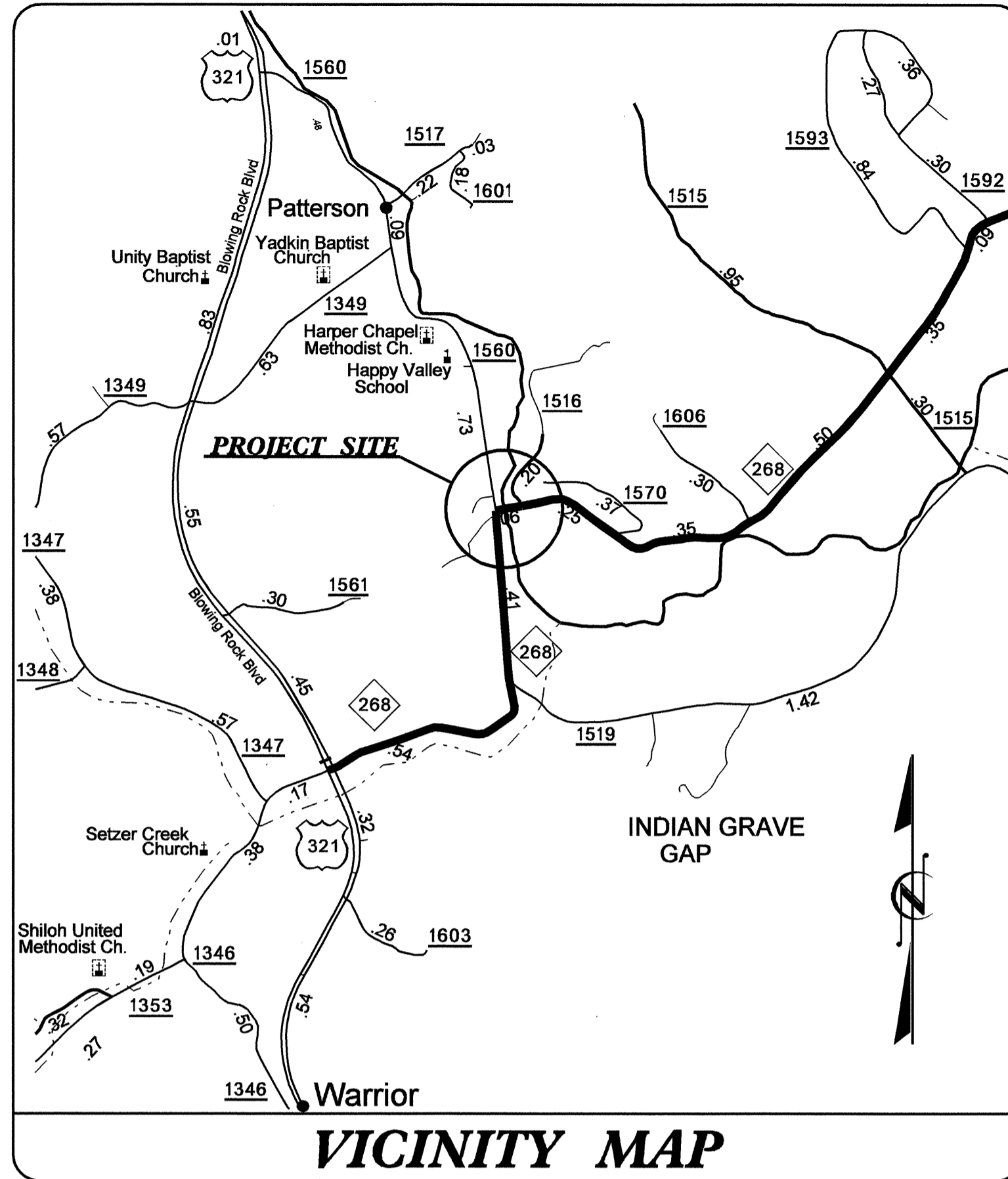


CONTRACT: C201837 TIP PROJECT: B-4052

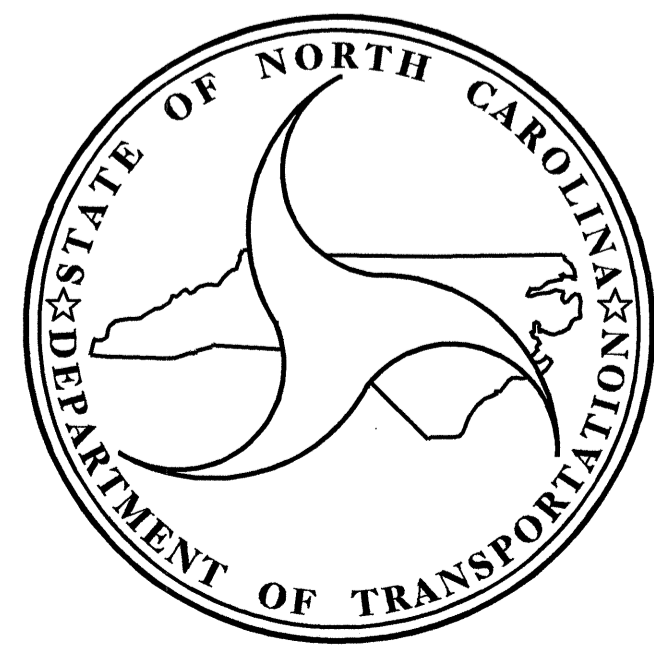
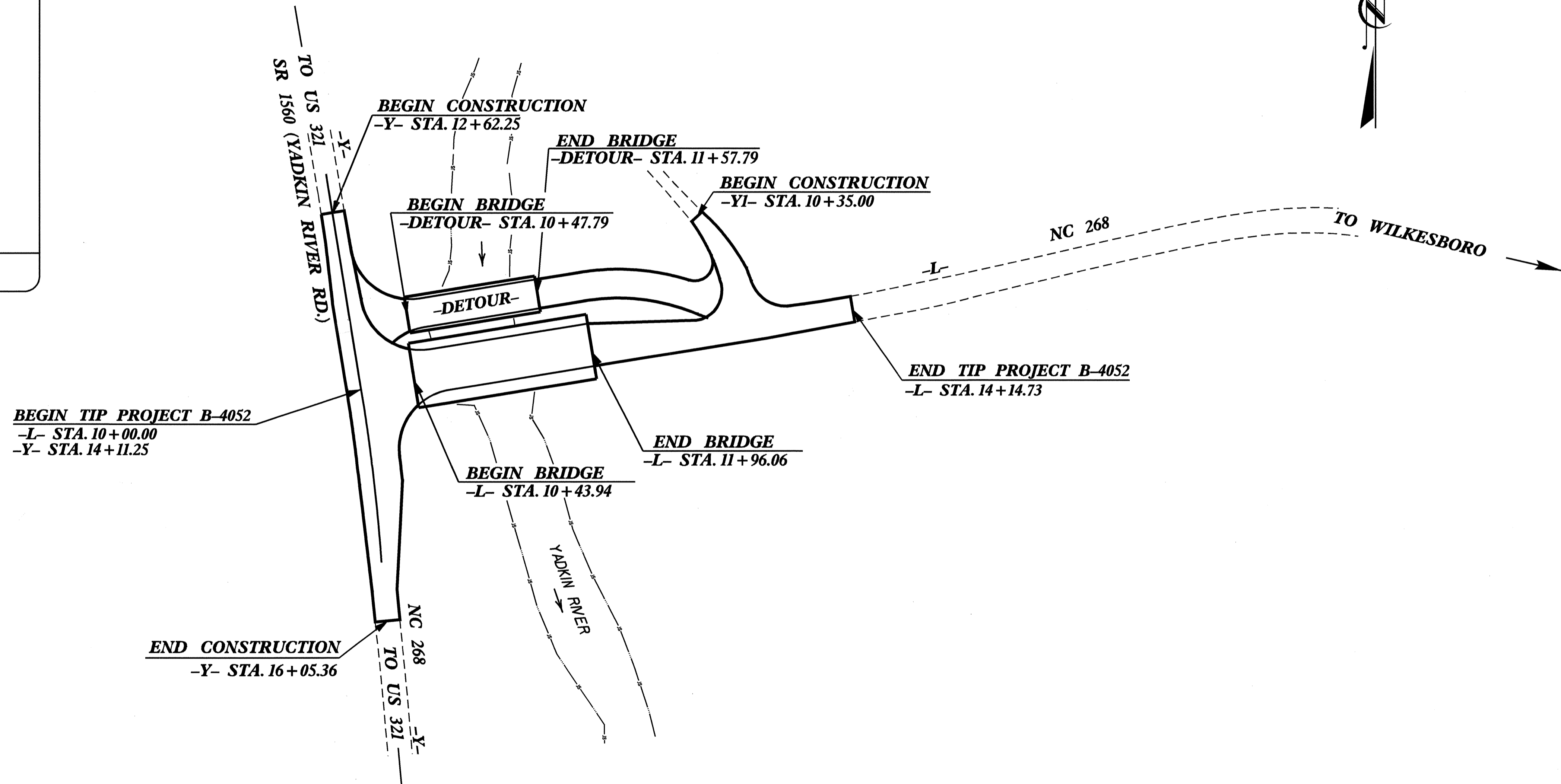
STRUCTURE



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
CALDWELL COUNTY

LOCATION: BRIDGE NO. 7 OVER YADKIN RIVER ON NC 268
TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4052		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33418.1.1	BRSTP-0268(9)	P.E.	
33418.2.1	BRSTP-0268(9)	UTIL. & RW	
33418.3.1	BRSTP-0268(9)	CONST.	



DESIGN DATA

ADT 2007 = 6,445
ADT 2027 = 10,620
DHV = 10%
D = 65%
T = 4% *
V = 40 MPH
* TTST 1% DUAL 3%
CLASSIFICATION = MAJOR RURAL COLLECTOR

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4052 = 0.050 MILES
LENGTH STRUCTURE TIP PROJECT B-4052 = 0.029 MILES
TOTAL LENGTH TIP PROJECT B-4052 = 0.079 MILES

Prepared In the Office of:
DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

LETTING DATE :
MAY 20, 2008

J. C. FRYE, P.E.
PROJECT ENGINEER

T. H. FANG, P.E.
PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610

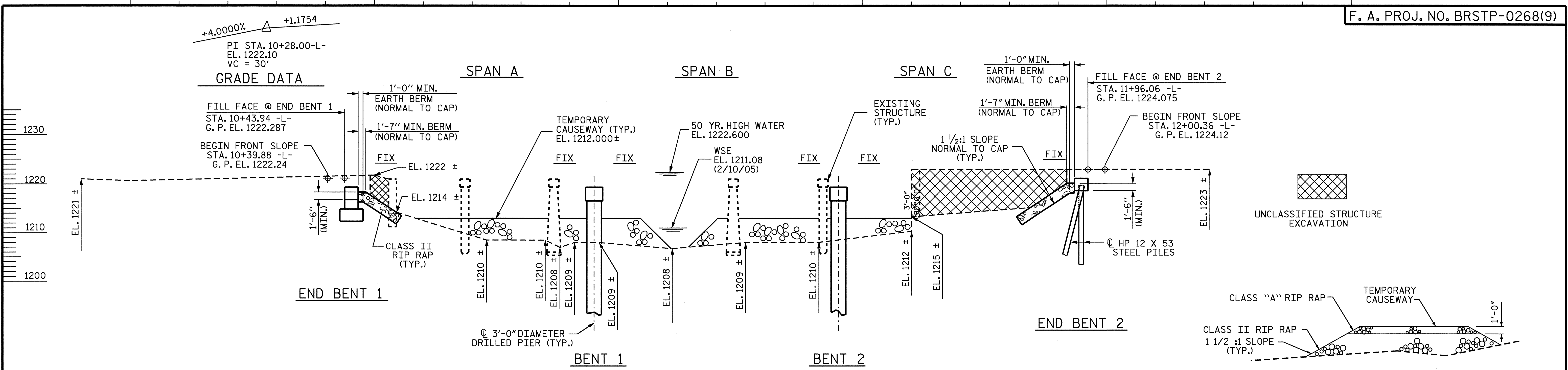
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE DESIGN ENGINEER

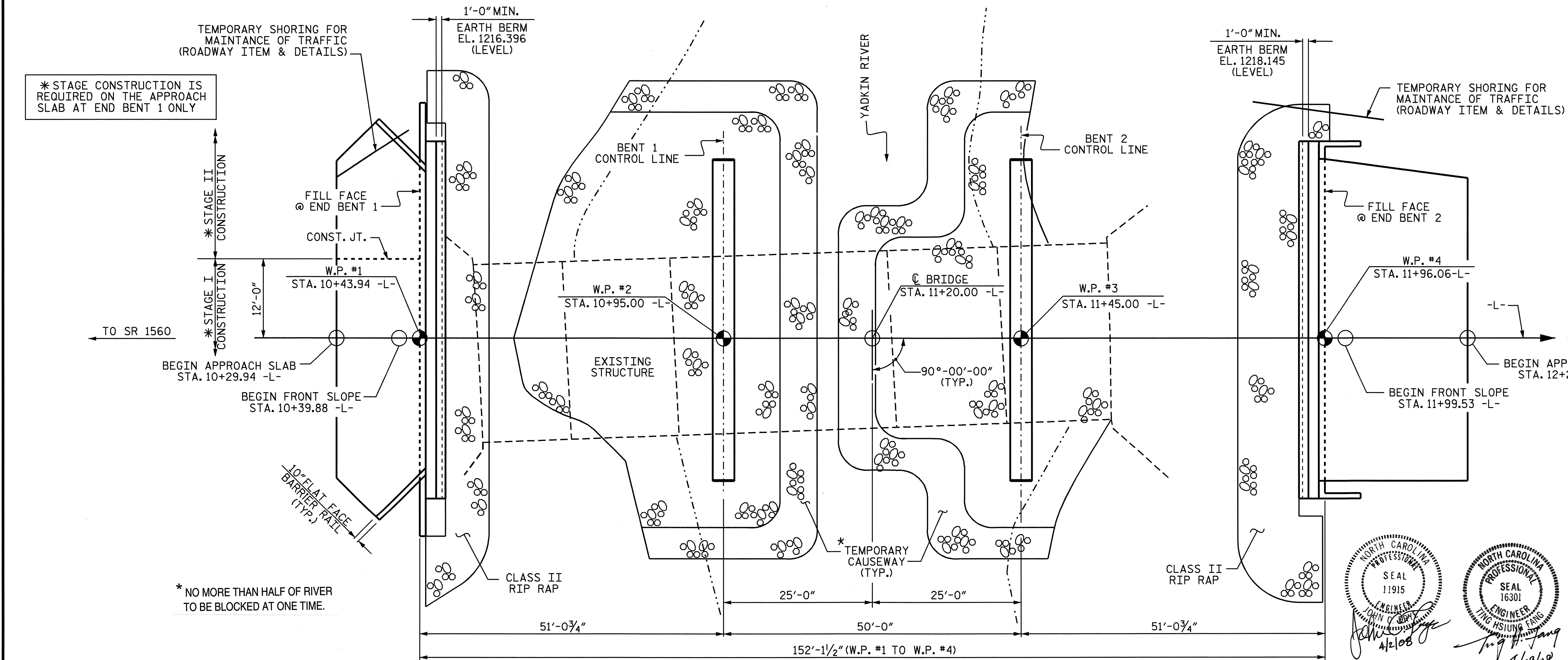
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR

DATE



SECTION ALONG -L-
 SECTION AT END BENTS AND BENTS ARE TAKEN AT RIGHT ANGLES.



PLAN

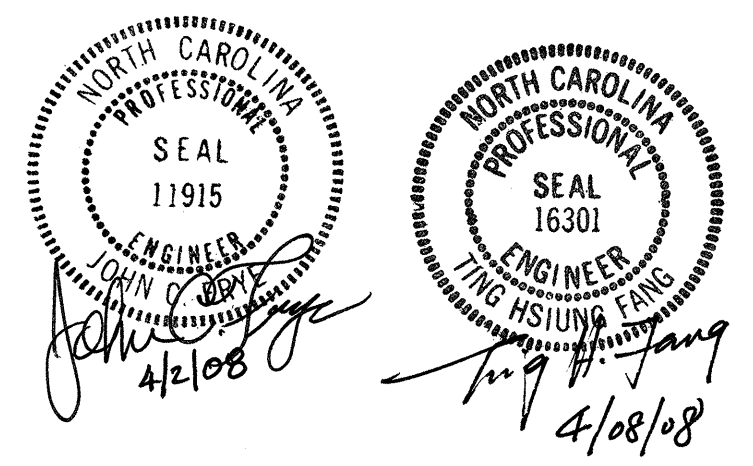
FOUNDATION NOT SHOWN OR CLARITY

PROJECT NO. B-4052
CALDWELL COUNTY
 STATION: 11+20.00 -L-
 SHEET 1 OF 3 REPLACES BRIDGE NO. 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER YADKIN
 RIVER ON NC 268
 BETWEEN SR 1560
 AND SR 1516

REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
				S-1	
				TOTAL SHEETS 28	

DRAWN BY : J.L. WALTON DATE : 11-05
 CHECKED BY : J.C. FRYE DATE : 12-05



NOTES

THE REQUIRED BEARING CAPACITY FOR SPREAD FOOTING AT END BENT 1 IS 15 TSF. CHECK FIELD CONDITIONS FOR THE REQUIRED BEARING CAPACITY JUST PRIOR TO PLACING CONCRETE.

THE ALLOWABLE BEARING CAPACITY FOR SPREAD FOOTINGS AT END BENT 1 IS 5 TSF. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF THREE.

CARRY IN SPREAD FOOTINGS AT END BENT 1 AT LEAST 12 IN. INTO ROCK OR WEATHERED ROCK WITH MINIMUM THICKNESS AS SHOWN ON THE PLANS.

THE DRILLED PIERS AT BENTS 1 AND 2 ARE DESIGNED FOR BOTH SKIN FRICTION AND END BEARING. CHECK FIELD CONDITIONS FOR THE REQUIRED END BEARING CAPACITY OF 90 TSF.

DRILLED PIERS AT BENTS 1 AND 2 ARE DESIGNED FOR AN APPLIED LOAD OF 242 TONS EACH AT THE TOP OF THE COLUMN.

PERMANENT STEEL CASING MAYBE REQUIRED FOR DRILLED PIERS AT BENT 1. IF REQUIRED, DO NOT EXTEND THE CASING BELOW ELEVATION 1207.0 FT. WITHOUT PRIOR APPROVAL FROM THE ENGINEER. THE ENGINEER WILL DETERMINE THE NEED FOR PERMANENT STEEL CASING. SEE DRILLED PIERS SPECIAL PROVISION.

PERMANENT STEEL CASING MAYBE REQUIRED FOR DRILLED PIERS AT BENT 2. IF REQUIRED, DO NOT EXTEND THE CASING BELOW ELEVATION 1210.0 FT. (LEFT), 1209 FT. (MIDDLE), 1207.0 FT. (RIGHT). WITHOUT PRIOR APPROVAL FROM THE ENGINEER. THE ENGINEER WILL DETERMINE THE NEED FOR PERMANENT STEEL CASING. SEE DRILLED PIERS SPECIAL PROVISION.

DRILLED PIERS AT BENT 1 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 1,202.0 FT. AND SATISFY THE REQUIRED END BEARING CAPACITY.

DRILLED PIERS AT BENT 2 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 1,204.9 FT. (LEFT), 1203.4 FT. (MIDDLE), 1,201.9 FT. (RIGHT) AND SATISFY THE REQUIRED END BEARING CAPACITY.

THE SCOUR CRITICAL ELEVATION FOR BENT 1 IS ELEVATION 1,205.4 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THE SCOUR CRITICAL ELEVATION FOR BENT 2 IS ELEVATION 1,208.4 FT. (LEFT), 1206.8 FT. (MIDDLE), 1,205.4 FT. (RIGHT). SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

SPT TESTING IS NOT REQUIRED TO DETERMINE THE END BEARING CAPACITY OF THE DRILLED PIERS AT BENT 1 AND BENT 2.

SID INSPECTIONS MAY BE REQUIRED TO INSPECT THE BOTTOM CLEANLINESS OF THE DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS. SEE DRILLED PIERS SPECIAL PROVISION.

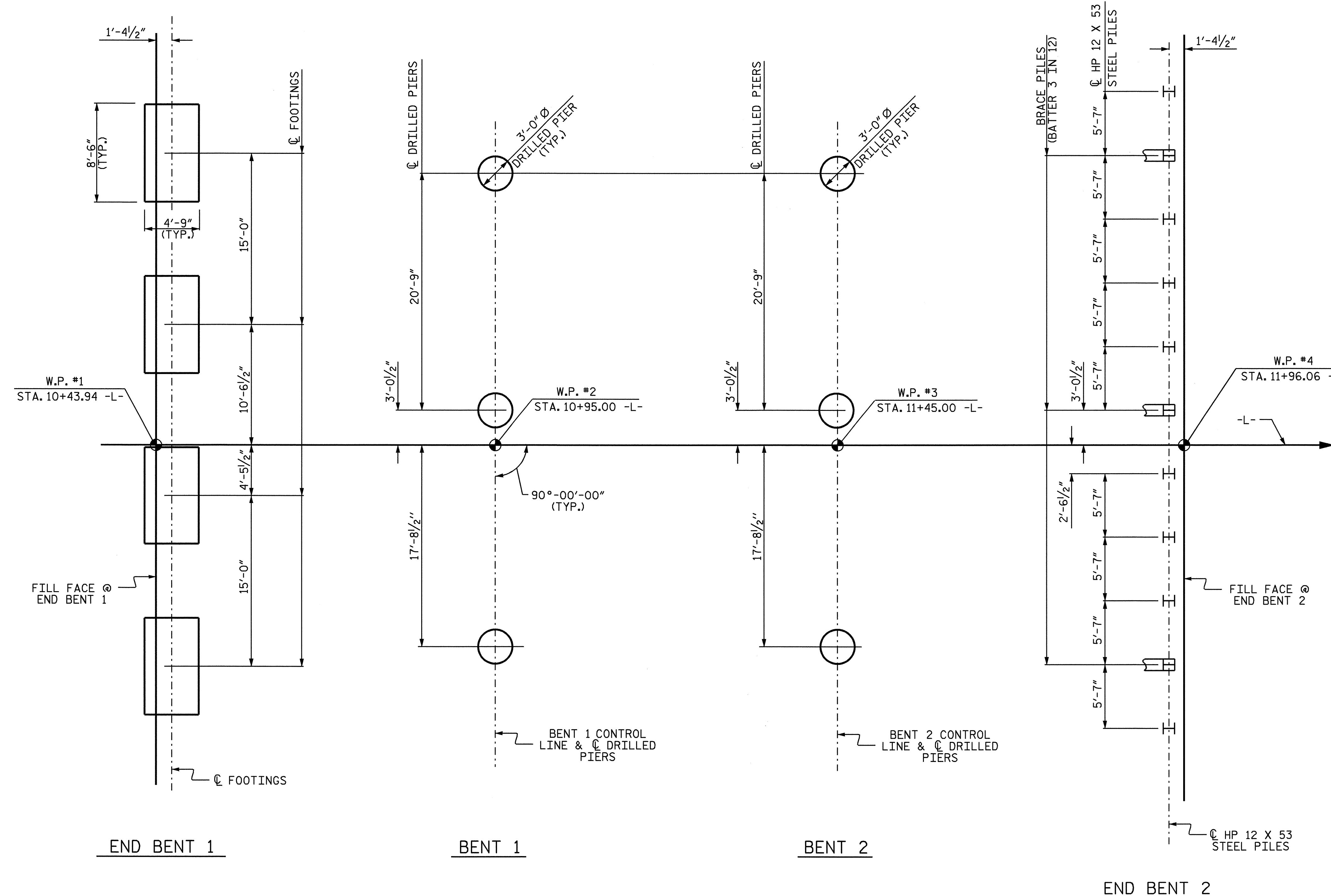
CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR THE DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. SEE CROSSHOLE SONIC LOGGINGS SPECIAL PROVISION.

DRIVE PILES AT END BENT 2 TO A REQUIRED BEARING CAPACITY OF 120 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO. THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENT 2 IS 60 TONS PER PILE.

REINFORCED BRIDGE APPROACH FILL IS REQUIRED AT END BENT 2, BUT NOT REQUIRED AT END BENT 1.

FOR DRILLED PIERS, SEE DRILLED PIERS SPECIAL PROVISION.

OBSERVE A ONE MONTH WAITING PERIOD AFTER CONSTRUCTING THE EMBANKMENT AT END BENT 2, AND REINFORCED BRIDGE APPROACH FILL WHEN APPLICABLE, BEFORE BEGINNING APPROACH SLAB CONSTRUCTION AT END BENT 2.

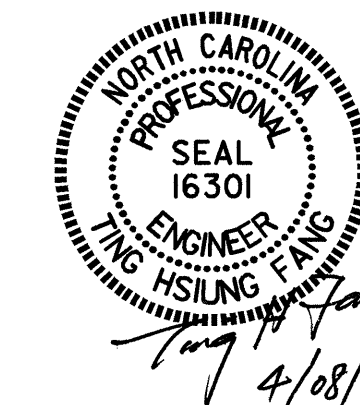


FOUNDATION LAYOUT
DIMENSIONS LOCATING PILES FOOTINGS & DRILLED PIERS ARE SHOWN TO THE CENTERLINE OF THEM.

PROJECT NO. B-4052
CALDWELL COUNTY
STATION: 11+20.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
FOR BRIDGE OVER YADKIN
RIVER ON NC 268
BETWEEN SR 1560
AND SR 1516



DRAWN BY : HARISH SHAH DATE : 9/14/07
CHECKED BY : T.H. FANG DATE : 9/17/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			28

TOTAL BILL OF MATERIAL

	CONST., MAINT. & REMOVAL OF TEMP. STRUCTURE	CONST., MAINT. & REMOVAL OF TEMP. ACCESS	REMOVAL OF EXISTING STRUCTURE	FOUNDATION EXCAVATION	3'-0" DIA. DRILLED PIERS IN SOIL	3'-0" DIA. DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 3'-0" DIA. DRILLED PIER	SID INSPECTION	CROSSHOLE SONIC LOGGING	UNCLASSIFIED STRUCTURE EXCAVATION	CONCRETE WEARING SURFACE	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	HP 12 X 53 STEEL PILES	TWO BAR METAL RAIL	1'-2" X 2'-11" CONCRETE PARAPET	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS		
	LUMP SUM	LUMP SUM	LUMP SUM	CU. YDS.	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	LBS.	NO.	LIN. FT.	LIN. FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE											7,671	9,110		LUMP SUM				284.75	299.75			LUMP SUM	LUMP SUM	54	2693.25	
END BENT 1				73.0									43.1	4,746						100	110					
BENT 1					30.0	15.0	30.0		1				25.7	7,078	854											
BENT 2					27.8	15.0	26.8						25.7	6,986	810											
END BENT 2													20.4	3,370		11	165			110	120					
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	73.0	57.8	30.0	56.8	2	1	LUMP SUM	7,671	9,110	114.9	LUMP SUM	22,180	1,664	11	165	284.75	299.75	210	230	LUMP SUM	LUMP SUM	54	2693.25

NOTES

ASSUMED LIVE LOAD = HS 20 OR ALTERNATE LOADING. EXCEPT CORED SLAB UNITS HAVE BEEN DESIGNED FOR HS25.

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

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

THIS BRIDGE HAS BEEN DESIGNED BY THE STRENGTH DESIGN METHOD AS SPECIFIED IN AASHTO STANDARD SPECIFICATIONS.

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

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO STANDARD SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES FOR SEISMIC PERFORMANCE CATEGORY A.

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.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 11+20.00 -L-."

AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF THE CAUSEWAY, THE CLASS II RIP RAP USED IN THE CAUSEWAY MAY BE PLACED AS RIP RAP SLOPE PROTECTION. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 11+20.00 -L-.

THE EXISTING STRUCTURE CONSISTING OF 3 SPANS: 1 @ 35'-8", 1 @ 35'-0", 1 @ 35'-8"; 27'-11" CLEAR ROADWAY WIDTH ON STEEL PLANK FLOOR ON I-BEAMS, CONCRETE ABUTMENTS AND PIERS, AND A TIMBER CRUTCH BENT IN THE CENTER OF EACH SPAN, AND LOCATED AT THE CENTER LINE OF THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE, A LOAD LIMITATION MAY BE POSTED AND MAYBE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT, SEE SPECIAL PROVISIONS FOR REMOVAL OF EXISTING STRUCTURE.

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 CONTRACTOR WILL BE REQUIRED TO CONSTRUCT, MAINTAIN AND AFTERWARDS REMOVE A TEMPORARY STRUCTURE AT STA. 11+20.00 -L- FOR USE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE. FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY STRUCTURE, SEE SPECIAL PROVISIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 40 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION.

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

THE APPROACH SLAB AT END BENT 1 SHALL BE STAGED CONSTRUCTED ONLY. NO STAGING OF BRIDGE AND APPROACH SLAB AT END BENT 2 IS REQUIRED.

FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLAN.

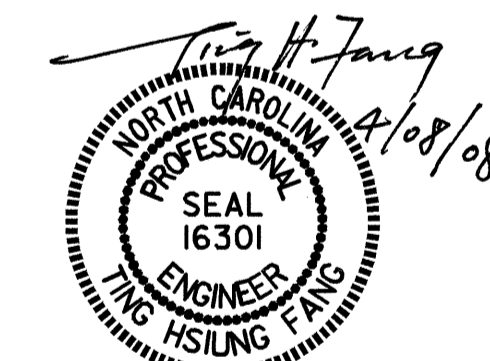
FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.



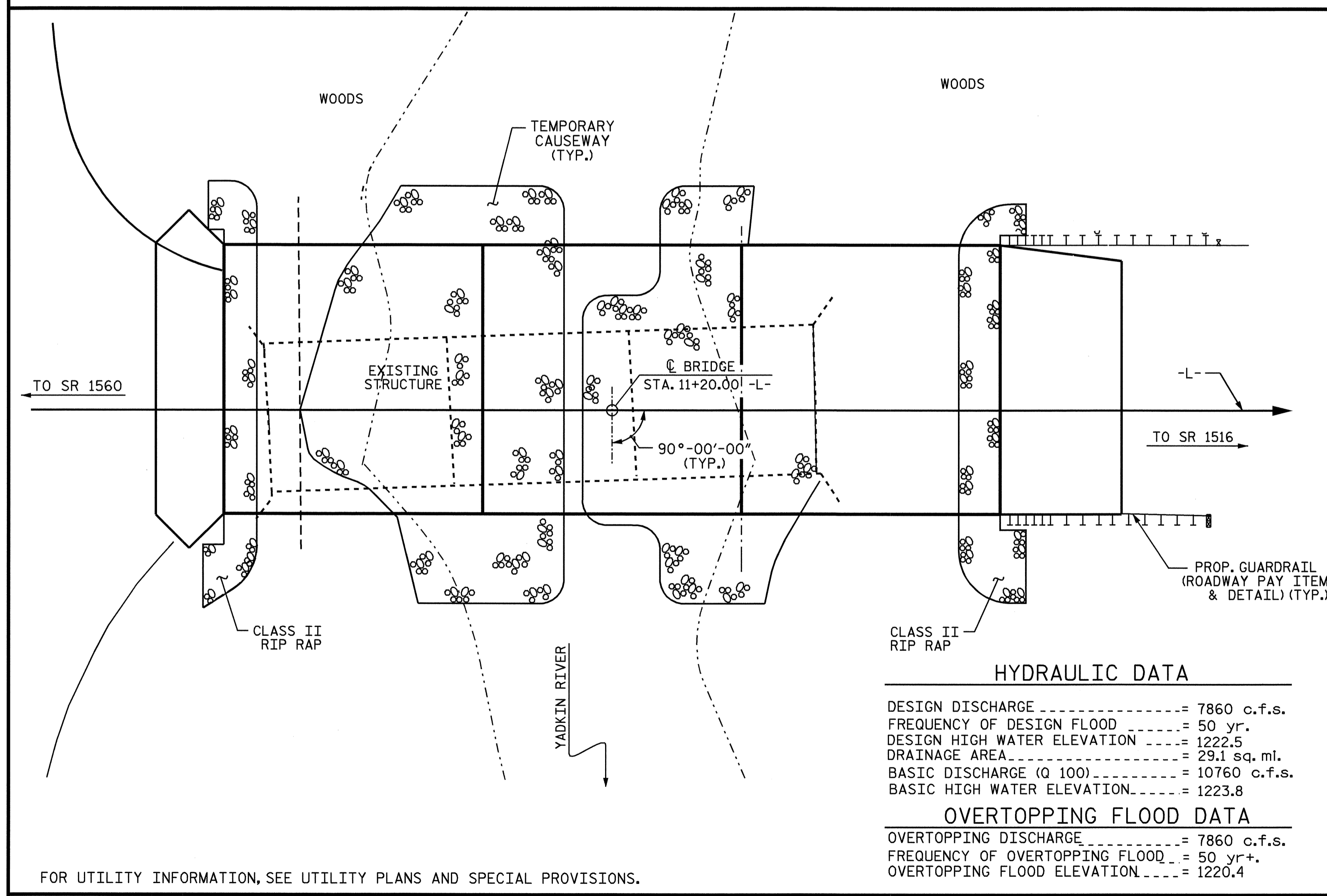
PROJECT NO. B-4052
CALDWELL COUNTY
 STATION: 11+20.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER YADKIN
 RIVER ON NC 268
 BETWEEN SR 1560
 AND SR 1516

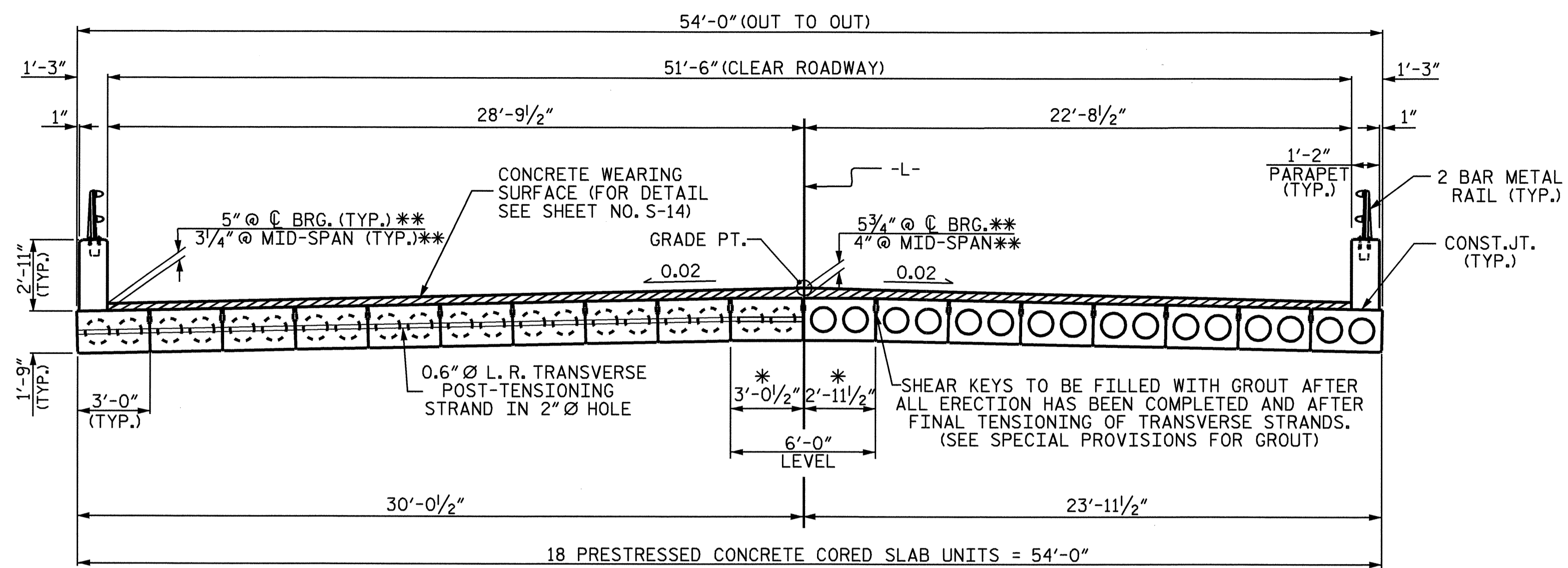
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			28

BM #1: RR SPIKE IN BASE OF 10" POPLAR TREE, 280.13' LEFT OF -Y- STA. 18+38.82, EL.1212.45



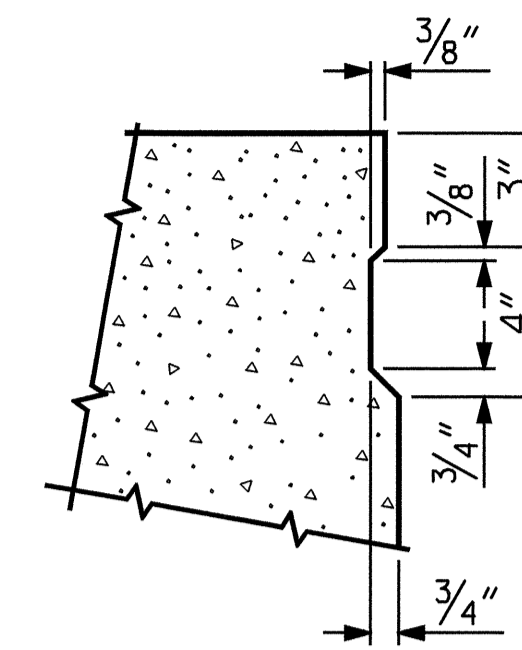
LOCATION SKETCH

DRAWN BY : J. L. WALTON DATE : 11/05
 CHECKED BY : T. H. FANG DATE : 01-08



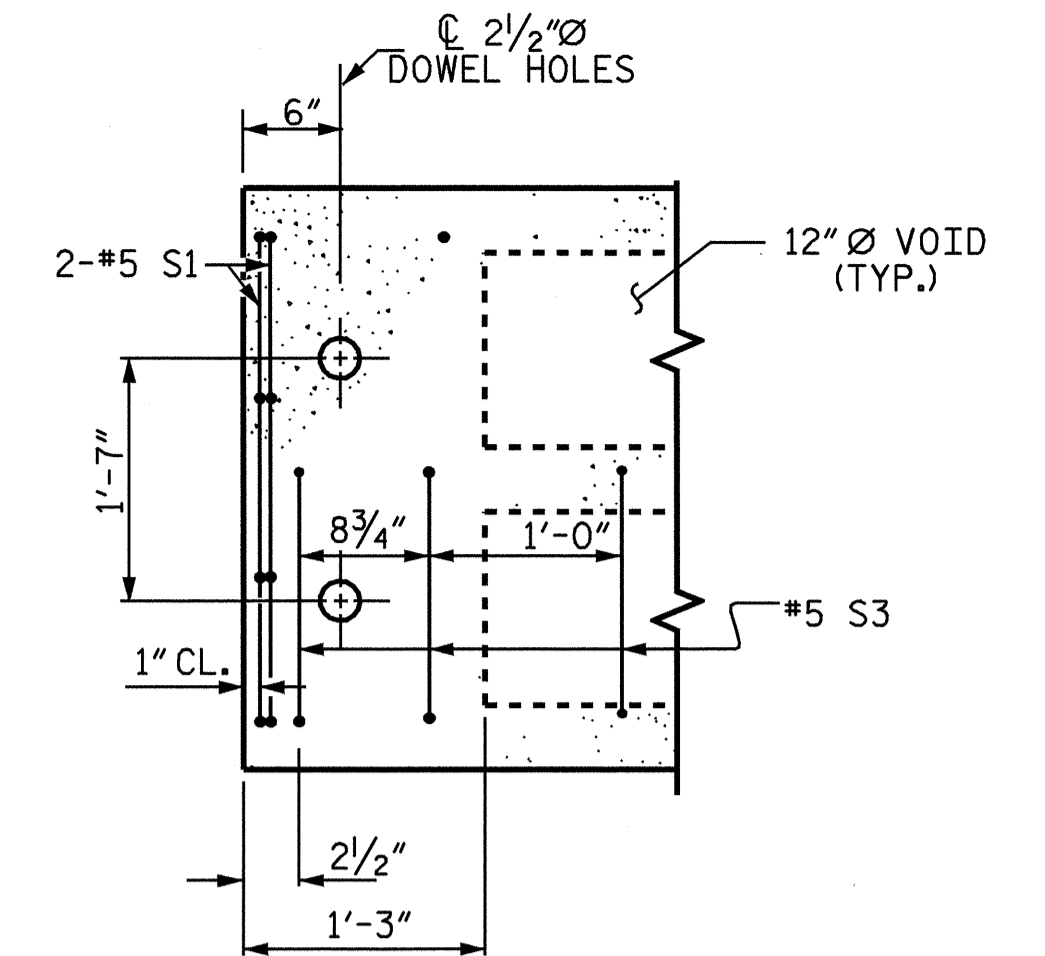
TYPICAL SECTION

**BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS
*SEE "DETAIL A" ON SHEET NO. S-5



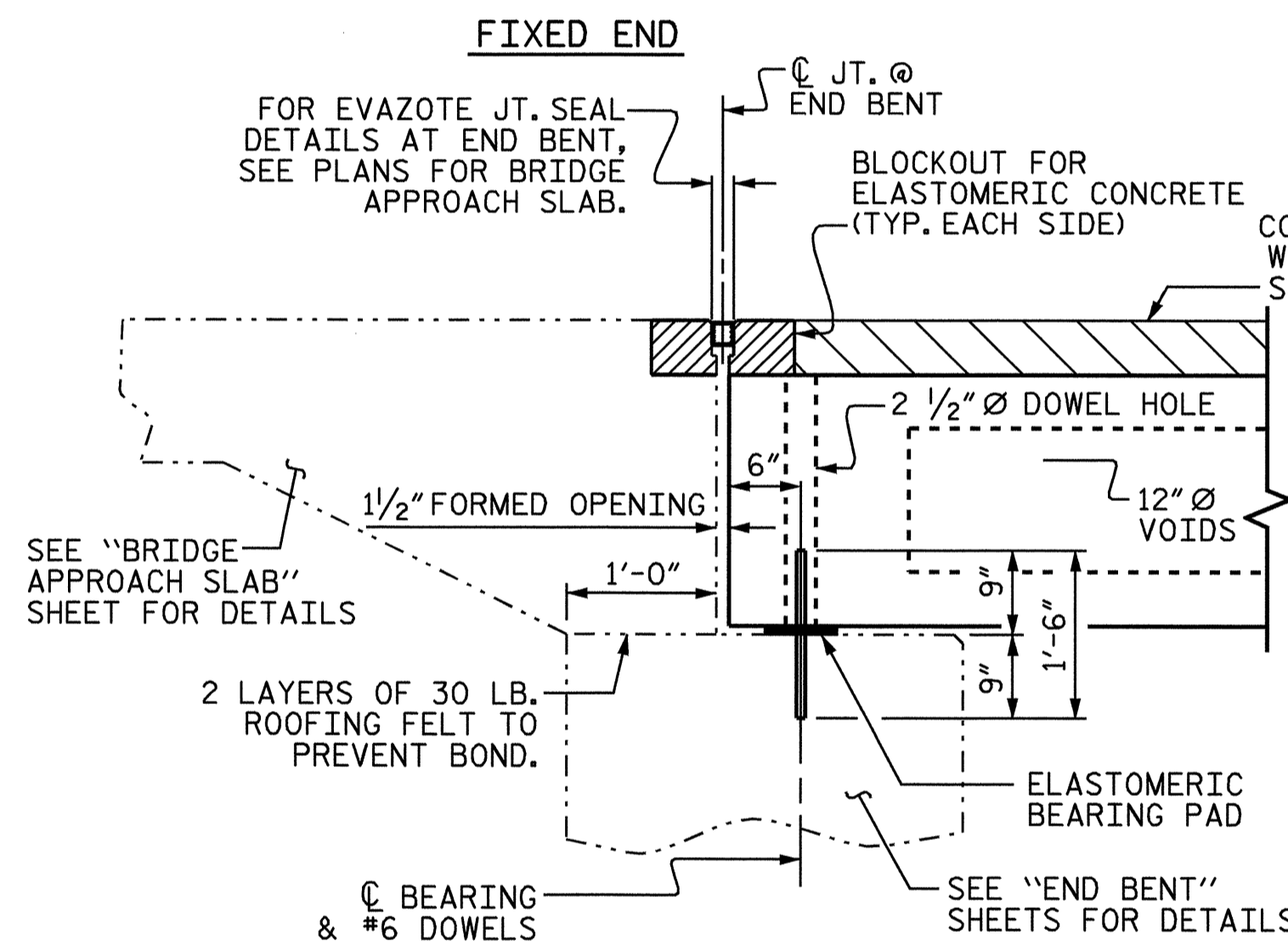
SHEAR KEY DETAIL

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

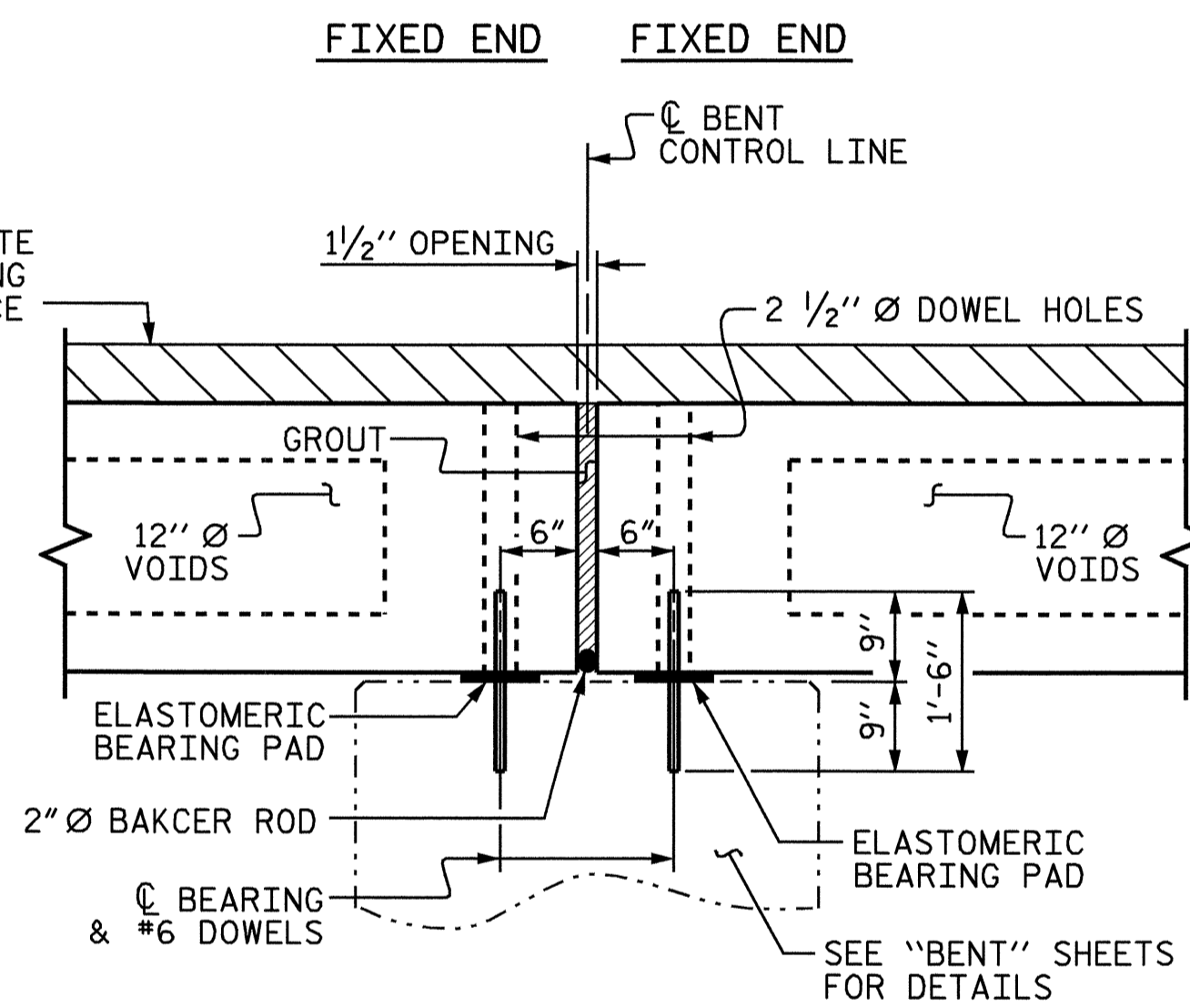


PART PLAN-EXTERIOR SECTION

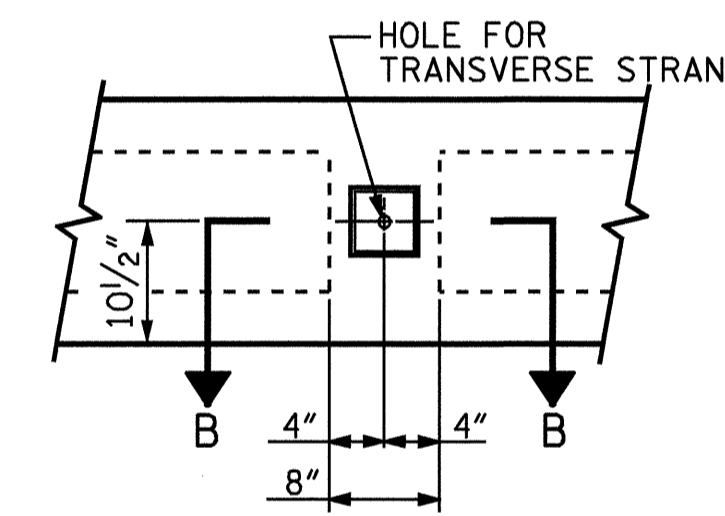
NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT S3 BARS.



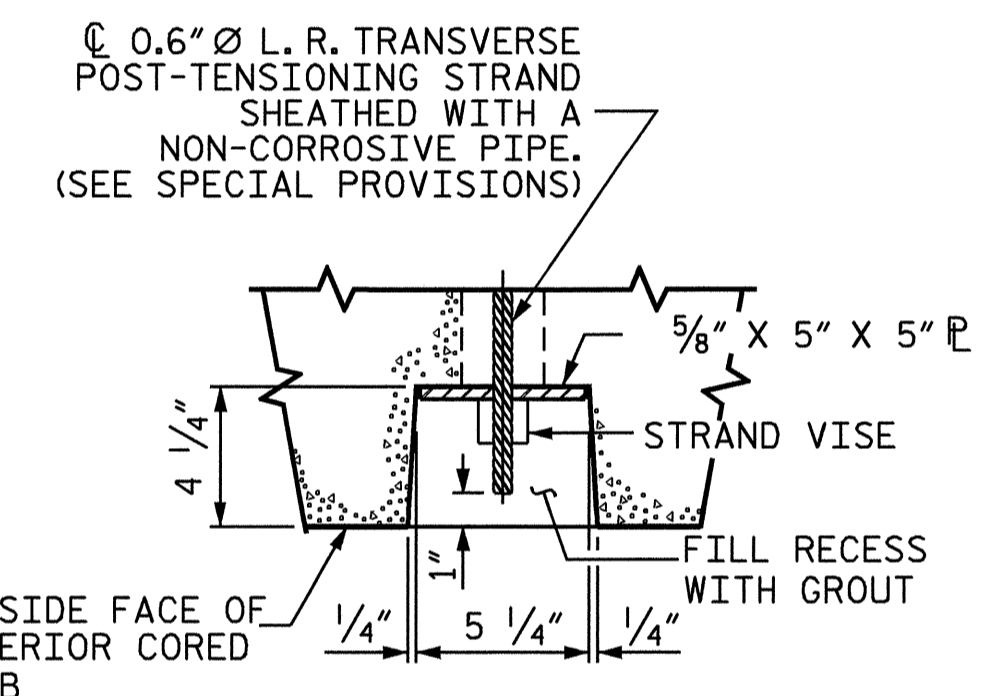
SECTION AT END BENTS



SECTION AT BENTS

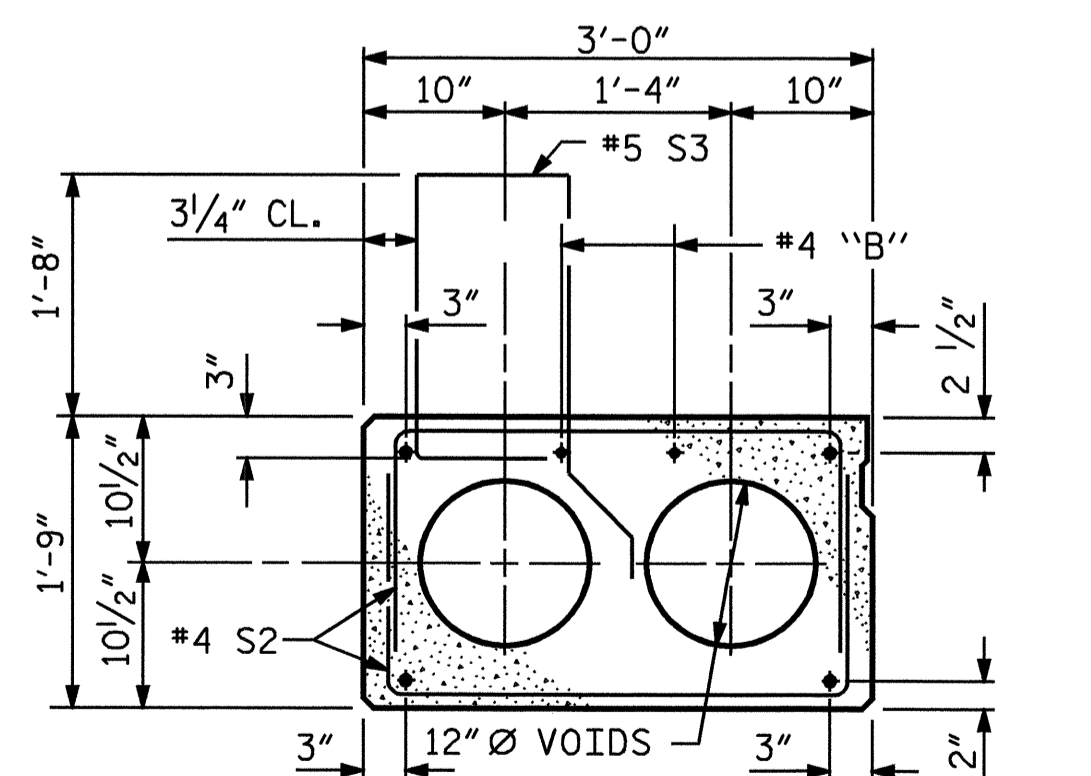


ELEVATION VIEW



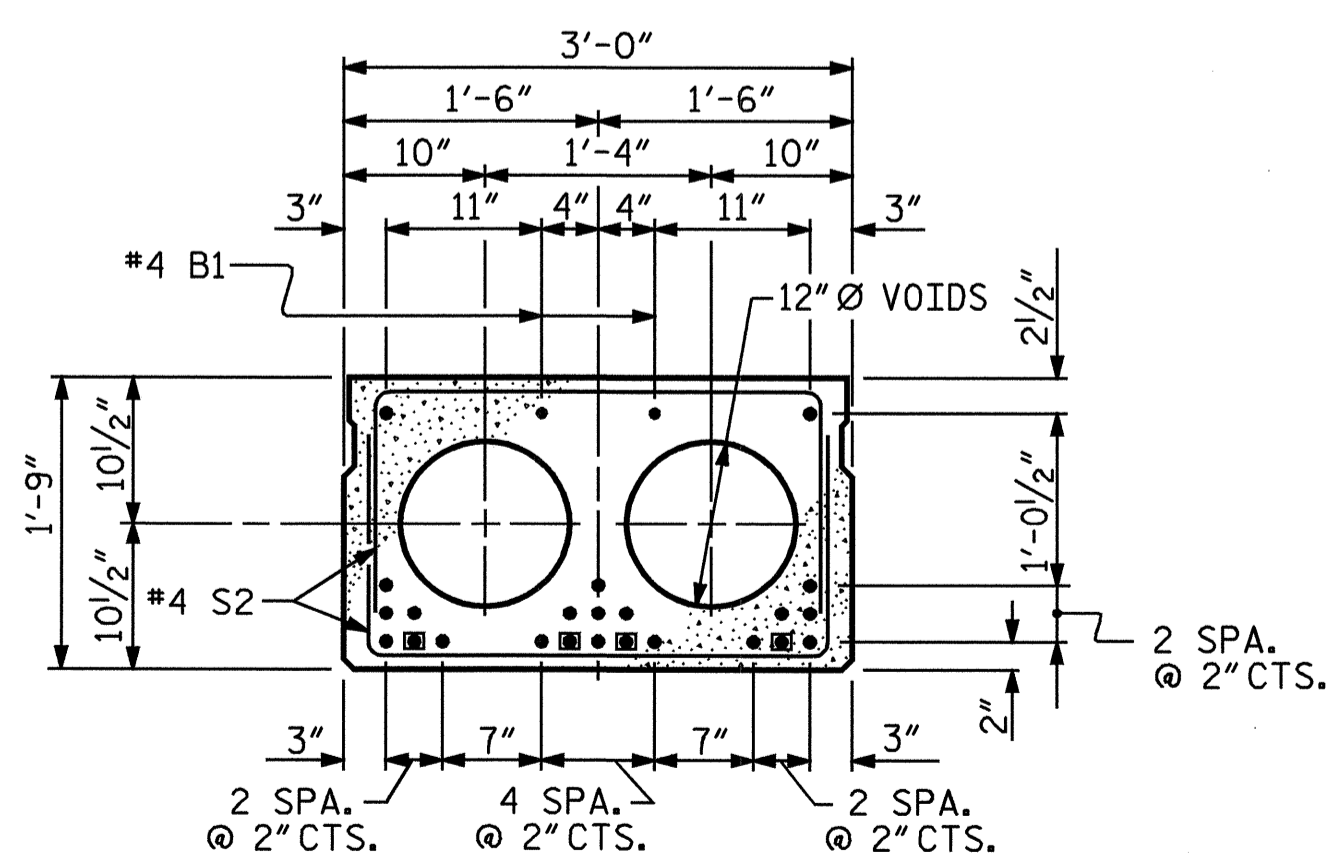
SECTION B-B

GROUTED RECESS @ END OF POST-TENSIONED STRAND CORED SLABS



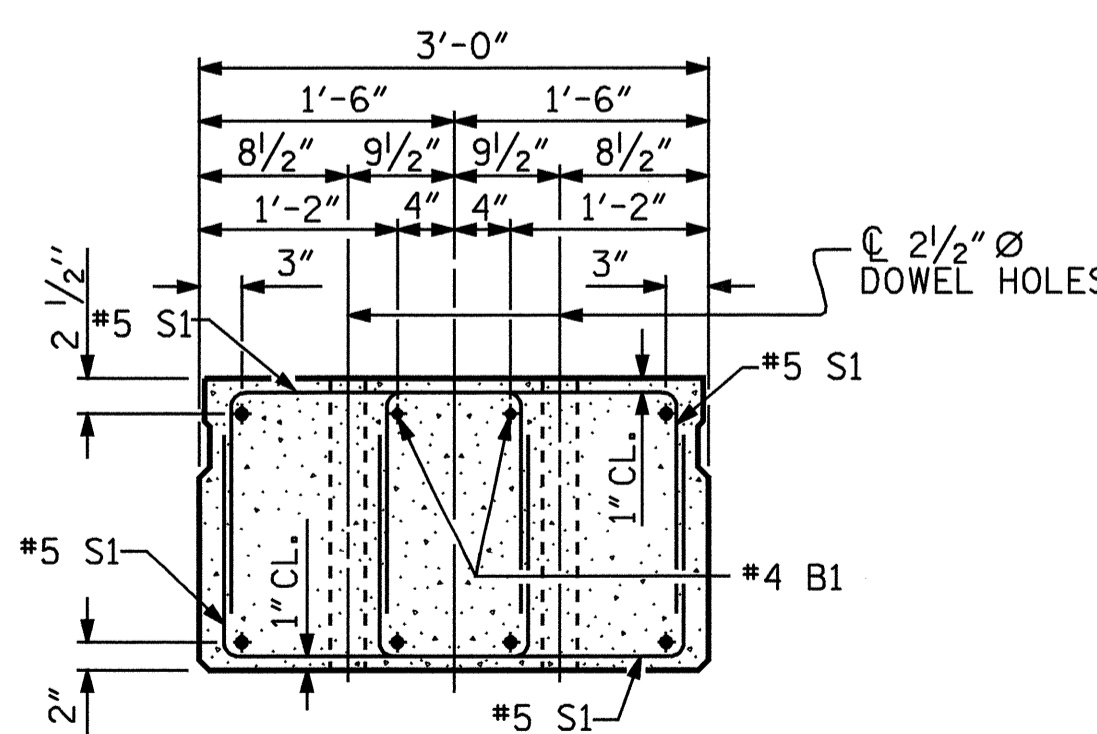
EXTERIOR SLAB SECTION

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



INTERIOR SLAB SECTION

(23 STRANDS 4 SHEATHED)
(SPANS A, B & C)

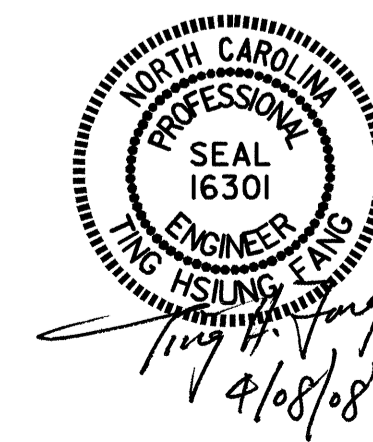


END ELEVATION

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

1/2" Ø LOW RELAXATION STRAND LAYOUT

BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 4'-0" FROM END OF CORED SLAB UNIT, SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.



PROJECT NO. B-4052
CALDWELL COUNTY
STATION: 11+20.00-L-

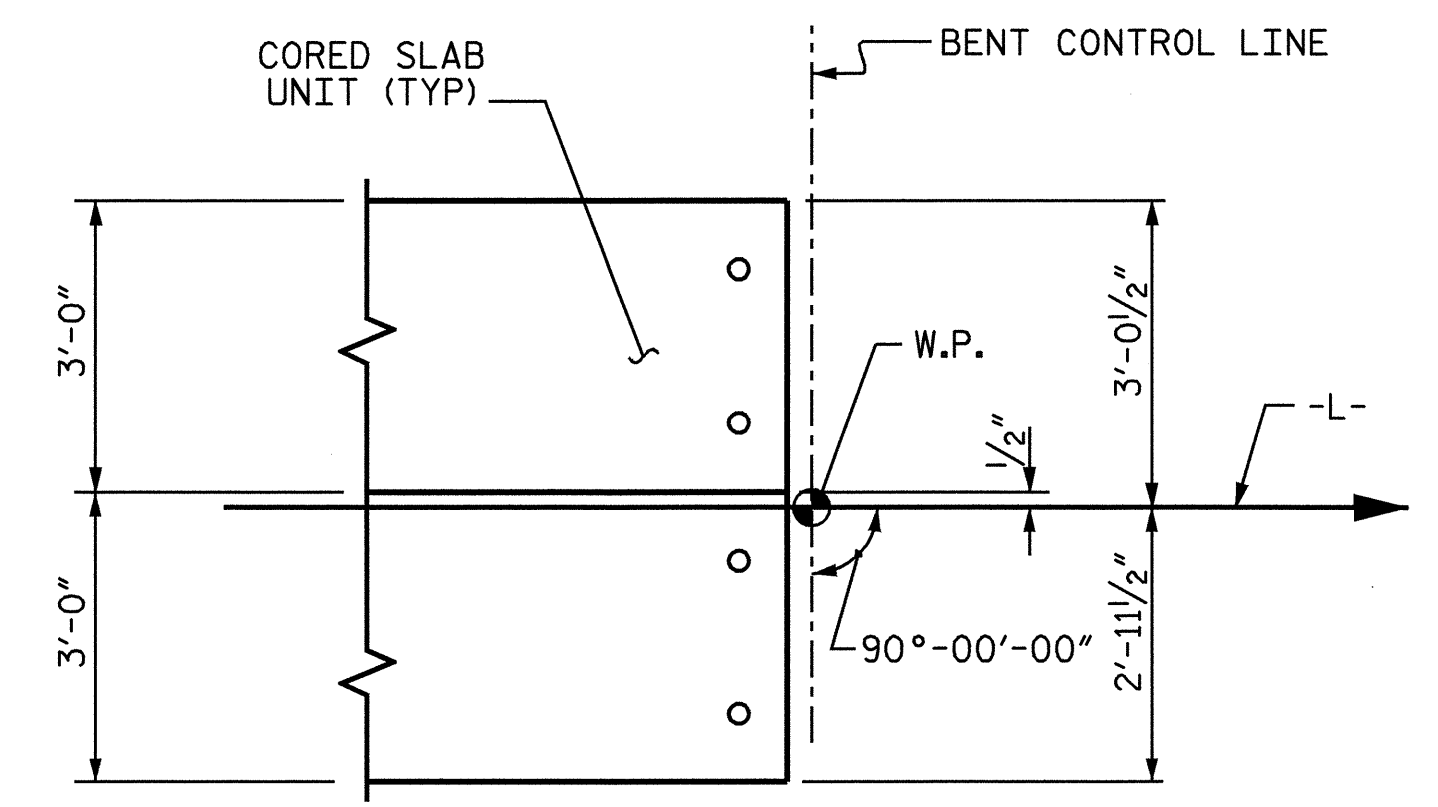
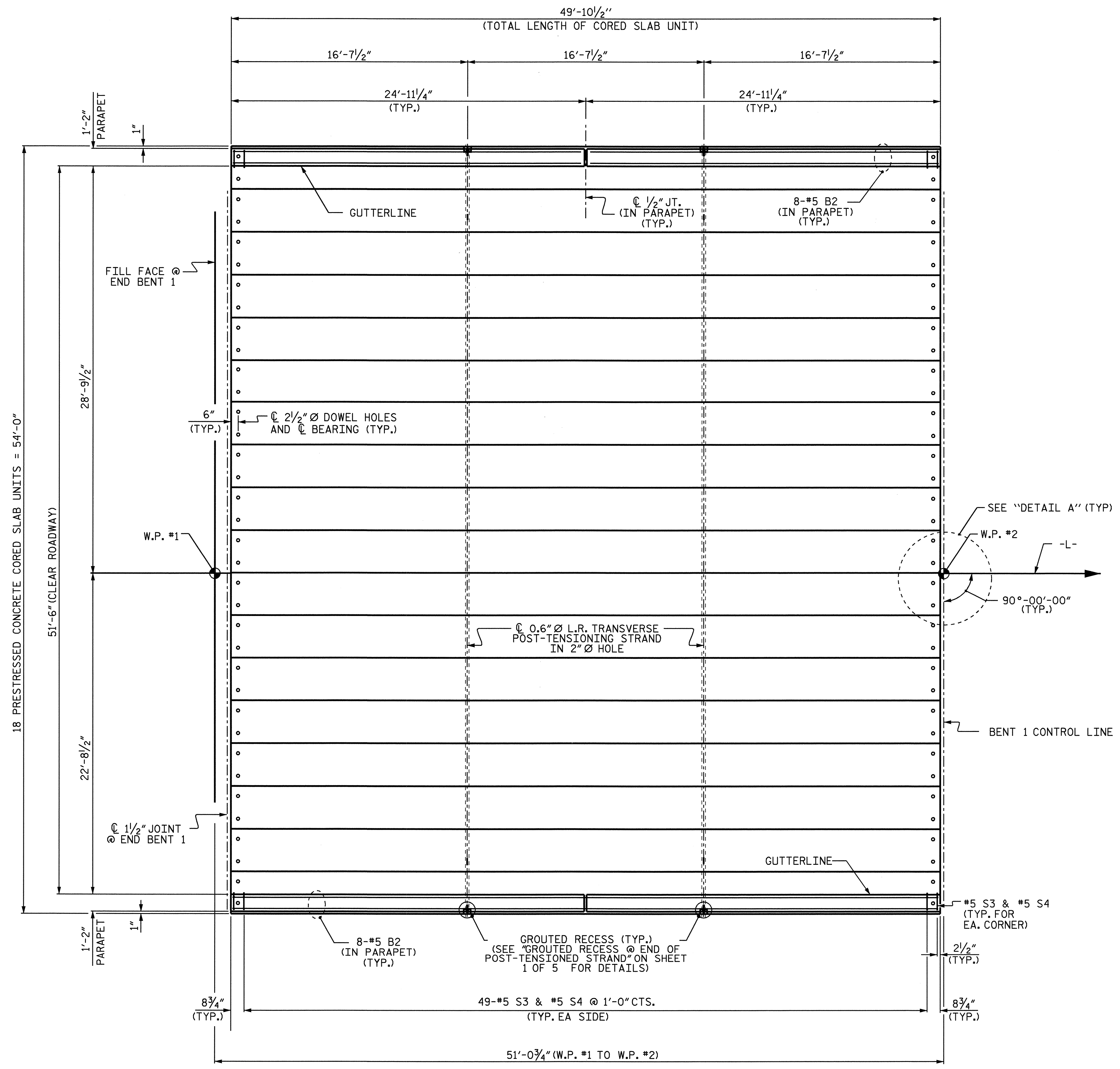
SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT

ASSEMBLED BY : H. B. SHAH	DATE : 3/13/07
CHECKED BY : J. L. WALTON	DATE : 4/05/07
DRAWN BY : WJH 4/89	REV. 10/17/00 RWW/LES
CHECKED BY : FCJ 5/89	REV. 7/10/01RR RWW/LES
	REV. 5/1/06 TLA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			28

STD. NO. PCS2



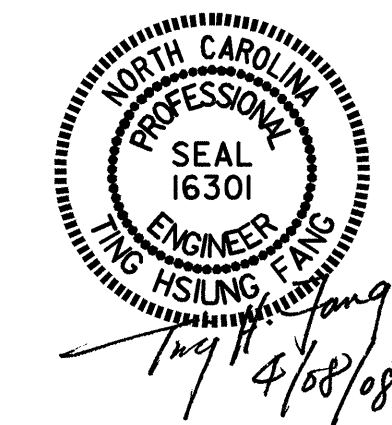
DETAIL A

SPAN A

PROJECT NO. B-4052
CALDWELL COUNTY
 STATION: 11+20.00-L-

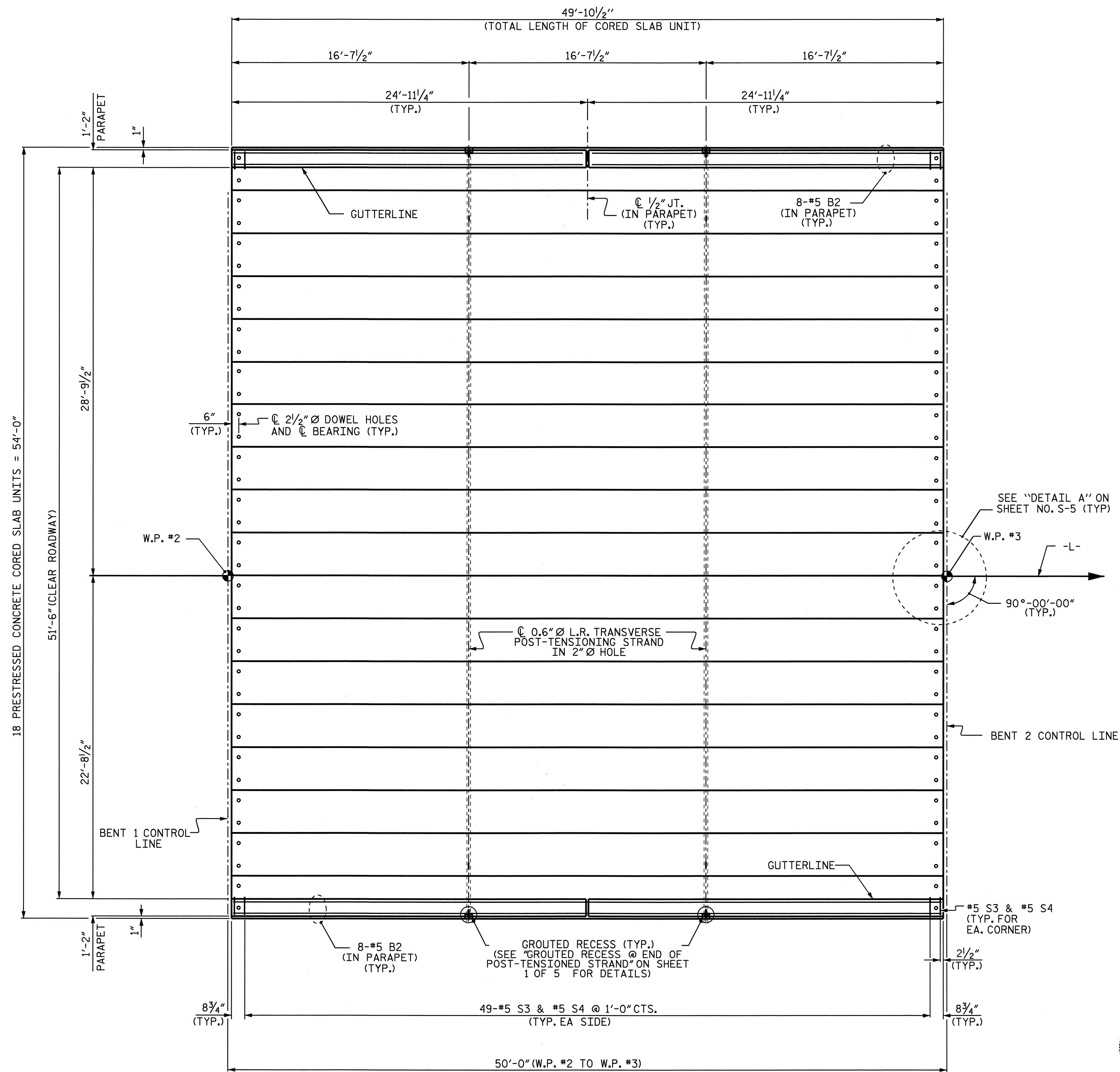
SHEET 2 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			28

DRAWN BY : HARISH SHAH DATE : 03/07
 CHECKED BY : J.L. WALTON DATE : 04/07

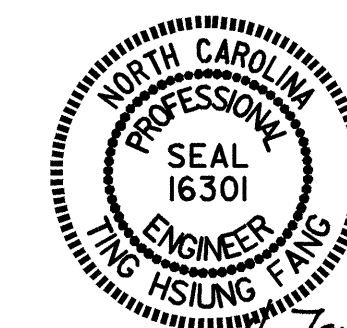


SPAN B

PROJECT NO. B-4052
 CALDWELL COUNTY
 STATION: 11+20.00-L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN

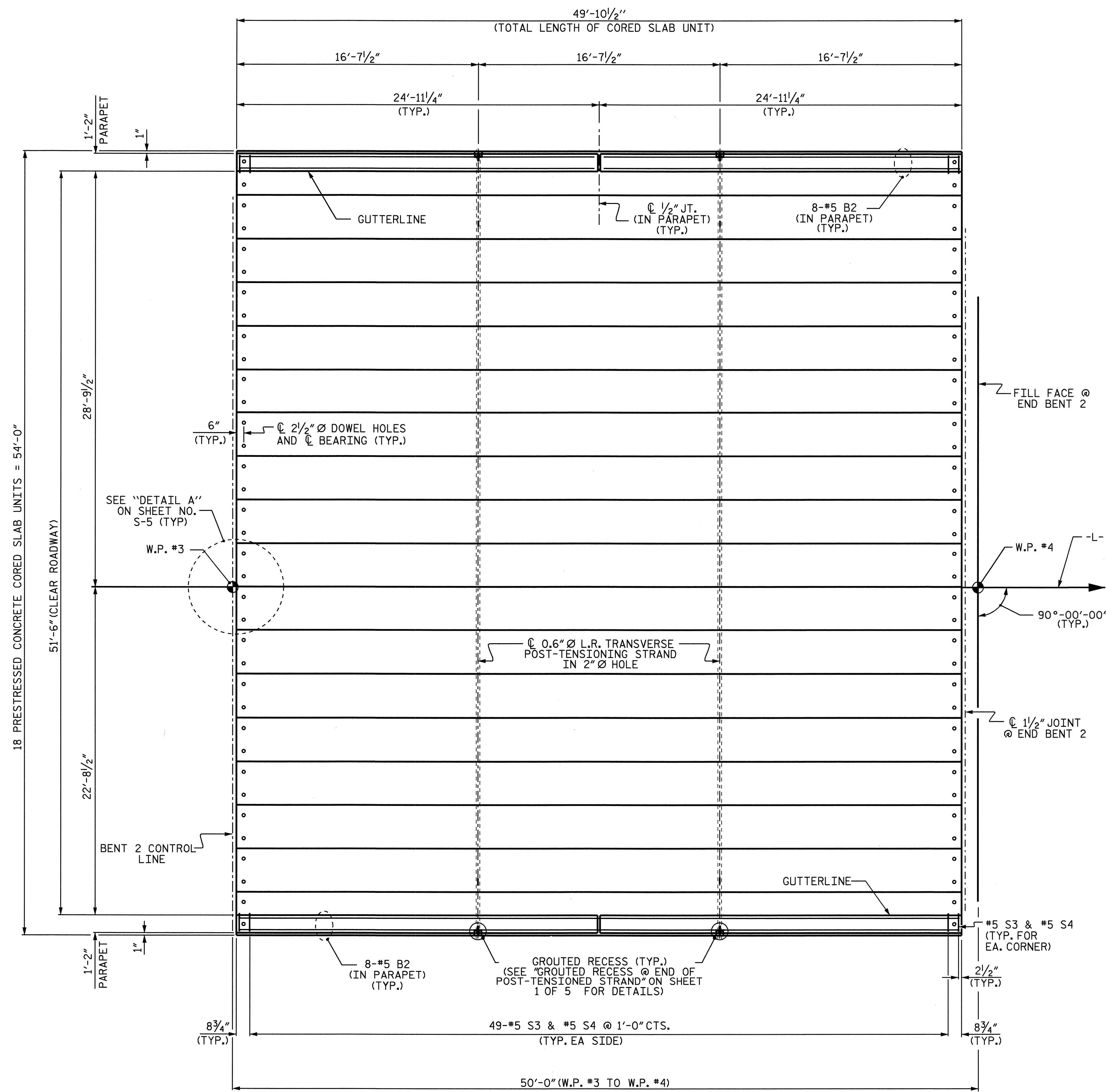


Ting Hsiung Fang
 9/08/08

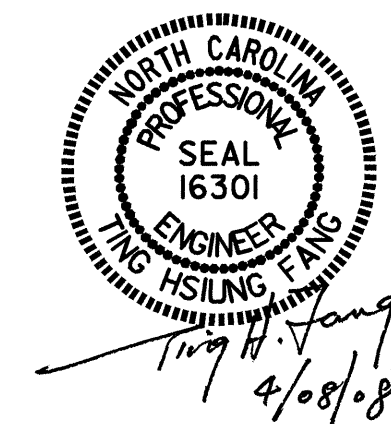
DRAWN BY : HARISH SHAH DATE : 03/07
 CHECKED BY : J.L. WALTON DATE : 04/07

08-APR-2008 12:33
 q:\structures\b4052\final.plans\b-4052.sd.cs.dgn
 qtnguyen

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-6
1			3			TOTAL SHEETS
2			4			28



SPAN C



PROJECT NO. B-4052
 CALDWELL COUNTY
 STATION: 11+20.00-L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

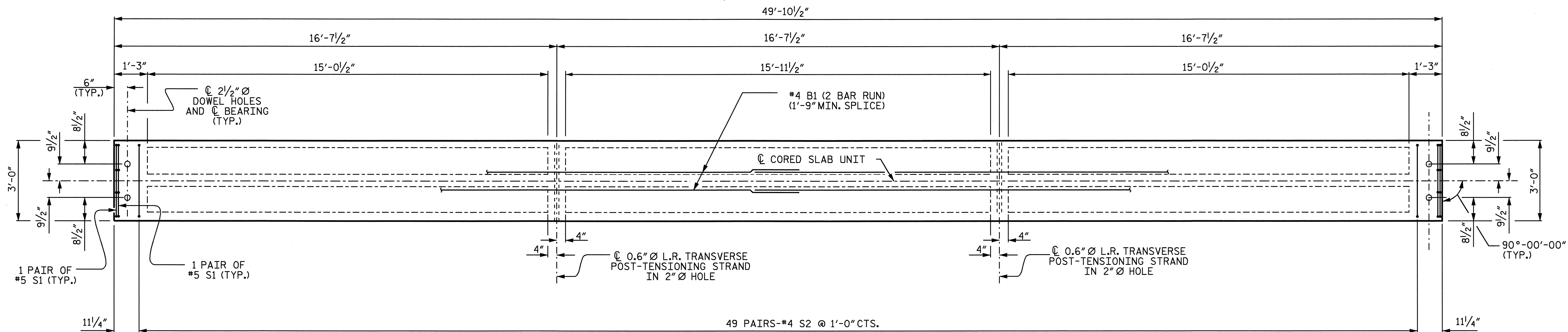
SUPERSTRUCTURE

PLAN OF SPAN

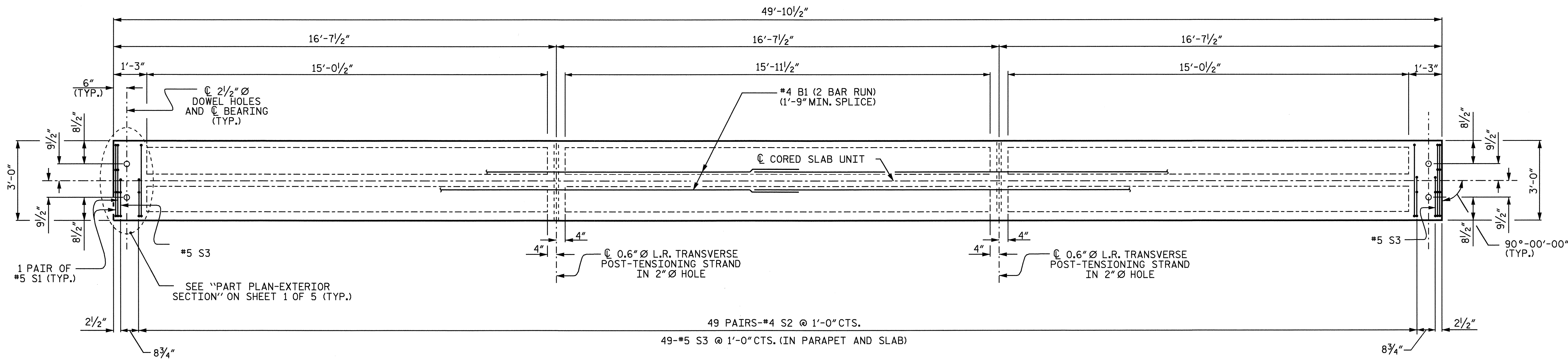
DRAWN BY : HARISH SHAH DATE : 03/07
 CHECKED BY : J.L. WALTON DATE : 04/07

08-APR-2008 12:33
 q:\structures\b4052\final_plans\b-4052_sd.cs.dgn
 qtnguyen

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			28



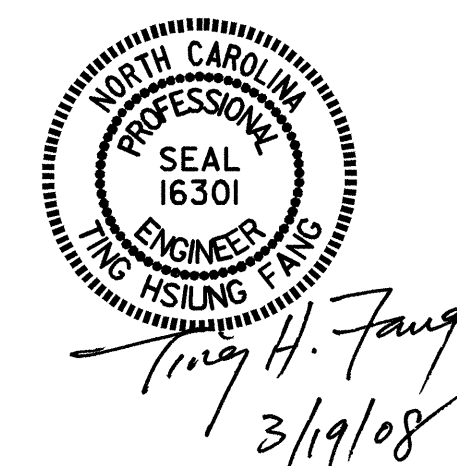
PLAN OF INTERIOR CORED SLAB UNIT



PLAN OF EXTERIOR CORED SLAB UNIT

PROJECT NO. B-4052
 CALDWELL COUNTY
 STATION: 11+20.00 -L-

SHEET 5 OF 5



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN
 DETAILS FOR
 SPANS A, B & C

DRAWN BY: H.B. SHAH DATE: 03/15/07
 CHECKED BY: J.L. WALTON DATE: 04/05/07

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8	
1			3			TOTAL SHEETS	
2			4			28	

NOTES

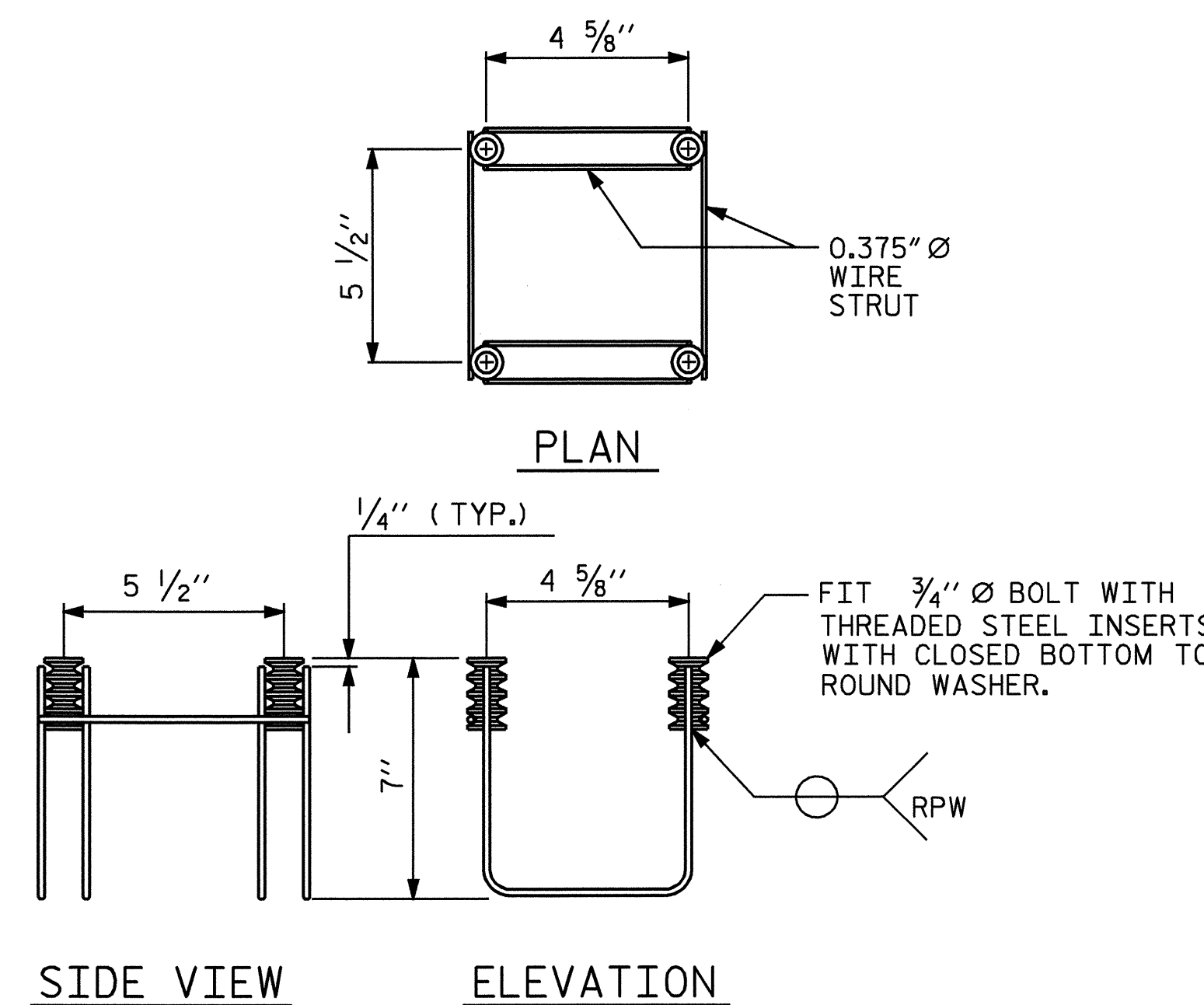
STRUCTURAL CONCRETE ANCHOR ASSEMBLY

THE STRUCTURAL CONCRETE ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS :

- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2" FOR 3/4" FERRULES.
- B. 4 - 3/4" Ø X 2 1/2" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 2 1/2" GALVANIZED BOLTS 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.
- C. WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.
- D. THE METAL RAIL ANCHOR ASSEMBLIES TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF AASHTO M111.
- E. THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR LINEAR FEET OF METAL RAIL.
- F. BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL RAIL ANCHOR ASSEMBLY. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS.

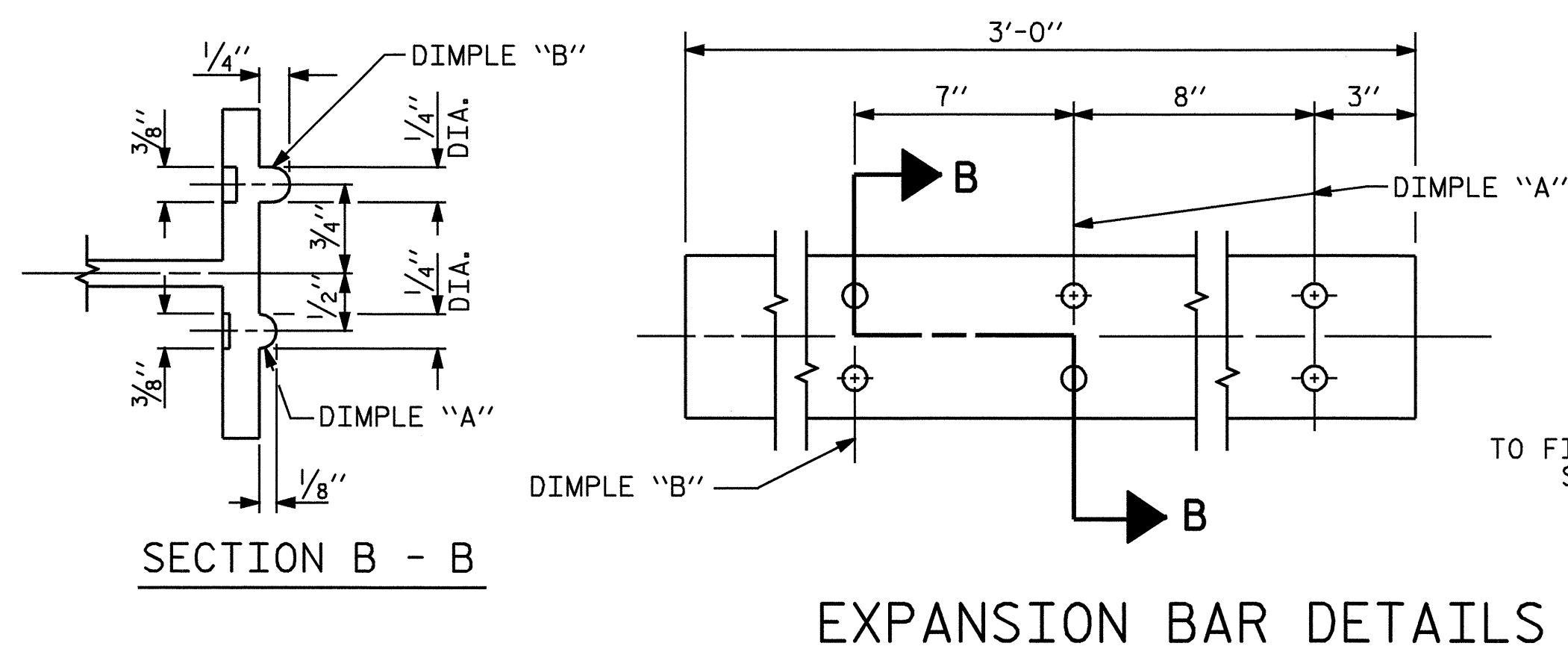
WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS SHALL MEET THE REQUIREMENTS OF ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. NUTS SHALL MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.



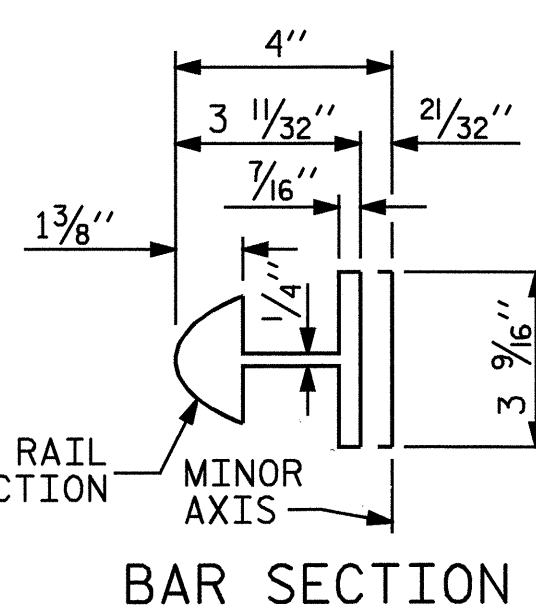
MINIMUM LENGTH OF THREADS IN INSERT (FERRULE) : 1 3/4"

4-BOLT METAL RAIL ANCHOR ASSEMBLY

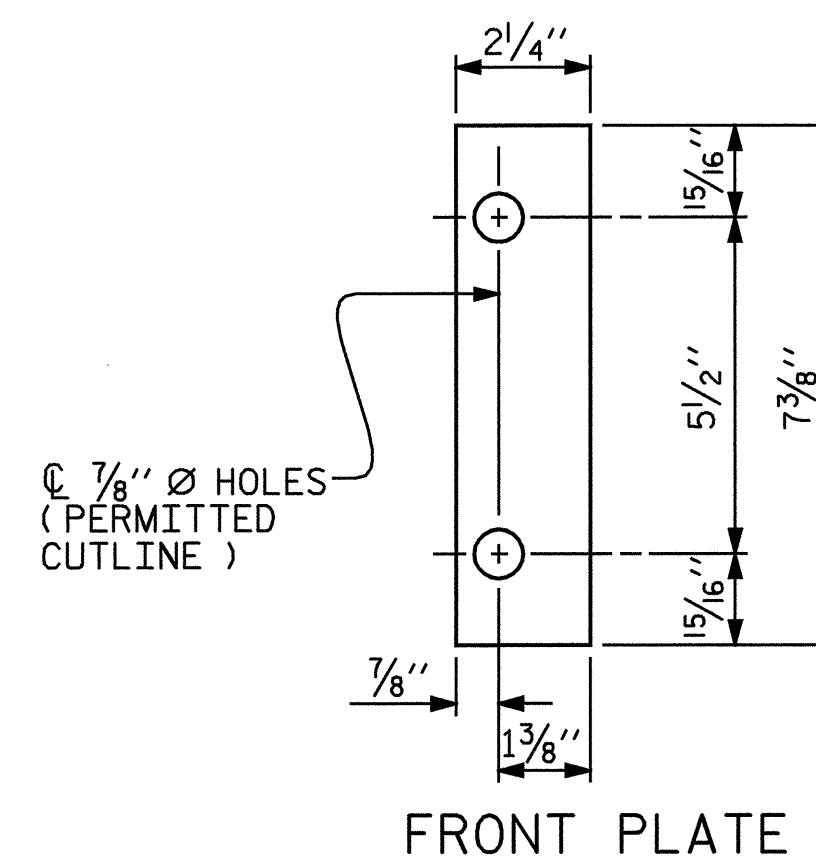
(46 ASSEMBLIES REQUIRED)



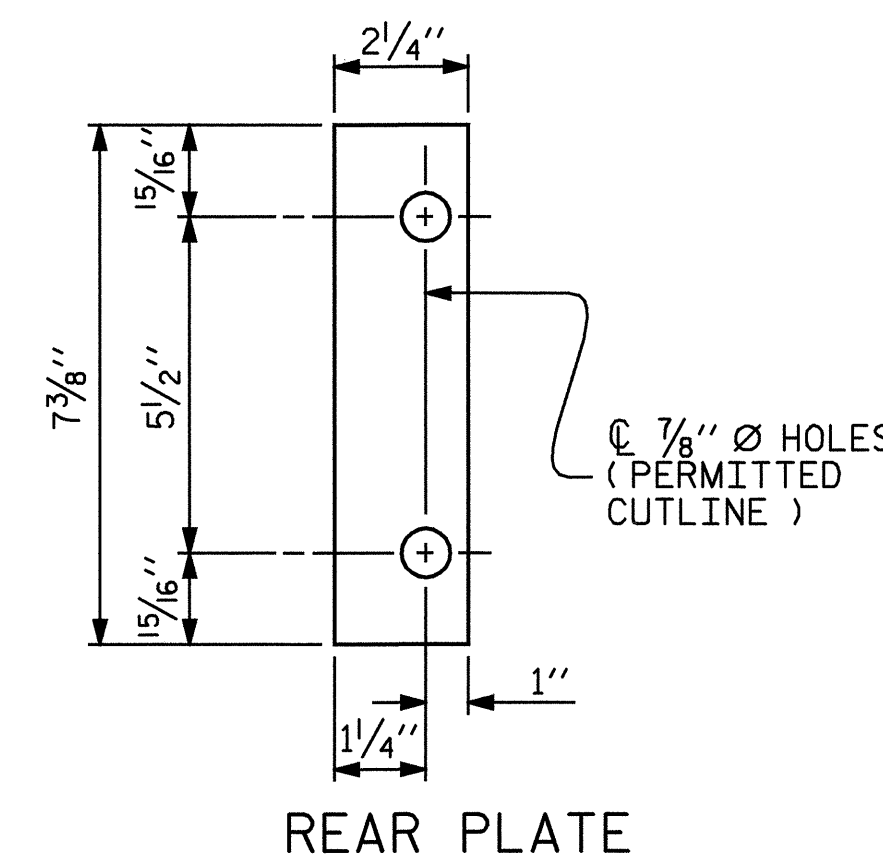
EXPANSION BAR DETAILS



BAR SECTION



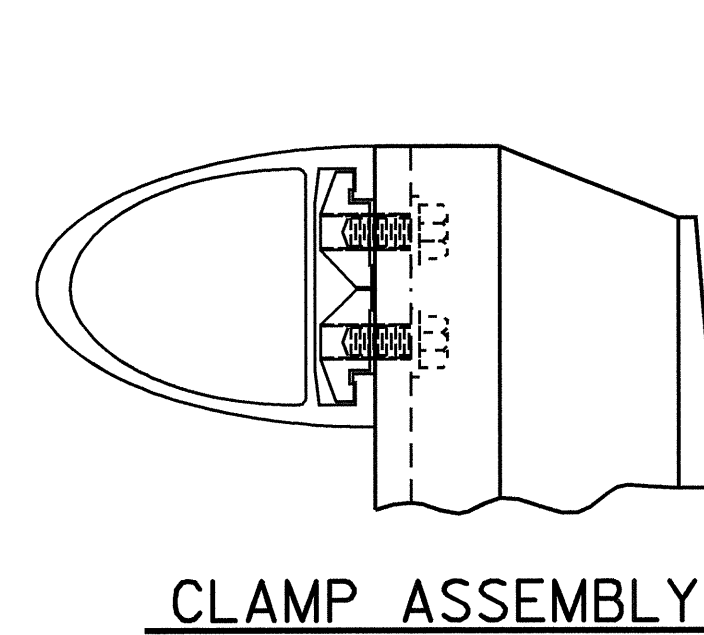
FRONT PLATE



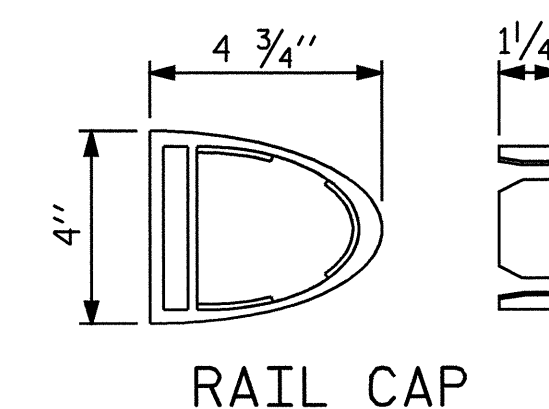
REAR PLATE

SHIM DETAILS

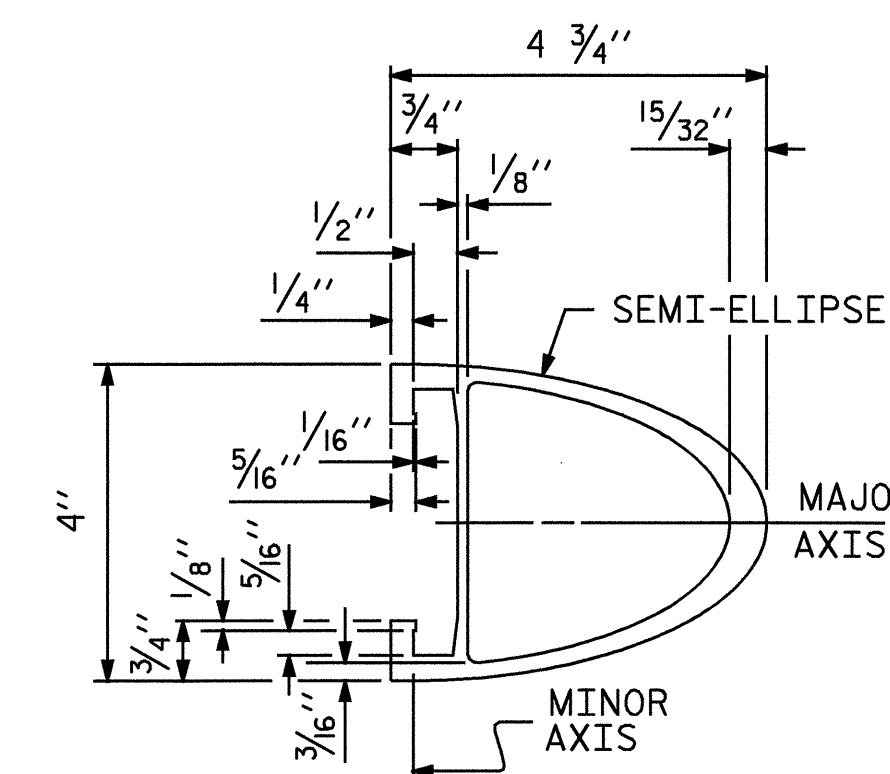
NOTE : SHIMS MAY BE CUT ALONG PERMITTED CUTLINE OR SLOTTED TO EDGE OF PLATE TO FACILITATE PLACEMENT.



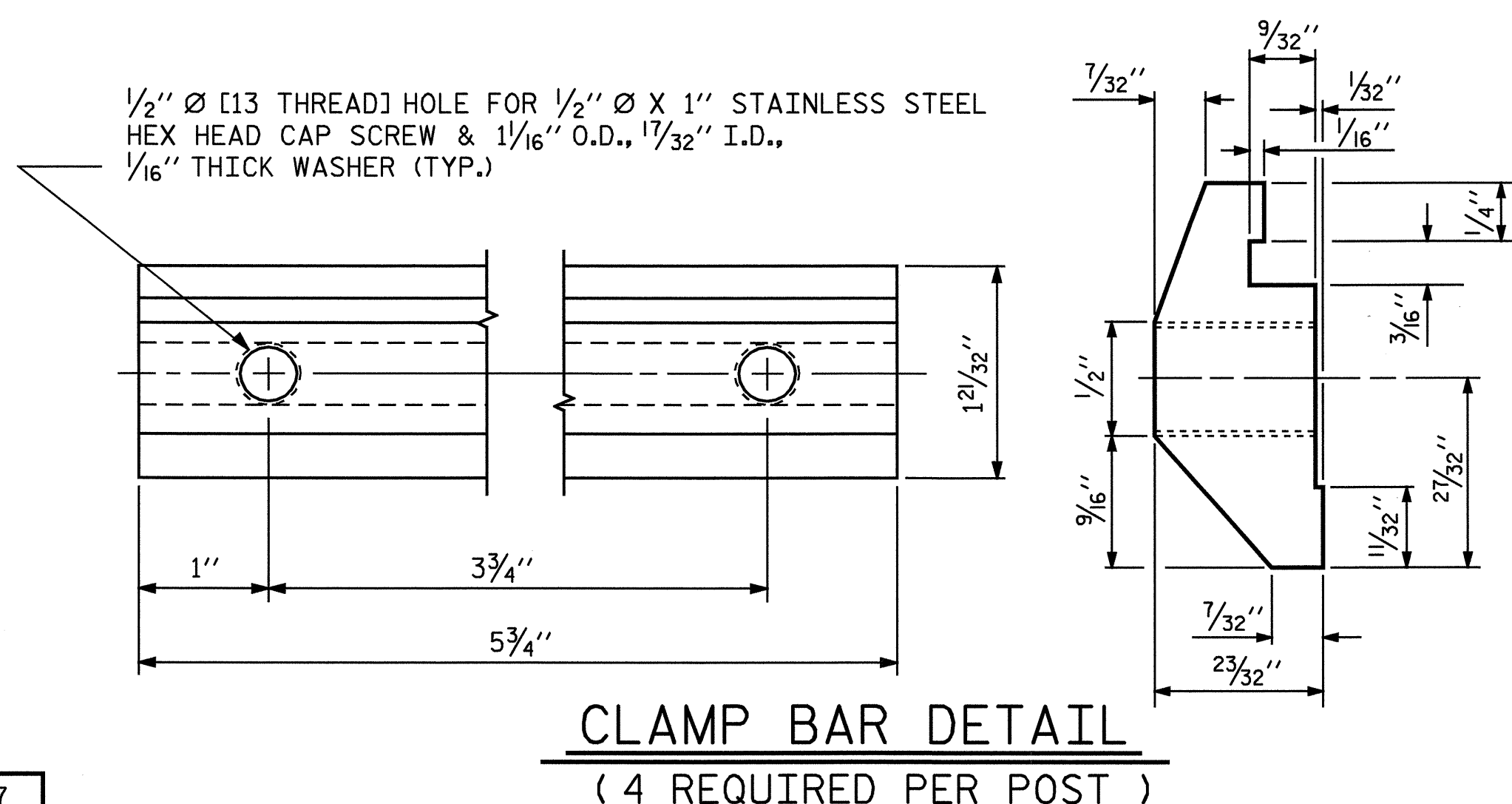
CLAMP ASSEMBLY



RAIL CAP



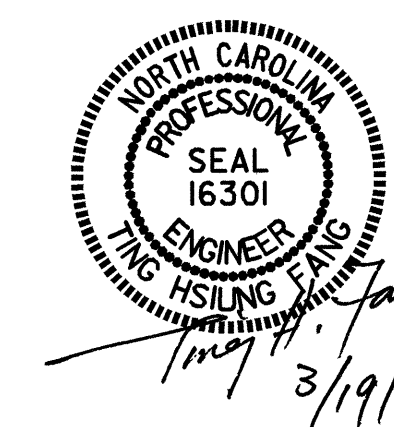
RAIL SECTION



CLAMP BAR DETAIL

(4 REQUIRED PER POST)

ASSEMBLED BY :	H. B. SHAH	DATE :	03/07
CHECKED BY :	J. L. WALTON	DATE :	04/07
DRAWN BY :	EEM 6/94	REV. 2/6/97	EEM/RGW
CHECKED BY :	RGW 6/94	REV. 8/16/99	MAB/LES
		REV. 5/1/03	RWW/JTE



PROJECT NO. B-4052
CALDWELL COUNTY
 STATION: 11+20.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD					
2 BAR METAL RAIL					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-10
					TOTAL SHEETS 28

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.

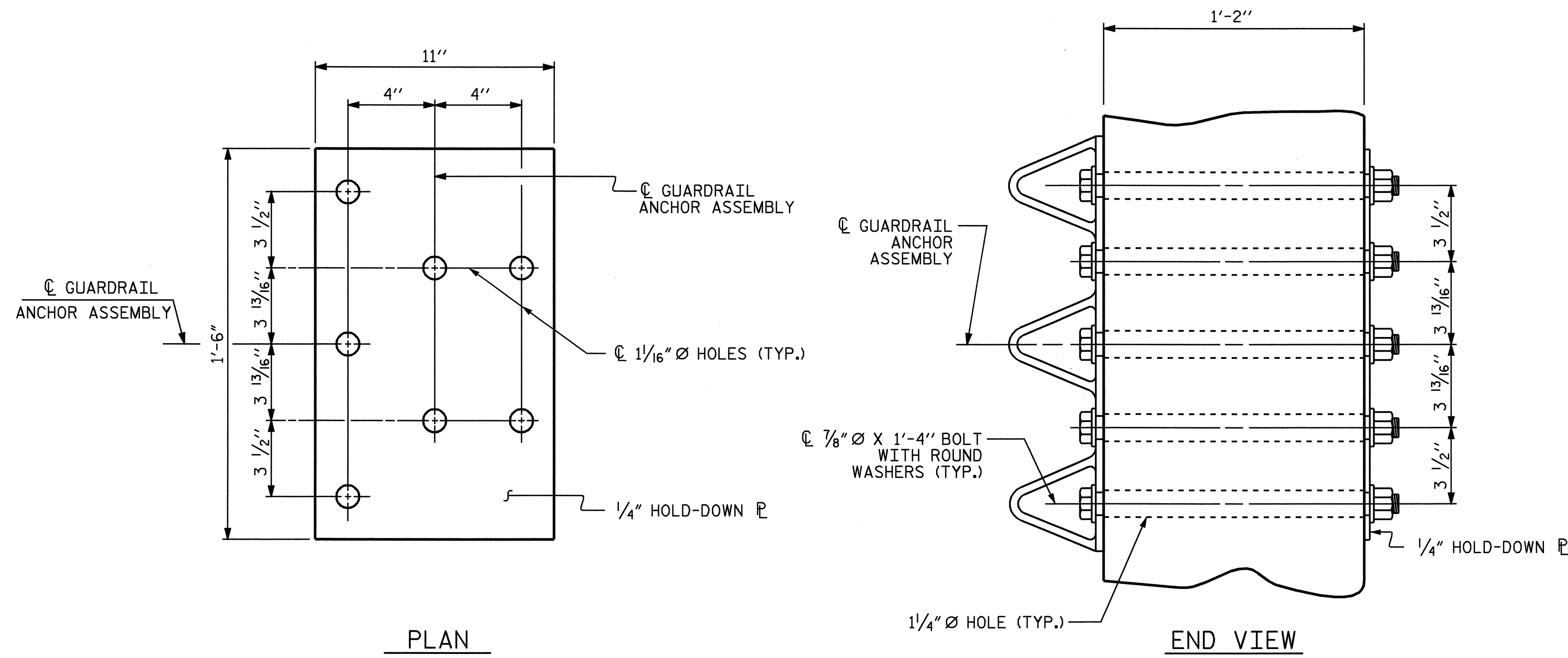
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS.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

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

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.

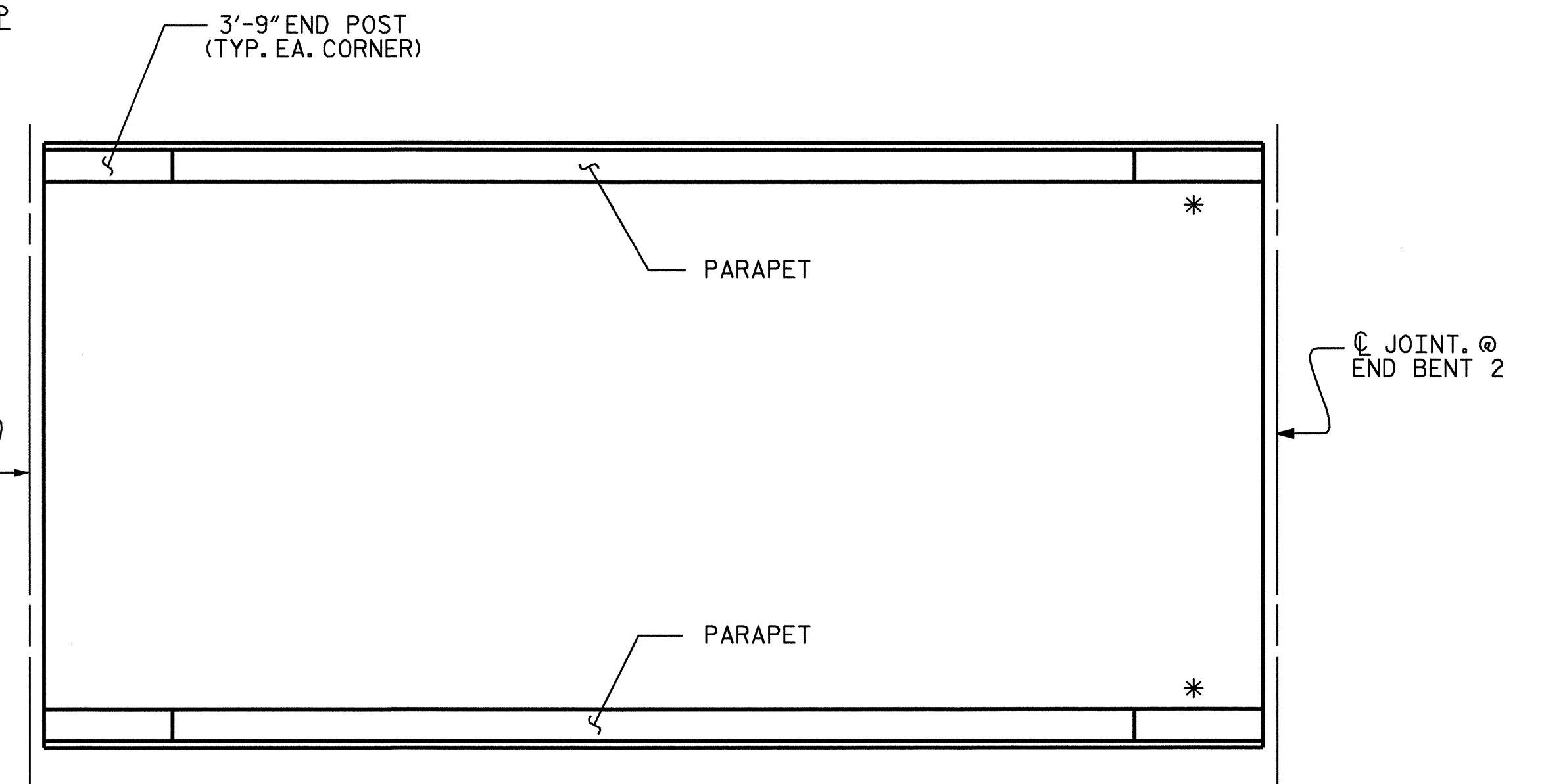
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



PLAN

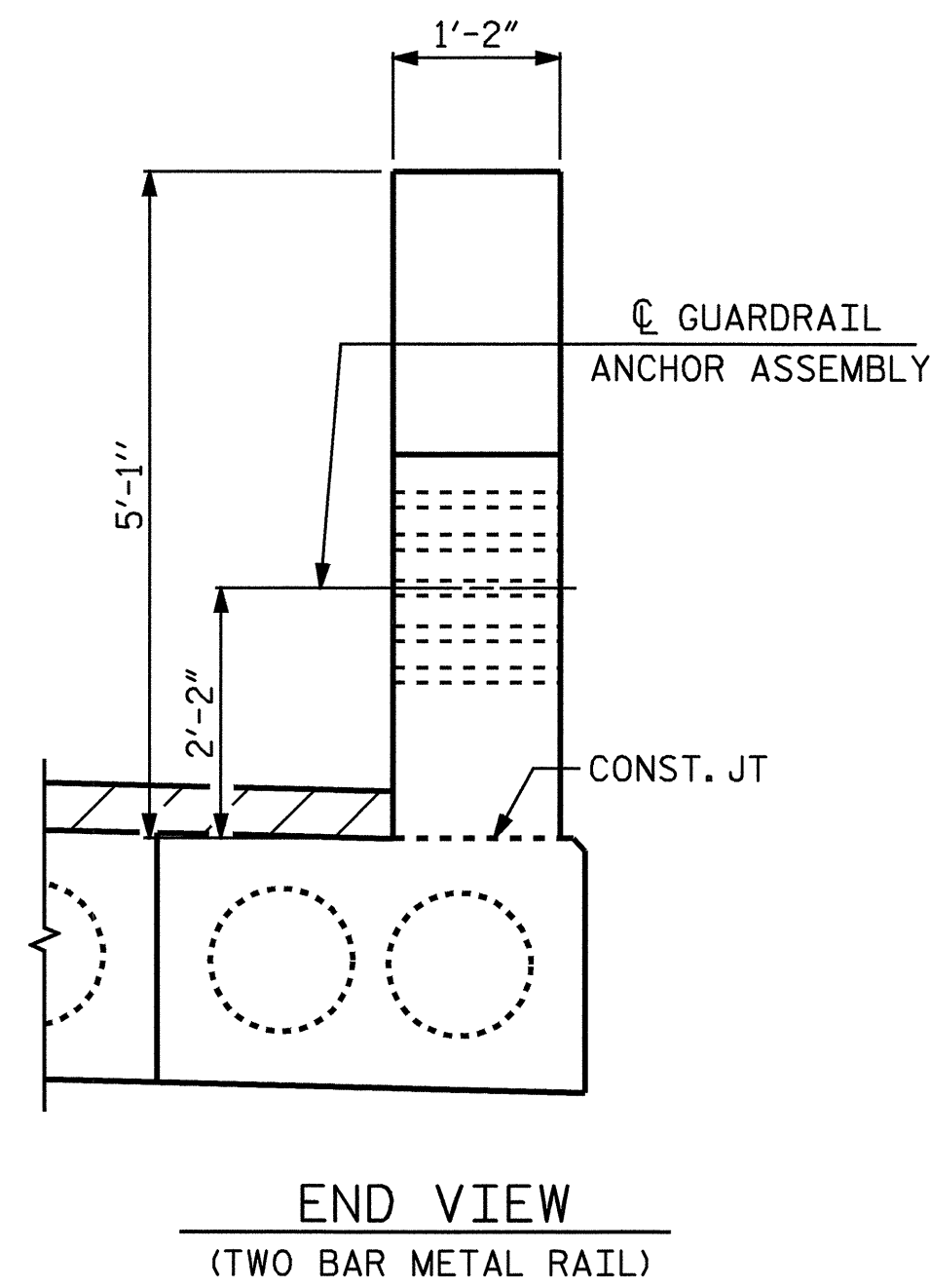
END VIEW

GUARDRAIL ANCHOR ASSEMBLY DETAILS

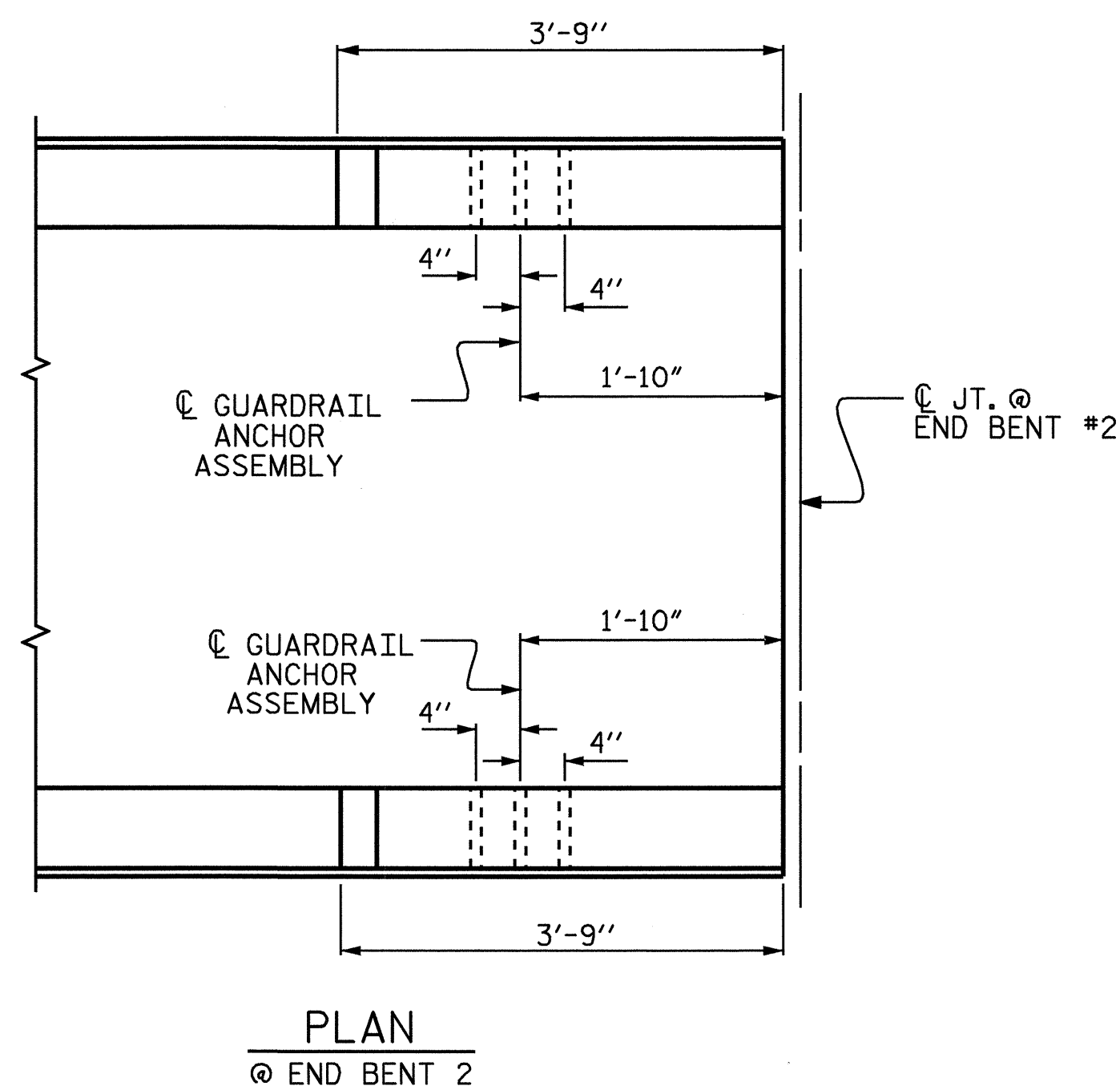


SKETCH SHOWING POINTS OF ATTACHMENT

* LOCATION OF GUARDRAIL ATTACHMENT



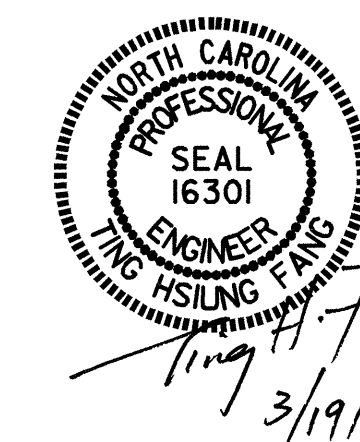
END VIEW
(TWO BAR METAL RAIL)



PLAN
@ END BENT 2

LOCATION OF GUARDRAIL ANCHOR AT END POST

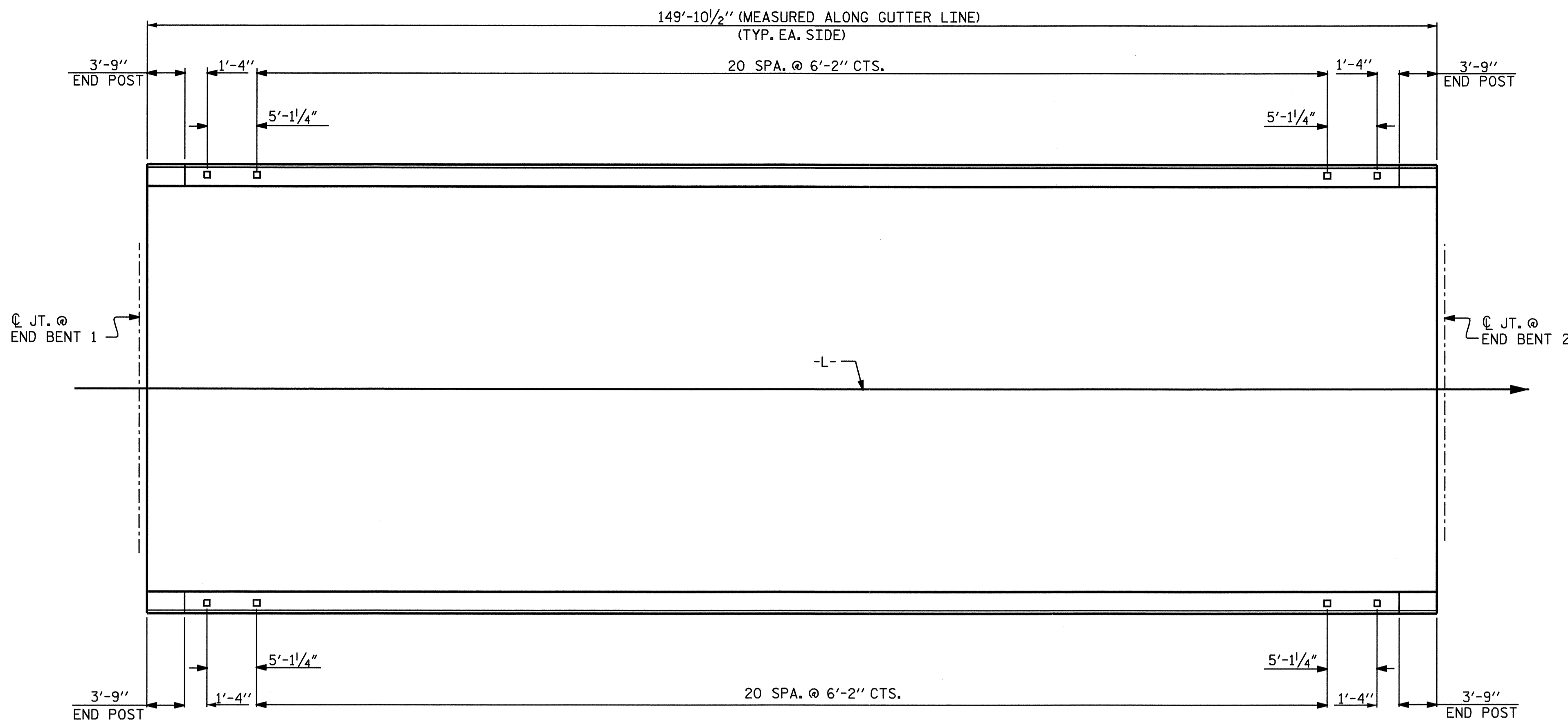
PROJECT NO. B-4052
CALDWELL COUNTY
 STATION: 11+20.00 -L-



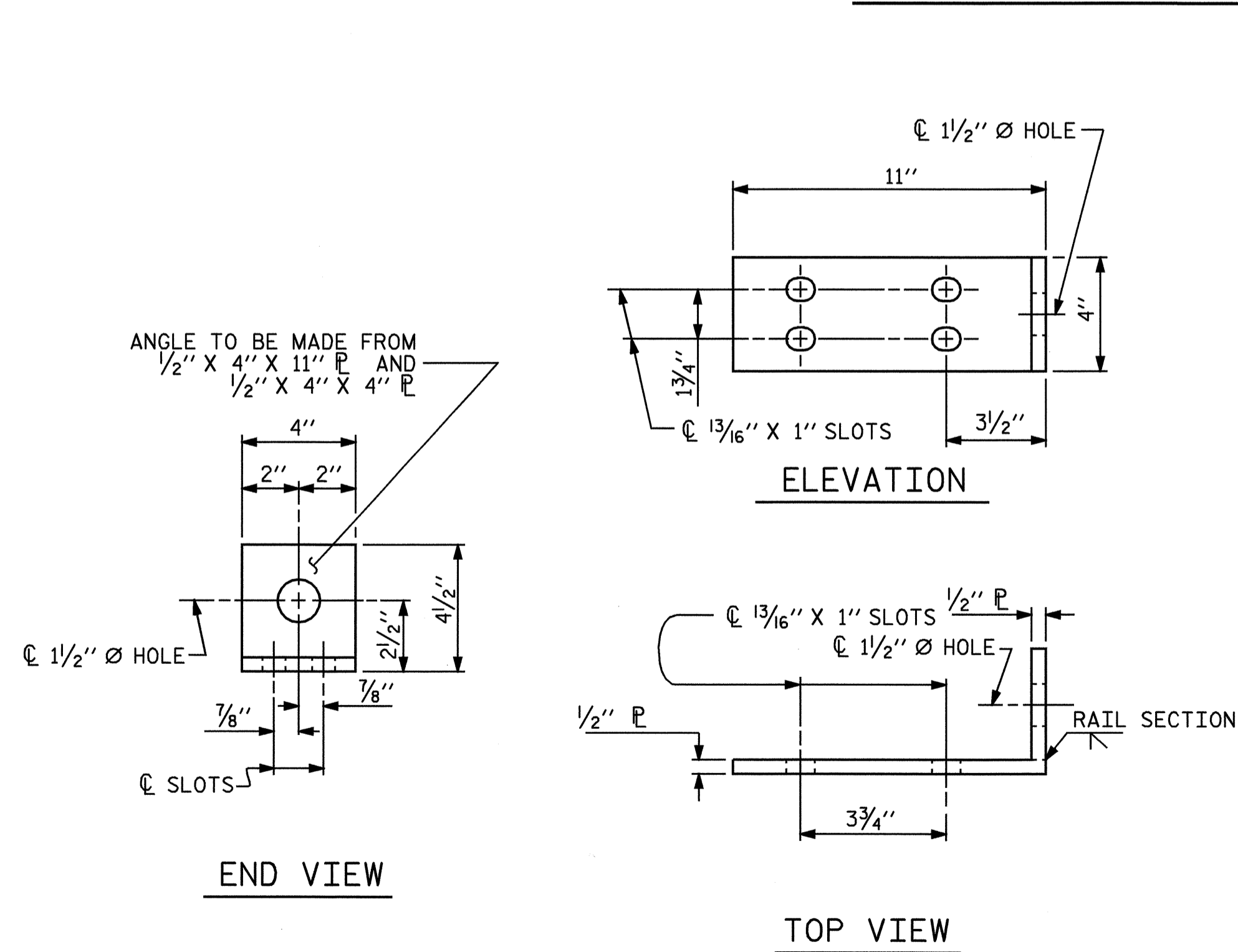
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 DETAILS
 FOR METAL RAILS

ASSEMBLED BY : H. B. SHAH	DATE : 03/07
CHECKED BY : J. L. WALTON	DATE : 04/07
DRAWN BY : EEM 6/94	REV. 10/17/00 RWW/LES
CHECKED BY : RGW 6/94	REV. 5/7/03 RWW/JTE
	REV. 5/1/06 TLA/GM

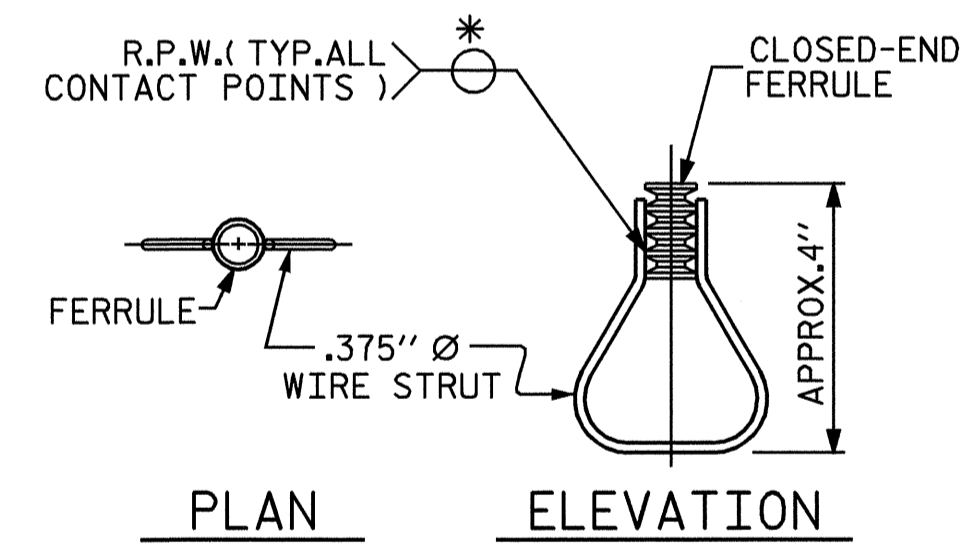
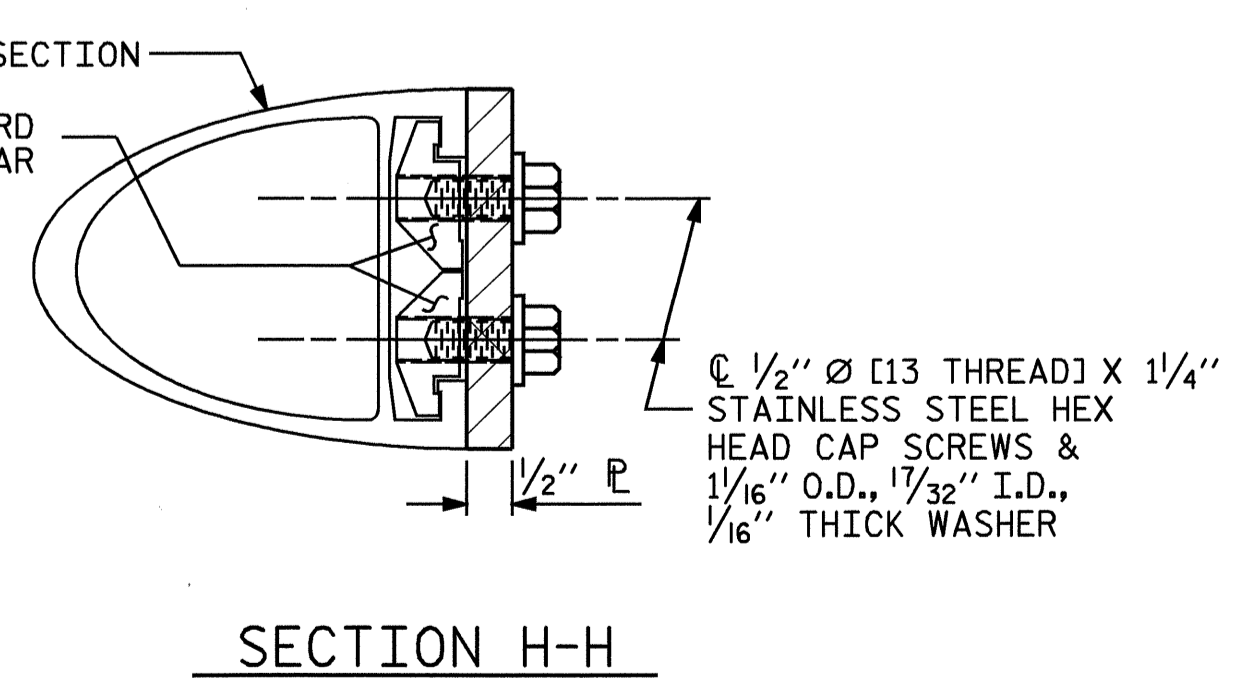
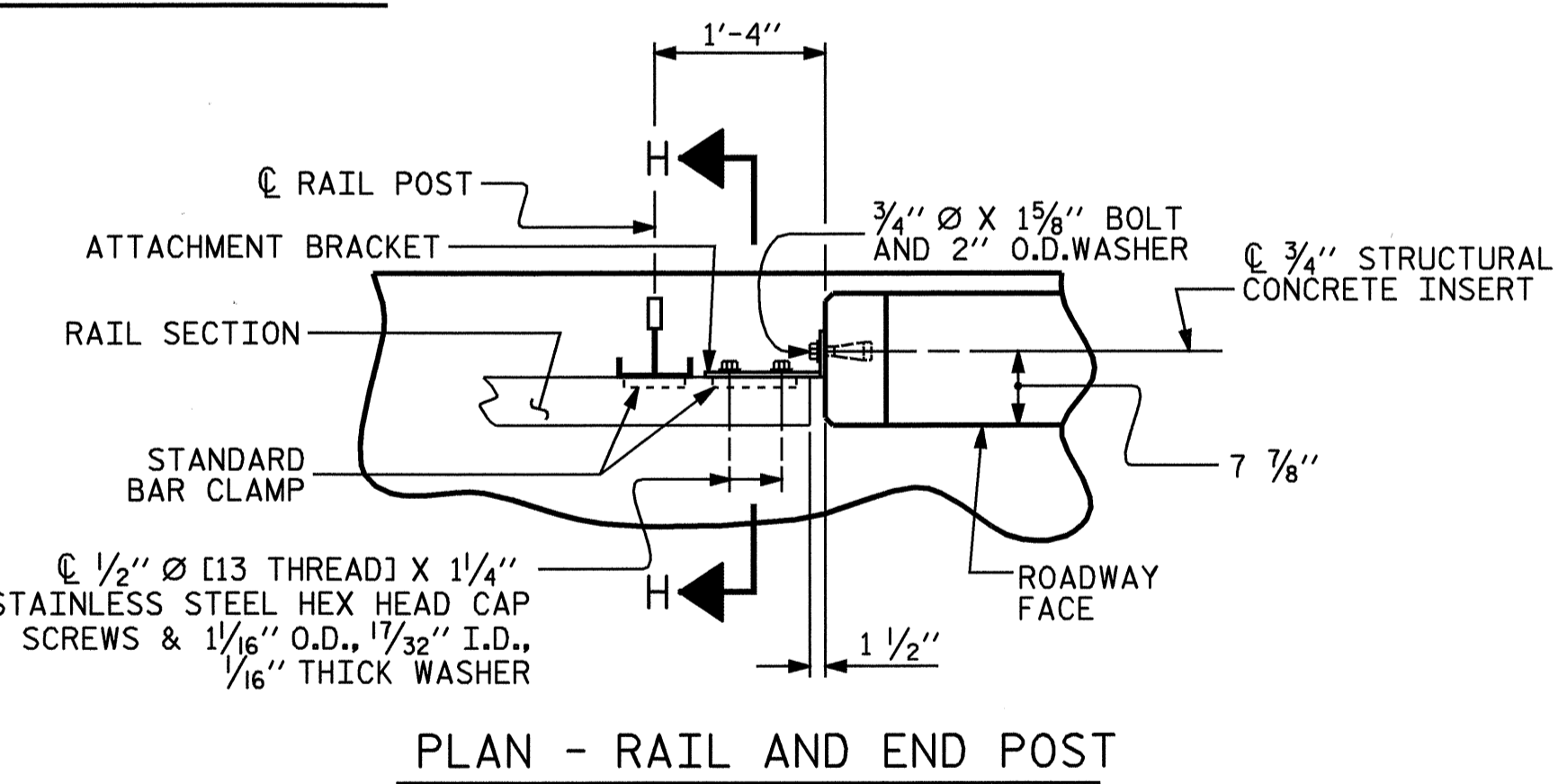
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			28



PLAN OF RAIL POST SPACINGS

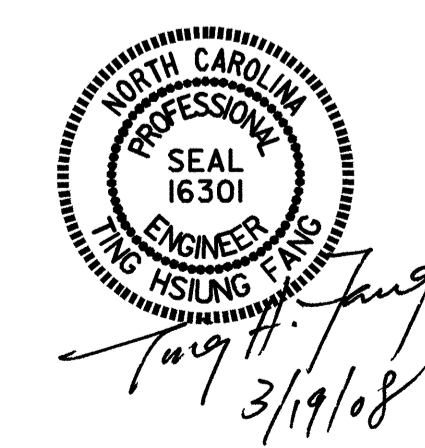


DETAILS FOR ATTACHING METAL RAIL TO END POST



STRUCTURAL CONCRETE INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.



NOTES

STRUCTURAL CONCRETE INSERT

THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".
- B. 1 - 3/4" x 1 5/8" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 3/4" x 1 5/8" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- C. WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 3/16" diameter WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES

METAL RAIL TO END POST CONNECTION

THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- A. 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
- B. 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" x 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" x 1 5/8" BOLT SHALL HAVE N. C. THREADS.
- C. CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60°F.
- D. STANDARD CLAMP BARS (SEE METAL RAIL SHEET).
- E. 1/2" diameter PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.

THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 1 OR 2 BAR METAL RAILS.

THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 1/2" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

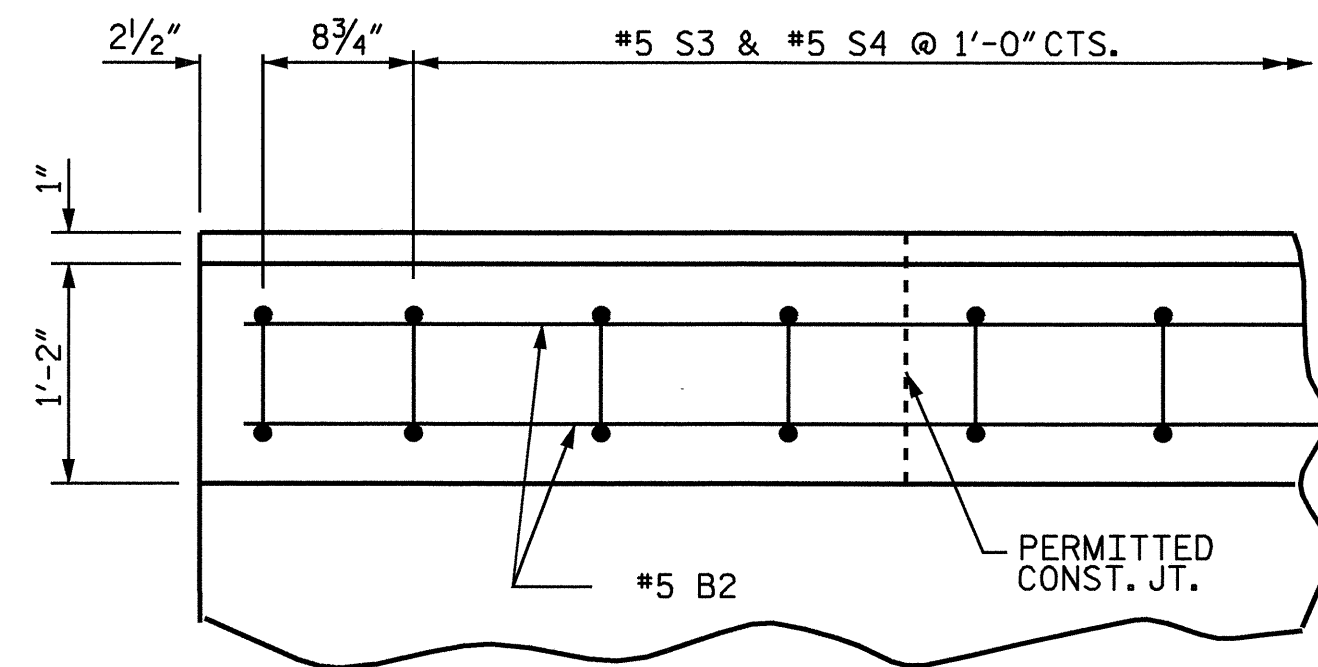
THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" x 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" x 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE 3/4" x 1 5/8" BOLT SHALL APPLY TO THE 3/4" x 6 1/2" BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

PROJECT NO. B-4052
CALDWELL COUNTY
 STATION: 11+20.00 -L-

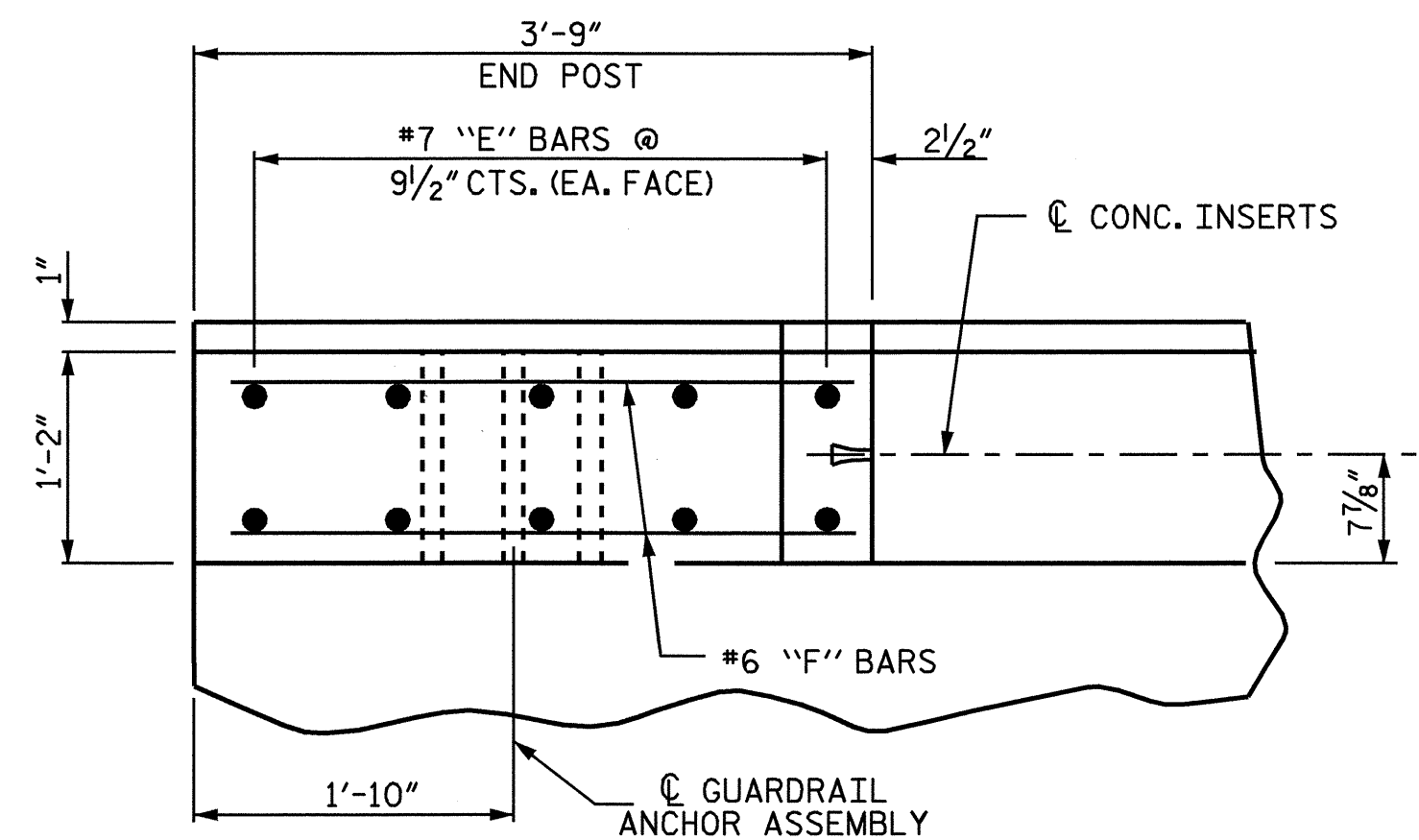
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 RAIL POST SPACINGS
 AND
 END OF RAIL DETAILS
 FOR TWO BAR METAL RAILS

REVISIONS						SHEET NO. S-12
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 28
2			4			

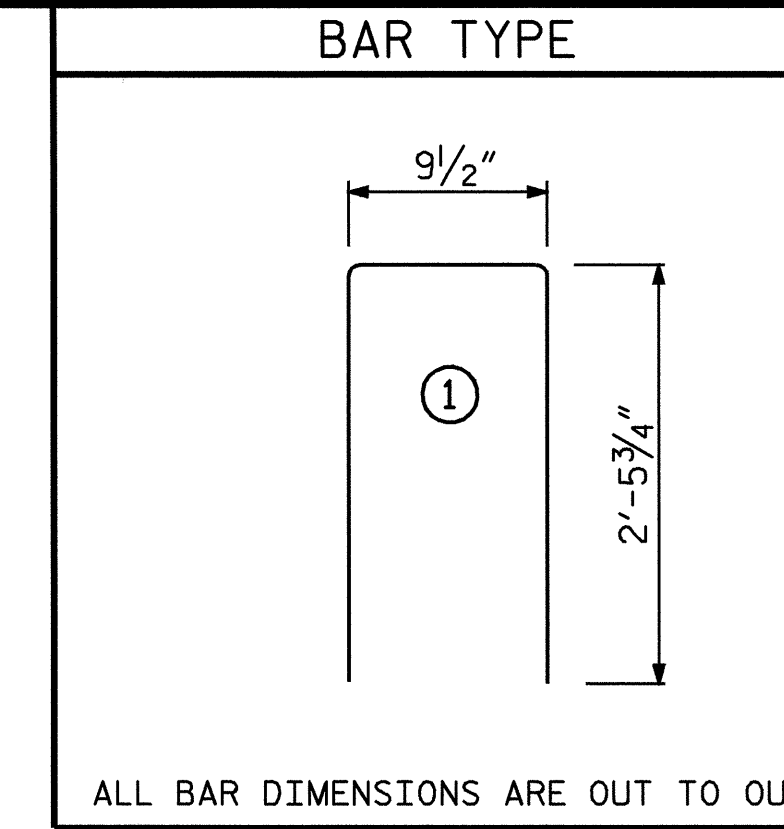
ASSEMBLED BY :	H. B. SHAH	DATE :	03/07
CHECKED BY :	J. L. WALTON	DATE :	04/07
DRAWN BY :	FCJ 1/88	REV. 10/17/00	LES/RDR
CHECKED BY :	CRK 3/89	REV. 5/7/03	RWW/JTE
		REV. 5/1/06	TLA/GM



PLAN OF PARAPET



PLAN OF END POST



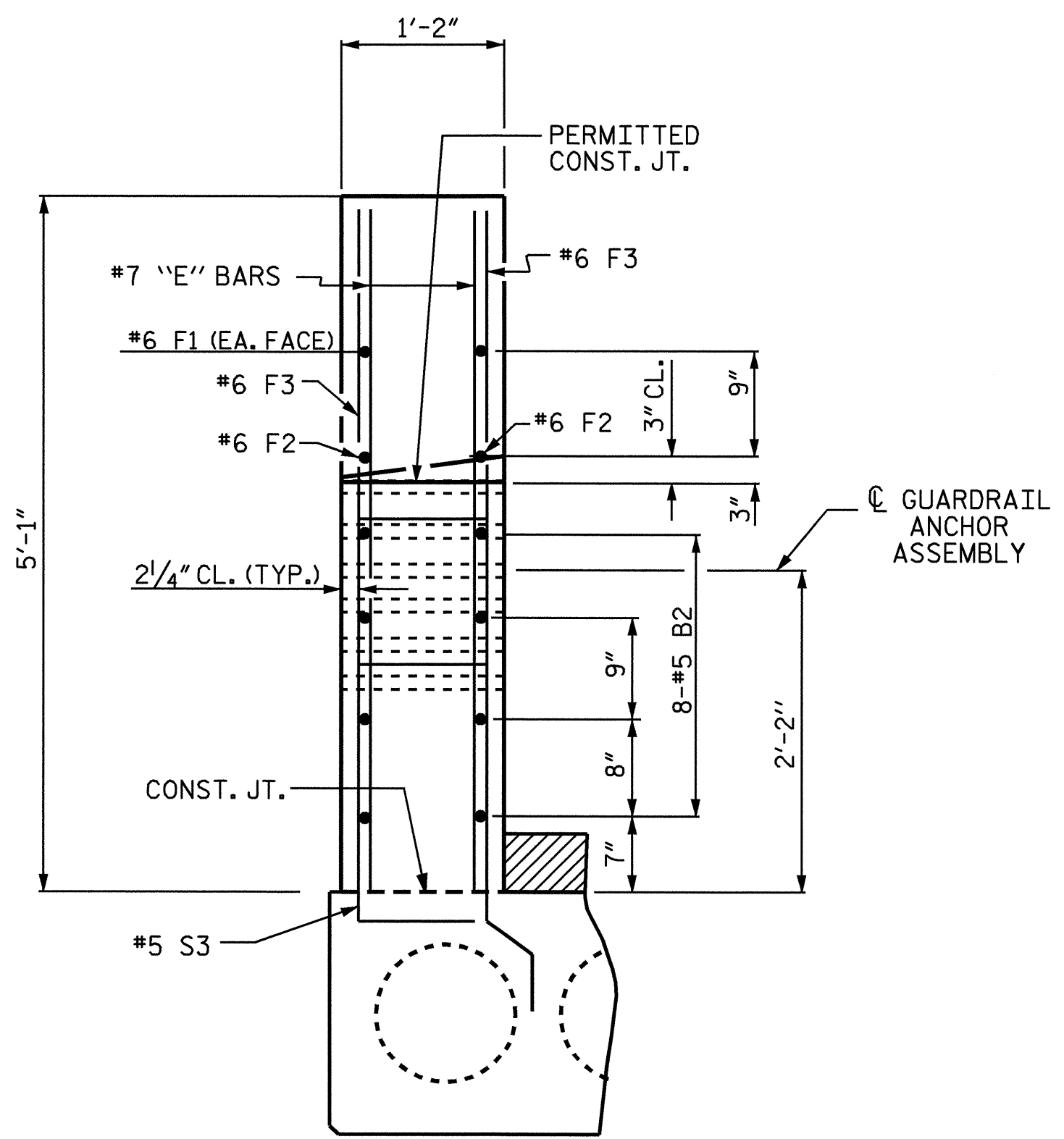
BILL OF MATERIAL FOR 2 PARAPETS AND 4 END POSTS					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B2	96	#5	STR	24'-7"	2461
* E1	8	#7	STR	3'-1"	50
* E2	8	#7	STR	3'-5"	56
* E3	8	#7	STR	4'-1"	67
* E4	8	#7	STR	4'-5"	72
* E5	8	#7	STR	4'-9"	78
* F1	8	#6	STR	1'-8"	20
* F2	8	#6	STR	3'-1"	37
* F3	8	#6	STR	3'-8"	44
* S4	306	#5	1	5'-9"	1835
* EPOXY COATED REINFORCING STEEL				LBS	4720
CLASS AA CONCRETE				CU. YDS	38.6
1'-2" X 2'-11" CONCRETE PARAPET				LIN. FT.	299.75

NOTES

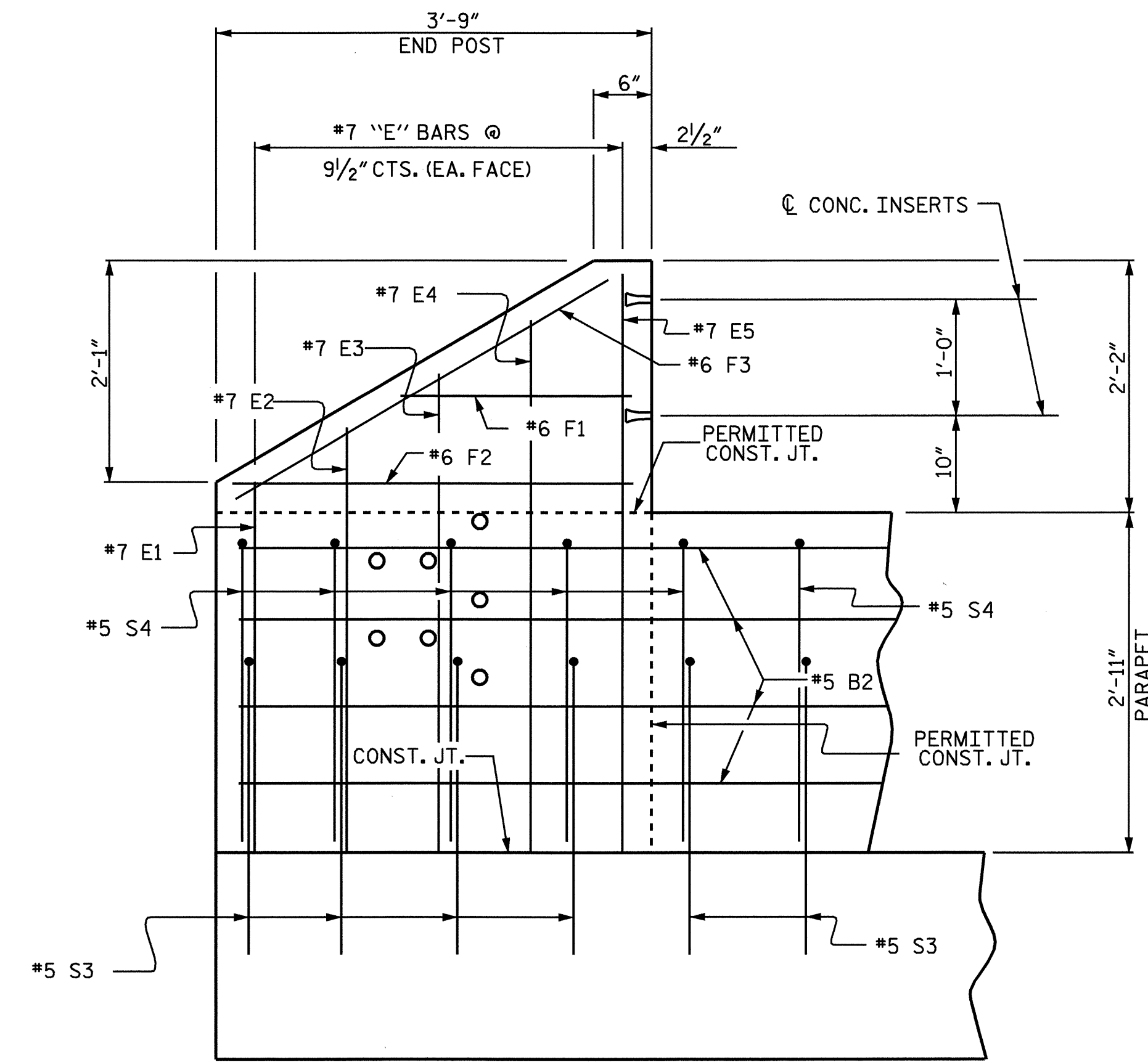
FOR DETAIL OF CONCRETE INSERT AND GUARDRAIL ANCHOR ASSEMBLY, SEE "RAIL POST SPACINGS AND END OF RAIL DETAIL" SHEET.

ALL BAR SUPPORTS USED IN THE PARAPET AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

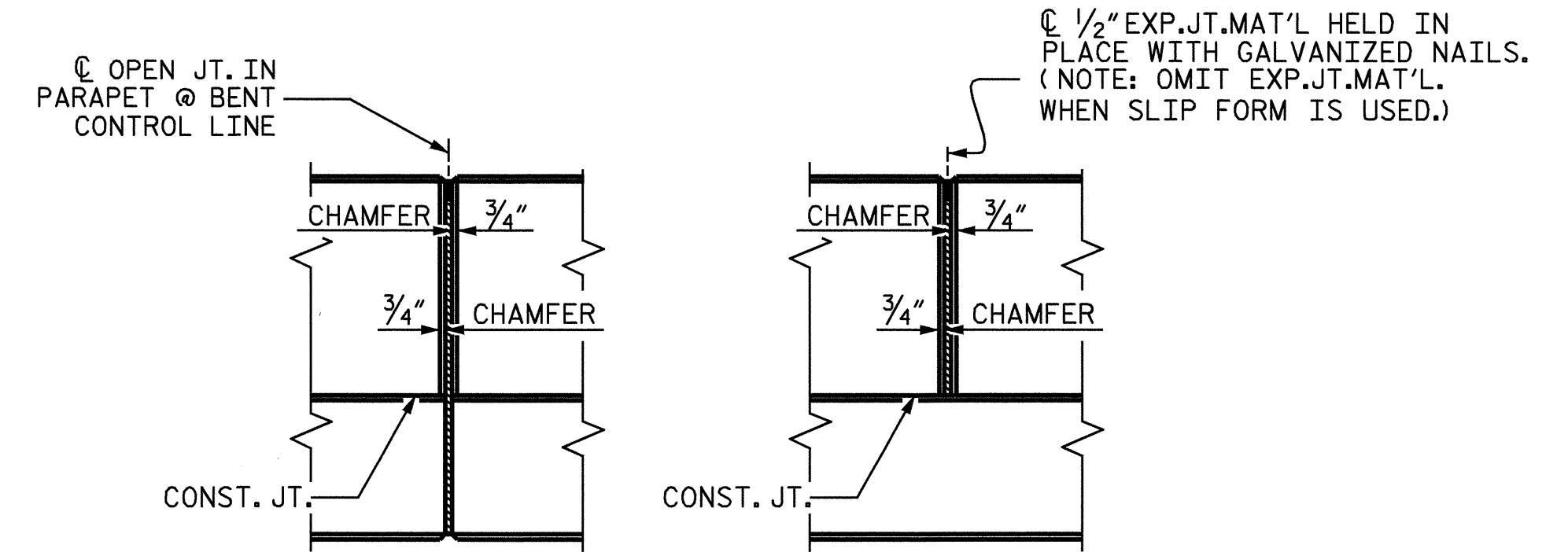
GROOVED CONTRACTION JOINTS 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF PARAPET IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINTS SHALL BE LOCATED AT A SPACING OF 8 FEET TO 10 FEET BETWEEN EXPANSION JOINTS. NO CONTRACTION JOINTS WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FEET IN LENGTH.



END VIEW

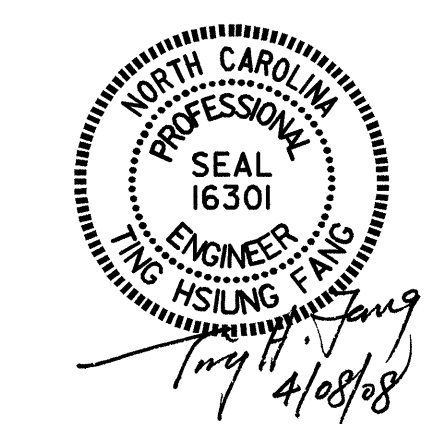


ELEVATION



ELEVATION AT EXPANSION JOINTS
PARAPET DETAILS

PROJECT NO. B-4052
CALDWELL COUNTY
STATION: 11+20.00 -L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
1'-2" X 2'-11"
CONCRETE PARAPET
AND END POST

DRAWN BY : H.B.SHAH DATE : 03/16/07
CHECKED BY : J.L.WALTON DATE : 04/05/07

PARAPET AND END POST FOR TWO BAR RAIL

END BENT 2 SHOWN. END BENT 1 SIMILAR EXCEPT OMIT GUARDRAIL ANCHOR ASSEMBLY AND DETAILS.

REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	28
1			3			
2			4			

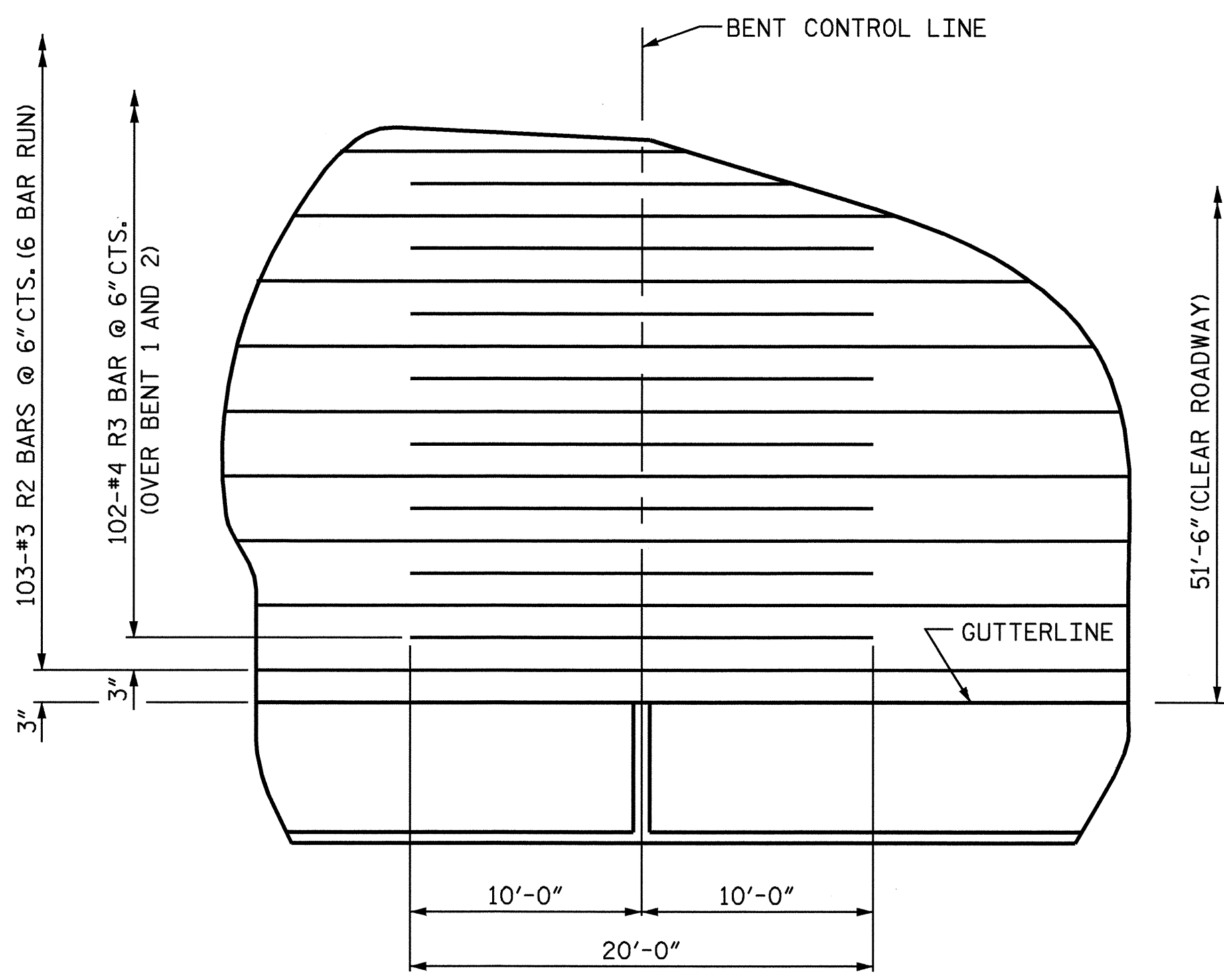
NOTES:

PLACEMENT OF THE CONCRETE WEARING SURFACE SHALL OCCUR AFTER CASTING THE PARAPETS. THE COST OF THE STEEL BARS CAST WITH THE CONCRETE WEARING SURFACE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE WEARING SURFACE. FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

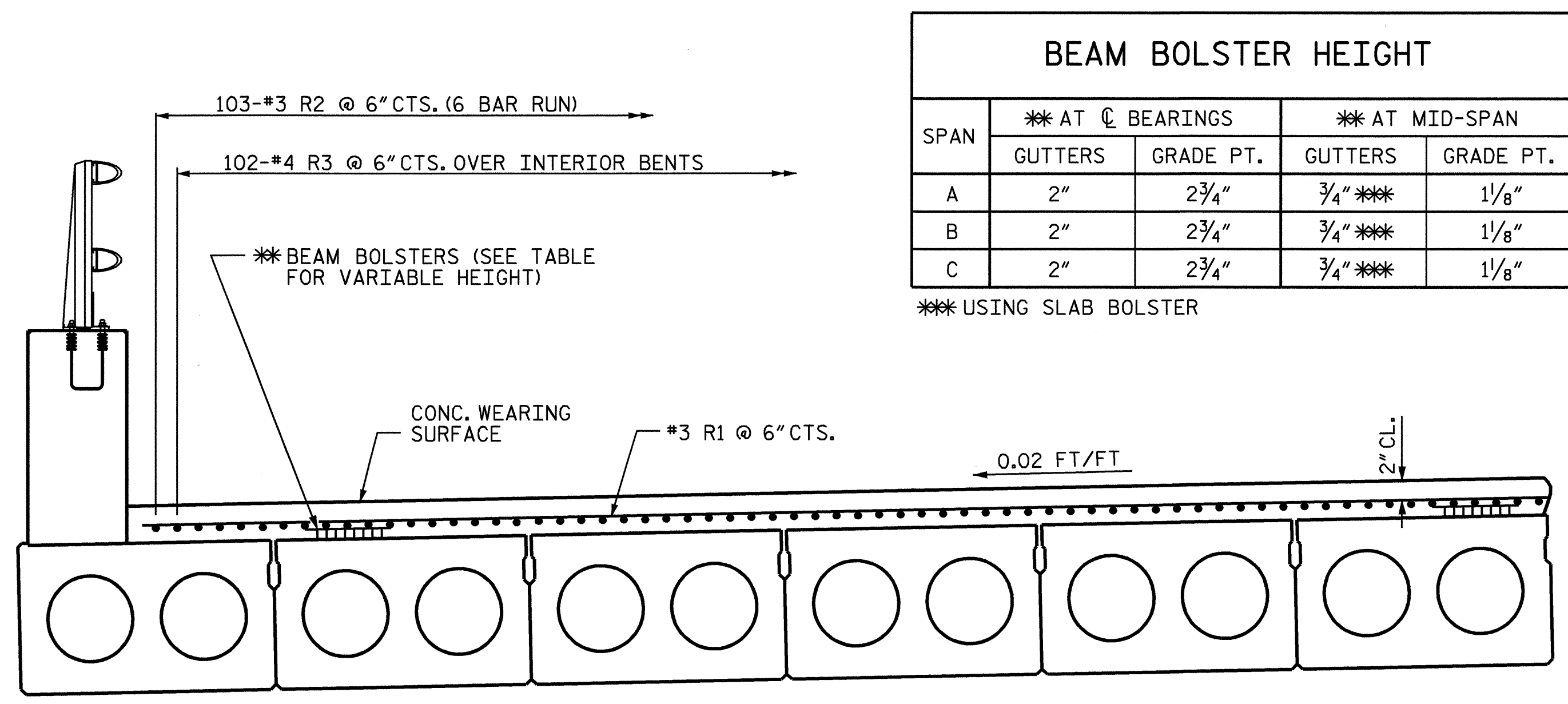
ALL REINFORCING FOR THE CONCRETE WEARING SURFACE SHALL BE EPOXY COATED.
FOR ELASTOMERIC CONCRETE, SEE APPROACH SLAB SHEET ON SHEET NO. S-28.

BILL OF MATERIAL					
CONCRETE WEARING SURFACE					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*R1	596	#3	STR	26'-5"	5920
*R2	618	#3	STR	25'-10"	6003
*R3	204	#4	STR	20'-0"	2725
* EPOXY COATED REINF. STEEL = 14,648 LBS					
CONCRETE WEARING SURFACE = 7,671 SQ. FT.					

SPLICE LENGTH CHART	
BAR SIZE	EPOXY COATED
#3	1'-3"



PLAN @ BENTS 1 & 2

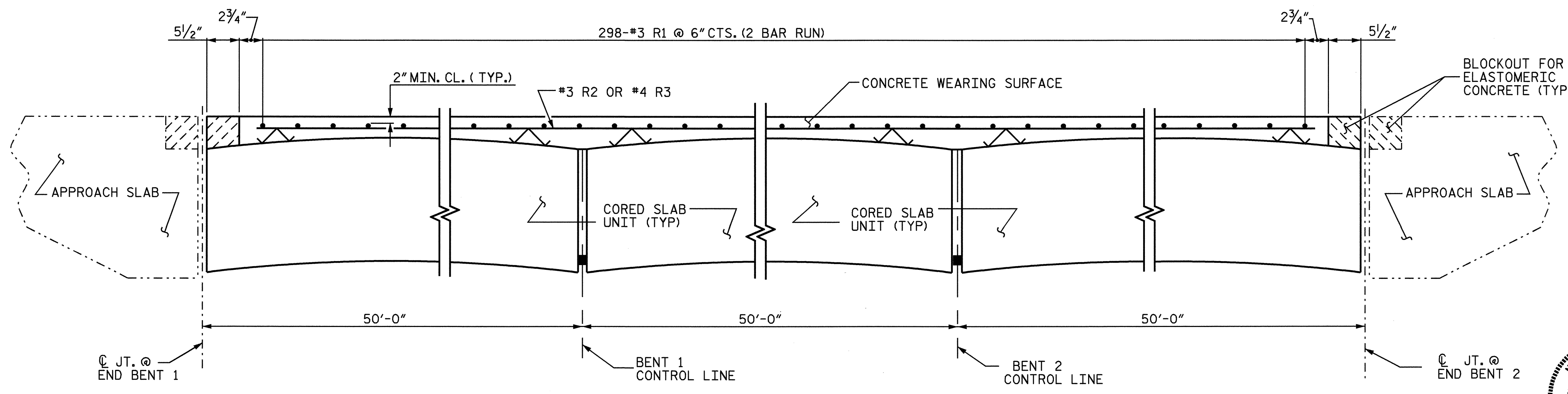


SPAN	** AT \bar{C} BEARINGS		** AT MID-SPAN	
	GUTTERS	GRADE PT.	GUTTERS	GRADE PT.
A	2"	2 $\frac{3}{4}$ "	$\frac{3}{4}$ "**	1 $\frac{1}{8}$ "
B	2"	2 $\frac{3}{4}$ "	$\frac{3}{4}$ "**	1 $\frac{1}{8}$ "
C	2"	2 $\frac{3}{4}$ "	$\frac{3}{4}$ "**	1 $\frac{1}{8}$ "

*** USING SLAB BOLSTER

REINFORCING STEEL AND BEAM BOLSTER HEIGHTS

NOTE: BEAM AND SLAB BOLSTER HEIGHTS BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATION AND VARY BETWEEN \bar{C} BEARING AND MID-SPAN FOR ALL SPANS.



ELEVATION OF THE CONCRETE WEARING SURFACE

PROJECT NO. B-4052
CALDWELL COUNTY
STATION: 11+20.00 -L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
CONCRETE WEARING SURFACE DETAILS

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

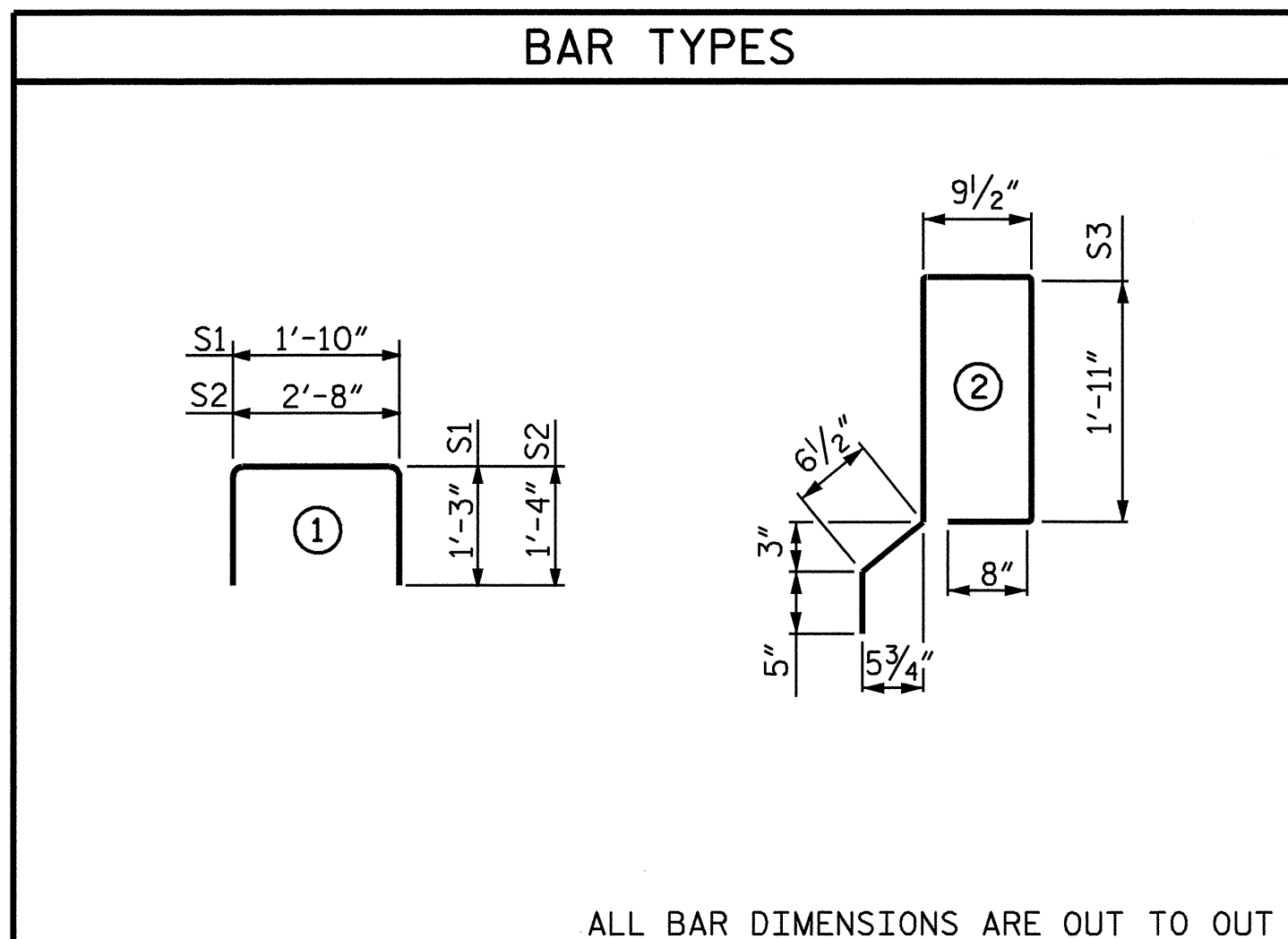
TOTAL SHEETS 28

DRAWN BY : H.B. SHAH DATE : 05/03/07
CHECKED BY : T.H. FANG DATE : 06/13/07

CORED SLABS REQUIRED			
SPAN A			
UNIT TYPE	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR	2	49'-10 1/2"	99'-9"
INTERIOR	16	49'-10 1/2"	798'-0"
TOTAL	18	49'-10 1/2"	897'-9"
SPAN B			
UNIT TYPE	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR	2	49'-10 1/2"	99'-9"
INTERIOR	16	49'-10 1/2"	798'-0"
TOTAL	18	49'-10 1/2"	897'-9"
SPAN C			
UNIT TYPE	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR	2	49'-10 1/2"	99'-9"
INTERIOR	16	49'-10 1/2"	798'-0"
TOTAL	18	49'-10 1/2"	897'-9"
TOTAL CORED SLAB UNITS NO. 54 2,693'-3" LIN. FT.			

GRADE 270 STRANDS	
	1/2" Ø L.R.
AREA (SQUARE INCHES)	0.153
ULTIMATE STRENGTH (LBS. PER STRAND)	41,300
APPLIED PRESTRESS (LBS. PER STRAND)	30,980

GROOVING BRIDGE FLOOR QUANTITY	
	AREA (SQ. FT.)
BRIDGE DECK	7,208
APPROACH SLAB	1,895
TOTAL	9,110



BILL OF MATERIAL FOR ONE CORED SLAB UNIT

SPAN A							
				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B1	4	#4	STR	25'-8"	69	25'-8"	69
S1	8	#5	1	4'-4"	36	4'-4"	36
S2	98	#4	1	5'-4"	349	5'-4"	349
* S3	51	#5	2	6'-3"	332		
REINFORCING STEEL				454 LBS.		454 LBS.	
* EPOXY COATED REINFORCING STEEL				332 LBS.			
5000 P.S.I. CONCRETE				7.0 CU. YDS.		7.0 CU. YDS.	
1/2" Ø L.R. STRANDS				NO. 23		NO. 23	

SPAN B							
				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B1	4	#4	STR	25'-8"	69	25'-8"	69
S1	8	#5	1	4'-4"	36	4'-4"	36
S2	98	#4	1	5'-4"	349	5'-4"	349
* S3	51	#5	2	6'-3"	332		
REINFORCING STEEL				454 LBS.		454 LBS.	
* EPOXY COATED REINFORCING STEEL				332 LBS.			
5000 P.S.I. CONCRETE				7.0 CU. YDS.		7.0 CU. YDS.	
1/2" Ø L.R. STRANDS				NO. 23		NO. 23	

SPAN C							
				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B1	4	#4	STR	25'-8"	69	25'-8"	69
S1	8	#5	1	4'-4"	36	4'-4"	36
S2	98	#4	1	5'-4"	349	5'-4"	349
* S3	51	#5	2	6'-3"	332		
REINFORCING STEEL				454 LBS.		454 LBS.	
* EPOXY COATED REINFORCING STEEL				332 LBS.			
5000 P.S.I. CONCRETE				7.0 CU. YDS.		7.0 CU. YDS.	
1/2" Ø L.R. STRANDS				No. 23		No. 23	

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.

WHEN CORED SLABS ARE CAST, A POSITIVE HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. THIS SYSTEM SHALL BE DESIGNED TO BE LEFT IN PLACE UNTIL THE CONCRETE HAS REACHED RELEASE STRENGTH. AT LEAST THREE 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.

WHEN A CONCRETE WEARING SURFACE IS DETAILED ON THE CORED SLAB BRIDGE TYPICAL SECTION, THE TOP SURFACE OF THE CORED SLAB UNITS SHALL HAVE A 3/8" RAKED FINISH.

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 4000 PSI.

TRANSVERSE POST TENSIONING OF THE CORED SLAB SECTIONS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, EXCEPT THAT THE 0.6" Ø STRANDS SHALL BE TENSIONED TO 43,950 POUNDS.

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH GROUT.

ALL REINFORCING STEEL IN PARAPETS SHALL BE EPOXY COATED.

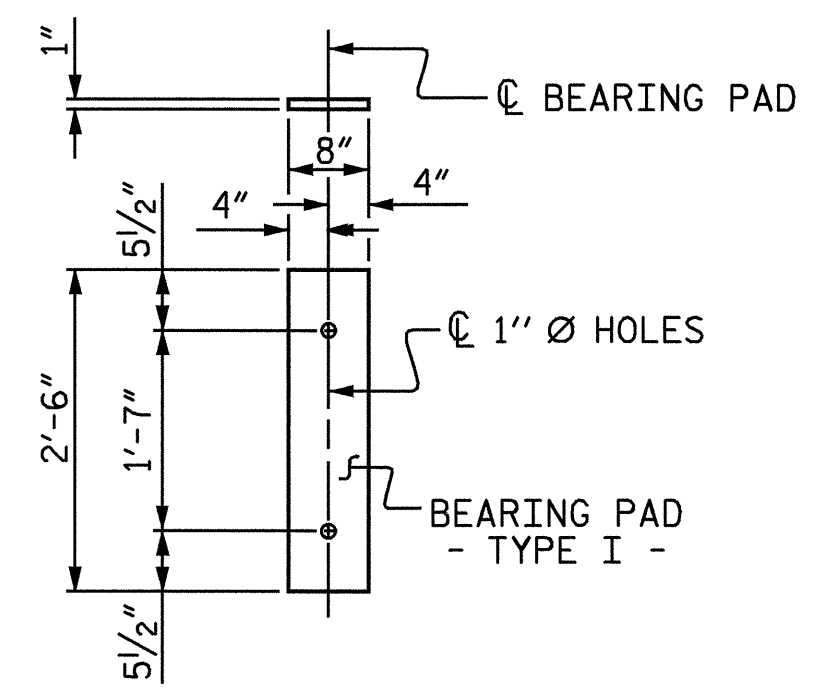
THE 2" Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER, SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

VERTICAL GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A VERTICAL CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

DEAD LOAD DEFLECTION AND CAMBER			
	SPAN A	SPAN B	SPAN C
CAMBER (SLAB ALONE IN PLACE)	2/16" ↑	2/16" ↑	2/16" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	5/16" ↓	5/16" ↓	5/16" ↓
FINAL CAMBER	1 3/4" ↑	1 3/4" ↑	1 3/4" ↑

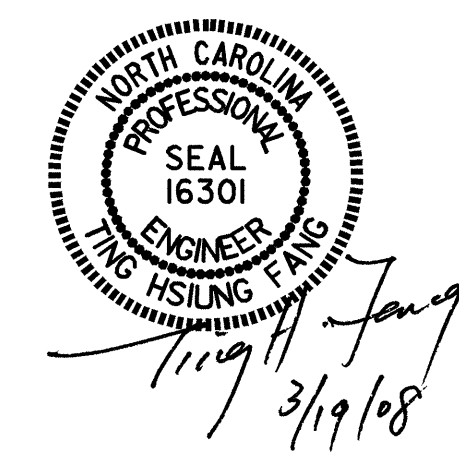
** INCLUDES FUTURE WEARING SURFACE



FIXED END
(TYPE I - 108 REQ'D)
ELASTOMERIC BEARING DETAILS

SPLICE CHART		
BAR	SIZE	LENGTH
B1	#4	1'-9"

PROJECT NO. B-4052
CALDWELL COUNTY
STATION: 11+20.00 -L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
BILL OF MATERIAL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			28

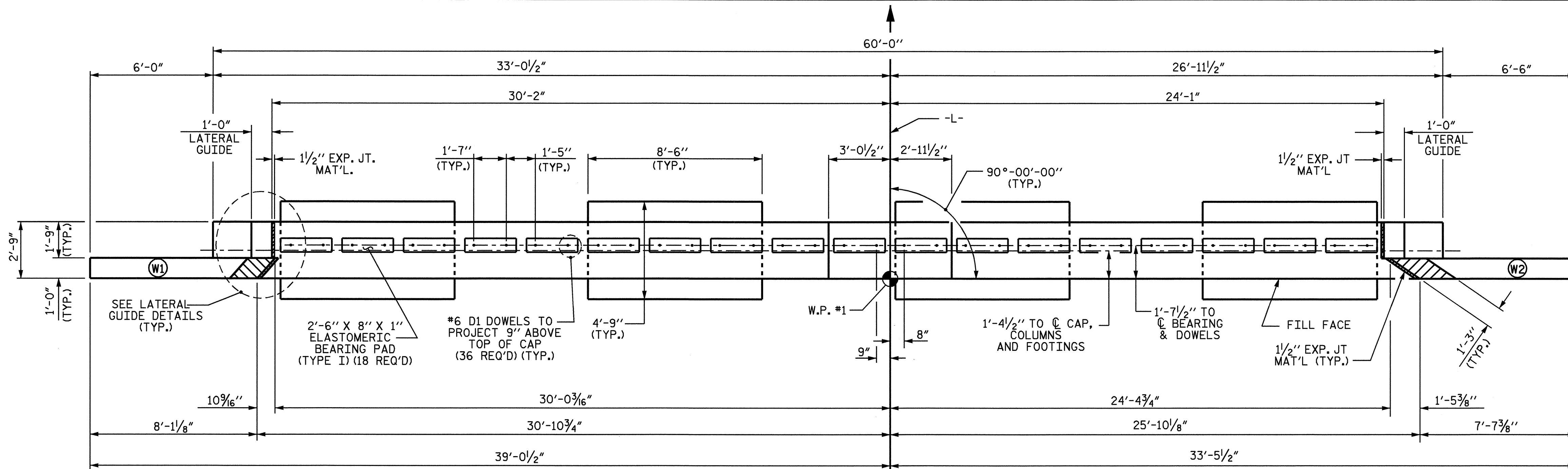
ASSEMBLED BY : H. B. SHAH DATE :12/20/07
CHECKED BY : T. H. FANG DATE :02/27/08
DRAWN BY : WJH 4/89 REV. 7/10/01 RWW/LES
CHECKED BY : FCJ 5/89 REV. 5/7/03RRR RWW/JTE
REV. 5/1/06 TLA/GM

NOTES

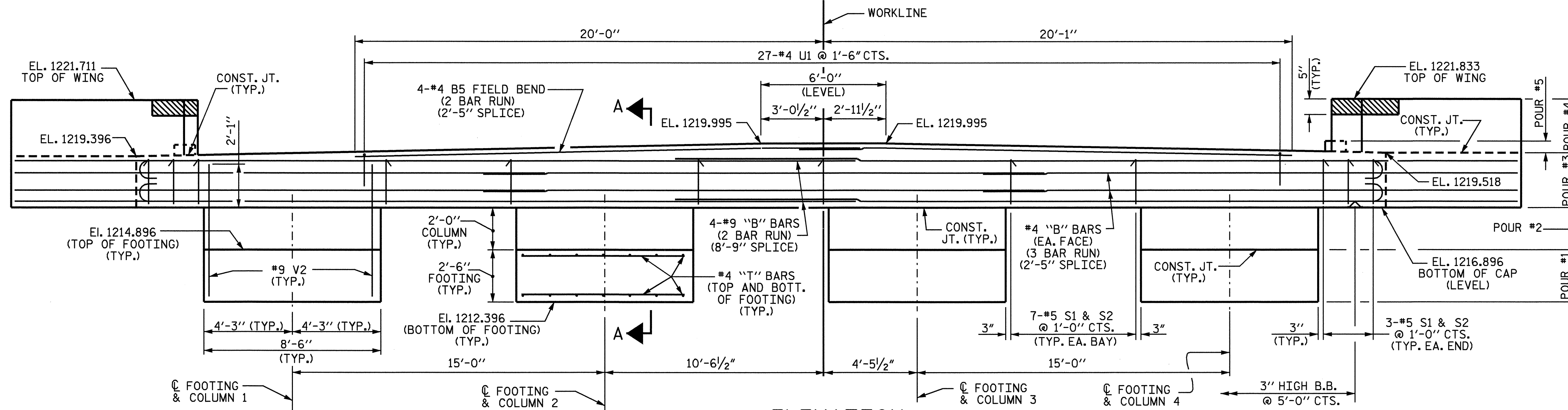
STIRRUPS AND U1 BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #6 D1 DOWELS.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE PARAPET AND END POST ARE CAST IF SLIP FORMING IS USED.

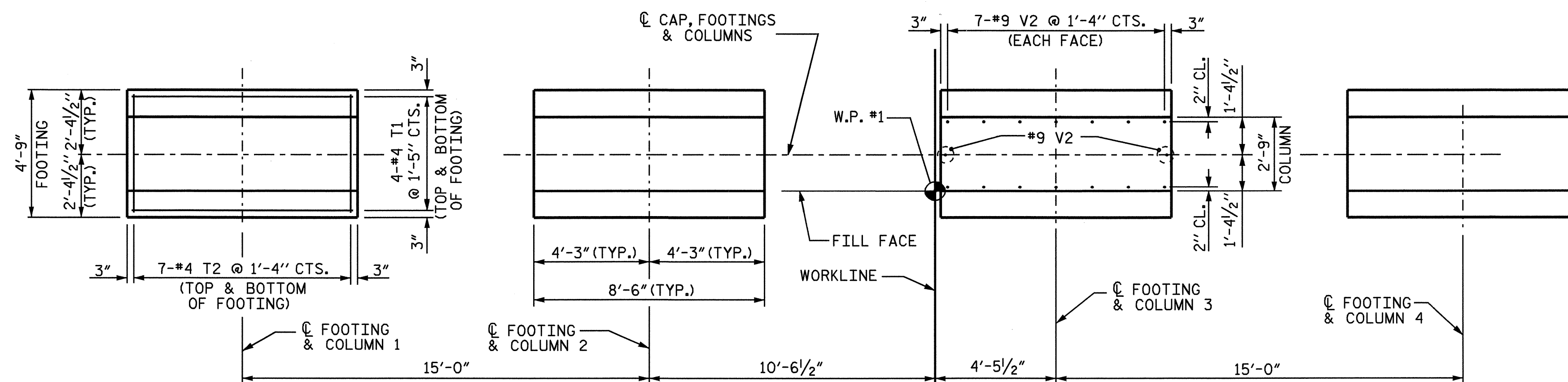
THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER CORED SLAB UNITS ARE IN PLACE.



PLAN



ELEVATION

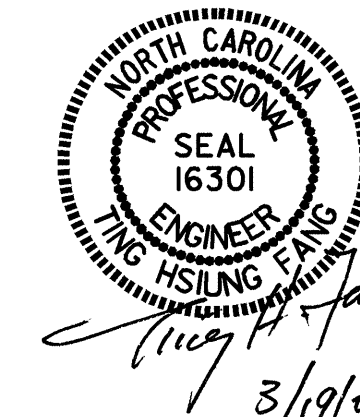


PLAN OF COLUMN AND FOOTING

DIMENSIONS AND REINFORCING STEEL ARE TYPICAL FOR ALL COLUMNS AND FOOTINGS

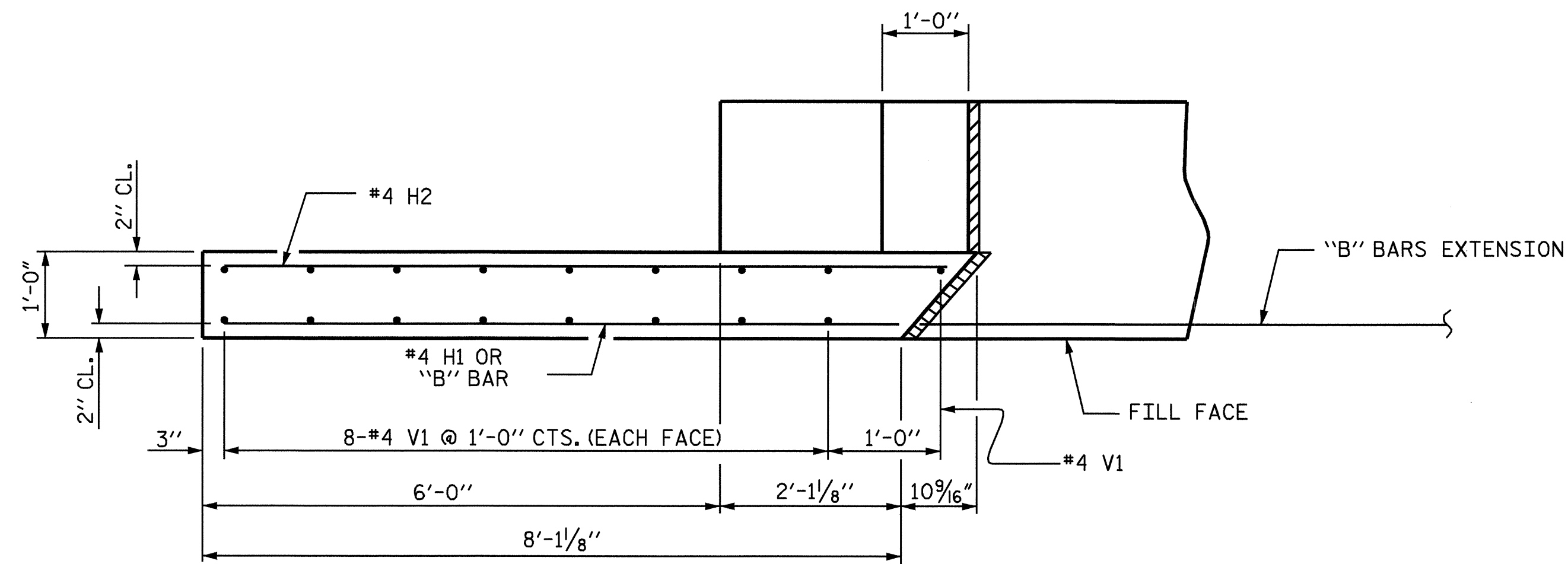
PROJECT NO. B-4052
CALDWELL COUNTY
 STATION: 11+20.00 -L-

SHEET 1 OF 3

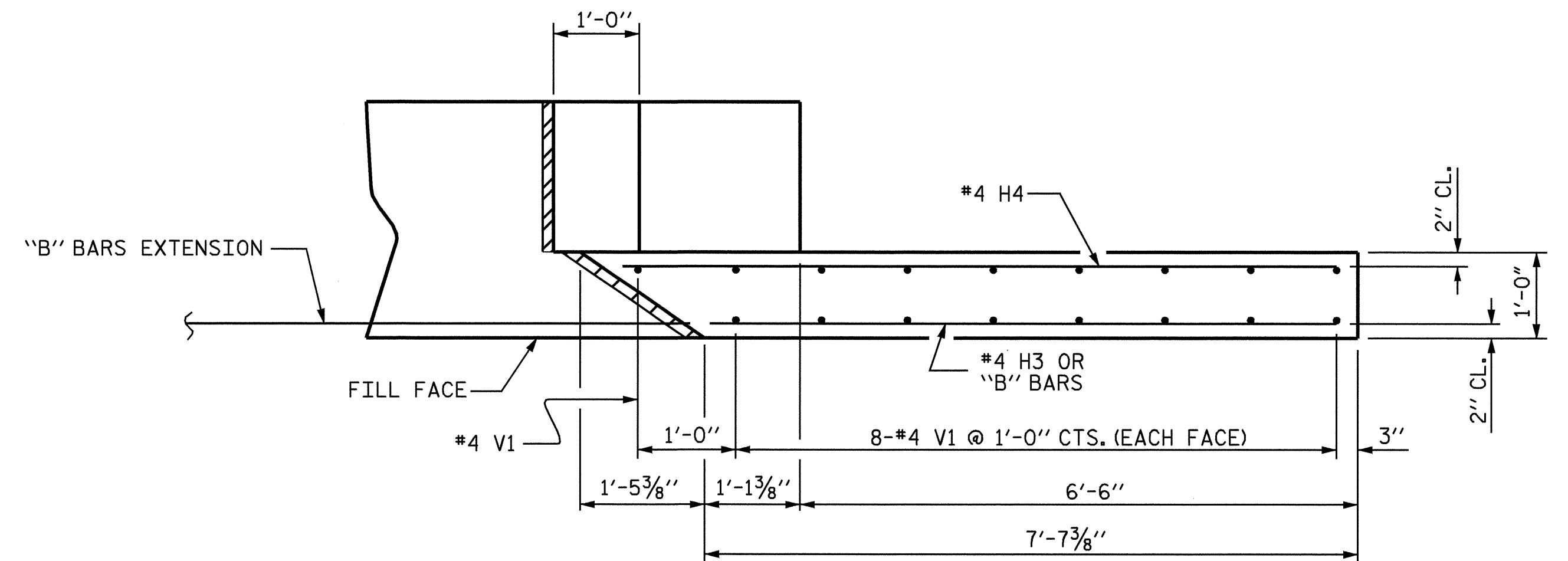


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
END BENT 1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-16
TOTAL SHEETS					28

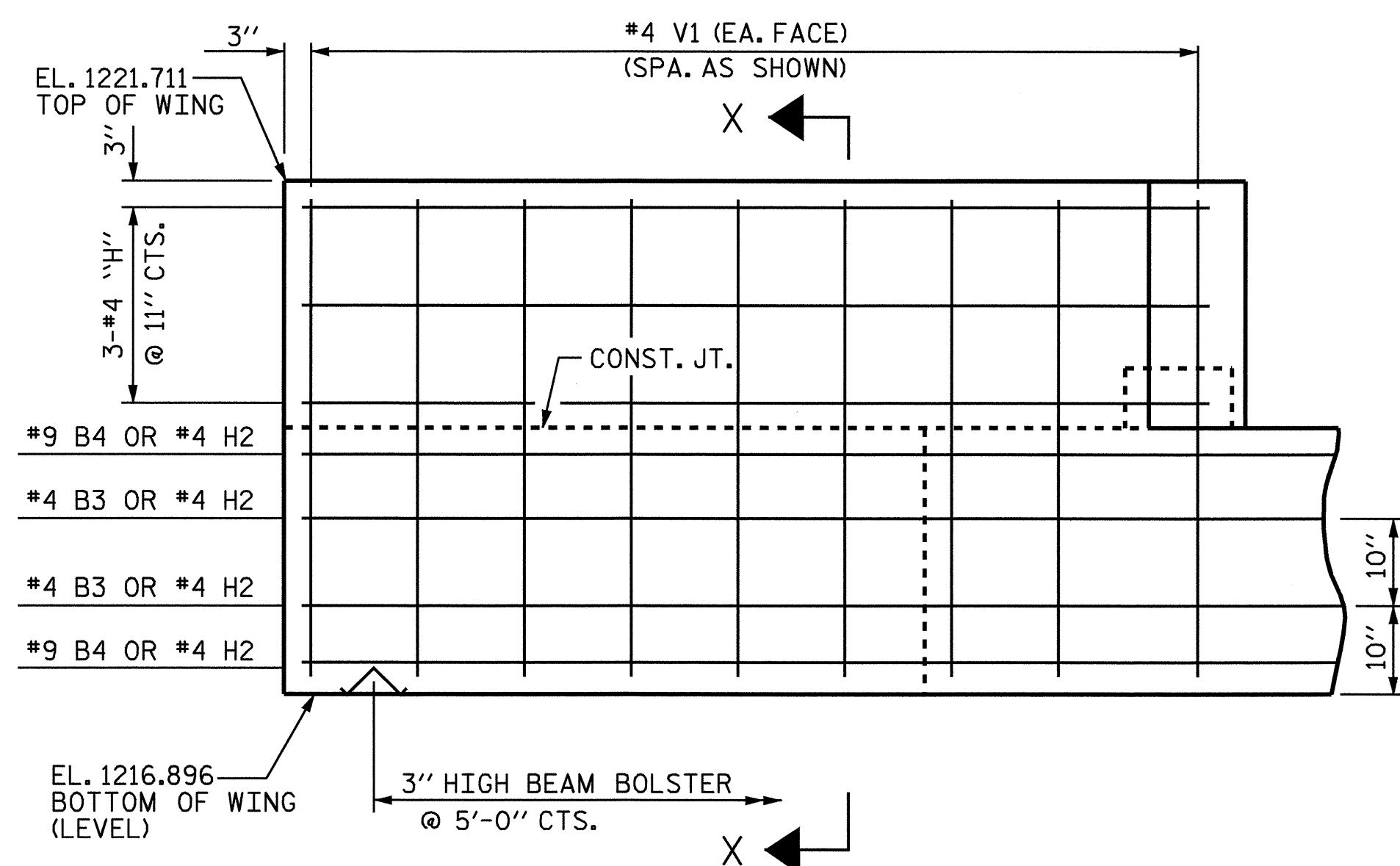
DRAWN BY: QT NGUYEN DATE: 8-07
 CHECKED BY: D.G. ELY DATE: 9-07



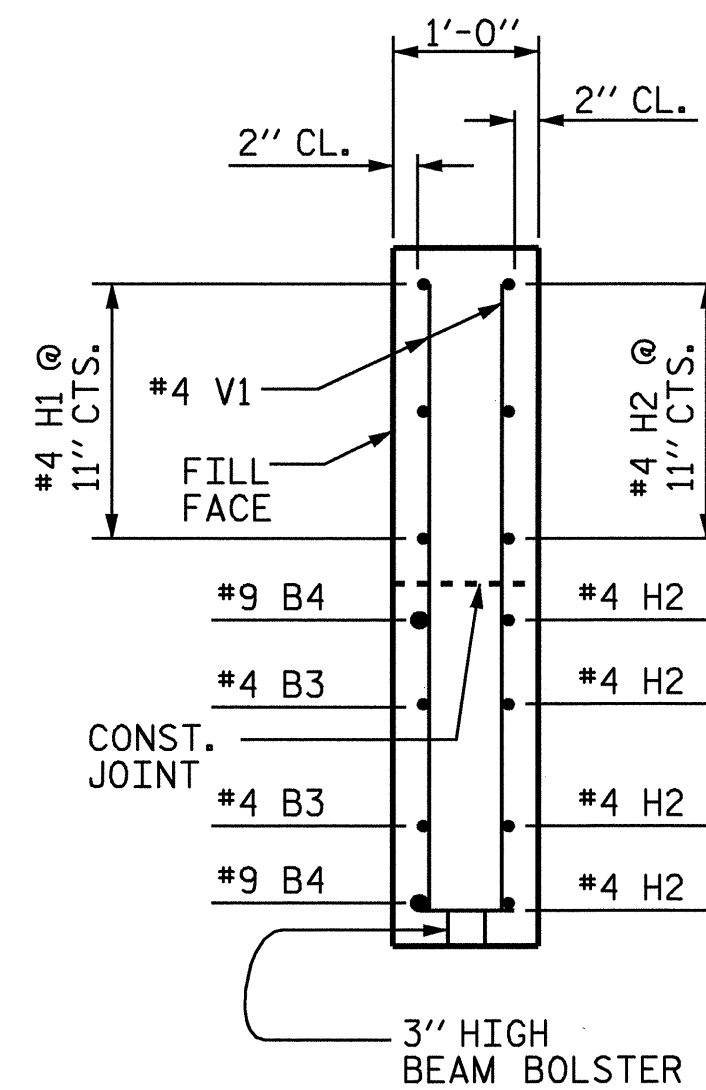
PLAN OF EARWALL W1



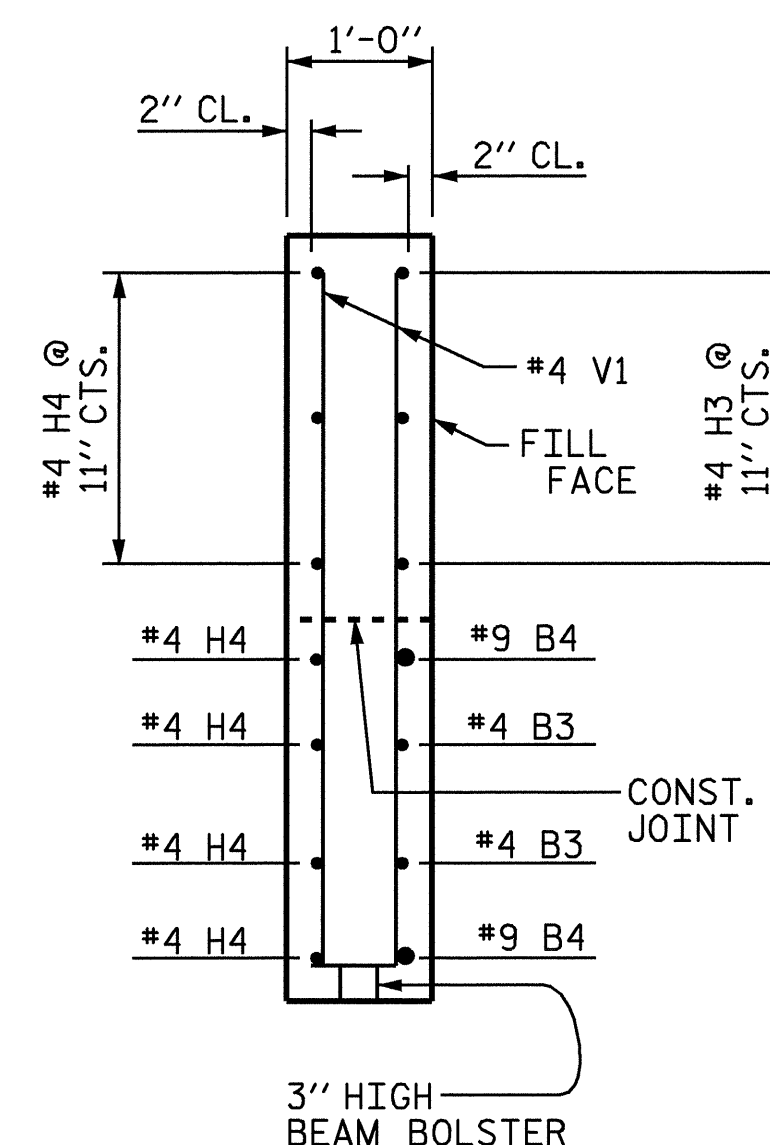
PLAN OF EARWALL W2



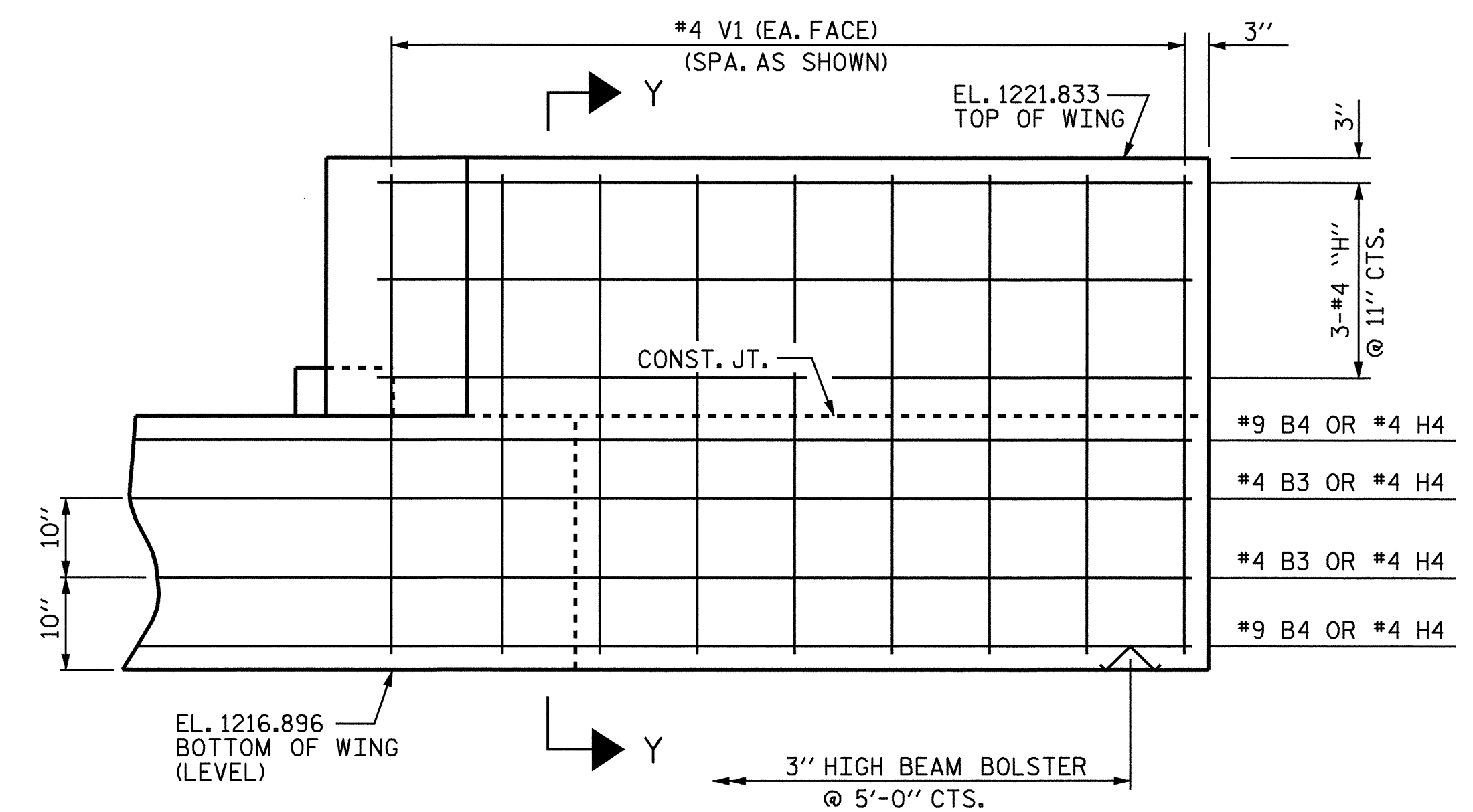
ELEVATION OF EARWALL W1



SECTION X-X



SECTION Y-Y



ELEVATION OF EARWALL W2

PROJECT NO. B-4052
 CALDWELL COUNTY
 STATION: 11+20.00 -L-

SHEET 2 OF 3

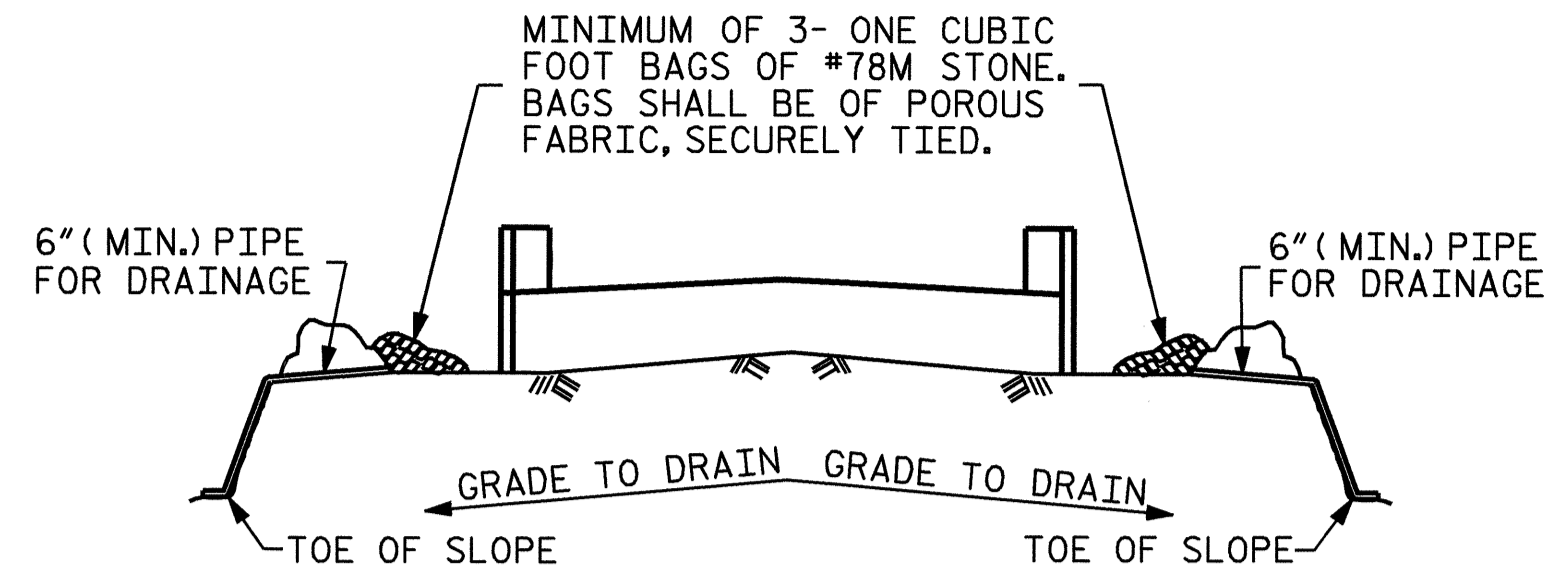


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 1

DRAWN BY: QT NGUYEN DATE: 8-07
 CHECKED BY: D.G. ELY DATE: 9-07

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			28

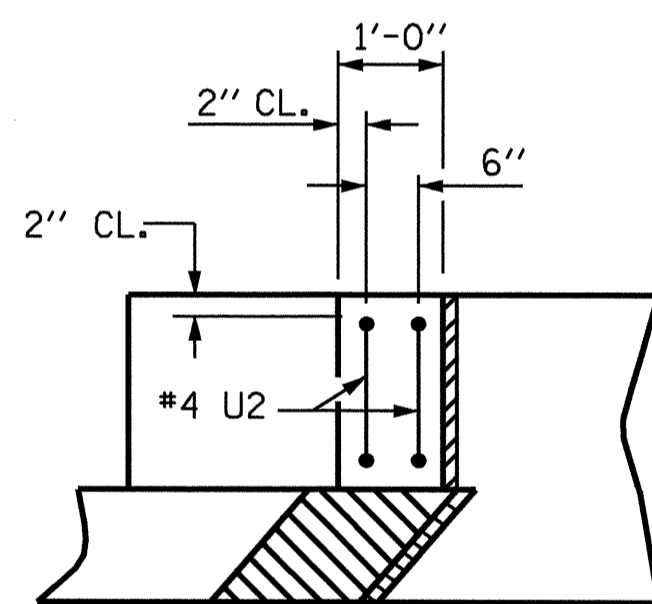


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

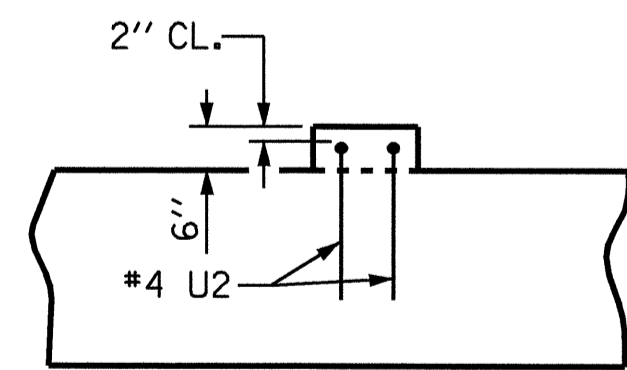
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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



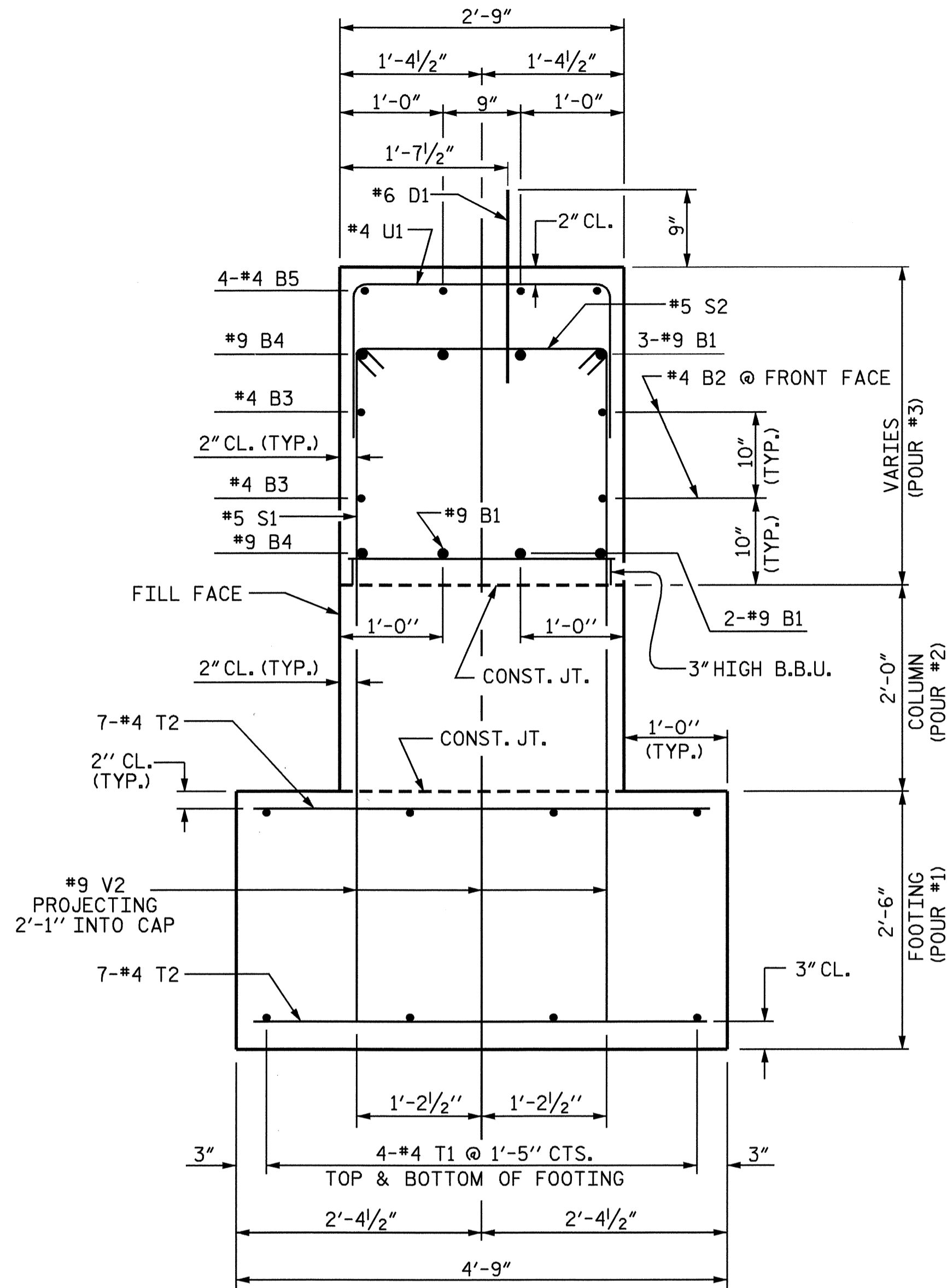
PLAN



ELEVATION

LATERAL GUIDE DETAILS

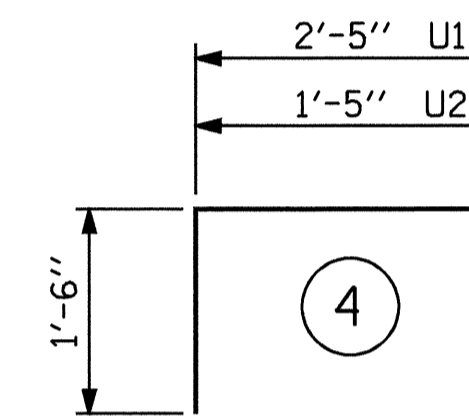
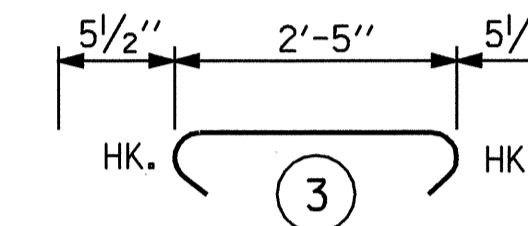
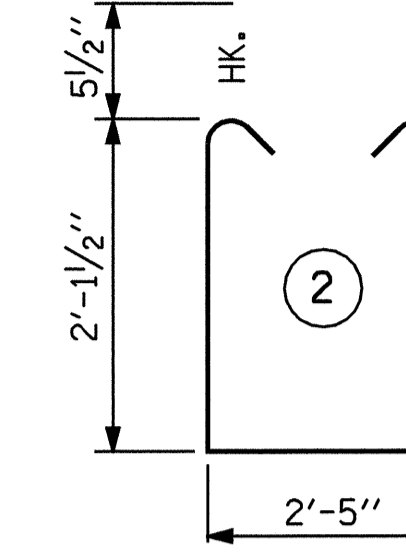
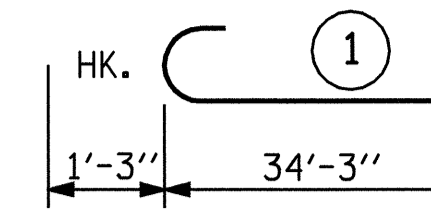
(EACH END SIMILAR)



SECTION A-A

ALL "B" BARS ALONG FILL FACE ARE EXTENDED INTO EARWALLS.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	12	#9		35'-6"	1448
B2	6	#4	STR	21'-6"	86
B3	6	#4	STR	25'-8"	103
B4	4	#9	STR	40'-6"	551
B5	8	#4	STR	21'-3"	114
D1	36	#6	STR	1'-6"	81
H1	3	#4	STR	7'-10"	16
H2	7	#4	STR	8'-5"	39
H3	3	#4	STR	7'-3"	15
H4	7	#4	STR	8'-4"	39
S1	27	#5	2	7'-7"	214
S2	27	#5	3	3'-4"	94
T1	32	#4	STR	8'-2"	175
T2	56	#4	STR	4'-5"	165
U1	27	#4	4	5'-5"	98
U2	4	#4	4	4'-5"	12
V1	34	#4	STR	4'-5"	100
V2	64	#9	STR	6'-5"	1396

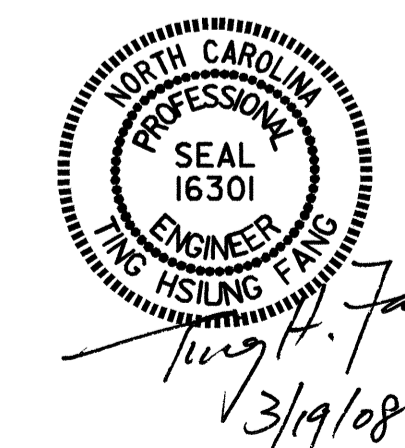
REINFORCING STEEL = 4746 LBS

CLASS A CONCRETE		
POUR #1	FOOTINGS	15.0 CU. YD.
POUR #2	COLUMNS	6.9 CU. YD.
POUR #3	CAP, AND LOWER EARWALLS	19.6 CU. YD.
POUR #4	UPPER EARWALLS	1.5 CU. YD.
POUR #5	LATERAL GUIDES	0.1 CU. YD.
TOTAL		43.1 CU. YD.

FOUNDATION EXCAVATION 73 CU. YD.

PROJECT NO. B-4052
CALDWELL COUNTY
 STATION: 11+20.00 -L-

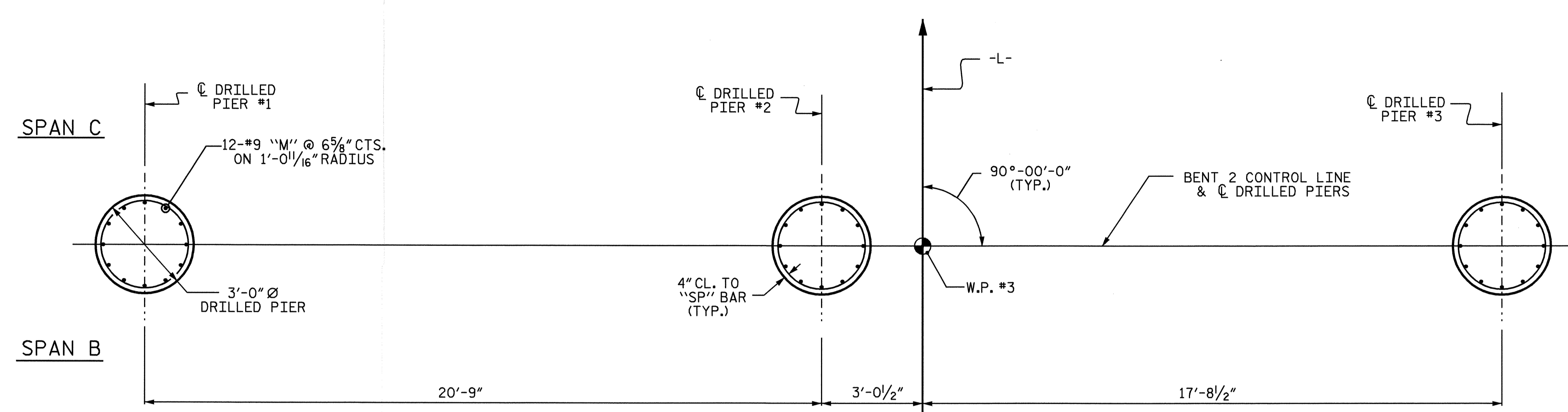
SHEET 3 OF 3



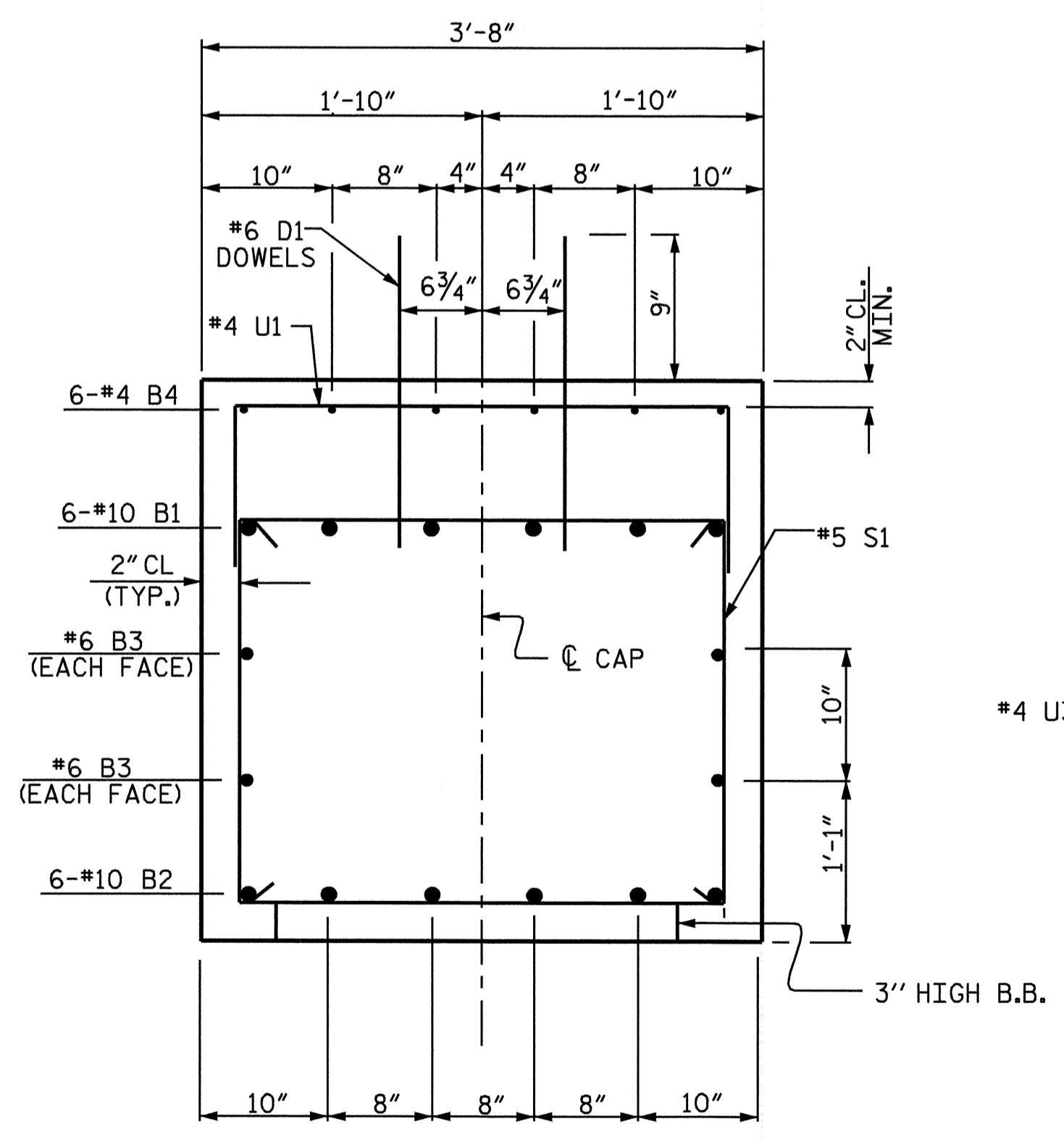
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			28

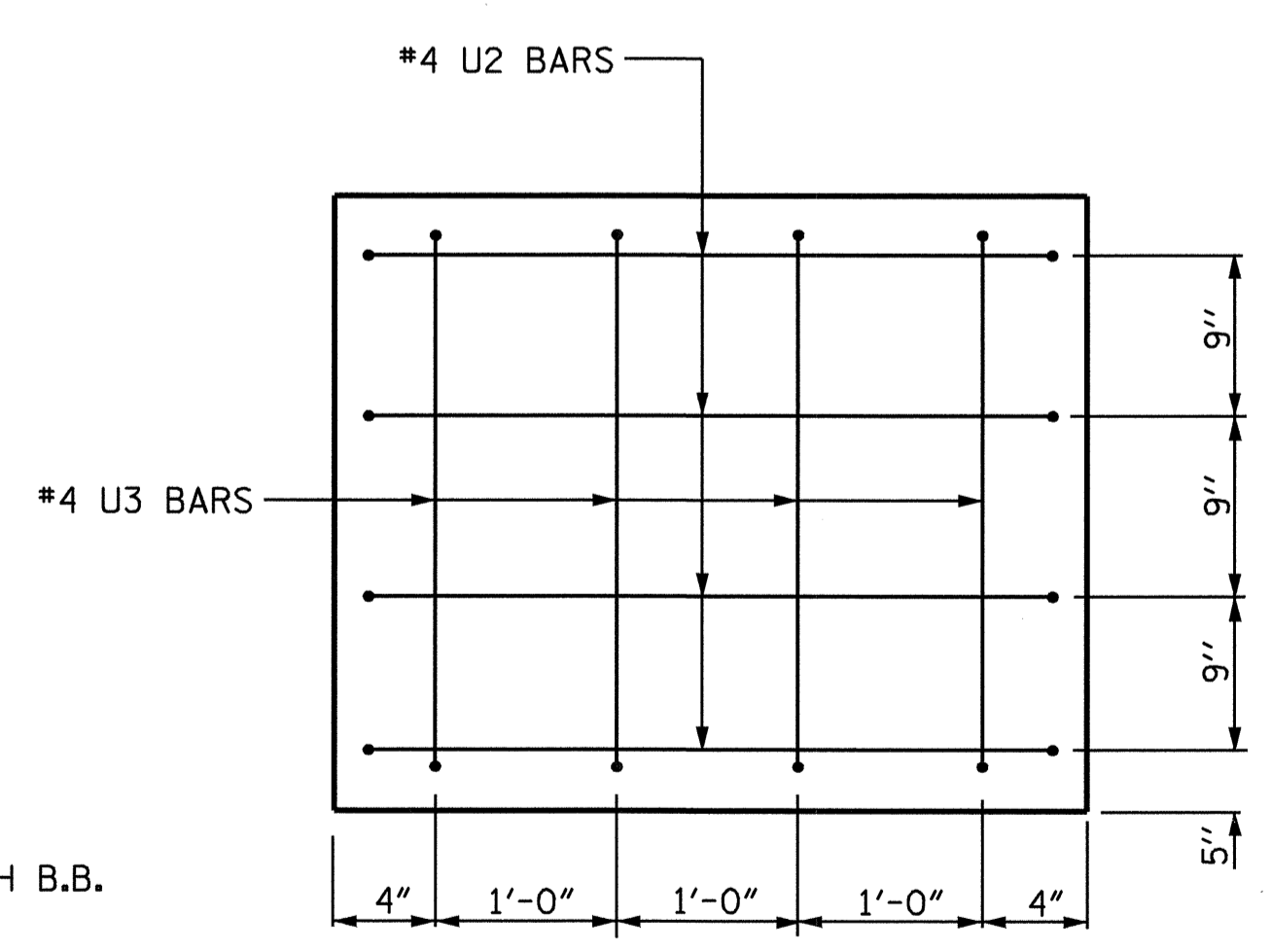
DRAWN BY : QT NGUYEN DATE : 8-07
 CHECKED BY : D.G. ELY DATE : 9-07



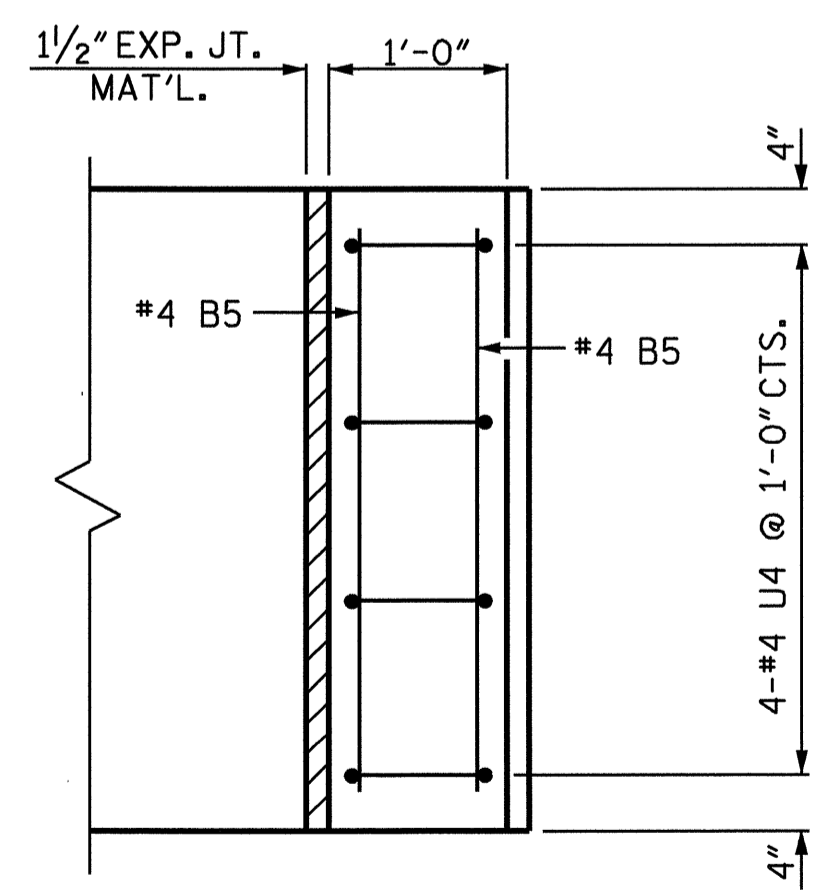
PLAN OF DRILLED PIERS
(REINFORCING STEEL AND DIMENSIONS ARE TYPICAL FOR EA. DRILLED PIER)



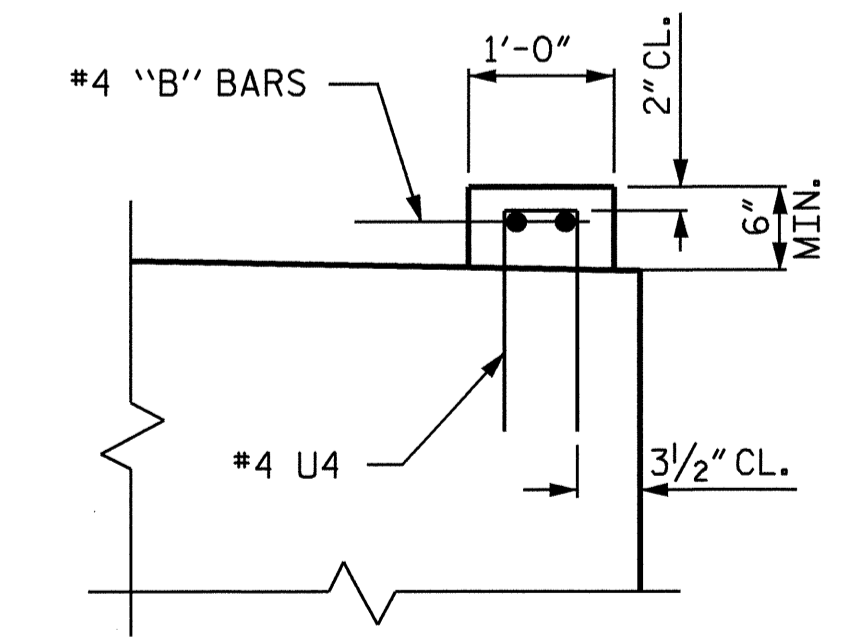
SECTION A-A



SECTION X-X
(TYP. EA. END)

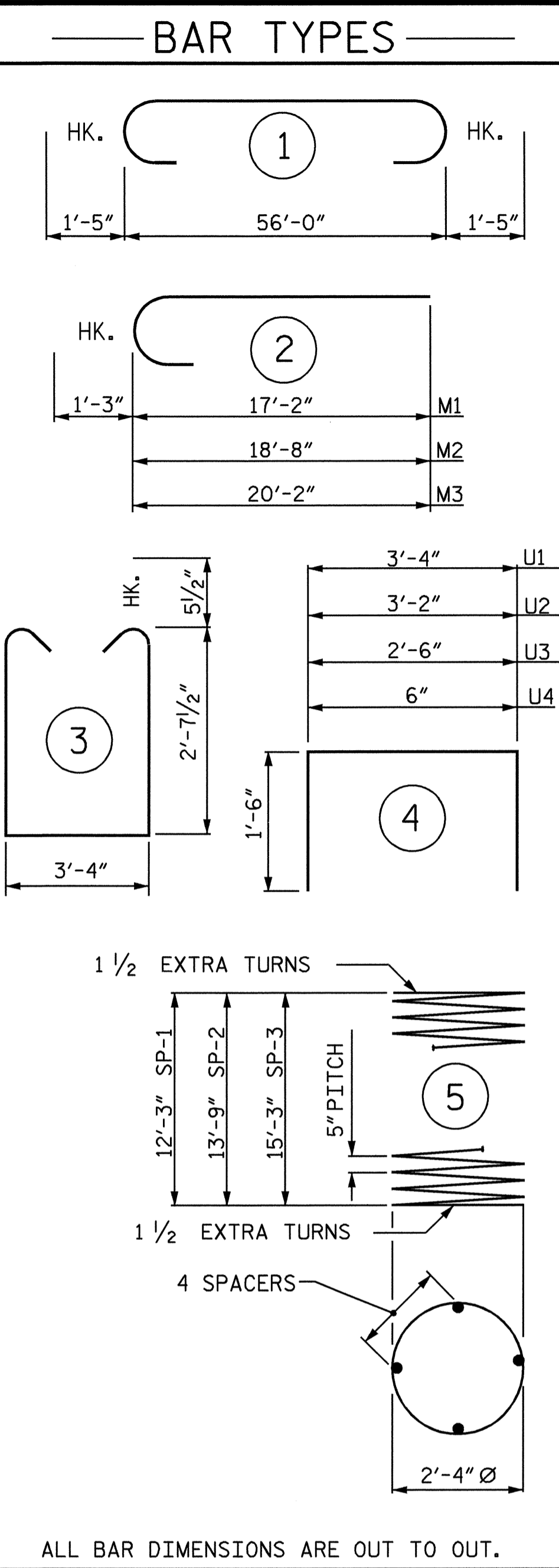


PLAN



ELEVATION

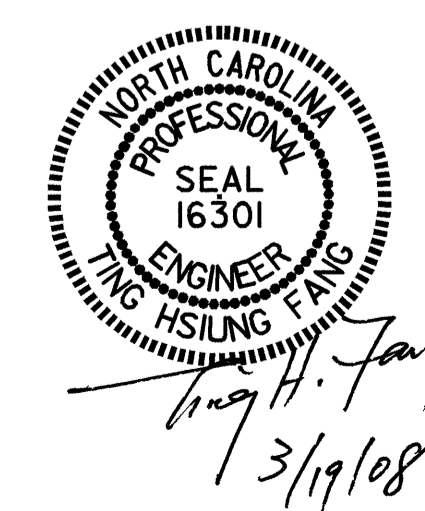
LATERAL GUIDE DETAIL
(EA. END SIMILAR)



BILL OF MATERIAL					
BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#10	1	58'-10"	1519
B2	6	#10	STR	56'-2"	1450
B3	4	#6	STR	56'-2"	337
B4	12	#4	STR	19'-10"	159
B5	4	#4	STR	3'-4"	9
D1	72	#6	STR	1'-6"	162
M1	12	#9	2	18'-5"	751
M2	12	#9	2	19'-11"	813
M3	12	#9	2	21'-5"	874
S1	68	#5	3	9'-6"	674
U1	37	#4	4	6'-4"	157
U2	8	#4	4	6'-2"	33
U3	8	#4	4	5'-6"	29
U4	8	#4	4	3'-6"	19
REINFORCING STEEL					LBS 6986
SPIRAL REINFORCING STEEL					
SP-1	1	**	5	229'-9"	240
SP-2	1	**	5	258'-5"	270
SP-3	1	**	5	287'-2"	300
TOTAL SPIRAL REINFORCING STEEL					LBS 810
CLASS A CONCRETE BREAKDOWN					
POUR #2 (CAP)				C.Y.	25.6
POUR #3 (LATERAL GUIDES)				C.Y.	0.1
TOTAL				C.Y.	25.7
3'-0" Ø DRILLED PIER QUANTITIES					
DRILLED PIER CONCRETE					
POUR #1 (DRILLED PIERS)				C.Y.	11.2
PERMANENT STEEL CASING				FT.	26.8
DRILLED PIER IN SOIL				FT.	27.8
DRILLED PIER NOT IN SOIL				FT.	15.0
CROSSHOLE SONIC LOGGING				EA.	1
CSL TUBES				FT.	201.0

ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. B-4052
CALDWELL COUNTY
 STATION: 11+20.00 -L-
 SHEET 2 OF 2



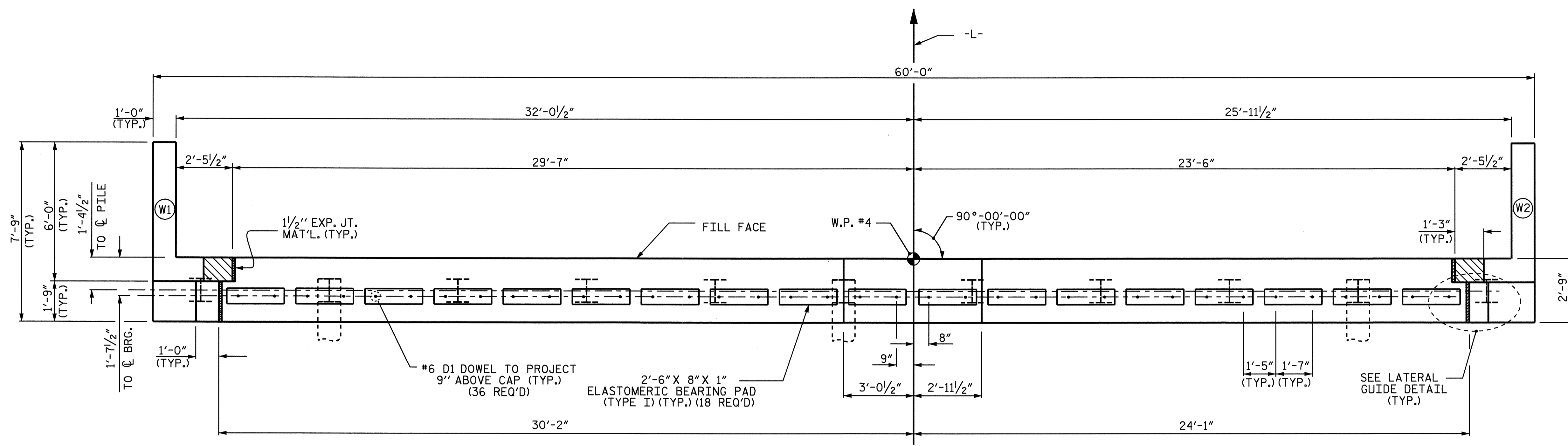
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
BENT 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS 28
2			4			

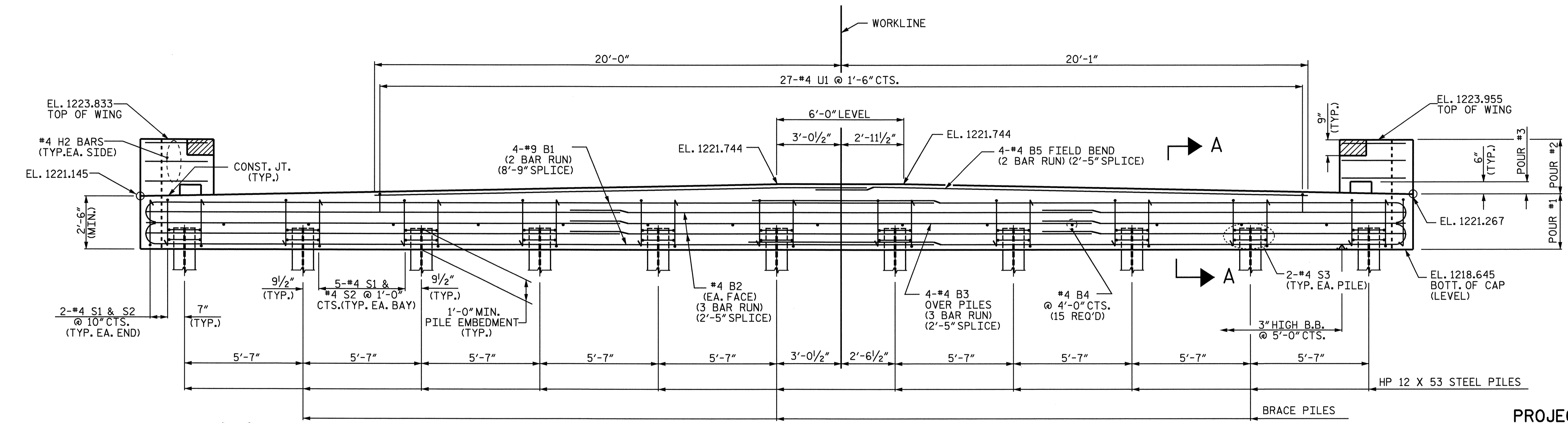
DRAWN BY : HARISH SHAH DATE : 01/09/07
 CHECKED BY : Q.T. NGUYEN DATE : 08/07

NOTES

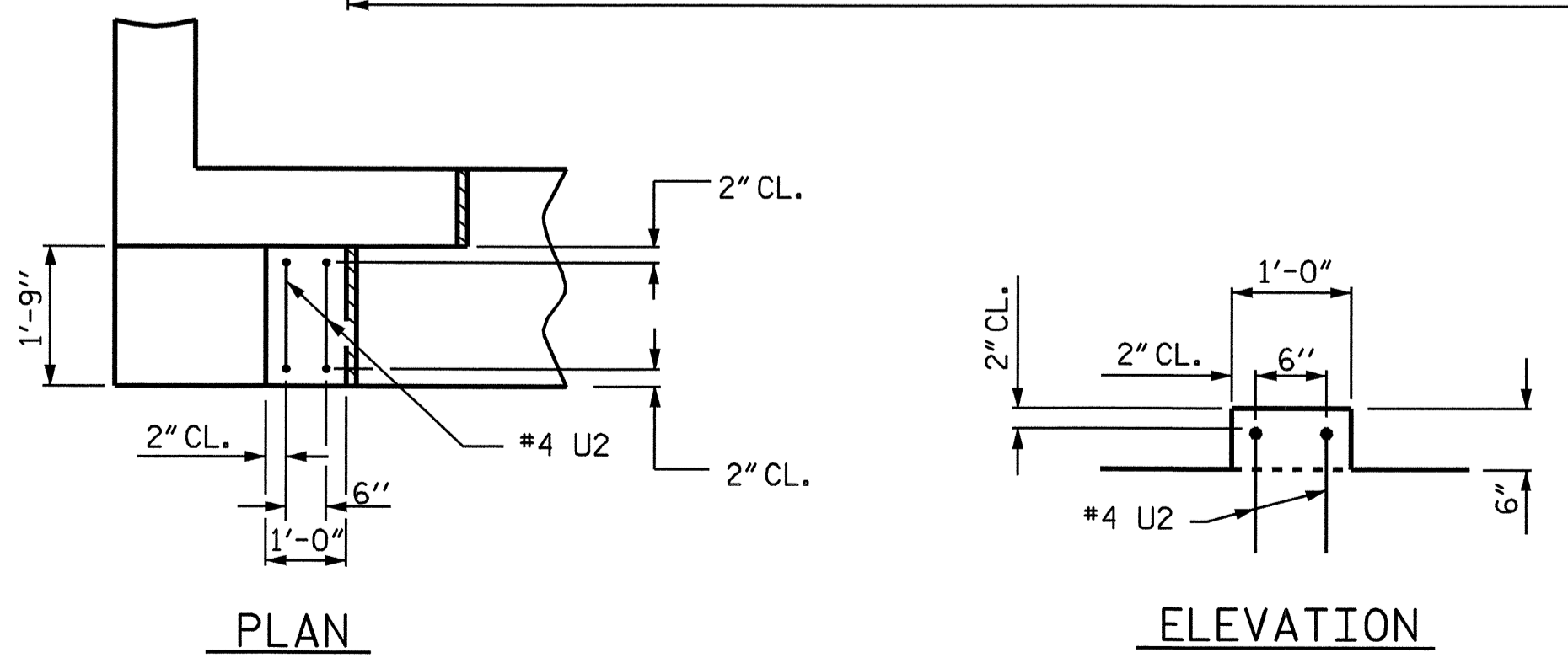
STIRRUPS & U1 BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
 FOR PILE SPLICE DETAILS, SEE SHEET 2 OF 2.
 THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER CORED SLAB UNITS ARE IN PLACE.
 THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.
 THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE DECK AND THE APPROACH SLAB HAS BEEN SAWED AND THE PARAPET AND END POST ARE CAST IF SLIP FORMING IS USED.



PLAN



ELEVATION



LATERAL GUIDE DETAIL
 (EACH END SIMILAR)

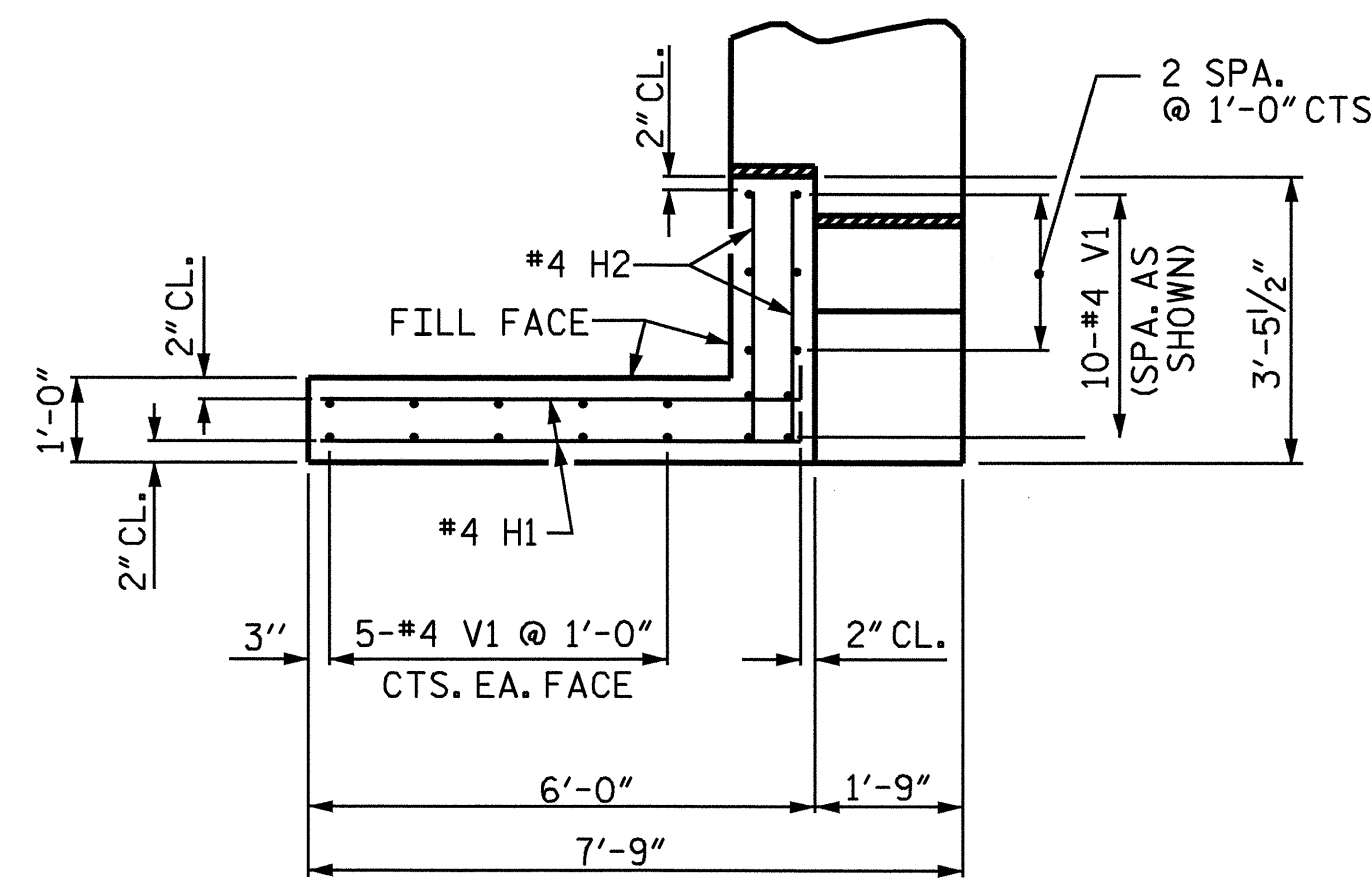
PROJECT NO. B-4052
CALDWELL COUNTY
 STATION: 11+20.00 -L-

SHEET 1 OF 2
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2

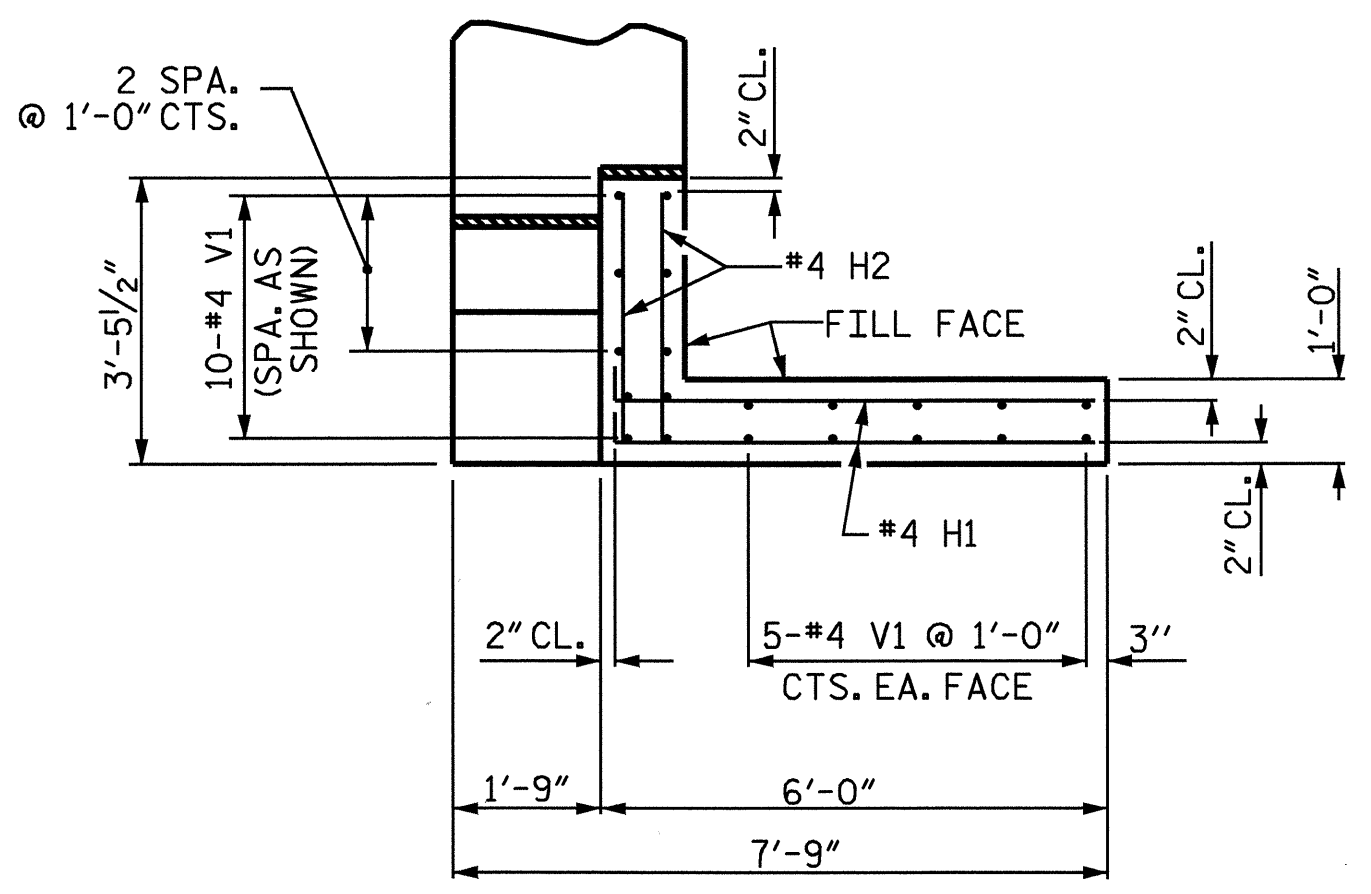


DRAWN BY : HARISH SHAH DATE : 02/26/07
 CHECKED BY : Q.T. NGUYEN DATE : 08/07

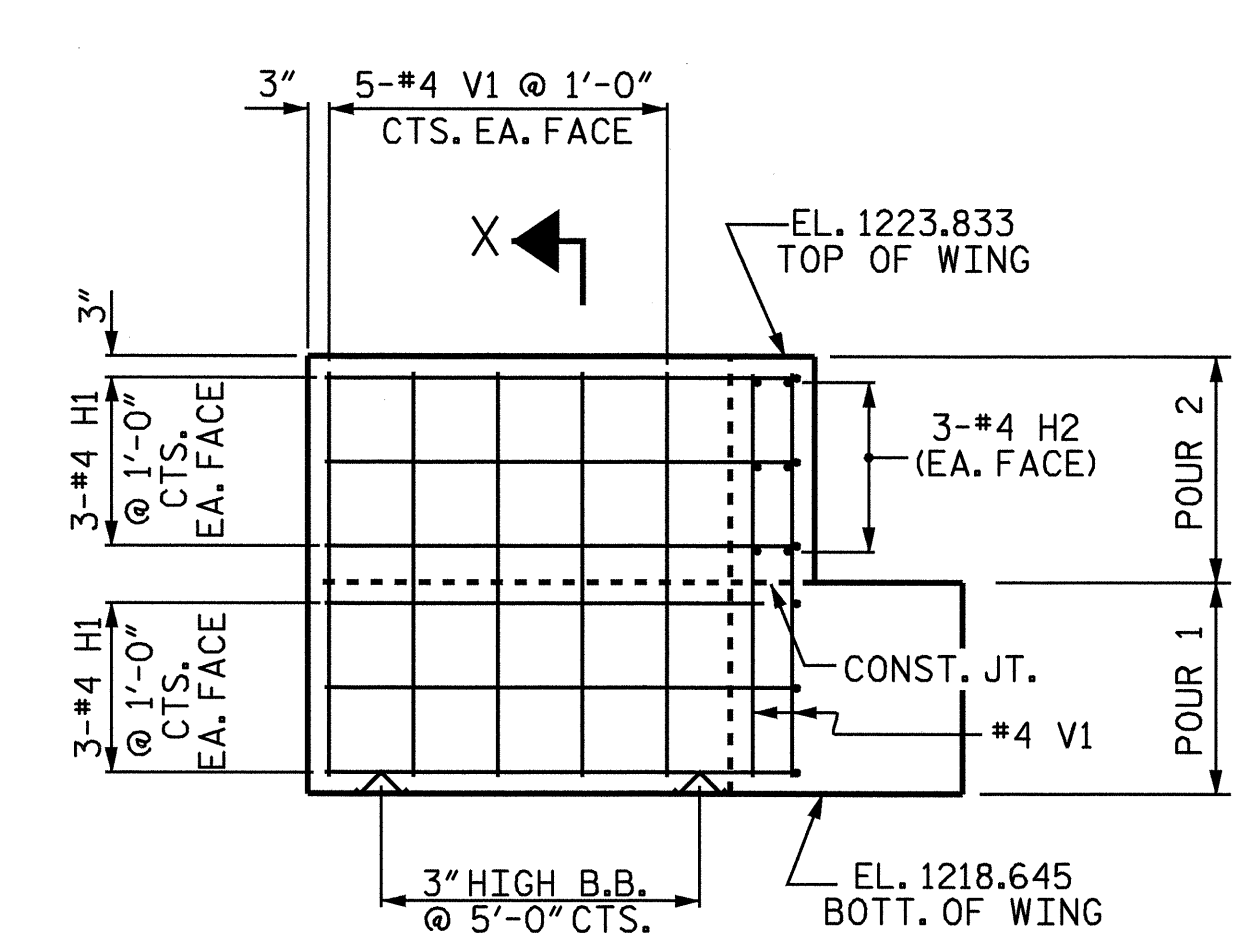
REVISIONS						SHEET NO. S-23
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 28
2			4			



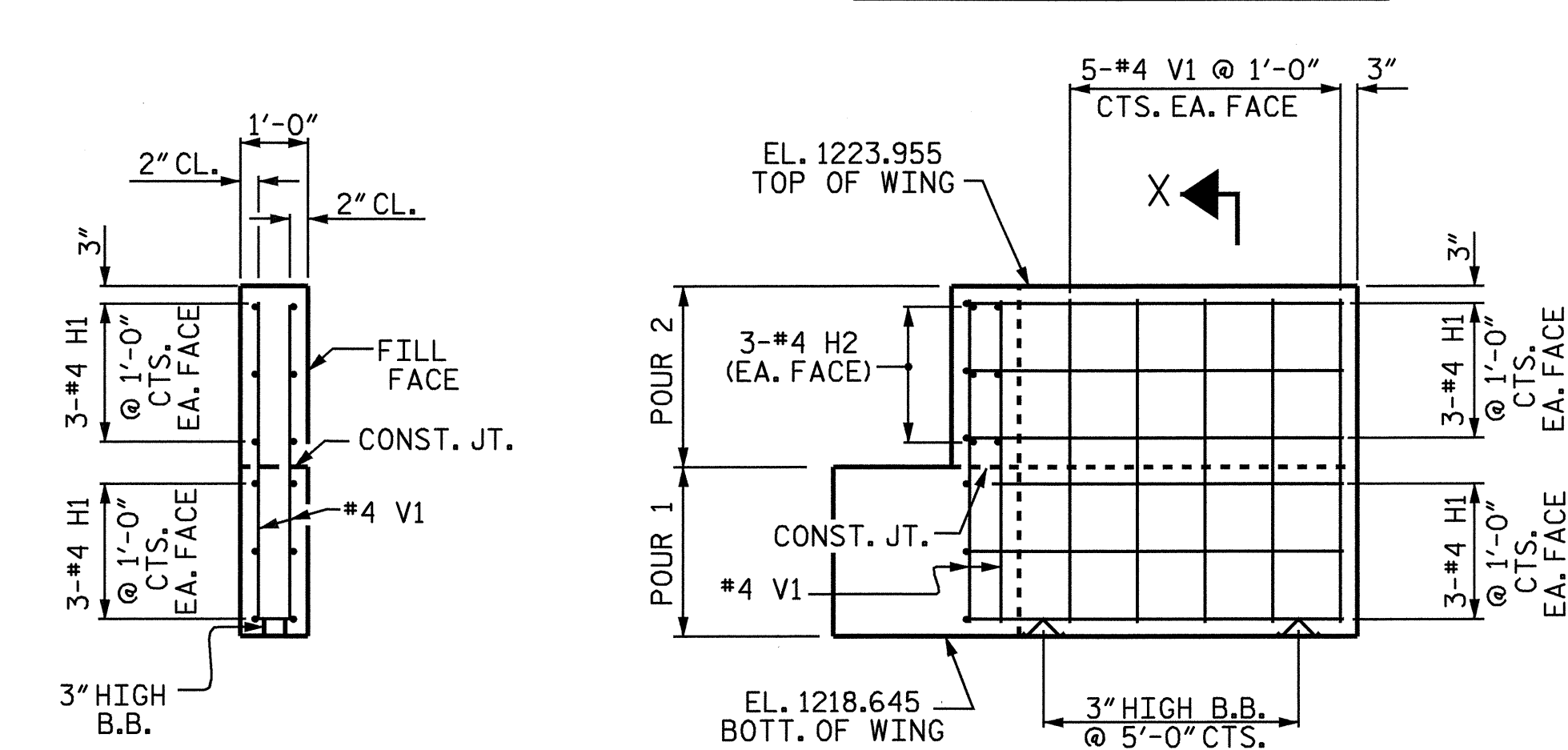
PLAN OF - W1



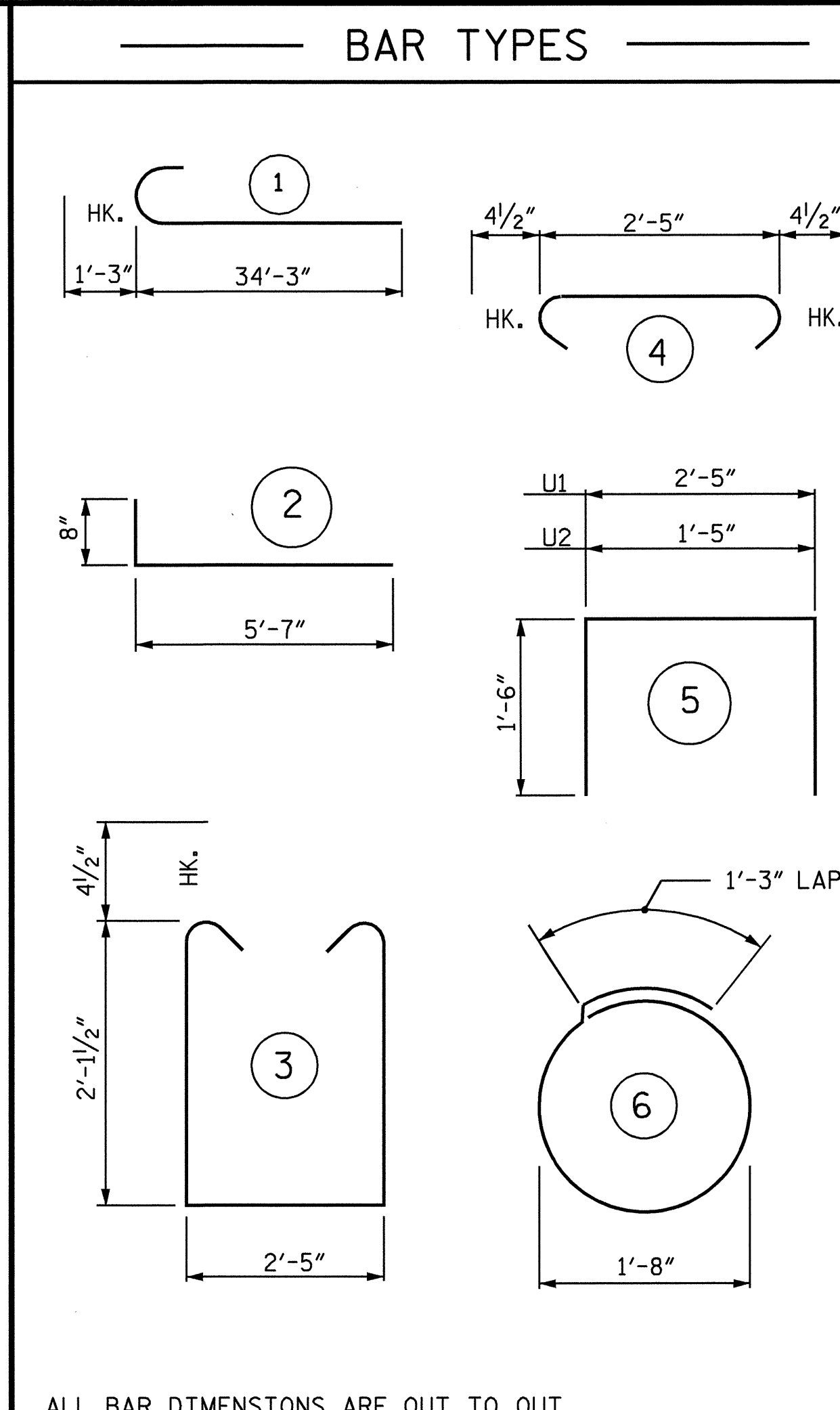
PLAN OF - W2



ELEVATION OF - W1

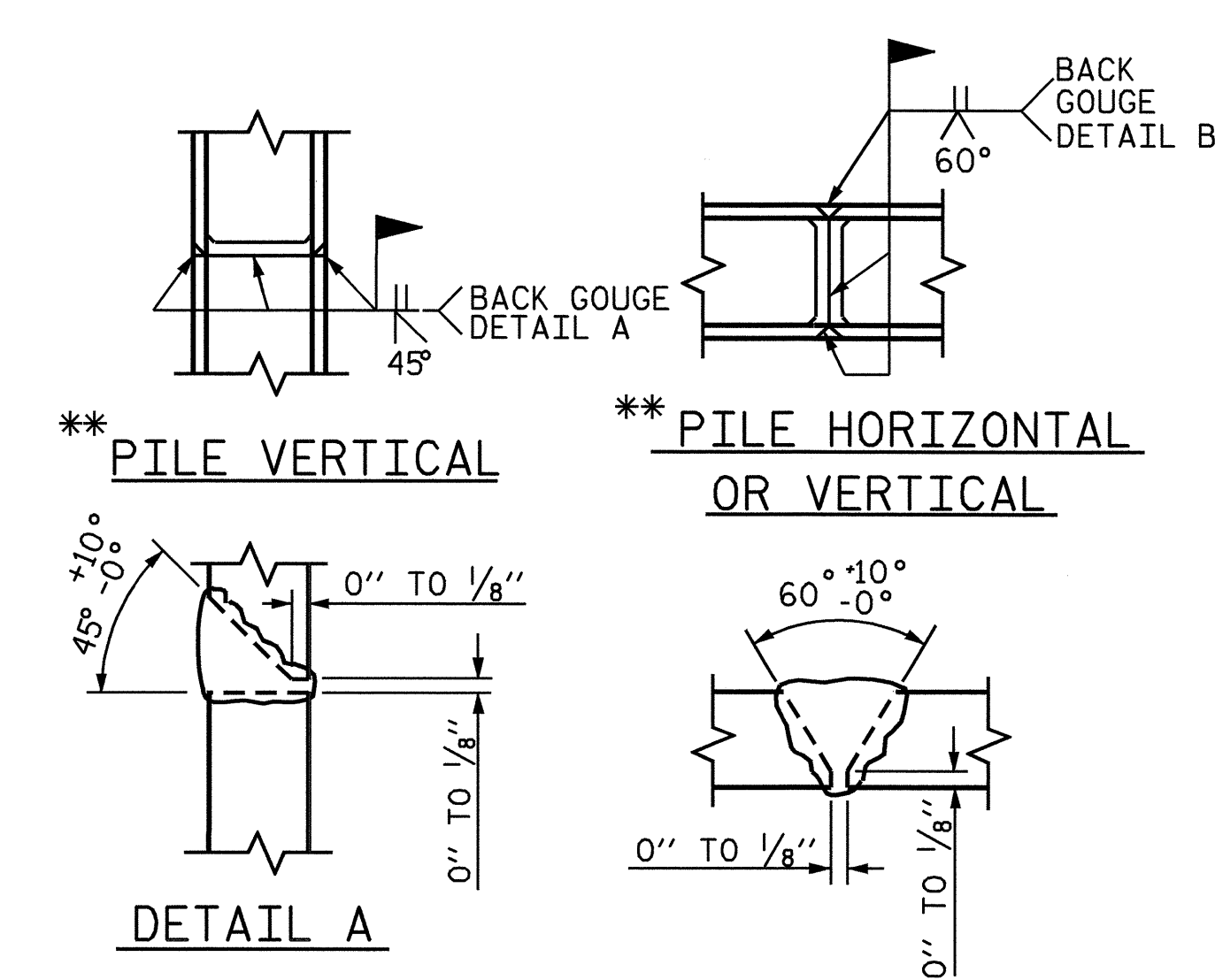


ELEVATION OF - W2

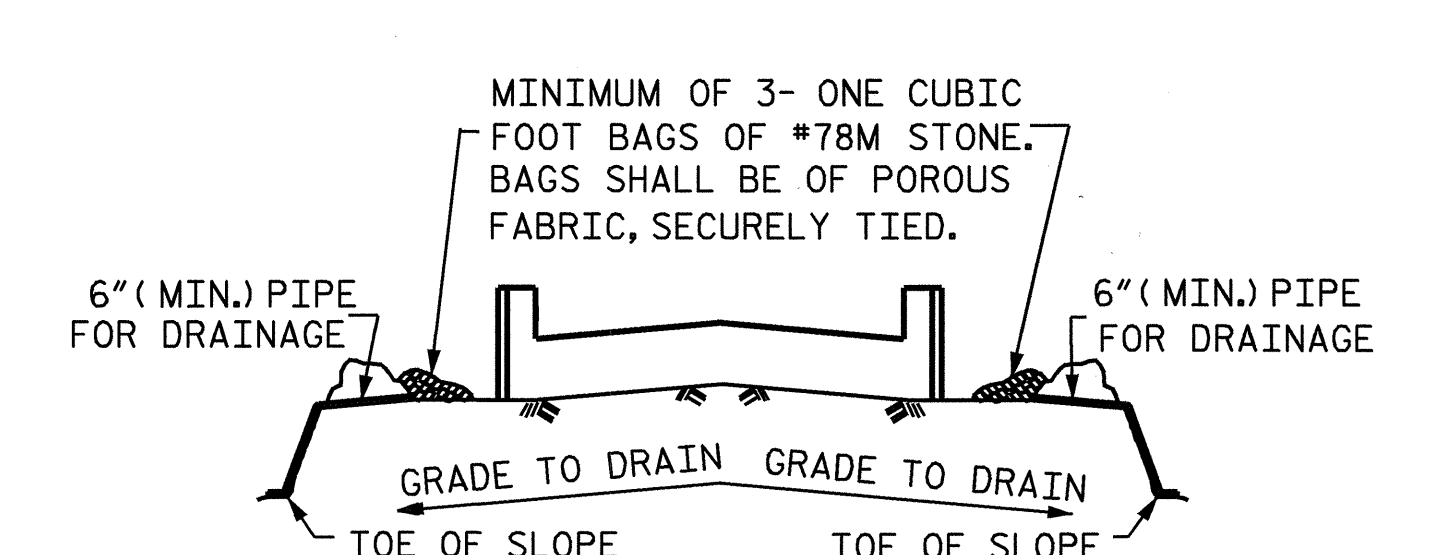


ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
END BENT 2					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	16	#9	1	35'-6"	1931
B2	12	#4	STR	21'-6"	172
B3	12	#4	STR	21'-6"	172
B4	15	#4	STR	2'-5"	24
B5	8	#4	STR	23'-3"	124
D1	36	#6	STR	1'-6"	81
H1	24	#4	2	6'-3"	100
H2	12	#4	STR	3'-1"	49
S1	54	#4	3	7'-5"	268
S2	54	#4	4	3'-2"	114
S3	22	#4	6	6'-6"	96
U1	27	#4	5	5'-5"	98
U2	4	#4	5	4'-5"	12
V1	40	#4	STR	4'-10"	129
REINFORCING STEEL =					3370 LBS.
CLASS A CONCRETE					
POUR #1: CAP & LOWER WINGS					18.6 C.Y.
POUR #2: TOP OF WINGS					1.7 C.Y.
POUR #3: LATERAL GUIDE					0.1 C.Y.
TOTAL CLASS A CONCRETE					20.4 C.Y.
HP 12 X 53 STEEL PILES					165.0 LIN. FT.



PILE SPLICE DETAILS

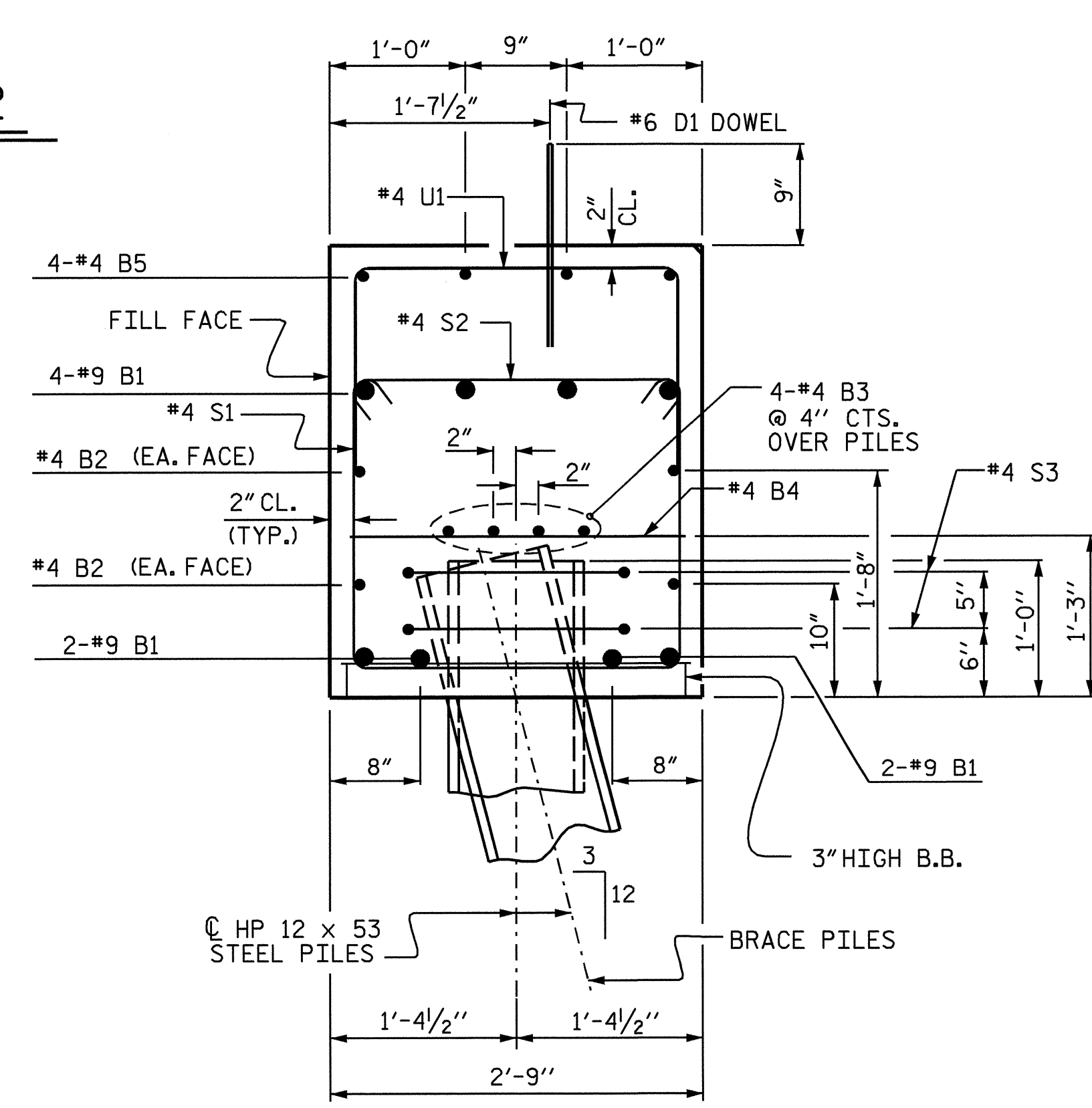


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

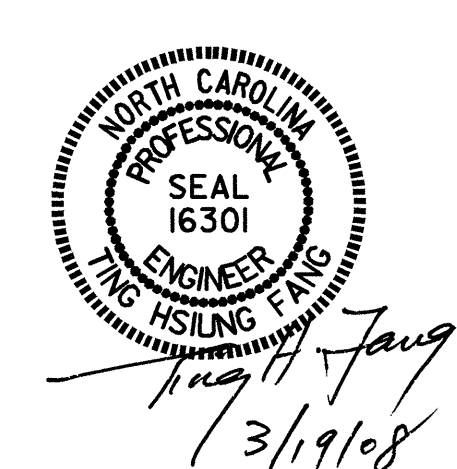
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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



SECTION A-A

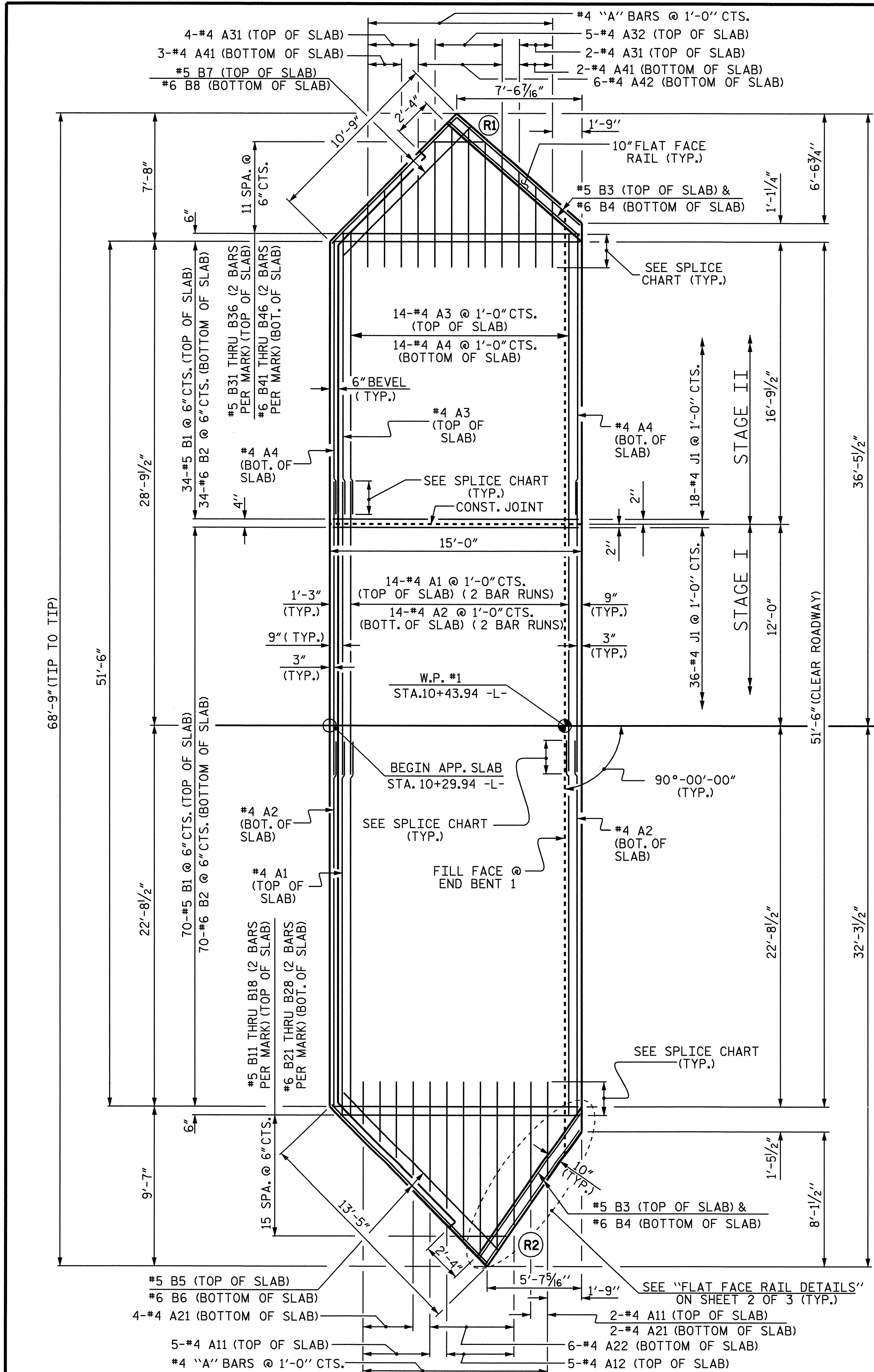


PROJECT NO. B-4052
 CALDWELL COUNTY
 STATION: 11+20.00 -L-
 SHEET 2 OF 2

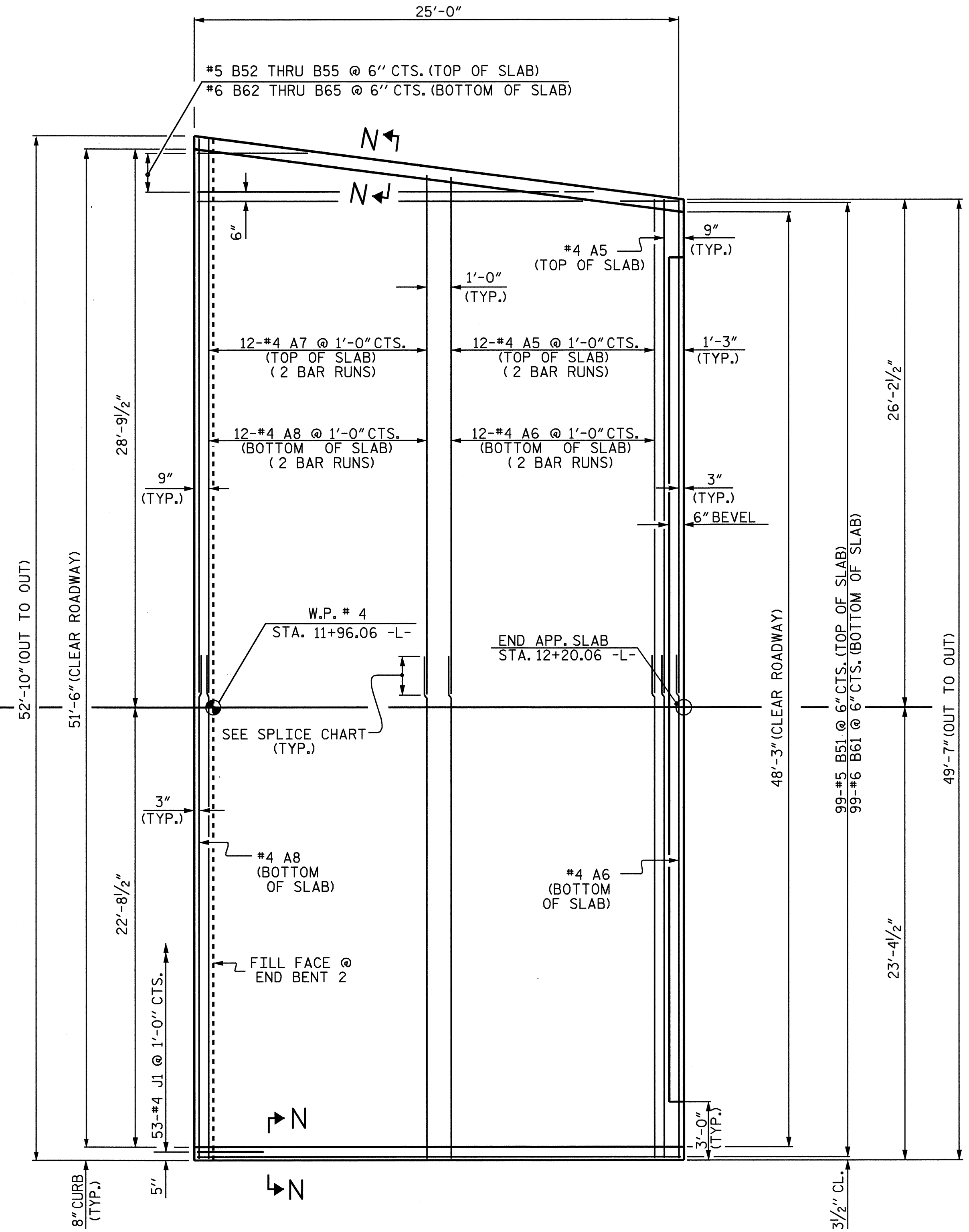
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2

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

DRAWN BY: HARISH SHAH DATE: 03/01/07
 CHECKED BY: Q.T. NGUYEN DATE: 08/07

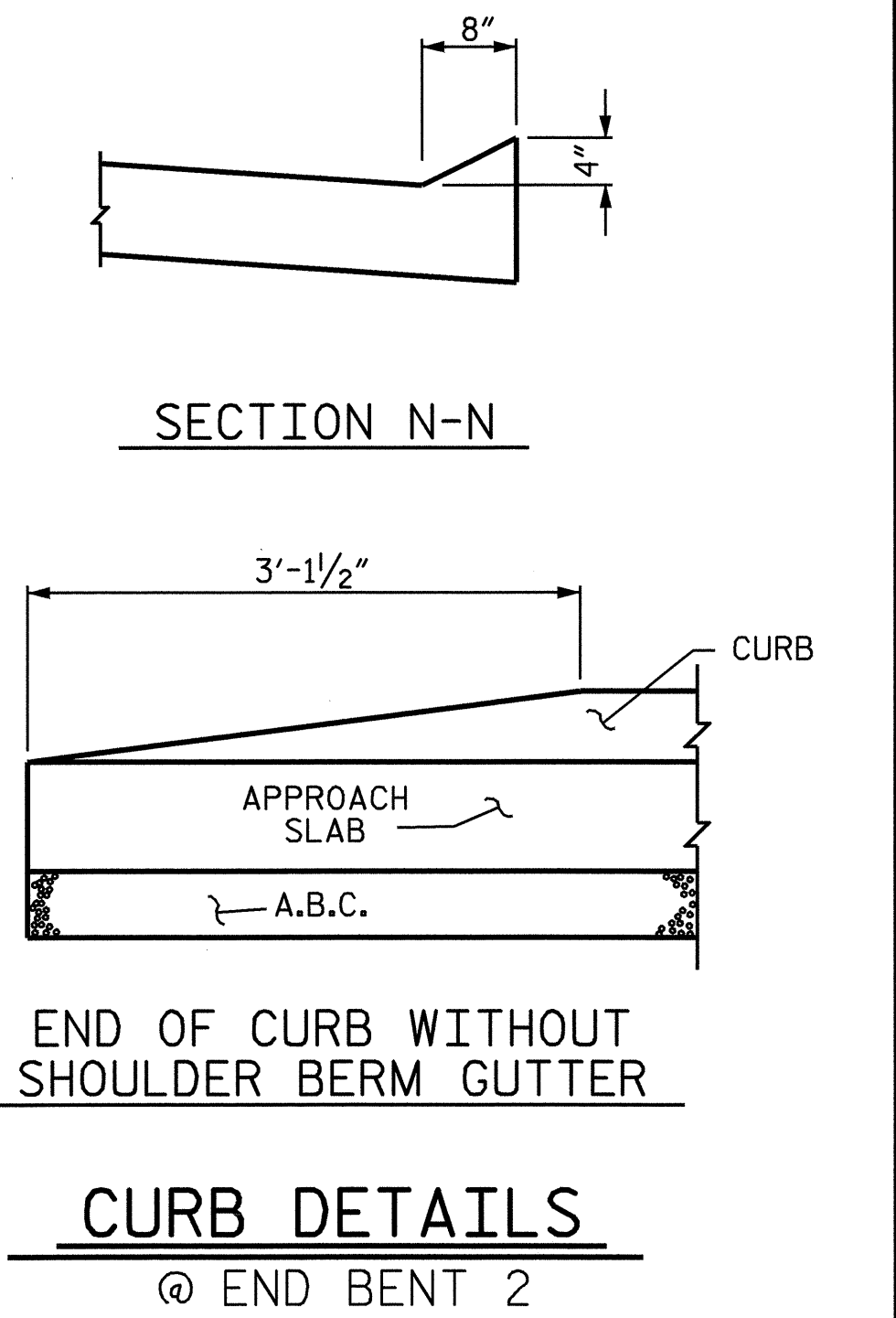


PLAN @ END BENT 1

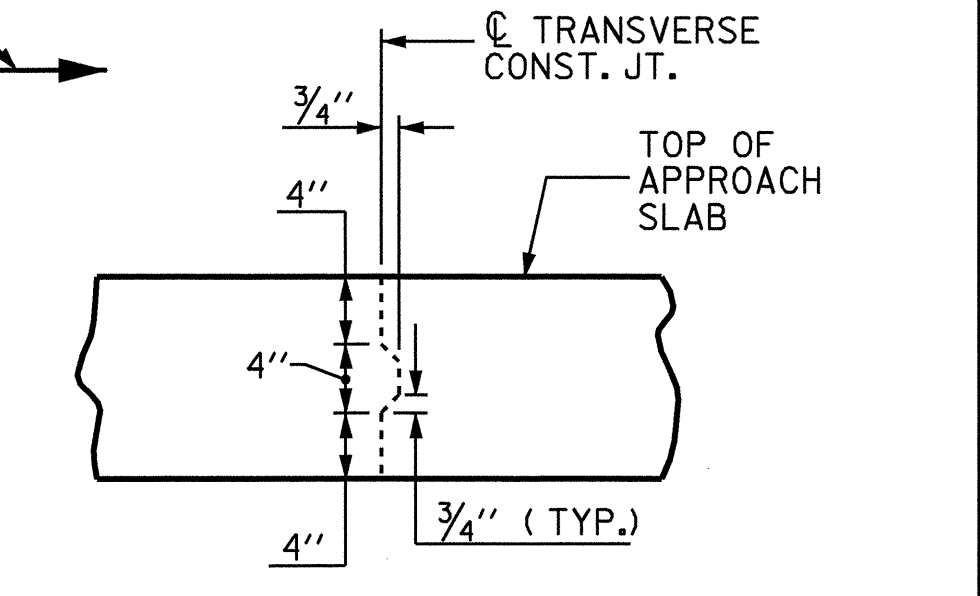


PLAN @ END BENT 2

SPlice CHART		
#4	TOP BAR	2'-0" MIN.
#4	BOTTOM BAR	1'-9" MIN.



SECTION N-N
END OF CURB WITHOUT SHOULDER BERM GUTTER



CONSTRUCTION JOINT DETAIL
NOTE: REINFORCING STEEL IN SLAB NOT SHOWN.

PROJECT NO. B-4052
CALDWELL COUNTY
STATION: 11+20.00 -L-

SHEET 1 OF 3

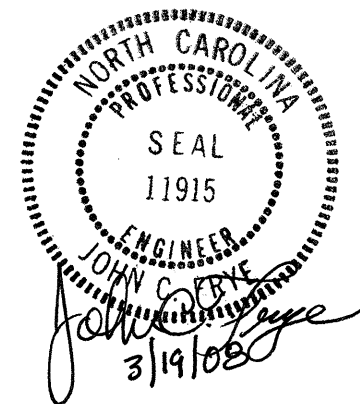
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

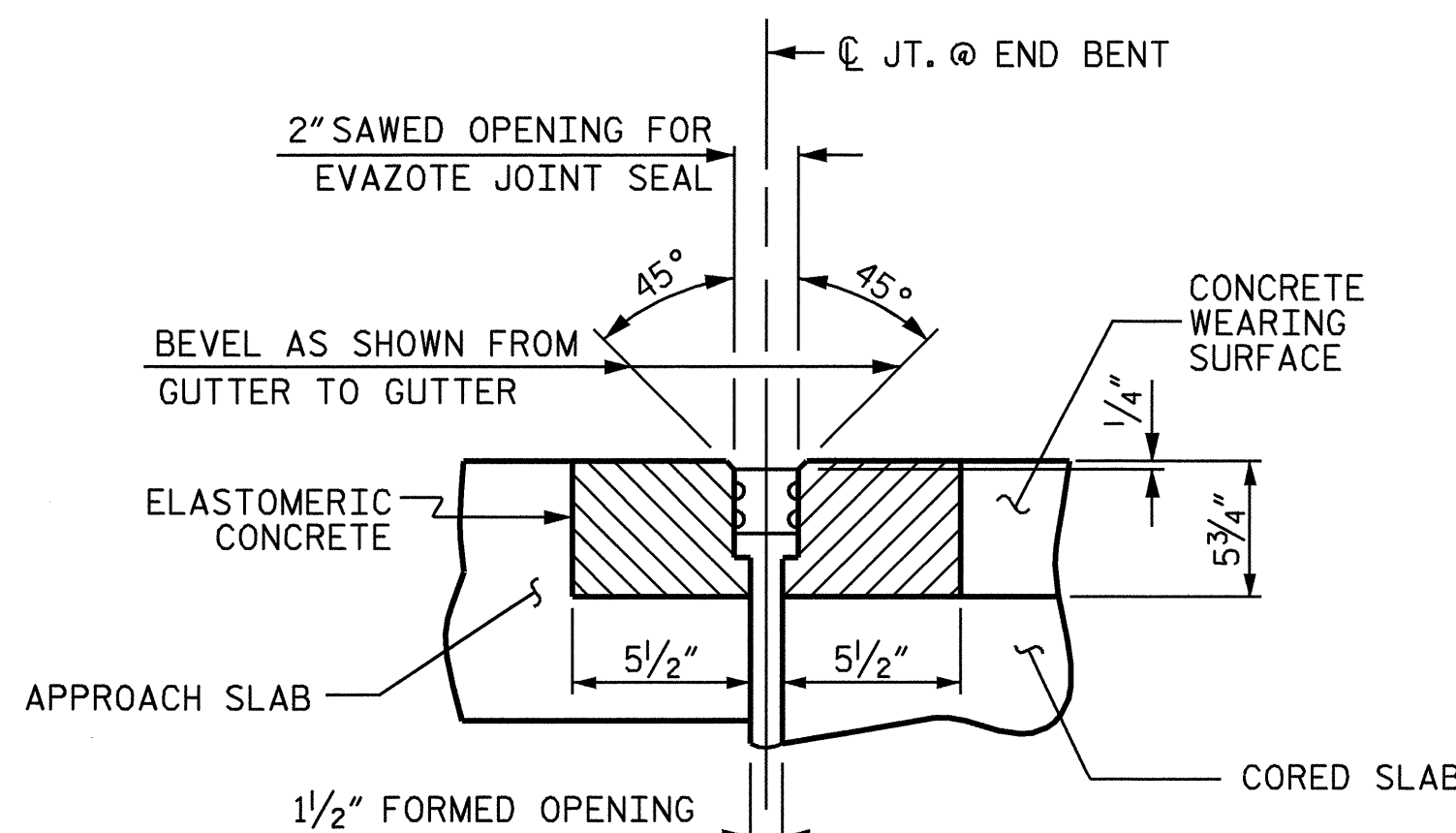
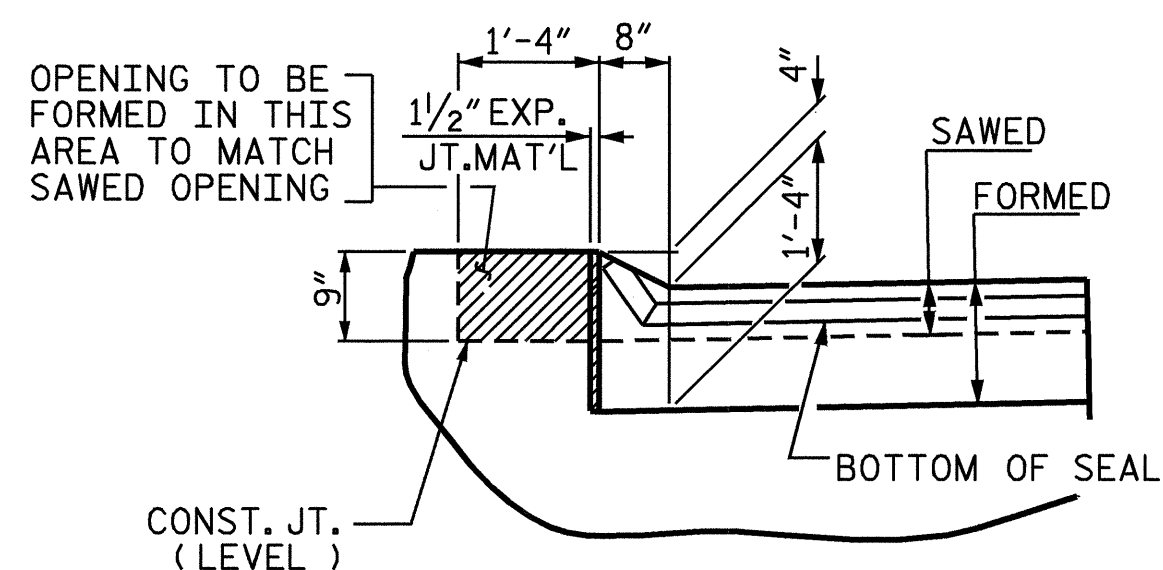
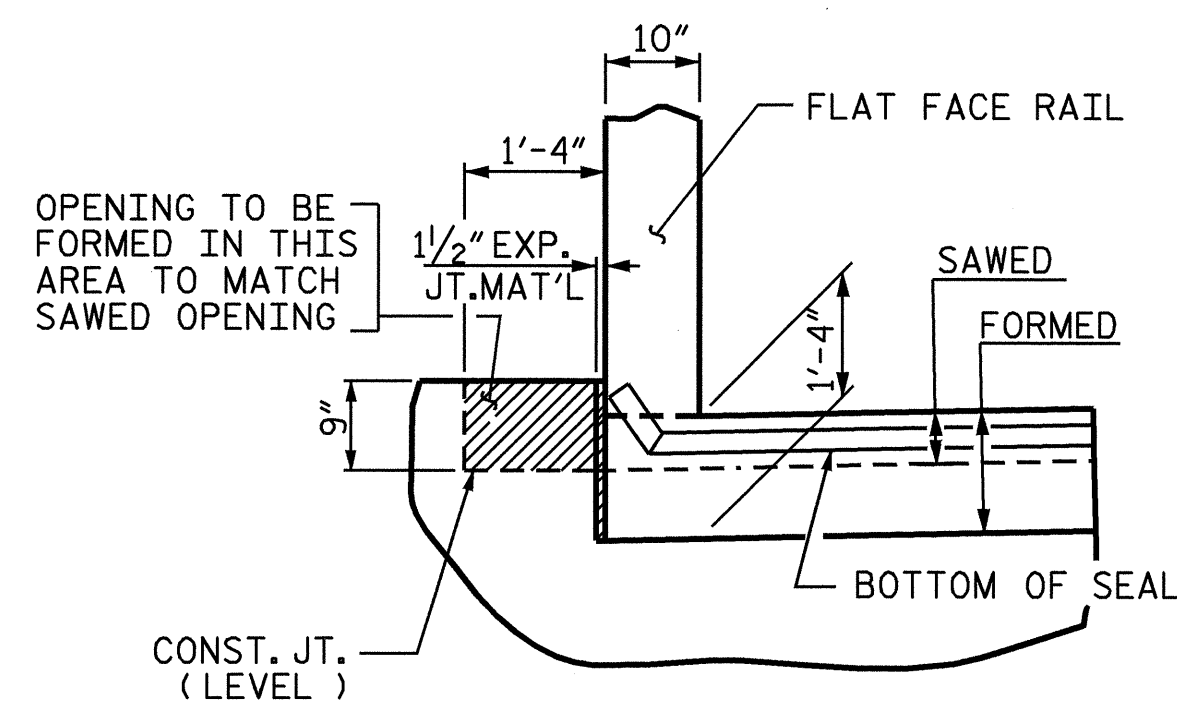
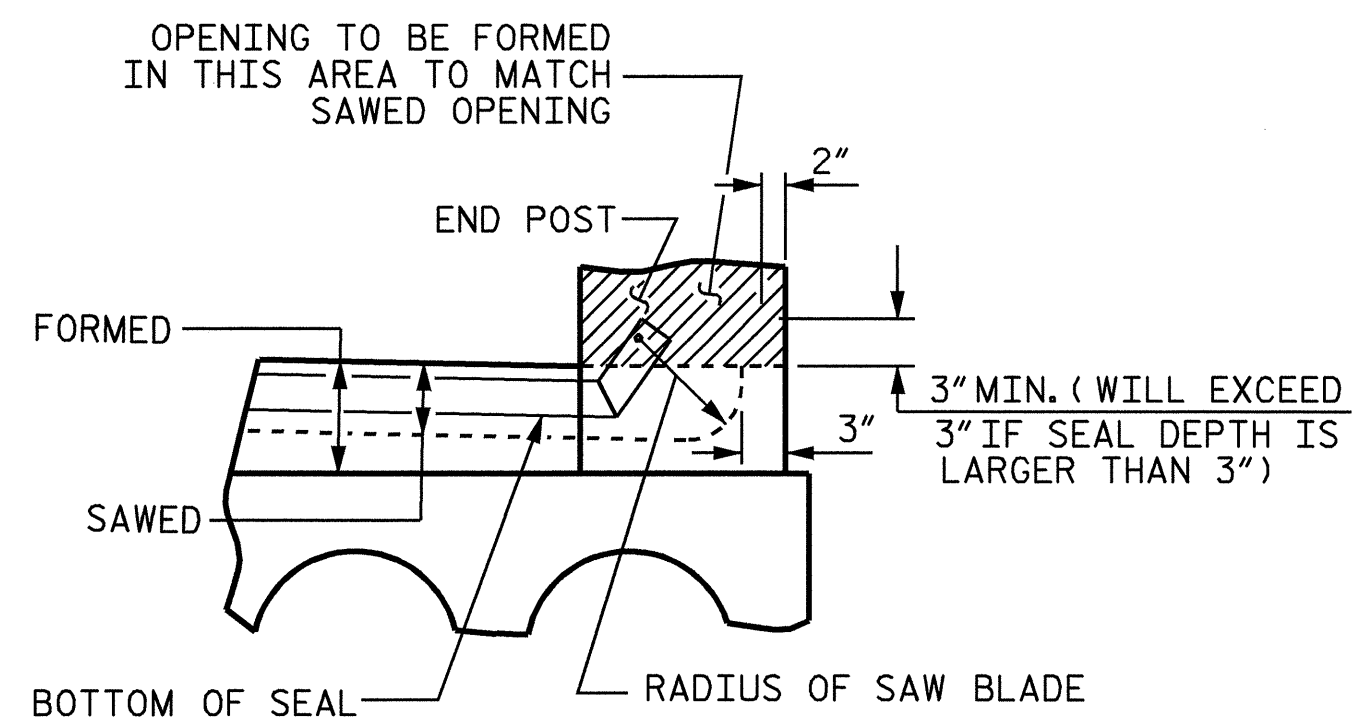
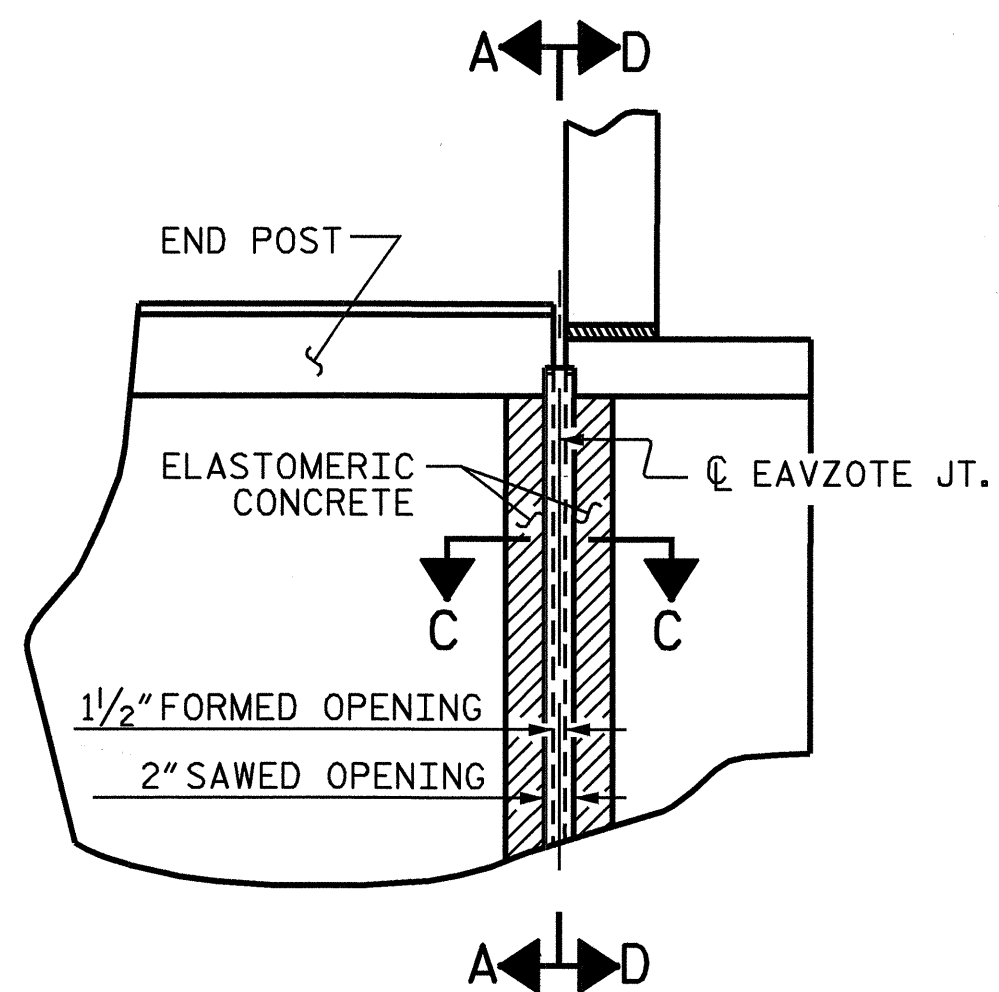
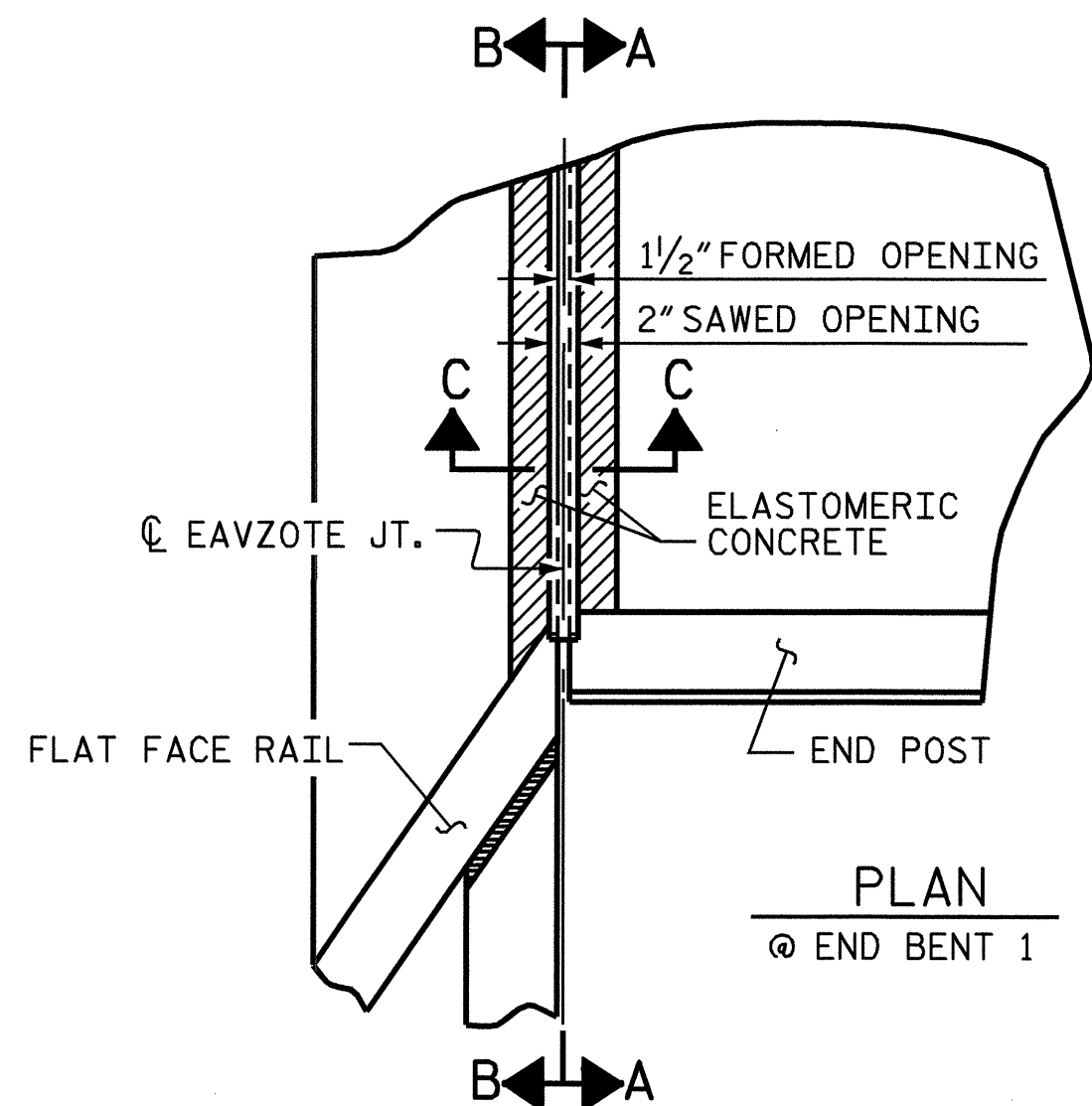
BRIDGE APPROACH SLAB
FOR PRESTRESSED
CONCRETE CORED SLAB

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

SHEET NO. S-26
TOTAL SHEETS 28

DRAWN BY: R.W. WRIGHT DATE: 02-08
CHECKED BY: J.C. FRYE DATE: 03-08





SECTION B-B

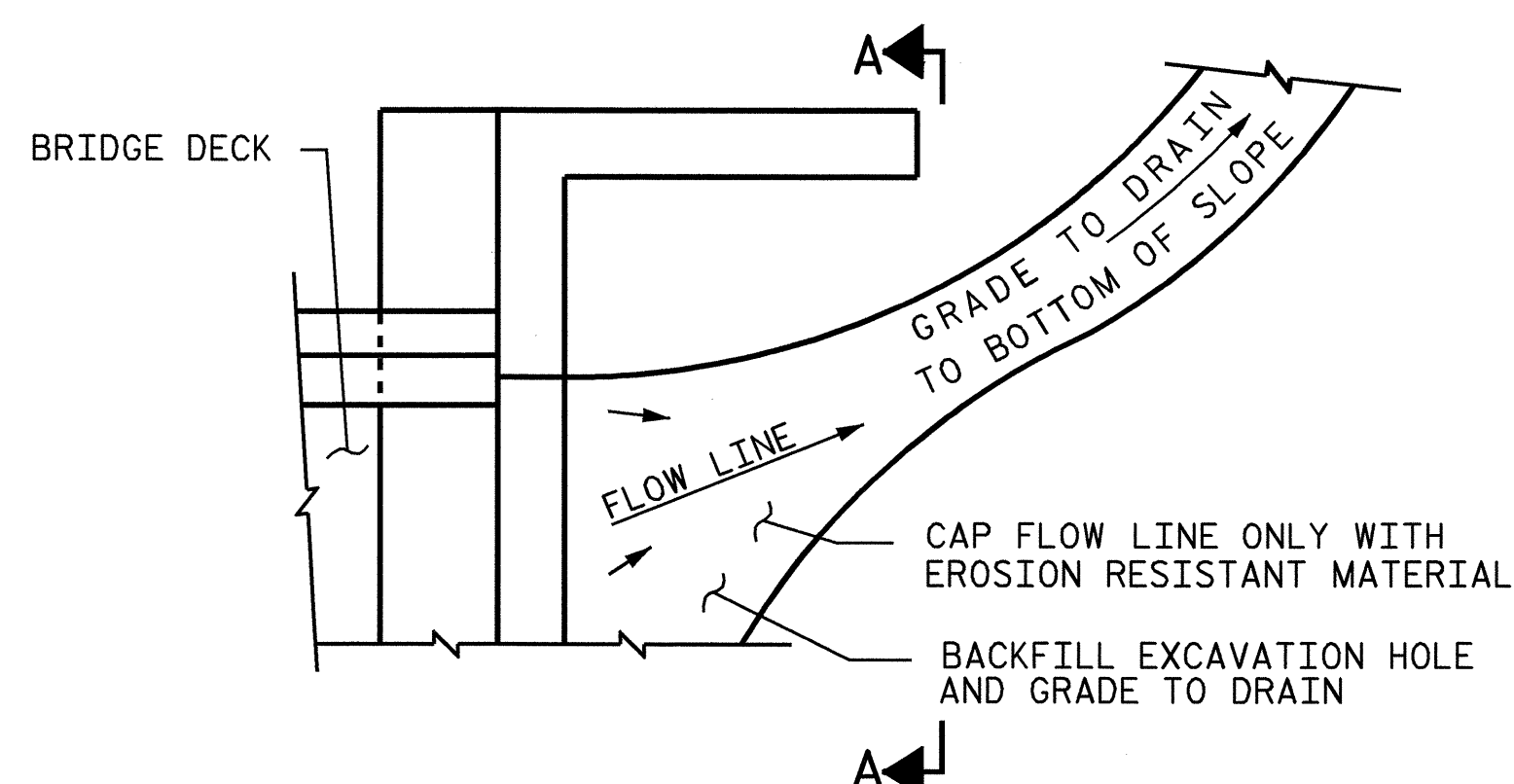
SECTION D-D

SECTION C-C
EVAZOTE JOINT SEAL

JOINT SEAL DETAILS @ END BENT

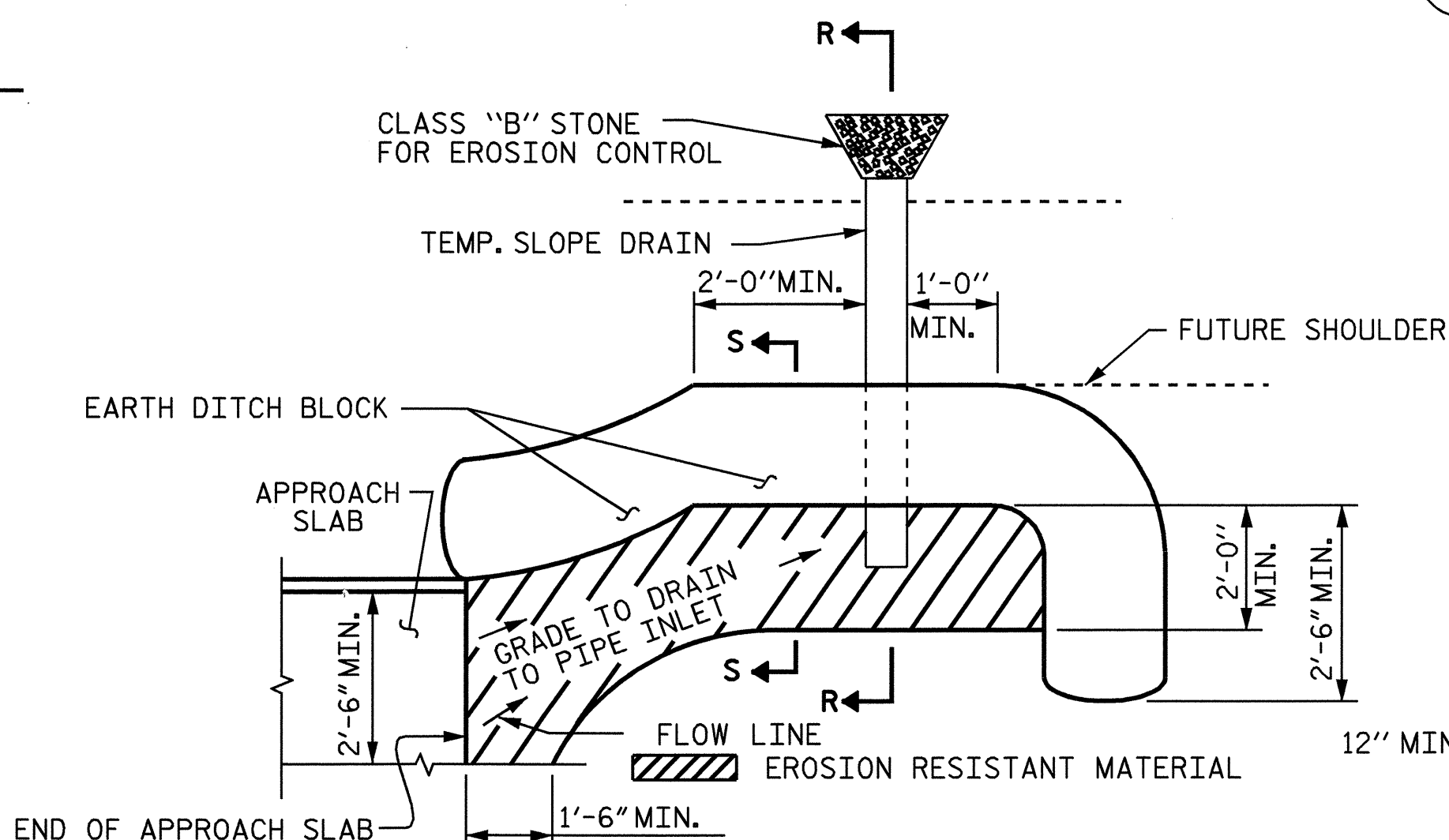
EVAZOTE JOINT SEAL TO BE CUT, HEAT WELDED AND TURNED UP WITH AN ANGLE OF 45° TO THE FACE OF THE PARAPET.

THE JOINT SHALL BE SAWED PRIOR TO THE CASTING OF THE PARAPET.



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

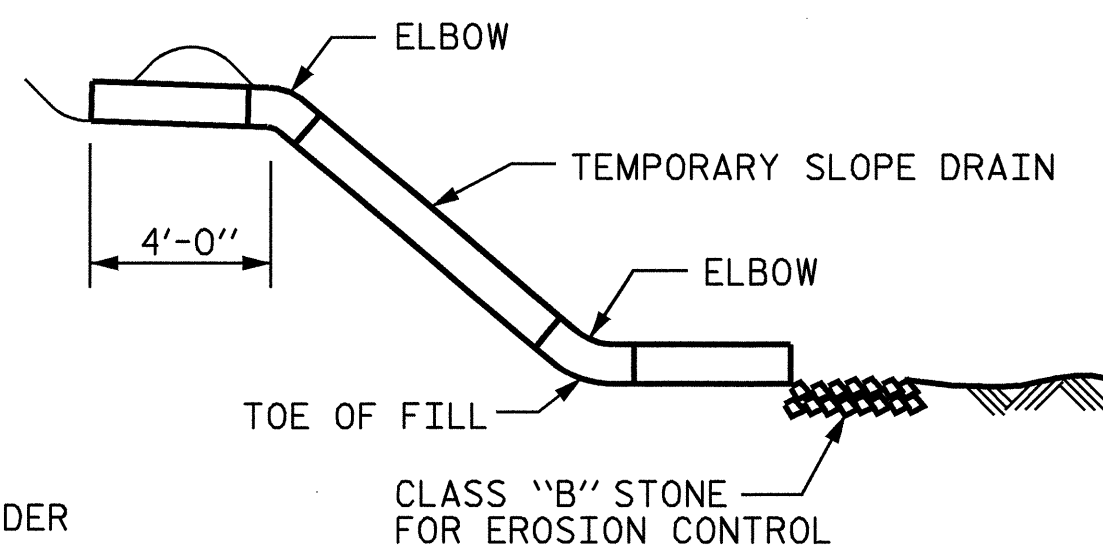


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

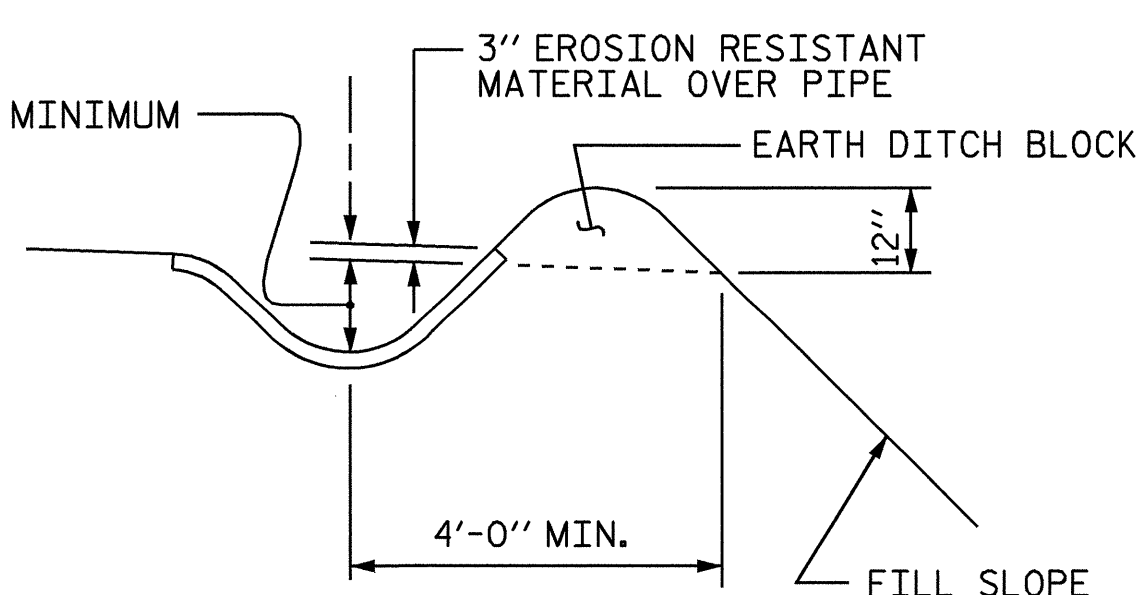
PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED.)



SECTION R-R



SECTION S-S

NOTES

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING FABRIC, IMPERMEABLE GEOMEMBRANE, 4\"/>

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.

THE 6\"/>

THE CONTRACTOR MAY USE 4\"/>

THE CONTRACTOR MAY USE 5\"/>

WITH EVAZOTE JOINT SEAL

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 2\"/>

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

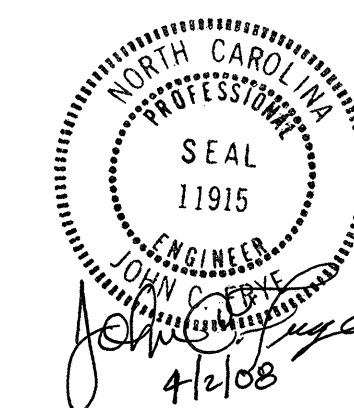
WITH CONCRETE WEARING SURFACE

APPROACH SLABS SHALL BE POURED AFTER CONCRETE OVERLAY IS POURED.

THE JOINT SHALL BE SAWED AFTER THE CASTING OF THE PARAPET AND END POST.

ELASTOMERIC CONCRETE	
END BENT NO.	CU. FT. *
1	22.7
2	22.6
TOTAL	45.3

* BASED ON THE MINIMUM BLOCKOUT SHOWN.



PROJECT NO. **B-4052**
CALDWELL COUNTY
 STATION: **11+20.00 -L-**

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BRIDGE APPROACH
 SLAB DETAILS**

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

S-28
TOTAL SHEETS 28

02-APR-2008 09:15 S:\B4052\311\uct\ur\as\B4052\VT\AL\PLANS\B-4052.scd.as.dgn

DRAWN BY : H. B. SHAH DATE : 1-5-07
 CHECKED BY : T. H. FANG DATE : 5-31-07

