CONTRACT: 45351.1.21/45351.1.18 TIP PROJECT: BD-5105R/BD-5105U

See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

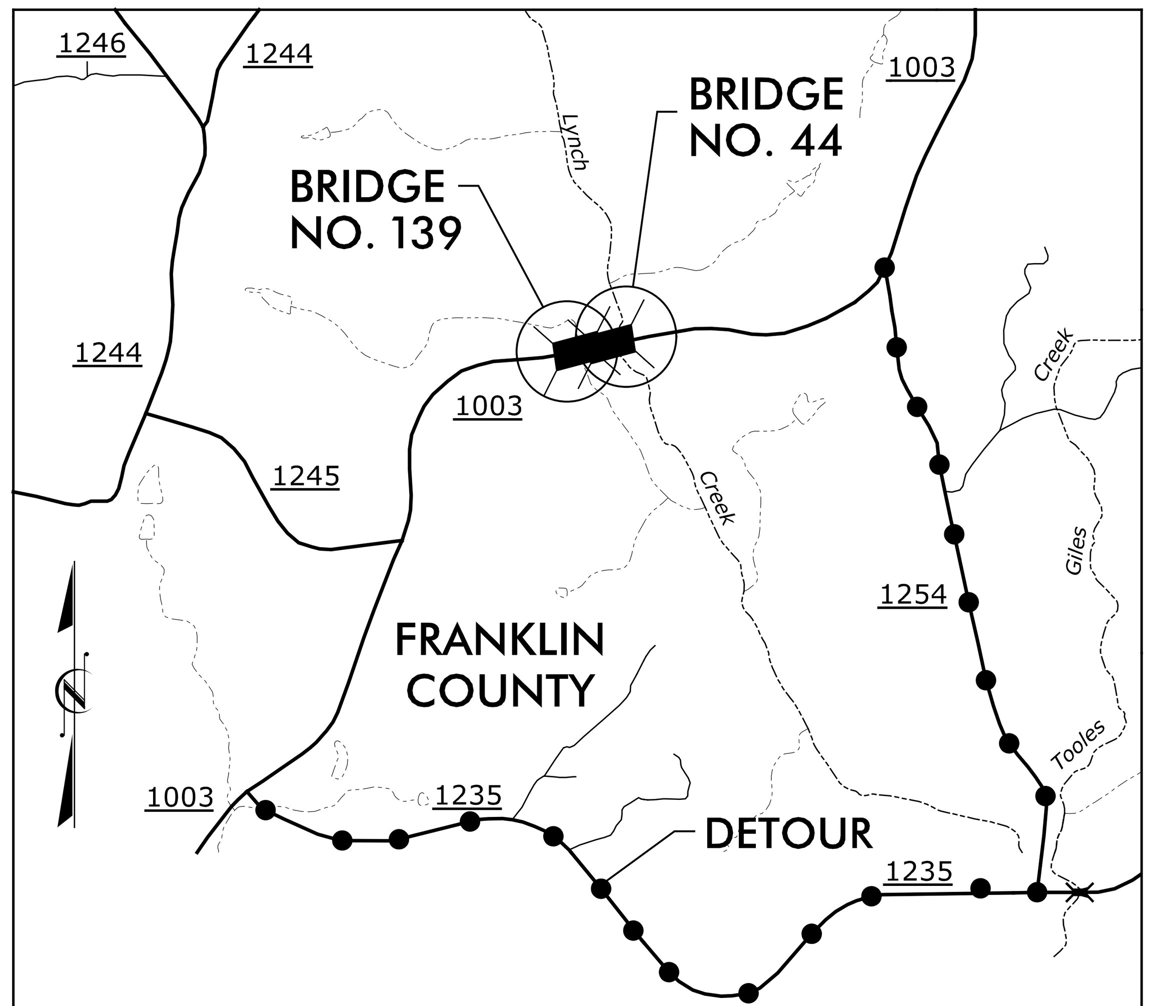
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BD-5105R/BD-5105U	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
45351.1.18	BRZ-1003 (108)	P.E.
45351.2.18	BRZ-1003 (108)	R/W
45351.3.18	BRZ-1003 (108)	CONST.
45351.1.21	BRZ-1003 (109)	P.E.
45351.2.21	BRZ-1003 (109)	R/W
45351.3.21	BRZ-1003 (109)	CONST.

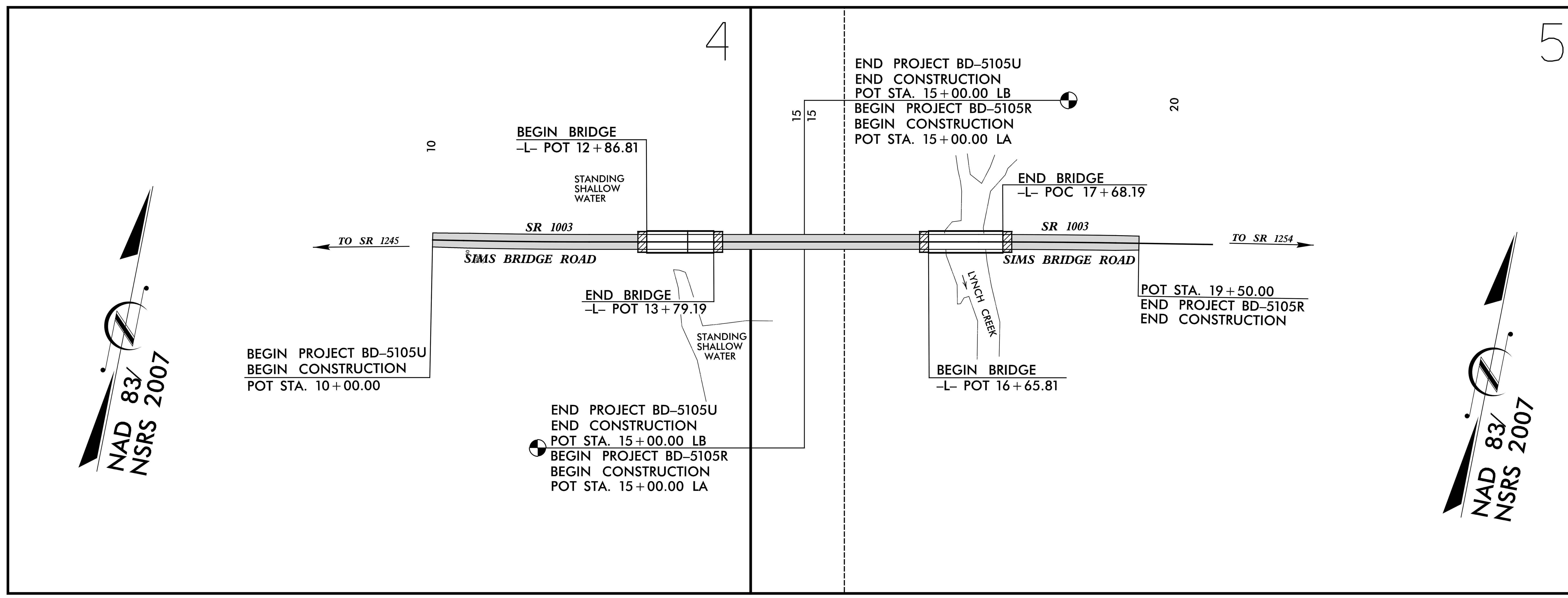
FRANKLIN COUNTY

LOCATION: BRIDGE NO. 44 ON SR 1003 (SIMS BRIDGE ROAD) OVER LYNCH CREEK & BRIDGE NO. 139 ON SR 1003 (SIMS BRIDGE ROAD) OVER LYNCH CREEK OVERFLOW

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE



LOCATION MAP



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

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 2011 = 830
ADT 2031 = 1660
DHV = 10 %
D = 50 %
T = 6 % *
V = 55 MPH
* TTST = N/A DUAL N/A
FUNC CLASS = LOCAL
SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY STATE PROJECT BD-5105R/BD-5105U	=	0.144 MILES
LENGTH STRUCTURES STATE PROJECT BD-5105R	=	0.017 MILES
LENGTH STRUCTURES STATE PROJECT BD-5105U	=	0.019 MILES
TOTAL LENGTH STATE PROJECT BD-5105R/BD-5105U	=	0.180 MILES

PREPARED FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION IN THE OFFICE OF:

Florence & Hutcheson
An ICA Company

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MARCH 2012

LETTING DATE: NOVEMBER 2012

DENNIS MORY, PE
PROJECT ENGINEER

HENRY BARE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
SIGNATURE: 9/25/12 P.E.
NORTH CAROLINA PROFESSIONAL SEAL 34364 ENGINEER TRENTON J. CORMIER

ROADWAY DESIGN ENGINEER
SIGNATURE: 9-25-12 P.E.
NORTH CAROLINA PROFESSIONAL SEAL 20031 ENGINEER DENNIS JAMES MORY

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
P.E.
STATE HIGHWAY DESIGN ENGINEER

09/08/99
$$$$SYSTIME$$$$
$$$$USERNAME$$$$

Florence & Hutcheson
An ICA Company
5121 Kingdom Way, Raleigh, NC 27607
NC License No: F-0258

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 20031 ENGINEER DENNIS JAMES MORY

9-25-12

GENERAL NOTES

GENERAL NOTES: 2012 SPECIFICATIONS
EFFECTIVE: 01-17-12

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.

SHOULDER CONSTRUCTION:

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

GUARDRAIL:

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

END BENTS:

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

UTILITIES:

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

ROADWAY STANDARD DRAWINGS

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	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
840.20	Frames and Wide Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
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
876.04	Drainage Ditches with Class 'B' Rip Rap

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS GENERAL NOTES LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
2	TYPICAL SECTIONS
3	BD-5105U - DRAINAGE SUMMARY BD-5105U - GUARDRAIL SUMMARY BD-5105U - SUMMARY OF EARTHWORK BD-5105U - SUMMARY OF PAVEMENT REMOVAL BD-5105U - SUMMARY OF SHOULDER BERM GUTTER
3-A	BD-5105R - DRAINAGE SUMMARY BD-5105R - GUARDRAIL SUMMARY BD-5105R - SUMMARY OF EARTHWORK BD-5105R - SUMMARY OF PAVEMENT REMOVAL BD-5105R - SUMMARY OF SHOULDER BERM GUTTER
4	BD-5105U - ROADWAY PLAN, PARCEL INDEX & DRAINAGE DITCH DETAILS
5	BD-5105R - ROADWAY PLAN, PARCEL INDEX & DRAINAGE DITCH DETAILS
6	BD-5105U & BD-5105R - ROADWAY PROFILE
TCP-1 THRU TCP-2	TRAFFIC CONTROL PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
X-1 THRU X-6	CROSS-SECTIONS
S-1 THRU S-17	BD-5105U - STRUCTURE PLANS
SN	BD-5105U - STANDARD NOTES
S-1 THRU S-17	BD-5105R - STRUCTURE PLANS
SN	BD-5105R - STANDARD NOTES

8/17/99

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	
County Line	
Township Line	
City Line	
Reservation Line	
Property Line	
Existing Iron Pin	EIP
Property Corner	
Property Monument	ECM
Parcel/Sequence Number	123
Existing Fence Line	
Proposed Woven Wire Fence	
Proposed Chain Link Fence	
Proposed Barbed Wire Fence	
Existing Wetland Boundary	WLB
Proposed Wetland Boundary	WLB
Existing Endangered Animal Boundary	EAB
Existing Endangered Plant Boundary	EPB

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

Stream or Body of Water	
Hydro, Pool or Reservoir	
Jurisdictional Stream	JS
Buffer Zone 1	BZ 1
Buffer Zone 2	BZ 2
Flow Arrow	
Disappearing Stream	
Spring	
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	R/W
Proposed Right of Way Line with Iron Pin and Cap Marker	R/W
Proposed Right of Way Line with Concrete or Granite Marker	R/W
Existing Control of Access	C/A
Proposed Control of Access	C/A
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 Permanent Easement with Iron Pin and Cap Marker	

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	
Existing Curb	
Proposed Slope Stakes Cut	C
Proposed Slope Stakes Fill	F
Proposed Wheel Chair Ramp	WCR
Existing Metal Guardrail	
Proposed Guardrail	
Existing Cable Guiderail	
Proposed Cable Guiderail	
Equality Symbol	
Pavement Removal	

VEGETATION:

Single Tree	
Single Shrub	
Hedge	
Woods Line	
Orchard	
Vineyard	Vineyard

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

Existing Power Pole	
Proposed Power Pole	
Existing Joint Use Pole	
Proposed Joint Use Pole	
Power Manhole	P
Power Line Tower	
Power Transformer	
U/G Power Cable Hand Hole	
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	
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	
Recorded U/G TV Cable	TV
Designated U/G TV Cable (S.U.E.*)	TV
Recorded U/G Fiber Optic Cable	TV FO
Designated U/G Fiber Optic Cable (S.U.E.*)	TV FO

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

Florence & Hutcheson
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5121 Kingdom Way, Raleigh, NC 27607
NC License No: F-0258

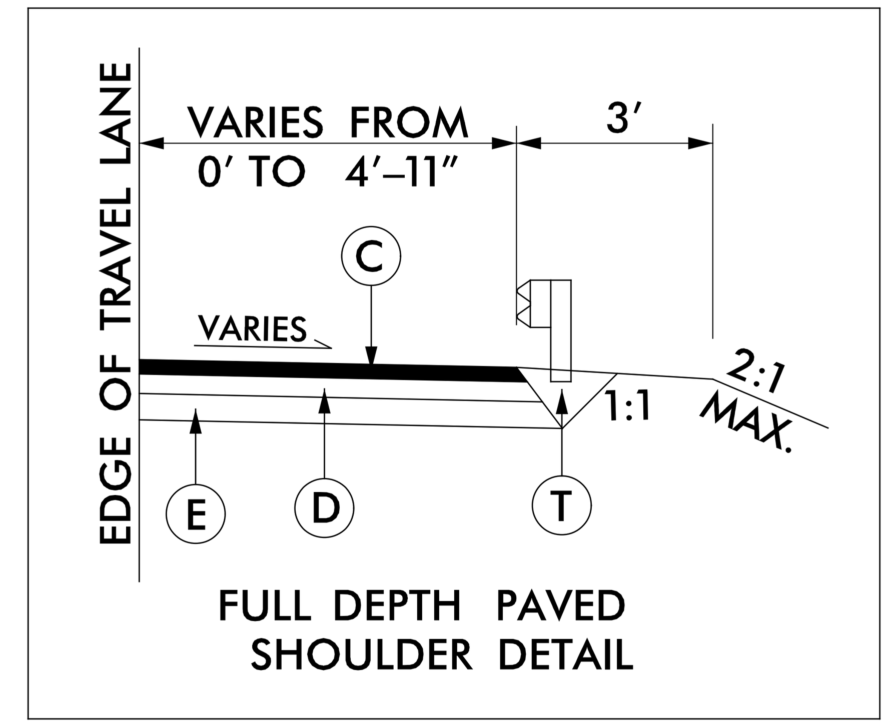
PROJECT REFERENCE NO.	SHEET NO.
BD-5105R /BD-5105U	2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22031 DENNIS JAMES MORY

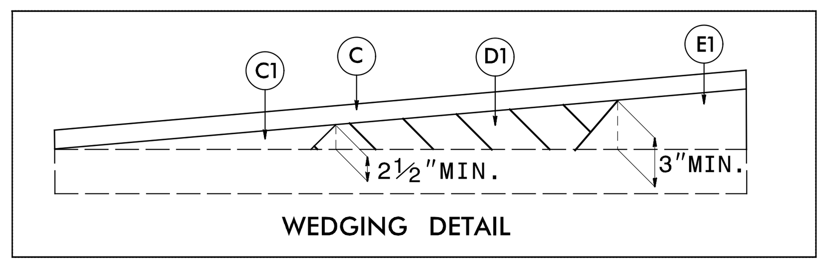
PAVEMENT SCHEDULE

C	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C1	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
D	PROP. APPROX. 3½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.
D1	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E1	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
T	EARTH MATERIAL
W	PAVEMENT WEDGING

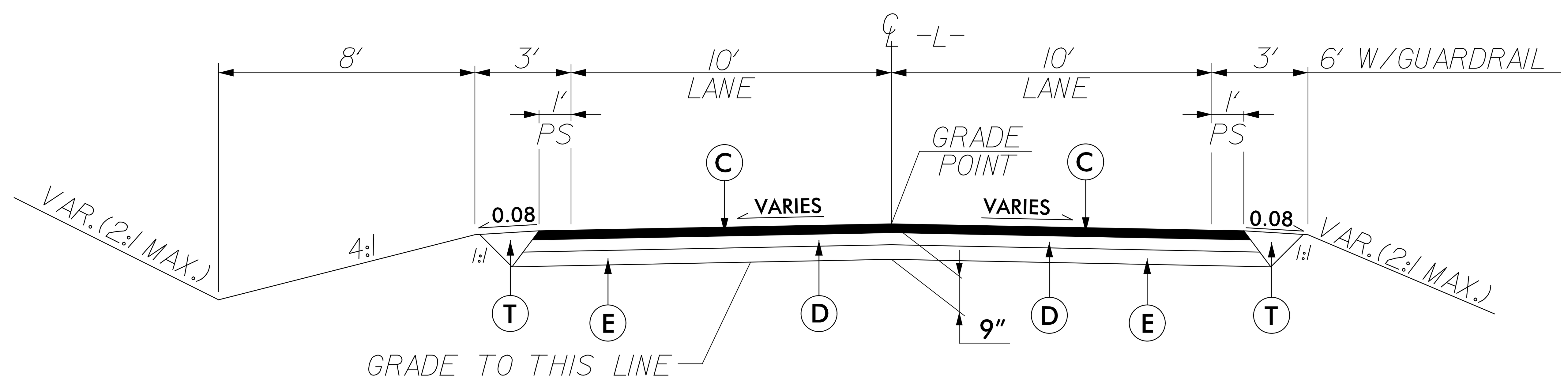
NOTE: FULL DEPTH PAVED SHOULDER REQUIRED AT GUARDRAIL LOCATIONS (SEE FULL DEPTH PAVED SHOULDER DETAIL)



FULL DEPTH PAVED SHOULDER DETAIL

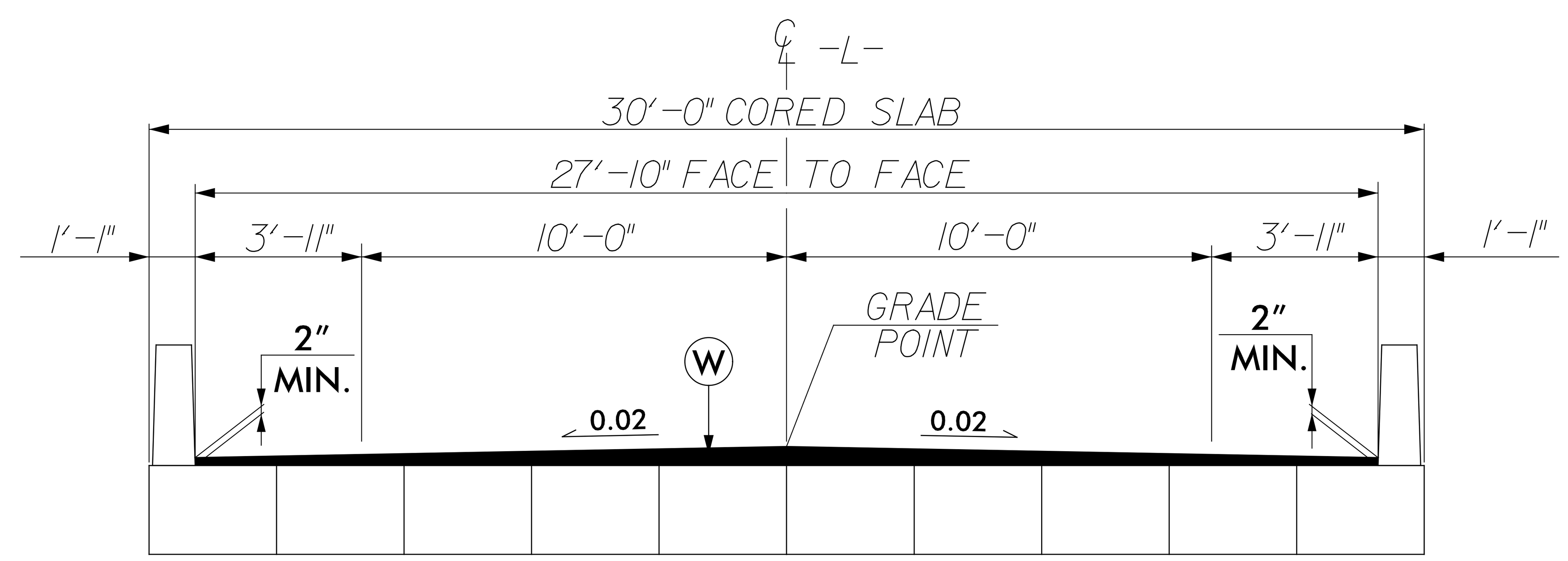


WEDGING DETAIL



TYPICAL SECTION No.1

-L- STA 10+00.00 TO -L- STA 12+86.81 (BRIDGE)
-L- STA 13+79.19 (BRIDGE) TO -L- STA 16+65.81 (BRIDGE)
-L- STA 17+68.19 (BRIDGE) TO -L- STA 19+50.00



TYPICAL SECTION OF STRUCTURE

-L- STA 13+33.00 (BD-5105U)
-L- STA 17+17.00 (BD-5105R)

PROJECT NO. BD-5105U
COUNTY: FRANKLIN
STATION: 13+33.00 -L- (90 SKEW)
REPLACES BRIDGE NO. 139

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE NO. 139 ON SR 1003
OVER LYNCH CREEK OVERFLOW

PROJECT NO. BD-5105R
COUNTY: FRANKLIN
STATION: 17+17.00 -L- (90 SKEW)
REPLACES BRIDGE NO. 44

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE NO. 44 ON SR 1003
OVER LYNCH CREEK

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
-L- 10+00.00	-L- 12+86.81	0	52	52	
	SUBTOTAL	0	52	52	
-L- 13+79.19	-L- 15+00.00	0	260	260	
	SUBTOTAL	0	260	260	
SUMMARY TOTALS		0	312	312	
WASTE TO BE USED IN LIEU OF BORROW					
SHOULDER CONSTRUCTION			25	25	
PROJECT TOTALS		0		337	
5% TO REPLACE TOPSOIL IN BORROW PIT				17	
GRAND TOTALS		0		354	
SAY		0		355	

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^3
-L-	10+00	13+00 (EX. BRIDGE)	CL	613
-L-	13+53 (EX. BRIDGE)	15+00	CL	289
			TOTAL:	902
			SAY:	905

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
-L-	12+58.00 RT	12+86.81	28.81
-L-	12+58.00 LT	12+86.81	28.81
		TOTAL:	57.62
		SAY:	60.00

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
12+63.00	LT	0401		221.5			
12+63.00	RT	0402		221.5			
		0401	0402		218.4	218.3	
12+63.00	RT	0402	0403		218.3	218.1	
					PROJECT	TOTAL	
						SAY	

STATION	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) NOTE: DO NOT USE CAAP, HDPE, or PVC 12"	15"	18"	24"	30"	36"	42"	48"	C.S. PIPE (UNLESS NOTED OTHERWISE) 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109
12+63.00																
12+63.00																
12+63.00		24														
PROJECT TOTAL		24														
SAY		24														

STATION	CLASS IV 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.	C.S.P.
12+63.00													
12+63.00													
		24											
12+63.00													
PROJECT TOTAL		24											
SAY		24											

STATION	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G		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. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.D.I. STD. 840.46	G.D.I. FRAME WITH TWO GRATES STD. 840.20						CORR. STEEL ELBOWS NO. & SIZE 15"	CONC. COLLARS CL. "B" C.Y. STD. 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
12+63.00	1																		1	1										
12+63.00	1																		1	1										
12+63.00																														
PROJECT TOTAL	2																		2	2										
SAY	2																		2	2										

ABBREVIATIONS

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

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

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	SHOP CURVED	DOUBLE FACED	WARRANT POINT APPROACH END	TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	TRAILING END	W APPROACH END	TRAILING END	ANCHORS TYPE III	XI	GRAU 350	M-350	XIII	CAT-1	VI MOD	BIC	AT-1	IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-L-	11+99.31	12+86.81	RT	87.5			12+86.81		3.92	6.92	50		1		1		1													
-L-	11+88.81	12+86.81	LT	100				12+86.81	3.92	6.92		50		1	1		1													
-L-	13+79.19	15+00.00	RT	120.81				13+79.19	3.92	6.92					1															
-L-	13+79.19	15+00.00	LT	120.81			13+79.19		3.92	6.92					1															
			SUBTOTAL	429.12											4		2		ANCHOR DEDUCTIONS											
			LESS ANCHORS	(-) 175															TYPE III = 4 @ 18.75 = 75.00											
			TOTAL	254.12															GRAU 350 = 2 @ 50.00 = 100.00											
			SAY	262.5			ADDITIONAL GUARDRAIL POSTS = 5 EA												TOTAL = 175.00											

12/06/07

COMPUTED BY:	DATE:
CHECKED BY:	DATE:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
BD-5105R	3-A

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
-L- 15+00.00	-L- 16+65.81	0	537	537	
	SUBTOTAL	0	537	537	
-L- 17+68.19	-L- 19+50	0	33	33	
	SUBTOTAL	0	33	33	
SUMMARY TOTALS		0	570	570	
WASTE TO BE USED IN LIEU OF BORROW					
SHOULDER CONSTRUCTION			25	25	
PROJECT TOTALS		0		595	
5% TO REPLACE TOPSOIL IN BORROW PIT				30	
GRAND TOTALS		0		625	
SAY		0		625	

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
-L-	15+00	16+75 (EX. BRIDGE)	CL	350
-L-	17+45 (EX. BRIDGE)	19+50	CL	410
			TOTAL:	760
			SAY:	760

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
-L-	17+68.00 RT	17+97 RT	29.0
-L-	17+68.00 LT	17+97 RT	29.0
		TOTAL:	58.0
		SAY:	60.0

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) NOTE: DO NOT USE CAAP, HDPE, or PVC 12"	15"	18"	24"	30"	36"	42"	48"	C.S. PIPE (UNLESS NOTED OTHERWISE) 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	CLASS IV R.C. PIPE (UNLESS OTHERWISE NOTED) 12"	15"	18"	24"	30"	36"	42"	48"
17+92.00	LT	0501		221.9																											
17+92.00	RT	0502		221.9																											
		0501	0502		217.0	216.9																			24						
17+92.00	RT	0502	0503		216.9	214.0			16																						
					PROJECT	TOTAL			16																24						
						SAY			16																24						

STATION	LOCATION	FROM	TO	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.	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'	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. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.D.I. STD. 840.46	G.D.I. FRAME WITH TWO GRATES STD. 840.20						CORR. STEEL ELBOWS NO. & SIZE 15"	CONC. COLLARS CL. "B" C.Y. STD. 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
17+92.00	LT	0501							1																			1	1									
17+92.00	RT	0502							1																			1	1									
		0501	0502																																			
17+92.00	RT	0502	0503																																			
PROJECT TOTAL									2																			2	2									
SAY									2																			2	2									

ABBREVIATIONS

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

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

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPROACH END	WARRANT POINT TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W APPROACH END	W TRAILING END	ANCHORS TYPE III	XI	GRAU 350	M-350	XIII	CAT-1	VI MOD	BIC	AT-1	IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-L-	15+00.00	16+65.81	RT	165.81			16+65.81		3.92	6.92					1															
-L-	15+00.00	16+65.81	LT	165.81				16+65.81	3.92	6.92					1															
-L-	17+68.19	18+55.69	RT	87.5				17+68.19	3.92	6.92		50		1	1		1													
-L-	17+68.19	18+55.69	LT	87.5			17+68.19		3.92	6.92	50		1		1		1													
			SUBTOTAL	506.62											4		2		ANCHOR DEDUCTIONS											
			LESS ANCHORS	(-) 175															TYPE III = 4 @ 18.75 = 75.00											
			TOTAL	331.62															GRAU 350 = 2 @ 50.00 = 100.00											
			SAY	337.5			ADDITIONAL GUARDRAIL POSTS = 5 EA														TOTAL = 175.00									

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY OTHERS FOR MONUMENT "BL-4"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 879186.6470(ft) EASTING: 2190866.7670(ft)
ELEVATION: 221.54(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99999370
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-4" TO -L- STATION IS

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

-L- COORDINATE LIST		
STATION	NORTH	EAST
10+00	N 878982.78	E 2189879.04
11+00	N 879000.23	E 2189977.51
12+00	N 879018.80	E 2190075.77
13+00	N 879038.11	E 2190173.89
14+00	N 879057.43	E 2190272.00
15+00	N 879076.75	E 2190370.12

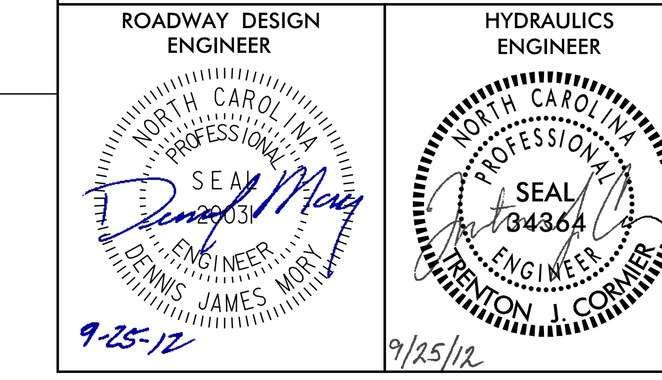
BM#1-U
-L- STA 11+84.54 34.68' RT
ELEV = 216.45

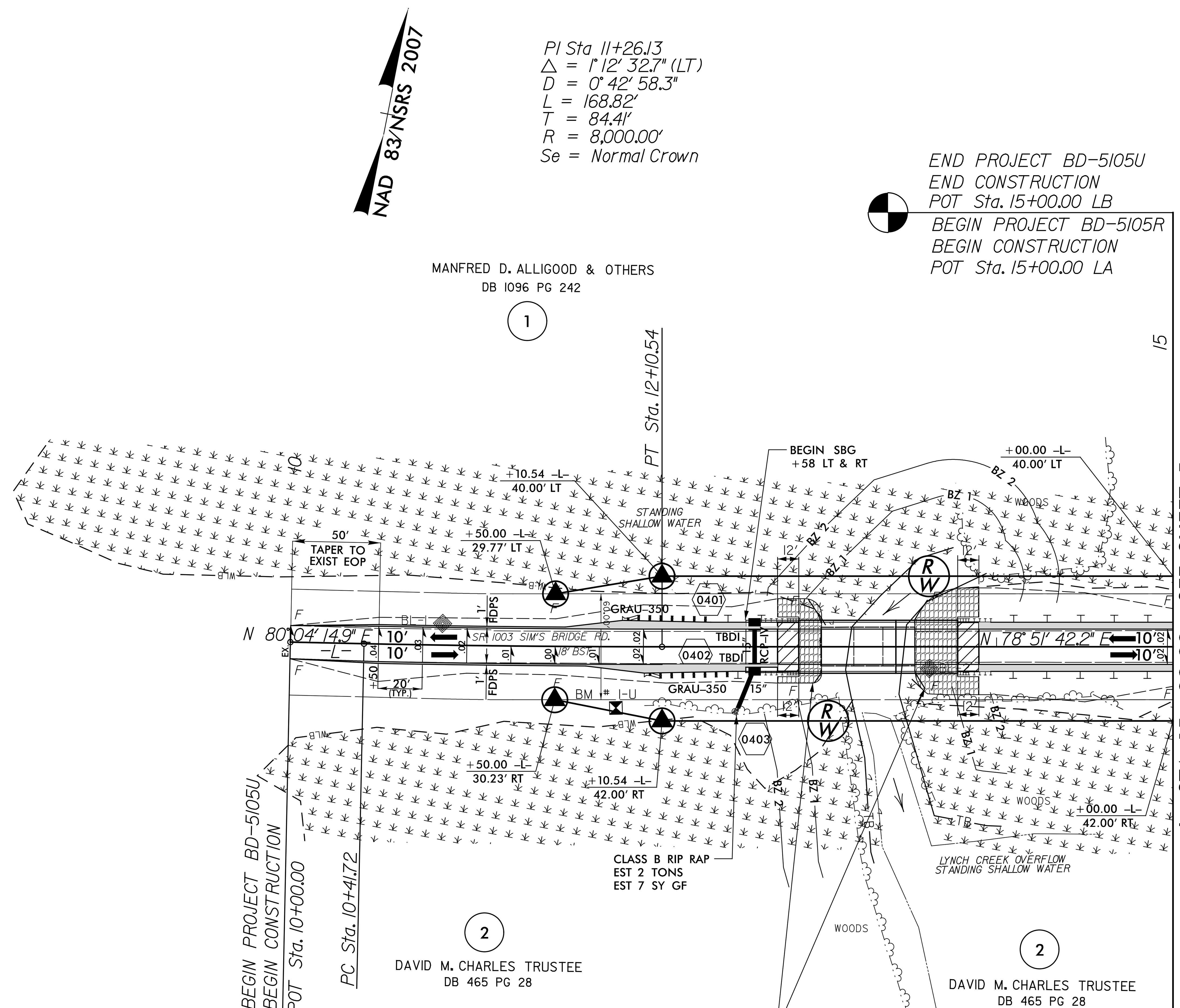
BL NO.	NORTH	EAST	ELEVATION	-L- STATION	OFFSET
BL-1	N 879009.7980	E 2189961.5840	220.86'	10+86.03	12.26' LT.
BL-2	N 879037.9770	E 2190237.1700	219.03'	13+62.07	12.36' RT.
BL-3	N 879095.8010	E 2190525.0020	221.01'	16+55.65	11.23' RT.
BL-4	N 879186.6470	E 2190866.7670	221.90'	20+08.32	14.68' LT.

BM#1-R
-L- STA 16+89.65 135.43' RT
ELEV = 216.52

Florence & Hutcheson
An ICA Company
5121 Kingdom Way, Raleigh, NC 27607
NC License No: F-0258

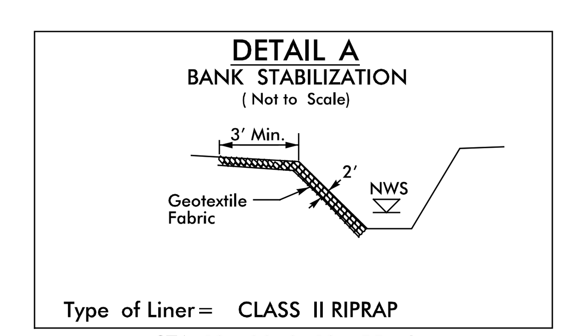
PROJECT REFERENCE NO.	SHEET NO.
BD-5105U	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER





REMOVE END BENT, PLACE BANK STABILIZATION w/ CLASS II RIP RAP AND EXTEND RIP RAP TO AREA SHOWN ON BOTH STREAM BANKS, SEE DETAIL A. USE IMPERVIOUS DIKE NCDOT STANDARD BMP ALONG STREAM BANKS TO DEWATER AND ISOLATE ADJACENT WORK AREA TO REMOVE EXIST END BENTS IN THE DRY
EST 245 TONS
EST 275 SY GF

NOTE: TOP DOWN CONSTRUCTION - NO CAUSEWAYS PERMITTED

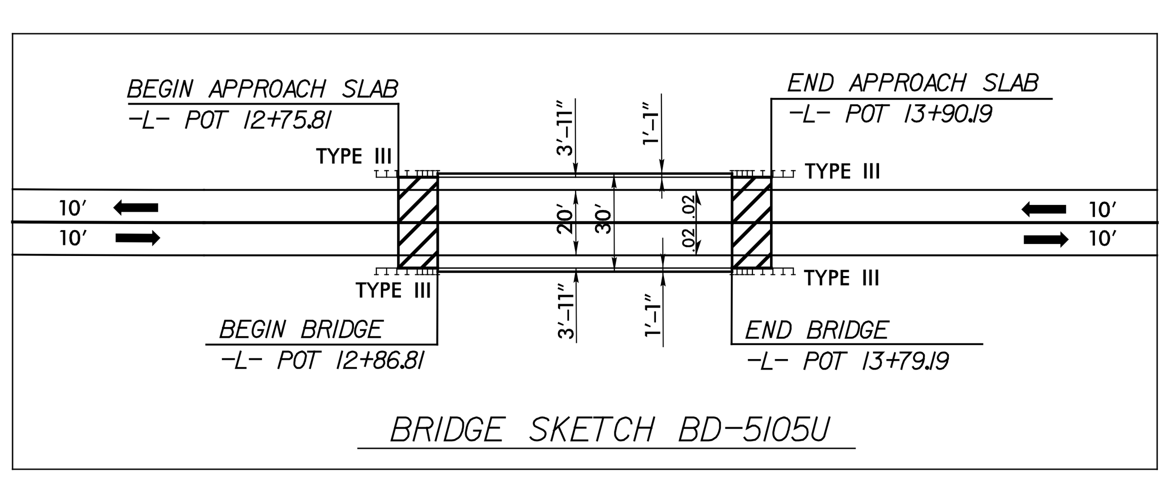


STA. 13+00 & 13+55 -L-

PROJECT NO. BD-5105U
COUNTY: FRANKLIN
STATION: 13+33.00 -L- (90 SKEW)
REPLACES BRIDGE NO. 139

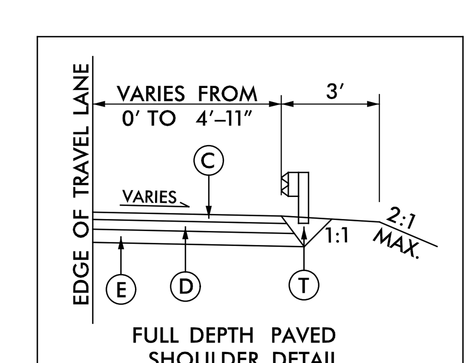
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE NO. 139 ON SR 1003
OVER LYNCH CREEK OVERFLOW



PARCEL INDEX

PARCEL NO.	PROPERTY OWNER NAME
1	MANFRED D. ALLIGOOD & OTHERS
2	DAVID M. CHARLES TRUSTEE



FULL DEPTH PAVED SHOULDER DETAIL

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

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY OTHERS FOR MONUMENT "BL-4"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 879186.6470(ft) EASTING: 2190866.7670(ft)
ELEVATION: 221.54(ft)
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THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-4" TO -L- STATION IS

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

-L- COORDINATE LIST		
STATION	NORTH	EAST
15+00	N 879076.75	E 2190370.12
16+00	N 879096.07	E 2190468.23
17+00	N 879115.38	E 2190566.35
18+00	N 879134.53	E 2190664.50
19+00	N 879152.90	E 2190762.80

BM#1-U
-L- STA 11+84.54 34.68' RT
ELEV = 216.45

BL NO.	NORTH	EAST	ELEVATION	-L- STATION	OFFSET
BL-1	N 879009.7980	E 2189961.5840	220.86'	10+86.03	12.26' LT.
BL-2	N 879037.9770	E 2190237.1700	219.03'	13+62.07	12.36' RT.
BL-3	N 879095.8010	E 2190525.0020	221.01'	16+55.65	11.23' RT.
BL-4	N 879186.6470	E 2190866.7670	221.90'	20+08.32	14.68' LT.

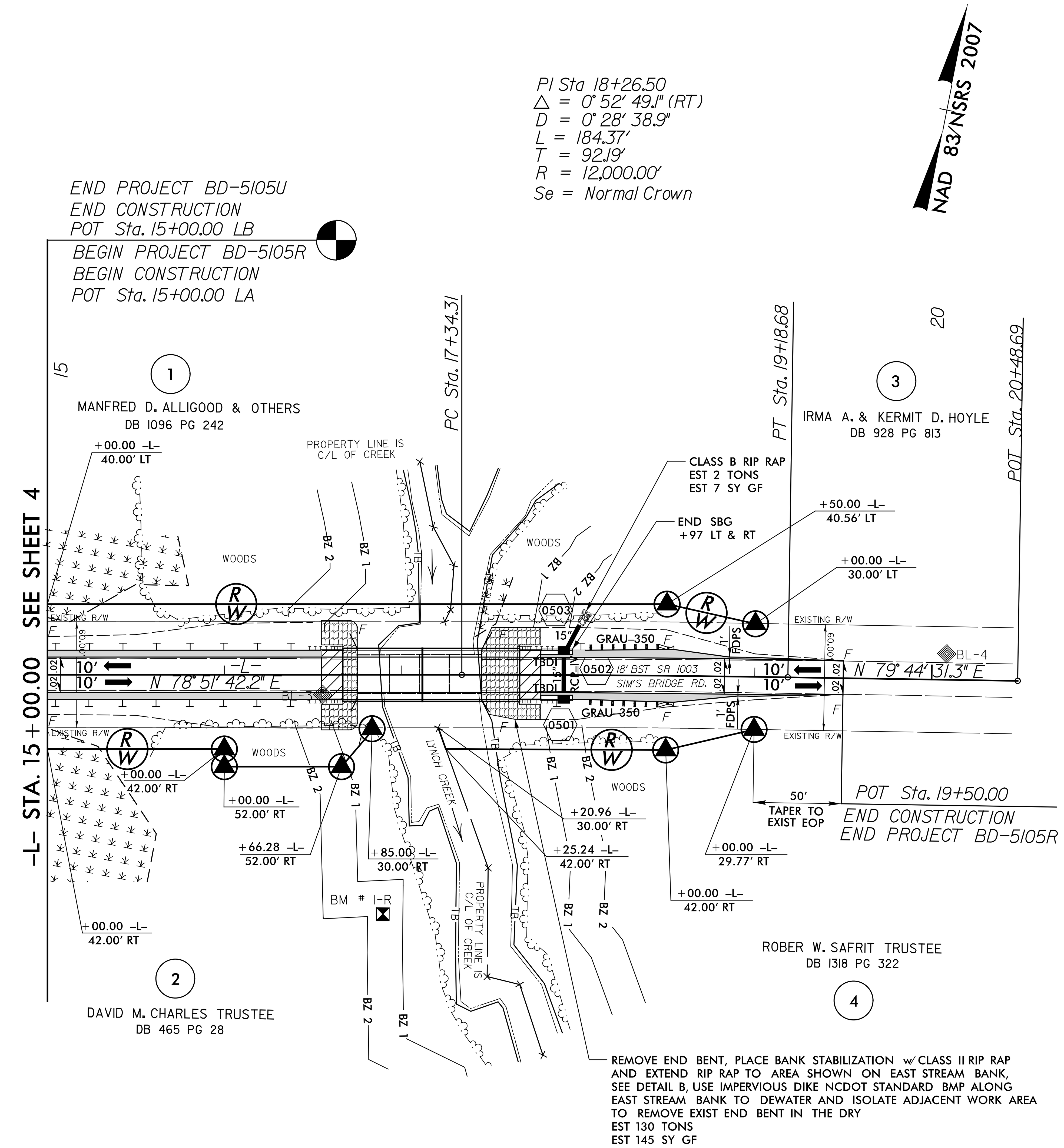
BM#1-R
-L- STA 16+89.65 135.43' RT
ELEV = 216.52

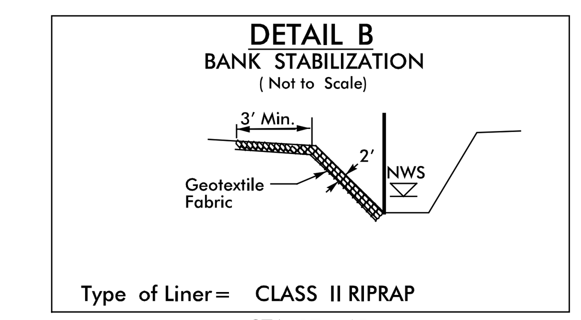
Florence & Hutcheson
An ICA Company
5121 Kingdom Way, Raleigh, NC 27607
NC License No: F-0258

PROJECT REFERENCE NO.	SHEET NO.
BD-5105R	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 036103 ENGINEER DENNIS JAMES MORY
9-25-12

NORTH CAROLINA PROFESSIONAL SEAL 34364 ENGINEER TRENTON J. CORMIER
9/25/12



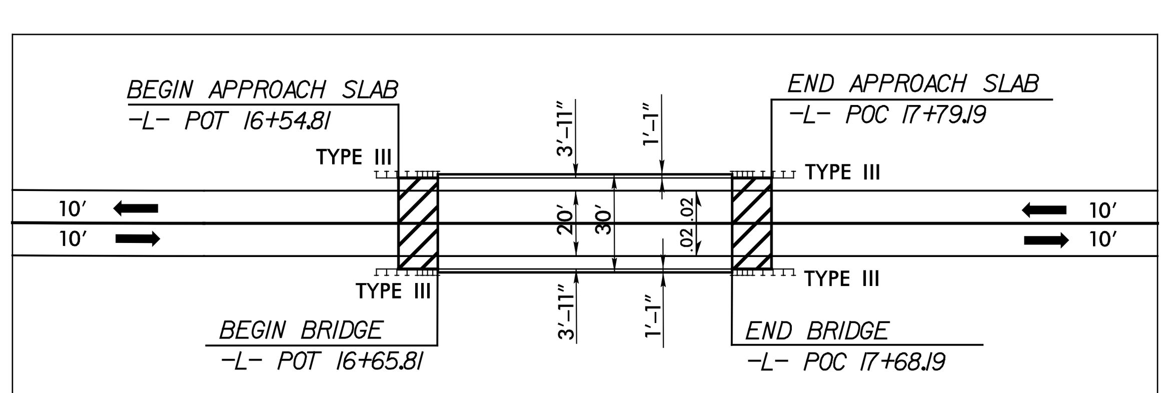


NOTE: TOP DOWN CONSTRUCTION - NO CAUSEWAYS PERMITTED

PROJECT NO.	BD-5105R
COUNTY:	FRANKLIN
STATION:	17+17.00 -L- (90 SKEW)
REPLACES BRIDGE NO. 44	

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

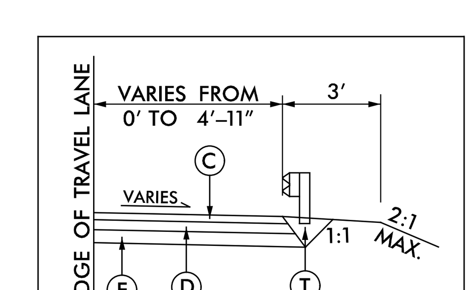
BRIDGE NO. 44 ON SR 1003
OVER LYNCH CREEK



BRIDGE SKETCH BD-5105R

PARCEL INDEX

PARCEL NO.	PROPERTY OWNER NAME
1	MANFRED D. ALLIGOOD & OTHERS
2	DAVID M. CHARLES TRUSTEE
3	IRMA A. & KERMIT D. HOYLE
4	ROBER W. SAFRIT TRUSTEE



FULL DEPTH PAVED SHOULDER DETAIL

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	5
1			3			TOTAL SHEETS
2			4			

Florence & Hutcheson
An ICA Company
5121 Kingdom Way, Raleigh, NC 27607
NC License No: F-0258

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033 DENNIS JAMES MORY
9-25-12

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 34364 TRENTON J. CORMIER
9/25/12

END PROJECT BD-5105U
END CONSTRUCTION
POT Sta. 15+00.00 LB
BEGIN PROJECT BD-5105R
BEGIN CONSTRUCTION
POT Sta. 15+00.00 LA

BRIDGE HYDRAULIC DATA

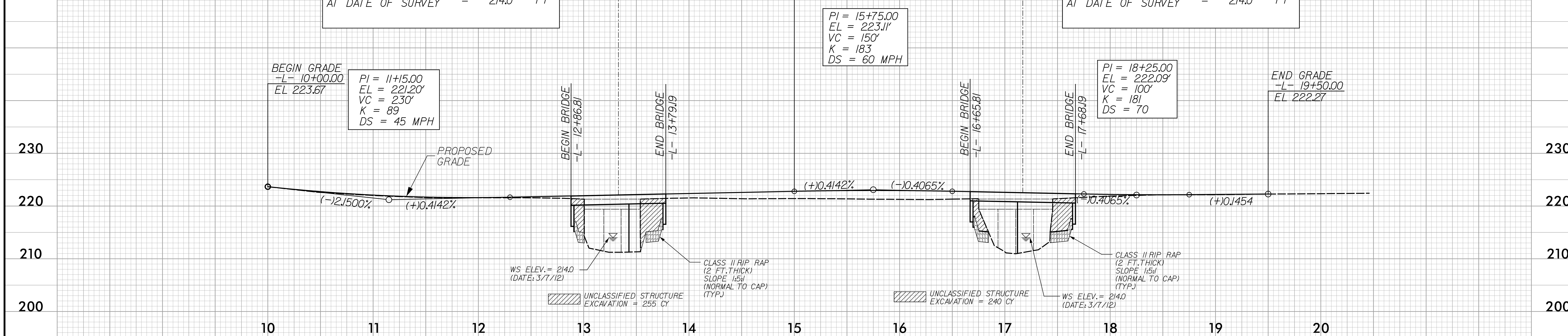
DESIGN DISCHARGE	=	3600	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	219.3	FT
BASE DISCHARGE	=	5293	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	220.4	FT
OVERTOPPING DISCHARGE	=	8100	CFS
OVERTOPPING FREQUENCY	=	500	YRS
OVERTOPPING ELEVATION	=	221.6	FT
DATE OF SURVEY	=	3/7/12	
W.S. ELEVATION AT DATE OF SURVEY	=	214.0	FT

BRIDGE ID STA.13+33
2 - SPANS 21" PCCS,
1 @ 55' 1 @ 35'
OAL = 90', SKEW 90°
GP ELEV.= 222.10
CLR RDWY = 27'-10"

BRIDGE ID STA.17+17 -L-
2 - SPANS 21" PCCS,
1 @ 45', 1 @ 55'
OAL = 100', SKEW 90°
GP ELEV.= 222.53
CLR RDWY = 27'-10"

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	3600	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	219.3	FT
BASE DISCHARGE	=	5293	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	220.4	FT
OVERTOPPING DISCHARGE	=	8100	CFS
OVERTOPPING FREQUENCY	=	500	YRS
OVERTOPPING ELEVATION	=	221.6	FT
DATE OF SURVEY	=	3/7/12	
W.S. ELEVATION AT DATE OF SURVEY	=	214.0	FT



PROJECT NO. BD-5105U
COUNTY: FRANKLIN
STATION: 13+33.00 -L- (90 SKEW)
REPLACES BRIDGE NO. 139

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE NO. 139 ON SR 1003
OVER LYNCH CREEK OVERFLOW

PROJECT NO. BD-5105R
COUNTY: FRANKLIN
STATION: 17+17.00 -L- (90 SKEW)
REPLACES BRIDGE NO. 44

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE NO. 44 ON SR 1003
OVER LYNCH CREEK

Florence & Hutcheson
An ICA Company
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

PROJ. REFERENCE NO.	SHEET NO.
BD-5105R/BD-5015U	TCP-1

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) 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

B) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

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

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

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

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

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

TRAFFIC CONTROL DEVICES

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

PAVEMENT MARKING AND MARKERS

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

ROAD NAME	MARKING
SR 1003 (SIM'S BRIDGE ROAD)	PAINT

H) INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE ACCORDING TO THE ROADWAY STANDARDS.

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

MISCELLANEOUS

J) MAINTAIN ACCESS TO ALL RESIDENCES AND BUSINESSES BETWEEN THE CLOSURE POINTS AT ALL TIMES DURING CONSTRUCTION.

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 JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1110.02	PORTABLE WORK ZONE SIGNS
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

PHASING

STEP 1

USING ROADWAY STANDARD DRAWING NUMBER 1101.04, SHEET 1 OF 1, INSTALL ALL DETOUR SIGNING KEEPING SIGNS COVERED.

STEP 2

PRIOR TO CLOSING SR 1003 (SIM'S BRIDGE ROAD), UNCOVER ALL DETOUR SIGNING AND OPEN DETOUR TO TRAFFIC.

USING ROADWAY STANDARD DRAWING NUMBER 1101.03, SHEET 1 OF 9, CLOSE SR 1003 (SIM'S BRIDGE ROAD).

STEP 3

DISMANTLE AND REMOVE EXISTING BRIDGES.

STEP 4

COMPLETE CONSTRUCTION OF PROPOSED STRUCTURES, APPROACH ROADWAY TIE-INS, AND ASSOCIATED ITEMS.

STEP 5

PLACE FINAL PAVEMENT MARKINGS ON SR 1003 (SIM'S BRIDGE ROAD) AND OPEN TO TRAFFIC.

STEP 6

USING ROADWAY STANDARD DRAWING NUMBER 1101.04, SHEET 1 OF 1, REMOVE ALL DETOUR SIGNING AND ALL TRAFFIC CONTROL DEVICES.

FINAL PAVEMENT MARKING SCHEDULE

DESCRIPTION	PAY ITEM
WHITE EDGELINE (2X)	PAINT (4")
DOUBLE YELLOW CENTER LINE (2X)	PAINT (4")

APPROVED: Michael T. Repka DATE: 9-17-12

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. REPKA

GENERAL NOTES, PHASING, ROADWAY STANDARD DRAWINGS FINAL PAVEMENT MARKING SCHEDULE

SCALE:	NONE
DATE:	SEPT. '12
DWG. BY:	GEP
DESIGN BY:	MTR
REVIEWED BY:	MTR

REVISIONS

CADD FILE

9/17/2012
P:\LIBRprojects\Div05\BD-5105RU\Traffic\TrafficControl\TCP\bd5105r_tcp_tcp1.dgn

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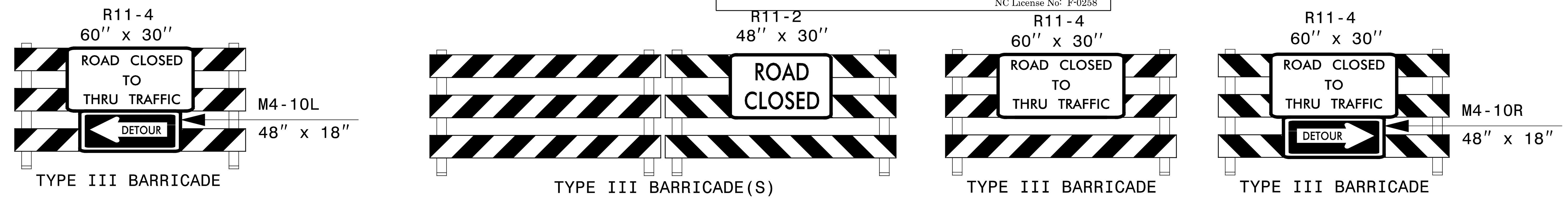
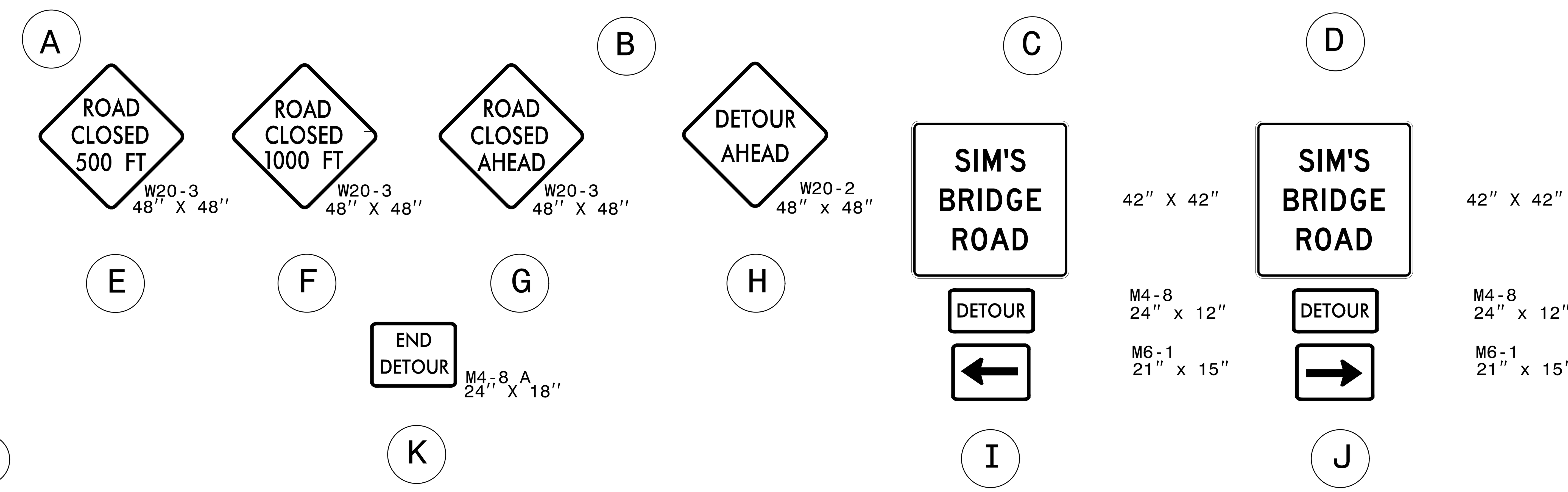
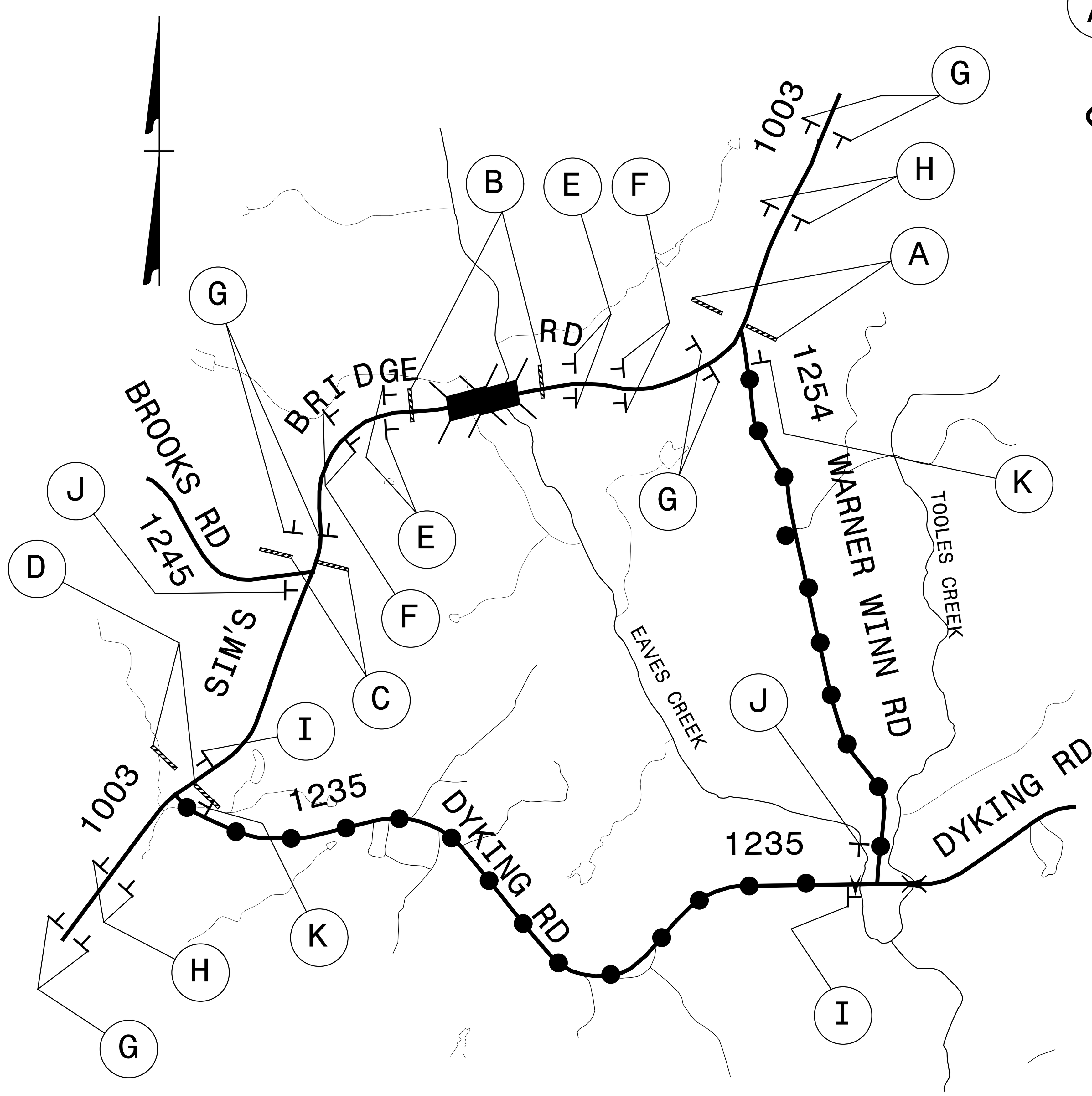
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

PROJ. REFERENCE NO.	SHEET NO.
BD-5105R/BD-5015U	TCP-2







SIGN NUMBER: name
TYPE: STATIONARY
QUANTITY: SEE PLANS
BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

SYMBOL	X	Y	WID	HT

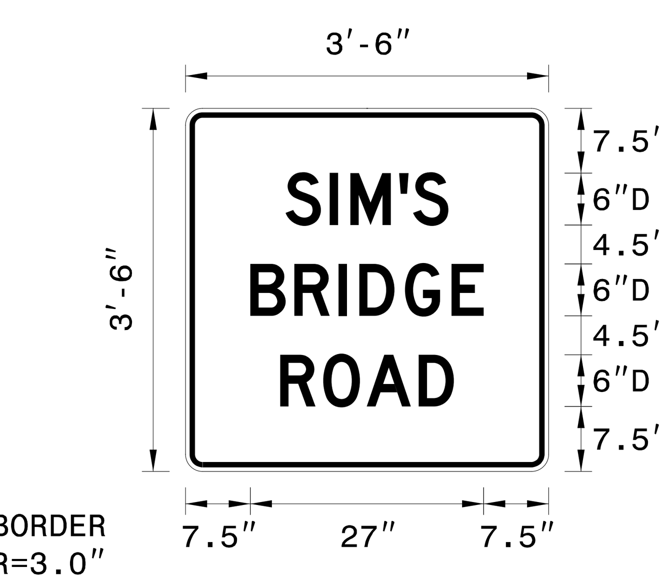
SIGN WIDTH: 3'-6"
HEIGHT: 3'-6"
TOTAL AREA: 12.3 Sq.Ft.

BORDER TYPE: RECESS
RECESS: 0.75"
WIDTH: 1.25"
RADII: 3.0"

NO. Z BARS:
LENGTH:

MAT'L: 0.080" (2.0 mm) ALUMINUM

DESIGN BY: GEP
PROJECT ID: BD-5105R
CHECKED BY: F & H
DIV: 5
DATE: Feb 06, 2012



BORDER
R=3.0"
TH=1.25"
IN=0.75"

Panel Style: construction_guide.ssi
M.U.T.C.D.: 2009 Edition
Spacing Factor is 1 unless specified otherwise

USE NOTES: 1 & 2

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be Type VII, VIII, or IX (prismatic) fluorescent orange retroreflectivesheeting.

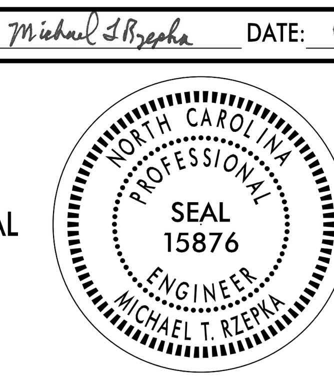
LETTER POSITIONS

Letter locations are panel edge to lower left corner

						Series/Size Text Length
S	I	M	'	S		D 2000
11.6	16.7	19.1	24.7	26.3		18.8
B	R	I	D	G	E	D 2000
7.5	12.6	17.7	20.1	25.4	30.8	27
R	O	A	D			D 2000
11	15.9	21	27			20.1

APPROVED: Michael T Rzepka DATE: 9-17-12

SEAL



DETOUR FOR SIM'S BRIDGE ROAD CLOSURE

SCALE:	NONE
DATE:	SEPT. '12
DWG. BY:	GEP
DESIGN BY:	MTR
REVIEWED BY:	MTR

REVISIONS

9/17/2012
P:\LIBRprojects\Div05\BD-5105RU\Traffic\TrafficControl\TCP\bd5105r_tcp_detour.dgn

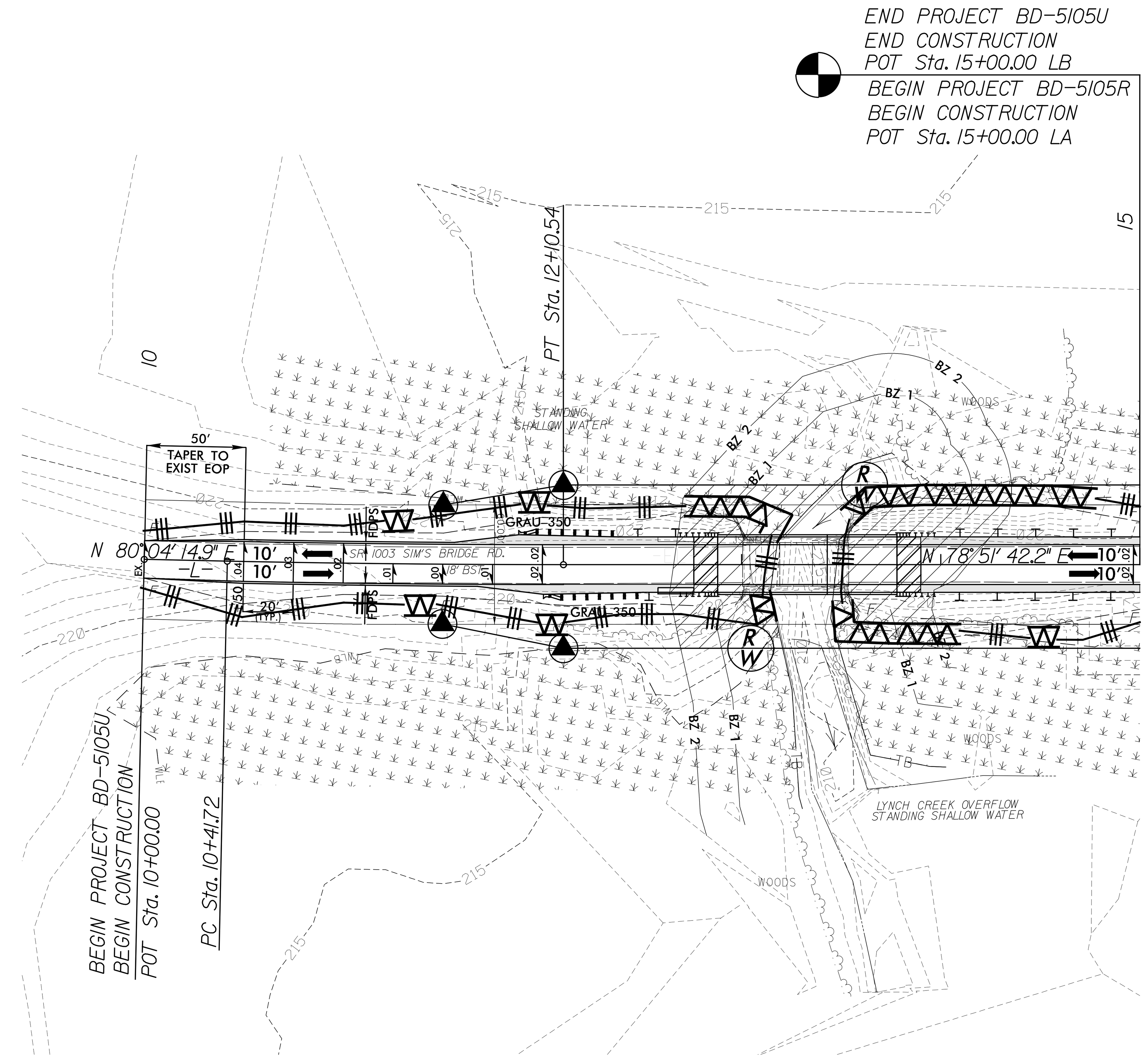
PROJECT REFERENCE NO.	SHEET NO.
BD-5105U	EC-1/CONST.4
R/W SHEET NO.	
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER	

GRAPHIC SCALE

50 0 50 100

LEVEL III CERTIFIED BY:
ALEXANDER SNIDER, E.I.
CERTIFICATION NUMBER: 3064
ISSUED: OCTOBER 5, 2012

NC GRID
NAD 83/NSRS 2007



CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1633.02	Wattle / Coir Fiber Wattle	
	Coir Fiber Wattle	-CFW-

COIR FIBER WATTLE SHALL BE USED IN LIEU OF SPECIAL SEDIMENT CONTROL FENCE AS DIRECTED BY ENGINEER

ALEXANDER SNIDER, E.I.
ROADSIDE ENVIRONMENTAL ENGINEER

3064
LEVEL III CERTIFICATION NUMBER

TRENTON J. CORMIER, P.E.
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

118
LEVEL III CERTIFICATION NUMBER

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

NOTE:
ALL EROSION CONTROL DEVICES SHOWN ARE LOCATED WITHIN EXISTING R/W OR EASEMENT.

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

Prepared in the Office of:

FLORENCE & HUTCHESON
5121 KINGDOM WAY, SUITE 100
RALEIGH NC 27607
NC License No: F-0258

2012 STANDARD SPECIFICATIONS

Roadway Standard Drawings

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

1604.01 Railroad Erosion Control Detail
1605.01 Temporary Silt Fence
1606.01 Special Sediment Control Fence
1607.01 Gravel Construction Entrance
1622.01 Temporary Berms and Slope Drains
1630.01 Riser Basin
1630.02 Silt Basin Type B
1630.03 Temporary Silt Ditch
1630.04 Stilling Basin
1630.05 Temporary Diversion
1630.06 Special Stilling Basin
1631.01 Matting Installation
1632.01 Rock Inlet Sediment Trap Type A
1632.02 Rock Inlet Sediment Trap Type B
1632.03 Rock Inlet Sediment Trap Type C
1633.01 Temporary Rock Silt Check Type A
1633.02 Temporary Rock Silt Check Type B
1634.01 Temporary Rock Sediment Dam Type A
1634.02 Temporary Rock Sediment Dam Type B
1635.01 Rock Pipe Inlet Sediment Trap Type A
1635.02 Rock Pipe Inlet Sediment Trap Type B
1640.01 Coir Fiber Baffle
1645.01 Temporary Stream Crossing

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

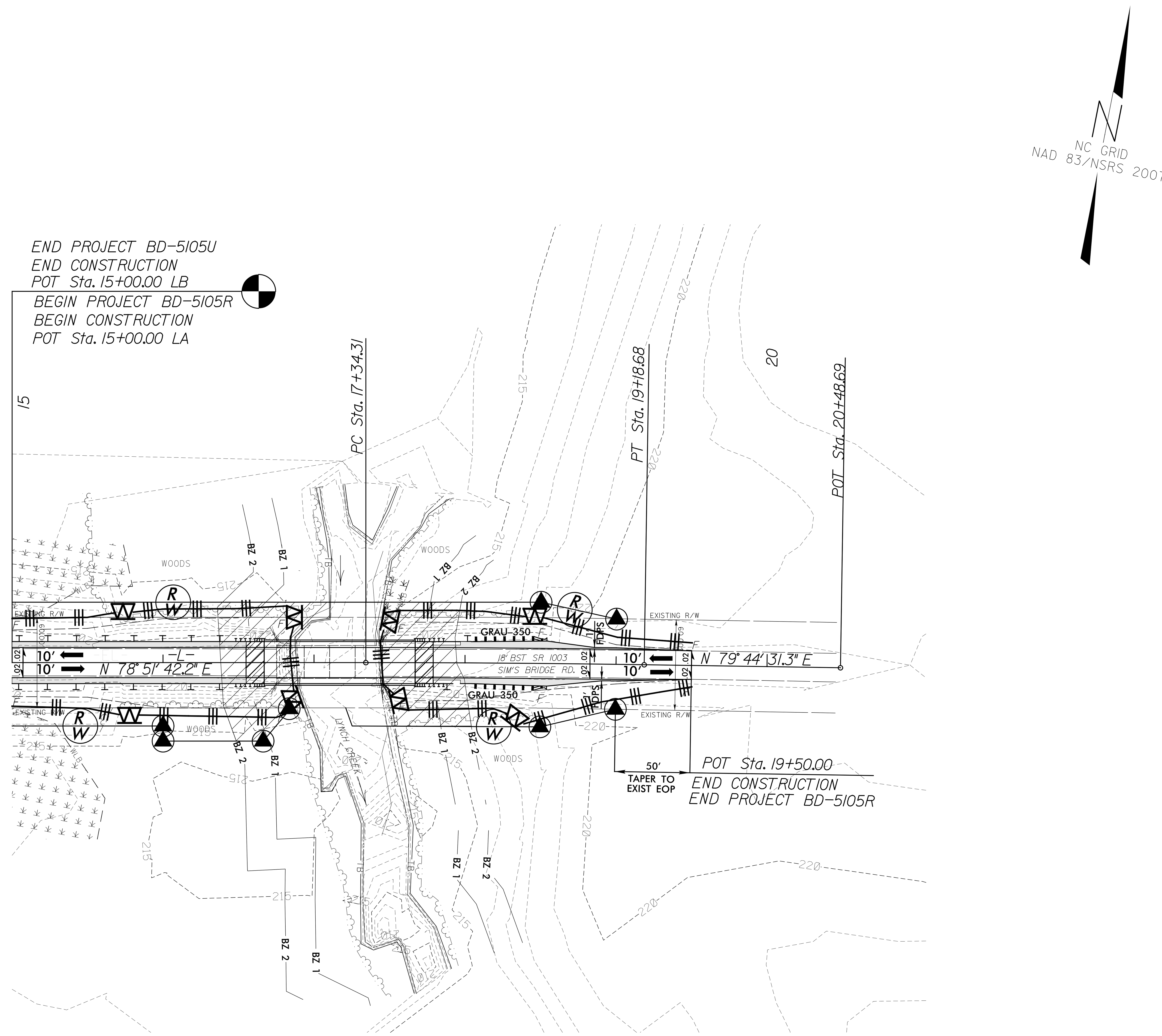
10/5/2012
R:\Hydraulics\Erosion Control\cadd\bd5105RU_hyd_erosion_c&g4.dgn

PROJECT REFERENCE NO.	SHEET NO.
BD-5105R	EC-2/CONST.4
R/W SHEET NO.	
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER	

GRAPHIC SCALE

50 0 50 100

LEVEL III CERTIFIED BY:
ALEXANDER SNIDER, E.I.
CERTIFICATION NUMBER: 3064
ISSUED: OCTOBER 5, 2012



CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 5

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1633.02	Wattle / Coir Fiber Wattle	
	Coir Fiber Wattle	-CFW-

COIR FIBER WATTLE SHALL BE USED IN LIEU OF SPECIAL SEDIMENT CONTROL FENCE AS DIRECTED BY ENGINEER

ALEXANDER SNIDER, E.I.
ROADSIDE ENVIRONMENTAL ENGINEER

3064
LEVEL III CERTIFICATION NUMBER

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SEE PROJECT SPECIAL PROVISIONS

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2012 STANDARD SPECIFICATIONS

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1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

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NC License No: F-0258

10/5/2012
R:\Hydraulics\Erosion Control\cadd\bd5105RU_hyd_erosion_c&g5.dgn
... & Associates P.C.

PROJECT REFERENCE NO.	SHEET NO.
BD-5105U	EC-3/CONST.4
R/W SHEET NO.	

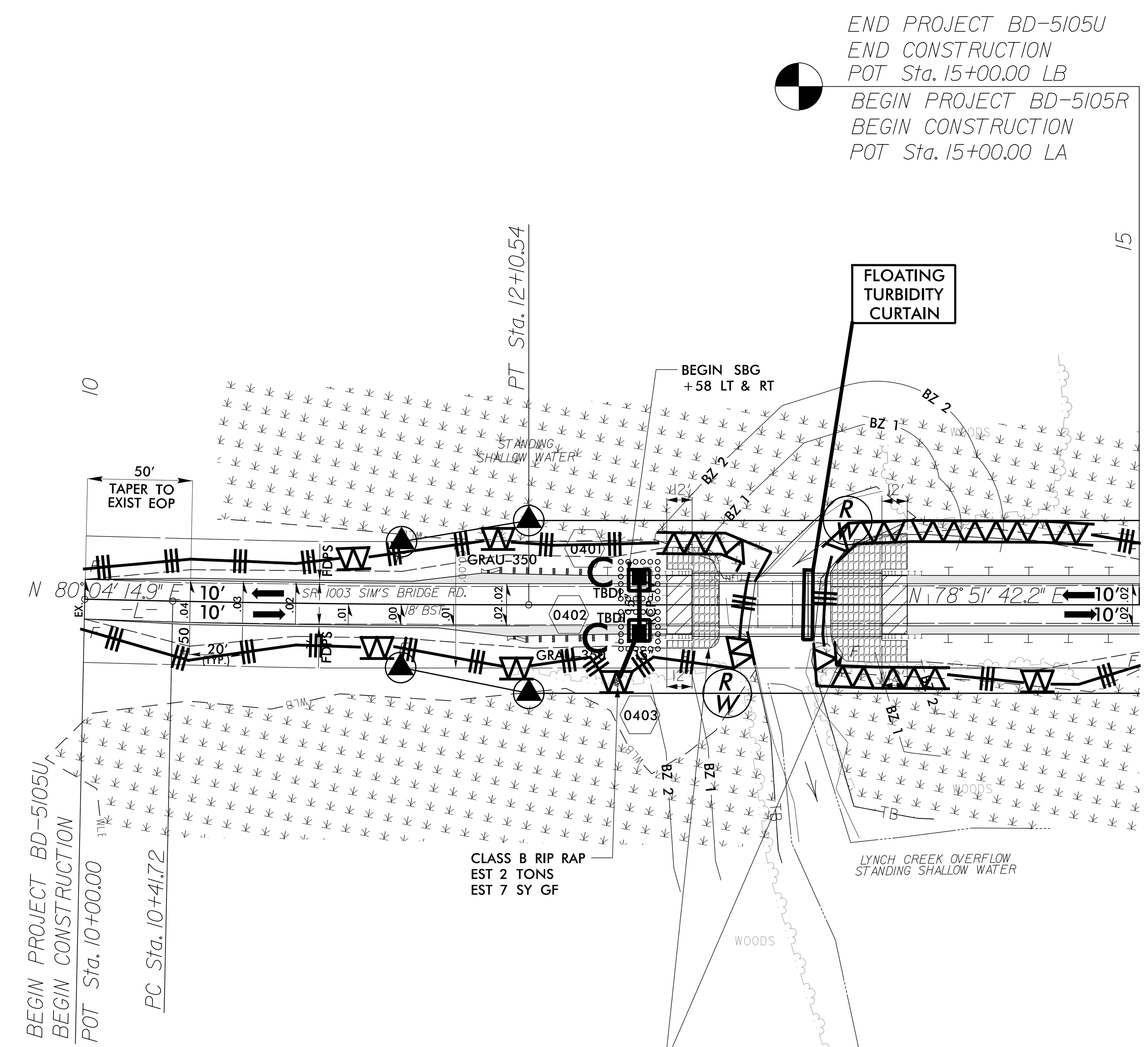
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

GRAPHIC SCALE

50 0 50 100

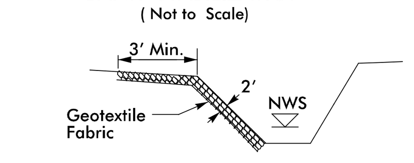
LEVEL III CERTIFIED BY:
ALEXANDER SNIDER, E.I.
CERTIFICATION NUMBER: 3064
ISSUED: OCTOBER 5, 2012

NOTE: TOP DOWN CONSTRUCTION – NO CAUSEWAYS PERMITTED



REMOVE END BENT, PLACE BANK STABILIZATION w/ CLASS II RIP RAP AND EXTEND RIP RAP TO AREA SHOWN ON BOTH STREAM BANKS, SEE DETAIL A, USE IMPERVIOUS DIKE NCDOT STANDARD BMP ALONG STREAM BANKS TO DEWATER AND ISOLATE ADJACENT WORK AREA TO REMOVE EXIST END BENTS IN THE DRY
EST 245 TONS
EST 275 SY GF

DETAIL A
BANK STABILIZATION
(Not to Scale)



Type of Liner = CLASS II RIPRAP

STA. 13+00 & 13+55 -L-

Place Matting for Erosion Control on 2:1 Slope

Contractor will install impervious dike to dewater streambanks to allow for removal of existing end bents in the dry
Use "NCDOT Best Management Practices for Construction and Maintenance Activities" manual for isolation and dewatering operations

NOTE: IMPERVIOUS DIKE SHALL BE CONSIDERED INCIDENTAL TO THE REMOVAL OF THE EXISTING STRUCTURE.

FINAL EROSION CONTROL FOR CONSTRUCTION SHEET 4

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1632.03	Rock Inlet Sediment Trap: Type C	C
1633.02	Wattle / Coir Fiber Wattle	
	Coir Fiber Wattle	-CFW-

COIR FIBER WATTLE SHALL BE USED IN LIEU OF SPECIAL SEDIMENT CONTROL FENCE AS DIRECTED BY ENGINEER

ALEXANDER SNIDER, E.I.
ROADSIDE ENVIRONMENTAL ENGINEER

3064
LEVEL III CERTIFICATION NUMBER

TRENTON J. CORMIER, P.E.
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

118
LEVEL III CERTIFICATION NUMBER

NOTE:
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1630.01 Riser Basin
1630.02 Silt Basin Type B
1630.03 Temporary Silt Ditch
1630.04 Stilling Basin
1630.05 Temporary Diversion
1630.06 Special Stilling Basin
1631.01 Matting Installation
1632.01 Rock Inlet Sediment Trap Type A
1632.02 Rock Inlet Sediment Trap Type B
1632.03 Rock Inlet Sediment Trap Type C
1633.01 Temporary Rock Silt Check Type A
1633.02 Temporary Rock Silt Check Type B
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1640.01 Coir Fiber Baffle
1645.01 Temporary Stream Crossing

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

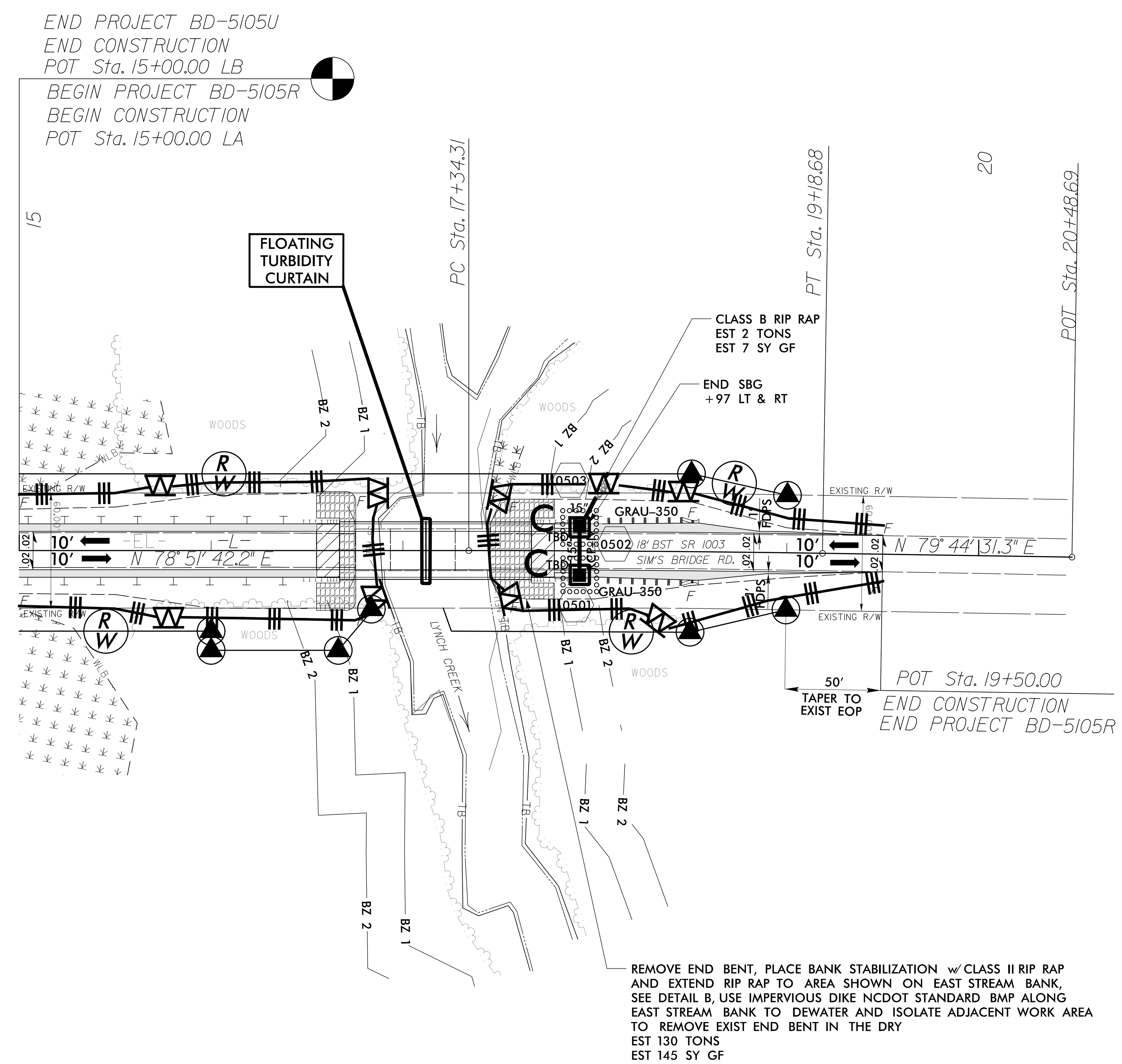
PROJECT REFERENCE NO.	SHEET NO.
BD-5105R	EC-4/CONST.4
R/W SHEET NO.	
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER	

GRAPHIC SCALE

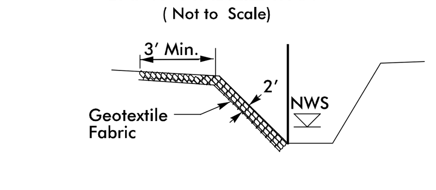
50 0 50 100

LEVEL III CERTIFIED BY:
ALEXANDER SNIDER, E.I.
CERTIFICATION NUMBER: 3064
ISSUED: OCTOBER 5, 2012

NOTE: TOP DOWN CONSTRUCTION – NO CAUSEWAYS PERMITTED



DETAIL B
BANK STABILIZATION
(Not to Scale)



Type of Liner = CLASS II RIPRAP
STA. 17+45

FINAL EROSION CONTROL FOR CONSTRUCTION SHEET 5

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
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1633.02	Wattle / Coir Fiber Wattle	
	Coir Fiber Wattle	-CFW-

COIR FIBER WATTLE SHALL BE USED IN LIEU OF SPECIAL SEDIMENT CONTROL FENCE AS DIRECTED BY ENGINEER

Place Matting for Erosion Control on 2:1 Slope

Contractor will install impervious dike to dewater streambanks to allow for removal of existing end bents in the dry
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ALEXANDER SNIDER, E.I.
ROADSIDE ENVIRONMENTAL ENGINEER

3064
LEVEL III CERTIFICATION NUMBER

TRENTON J. CORMIER, P.E.
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1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
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1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

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PROJECT REFERENCE NO.	SHEET NO.
BD-5105R/BD-5105U	EC-5

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

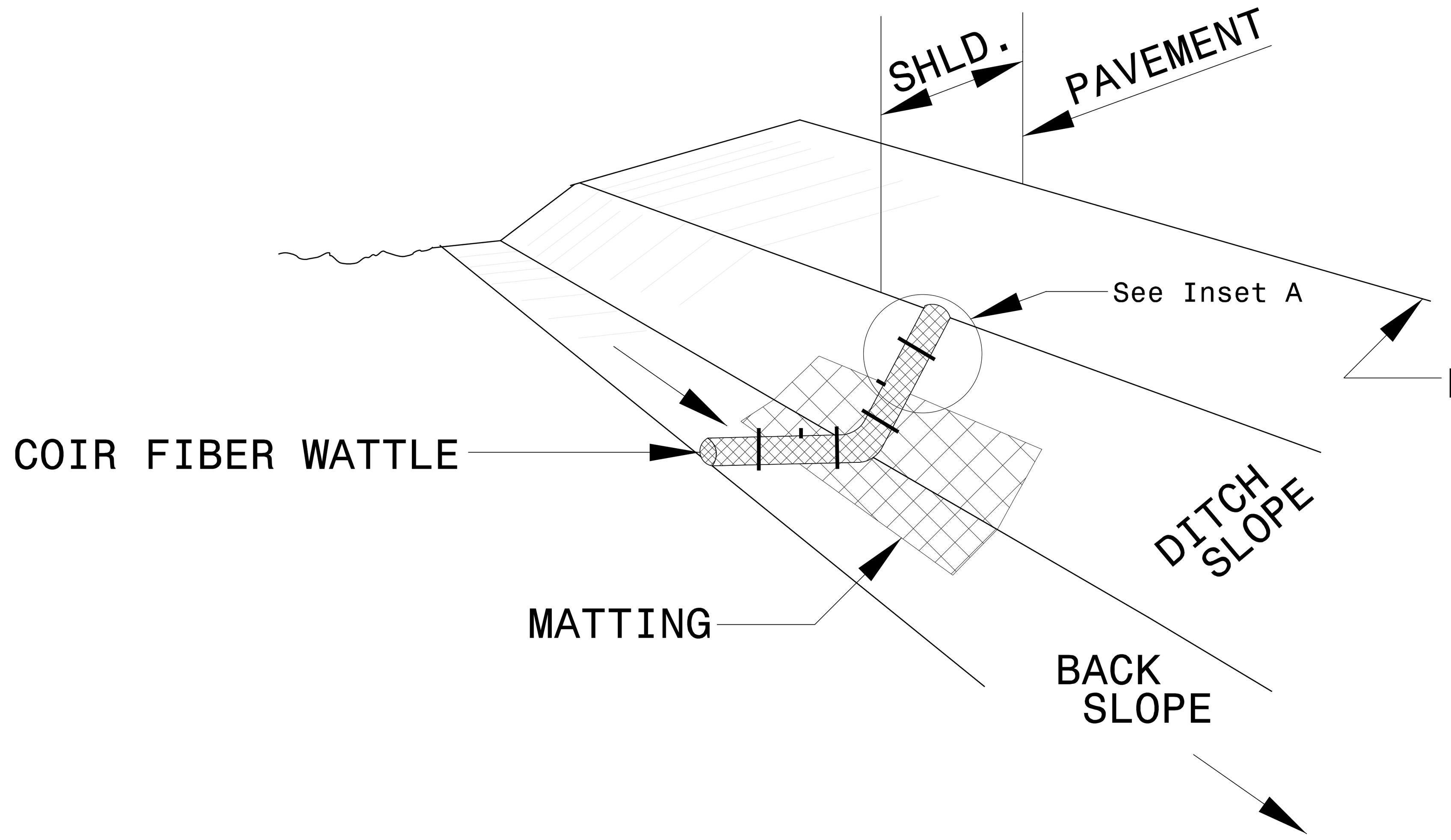
SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS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

PROJECT REFERENCE NO.	SHEET NO.
BD-5105R/BD-5105U	EC-6

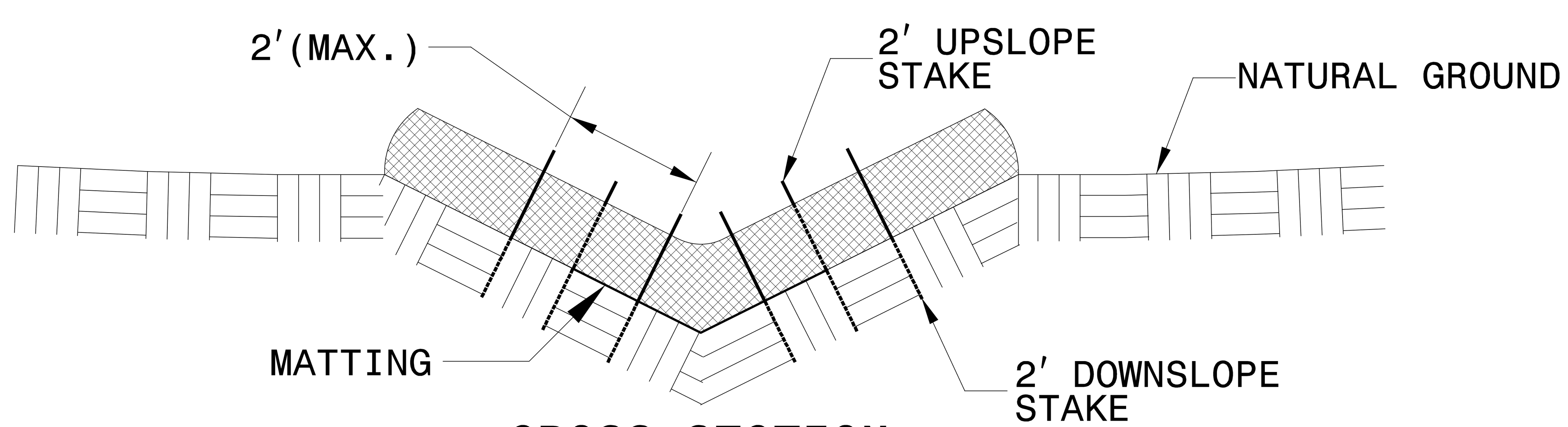
R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

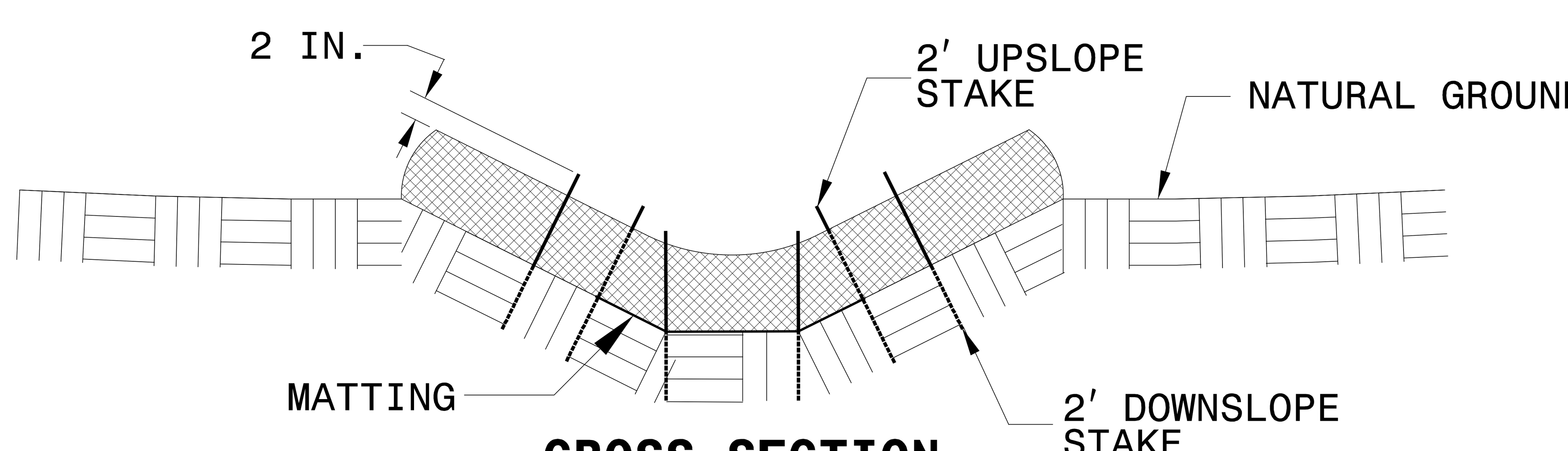
COIR FIBER WATTLE DETAIL



ISOMETRIC VIEW



CROSS SECTION
VEE DITCH



CROSS SECTION
TRAPEZOIDAL DITCH

NOTES:

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

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

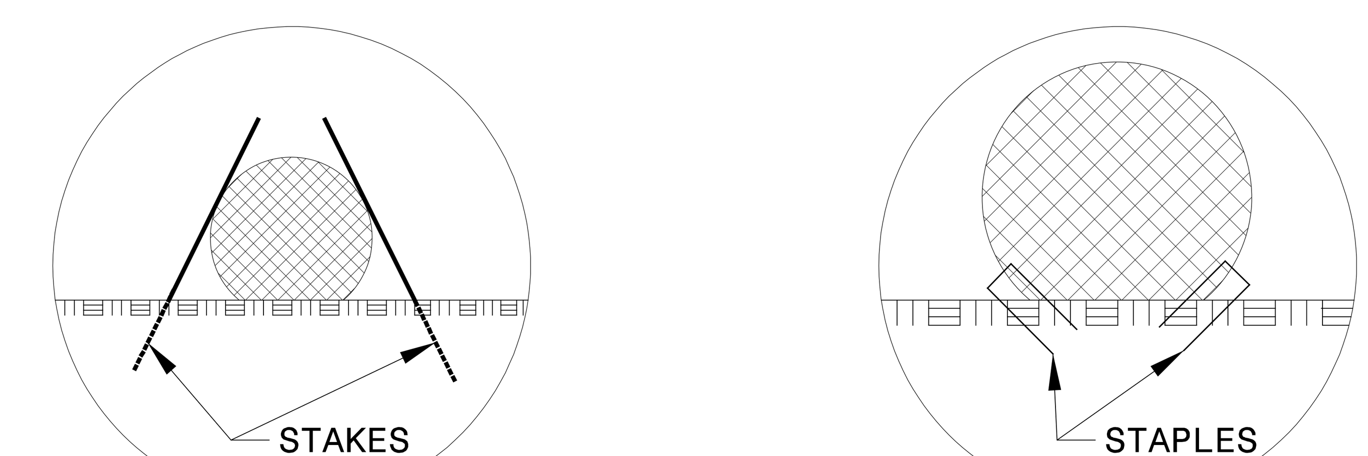
<u>ONLY</u> INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

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

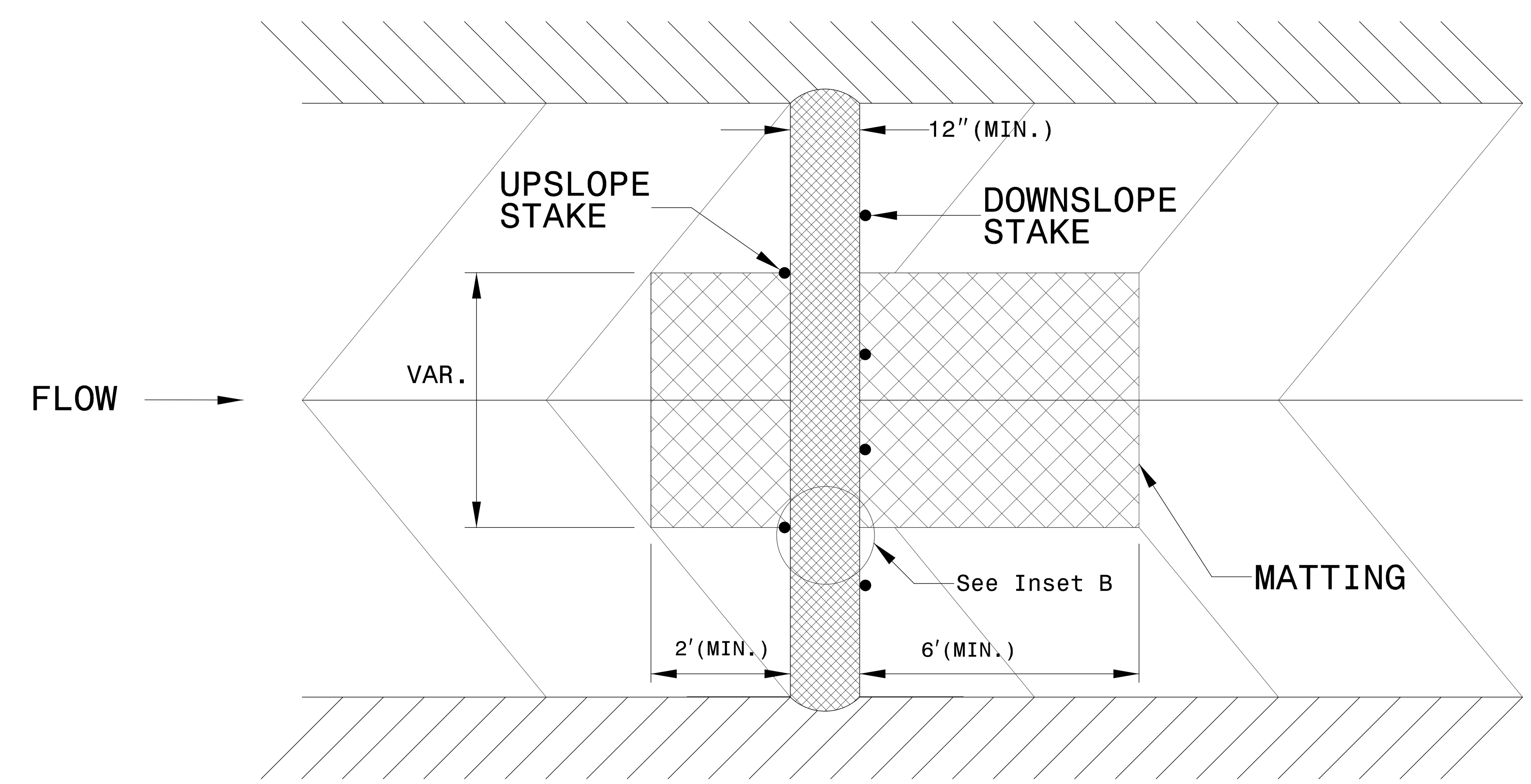
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

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

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



INSET A   INSET B



TOP VIEW

PROJ. REFERENCE NO.	SHEET NO.
BD-5105R/BD-5105U	X-1

8/23/99

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

0 5 10
PROJ. REFERENCE NO.
BD-5105R/BD-5105U
SHEET NO.
X-2
222.17
0.02
0.02
219.55
13+50.00
221.97
0.02
0.02
221.38
13+00.00
222.76
2.3:1
0.02
0.02
2:1
221.56
12+50.00
221.60
2:1
0.02
0.02
2.7:1
221.58
12+00.00
240
230
220
210
200
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0

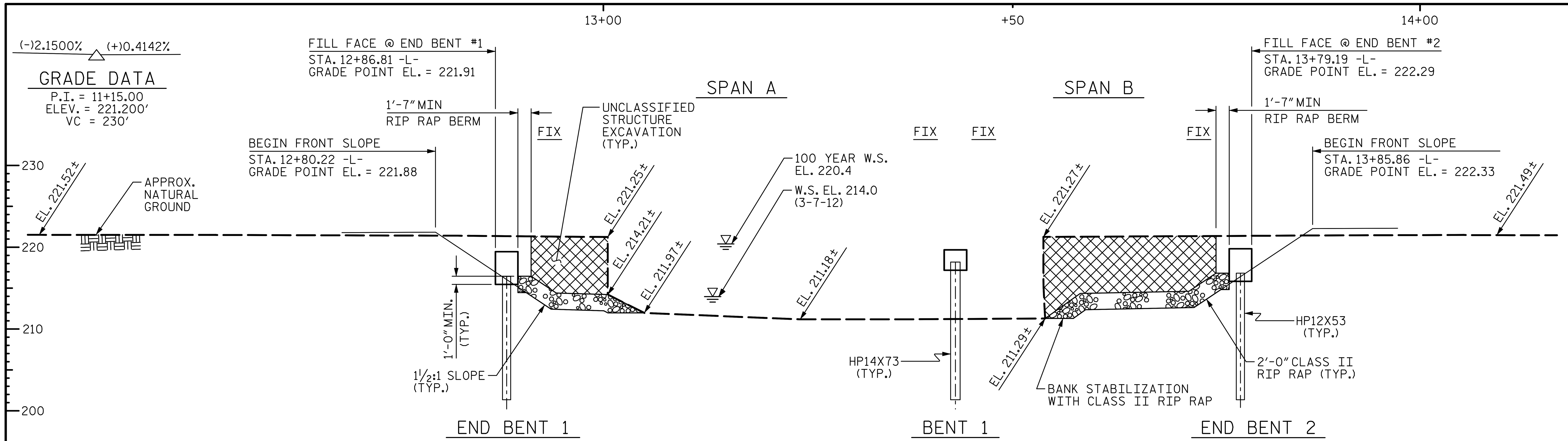
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	BD-5105R/BD-5105U	X-3

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	BD-5105R/BD-5105U	X-4

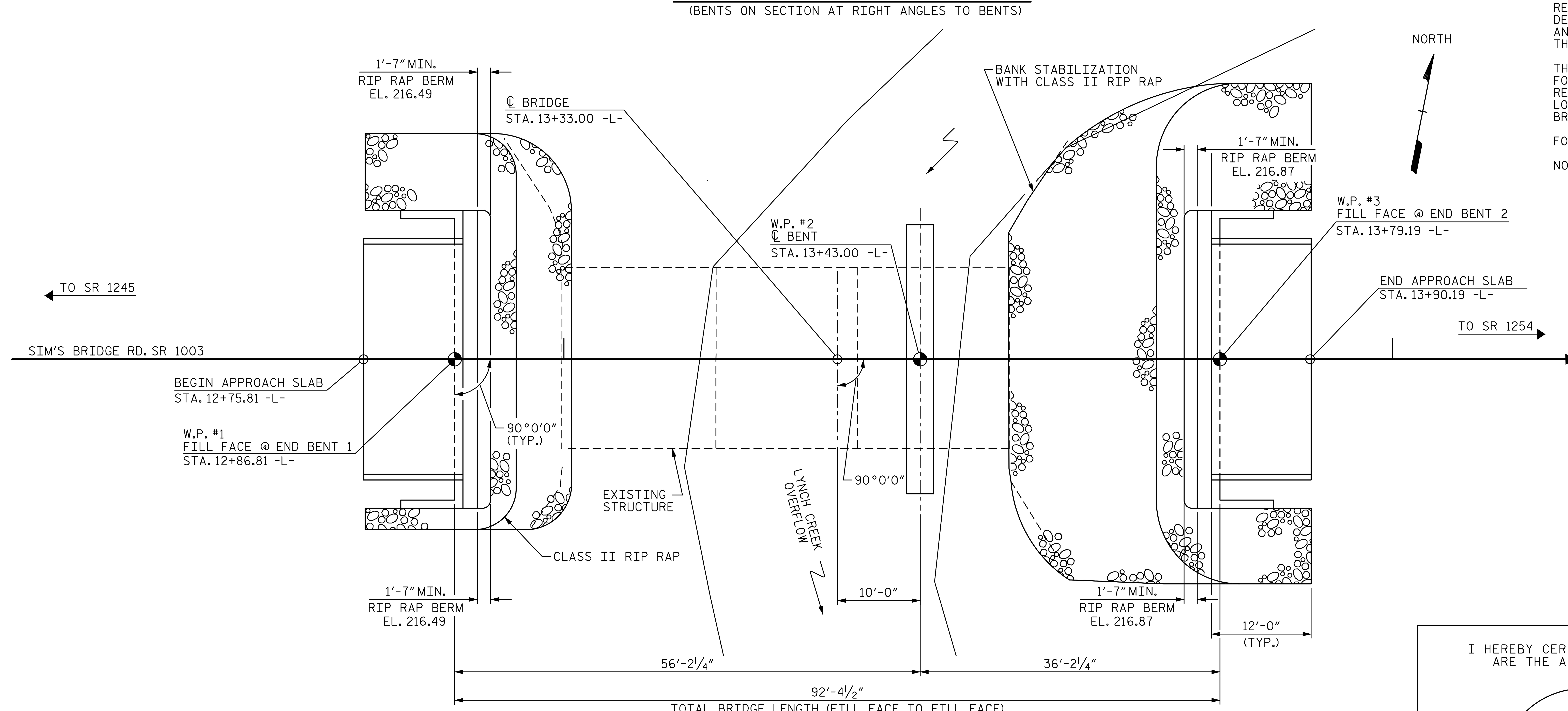
PROJ. REFERENCE NO.
BD-5105R/BD-5105U
SHEET NO.
X-5
0 5 10
8/23/99
222.20
0.02
0.02
222.16
19 + 00.00
222.14
0.02
0.02
2.4:1
2:1
222.14
18 + 50.00
222.21
0.02
0.02
2:1
2:1
221.88
18 + 00.00
222.39
0.02
0.02
221.40
17 + 50.00
-L-
240
230
220
210
200
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150
$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$$$
$$$$$$USERNAME$$$$

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	BD-5105R/BD-5105U	X-6



SECTION ALONG ℄ -L-

(BENTS ON SECTION AT RIGHT ANGLES TO BENTS)



PLAN

(PILES NOT SHOWN FOR CLARITY)

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

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

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.

THE MATERIAL IN THE CROSS HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 30 FEET EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AS "UNCLASSIFIED STRUCTURE EXCAVATION", LUMP SUM.

BOTTOM OF EXCAVATION IS AT APPROXIMATE ELEVATION 211.0.

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.

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 EXISTING STRUCTURE CONSISTING OF ONE 18.5, ONE 17.1 AND ONE 18.3 FOOT LONG TIMBER JOIST SPANS WITH A REINFORCED CONCRETE DECK ON REINFORCED CONCRETE END AND INTERIOR BENT CAPS ON TIMBER PILES LOCATED ON THE PROPOSED ALIGNMENT SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

NOTES CONTINUED ON SHEET S-2

PROJECT NO. BD-5105U (45351.1.21)

FRANKLIN COUNTY

STATION: 13+33.00 -L-

SHEET 1 OF 2 REPLACES BRIDGE NO. 139

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

BRIDGE ON SR 1003
OVER LYNCH CREEK
OVERFLOW

REVISIONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		S-1
1			3				TOTAL SHEETS
2			4				17

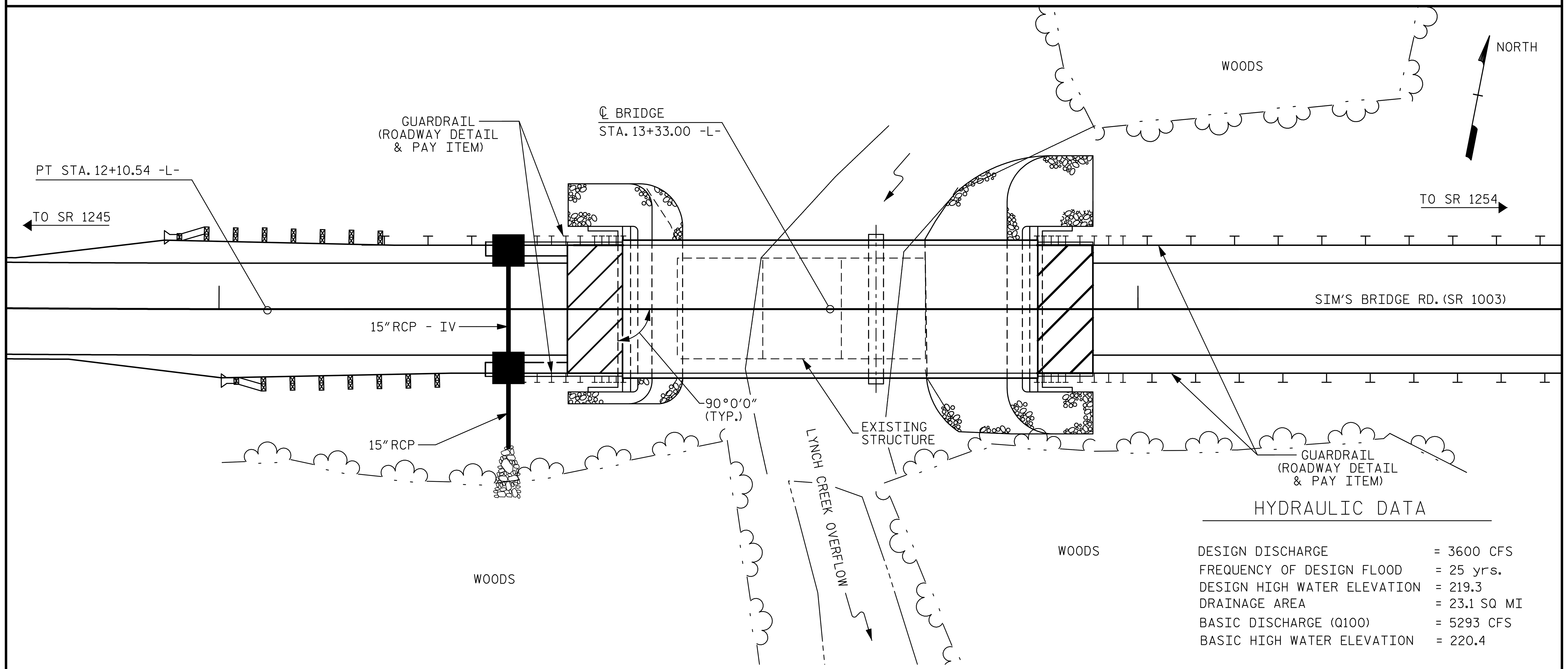
NORTH CAROLINA PROFESSIONAL SEAL 20532 JAMES E. MONDOLFI
8-2-12

Florence & Hutcheson
An ICA Company
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

DRAWN BY : D. H. CARTER DATE : 7/12
CHECKED BY : J. E. MONDOLFI DATE : 7/12

10/1/2012
p:\brprojects\div05\bd-5105\u\structures\bd-5105u\plans\BD_5105U_gd.dgn
Florence & Hutcheson - An ICA Company

BENCH MARK : BM# 1-U, N:878981 E:2190067, STA. 11+84.54 -L-, 34.68' RT, EL. = 216.45



HYDRAULIC DATA

DESIGN DISCHARGE	= 3600 CFS
FREQUENCY OF DESIGN FLOOD	= 25 yrs.
DESIGN HIGH WATER ELEVATION	= 219.3
DRAINAGE AREA	= 23.1 SQ MI
BASIC DISCHARGE (Q100)	= 5293 CFS
BASIC HIGH WATER ELEVATION	= 220.4

LOCATION SKETCH

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

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 8100 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 500 yrs.+
OVERTOPPING FLOOD ELEVATION	= 221.6

NOTES (CONT.)

FOUNDATION RECOMMENDATIONS:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO. 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 85 TONS PER PILE.

PILES AT END BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 66 TONS PER PILE.

DRIVE PILES AT END BENT NO. 1 TO A REQUIRED DRIVING RESISTANCE OF 145 TONS PER PILE.

DRIVE PILES AT END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 110 TONS PER PILE.

STEEL H PILE POINTS ARE REQUIRED FOR STEEL H PILES AT END BENT NO. 1 AND END BENT NO. 2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT BENT NO. 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 100 TONS PER PILE.

DRIVE PILES AT BENT NO. 1 TO A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR DOWNDRAG OR SCOUR.

INSTALL PILES AT BENT NO. 1 TO A TIP ELEVATION NO HIGHER THAN 184 FEET.

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

THE SCOUR CRITICAL ELEVATION FOR BENT NO. 1 IS ELEVATION 201 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 40-80 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT NO. 1 THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR BRIDGE APPROACH FILLS, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE AT STA. 13+33.00 -L-	BRIDGE APPROACH FILL SUBREGIONAL TIER AT STA. 13+33.00 -L-	UNCLASSIFIED STRUCTURE EXCAVATION AT STA. 13+33.00 -L-	CLASS A CONCRETE	BRIDGE APPROACH SLABS AT STA. 13+33.00 -L-	REINFORCING STEEL	HP 12 X 53 STEEL PILES		HP 14 X 73 GALVANIZED STEEL PILES		STEEL PILE POINTS	PILE REDRIVES (EA.)	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS	
	LUMP SUM	LUMP SUM	LUMP SUM	CU. YDS.	LUMP SUM	LB.	NO.	LIN. FT.	NO.	LIN. FT.	NO.	NO.	LIN. FT.	TON	SQ. YD.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE													180.50				20	900
END BENT NO. 1				20.0		2,449	5	175			5	3		62	70			
BENT NO. 1				9.9		1,959			7	350	7	4						
END BENT NO. 2				20.0		2,449	5	225			5	3		71	80			
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	49.9	LUMP SUM	6,857	10	400	7	350	17	10	180.50	133	150	LUMP SUM	20	900

PROJECT NO. BD-5105U (45351.1.21)

FRANKLIN COUNTY

STATION: 13+33.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

BRIDGE ON SR 1003
OVER LYNCH CREEK
OVERFLOW

REVISIONS								SHEET NO.
NO.	BY:	DATE:		NO.	BY:	DATE:		S-2
1				3				TOTAL SHEETS
2				4				17

NORTH CAROLINA PROFESSIONAL SEAL 20532 ENGINEER JAMES E. MONDOLFI
8-2-12

Florence & Hutcheson
An ICA Company
5121 Kingstown Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

DRAWN BY : D. H. CARTER DATE : 7/12
CHECKED BY : J. E. MONDOLFI DATE : 7/12

10/1/2012
p:\lbrprojects\div05\bd-5105\u\structures\bd-5105u\plans\BD_5105U_sd_ls.dgn
Florence & Hutcheson - An ICA Company

LOAD FACTORS:

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

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: LIVELOAD FACTORS	STRENGTH I MOMENT: DISTRIBUTION FACTORS (DF)	STRENGTH I MOMENT: RATING FACTOR	STRENGTH I MOMENT: SPAN	STRENGTH I MOMENT: GIRDER LOCATION	STRENGTH I MOMENT: DISTANCE FROM LEFT END OF SPAN (ft)	STRENGTH I SHEAR: DISTRIBUTION FACTORS (DF)	STRENGTH I SHEAR: RATING FACTOR	STRENGTH I SHEAR: SPAN	STRENGTH I SHEAR: GIRDER LOCATION	STRENGTH I SHEAR: DISTANCE FROM LEFT END OF SPAN (ft)	SERVICE III LIMIT STATE: LIVELOAD FACTORS	SERVICE III MOMENT: DISTRIBUTION FACTORS (DF)	SERVICE III MOMENT: RATING FACTOR	SERVICE III MOMENT: SPAN	SERVICE III MOMENT: GIRDER LOCATION	SERVICE III MOMENT: DISTANCE FROM LEFT END OF SPAN (ft)	COMMENT NUMBER
DESIGN LOAD RATING		HL-93(Inv)	N/A	1	1.055	--	1.75	0.275	1.23	55′	EL	27	0.523	1.23	55′	EL	5.4	0.80	0.275	**1.05**	55′	EL	**27**	
		HL-93(Opr)	N/A	--	1.591	--	1.35	0.275	1.59	55′	EL	27	0.523	1.59	55′	EL	5.4	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	1.322	47.585	1.75	0.275	1.54	55′	EL	27	0.523	1.47	55′	EL	5.4	0.80	0.275	**1.32**	55′	EL	**27**	
		HS-20(Opr)	36.000	--	1.9	68.396	1.35	0.275	1.99	55′	EL	27	0.523	1.9	55′	EL	5.4	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.776	37.476	1.4	0.275	4.04	55′	EL	27	0.523	4.17	55′	EL	5.4	0.80	0.275	2.78	55′	EL	27	
	SV	SNGARBS2	20.000	--	2.155	43.095	1.4	0.275	3.14	55′	EL	27	0.523	3.02	55′	EL	5.4	0.80	0.275	2.15	55′	EL	27	
	SV	SNAGRIS2	22.000	--	2.079	45.734	1.4	0.275	3.03	55′	EL	27	0.523	2.83	55′	EL	5.4	0.80	0.275	2.08	55′	EL	27	
	SV	SNCOTTS3	27.250	--	1.384	37.708	1.4	0.275	2.01	55′	EL	27	0.523	2.09	55′	EL	5.4	0.80	0.275	1.38	55′	EL	27	
	SV	SNAGGRS4	34.925	--	1.189	41.527	1.4	0.275	1.73	55′	EL	27	0.523	1.77	55′	EL	5.4	0.80	0.275	1.19	55′	EL	27	
	SV	SNS5A	35.550	--	1.16	41.255	1.4	0.275	1.69	55′	EL	27	0.523	1.82	55′	EL	5.4	0.80	0.275	1.16	55′	EL	27	
	SV	SNS6A	39.950	--	1.079	43.102	1.4	0.275	1.57	55′	EL	27	0.523	1.68	55′	EL	5.4	0.80	0.275	1.08	55′	EL	27	
	SV	SNS7B	42.000	--	1.028	43.175	1.4	0.275	1.5	55′	EL	27	0.523	1.67	55′	EL	5.4	0.80	0.275	1.03	55′	EL	27	
	TTST	TNAGRIT3	33.000	--	1.32	43.556	1.4	0.275	1.92	55′	EL	27	0.523	1.98	55′	EL	5.4	0.80	0.275	1.32	55′	EL	27	
	TTST	TNT4A	33.075	--	1.33	43.979	1.4	0.275	1.94	55′	EL	27	0.523	1.91	55′	EL	5.4	0.80	0.275	1.33	55′	EL	27	
	TTST	TNT6A	41.600	--	1.101	45.811	1.4	0.275	1.6	55′	EL	27	0.523	1.83	55′	EL	5.4	0.80	0.275	1.10	55′	EL	27	
	TTST	TNT7A	42.000	--	1.114	46.804	1.4	0.275	1.62	55′	EL	27	0.523	1.71	55′	EL	5.4	0.80	0.275	1.11	55′	EL	27	
	TTST	TNT7B	42.000	--	1.163	48.848	1.4	0.275	1.69	55′	EL	27	0.523	1.62	55′	EL	5.4	0.80	0.275	1.16	55′	EL	27	
	TTST	TNAGRIT4	43.000	--	1.101	47.33	1.4	0.275	1.6	55′	EL	27	0.523	1.56	55′	EL	5.4	0.80	0.275	1.10	55′	EL	27	
	TTST	TNAGT5A	45.000	--	1.031	46.405	1.4	0.275	1.5	55′	EL	27	0.523	1.58	55′	EL	5.4	0.80	0.275	1.03	55′	EL	27	
	TTST	TNAGT5B	45.000	3	1.013	45.582	1.4	0.275	1.47	55′	EL	27	0.523	1.48	55′	EL	5.4	0.80	0.275	**1.01**	55′	EL	**27**	

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)

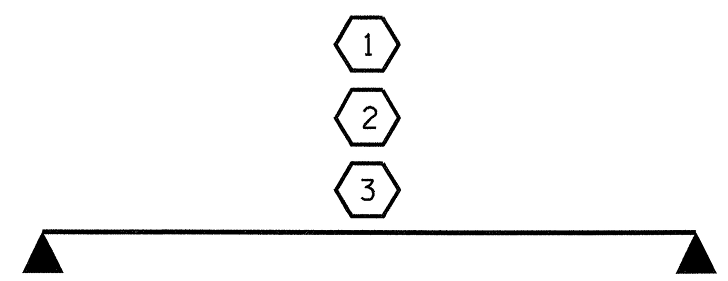
(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY

FOR SPAN 'A'

PROJECT NO. BD-5105U
FRANKLIN COUNTY
STATION: 13+33.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR 55′ CORED SLAB UNIT 90° SKEW (NON-INTERSTATE TRAFFIC)

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029441 KRISTY W. ALFORD

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			17

ASSEMBLED BY : A.C. OUTLAW DATE : 6/07/12
CHECKED BY : W.F. PARKER DATE : 6/21/12
DRAWN BY : CVC 6/10
CHECKED BY : DNS 6/10

30-JUL-2012 13:11
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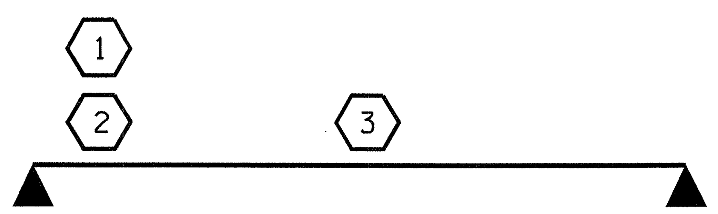
kalford

STD. NO. 21LRFR1_90S_55L

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	1.032	--	1.75	0.28	1.36	35′	EL	17	0.561	**1.03**	35′	EL	**1.7**	0.80	0.28	1.05	35′	EL	17	
		HL-93(Opr)	N/A	--	1.338	--	1.35	0.28	1.77	35′	EL	17	0.561	1.34	35′	EL	1.7	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	1.189	42.810	1.75	0.28	1.79	35′	EL	13.6	0.561	**1.19**	35′	EL	**1.7**	0.80	0.28	1.39	35′	EL	17	
		HS-20(Opr)	36.000	--	1.542	55.494	1.35	0.28	2.32	35′	EL	13.6	0.561	1.54	35′	EL	1.7	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.400	32.402	1.4	0.28	3.89	35′	EL	17	0.561	3.06	35′	EL	1.7	0.80	0.28	2.40	35′	EL	17	
		SNGARBS2	20.000	--	2.052	41.044	1.4	0.28	3.29	35′	EL	13.6	0.561	2.32	35′	EL	1.7	0.80	0.28	2.05	35′	EL	13.6	
		SNAGRIS2	22.000	--	2.053	45.174	1.4	0.28	3.26	35′	EL	13.6	0.561	2.21	35′	EL	1.7	0.80	0.28	2.05	35′	EL	13.6	
		SNCOTTS3	27.250	--	1.202	32.744	1.4	0.28	1.95	35′	EL	17	0.561	1.54	35′	EL	1.7	0.80	0.28	1.20	35′	EL	17	
		SNAGGRS4	34.925	--	1.111	38.816	1.4	0.28	1.8	35′	EL	17	0.561	1.38	35′	EL	1.7	0.80	0.28	1.11	35′	EL	17	
		SNS5A	35.550	--	1.079	38.354	1.4	0.28	1.75	35′	EL	17	0.561	1.46	35′	EL	1.7	0.80	0.28	1.08	35′	EL	17	
		SNS6A	39.950	--	1.041	41.601	1.4	0.28	1.69	35′	EL	17	0.561	1.37	35′	EL	1.7	0.80	0.28	1.04	35′	EL	17	
		SNS7B	42.000	3	1.000	41.734	1.4	0.28	1.61	35′	EL	17	0.561	1.4	35′	EL	1.7	0.80	0.28	**1.00**	35′	EL	**17**	
	TTST	TNAGRIT3	33.000	--	1.286	42.439	1.4	0.28	2.08	35′	EL	17	0.561	1.6	35′	EL	1.7	0.80	0.28	1.29	35′	EL	17	
		TNT4A	33.075	--	1.285	42.512	1.4	0.28	2.08	35′	EL	17	0.561	1.51	35′	EL	1.7	0.80	0.28	1.29	35′	EL	17	
		TNT6A	41.600	--	1.126	46.84	1.4	0.28	1.82	35′	EL	17	0.561	1.48	35′	EL	1.7	0.80	0.28	1.13	35′	EL	17	
		TNT7A	42.000	--	1.163	48.833	1.4	0.28	1.89	35′	EL	17	0.561	1.37	35′	EL	1.7	0.80	0.28	1.16	35′	EL	17	
		TNT7B	42.000	--	1.144	48.061	1.4	0.28	1.85	35′	EL	17	0.561	1.33	35′	EL	1.7	0.80	0.28	1.14	35′	EL	17	
		TNAGRIT4	43.000	--	1.158	49.810	1.4	0.28	1.86	35′	EL	13.6	0.561	1.28	35′	EL	1.7	0.80	0.28	1.16	35′	EL	17	
		TNAGT5A	45.000	--	1.068	48.071	1.4	0.28	1.73	35′	EL	17	0.561	1.35	35′	EL	1.7	0.80	0.28	1.07	35′	EL	17	
		TNAGT5B	45.000	--	1.031	46.373	1.4	0.28	1.67	35′	EL	17	0.561	1.21	35′	EL	1.7	0.80	0.28	1.03	35′	EL	17	



LRFR SUMMARY

FOR SPAN 'B'

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

PROJECT NO. BD-5105U

FRANKLIN COUNTY

STATION: 13+33.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR 35′ CORED SLAB UNIT 90° SKEW

(NON-INTERSTATE TRAFFIC)

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029441 KRISTY W. ALFORD 7/30/12

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			17

STD. NO. 21LRFR1_90S_35L

ASSEMBLED BY : A.C. OUTLAW DATE : 6/07/12
CHECKED BY : W. F. PARKER DATE : 6/21/12

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

30-JUL-2012 13:11
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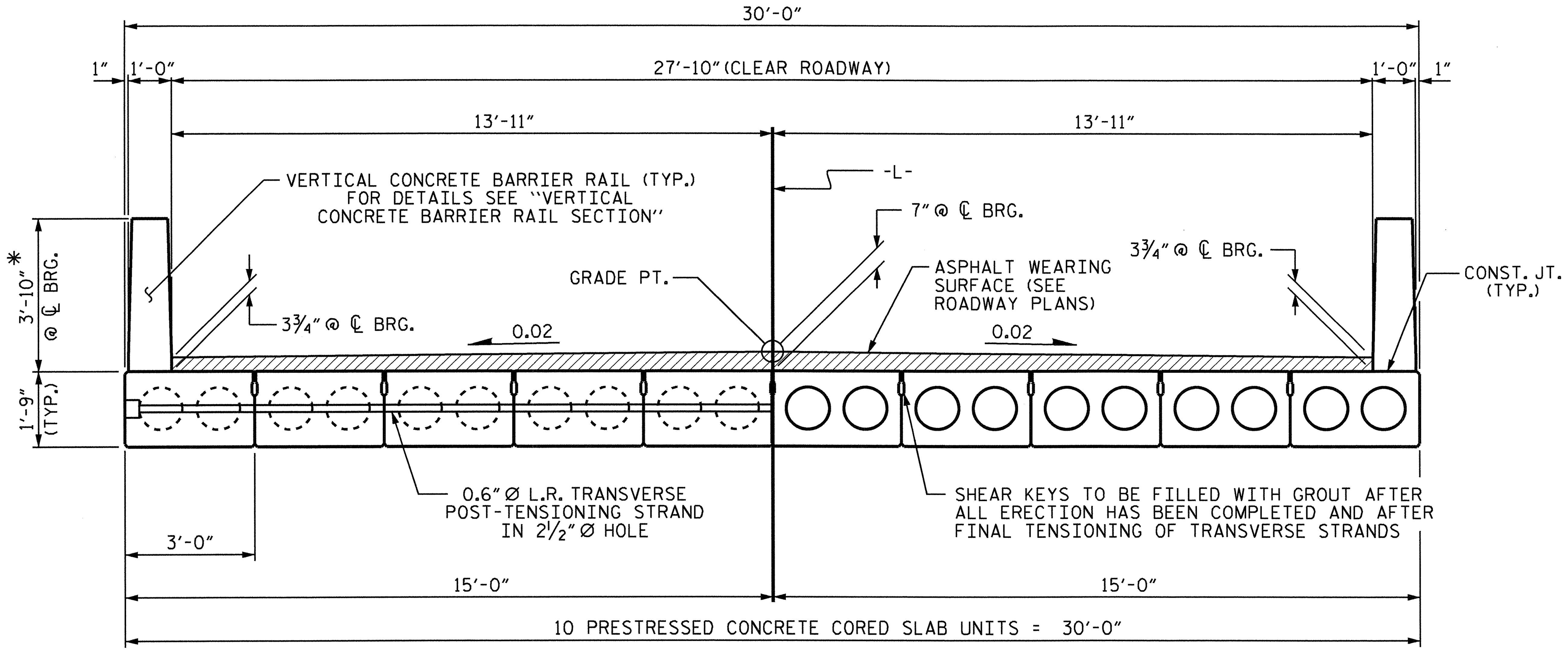
kalford

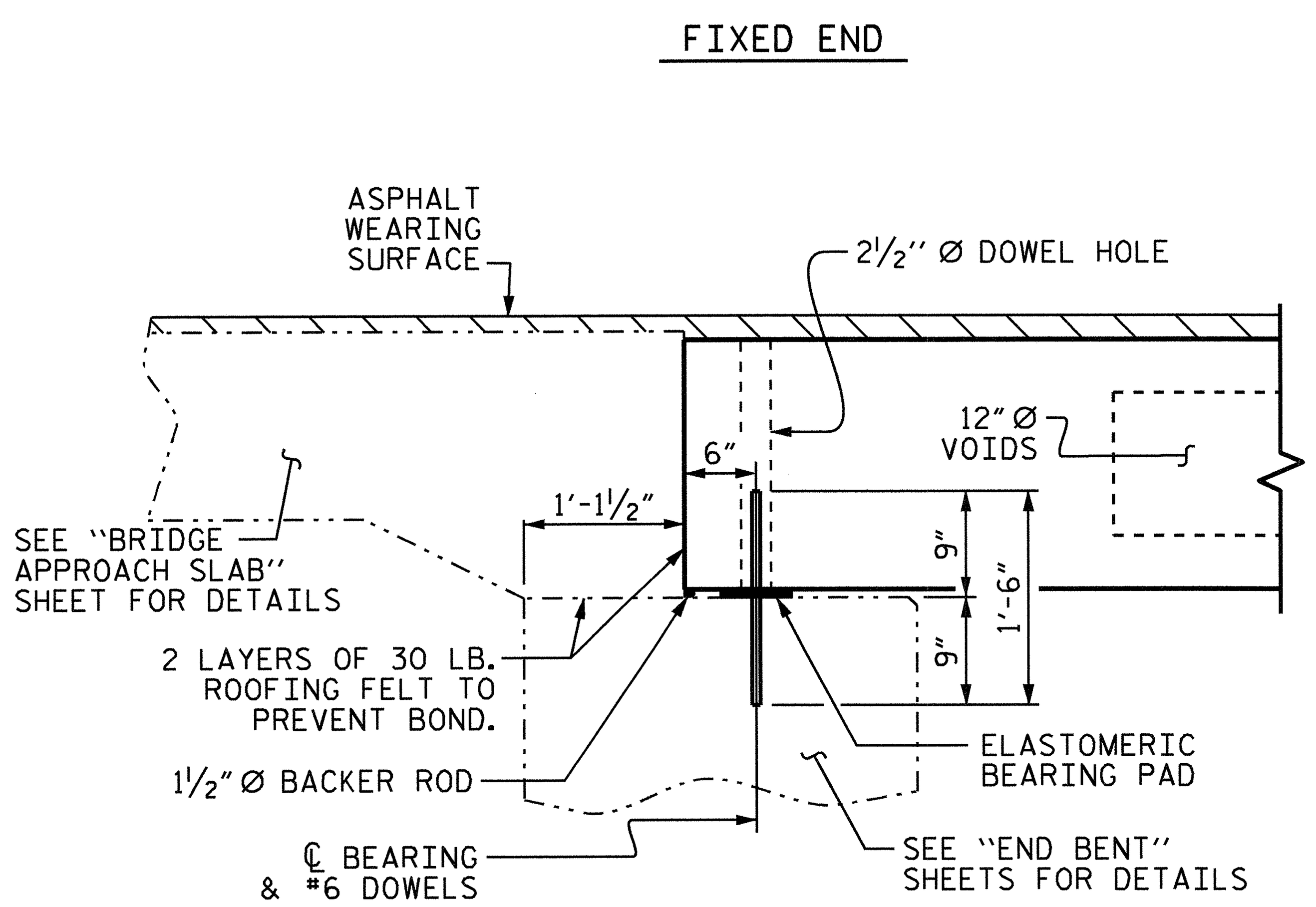


HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

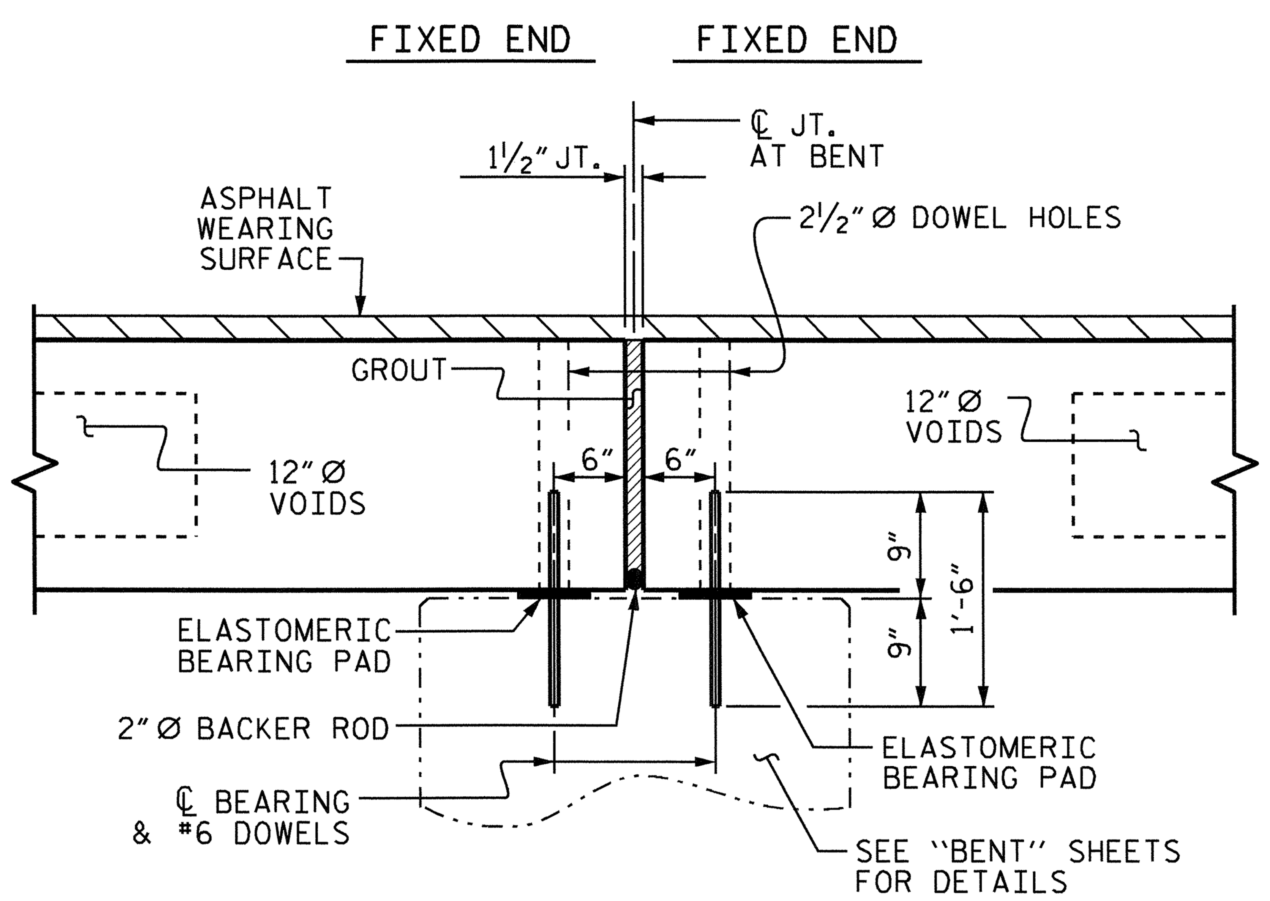
HALF SECTION
THROUGH VOIDS

TYPICAL SECTION

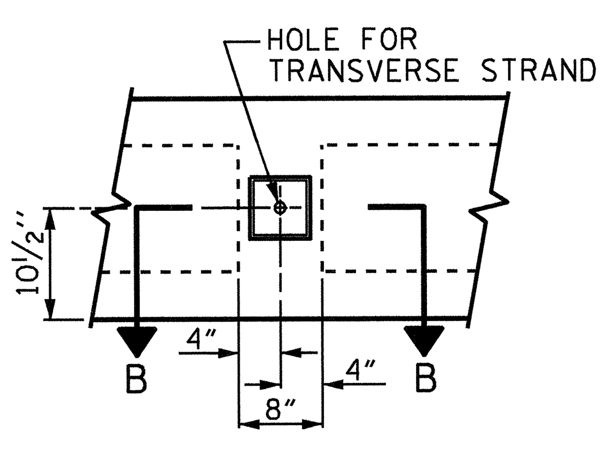
* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.



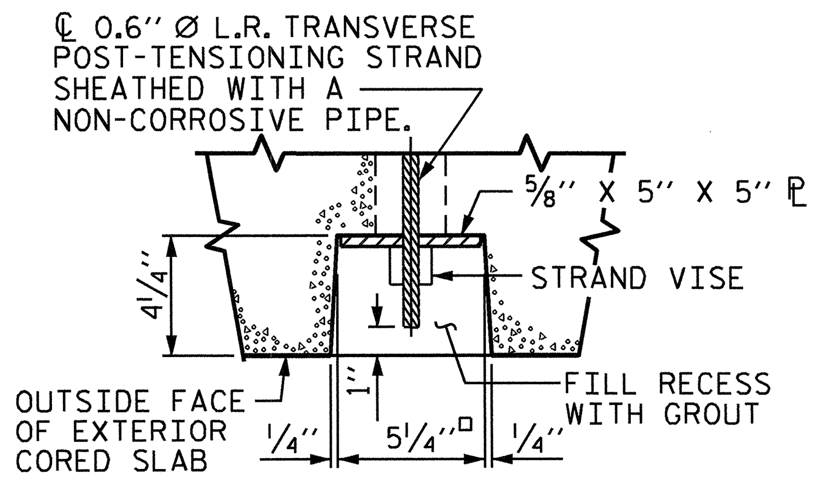
SECTION AT END BENT



SECTION AT BENT

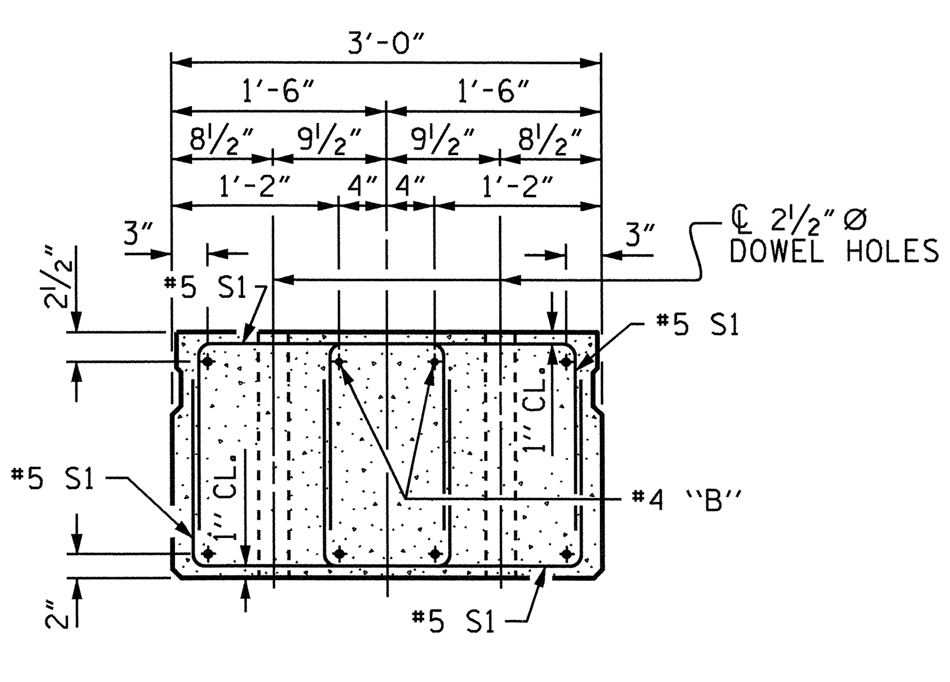


ELEVATION VIEW



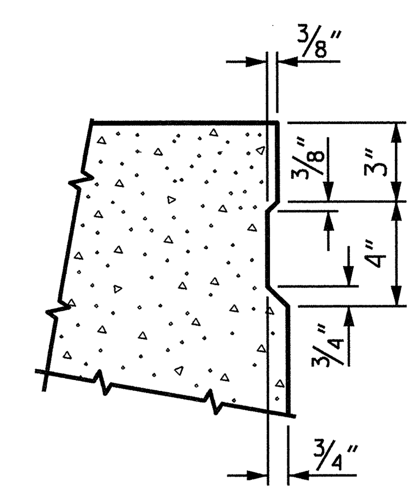
SECTION B-B

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



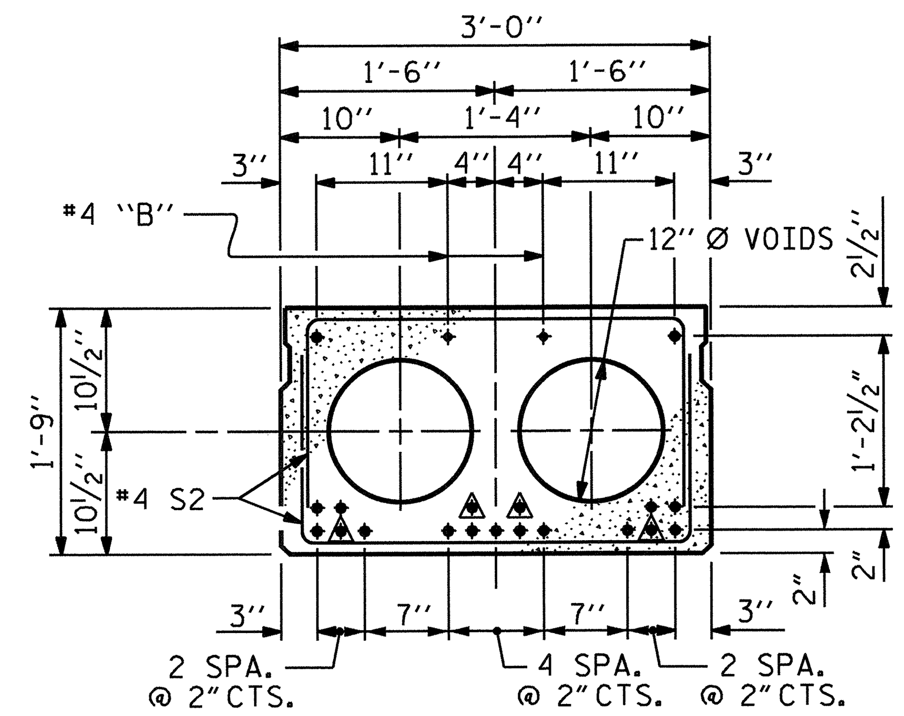
END ELEVATION

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

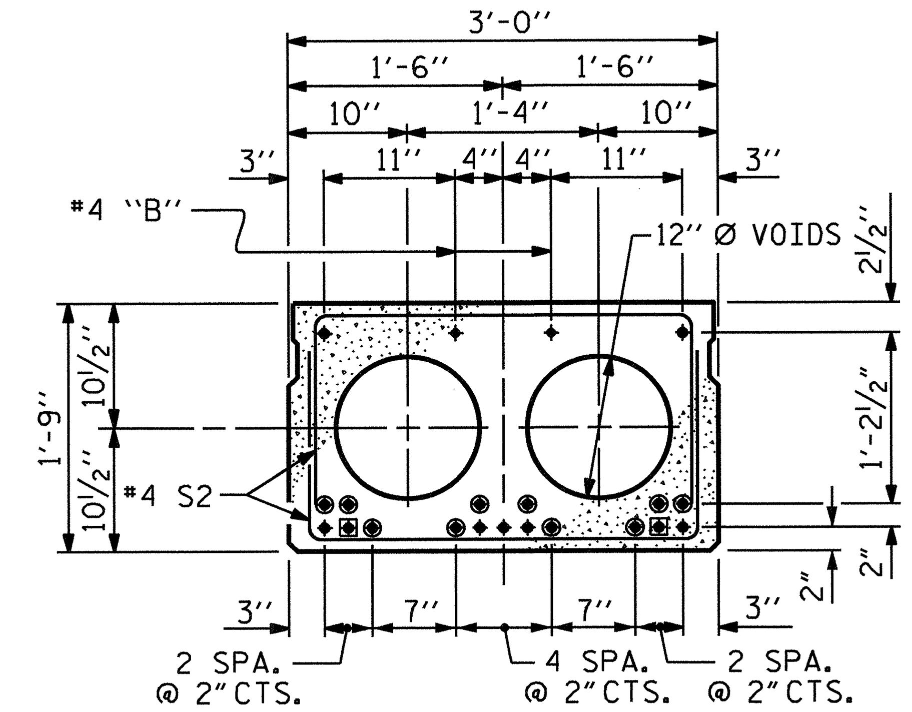


SHEAR KEY DETAIL

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

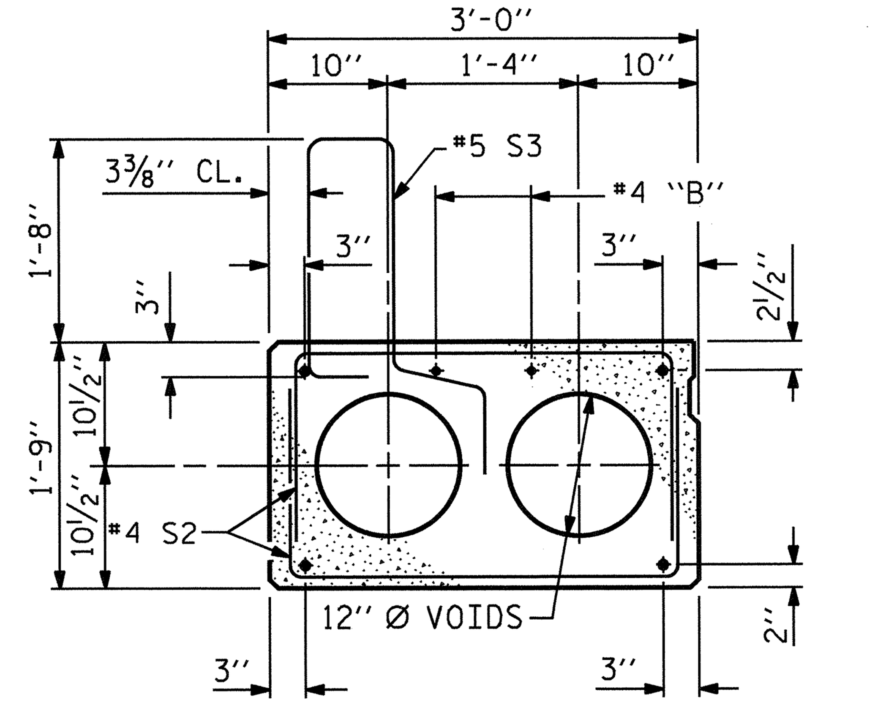


INTERIOR SLAB SECTION
(55' UNIT)
(19 STRANDS REQUIRED)



INTERIOR SLAB SECTION
(35' UNIT)
(9 STRANDS REQUIRED)

0.6" Ø LOW RELAXATION STRAND LAYOUT



EXT. SLAB SECTION

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

- ▲ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- ■ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- ◉ OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND

PROJECT NO. BD-5105U
FRANKLIN COUNTY
STATION: 13+33.00 -L-

SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
90° SKEW

REVISIONS								SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:			S-5
1			3					TOTAL SHEETS
2			4					17

STD. NO. 21" PCS2_30_90S

ASSEMBLED BY : A.C. OUTLAW	DATE : 6/07/12
CHECKED BY : W. F. PARKER	DATE : 6/21/12
DRAWN BY : DGE 5/09	REV. 12/11 MAA/AAC
CHECKED BY : BCH 6/09	

30-JUL-2012 13:11
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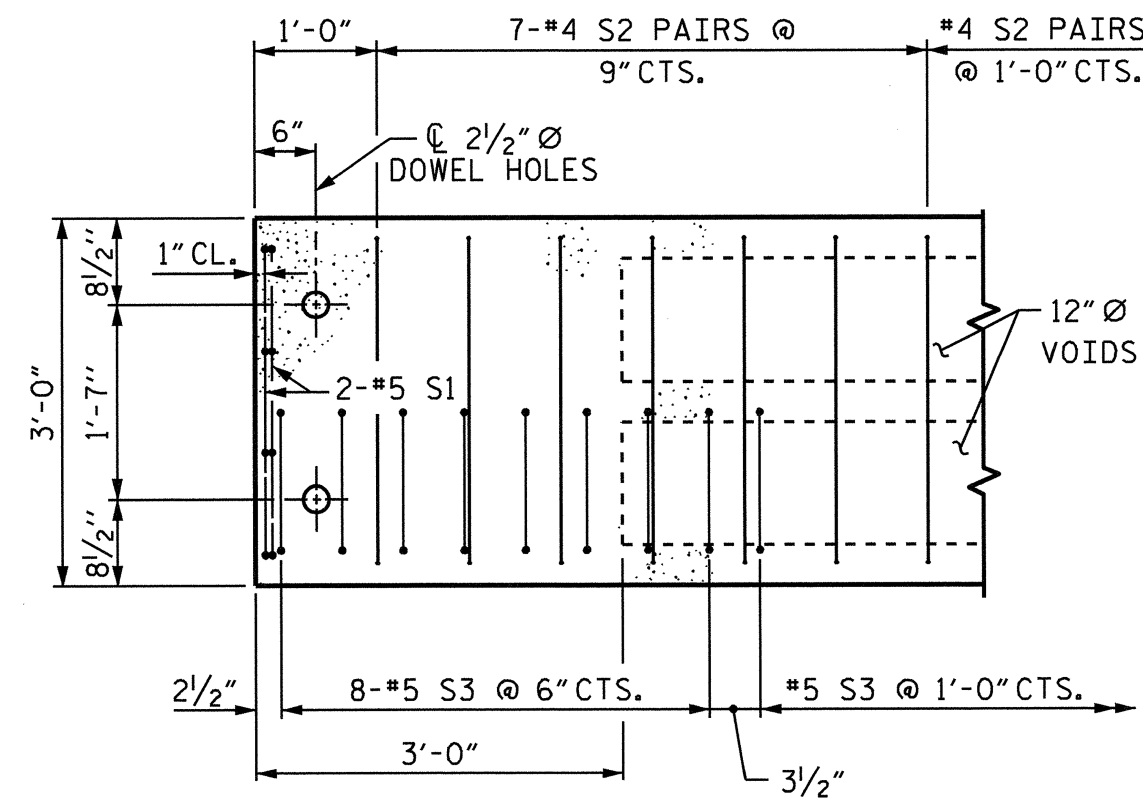
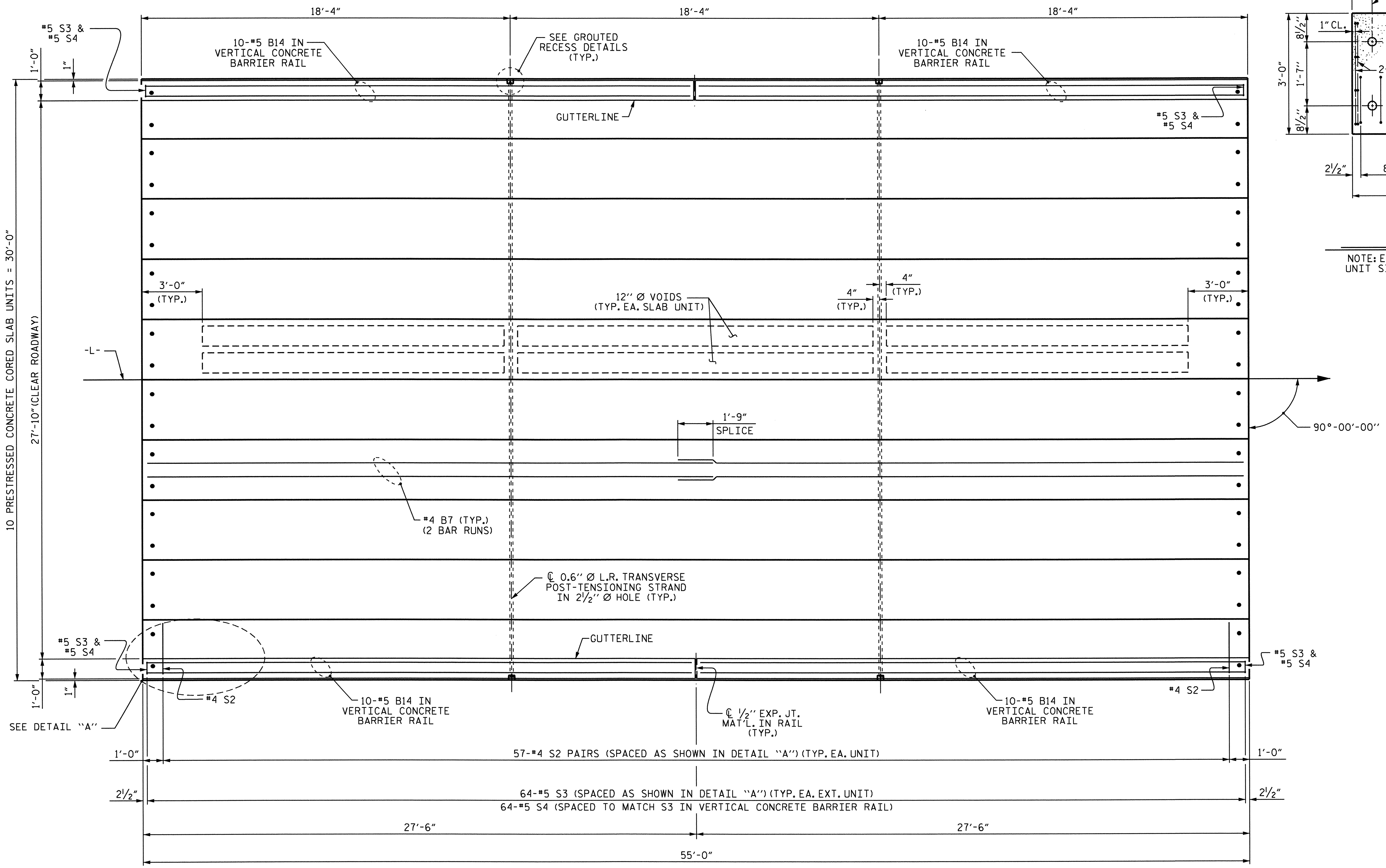
kalford



DETAIL "A"

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



PLAN OF SPAN A

PROJECT NO. BD-5105U

FRANKLIN COUNTY

STATION: 13+33.00 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 55' UNIT
27'-10" CLEAR ROADWAY
90° SKEW

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029441 KRISTY W. ALFORD

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			17

STD. NO. 21"PCS_30_90S_55L

ASSEMBLED BY : A.C. OUTLAW	DATE : 6/07/12		
CHECKED BY : W. F. PARKER	DATE : 6/21/12		
DRAWN BY : DGE 3/09		REV. 12/5/11	MAA/AAC
CHECKED BY : BCH 3/09			

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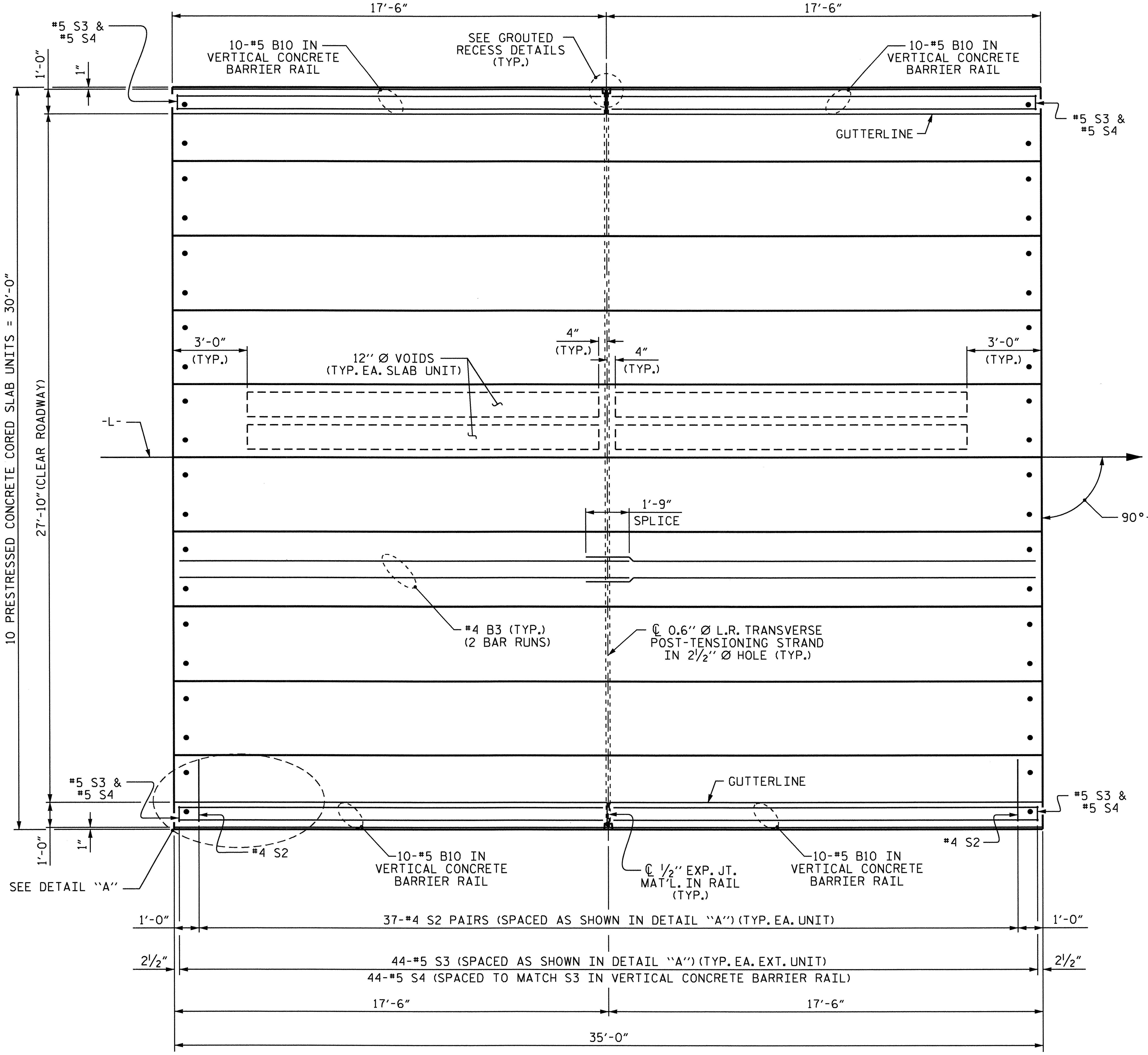
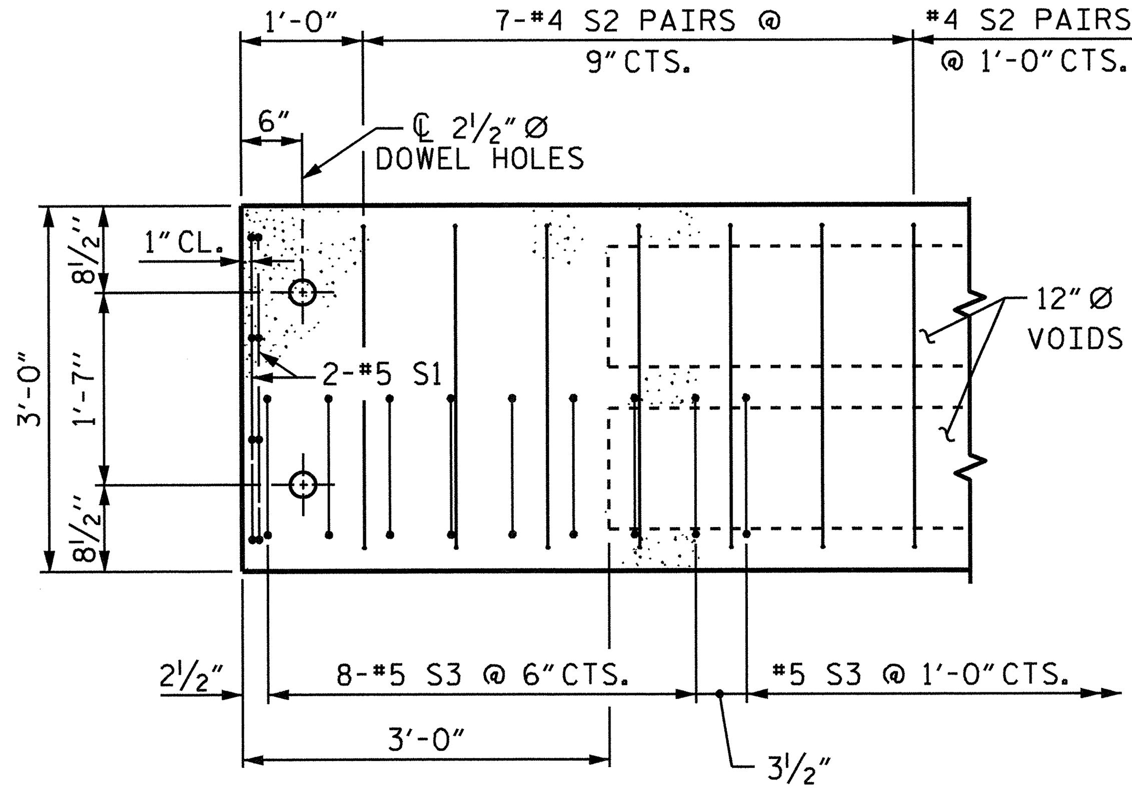


PLAN OF SPAN B



DETAIL "A"

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

PROJECT NO. BD-5105U

FRANKLIN COUNTY

STATION: 13+33.00 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 35' UNIT
27'-10" CLEAR ROADWAY
90° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			17

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029441 KRISTY W. ALFORD

ASSEMBLED BY : A.C. OUTLAW	DATE : 6/07/12	
CHECKED BY : W.F. PARKER	DATE : 6/21/12	
DRAWN BY : DGE 3/09	REV. 12/5/11	MAA/AAC
CHECKED BY : BCH 3/09		

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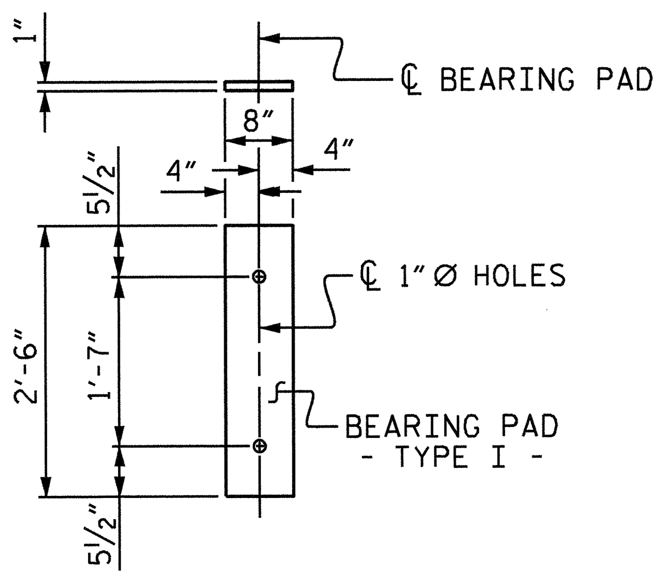
STD. NO. 21" PCS_30_90S_35L



FIXED END
(TYPE I - 40 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

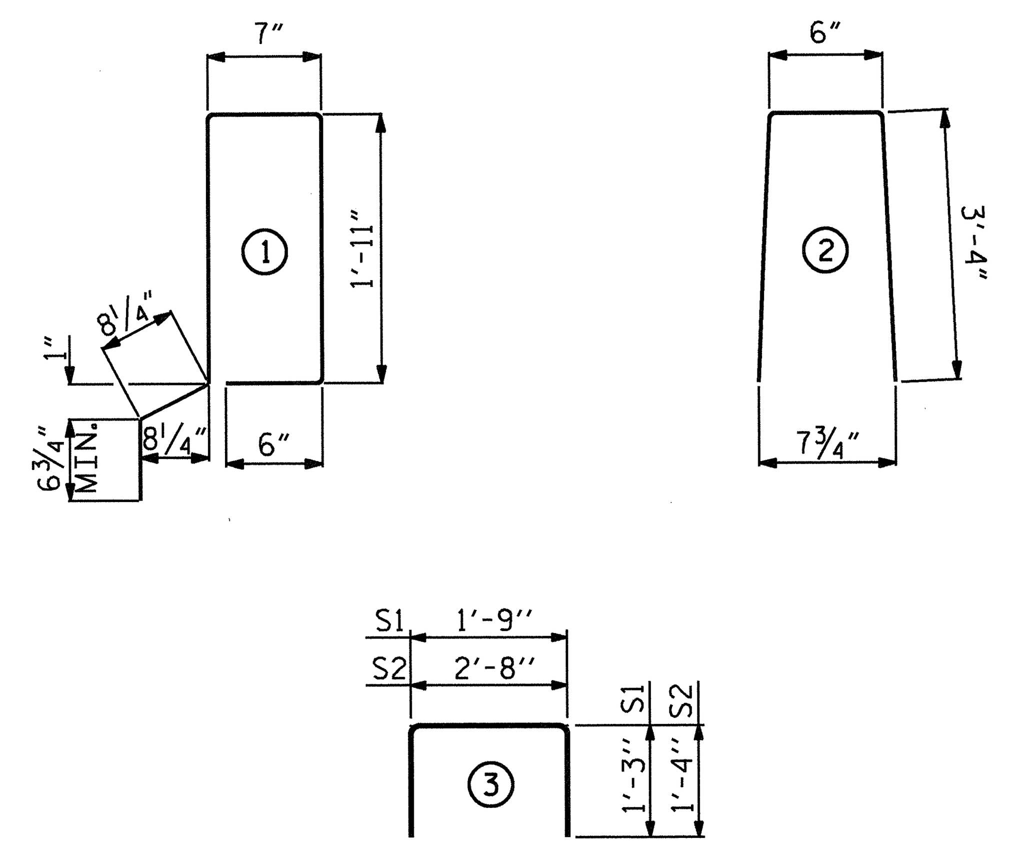
BILL OF MATERIAL FOR ONE 55' CORED SLAB UNIT

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B7	4	#4	STR	28'-3"	75	28'-3"	75
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	114	#4	3	5'-4"	406	5'-4"	406
* S3	64	#5	1	6'-2"	412		
REINFORCING STEEL			LBS.		516		516
* EPOXY COATED REINFORCING STEEL			LBS.		412		
6500 P.S.I. CONCRETE			CU. YDS.		7.8		7.8
0.6" Ø L.R. STRANDS			No.		19		19

BILL OF MATERIAL FOR ONE 35' CORED SLAB UNIT

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B3	4	#4	STR	18'-3"	49	18'-3"	49
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	74	#4	3	5'-4"	264	5'-4"	264
* S3	44	#5	1	6'-2"	283		
REINFORCING STEEL			LBS.		348		348
* EPOXY COATED REINFORCING STEEL			LBS.		283		
5000 P.S.I. CONCRETE			CU. YDS.		5.1		5.1
0.6" Ø L.R. STRANDS			No.		9		9

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

CONCRETE RELEASE STRENGTH

UNIT	PSI
35' UNITS	4000
55' UNITS	4900

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

DEAD LOAD DEFLECTION AND CAMBER

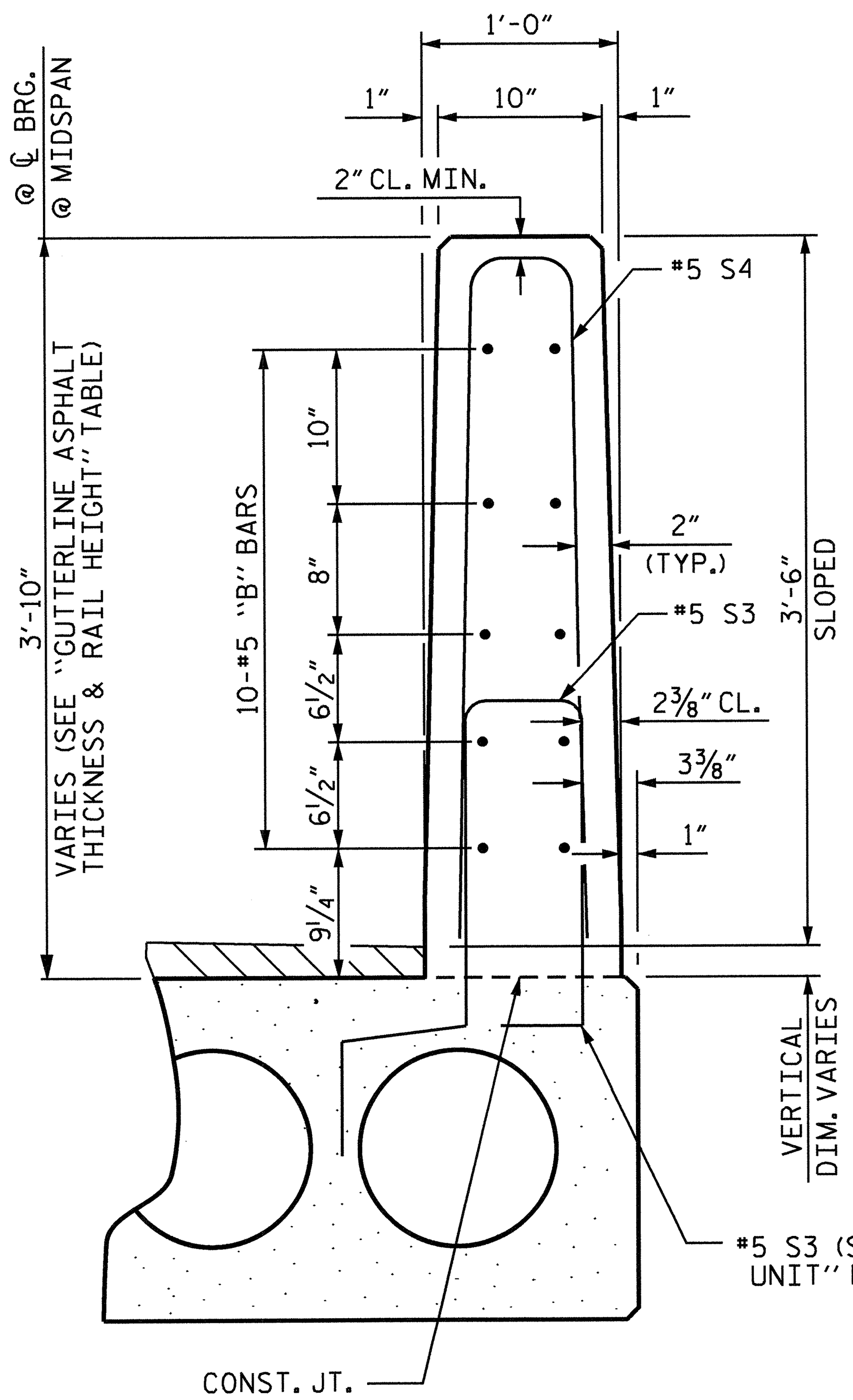
55' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	2½" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	¼" ↓
FINAL CAMBER	2¼" ↑

** INCLUDES FUTURE WEARING SURFACE

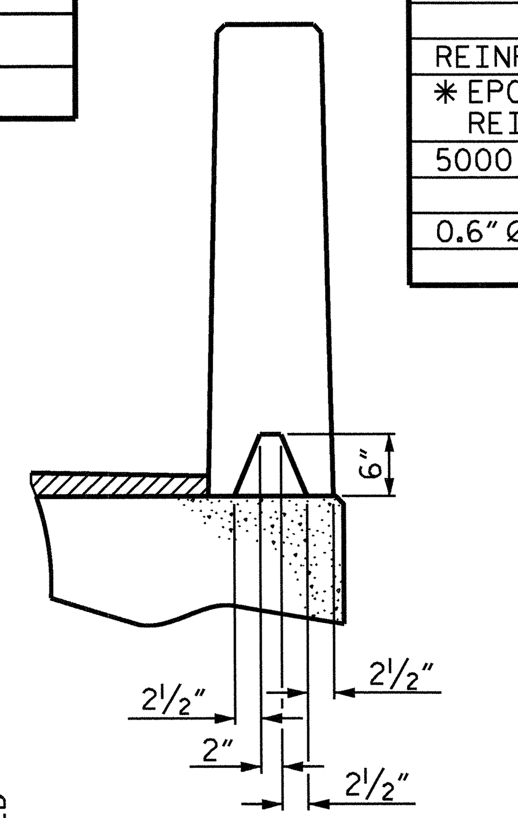
DEAD LOAD DEFLECTION AND CAMBER

35' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	½" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	⅛" ↓
FINAL CAMBER	⅜" ↑

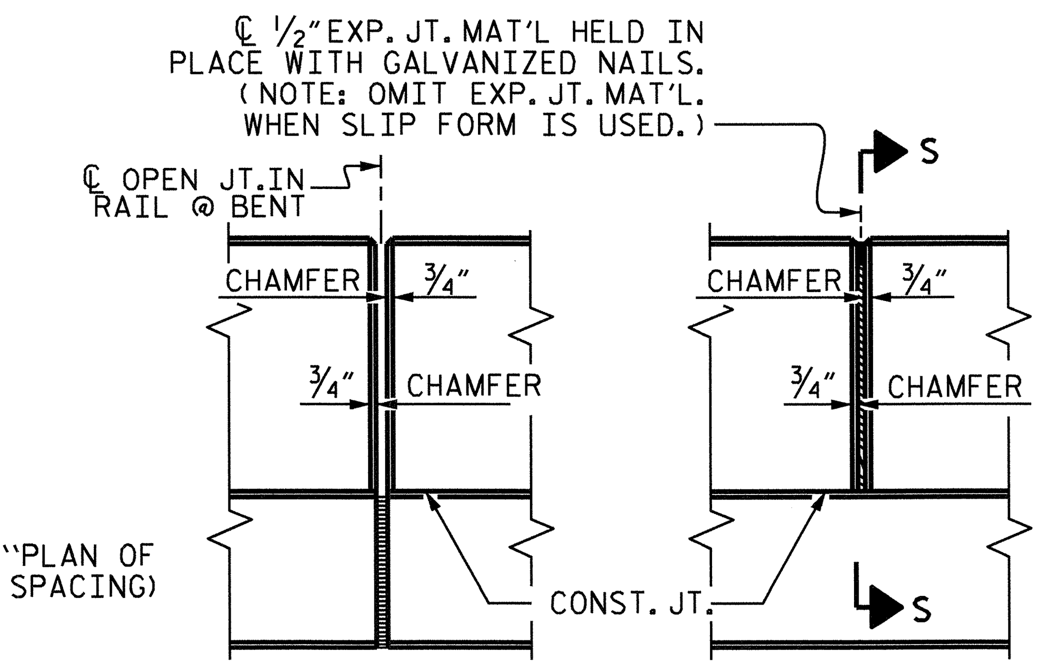
** INCLUDES FUTURE WEARING SURFACE



VERTICAL CONCRETE BARRIER RAIL SECTION



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



ELEVATION AT EXPANSION JOINTS

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	55' UNIT					
*B14	40	40	#5	STR	27'-1"	1130
* S4	128	128	#5	2	7'-2"	957
* EPOXY COATED REINFORCING STEEL			LBS.			2087
CLASS AA CONCRETE			CU.YDS.			14.4
TOTAL VERTICAL CONCRETE BARRIER RAIL			LN. FT.			110.25

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	35' UNIT					
*B10	40	40	#5	STR	17'-1"	713
* S4	88	88	#5	2	7'-2"	658
* EPOXY COATED REINFORCING STEEL			LBS.			1371
CLASS AA CONCRETE			CU.YDS.			9.2
TOTAL VERTICAL CONCRETE BARRIER RAIL			LN. FT.			70.25

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

27'-10" CLEAR ROADWAY	ASPHALT OVERLAY THICKNESS	RAIL HEIGHT
	@ MID-SPAN	@ MID-SPAN
35' UNITS	3⅜"	3'-9⅝"
55' UNITS	1½"	3'-7¾"

NOTES

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

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

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

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

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

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

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

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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

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

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

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

CORED SLABS REQUIRED

	NUMBER	LENGTH	TOTAL LENGTH
55' UNIT			
EXTERIOR C.S.	2	55'-0"	110'-0"
INTERIOR C.S.	8	55'-0"	440'-0"
TOTAL	10	55'-0"	550'-0"

CORED SLABS REQUIRED

	NUMBER	LENGTH	TOTAL LENGTH
35' UNIT			
EXTERIOR C.S.	2	35'-0"	70'-0"
INTERIOR C.S.	8	35'-0"	280'-0"
TOTAL	10	35'-0"	350'-0"

PROJECT NO. BD-5105U
FRANKLIN COUNTY
STATION: 13+33.00 -L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
90° SKEW

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029441 KRISTY W. ALFORD

REVISIONS								SHEET NO.
NO.	BY:	DATE:		NO.	BY:	DATE:		S-8
1				3				TOTAL SHEETS
2				4				17

ASSEMBLED BY : A.C. OUTLAW DATE : 6/07/12	
CHECKED BY : W. F. PARKER DATE : 6/21/12	
DRAWN BY : DGE 5/09	REV. 12/11 MAA/AAC
CHECKED BY : BCH 6/09	

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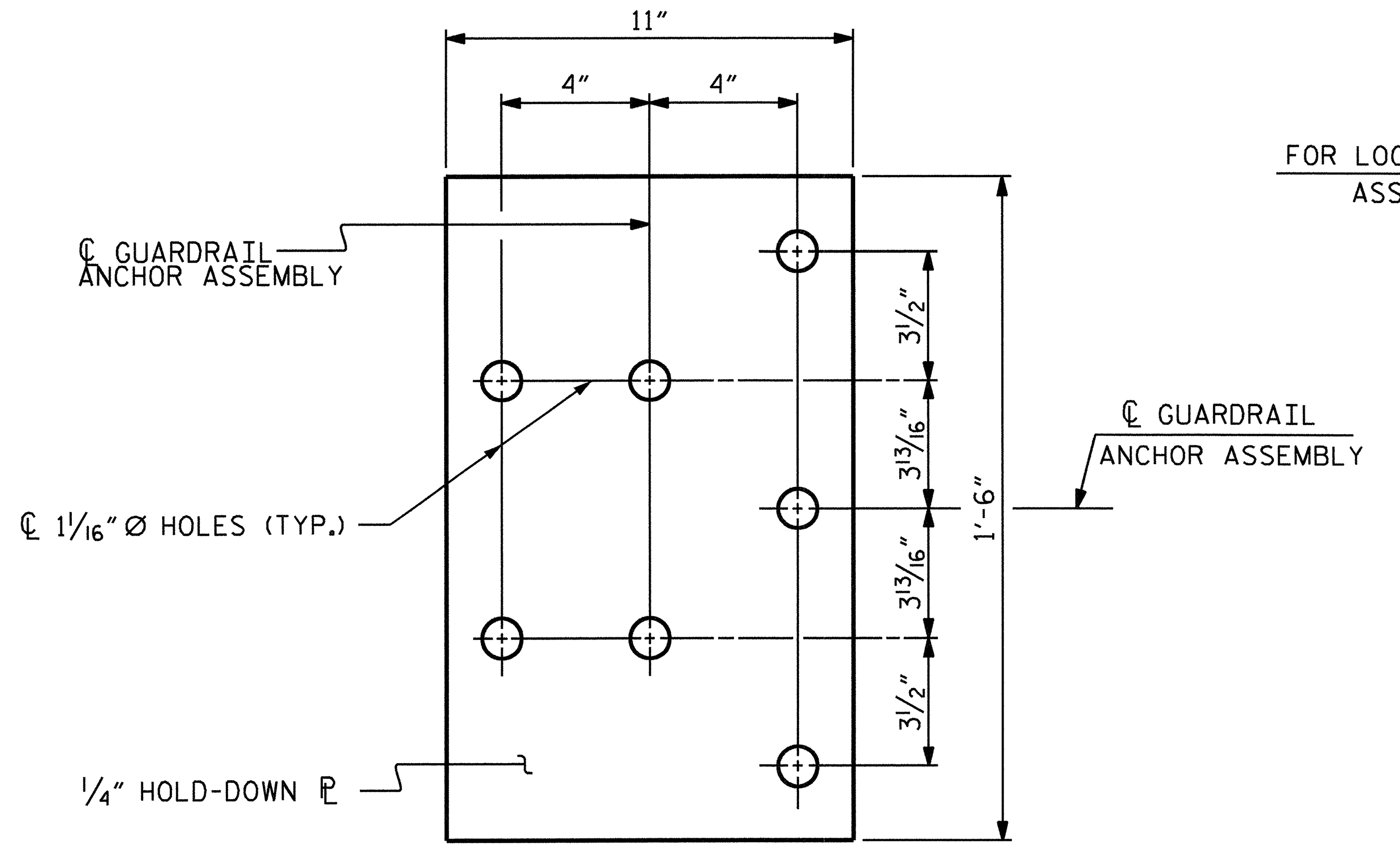
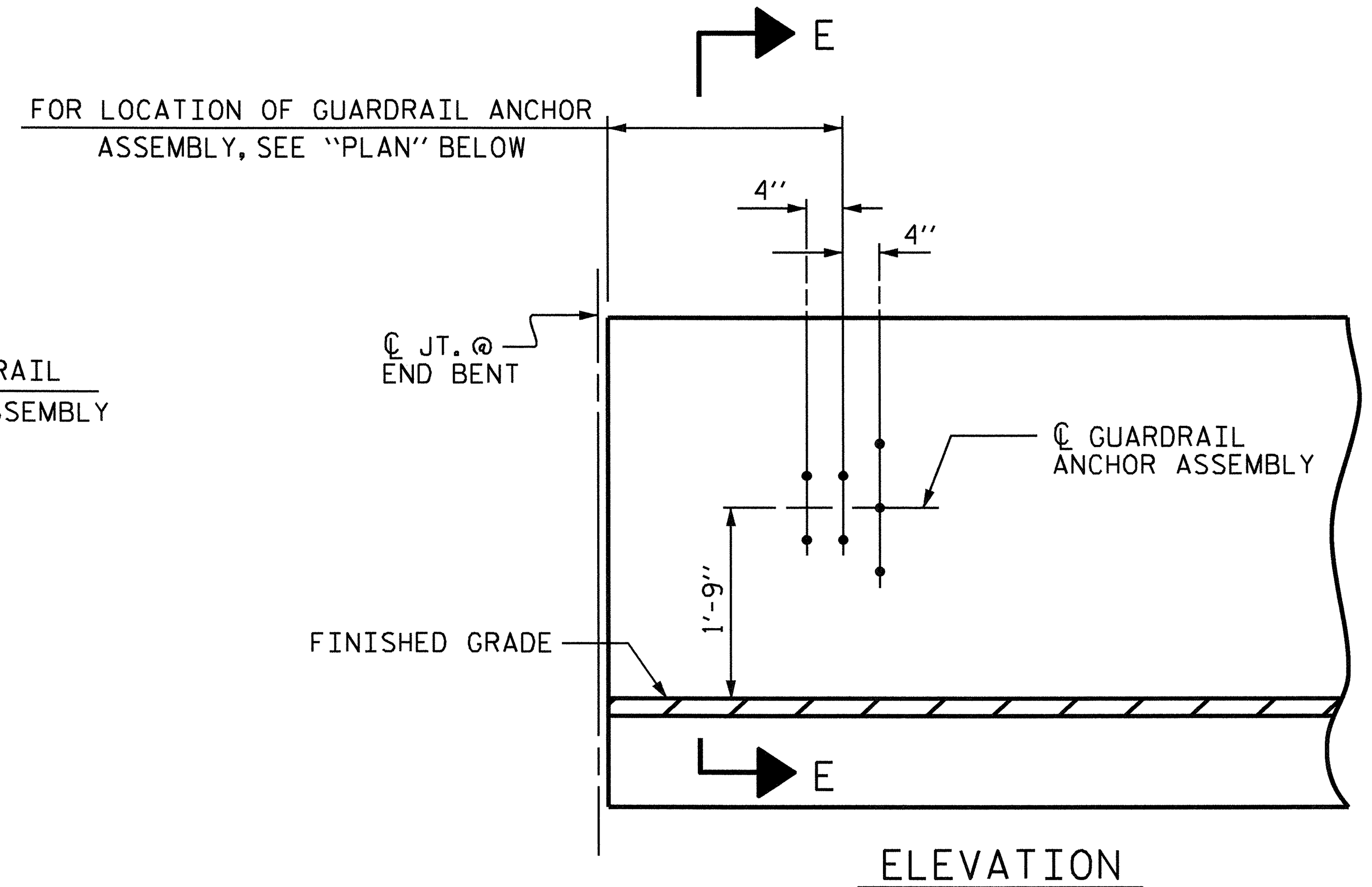
STD. NO. 21" PCS3_30_90S



PLAN



ELEVATION

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A $\frac{1}{4}$" HOLD DOWN PLATE AND 7 - $\frac{7}{8}$" 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 $\frac{7}{8}$" 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.)

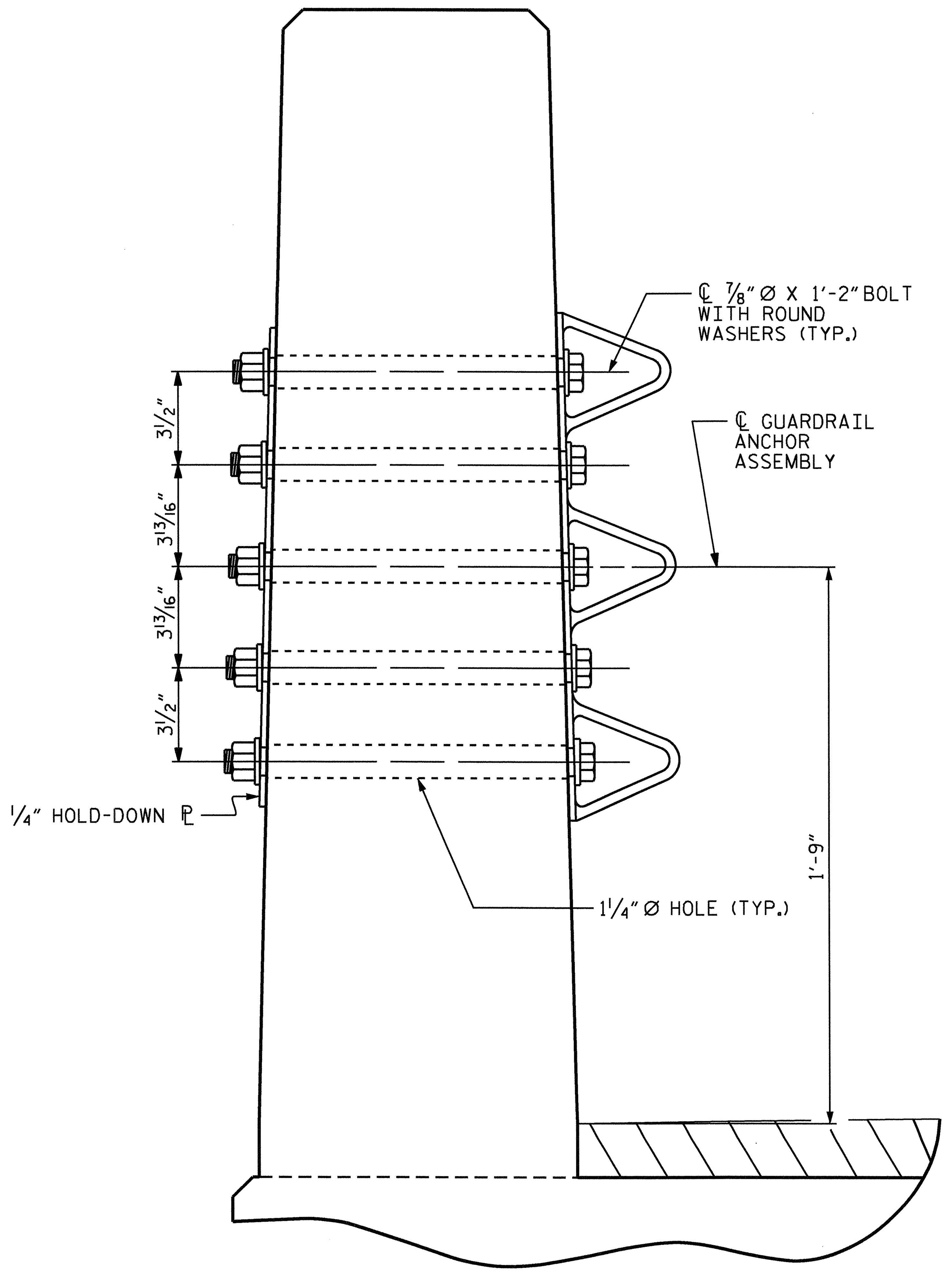
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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.

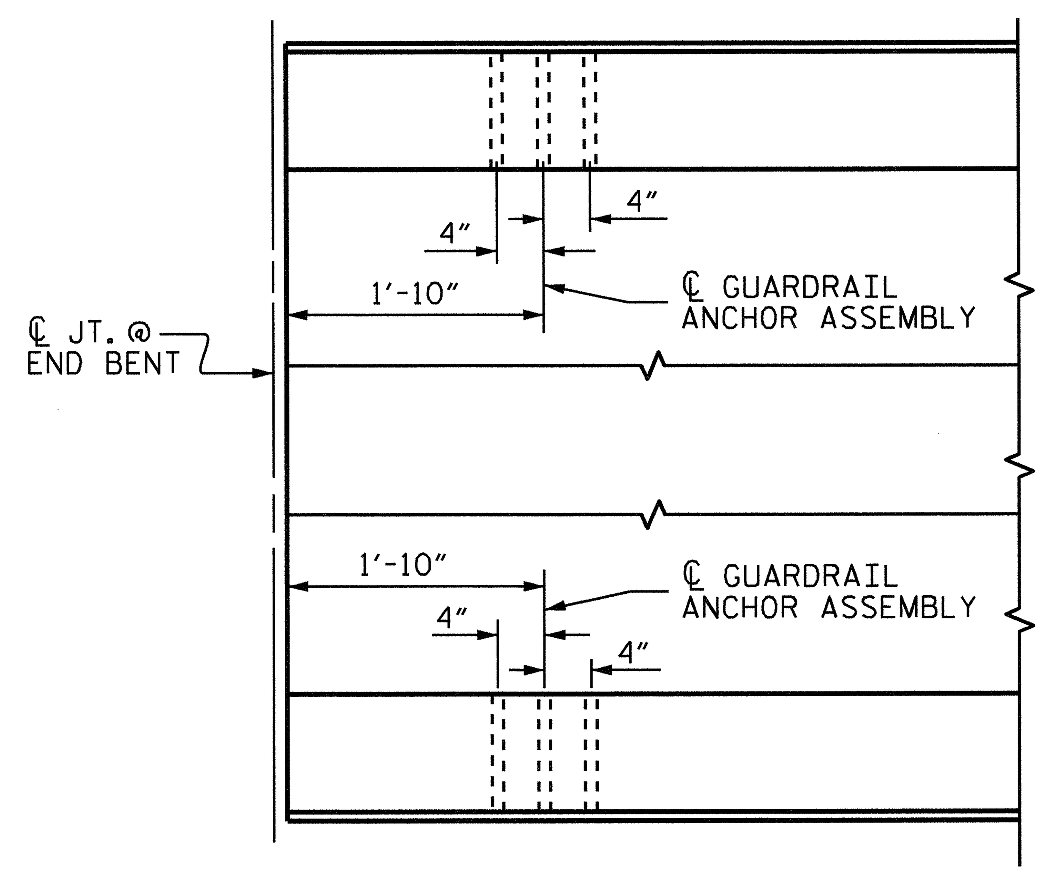
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

THE 1 $\frac{1}{4}$" 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

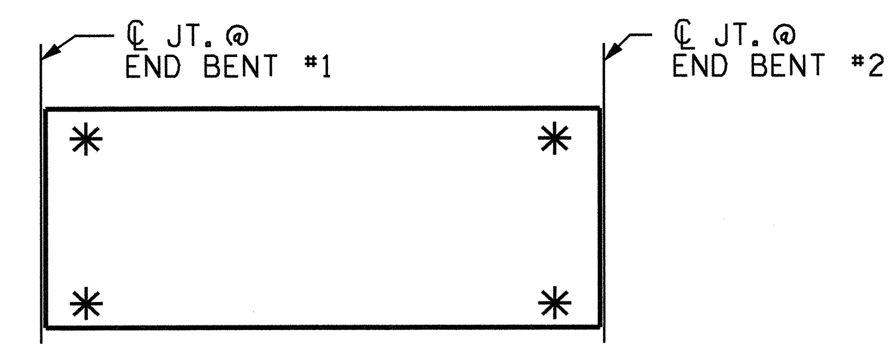
GUARDRAIL ANCHOR ASSEMBLY DETAILS



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-5105U

FRANKLIN COUNTY

STATION: 13+33.00 -L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

GUARDRAIL ANCHORAGE FOR VERTICAL CONCRETE BARRIER RAIL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029441 KRISTY W. ALFORD

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			17

(SHT 1) STD. NO. GRA3

ASSEMBLED BY : A.C. OUTLAW DATE : 6/07/12	
CHECKED BY : W.F. PARKER DATE : 6/21/12	
DRAWN BY : MAA 5/10	ADDED 5/6/10
CHECKED BY : GM 5/10	REV. 10/1/11 MAA/GM
	REV. 12/5/11 MAA/GM

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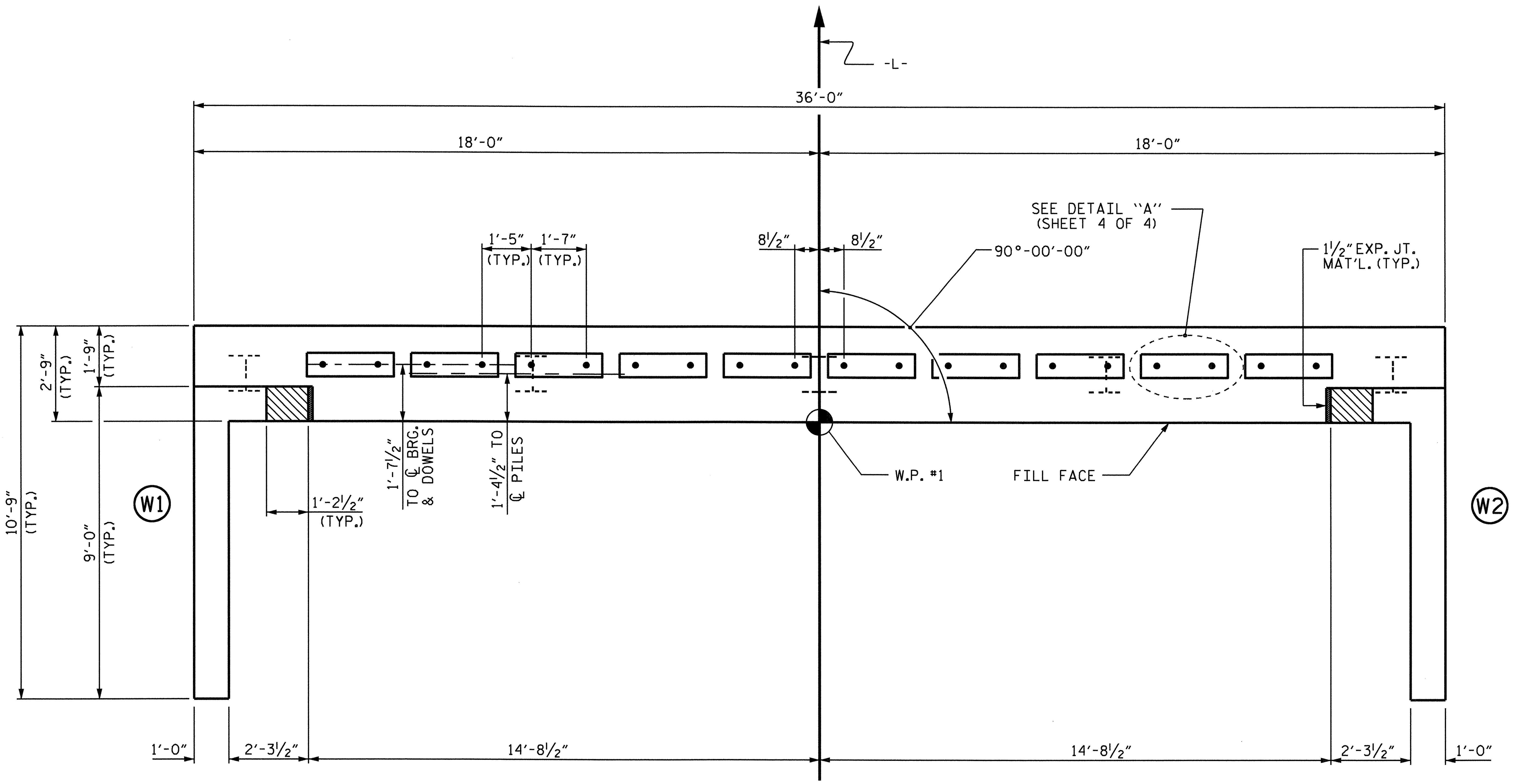
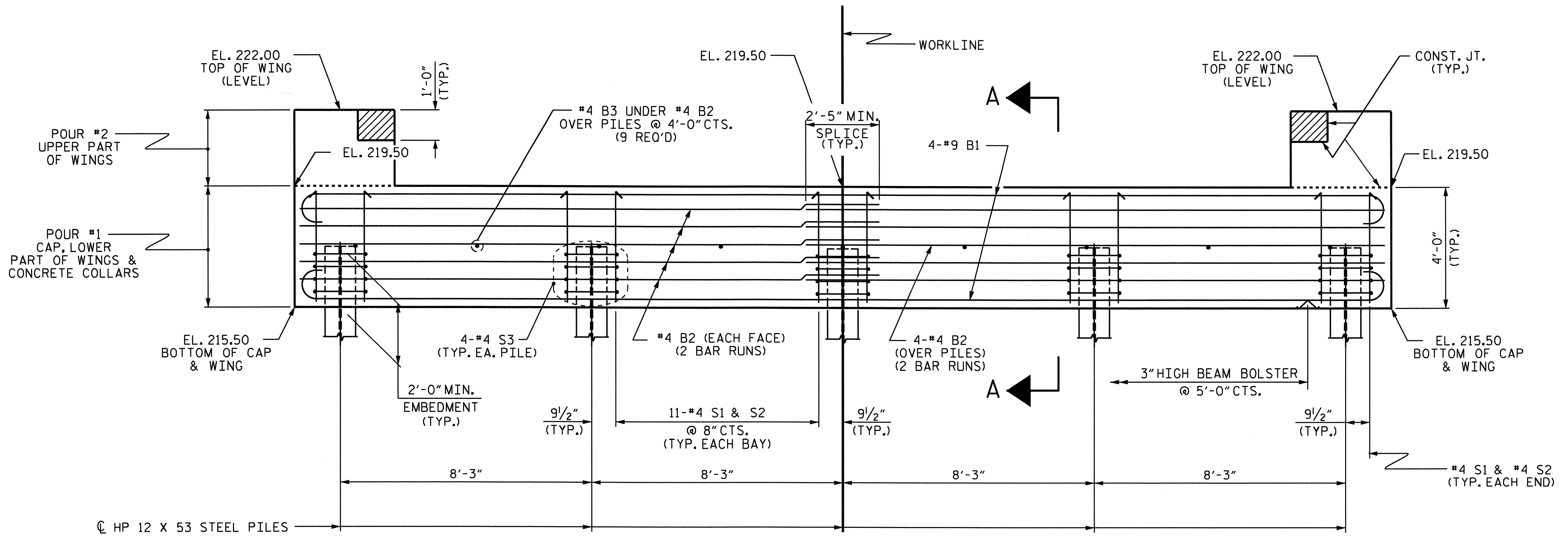


PLAN



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.

PROJECT NO. BD-5105U
FRANKLIN COUNTY
STATION: 13+33.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029441 KRISTY W. ALFORD 7/31/12

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			17

ASSEMBLED BY : A.C. OUTLAW	DATE : 6/07/12
CHECKED BY : W.F. PARKER	DATE : 6/21/12
DRAWN BY : WJH 12/11	
CHECKED BY : AAC 12/11	

30-JUL-2012 13:09
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kalford

STD. NO. EB_30_90S4

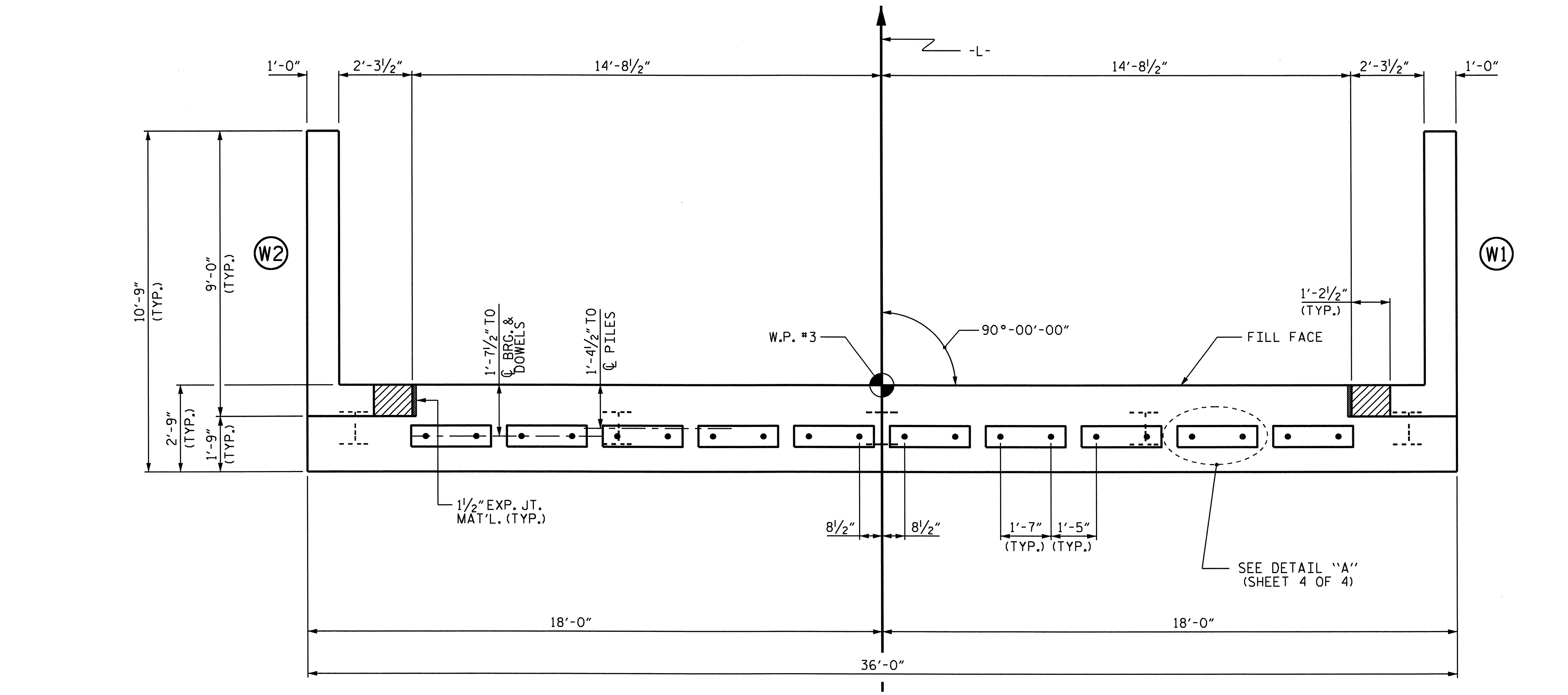
NOTES

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

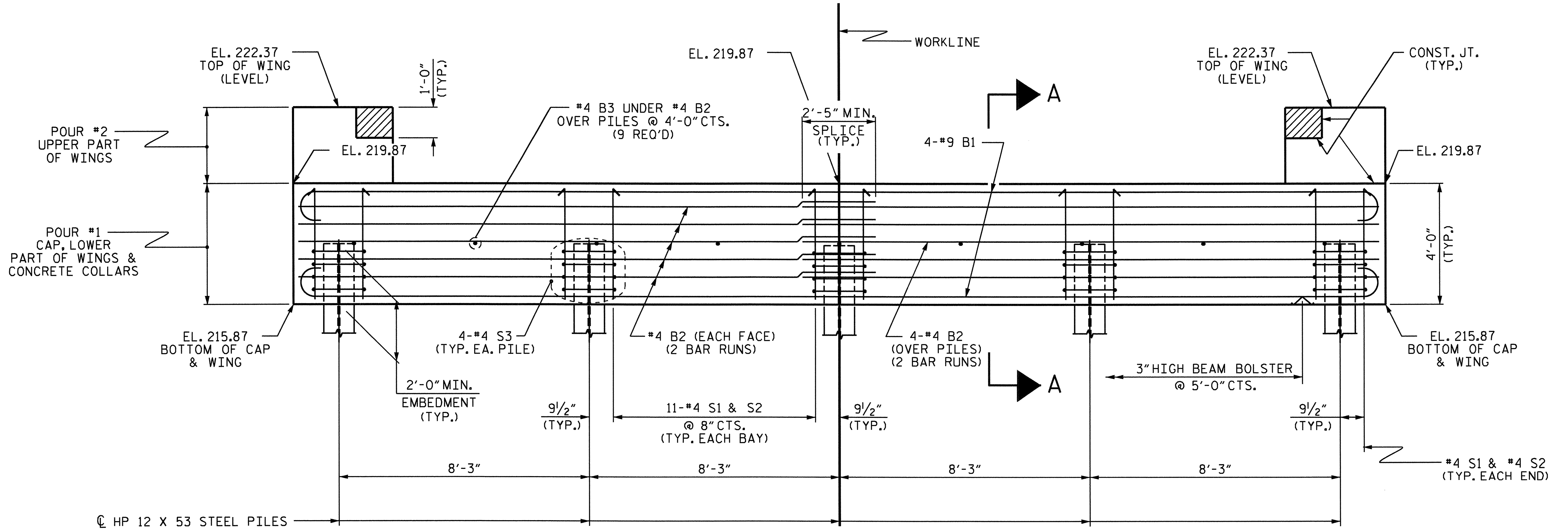
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

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-5105U
FRANKLIN COUNTY
STATION: 13+33.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 2

NORTH CAROLINA PROFESSIONAL SEAL 029441 ENGINEER KRISTY W. ALFORD

REVISIONS								SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:			S-11
1			3					TOTAL SHEETS
2			4					17

STD. NO. EB_30_90S4

ASSEMBLED BY : A.C. OUTLAW	DATE : 6/07/12		
CHECKED BY : W. F. PARKER	DATE : 6/21/12		
DRAWN BY : WJH	12/11		
CHECKED BY : AAC	12/11		

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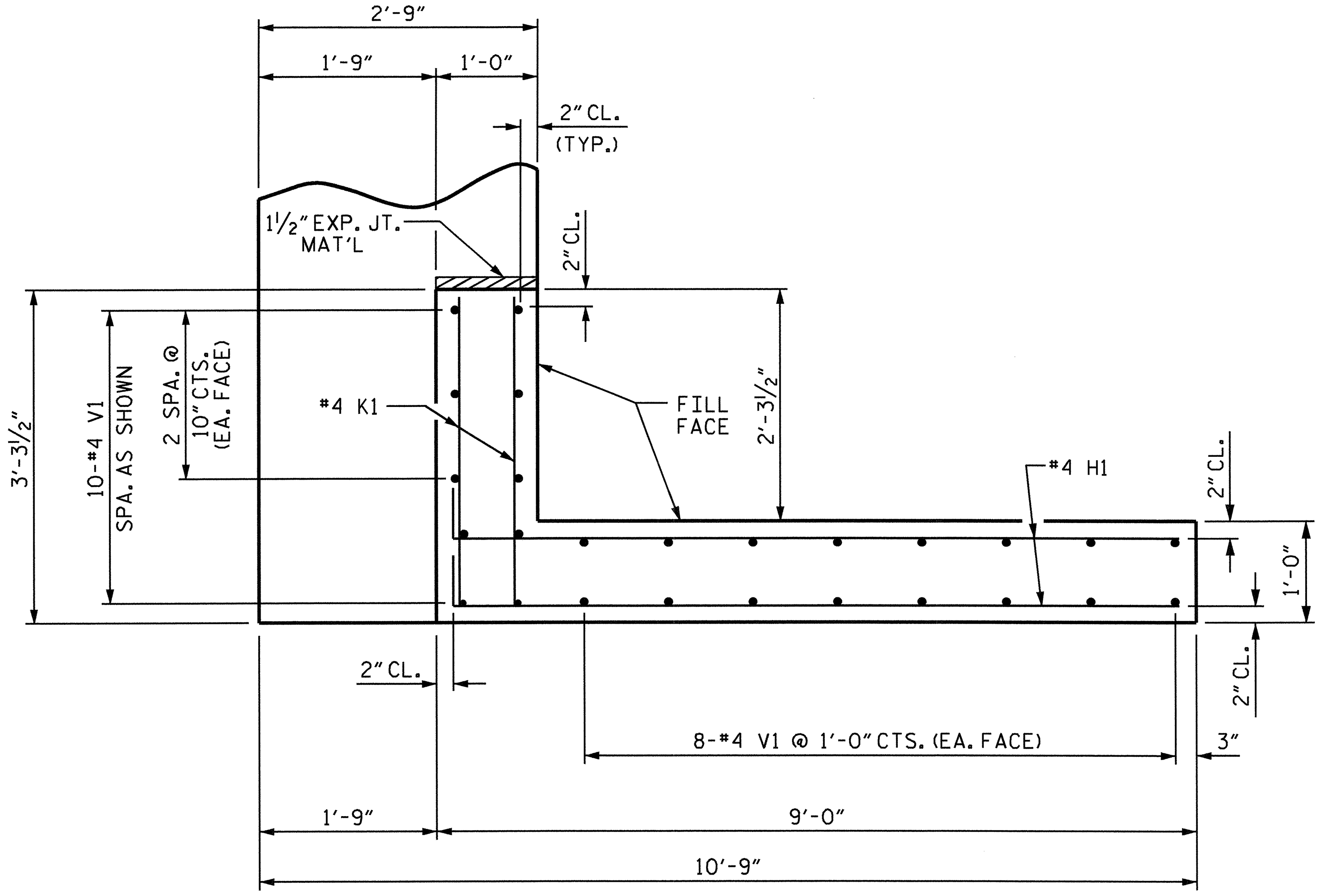
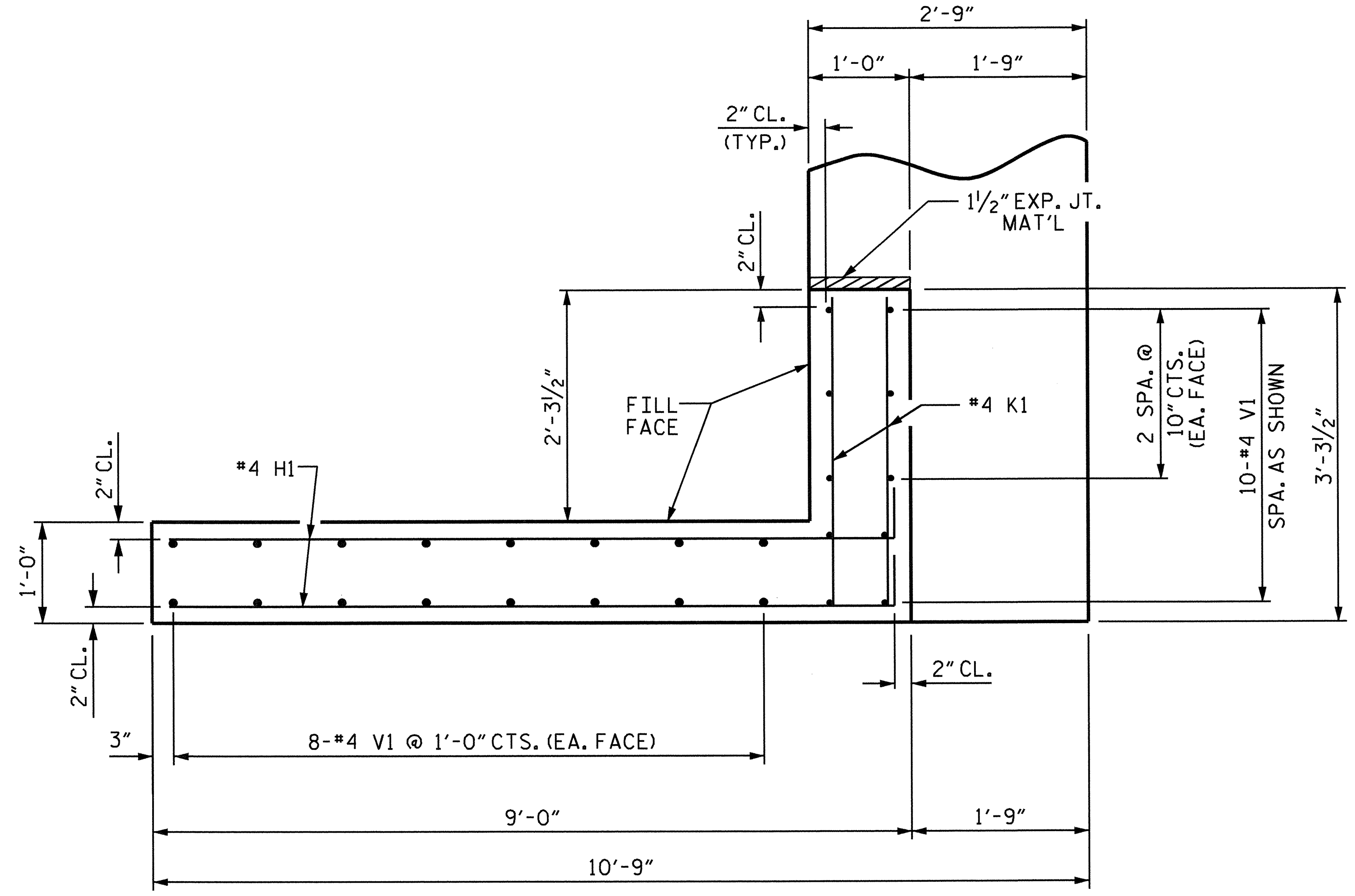
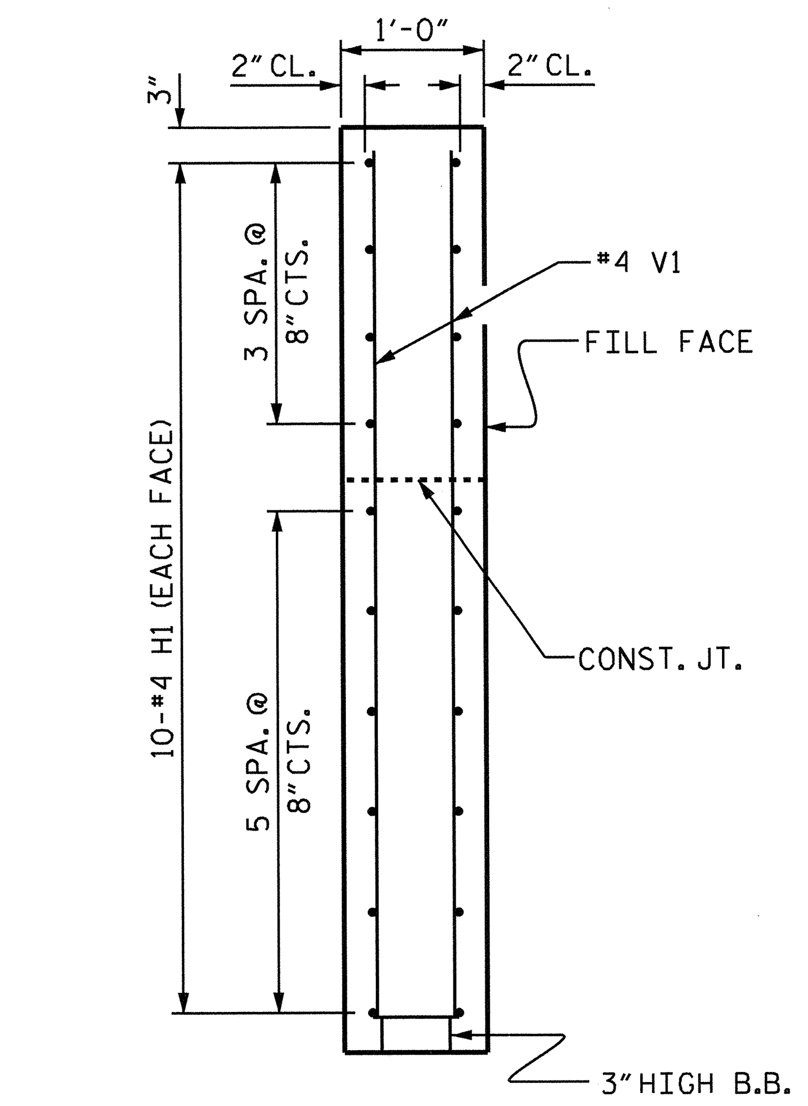
kalford



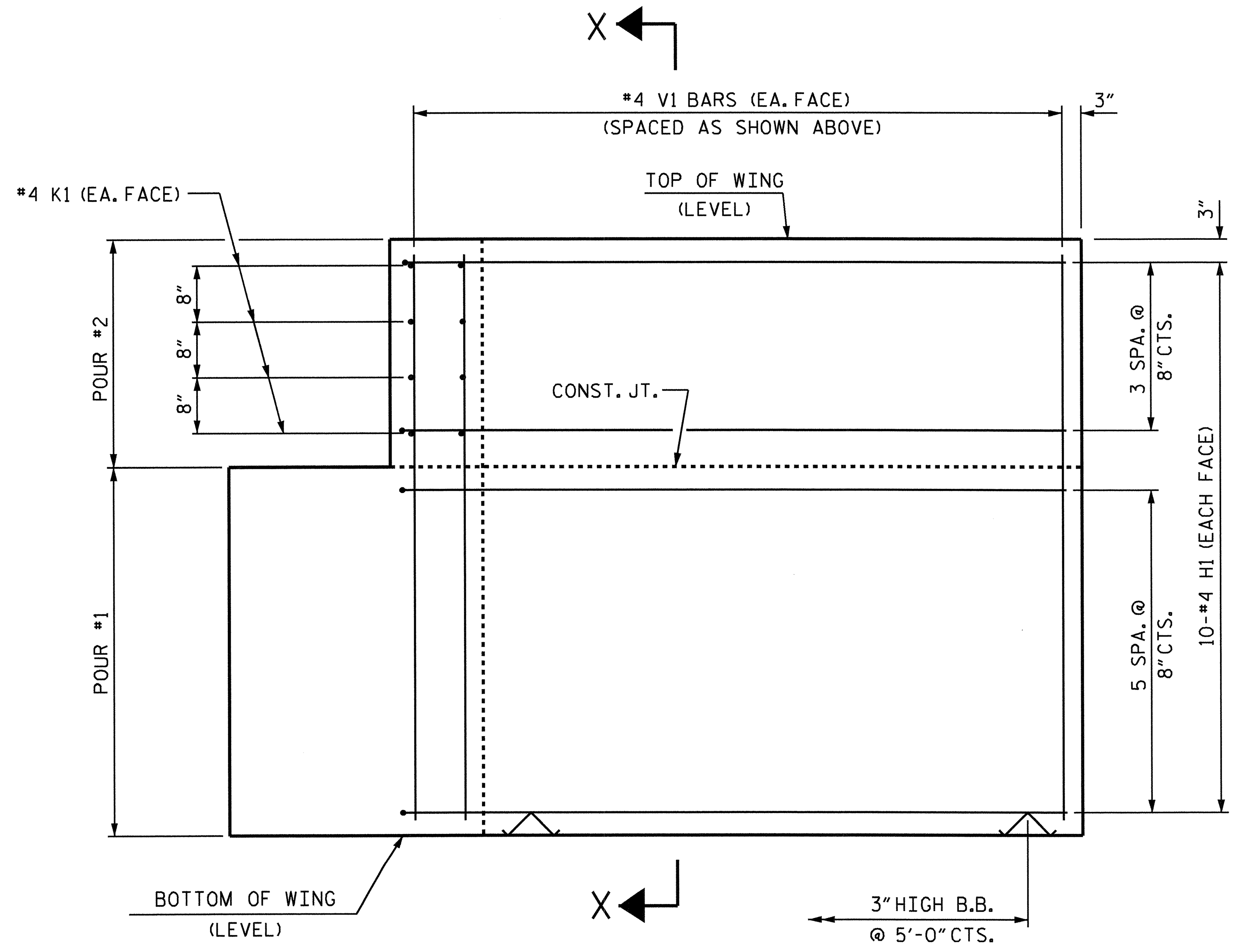
PLAN OF WING W1



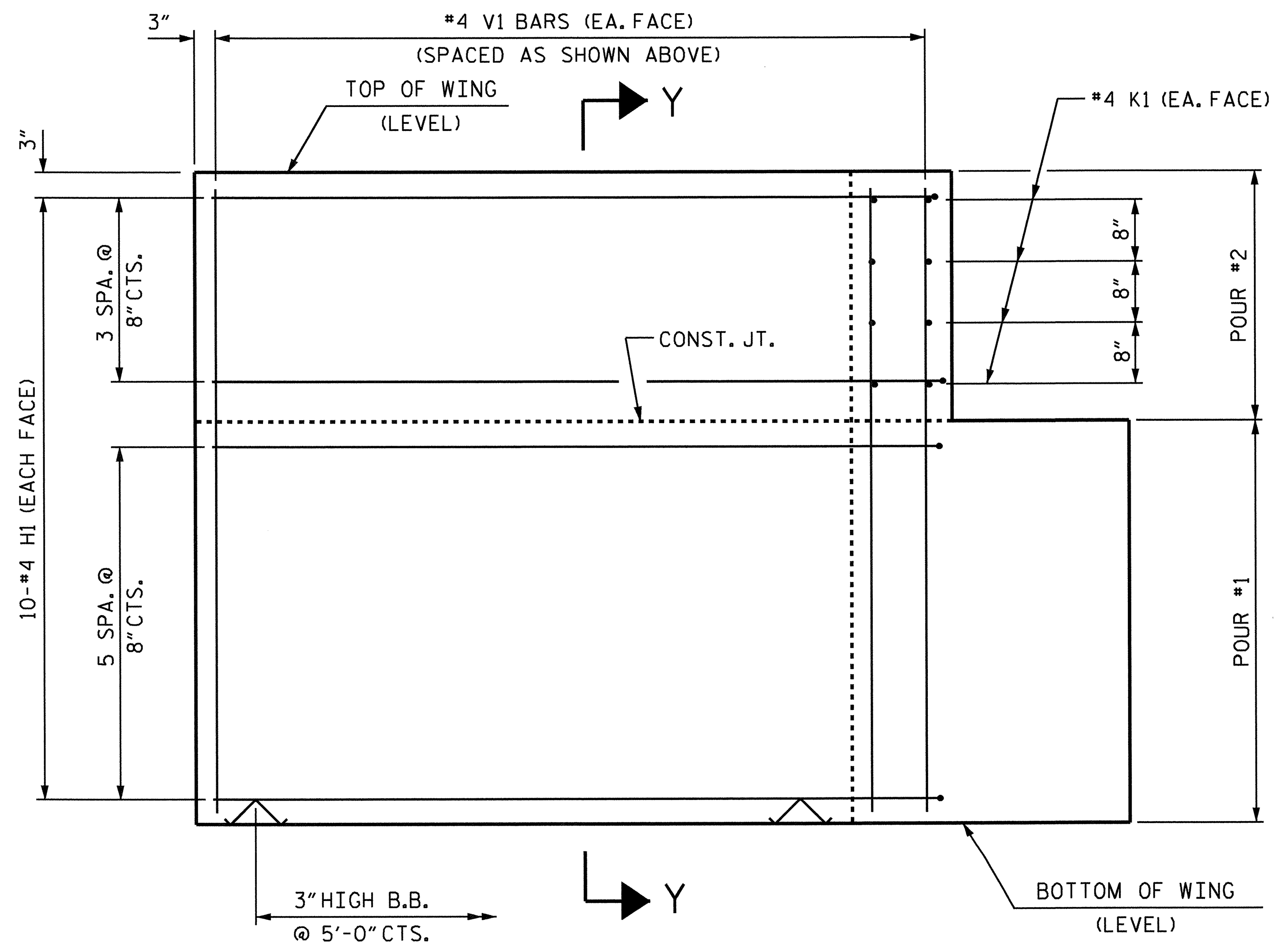
PLAN OF WING W2



SECTION X-X

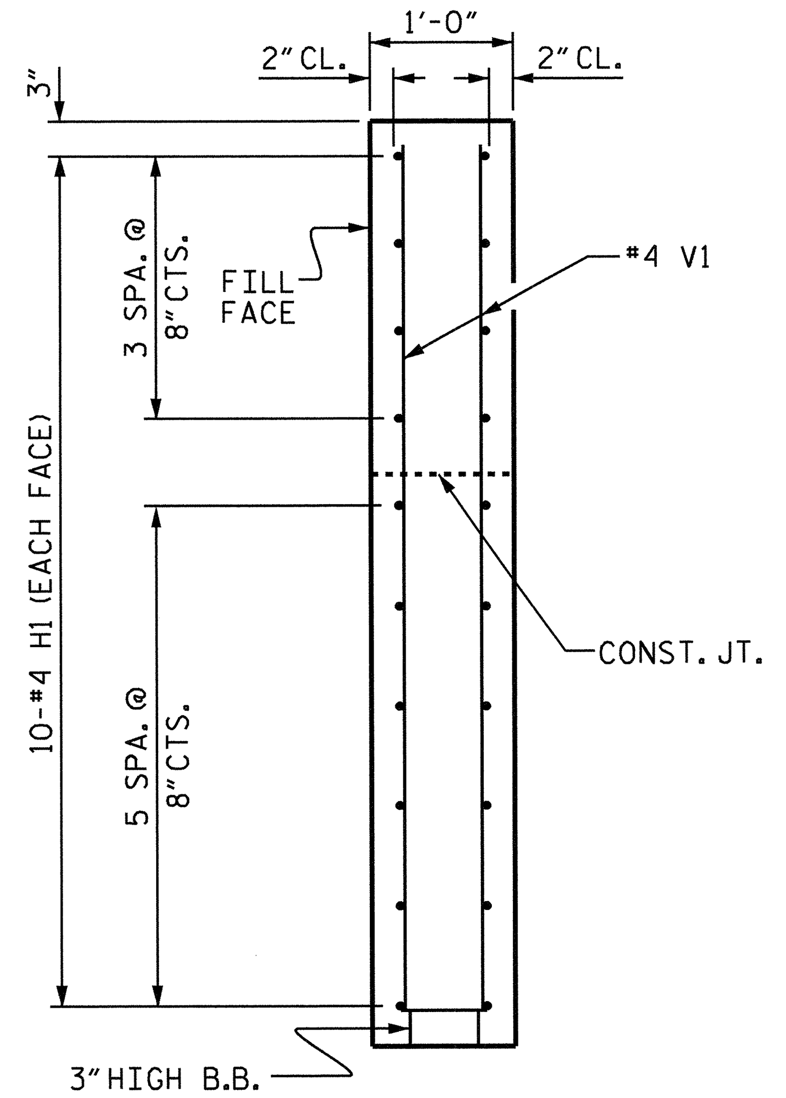


ELEVATION OF WING W1



ELEVATION OF WING W2

WING DETAILS



SECTION Y-Y

PROJECT NO. BD-5105U

FRANKLIN COUNTY

STATION: 13+33.00 -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					17

ASSEMBLED BY : A.C. OUTLAW	DATE : 6/07/12	
CHECKED BY : W. F. PARKER	DATE : 6/21/12	
DRAWN BY : WJH 12/11		
CHECKED BY : AAC 12/11		

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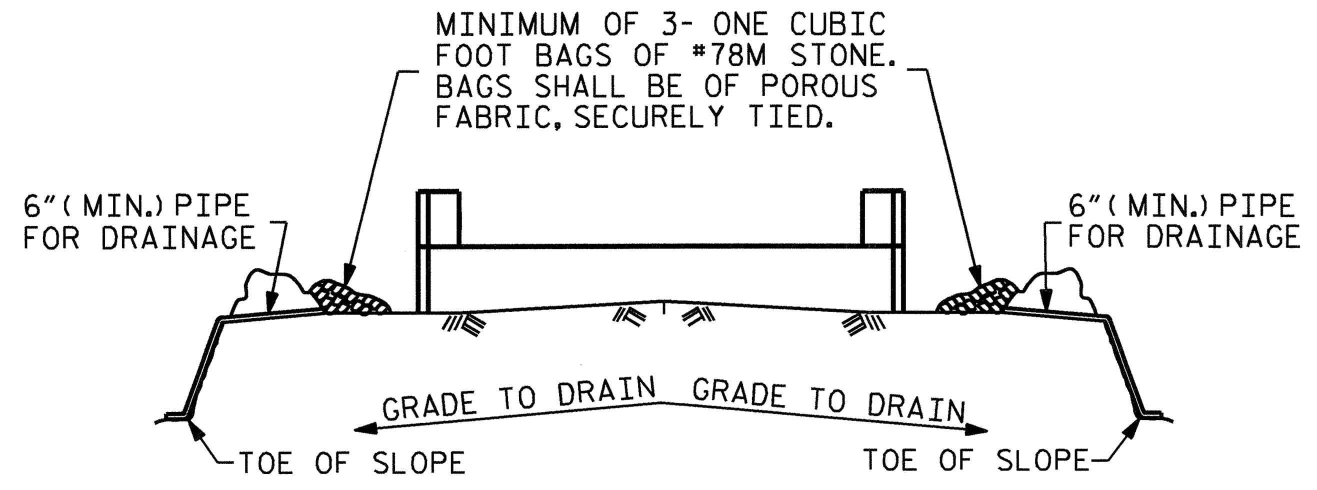
STD. NO. EB_30_90S4

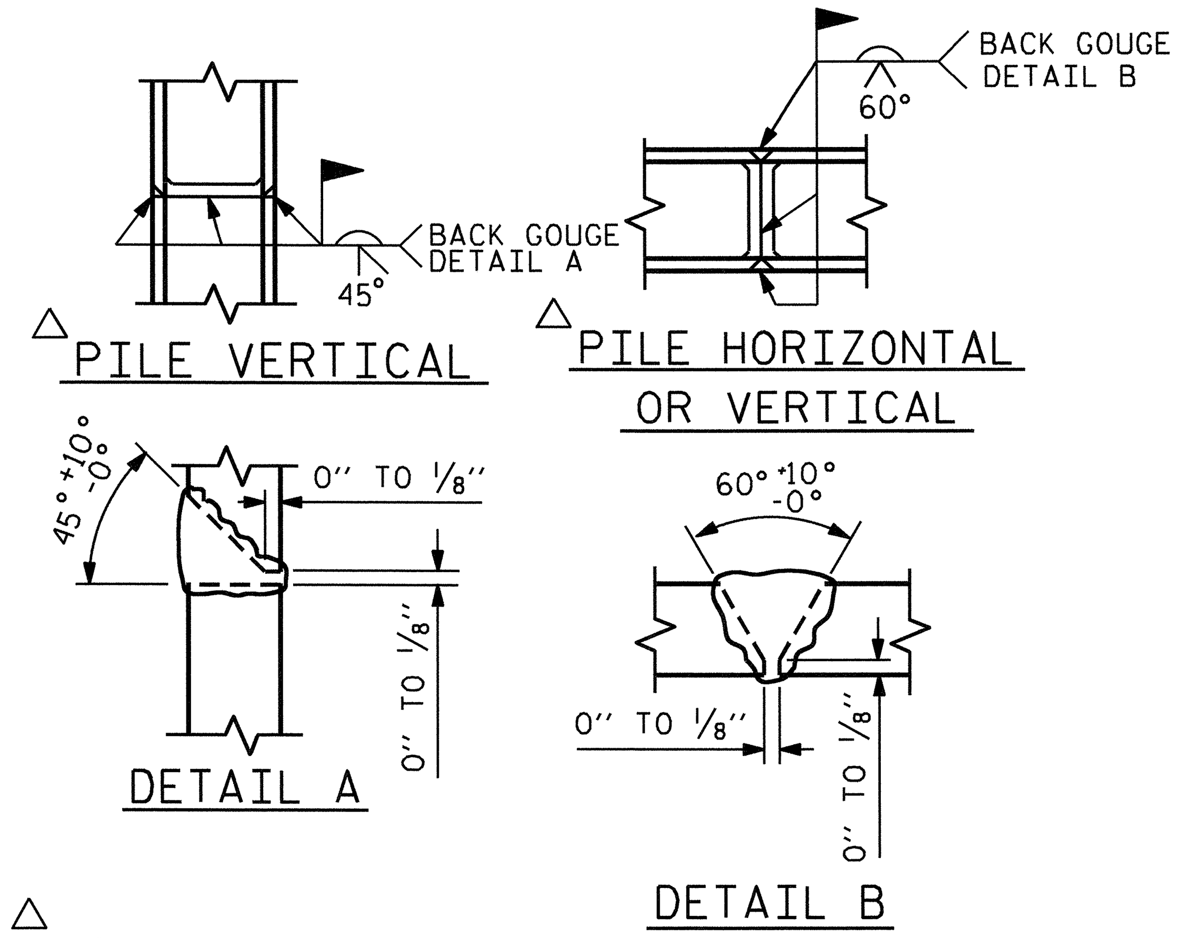


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

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

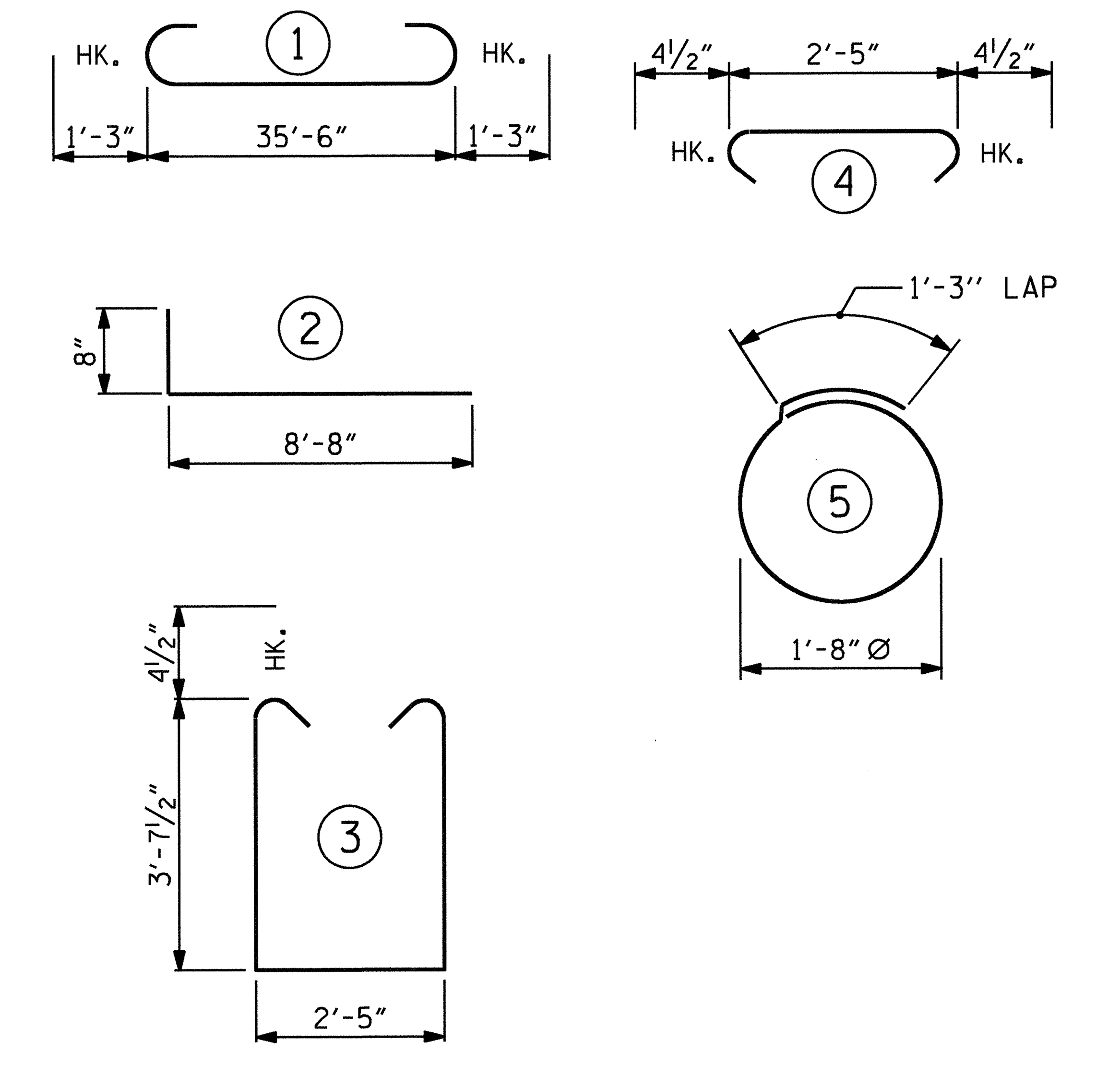
TEMPORARY DRAINAGE AT END BENT



△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT No. 1		END BENT No. 2	
HP 12 X 53 STEEL PILES		HP 12 X 53 STEEL PILES	
NO: 5	LIN. FT.= 175	NO: 5	LIN. FT.= 225
STEEL PILE POINTS	5 EACH	STEEL PILE POINTS	5 EACH
PILE REDRIVES	3 EACH	PILE REDRIVES	3 EACH

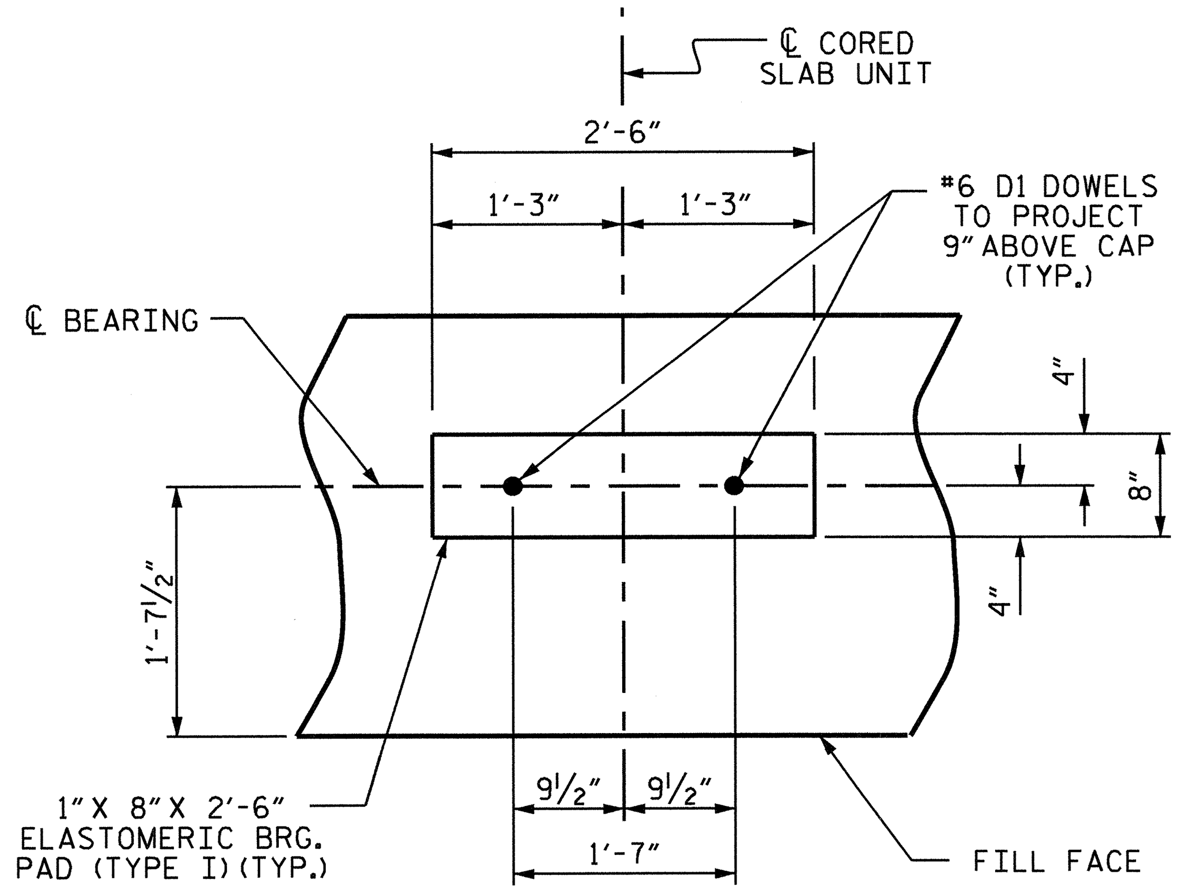
BILL OF MATERIAL
FOR ONE END BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	38'-0"	1034
B2	28	#4	STR	19'-1"	357
B3	9	#4	STR	2'-5"	15
D1	20	#6	STR	1'-6"	45
H1	40	#4	2	9'-4"	249
K1	16	#4	STR	2'-11"	31
S1	46	#4	3	10'-5"	320
S2	46	#4	4	3'-2"	97
S3	20	#4	5	6'-6"	87
V1	52	#4	STR	6'-2"	214

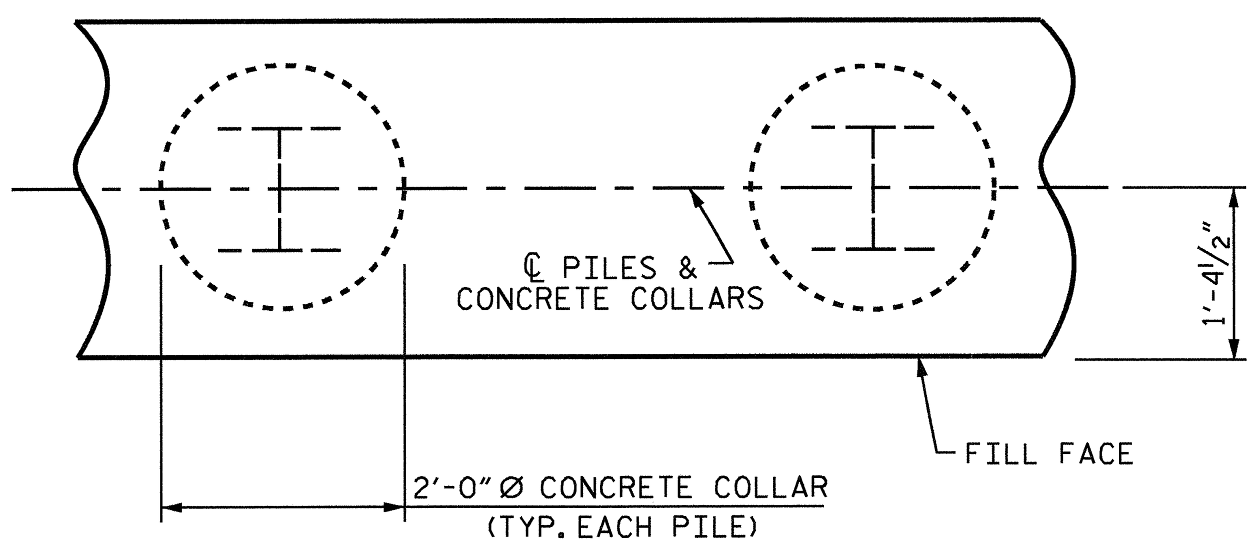
REINFORCING STEEL (FOR ONE END BENT) 2449 LBS.

CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)

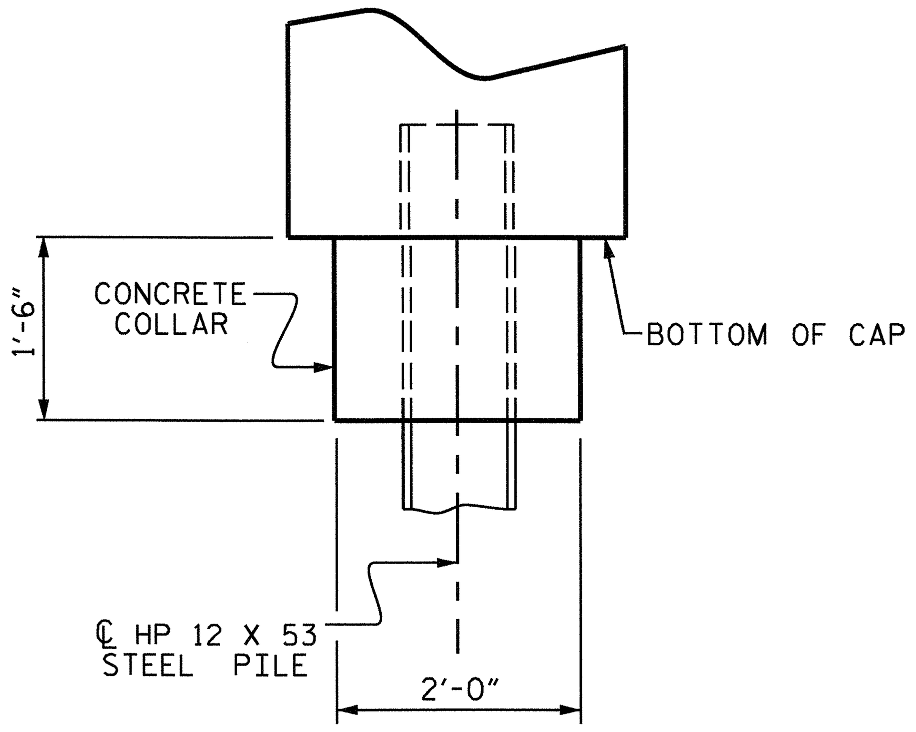
POUR #1	CAP, LOWER PART OF WINGS & COLLARS	17.9 C.Y.
POUR #2	UPPER PART OF WINGS	2.1 C.Y.
TOTAL CLASS A CONCRETE		20.0 C.Y.



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

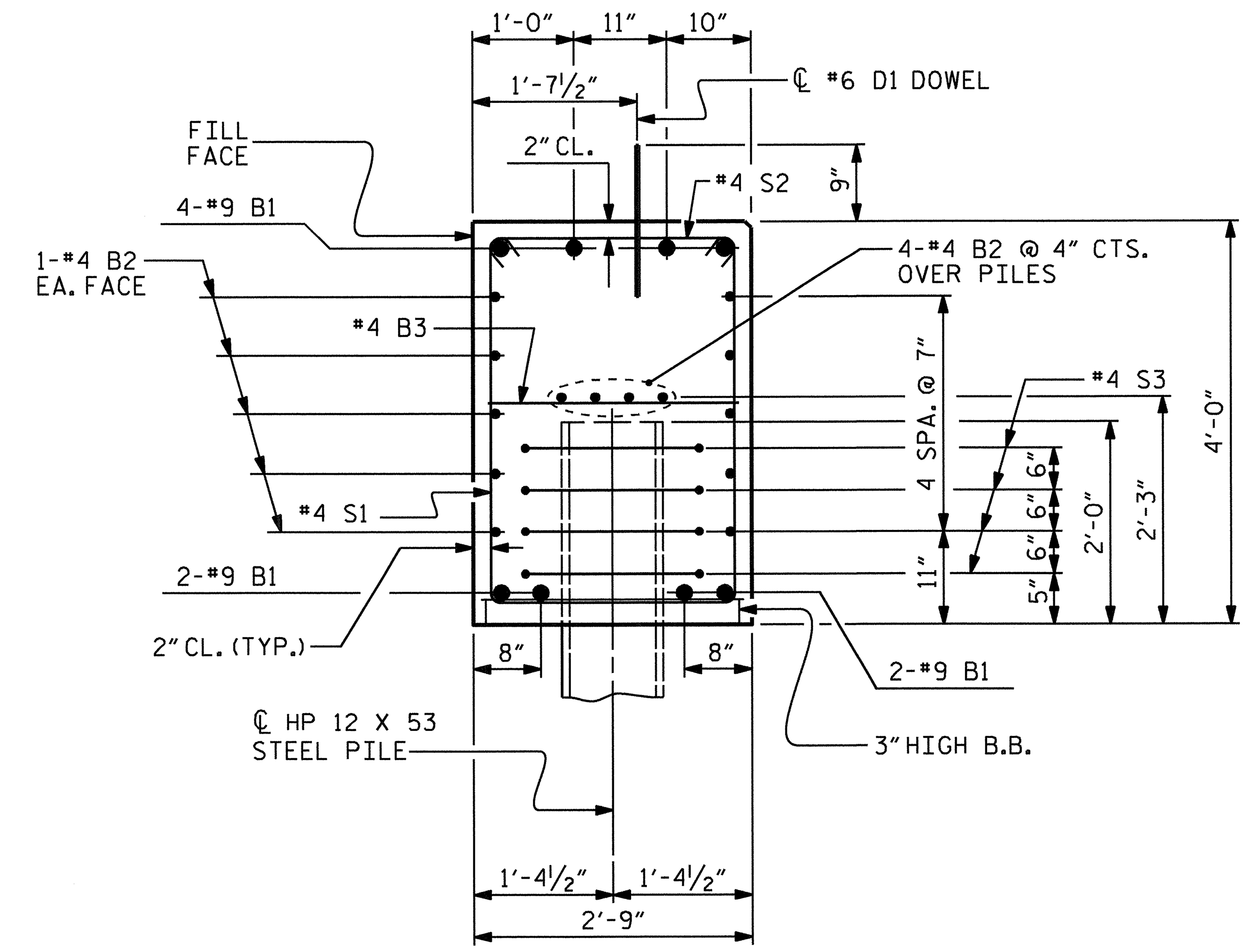


PLAN



ELEVATION

CORROSION PROTECTION FOR STEEL PILES DETAIL
(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



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

PROJECT NO. BD-5105U
FRANKLIN COUNTY
STATION: 13+33.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1 & 2
DETAILS

ASSEMBLED BY : A.C. OUTLAW	DATE : 6/06/12
CHECKED BY : W. F. PARKER	DATE : 6/21/12
DRAWN BY : WJH 12/11	
CHECKED BY : AAC 12/11	

REVISIONS						SHEET NO. S-13
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS 17
1			3			
2			4			

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kalford

STD. NO. EB_30_90S4

NOTES

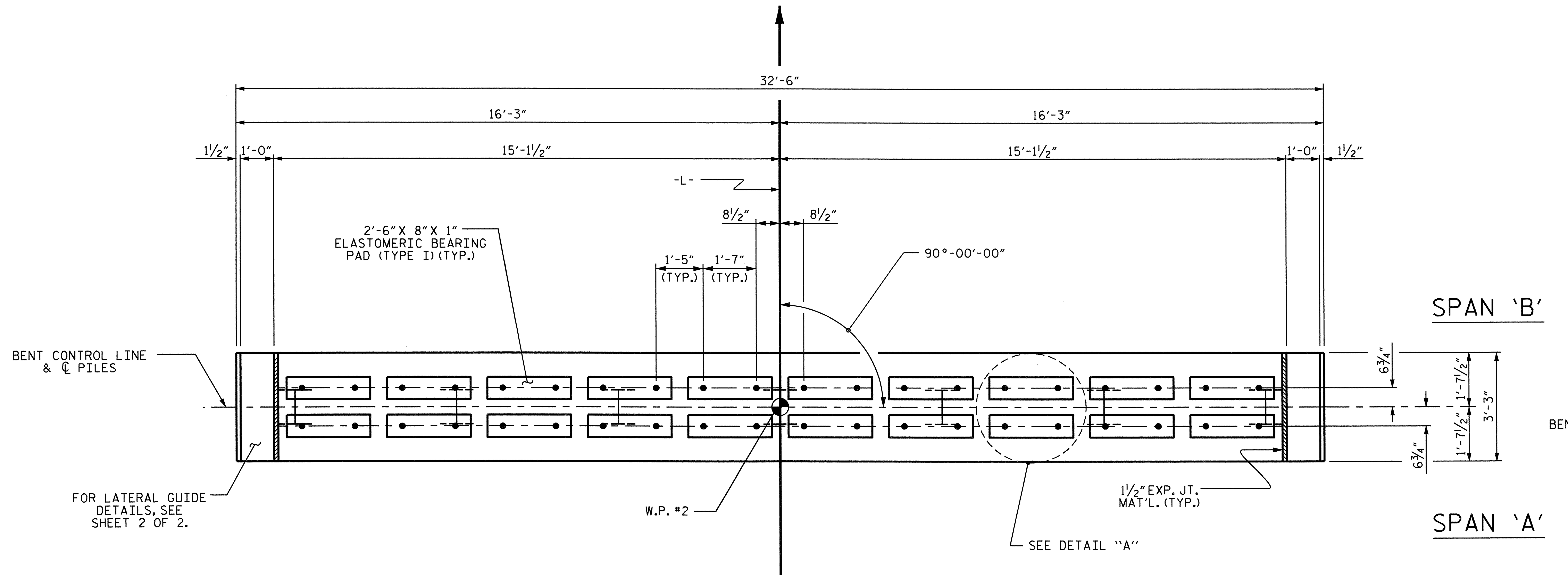
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

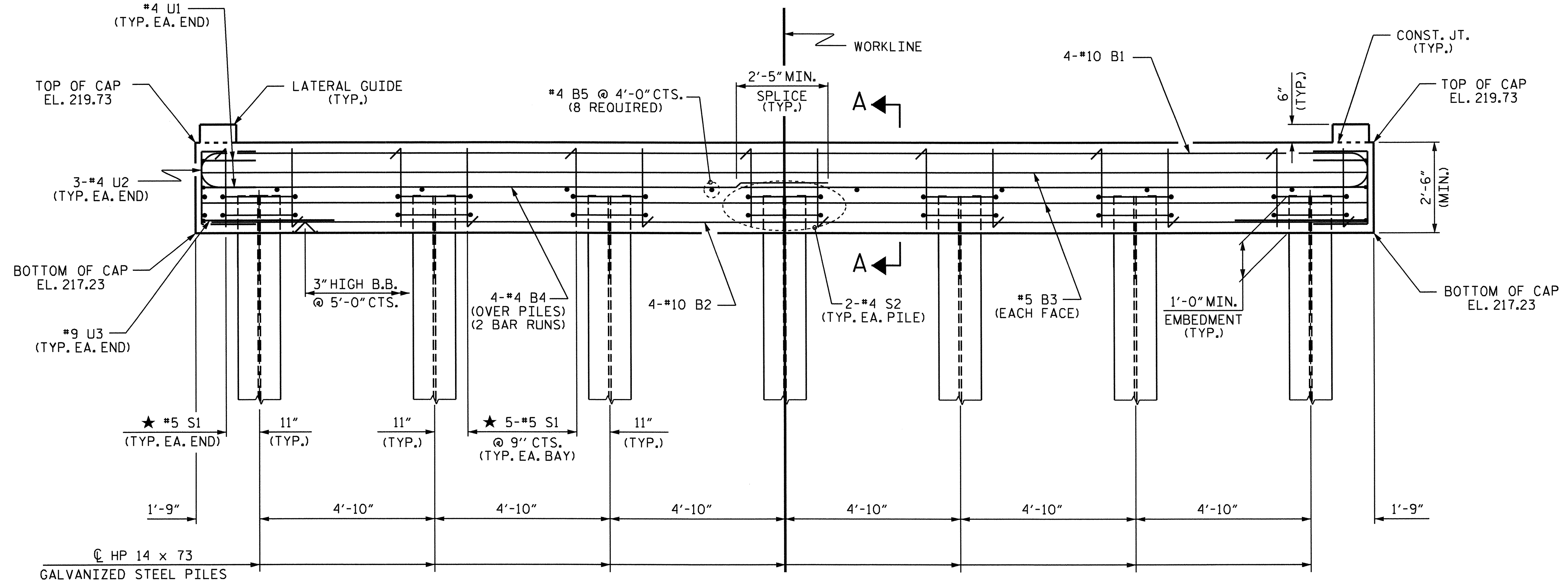
★ INVERT ALTERNATE STIRRUPS.

GALVANIZE THE FULL LENGTH OF EACH INTERIOR BENT PILE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDE IF APPROVED BY THE ENGINEER.

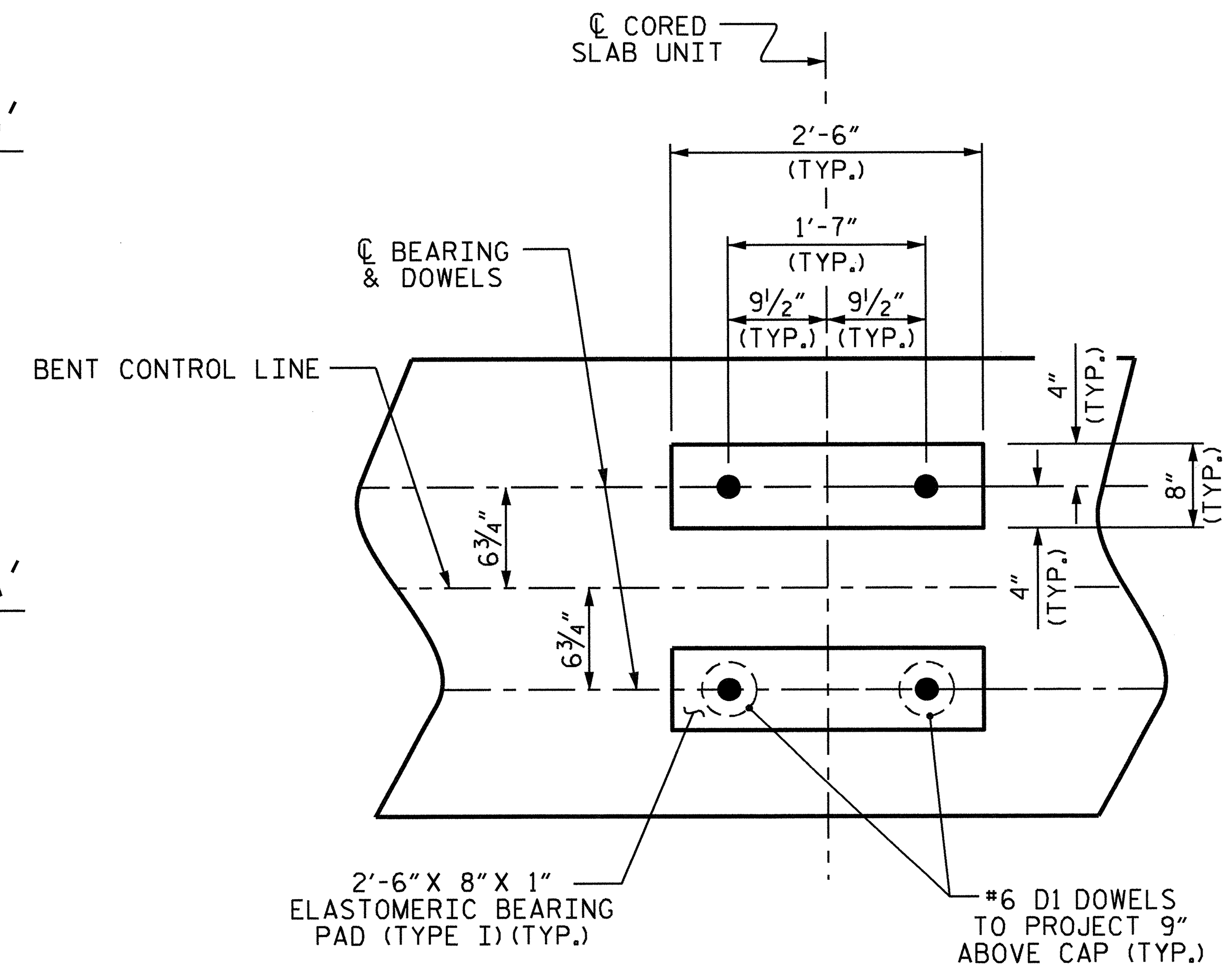


PLAN



ELEVATION

FOR SECTION A-A, SEE SHEET 2 OF 2



DETAIL "A"

(DIMENSIONS ARE TYPICAL EACH BEARING)

PROJECT NO. BD-5105U
FRANKLIN COUNTY
STATION: 13+33.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT No. 1

REVISIONS								SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:			S-14
1			3					TOTAL SHEETS
2			4					17

ASSEMBLED BY : A.C. OUTLAW	DATE : 6/07/12
CHECKED BY : W.F. PARKER	DATE : 6/21/12
DRAWN BY : DGE 05/10	
CHECKED BY : MKT 05/10	

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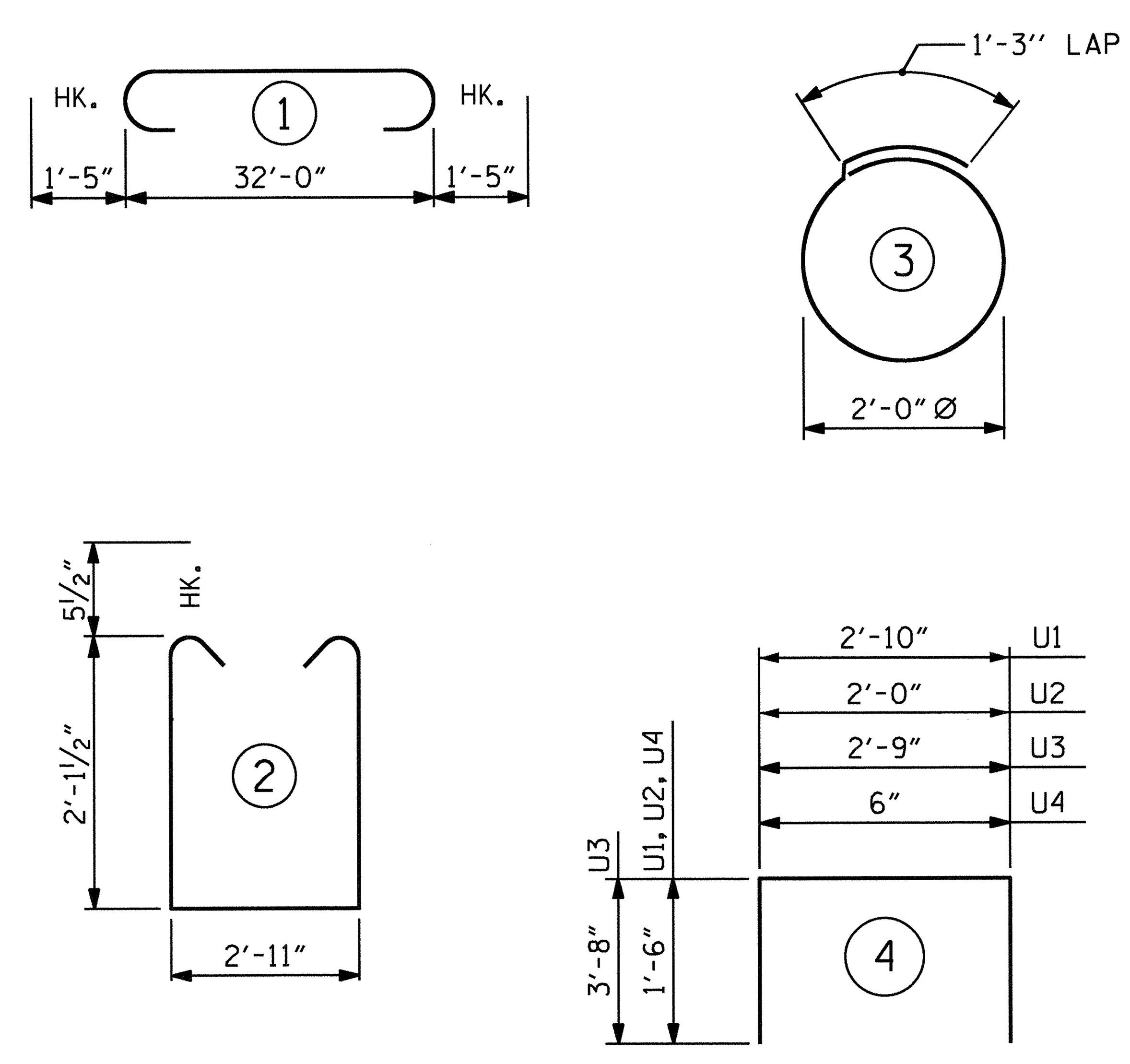
kalford

STD. NO. 14" HP_BT_30_90S_<60'

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

FOR ONE BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	1	34'-10"	600
B2	4	#10	STR	32'-2"	554
B3	4	#5	STR	32'-2"	134
B4	8	#4	STR	17'-4"	93
B5	12	#4	STR	2'-11"	23
D1	40	#6	STR	1'-6"	90
S1	32	#5	2	8'-1"	270
S2	14	#4	3	7'-7"	71
U1	4	#4	4	5'-10"	16
U2	6	#4	4	5'-0"	20
U3	2	#9	4	10'-1"	69
U4	8	#4	4	3'-6"	19

REINFORCING STEEL (FOR ONE BENT) 1959 LBS

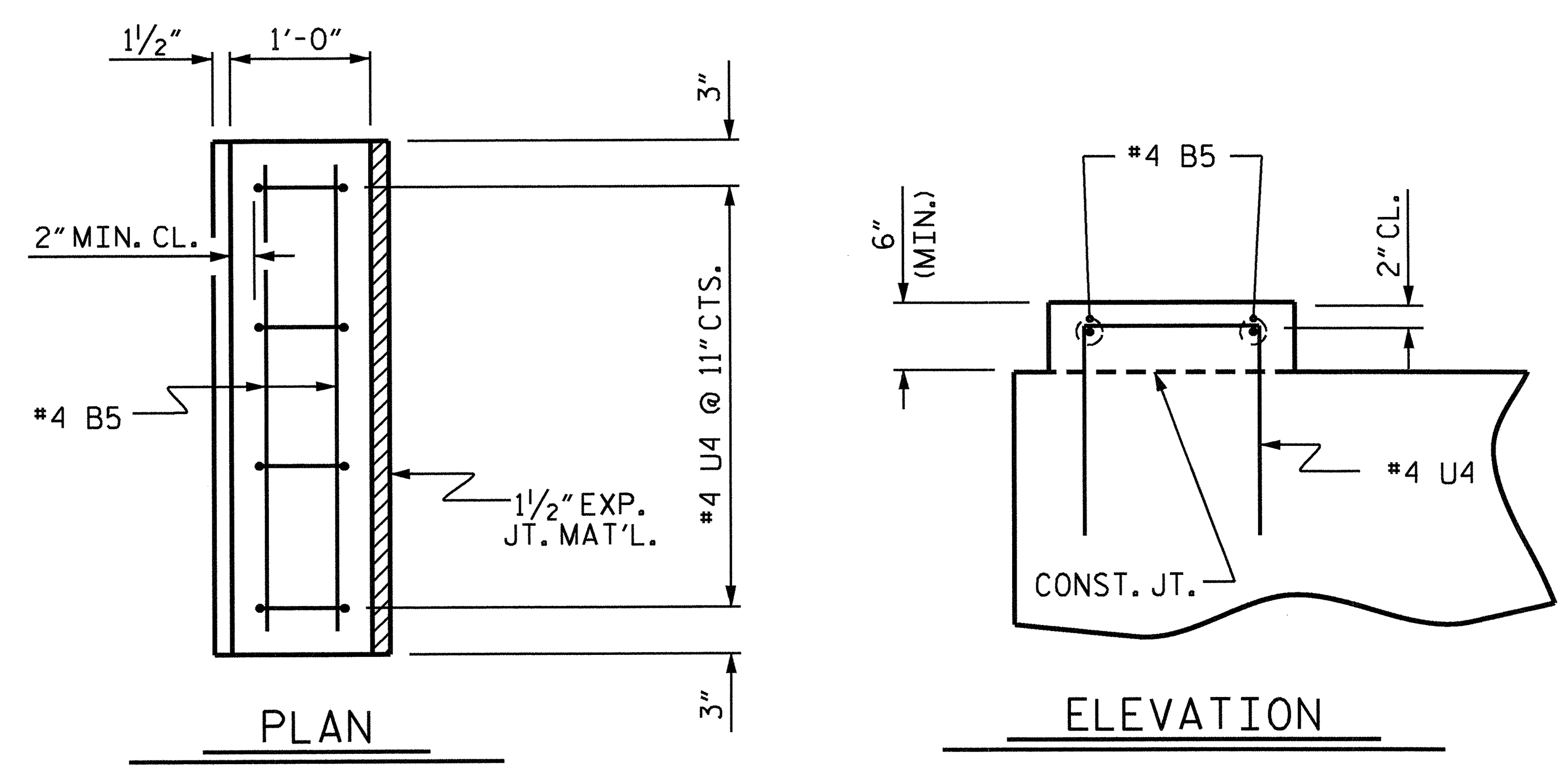
CLASS A CONCRETE BREAKDOWN (FOR ONE BENT)

POUR #1 (CAP) 9.8 C.Y.
POUR #2 (LATERAL GUIDES) 0.1 C.Y.

TOTAL CLASS A CONCRETE 9.9 C.Y.

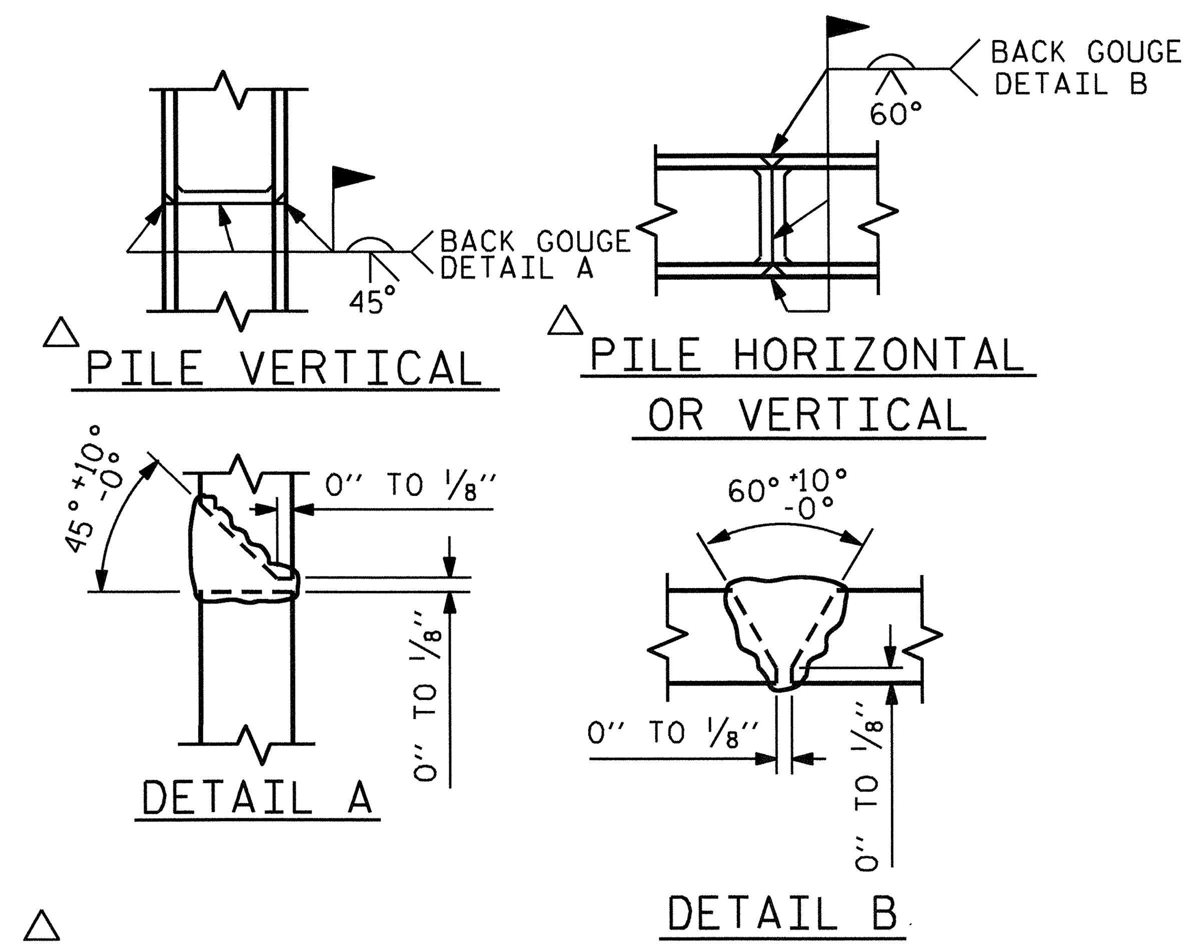
HP 14 X 73 GALVANIZED STEEL PILES (FOR ONE BENT)

No. 7 LIN. FT. 350
STEEL PILE POINTS 7 EACH
PILE REDRIVES 4 EACH



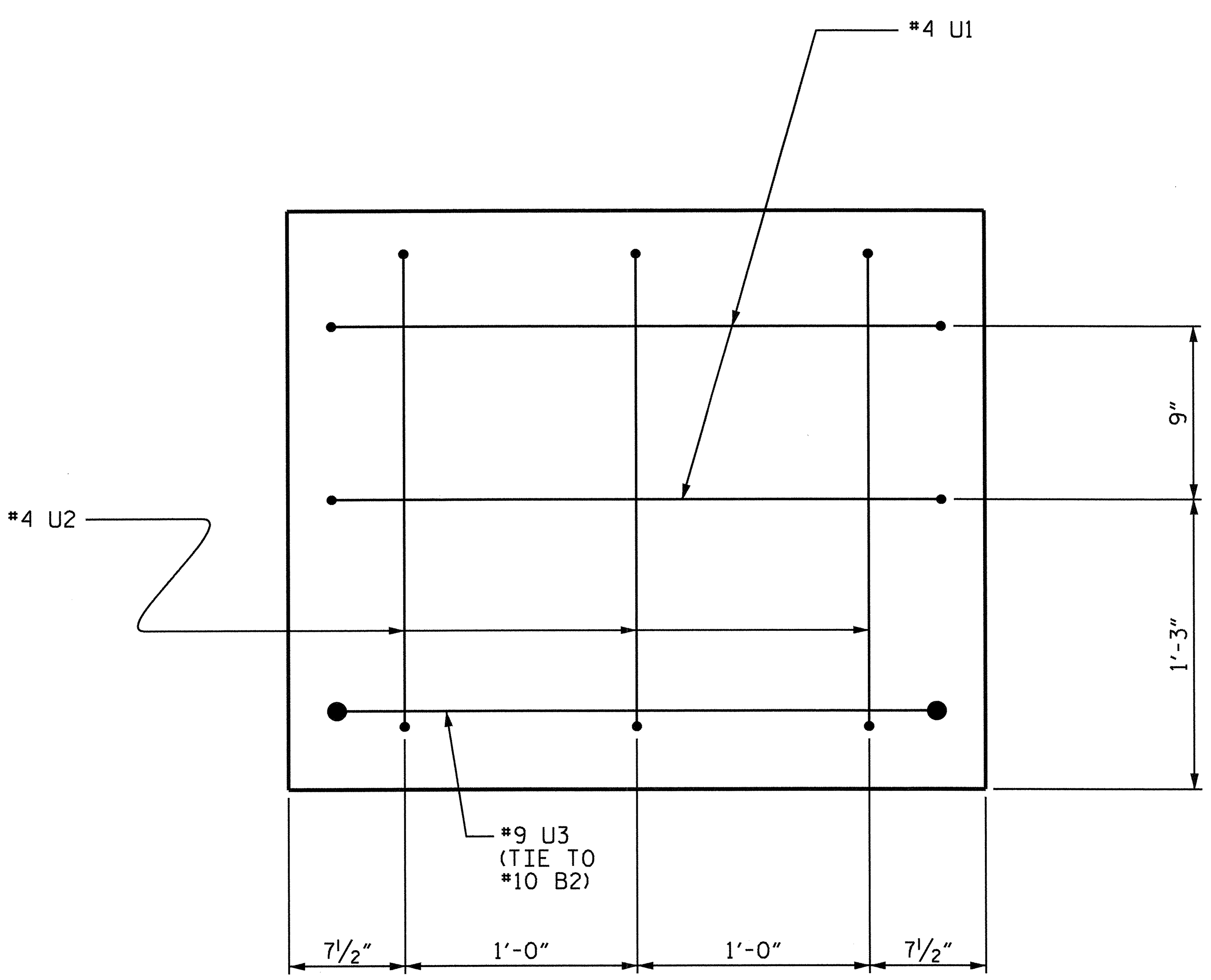
LATERAL GUIDE DETAILS

(LEFT LATERAL GUIDE SHOWN, RIGHT SIDE SIMILAR)



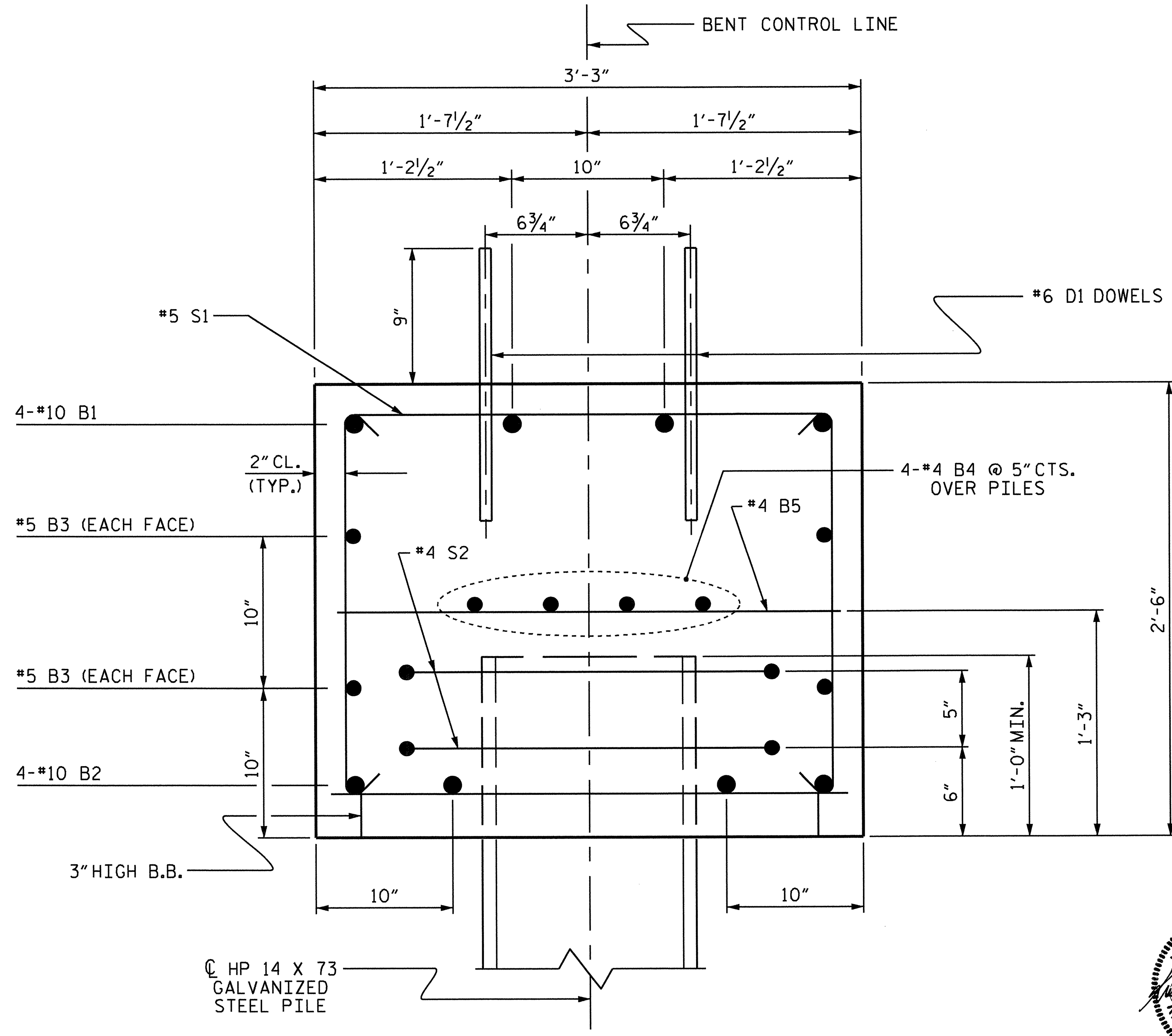
△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS



END OF CAP VIEW

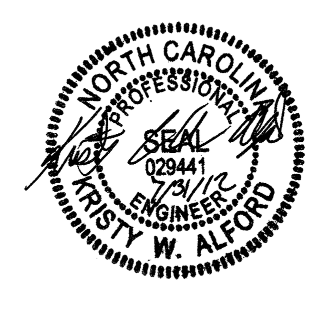
(TYPICAL BOTH ENDS)



SECTION A-A

PROJECT NO. BD-5105U
FRANKLIN COUNTY
STATION: 13+33.00 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT No. 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			17

DRAWN BY : A.C. OUTLAW DATE : 6/07/12
CHECKED BY : W. F. PARKER DATE : 6/21/12

DRAWN BY : DGE 05/10
CHECKED BY : MKT 05/10

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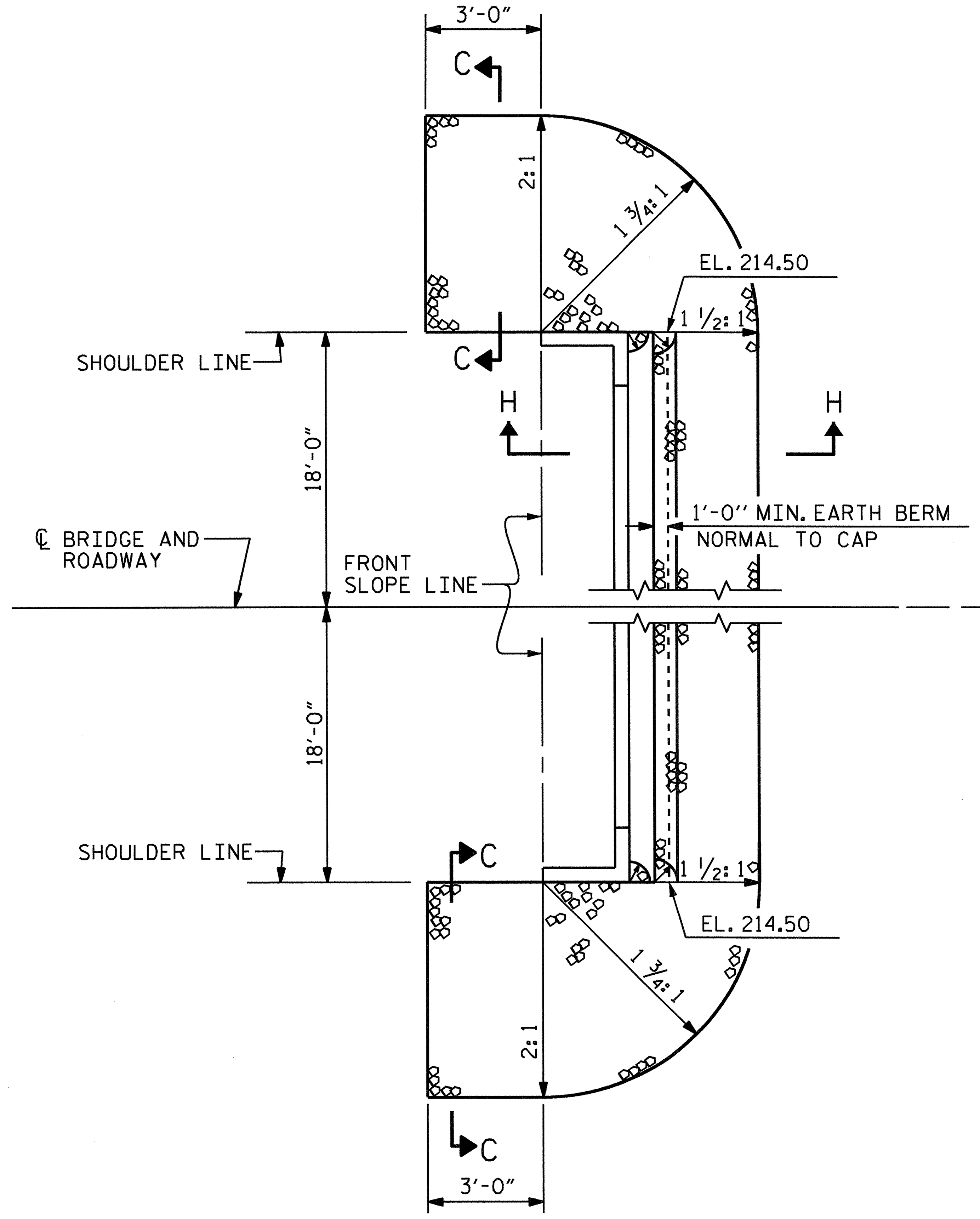
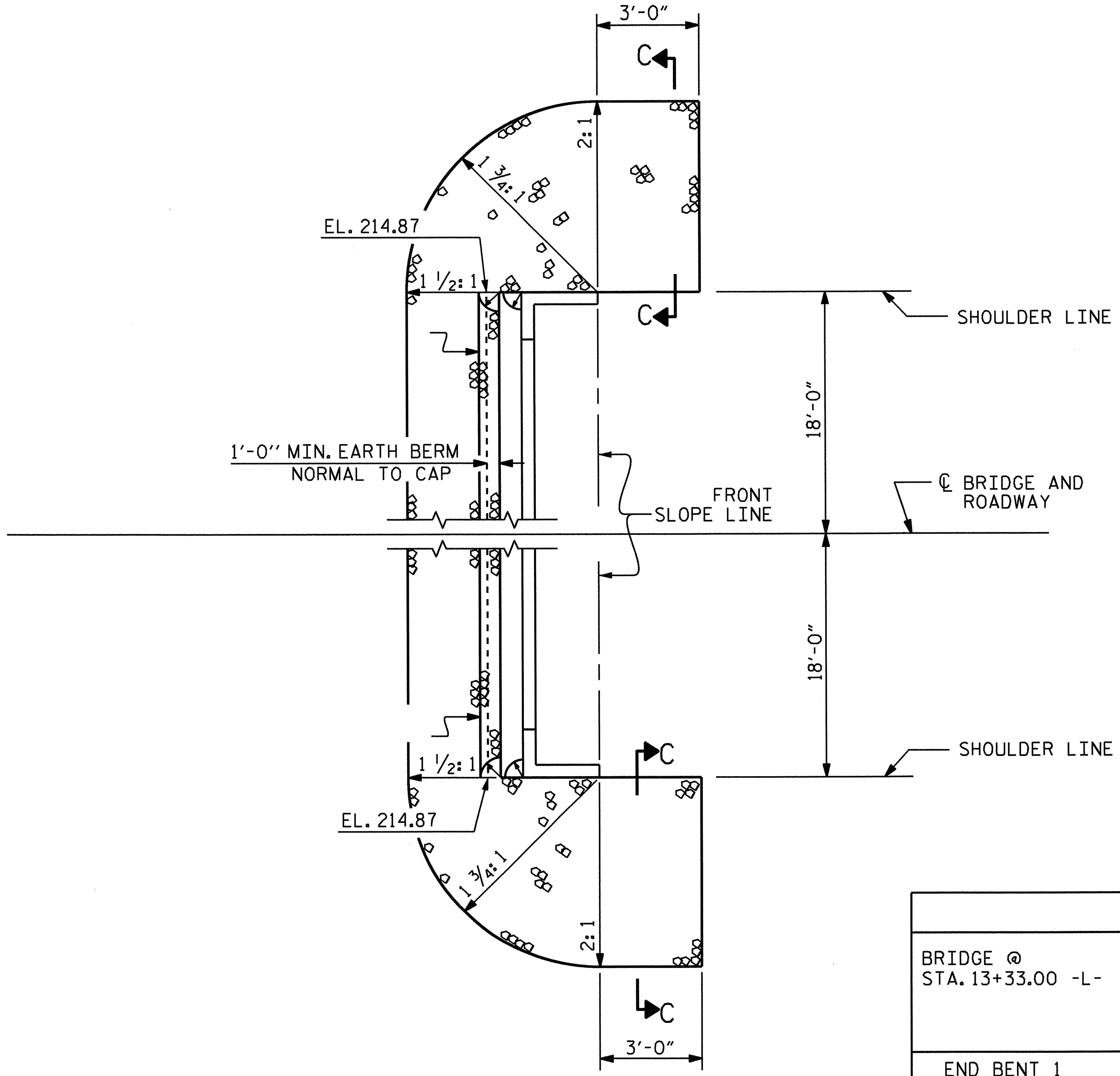
kalford

STD. NO. 14" HP_BT_30_90S_<60'

NOTES :
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

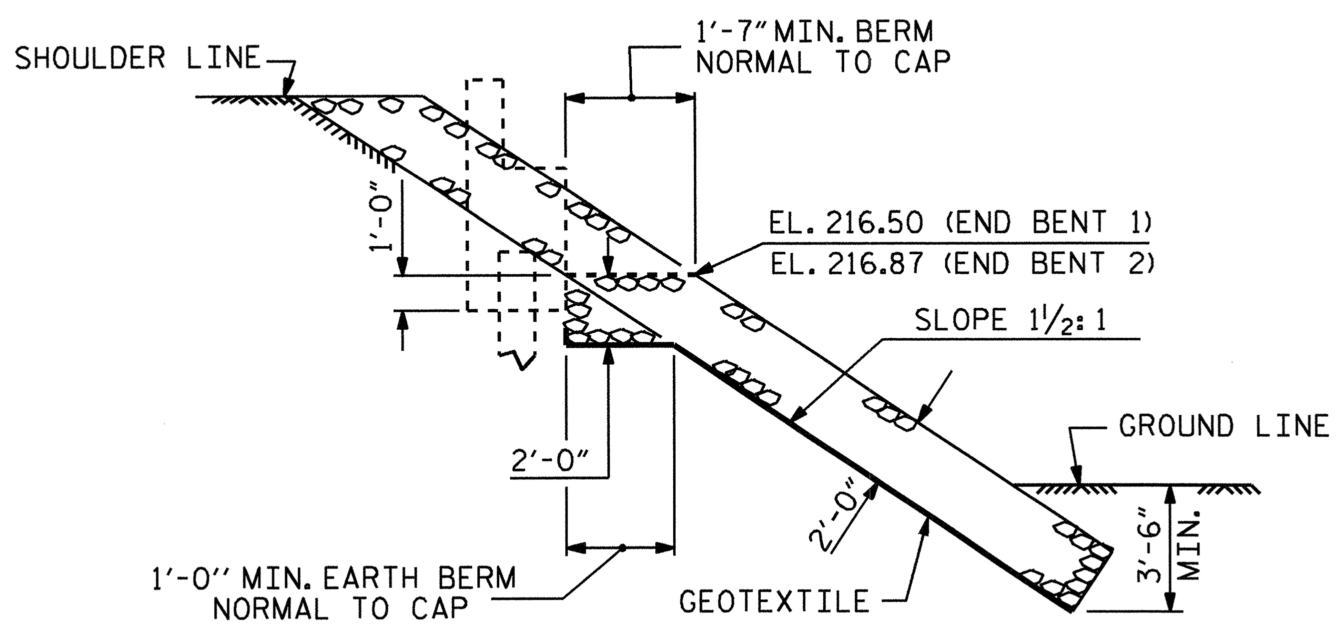


END BENT 1

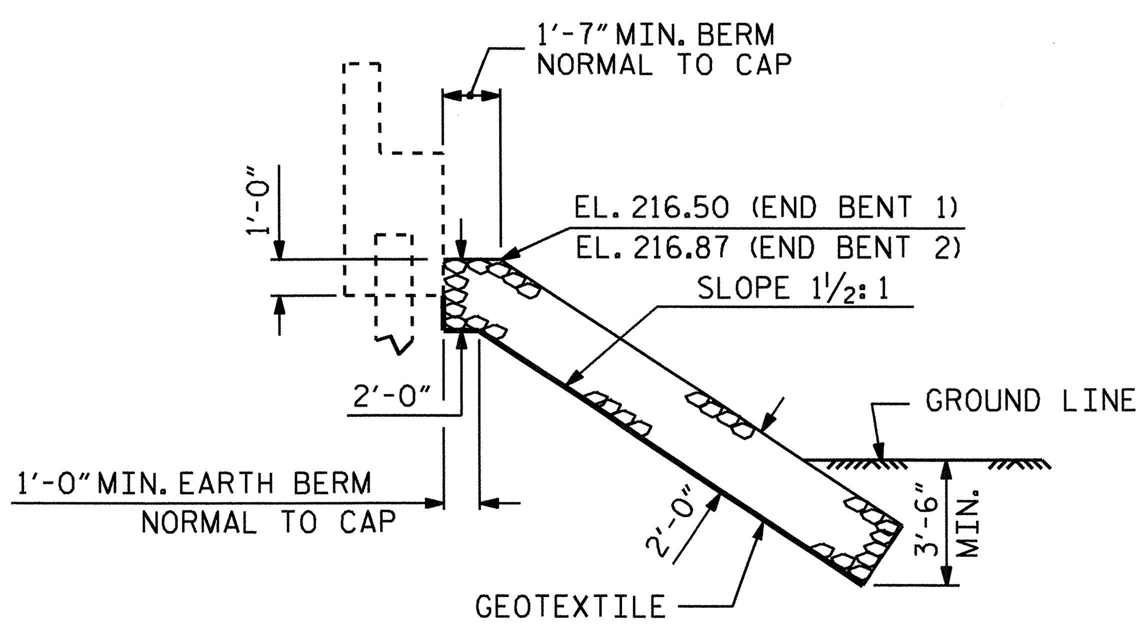


END BENT 2

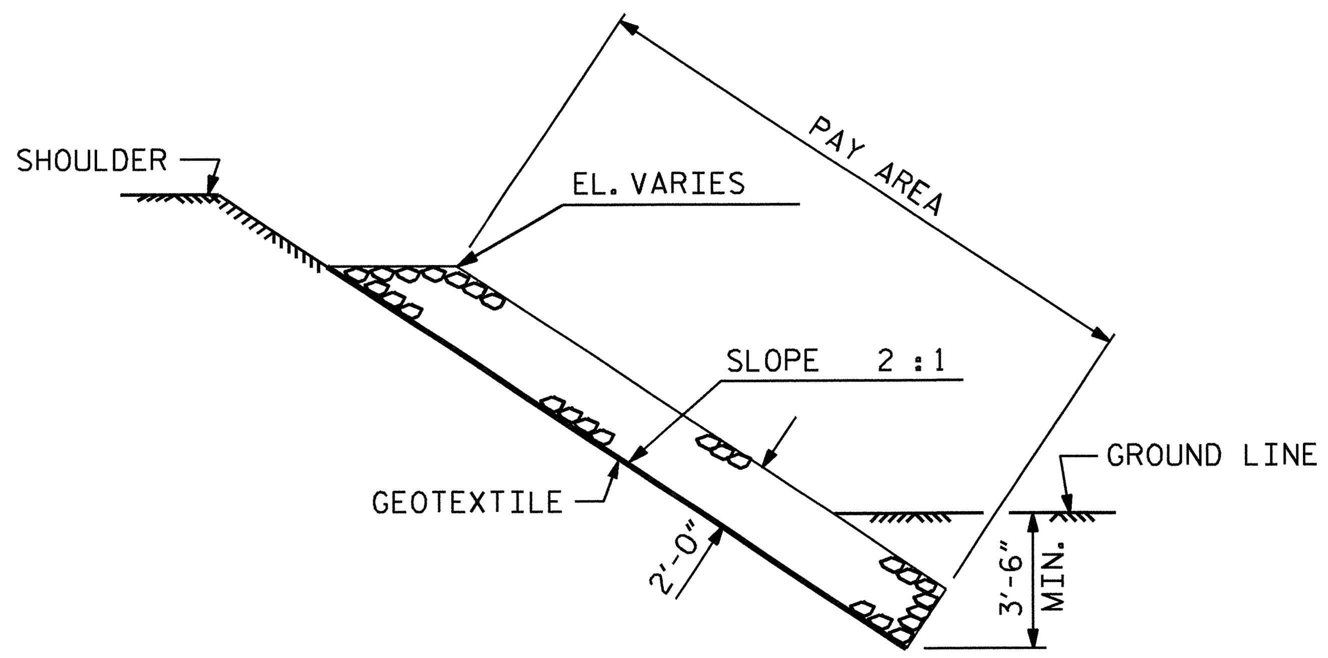
ESTIMATED QUANTITIES		
BRIDGE @ STA. 13+33.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	62	70
END BENT 2	71	80



SECTION H-H

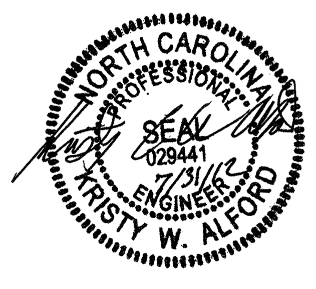


℄ SECTION
BERM RIP RAPPED



SECTION C-C

PROJECT NO. BD-5105U
FRANKLIN COUNTY
STATION: 13+33.00 -L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
RIP RAP DETAILS

REVISIONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		S-16
1			3				TOTAL SHEETS
2			4				17

ASSEMBLED BY : A.C. OUTLAW	DATE : 6/07/12	
CHECKED BY : W. F. PARKER	DATE : 6/21/12	
DRAWN BY : REK 1/84	REV. 10/17/00	RWW/LES
CHECKED BY : RDU 1/84	REV. 5/1/06R	TLA/GM
	REV. 10/1/11	MAA/GM

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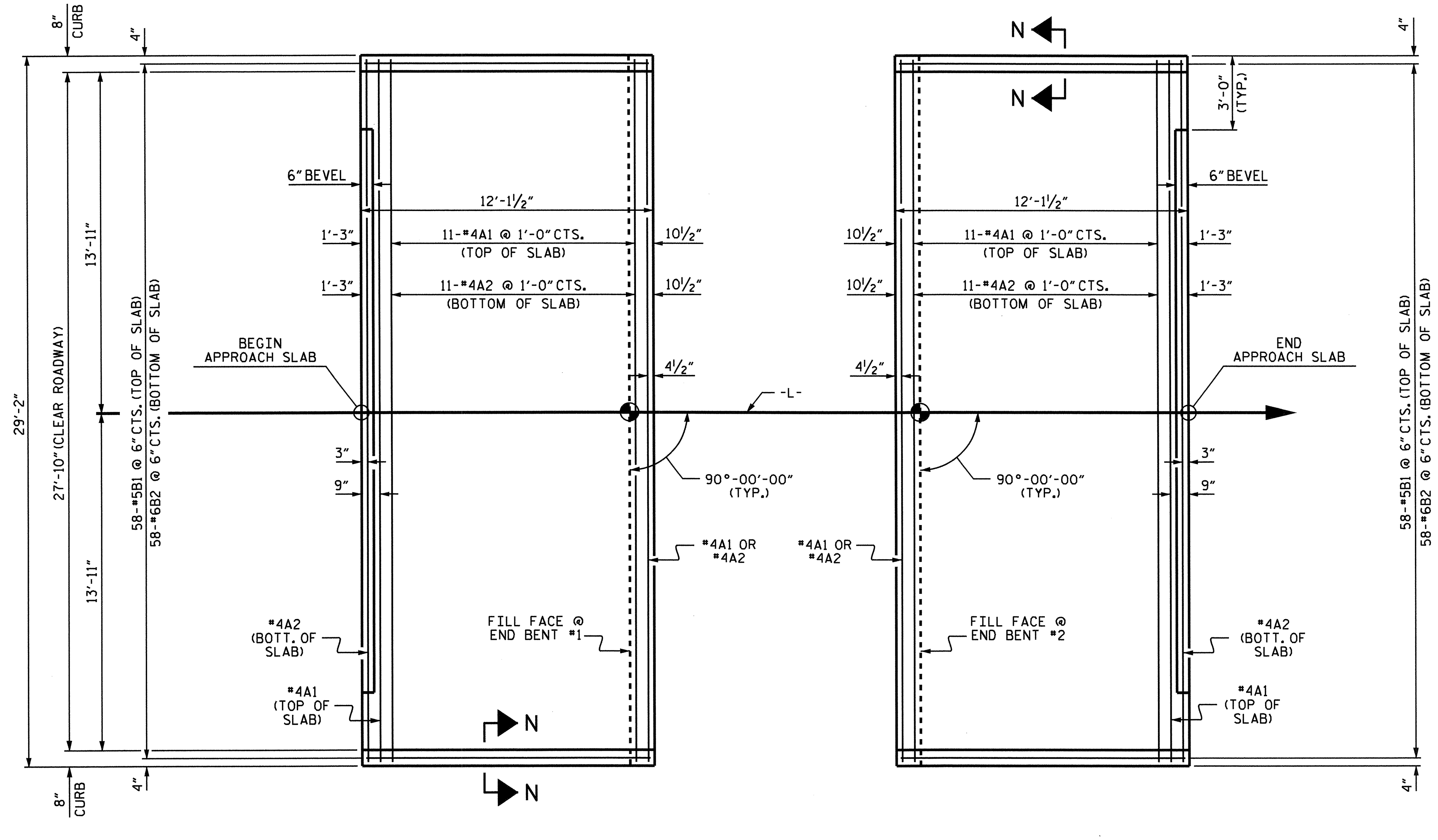
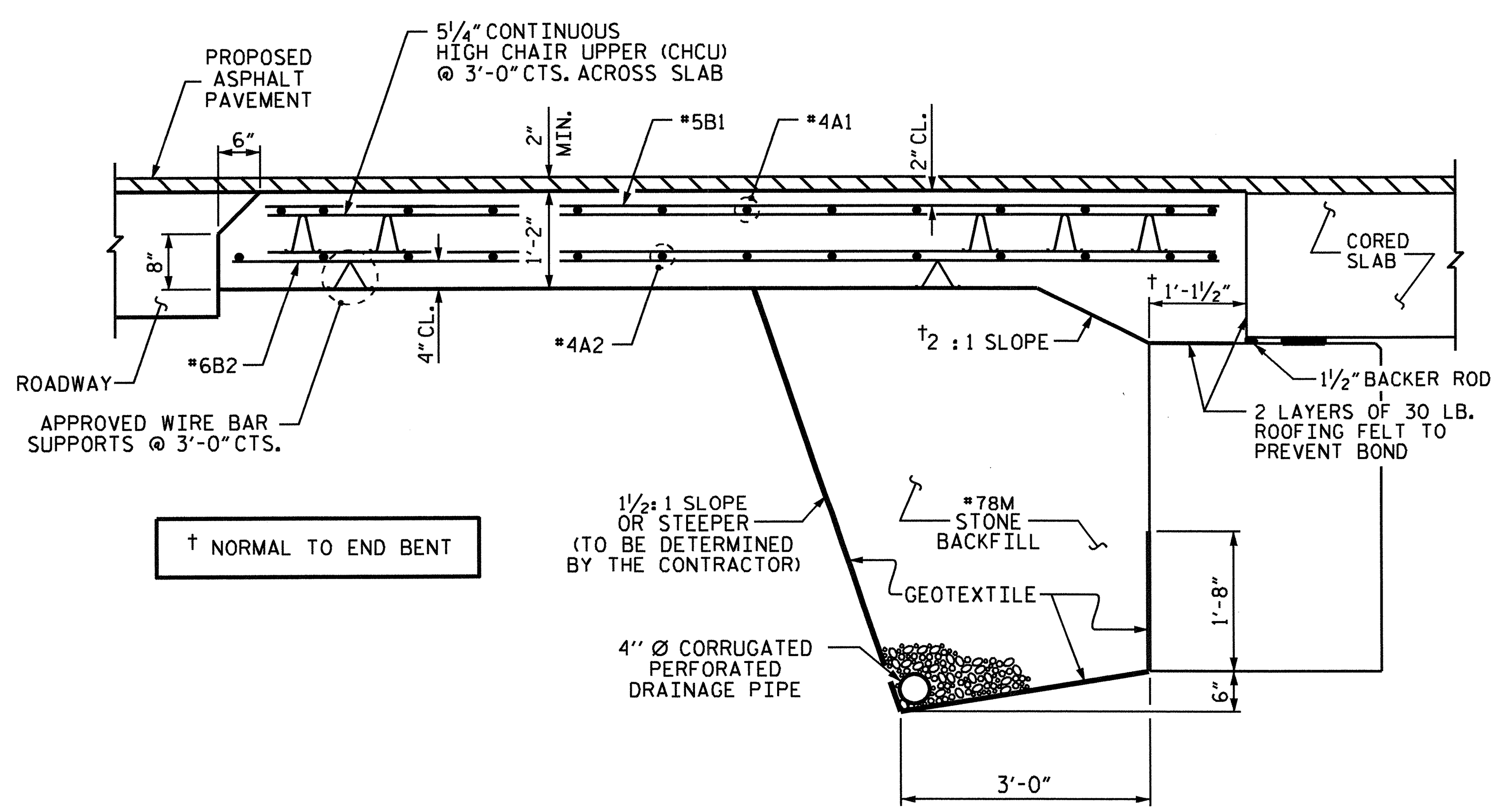
kalford

STD. NO. RR1 (Sht 2)



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.

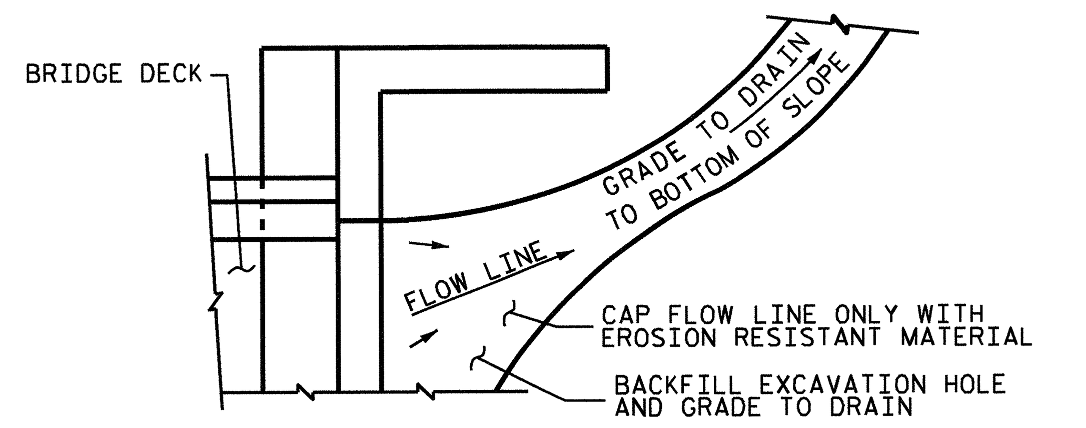
#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

#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.

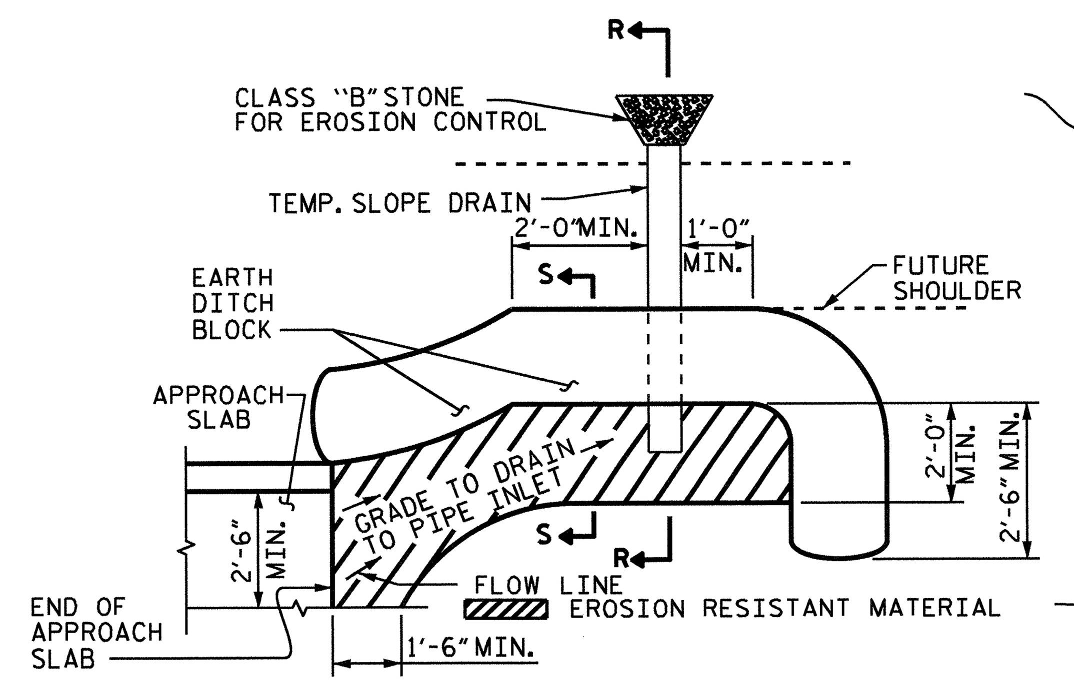
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT REQUIRED.



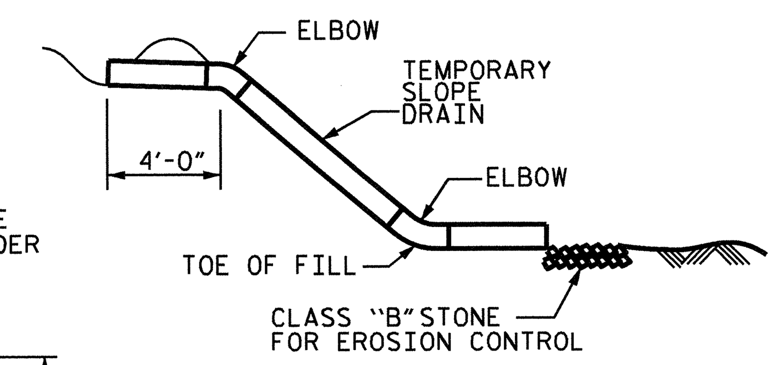
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

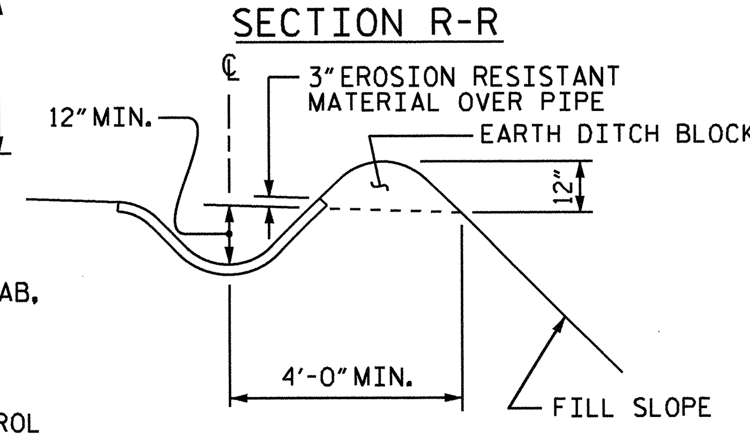


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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



SECTION R-R



SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

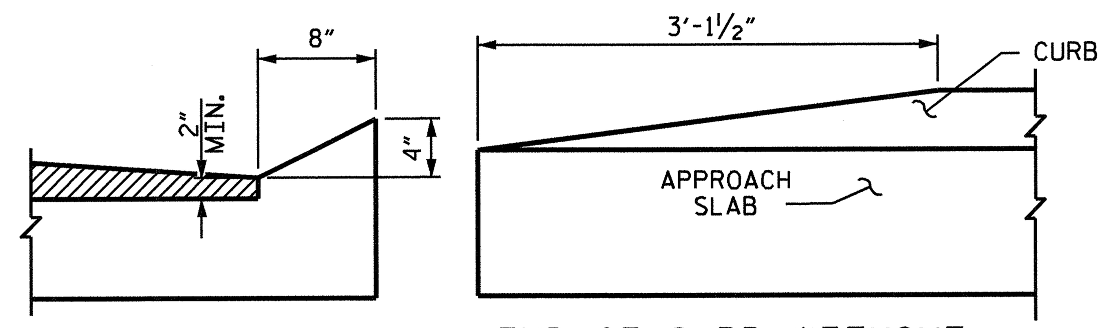
BILL OF MATERIAL

APPROACH SLAB AT EB #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	13	#4	STR	28'-10"	250
A2	13	#4	STR	28'-10"	250
* B1	58	#5	STR	11'-2"	676
B2	58	#6	STR	11'-8"	1016
REINFORCING STEEL				LBS.	1266
* EPOXY COATED REINFORCING STEEL				LBS.	926
CLASS AA CONCRETE				C. Y.	16.9

APPROACH SLAB AT EB #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	13	#4	STR	28'-10"	250
A2	13	#4	STR	28'-10"	250
* B1	58	#5	STR	11'-2"	676
B2	58	#6	STR	11'-8"	1016
REINFORCING STEEL				LBS.	1266
* EPOXY COATED REINFORCING STEEL				LBS.	926
CLASS AA CONCRETE				C. Y.	16.9



SECTION N-N END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

SPLICE LENGTHS

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

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029441 KRISTY W. ALFORD

PROJECT NO. BD-5105U

FRANKLIN COUNTY

STATION: 13+33.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

REVISIONS								SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:			S-17
1			3					TOTAL SHEETS
2			4					17

ASSEMBLED BY : A.C. OUTLAW	DATE : 6/07/12
CHECKED BY : W. F. PARKER	DATE : 6/21/12
DRAWN BY : SHS/MAA 5-09	REV. 12-11 MAA/AAC
CHECKED BY : BCH 5-09	

30-JUL-2012 13:04
S:\DPG2\KRISTY\DivisionProjects\BD5105U\Drafting\Misc.draw\BD5105U_SD_AS.dgn
kalford

STD. NO. BAS_30_90S

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

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

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

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

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

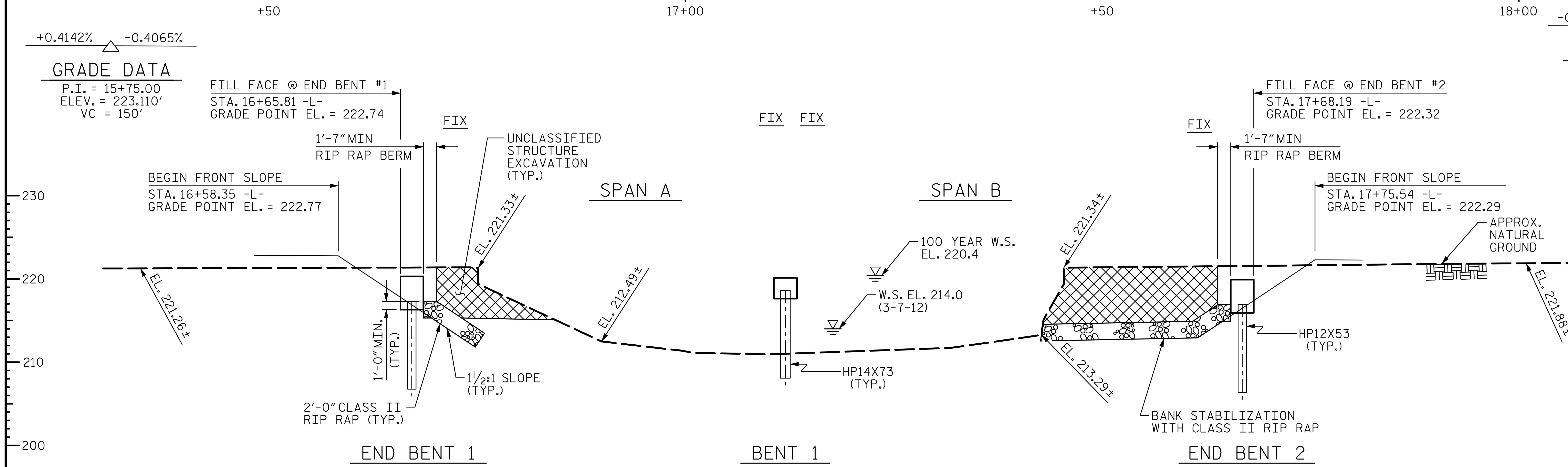
F. A. PROJECT No. BRZ - 1003 (108)

+0.4142% -0.4065%

GRADE DATA
P.I. = 15+75.00
ELEV. = 223.110'
VC = 150'

-0.4065% +0.1454

GRADE DATA
P.I. = 18+25.00
ELEV. = 222.090'
VC = 100'



SECTION ALONG ℄ -L-

(BENTS ON SECTION AT RIGHT ANGLES TO BENTS)

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

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

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.

THE MATERIAL IN THE CROSS HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 30 FEET EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AS "UNCLASSIFIED STRUCTURE EXCAVATION", LUMP SUM.

BOTTOM OF EXCAVATION IS AT APPROXIMATE ELEVATION 212.5.

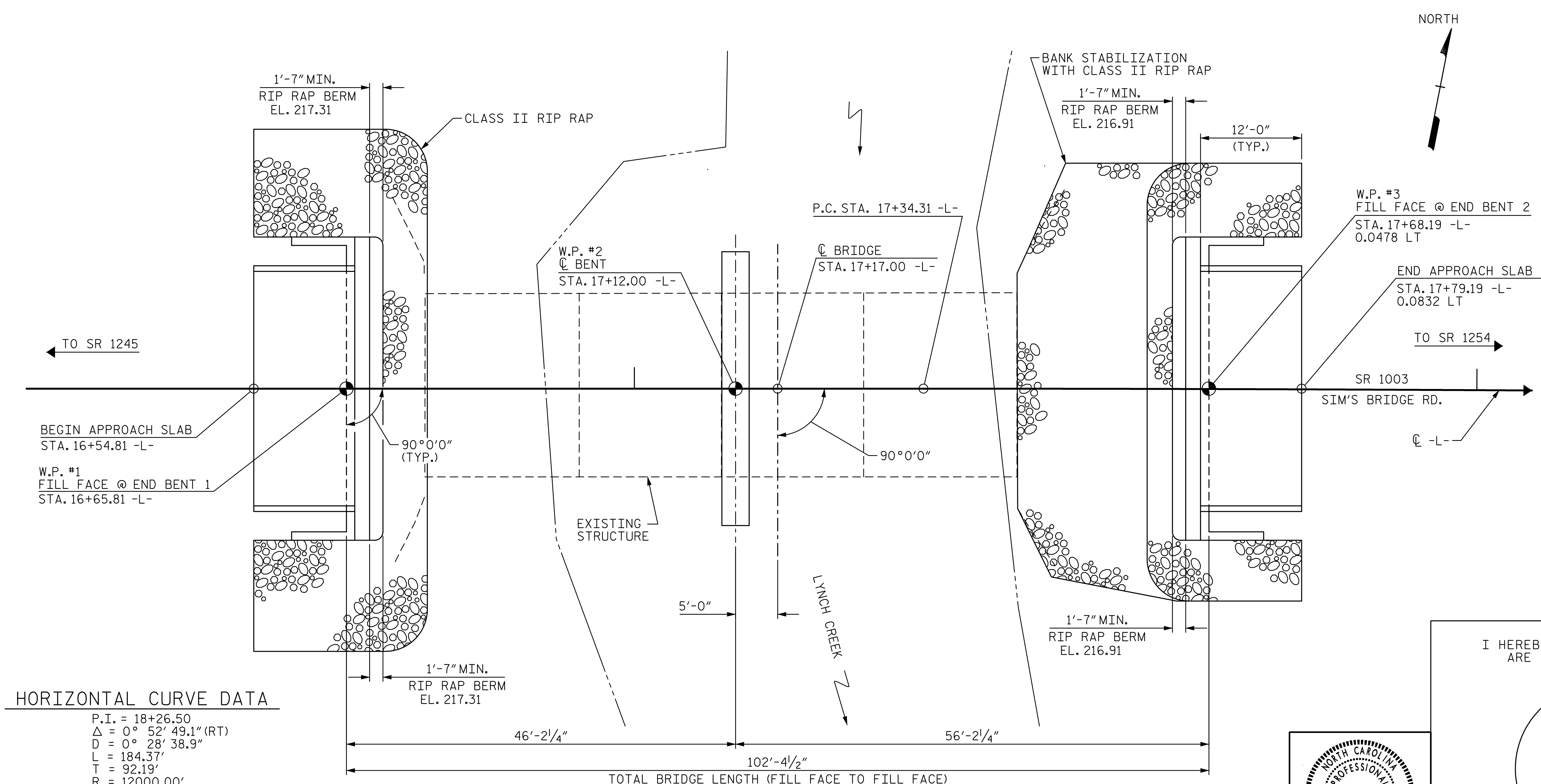
THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED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

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 EXISTING STRUCTURE CONSISTING OF ONE 18.3, TWO 17.1 AND ONE 18.3 FOOT LONG TIMBER JOIST SPANS WITH A REINFORCED CONCRETE DECK ON REINFORCED CONCRETE END AND INTERIOR BENT CAPS ON TIMBER PILES LOCATED ON THE PROPOSED ALIGNMENT SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

NOTES CONTINUED ON SHEET S-2



PLAN

(PILES NOT SHOWN FOR CLARITY)

HORIZONTAL CURVE DATA
P.I. = 18+26.50
Δ = 0° 52' 49.1" (RT)
D = 0° 28' 38.9"
L = 184.37'
T = 92.19'
R = 12000.00'
Se = NORMAL

PROJECT NO. BD-5105R (45351.1.18)

FRANKLIN COUNTY

STATION: 17+17.00 -L-

SHEET 1 OF 2 REPLACES BRIDGE NO. 44

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

BRIDGE ON SR 1003
OVER LYNCH CREEK

NORTH CAROLINA PROFESSIONAL SEAL 20532 ENGINEER JAMES E. MONDOLFI
8-2-12

Florence & Hutcheson
An ICA Company
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

REVISIONS								SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:			S-1
1			3					TOTAL SHEETS
2			4					17

DRAWN BY : D. H. CARTER DATE : 7/12
CHECKED BY : J. E. MONDOLFI DATE : 7/12

10/1/2012
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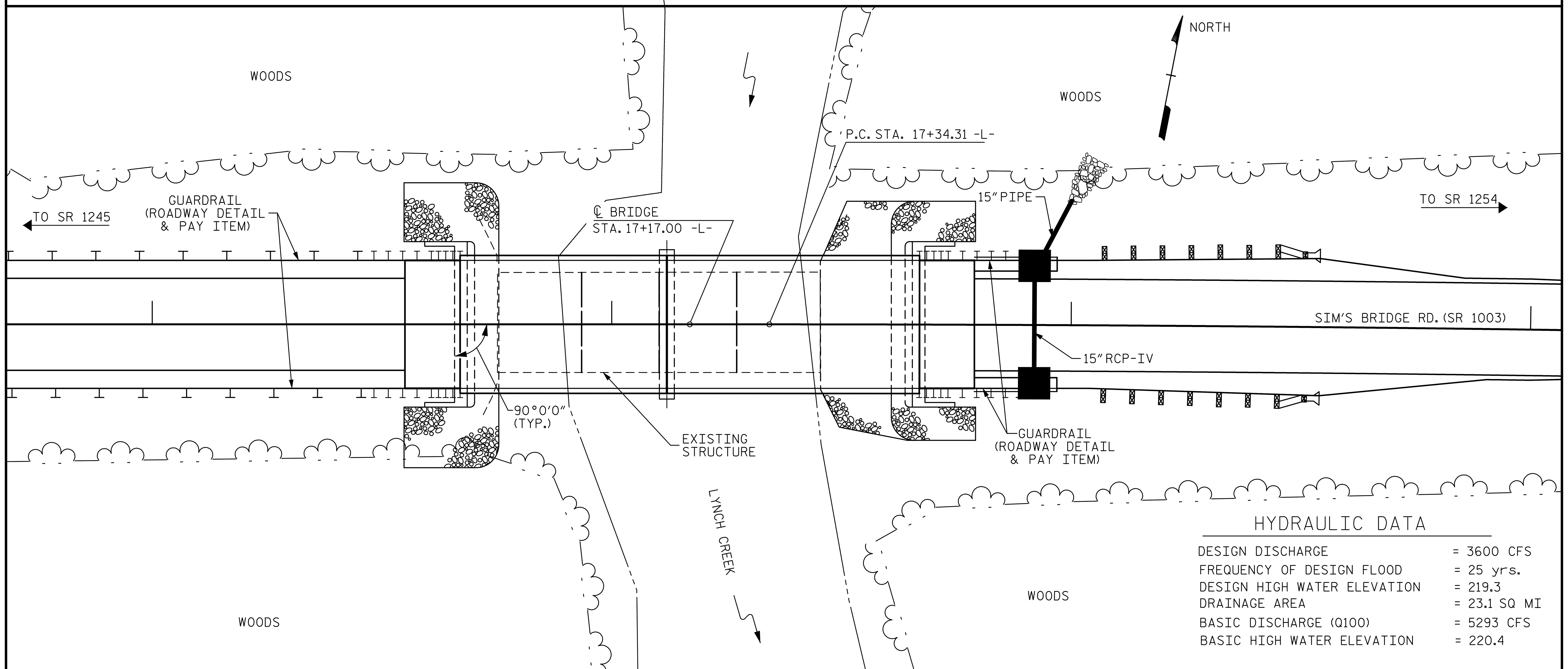
Florence & Hutcheson - An ICA Company

BENCH MARK : BM-1, I-R N:878980 E:2190582; STA. 16+89.65 -L-, 135.4' RT



LOCATION SKETCH

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

HYDRAULIC DATA

DESIGN DISCHARGE	= 3600 CFS
FREQUENCY OF DESIGN FLOOD	= 25 yrs.
DESIGN HIGH WATER ELEVATION	= 219.3
DRAINAGE AREA	= 23.1 SQ MI
BASIC DISCHARGE (Q100)	= 5293 CFS
BASIC HIGH WATER ELEVATION	= 220.4

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 8100 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 500 yrs.+
OVERTOPPING FLOOD ELEVATION	= 221.6

NOTES (CONT.)

FOUNDATION RECOMMENDATIONS:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO. 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 74 TONS PER PILE.

PILES AT END BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 85 TONS PER PILE.

DRIVE PILES AT END BENT NO. 1 TO A REQUIRED DRIVING RESISTANCE OF 125 TONS PER PILE.

DRIVE PILES AT END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 145 TONS PER PILE.

PILES AT BENT NO. 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 118 TONS PER PILE.

DRIVE PILES AT BENT NO. 1 TO A REQUIRED DRIVING RESISTANCE OF 215 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR DOWNDRAG OR SCOUR.

STEEL H PILE POINTS ARE REQUIRED FOR STEEL H PILES AT END BENT NO. 1, BENT NO. 1 AND END BENT NO. 2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

INSTALL PILES AT BENT NO. 1 TO A TIP ELEVATION NO HIGHER THAN 184 FEET.

THE SCOUR CRITICAL ELEVATION FOR BENT NO. 1 IS ELEVATION 200 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 40-80 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT BENT NO. 1 THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR BRIDGE APPROACH FILLS, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE AT STA. 17+17.00 -L-	BRIDGE APPROACH FILL SUBREGIONAL TIER AT STA. 17+17.00 -L-	UNCLASSIFIED STRUCTURE EXCAVATION AT STA. 17+17.00 -L-	CLASS A CONCRETE	BRIDGE APPROACH SLABS AT STA. 17+17.00 -L-	REINFORCING STEEL	HP 12 X 53 STEEL PILES		HP 14 X 73 GALVANIZED STEEL PILES		STEEL PILE POINTS	PILE REDRIVES (EA.)	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS	
	LUMP SUM	LUMP SUM	LUMP SUM	CU. YDS.	LUMP SUM	LB.	NO.	LIN. FT.	NO.	LIN. FT.	NO.	NO.	LIN. FT.	TON	SQ. YD.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE													200.50				20	1,000
END BENT NO. 1				20.0		2,449	5	125			5	3		85	95			
BENT NO. 1				9.9		1,959			7	280	7	4						
END BENT NO. 2				20.0		2,449	5	100			5	3		78	90			
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	49.9	LUMP SUM	6,857	10	225	7	280	17	10	200.50	163	185	LUMP SUM	20	1,000

PROJECT NO. BD-5105R (45351.1.18)

FRANKLIN COUNTY

STATION: 17+17.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

BRIDGE ON SR 1003
OVER LYNCH CREEK

NORTH CAROLINA PROFESSIONAL SEAL 20532 ENGINEER JAMES E. MONDOLFI
8-2-12

Florence & Hutcheson
An ICA Company
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			17

DRAWN BY : D. H. CARTER DATE : 7/12
CHECKED BY : J. E. MONDOLFI DATE : 7/12

10/1/2012
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Florence & Hutcheson - An ICA Company

LOAD FACTORS:

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

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: LIVELOAD FACTORS	STRENGTH I MOMENT: DISTRIBUTION FACTORS (DF)	STRENGTH I MOMENT: RATING FACTOR	STRENGTH I MOMENT: SPAN	STRENGTH I MOMENT: GIRDER LOCATION	STRENGTH I MOMENT: DISTANCE FROM LEFT END OF SPAN (ft)	STRENGTH I SHEAR: DISTRIBUTION FACTORS (DF)	STRENGTH I SHEAR: RATING FACTOR	STRENGTH I SHEAR: SPAN	STRENGTH I SHEAR: GIRDER LOCATION	STRENGTH I SHEAR: DISTANCE FROM LEFT END OF SPAN (ft)	SERVICE III LIMIT STATE: LIVELOAD FACTORS	SERVICE III MOMENT: DISTRIBUTION FACTORS (DF)	SERVICE III MOMENT: RATING FACTOR	SERVICE III MOMENT: SPAN	SERVICE III MOMENT: GIRDER LOCATION	SERVICE III MOMENT: DISTANCE FROM LEFT END OF SPAN (ft)	COMMENT NUMBER
DESIGN LOAD RATING		HL-93(Inv)	N/A	**1**	1.088	--	1.75	0.277	1.34	45′	EL	22	0.539	1.23	45′	EL	2.2	0.80	0.277	**1.09**	45′	EL	**22**	
		HL-93(Opr)	N/A	--	1.590	--	1.35	0.277	1.74	45′	EL	22	0.539	1.59	45′	EL	2.2	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	**2**	1.336	48.104	1.75	0.277	1.65	45′	EL	22	0.539	1.45	45′	EL	2.2	0.80	0.277	**1.34**	45′	EL	**22**	
		HS-20(Opr)	36.000	--	1.882	67.763	1.35	0.277	2.14	45′	EL	22	0.539	1.88	45′	EL	2.2	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.611	35.252	1.4	0.277	4.02	45′	EL	22	0.539	4.01	45′	EL	2.2	0.80	0.277	2.61	45′	EL	22	
	SV	SNGARBS2	20.000	--	2.108	42.166	1.4	0.277	3.25	45′	EL	22	0.539	2.94	45′	EL	2.2	0.80	0.277	2.11	45′	EL	22	
	SV	SNAGRIS2	22.000	--	2.067	45.466	1.4	0.277	3.15	45′	EL	17.6	0.539	2.77	45′	EL	2.2	0.80	0.277	2.07	45′	EL	22	
	SV	SNCOTTS3	27.250	--	1.304	35.527	1.4	0.277	2.01	45′	EL	22	0.539	2.01	45′	EL	2.2	0.80	0.277	1.30	45′	EL	22	
	SV	SNAGGRS4	34.925	--	1.150	40.181	1.4	0.277	1.77	45′	EL	22	0.539	1.74	45′	EL	2.2	0.80	0.277	1.15	45′	EL	22	
	SV	SNS5A	35.550	--	1.121	39.841	1.4	0.277	1.73	45′	EL	22	0.539	1.79	45′	EL	2.2	0.80	0.277	1.12	45′	EL	22	
	SV	SNS6A	39.950	--	1.056	42.175	1.4	0.277	1.63	45′	EL	22	0.539	1.67	45′	EL	2.2	0.80	0.277	1.06	45′	EL	22	
	SV	SNS7B	42.000	**3**	1.006	42.268	1.4	0.277	1.55	45′	EL	22	0.539	1.68	45′	EL	2.2	0.80	0.277	**1.01**	45′	EL	**22**	
	TTST	TNAGRIT3	33.000	--	1.296	42.759	1.4	0.277	2	45′	EL	22	0.539	1.96	45′	EL	2.2	0.80	0.277	1.30	45′	EL	22	
	TTST	TNT4A	33.075	--	1.309	43.305	1.4	0.277	2.02	45′	EL	22	0.539	1.88	45′	EL	2.2	0.80	0.277	1.31	45′	EL	22	
	TTST	TNT6A	41.600	--	1.099	45.712	1.4	0.277	1.69	45′	EL	22	0.539	1.83	45′	EL	2.2	0.80	0.277	1.10	45′	EL	22	
	TTST	TNT7A	42.000	--	1.120	47.043	1.4	0.277	1.73	45′	EL	22	0.539	1.69	45′	EL	2.2	0.80	0.277	1.12	45′	EL	22	
	TTST	TNT7B	42.000	--	1.166	48.975	1.4	0.277	1.8	45′	EL	22	0.539	1.61	45′	EL	2.2	0.80	0.277	1.17	45′	EL	22	
	TTST	TNAGRIT4	43.000	--	1.111	47.757	1.4	0.277	1.71	45′	EL	22	0.539	1.55	45′	EL	2.2	0.80	0.277	1.11	45′	EL	22	
	TTST	TNAGT5A	45.000	--	1.033	46.505	1.4	0.277	1.59	45′	EL	22	0.539	1.59	45′	EL	2.2	0.80	0.277	1.03	45′	EL	22	
	TTST	TNAGT5B	45.000	--	1.009	45.408	1.4	0.277	1.56	45′	EL	22	0.539	1.47	45′	EL	2.2	0.80	0.277	1.01	45′	EL	22	

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)

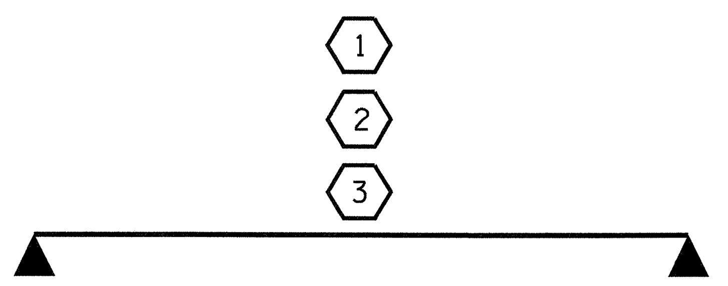
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY

FOR SPAN 'A'

PROJECT NO. BD-5105R
FRANKLIN COUNTY
STATION: 17+17.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR 45′ CORED SLAB UNIT 90° SKEW
(NON-INTERSTATE TRAFFIC)

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029441 KRISTY W. ALFORD

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			17

ASSEMBLED BY : A.C. OUTLAW	DATE : 6/06/12
CHECKED BY : W.F. PARKER	DATE : 6/20/12
DRAWN BY : CVC 6/10	
CHECKED BY : DNS 6/10	

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kalford

STD. NO. 21LRFR1_90S_45L

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
							LIVELOAD FACTORS	MOMENT					SHEAR					LIVELOAD FACTORS	MOMENT					
								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)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93(Inv)	N/A	1	1.055	--	1.75	0.275	1.23	55′	EL	27	0.523	1.23	55′	EL	5.4	0.80	0.275	**1.05**	55′	EL	**27**	
		HL-93(Opr)	N/A	--	1.591	--	1.35	0.275	1.59	55′	EL	27	0.523	1.59	55′	EL	5.4	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	1.322	47.585	1.75	0.275	1.54	55′	EL	27	0.523	1.47	55′	EL	5.4	0.80	0.275	**1.32**	55′	EL	**27**	
		HS-20(Opr)	36.000	--	1.9	68.396	1.35	0.275	1.99	55′	EL	27	0.523	1.9	55′	EL	5.4	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.776	37.476	1.4	0.275	4.04	55′	EL	27	0.523	4.17	55′	EL	5.4	0.80	0.275	2.78	55′	EL	27	
		SNGARBS2	20.000	--	2.155	43.095	1.4	0.275	3.14	55′	EL	27	0.523	3.02	55′	EL	5.4	0.80	0.275	2.15	55′	EL	27	
		SNAGRIS2	22.000	--	2.079	45.734	1.4	0.275	3.03	55′	EL	27	0.523	2.83	55′	EL	5.4	0.80	0.275	2.08	55′	EL	27	
		SNCOTTS3	27.250	--	1.384	37.708	1.4	0.275	2.01	55′	EL	27	0.523	2.09	55′	EL	5.4	0.80	0.275	1.38	55′	EL	27	
		SNAGGRS4	34.925	--	1.189	41.527	1.4	0.275	1.73	55′	EL	27	0.523	1.77	55′	EL	5.4	0.80	0.275	1.19	55′	EL	27	
		SNS5A	35.550	--	1.16	41.255	1.4	0.275	1.69	55′	EL	27	0.523	1.82	55′	EL	5.4	0.80	0.275	1.16	55′	EL	27	
		SNS6A	39.950	--	1.079	43.102	1.4	0.275	1.57	55′	EL	27	0.523	1.68	55′	EL	5.4	0.80	0.275	1.08	55′	EL	27	
		SNS7B	42.000	--	1.028	43.175	1.4	0.275	1.5	55′	EL	27	0.523	1.67	55′	EL	5.4	0.80	0.275	1.03	55′	EL	27	
	TTST	TNAGRIT3	33.000	--	1.32	43.556	1.4	0.275	1.92	55′	EL	27	0.523	1.98	55′	EL	5.4	0.80	0.275	1.32	55′	EL	27	
		TNT4A	33.075	--	1.33	43.979	1.4	0.275	1.94	55′	EL	27	0.523	1.91	55′	EL	5.4	0.80	0.275	1.33	55′	EL	27	
		TNT6A	41.600	--	1.101	45.811	1.4	0.275	1.6	55′	EL	27	0.523	1.83	55′	EL	5.4	0.80	0.275	1.10	55′	EL	27	
		TNT7A	42.000	--	1.114	46.804	1.4	0.275	1.62	55′	EL	27	0.523	1.71	55′	EL	5.4	0.80	0.275	1.11	55′	EL	27	
		TNT7B	42.000	--	1.163	48.848	1.4	0.275	1.69	55′	EL	27	0.523	1.62	55′	EL	5.4	0.80	0.275	1.16	55′	EL	27	
		TNAGRIT4	43.000	--	1.101	47.33	1.4	0.275	1.6	55′	EL	27	0.523	1.56	55′	EL	5.4	0.80	0.275	1.10	55′	EL	27	
		TNAGT5A	45.000	--	1.031	46.405	1.4	0.275	1.5	55′	EL	27	0.523	1.58	55′	EL	5.4	0.80	0.275	1.03	55′	EL	27	
		TNAGT5B	45.000	3	1.013	45.582	1.4	0.275	1.47	55′	EL	27	0.523	1.48	55′	EL	5.4	0.80	0.275	**1.01**	55′	EL	**27**	

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)

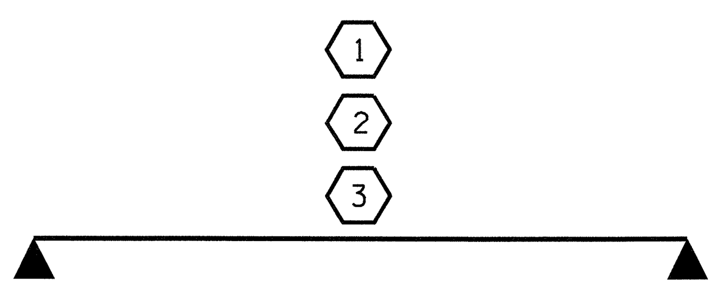
⟨2⟩ DESIGN LOAD RATING (HS-20)

⟨3⟩ LEGAL LOAD RATING ✱✱

✱✱ SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY

FOR SPAN 'B'

PROJECT NO. BD-5105R
FRANKLIN COUNTY
STATION: 17+17.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR 55′ CORED SLAB UNIT 90° SKEW (NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			17

ASSEMBLED BY : A.C. OUTLAW	DATE : 6/06/12
CHECKED BY : W. F. PARKER	DATE : 6/20/12
DRAWN BY : CVC 6/10	
CHECKED BY : DNS 6/10	

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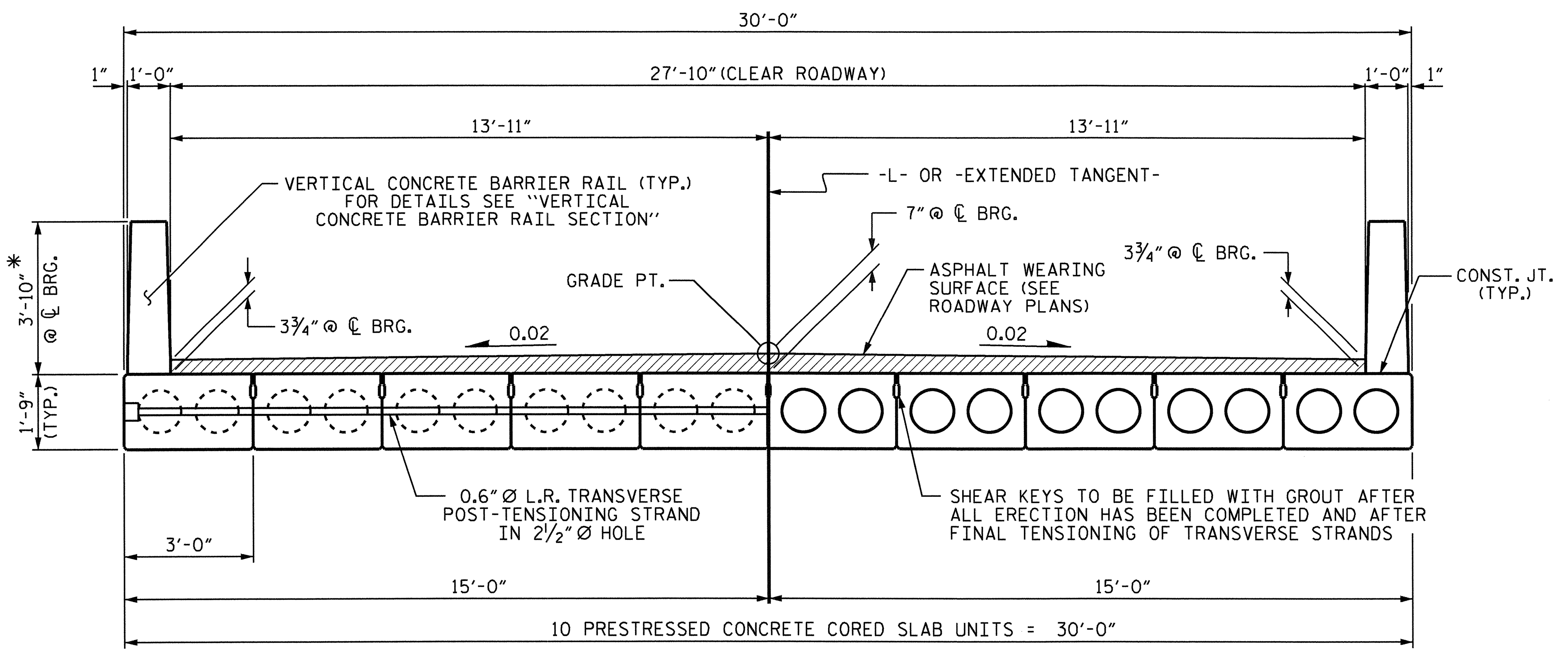
kalford

STD. NO. 21LRFR1_90S_55L

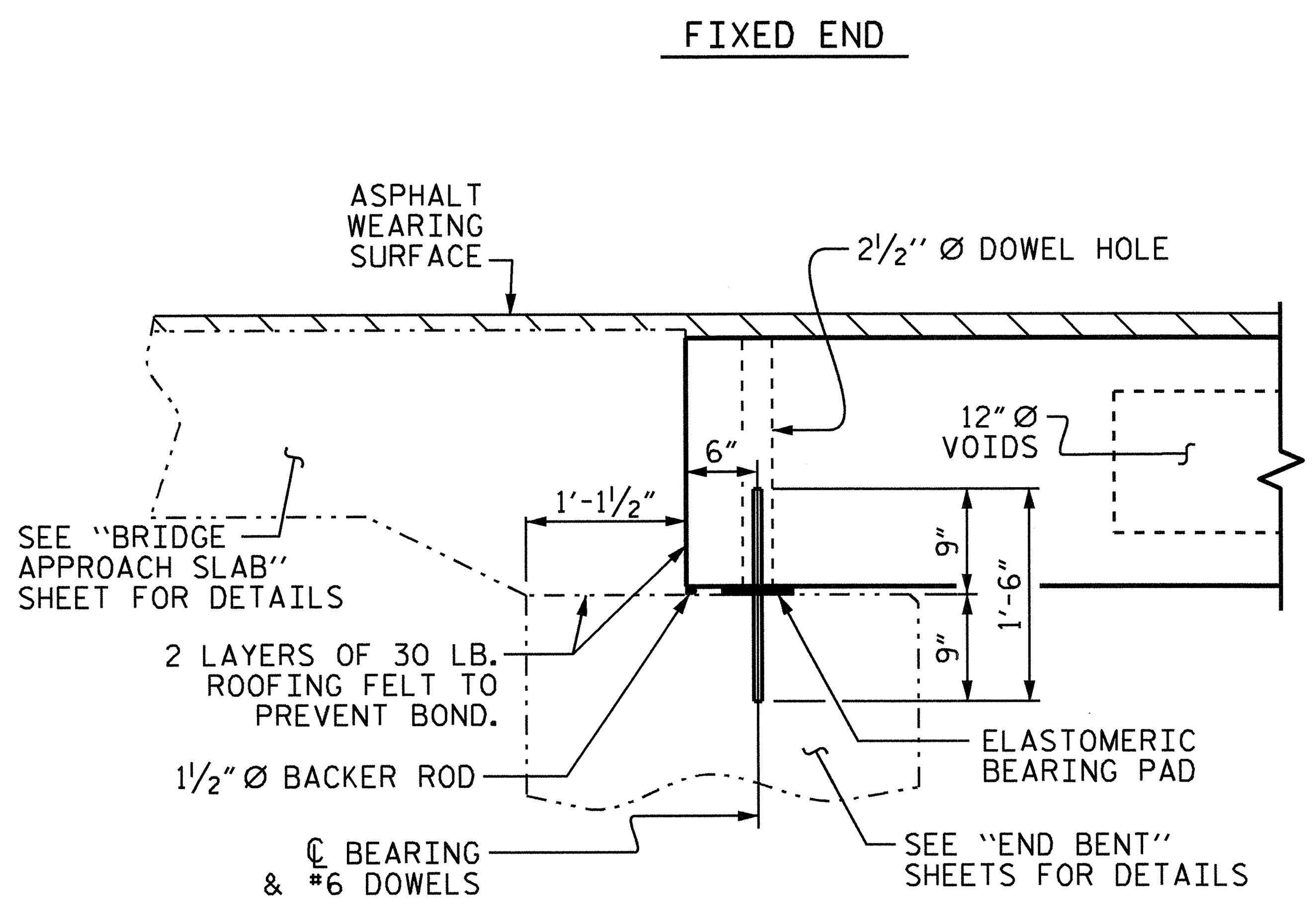


HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

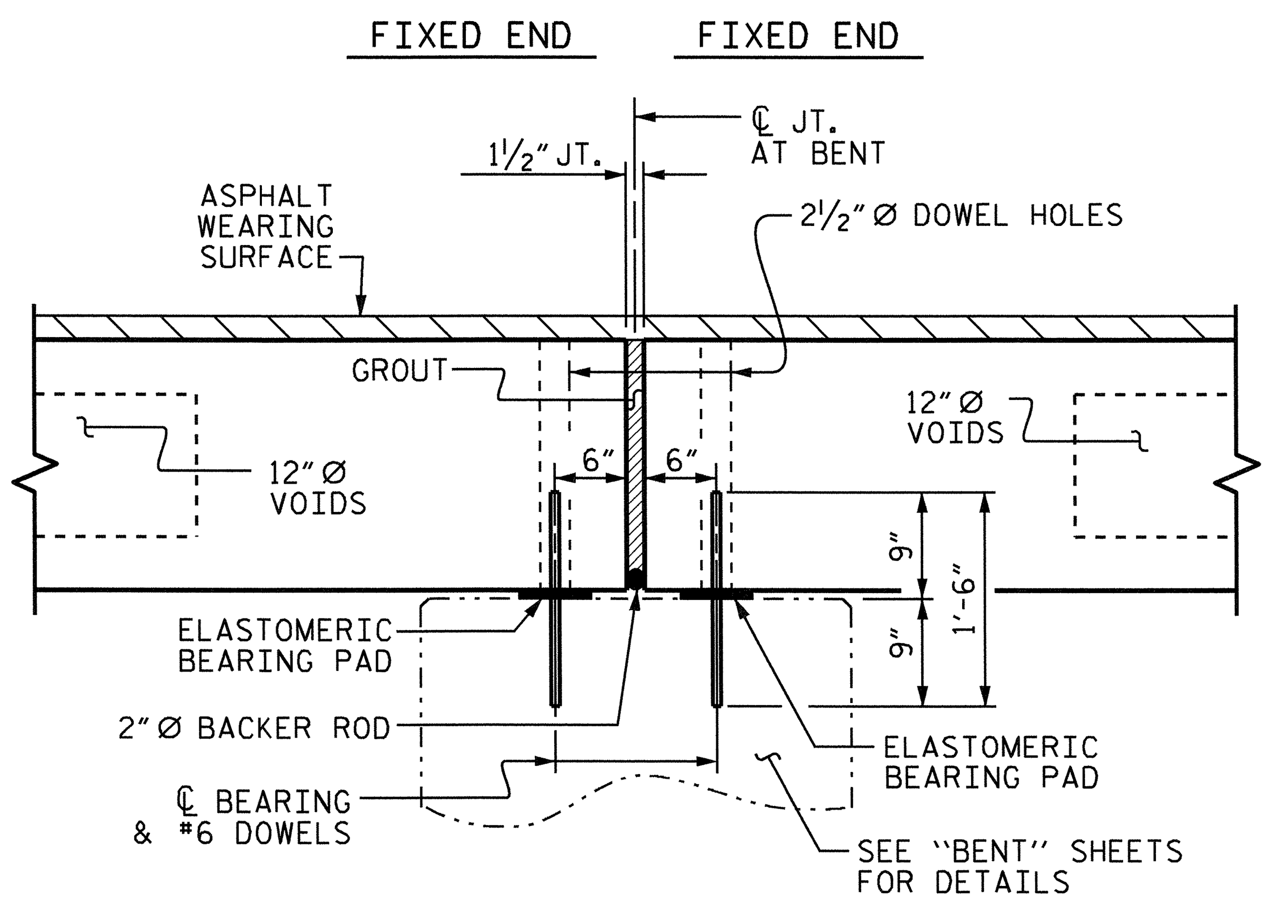
HALF SECTION
THROUGH VOIDS

TYPICAL SECTION

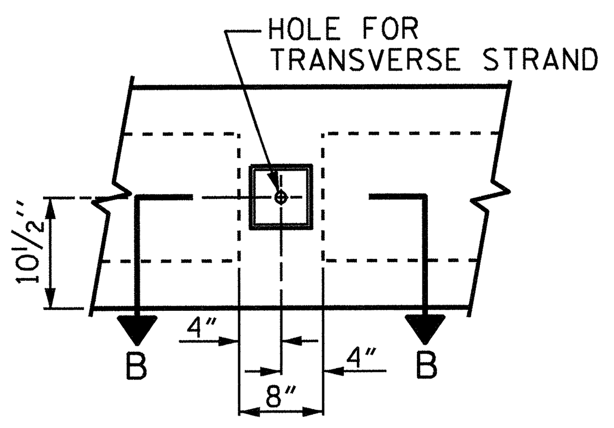
* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.



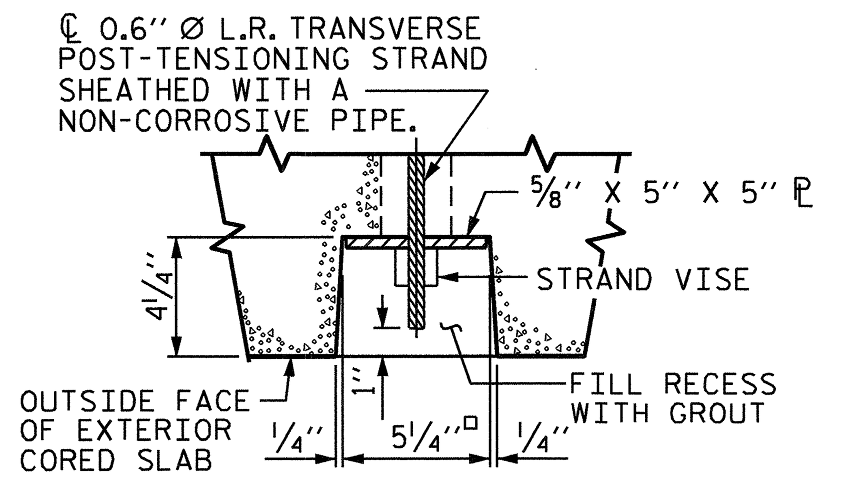
SECTION AT END BENT



SECTION AT BENT

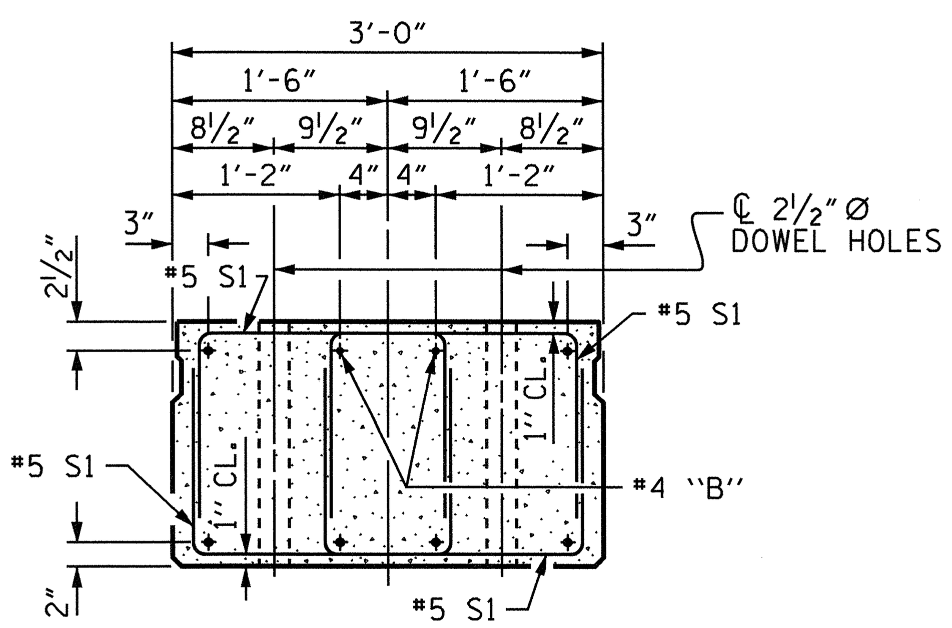


ELEVATION VIEW



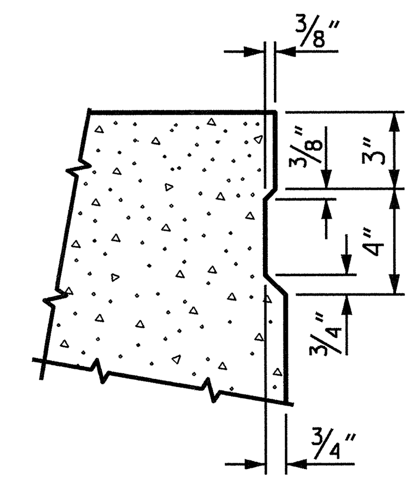
SECTION B-B

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



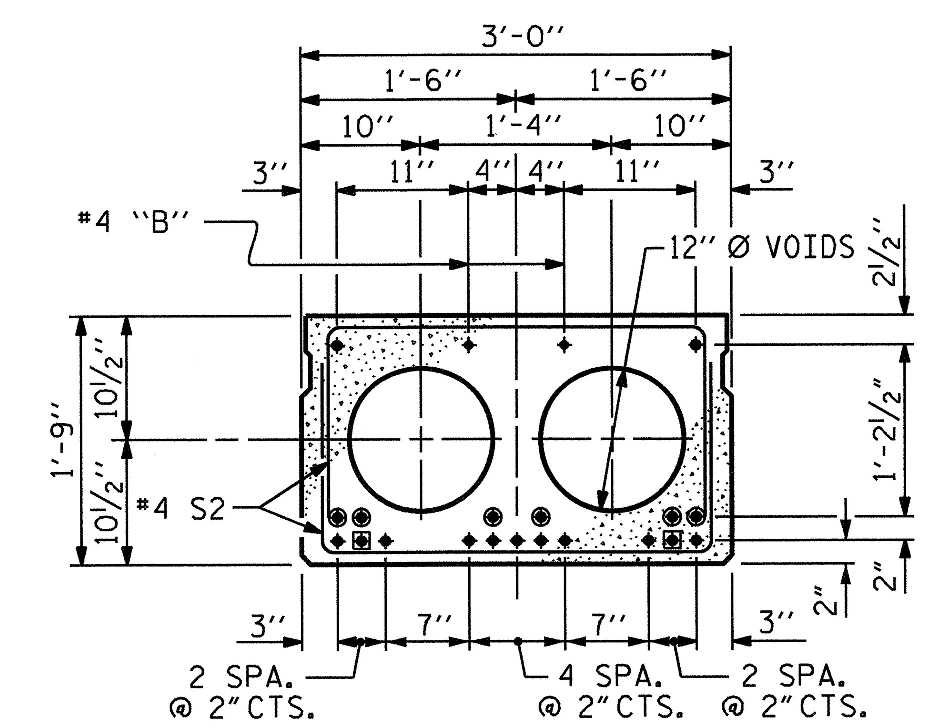
END ELEVATION

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

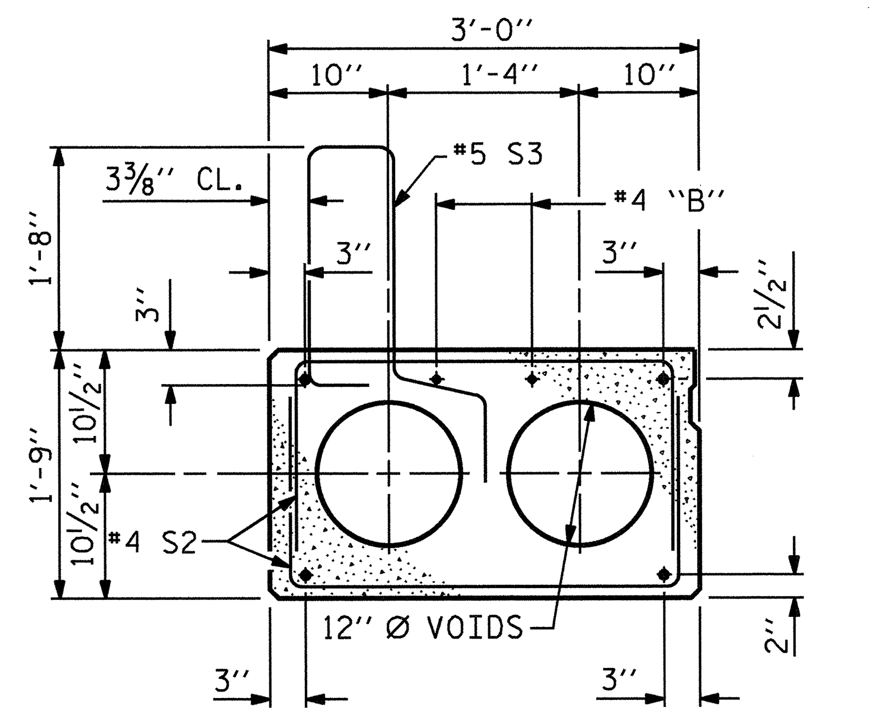


SHEAR KEY DETAIL

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

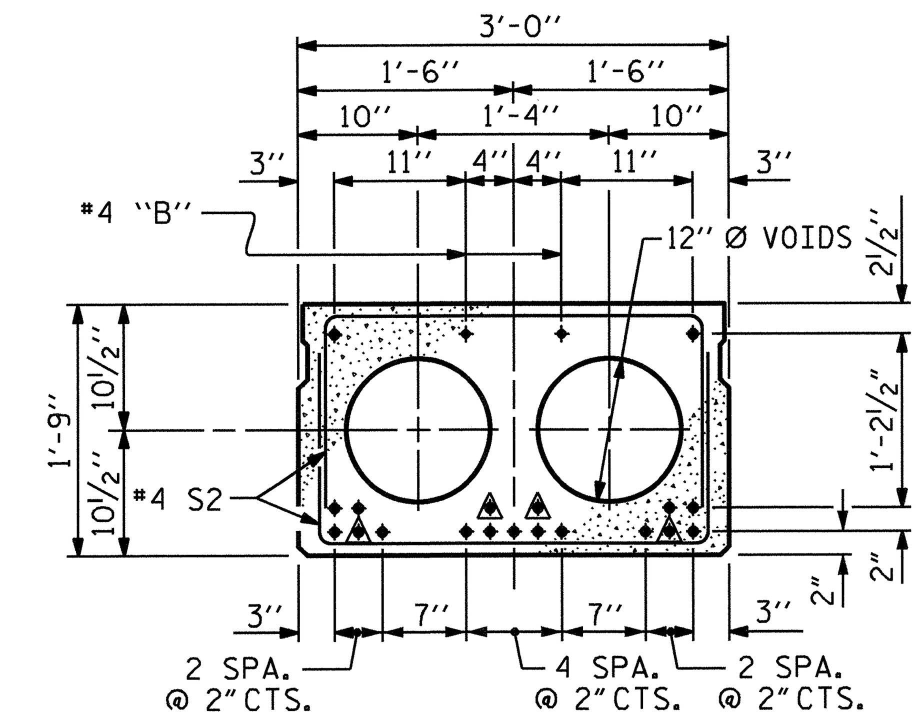


INTERIOR SLAB SECTION (45' UNIT)
(13 STRANDS REQUIRED)



EXT. SLAB SECTION

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



INTERIOR SLAB SECTION (55' UNIT)
(19 STRANDS REQUIRED)

0.6" Ø LOW RELAXATION STRAND LAYOUT

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

■ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

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

DEBONDING LEGEND

PROJECT NO. BD-5105R
FRANKLIN COUNTY
STATION: 17+17.00 -L-

SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT 90° SKEW

REVISIONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		S-5
1			3				TOTAL SHEETS
2			4				17

ASSEMBLED BY : A.C. OUTLAW	DATE : 6/06/12
CHECKED BY : W. F. PARKER	DATE : 6/20/12
DRAWN BY : DGE 5/09	REV. 12/11 MAA/AAC
CHECKED BY : BCH 6/09	

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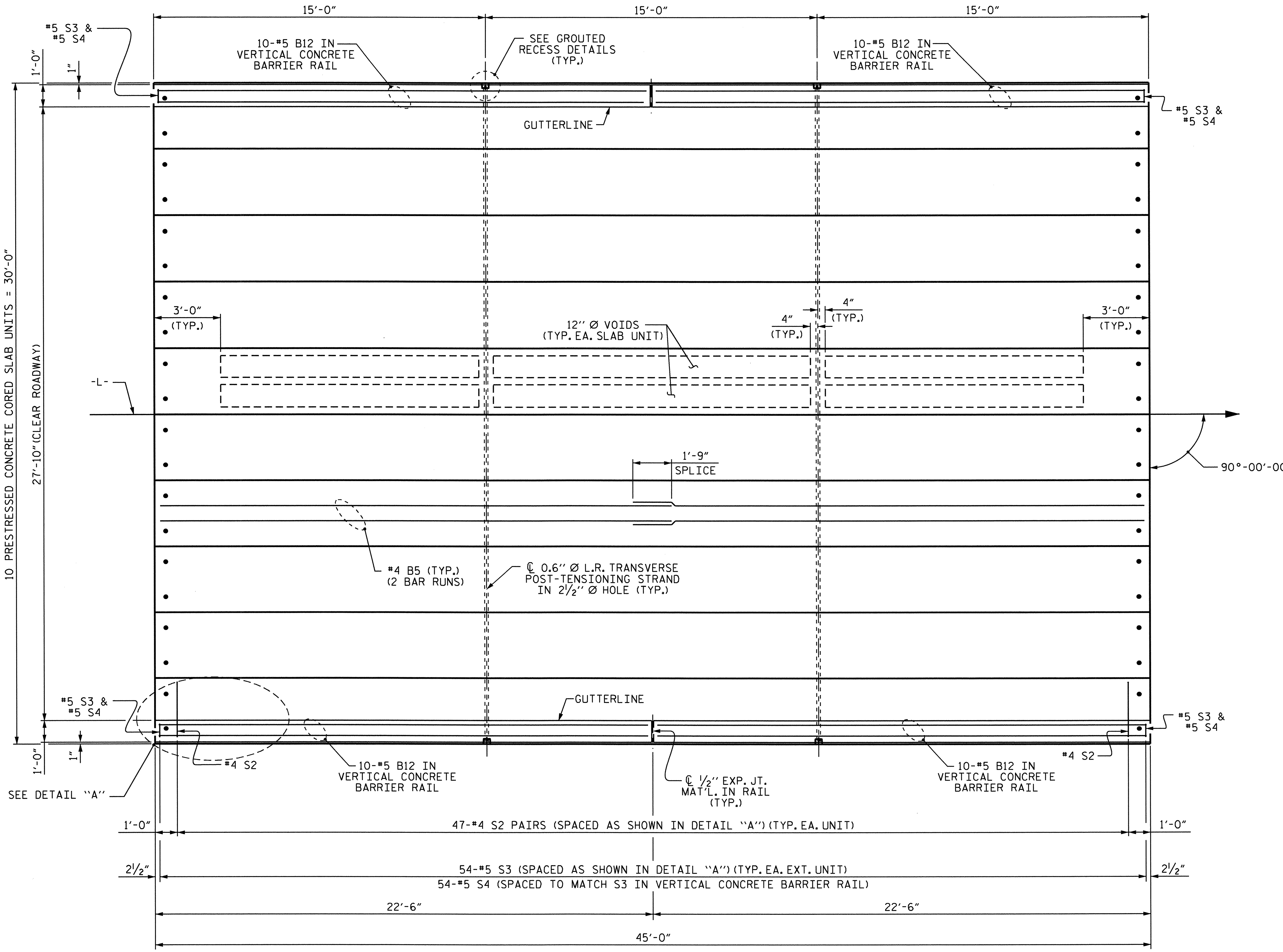
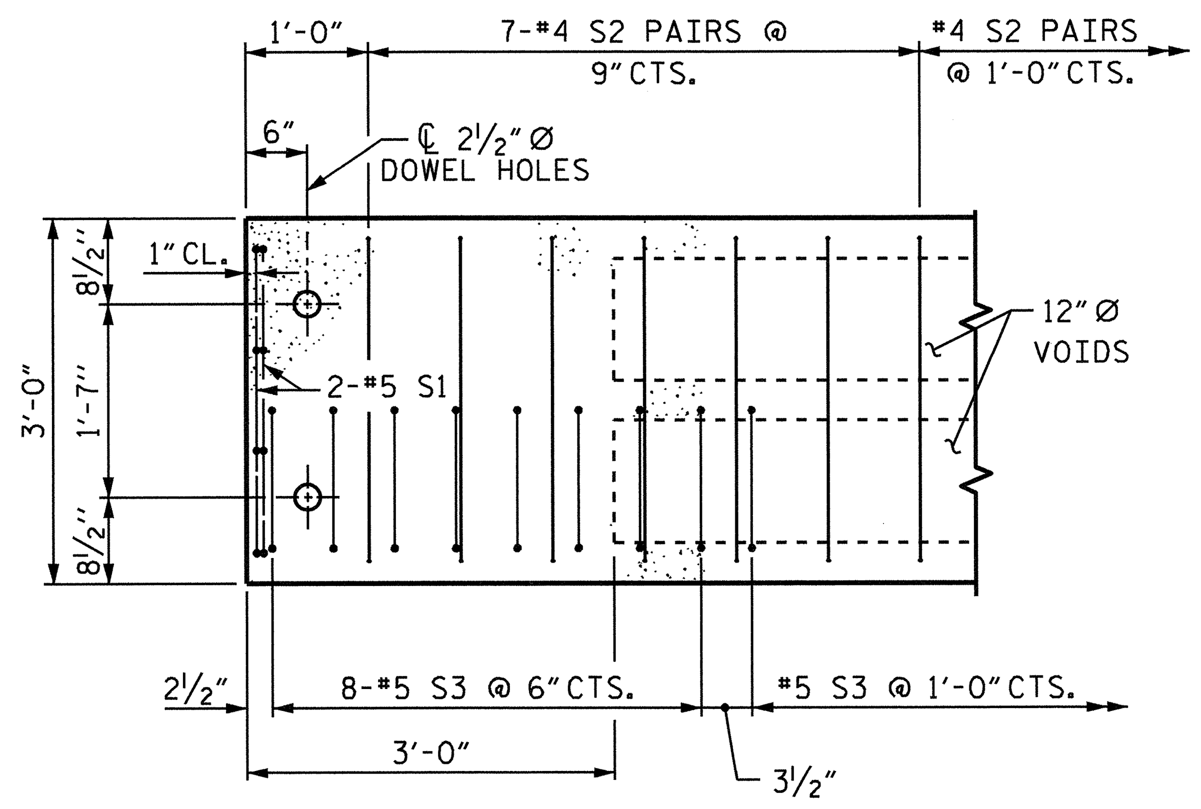
STD. NO. 21"PCS2_30_90S



PLAN OF SPAN A



DETAIL "A"

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

PROJECT NO. BD-5105R

FRANKLIN COUNTY

STATION: 17+17.00 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 45' UNIT
27'-10" CLEAR ROADWAY
90° SKEW

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029441 KRISTY W. ALFORD

REVISIONS								SHEET NO.
NO.	BY:	DATE:		NO.	BY:	DATE:		S-6
1				3				TOTAL SHEETS 17
2				4				

ASSEMBLED BY : A.C. OUTLAW	DATE : 6/06/12		
CHECKED BY : W.F. PARKER	DATE : 6/20/12		
DRAWN BY : DGE 3/09	REV. 12/5/11	MAA/AAC	
CHECKED BY : BCH 3/09			

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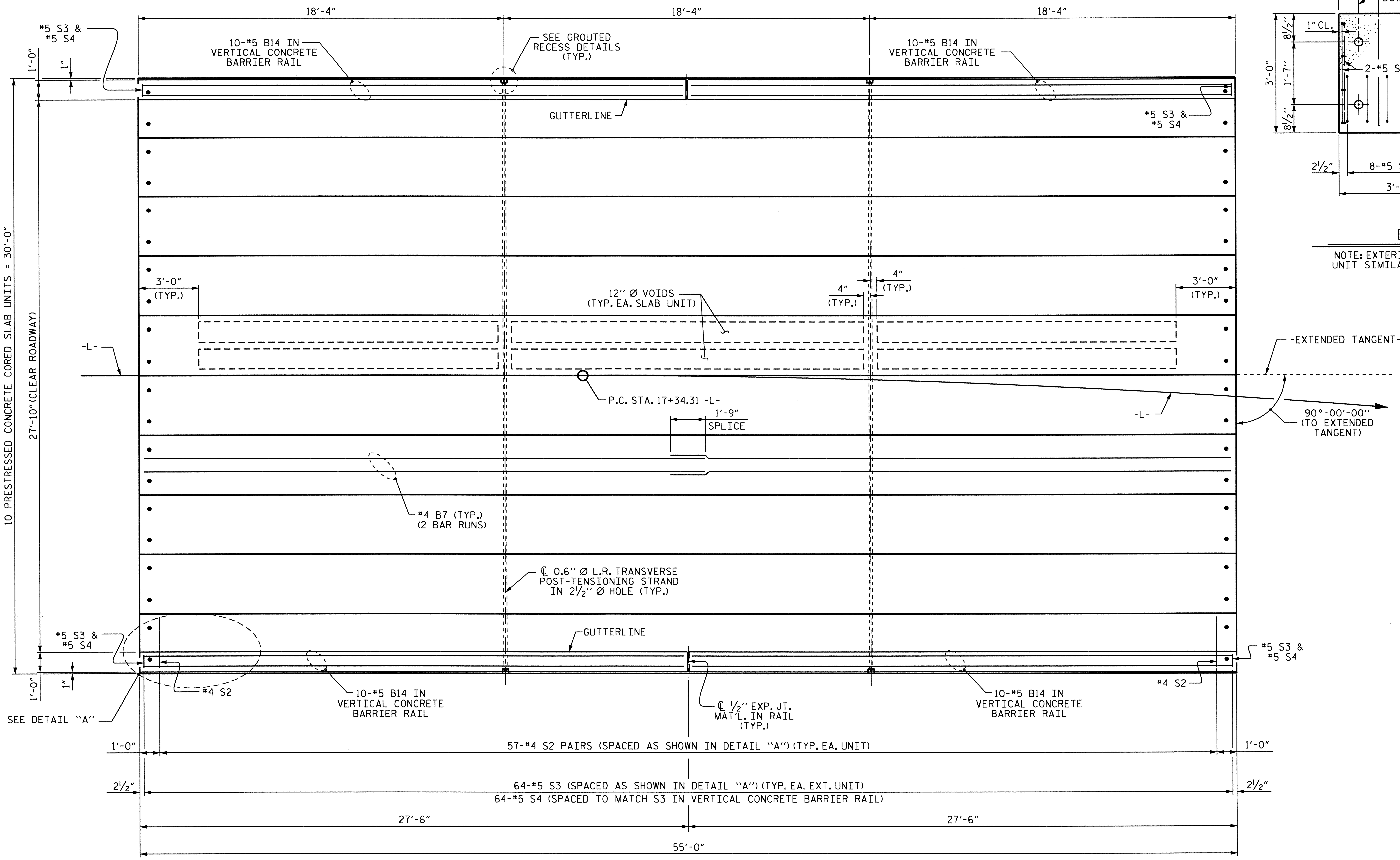
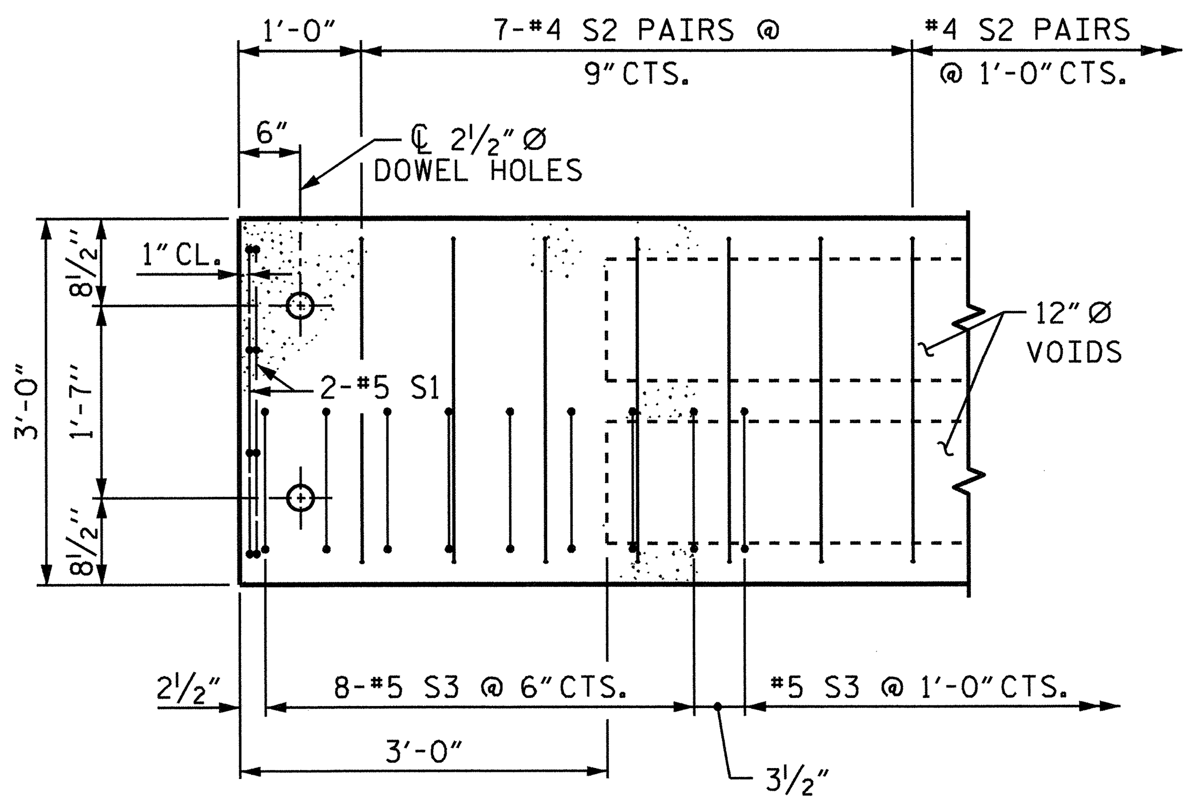
kalford

STD. NO. 21" PCS_30_90S_45L



PLAN OF SPAN B



DETAIL "A"

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

PROJECT NO. BD-5105R

FRANKLIN COUNTY

STATION: 17+17.00 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 55′ UNIT
27′-10″ CLEAR ROADWAY
90° SKEW

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029441 KRISTY W. ALFORD

REVISIONS								SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:			S-7
1			3					TOTAL SHEETS
2			4					17

ASSEMBLED BY : A.C. OUTLAW	DATE : 6/06/12	
CHECKED BY : W. F. PARKER	DATE : 6/20/12	
DRAWN BY : DGE 3/09	REV. 12/5/11	MAA/AAC
CHECKED BY : BCH 3/09		

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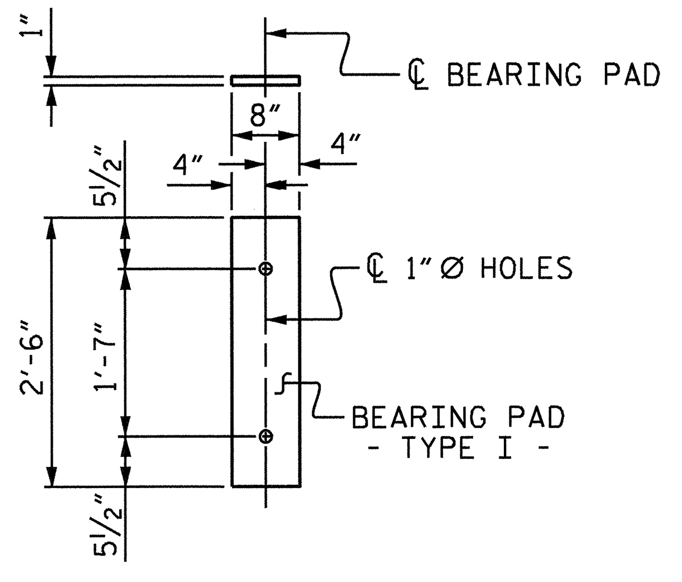
STD. NO. 21″ PCS_30_90S_55L



FIXED END
(TYPE I - 40 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

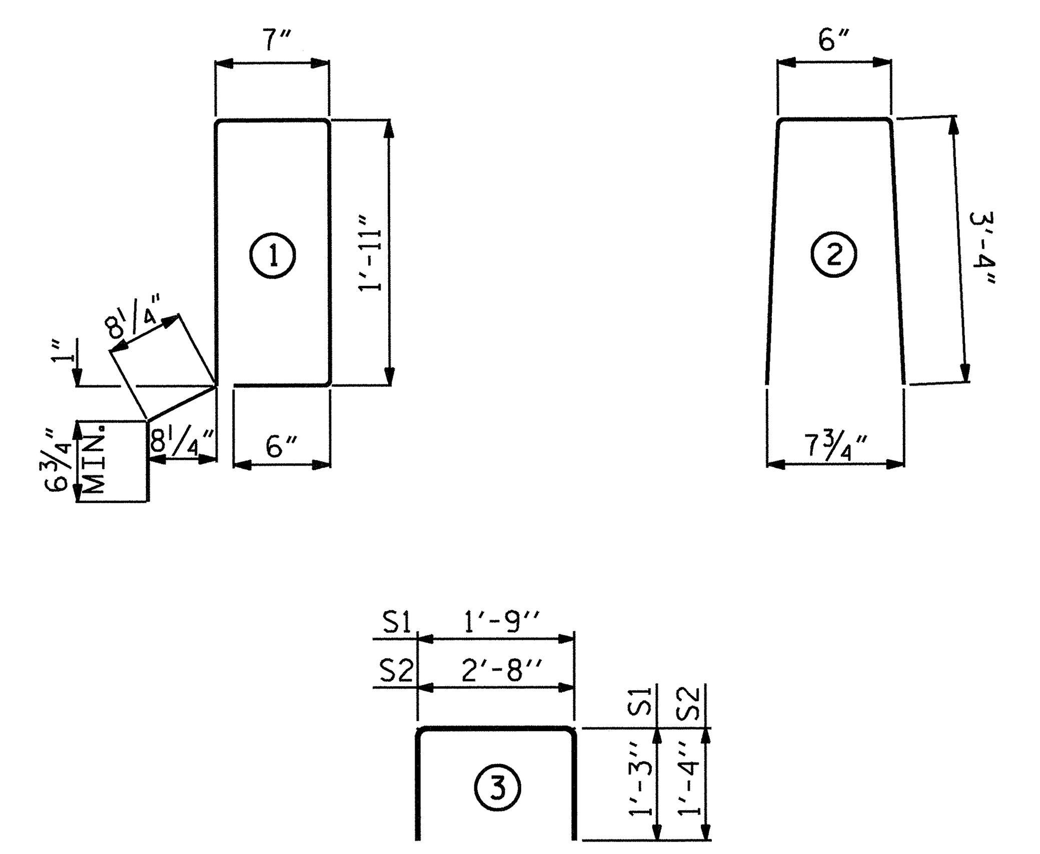
BILL OF MATERIAL FOR ONE 45' CORED SLAB UNIT

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B5	4	#4	STR	23'-3"	62	23'-3"	62
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	94	#4	3	5'-4"	335	5'-4"	335
* S3	54	#5	1	6'-2"	347		
REINFORCING STEEL		LBS.			432		432
* EPOXY COATED REINFORCING STEEL		LBS.			347		
6500 P.S.I. CONCRETE		CU. YDS.			6.5		6.5
0.6" Ø L.R. STRANDS		No.			13		13

BILL OF MATERIAL FOR ONE 55' CORED SLAB UNIT

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B7	4	#4	STR	28'-3"	75	28'-3"	75
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	114	#4	3	5'-4"	406	5'-4"	406
* S3	64	#5	1	6'-2"	412		
REINFORCING STEEL		LBS.			516		516
* EPOXY COATED REINFORCING STEEL		LBS.			412		
6500 P.S.I. CONCRETE		CU. YDS.			7.8		7.8
0.6" Ø L.R. STRANDS		No.			19		19

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

NOTES

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

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

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

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

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

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

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

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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

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

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

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

CONCRETE RELEASE STRENGTH

UNIT	PSI
45' UNITS	4000
55' UNITS	4900

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

DEAD LOAD DEFLECTION AND CAMBER

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

** INCLUDES FUTURE WEARING SURFACE

DEAD LOAD DEFLECTION AND CAMBER

	3'-0" x 1'-9"
55' CORED SLAB UNIT	0.6"Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	2½" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	¼" ↓
FINAL CAMBER	2¼" ↑

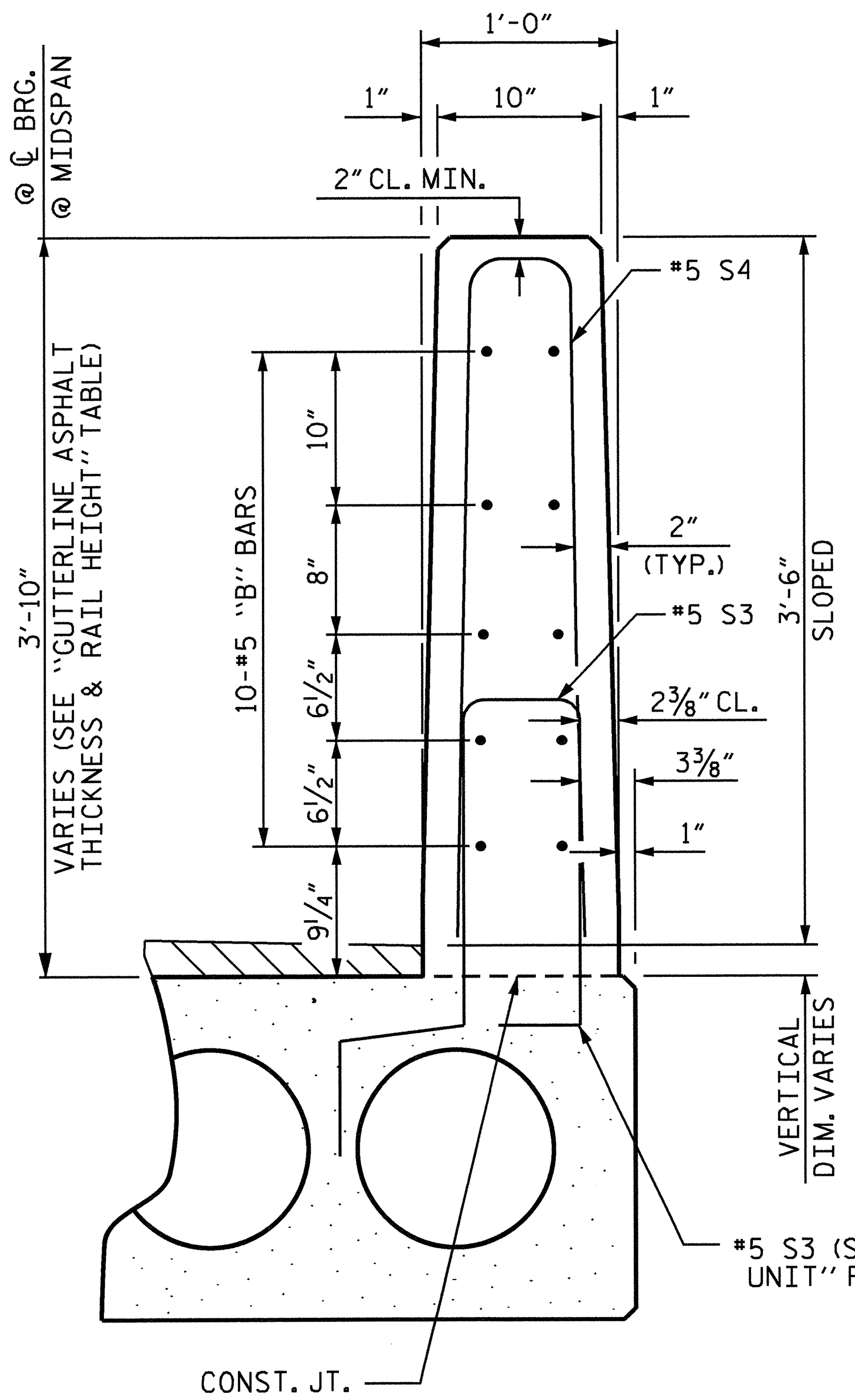
** INCLUDES FUTURE WEARING SURFACE

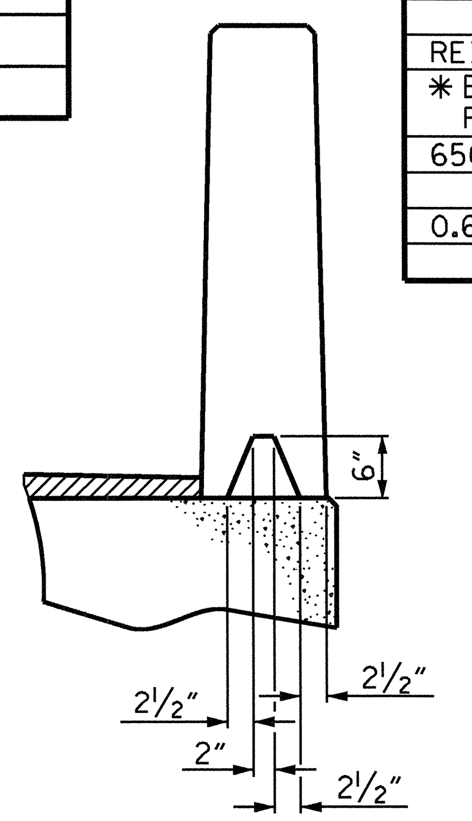
CORED SLABS REQUIRED

	NUMBER	LENGTH	TOTAL LENGTH
45' UNIT			
EXTERIOR C.S.	2	45'-0"	90'-0"
INTERIOR C.S.	8	45'-0"	360'-0"
TOTAL	10	45'-0"	450'-0"

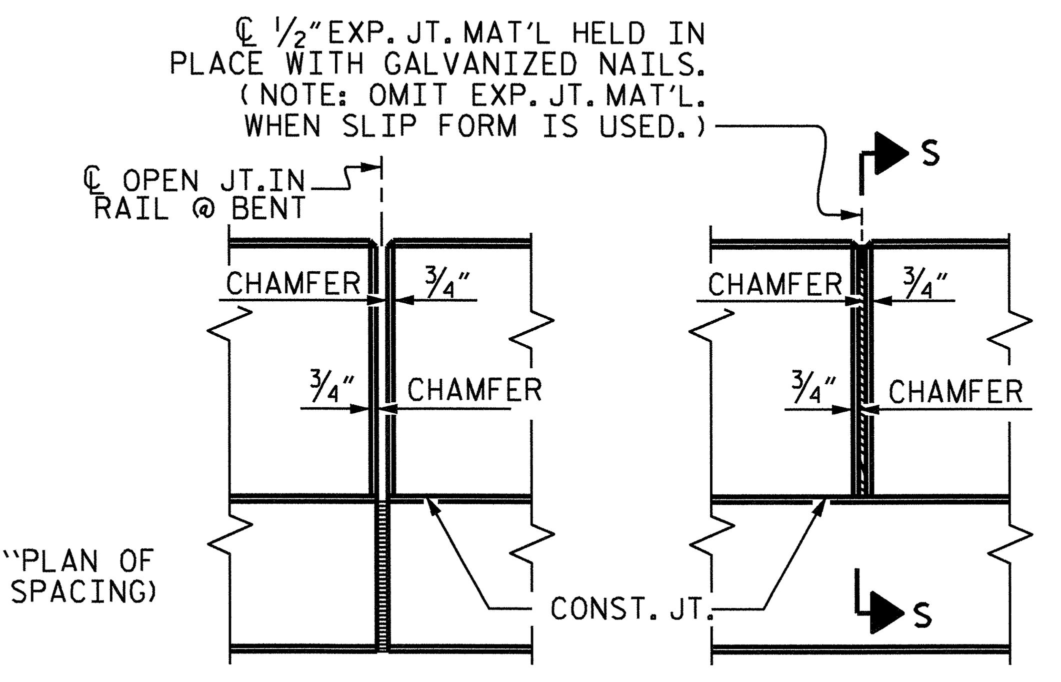
CORED SLABS REQUIRED

	NUMBER	LENGTH	TOTAL LENGTH
55' UNIT			
EXTERIOR C.S.	2	55'-0"	110'-0"
INTERIOR C.S.	8	55'-0"	440'-0"
TOTAL	10	55'-0"	550'-0"





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



ELEVATION AT EXPANSION JOINTS

VERTICAL CONCRETE BARRIER RAIL SECTION

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	45' UNIT					
*B12	40	40	#5	STR	22'-1"	921
* S4	108	108	#5	2	7'-2"	807
* EPOXY COATED REINFORCING STEEL			LBS.			1728
CLASS AA CONCRETE			CU.YDS.			11.8
TOTAL VERTICAL CONCRETE BARRIER RAIL			LN. FT.			90.25

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

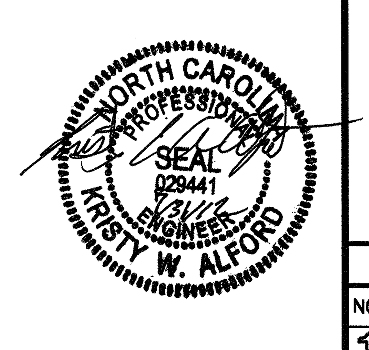
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	55' UNIT					
*B14	40	40	#5	STR	27'-1"	1130
* S4	128	128	#5	2	7'-2"	957
* EPOXY COATED REINFORCING STEEL			LBS.			2087
CLASS AA CONCRETE			CU.YDS.			14.4
TOTAL VERTICAL CONCRETE BARRIER RAIL			LN. FT.			110.25

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

27'-10" CLEAR ROADWAY	ASPHALT OVERLAY THICKNESS	RAIL HEIGHT
	@ MID-SPAN	@ MID-SPAN
45' UNITS	2⅝"	3'-8⅞"
55' UNITS	1½"	3'-7¾"

PROJECT NO. BD-5105R
FRANKLIN COUNTY
STATION: 17+17.00 -L-

SHEET 4 OF 5



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
90° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			17

ASSEMBLED BY : A.C. OUTLAW	DATE : 6/06/12	
CHECKED BY : W. F. PARKER	DATE : 6/20/12	
DRAWN BY : DGE 5/09	REV. 12/11	MAA/AAC
CHECKED BY : BCH 6/09		

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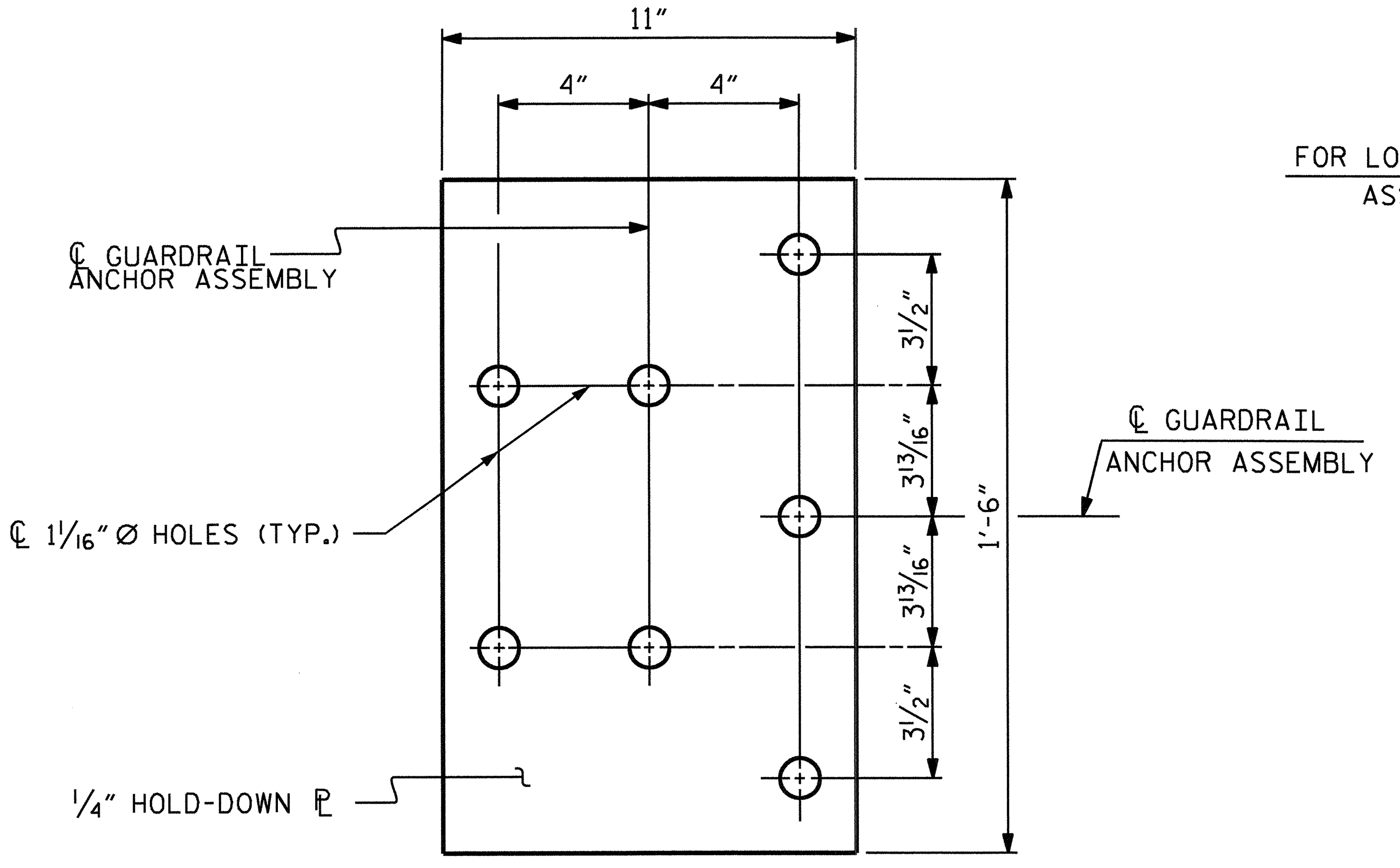
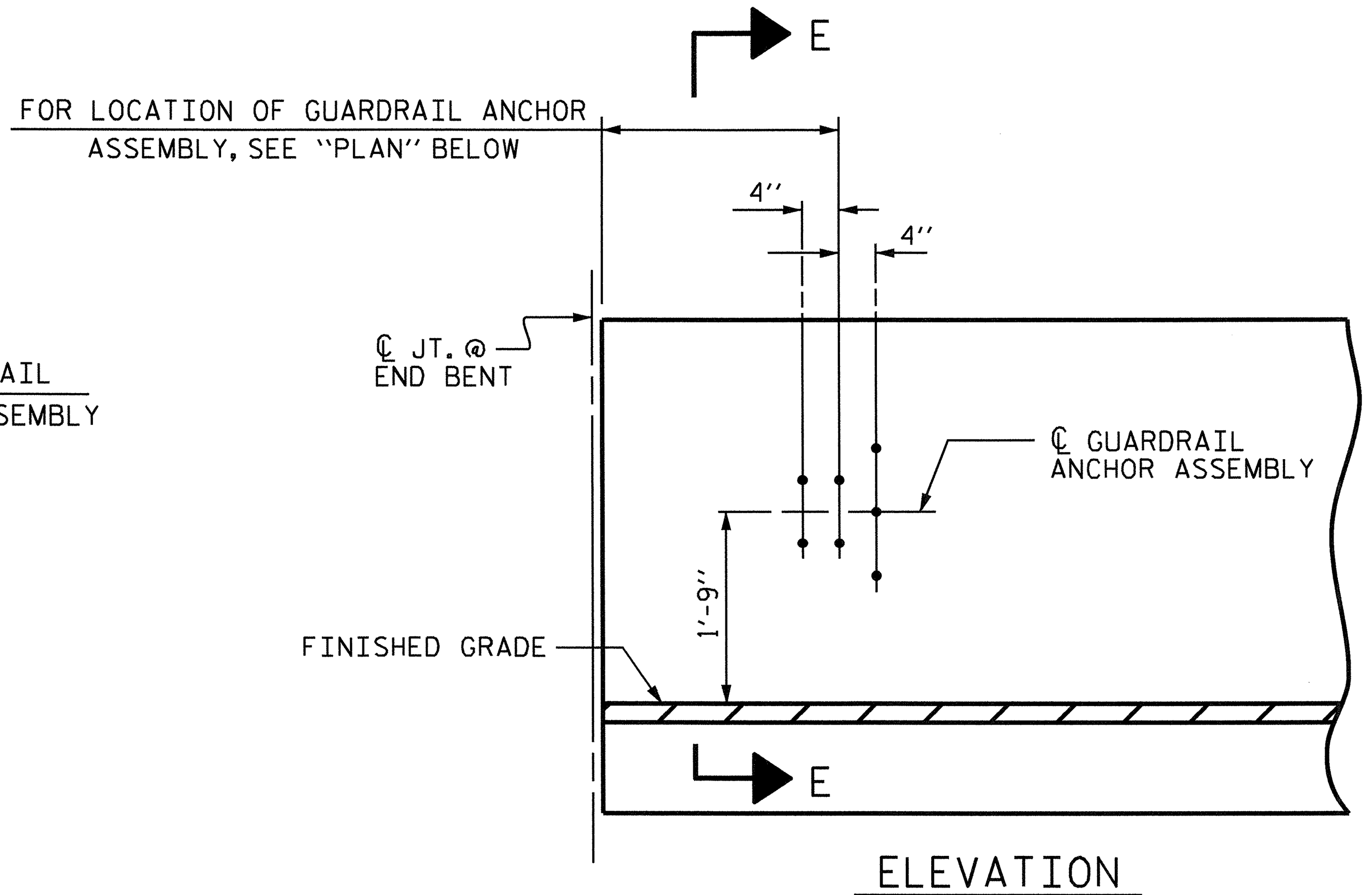
STD. NO. 21"PCS3_30_90S



PLAN



ELEVATION

NOTES

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

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

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

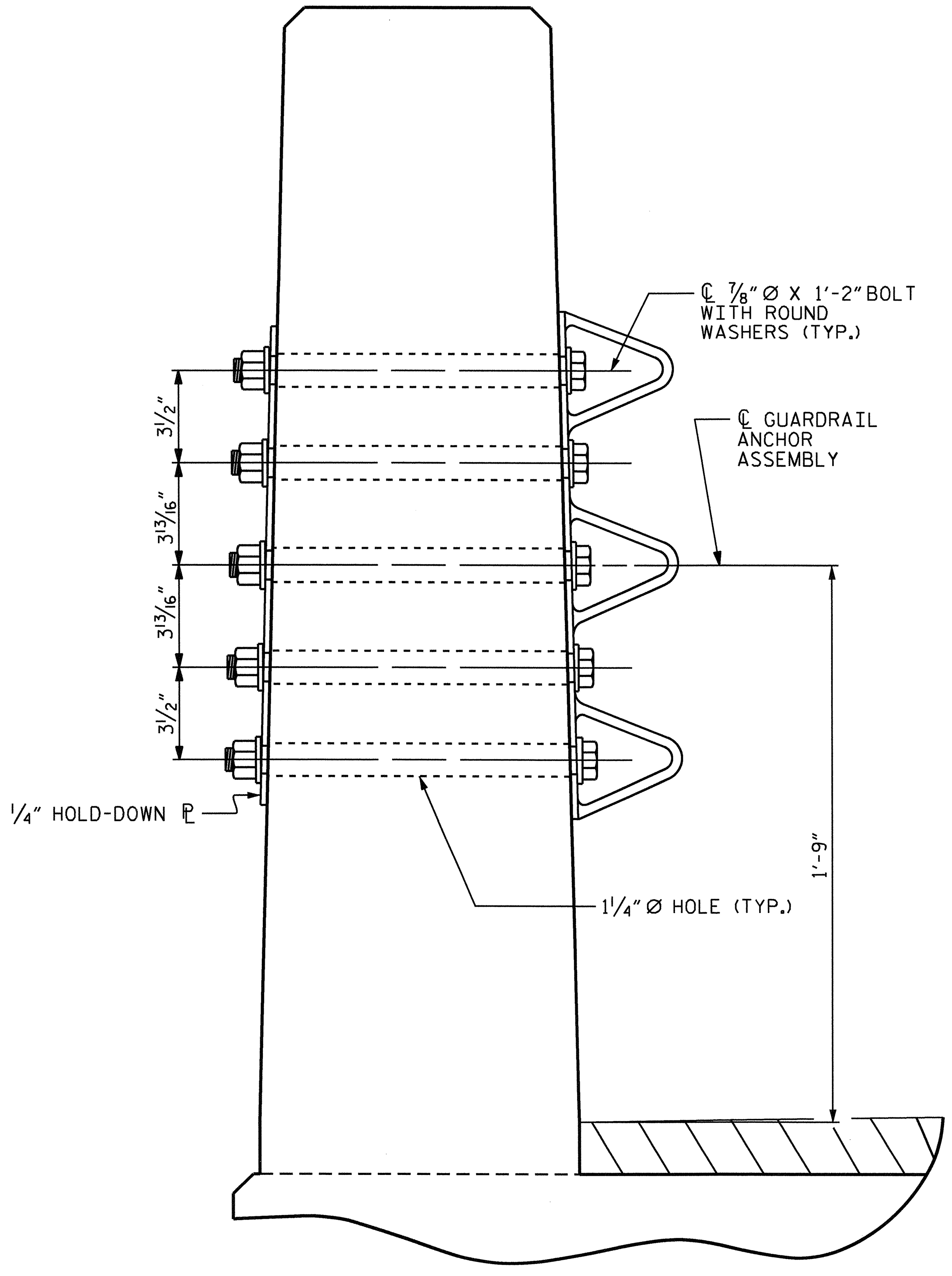
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

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

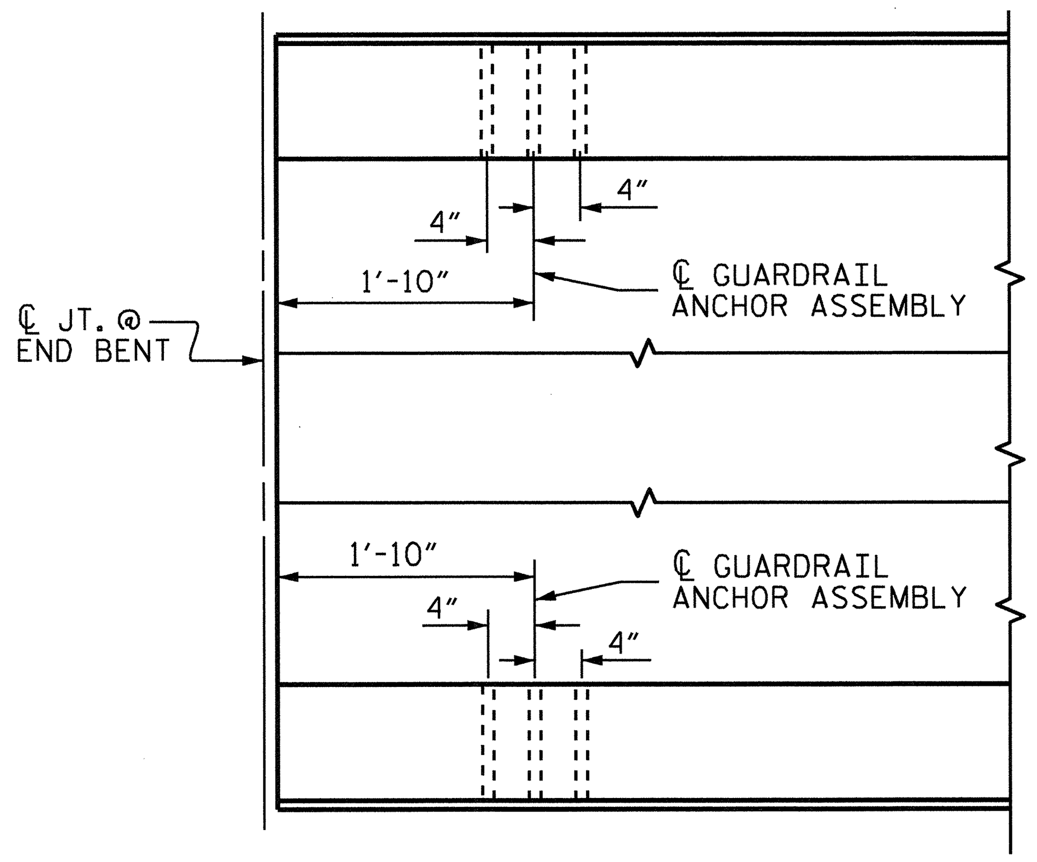
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

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



SECTION E-E

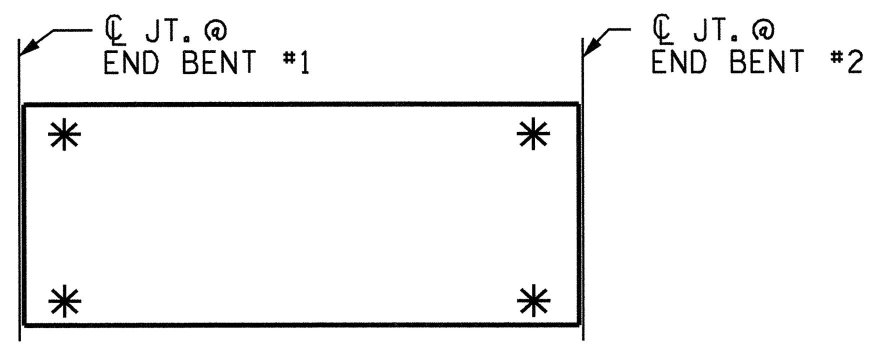
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

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



SKETCH SHOWING POINTS OF ATTACHMENT

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. BD-5105R

FRANKLIN COUNTY

STATION: 17+17.00 -L-

SHEET 5 OF 5

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				17

ASSEMBLED BY : A.C. OUTLAW	DATE : 6/06/12
CHECKED BY : W. F. PARKER	DATE : 6/20/12
DRAWN BY : MAA 5/10	ADDED 5/6/10
CHECKED BY : GM 5/10	REV. 10/1/11 MAA/GM
	REV. 12/5/11 MAA/GM

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kalford

(SHT 1) STD. NO. GRA3

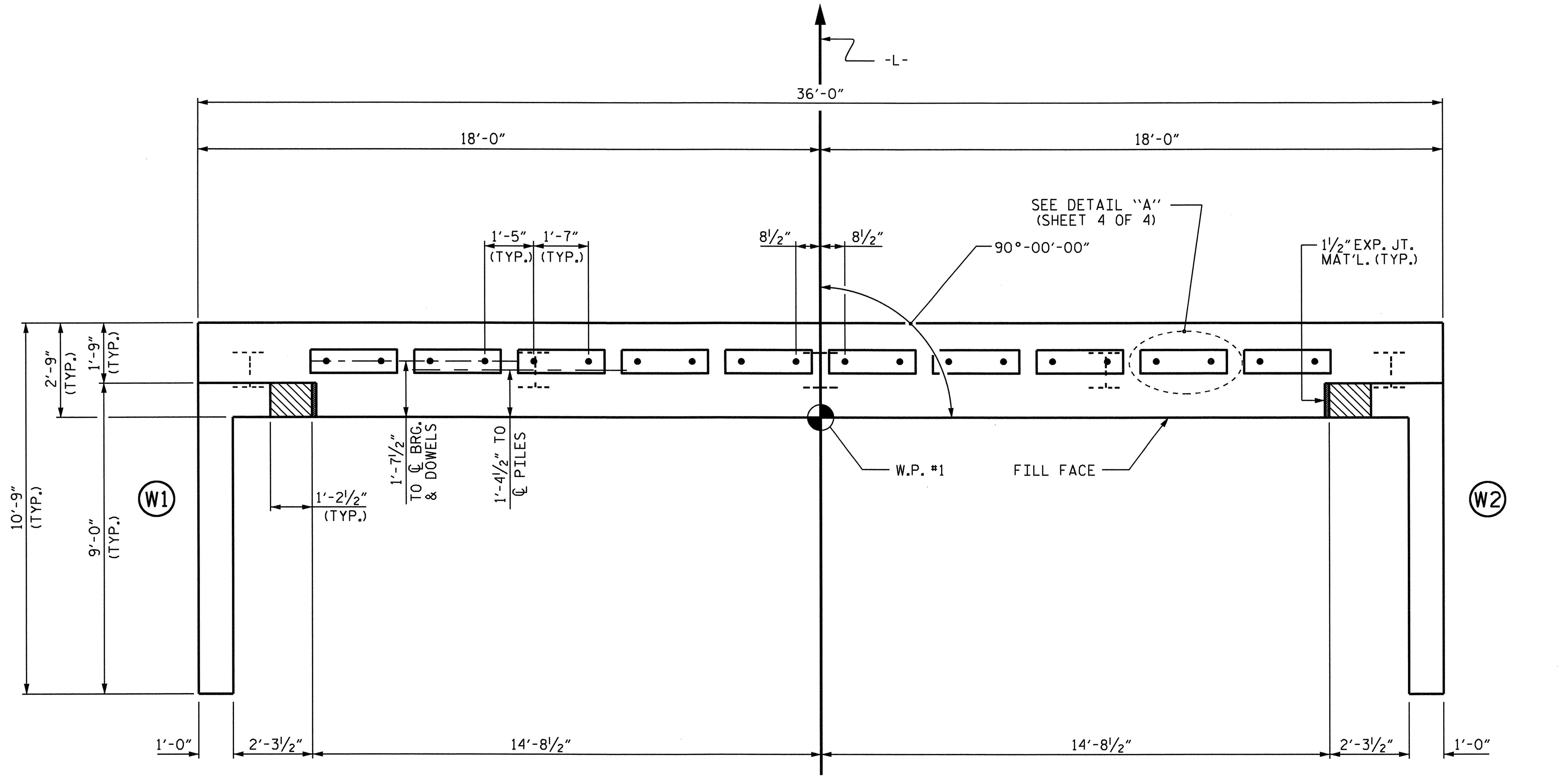
NOTES

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

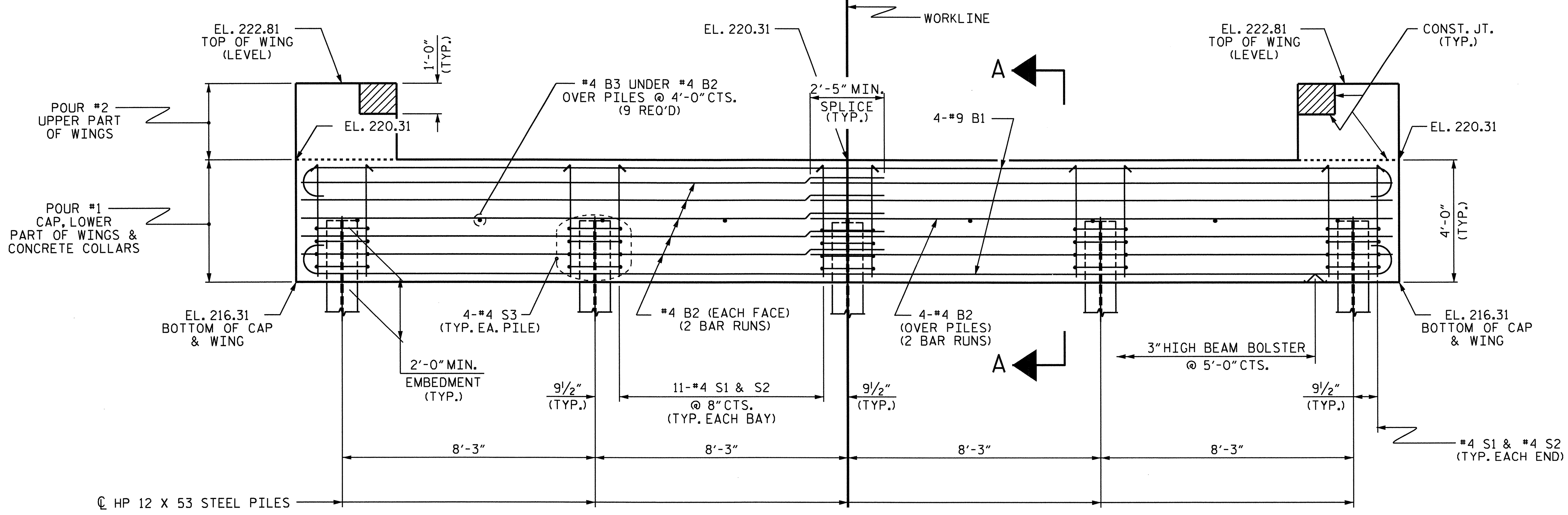
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

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-5105R
FRANKLIN COUNTY
STATION: 17+17.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029441 KRISTY W. ALFORD

REVISIONS								SHEET NO.
NO.	BY:	DATE:		NO.	BY:	DATE:		S-10
1				3				TOTAL SHEETS
2				4				17

ASSEMBLED BY : A.C. OUTLAW	DATE : 6/06/12
CHECKED BY : W. F. PARKER	DATE : 6/20/12
DRAWN BY : WJH 12/11	
CHECKED BY : AAC 12/11	

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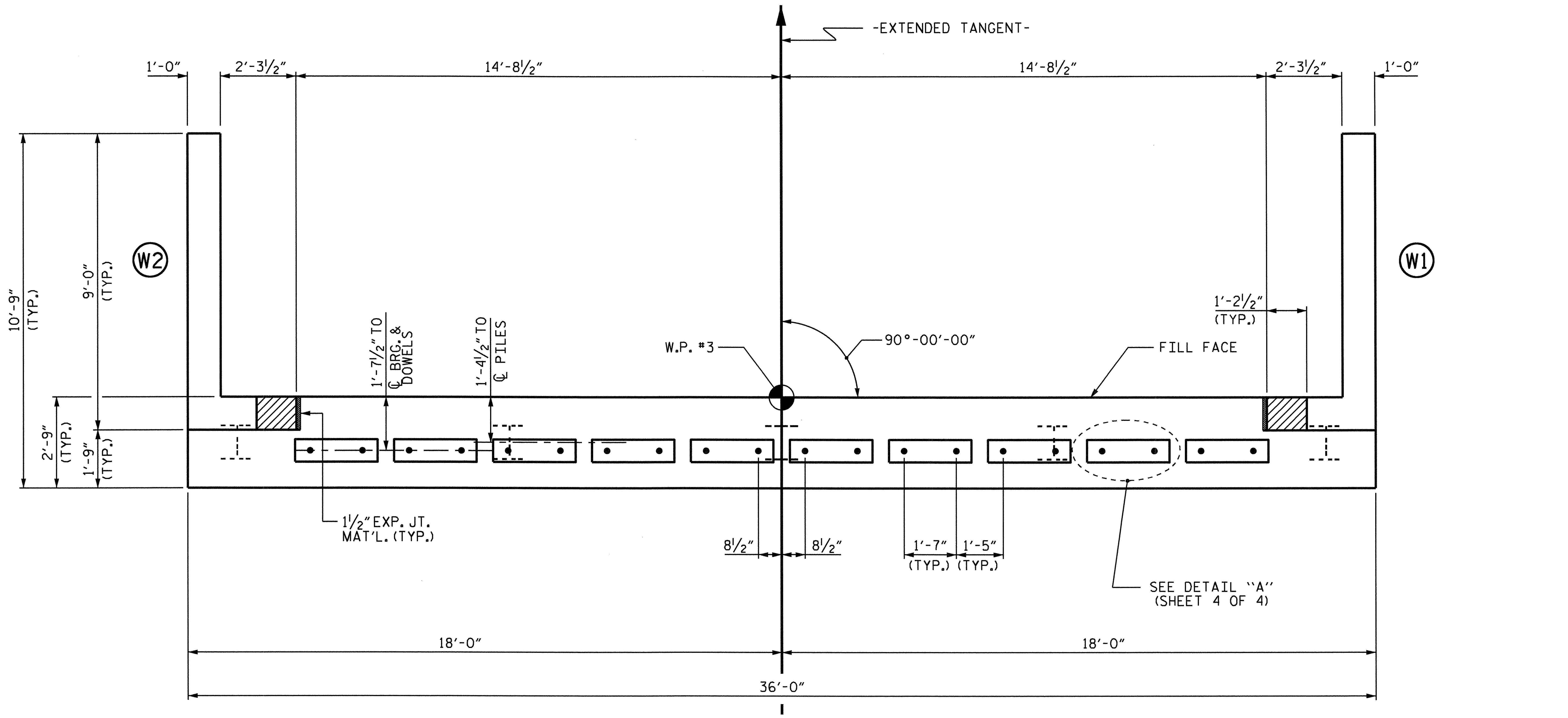
NOTES

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

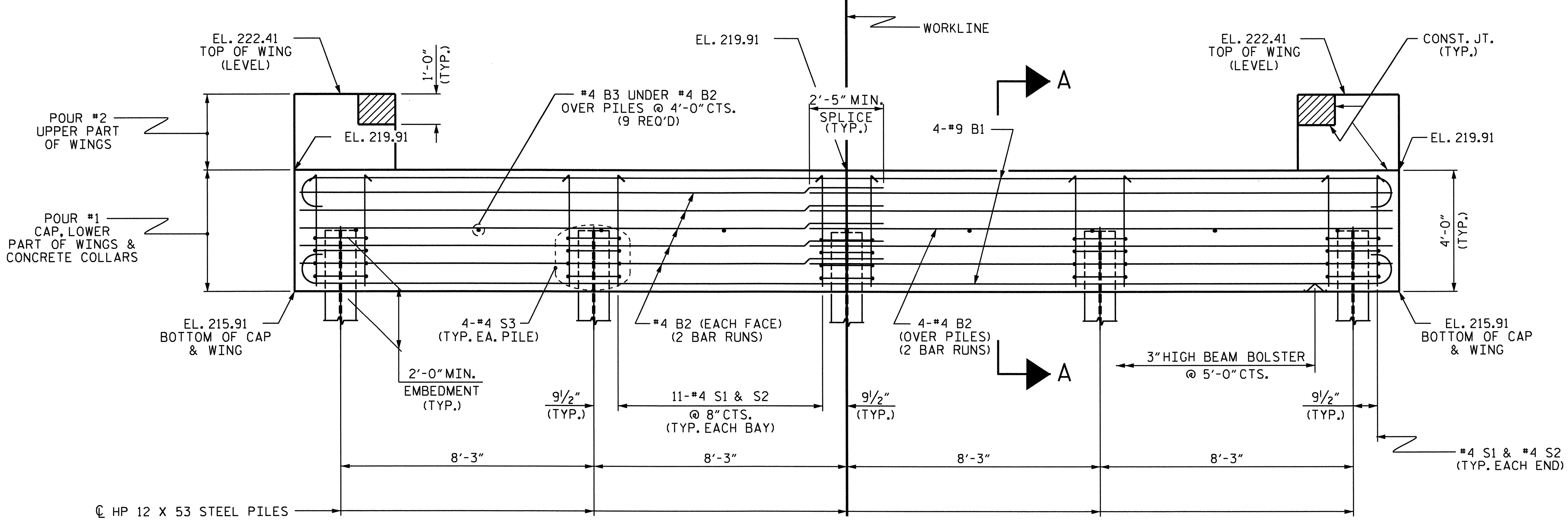
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

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-5105R
FRANKLIN COUNTY
STATION: 17+17.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 2

NORTH CAROLINA PROFESSIONAL SEAL 029441 ENGINEER KRISTY W. ALFORD

REVISIONS								SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:			S-11
1			3					TOTAL SHEETS
2			4					17

ASSEMBLED BY : A.C. OUTLAW	DATE : 6/06/12
CHECKED BY : W. F. PARKER	DATE : 6/20/12
DRAWN BY : WJH 12/11	
CHECKED BY : AAC 12/11	

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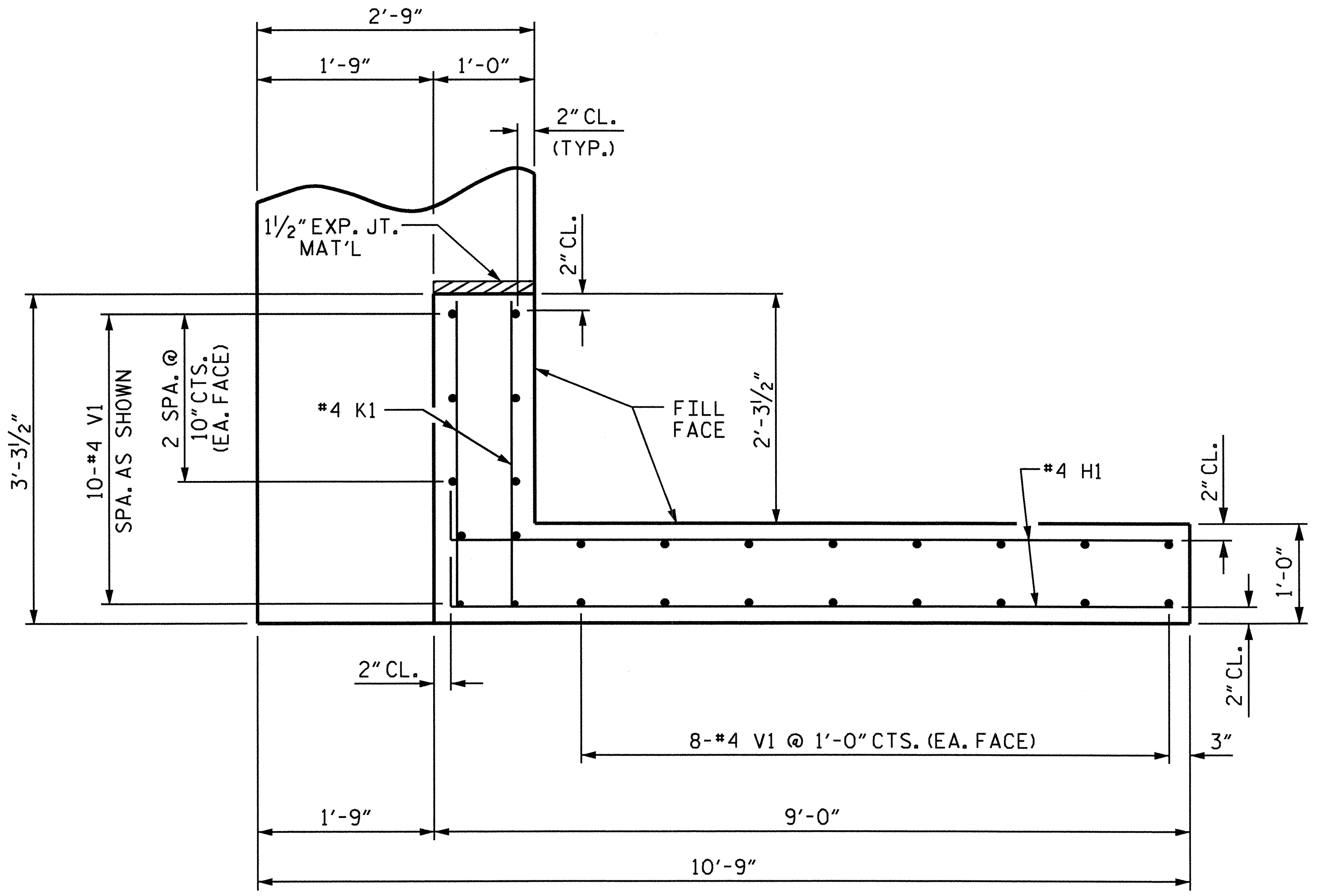
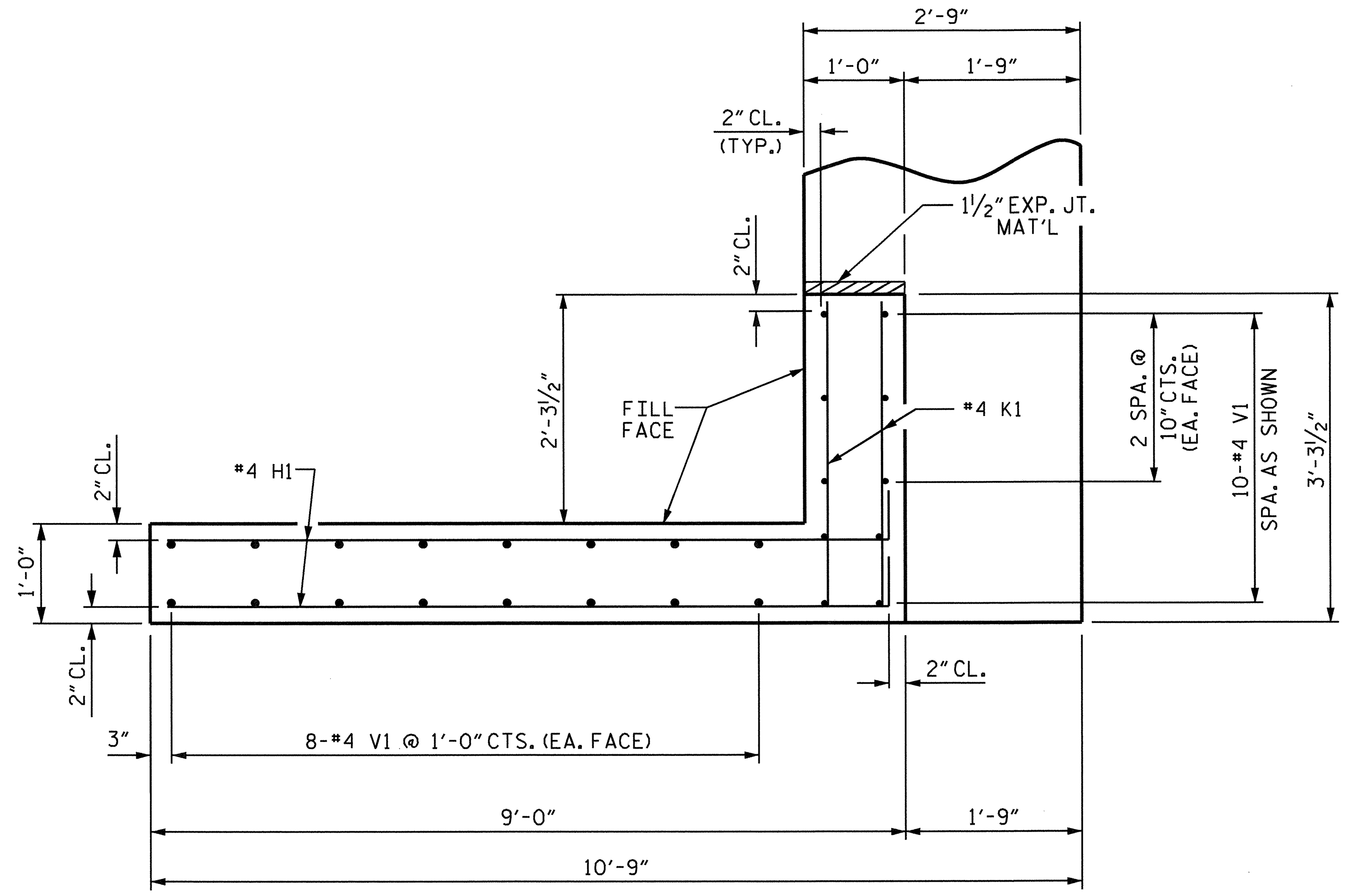
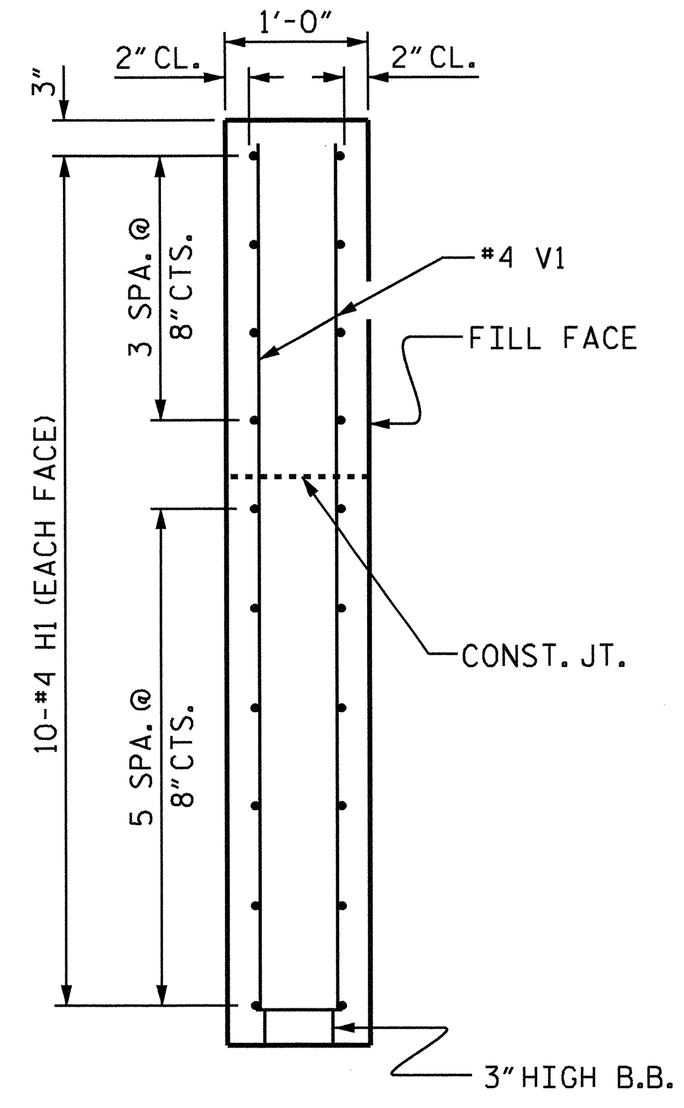
STD. NO. EB_30_90S4



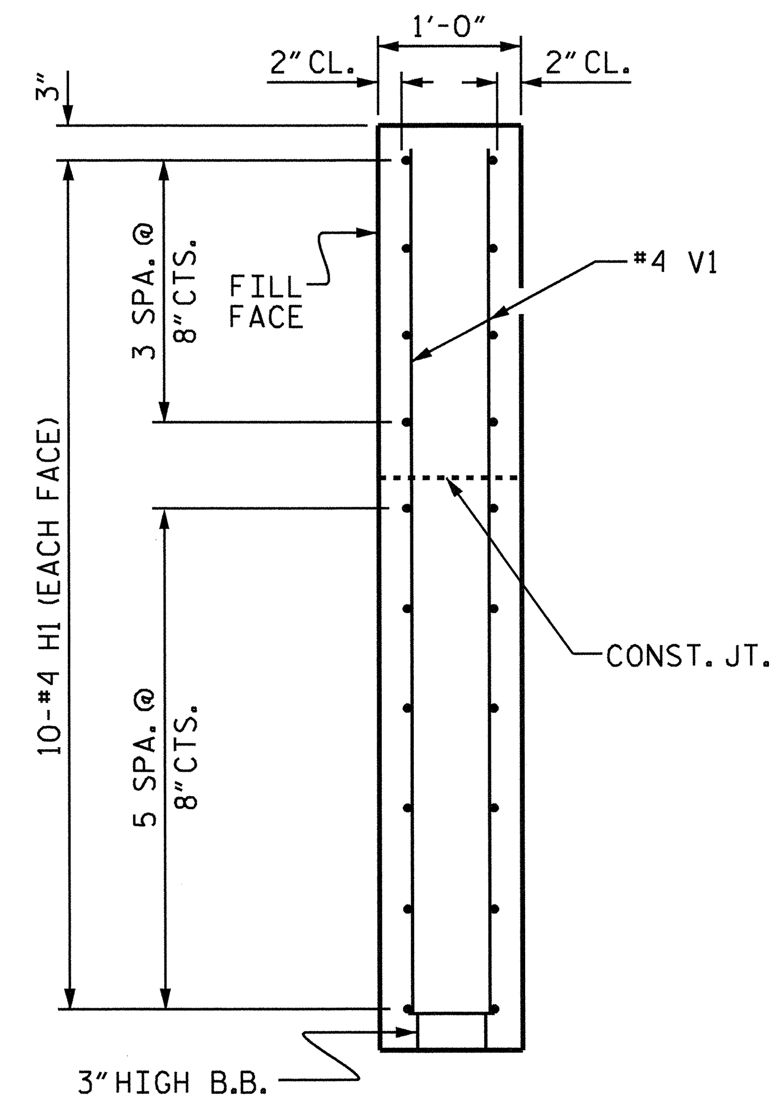
PLAN OF WING (W1)



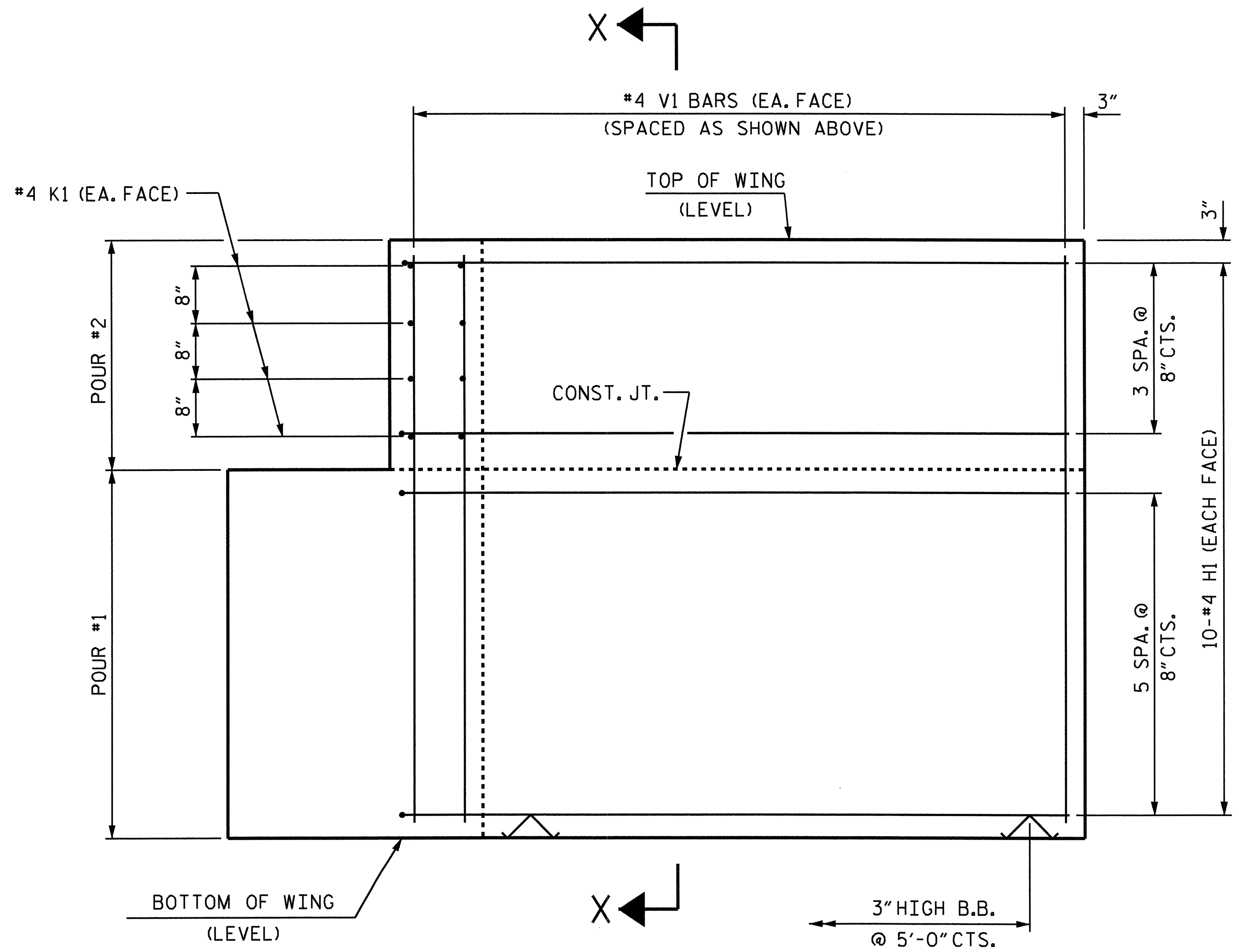
PLAN OF WING (W2)



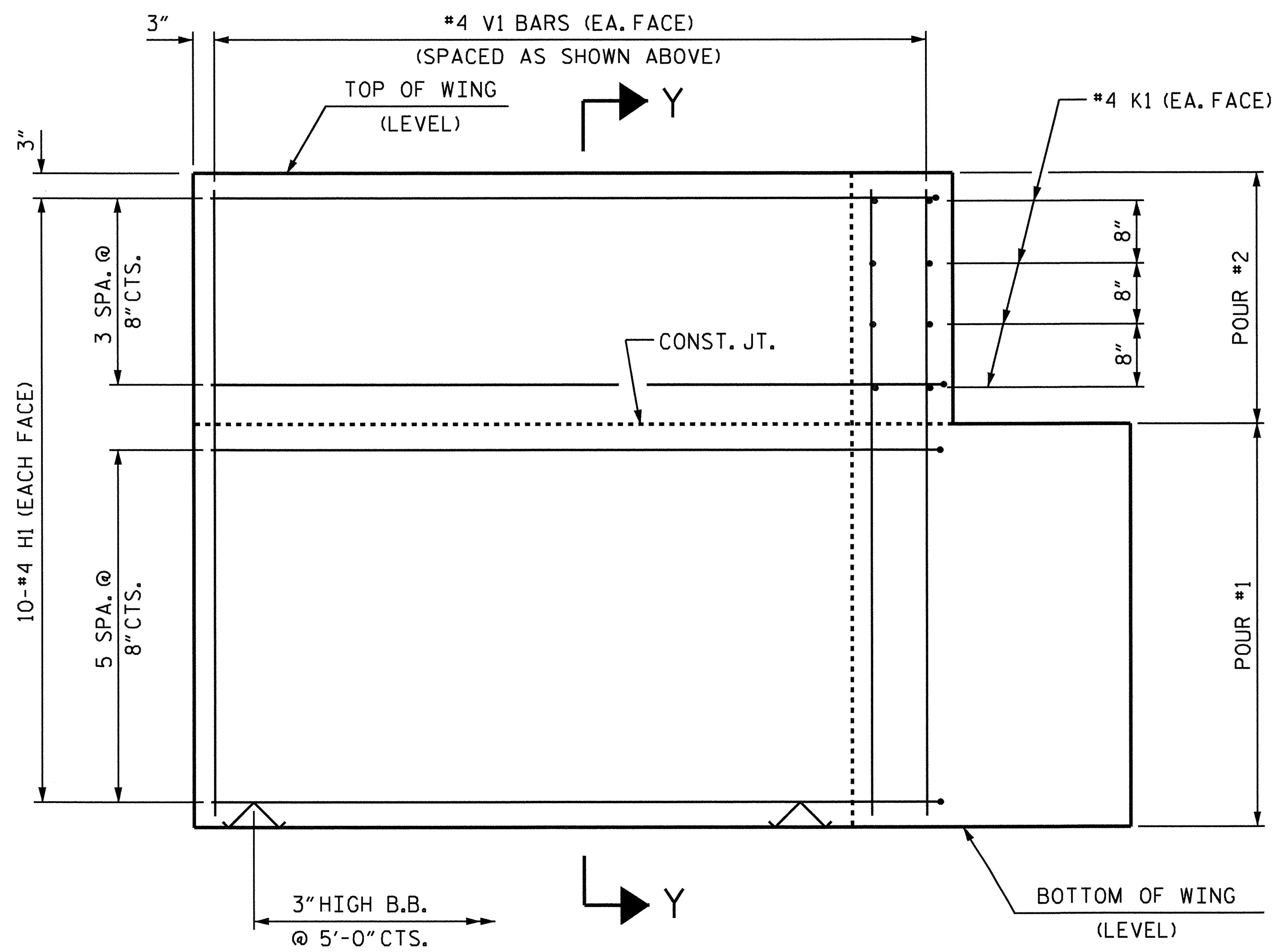
SECTION X-X



SECTION Y-Y



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

WING DETAILS

PROJECT NO. BD-5105R

FRANKLIN COUNTY

STATION: 17+17.00 -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					17

ASSEMBLED BY :	A.C. OUTLAW	DATE :	6/06/12
CHECKED BY :	W. F. PARKER	DATE :	6/20/12
DRAWN BY :	WJH	12/11	
CHECKED BY :	AAC	12/11	

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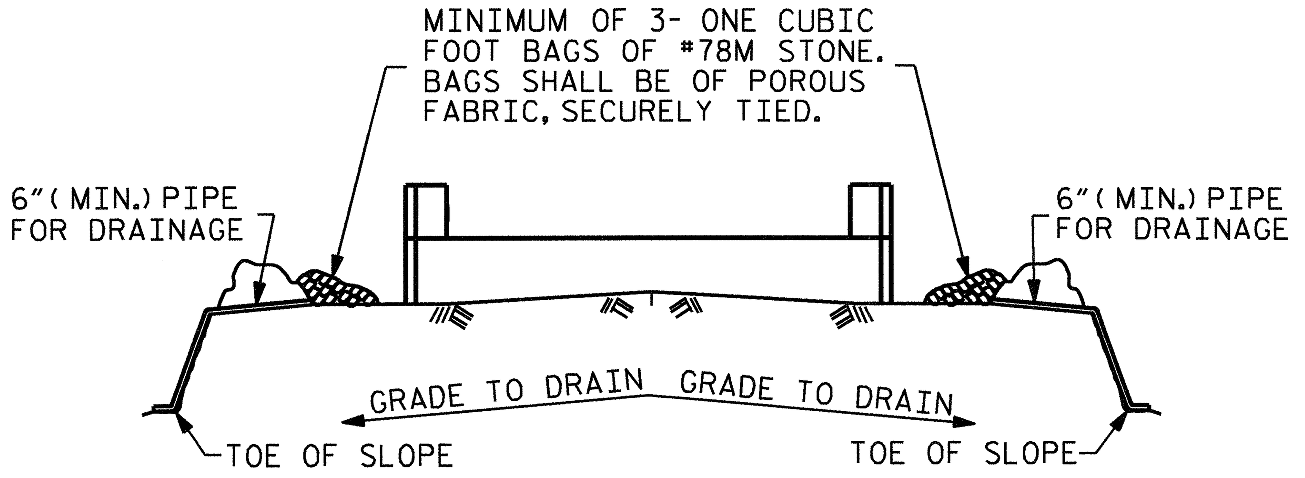
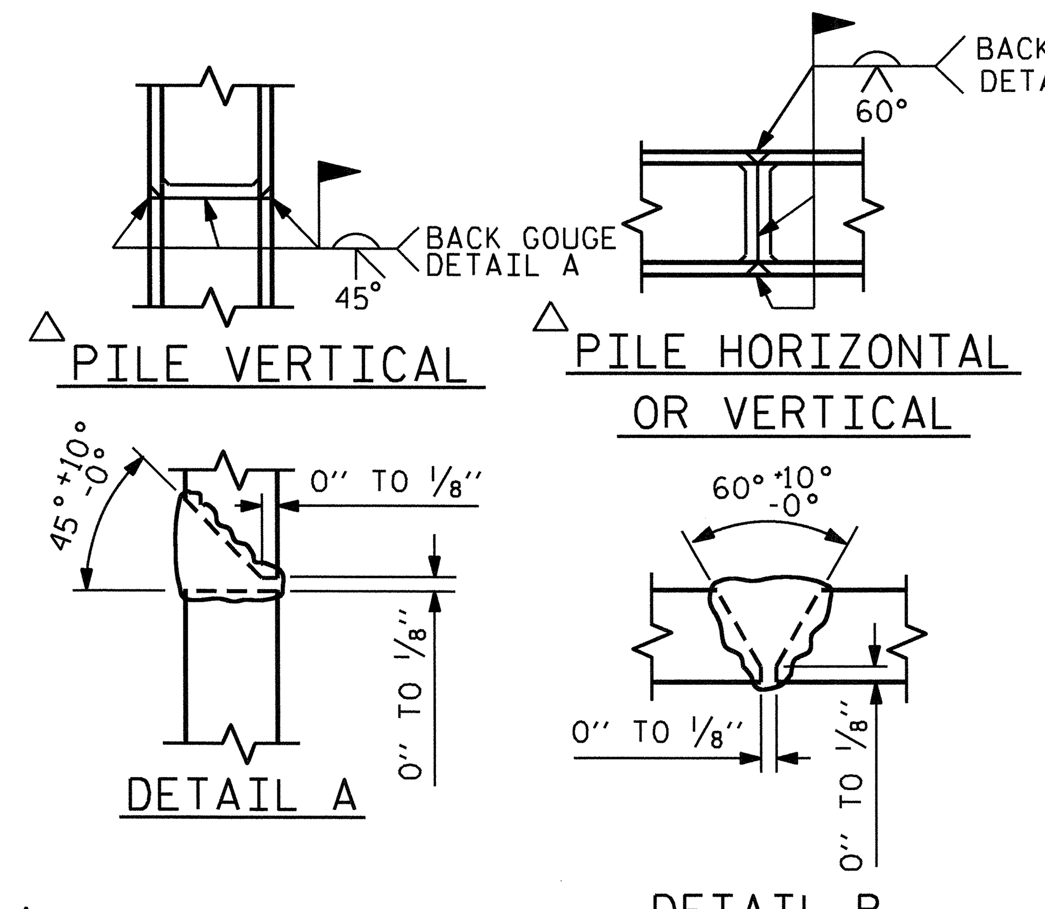


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

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

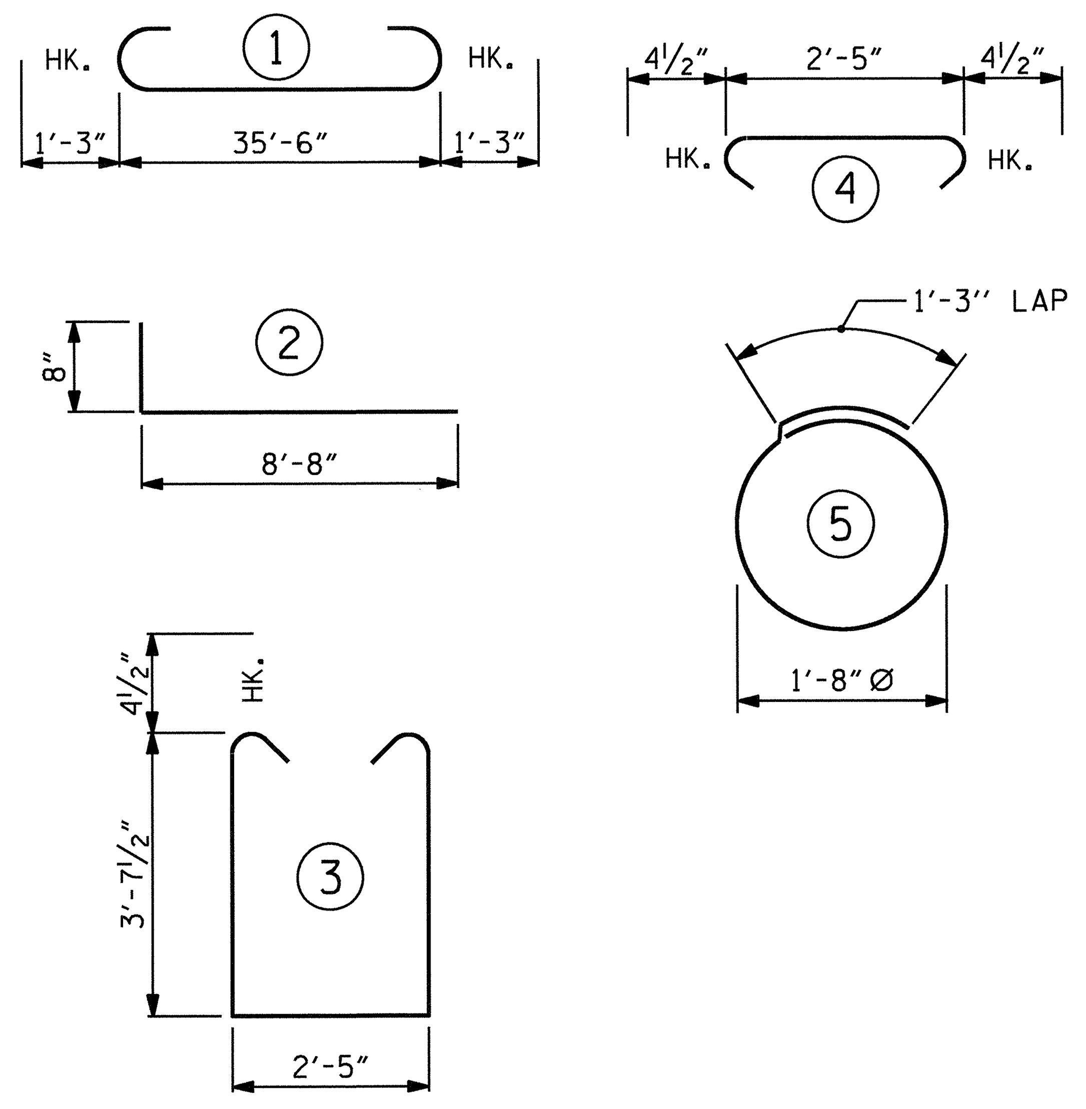
TEMPORARY DRAINAGE AT END BENT



△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT No. 1		END BENT No. 2	
HP 12 X 53 STEEL PILES		HP 12 X 53 STEEL PILES	
NO: 5	LIN. FT.= 125	NO: 5	LIN. FT.= 100
PILE REDRIVES	3 EACH	PILE REDRIVES	3 EACH
STEEL PILE POINTS	5 EACH	STEEL PILE POINTS	5 EACH

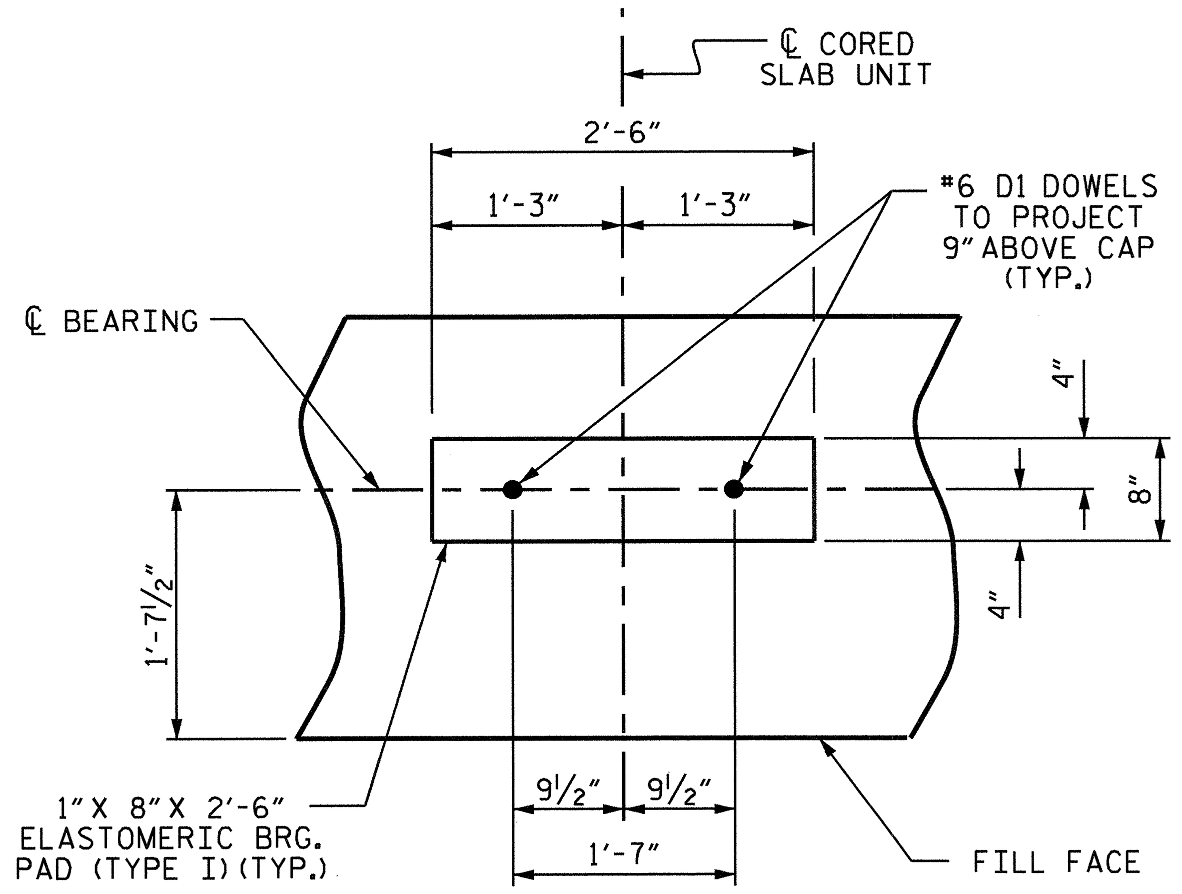
BILL OF MATERIAL
FOR ONE END BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	38'-0"	1034
B2	28	#4	STR	19'-1"	357
B3	9	#4	STR	2'-5"	15
D1	20	#6	STR	1'-6"	45
H1	40	#4	2	9'-4"	249
K1	16	#4	STR	2'-11"	31
S1	46	#4	3	10'-5"	320
S2	46	#4	4	3'-2"	97
S3	20	#4	5	6'-6"	87
V1	52	#4	STR	6'-2"	214

REINFORCING STEEL (FOR ONE END BENT) 2449 LBS.

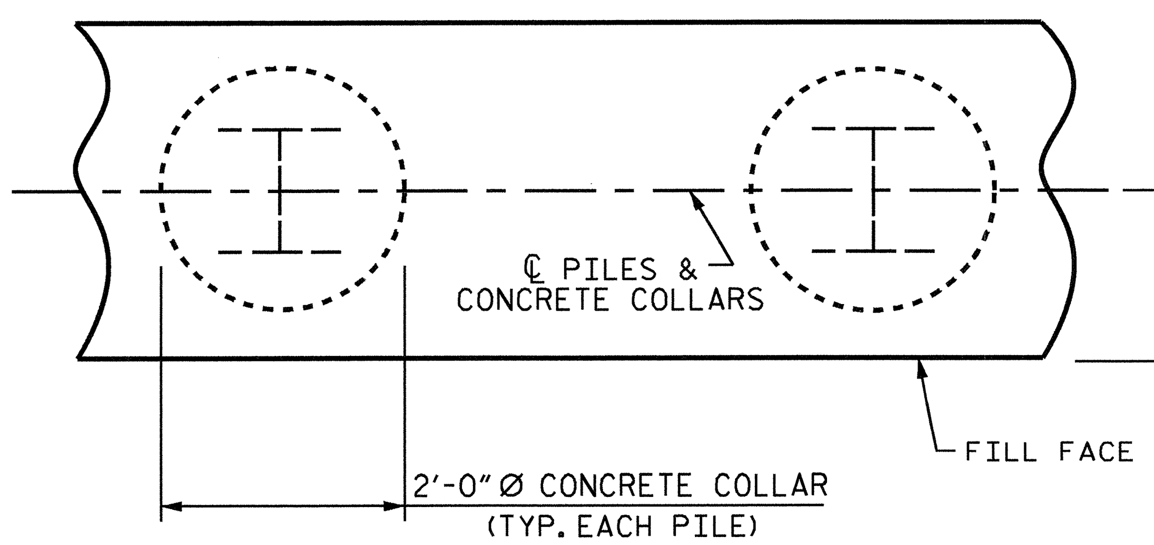
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)

POUR #1	CAP, LOWER PART OF WINGS & COLLARS	17.9 C.Y.
POUR #2	UPPER PART OF WINGS	2.1 C.Y.
TOTAL CLASS A CONCRETE		20.0 C.Y.

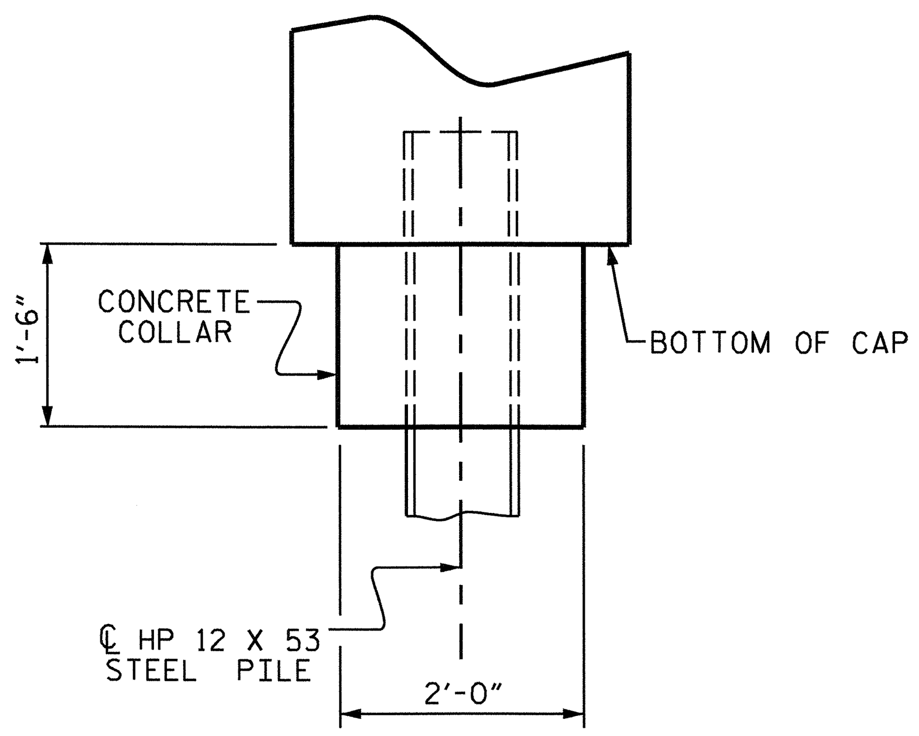


DETAIL "A"

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



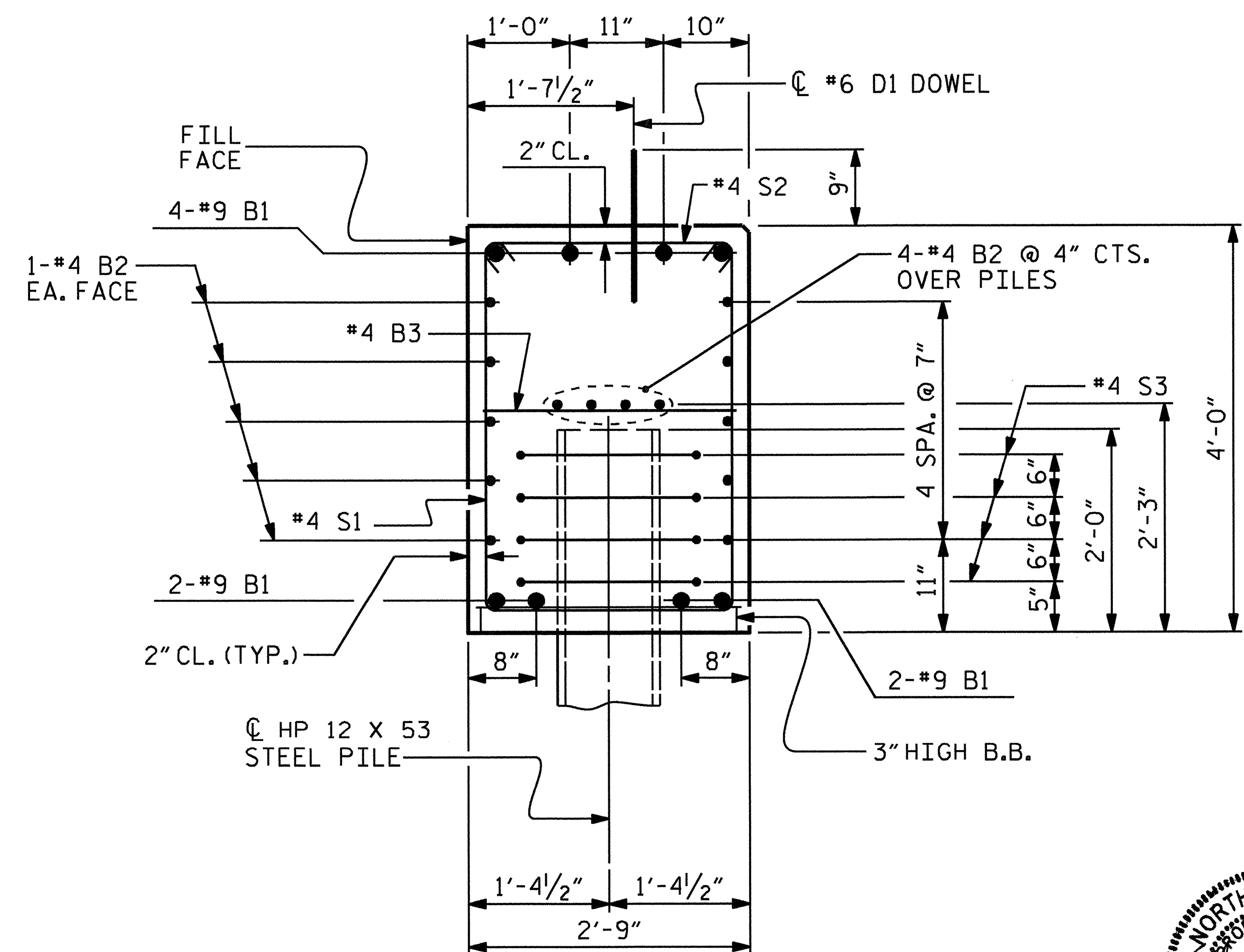
PLAN



ELEVATION

CORROSION PROTECTION FOR STEEL PILES DETAIL

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



SECTION A-A

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

PROJECT NO. BD-5105R
FRANKLIN COUNTY
STATION: 17+17.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1 & 2
DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			17

ASSEMBLED BY : A.C. OUTLAW	DATE : 6/06/12
CHECKED BY : W. F. PARKER	DATE : 6/20/12
DRAWN BY : WJH	12/11
CHECKED BY : AAC	12/11

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STD. NO. EB_30_90S4

NOTES

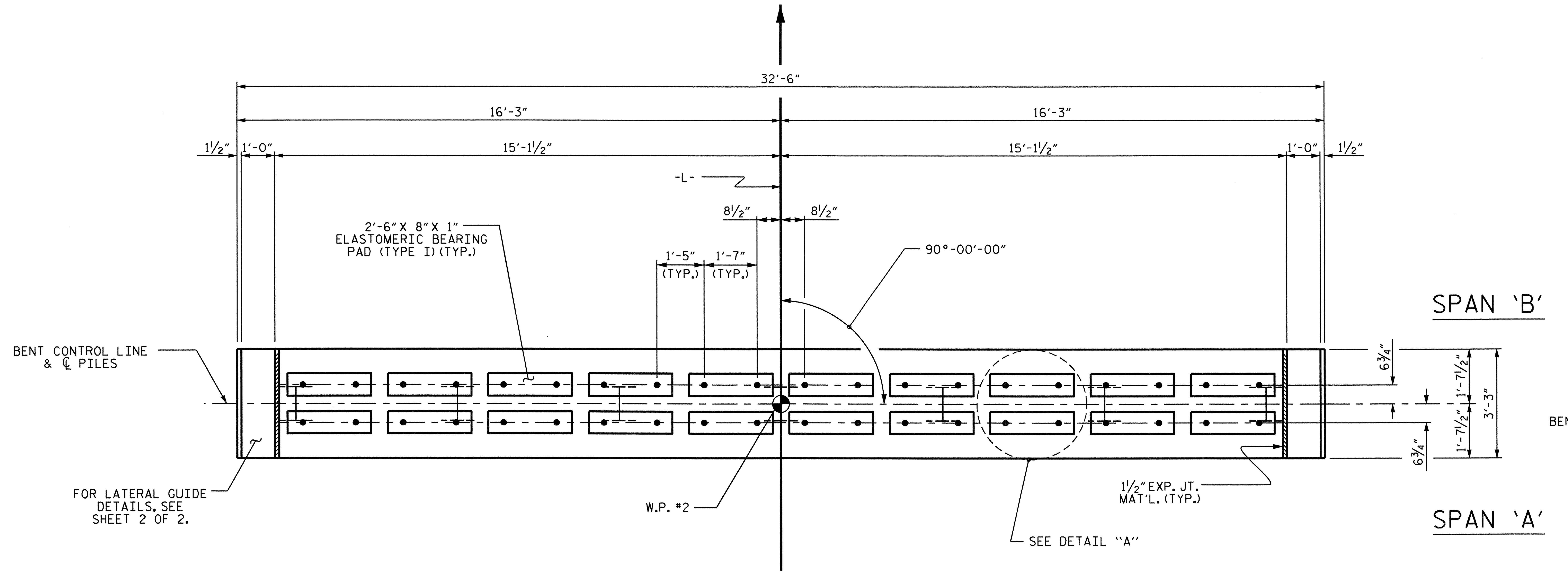
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

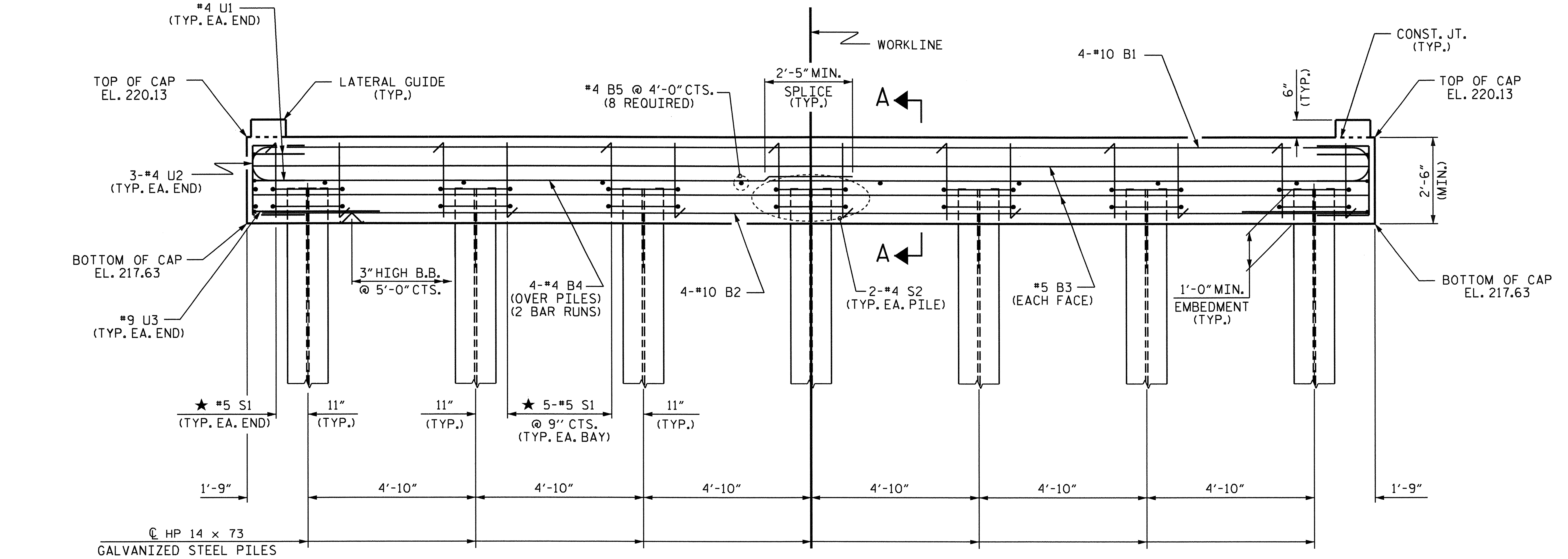
★ INVERT ALTERNATE STIRRUPS.

GALVANIZE THE FULL LENGTH OF EACH INTERIOR BENT PILE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDE IF APPROVED BY THE ENGINEER.

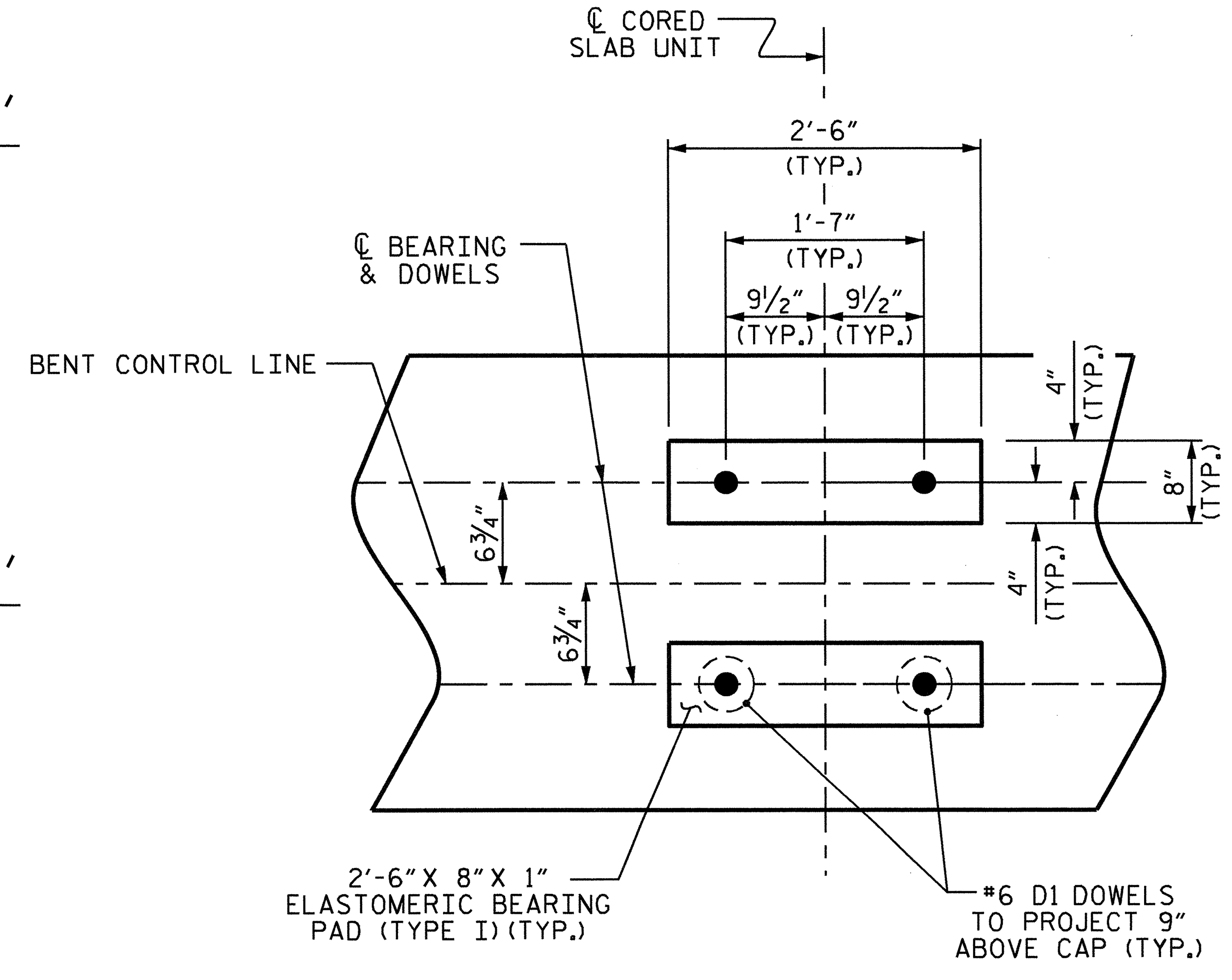


PLAN



ELEVATION

FOR SECTION A-A, SEE SHEET 2 OF 2



DETAIL "A"

(DIMENSIONS ARE TYPICAL EACH BEARING)

PROJECT NO. BD-5105R

FRANKLIN COUNTY

STATION: 17+17.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT No. 1

NORTH CAROLINA PROFESSIONAL SEAL 029441 ENGINEER KRISTY W. ALFORD

REVISIONS								SHEET NO.
NO.	BY:	DATE:		NO.	BY:	DATE:		S-14
1				3				TOTAL SHEETS
2				4				17

ASSEMBLED BY : A.C. OUTLAW DATE : 6/06/12
CHECKED BY : W.F. PARKER DATE : 6/20/12

DRAWN BY : DGE 05/10
CHECKED BY : MKT 05/10

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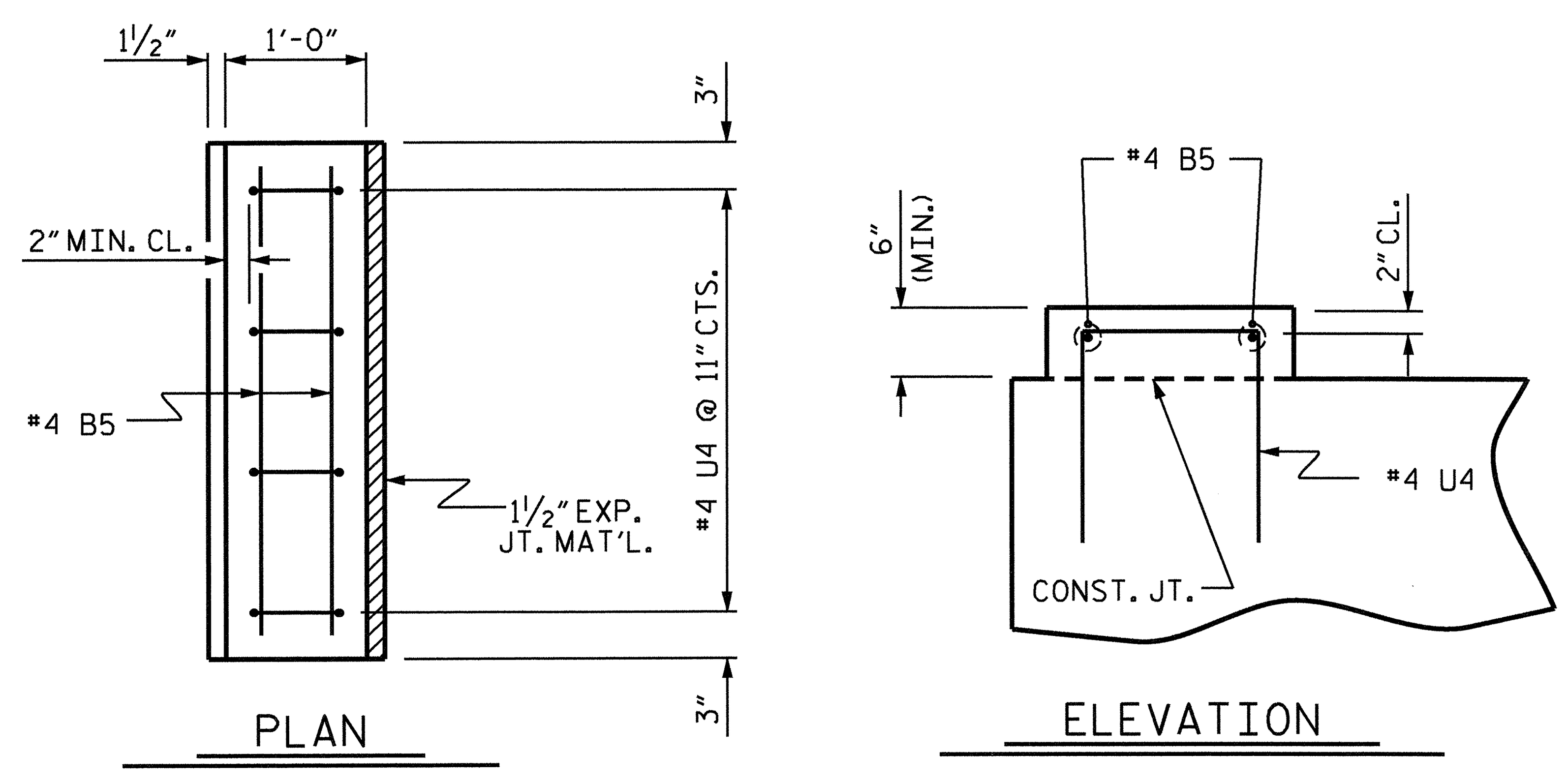
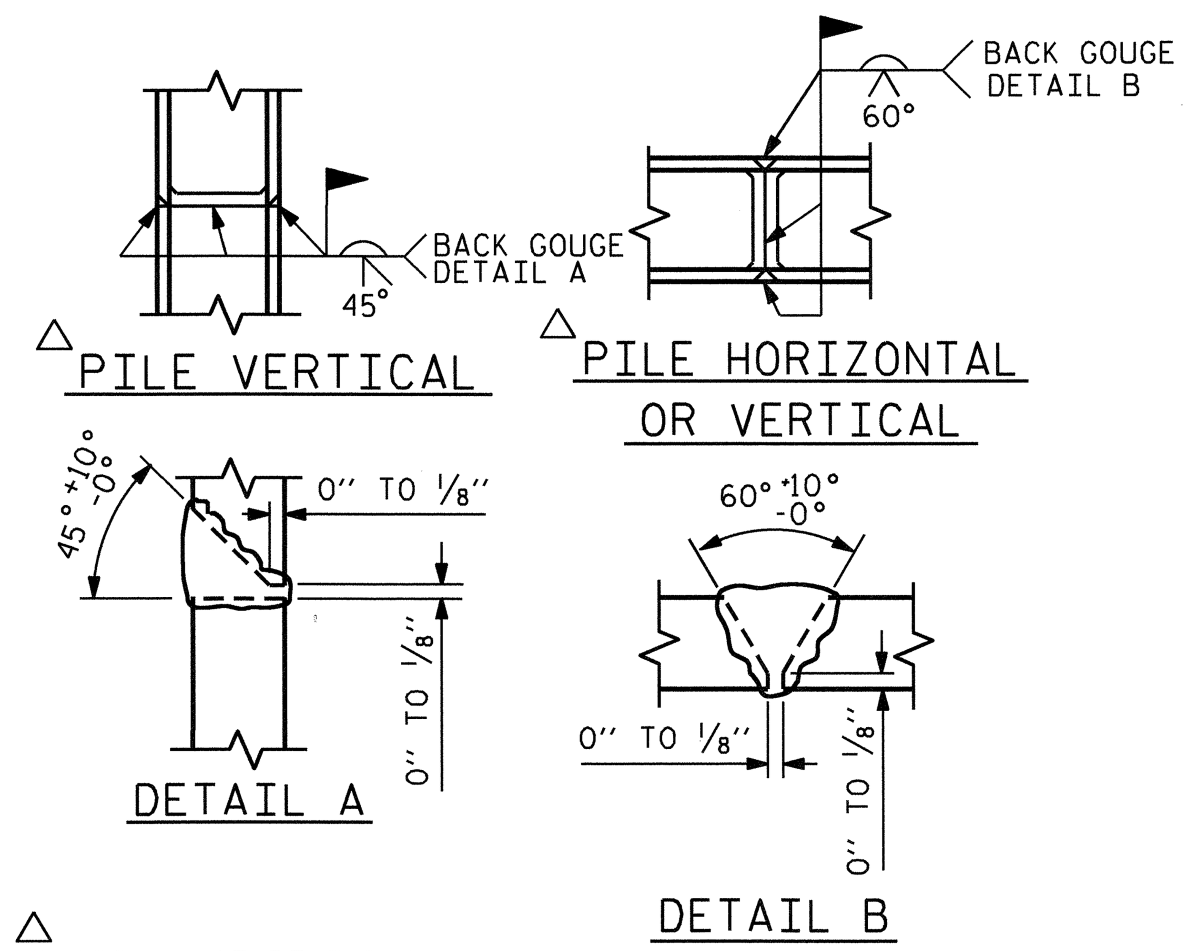
STD. NO. 14" HP_BT_30_90S_<60'



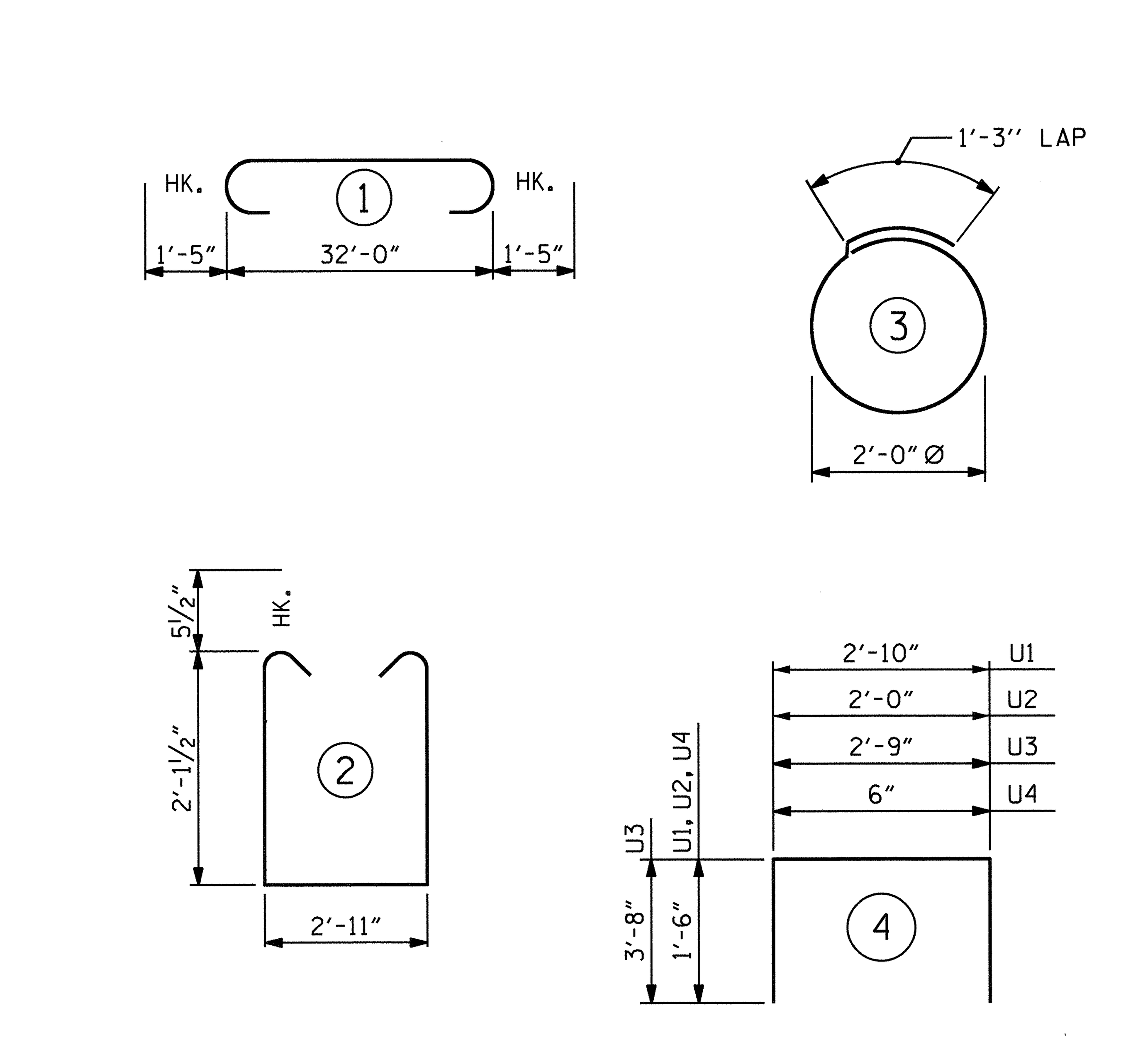
LATERAL GUIDE DETAILS
(LEFT LATERAL GUIDE SHOWN, RIGHT SIDE SIMILAR)



POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL
FOR ONE BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	1	34'-10"	600
B2	4	#10	STR	32'-2"	554
B3	4	#5	STR	32'-2"	134
B4	8	#4	STR	17'-4"	93
B5	12	#4	STR	2'-11"	23
D1	40	#6	STR	1'-6"	90
S1	32	#5	2	8'-1"	270
S2	14	#4	3	7'-7"	71
U1	4	#4	4	5'-10"	16
U2	6	#4	4	5'-0"	20
U3	2	#9	4	10'-1"	69
U4	8	#4	4	3'-6"	19

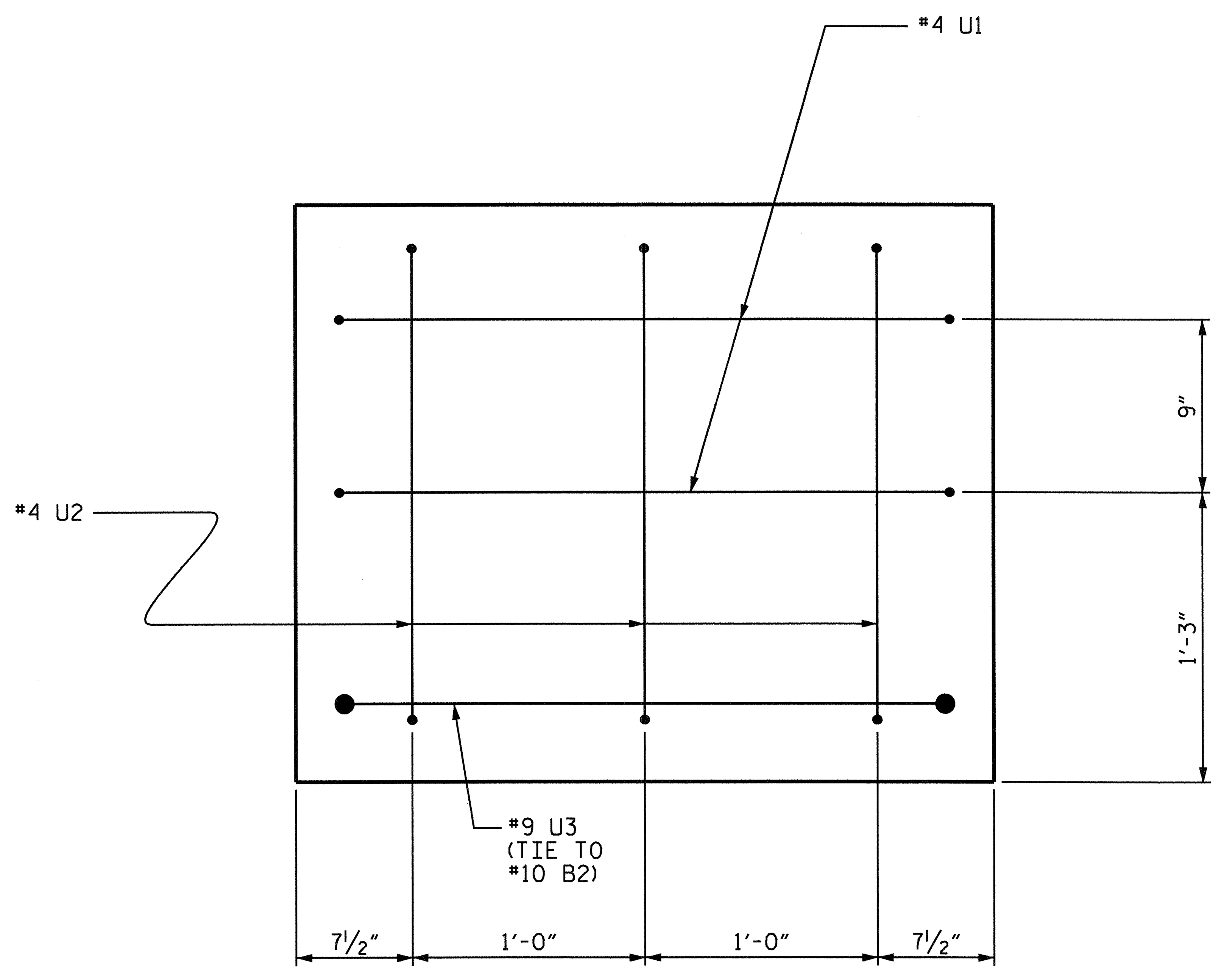
REINFORCING STEEL (FOR ONE BENT) 1959 LBS

CLASS A CONCRETE BREAKDOWN (FOR ONE BENT)

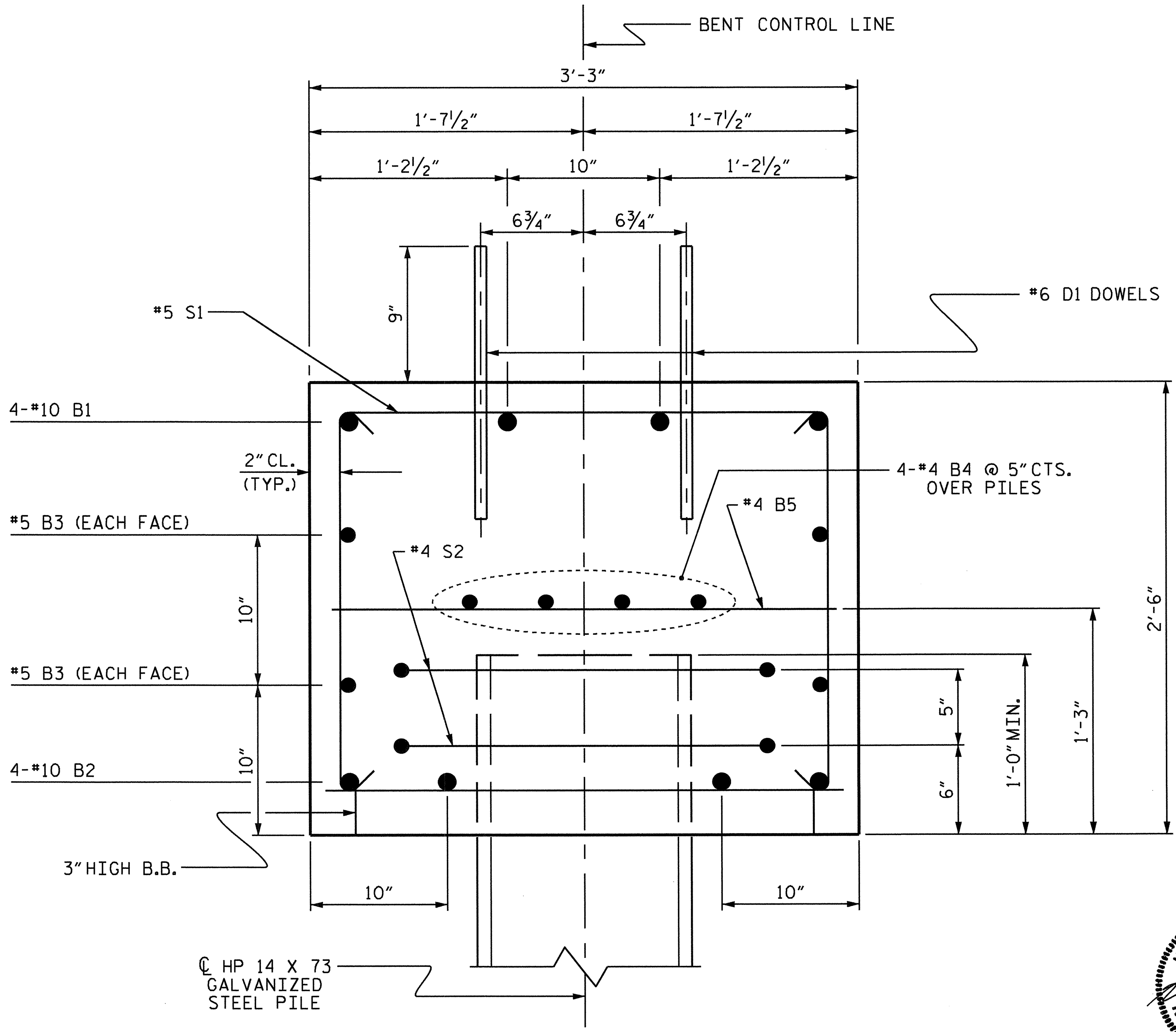
POUR #1 (CAP)	9.8 C.Y.
POUR #2 (LATERAL GUIDES)	0.1 C.Y.
TOTAL CLASS A CONCRETE	9.9 C.Y.

HP 14 X 73 GALVANIZED STEEL PILES (FOR ONE BENT)

No. 7	LIN. FT. 280
PILE REDRIVES	4 EACH
STEEL PILE POINTS	7 EACH



END OF CAP VIEW
(TYPICAL BOTH ENDS)



SECTION A-A

PROJECT NO. BD-5105R
FRANKLIN COUNTY
STATION: 17+17.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT No. 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			17

DRAWN BY : A.C. OUTLAW	DATE : 6/06/12
CHECKED BY : W. F. PARKER	DATE : 6/20/12
DRAWN BY : DGE 05/10	
CHECKED BY : MKT 05/10	

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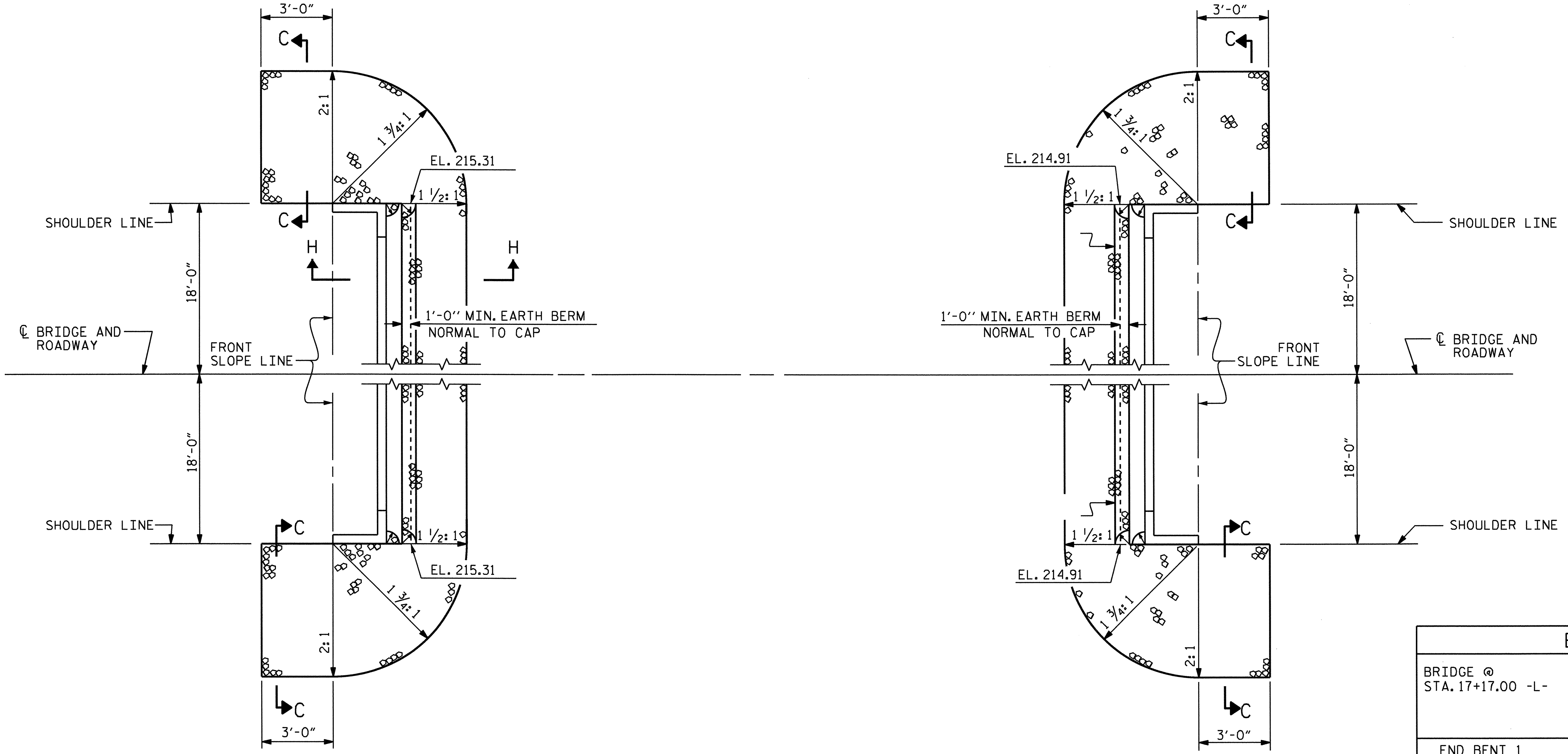
STD. NO. 14" HP_BT_30_90S_<60'

NOTES :

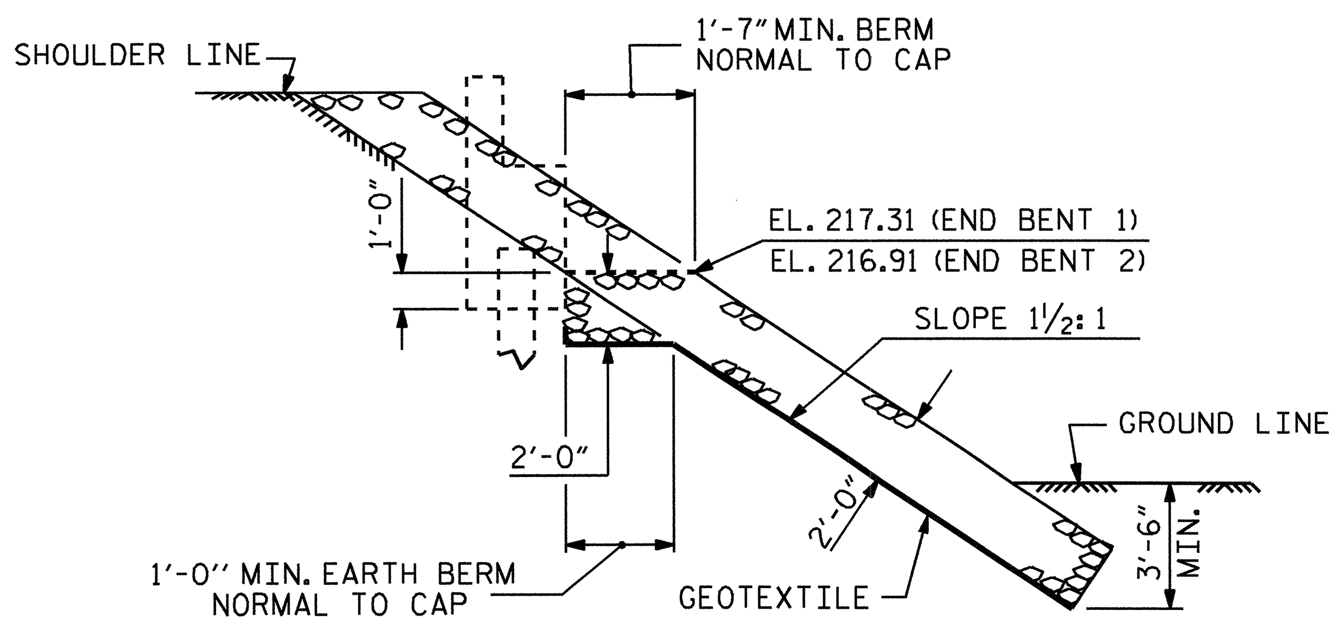
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.



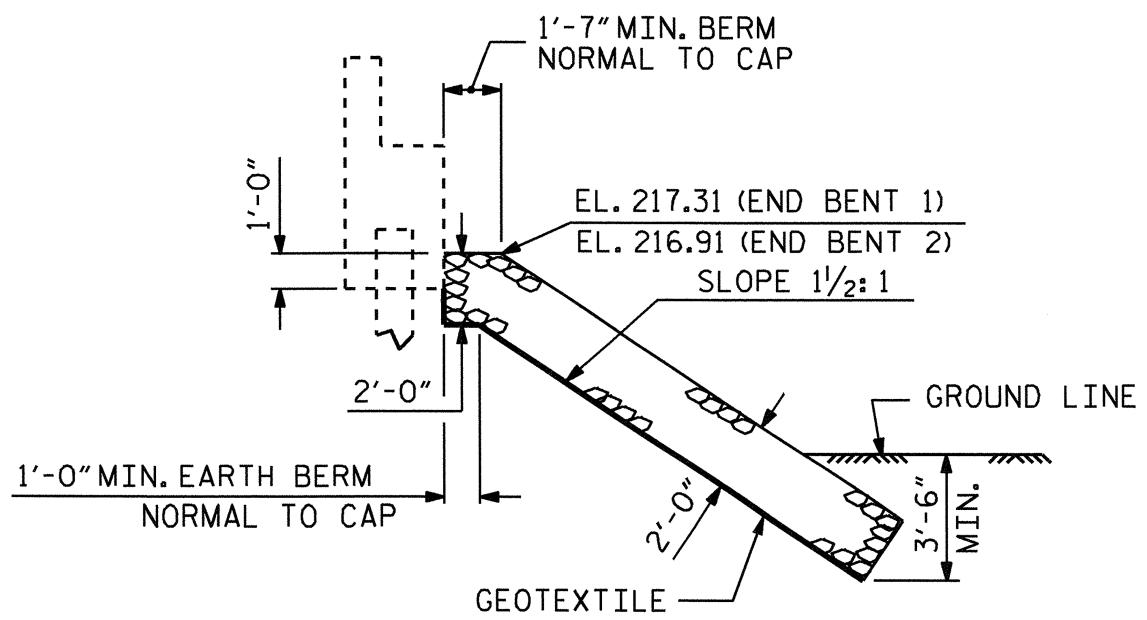
END BENT 1

END BENT 2

ESTIMATED QUANTITIES		
BRIDGE @ STA. 17+17.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	85	95
END BENT 2	78	90

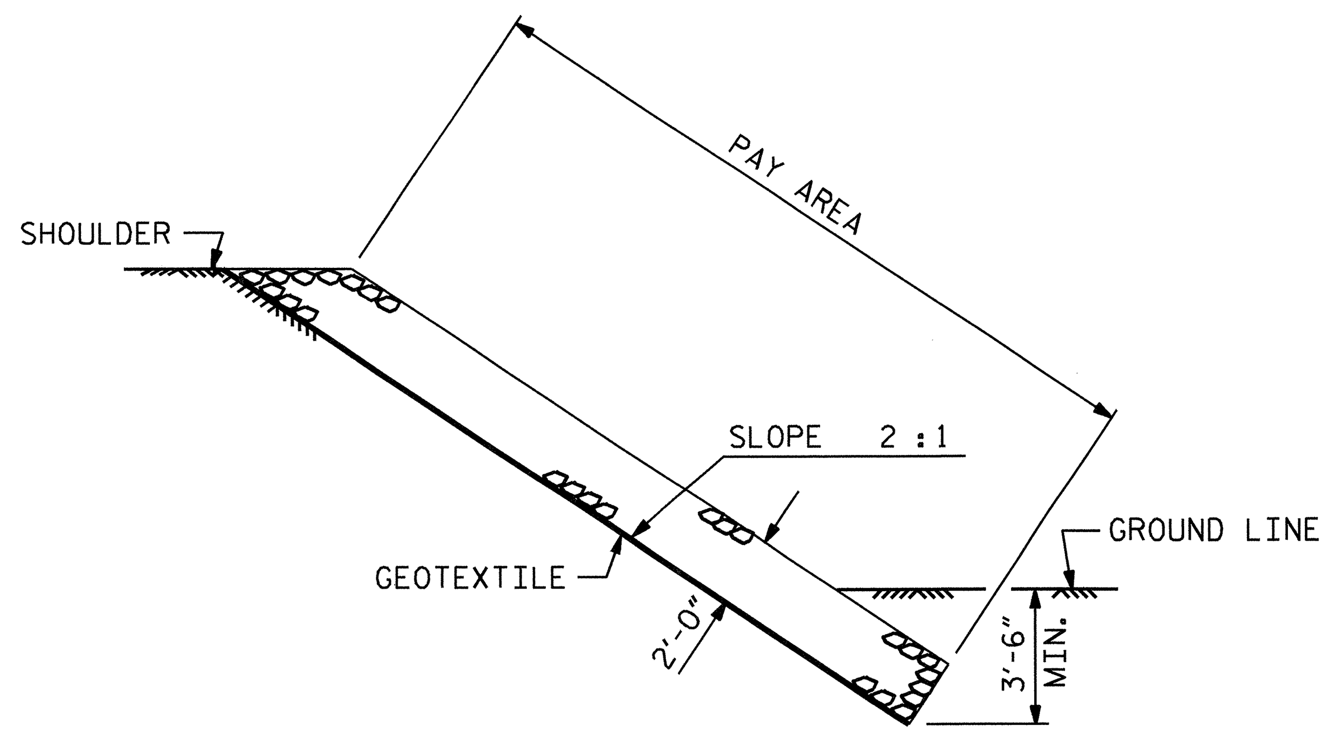


SECTION H-H



℄ SECTION

BERM RIP RAPPED



SECTION C-C

PROJECT NO. BD-5105R

FRANKLIN COUNTY

STATION: 17+17.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

RIP RAP DETAILS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 028441 KRISTY W. ALFORD

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			17

ASSEMBLED BY : A.C. OUTLAW	DATE : 6/06/12
CHECKED BY : W.F. PARKER	DATE : 6/20/12

DRAWN BY : REK 1/84	REV. 10/17/00	RWW/LES
CHECKED BY : RDU 1/84	REV. 5/1/06R	TLA/GM
	REV. 10/1/11	MAA/GM

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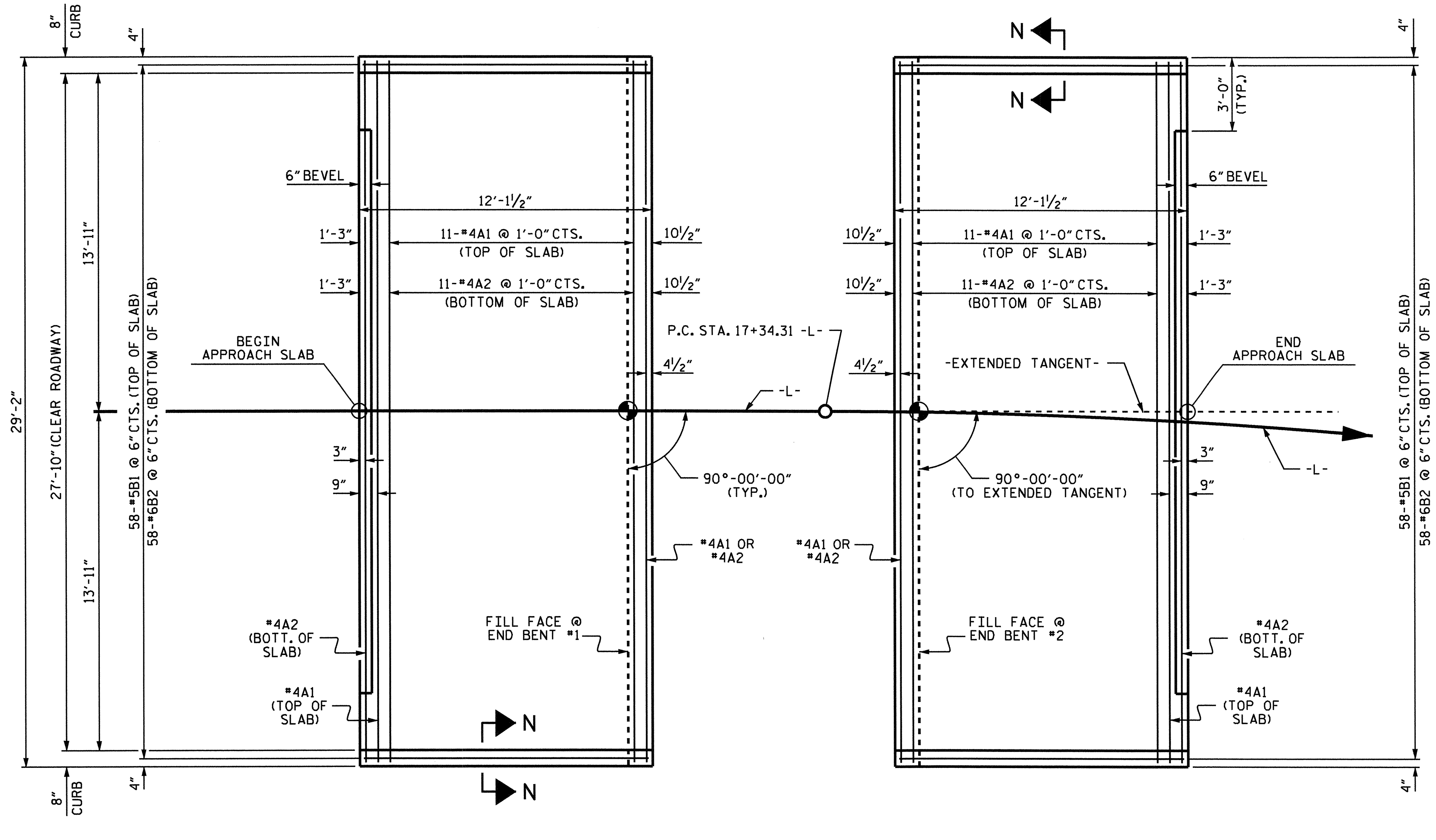
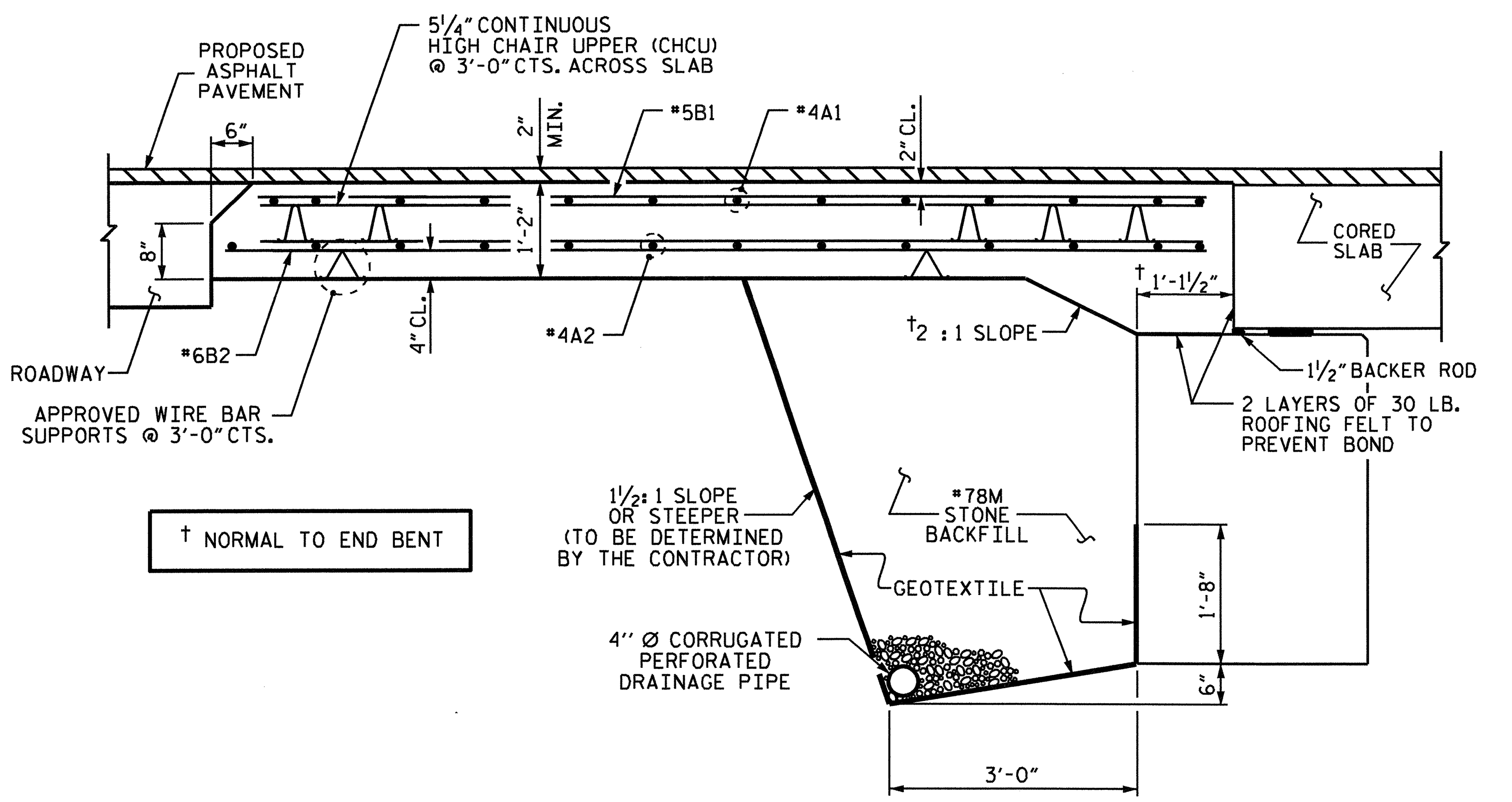
STD. NO. RR1 (Sht 2)



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 1IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

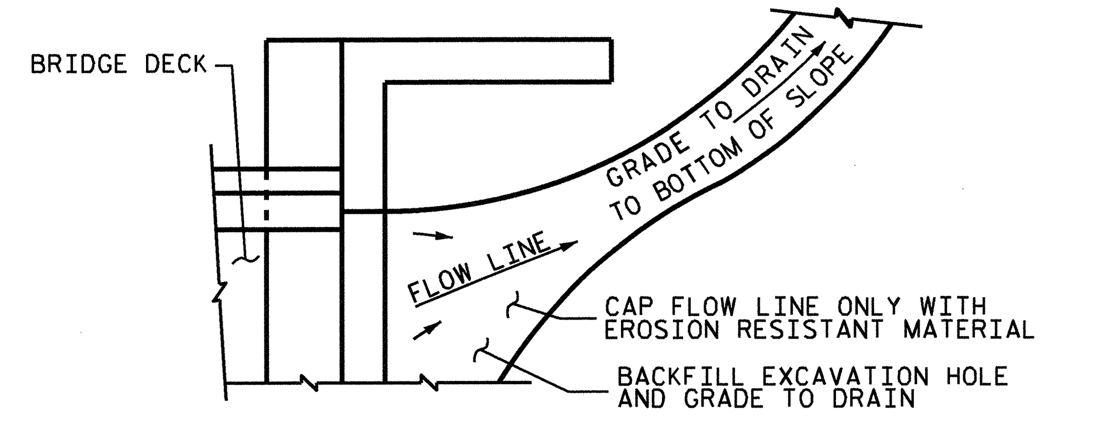
#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

#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.

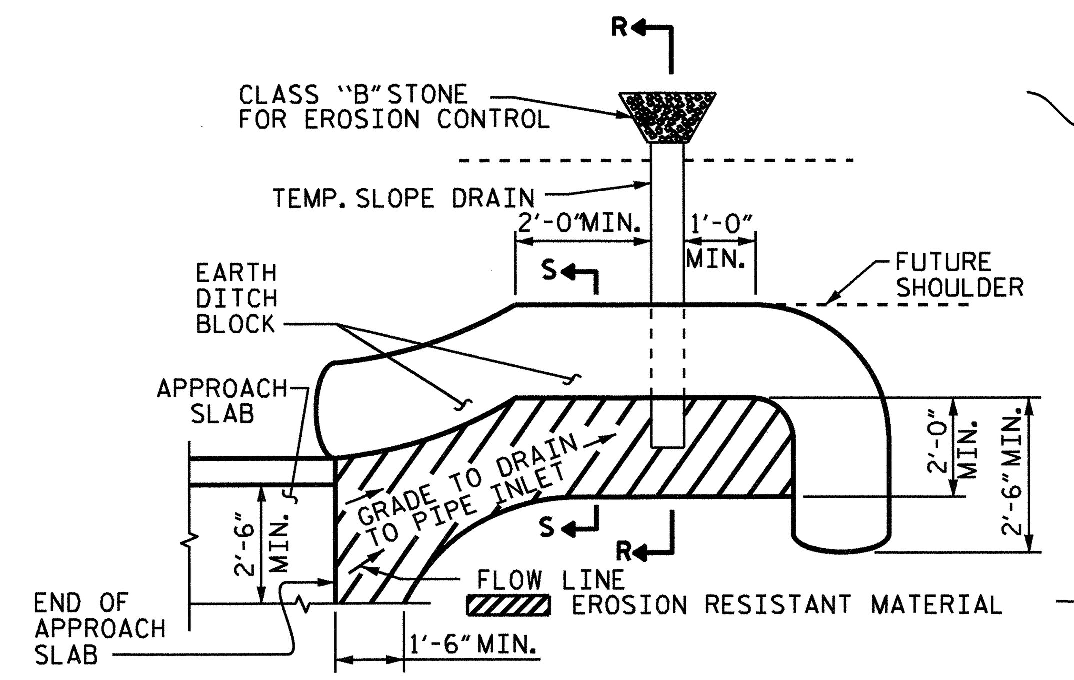
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT REQUIRED.



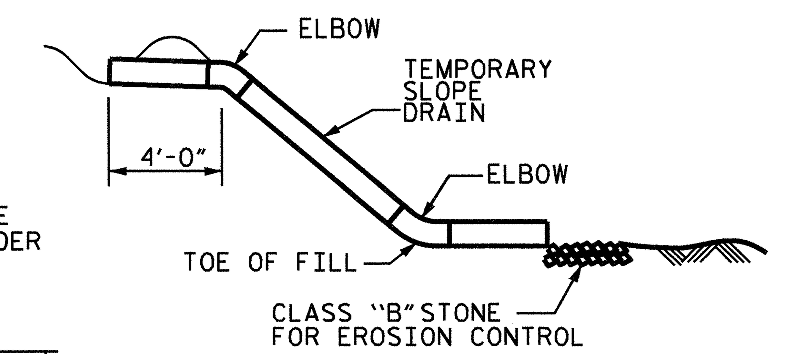
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

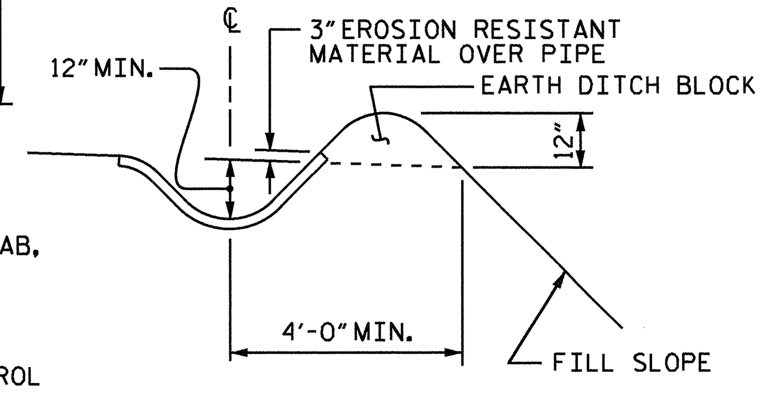


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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



SECTION R-R



SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

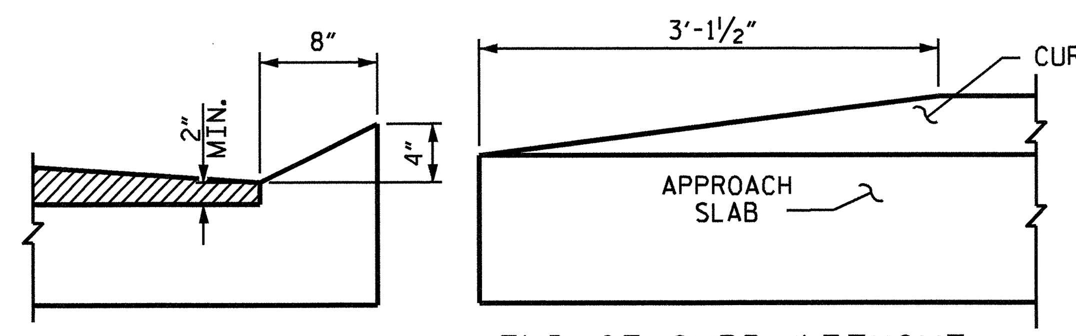
BILL OF MATERIAL

APPROACH SLAB AT EB #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	13	#4	STR	28'-10"	250
A2	13	#4	STR	28'-10"	250
* B1	58	#5	STR	11'-2"	676
B2	58	#6	STR	11'-8"	1016
REINFORCING STEEL				LBS.	1266
* EPOXY COATED REINFORCING STEEL				LBS.	926
CLASS AA CONCRETE				C. Y.	16.9

APPROACH SLAB AT EB #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	13	#4	STR	28'-10"	250
A2	13	#4	STR	28'-10"	250
* B1	58	#5	STR	11'-2"	676
B2	58	#6	STR	11'-8"	1016
REINFORCING STEEL				LBS.	1266
* EPOXY COATED REINFORCING STEEL				LBS.	926
CLASS AA CONCRETE				C. Y.	16.9



SECTION N-N

END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

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

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029441 KRISTY W. ALFORD

PROJECT NO. BD-5105R

FRANKLIN COUNTY

STATION: 17+17.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			17

ASSEMBLED BY : A.C. OUTLAW DATE : 6/06/12
CHECKED BY : W. F. PARKER DATE : 6/20/12
DRAWN BY : SHS/MAA 5-09 REV. 12-11 MAA/AAC
CHECKED BY : BCH 5-09

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STD. NO. BAS_30_90S

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

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

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE ¾" 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 (V) RGW REV. 5-7-03 RWW (V) JTE REV. 10-1-11 MAA (V) GM
REV. 8-16-99 RWW (V) LES REV. 5-1-06 TLA (V) GM

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