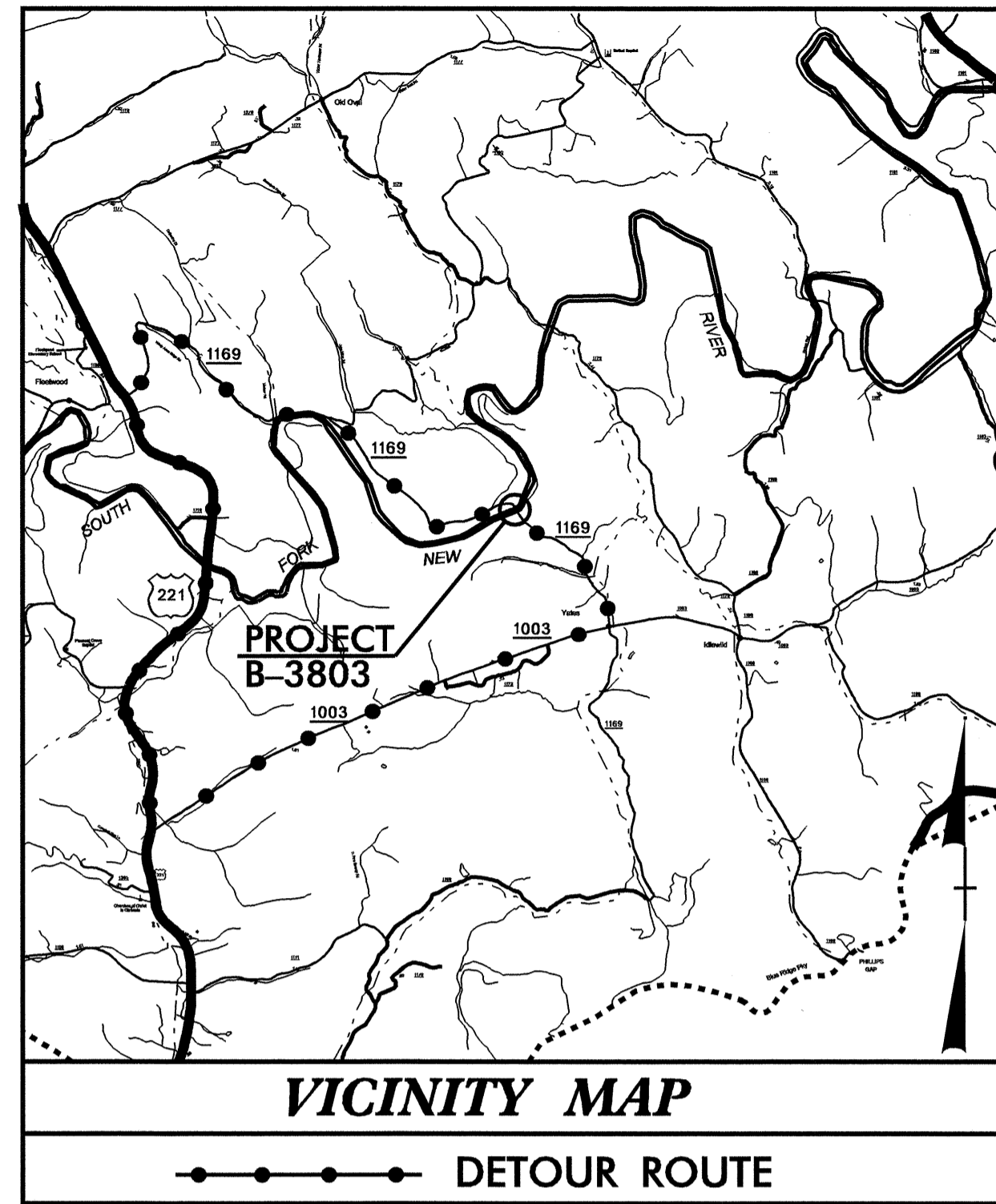


CONTRACT: C201838 TIP PROJECT: B-3803

STRUCTURE



NEAREST SHIPPING POINT: N. WILKESBORO ON YADKIN VALLEY R.R. APPROX. 30 MILES FROM PROJECT

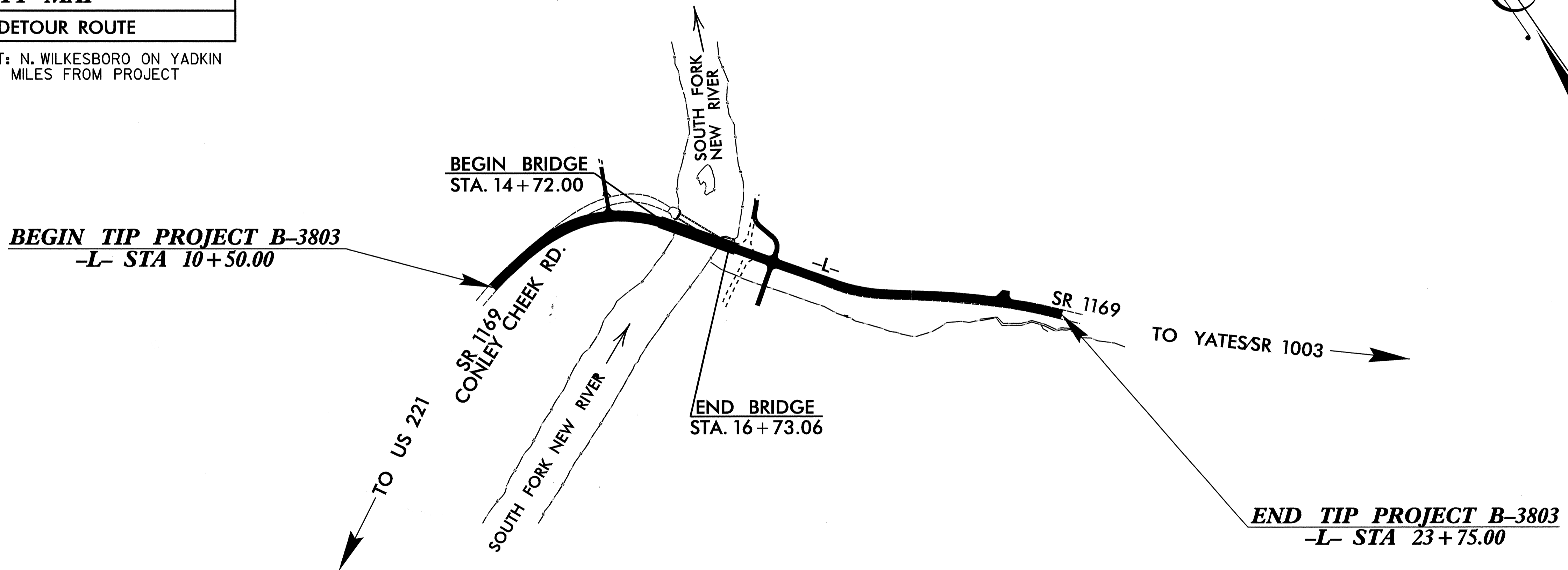
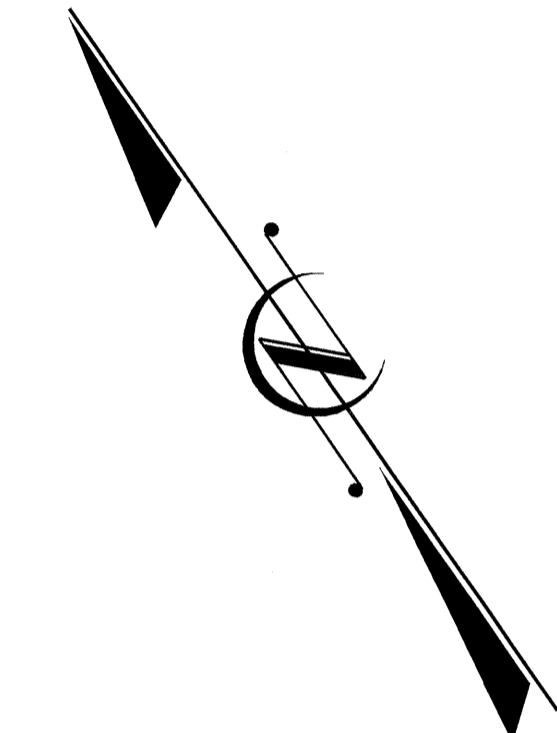
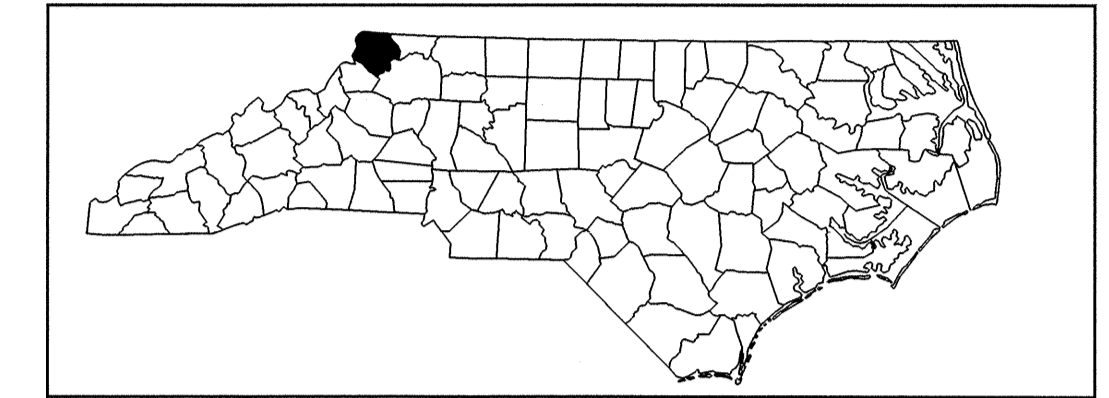
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ASHE COUNTY

LOCATION: BRIDGE NO. 334 OVER THE SOUTH FORK NEW RIVER ON SR 1169 (CONLEY CHEEK RD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3803		
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
33259.1.1	BRZ-1169(2)	PE	
33259.2.1	BRZ-1169(2)	R/W & UTIL.	
33259.3.1	BRZ-1169(2)	CONSTR.	



DESIGN DATA

ADT 2008 = 392
 ADT 2030 = 900
 DHV = 12 %
 D = 60 %
 T = 3 % *
 V = 30 MPH
 * TTST 1 * DUAL 2
 FUNC. CLASS = LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3803 = 0.213 Mi.
 LENGTH STRUCTURE TIP PROJECT B-3803 = 0.038 Mi.
 TOTAL LENGTH TIP PROJECT B-3803 = 0.251 Mi.

Prepared in the Office of:
DIVISION OF HIGHWAYS
 1000 Birch Ridge Dr., Raleigh NC, 27610

2006 STANDARD SPECIFICATIONS

LETTING DATE:
MAY 20, 2008

N. N. BULLOCK, P.E.
PROJECT ENGINEER

A. K. PASCHAL, P.E.
PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER _____ P.E.
 DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION

APPROVED _____ DATE _____
 DIVISION ADMINISTRATOR

14-MAR-2008 12:23
 jkharvo

GRADE DATA

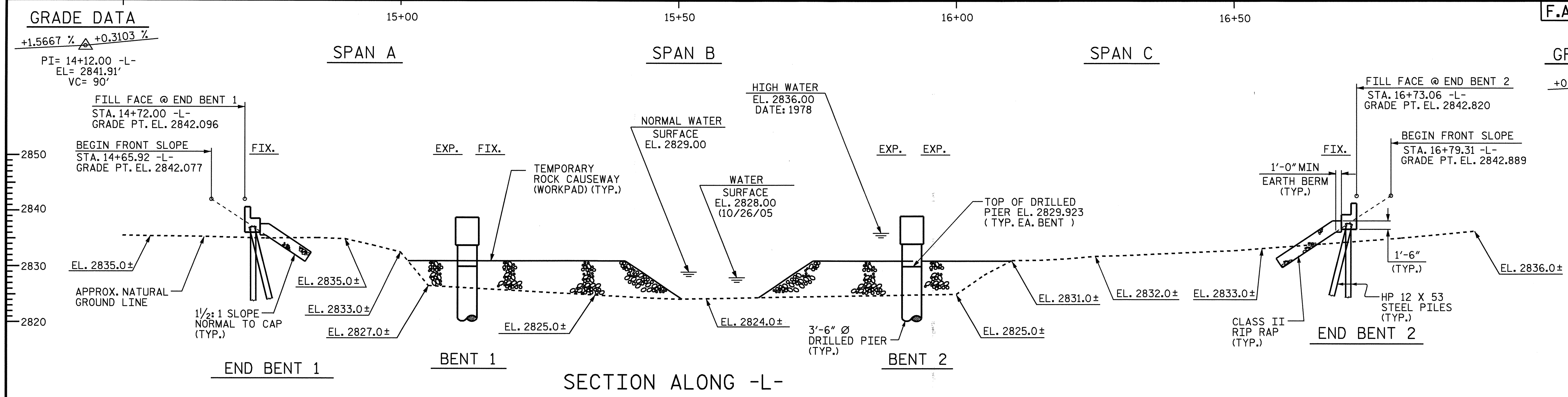
+1.5667% Δ +0.3103%

PI= 14+12.00 -L-
EL= 2841.91'
VC= 90'

GRADE DATA -L-

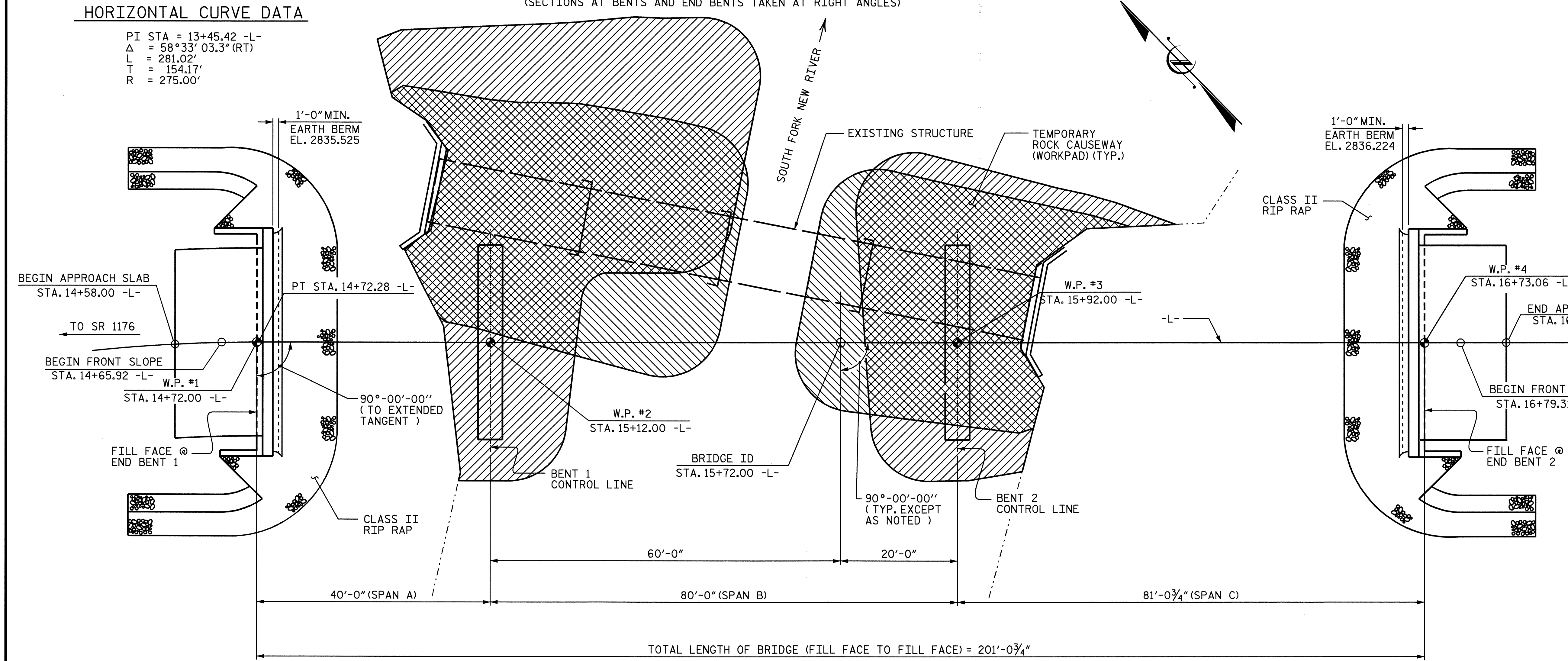
+0.3103% Δ +6.1629%

PI= 17+60.00 -L-
EL= 2842.99'
VC= 230'



HORIZONTAL CURVE DATA

PI STA = 13+45.42 -L-
 Δ = 58°33' 03.3" (RT)
L = 281.02'
T = 154.17'
R = 275.00'



RIP RAP CAUSEWAY STAGES

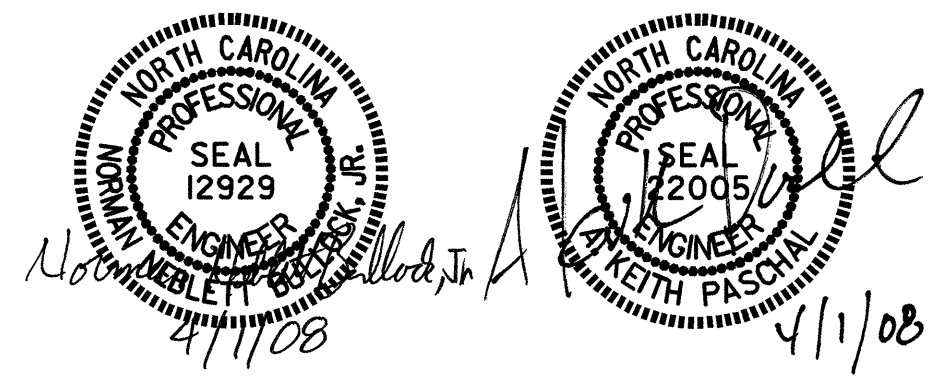
- STAGE 1
- STAGE 2
- STAGE 1 & 2

PROJECT NO. B-3803
ASHE COUNTY
STATION: 15+72.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 334

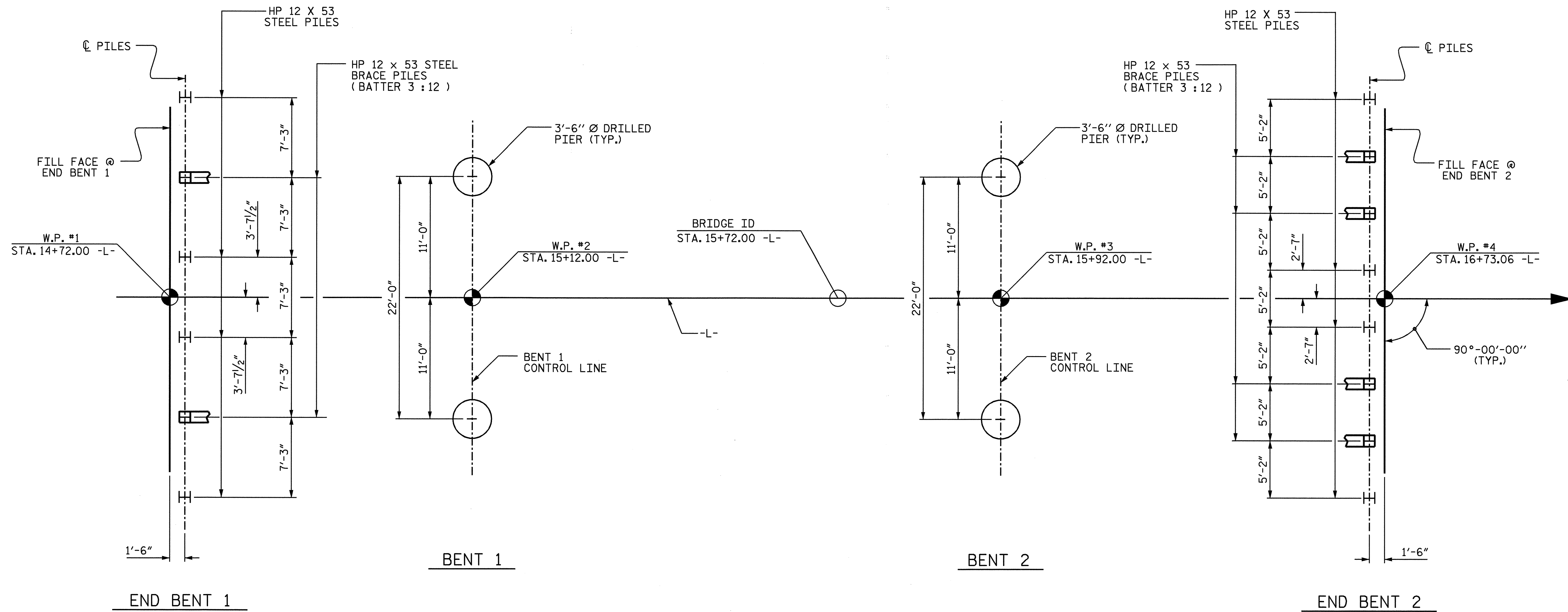
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER
SOUTH FORK NEW RIVER
ON SR 1176 AND NC SR 1003



DRAWN BY : J. MYA DATE : 1/12/08
CHECKED BY : J. G. KHARVA DATE : 1/25/08

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



FOUNDATION LAYOUT

(DIMENSIONS LOCATING PILES & DRILLED PIERS ARE SHOWN TO CENTERLINE OF PILES & DRILLED PIERS)

NOTES

DRIVE PILES AT END BENTS 1 AND 2 TO A REQUIRED BEARING CAPACITY OF 120 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO.

THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENTS 1 AND 2 IS 60 TONS PER PILE.

DRILLED PIERS AT BENT NO. 1 ARE DESIGNED FOR BOTH SKIN FRICTION AND END BEARING. CHECK FIELD CONDITIONS FOR THE REQUIRED END BEARING CAPACITY OF 20 TSF (LT.), 20 TSF (RT.).

DRILLED PIERS AT BENT NO. 2 ARE DESIGNED FOR BOTH SKIN FRICTION AND END BEARING. CHECK FIELD CONDITIONS FOR THE REQUIRED END BEARING CAPACITY OF 20 TSF (LT.), 30 TSF (RT.).

DRILLED PIERS AT BENT 1 ARE DESIGNED FOR AN APPLIED LOAD OF 242.6 TONS EACH AT THE TOP OF THE COLUMN.

DRILLED PIERS AT BENT 2 ARE DESIGNED FOR AN APPLIED LOAD OF 304.4 TONS EACH AT THE TOP OF THE COLUMN.

PERMANENT STEEL CASING IS REQUIRED FOR DRILLED PIERS AT BENT 1. DO NOT EXTEND THE CASING BELOW ELEVATION 2819 FT. (LT.) AND 2825 FT. (RT.) WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

PERMANENT STEEL CASING IS REQUIRED FOR DRILLED PIERS AT BENT 2. DO NOT EXTEND THE CASING BELOW ELEVATION 2825.5 FT. (LT.) AND 2824.5 FT. (RT.) WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

INSTALL DRILLED PIERS AT BENT 1 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 2810.5 FT. (LT.) AND 2815.5 FT. (RT.) AND SATISFY THE REQUIRED END BEARING CAPACITY.

INSTALL DRILLED PIERS AT BENT 2 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 2817 FT. (LT.) AND 2817 FT. (RT.) AND SATISFY THE REQUIRED END BEARING CAPACITY.

THE SCOUR CRITICAL ELEVATION FOR BENT 1 ARE ELEVATION 2814 FT. (LT.), AND 2824 FT. (RT.). SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THE SCOUR CRITICAL ELEVATION FOR BENT 2 IS ELEVATION 2824.0 FT. (LT.) AND 2823.0 FT. (RT.). SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

FOR DRILLED PIERS, SEE DRILLED PIERS SPECIAL PROVISIONS.

SID INSPECTIONS MAY BE REQUIRED TO INSPECT THE BOTTOM CLEANLINESS OF THE DRILLED PIERS AT BENT 1 AND 2. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS.

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

PROJECT NO. B-3803

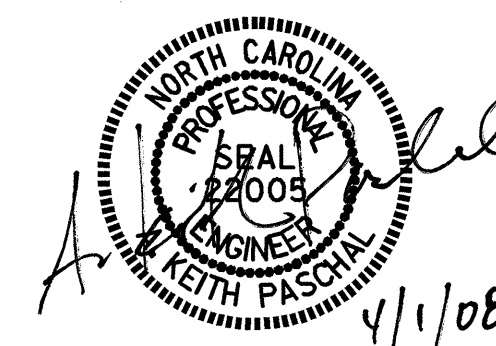
ASHE COUNTY

STATION: 15+72.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER
SOUTH FORK NEW RIVER
ON SR 1169 BETWEEN
SR 1176 AND SR 1003



DRAWN BY : J. MYA DATE : 1/12/08
CHECKED BY : J.G. KHARVA DATE : 1/25/08

31-MAR-2008 10:23
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jmya

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

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE, AND REMOVAL OF TEMPORARY ACCESS	REMOVAL OF EXISTING STRUCTURE	3'-6" DIA. DRILLED PIER IN SOIL	3'-6" DIA. DRILLED PIER NOT IN SOIL	PERMANENT STEEL CASING FOR 3'-6" DIA. DRILLED PIER	SID INSPECTION	CROSSHOLE SONIC LOGGING	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	HP 12 X 53 STEEL PILES	ONE BAR METAL RAIL	1'-0" x 1'-10 1/2" CONCRETE PARAPET	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 2'-9" PRESTRESSED CONCRETE BOX BEAMS		
	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	CU. YDS.	LUMP SUM	LBS.	LBS.	NO.	LIN. FT.	LIN. FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE									LUMP SUM				382.13	397.63				LUMP SUM	33	2184.19
END BENT 1								17.6		2916		6	120			119	132			
BENT 1			16.0	18.0	15.85			32.3		7345	957									
BENT 2			10.0	16.0	9.85			32.4		6869	790									
END BENT 2								17.6		2933		8	120			115	128			
TOTAL	LUMP SUM	LUMP SUM	26.0	34.0	25.7	2	1	99.9	LUMP SUM	20,063	1747	14	240	382.13	397.63	234	260	LUMP SUM	33	2184.19

NOTES

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

THE EXISTING STRUCTURE CONSISTING OF FOUR SPANS, (1 @ 25'-10", 2 @ 25'-1", 1 @ 30'-10", OVERALL LENGTH 106'-8") TIMBER FLOOR SPANS ON STEEL I-BEAMS (LOW WATER TYPE) AND A CLEAR ROADWAY WIDTH OF 11'-0" ON A SUBSTRUCTURE CONSISTING OF MASSIVE CONCRETE ABUTMENTS AND SOLID CONCRETE PIERS AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED.

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

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

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 15+72.00 -L-."

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 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 EXISTING PAVEMENT WITHIN THE AREA OF THE END BENT 2 PILES SHALL BE REMOVED AND THE ROAD BED SCARIFIED TO A MINIMUM DEPTH OF 2'-0".

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

AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF THE CAUSEWAY, THE CLASS II RIP RAP USED IN THE CAUSEWAY MAY BE PLACED AS RIP RAP SLOPE PROTECTION. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 15+72.00 -L-.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

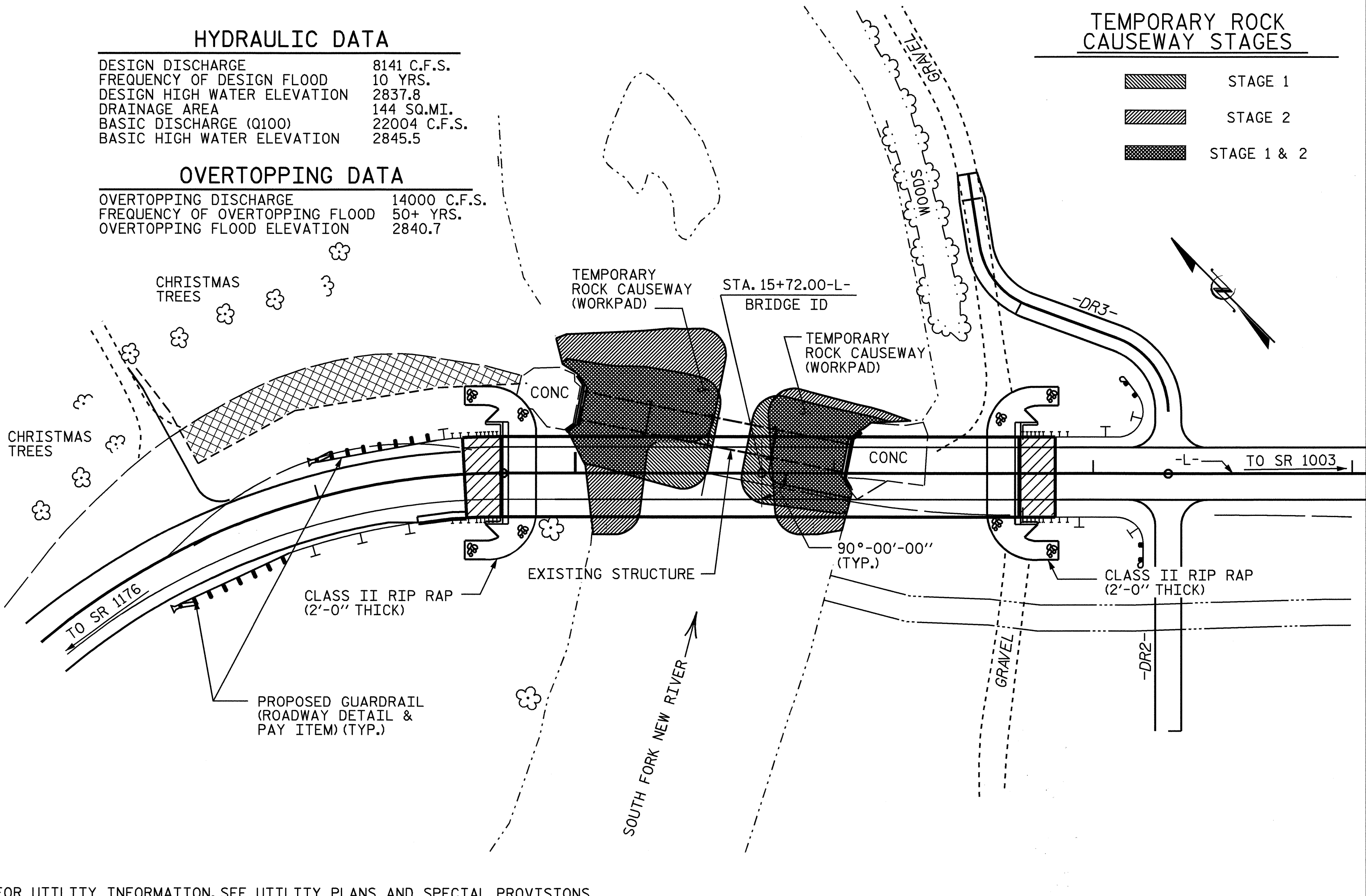
FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

SEE SHEET 2 OF 3 FOR FOUNDATION NOTES.

B.M. #1 : 8" SPIKE IN ROOT OF 24" CUCUMBER TREE 226' LEFT, STA. 16+38.00 -L- ELEV. 2851.08



LOCATION SKETCH

DRAWN BY : J. MYA/J.D. HAWK DATE : 10/12/06
 CHECKED BY : J.G. KHARVA DATE : 1/25/06

PROJECT NO. B-3803
 ASHE COUNTY
 STATION: 15+72.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 SOUTH FORK NEW RIVER
 ON SR 1169 BETWEEN
 SR 1176 AND SR 1003

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

4/1/08

31-MAR-2008 10:22
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 jmya

NOTES

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

ALL REINFORCING STEEL CAST WITH THE BOX BEAM SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE BOX BEAMS.

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

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF BOX BEAM SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT. THE 2 1/2" Ø DOWEL HOLES AT EXPANSION ENDS OF BOX BEAM SECTIONS SHALL BE FILLED WITH JOINT SEALER MATERIAL TO 1/2" ABOVE THE TOP OF DOWELS AND THEN FILLED WITH GROUT.

THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE SL LOW MODULUS SILICONE SEALANT. THE 2" Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE BOX BEAM UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4400 PSI FOR SPAN A, AND 5200 PSI FOR SPANS B AND C.

ALL REINFORCING STEEL IN PARAPET SHALL BE EPOXY COATED.

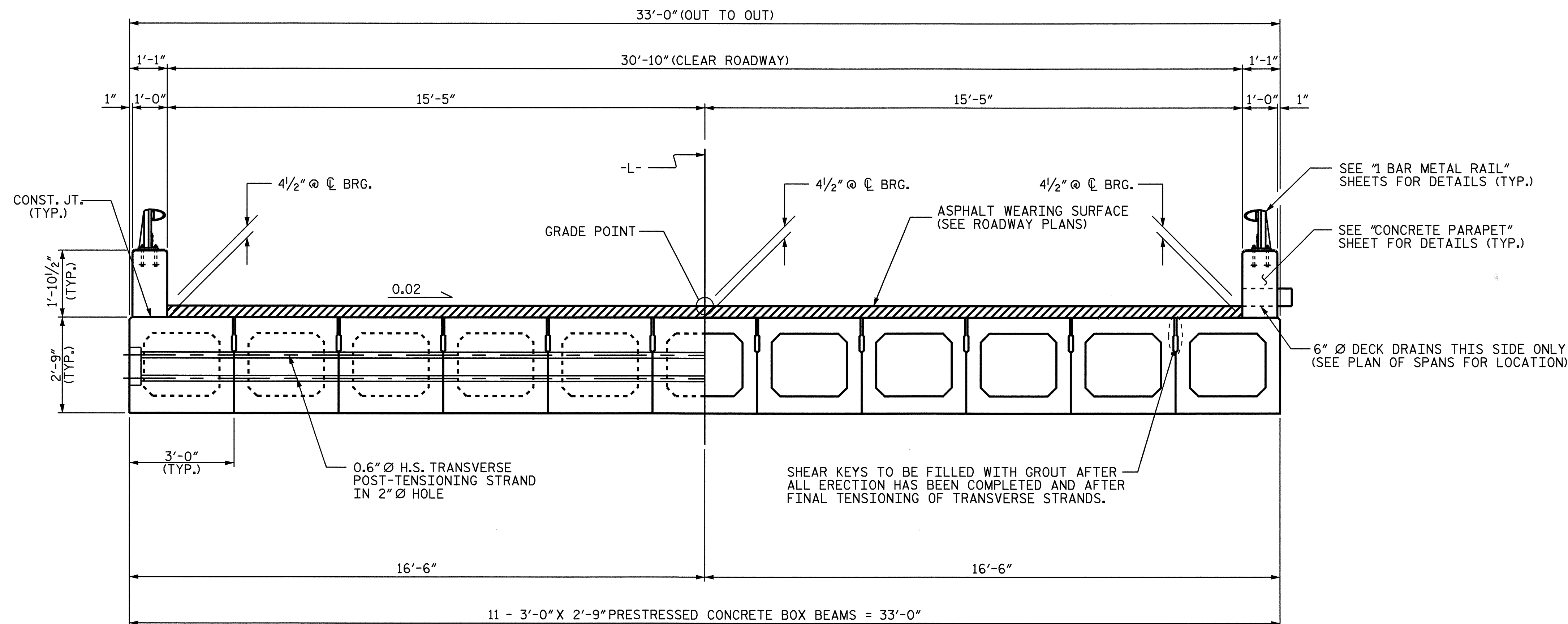
PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE BOX BEAM UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS.

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

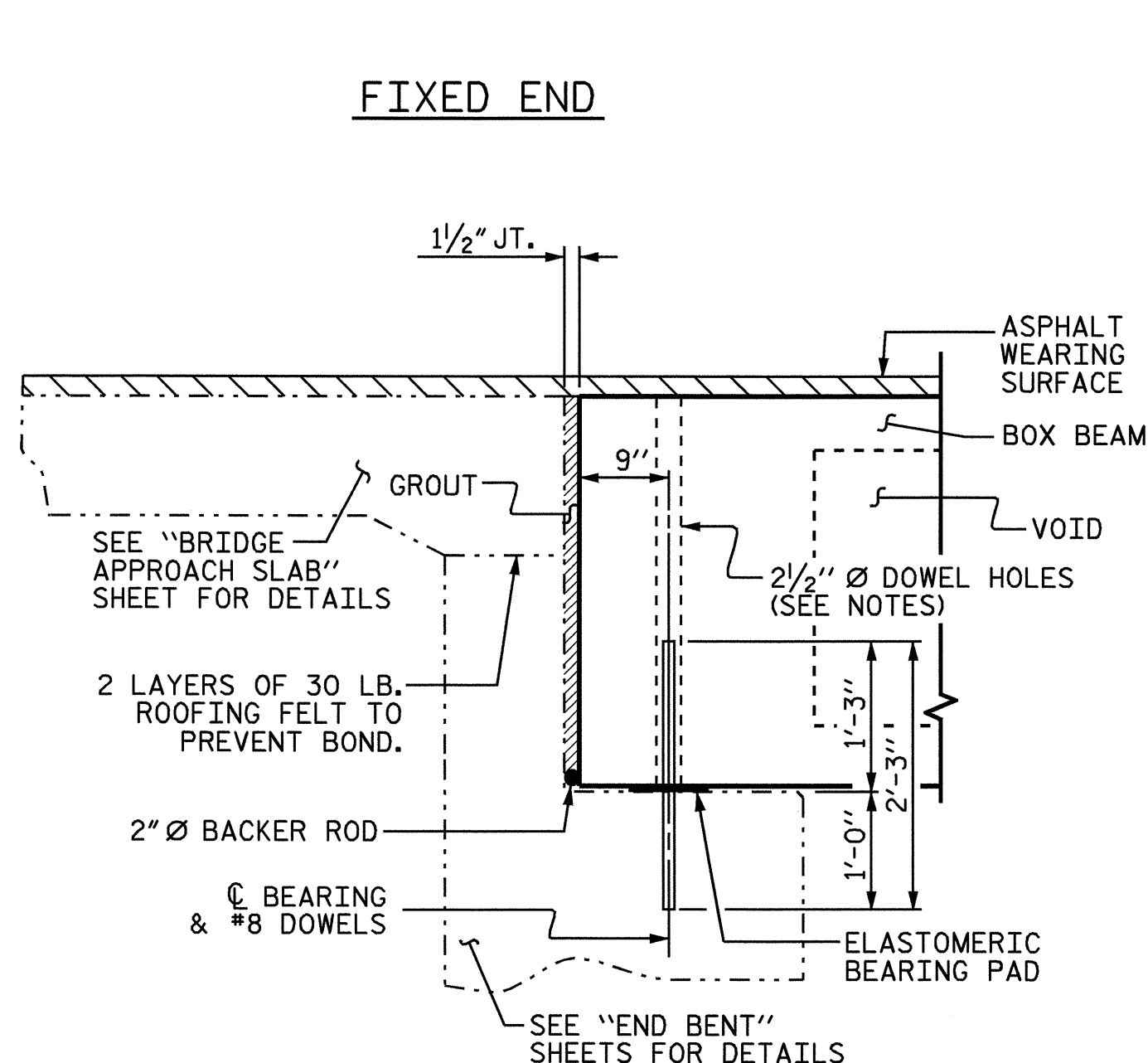
THE LOCATION OF THE VOID DRAINS MAY BE SHIFTED SLIGHTLY WHERE NECESSARY TO CLEAR PRESTRESSING STRANDS OR TRANSVERSE REINFORCING STEEL.



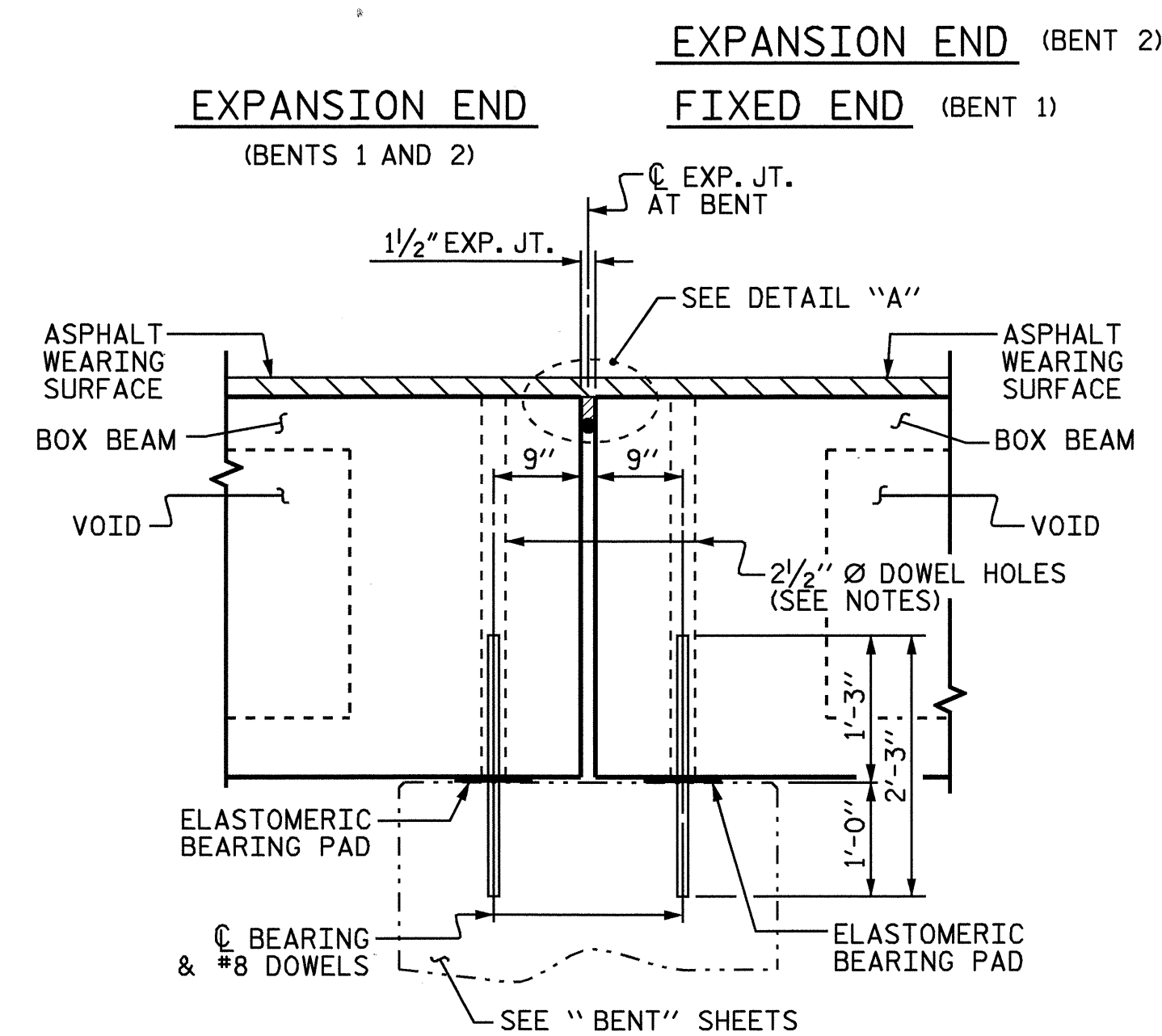
HALF SECTION @ DIAPHRAGMS

HALF SECTION @ VOIDS

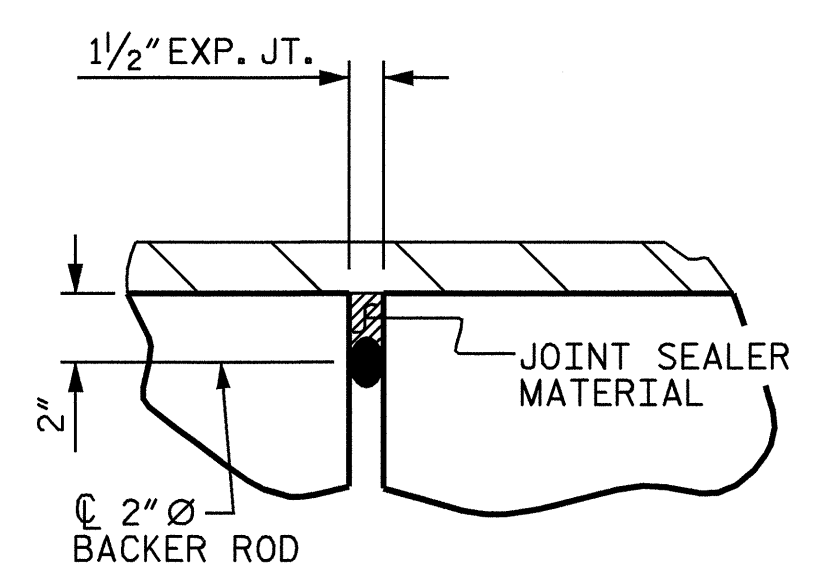
TYPICAL SECTION



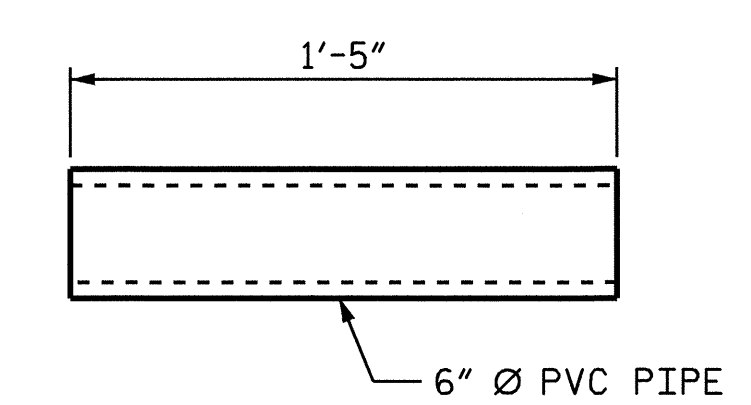
SECTION AT END BENT
(END BENT 1 SHOWN, END BENT 2 SIMILAR)



SECTION AT BENT



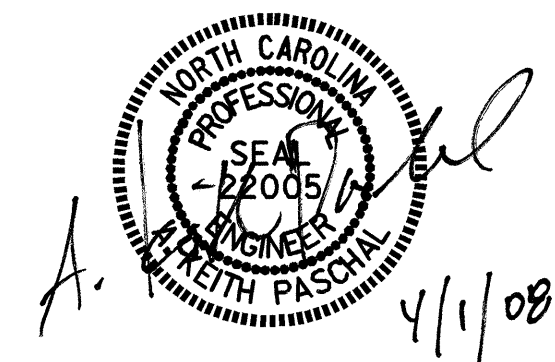
DETAIL "A"



DRAIN DETAIL
(7 DRAINS REQUIRED)

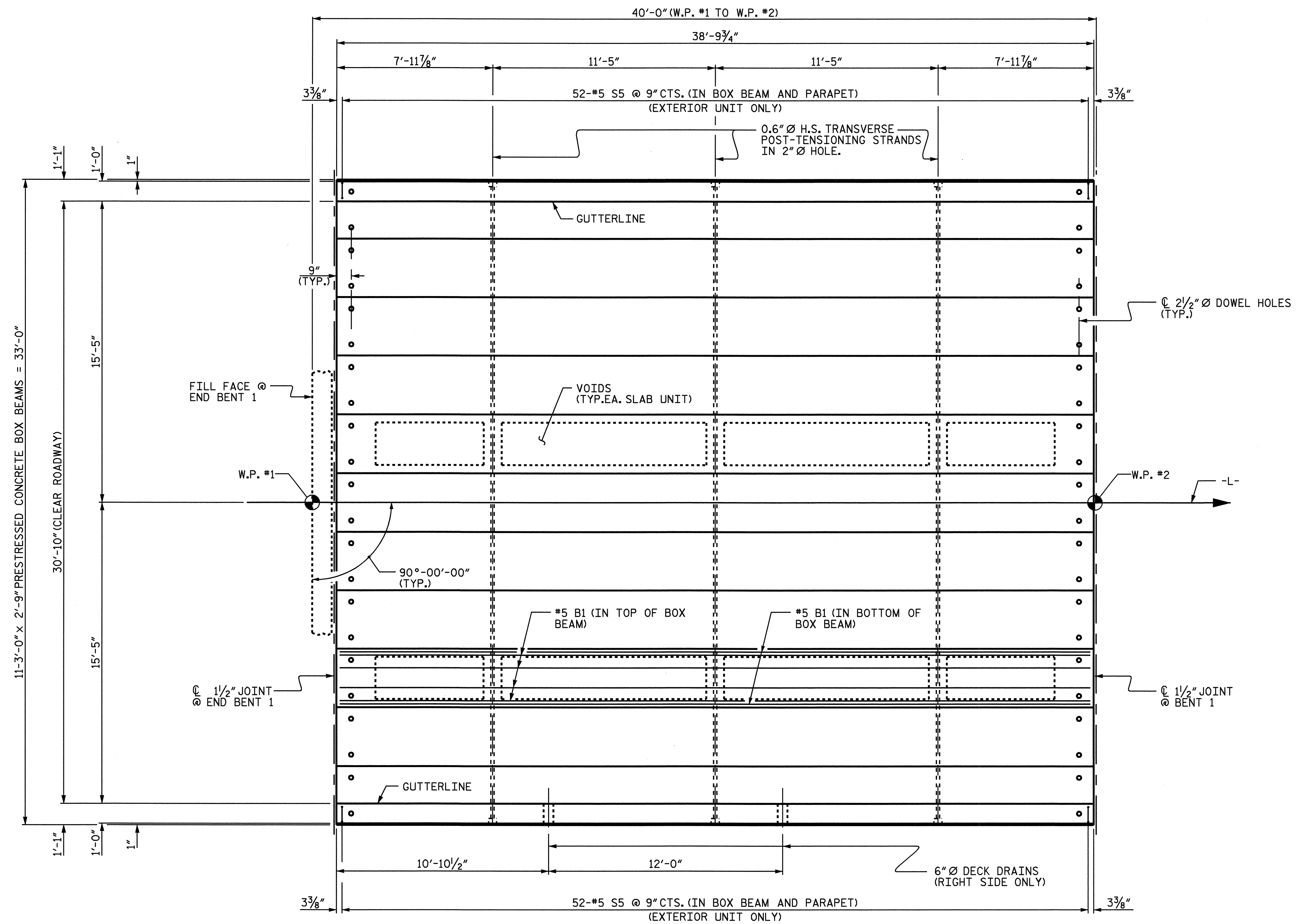
PROJECT NO. B-3803
ASHE COUNTY
 STATION: 15+72.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 TYPICAL SECTION
 3'-0" X 2'-9"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT

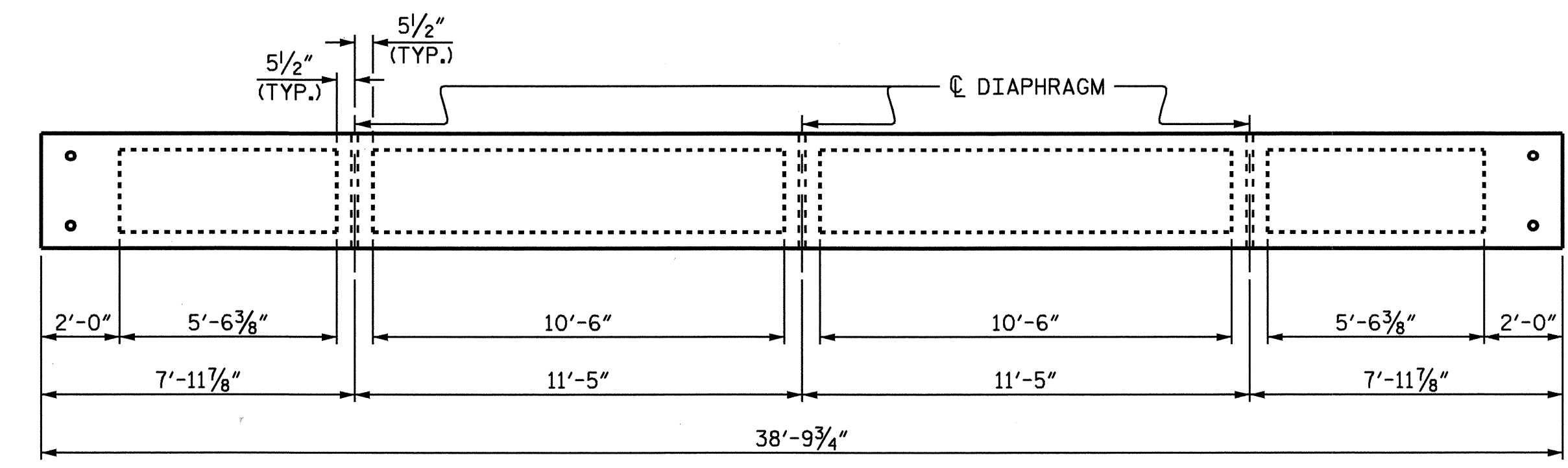


ASSEMBLED BY : A.M.KEETER	DATE : 4/7/06
CHECKED BY : J.G. KHARVA	DATE : 6/7/06
DRAWN BY : TLA 5/05	ADDED 7/11/05R
CHECKED BY : GM 6/05	REV. 5/1/06R KMM/GM

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



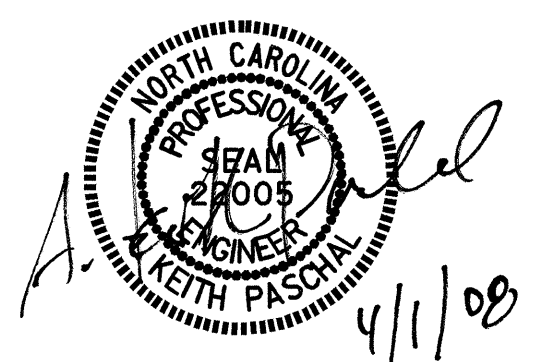
FIX. PLAN OF SPAN A EXP.



PLAN OF BOX BEAM UNIT - SPAN A
(SHOWING LOCATION OF VOIDS AND DIAPHRAGMS)

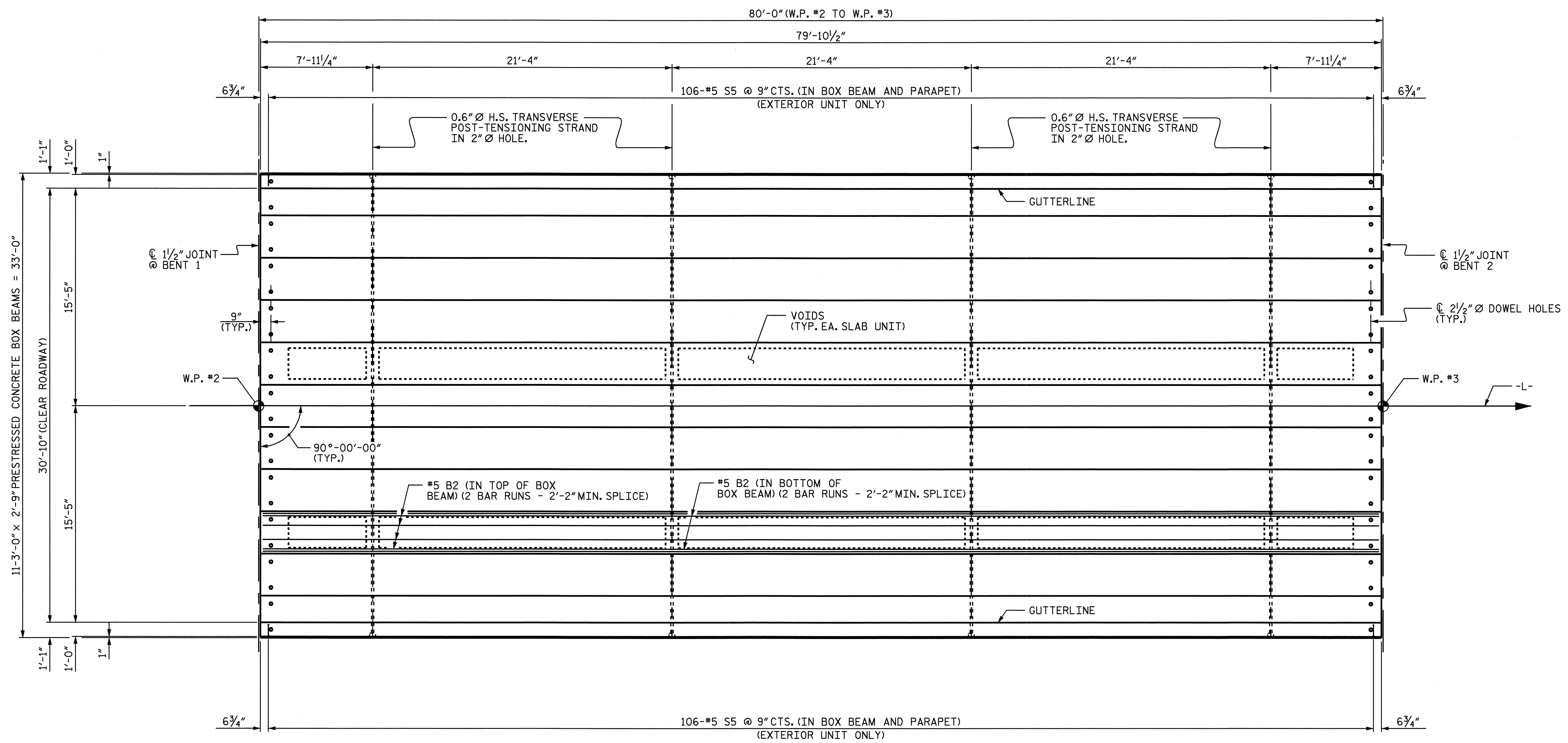
PROJECT NO. B-3803
ASHE COUNTY
 STATION: 15+72.00 -L-

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

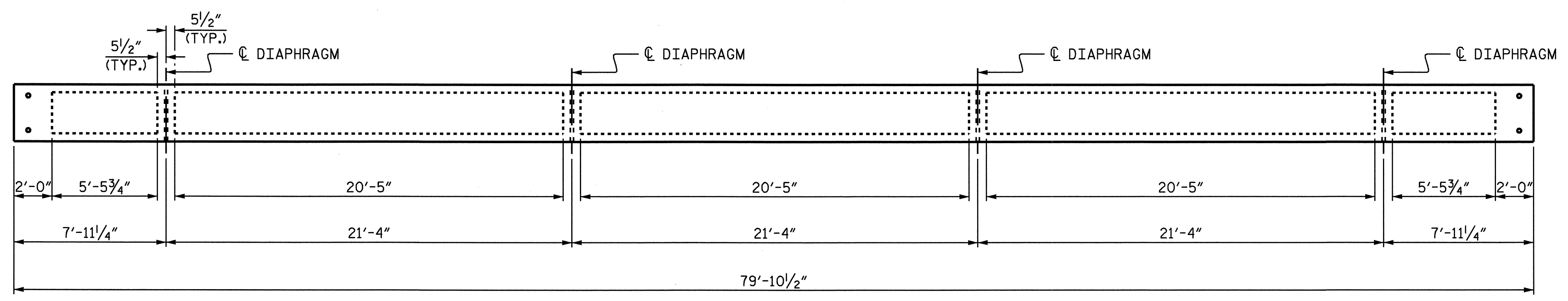


DRAWN BY : A.M. KEETER DATE : 4/10/06
 CHECKED BY : J.G. KHARVA DATE : 6/7/06

01-APR-2008 09:07
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 kpaschal



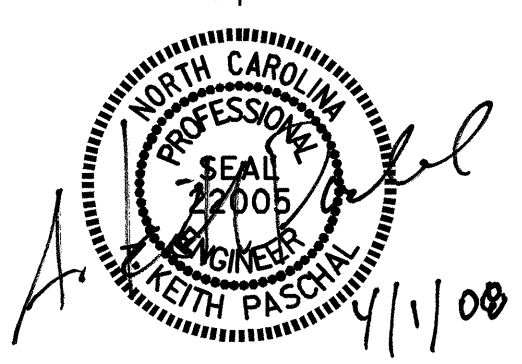
FIX. PLAN OF SPAN B EXP.



PLAN OF BOX BEAM UNIT - SPAN B
(SHOWING LOCATION OF VOIDS AND DIAPHRAGMS)

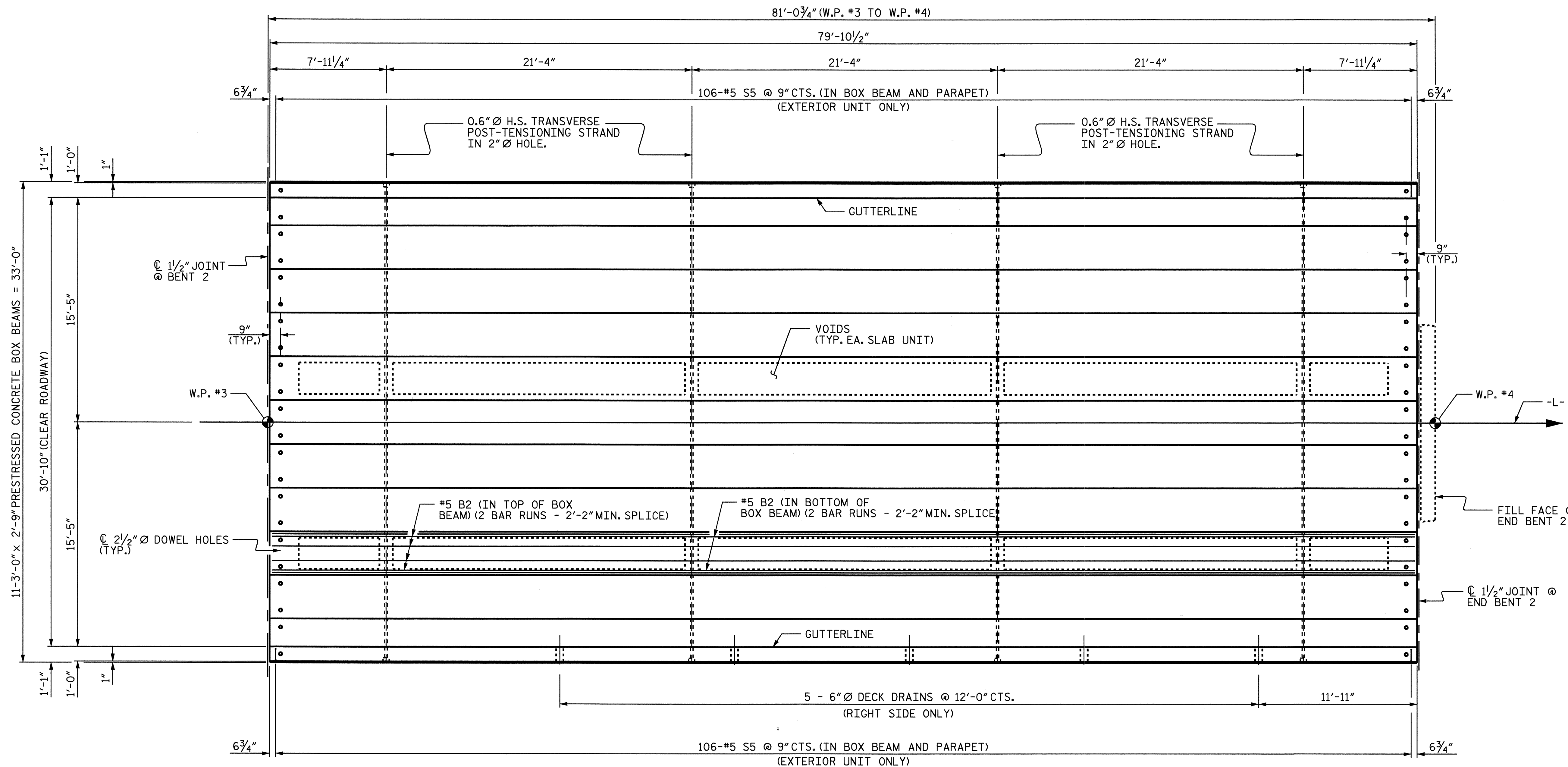
PROJECT NO. B-3803
ASHE COUNTY
 STATION: 15+72.00 -L-

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

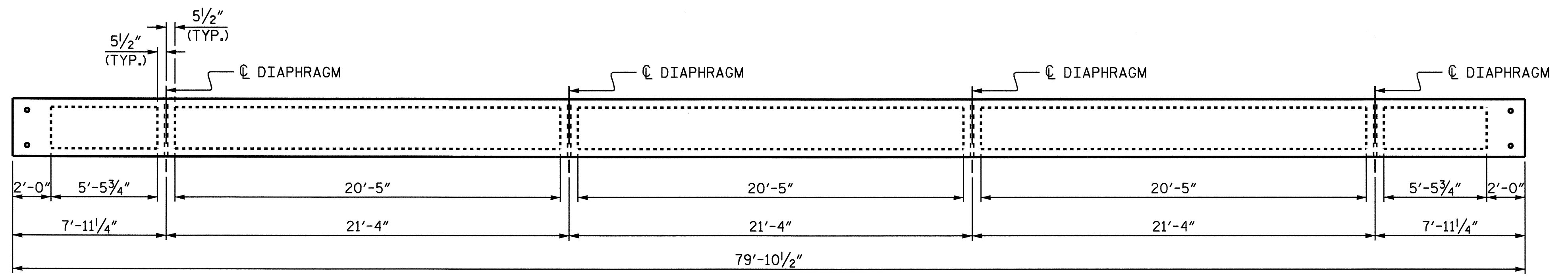


DRAWN BY: A.M. KEETER DATE: 4/10/06
 CHECKED BY: J.G. KHARVA DATE: 6/7/06

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			27



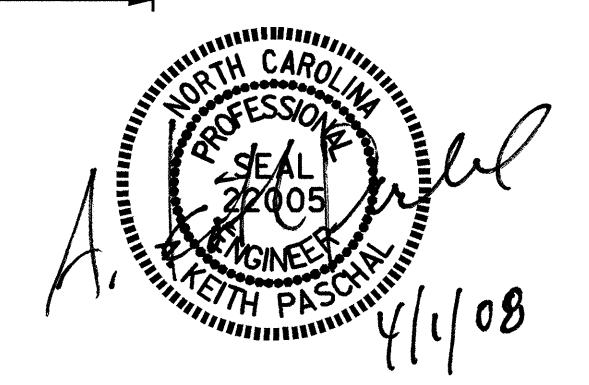
EXP. PLAN OF SPAN C FIX.



PLAN OF BOX BEAM UNIT - SPAN C
(SHOWING LOCATION OF VOIDS AND DIAPHRAGMS)

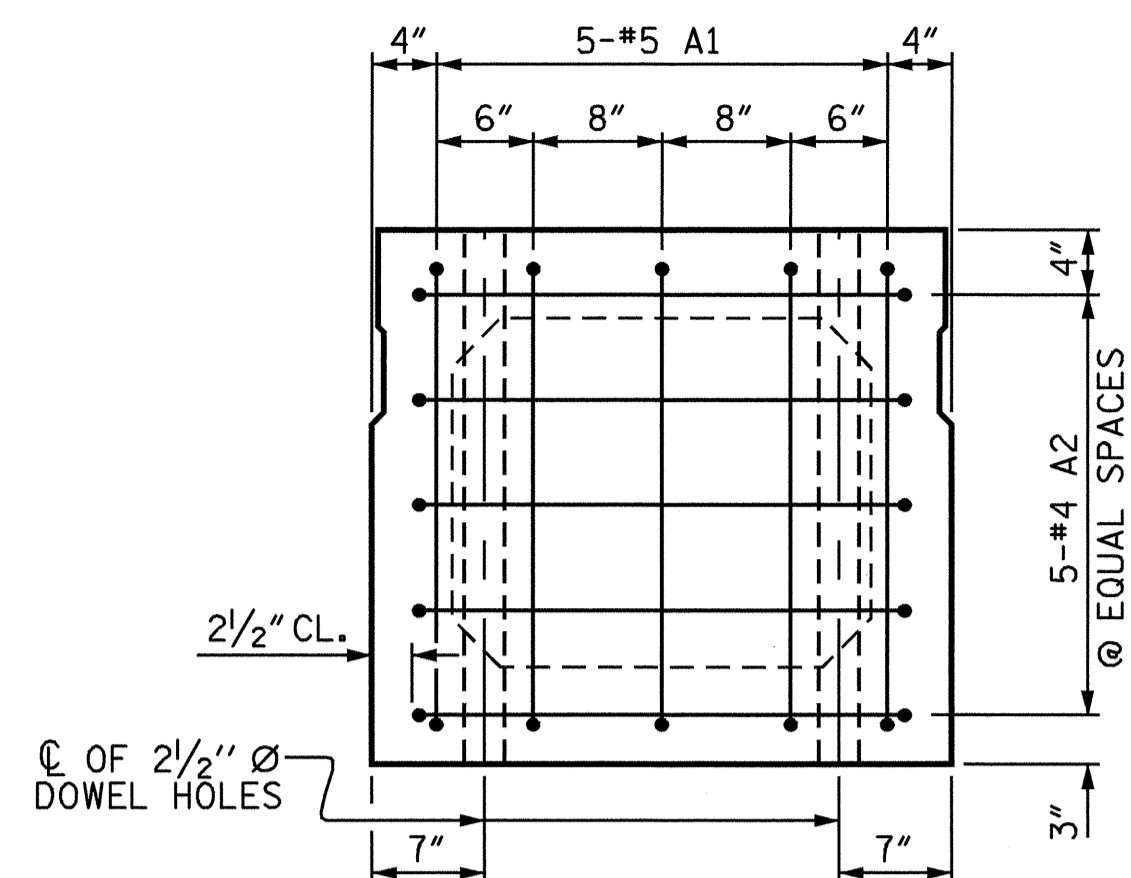
PROJECT NO. B-3803
ASHE COUNTY
 STATION: 15+72.00 -L-

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



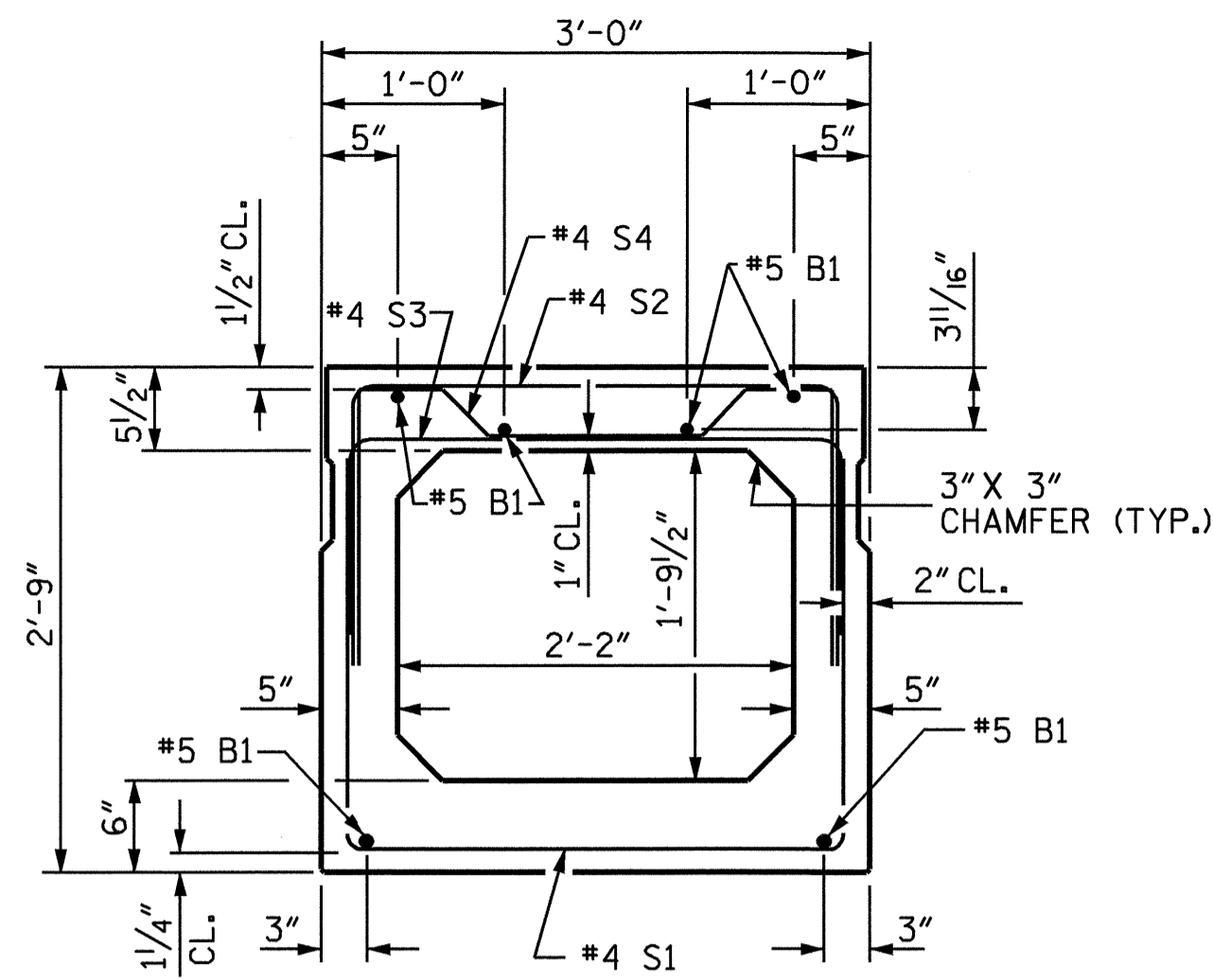
DRAWN BY: A.M. KEETER DATE: 4/10/06
 CHECKED BY: J.G. KHARVA DATE: 6/7/06

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



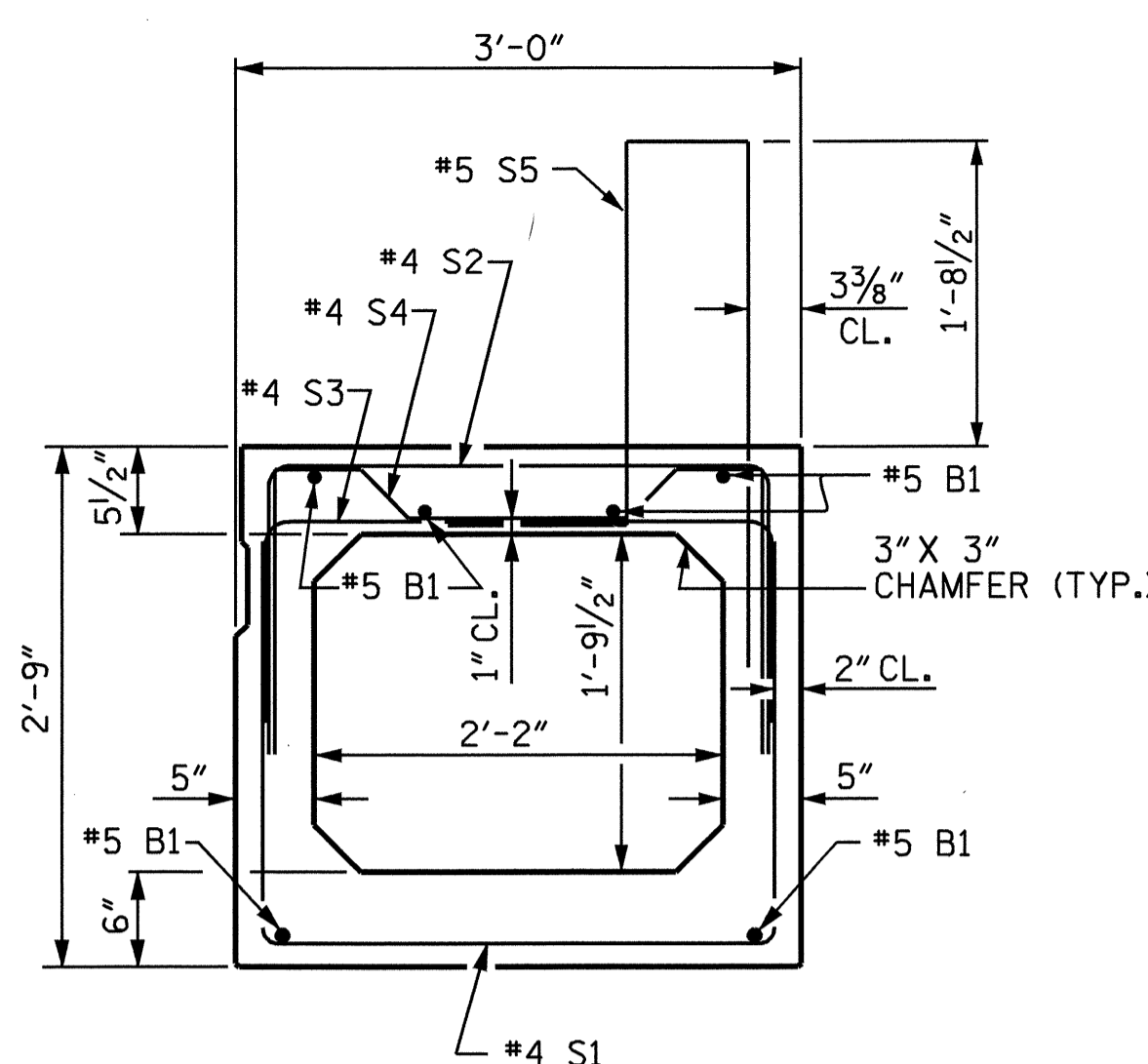
END ELEVATION

SHOWING PLACEMENT OF #5 & #4 "A" BARS AND LOCATION OF DOWEL HOLES. (INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION. STRAND LAYOUT NOT SHOWN.)



INTERIOR BOX BEAM SECTION

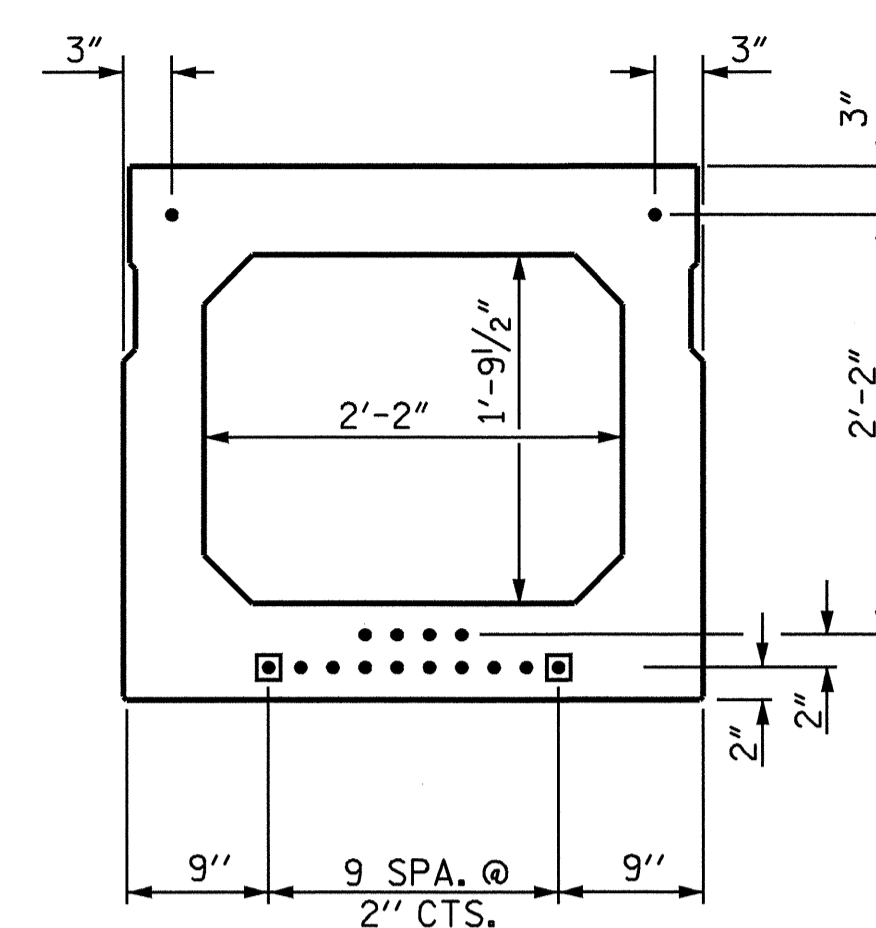
(STRAND LAYOUT NOT SHOWN)



EXTERIOR BOX BEAM SECTION

(STRAND LAYOUT NOT SHOWN)

0.6" Ø LOW RELAXATION STRAND LAYOUT



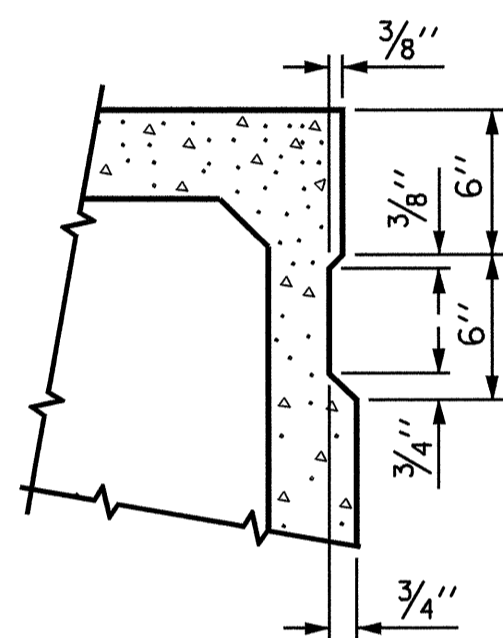
TYPICAL STRAND LOCATION

(16 STRANDS REQUIRED)

(INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION)

DEBONDING LEGEND

- FULLY BONDED STRANDS
- ◼ STRANDS DEBONDED FOR 2'-0" FROM END OF GIRDER

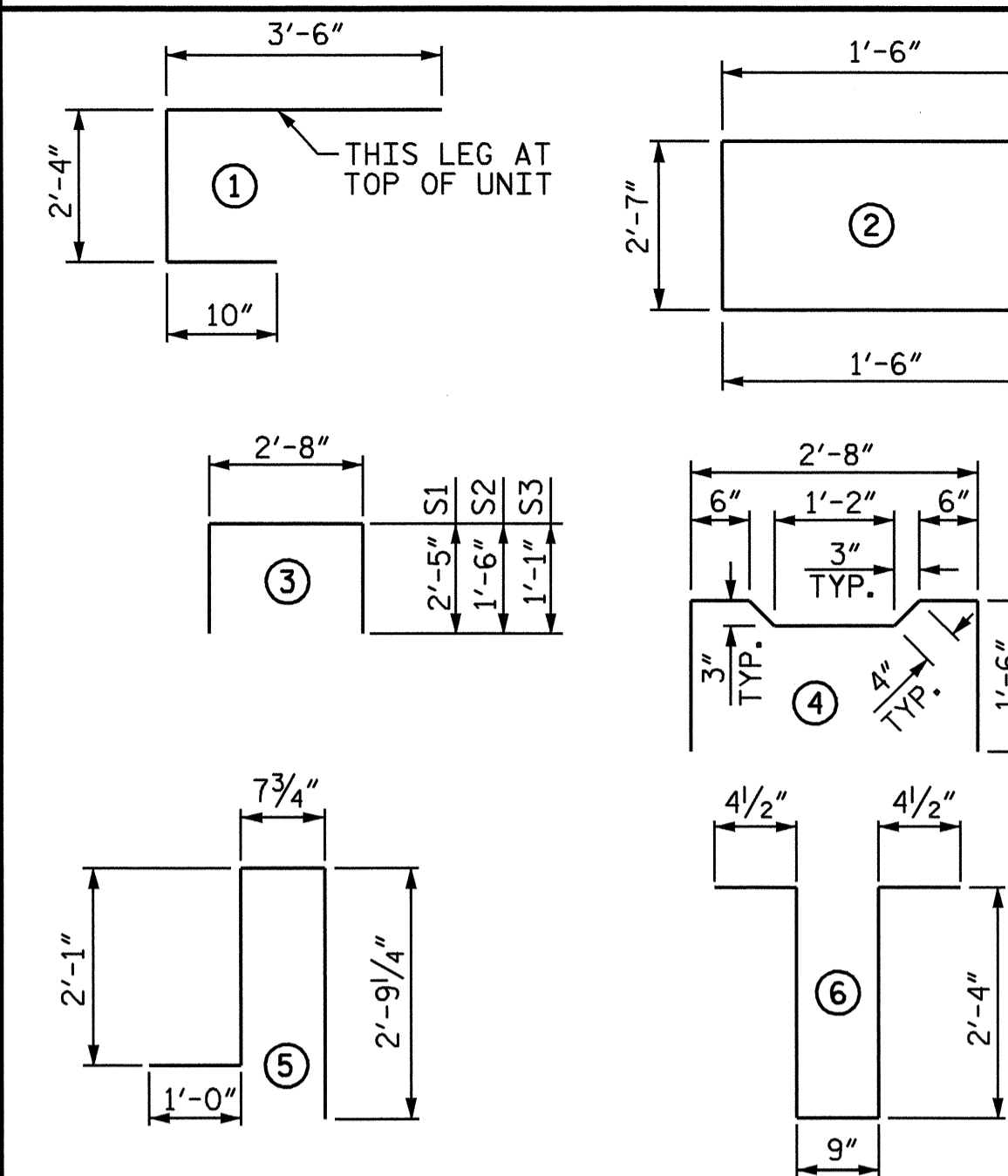


SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR BOX BEAMS.

GRADE 270 STRANDS	
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

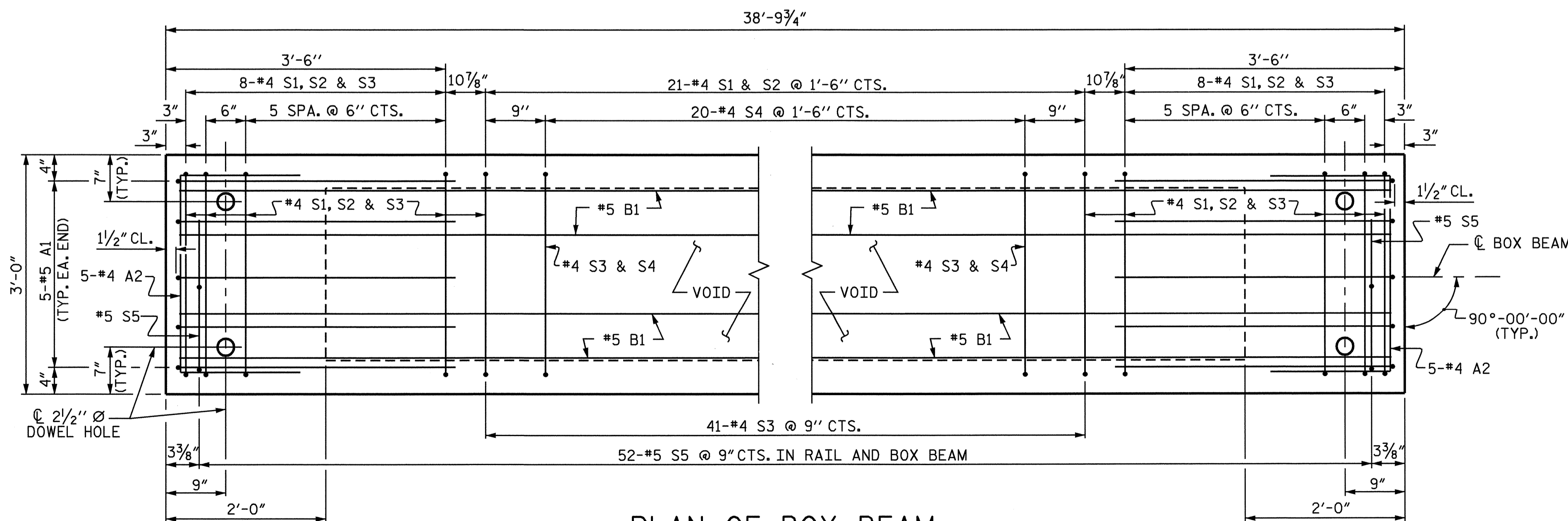
BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE BOX BEAM SECTION

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
A1	10	#5	1	6'-8"	70	6'-8"	70
A2	28	#4	2	5'-7"	104	5'-7"	104
B1	6	#5	STR	38'-5"	240	38'-5"	240
K1	9	#4	6	6'-2"	37	6'-2"	37
K2	6	#4	STR	2'-7"	10	2'-7"	10
S1	37	#4	3	7'-6"	185	7'-6"	185
S2	37	#4	3	5'-8"	140	5'-8"	140
S3	57	#4	3	4'-10"	184	4'-10"	184
S4	20	#4	4	5'-10"	78	5'-10"	78
* S5	52	#5	5	6'-6"	353	--	--
REINFORCING STEEL				1030 LBS.		1030	
* EPOXY COATED REINF. STEEL				353 LBS.			
5500 P.S.I. CONCRETE				7.4 CU. YDS.		7.3 CU. YDS.	
0.6" Ø L.R. STRANDS				No. 16		No. 16	



PLAN OF BOX BEAM

EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S5 BARS. FOR LOCATION OF DIAPHRAGMS, SEE PLAN OF SPANS. FOR REINFORCING STEEL IN DIAPHRAGMS, SEE DIAPHRAGM DETAILS, SHEET 3 OF 3.

PROJECT NO. B-3803
ASHE COUNTY
 STATION: 15+72.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 2'-9"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT

SPAN A

REVISIONS

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

SHEET NO.

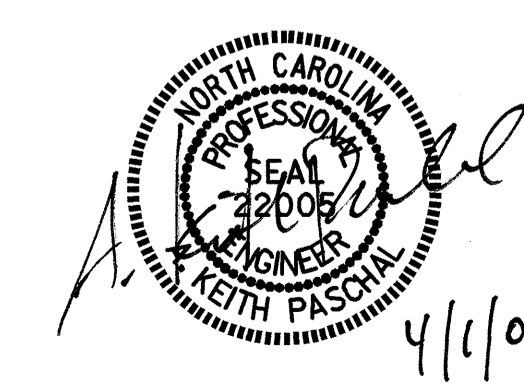
S-8

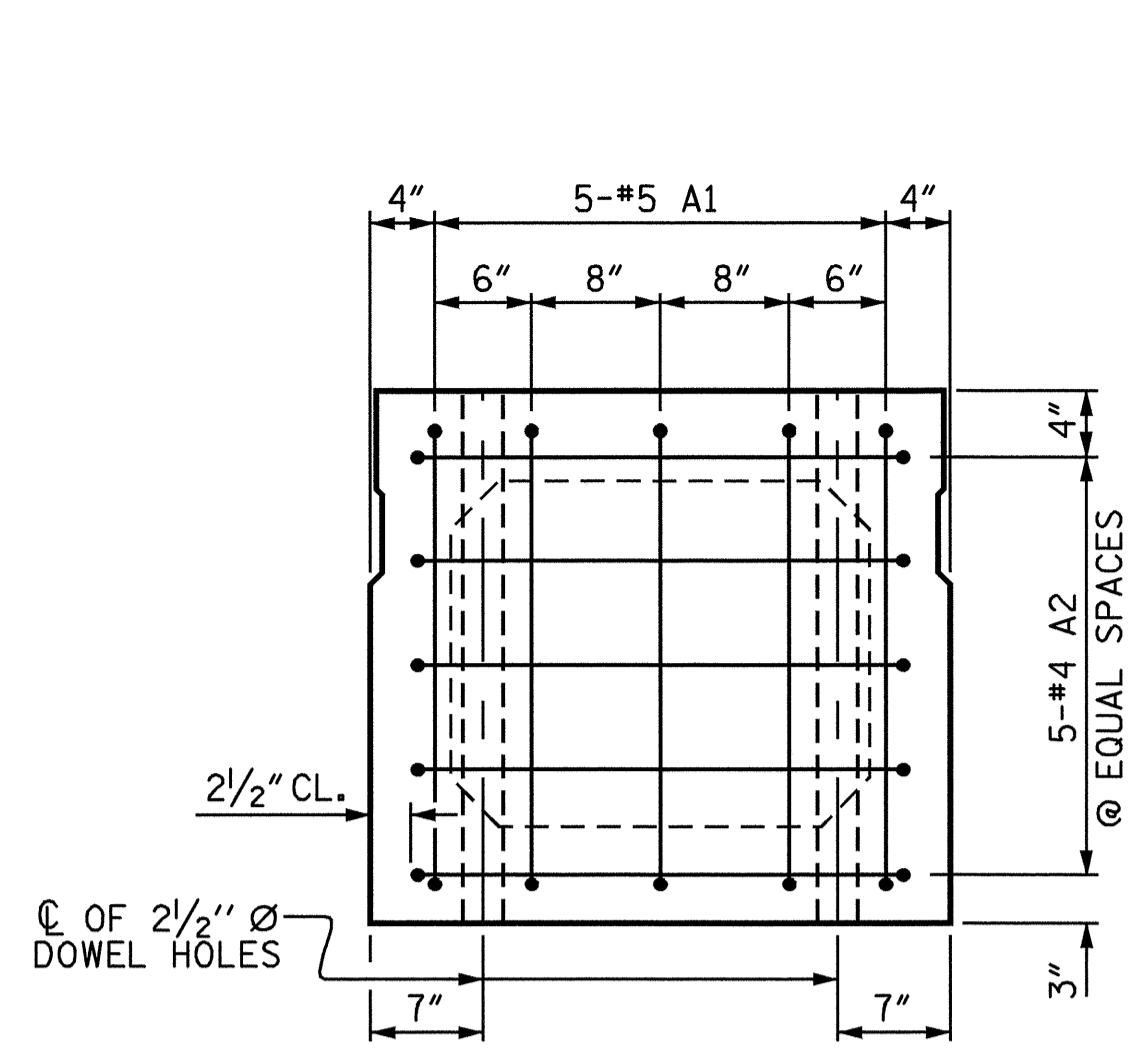
TOTAL SHEETS

27

ASSEMBLED BY: A.M. KEETER DATE: 4/11/06
 CHECKED BY: J.G. KHARVA DATE: 6/7/06
 DRAWN BY: TLA 5/05
 CHECKED BY: GM 6/05

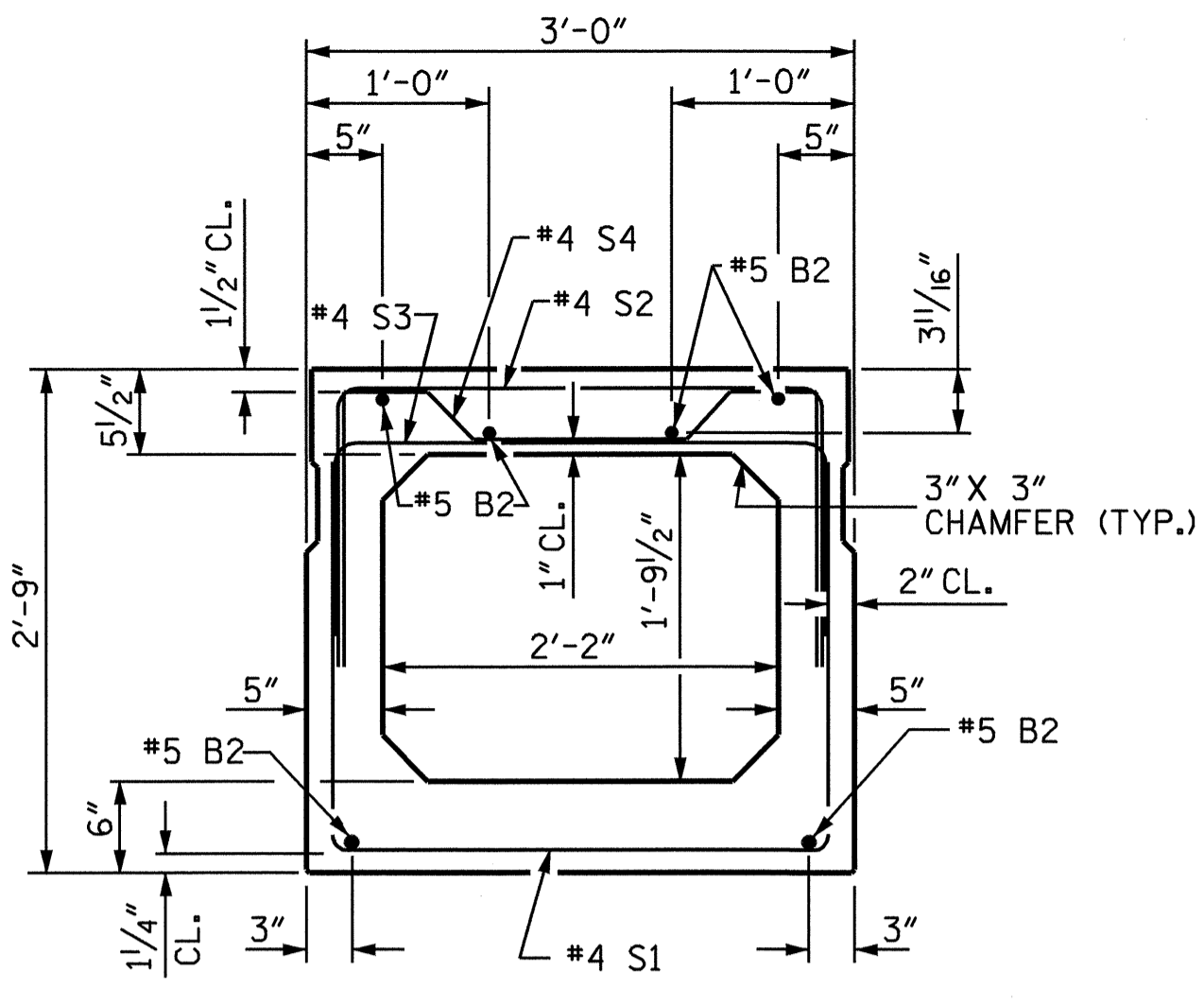
ADDED 7/11/05
 REV. 5/1/06 TLA/GM





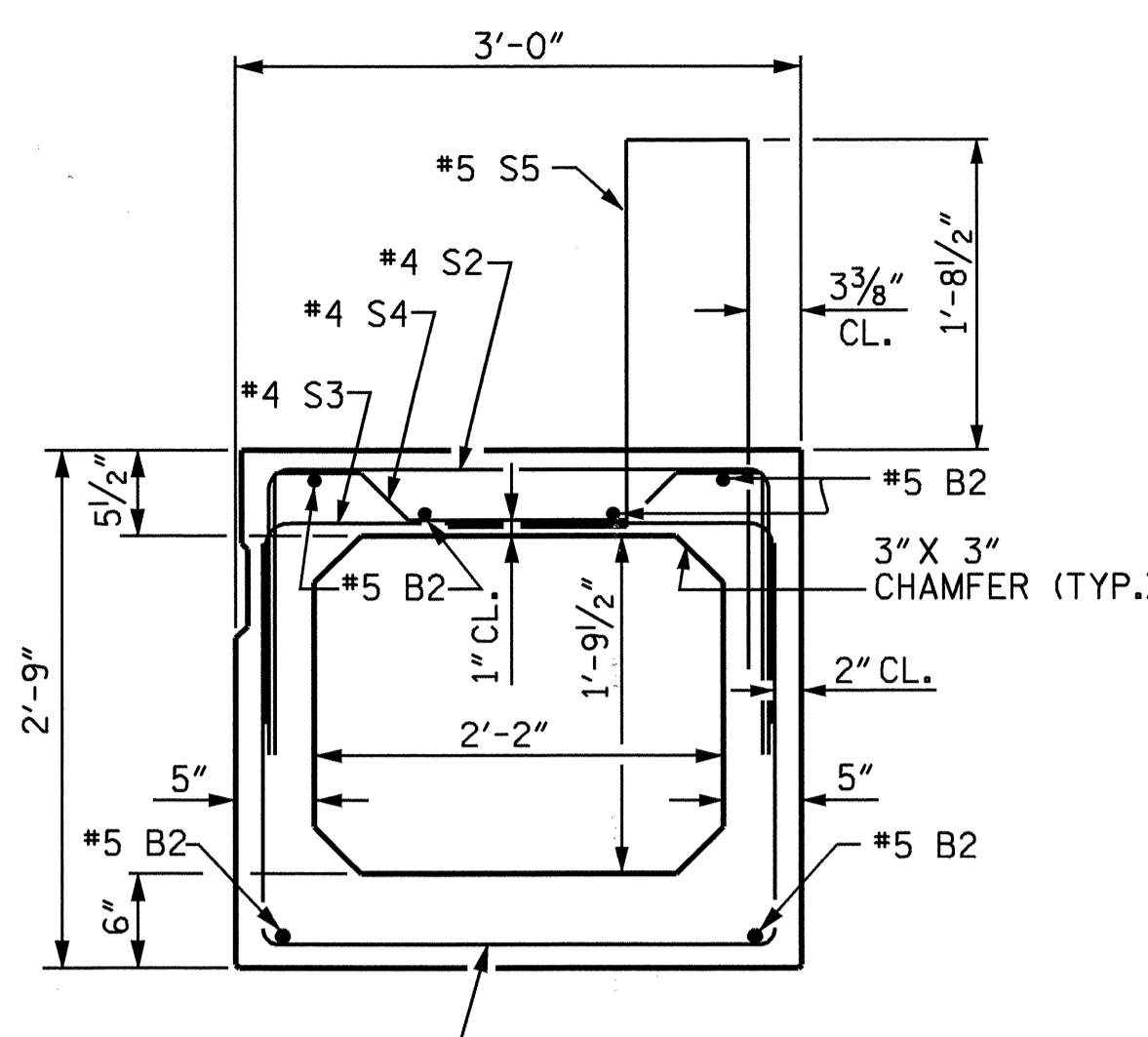
END ELEVATION

SHOWING PLACEMENT OF #5 & #4 "A" BARS AND LOCATION OF DOWEL HOLES. (INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION. STRAND LAYOUT NOT SHOWN.)



INTERIOR BOX BEAM SECTION

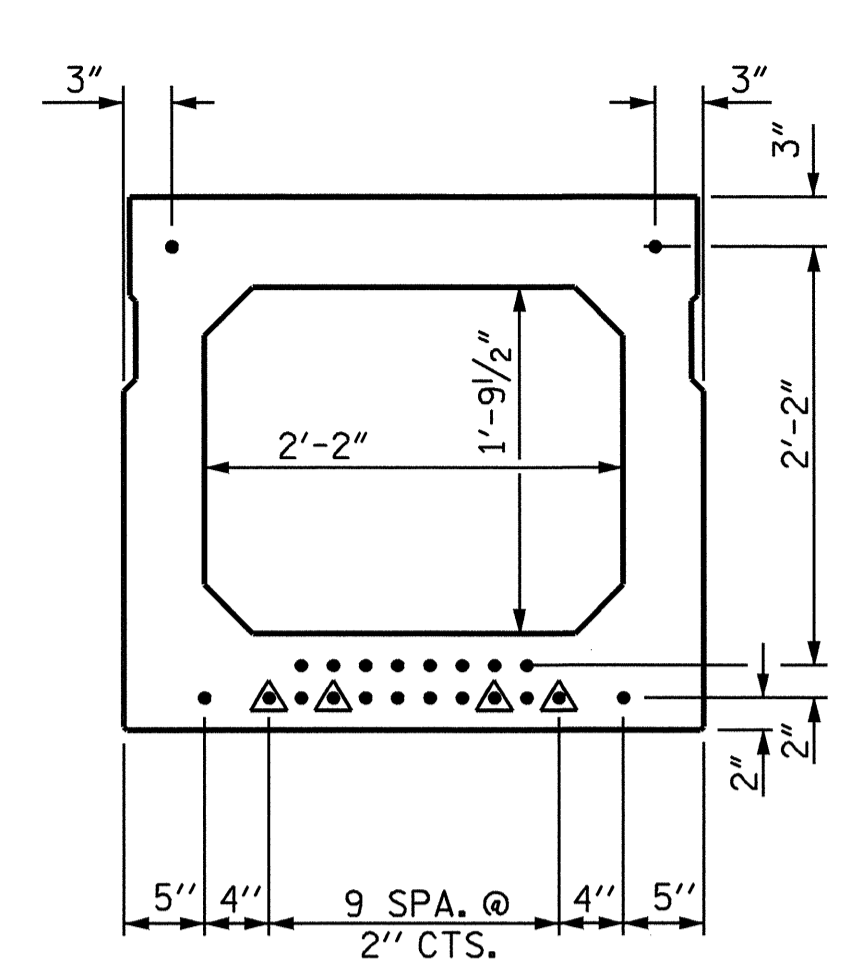
(STRAND LAYOUT NOT SHOWN)



EXTERIOR BOX BEAM SECTION

(STRAND LAYOUT NOT SHOWN)

0.6" Ø LOW RELAXATION STRAND LAYOUT



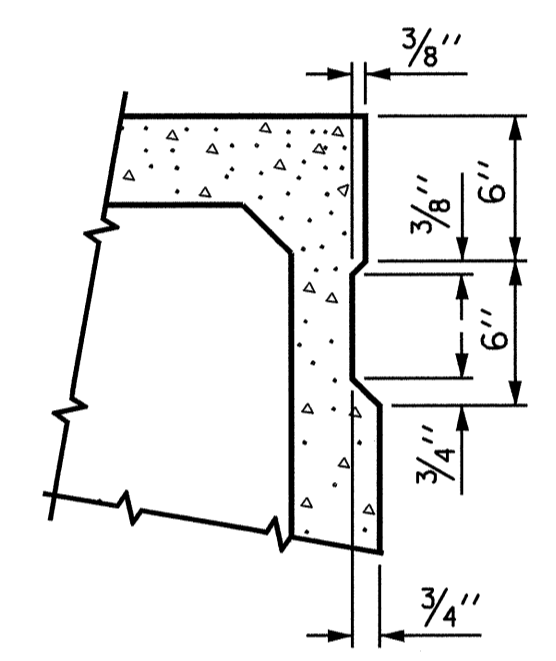
TYPICAL STRAND LOCATION

(22 STRANDS REQUIRED)

(INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION)

DEBONDING LEGEND

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



SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR BOX BEAMS.

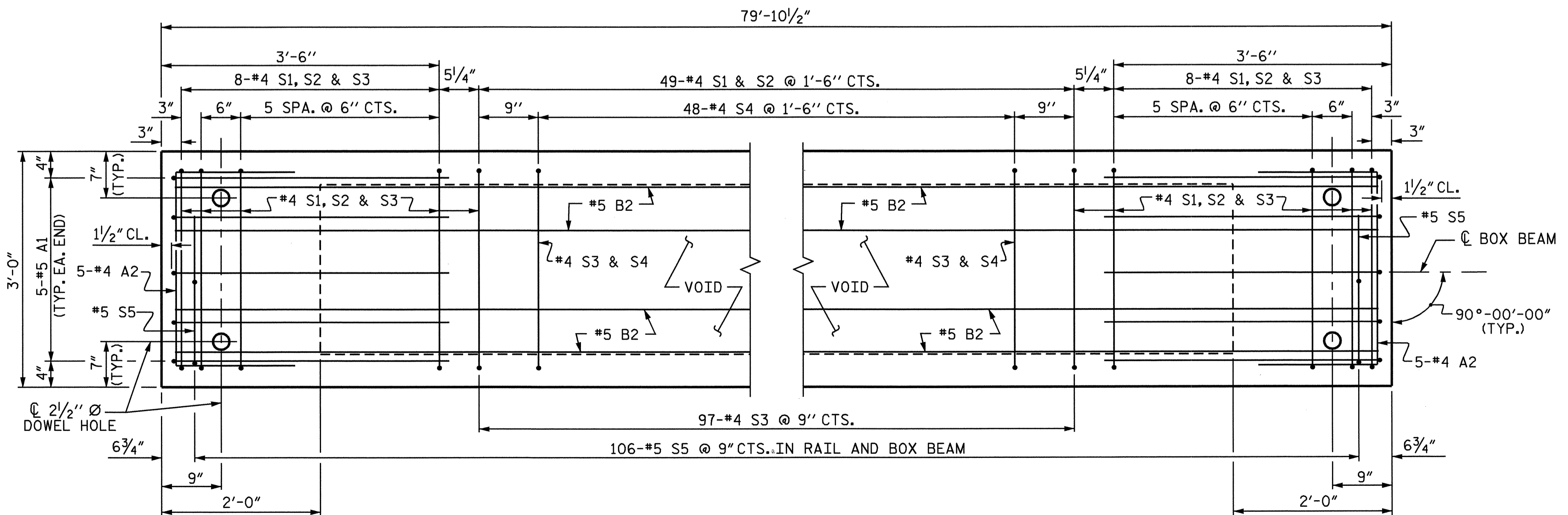
GRADE 270 STRANDS	
AREA (SQUARE INCHES)	0.6" Ø L.R.
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE BOX BEAM SECTION

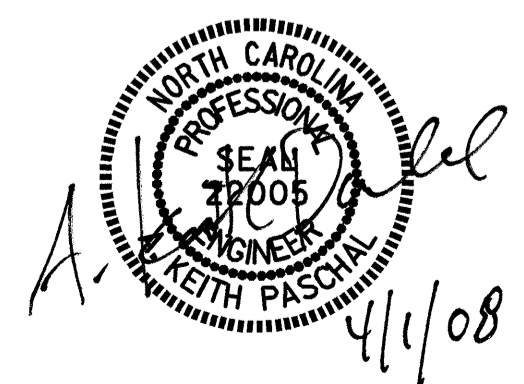
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
A1	10	#5	1	6'-8"	70	6'-8"	70
A2	34	#4	2	5'-7"	127	5'-7"	127
B2	12	#5	STR	40'-11"	512	40'-11"	512
K1	12	#4	6	6'-2"	49	6'-2"	49
K2	8	#4	STR	2'-7"	14	2'-7"	14
S1	65	#4	3	7'-6"	326	7'-6"	326
S2	65	#4	3	5'-8"	246	5'-8"	246
S3	113	#4	3	4'-10"	365	4'-10"	365
S4	48	#4	4	5'-10"	187	5'-10"	187
* S5	106	#5	5	6'-6"	719	--	--
REINFORCING STEEL				1896 LBS.		1896 LBS.	
* EPOXY COATED REINF. STEEL				719 LBS.			
6500 P.S.I. CONCRETE				14.2 CU. YDS.		14.1 CU. YDS.	
0.6" Ø L.R. STRANDS				No. 22		No. 22	



PLAN OF BOX BEAM

EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S5 BARS. FOR LOCATION OF DIAPHRAGMS, SEE PLAN OF SPANS. FOR REINFORCING STEEL IN DIAPHRAGMS, SEE DIAPHRAGM DETAILS, SHEET 3 OF 3.

ASSEMBLED BY : A.M. KEETER	DATE : 4/11/06
CHECKED BY : J.G. KHARVA	DATE : 6/7/06
DRAWN BY : TLA 5/05	ADDED 7/11/05
CHECKED BY : GM 6/05	REV. 5/1/06 TLA/GM



PROJECT NO. B-3803
ASHE COUNTY
 STATION: 15+72.00 -L-

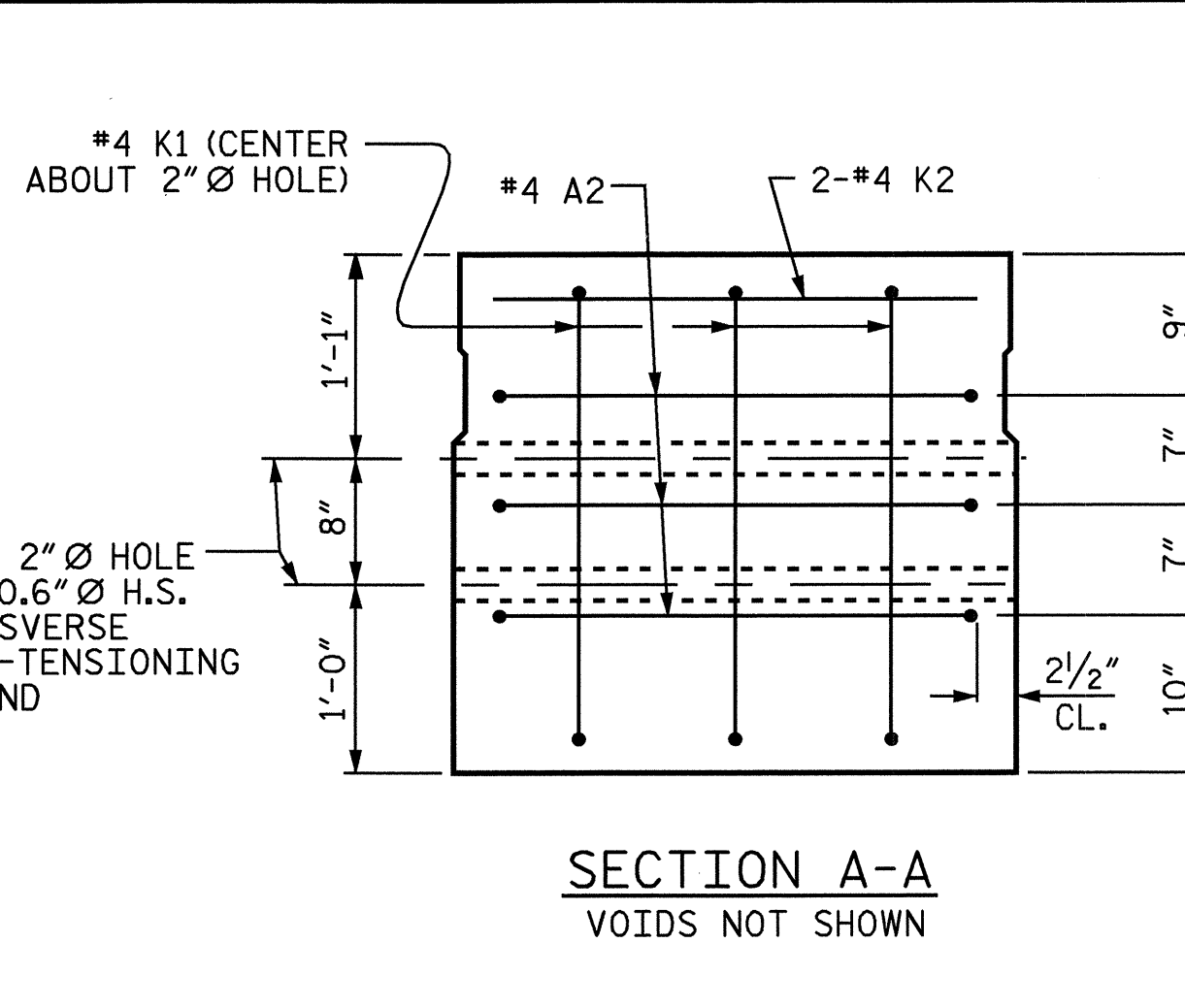
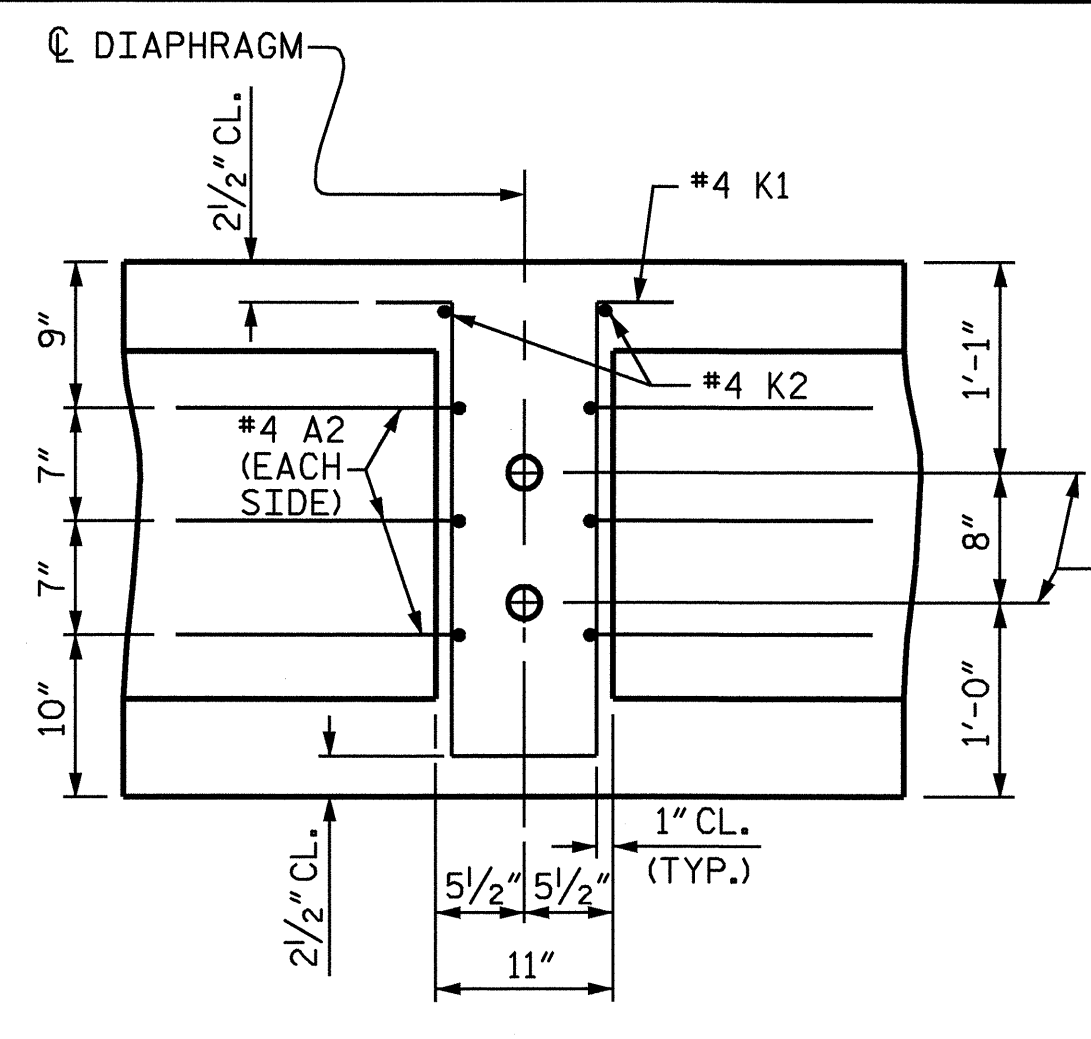
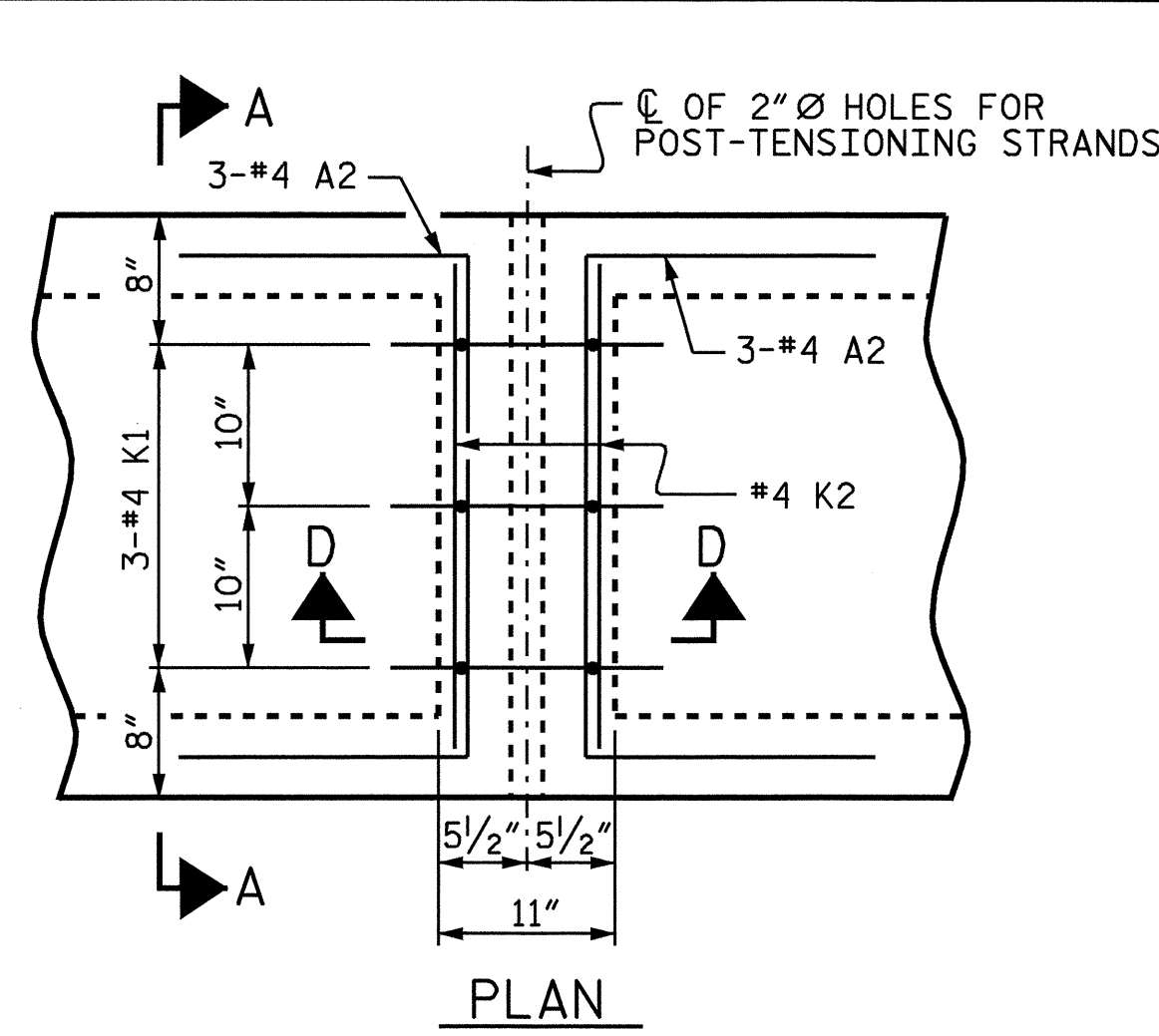
SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

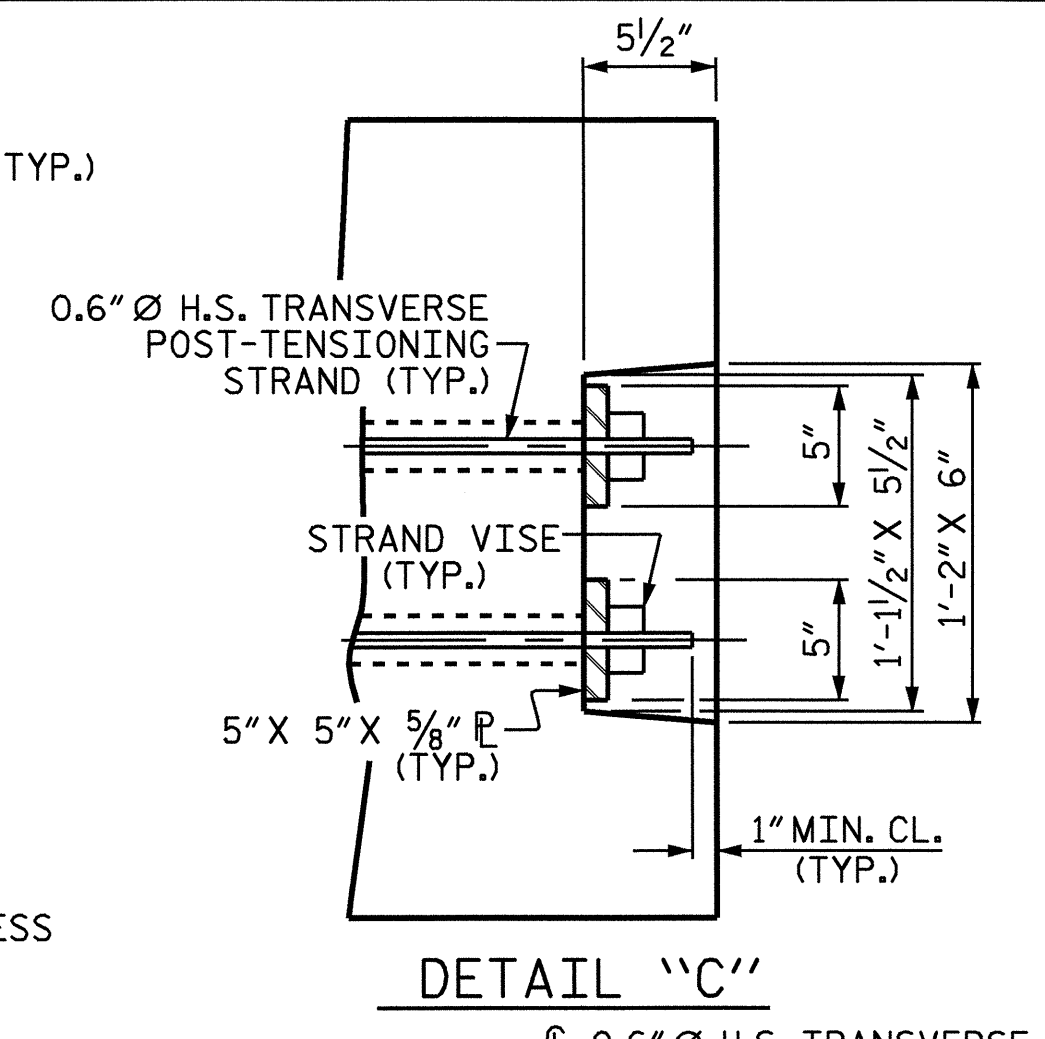
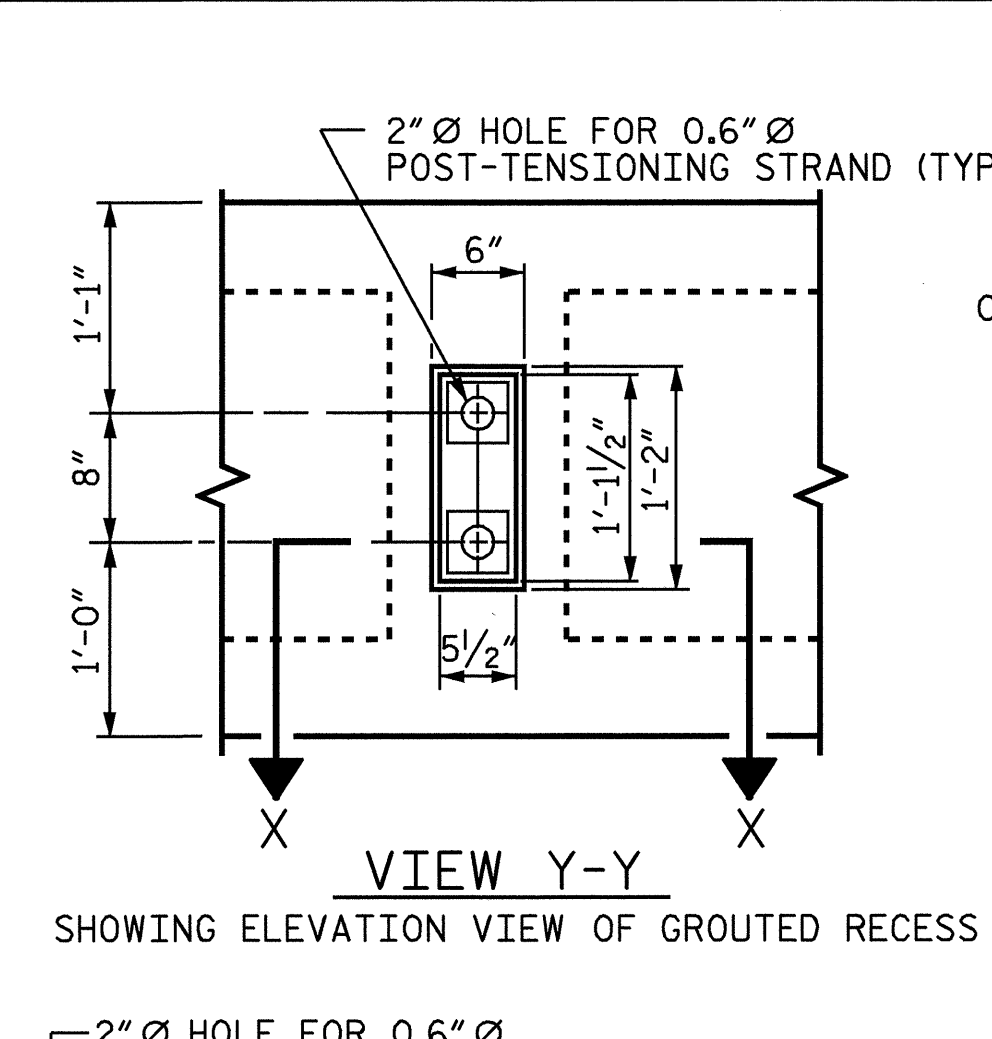
STANDARD
 3'-0" X 2'-9"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT

SPAN B & C

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS 27
2			4			

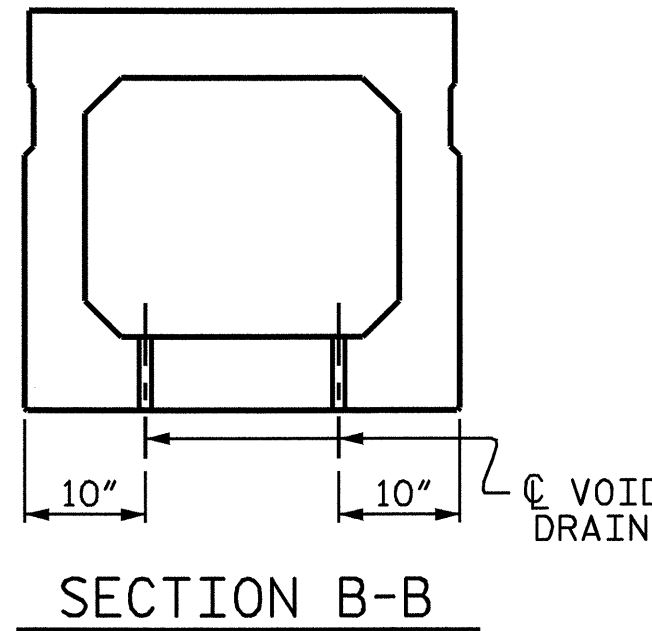
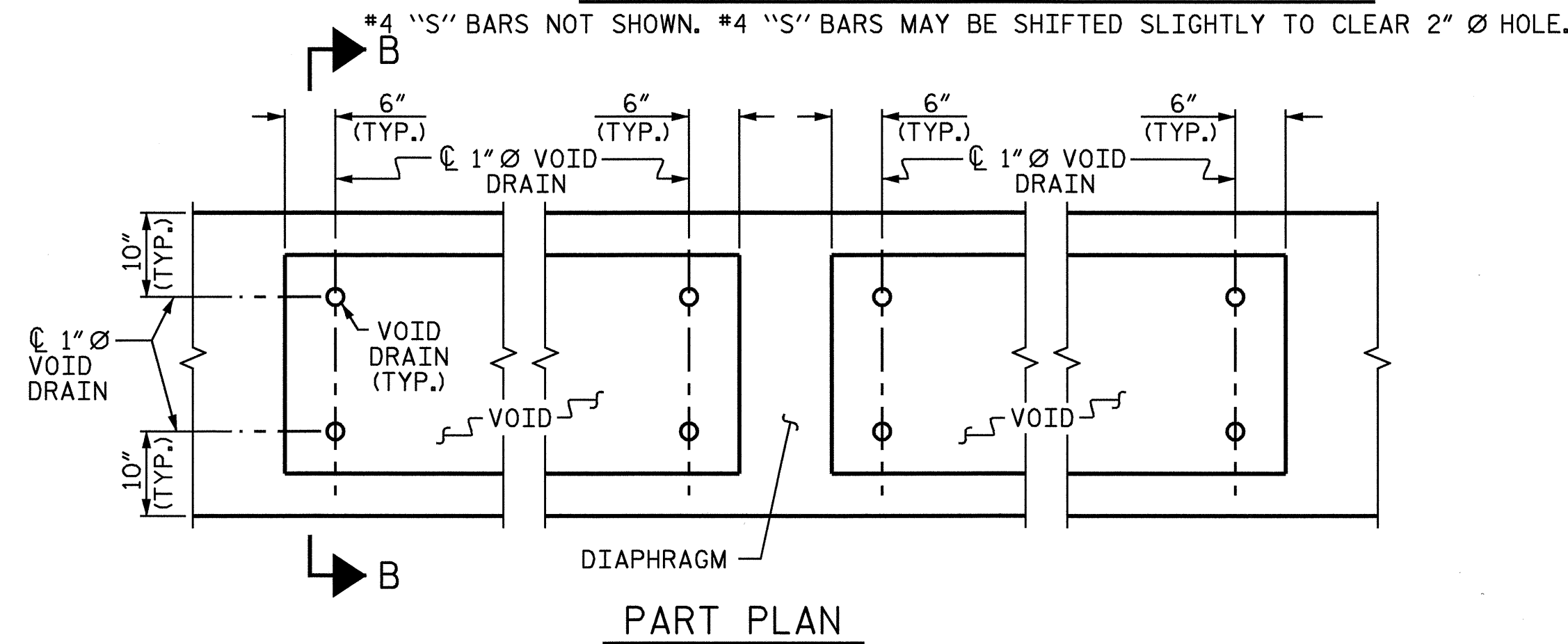


SECTION D-D
DOUBLE DIAPHRAGM DETAILS

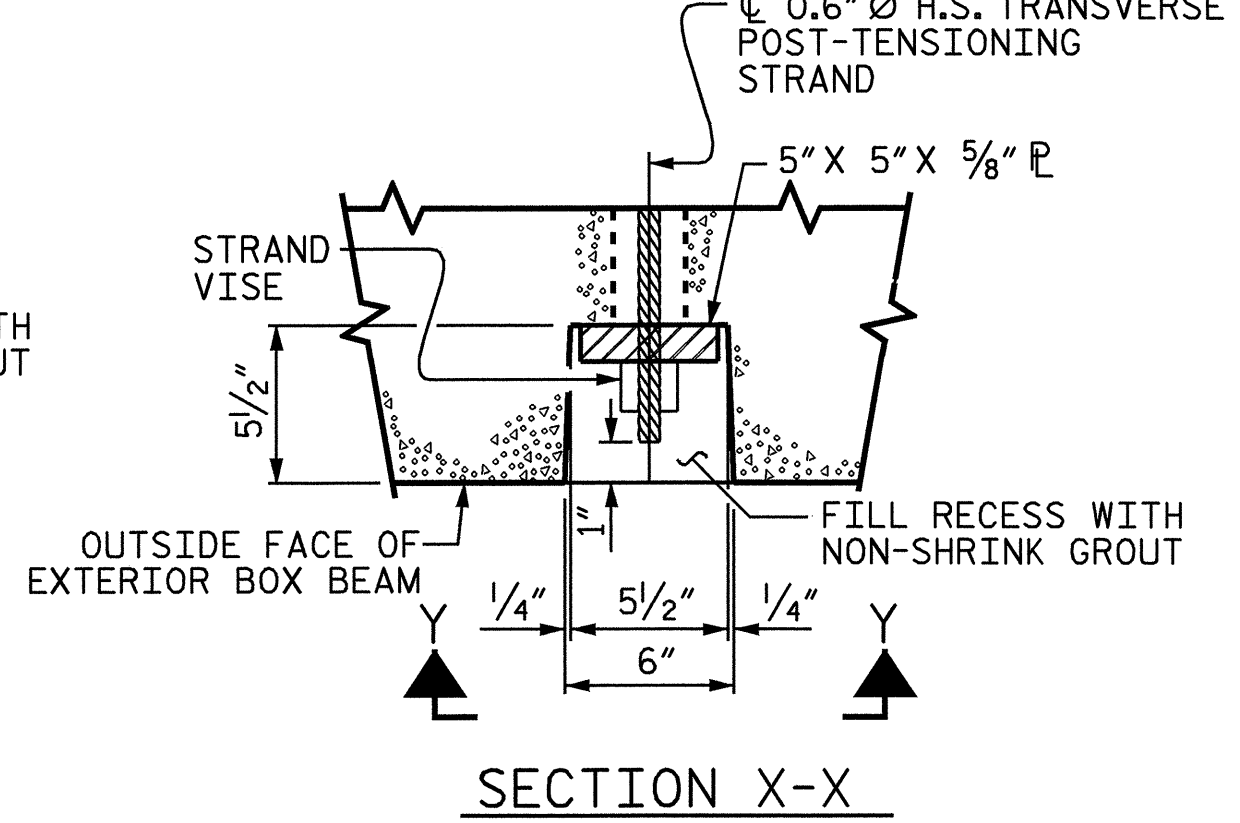
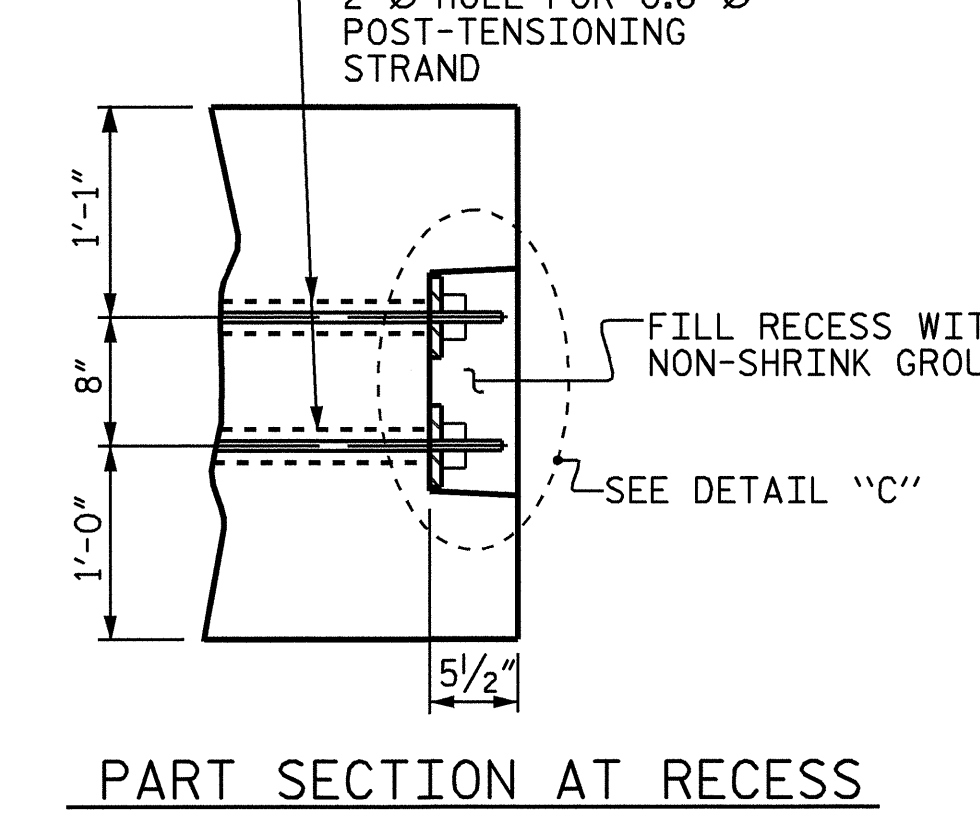


VIEW Y-Y
SHOWING ELEVATION VIEW OF GROUDED RECESS

DETAIL "C"
SHOWING PLAN VIEW OF GROUDED RECESS

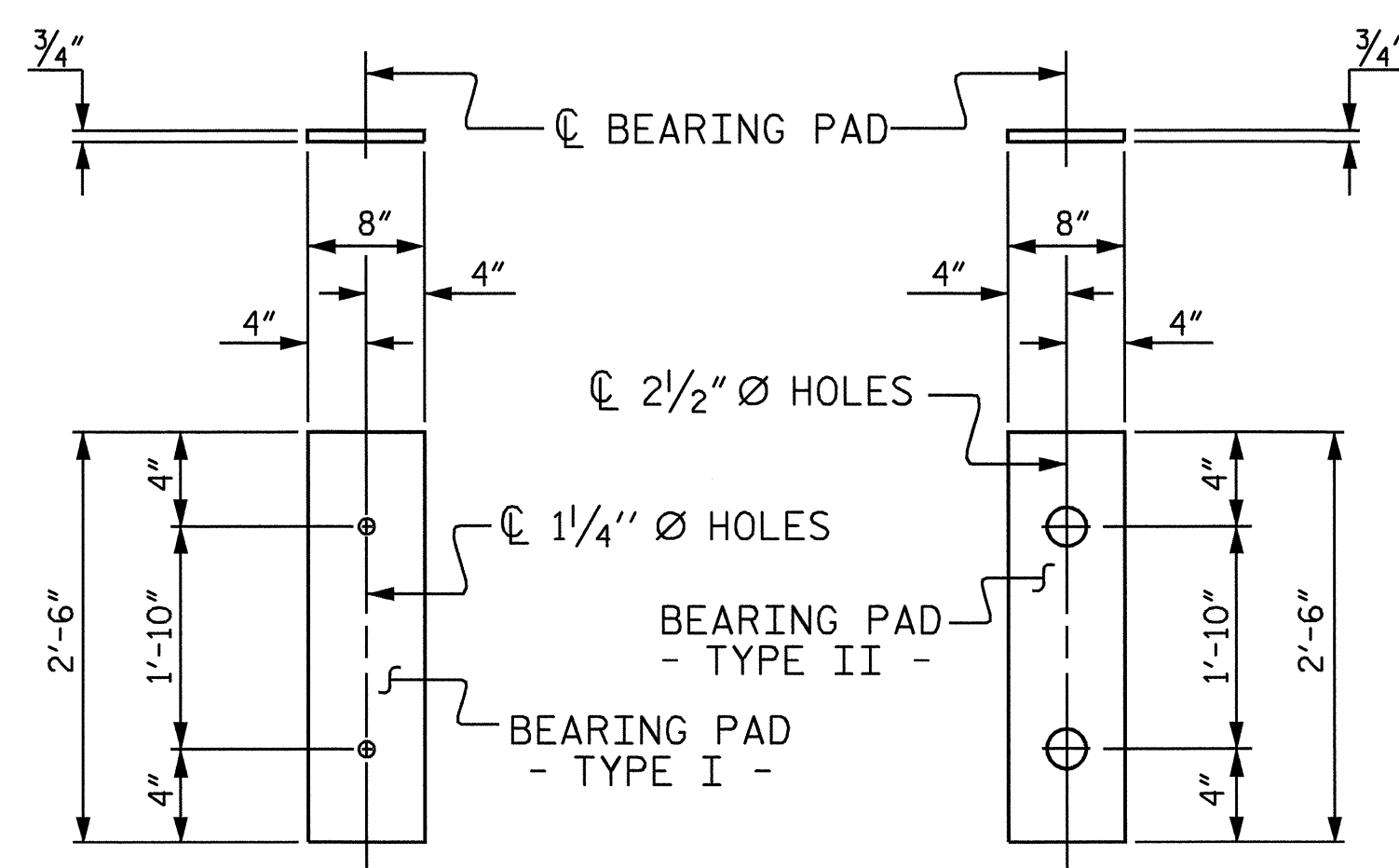


PART PLAN
VOID DRAIN DETAILS
(DIMENSIONS SHOWN ARE TYPICAL FOR EACH VOID)



PART SECTION AT RECESS
GROUDED RECESS DETAIL AT END OF
POST-TENSIONED STRANDS OF EXTERIOR BOX BEAM

SECTION X-X
SHOWING PLAN VIEW OF GROUDED RECESS



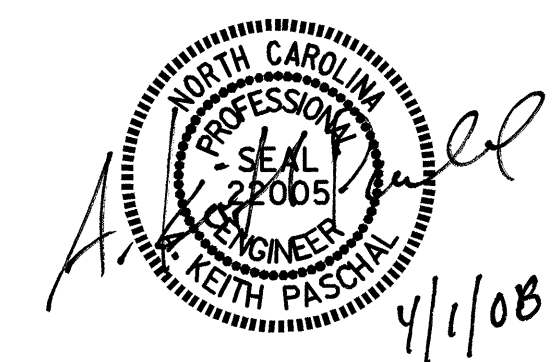
FIXED END (TYPE I - 33 REQ'D)
EXPANSION END (TYPE II - 33 REQ'D)
ELASTOMERIC BEARING DETAILS
(60 DUROMETER HARDNESS)

BOX BEAM UNITS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
SPAN A	11	38'-9 3/4"	426'-11 1/4"
SPAN B	11	79'-10 1/2"	878'-7 1/2"
SPAN C	11	79'-10 1/2"	878'-7 1/2"
TOTAL	33		2184'-2 1/4"

DEAD LOAD DEFLECTION AND CAMBER			
3'-0" x 2'-9" / 0.6" Ø L.R. STRAND			
	SPAN A	SPAN B	SPAN C
CAMBER (BEAM ALONE IN PLACE) ↑	15/16"	3/8"	3/8"
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD ** ↓	0"	9/16"	9/16"
FINAL CAMBER ↑	15/16"	29/16"	29/16"

** INCLUDES FUTURE WEARING SURFACE

PROJECT NO. B-3803
ASHE COUNTY
STATION: 15+72.00 -L-
SHEET 3 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3'-0" X 2'-9"
PRESTRESSED CONCRETE
BOX BEAM UNIT

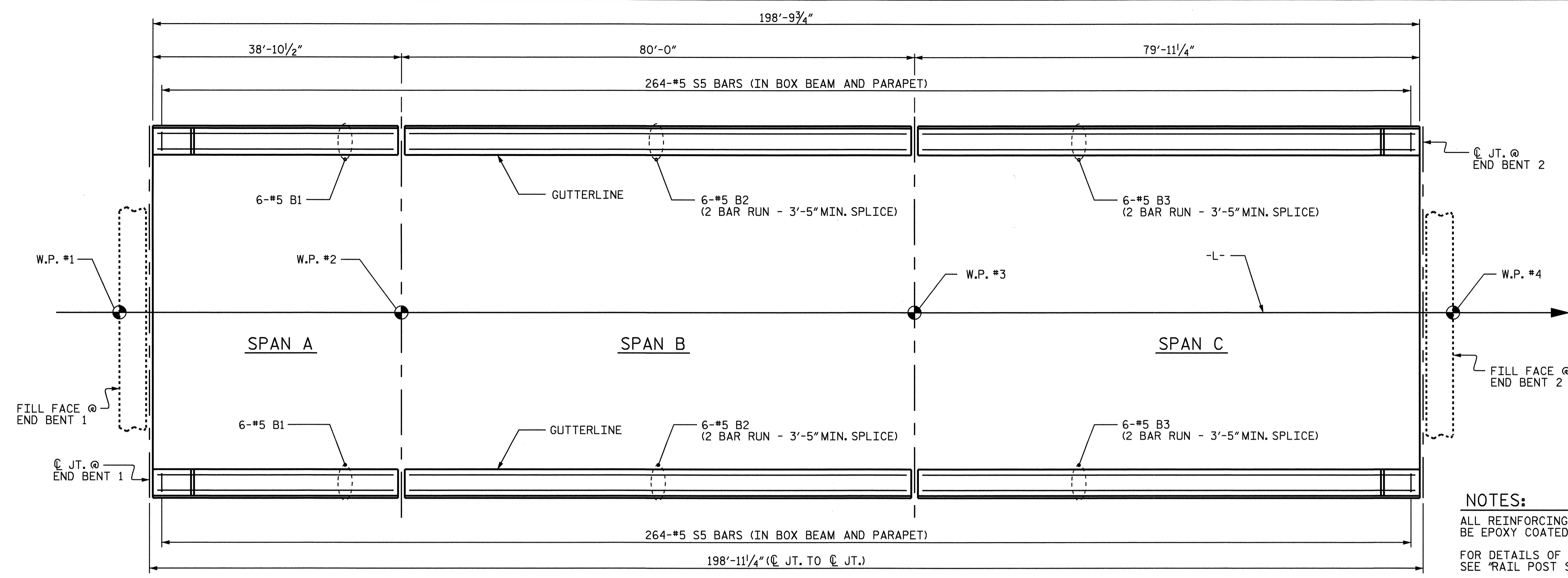
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-10
TOTAL SHEETS 27

ASSEMBLED BY: A.M. KEETER DATE: 4/11/06
CHECKED BY: J.G. KHARVA DATE: 6/7/06
DRAWN BY: TLA 5/05 ADDED 7/11/05
CHECKED BY: GM 6/05 REV. 5/1/06 TLA/GM

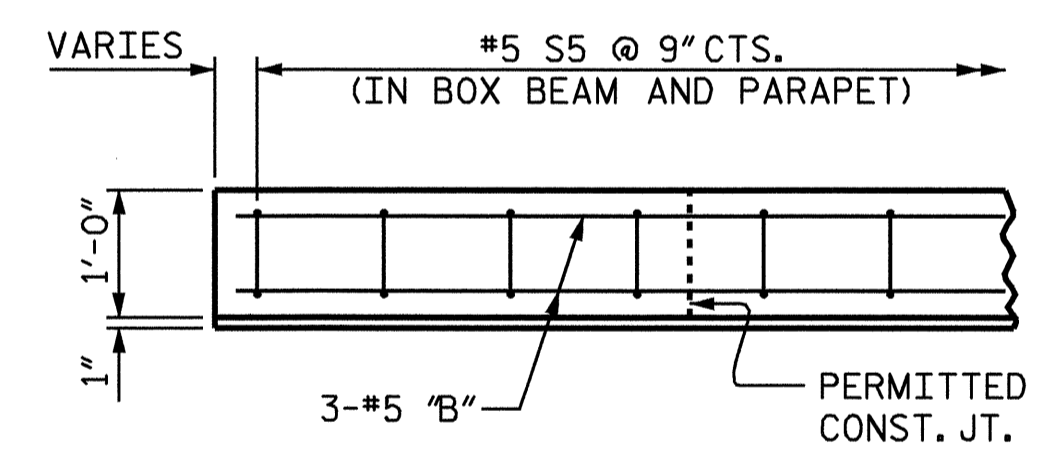
BILL OF MATERIAL FOR PARAPET AND END POSTS

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	12	#5	STR	38'-5"	481
* B2	24	#5	STR	41'-6"	1039
* B3	24	#5	STR	41'-5"	1037
* E1	8	#7	STR	2'-3"	37
* E2	8	#7	STR	2'-5"	40
* E3	8	#7	STR	2'-7"	42
* E4	8	#7	STR	2'-9"	45
* E5	8	#7	STR	2'-10"	46
* F1	16	#6	STR	3'-5"	82
* EPOXY COATED REINFORCING STEEL					2849 LBS.
CLASS AA CONCRETE					27.6 CU.YDS.
CONCRETE PARAPET					397.63 LIN.FT.

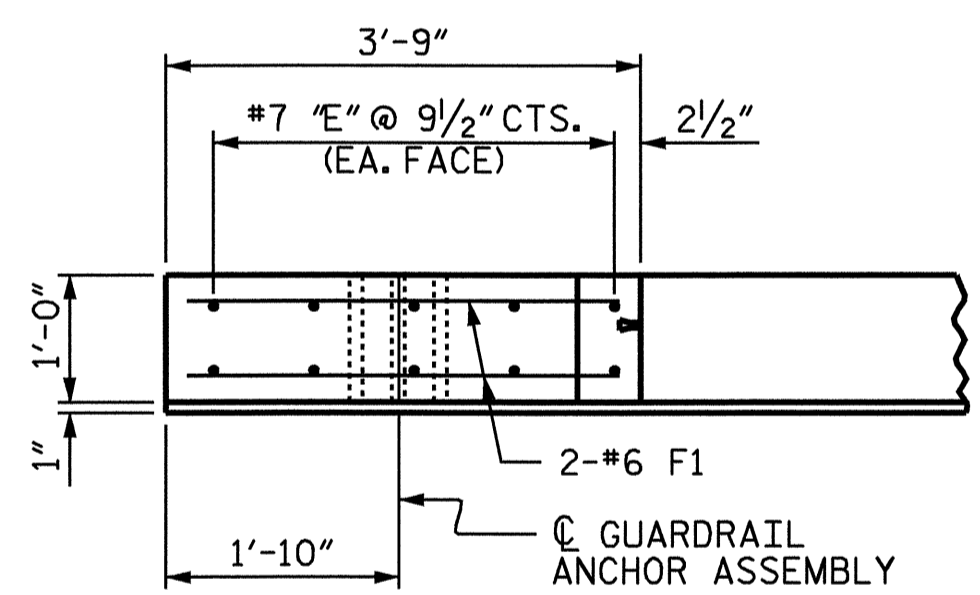


NOTES:
 ALL REINFORCING STEEL IN THE PARAPETS AND END POSTS SHALL BE EPOXY COATED.
 FOR DETAILS OF CONCRETE INSERT AND GUARDRAIL ANCHOR ASSEMBLY, SEE "RAIL POST SPACINGS AND END OF RAIL DETAILS" SHEET 3 OF 4.
 GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE PARAPET IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINT SHALL BE LOCATED AT A SPACING OF 8 FT. TO 10 FT. BETWEEN EXPANSION JOINTS. NO CONTRACTION JOINTS WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FEET IN LENGTH.

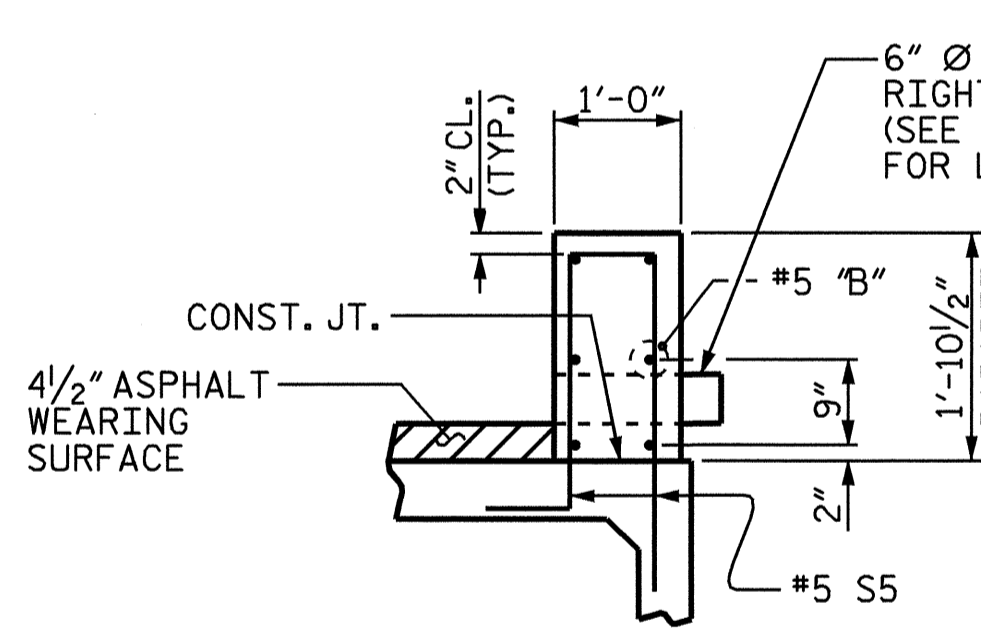
PLAN OF PARAPET



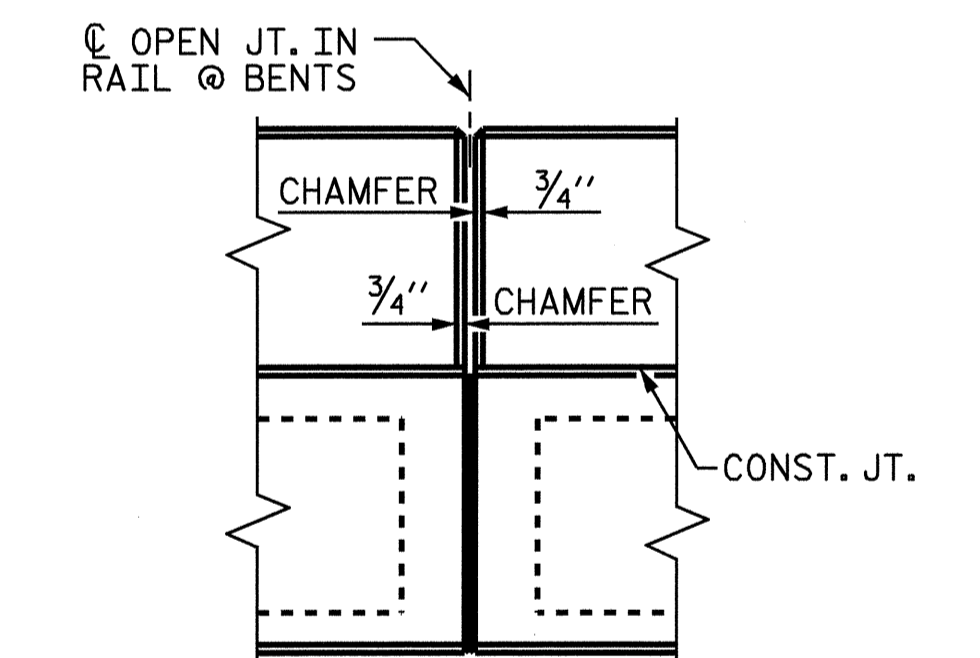
PLAN OF PARAPET



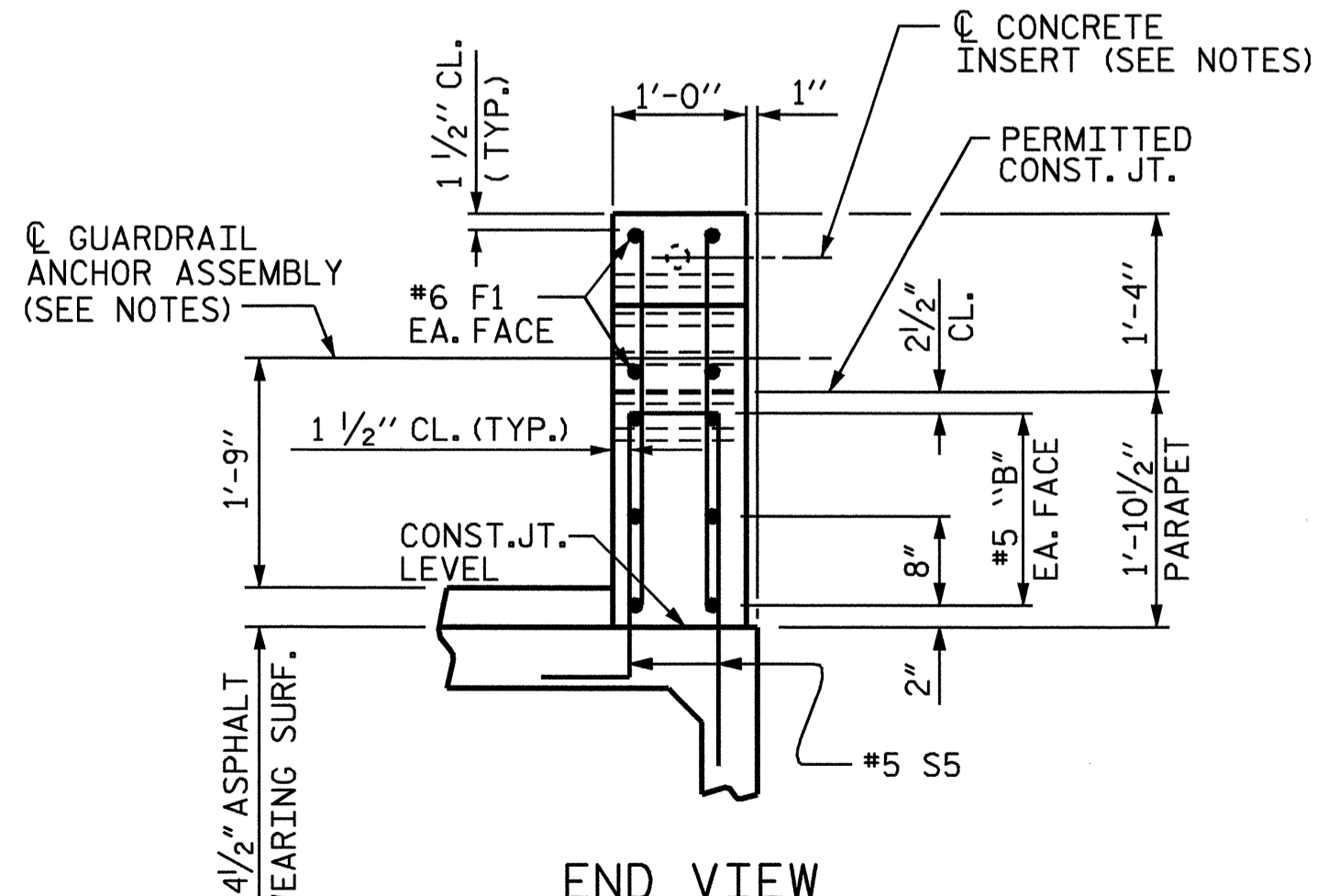
PLAN OF END POST



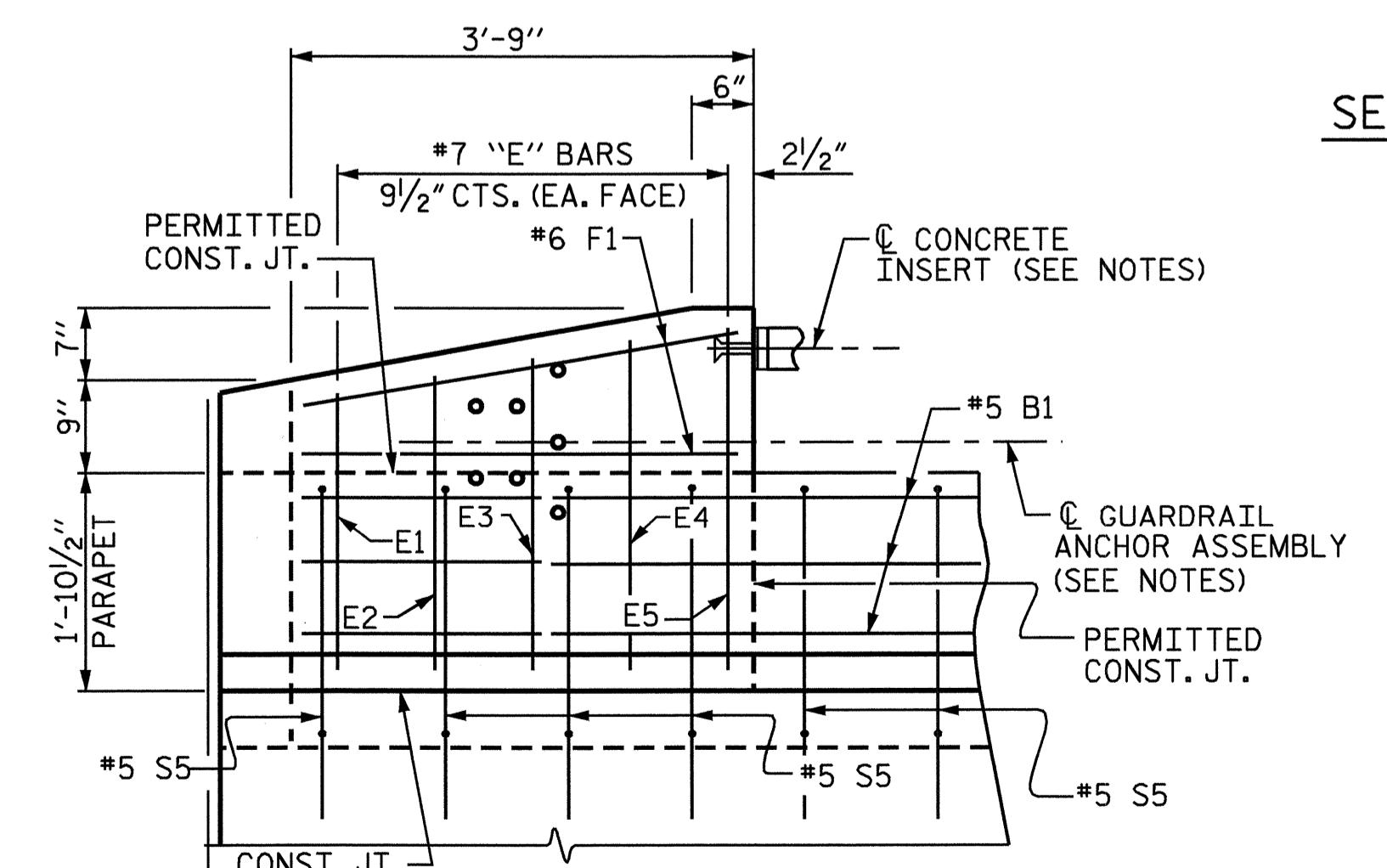
SECTION THRU PARAPET



ELEVATION AT EXPANSION JOINTS
PARAPET DETAILS



END VIEW



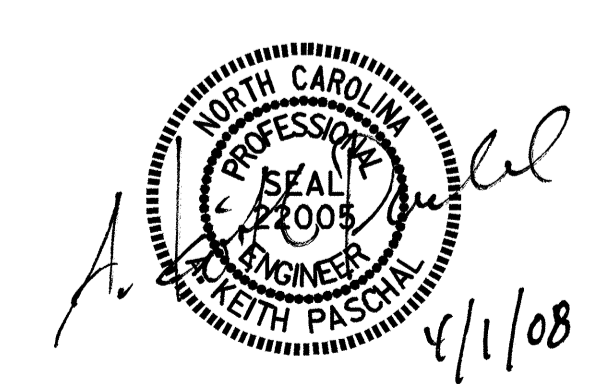
ELEVATION

PARAPET AND END POST FOR ONE BAR METAL RAIL

PROJECT NO. B-3803
ASHE COUNTY
 STATION: 15+72.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
**CONCRETE PARAPET
 AND PARAPET
 END POST DETAILS**



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			27

DRAWN BY : A.M. KEETER DATE : 4/12/06
 CHECKED BY : J.G. KHARVA DATE : 6/8/06

NOTES

STRUCTURAL CONCRETE INSERT

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

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

NOTES

METAL RAIL TO END POST CONNECTION

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

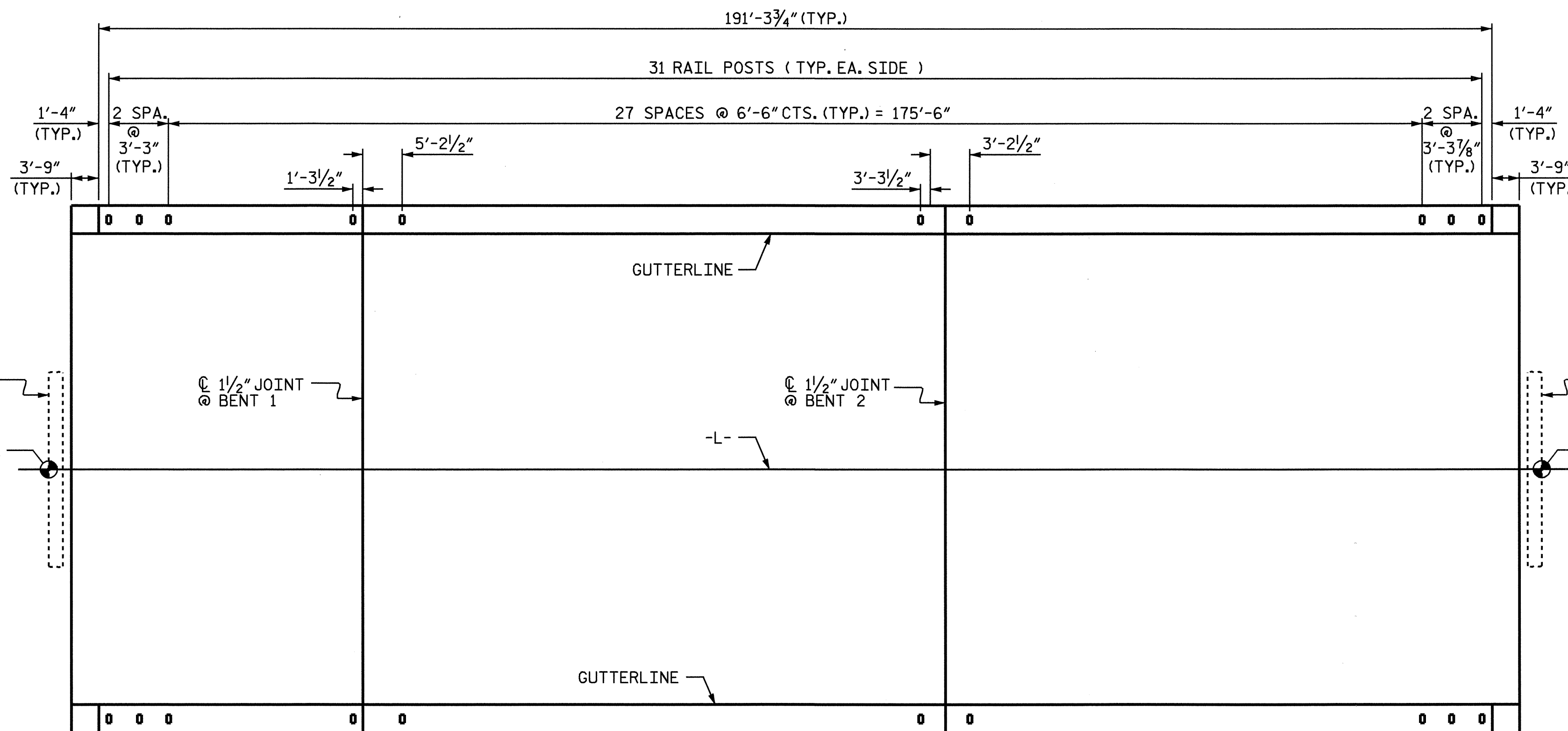
- A. 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
- B. 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" Ø X 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" Ø X 1 5/8" BOLT SHALL HAVE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

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

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

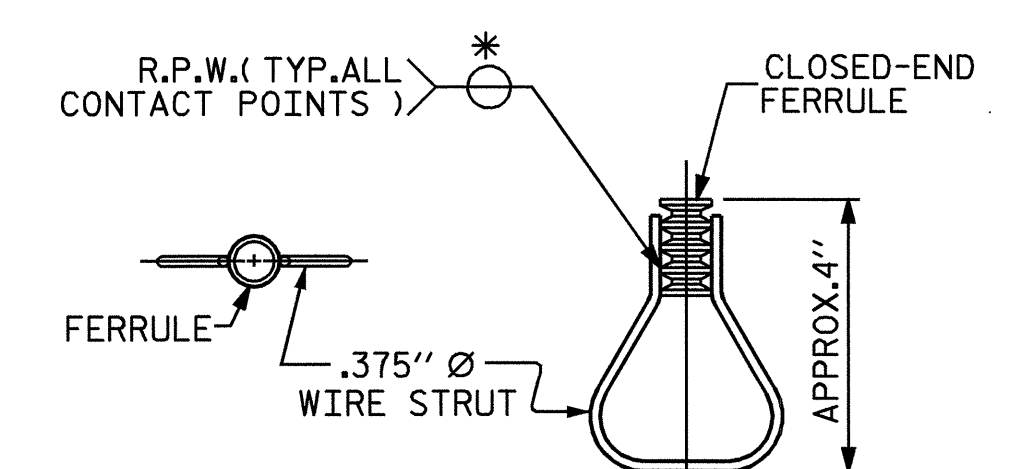
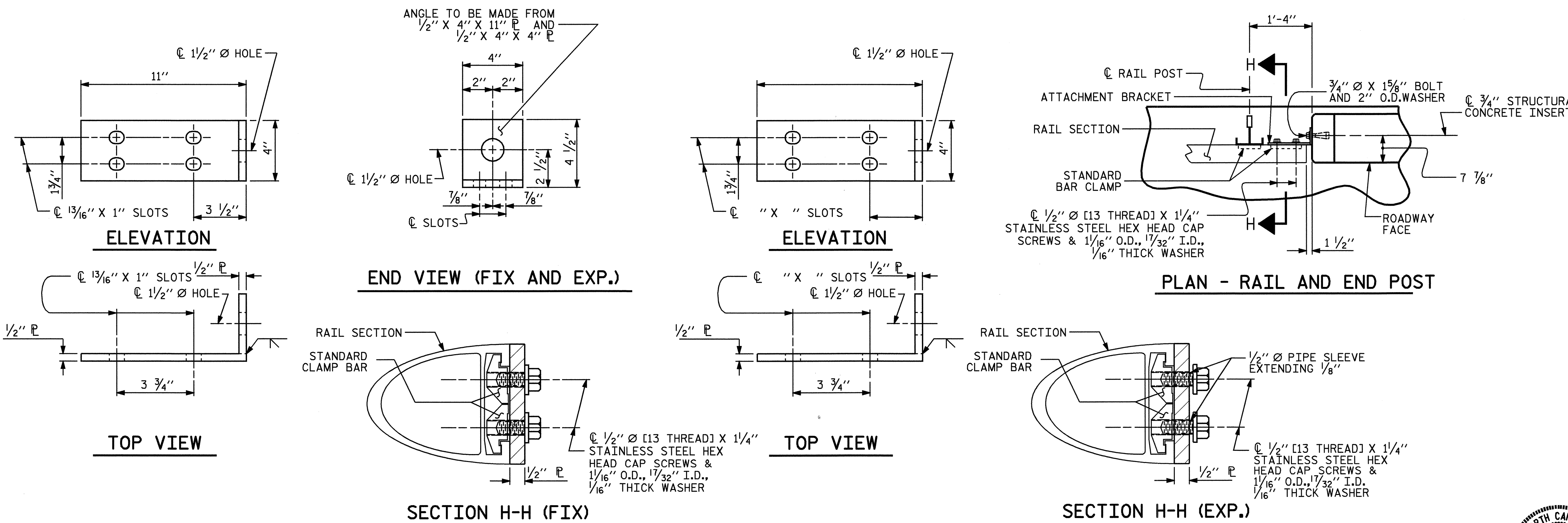
THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 1/2" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

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



PLAN OF RAIL POST SPACINGS

(SPACING TYPICAL EACH SIDE)

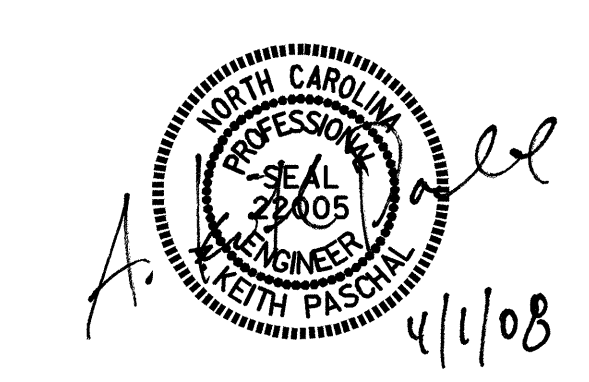


PLAN ELEVATION STRUCTURAL CONCRETE INSERT

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

PROJECT NO. B-3803
ASHE COUNTY
 STATION: 15+72.00 -L-

SHEET 3 OF 4
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
**RAIL POST SPACINGS
 AND
 END OF RAIL DETAILS**
 FOR ONE OR TWO BAR METAL RAILS



ASSEMBLED BY : J.D. HAWK	DATE : 1/25/08
CHECKED BY : J.G. KHARVA	DATE : 2/6/08
DRAWN BY : FCJ 1/88	REV. 10/17/00 LES/RDR
CHECKED BY : CRK 3/89	REV. 5/7/03 RWW/JTE
	REV. 5/1/06 TLA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			27

NOTES

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

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

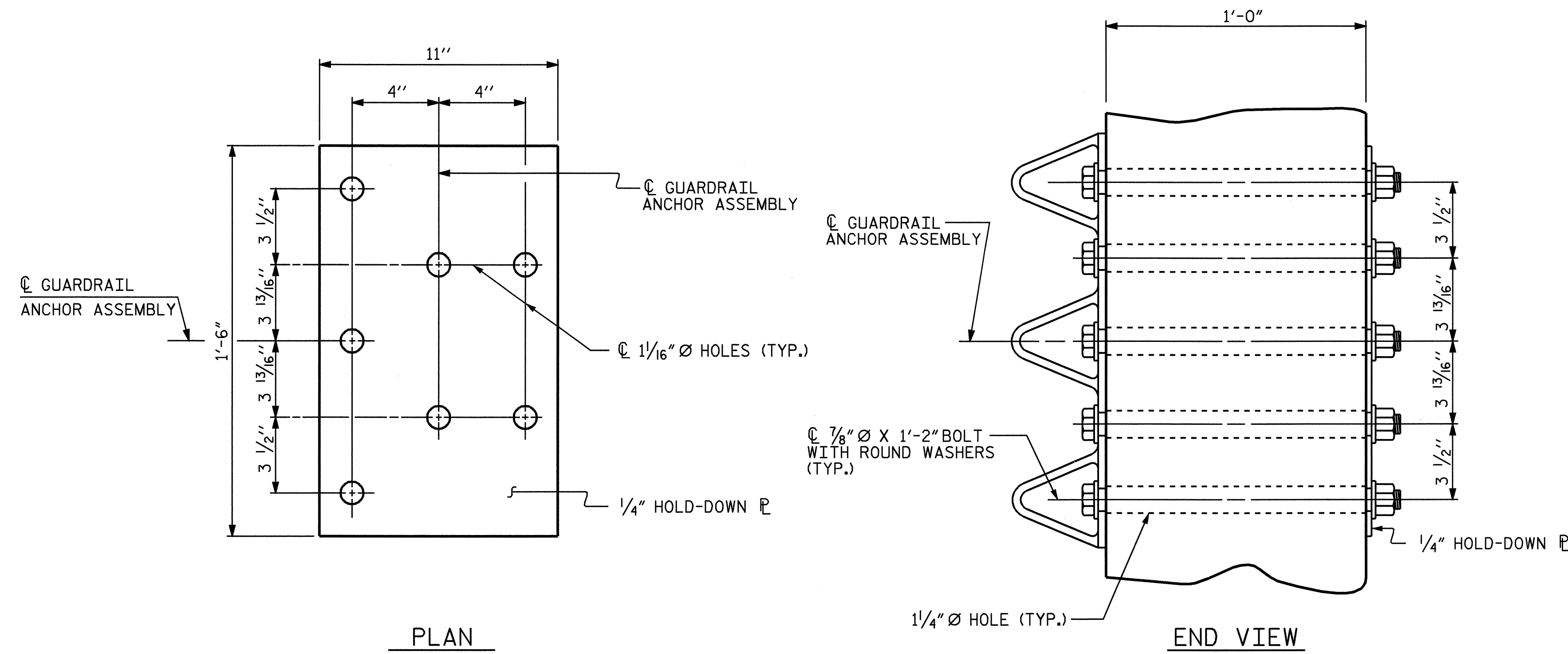
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS.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

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

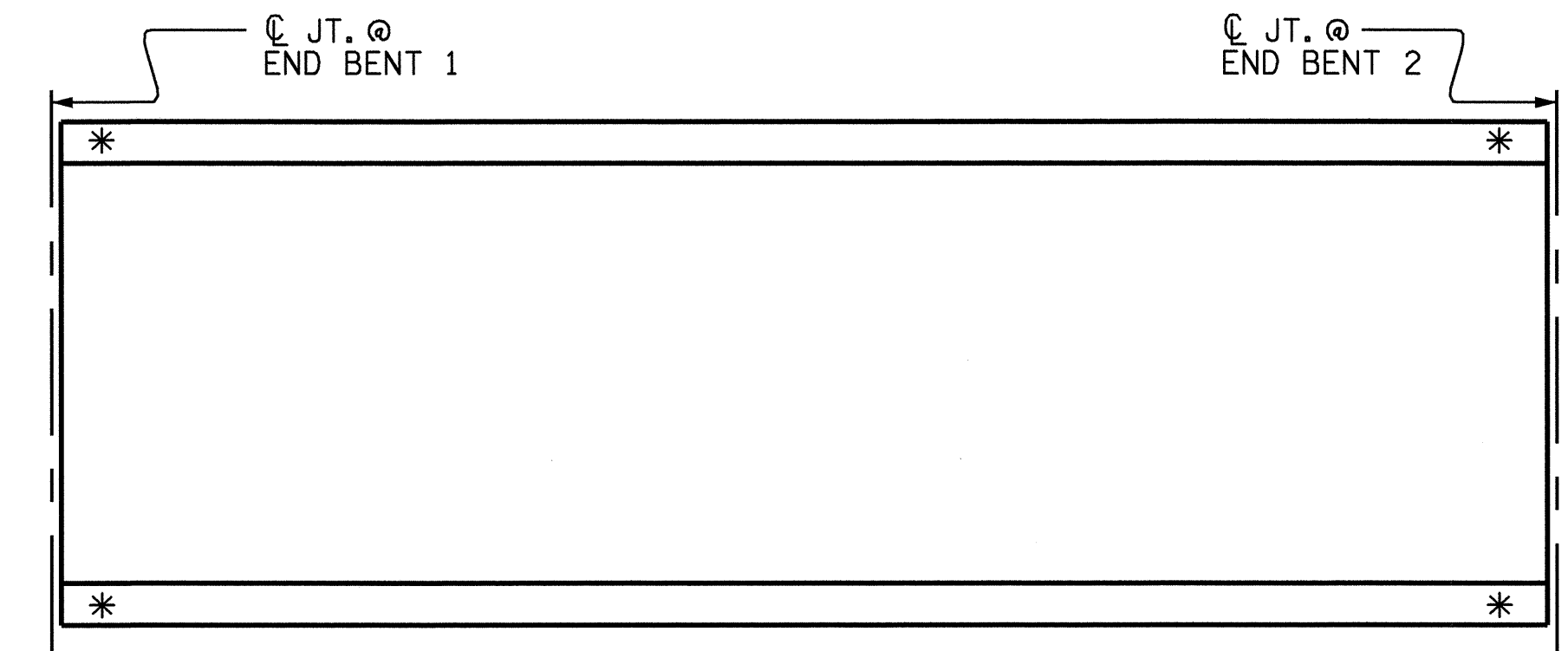
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

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

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

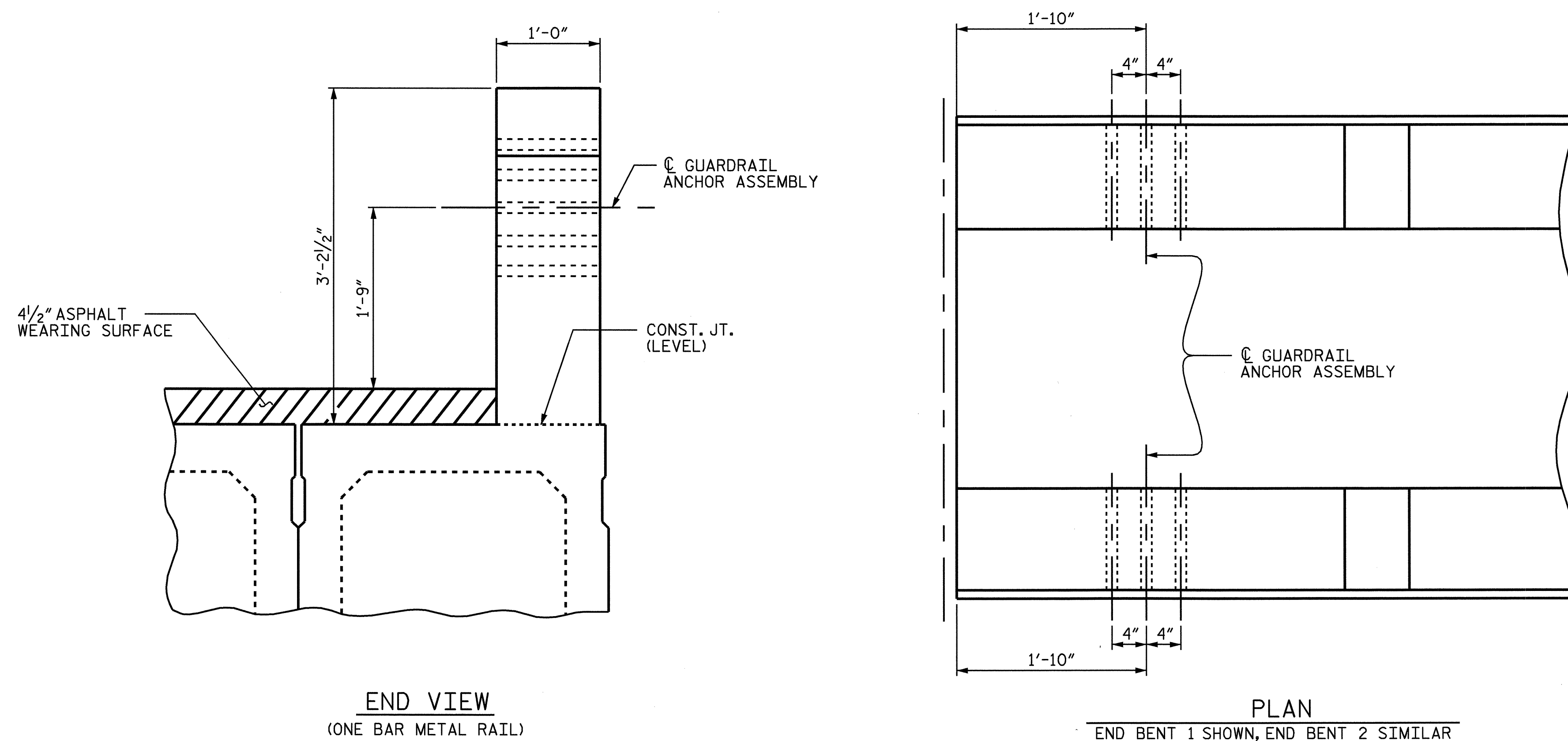


GUARDRAIL ANCHOR ASSEMBLY DETAILS



SKETCH SHOWING POINTS OF ATTACHMENT

* LOCATION OF GUARDRAIL ATTACHMENT



LOCATION OF GUARDRAIL ANCHOR AT END POST

PROJECT NO. B-3803
ASHE COUNTY
 STATION: 15+72.00 -L-

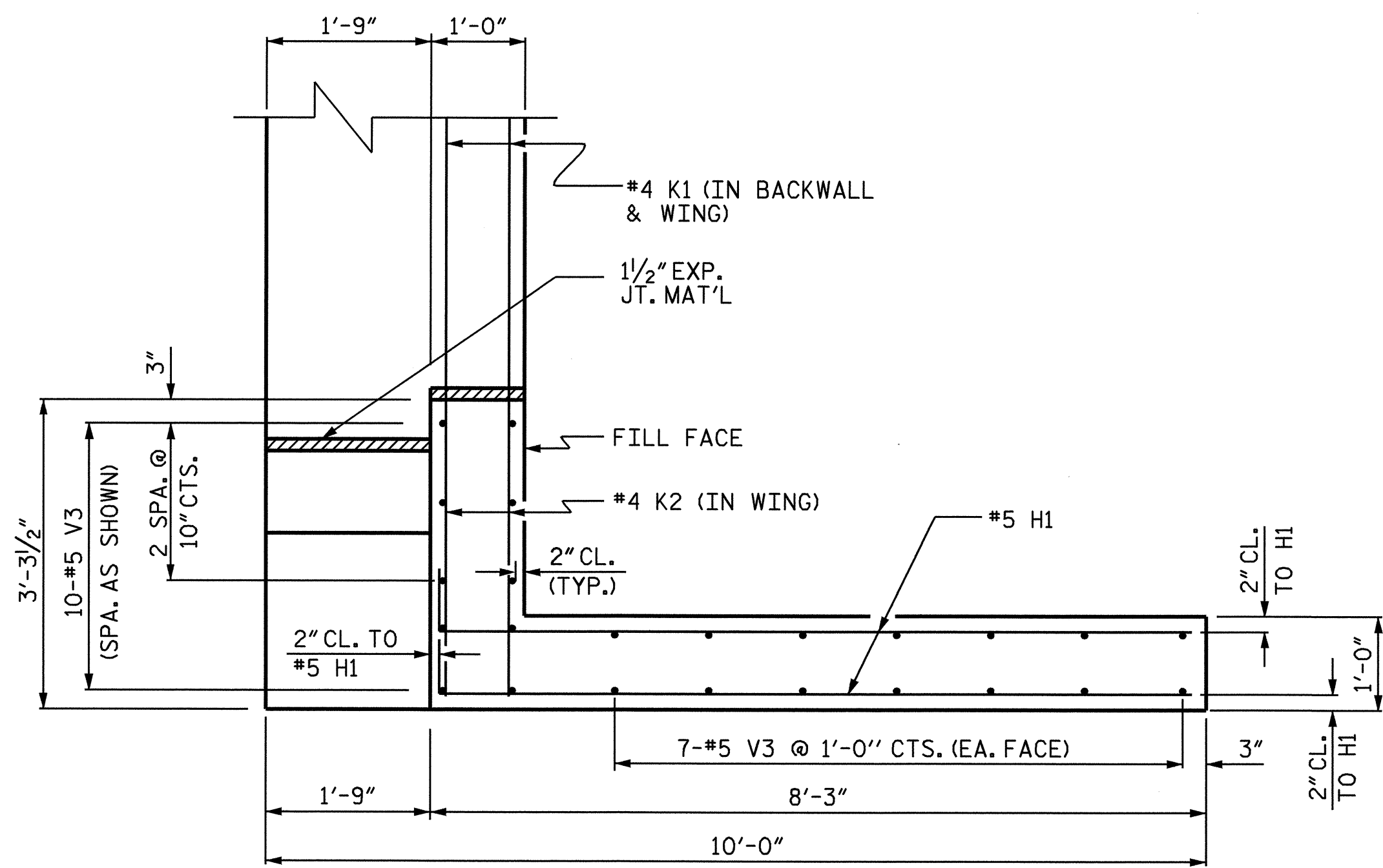
SHEET 4 OF 4



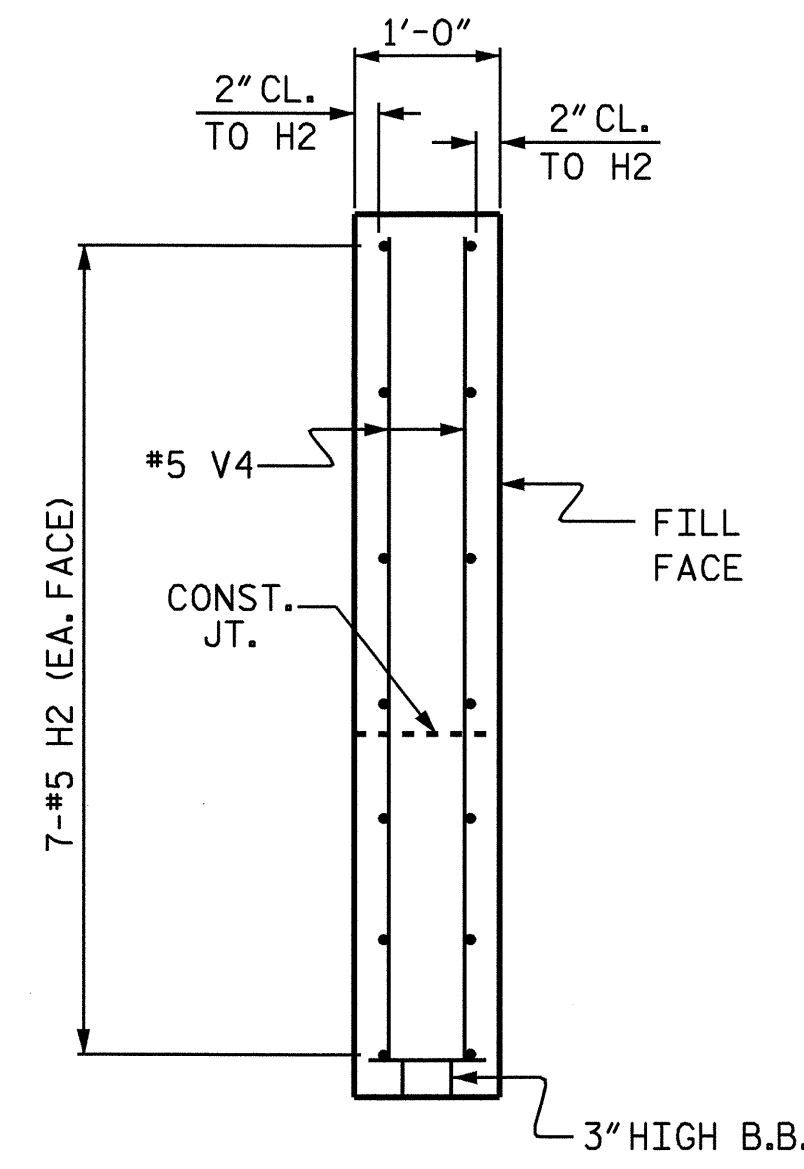
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 DETAILS
 FOR METAL RAILS

ASSEMBLED BY : A.M. KEETER	DATE : 4/25/06
CHECKED BY : J.G. KHARVA	DATE : 6/8/06
DRAWN BY : EEM 6/94	REV. 10/17/00 RWW/LES
CHECKED BY : RGW 6/94	REV. 5/7/03 RWW/JTE
	REV. 5/1/06 TLA/GM

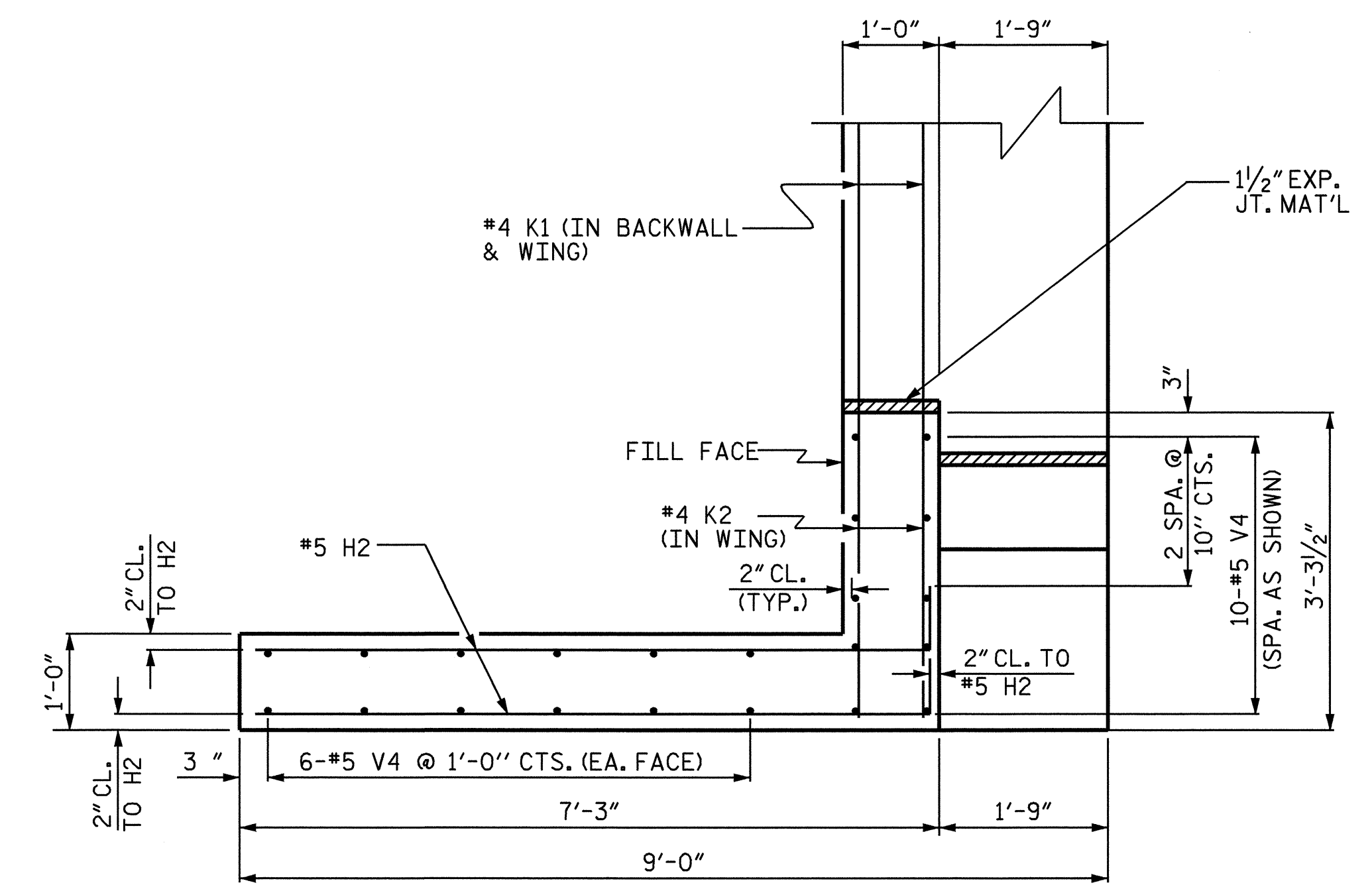
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			27
2			4			



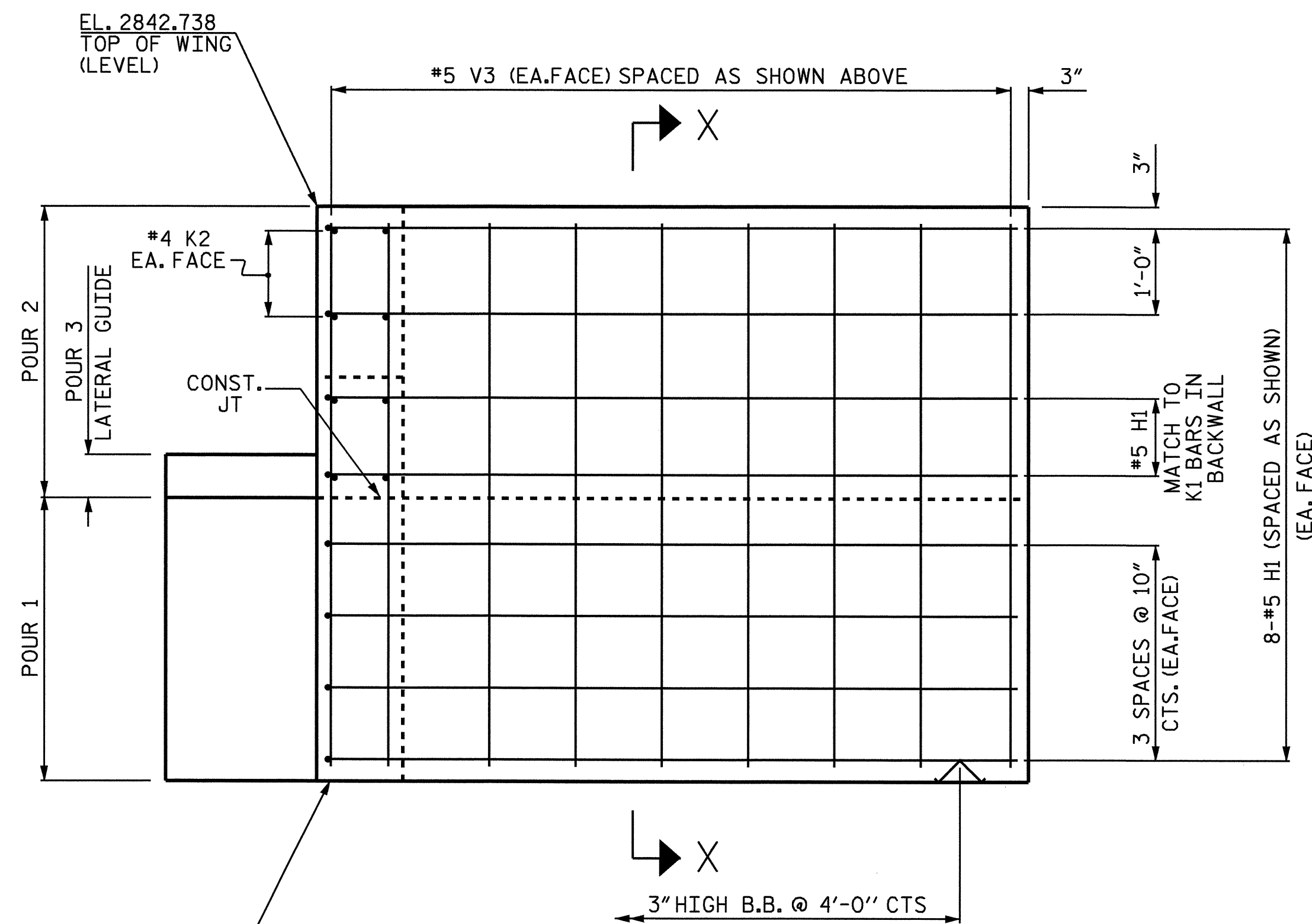
PLAN OF WING (W1)



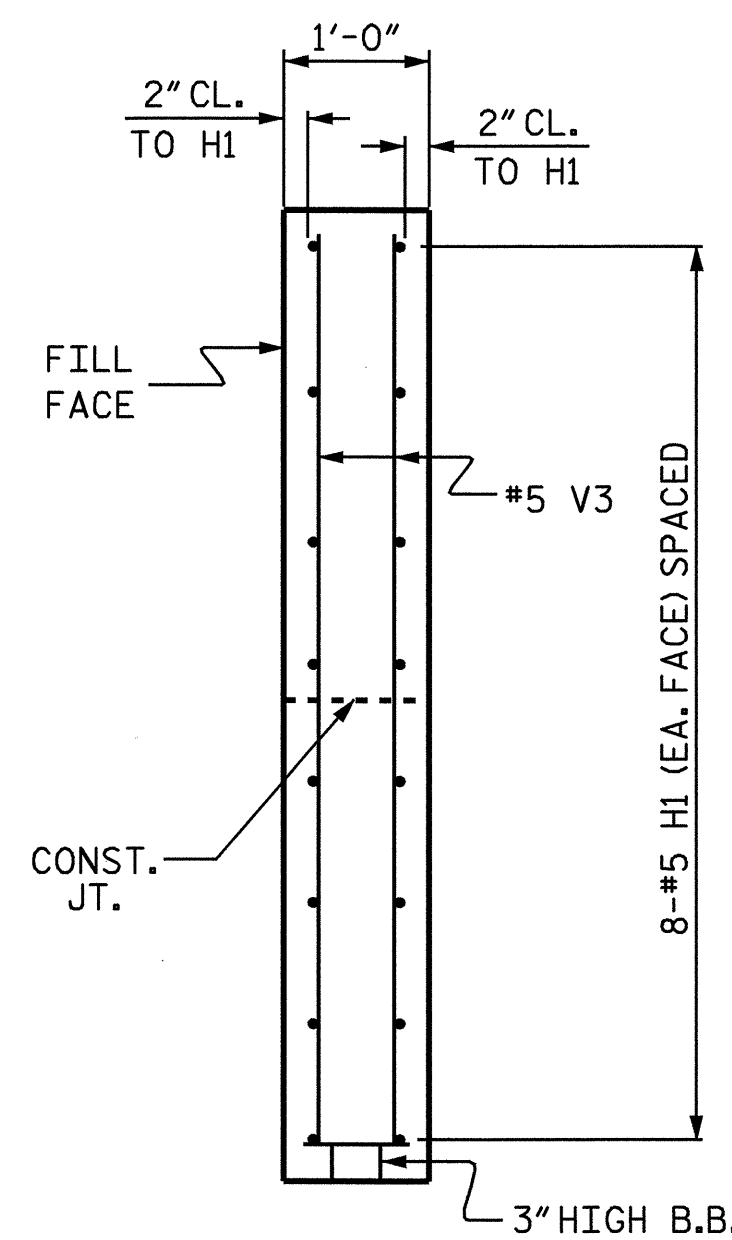
SECTION Y-Y



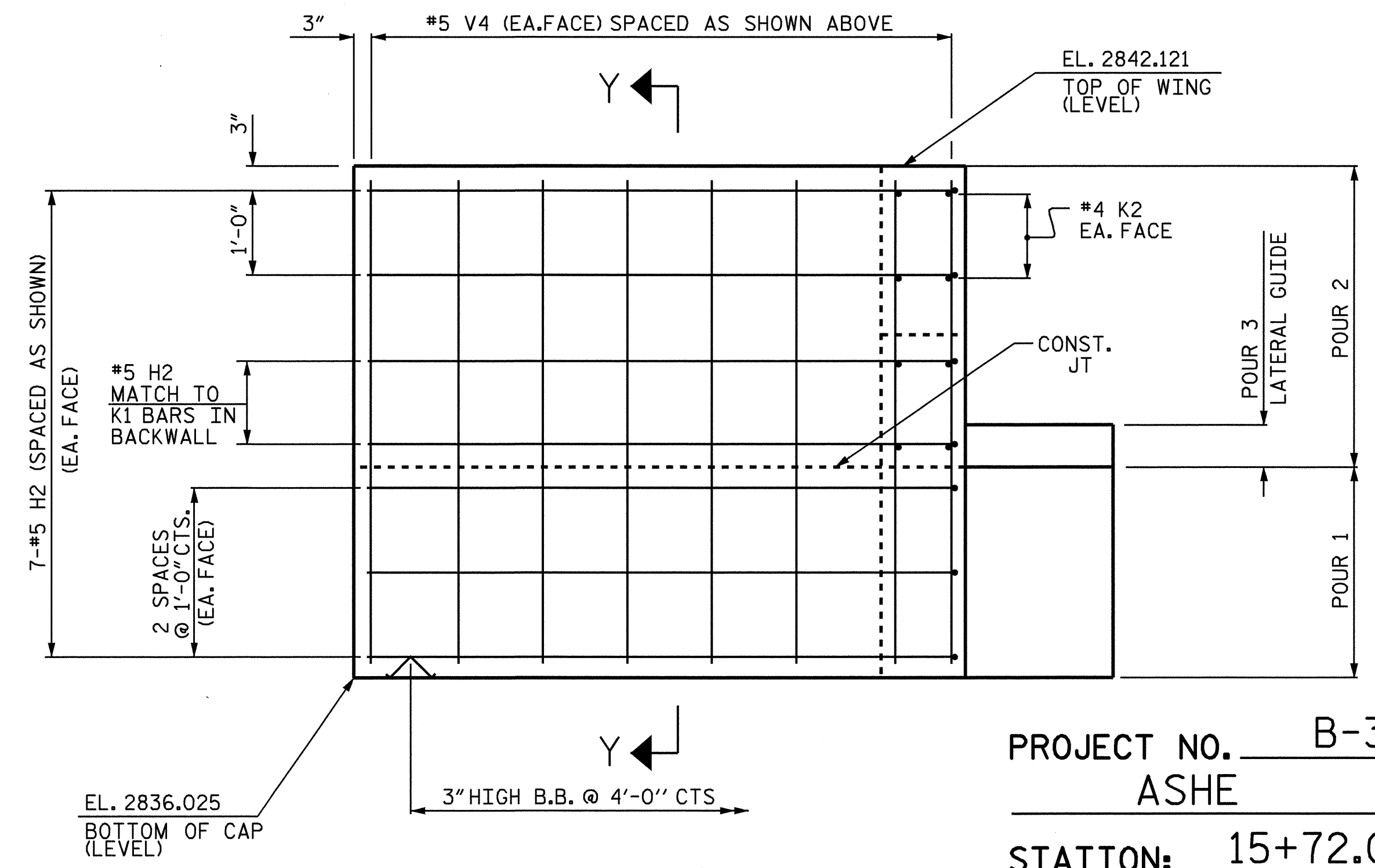
PLAN OF WING (W2)



ELEVATION OF WING (W1)



SECTION X-X



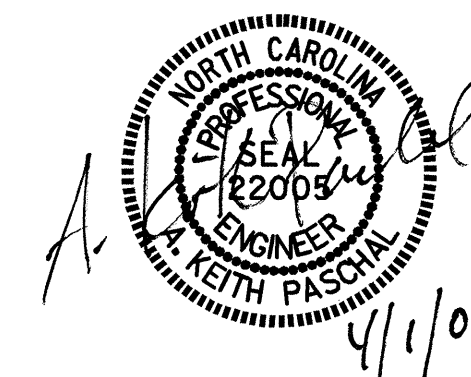
ELEVATION OF WING (W2)

PROJECT NO. B-3803
 ASHE COUNTY
 STATION: 15+72.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

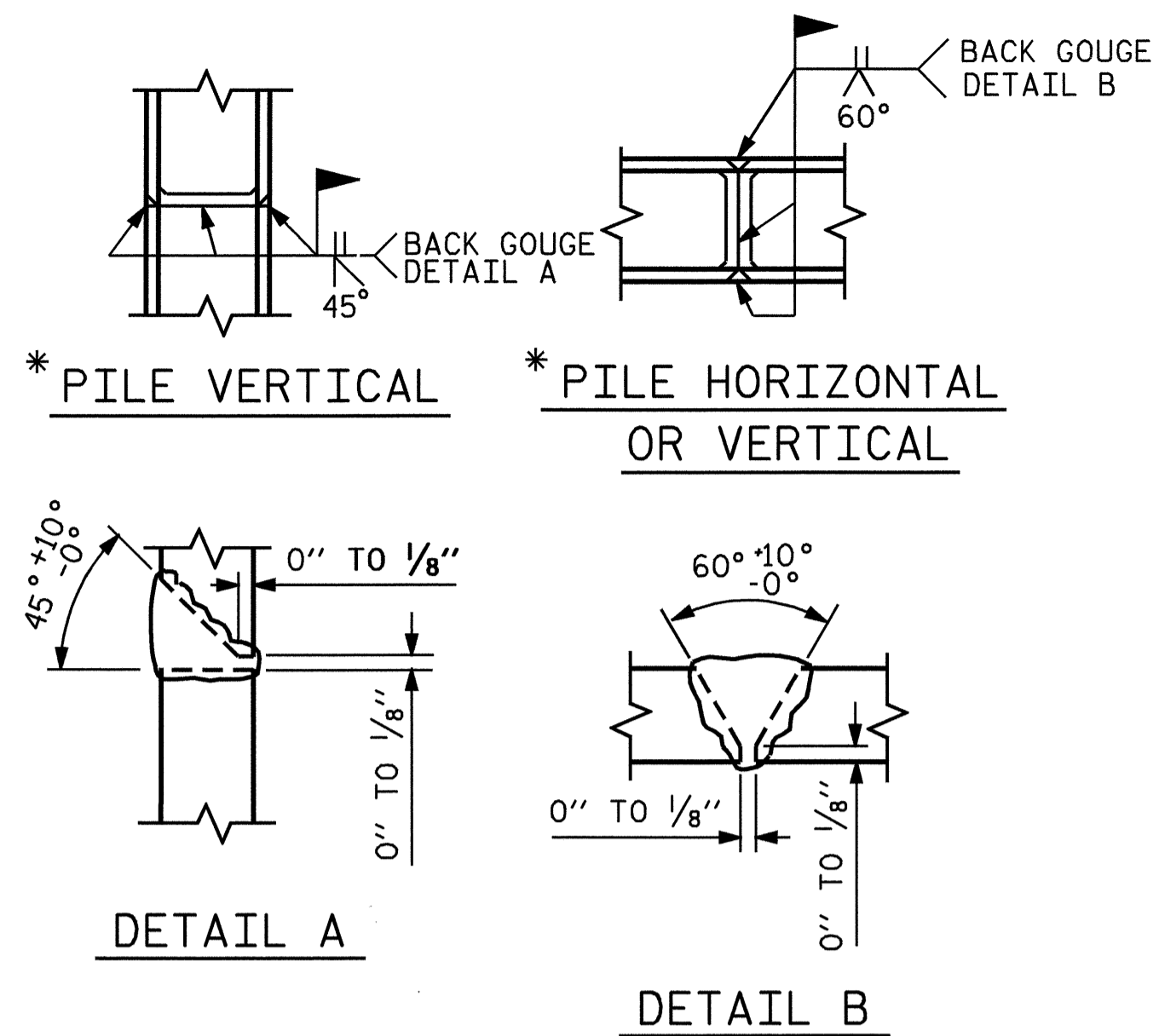
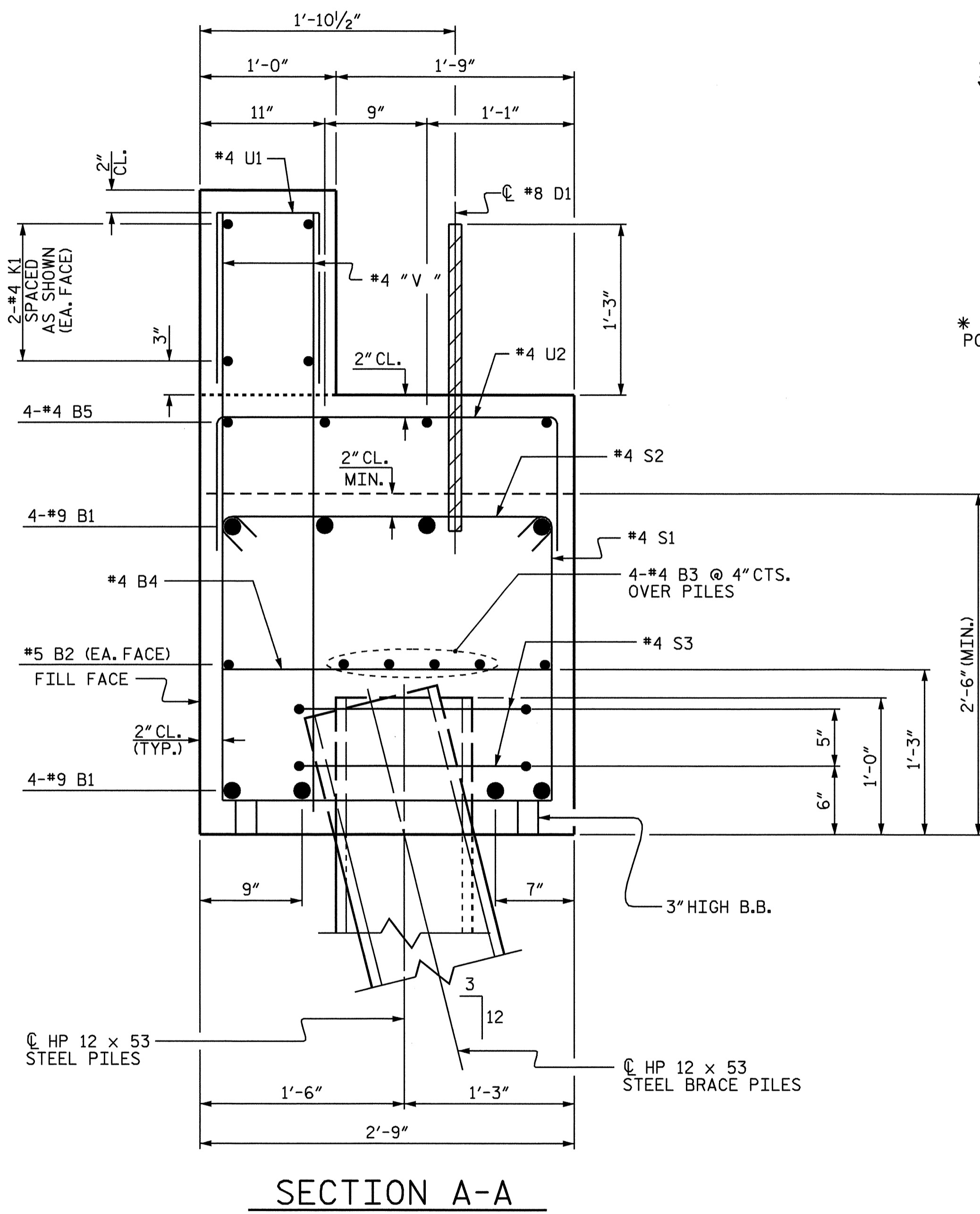
SUBSTRUCTURE
 END BENT 1



DRAWN BY: M.FOWLER DATE: 10/22/07
 CHECKED BY: J.D.HAWK DATE: 1/25/08

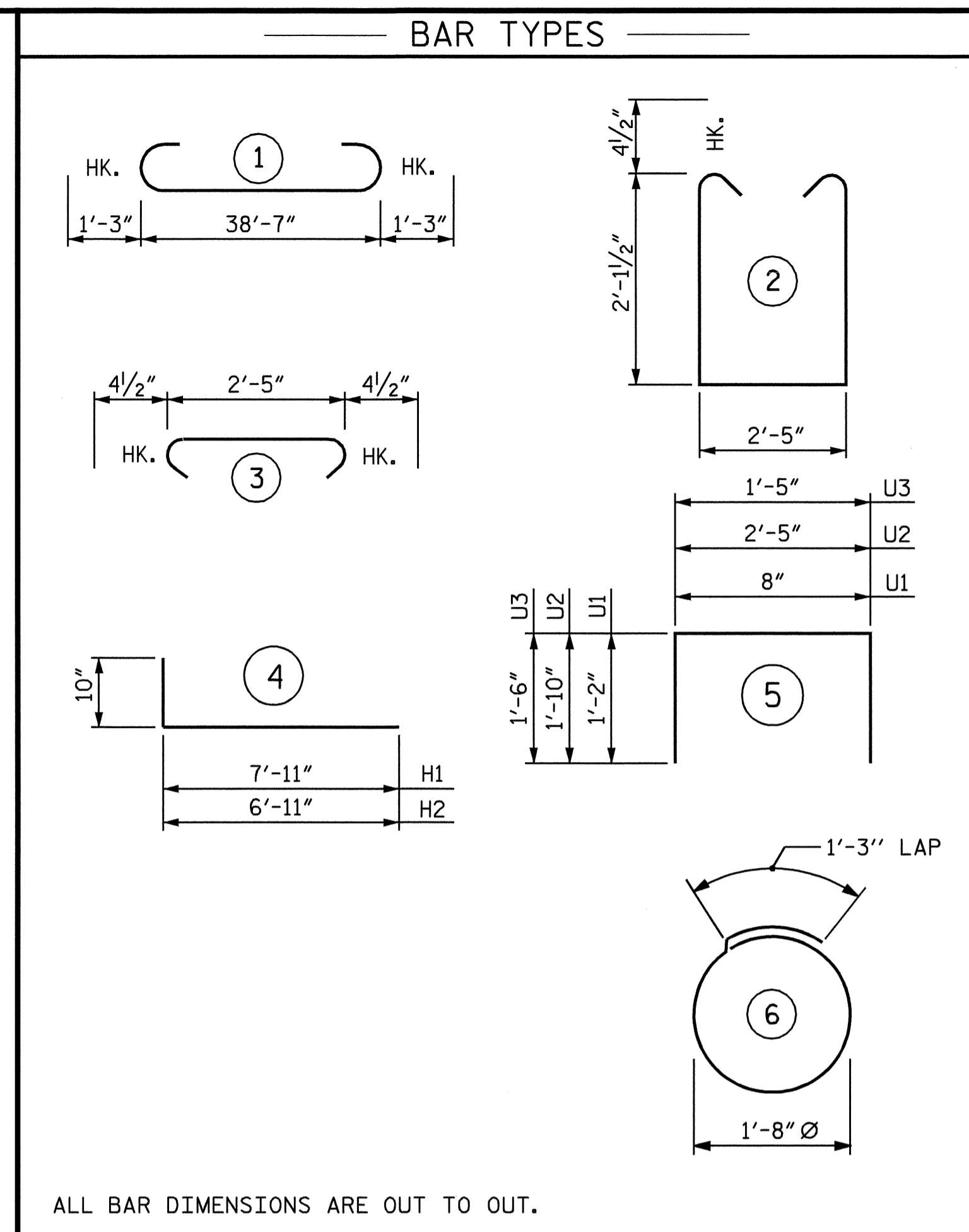
01-APR-2008 08:58
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 mfowler

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



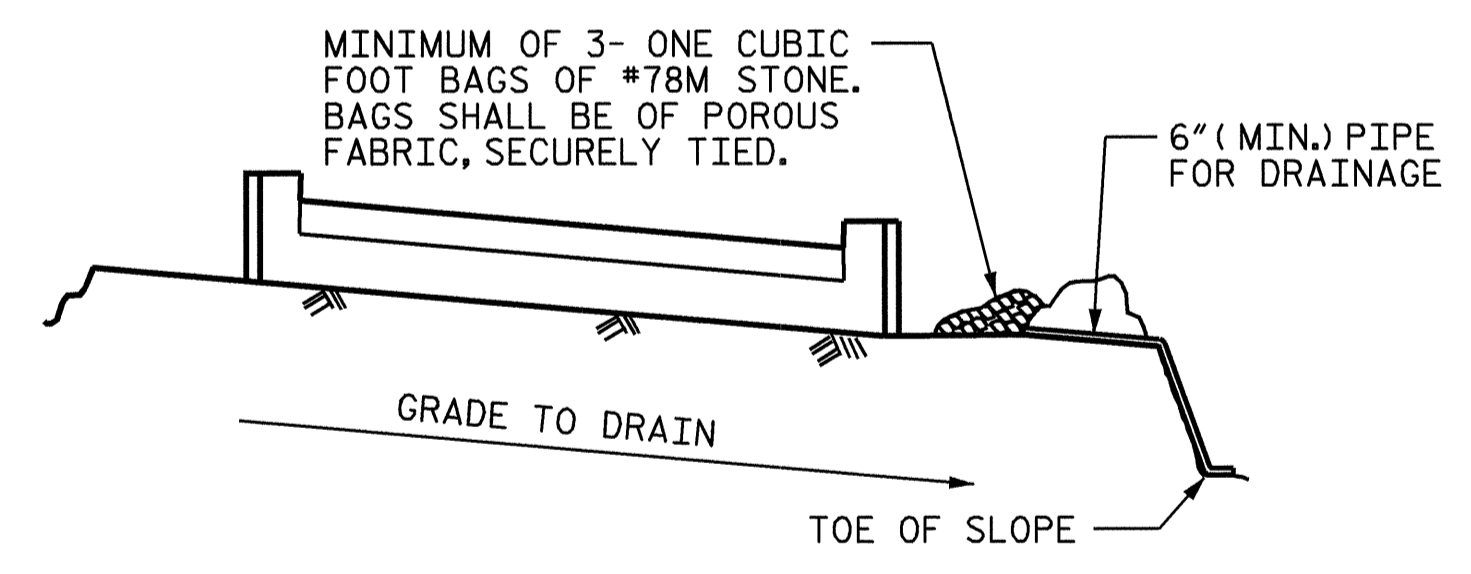
* POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	41'-1"	1117
B2	2	#5	STR	38'-8"	81
B3	8	#4	STR	20'-7"	110
B4	10	#4	STR	2'-5"	16
B5	4	#4	STR	23'-6"	63
D1	22	#8	STR	2'-3"	132
H1	16	#5	4	8'-9"	146
H2	14	#5	4	7'-9"	113
K1	8	#4	STR	20'-7"	110
K2	8	#4	STR	2'-11"	16
S1	37	#4	2	7'-5"	183
S2	37	#4	3	3'-2"	78
S3	12	#4	6	6'-6"	52
U1	33	#4	5	3'-0"	66
U2	16	#4	5	6'-1"	65
U3	4	#4	5	4'-5"	12
V1	36	#5	STR	3'-8"	138
V2	30	#5	STR	4'-1"	127
V3	24	#5	STR	6'-4"	159
V4	22	#5	STR	5'-9"	132
REINFORCING STEEL					LBS. 2916
CLASS A CONCRETE					
POUR 1					
CAP & LOWER PART OF WINGS				12.9	CU. YDS.
POUR 2					
BACKWALL & UPPER PART OF WINGS				4.6	CU. YDS.
POUR 3					
LATERAL GUIDES				0.1	CU. YDS.
TOTAL				17.6	CU. YDS.
HP 12 x 53 STEEL PILES					
No. 6				120	LIN.FT.



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

PROJECT NO. B-3803
 ASHE COUNTY
 STATION: 15+72.00 -L-

SHEET 3 OF 3

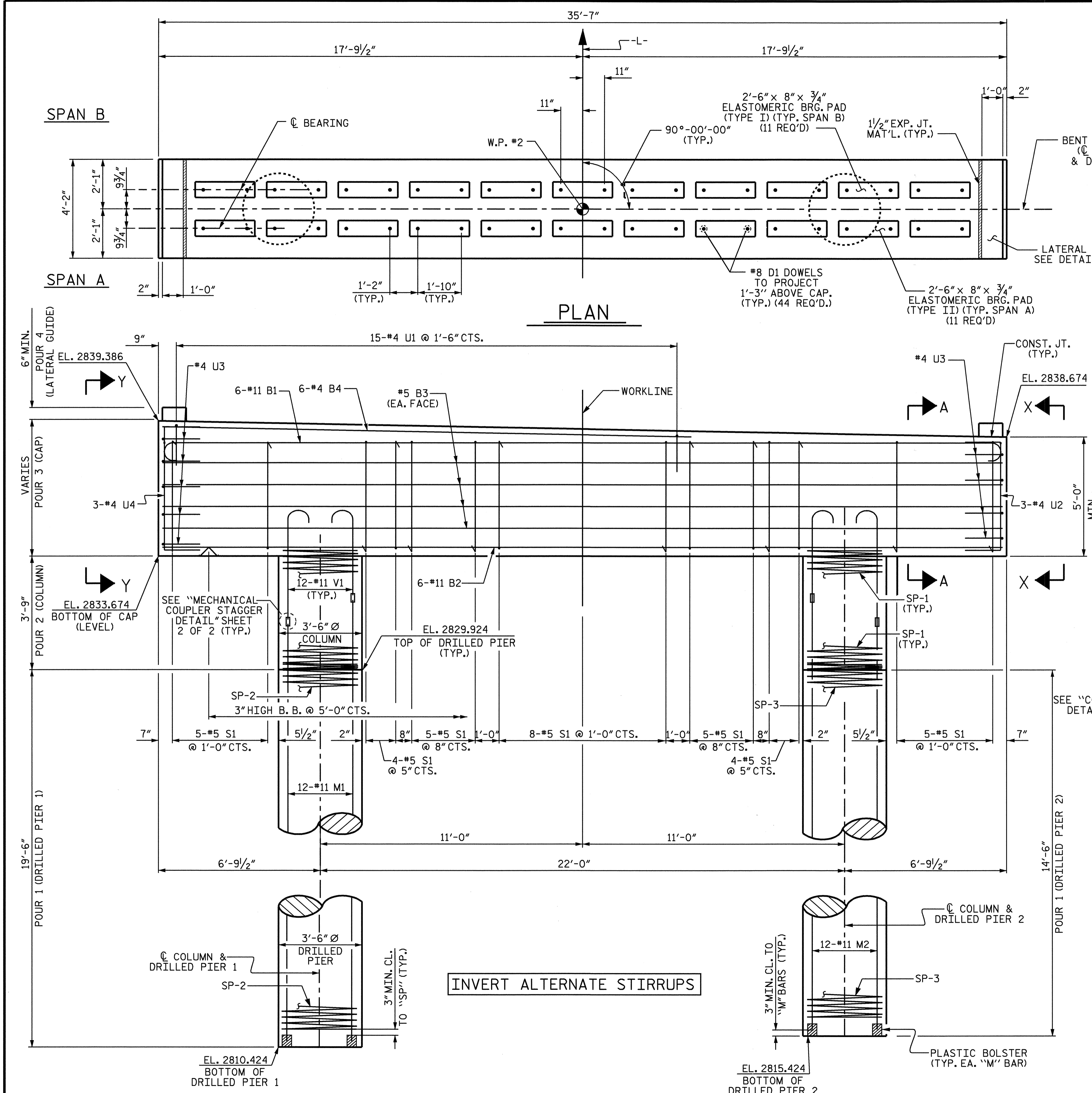
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 1



DRAWN BY : M. FOWLER DATE : 10/22/07
 CHECKED BY : J.D. HAWK DATE : 1/25/08

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17	
1			3			TOTAL SHEETS	
2			4			27	



NOTES

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

HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

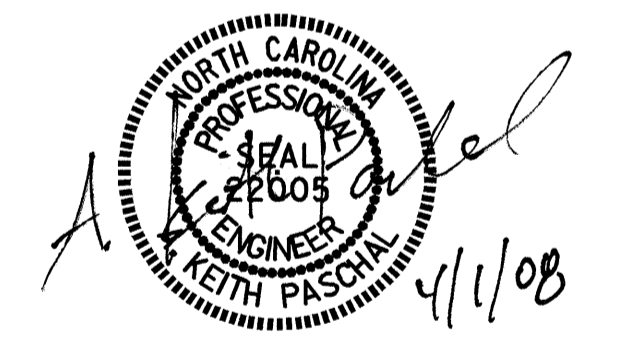
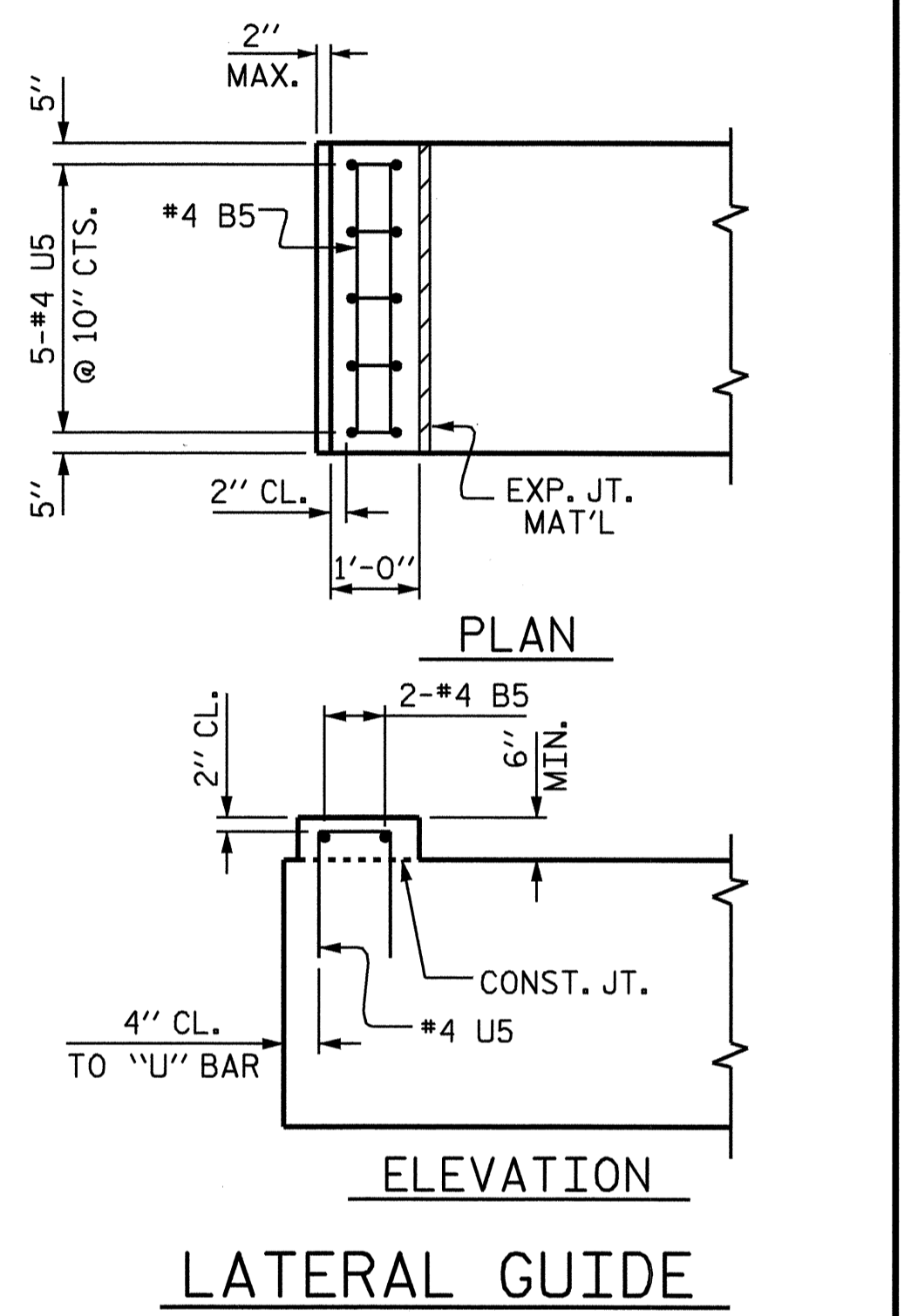
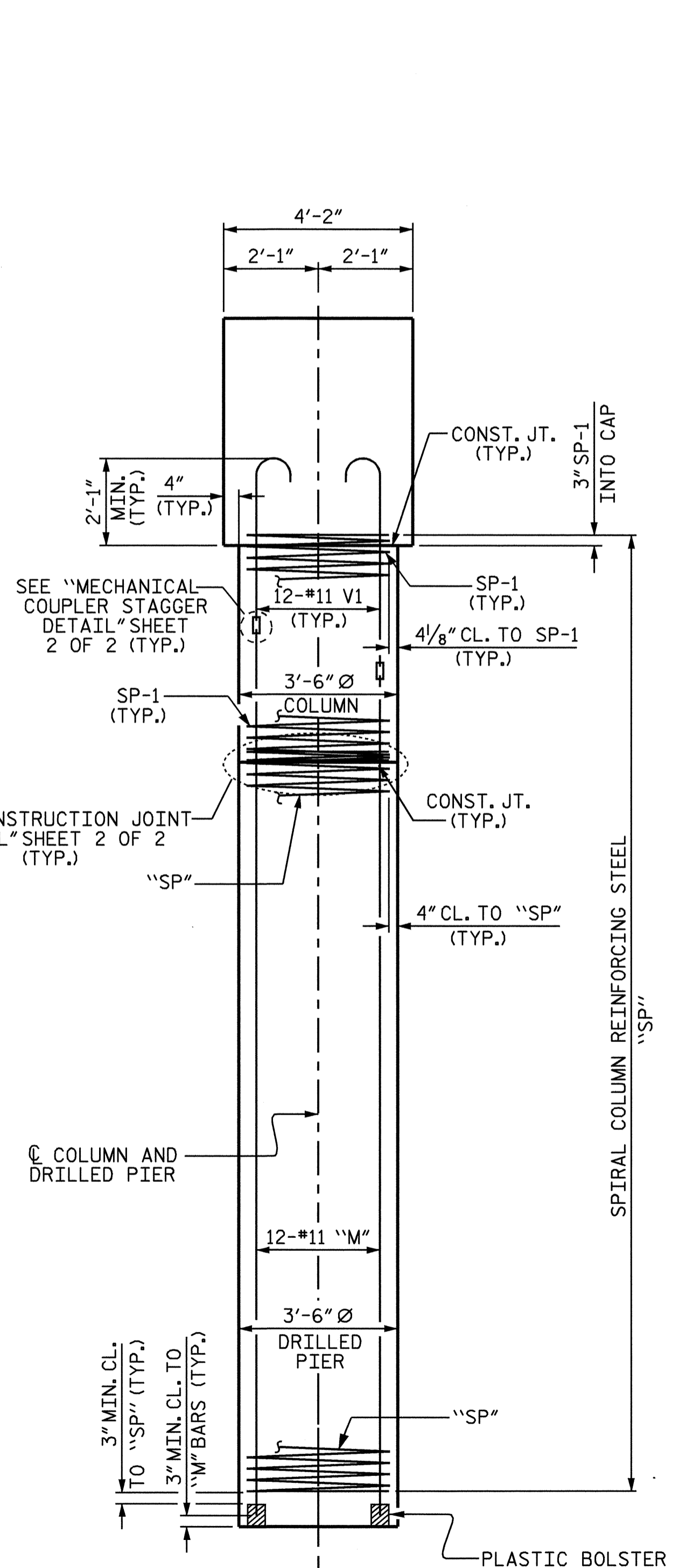
ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.

SPLICING OF THE LONGITUDINAL BARS IN THE DRILLED PIER WILL NOT BE PERMITTED.

MECHANICAL COUPLERS SHALL BE USED TO JOIN THE LONGITUDINAL DRILLED PIER REINFORCING STEEL TO THE COLUMN REINFORCING STEEL. THE HEIGHT OF THE COUPLERS SHALL BE STAGGERED ON ALTERNATING BARS BY 1'-6" AND THE DRILLED PIER AND COLUMN STEEL SHALL BE CUT ACCORDINGLY.

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

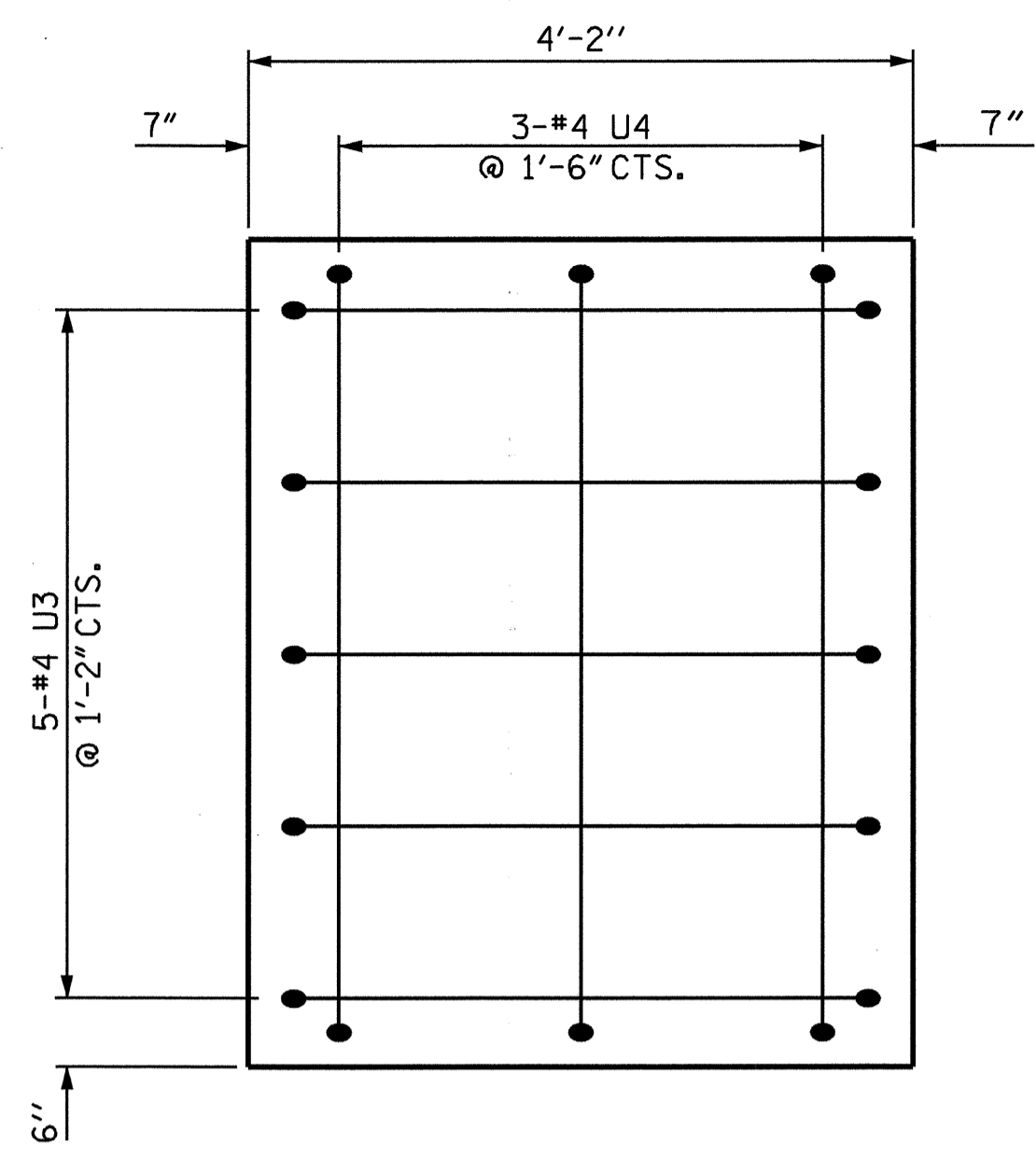
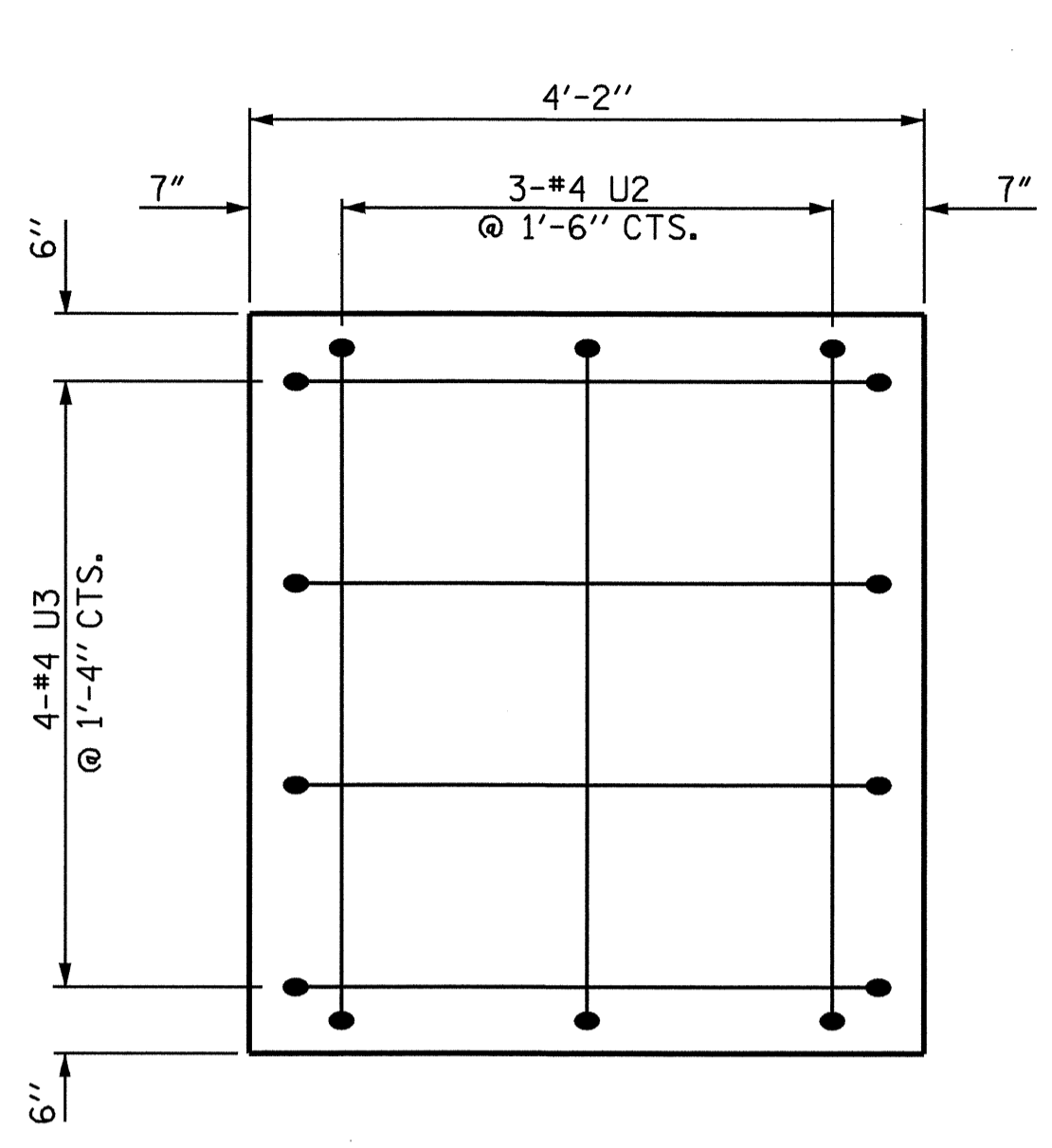
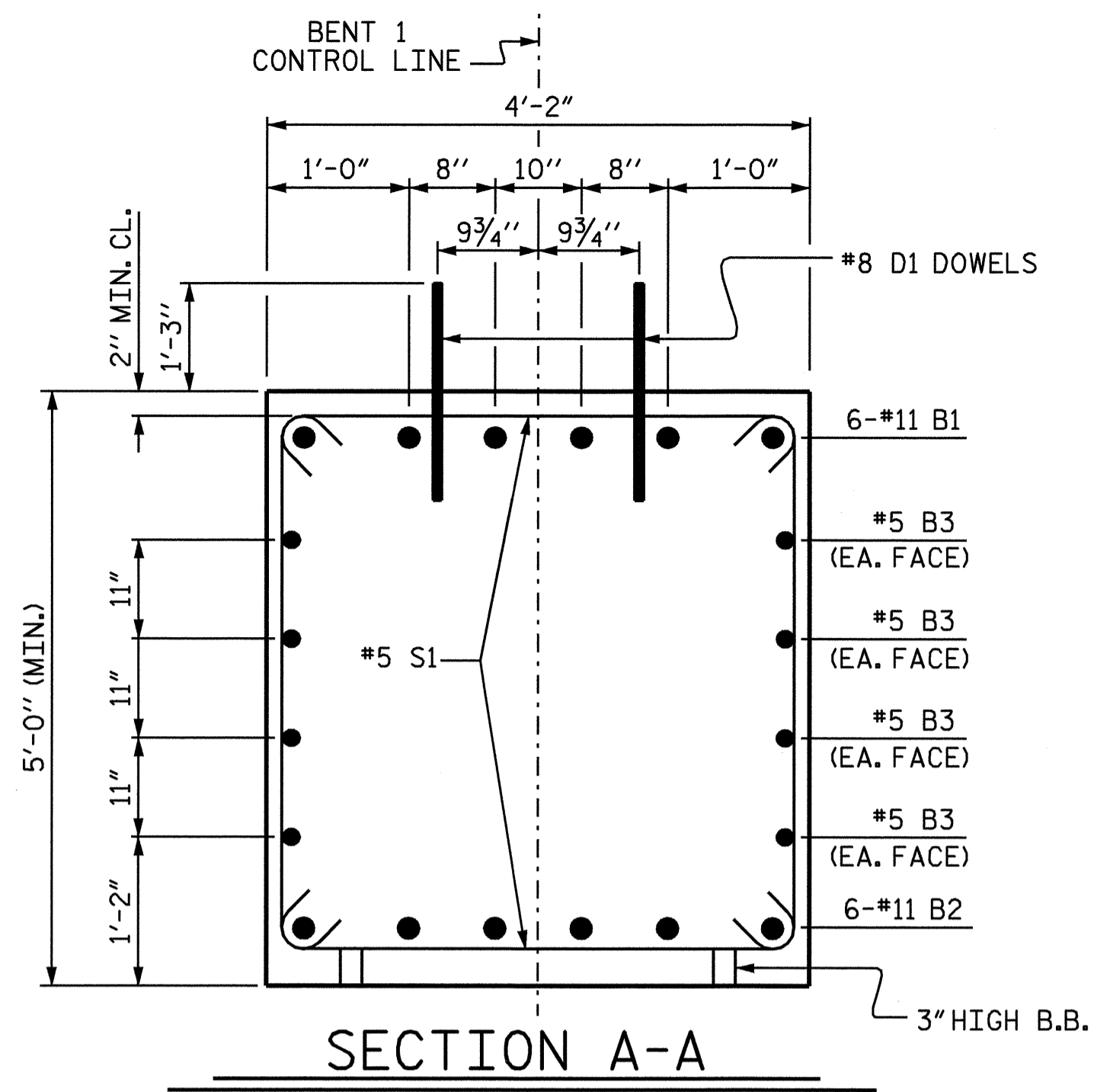


PROJECT NO. B-3803
ASHE COUNTY
 STATION: 15+72.00 -L-
 SHEET 1 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-18
SUBSTRUCTURE BENT 1						TOTAL SHEETS 27
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

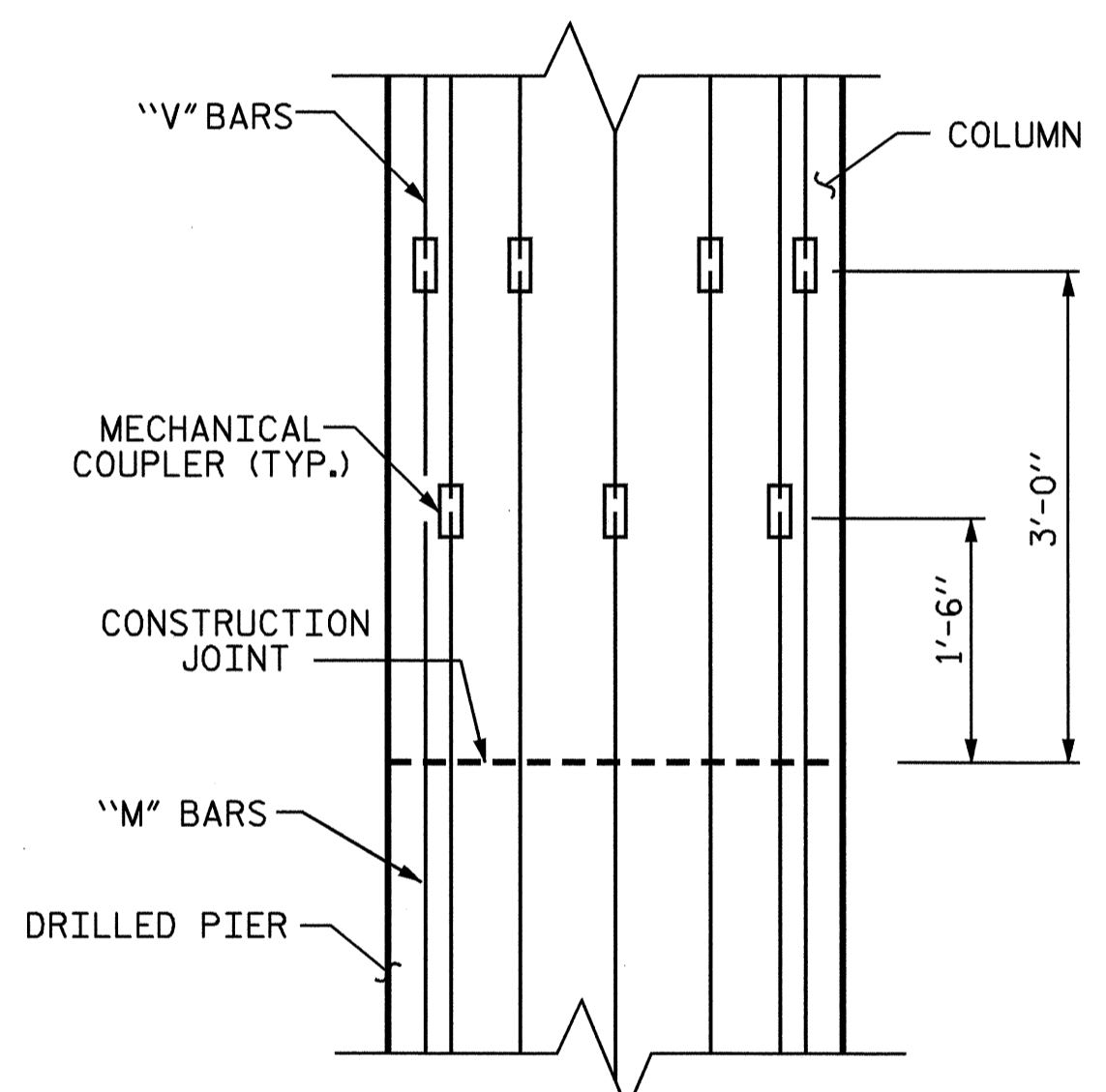
DRAWN BY: J.D. HAWK DATE: 1/22/08
 CHECKED BY: J.G. KHARVA DATE: 2/6/08

ELEVATION
 (REINFORCING STEEL AND DIMENSIONS TYPICAL
 FOR ALL DRILLED PIERS AND COLUMNS EXCEPT AS NOTED)

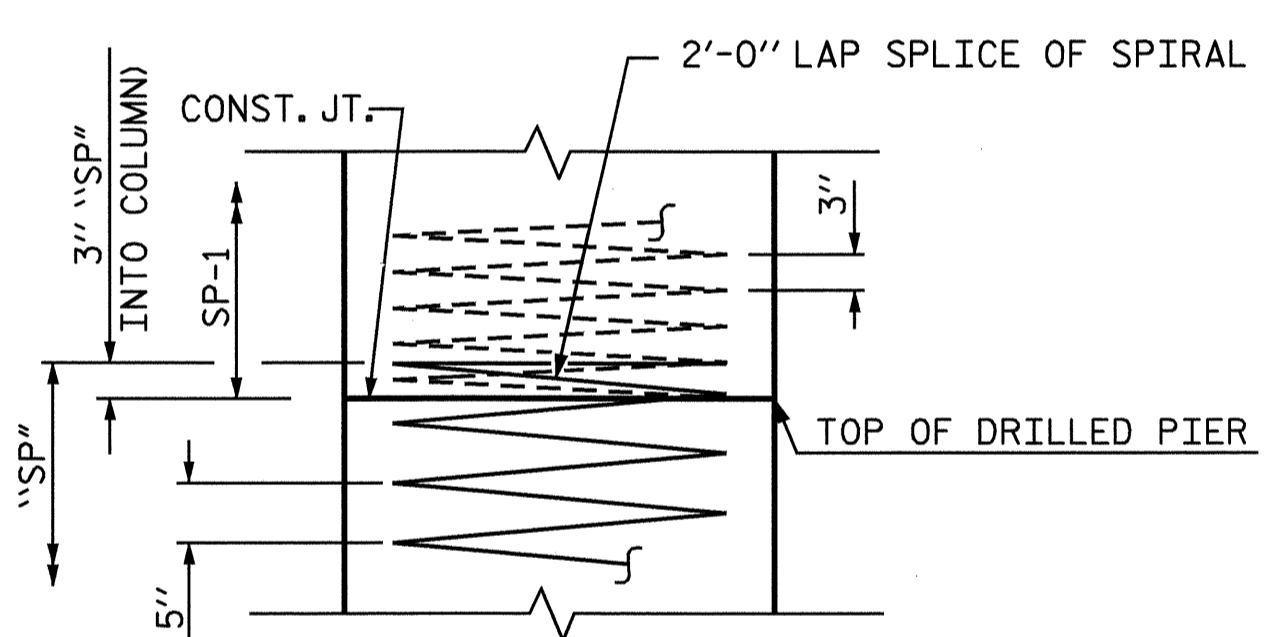


VIEW X-X

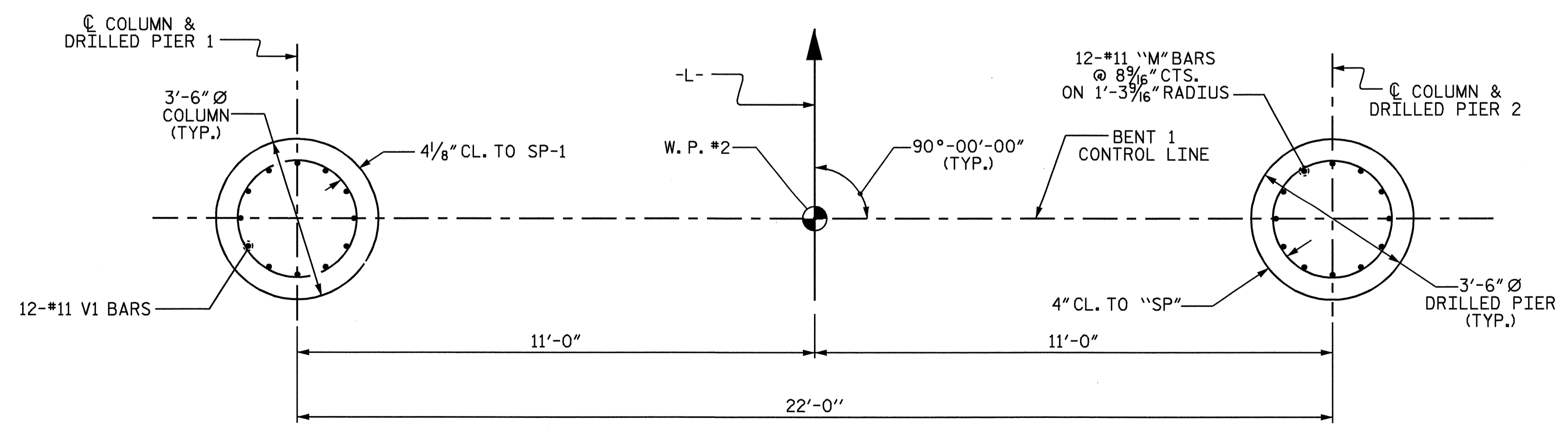
VIEW Y-Y



MECHANICAL COUPLER STAGGER DETAIL



CONSTRUCTION JOINT DETAIL

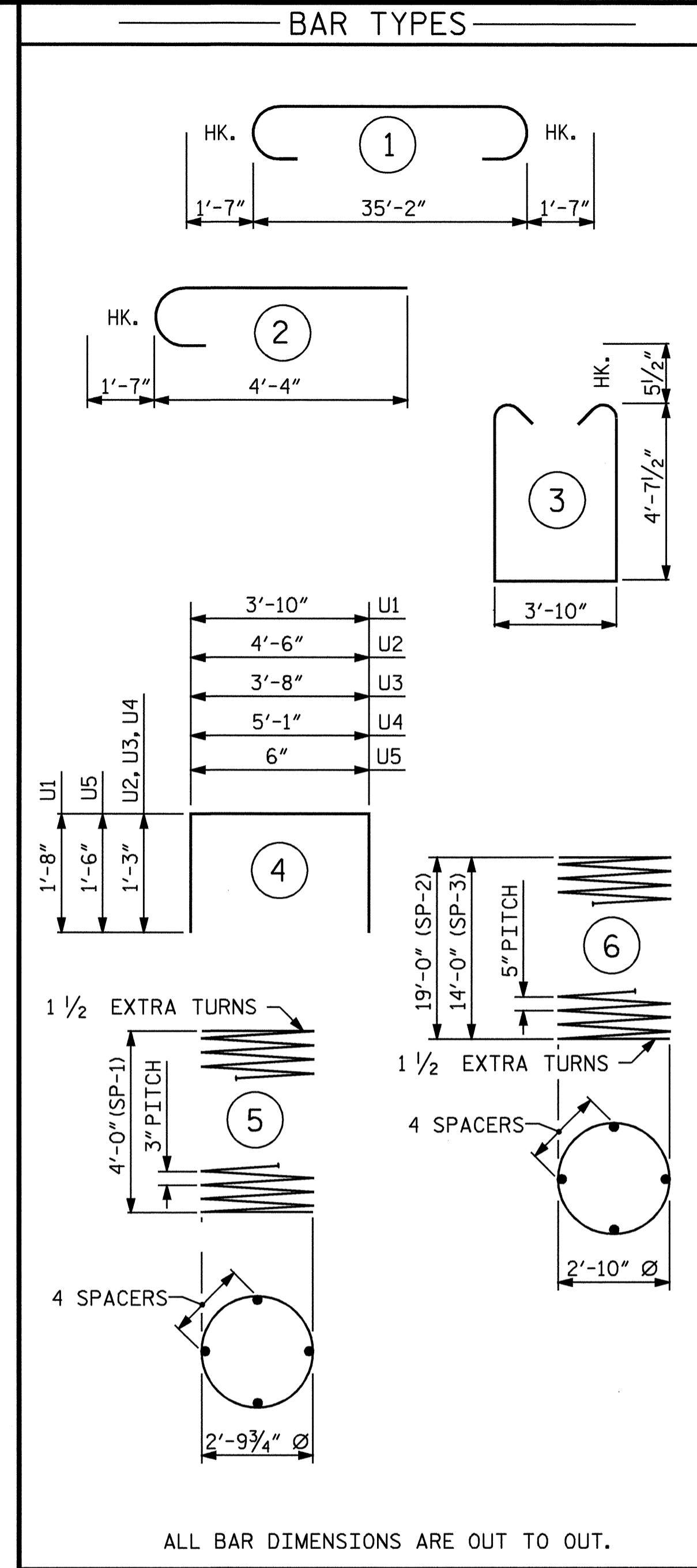


PLAN OF COLUMNS AND DRILLED PIERS

(REINFORCING STEEL AND DIMENSIONS TYPICAL FOR ALL DRILLED PIERS AND COLUMNS EXCEPT AS NOTED)

DRAWN BY: J.D. HAWK DATE: 1/22/08
 CHECKED BY: J.G. KHARVA DATE: 2/6/08

01-APR-2008 09:10
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 kpaschal



ALL BAR DIMENSIONS ARE OUT TO OUT.

- * THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.
- ** THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.
- ▲ NO SEPARATE PAYMENT WILL BE MADE FOR CSL TUBES. CSL TUBES WILL BE INCLUDED IN THE UNIT BID PRICE FOR DRILLED PIERS.

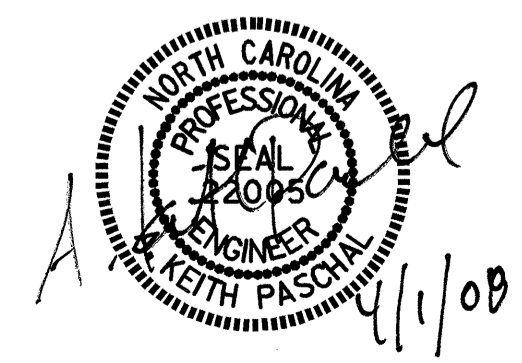
BILL OF MATERIAL					
BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#11	1	38'-4"	1222
B2	6	#11	STR	35'-3"	1124
B3	8	#5	STR	35'-3"	294
B4	6	#4	STR	22'-3"	89
B5	4	#4	STR	3'-10"	10
D1	44	#8	STR	2'-3"	264
M1	12	#11	STR	25'-3"	1610
M2	12	#11	STR	20'-3"	1291
S1	36	#5	3	14'-0"	526
U1	15	#4	4	7'-2"	72
U2	3	#4	4	7'-0"	14
U3	9	#4	4	6'-2"	37
U4	3	#4	4	7'-7"	15
U5	10	#4	4	3'-6"	23
V1	24	#11	2	5'-11"	754
REINFORCING STEEL					= 7345 LBS.
SP-1	2	*	5	152'-5"	204
SP-2	1	**	6	413'-4"	431
SP-3	1	**	6	308'-5"	322
SPIRAL COLUMN REINFORCING STEEL					= 957 LBS.
CLASS A CONCRETE BREAKDOWN					
POUR #2 (COLUMNS)					2.7 C.Y.
POUR #3 CAP					29.4 C.Y.
POUR #4 LATERAL GUIDE					0.2 C.Y.
TOTAL					32.3 C.Y.
DRILLED PIERS					
DRILLED PIER CONCRETE					
POUR #1 (DRILLED PIERS)					12.1 C.Y.
3'-6" Ø DRILLED PIERS IN SOIL					16.00 LIN. FT.
3'-6" Ø DRILLED PIERS NOT IN SOIL					18.00 LIN. FT.
PERMANENT STEEL CASING FOR 3'-6" Ø DRILLED PIERS LIN. FT. = 15.85					
▲ CSL TUBES					LIN. FT. = 156.0

PROJECT NO. B-3803
 ASHE COUNTY
 STATION: 15+72.00 -L-

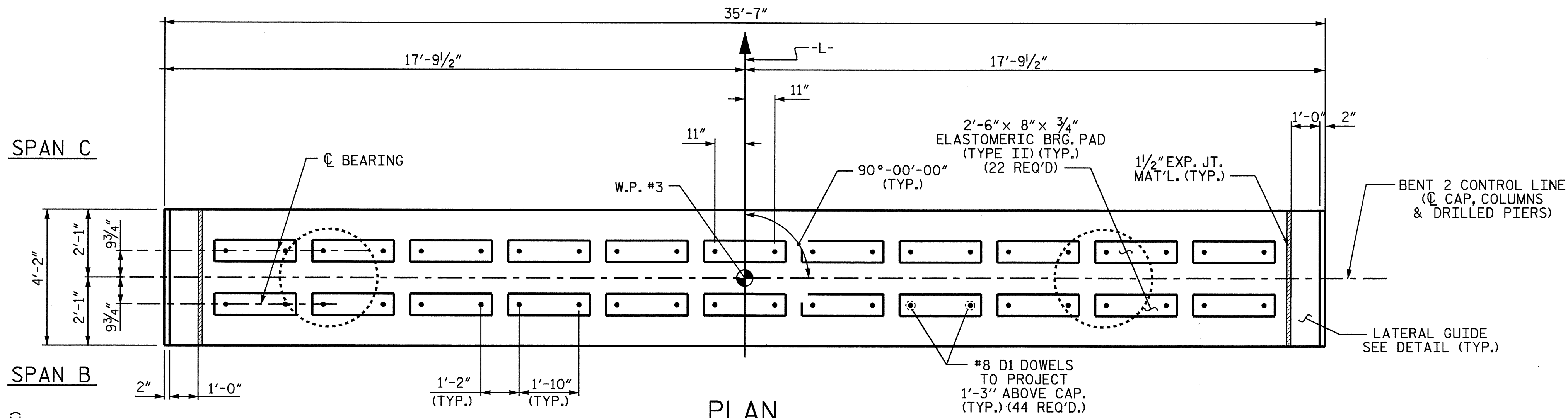
SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT 1

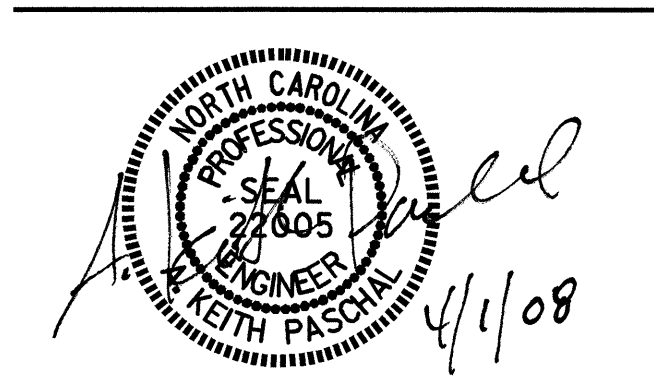
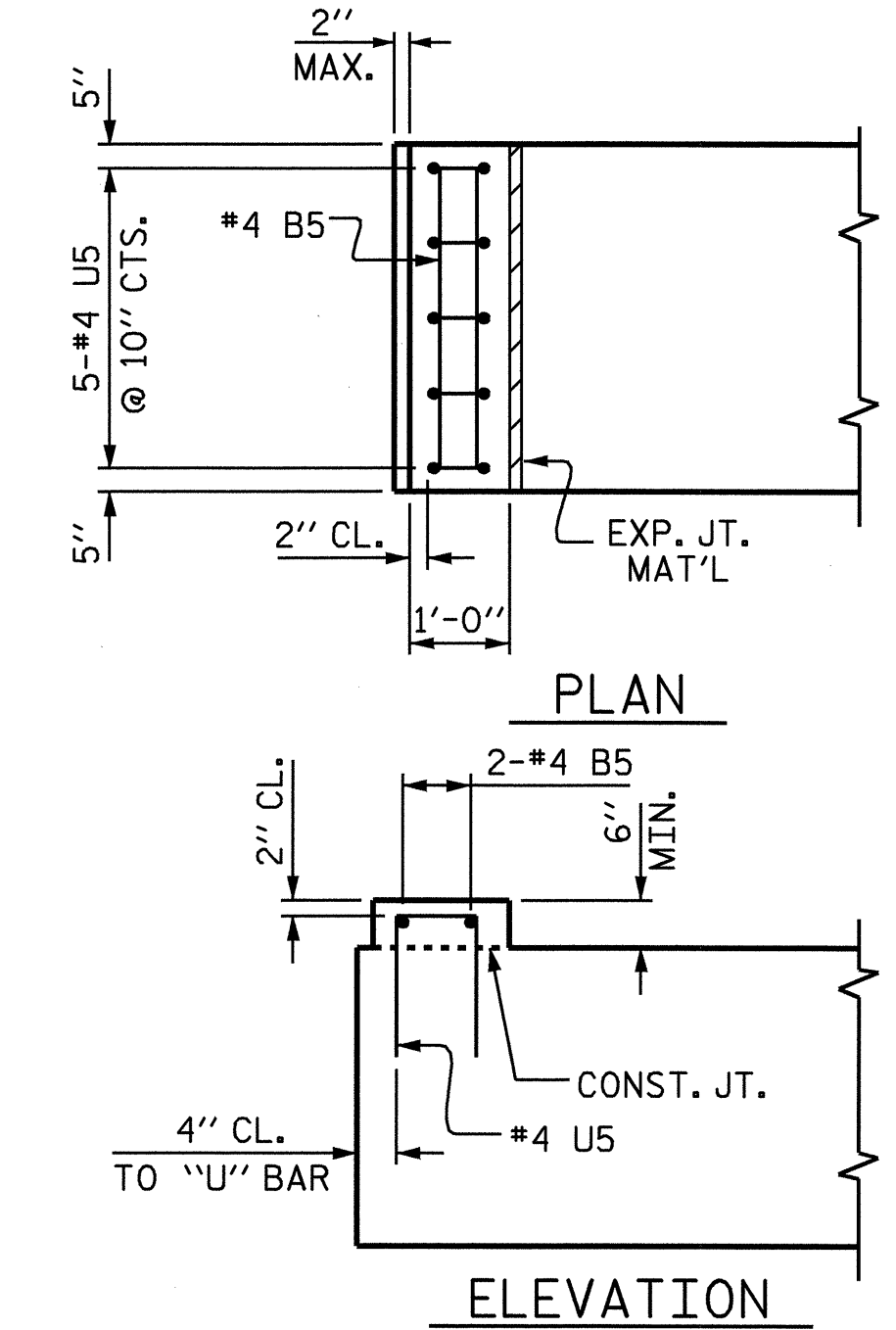
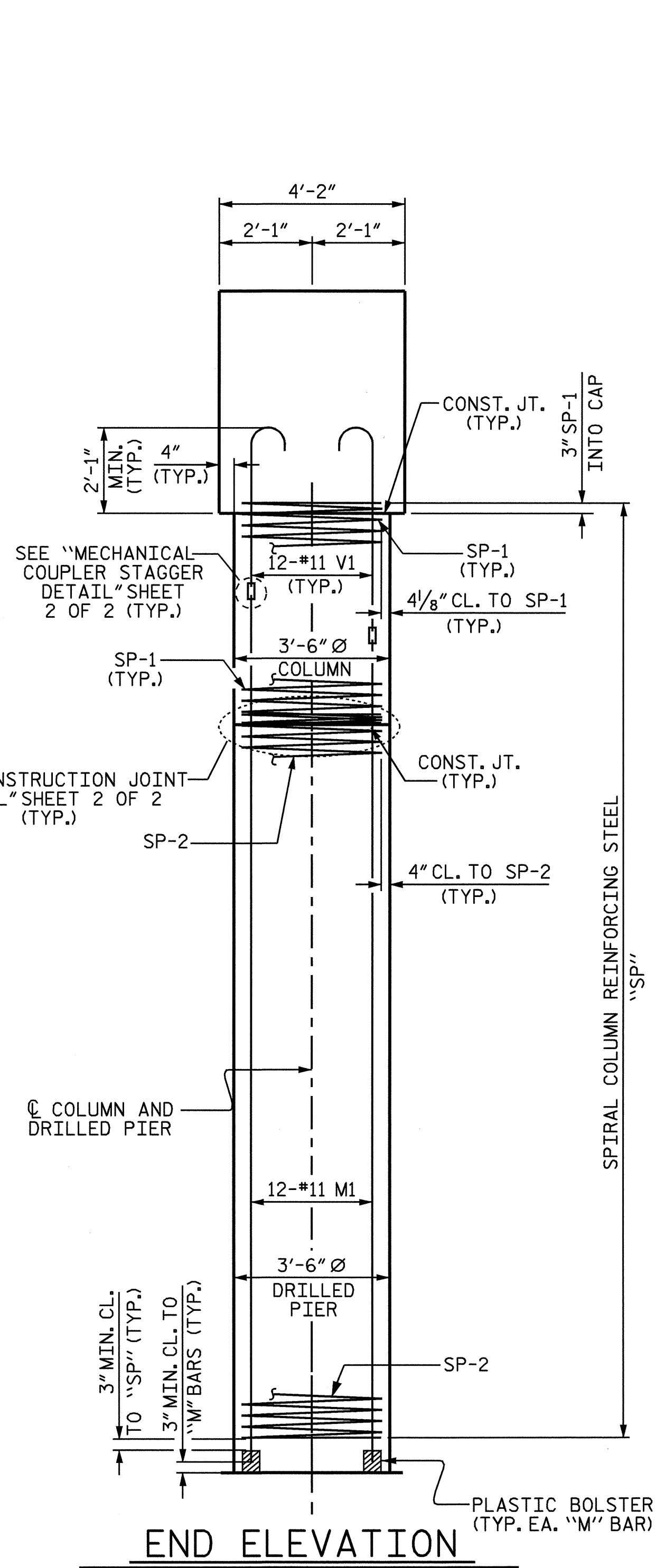
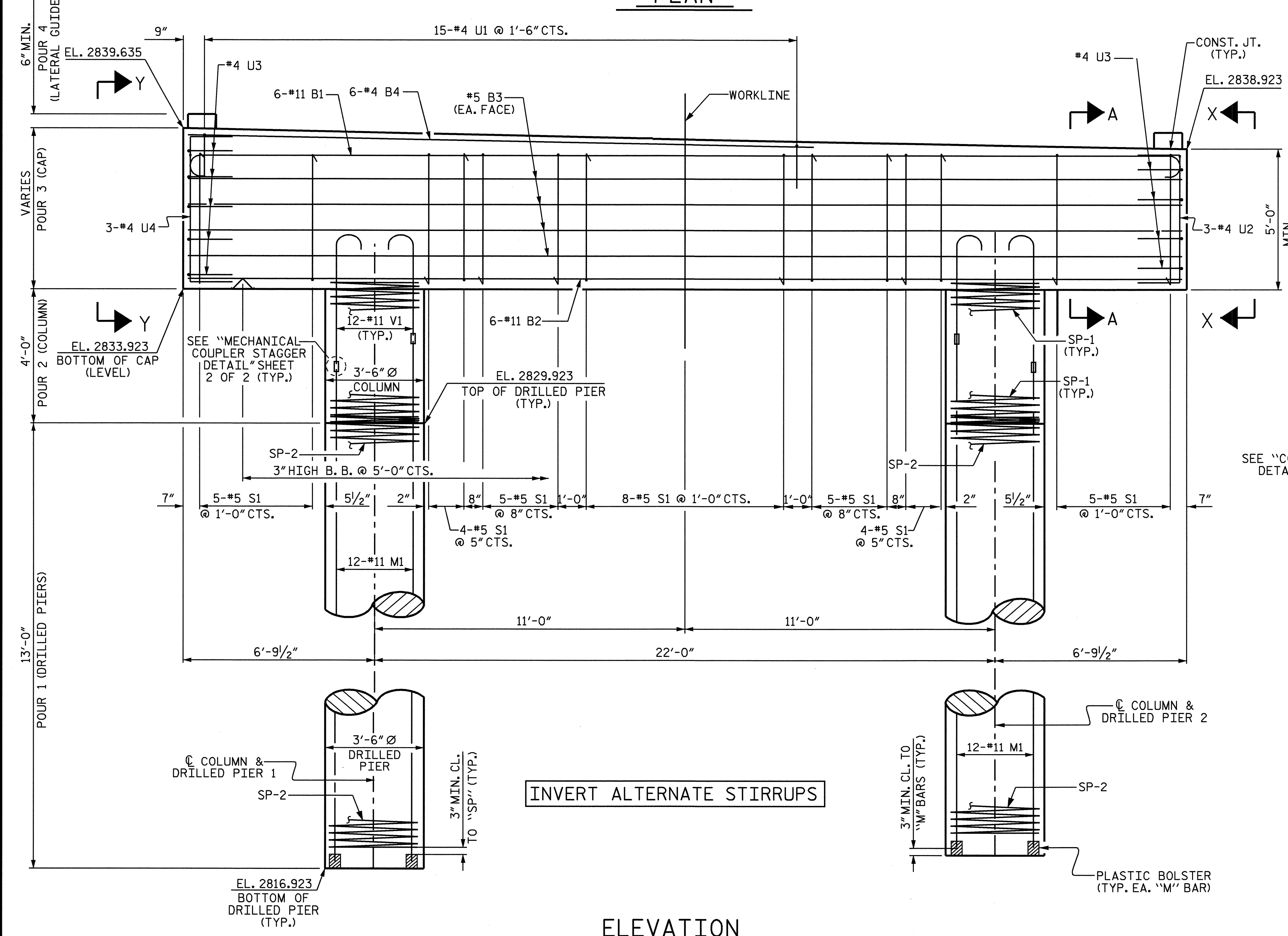


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			27



NOTES

- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
- HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
- ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".
- THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.
- SPLICING OF THE LONGITUDINAL BARS IN THE DRILLED PIER WILL NOT BE PERMITTED.
- MECHANICAL COUPLERS SHALL BE USED TO JOIN THE LONGITUDINAL DRILLED PIER REINFORCING STEEL TO THE COLUMN REINFORCING STEEL. THE HEIGHT OF THE COUPLERS SHALL BE STAGGERED ON ALTERNATING BARS BY 1'-6" AND THE DRILLED PIER AND COLUMN STEEL SHALL BE CUT ACCORDINGLY.
- THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE BOX BEAM UNITS ARE IN PLACE.

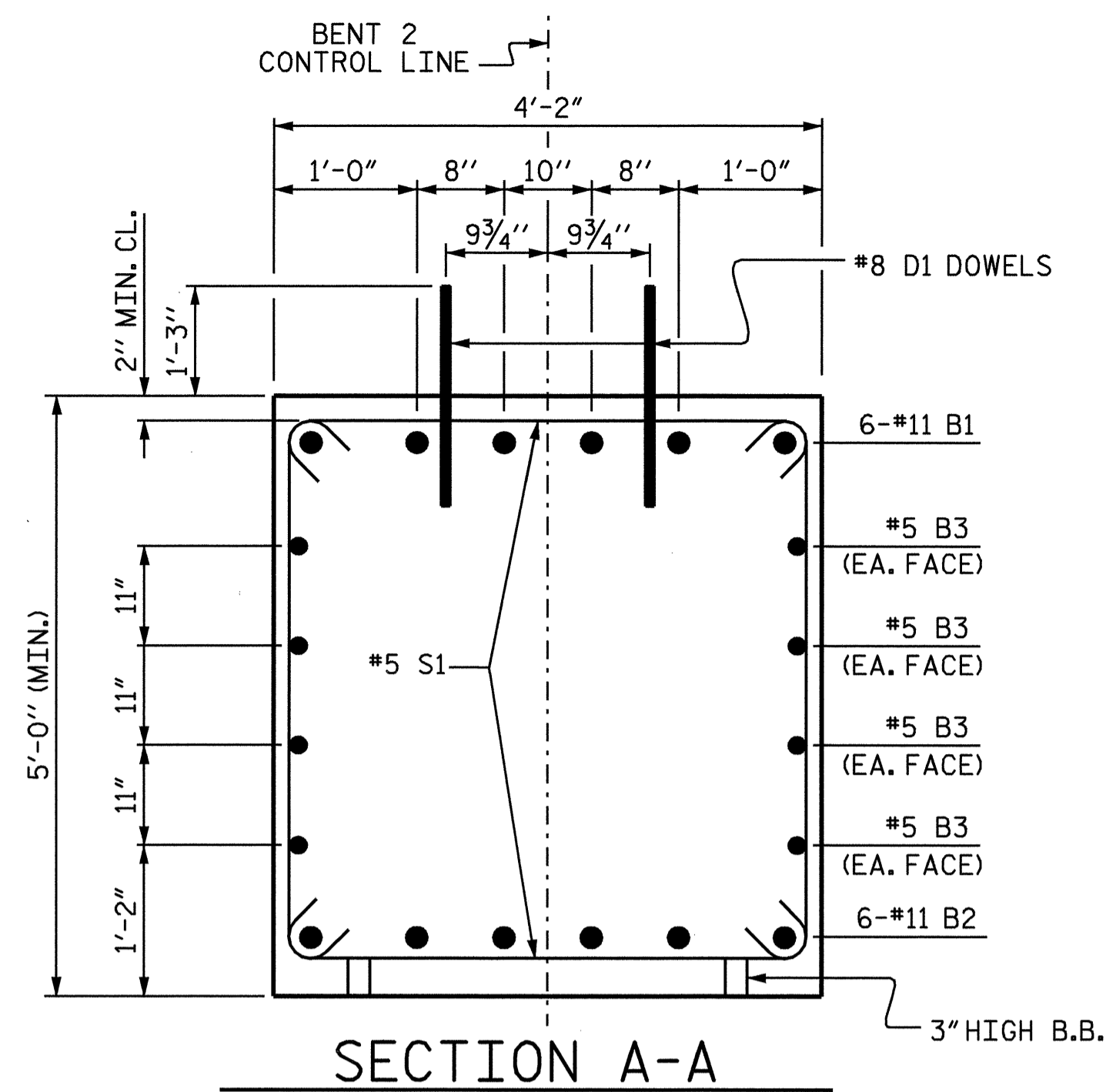


PROJECT NO. B-3803
ASHE COUNTY
 STATION: 15+72.00 -L-
 SHEET 1 OF 2

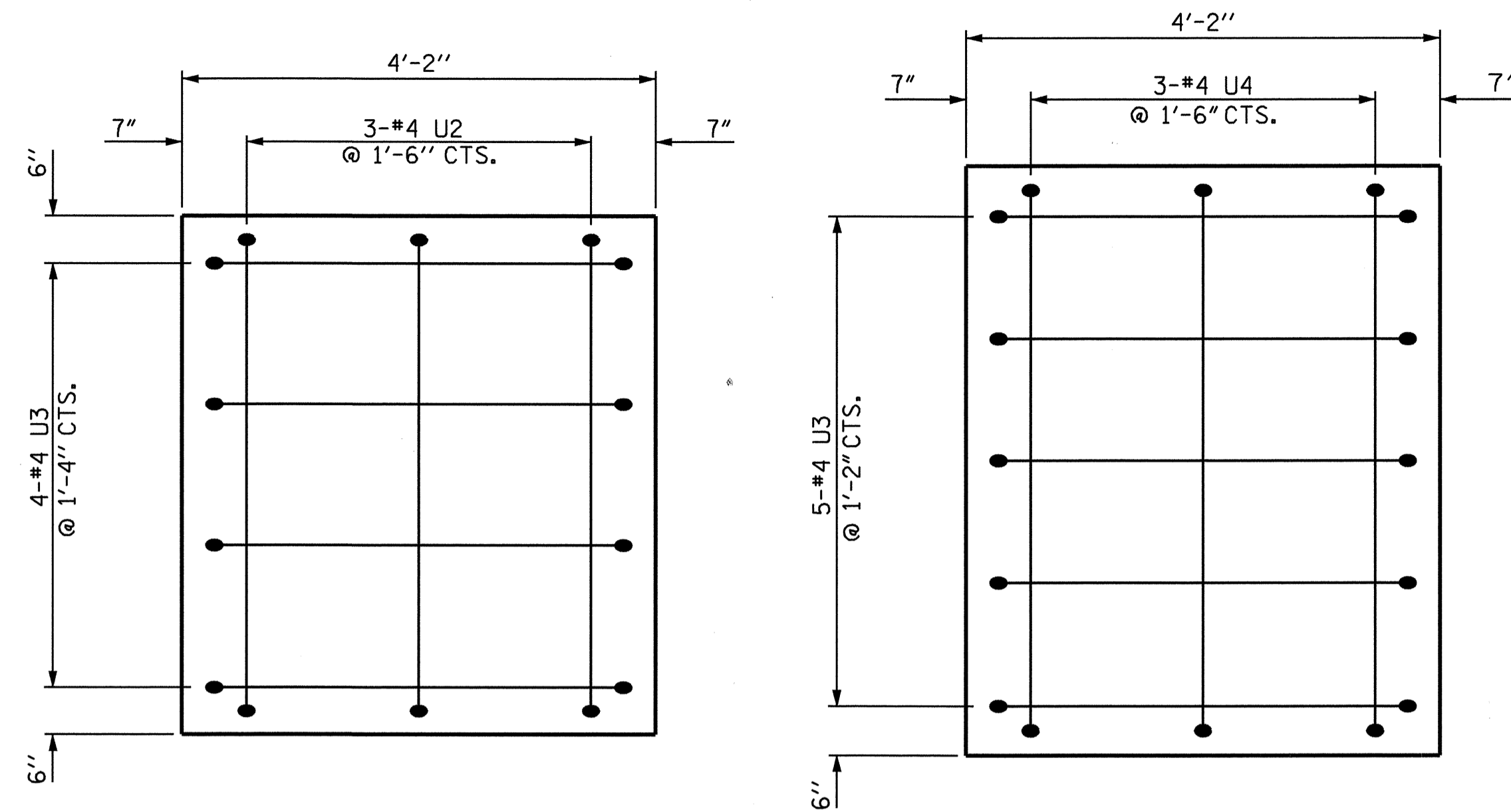
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-20 TOTAL SHEETS 27
SUBSTRUCTURE BENT 2						
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

DRAWN BY: J.D. HAWK DATE: 1/22/08
 CHECKED BY: J.G. KHARVA DATE: 2/6/08

(REINFORCING STEEL AND DIMENSIONS TYPICAL FOR ALL DRILLED PIERS AND COLUMNS EXCEPT AS NOTED)

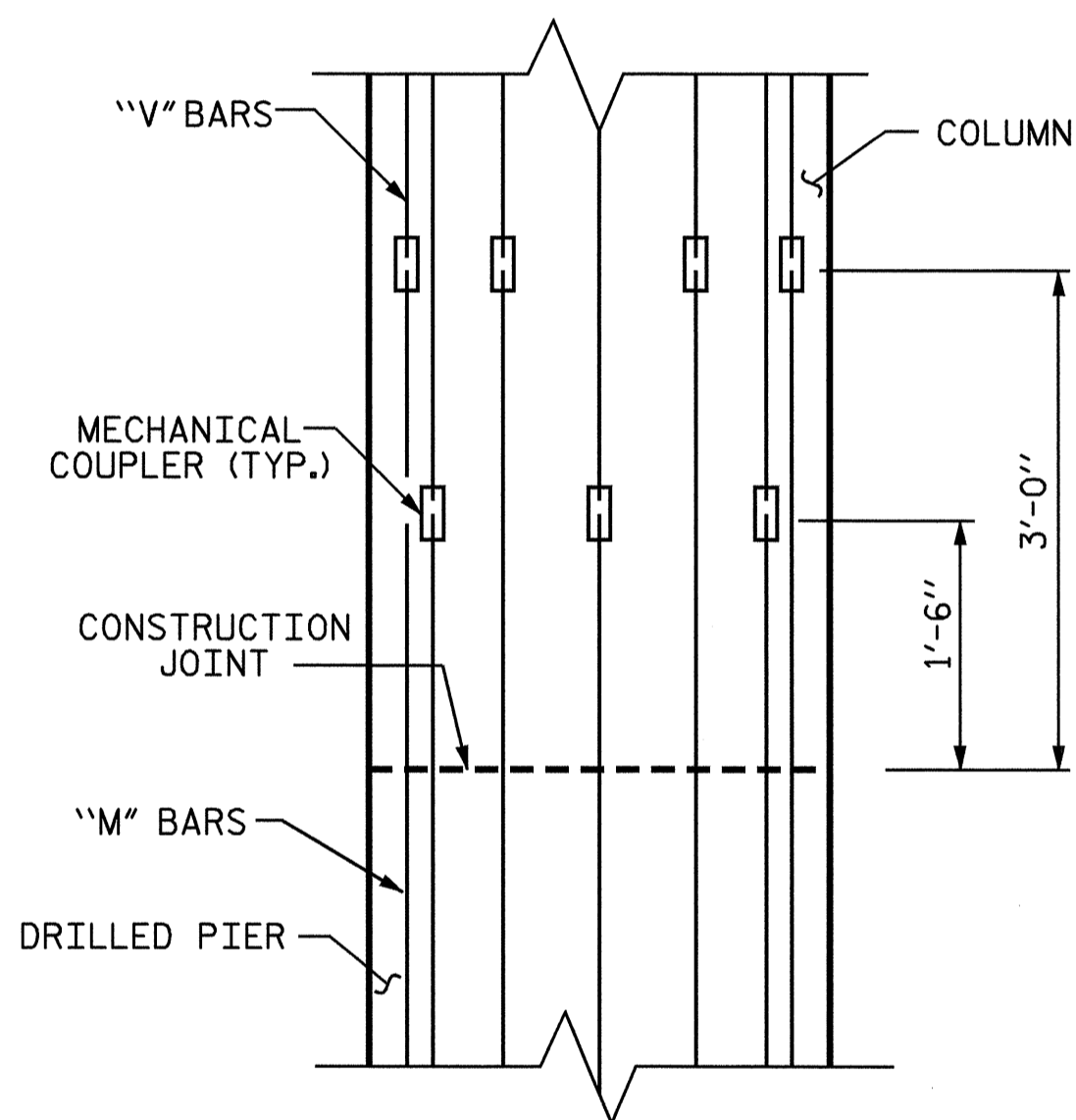


SECTION A-A

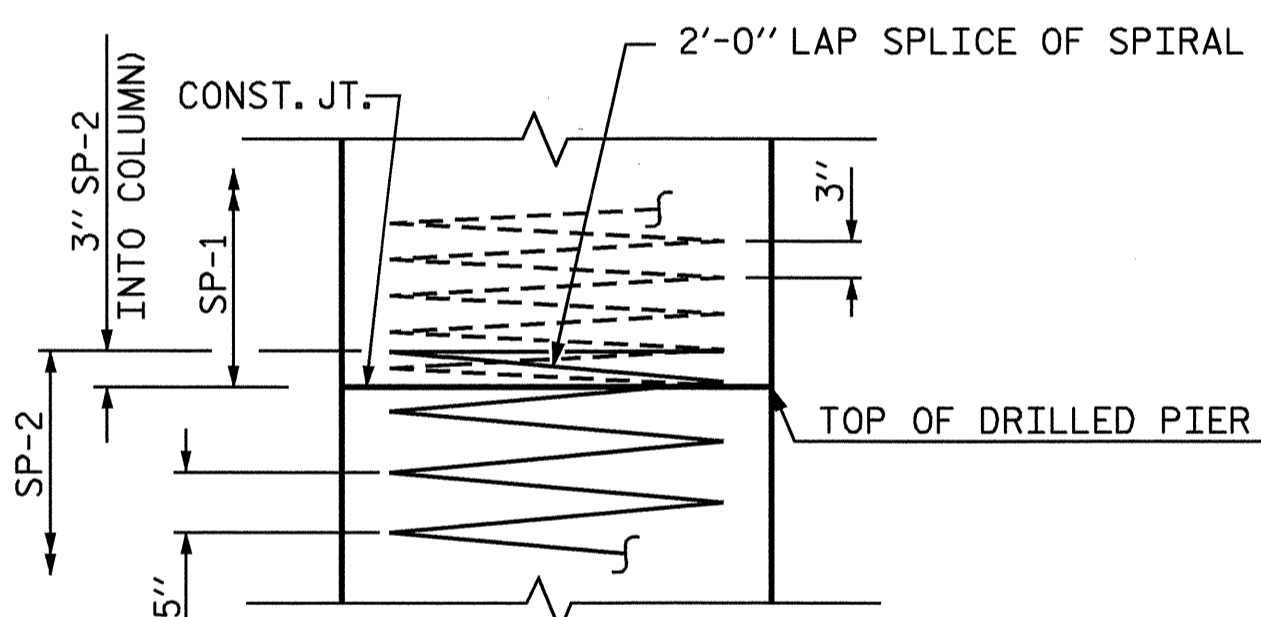


VIEW X-X

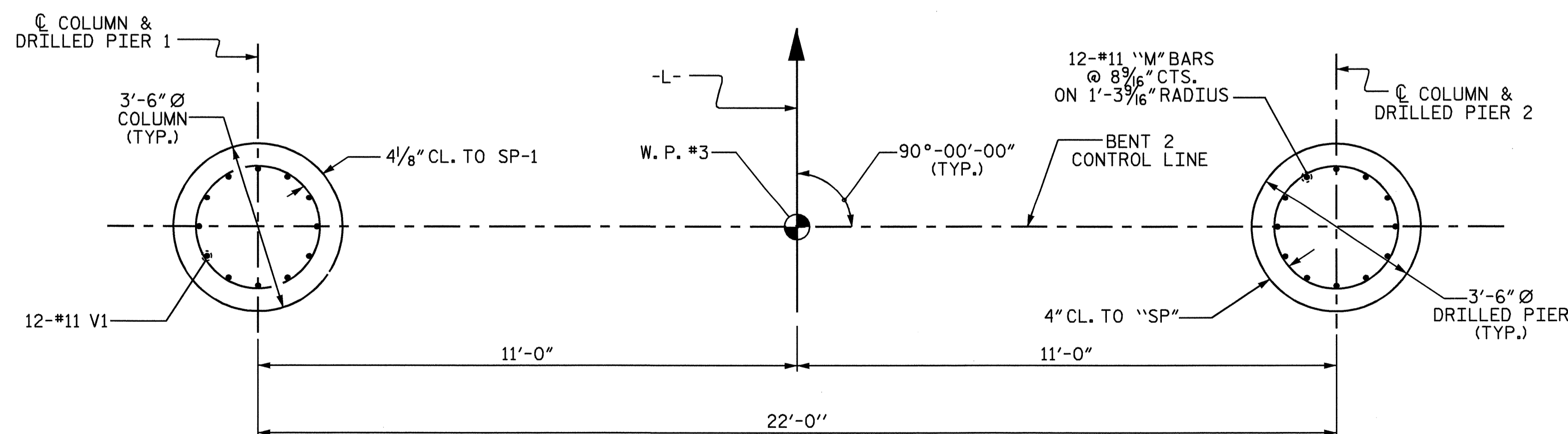
VIEW Y-Y



MECHANICAL COUPLER STAGGER DETAIL



CONSTRUCTION JOINT DETAIL

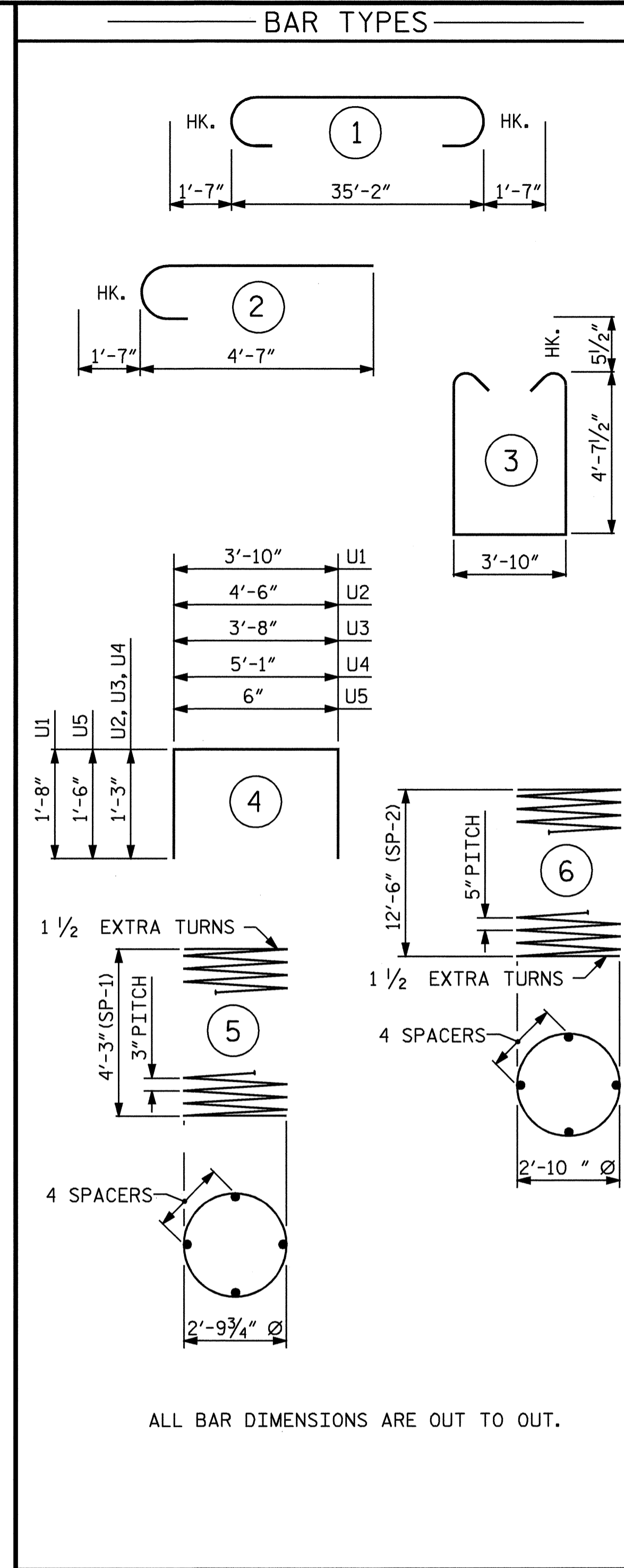


PLAN OF COLUMNS AND DRILLED PIERS

(REINFORCING STEEL AND DIMENSIONS TYPICAL FOR ALL DRILLED PIERS AND COLUMNS EXCEPT AS NOTED)

DRAWN BY: J.D. HAWK DATE: 1/22/08
 CHECKED BY: J.G. KHARVA DATE: 2/6/08

01-APR-2008 09:10
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 Kpaschal



ALL BAR DIMENSIONS ARE OUT TO OUT.

- * THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.
- ** THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.
- ▲ NO SEPARATE PAYMENT WILL BE MADE FOR CSL TUBES. CSL TUBES WILL BE INCLUDED IN THE UNIT BID PRICE FOR DRILLED PIERS.

BILL OF MATERIAL

BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#11	1	38'-5"	1225
B2	6	#11	STR	35'-3"	1124
B3	8	#5	STR	35'-3"	294
B4	6	#4	STR	22'-3"	89
B5	4	#4	STR	3'-4"	9
D1	44	#8	STR	2'-3"	264
M1	24	#11	STR	18'-9"	2391
S1	36	#5	3	14'-0"	526
U1	15	#4	4	7'-2"	72
U2	3	#4	4	6'-0"	14
U3	9	#4	4	6'-2"	37
U4	3	#4	4	7'-7"	15
U5	10	#4	4	3'-6"	23
V1	24	#11	2	6'-2"	786

REINFORCING STEEL = 6869 LBS.

SP-1	2	*	5	161'-2"	215
SP-2	2	**	6	275'-7"	575

SPIRAL COLUMN REINFORCING STEEL = 790 LBS.

CLASS A CONCRETE BREAKDOWN				
POUR #2 (COLUMNS)	2.8	C.Y.		
POUR #3 CAP	29.4	C.Y.		
POUR #4 LATERAL GUIDE	0.2	C.Y.		
TOTAL	32.4	C.Y.		

DRILLED PIERS

DRILLED PIER CONCRETE				
POUR #1 (DRILLED PIERS)	9.3	C.Y.		
3'-6" Ø DRILLED PIERS IN SOIL	10.00	LIN. FT.		
3'-6" Ø DRILLED PIERS NOT IN SOIL	16.00	LIN. FT.		

PERMANENT STEEL CASING FOR 3'-6" Ø DRILLED PIERS LIN. FT. = 9.85

▲ CSL TUBES LIN. FT. = 124.0

PROJECT NO. B-3803
 ASHE COUNTY
 STATION: 15+72.00 -L-

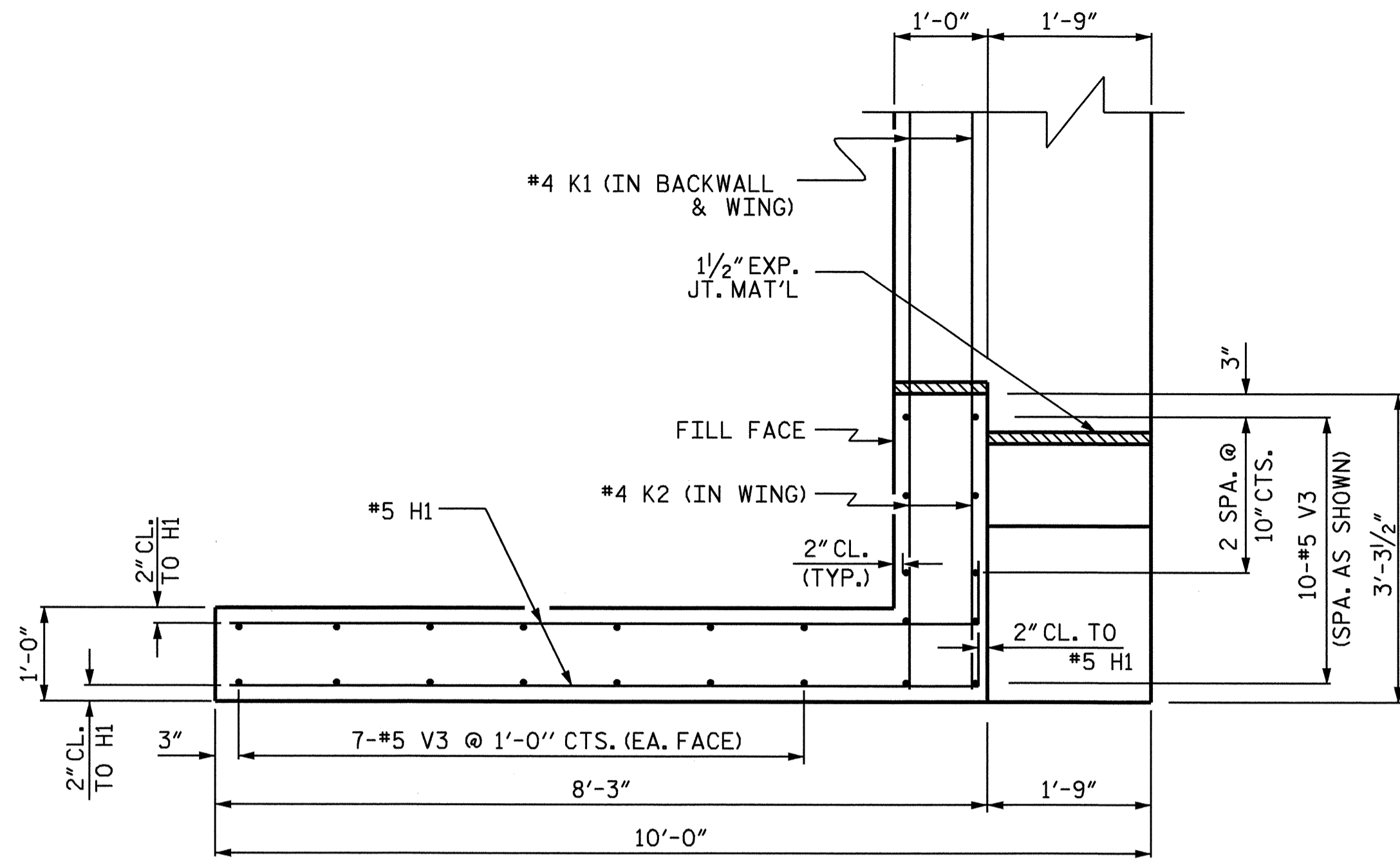
SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

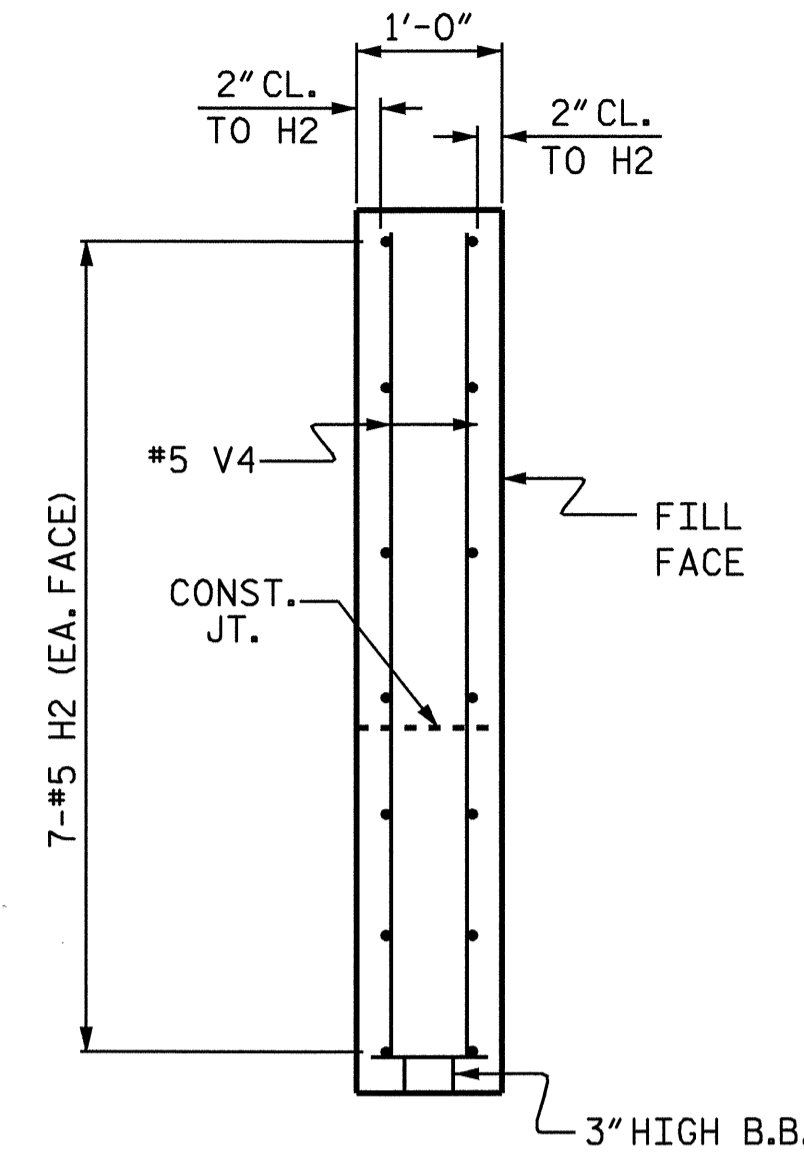
SUBSTRUCTURE
 BENT 2



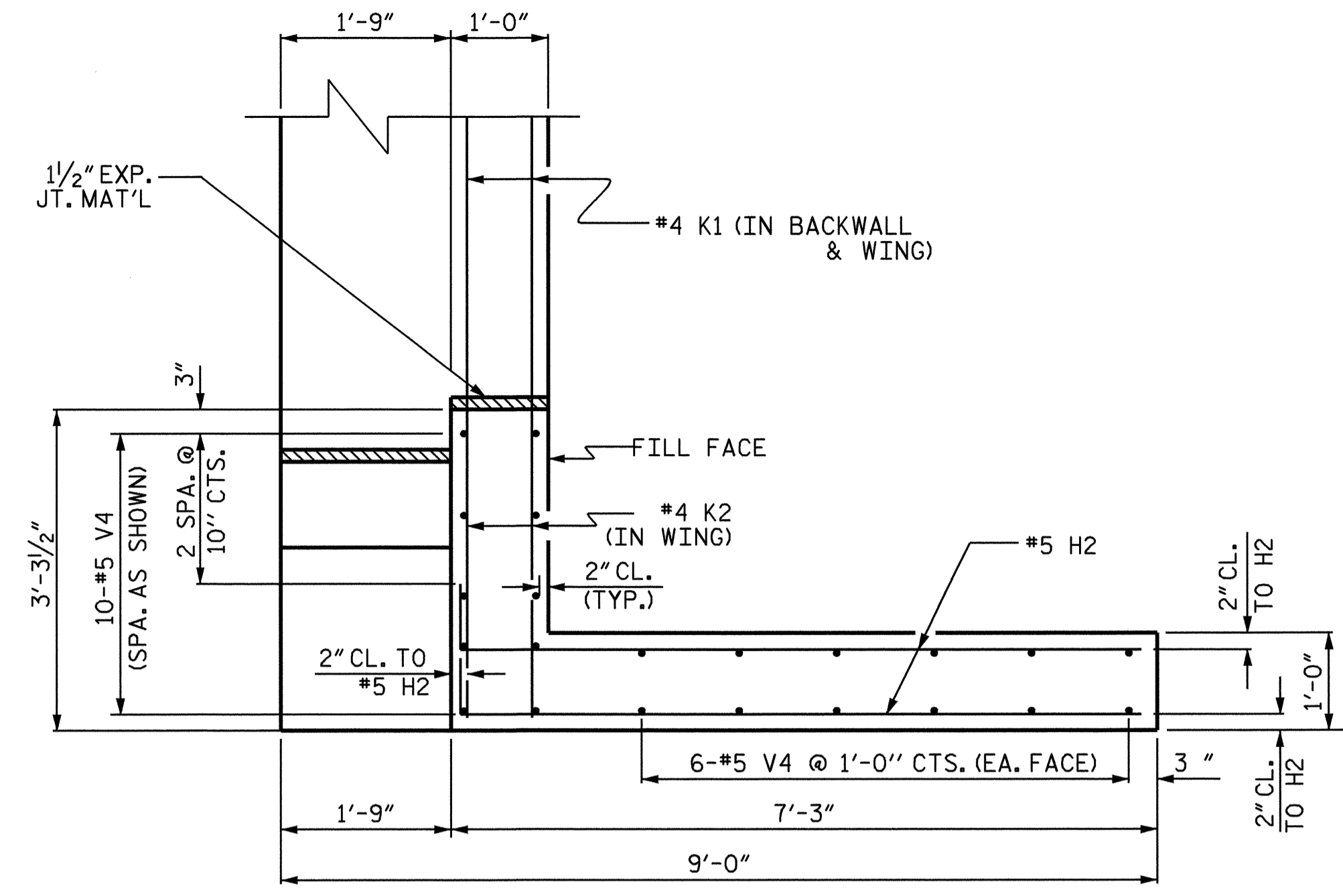
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS
2			4			27



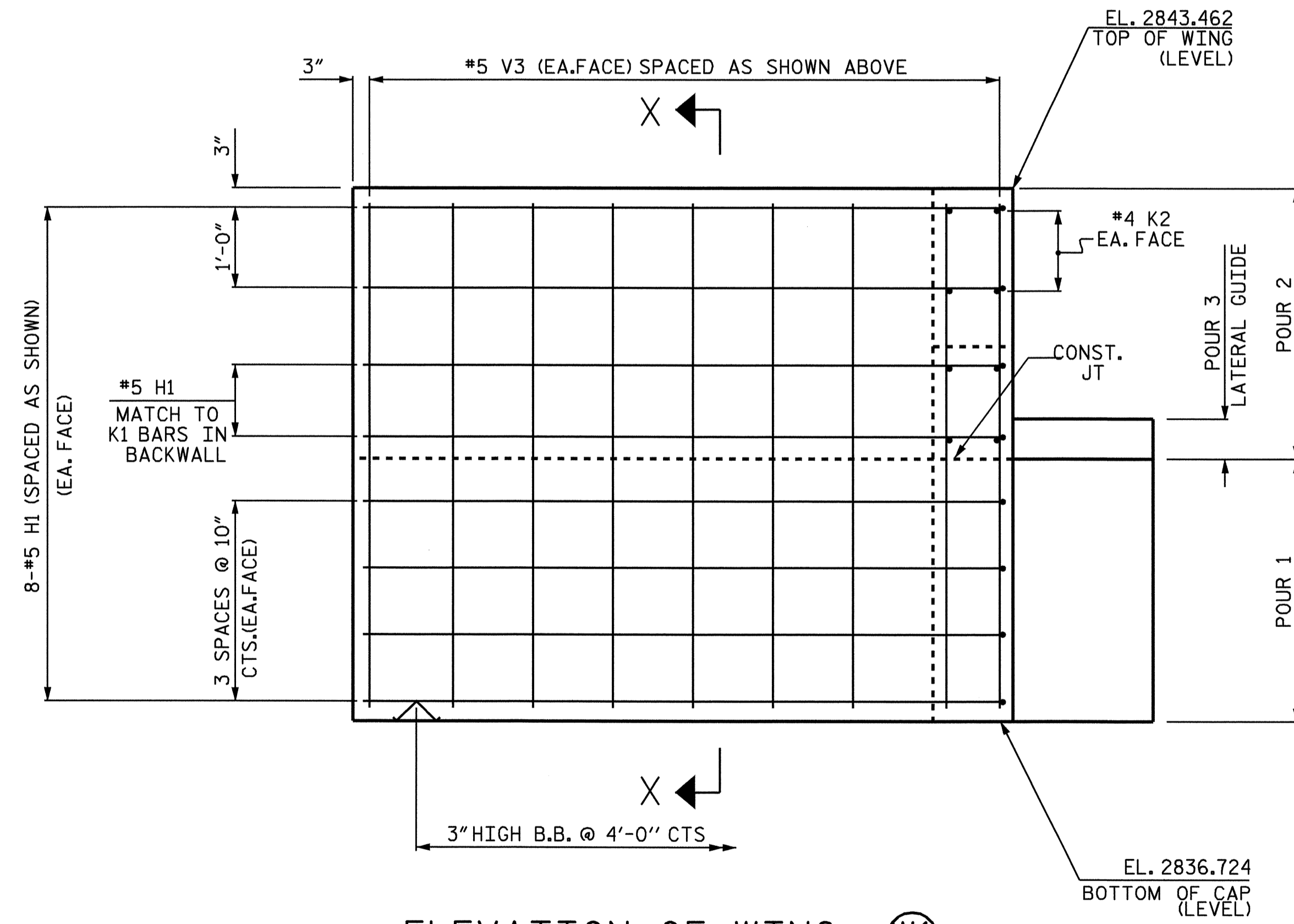
PLAN OF WING (W1)



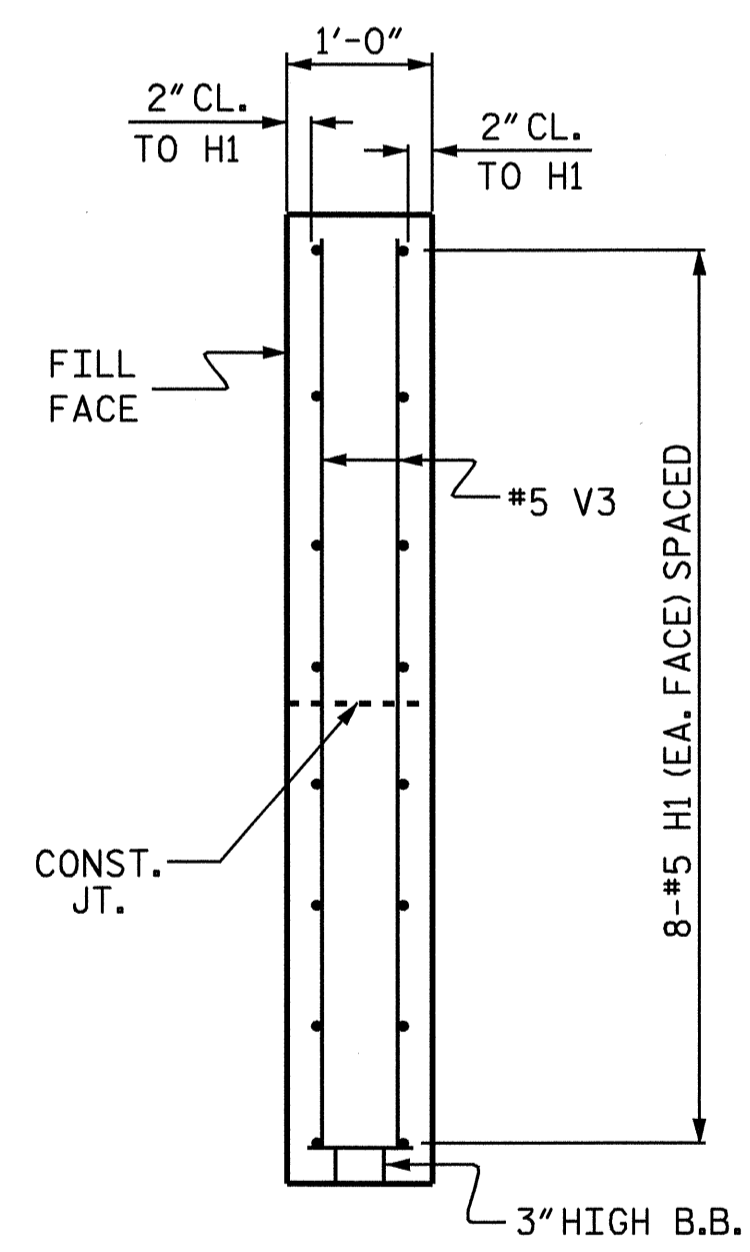
SECTION Y-Y



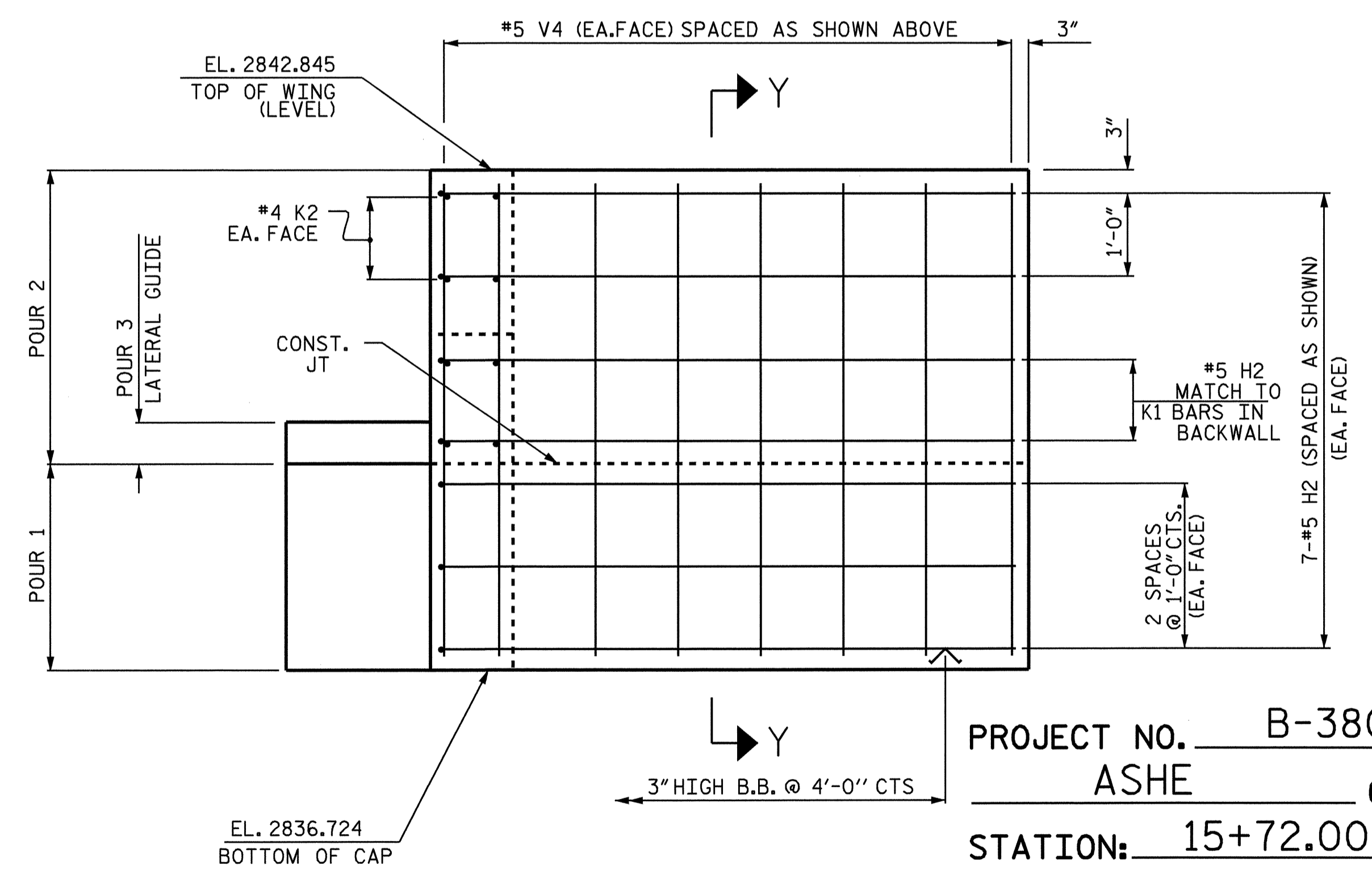
PLAN OF WING (W2)



ELEVATION OF WING (W1)



SECTION X-X



ELEVATION OF WING (W2)

PROJECT NO. B-3803
 ASHE COUNTY
 STATION: 15+72.00 -L-

SHEET 2 OF 3

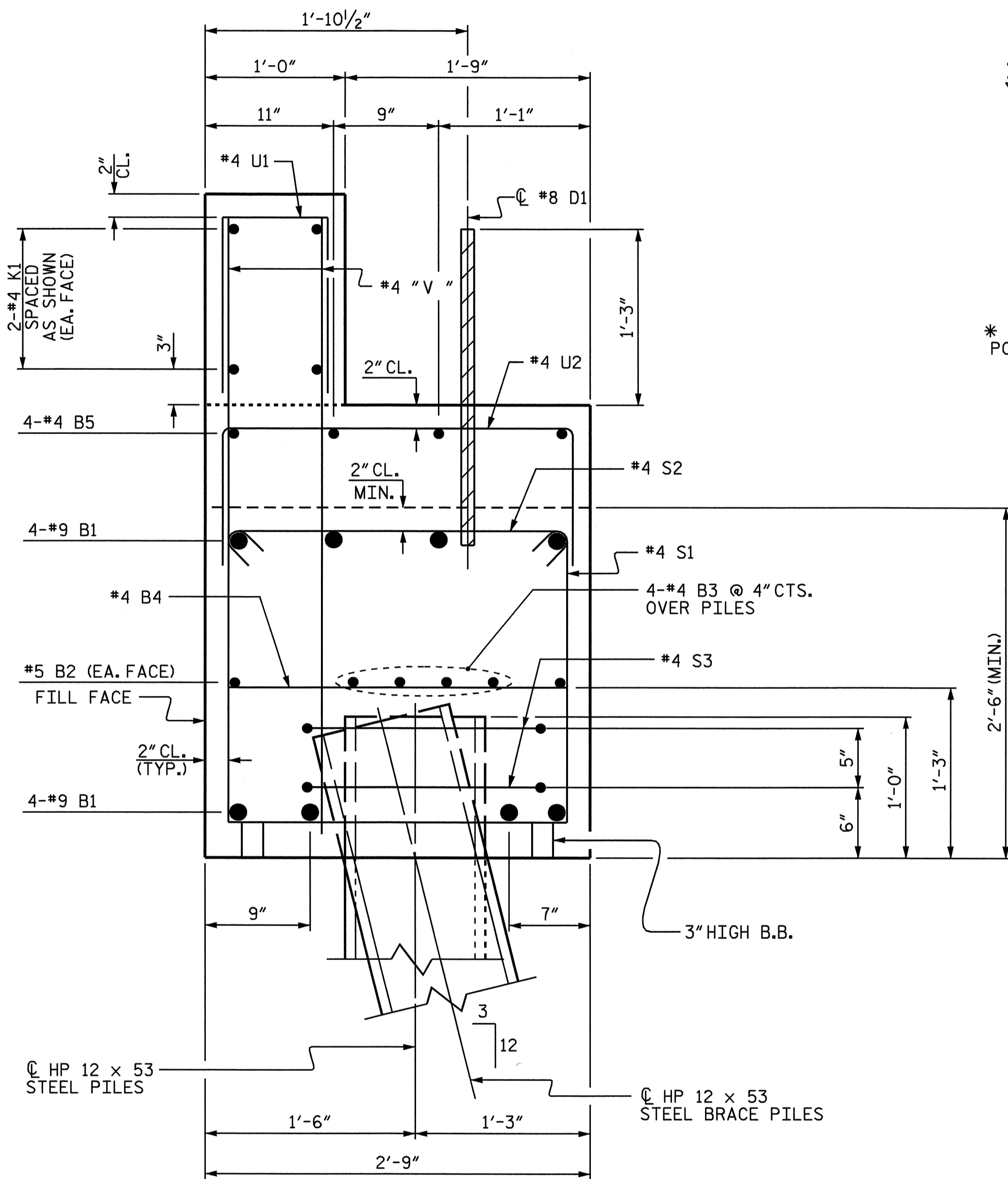
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2



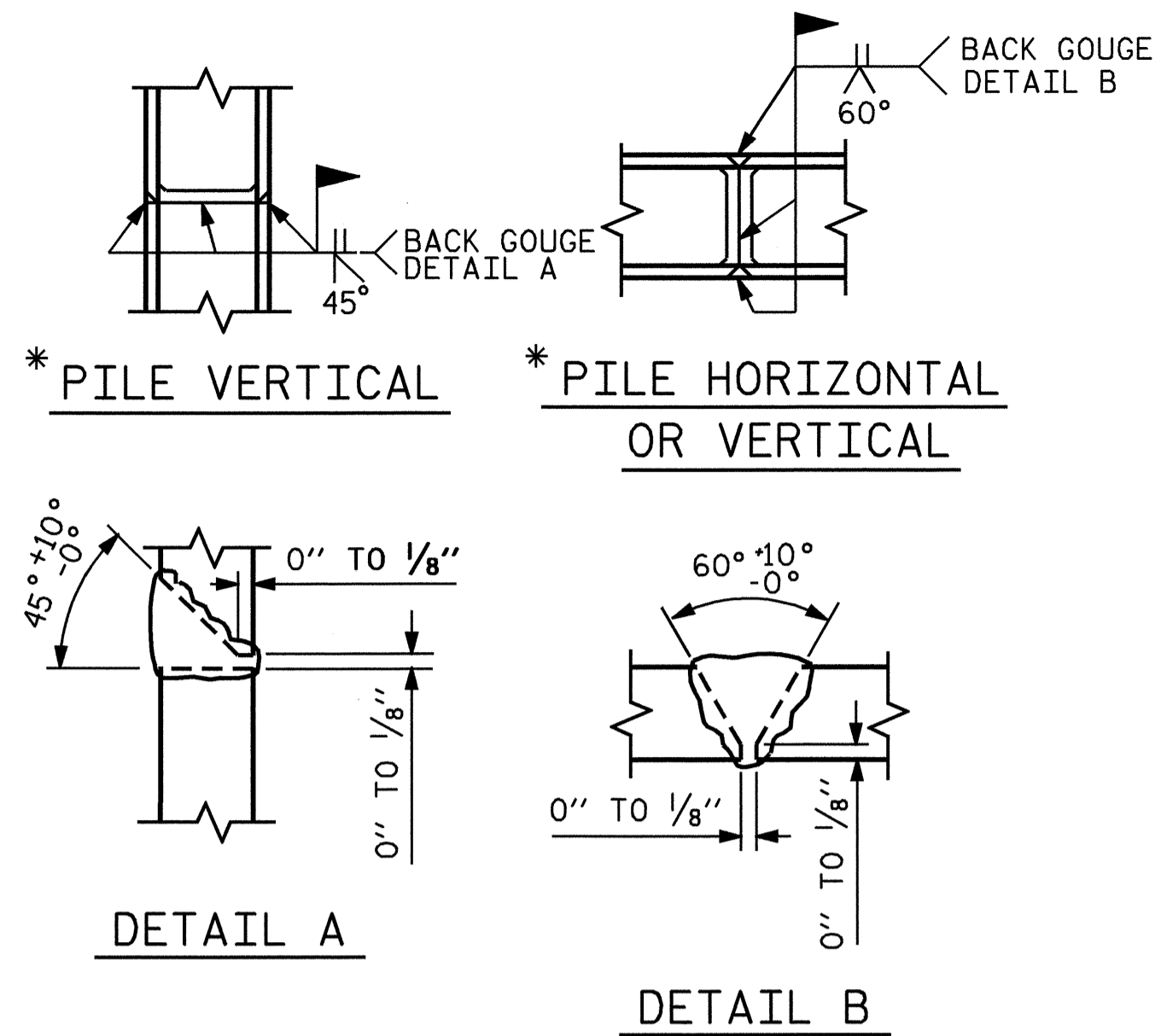
DRAWN BY: M.FOWLER DATE: 10/22/07
 CHECKED BY: J.D. HAWK DATE: 1/25/08

01-APR-2008 08:59
 r:\structures\final plans\b3803.ed.eb.dgn
 mFowler

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

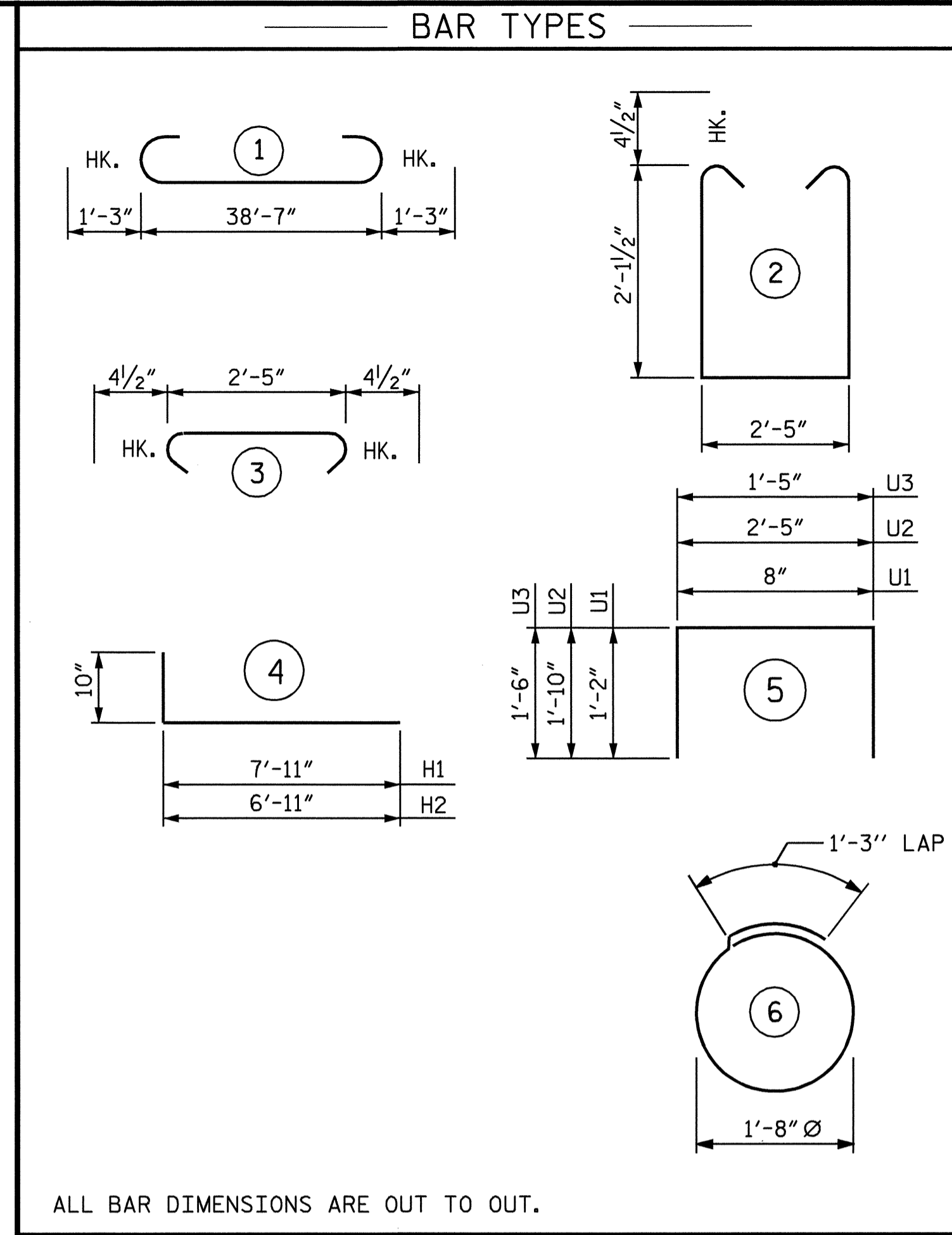


SECTION A-A



* POSITION OF PILE DURING WELDING.

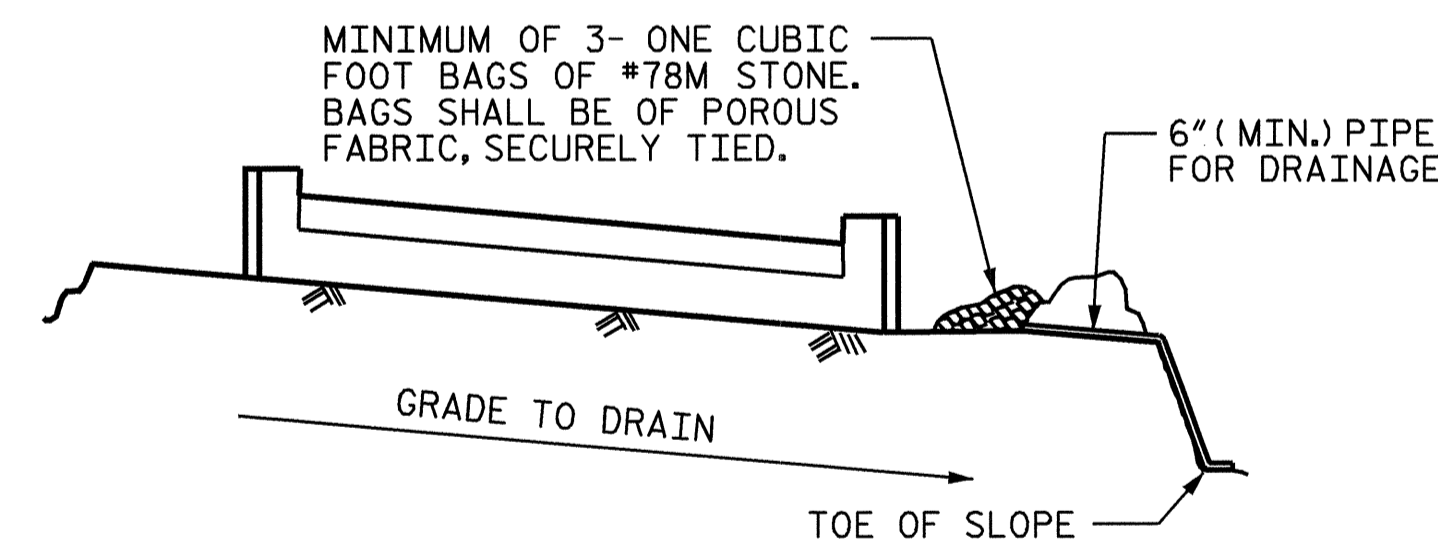
PILE SPLICE DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	41'-1"	1117
B2	2	#5	STR	38'-8"	81
B3	8	#4	STR	20'-7"	110
B4	10	#4	STR	2'-5"	16
B5	4	#4	STR	23'-6"	63
D1	22	#8	STR	2'-3"	132
H1	16	#5	4	8'-9"	146
H2	14	#5	4	7'-9"	113
K1	8	#4	STR	20'-7"	110
K2	8	#4	STR	2'-11"	16
S1	37	#4	2	7'-5"	183
S2	37	#4	3	3'-2"	78
S3	16	#4	6	6'-6"	69
U1	33	#4	5	3'-0"	66
U2	16	#4	5	6'-1"	65
U3	4	#4	5	4'-5"	12
V1	36	#5	STR	3'-8"	138
V2	30	#5	STR	4'-1"	127
V3	24	#5	STR	6'-4"	159
V4	22	#5	STR	5'-9"	132

REINFORCING STEEL				LBS.	2933
CLASS A CONCRETE					
POUR 1					
CAP & LOWER PART OF WINGS				12.9	CU. YDS.
POUR 2					
BACKWALL & UPPER PART OF WINGS				4.6	CU. YDS.
POUR 3					
LATERAL GUIDES				0.1	CU. YDS.
TOTAL				17.6	CU. YDS.
HP 12 x 53 STEEL PILES					
No. 8				120	LIN.FT.



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

PROJECT NO. B-3803
 ASHE COUNTY
 STATION: 15+72.00 -L-

SHEET 3 OF 3

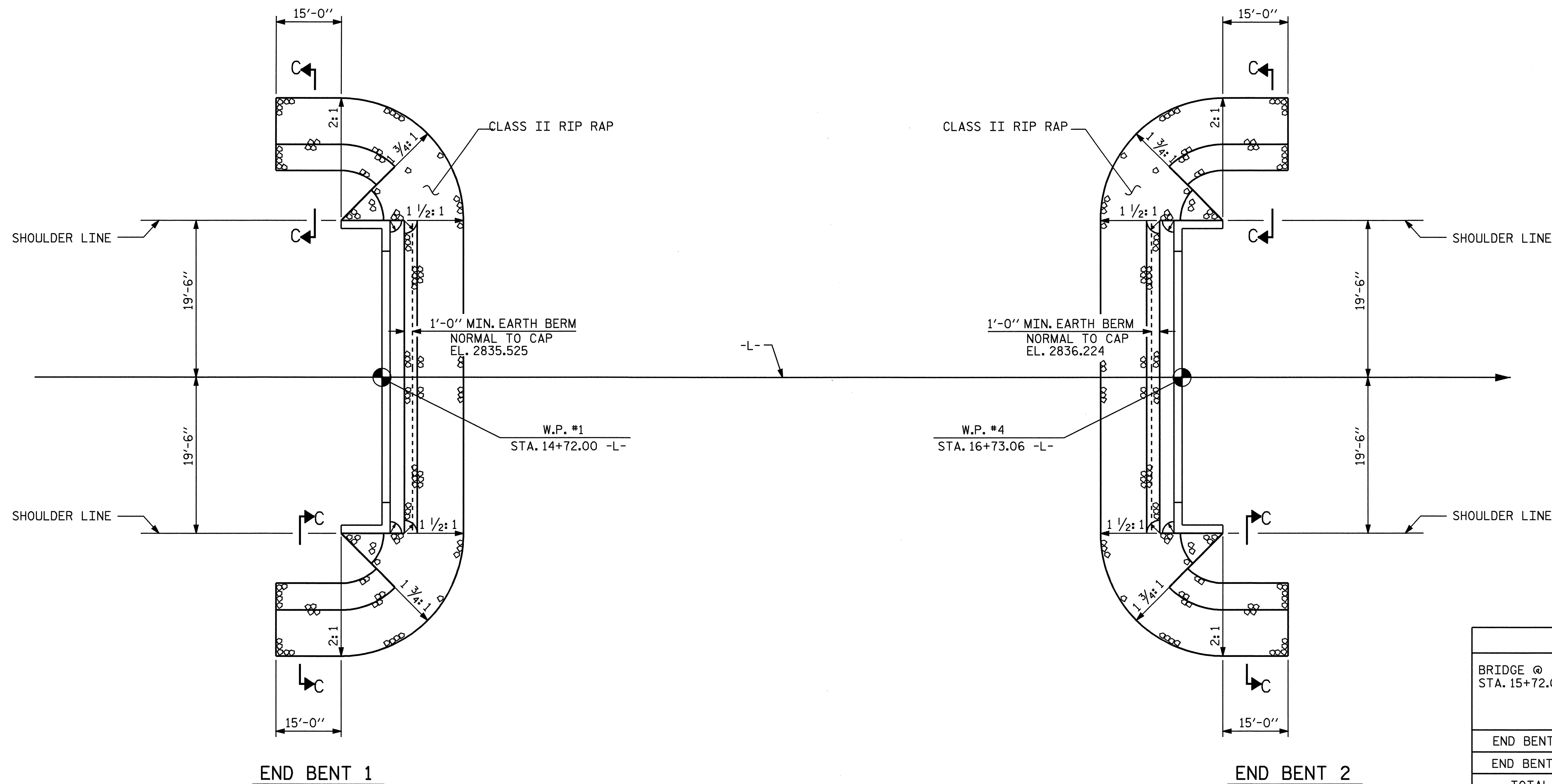
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 2



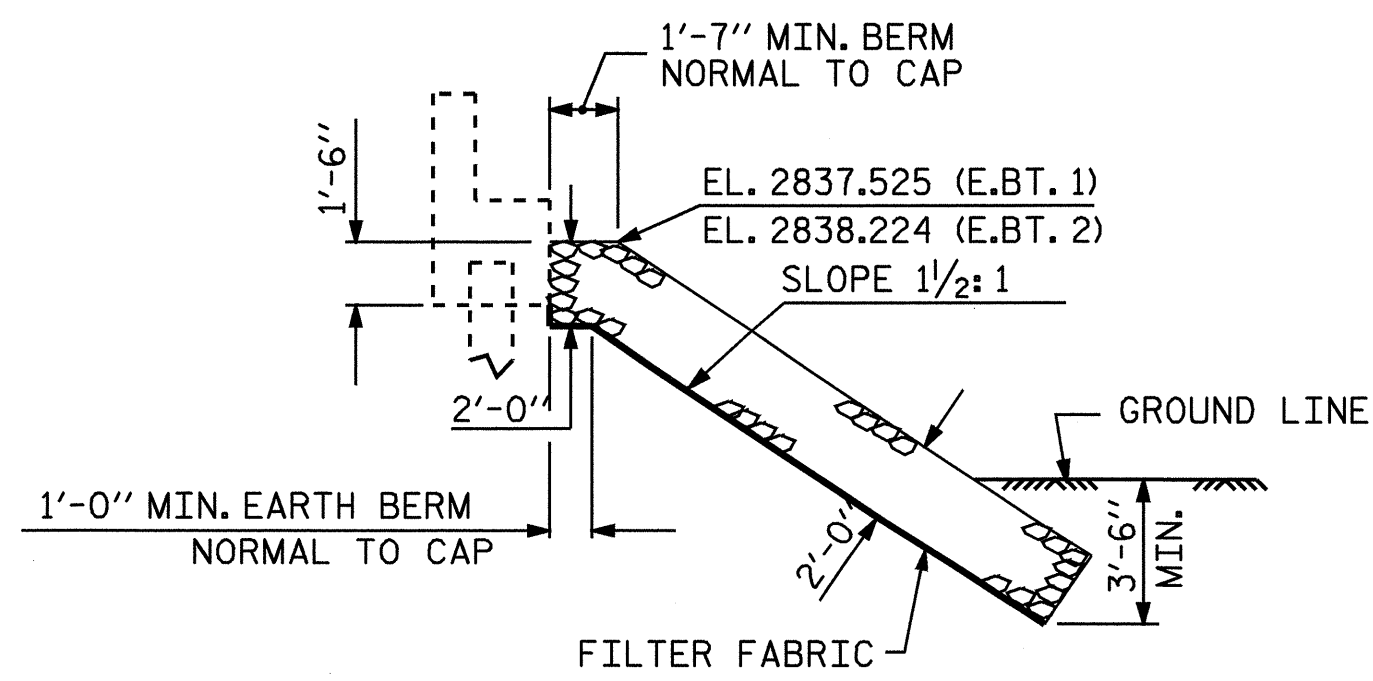
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24
1			3			TOTAL SHEETS
2			4			27

DRAWN BY: M. FOWLER DATE: 10/22/07
 CHECKED BY: J.D. HAWK DATE: 1/25/08

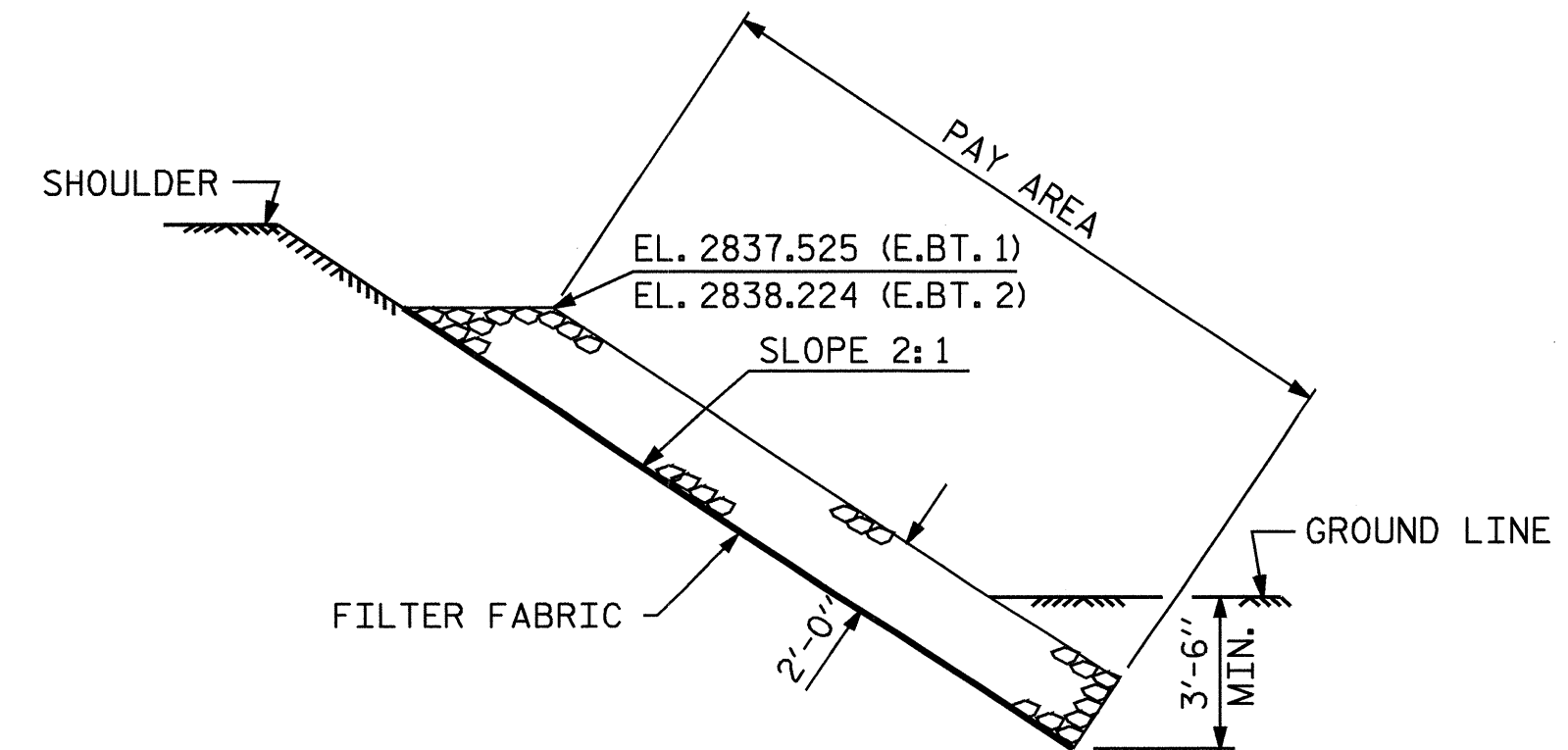


ESTIMATED QUANTITIES		
BRIDGE @ STA. 15+72.00 -L-	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	119	132
END BENT 2	115	128
TOTAL	234	260

PLAN

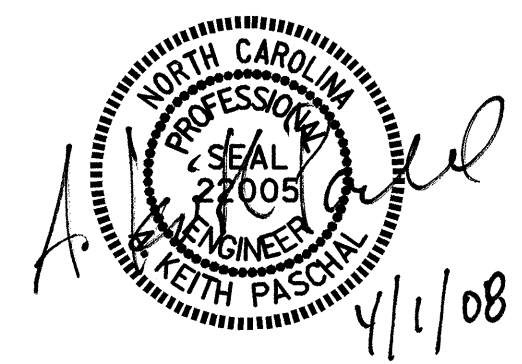


SECTION C-C
BERM RIP RAPPED



SECTION C-C

PROJECT NO. B-3803
ASHE COUNTY
 STATION: 15+72.00 -L-



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

ASSEMBLED BY : MARVIN FOWLER DATE : 1/18/08
 CHECKED BY : J. G. KHARVA DATE : 02/07/08
 DRAWN BY : FCJ 2/88 REV. 8/16/99 RWW/LES
 CHECKED BY : ARB 8/88 REV. 10/17/00 RWW/LES
 REV. 5/1/06 TLA/GM

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

BILL OF MATERIAL

FOR ONE APPROACH SLAB (2 REQ'D)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	32	#4	STR	16'-11"	362
A2	32	#4	STR	16'-10"	360
*B1	64	#5	STR	14'-2"	946
B2	64	#6	STR	14'-8"	1410
REINFORCING STEEL				LBS.	1770
*EPOXY COATED REINFORCING STEEL				LBS.	1308
CLASS AA CONCRETE				C.Y.	18.7

NOTES

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

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

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

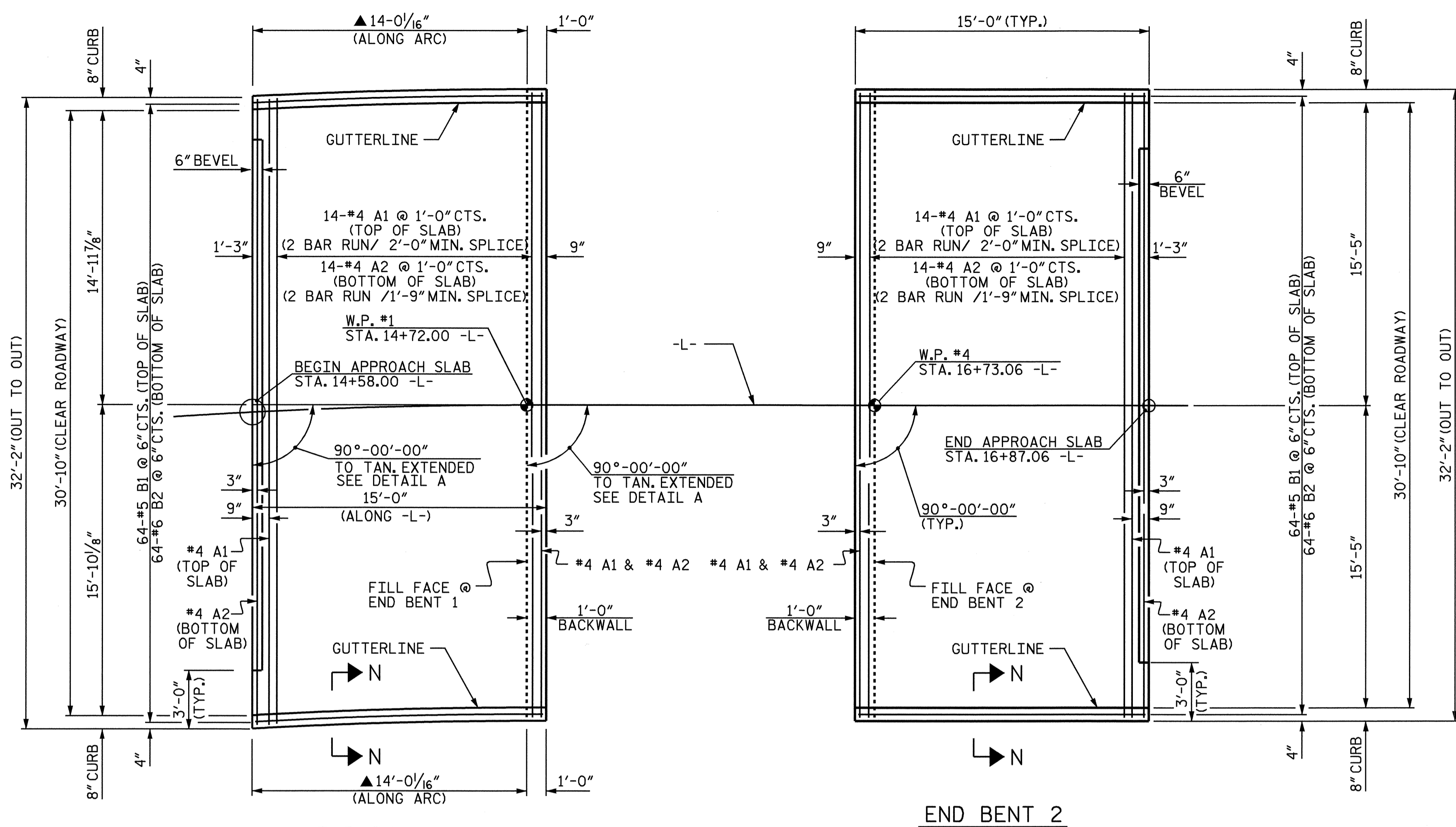
THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

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

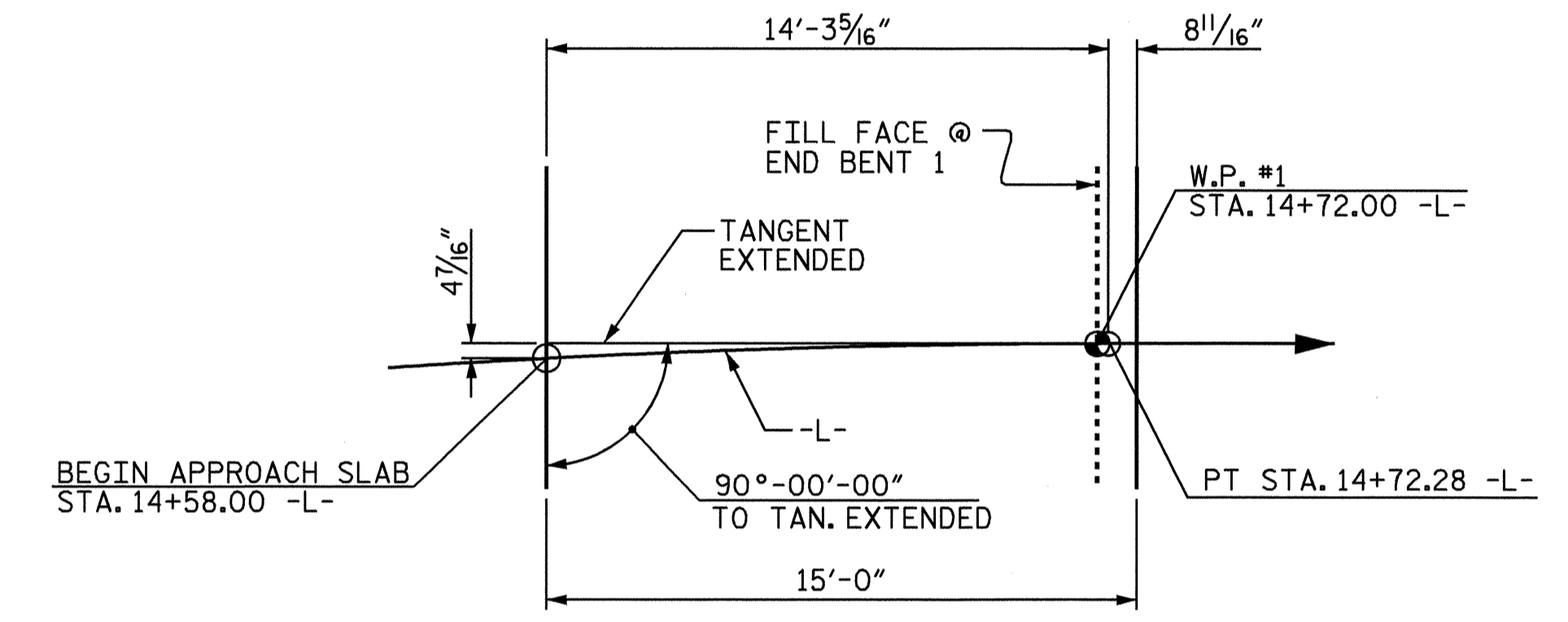
FOR JOINT DETAILS, SEE "PRESTRESSED CONCRETE BOX BEAM UNIT" SHEETS.

THE JOINT AT THE END BENT SHALL BE GROUTED AS SOON AS PRACTICAL AFTER THE CONSTRUCTION OF THE APPROACH SLABS.

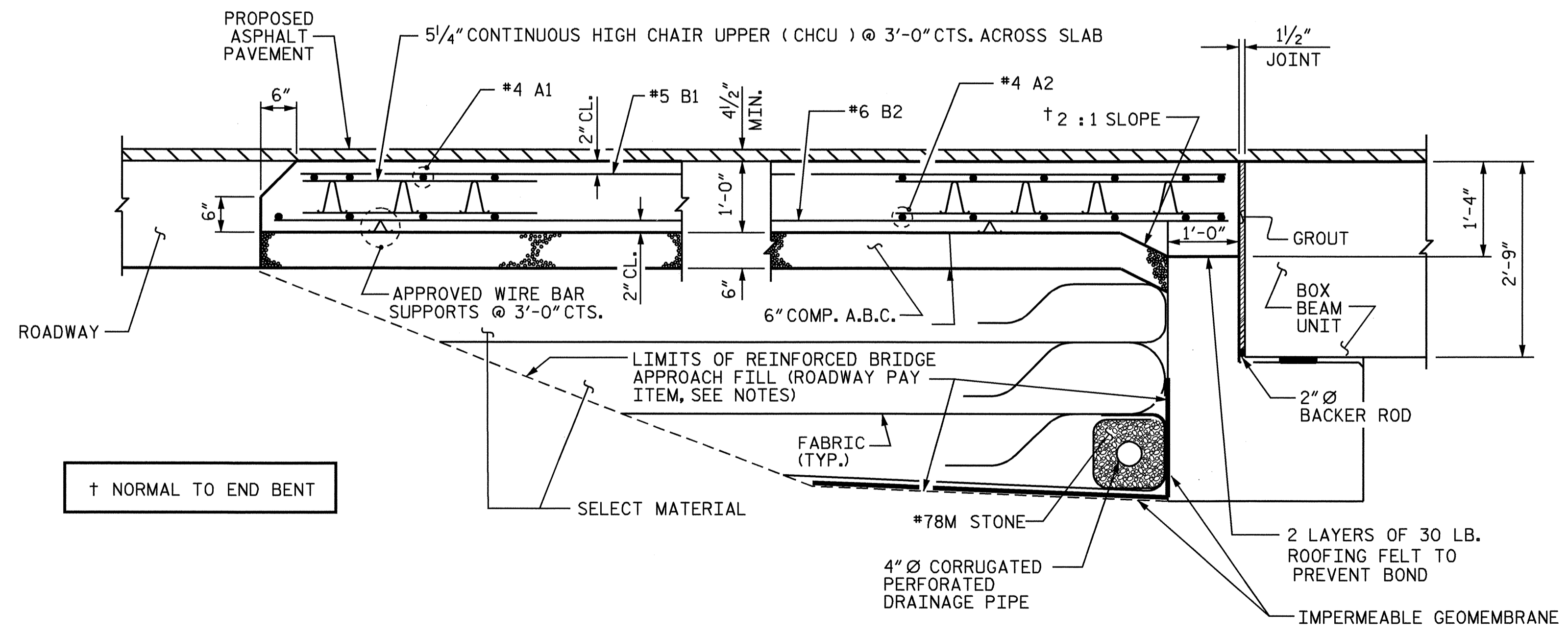
APPROACH SLAB GROOVING IS NOT REQUIRED.



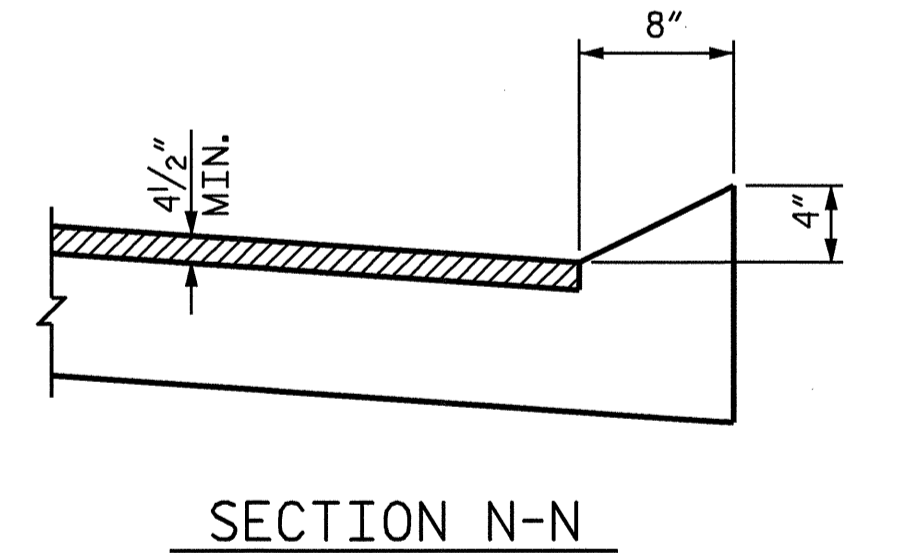
PLAN



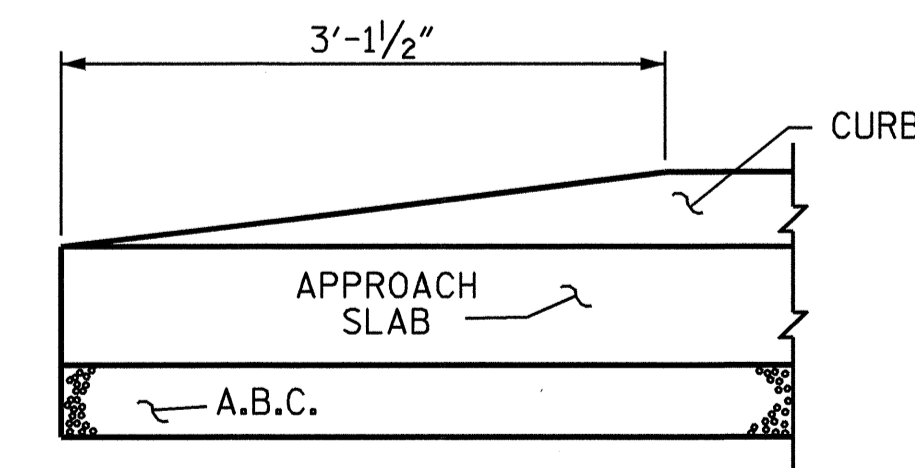
DETAIL A



SECTION THRU SLAB



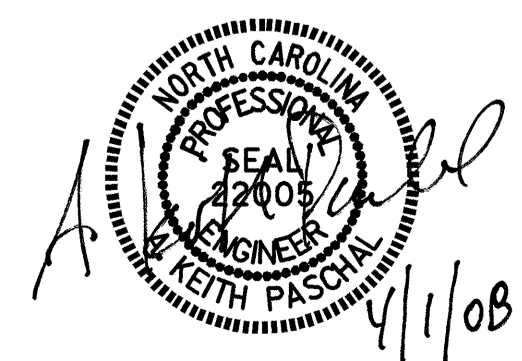
SECTION N-N



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

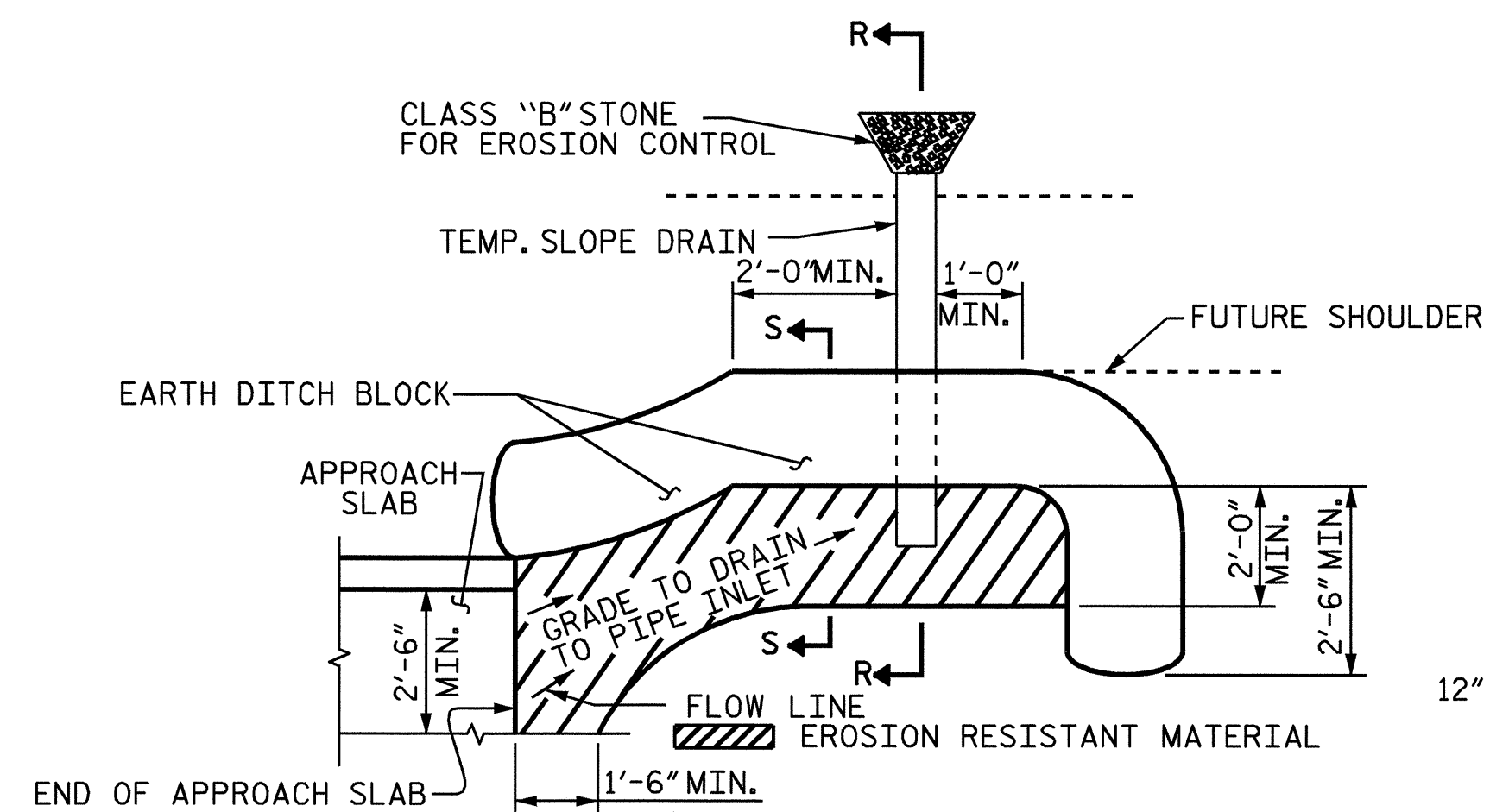
PROJECT NO. B-3803
ASHE COUNTY
 STATION: 15+72.00 -L-

SHEET 1 OF 2
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR PRESTRESSED CONCRETE
 BOX BEAM



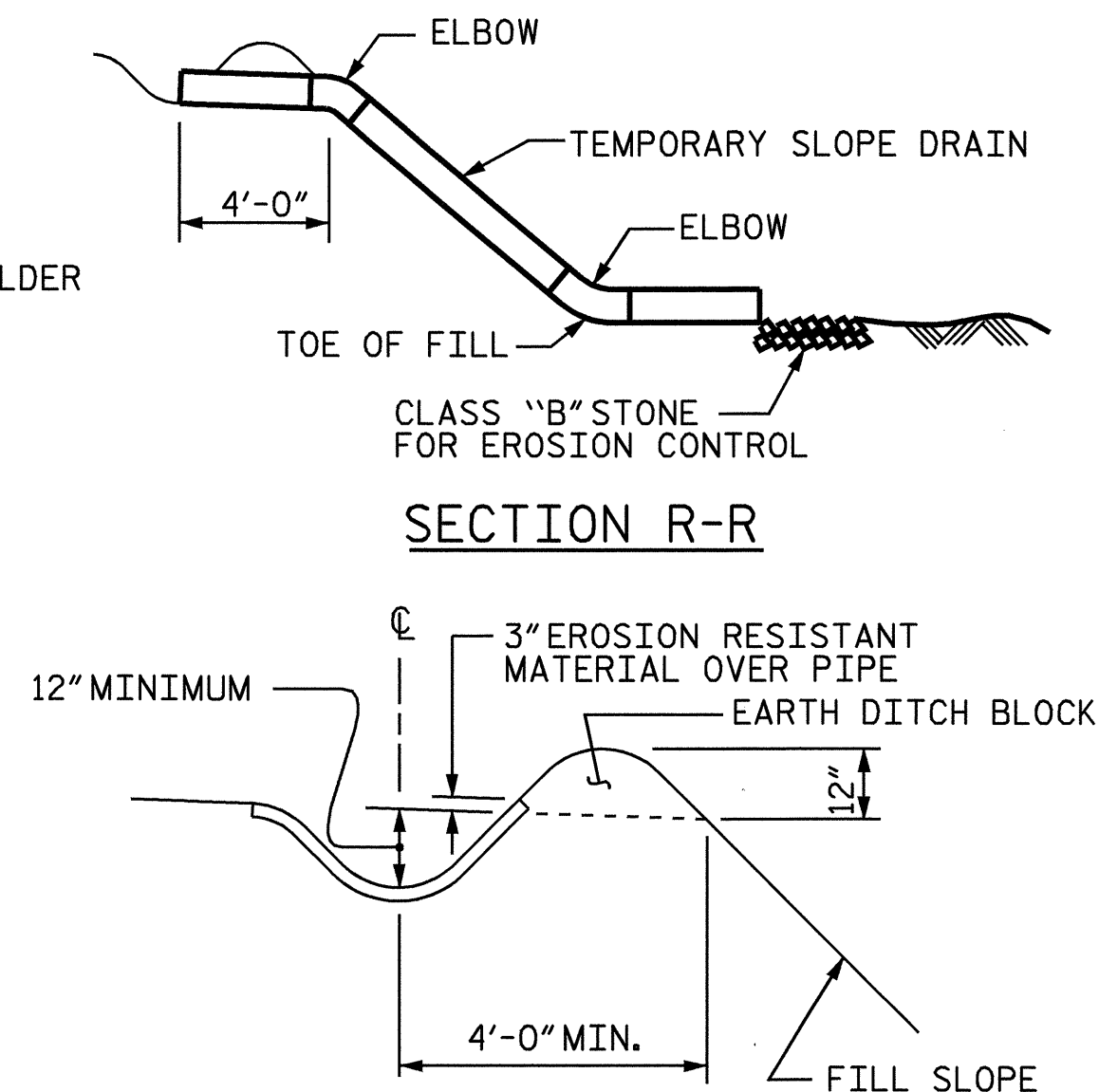
ASSEMBLED BY : A.M.K./ E.G.A. DATE : 4/19/06
 CHECKED BY : J.G. KHARVA DATE : 1/30/08
 DRAWN BY : FCJ 6/87 REV. 7/10/01 LES/RDR
 CHECKED BY : EGA 6/87 REV. 5/7/03R RWW/JTE
 REV. 5/1/06R KMM/GM

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



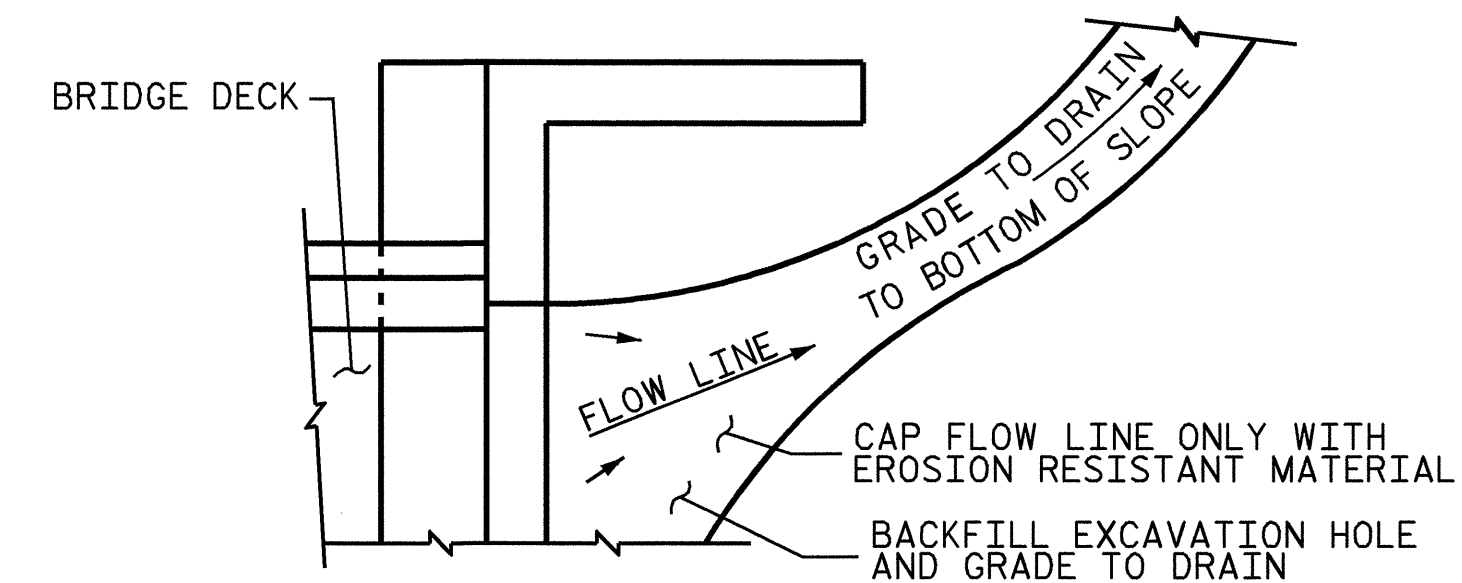
NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

PLAN VIEW



SECTION R-R

SECTION S-S

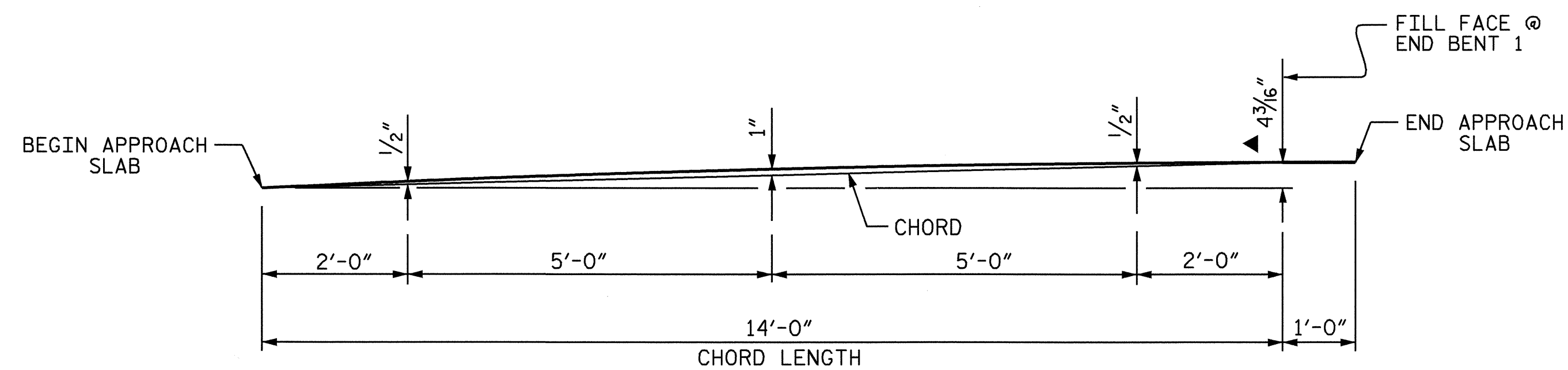


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

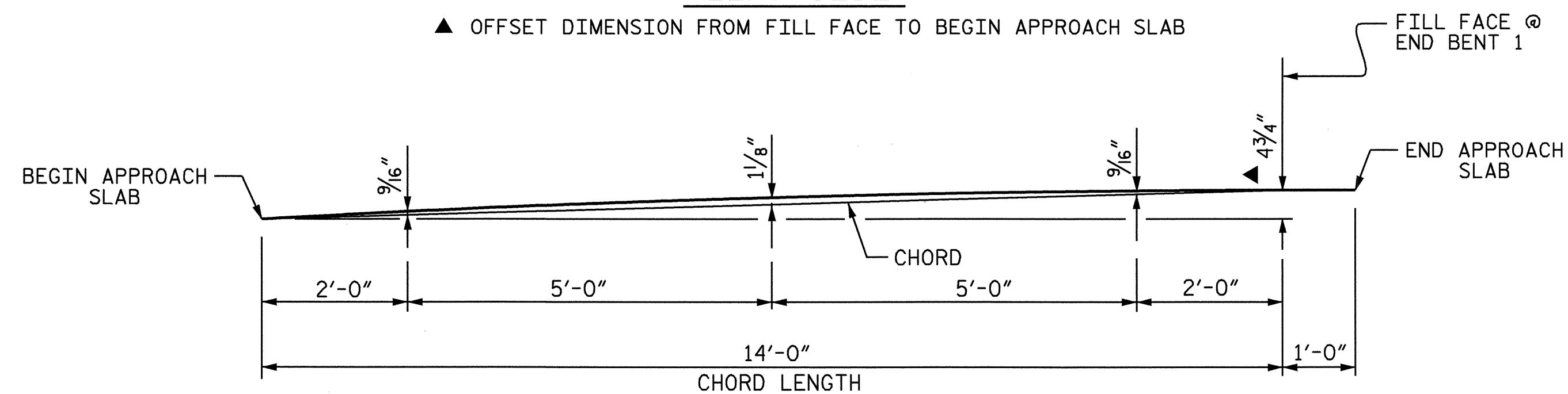
TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



LEFT SIDE

▲ OFFSET DIMENSION FROM FILL FACE TO BEGIN APPROACH SLAB



RIGHT SIDE

▲ OFFSET DIMENSION FROM FILL FACE TO BEGIN APPROACH SLAB

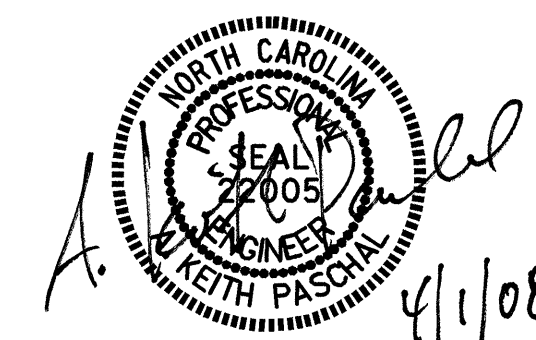
ARC OFFSETS @ END BENT 1

PROJECT NO. B-3803
ASHE COUNTY
 STATION: 15+72.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 BRIDGE APPROACH
 SLAB DETAILS



ASSEMBLED BY : A.M.K. & E.G.A.	DATE : 4/25/06
CHECKED BY : J.G. KHARVA	DATE : 1/30/08
DRAWN BY : FCJ 11/88	REV. 8/16/99 MAB/LES
CHECKED BY : ARB 11/88	REV. 10/17/00 RWW/LES
	REV. 5/7/03 RWW/JTE

REVISIONS						1988
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S-27
2			4			TOTAL SHEETS 27

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2002 STANDARD SPECIFICATIONS "FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED WITH THE EXCEPTION OF #2 BARS WHICH MAY BE FABRICATED FROM COLD DRAWN STEEL WIRE. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

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

STRUCTURAL STEEL:

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

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

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

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

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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

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