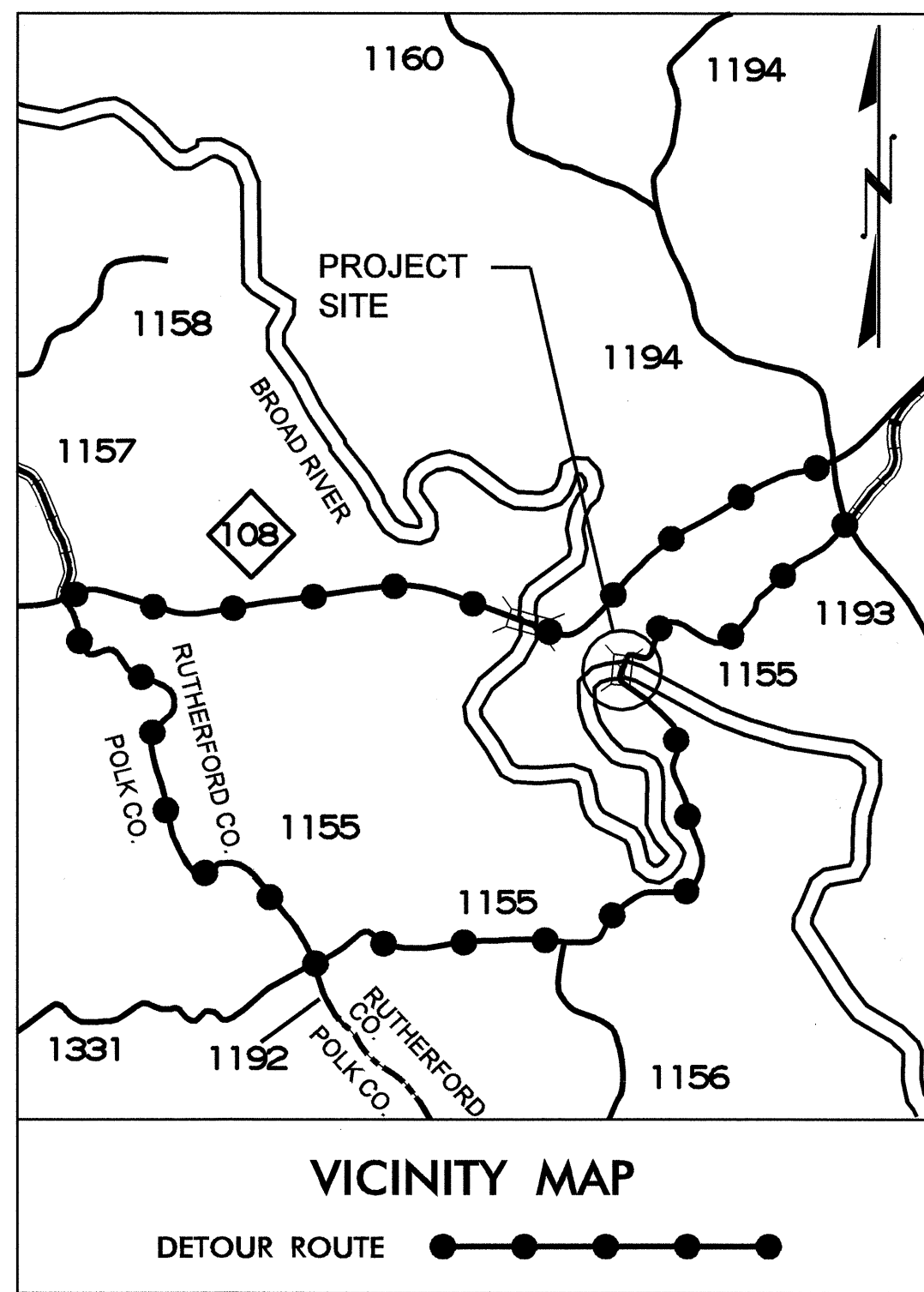


09/08/09

TIP PROJECT: B-3697

CONTRACT: C201729

STRUCTURE



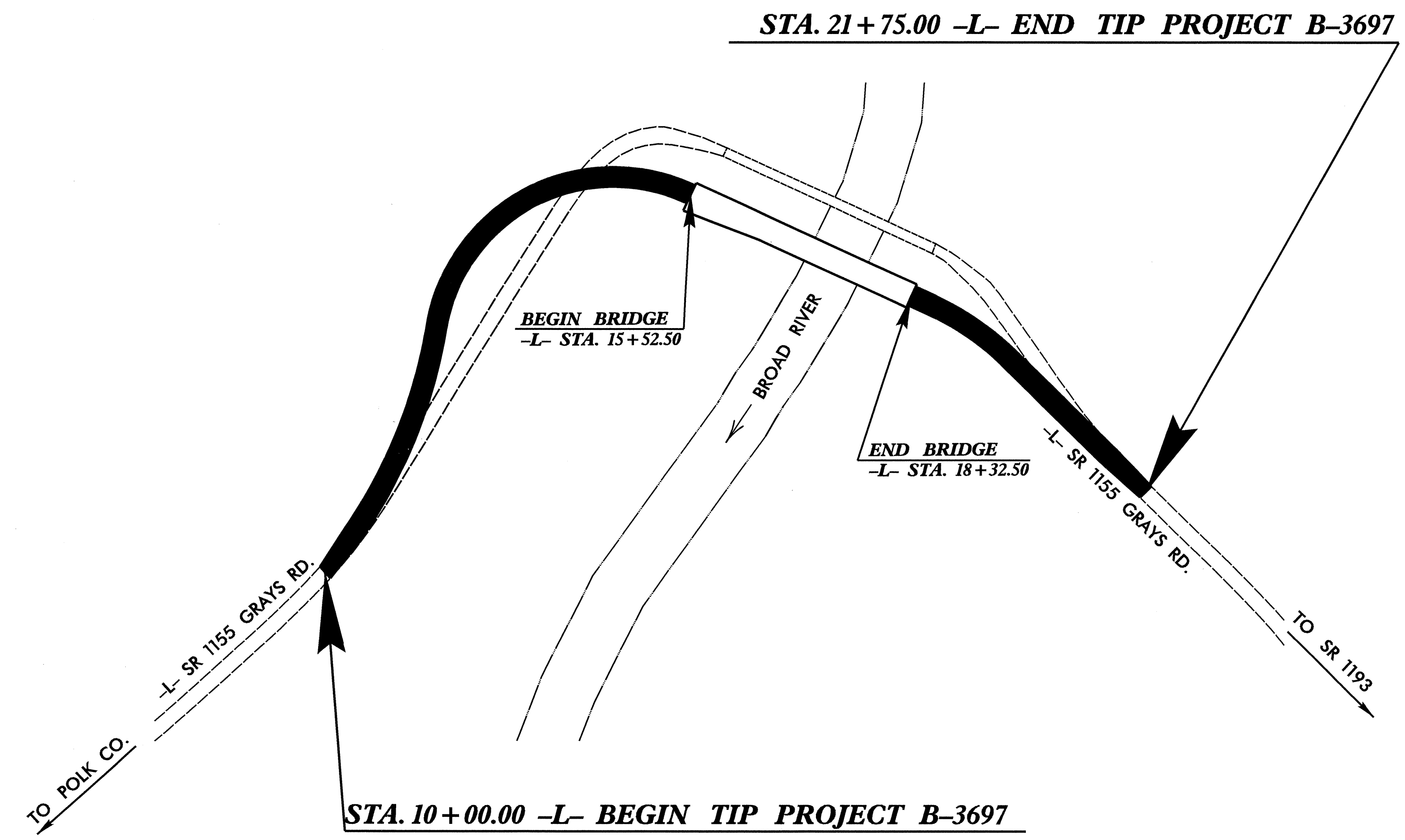
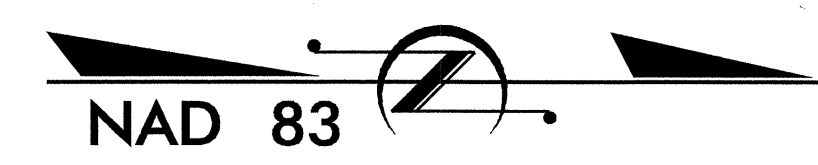
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RUTHERFORD COUNTY

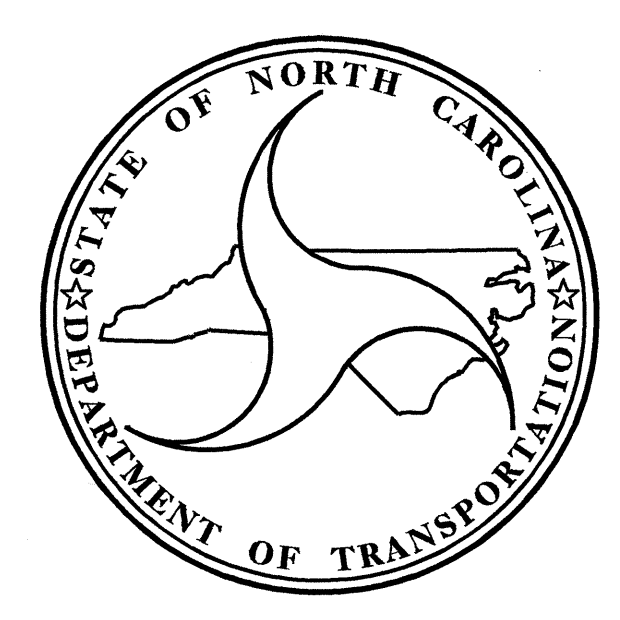
**LOCATION: BRIDGE NO. 270 OVER BROAD RIVER
ON SR 1155 (GRAYS ROAD)**

**TYPE OF WORK: GRADING, PAVING, RESURFACING,
DRAINAGE, AND STRUCTURE**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3697		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33237.1.1	BRZ-1155(2)	PE	
33237.2.1	BRZ-1155(2)	RW & UTIL	
33237.3.1	BRZ-1155(2)	CONST.	



** DESIGN EXCEPTION REQUIRED FOR DESIGN SPEED FROM 60 mph TO 30 mph,
A HORIZONTAL STOPPING SIGHT DISTANCE OF 151 FEET, A MINIMUM HORIZONTAL CURVE
RADIUS OF 200 FEET, A CREST VERTICAL CURVE K OF 16, AND A VERTICAL SSD OF 191 FEET.



DESIGN DATA

ADT 2007 =	493
ADT 2027 =	1042
DHV =	10 %
D =	60 %
T =	3 % *
**V =	60 mph
* TTST 2 %	DUAL 1 %
FUNC. CLASS. = RURAL LOCAL	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3697	=	0.170 MILE
LENGTH STRUCTURE TIP PROJECT B-3697	=	0.053 MILE
TOTAL LENGTH TIP PROJECT B-3697	=	0.223 MILE

Prepared In the Office of:
DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

J. FRYE, PE
PROJECT ENGINEER

W. A. DAVIS, PE
PROJECT DESIGN ENGINEER

LETTING DATE:
FEBRUARY 19, 2008

STRUCTURE DESIGN UNIT
1000 Birch Ridge Dr.
Raleigh, NC 27610

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

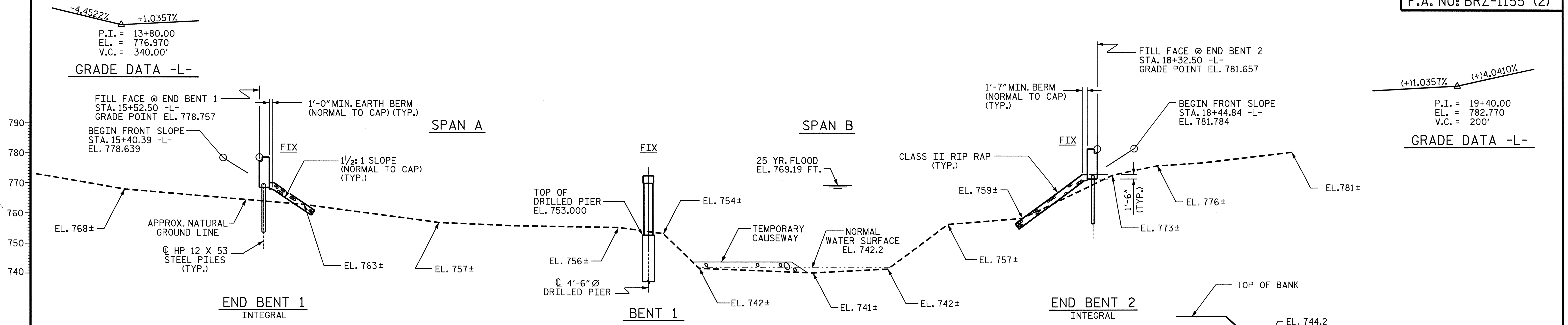
P.E.
STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

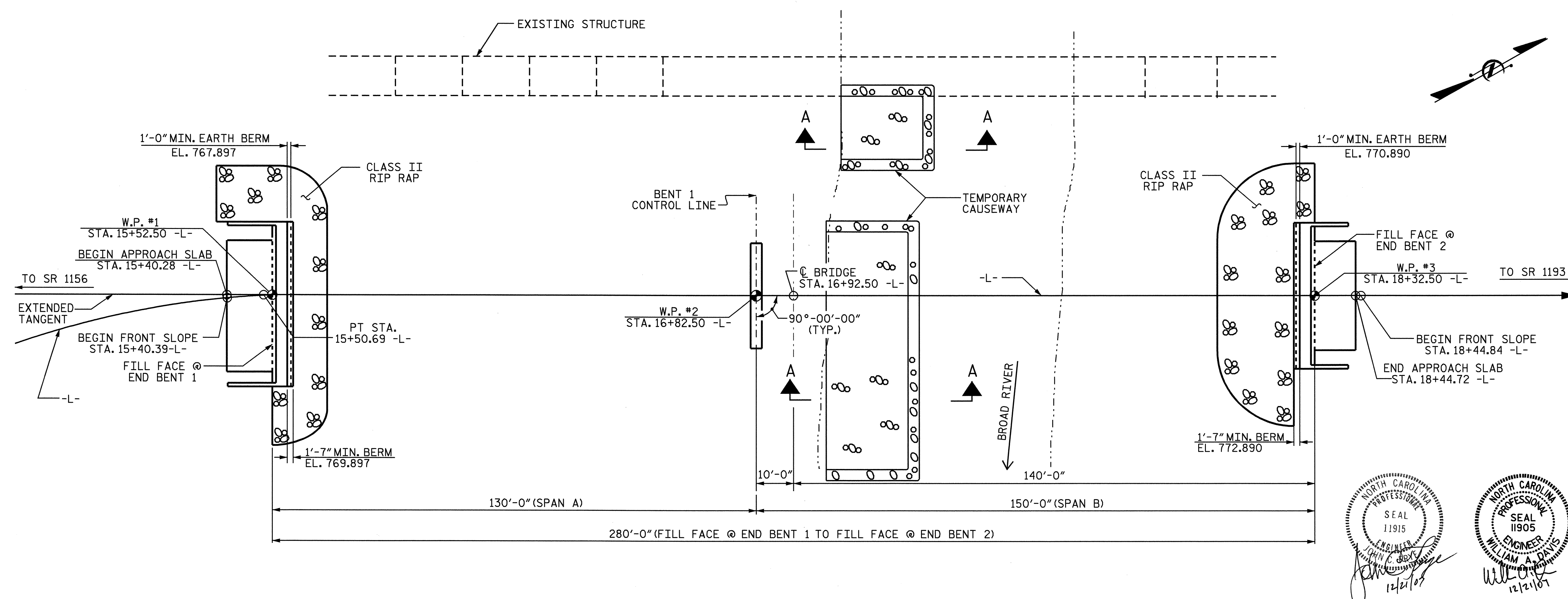
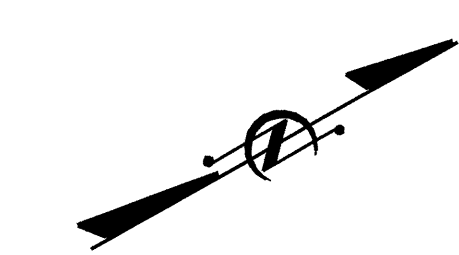
APPROVED _____
DIVISION ADMINISTRATOR

DATE _____

07-JAN-2008 09:04

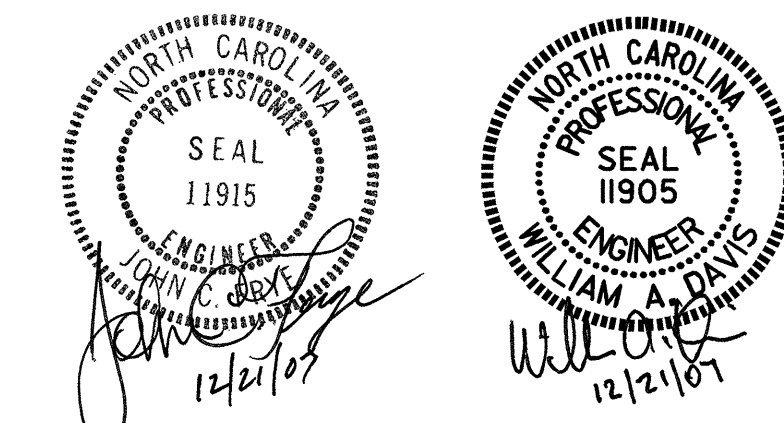


HORIZONTAL CURVE DATA
 PI STA. 14+55.06 -L-
 Δ = 111°-25'-19.2" (RT.)
 D = 28°-38'-52.5"
 L = 388.94'
 R = 200.00'



PROJECT NO. B-3697
 RUTHERFORD COUNTY
 STATION: 16+92.50 -L-

SHEET 1 OF 3 REPLACES BRIDGE #270



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 BRIDGE OVER BROAD RIVER
 ON SR 1155 BETWEEN
 SR 1156 & SR 1193

DRAWN BY: T.L. CLELLAND DATE: 7/11/06
 CHECKED BY: Q.T. NGUYEN DATE: 5/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			34

NOTES

DRIVE PILES AT END BENT NO.1 TO A REQUIRED BEARING CAPACITY OF 100 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 NO.1 IS 50 TONS PER PILE.

DRIVE PILES AT END BENT NO.2 TO A REQUIRED BEARING CAPACITY OF 100 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 NO.2 IS 50 TONS PER PILE.

THE DRILLED PIERS AT BENT NO.1 ARE DESIGNED FOR BOTH SKIN FRICTION AND END BEARING. CHECK FIELD CONDITIONS FOR THE REQUIRED END BEARING CAPACITY OF 65 TSF.

DRILLED PIERS AT BENT NO.1 ARE DESIGNED FOR AN APPLIED LOAD OF 558 TONS EACH AT THE TOP OF THE COLUMN.

PERMANENT STEEL CASING MAYBE REQUIRED FOR DRILLED PIERS AT BENT NO.1. IF REQUIRED, DO NOT EXTEND THE CASING BELOW ELEVATION 737 FT 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 NO.1 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 729.0 FT. AND SATISFY THE REQUIRED END BEARING CAPACITY.

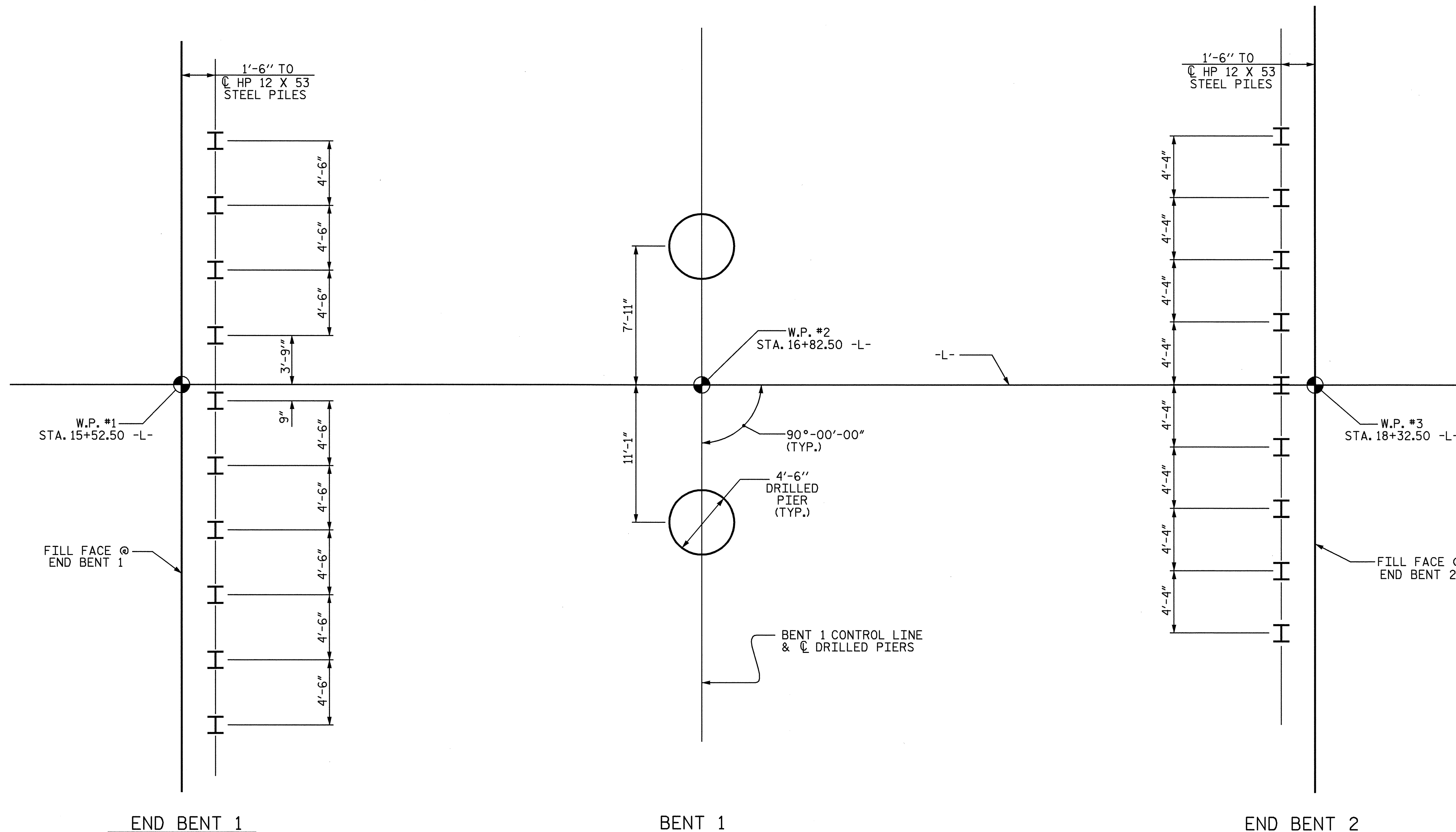
THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 IS ELEVATION 735.0 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

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 NO.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.



FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE TO THE CENTERLINE OF PILES.
 DIMENSIONS LOCATING DRILLED PIERS ARE TO THE CENTERLINE OF DRILLED PIERS.
 ORIENT PILES AS SHOWN.
 ALL HP 12 X 53 PILES ARE VERTICAL.

CONSTRUCTION SEQUENCE

DRIVE STEEL PILES FOR END BENT 1 AND END BENT 2. COMPLETE POUR 1 OF END BENTS.

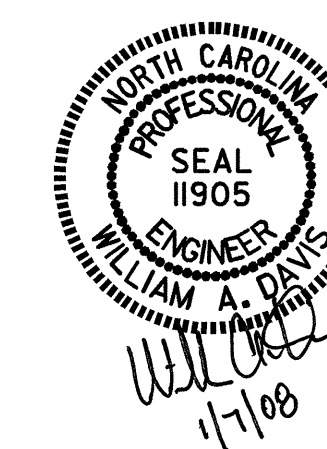
ONCE CONCRETE HAS ATTAINED THE REQUIRED STRENGTH, INSTALL NUT, WASHER AND SOLE PLATE ON ANCHOR BOLTS. ERECT GIRDERS AND ALIGN SOLE PLATES WITH HOLES IN FLANGES REGARDLESS OF TEMPERATURE AT TIME OF SETTING. SOLE PLATE SHOULD BE WELDED TO THE GIRDER FLANGE BEFORE FALSEWORK IS PLACED. ADJUST LOWER NUT TO SET GIRDER BEARING AT THE PROPER ELEVATION. INSTALL WASHER AND NUT ON TOP OF FLANGES. LEAVE TOP NUT LOOSE TO ALLOW FOR GIRDER END ROTATION AND TRANSLATION DURING DECK POURING SEQUENCE.

PLACE THE REINFORCED BRIDGE APPROACH FILL AND BACKFILL IN LIFTS UNTIL THE DESIRED SUBGRADE ELEVATION IS REACHED. CONSTRUCT SLEEPER SLABS.

POUR BRIDGE DECK IN ACCORDANCE WITH THE POURING SEQUENCE OUTLINED ON THE "SUPERSTRUCTURE BILL OF MATERIAL" SHEET EXCEPT THE FINAL TWO POURS CONTAINING THE ABUTMENT. NOTE THAT THE FINAL TWO POURS CONTAINING THE WINGWALLS AND ABUTMENT ARE PLACED WITH THE FINAL POURS OF THE BRIDGE DECK.

TIGHTEN THE TOP NUT 1/4 TURN PAST FINGER TIGHT. COMPLETE FINAL TWO DECK POURS WHICH INCLUDES THE ABUTMENT, DECK AND THE WINGWALLS.

POUR THE APPROACH SLABS STARTING AT THE END FURTHEST FROM THE BACKWALL AND PROGRESSING TOWARDS THE END BENT. POURS SHALL BE PERFORMED DURING THE MORNING HOURS TO MINIMIZE PLACING THE APPROACH SLAB IN TENSION FROM BRIDGE THERMAL MOVEMENTS.



PROJECT NO. B-3697
RUTHERFORD COUNTY
 STATION: 16+92.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

BRIDGE OVER BROAD RIVER
 ON SR 1155 BETWEEN
 SR 1156 & SR 1193

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			34

DRAWN BY : T.L. CLELLAND DATE : 3/17/06
 CHECKED BY : Q.T. NGUYEN DATE : 6/07

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE & REMOVAL OF TEMP. ACCESS	REMOVAL OF EXISTING STRUCTURE	DISPOSAL OF THE TRUSS	4'-6" DIA. DRILLED PIERS IN SOIL	4'-6" DIA. DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 4'-6" DIA. DRILLED PIER	SID INSPECTION	CROSSHOLE SONIC LOGGING	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	APPROX. STRUCTURAL STEEL	HP 12 X 53 STEEL PILES	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	POT BEARINGS	EVAZOTE JOINT SEALS	
	LUMP SUM	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	EA.	EA.	SQ. FT.	SQ. FT.	C.Y.	LUMP SUM	LBS.	LBS.	LBS.	NO.	LIN. FT.	LIN. FT.	TONS	SQ. FT.	LUMP SUM	LUMP SUM
SUPERSTRUCTURE									9533	8497		LUMP SUM			390635			556.73			LUMP SUM	LUMP SUM
END BENT 1											19.6		2850			10	250		233	260		
BENT 1				29.0	19.0	32.0					38.2		10521	2349								
END BENT 2											17.1		2413			9	180		344	383		
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	29.0	19.0	32.0	1	1	9533	8497	74.9	LUMP SUM	15784	2349	390635	19	430	556.73	577	643	LUMP SUM	LUMP SUM

NOTES

ASSUMED LIVE LOAD = HS 20 OR ALTERNATE LOADING, EXCEPT GIRDERS HAVE BEEN DESIGNED FOR HS 25.

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. NO PAINTING OF STRUCTURAL STEEL IS REQUIRED.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

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.

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

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 AND THE SPECIAL PROVISIONS. SEE SPECIAL PROVISIONS FOR REMOVAL OF EXISTING STRUCTURE.

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.

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 16+92.50 -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.

AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF THE CAUSEWAYS, 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 16+92.50 -L-.

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

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF 8 SPANS (1 @ 18'-1", 3 @ 18'-0", 1 @ 17'-10", 1 @ 12'-6", 1 @ 19'-4" AND 1 @ 17'-0") WITH A TIMBER DECK ON A PIN CONNECTED STEEL TRUSS AND I-BEAMS WITH A CLEAR ROADWAY WIDTH OF 17'-0" ON REINFORCED CONCRETE POST AND BEAMS AND REINFORCED CONCRETE POST AND BEAM BENT IN STEEL CYLINDERS AND LOCATED APPROXIMATELY 100 FT. UP STREAM FROM THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURE INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT. SEE SPECIAL PROVISIONS FOR REMOVAL OF EXISTING STRUCTURE.

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.

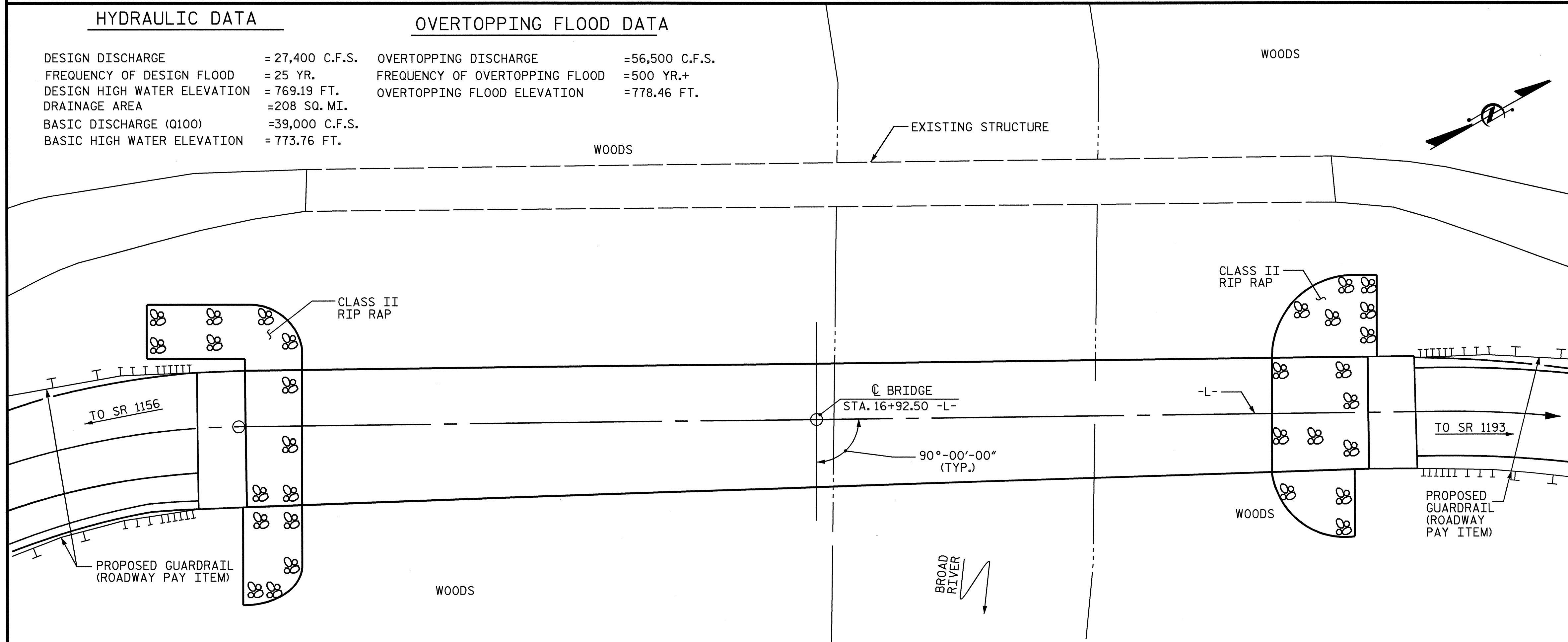
THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO STANDARD SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES FOR SEISMIC PERFORMANCE CATEGORY B.

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 SPICE OF THIRTY BAR DIAMETERS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CONSTRUCTION SEQUENCE FOR INTEGRAL END BENTS, SEE SHEET 2 OF 3.

BM #2 : NAIL IN BASE OF 27" DOUBLE BIRCH AT -BL- STA. 16+34.59, 26.25 FT. LT.; EL. 776.450



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS

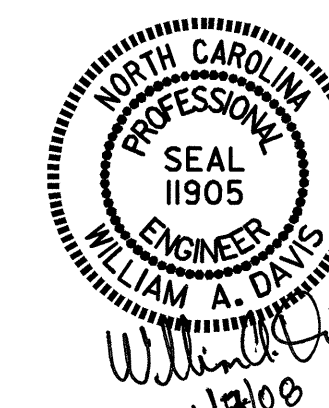
LOCATION SKETCH

DRAWN BY : T.L. CLELLAND/QTN DATE : 3/20/06
 CHECKED BY : J.P. ADAMS DATE : 10/30/07

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PROJECT NO. B-3697
RUTHERFORD COUNTY
 STATION: 16+92.50 -L-

SHEET 3 OF 3

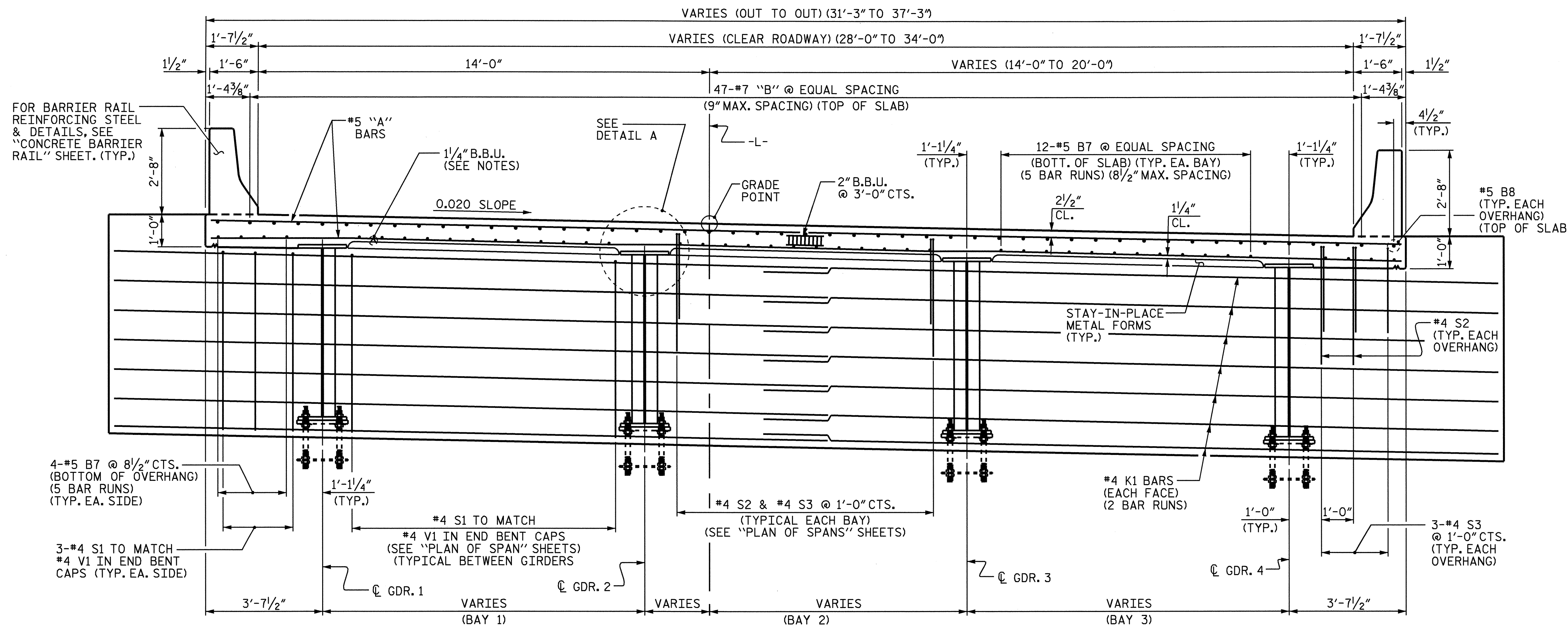


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

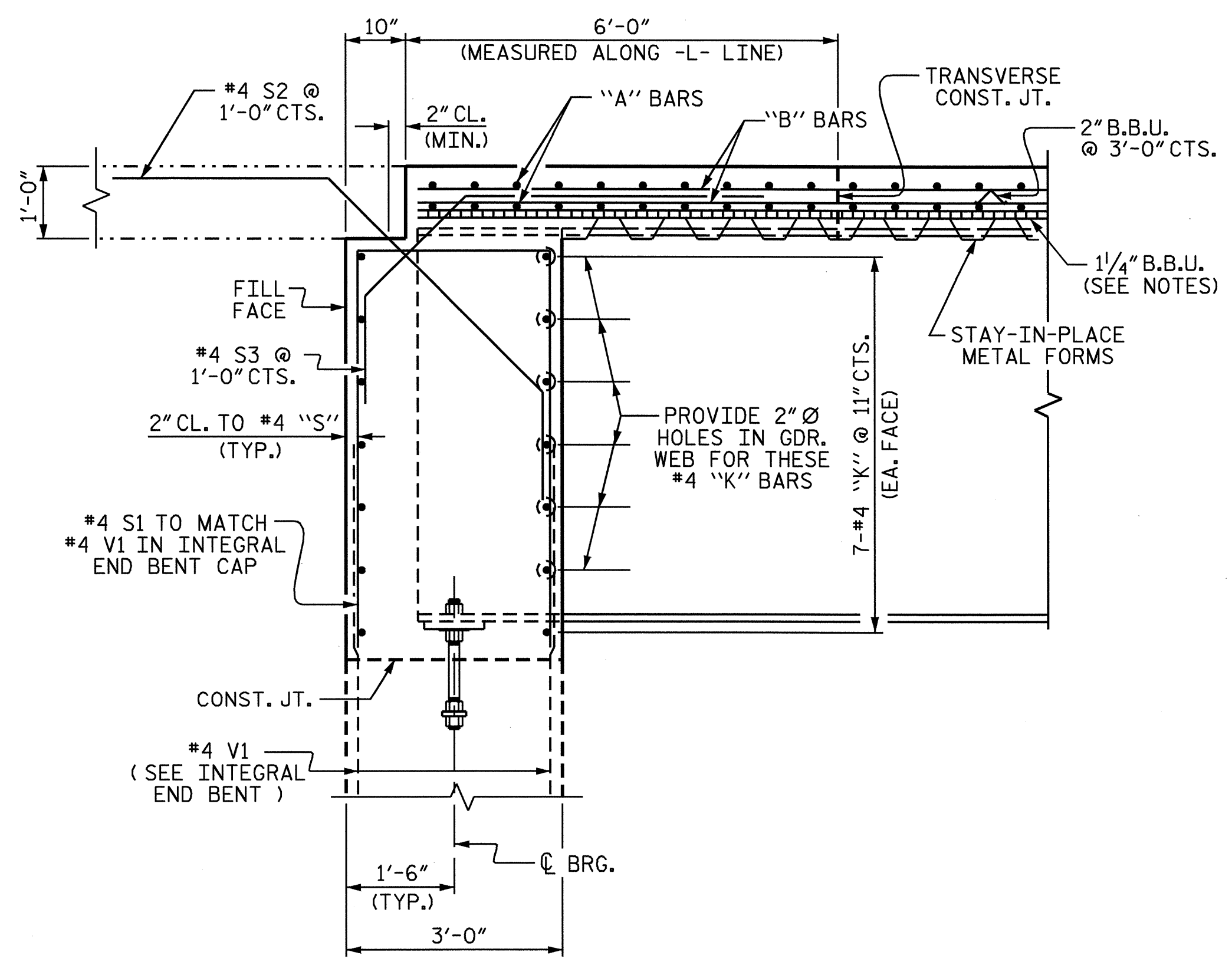
GENERAL DRAWING

BRIDGE OVER BROAD RIVER
 ON SR 1155 BETWEEN
 SR 1156 & SR 1193

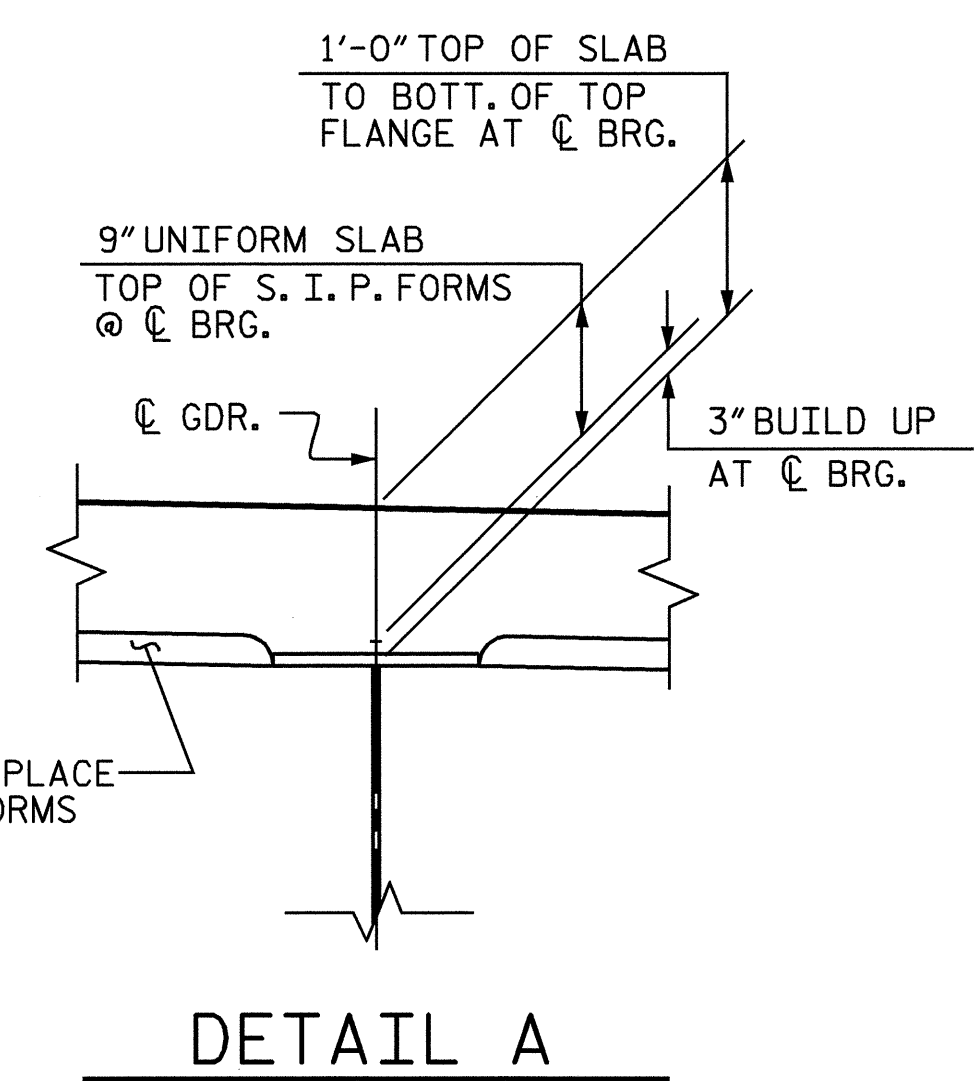
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			34



TYPICAL SECTION @ END BENTS



SECTION THRU INTEGRAL END BENT



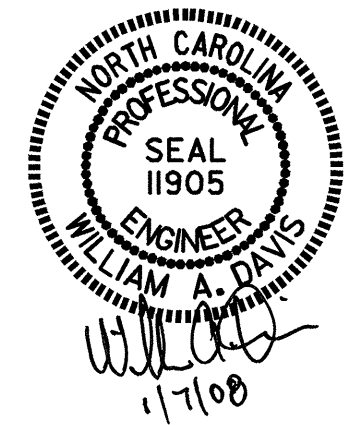
DETAIL A

NOTES

- PROVIDE 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.
- 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.
- 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.
- FOR WING ELEVATIONS AND DETAILS, SEE "PLAN OF SPAN DETAILS" SHEET.
- METAL STAY-IN-PLACE FORMS SHALL NOT BE WELDED TO BEAM OR GIRDER FLANGES IN THE ZONES REQUIRING CHАРRY V-NOTCH TEST. SEE "STRUCTURAL STEEL DETAILS" 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.
- STRUCTURAL STEEL ERECTION IN A CONTINUOUS UNIT SHALL BE COMPLETE BEFORE FALSEWORK OR FORMS ARE PLACED ON THE UNIT.

DRAWN BY : K. McCAULEY DATE : 10/1/07
 CHECKED BY : J. P. ADAMS DATE : 10/18/07

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PROJECT NO. B-3697
 RUTHERFORD COUNTY
 STATION: 16+92.50 -L-

SHEET 1 OF 2

REVISIONS						SHEET NO. S-4
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 34
2			4			

NOTES

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

PLATES SHALL CONFORM TO AASHTO M270 GRADE 50W STEEL OR APPROVED EQUAL.

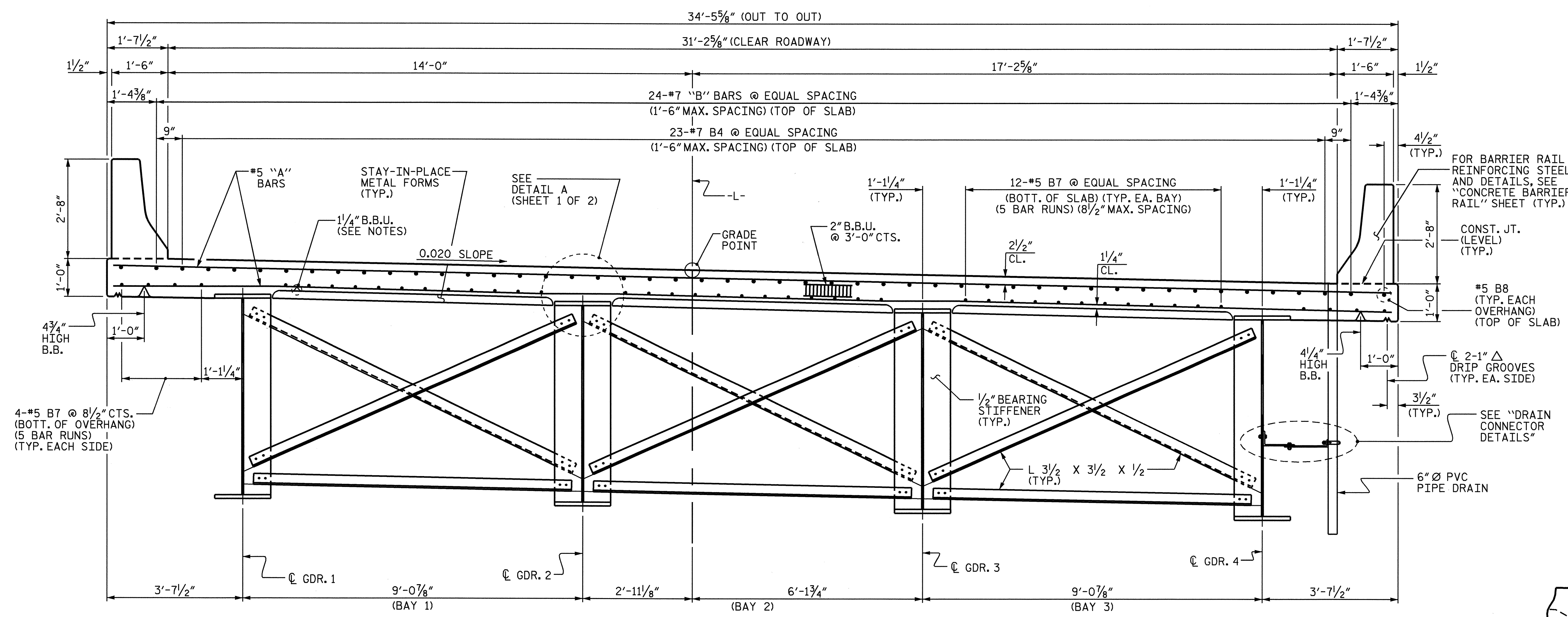
TOP OF FLOOR DRAIN TO BE SET 3/8" BELOW SURFACE OF SLAB.

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

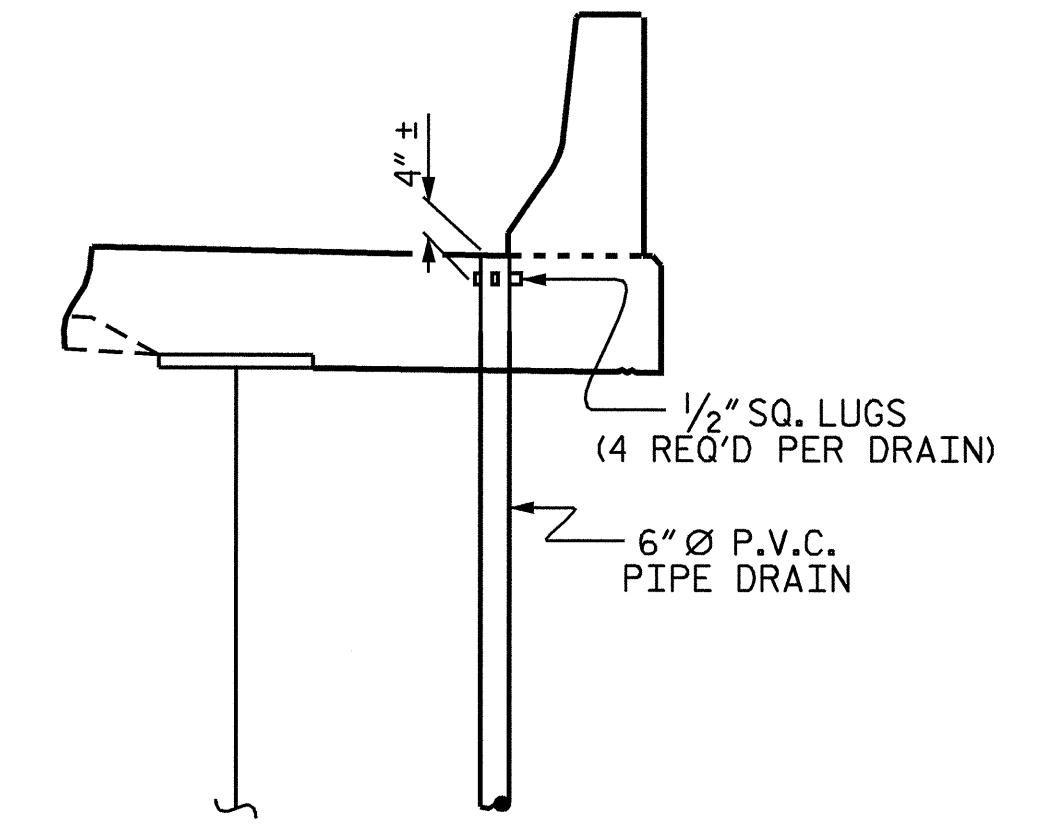
COUPLING IN DRAIN PIPE WILL BE PERMITTED AS APPROVED BY THE ENGINEER.

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

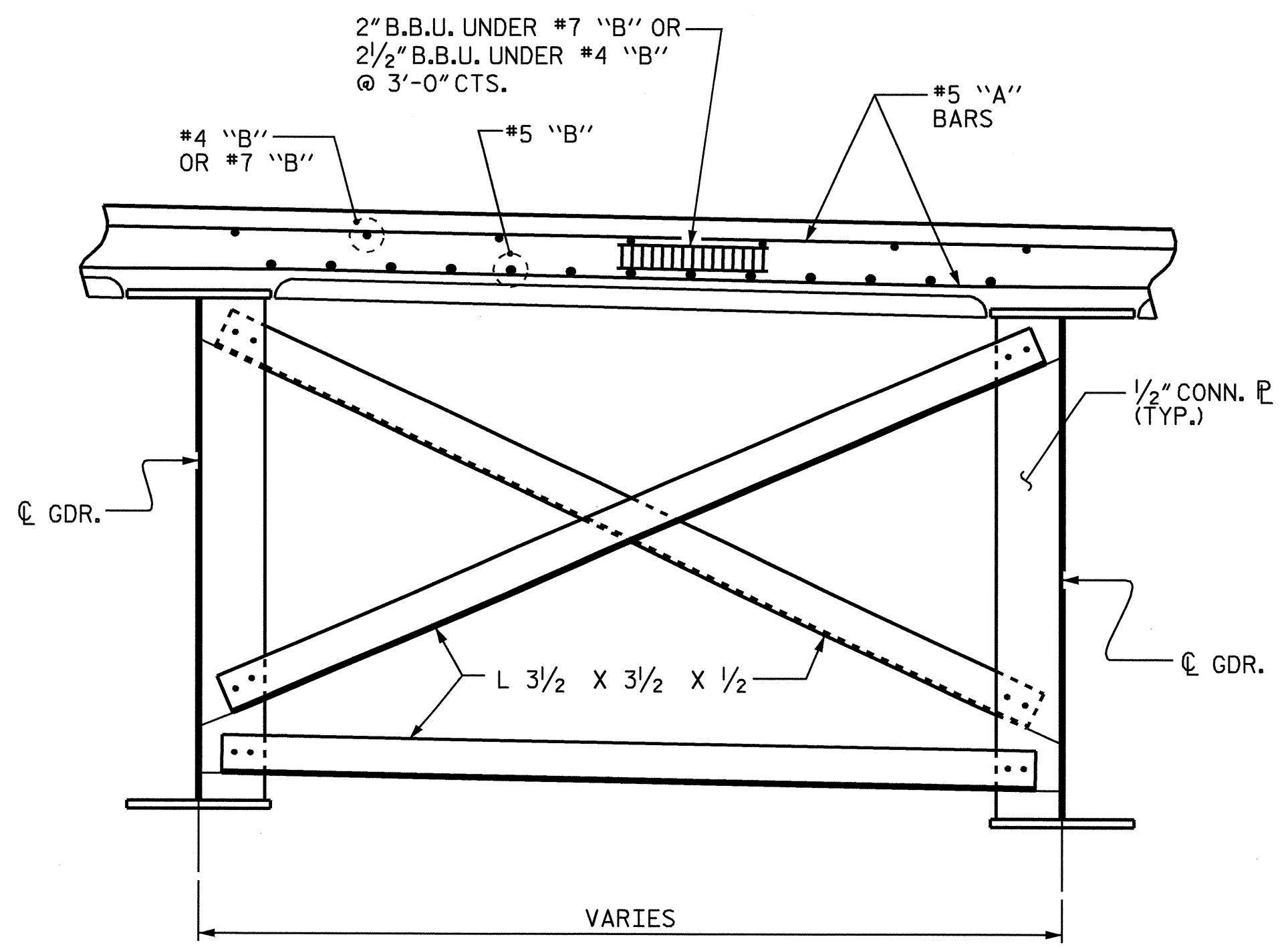
PVC DECK DRAINS SHALL BE PAINTED WITH TWO COATS OF BROWN PRIMER MEETING THE REQUIREMENTS OF ARTICLE 1080-12 OF THE STANDARD SPECIFICATIONS. EACH COAT SHALL BE 2 DRY MILS THICK. DECK DRAINS SHALL BE ROUGHENED PRIOR TO PAINTING. NO SEPARATE PAYMENT SHALL BE MADE FOR PAINTING PVC DECK DRAINS AS THIS IS CONSIDERED INCIDENTAL TO THE PAY ITEM FOR REINFORCED CONCRETE DECK SLAB.



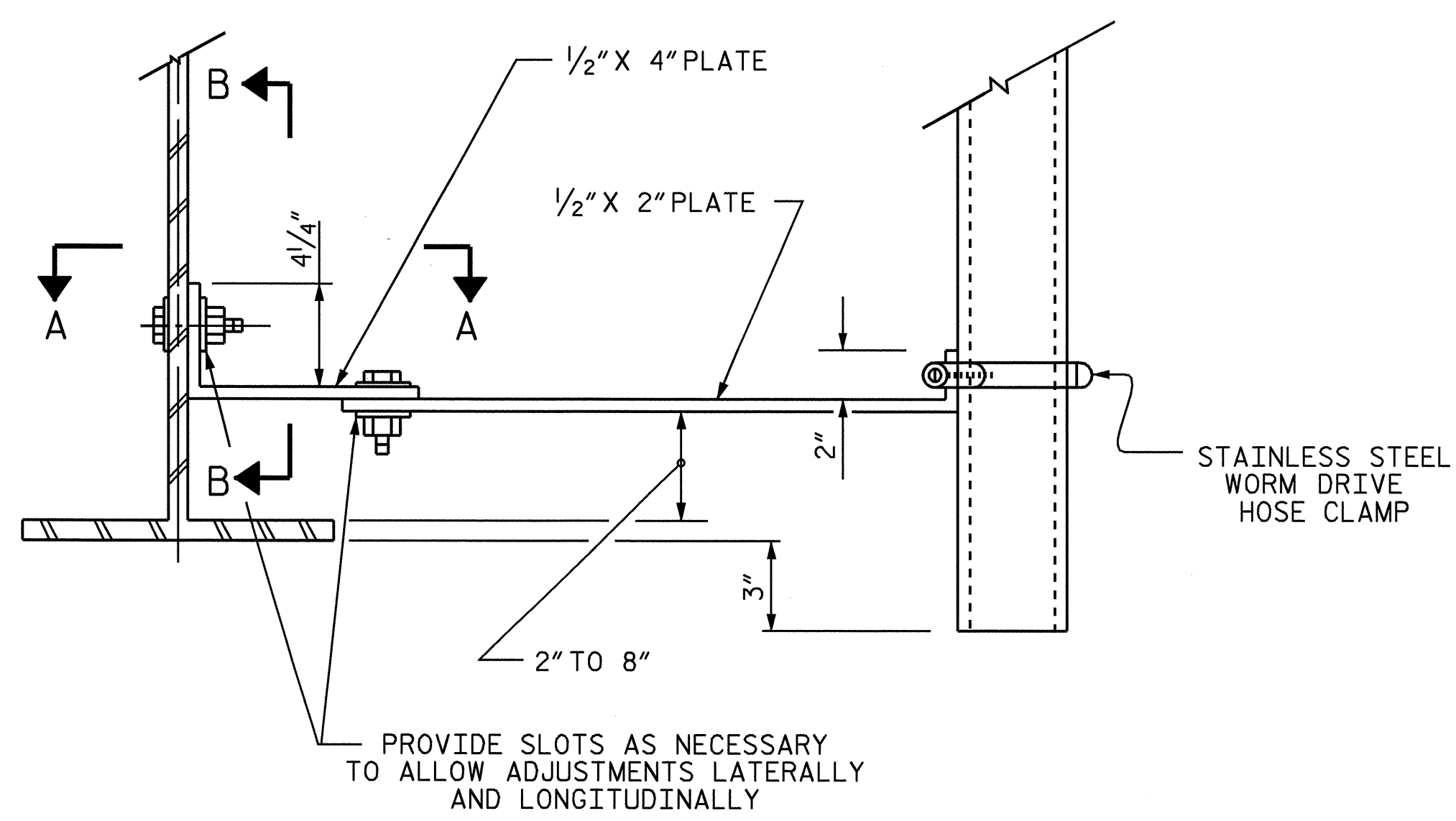
TYPICAL SECTION @ INTERIOR BENT



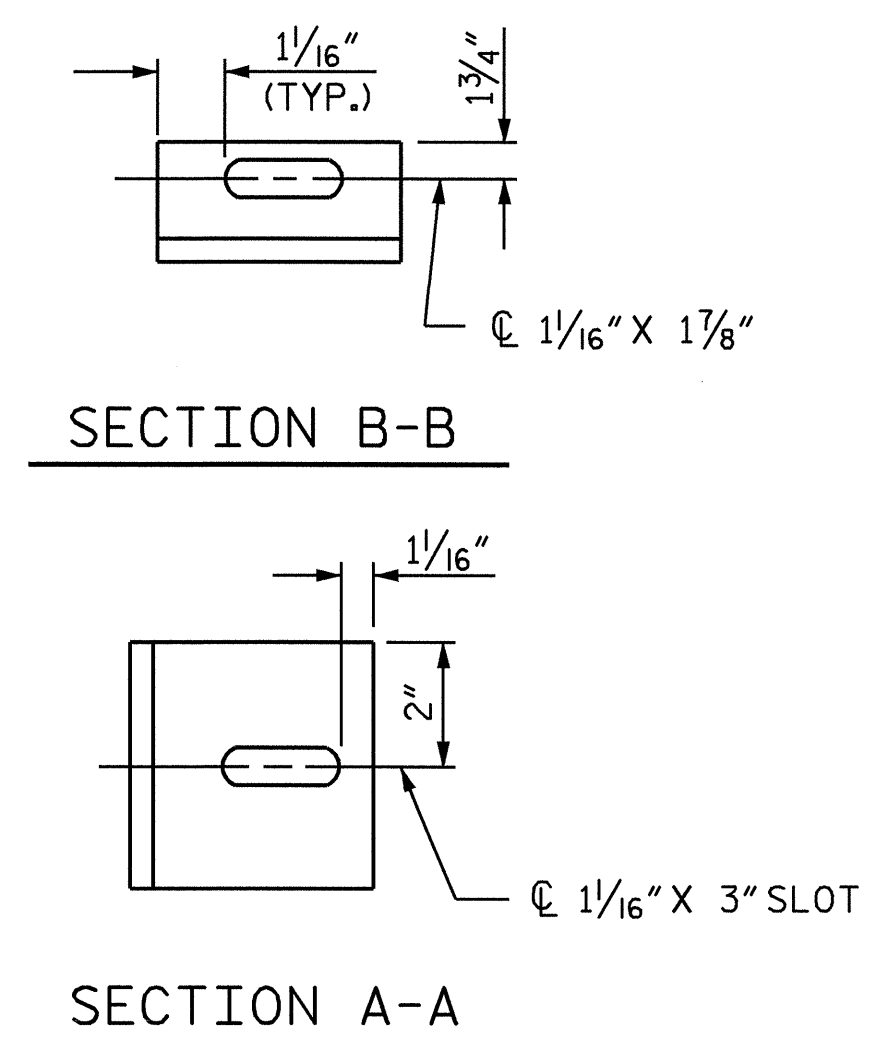
SECTION @ OVERHANG



TYPICAL SECTION SHOWING INTERMEDIATE DIAPHRAGM



DRAIN CONNECTOR DETAILS (15 ASSEMBLIES REQUIRED)



PROJECT NO. B-3697
RUTHERFORD COUNTY
 STATION: 16+92.50 -L-

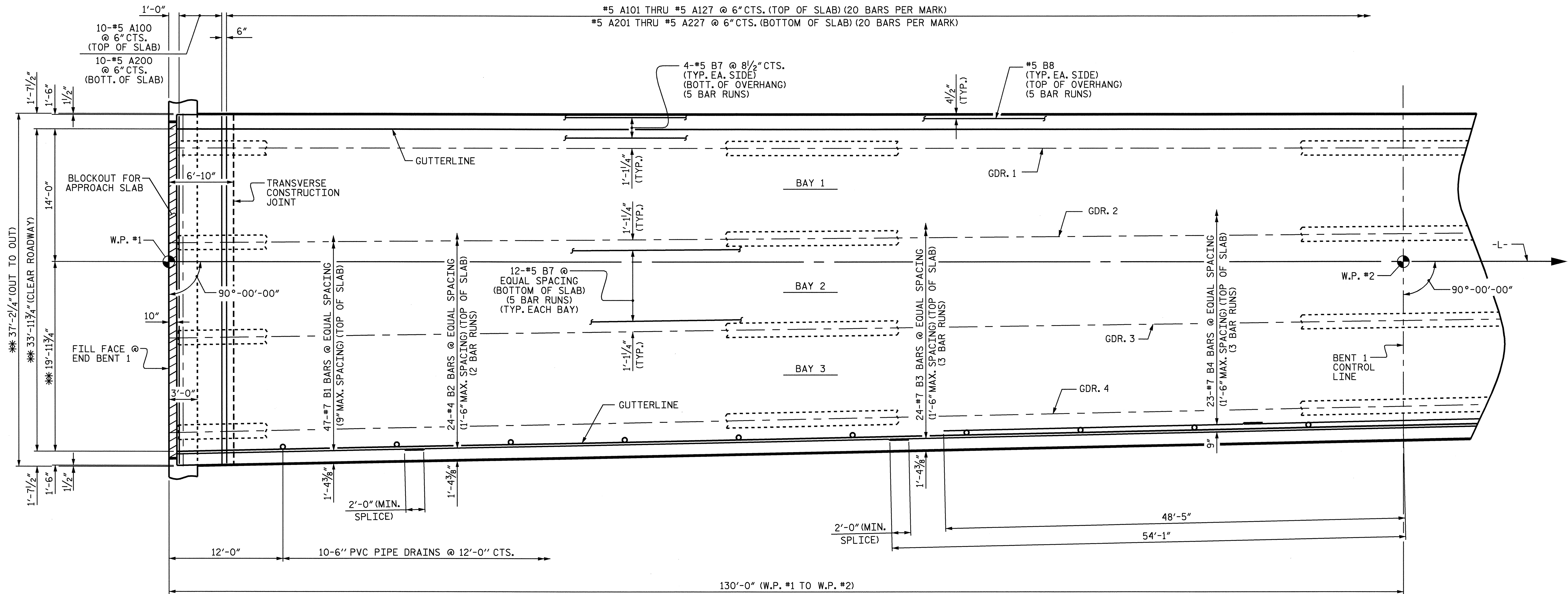
SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE TYPICAL SECTION					
REVISIONS					SHEET NO. S-5
NO.	BY:	DATE:	NO.	DATE:	
1			3		TOTAL SHEETS
2			4		34

DRAWN BY : K. McCAULEY DATE : 10/1/07
 CHECKED BY : J. P. ADAMS DATE : 10/18/07

21-DEC-2007 12:09
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SPAN "A"

NOTES

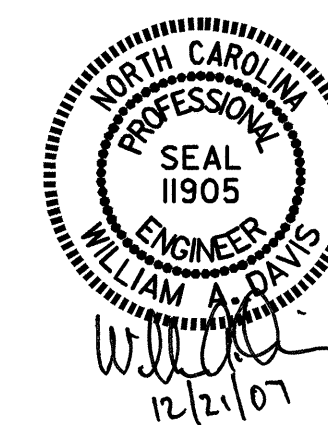
- FOR SECTIONS THROUGH INTEGRAL END BENTS, SEE "TYPICAL SECTION" SHEET 1 OF 2.
- FOR REINFORCING STEEL IN BARRIER RAIL, SEE "CONCRETE BARRIER RAIL" SHEETS.
- FOR LOCATION OF INTERMEDIATE DIAPHRAGMS, SEE "FRAMING PLAN" SHEETS.
- * "OUT TO OUT" AND "CLEAR ROADWAY" DIMENSIONS ARE MEASURED ALONG SUPERSTRUCTURE EDGE OF BLOCKOUT FOR APPROACH SLAB.
- FOR TRANSVERSE CONSTRUCTION JOINT DETAIL, SEE "SUPERSTRUCTURE BILL OF MATERIAL" SHEET.

PROJECT NO. B-3697
RUTHERFORD COUNTY
 STATION: 16+92.50 -L-

SHEET 1 OF 5

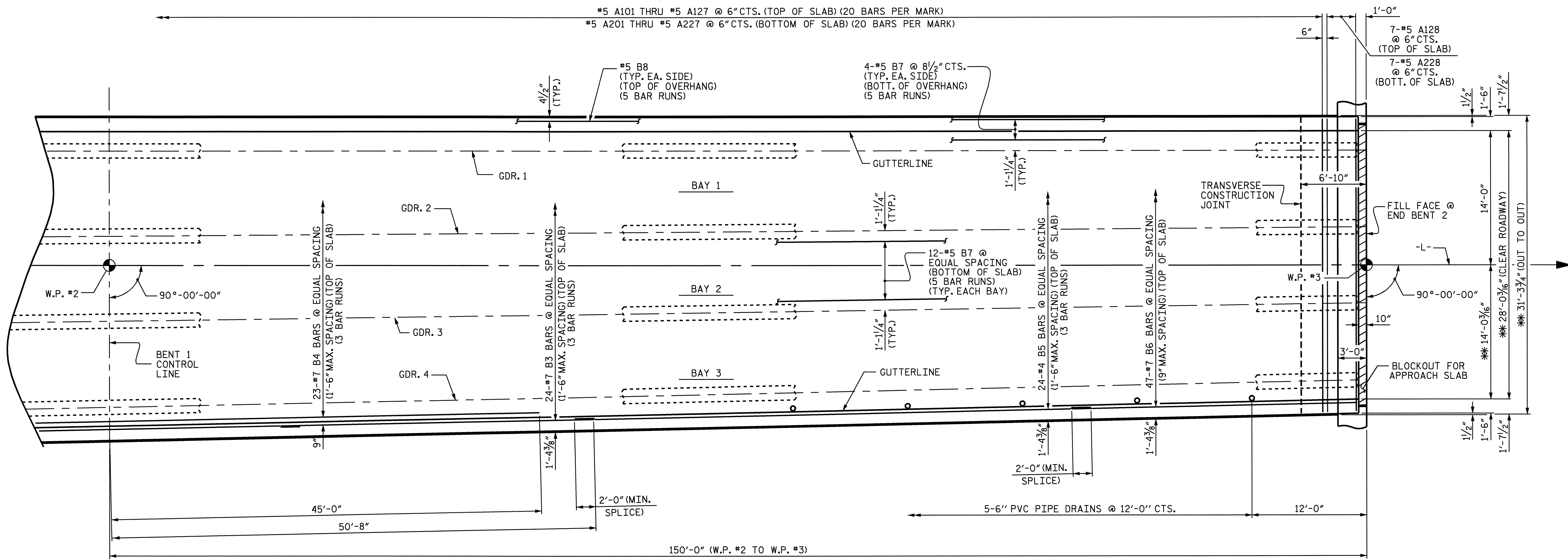
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 PLAN OF SPANS**



DRAWN BY : K. McCAULEY DATE : 9/24/07
 CHECKED BY : J. P. ADAMS DATE : 10/18/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			34



SPAN "B"

NOTES

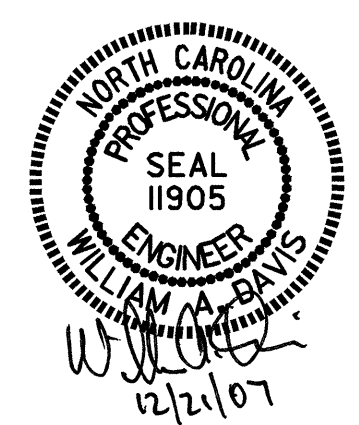
- FOR SECTIONS THROUGH INTEGRAL END BENTS, SEE "TYPICAL SECTION" SHEET 1 OF 2.
- FOR REINFORCING STEEL IN BARRIER RAIL, SEE "CONCRETE BARRIER RAIL" SHEETS.
- FOR LOCATION OF INTERMEDIATE DIAPHRAGMS, SEE "FRAMING PLAN" SHEETS.
- ** "OUT TO OUT" AND "CLEAR ROADWAY" DIMENSIONS ARE MEASURED ALONG SUPERSTRUCTURE EDGE OF BLOCKOUT FOR APPROACH SLAB.
- FOR TRANSVERSE CONSTRUCTION JOINT DETAIL, SEE "SUPERSTRUCTURE BILL OF MATERIAL" SHEET.

PROJECT NO. B-3697
RUTHERFORD COUNTY
 STATION: 16+92.50 -L-

SHEET 2 OF 5

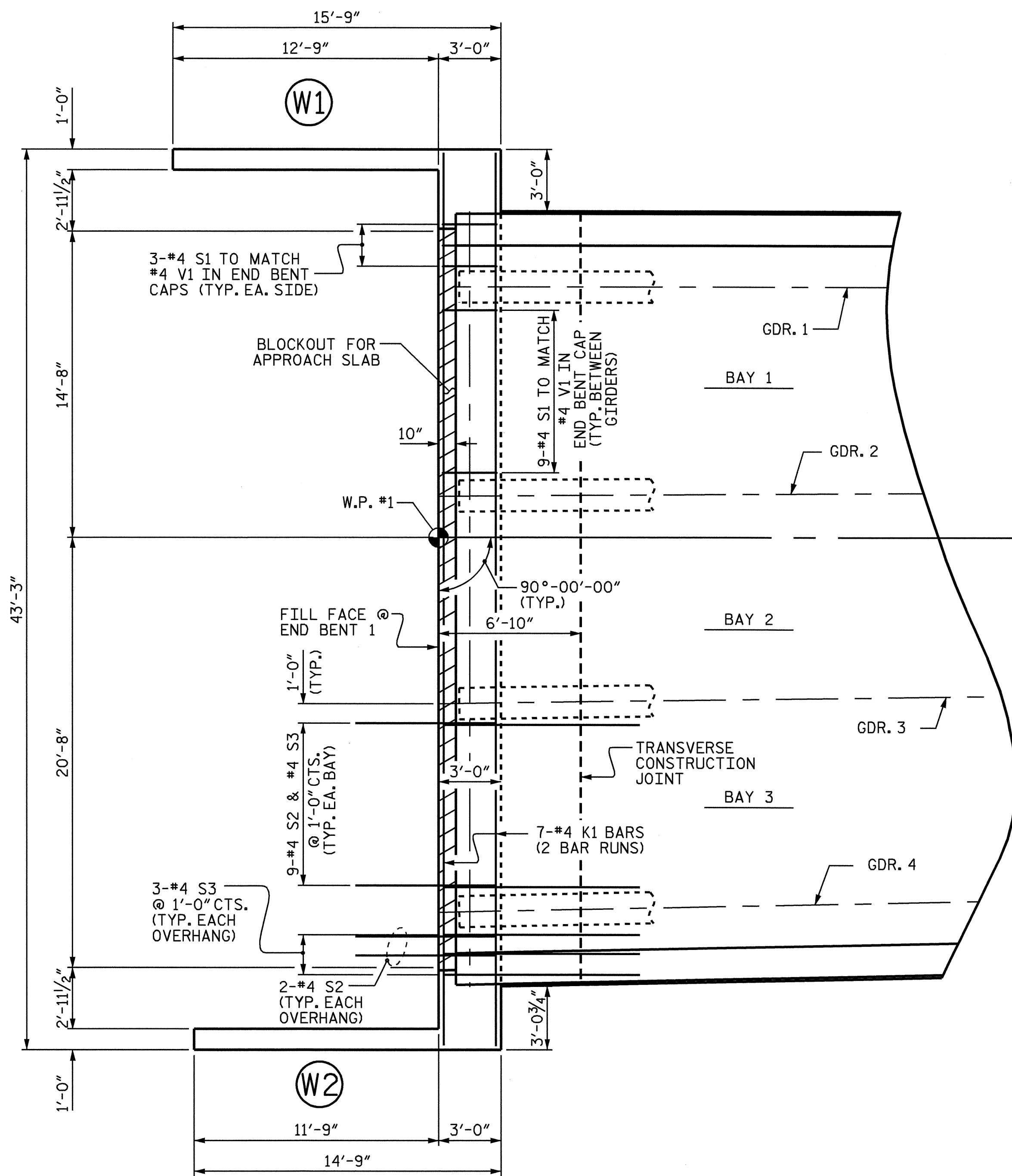
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPANS

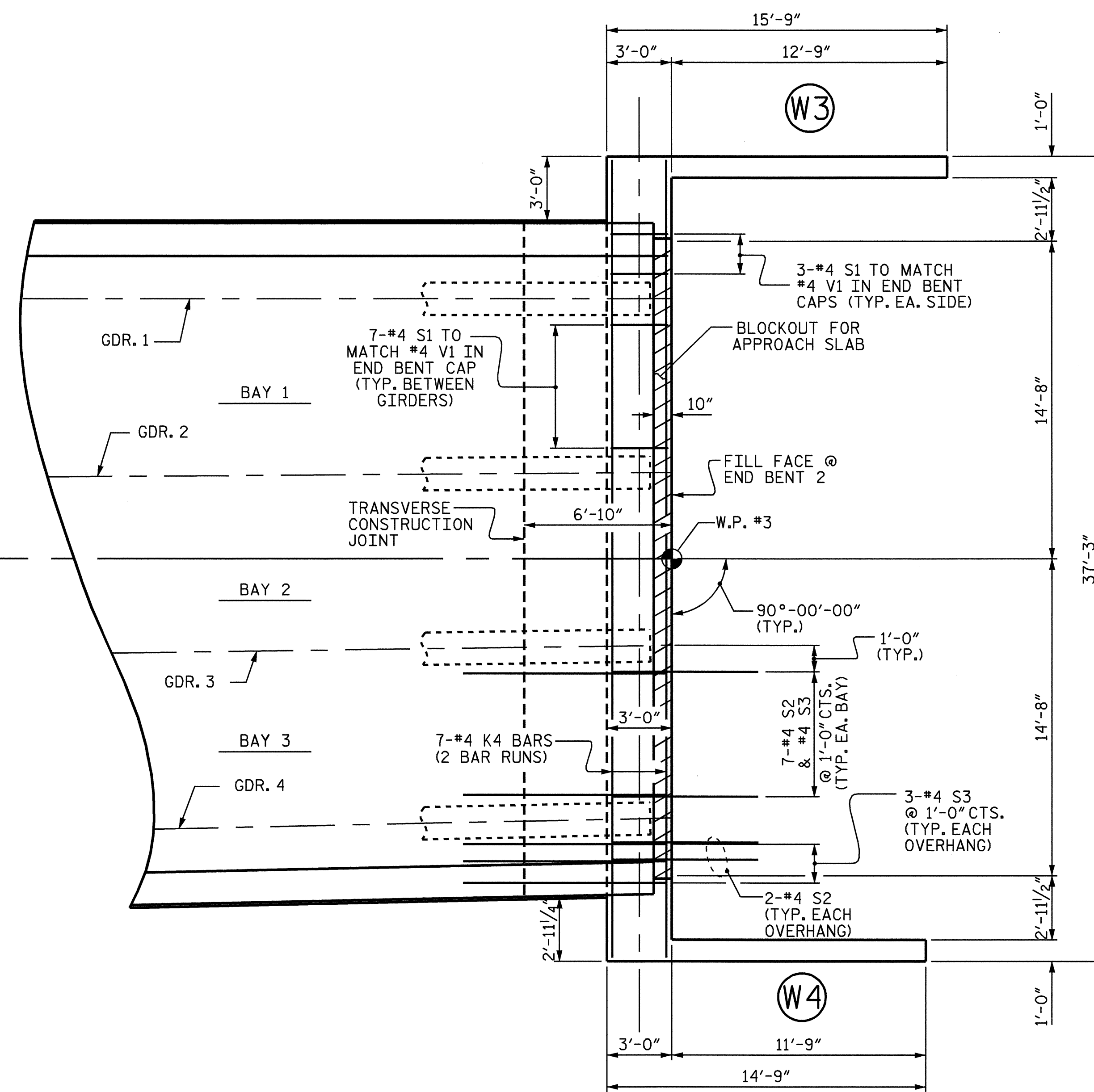


DRAWN BY : K. McCAULEY DATE : 9/24/07
 CHECKED BY : J. P. ADAMS DATE : 10/18/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			34



PLAN OF INTEGRAL END BENT 1



PLAN OF INTEGRAL END BENT 2

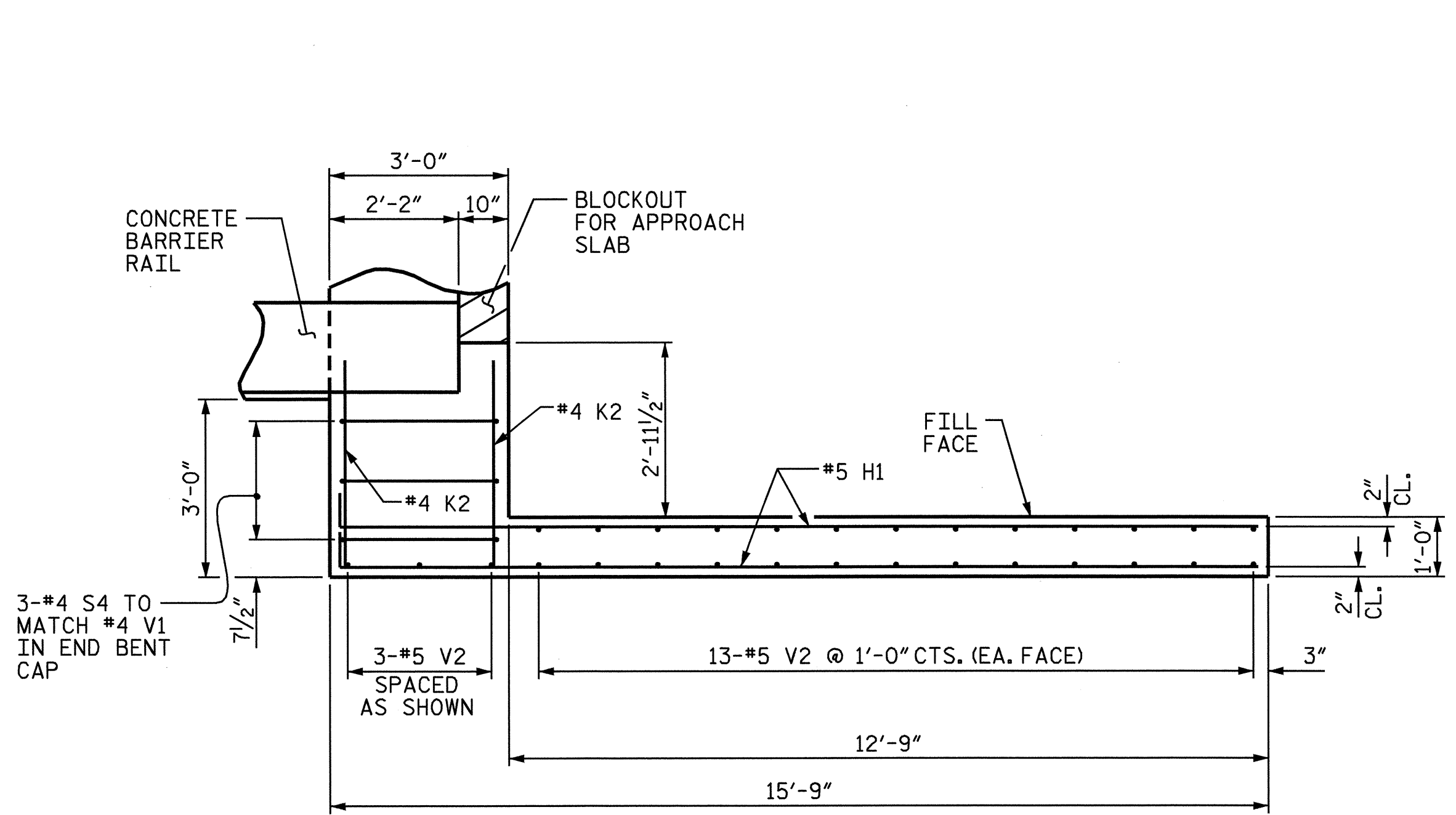
PROJECT NO. B-3697
RUTHERFORD COUNTY
 STATION: 16+92.50 -L-

SHEET 3 OF 5

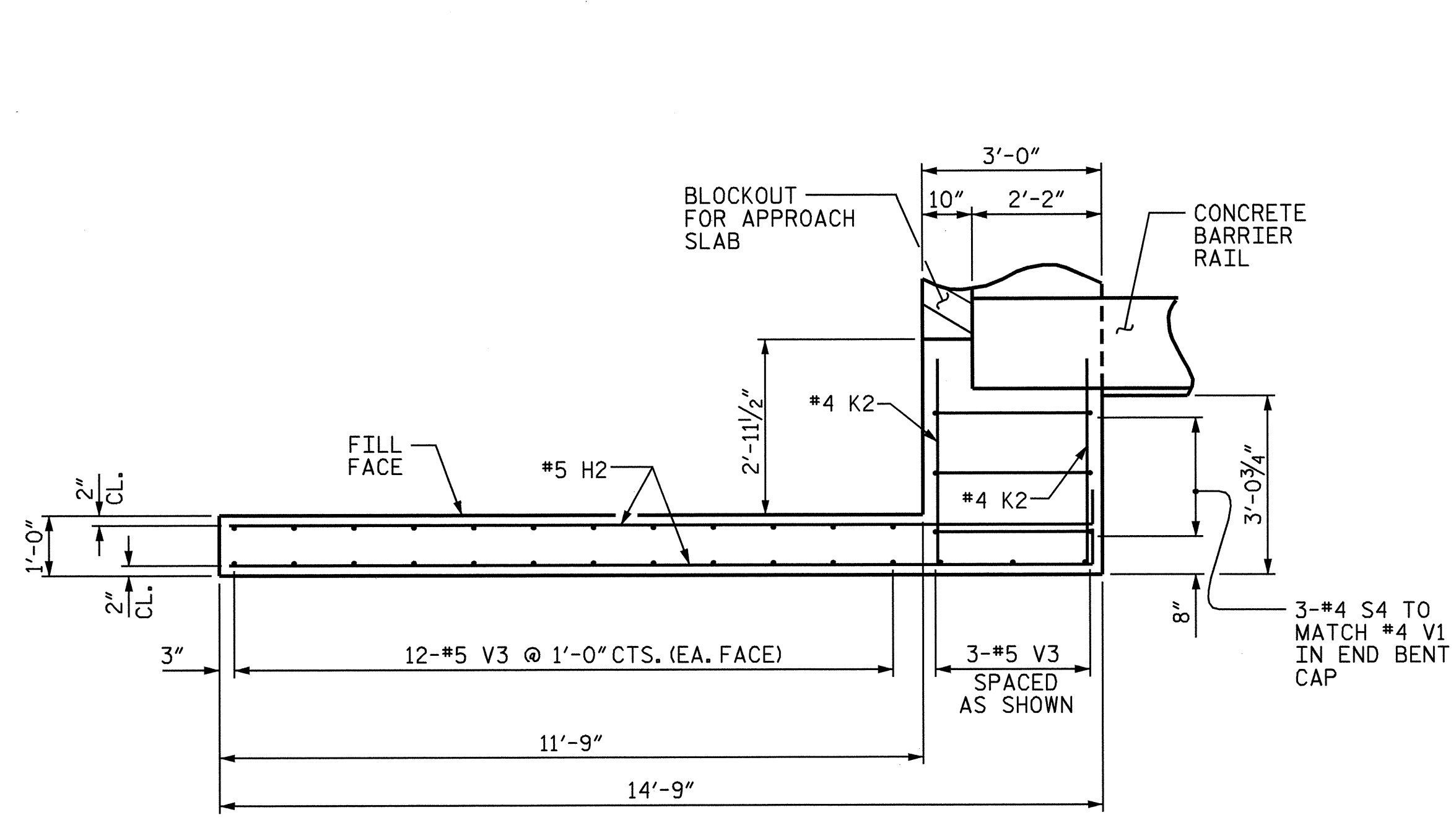


STATE OF NORTH CAROLINA						SHEET NO. S-8
DEPARTMENT OF TRANSPORTATION						
RALEIGH						TOTAL SHEETS 34
SUPERSTRUCTURE						
PLAN OF SPANS						
DETAILS						
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

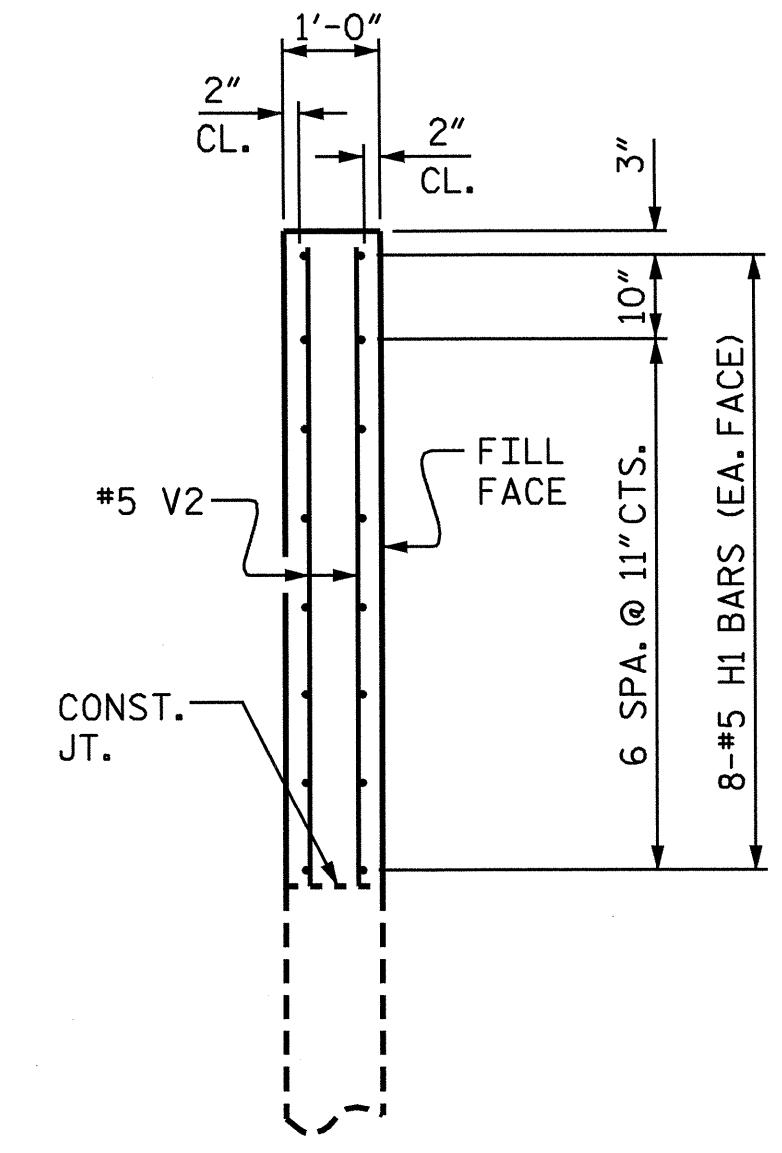
DRAWN BY : K. MCCAULEY DATE : 9/24/07
 CHECKED BY : J. P. ADAMS DATE : 10/18/07



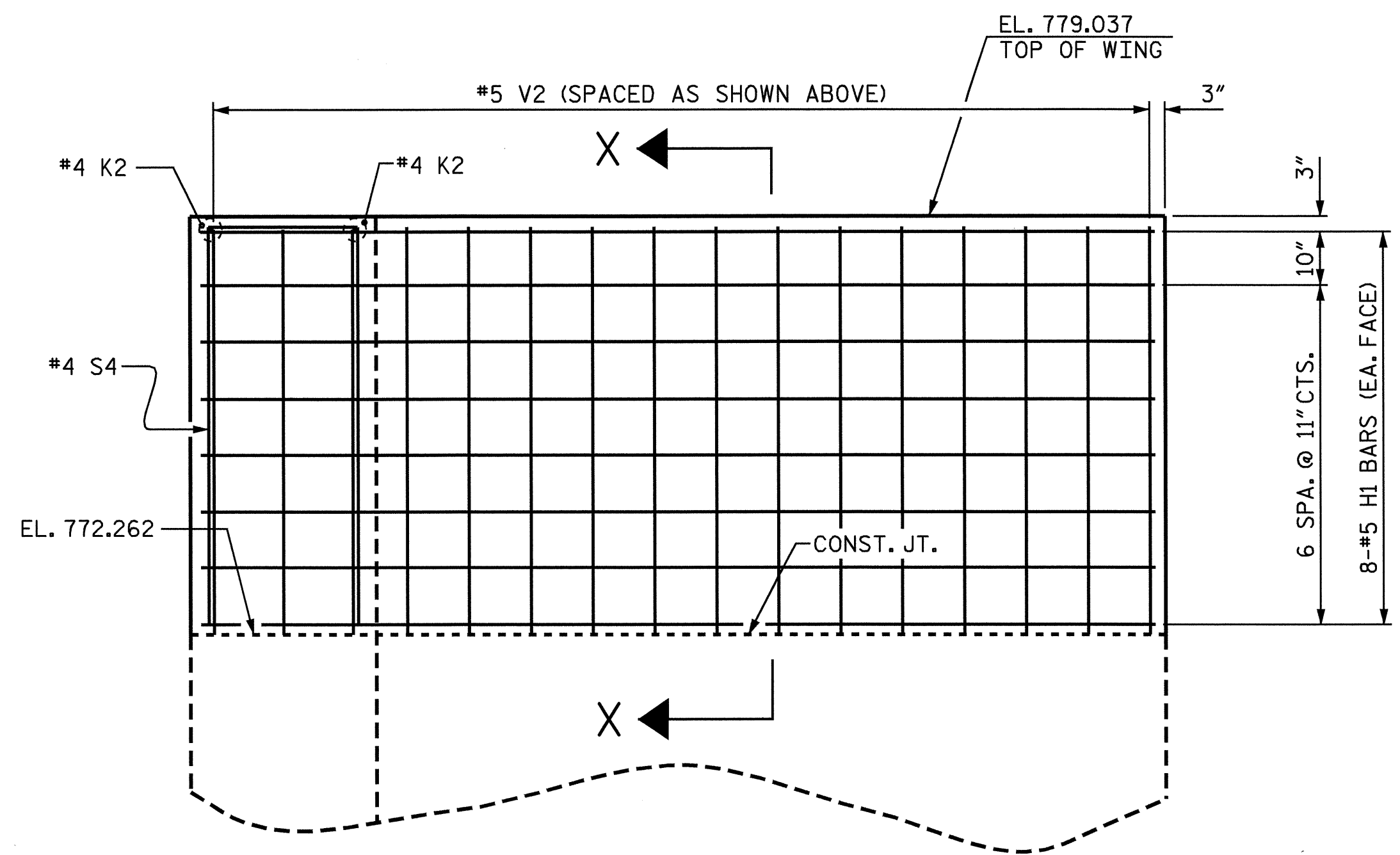
PLAN OF WING W1



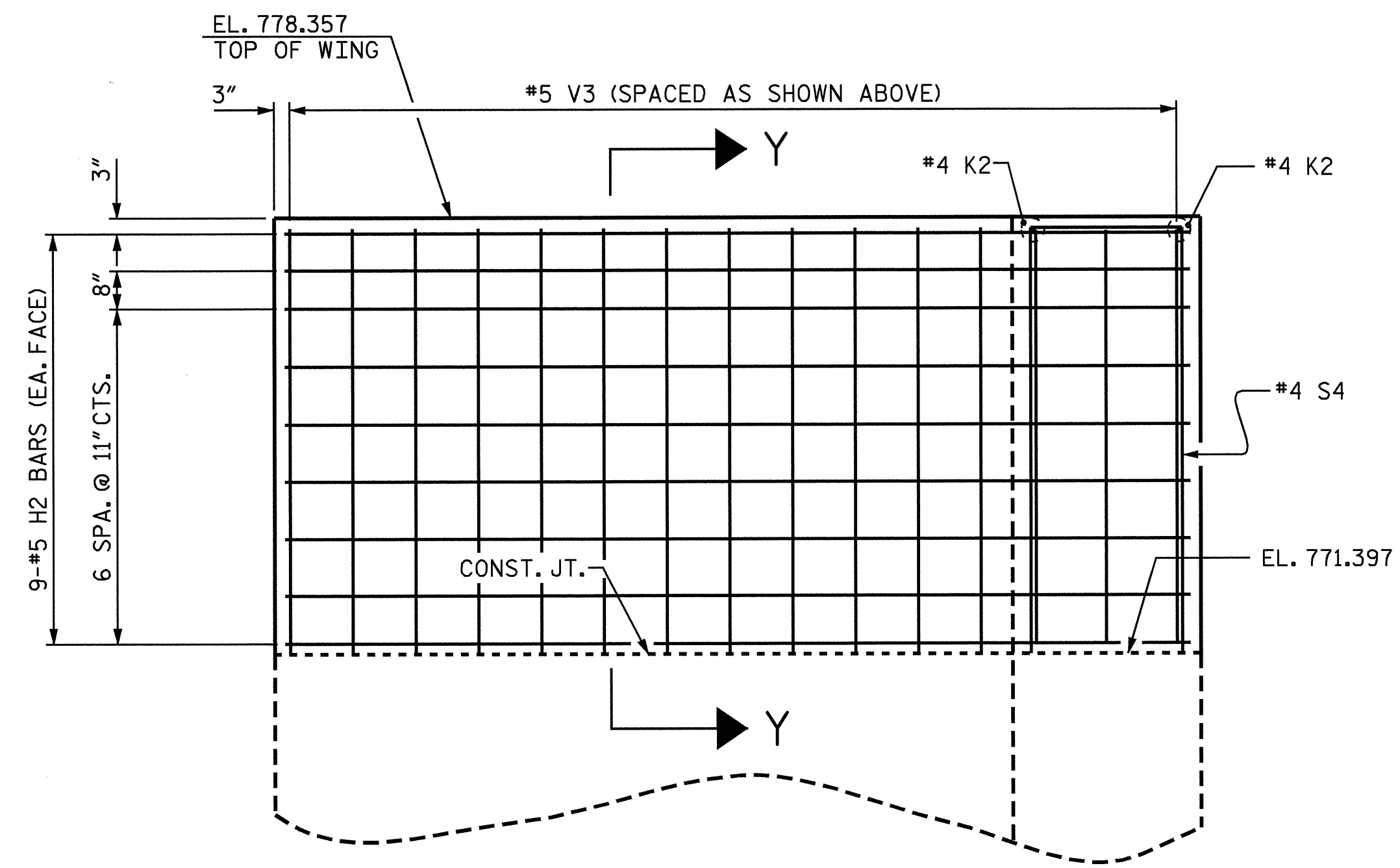
PLAN OF WING W2



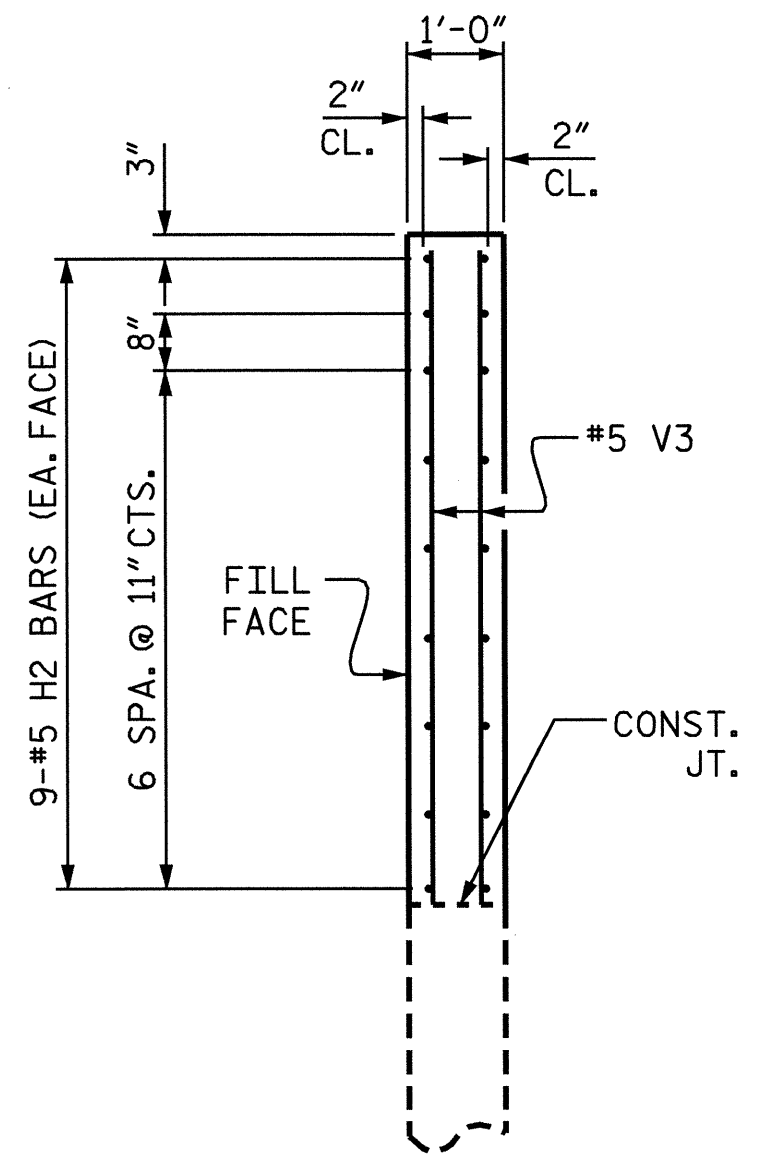
SECTION X-X



ELEVATION OF WING W1



ELEVATION OF WING W2



SECTION Y-Y

PROJECT NO. B-3697
RUTHERFORD COUNTY
 STATION: 16+92.50 -L-

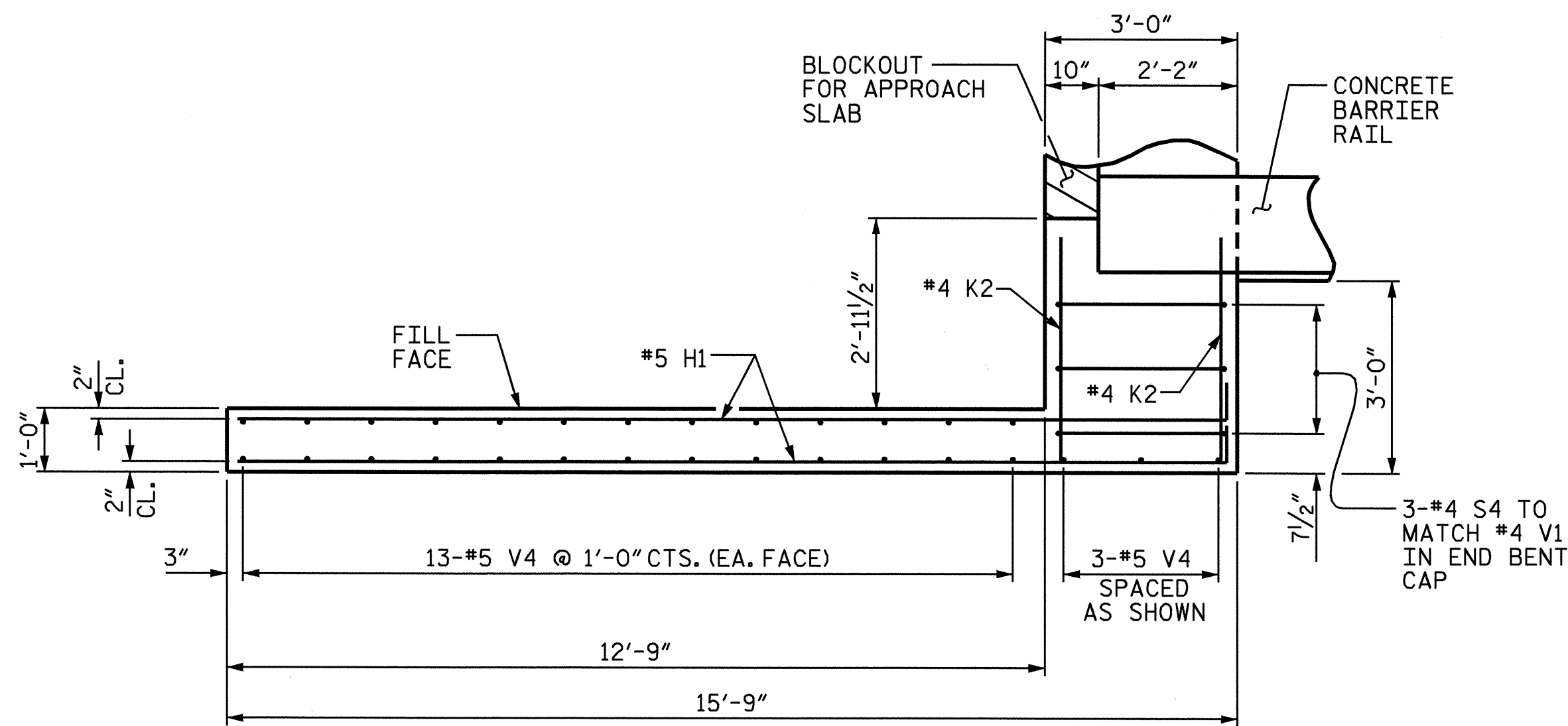
SHEET 4 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPANS
 DETAILS

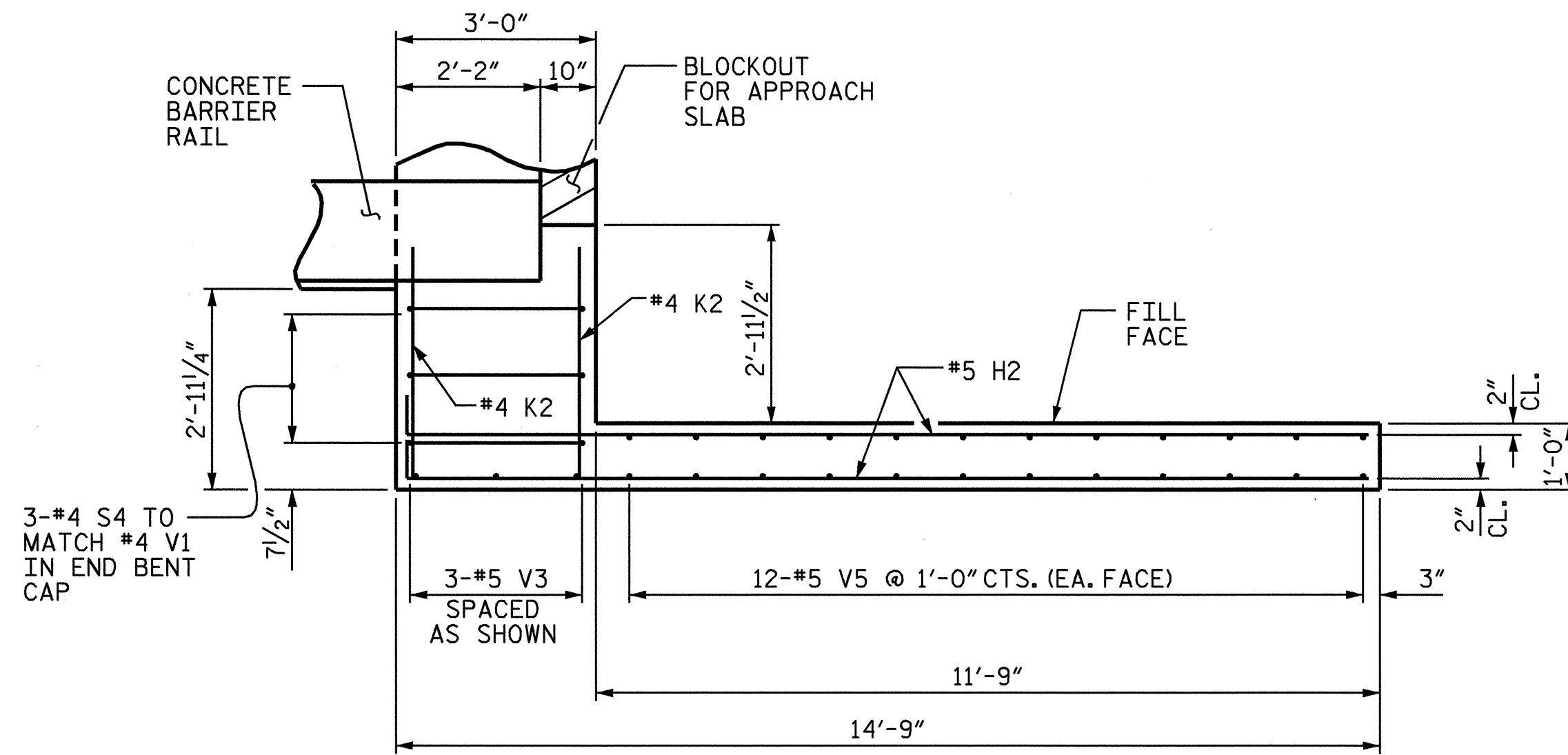


DRAWN BY: K. McCAULEY DATE: 9/24/07
 CHECKED BY: J. P. ADAMS DATE: 10/18/07

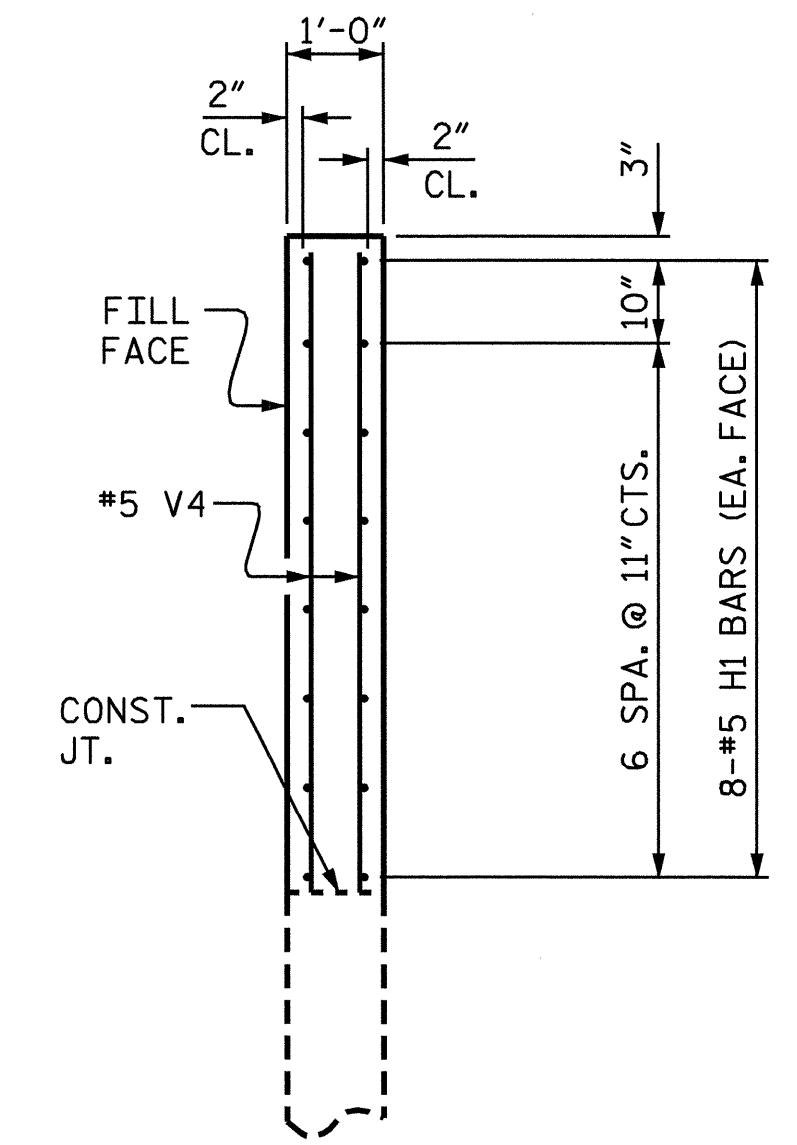
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			34



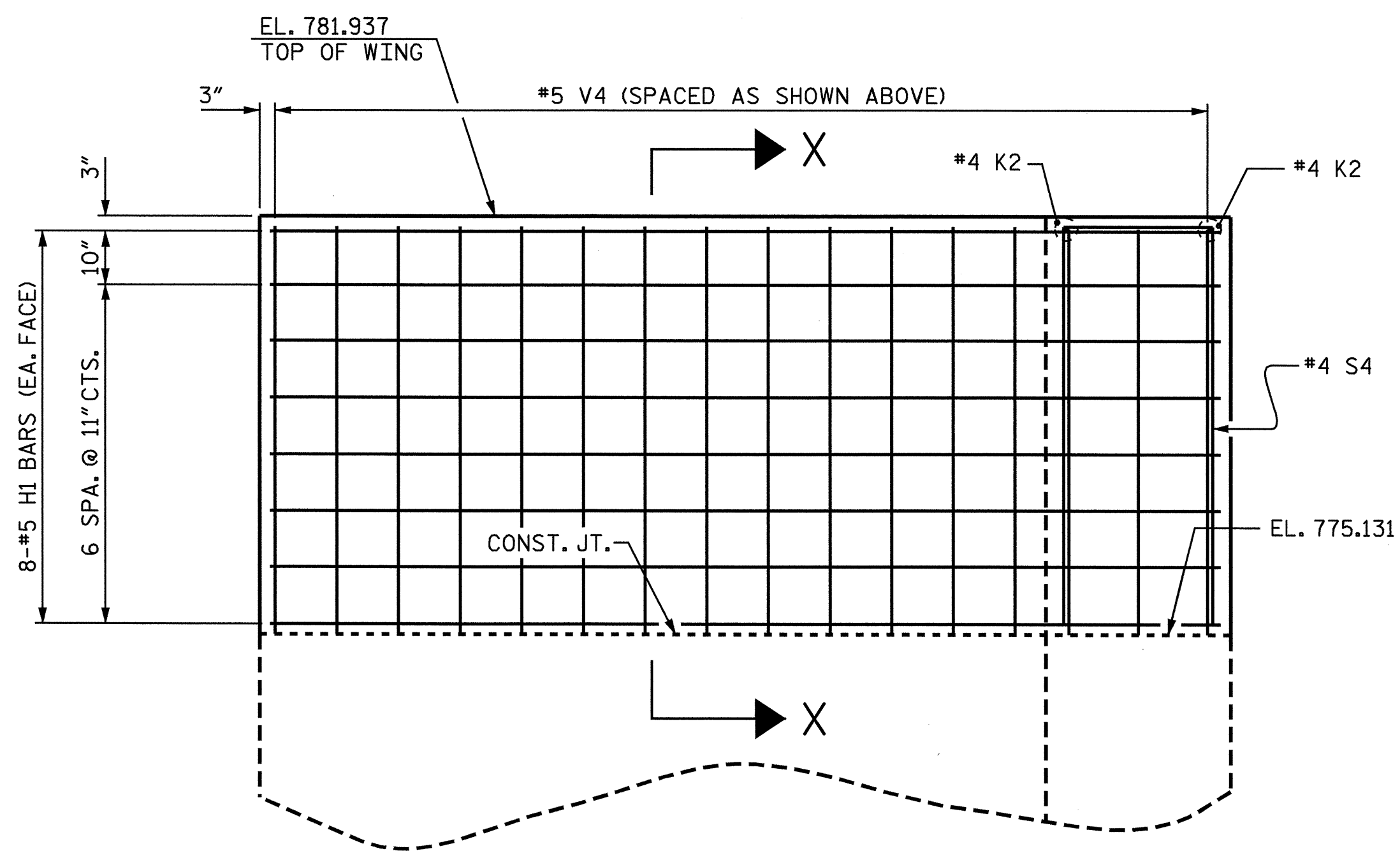
PLAN OF WING W3



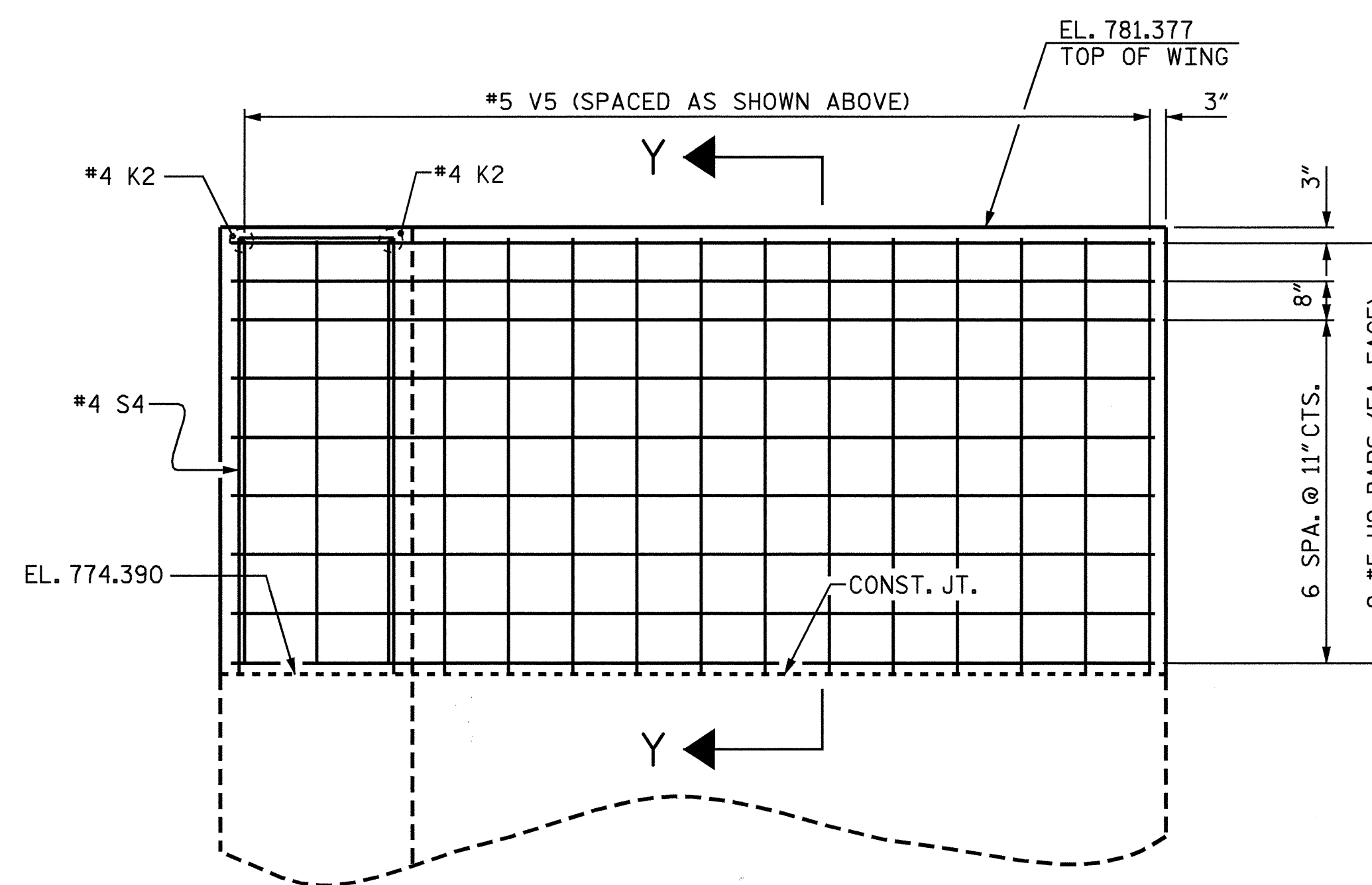
PLAN OF WING W4



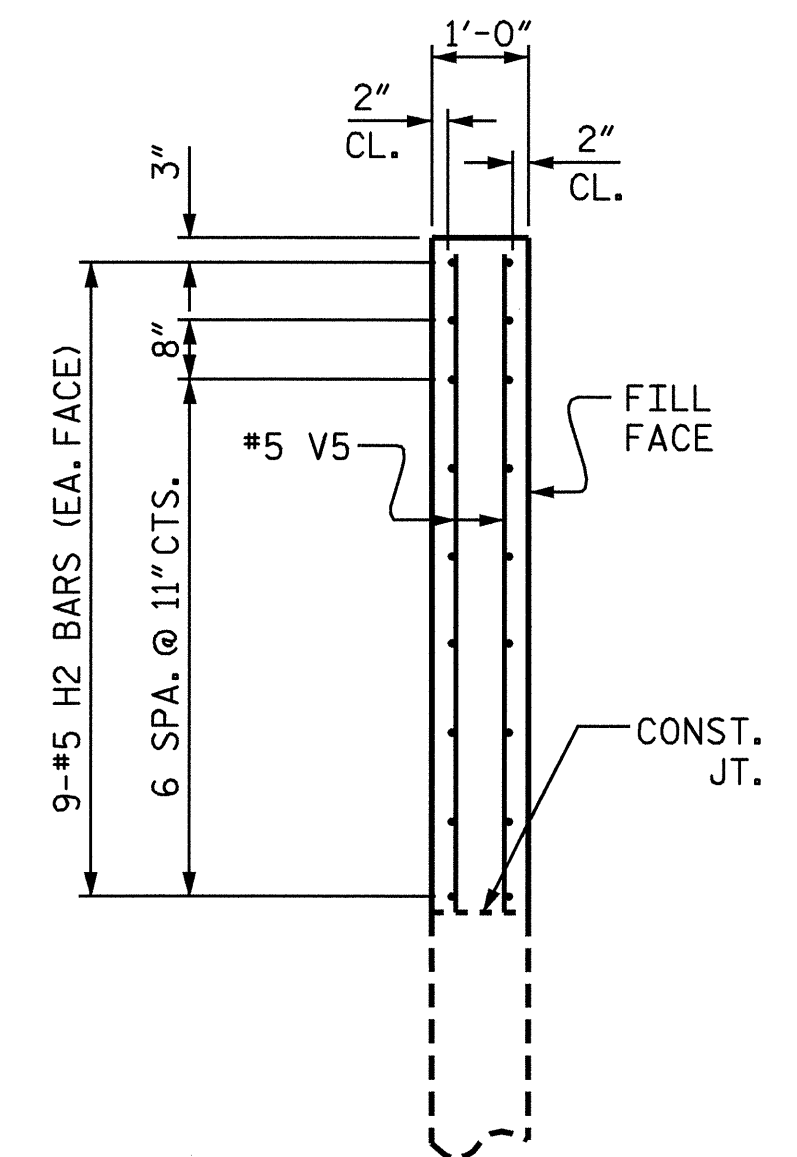
SECTION X-X



ELEVATION OF WING W3



ELEVATION OF WING W4



SECTION Y-Y

PROJECT NO. B-3697
RUTHERFORD COUNTY
 STATION: 16+92.50 -L-

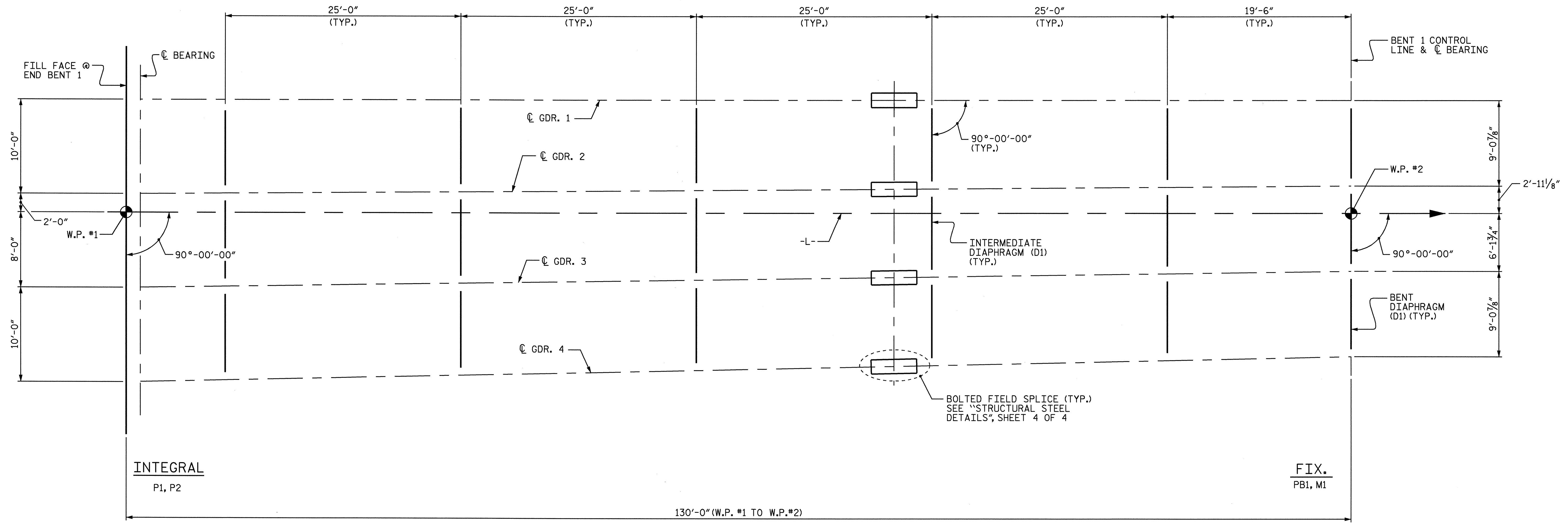
SHEET 5 OF 5



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPANS
 DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			34

DRAWN BY: K. McCAULEY DATE: 9/24/07
 CHECKED BY: J. P. ADAMS DATE: 10/18/07



SPAN "A"

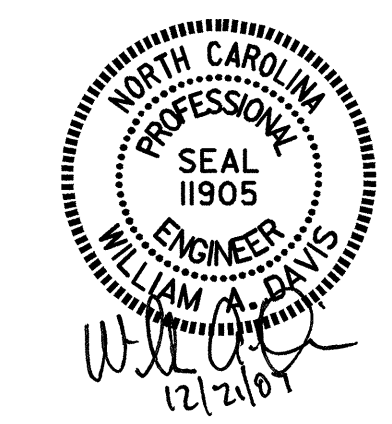
PROJECT NO. B-3697
RUTHERFORD COUNTY
 STATION: 16+92.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

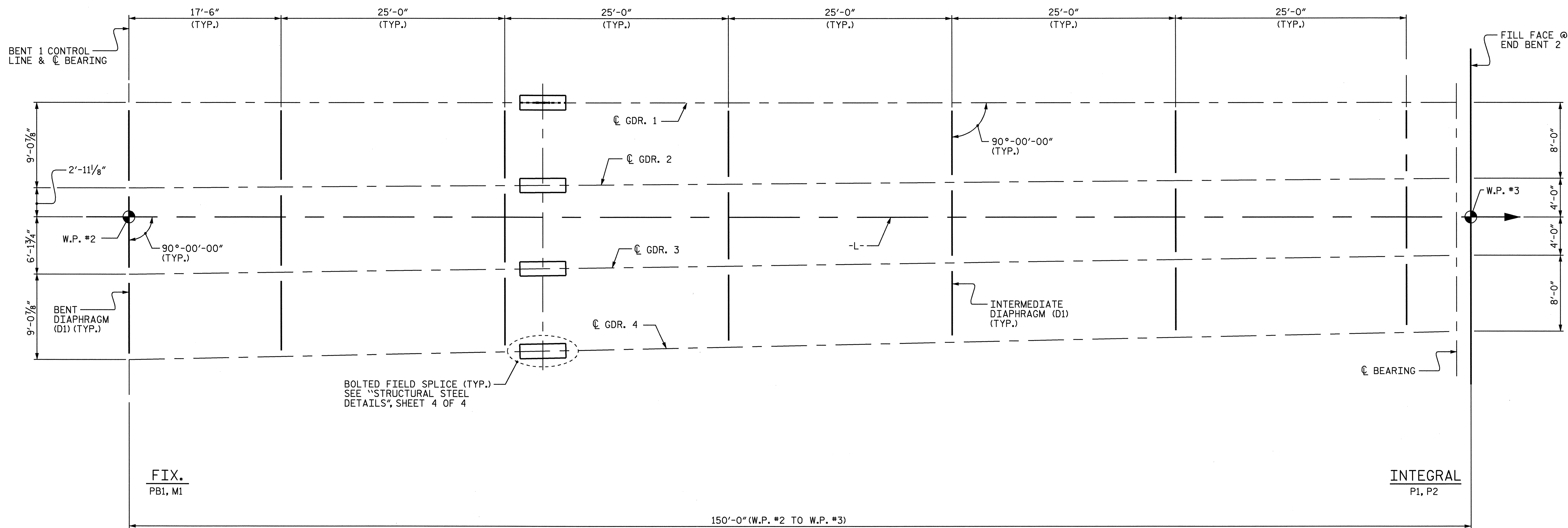
SUPERSTRUCTURE
 FRAMING PLAN

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			34



DRAWN BY: K. McCAULEY DATE: 9/24/07
 CHECKED BY: J. P. ADAMS DATE: 10/18/07

21-DEC-2007 12:03
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 qtnguyen



SPAN "B"

PROJECT NO. B-3697
RUTHERFORD COUNTY
 STATION: 16+92.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 FRAMING PLAN



DRAWN BY : K. McCauley DATE : 9/24/07
 CHECKED BY : J. P. Adams DATE : 10/18/07

21-DEC-2007 12:03
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			34

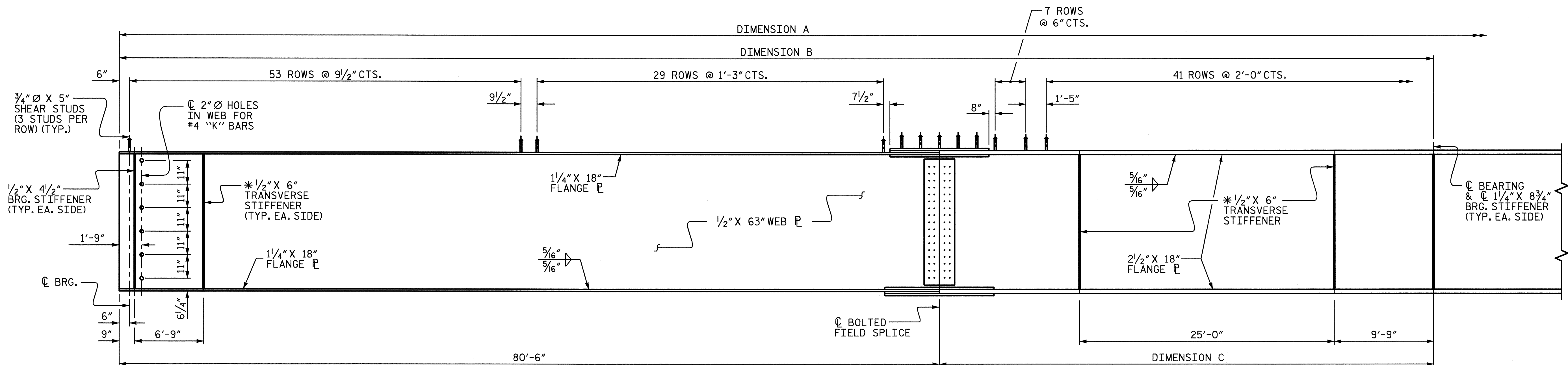
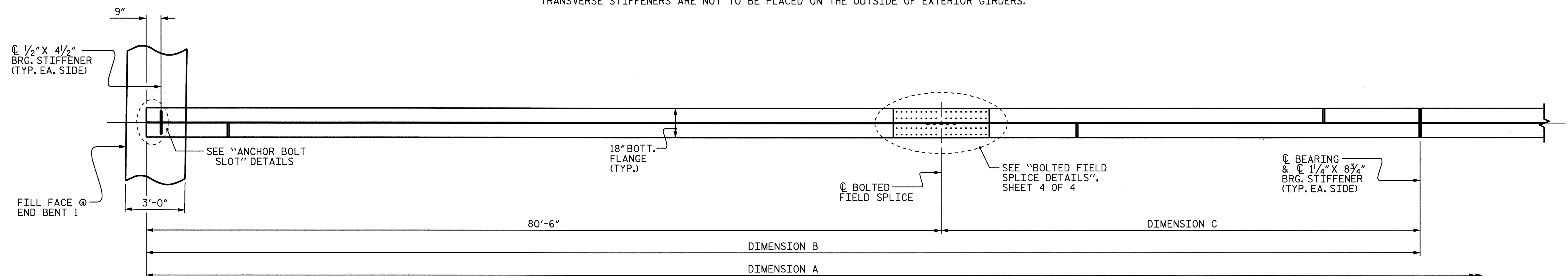


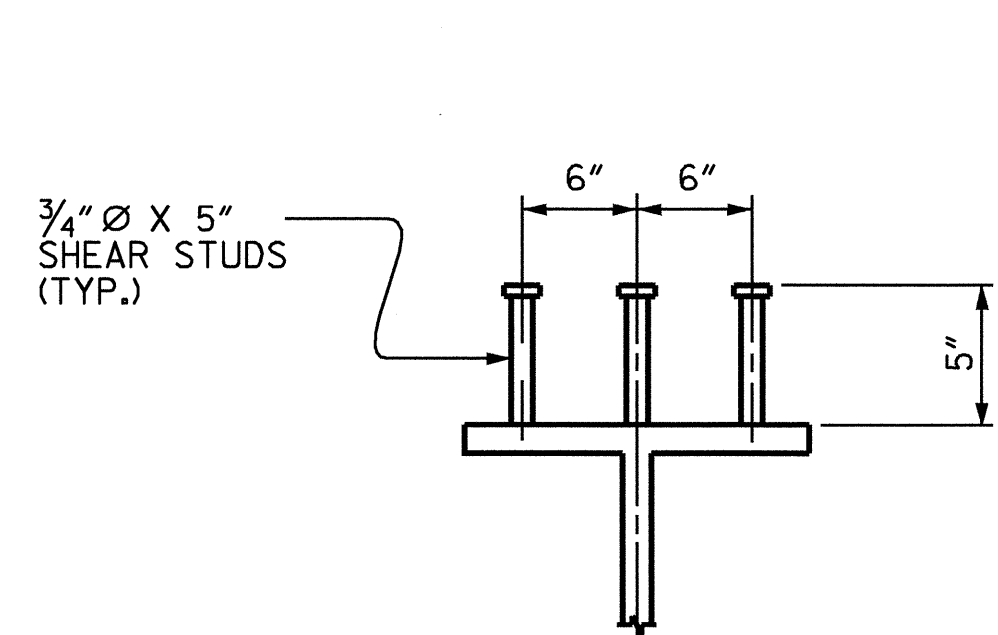
PLATE GIRDER ELEVATION - SPAN "A"

* NOTE: TRANSVERSE STIFFENERS ARE TO BE PLACED ON ONE SIDE OF GIRDERS ONLY. TRANSVERSE STIFFENERS ARE NOT TO BE PLACED ON THE OUTSIDE OF EXTERIOR GIRDERS.

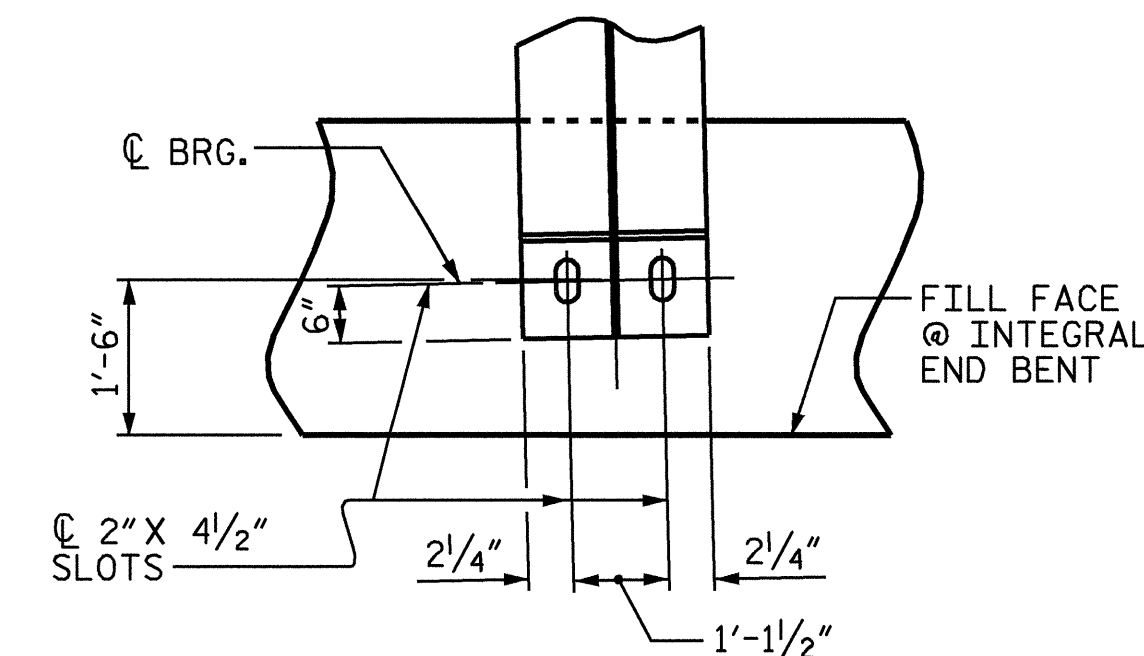


BOTTOM FLANGE DETAIL - SPAN "A"

	DIMENSION A	DIMENSION B	DIMENSION C
GIRDER 1	278'-0"	129'-0"	48'-6"
GIRDER 2	278'-0 1/8"	129'-0 1/16"	48'-6 1/16"
GIRDER 3	278'-0 3/8"	129'-0 3/16"	48'-6 3/16"
GIRDER 4	278'-0 3/4"	129'-0 3/8"	48'-6 3/8"



SHEAR STUD DETAIL FOR TOP FLANGE PLATE



ANCHOR BOLT SLOT DETAILS (BOTTOM FLANGE OF GIRDER)



PROJECT NO. B-3697
RUTHERFORD COUNTY
 STATION: 16+92.50 -L-
 SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			34

DRAWN BY : K. McCAULEY DATE : 9/24/07
 CHECKED BY : J. P. ADAMS DATE : 10/18/07

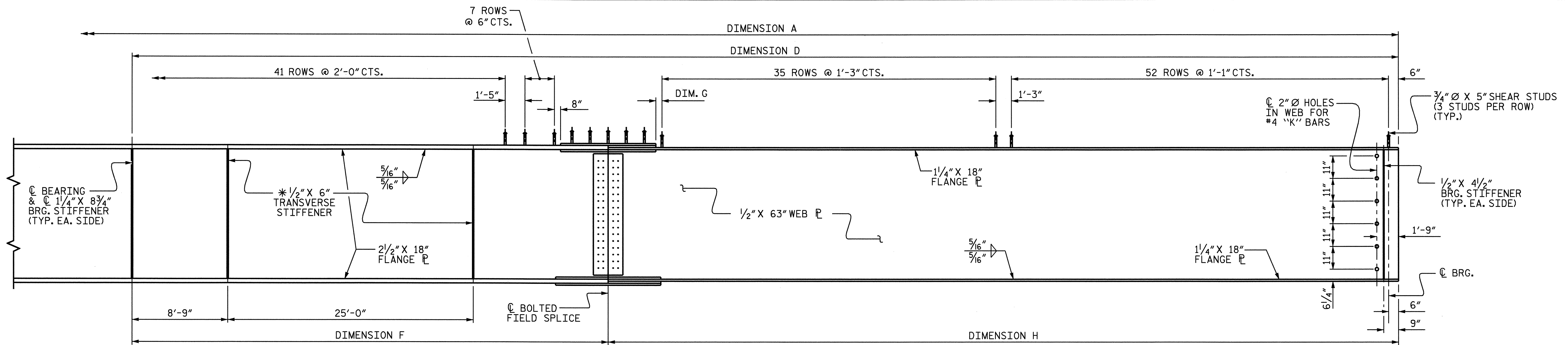
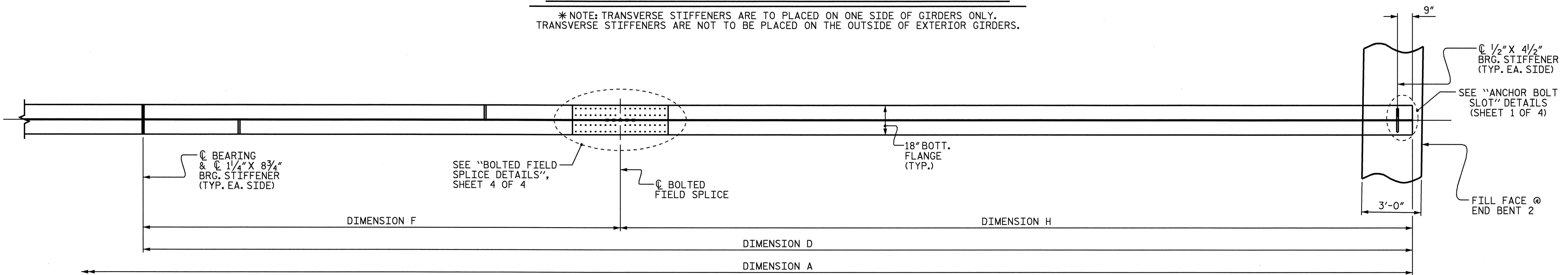


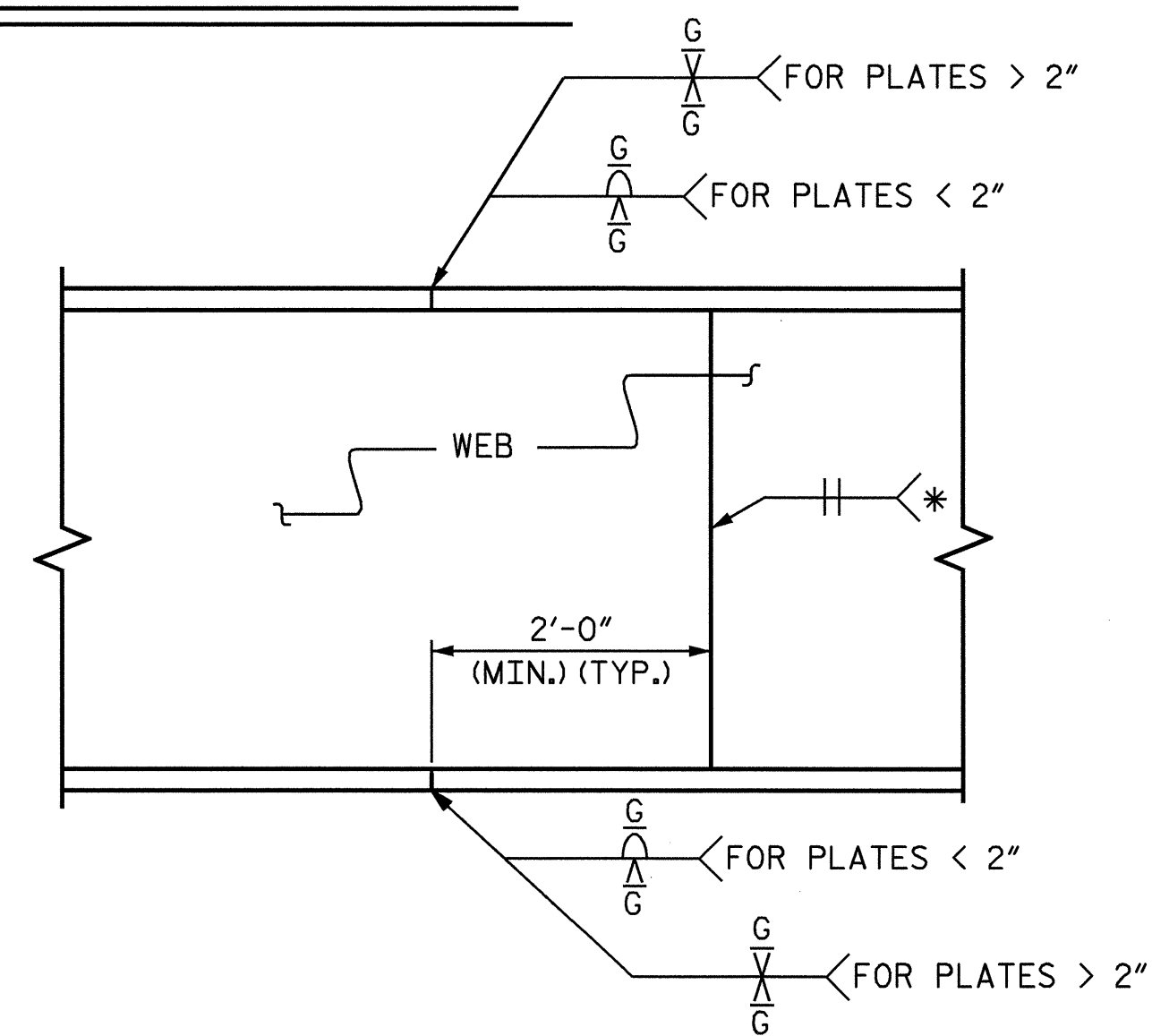
PLATE GIRDER ELEVATION - SPAN "B"

* NOTE: TRANSVERSE STIFFENERS ARE TO BE PLACED ON ONE SIDE OF GIRDERS ONLY. TRANSVERSE STIFFENERS ARE NOT TO BE PLACED ON THE OUTSIDE OF EXTERIOR GIRDERS.



BOTTOM FLANGE DETAIL - "SPAN B"

	DIMENSION A	DIMENSION D	DIMENSION F	DIMENSION G	DIMENSION H
GIRDER 1	278'-0"	149'-0"	46'-6"	7"	102'-6"
GIRDER 2	278'-0 ¹ / ₈ "	149'-0 ¹ / ₁₆ "	46'-5 ¹⁵ / ₁₆ "	7 ¹ / ₈ "	102'-6 ¹ / ₈ "
GIRDER 3	278'-0 ³ / ₈ "	149'-0 ³ / ₁₆ "	46'-5 ¹³ / ₁₆ "	7 ³ / ₈ "	102'-6 ³ / ₈ "
GIRDER 4	278'-0 ³ / ₄ "	149'-0 ⁷ / ₁₆ "	46'-5 ⁵ / ₈ "	7 ¹³ / ₁₆ "	102'-6 ¹³ / ₁₆ "



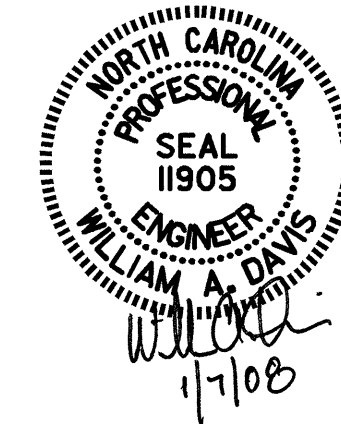
TYPICAL FLANGE & WEB BUTT JOINT

* GRIND SMOOTH & FLUSH ON OUTSIDE OF EXTERIOR GIRDERS

PROJECT NO. B-3697
RUTHERFORD COUNTY
 STATION: 16+92.50 -L-

SHEET 2 OF 4

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



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			34

DRAWN BY : K. MCCAULEY DATE : 9/24/07
 CHECKED BY : J. P. ADAMS DATE : 10/18/07

NOTES

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W. NO PAINTING OF STRUCTURAL STEEL IS REQUIRED.

ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.

ALL FIELD CONNECTIONS TO BE 7/8" Ø HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED.

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.

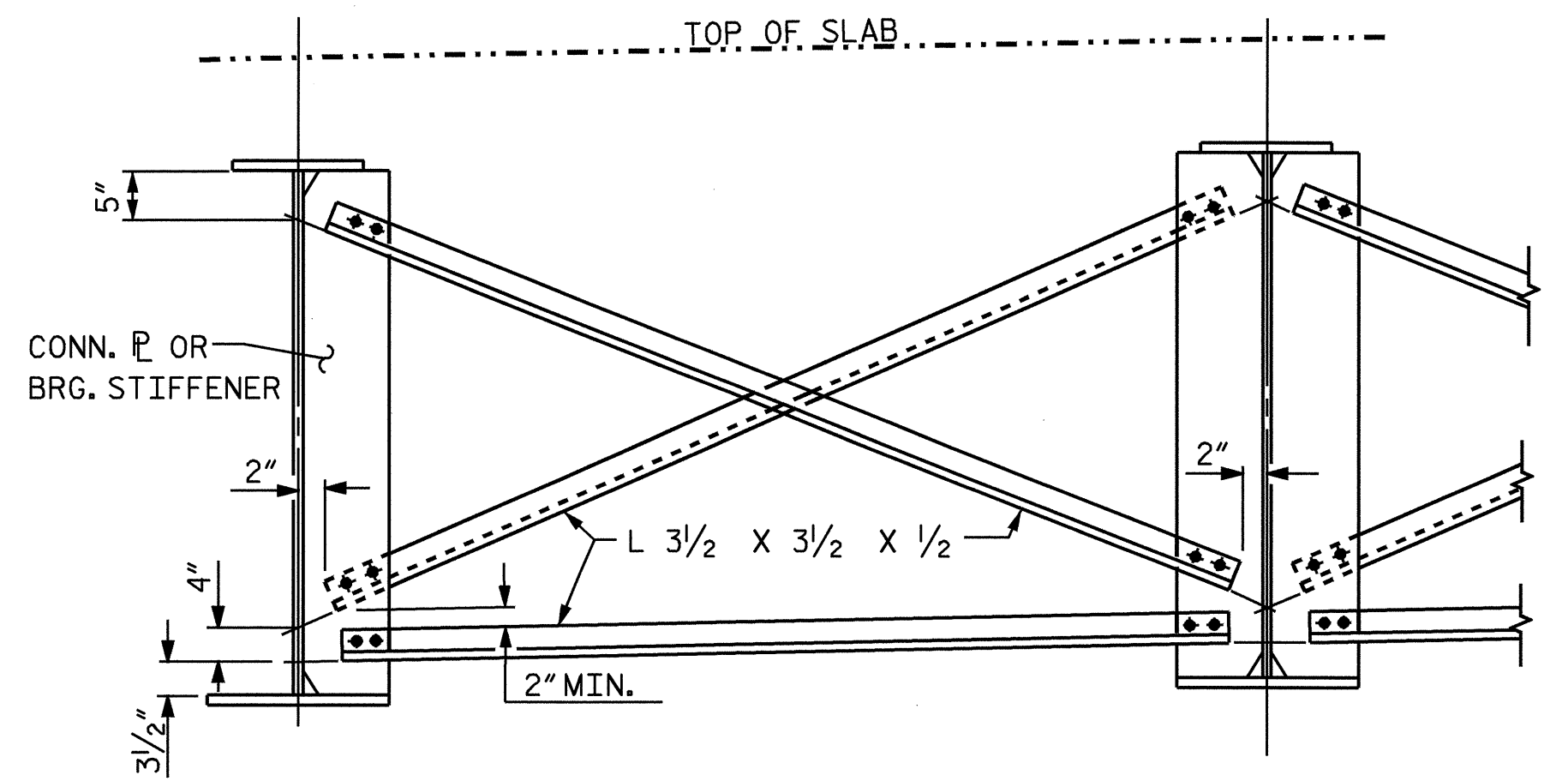
TRANSVERSE STIFFENERS ARE NOT REQUIRED ON THE OUTSIDE OF EXTERIOR BEAMS.

BEARING STIFFENERS ARE TO BE PLACED NORMAL TO THE WEB OF THE GIRDER AND SHALL BE PLUMB.

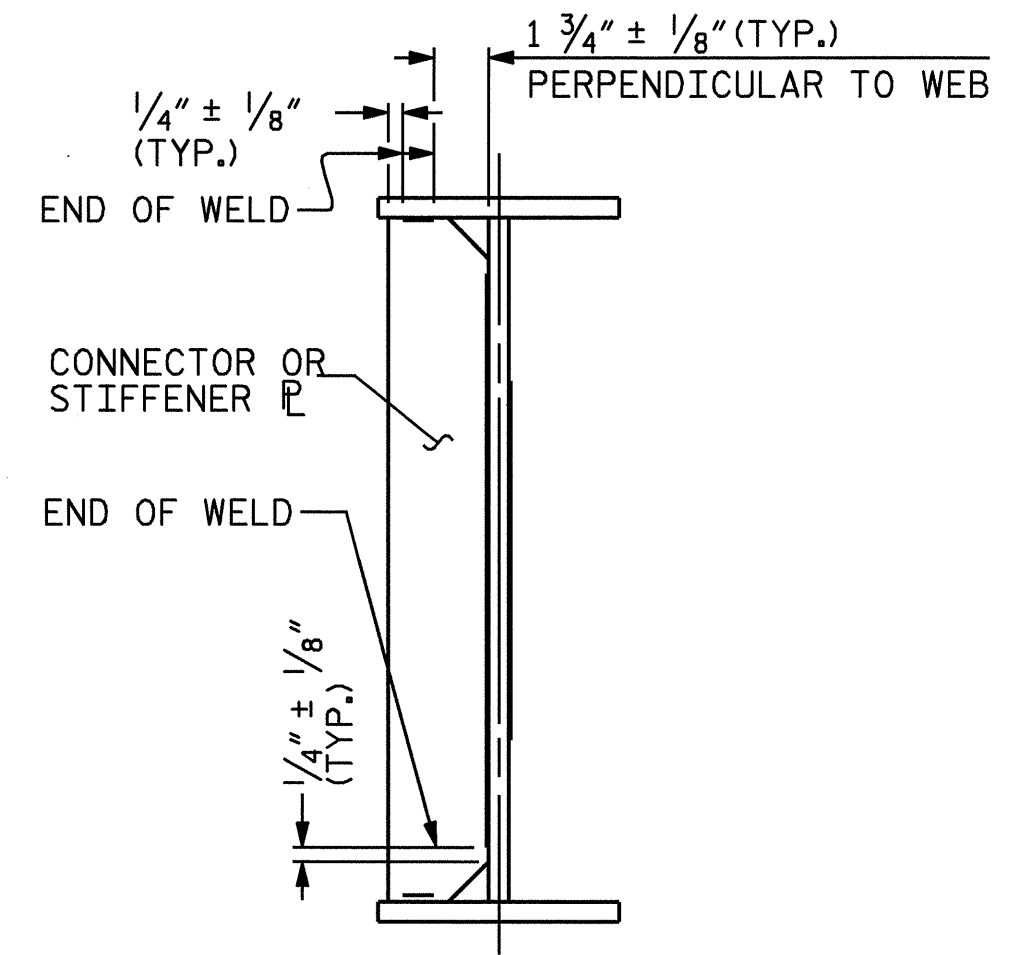
END OF BEAMS AND GIRDERS SHALL BE PLUMB.

FOR HIGH STRENGTH BOLTS, SEE SPECIAL PROVISIONS.

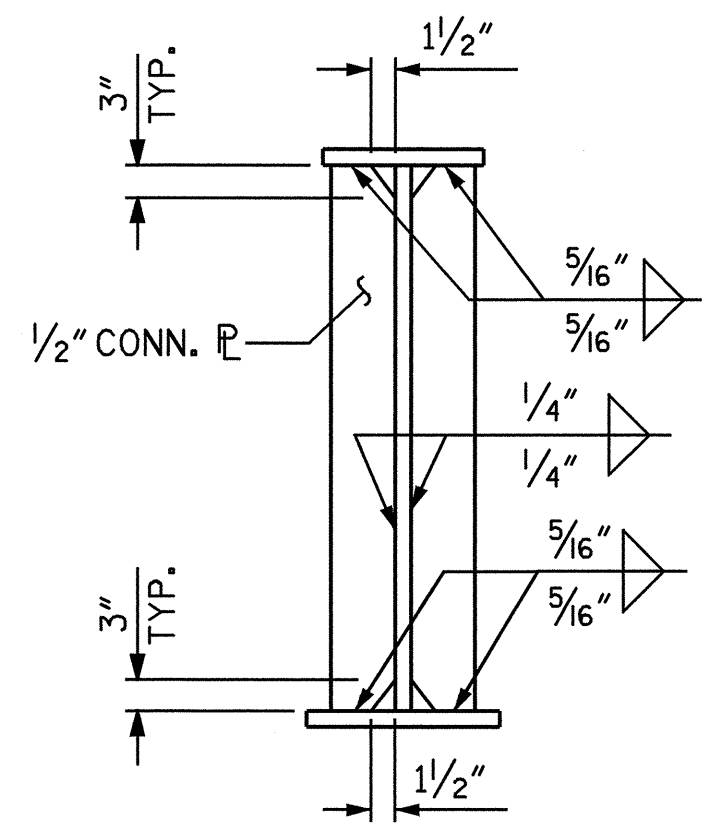
FOR SHIPPING STEEL STRUCTURAL MEMBERS, SEE SPECIAL PROVISIONS.



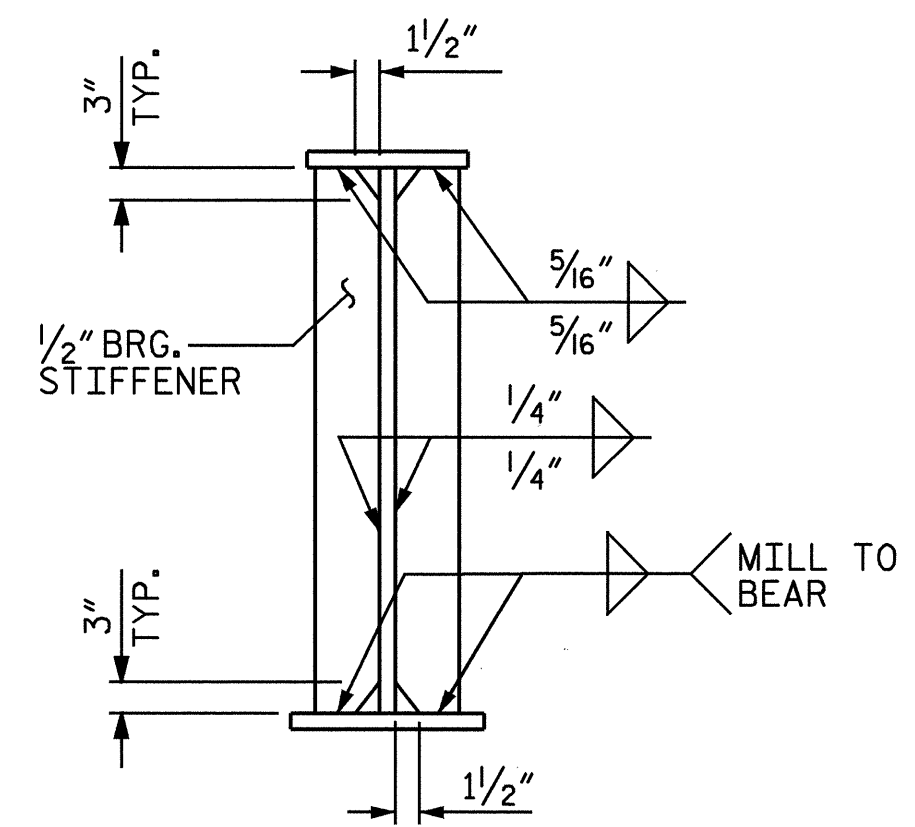
TYPICAL BENT & INTERMEDIATE DIAPHRAGM (D1)



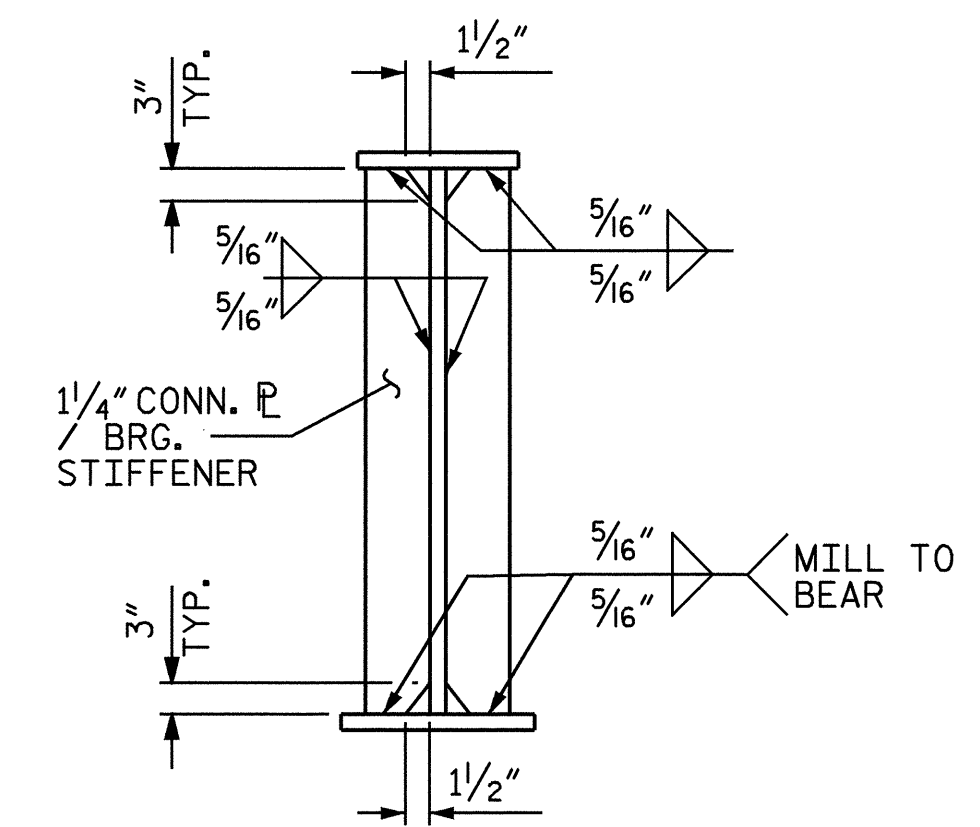
TYPICAL STIFFENER OR CONNECTOR PLATE CONNECTIONS
WELD TERMINATION DETAILS



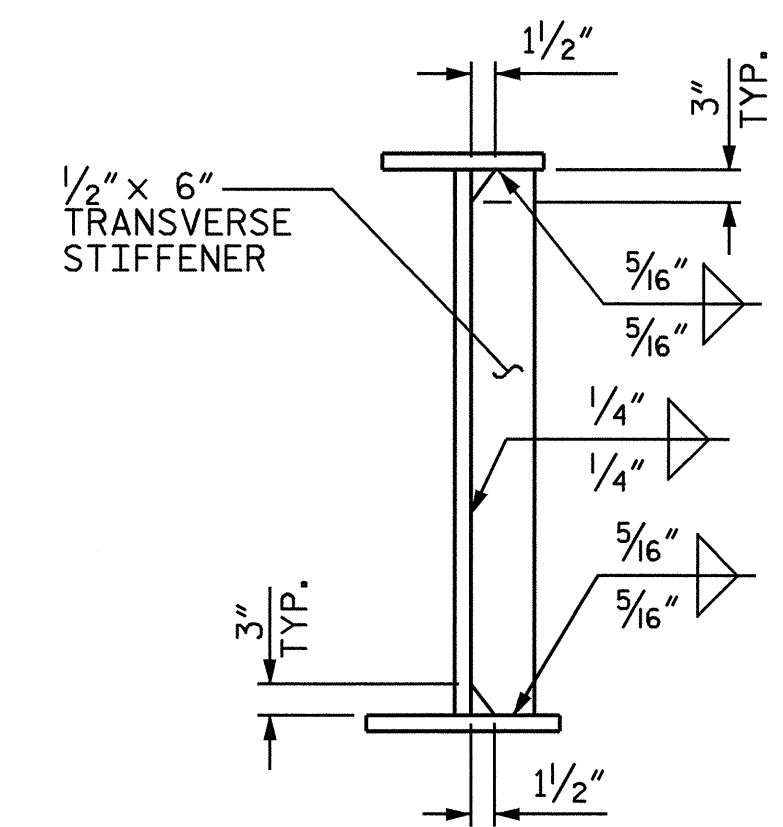
CONNECTOR PL @ INTERMEDIATE DIAPHRAGMS



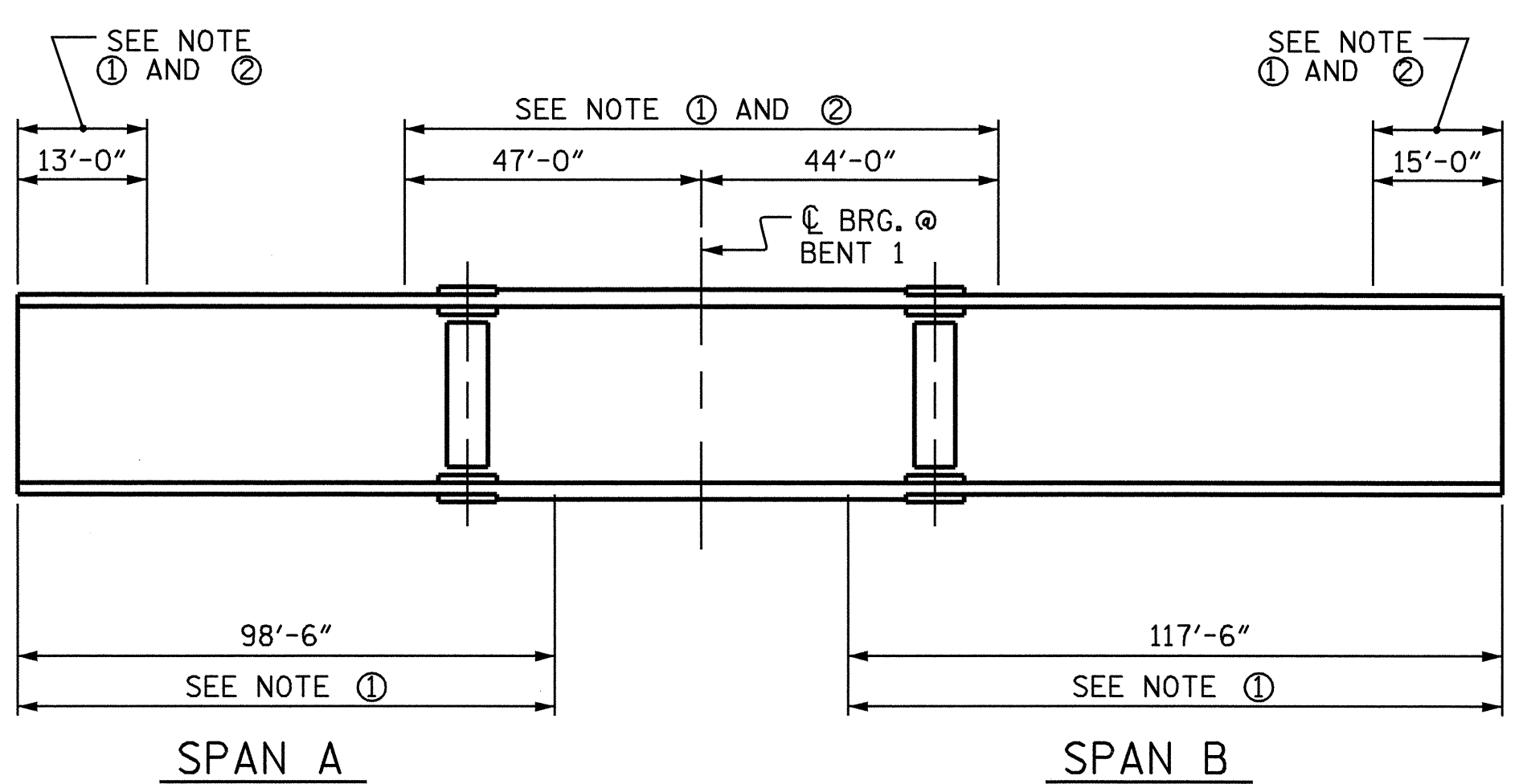
BEARING STIFFENER @ END BENTS



CONNECTOR PL / BEARING STIFFENER @ BENT



TRANSVERSE STIFFENER



CHARPY V-NOTCH TESTS FOR CONTINUOUS PLATE GIRDERS

NOTE ① : CHARPY V-NOTCH TESTS ARE REQUIRED FOR ALL TOP OR BOTTOM FLANGE PLATES WHICH FALL WITHIN THESE LIMITS, ALL WEB PLATES, AND SPLICE PLATES. 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.

PROJECT NO. B-3697
RUTHERFORD COUNTY
STATION: 16+92.50 -L-

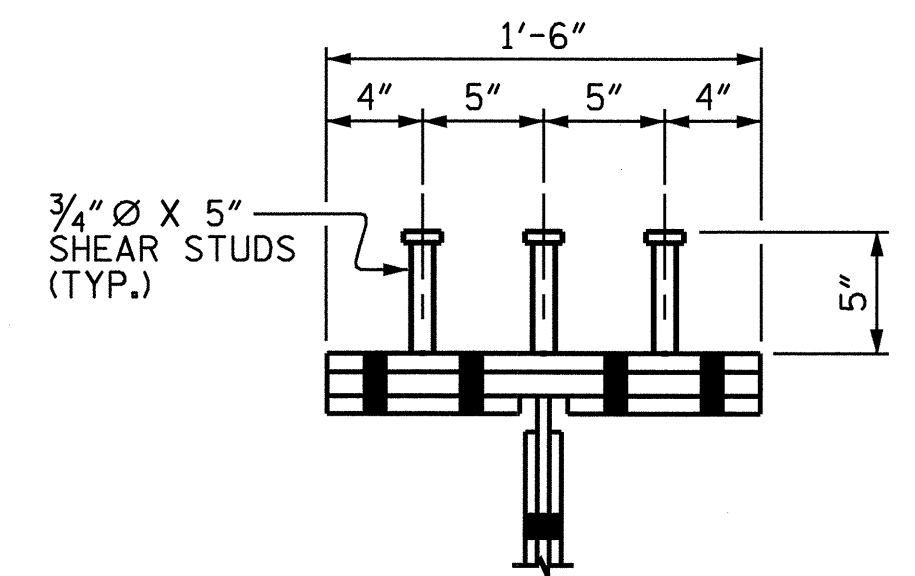
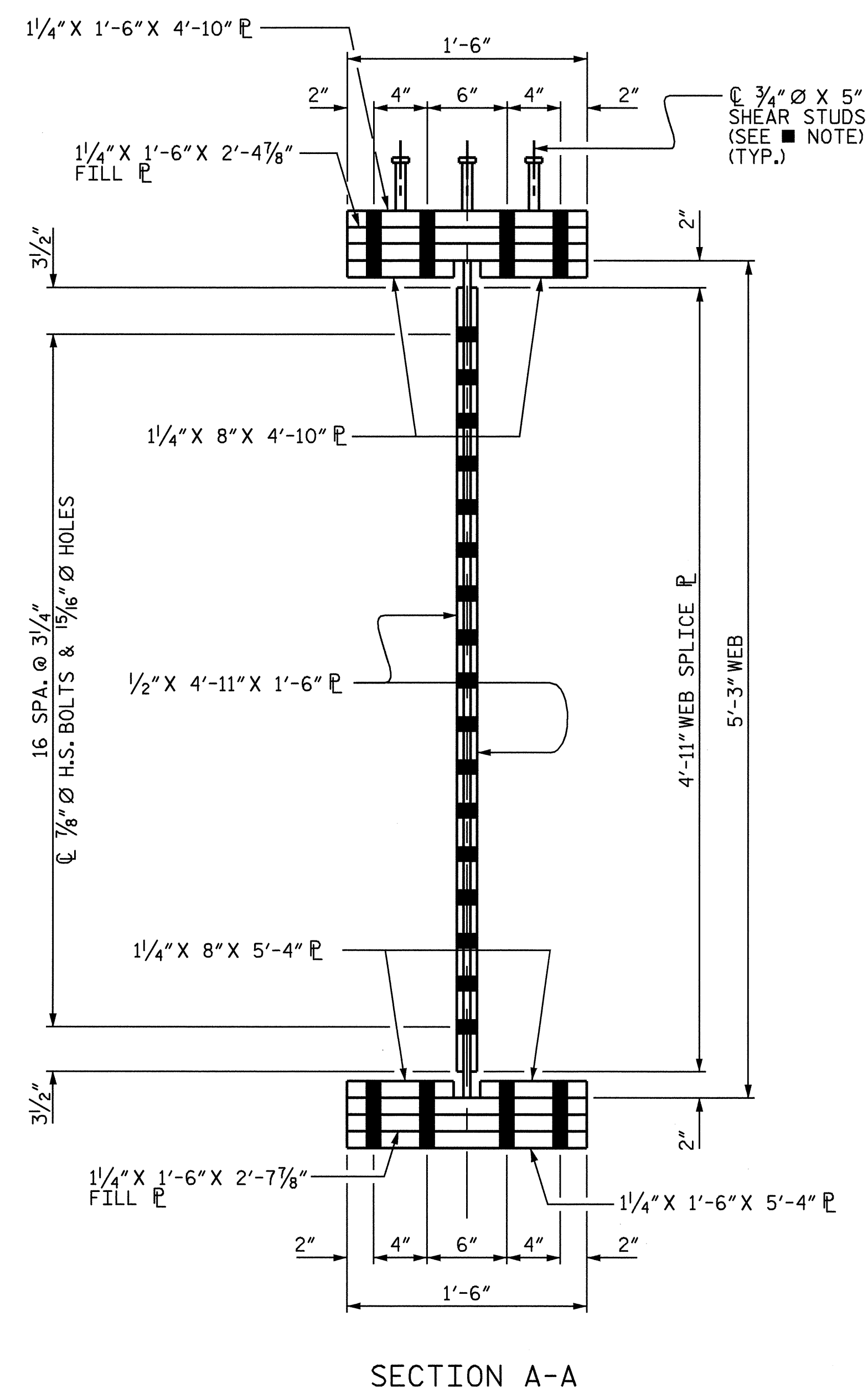
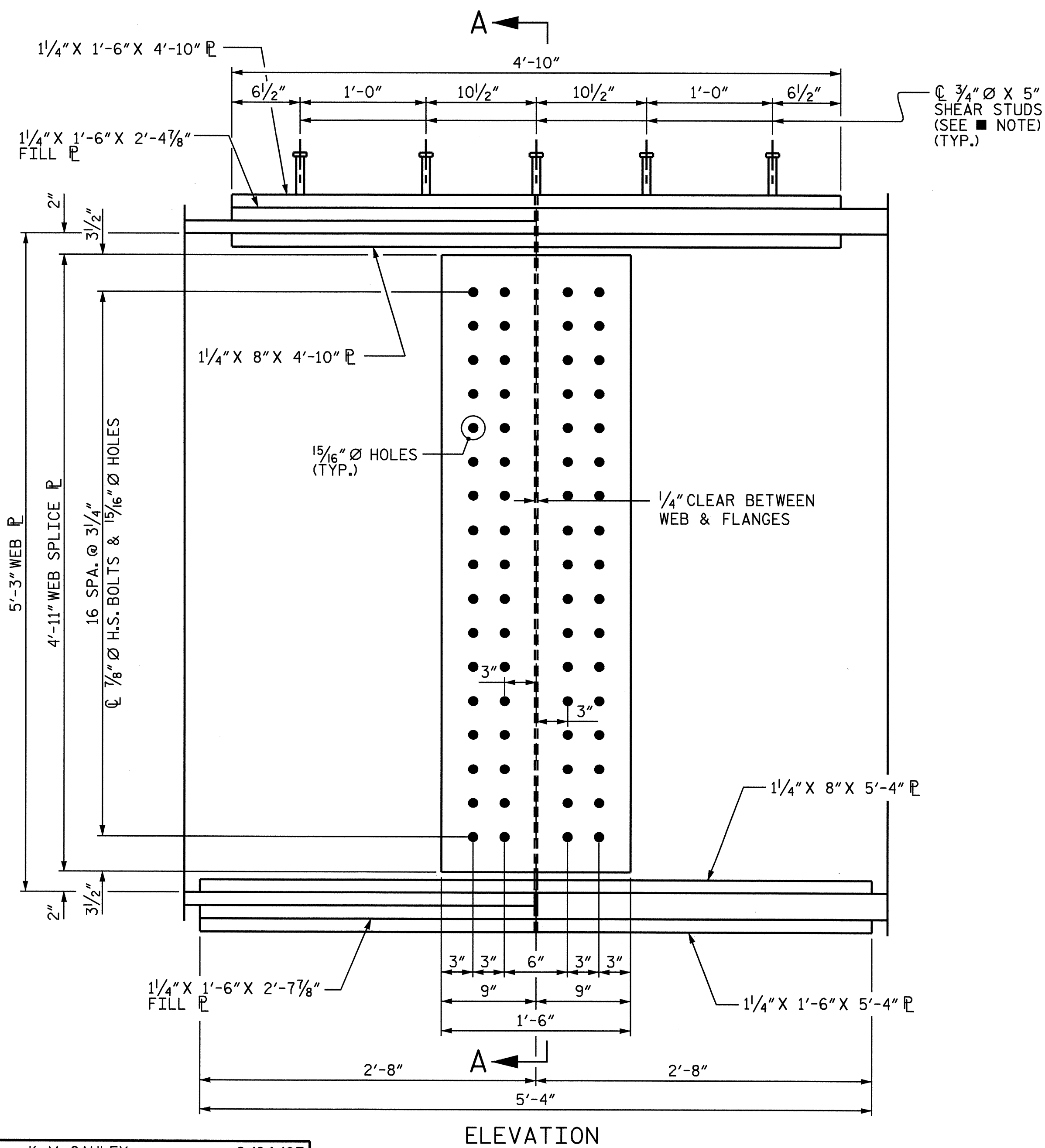
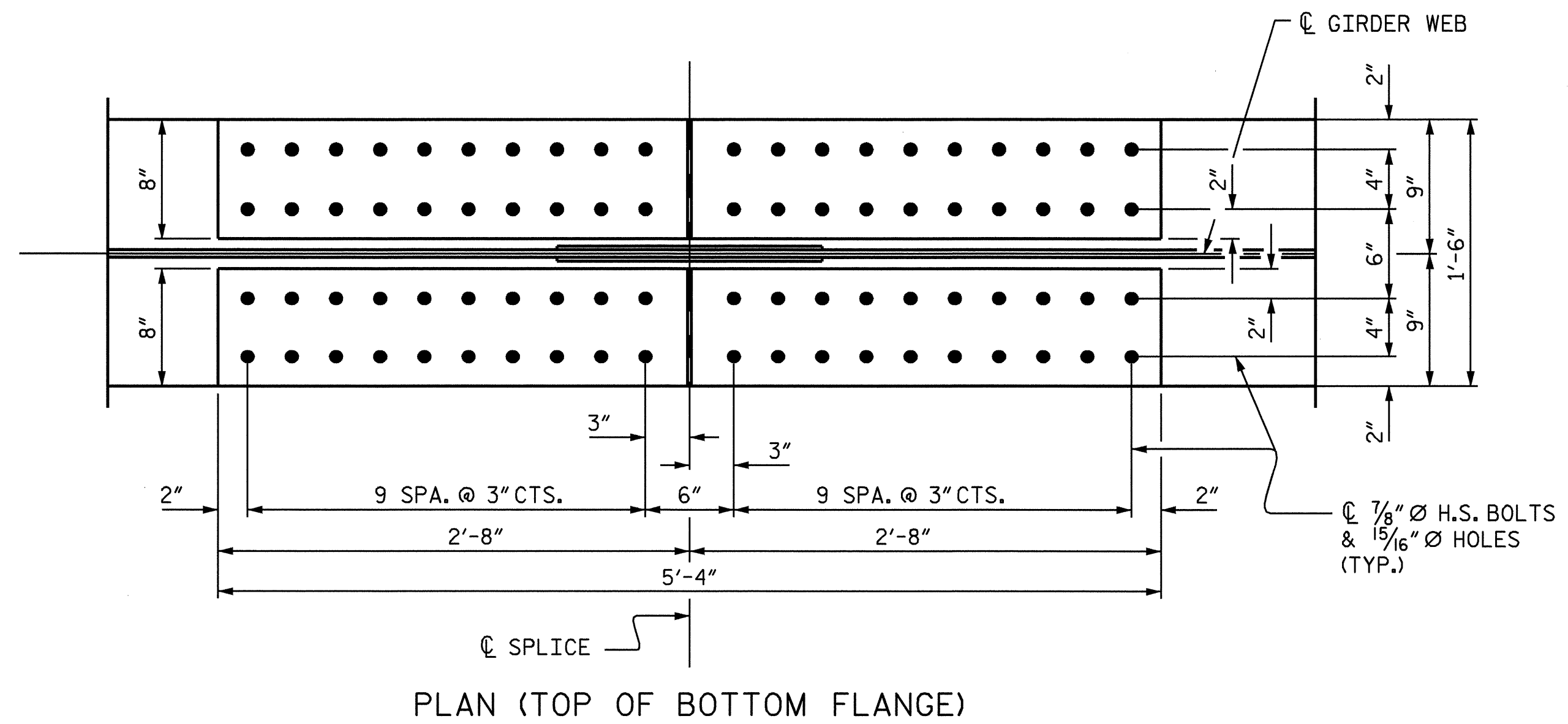
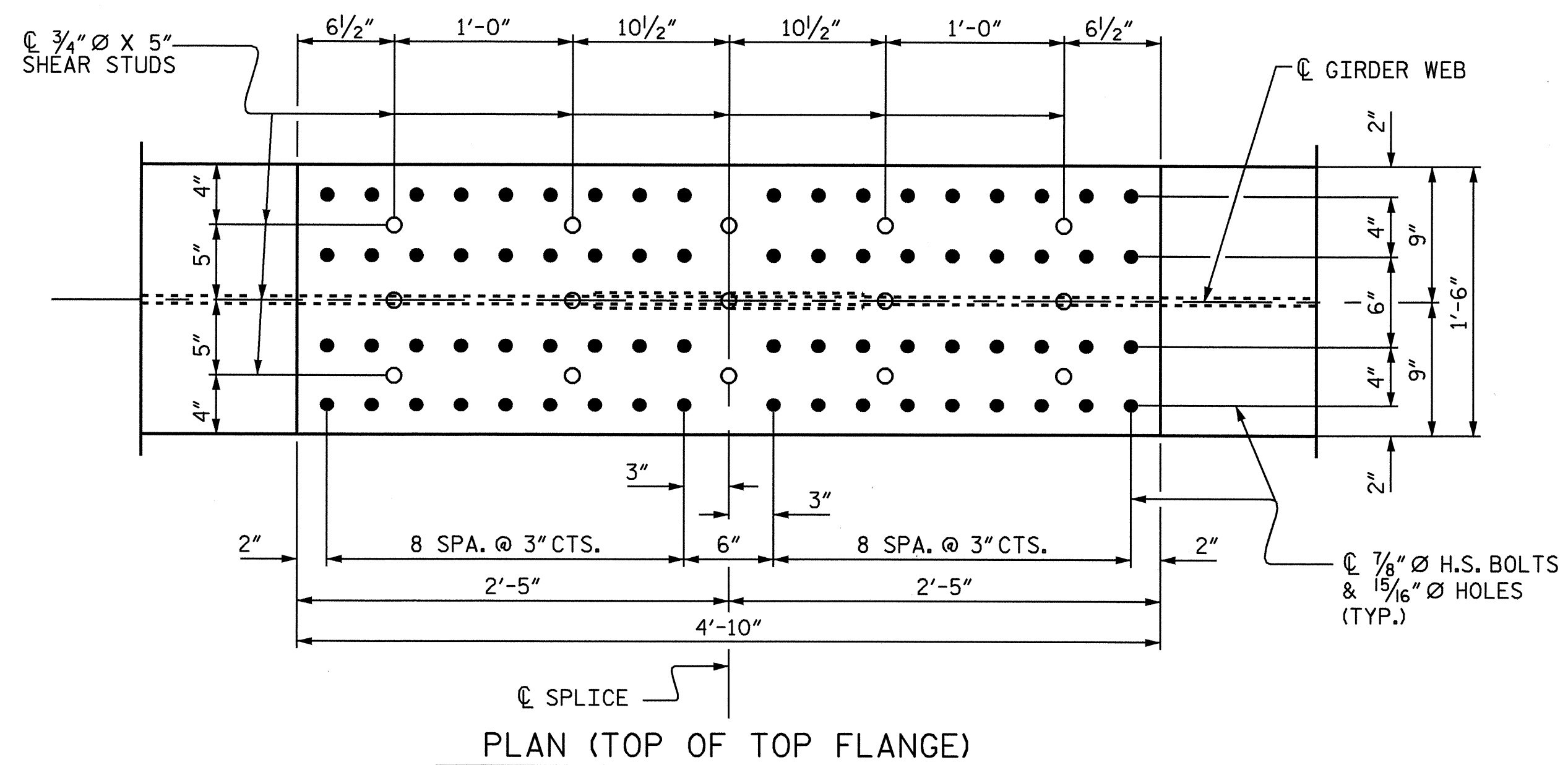
SHEET 3 OF 4

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



REVISIONS						SHEET NO. S-15
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 34
2			4			

DRAWN BY : K. McCAULEY DATE : 9/24/07
CHECKED BY : J. P. ADAMS DATE : 10/18/07



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

PROJECT NO. B-3697
RUTHERFORD COUNTY
 STATION: 16+92.50 -L-
 SHEET 4 OF 4



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.
SUPERSTRUCTURE STRUCTURAL STEEL DETAILS BOLTED FIELD SPLICE DETAILS						S-16
REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	34
1			3			
2			4			

DRAWN BY : K. McCAULEY DATE : 9/24/07
 CHECKED BY : J. P. ADAMS DATE : 10/18/07

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
		SPAN A																				
		GIRDERS 2 & 3																				
TWENTIETH POINTS		0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	↓	0.000	0.006	0.011	0.016	0.020	0.023	0.025	0.026	0.026	0.025	0.023	0.020	0.017	0.013	0.009	0.006	0.003	0.000	-0.001	-0.001	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	↓	0.000	0.019	0.038	0.054	0.068	0.079	0.086	0.090	0.090	0.087	0.079	0.070	0.059	0.046	0.034	0.022	0.011	0.003	0.003	0.004	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	↓	0.000	0.002	0.004	0.006	0.007	0.009	0.009	0.010	0.010	0.009	0.009	0.008	0.006	0.005	0.004	0.002	0.001	0.000	-0.001	-0.001	0.000
TOTAL DEAD LOAD DEFLECTION	↓	0.000	0.027	0.053	0.076	0.095	0.111	0.121	0.126	0.126	0.121	0.111	0.098	0.082	0.064	0.047	0.030	0.015	0.003	0.001	0.002	0.000
REQUIRED CAMBER	↑	0	5/16"	5/8"	15/16"	1/8"	15/16"	17/16"	1/2"	1/2"	17/16"	15/16"	13/16"	1"	3/4"	9/16"	3/8"	3/16"	1/16"	0	0	0

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

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
		SPAN A																				
		GIRDER 1																				
TWENTIETH POINTS		0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	↓	0.000	0.006	0.011	0.016	0.020	0.023	0.025	0.026	0.026	0.025	0.023	0.020	0.017	0.013	0.009	0.006	0.003	0.000	-0.001	-0.001	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	↓	0.000	0.019	0.038	0.054	0.068	0.079	0.086	0.090	0.090	0.086	0.079	0.070	0.059	0.047	0.034	0.022	0.011	0.003	0.003	0.004	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	↓	0.000	0.002	0.004	0.006	0.008	0.009	0.010	0.010	0.010	0.010	0.009	0.008	0.006	0.005	0.004	0.002	0.001	0.000	-0.001	-0.001	0.000
TOTAL DEAD LOAD DEFLECTION	↓	0.000	0.027	0.053	0.076	0.096	0.111	0.121	0.126	0.126	0.121	0.111	0.098	0.082	0.063	0.047	0.030	0.015	0.003	0.001	0.002	0.000
REQUIRED CAMBER	↑	0	5/16"	5/8"	15/16"	1/8"	15/16"	17/16"	1/2"	1/2"	17/16"	15/16"	13/16"	1"	3/4"	9/16"	3/8"	3/16"	1/16"	0	0	0

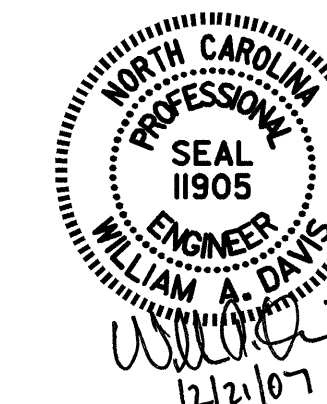
* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
		SPAN A																				
		GIRDER 4																				
TWENTIETH POINTS		0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	↓	0.000	0.006	0.011	0.016	0.020	0.023	0.025	0.026	0.026	0.025	0.023	0.020	0.017	0.013	0.009	0.006	0.003	0.000	-0.001	-0.001	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	↓	0.000	0.019	0.038	0.054	0.067	0.078	0.086	0.089	0.089	0.086	0.079	0.070	0.059	0.046	0.034	0.022	0.011	0.003	0.003	0.004	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	↓	0.000	0.002	0.004	0.006	0.008	0.009	0.010	0.010	0.010	0.010	0.009	0.008	0.006	0.005	0.004	0.002	0.001	0.000	-0.001	-0.001	0.000
TOTAL DEAD LOAD DEFLECTION	↓	0.000	0.027	0.053	0.076	0.095	0.110	0.121	0.125	0.125	0.120	0.111	0.098	0.082	0.064	0.047	0.030	0.015	0.003	0.001	0.002	0.000
REQUIRED CAMBER	↑	0	5/16"	5/8"	15/16"	1/8"	15/16"	17/16"	1/2"	1/2"	17/16"	15/16"	13/16"	1"	3/4"	9/16"	3/8"	3/16"	1/16"	0	0	0

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

PROJECT NO. B-3697
RUTHERFORD COUNTY
STATION: 16+92.50 -L-

SHEET 1 OF 2



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE DEAD LOAD DEFLECTIONS SPAN "A"					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					34

DRAWN BY : K. McCAULEY DATE : 10/1/07
CHECKED BY : J. P. ADAMS DATE : 10/18/07

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
TWENTIETH POINTS	SPAN B																				
	GIRDERS 2 & 3																				
	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER ↓	0.000	0.004	0.010	0.017	0.025	0.034	0.043	0.052	0.059	0.066	0.070	0.073	0.073	0.071	0.067	0.060	0.051	0.040	0.028	0.014	0.000
DEFLECTION DUE TO WEIGHT OF SLAB * ↓	0.000	0.012	0.030	0.053	0.079	0.108	0.136	0.164	0.189	0.211	0.225	0.233	0.234	0.227	0.213	0.192	0.163	0.128	0.089	0.045	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL ↓	0.000	0.002	0.004	0.007	0.010	0.014	0.017	0.021	0.024	0.027	0.028	0.029	0.029	0.028	0.026	0.023	0.020	0.016	0.011	0.006	0.000
TOTAL DEAD LOAD DEFLECTION ↓	0.000	0.018	0.044	0.077	0.114	0.156	0.196	0.237	0.272	0.302	0.323	0.335	0.336	0.326	0.306	0.275	0.234	0.184	0.128	0.065	0.000
REQUIRED CAMBER ↑	0	3/16"	1/2"	5/16"	13/8"	17/8"	23/8"	27/8"	3/4"	35/8"	37/8"	4"	4"	315/16"	311/16"	35/16"	213/16"	23/16"	19/16"	3/4"	0

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

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
TWENTIETH POINTS	SPAN B																				
	GIRDER 1																				
	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER ↓	0.000	0.004	0.010	0.017	0.025	0.034	0.043	0.052	0.059	0.066	0.070	0.073	0.073	0.071	0.067	0.060	0.051	0.040	0.028	0.014	0.000
DEFLECTION DUE TO WEIGHT OF SLAB * ↓	0.000	0.012	0.030	0.053	0.080	0.108	0.137	0.165	0.190	0.210	0.225	0.234	0.235	0.228	0.214	0.192	0.163	0.129	0.089	0.045	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL ↓	0.000	0.002	0.004	0.007	0.011	0.014	0.018	0.021	0.024	0.027	0.028	0.029	0.029	0.028	0.027	0.024	0.020	0.016	0.011	0.006	0.000
TOTAL DEAD LOAD DEFLECTION ↓	0.000	0.018	0.044	0.077	0.116	0.156	0.198	0.238	0.273	0.303	0.323	0.336	0.337	0.327	0.308	0.276	0.234	0.185	0.128	0.065	0.000
REQUIRED CAMBER ↑	0	3/16"	1/2"	5/16"	13/8"	17/8"	21/8"	27/8"	3/4"	35/8"	37/8"	4"	4 1/16"	315/16"	311/16"	35/16"	213/16"	23/16"	19/16"	13/16"	0

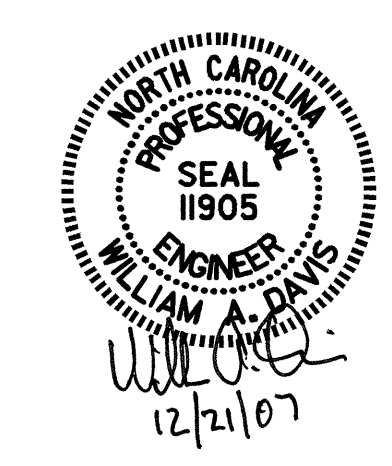
* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
TWENTIETH POINTS	SPAN B																				
	GIRDER 4																				
	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER ↓	0.000	0.004	0.010	0.017	0.025	0.034	0.043	0.052	0.059	0.066	0.070	0.073	0.073	0.071	0.067	0.060	0.051	0.040	0.028	0.014	0.000
DEFLECTION DUE TO WEIGHT OF SLAB * ↓	0.000	0.012	0.030	0.053	0.099	0.107	0.135	0.163	0.188	0.209	0.225	0.232	0.233	0.226	0.212	0.190	0.162	0.128	0.088	0.045	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL ↓	0.000	0.002	0.004	0.007	0.011	0.014	0.018	0.021	0.024	0.027	0.029	0.029	0.029	0.028	0.027	0.024	0.020	0.016	0.011	0.006	0.000
TOTAL DEAD LOAD DEFLECTION ↓	0.000	0.018	0.044	0.077	0.115	0.155	0.196	0.236	0.271	0.302	0.322	0.334	0.335	0.325	0.306	0.274	0.233	0.184	0.127	0.065	0.000
REQUIRED CAMBER ↑	0	3/16"	1/2"	5/16"	13/8"	17/8"	23/8"	213/16"	3/4"	35/8"	37/8"	4"	4"	37/8"	311/16"	35/16"	213/16"	23/16"	1 1/2"	3/4"	0

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

PROJECT NO. B-3697
RUTHERFORD COUNTY
STATION: 16+92.50 -L-

SHEET 2 OF 2

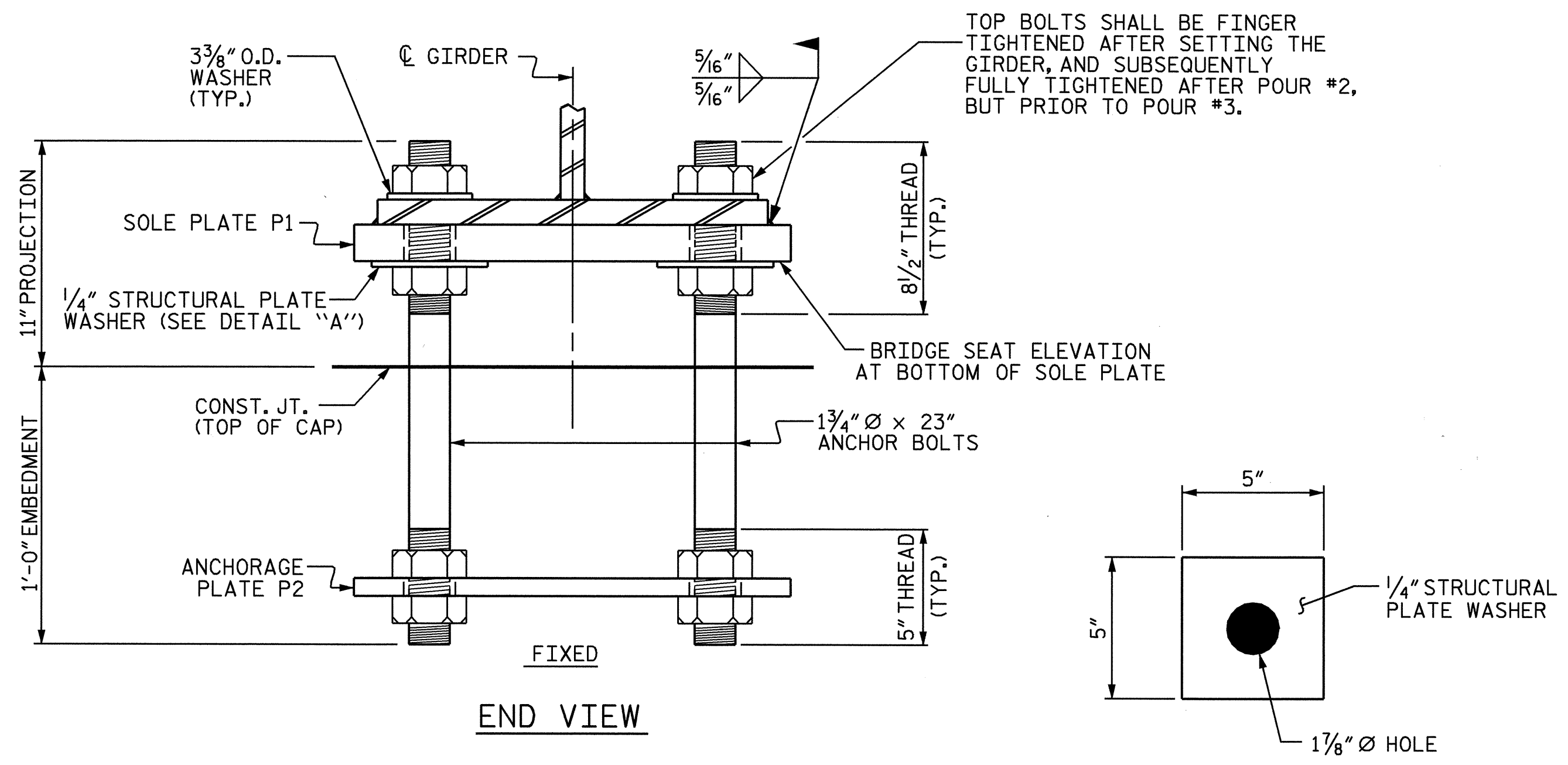


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

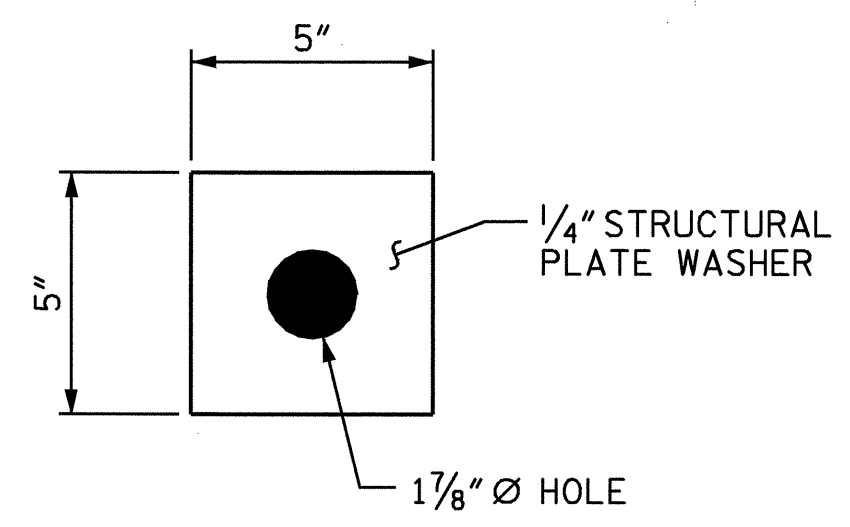
SUPERSTRUCTURE
DEAD LOAD
DEFLECTIONS
SPAN "B"

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			34

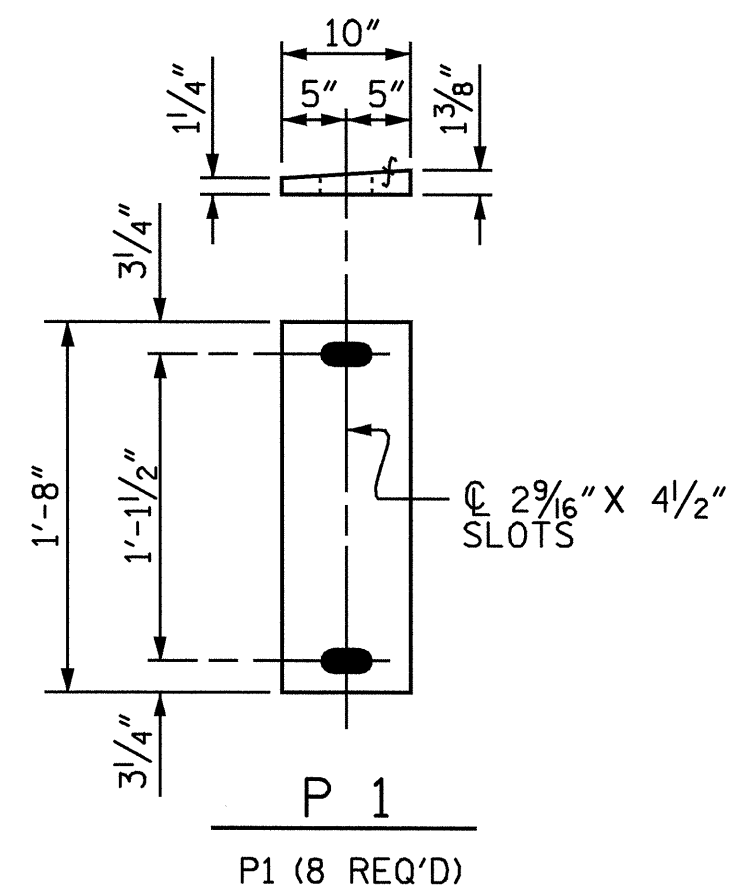
DRAWN BY : K. McCAULEY DATE : 10/1/07
CHECKED BY : J. P. ADAMS DATE : 10/18/07



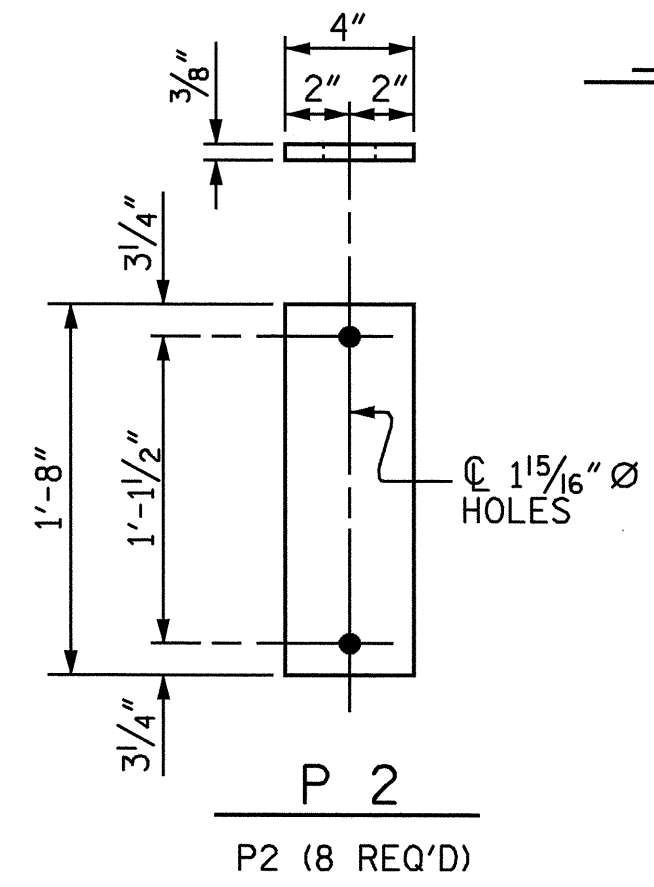
END VIEW



DETAIL "A"



SOLE PLATE DETAILS (P1)



ANCHORAGE PLATE DETAILS (P2)

NOTES

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

FOR AASHTO M270 GRADE 50W STRUCTURAL STEEL, SOLE PLATE 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.

STRUCTURAL PLATE WASHER SHALL BE AASHTO M270 GRADE 50W AND SHALL NOT BE GALVANIZED.

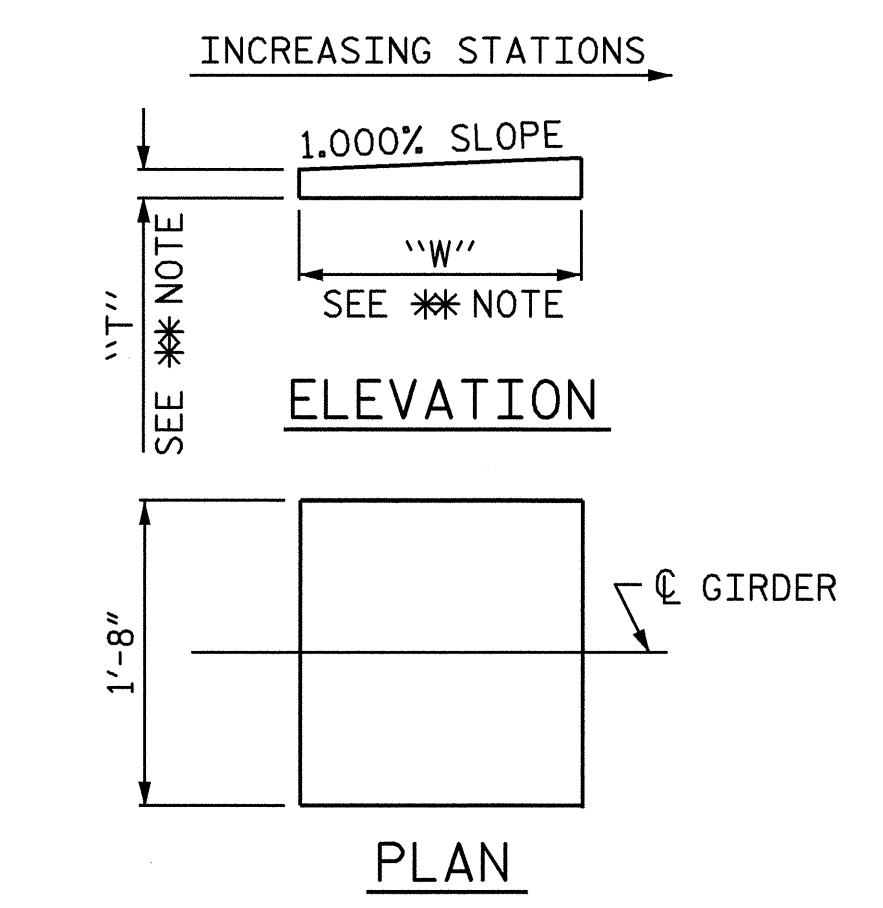
WHEN FIELD WELDING THE SOLE PLATE TO THE GIRDER FLANGE, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F.

CONSTRUCTION SEQUENCE

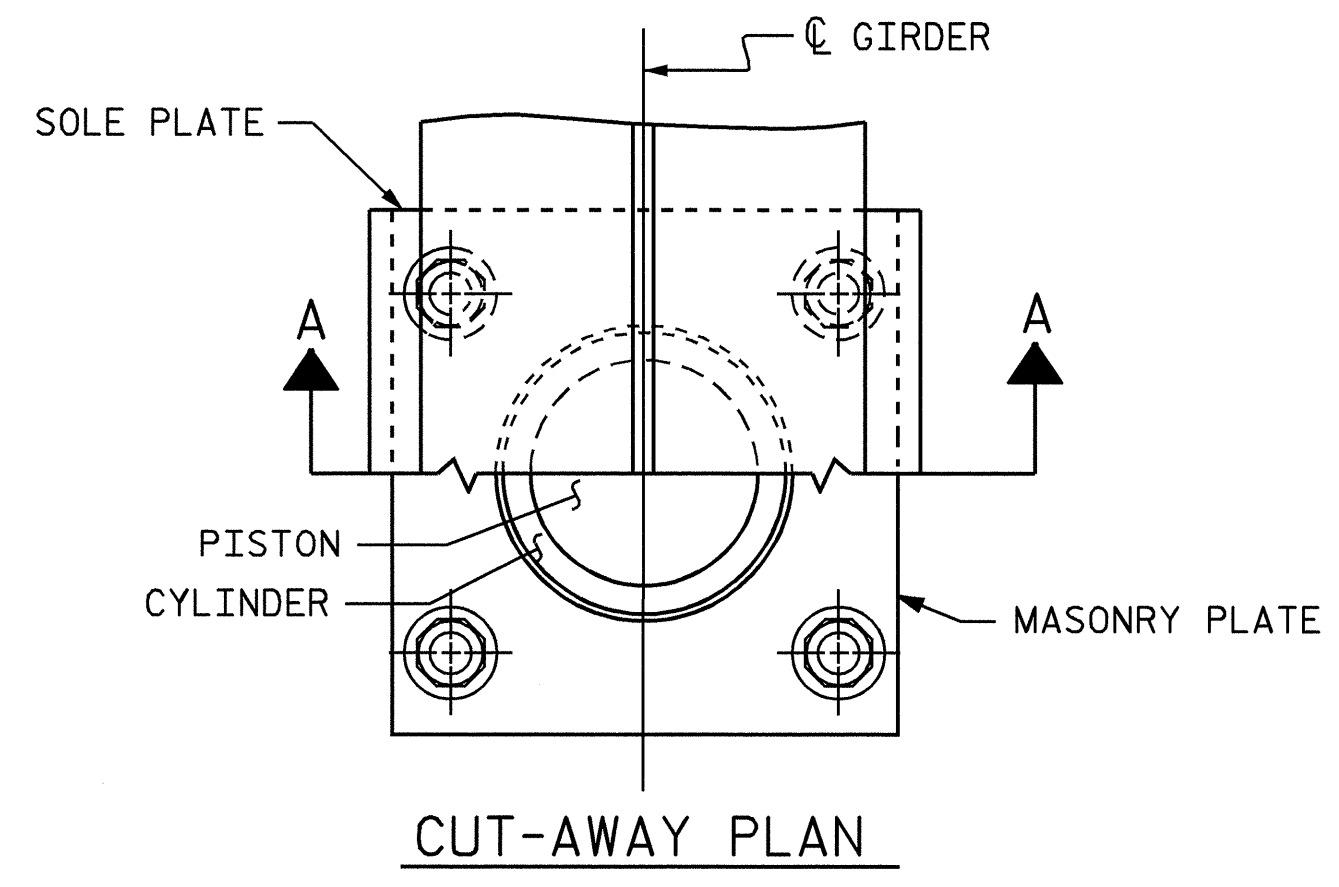
1. DRIVE STEEL PILES FOR END BENT 1 AND END BENT 2. COMPLETE POUR 1 OF END BENTS.
2. ONCE CONCRETE HAS ATTAINED THE REQUIRED STRENGTH, INSTALL NUT, WASHER AND SOLE PLATE ON ANCHOR BOLTS. ERECT GIRDERS AND ALIGN SOLE PLATES WITH HOLES IN FLANGES REGARDLESS OF TEMPERATURE AT TIME OF SETTING. SOLE PLATE SHOULD BE WELDED TO THE GIRDER FLANGE BEFORE FALSEWORK IS PLACED. ADJUST LOWER NUT TO SET GIRDER BEARING AT THE PROPER ELEVATION. INSTALL WASHER AND NUT ON TOP OF FLANGES. LEAVE TOP NUT LOOSE TO ALLOW FOR GIRDER END ROTATION AND TRANSLATION DURING DECK POURING SEQUENCE.
3. POUR BRIDGE DECK IN ACCORDANCE WITH THE POURING SEQUENCE OUTLINED ON THE "SUPERSTRUCTURE BILL OF MATERIAL" SHEET EXCEPT THE FINAL TWO POURS CONTAINING THE ABUTMENT. NOTE THAT THE FINAL TWO POURS CONTAINING THE WINGWALLS AND ABUTMENT ARE PLACED WITH THE FINAL POURS OF THE BRIDGE DECK.
4. TIGHTEN THE TOP NUT 1/4 TURN PAST FINGER TIGHT. COMPLETE FINAL TWO DECK POURS WHICH INCLUDES THE ABUTMENT, DECK AND THE WINGWALLS.
5. PLACE THE REINFORCED BRIDGE APPROACH FILL AND BACKFILL IN LIFTS UNTIL THE DESIRED SUBGRADE ELEVATION IS REACHED. CONSTRUCT SLEEPER SLABS.
6. POUR THE APPROACH SLABS STARTING AT THE END FURTHEST FROM THE BACKWALL AND PROGRESSING TOWARDS THE END BENT. POURS SHALL BE PERFORMED DURING THE MORNING HOURS TO MINIMIZE PLACING THE APPROACH SLAB IN TENSION FROM BRIDGE THERMAL MOVEMENTS.

DRAWN BY : K. MCCAULEY DATE : 10/1/07
 CHECKED BY : J. P. ADAMS DATE : 10/18/07

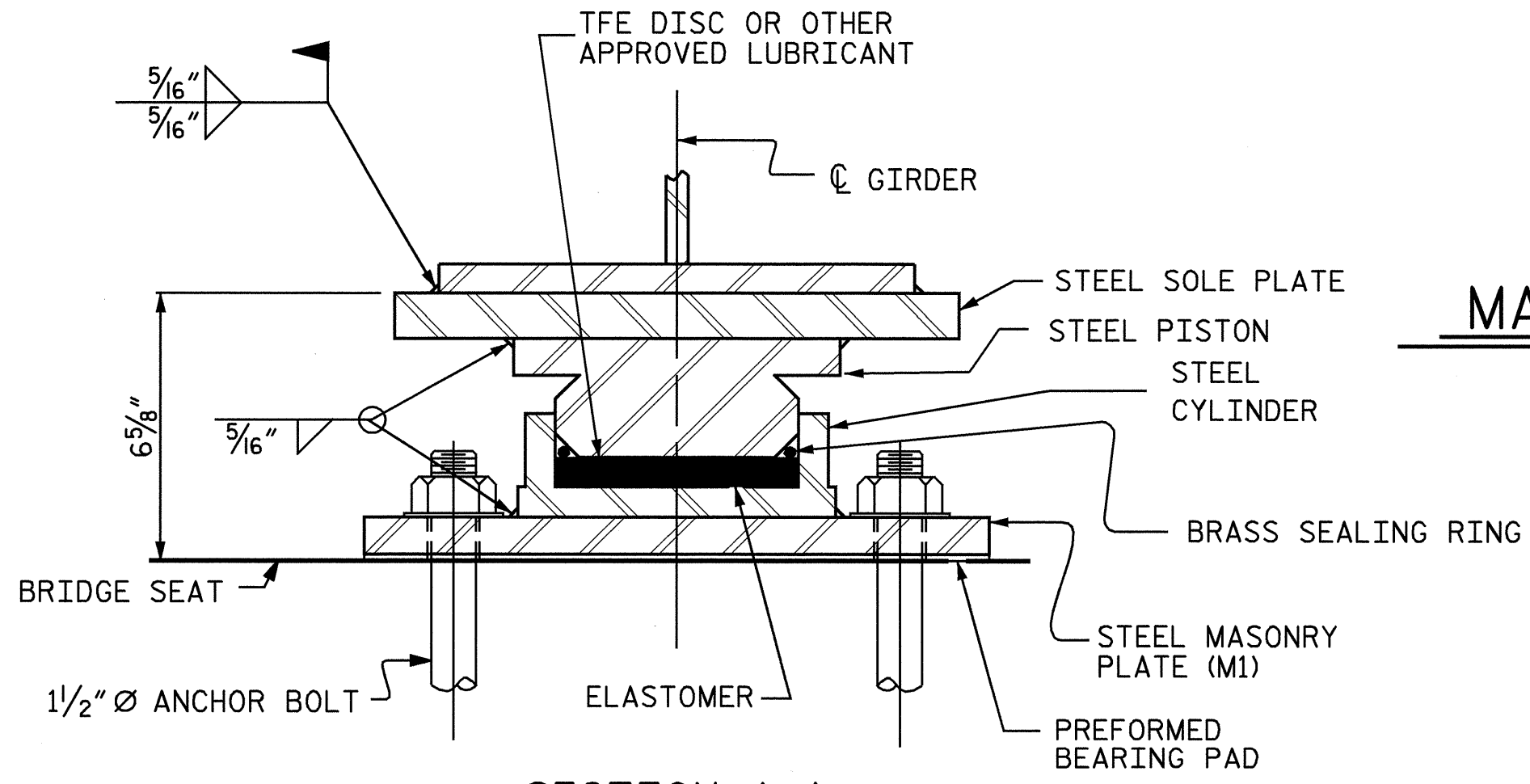
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SOLE PLATE DETAILS



CUT-AWAY PLAN



SECTION A-A

PB1, FIXED
(4 REQ'D.)

POT BEARING DETAILS

NOTES

FOR POT BEARINGS, SEE SPECIAL PROVISIONS.

AT ALL POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS SHALL BE TIGHTENED FINGER TIGHT AND GIVEN AN ADDITIONAL 1/4 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

WHEN WELDING THE SOLE PLATE TO THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE BEARING DOES NOT EXCEED 250°F TEMPERATURES ABOVE THIS MAY DAMAGE THE TFE OR ELASTOMER.

SOLE PLATES SHOULD BE WELDED TO BEAM FLANGES AND ANCHOR BOLTS SHOULD BE GROUTED BEFORE FALSEWORK IS PLACED.

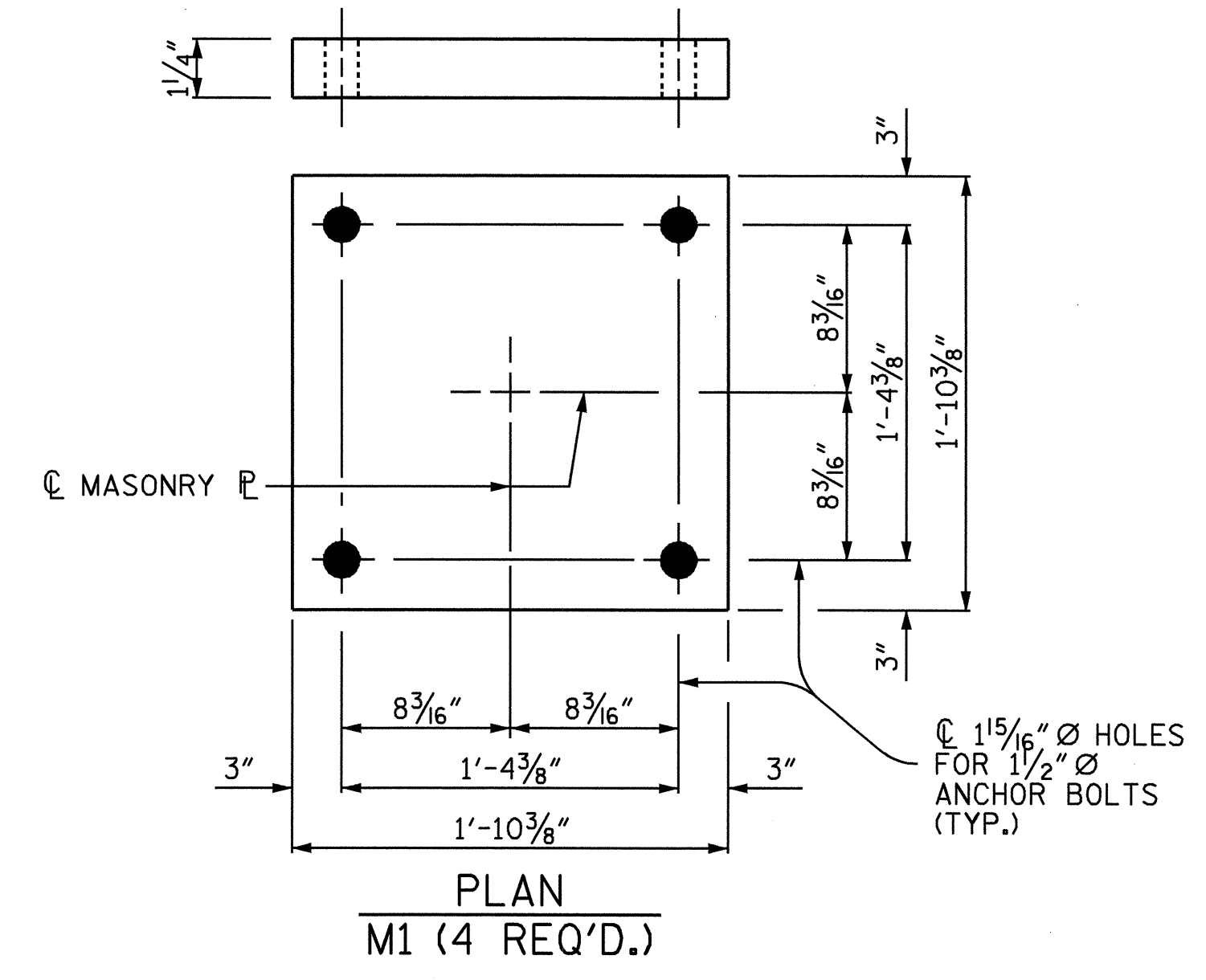
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

THE CONTRACTOR MAY SUBSTITUTE DISC BEARINGS FOR THE POT BEARINGS SHOWN. FOR OPTIONAL DISC BEARINGS, SEE SPECIAL PROVISIONS.

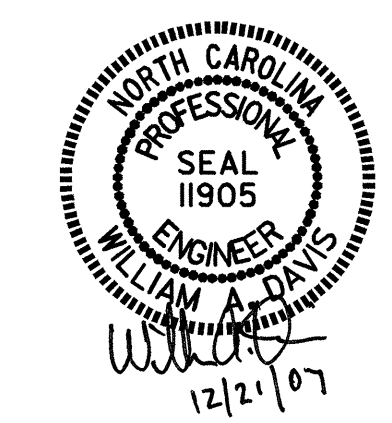
TABLE FOR LOADS

BEARING	LOCATION	VERTICAL LOAD (KIPS)			LATERAL LOAD (KIPS)
		DEAD	LIVE	TOTAL	
PB1 (FIXED)	BENT 1	350	145	495	70



MASONRY PLATE DETAILS

PROJECT NO. B-3697
 RUTHERFORD COUNTY
 STATION: 16+92.50 -L-



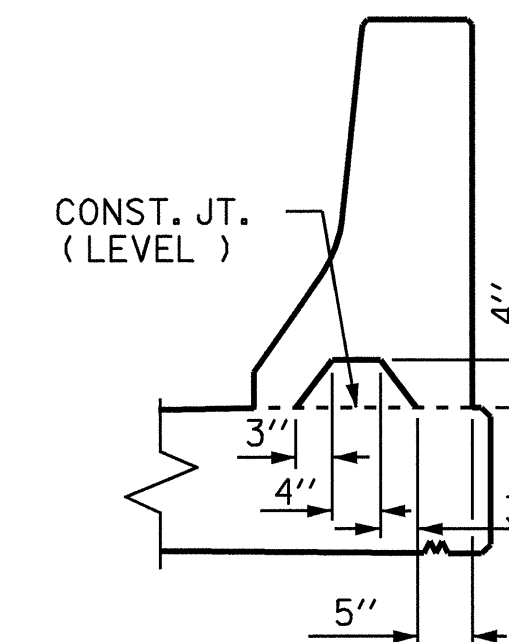
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-19
SUPERSTRUCTURE BEARING DETAILS						
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			34
2			4			

NOTES

THE 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.

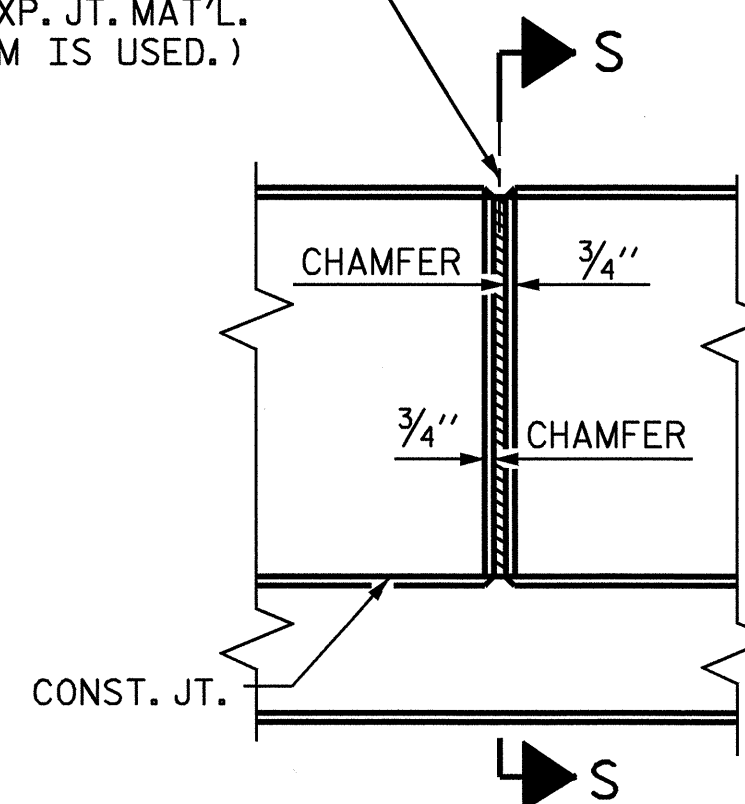
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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.

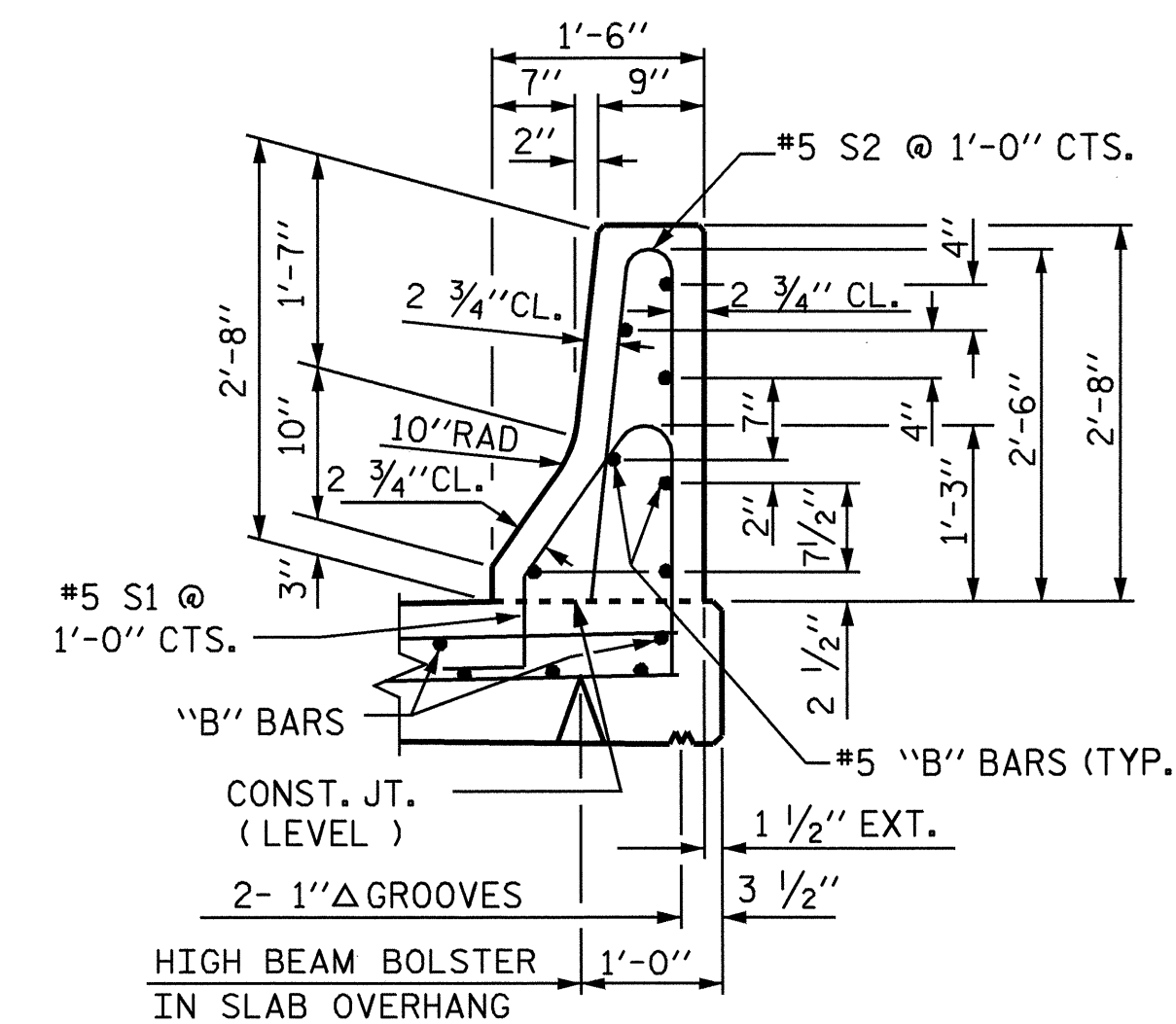


SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY
WHEN SLIP FORM IS USED)

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



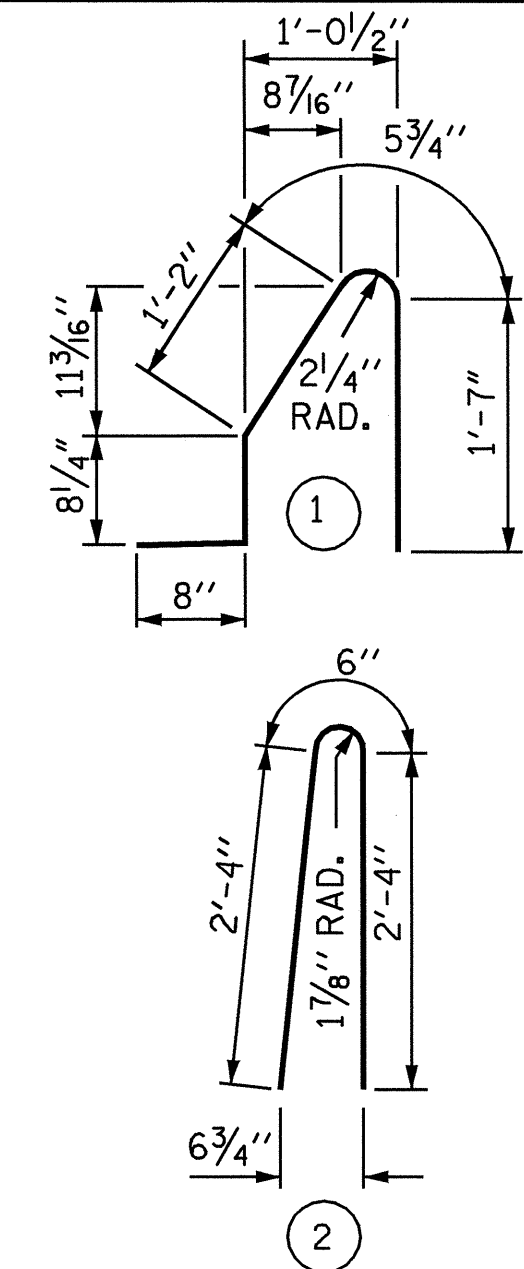
ELEVATION AT EXPANSION JOINTS



SECTION THRU RAIL

BARRIER RAIL DETAILS

BAR TYPES



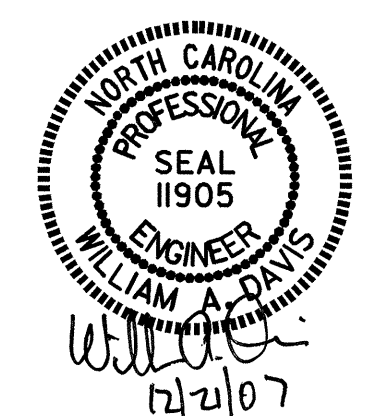
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	28	#5	STR	8'-10"	258
* B2	182	#5	STR	19'-7"	3717
* S1	558	#5	1	4'-7"	2667
* S2	558	#5	2	5'-2"	3007

* EPOXY COATED REINFORCING STEEL	9649 LBS.
CLASS AA CONCRETE	55.9 CU. YDS.
CONCRETE BARRIER RAIL	556.73 LIN. FT.



PROJECT NO. B-3697
RUTHERFORD COUNTY
STATION: 16+92.50 -L-

SHEET 2 OF 2

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

ASSEMBLED BY : K. MCCAULEY	DATE : 10/1/07
CHECKED BY : J. P. ADAMS	DATE : 10/18/07
DRAWN BY : ARB 5/87	REV. 10/17/00 RWW/LES
CHECKED BY : SJD 9/87	REV. 5/7/03R RWW/JTE
	REV. 5/1/06 TLA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS
2			4			34

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.)

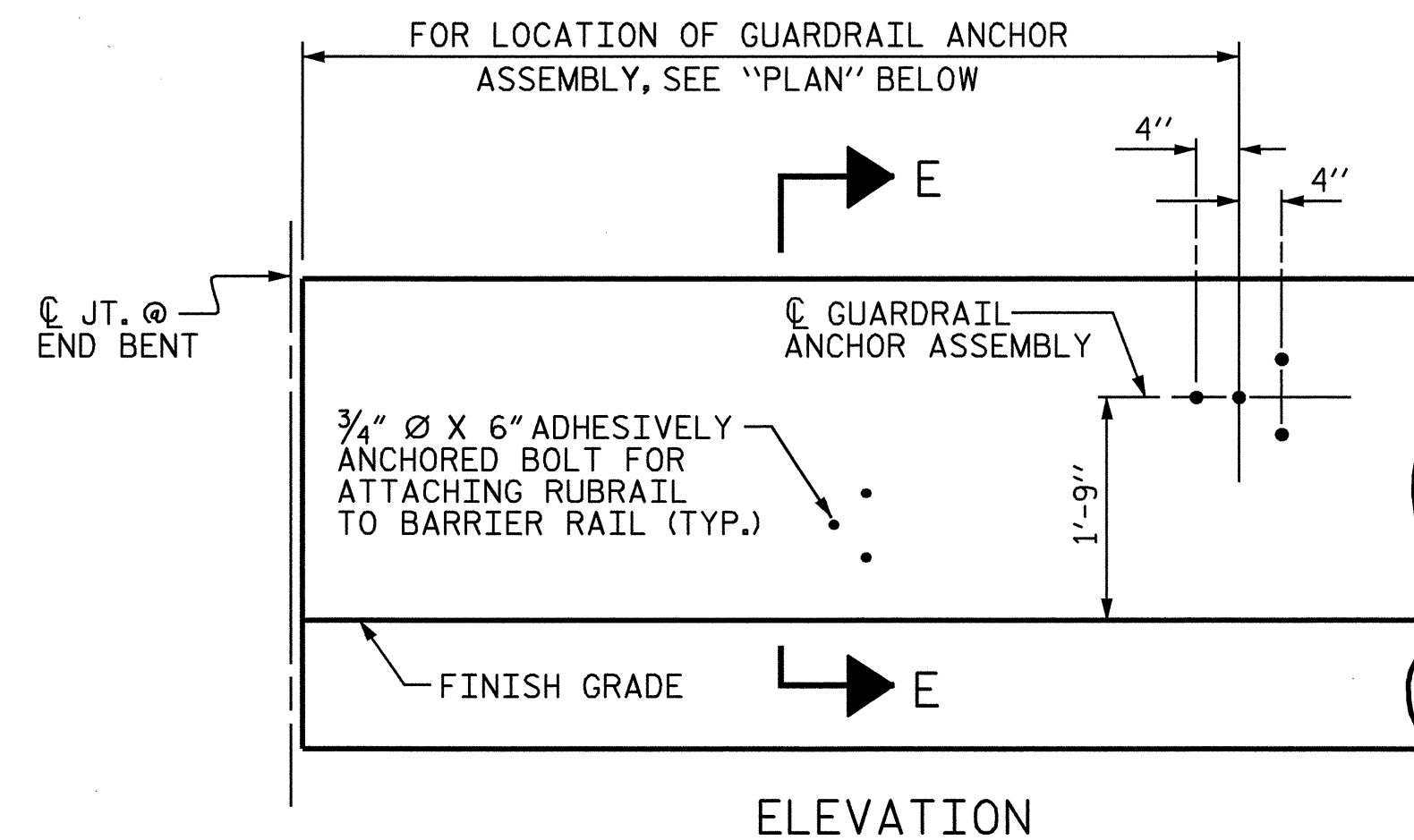
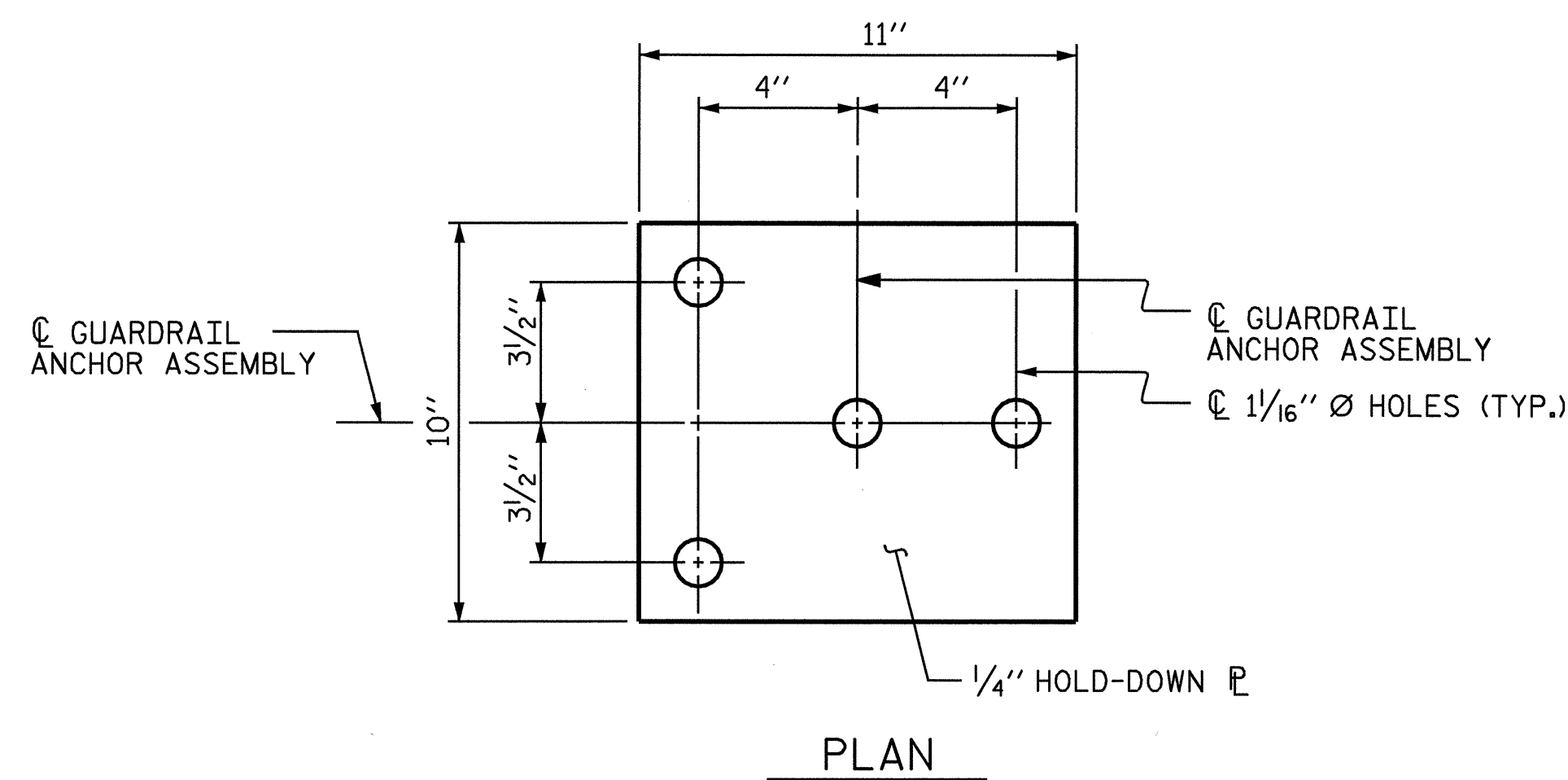
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

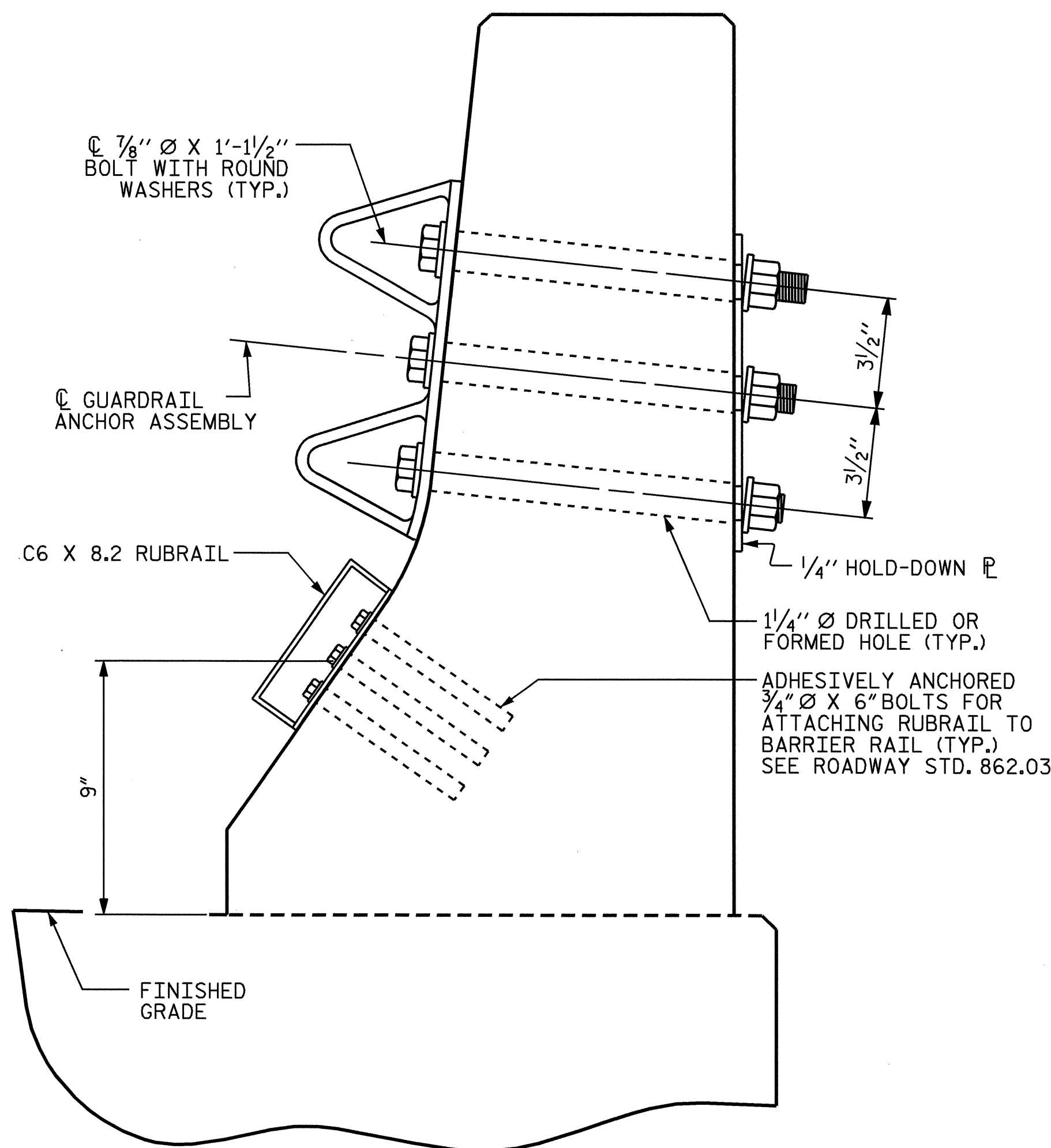
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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.

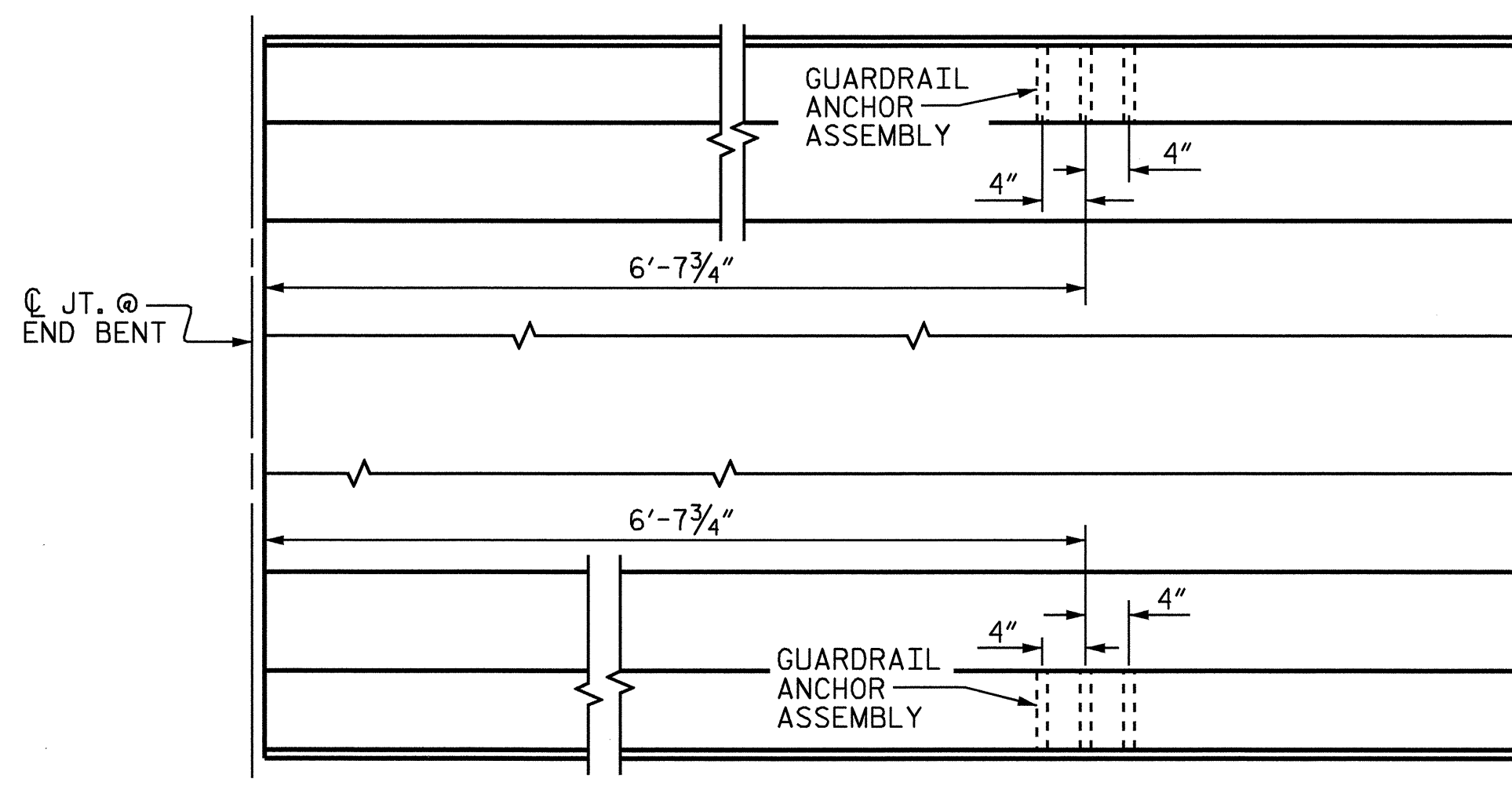
THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS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



FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03

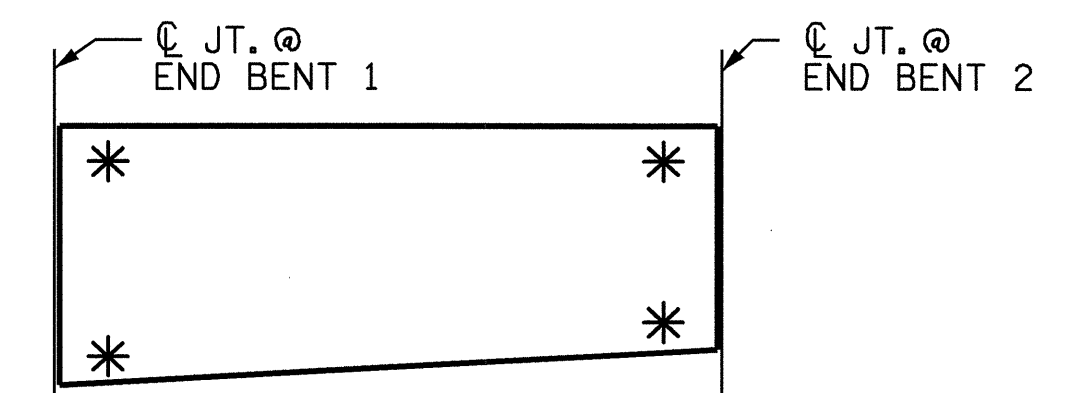


GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

END BENT 1 SHOWN, END BENT 2 SIMILAR.



* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-3697
RUTHERFORD COUNTY
 STATION: 16+92.50 -L-



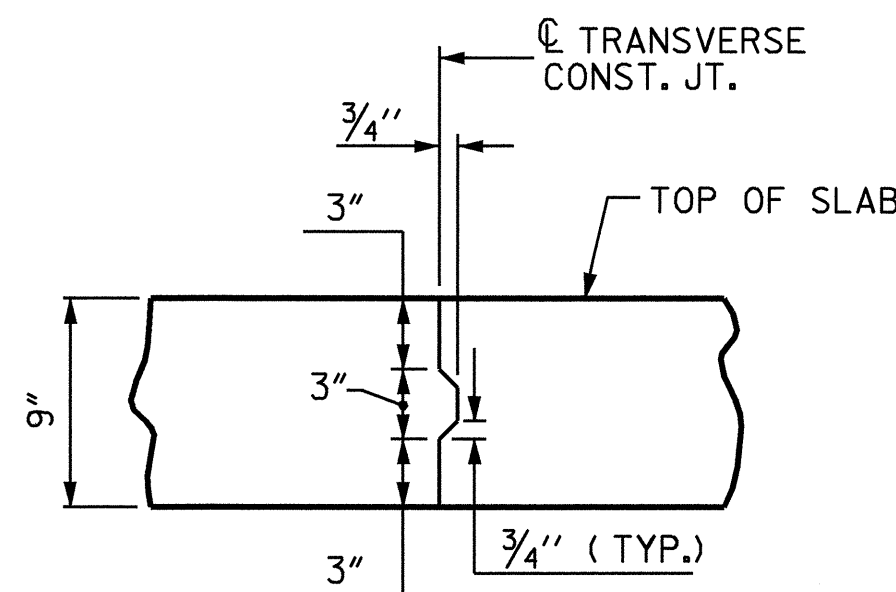
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 FOR BARRIER RAIL

ASSEMBLED BY : K. McCAULEY DATE : 10/7/07
 CHECKED BY : J. P. ADAMS DATE : 10/18/07
 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:	S-22
1			3			TOTAL SHEETS
2			4			34

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

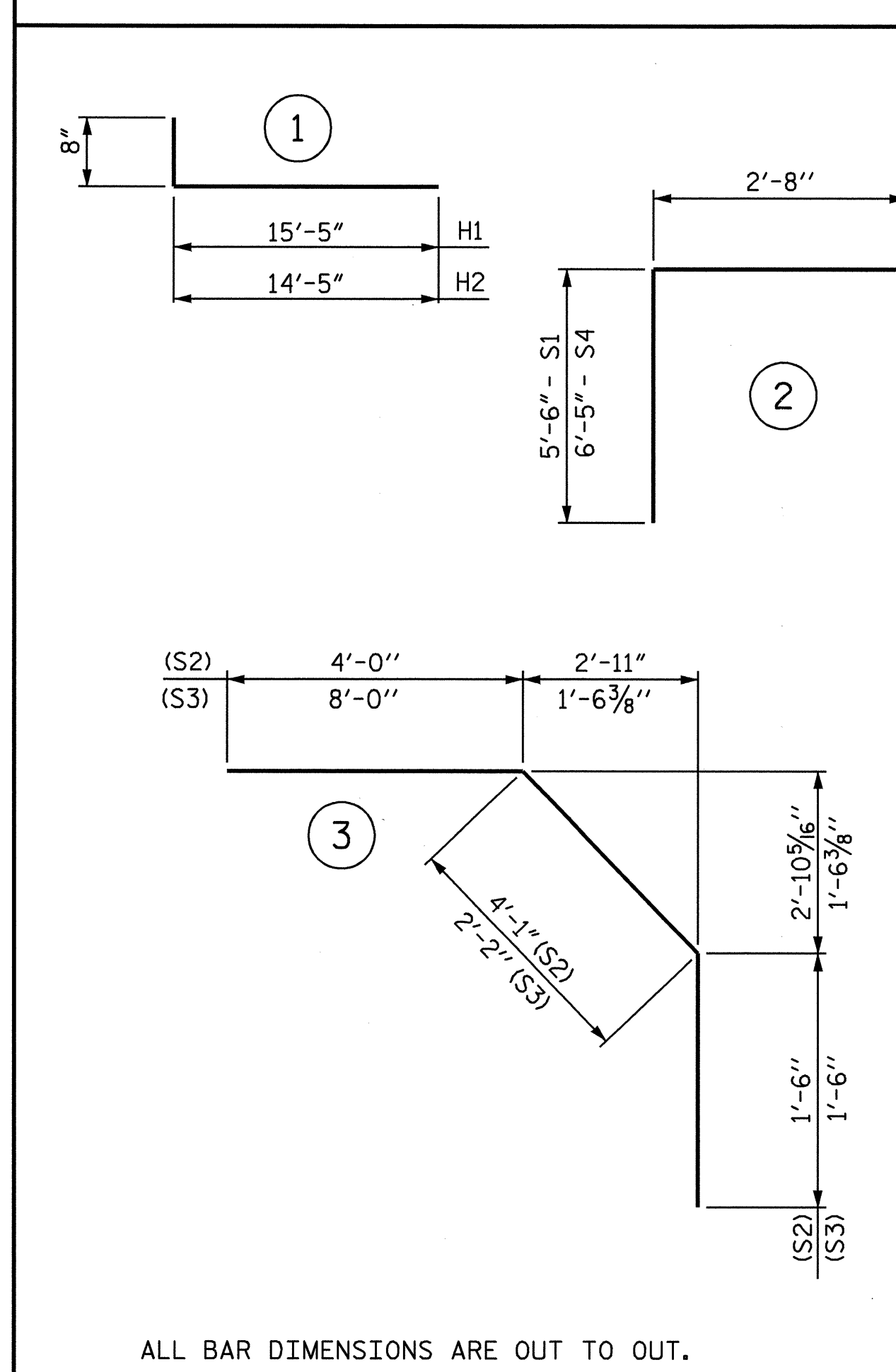
BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	2'-0"	1'-9"	2'-0"	1'-9"	2'-9"
#5	2'-6"	2'-2"	2'-6"	2'-2"	3'-5"
#6	3'-0"	2'-7"	3'-10"	2'-7"	4'-4"
#7	5'-3"	3'-6"			
#8	6'-10"	4'-7"			



TRANSVERSE CONSTRUCTION JOINT DETAIL

NOTE: REINFORCING STEEL IN SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THRU JOINT

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

REINFORCING BAR SCHEDULE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A100	10	5	STR	36'-9"	383	A205	20	5	STR	35'-8"	744	H1	32	5	1	16'-1"	537
* A101	20	5	STR	36'-7"	763	A206	20	5	STR	35'-6"	741	H2	36	5	1	15'-1"	566
* A102	20	5	STR	36'-4"	758	A207	20	5	STR	35'-3"	735						
* A103	20	5	STR	36'-1"	753	A208	20	5	STR	35'-1"	732	K1	56	4	STR	22'-4"	835
* A104	20	5	STR	35'-11"	749	A209	20	5	STR	34'-10"	727	K2	8	4	STR	3'-5"	18
* A105	20	5	STR	35'-8"	744	A210	20	5	STR	34'-7"	721						
* A106	20	5	STR	35'-6"	741	A211	20	5	STR	34'-5"	718	* S1	60	4	2	13'-8"	548
* A107	20	5	STR	35'-3"	735	A212	20	5	STR	34'-2"	713	* S2	56	4	3	9'-7"	358
* A108	20	5	STR	35'-1"	732	A213	20	5	STR	34'-0"	709	* S3	60	4	3	11'-8"	468
* A109	20	5	STR	34'-10"	727	A214	20	5	STR	33'-9"	704	* S4	12	4	2	15'-6"	124
* A110	20	5	STR	34'-7"	721	A215	20	5	STR	33'-7"	701						
* A111	20	5	STR	34'-5"	718	A216	20	5	STR	33'-4"	695	V2	29	5	STR	6'-6"	197
* A112	20	5	STR	34'-2"	713	A217	20	5	STR	33'-1"	690	V3	27	5	STR	6'-8"	188
* A113	20	5	STR	34'-0"	709	A218	20	5	STR	32'-11"	687	V4	29	5	STR	6'-7"	199
* A114	20	5	STR	33'-9"	704	A219	20	5	STR	32'-8"	681	V5	27	5	STR	6'-9"	190
* A115	20	5	STR	33'-7"	701	A220	20	5	STR	32'-6"	678						
* A116	20	5	STR	33'-4"	695	A221	20	5	STR	32'-3"	673						
* A117	20	5	STR	33'-1"	690	A222	20	5	STR	32'-1"	669						
* A118	20	5	STR	32'-11"	687	A223	20	5	STR	31'-10"	664	REINFORCING STEEL (LBS.)					35531
* A119	20	5	STR	32'-8"	681	A224	20	5	STR	31'-7"	659	* EPOXY COATED REINFORCING					
* A120	20	5	STR	32'-6"	678	A225	20	5	STR	31'-5"	655	STEEL (LBS.)					39780
* A121	20	5	STR	32'-3"	673	A226	20	5	STR	31'-2"	650						
* A122	20	5	STR	32'-1"	669	A227	20	5	STR	31'-0"	647						
* A123	20	5	STR	31'-10"	664	A228	7	5	STR	30'-11"	226						
* A124	20	5	STR	31'-7"	659												
* A125	20	5	STR	31'-5"	655	* B1	47	7	STR	26'-0"	2498						
* A126	20	5	STR	31'-2"	650	* B2	48	4	STR	27'-7"	884						
* A127	20	5	STR	31'-0"	647	* B3	72	7	STR	38'-5"	5654						
* A128	7	5	STR	30'-11"	226	* B4	69	7	STR	34'-8"	4889						
						* B5	72	4	STR	25'-6"	1226						
A200	10	5	STR	36'-9"	383	* B6	47	7	STR	30'-0"	2882						
A201	20	5	STR	36'-7"	763	B7	220	5	STR	57'-5"	13175						
A202	20	5	STR	36'-4"	758	* B8	10	5	STR	59'-10"	624						
A203	20	5	STR	36'-1"	753												
A204	20	5	STR	35'-11"	749												

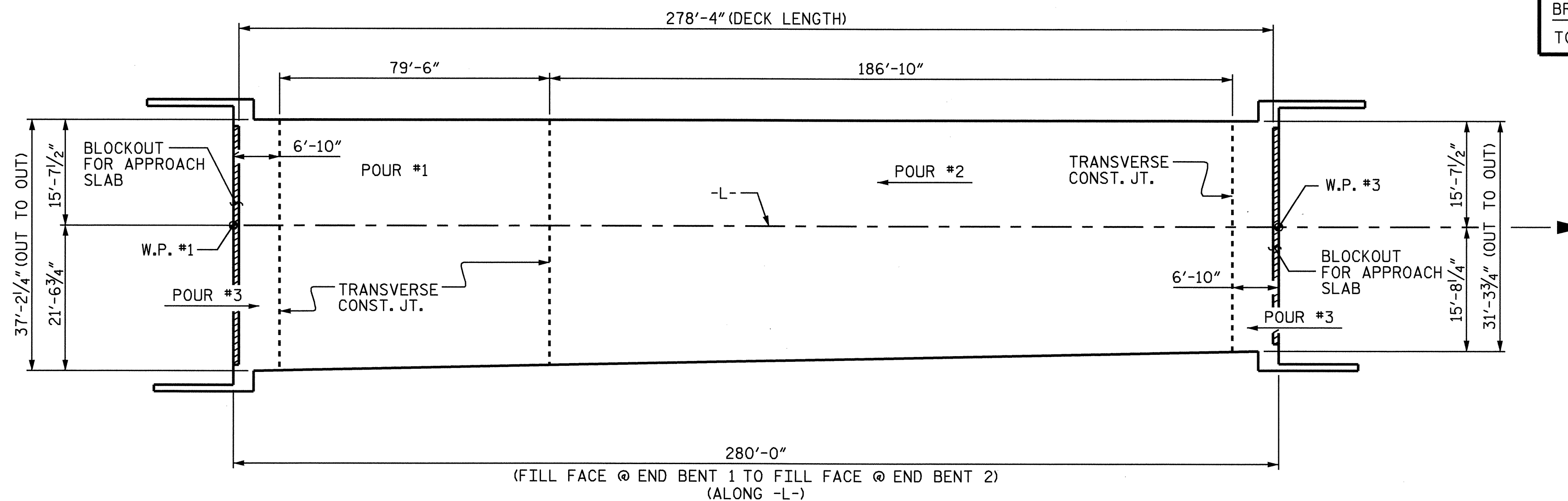
SUPERSTRUCTURE BILL OF MATERIAL

	CLASS AA CONCRETE (CU. YD.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
POUR #1	89.3	35531	39780
POUR #2	209.8		
POUR #3	79.9		
TOTALS **	379.0	35531	39780

**QUANTITIES FOR CONCRETE BARRIER RAIL ARE NOT INCLUDED.

GROOVING BRIDGE FLOORS

APPROACH SLAB	713 SQ. FT.
BRIDGE DECK	7784 SQ. FT.
TOTAL	8497 SQ. FT.



LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB
(SQ. FT. = 9533)

DRAWN BY : K. McCAULEY DATE : 10/1/07
CHECKED BY : J. P. ADAMS DATE : 10/18/07

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PROJECT NO. B-3697
RUTHERFORD COUNTY
STATION: 16+92.50 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE BILL OF MATERIAL					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 34

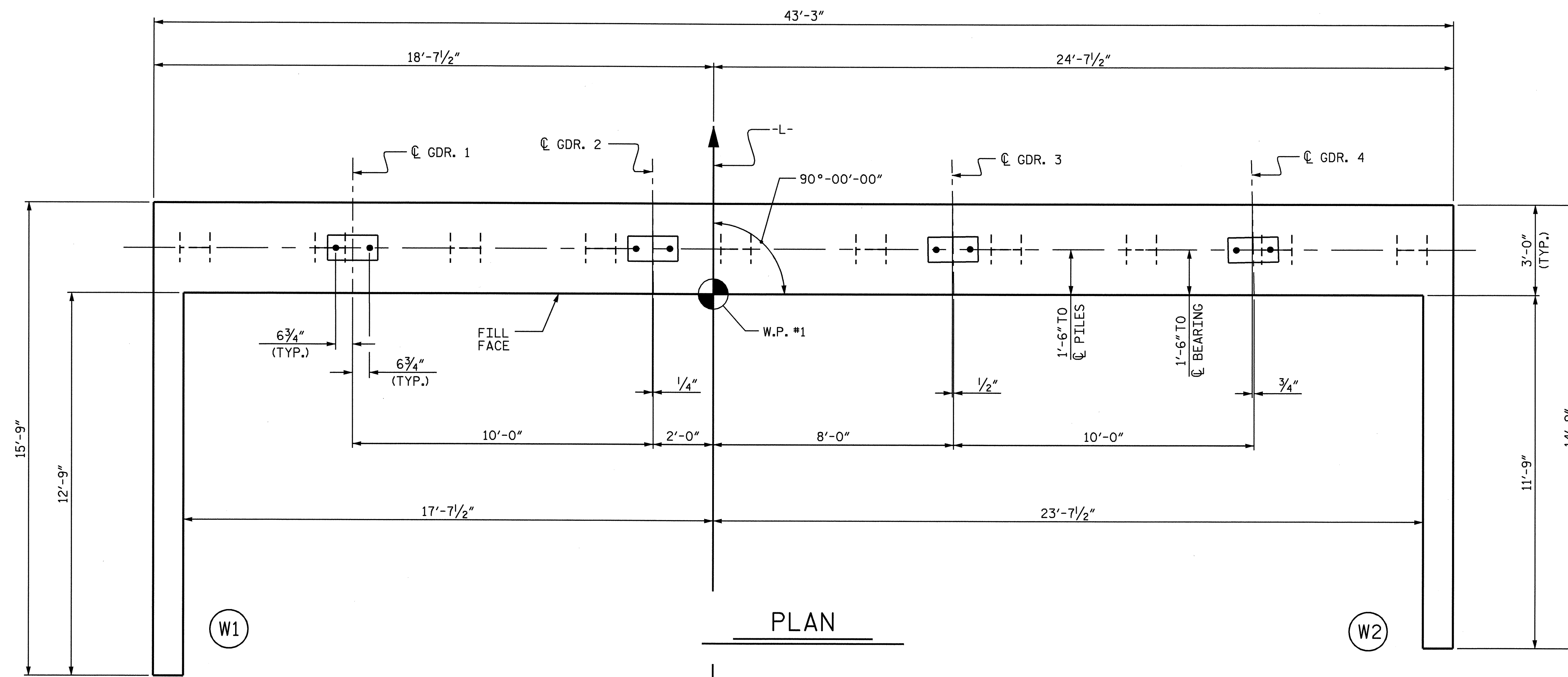
NOTES

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

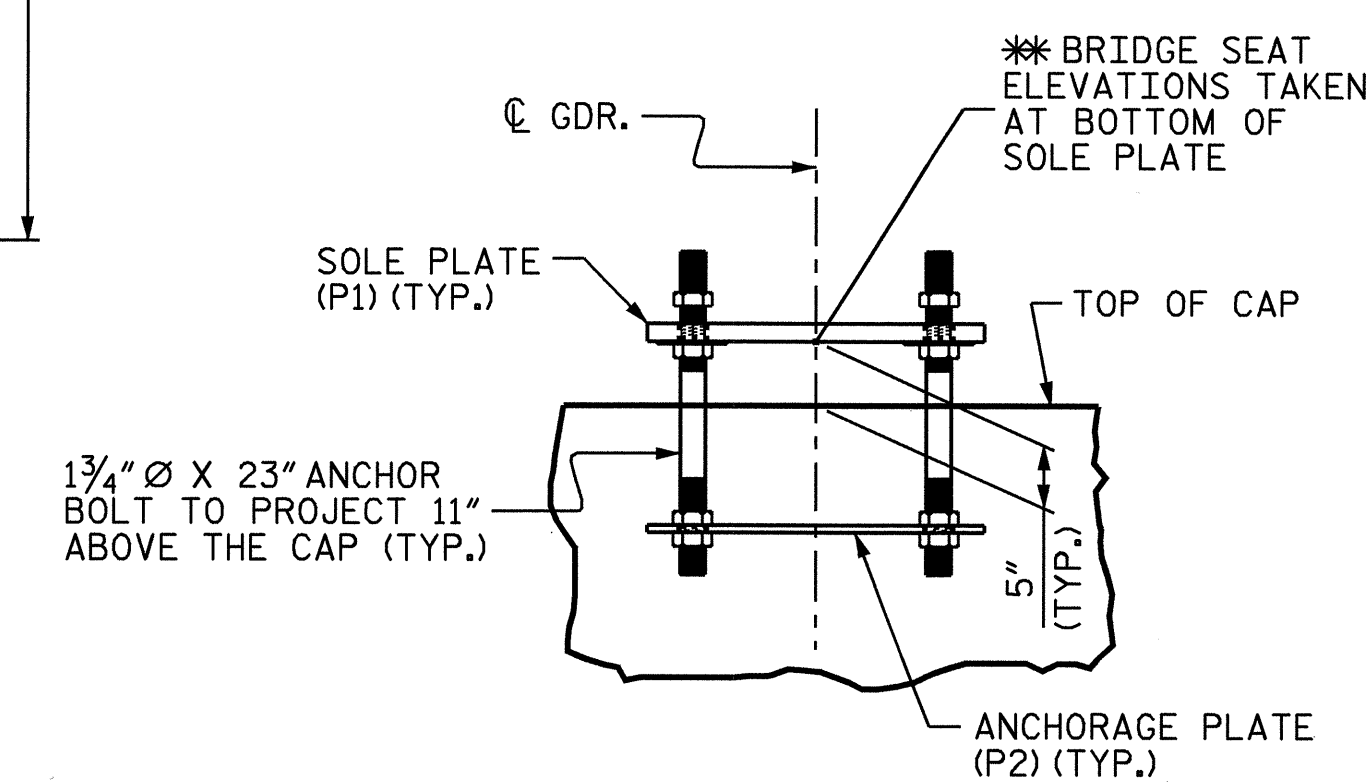
FOR PILE SPLICE DETAILS SEE, SHEET 3 OF 3.

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.

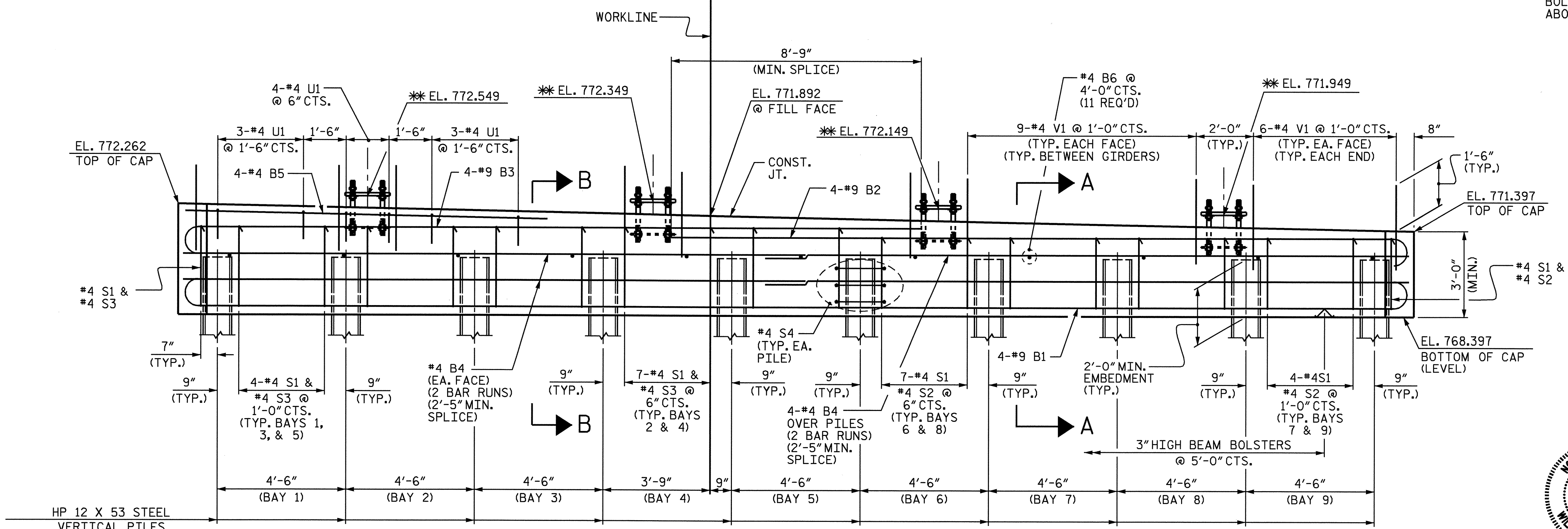
SEE SUPERSTRUCTURE SHEETS FOR THE ABUTMENT DETAILS.



PLAN



ANCHORAGE DETAILS



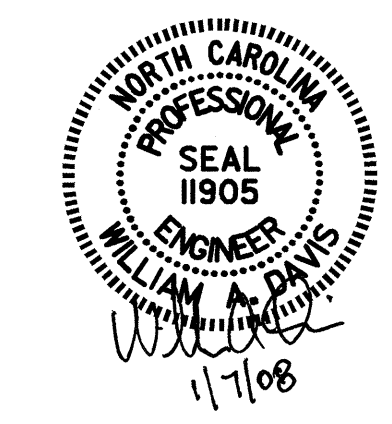
ELEVATION

PROJECT NO. B-3697
RUTHERFORD COUNTY
 STATION: 16+92.50 -L-

SHEET 1 OF 3

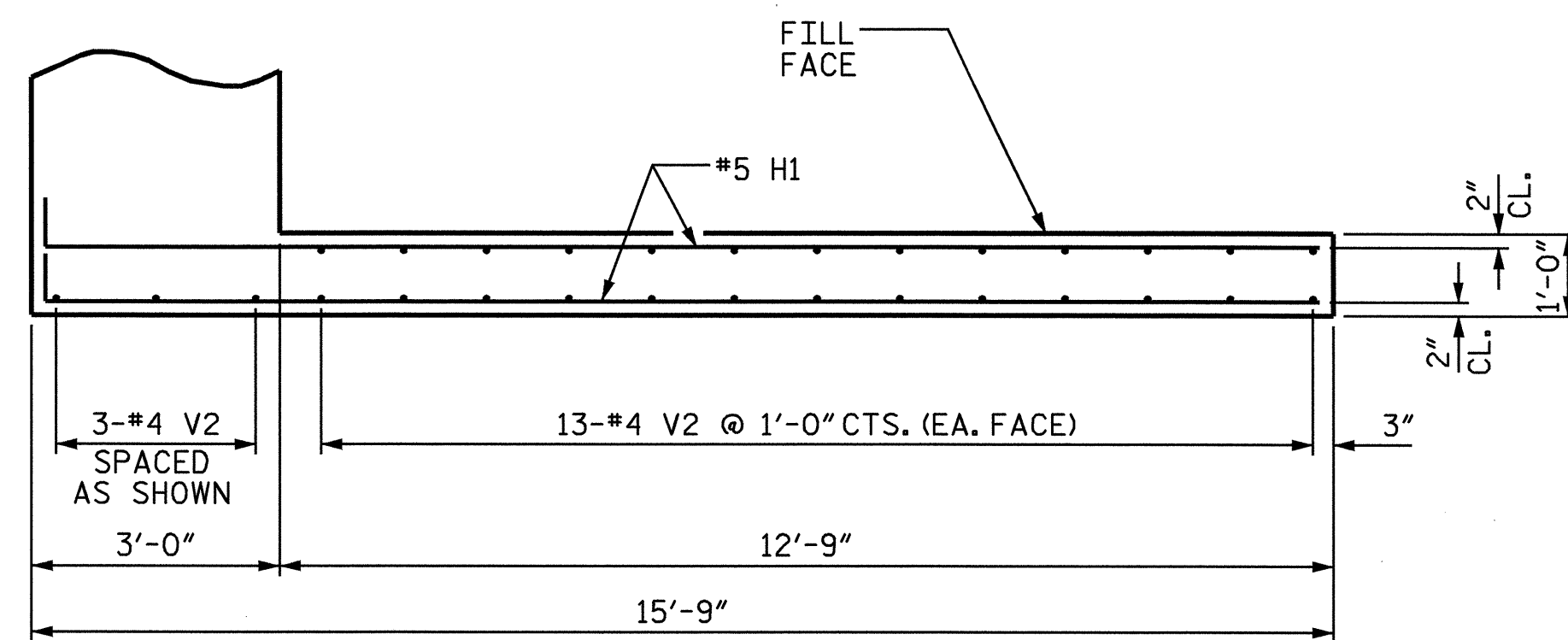
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 1
 INTEGRAL

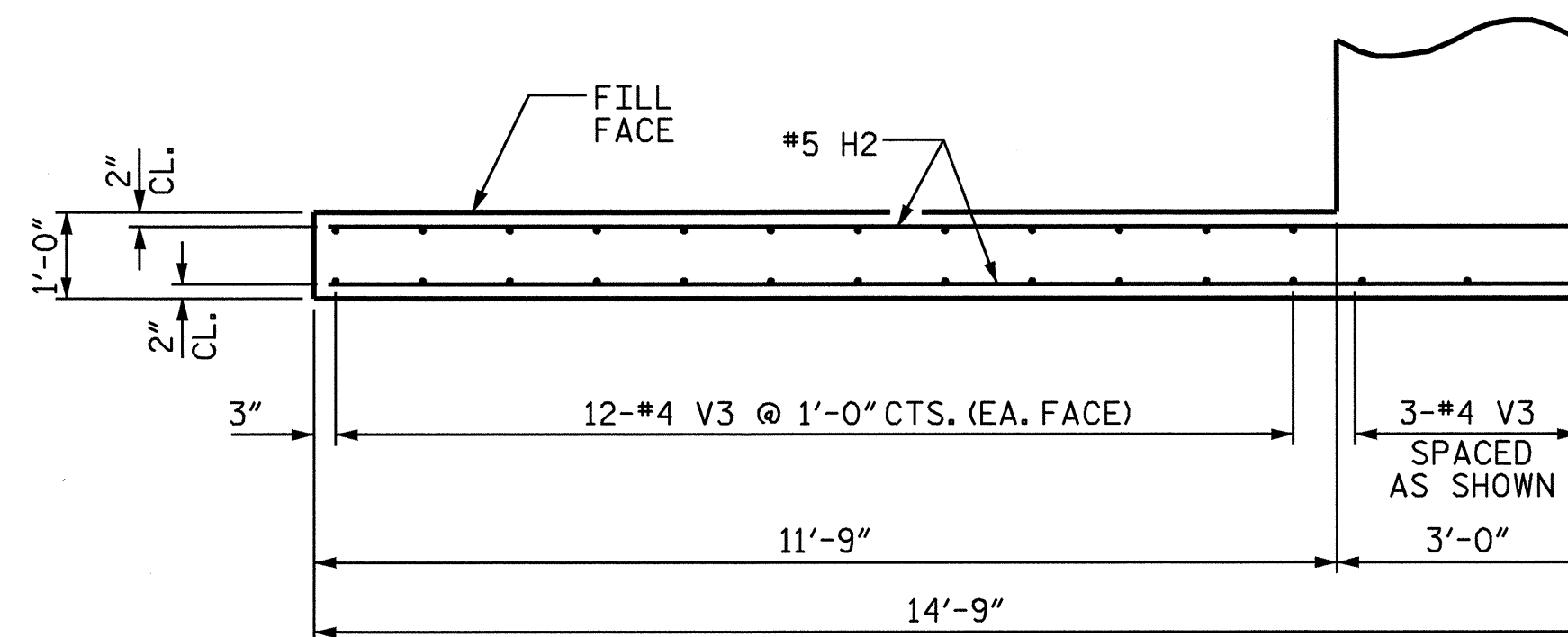


DRAWN BY : K. McCAULEY DATE : 10/9/07
 CHECKED BY : J. P. ADAMS DATE : 10/17/07

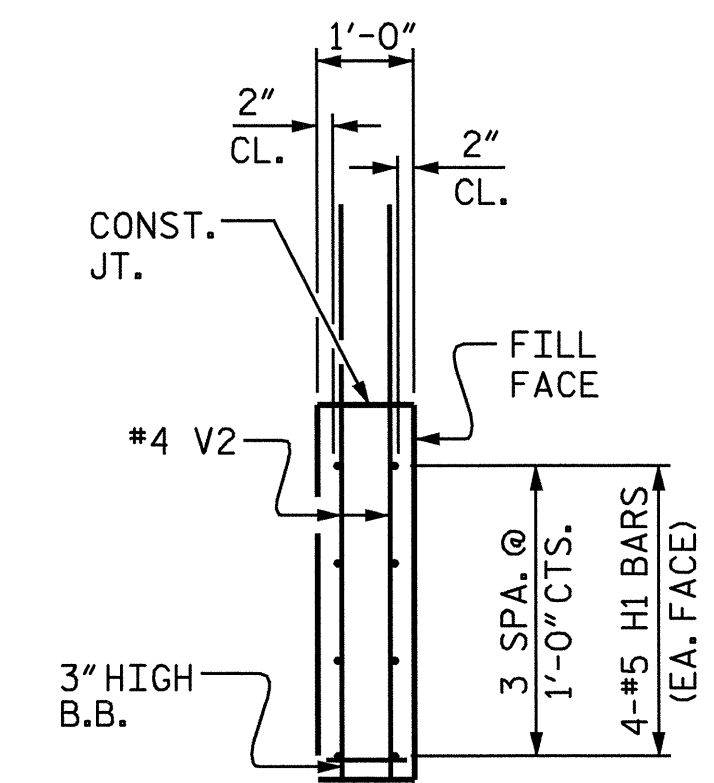
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24
1			3			TOTAL SHEETS
2			4			34



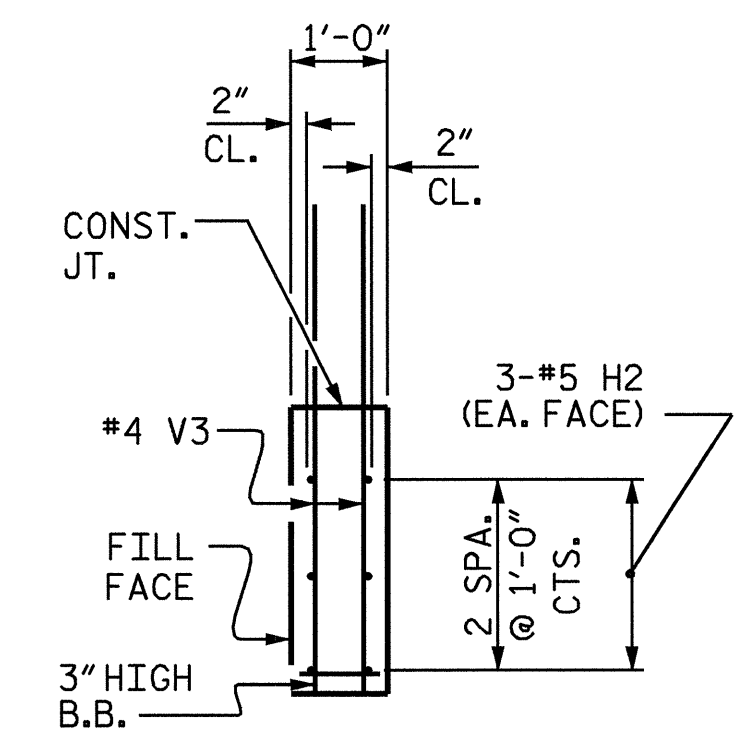
PLAN OF WING W1



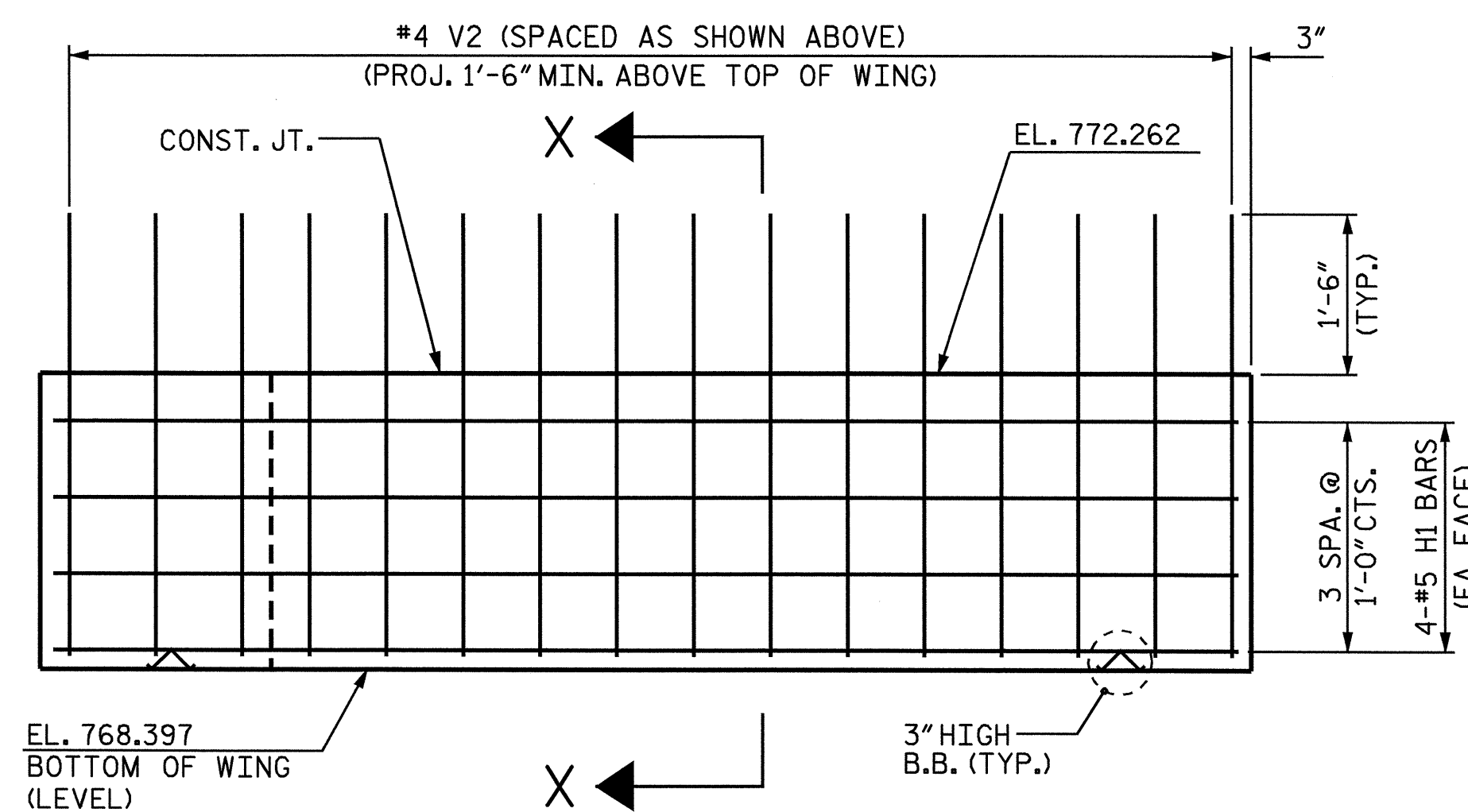
PLAN OF WING W2



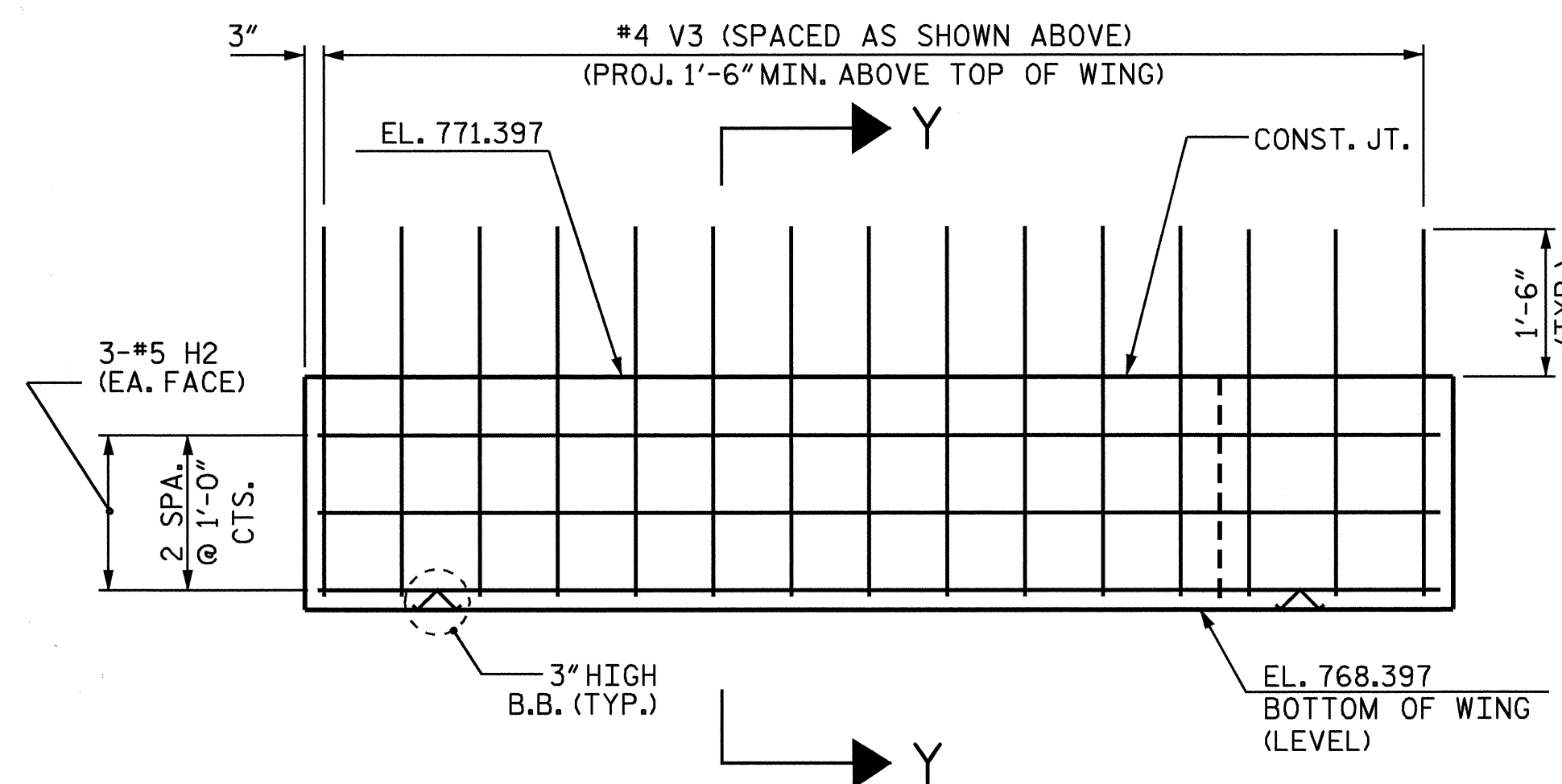
SECTION X-X



SECTION Y-Y



ELEVATION OF WING W1



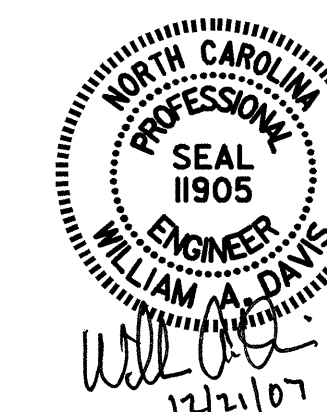
ELEVATION OF WING W2

PROJECT NO. B-3697
RUTHERFORD COUNTY
 STATION: 16+92.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

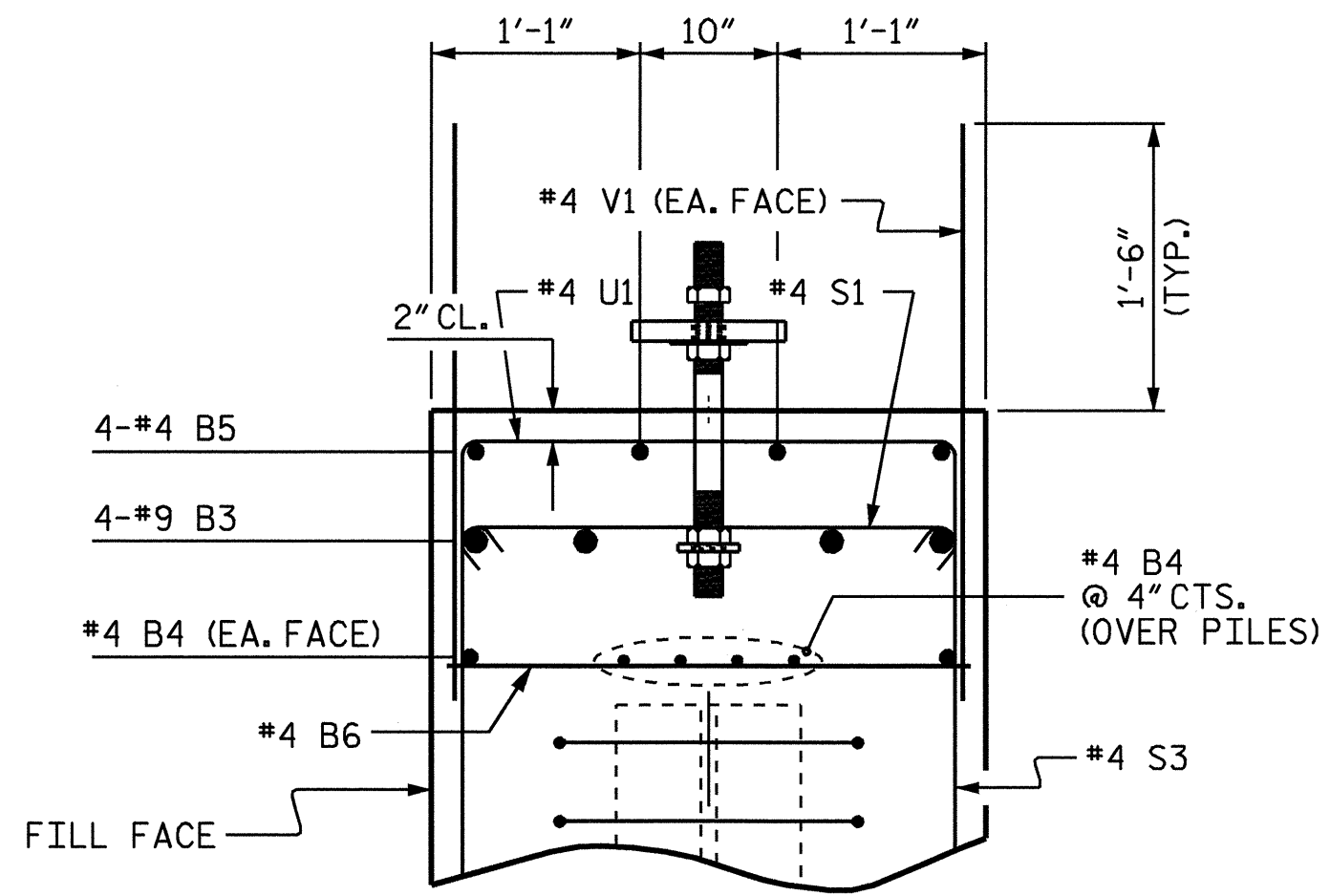
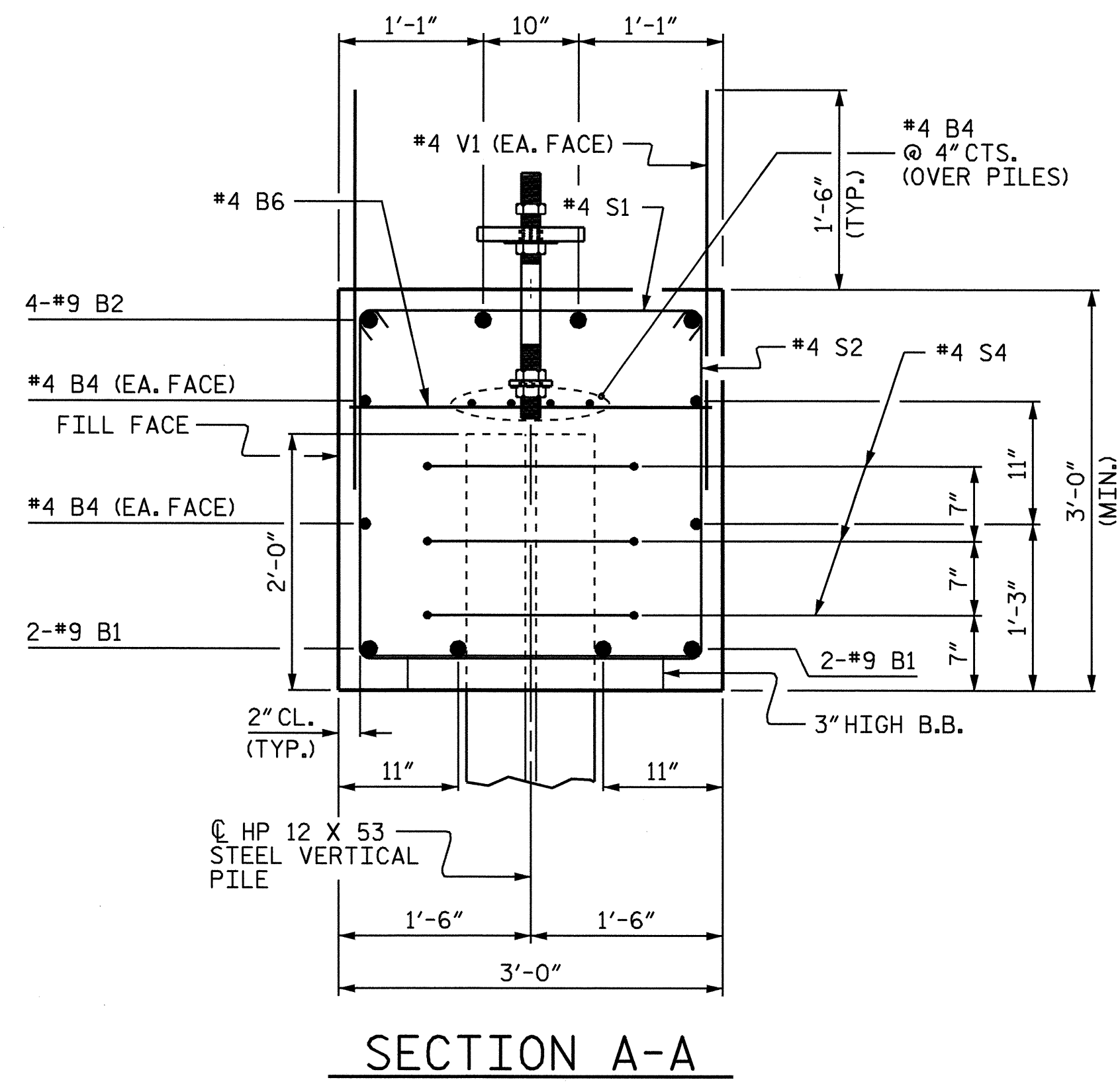
SUBSTRUCTURE
 END BENT 1
 INTEGRAL



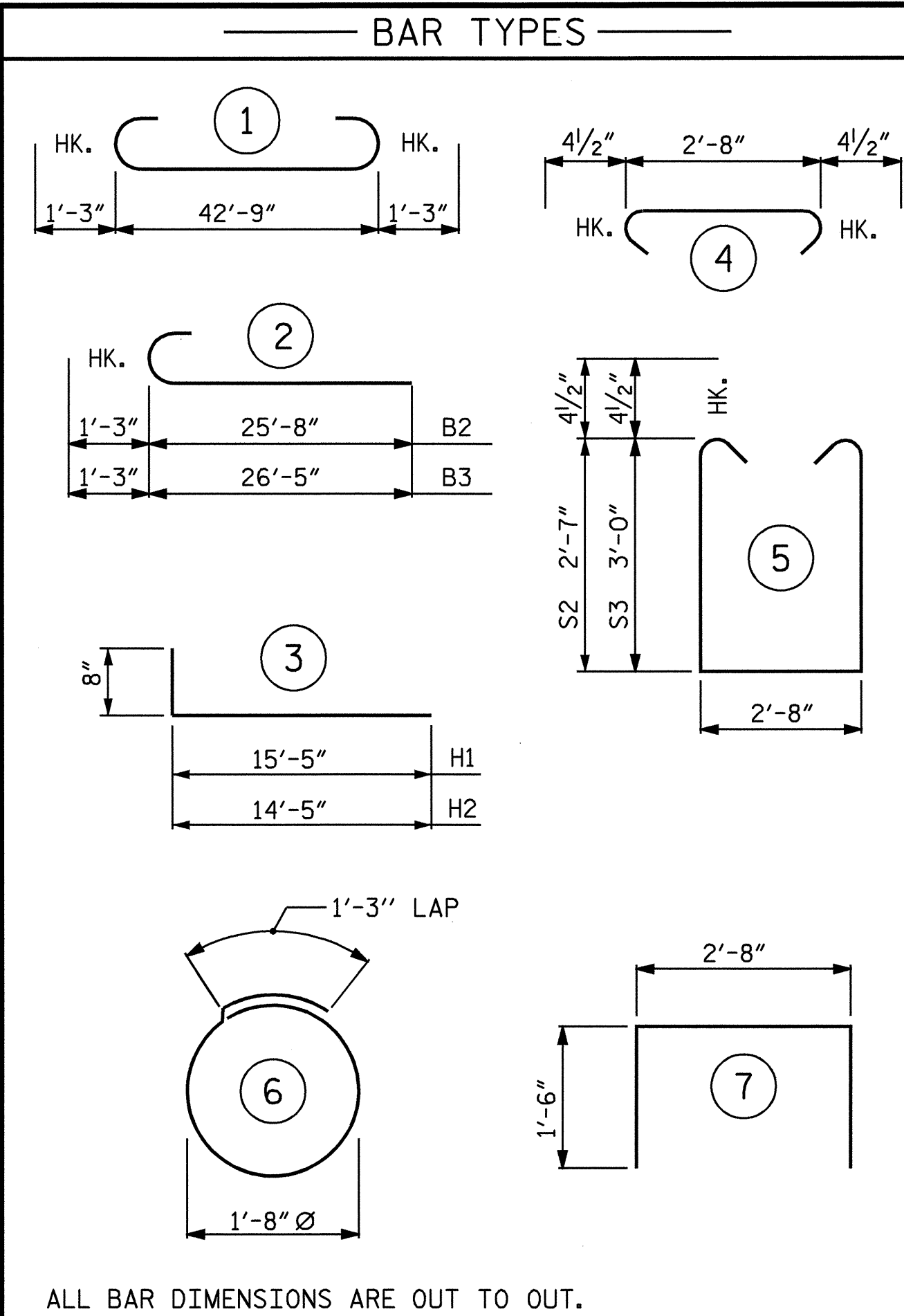
DRAWN BY: K. McCAULEY DATE: 10/5/07
 CHECKED BY: J. P. ADAMS DATE: 10/18/07

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 qtnguyen

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25
1			3			TOTAL SHEETS
2			4			34

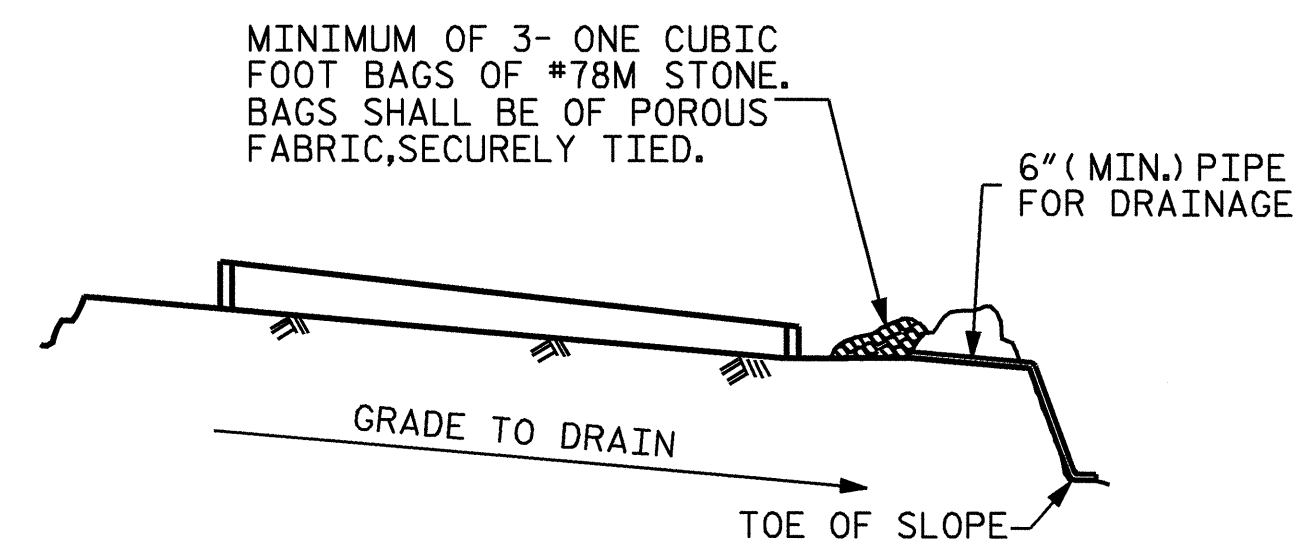


PARTIAL SECTION B-B



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#9	1	45'-3"	615
B2	4	#9	2	26'-11"	366
B3	4	#9	2	27'-8"	376
B4	16	#4	STR	22'-8"	242
B5	4	#4	STR	13'-11"	37
B6	11	#4	STR	2'-8"	20
H1	8	#5	3	16'-1"	134
H2	6	#5	3	15'-1"	94
S1	50	#4	4	3'-5"	114
S2	23	#4	5	8'-7"	132
S3	27	#4	5	9'-5"	170
S4	30	#4	6	6'-6"	130
V1	78	#4	STR	4'-0"	208
V2	29	#4	STR	5'-0"	97
V3	27	#4	STR	4'-3"	77
U1	10	#4	7	5'-8"	38
REINFORCING STEEL					= 2850 LBS
CLASS A CONCRETE BREAKDOWN :					
POUR #1 - (CAP & LOWER WINGS)				19.6 C.Y.	
TOTAL				19.6 C.Y.	
HP 12 x 53 STEEL PILES					
NO. = 10 LIN. FEET = 250					



MINIMUM OF 3- ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

6" (MIN.) PIPE FOR DRAINAGE

GRADE TO DRAIN

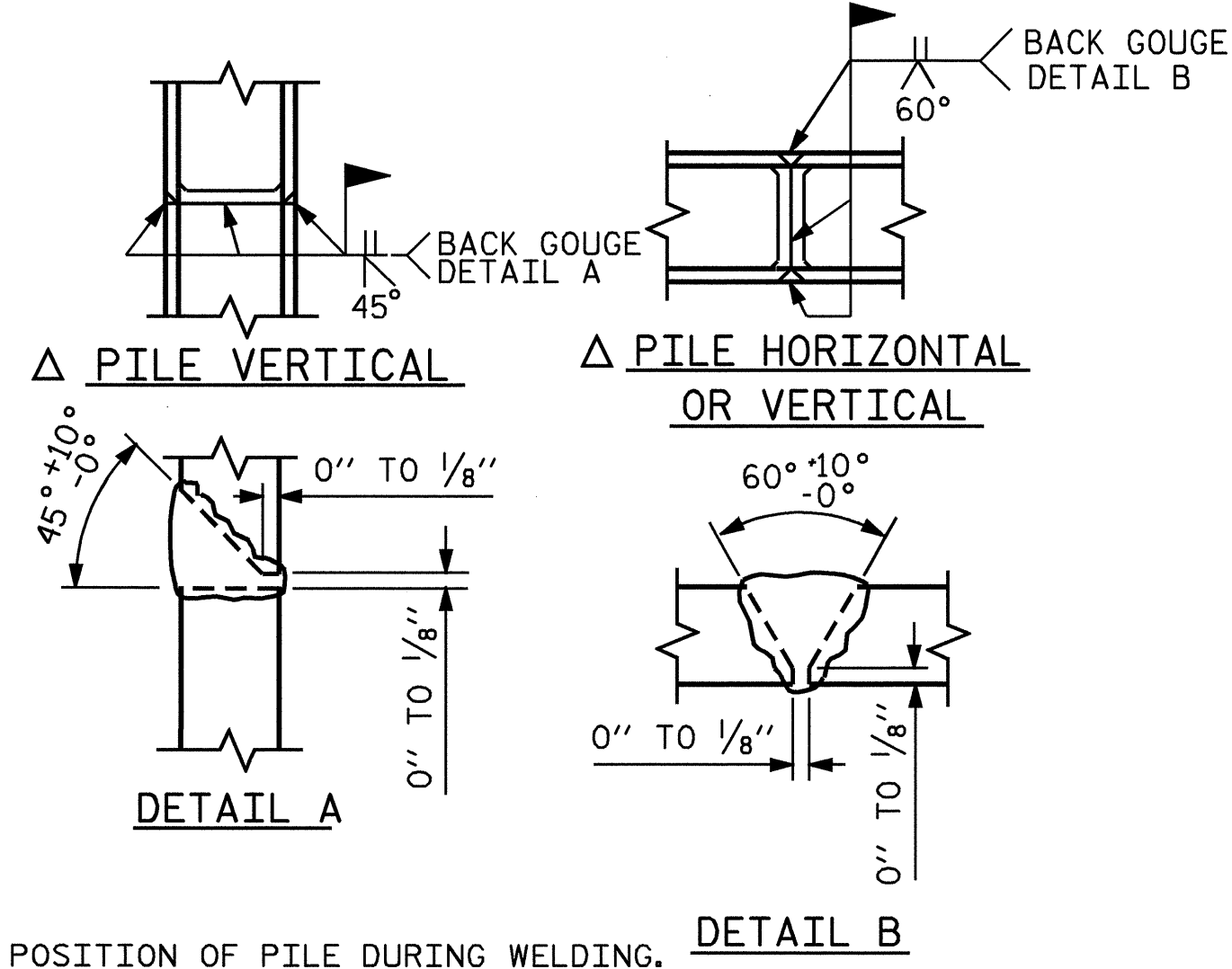
TOE OF SLOPE

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



PILE SPLICE DETAILS

PROJECT NO. B-3697

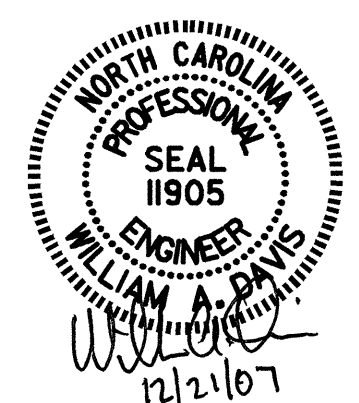
RUTHERFORD COUNTY

STATION: 16+92.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 1
INTEGRAL



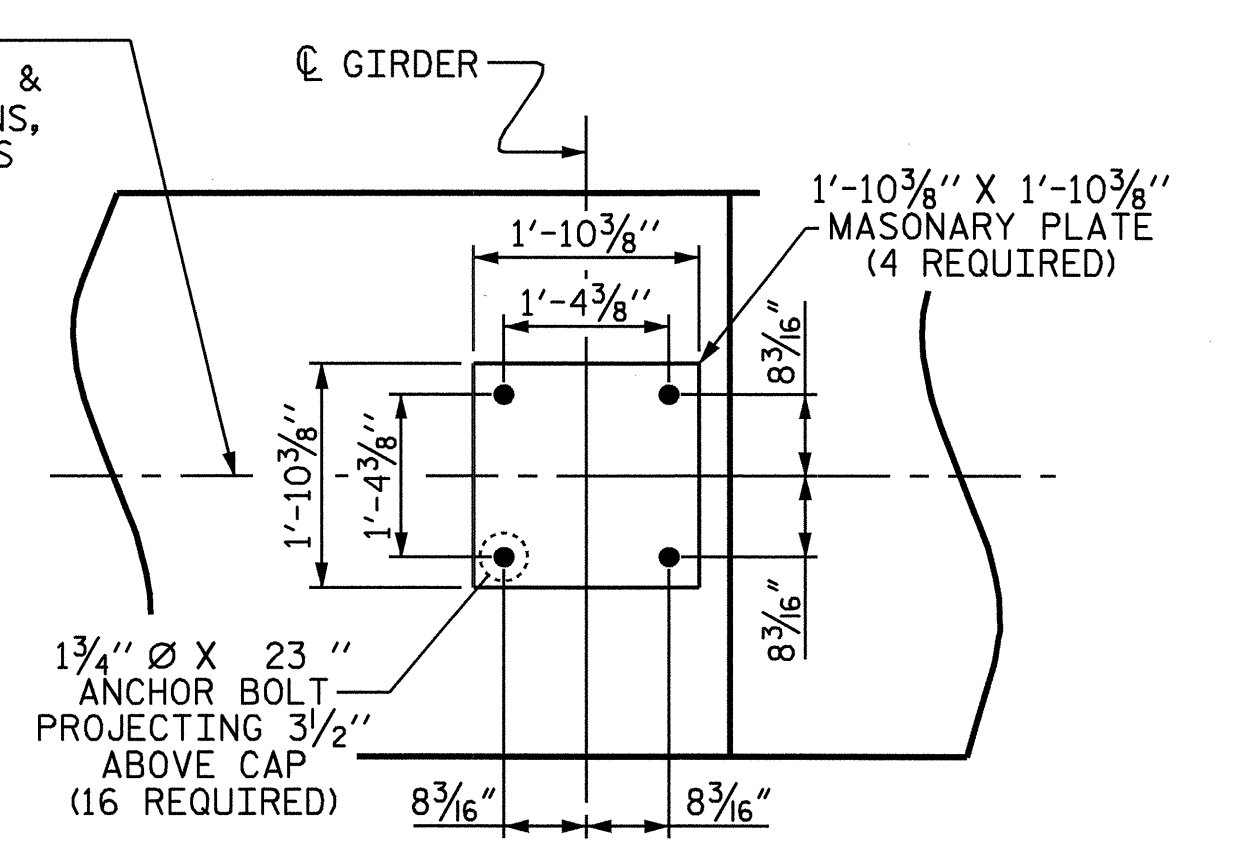
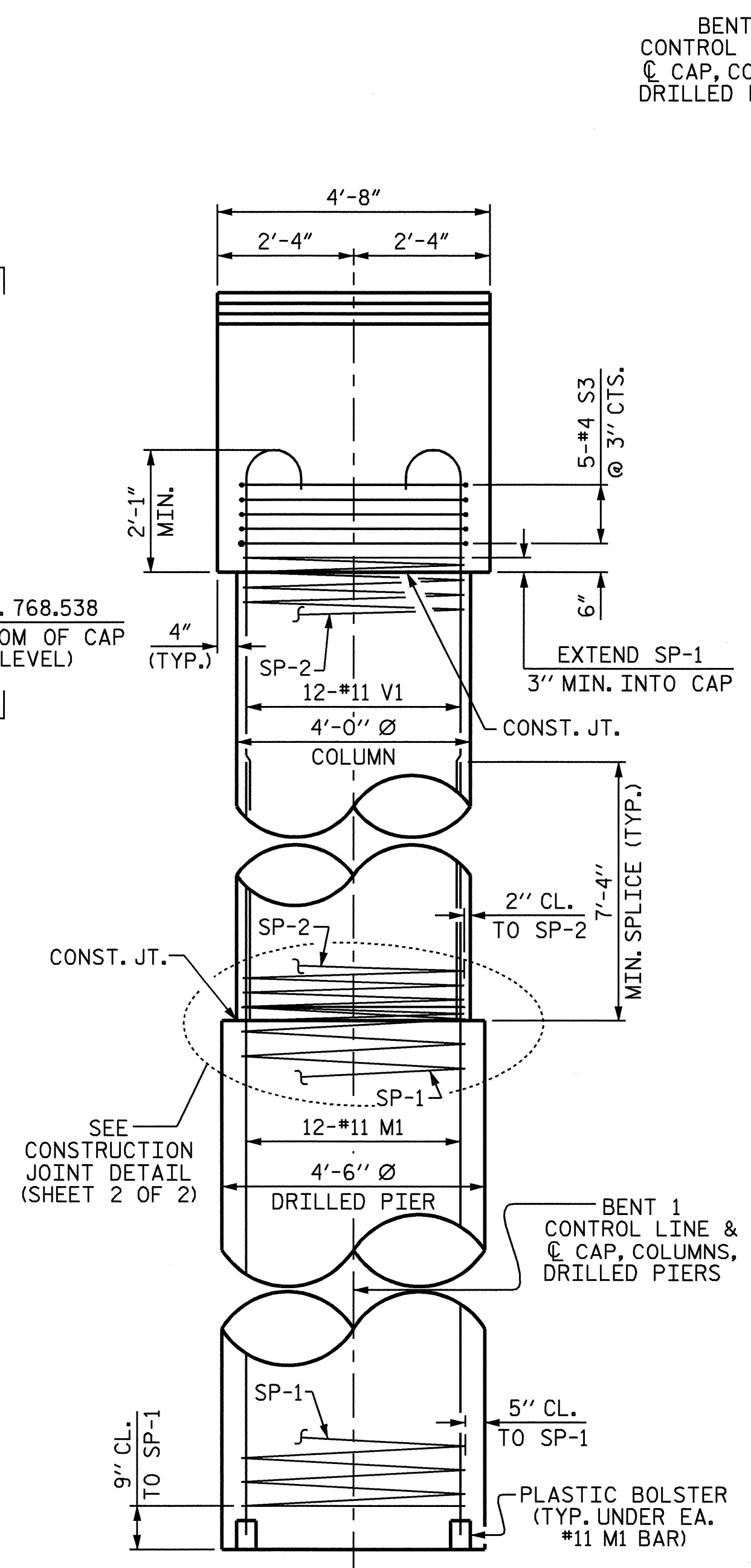
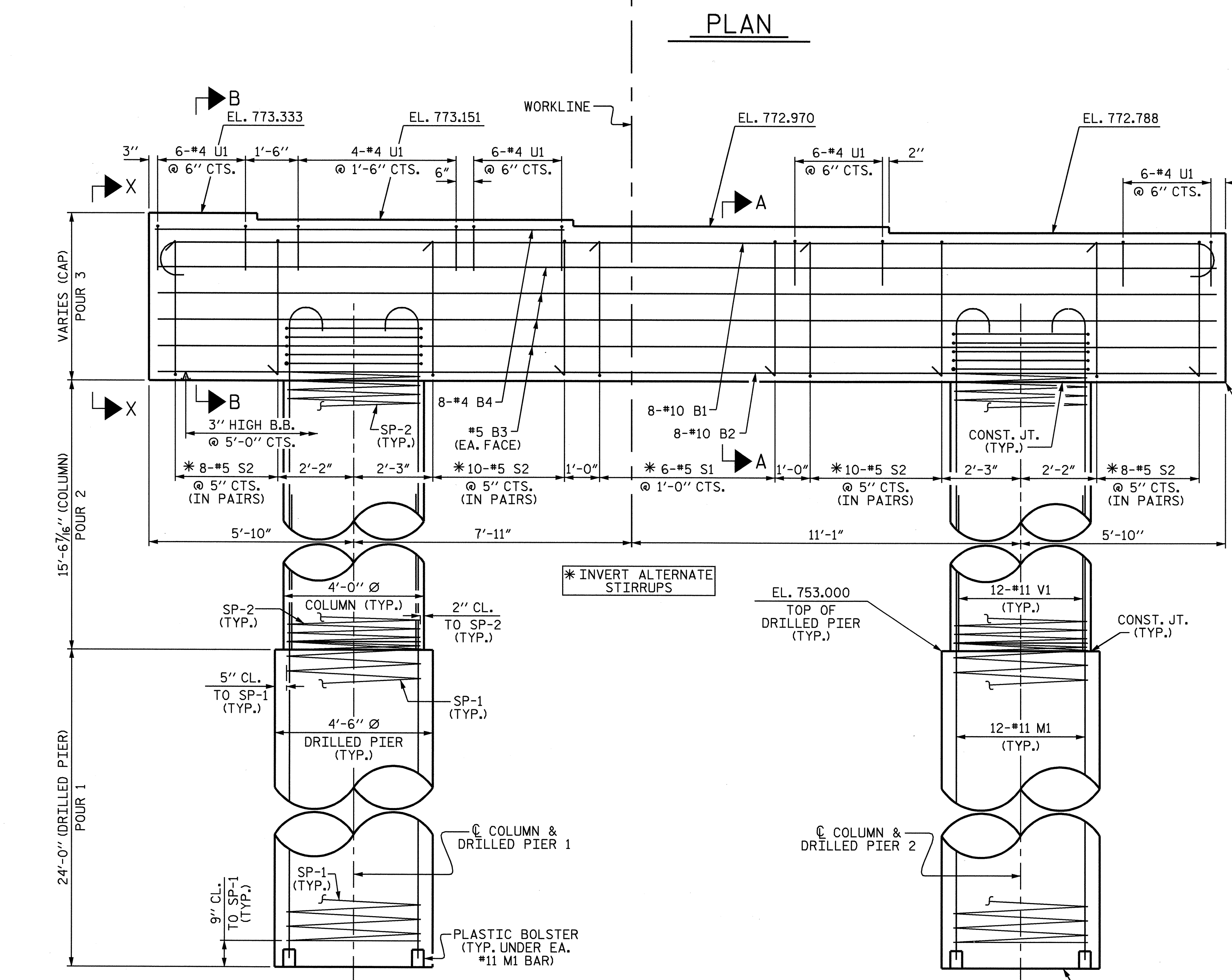
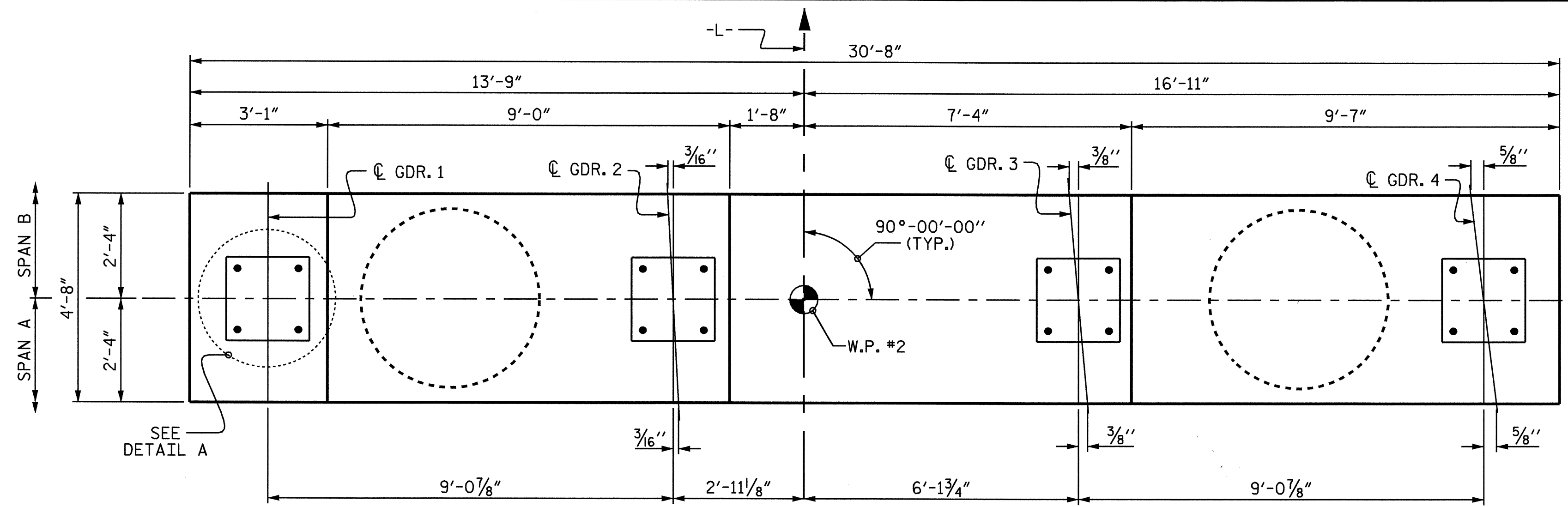
DRAWN BY : K. McCAULEY DATE : 10/8/07
CHECKED BY : J. P. ADAMS DATE : 10/18/07

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

TOTAL SHEETS 34

NOTES

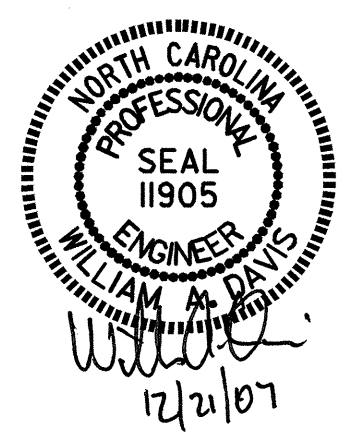
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
 ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" OR "SPIRAL COLUMN REINFORCING STEEL".
 THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.
 SPLICING OF THE LONGITUDINAL BARS IN THE DRILLED PIER WILL NOT BE PERMITTED.
 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 LINE ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FT. BELOW THE GROUND LINE.



DRAWN BY: J.P. ADAMS DATE: 9/6/07
 CHECKED BY: Q.T. NGUYEN DATE: 9/07

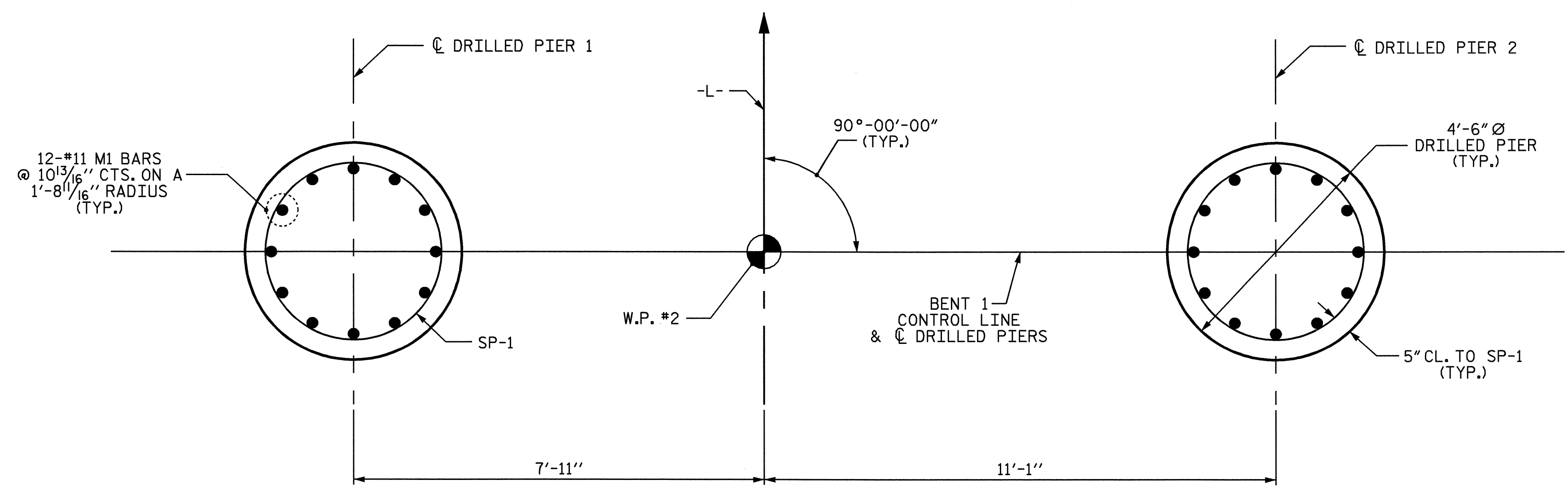
(REINFORCING STEEL AND DIMENSIONS ARE TYPICAL FOR EACH COLUMN & DRILLED PIER)

PROJECT NO. B-3697
 RUTHERFORD COUNTY
 STATION: 16+92.50 -L-
 SHEET 1 OF 2

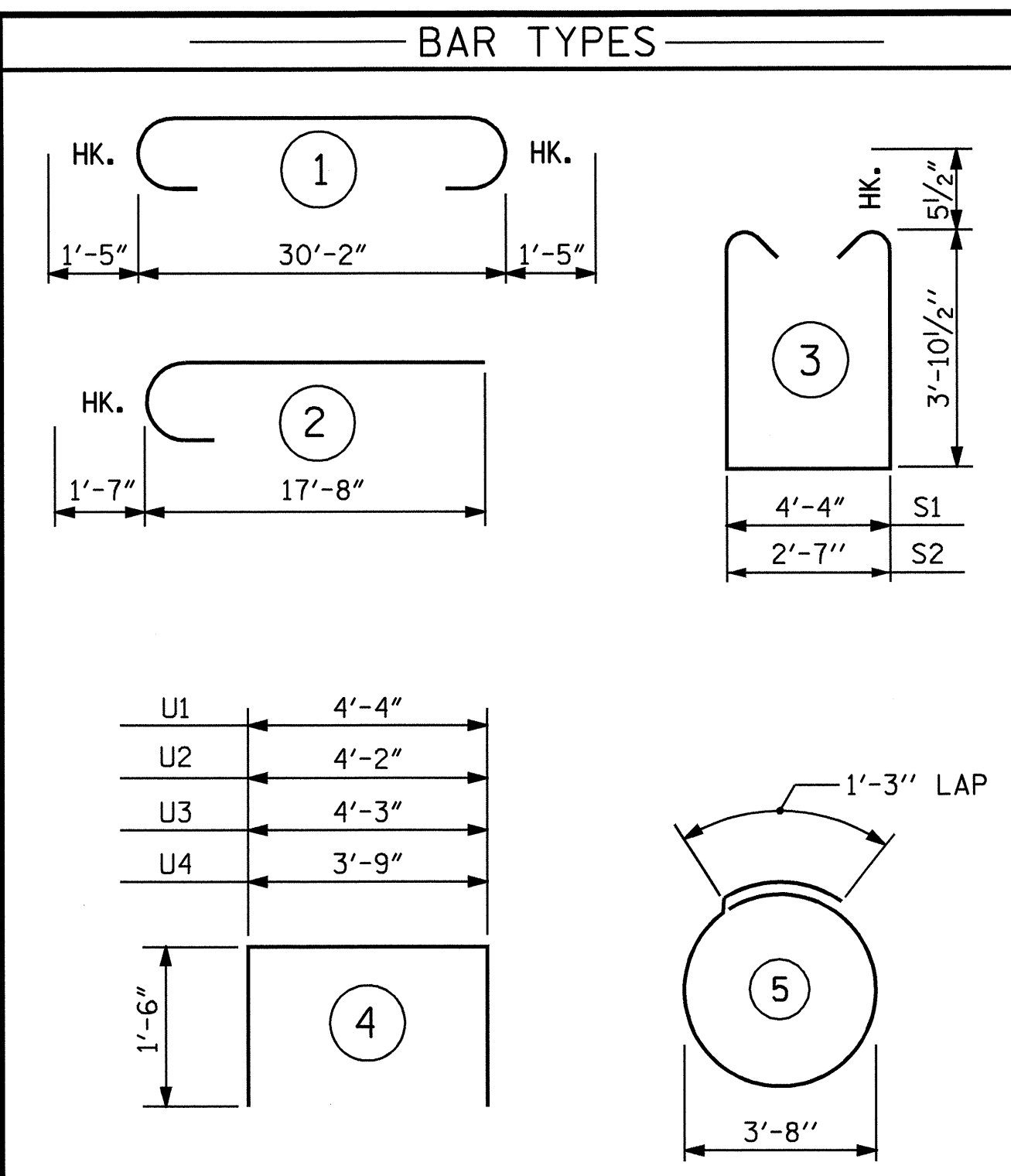


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT 1					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 34

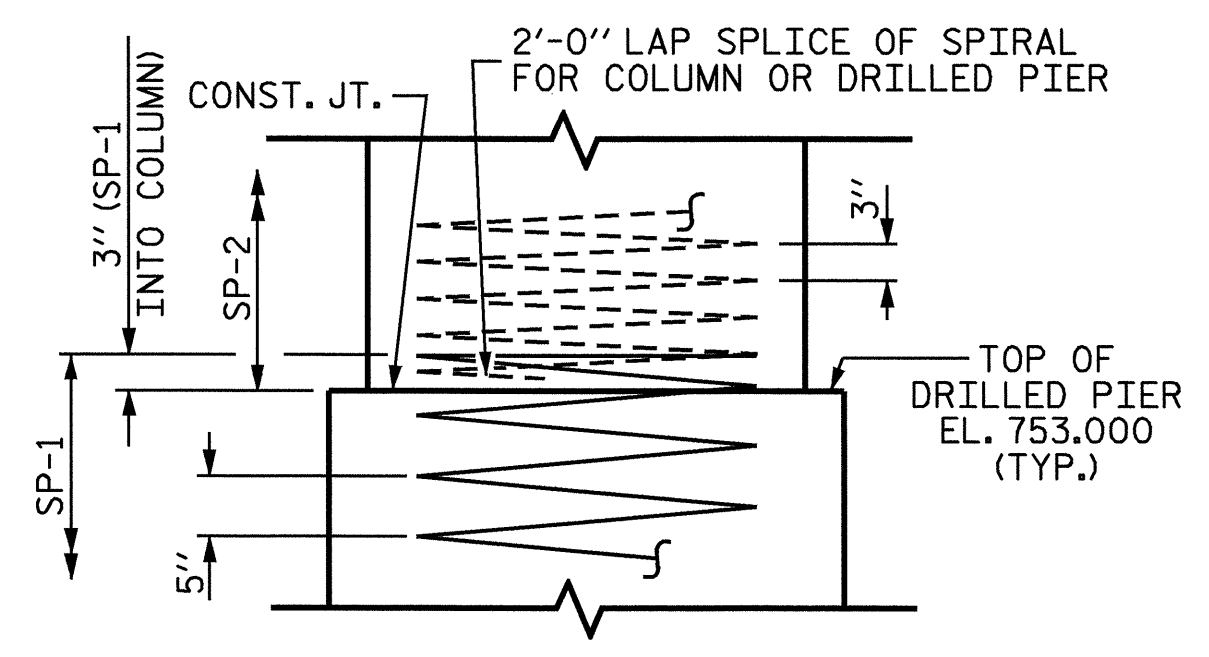
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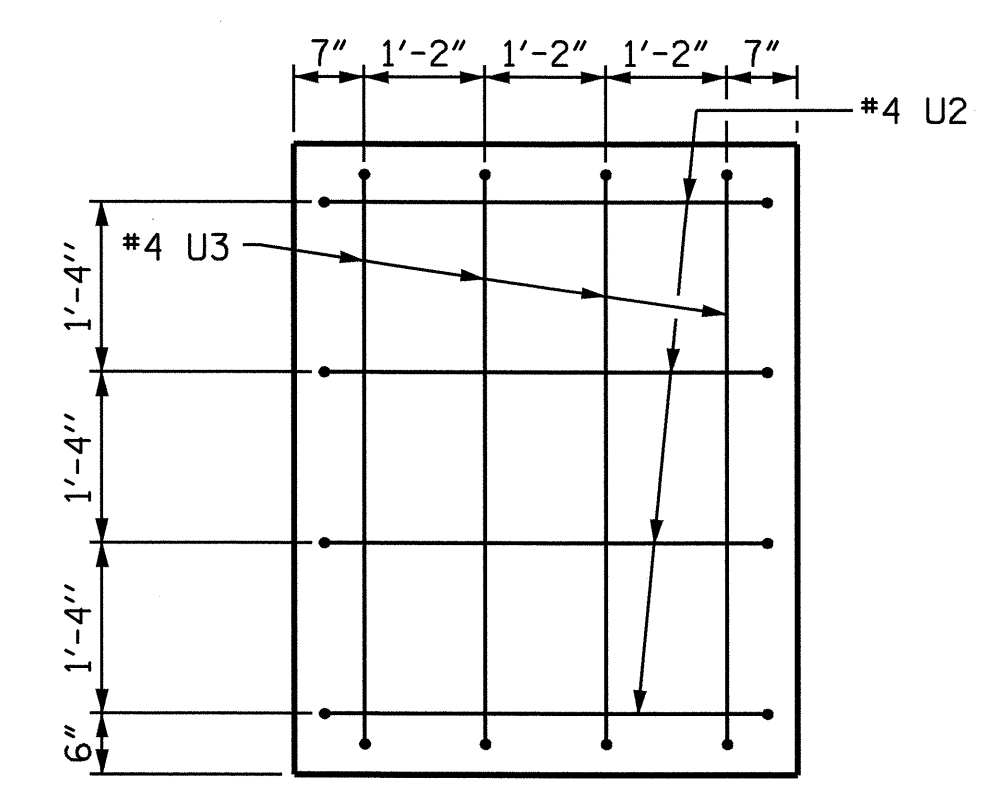
PLAN OF DRILLED PIERS



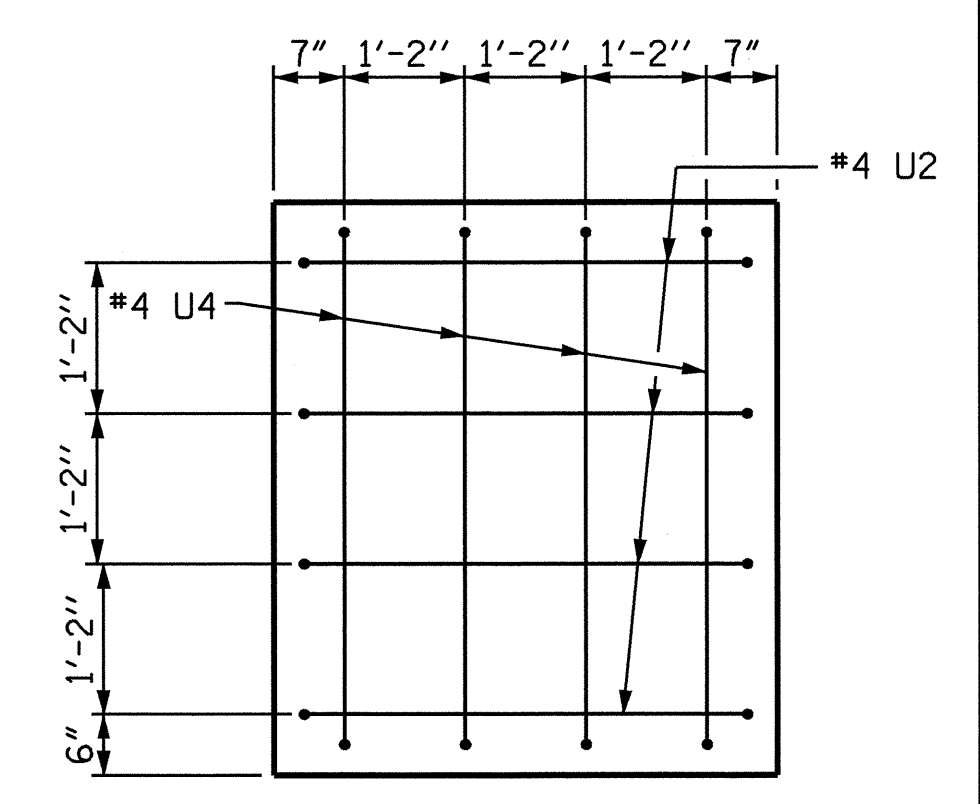
BILL OF MATERIAL					
BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#10	1	33'-0"	1136
B2	8	#10	STR	30'-4"	1044
B3	8	#5	STR	30'-4"	253
B4	6	#4	STR	11'-9"	63
M1	24	#11	STR	34'-1"	4346
S1	6	#5	3	13'-0"	81
S2	72	#5	3	11'-3"	845
S3	10	#4	5	12'-10"	86
U1	28	#4	4	7'-4"	137
U2	8	#4	4	7'-2"	38
U3	4	#4	4	7'-3"	19
U4	4	#4	4	6'-9"	18
V1	24	#11	2	19'-3"	2455



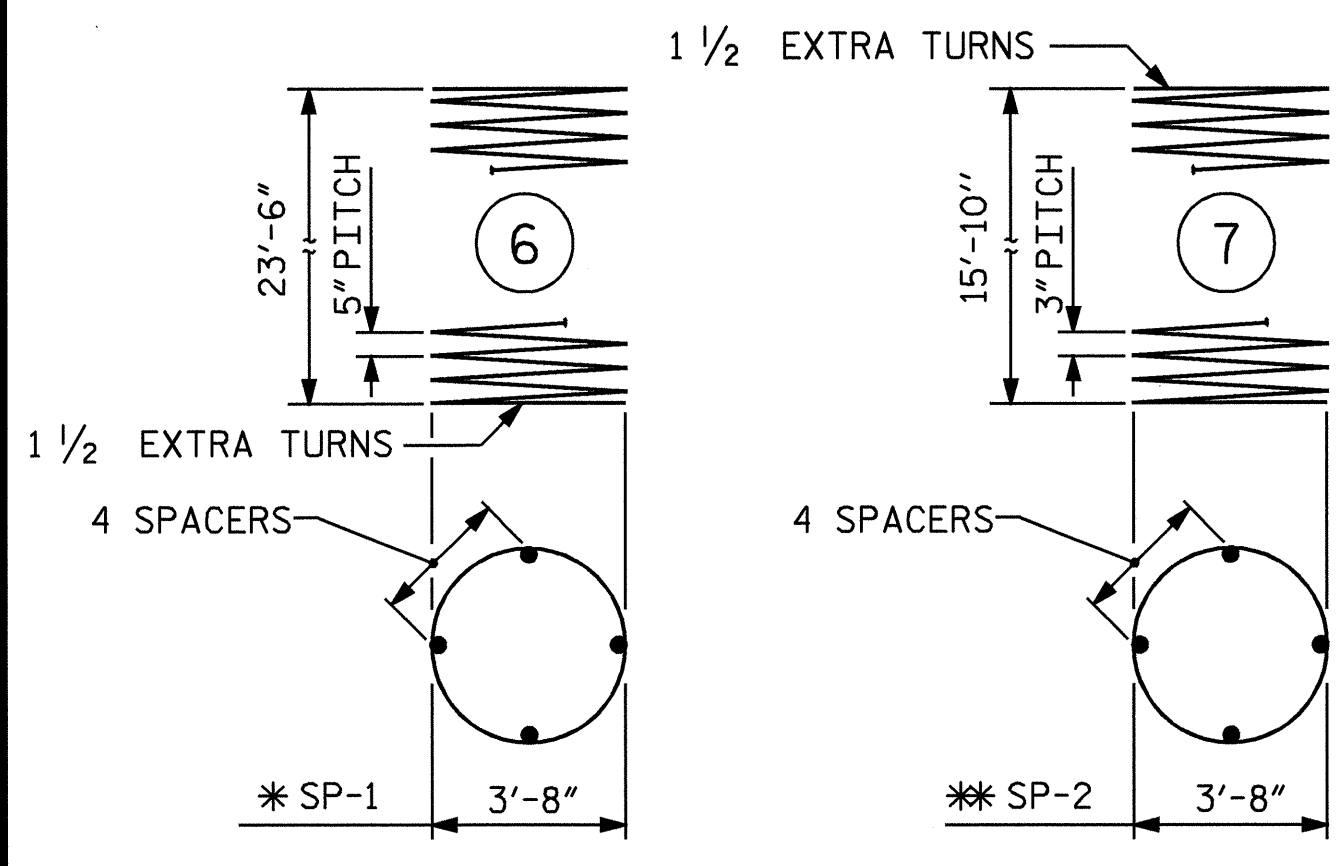
CONSTRUCTION JOINT DETAIL



VIEW X-X



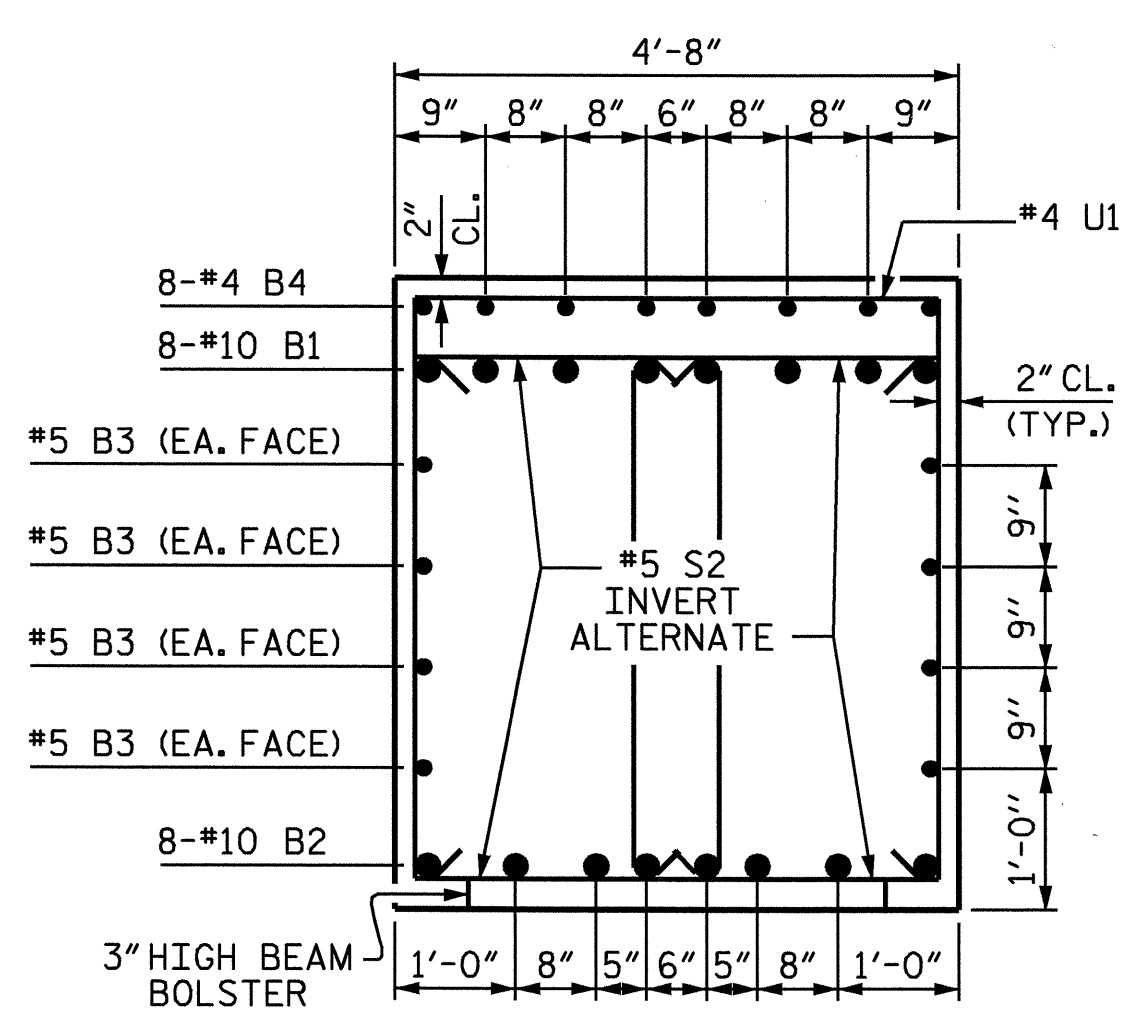
VIEW Y-Y



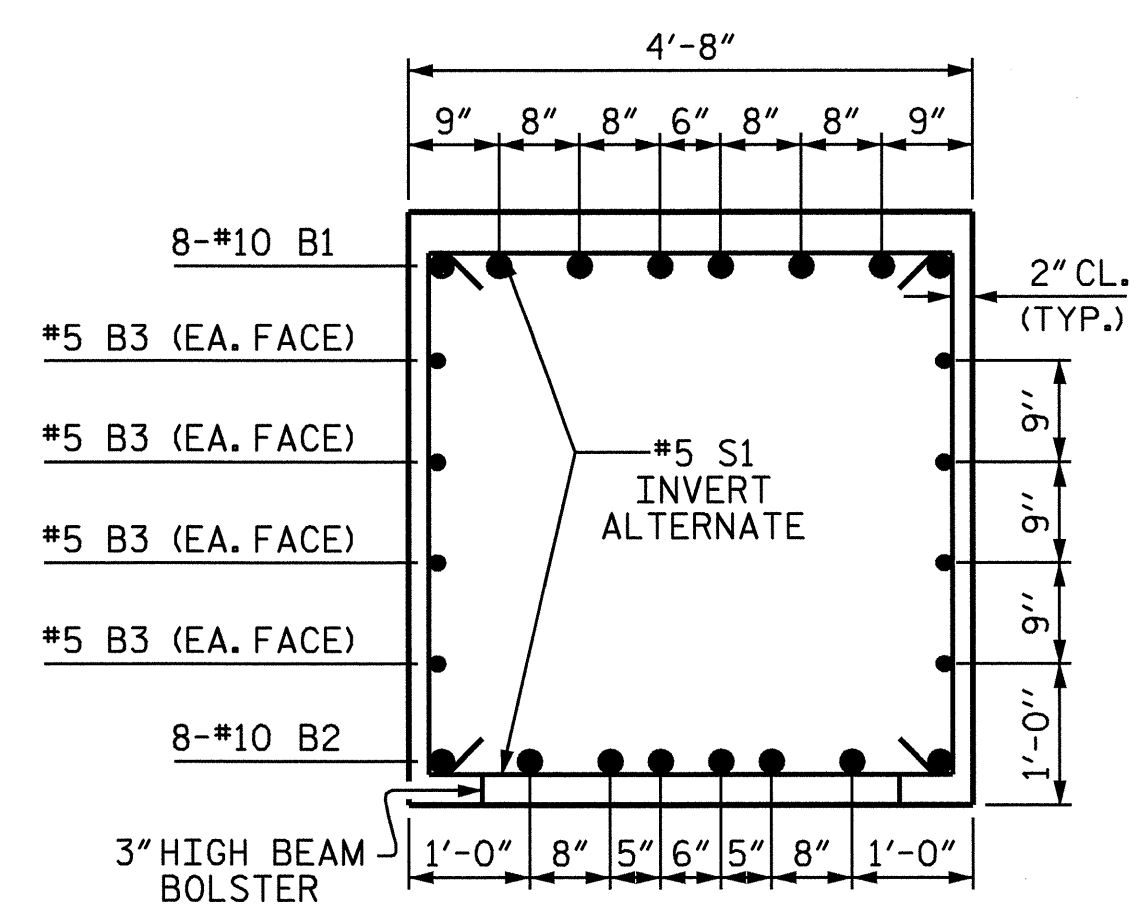
ALL BAR DIMENSIONS ARE OUT TO OUT.

** THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.
* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

REINFORCING STEEL		=	10521 LBS
SP-1	2	*	6 659'-1" 1375
SP-2	2	**	7 729'-1" 974
SPIRAL COLUMN REINFORCING STEEL		=	2349 LBS
CLASS A CONCRETE BREAKDOWN			
POUR 2 (COLUMNS)			14.5 C.Y.
POUR 3 (CAP)			23.7 C.Y.
TOTAL CLASS A CONCRETE			38.2 C.Y.
4'-6" Ø DRILLED PIERS			
DRILLED PIER CONCRETE POUR 1 (DRILLED PIERS)			28.3 C.Y.
DRILLED PIERS IN SOIL:			29.0 LIN. FT.
DRILLED PIERS NOT IN SOIL:			19.0 LIN. FT.
PERMANENT STEEL CASING FOR 4'-6" Ø DRILLED PIERS:			32.0 LIN. FT.
CROSSHOLE SONIC LOGGING:			1 EACH
CSL TUBES:			212.0 LIN. FT.



SECTION B-B



SECTION A-A

DRAWN BY : J.P. ADAMS DATE : 9/6/07
CHECKED BY : Q.T. NGUYEN DATE : 9/07

21-DEC-2007 12:10
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qtnguyen

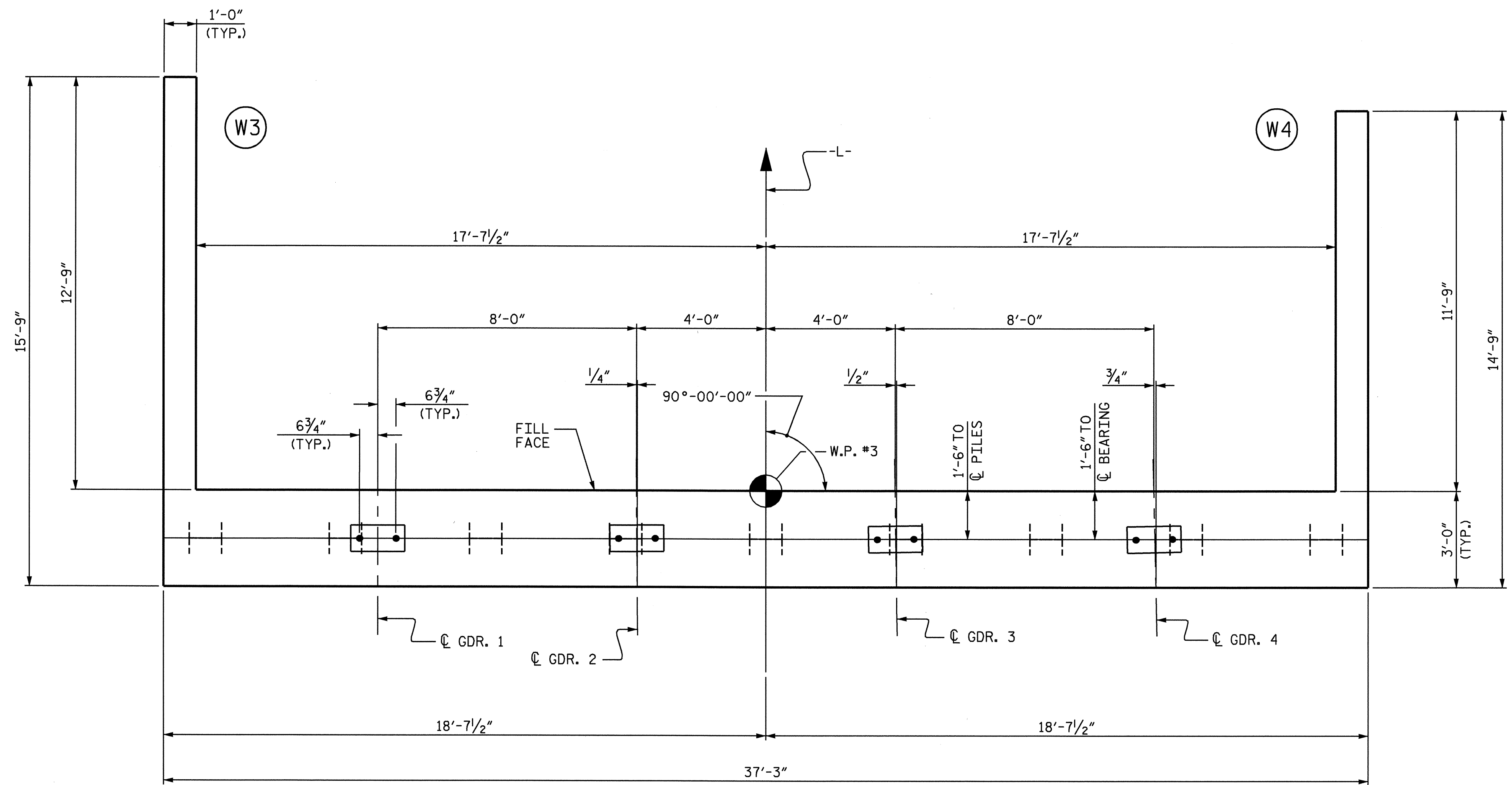
PROJECT NO. B-3697
RUTHERFORD COUNTY
STATION: 16+92.50 -L-



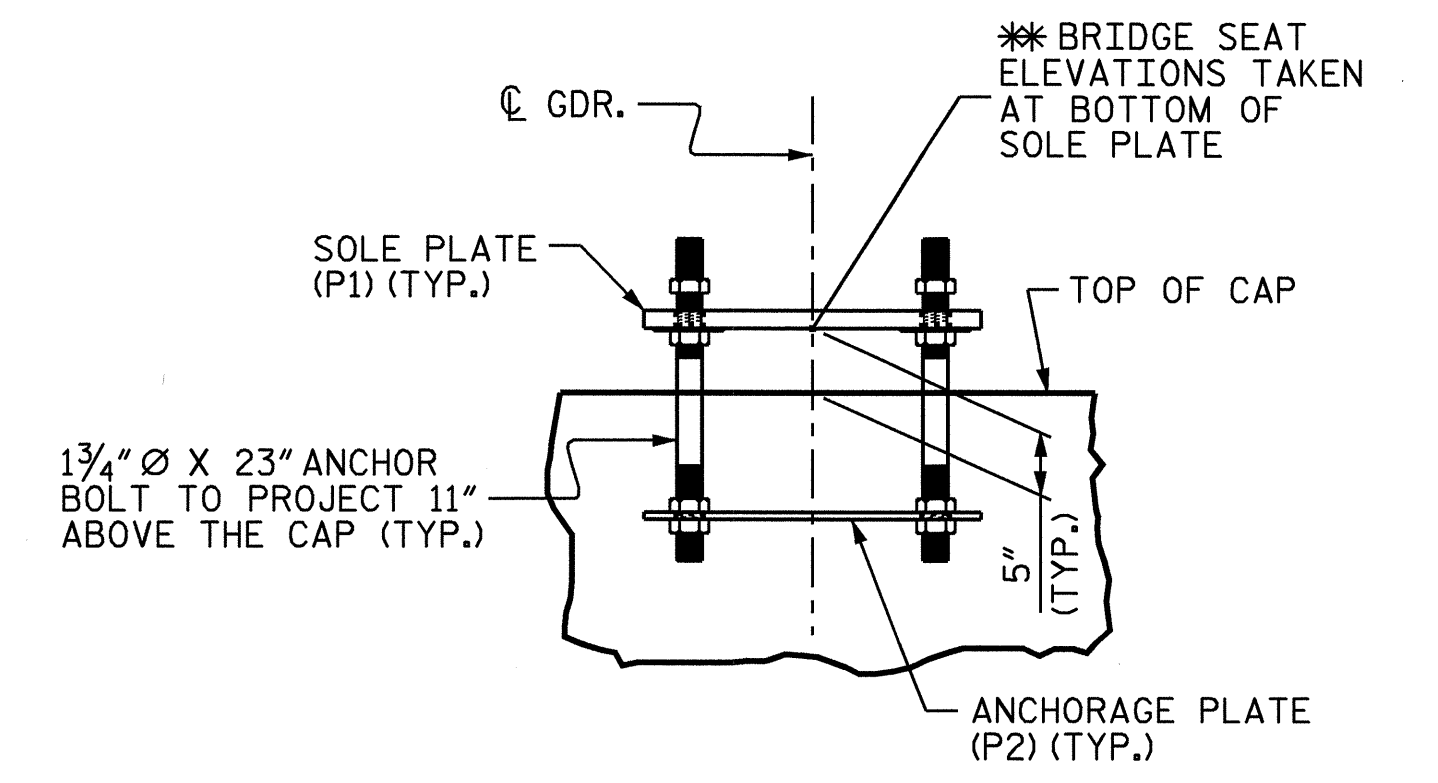
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT 1					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-28
					TOTAL SHEETS 34

NOTES

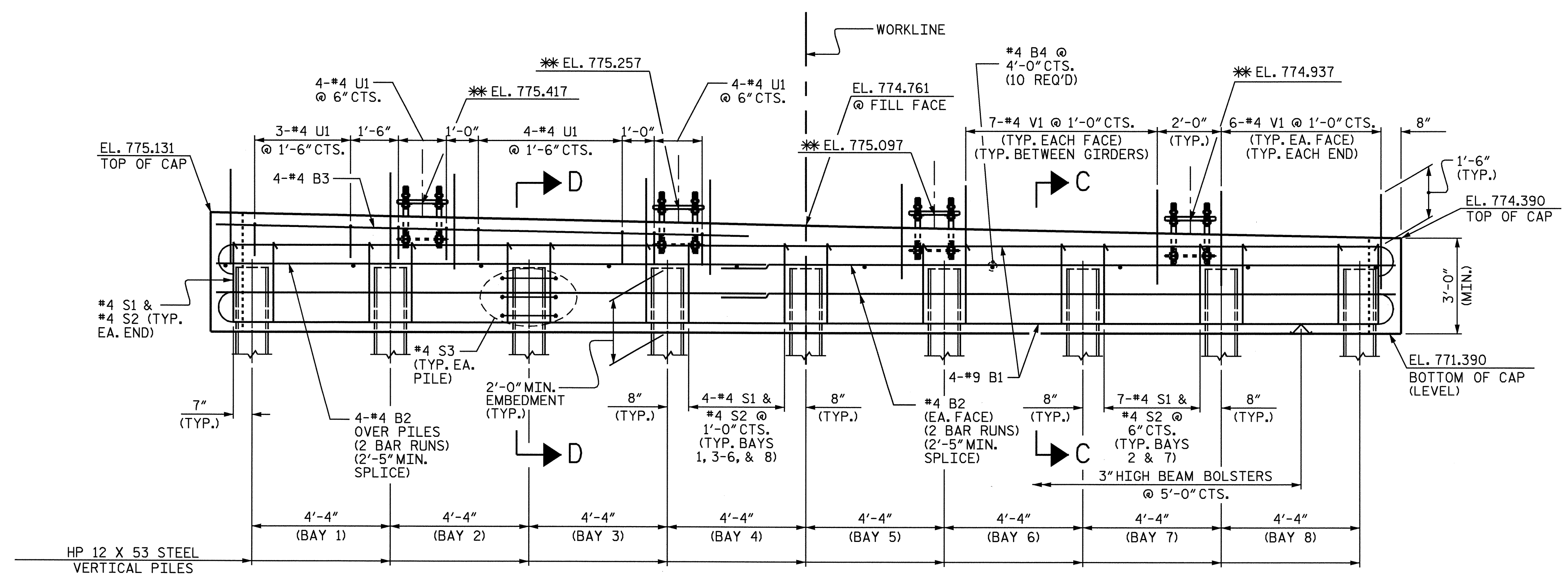
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 FOR PILE SPLICE DETAILS, SHEET 3 OF 3.
 THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS. SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.
 SEE SUPERSTRUCTURE SHEETS FOR THE ABUTMENT DETAILS.



PLAN



ANCHORAGE DETAILS

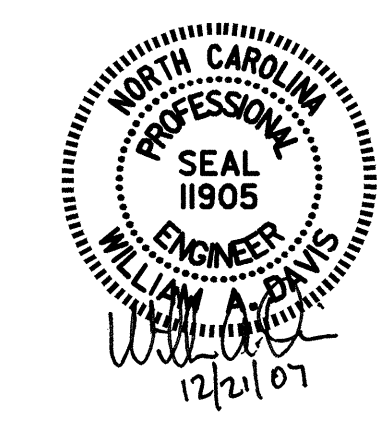


ELEVATION

PROJECT NO. B-3697
RUTHERFORD COUNTY
 STATION: 16+92.50 -L-
 SHEET 1 OF 3

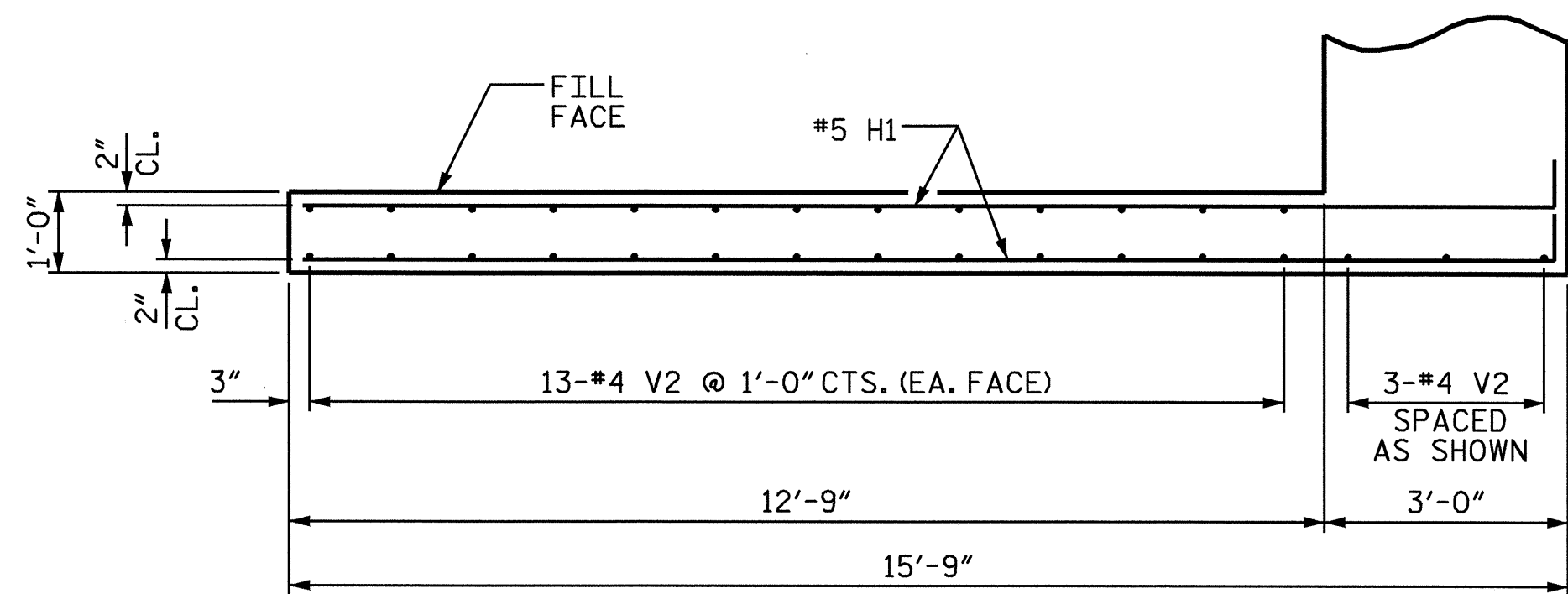
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 END BENT 2
 INTEGRAL**

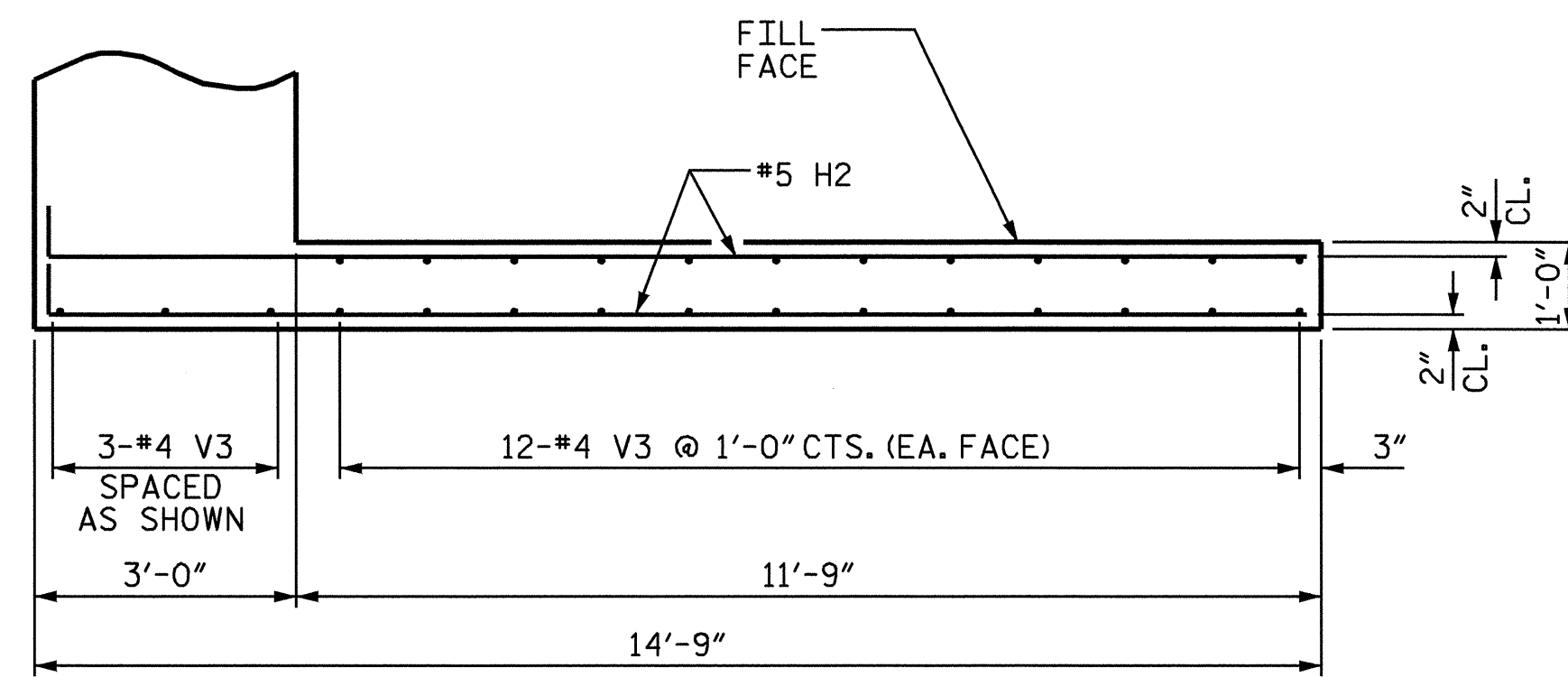


DRAWN BY : K. McCauley DATE : 10/9/07
 CHECKED BY : J. P. Adams DATE : 10/17/07

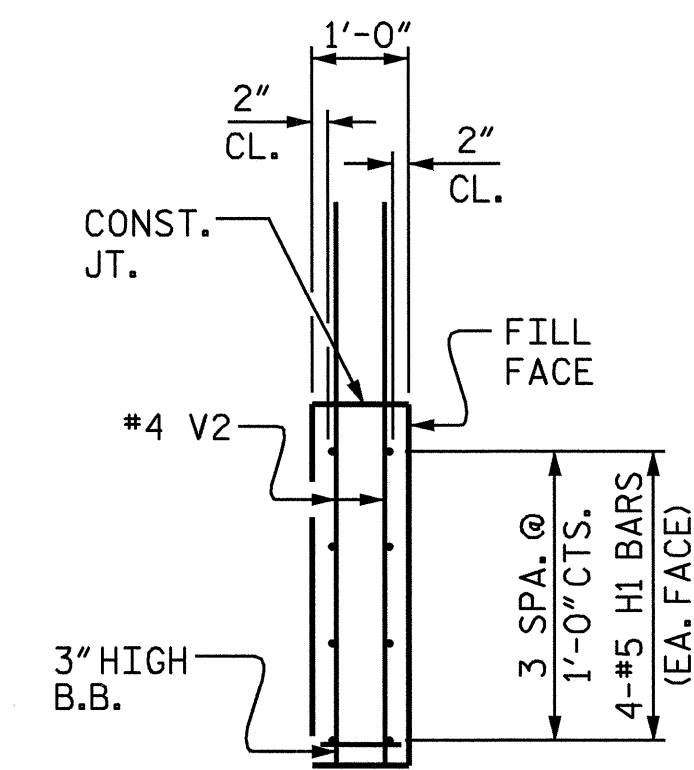
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-29
1			3			TOTAL SHEETS
2			4			34



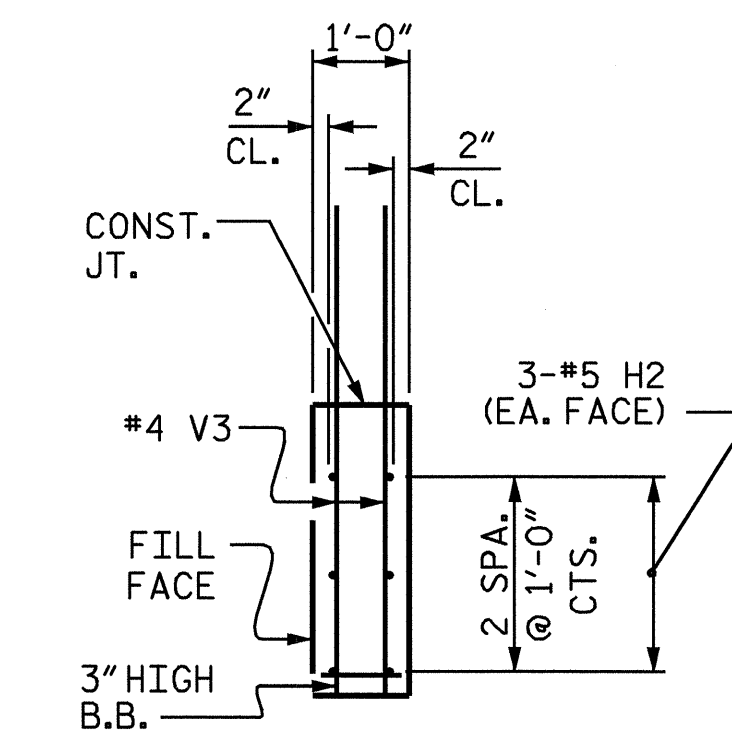
PLAN OF WING W3



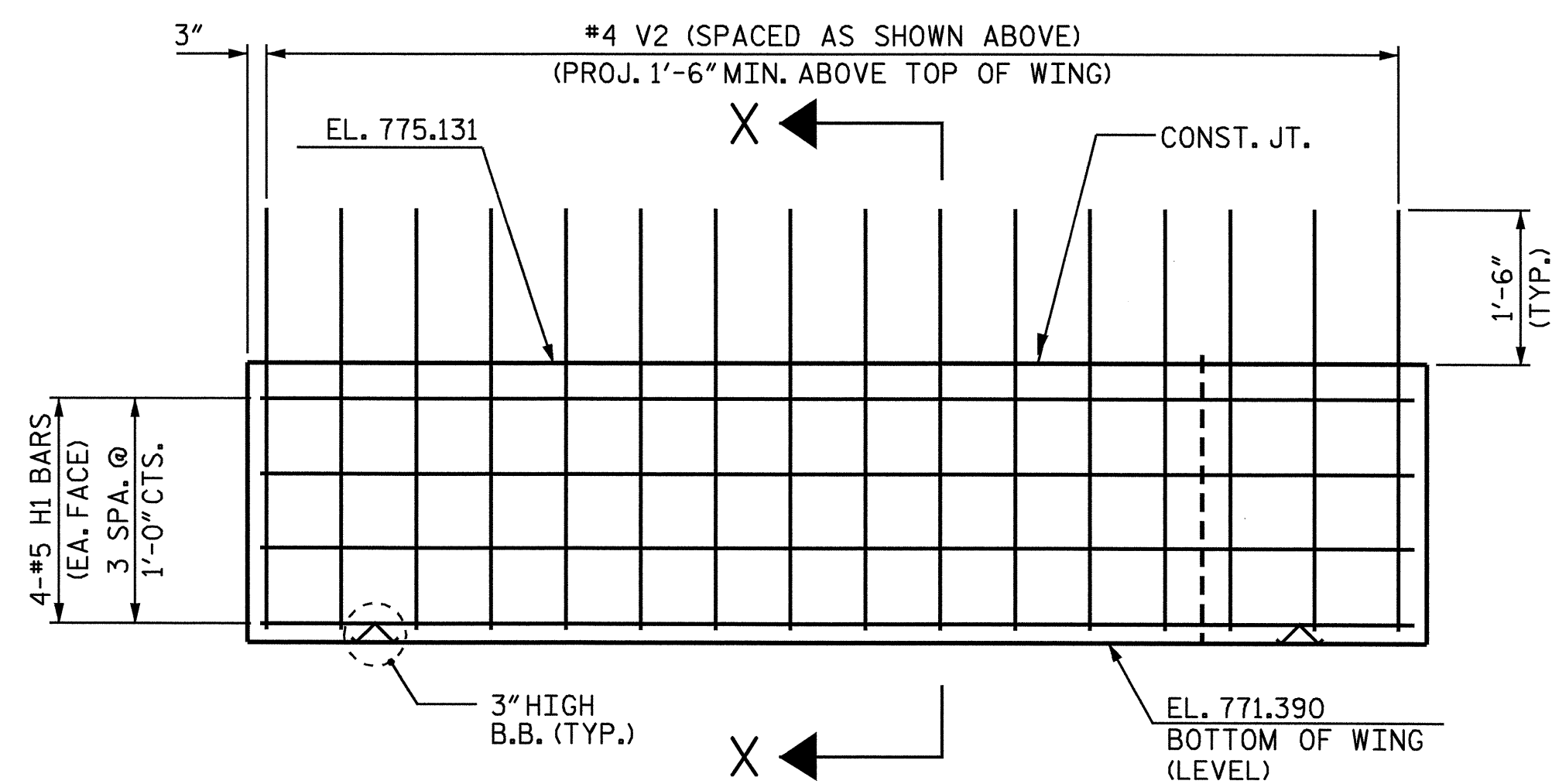
PLAN OF WING W4



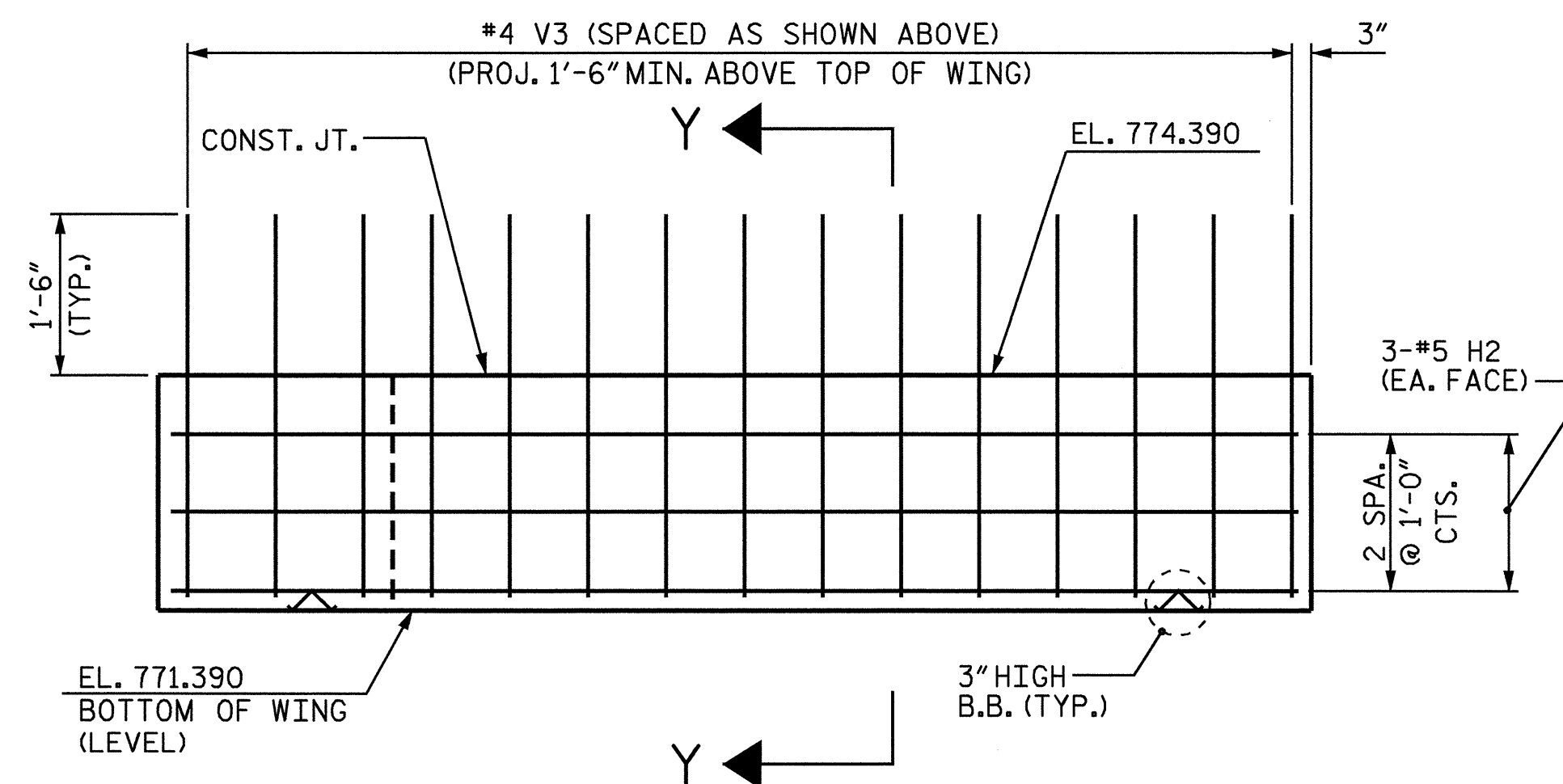
SECTION X-X



SECTION Y-Y



ELEVATION OF WING W3



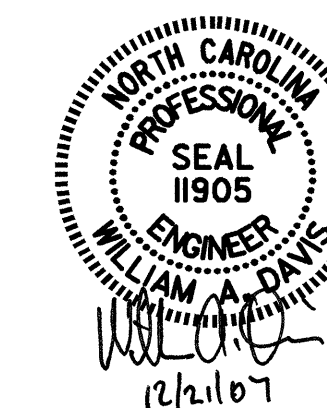
ELEVATION OF WING W4

PROJECT NO. B-3697
RUTHERFORD COUNTY
 STATION: 16+92.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

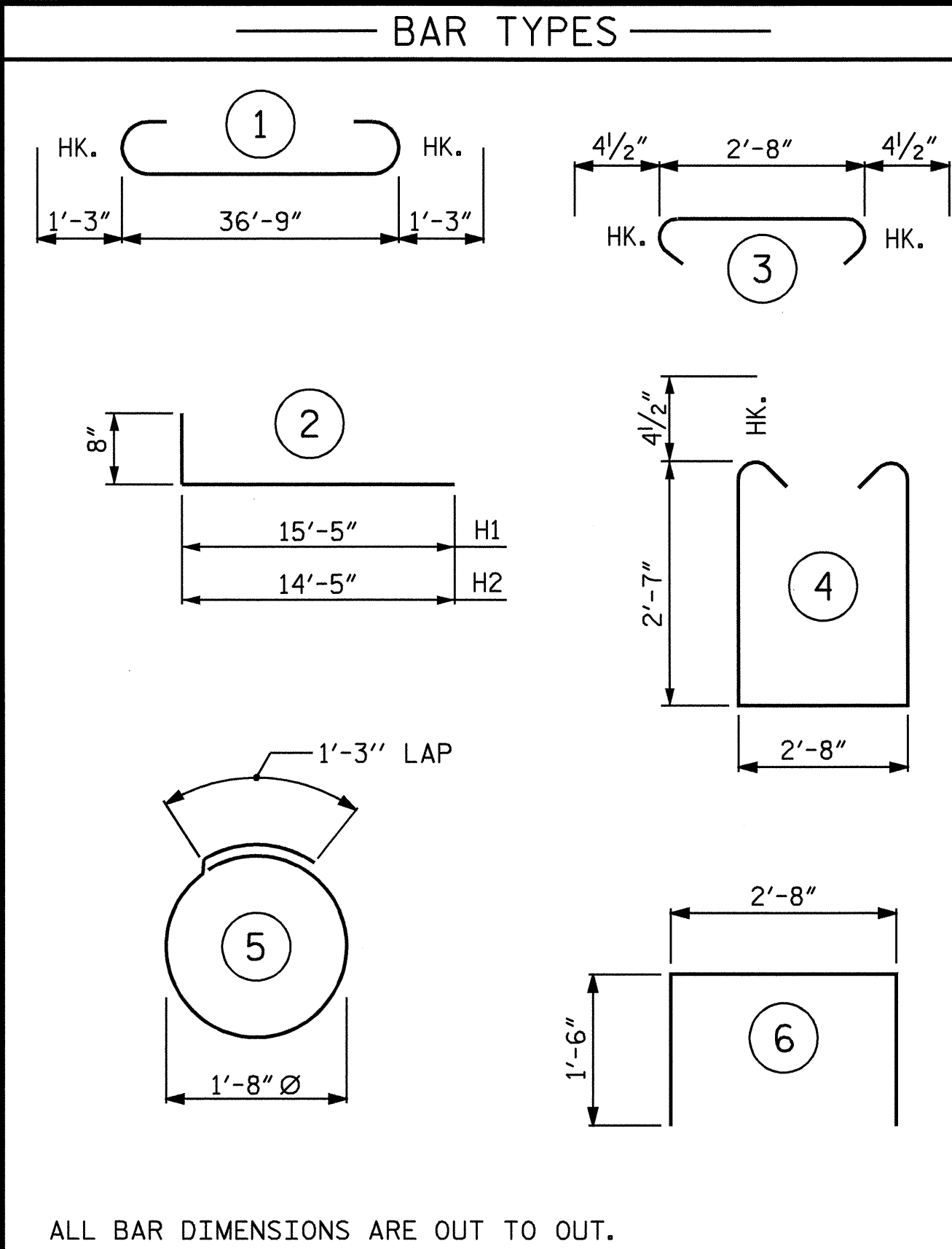
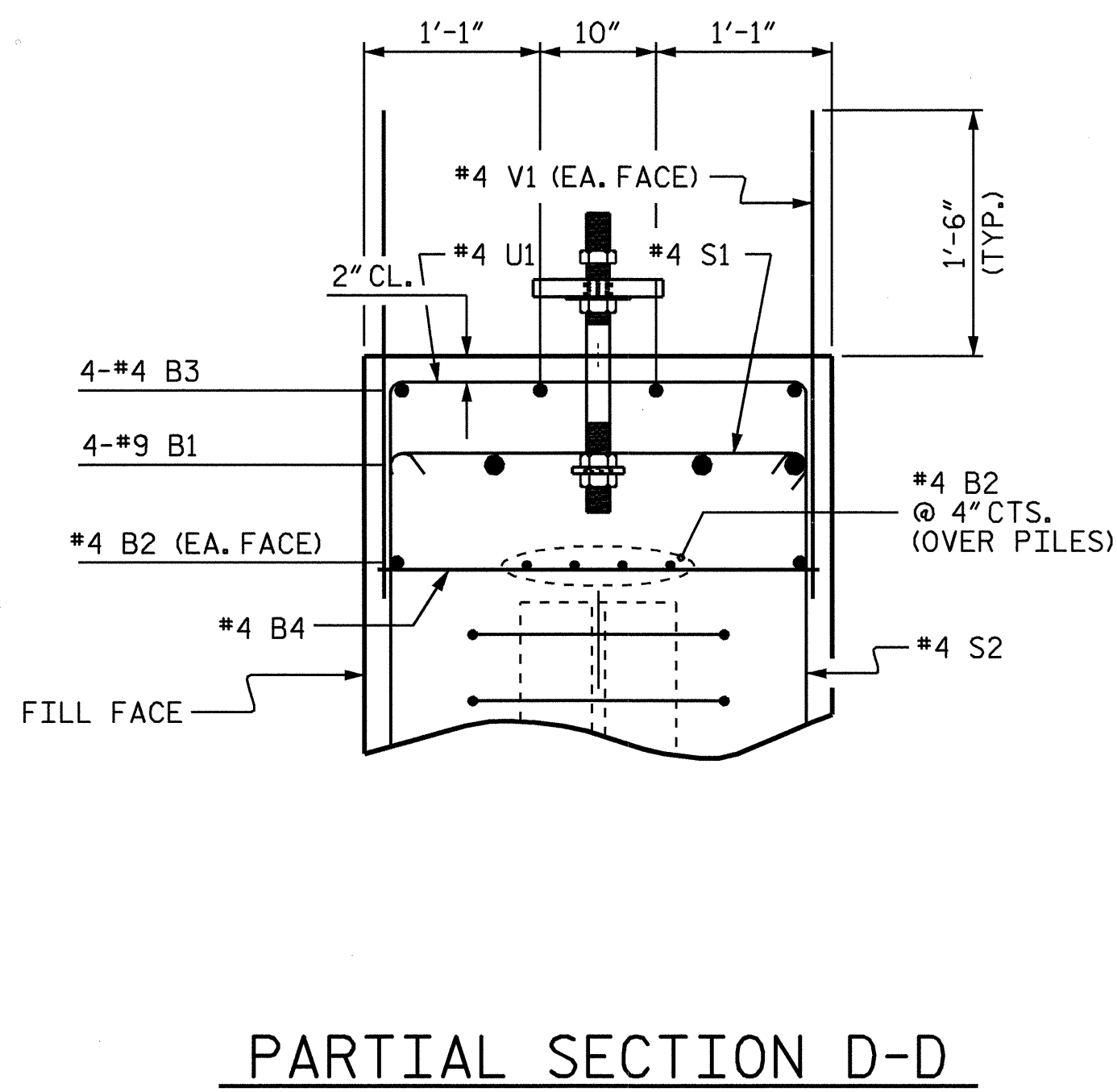
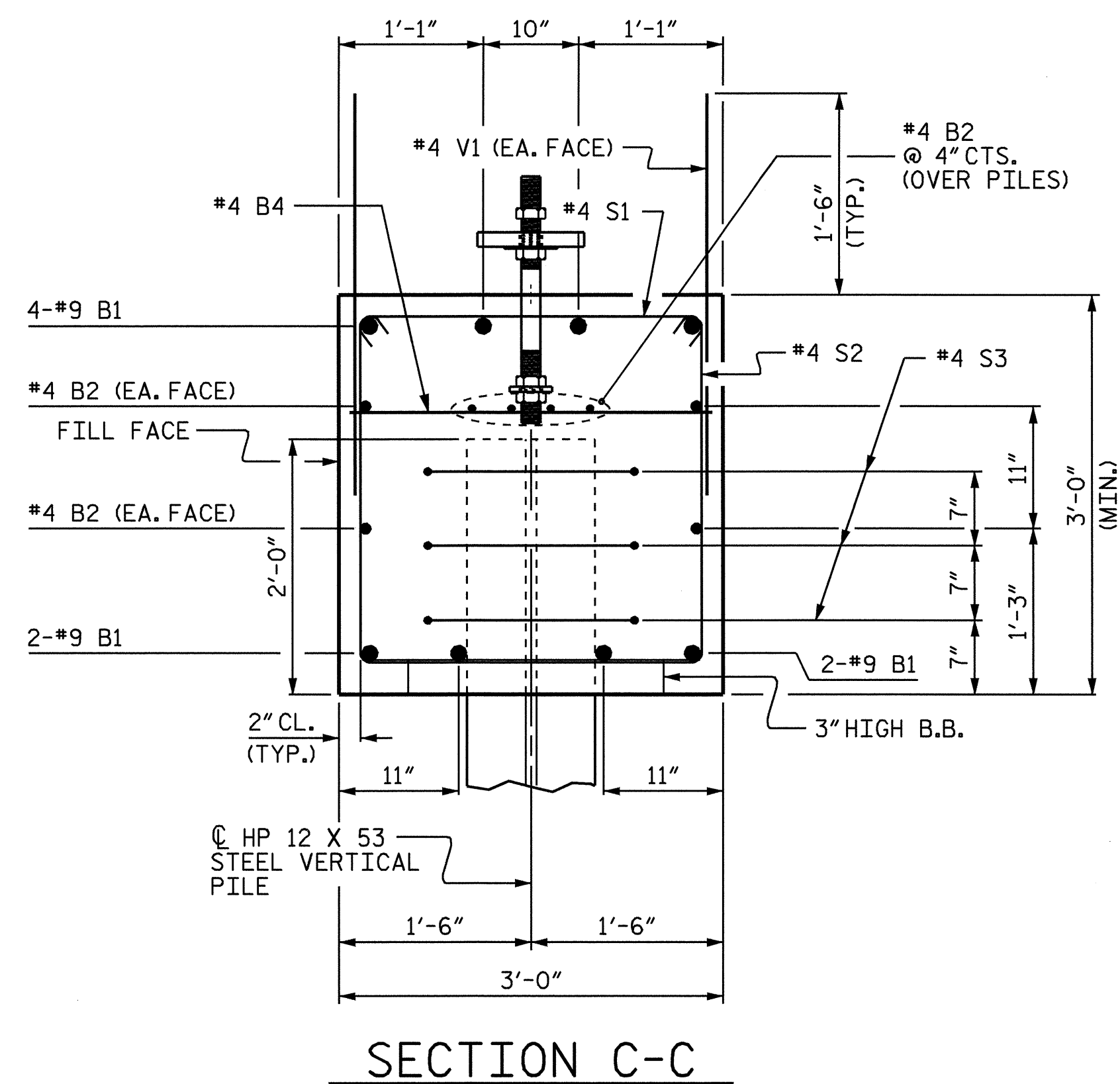
SUBSTRUCTURE
 END BENT 2
 INTEGRAL



DRAWN BY : K. McCAULEY DATE : 10/5/07
 CHECKED BY : J. P. ADAMS DATE : 10/18/07

21-DEC-2007 11:47
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REVISIONS						SHEET NO. S-30
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 34
2			4			

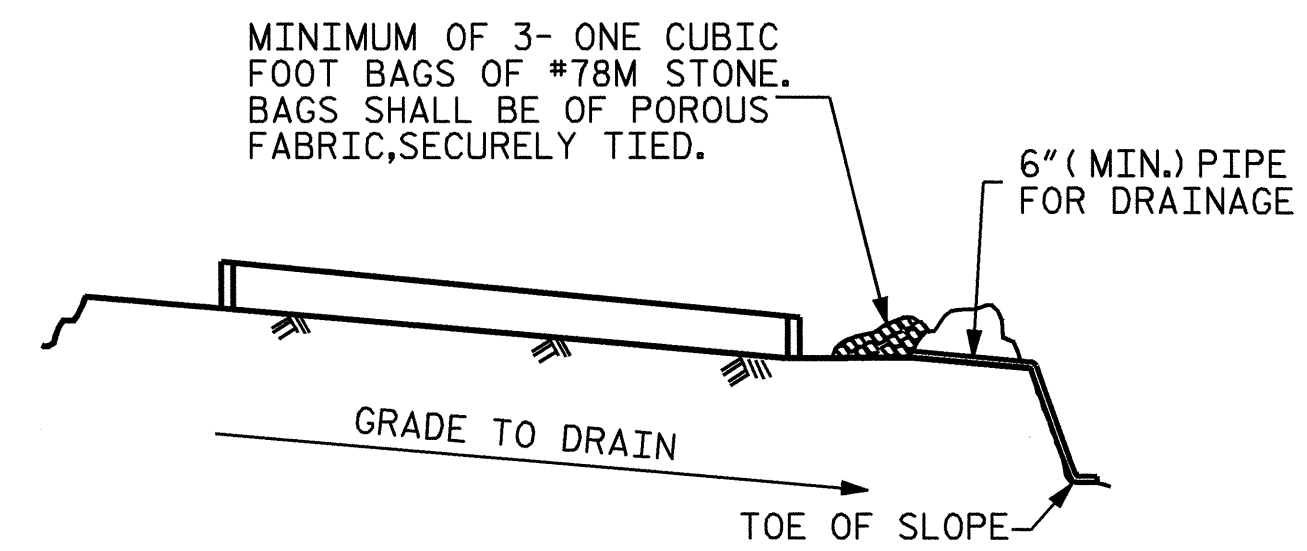


BILL OF MATERIAL					
END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	39'-3"	1068
B2	16	#4	STR	19'-8"	210
B3	4	#4	STR	16'-8"	45
B4	10	#4	STR	2'-8"	18
H1	8	#5	2	16'-1"	134
H2	6	#5	2	15'-1"	94
S1	40	#4	3	3'-5"	91
S2	40	#4	4	8'-7"	229
S3	27	#4	5	6'-6"	117
V1	66	#4	STR	4'-0"	176
V2	29	#4	STR	5'-0"	97
V3	27	#4	STR	4'-3"	77
U1	15	#4	6	5'-8"	57
REINFORCING STEEL				=	2413 LBS
CLASS A CONCRETE BREAKDOWN :					
POUR #1 - (CAP & LOWER WINGS)					17.1 C.Y.
TOTAL					17.1 C.Y.
HP 12 x 53 STEEL PILES					
NO. = 9 LIN. FEET = 180					

SECTION C-C

PARTIAL SECTION D-D

ALL BAR DIMENSIONS ARE OUT TO OUT.

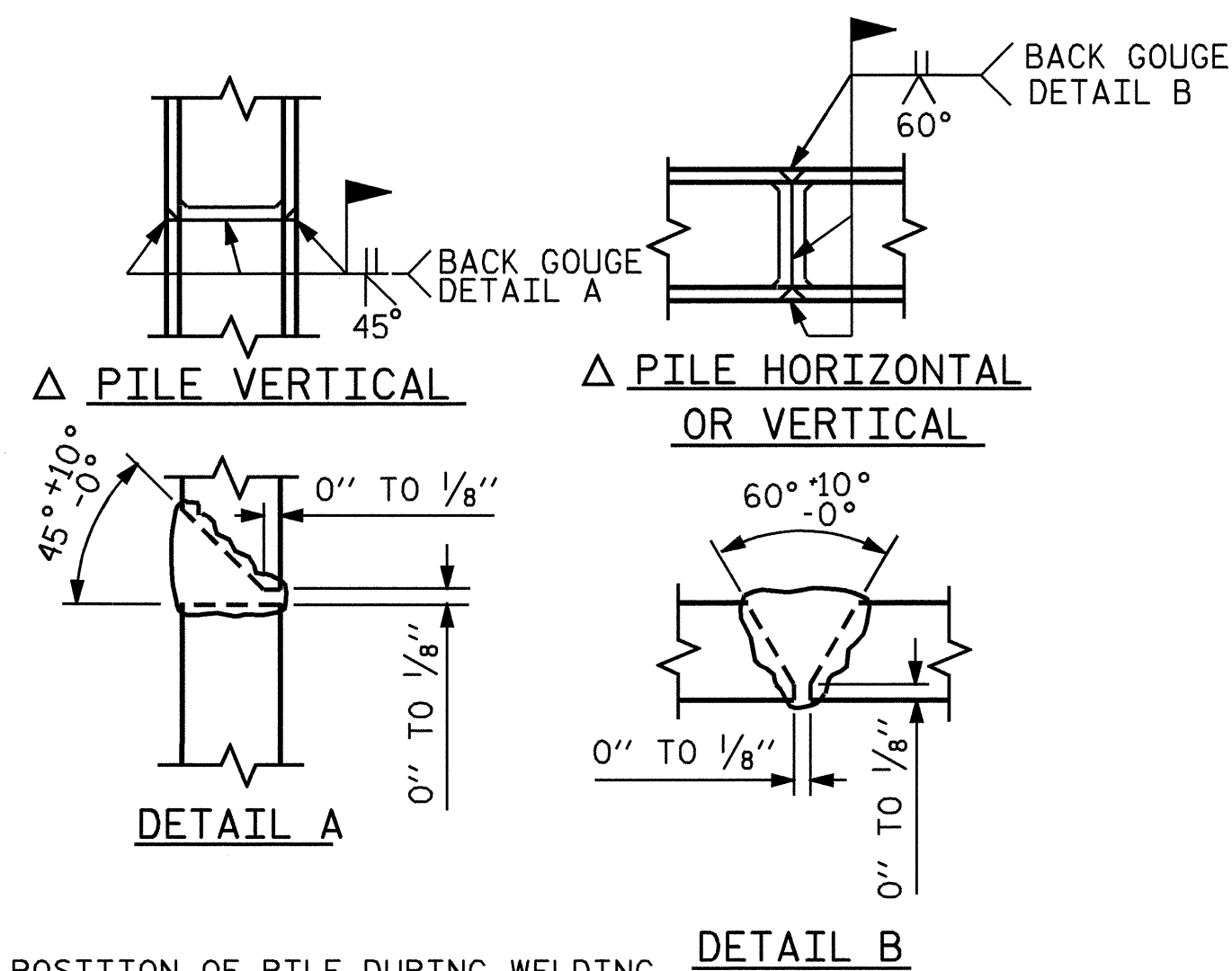


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

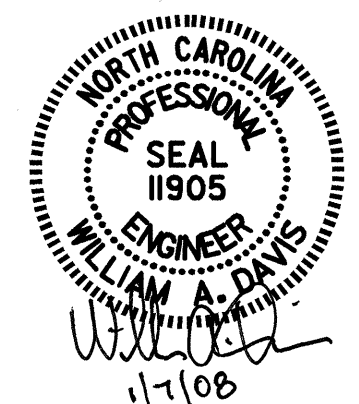
PILE SPLICE DETAILS

PROJECT NO. B-3697
RUTHERFORD COUNTY
 STATION: 16+92.50 -L-

SHEET 3 OF 3

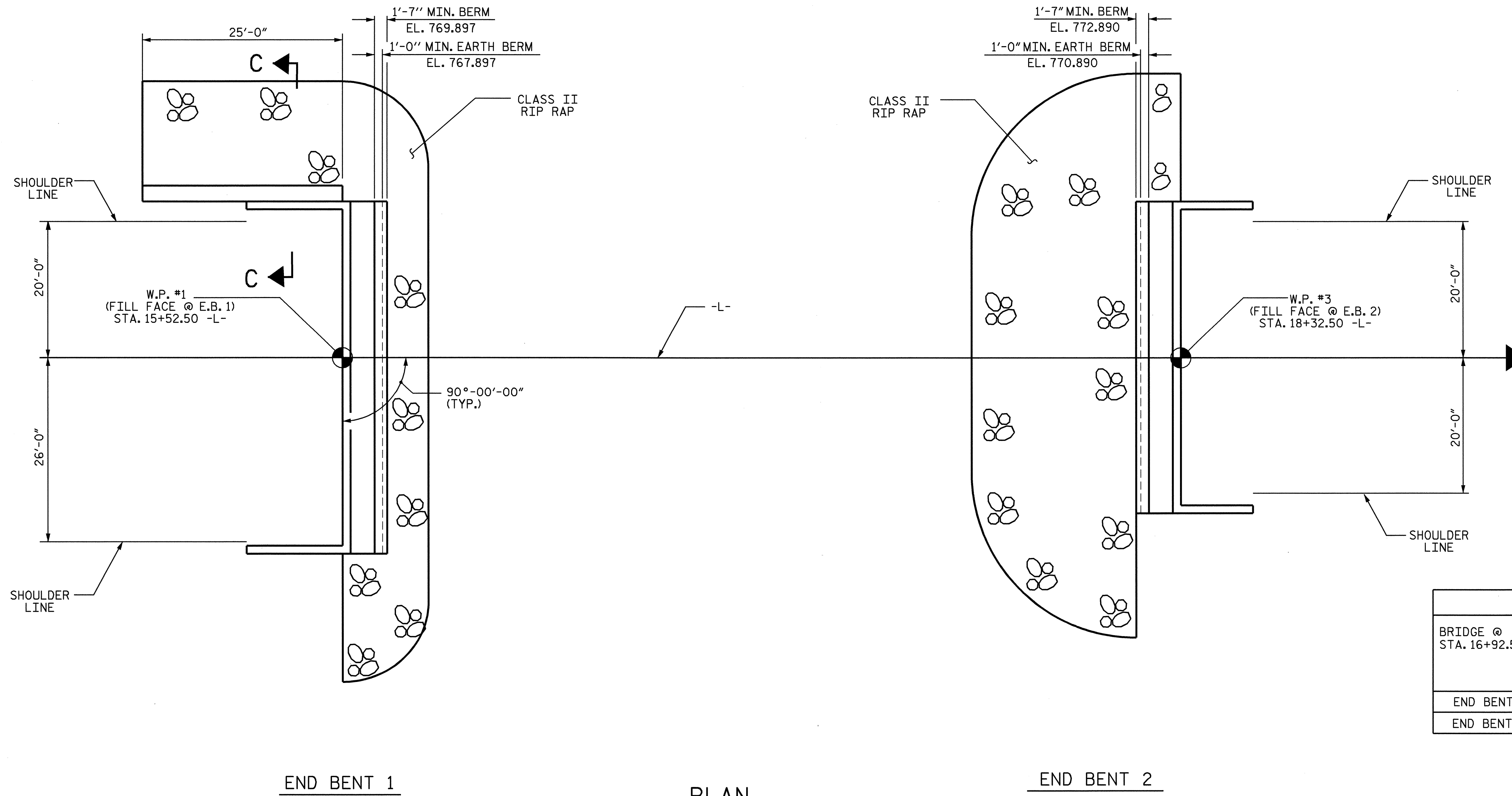
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 2
 INTEGRAL

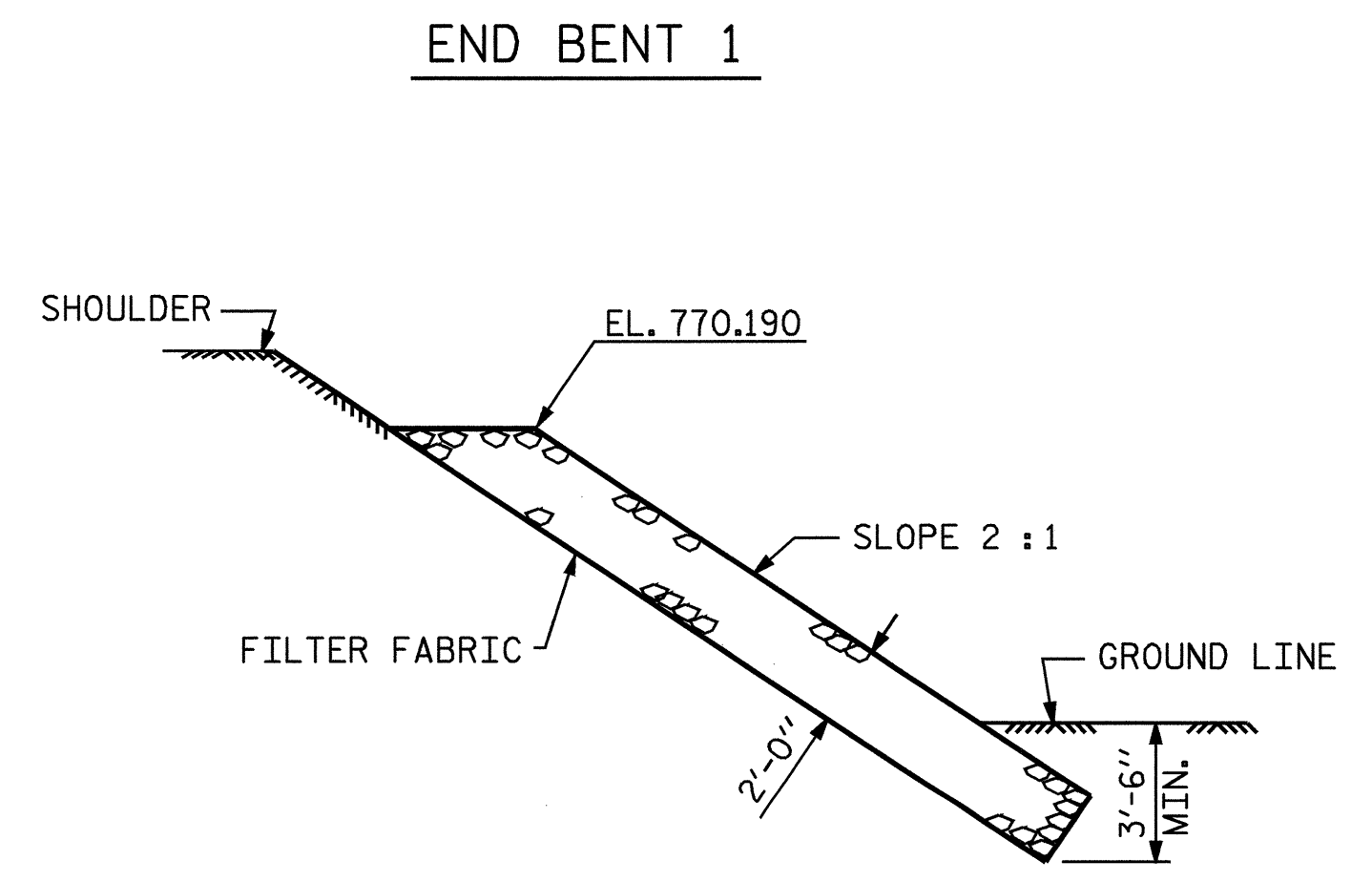


DRAWN BY : K. McCAULEY DATE : 10/8/07
 CHECKED BY : J. P. ADAMS DATE : 10/18/07

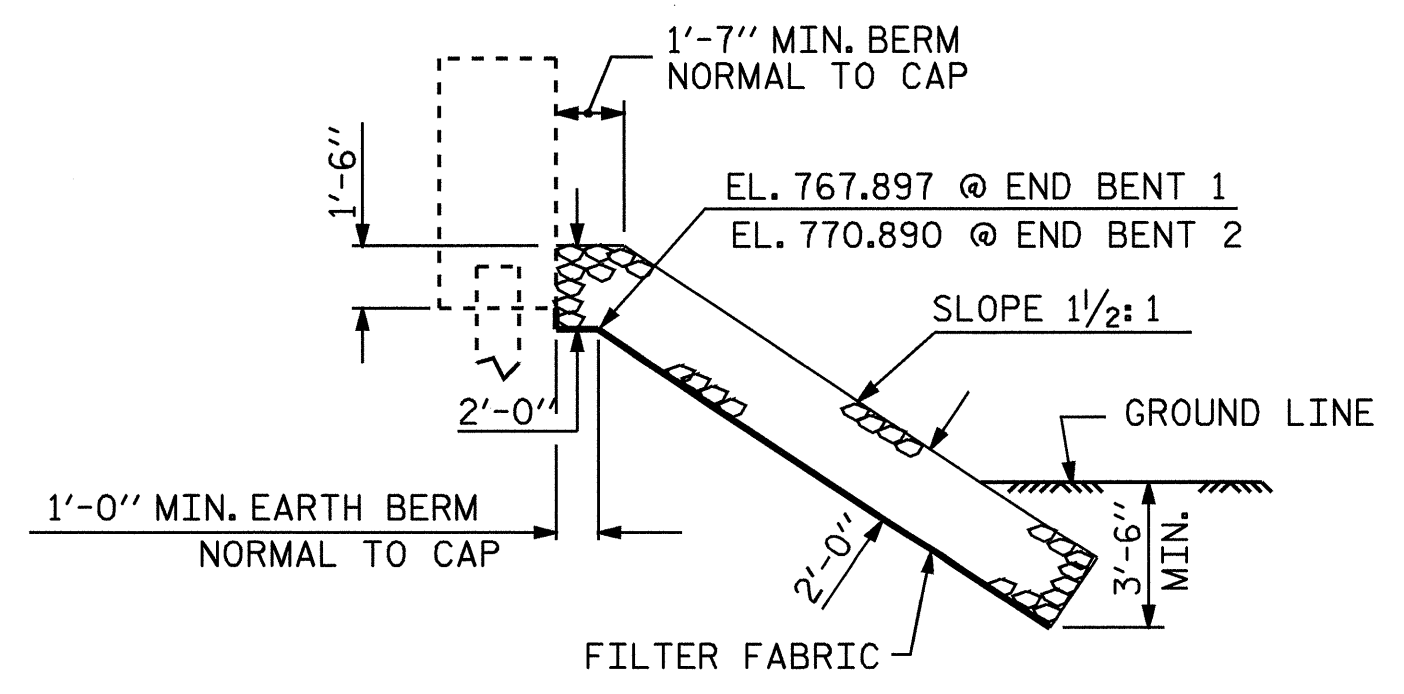
REVISIONS						SHEET NO. S-31
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 34
2			4			



ESTIMATED QUANTITIES		
BRIDGE @ STA. 16+92.50 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	233	260
END BENT 2	344	383



SECTION C-C



Q SECTION

PLAN

BERM RIP RAPPED

PROJECT NO. B-3697
RUTHERFORD COUNTY
 STATION: 16+92.50 -L-

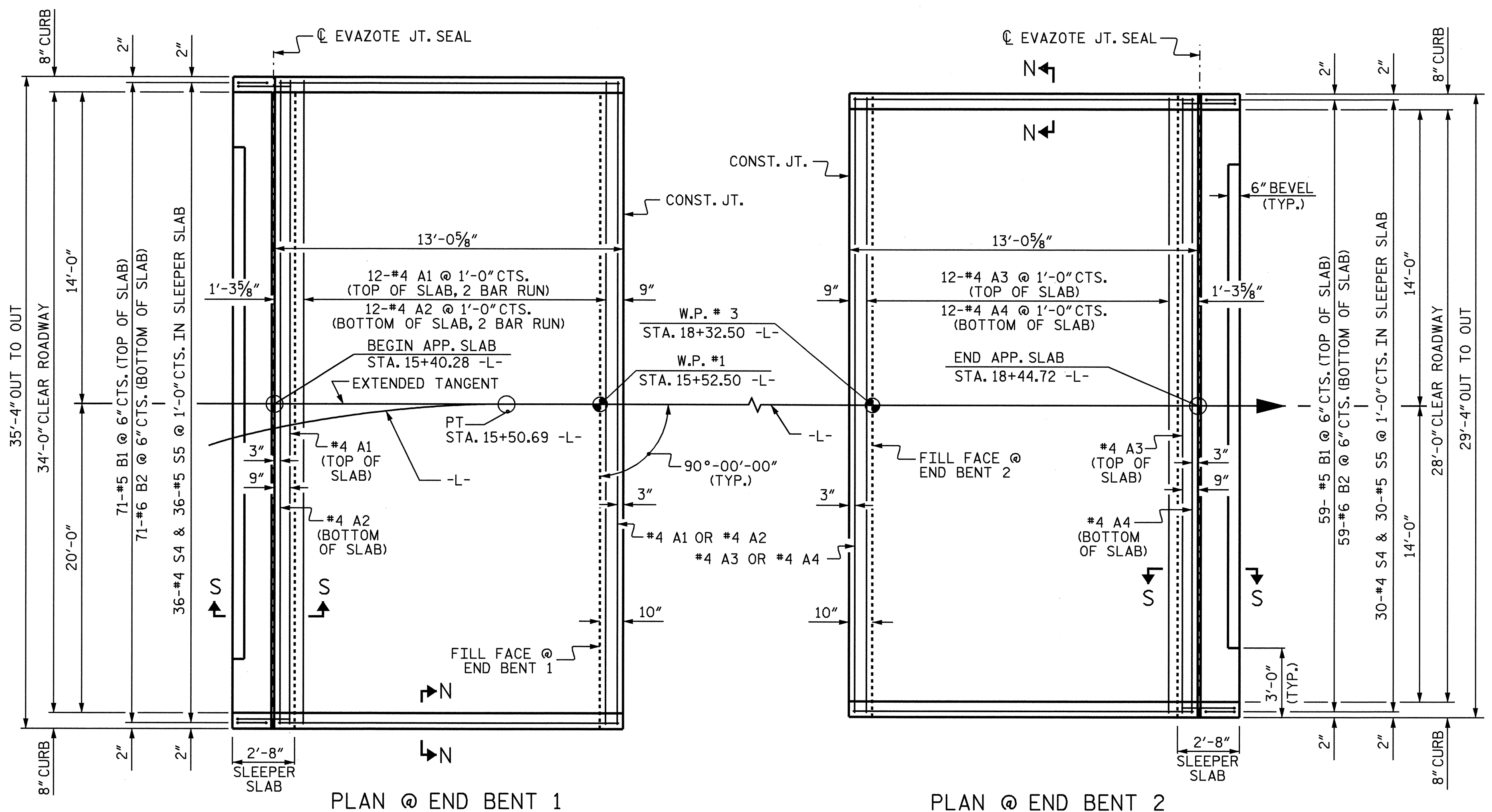


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

RIP RAP DETAILS

ASSEMBLED BY : QT NGUYEN	DATE : 9-07
CHECKED BY : J.P. ADAMS	DATE : 9-07
DRAWN BY : FCJ 2/88	REV. 7/17/98 REK/RWW
CHECKED BY : ARB 8/88	REV. 8/16/99 RWW/LES
	REV. 10/17/00 RWW/LES

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-32
1			3			TOTAL SHEETS
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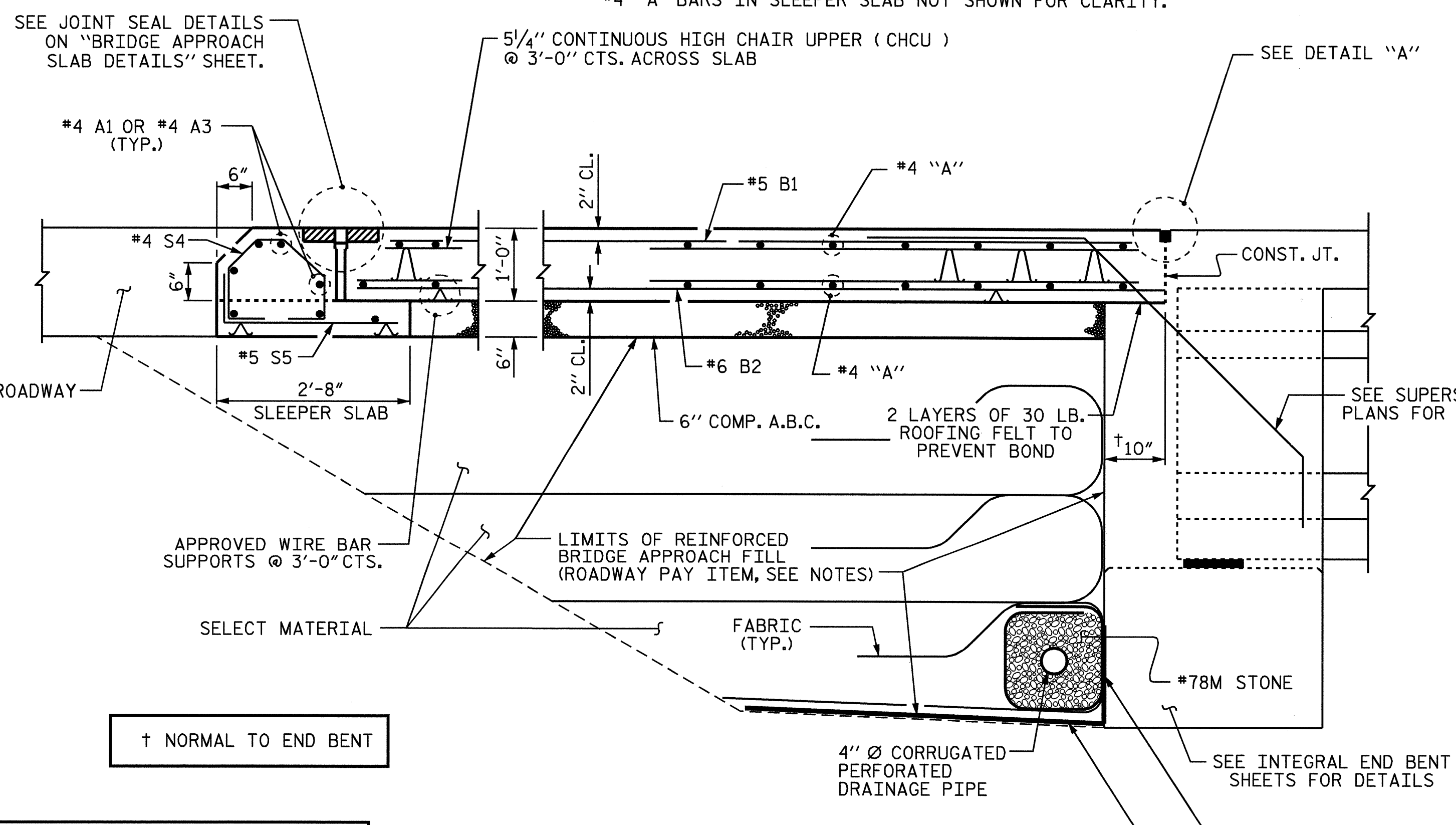


PLAN @ END BENT 1

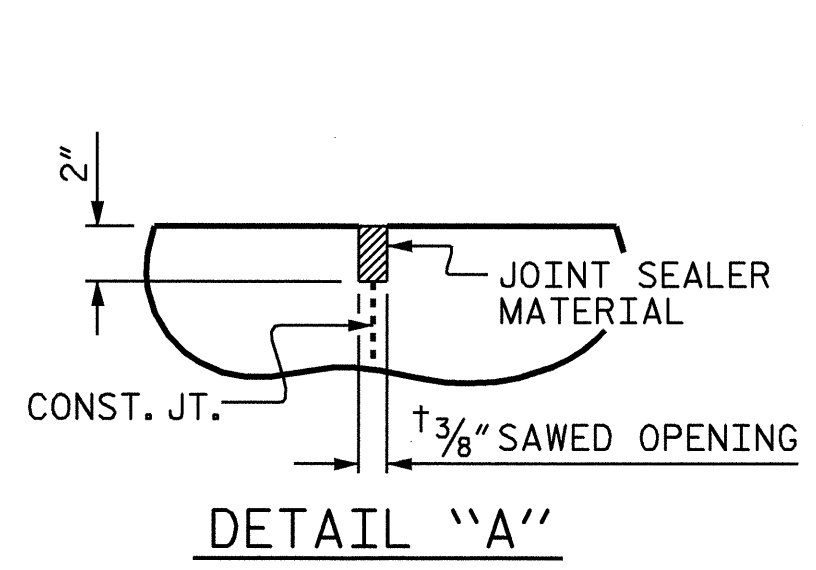
PLAN @ END BENT 2

PLAN OF APPROACH SLABS

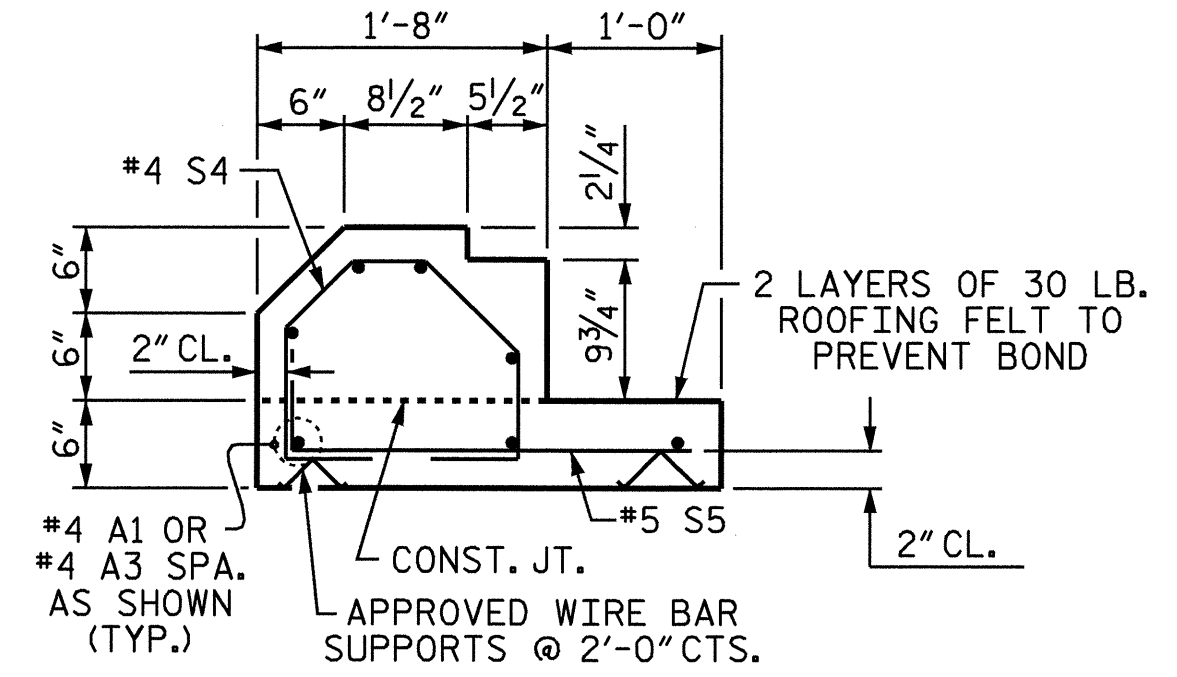
#4 "A" BARS IN SLEEPER SLAB NOT SHOWN FOR CLARITY.



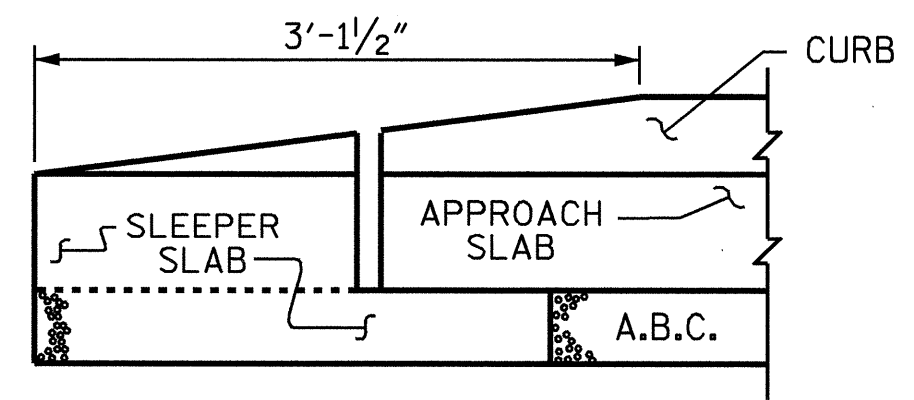
SECTION THRU SLAB



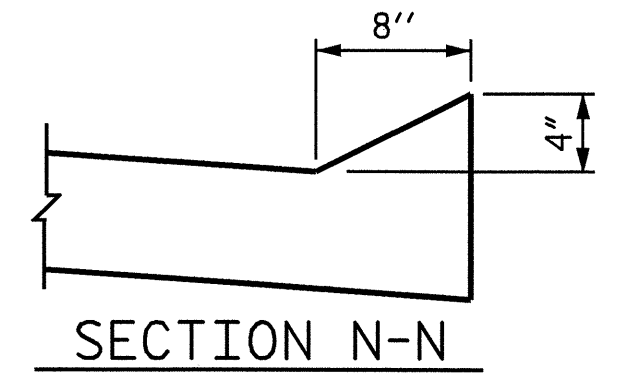
DETAIL "A"



SECTION S-S
SHOWING SLEEPER SLAB



END OF CURB WITHOUT SHOULDER BERM GUTTER



SECTION N-N

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.

WITH EVAZOTE JOINT SEAL

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 3/8".

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL

APPROACH SLAB
END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	42	#4	STR	18'-6"	519
A2	28	#4	STR	18'-4"	343
* B1	71	#5	STR	12'-0"	889
B2	71	#6	STR	12'-6"	1333
* S4	36	#4	1	4'-1"	98
S5	36	#5	2	3'-0"	113

REINFORCING STEEL	LBS.	1789
* EPOXY COATED REINFORCING STEEL	LBS.	1506

CLASS AA CONCRETE		
POUR #1 - SLAB & CURB	C. Y.	17.1
POUR #2 - SLEEPER SLAB	C. Y.	3.7
TOTAL	C. Y.	20.8

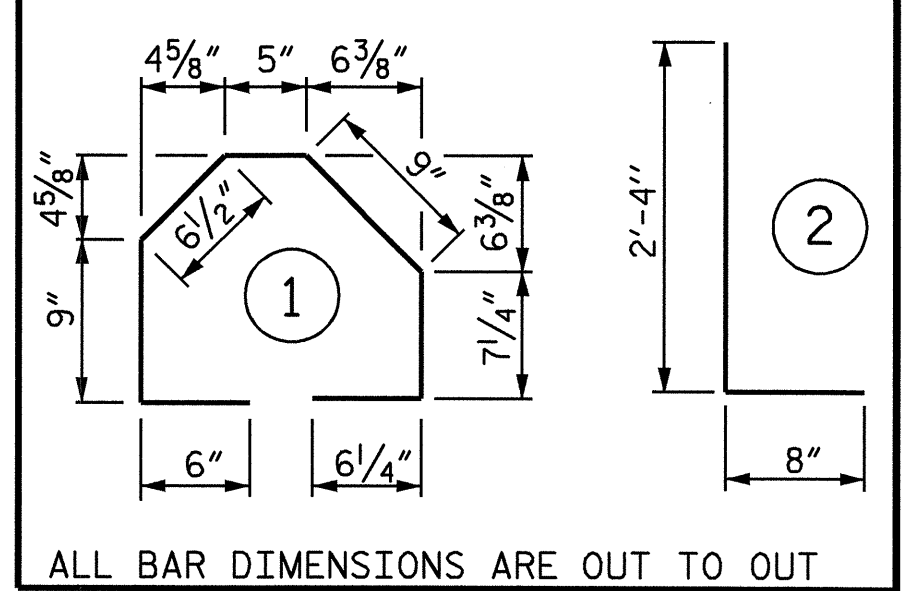
APPROACH SLAB
END BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A3	21	#4	STR	29'-0"	407
A4	14	#4	STR	29'-0"	271
* B1	59	#5	STR	12'-0"	738
B2	59	#6	STR	12'-6"	1108
* S4	30	#4	1	4'-1"	82
S5	30	#5	2	3'-0"	94

REINFORCING STEEL	LBS.	1473
* EPOXY COATED REINFORCING STEEL	LBS.	1227

CLASS AA CONCRETE		
POUR #1 - SLAB & CURB	C. Y.	14.2
POUR #2 - SLEEPER SLAB	C. Y.	3.0
TOTAL	C. Y.	17.2

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

PROJECT NO. B-3697
RUTHERFORD COUNTY
STATION: 16+92.50 -L-

SHEET 1 OF 2

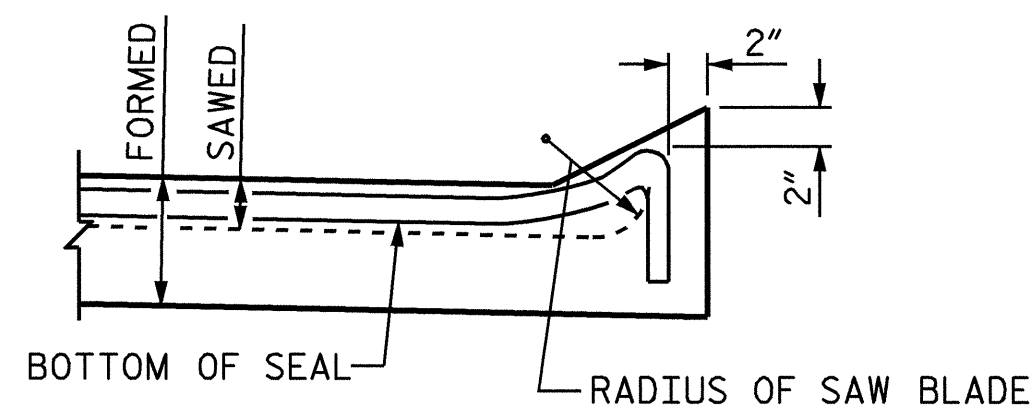
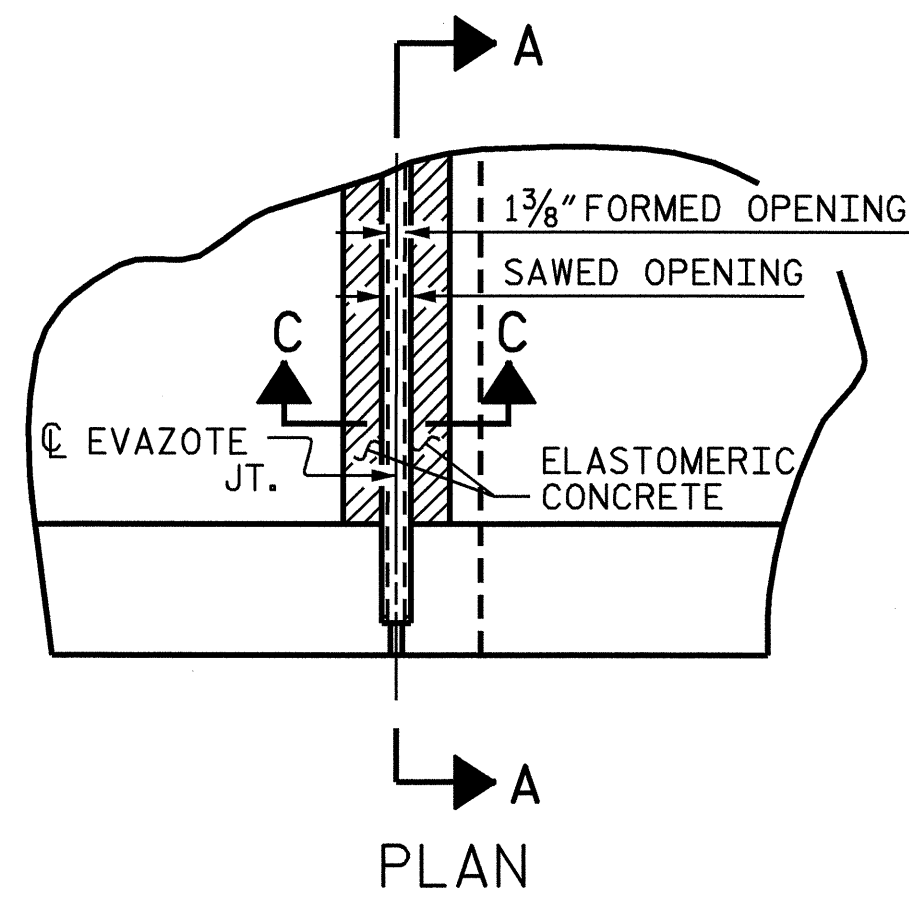
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB
FOR INTEGRAL ABUTMENT

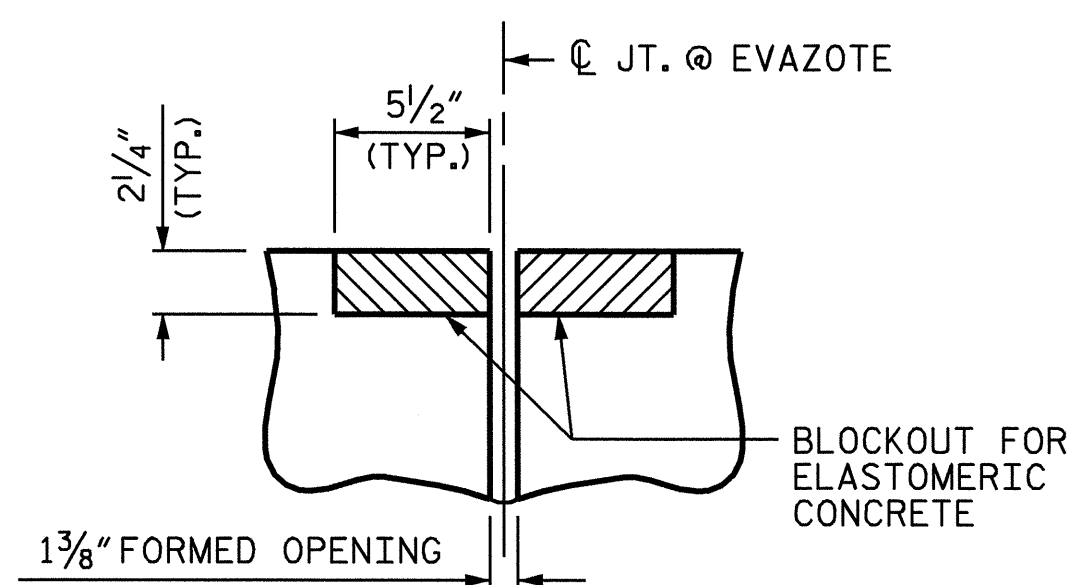
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 34
2			4			



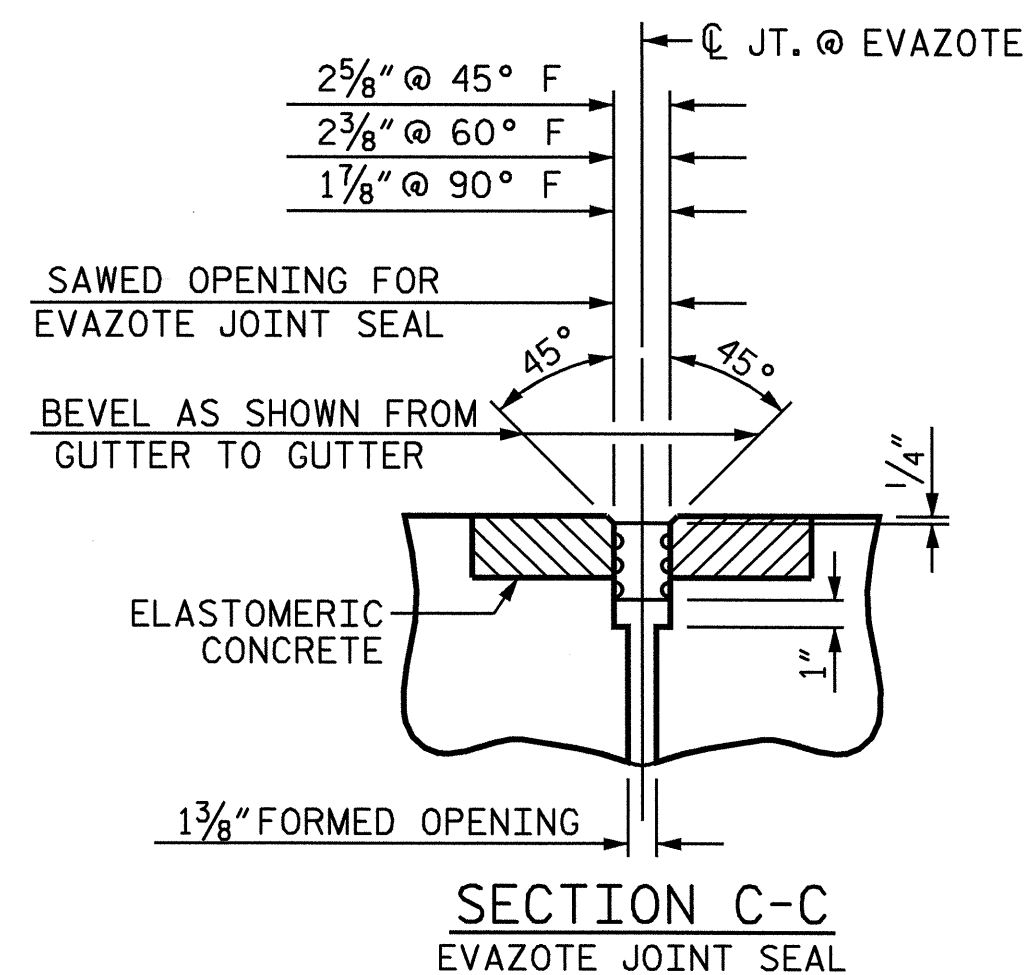
ASSEMBLED BY: QT NGUYEN	DATE: 9-07
CHECKED BY: J.P. ADAMS	DATE: 9-07
DRAWN BY: TLA	10/05
CHECKED BY: GM	5/06
ADDED 5/1/06R	KMM/GM



SECTION A-A

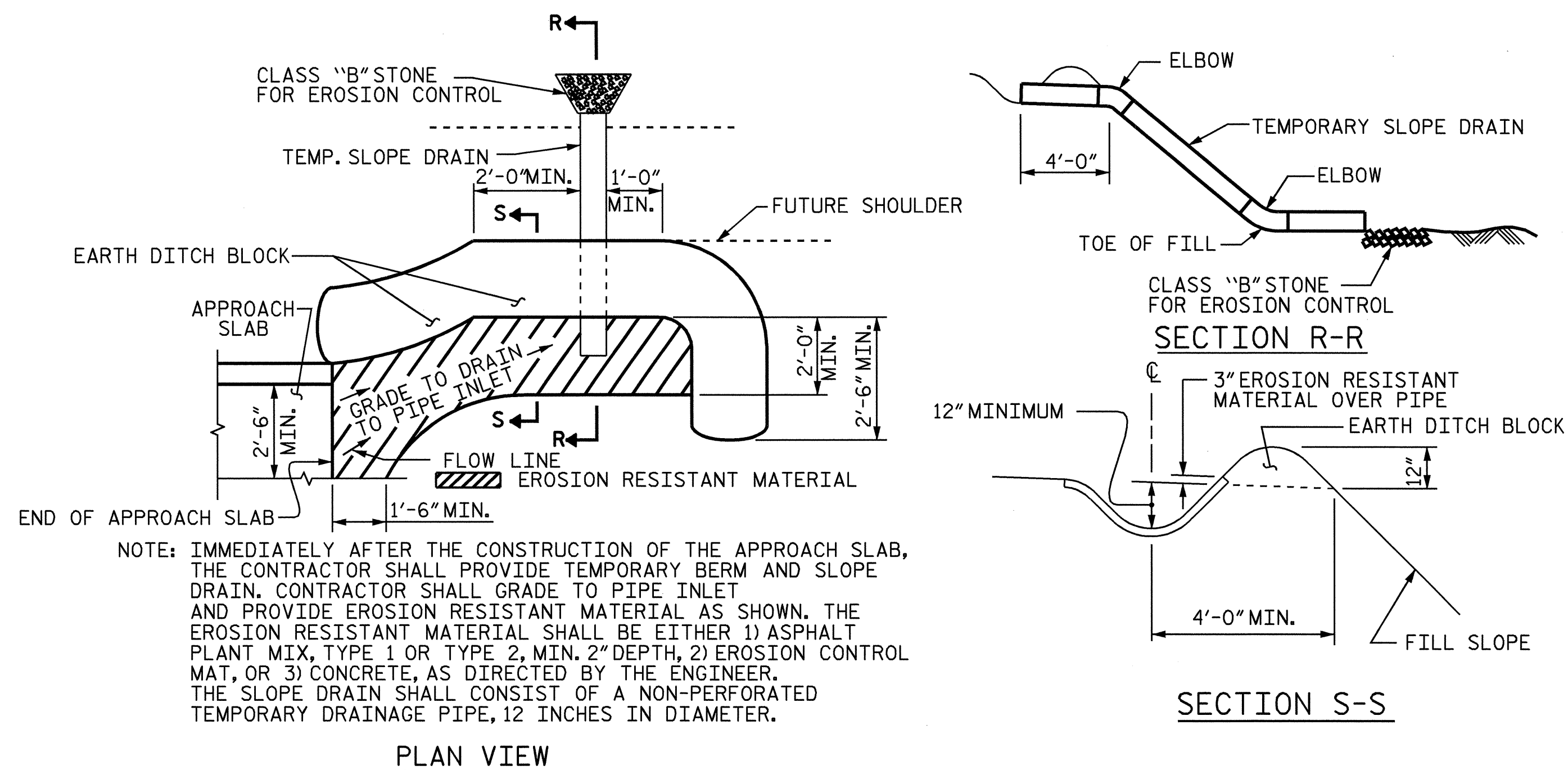


SECTION C-C
EVAZOTE JOINT SEAL
(PRE-SAWED ELASTOMERIC
CONCRETE DIMENSIONS)



SECTION C-C
EVAZOTE JOINT SEAL

JOINT SEAL DETAILS

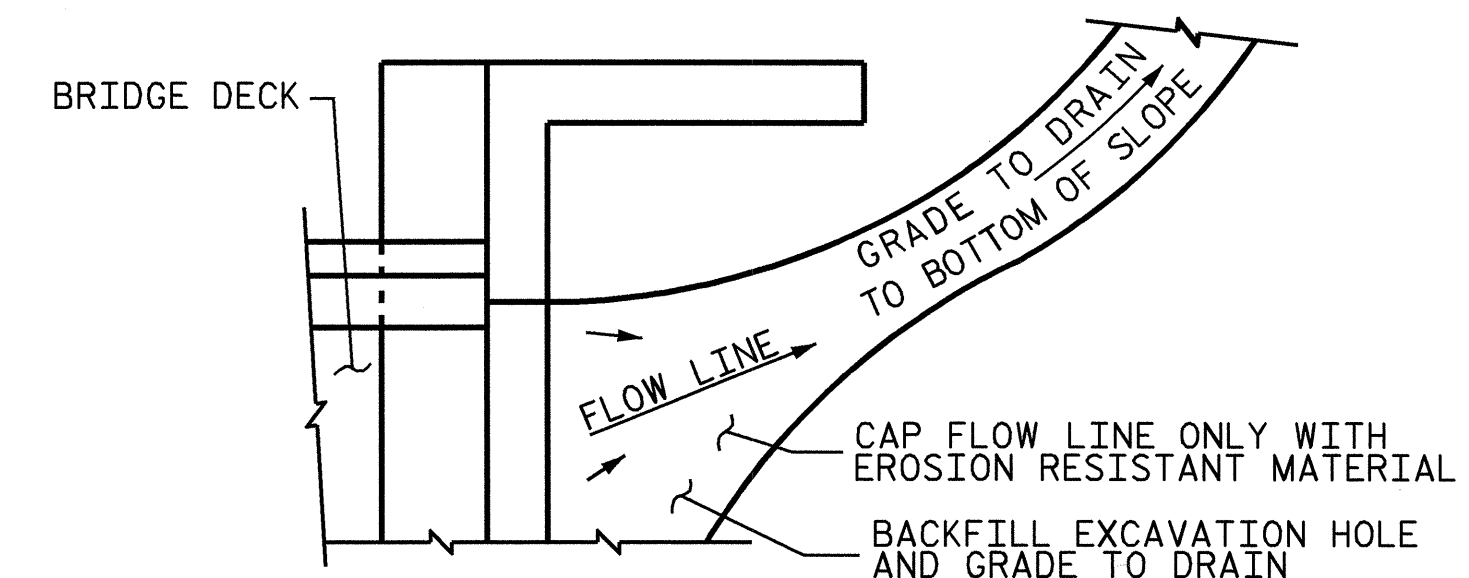


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

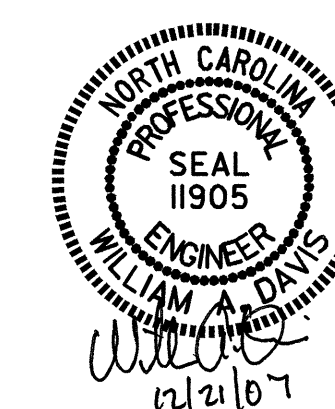


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

ELASTOMERIC CONCRETE	
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	5.8
2	4.8
TOTAL	10.6

* BASED ON THE MINIMUM BLOCKOUT SHOWN.



PROJECT NO. B-3697
RUTHERFORD COUNTY
 STATION: 16+92.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 BRIDGE APPROACH
 SLAB DETAILS

ASSEMBLED BY :	QT NGUYEN	DATE :	9-07
CHECKED BY :	J.P. ADAMS	DATE :	9-07
DRAWN BY :	FCJ	11/88	REV. 10/17/00 RWW/LES
CHECKED BY :	ARB	11/88	REV. 5/1/03 RWW/JTE
			REV. 5/1/06R MAA/KMM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-34
1			3			TOTAL SHEETS
2			4			34

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. FINISHES 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.

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