+05.00	15+35.99	CL	71.16
L	15.80.35	16+10.00	CL	68.59
			TOTAL:	139.75
			SAY:	150.00

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

RIGHT OF WAY AREA DATA

PARCEL NO.	PROPERTY OWNERS NAMES	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RT.	AREA REMAINING LT.	CONST. EASE.	PERM. DRAIN. EASE.	TEMP. DRAIN. EASE.
	DAVID D. MCREYNOLDS		NO CLAIM					
	TIMBERVEST PTNR. II, LLC.		NO CLAIM					
	DIANNE H. PEELE		NO CLAIM					
1	CHARLES S. BAZEMORE						300 SF	
2	BURGES URQUHART, IV						300 SF	

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
L LT	14+97.00	15+10.88	13.88'
L RT	14+97.00	15+10.88	13.88'
L LT	16+05.13	16+20.00	14.87'
L RT	16+05.13	16+20.00	14.87'
		TOTAL:	57.50'
		SAY:	60.00'

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

NOTE: INVERT ELEVATIONS INDICATED ARE FOR BID PURPOSES ONLY AND SHALL NOT BE USED FOR PROJECT CONSTRUCTION STAKEOUT. SEE "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, SECTION 300-5".

STATION (SIZE / THICKNESS OR GAUGE)	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C.S. PIPE 12" .064	15" .064	18" .064	24" .064	36" .079	42" .109	48" .109	R.C. PIPE (CLASS III) 15"	18"	24"	30"	36"	42"	48"	R.C. PIPE (CLASS IV) 12"	15"	18"	24"	30"	36"	42"	48"
L 15+01.50	LT	401		58.68	55.26																																					
L 15+01.50	RT	402		58.68	55.15																																					
		401	402		55.26	55.15																														24'						
		402	405		55.15	54.90				12'																																
L 16+14.50	LT	403		58.64	55.22																																					
L 16+14.50	RT	404		58.64	55.12																																					
		403	404		55.22	55.12																														24'						
		404	406		55.12	54.92				12'																																
										24'																										48'						

STATION	**" R. C. PIPE (CLASS V)	**" R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	**" R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G		CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	T.B.D.I. STD. 840.35	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	M.H. FRAME & COVER STD. 840.54	J.B. STD. 840.31 OR 840.32	MODIFIED CONCRETE FLUME	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
L 15+01.50								1												1	1							
L 15+01.50								1												1	1							
L 16+14.50								1												1	1							
L 16+14.50								1												1	1							
								4												4	4							

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

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

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	SHOP CURVED	DOUBLE FACED	WARRANT POINT APPROACH END	TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	TRAILING END	W APPROACH END	TRAILING END	ANCHORS XI MOD	TYPE III	GRAU 350 TL-3	M-350	B-77	CAT-1	VI MOD	BIC	AT-1	IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
L	14+40.63	15+21.88	LT	81.25'				15+21.88	2.92'	5.92'		50.00'		1.00'		1	1													
L	14+40.63	15+21.88	RT	81.25'			15+21.88		2.92'	4.92'	50.00'		1.00'			1	1													
L	15+94.13	16+75.38	LT	81.25'			15+94.13		2.92'	4.92'	50.00'		1.00'			1	1													
L	15+94.13	16+75.38	RT	81.25'				15+94.13	2.92'	4.92'		50.00'		1.00'		1	1													
		PROJECT SUBTOTAL		325.00'												4	4													
		LESS ANCHOR DEDUCTIONS		(-) 275.00'											GUARDRAIL ANCHOR DEDUCTIONS															
		PROJECT TOTAL		50.00'											TYPE III = 4 @ 18.75' = 75.00'															
															GRAU 350 TL-3 = 4 @ 50.00' = 200.00'															
		SAY		75.00'			ADDITIONAL GUARDRAIL POSTS = 5 EACH								= 275.00'															

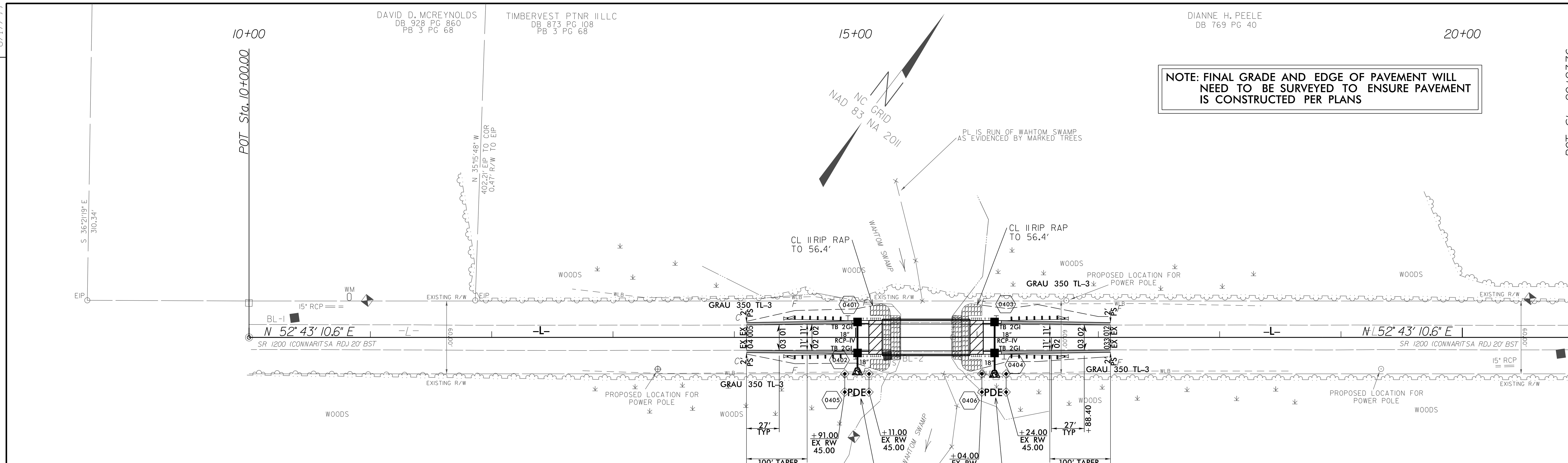
PROJECT REFERENCE NO.	SHEET NO.
B-5106	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — SEAL 21116 — BOB A. MAY — 10/13/2015

HYDRAULICS ENGINEER — SEAL 023993 — MAX S. PRICE — 10/13/2015

WETHERILL ENGINEERING
1223 Jones Franklin Rd. Suite 164
Raleigh, N.C. 27606
Liscense No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN – BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN – GIS/GPS – CONSTRUCTION OBSERVATION

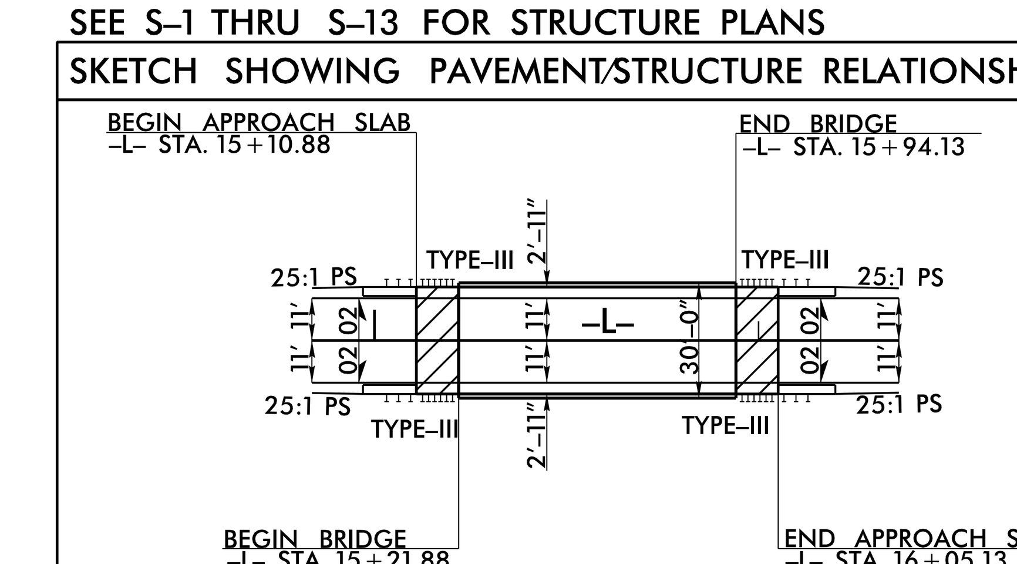
NOTE: FINAL GRADE AND EDGE OF PAVEMENT WILL NEED TO BE SURVEYED TO ENSURE PAVEMENT IS CONSTRUCTED PER PLANS


DAVID D. MCREYNOLDS
DB 928 PG 860
PB 3 PG 68
TIMBERVEST PTNR II LLC
DB 873 PG 108
PB 3 PG 68
DIANNE H. PEELE
DB 769 PG 40
10+00
15+00
20+00
POT Sta. 10+00.00
POT Sta. 20+93.76
NC GRID
NAD 83 NA 2011
PL IS RUN OF WAHTOM SWAMP AS EVIDENCED BY MARKED TREES
WAHTOM SWAMP
CL II RIP RAP TO 56.4'
WOODS
PROPOSED LOCATION FOR POWER POLE
GRAU 350 TL-3
EXISTING R/W
BL-1
BL-2
BL-3
15" RCP
N 52° 43' 10.6" E
-L-
SR 1200 (CONNARITSA RD) 20' BST
PDE
27' TYP
100' TAPER
+91.00 EX RW 45.00
+11.00 EX RW 45.00
+04.00 EX RW 45.00
+24.00 EX RW 45.00
CL 'B' RIP RAP 2 TON 7 SY GEOTEXTILE
BEGIN NCDOT TIP PROJECT B-5106
-L- STA. 14+10.00
END NCDOT TIP PROJECT B-5106
-L- STA. 17+10.00
1
CHARLES S. BAZEMORE
DB 901 PG 661
2
BURGES URQUHART, IV
DB 836 PG 423

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY OTHERS FOR MONUMENT "B-5106 BL-2"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 881069.615(ft) EASTING: 2547534.541(ft)
ELEVATION: 57.73(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.00000003
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B-5106 BL-2" TO -L- STATION 14+10.00 IS
S 60° 09' 17.1" W 117.25'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

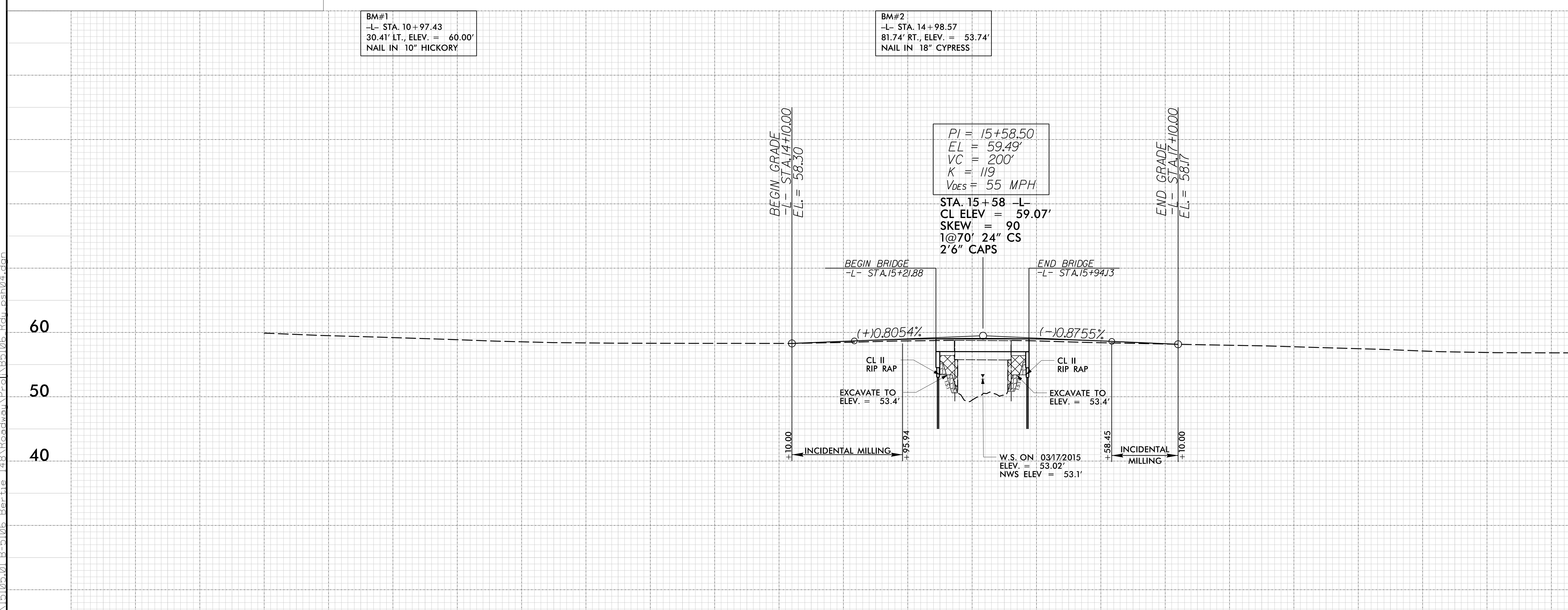
SEE S-1 THRU S-13 FOR STRUCTURE PLANS



BM#1
-L- STA. 10+97.43
30.41' LT., ELEV. = 60.00'
NAIL IN 10" HICKORY

BM#2
-L- STA. 14+98.57
81.74' RT., ELEV. = 53.74'
NAIL IN 18" CYPRESS

BM#3
-L- STA. 20+55.71
31.94' LT., ELEV. = 56.85'
NAIL IN 18" SWEET GUM


BEGIN GRADE -L- STA.14+10.00 EL. = 58.30
END GRADE -L- STA.17+10.00 EL. = 58.17
PI = 15+58.50
EL = 59.49'
VC = 200'
K = 119
VDES = 55 MPH
STA. 15+58 -L-
CL ELEV = 59.07'
SKEW = 90
1@70' 24" CS
2'6" CAPS
BEGIN BRIDGE -L- STA.15+21.88
END BRIDGE -L- STA.15+94.13
(+)0.8054%
(-)0.8755%
CL II RIP RAP
EXCAVATE TO ELEV. = 53.4'
INCIDENTAL MILLING
W.S. ON 03/17/2015
ELEV. = 53.02'
NWS ELEV = 53.1'
60
50
40

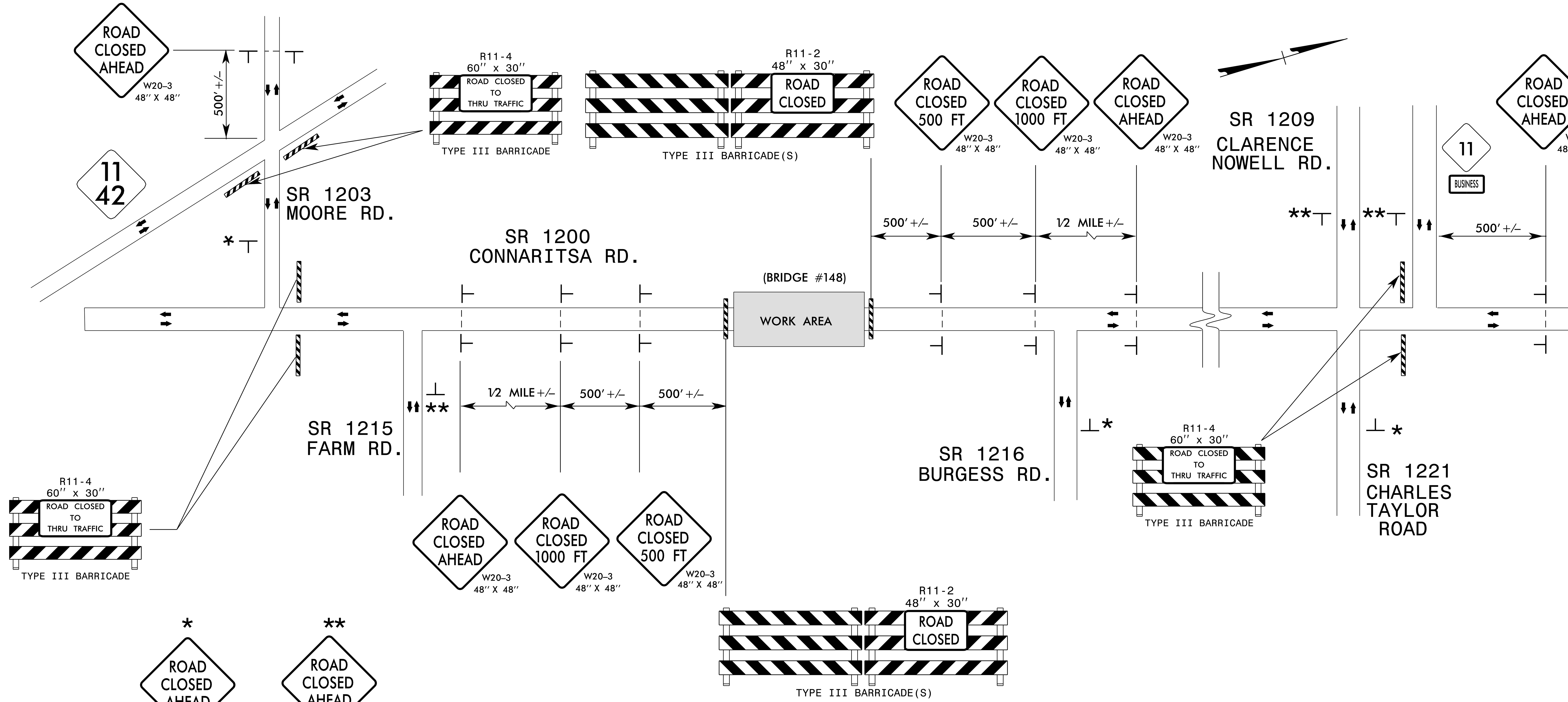
BRIDGE HYDRAULIC DATA

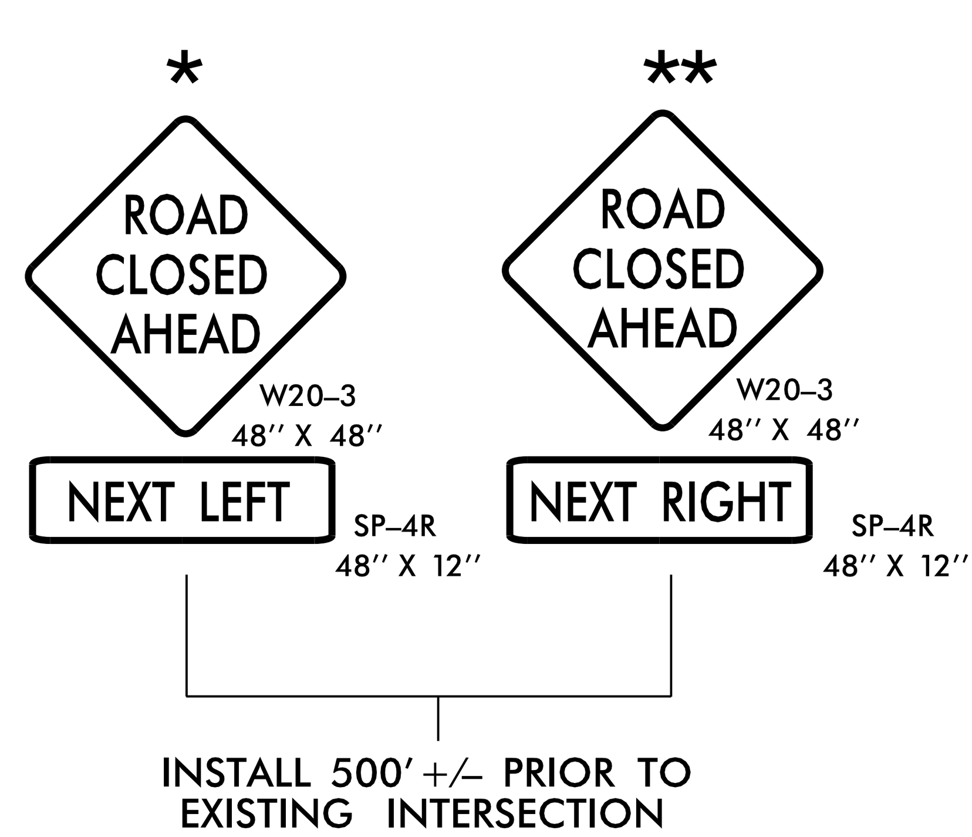
DESIGN DISCHARGE	= 950	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 55.4	FT
BASE DISCHARGE	= 1586	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 56.83	FT
OVERTOPPING DISCHARGE	= 1586	CFS
OVERTOPPING FREQUENCY	= 100	YRS
OVERTOPPING ELEVATION	= 56.75	FT
DATE OF SURVEY	= 3/17/2015	
W.S. ELEVATION AT DATE OF SURVEY	= 53.02	FT

REVISIONS

8/17/99

PROJ. REFERENCE NO.	SHEET NO.
B-5106	TCP-1





ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1135.01	CONES
1145.01	BARRICADES
904.10	ORIENTATION OF GROUND MOUNTED SIGNS

GENERAL NOTES

1. INSTALLATION OF TEMPORARY ROUTE MARKERS, DESTINATION SIGNS, AND ANY NECESSARY MODIFICATIONS TO EXISTING OR PROPOSED REGULATORY OR WARNING SIGNS WILL BE MADE BY OTHERS (STATE OR CITY FORCES) UNLESS OTHERWISE DESIGNATED IN 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 INFORM LOCAL EMERGENCY AND LAW ENFORCEMENT PERSONNEL, SCHOOLS OR ANY OTHER PARTIES AFFECTED BY THE ROAD CLOSURE.
2. 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.
3. POSITION WING BARRICADES ON THE SHOULDERS AND SLOPE THE STRIPES DOWNWARD IN THE DIRECTION TOWARD WHICH TRAFFIC MUST TURN IN DETOURING.
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. SEE STANDARD SPECIFICATION 1089-1 FOR WORK ZONE SIGNS.
6. SEE STANDARD SPECIFICATION 1089-2 FOR WORK ZONE SIGN SUPPORTS.

LEGEND

⇆ DIRECTION OF TRAFFIC FLOW

▨ BARRICADE (TYPE III)

⊢ STATIONARY MOUNTED SIGN

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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: ______________ DATE: ________

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A. MAY

DocuSigned by: Bob A. May

10/13/2015

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

ROAD CLOSURE SR 1200 CONNARITSA RD.

8/4/2015
2:19:19 PM
P:\2015\15105.01B-5106 Bertie 148\Traffic\TrafficControl\TCP\B5106_TC_BTCP.dgn

DocuSign Envelope ID: 6639E68A-7B44-46EE-94CE-046BE869C4B8

TIP PROJECT: B–5106

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5106	EC-1	

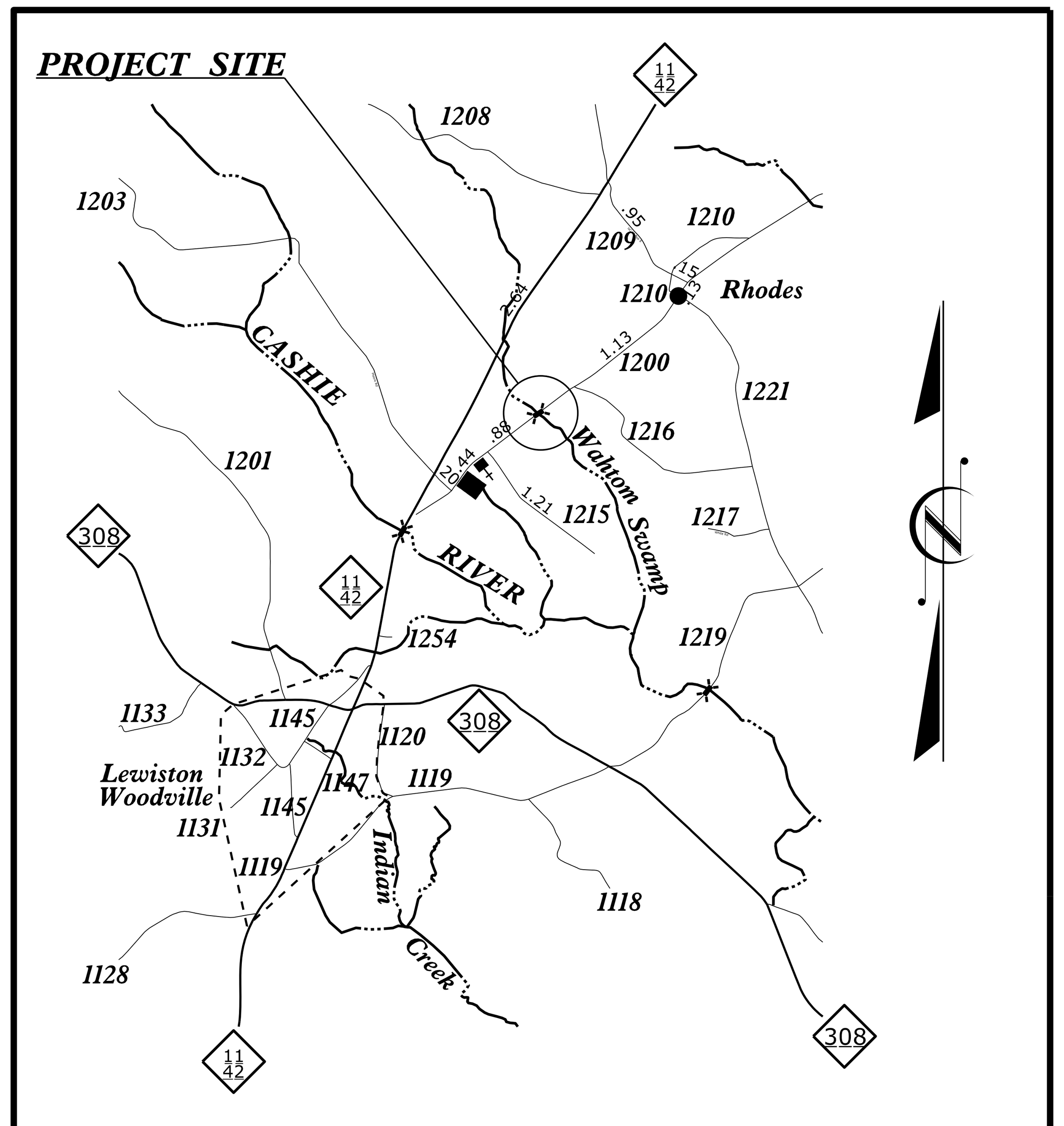
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
42243.1.1	BRSTP–1200(7)	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

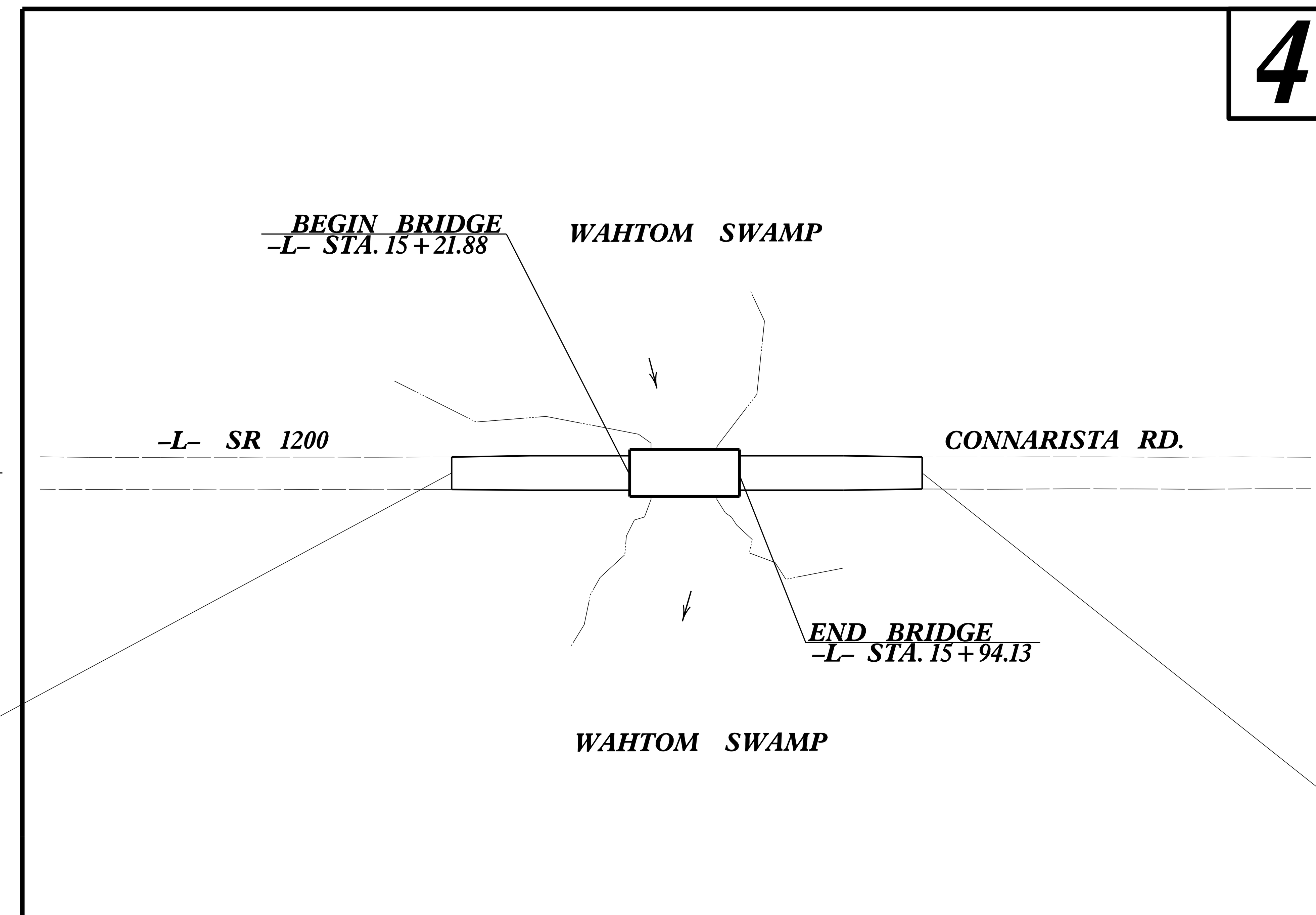
PLAN FOR PROPOSED HIGHWAY EROSION CONTROL

BERTIE COUNTY

LOCATION: BRIDGE NO. 148 OVER WAHTOM SWAMP ON SR 1200 (CONNARISTA RD.)
TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE



VICINITY MAP



TO NC 42

TO GLOVERS CROSS RD.

NAD 83/2011

BEGIN TIP PROJECT B–5106
–L– STA. 14+10.00

END TIP PROJECT B–5106
–L– STA. 17+10.00

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle/Coir Fiber Wattle	EW CFW
	Wattle/Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

GRAPHIC SCALE

0
PLANS

0
PROFILE (HORIZONTAL)

0
PROFILE (VERTICAL)

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

Prepared in the Office of:

WETHERILL ENGINEERING

1223 JONES FRANKLIN ROAD
SUITE 164
Raleigh, N.C. 27606
License No. F–0377
Bus: 919 851 8077
Fax: 919 851 8107

Designed by:

Anne D. Gamber, PE, CFM — 3022
NAME — LEVEL III CERTIFICATION NO.

Reviewed in the Office of:

ROADSIDE ENVIRONMENTAL UNIT
1 South Wilmington St.
Raleigh, NC 27611

2012 STANDARD SPECIFICATIONS

Reviewed by:

XXXX XXXX

Roadway Standard Drawings

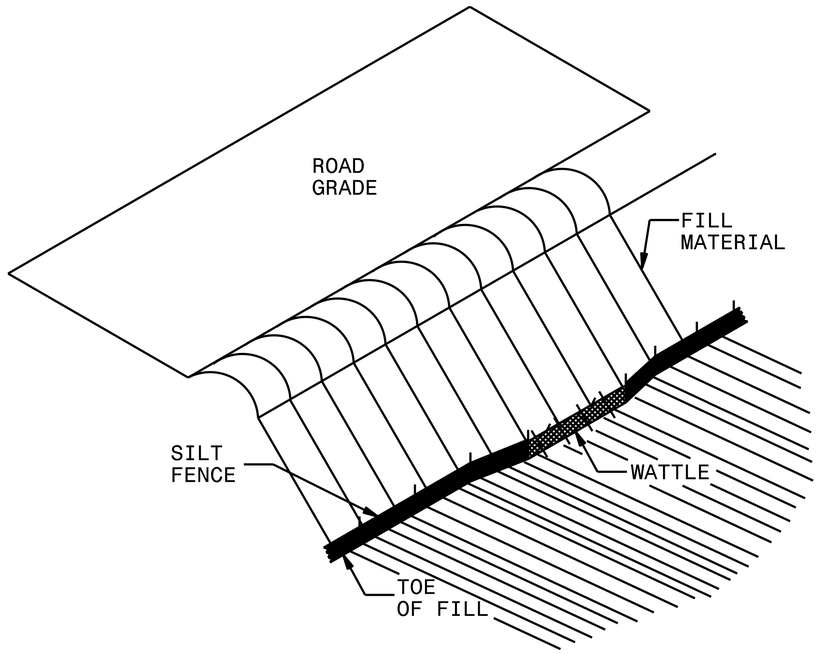
The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated January 2012 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01 Railroad Erosion Control Detail
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
1630.02 Silt Basin Type B
1630.03 Temporary Silt Ditch
1630.04 Stilling Basin
1630.05 Temporary Diversion
1630.06 Special Stilling Basin
1631.01 Matting Installation
1632.01 Rock Inlet Sediment Trap Type A
1632.02 Rock Inlet Sediment Trap Type B
1632.03 Rock Inlet Sediment Trap Type 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
1640.01 Coir Fiber Baffle
1645.01 Temporary Stream Crossing

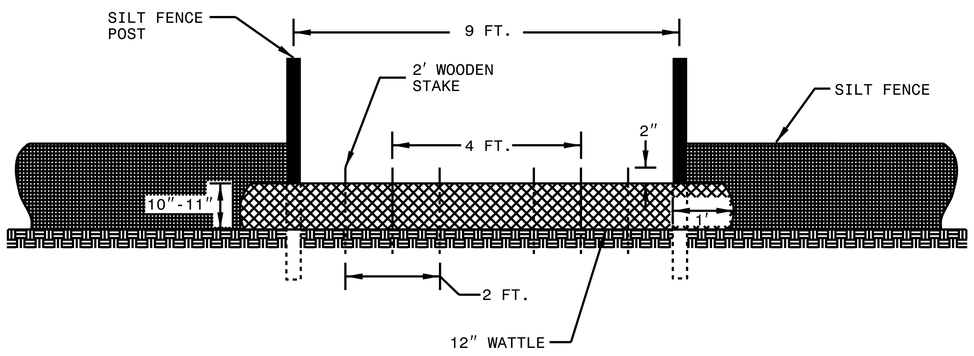
$$$$$$SYSTIME$$$$$$ $$$$$$$$DGN$$$$$$$$$$$$$$$ $$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.

SILT FENCE COIR FIBER WATTLE BREAK DETAIL



ISOMETRIC VIEW



VIEW FROM SLOPE

NOTES:

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

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

DO NOT PLACE WATTLE ON TOE OF SLOPE.

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

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

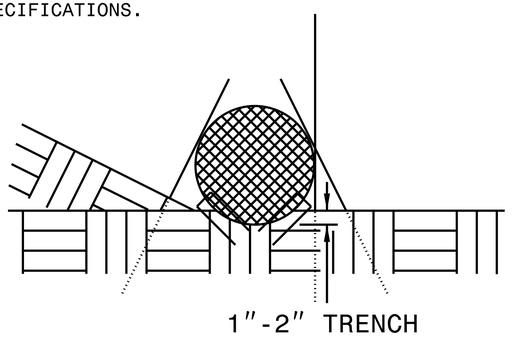
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

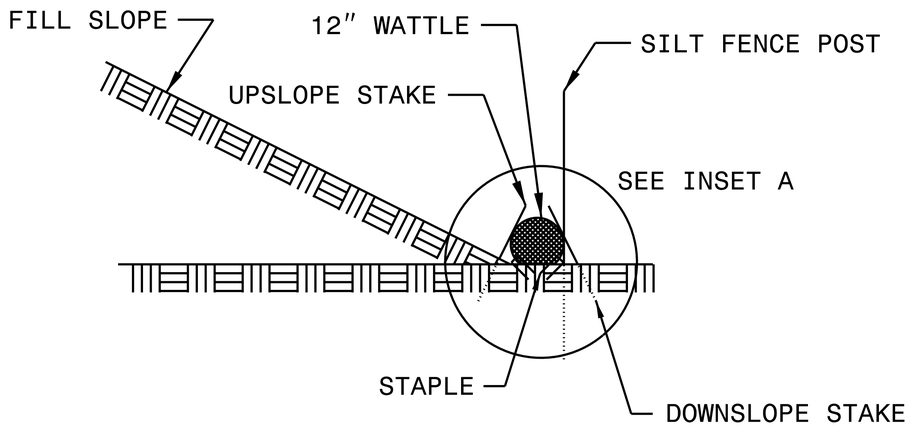
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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

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

INSET A





SIDE VIEW

PROJECT REFERENCE NO.	SHEET NO.
B-5106	EC-3

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

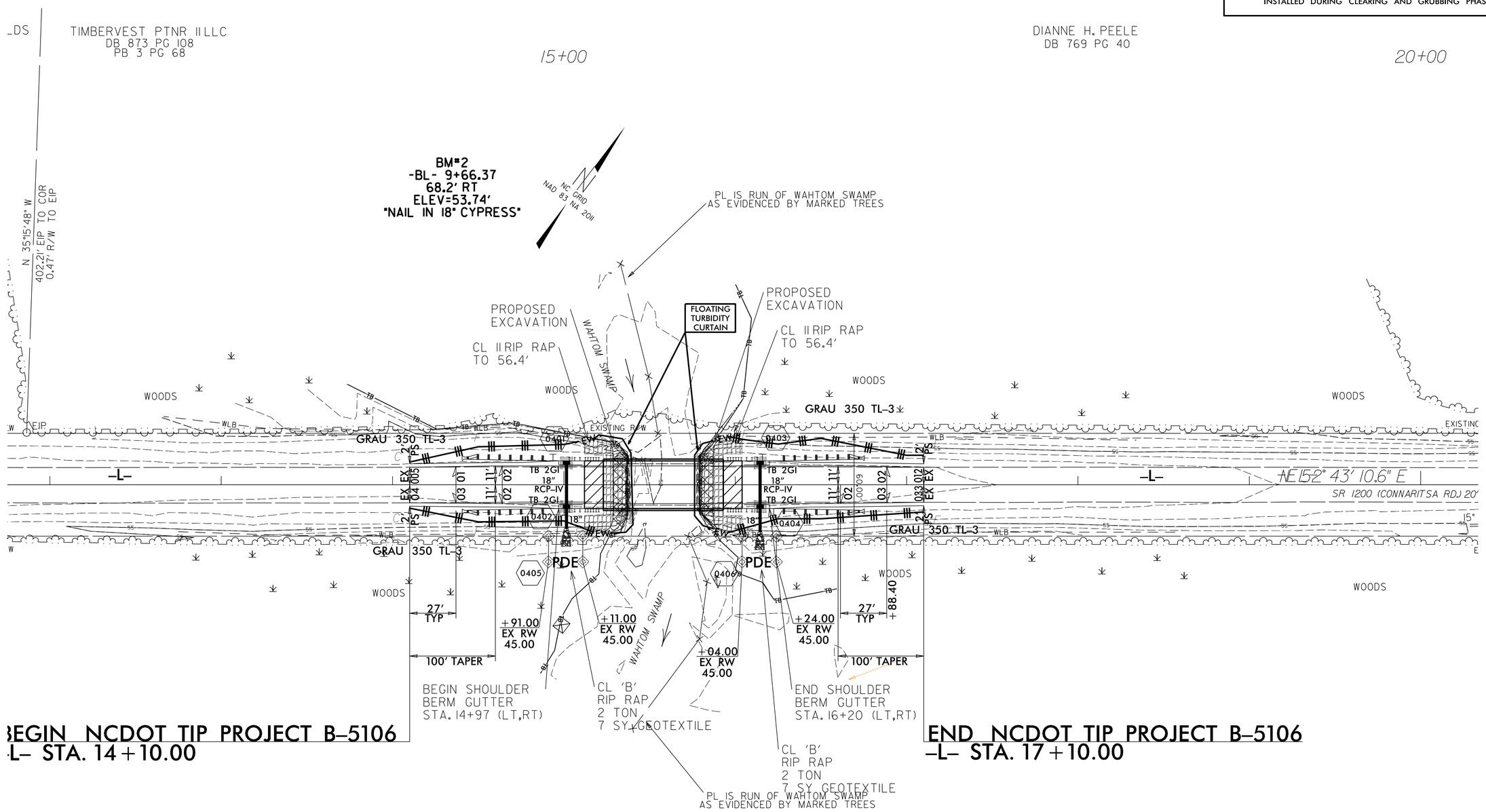
SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

EROSION CONTROL PLAN

PROJECT REFERENCE NO.	SHEET NO.
B-5106	EC-4/CONST.4

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

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



BEGIN NCDOT TIP PROJECT B-5106
-L- STA. 14+10.00

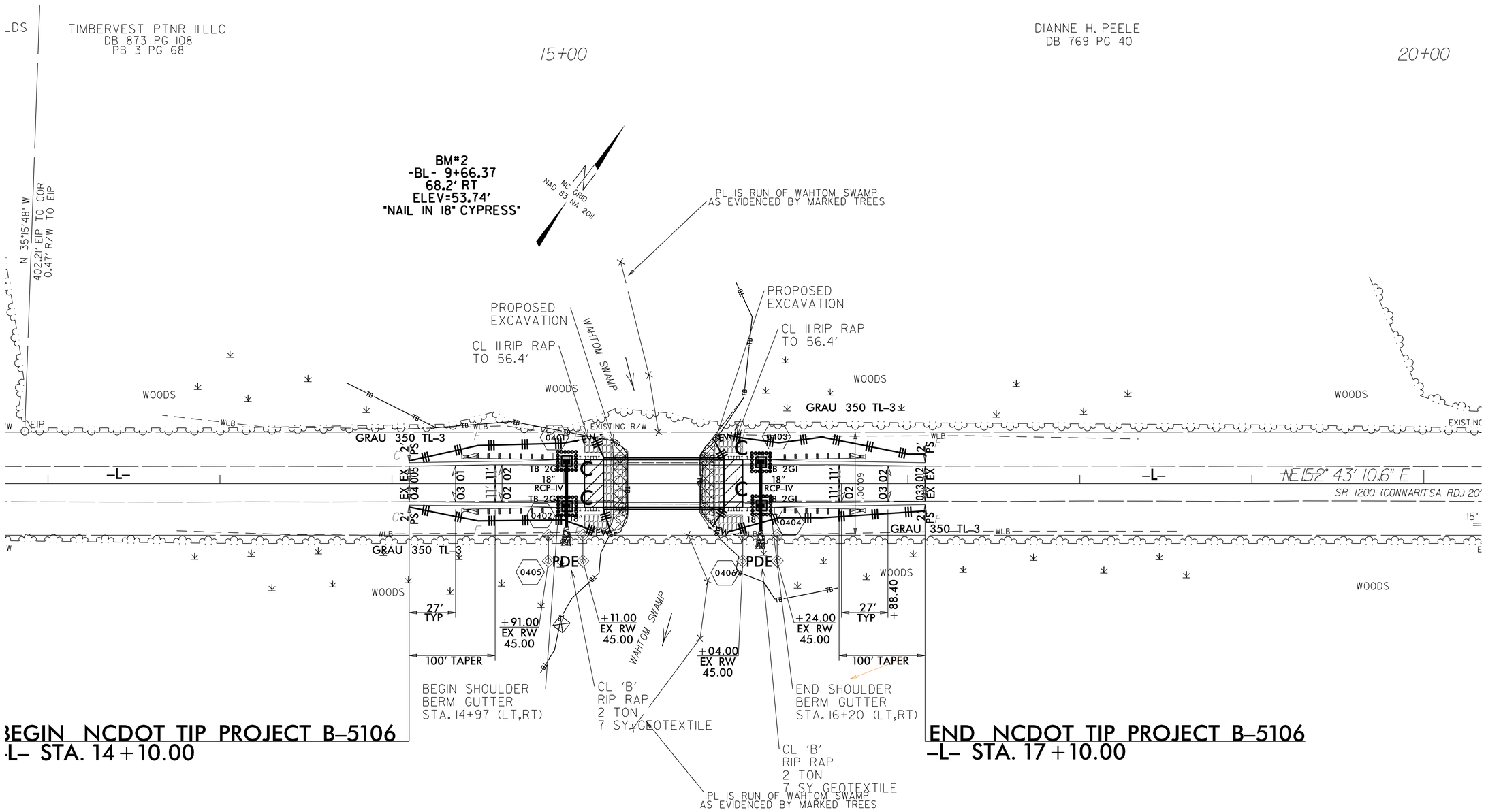
END NCDOT TIP PROJECT B-5106
-L- STA. 17+10.00

1
CHARLES S. BAZEMORE
DB 901 PG 661

2
BURGES URQUHART, IV
DB 836 PG 423

PROJECT REFERENCE NO.	SHEET NO.
B-5106	EC-5/CONST.4

EROSION CONTROL PLAN



1

CHARLES S. BAZEMORE
DB 901 PG 661

2

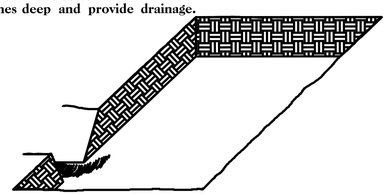
BURGES URQUHART, IV
DB 836 PG 423

PLANTING DETAILS

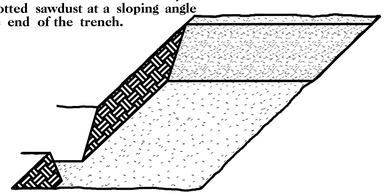
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

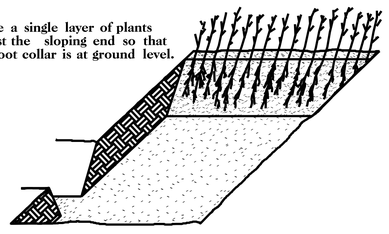
1. Locate a healing–in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



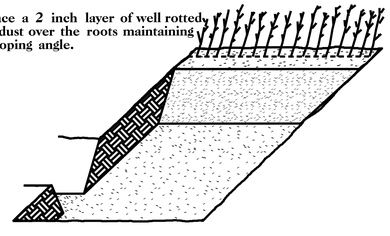
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

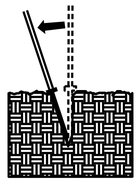


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

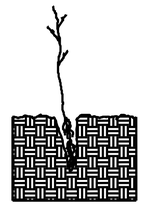


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

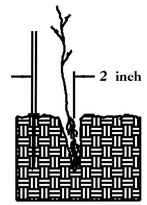
DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR



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

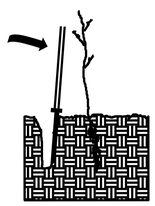


2. Remove planting bar and place seedling at correct depth.

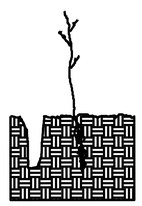


3. Insert planting bar 2 inches toward planter from seedling.

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



5. Push handle forward firming soil at top.



6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

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

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

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B–5106	RF–1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	

REFORESTATION

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

REFORESTATION

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

25% LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in – 18 in BR
25% PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in – 18 in BR
25% FRAXINUS PENNSYLVANICA	GREEN ASH	12 in – 18 in BR
25% BETULA NIGRA	RIVER BIRCH	12 in – 18 in BR

REFORESTATION DETAIL SHEET

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

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B–5106	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

60 55

0.020 0.020

58.74

15+23.50

60 55 50

3:1 S.S. 56.18 0.020 0.020 2.5:1 S.S. 56.37

58.69

15+00.00

60 55 50

S.S. 56.78 4:1 0.015 0.025 3:1 S.S. 56.11

58.45

14+50.00

60 55

0.005 0.040

58.30

14+10.00

55

58.29

14+00.00

–L–

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

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PROJ. REFERENCE NO.	SHEET NO.
B-5106	X-1A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CROSS-SECTION SUMMARY

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

Station El	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
14+10.00	0	0
14+50.00	5	6
15+00.00	4	16
15+21.88	2	8

Station El	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
15+94.13	0	0
16+00.00	1	1
16+50.00	3	17
17+00.00	4	12
17+10.00	1	1

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

8/23/99

0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
B–5106	X–3

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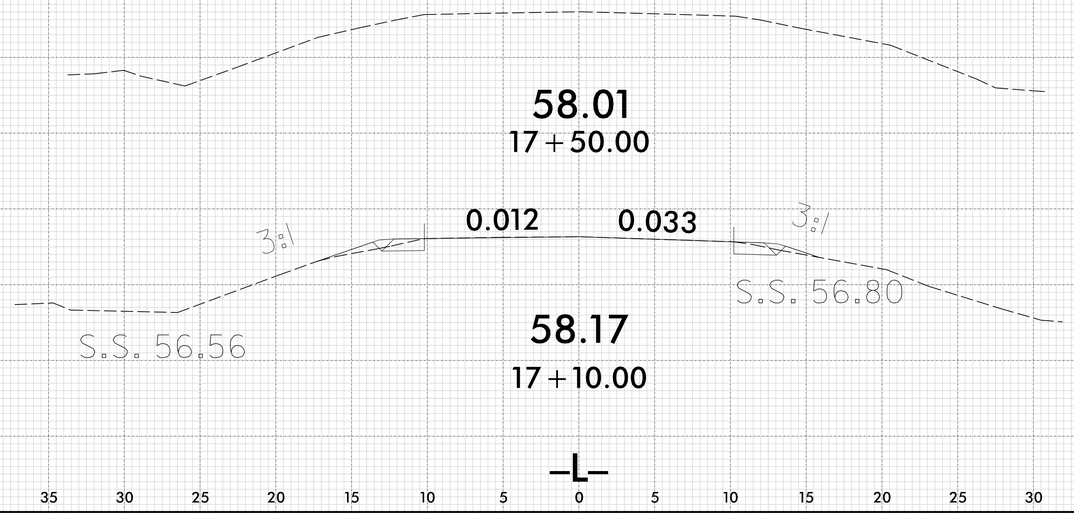
55

60

55

50



55

60

55

50

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

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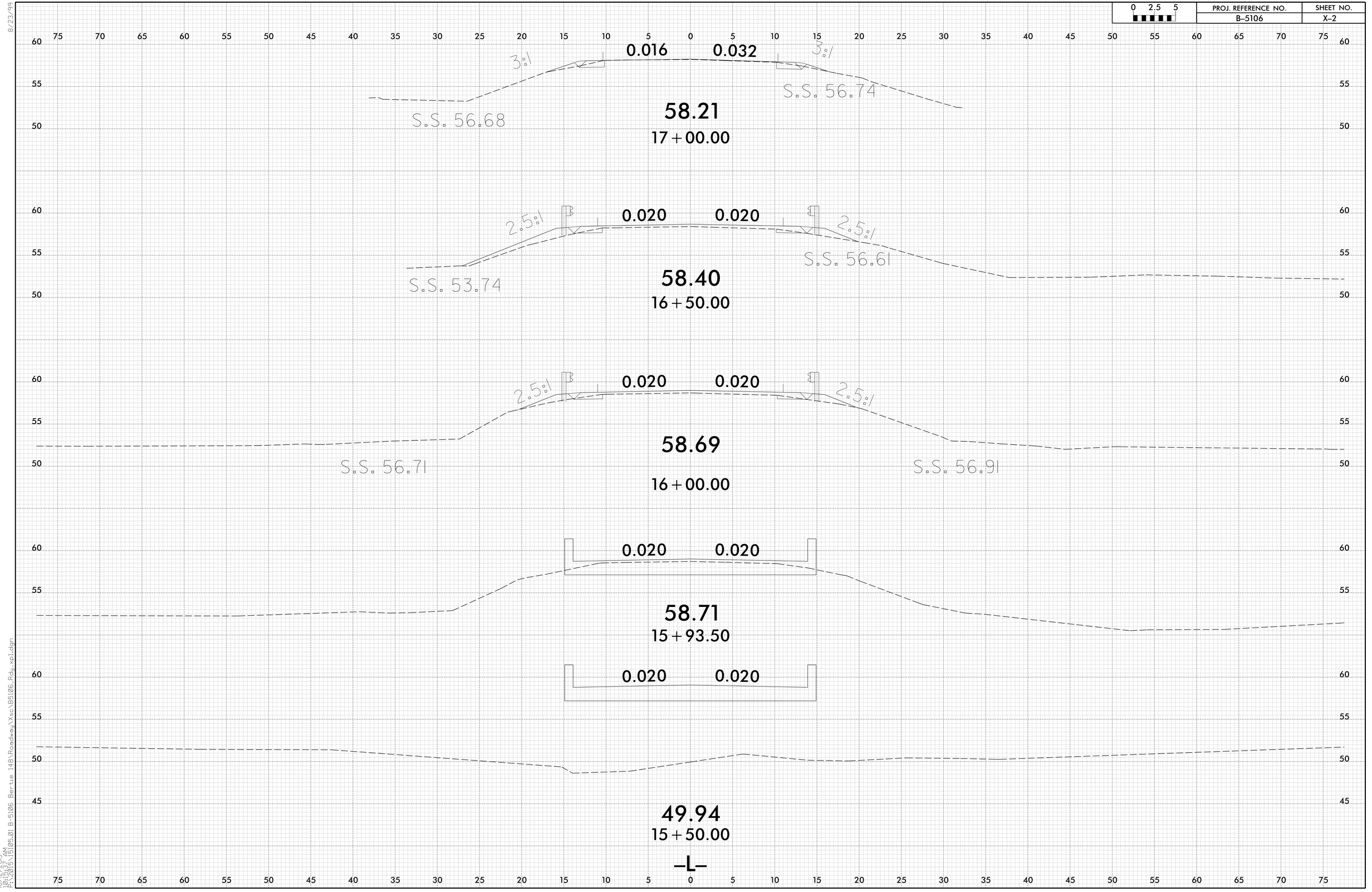
8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B–5106	X–2



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15+00 +50 16+00

GRADE DATA -L-
+0.8054% -0.8755%
PI = 15+58.50 -L-
EL. = 59.49
VC = 200'

SPAN "A"

60
50

W.P. #1
FILL FACE @ END BENT 1
STA. 15+21.88 -L-
GRADE POINT EL. = 59.03

UNCLASSIFIED STRUCTURE EXCAVATION (TYP.)

BEGIN FRONT SLOPE
STA. 15+17.15 -L-
GRADE POINT EL. = 59.01

1'-0" EARTH BERM (TYP.)

WS EL. 53.02
3-17-15
NWS EL. 53.1

PROP. 100 YR. WS EL. 56.83

PROP. 25 YR. WS EL. 55.4

EL. 59.0±
FIXED
EL. 59.0±
EL. 56.0±
EL. 51.0±
1'-6" (TYP.)
EL. 49.0±
1½:1 SLOPE (TYP.)
HP 12 x 53 VERTICAL STEEL PILES
EXISTING SUBSTRUCTURE (TYP.)
EL. 50.0±
EL. 51.0±

END BENT 1

1'-6" TO UNCLASSIFIED STRUCTURE EXCAVATION (TYP.)

W.P. #2
FILL FACE @ END BENT 2
STA. 15+94.13 -L-
GRADE POINT EL. = 59.01

BEGIN FRONT SLOPE
STA. 15+98.84 -L-
GRADE POINT EL. = 58.99

APPROX. NATURAL GROUND
EL. 59.0±
EL. 59.0±
FIXED
EL. 56.0±
EL. 51.0±
EL. 51.0±
EL. 50.0±
HP 12 x 53 VERTICAL STEEL PILES
CLASS II RIP RAP (2'-0" THICK) W/GEOTEXTILE (TYP.)
GRADE TO EL. 51.4 (TYP.)

END BENT 2

SECTION ALONG -L-

LOW CHORD ELEVATIONS	
	ELEVATION
END BENT 1	56.44
END BENT 2	56.42

HYDRAULIC DATA

DESIGN DISCHARGE---------- 950 CFS
FREQUENCY OF DESIGN FLOOD------ 25 YR.
DESIGN HIGH WATER ELEVATION---- 55.4
DRAINAGE AREA---------- 9.55 SQ.MI.
BASE DISCHARGE (Q100)---------- 1586 CFS
BASE HIGH WATER ELEVATION------ 56.83

OVERTOPPING FLOOD DATA
OVERTOPPING DISCHARGE---------- 1586 CFS
FREQUENCY OF OVERTOPPING FLOOD- 100 YRS
OVERTOPPING FLOOD ELEVATION---- 56.75
OVERTOPPING OCCURS @ ℄ STA. 21+77±

EARTH BERM EL. 53.36 (LEVEL)

W.P. #1
STA. 15+21.88 -L-

TO SR 1215 (FARM ST.)

BEGIN FRONT SLOPE
STA. 15+17.15 -L-

BEGIN APPROACH SLAB
STA. 15+10.88 -L-

FILL FACE @ END BENT 1

BRIDGE IDENTITY
STA. 15+58.00 -L-

WAHTOM SWAMP

CLASS II RIP RAP (2'-0" THICK) W/GEOTEXTILE

36'-1½" 36'-1½"
FILL FACE @ END BENT 1 TO FILL FACE @ END BENT 2 = 72'-3"

CLASS II RIP RAP (2'-0" THICK) W/GEOTEXTILE

EARTH BERM EL. 53.34 (LEVEL)

W.P. #2
STA. 15+94.13 -L-

BEGIN FRONT SLOPE
STA. 15+98.84 -L-

END APPROACH SLAB
STA. 16+05.13 -L-

EXISTING SUBSTRUCTURE (TYP.)

-L-

TO SR 1216 (BURGESS ST.)

90°-00'-00" (TYP.)

FILL FACE @ END BENT 2

NAD 83

PLAN

(PILES NOT SHOWN IN PLAN VIEW)

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. B-5106
BERTIE COUNTY
STATION: 15+58.00 -L-

SHEET 1 OF 2 REPLACES BRIDGE No. 148

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

BRIDGE ON
SR 1200 (CONNARITSA RD.)
OVER WAHTOM SWAMP
BETWEEN
SR 1215 & SR 1216

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

DRAWN BY : G.M. GILLAND DATE : 9-9-15
CHECKED BY: B.C. HUNT DATE : 9-9-15
DESIGN ENGINEER OF RECORD: G.M. GILLAND DATE : 9-15

Digitally Signed by Gary Gilland
NORTH CAROLINA PROFESSIONAL SEAL 37400 ENGINEER GREGORY M. GILLAND

WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
License: F-0377

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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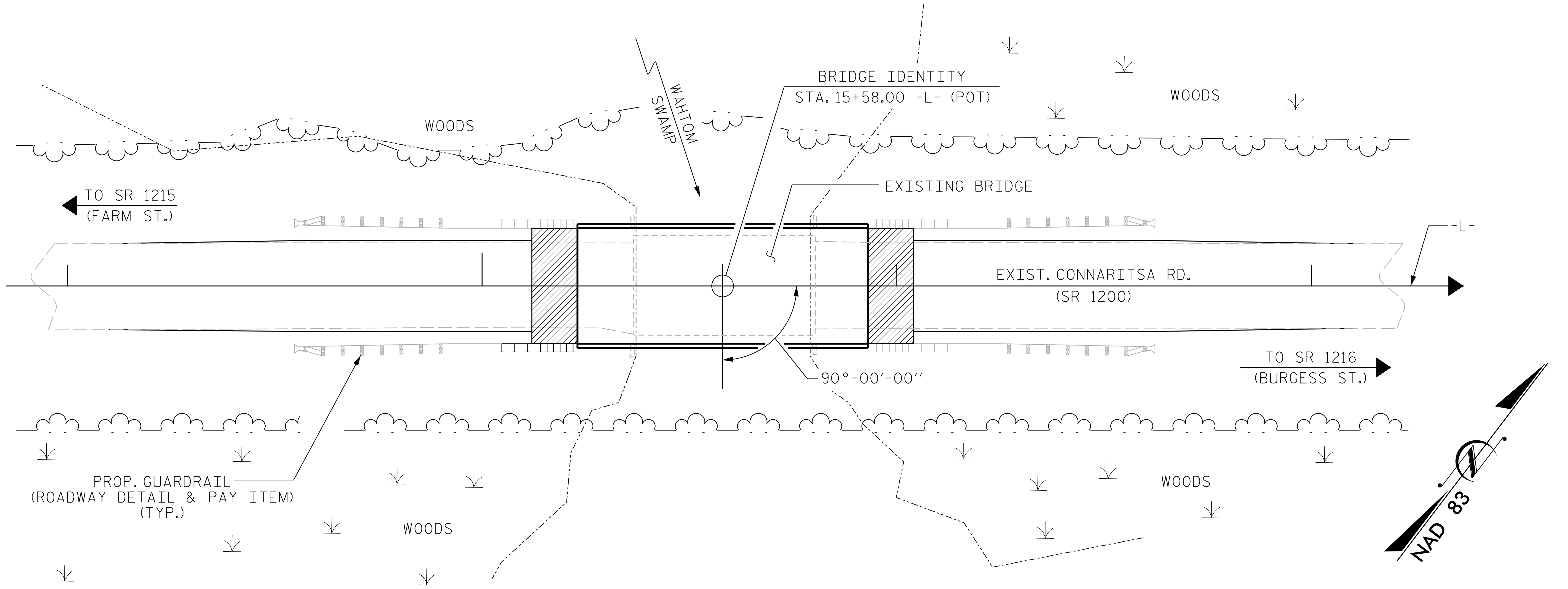
BM-2 (NAIL IN 18" CYPRESS) 81.76' RT. -L- STA. 14+98.57 EL. 53.74 N 880999.85 E 2547552.83



NOTE: FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

THE EXISTING STRUCTURE CONSISTING OF 1 SPAN @ 42'-6" WITH A REINFORCED CONCRETE DECK ON I-BEAMS AND A CLEAR ROADWAY WIDTH OF 24'-4" ON A SUBSTRUCTURE CONSISTING OF REINFORCED CONCRETE CAPS WITH REINFORCED CONCRETE PILES AND TIMBER PILES AND LOCATED AT THE PROPOSED STRUCTURE LOCATION SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT.

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 20 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY ENGINEER. 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 DIFFERENCE BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

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 15+58.00 -L-."

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

FOUNDATION NOTES:

FOR PILES, SEE GEOTECHNICAL SPECIAL PROVISIONS AND SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT 1 AND 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 100 TONS PER PILE. DRIVE PILES AT END BENT 1 AND 2 TO A REQUIRED DRIVING RESISTANCE OF 170 TONS PER PILE.

TESTING THE FIRST PRODUCTION PILES WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS AND FOR PILE DRIVING CRITERIA, SEE PILE DRIVING CRITERIA PROVISION.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES		PILE REDRIVES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLABS	
	LUMP SUM	EACH	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	No.	LIN. FT.	EACH	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	No.	LIN. FT.
SUPERSTRUCTURE			LUMP SUM		LUMP SUM					140.25			LUMP SUM	10	700.00
END BENT 1				13.2		1965	5	425	5		150	167			
END BENT 2				13.2		1965	5	425	5		150	167			
TOTAL	LUMP SUM	1	LUMP SUM	26.4	LUMP SUM	3930	10	850	10	140.25	300	334	LUMP SUM	10	700.00

PROJECT NO. B-5106

BERTIE COUNTY

STATION: 15+58.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

BRIDGE ON SR 1200 (CONNARITSA RD.) OVER WAHTOM SWAMP BETWEEN SR 1215 & SR 1216

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

DocuSigned by: Greg Gilland

SEAL 37400 NORTH CAROLINA PROFESSIONAL ENGINEER GREGORY M. GILLAND

WETHERILL ENGINEERING

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
License: F-0377

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

DRAWN BY: G.M. GILLAND DATE: 9-9-15
CHECKED BY: B.C. HUNT DATE: 9-9-15
DESIGN ENGINEER OF RECORD: G.M. GILLAND DATE: 9-15

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LOAD AND RESISTANCE FACTOR RATING (LRFR) 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 (γ_{LL})	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 (γ_{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93(Inv)	N/A	**1**	1.006	--	1.75	0.273	1.03	70′	EL	34.5	0.507	1.32	70′	EL	6.9	0.80	0.273	**1.01**	70′	EL	**34.5**	
		HL-93(Opr)	N/A	--	1.341	--	1.35	0.273	1.34	70′	EL	34.5	0.507	1.72	70′	EL	6.9	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	**2**	1.306	47.020	1.75	0.273	1.34	70′	EL	34.5	0.507	1.65	70′	EL	6.9	0.80	0.273	**1.31**	70′	EL	**34.5**	
		HS-20(Opr)	36.000	--	1.740	62.640	1.35	0.273	1.74	70′	EL	34.5	0.507	2.14	70′	EL	6.9	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500	--	2.917	39.379	1.40	0.273	3.75	70′	EL	34.5	0.507	4.87	70′	EL	6.9	0.80	0.273	2.92	70′	EL	34.5	
		SNGARBS2	20.000	--	2.187	43.741	1.40	0.273	2.81	70′	EL	34.5	0.507	3.47	70′	EL	6.9	0.80	0.273	2.19	70′	EL	34.5	
		SNAGRIS2	22.000	--	2.077	45.69	1.40	0.273	2.67	70′	EL	34.5	0.507	3.23	70′	EL	6.9	0.80	0.273	2.08	70′	EL	34.5	
		SNCOTTS3	27.250	--	1.452	39.565	1.40	0.273	1.87	70′	EL	34.5	0.507	2.43	70′	EL	6.9	0.80	0.273	1.45	70′	EL	34.5	
		SNAGGRS4	34.925	--	1.218	42.554	1.40	0.273	1.57	70′	EL	34.5	0.507	2.03	70′	EL	6.9	0.80	0.273	1.22	70′	EL	34.5	
		SNS5A	35.550	--	1.191	42.346	1.40	0.273	1.53	70′	EL	34.5	0.507	2.06	70′	EL	6.9	0.80	0.273	1.19	70′	EL	34.5	
		SNS6A	39.950	--	1.095	43.747	1.40	0.273	1.41	70′	EL	34.5	0.507	1.88	70′	EL	6.9	0.80	0.273	1.10	70′	EL	34.5	
		SNS7B	42.000	--	1.043	43.801	1.40	0.273	1.34	70′	EL	34.5	0.507	1.85	70′	EL	6.9	0.80	0.273	1.04	70′	EL	34.5	
	TRUCK TRACTOR SEMI-TRAILOR (TTST)	TNAGRIT3	33.000	--	1.336	44.087	1.40	0.273	1.72	70′	EL	34.5	0.507	2.23	70′	EL	6.9	0.80	0.273	1.34	70′	EL	34.5	
		TNT4A	33.075	--	1.342	44.401	1.40	0.273	1.72	70′	EL	34.5	0.507	2.17	70′	EL	6.9	0.80	0.273	1.34	70′	EL	34.5	
		TNT6A	41.600	--	1.100	45.746	1.40	0.273	1.41	70′	EL	34.5	0.507	1.98	70′	EL	6.9	0.80	0.273	1.10	70′	EL	34.5	
		TNT7A	42.000	--	1.106	46.462	1.40	0.273	1.42	70′	EL	34.5	0.507	1.94	70′	EL	6.9	0.80	0.273	1.11	70′	EL	34.5	
		TNT7B	42.000	--	1.147	48.180	1.40	0.273	1.47	70′	EL	34.5	0.507	1.80	70′	EL	6.9	0.80	0.273	1.15	70′	EL	34.5	
		TNAGRIT4	43.000	--	1.089	46.838	1.40	0.273	1.40	70′	EL	34.5	0.507	1.74	70′	EL	6.9	0.80	0.273	1.09	70′	EL	34.5	
		TNAGT5A	45.000	--	1.026	46.175	1.40	0.273	1.32	70′	EL	34.5	0.507	1.74	70′	EL	6.9	0.80	0.273	1.03	70′	EL	34.5	
		TNAGT5B	45.000	**3**	1.013	45.579	1.40	0.273	1.30	70′	EL	34.5	0.507	1.66	70′	EL	6.9	0.80	0.273	**1.01**	70′	EL	**34.5**	

LOAD FACTORS:

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

NOTES:

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

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

COMMENTS:

1.
2.
3.
4.

⬡ CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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

① ② ③

LRFR SUMMARY

FOR SPAN '70'

PROJECT NO. B-5106

BERTIE COUNTY

STATION: 15+58.00 -L-

NORTH CAROLINA PROFESSIONAL SEAL 22005 ENGINEER A. KEITH PASCHAL

DocuSigned by: A. Keith Paschal F8B6AD6DB2FC48F...

9/4/2015

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR 70′ CORED SLAB UNIT 90° SKEW
(NON-INTERSTATE TRAFFIC)

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

ASSEMBLED BY : R. CAREATHERS DATE : 7/20/15
CHECKED BY : N. RUFFIN DATE : 8/27/15

DRAWN BY : CVC 6/10
CHECKED BY : DNS 6/10

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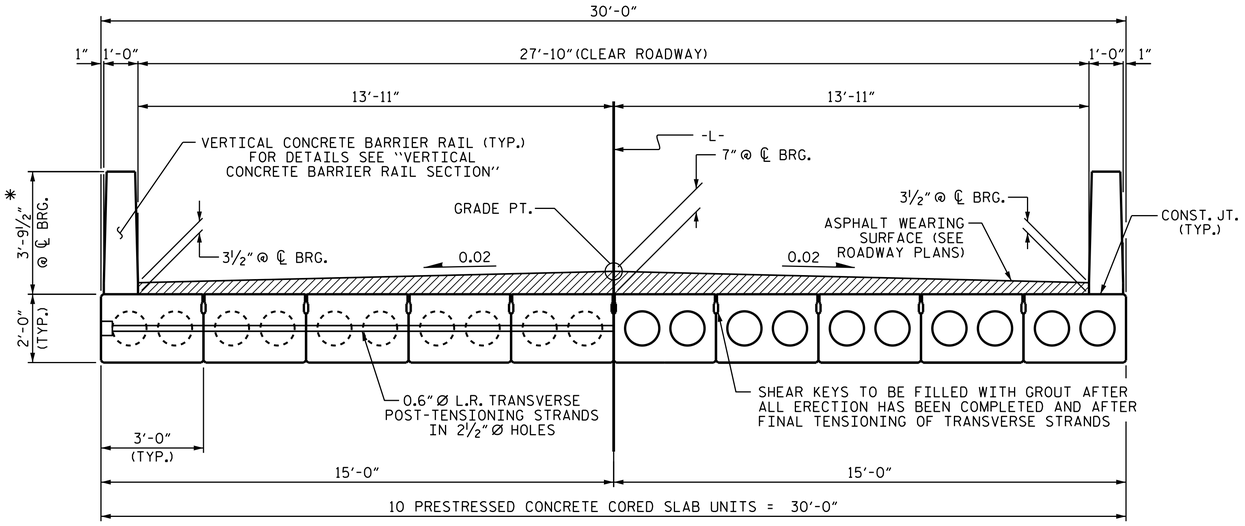
kpaschal

STD. NO. 24LRFR1_90S_70L

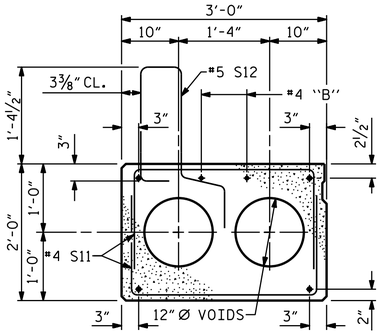


HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

HALF SECTION
THROUGH VOIDS

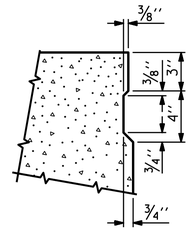
TYPICAL SECTION

* - 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.



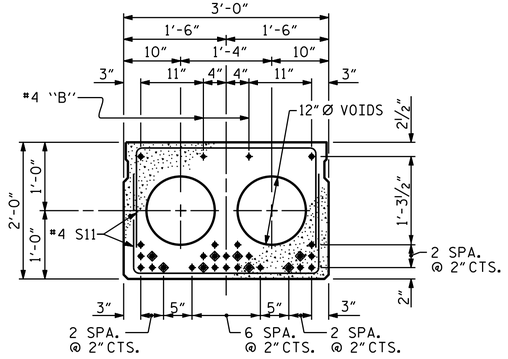
EXTERIOR SLAB SECTION

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



SHEAR KEY DETAIL

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



INTERIOR SLAB SECTION (70' UNIT)

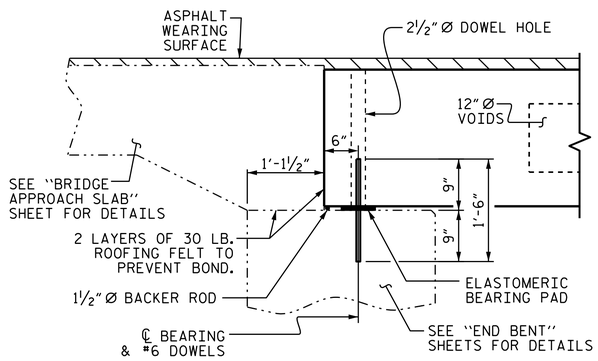
(28 STRANDS REQUIRED)

0.6'' Ø LOW RELAXATION STRAND LAYOUT

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

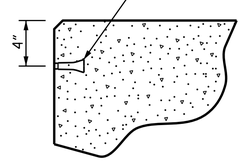
DEBONDING LEGEND

FIXED END

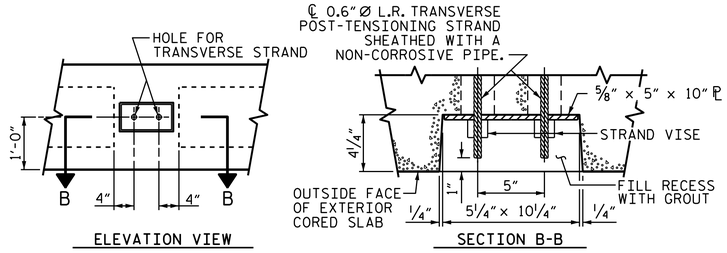


SECTION AT END BENT

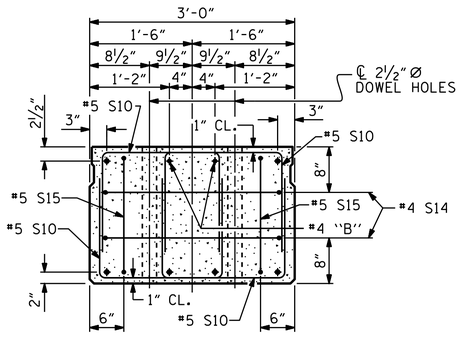
PERMITTED THREADED INSERT CAST IN OUTSIDE FACE OF EXTERIOR UNIT AND RECESSED ⅜". SIZE TO BE DETERMINED BY CONTRACTOR.



THREADED INSERT DETAIL



GROUTED RECESS AT END OF POST-TENSIONED STRAND-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.

PROJECT NO. B-5106
BERTIE COUNTY
STATION: 15+58.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

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

NORTH CAROLINA PROFESSIONAL SEAL 22005 ENGINEER A. KEITH PASCHAL

DocuSigned by: A. Keith Paschal F8B6AD6DB2FC48F...

9/24/2015

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

ASSEMBLED BY : R. CAREATHERS	DATE : 7/20/15		
CHECKED BY : N. RUFFIN	DATE : 8/28/15		
DRAWN BY : MAA 6/10		REV. 8/14	MAA/TMG
CHECKED BY : MKT 7/10			

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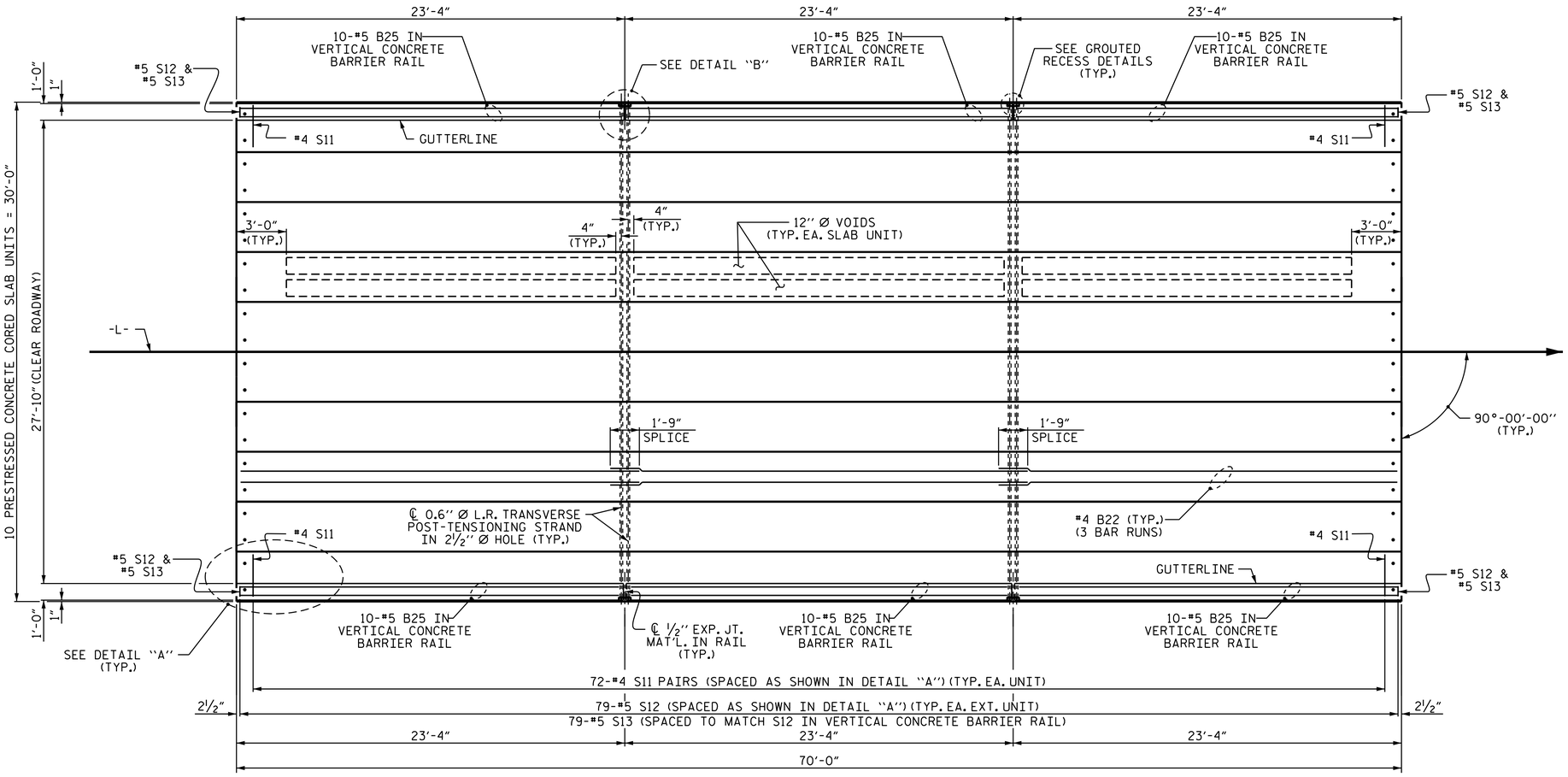
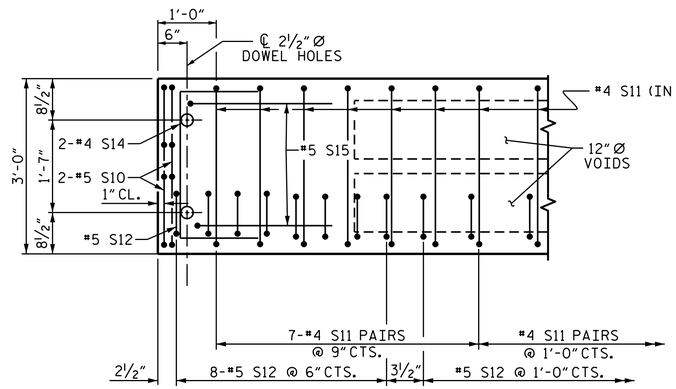
STD. NO. 24PCS4_30_90S

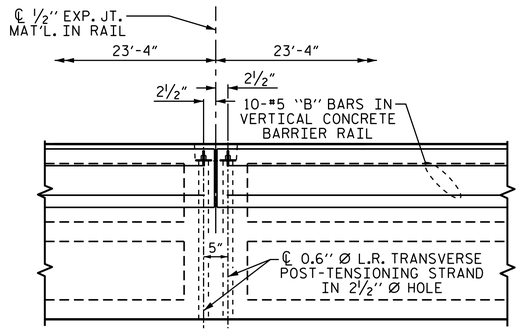


PLAN OF UNIT



DETAIL "A"

(TYPICAL EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS.



DETAIL "B"

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

ASSEMBLED BY : R. CAREATHERS	DATE : 7/20/15		
CHECKED BY : N. RUFFIN	DATE : 8/28/15		
DRAWN BY : MAA	6/10	REV. 12/5/11	MAA/AAC
CHECKED BY : MKT	7/10	REV. 8/14	MAA/TMG

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kpaschal

PROJECT NO. B-5106
BERTIE COUNTY
STATION: 15+58.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

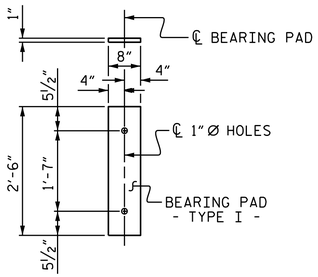
PLAN OF 70' UNIT 27'-10" CLEAR ROADWAY 90° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 22005 ENGINEER A. KEITH PASCHAL

DocuSigned by: A. Keith Paschal F8B6AD6DB2FC48F...
9/4/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			13

STD. NO. 24PCS_30_90S_70L



FIXED END
(TYPE I - 20 REQ'D)

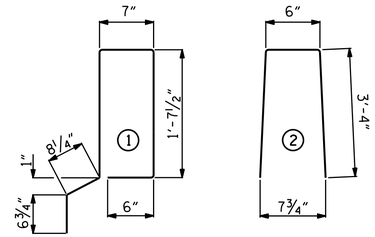
CORED SLABS REQUIRED

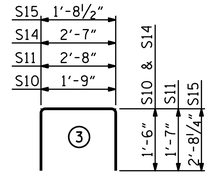
	NUMBER	LENGTH	TOTAL LENGTH
70' UNIT			
EXTERIOR C.S.	2	70'-0"	140'-0"
INTERIOR C.S.	8	70'-0"	560'-0"
TOTAL	10	70'-0"	700'-0"

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	70' UNIT					
*B25	60	60	#5	STR	22'-11"	1434
*S13	158	158	#5	2	7'-2"	1181
*EPOXY COATED REINFORCING STEEL				LBS.		2615
CLASS AA CONCRETE				CU.YDS.		18.1
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		140.25

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.

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

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

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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

FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.

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

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

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.

THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

DEAD LOAD DEFLECTION AND CAMBER

	3'-0" x 2'-0"
70' CORED SLAB UNIT	0.6"Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	2¼" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	¾" ↓
FINAL CAMBER	1½" ↑

** INCLUDES FUTURE WEARING SURFACE

BILL OF MATERIAL FOR ONE 70' CORED SLAB UNIT

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B22	6	#4	STR	24'-6"	98	24'-6"	98
S10	8	#5	3	4'-9"	40	4'-9"	40
S11	144	#4	3	5'-10"	561	5'-10"	561
*S12	79	#5	1	5'-7"	460		
S14	4	#4	3	5'-7"	15	5'-7"	15
S15	4	#5	3	7'-1"	30	7'-1"	30
REINFORCING STEEL			LBS.		744		744
*EPOXY COATED REINFORCING STEEL			LBS.		460		
7000 P.S.I. CONCRETE			CU. YDS.		11.8		11.8
0.6"Ø L.R. STRANDS			No.		28		28

CONCRETE RELEASE STRENGTH

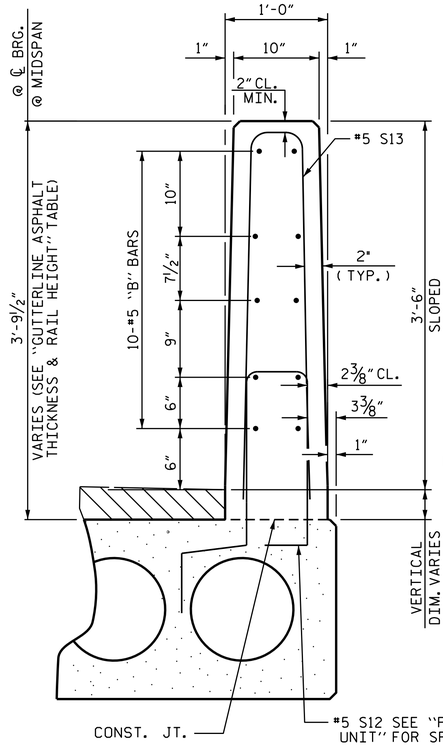
UNIT	PSI
70' UNITS	5500

GRADE 270 STRANDS

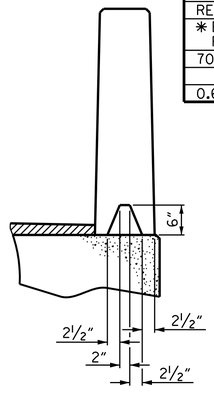
	0.6"Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
70' UNITS	2"	3'-8"

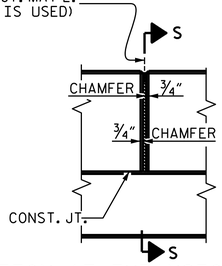


SECTION THRU RAIL

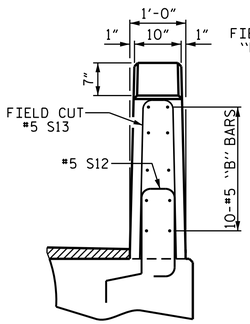


SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

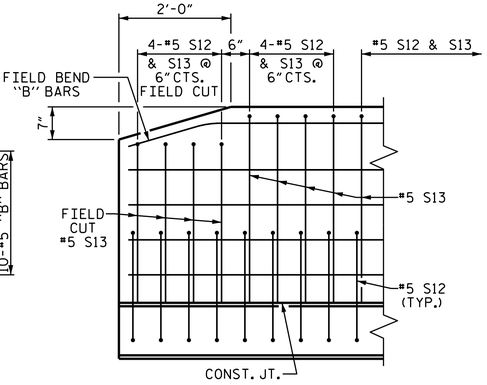
℄ ½" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS. (NOTE: OMIT EXP. JT. MAT'L. WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS



END VIEW



SIDE VIEW

END OF RAIL DETAILS

VERTICAL CONCRETE BARRIER RAIL DETAILS

ASSEMBLED BY : R. CAREATHERS	DATE : 7/20/15		
CHECKED BY : N. RUFFIN	DATE : 8/28/15		
DRAWN BY : MAA	6/10	REV. 11/14	MAA/TMG
CHECKED BY : MKT	7/10		

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NORTH CAROLINA PROFESSIONAL SEAL 22005 ENGINEER A. KEITH PASCHAL

DocuSigned by: A. Keith Paschal F886AD6DB2FC48F...

9/4/2015

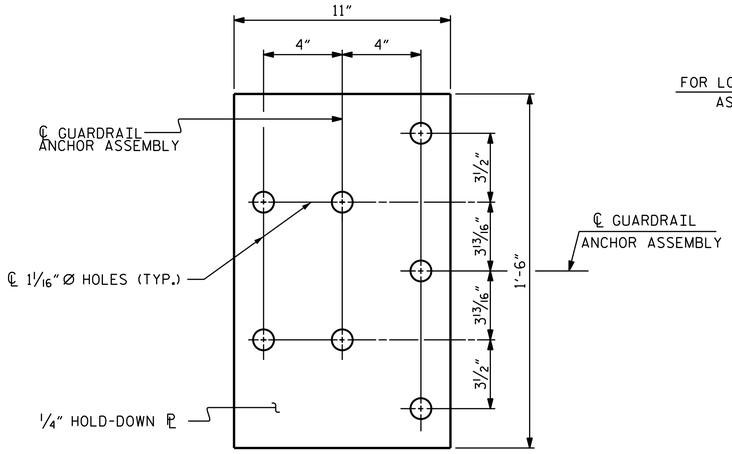
PROJECT NO. B-5106
BERTIE COUNTY
STATION: 15+58.00 -L-

SHEET 3 OF 3

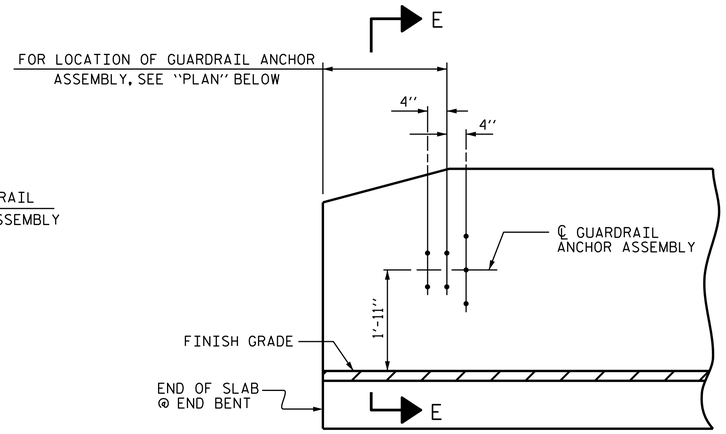
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 2'-0"
PRESTRESSED CONCRETE
CORED SLAB UNIT

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

STD. NO. 24PCS3_30_90S



PLAN



ELEVATION

NOTES

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

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

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

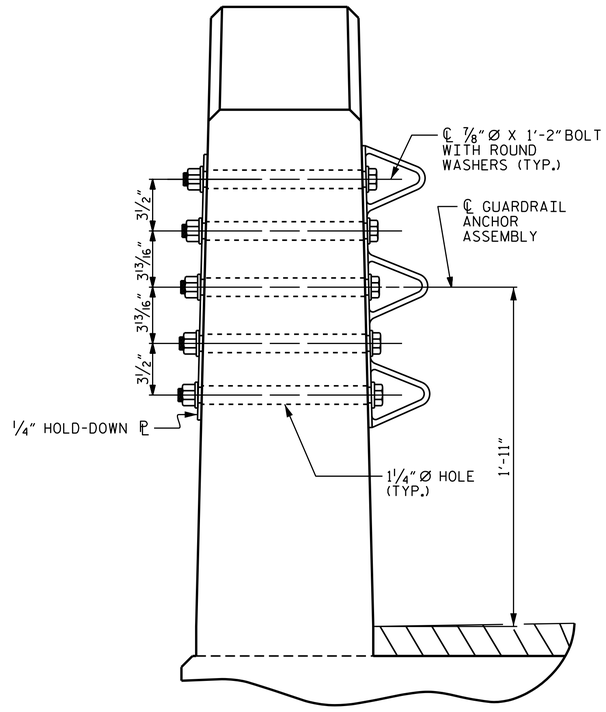
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

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

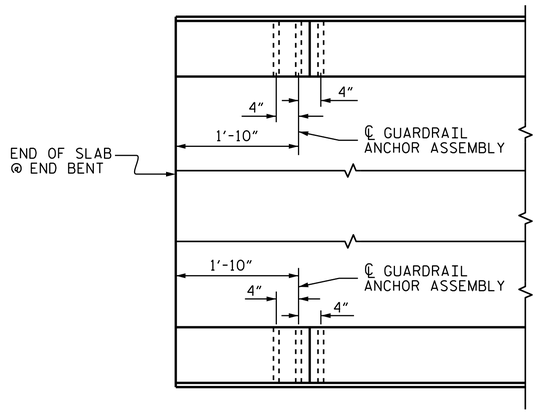
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

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



SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

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

SKETCH SHOWING POINTS OF ATTACHMENT

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-5106

BERTIE COUNTY

STATION: 15+58.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD GUARDRAIL ANCHORAGE DETAILS FOR VERTICAL CONCRETE BARRIER RAIL

NORTH CAROLINA PROFESSIONAL SEAL 22005 ENGINEER A. KEITH PASCHAL

DocuSigned by: A. Keith Paschal F8B6AD6DB2FC48F...

9/4/2015

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

ASSEMBLED BY : R. CAREATHERS DATE : 8/24/15
CHECKED BY : N. RUFFIN DATE : 8/28/15

DRAWN BY : MAA 5/10
CHECKED BY : GM 5/10

REV. 12/5/11 MAA/GM
REV. 6/13 MAA/GM
REV. 1/15 MAA/TMG

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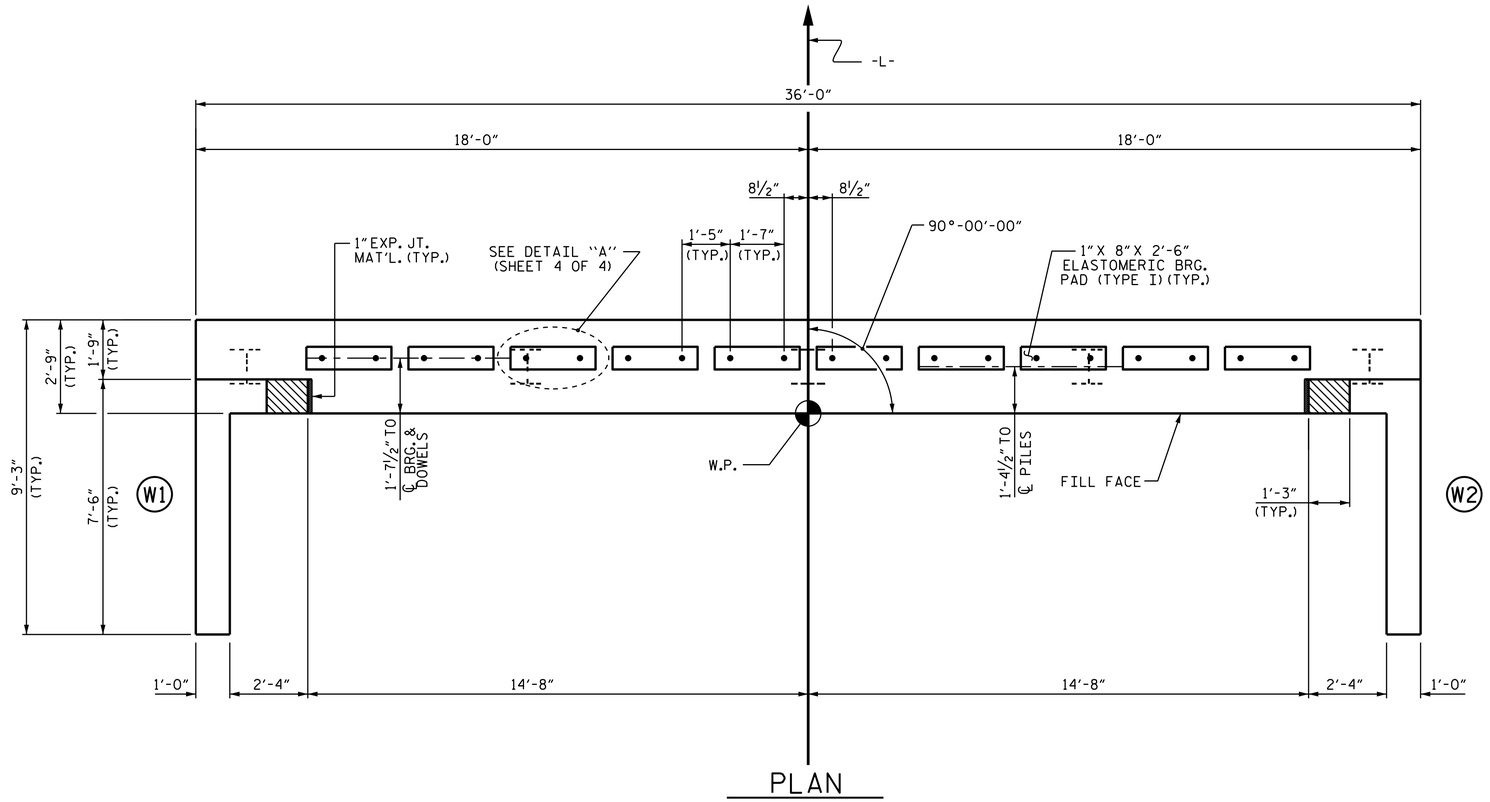
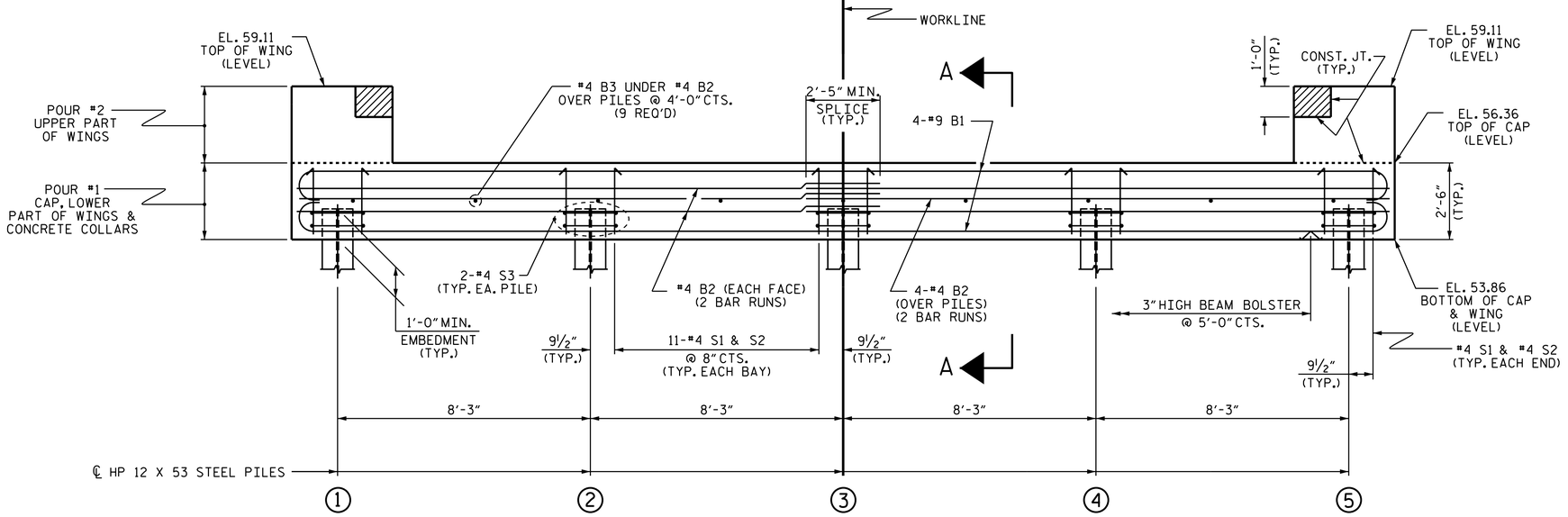
kpaschal

(SHT 1) STD. NO. GRA3



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

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 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

INSTALL THE 4" Ø DRAIN PIPE THROUGH THE WINGWALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WINGWALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

PROJECT NO. B-5106
BERTIE COUNTY
STATION: 15+58.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1

NORTH CAROLINA PROFESSIONAL SEAL 22005 ENGINEER A. KEITH PASCHAL

DocuSigned by: A. Keith Paschal F8B6AD6DB2FC48F...
9/4/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			13

ASSEMBLED BY : R. CAREATHERS DATE : 7/20/15
CHECKED BY : N. RUFFIN DATE : 8/28/15
DRAWN BY : DGE 01/10
CHECKED BY : MKT 01/10
REV. 4/15 MAA/TMG

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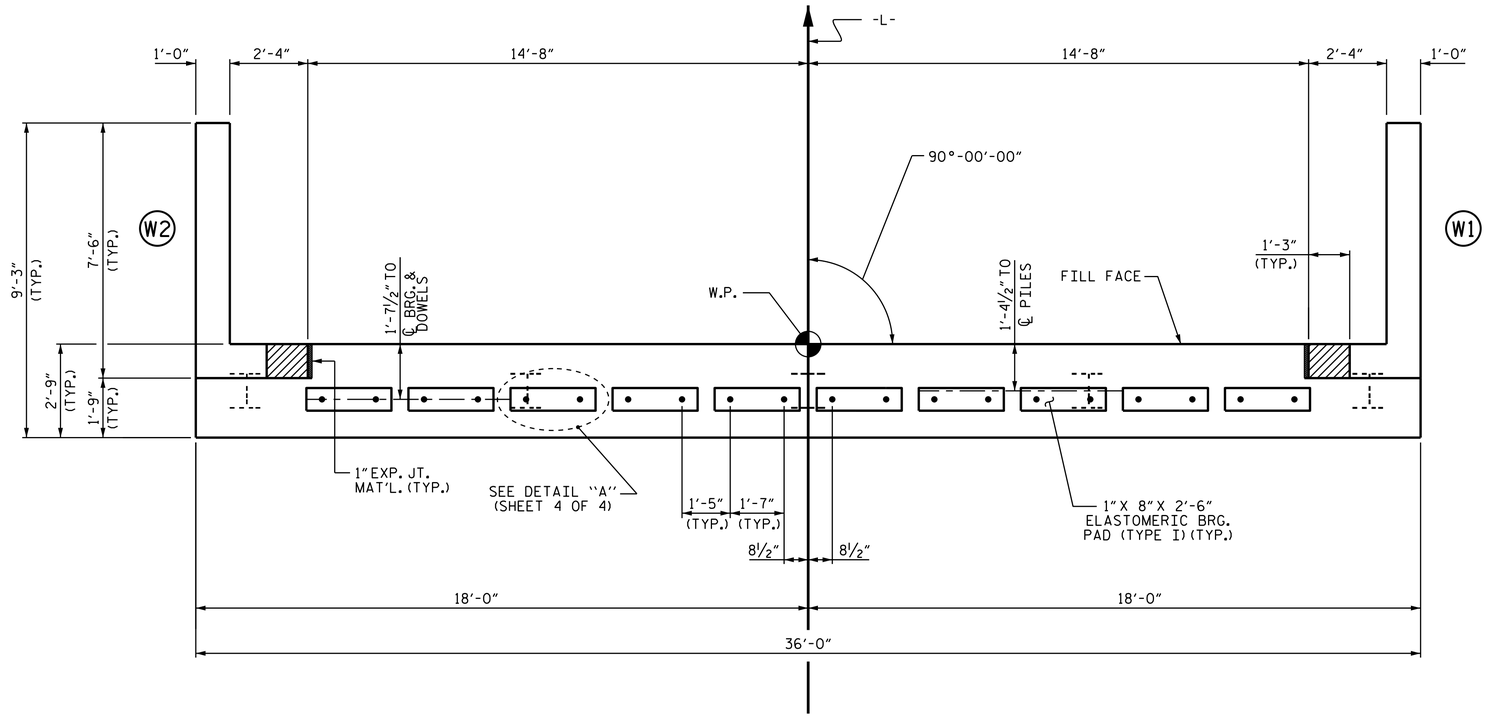
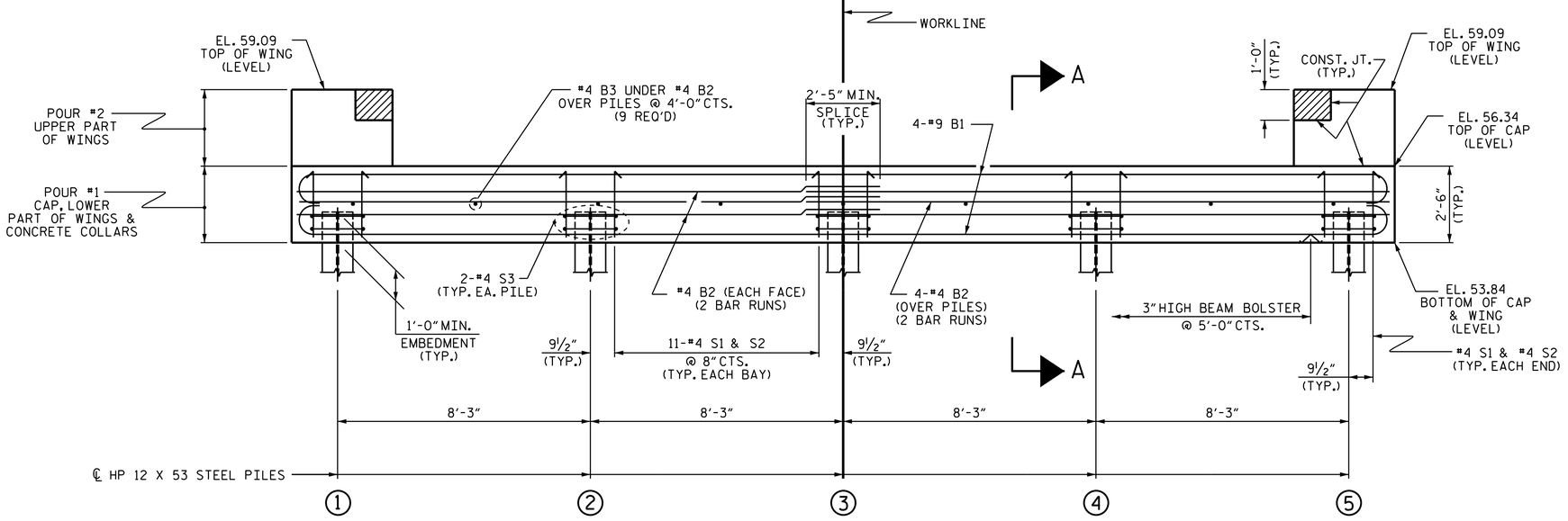
STD. NO. EB_30_90S



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

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 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

INSTALL THE 4" Ø DRAIN PIPE THROUGH THE WINGWALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WINGWALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

PROJECT NO. B-5106
BERTIE COUNTY
STATION: 15+58.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 2

NORTH CAROLINA PROFESSIONAL SEAL 22005 ENGINEER A. KEITH PASCHAL

DocuSigned by: A. Keith Paschal F8B6AD6DB2FC48F...
9/4/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			13

ASSEMBLED BY : R. CAREATHERS DATE : 7/20/15
CHECKED BY : N. RUFFIN DATE : 8/28/15
DRAWN BY : DGE 01/10
CHECKED BY : MKT 01/10
REV. 4/15 MAA/TMG

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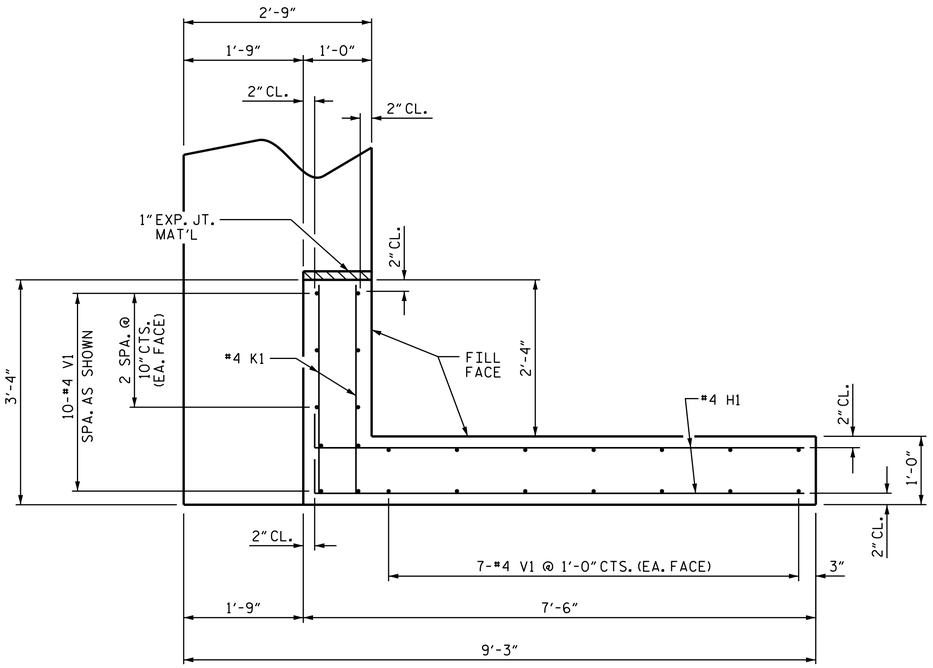
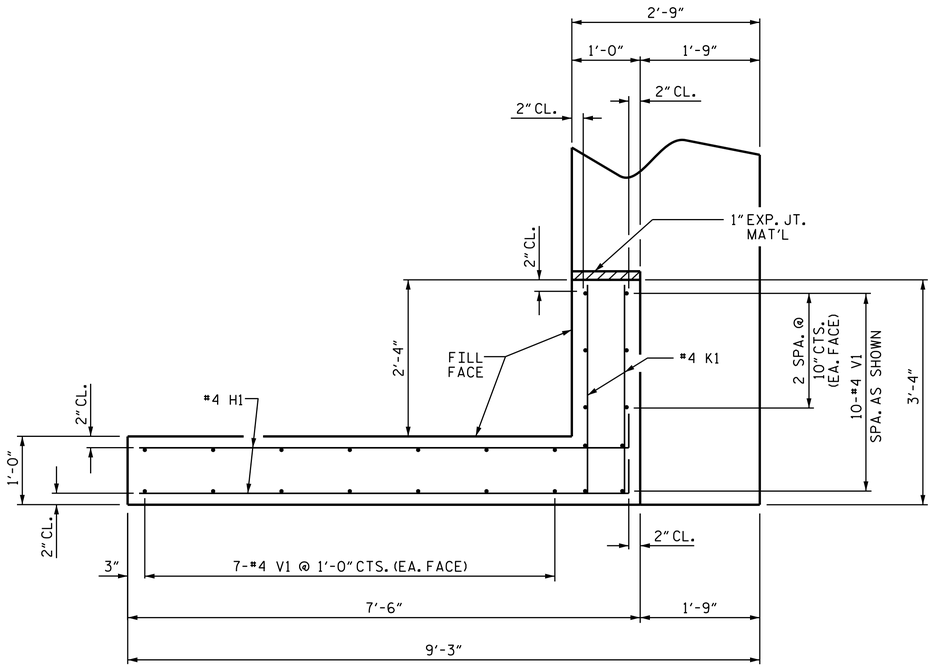
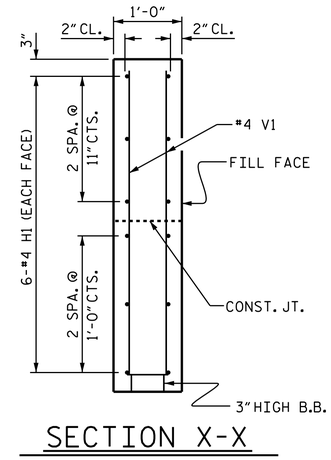
STD. NO. EB_30_90S



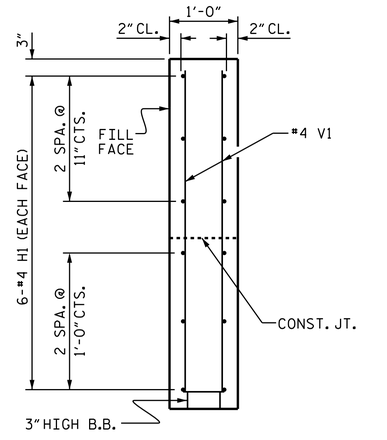
PLAN OF WING (W1)



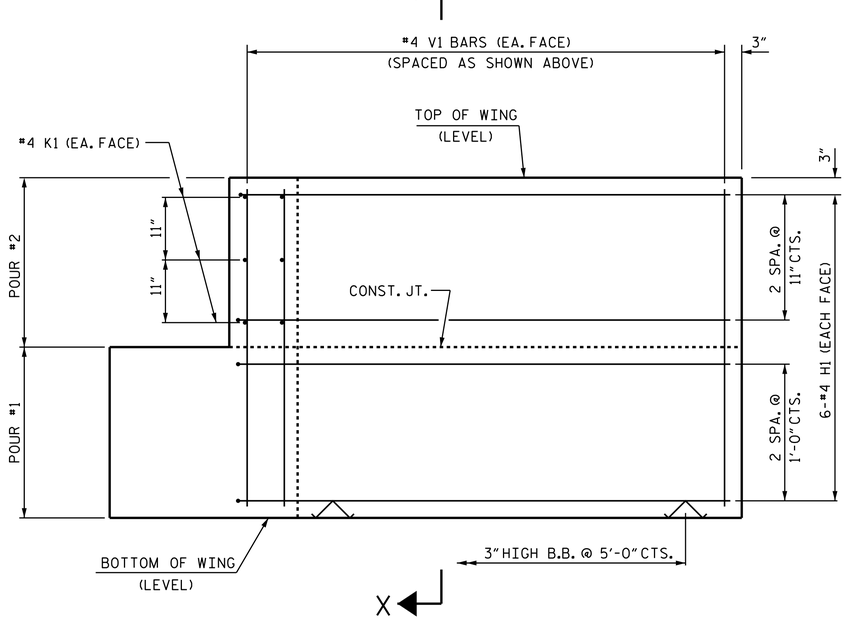
PLAN OF WING (W2)



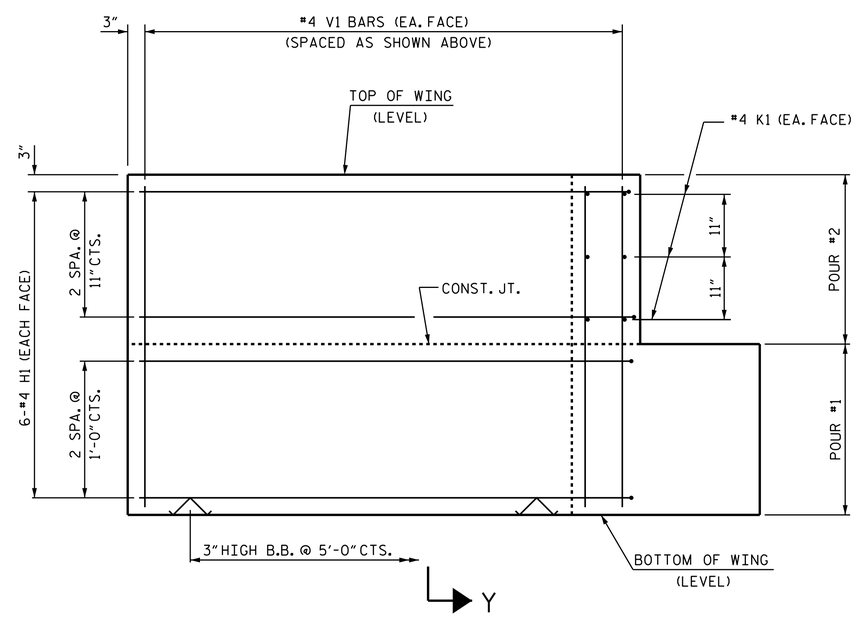
SECTION X-X



SECTION Y-Y



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

WING DETAILS

PROJECT NO. B-5106

BERTIE COUNTY

STATION: 15+58.00 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT
WING DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			13

NORTH CAROLINA PROFESSIONAL SEAL 22005 ENGINEER A. KEITH PASCHAL

DocuSigned by: A. Keith Paschal F886AD6DB2FC48F...

9/24/2015

ASSEMBLED BY : R. CAREATHERS	DATE : 7/20/15	
CHECKED BY : N. RUFFIN	DATE : 8/28/15	
DRAWN BY : DGE 02/10	REV. 4/15	MAA/TMG
CHECKED BY : MKT 02/10		

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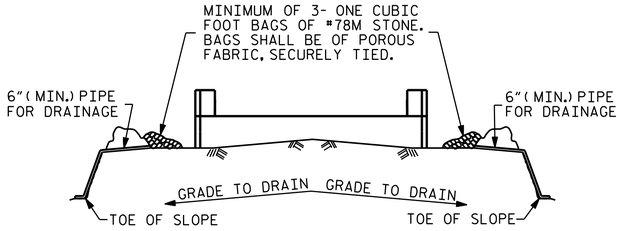
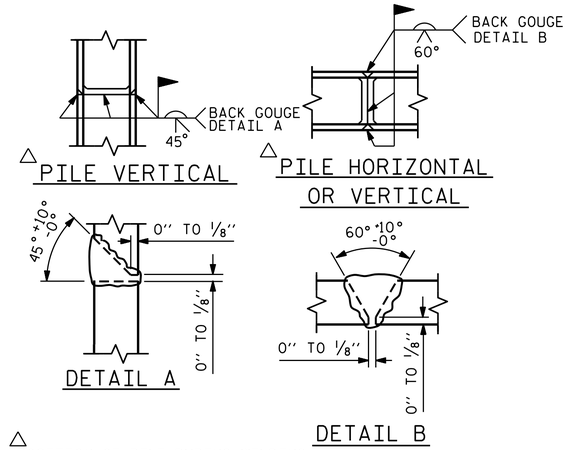


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

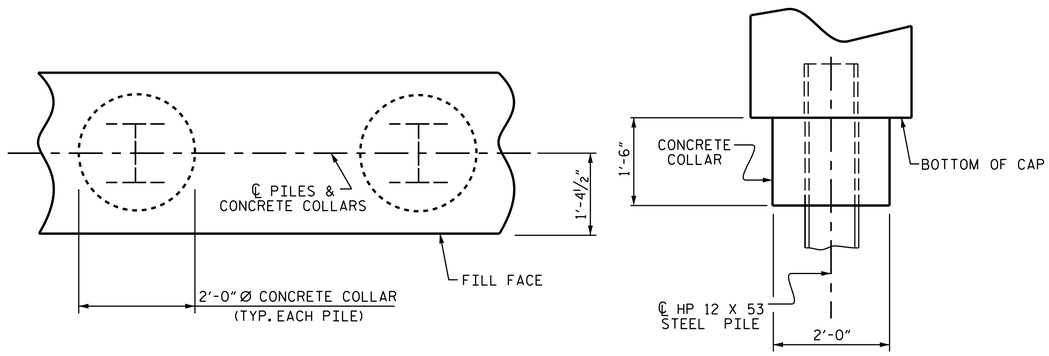
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



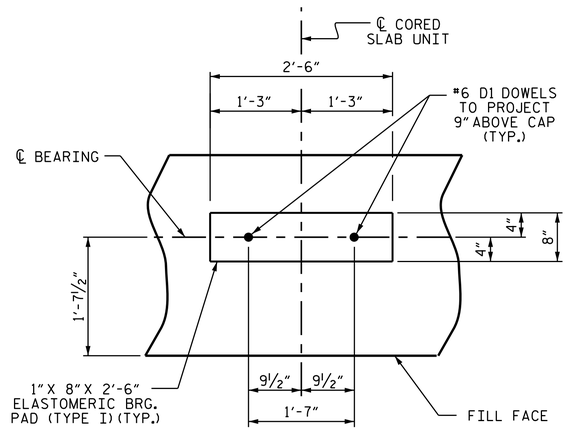
△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS



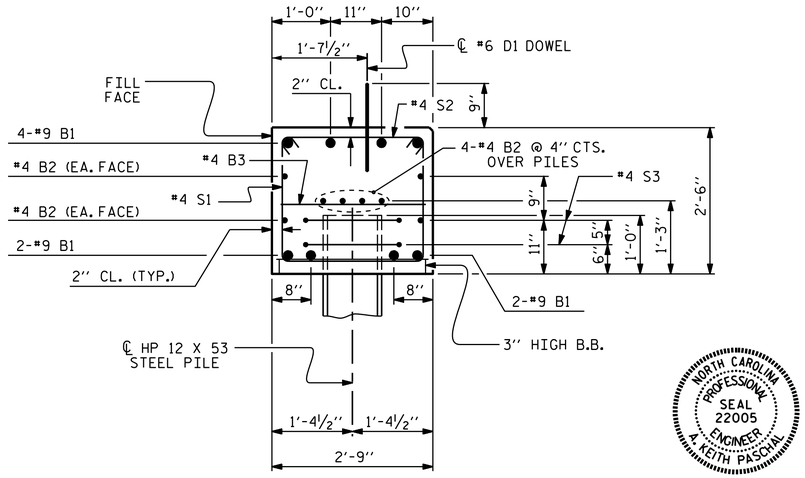
CORROSION PROTECTION FOR STEEL PILES DETAIL

(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



DETAIL ''A''

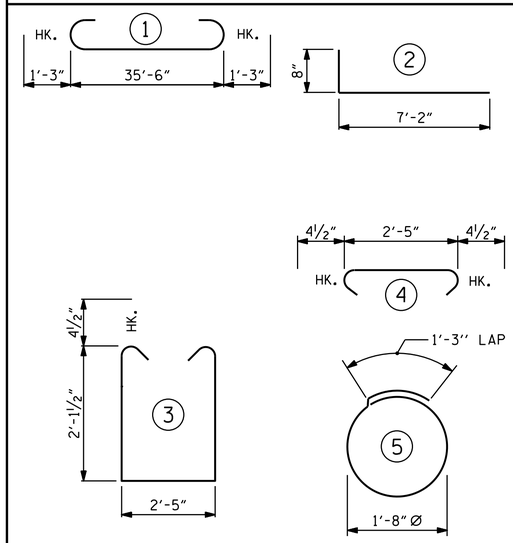
(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



SECTION A-A

(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE ''CORROSION PROTECTION FOR STEEL PILES DETAIL.'')

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT No. 1	END BENT No. 2
HP 12 X 53 STEEL PILES	HP 12 X 53 STEEL PILES
NO: 5 LIN. FT.= 425	NO: 5 LIN. FT.= 425
PILE REDRIVES EA. 5	PILE REDRIVES EA. 5

BILL OF MATERIAL

FOR ONE END BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	38'-0"	1034
B2	16	#4	STR	19'-1"	204
B3	9	#4	STR	2'-5"	15
D1	20	#6	STR	1'-6"	45
H1	24	#4	2	7'-10"	126
K1	12	#4	STR	2'-11"	23
S1	46	#4	3	7'-5"	228
S2	46	#4	4	3'-2"	97
S3	10	#4	5	6'-6"	43
V1	48	#4	STR	4'-8"	150

REINFORCING STEEL (FOR ONE END BENT) 1965 LBS.

CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)

POUR #1 CAP, LOWER PART OF WINGS & COLLARS 11.2 C.Y.

POUR #2 UPPER PART OF WINGS 2.0 C.Y.

TOTAL CLASS A CONCRETE 13.2 C.Y.

PROJECT NO. B-5106

BERTIE COUNTY

STATION: 15+58.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1 & 2 DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 22005 ENGINEER A. KEITH PASCHAL

DocuSigned by: A. Keith Paschal F8B6AD6DB2FC48F...

9/4/2015

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

ASSEMBLED BY : R. CAREATHERS	DATE : 7/20/15	
CHECKED BY : N. RUFFIN	DATE : 8/28/15	
DRAWN BY : DGE 12/09	REV. 11/14	MAA/TMG
CHECKED BY : MKT 01/10		

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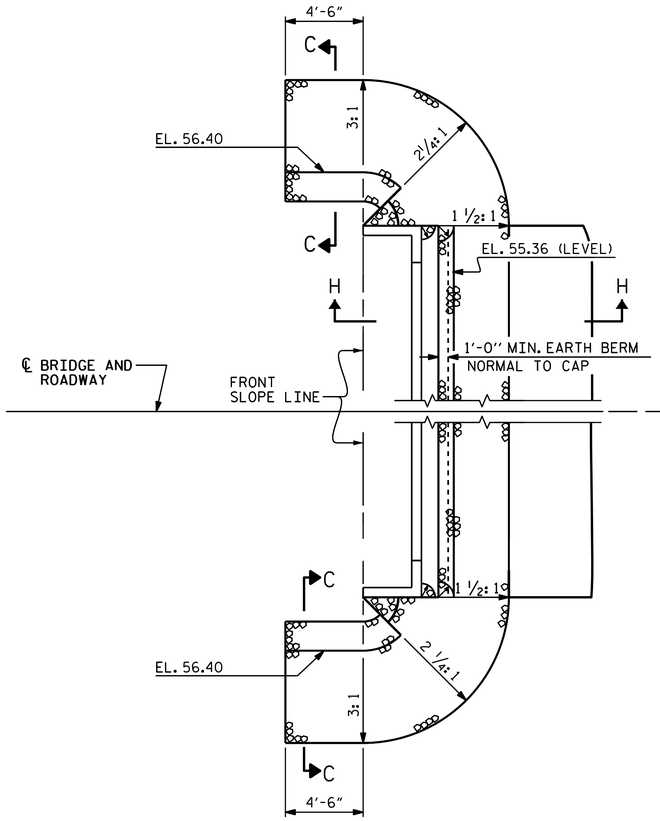
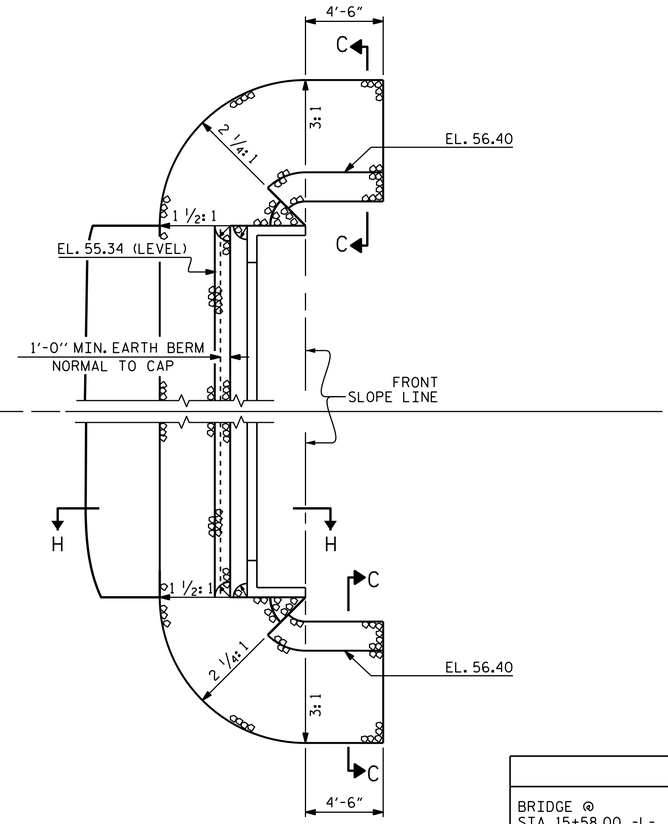
STD. NO. EB_30_90S



END BENT NO. 1

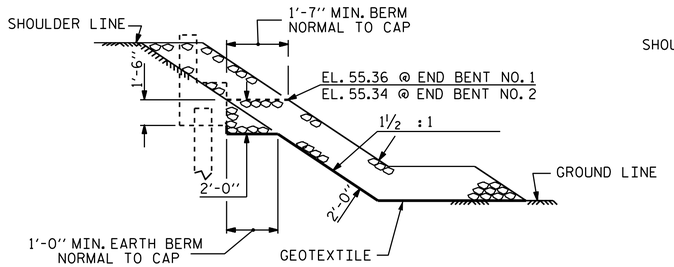


END BENT NO. 2

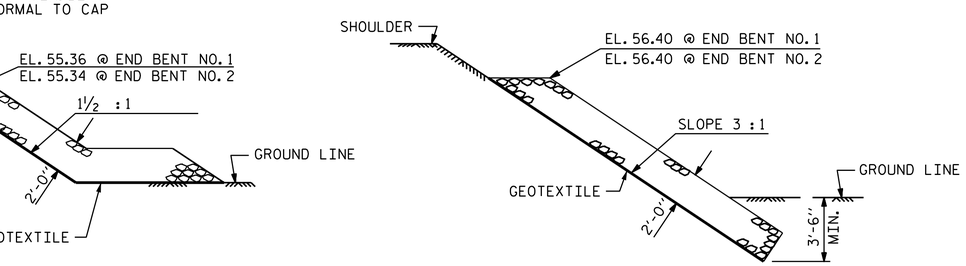
NOTES :

FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

ESTIMATED QUANTITIES		
BRIDGE @ STA. 15+58.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	150	167
END BENT 2	150	167



SECTION H-H



SECTION C-C

PROJECT NO. B-5106

BERTIE COUNTY

STATION: 15+58.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

RIP RAP DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 22005 ENGINEER A. KEITH PASCHAL

DocuSigned by: A. Keith Paschal F8B6AD6DB2FC48F...

9/24/2015

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

SHEET NO. S-12

TOTAL SHEETS 13

ASSEMBLED BY : R.CAREATHERS DATE : 7/20/15
CHECKED BY : N. RUFFIN DATE : 8/31/15

DRAWN BY : REK 1/84
CHECKED BY : RDU 1/84

REV. 5/1/06R TLA/GM
REV. 10/1/11 MAA/GM
REV. 12/21/11 MAA/GM

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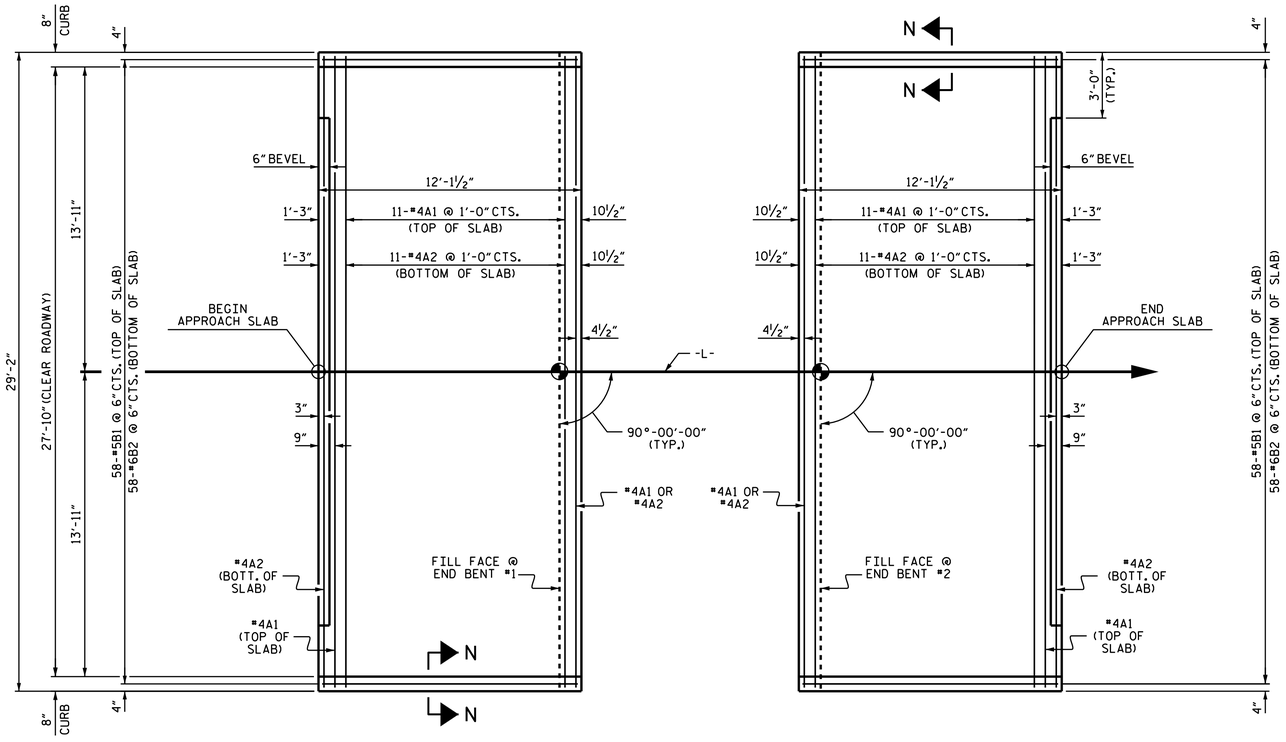
kpaschal

STD. NO. RR1 (Sht 2)



PLAN @ END BENT #1 PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

NOTES

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, AND SELECT MATERIAL, SEE ROADWAY PLANS.

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

APPROACH SLAB GROOVING IS NOT REQUIRED.

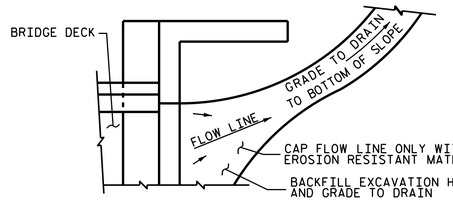
BILL OF MATERIAL

APPROACH SLAB AT EB #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	13	#4	STR	28'-10"	250
A2	13	#4	STR	28'-10"	250
* B1	58	#5	STR	11'-2"	676
B2	58	#6	STR	11'-8"	1016
REINFORCING STEEL				LBS.	1266
* EPOXY COATED REINFORCING STEEL				LBS.	926
CLASS AA CONCRETE				C.Y.	17.8

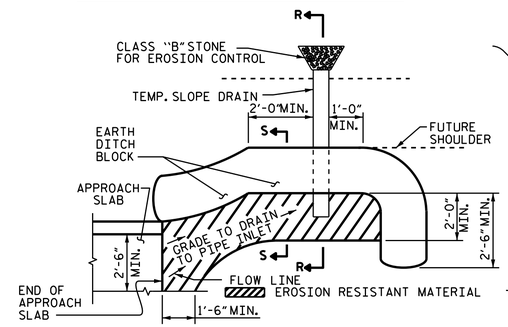
APPROACH SLAB AT EB #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	13	#4	STR	28'-10"	250
A2	13	#4	STR	28'-10"	250
* B1	58	#5	STR	11'-2"	676
B2	58	#6	STR	11'-8"	1016
REINFORCING STEEL				LBS.	1266
* EPOXY COATED REINFORCING STEEL				LBS.	926
CLASS AA CONCRETE				C.Y.	17.8



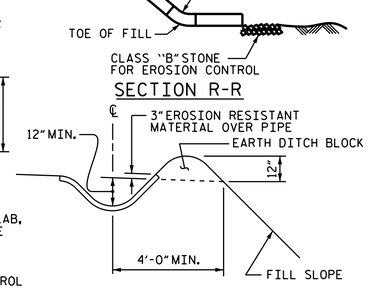
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL



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.

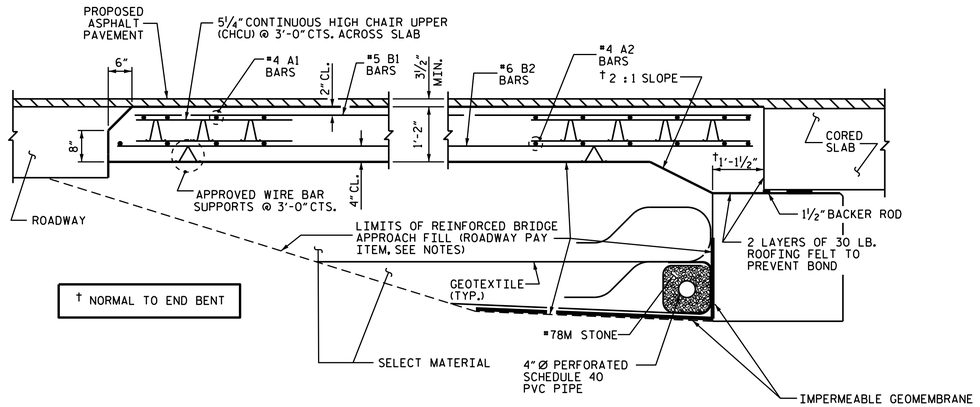
PLAN VIEW



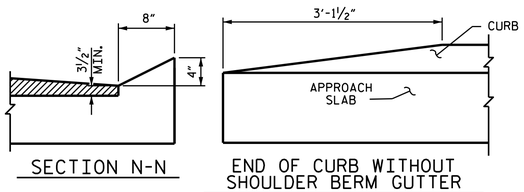
SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



SECTION THRU SLAB



SECTION N-N END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

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

PROJECT NO. B-5106

BERTIE COUNTY

STATION: 15+58.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
BRIDGE APPROACH SLAB
FOR PRESTRESSED CONCRETE
CORED SLAB UNIT
90° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 22005 ENGINEER A. KEITH PASCHAL

DocuSigned by: A. Keith Paschal F8B6AD6DB2FC48F...

9/4/2015

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

ASSEMBLED BY : R. CAREATHERS DATE : 7/20/15
CHECKED BY : N. RUFFIN DATE : 8/28/15

DRAWN BY : SHS/MAA 5-09 REV. 12-11 MAA/AAC
CHECKED BY : BCH 5-09 REV. 8-14 MAA/TMG

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STD. NO. BAS_30_90S

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

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

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

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

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

STD. NO. SN

REV. 6-16-95 EEM (c) RGW REV. 5-7-03 RWW (c) JTE REV. 10-1-11 MAA (c) GM
REV. 8-16-99 RWW (c) LES REV. 5-1-06 TLA (c) GM
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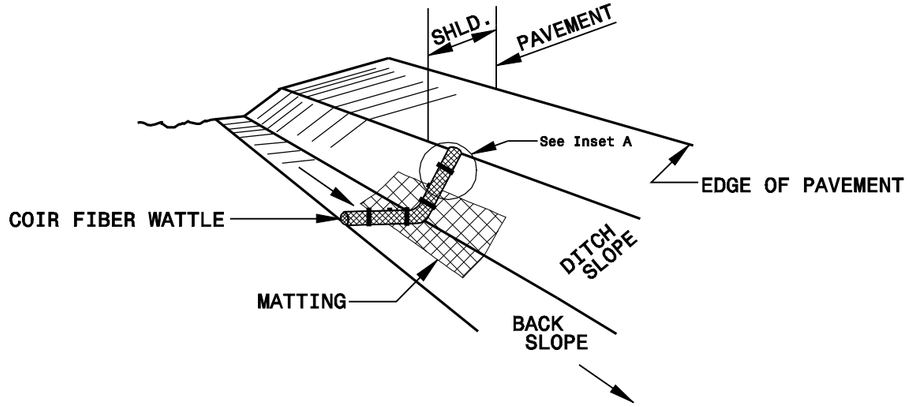
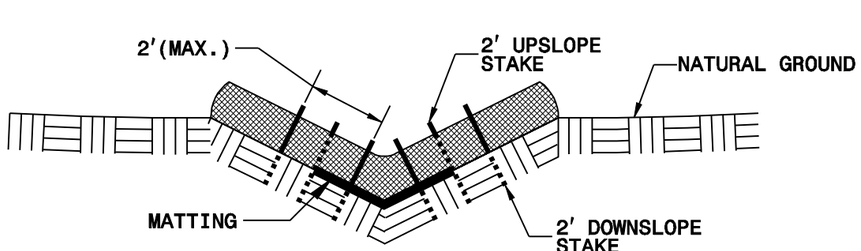
PROJECT REFERENCE NO.	SHEET NO.
B-5106	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

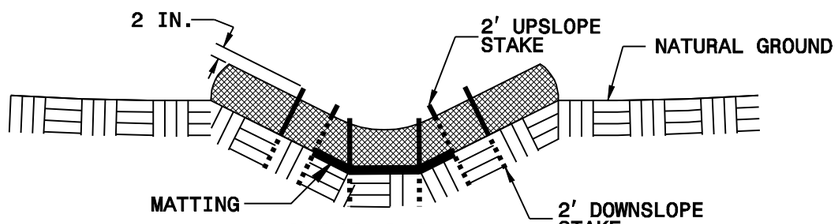
COIR FIBER WATTLE DETAIL



ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE.

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

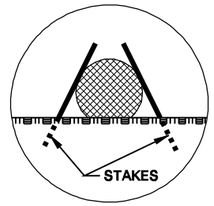
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

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

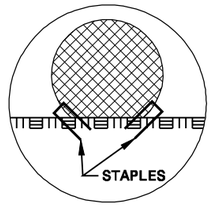
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

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

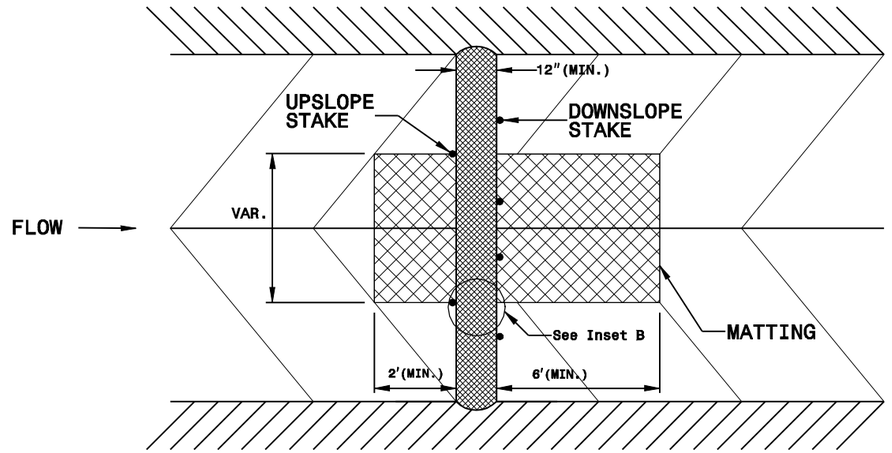
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



INSET A



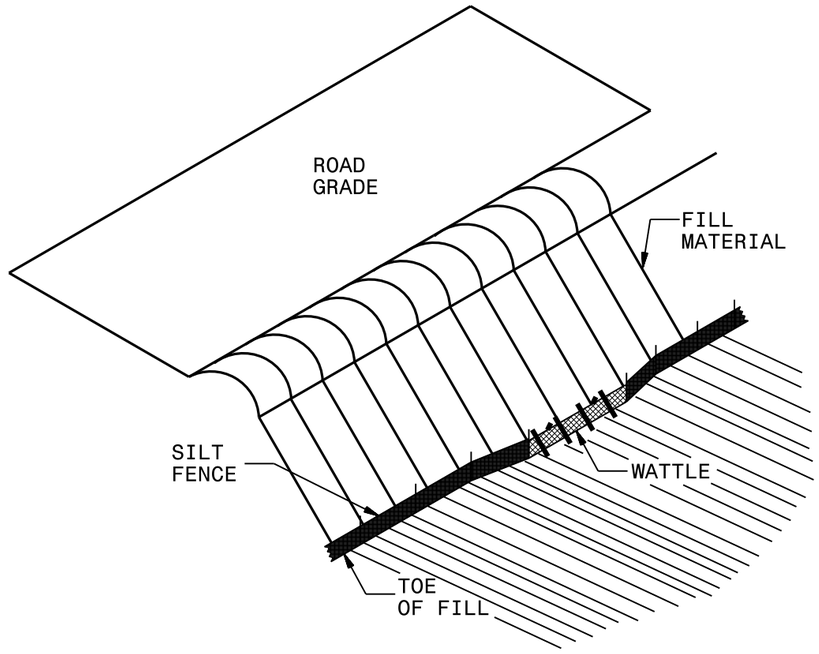
INSET B



TOP VIEW

SILT FENCE COIR FIBER WATTLE BREAK DETAIL

PROJECT REFERENCE NO.	SHEET NO.
B-5106	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



ISOMETRIC VIEW

NOTES:

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

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

DO NOT PLACE WATTLE ON TOE OF SLOPE.

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

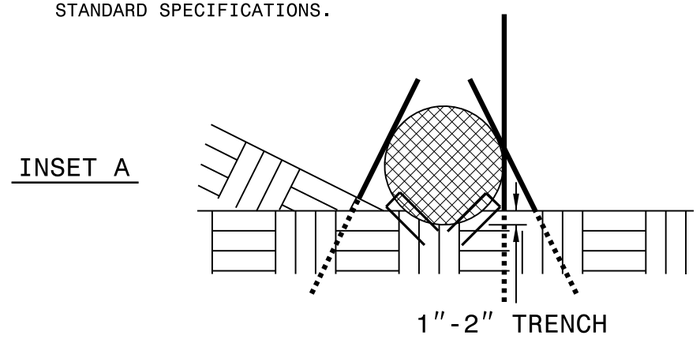
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

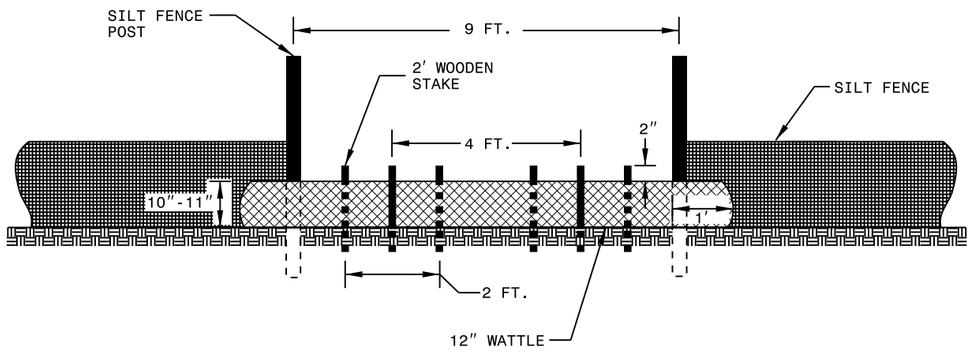
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

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

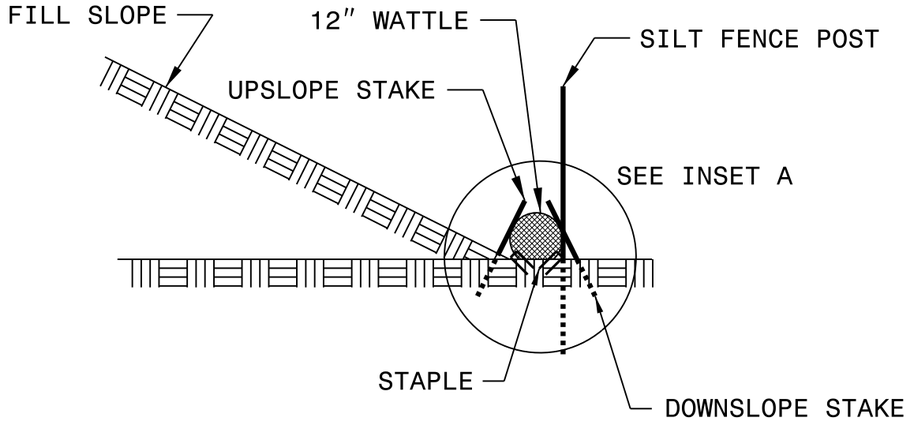
WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.

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





VIEW FROM SLOPE



SIDE VIEW