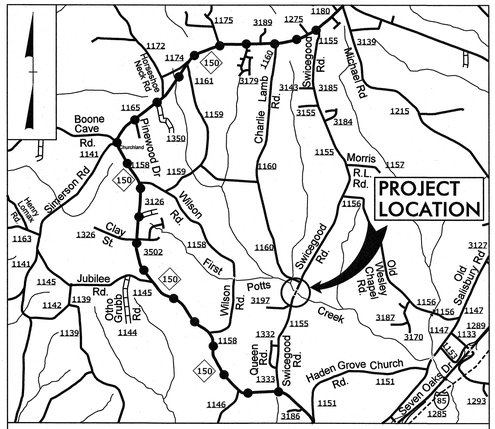
09/08/99

TIP PROJECT: BD–5109V

CONTRACT: DI00085

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



VICINITY MAP

DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

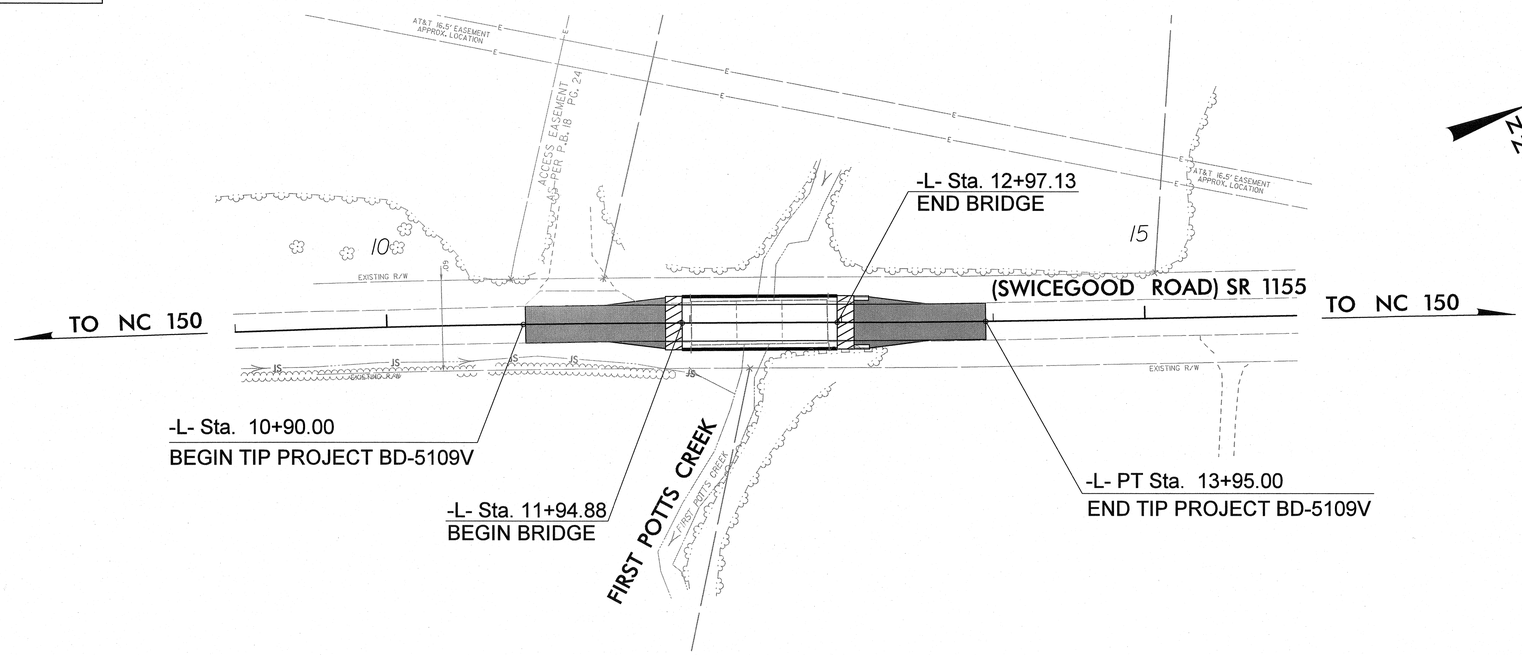
DAVIDSON COUNTY

LOCATION: REPLACE EXISTING BRIDGE NO. 11 OVER FIRST POTTS CREEK ON SR 1155

TYPE OF WORK: GRADING, DRAINAGE, WIDENING, PAVEMENT MARKINGS AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BD–5109V	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
45355.1.22	BRZ–1155(3)	PE
45355.2.22	BRZ–1155(3)	R/W, UTIL.
45355.3.FD22	BRZ–1155(3)	CONST.



NAD 83
NC GRID

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 2008 = 1800
V = 55 MPH

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT BD–5109V	=	0.039 MI
LENGTH STRUCTURE TIP PROJECT BD–5109V	=	0.019 MI
TOTAL LENGTH TIP PROJECT BD–5109V	=	0.058 MI

PLANS PREPARED BY:	PLANS PREPARED FOR:
PARSONS BRINCKERHOFF 434 FAYETTEVILLE STREET SUITE 1500 RALEIGH, NC 27601 LICENSE NO. F-0165	***DIVISION OF HIGHWAYS*** *1000 Birch Ridge Dr.* *Raleigh NC, 27610*
2012 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE: JUNE 5, 2014	TIM HAYES, PE *PROJECT ENGINEER*
LETTING DATE: MARCH 11, 2015	ERIC MISAK *PROJECT DESIGN ENGINEER*
NCDOT CONTACT:	MATTHEW JONES, PE *DIVISION BRIDGE – PROGRAM MANAGER*

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 032112 ENGINEER CHARLES W. HEATHER

SIGNATURE: 1-8-2015 *P.E.*

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 19563 ENGINEER TIMOTHY SCOTT HAYES

SIGNATURE: 2-9-15 *P.E.*

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2:52:05 PM
BD-5109V_Rdy_tsh.dgn
2/9/2015

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
BD-5109V	1-A

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19563 ENGINEER TIMOTHY SCOTT HAYES
1-8-15

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1C	SURVEY CONTROL SHEET
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2-A	STRUCTURE ANCHOR UNIT TYPE III
3	LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER), GUARDRAIL SUMMARY, SUMMARY OF EARTHWORK, PAVEMENT REMOVAL SUMMARY AND SHOULDER BERM GUTTER SUMMARY
4	PLAN AND PROFILE SHEET
TCP-1 THRU TCP-2	TRAFFIC CONTROL PLANS
EC-1 THRU EC-4	EROSION CONTROL PLANS
X-1 THRU X-3	CROSS-SECTIONS
S-1 THRU S-14	STRUCTURE PLANS
SN	STRUCTURE STANDARD NOTES

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	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
422.11	Reinforced Bridge Approach Fills - Sub Regional Tier
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.03	Pipe Underdrain and Blind Drain
840.00	Concrete Base Pad for Drainage Structures
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-12
REVISED: 11/01/11

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 III.

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

UNDERDRAINS:

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

GUARDRAIL:

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

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:

POWER - LEXINGTON UTILITIES - ELECTRICAL -
CONTACT: MR. JEFF JONES (336)-248-3920

COMMUNICATIONS - WINDSTREAM COMMUNICATIONS -
CONTACT: MR. JIM CRUMBLEY (336)-249-5856

COMMUNICATIONS - SURRY TELEPHONE MEMBERSHIP CORPORATION -
CONTACT: MR. RICHIE PARKER (336)-374-4546

WATER - DAVIDSON WATER, INC. - CONTACT: MR. ROBERT WALTERS (336)-731-5526

RIGHT-OF-WAY MARKERS:

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

11:08:15 AM
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1/8/2015

12/05/11

PROJECT REFERENCE NO.	SHEET NO.
BD-5109V	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

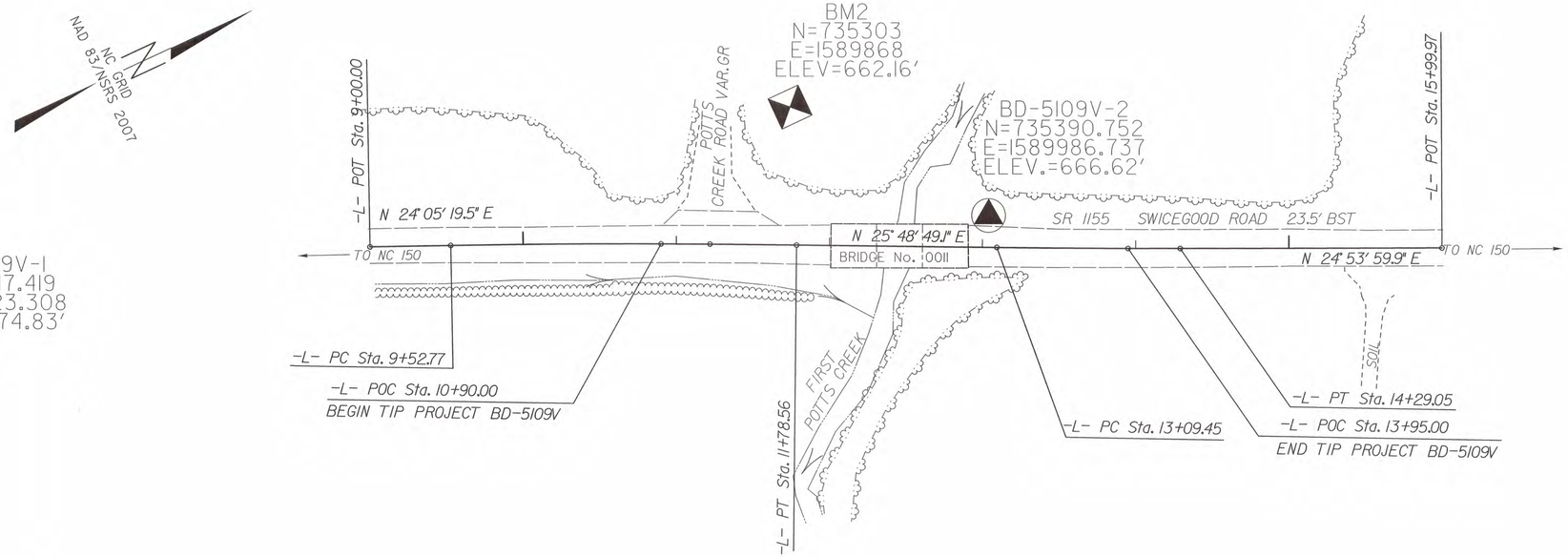
MISCELLANEOUS:

- 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.

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
BD-5109V	1C
Location and Surveys	

SURVEY CONTROL SHEET BD-5109V



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "BD-5109V-1"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 734717.419(ft) EASTING: 1589723.308(ft)
ELEVATION: 674.83(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998846939
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BD-5109V-1" TO -L- STATION 9+00.00 IS
N 20°20'51" E 318.52'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

BL

POINT	DESC.	NORTH	EAST	ELEVATION	EL STATION	OFFSET
1	BD-5109V-1	734717.4190	1589723.3080	674.83	OUTSIDE PROJECT LIMITS	
2	BD-5109V-2	735390.7524	1589986.7365	666.62	13+03.84	20.73 LT
3	BD-5109V-3	735865.6147	1590210.9645	674.72	OUTSIDE PROJECT LIMITS	

****
BM1 ELEVATION = 674.83
N 734717 E 1589723
COURSE FROM -L- 10+00.00 TO BM1
S 20°20'51" W 318.52'
REBAR AND ALUMINUM CAP STAMPED
"BD 5109V 1" (BM1=BL1)
****
****
BM2 ELEVATION = 662.16
N 735303 E 1589868
-L- STATION 11+73.31 89.91' LEFT
R/R SPIKE SET IN BASE OF 24" OAK TREE
****

NOTES:

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

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   BD5109V_LS_CONTROL.TXT

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

▼ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

NOTE: DRAWING NOT TO SCALE

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1/6/2015

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
BD-5109V	2

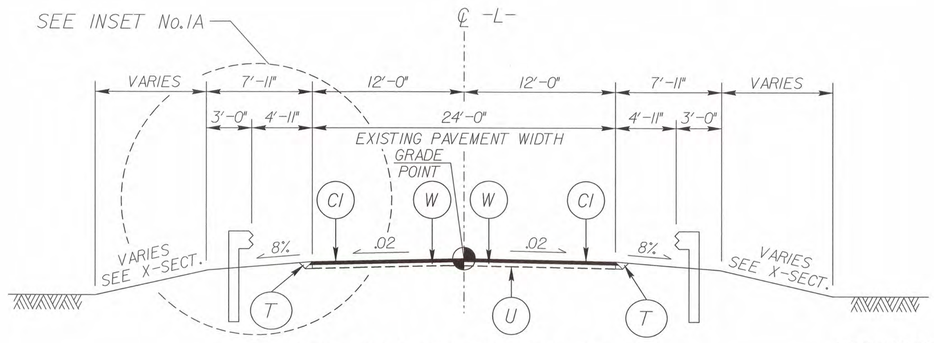
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 18563 ENGINEER TIMOTHY SCOTT HAYES
1-5-15

PLANS PREPARED BY:
PARSONS BRINCKERHOFF
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601

PAVEMENT SCHEDULE

CI	PROPOSED APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD.
C2	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YARD, PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1½" OR GREATER THAN 2" IN DEPTH.
DI	PROPOSED APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YARD.
D2	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YARD, PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" OR GREATER THAN 4" IN DEPTH.
EI	PROPOSED APPROXIMATE 4" ASPHALT CONCRETE BASE COURSE, TYPE BI9.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YARD.
E2	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YARD, PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" OR GREATER THAN 5 ½" IN DEPTH.
RI	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING DETAIL

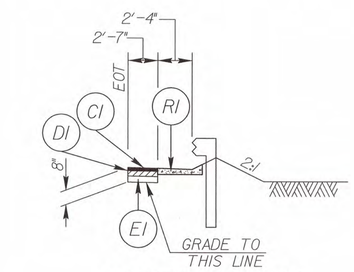
NOTE: ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE SHOWN.



TYPICAL SECTION No. 1

USE TYPICAL SECTION No.1 AS FOLLOWS:

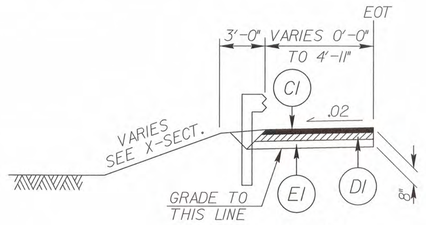
TRANSITION FROM EXISTING TO T.S.NO.1 FROM -L- STA.10+91.49 TO -L- STA.11+41.49
FROM -L- STA.11+41.49 TO -L- STA.11+94.88 (BEGIN BRIDGE)



INSET No. 1B

USE INSET No. 1B IN CONJUCTION w/TYPICAL SECTION No. 3 AS FOLLOWS:

FROM -L- STA.13+08.13 (LT.) TO -L- STA.13+17.85 (LT.)
FROM -L- STA.13+08.13 (RT.) TO -L- STA.13+18.29 (RT.)

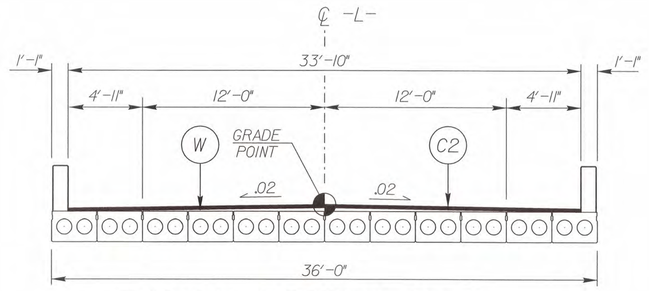


INSET No. 1A

(SEE PLANS FOR PAVED SHOULDER LOCATION)

USE INSET No.1A IN CONJUCTION w/TYPICAL SECTION No.1 AND No.3 AS FOLLOWS:

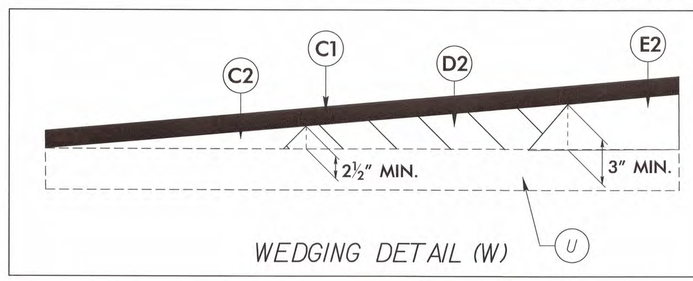
FROM -L- STA.11+43.51 (LT.) TO -L- STA.11+83.88 (LT.)
FROM -L- STA.11+45.85 (RT.) TO -L- STA.11+83.88 (RT.)
FROM -L- STA.13+17.85 (LT.) TO -L- STA.13+57.02 (LT.)
FROM -L- STA.13+18.30 (RT.) TO -L- STA.13+57.92 (RT.)



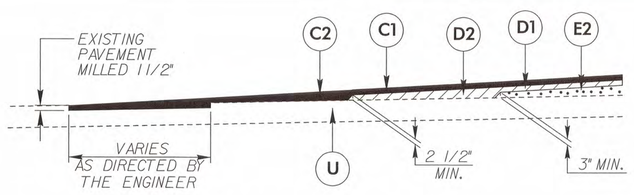
TYPICAL SECTION No. 2

USE TYPICAL SECTION No.2 AS FOLLOWS:

FROM -L- STA.11+94.88 (BEGIN BRIDGE) TO -L- STA.12+97.13 (END BRIDGE)

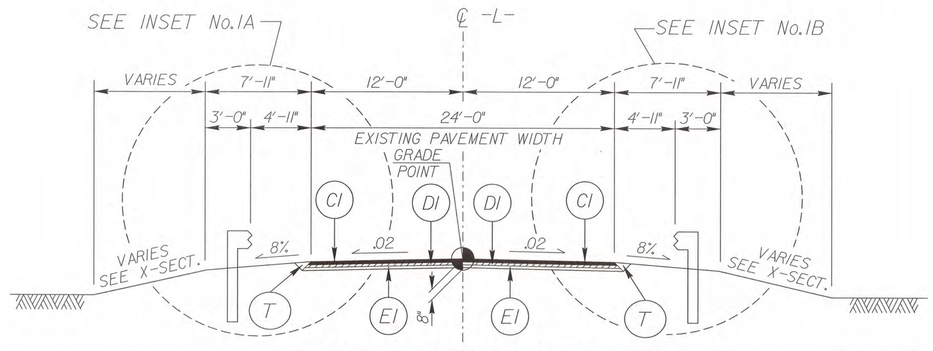


WEDGING DETAIL (W)



MILLING DETAIL FOR PROFILE CONNECTIONS

TYING PROPOSED PAVEMENTS TO EXISTING PAVEMENTS



TYPICAL SECTION No. 3

USE TYPICAL SECTION No.3 AS FOLLOWS:

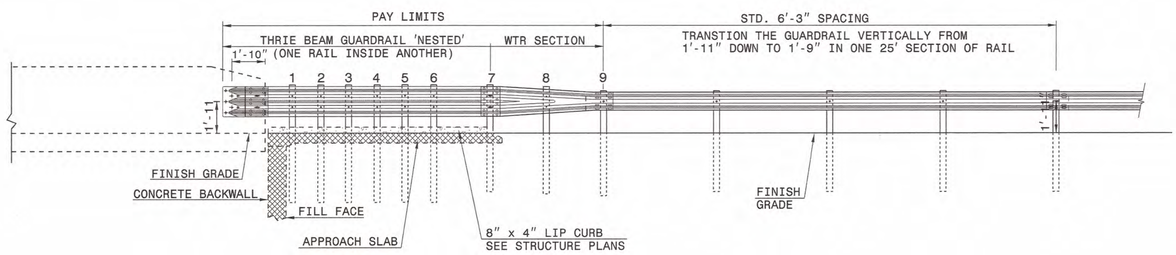
FROM -L- STA.12+97.13 (END BRIDGE) TO -L- STA.13+95.00

8/17/2015 8:31 PM
I:\8/17/2015_Rdy_typ.dgn

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

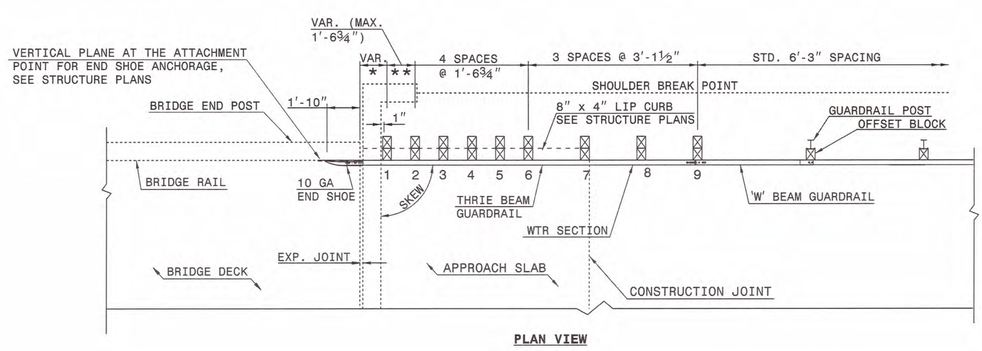
ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862d03



ELEVATION

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



PLAN VIEW

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

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

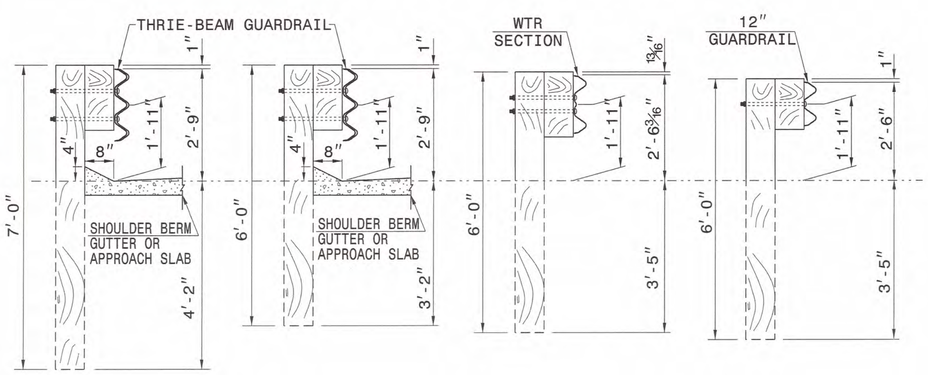
ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862d03

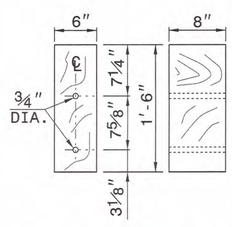
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

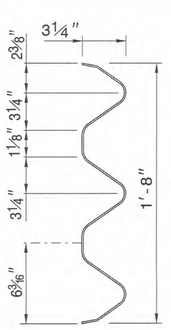
SHEET 3 OF 7
862d03



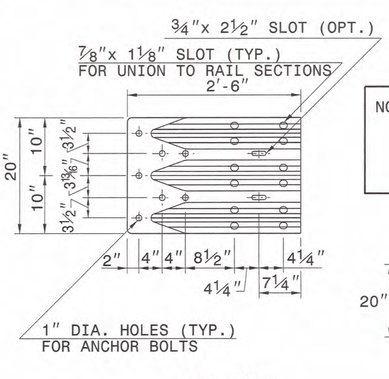
SECTION OF THRIE BEAM POSTS 1 THRU 6 | **SECTION OF THRIE BEAM POST 7** | **SECTION OF WTR BEAM POST 8** | **SECTION OF 'W' BEAM POST 9**



THRIE BEAM OFFSET BLOCK

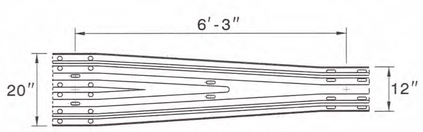


THRIE-BEAM SECTION

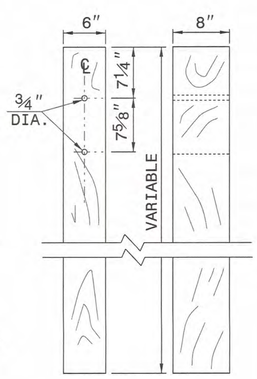


END SHOE

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



WTR SECTION
ELEVATION VIEW



THRIE BEAM LINE POST

PROJECT REFERENCE NO. BD-5104V
SHEET NO. 2-A

12/06/07

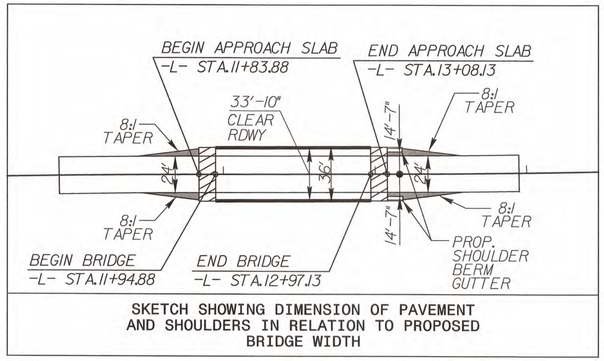
PROJECT REFERENCE NO.	SHEET NO.
BD-5109V	3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

| STATION | 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" | C.S. PIPE (UNLESS NOTED OTHRWISE) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | CLASS III R.C. PIPE (UNLESS OTHERWISE NOTED) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P. | CU. YDS. C.S.P. | QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. 'B') PER EACH (0' THRU 5.0') | LIN. FT. A 5.0' THRU 10.0' | LIN. FT. 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 | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME & GRATE STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. FRAME WITH GRATE STD. 840.22 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | G.D.I. (N.S.) FRAME WITH GRATE STD. 840.29 | G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29 | J.B. STD. 840.31 OR 840.32 | T.B.D.I. STD. 840.35 | CORR. STEEL ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | PIPE REMOVAL LIN.FT. | REMARKS |
|---|---|---

8/17/99



SKETCH SHOWING DIMENSION OF PAVEMENT AND SHOULDERS IN RELATION TO PROPOSED BRIDGE WIDTH

PAVED SHLD.

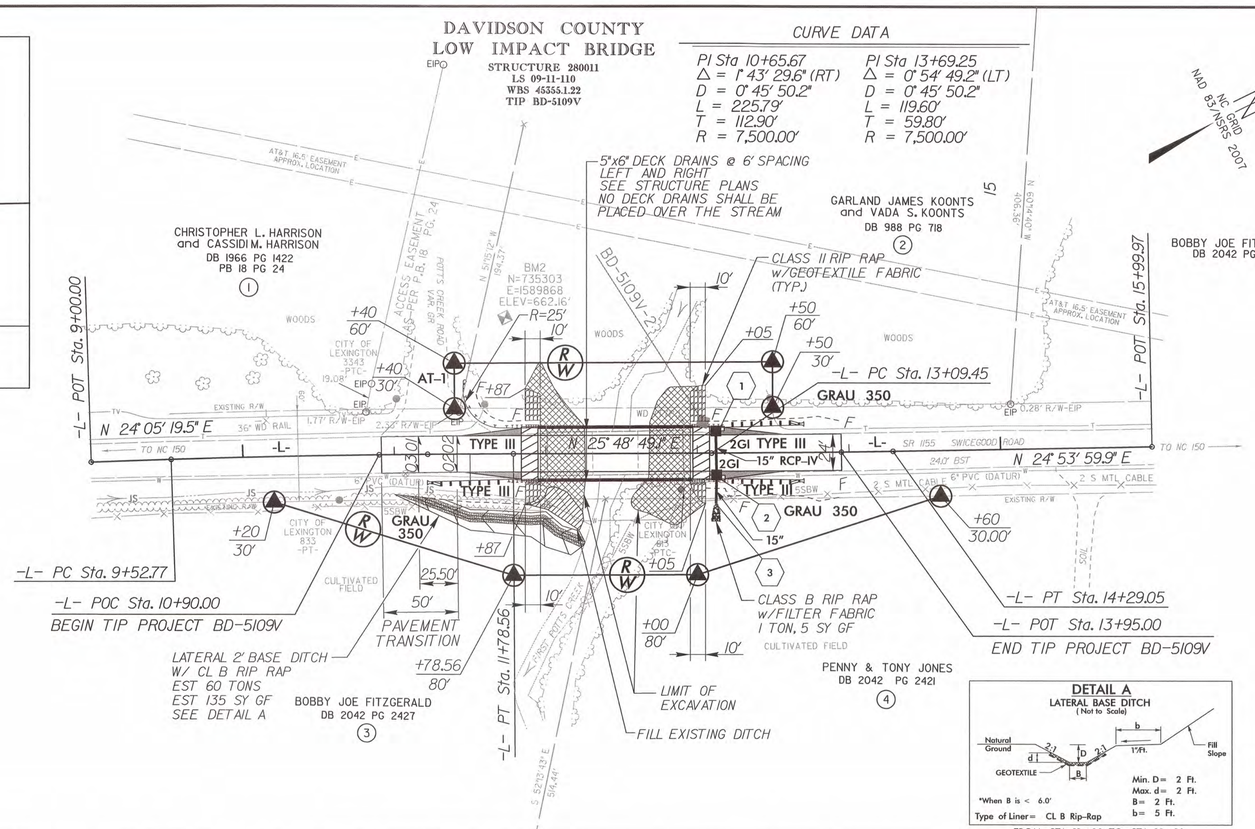
BD-5109V-1

DAVIDSON COUNTY
LOW IMPACT BRIDGE

STRUCTURE 280011
LS 09-11-110
WBS 45555.1.22
TIP BD-5109V

CURVE DATA

PI Sta 10+65.67	PI Sta 13+69.25
Δ = 1° 43' 29.6" (RT)	Δ = 0° 54' 49.2" (LT)
D = 0° 45' 50.2"	D = 0° 45' 50.2"
L = 225.79'	L = 119.60'
T = 112.90'	T = 59.80'
R = 7,500.00'	R = 7,500.00'



DETAIL A
LATERAL BASE DITCH
(Not to Scale)

*When B is < 6.0'
Type of Liner = CL B Rip-Rap

Min. D = 2 Ft.
Max. d = 2 Ft.
B = 2 Ft.
b = 5 Ft.

FROM STA. 11+00 TO STA. 12+10

PROJECT REFERENCE NO.	SHEET NO.
BD-5109V	4

R/W SHEET NO.

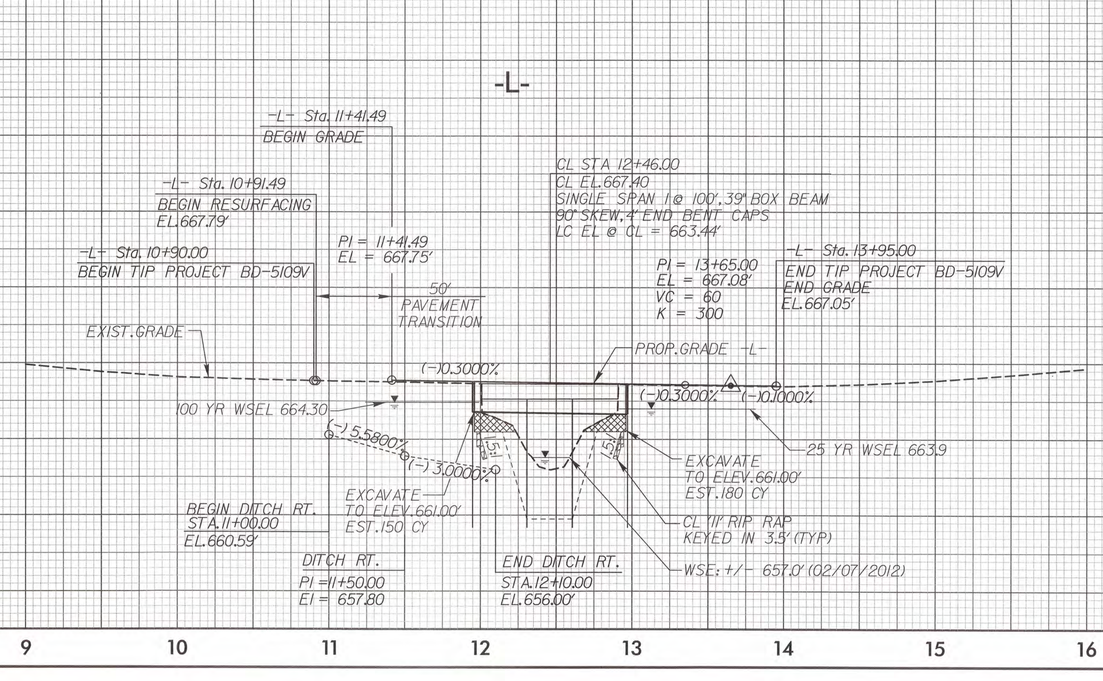
ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 19563 ENGINEER TIMOTHY SCOTT HAYES
8-15

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 032317 ENGINEER CHARLES W. HERRICK
1-8-2015

PLANS PREPARED BY:
PARSONS BRINCKERHOFF
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
LICENSE NO. F-0165



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 1560	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 663.9	FT
BASE DISCHARGE	= 2229	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 664.30	FT
OVERTOPPING DISCHARGE	= 3700	CFS
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING ELEVATION	= 667.1	FT

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bd5109v_Rdy_psh_sheet4.dgn
10/7/2015

TIP PROJECT: BD-5109V

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE PROJECT REFERENCE NO.	SHEET NO.
BD-5109V	TCP-1

PLAN FOR PROPOSED TRAFFIC CONTROL, MARKING & DELINEATION

DAVIDSON COUNTY

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JULY 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
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE & MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL & BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL & BARRIER DELINEATOR TYPE
1262.01	GUARDRAIL END DELINEATION

INDEX OF SHEETS

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

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- NORTH ARROW
- PROPOSED PVMT. --------- EXIST. PVMT.
- WORK AREA
- MILL AND WEDGE
- REMOVAL OF EXISTING PAVEMENT

TRAFFIC CONTROL DEVICES

- TYPE I BARRICADE
- TYPE II BARRICADE
- TYPE III BARRICADE
- CONE
- DRUM
- SKINNY DRUM
- FLASHING ARROW PANEL (TYPE C)
- STATIONARY SIGN
- PORTABLE SIGN
- STATIONARY OR PORTABLE SIGN
- CRASH CUSHION
- CHANGEABLE MESSAGE SIGN
- TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)
- POLICE
- FLAGGER

PAVEMENT MARKINGS

- CRYSTAL/CRYSTAL PAVEMENT MARKER
- YELLOW/YELLOW PAVEMENT MARKER
- CRYSTAL/RED PAVEMENT MARKER
- PAVEMENT MARKING SYMBOLS

APPROVED: _____
DATE: 1-8-15

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19563 ENGINEER TIMOTHY SCOTT HAYES

PARSONS BRINCKERHOFF
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
LICENSE NO. F-0165

TIM HAYES, PE — PROJECT ENGINEER

_____ PROJECT DESIGN

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1/5/2015

PROJ. REFERENCE NO.	SHEET NO.
BD-5109V	TCP-2

PARSONS BRINCKERHOFF
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
LICENSE NO. F-0165

A



TYPE III BARRICADE

B

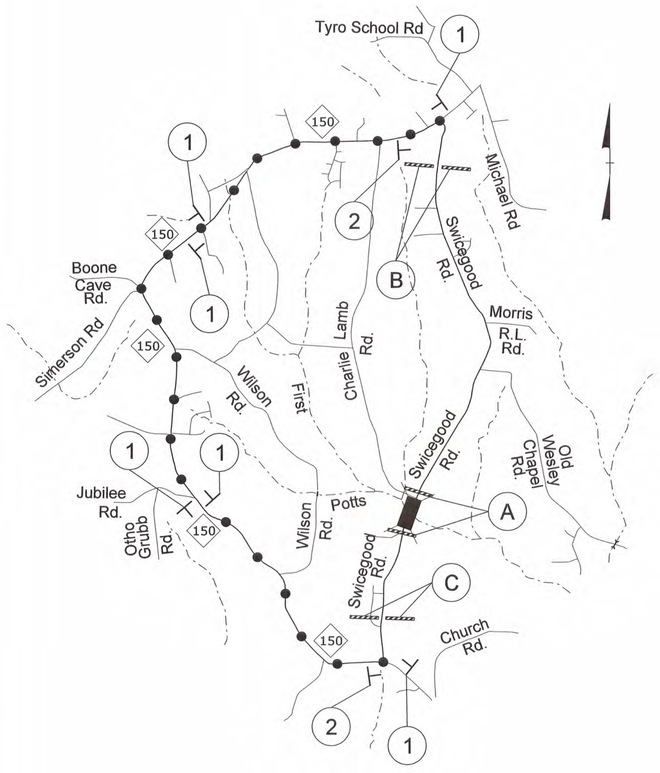


TYPE III BARRICADE

C



TYPE III BARRICADE



PROPOSED DETOUR

DETOUR ROUTE

DETOUR LENGTH 6.5 MILES

1 DETOUR M4-8 24" X 12"

M6-3 21" X 15"

2 END DETOUR M4-8 A 24" X 18"

GENERAL NOTES

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

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

LANE AND SHOULDER CLOSURE REQUIREMENTS

A) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

B) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

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

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

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN ON THIS SHEET.

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

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

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

TRAFFIC CONTROL DEVICES

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

PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING
SR 1155 (SWICEGOOD ROAD)	THERMOPLASTIC

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

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

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

PHASING

PHASE I

PRIOR TO ANY CONSTRUCTION OPERATIONS, PLACE AND COVER OFF-SITE DETOUR SIGNING AS SHOWN ON TCP-2 AND IN ACCORDANCE WITH RSD 1101.03 (SHEET 1 OF 9). OPTIONAL SIGN USE MUST BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT.

PHASE II

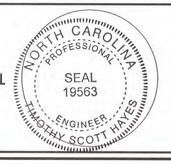
USING OFF-SITE DETOUR, UNCOVER DETOUR SIGNS, CLOSE -L- (SR 1155 / SWICEGOOD ROAD) TO TRAFFIC AND CONSTRUCT BRIDGE, APPROACHES AND ROADWAY UP TO AND INCLUDING FINAL LAYER OF SURFACE COURSE.

PHASE III

UPON COMPLETION OF BRIDGE, APPROACHES AND ROADWAY, PLACE FINAL PAVEMENT MARKING IN ACCORDANCE WITH RSD 1205.01. REMOVE CMS, BARRICADES AND DETOUR SIGNS AND OPEN -L- (SR 1155 / SWICEGOOD ROAD) TO TRAFFIC.

APPROVED: _____ DATE: 1-8-15

SEAL



GENERAL NOTES, PHASING AND DETOUR SIGNING

SCALE:	NONE
DATE:	03/07/12
DWG. BY:	RGK
DESIGN BY:	EDM
REVIEWED BY:	TSH

REVISIONS

CADD FILE

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1/5/2015

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
BD-5109V	EC-1
R/W SHEET NO.	

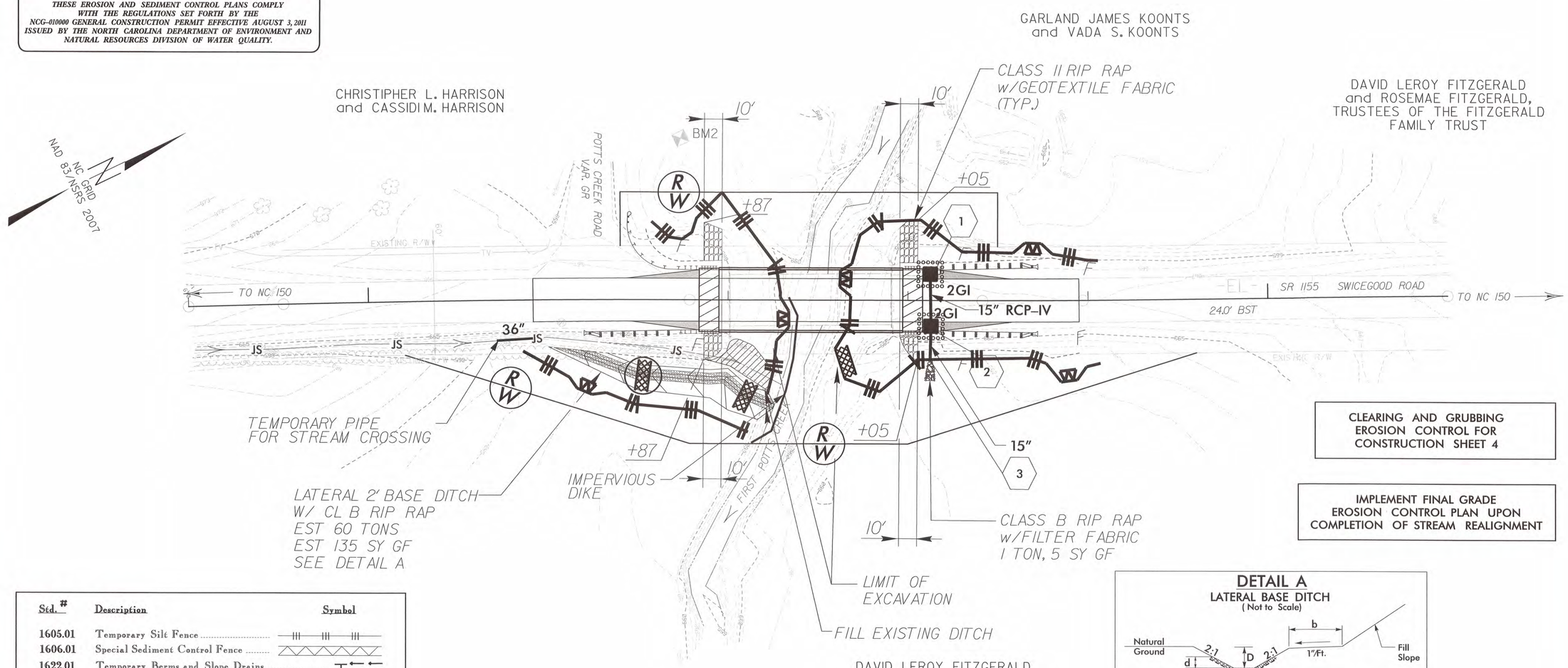
PARSONS BRINCKERHOFF
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
LICENSE NO. F-0165

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

2012 STANDARD SPECIFICATIONS

EROSION CONTROL PLAN

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

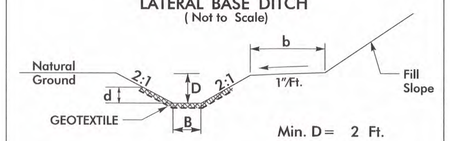


CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4

IMPLEMENT FINAL GRADE EROSION CONTROL PLAN UPON COMPLETION OF STREAM REALIGNMENT

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1630.06	Special Stilling Basin	
1632.03	Rock Inlet Sediment Trap Type C	
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	
	Wattle with Polyacrylamide (PAM)	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	

DETAIL A
LATERAL BASE DITCH
(Not to Scale)



Min. D = 2 Ft.
Max. d = 2 Ft.
B = 2 Ft.
b = 5 Ft.

*When B is < 6.0'

Type of Liner = CL B Rip-Rap

FROM STA. 11+00 TO STA. 12+10

CHARLES HEAFNER
LEVEL III NAME

3440
LEVEL III CERTIFICATION NO.

2012 STANDARD DRAWINGS

1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance		
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

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

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

Scale 1" = 30'
30' 0 30' 60'

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

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
BD-5109V	EC-2
R/W SHEET NO.	

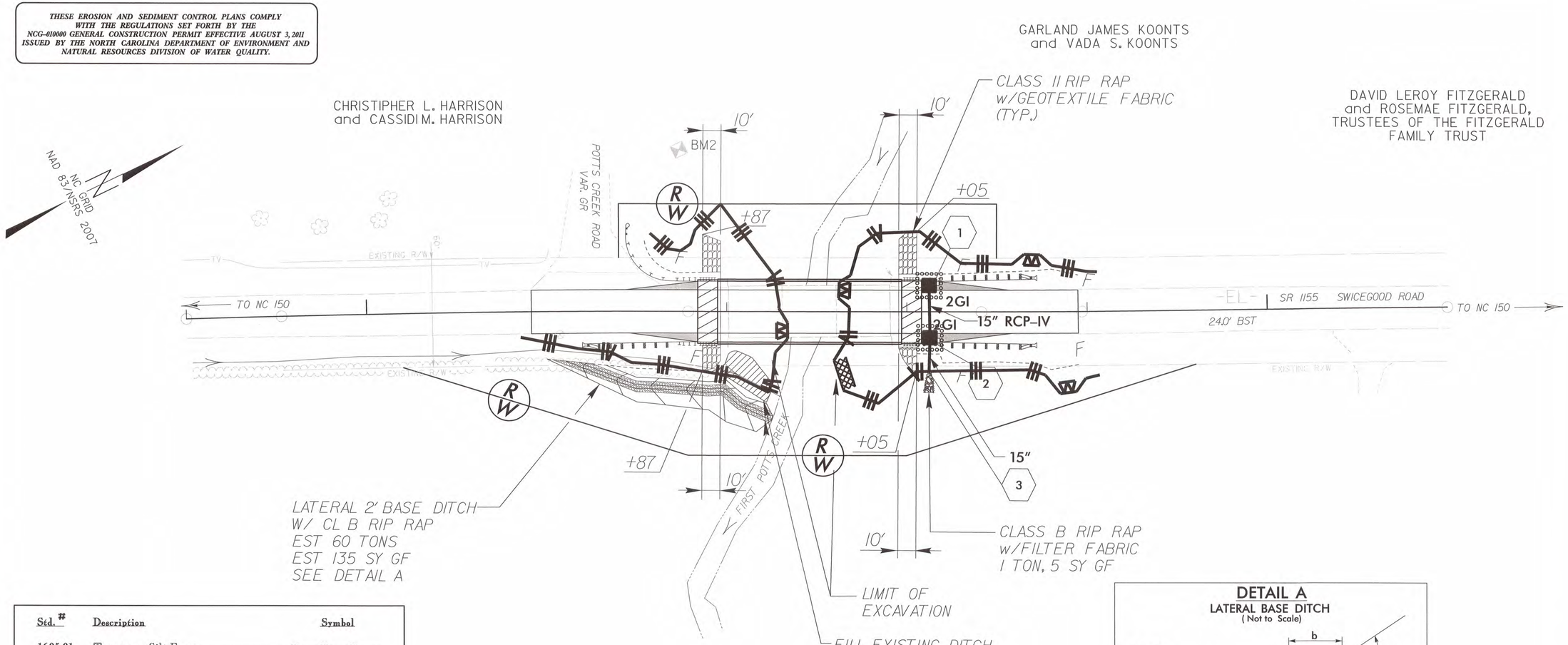
PARSONS BRINCKERHOFF
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
LICENSE NO. F-0165

EROSION CONTROL PLAN

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

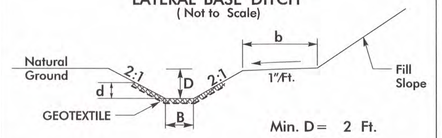
2012 STANDARD SPECIFICATIONS

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



Std. #	Description	Symbol
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1630.02	Silt Basin Type B	
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1632.03	Rock Inlet Sediment Trap Type C	
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	Wattle with Polyacrylamide (PAM)	
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DETAIL A
LATERAL BASE DITCH
(Not to Scale)



*When B is < 6.0'

Type of Liner= CL B Rip-Rap

Min. D= 2 Ft.
Max. d= 2 Ft.
B= 2 Ft.
b= 5 Ft.

FROM STA. 11+00 TO STA. 12+10

CHARLES HEAFNER
LEVEL III NAME

3440
LEVEL III CERTIFICATION NO.

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1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance		
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1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

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

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

Scale 1" = 30'
30' 0 30' 60'

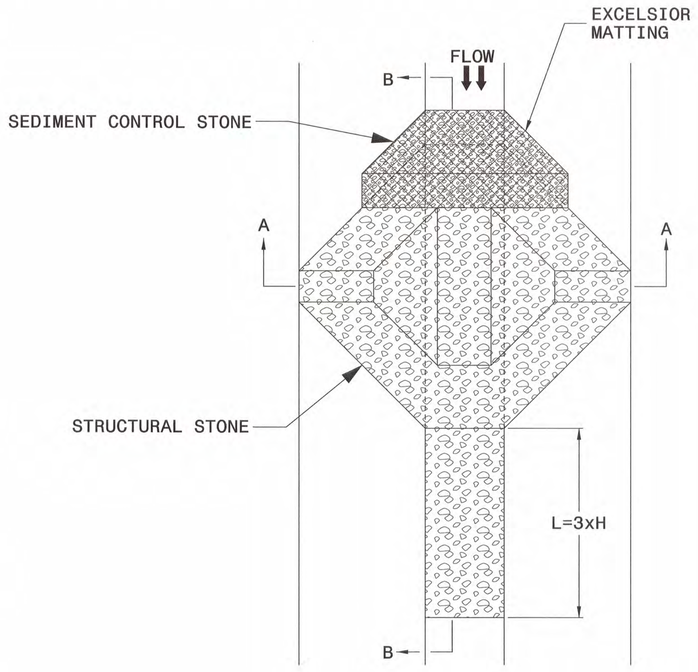
$$$$$$SYSTIME$$$$$$
$$$$$$

5/14/99

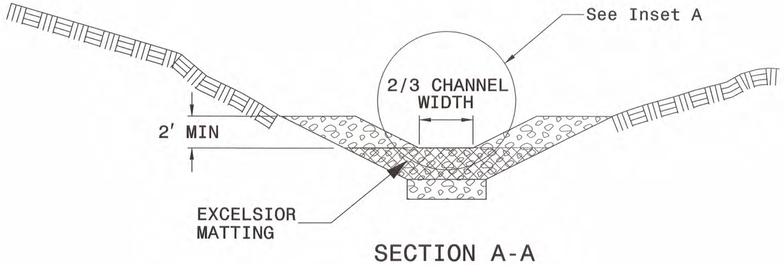
PROJECT REFERENCE NO.	SHEET NO.
BD-5109V	EC-3

PARSONS BRINCKERHOFF
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
LICENSE NO. F-0165

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



PLAN



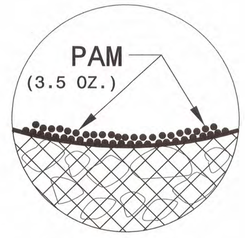
SECTION A-A

NOTES

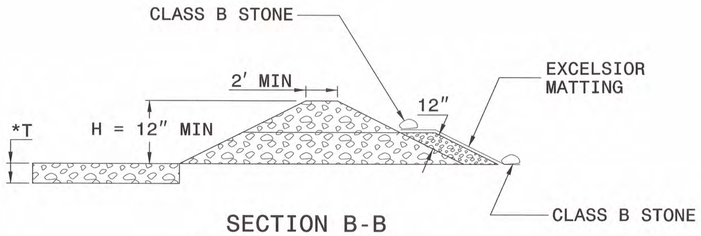
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

INITIALLY APPLY 3.5 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION B-B

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

NOT TO SCALE

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

PROJECT REFERENCE NO.	SHEET NO.
BD-5109V	EC-4

PARSONS BRINCKERHOFF
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
LICENSE NO. F-0165

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

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

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BD-5109V	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

675 670 665 660 655 650

POTTS CREEK ROAD

0.020 667.73 0.020

667.53

2:1 2:1 2:1

657.80

11+50.00

667.66

660.59

BEGIN DITCH RT.
-L- STA. 11+00.00

11+00.00

BEGIN TIP PROJECT BD-5109V
-L- STA. 10+90.00

667.86

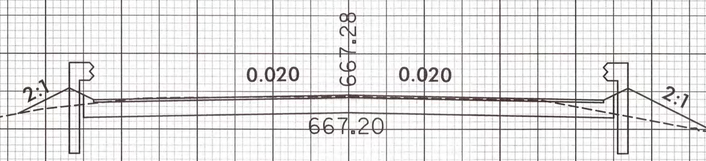
10+50.00

SYSTIME$$$

8/23/99

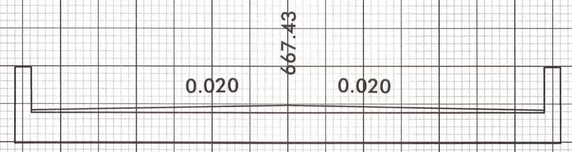
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BD-5109V	X-2

END APPROACH SLAB 13+08.13



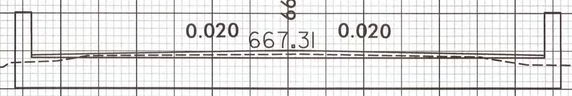
13+00.00

END BRIDGE 12+97.13



656.14

12+50.00



12+00.00

END DITCH RT.
-L- STA. 12+10.00
ELEV. 656.00

8%
2:1
2:1
2:1
656.30

BEGIN BRIDGE Sta. 11+94.88

BEGIN APPROACH SLAB STA. 11+83.88

$$$$SYSTIME$$$$
$$$$USER$$$$
$$$$DGN$$$$
$$$$DGNNAME$$$$

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BD-5109V	X-3

666.96

14+00.00

END TIP PROJECT BD-5109V
-L- Sta. 13+95.00

667.13

0.020 0.020

667.06

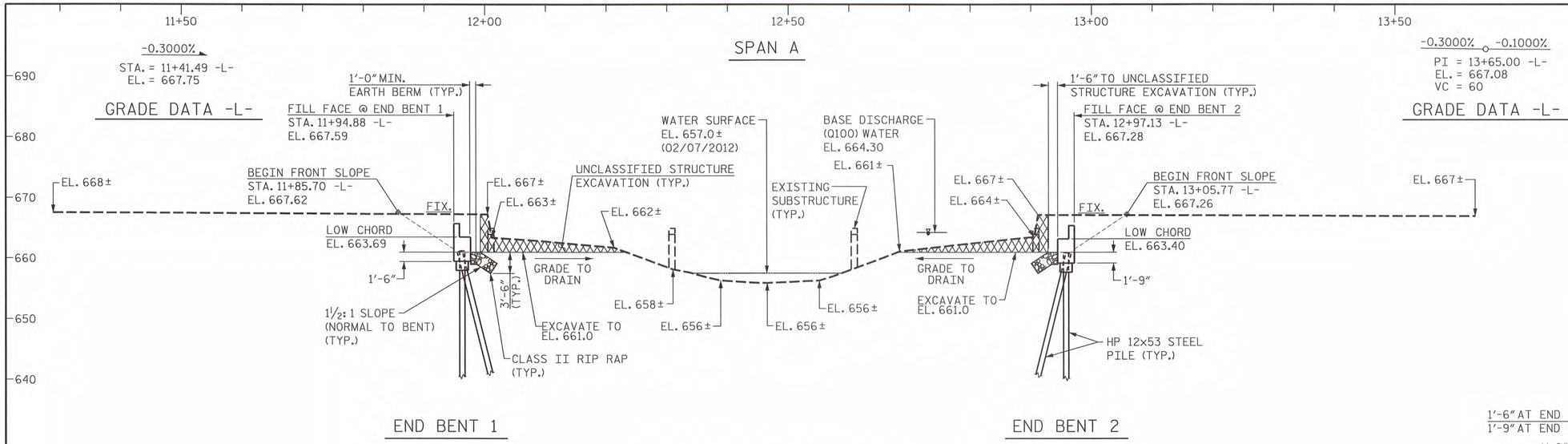
3.8:1

2:1

13+50.00

$$$$$$$$SYSTIME$$$$$$$$
$$$$$$$$SELENE$$$$$$$$DGN$$$$$$$$

F.A. PROJECT NO. BRZ-1155(3)



SECTION ALONG -L-

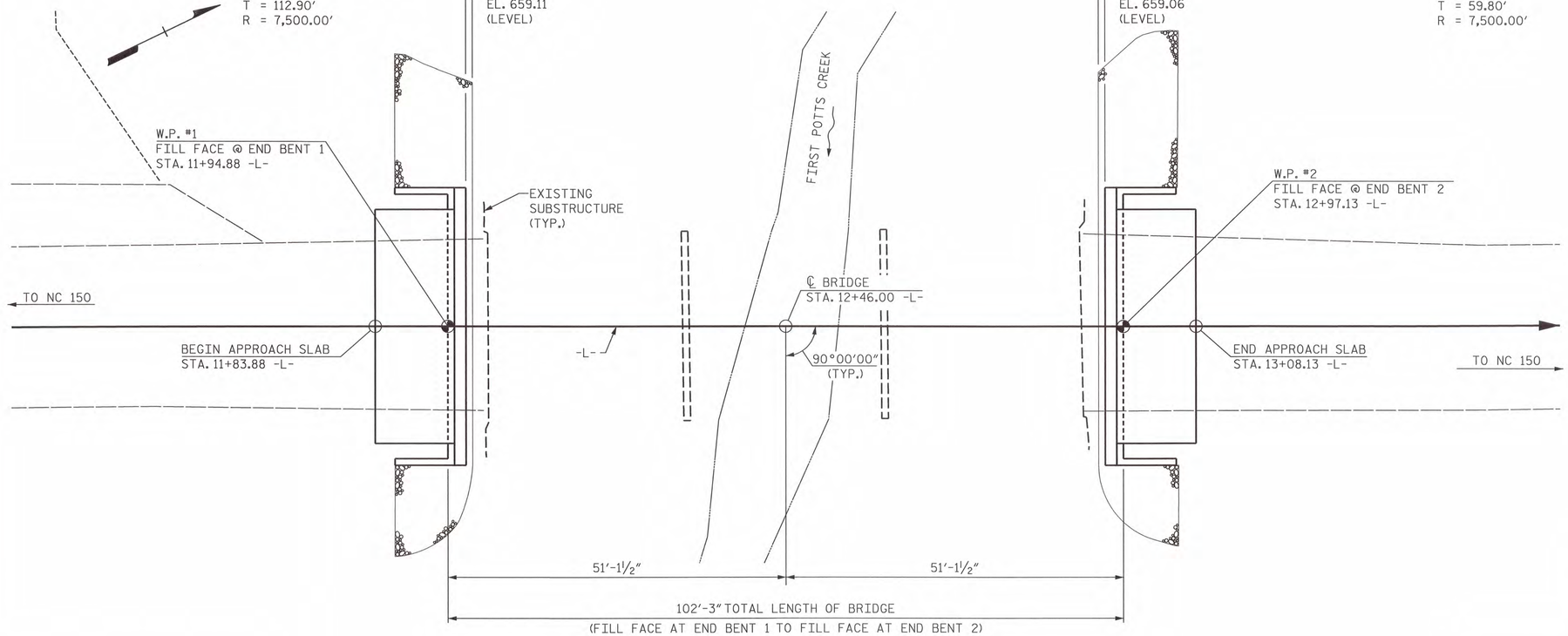
SECTIONS AT END BENTS ARE AT RIGHT ANGLES

CURVE DATA

PI Sta 10+65.67 -L-
△ = 1° 43' 29.6" (RT)
D = 0° 45' 50.2"
L = 225.79'
T = 112.90'
R = 7,500.00'

CURVE DATA

PI Sta 13+69.25 -L-
△ = 0° 54' 49.2" (LT)
D = 0° 45' 50.2"
L = 119.60'
T = 59.80'
R = 7,500.00'



PLAN

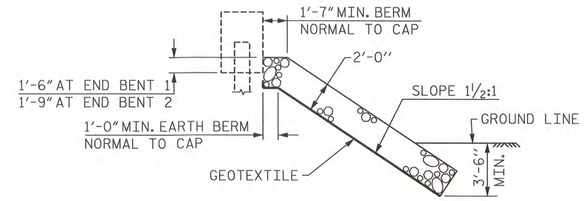
PILES NOT SHOWN FOR CLARITY

HYDRAULIC DATA

DESIGN DISCHARGE	1560 CFS
FREQUENCY OF DESIGN FLOOD	25 YRS.
DESIGN HIGH WATER ELEVATION	663.9
DRAINAGE AREA	5.8 SQ.MI.
BASE DISCHARGE (Q100)	2229 CFS
BASE HIGH WATER ELEVATION	664.30

OVERTOPPING FLOOD DATA

OVERTOPPING FLOOD DISCHARGE	3700 CFS
FREQUENCY OF OVERTOPPING FLOOD	500+ YRS.
OVERTOPPING FLOOD ELEVATION	667.1



RIP RAP DETAIL

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. BD-5109V

DAVIDSON COUNTY

STATION: 12+46.00 -L-

SHEET 1 OF 2 REPLACES BRIDGE NO. 280011

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON SR 1155 OVER FIRST POTTS CREEK BETWEEN SR 3197 AND SR 1160

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

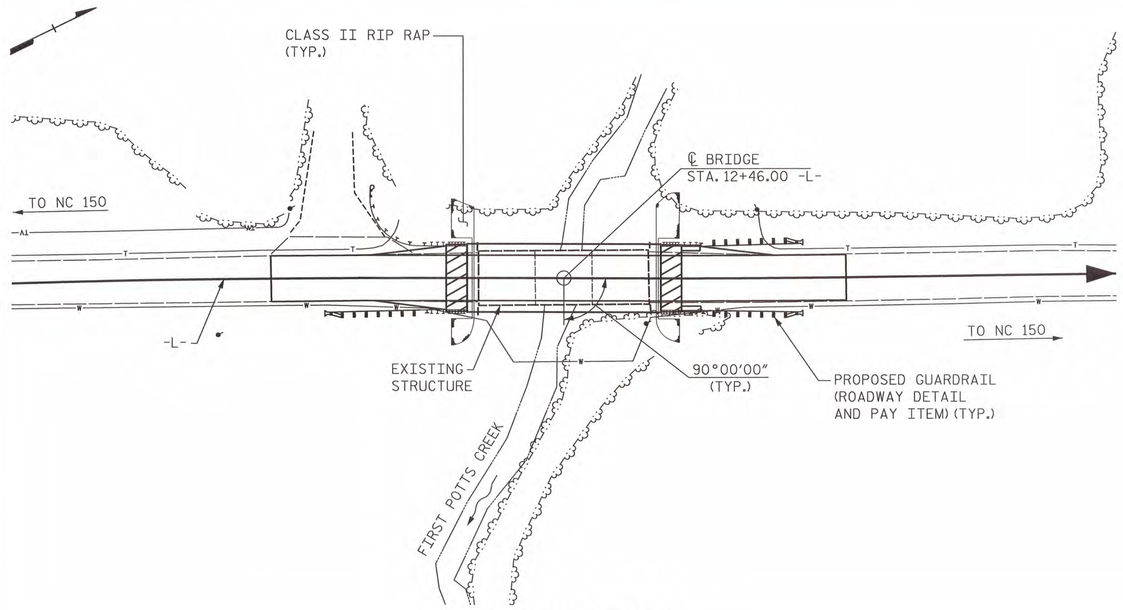
DESIGNED BY:	J. SMITH	DATE : NOV 2014
DRAWN BY:	K. WHITE/R. KHARWA	DATE : NOV 2014
CHECKED BY:	J. DOUGHTY	DATE : DEC 2014
DESIGN ENGINEER OF RECORD:	J. DOUGHTY	DATE : JAN 2015

PARSONS BRINCKERHOFF
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
LICENSE NO. F-0165

NORTH CAROLINA PROFESSIONAL SEAL 032967 ENGINEER JASON R. DOUGHTY
1/8/15

1/8/2015
BD-5109V_SD_GD_01.dgn

BM#2: RR SPIKE IN BASE OF 24" OAK TREE, STA. 11+73.31, 89.91' LT., EL. 662.16'



LOCATION SKETCH

NOTES:

ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

THE EXISTING STRUCTURE CONSISTING OF TWO (2) 30'-2½" SPANS AND ONE (1) 30'-0" SPAN WITH AN OUT-TO-OUT WIDTH OF 30'-0" SUPPORTED BY PRECAST PRESTRESSED CONCRETE CHANNELS AND PPC CAPS ON TIMBER PILES WITH TIMBER BULKHEADS SUBSTRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 30 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

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

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

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

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

NO KNOWN UTILITY CONFLICTS.

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.

FOUNDATION NOTES:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO. 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 120 TONS PER PILE.

DRIVE PILES AT END BENT NO. 1 TO A REQUIRED DRIVING RESISTANCE OF 200 TONS PER PILE.

PILES AT END BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 120 TONS PER PILE.

DRIVE PILES AT END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 200 TONS PER PILE.

TESTING PILES WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING MAY BE REQUIRED AT END BENT NO. 1 AND END BENT NO. 2. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. 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 12x53 STEEL PILES		VERTICAL CONCRETE BARRIER	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" x 3'-3" PRESTRESSED CONCRETE BOX BEAMS	
	LUMP SUM	EACH	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	NO.	LIN. FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE					LUMP SUM				200.0			LUMP SUM	12	1200
END BENT NO. 1			LUMP SUM	30.4		4862	7	140		57	63			
END BENT NO. 2			LUMP SUM	30.4		4862	7	175		50	56			
TOTAL	LUMP SUM	1	LUMP SUM	60.8	LUMP SUM	9724	14	315	200.0	107	119	LUMP SUM	12	1200

1/8/2015
BD-5109V_SD_LS_01.dgn

DESIGNED BY: J. SMITH DATE : NOV 2014
DRAWN BY: K. WHITE/R. KHARWA DATE : NOV 2014
CHECKED BY: J. DOUGHTY DATE : DEC 2014
DESIGN ENGINEER OF RECORD: J. DOUGHTY DATE : JAN 2015

PARSONS BRINCKERHOFF
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
LICENSE NO. F-0165

NORTH CAROLINA PROFESSIONAL SEAL 032967 ENGINEER JASON R. DOUGHTY
1/9/15

PROJECT NO. BD-5109V
DAVIDSON COUNTY
STATION: 12+46.00 -L-
SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON SR 1155 OVER FIRST POTTS CREEK BETWEEN SR 3197 AND SR 1160

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

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

LEVEL		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE											SERVICE III LIMIT STATE						COMMENT NUMBER
								MOMENT					SHEAR						MOMENT						
							LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93(Inv)	N/A	1	1.035	--	1.75	0.272	1.26	A	EL	49.25	0.489	1.34	A	EL	4.925	0.80	0.272	**1.04**	A	EL	**49.25**	
		HL-93(Opr)	N/A	--	1.633	--	1.35	0.272	1.63	A	EL	49.25	0.489	1.73	A	EL	4.925	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	1.440	51.84	1.75	0.272	1.75	A	EL	49.25	0.489	1.81	A	EL	4.925	0.80	0.272	**1.44**	A	EL	**49.25**	
		HS-20(Opr)	36.000	--	2.271	81.756	1.35	0.272	2.27	A	EL	49.25	0.489	2.35	A	EL	4.925	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.413	46.079	1.40	0.272	5.19	A	EL	49.25	0.489	5.59	A	EL	4.925	0.80	0.272	3.41	A	EL	49.25	
		SNGARBS2	20.000	--	2.473	49.452	1.40	0.272	3.76	A	EL	49.25	0.489	3.91	A	EL	4.925	0.80	0.272	2.47	A	EL	49.25	
		SNAGRIS2	22.000	--	2.313	50.885	1.40	0.272	3.52	A	EL	49.25	0.489	3.60	A	EL	4.925	0.80	0.272	2.31	A	EL	49.25	
		SNCOTTS3	27.250	--	1.696	46.228	1.40	0.272	2.58	A	EL	49.25	0.489	2.78	A	EL	4.925	0.80	0.272	1.70	A	EL	49.25	
		SNAGGRS4	34.925	--	1.390	48.556	1.40	0.272	2.11	A	EL	49.25	0.489	2.26	A	EL	4.925	0.80	0.272	1.39	A	EL	49.25	
		SNS5A	35.550	--	1.361	48.398	1.40	0.272	2.07	A	EL	49.25	0.489	2.27	A	EL	4.925	0.80	0.272	1.36	A	EL	49.25	
		SNS6A	39.950	--	1.238	49.456	1.40	0.272	1.88	A	EL	49.25	0.489	2.05	A	EL	4.925	0.80	0.272	1.24	A	EL	49.25	
		SNS7B	42.000	--	1.178	49.496	1.40	0.272	1.79	A	EL	49.25	0.489	2.00	A	EL	4.925	0.80	0.272	1.18	A	EL	49.25	
	TTST	TNAGRIT3	33.000	--	1.506	49.709	1.40	0.272	2.29	A	EL	49.25	0.489	2.46	A	EL	4.925	0.80	0.272	1.51	A	EL	49.25	
		TNT4A	33.075	--	1.510	49.942	1.40	0.272	2.30	A	EL	49.25	0.489	2.41	A	EL	4.925	0.80	0.272	1.51	A	EL	49.25	
		TNT6A	41.600	--	1.224	50.926	1.40	0.272	1.86	A	EL	49.25	0.489	2.09	A	EL	4.925	0.80	0.272	1.22	A	EL	49.25	
		TNT7A	42.000	--	1.225	51.442	1.40	0.272	1.86	A	EL	49.25	0.489	2.05	A	EL	4.925	0.80	0.272	1.22	A	EL	49.25	
		TNT7B	42.000	--	1.254	52.657	1.40	0.272	1.91	A	EL	49.25	0.489	1.96	A	EL	4.925	0.80	0.272	1.25	A	EL	49.25	
		TNAGRIT4	43.000	--	1.203	51.711	1.40	0.272	1.83	A	EL	49.25	0.489	1.91	A	EL	4.925	0.80	0.272	1.20	A	EL	49.25	
		TNAGT5A	45.000	--	1.139	51.236	1.40	0.272	1.73	A	EL	49.25	0.489	1.87	A	EL	4.925	0.80	0.272	1.14	A	EL	49.25	
		TNAGT5B	45.000	3	1.129	50.805	1.40	0.272	1.72	A	EL	49.25	0.489	1.82	A	EL	4.925	0.80	0.272	**1.13**	A	EL	**49.25**	

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.

⟨#⟩ 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

PROJECT NO. BD-5109V

DAVIDSON COUNTY

STATION: 12+46.00 -L-

NORTH CAROLINA PROFESSIONAL SEAL 10730 ENGINEER D. ANDRE DAVENPORT, JR.

DocuSigned by:
D. André Davenport, Jr.
B95DC284F864495...
11/13/2014

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR 100' BOX BEAM UNIT 90° SKEW

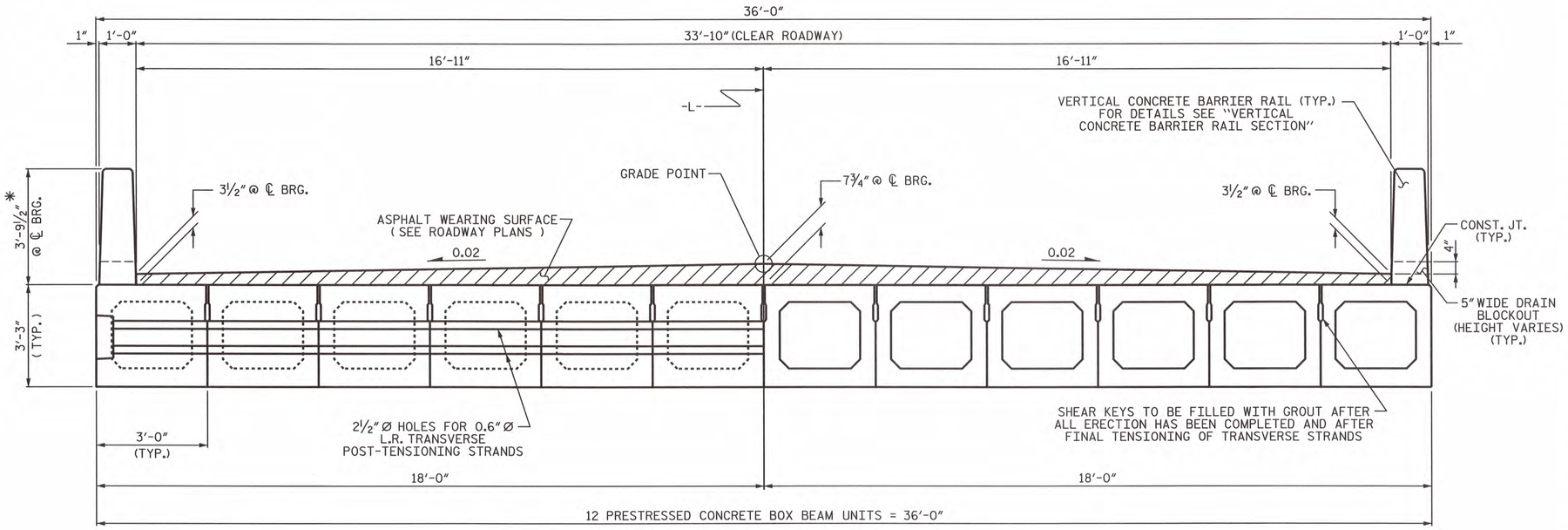
(NON-INTERSTATE TRAFFIC)

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

ASSEMBLED BY : M.K. BEARD	DATE : 9/17/14
CHECKED BY : R.P. PATEL	DATE : 10/14/14
DRAWN BY : TMG II/II	
CHECKED BY : AAC II/II	

13-NOV-2014 07:45
R:\Structures\Plans\BD5109V_SD_LR_01.dgn
dadavenport

STD. NO. 39LRFR1_90S_100L



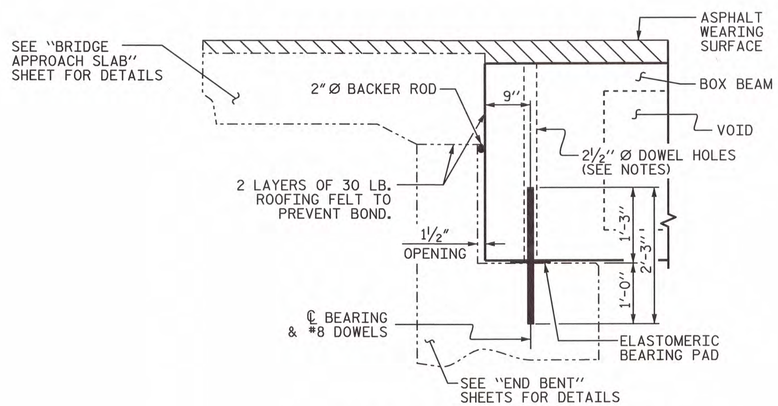
HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

HALF SECTION
THROUGH VOIDS

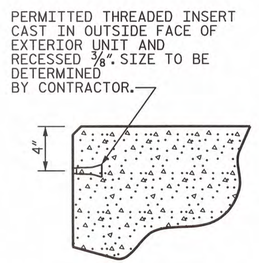
TYPICAL SECTION

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

FIXED END



SECTION AT END BENT



THREADED INSERT DETAIL

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 BOX BEAM SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE BOX BEAMS.

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

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

THE 2½" Ø DOWEL HOLES AT FIXED ENDS OF BOX BEAM 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.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE BOX BEAM UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6,000 PSI.

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

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE BOX BEAM UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS.

VERTICAL 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 VERTICAL 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.

THE LOCATION OF THE VOID DRAINS MAY BE SHIFTED SLIGHTLY WHERE NECESSARY TO CLEAR PRESTRESSING STRANDS OR TRANSVERSE REINFORCING STEEL.

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.

THE DRAIN OPENING AT THE GUTTERLINE SHALL BE 5" X 4". THE HEIGHT OF THE BLOCKOUT IN THE VERTICAL CONCRETE BARRIER RAIL SHALL EXTEND FROM THE TOP OF THE BOX BEAM UNIT TO THE TOP OF THE DRAIN OPENING.

APPLY EPOXY PROTECTIVE COATING TO EXTERIOR FACE OF THE EXTERIOR BOX BEAM UNITS THAT REQUIRE DRAINS IN THE BARRIER RAIL.

PROJECT NO. BD-5109V

DAVIDSON COUNTY

STATION: 12+46.00 -L-

SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

3'-0" X 3'-3" PRESTRESSED CONCRETE BOX BEAM UNIT

90° SKEW

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

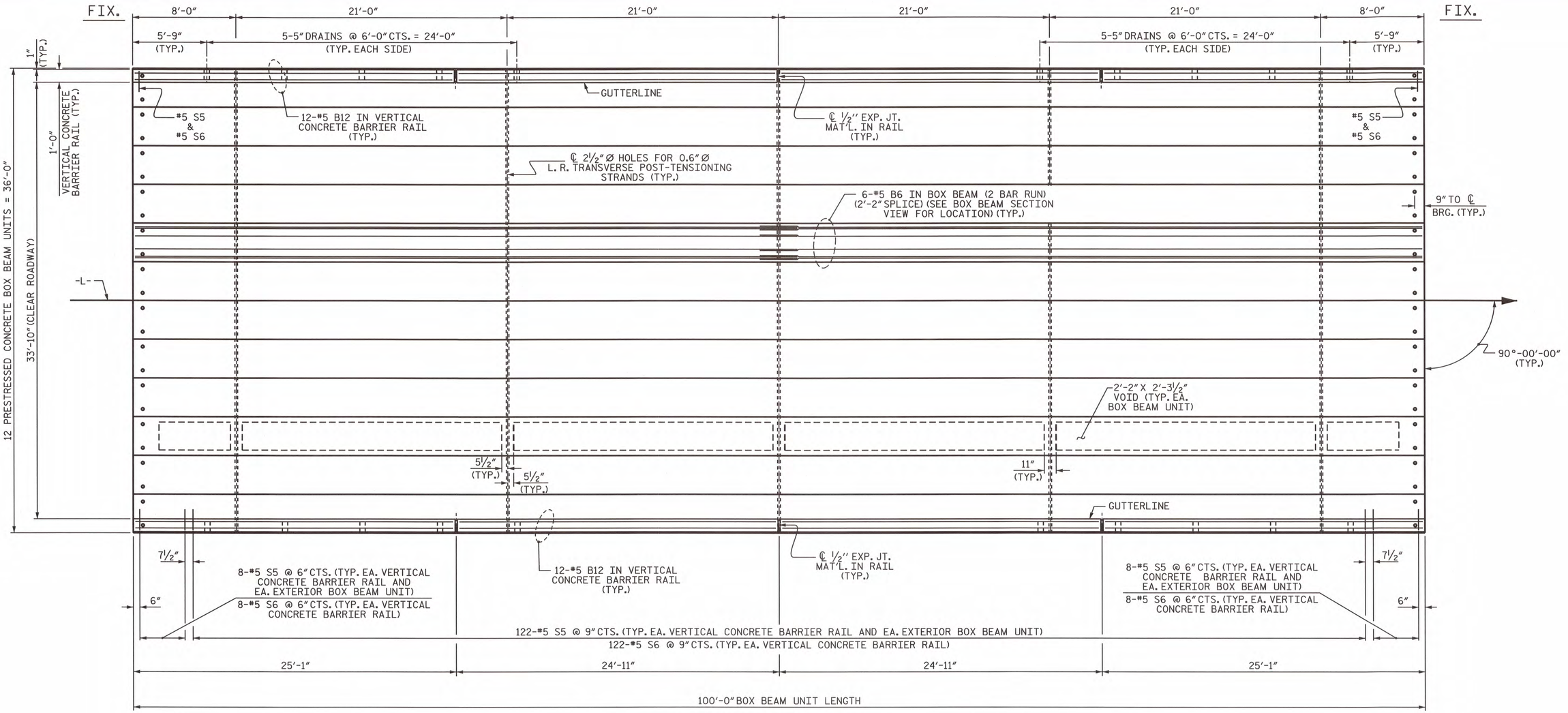
NORTH CAROLINA PROFESSIONAL SEAL 10730 ENGINEER D. ANDRE DAVENPORT JR.

DocuSigned by:
D. André Davenport, Jr.
805DC284F864495...
12/2/2014

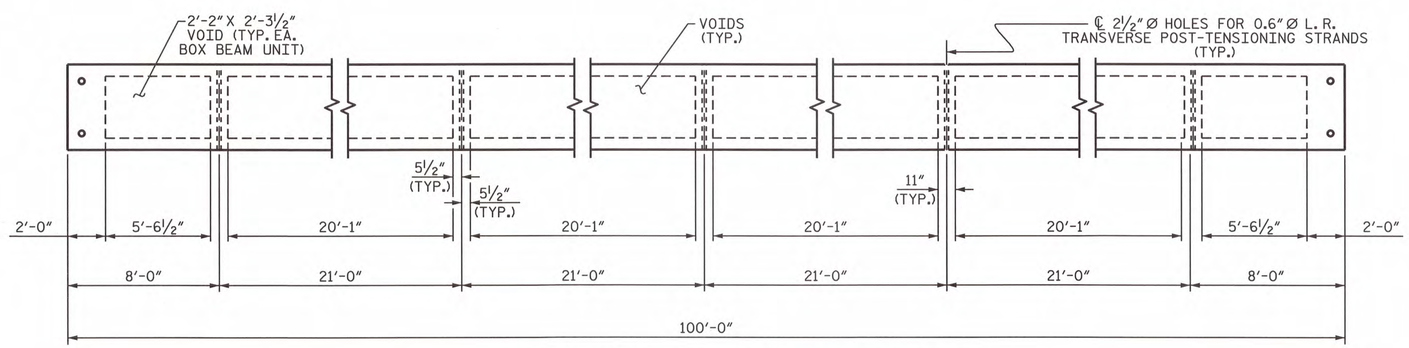
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CHECKED BY : R.P. PATEL		DATE : 10/14/14
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STD. NO. 39PCBB1_36



PLAN OF UNIT



DIAPHRAGM AND VOID LAYOUT

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DRAWN BY : DGE 8/10	REV. 8/14	MAA/TMG	
CHECKED BY : TMG 11/11			

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PROJECT NO. BD-5109V
DAVIDSON COUNTY
STATION: 12+46.00 -L-

SHEET 2 OF 5

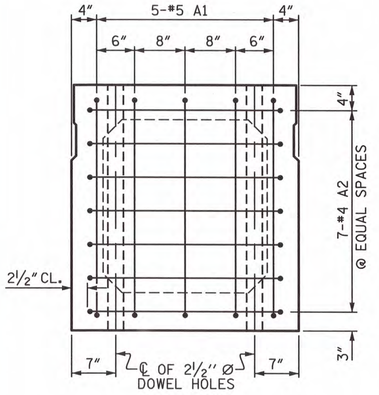
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 100' UNIT
33'-10" CLEAR ROADWAY

90° SKEW

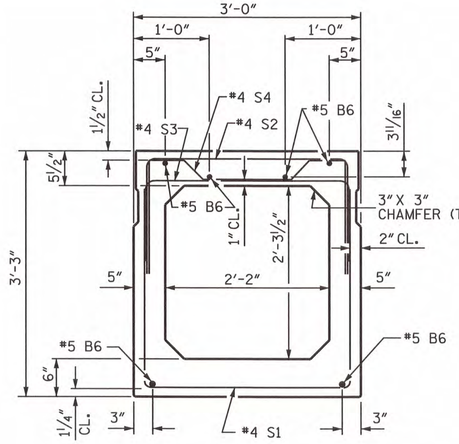
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
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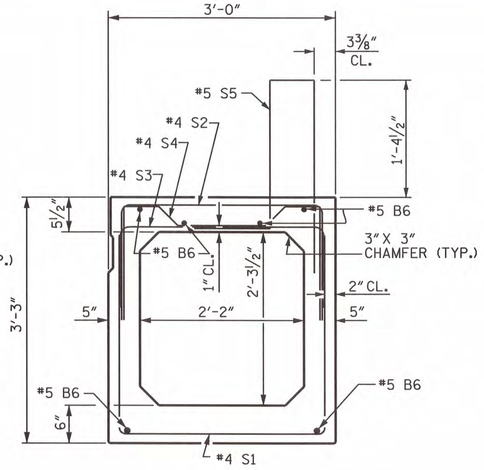
END ELEVATION

SHOWING PLACEMENT OF #5 & #4 "A" BARS AND LOCATION OF DOWEL HOLES. (INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION. STRAND LAYOUT NOT SHOWN.)



INTERIOR BOX BEAM SECTION

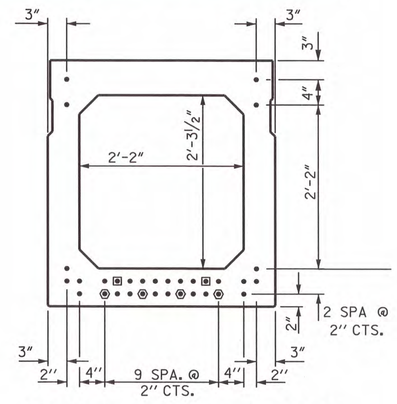
(STRAND LAYOUT NOT SHOWN)



EXTERIOR BOX BEAM SECTION

(STRAND LAYOUT NOT SHOWN)

0.6" Ø LOW RELAXATION STRAND LAYOUT



TYPICAL STRAND LOCATION

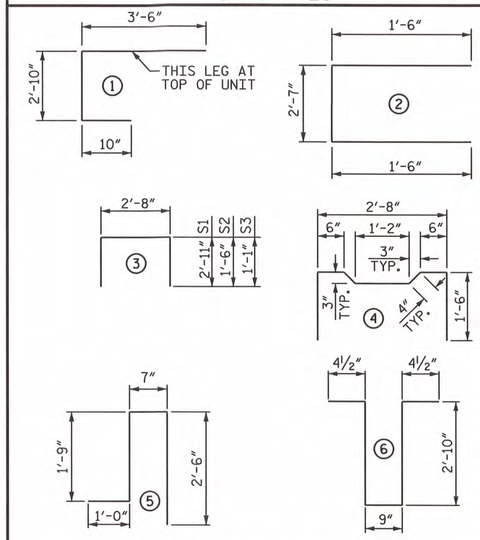
(32 STRANDS REQUIRED)

DEBONDING LEGEND

- ● FULLY BONDED STRANDS
- ◉ STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
- ⬢ STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER

BOND SHALL BE BROKEN ON STRANDS AS SHOWN FOR THE SPECIFIED LENGTH FROM EACH END OF THE BOX BEAM. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

BAR TYPES



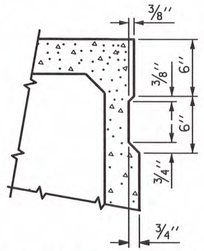
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE BOX BEAM SECTION

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
A1	10	#5	1	7'-2"	75	7'-2"	75
A2	44	#4	2	5'-7"	164	5'-7"	164
B6	12	#5	STR	50'-11"	637	50'-11"	637
K1	15	#4	6	7'-2"	72	7'-2"	72
K2	10	#4	STR	2'-7"	17	2'-7"	17
S1	81	#4	3	8'-6"	460	8'-6"	460
S2	81	#4	3	5'-8"	307	5'-8"	307
S3	141	#4	3	4'-10"	455	4'-10"	455
S4	60	#4	4	5'-10"	234	5'-10"	234
✳ S5	138	#5	5	5'-10"	840	--	--
REINFORCING STEEL				LBS.	2,421	LBS.	2,421
✳ EPOXY COATED REINF. STEEL				LBS.	840		
7500 P.S.I. CONCRETE				CU. YDS.	19.6	CU. YDS.	19.4
0.6" Ø L.R. STRANDS				No.	32	No.	32

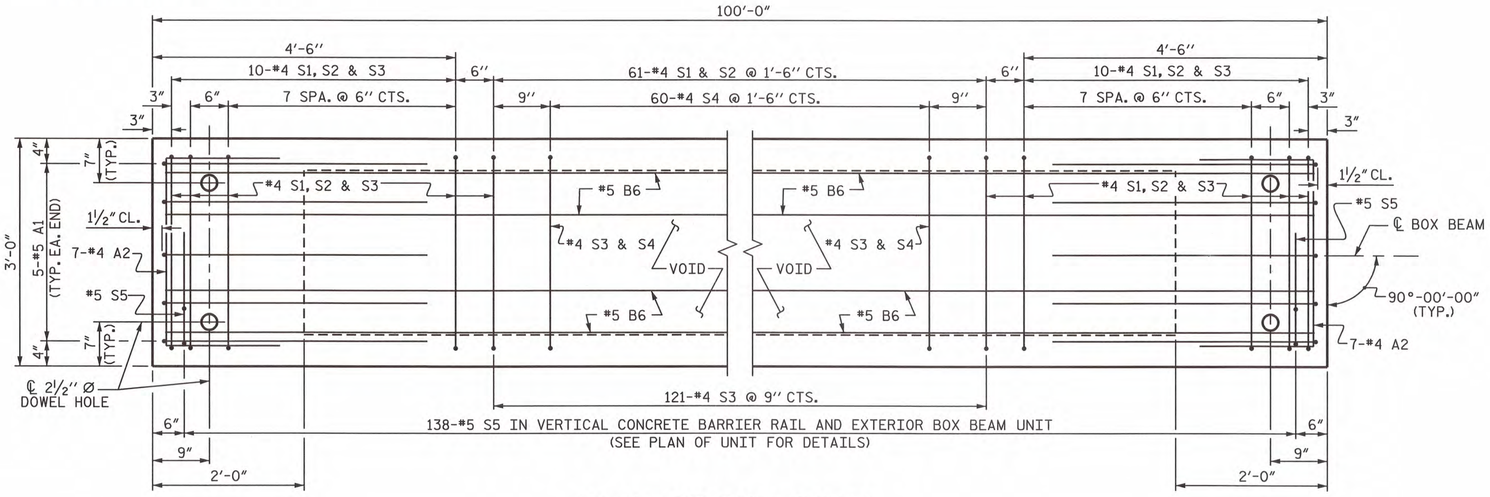
GRADE 270 STRANDS

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



SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR BOX BEAMS.



PLAN OF BOX BEAM

EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S5 BARS.
FOR LOCATION OF DIAPHRAGMS, SEE "PLAN OF UNIT".
FOR THREADED INSERTS, SEE "THREADED INSERT DETAIL".
FOR REINFORCING STEEL IN DIAPHRAGMS, SEE "DOUBLE DIAPHRAGM DETAILS".

PROJECT NO. BD-5109V
DAVIDSON COUNTY
STATION: 12+46.00 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3'-0" X 3'-3"
PRESTRESSED CONCRETE
BOX BEAM UNIT
90° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 10730 ENGINEER D. ANDRE DAVENPORT JR.

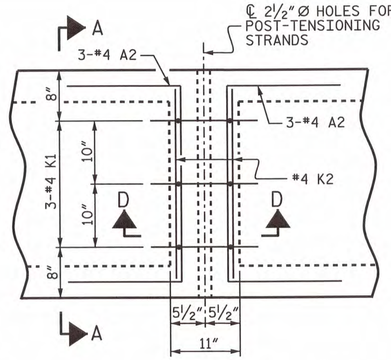
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11/13/2014

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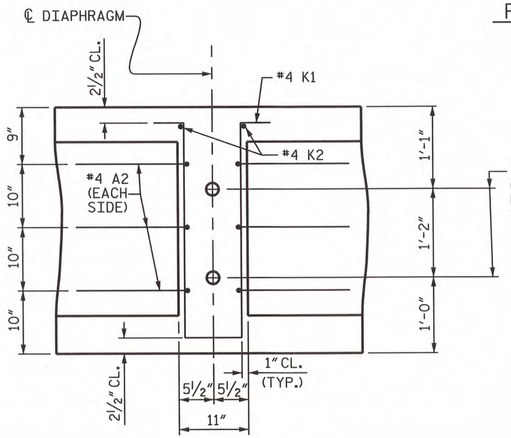
ASSEMBLED BY : M.K. BEARD	DATE : 9/16/14
CHECKED BY : R.P. PATEL	DATE : 10/14/14
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CHECKED BY : TMG II/II	

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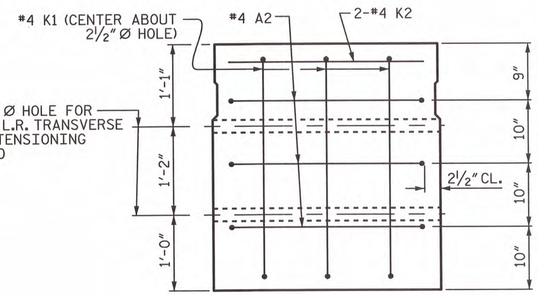
STD. NO. 39PCBB6_90S_100L



PLAN



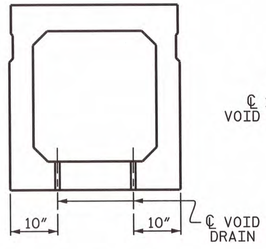
SECTION D-D



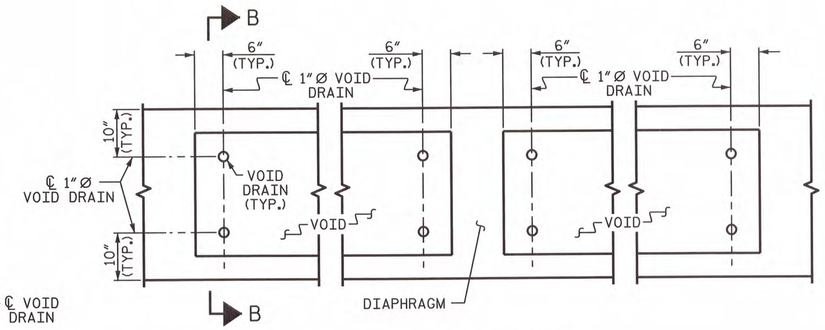
SECTION A-A
VOIDS NOT SHOWN

DOUBLE DIAPHRAGM DETAILS

#4 "S" BARS NOT SHOWN. #4 "S" BARS MAY BE SHIFTED SLIGHTLY TO CLEAR 2½" Ø HOLE.



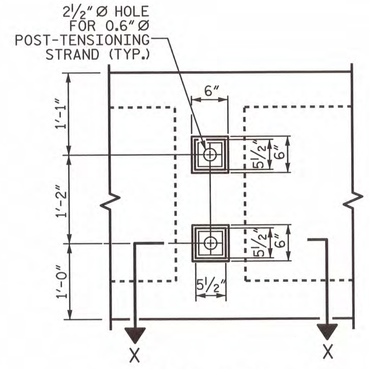
SECTION B-B



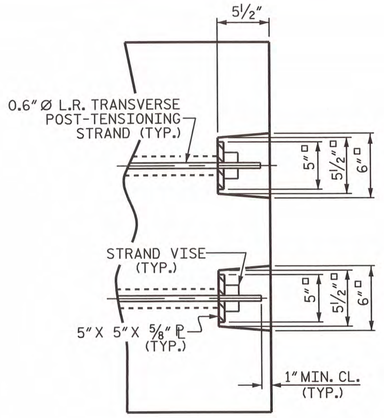
PART PLAN

VOID DRAIN DETAILS

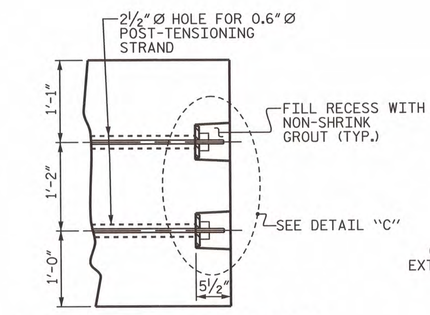
(DIMENSIONS SHOWN ARE TYPICAL FOR EACH VOID)



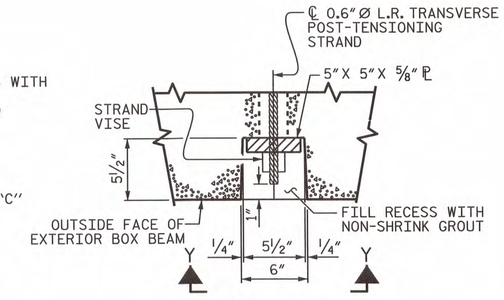
VIEW Y-Y
SHOWING ELEVATION VIEW OF GROUTED RECESS



DETAIL "C"



PART SECTION AT RECESS



SECTION X-X
SHOWING PLAN VIEW OF GROUTED RECESS

GROUTED RECESS DETAIL AT END OF POST-TENSIONED STRANDS OF EXTERIOR BOX BEAM

DEAD LOAD DEFLECTION AND CAMBER	
	3'-0" x 3'-3"
100' BOX BEAM UNIT	0.6"Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	2" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	⅞" ↓
FINAL CAMBER	1⅛" ↑

** INCLUDES FUTURE WEARING SURFACE

PROJECT NO. BD-5109V
DAVIDSON COUNTY
STATION: 12+46.00 -L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 3'-3" PRESTRESSED CONCRETE BOX BEAM UNIT
90° SKEW

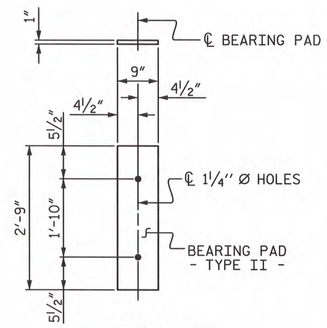
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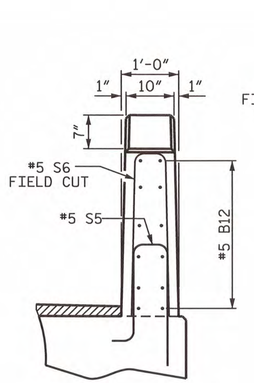


FIXED END

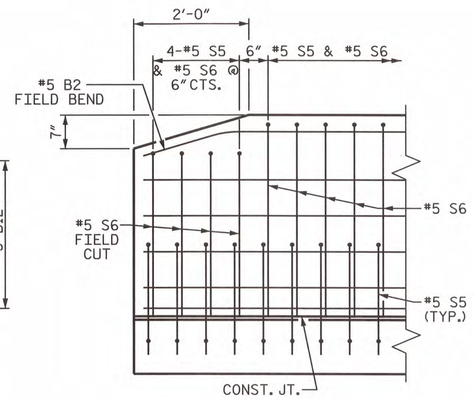
(TYPE II - 24 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.



END VIEW



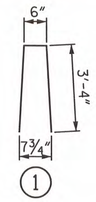
SIDE VIEW

END OF RAIL DETAILS

BOX BEAM UNITS REQUIRED

	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR B.B.	2	100'-0"	200'-0"
INTERIOR B.B.	10	100'-0"	1000'-0"
TOTAL	12	———	1200'-0"

BAR TYPE



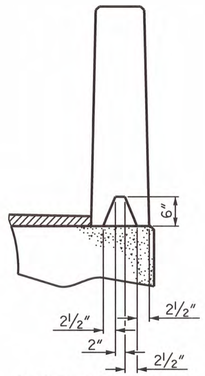
BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS	SIZE	TYPE	LENGTH	WEIGHT
	100' UNIT				
✱B12	96	#5	STR	24'-7"	2461
✱S6	276	#5	1	7'-2"	2063
✱EPOXY COATED REINFORCING STEEL			LBS.		4,524
CLASS AA CONCRETE			CU.YDS.		25.9
TOTAL VERTICAL CONCRETE BARRIER RAIL			LIN. FT.		200.00

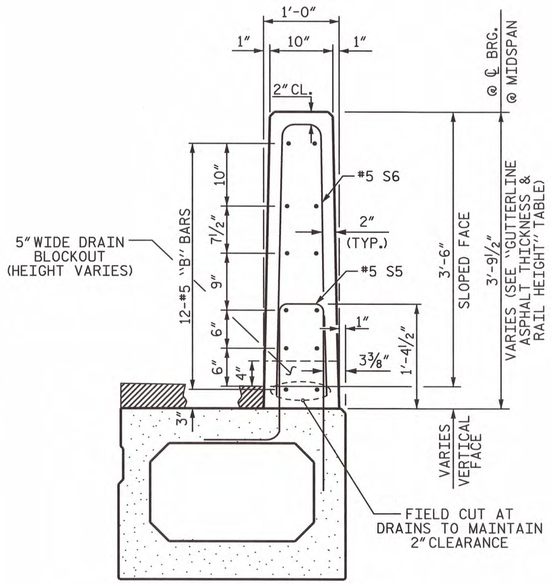
GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

	ASPHALT OVERLAY THICKNESS @ MIDSPAN	RAIL HEIGHT @ MIDSPAN
100' UNITS	2⅜"	3'-8⅜"

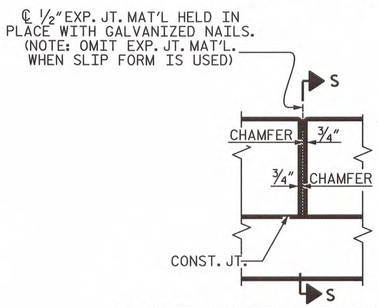


SECTION S-S

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



SECTION THRU RAIL



ELEVATION AT EXPANSION JOINTS

VERTICAL CONCRETE BARRIER RAIL DETAILS

PROJECT NO. BD-5109V

DAVIDSON COUNTY

STATION: 12+46.00 -L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

3'-0" X 3'-3"
PRESTRESSED CONCRETE
BOX BEAM UNIT
90° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
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2			4			14

NORTH CAROLINA PROFESSIONAL SEAL 10730 ENGINEER D. ANDRE DAVENPORT, JR.

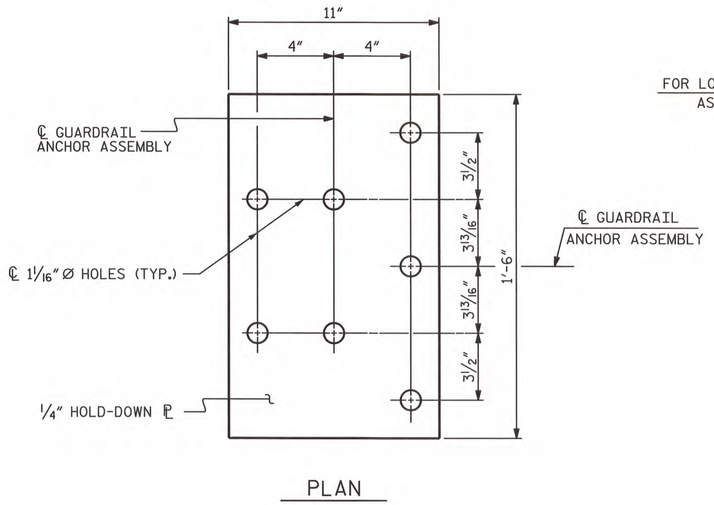
DocuSigned by: D. André Davenport, Jr. 865DC284F664495...

12/2/2014

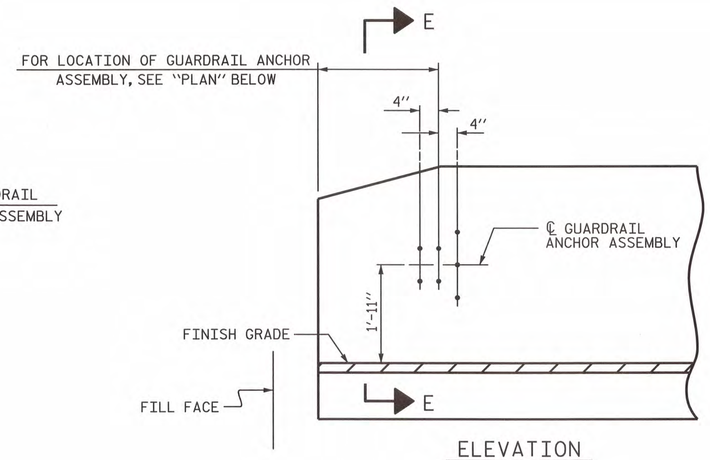
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ASSEMBLED BY : M.K. BEARD	DATE : 9/16/14
CHECKED BY : R.P. PATEL	DATE : 10/14/14
DRAWN BY : DGE 10/11	REV. 8/14 MAA/TMG
CHECKED BY : TMG 11/11	

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PLAN



ELEVATION

NOTES

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

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

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

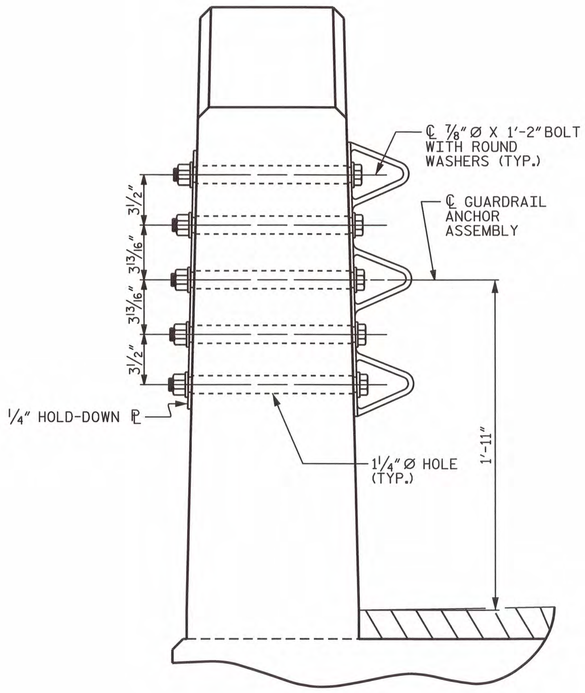
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

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

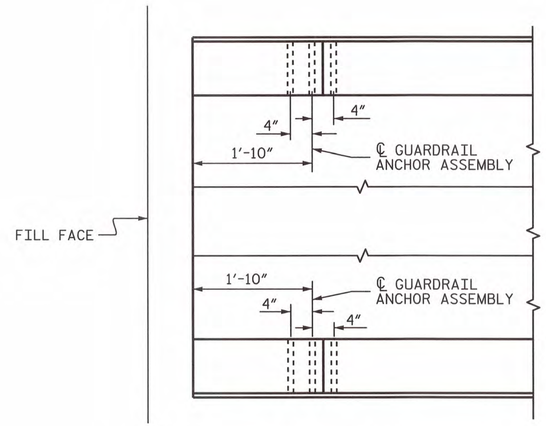
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

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



SECTION E-E

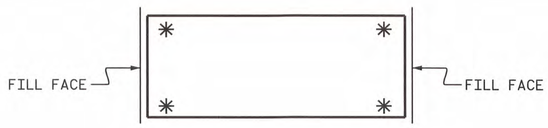
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT 1 SHOWN, END BENT 2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENT

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. BD-5109V

DAVIDSON COUNTY

STATION: 12+46.00 -L-

SHEET 5 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
GUARDRAIL ANCHORAGE FOR VERTICAL CONCRETE BARRIER RAIL

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

NORTH CAROLINA PROFESSIONAL SEAL 10730 ENGINEER D. ANDRÉ DAVENPORT, JR.

Docusigned by:
D. André Davenport, Jr.
895DC284F864469...
11/13/2014

ASSEMBLED BY : M.K. BEARD		DATE : 9/16/14	
CHECKED BY : R.P. PATEL		DATE : 10/14/14	
DRAWN BY : MAA 5/10	REV. 10/1/11	MAA/GM	
CHECKED BY : GM 5/10	REV. 12/5/11	MAA/GM	
	REV. 6/13	MAA/GM	

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STD. NO. GRA3

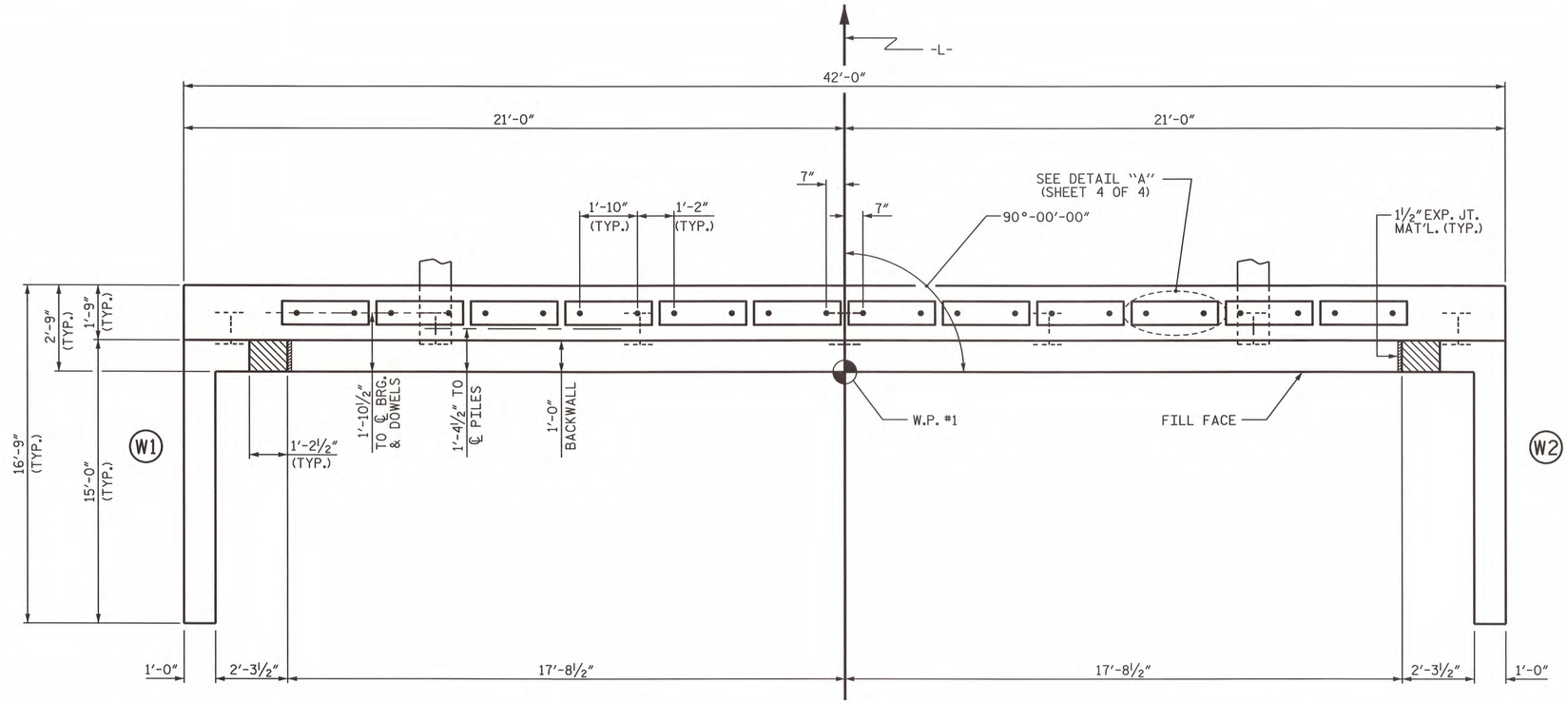
NOTES

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

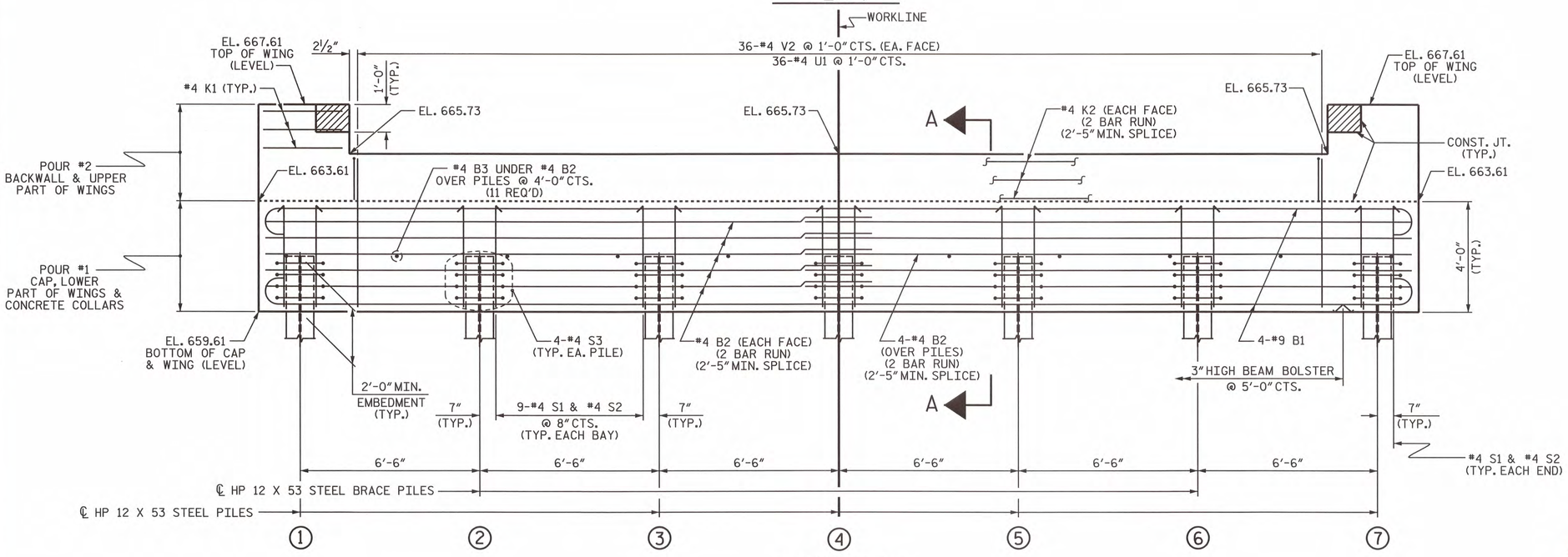
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



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.

PROJECT NO. BD-5109V

DAVIDSON COUNTY

STATION: 12+46.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1

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

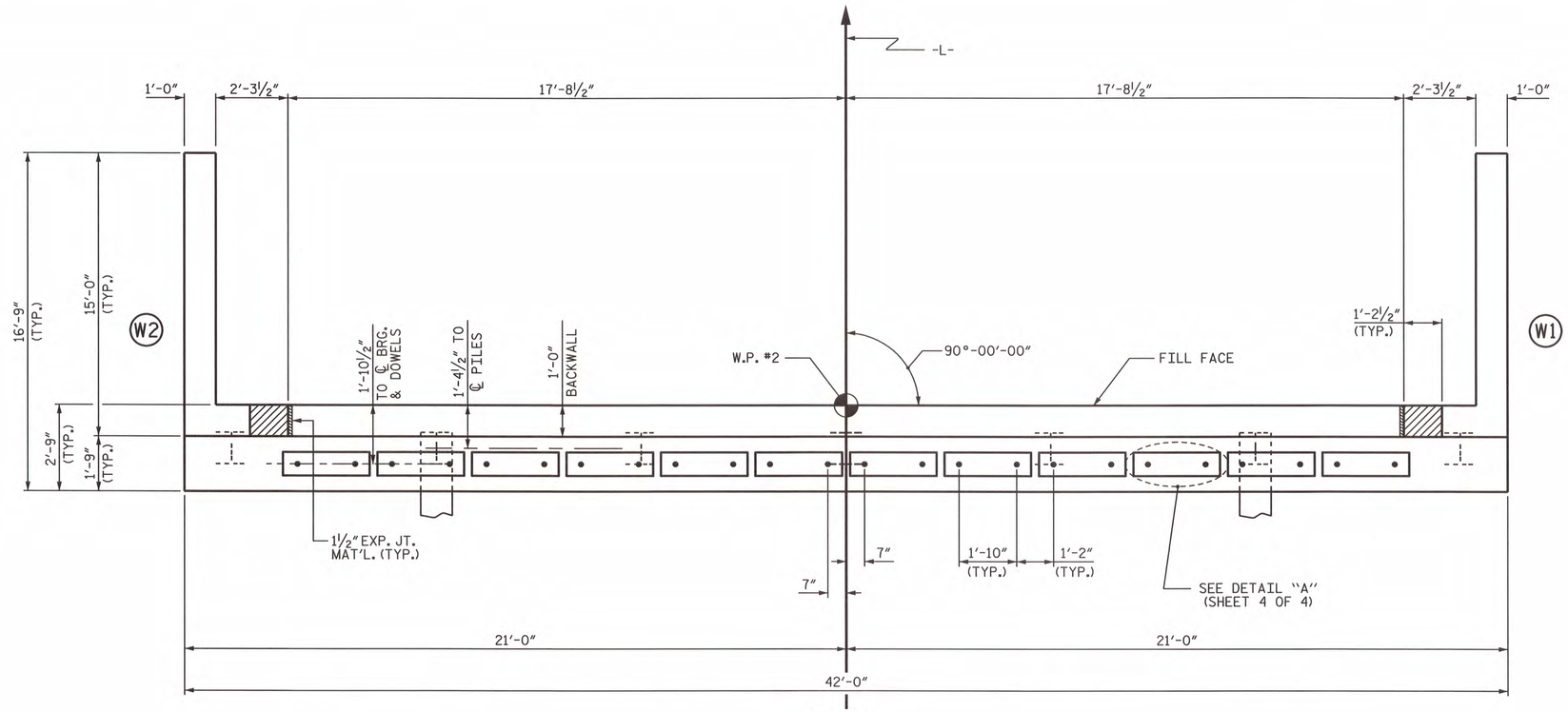
NORTH CAROLINA PROFESSIONAL SEAL 10730 ENGINEER D. ANDRÉ DAVENPORT JR.

DocuSigned by: D. André Davenport, Jr. 11/13/2014

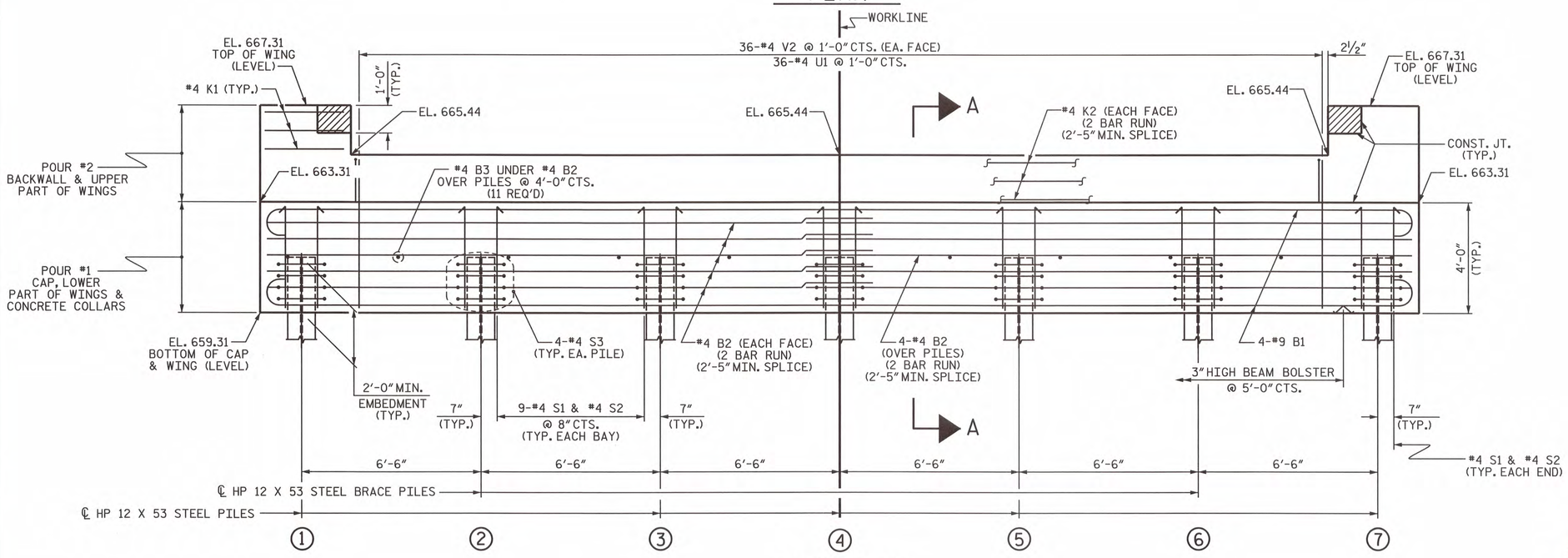
ASSEMBLED BY : M.K. BEARD	DATE : 9/17/14	
CHECKED BY : R.P. PATEL	DATE : 10/14/14	
DRAWN BY : WJH 12/11	REV. 8/14	MAA/TMG
CHECKED BY : AAC 12/11		

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STD. NO. EB_36_90S4_39BB



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.

ASSEMBLED BY : M.K. BEARD	DATE : 9/17/14		
CHECKED BY : R.P. PATEL	DATE : 10/14/14		
DRAWN BY : WJH 12/11	REV. 8/14	MAA/TMG	
CHECKED BY : AAC 12/11			

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NORTH CAROLINA PROFESSIONAL SEAL 10730 ENGINEER D. ANDRE DAVENPORT JR.
DocuSigned by: D. André Davenport, Jr. 89DDC284F864495...
11/13/2014

PROJECT NO. BD-5109V
DAVIDSON COUNTY
STATION: 12+46.00 -L-

SHEET 2 OF 4

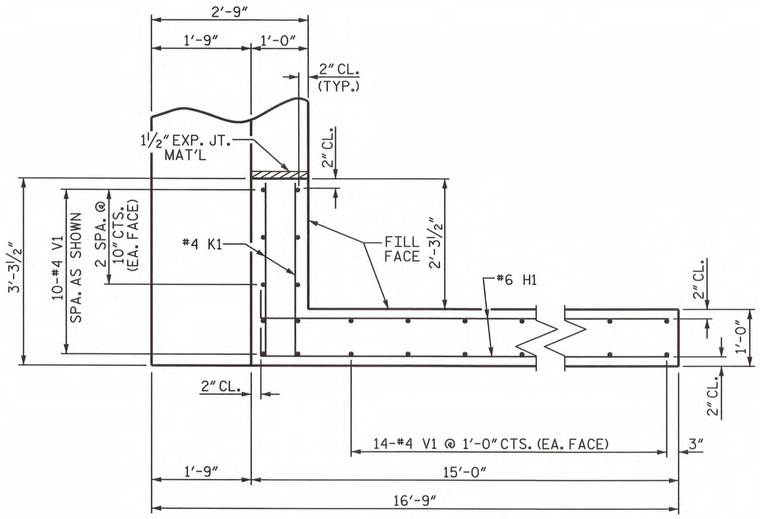
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

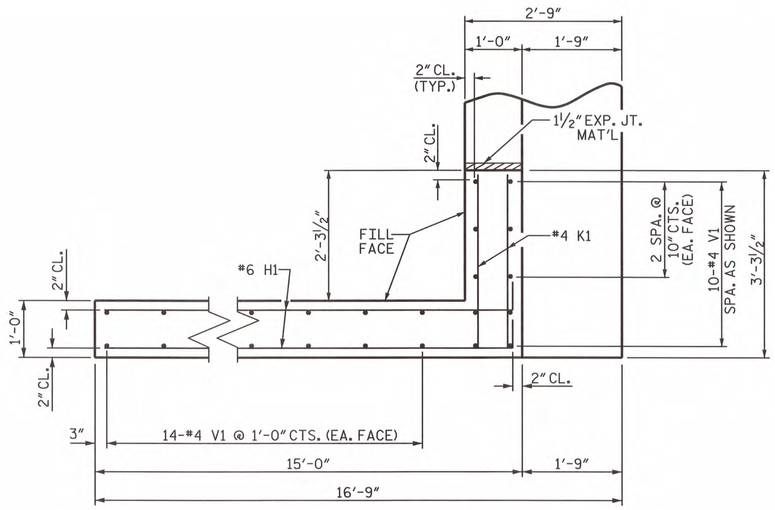
END BENT 2

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

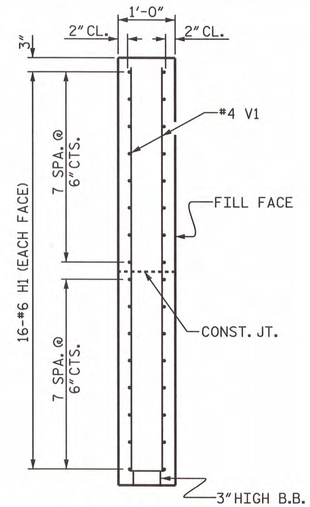
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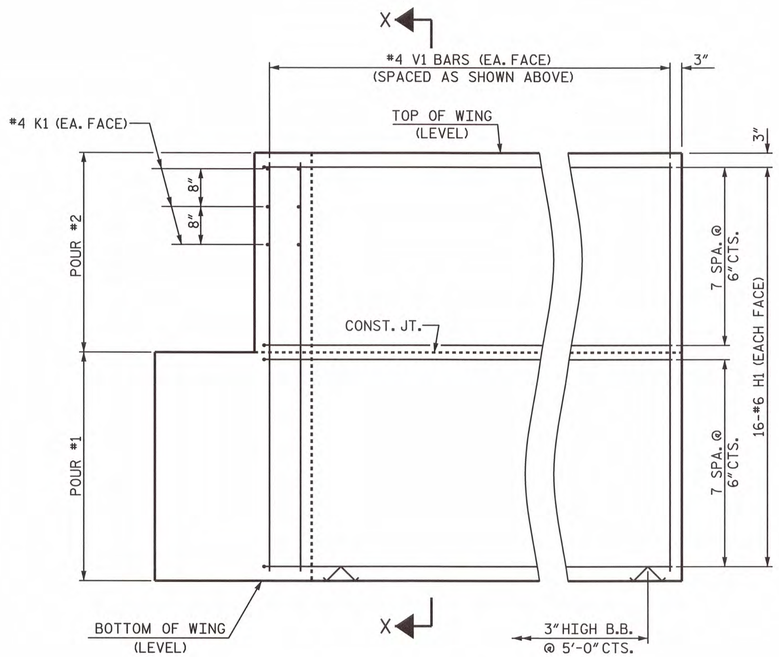
PLAN OF WING (W1)



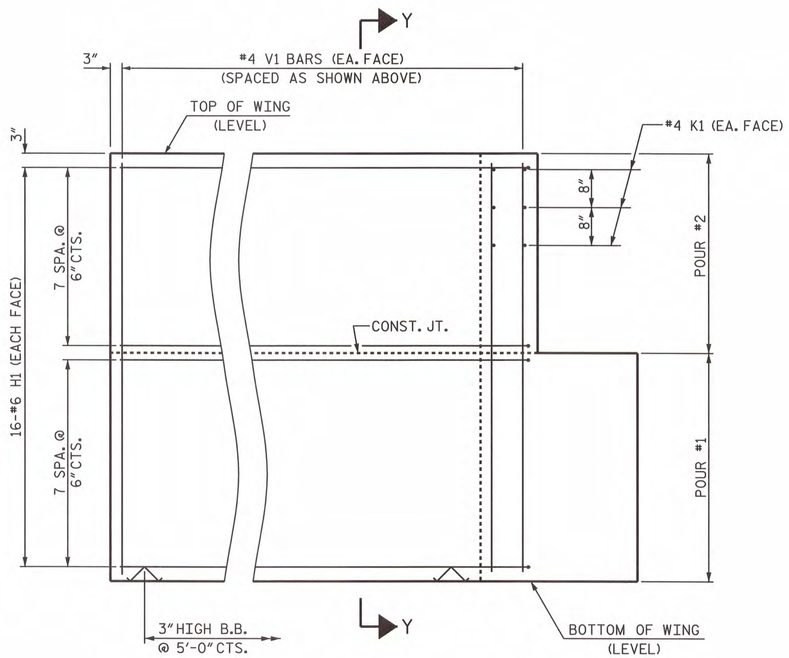
PLAN OF WING (W2)



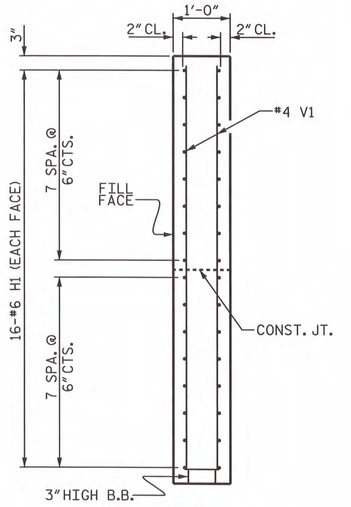
SECTION X-X



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION Y-Y

WING DETAILS

PROJECT NO. BD-5109V

DAVIDSON COUNTY

STATION: 12+46.00 -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-12
1			3			TOTAL SHEETS
2			4			14

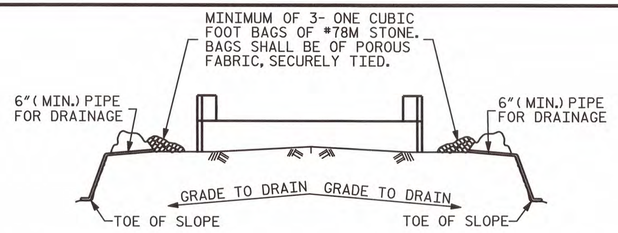
ASSEMBLED BY : M.K. BEARD	DATE : 9/17/14
CHECKED BY : R.P. PATEL	DATE : 10/14/14
DRAWN BY : WJH 12/11	REV. 8/14 MAA/TMG
CHECKED BY : AAC 12/11	

NORTH CAROLINA PROFESSIONAL SEAL 10730 ENGINEER D. ANDRE DAVENPORT JR.

DocuSigned by: D. André Davenport, Jr. 11/13/2014

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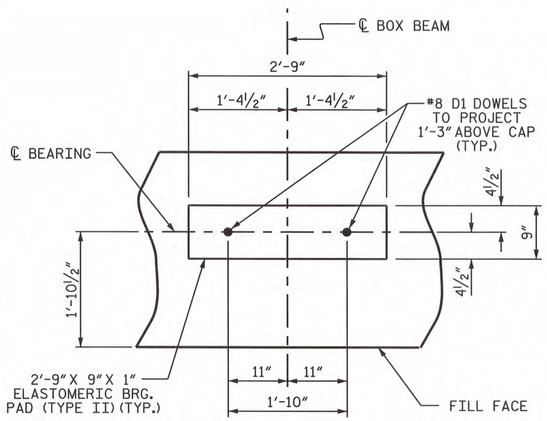


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

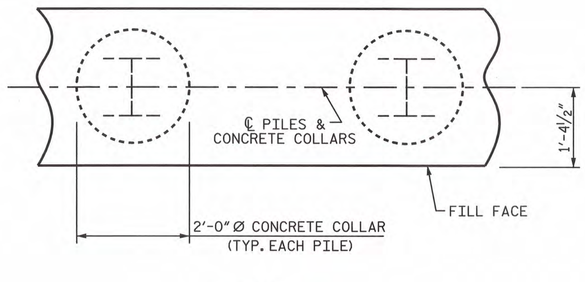
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

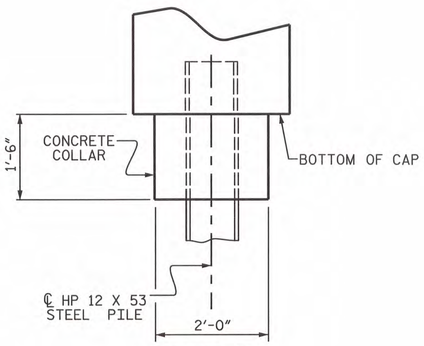


DETAIL "A"

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



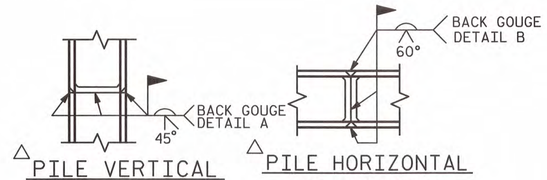
PLAN



ELEVATION

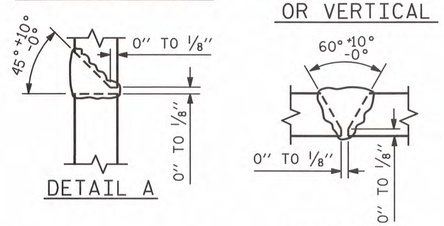
CORROSION PROTECTION FOR STEEL PILES DETAIL

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



△ PILE VERTICAL

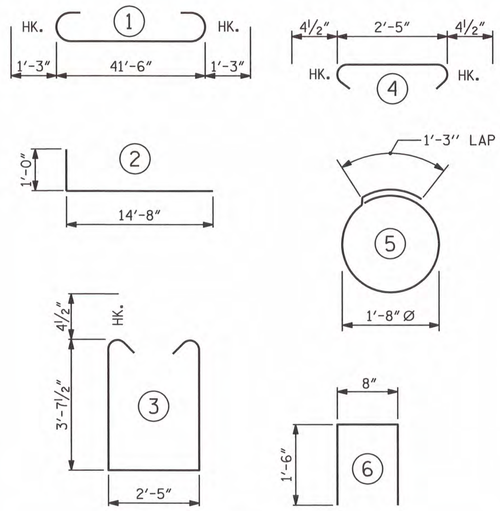
△ PILE HORIZONTAL OR VERTICAL



△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT 1	END BENT 2
HP 12 X 53 STEEL PILES	HP 12 X 53 STEEL PILES
NO: 7 LIN. FT.= 140	NO: 7 LIN. FT.= 175

BILL OF MATERIAL

FOR ONE END BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	44'-0"	1197
B2	28	#4	STR	22'-1"	413
B3	11	#4	STR	2'-5"	18
D1	24	#8	STR	2'-3"	144
H1	64	#6	2	15'-8"	1506
K1	12	#4	STR	2'-11"	23
K2	12	#4	STR	22'-1"	177
S1	56	#4	3	10'-5"	390
S2	56	#4	4	3'-2"	118
S3	28	#4	5	6'-6"	122
U1	36	#4	6	3'-8"	88
V1	76	#4	STR	7'-8"	389
V2	72	#4	STR	5'-9"	277

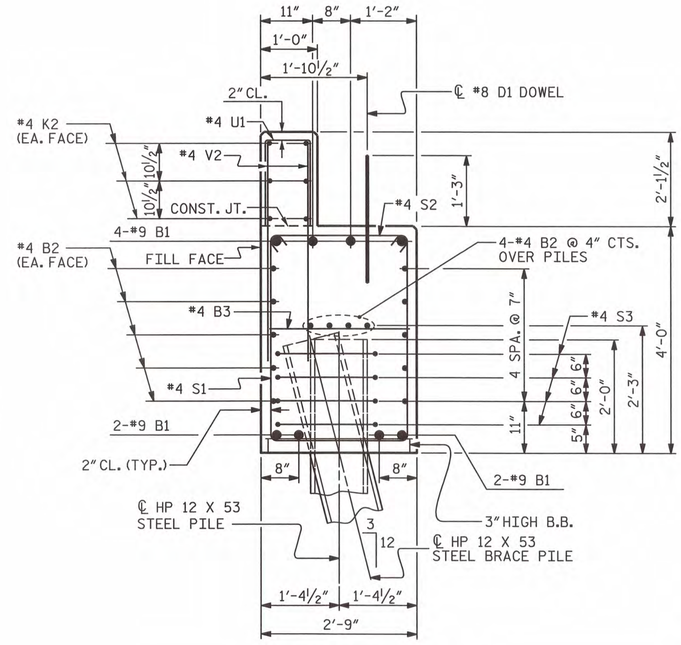
REINFORCING STEEL (FOR ONE END BENT) LBS. 4,862

CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)

POUR #1 CAP, LOWER PART OF WINGS & COLLARS C.Y. 22.5

POUR #2 BACKWALL & UPPER PART OF WINGS C.Y. 7.9

TOTAL CLASS A CONCRETE C.Y. 30.4



SECTION A-A

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

NORTH CAROLINA PROFESSIONAL SEAL 10730 ENGINEER D. ANDRE DAVENPORT, JR.

DocuSigned by: D. Andre Davenport, Jr. 865DC2B4F8644495... 11/13/2014

PROJECT NO. BD-5109V

DAVIDSON COUNTY

STATION: 12+46.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

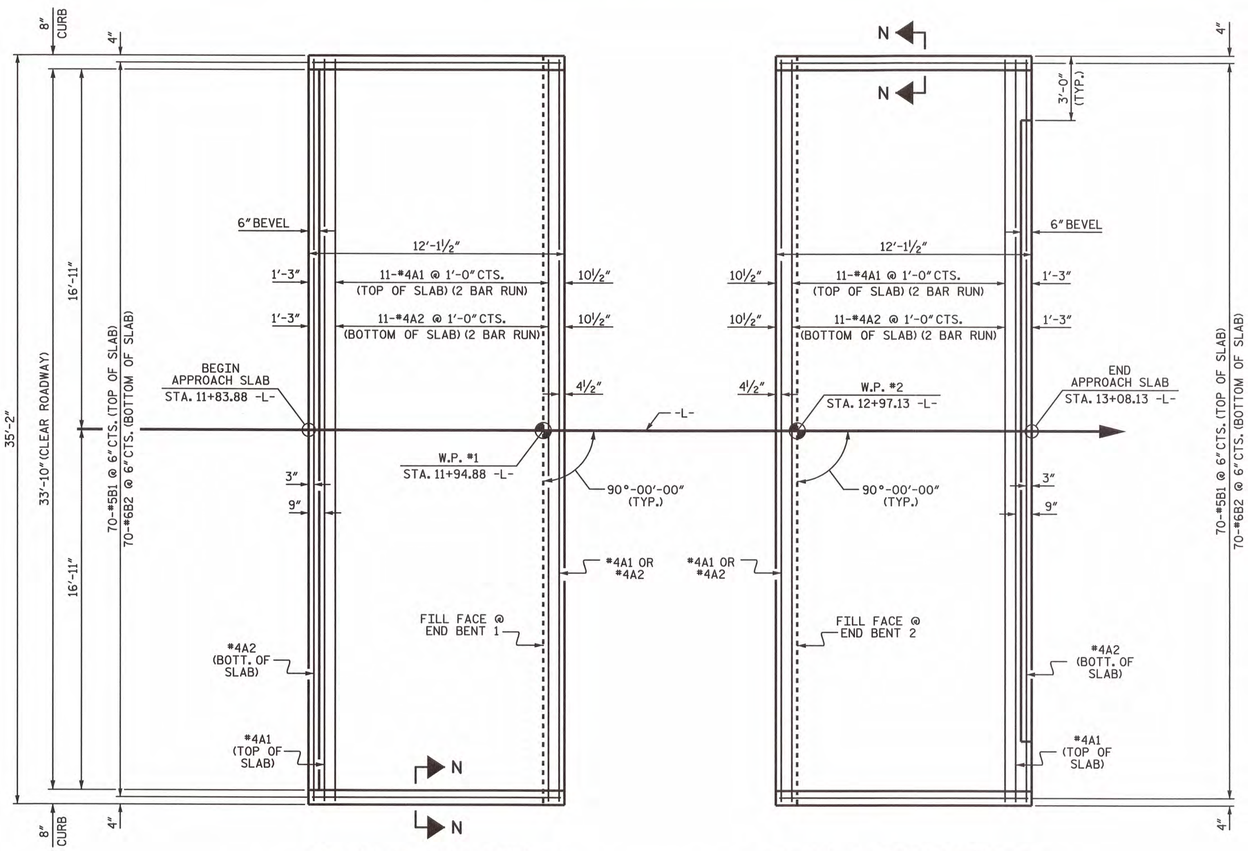
END BENT 1 & 2 DETAILS

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

ASSEMBLED BY : M.K. BEARD	DATE : 9/17/14
CHECKED BY : R.P. PATEL	DATE : 10/14/14
DRAWN BY : WJH 12/11	REV. 8/14 MAA/TMG
CHECKED BY : AAC 12/11	

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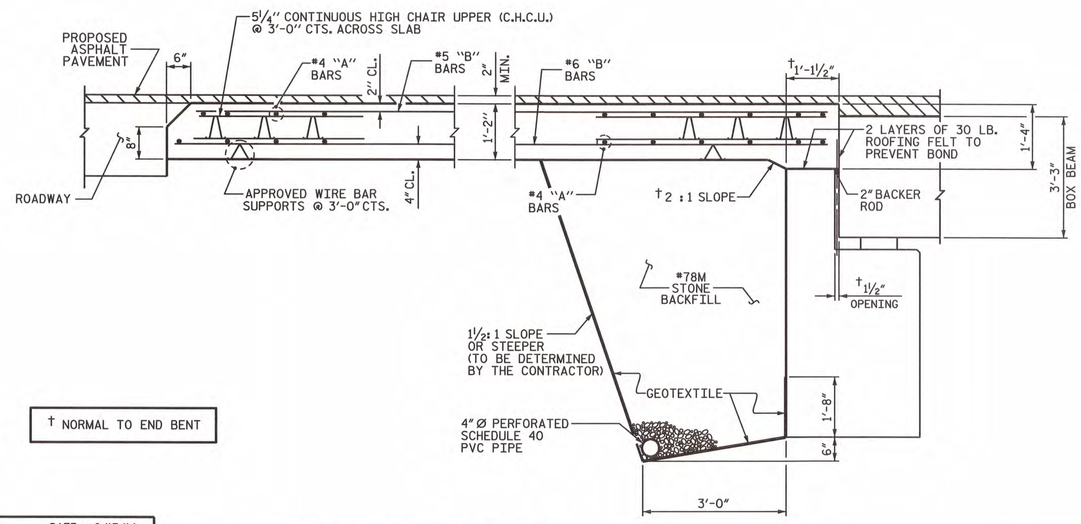
STD. NO. EB_36_90S4_39BB



PLAN @ END BENT 1

PLAN @ END BENT 2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



† NORMAL TO END BENT

SECTION THRU SLAB

NOTES

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

GEOTEXTILE SHALL BE TYPE 1 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

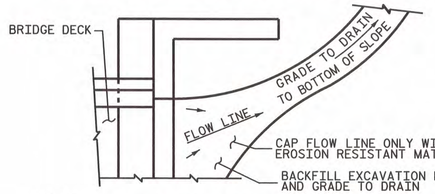
#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

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

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

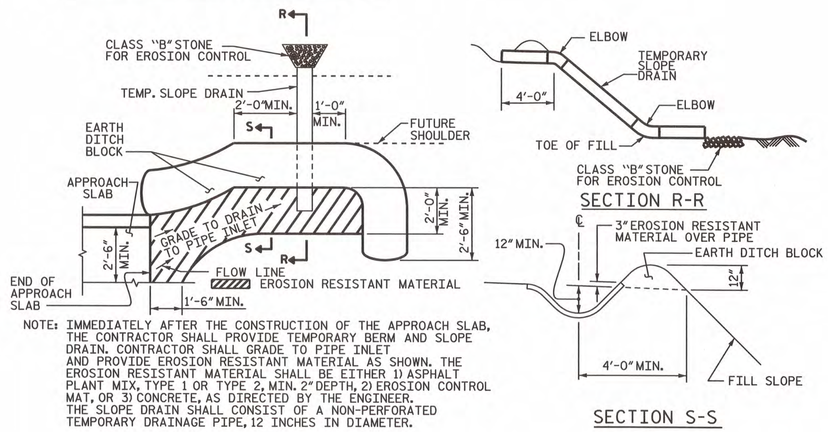
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT REQUIRED.



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

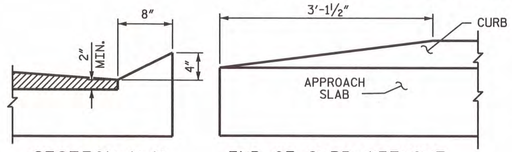


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



CURB DETAILS

BILL OF MATERIAL					
APPROACH SLAB AT EB 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ A1	26	#4	STR	18'-5"	320
A2	26	#4	STR	18'-4"	318
✳ B1	70	#5	STR	11'-2"	815
B2	70	#6	STR	11'-8"	1227
REINFORCING STEEL			LBS.		1,545
✳ EPOXY COATED REINFORCING STEEL			LBS.		1,135
CLASS AA CONCRETE			C.Y.		18.8
APPROACH SLAB AT EB 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ A1	26	#4	STR	18'-5"	320
A2	26	#4	STR	18'-4"	318
✳ B1	70	#5	STR	11'-2"	815
B2	70	#6	STR	11'-8"	1227
REINFORCING STEEL			LBS.		1,545
✳ EPOXY COATED REINFORCING STEEL			LBS.		1,135
CLASS AA CONCRETE			C.Y.		18.8

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

PROJECT NO. BD-5109V

DAVIDSON COUNTY

STATION: 12+46.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

NORTH CAROLINA PROFESSIONAL SEAL 10730 ENGINEER D. ANDRE DAVENPORT, JR

Docusigned by: D. André Davenport, Jr. 865DC284F864495...
11/13/2014

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

ASSEMBLED BY : M.K. BEARD	DATE : 9/17/14
CHECKED BY : R.P. PATEL	DATE : 10/14/14
DRAWN BY : MAA 11/11	
CHECKED BY : AAC 11/11	

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STD. NO. BAS_BB_36_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 (/) RGW REV. 5-7-03 RWW (/) JTE REV. 10-1-11 MAA (/) GM
REV. 8-16-99 RWW (/) LES REV. 5-1-06 TLA (/) GM
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