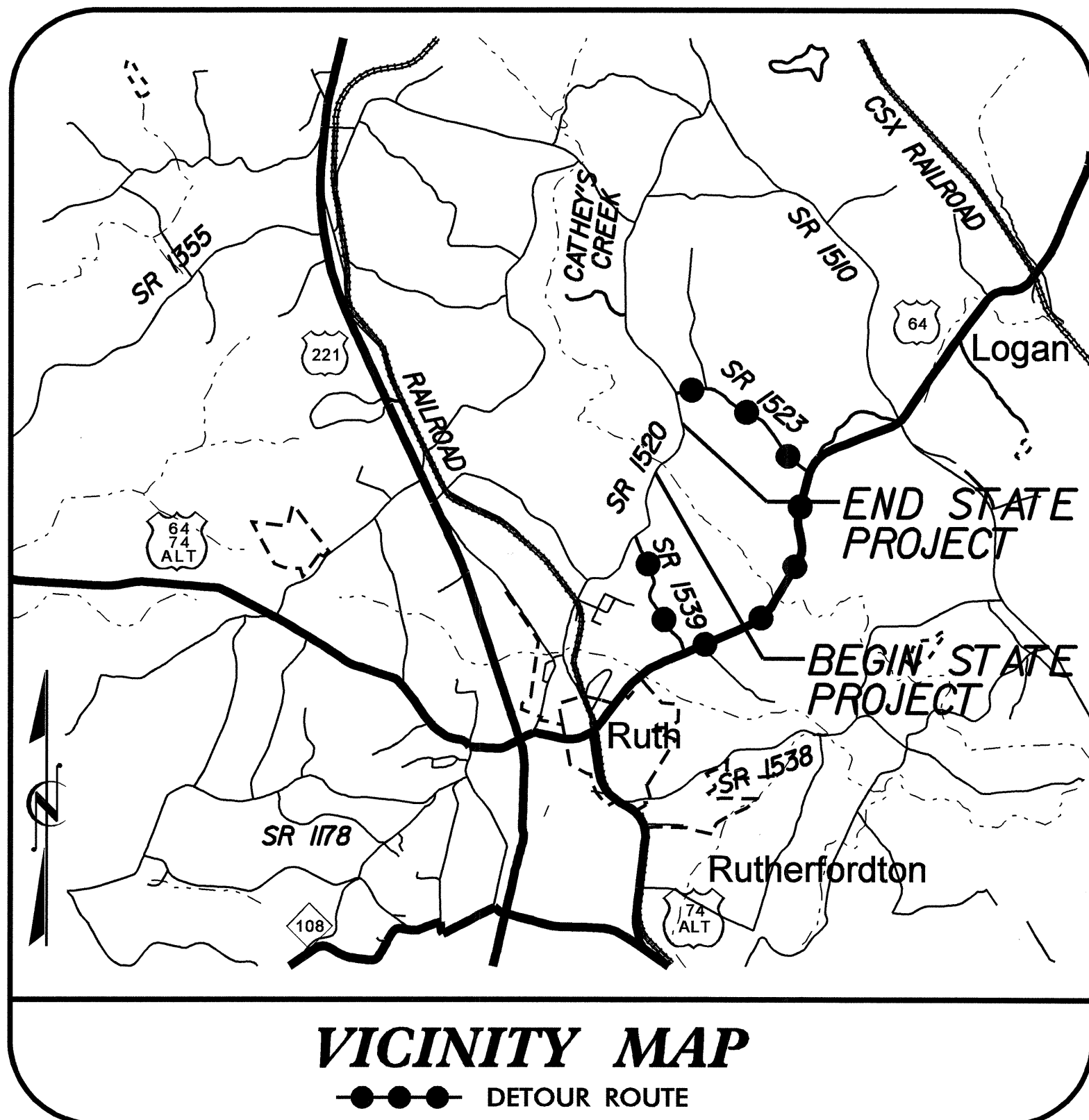


CONTRACT: C202233 TIP PROJECT: B-4261



NEAREST SHIPPING POINT: RUTH ON SEABOARD COAST LINE RR
APPROX. 2.0 MILES FROM PROJECT

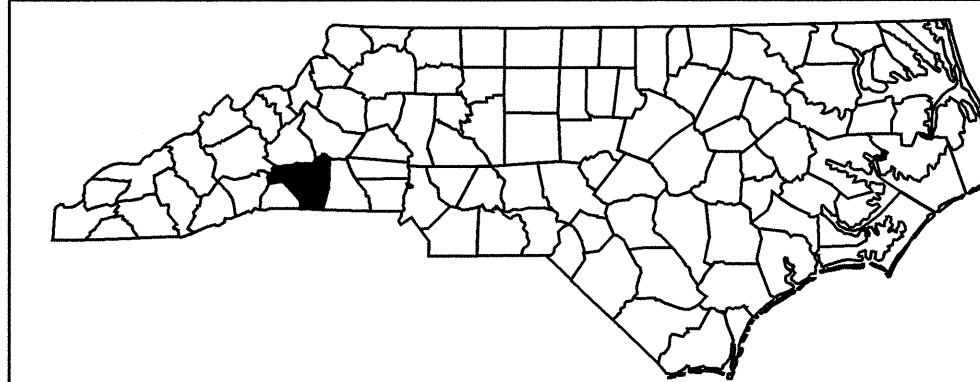
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RUTHERFORD COUNTY

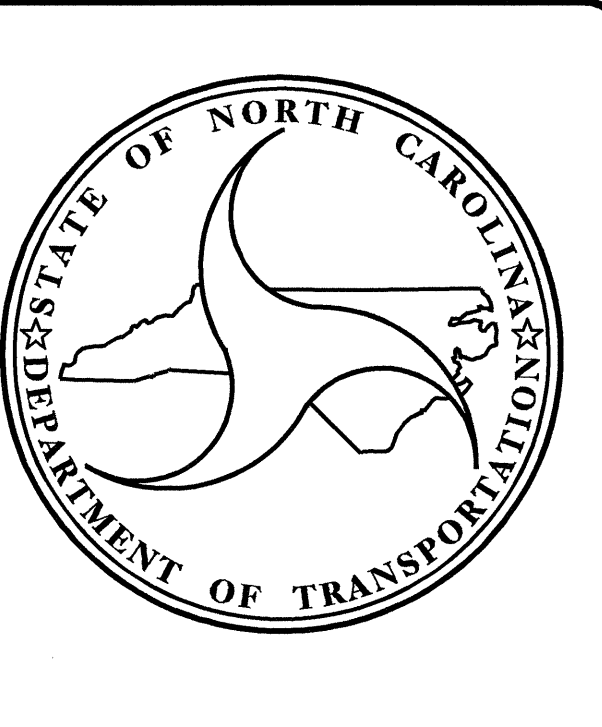
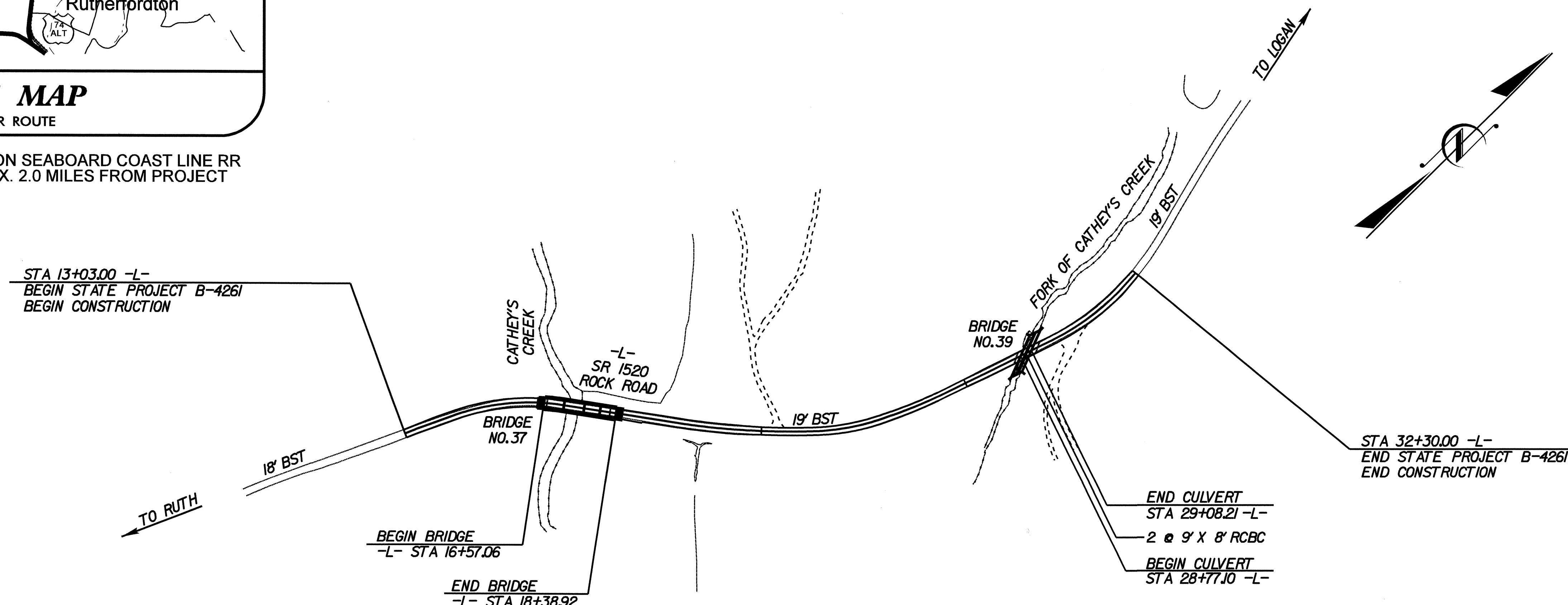
LOCATION: BRIDGE NO. 37 OVER CATHEY'S CREEK AND BRIDGE NO. 39 OVER THE FORK OF CATHEY'S CREEK ON SR 1520

TYPE OF WORK: GRADING, PAVING, DRAINAGE, CULVERT, AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4261		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33603.1.1	BRZ-1520 (4)	PE	
33603.2.1	BRZ-1520 (4)	RW & UTIL.	
33603.3.1	BRZ-1520 (11)	CONST.	



STRUCTURES



DESIGN DATA

ADT 2009 =	1,700
ADT 2030 =	2,800
DHV =	10 %
D =	60 %
T =	3 % *
V =	60 MPH
* TTST 1 %	DUAL 2 %
FUNC CLASS =	LOCAL RURAL

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-4261 =	0.325 MI.
LENGTH OF STRUCTURE TIP PROJECT B-4261 =	0.040 MI.
TOTAL LENGTH OF TIP PROJECT B-4261 =	0.365 MI.

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 BIRCH RIDGE DR. RALEIGH, NC 27610

2006 STANDARD SPECIFICATIONS

<p>LETTING DATE: DECEMBER 15, 2009</p>	<p style="text-align: center;">N. N. BULLOCK, PE PROJECT ENGINEER</p> <hr/> <p style="text-align: center;">D. R. CALHOUN, PE PROJECT DESIGN ENGINEER</p>
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STRUCTURE DESIGN UNIT

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR

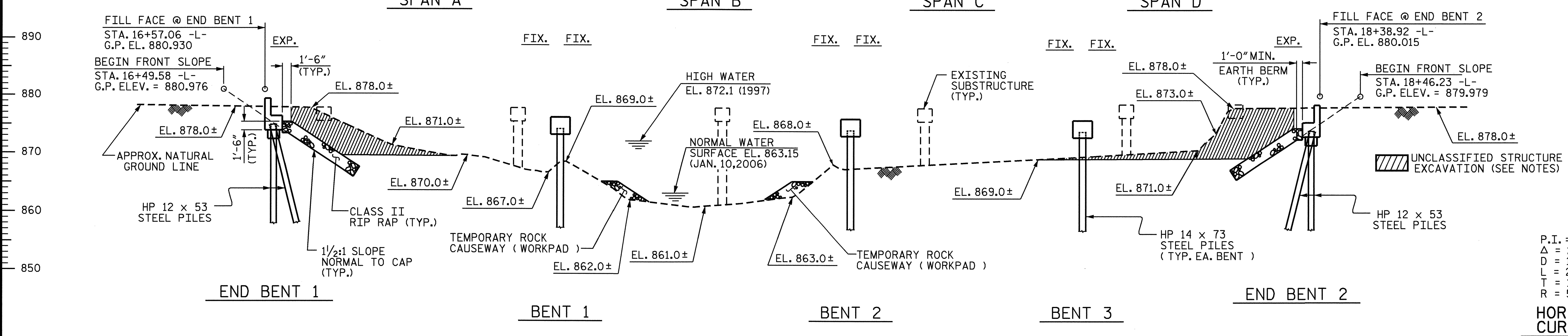
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-3.0524% -0.5000%

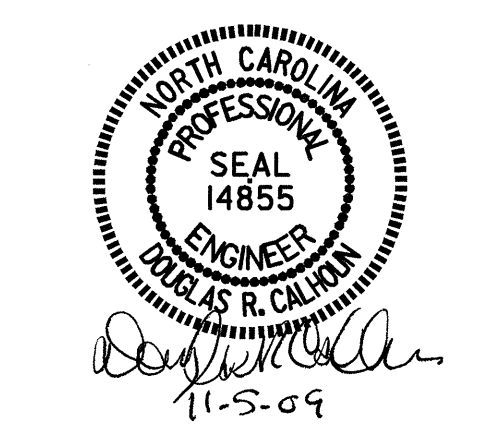
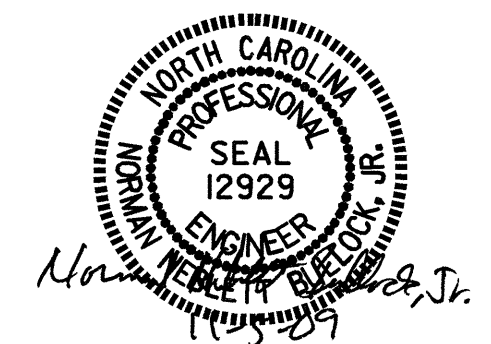
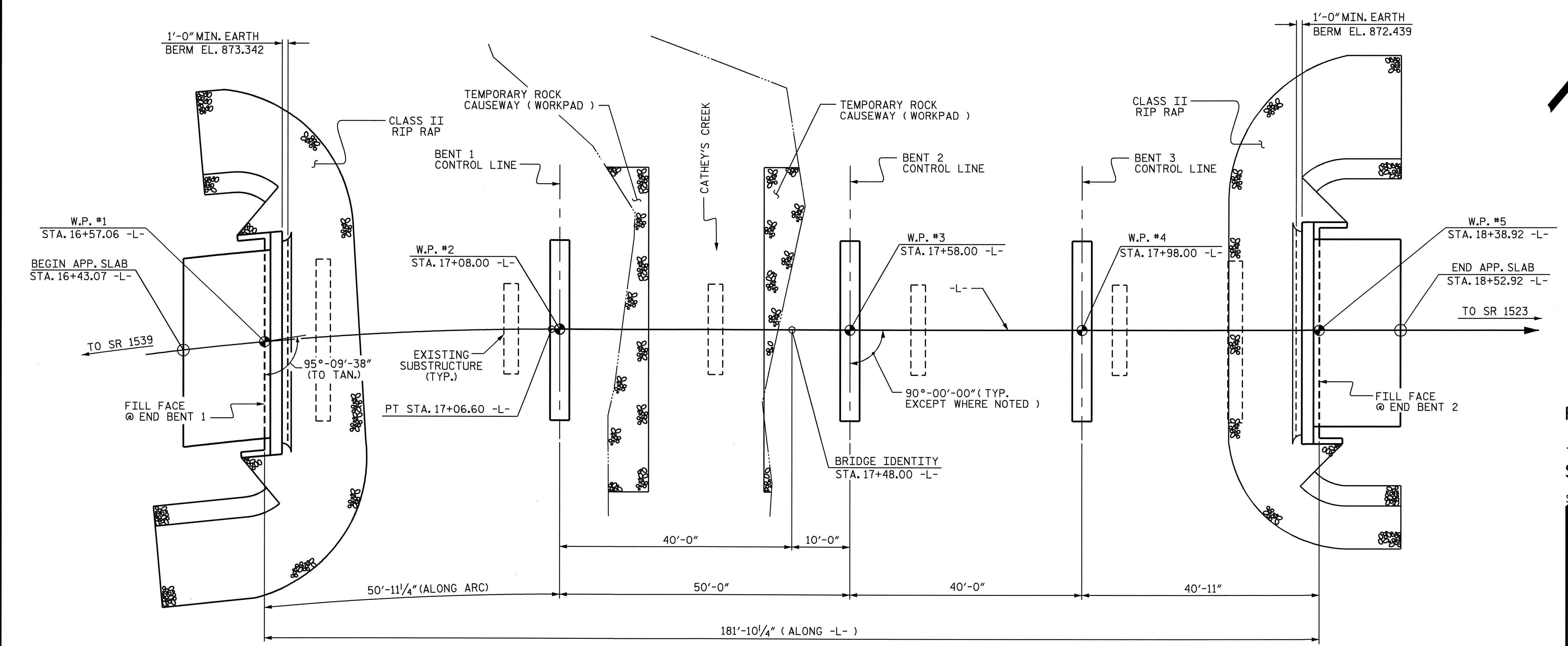
P.I. = 14+94.00 -L-
ELEV. = 881.74
VC = 350'

GRADE DATA



P.I. = 15+71.14 -L-
Δ = 28°-50'-54" (RT)
D = 10°-25'-3"
L = 276.92'
T = 141.46'
R = 550.00'

HORIZONTAL CURVE DATA



PROJECT NO. B-4261
RUTHERFORD COUNTY
 STATION: 17+48.00 -L-
 SHEET 1 OF 3 REPLACES BRIDGE NO. 37

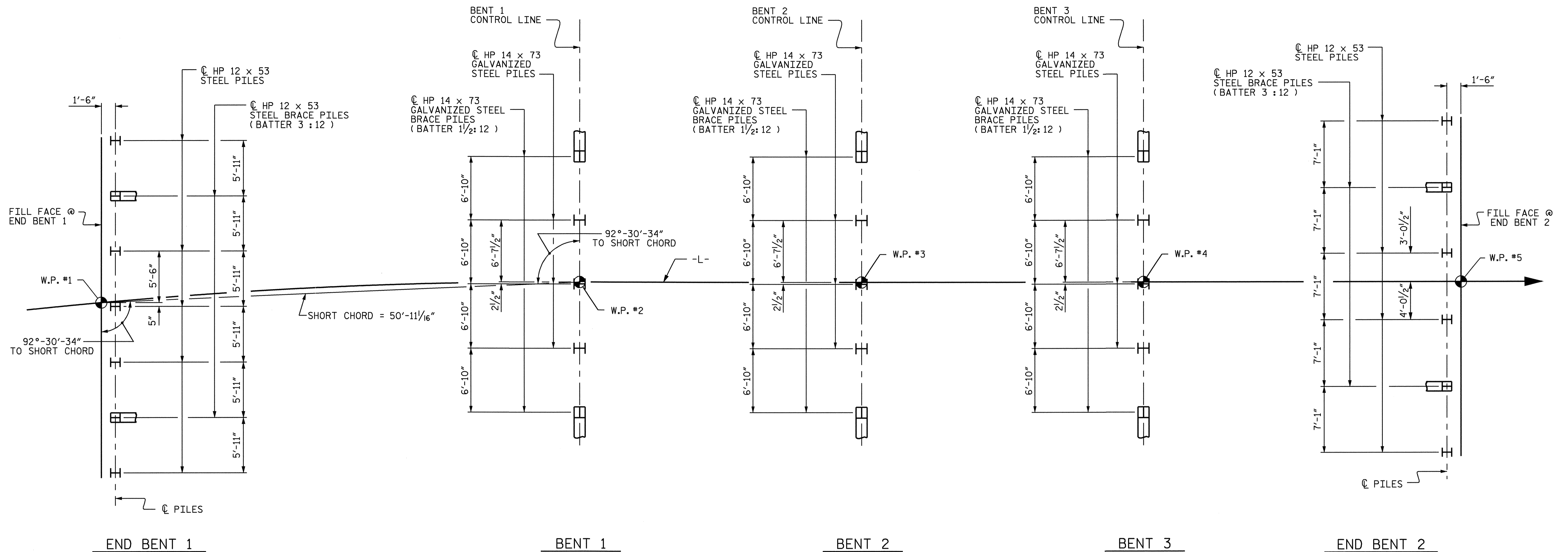
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER CATHEY'S
 CREEK ON SR 1520 BETWEEN
 SR 1539 AND SR 1523

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1	
1			3			TOTAL SHEETS	36
2			4				

DRAWN BY : B. N. GRADY DATE : 7/29/09
 CHECKED BY : E. G. ALLEN DATE : 10/7/09

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 bng Brady



FOUNDATION LAYOUT

(DIMENSIONS LOCATING PILES ARE TO CENTERLINE OF PILES)

FOUNDATION NOTES

FOR PILES, SEE SPECIAL PROVISIONS.

DRIVE PILES AT END BENT 1 AND 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 1 AND 2 IS 50 TONS PER PILE.

DRIVE PILES AT BENT 1 TO A REQUIRED BEARING CAPACITY OF 160 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 BENT 1 IS 80 TONS PER PILE.

INSTALL PILES AT BENT 1 TO A TIP ELEVATION NO HIGHER THAN 834 FT. (LT) AND 838 FT. (RT).

DRIVE PILES AT BENT 2 TO A REQUIRED BEARING CAPACITY OF 150 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 BENT 2 IS 75 TONS PER PILE.

INSTALL PILES AT BENT 2 TO A TIP ELEVATION NO HIGHER THAN 830 FT. (LT) AND 833 FT. (RT).

DRIVE PILES AT BENT 3 TO A REQUIRED BEARING CAPACITY OF 140 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 BENT 3 IS 70 TONS PER PILE.

INSTALL PILES AT BENT 3 TO A TIP ELEVATION NO HIGHER THAN 828 FT. (LT) AND 832 FT. (RT).

STEEL H-PILE POINTS ARE REQUIRED FOR H-PILES AT BENT 3. FOR STEEL PILE POINTS, SEE PILES SPECIAL PROVISION.

DRAWN BY : B. N. GRADY DATE : 7/30/09
 CHECKED BY : E. G. ALLEN DATE : 10/7/09

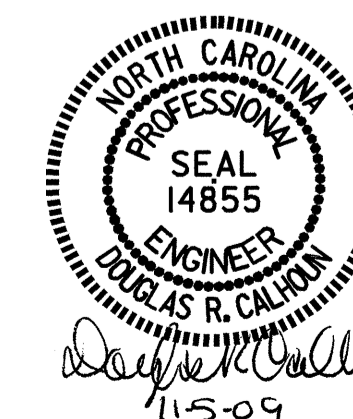
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PROJECT NO. B-4261
RUTHERFORD COUNTY
 STATION: 17+48.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER CATHEY'S
 CREEK ON SR 1520 BETWEEN
 SR 1539 AND SR 1523



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			36

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE & REMOVAL OF TEMPORARY ACCESS	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	36" PRESTRESSED CONCRETE GIRDERS	HP 12 X 53 STEEL PILES	HP 14 X 73 GALVANIZED STEEL PILES	STEEL PILE POINTS	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS			
	LUMP SUM	LUMP SUM	LUMP SUM	SQ.FT.	SQ.FT.	CU.YDS.	LUMP SUM	LBS.	NO.	LIN.FT.	NO.	LIN.FT.	EACH	LIN.FT.	TONS	SQ.YDS.	LUMP SUM	LUMP SUM		
SUPERSTRUCTURE				5798	5344		LUMP SUM		16	706.67			359.54				LUMP SUM	LUMP SUM		
END BENT 1						18.9		2731		7	310			189	210					
BENT 1						12.3		1992			5	210								
BENT 2						12.3		1992			5	225								
BENT 3						12.3		1992			5	235	5							
END BENT 2						18.8		2747		6	270			171	190					
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	5798	5344	74.6	LUMP SUM	11,454	16	706.67	13	580	15	670	5	359.54	360	400	LUMP SUM	LUMP SUM

NOTES:

ASSUMED LIVE LOAD = HS 20 OR ALTERNATE LOADING, EXCEPT THAT THE 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.

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

THE EXISTING STRUCTURE CONSISTING OF FIVE (1 @ 36'-4 1/2", 2 @ 34'-4", 1 @ 34'-5", 1 @ 18'-8 1/2") TIMBER FLOOR ON I-BEAM AND TIMBER JOIST SPANS WITH A CLEAR ROADWAY WIDTH OF 19'-2" ON TIMBER CAP AND PILE END BENTS AND BENTS AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT. SEE SPECIAL PROVISION FOR "REMOVAL OF EXISTING STRUCTURE @ STA. 17+48.00 -L-".

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.

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 17+48.00 -L-".

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

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

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.

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

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 25 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF CAUSEWAY, THE CLASS II RIP RAP USED IN THE CAUSEWAY MAY BE PLACED AS RIP RAP SLOPE PROTECTION. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 17+48.00 -L-.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

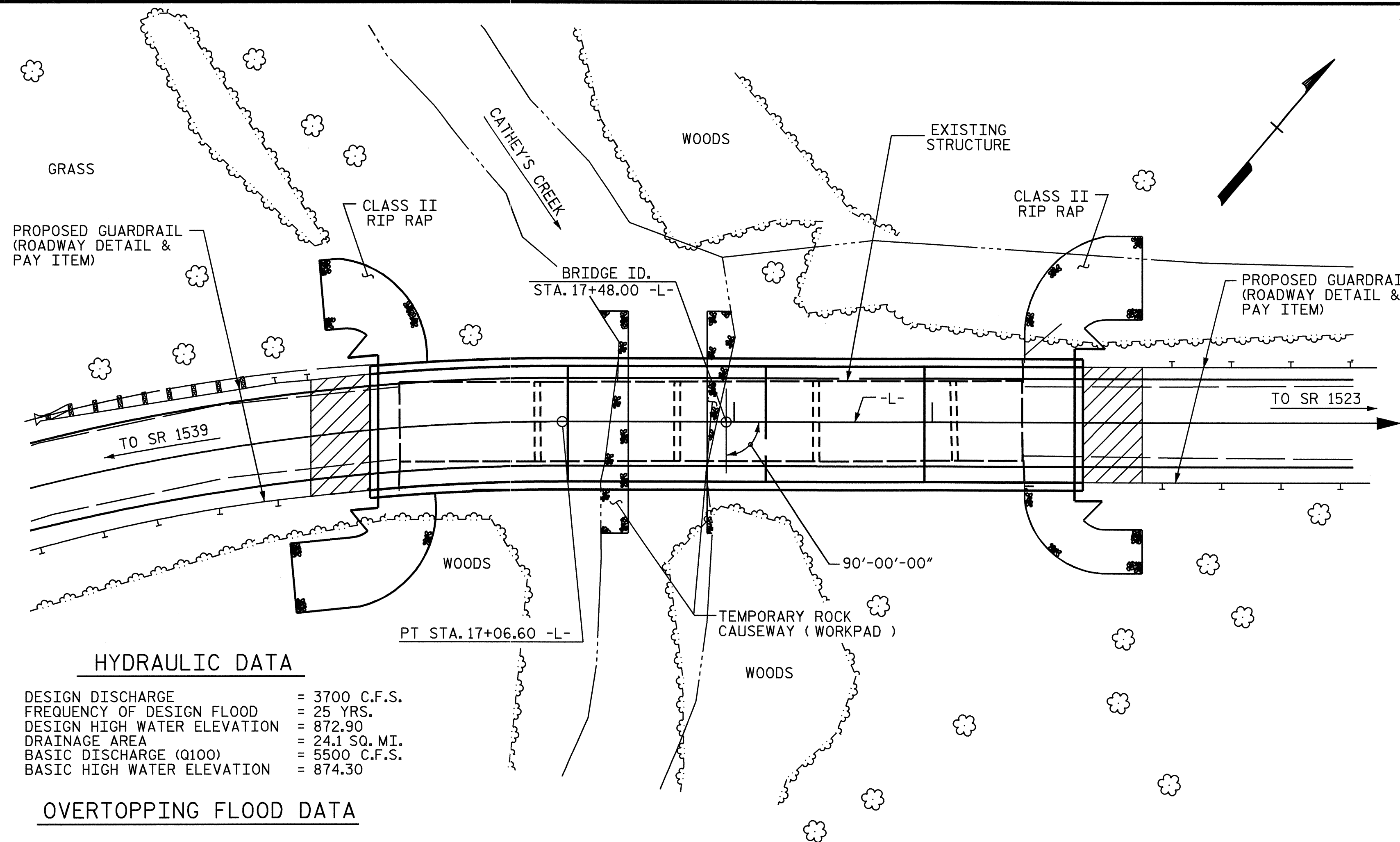
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.

FOR PLACING LOAD ON STRUCTURE MEMBERS, SEE SPECIAL PROVISIONS.

BM #2 : RR SPIKE SET IN 36" ELM, 175.41' RT. OF STA. 18+71.47 -L-, ELEV. 869.25



HYDRAULIC DATA

DESIGN DISCHARGE = 3700 C.F.S.
 FREQUENCY OF DESIGN FLOOD = 25 YRS.
 DESIGN HIGH WATER ELEVATION = 872.90
 DRAINAGE AREA = 24.1 SQ. MI.
 BASIC DISCHARGE (Q100) = 5500 C.F.S.
 BASIC HIGH WATER ELEVATION = 874.30

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = > 8000 C.F.S.
 FREQUENCY OF OVERTOPPING FLOOD = > 500 YRS.
 OVERTOPPING FLOOD ELEVATION = 878.70

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

DRAWN BY : B. N. GRADY DATE : 7/29/09
 CHECKED BY : E. G. ALLEN DATE : 10/7/09

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PROJECT NO. B-4261
RUTHERFORD COUNTY
 STATION: 17+48.00 -L-

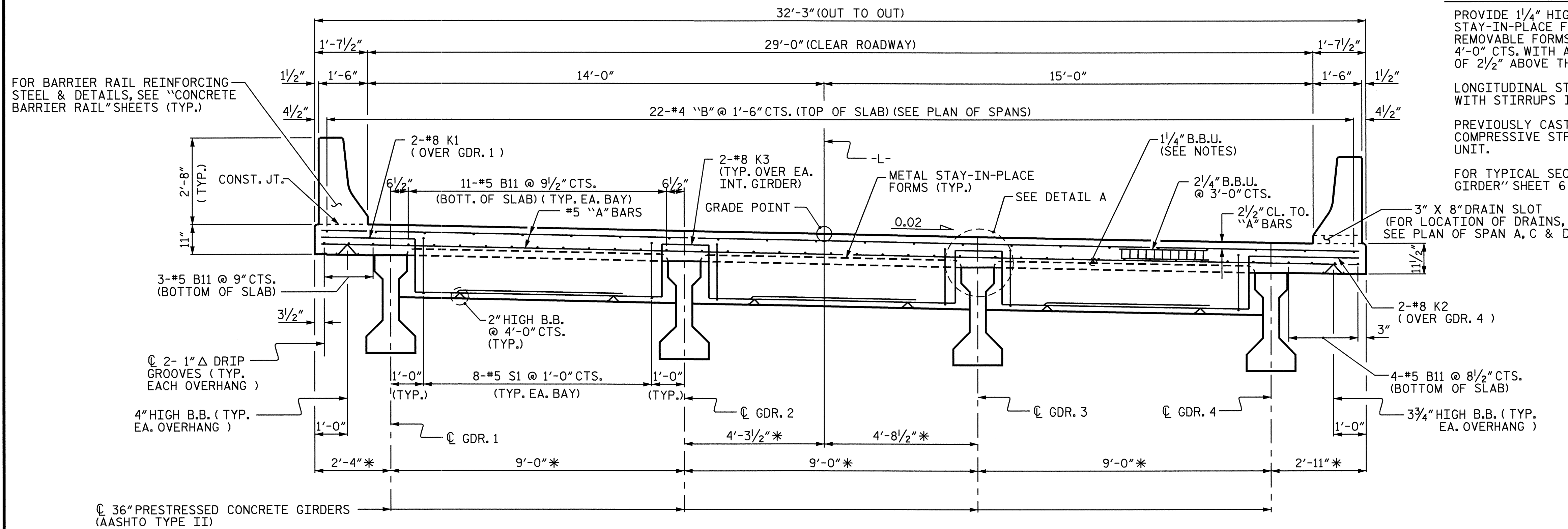
SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER CATHEY'S
 CREEK ON SR 1520 BETWEEN
 SR 1539 AND SR 1523

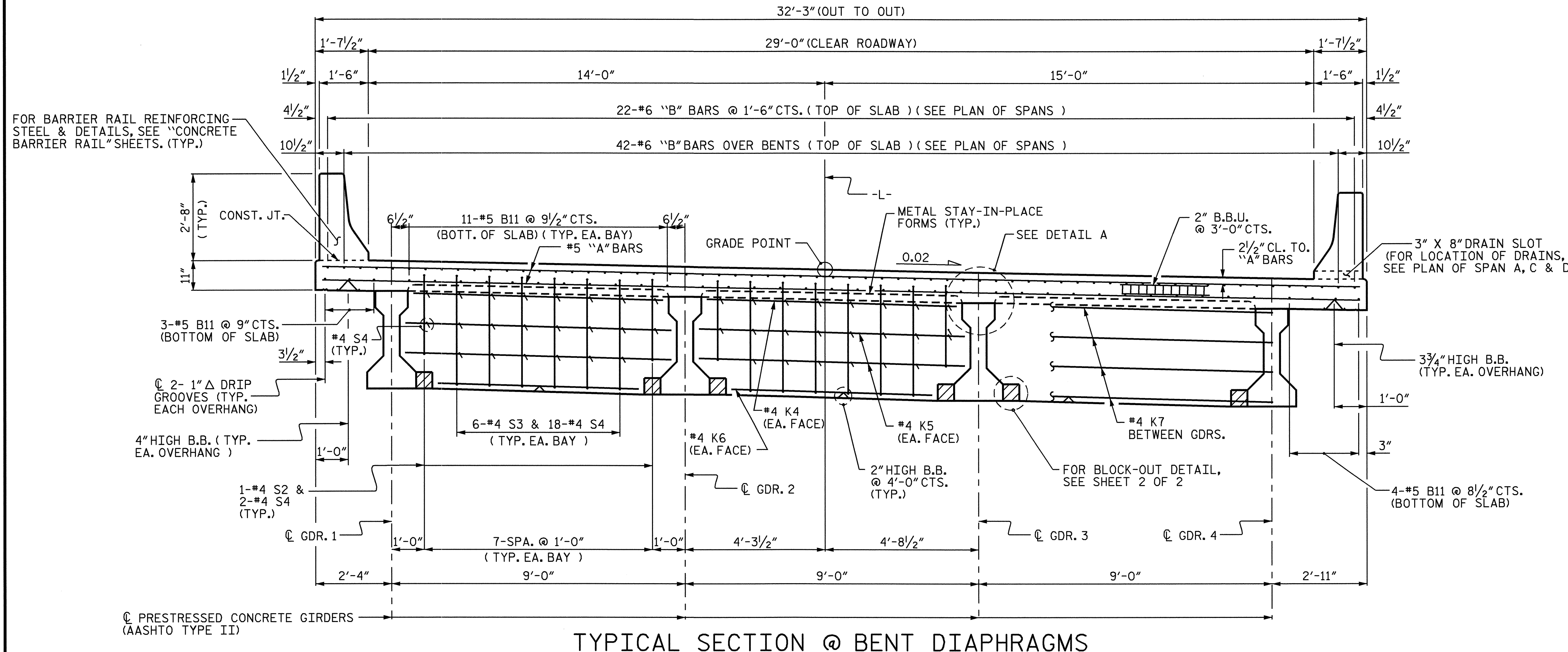


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 36
2			4			



TYPICAL SECTION @ END BENT DIAPHRAGMS

NOTE: ALL HORIZONTAL DIMENSIONS AT END BENT 1 ARE RADIAL EXCEPT AS NOTED.
* DIMENSIONS ARE RADIAL @ END BENT 1 FILL FACES AND BENT CONTROL LINES.



TYPICAL SECTION @ BENT DIAPHRAGMS

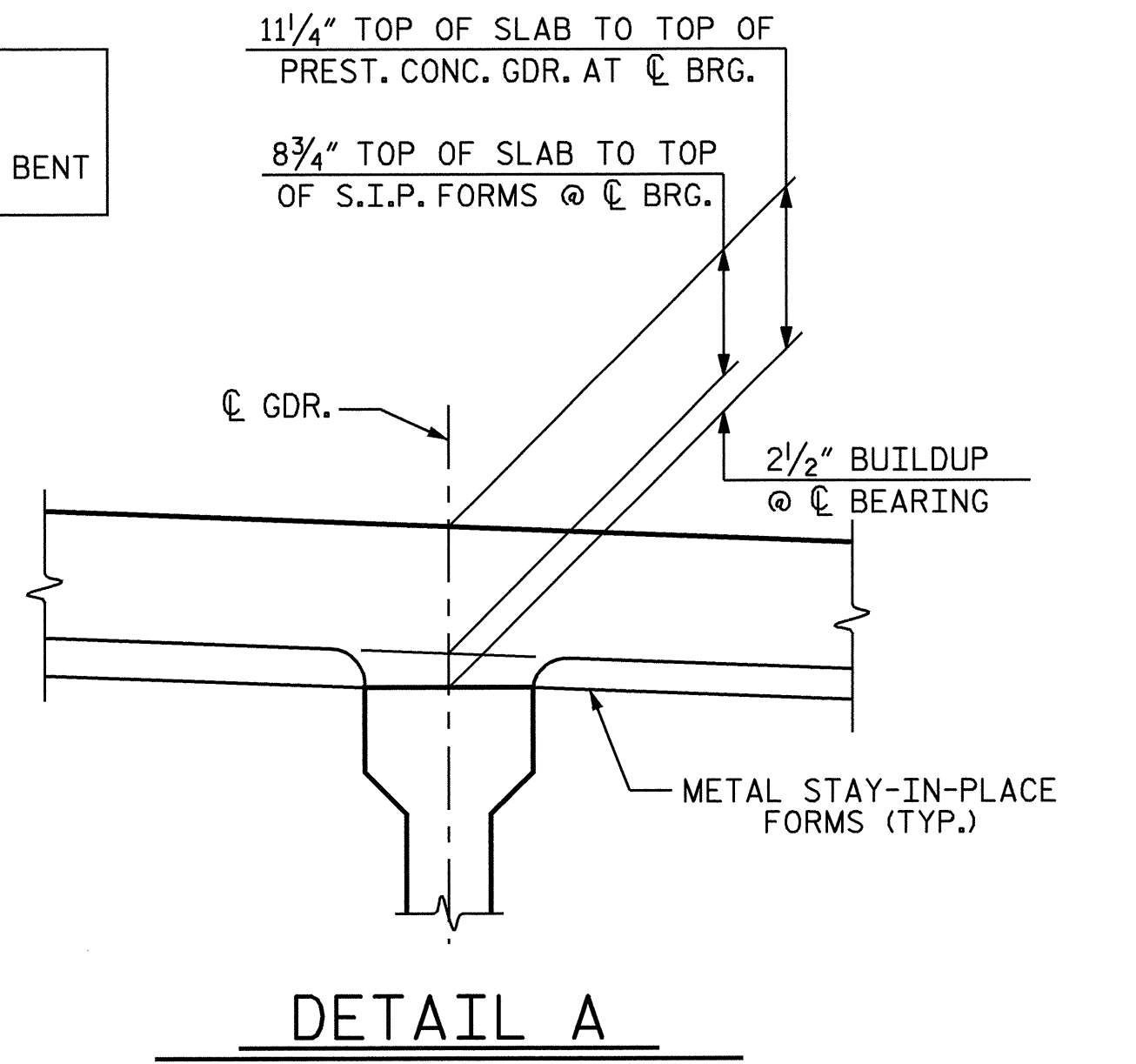
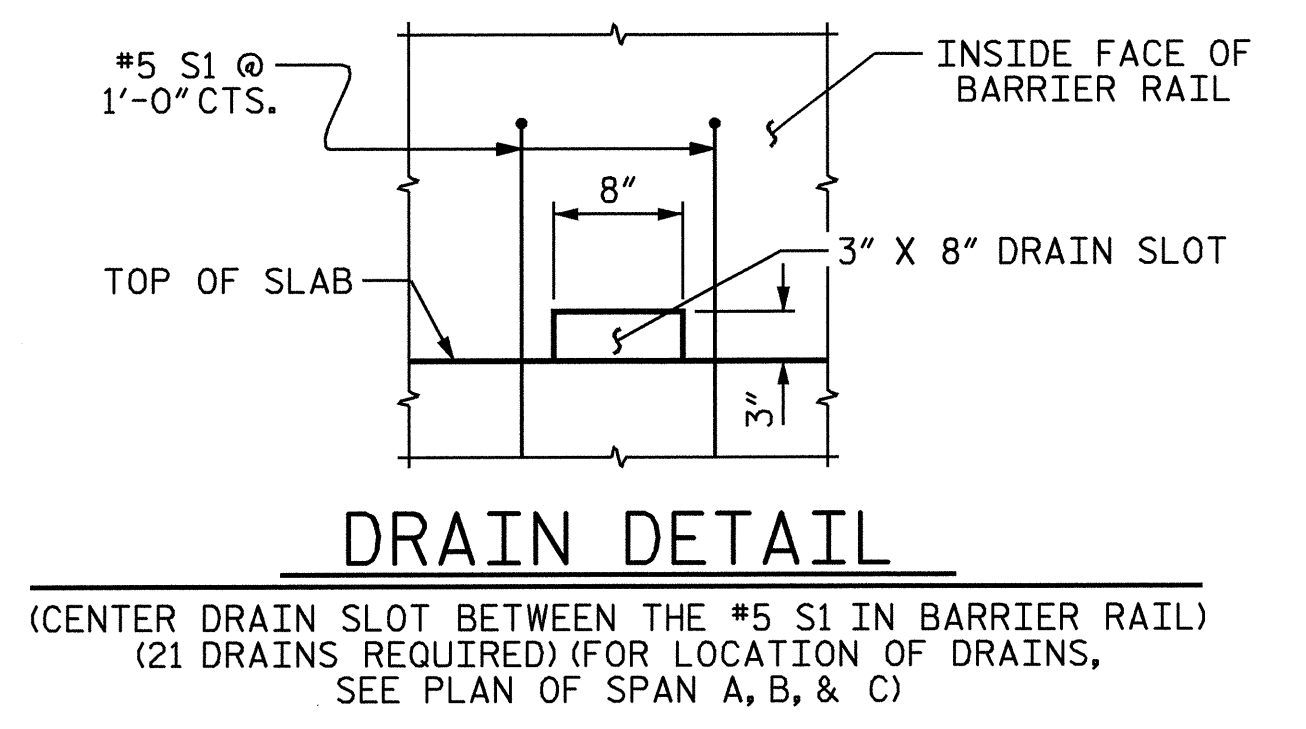
NOTES

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.

LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.

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.

FOR TYPICAL SECTION OF INTERMEDIATE DIAPHRAGMS, SEE "PRESTRESSED CONCRETE GIRDER" SHEET 6 OF 6.

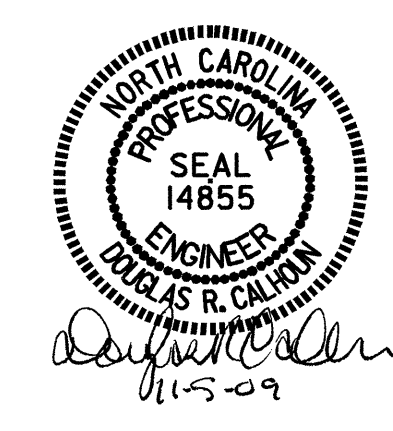


PROJECT NO. B-4261
RUTHERFORD COUNTY
STATION: 17+48.00 -L-

SHEET 1 OF 2

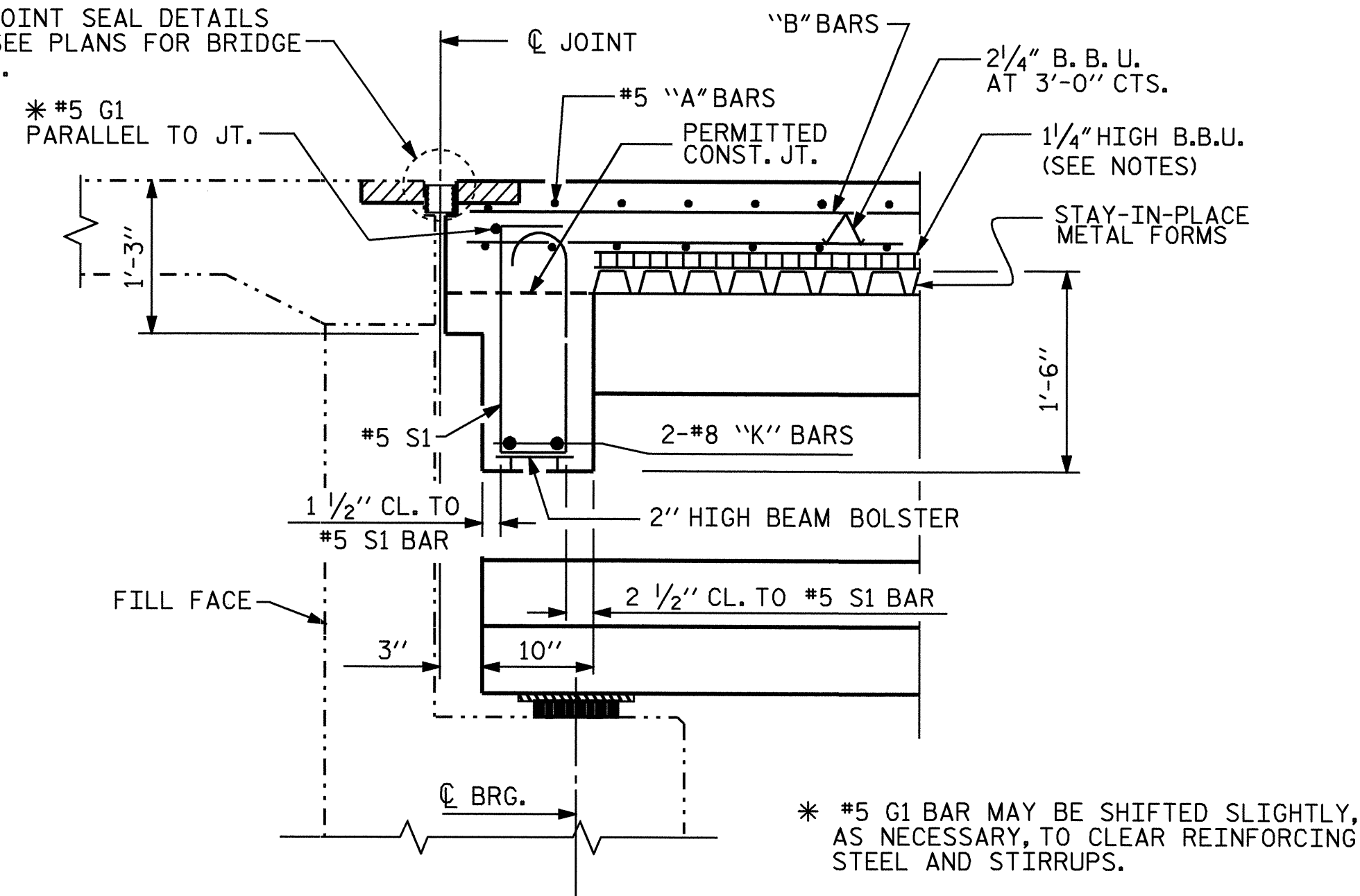
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE TYPICAL SECTION					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-4
TOTAL SHEETS 36

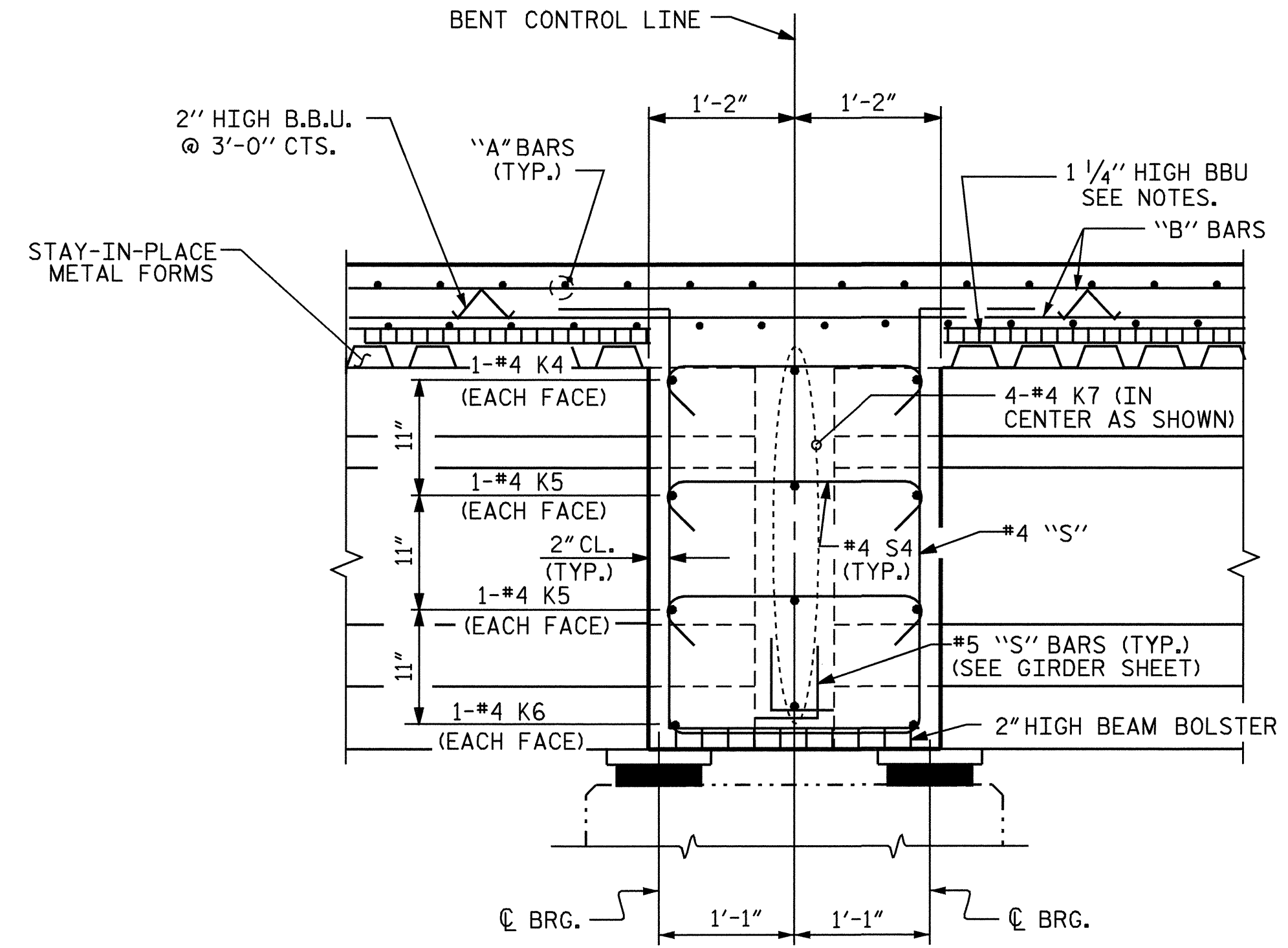


DRAWN BY: A. K. PATEL DATE: 9/18/06
CHECKED BY: J. MYA DATE: 10/06

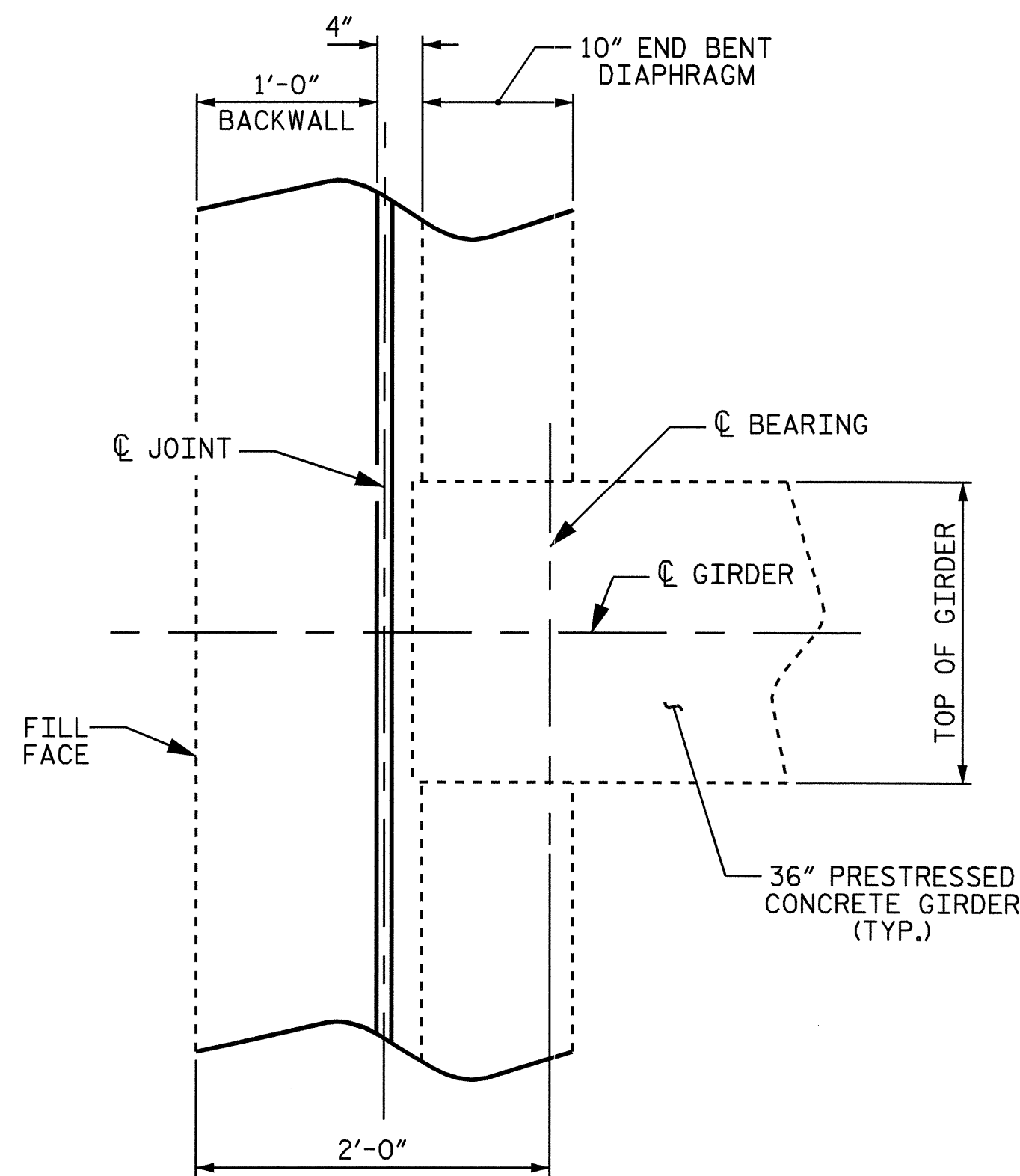
FOR EVAZOTE JOINT SEAL DETAILS AT END BENT, SEE PLANS FOR BRIDGE APPROACH SLAB.



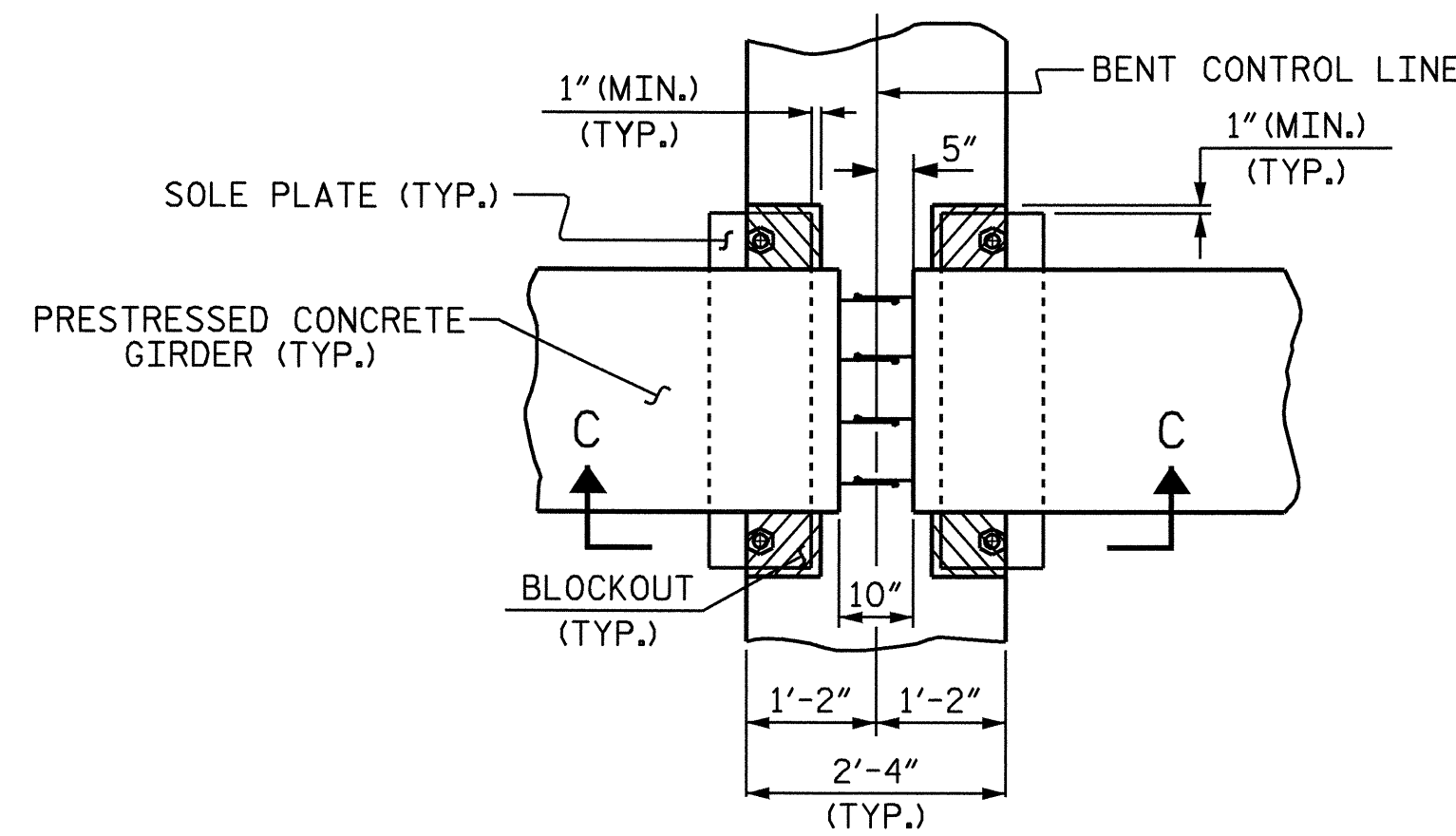
SECTION A-A
(THRU END BENT DIAPHRAGM)



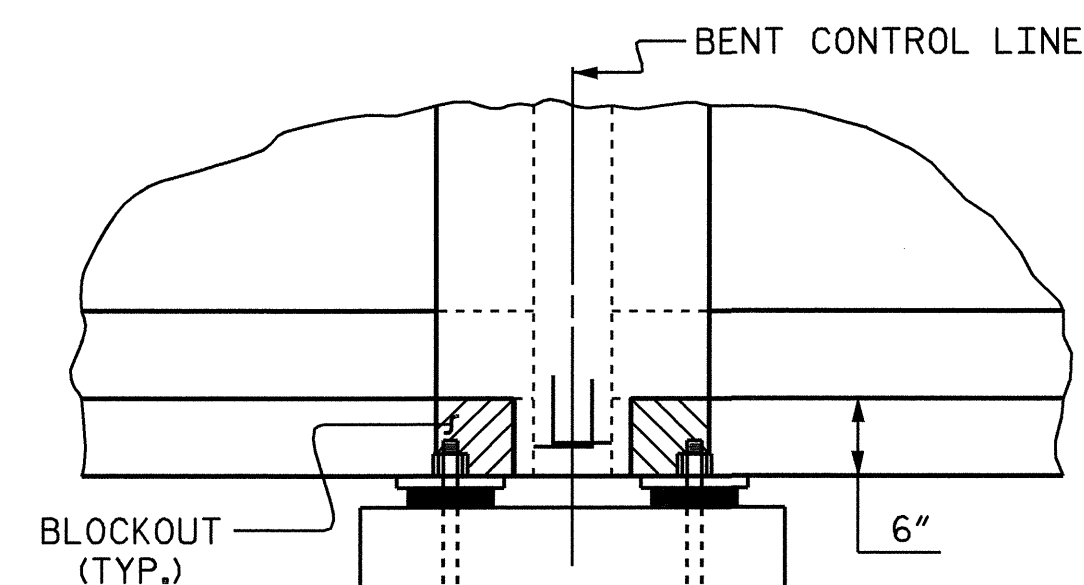
SECTION B-B
(THRU BENT DIAPHRAGM)



PLAN OF END BENT DIAPHRAGM
(END BENT 1 SHOWN, END BENT 2 SIMILAR)



PLAN VIEW



SECTION C-C

BENT DIAPHRAGM BLOCKOUT DETAIL
(PRESTRESSED GIRDERS WITH CONTINUOUS DECK SLAB)

PROJECT NO. B-4261
RUTHERFORD COUNTY
STATION: 17+48.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
TYPICAL SECTION

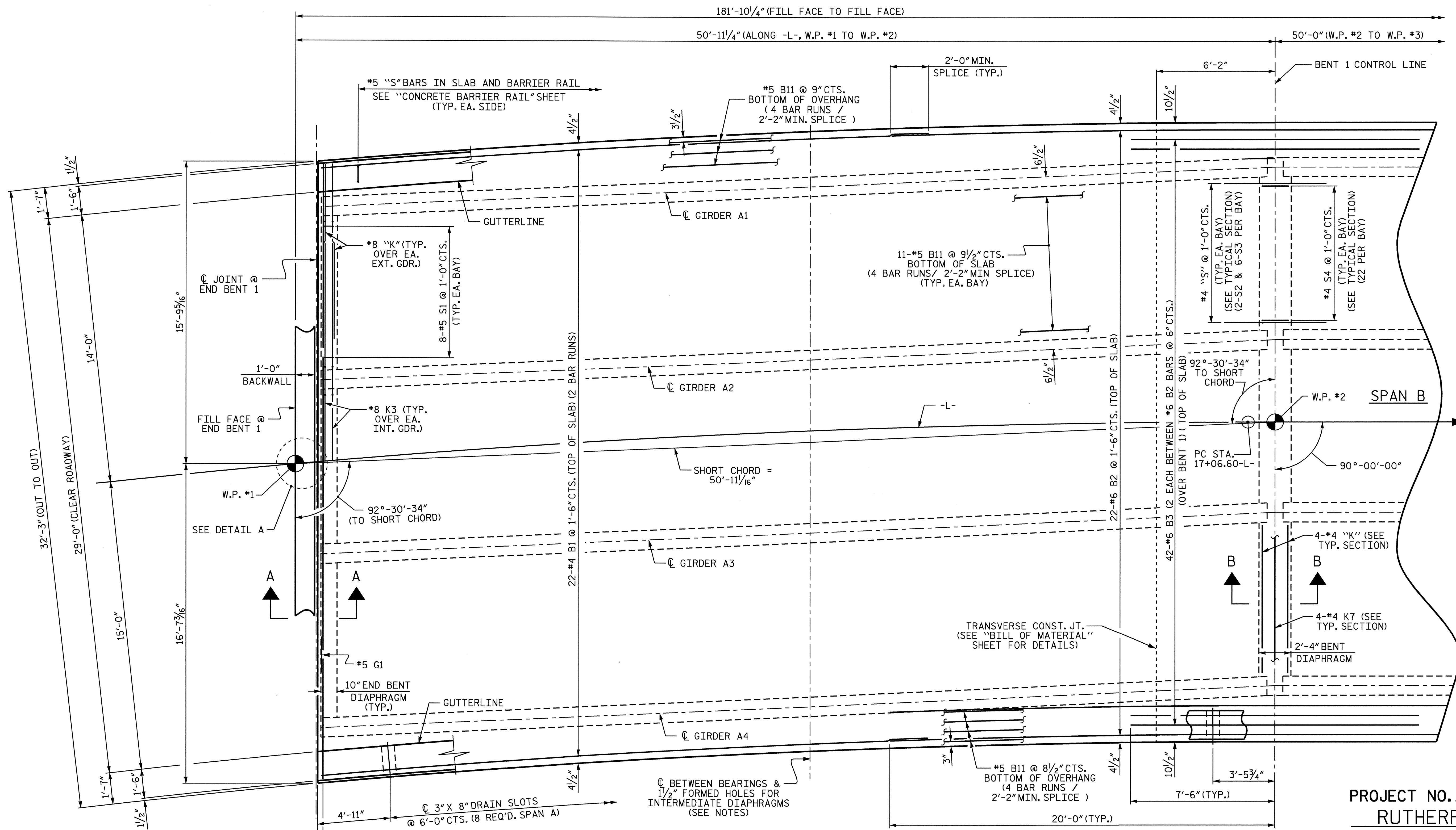


DRAWN BY : A. K. PATEL DATE : 9/18/06
CHECKED BY : J. MYA DATE : 10/06

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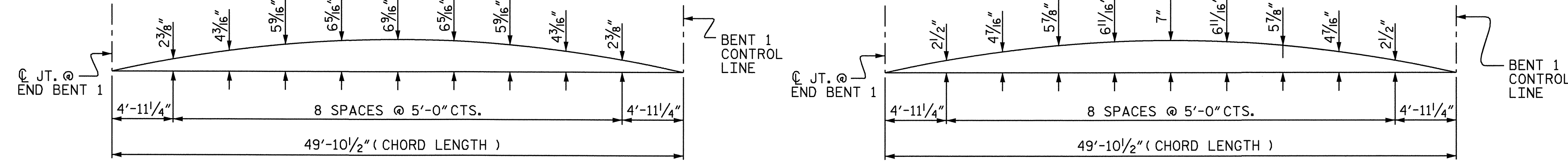
REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
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TOTAL SHEETS: **36**



PLAN OF SPAN A

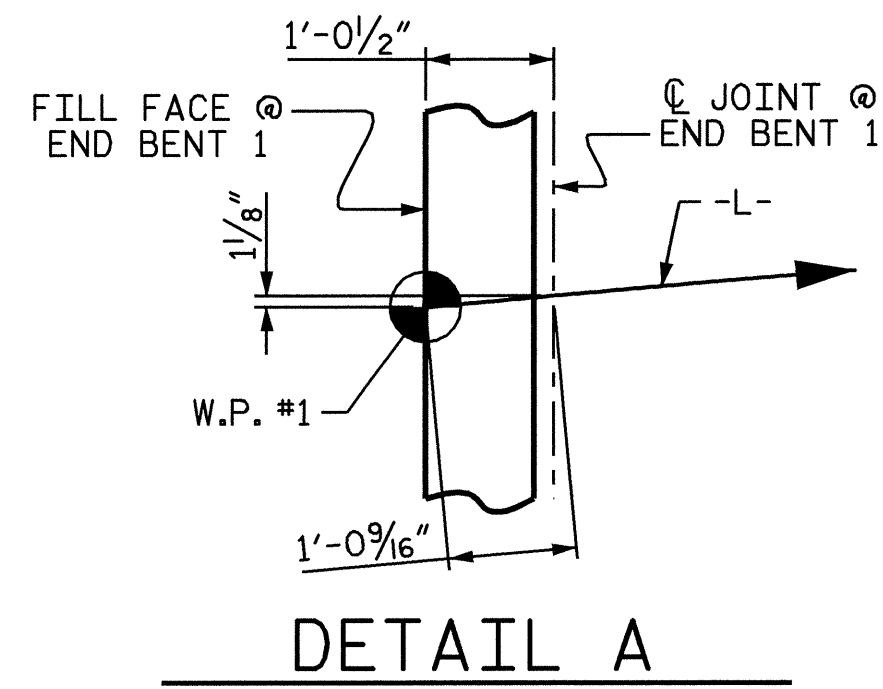
FOR SECTION VIEWS, SEE "TYPICAL SECTION" SHEET 2 OF 2.
 FOR DETAILS OF INTERMEDIATE DIAPHRAGMS, SEE "PRESTRESSED CONCRETE GIRDER" SHEET 6 OF 6.



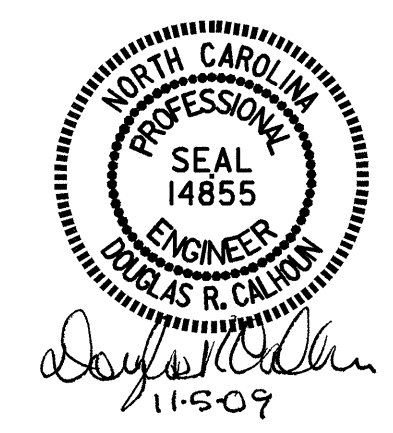
LEFT SIDE

ARC OFFSETS - SPAN A

RIGHT SIDE



DETAIL A



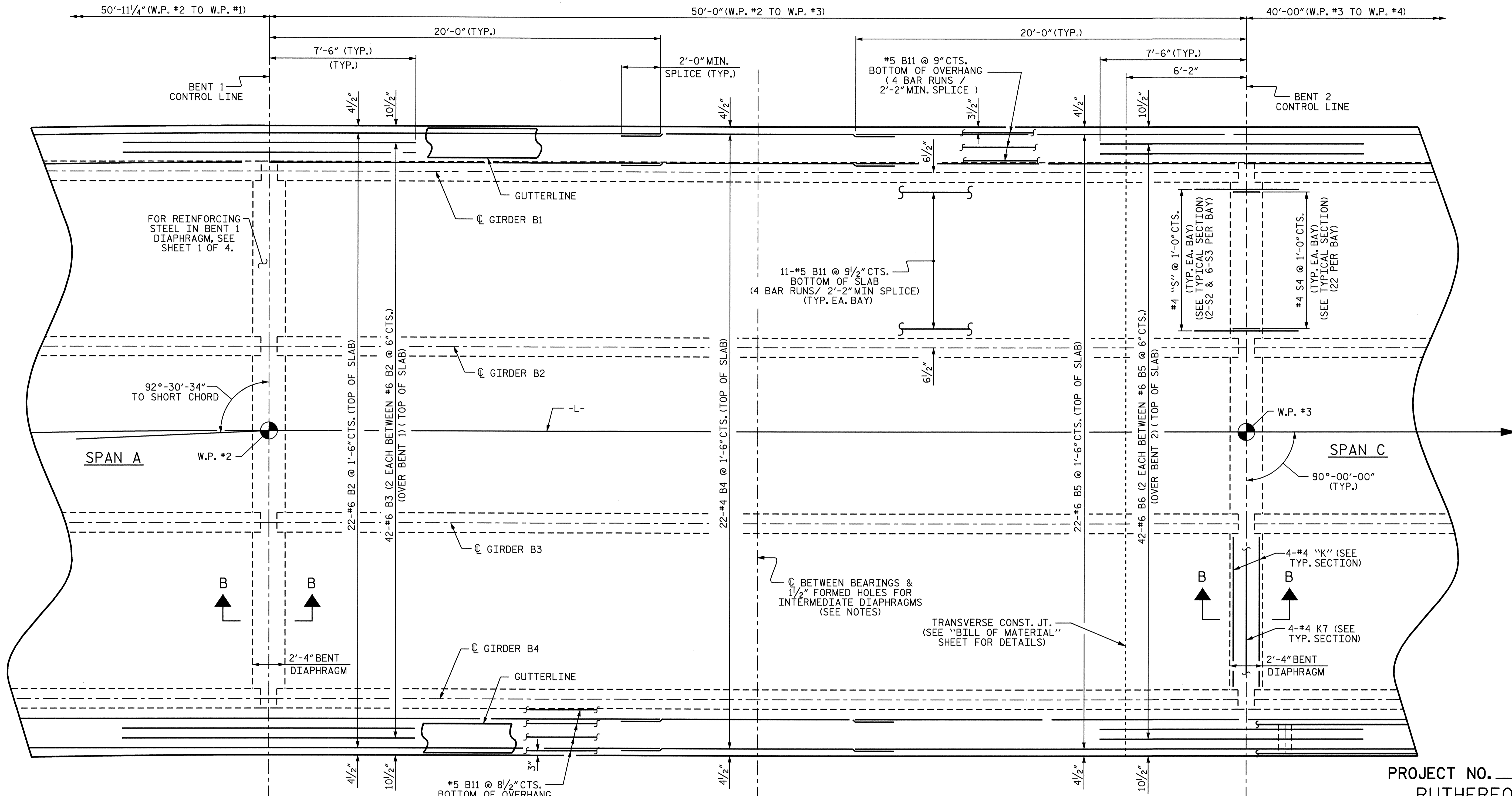
PROJECT NO. B-4261
RUTHERFORD COUNTY
 STATION: 17+48.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PLAN OF SPAN A					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-6 TOTAL SHEETS 36

DRAWN BY : A. K. PATEL DATE : 10/03/06
 CHECKED BY : J. MYA DATE : 10/06

05-NOV-2009 07:52
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- ← 332-#5 A1 BARS @ 6 1/2" CTS. (TOP OF SLAB) →
- ← 332-#5 A2 BARS @ 6 1/2" CTS. (BOTTOM OF SLAB) →
- ← #5 "S" BARS IN SLAB AND BARRIER RAIL →
- ← SEE "CONCRETE BARRIER RAIL" SHEET (TYP. EA. SIDE) →
- ← 181'-10 1/4" (FILL FACE TO FILL FACE) →

PLAN OF SPAN B

FOR SECTION VIEWS, SEE "TYPICAL SECTION" SHEET 2 OF 2.
 FOR DETAILS OF INTERMEDIATE DIAPHRAGMS, SEE "PRESTRESSED CONCRETE GIRDER" SHEET 6 OF 6.

PROJECT NO. B-4261
RUTHERFORD COUNTY
 STATION: 17+48.00 -L-
 SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

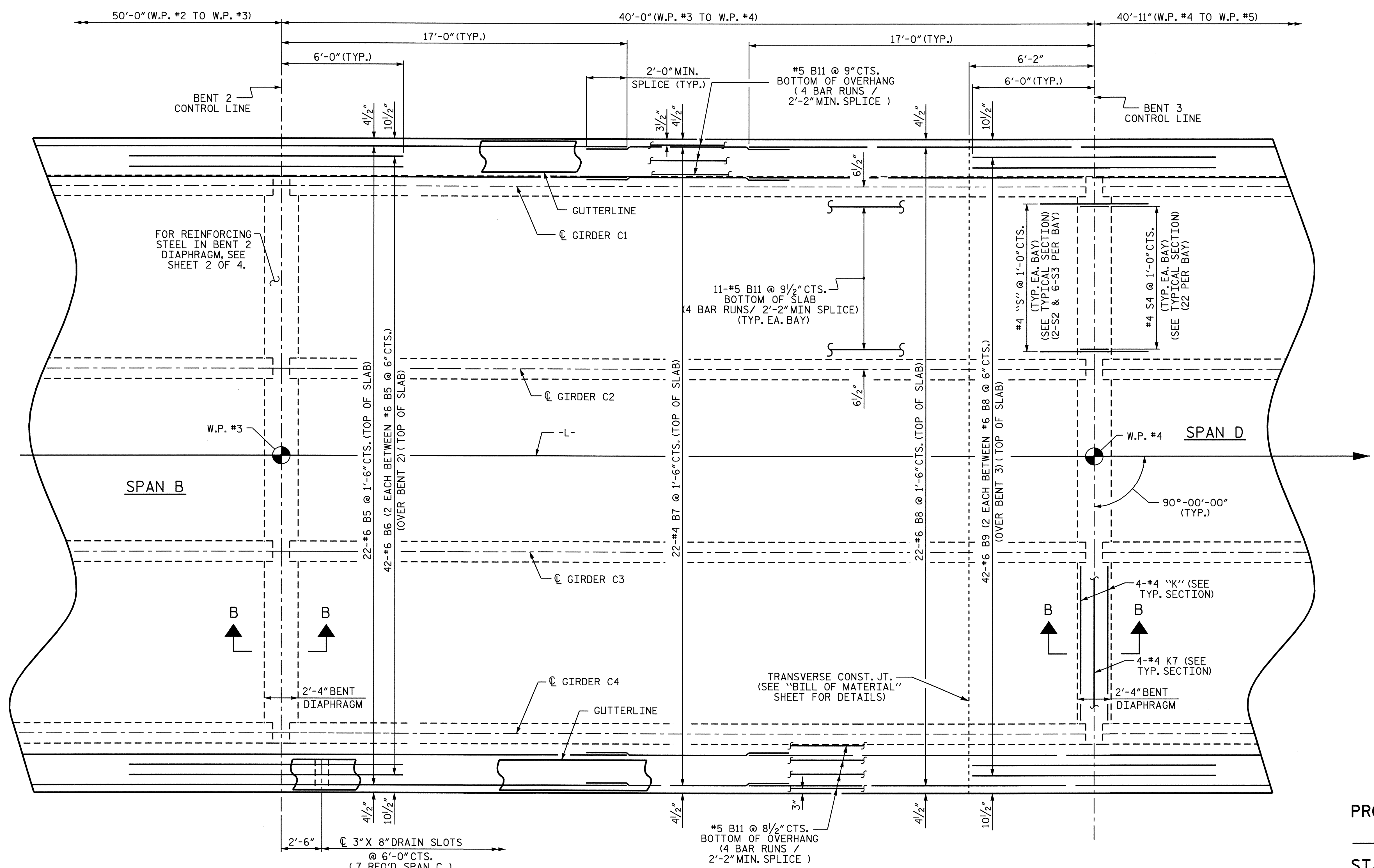
SUPERSTRUCTURE
 PLAN OF SPAN B



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			36

DRAWN BY : A. K. PATEL DATE : 10/03/06
 CHECKED BY : J. MYA DATE : 10/06

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- ← 332-#5 A1 BARS @ 6 1/2" CTS. (TOP OF SLAB) →
- ← 332-#5 A2 BARS @ 6 1/2" CTS. (BOTTOM OF SLAB) →
- ← #5 "S" BARS IN SLAB AND BARRIER RAIL →
- ← SEE "CONCRETE BARRIER RAIL" SHEET (TYP. EA. SIDE) →
- ← 181'-10 1/4" (FILL FACE TO FILL FACE) →

PLAN OF SPAN C

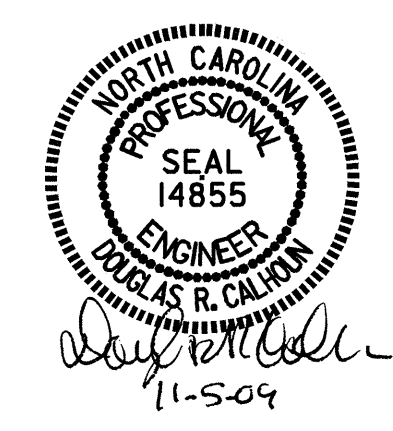
FOR SECTION VIEWS, SEE "TYPICAL SECTION" SHEET 2 OF 2.

FOR DETAILS OF INTERMEDIATE DIAPHRAGMS, SEE "PRESTRESSED CONCRETE GIRDER" SHEET 6 OF 6.

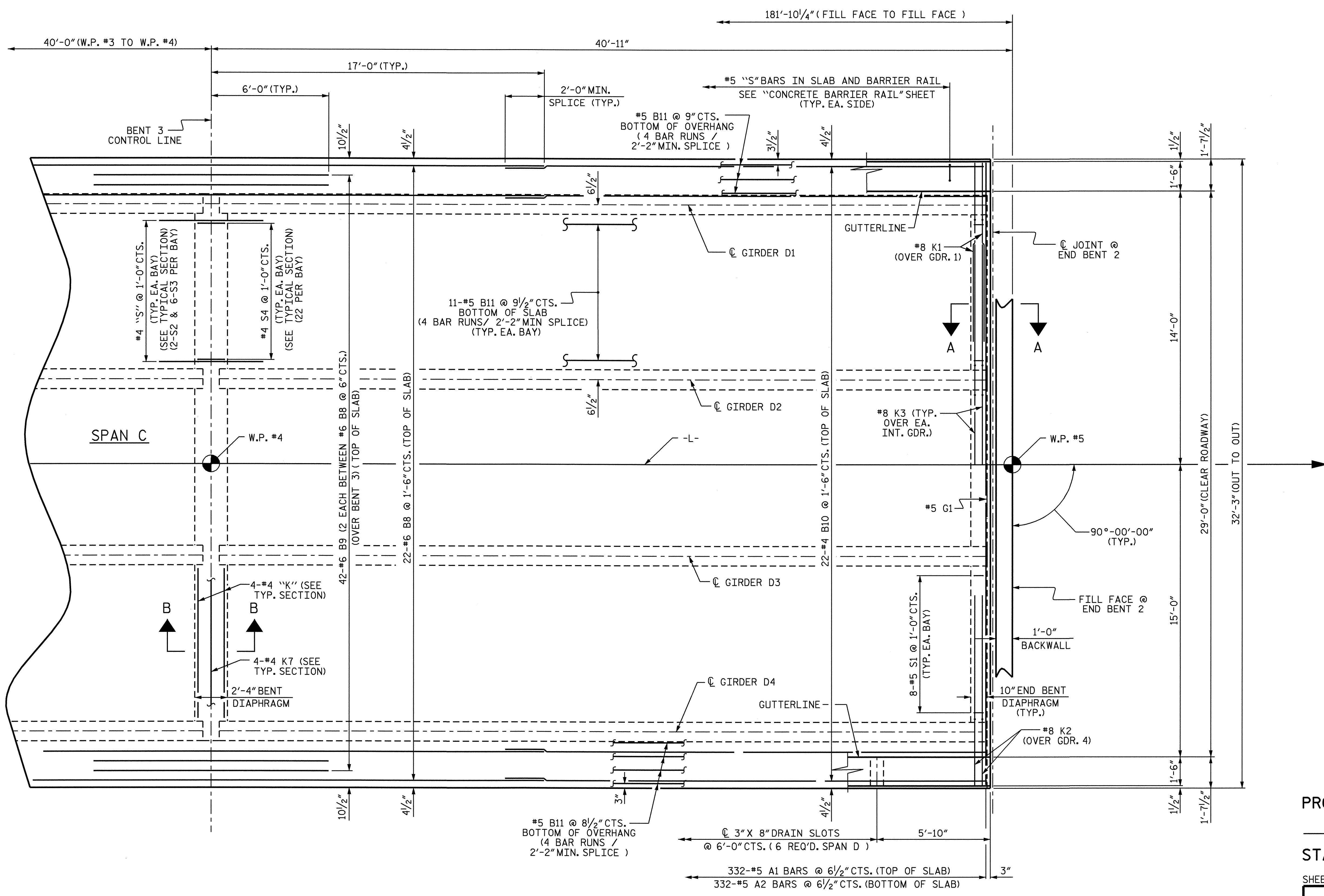
PROJECT NO. B-4261
RUTHERFORD COUNTY
 STATION: 17+48.00 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PLAN OF SPAN C					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					36



DRAWN BY: A. K. PATEL DATE: 10/03/06
 CHECKED BY: J. MYA DATE: 10/06

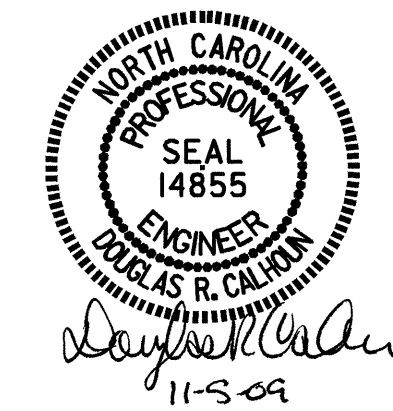


PLAN OF SPAN D

FOR SECTION VIEWS, SEE "TYPICAL SECTION" SHEET 2 OF 2.
 FOR DETAILS OF INTERMEDIATE DIAPHRAGMS, SEE "PRESTRESSED CONCRETE GIRDER" SHEET 6 OF 6.

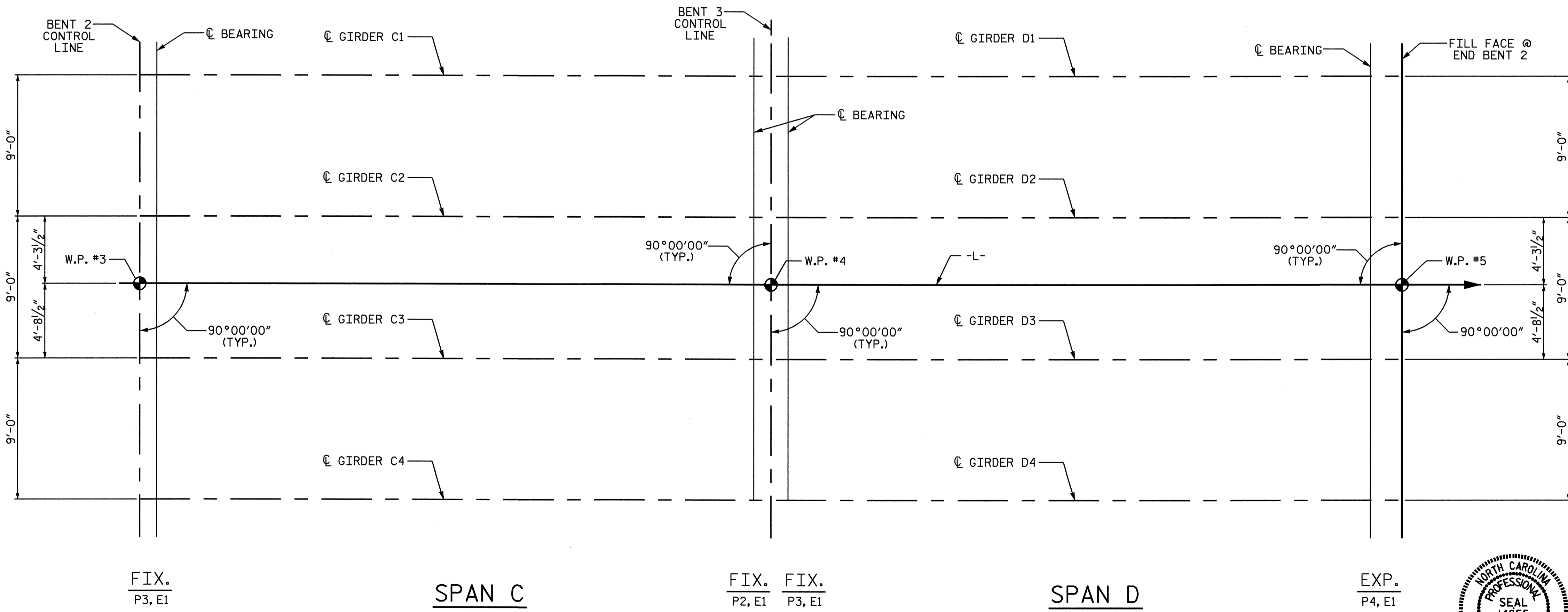
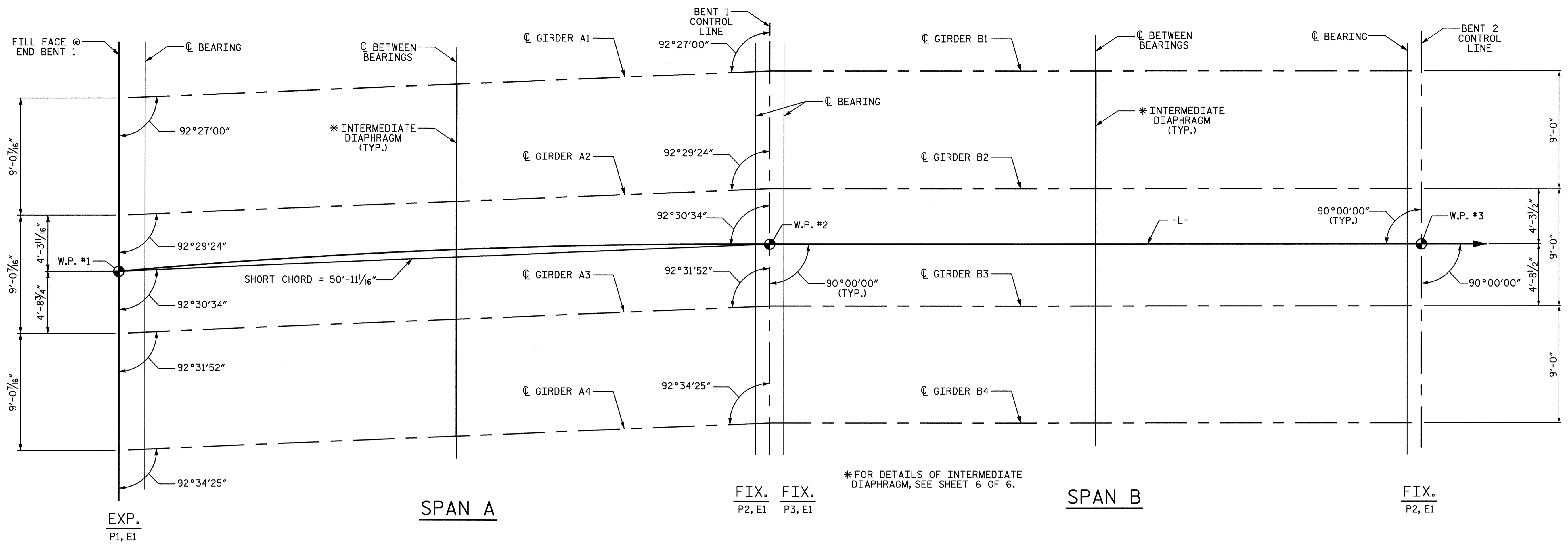
PROJECT NO. B-4261
RUTHERFORD COUNTY
 STATION: 17+48.00 -L-
 SHEET 4 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PLAN OF SPAN D					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-9
					TOTAL SHEETS 36



DRAWN BY : A. K. PATEL DATE : 10/03/06
 CHECKED BY : J. MYA DATE : 10/06

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 bng:ady



FRAMING PLAN

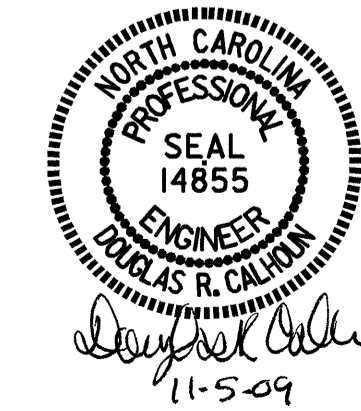
PROJECT NO. B-4261
RUTHERFORD COUNTY
 STATION: 17+48.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

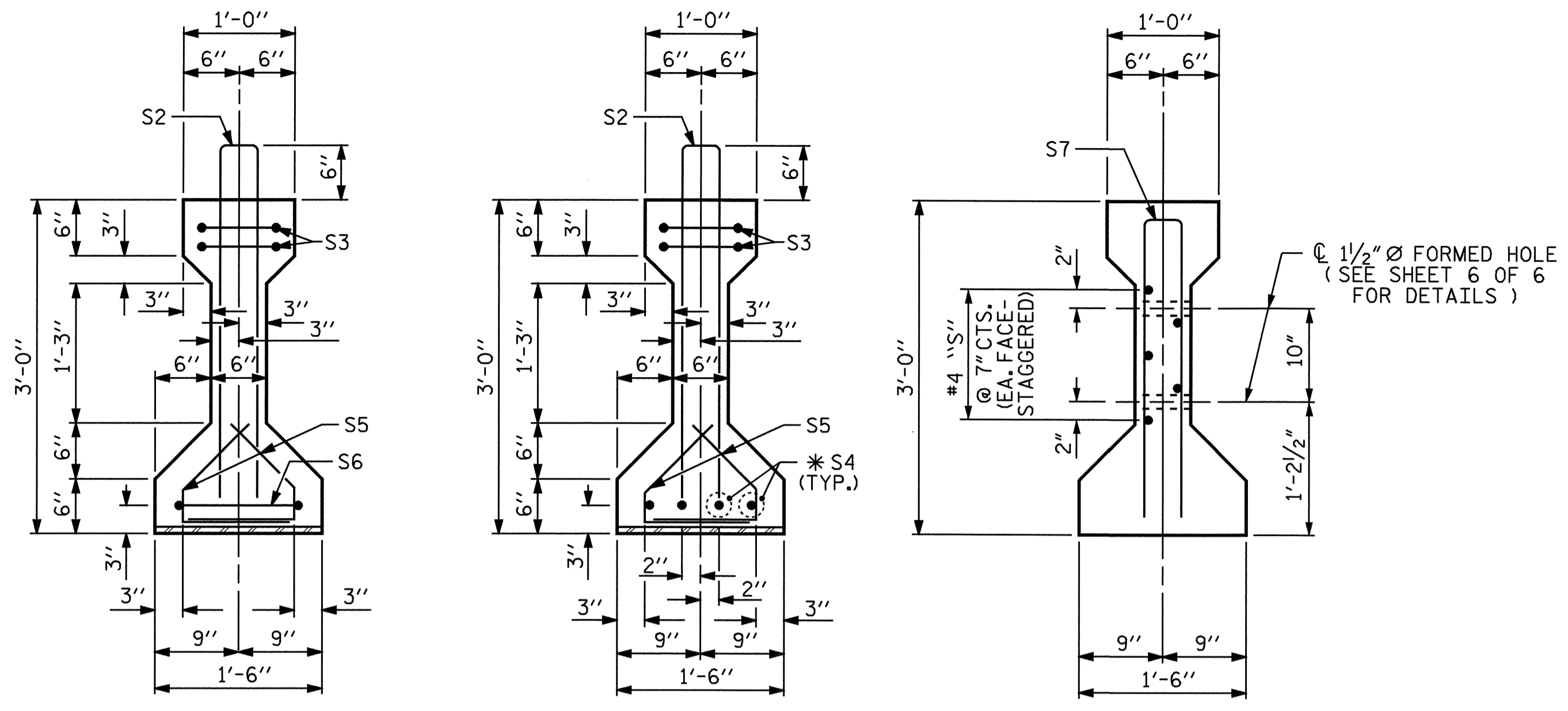
**FRAMING PLAN
SPANS A THRU D**

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

SHEET NO. **S-10**
TOTAL SHEETS **36**



DRAWN BY : A. K. PATEL DATE : 9/21/06
 CHECKED BY : J. MYA DATE : 10/06

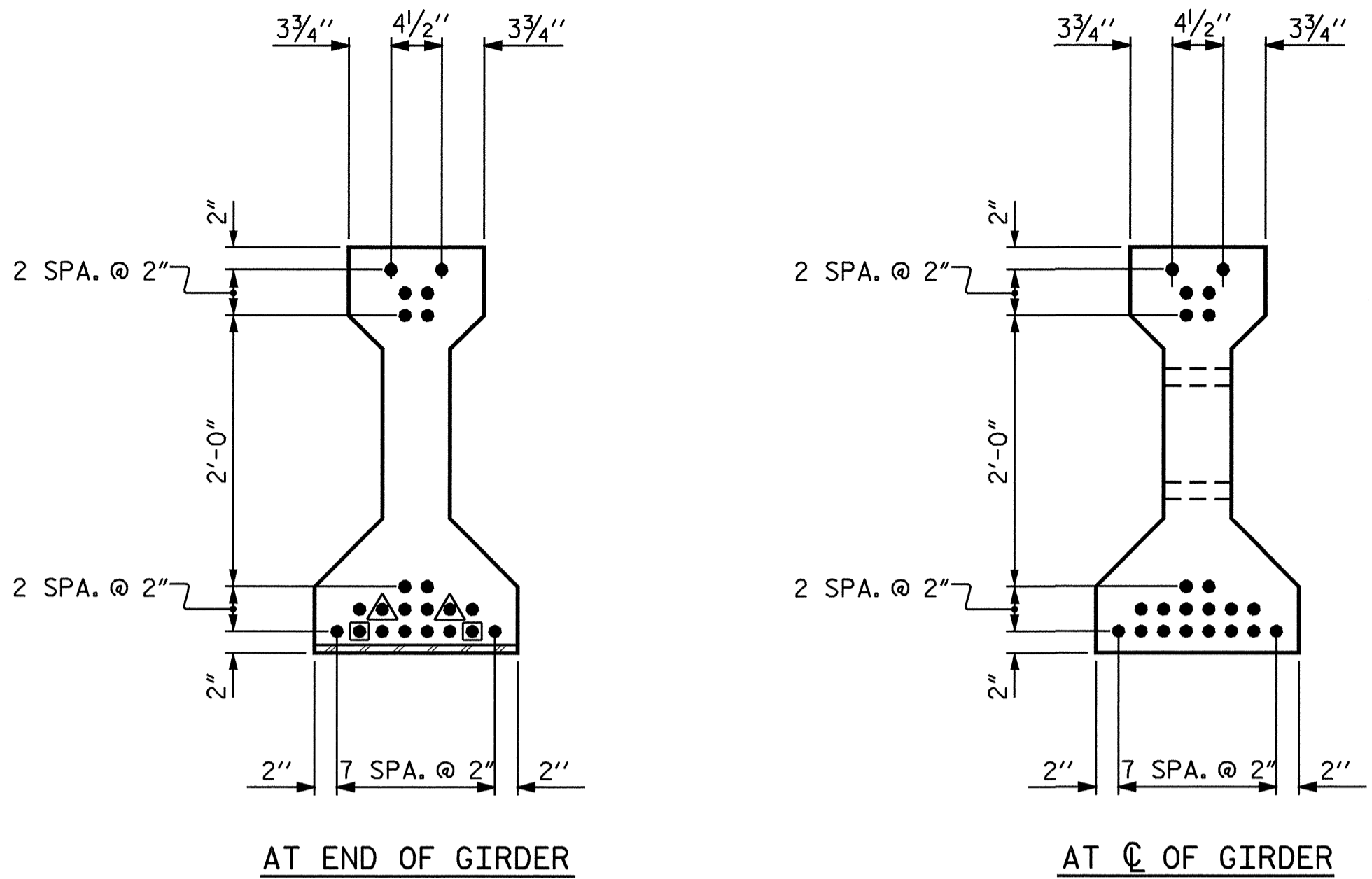


SECTION A-A

SECTION B-B

SECTION C-C

(S1 BARS NOT SHOWN)

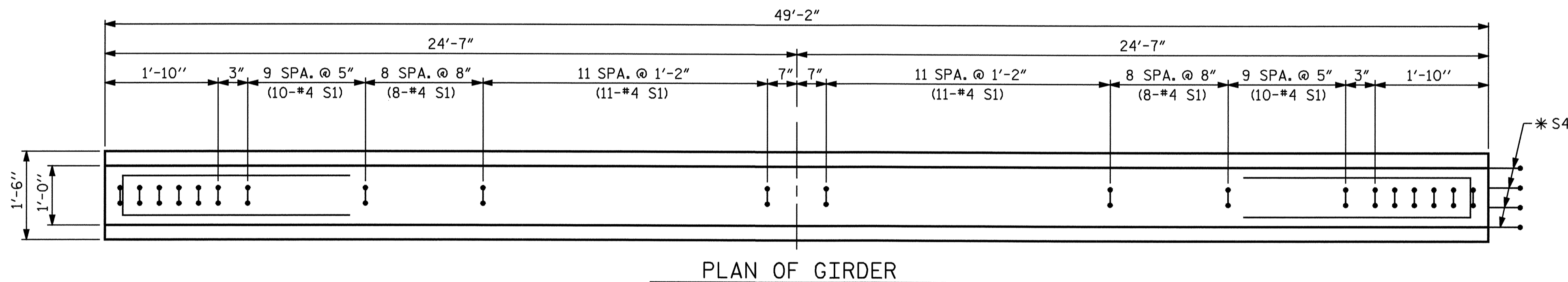


AT END OF GIRDER

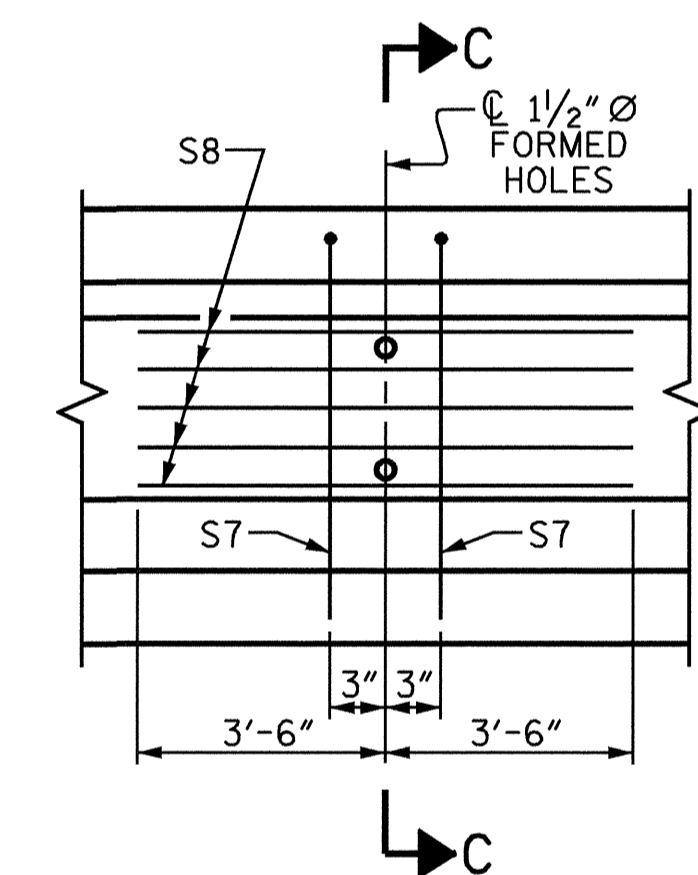
AT C OF GIRDER

0.6" Ø LOW RELAXATION STRAND LAYOUT

- FULLY BONDED STRANDS
- ◻ STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
- ◼ STRANDS DEBONDED FOR 6'-0" FROM END OF GIRDER

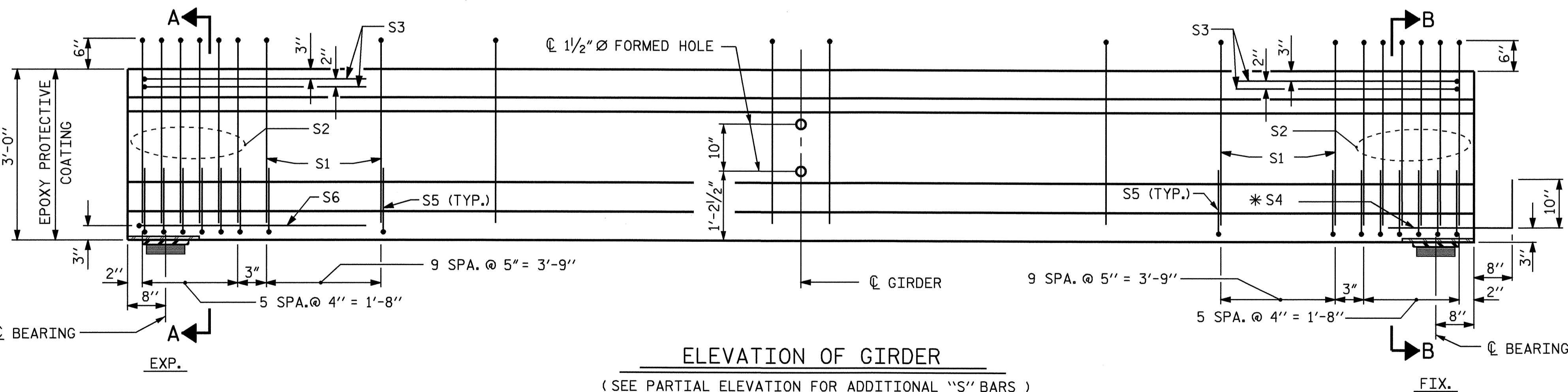


PLAN OF GIRDER



PARTIAL ELEVATION

SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL FOR GIRDERS 1 THRU 4



ELEVATION OF GIRDER

(SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)

0.6" Ø L. R. GRADE 270 STRANDS

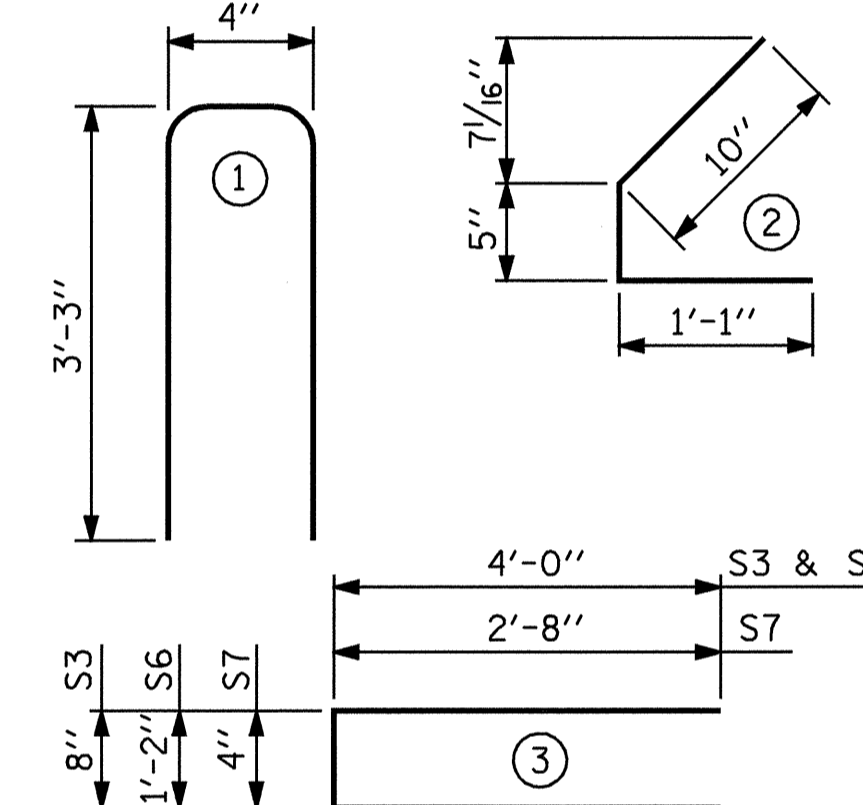
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	58	#4	1	6'-10"	265
S2	12	#5	1	6'-10"	86
S3	4	#4	3	8'-8"	23
*S4	4	#5	STR	3'-8"	15
S5	64	#4	2	2'-4"	100
S6	1	#4	3	9'-2"	6
S7	2	#5	3	5'-8"	12
S8	5	#4	STR	7'-0"	23

* NOTE: S4 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

REINFORCING STEEL	7500 PSI CONCRETE	0.6" Ø L.R. STRANDS
LB.	C.Y.	No.
530	4.7	22

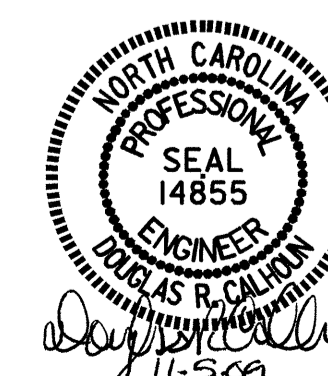
GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
4	49'-2"	196'-8"

PROJECT NO. B-4261
 RUTHERFORD COUNTY
 STATION: 17+48.00 -L-

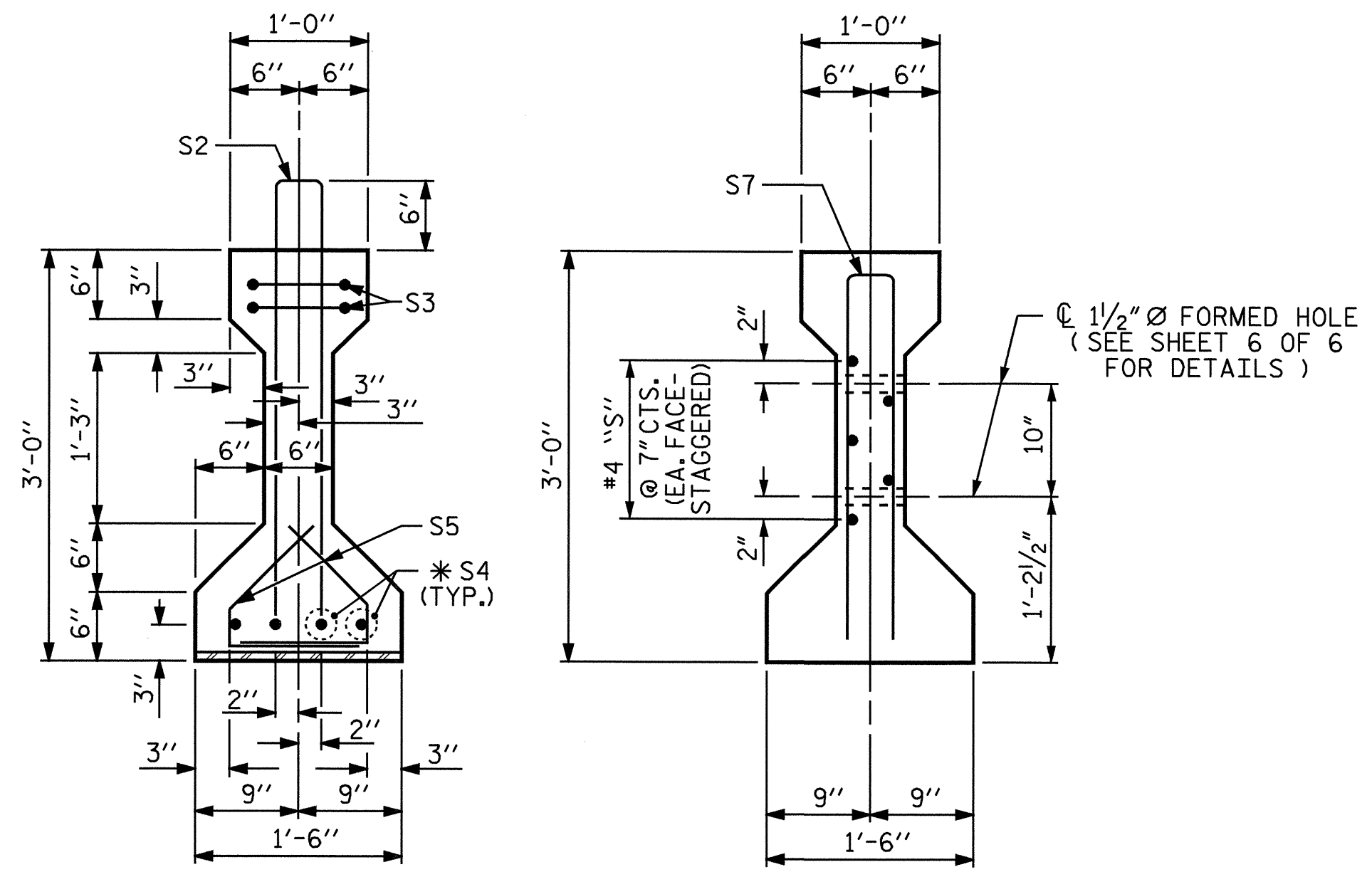
SHEET 1 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 AASHTO TYPE II
 PRESTRESSED CONCRETE GIRDER
 CONTINUOUS FOR LIVE LOAD
 SPAN A



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

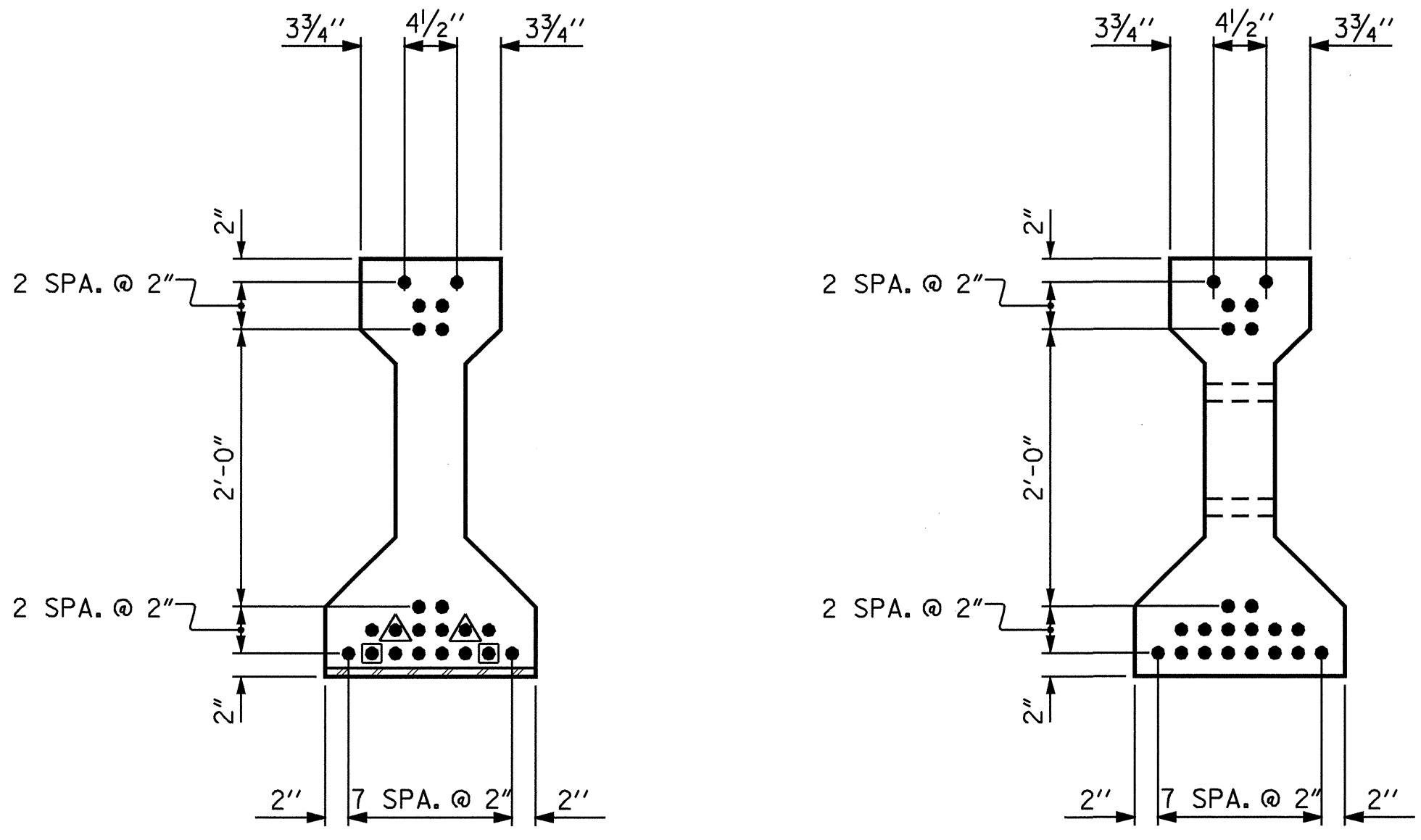
ASSEMBLED BY : B.N. GRADY	DATE : 7/28/09
CHECKED BY : E.G. ALLEN	DATE : 9/25/09
DRAWN BY : ELR 8/91	REV. 8/16/99 RWW/LES
CHECKED BY : GRP 8/91	REV. 10/17/00R RWW/LES
	REV. 5/1/06 TLA/GM



SECTION B-B

SECTION C-C

(S1 BARS NOT SHOWN)

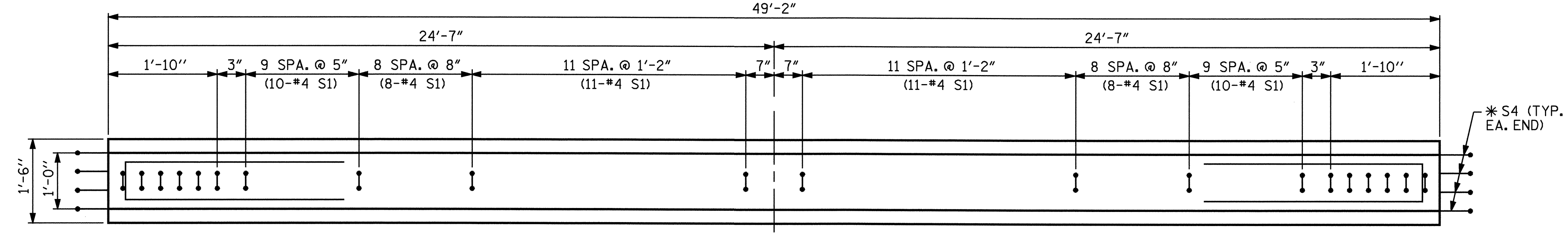


AT END OF GIRDER

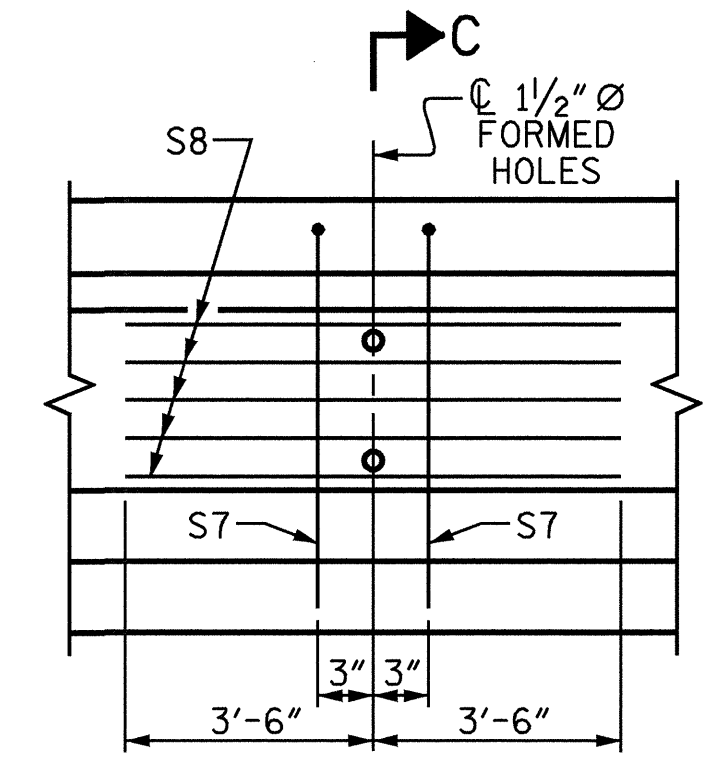
AT C OF GIRDER

0.6" Ø LOW RELAXATION STRAND LAYOUT

- FULLY BONDED STRANDS
- STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
- ▲ STRANDS DEBONDED FOR 6'-0" FROM END OF GIRDER

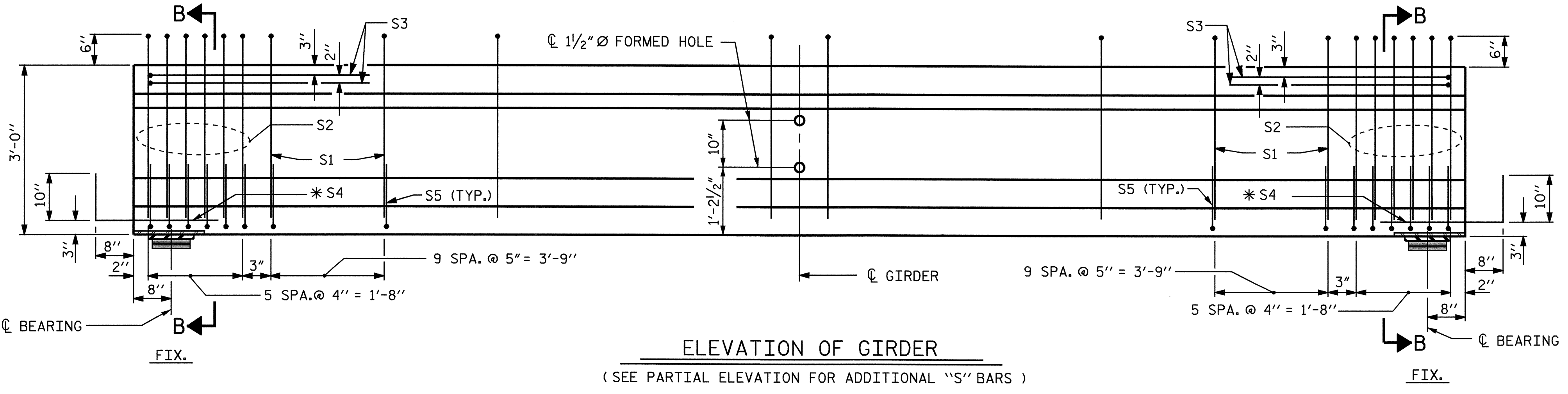


PLAN OF GIRDER



PARTIAL ELEVATION

SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL FOR GIRDERS 1 THRU 4



ELEVATION OF GIRDER

(SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)

0.6" Ø L. R. GRADE 270 STRANDS

AREA (SQ. INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

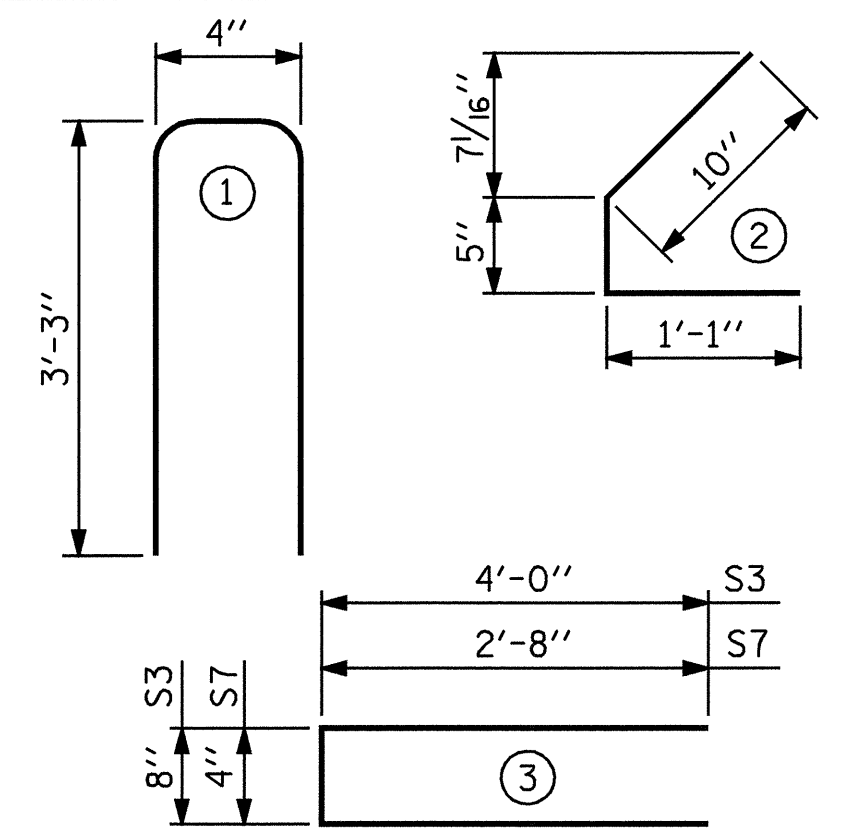
REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	58	#4	1	6'-10"	265
S2	12	#5	1	6'-10"	86
S3	4	#4	3	8'-8"	23
*S4	8	#5	STR	3'-8"	31
S5	64	#4	2	2'-4"	100
S7	2	#5	3	5'-8"	12
S8	5	#4	STR	7'-0"	23

* NOTE: S4 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

REINFORCING STEEL	7500 PSI CONCRETE	0.6" Ø L.R. STRANDS
LB.	C.Y.	No.
540	4.7	22

GIRDERS REQUIRED

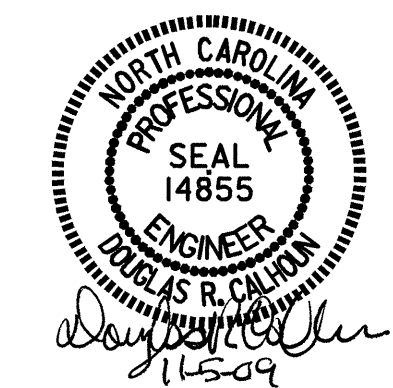
NUMBER	LENGTH	TOTAL LENGTH
4	49'-2"	196'-8"

PROJECT NO. B-4261
 RUTHERFORD COUNTY
 STATION: 17+48.00 -L-

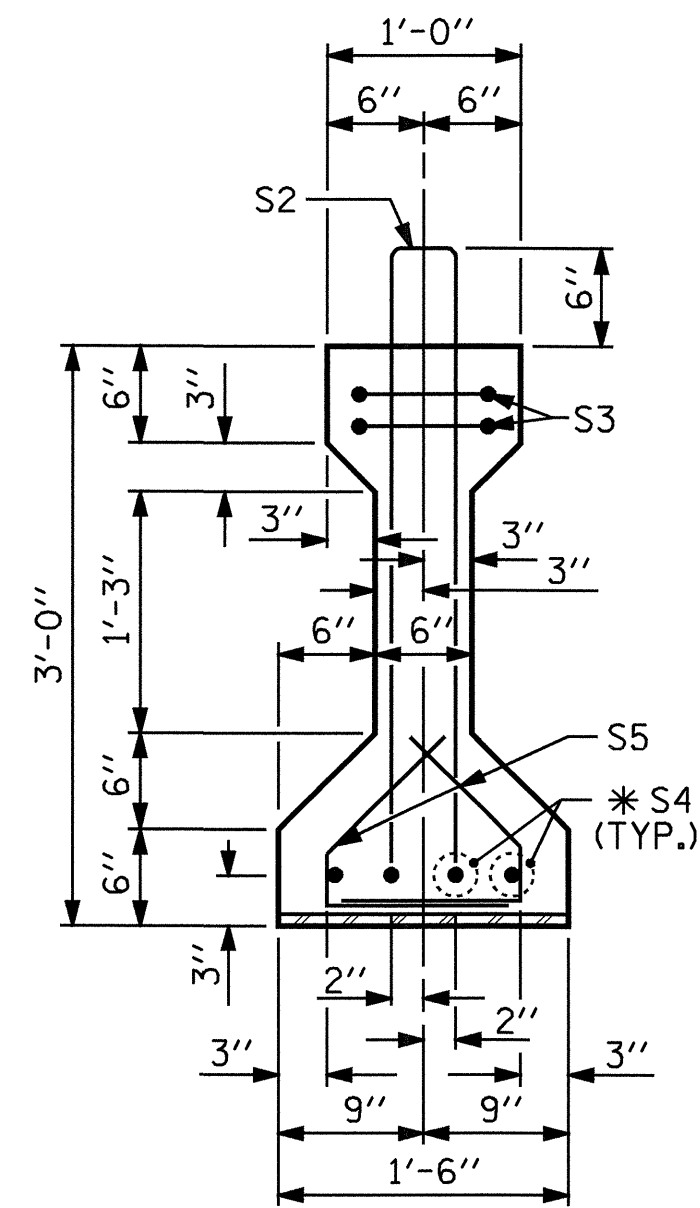
SHEET 2 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 AASHTO TYPE II
 PRESTRESSED CONCRETE GIRDER
 CONTINUOUS FOR LIVE LOAD
 SPAN B

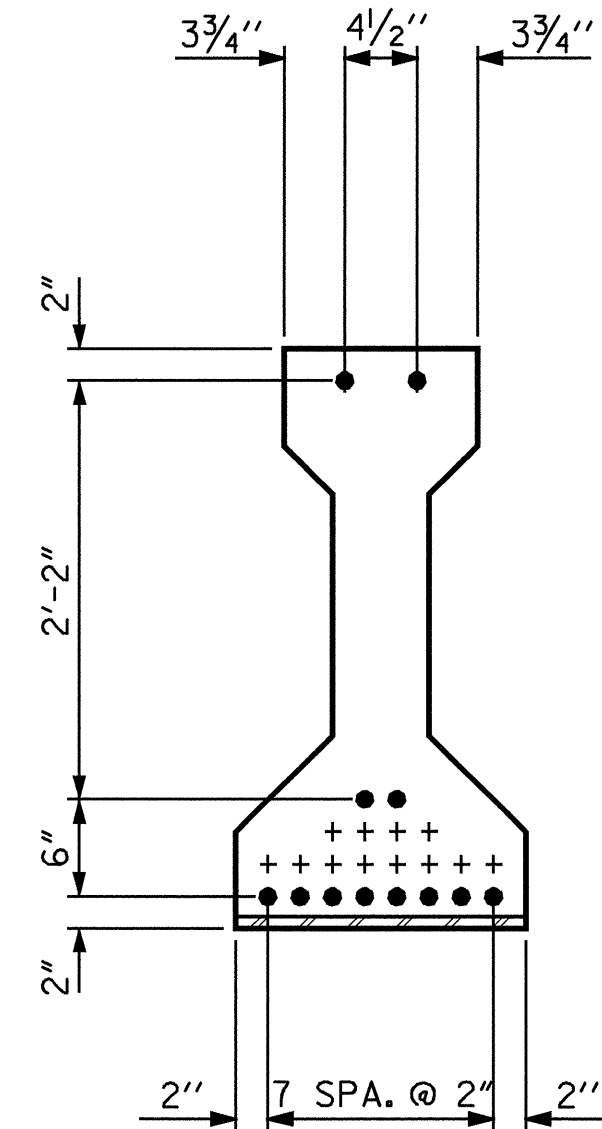
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			36



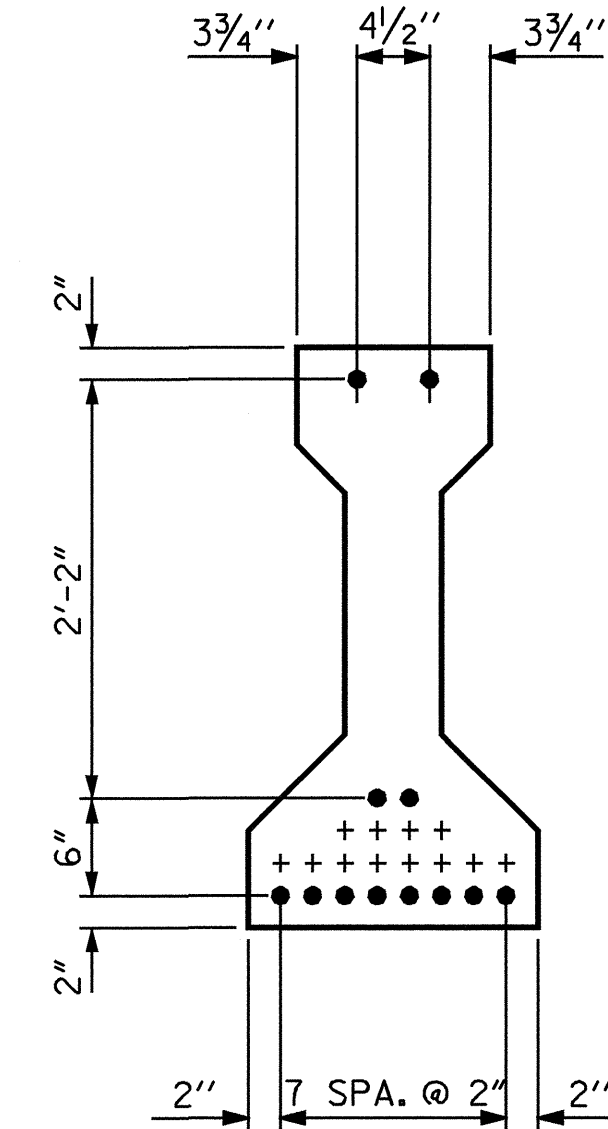
ASSEMBLED BY : B.N. GRADY	DATE : 7/28/09
CHECKED BY : E.G. ALLEN	DATE : 9/25/09
DRAWN BY : ELR 8/91	REV. 8/16/99 RWW/LES
CHECKED BY : GRP 8/91	REV. 10/17/00R RWW/LES
	REV. 5/1/06 TLA/GM



SECTION B-B

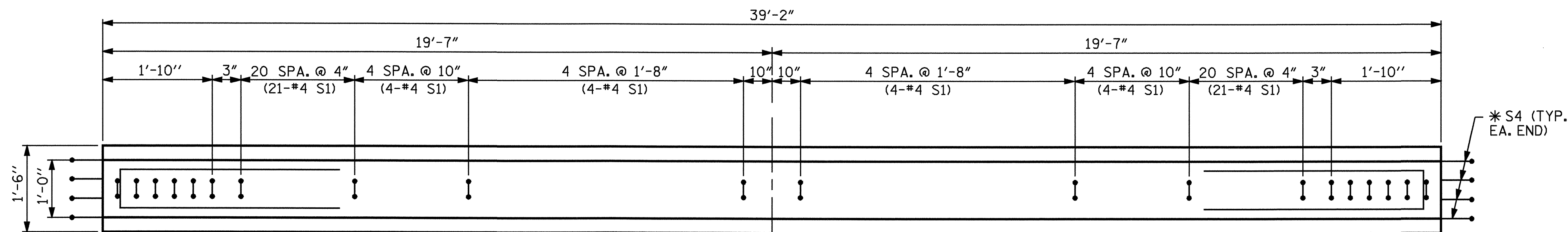


AT END OF GIRDER

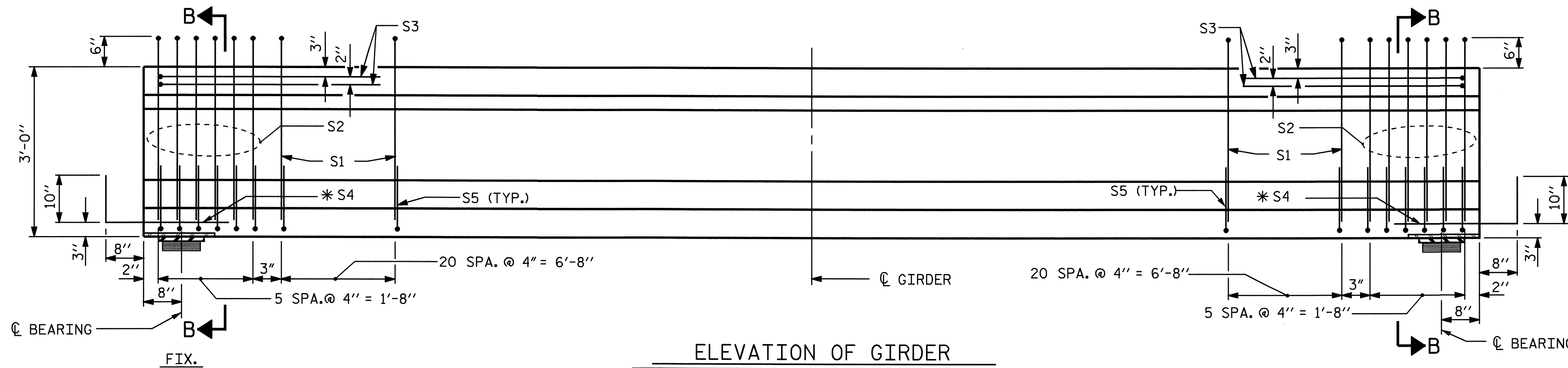


AT CL OF GIRDER

0.6" Ø LOW RELAXATION STRAND LAYOUT



PLAN OF GIRDER



ELEVATION OF GIRDER

0.6" Ø L. R. GRADE 270 STRANDS

AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

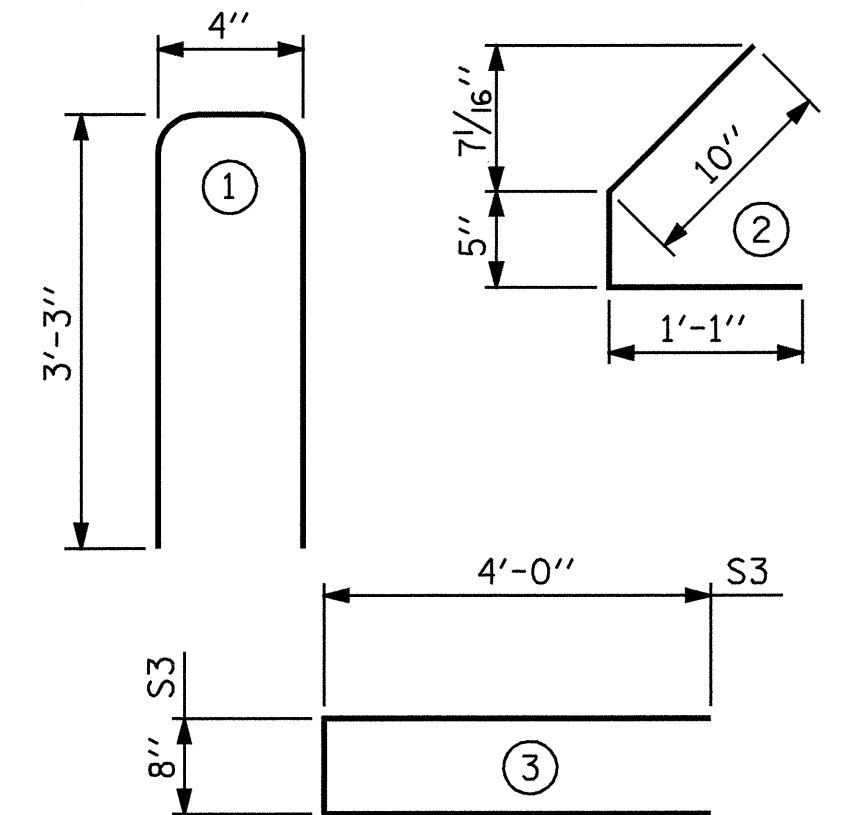
REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	58	#4	1	6'-10"	265
S2	12	#5	1	6'-10"	86
S3	4	#4	3	8'-8"	23
* S4	8	#5	STR	3'-8"	31
S5	108	#4	2	2'-4"	168

* NOTE: S4 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

REINFORCING STEEL	6500 PSI CONCRETE	0.6" Ø L.R. STRANDS
LB.	C.Y.	No.
573	3.7	12

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
4	39'-2"	156'-8"

PROJECT NO. B-4261
RUTHERFORD COUNTY
STATION: 17+48.00 -L-

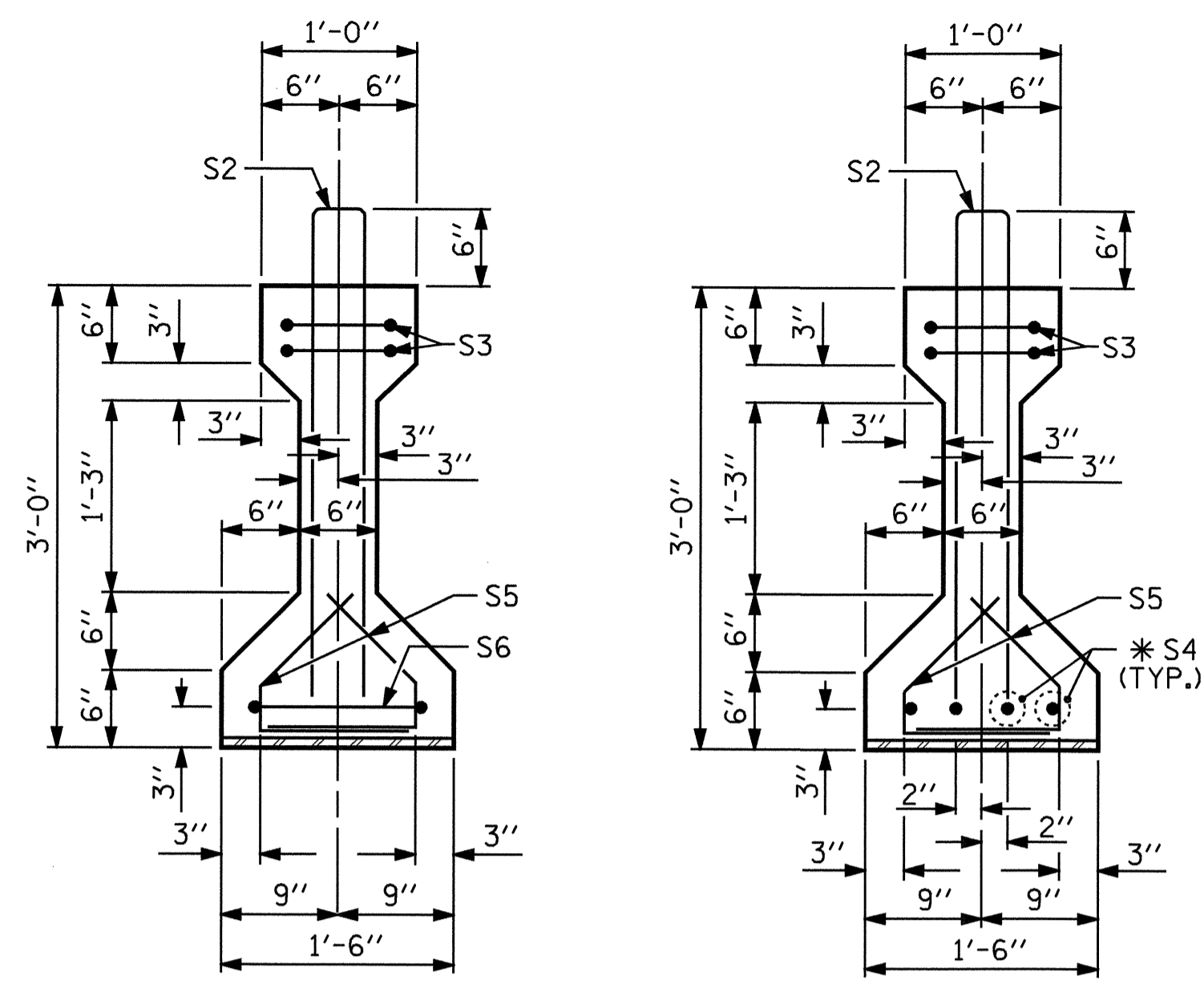
SHEET 3 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
AASHTO TYPE II
PRESTRESSED CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD
SPAN C



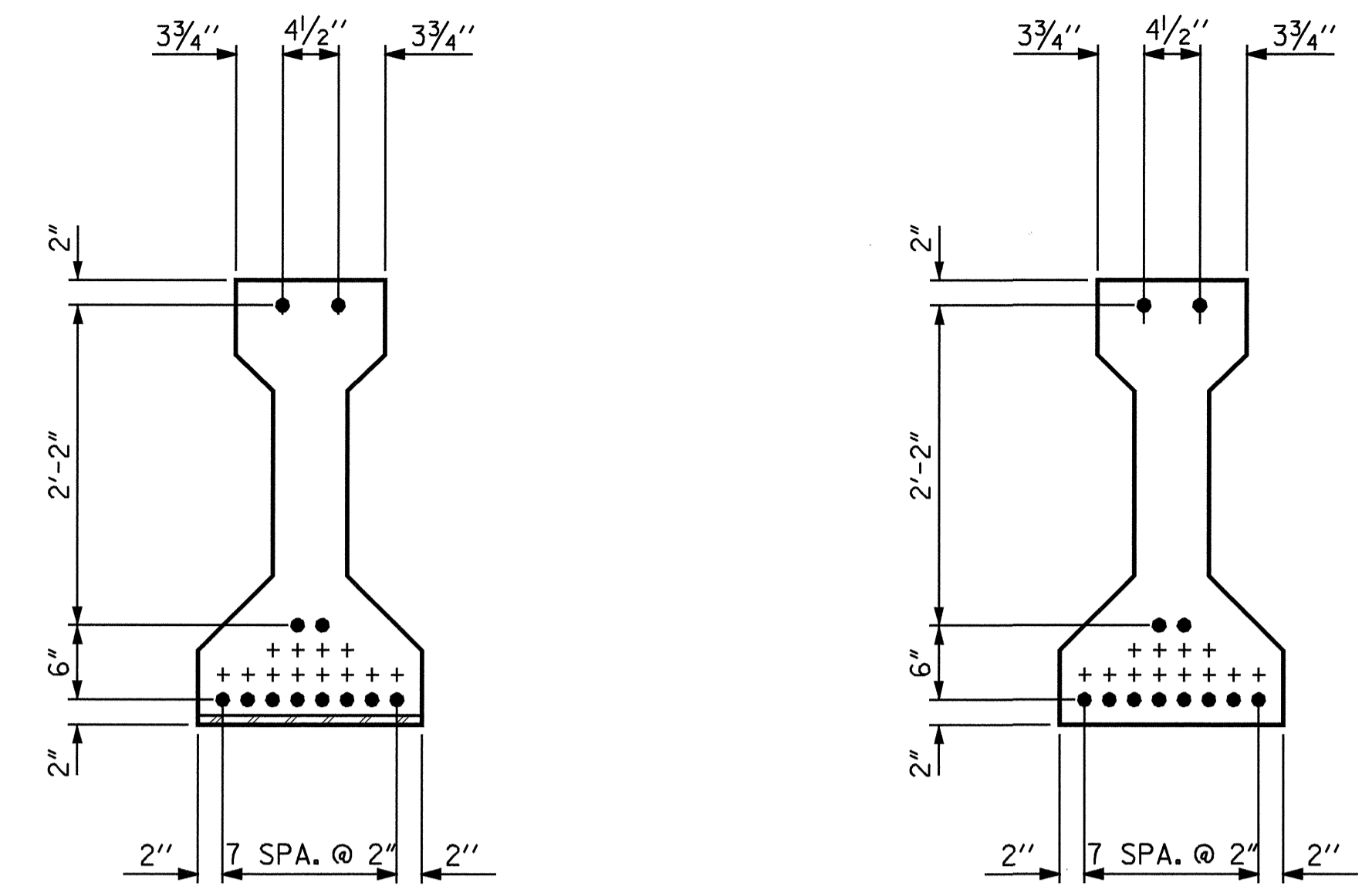
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS 36
2			4			

ASSEMBLED BY : B.N. GRADY	DATE : 7/28/09
CHECKED BY : E.G. ALLEN	DATE : 9/25/09
DRAWN BY : ELR 8/91	REV. 8/16/99 RWW/LES
CHECKED BY : GRP 8/91	REV. 10/17/00R RWW/LES
	REV. 5/1/06 TLA/GM



SECTION A-A

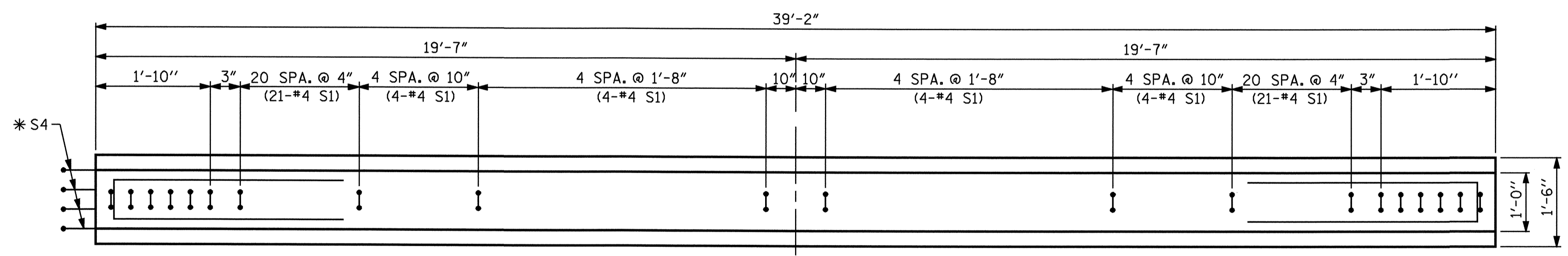
SECTION B-B



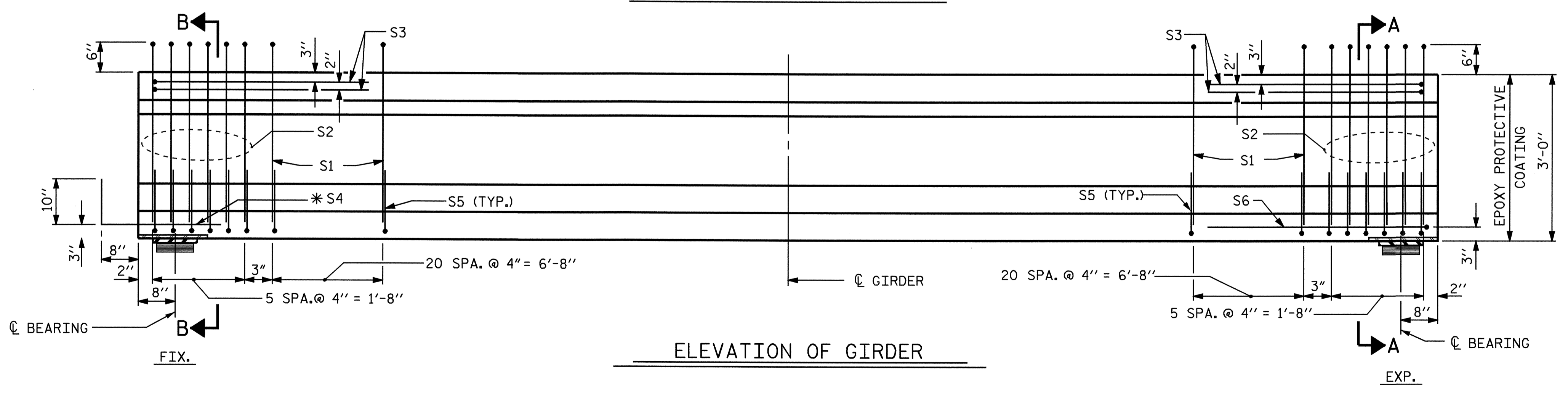
AT END OF GIRDER

AT C OF GIRDER

0.6" Ø LOW RELAXATION STRAND LAYOUT



PLAN OF GIRDER



ELEVATION OF GIRDER

0.6" Ø L. R. GRADE 270 STRANDS

AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

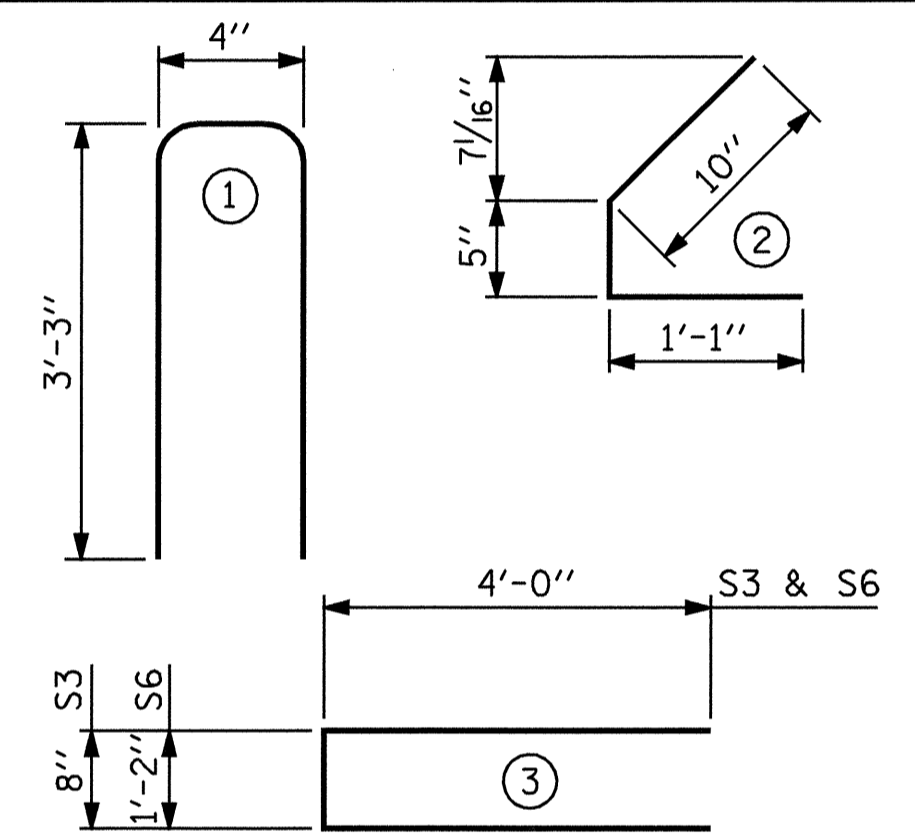
REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	58	#4	1	6'-10"	265
S2	12	#5	1	6'-10"	86
S3	4	#4	3	8'-8"	23
*S4	4	#5	STR	3'-8"	15
S5	108	#4	2	2'-4"	168
S6	1	#4	3	9'-2"	6

* NOTE: S4 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

REINFORCING STEEL	6500 PSI CONCRETE	0.6" Ø L.R. STRANDS
LB.	C.Y.	No.
563	3.7	12

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
4	39'-2"	156'-8"

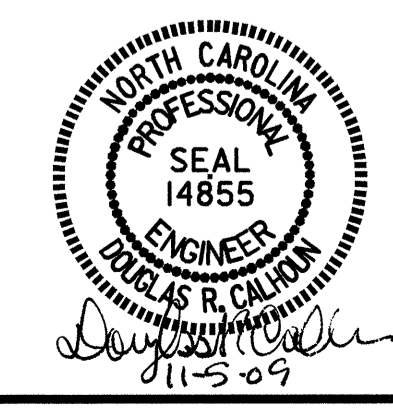
PROJECT NO. B-4261
 RUTHERFORD COUNTY
 STATION: 17+48.00 -L-

SHEET 4 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 AASHTO TYPE II
 PRESTRESSED CONCRETE GIRDER
 CONTINUOUS FOR LIVE LOAD
 SPAN D

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

TOTAL SHEETS
36



ASSEMBLED BY : B.N. GRADY DATE : 7/28/09
 CHECKED BY : E.G. ALLEN DATE : 9/25/09
 DRAWN BY : ELR 8/91 REV. 8/16/99 RWW/LES
 CHECKED BY : GRP 8/91 REV. 10/17/00R RWW/LES
 REV. 5/1/06 TLA/GM

DEAD LOAD DEFLECTION TABLE FOR SPANS A & B																																		
0.6" Ø LOW RELAXATION	GIRDERS A1 & B1										GIRDERS A2, A3, B2, & B3										GIRDERS A4 & B4													
TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.034	0.065	0.089	0.104	0.109	0.104	0.089	0.065	0.034	0.000	0.000	0.034	0.065	0.089	0.104	0.109	0.104	0.089	0.065	0.034	0.000	0.000	0.034	0.065	0.089	0.104	0.109	0.104	0.089	0.065	0.034	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.013	0.025	0.034	0.040	0.042	0.040	0.034	0.025	0.013	0.000	0.000	0.017	0.032	0.043	0.051	0.053	0.051	0.043	0.032	0.017	0.000	0.000	0.014	0.027	0.037	0.043	0.045	0.043	0.037	0.027	0.014	0.000
FINAL CAMBER	↑	0	1/4"	1/2"	11/16"	3/4"	13/16"	3/4"	11/16"	1/2"	1/4"	0	0	3/16"	3/8"	9/16"	5/8"	11/16"	5/8"	9/16"	3/8"	3/16"	0	0	1/4"	7/16"	5/8"	3/4"	3/4"	3/4"	5/8"	7/16"	1/4"	0

* INCLUDES FUTURE WEARING SURFACE
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR SPAN C & D																																		
0.6" Ø LOW RELAXATION	GIRDERS C1 & D1										GIRDERS C2, C3, D2, & D3										GIRDERS C4 & D4													
TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.025	0.046	0.064	0.074	0.078	0.074	0.064	0.046	0.025	0.000	0.000	0.025	0.046	0.064	0.074	0.078	0.074	0.064	0.046	0.025	0.000	0.000	0.025	0.046	0.064	0.074	0.078	0.074	0.064	0.046	0.025	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.005	0.010	0.014	0.016	0.017	0.016	0.014	0.010	0.005	0.000	0.000	0.007	0.013	0.017	0.020	0.021	0.020	0.017	0.013	0.007	0.000	0.000	0.006	0.011	0.015	0.017	0.018	0.017	0.015	0.011	0.006	0.000
FINAL CAMBER	↑	0	1/4"	7/16"	5/8"	11/16"	3/4"	11/16"	5/8"	7/16"	1/4"	0	0	3/16"	3/8"	9/16"	5/8"	11/16"	5/8"	9/16"	3/8"	3/16"	0	0	1/4"	7/16"	5/8"	11/16"	3/4"	11/16"	5/8"	7/16"	1/4"	0

* INCLUDES FUTURE WEARING SURFACE
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

NOTES

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

ALL REINFORCING STEEL SHALL BE GRADE 60.

APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES INDICATED IN ELEVATION VIEW.

EMBEDDED PLATE "B-1" SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. BEVEL EDGES OF PLATE "B-1" TO GIVE CLOSE FIT BUT NOT TIGHT FIT TO STEEL CASTING FORM.

ANCHOR STUDS SHALL CONFORM TO AASHTO M169 GRADES 1010 THROUGH 1020 OR APPROVED EQUAL, AND SHALL MEET THE TYPE "B" REQUIREMENTS OF SUBSECTION 7.3 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

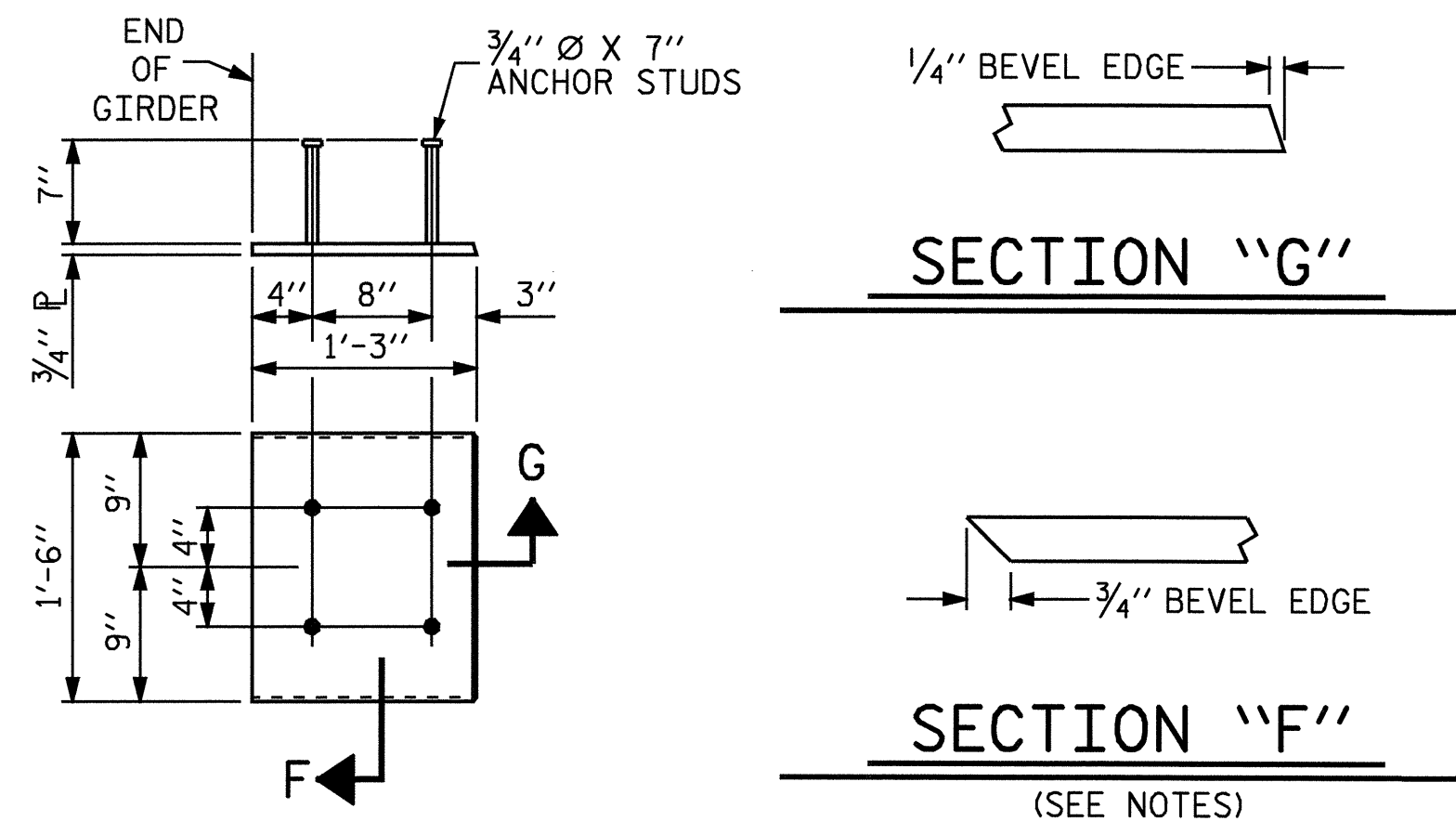
AT ENDS OF GIRDERS TO BE EMBEDDED IN CONCRETE DIAPHRAGMS OR END WALLS, PRESTRESSING STRANDS MAY EXTEND A MAXIMUM OF 2" BEYOND THE GIRDER ENDS. OTHERWISE, PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE GIRDER ENDS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 5800 PSI FOR SPANS A & B, AND 4200 PSI FOR SPANS C & D.

DEPENDING ON THE TYPE OF SYSTEM USED TO SUPPORT THE DECK SLAB FORMS, PRESET ANCHORS MAY BE NECESSARY IN THE PRESTRESSED CONCRETE GIRDER.

THE TOP SURFACE OF THE GIRDER, EXCLUDING THE OUTSIDE 4", SHALL BE RAKED TO A DEPTH OF 1/4".

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

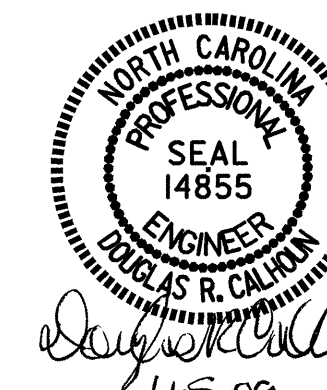


EMBEDDED PLATE "B-1" DETAILS
FOR AASHTO TYPE II GIRDER
(2 REQ'D PER GIRDER)

PROJECT NO. B-4261
RUTHERFORD COUNTY
STATION: 17+48.00 -L-

SHEET 5 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
PRESTRESSED CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD
DETAILS AND
DEAD LOAD DEFLECTION TABLES



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15	
1			3			TOTAL	36
2			4			SHEETS	

ASSEMBLED BY : B.N. GRADY	DATE : 7/28/09
CHECKED BY : E.G. ALLEN	DATE : 9/25/09
DRAWN BY : ELR 11/91	REV. 10/17/00 RWW/LES
CHECKED BY : GRP 11/91	REV. 7/10/01RR LES/RDR
	REV. 5/17/06 TLA/GM

STRUCTURAL STEEL NOTES

ALL INTERMEDIATE DIAPHRAGM STEEL, CONNECTOR PLATES AND PLATE WASHERS SHALL BE AASHTO M270 GRADE 50 OR APPROVED EQUAL.

TENSION ON THE AASHTO M164 BOLTS THROUGH THE CHANNEL MEMBER SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS.

TENSION ON THE AASHTO M164 BOLTS THROUGH THE GIRDER WEB SHALL BE SNUG TIGHTENED FOLLOWED BY AN ADDITIONAL 1/4 TURN.

THE CHANNELS, ANGLES, WASHERS, PLATE WASHERS, AND DIRECT TENSION INDICATORS SHALL BE GALVANIZED OR METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

FOR METALLIZATION, APPLY AN 8 MIL THICK 99.99 PERCENT ZINC (W-Zn-1) THERMAL SPRAYED COATING WITH A 0.5 MIL THICK SEAL COAT TO ALL STEEL DIAPHRAGM SURFACES IN ACCORDANCE WITH THE THERMAL SPRAYED COATINGS SPECIAL PROVISIONS AND SECTION 442 OF THE STANDARD SPECIFICATIONS.

GALVANIZE THE HIGH STRENGTH BOLTS, NUTS, AND WASHERS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR HIGH STRENGTH BOLTS, SEE SPECIAL PROVISIONS.

USE A MINIMUM 7/16" THICK PLATE WASHER WITH STANDARD HOLES UNDER EACH BOLT HEAD AND NUT. THE PLATE WASHERS SHALL HAVE SUFFICIENT SIZE TO COVER THE HOLES AFTER INSTALLATION. DIRECT TENSION INDICATORS ARE TO BE USED IN CONJUNCTION WITH THE PLATE WASHERS.

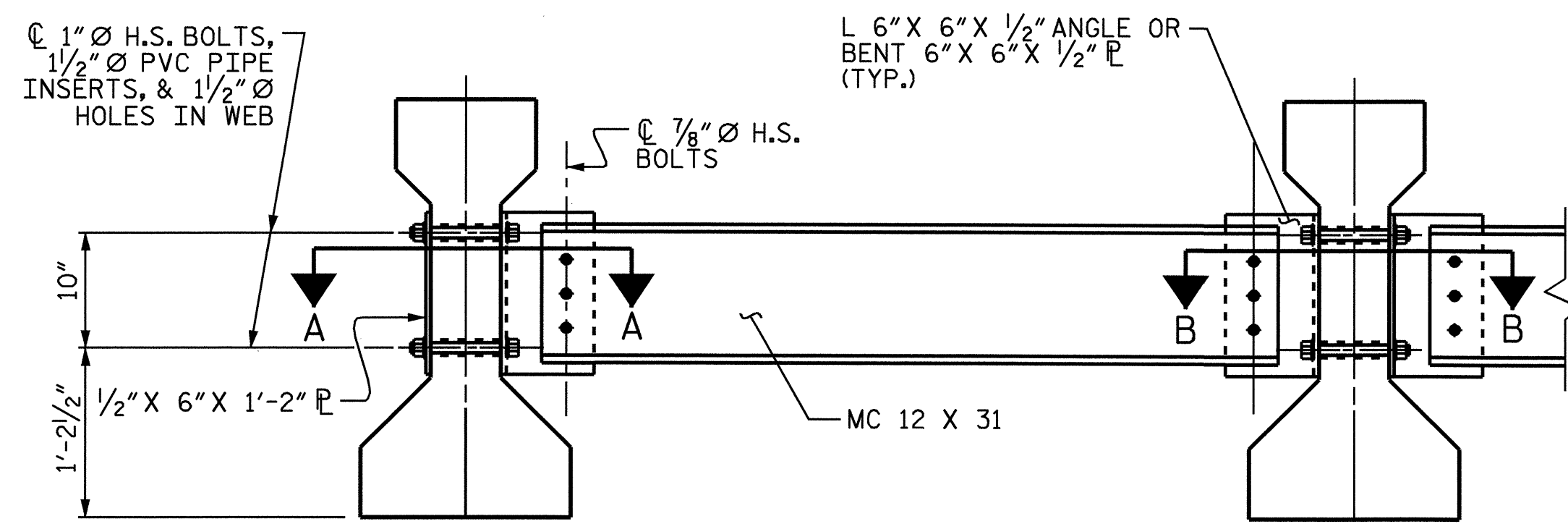
PROVIDE SUFFICIENT LENGTH OF ALL BOLTS TO ACCOMMODATE WASHERS, DIRECT TENSION INDICATORS, THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

INTERMEDIATE DIAPHRAGM ASSEMBLY SHALL COMPLY WITH SECTION 1072 OF THE STANDARD SPECIFICATIONS.

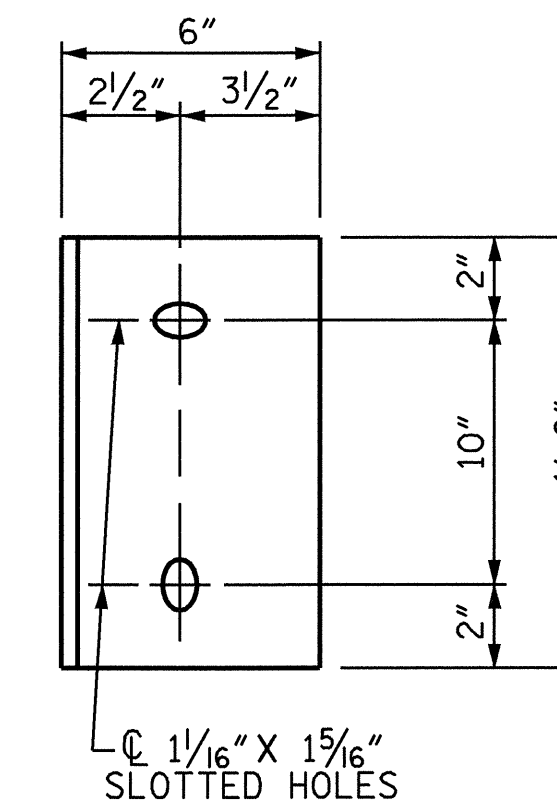
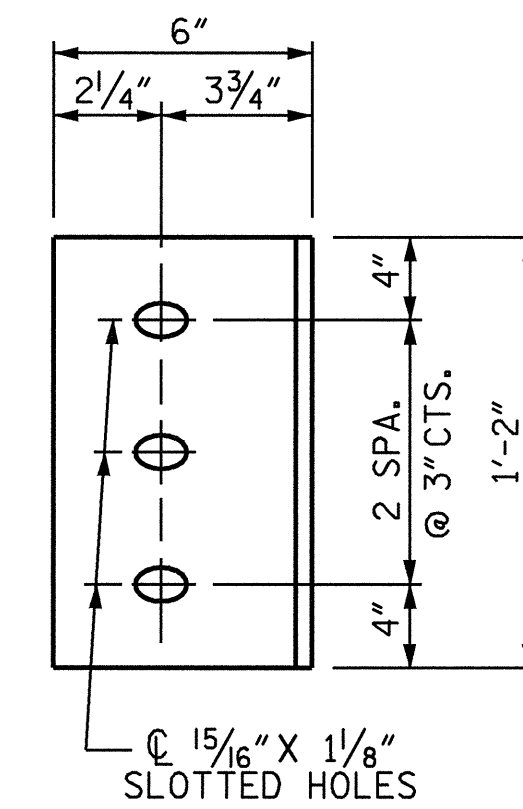
CONTRACTOR SHALL SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

IN THE EXTERIOR BAYS, TEMPORARY STRUTS SHALL BE PLACED BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE STEEL DIAPHRAGMS. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED. ALL AASHTO M164 H.S. BOLTS SHALL BE FULLY TIGHTENED AFTER THE STRUTS HAVE BEEN REMOVED.

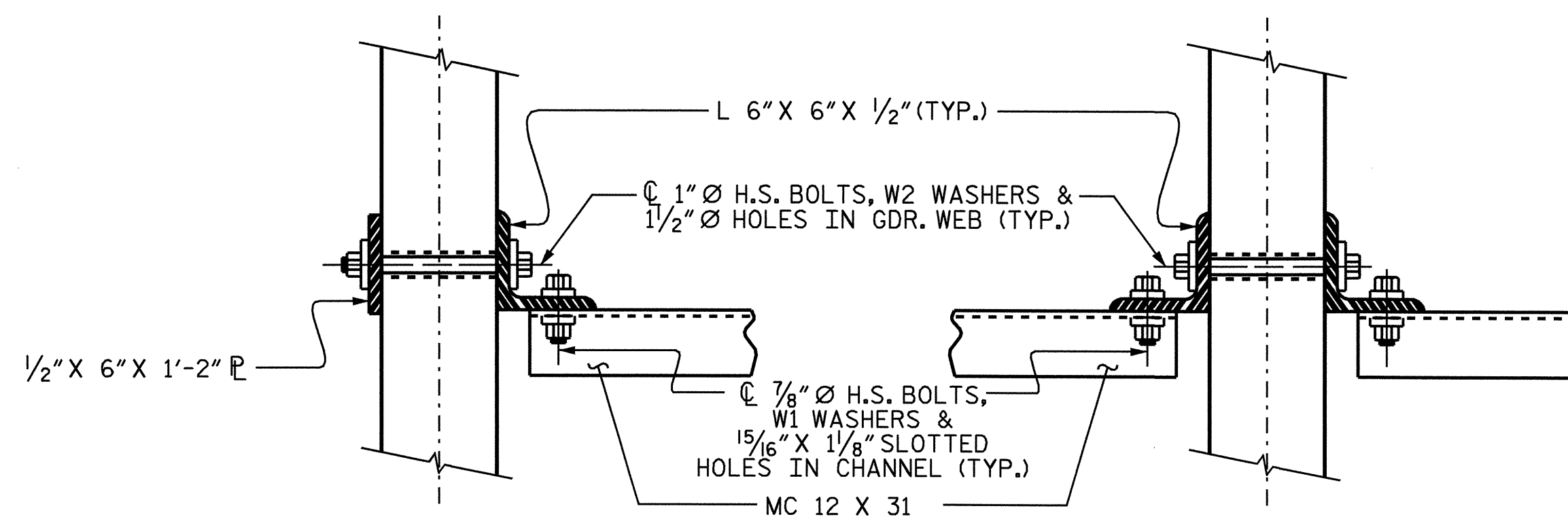
THE COST OF THE STEEL DIAPHRAGMS AND ASSEMBLIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE GIRDERS.



EXTERIOR GIRDER **INTERIOR GIRDER**
PART SECTION AT INTERMEDIATE DIAPHRAGM
(TYPE II GIRDER SHOWN)



DIAPHRAGM FACE **WEB FACE**
(TYPE II GDR.)
CONNECTOR PLATE DETAILS



SECTION A-A **SECTION B-B**
CONNECTION DETAILS
(FOR SKEW = 90°)

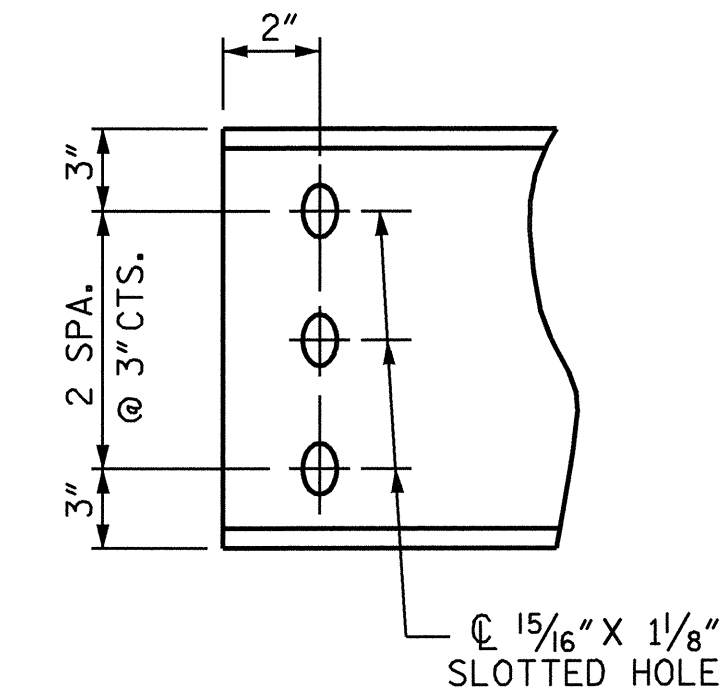
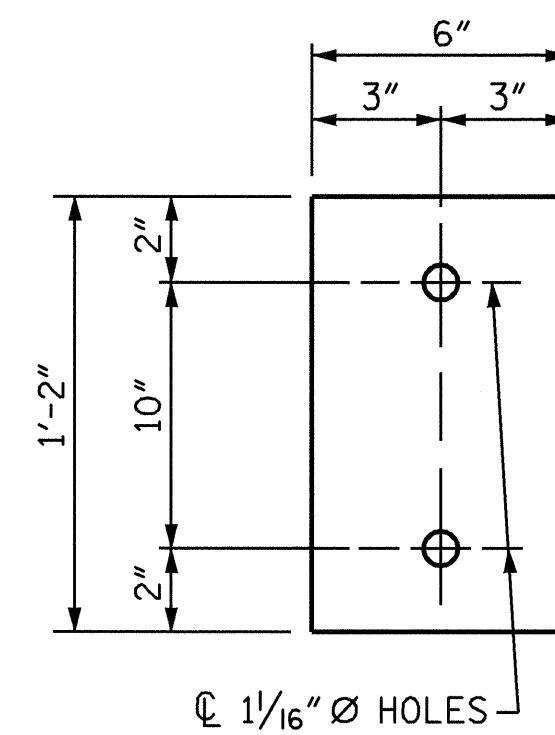
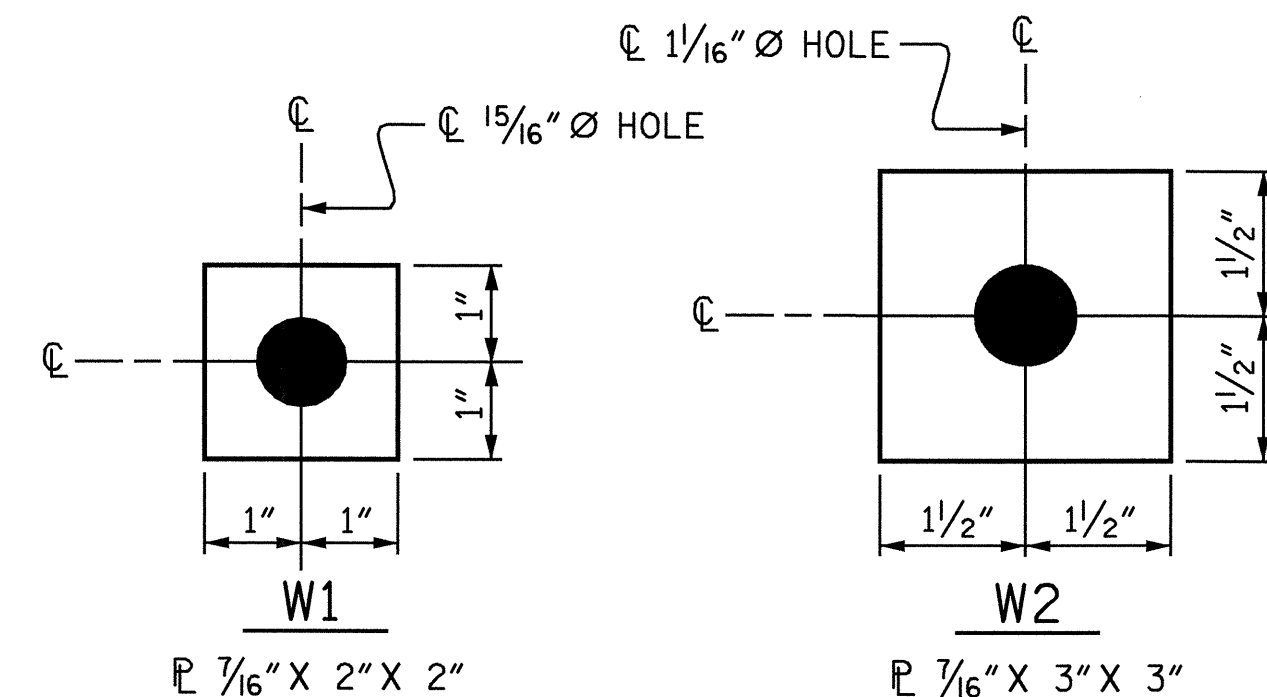


PLATE DETAILS **CHANNEL END**
(TYPE II GDR.)



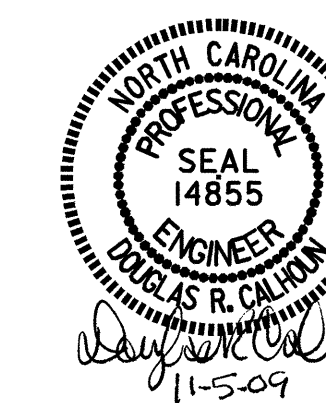
USE WITH 7/8" Ø HVY. HEX NUTS & DIRECT TENSION INDICATOR WASHERS AT DIAPHRAGM CHANNEL TO CONNECTOR PLATE CONNECTIONS
USE WITH 1" Ø HVY. HEX NUTS AT CONNECTOR PLATE TO GIRDER CONNECTIONS

WASHER DETAILS

ASSEMBLED BY : B.N. GRADY DATE : 5/19/09
CHECKED BY : E.G. ALLEN DATE : 9/25/09
DRAWN BY : TLA 6/05
CHECKED BY : VC 6/05

ADDED 10/21/05
REV. 5/1/06R KMM/GM

29-OCT-2009 13:36
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bngrady



PROJECT NO. B-4261
RUTHERFORD COUNTY
STATION: 17+48.00 -L-

SHEET 6 OF 6

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.
STANDARD INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE II PRESTRESSED CONCRETE GIRDERS						S-16
REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	36
1			3			
2			4			

STD.No.PCG12

NOTES

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

THE 2" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.

STEEL SOLE PLATES, ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

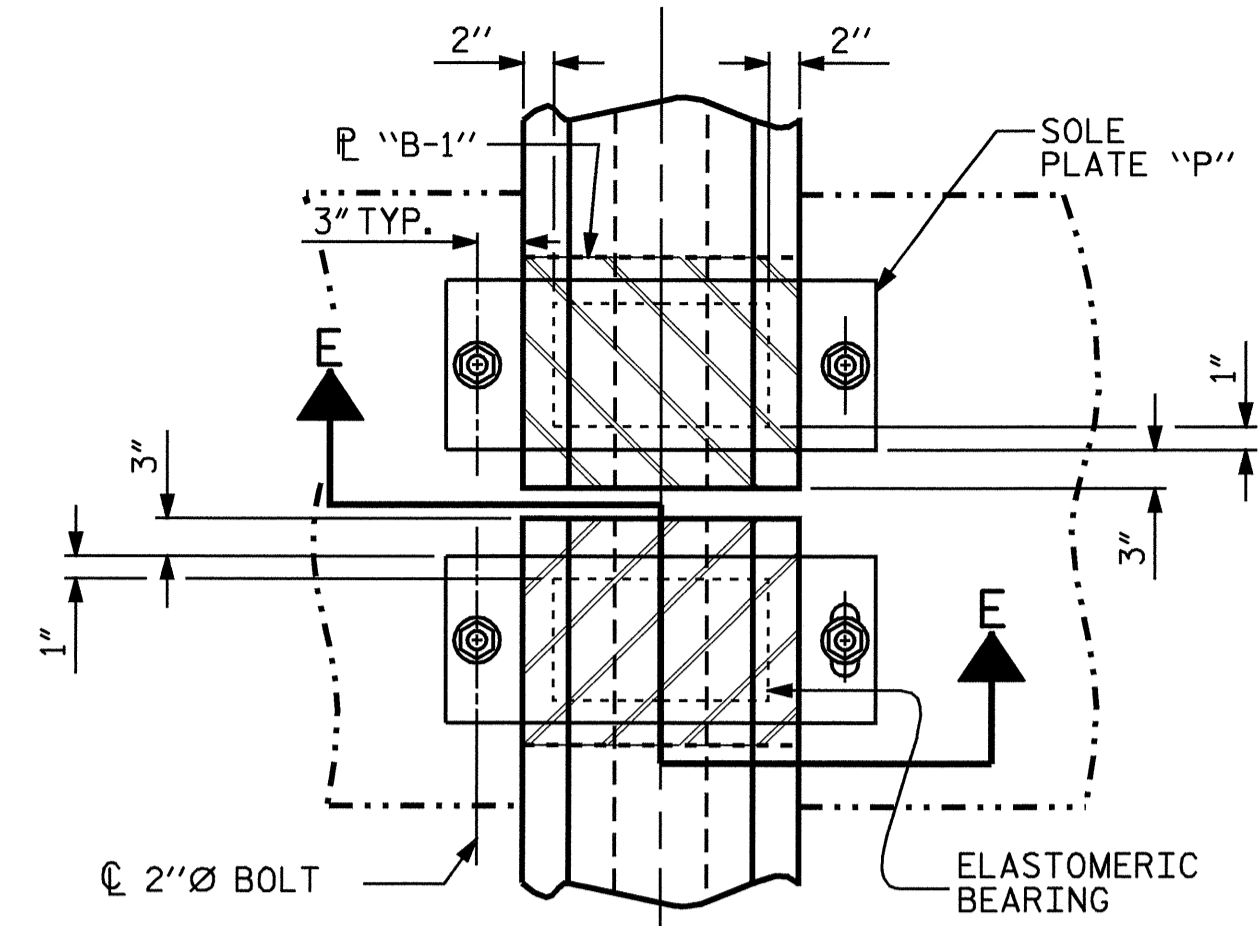
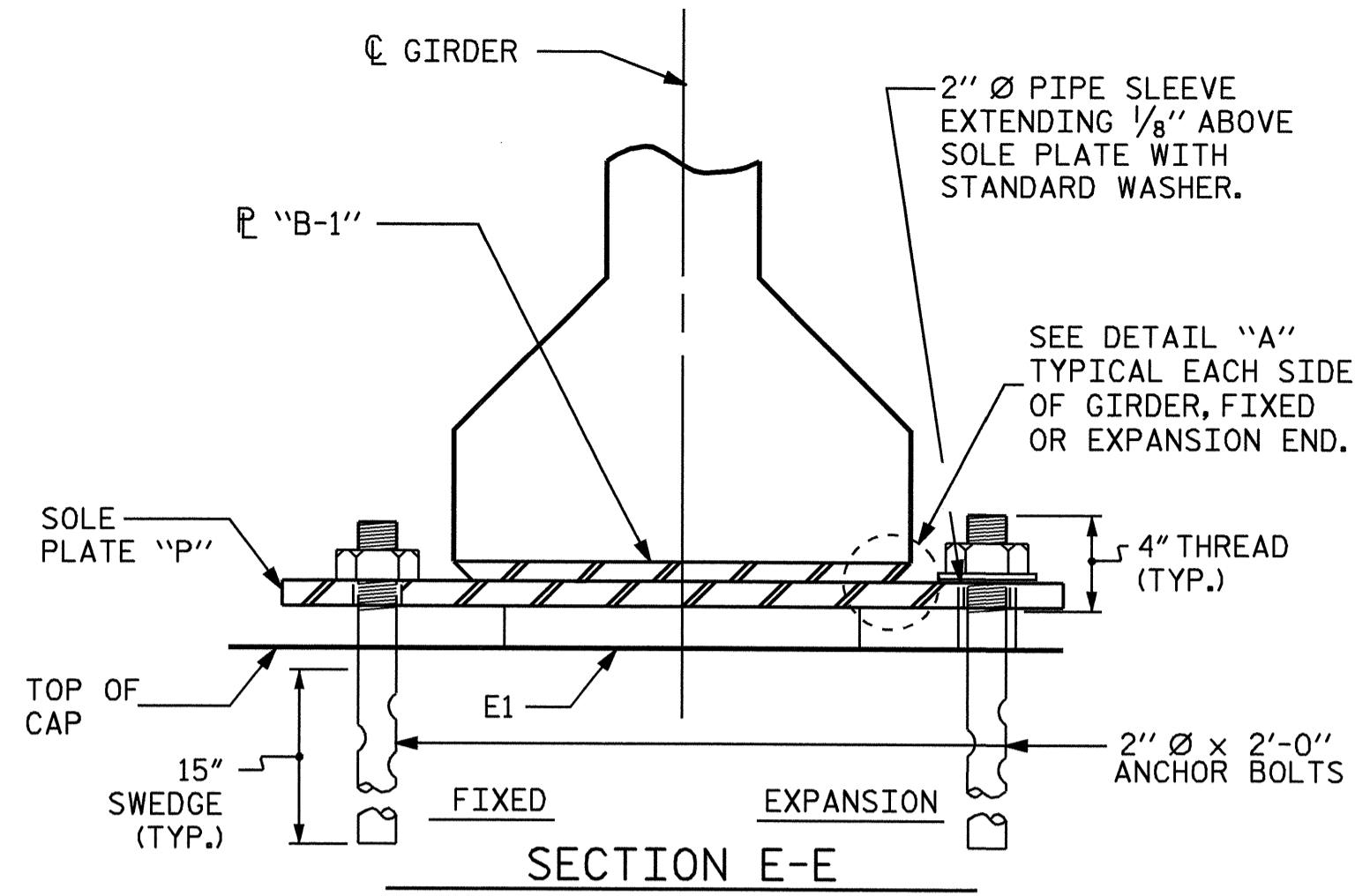
PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

WHEN WELDING THE SOLE PLATE TO THE EMBEDDED PLATE IN THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

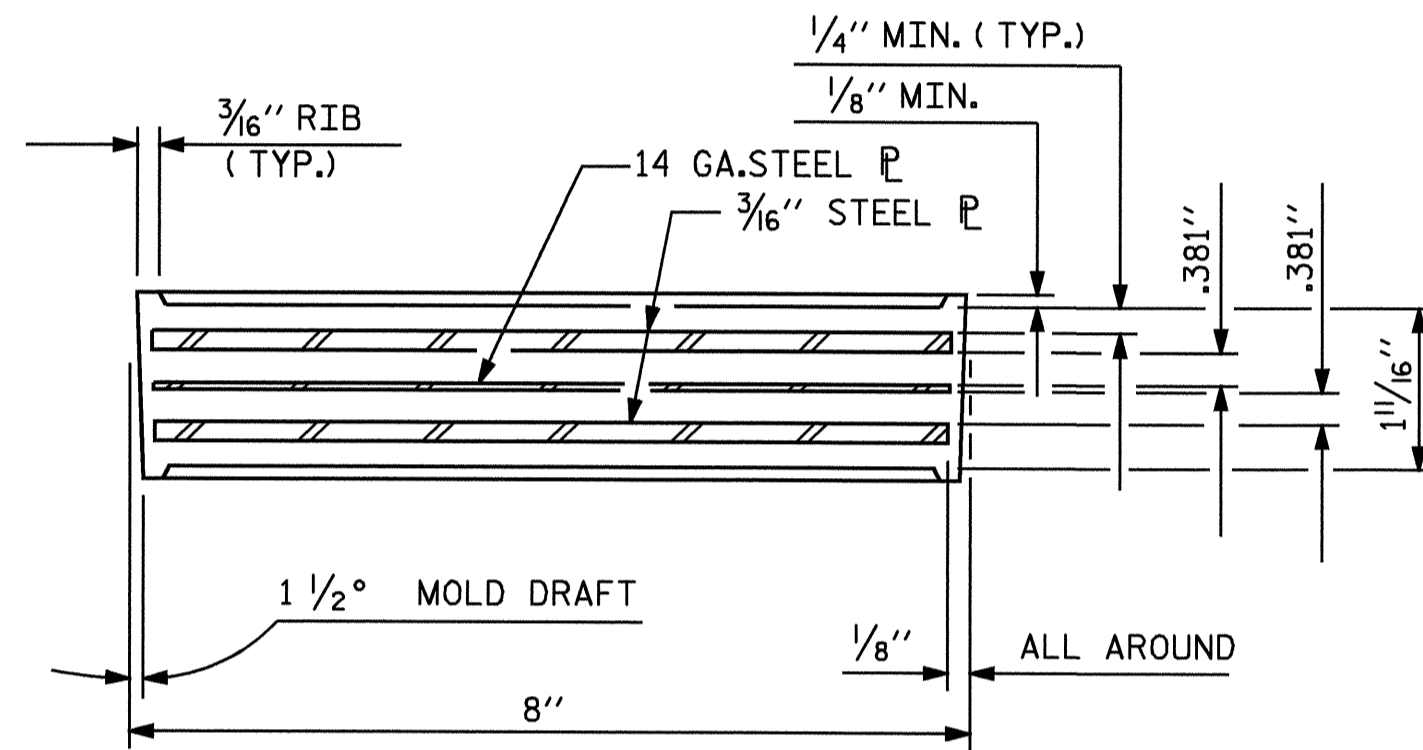
SOLE PLATE "P", BOLTS, NUTS, WASHERS, AND PIPE SLEEVE SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

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 BOLT, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

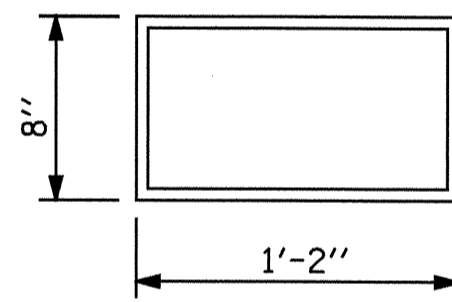
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.



TYPICAL HALF-PLAN (SHOWING CONTINUOUS BENT) TYPICAL HALF-PLAN (SHOWING SIMPLE SPAN BENT)

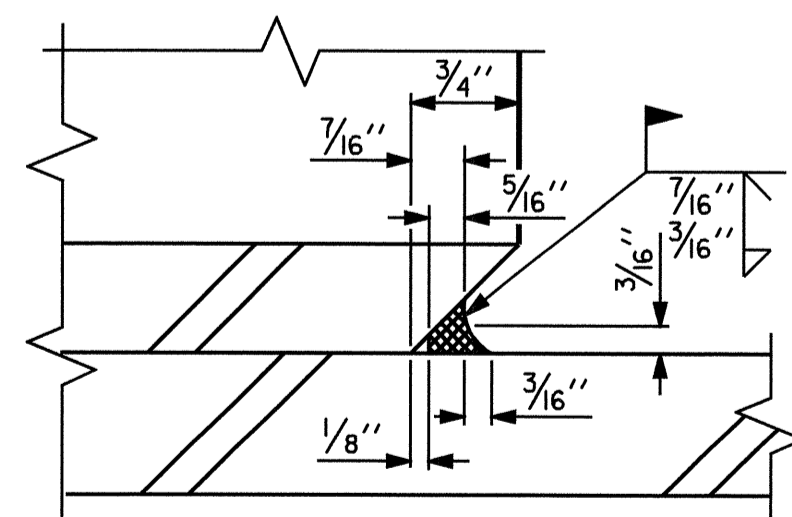


TYPICAL SECTION OF ELASTOMERIC BEARINGS

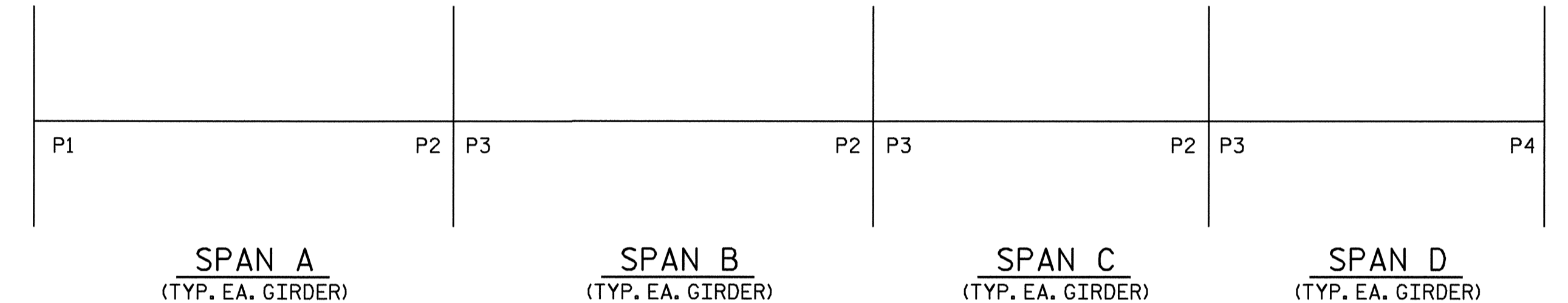


E1 (32 REQ'D.) PLAN VIEW OF ELASTOMERIC BEARING

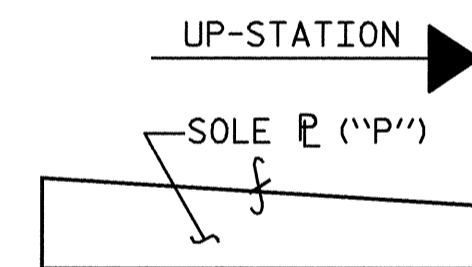
TYPE II (60 DUROMETER HARDNESS)



DETAIL "A"

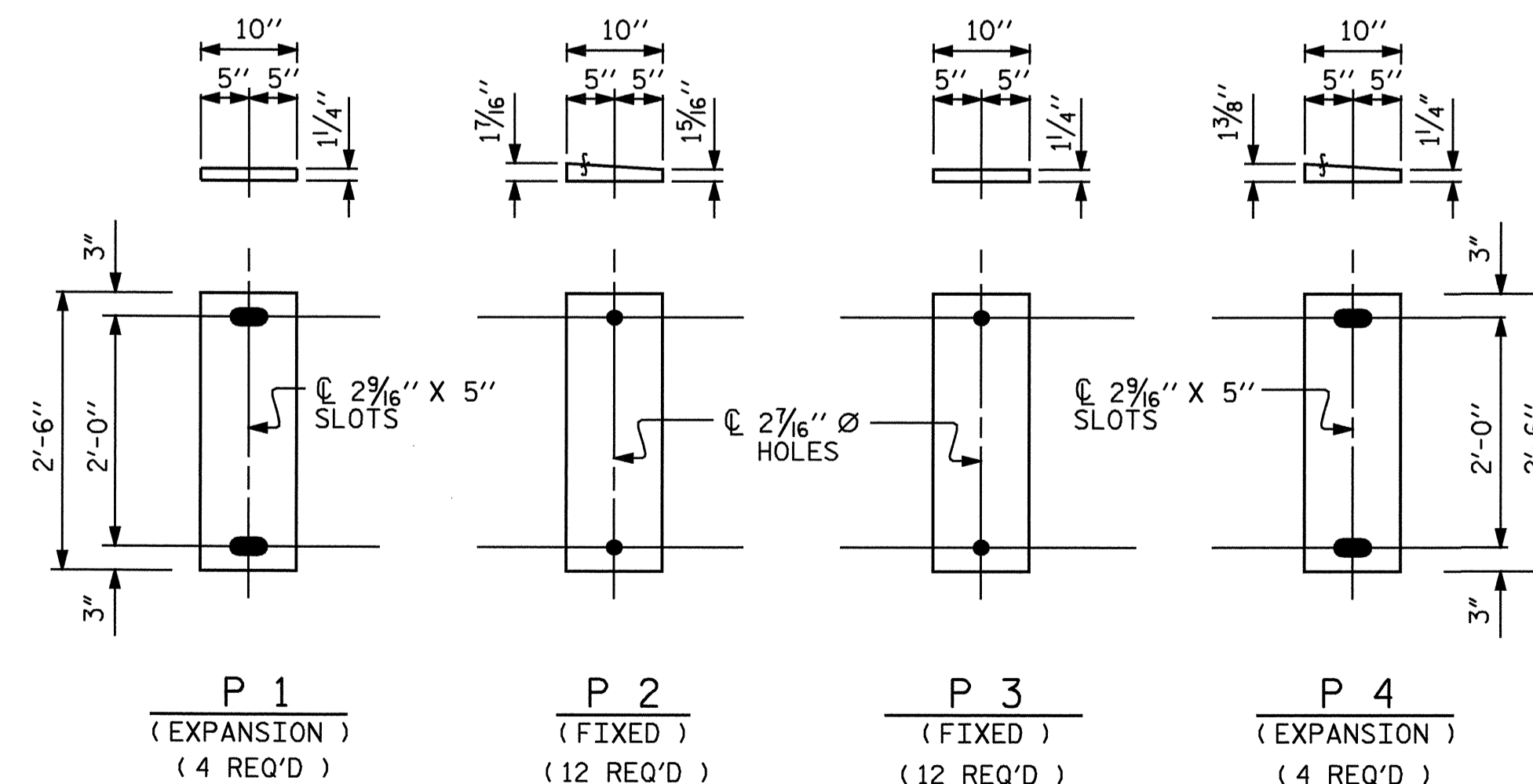


SOLE P LAYOUT



SOLE P PLACEMENT DETAIL

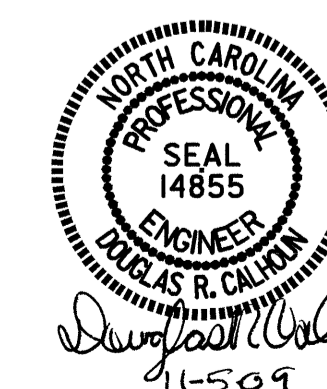
LOAD RATINGS	
36" PCG -TYPE II	MAX.D.L.+L.L. 82 K



SOLE PLATE DETAILS ("P")

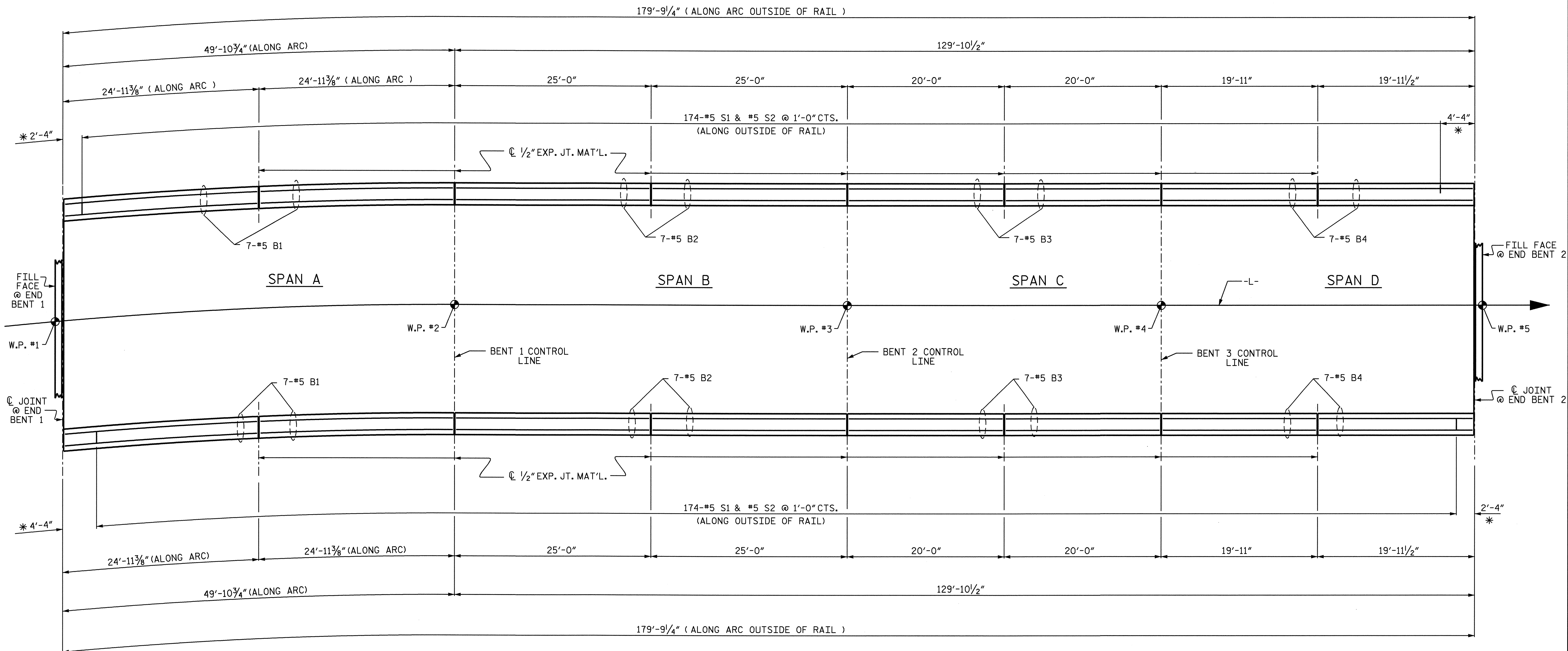
PROJECT NO. B-4261
RUTHERFORD COUNTY
STATION: 17+48.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
ELASTOMERIC BEARING
DETAILS
PRESTRESSED CONCRETE GIRDER
SUPERSTRUCTURE



REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 36

ASSEMBLED BY : A. K. PATEL	DATE : 9/25/06
CHECKED BY : J. MYA	DATE : 10/06
DRAWN BY : WJH 8/89	REV. 10/17/00 RWW/LES
CHECKED BY : CRK 8/89	REV. 7/10/01 RWW/LES
	REV. 5/1/06 TLA/GM

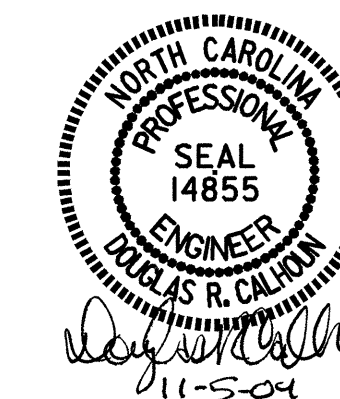


PLAN OF BARRIER RAIL

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE FROM C JOINT TO C JOINT.
 * FOR REINFORCING STEEL AT ENDS OF RAIL, SEE "END OF RAIL DETAILS" SHEET 2 OF 3.
 FOR LOCATION OF DRAIN SLOTS IN BARRIER RAIL, SEE PLAN OF SPAN SHEETS.

PROJECT NO. B-4261
RUTHERFORD COUNTY
 STATION: 17+48.00 -L-

SHEET 1 OF 3



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE CONCRETE BARRIER RAIL					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-18
					TOTAL SHEETS 36

DRAWN BY : A. K. PATEL DATE : 10/03/06
 CHECKED BY : J. MYA DATE : 10/06

NOTES

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

WHEN EVAZOTE JOINT SEAL IS REQUIRED, THE JOINT IN THE DECK SHALL BE SAWED PRIOR TO THE CASTING OF BARRIER RAIL.

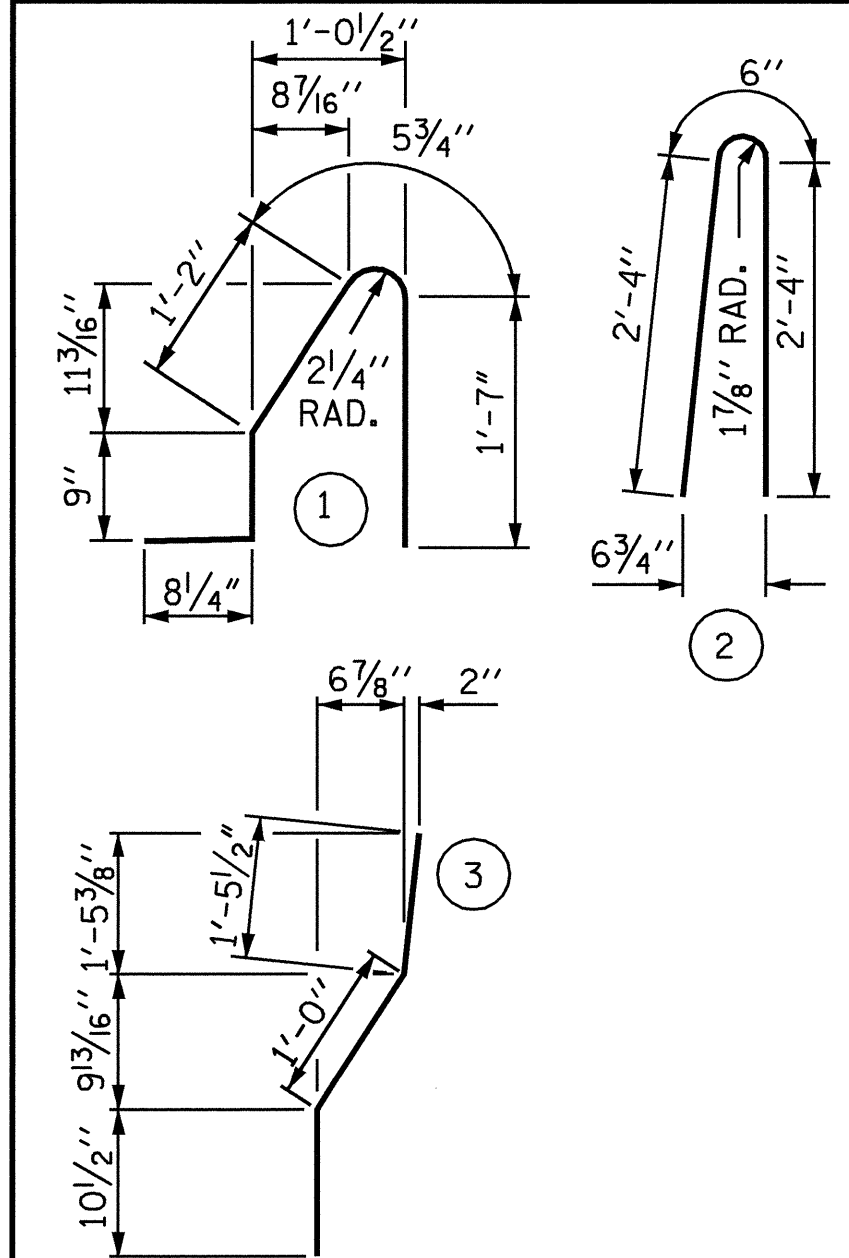
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

THE #5 S3 AND #5 S4 BARS SHALL BE INSTALLED, USING AN ADHESIVE ANCHORING SYSTEM, AFTER SAWING THE JOINT. THE YIELD LOAD FOR THE #5 S3 AND #5 S4 BARS IS 18.6 KIPS. FIELD TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

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.

THE #5 S1 AND #5 S2 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MINIMUM CLEARANCE TO THE 1/2" EXPANSION JOINT MATERIAL IN BARRIER RAIL.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

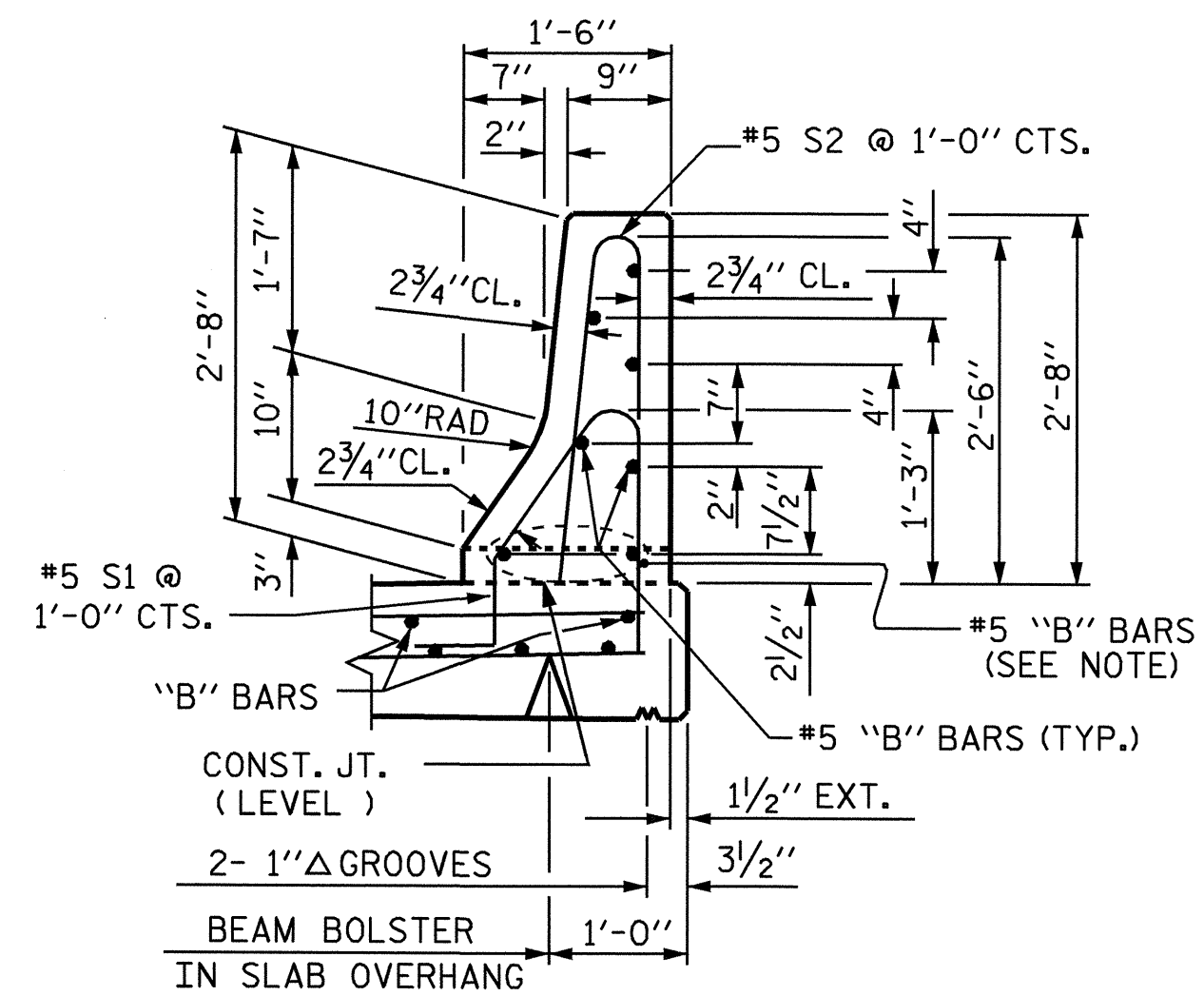
BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	28	#5	STR	24'-6"	715
* B2	28	#5	STR	24'-7"	718
* B3	28	#5	STR	19'-7"	572
* B4	28	#5	STR	19'-6"	569

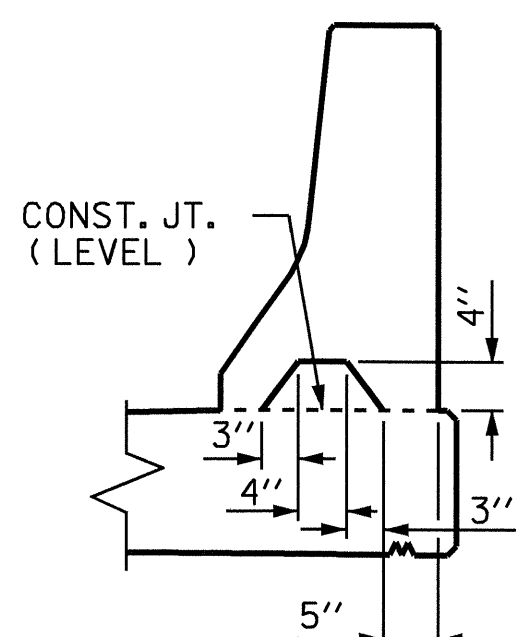
* S1	348	#5	1	4'-8"	1694
* S2	348	#5	2	5'-2"	1875
* S3	12	#5	3	3'-4"	42
* S4	12	#5	STR	3'-2"	40

* EPOXY COATED REINFORCING STEEL	6225 LBS.
CLASS AA CONCRETE	36.0 CU. YDS.
CONCRETE BARRIER RAIL	359.54 LIN. FT.

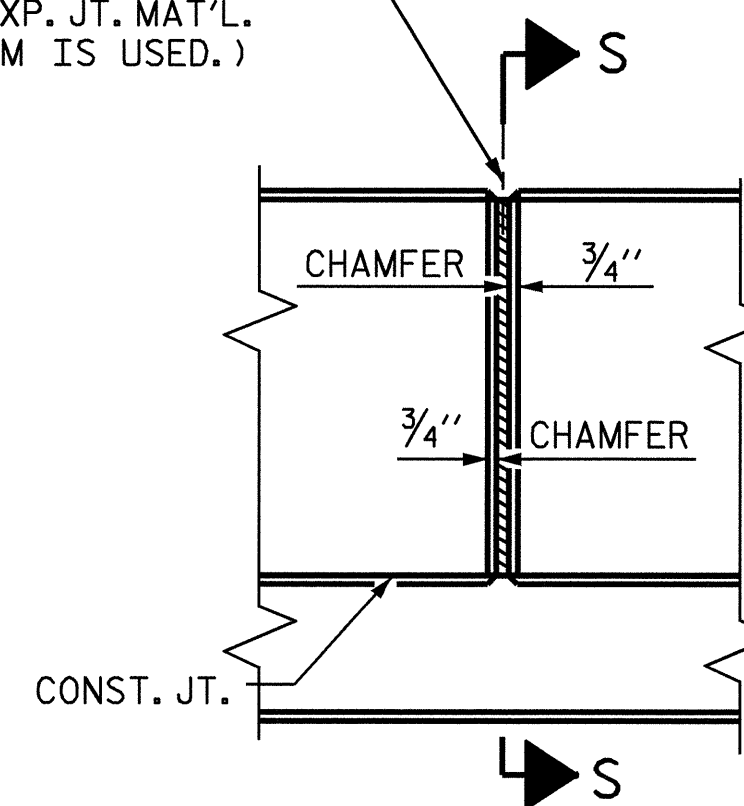


SECTION THRU RAIL

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



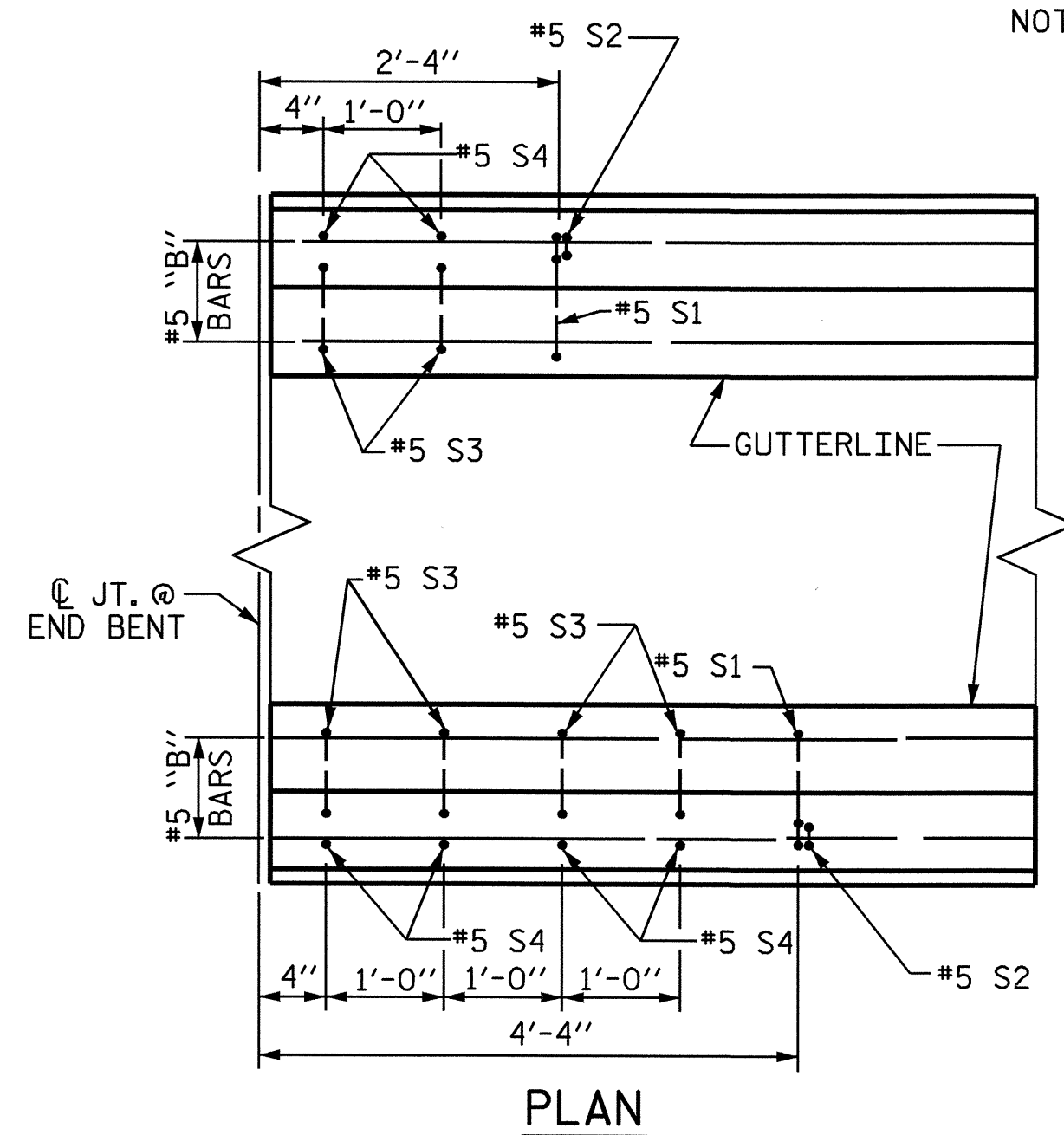
SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)



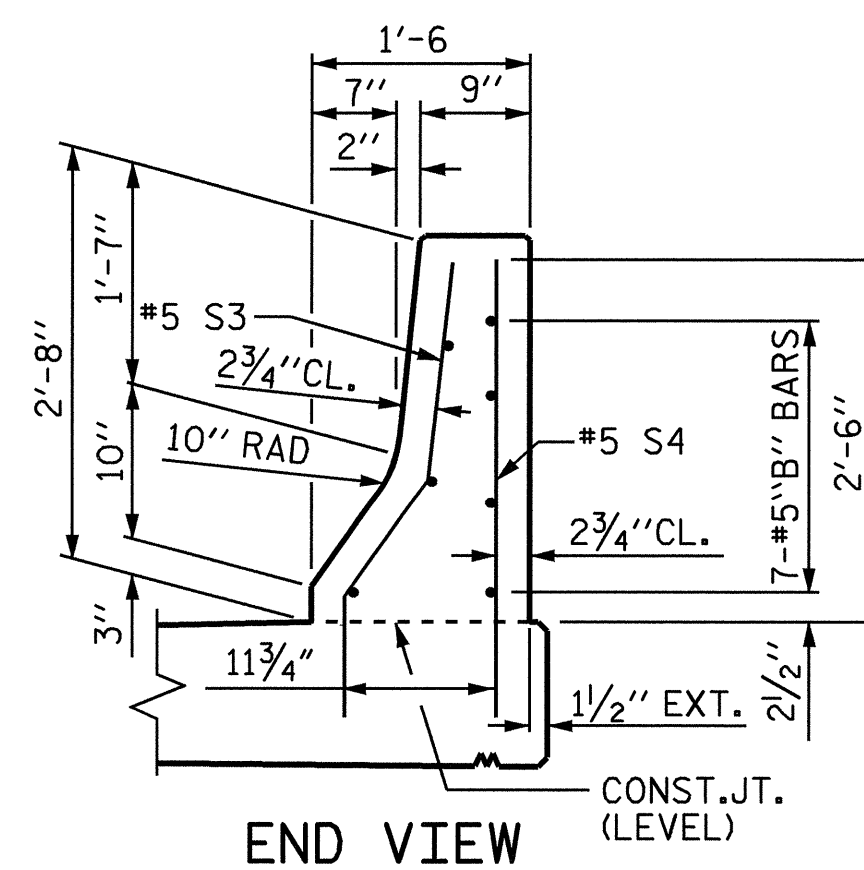
ELEVATION AT EXPANSION JOINTS

BARRIER RAIL DETAILS

NOTE: BOTTOM ROW OF #5 'B' BARS MAY BE CUT AS NECESSARY TO AVOID DRAINAGE SLOTS.



PLAN



END VIEW

END OF RAIL DETAILS

FOR ADHESIVE ANCHORING AT SAWED JOINTS

ASSEMBLED BY: A. K. PATEL	DATE: 10/03/06
CHECKED BY: J. MYA	DATE: 10/06
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

05-NOV-2009 07:51
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bng-rdy



PROJECT NO. B-4261
RUTHERFORD COUNTY
STATION: 17+48.00 -L-

SHEET 2 OF 3

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS 36
2			4			

STD. NO. CBR1

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 4 - 7/8" 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 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

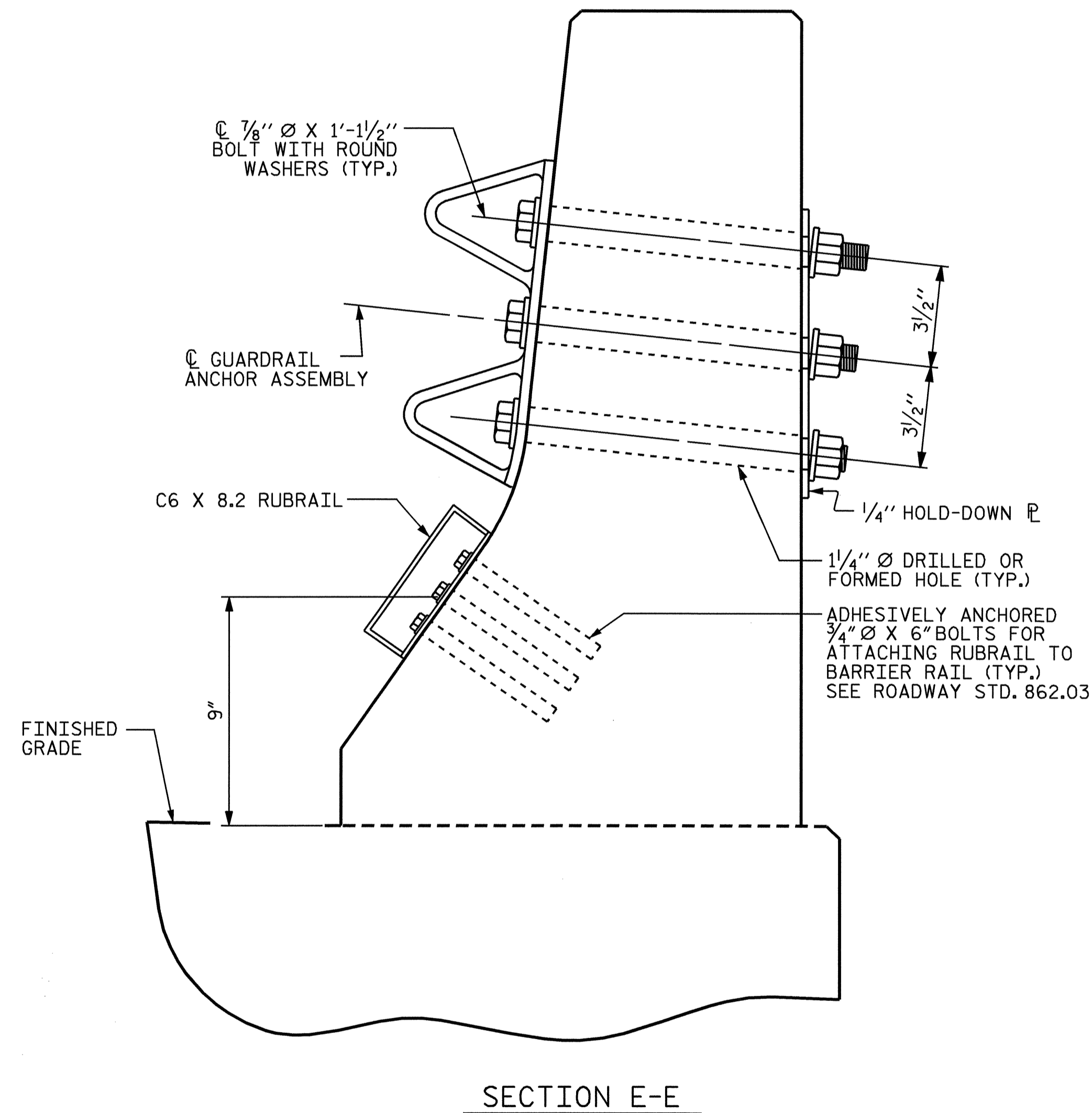
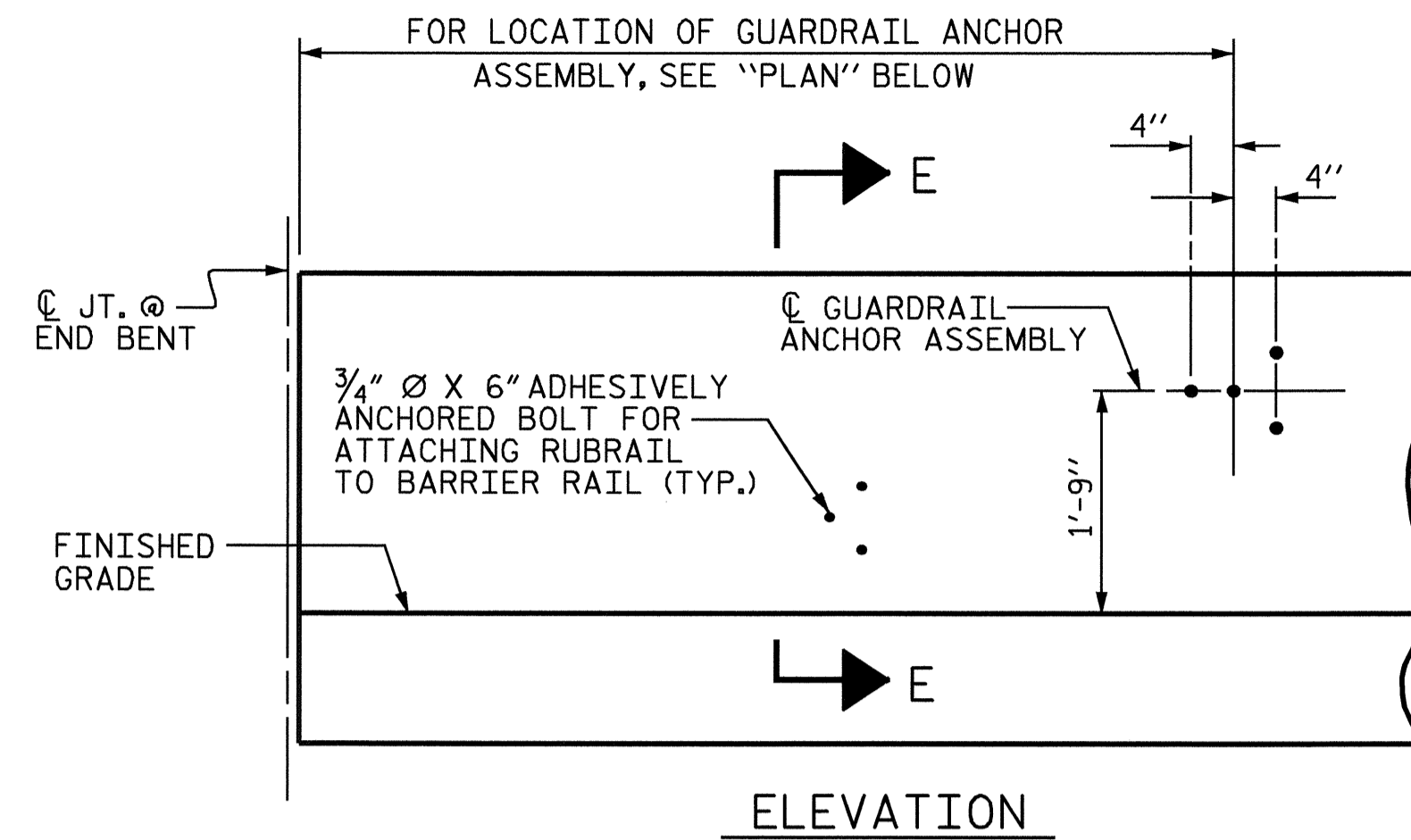
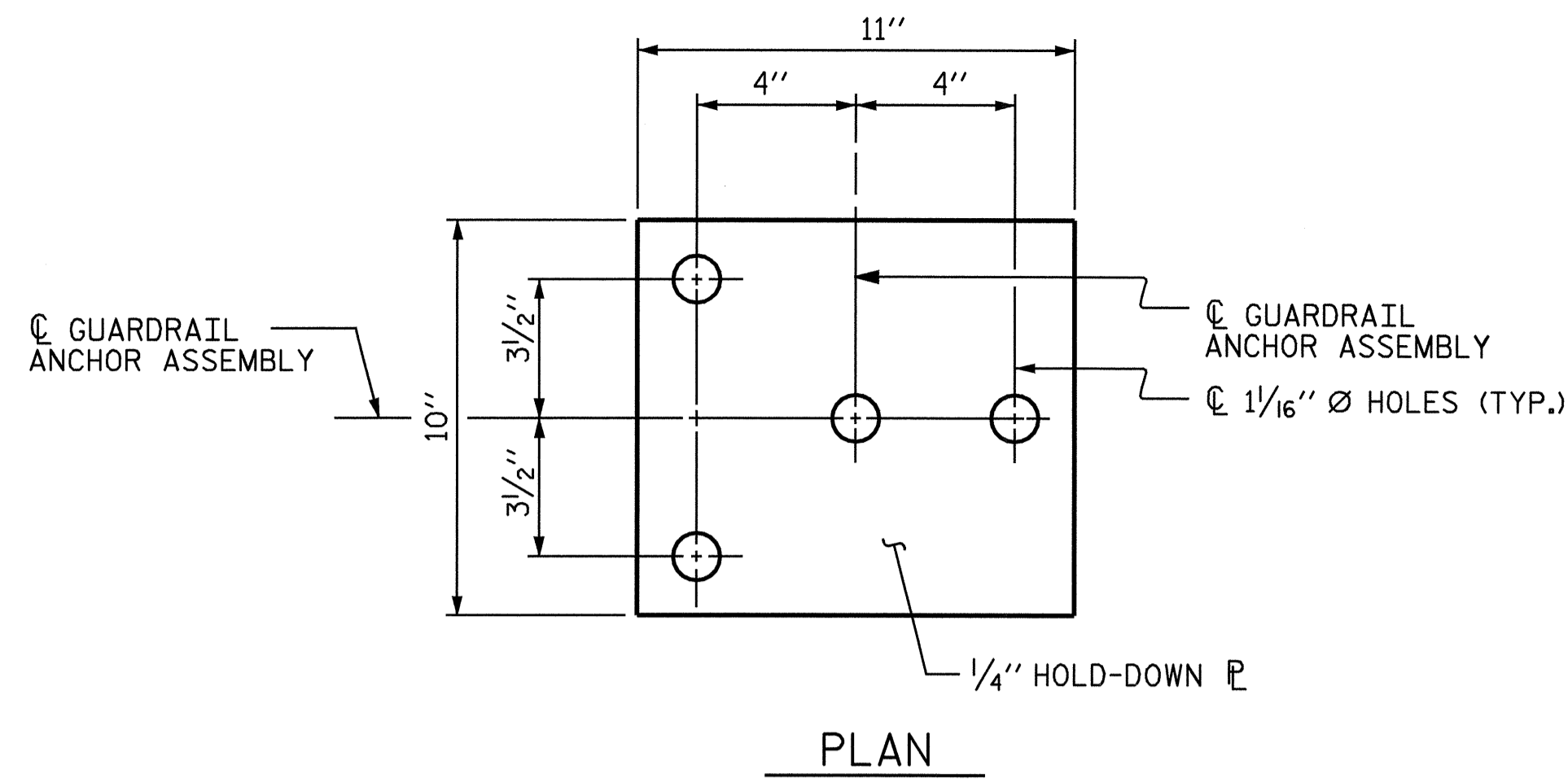
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

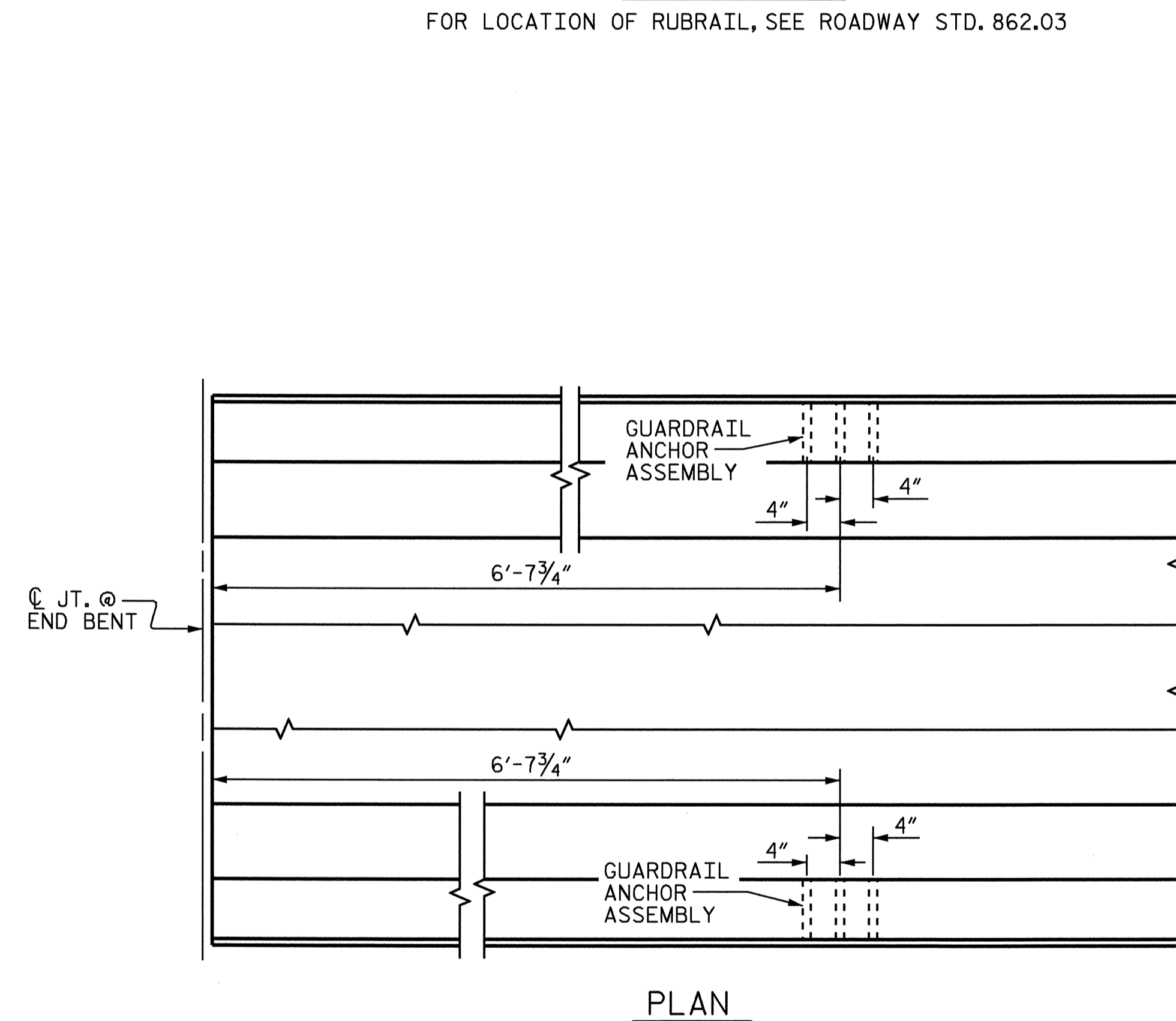
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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.

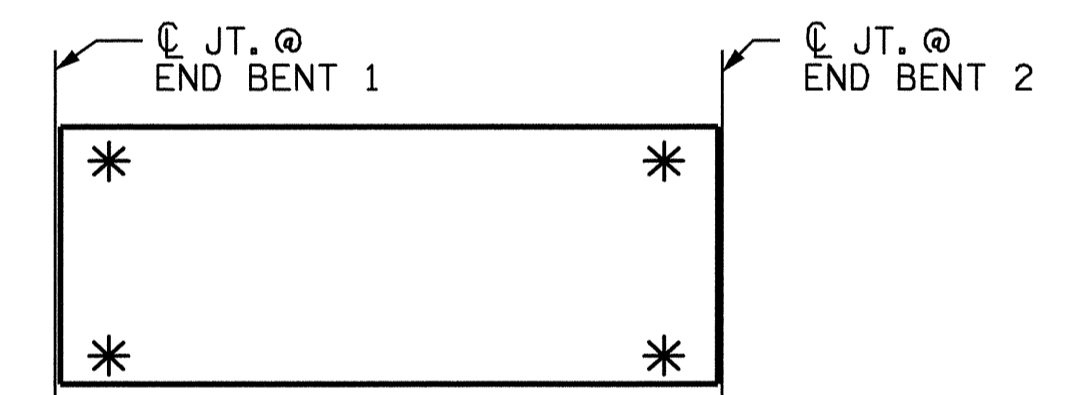


GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

END BENT 1 SHOWN, END BENT 2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

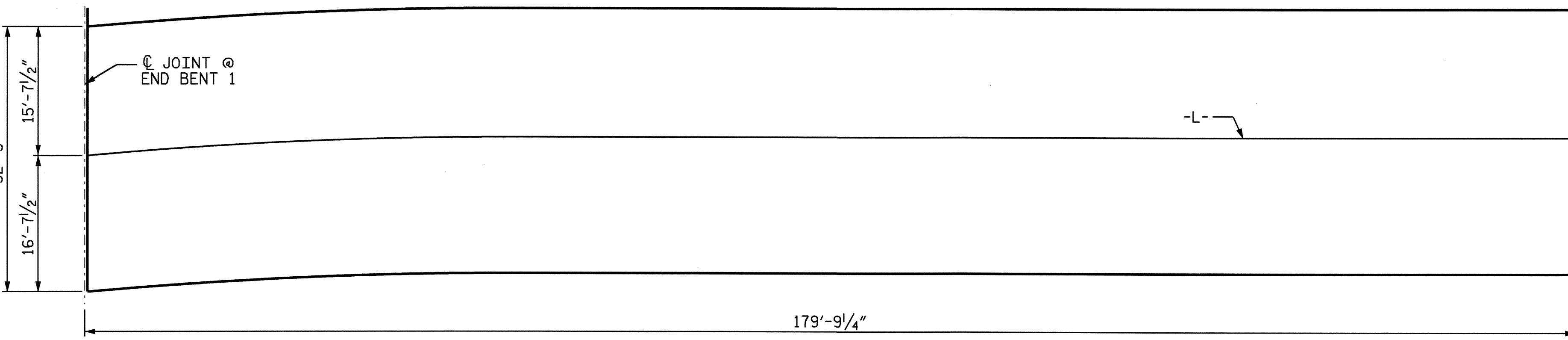
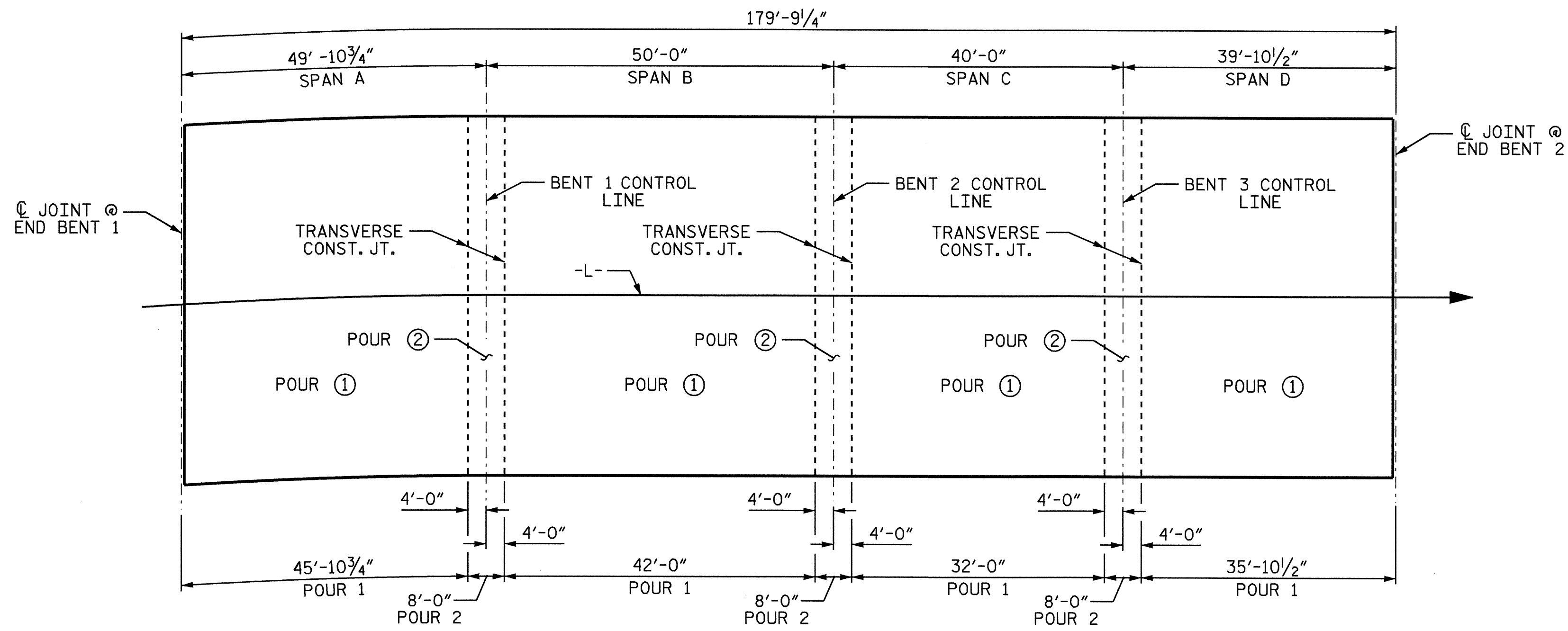
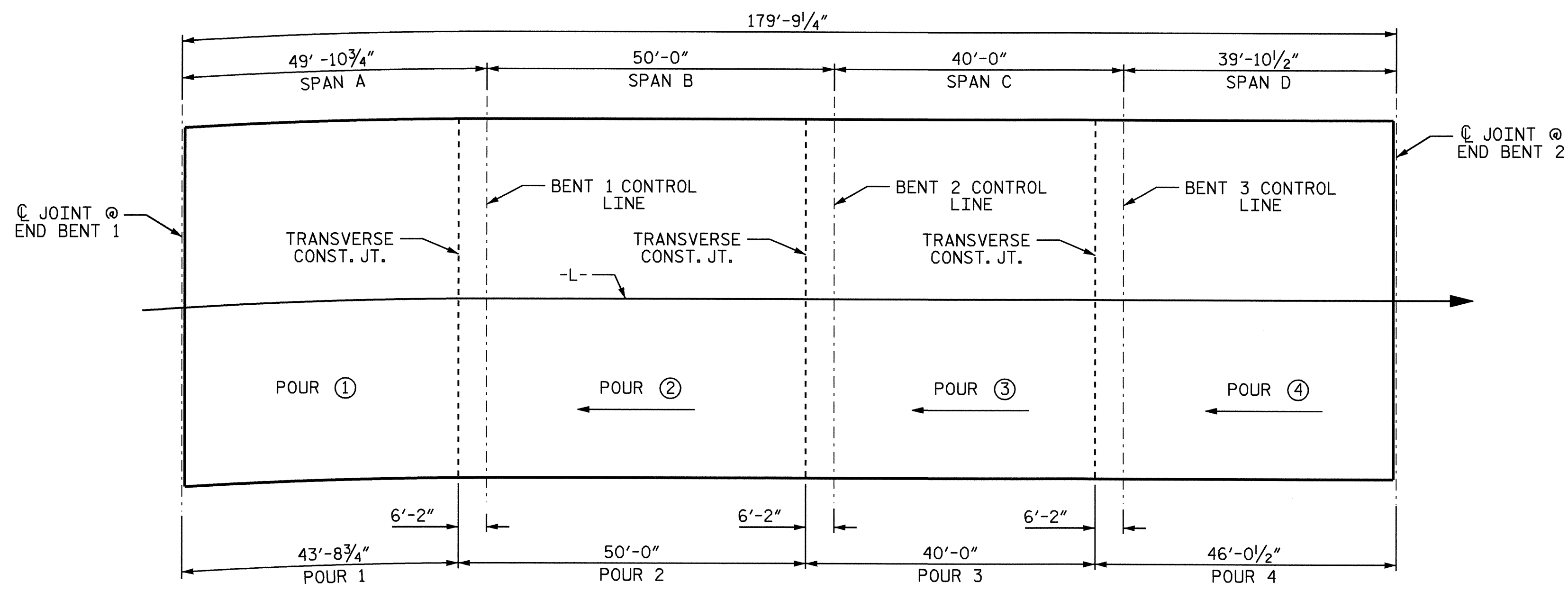
PROJECT NO. B-4261
RUTHERFORD COUNTY
STATION: 17+48.00 -L-

SHEET 3 OF 3



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD GUARDRAIL ANCHORAGE FOR BARRIER RAIL					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-20
					TOTAL SHEETS 36

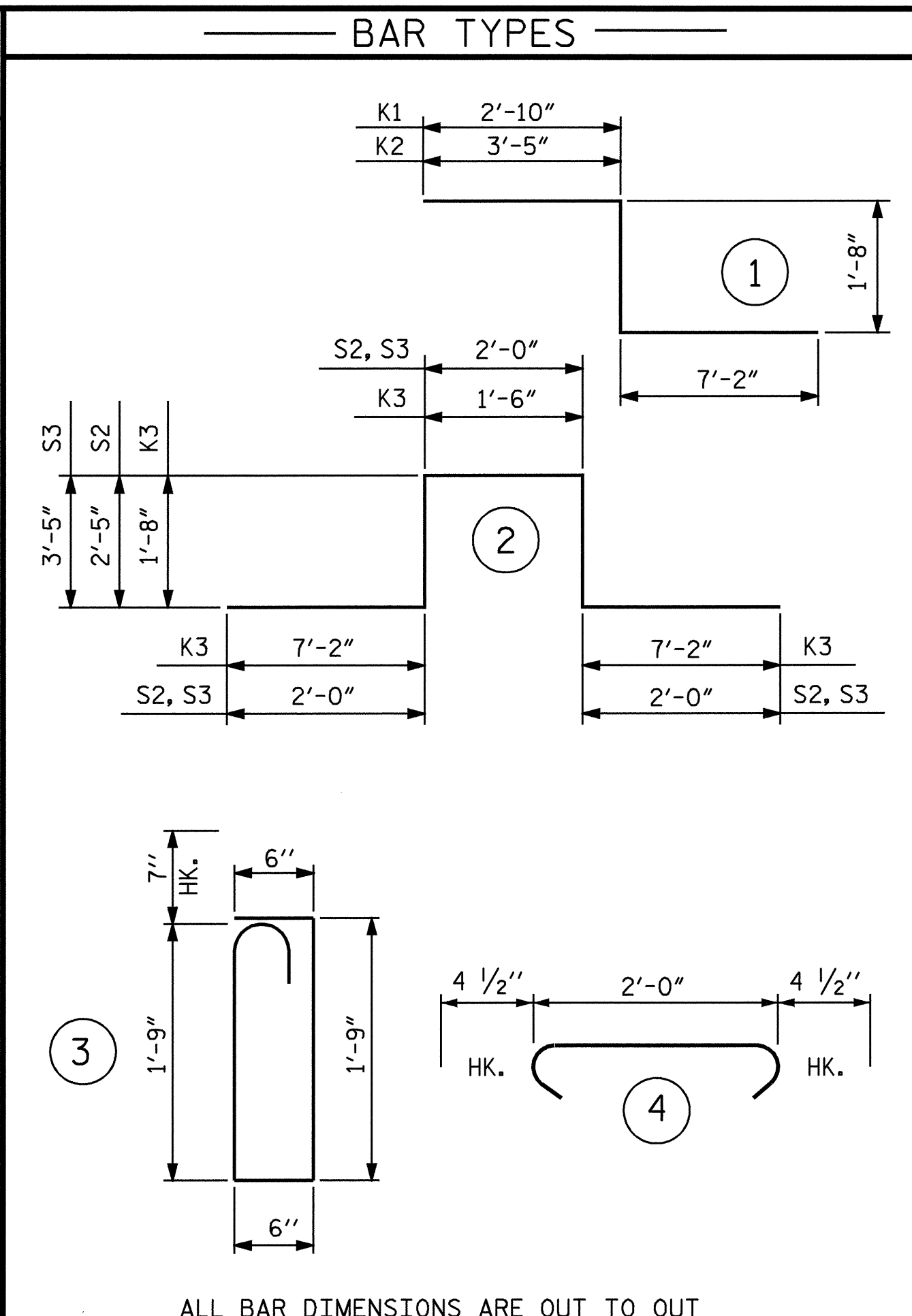
ASSEMBLED BY : A. K. PATEL DATE :10/03/06
CHECKED BY : J. MYA DATE :10/21/06
DRAWN BY : TLA 5/06
CHECKED BY : GM 5/06



REINFORCING BAR SCHEDULE

SPANS A, B, C, & D

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	332	#5	STR	31-11	11052
A2	332	#5	STR	31-11	11052
*B1	44	#4	STR	16-11	497
*B2	22	#6	STR	40-0	1322
*B3	42	#6	STR	15-0	946
*B4	22	#4	STR	14-0	206
*B5	22	#6	STR	37-0	1223
*B6	42	#6	STR	13-6	852
*B7	22	#4	STR	10-0	147
*B8	22	#6	STR	34-0	1123
*B9	42	#6	STR	12-0	757
*B10	22	#4	STR	24-8	363
B11	160	#5	STR	46-6	7760
*G1	2	#5	STR	31-11	67
*K1	4	#8	1	11-8	125
*K2	4	#8	1	12-3	131
*K3	8	#8	2	19-2	409
K4	18	#4	STR	7-8	92
K5	36	#4	STR	8-2	196
K6	18	#4	STR	6-0	72
K7	12	#4	STR	27-2	218
*S1	48	#5	3	5-1	254
S2	18	#4	2	10-10	130
S3	54	#4	2	12-10	463
S4	198	#4	4	2-9	364
REINFORCING STEEL (LBS.)					20,347
*EPOXY COATED REINFORCING STEEL (LBS.)					19,474



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"	—	—	—

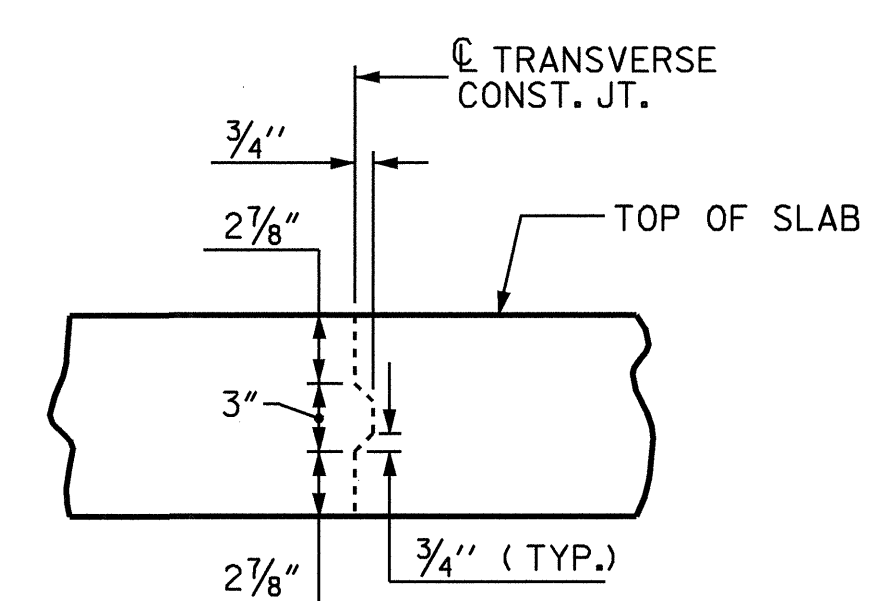
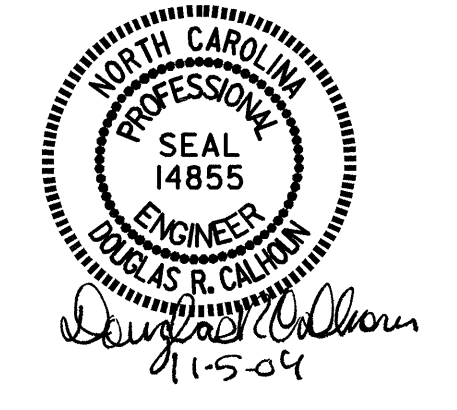
SUPERSTRUCTURE BILL OF MATERIAL

	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
POUR 1	45.9		
POUR 2	58.1		
POUR 3	47.9		
POUR 4	55.3		
TOTALS**	207.2	20,347	19,474

**QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

GROOVING BRIDGE FLOORS

BRIDGE DECK	4633 SQ.FT.
APPROACH SLABS	711 SQ.FT.
TOTAL	5344 SQ.FT.



PROJECT NO. B-4261
 RUTHERFORD COUNTY
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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

SUPERSTRUCTURE BILL OF MATERIAL

REVISIONS						SHEET NO. S-21
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 36
2			4			

ASSEMBLED BY : A. K. PATEL	DATE : 10/6/06
CHECKED BY : J. MYA	DATE : 10/06
DRAWN BY : JMB 5/87	REV. 6/1/94 EEM/GRP
CHECKED BY : SJD 9/87	REV. 8/16/99 RWW/LES
	REV. 5/1/06 TLA/GM

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

NOTES

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

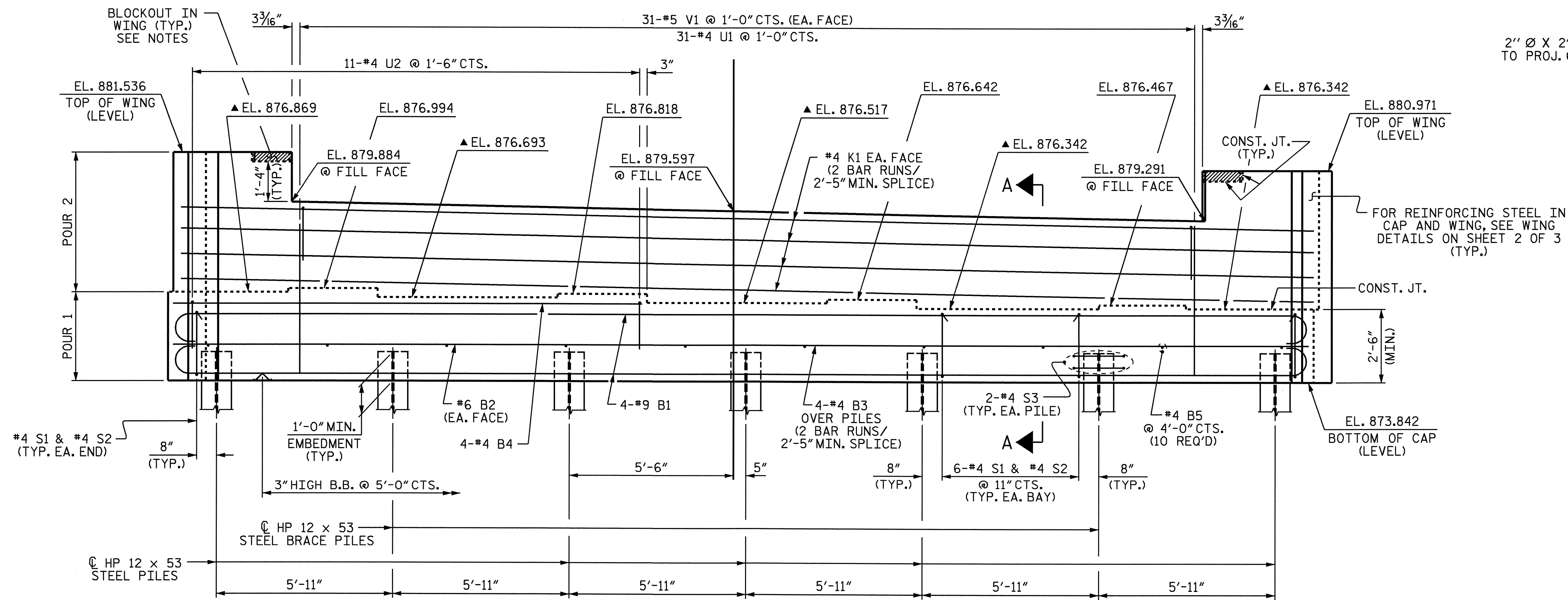
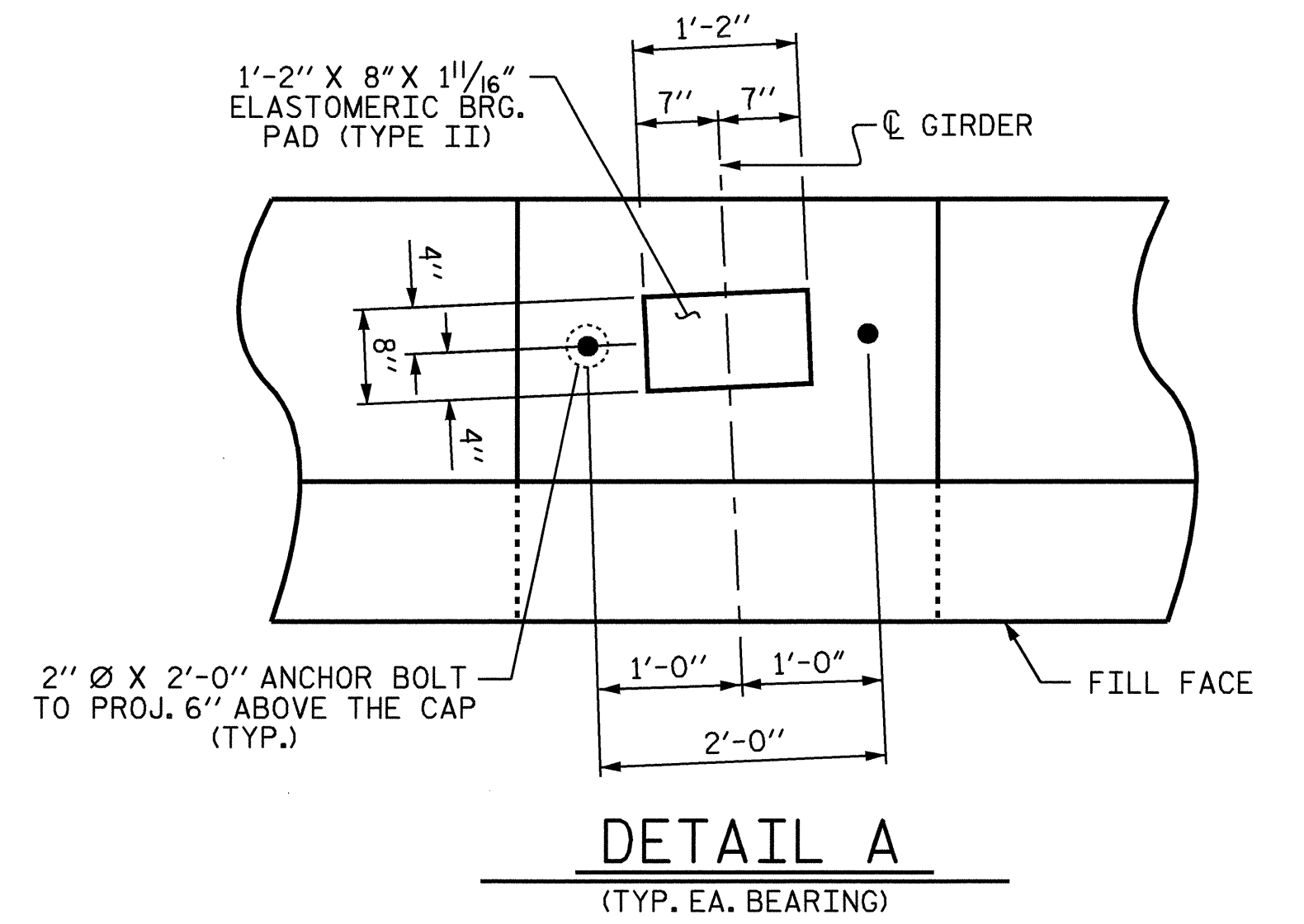
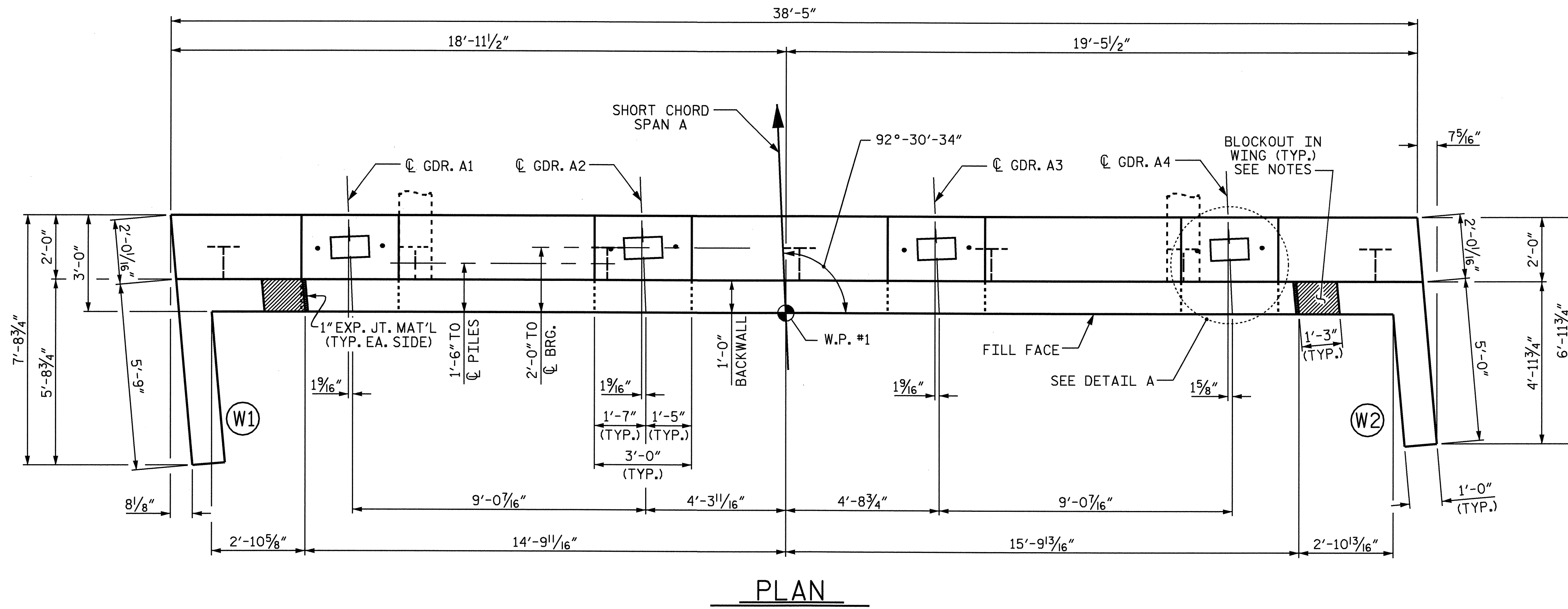
BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE DECK AND APPROACH SLAB HAS BEEN SAWED AND THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.



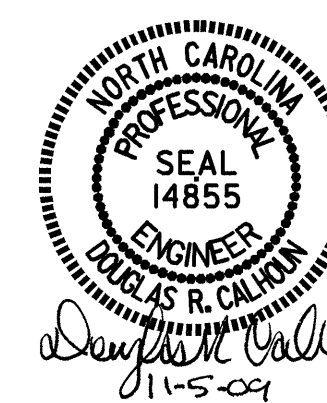
▲ FOR LOCATION OF THESE ELEVATIONS, SEE SECTION A-A ON SHEET 3 OF 3.

PROJECT NO. B-4261
RUTHERFORD COUNTY
 STATION: 17+48.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

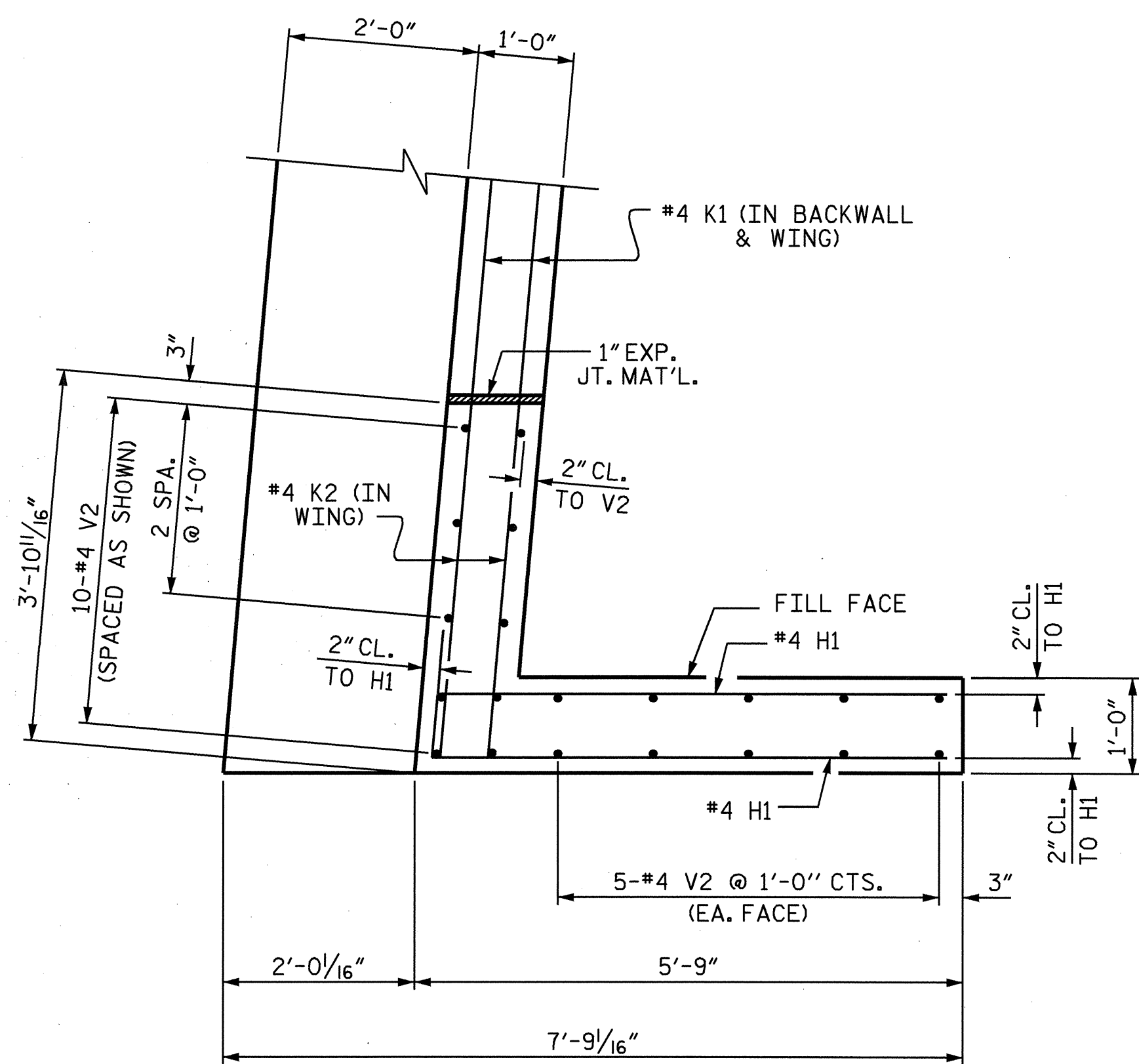
**SUBSTRUCTURE
 END BENT 1**



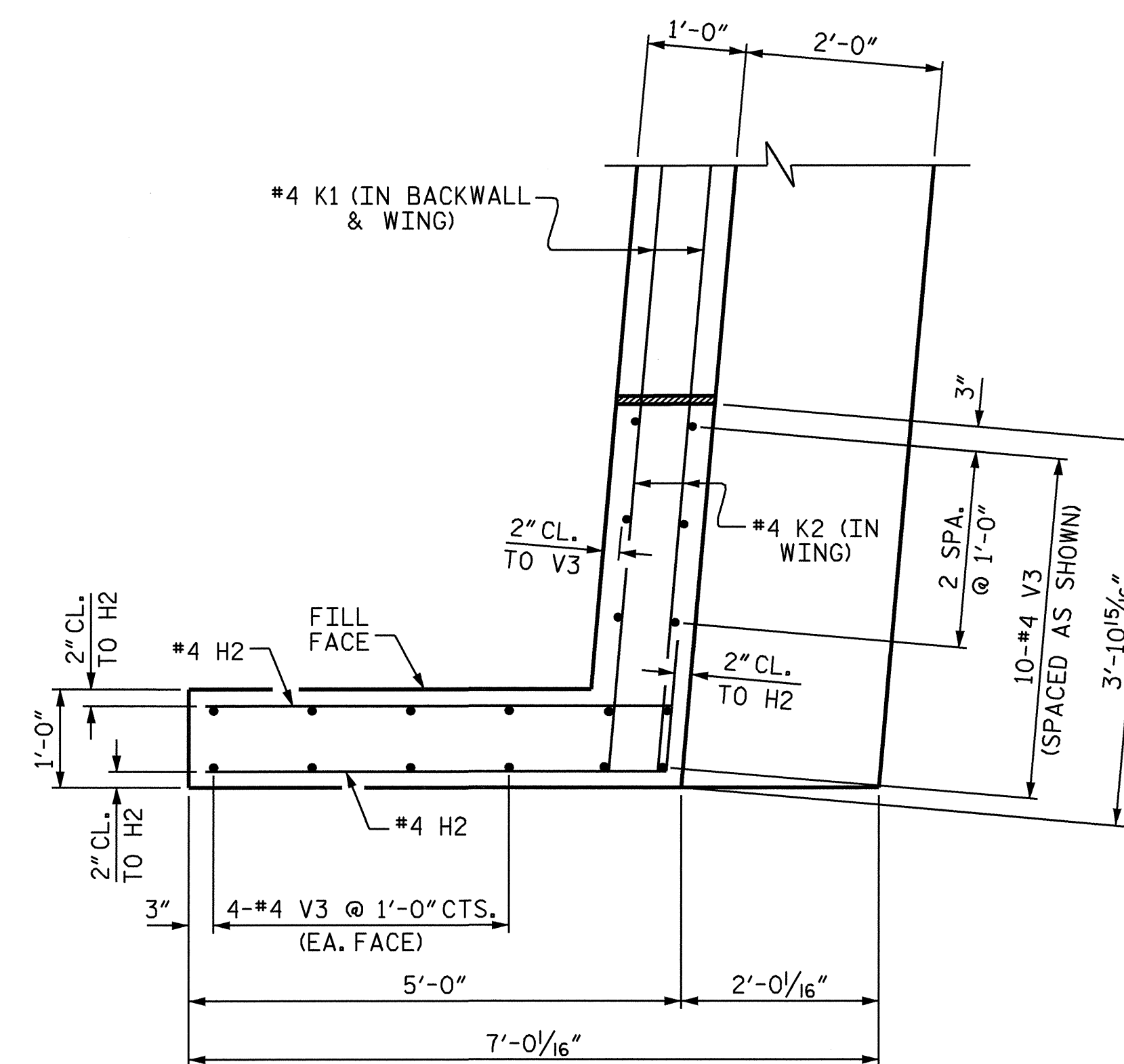
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29-OCT-2009 13:34
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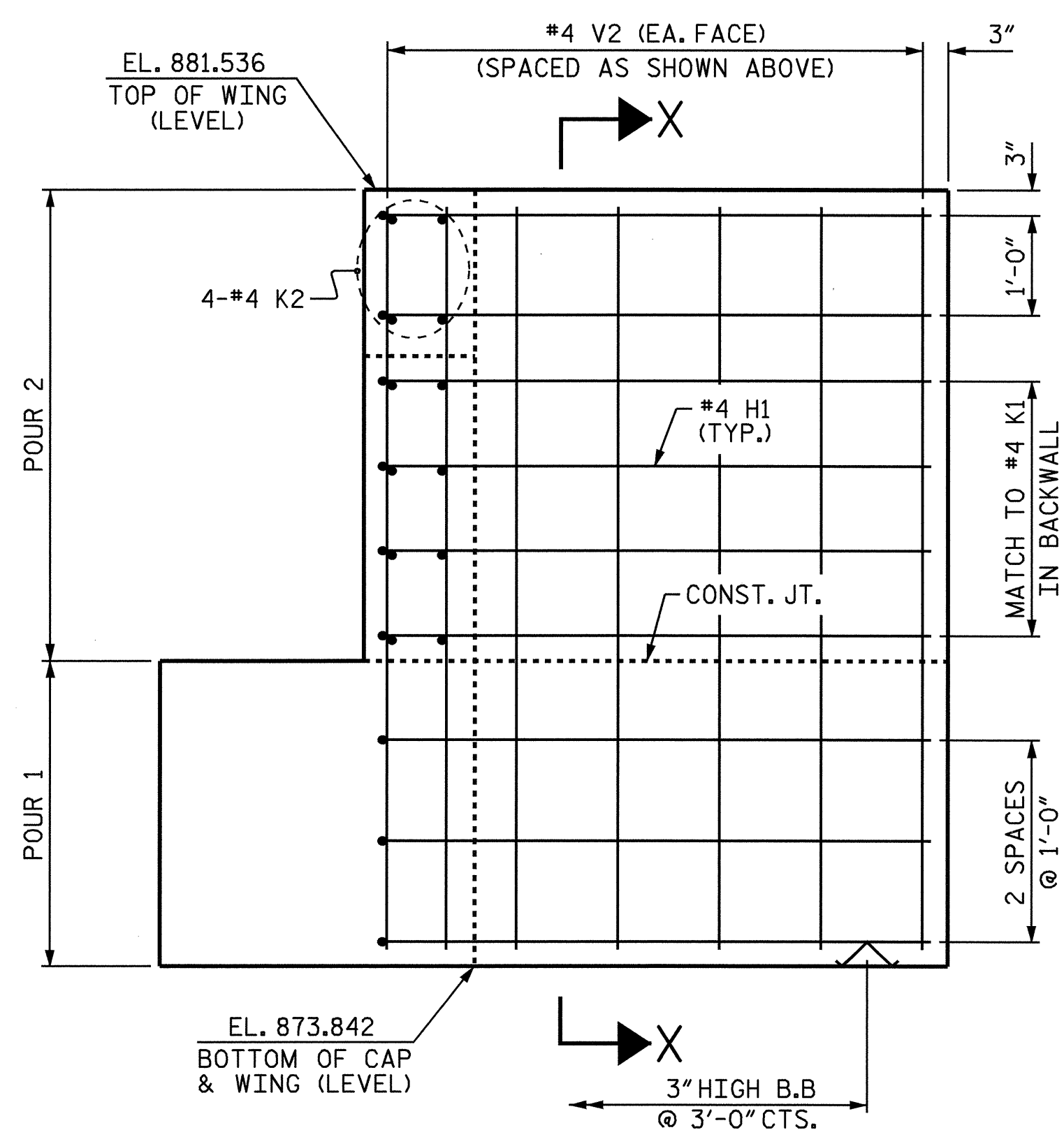
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-22	
1			3			TOTAL SHEETS	36
2			4				



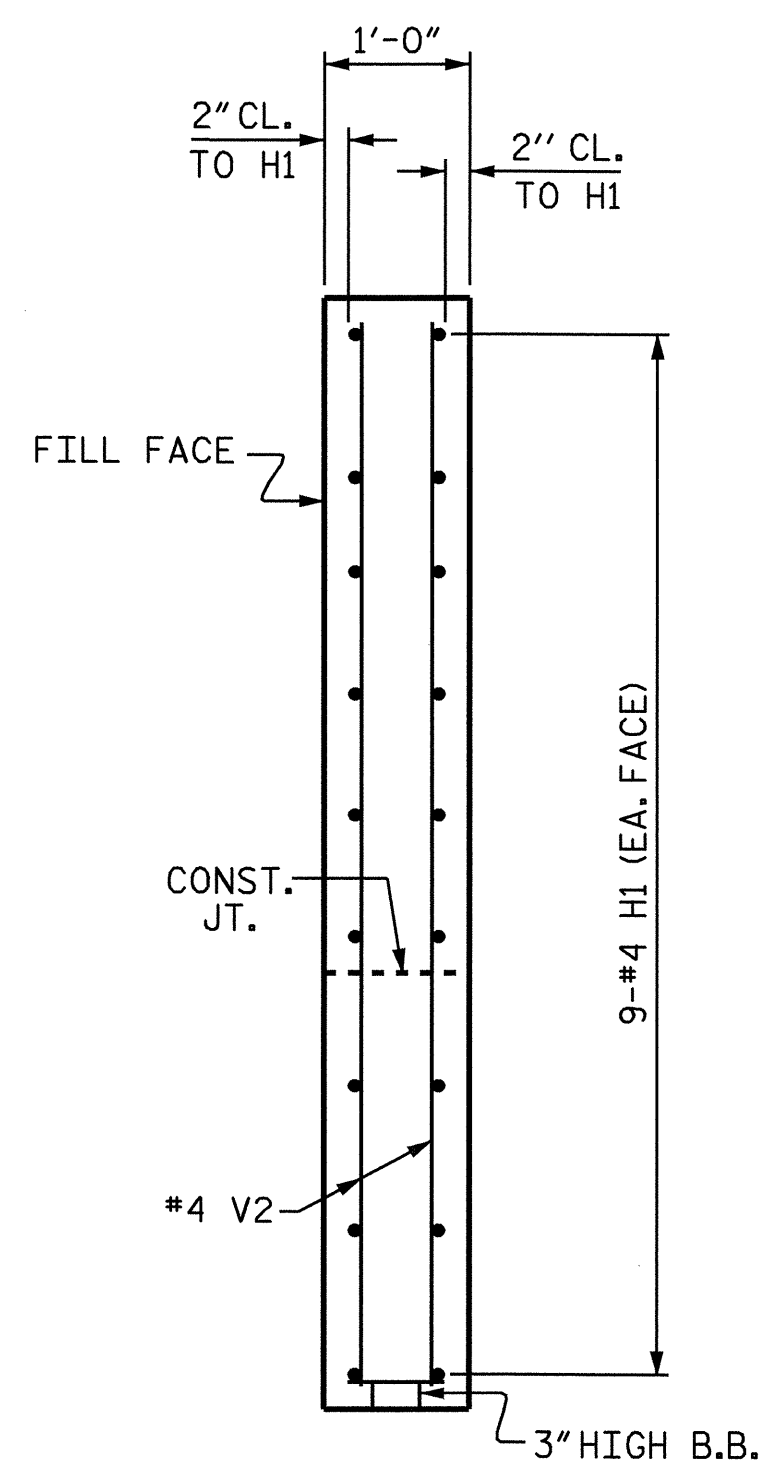
PLAN OF WING - (W1)



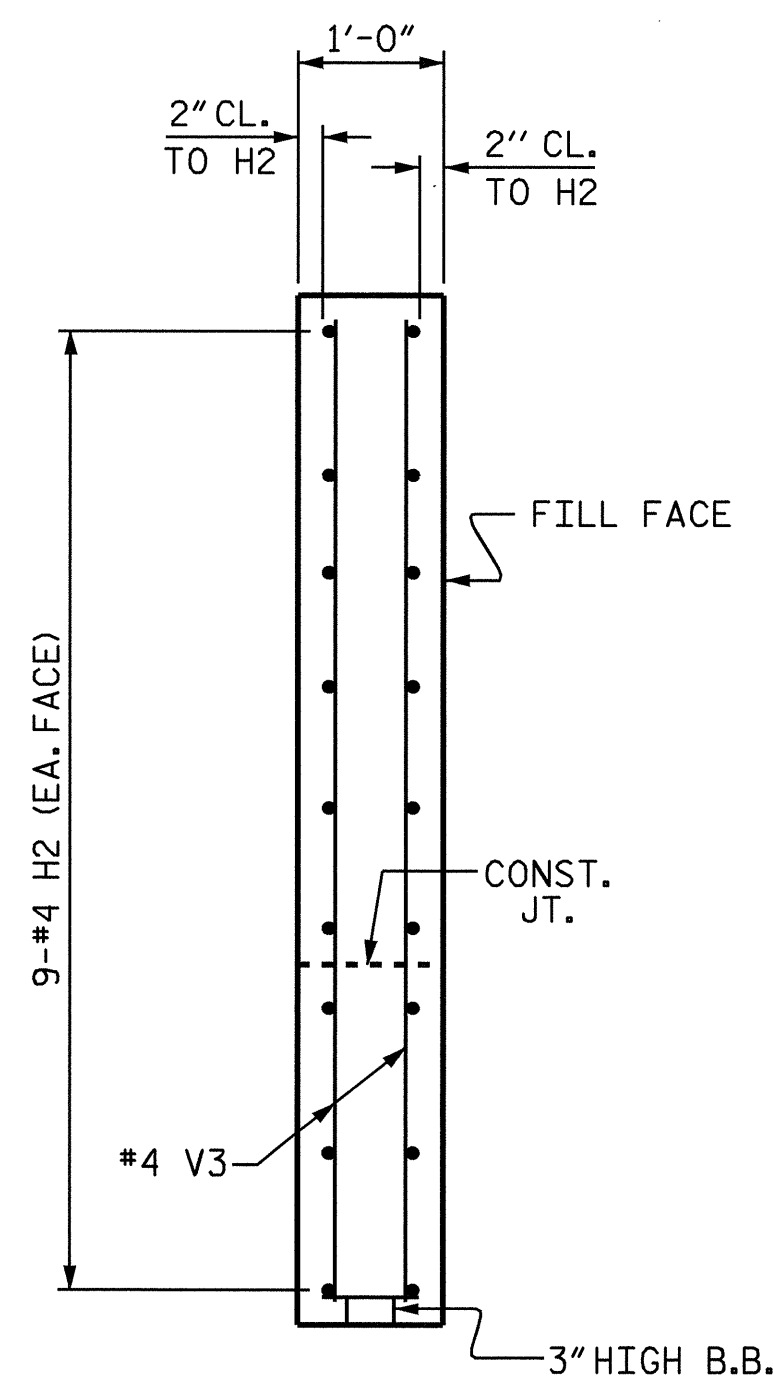
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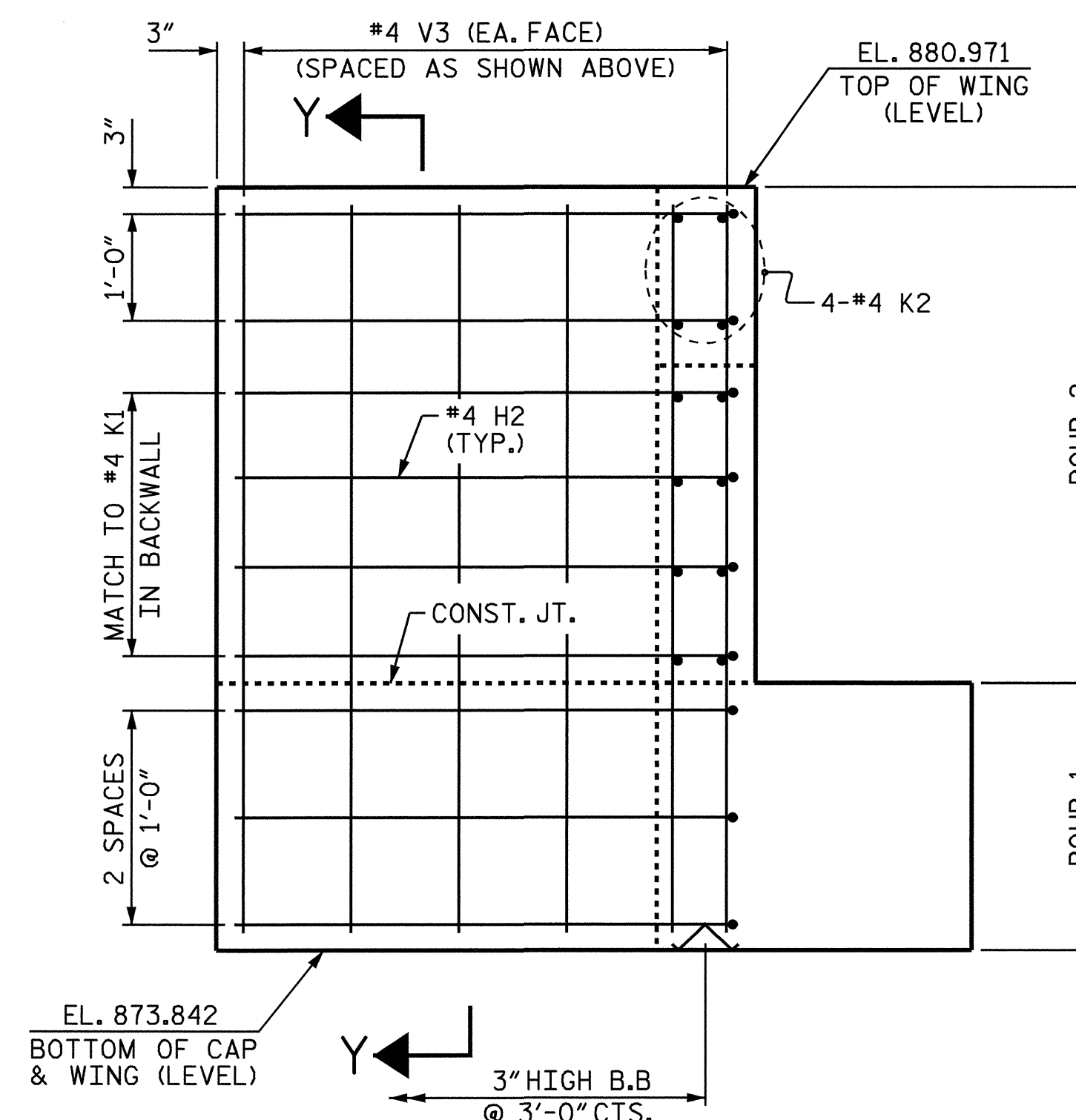
ELEVATION OF WING - (W1)



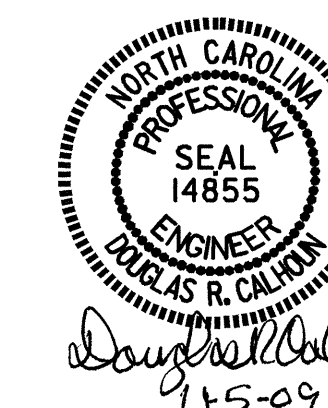
SECTION X-X



SECTION Y-Y



ELEVATION OF WING - (W2)



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 RUTHERFORD COUNTY
 STATION: 17+48.00 -L-
 SHEET 2 OF 3

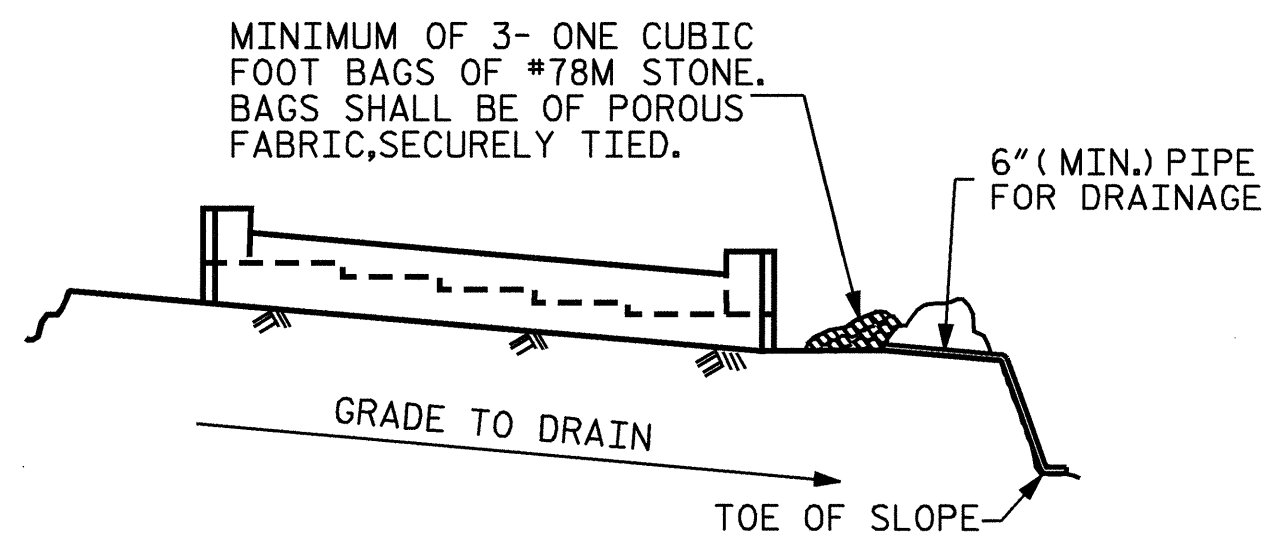
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 1

DRAWN BY: B.N. GRADY DATE: 8/5/09
 CHECKED BY: E.G. ALLEN DATE: 9/30/09

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REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23	
1			3			TOTAL SHEETS 36	
2			4				

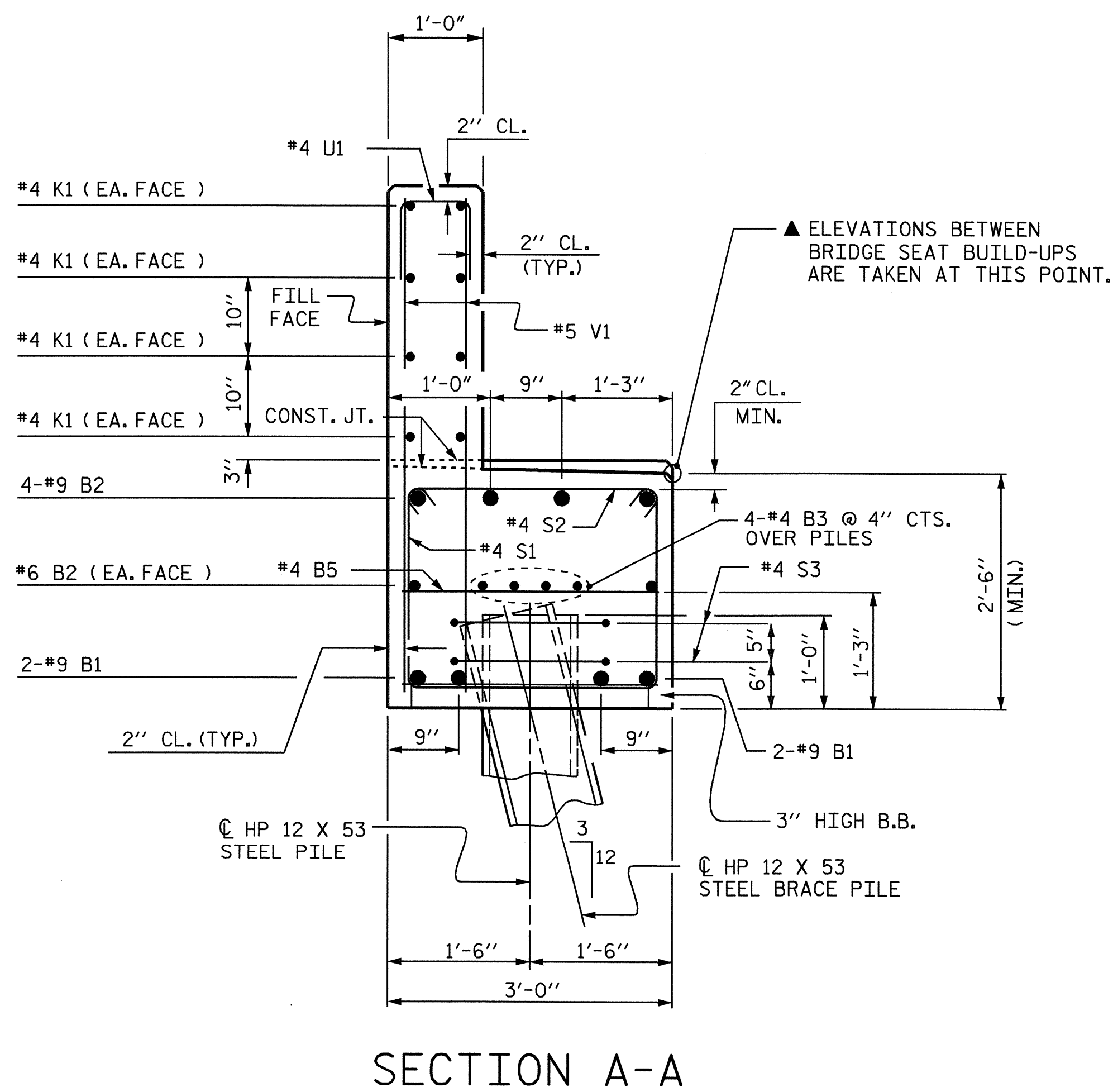


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

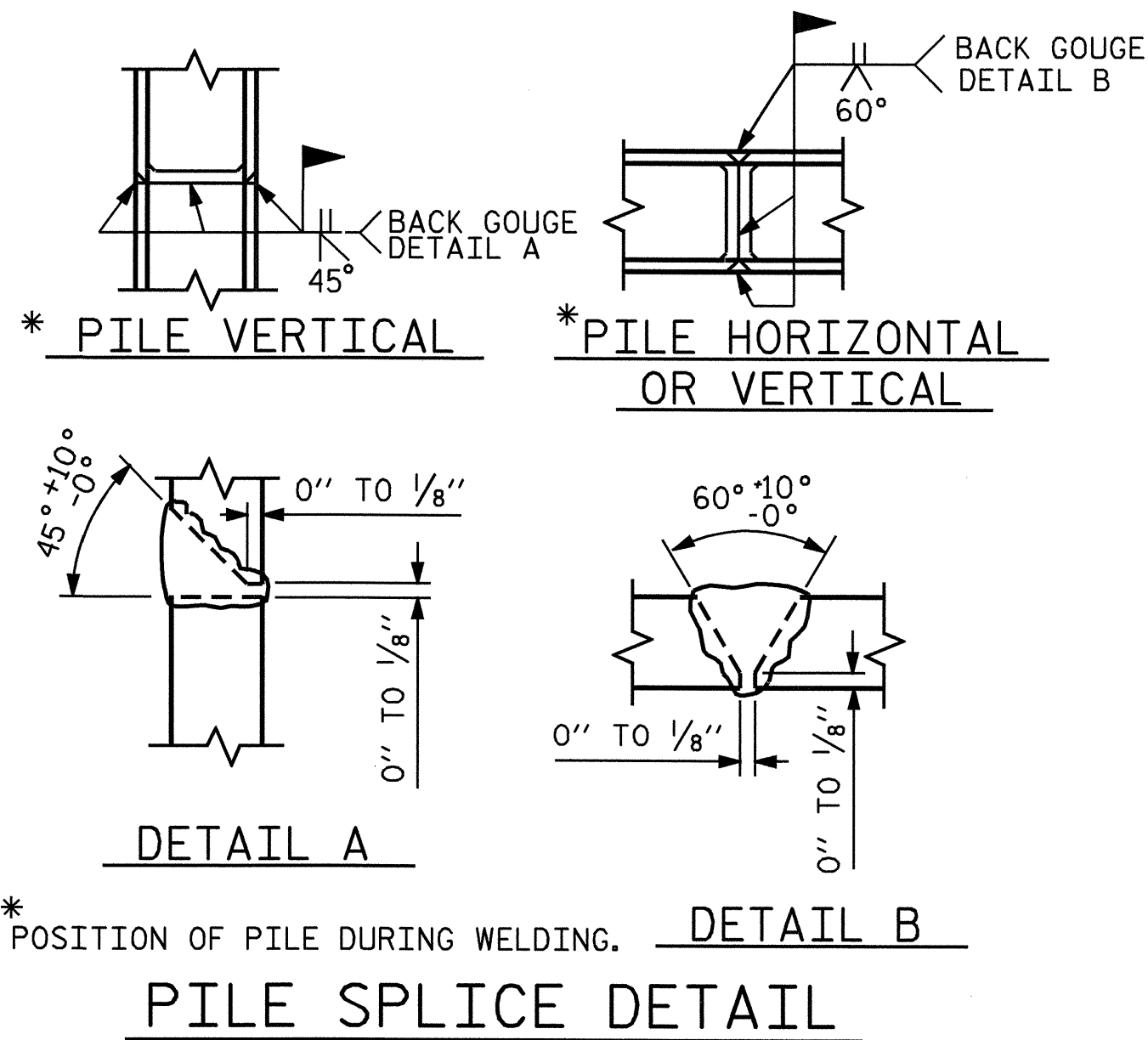
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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

TEMPORARY DRAINAGE AT END BENT



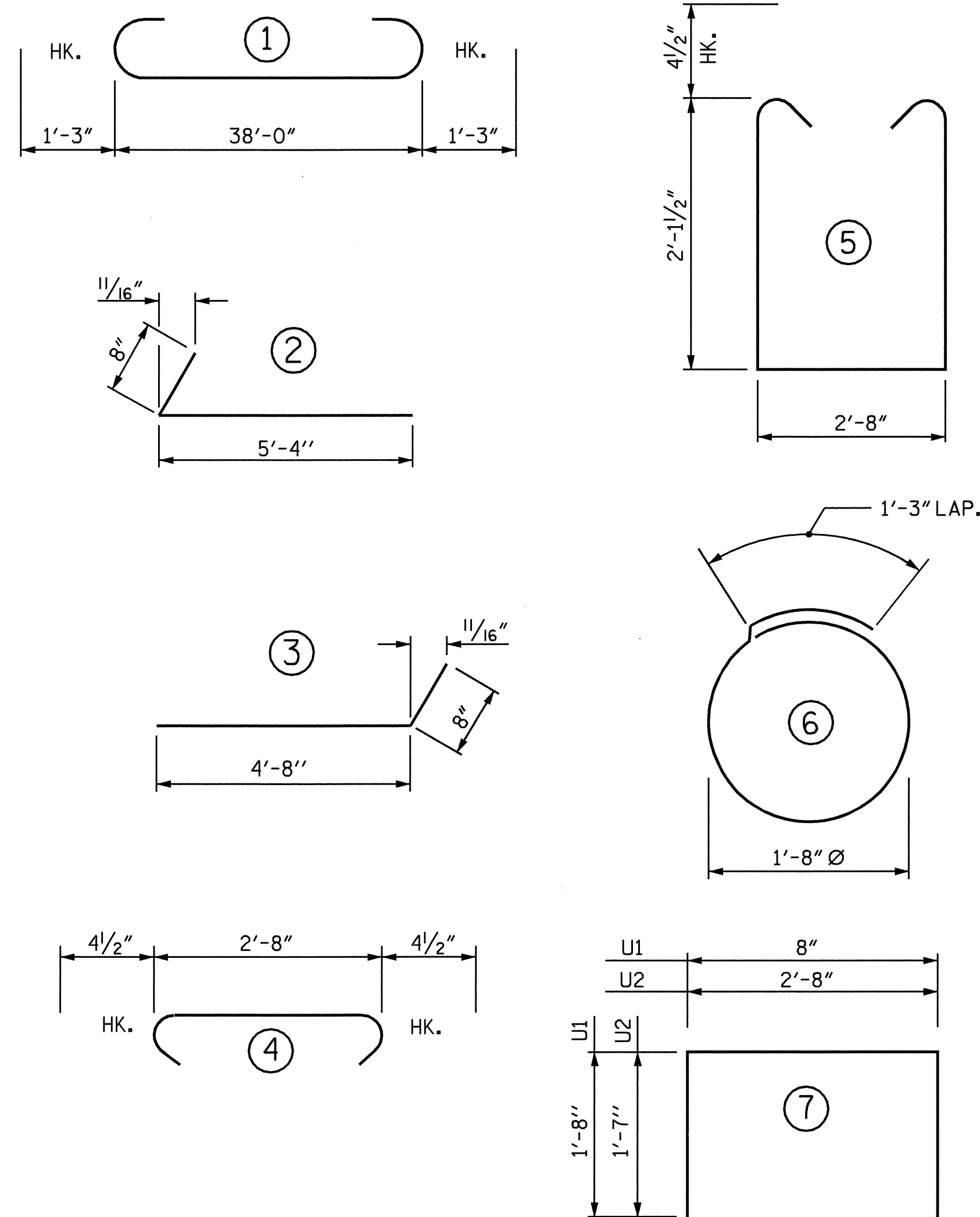
SECTION A-A



PILE SPLICE DETAIL

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.



BILL OF MATERIAL

END BENT 1

BAR	NO	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	40'-6"	1102
B2	2	#6	STR	38'-1"	114
B3	8	#4	STR	20'-3"	108
B4	4	#4	STR	15'-5"	41
B5	10	#4	STR	2'-8"	18
H1	18	#4	2	6'-0"	72
H2	18	#4	3	5'-4"	64
K1	16	#4	STR	20'-3"	216
K2	8	#4	STR	3'-6"	19
S1	38	#4	5	7'-8"	195
S2	38	#4	4	3'-5"	87
S3	14	#4	6	6'-6"	61
U1	31	#4	7	4'-0"	83
U2	11	#4	7	5'-10"	43
V1	62	#5	STR	5'-1"	329
V2	20	#4	STR	7'-4"	98
V3	18	#4	STR	6'-9"	81

REINFORCING STEEL LBS. 2731

CLASS A CONCRETE BREAKDOWN

POUR	DESCRIPTION	C.Y.	WEIGHT
POUR #1	(CAP & LOWER PORTION OF WINGS)	C.Y.	12.7
POUR #2	(BACKWALL & UPPER PART OF WINGS)	C.Y.	6.2
TOTAL CLASS A CONCRETE		C.Y.	18.9

HP 12 X 53 STEEL PILES NO. 7 LIN. FT. 310

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SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE END BENT 1



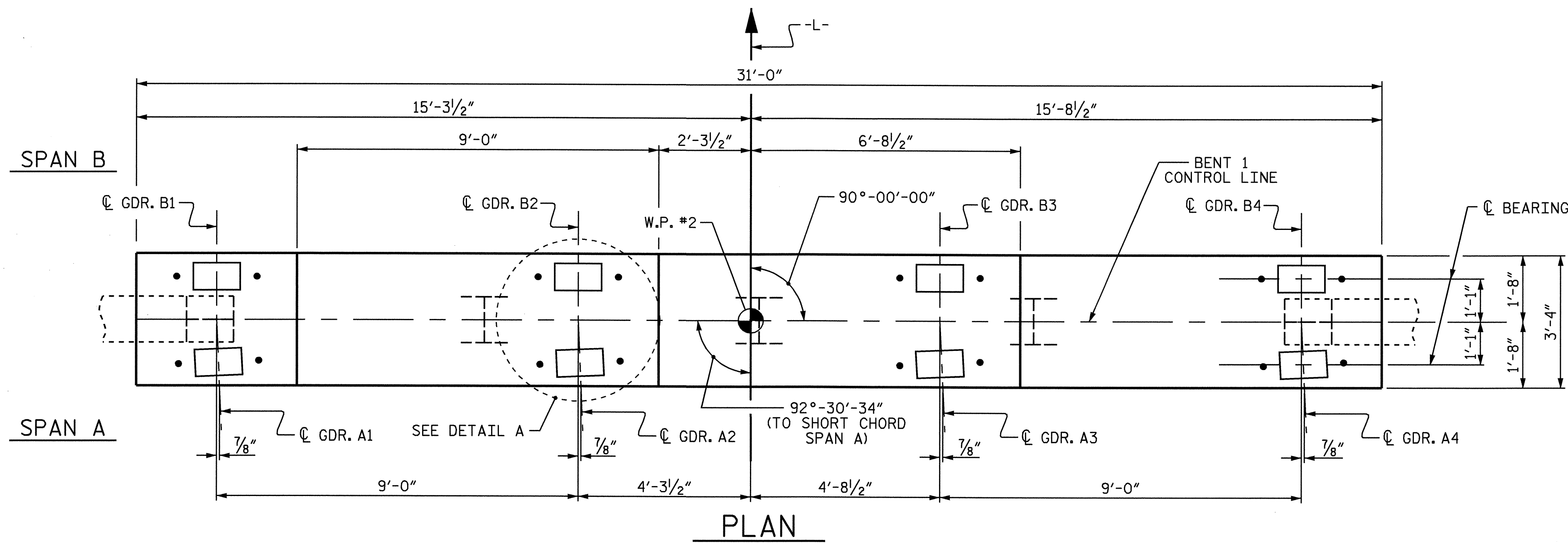
REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

TOTAL SHEETS 36

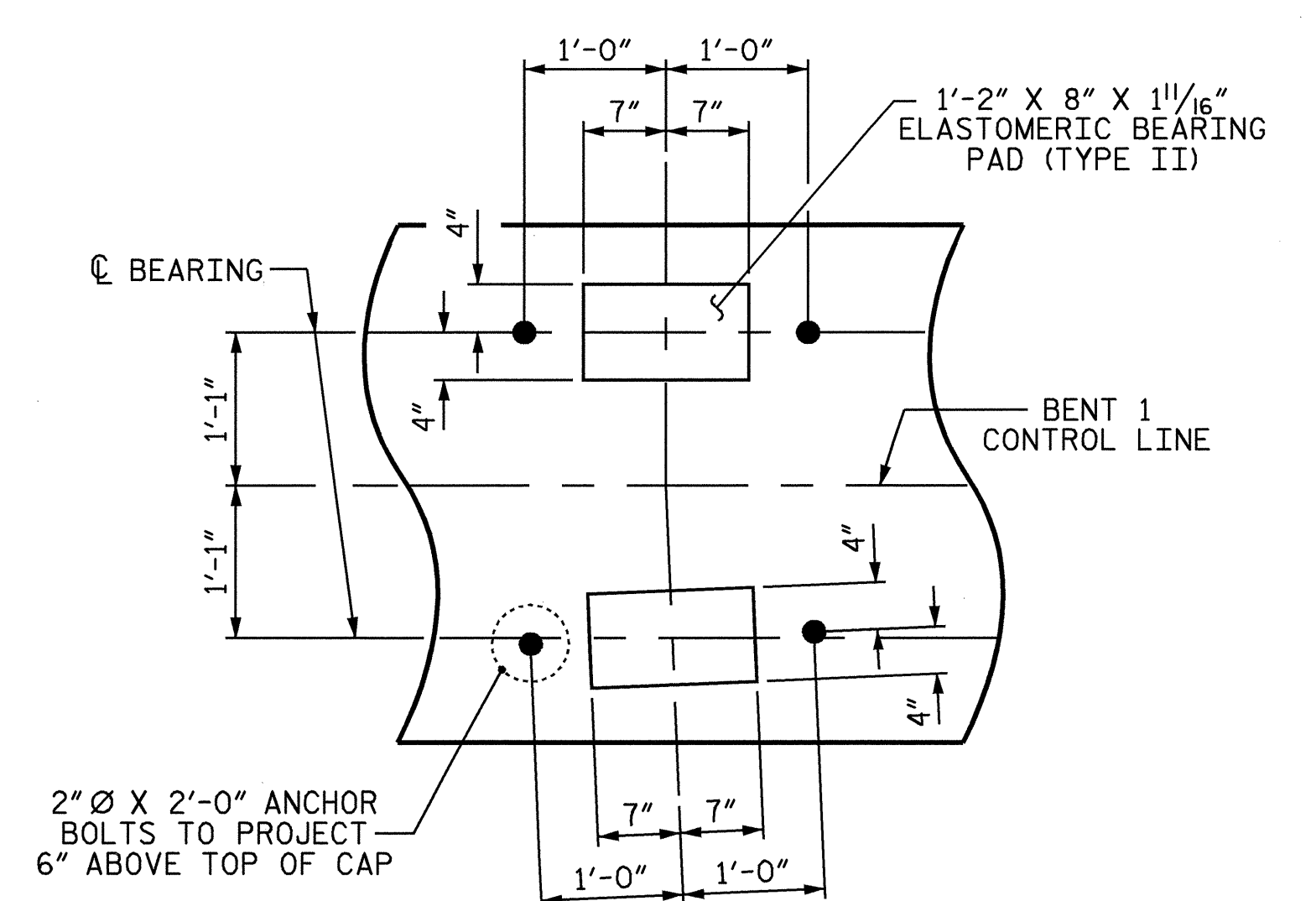
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 CHECKED BY : E.G. ALLEN DATE : 9/30/09

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 GALVANIZE THE TOP 25 FEET OF EACH BENT PILE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

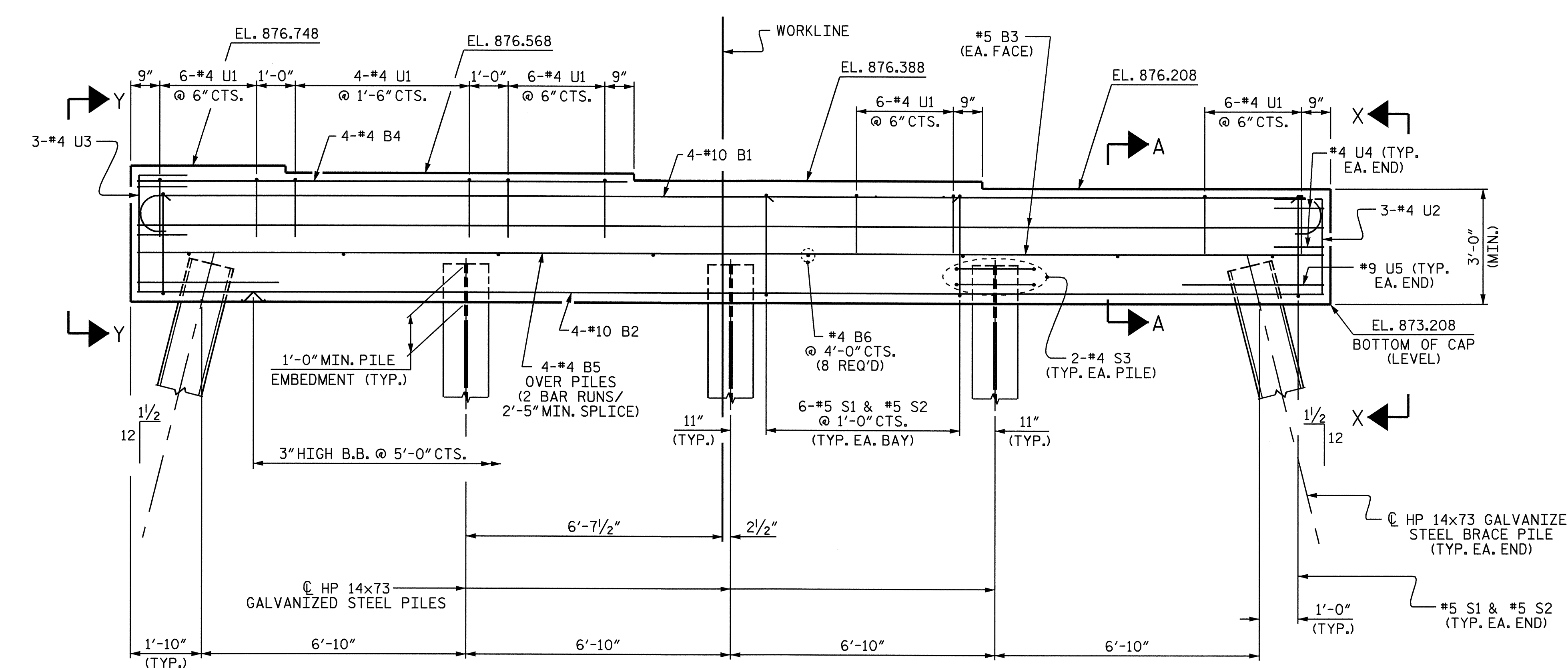


PLAN



DETAIL A

(DETAILS AND DIMENSIONS ARE TYPICAL FOR EACH BEARING)

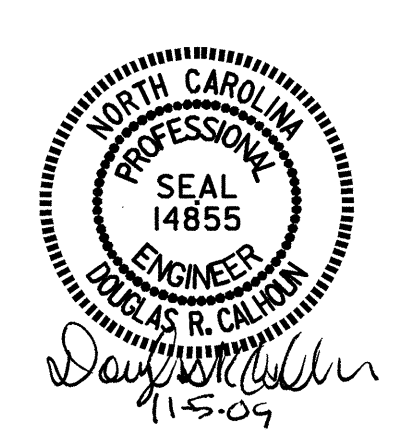


ELEVATION

PROJECT NO. B-4261
RUTHERFORD COUNTY
 STATION: 17+48.00 -L-

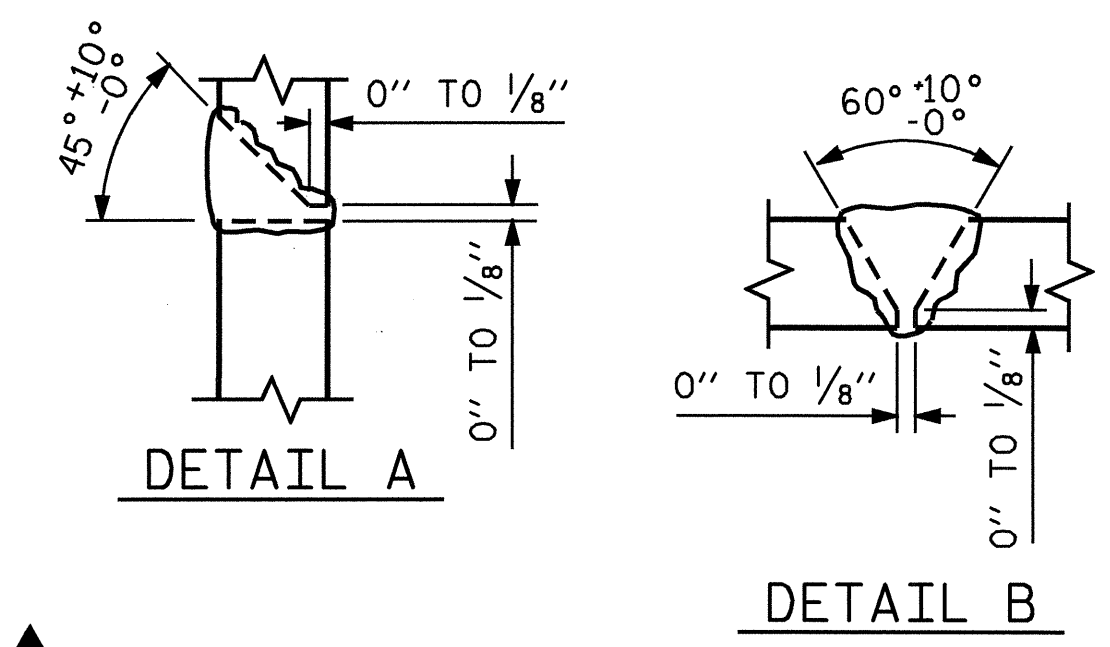
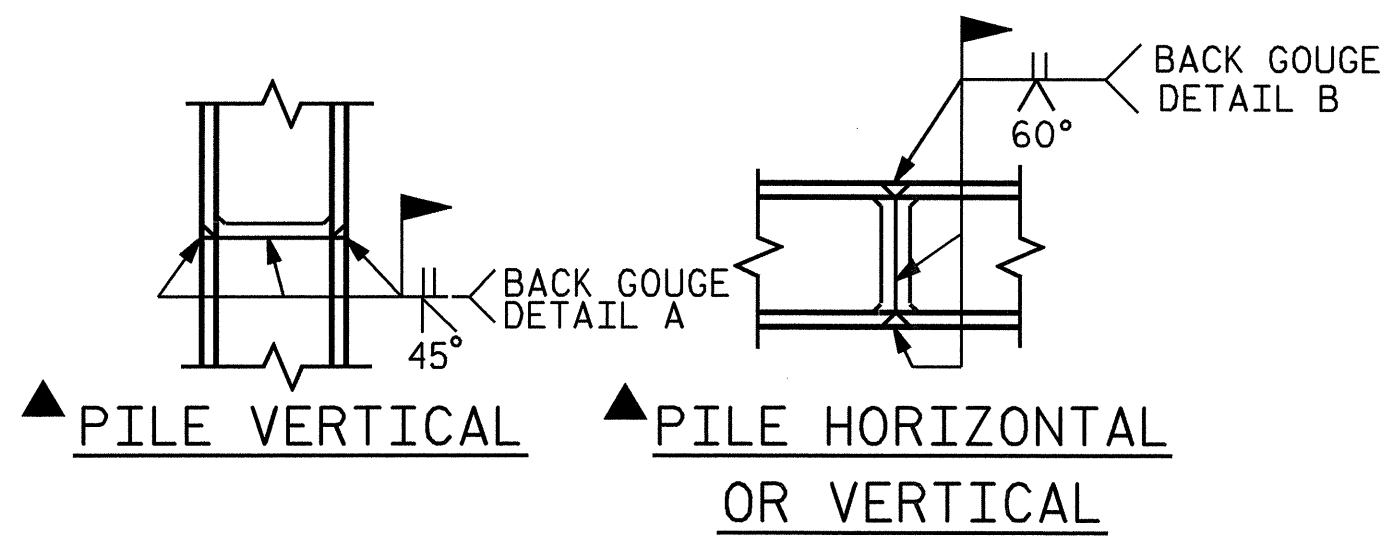
SHEET 1 OF 2

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					36



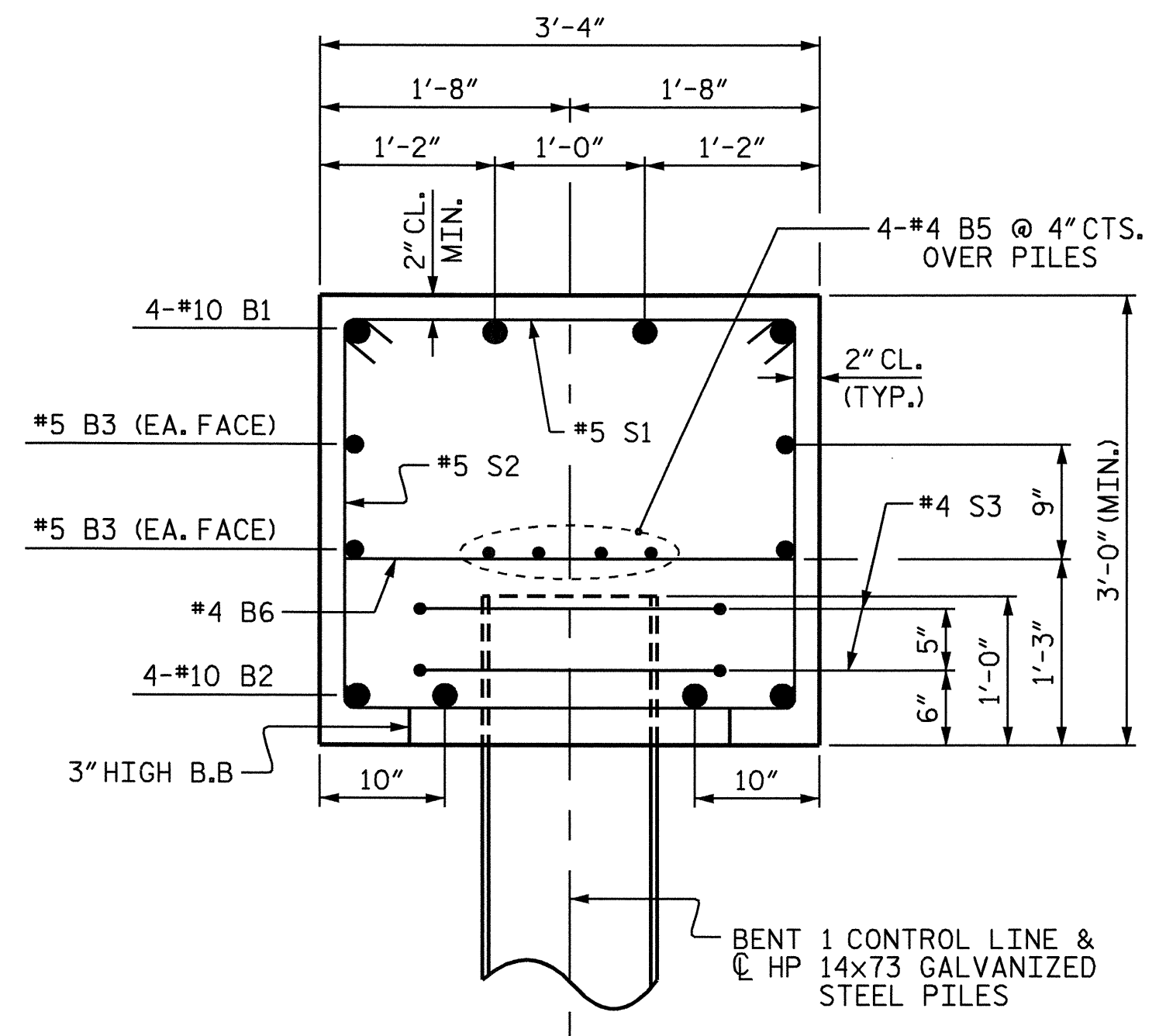
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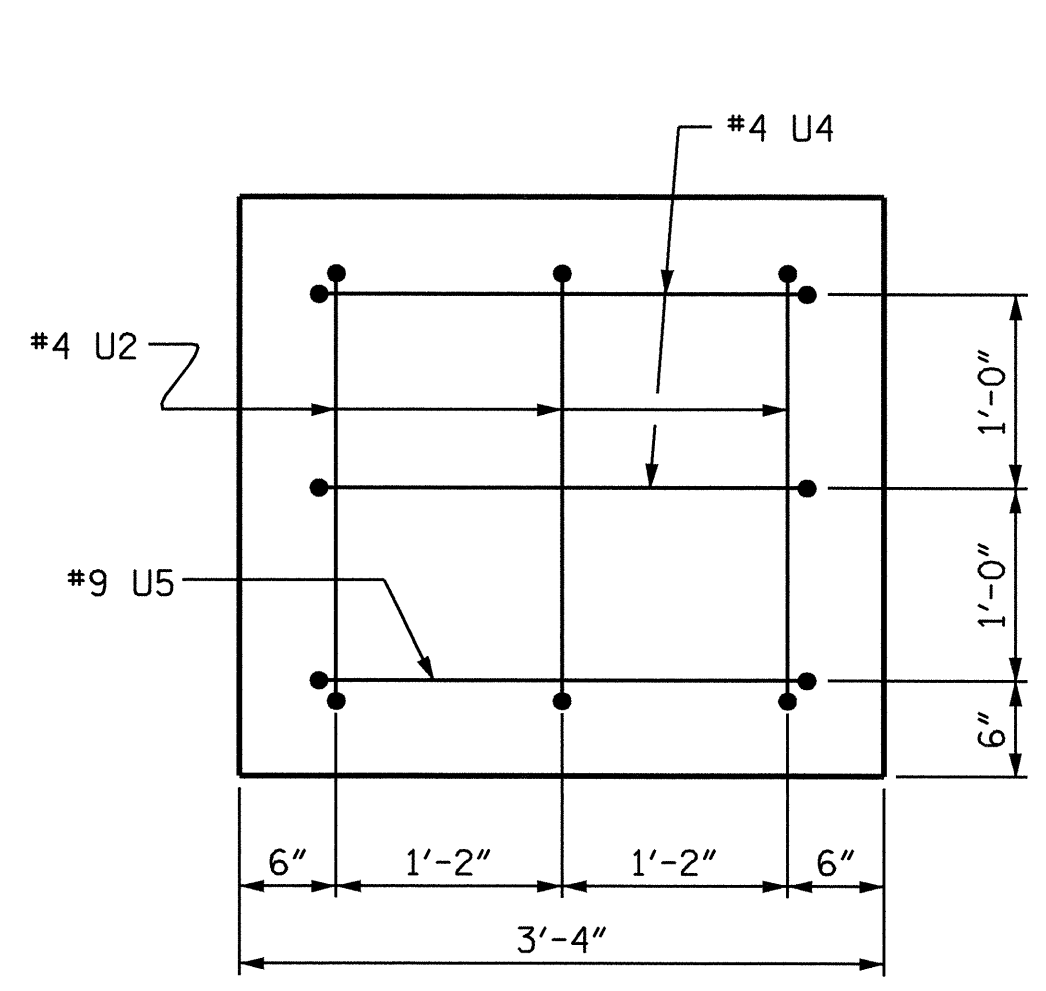


POSITION OF PILE DURING WELDING.

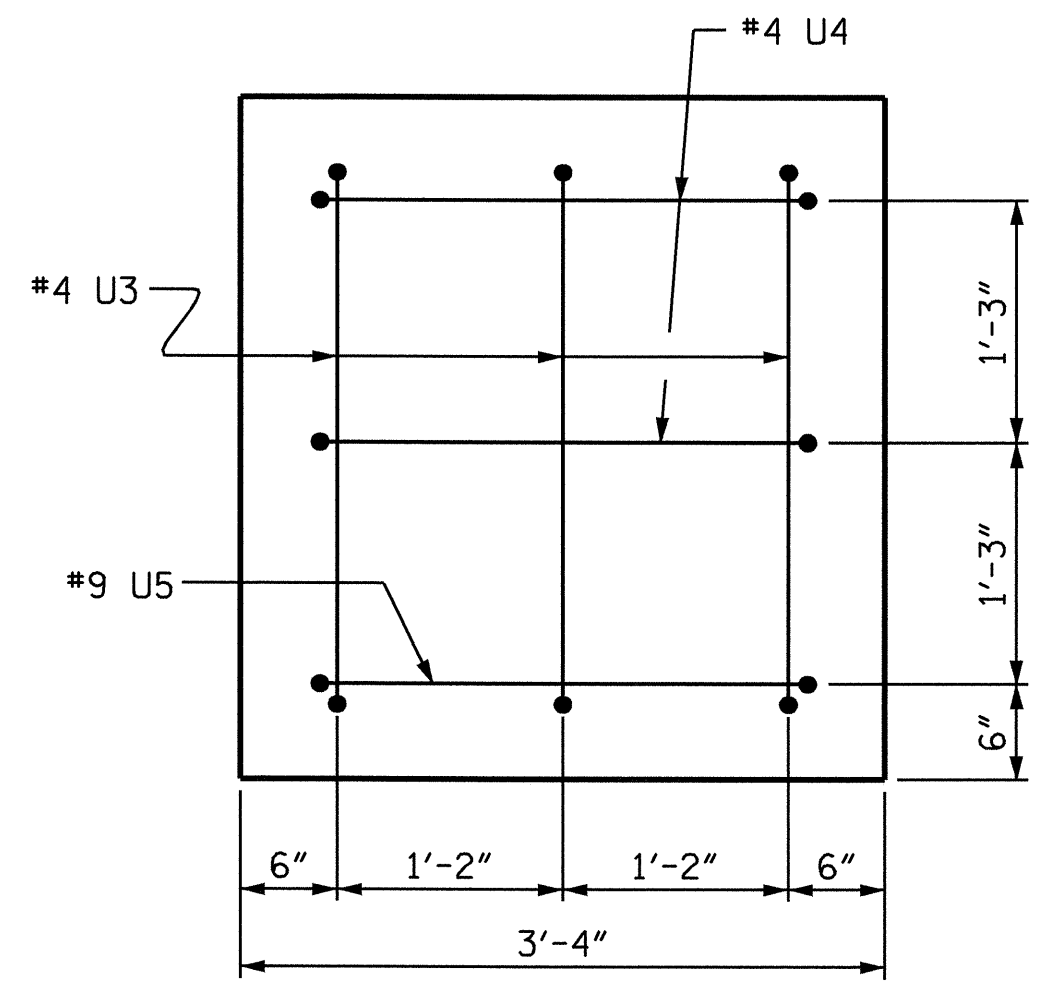
PILE SPLICE DETAILS



SECTION A-A



VIEW X-X



VIEW Y-Y

BAR TYPES

1

2

3

4

5

ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	1	33'-5"	575
B2	4	#10	STR	30'-8"	528
B3	4	#5	STR	30'-8"	128
B4	4	#4	STR	12'-8"	34
B5	8	#4	STR	16'-7"	89
B6	8	#4	STR	3'-0"	16
S1	26	#5	2	3'-11"	106
S2	26	#5	3	9'-2"	249
S3	10	#4	5	7'-7"	51
U1	28	#4	4	6'-0"	112
U2	3	#4	4	5'-0"	10
U3	3	#4	4	5'-6"	11
U4	4	#4	4	5'-4"	14
U5	2	#9	4	10'-2"	69
REINFORCING STEEL					1992 LBS.
CLASS A CONCRETE					12.3 CU.YDS.
HP 14x73 GALVANIZED STEEL PILES					
NO. : 5					LIN. FT. : 210

PROJECT NO. B-4261

RUTHERFORD COUNTY

STATION: 17+48.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT 1



DRAWN BY : B.N. GRADY DATE : 10/2/09

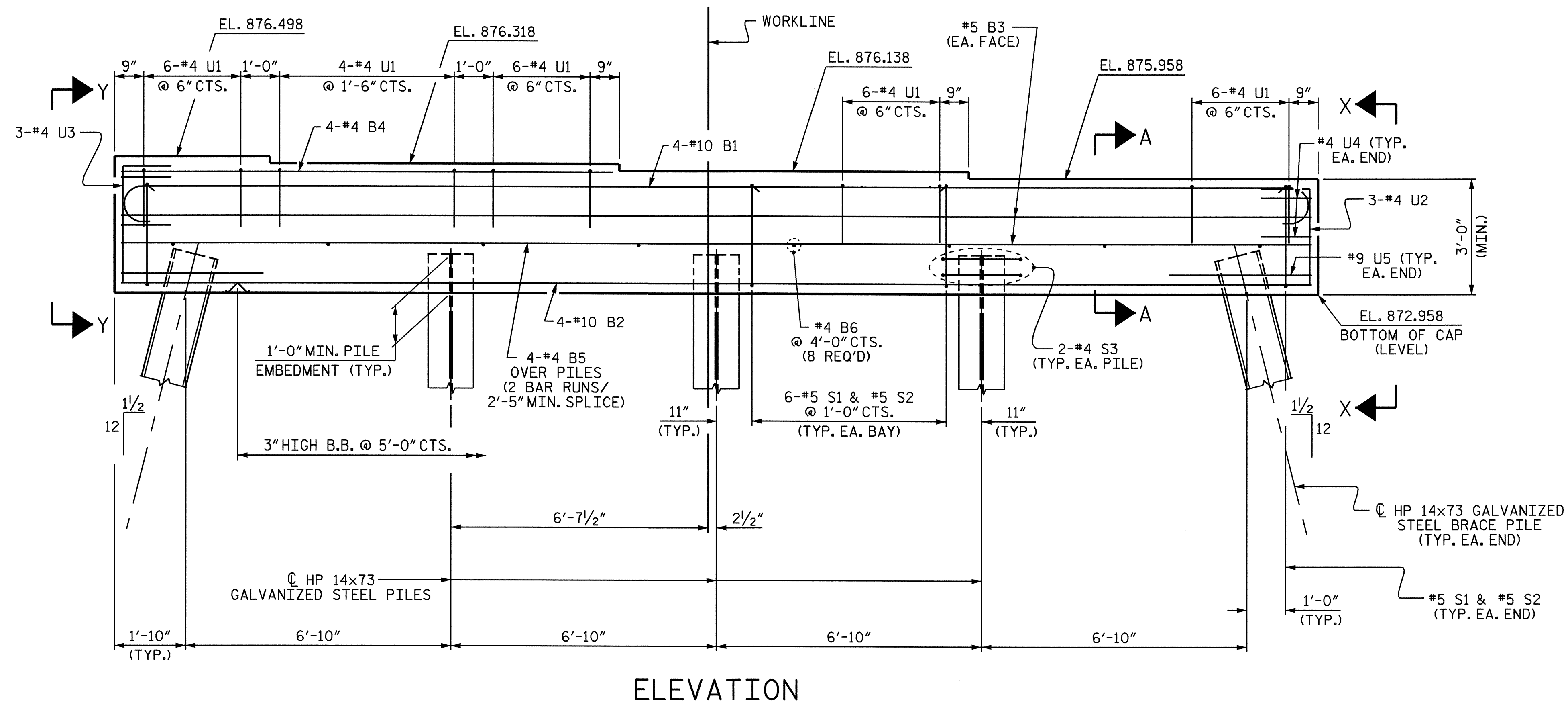
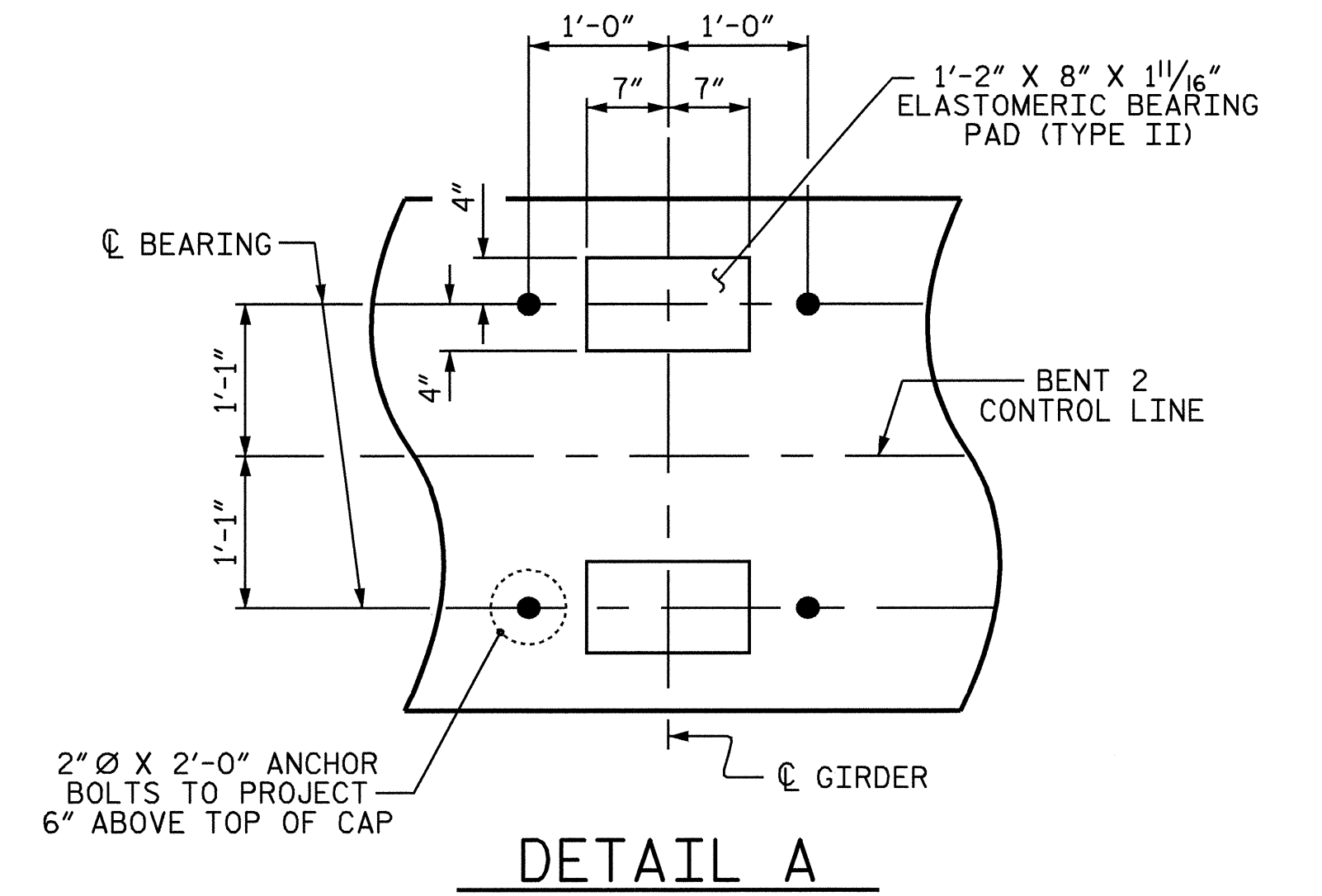
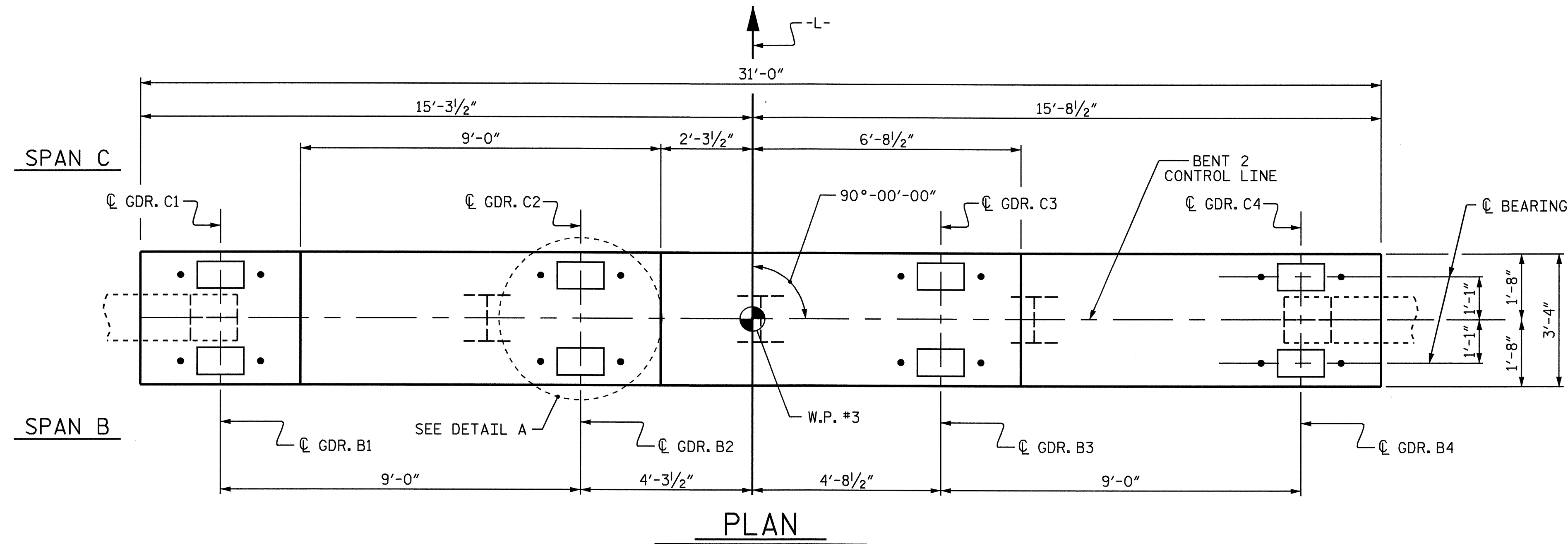
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REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-26	
1			3			TOTAL SHEETS	
2			4			36	

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 GALVANIZE THE TOP 25 FEET OF EACH BENT PILE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.



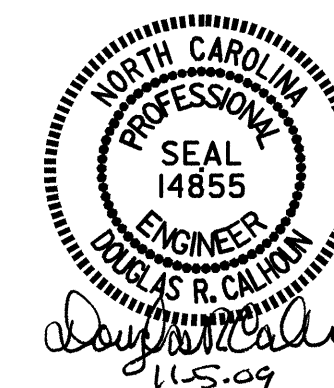
PROJECT NO. B-4261
RUTHERFORD COUNTY
 STATION: 17+48.00 -L-

SHEET 1 OF 2

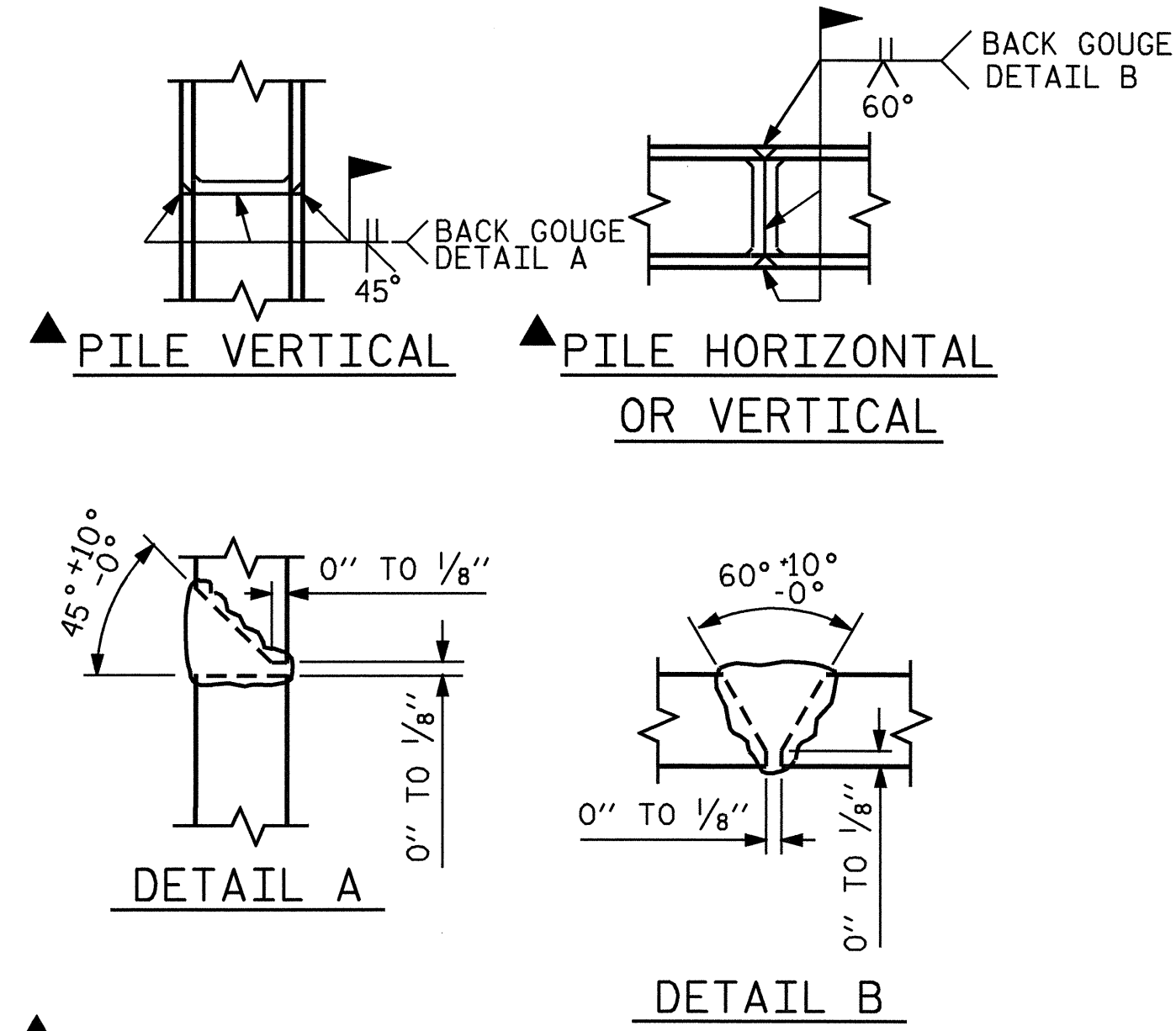
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-27
1			3			TOTAL SHEETS
2			4			36

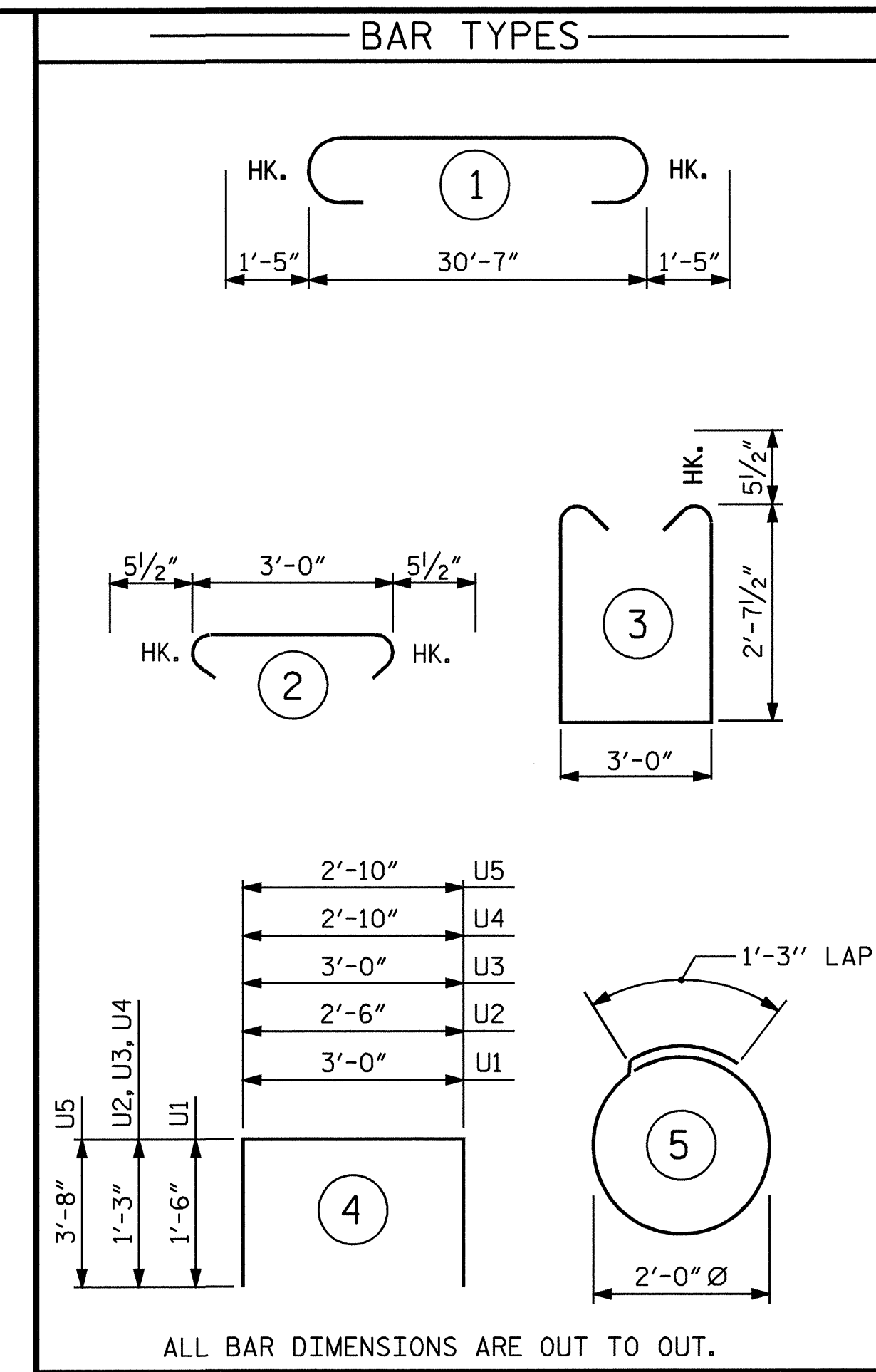
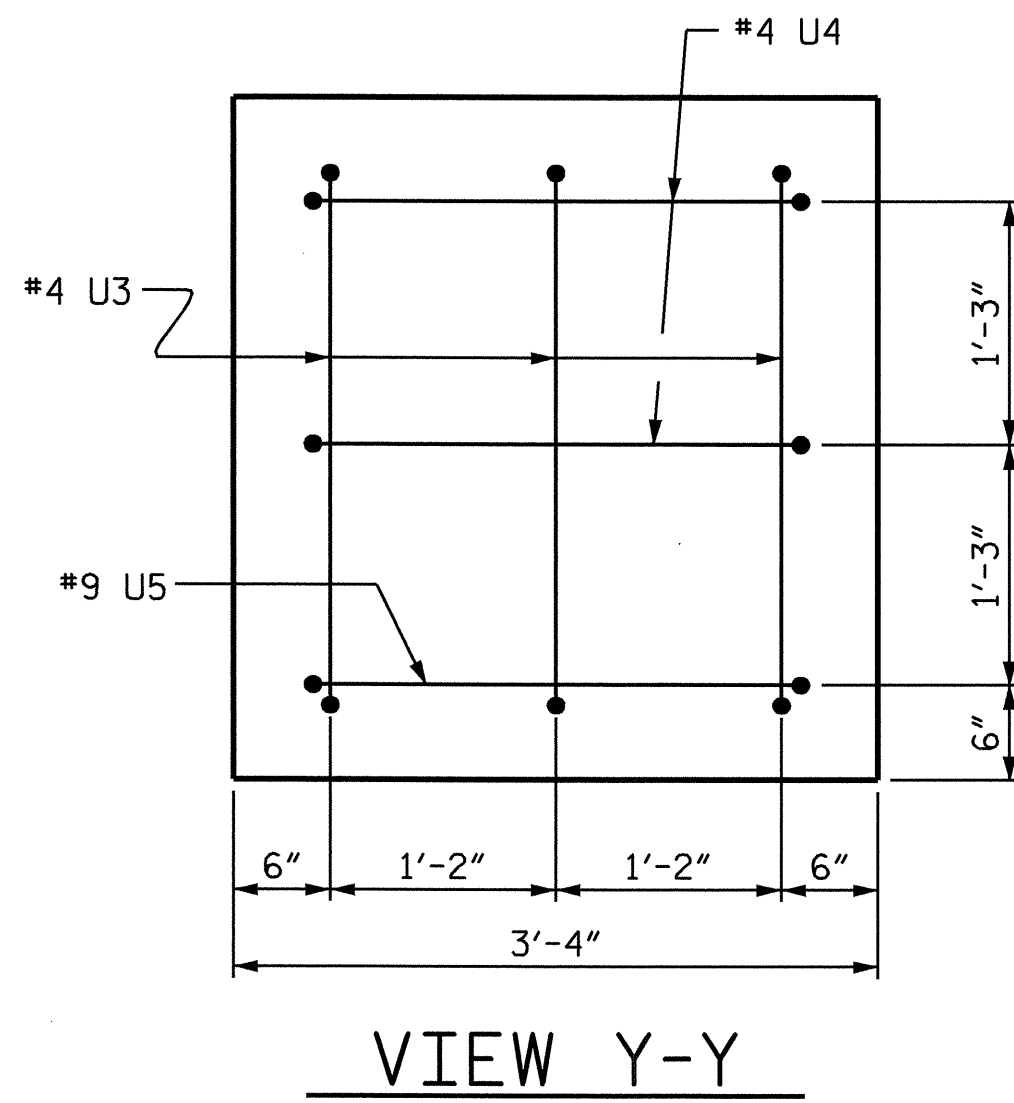
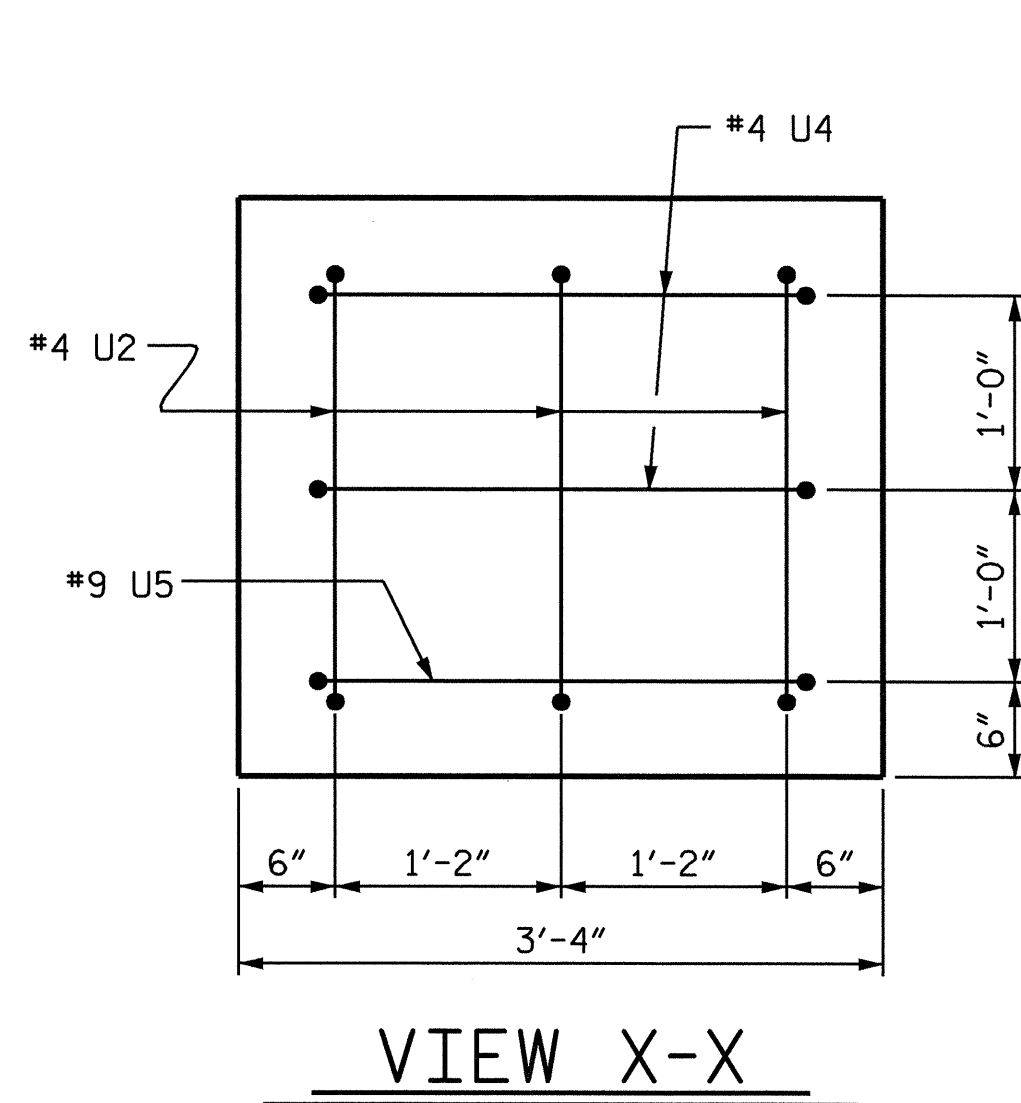
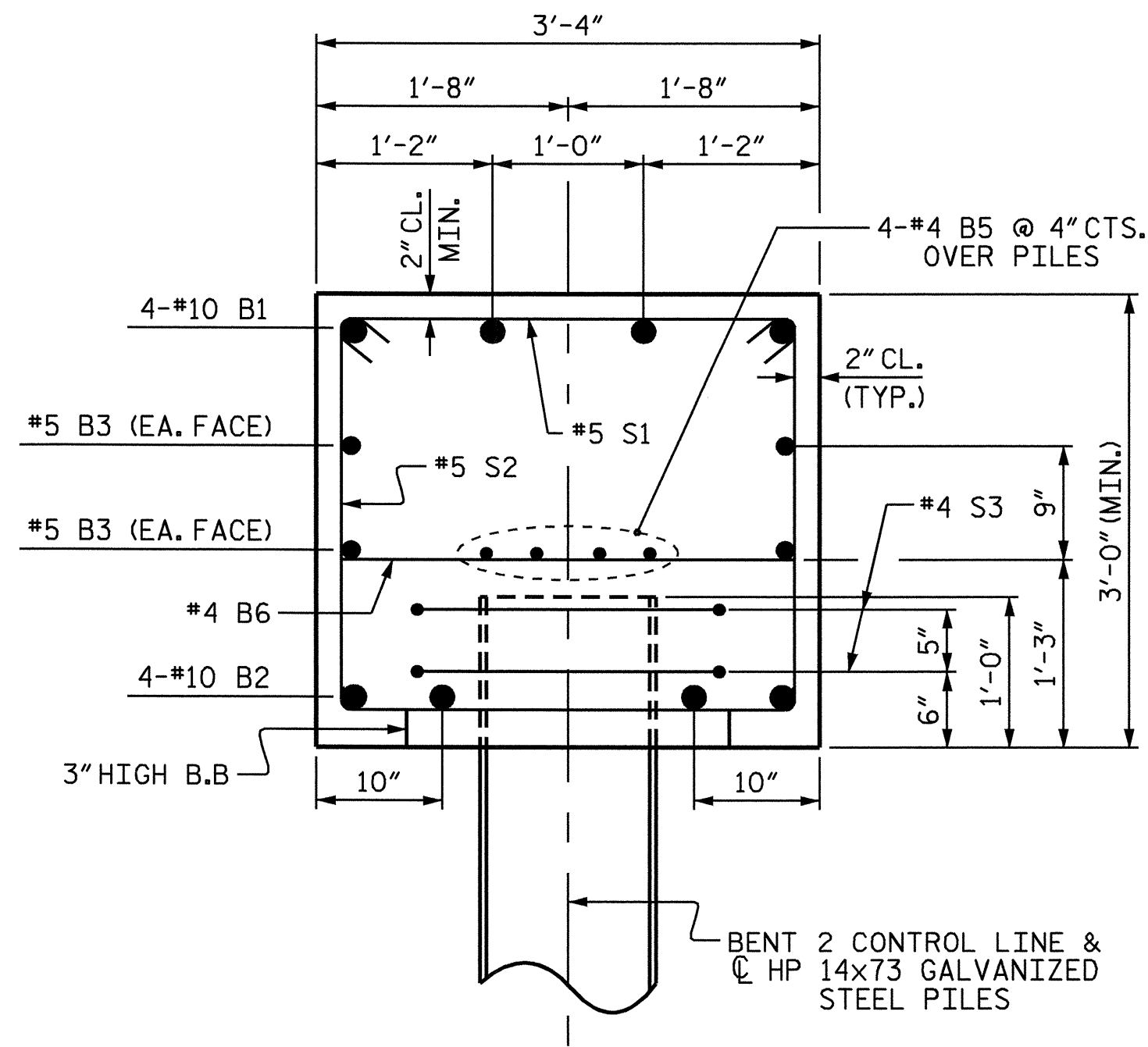


DRAWN BY : B.N. GRADY DATE : 10/2/09
 CHECKED BY : E.G. ALLEN DATE : 10/6/09



POSITION OF PILE DURING WELDING.

PILE SPICE DETAILS



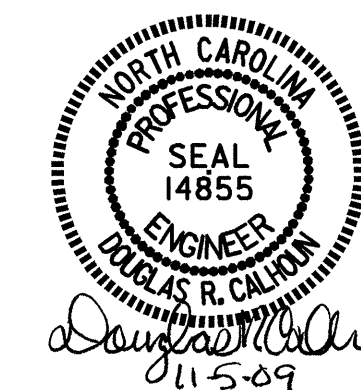
BILL OF MATERIAL					
BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10		33'-5"	575
B2	4	#10	STR	30'-8"	528
B3	4	#5	STR	30'-8"	128
B4	4	#4	STR	12'-8"	34
B5	8	#4	STR	16'-7"	89
B6	8	#4	STR	3'-0"	16
S1	26	#5		3'-11"	106
S2	26	#5		9'-2"	249
S3	10	#4		7'-7"	51
U1	28	#4		6'-0"	112
U2	3	#4		5'-0"	10
U3	3	#4		5'-6"	11
U4	4	#4		5'-4"	14
U5	2	#9		10'-2"	69
REINFORCING STEEL					1992 LBS.
CLASS A CONCRETE					12.3 CU.YDS.
HP 14x73 GALVANIZED STEEL PILES					
NO. : 5					LIN. FT. : 225

PROJECT NO. B-4261
RUTHERFORD COUNTY
 STATION: 17+48.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT 2

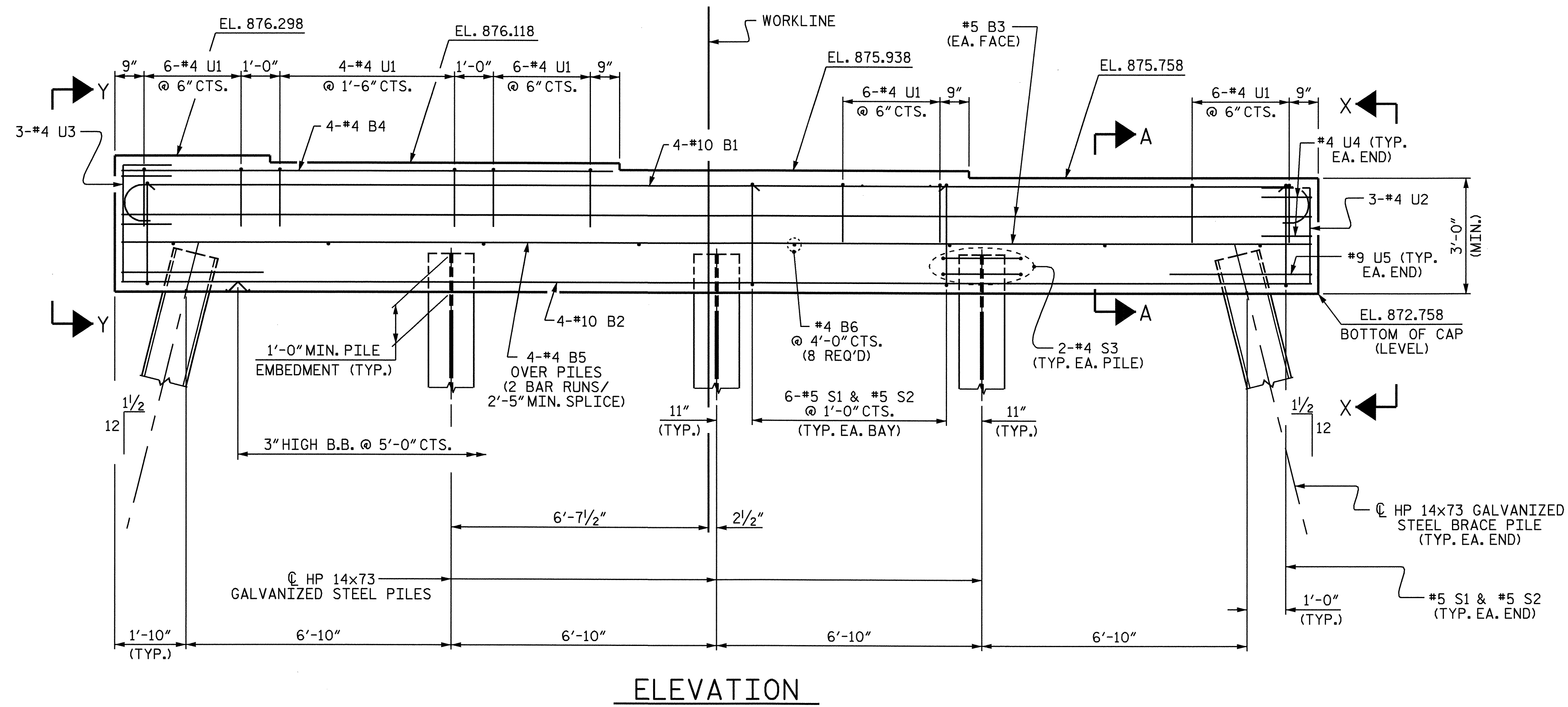
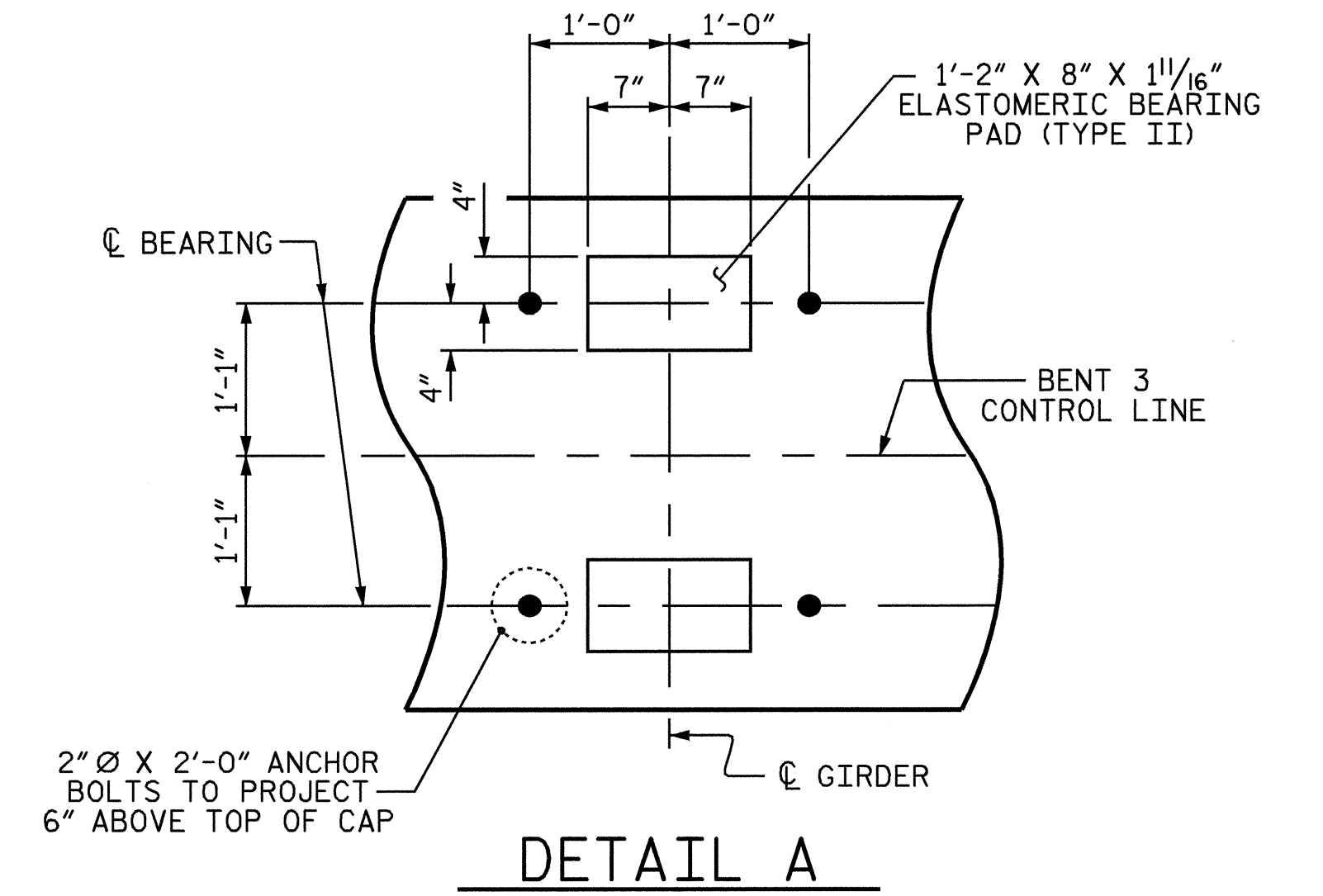
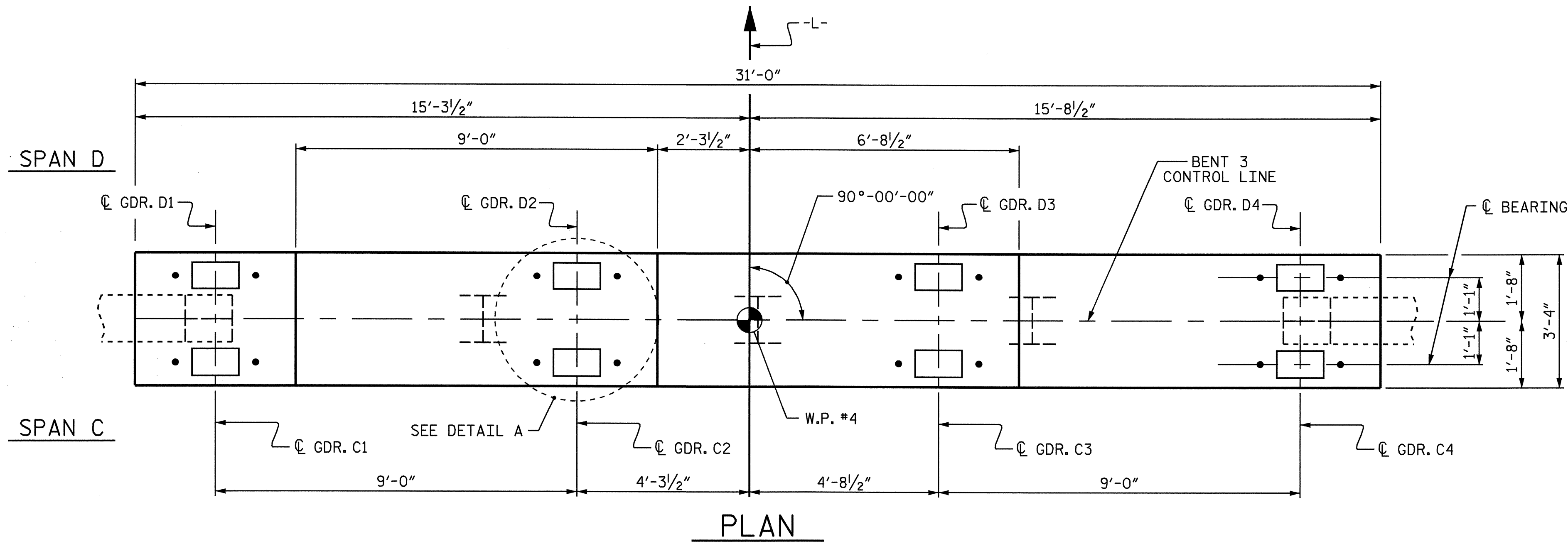


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-28	
1			3			TOTAL SHEETS	
2			4			36	

DRAWN BY : B.N. GRADY DATE : 10/2/09
 CHECKED BY : E.G. ALLEN DATE : 10/6/09

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 GALVANIZE THE TOP 25 FEET OF EACH BENT PILE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

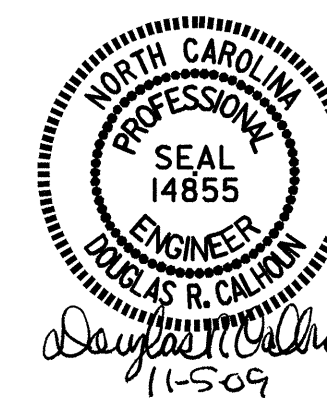


PROJECT NO. B-4261
RUTHERFORD COUNTY
 STATION: 17+48.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

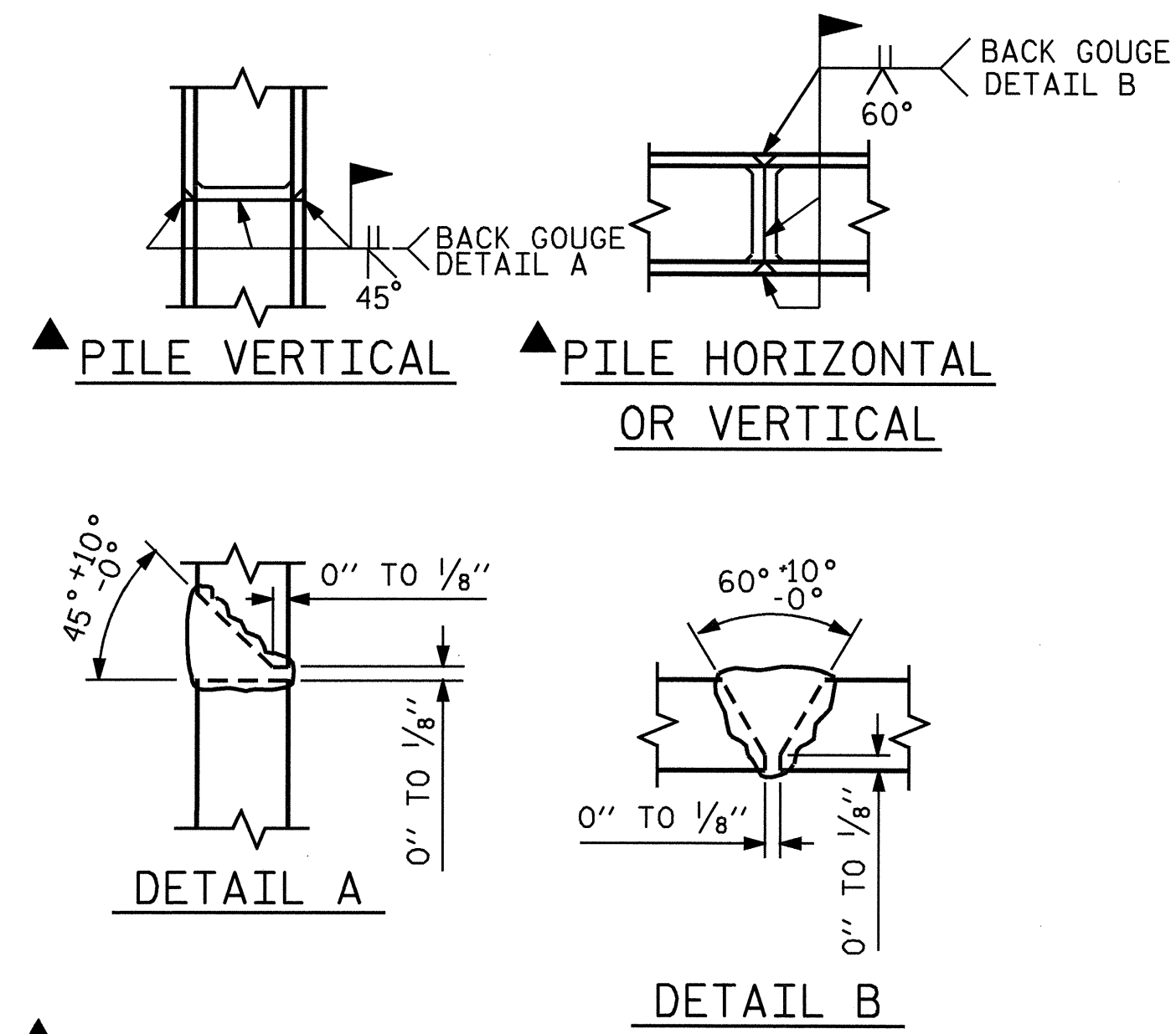
SUBSTRUCTURE
 BENT 3



DRAWN BY : B.N. GRADY DATE : 10/2/09
 CHECKED BY : E.G. ALLEN DATE : 10/6/09

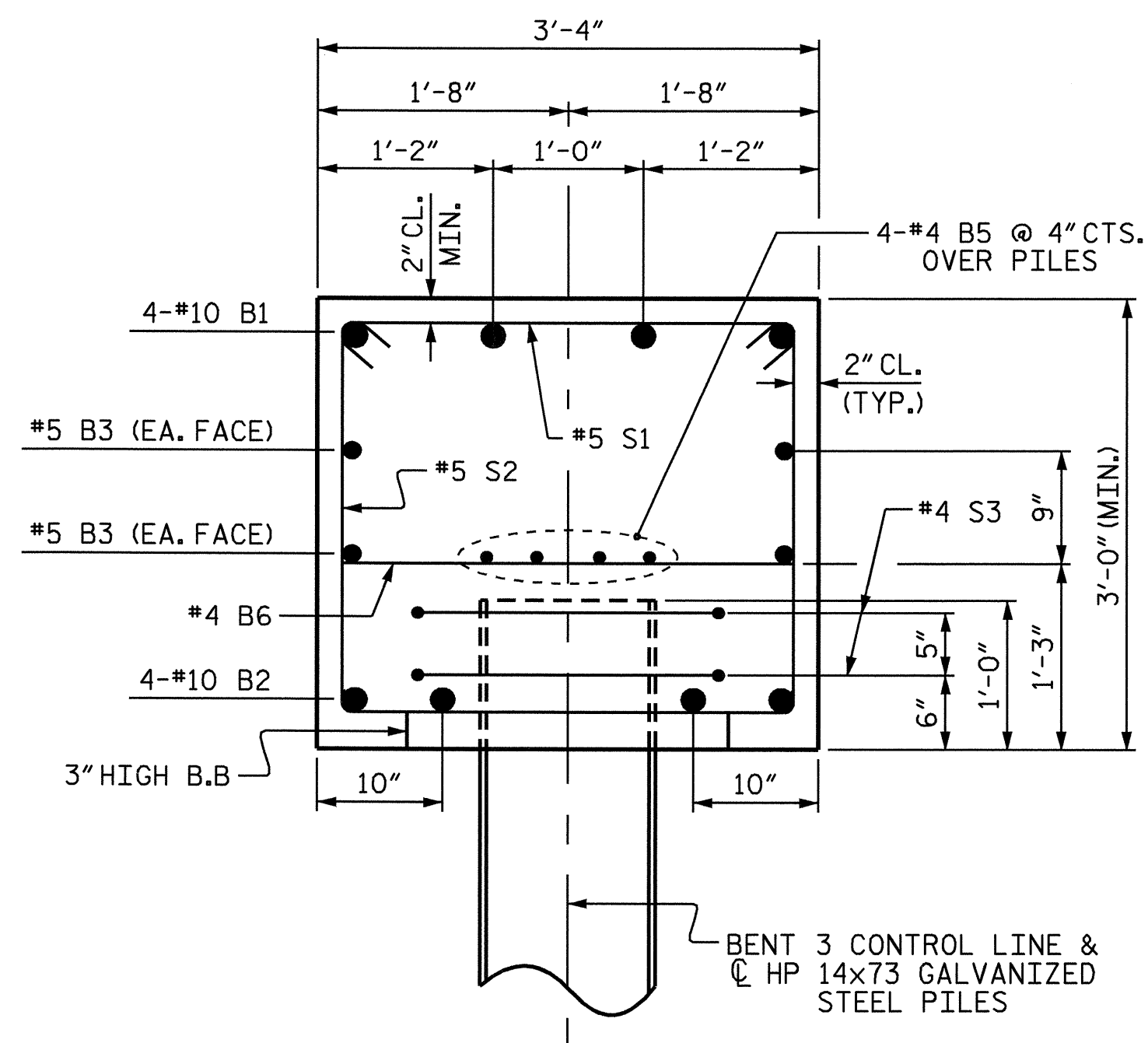
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REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-29	
1			3			TOTAL SHEETS	
2			4			36	

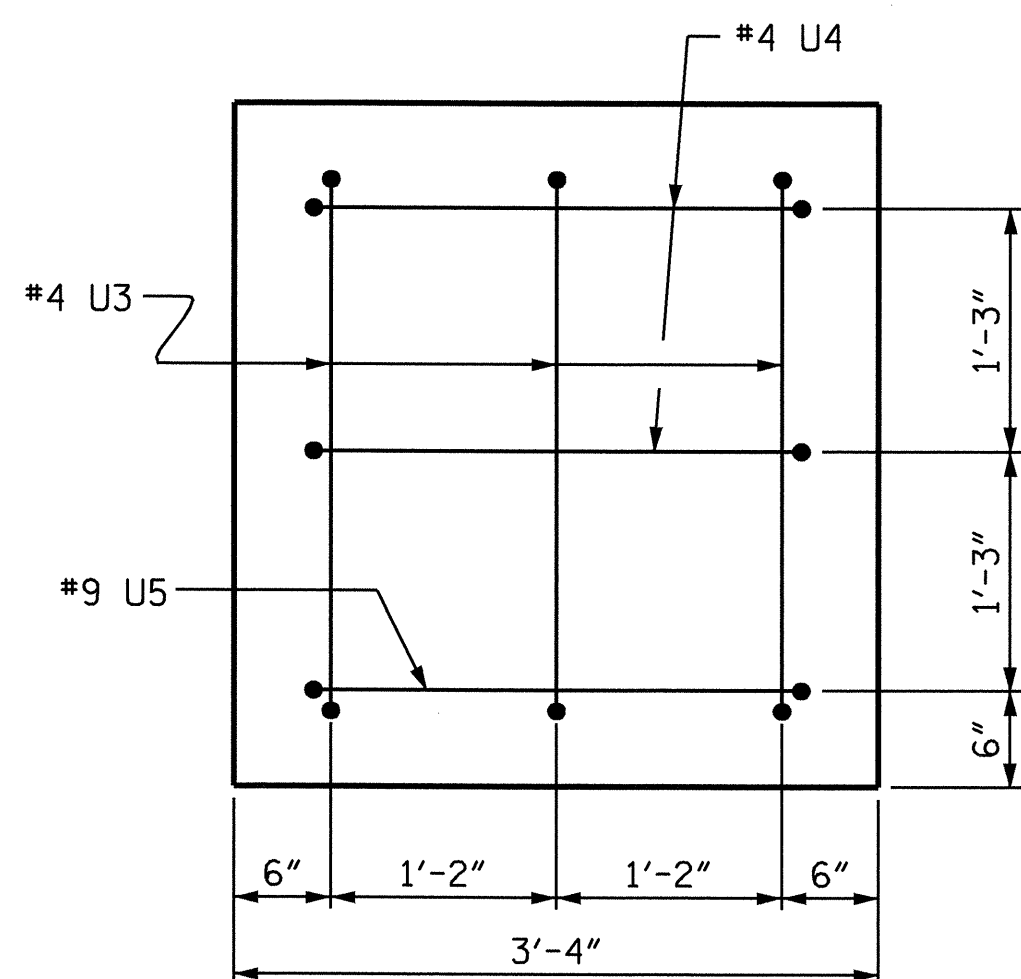
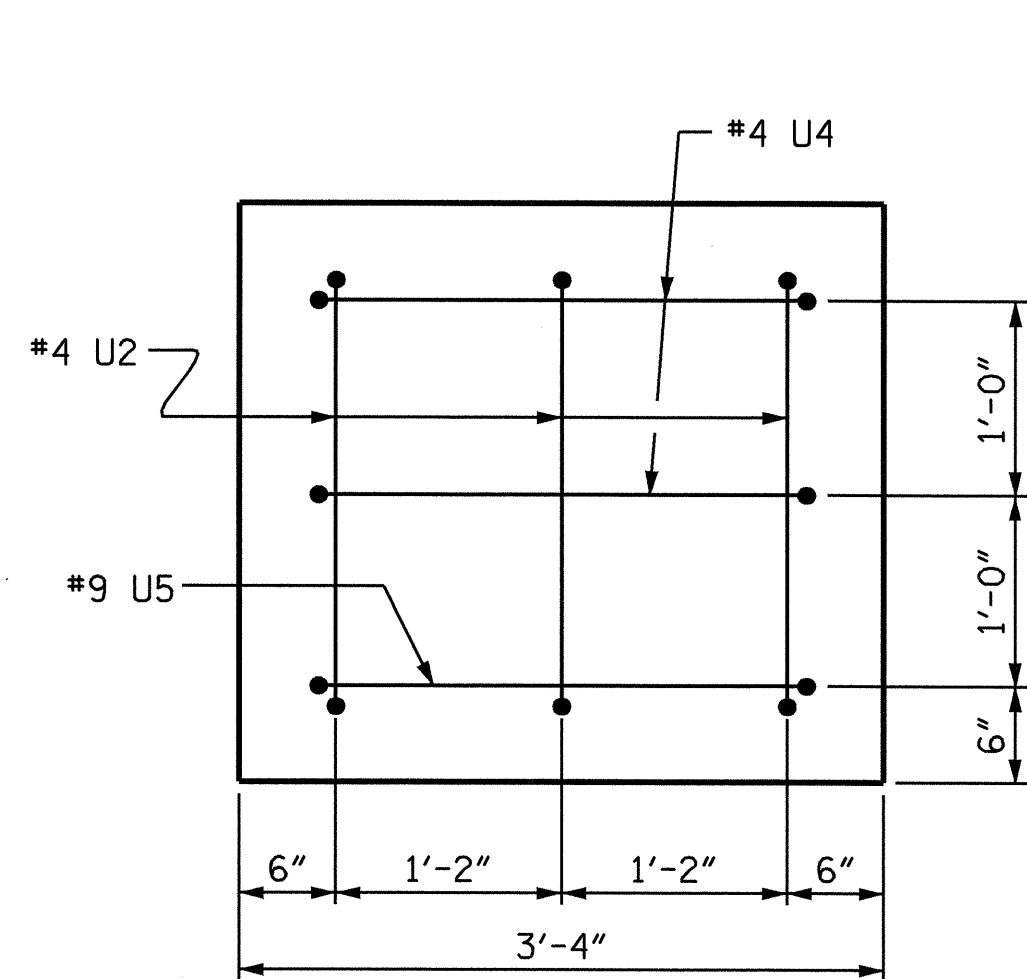


POSITION OF PILE DURING WELDING.

PILE SPlice DETAILS

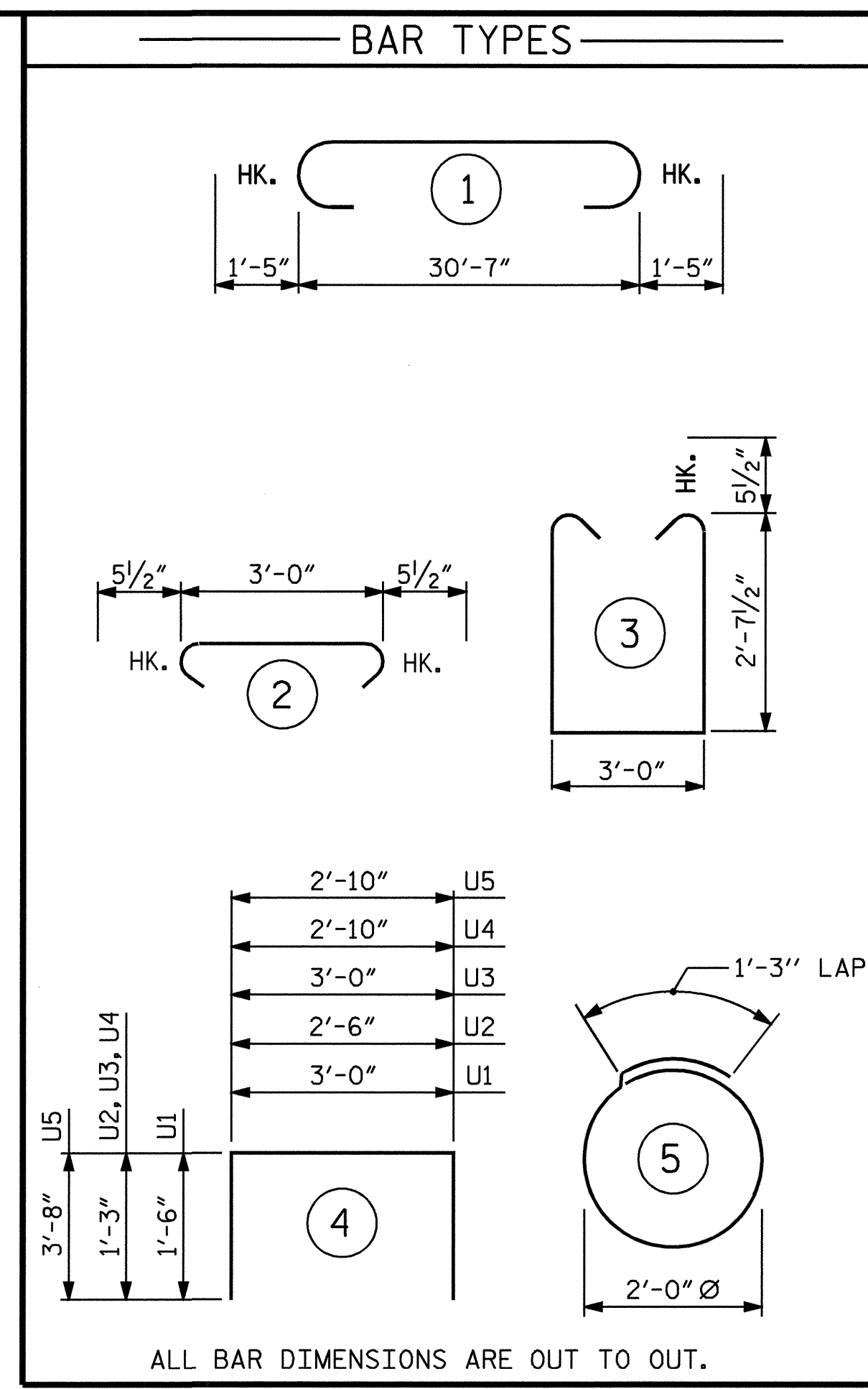


SECTION A-A



VIEW X-X

VIEW Y-Y



BILL OF MATERIAL					
BENT 3					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	1	33'-5"	575
B2	4	#10	STR	30'-8"	528
B3	4	#5	STR	30'-8"	128
B4	4	#4	STR	12'-8"	34
B5	8	#4	STR	16'-7"	89
B6	8	#4	STR	3'-0"	16
S1	26	#5	2	3'-11"	106
S2	26	#5	3	9'-2"	249
S3	10	#4	5	7'-7"	51
U1	28	#4	4	6'-0"	112
U2	3	#4	4	5'-0"	10
U3	3	#4	4	5'-6"	11
U4	4	#4	4	5'-4"	14
U5	2	#9	4	10'-2"	69
REINFORCING STEEL					1992 LBS.
CLASS A CONCRETE					12.3 CU.YDS.
HP 14x73 GALVANIZED STEEL PILES					
NO. : 5			LIN. FT. : 235		
STEEL PILE POINTS					EACH: 5

PROJECT NO. B-4261
RUTHERFORD COUNTY
 STATION: 17+48.00 -L-

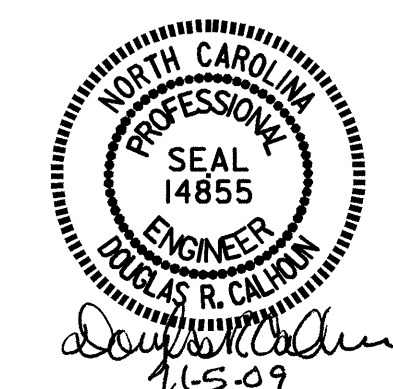
SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

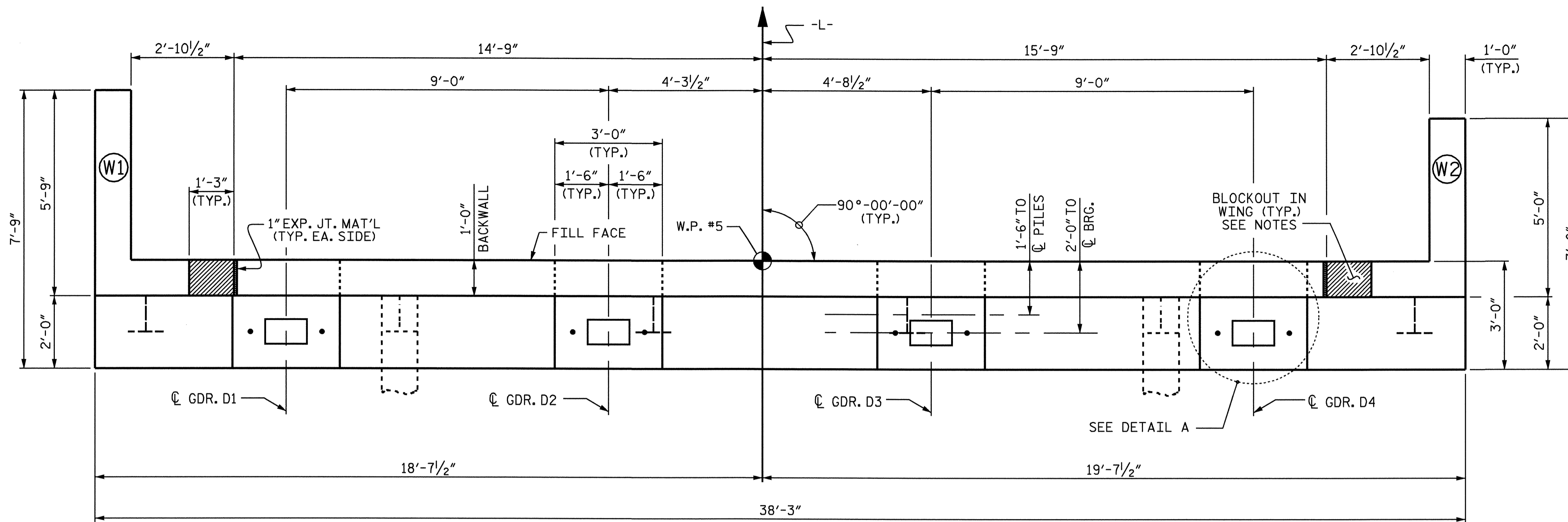
SUBSTRUCTURE
 BENT 3

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

SHEET NO. S-30
 TOTAL SHEETS 36



DRAWN BY : B.N. GRADY DATE : 10/2/09
 CHECKED BY : E.G. ALLEN DATE : 10/6/09



NOTES

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

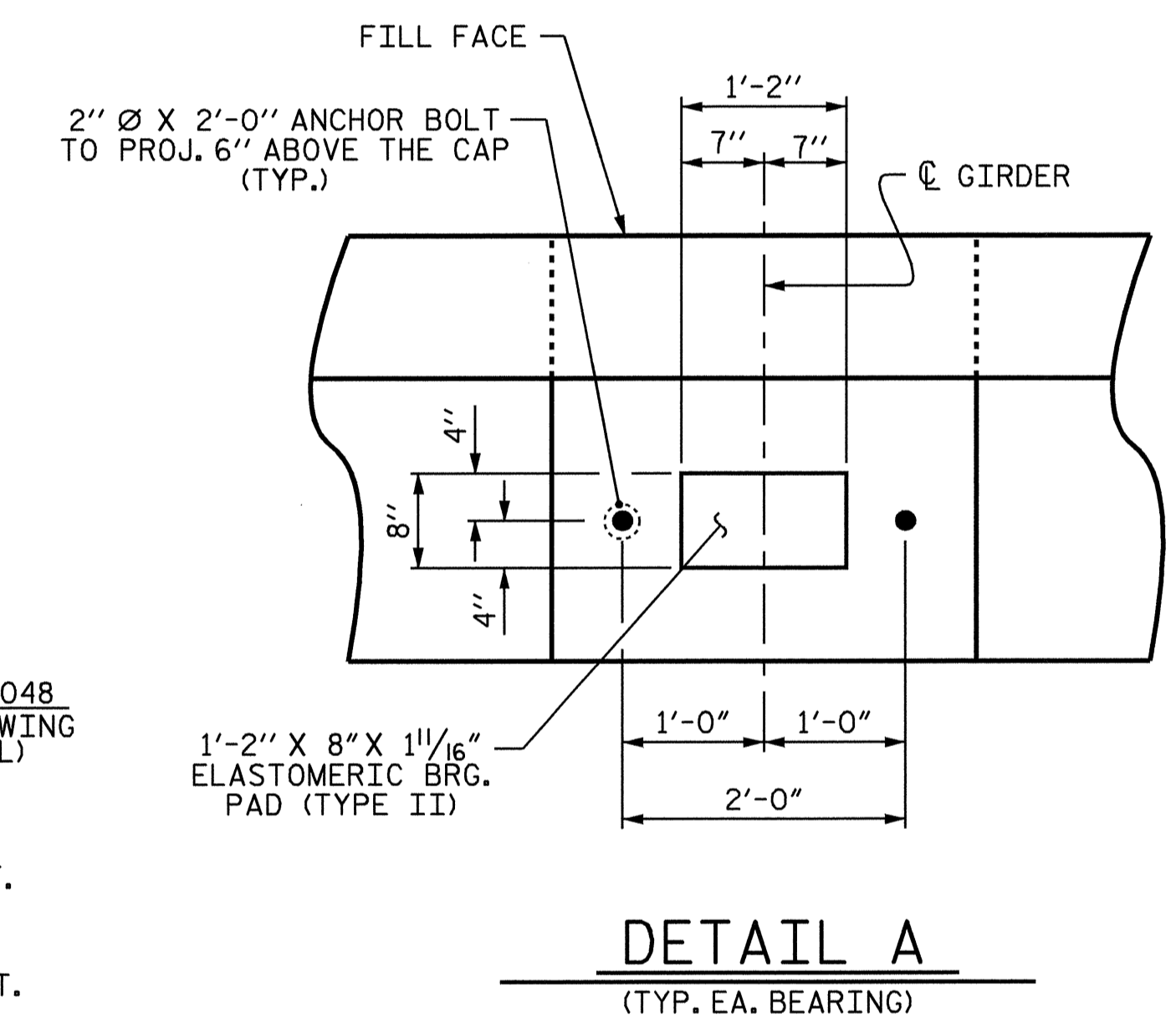
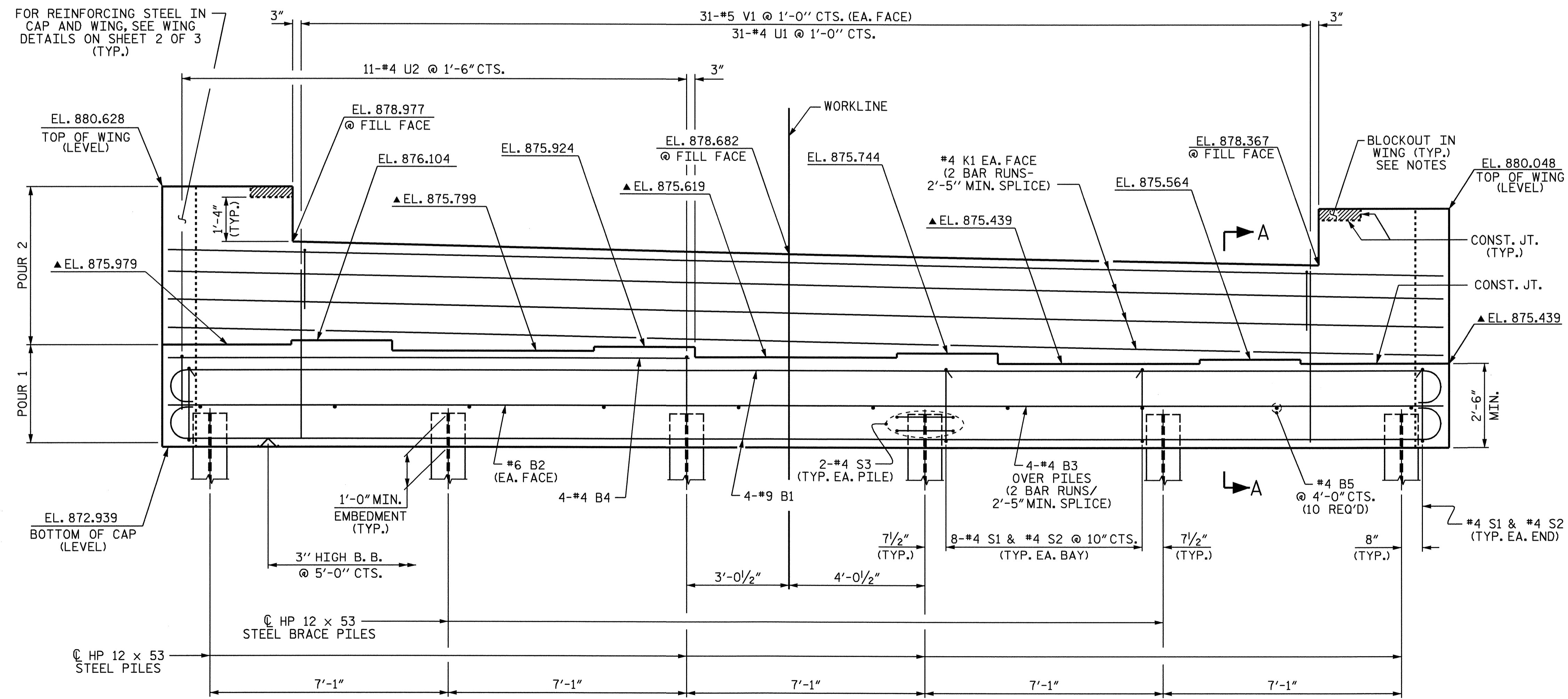
BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

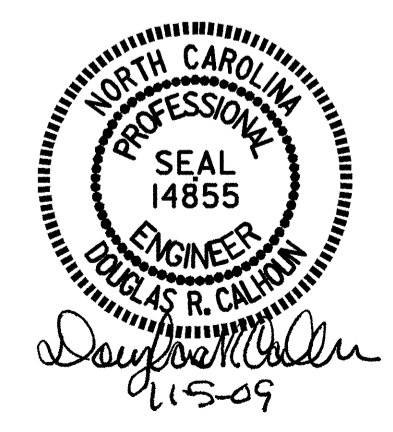
THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE DECK AND APPROACH SLAB HAS BEEN SAWED AND THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.



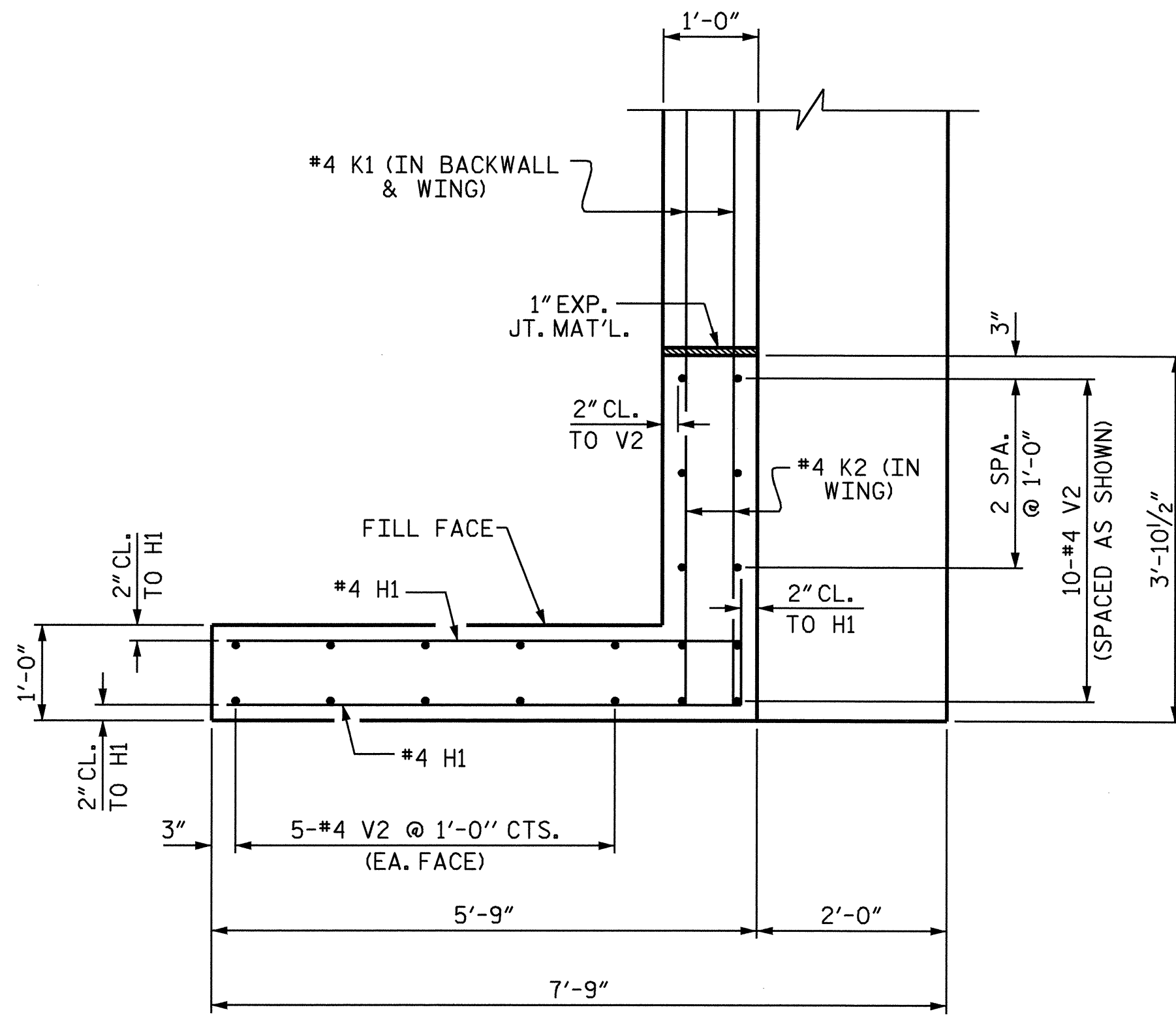
PROJECT NO. B-4261
RUTHERFORD COUNTY
 STATION: 17+48.00 -L-
 SHEET 1 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT 2					
SHEET NO. S-31					
TOTAL SHEETS 36					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

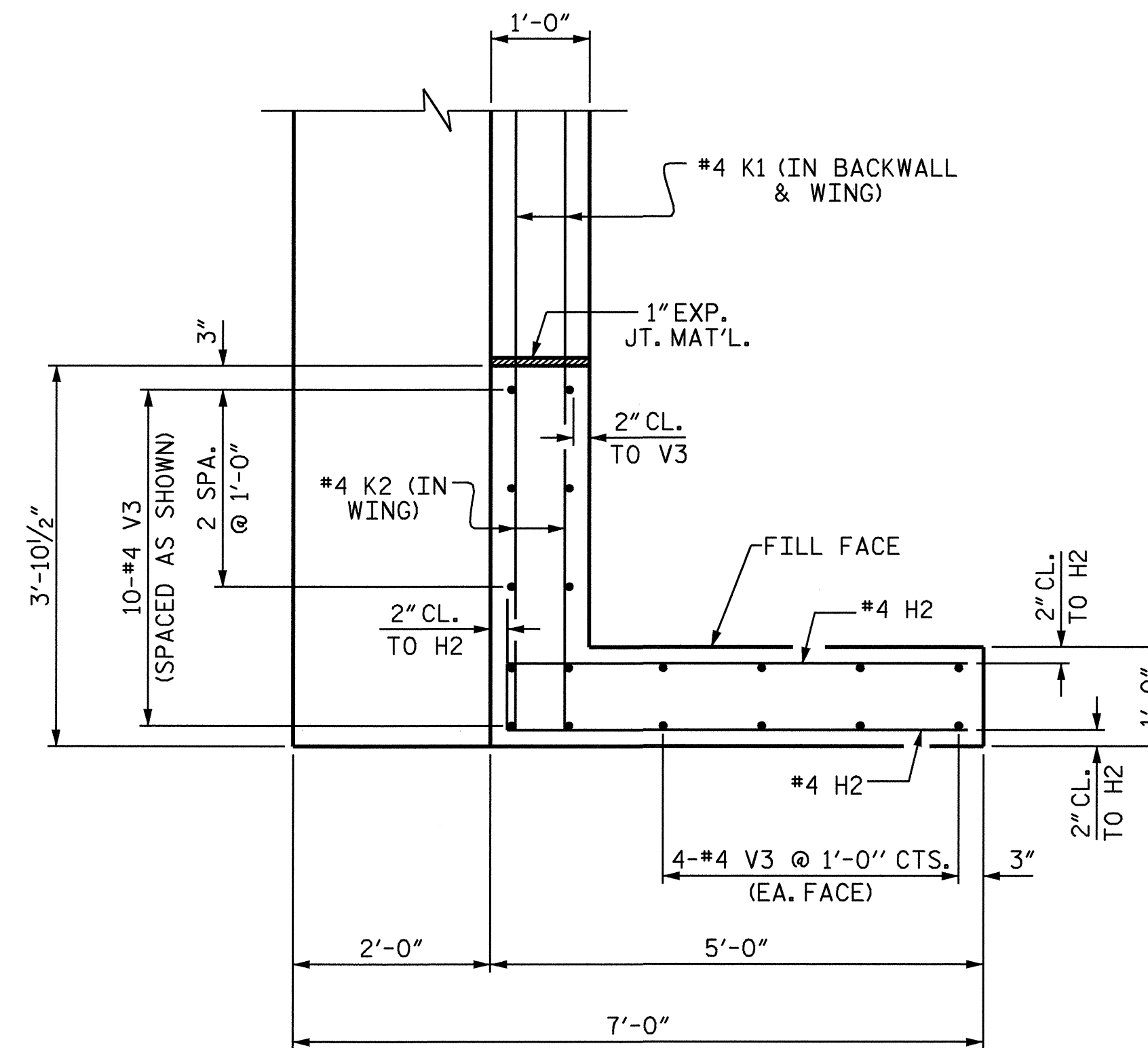


DRAWN BY: B.N. GRADY DATE: 9/28/09
 CHECKED BY: E.G. ALLEN DATE: 9/30/09

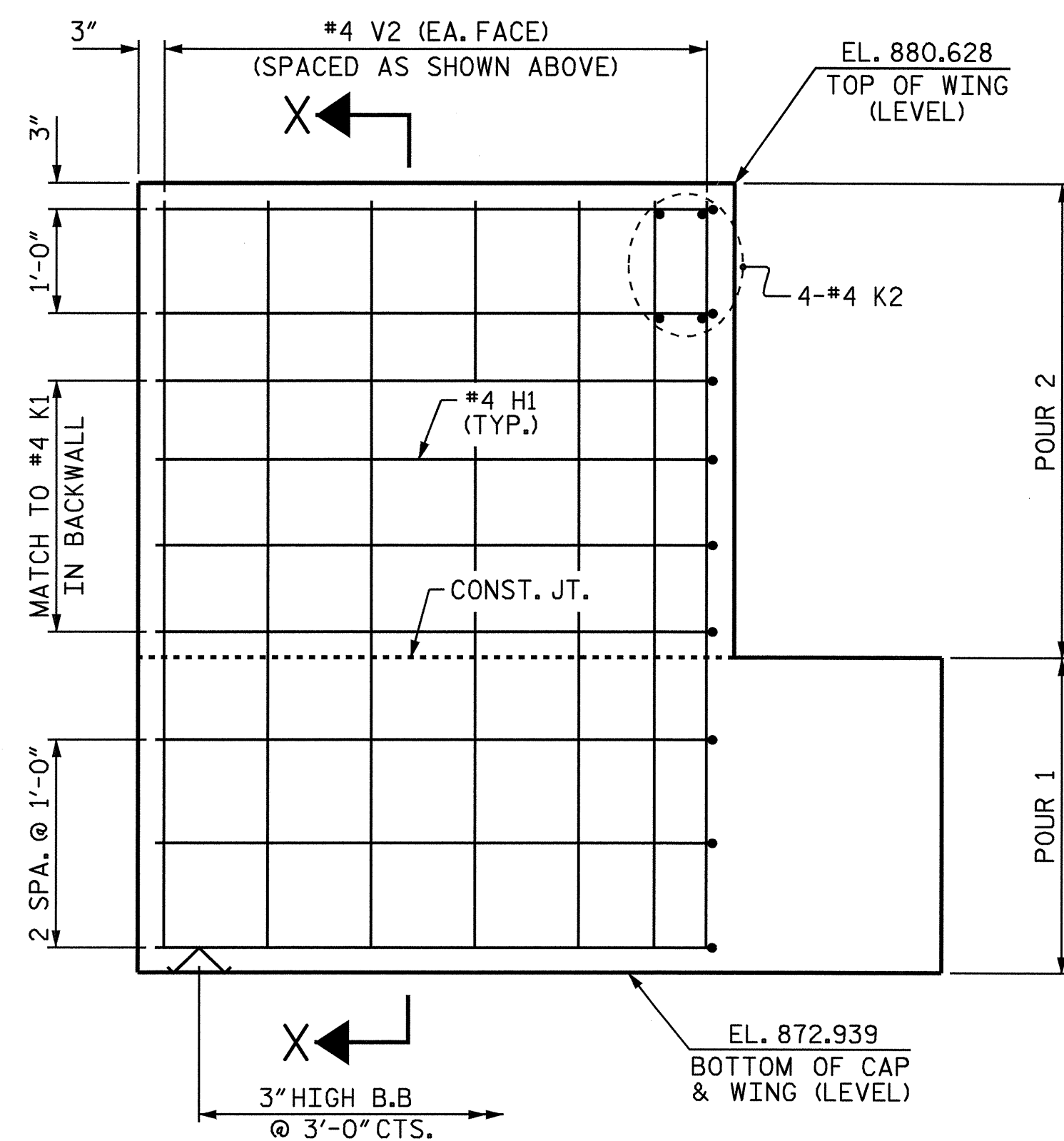
▲ FOR LOCATION OF THESE ELEVATIONS, SEE SECTION A-A ON SHEET 3 OF 3.



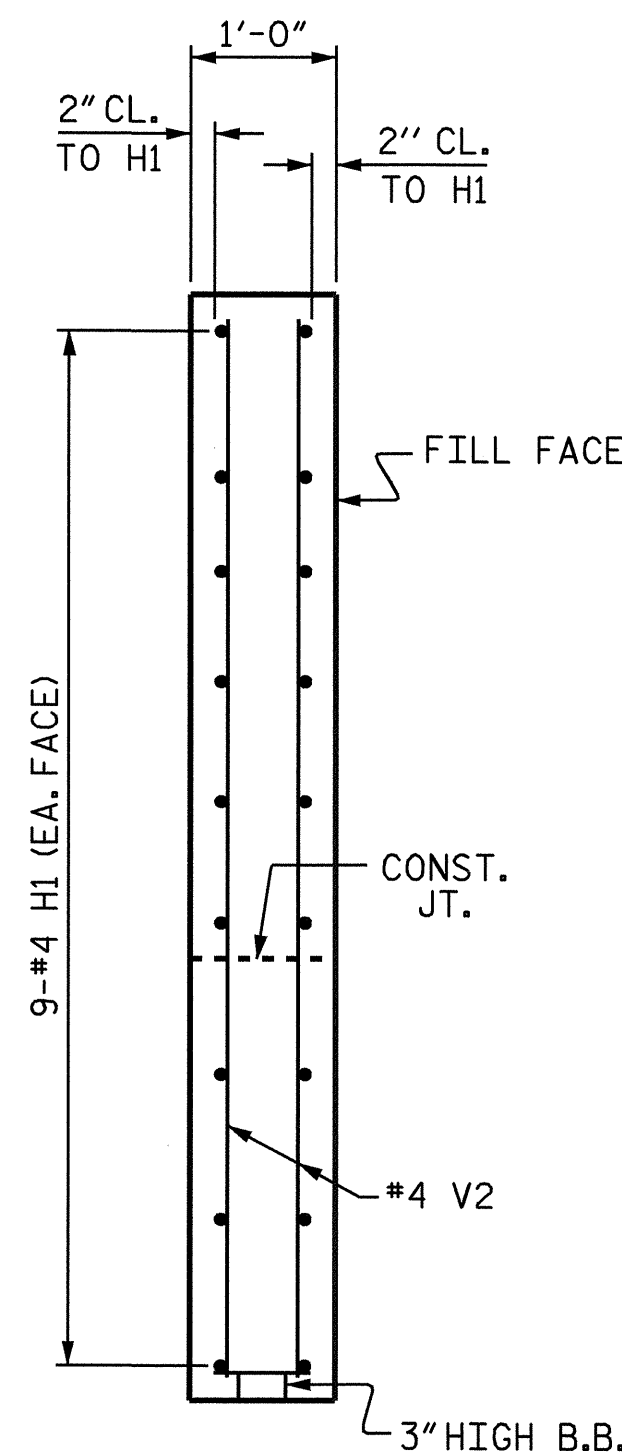
PLAN OF WING - (W1)



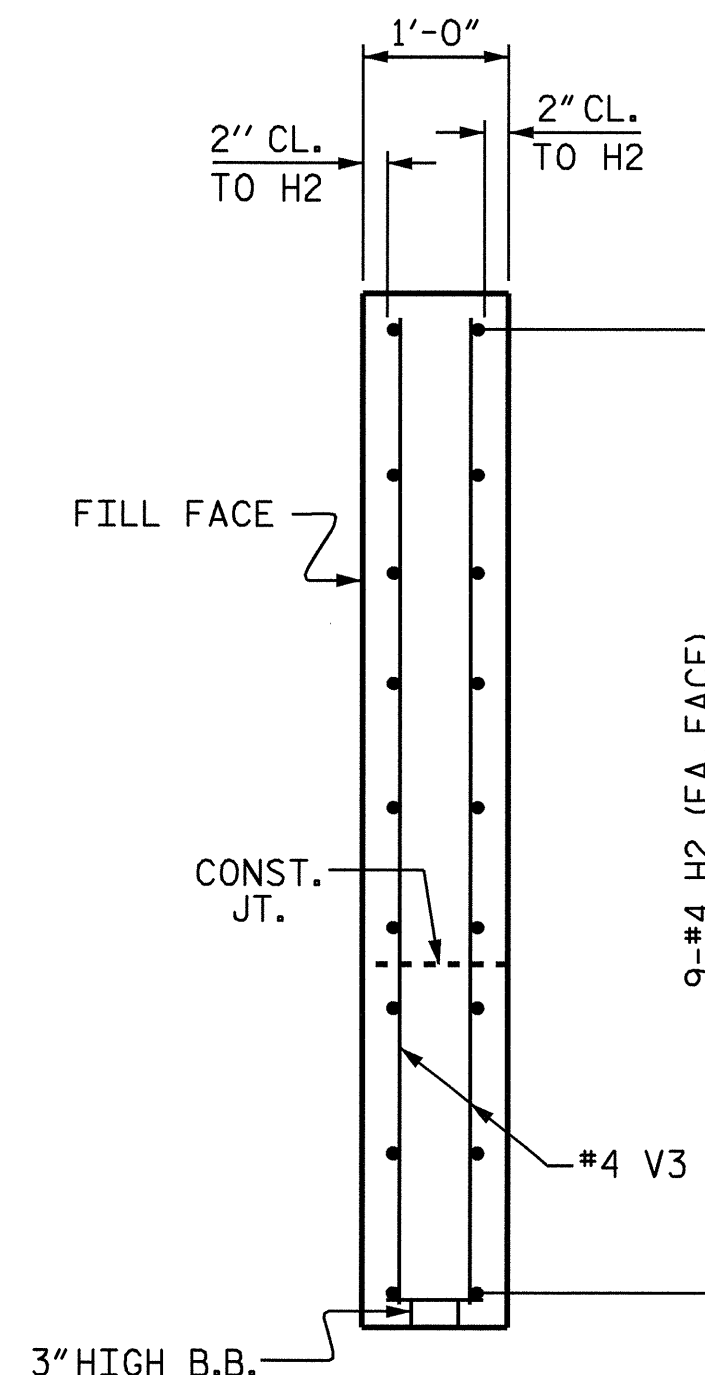
PLAN OF WING - (W2)



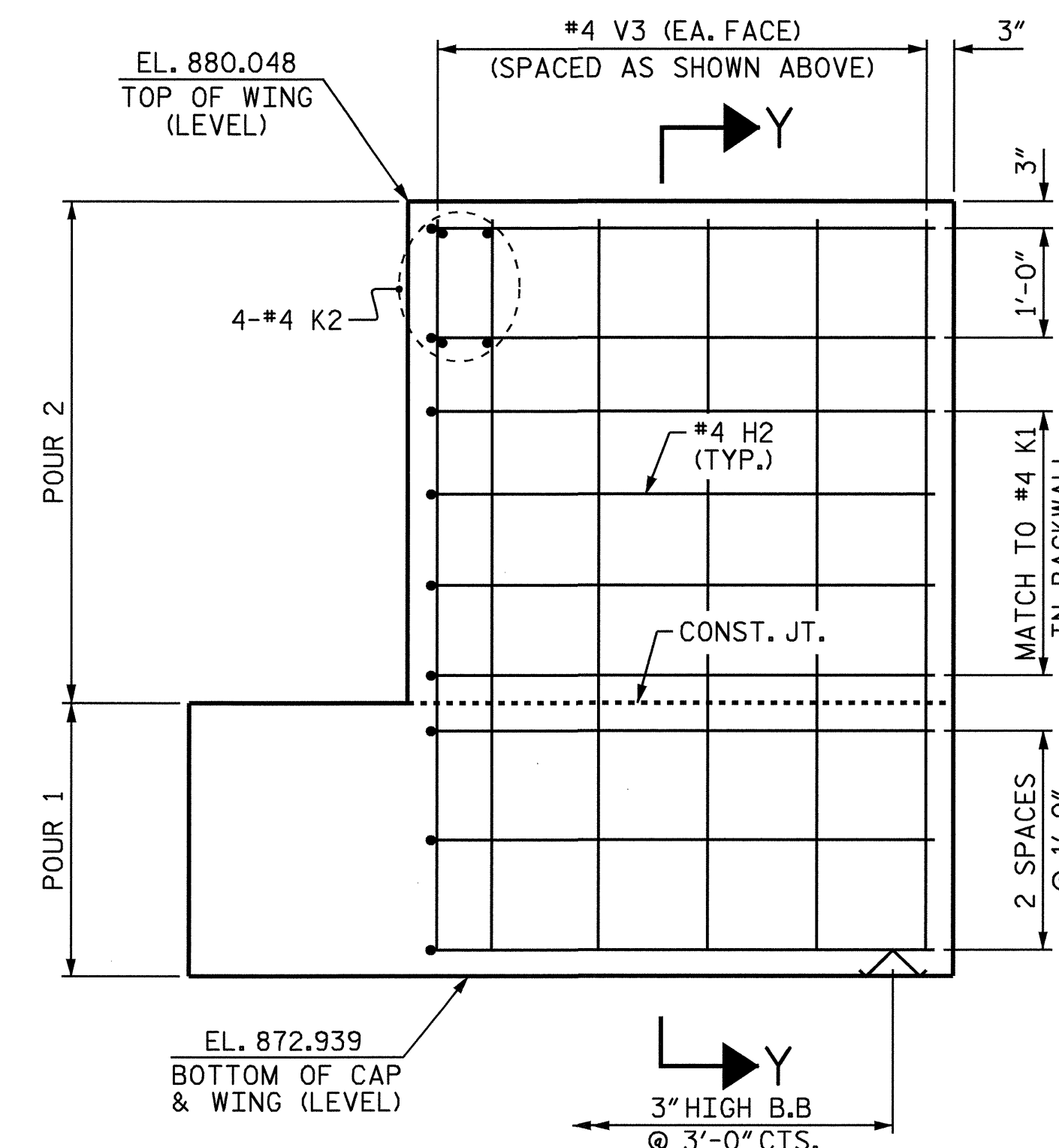
ELEVATION OF WING - (W1)



SECTION X-X



SECTION Y-Y



ELEVATION OF WING - (W2)



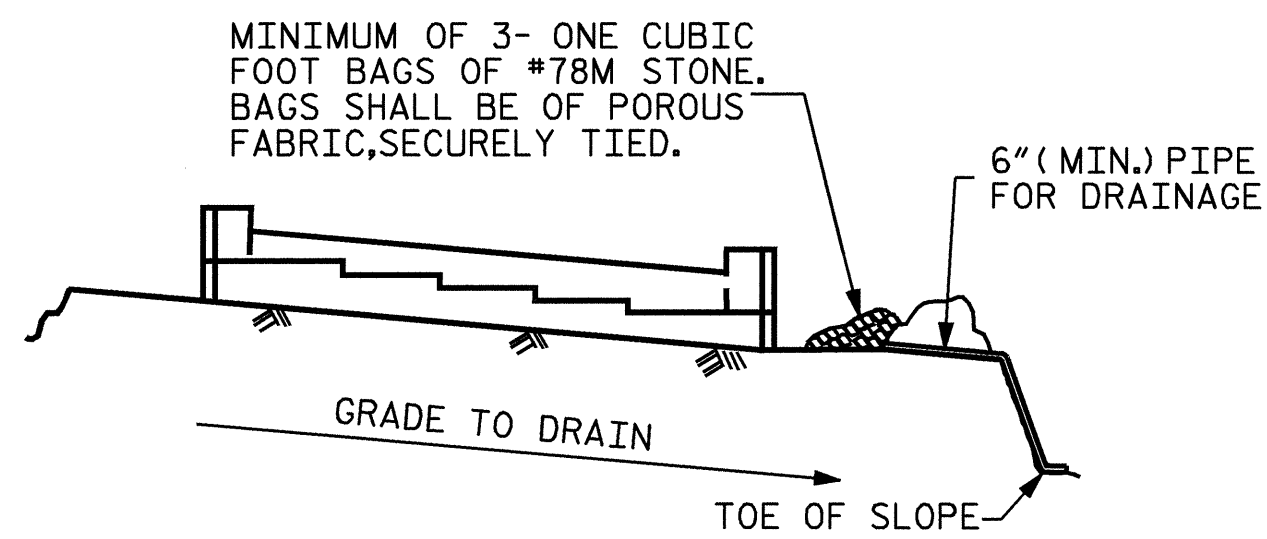
PROJECT NO. B-4261
 RUTHERFORD COUNTY
 STATION: 17+48.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT 2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-32
					TOTAL SHEETS 36

DRAWN BY: B.N. GRADY DATE: 9/28/09
 CHECKED BY: E.G. ALLEN DATE: 9/30/09

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 bngrady

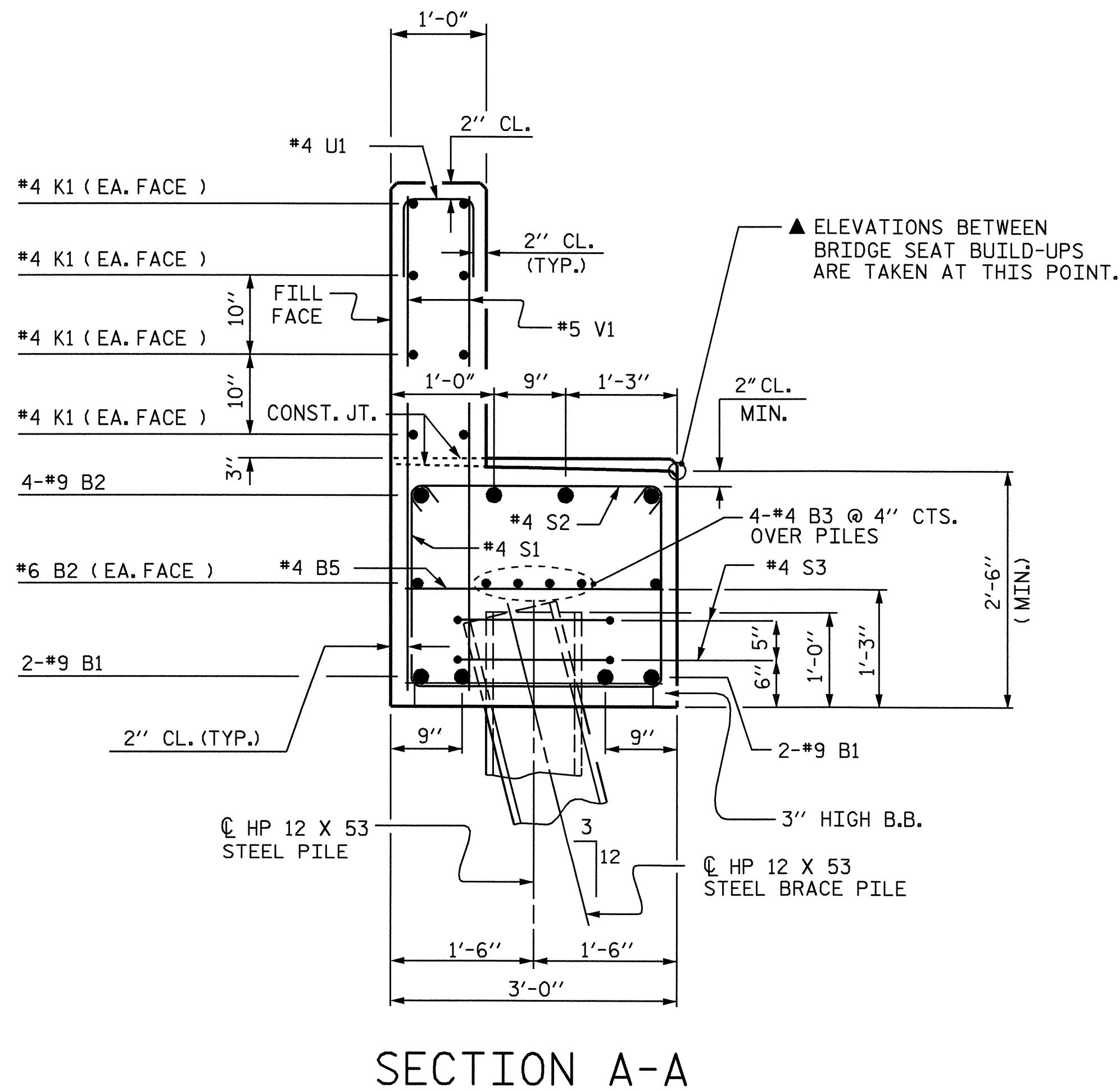


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

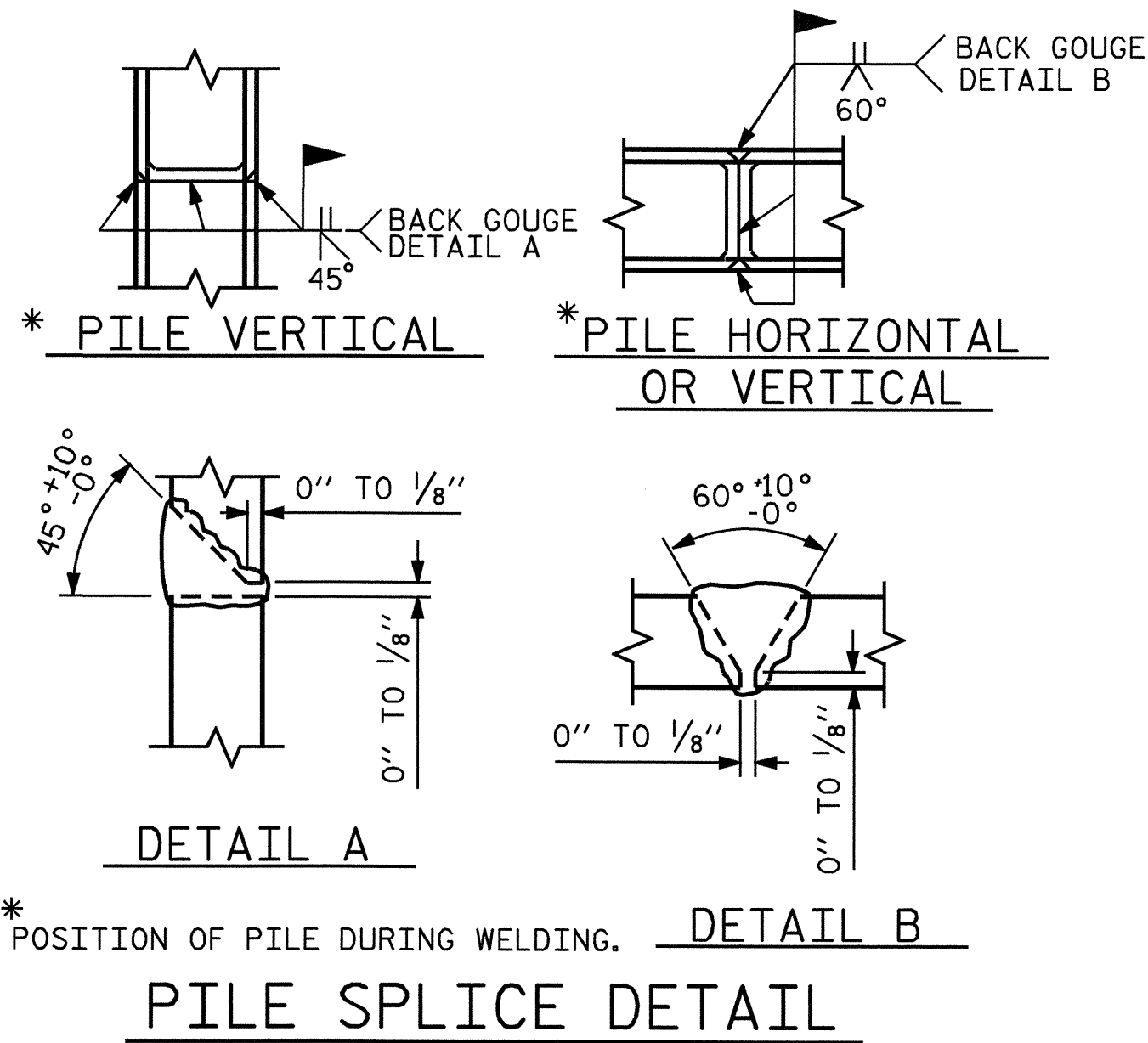
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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

TEMPORARY DRAINAGE AT END BENT



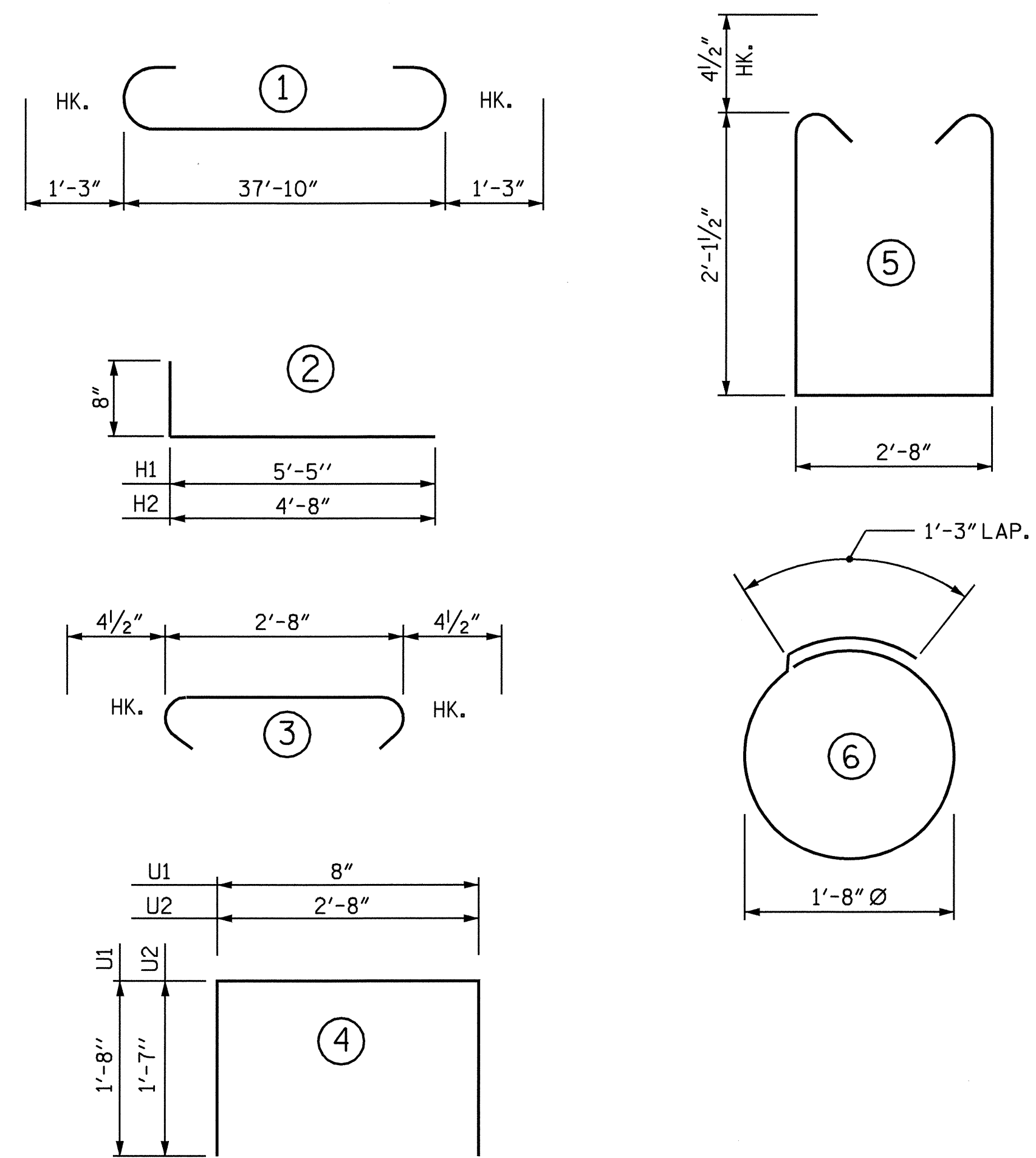
SECTION A-A



POSITION OF PILE DURING WELDING. DETAIL B

PILE SPLICE DETAIL

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 2

BAR	NO	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	40'-4"	1097
B2	2	#6	STR	37'-11"	114
B3	8	#4	STR	20'-2"	108
B4	4	#4	STR	15'-6"	41
B5	10	#4	STR	2'-8"	18
H1	18	#4	2	6'-1"	73
H2	18	#4	2	5'-4"	64
K1	16	#4	STR	20'-2"	216
K2	8	#4	STR	3'-6"	19
S1	42	#4	5	7'-8"	215
S2	42	#4	3	3'-5"	96
S3	12	#4	6	6'-6"	52
U1	31	#4	4	4'-0"	83
U2	11	#4	4	5'-10"	43
V1	62	#5	STR	5'-1"	329
V2	20	#4	STR	7'-4"	98
V3	18	#4	STR	6'-9"	81

REINFORCING STEEL LBS. 2747

CLASS A CONCRETE BREAKDOWN

POUR #1 (CAP & LOWER PORTION OF WINGS)	C.Y.	12.6
POUR #2 (BACKWALL & UPPER PART OF WINGS)	C.Y.	6.2
TOTAL CLASS A CONCRETE	C.Y.	18.8

HP 12 X 53 STEEL PILES

NO. 6 LIN. FT. 270

PROJECT NO. B-4261
RUTHERFORD COUNTY
 STATION: 17+48.00 -L-

SHEET 3 OF 3

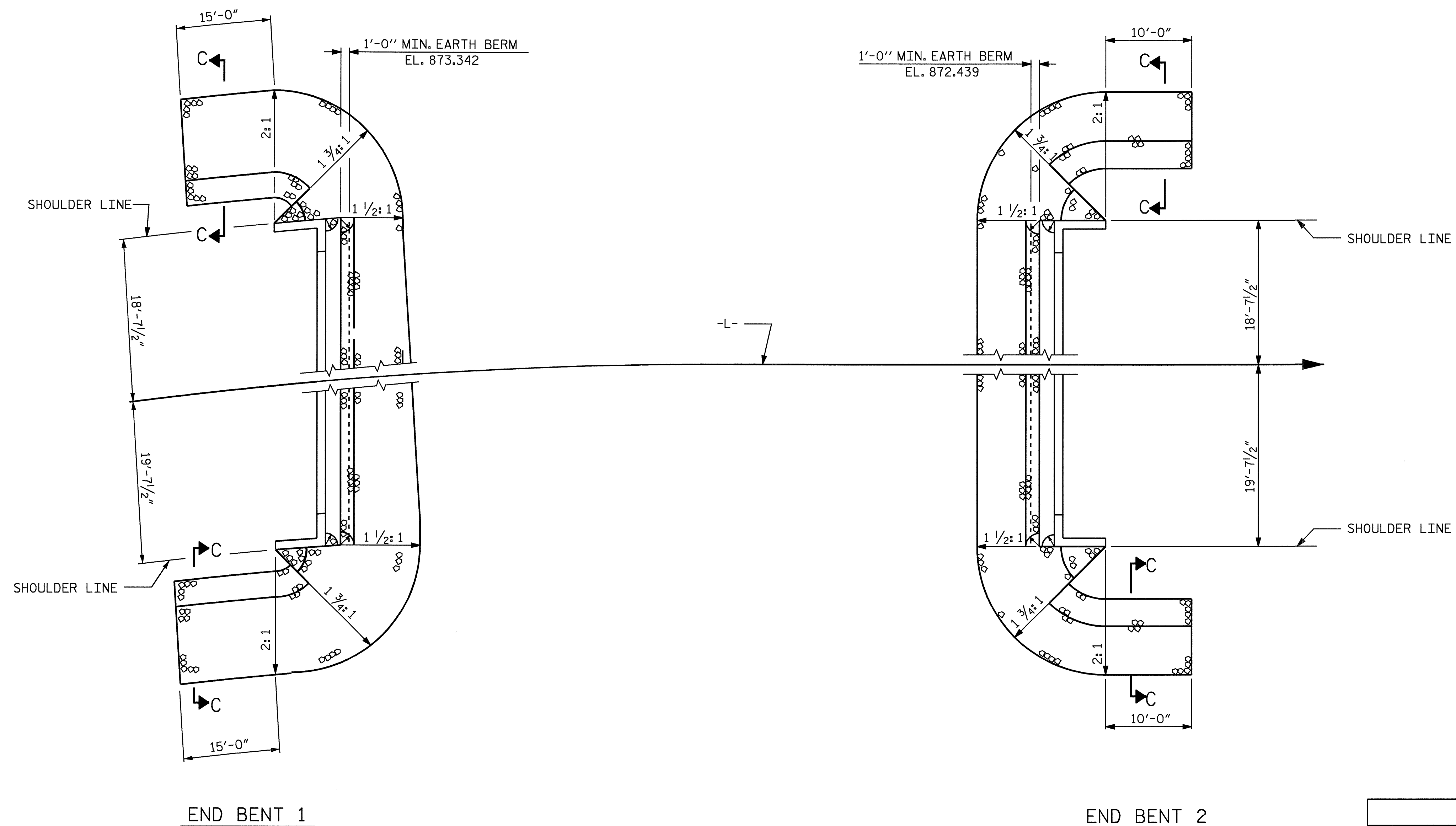
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE END BENT 2



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-33	
1			3			TOTAL SHEETS	
2			4			36	

DRAWN BY : B.N. GRADY DATE : 9/28/09
 CHECKED BY : E.G. ALLEN DATE : 9/30/09

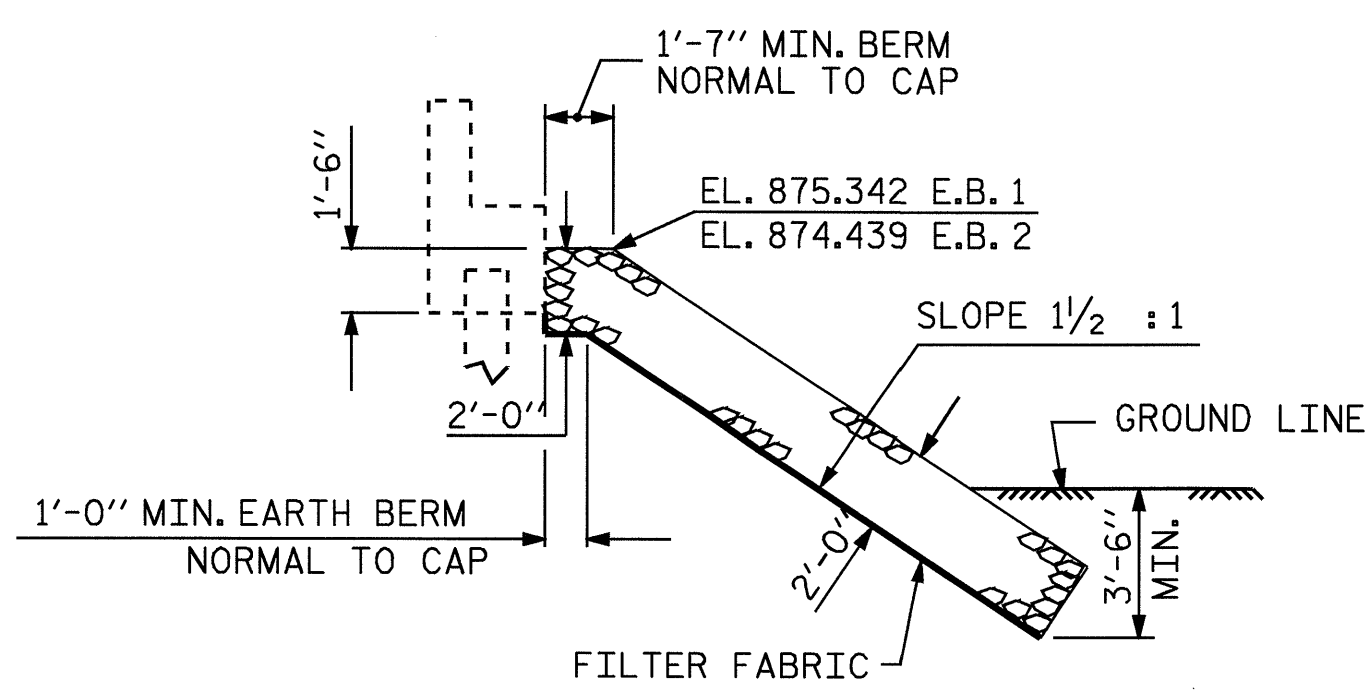


END BENT 1

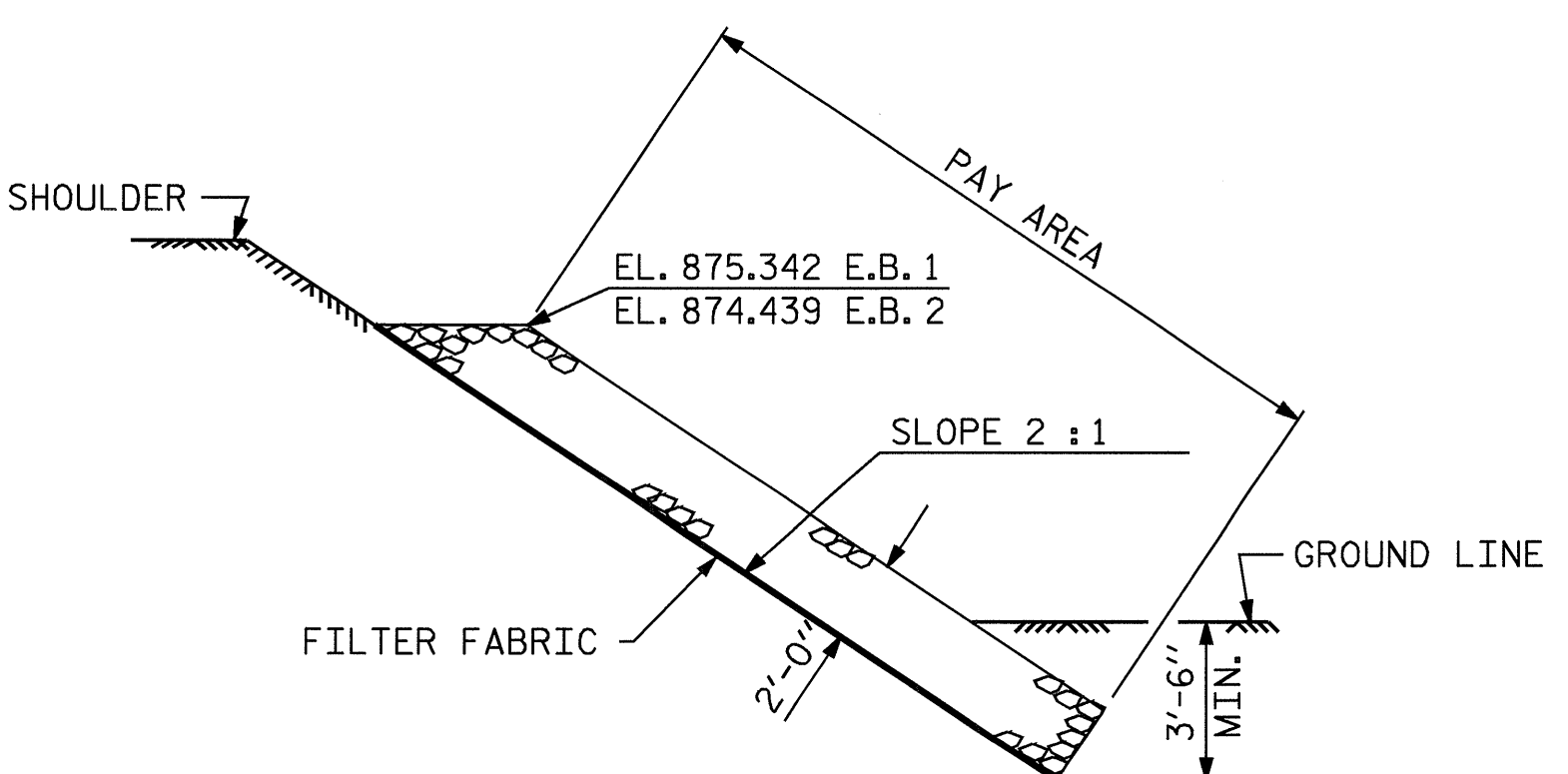
END BENT 2

PLAN

ESTIMATED QUANTITIES		
BRIDGE @ STA. 17+48.00 -L-	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	189	210
END BENT 2	171	190

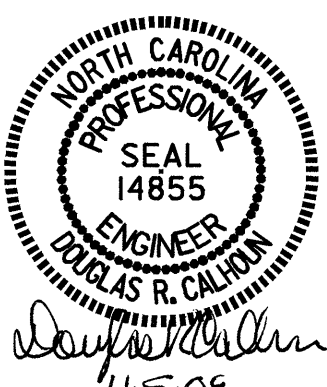


SECTION C-C
BERM RIP RAPPED



SECTION C-C

PROJECT NO. B-4261
RUTHERFORD COUNTY
 STATION: 17+48.00 -L-

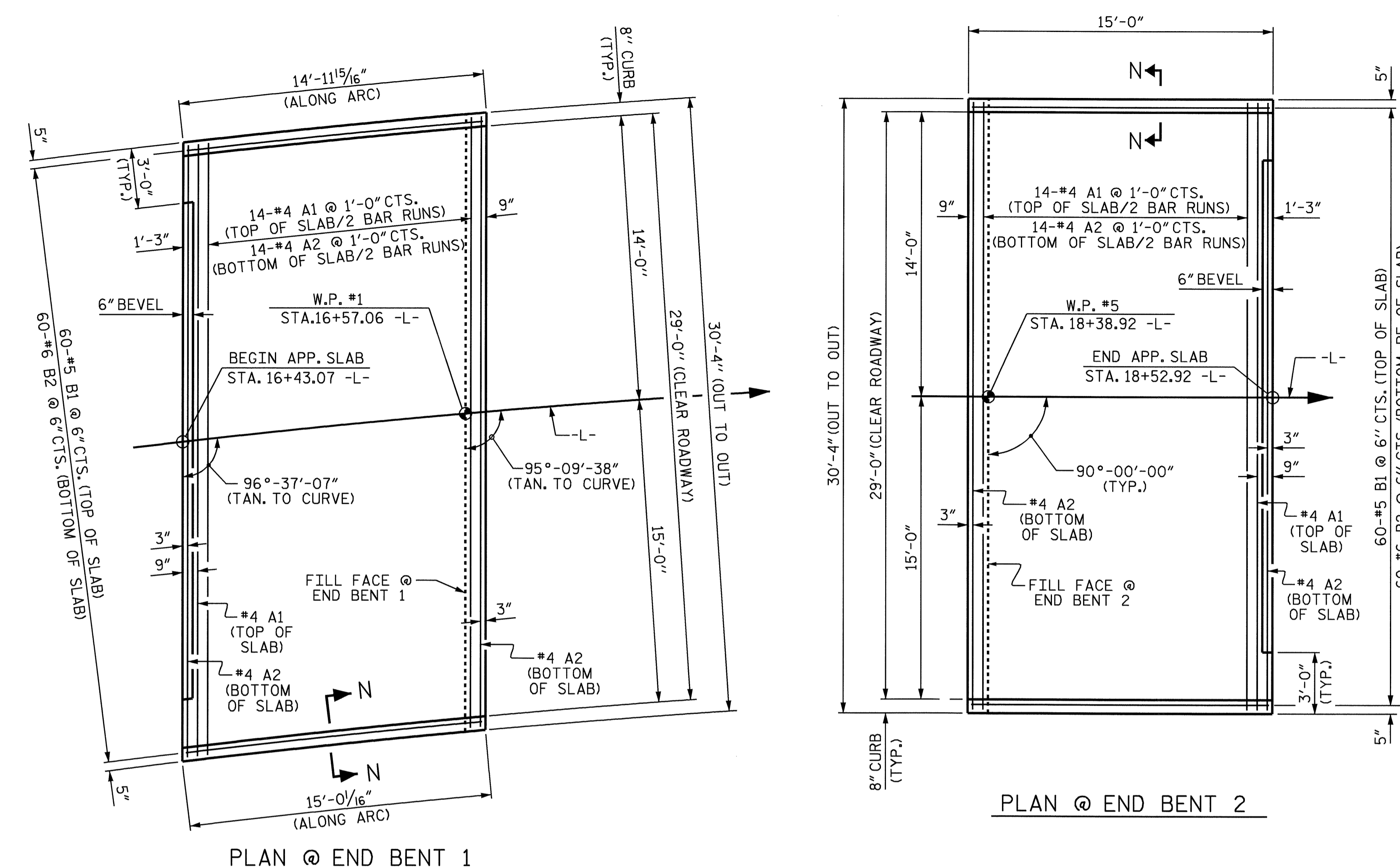


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 RIP RAP DETAILS

ASSEMBLED BY : J.L. WALTON DATE : 10/2/09
 CHECKED BY : E.G. ALLEN DATE : 10/5/09
 DRAWN BY : FCJ 2/88 REV. 8/16/99 RWW/LES
 CHECKED BY : ARB 8/88 REV. 10/17/00 RWW/LES
 REV. 5/1/06 TLG/GM

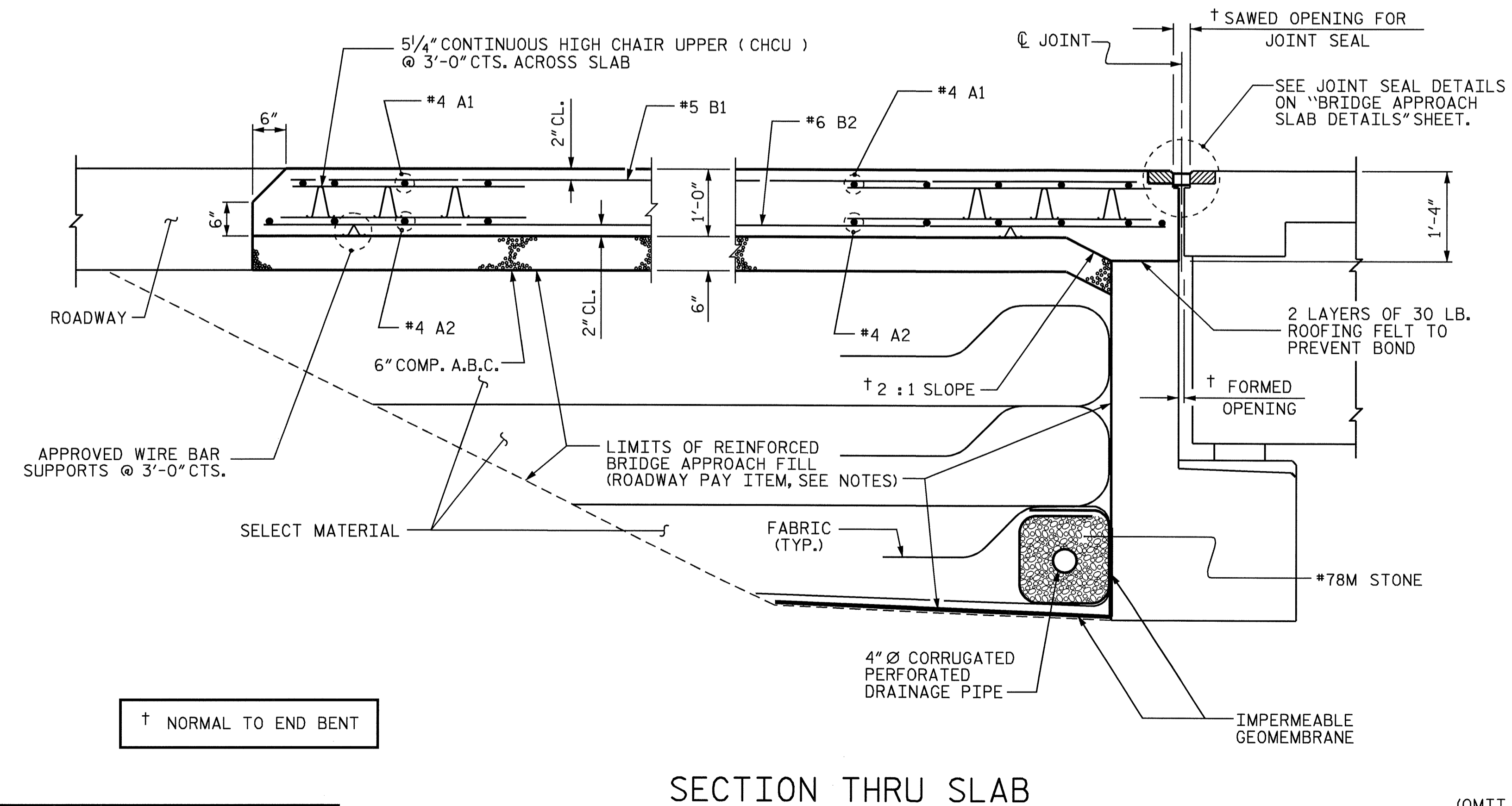
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-34	
1			3			TOTAL SHEETS 36	
2			4				

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PLAN @ END BENT 1

PLAN @ END BENT 2



SECTION THRU SLAB

NOTES

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

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

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

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

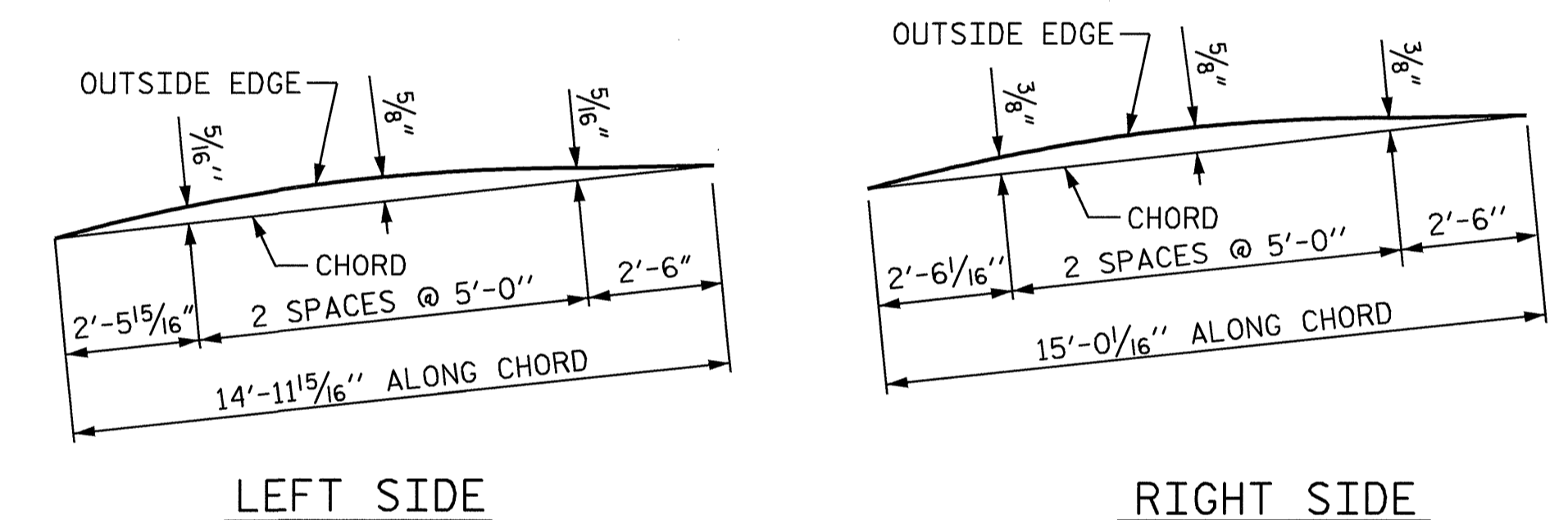
THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER 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 JOINT SHALL BE SAWS PRIOR TO THE CASTING OF THE BARRIER RAIL.

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

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

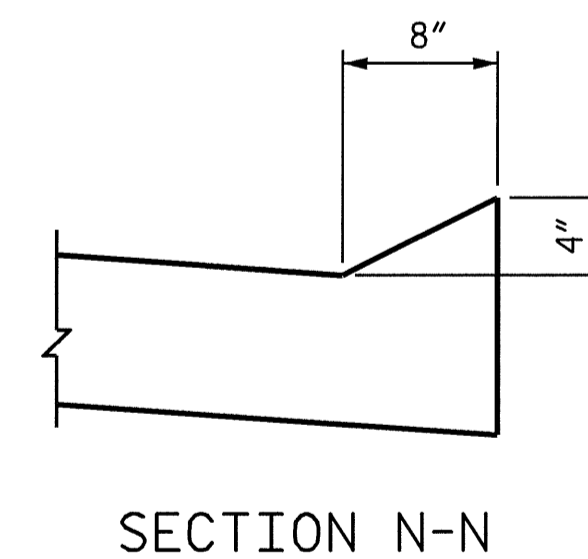
FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.



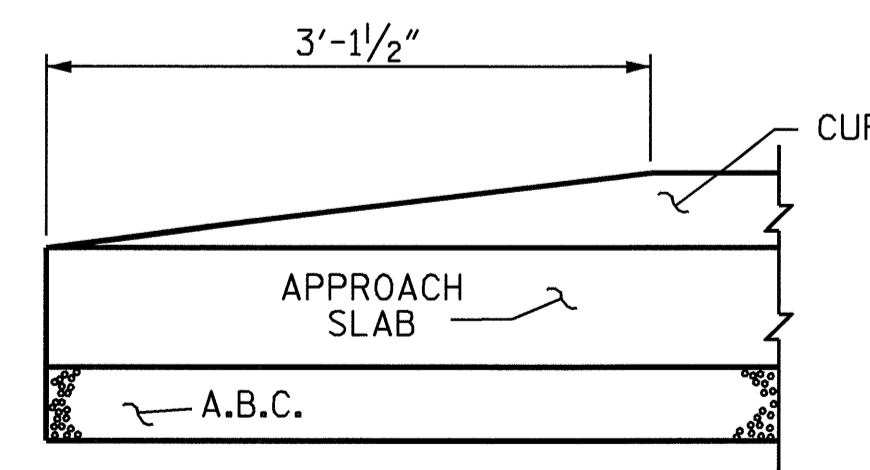
LEFT SIDE

RIGHT SIDE

END BENT 1
ARC OFFSETS



SECTION N-N



END OF CURB WITHOUT
SHOULDER BERM GUTTER
(OMIT TAPER WHEN SHOULDER BERM GUTTER IS REQUIRED)

BILL OF MATERIAL

APPROACH SLAB AT EB 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	30	#4	STR	16'-2"	324
A2	32	#4	STR	16'-0"	342
*B1	60	#5	STR	13'-10"	866
B2	60	#6	STR	14'-8"	1322

REINFORCING STEEL LBS. 1664

*EPOXY COATED REINFORCING STEEL LBS. 1190

CLASS AA CONCRETE C. Y. 17.3

APPROACH SLAB AT EB 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	30	#4	STR	16'-2"	324
A2	32	#4	STR	16'-0"	342
*B1	60	#5	STR	13'-10"	866
B2	60	#6	STR	14'-8"	1322

REINFORCING STEEL LBS. 1664

*EPOXY COATED REINFORCING STEEL LBS. 1190

CLASS AA CONCRETE C. Y. 17.3

SPLICE CHART

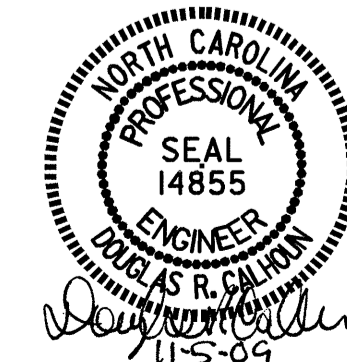
BAR	SPLICE LENGTH
#4 A1	2'-0"
#4 A2	1'-9"

PROJECT NO. B-4261
RUTHERFORD COUNTY
STATION: 17+48.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

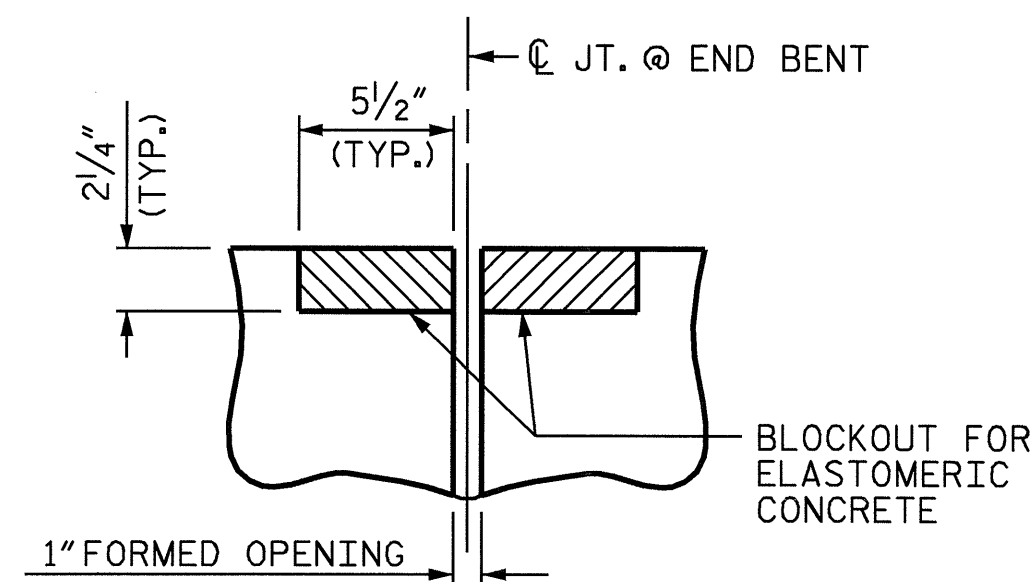
STANDARD
BRIDGE APPROACH SLAB
FOR FLEXIBLE PAVEMENT



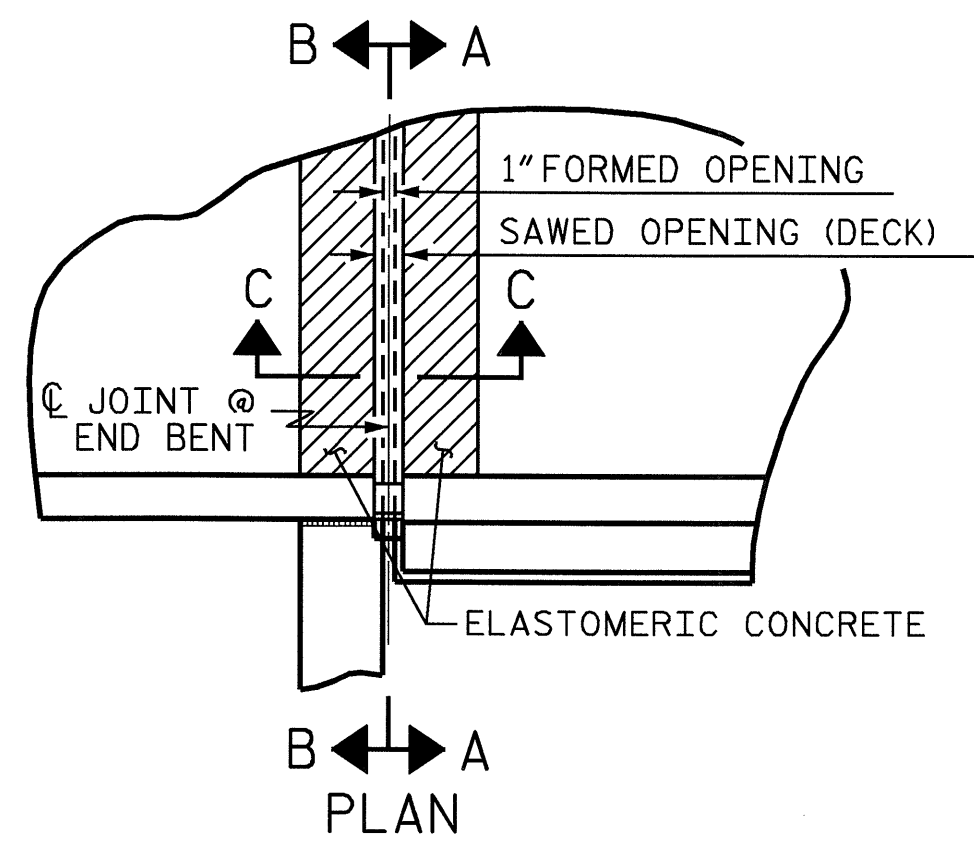
REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
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TOTAL SHEETS 36

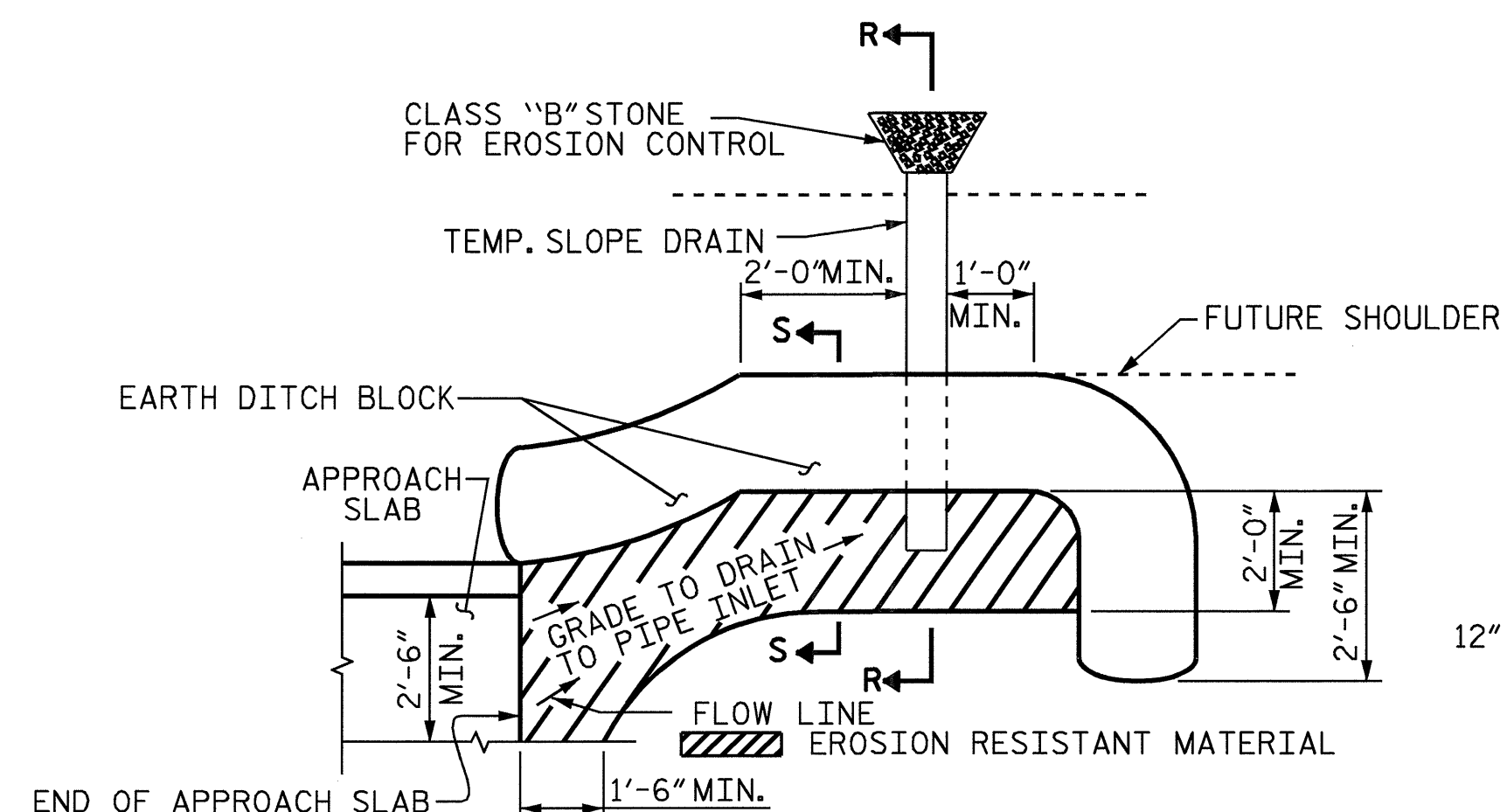
ASSEMBLED BY : B.N. GRADY	DATE : 7/27/09
CHECKED BY : E.G. ALLEN	DATE : 10/1/09
DRAWN BY : EEM 3/95	REV. 7/10/01 LES/RDR
CHECKED BY : VAP 3/95	REV. 5/7/03R RWW/JTE
	REV. 5/1/06R KMM/GM



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

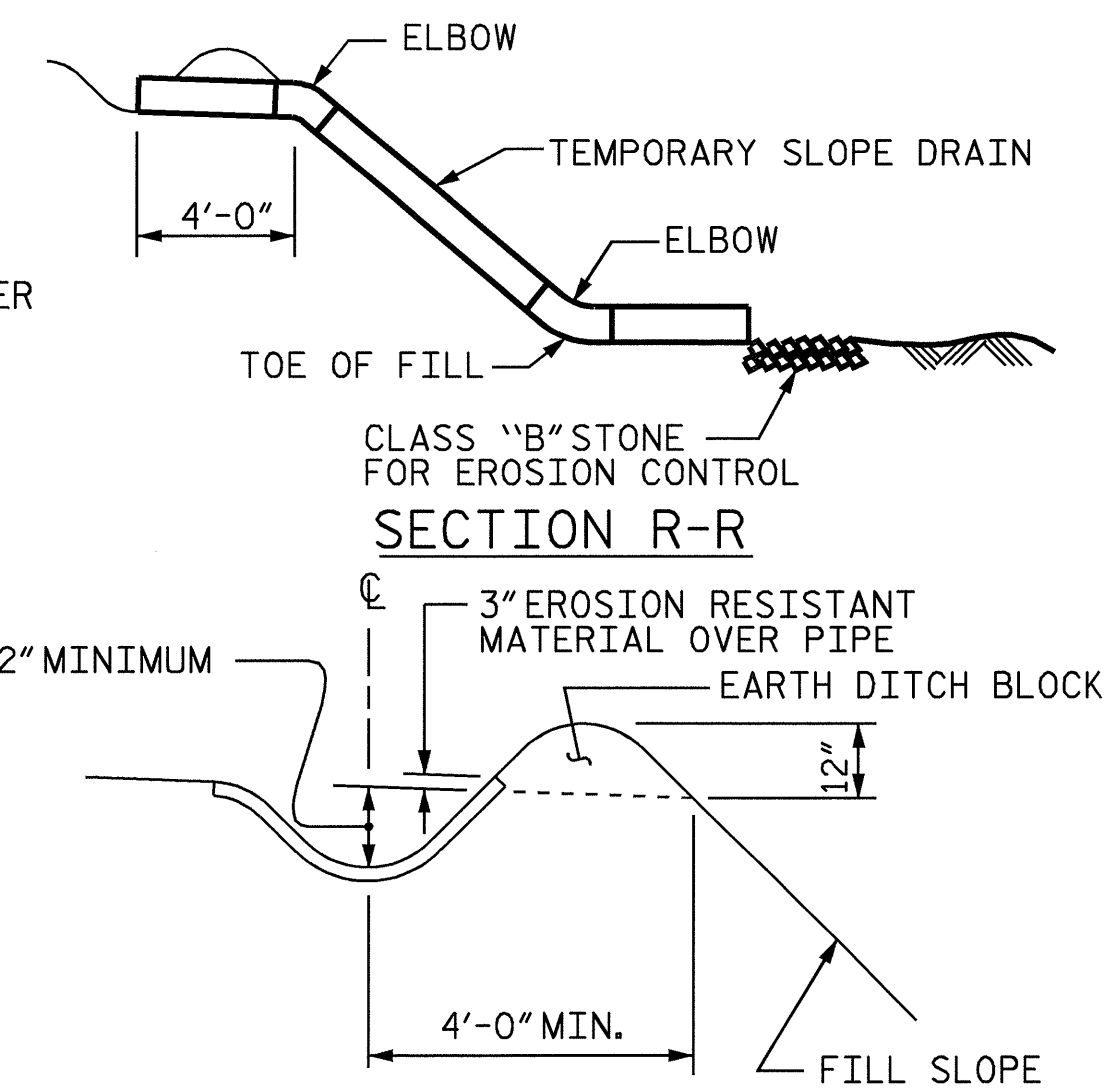


PLAN



PLAN VIEW

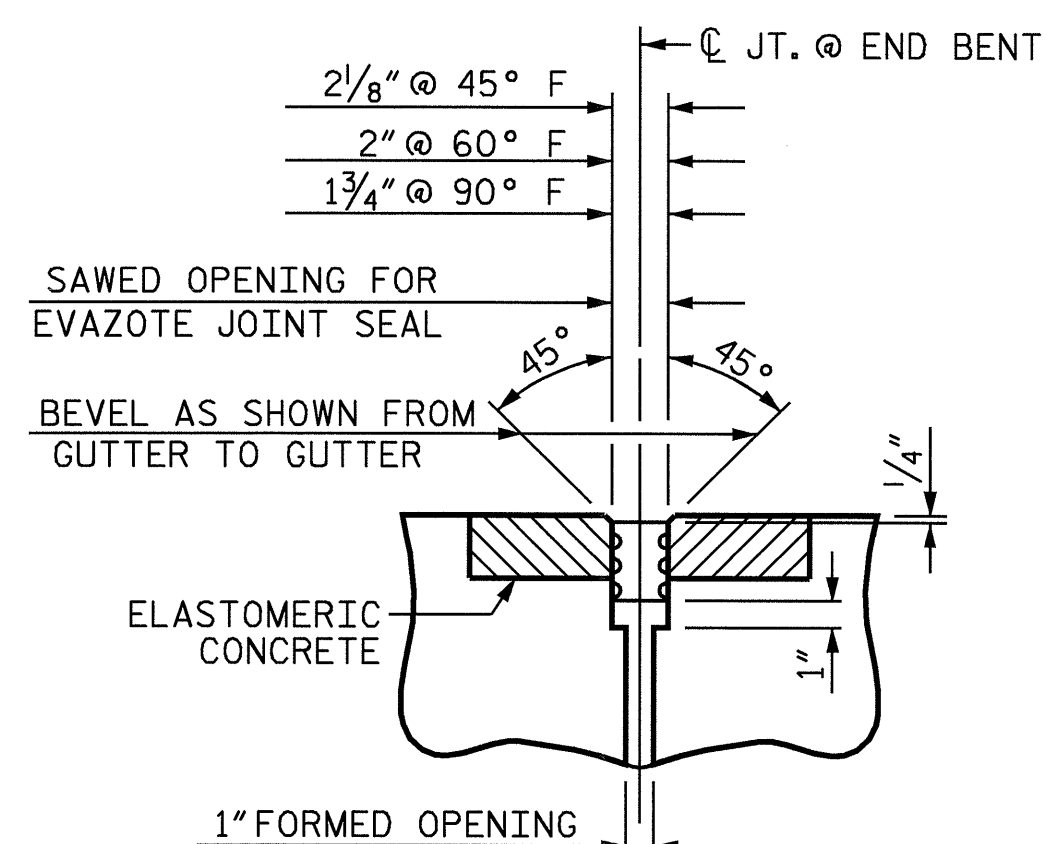
NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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



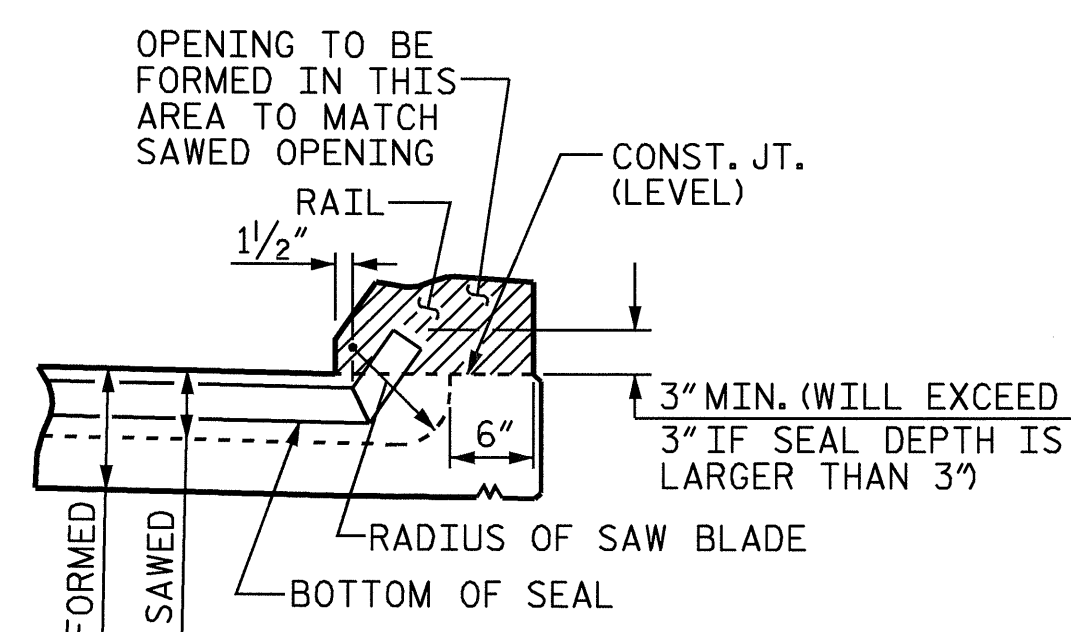
SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

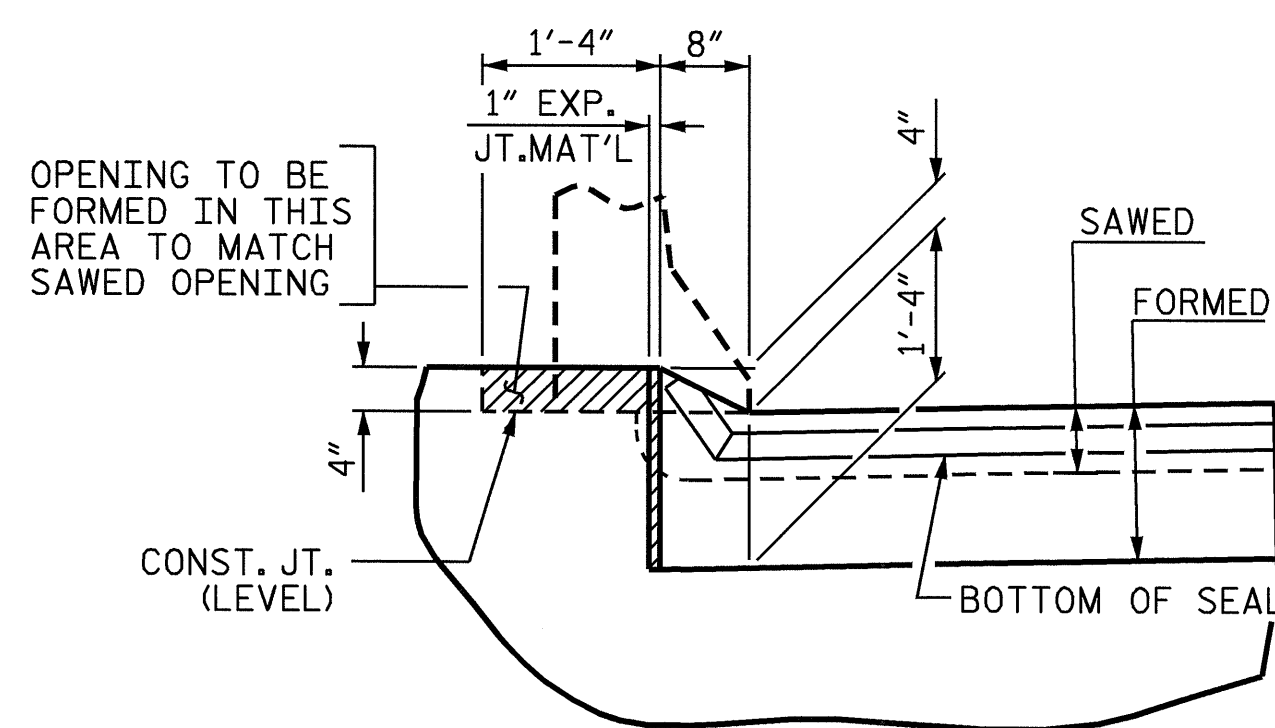
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



SECTION C-C
EVAZOTE JOINT SEAL
(EXPANSION)



SECTION A-A



SECTION B-B

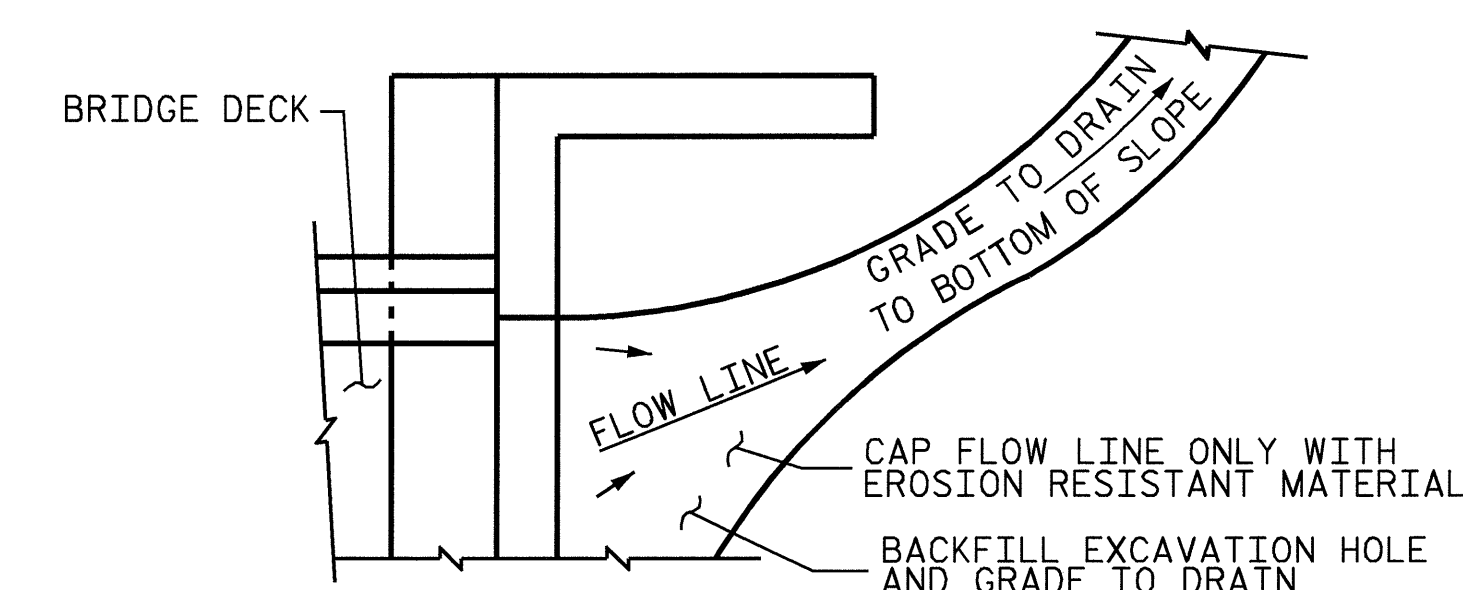
JOINT SEAL DETAILS @ END BENT

EVAZOTE JOINT SEAL TO BE CUT, HEAT WELDED AND TURNED UP PARALLEL TO SLOPED FACE OF THE BARRIER RAIL.

THE JOINT SHALL BE SAWED PRIOR TO THE CASTING OF THE BARRIER RAIL.

ELASTOMERIC CONCRETE	
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	5.0
2	5.0
TOTAL	10.0

* BASED ON THE MINIMUM BLOCKOUT SHOWN.



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

TEMPORARY DRAINAGE DETAIL

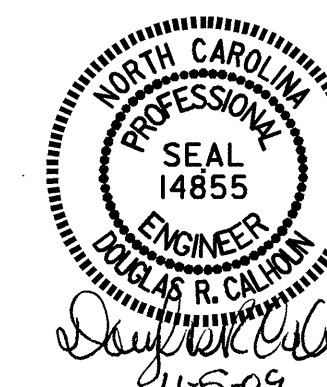
PROJECT NO. B-4261
RUTHERFORD COUNTY
STATION: 17+48.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

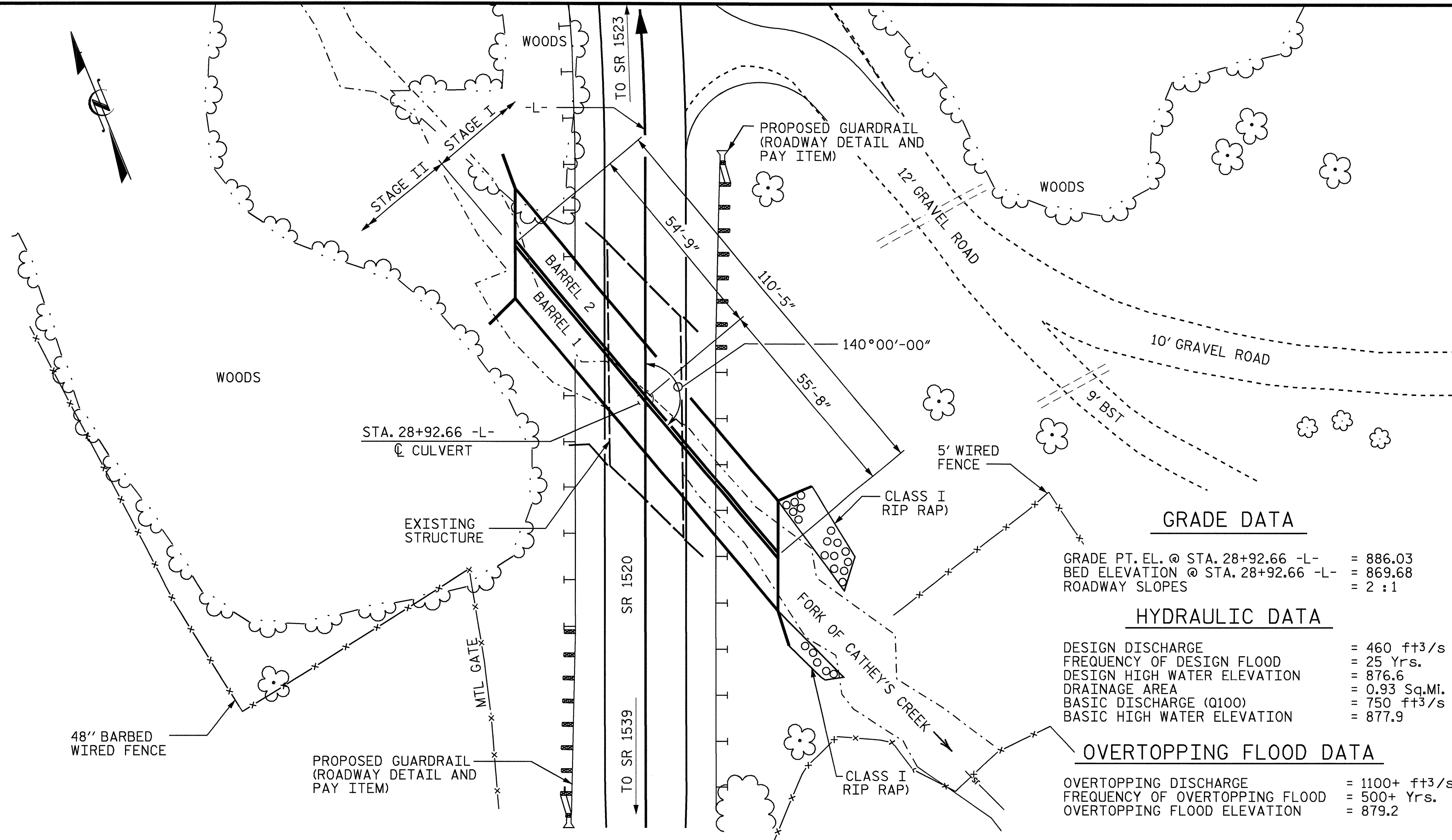
STANDARD

BRIDGE APPROACH
SLAB DETAILS



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-36	
1			3			TOTAL SHEETS	
2			4			36	

ASSEMBLED BY : B.N. GRADY	DATE : 7/27/09
CHECKED BY : E.G. ALLEN	DATE : 10/1/09
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



GRADE DATA

GRADE PT. EL. @ STA. 28+92.66 -L-	= 886.03
BED ELEVATION @ STA. 28+92.66 -L-	= 869.68
ROADWAY SLOPES	= 2 : 1

HYDRAULIC DATA

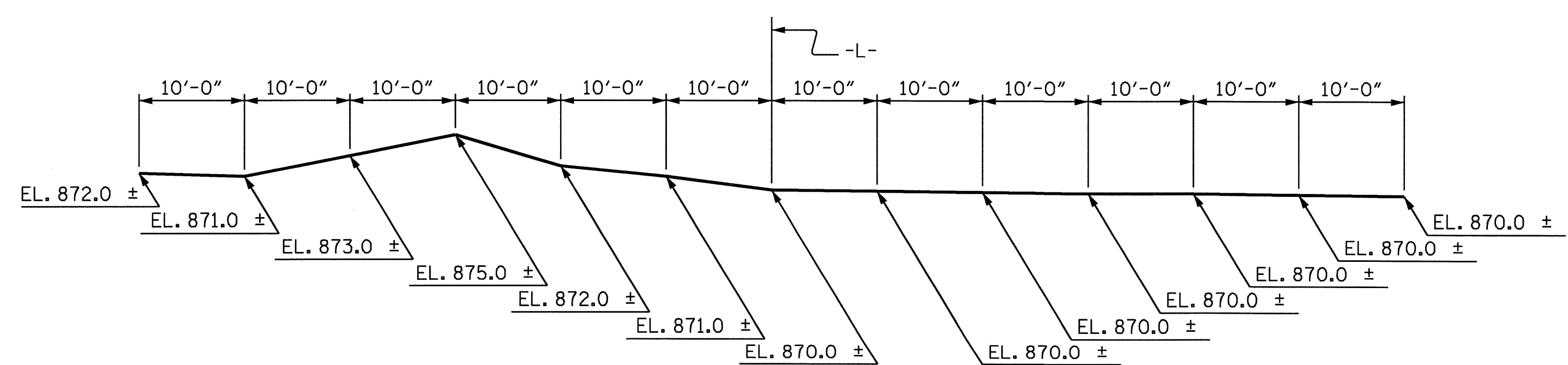
DESIGN DISCHARGE	= 460 ft ³ /s
FREQUENCY OF DESIGN FLOOD	= 25 Yrs.
DESIGN HIGH WATER ELEVATION	= 876.6
DRAINAGE AREA	= 0.93 Sq.Mi.
BASIC DISCHARGE (Q100)	= 750 ft ³ /s
BASIC HIGH WATER ELEVATION	= 877.9

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 1100+ ft ³ /s
FREQUENCY OF OVERTOPPING FLOOD	= 500+ Yrs.
OVERTOPPING FLOOD ELEVATION	= 879.2

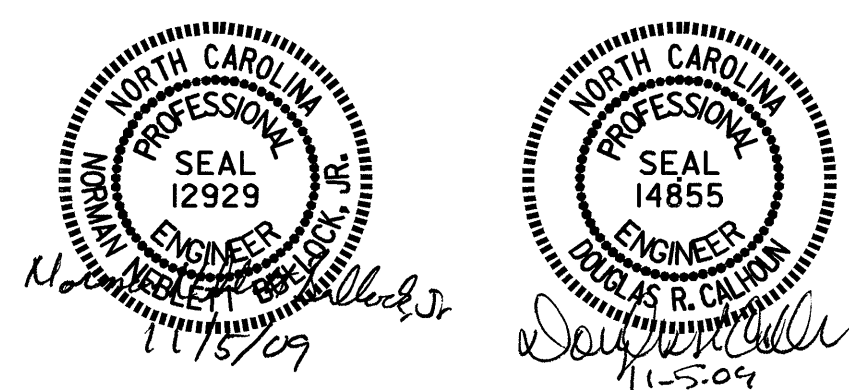
LOCATION SKETCH

ASSUMED LIVE LOAD -----HS20-44 OR ALTERNATE LOADING.
 DESIGN FILL----- 8.59 FT.
 FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTE SHEET.
 3" Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.
 CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:
 1. STAGE I WING FOOTINGS AND FLOOR SLABS INCLUDING 4" OF ALL VERTICAL WALLS.
 2. THE REMAINING PORTIONS OF STAGE I WALLS AND WINGS FULL HEIGHT FOLLOWED BY ROOF SLAB AND HEADWALLS.
 3. STAGE II WING FOOTINGS AND FLOOR SLABS INCLUDING 4" OF ALL VERTICAL WALLS.
 4. THE REMAINING PORTIONS OF STAGE II WALLS AND WINGS FULL HEIGHT FOLLOWED BY ROOF SLAB AND HEADWALLS.
 THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.
 DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON WING SHEET.
 TRANSVERSE CONSTRUCTION JOINTS SHALL BE USED IN THE BARREL, SPACED TO LIMIT THE POURS TO A MAXIMUM OF 70 FT. LOCATION OF JOINTS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.
 AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL AND BOTH FACES OF INTERIOR WALLS ABOVE LOWER WALL CONSTRUCTION JOINT. THE SPLICE LENGTH SHALL BE AS PROVIDED IN THE SPLICE LENGTH CHART SHOWN ON THE PLANS. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.
 AT THE CONTRACTOR OPTION HE MAY SUBMIT, TO THE ENGINEER FOR APPROVAL, DESIGN AND DETAIL DRAWINGS FOR A PRECAST REINFORCED CONCRETE BOX CULVERT IN LIEU OF THE CAST-IN-PLACE CULVERT SHOWN ON THE PLANS. THE DESIGN SHALL PROVIDE THE SAME SIZE AND NUMBERS OF BARRELS AS USED ON THE CAST-IN-PLACE DESIGN. FOR OPTIONAL PRECAST REINFORCED CONCRETE BOX CULVERT, SEE SPECIAL PROVISIONS.
 FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.
 A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.
 THE EXISTING STRUCTURE CONSISTING OF 4 @ 15'-2" CONTINUOUS TIMBER DECK SPANS ON 14" STEEL I-BEAMS WITH A CLEAR ROADWAY WIDTH OF 19'-2" ON TIMBER CAP AND PILE END BENTS AND BENTS AND LOCATED ON THE SITE OF THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT. FOR REMOVAL OF EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.
 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 28+92.66 -L-."
 REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.
 THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS.
 FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
 FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.



PROFILE ALONG CULVERT

TOTAL STRUCTURE QUANTITIES	
REMOVAL OF EXISTING STRUCTURE	LUMP SUM
CULVERT EXCAVATION	LUMP SUM
FOUNDATION COND. MAT'L.	TONS 156
CLASS A CONCRETE	CU. YDS. 251.1
REINFORCING STEEL	LBS. 49600
RIP RAP CLASS I	TONS 20
FILTER FABRIC FOR DRAINAGE	SQ. YD. 40



PROJECT NO. B-4261
RUTHERFORD COUNTY
 STATION: 28+92.66 -L-
 SHEET 1 OF 7 REPLACES BRIDGE NO. 39

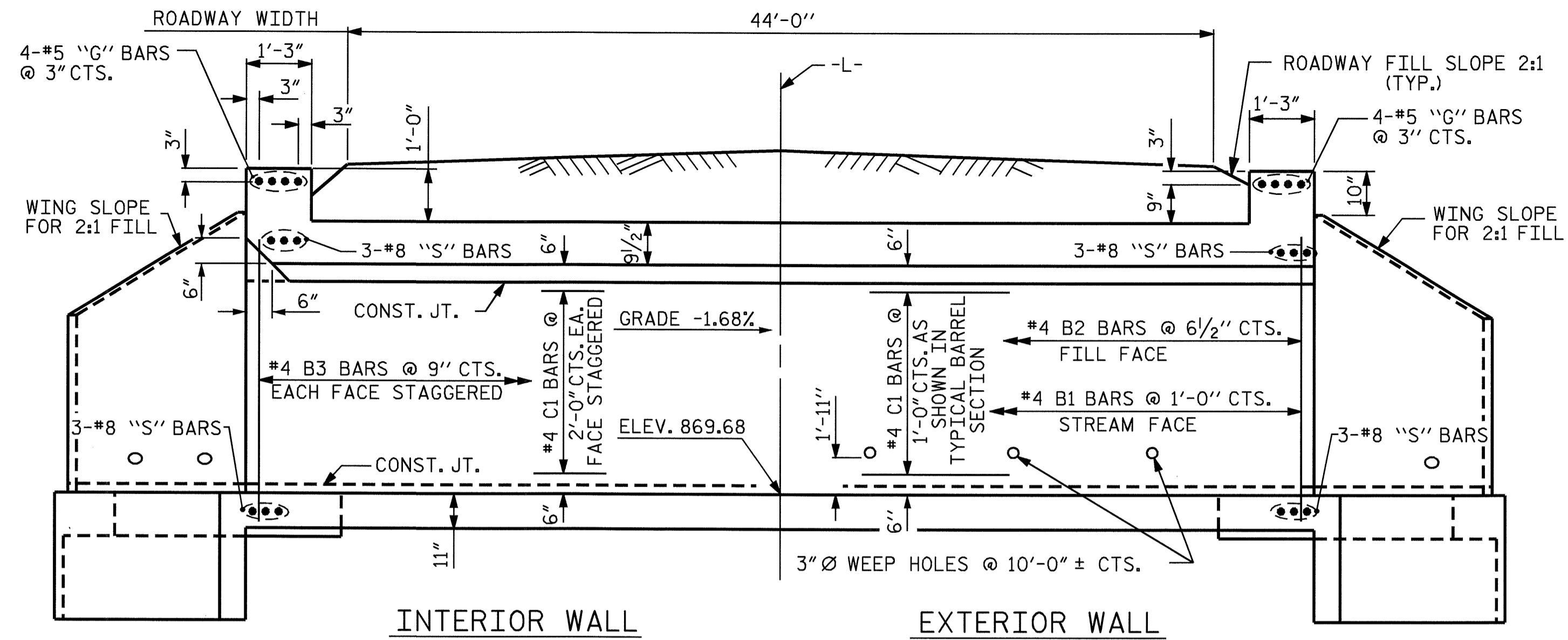
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**DOUBLE 9 FT. X 8 FT. CONCRETE BOX CULVERT
 140° SKEW**

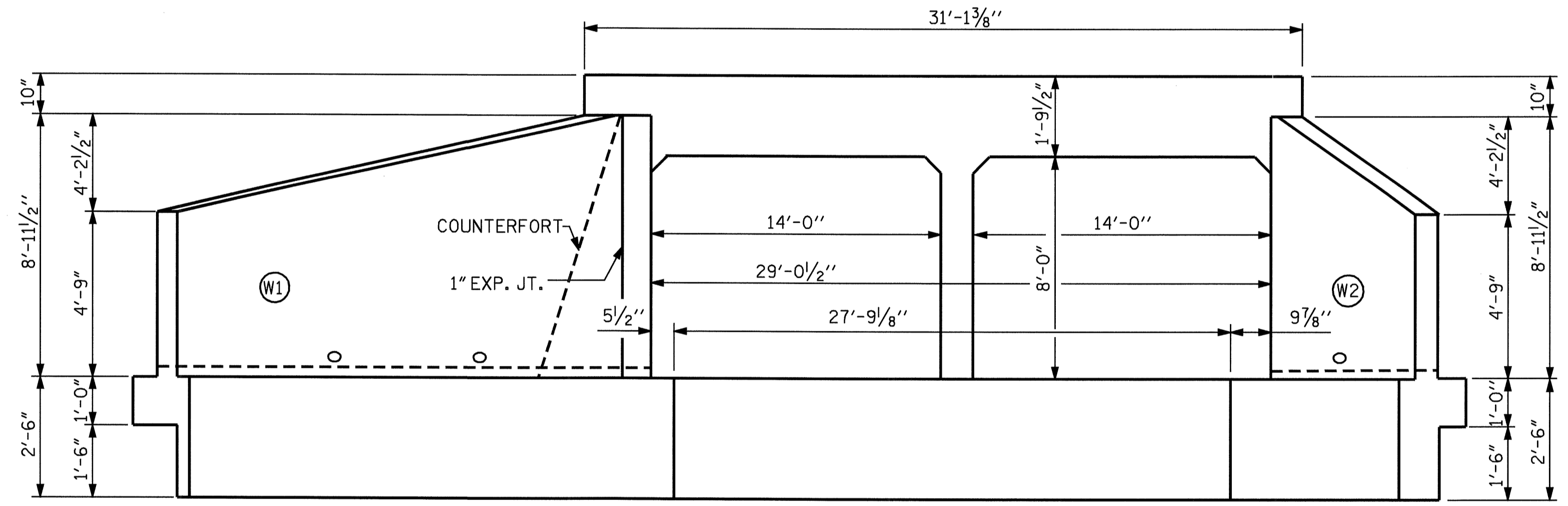
REVISIONS			SHEET NO.		
NO.	BY:	DATE:	NO.	BY:	DATE:
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C-1
 TOTAL SHEETS 7

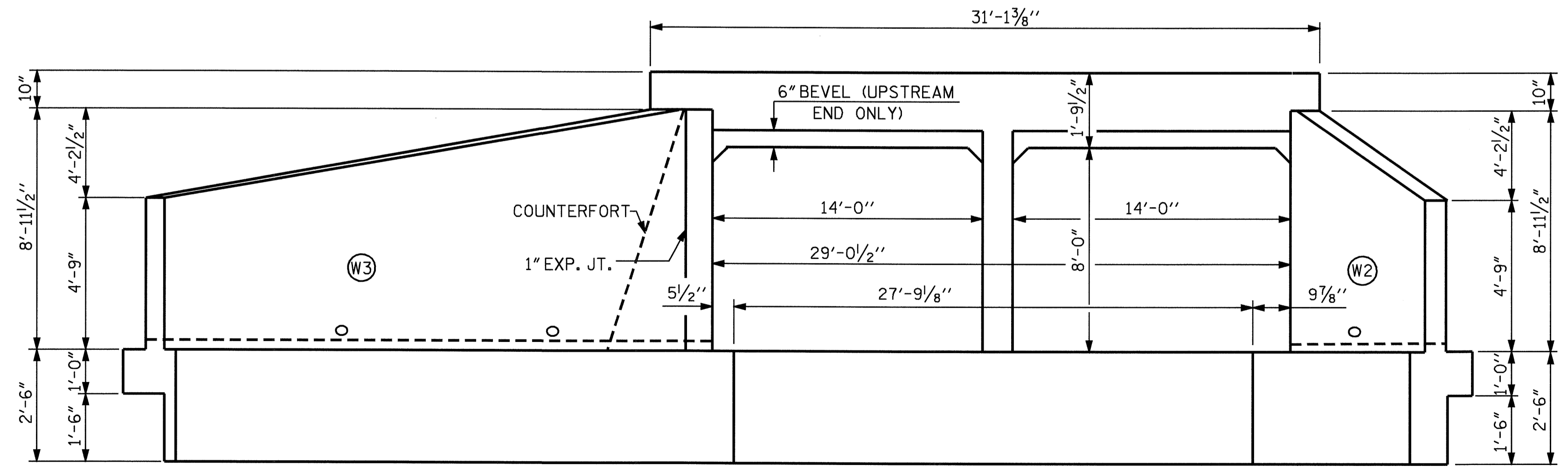
DRAWN BY: William J. Parker DATE: 09/22/09
 CHECKED BY: B. N. GRADY DATE: 10/8/09



CULVERT SECTION NORMAL TO ROADWAY



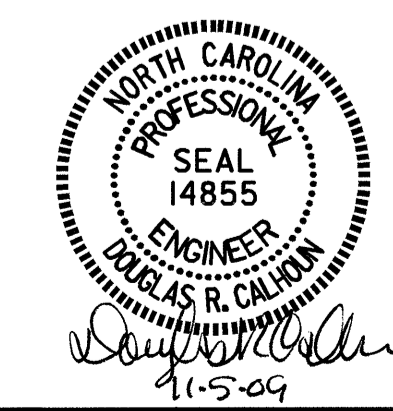
OUTLET END ELEVATION NORMAL TO SKEW



INLET END ELEVATION NORMAL TO SKEW

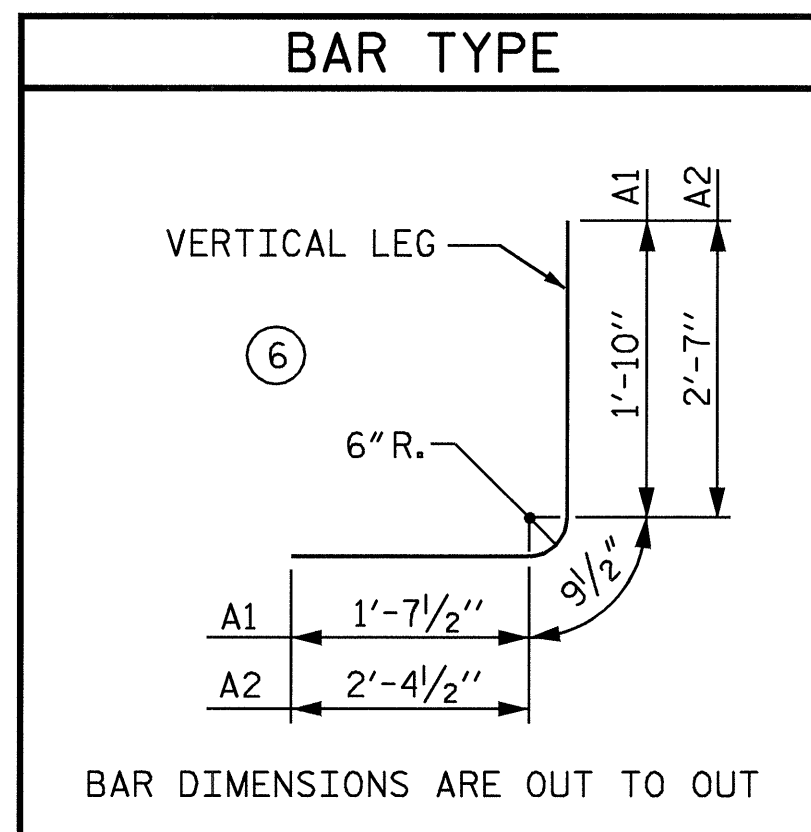
PROJECT NO. B-4261
RUTHERFORD COUNTY
 STATION: 28+92.66 -L-
 SHEET 2 OF 7

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
DOUBLE 9 FT. X 8 FT. CONCRETE BOX CULVERT 140° SKEW					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. C-2
					TOTAL SHEETS 7



DRAWN BY: William J. Parker DATE: 09/22/09
 CHECKED BY: B. N. GRADY DATE: 10/7/09

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SPLICE LENGTH CHART

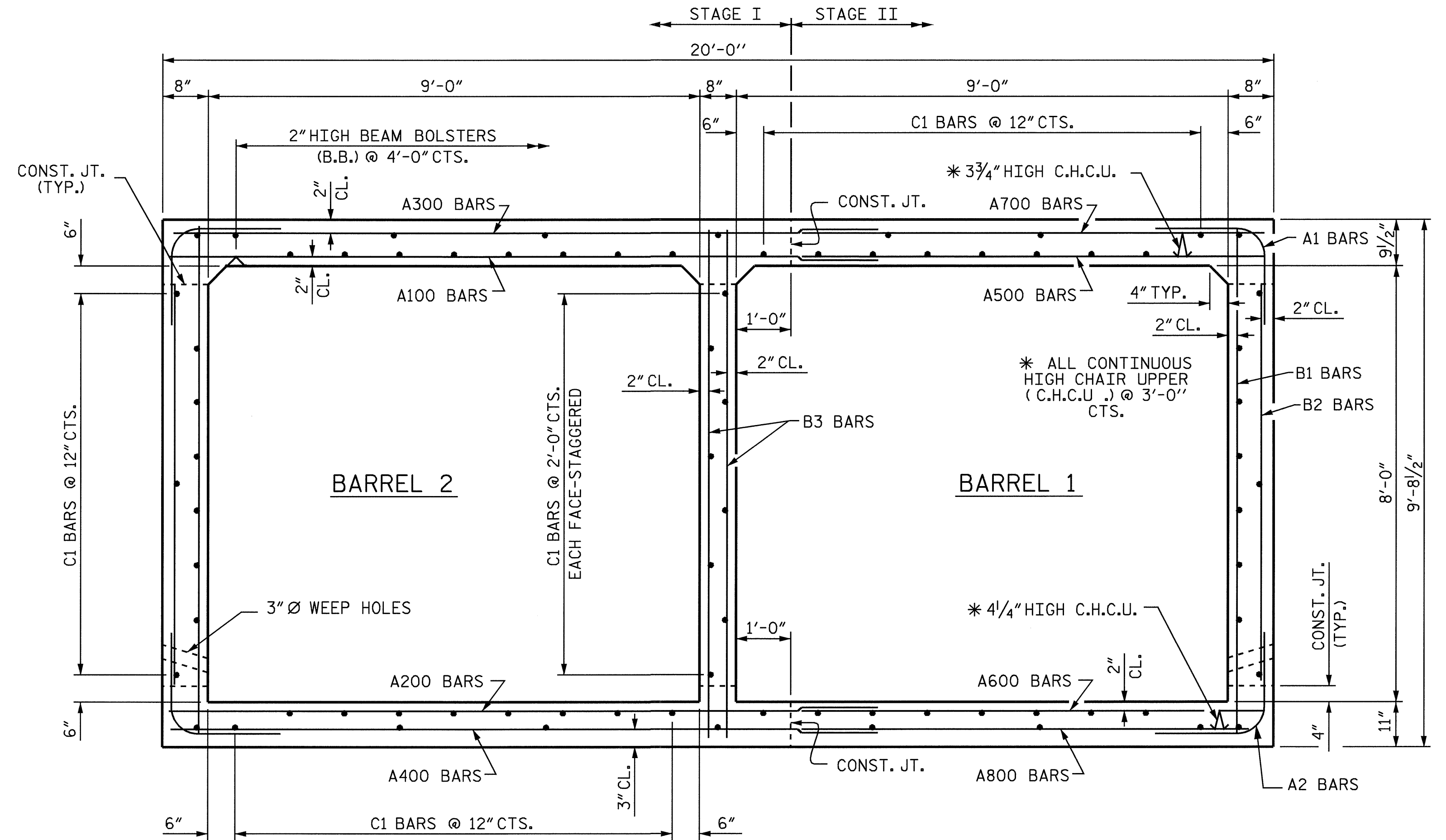
BAR	SIZE	SPLICE LENGTH
A100	#5	2'-2"
A200	#5	2'-5"
A300	#7	5'-3"
A400	#7	3'-9"
B1	#4	1'-9"
B3	#4	1'-9"
C1	#4	1'-11"
G1	#5	1'-9"
S2	#8	4'-0"

BILL OF MATERIAL

STAGE I					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	197	#4	6	4'-3"	559
A2	197	#6	6	5'-9"	1701
A100	188	#5	STR.	13'-6"	2647
A101	6	#5	STR.	12'-3"	77
A102	6	#5	STR.	11'-0"	69
A103	6	#5	STR.	9'-9"	61
A104	6	#5	STR.	8'-6"	53
A105	6	#5	STR.	7'-3"	45
A106	6	#5	STR.	6'-0"	38
A107	6	#5	STR.	4'-9"	30
A108	3	#5	STR.	3'-6"	11
A109	3	#5	STR.	2'-3"	7
A200	149	#5	STR.	13'-9"	2137
A201	6	#5	STR.	12'-6"	78
A202	6	#5	STR.	10'-11"	68
A203	6	#5	STR.	9'-4"	58
A204	6	#5	STR.	7'-9"	48
A205	6	#5	STR.	6'-3"	39
A206	6	#5	STR.	4'-8"	29
A207	3	#5	STR.	3'-1"	10
A300	166	#7	STR.	16'-7"	5627
A301	6	#7	STR.	15'-5"	189
A302	6	#7	STR.	14'-1"	173
A303	6	#7	STR.	12'-9"	156
A304	6	#7	STR.	11'-4"	139
A305	6	#7	STR.	10'-0"	123
A306	6	#7	STR.	8'-8"	106
A307	6	#7	STR.	7'-3"	89
A308	3	#7	STR.	5'-11"	36
A309	3	#7	STR.	4'-6"	28
A310	3	#7	STR.	3'-2"	19
A400	169	#7	STR.	15'-1"	5210
A401	6	#7	STR.	14'-0"	172
A402	6	#7	STR.	12'-8"	155
A403	6	#7	STR.	11'-3"	138
A404	6	#7	STR.	9'-11"	122
A405	6	#7	STR.	8'-7"	105
A406	6	#7	STR.	7'-2"	88
A407	6	#7	STR.	5'-10"	72
A408	3	#7	STR.	4'-6"	28
A409	3	#7	STR.	3'-1"	19
B1	110	#4	STR.	9'-2"	674
B2	203	#4	STR.	7'-4"	994
B3	292	#4	STR.	9'-2"	1788
C1	180	#4	STR.	29'-1"	3497
G1	8	#5	STR.	19'-5"	162
S2	12	#8	STR.	21'-8"	694
REINFORCING STEEL					= 28368 LBS

BILL OF MATERIAL

STAGE II					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	197	#4	6	4'-3"	559
A2	197	#6	6	5'-9"	1701
A500	200	#5	STR.	8'-3"	1721
A501	3	#5	STR.	7'-2"	23
A502	3	#5	STR.	6'-0"	19
A503	3	#5	STR.	4'-9"	15
A504	3	#5	STR.	3'-6"	11
A505	3	#5	STR.	7'-0"	22
A506	3	#5	STR.	5'-9"	18
A507	3	#5	STR.	4'-6"	14
A508	3	#5	STR.	3'-3"	10
A600	160	#5	STR.	8'-3"	1377
A601	3	#5	STR.	6'-11"	22
A602	3	#5	STR.	5'-4"	17
A603	3	#5	STR.	3'-10"	12
A604	3	#5	STR.	6'-10"	21
A605	3	#5	STR.	5'-3"	16
A606	3	#5	STR.	3'-8"	11
A700	184	#7	STR.	8'-3"	3103
A701	3	#7	STR.	7'-4"	45
A702	3	#7	STR.	5'-11"	36
A703	3	#7	STR.	4'-7"	28
A704	3	#7	STR.	3'-2"	19
A705	3	#7	STR.	7'-1"	43
A706	3	#7	STR.	5'-9"	35
A707	3	#7	STR.	4'-4"	27
A708	3	#7	STR.	3'-0"	18
A800	184	#7	STR.	8'-3"	3103
A801	3	#7	STR.	7'-3"	44
A802	3	#7	STR.	5'-10"	36
A803	3	#7	STR.	4'-6"	28
A804	3	#7	STR.	3'-2"	19
A805	3	#7	STR.	7'-2"	44
A806	3	#7	STR.	5'-9"	35
A807	3	#7	STR.	4'-5"	27
A808	3	#7	STR.	3'-1"	19
B1	110	#4	STR.	9'-2"	674
B2	203	#4	STR.	7'-4"	994
C1	124	#4	STR.	29'-1"	2409
G2	8	#5	STR.	12'-10"	107
S3	12	#8	STR.	12'-10"	411
REINFORCING STEEL					= 16893 LBS

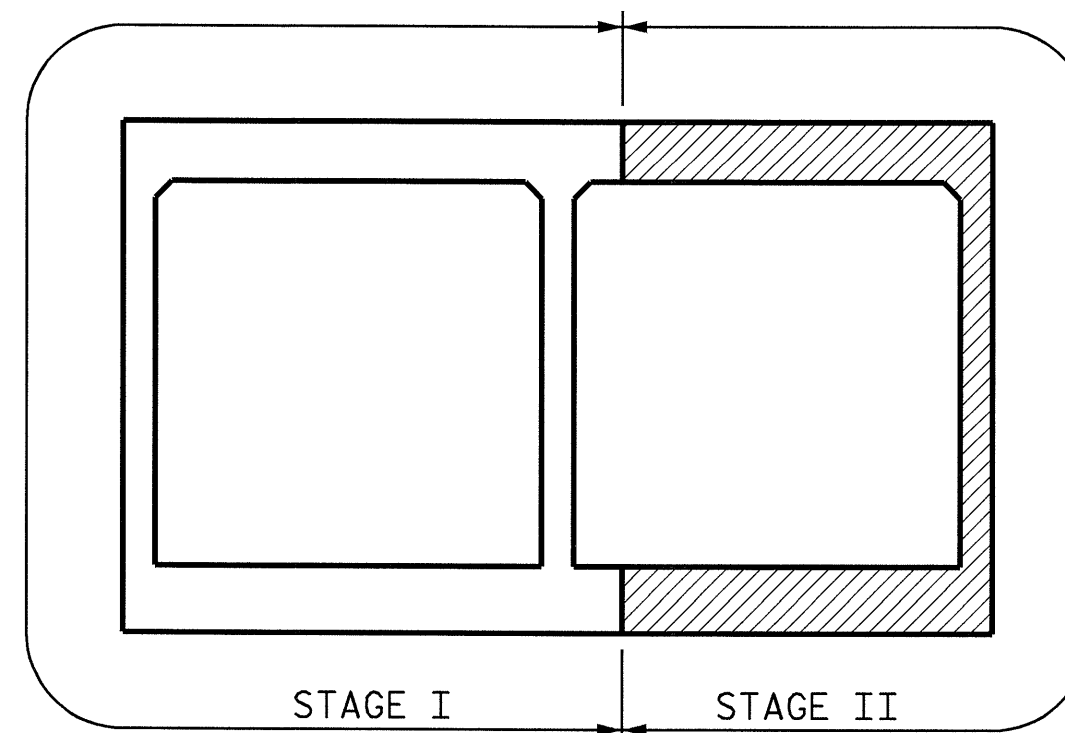


RIGHT ANGLE SECTION OF BARREL

(LOOKING DOWNSTREAM)
THERE ARE 76 "C" BARS IN SECTION OF BARREL.

STRUCTURE QUANTITIES

CLASS A CONCRETE			
STAGE I BARREL @ 1.118 CY/FT	CU. YDS.	123.4	
STAGE II BARREL @ 0.748 CY/FT	CU. YDS.	82.6	
WINGS, ETC.	CU. YDS.	45.1	
TOTAL	CU. YDS.	251.1	
REINFORCING STEEL			
STAGE I	LBS.	28368	
STAGE II	LBS.	16893	
WINGS, ETC.	LBS.	4339	
TOTAL	LBS.	49600	
FOUNDATION COND. MAT'L.	TONS	156	



STAGING
(LOOKING DOWNSTREAM)

DRAWN BY: *William J. Parker* DATE: 09/22/09
CHECKED BY: *B. N. GRADY* DATE: 10/8/09

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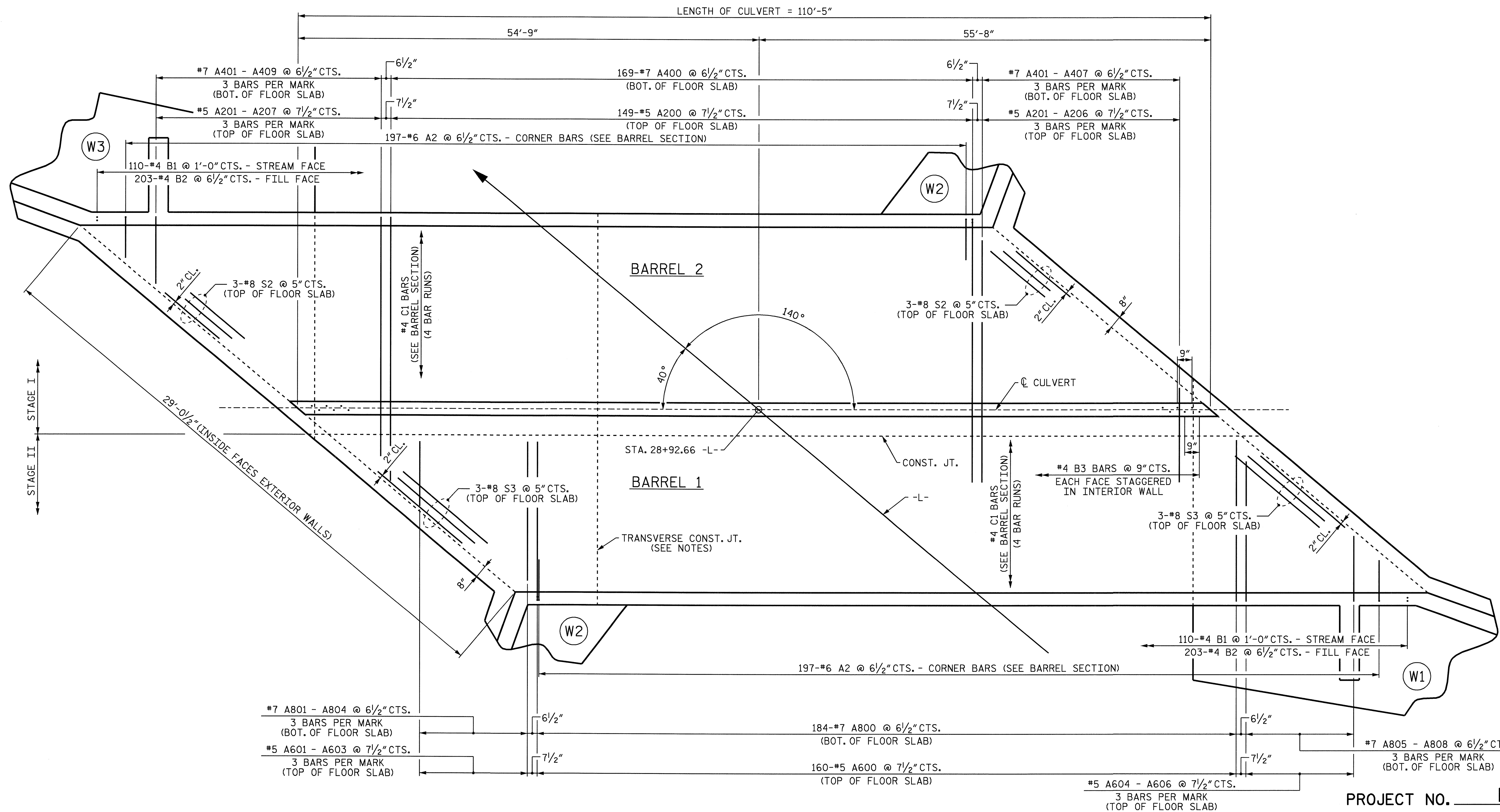
PROJECT NO. B-4261
RUTHERFORD COUNTY
STATION: 28+92.66 -L-

SHEET 3 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**DOUBLE 9 FT. X 8 FT.
CONCRETE BOX CULVERT
140° SKEW**

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

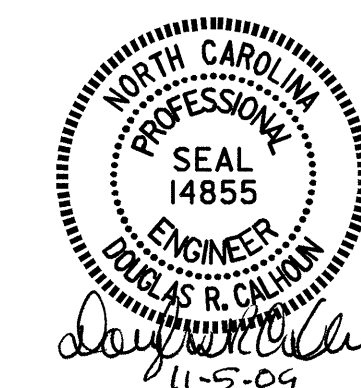


PLAN - FLOOR SLAB

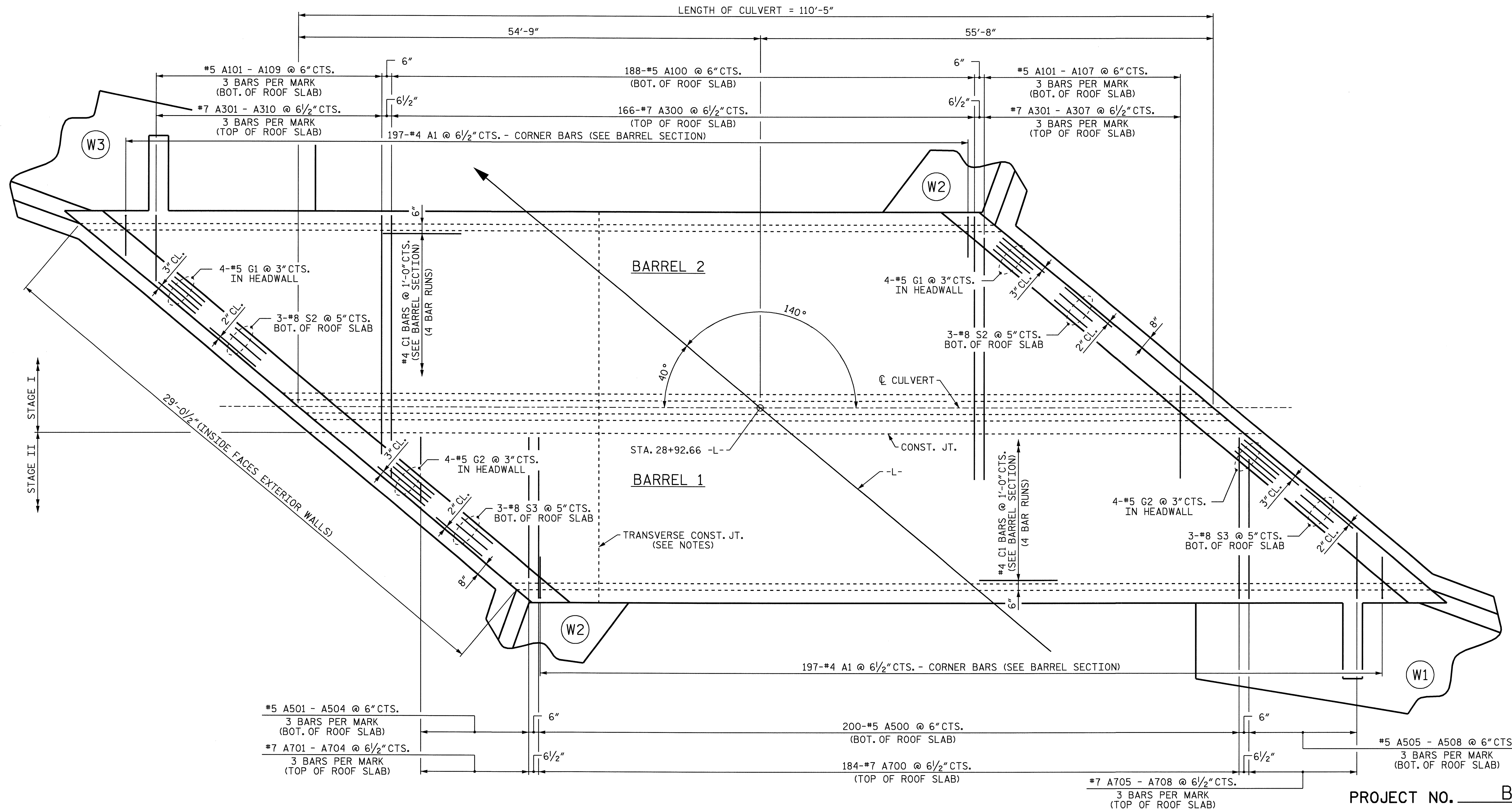
PROJECT NO. B-4261
RUTHERFORD COUNTY
 STATION: 28+92.66 -L-

SHEET 4 OF 7

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
DOUBLE 9 FT. X 8 FT. CONCRETE BOX CULVERT 140° SKEW					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 7
					C-4



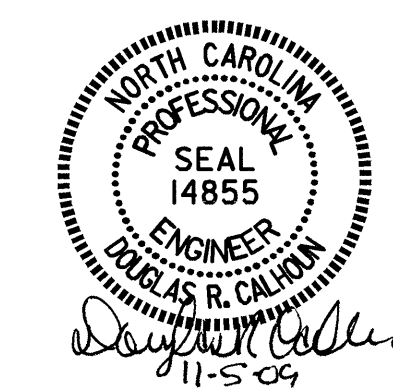
DRAWN BY : William J. Parker DATE : 09/22/09
 CHECKED BY : B. N. GRADY DATE : 10/8/09



PLAN - ROOF SLAB

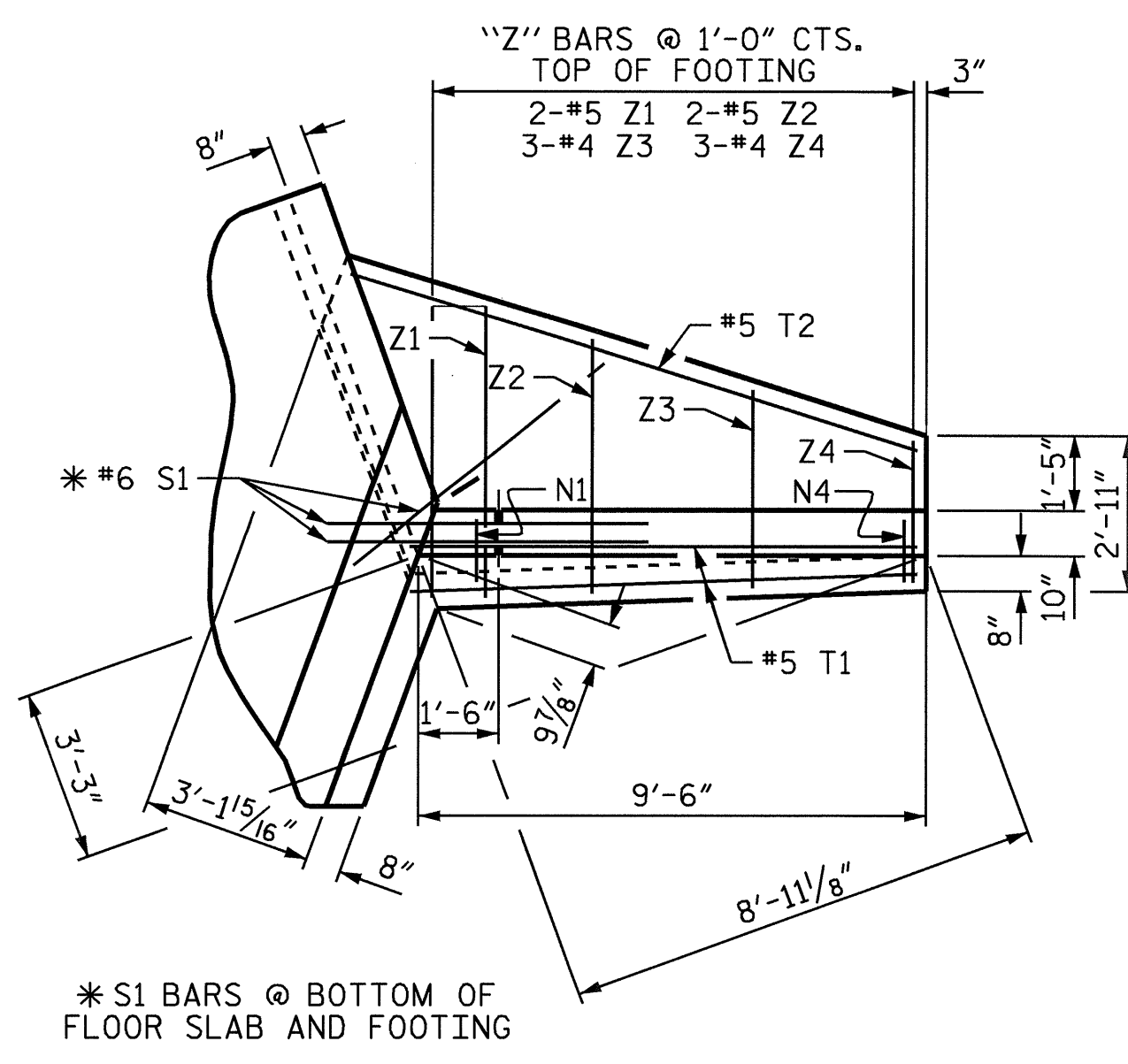
PROJECT NO. B-4261
RUTHERFORD COUNTY
 STATION: 28+92.66 -L-
 SHEET 5 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 DOUBLE 9 FT. X 8 FT.
 CONCRETE BOX CULVERT
 140° SKEW

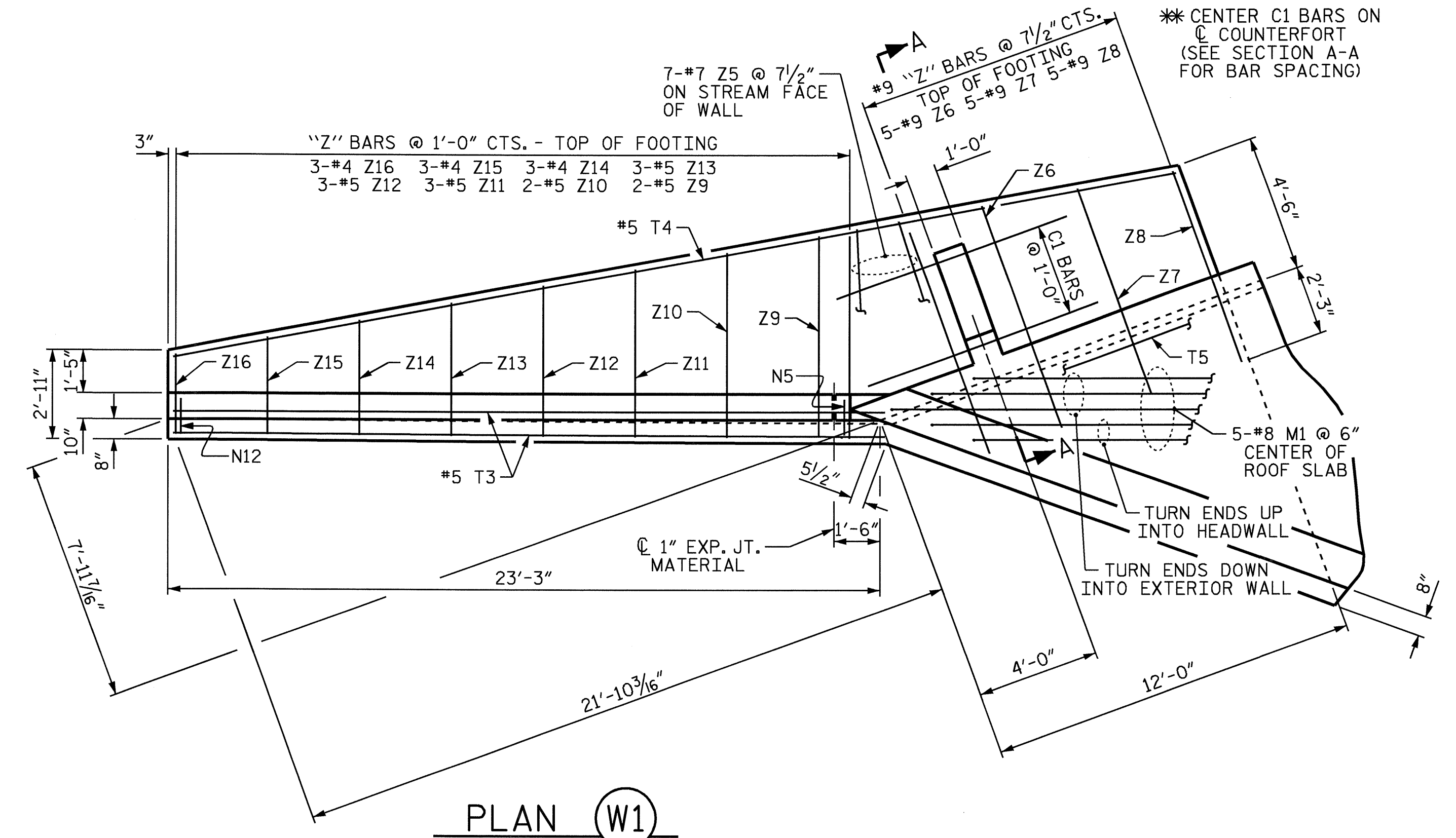


DRAWN BY : William J. Parker DATE : 09/22/09
 CHECKED BY : B. N. GRADY DATE : 10/8/09

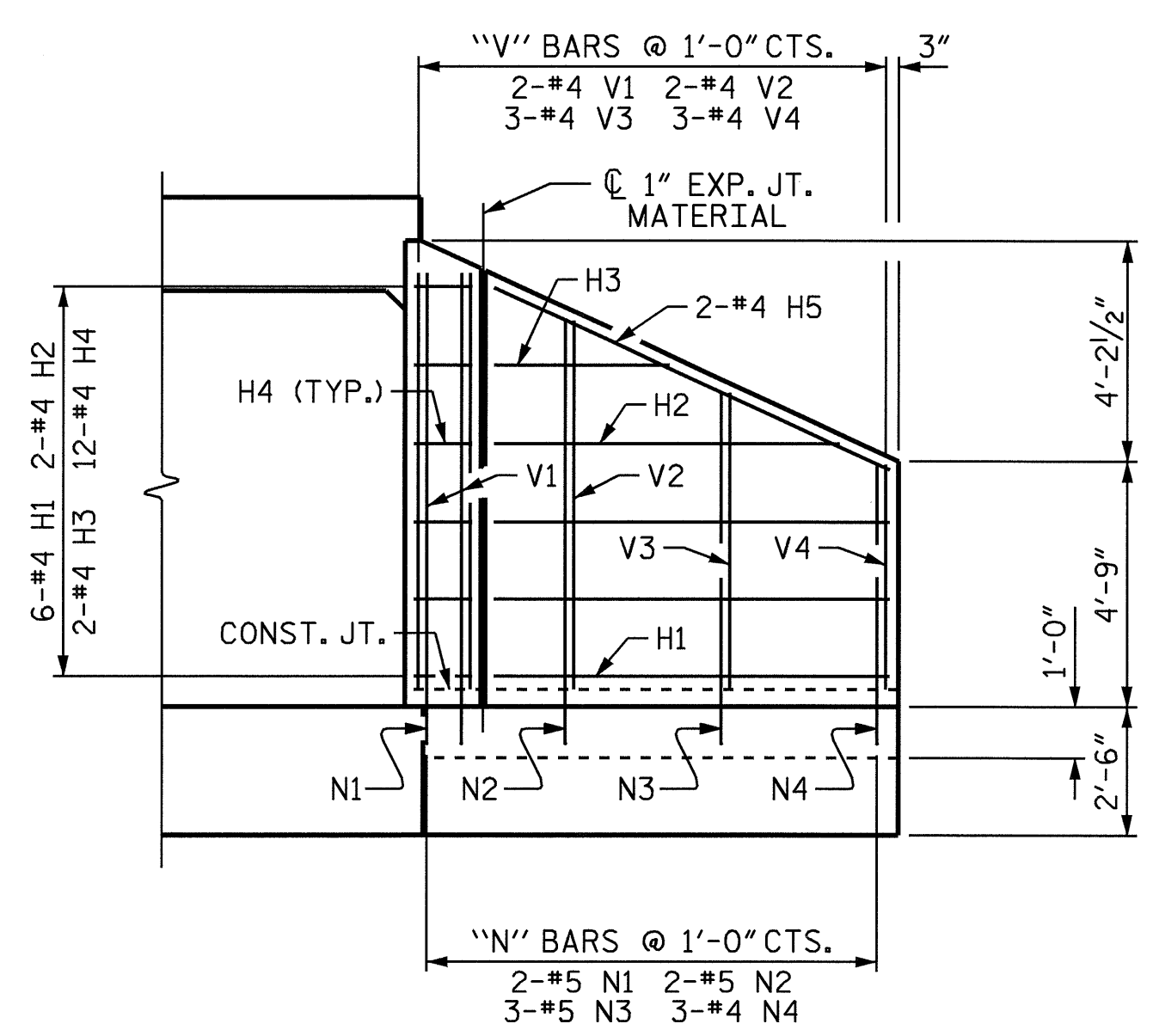
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	C-5	
1			3			TOTAL	7
2			4			SHEETS	



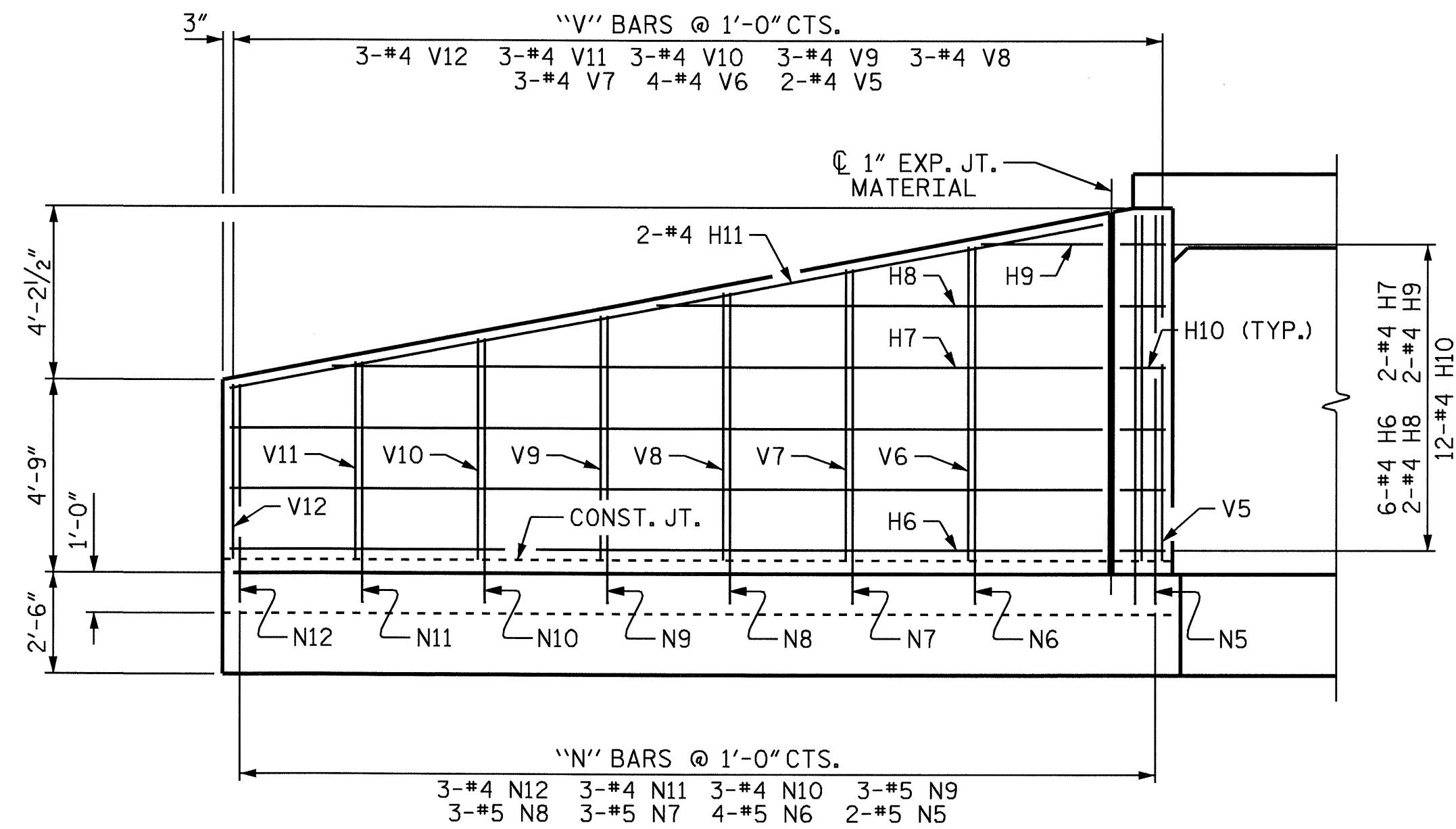
PLAN W2



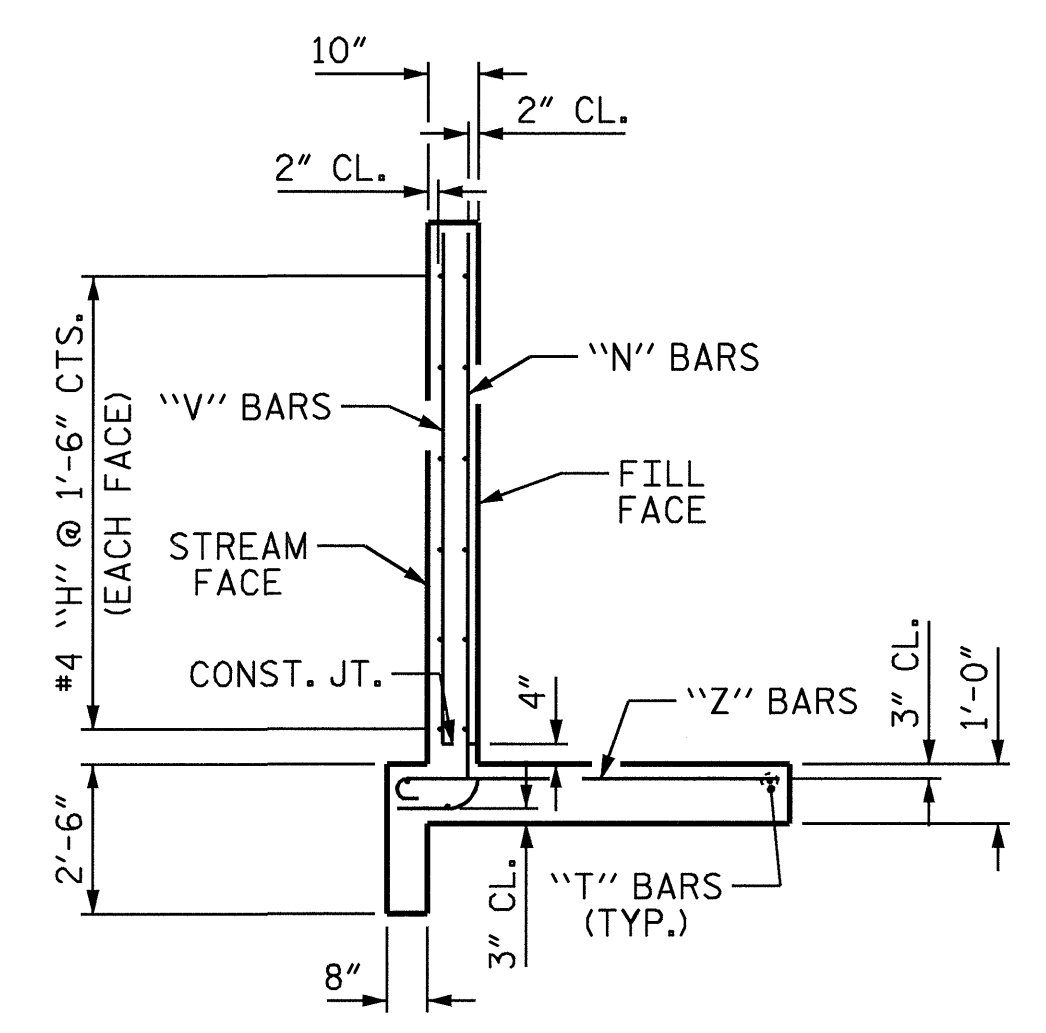
PLAN W1



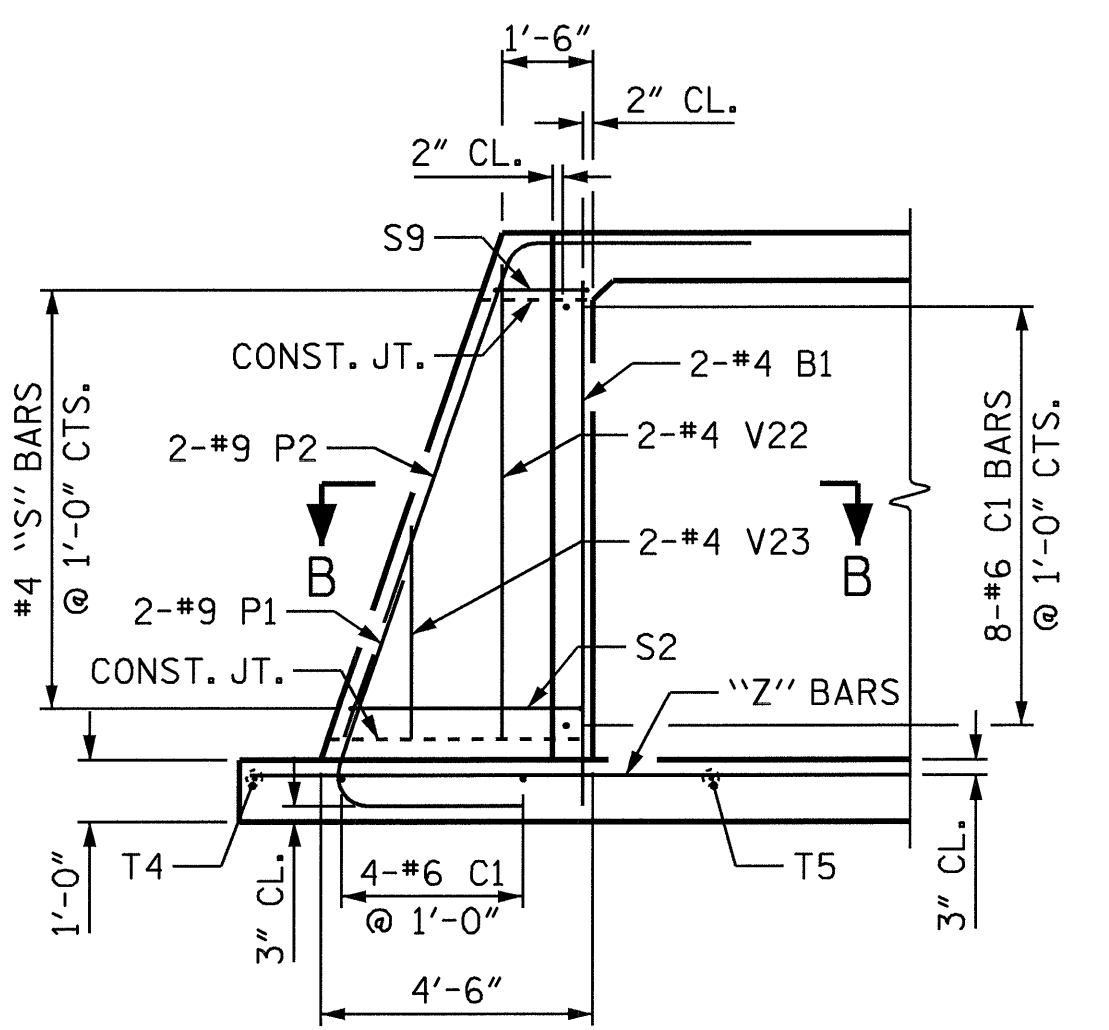
ELEVATION W2



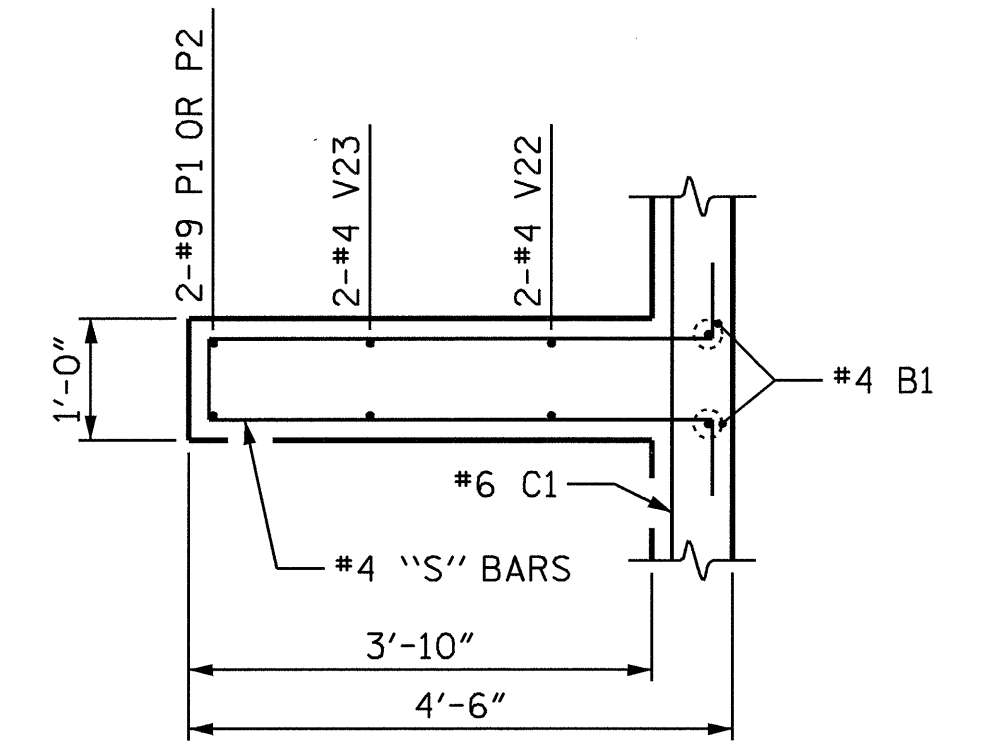
ELEVATION W1



TYPICAL WING SECTION



SECTION A-A
NOTE: STANDARD REINFORCING STEEL IN BARREL NOT SHOWN

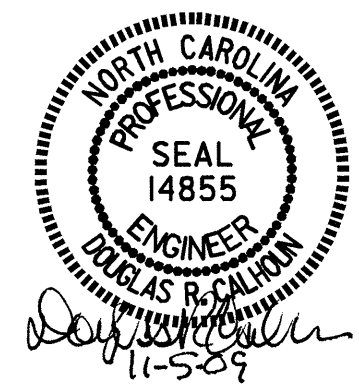


SECTION B-B

PROJECT NO. B-4261
RUTHERFORD COUNTY
STATION: 28+92.66 -L-

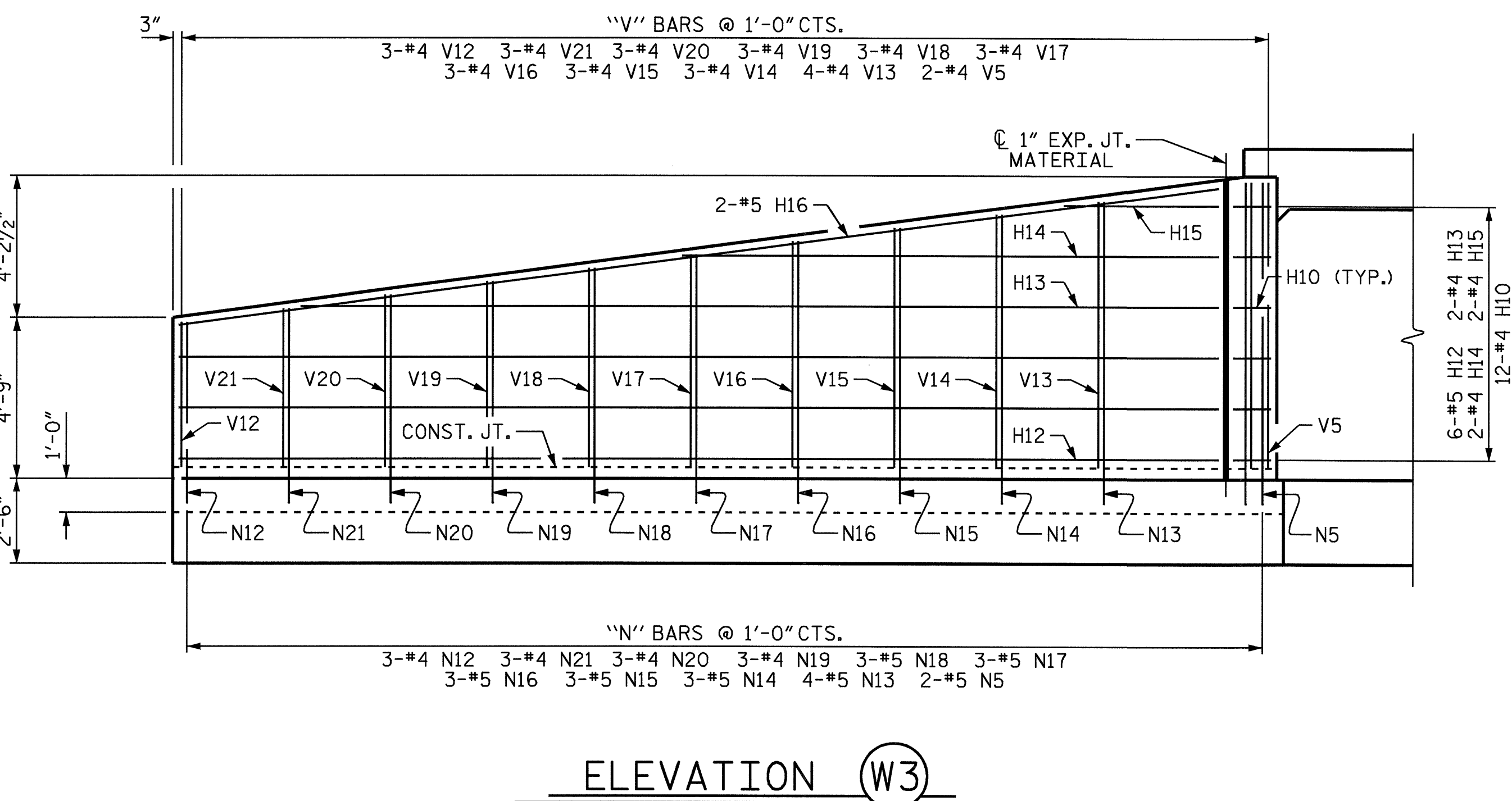
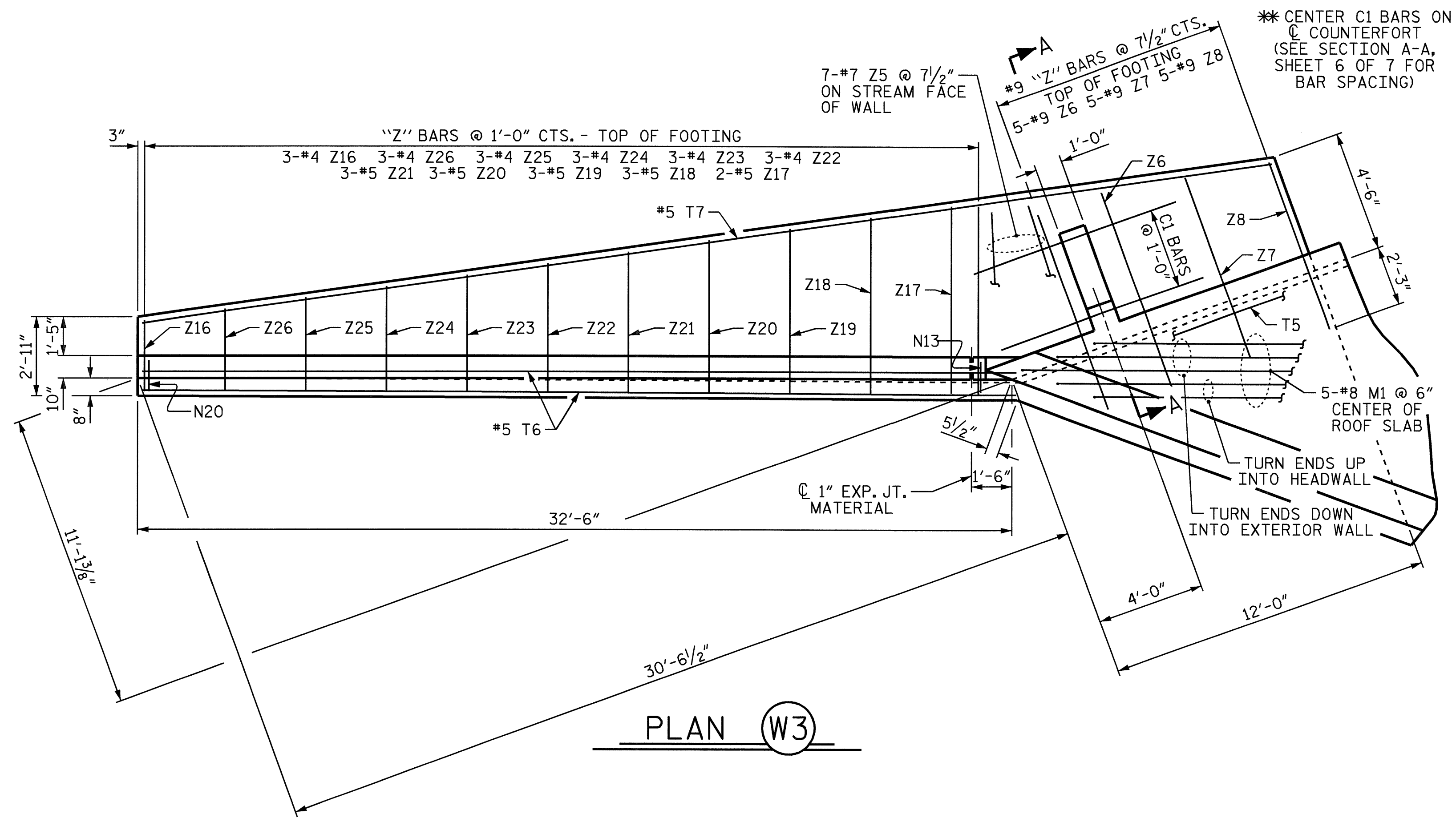
SHEET 6 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD WINGS
FOR
MULTIPLE BOX CULVERT
H = 8'-0" SLOPE = 2:1
140° SKEW



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-6
1			3			TOTAL SHEETS
2			4			7

DRAWN BY: William J. Parker DATE: 09/22/09
CHECKED BY: B. N. GRADY DATE: 10/8/09



BILL OF MATERIAL																	
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#4	STR	8'-9"	23	N19	3	#4	4	7'-6"	15	V17	3	#4	STR	6'-3"	13
C1	24	#6	STR	8'-0"	288	N20	3	#4	4	7'-1"	14	V18	3	#4	STR	5'-10"	12
						N21	3	#4	4	6'-9"	14	V19	3	#4	STR	5'-5"	11
H1	12	#4	STR	7'-7"	61							V20	3	#4	STR	5'-1"	10
H2	4	#4	STR	6'-7"	18	P1	4	#9	5	6'-9"	92	V21	3	#4	STR	4'-8"	9
H3	4	#4	STR	3'-4"	9	P2	4	#9	6	12'-6"	170	V22	4	#4	STR	7'-11"	21
H4	24	#4	1	3'-3"	52							V23	4	#4	STR	3'-6"	9
H5	4	#4	STR	8'-4"	22	S1	6	#6	STR	6'-0"	54						
H6	6	#4	STR	21'-4"	86	S2	2	#4	7	10'-11"	15	Z1	4	#5	8	5'-11"	25
H7	2	#4	STR	18'-10"	25	S3	2	#4	7	10'-3"	14	Z2	4	#5	8	5'-3"	22
H8	2	#4	STR	10'-11"	15	S4	2	#4	7	9'-7"	13	Z3	6	#4	8	4'-2"	17
H9	2	#4	STR	2'-11"	4	S5	2	#4	7	8'-11"	12	Z4	6	#4	8	3'-2"	13
H10	24	#4	2	3'-3"	52	S6	2	#4	7	8'-3"	11	Z5	14	#7	8	7'-10"	224
H11	2	#4	STR	21'-9"	29	S7	2	#4	7	7'-7"	10	Z6	10	#9	STR	7'-8"	261
H12	6	#5	STR	30'-7"	191	S8	2	#4	7	6'-9"	9	Z7	10	#9	STR	7'-1"	241
H13	2	#4	STR	27'-0"	36	S9	2	#4	7	6'-5"	9	Z8	10	#9	STR	6'-7"	224
H14	2	#4	STR	15'-9"	21							Z9	2	#5	8	7'-1"	15
H15	2	#4	STR	4'-6"	6	T1	4	#5	STR	9'-6"	40	Z10	2	#5	8	6'-7"	14
H16	2	#5	STR	30'-10"	64	T2	2	#5	STR	11'-1"	23	Z11	3	#5	8	6'-0"	19
						T3	2	#5	STR	23'-3"	48	Z12	3	#5	8	5'-5"	17
						T4	1	#5	STR	33'-3"	35	Z13	3	#5	8	4'-11"	15
M1	10	#8	3	16'-0"	427	T5	2	#5	STR	12'-0"	25	Z14	3	#4	8	4'-3"	9
						T6	2	#5	STR	32'-6"	68	Z15	3	#4	8	3'-8"	7
						T7	1	#5	STR	42'-5"	44	Z16	6	#4	8	3'-1"	12
N1	4	#5	4	10'-1"	42							Z17	2	#5	8	7'-6"	16
N2	4	#5	4	9'-2"	38	V1	4	#4	STR	8'-0"	21	Z18	3	#5	8	7'-2"	21
N3	6	#5	4	7'-9"	48	V2	4	#4	STR	7'-1"	19	Z19	3	#5	8	6'-8"	22
N4	6	#4	4	6'-5"	26	V3	6	#4	STR	5'-9"	23	Z20	3	#5	8	6'-3"	20
N5	4	#5	4	10'-6"	44	V4	6	#4	STR	4'-4"	17	Z21	3	#5	8	5'-10"	18
N6	4	#5	4	9'-9"	41	V5	4	#4	STR	8'-5"	22	Z22	3	#4	8	5'-3"	11
N7	3	#5	4	9'-2"	29	V6	4	#4	STR	7'-8"	20	Z23	3	#4	8	4'-10"	10
N8	3	#5	4	8'-7"	27	V7	3	#4	STR	7'-1"	14	Z24	3	#4	8	4'-5"	9
N9	3	#5	4	8'-0"	25	V8	3	#4	STR	6'-6"	13	Z25	3	#4	8	3'-11"	8
N10	3	#4	4	7'-5"	15	V9	3	#4	STR	5'-11"	12	Z26	3	#4	8	3'-6"	7
N11	3	#4	4	6'-11"	14	V10	3	#4	STR	5'-5"	11						
N12	6	#4	4	6'-4"	25	V11	3	#4	STR	4'-10"	10						
N13	4	#5	4	9'-11"	41	V12	6	#4	STR	4'-3"	17						
N14	3	#5	4	9'-6"	30	V13	4	#4	STR	7'-10"	21						
N15	3	#5	4	9'-1"	28	V14	3	#4	STR	7'-5"	15						
N16	3	#5	4	8'-9"	27	V15	3	#4	STR	7'-1"	14						
N17	3	#5	4	8'-4"	26	V16	3	#4	STR	6'-8"	13						
N18	3	#5	4	7'-11"	25												

REINFORCING STEEL FOR 4 WINGS = 4339 LBS
 CLASS A CONCRETE
 4 WINGS 38.8 C.Y.
 2 HEADWALLS 2.9 C.Y.
 2 END CURTAIN WALLS 3.4 C.Y.
 TOTAL 45.1 C.Y.

BAR TYPES

ALL DIMENSIONS ARE OUT TO OUT

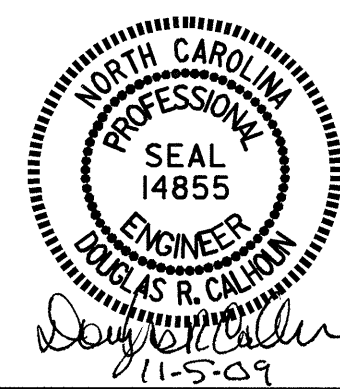
PROJECT NO. B-4261
 RUTHERFORD COUNTY
 STATION: 28+92.66 -L-
 SHEET 7 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD WINGS FOR MULTIPLE BOX CULVERT
 H = 8'-0" SLOPE = 2:1
 140° SKEW

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

DRAWN BY: William J. Parker DATE: 09/22/09
 CHECKED BY: B. N. GRADY DATE: 10/8/09



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 2006 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

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

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

STD. NO. SN