

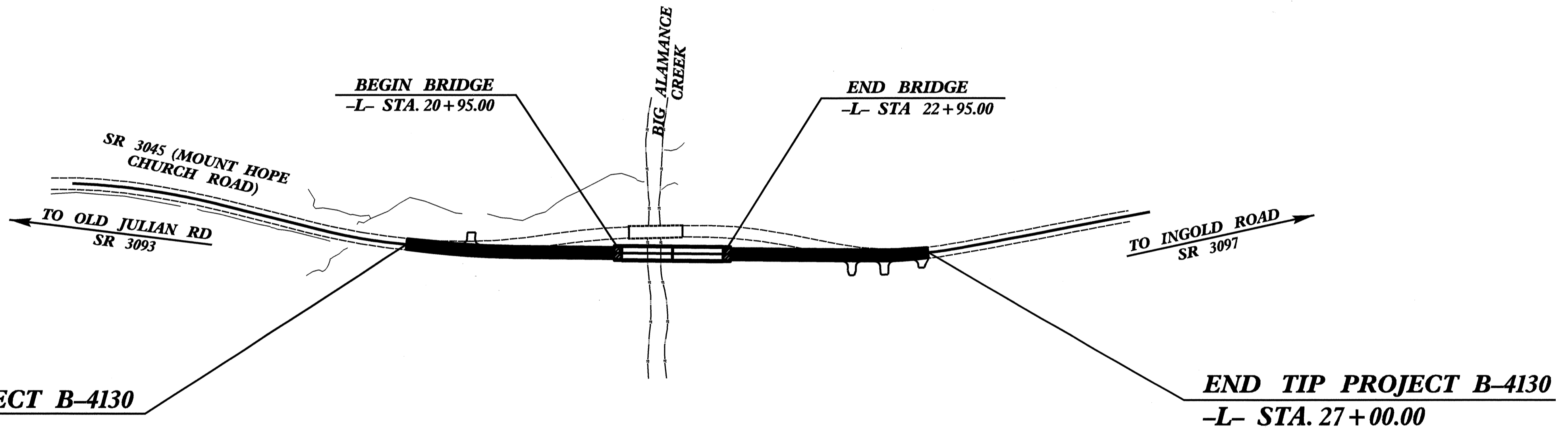
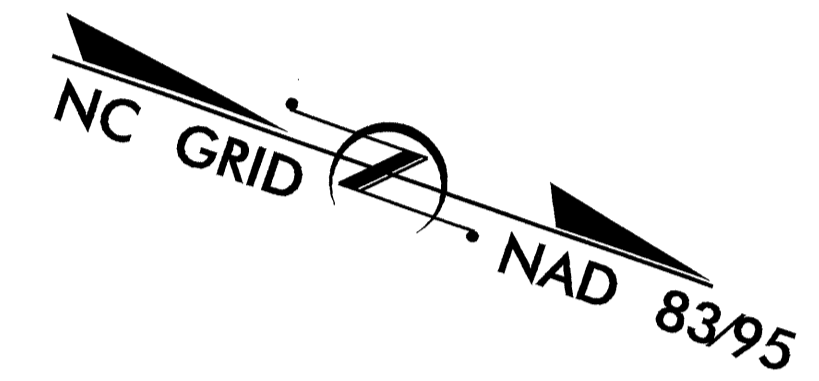
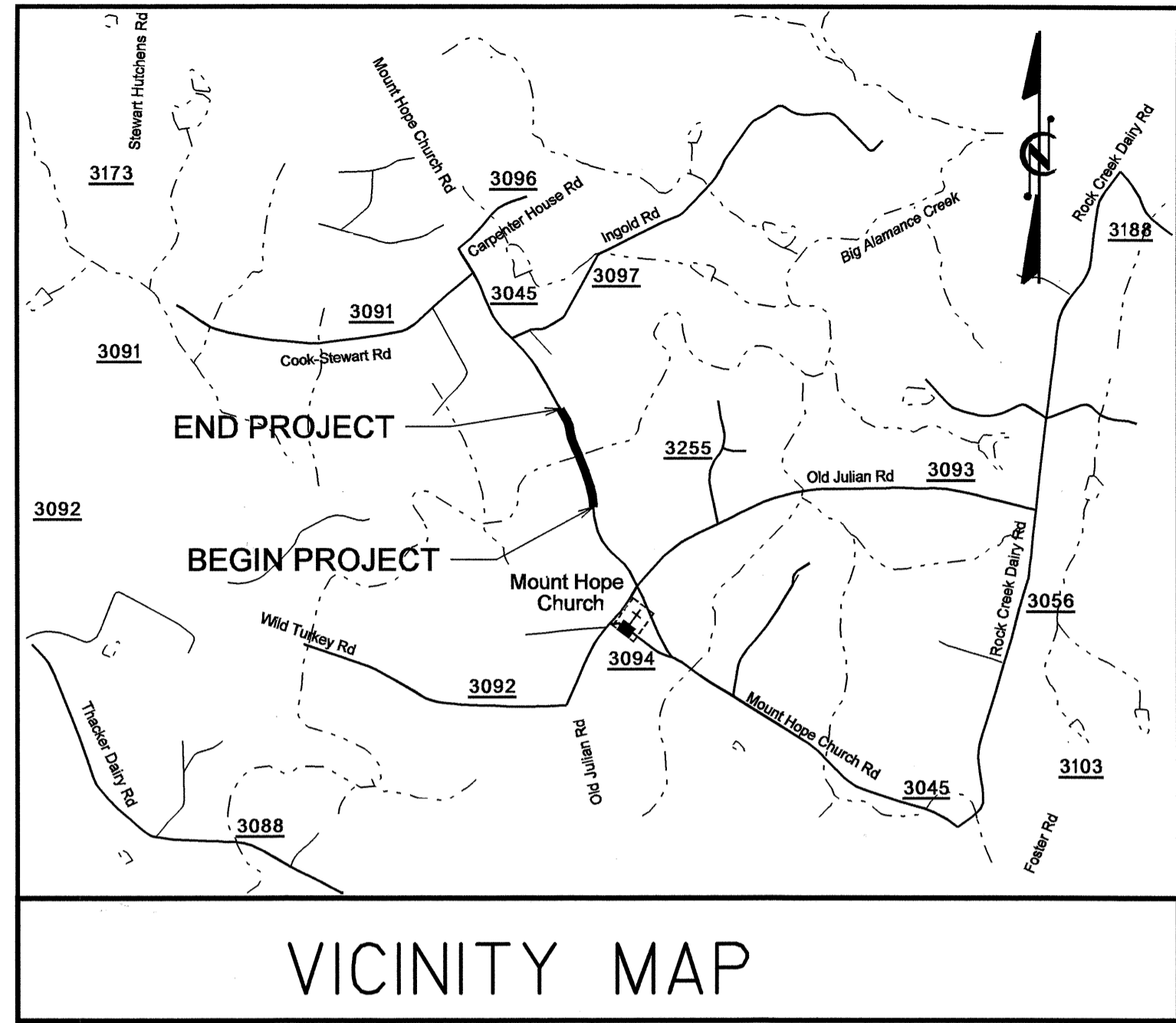
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4130		
WBS PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33483.1.1	BRZ-3045(2)	P.E.	
33483.2.1	BRZ-3045(2)	RW & UTL.	
33483.3.1	BRZ-3045(2)	CONST.	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GUILFORD COUNTY

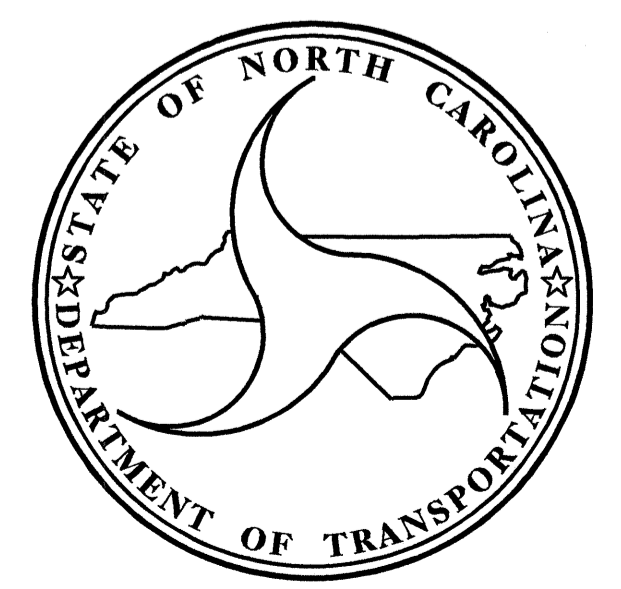
LOCATION: BRIDGE NO. 228 OVER BIG ALAMANCE CREEK ON SR 3045 (MOUNT HOPE CHURCH ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE



STRUCTURE

CONTRACT: C201769 TIP PROJECT: B-4130



DESIGN DATA

ADT 2007 =	2250
ADT 2027 =	3850
DHV =	10 %
D =	65 %
T =	4 % *
** V =	50 MPH
* TTST 1%	DUAL 3%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4130	=	0.157 MI.
LENGTH STRUCTURE TIP PROJECT B-4130	=	0.038 MI.
TOTAL LENGTH OF TIP PROJECT B-4130	=	0.195 MI.

Prepared In the Office of:
DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

LETTING DATE: FEBRUARY 19, 2008	ROY M. GIROLAMI, P.E. PROJECT ENGINEER
	LAURA E. SUTTON, P.E. PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT
1000 BIRCH RIDGE DR.
RALEIGH, NC 27610

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

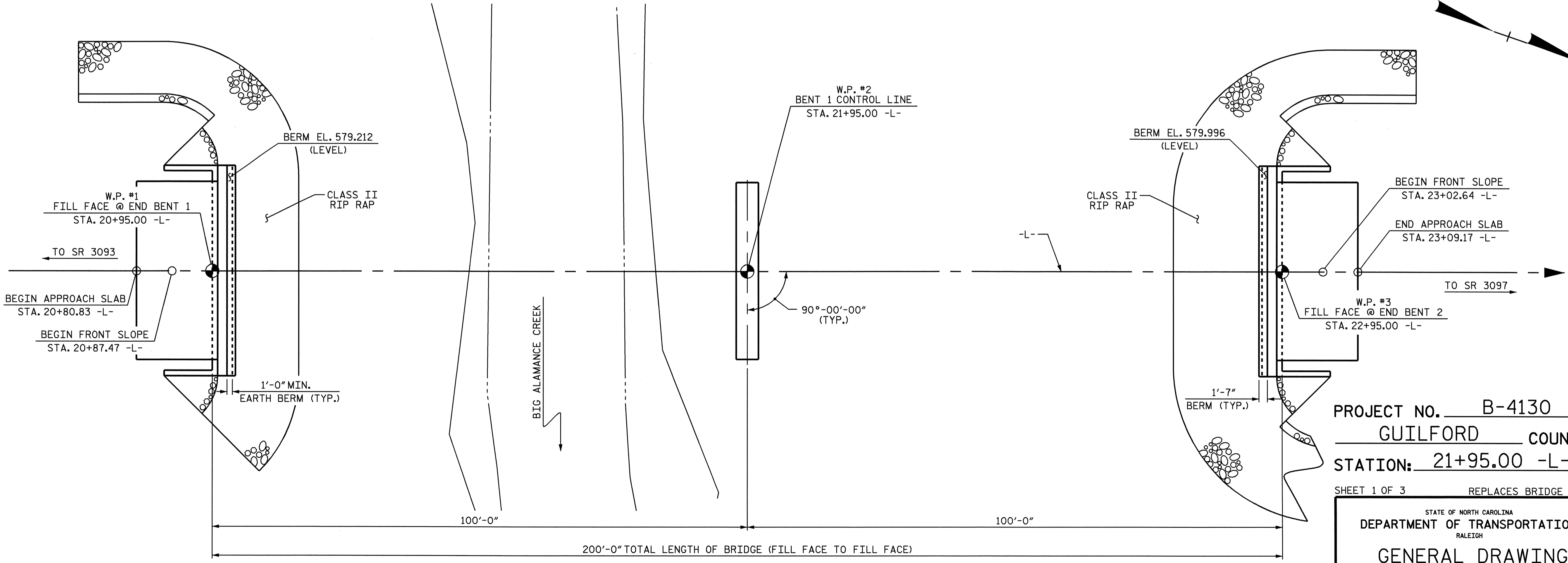
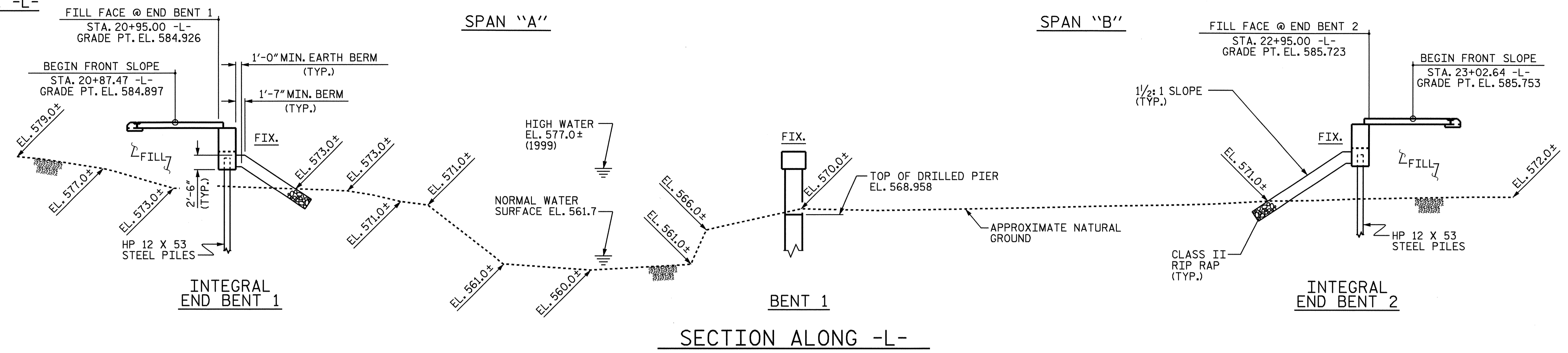
P.E.
STATE HIGHWAY DESIGN ENGINEER

-4.3611% +0.3982%

PI STA. 19+00.00
EL. = 584.150'
VC. = 260'

GRADE DATA -L-

590
580
570
560
550



PROJECT NO. B-4130
GUILFORD COUNTY
STATION: 21+95.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE #228

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
BRIDGE OVER BIG ALAMANCE
CREEK ON SR 3045 BETWEEN
SR 3093 AND SR 3097

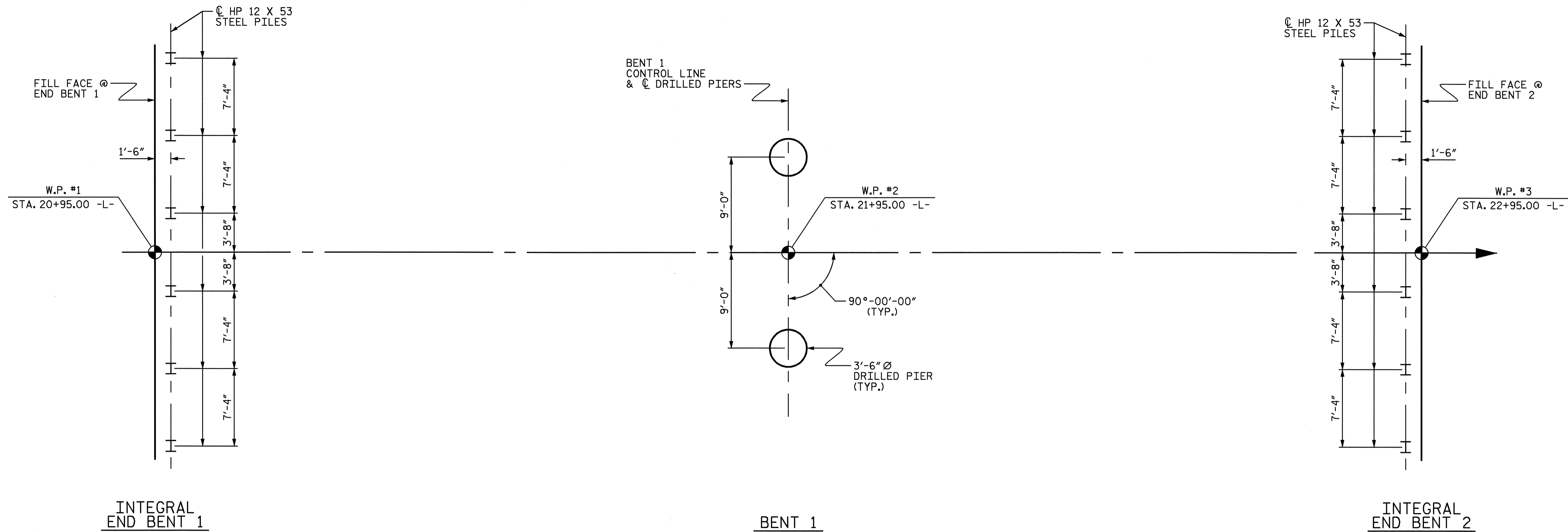
PROFESSIONAL ENGINEER
SEAL 9804
L. A. SUTTON
12-31-07

PROFESSIONAL ENGINEER
SEAL 21638
L. A. SUTTON
12/27/07

DRAWN BY : E.C. LOCKLEAR DATE : 8-27-07
CHECKED BY : L.E. SUTTON DATE : 11-05-07

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

TOTAL SHEETS: 27



FOUNDATION LAYOUT

(DIMENSIONS LOCATING PILES OR DRILLED PIERS ARE SHOWN TO PILE OR DRILLED PIER CENTERLINE AT THE BOTTOM OF THE CAP.)

NOTES:

DRIVE PILES AT END BENTS 1 AND 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 BENTS 1 AND 2 IS 60 TONS PER PILE.

DRILLED PIERS AT BENT 1 ARE DESIGNED FOR BOTH SKIN FRICTION AND END BEARING. CHECK FIELD CONDITIONS FOR THE REQUIRED END BEARING CAPACITY OF 63 TSF.

DRILLED PIERS AT BENT 1 ARE DESIGNED FOR AN APPLIED LOAD OF 359 TONS EACH AT THE TOP OF THE COLUMN.

PERMANENT STEEL CASING IS NOT REQUIRED FOR DRILLED PIERS AT BENT 1.

DRILLED PIERS AT BENT 1 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 550 FT. (LEFT) AND 552 FT. (RIGHT), SATISFY THE REQUIRED END BEARING CAPACITY, AND HAVE A MINIMUM PENETRATION OF 5 FT. INTO ROCK AS DEFINED BY THE DRILLED PIERS SPECIAL PROVISION.

THE SCOUR CRITICAL ELEVATION FOR BENT 1 IS ELEVATION 556 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

FOR DRILLED PIERS, SEE DRILLED PIERS SPECIAL PROVISION.

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

DO NOT USE SLURRY CONSTRUCTION FOR DRILLED PIERS AT BENT 1.

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 LOGGING SPECIAL PROVISION.

PILE EXCAVATION MAY BE REQUIRED TO ATTAIN THE REQUIRED TIP NO HIGHER THAN ELEVATION OF 562 FT. AT END BENT 1. SEE PILE EXCAVATION FOR INTEGRAL ABUTMENT SPECIAL PROVISION.

PROJECT NO. B-4130

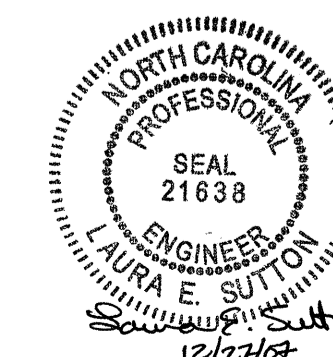
GUILFORD COUNTY

STATION: 21+95.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
BRIDGE OVER BIG ALAMANCE
CREEK ON SR 3045 BETWEEN
SR 3093 AND SR 3097



DRAWN BY : E.C. LOCKLEAR DATE : 8-24-07
CHECKED BY : L.E. SUTTON DATE : 11-05-07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			27

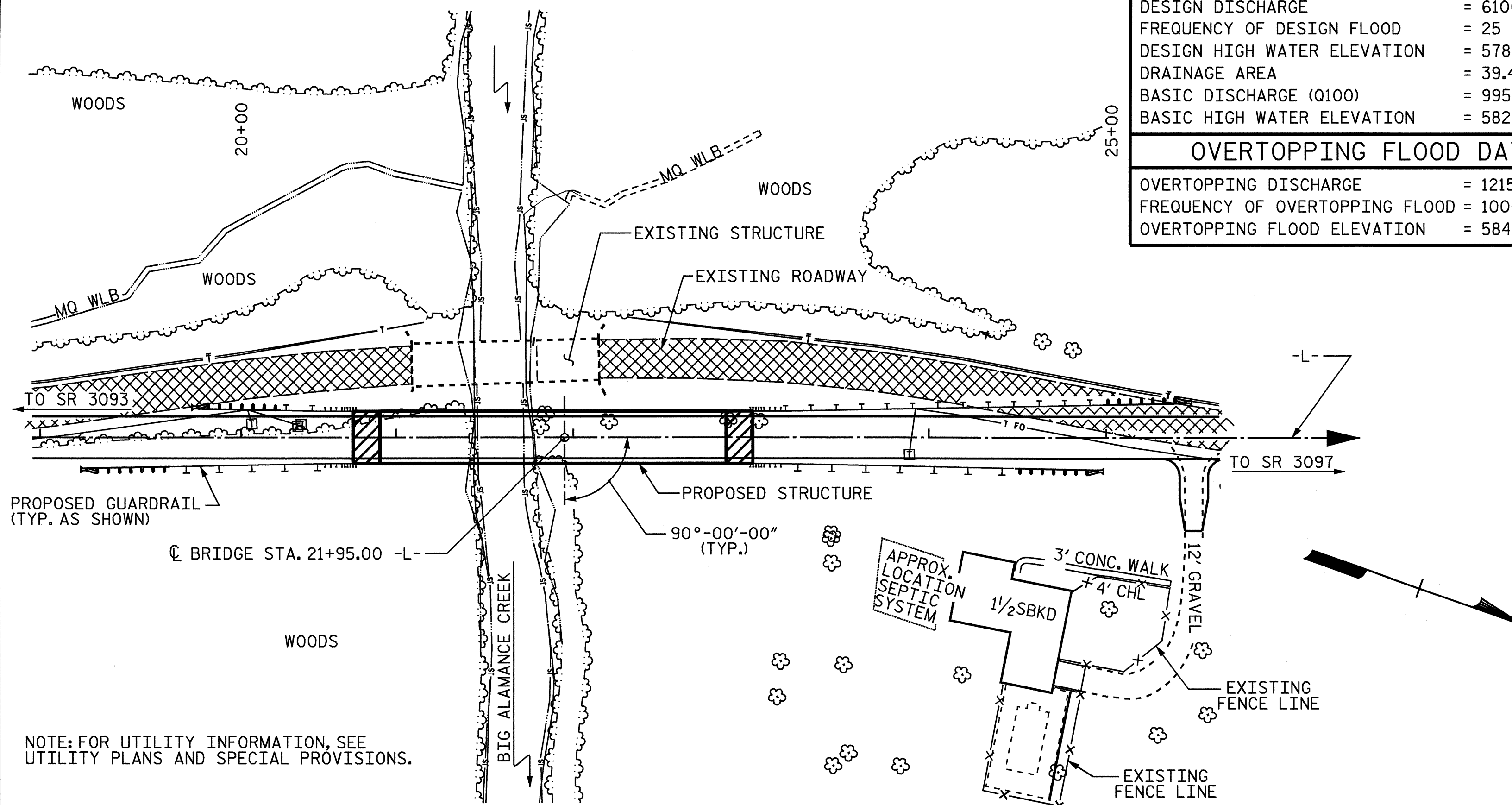
BM #2: RR SPIKE SET IN BASE OF TWIN POPLAR TREE 64' LT. OF STA. 15+99.00 -BL-, EL. 575.35.

HYDRAULIC DATA

DESIGN DISCHARGE	= 6100 CFS
FREQUENCY OF DESIGN FLOOD	= 25 YEARS
DESIGN HIGH WATER ELEVATION	= 578.6
DRAINAGE AREA	= 39.4 SQ. MI.
BASIC DISCHARGE (Q100)	= 9950 CFS
BASIC HIGH WATER ELEVATION	= 582.5

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 12150 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 100+ YEARS
OVERTOPPING FLOOD ELEVATION	= 584.6



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

LOCATION SKETCH

NOTES:

ASSUMED LIVE LOAD = HS20 OR ALTERNATE LOADING, EXCEPT GIRDERS 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.

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W.

REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FT. BELOW THE GROUND LINE.

THE EXISTING STRUCTURE CONSISTING OF 3 SPANS (2 @ 35'-1" AND 1 @ 35'-3") WITH A CLEAR ROADWAY WIDTH OF 22.5' AND HAVING A TIMBER DECK SUPPORTED BY STEEL GIRDER / STRINGER / FLOORBEAM SYSTEM ON TIMBER CAPS AND PILES (INTERIOR BENT PILES CONCRETE ENCASED) SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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

THE 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 CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

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 21+95.00-L-."

NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR SHIPPING STRUCTURAL STEEL MEMBERS, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR HIGH STRENGTH BOLTS, SEE SPECIAL PROVISIONS.

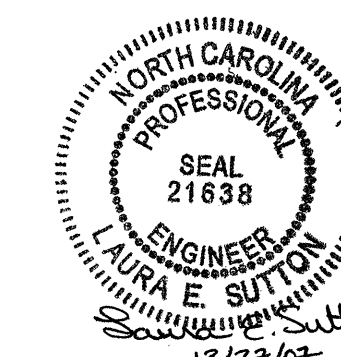
TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	PILE EXCAVATION IN SOIL	PILE EXCAVATION NOT IN SOIL	3'-6" DIA. DRILLED PIERS IN SOIL	3'-6" DIA. DRILLED PIERS NOT IN SOIL	SID INSPECTION	CROSSHOLE SONIC LOGGING	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS		
	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	SQ. FT.	SQ. FT.		
SUPERSTRUCTURE								6,600	6,017		
END BENT 1		75	15								
BENT 1				25.00	11.00						
END BENT 2											
TOTAL	LUMP SUM	75	15	25.00	11.00	1	1	6,600	6,017		
	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	STRUCTURAL STEEL	HP 12 X 53 STEEL PILES	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	EVAZOTE JOINT SEALS	
	CU. YDS.	LUMP SUM	LBS.	LBS.	APPROX. LBS.	NO.	LIN. FT.	LIN. FT.	TON	SQ. YDS.	LUMP SUM
SUPERSTRUCTURE					205,700			400.00			
END BENT 1	19.1		2,873			6	90		140	155	
BENT 1	21.0		5,785	1,119							
END BENT 2	19.1		2,873			6	120		228	254	
TOTAL	59.2	LUMP SUM	11,531	1,119	205,700	12	210	400.00	368	409	LUMP SUM

PROJECT NO. B-4130
GUILFORD COUNTY
 STATION: 21+95.00 -L-

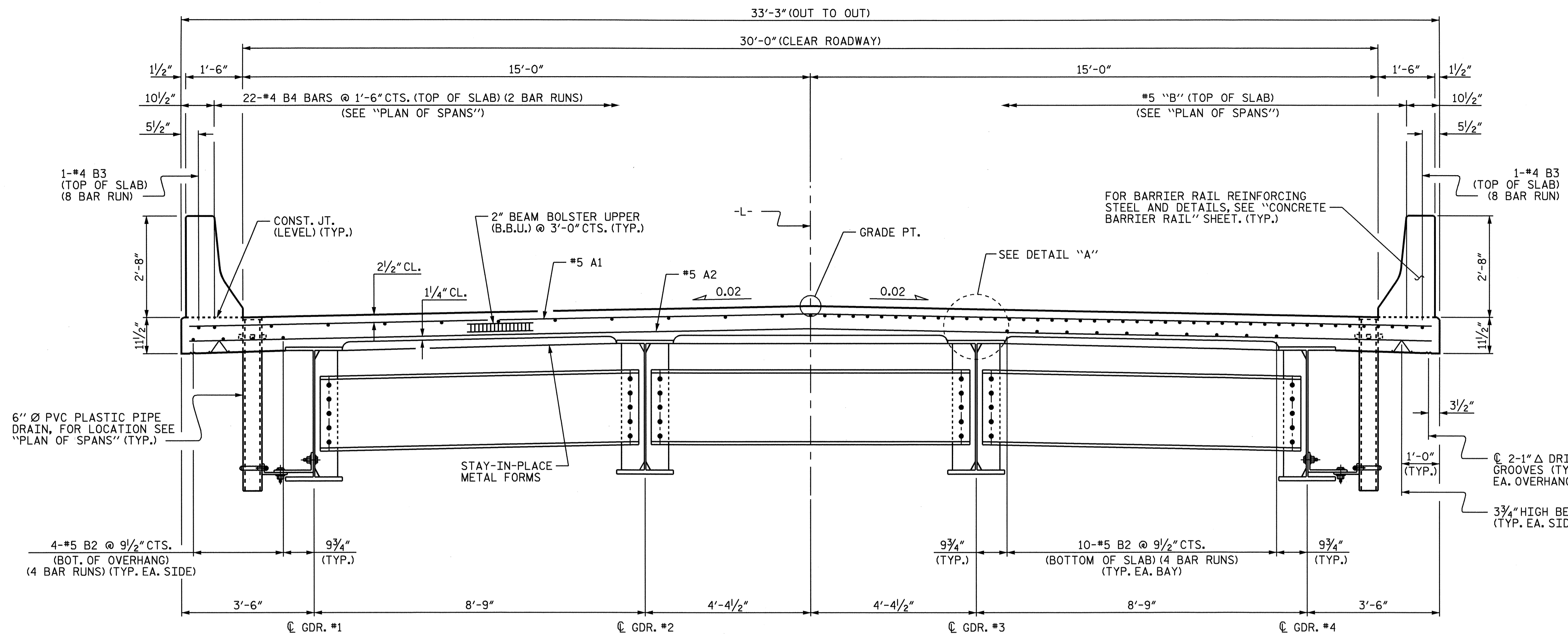
SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 BRIDGE OVER BIG ALAMANCE
 CREEK ON SR 3045 BETWEEN
 SR 3093 AND SR 3097



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

DRAWN BY: E.C. LOCKLEAR DATE: 8-27-07
 CHECKED BY: L.E. SUTTON DATE: 11-05-07



AT MIDSPAN

AT END OF SPAN

TYPICAL SECTION

NOTES:

PROVIDE 1 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF "A" BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF "A" BARS A CLEAR DISTANCE OF 2 1/2" ABOVE THE TOP OF THE REMOVABLE FORM.

METAL STAY-IN-PLACE FORMS SHALL NOT BE WELDED TO BEAM OR GIRDER FLANGES IN THE ZONES REQUIRING CHARPY V-NOTCH TEST. SEE STRUCTURAL STEEL DETAIL SHEETS.

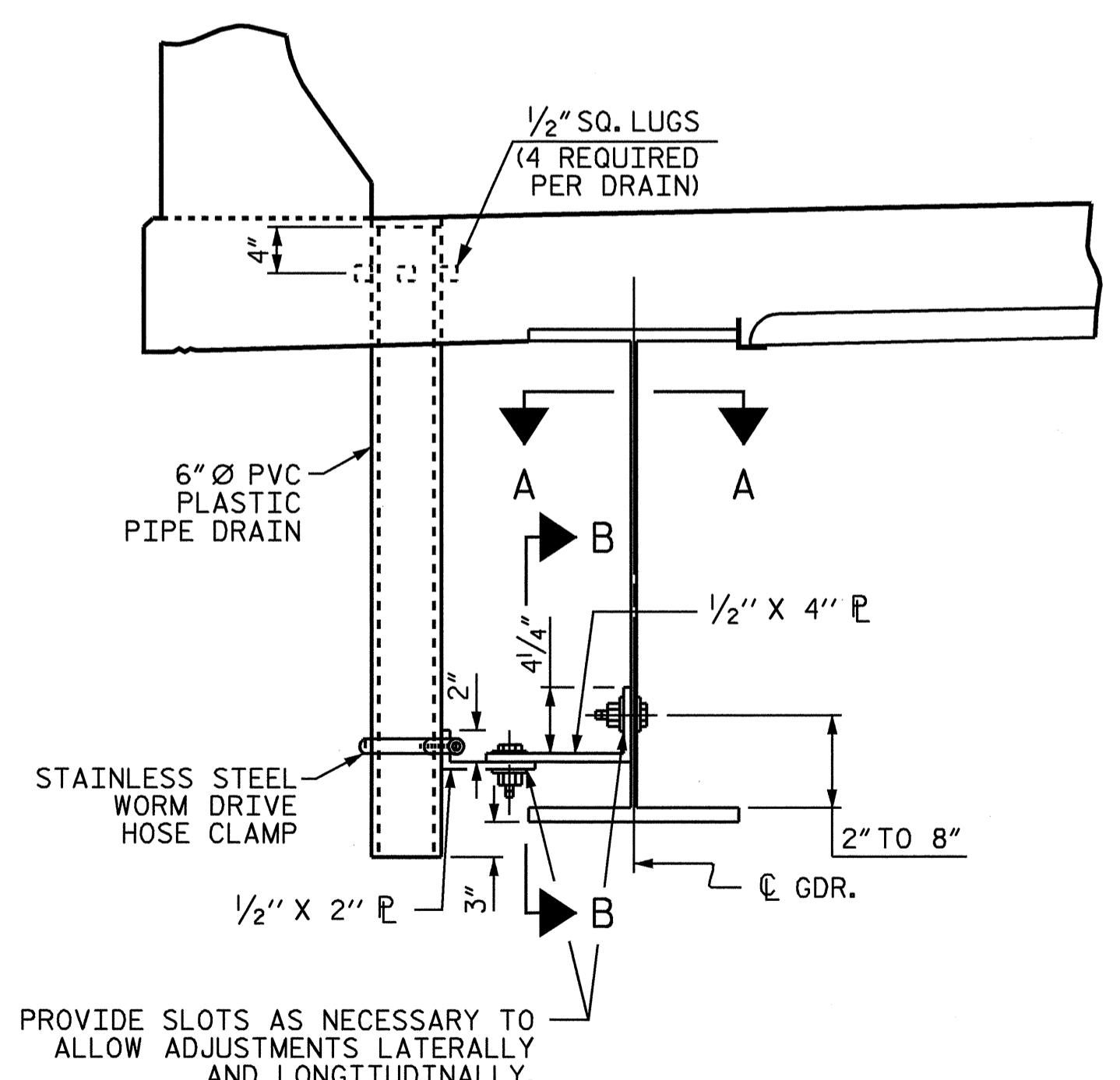
PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.

BARRIER RAIL IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

STRUCTURAL STEEL ERECTION IN A CONTINUOUS UNIT SHALL BE COMPLETE BEFORE FALSEWORK OR FORMS ARE PLACED ON THE UNIT.

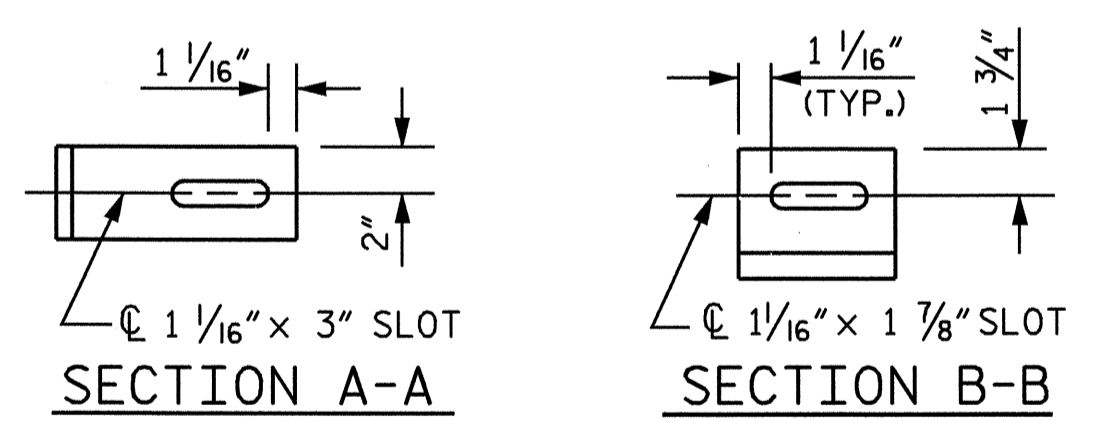
THE CONTRACTOR MAY, WHEN NECESSARY, PROPOSE A SCHEME FOR AVOIDING INTERFERENCE BETWEEN METAL STAY-IN-PLACE FORM SUPPORTS OR FORMS AND BEAM/GIRDER STIFFENERS OR CONNECTOR PLATES. THE PROPOSAL SHALL BE INDICATED, AS APPROPRIATE, ON EITHER THE STEEL WORKING DRAWINGS OR THE METAL STAY-IN-PLACE FORM WORKING DRAWINGS.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.



DRAIN CONNECTOR DETAIL

(24 DRAINS REQUIRED)



NOTES

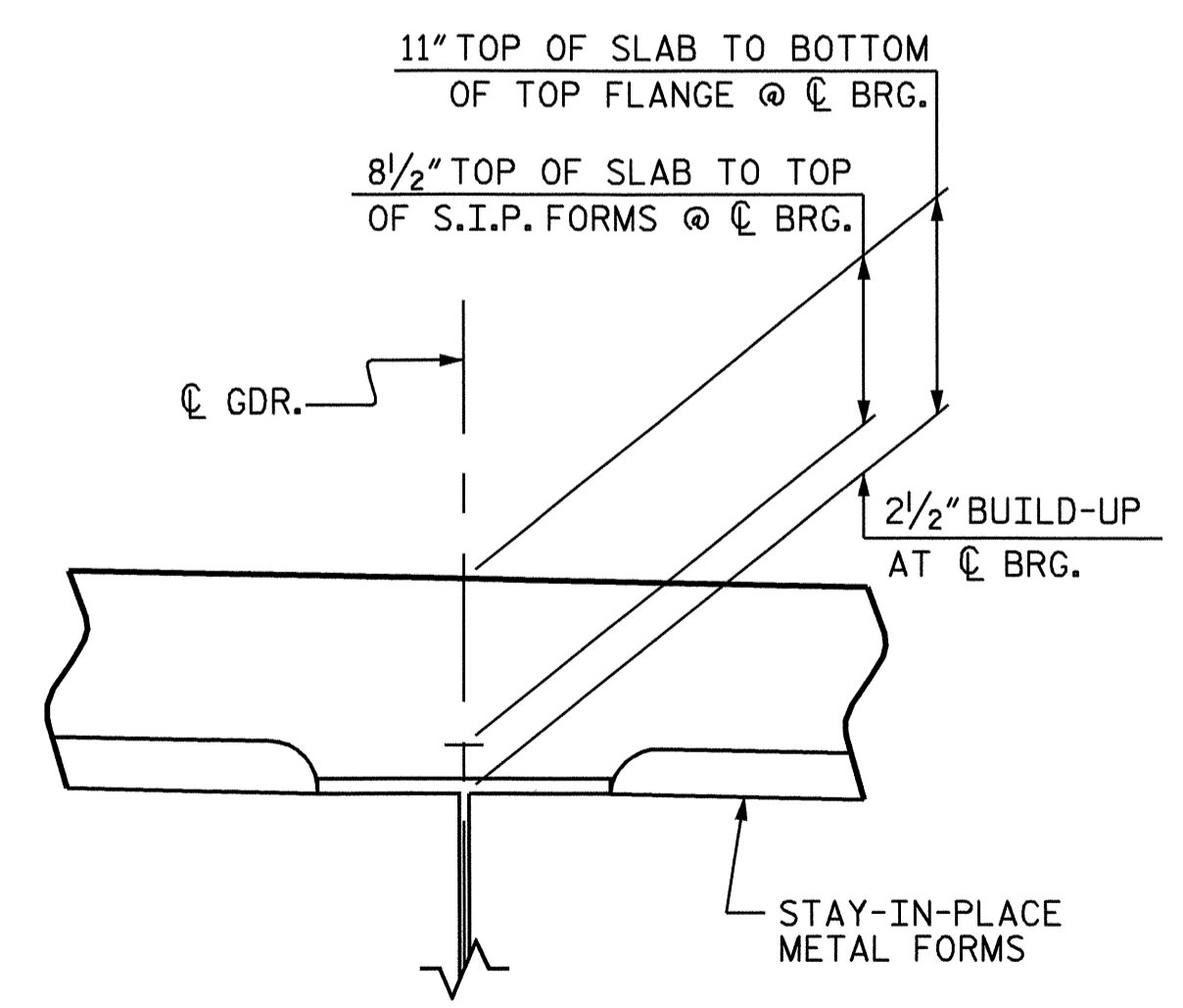
TOP OF FLOOR DRAIN TO BE SET 3/8" BELOW SURFACE OF SLAB.

4 - 1/2" SQUARE LUGS TO BE GLUED TO THE PVC PLASTIC PIPE AT EQUAL SPACES AROUND THE PIPE DRAIN APPROXIMATELY 4" FROM THE TOP OF THE PIPE.

COUPLING IN DRAIN PIPE WILL BE PERMITTED AS APPROVED BY THE ENGINEER.

BOLT SIZE TO BE SAME AS DIAPHRAGMS AND CROSSFRAME CONNECTIONS. STAINLESS STEEL WORM DRIVE HOSE CLAMP SHALL BE COMMERCIAL QUALITY.

THE 6" Ø PVC PIPE AND FITTINGS SHALL BE SCHEDULE 40 AND CONFORM TO ASTM D1785.



DETAIL "A"

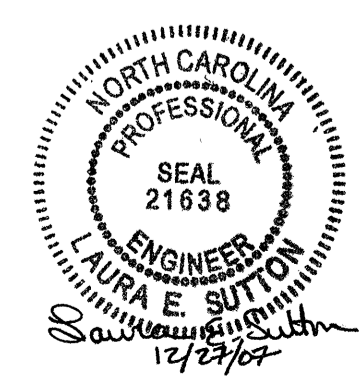
(TYP. EA. GIRDER)

PROJECT NO. B-4130
GUILFORD COUNTY
 STATION: 21+95.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

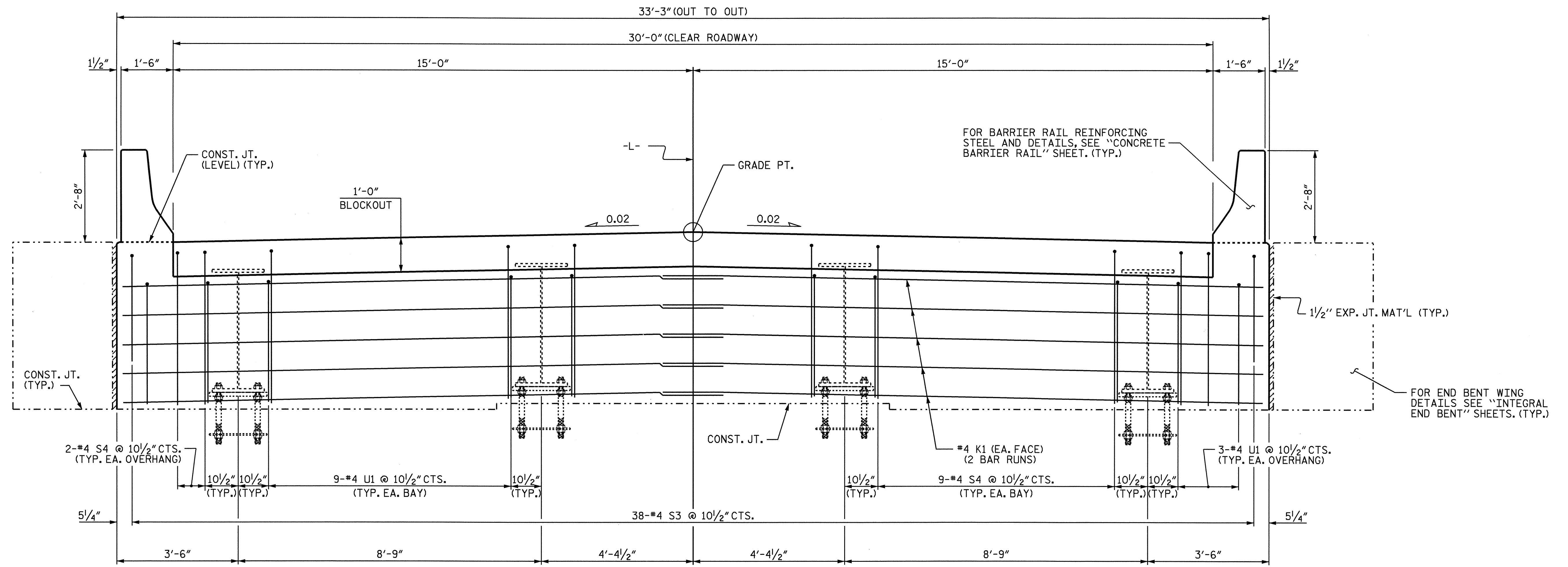
SUPERSTRUCTURE
 TYPICAL SECTIONS



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

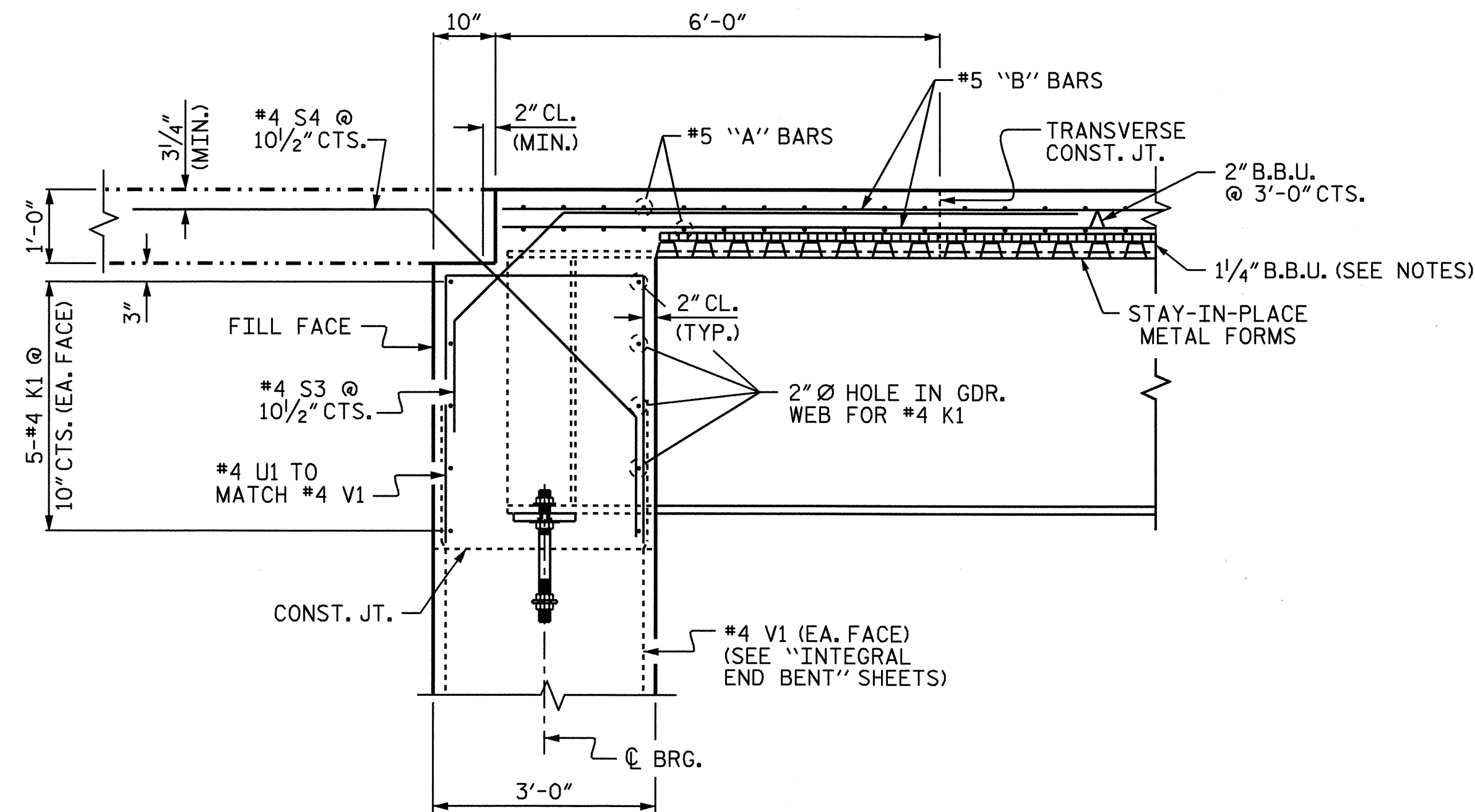
S-4
TOTAL SHEETS
27

DRAWN BY: A.S. CALLAWAY DATE: 9/11/06
 CHECKED BY: W.F. PARKER DATE: 2/27/07

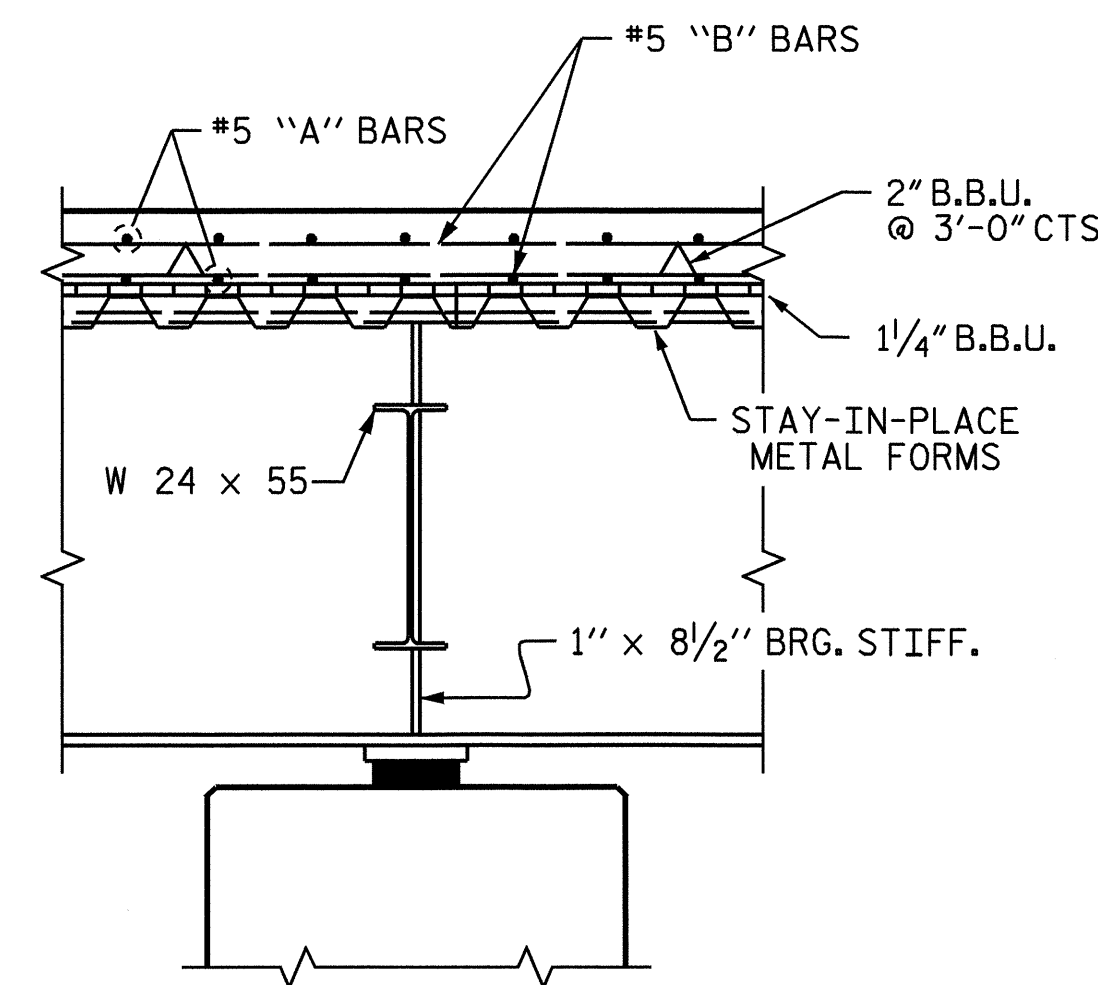


END ELEVATION

(END BENT 1 SHOWN, END BENT 2 SIMILAR)
(FOR CLARITY, DECK REINFORCING STEEL NOT SHOWN)



SECTION A-A



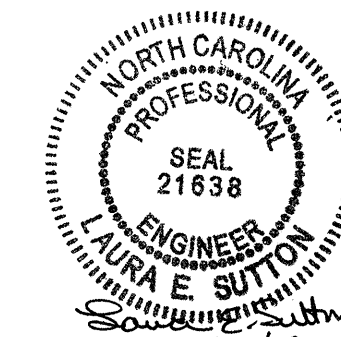
SECTION AT BENT

PROJECT NO. B-4130
GUILFORD COUNTY
 STATION: 21+95.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

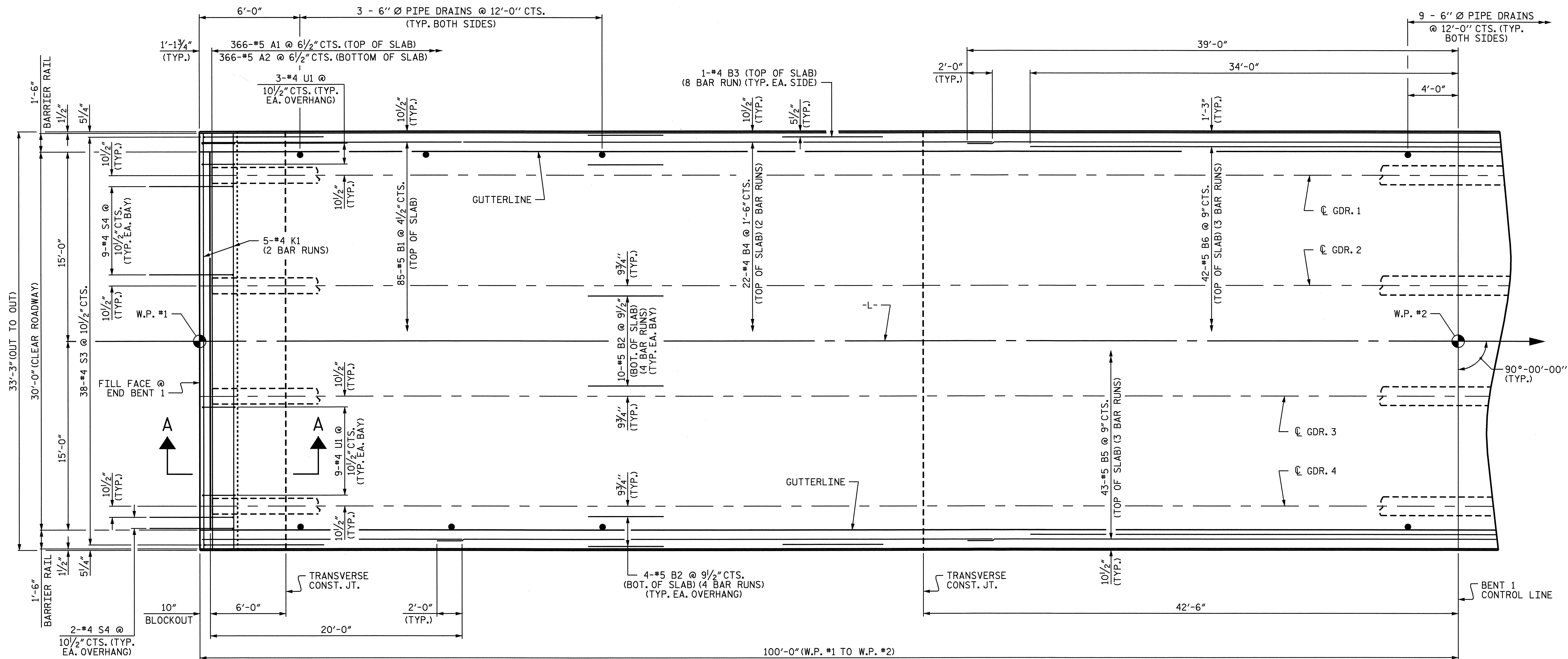
SUPERSTRUCTURE
 TYPICAL SECTIONS



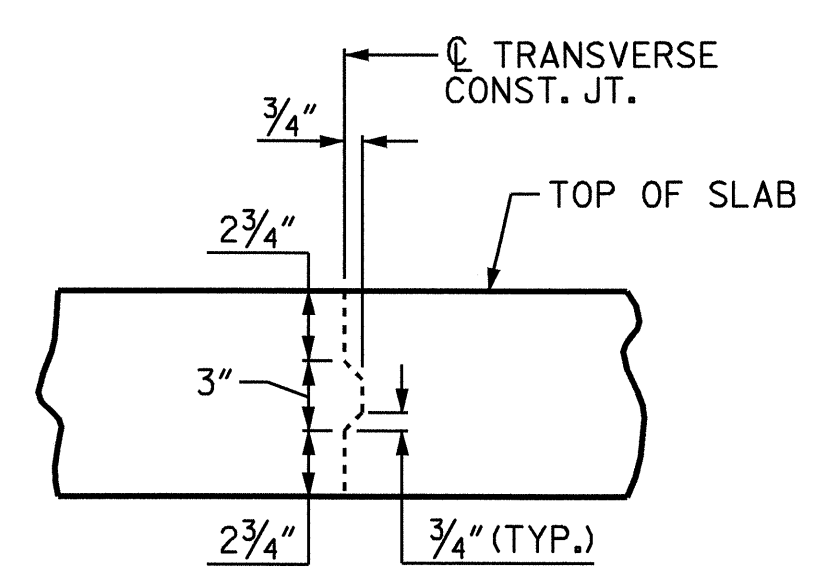
DRAWN BY: A.S. CALLAWAY DATE: 9/11/06
 CHECKED BY: W.F. PARKER DATE: 2/27/07

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 lsutton

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			27



PLAN OF SPAN A



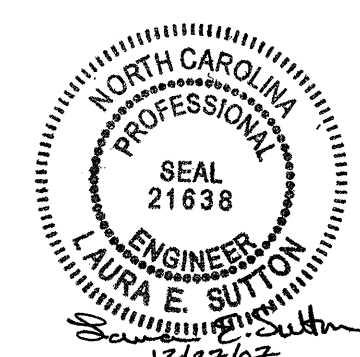
TRANSVERSE CONSTRUCTION JOINT DETAIL

REINFORCING STEEL IN SLAB NOT SHOWN.
LONGITUDINAL REINFORCING STEEL SHALL BE
CONTINUOUS THROUGH JOINT.

NOTES:
FOR BARRIER RAIL REINFORCING STEEL AND
DETAILS, SEE "CONCRETE BARRIER RAIL" SHEET.
FOR SECTION A-A, SEE "TYPICAL SECTIONS",
SHEET 2 OF 2.
"B" BARS MAY BE SHIFTED AS NECESSARY TO
CLEAR DECK DRAINS.

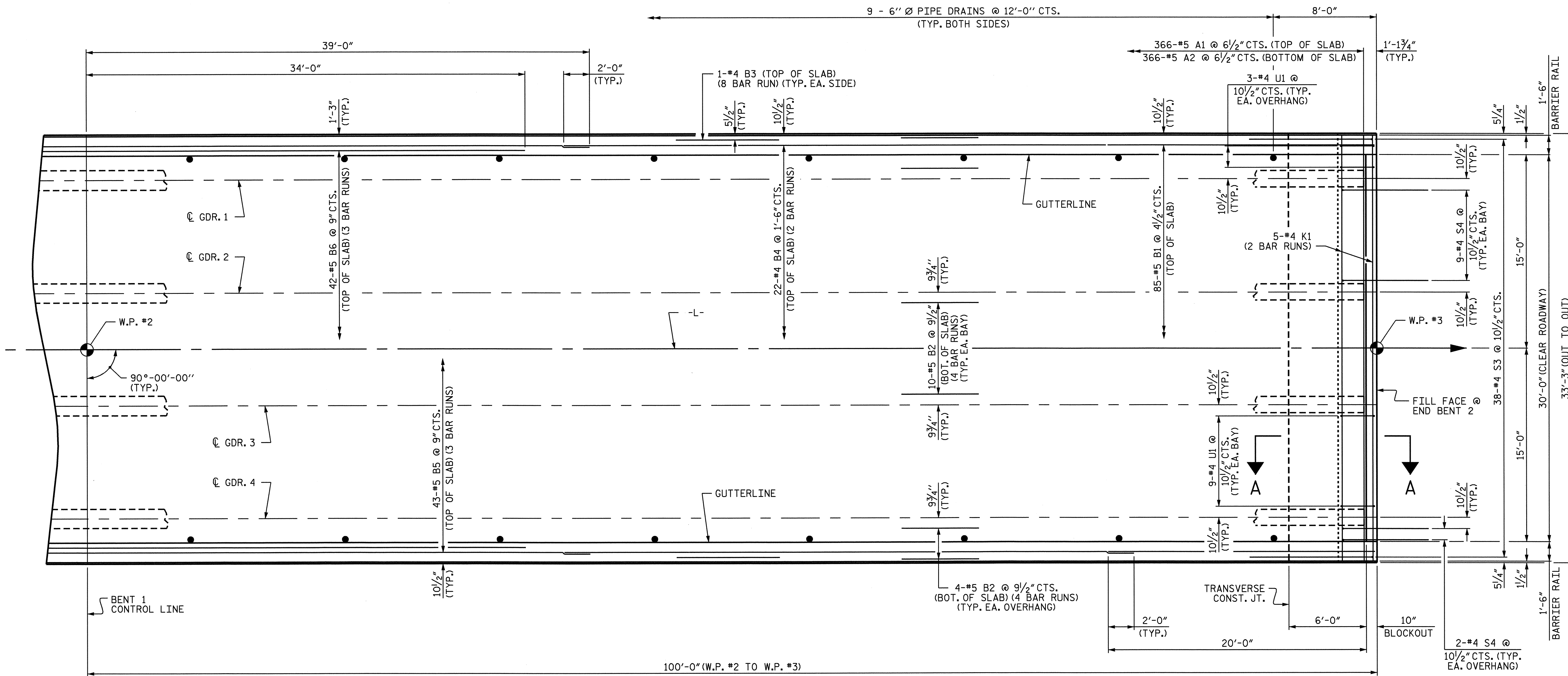
PROJECT NO. B-4130
GUILFORD COUNTY
 STATION: 21+95.00 -L-

SHEET 1 OF 2

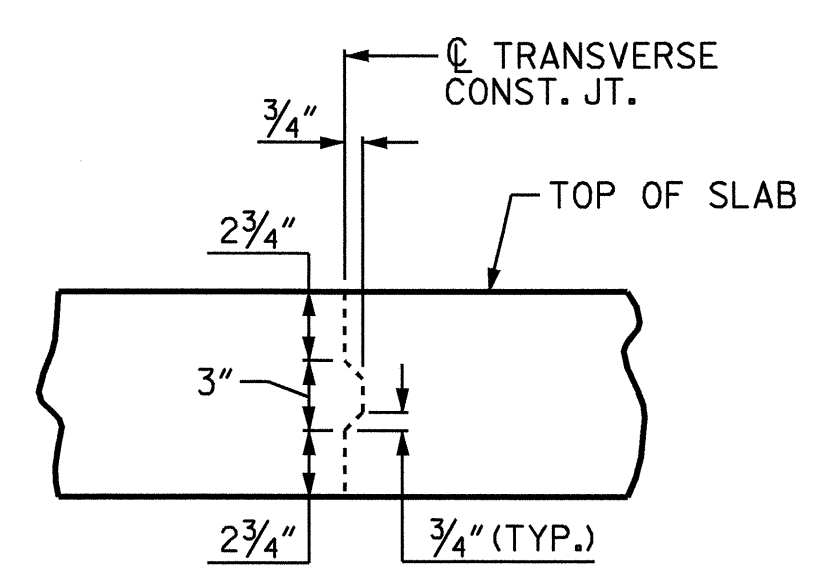


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PLAN OF SPAN					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-6
TOTAL SHEETS					27

DRAWN BY: A.S. CALLAWAY DATE: 10/2/06
 CHECKED BY: W.F. PARKER DATE: 2/27/07



PLAN OF SPAN B



TRANSVERSE CONSTRUCTION JOINT DETAIL

REINFORCING STEEL IN SLAB NOT SHOWN.
LONGITUDINAL REINFORCING STEEL SHALL BE
CONTINUOUS THROUGH JOINT.

NOTES:
FOR BARRIER RAIL REINFORCING STEEL AND
DETAILS, SEE "CONCRETE BARRIER RAIL" SHEET.
FOR SECTION A-A, SEE "TYPICAL SECTIONS",
SHEET 2 OF 2.
"B" BARS MAY BE SHIFTED AS NECESSARY TO
CLEAR DECK DRAINS.

PROJECT NO. B-4130
GUILFORD COUNTY
STATION: 21+95.00 -L-

SHEET 2 OF 2

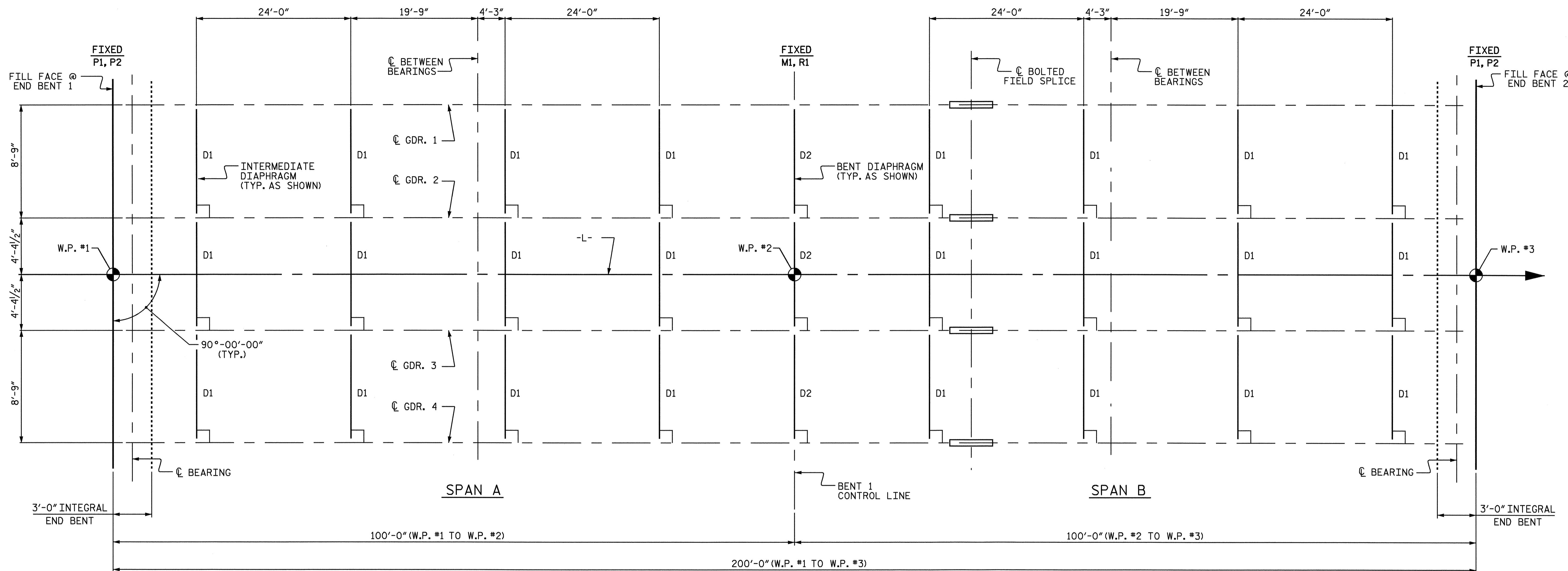
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
PLAN OF SPAN

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			27



DRAWN BY: A.S. CALLAWAY DATE: 10/2/06
CHECKED BY: W.F. PARKER DATE: 2/27/07

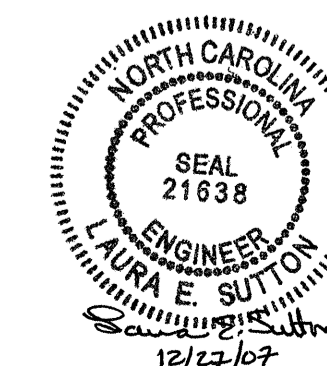


FRAMING PLAN

PROJECT NO. B-4130
GUILFORD COUNTY
 STATION: 21+95.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

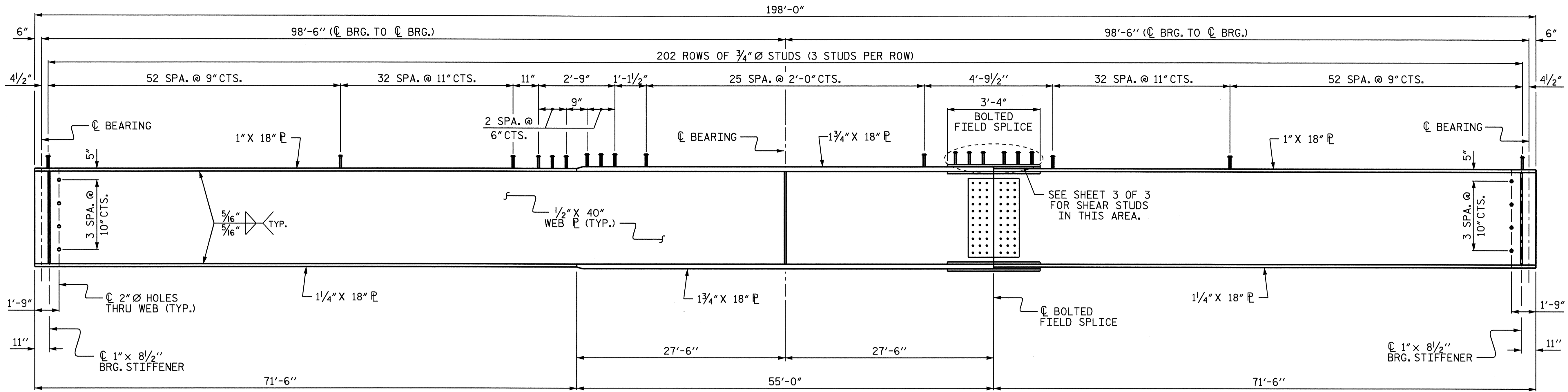
SUPERSTRUCTURE
 FRAMING PLAN



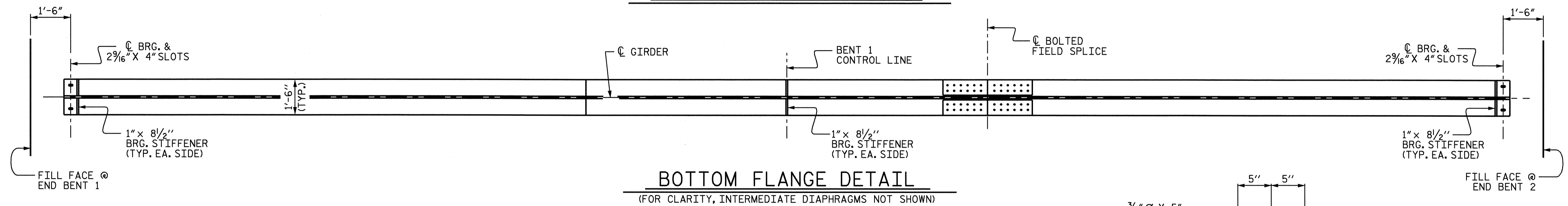
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 CHECKED BY : W.F. PARKER DATE : 2/27/07

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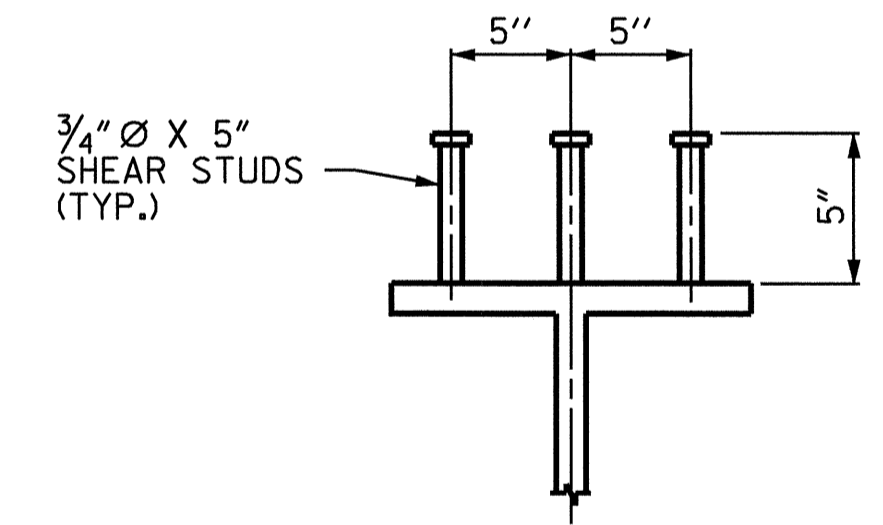
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			27



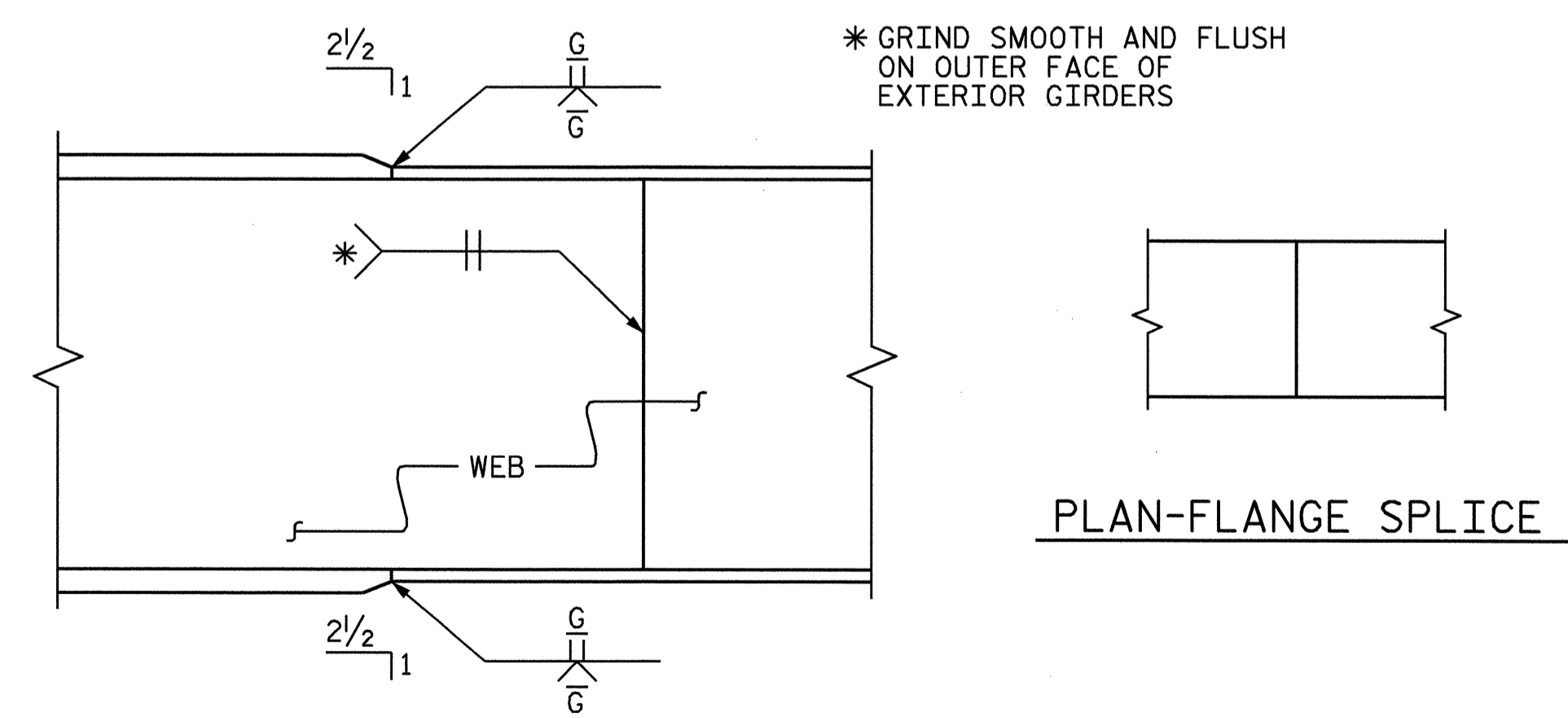
ELEVATION OF GIRDER



BOTTOM FLANGE DETAIL
(FOR CLARITY, INTERMEDIATE DIAPHRAGMS NOT SHOWN)

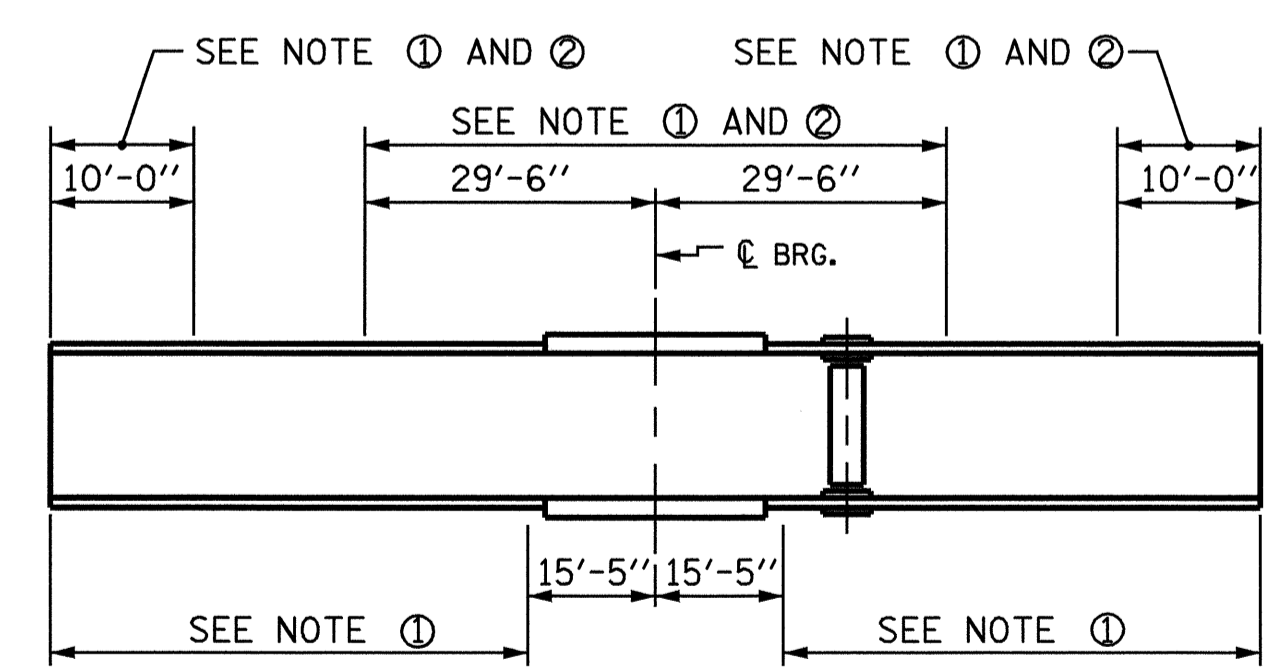


SHEAR STUD DETAIL



ELEVATION

TYPICAL FLANGE AND WEB BUTT JOINT



GIRDER MAKE UP

NOTE ① : CHARPY V-NOTCH TESTS ARE REQUIRED FOR ALL TOP OR BOTTOM FLANGE PLATES WHICH FALL WITHIN THESE LIMITS, ALL WEB PLATES, AND ALL SPLICE PLATES. IF A PERMITTED SHOP FLANGE SPLICE IS NOT USED, CHARPY V-NOTCH TESTS WILL BE REQUIRED FOR THE ENTIRE FLANGE PLATE. FOR CHARPY V-NOTCH TESTS, SEE ARTICLE 1072-9 OF THE STANDARD SPECIFICATIONS.

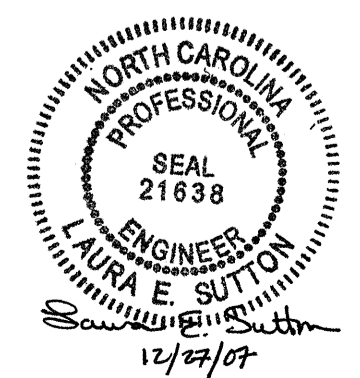
NOTE ② : NO WELDING OF FORMS OR FALSEWORK TO THE TOP FLANGE WILL BE PERMITTED IN THIS REGION

CHARPY V-NOTCH TESTS FOR CONTINUOUS PLATE GIRDERS

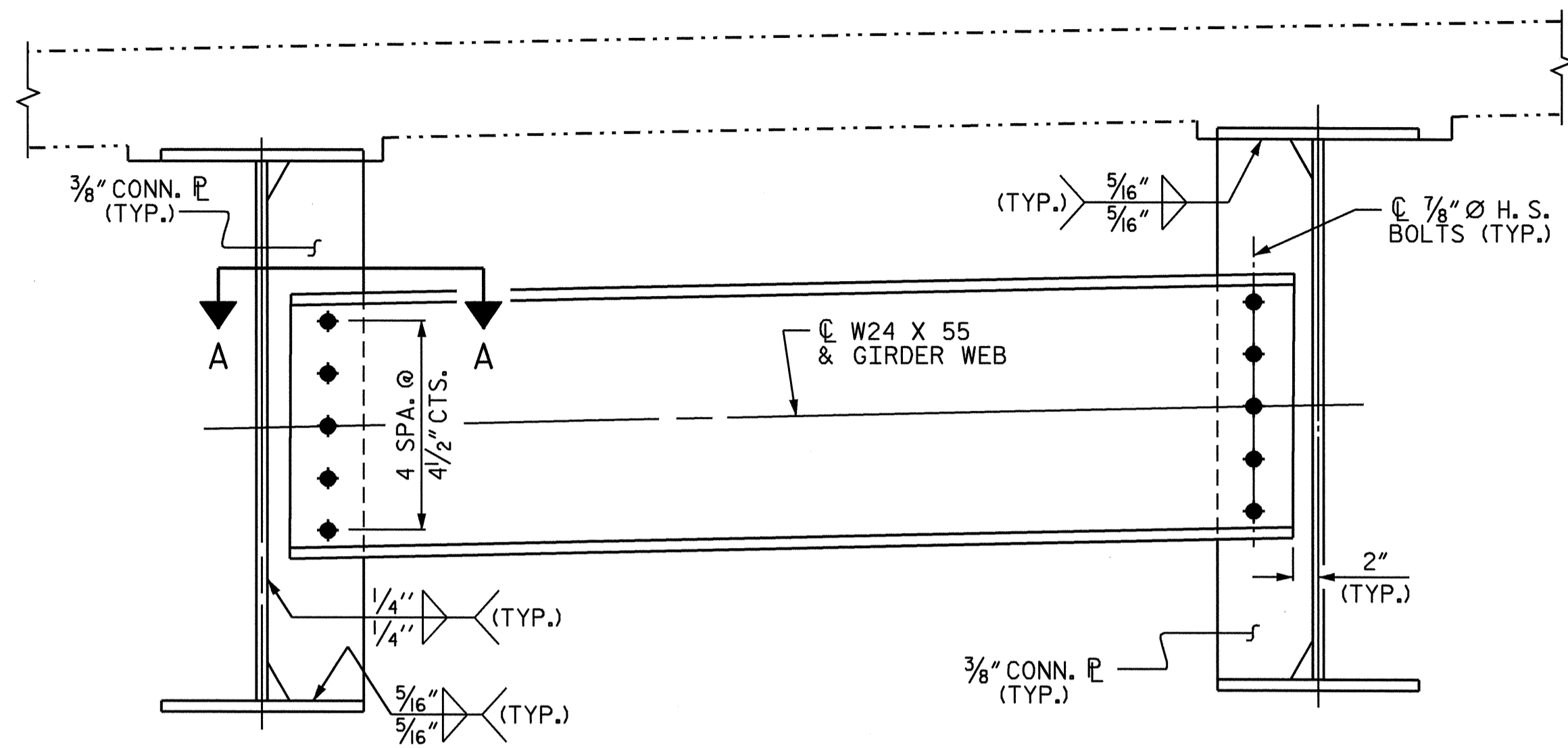
PROJECT NO. B-4130
GUILFORD COUNTY
 STATION: 21+95.00 -L-

SHEET 1 OF 3

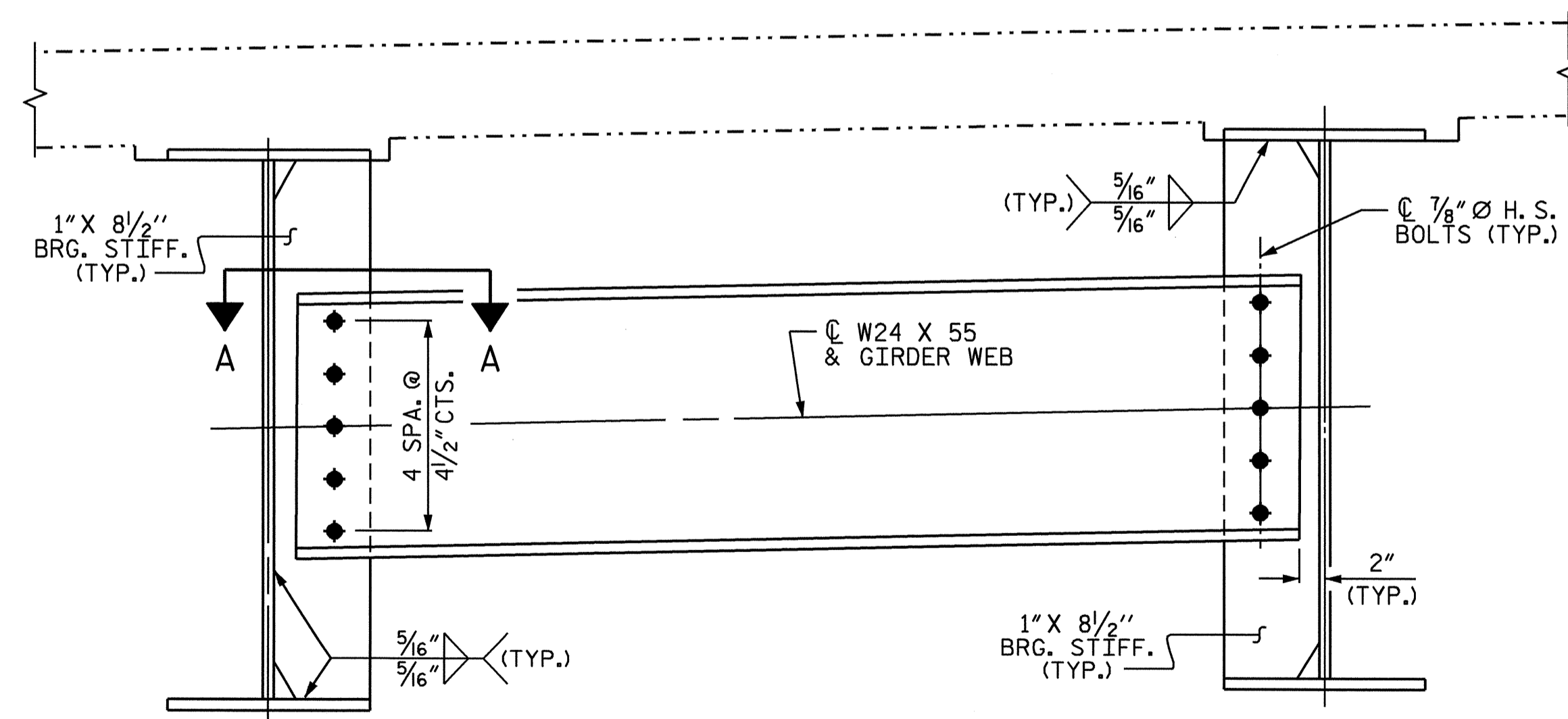
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE STRUCTURAL STEEL					
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SHEET NO.					S-9
TOTAL SHEETS					27



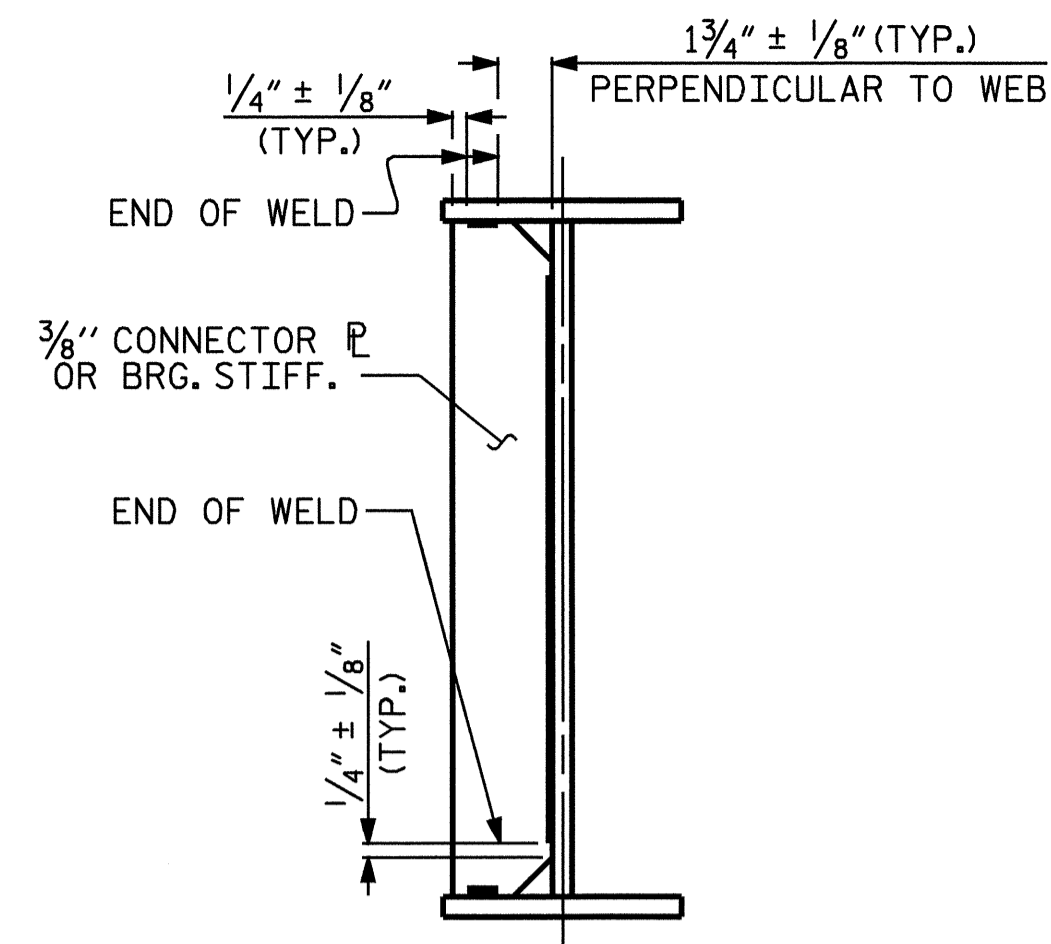
DRAWN BY : A.S. CALLAWAY DATE : 9/12/06
 CHECKED BY : W.F. PARKER DATE : 2/27/07



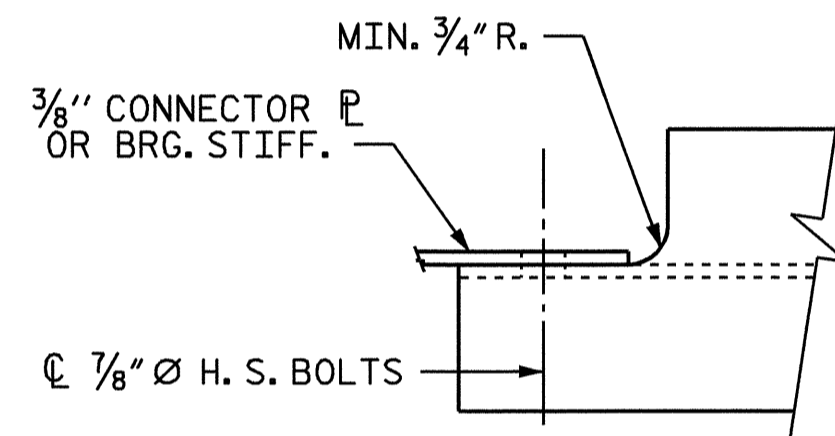
INTERMEDIATE DIAPHRAGM (D1)



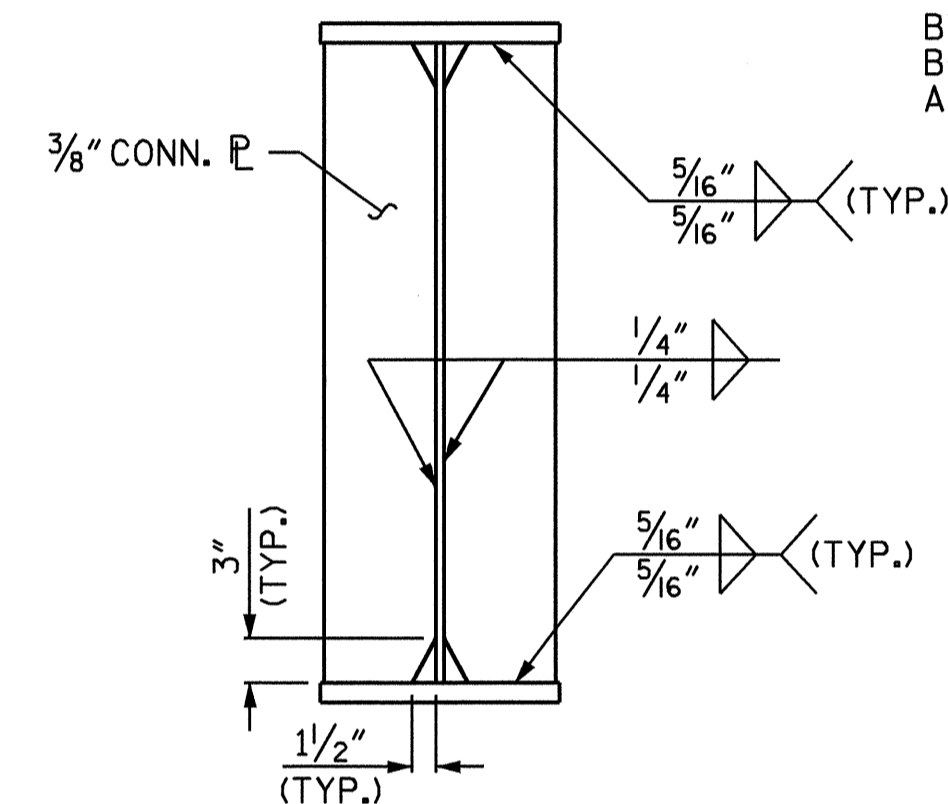
BENT DIAPHRAGM (D2)



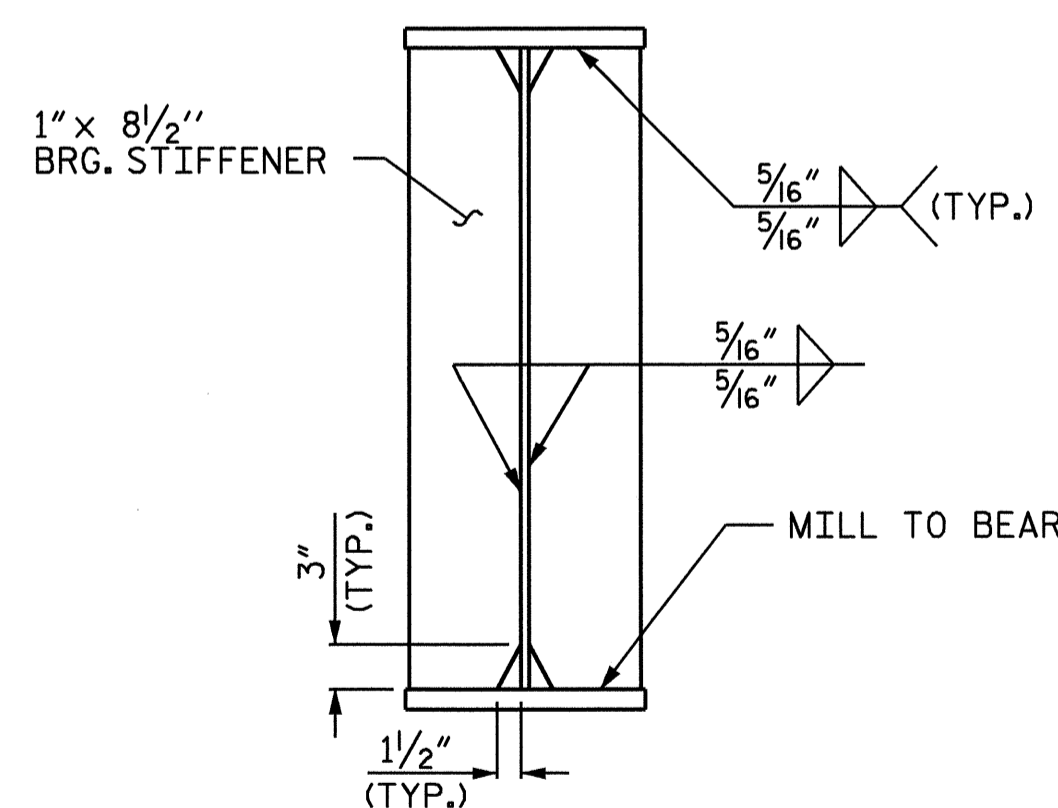
WELD TERMINATION DETAIL



SECTION A-A

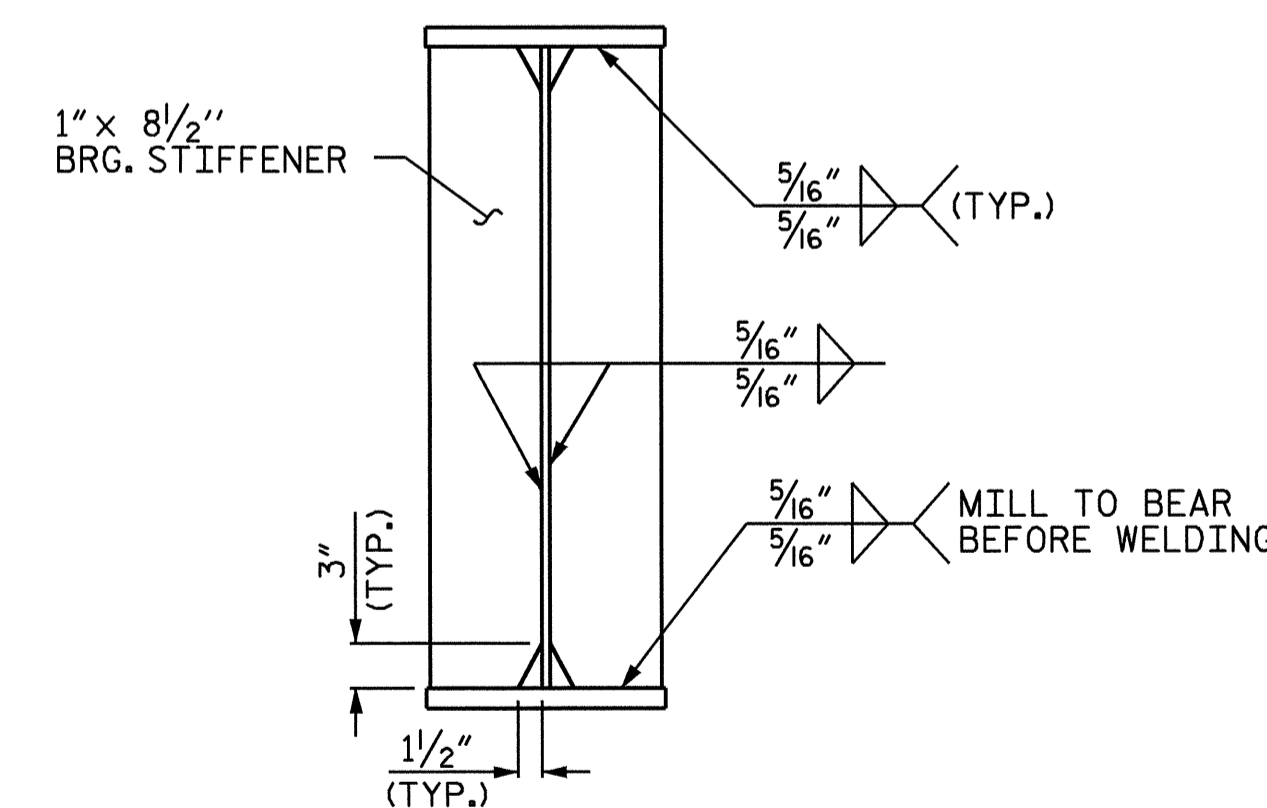


CONNECTOR PLATE



BEARING STIFFENER

(AT END BENTS 1 & 2)



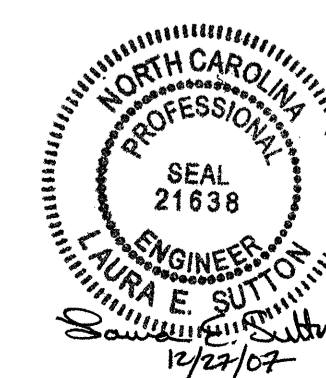
BEARING STIFFENER

(AT BENT 1)

NOTES:
 ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W.
 ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.
 ALL FIELD CONNECTIONS TO BE 7/8" DIA. HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED. FOR HIGH STRENGTH BOLTS, SEE SPECIAL PROVISIONS.
 BEARING STIFFENERS ARE TO BE PLACED NORMAL TO THE WEB OF THE GIRDER AND SHALL BE PLUMB.
 SHOP SPLICES ARE PERMITTED TO LIMIT THE MAXIMUM REQUIRED FLANGE PIECE LENGTHS TO 60 FEET AND WEB PIECE LENGTHS TO 45 FEET. PERMITTED FLANGE AND WEB SHOP SPLICES SHALL NOT BE LOCATED WITHIN 15 FEET OF MAXIMUM DEAD LOAD DEFLECTION NOR WITHIN 15 FEET OF INTERMEDIATE BEARINGS OF CONTINUOUS UNITS. KEEP 2 FEET MINIMUM BETWEEN WEB AND FLANGE SHOP SPLICES. KEEP 6" MINIMUM BETWEEN CONNECTOR PLATE OR TRANSVERSE STIFFENER WELDS AND WEB OR FLANGE SHOP SPLICES.
 STUDS ON GIRDERS MAY BE SHIFTED UP TO 1" IF NECESSARY TO CLEAR FLANGE SPlice WELD.
 TENSION ON THE AASHTO M164 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS.
 END OF GIRDERS SHALL BE PLUMB.
 BEARING STIFFENER MAY REQUIRE COPING IF WIDER THAN BOTTOM FLANGE TO AVOID INTERFERENCE WITH THE ANCHOR BOLT.

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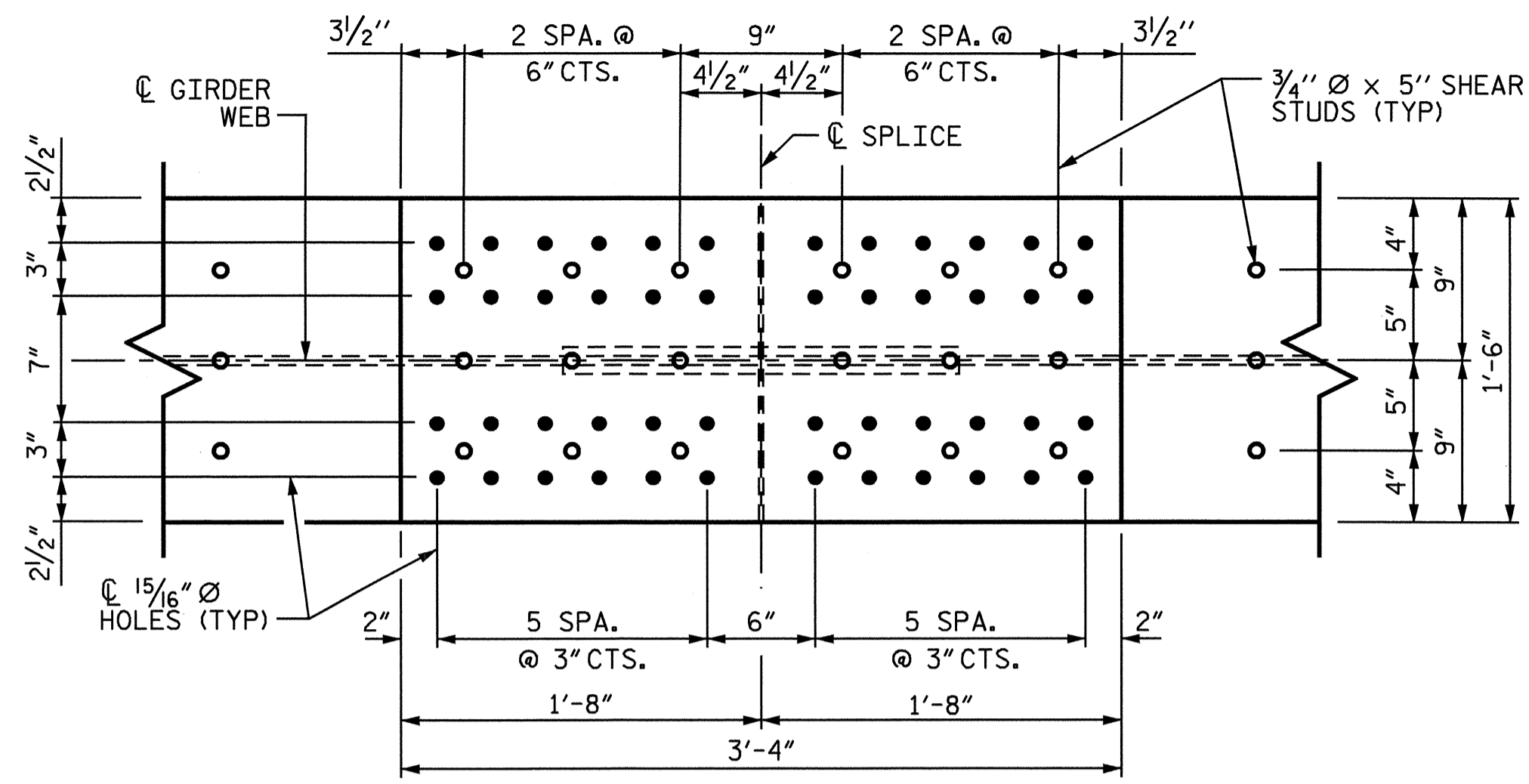
PROJECT NO. B-4130
GUILFORD COUNTY
 STATION: 21+95.00 -L-

SHEET 2 OF 3

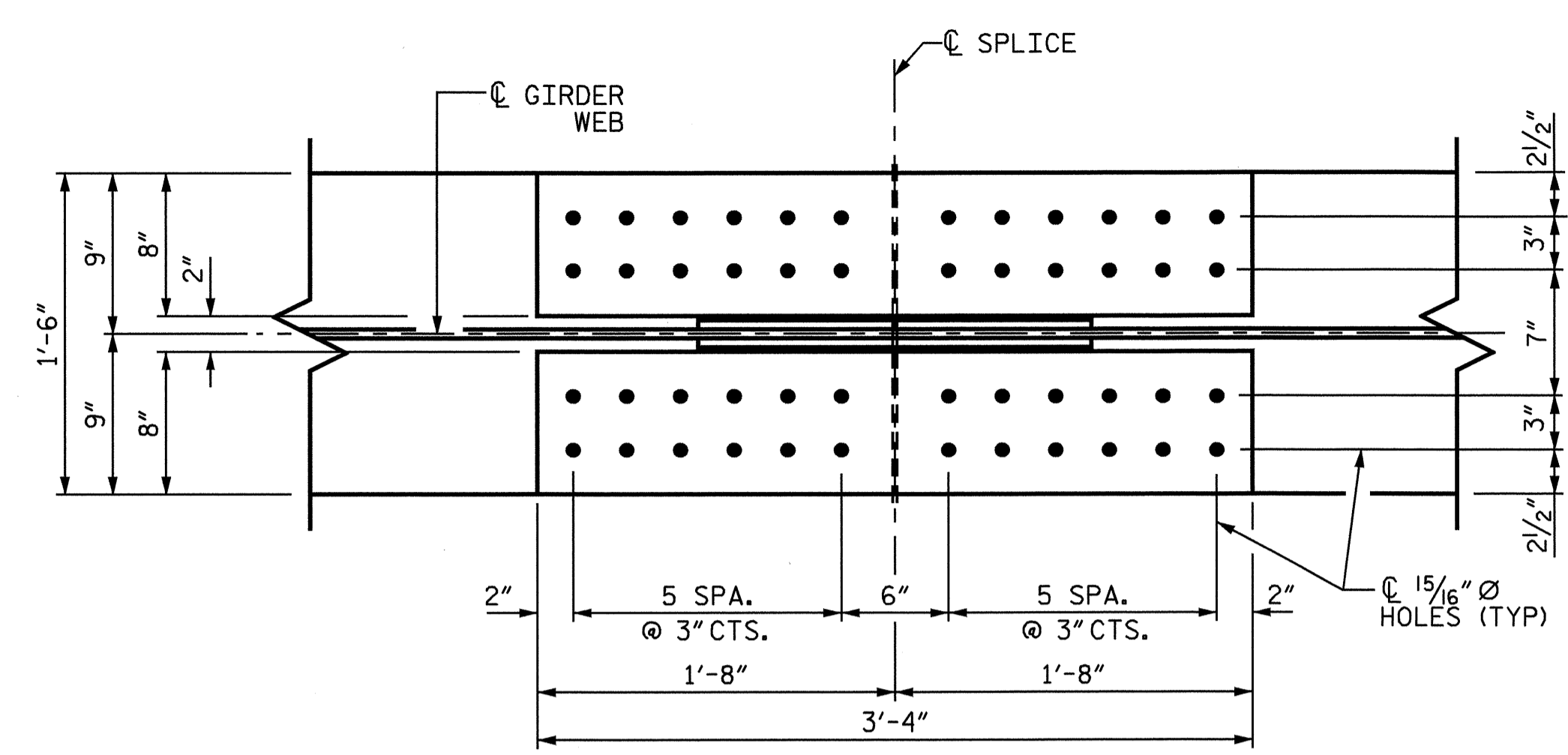
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS

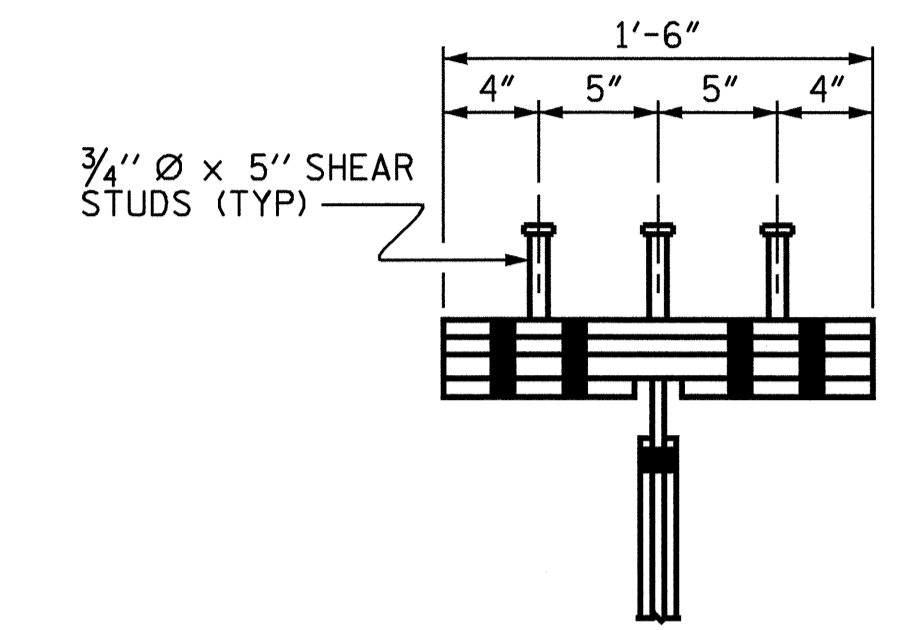
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
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2			4			27



PLAN (TOP OF TOP FLANGE)

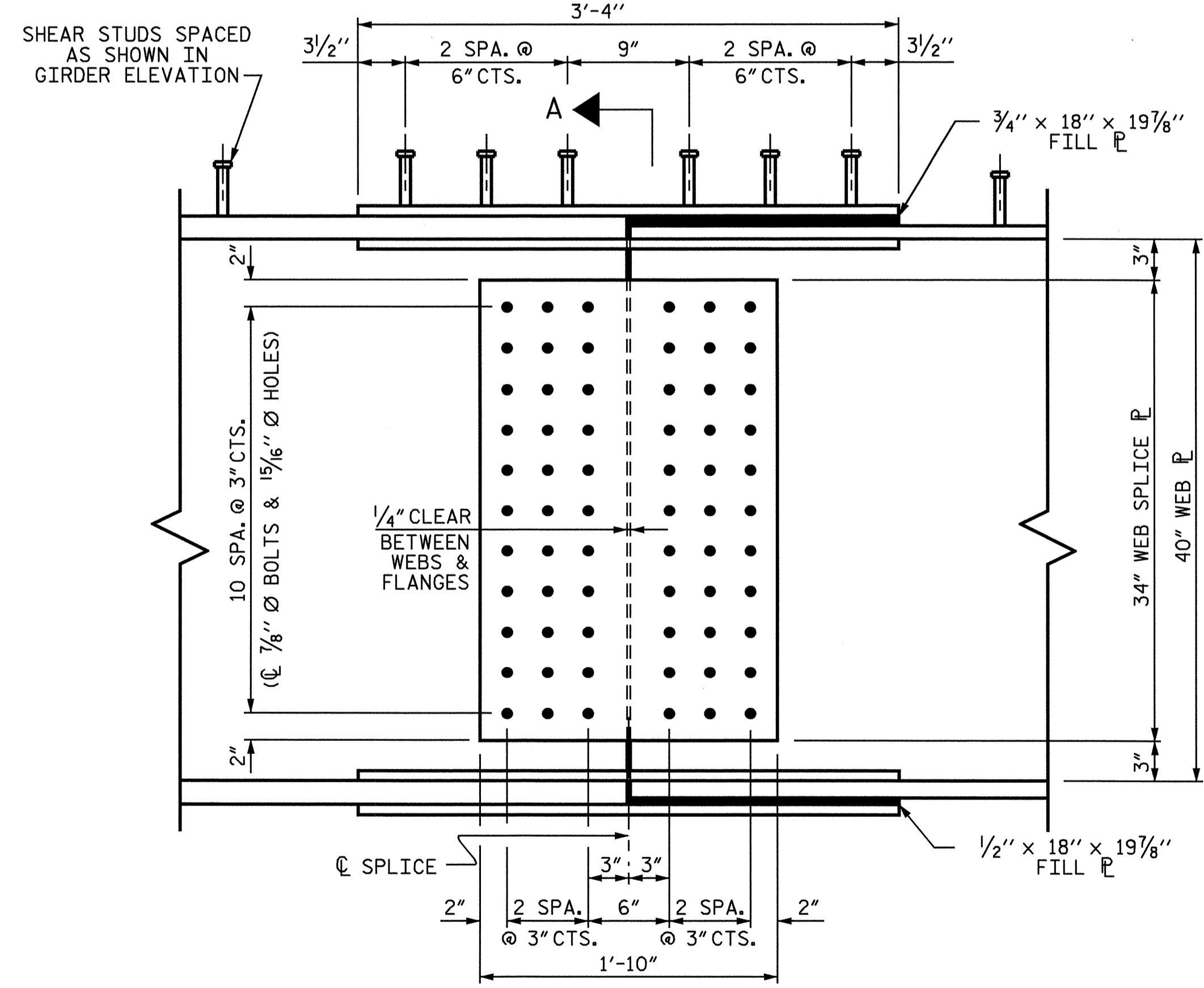


PLAN (TOP OF BOTTOM FLANGE)

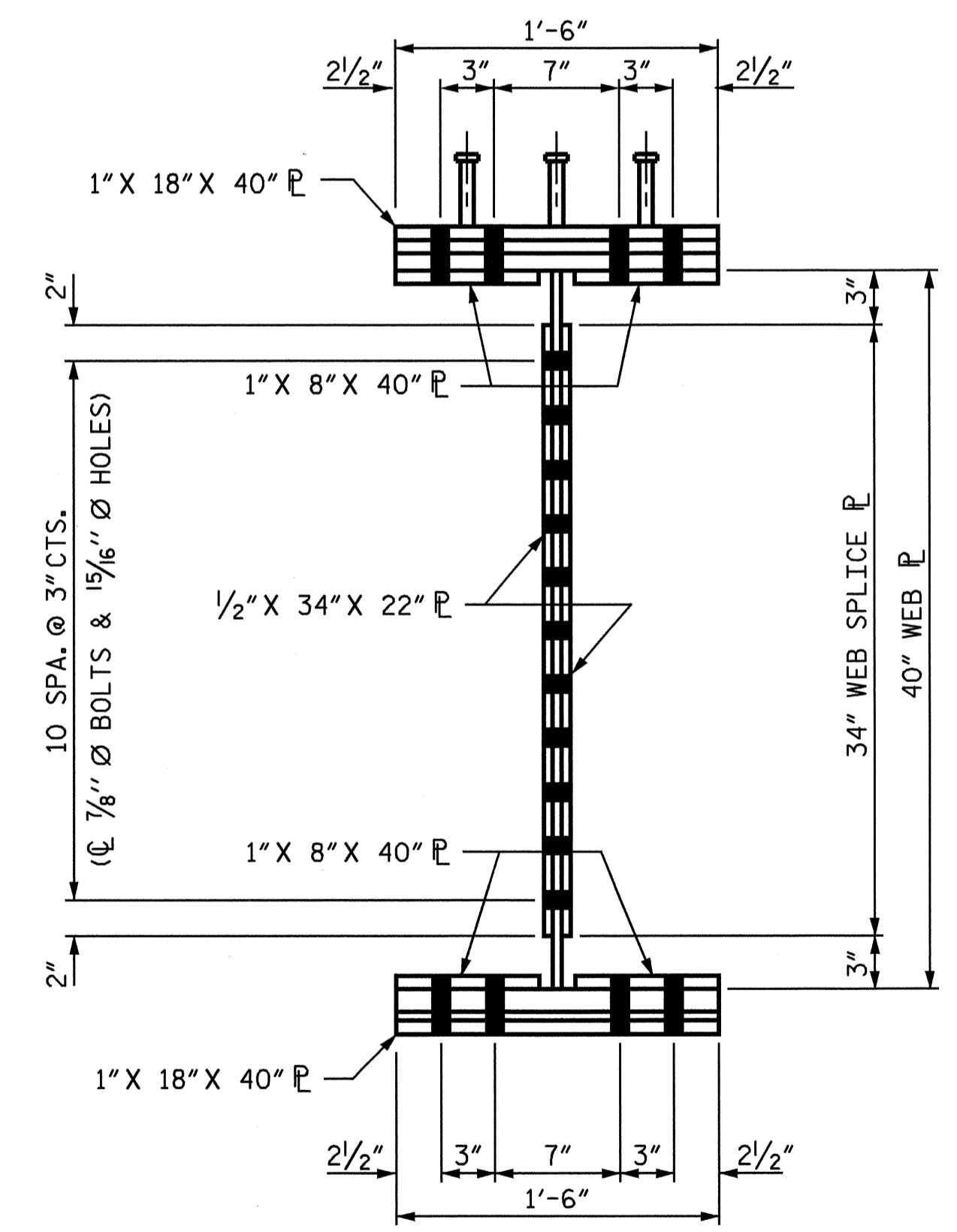


SHEAR STUD DETAIL FOR TOP FLANGE SPLICE PLATE

NOTE: SHEAR STUDS ARE TO BE SHOP WELDED ON TOP OF PLATE BEFORE FIELD ASSEMBLY.



ELEVATION



SECTION A-A

DESCRIPTION	SIZE	NO. REQ'D. FOR ONE FIELD SPLICE	TOTAL REQ'D.
WEB SPLICE PLATE	1/2" x 34" x 22"	2	8
OUTER SPLICE PLATE TOP FLANGE W/SHEAR STUDS	1" x 18" x 40"	1	4
INNER SPLICE PLATE TOP FLANGE	1" x 8" x 40"	2	8
FILL PLATE TOP FLANGE	3/4" x 18" x 19 7/8"	1	4
FILL PLATE BOTTOM FLANGE	1/2" x 18" x 19 7/8"	1	4
INNER SPLICE PLATE BOTTOM FLANGE	1" x 8" x 40"	2	8
OUTER SPLICE PLATE BOTTOM FLANGE	1" x 18" x 40"	1	4

NOTE: 15/16" Ø HOLES FOR 7/8" Ø H.S. BOLTS.

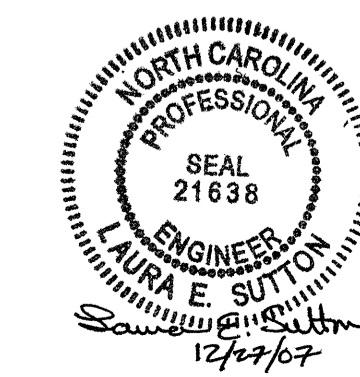
BOLTED FIELD SPLICE DETAILS

(TYPICAL EACH FIELD SPLICE)

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SHEET 3 OF 3

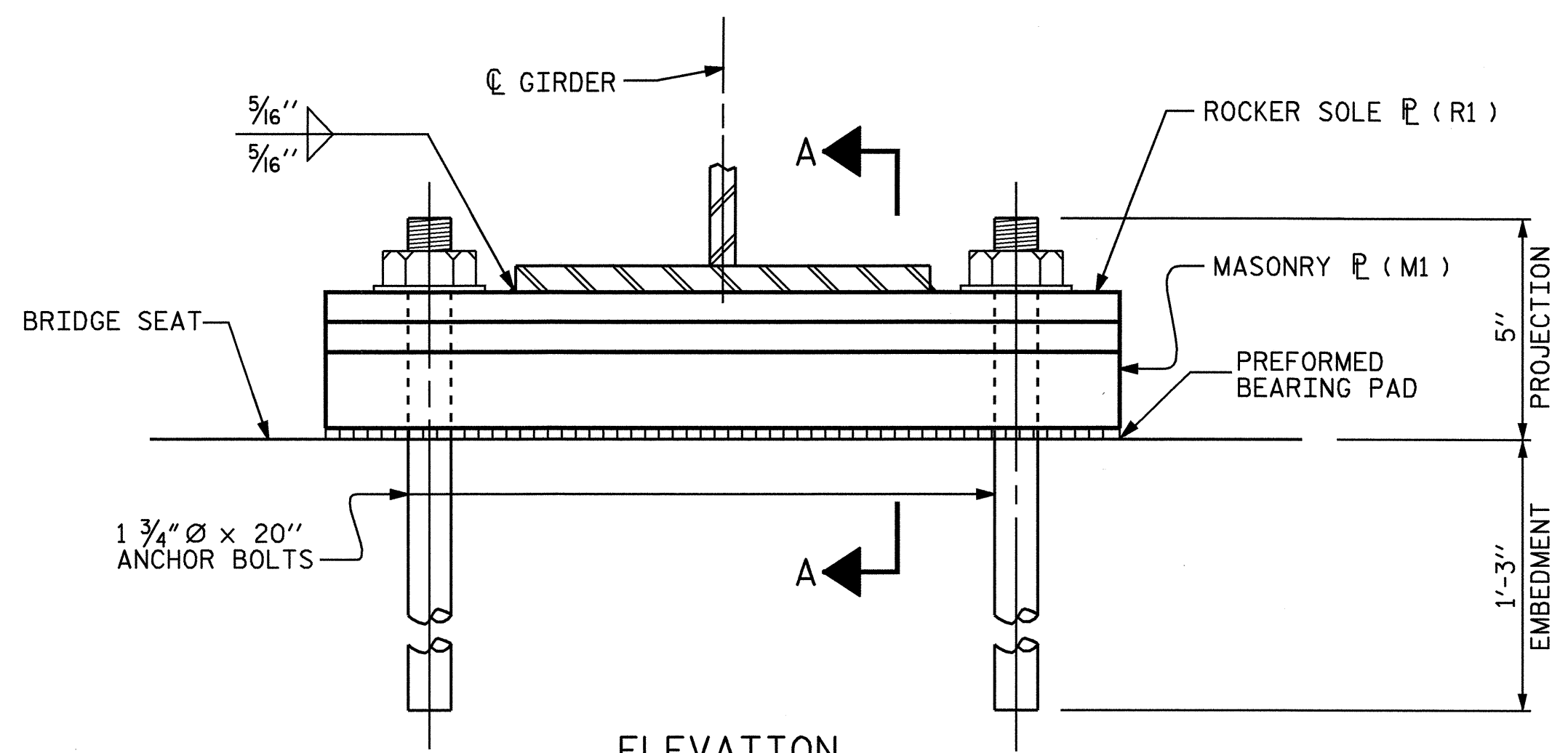
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 STRUCTURE STEEL
 DETAILS



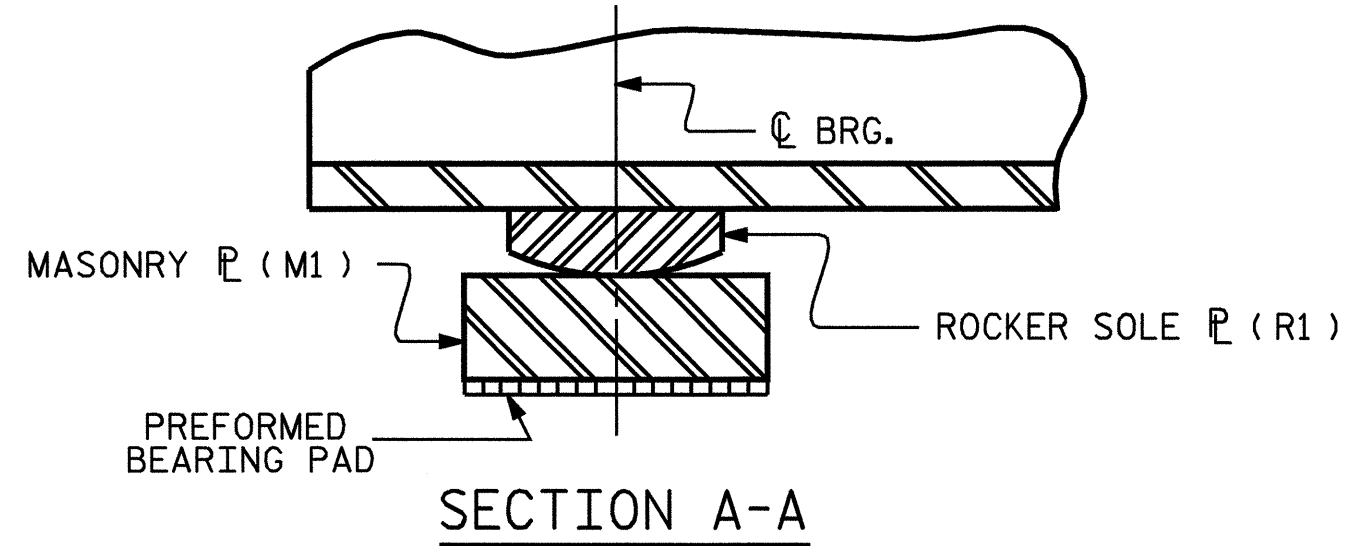
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S-11
TOTAL SHEETS
27

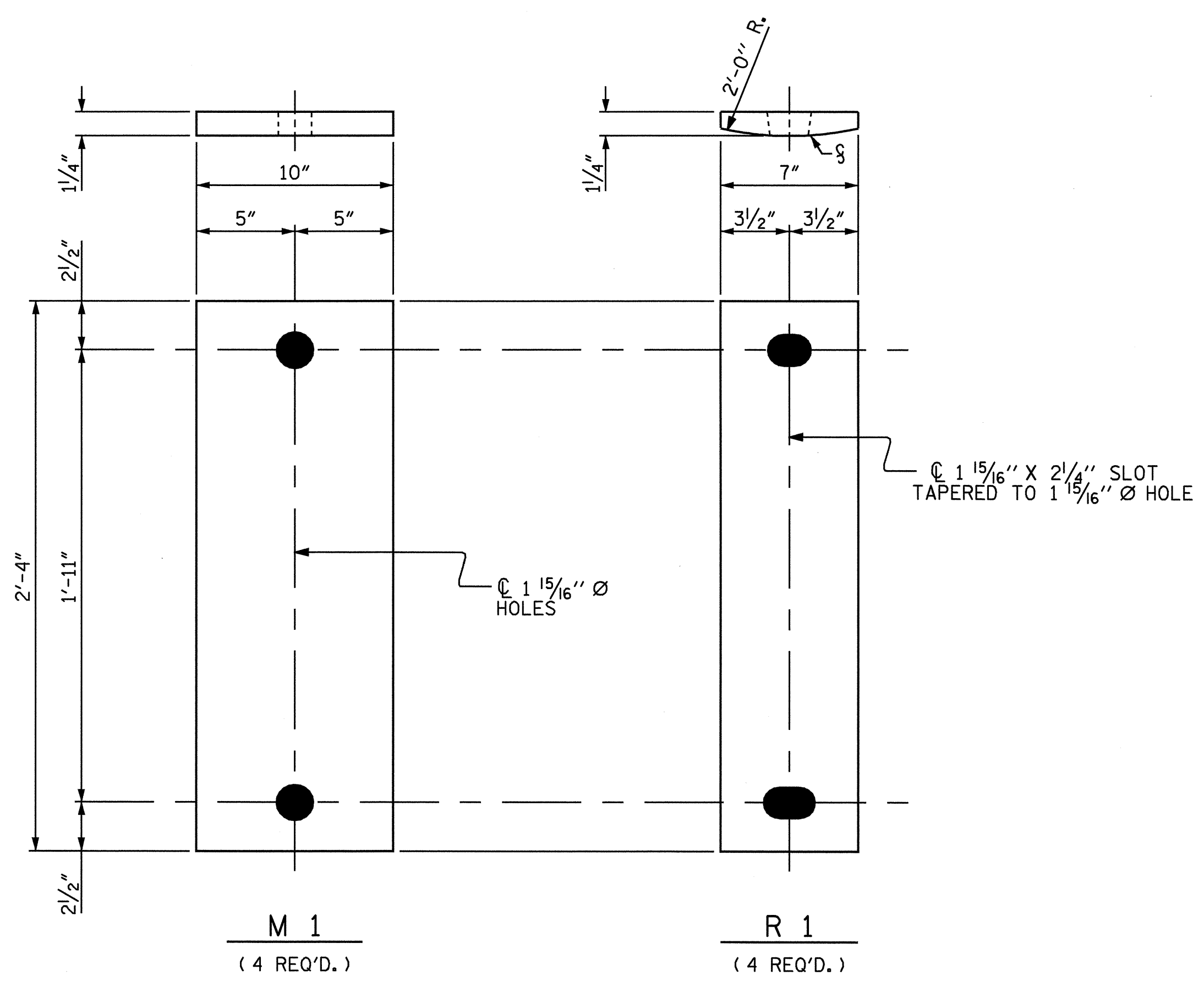
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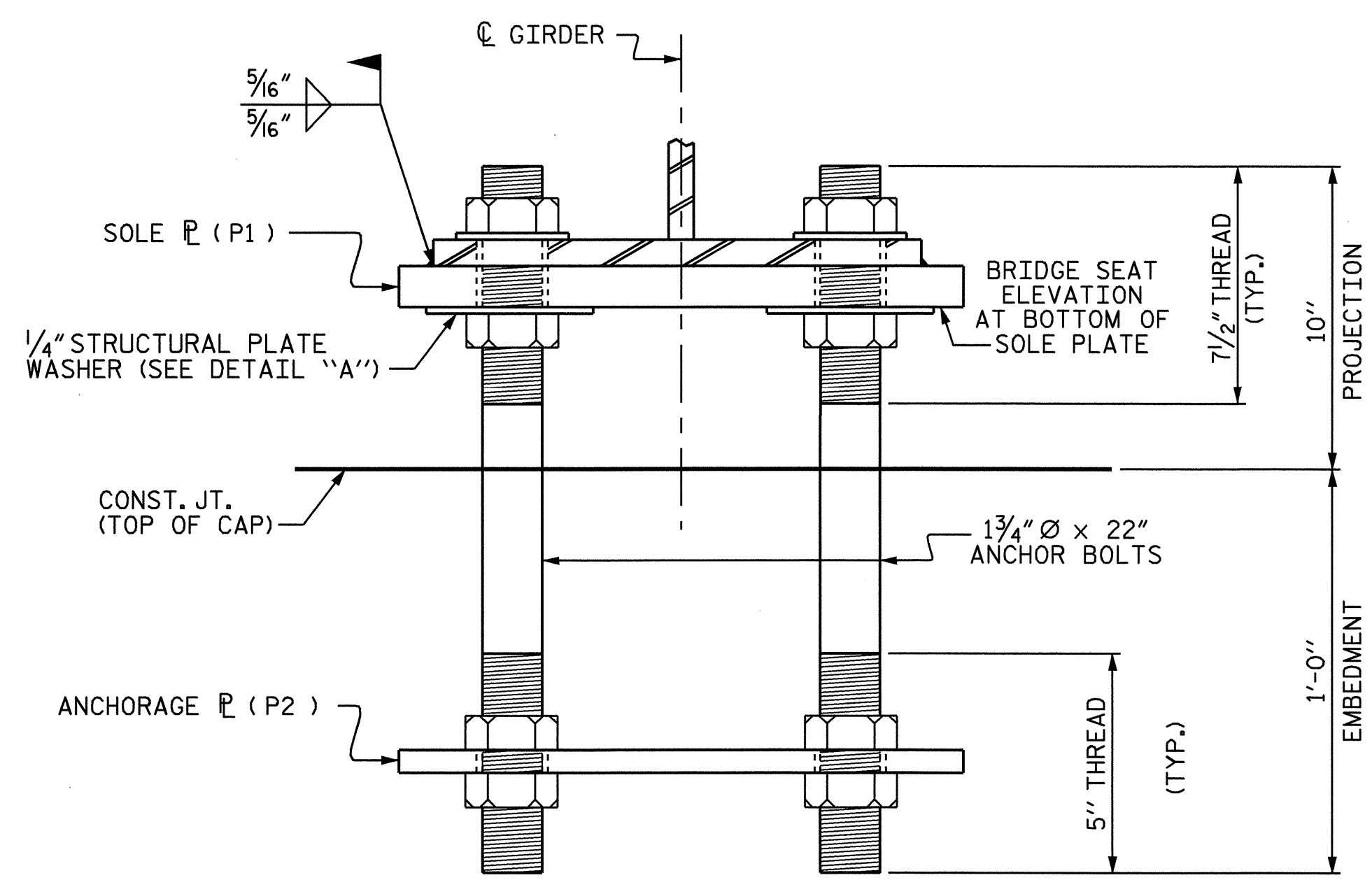
ELEVATION



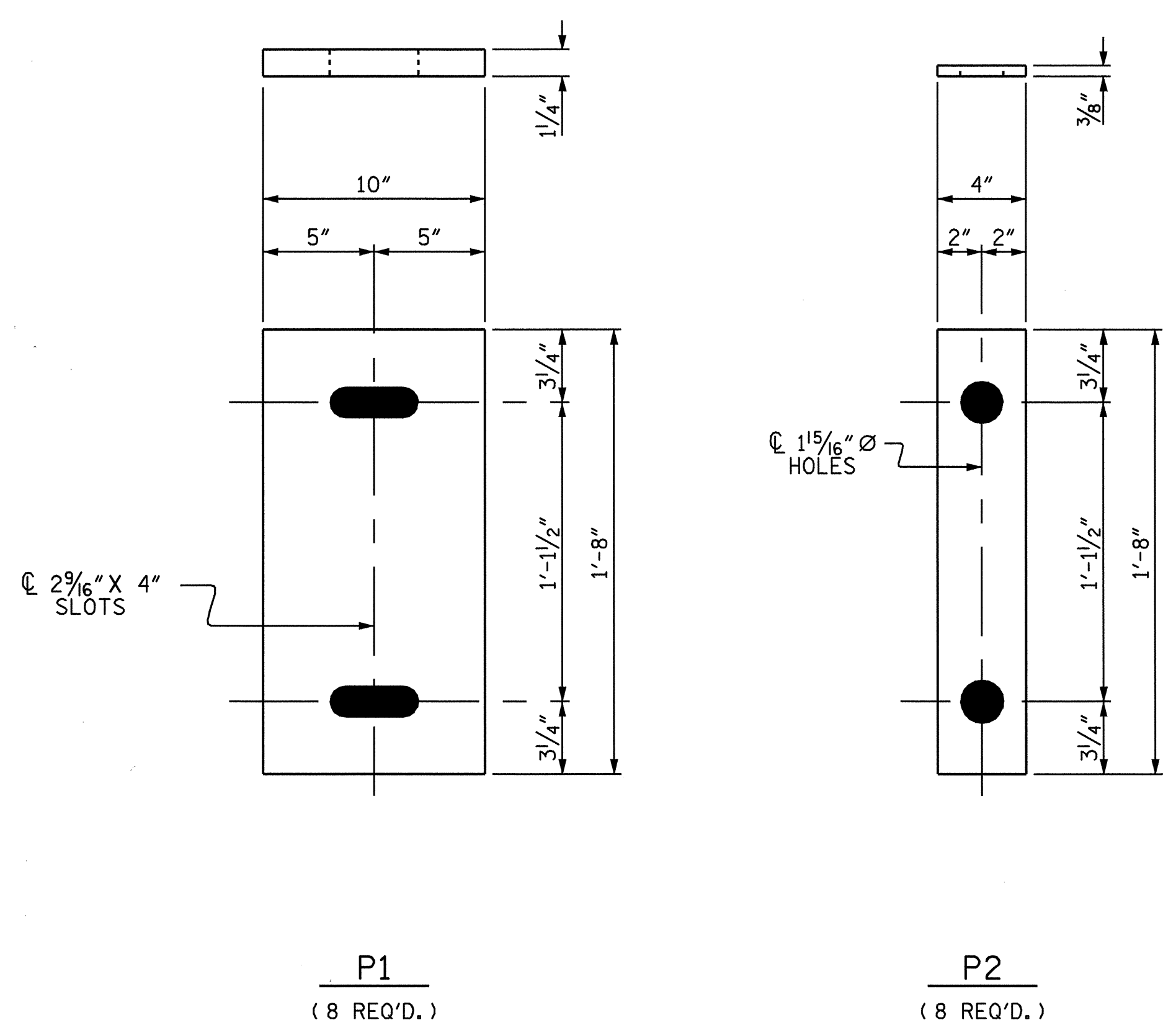
SECTION A-A



BEARING DETAILS AT BENT



FIXED END VIEW



BEARING DETAILS AT END BENTS

NOTES:

SOLE PLATES, MASONRY PLATES, ANCHORAGE PLATES AND STRUCTURAL PLATE WASHERS SHALL BE AASHTO M270 GRADE 50W AND SHALL NOT BE GALVANIZED. ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

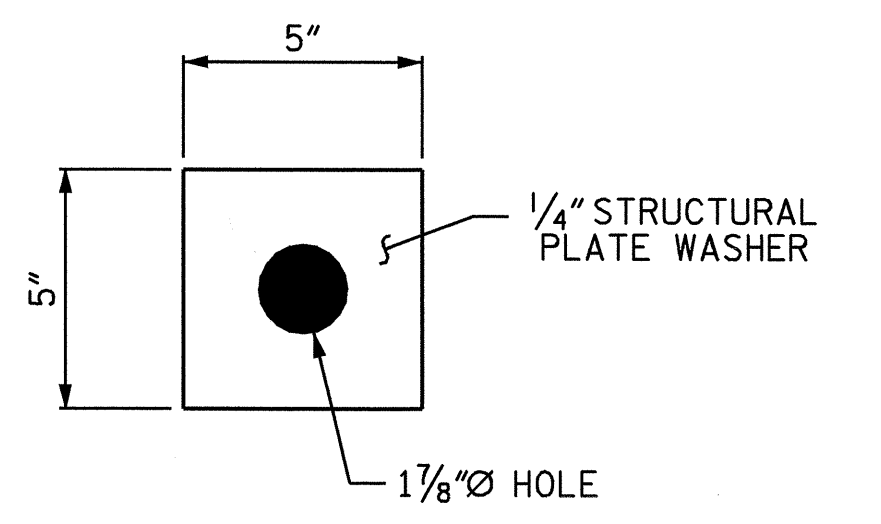
ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. STANDARD WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

AT BOTH END BENTS, TOP NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AFTER SETTING THE GIRDERS, AND SUBSEQUENTLY FULLY TIGHTENED JUST PRIOR TO THE FINAL POUR.

AT BENT 1, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT & BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

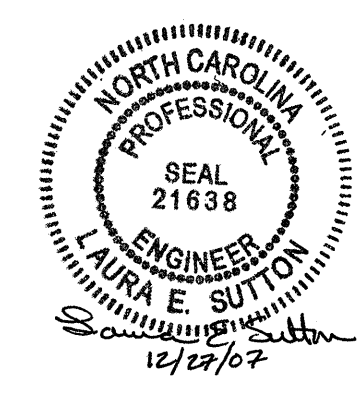
CAMBERED GIRDER LENGTHS SHALL BE ADJUSTED AND BEARINGS ARE TO BE PLACED ON THE CAMBERED GIRDER SO AS TO BE ALIGNED WITH THE ANCHORS AFTER THE DEAD LOAD DEFLECTION HAS OCCURRED. SHOP PLANS SHALL BE PREPARED ACCORDINGLY.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.



DETAIL "A"

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STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 BEARING
 DETAILS

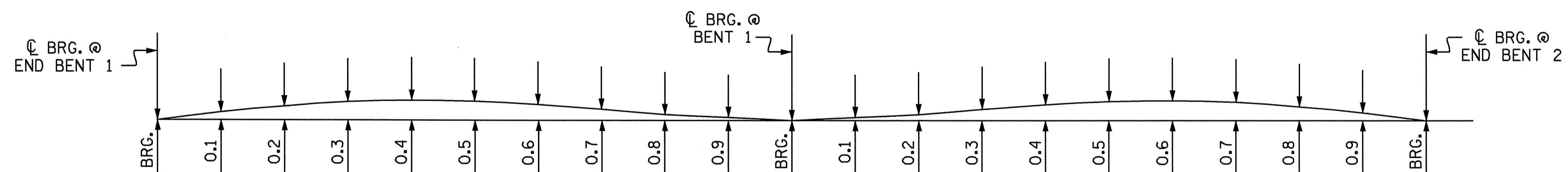
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1			3			TOTAL SHEETS
2			4			27

DRAWN BY: A.S. CALLAWAY DATE: 9/11/06
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DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
TENTH POINTS	GIRDERS 1 & 4																				
	SPAN A										SPAN B										
	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.
DEFLECTION DUE TO WEIGHT OF GIRDER	0	0.010	0.019	0.025	0.027	0.026	0.021	0.015	0.008	0.002	0	0.002	0.008	0.015	0.021	0.026	0.027	0.025	0.019	0.010	0
DEFLECTION DUE TO WEIGHT OF SLAB *	0	0.045	0.082	0.106	0.116	0.109	0.090	0.062	0.033	0.010	0	0.010	0.033	0.062	0.090	0.109	0.116	0.106	0.082	0.045	0
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0	0.006	0.010	0.014	0.015	0.015	0.013	0.009	0.005	0.002	0	0.002	0.005	0.009	0.013	0.015	0.015	0.014	0.010	0.006	0
TOTAL DEAD LOAD DEFLECTION	0	0.061	0.111	0.145	0.158	0.150	0.124	0.086	0.046	0.014	0	0.014	0.046	0.086	0.124	0.150	0.158	0.145	0.111	0.061	0
REQUIRED CAMBER	0	3/4"	1 5/16"	1 3/4"	1 7/8"	1 13/16"	1 1/2"	1 1/16"	9/16"	3/16"	0	3/16"	9/16"	1 1/16"	1 1/2"	1 13/16"	1 7/8"	1 3/4"	1 5/16"	3/4"	0

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
TENTH POINTS	GIRDERS 2 & 3																				
	SPAN A										SPAN B										
	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.
DEFLECTION DUE TO WEIGHT OF GIRDER	0	0.011	0.020	0.025	0.028	0.026	0.022	0.015	0.008	0.002	0	0.002	0.008	0.015	0.022	0.026	0.028	0.025	0.020	0.011	0
DEFLECTION DUE TO WEIGHT OF SLAB *	0	0.045	0.082	0.106	0.116	0.109	0.090	0.062	0.033	0.010	0	0.010	0.033	0.062	0.090	0.109	0.116	0.106	0.082	0.045	0
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0	0.006	0.010	0.014	0.015	0.015	0.013	0.009	0.005	0.002	0	0.002	0.005	0.009	0.013	0.015	0.015	0.014	0.010	0.006	0
TOTAL DEAD LOAD DEFLECTION	0	0.062	0.112	0.145	0.159	0.150	0.125	0.086	0.046	0.014	0	0.014	0.046	0.086	0.125	0.150	0.159	0.145	0.112	0.062	0
REQUIRED CAMBER	0	3/4"	1 5/16"	1 3/4"	1 7/8"	1 13/16"	1 1/2"	1 1/16"	9/16"	3/16"	0	3/16"	9/16"	1 1/16"	1 1/2"	1 13/16"	1 7/8"	1 3/4"	1 5/16"	3/4"	0

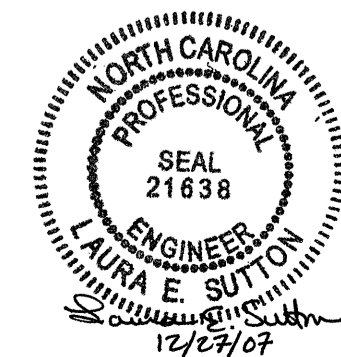
* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
 ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "REQUIRED CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).



SCHMATIC CAMBER ORDINATES
 SLOPE FOR ZERO CAMBER BASE LINE VARIES

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 STATION: 21+95.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 DEAD LOAD DEFLECTIONS

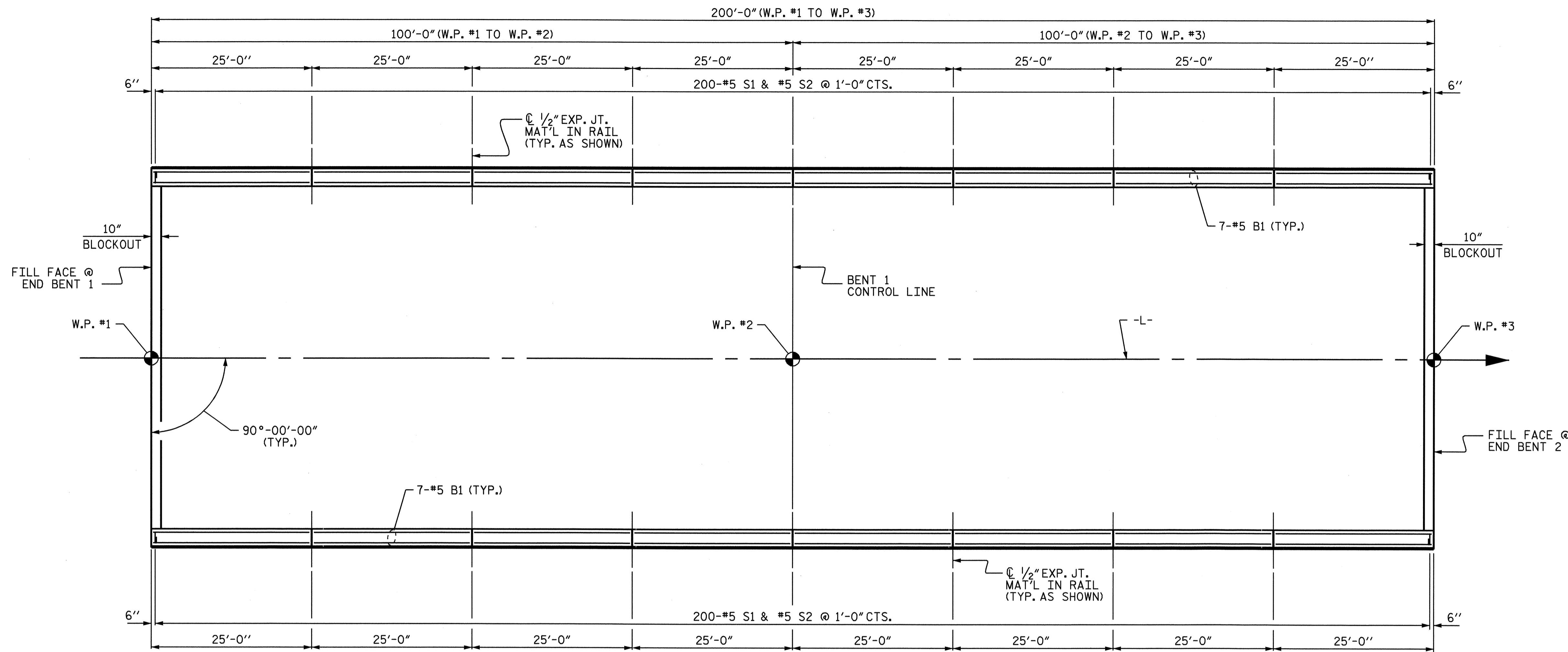


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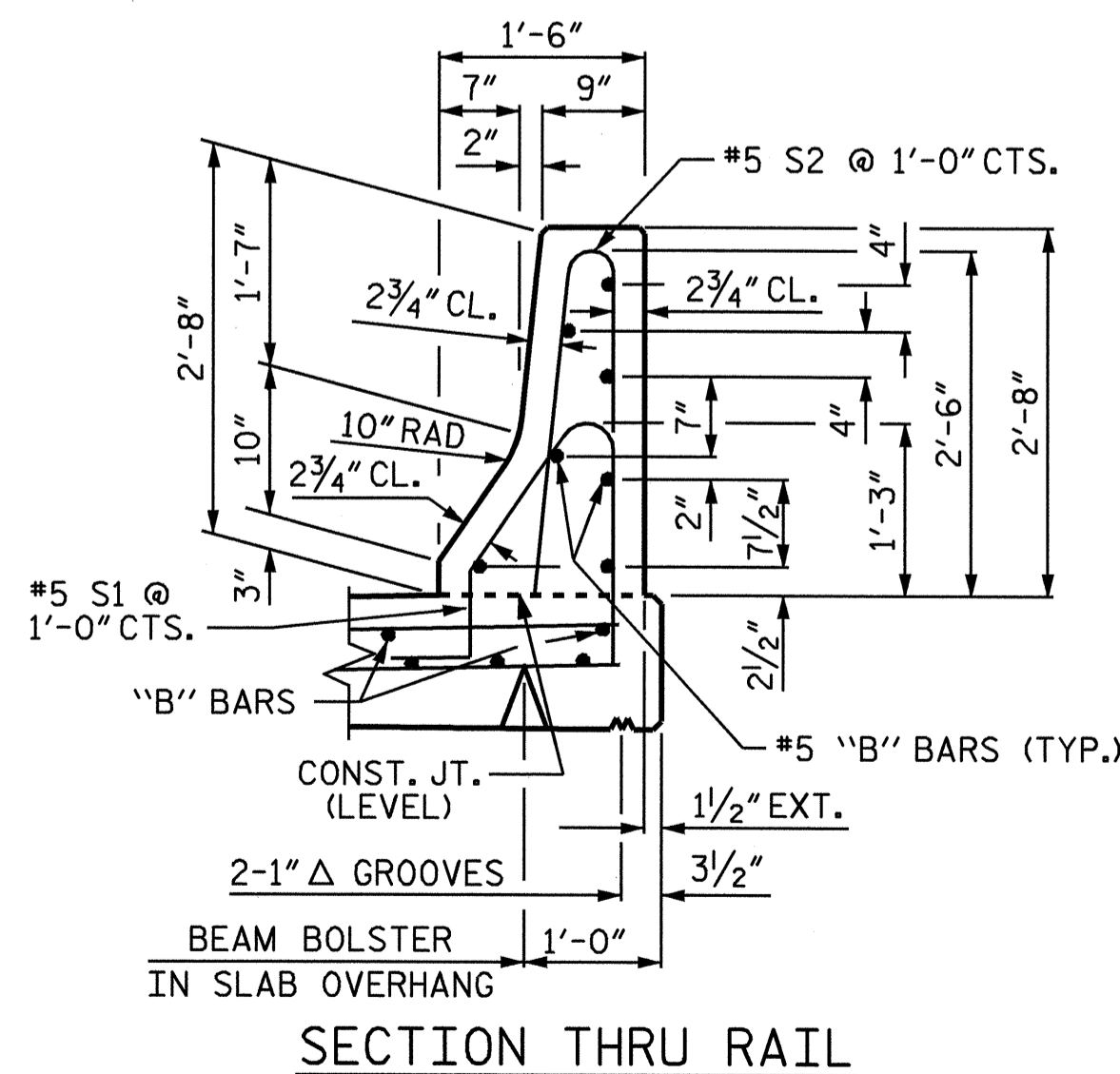
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REVISIONS					SHEET NO.
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S-13
 TOTAL SHEETS
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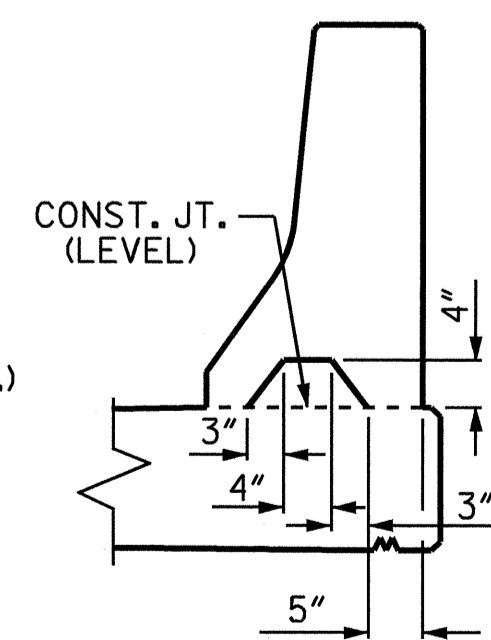


PLAN OF BARRIER RAIL

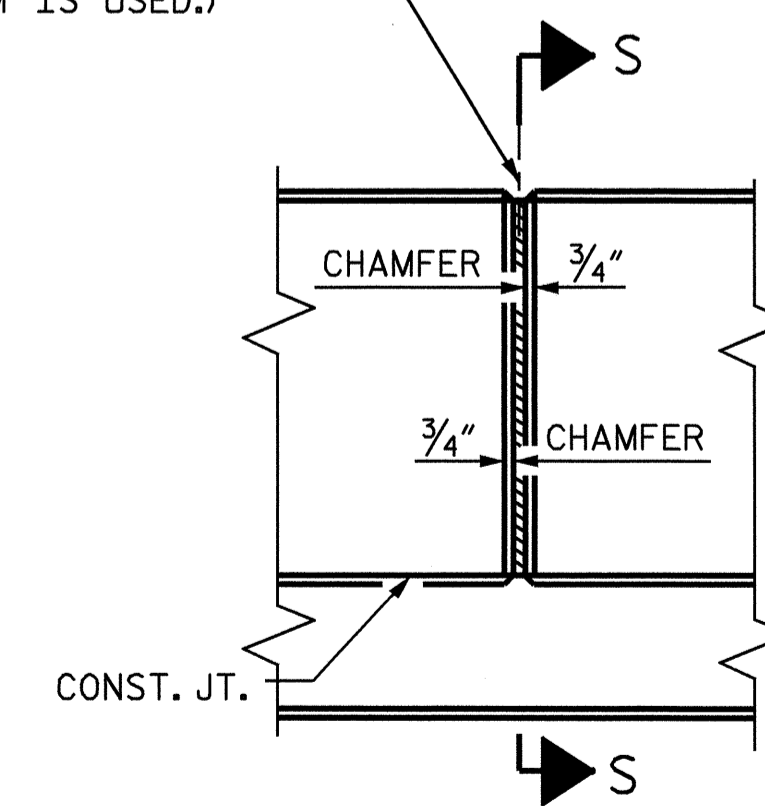


SECTION THRU RAIL

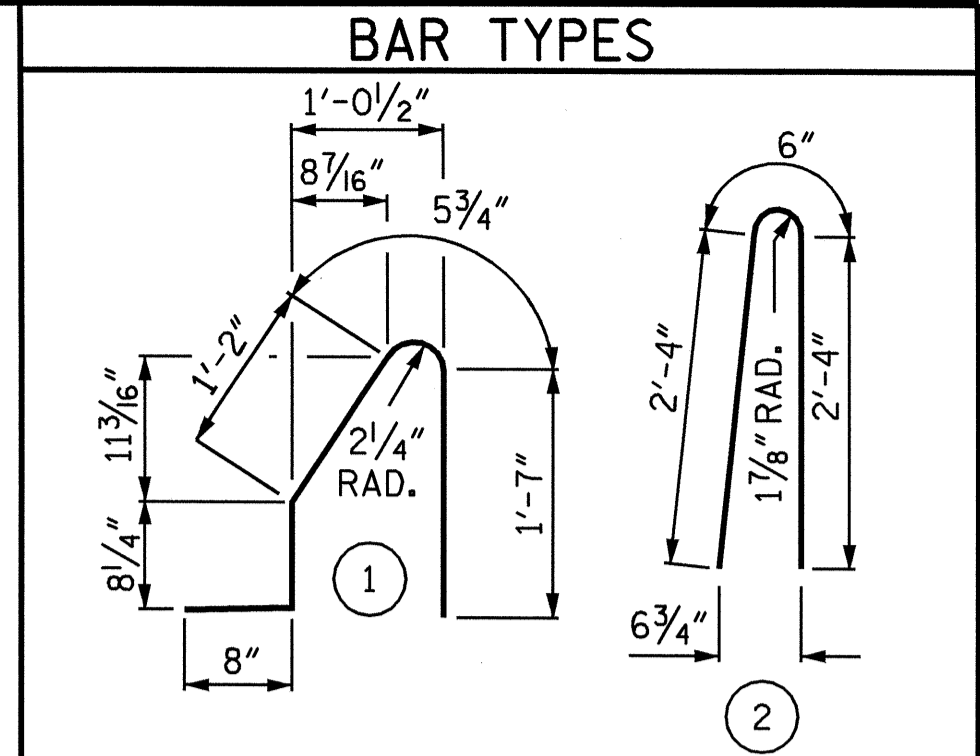
1/2" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS. (NOTE: OMIT EXP. JT. MAT'L WHEN SLIP FORM IS USED.)



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



ELEVATION AT EXPANSION JOINTS



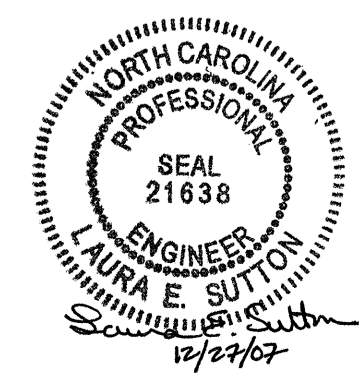
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
FOR CONCRETE BARRIER RAIL ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	112	#5	STR	24'-7"	2872
* S1	400	#5	1	4'-7"	1912
* S2	400	#5	2	5'-2"	2156
* EPOXY COATED REINFORCING STEEL				LBS.	6,940
CLASS AA CONCRETE				CU. YDS.	40.1
CONCRETE BARRIER RAIL				LIN. FT.	400.00

NOTES:
 BARRIER RAIL IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.
 ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.
 THE #5 S1 AND #5 S2 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MINIMUM CLEARANCE TO 1/2" EXPANSION JOINT MATERIAL IN THE BARRIER RAIL.
 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, THE 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.

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STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 CONCRETE
 BARRIER RAIL



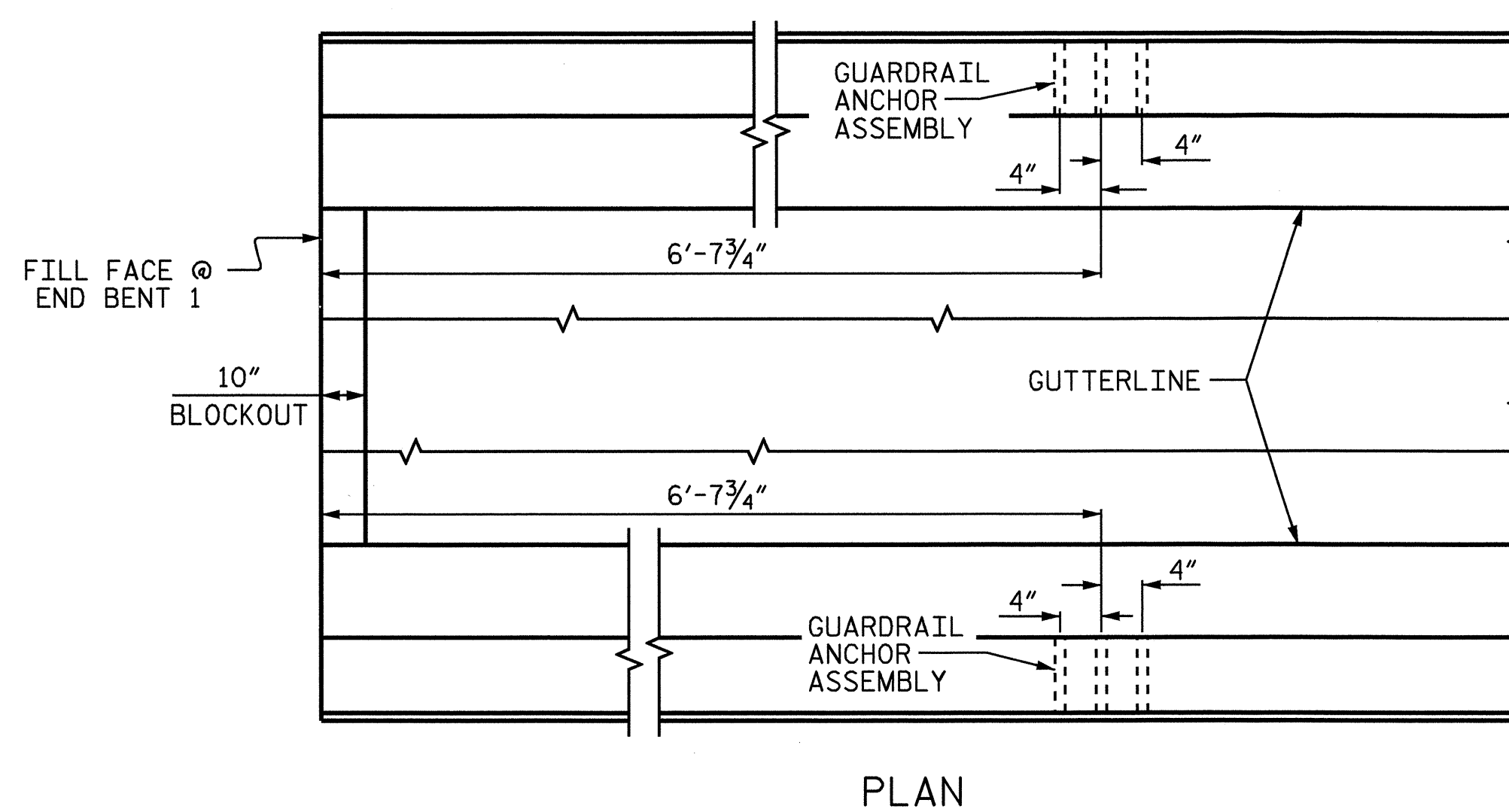
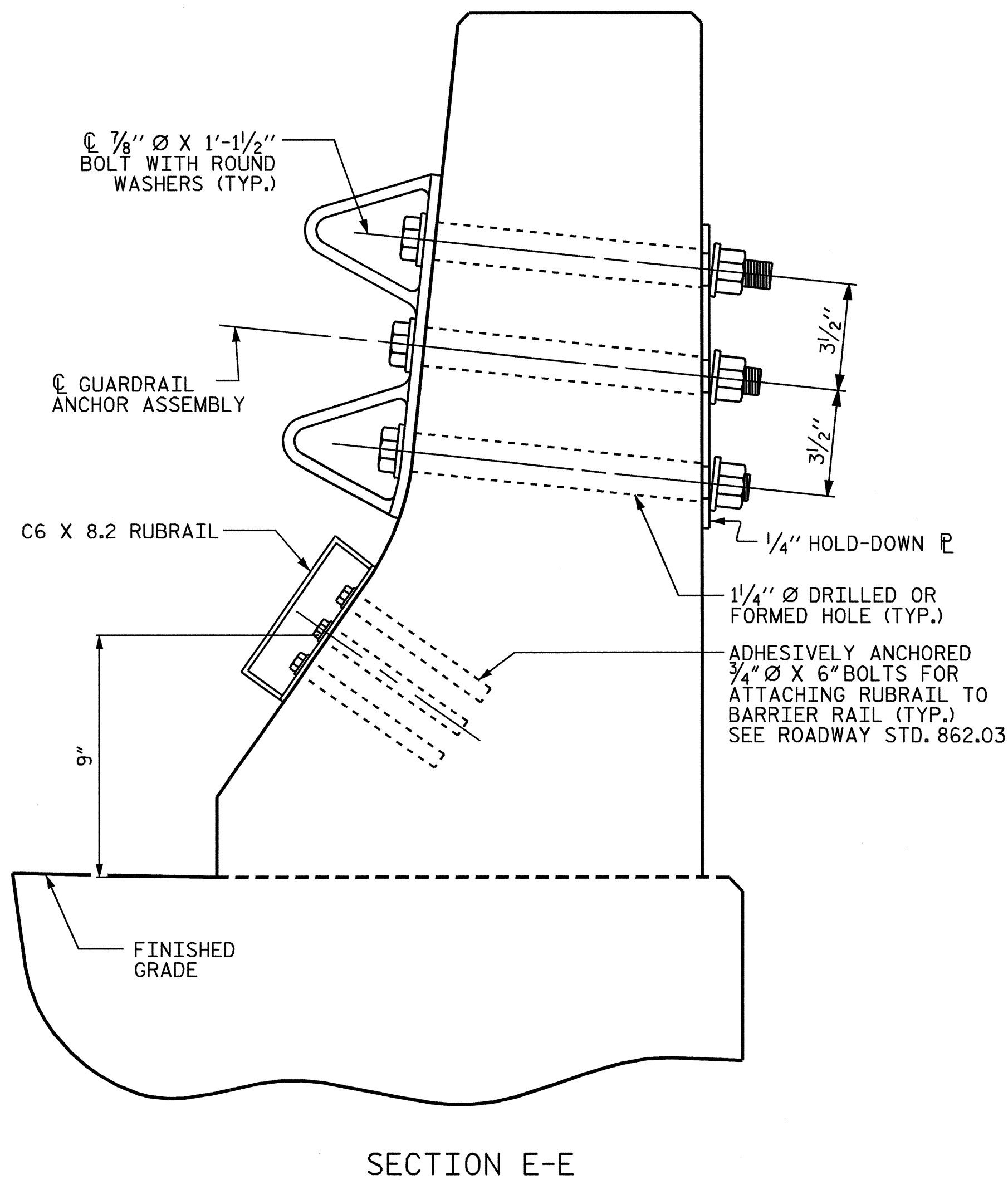
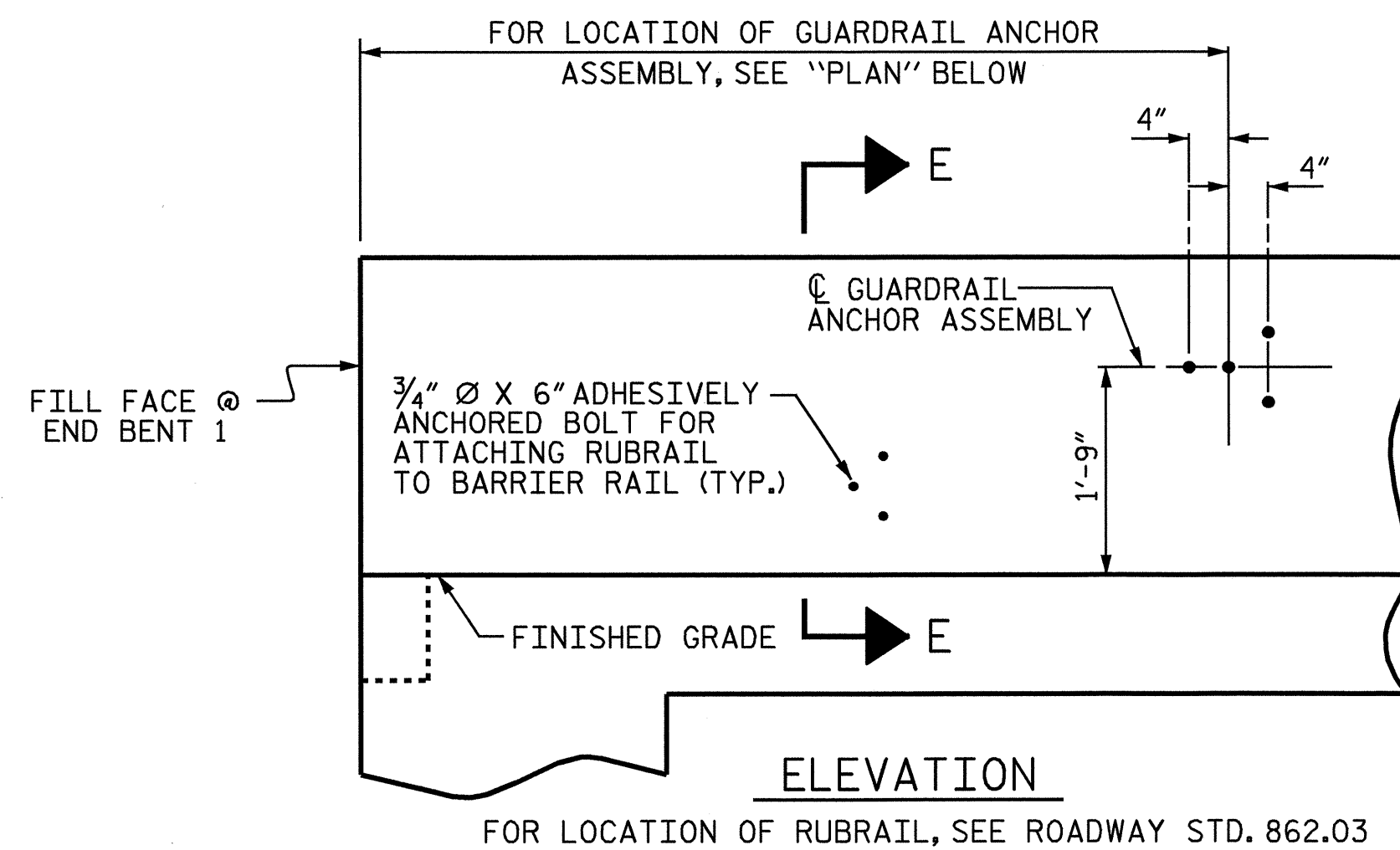
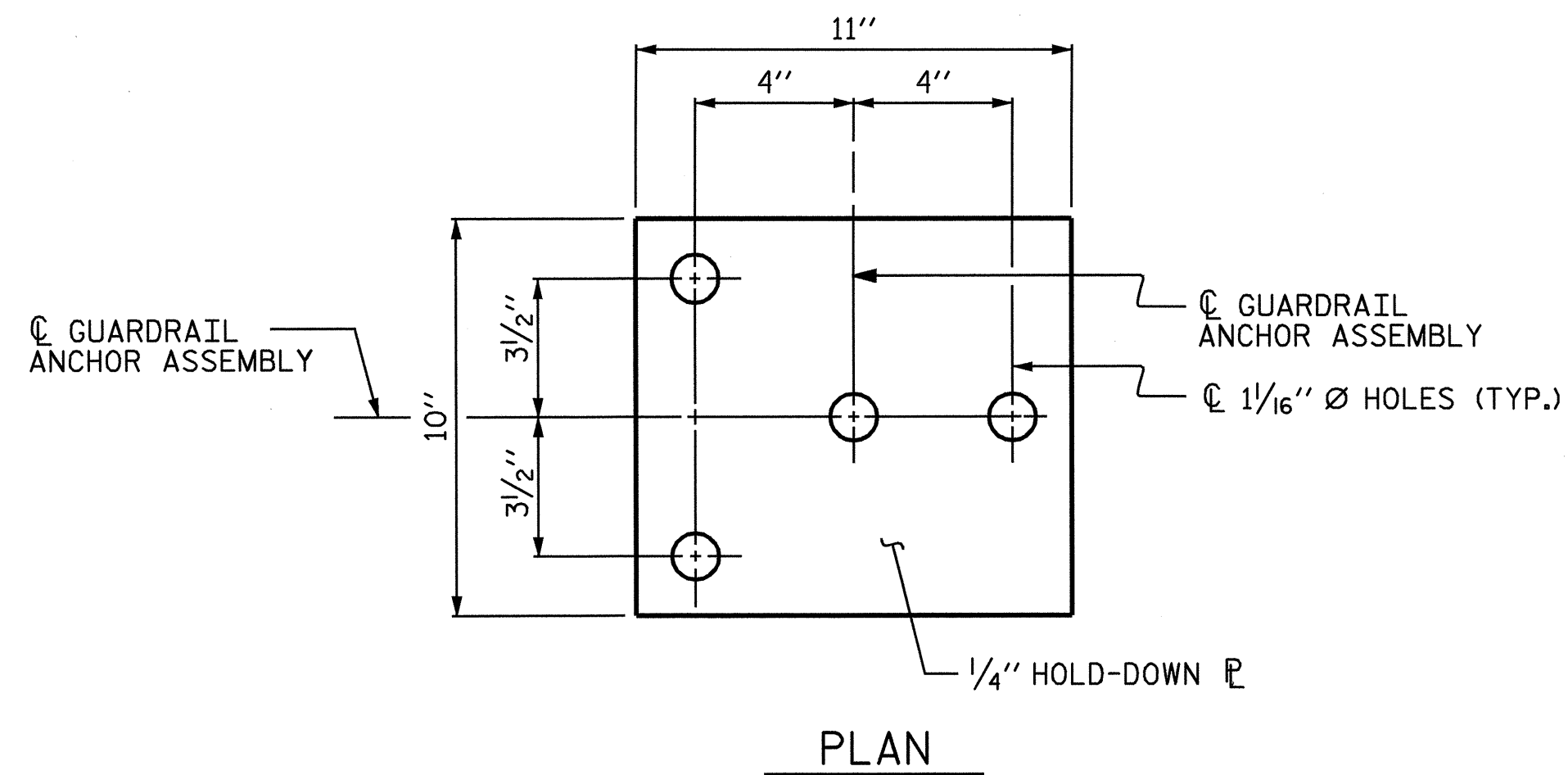
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 CHECKED BY: W.F. PARKER DATE: 2/27/07
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 CHECKED BY: SJD 9/87 REV. 5/7/03R RWW/JTE
 REV. 5/1/06 TLA/GM

06-NOV-2007 15:00
 R:\Structures\scallaway\Microstation\B4130.sd_BR.01.dgn
 lsutton

BARRIER RAIL DETAILS

REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	DATE:	S-14
1			3		TOTAL SHEETS
2			4		27

STD. NO. CBRI



LOCATION OF ANCHORS FOR GUARDRAIL

END BENT 1 SHOWN, END BENT 2 SIMILAR.

NOTES:

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

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 1/8" 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.)

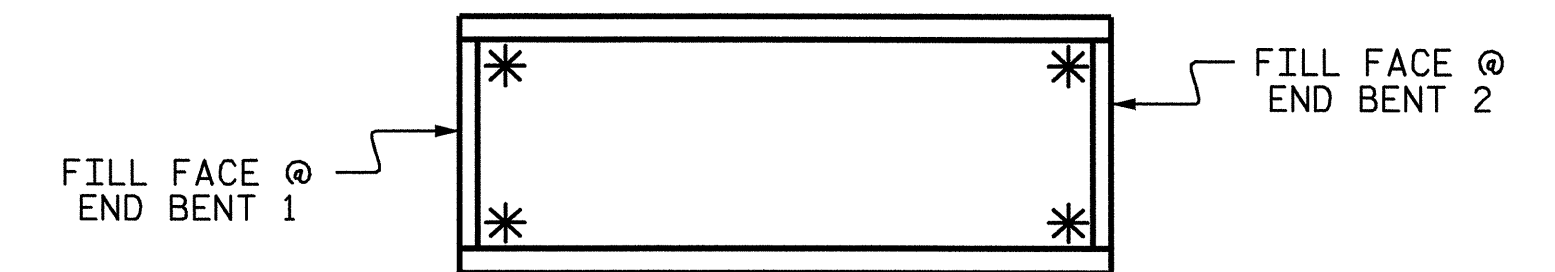
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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 CONCRETE BARRIER RAIL.

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.

THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.

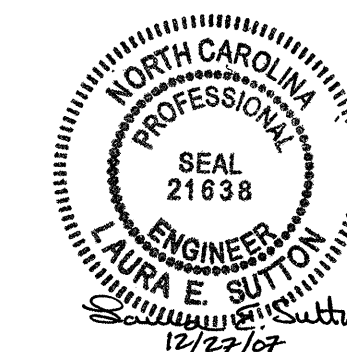


SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-4130
GUILFORD COUNTY
 STATION: 21+95.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 FOR BARRIER RAIL



ASSEMBLED BY : A.S. CALLAWAY DATE : 11/14/06
 CHECKED BY : W.F. PARKER DATE : 2/27/07
 DRAWN BY : TLA 5/06 ADDED 5/1/06R KMM/GM
 CHECKED BY : GM 5/06

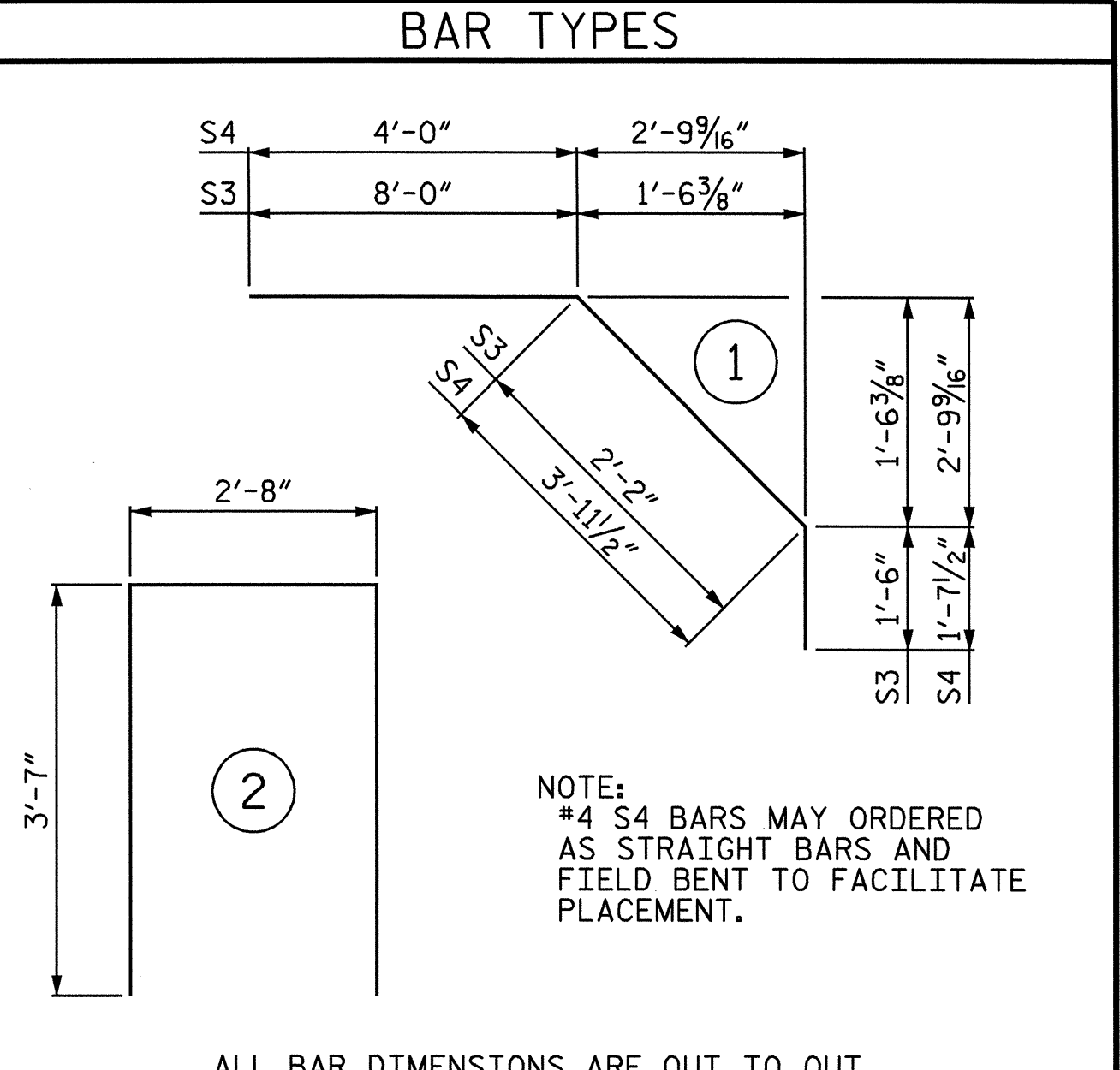
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

TOTAL SHEETS: 27

BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	366	#5	STR	32'-11"	12566
A2	366	#5	STR	32'-11"	12566
*B1	170	#5	STR	19'-10"	3517
B2	152	#5	STR	51'-2"	8112
*B3	16	#4	STR	26'-9"	286
*B4	88	#4	STR	23'-1"	1357
*B5	129	#5	STR	27'-8"	3722
*B6	126	#5	STR	24'-4"	3198
K1	40	#4	STR	17'-4"	463
*S3	76	#4	1	11'-8"	592
*S4	62	#4	1	9'-7"	397
U1	66	#4	2	9'-10"	434
REINFORCING STEEL				LBS.	21,575
*EPOXY COATED REINFORCING STEEL				LBS.	25,635

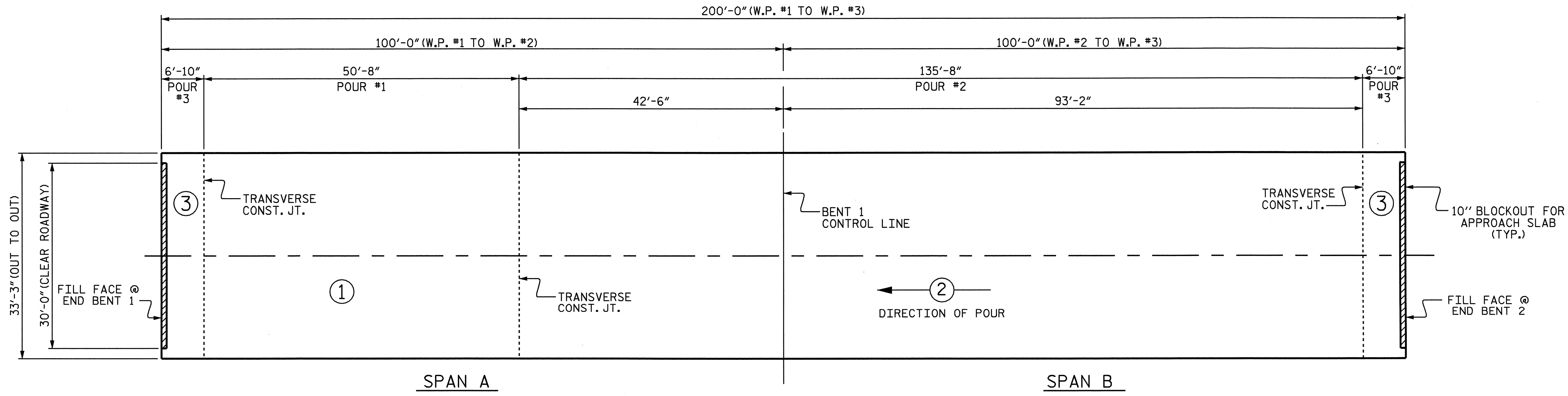
UPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	2'-0"	1'-9"	2'-0"	1'-9"	2'-9"
#5	2'-6"	2'-2"	2'-6"	2'-2"	3'-5"
#6	3'-0"	2'-7"	3'-10"	2'-7"	4'-4"
#7	5'-3"	3'-6"			
#8	6'-10"	4'-7"			



SUPERSTRUCTURE BILL OF MATERIAL			
	CLASS AA CONCRETE	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL
	(CU. YDS.)	(LBS.)	(LBS.)
POUR #1	53.0	---	---
POUR #2	142.1	---	---
POUR #3	41.6	---	---
TOTALS **	236.7	21,575	25,635

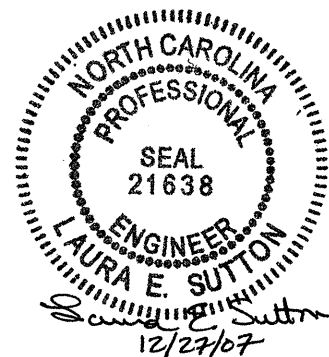
**QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED.



GROOVING BRIDGE FLOORS	
APPROACH SLABS	672 SQ.FT.
BRIDGE DECK	5,345 SQ.FT.
TOTAL	6,017 SQ.FT.

PROJECT NO. B-4130
GUILFORD COUNTY
 STATION: 21+95.00 -L-

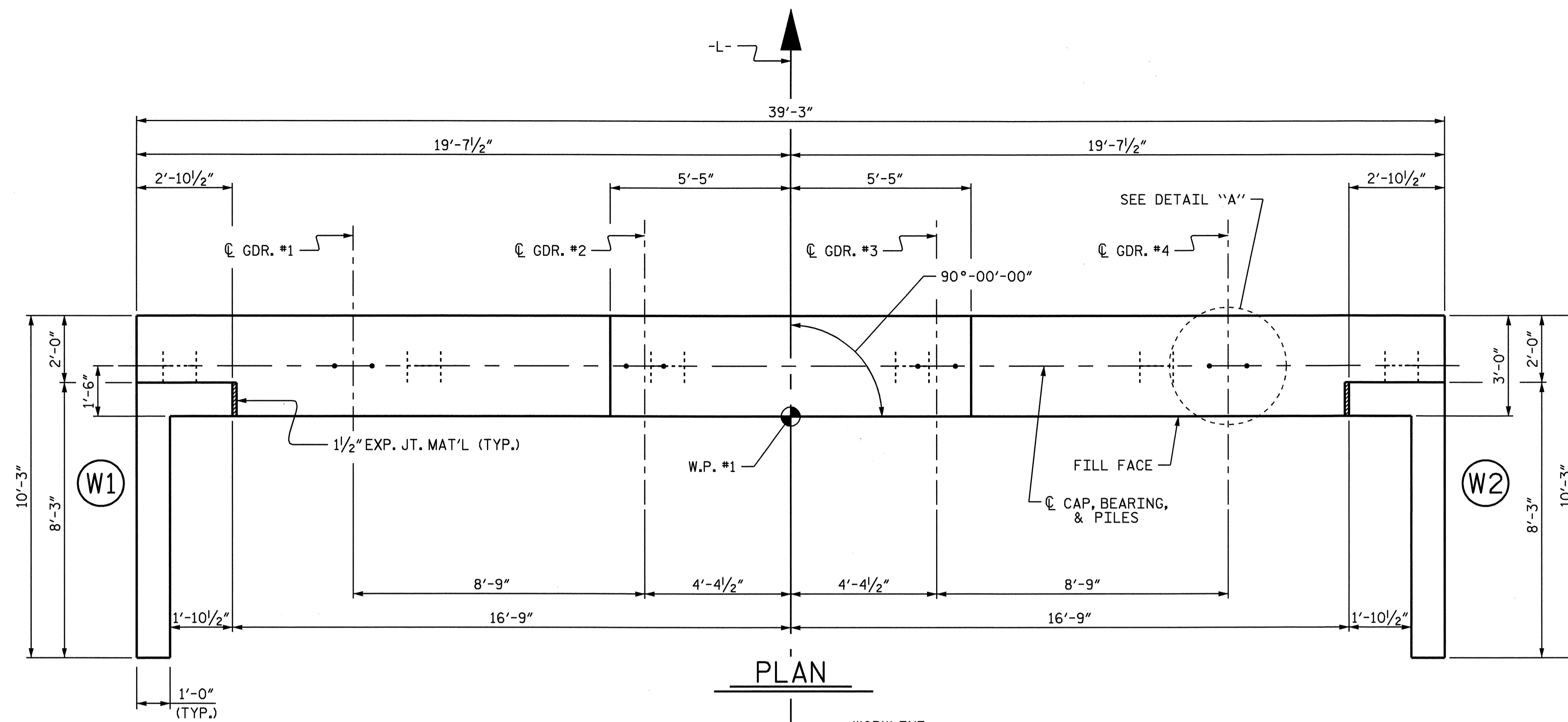
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 SUPERSTRUCTURE
 BILL OF MATERIAL



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS 27
2			4			

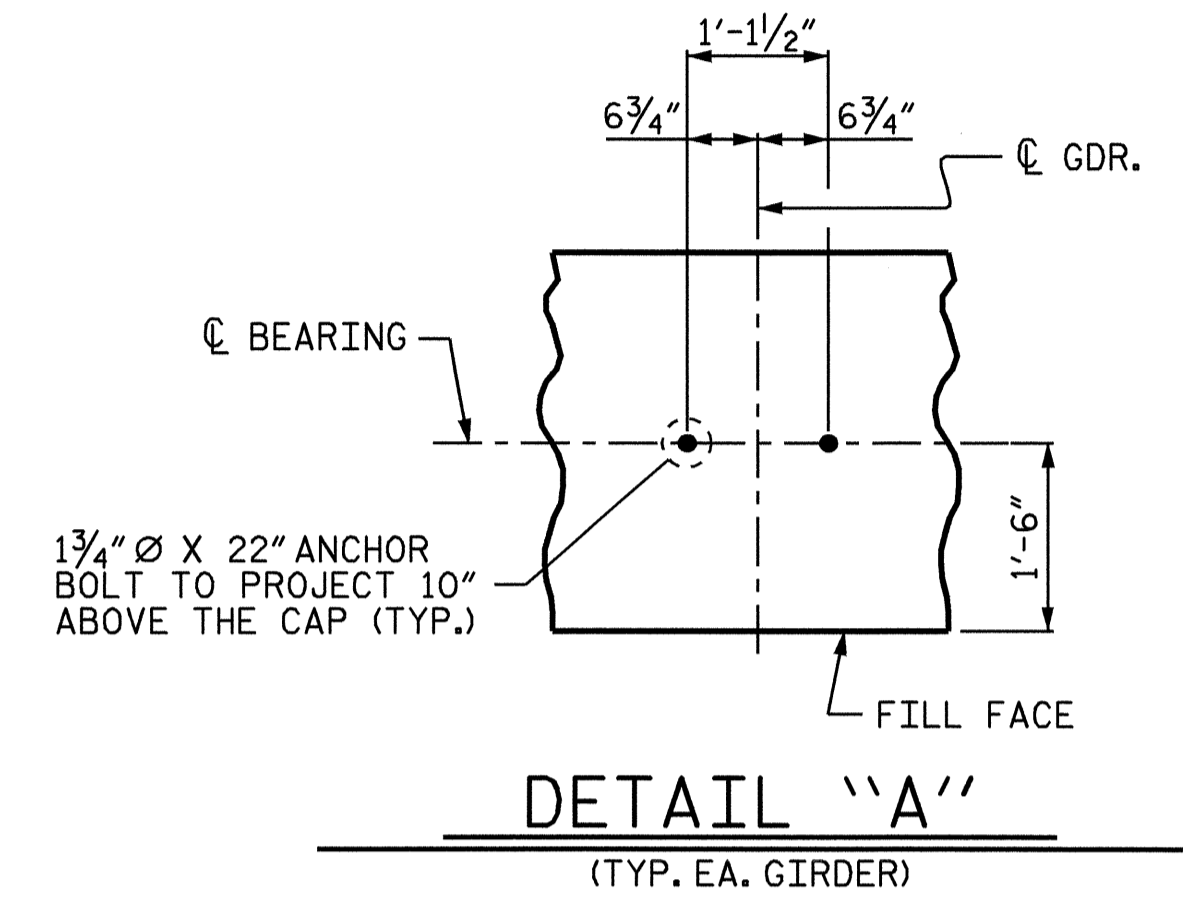
ASSEMBLED BY: A.S. CALLAWAY DATE: 9/28/06
 CHECKED BY: W.F. PARKER DATE: 2/27/07
 DRAWN BY: JMB 5/87 REV. 6/1/94 EEM/GRP
 CHECKED BY: SJD 9/87 REV. 8/16/99 RWW/LES
 REV. 5/1/06 TLA/GM

LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB & POURING SEQUENCE (SQ. FT. = 6,600)



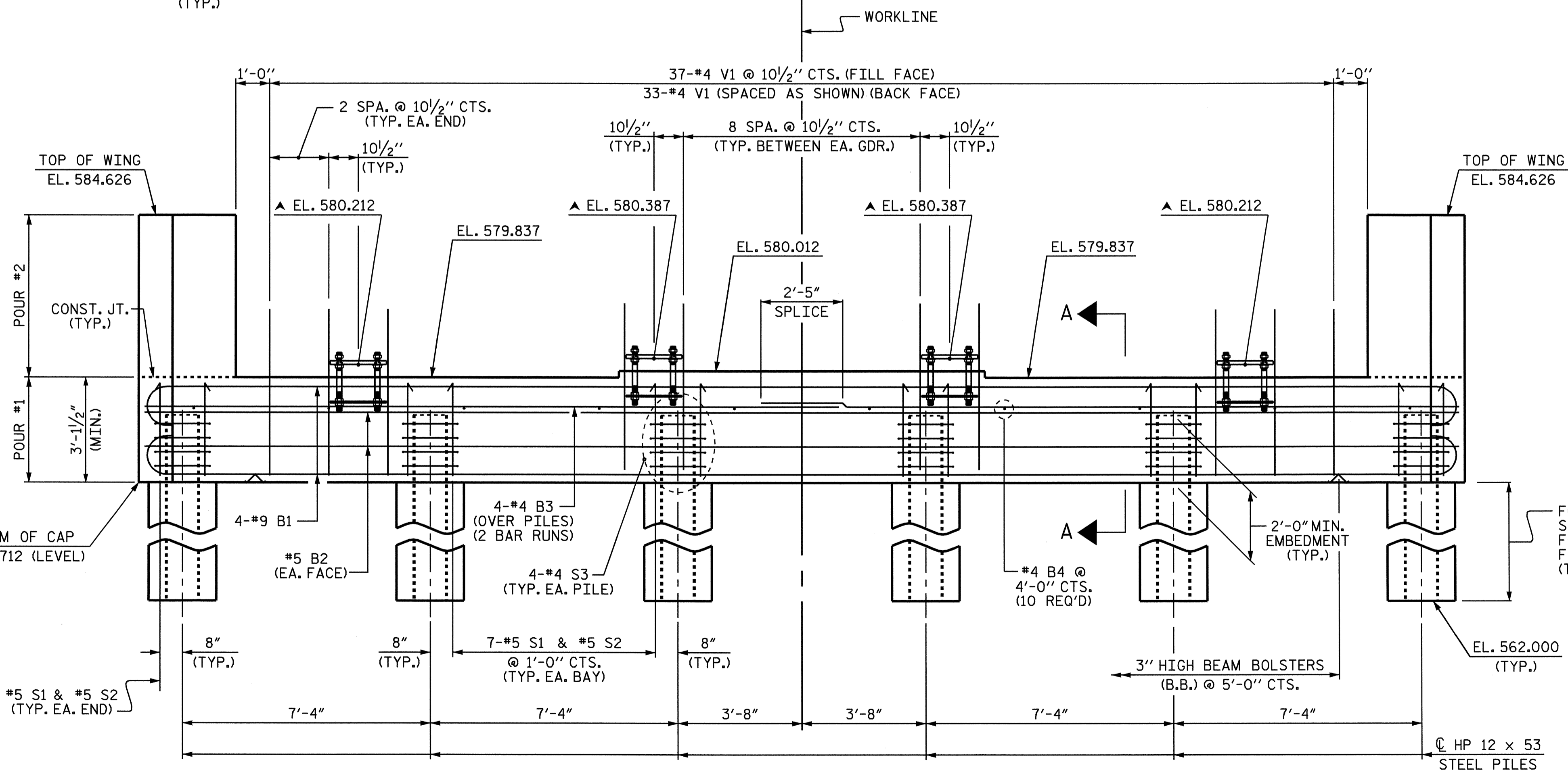
PLAN

NOTES:
 STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 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.

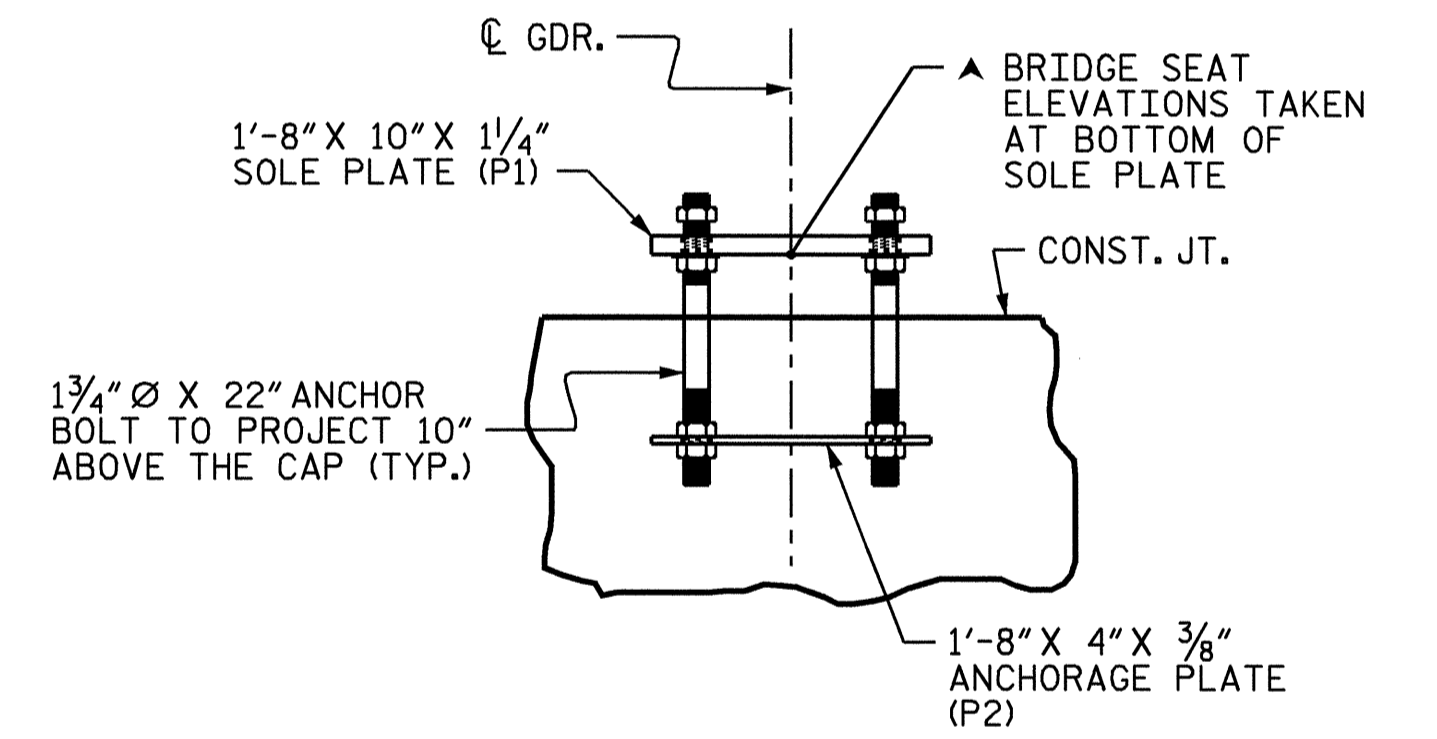


DETAIL "A"

(TYP. EA. GIRDER)



ELEVATION



ANCHORAGE DETAILS

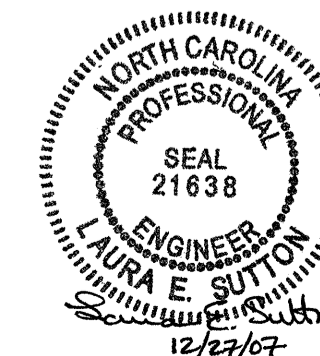
(TYP. EA. GIRDER)

PROJECT NO. B-4130
GUILFORD COUNTY
 STATION: 21+95.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

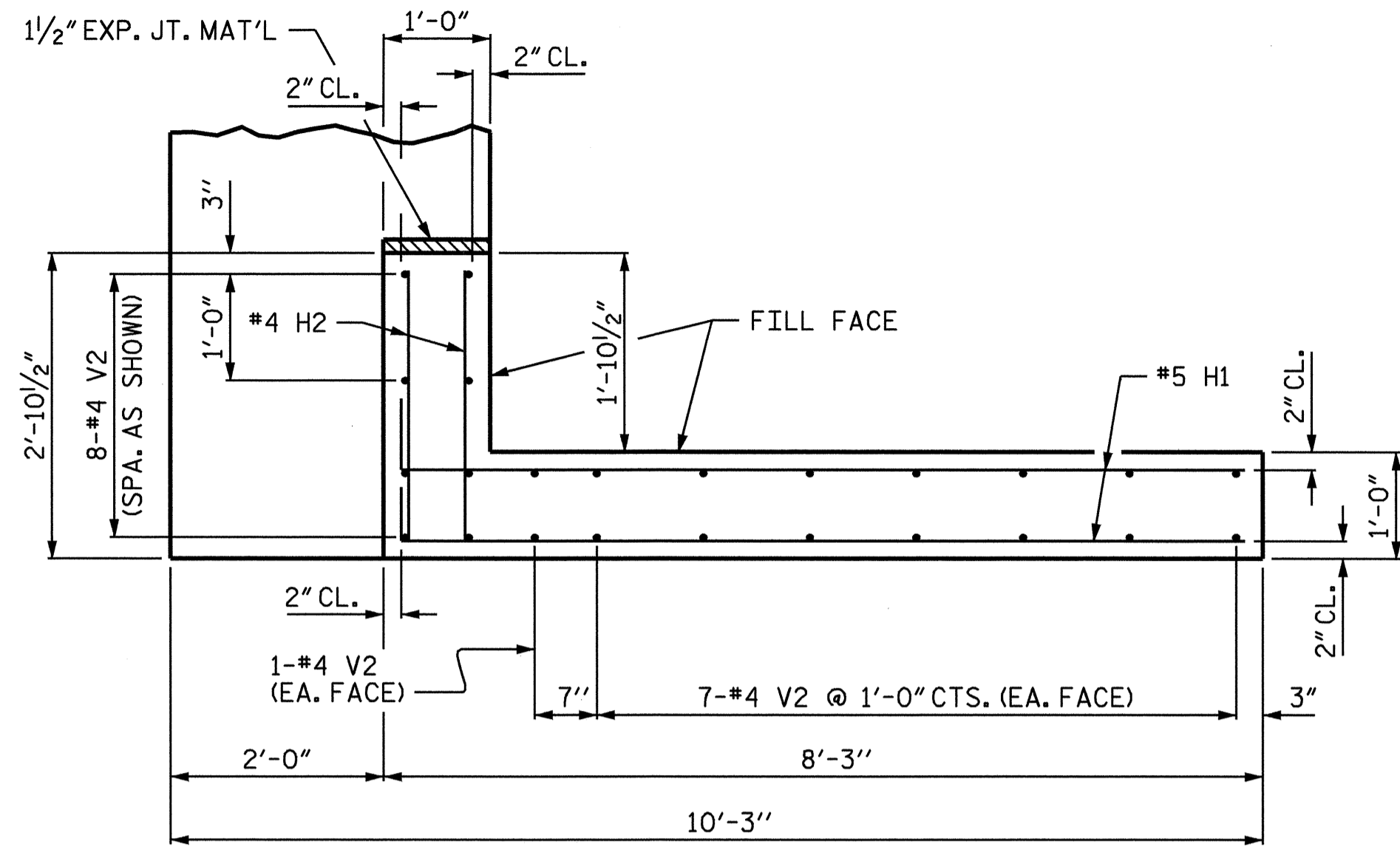
SUBSTRUCTURE
 INTEGRAL
 END BENT 1



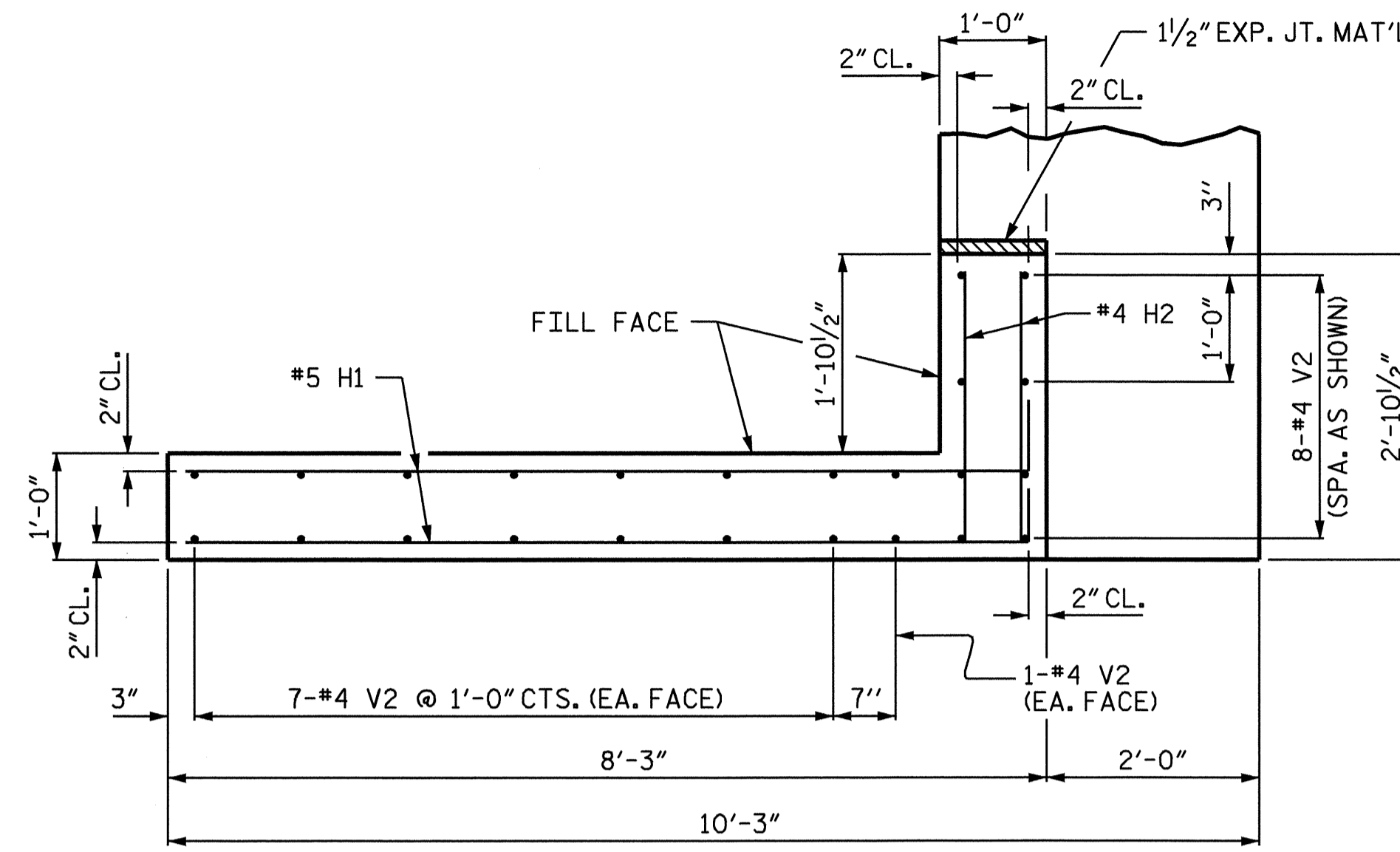
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

DRAWN BY: A.S. CALLAWAY DATE: 10/4/06
 CHECKED BY: W.F. PARKER DATE: 2/27/07

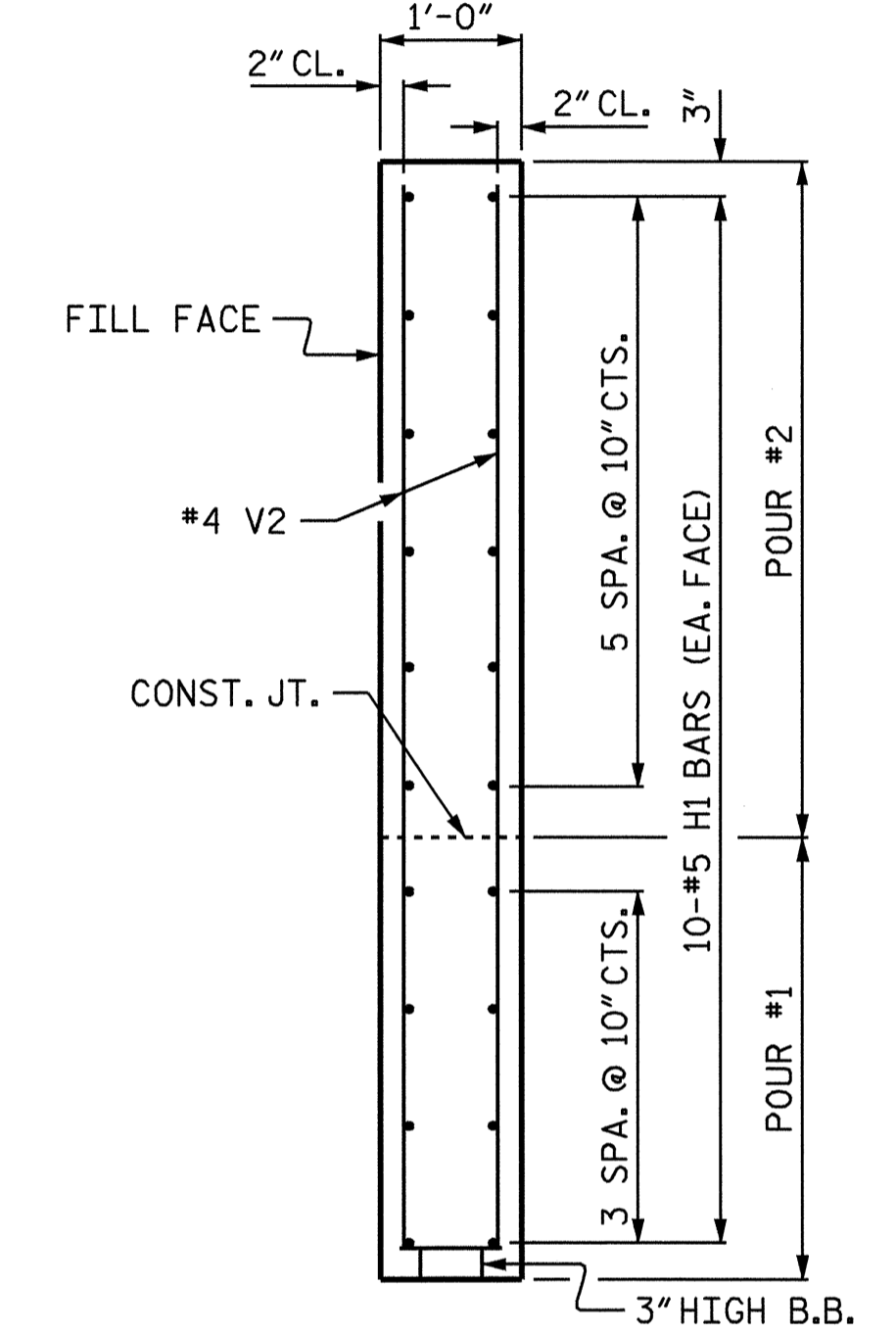
S-17
 TOTAL SHEETS
 27



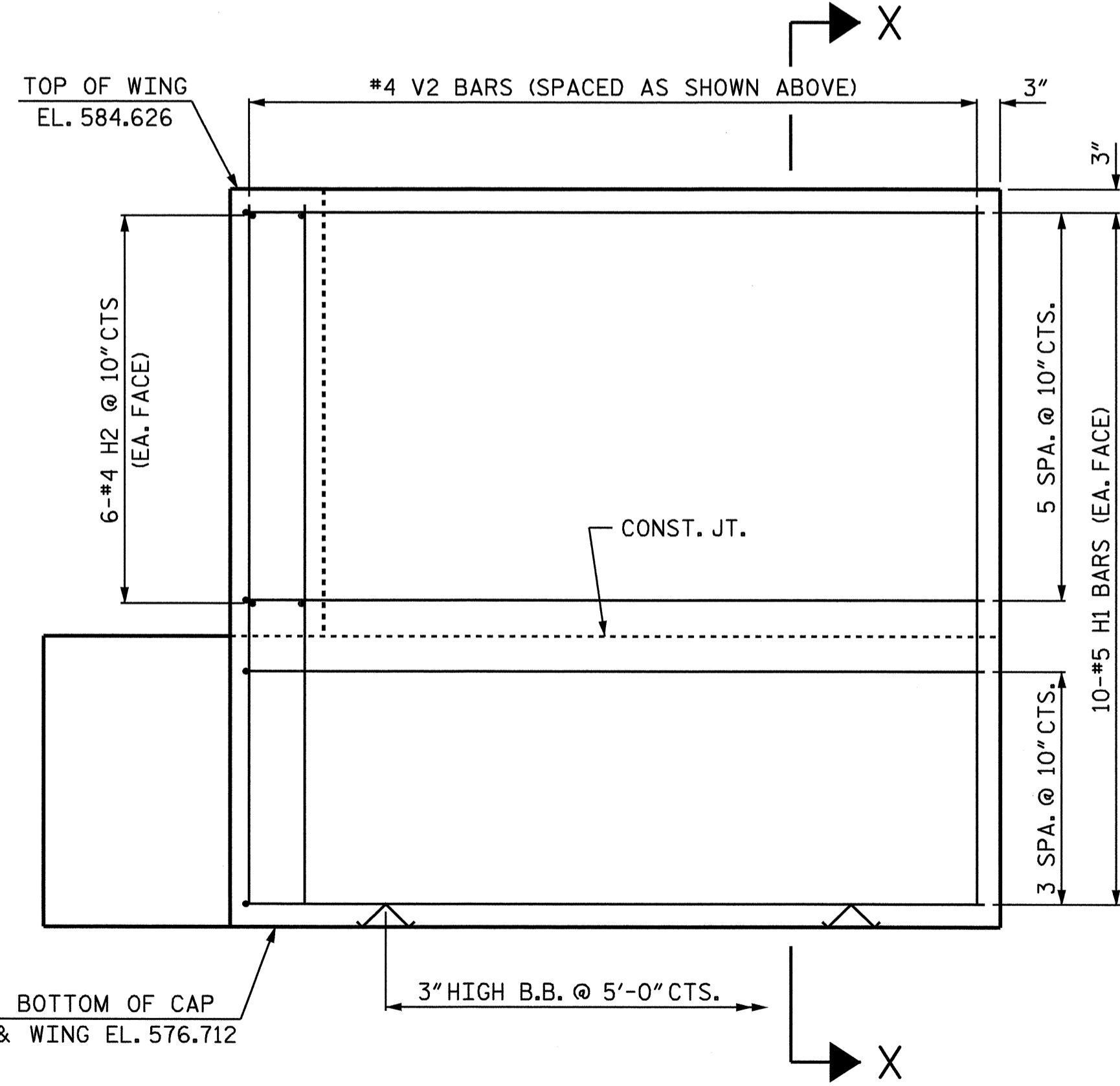
PLAN OF WING (W1)



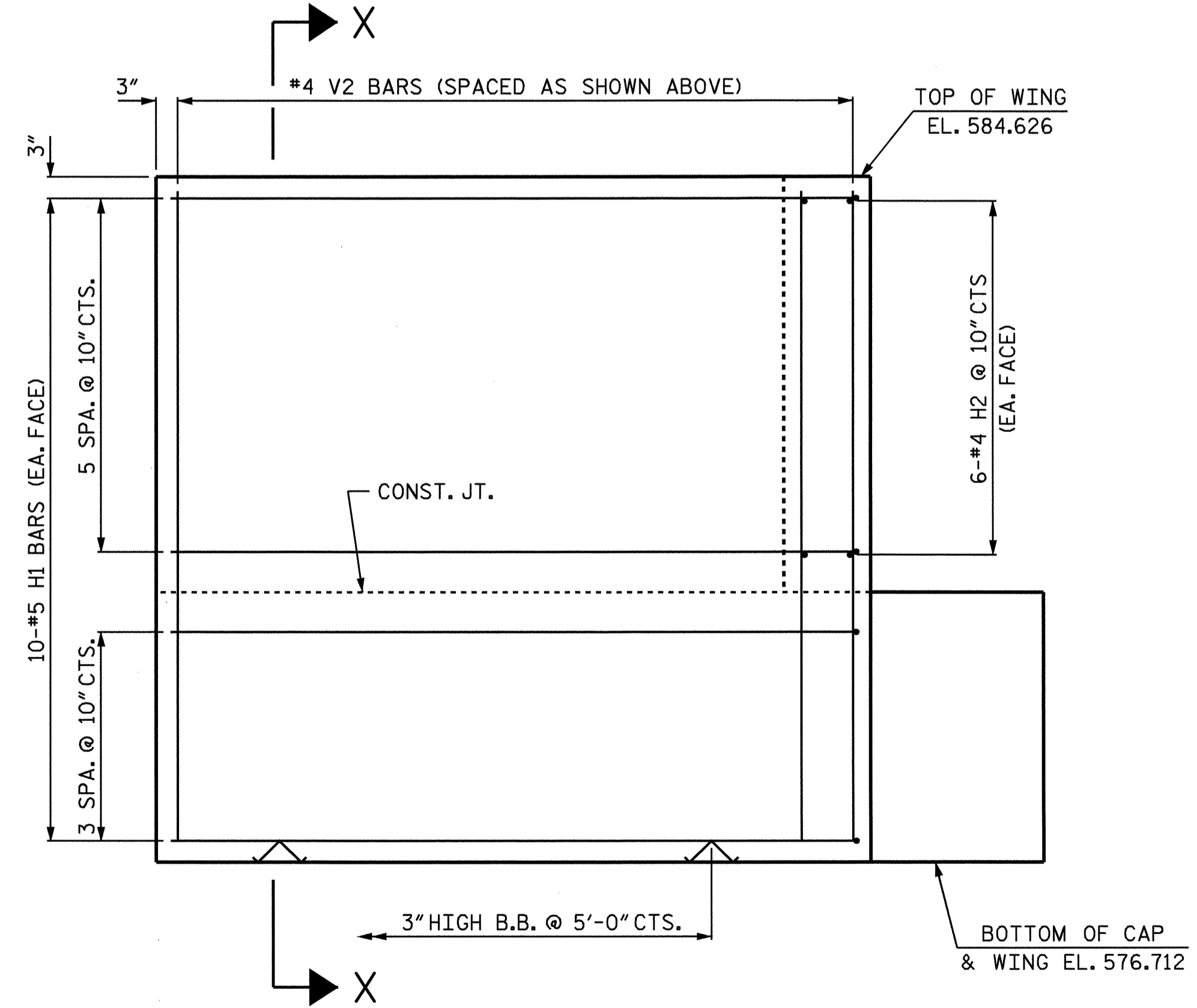
PLAN OF WING (W2)



SECTION X-X



ELEVATION OF WING (W1)



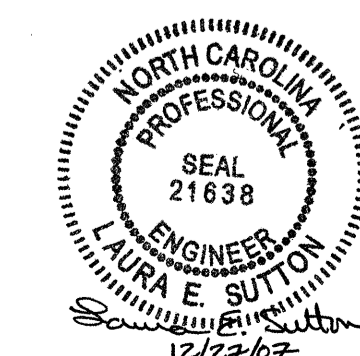
ELEVATION OF WING (W2)

PROJECT NO. B-4130
 GUILFORD COUNTY
 STATION: 21+95.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 INTEGRAL
 END BENT 1

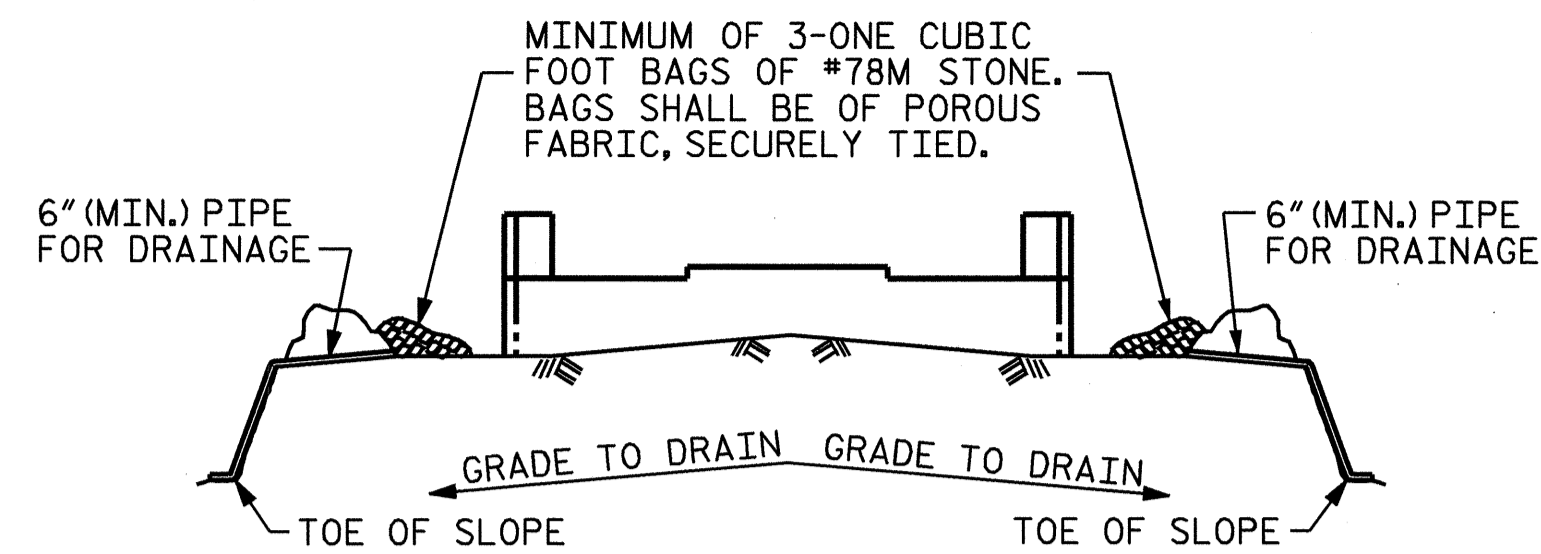


REVISIONS

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

SHEET NO.	S-18
TOTAL SHEETS	27

DRAWN BY: A.S. CALLAWAY DATE: 10/4/06
 CHECKED BY: W.F. PARKER DATE: 2/27/07

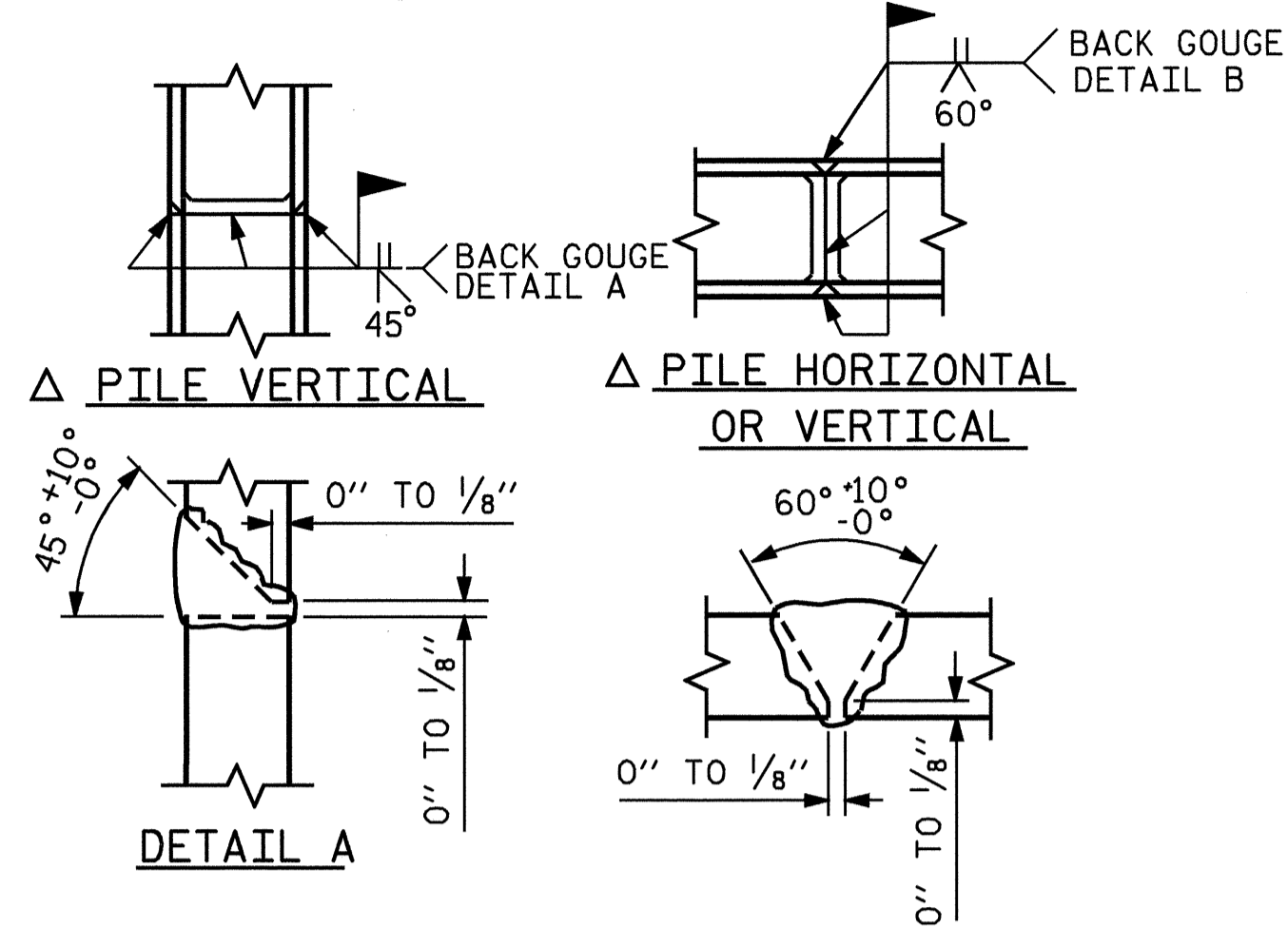


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

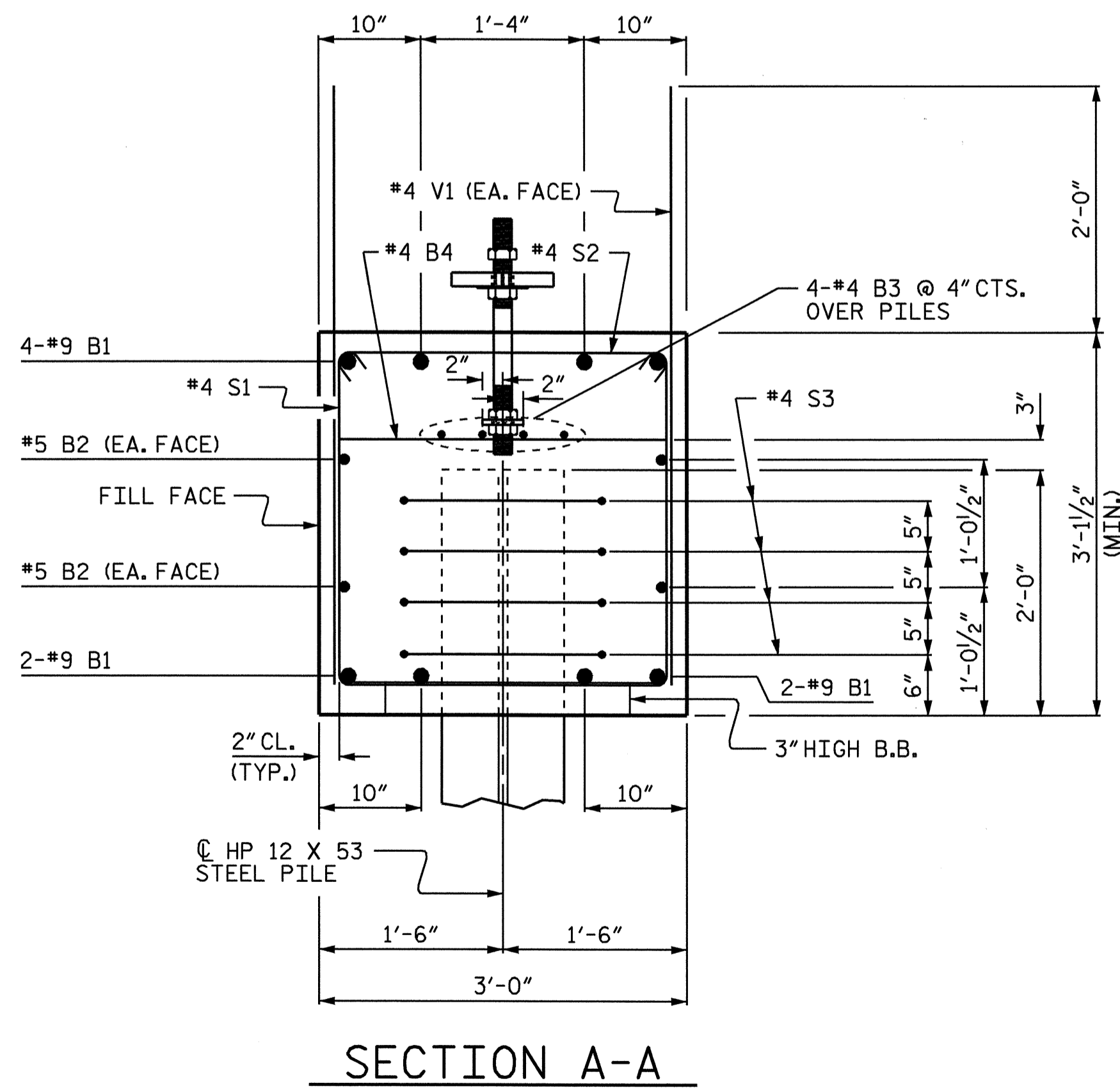
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



△ POSITION OF PILE DURING WELDING. **PILE SPLICE DETAILS**

BAR TYPES					BILL OF MATERIAL				
					END BENT 1				
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT				
B1	8	#9	1	41'-3"	1122				
B2	4	#5	STR	38'-11"	162				
B3	8	#4	STR	20'-8"	110				
B4	10	#4	STR	2'-8"	18				
H1	40	#5	2	8'-7"	358				
H2	24	#4	STR	2'-6"	40				
S1	37	#5	4	9'-1"	351				
S2	37	#5	3	3'-7"	138				
S3	24	#4	5	6'-6"	104				
V1	70	#4	STR	4'-11"	230				
V2	48	#4	STR	7'-6"	240				
REINFORCING STEEL					LBS.	2,873			
CLASS A CONCRETE BREAKDOWN :									
POUR #1 - CAP & LOWER WINGS					CU. YDS.	15.5			
POUR #2 - UPPER WINGS					CU. YDS.	3.6			
TOTAL					CU. YDS.	19.1			
HP 12 x 53 STEEL PILES									
NO. = 6					LIN. FT.	90			
PILE EXCAVATION IN SOIL					LIN. FT.	75			
PILE EXCAVATION NOT IN SOIL					LIN. FT.	15			

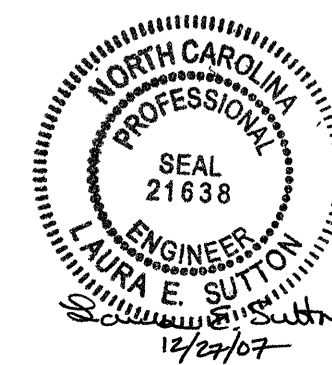


PROJECT NO. B-4130
GUILFORD COUNTY
 STATION: 21+95.00 -L-

SHEET 3 OF 3

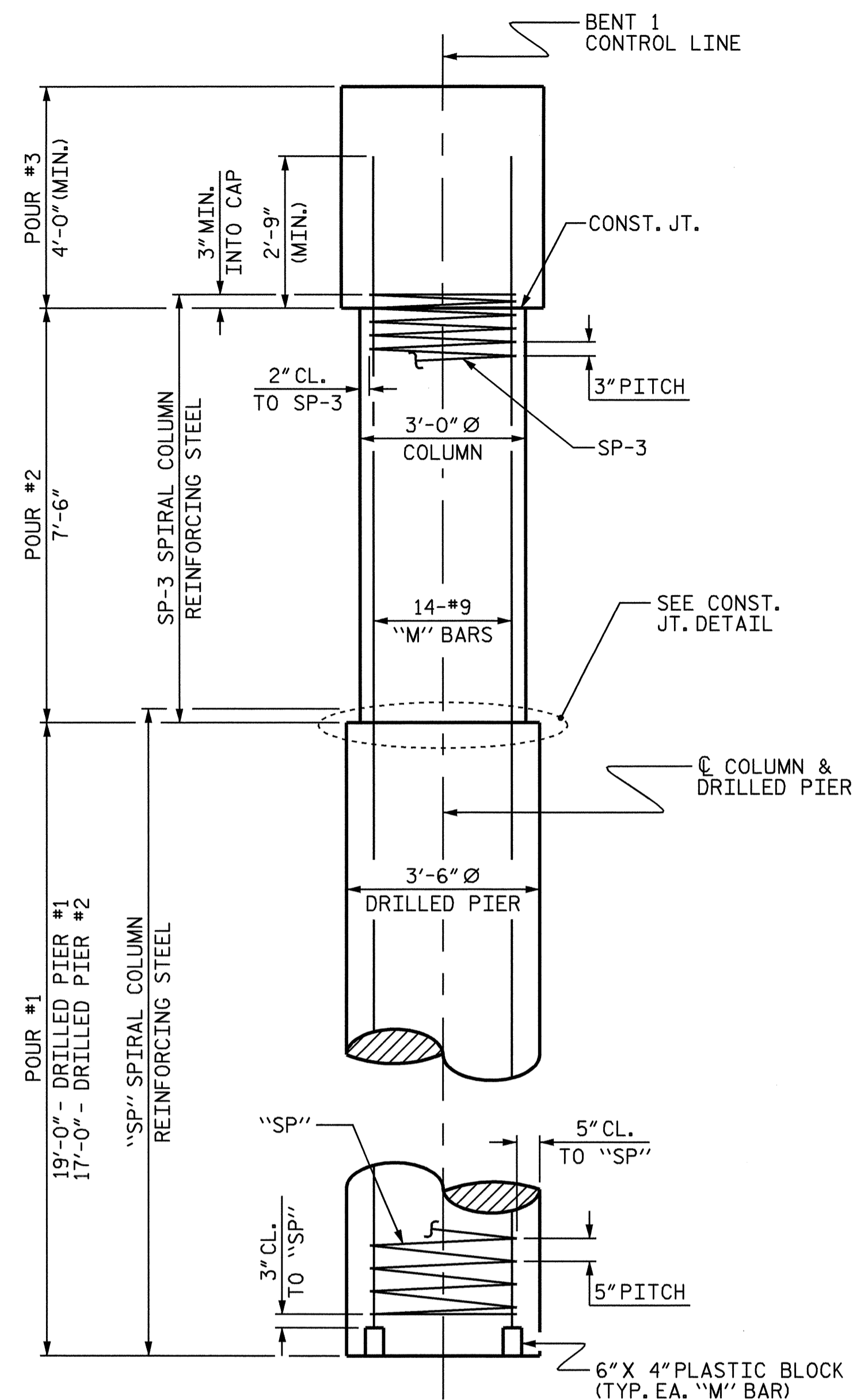
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 INTEGRAL
 END BENT 1

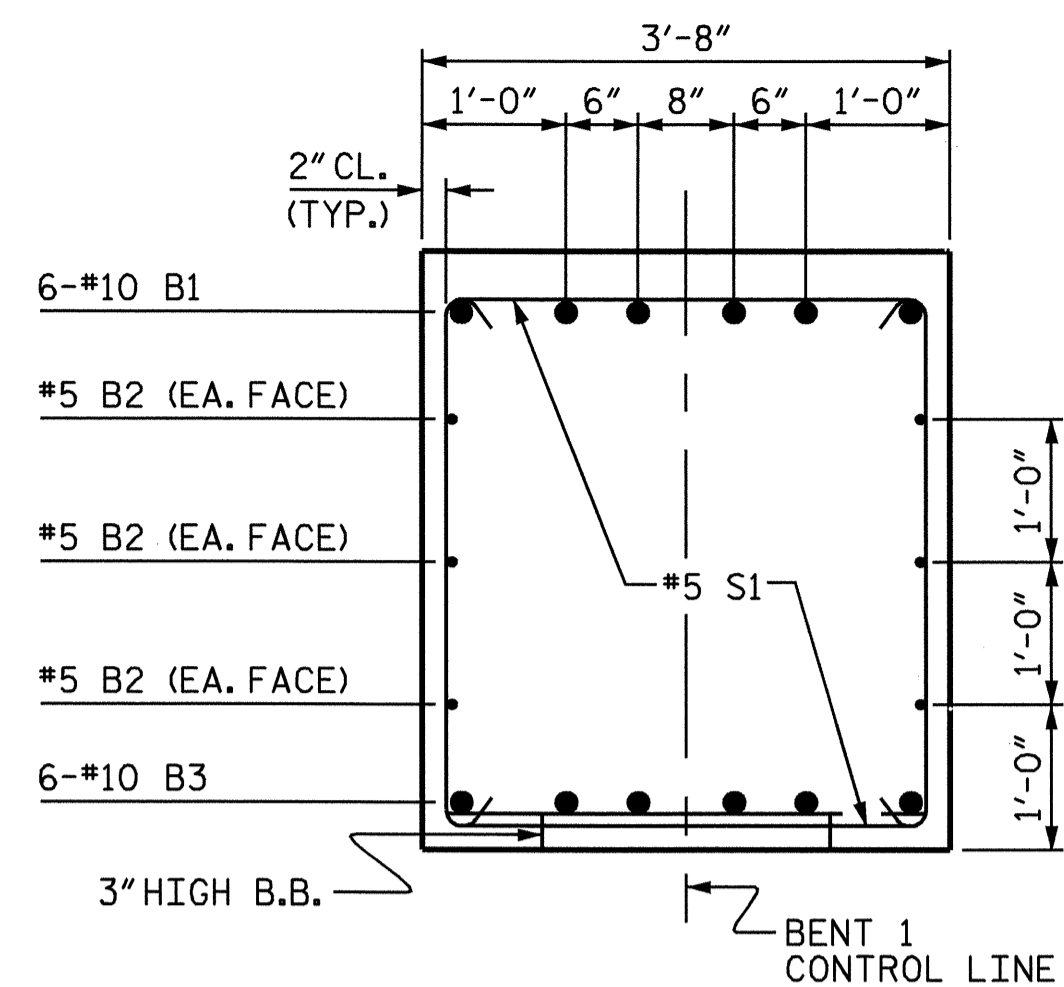


REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
1			3	
2			4	

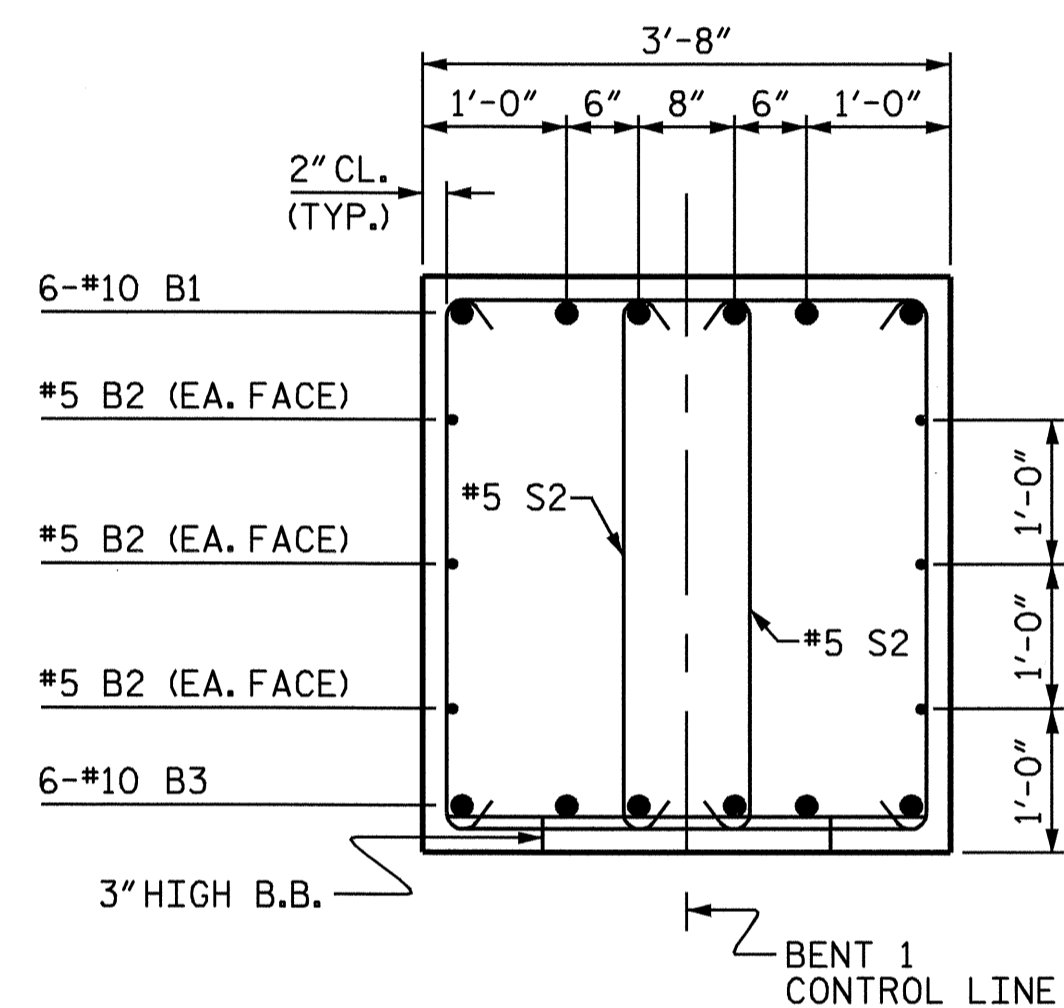
DRAWN BY: A.S. CALLAWAY DATE: 10/4/06
 CHECKED BY: W.K. PARKER DATE: 2/27/07



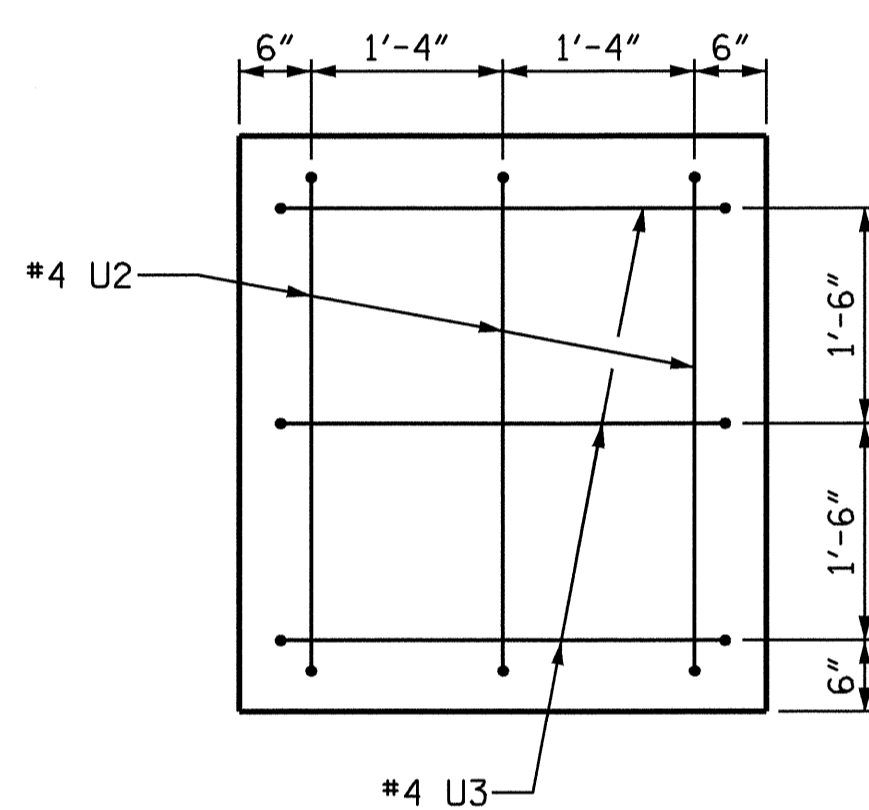
END ELEVATION



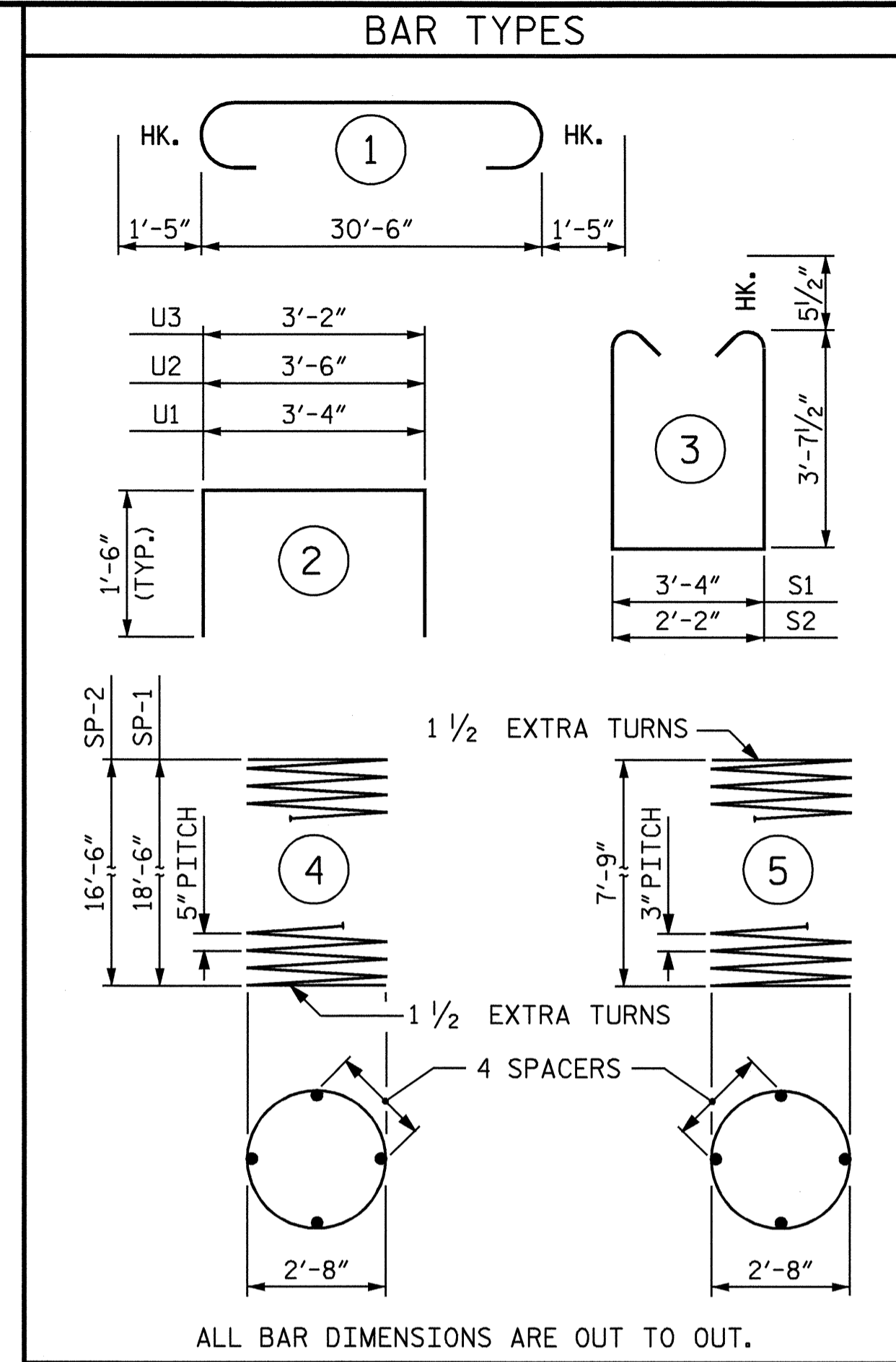
SECTION A-A



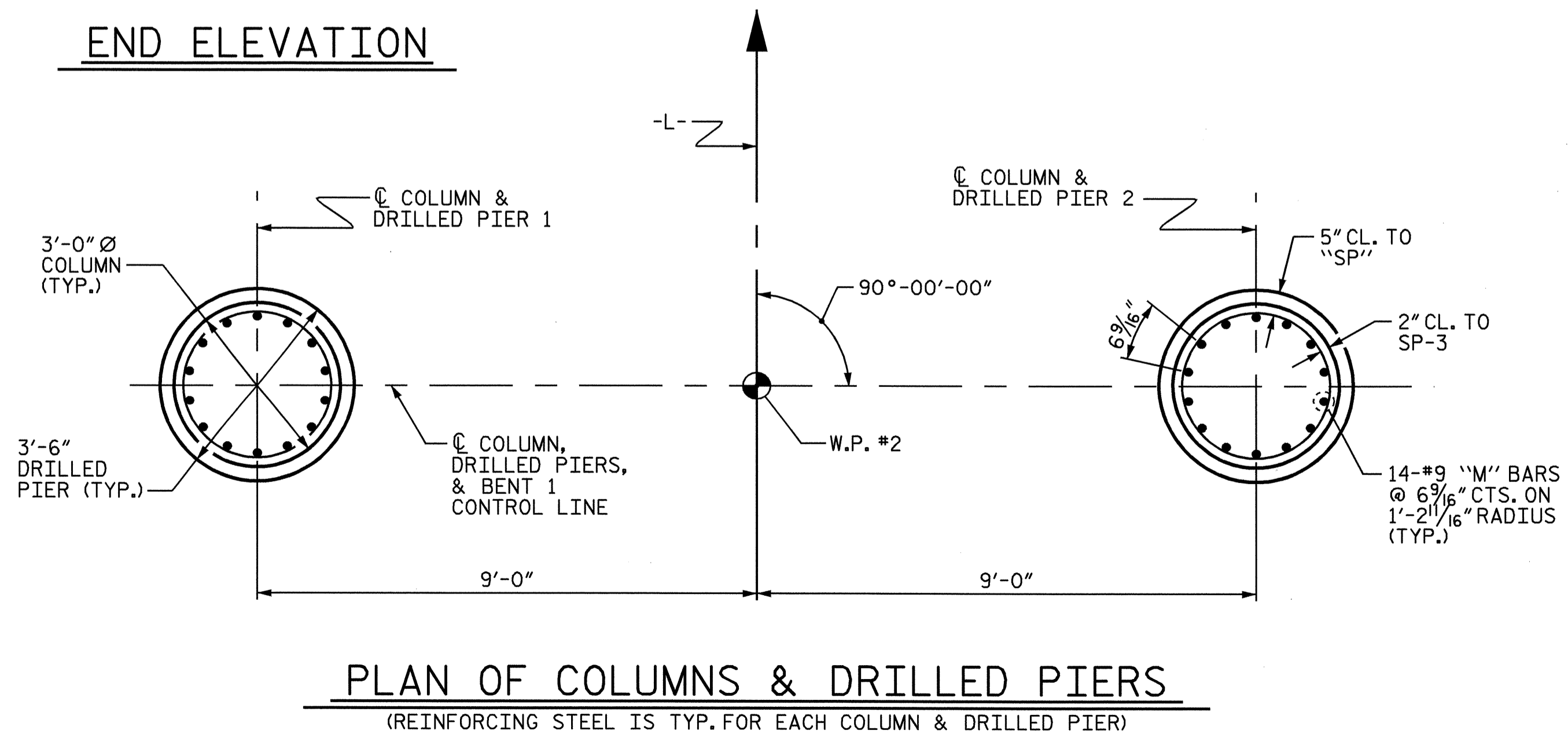
SECTION B-B



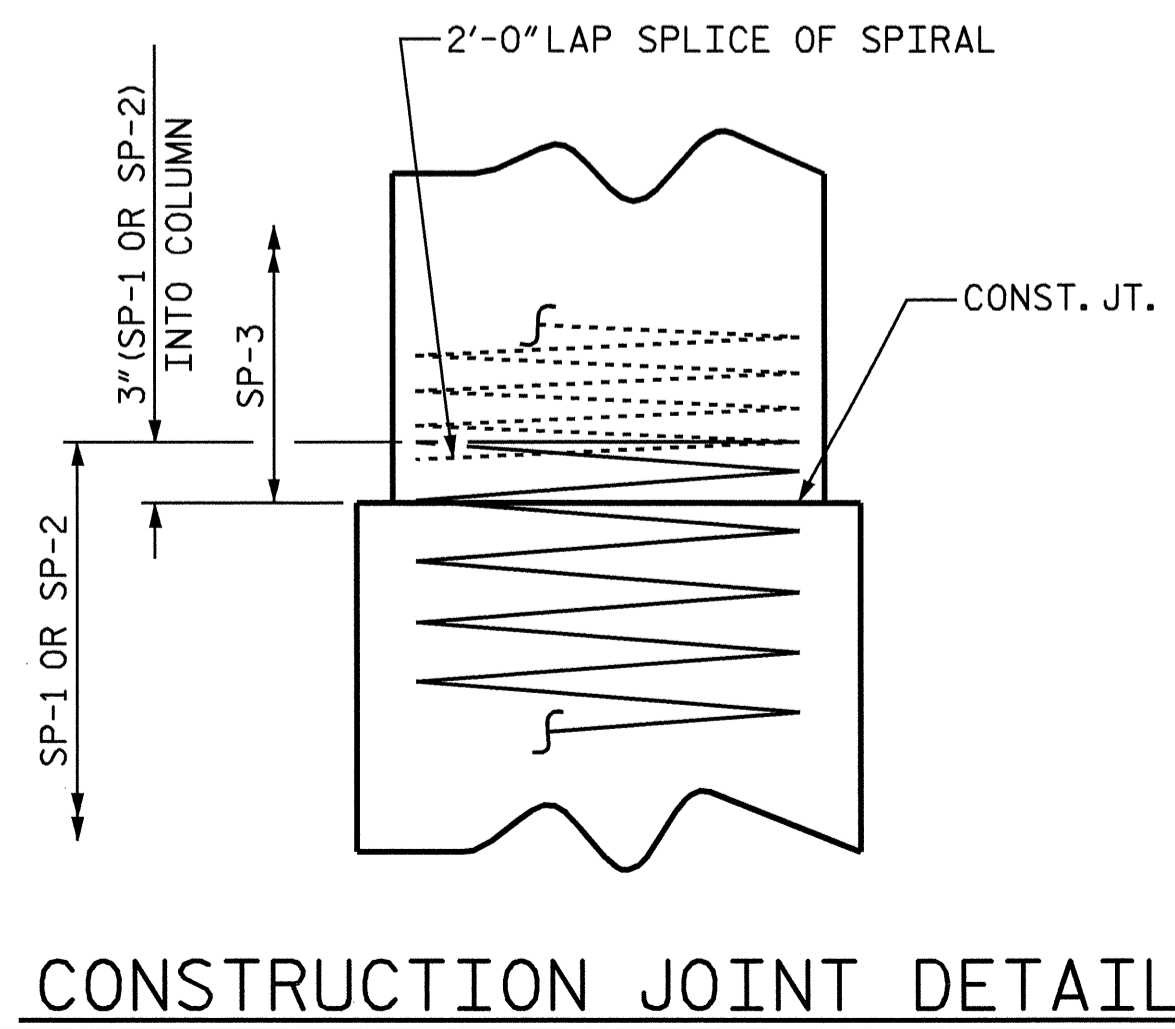
END VIEW



BILL OF MATERIAL					
BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#10		33'-4"	861
B2	6	#5	STR	30'-8"	192
B3	6	#10	STR	30'-8"	792
M1	14	#9	STR	31'-9"	1511
M2	14	#9	STR	29'-9"	1416
S1	7	#5	3	11'-6"	84
S2	72	#5	3	10'-4"	776
U1	24	#4	2	6'-4"	102
U2	6	#4	2	6'-6"	26
U3	6	#4	2	6'-2"	25
REINFORCING STEEL				LBS.	5,785
SP-1	1	*	4	378'-4"	395
SP-2	1	*	4	345'-6"	360
SP-3	2	*	5	272'-4"	364
SPIRAL COLUMN REINFORCING STEEL				LBS.	1,119
CLASS A CONCRETE					
POUR #2 - COLUMNS				CU. YDS.	3.9
POUR #3 - CAP				CU. YDS.	17.1
TOTAL				CU. YDS.	21.0
DRILLED PIER QUANTITIES:					
DRILLED PIER CONCRETE					
POUR #1 - DRILLED PIERS IN SOIL				CU. YDS.	12.8
3'-6" Ø DRILLED PIERS				LIN. FT.	25.00
3'-6" Ø DRILLED PIERS NOT IN SOIL				LIN. FT.	11.00
CSL TUBES				LIN. FT.	164.00



PLAN OF COLUMNS & DRILLED PIERS
(REINFORCING STEEL IS TYP. FOR EACH COLUMN & DRILLED PIER)

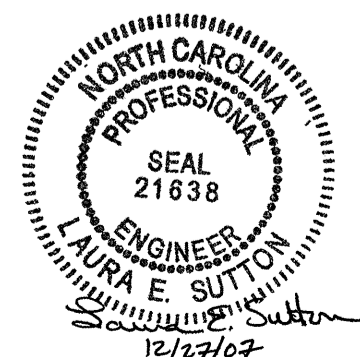


CONSTRUCTION JOINT DETAIL

PROJECT NO. B-4130
GUILFORD COUNTY
 STATION: 21+95.00 -L-

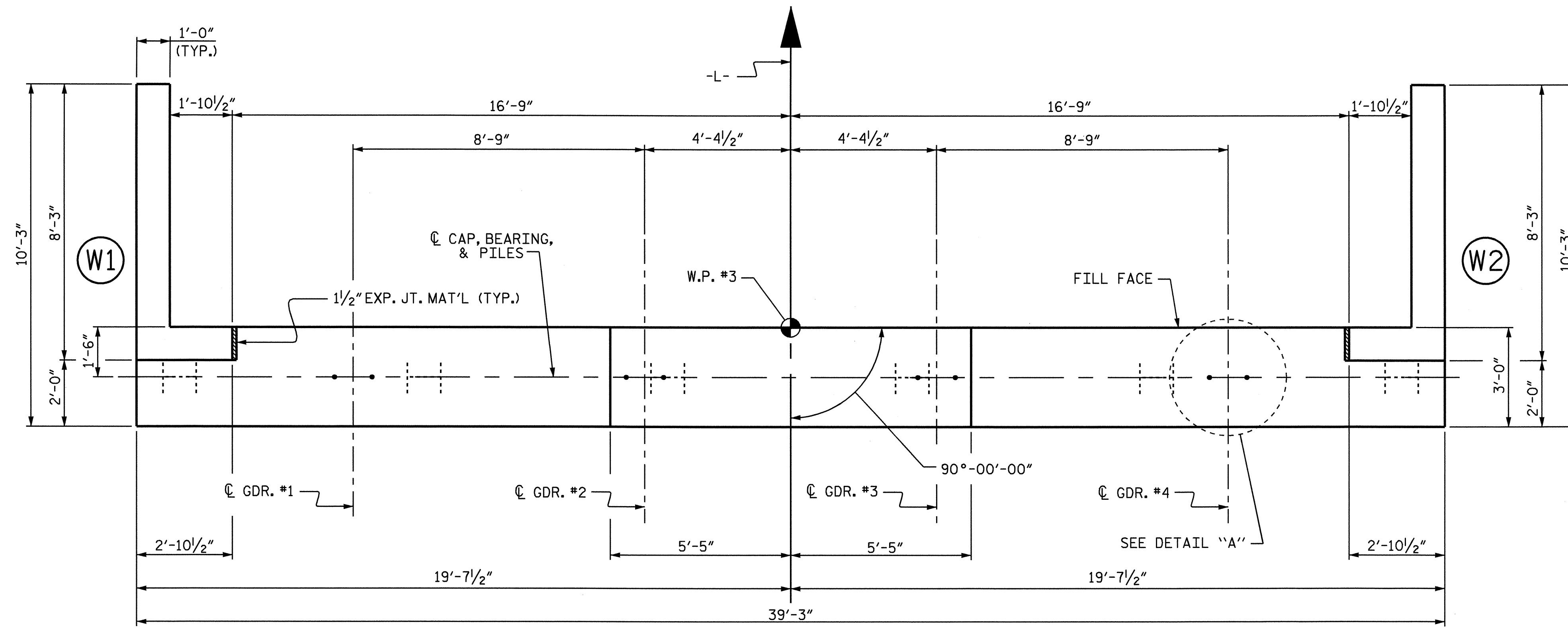
SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT 1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		



DRAWN BY: E.C. LOCKLEAR DATE: 1-11-07
 CHECKED BY: A.S. CALLAWAY DATE: 1-12-07

SHEET NO.
 S-21
 TOTAL SHEETS
 27

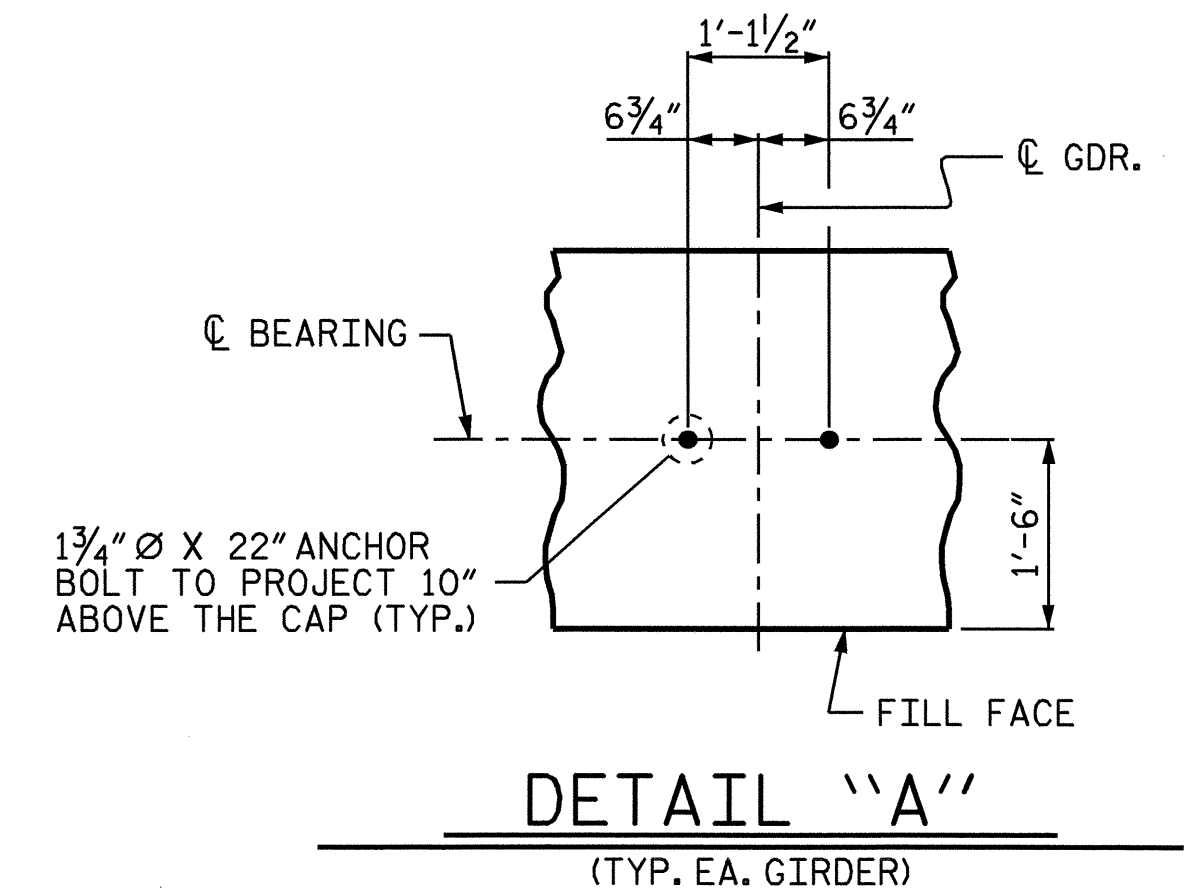


PLAN

NOTES:

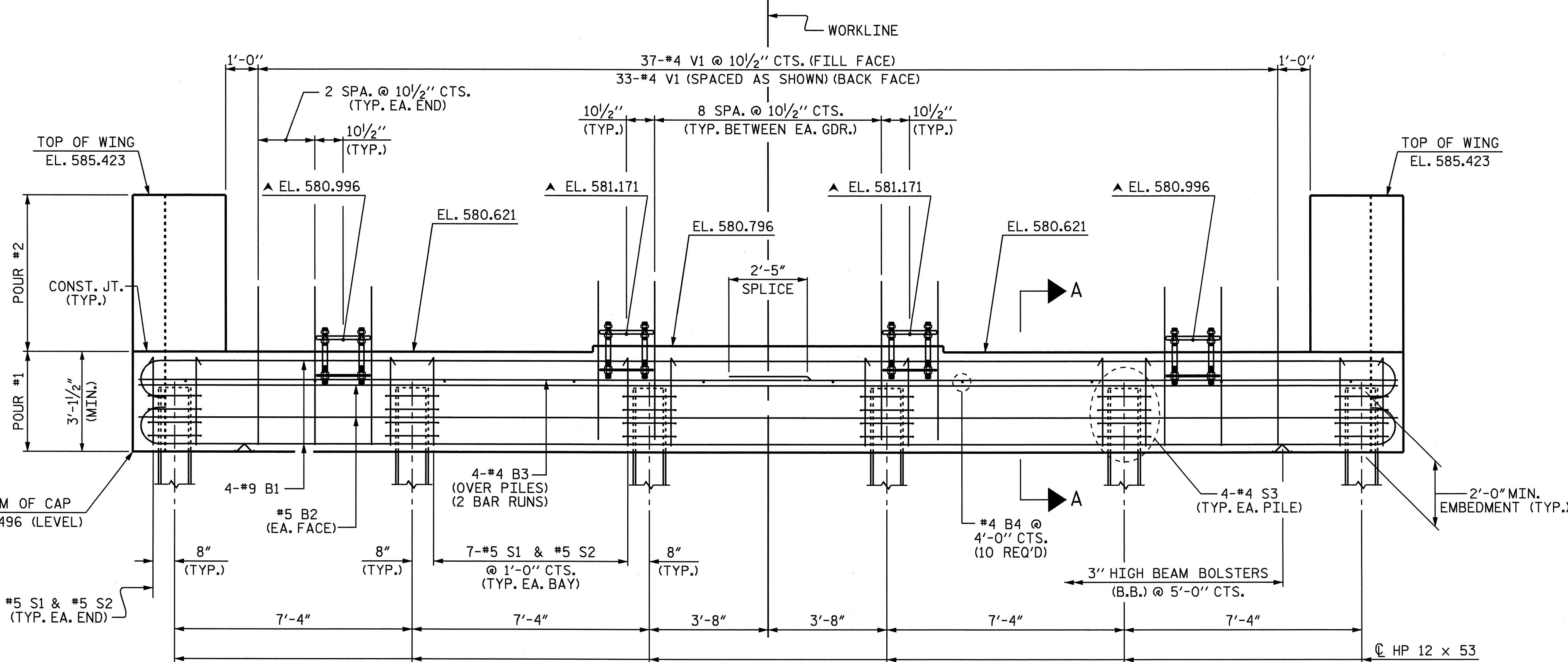
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4\"/>

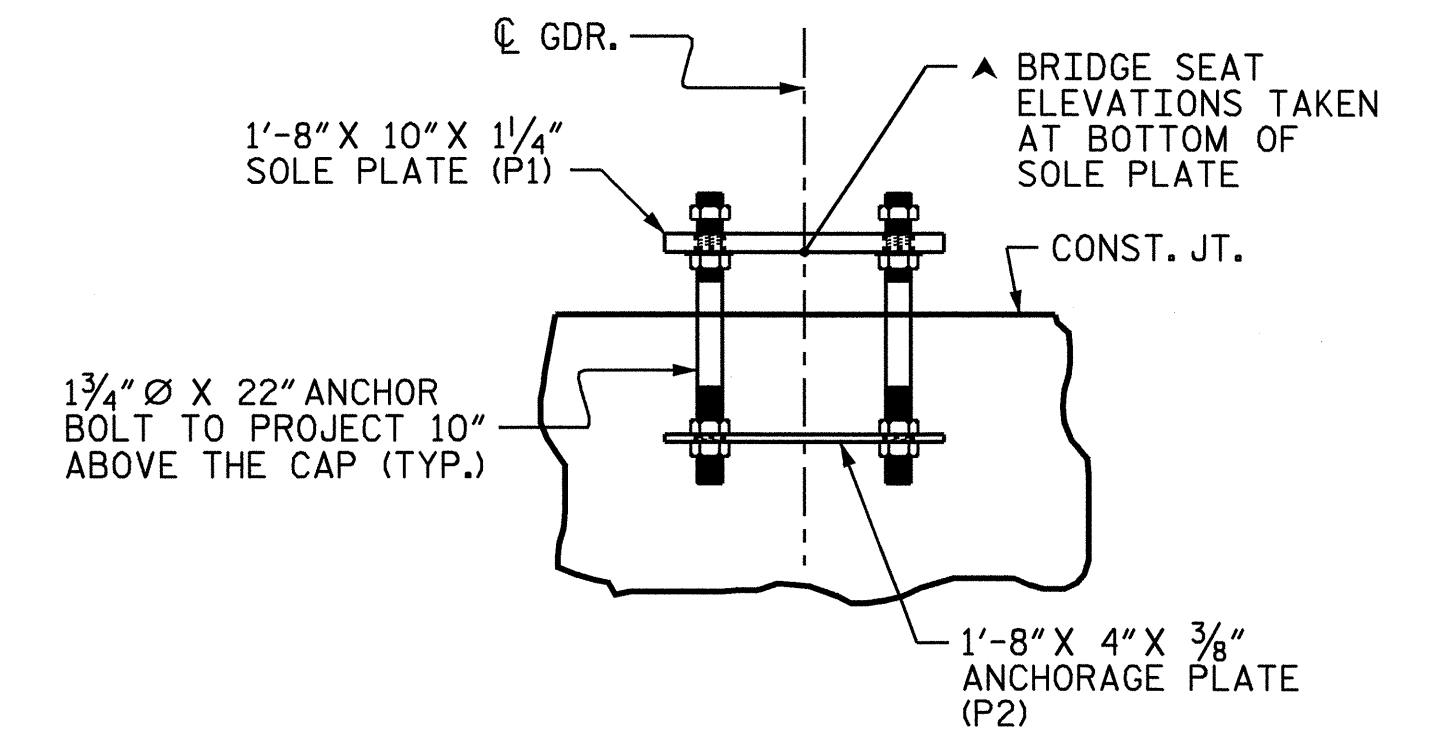


DETAIL "A"

(TYP. EA. GIRDER)



ELEVATION



ANCHORAGE DETAILS

(TYP. EA. GIRDER)

PROJECT NO. B-4130
 GUILFORD COUNTY
 STATION: 21+95.00 -L-

SHEET 1 OF 3

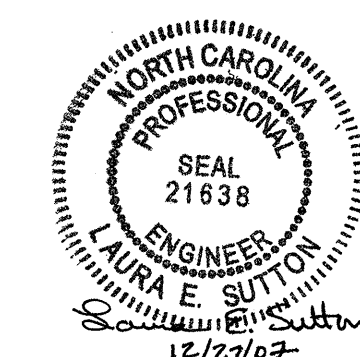
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

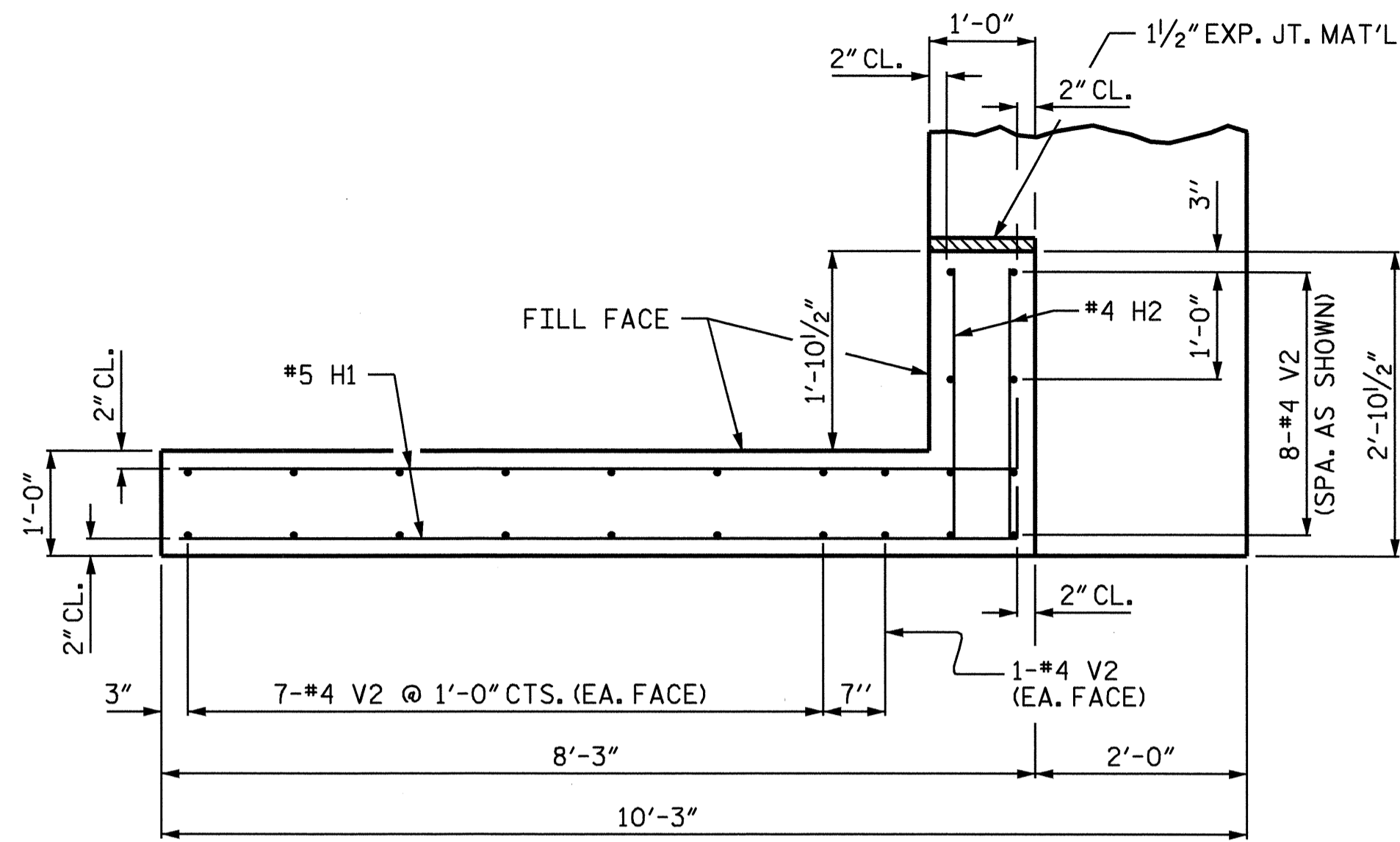
SUBSTRUCTURE
 INTEGRAL
 END BENT 2

REVISIONS

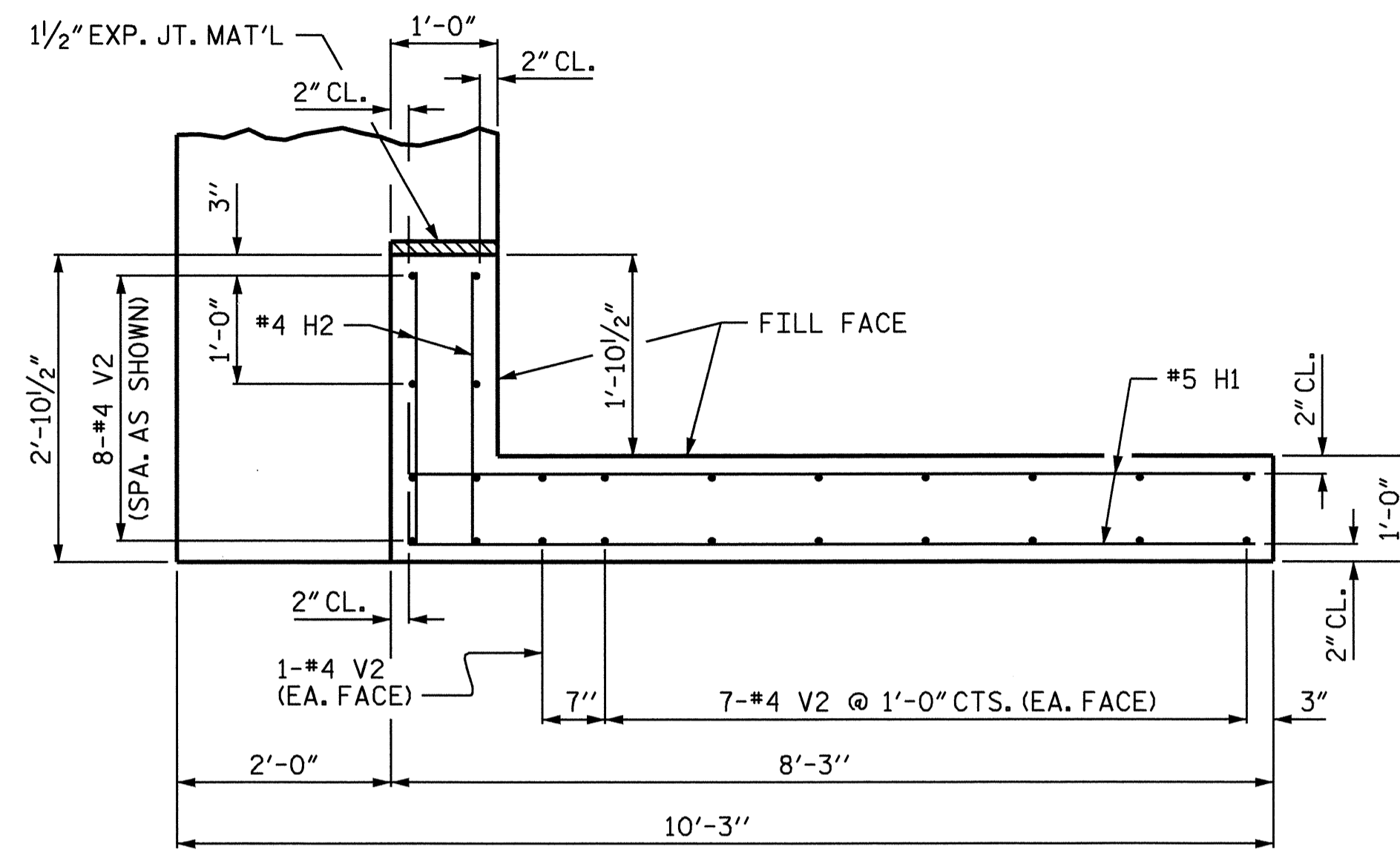
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S-22
2			4			TOTAL SHEETS 27

DRAWN BY: A.S. CALLAWAY DATE: 10/4/06
 CHECKED BY: W.F. PARKER DATE: 2/27/07

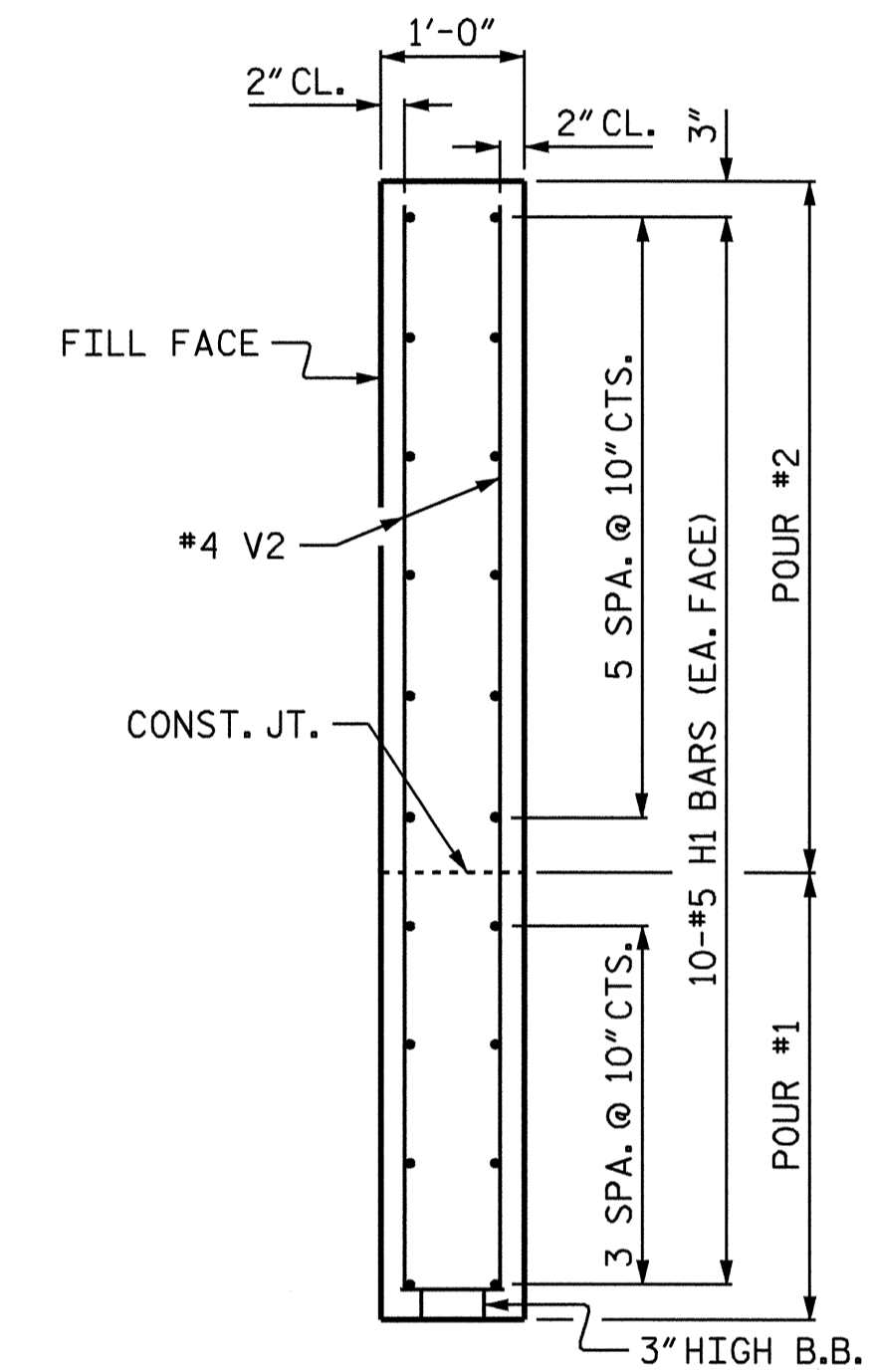




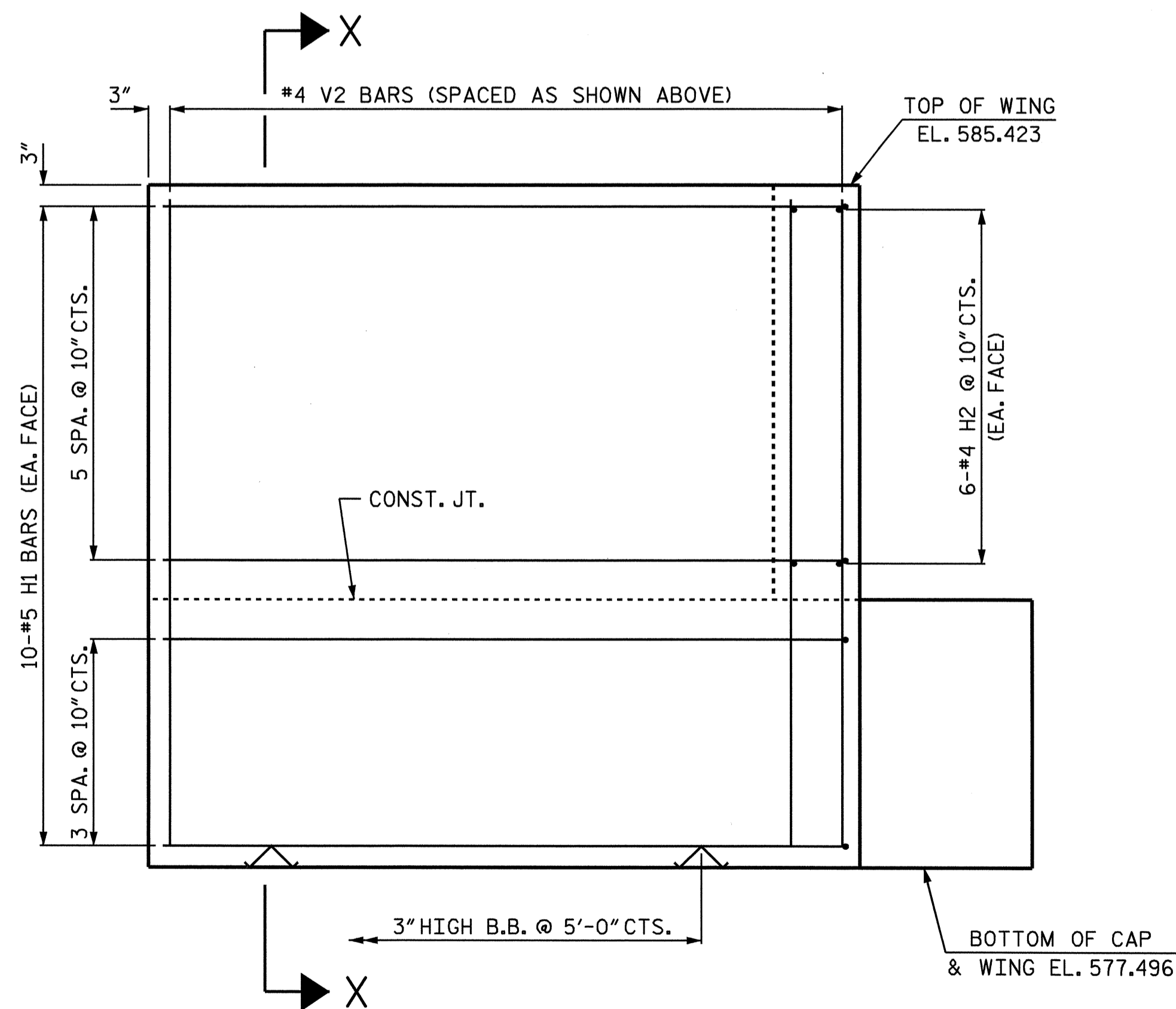
PLAN OF WING (W1)



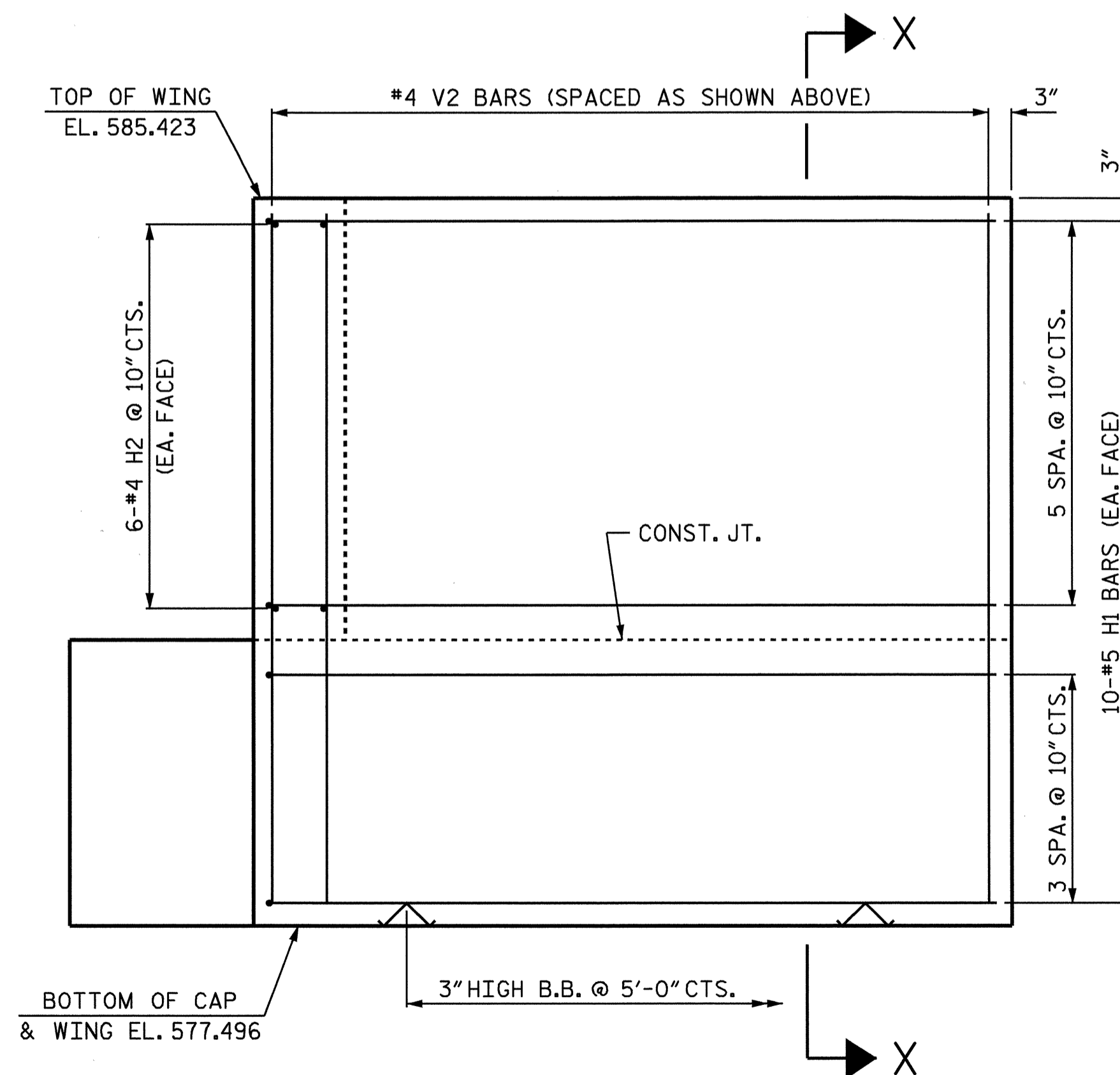
PLAN OF WING (W2)



SECTION X-X



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

PROJECT NO. B-4130

GUILFORD COUNTY

STATION: 21+95.00 -L-

SHEET 2 OF 3

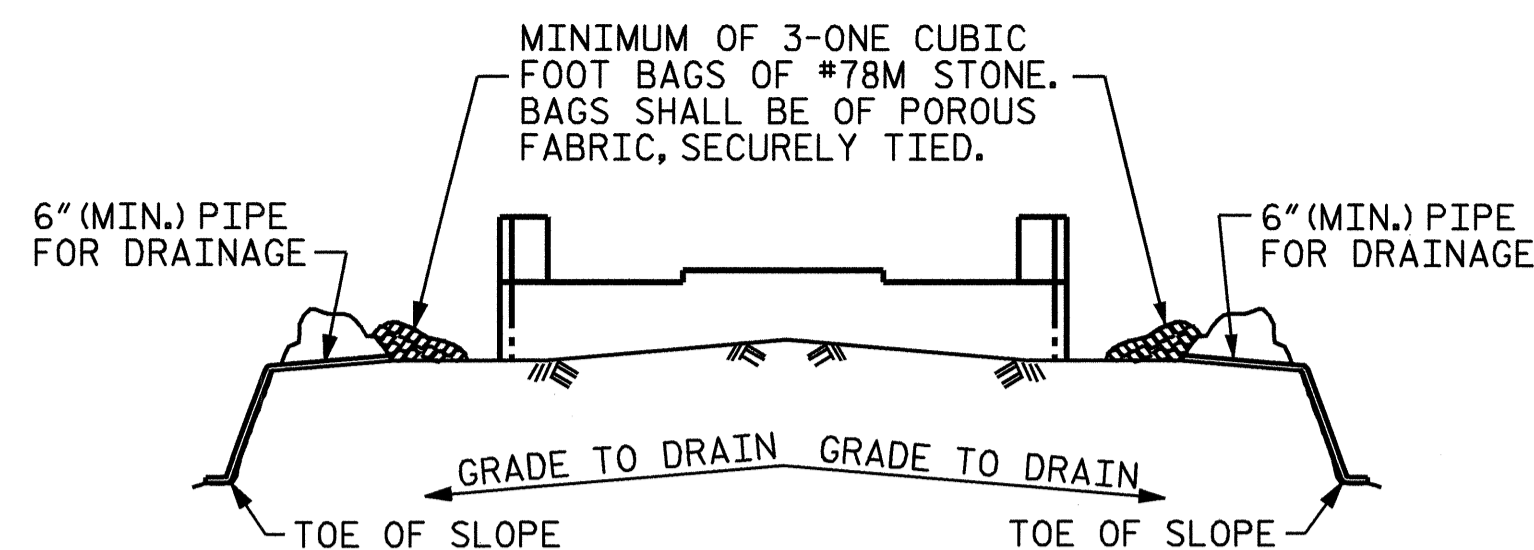
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
INTEGRAL
END BENT 2



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS
2			4			27

DRAWN BY: A.S. CALLAWAY DATE: 10/4/06
CHECKED BY: W.F. PARKER DATE: 2/27/07

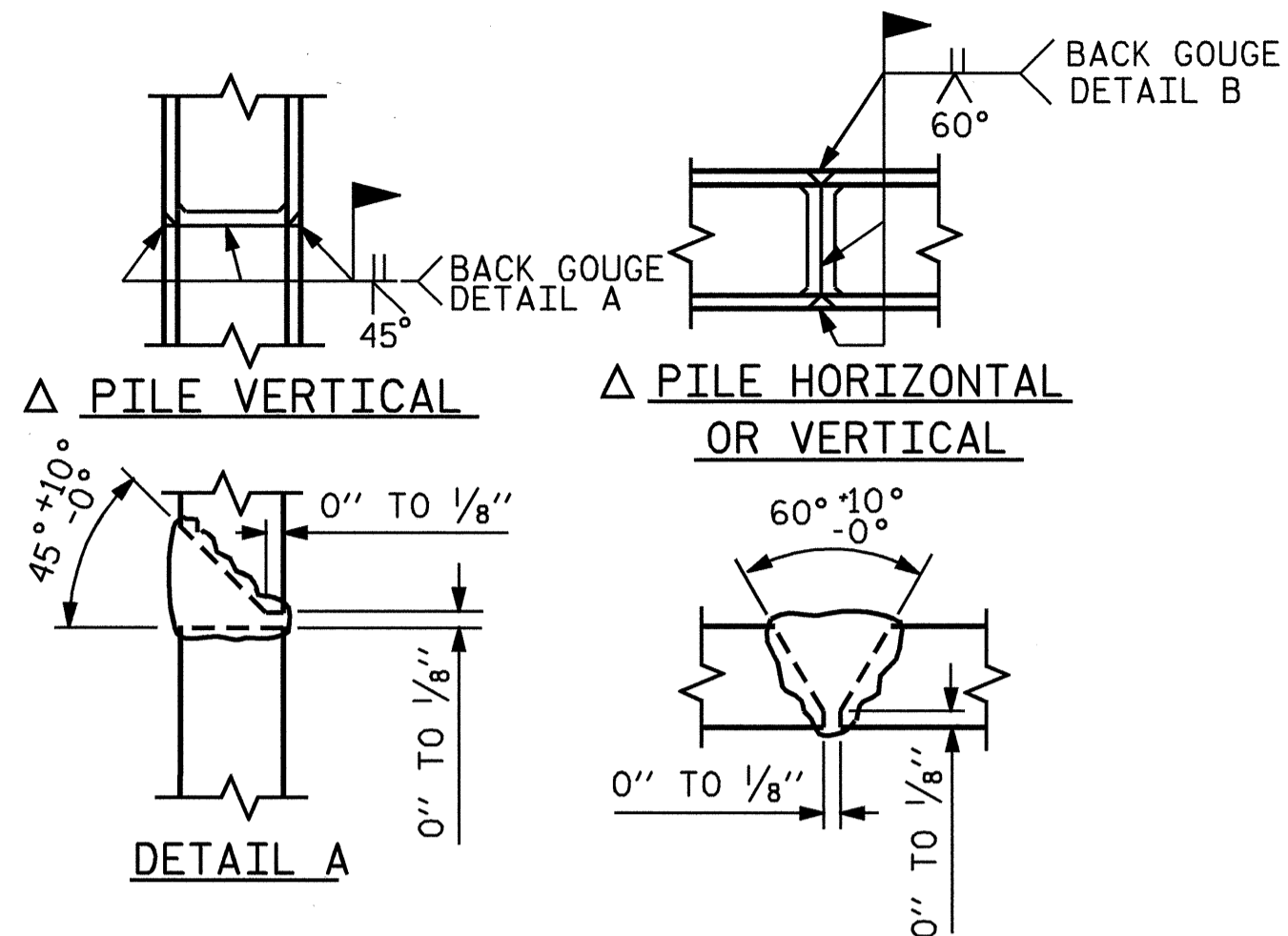


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

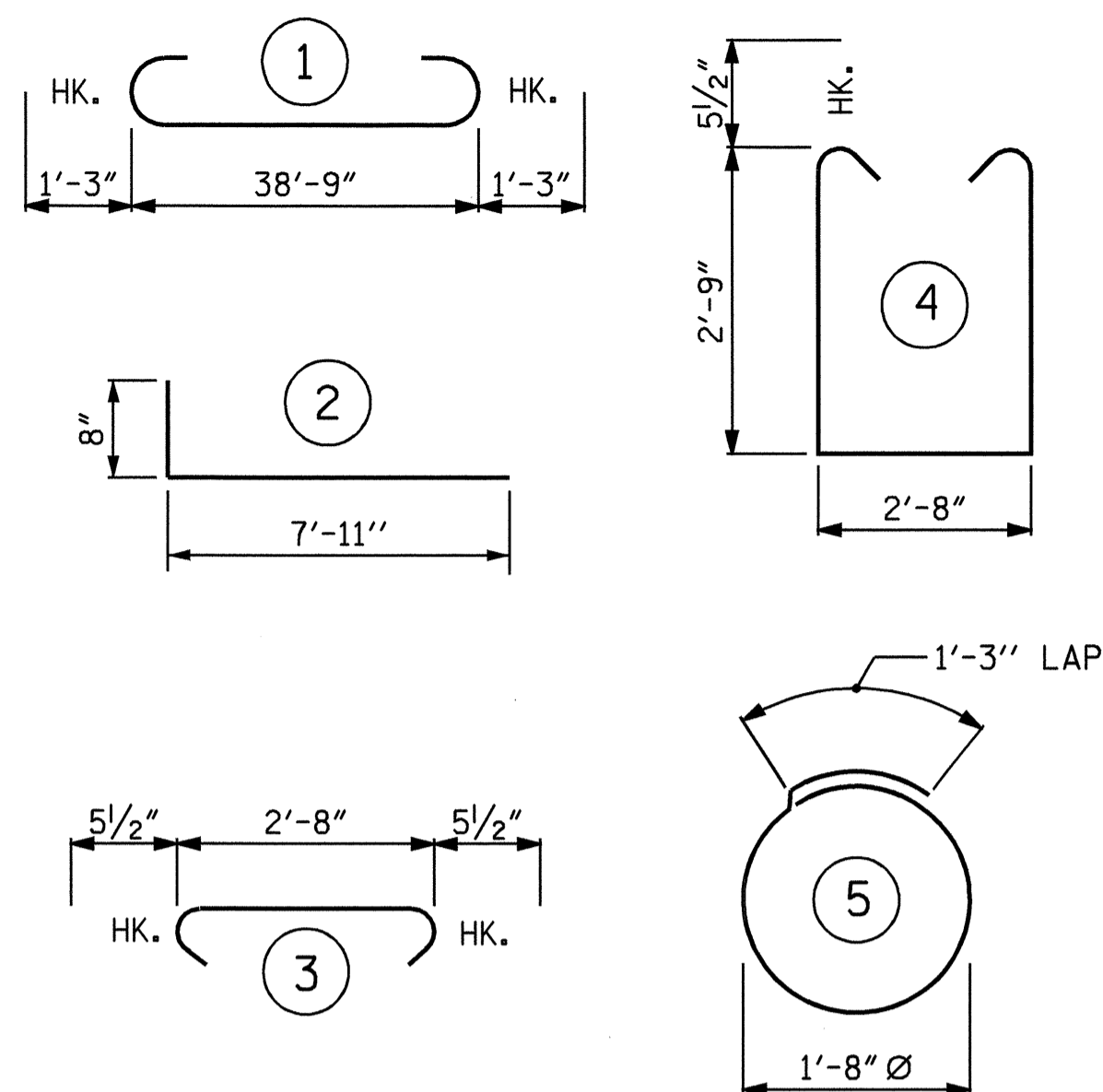
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



△ POSITION OF PILE DURING WELDING. **PILE SPLICE DETAILS**

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 2

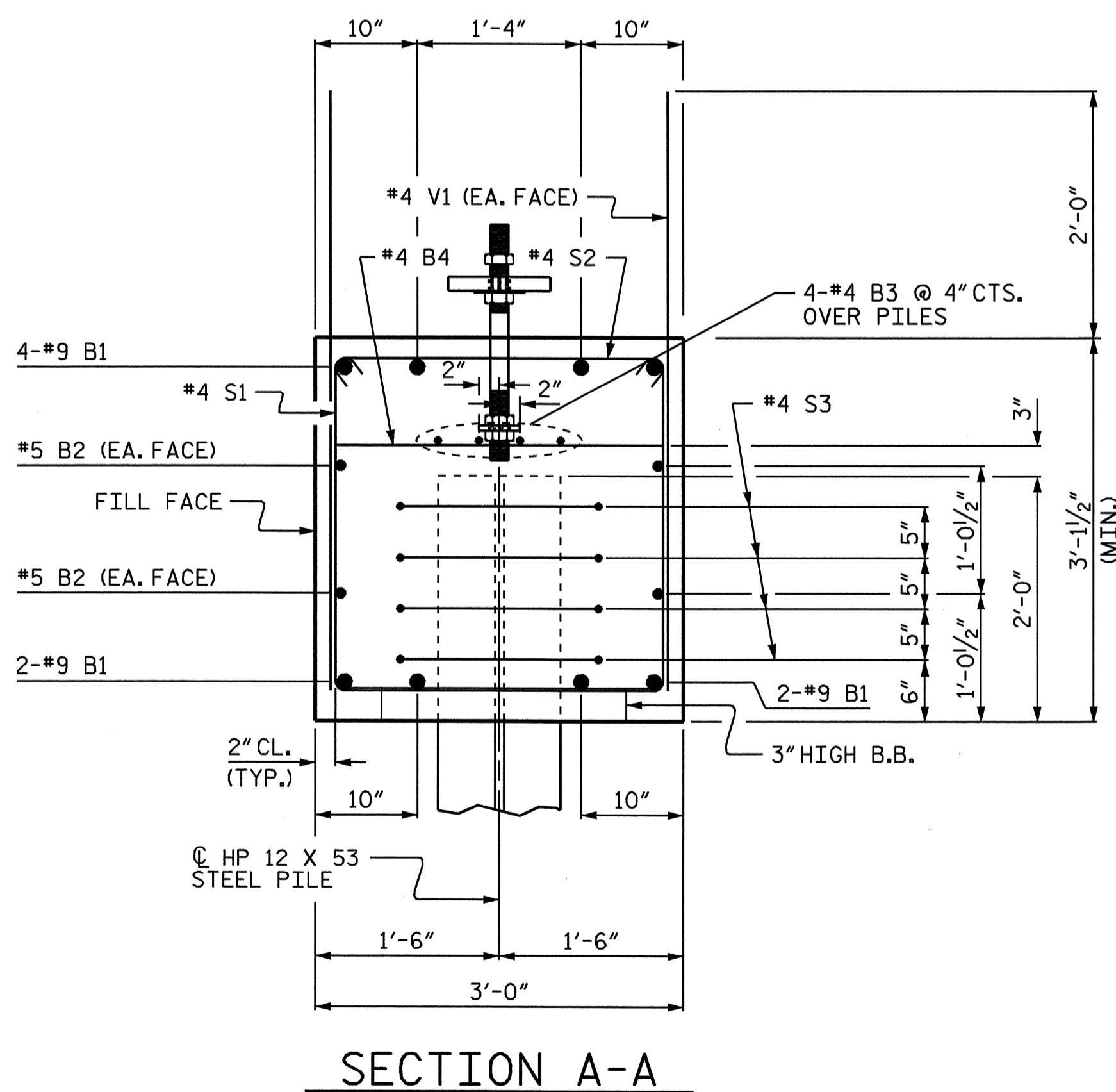
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B2	4	#5	STR	38'-11"	162
B3	8	#4	STR	20'-8"	110
B4	10	#4	STR	2'-8"	18
H1	40	#5	2	8'-7"	358
H2	24	#4	STR	2'-6"	40
S1	37	#5	4	9'-1"	351
S2	37	#5	3	3'-7"	138
S3	24	#4	5	6'-6"	104
V1	70	#4	STR	4'-11"	230
V2	48	#4	STR	7'-6"	240

REINFORCING STEEL LBS. 2,873

CLASS A CONCRETE BREAKDOWN :

POUR	DESCRIPTION	CU. YDS.	WEIGHT
POUR #1	CAP & LOWER WINGS	15.5	
POUR #2	UPPER WINGS	3.6	
TOTAL		19.1	

HP 12 x 53 STEEL PILES NO. = 6 LIN. FT. 120



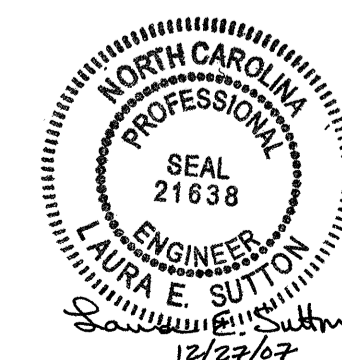
SECTION A-A

PROJECT NO. B-4130
GUILFORD COUNTY
 STATION: 21+95.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

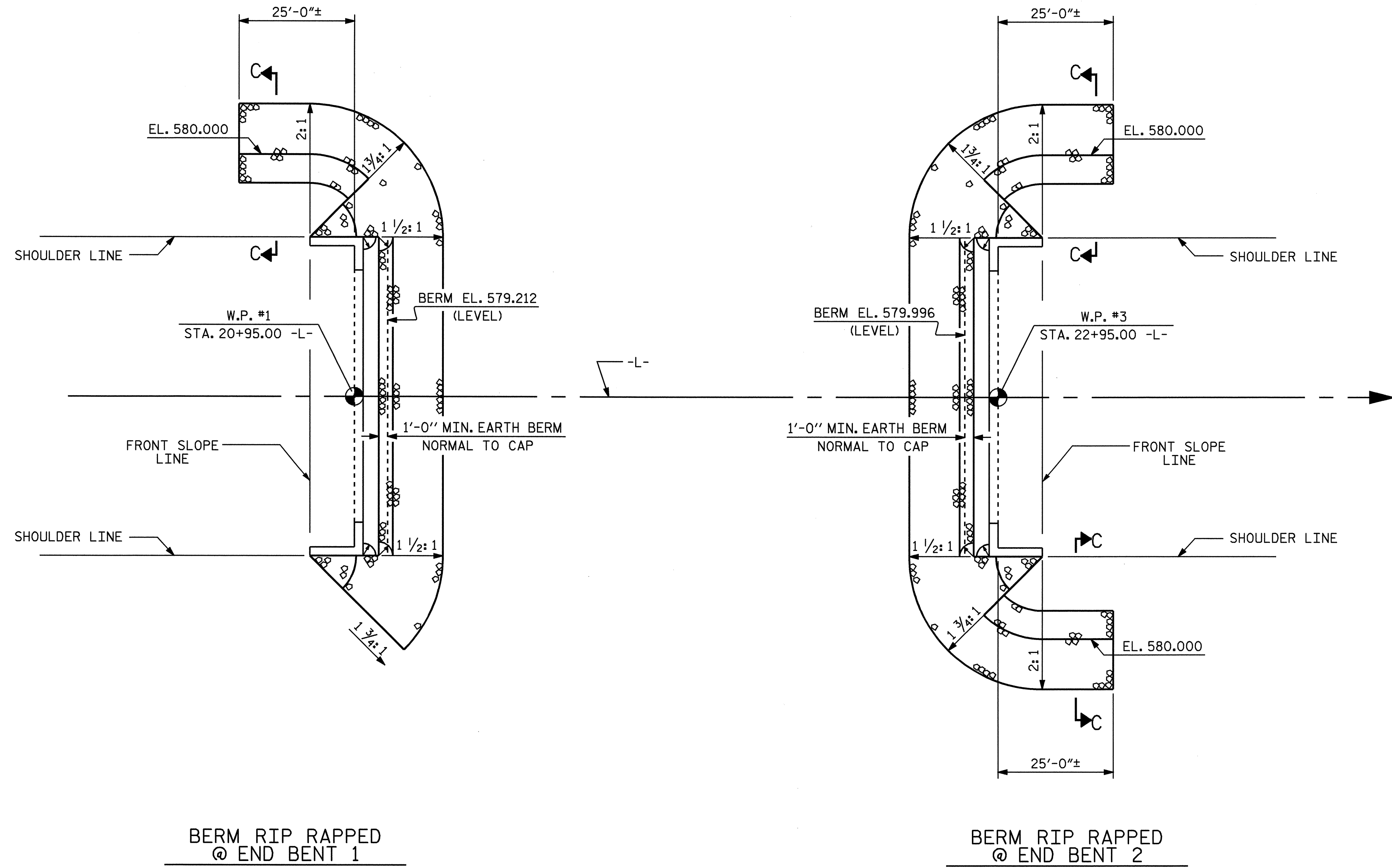
SUBSTRUCTURE
 INTEGRAL
 END BENT 2



DRAWN BY : A.S. CALLAWAY DATE : 10/4/06
 CHECKED BY : W.K. PARKER DATE : 2/27/07

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

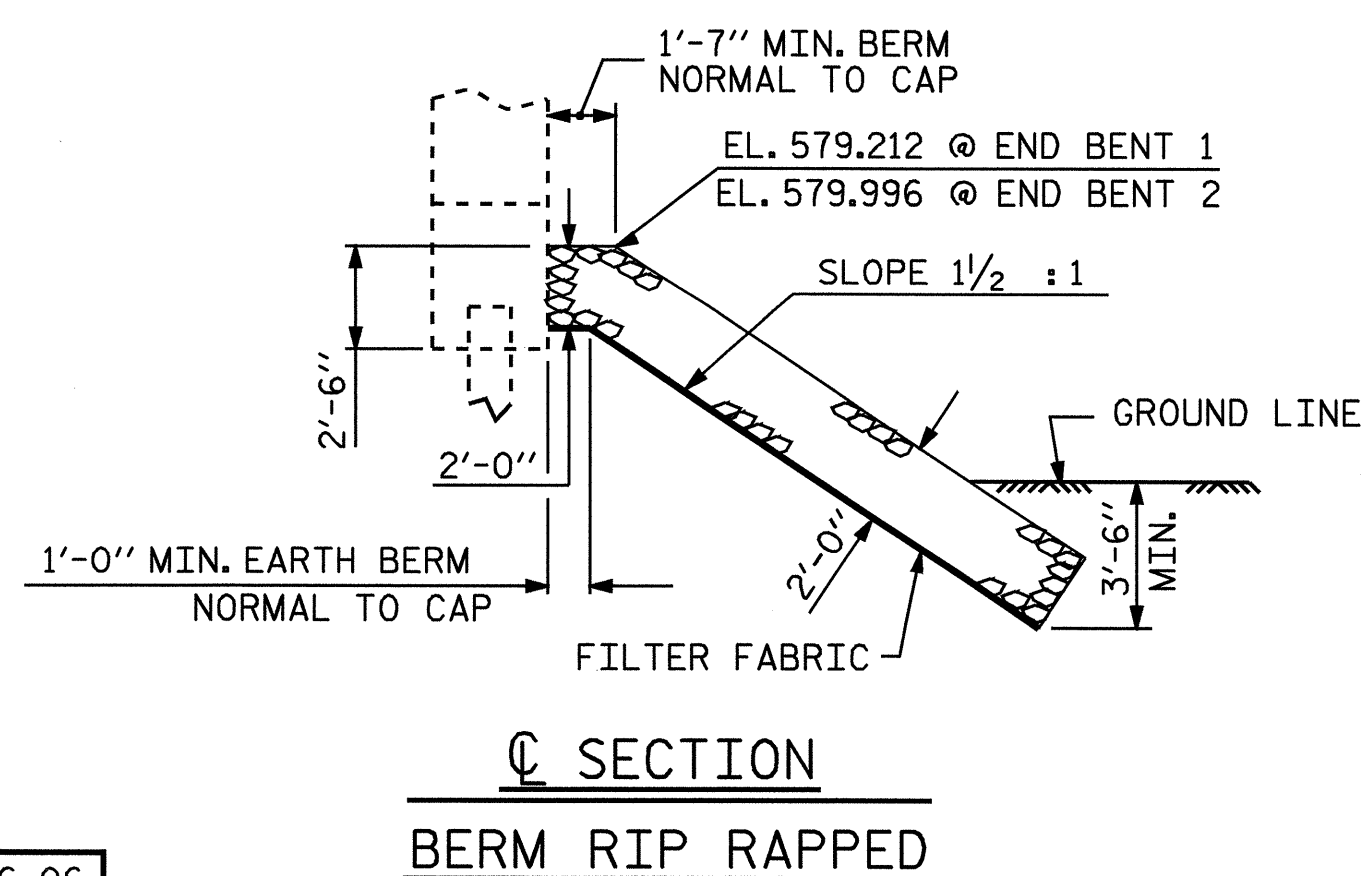
TOTAL SHEETS 27



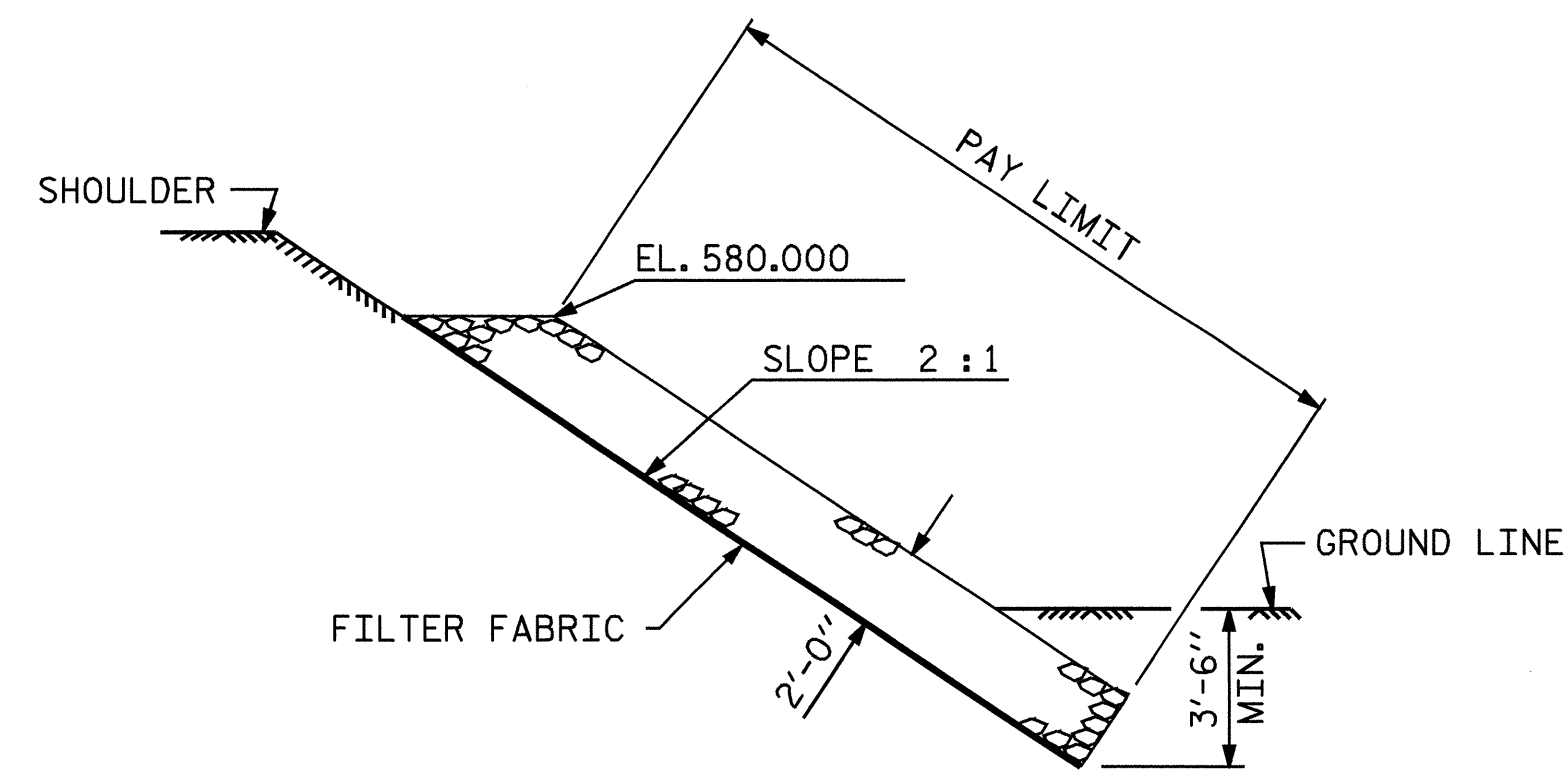
ESTIMATED QUANTITIES		
BRIDGE @ STA. 21+95.00 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	140	155
END BENT 2	228	254

BERM RIP RAPPED
@ END BENT 1

BERM RIP RAPPED
@ END BENT 2



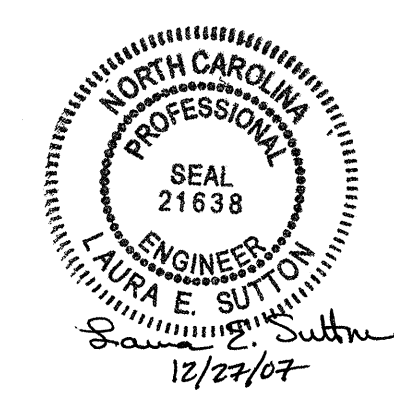
C SECTION
BERM RIP RAPPED



SECTION C-C

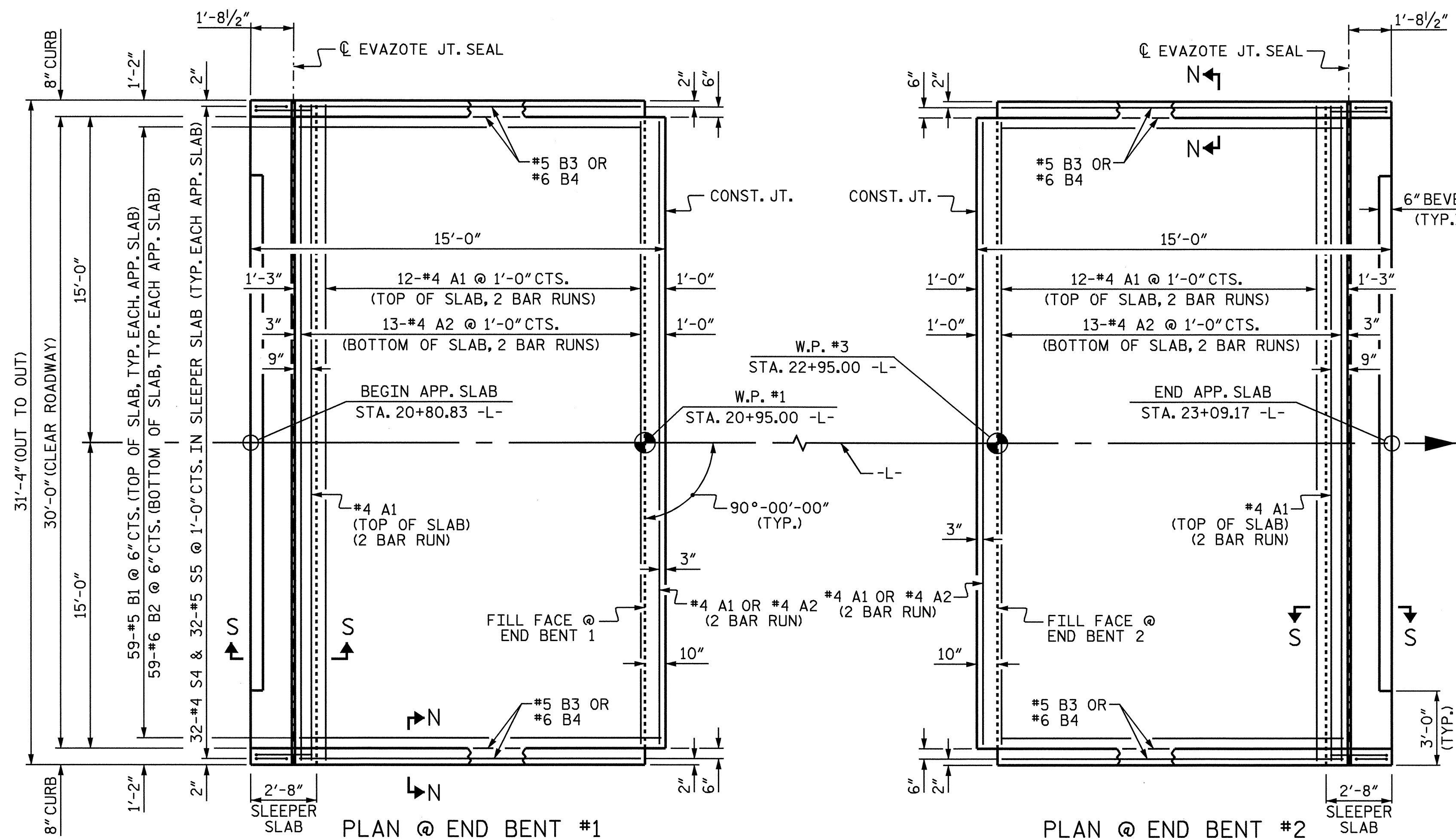
PROJECT NO. B-4130
GUILFORD COUNTY
 STATION: 21+95.00 -L-

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

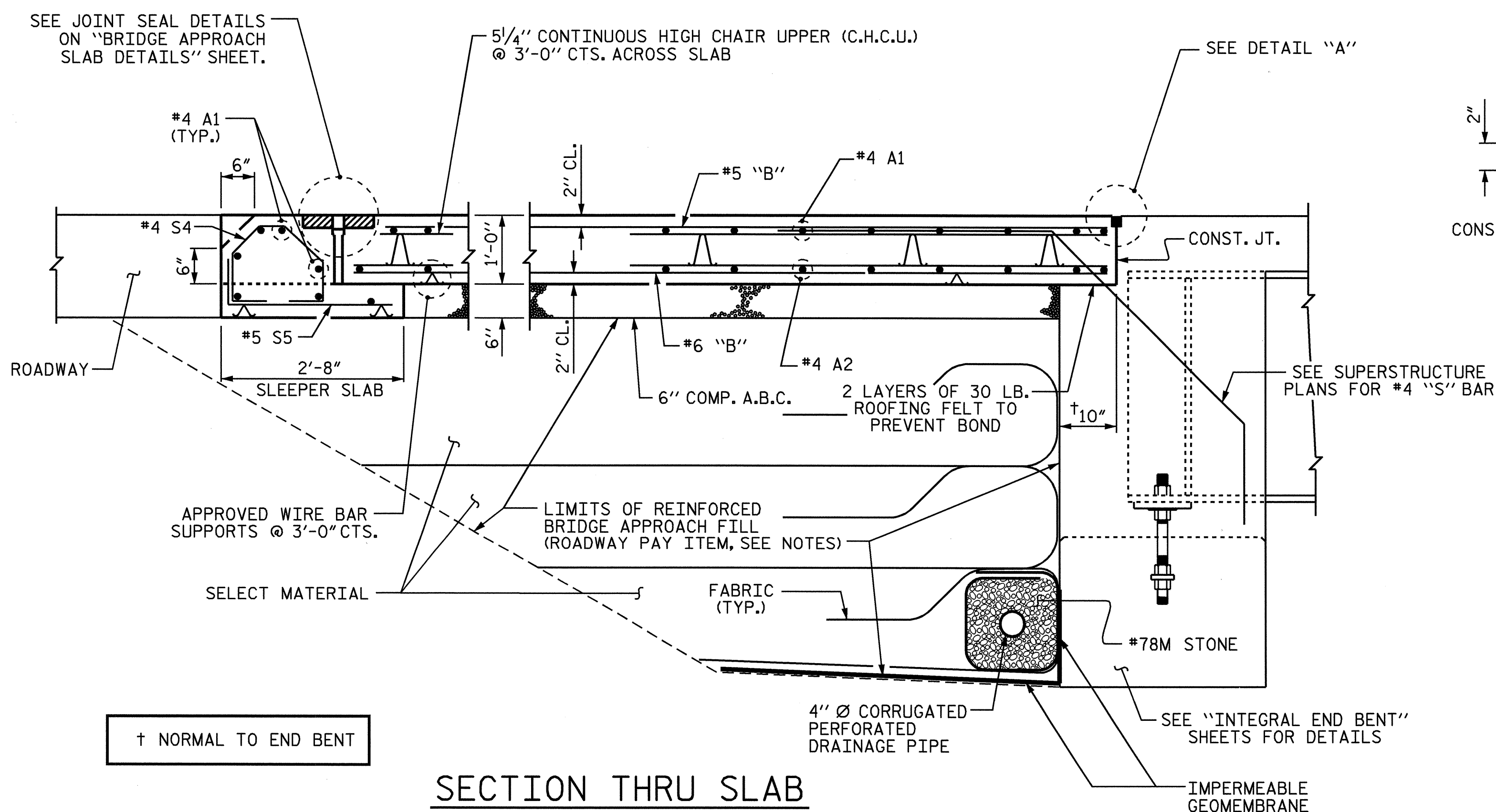


ASSEMBLED BY : E.C. LOCKLEAR DATE : 4-26-06
 CHECKED BY : A.S. CALLAWAY DATE : 4-27-06
 DRAWN BY : FCJ 2/88 REV. 8/16/99 RWW/LES
 CHECKED BY : ARB 8/88 REV. 10/17/00 RWW/LES
 REV. 5/1/06 TLA/GM

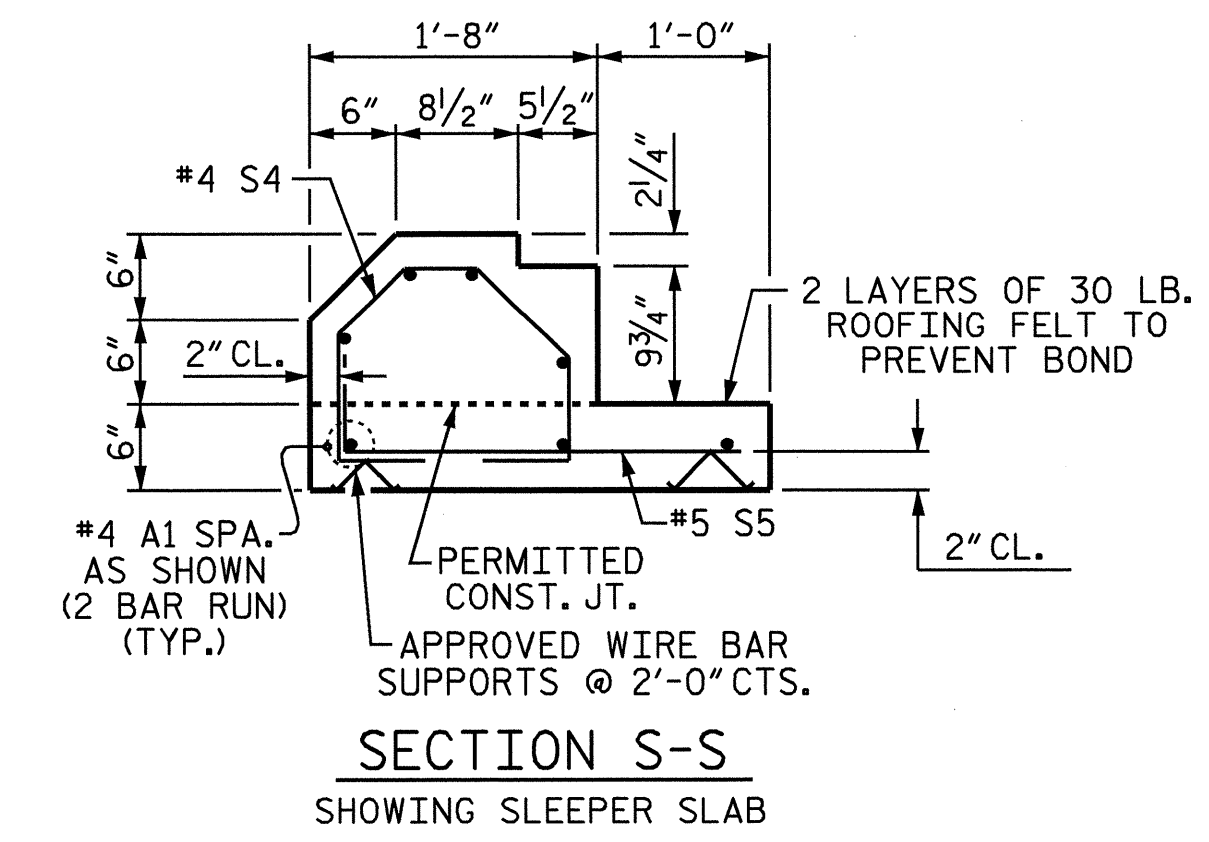
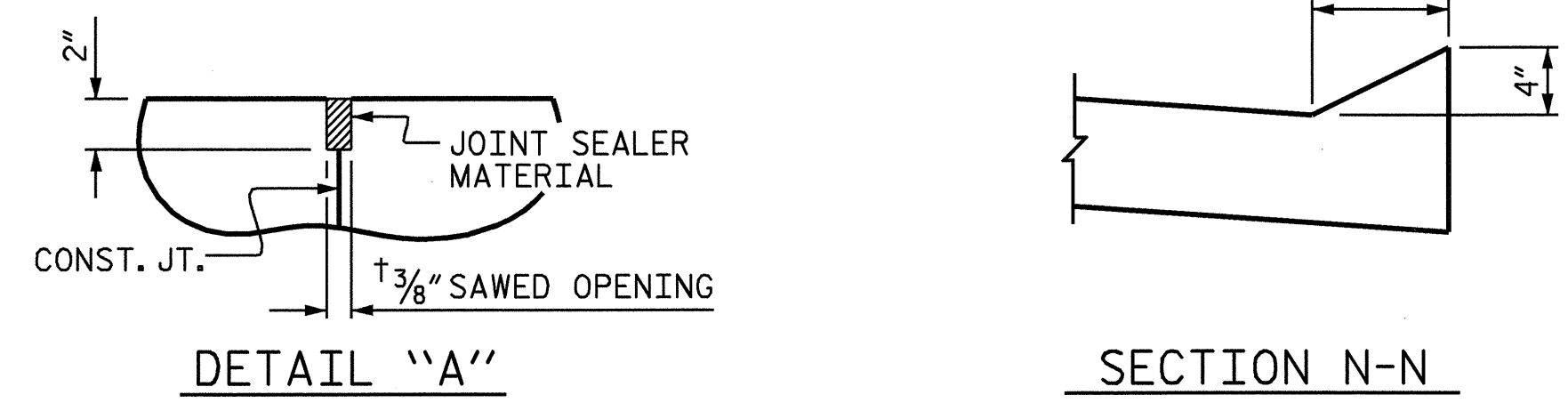
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25
1			3			TOTAL SHEETS
2			4			27



PLAN @ END BENT #1
 PLAN @ END BENT #2
 DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS. #4 A1 BARS IN SLEEPER SLAB NOT SHOWN FOR CLARITY.



SECTION THRU SLAB



SECTION S-S
 SHOWING SLEEPER SLAB

NOTES

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

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

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

THE 6" COMP. A.B.C. SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB AND SHALL EXTEND 1'-0" OUTSIDE OF EACH EDGE OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER OF 30 LB ROOFING FELT SHALL BE PLACED BETWEEN THE CONCRETE BASE AND THE APPROACH SLAB TO PREVENT BOND. THE APPROACH SLAB SHALL NOT BE CAST UNTIL THE CONCRETE BASE HAS REACHED AN AGE OF THREE CURING DAYS.

THE VERTICAL JOINT ON THE RIGHT AND LEFT SIDE OF THE APPROACH SLAB AT THE ENDS OF THE EVAZOTE JOINT SHALL BE FILLED WITH SILICONE OR OTHER APPROVED MATERIAL IN ORDER TO PREVENT BACKFILL FROM ENTERING THE JOINT OPENING.

THE JOINT OPENING AT THE APPROACH SLAB/DECK INTERFACE SHALL BE SAWED NO MORE THAN 12 HOURS AFTER THE APPROACH SLAB IS CAST. THE JOINT SHALL BE CLEANED OF ALL DEBRIS BEFORE THE SEALANT IS APPLIED. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE SL LOW MODULUS SILICONE SEALANT.

GROOVING BRIDGE FLOORS IS NOT REQUIRED ON TOP SURFACE OF THE SLEEPER SLAB. INSTEAD, APPLY A BROOMED TEXTURE IN ACCORDANCE WITH ARTICLE 442-3 OF THE STANDARD SPECIFICATIONS.

WITH EVAZOTE JOINT SEAL

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 2 1/2".

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL

FOR ONE APPROACH SLAB (2 REQ'D)

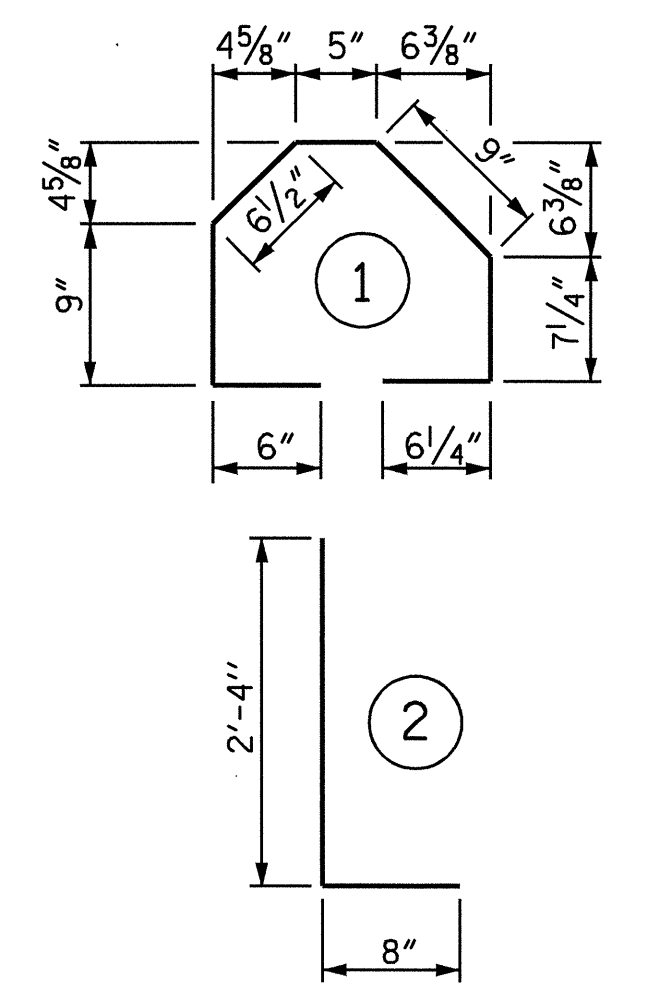
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	42	#4	STR	16'-6"	463
A2	28	#4	STR	16'-5"	307
* B1	59	#5	STR	12'-4"	759
B2	59	#6	STR	12'-10"	1137
* B3	4	#5	STR	11'-6"	48
B4	4	#6	STR	12'-0"	72
* S4	32	#4	1	4'-1"	87
S5	32	#5	2	3'-0"	100

REINFORCING STEEL LBS. 1,616

* EPOXY COATED REINFORCING STEEL LBS. 1,357

CLASS AA CONCRETE				
* POUR #1 - SLEEPER SLAB	CU. YDS.	3.3		
POUR #2 - SLAB & CURB	CU. YDS.	15.3		
TOTAL	CU. YDS.	18.6		

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. B-4130
 GUILFORD COUNTY
 STATION: 21+95.00 -L-

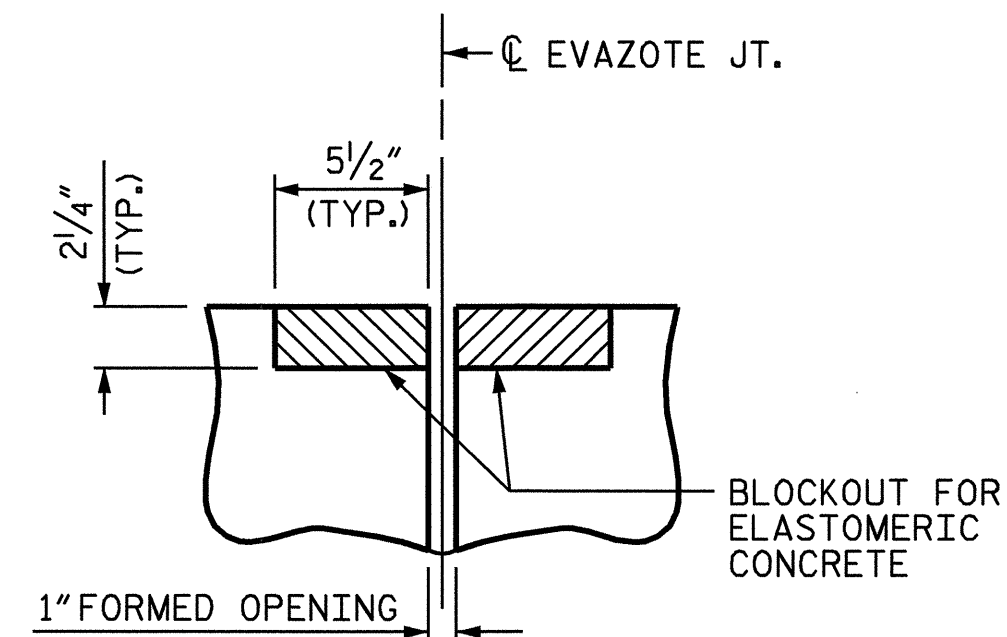
SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR
 INTEGRAL ABUTMENT

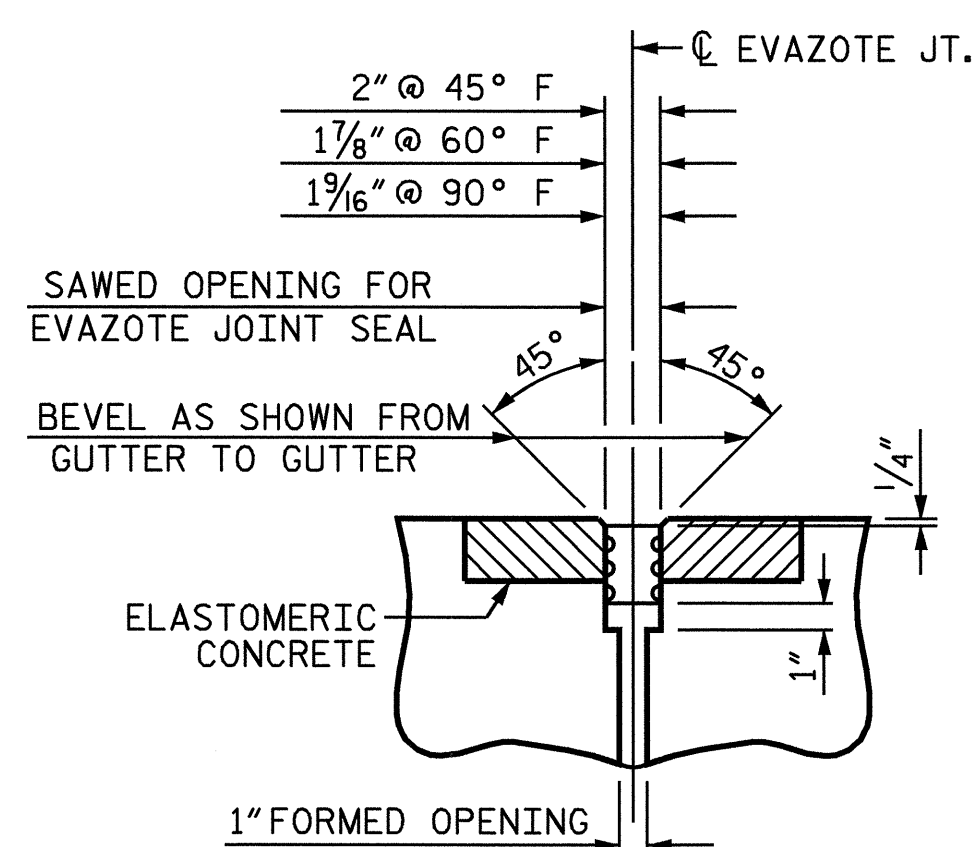
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		



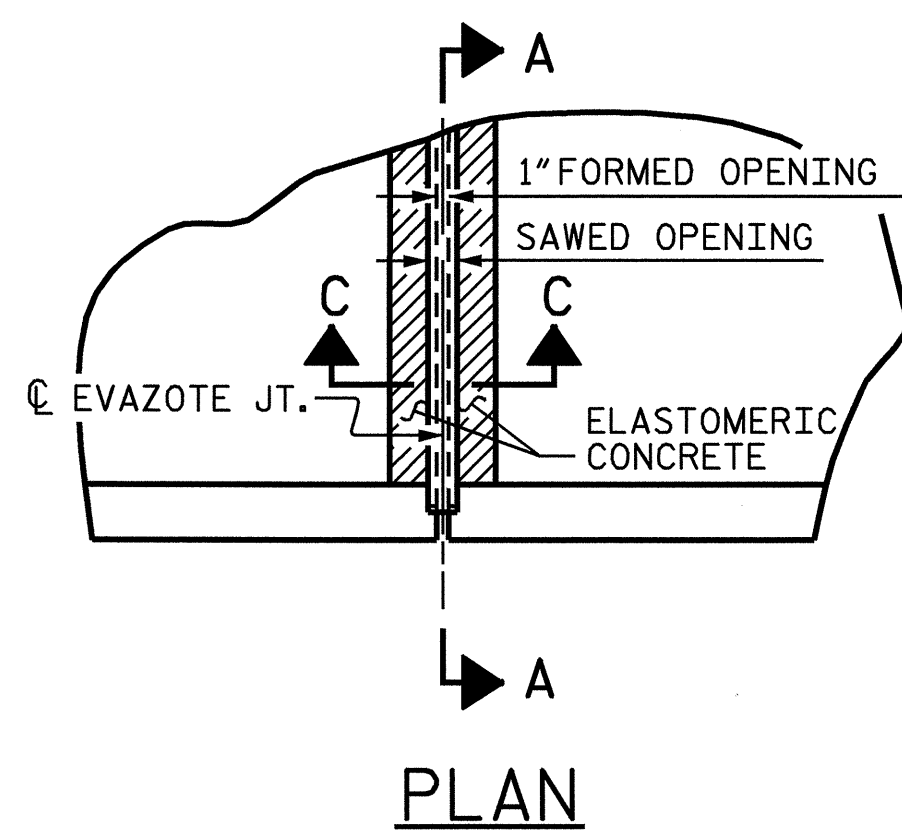
ASSEMBLED BY: E.C. LOCKLEAR DATE: 4-26-07
 CHECKED BY: L.E. SUITON DATE: 6-13-07
 DRAWN BY: TLA 10/05
 CHECKED BY: GM 5/06



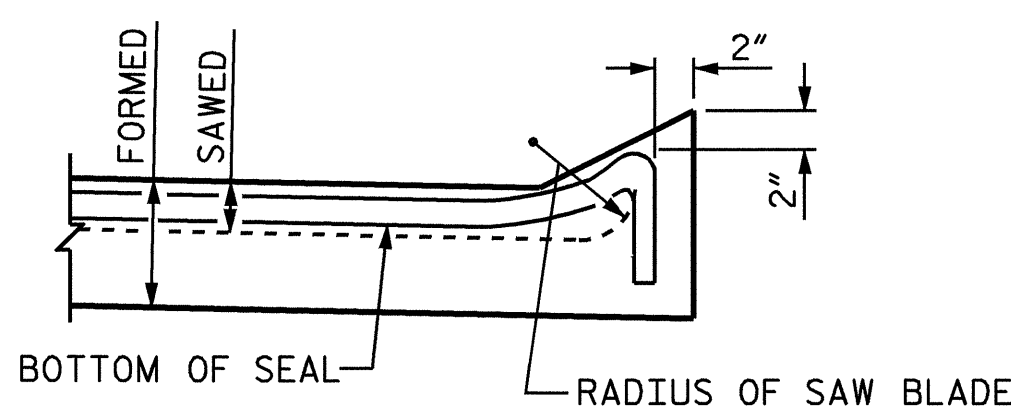
SECTION C-C
EVAZOTE JOINT SEAL
(PRE-SAWED ELASTOMERIC
CONCRETE DIMENSIONS)



SECTION C-C
EVAZOTE JOINT SEAL



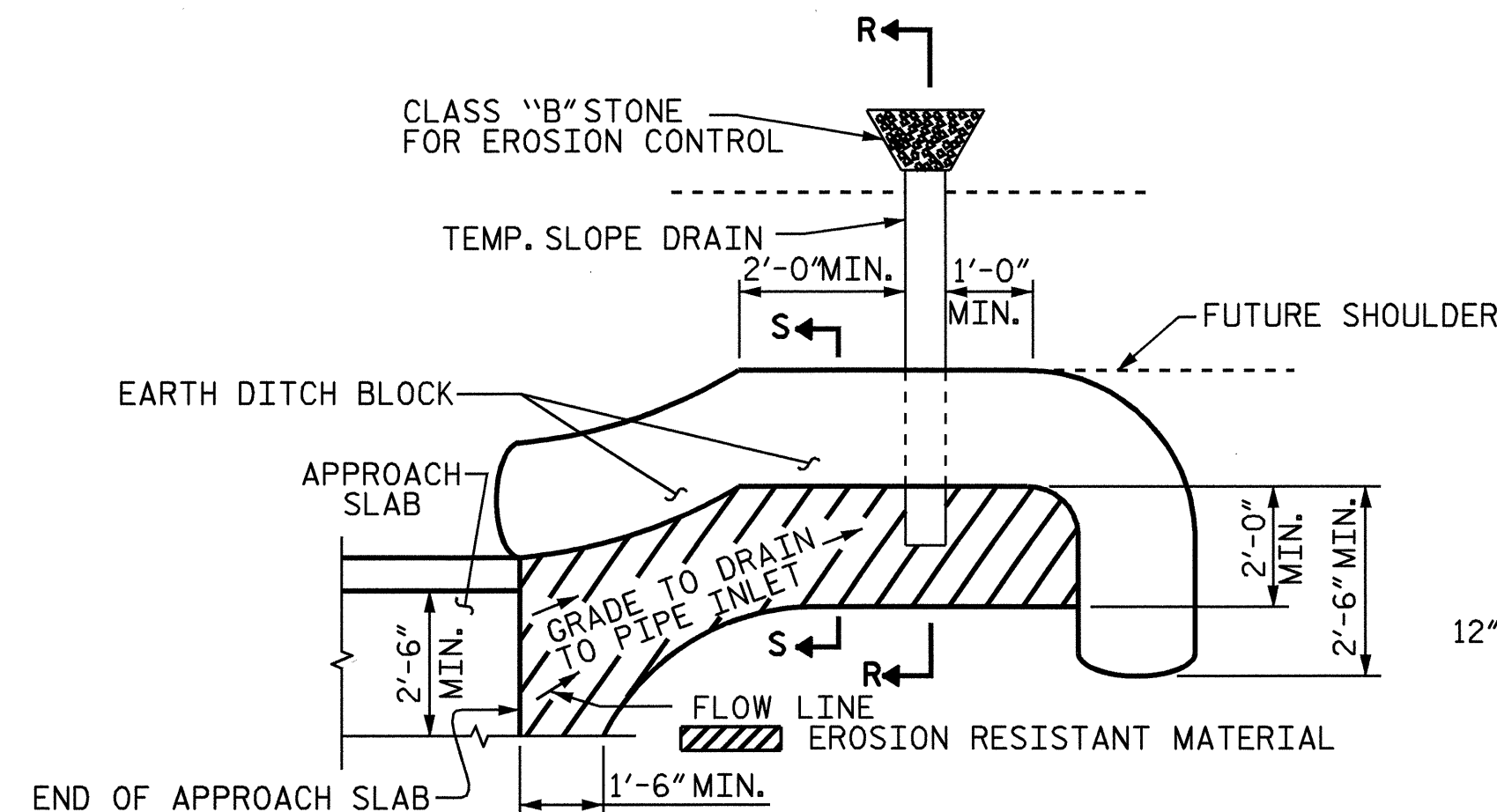
PLAN



SECTION A-A

ELASTOMERIC CONCRETE	
END BENT	ELASTOMERIC CONCRETE * (CU. FT.)
1	5.2
2	5.2
TOTAL	11.4

* BASED ON THE MINIMUM BLOCKOUT SHOWN.

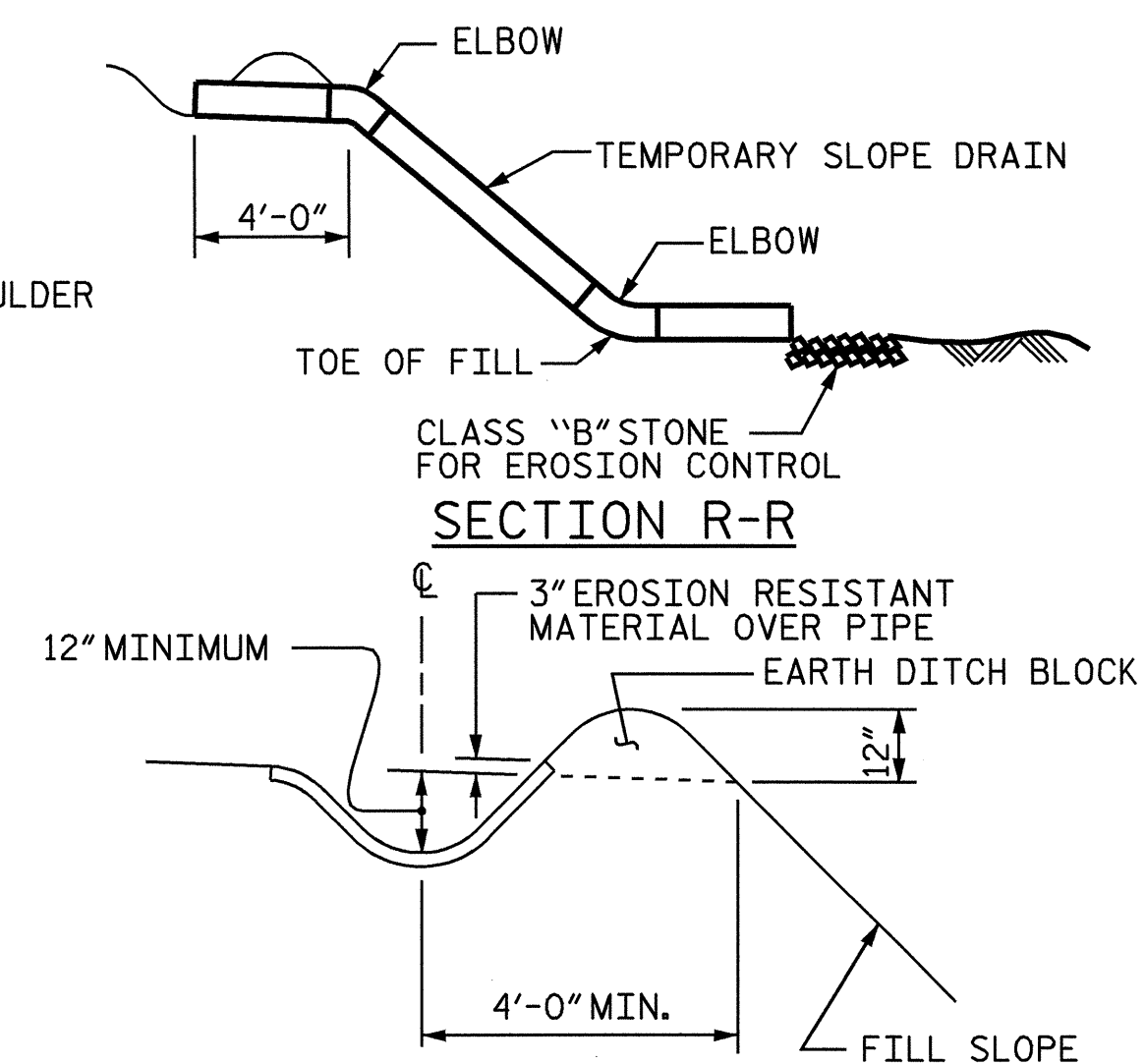


PLAN VIEW

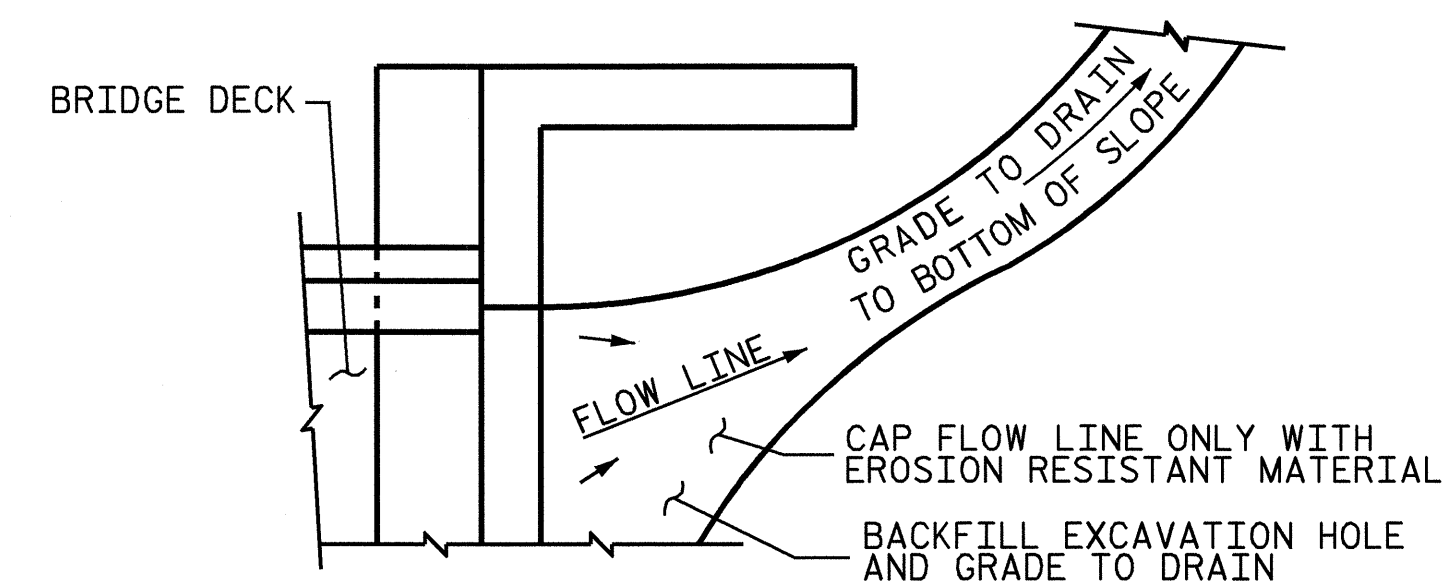
NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



SECTION S-S



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

PROJECT NO. B-4130
GUILFORD COUNTY
 STATION: 21+95.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH
 SLAB DETAILS



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-27
1			3			TOTAL SHEETS
2			4			27

ASSEMBLED BY : E.C. LOCKLEAR	DATE : 4-26-07
CHECKED BY : L.E. SUTTON	DATE : 6-13-07
DRAWN BY : FCJ 11/88	REV. 10/17/00 RWW/LES
CHECKED BY : ARB 11/88	REV. 5/7/03 RWW/JTE
	REV. 5/1/06R MAA/KMM

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 2002 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; CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP; AND CLASS S SHALL BE USED FOR UNDERWATER FOOTING SEALS.

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 WITH THE EXCEPTION OF #2 BARS WHICH MAY BE FABRICATED FROM COLD DRAWN STEEL WIRE. 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.

PLACEMENT OF BEAM OR GIRDER MEMBERS ON TRUCKS FOR HAULING SHALL BE DONE IN COMPLIANCE WITH LIMITS SHOWN ON SKETCHES PROVIDED TO THE MATERIALS AND TEST UNIT APPROVED BY THE STRUCTURE DESIGN UNIT DATED MAY 8, 1991. THESE SKETCHES PRIMARILY LIMIT THE UNSUPPORTED CANTILEVER LENGTH OF MEMBERS. WHEN THE CONTRACTOR WISHES TO PLACE MEMBERS ON TRUCKS NOT IN ACCORDANCE WITH THESE LIMITS, TO SHIP BY RAIL, TO ATTACH SHIPPING RESTRAINTS TO THE MEMBERS OR TO INVERT MEMBERS, HE SHALL SUBMIT A SKETCH FOR APPROVAL PRIOR TO SHIPPING. SEE ALSO ARTICLE 1072-11.

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. FINIS 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