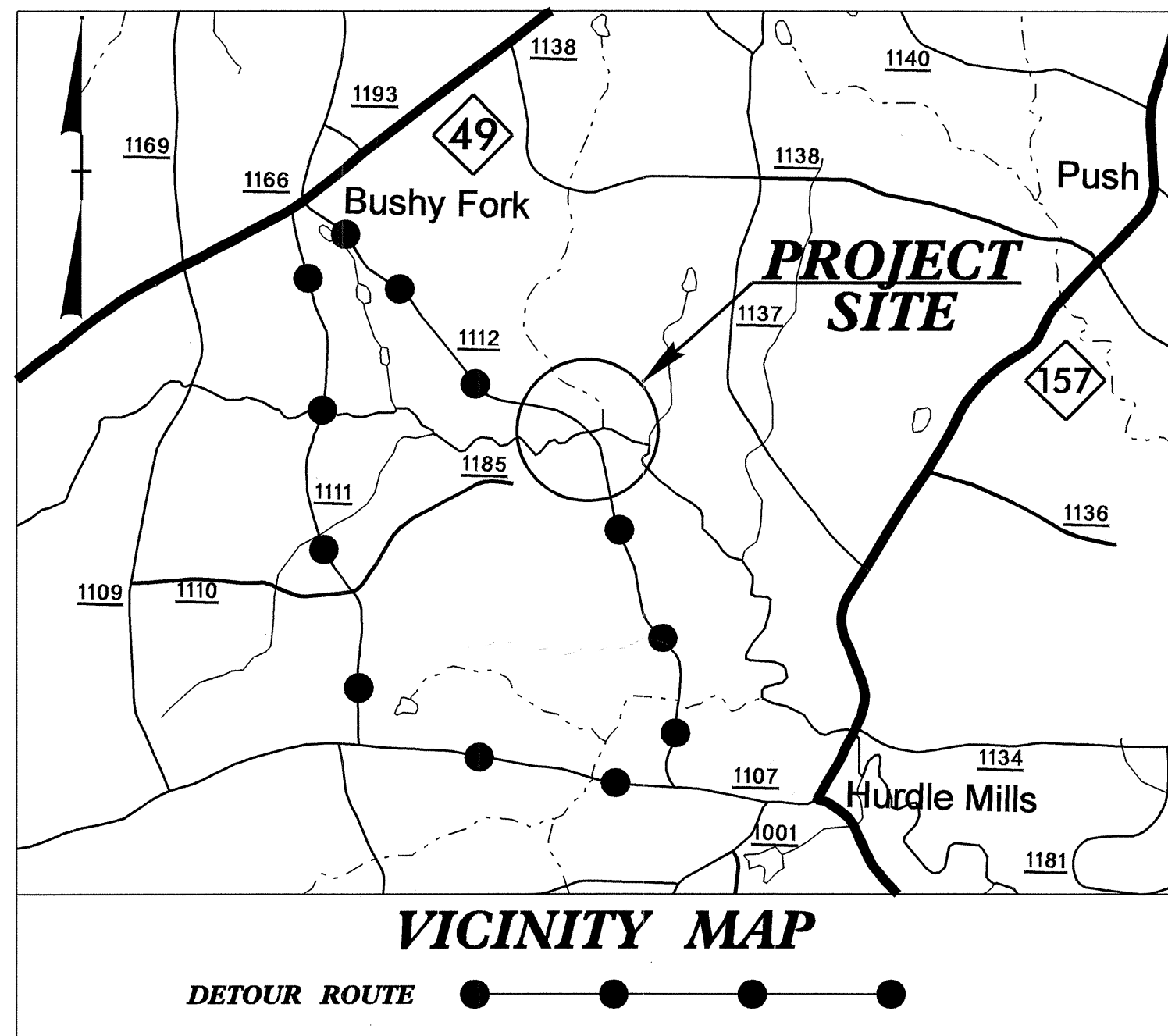


TIP PROJECT: B-4600

CONTRACT: C202338



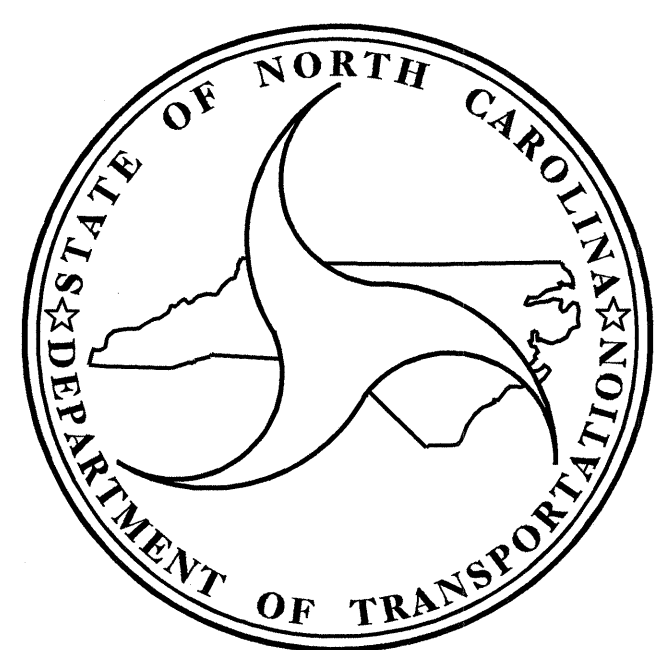
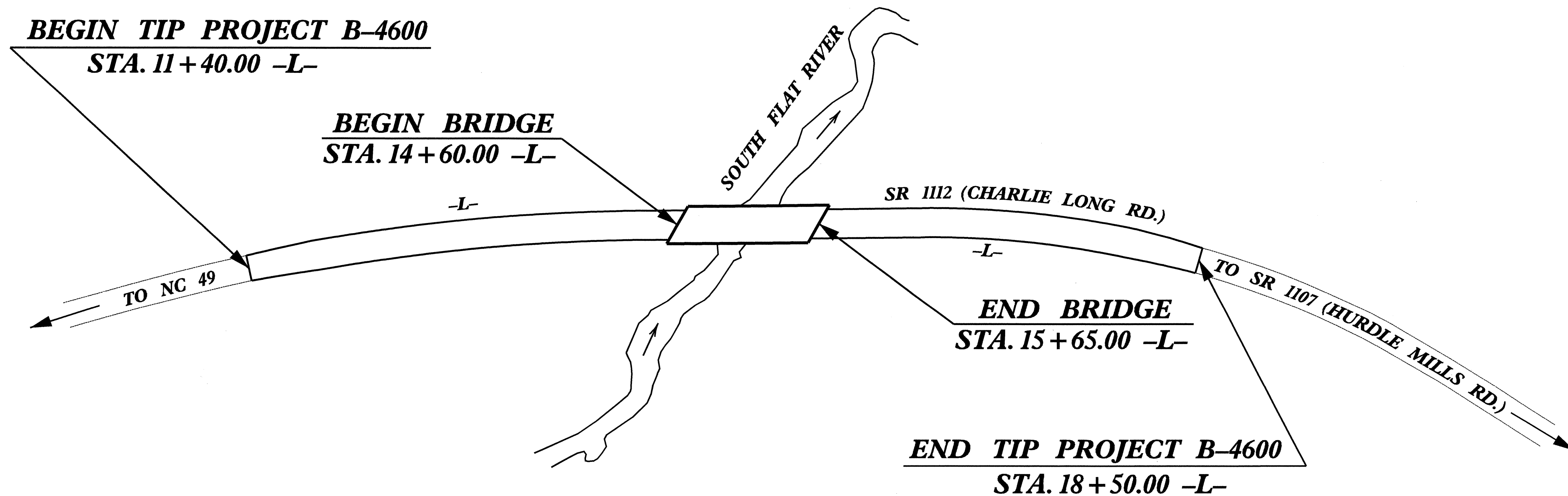
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
PERSON COUNTY

**LOCATION: BRIDGE NO. 43 OVER SOUTH FLAT RIVER
ON SR 1112 (CHARLIE LONG ROAD)**

**TYPE OF WORK: GRADING, DRAINAGE, PAVING, GUARDRAIL,
STRUCTURE.**

STATE	STATE PROJECT REFERENCE NO.	
N.C.	B-4600	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
33792.1.1	BRZ-1112(7)	PE
33792.2.1	BRZ-1112(7)	RW & UTILITIES
33792.3.1	BRZ-1112(7)	CONST.

STRUCTURE



DESIGN DATA

ADT 2010 = 819
ADT 2030 = 1300
DHV = 13 %
D = 60 %
T = 3 % *
V = 60 MPH
* TTST 1% DUAL 2%

FUNCTIONAL CLASS: RURAL LOCAL SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4600 = 0.114 MILES
LENGTH STRUCTURE TIP PROJECT B-4600 = 0.020 MILES
TOTAL LENGTH TIP PROJECT B-4600 = 0.134 MILES

2006 STANDARD SPECIFICATIONS

LETTING DATE:
MARCH 16, 2010

Prepared In the Office of:
**DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS**
1000 BIRCH RIDGE DR. RALEIGH, N.C. 27610

B. S. COX P. E.
PROJECT ENGINEER

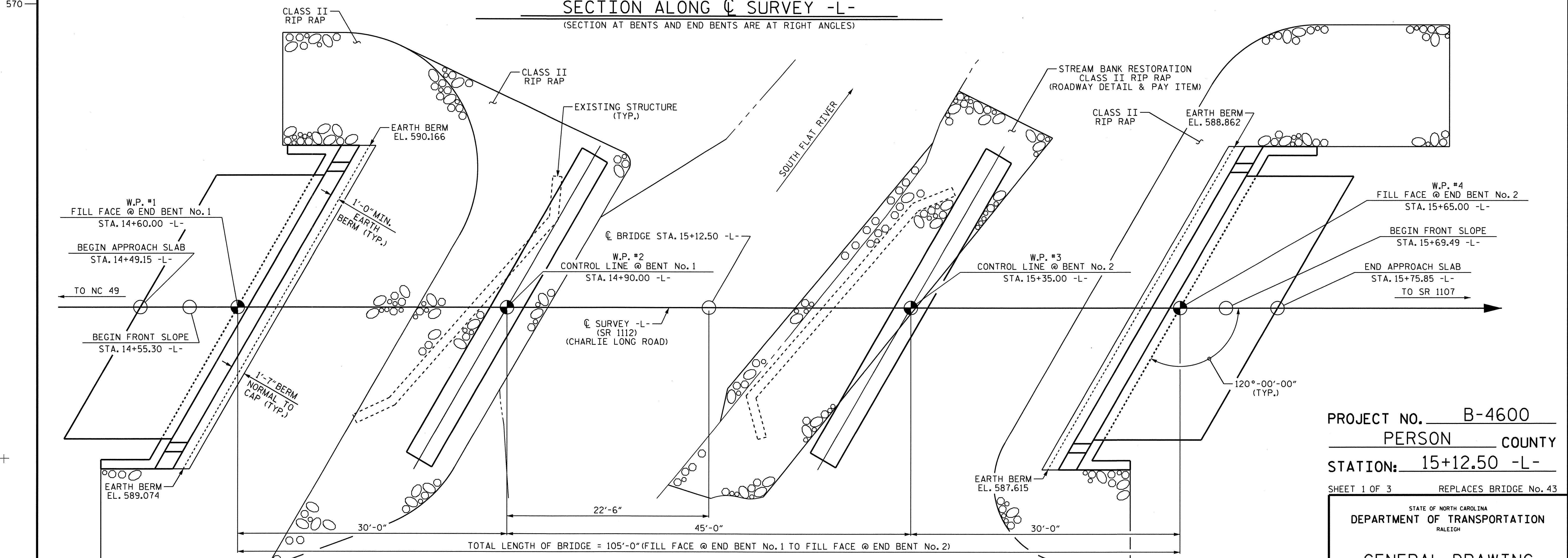
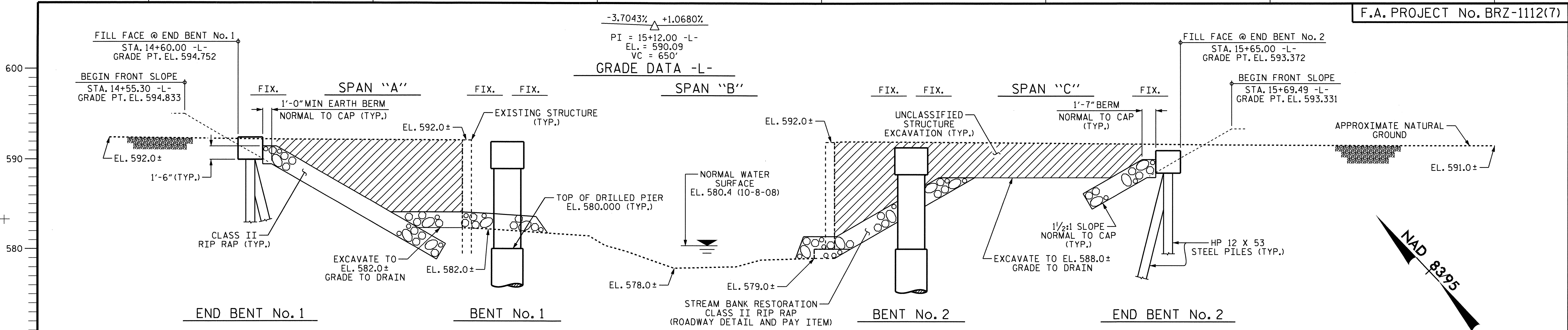
K. W. ALFORD P. E.
PROJECT DESIGN ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER

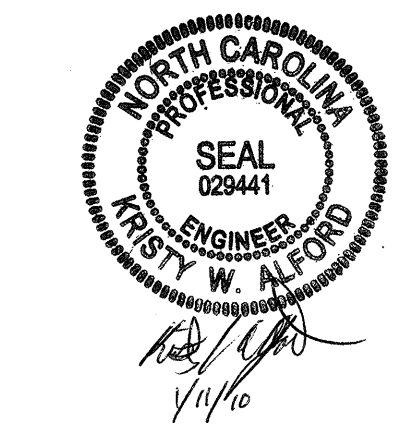
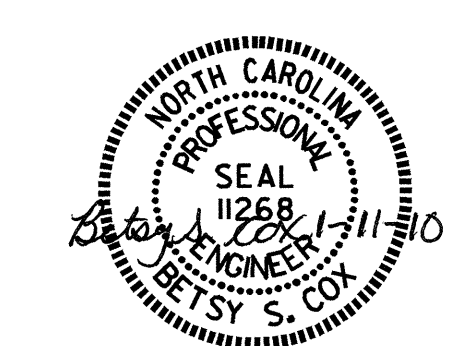
**DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION**

APPROVED _____
DIVISION ADMINISTRATOR DATE



DRAWN BY : T. BANKOVICH DATE : 9-2009
 CHECKED BY : K.W. ALFORD DATE : 9-2009

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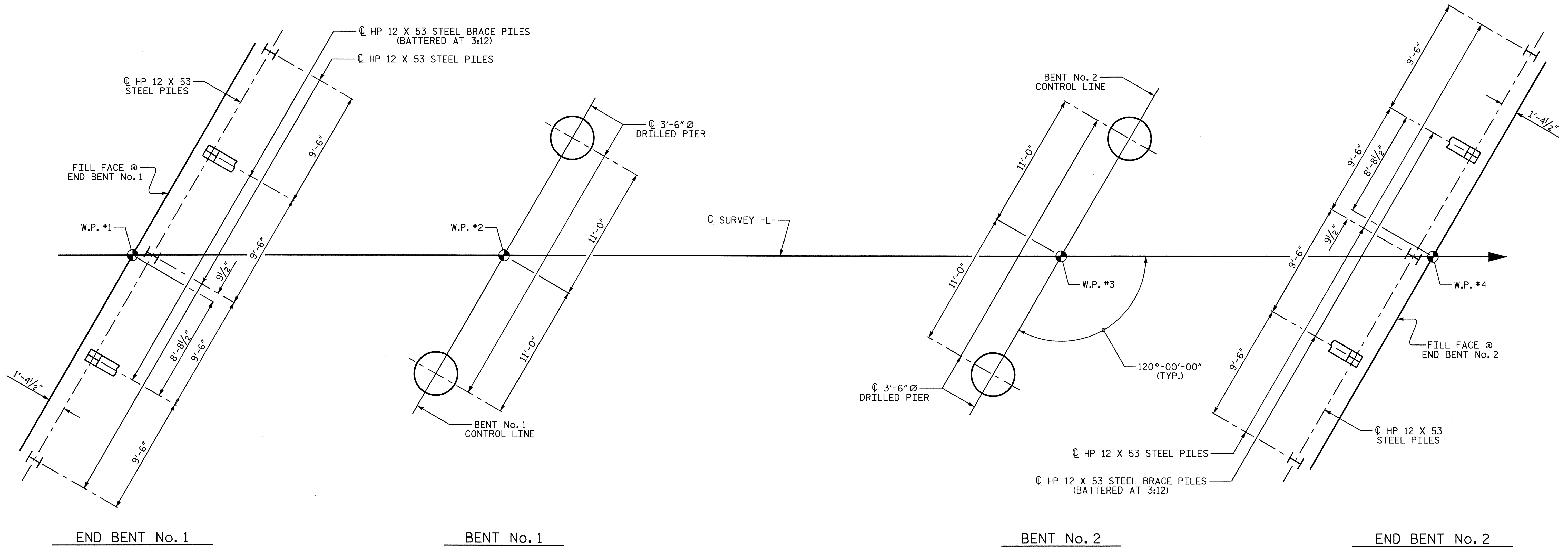


PROJECT NO. B-4600
 PERSON _____ COUNTY _____
 STATION: 15+12.50 -L-
 SHEET 1 OF 3 REPLACES BRIDGE No. 43

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 BRIDGE ON SR 1112
 (CHARLIE LONG RD.) OVER
 SOUTH FLAT RIVER BETWEEN
 NC 49 AND SR 1107

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



FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE AT BOTTOM OF CAP

NOTES:

FOR PILES, SEE SPECIAL PROVISIONS.

PILES AT END BENT No. 1 AND END BENT No. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 60 TONS PER PILE. DRIVE PILES TO A REQUIRED RESISTANCE OF 95 TONS PER PILE.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 25-45 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT No. 1 AND END BENT No. 2. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH THE PILES PROVISION.

FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.

DRILLED PIERS AT BENT No. 1 AND BENT No. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 245 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 40 TSF.

PERMANENT STEEL CASING MAY BE REQUIRED FOR DRILLED PIERS AT BENT No. 1 AND BENT No. 2. IF REQUIRED, DO NOT EXTEND CASING BELOW ELEVATION 575.5 FT WITHOUT PRIOR APPROVAL FROM THE ENGINEER. THE ENGINEER WILL DETERMINE THE NEED FOR PERMANENT STEEL CASING.

IF REQUIRED, INSTALL PERMANENT STEEL CASING AT BENT No. 1 AND BENT No. 2 BY VIBRATING, SCREWING OR DRIVING THE CASING BEFORE EXCAVATION OR DISTURBING ANY MATERIAL BELOW ELEVATION 582.0 FT.

INSTALL DRILLED PIERS AT BENT No. 1 AND BENT No. 2 THAT EXTEND TO ELEVATION NO HIGHER THAN 569.0 FT AND 570.0 FT, RESPECTIVELY, AND SATISFY THE REQUIRED TIP RESISTANCE.

THE SCOUR CRITICAL ELEVATIONS FOR BENT No. 1 AND BENT No. 2 ARE ELEVATION 574.0 FT AND 578.0 FT RESPECTIVELY. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

DO NOT USE SLURRY CONSTRUCTION FOR DRILLED PIERS AT BENT No. 1 AND BENT No. 2.

SID INSPECTIONS MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS.

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

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

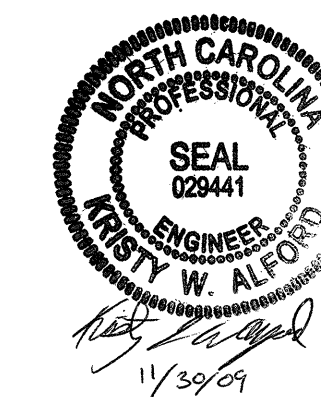
NOTES CONTINUED ON SHEET 3 OF 3.

PROJECT NO. B-4600
 _____ PERSON _____ COUNTY
 STATION: 15+12.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

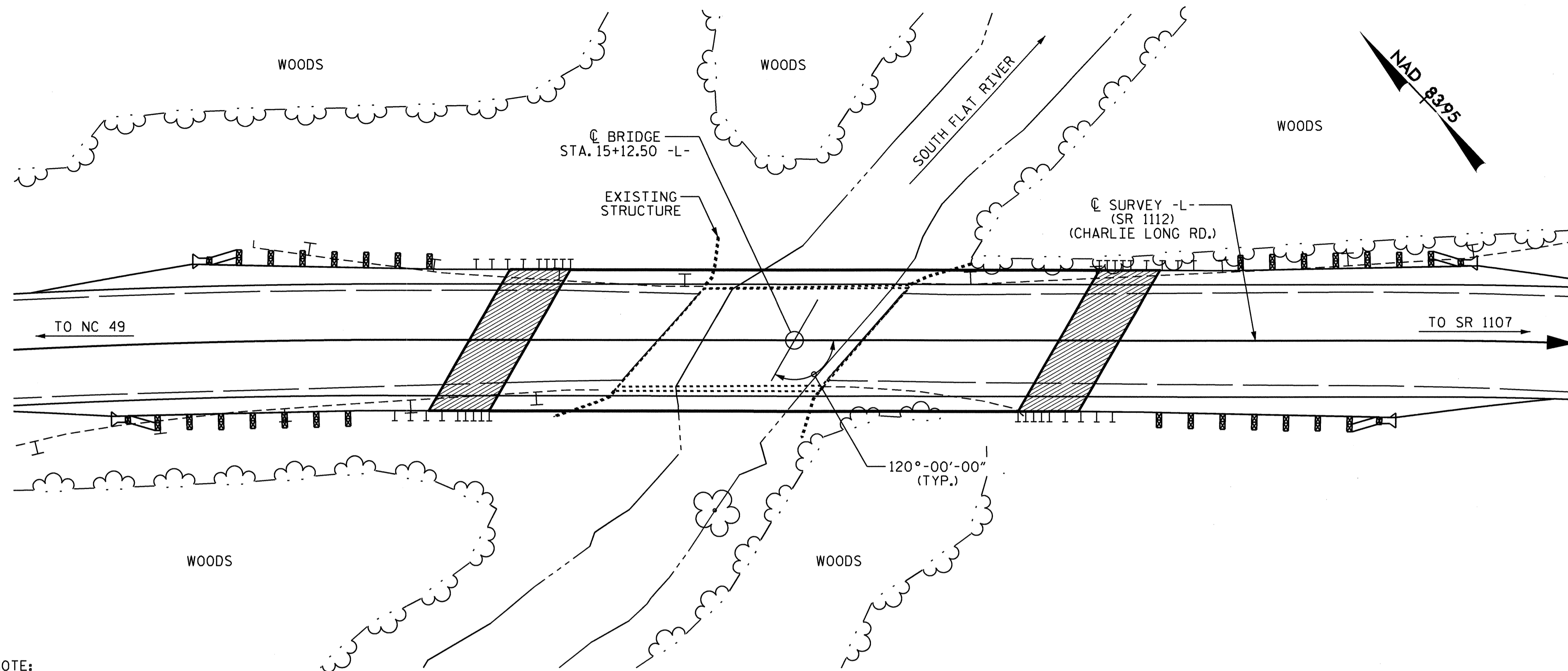
GENERAL DRAWING
 BRIDGE ON SR 1112
 (CHARLIE LONG RD.) OVER
 SOUTH FLAT RIVER BETWEEN
 NC 49 AND SR 1107



DRAWN BY : T. BANKOVICH DATE : 9-2009
 CHECKED BY : K.W. ALFORD DATE : 9-2009

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-2
1			3			TOTAL SHEETS
2			4			25



NOTE:
FOR UTILITY INFORMATION, SEE
UTILITY PLANS & SPECIAL PROVISIONS

LOCATION SKETCH

HYDRAULIC DATA

DESIGN DISCHARGE	1500 CFS
FREQUENCY OF DESIGN FLOOD	25 YRS.
DESIGN HIGH WATER ELEVATION	592.7
DRAINAGE AREA	6.2 SQ. MI.
BASIC DISCHARGE (Q100)	2300 CFS
BASIC HIGH WATER ELEVATION	594.3

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	2330 CFS
FREQUENCY OF OVERTOPPING FLOOD	100 YRS.
OVERTOPPING FLOOD ELEVATION	594.4

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	3'-6" Ø DRILLED PIERS IN SOIL	3'-6" Ø DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 3'-6" Ø DRILLED PIER	SID INSPECTION	CROSSHOLE SONIC LOGGING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	HP 12 X 53 STEEL PILES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS			
	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	LBS.	NO.	LIN. FT.	LIN. FT.	TONS	SO. YDS.	LUMP SUM	NO.	LIN. FT.	
SUPERSTRUCTURE																				
END BENT No. 1								14.3		2,069		5	75		285	317		30	1,021.04	
BENT No. 1		8	14	9				21.4		5,560	904									
BENT No. 2		7	13	9				21.1		5,431	842									
END BENT No. 2								14.3		2,062		5	75		120	134				
TOTAL	LUMP SUM	15	27	18	2	1	LUMP SUM	71.1	LUMP SUM	15,122	1,746	10	150	204.21	405	451	LUMP SUM	30	1,021.04	

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THE EXISTING STRUCTURE CONSISTING OF 1 SPAN @ 41'-5" WITH TIMBER DECK AND ASPHALT WEARING SURFACE ON STEEL I BEAMS AND A CLEAR ROADWAY WIDTH OF 19.2' ON TIMBER CAP AND PILES AND CONCRETE SILLS, AND LOCATED AT THE SITE OF THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LIMIT.

FOR REMOVAL OF EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.

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 MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 20 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.

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.

ASPHALT WEARING SURFACE IS INCLUDED IN THE ROADWAY QUANTITY ON ROADWAY PLANS.

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+12.50 -L-".

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.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

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

FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.

FOR VERTICAL CONCRETE BARRIER RAIL, SEE SPECIAL PROVISIONS.

PROJECT NO. B-4600

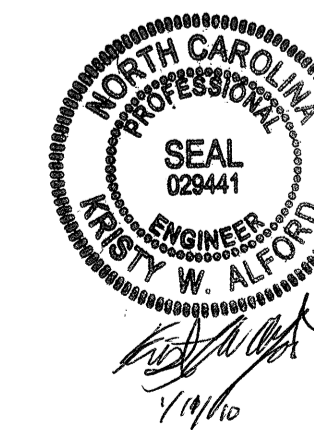
PERSON _____ COUNTY _____

STATION: 15+12.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
BRIDGE ON SR 1112
(CHARLIE LONG RD.) OVER
SOUTH FLAT RIVER BETWEEN
NC 49 AND SR 1107



DRAWN BY: T. BANKOVICH DATE: 9-2009
CHECKED BY: K.W. ALFORD DATE: 9-2009

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

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVE-LOAD FACTORS (γ _{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (γ _{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.000	--	1.75	0.252	1.380	B	ER	21.850	0.548	1.000	A	I	1.374	0.80	0.252	1.380	B	ER	21.850		
	HL-93 (OPERATING)	N/A		1.297	--	1.35	0.252	1.790	B	ER	21.850	0.548	1.300	A	I	1.374	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	②	1.104	39.745	1.75	0.252	1.640	B	ER	21.850	0.548	1.100	A	I	1.374	0.80	0.252	1.350	B	ER	21.850		
	HS-20 (OPERATING)	36.000		1.472	52.994	1.35	0.252	2.190	B	ER	21.850	0.548	1.470	A	I	1.374	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		2.734	36.907	1.40	0.252	4.120	B	ER	21.850	0.548	2.730	A	I	1.374	0.80	0.252	2.630	B	ER	21.850	
		SNGARBS2	20.000		2.134	42.686	1.40	0.252	3.330	B	ER	21.850	0.548	2.130	A	I	1.374	0.80	0.252	2.130	B	ER	21.850	
		SNAGRIS2	22.000		2.065	45.423	1.40	0.252	3.230	B	ER	17.480	0.548	2.060	A	I	1.374	0.80	0.252	2.090	B	ER	21.850	
		SNCOTTS3	27.250		1.383	37.678	1.40	0.252	2.060	B	ER	21.850	0.548	1.380	A	I	1.374	0.80	0.252	1.310	B	ER	21.850	
		SNAGGRS4	34.925		1.287	44.947	1.40	0.252	1.820	B	ER	21.850	0.548	1.290	A	I	1.374	0.80	0.252	1.160	B	ER	21.850	
		SNS5A	35.550		1.360	48.337	1.40	0.252	1.770	B	ER	21.850	0.548	1.360	A	I	1.374	0.80	0.252	1.130	B	ER	21.850	
		SNS6A	39.950		1.285	51.317	1.40	0.252	1.670	B	ER	21.850	0.548	1.280	A	I	1.374	0.80	0.252	1.060	B	ER	21.850	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.537	50.736	1.40	0.252	2.050	B	ER	21.850	0.548	1.540	A	I	1.374	0.80	0.252	1.310	B	ER	21.850	
		TNT4A	33.075		1.423	47.055	1.40	0.252	2.070	B	ER	21.850	0.548	1.420	A	I	1.374	0.80	0.252	1.330	B	ER	21.850	
		TNT6A	41.600		1.365	56.804	1.40	0.252	1.740	B	ER	21.850	0.548	1.370	A	I	1.374	0.80	0.252	1.110	B	ER	21.850	
		TNT7A	42.000		1.314	55.181	1.40	0.252	1.770	B	ER	21.850	0.548	1.310	A	I	1.374	0.80	0.252	1.130	B	ER	21.850	
		TNT7B	42.000		1.285	53.950	1.40	0.252	1.840	B	ER	21.850	0.548	1.280	A	I	1.374	0.80	0.252	1.180	B	ER	21.850	
		TNAGRIT4	43.000		1.248	53.655	1.40	0.252	1.760	B	ER	21.850	0.548	1.250	A	I	1.374	0.80	0.252	1.130	B	ER	21.850	
		TNAGT5A	45.000		1.331	59.909	1.40	0.252	1.630	B	ER	21.850	0.548	1.330	A	I	1.374	0.80	0.252	1.040	B	ER	21.850	
TNAGT5B	45.000	③	1.170	52.658	1.40	0.252	1.600	B	ER	21.850	0.548	1.170	A	I	1.374	0.80	0.252	1.010	B	ER	21.850			

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ _{DC}	γ _{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

	YEAR	ADTT
CURRENT	2010	25
FUTURE	2030	39

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

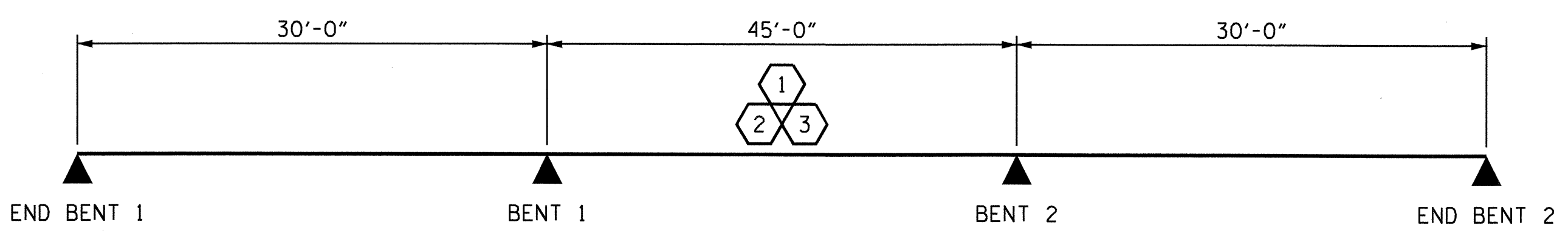
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

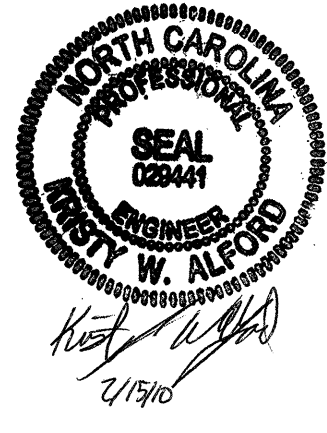
GIRDER LOCATION

I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY

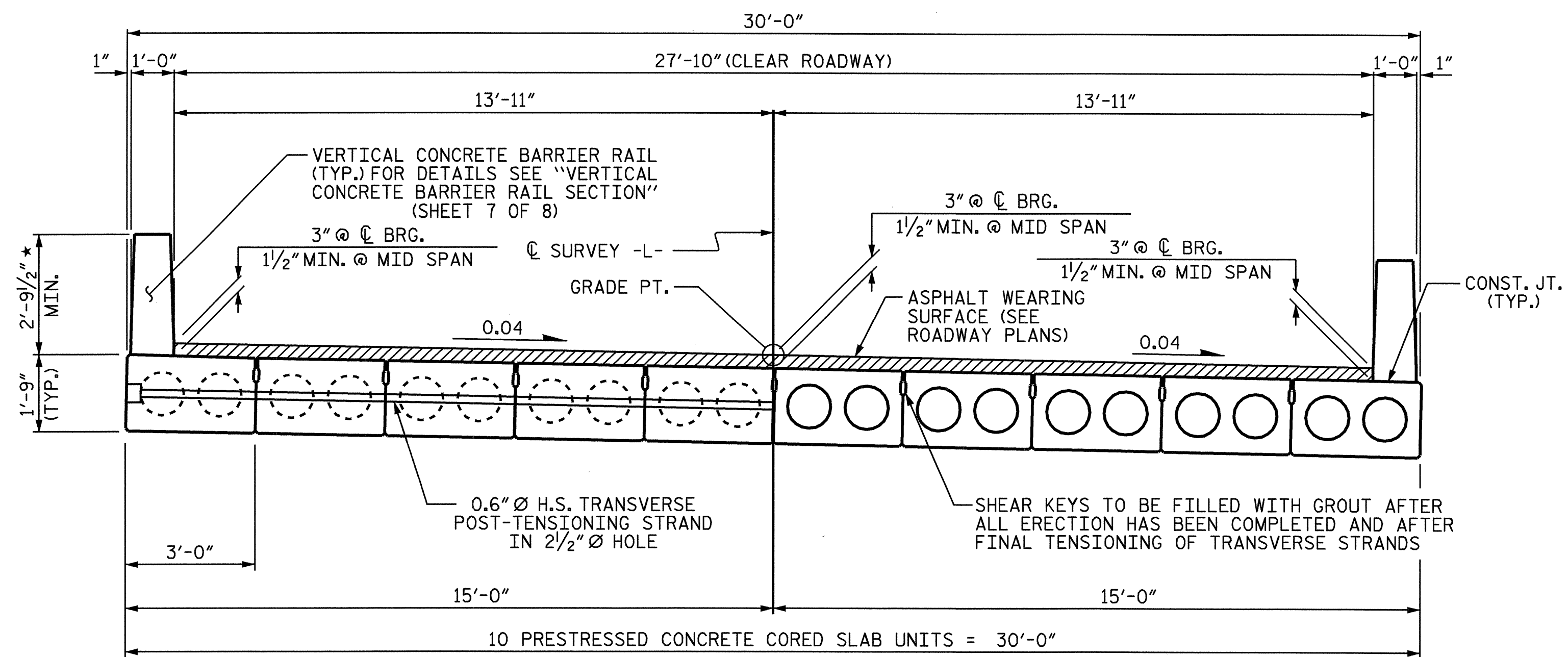
PROJECT NO. B-4600
 _____ PERSON _____ COUNTY
 STATION: 15+12.50 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 LRFR SUMMARY FOR
 PRESTRESSED
 CONCRETE GIRDERS
 (NON-INTERSTATE TRAFFIC)

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

ASSEMBLED BY : T. BANKOVICH DATE : 11-2009
 CHECKED BY : K.W. ALFORD DATE : 11-2009
 DRAWN BY : MAA 1/08 REV. 11/12/08RR MAA/GM
 CHECKED BY : GM/DI 2/08



HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

TYPICAL SECTION

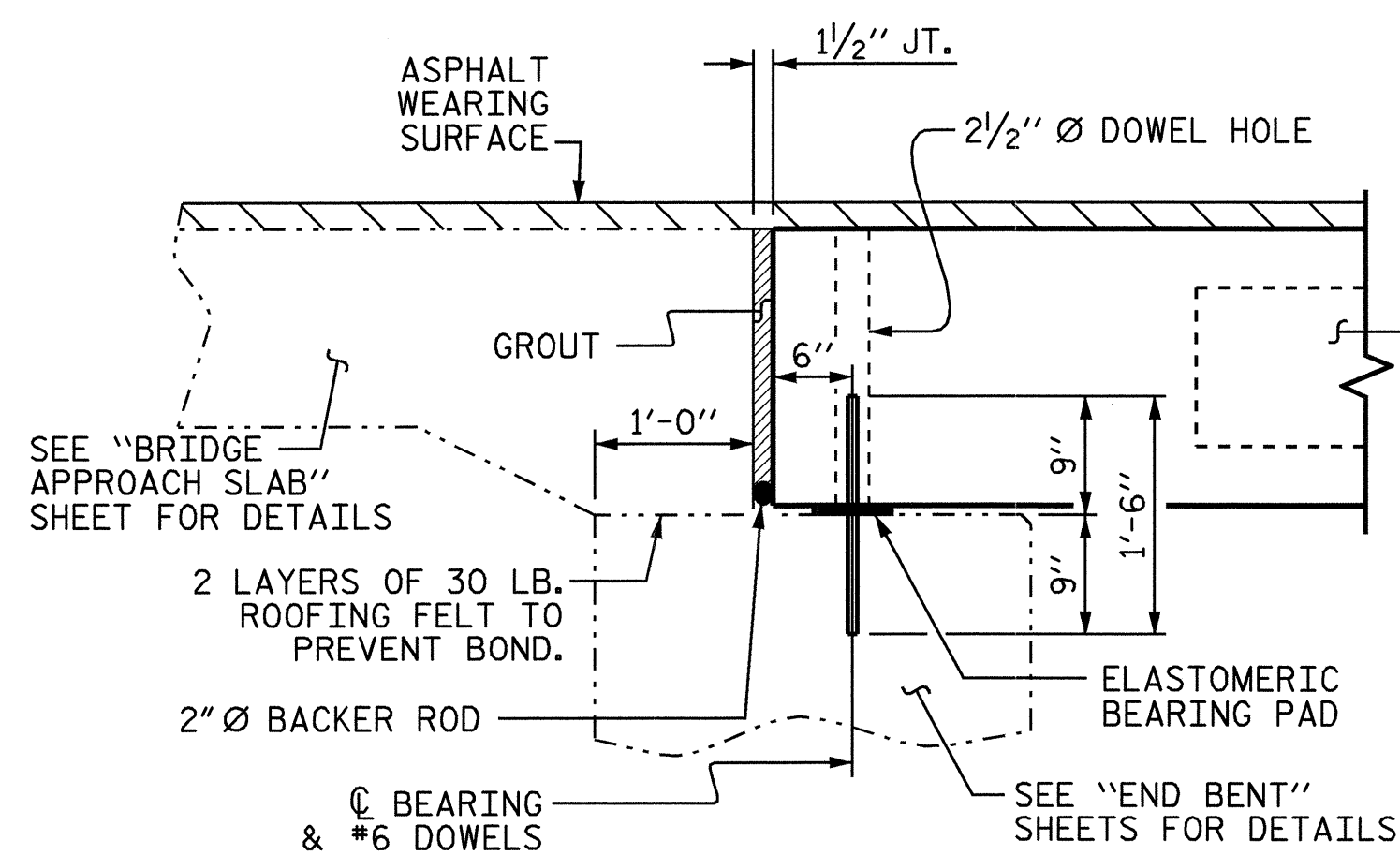
HALF SECTION
AT VOIDS

* THE MINIMUM HEIGHT OF THE BARRIER RAIL IS SHOWN. THE HEIGHT OF THE BARRIER RAIL VARIES WHILE THE TOP OF THE RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE.

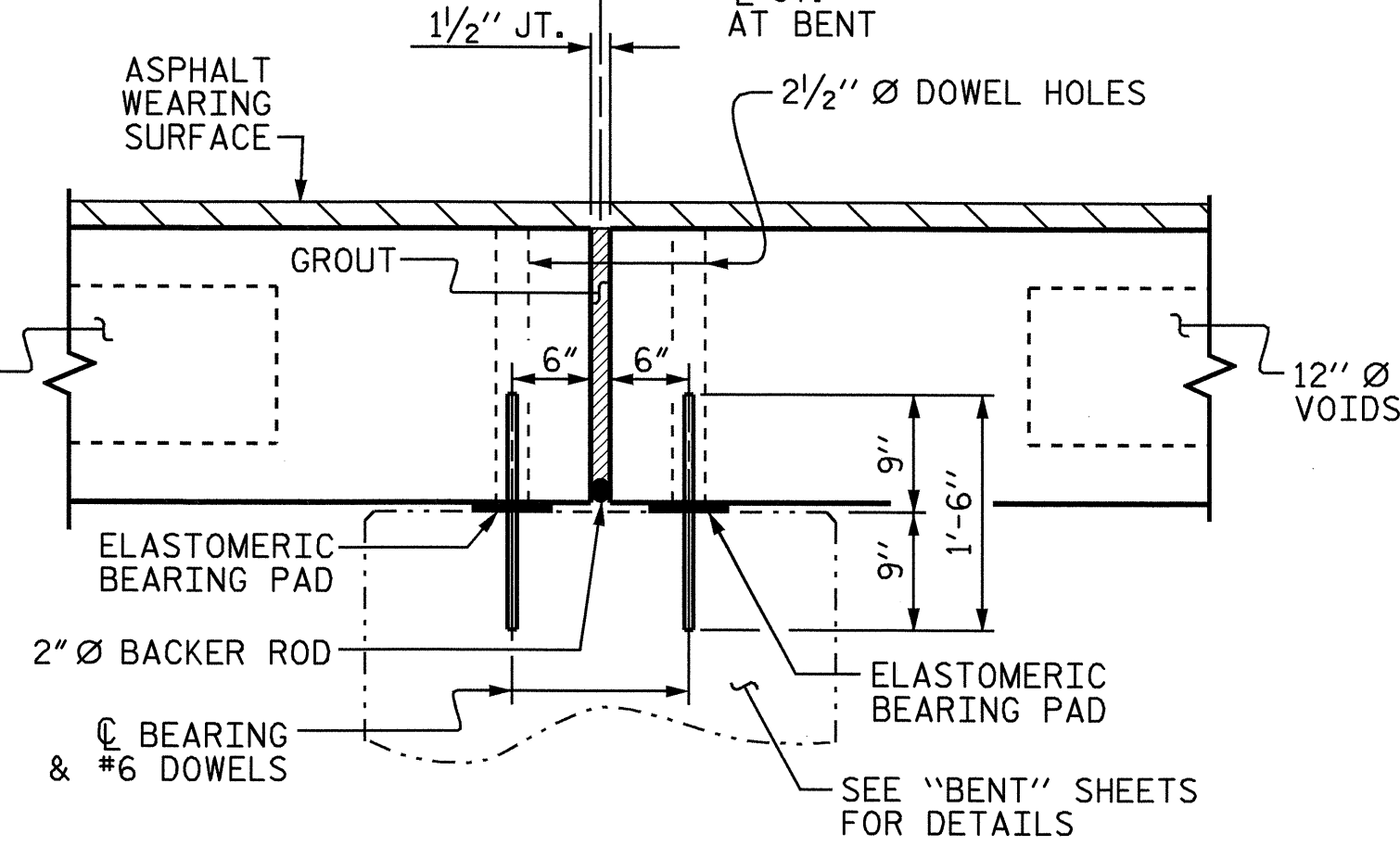
FIXED END

FIXED END

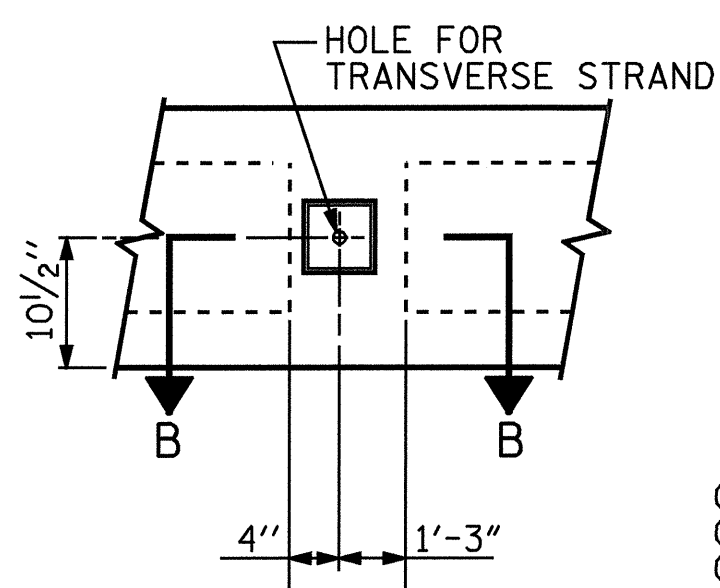
FIXED END



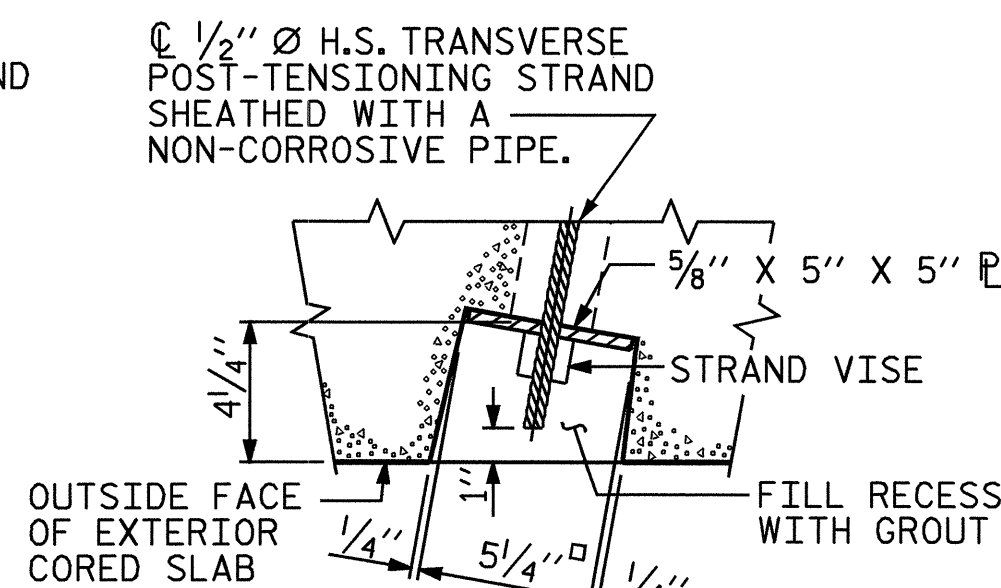
SECTION AT END BENT



SECTION AT BENT

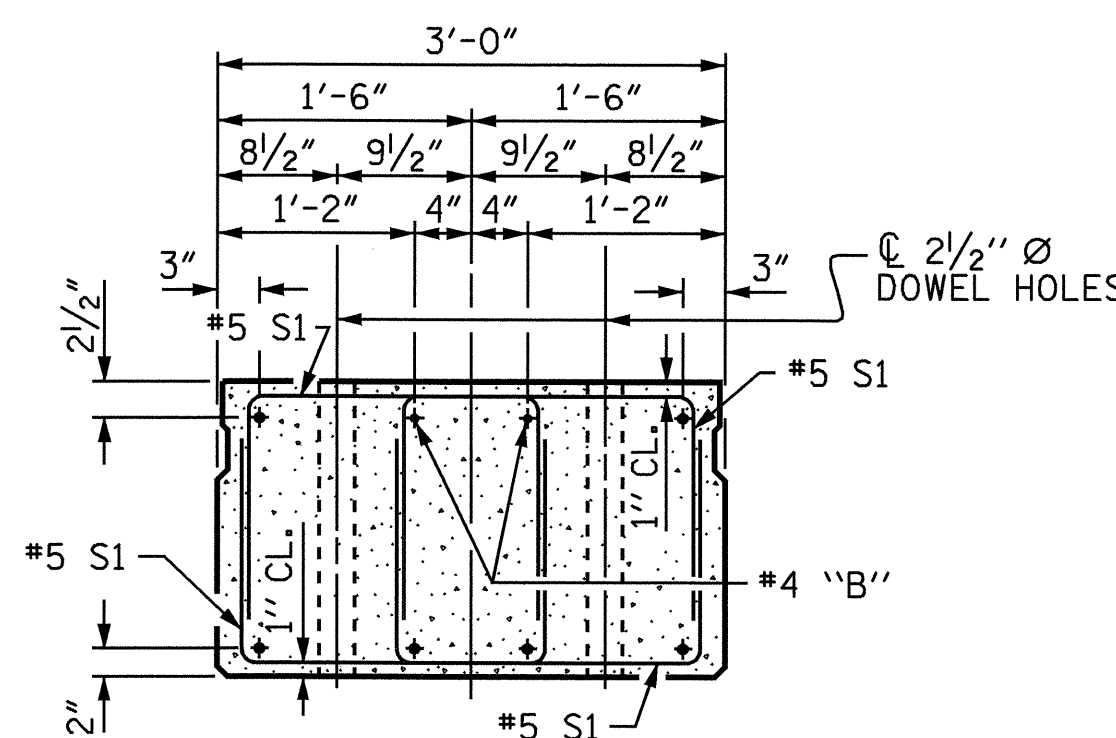


ELEVATION VIEW



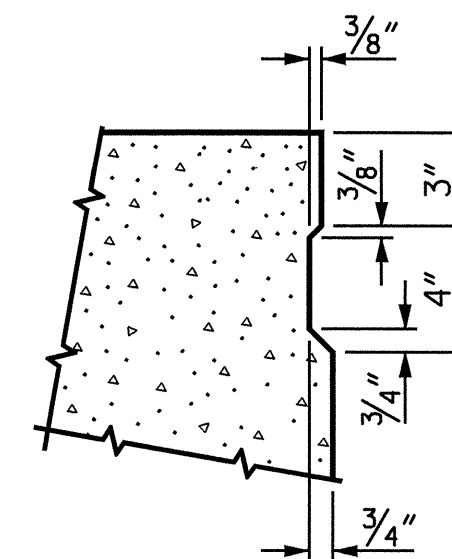
SECTION B-B

GROUTED RECESS AT END OF POST-TENSIONED STRAND OF CORED SLABS



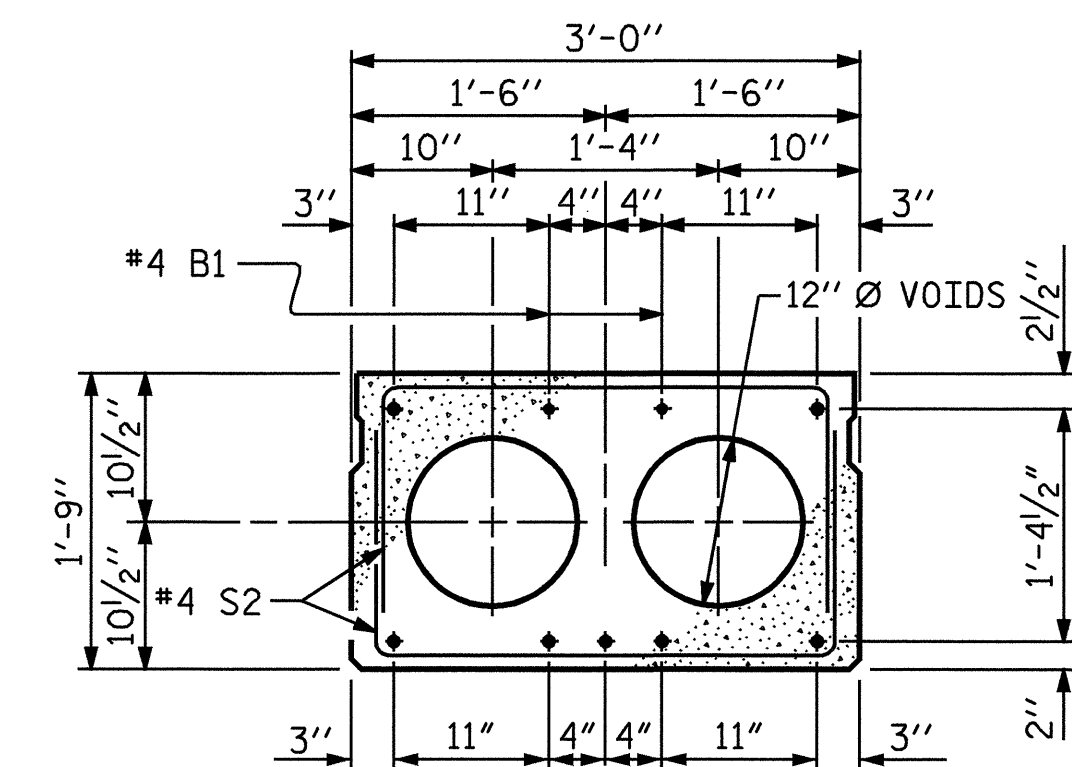
END ELEVATION

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

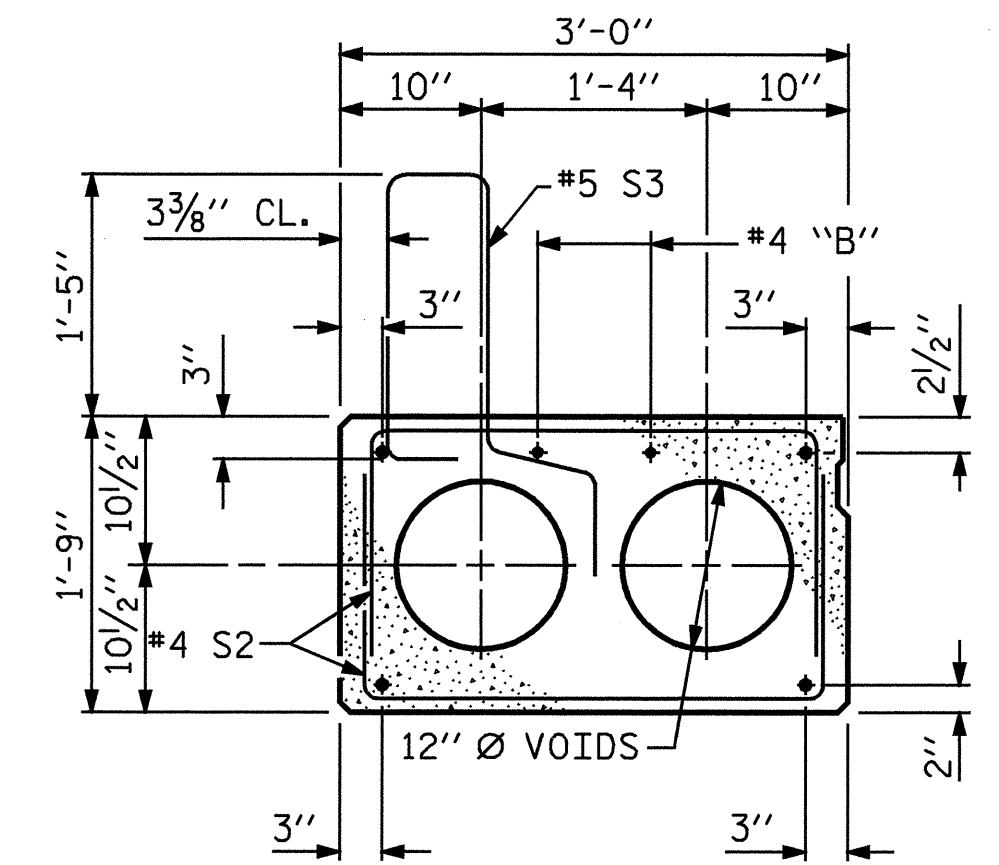


SHEAR KEY DETAIL

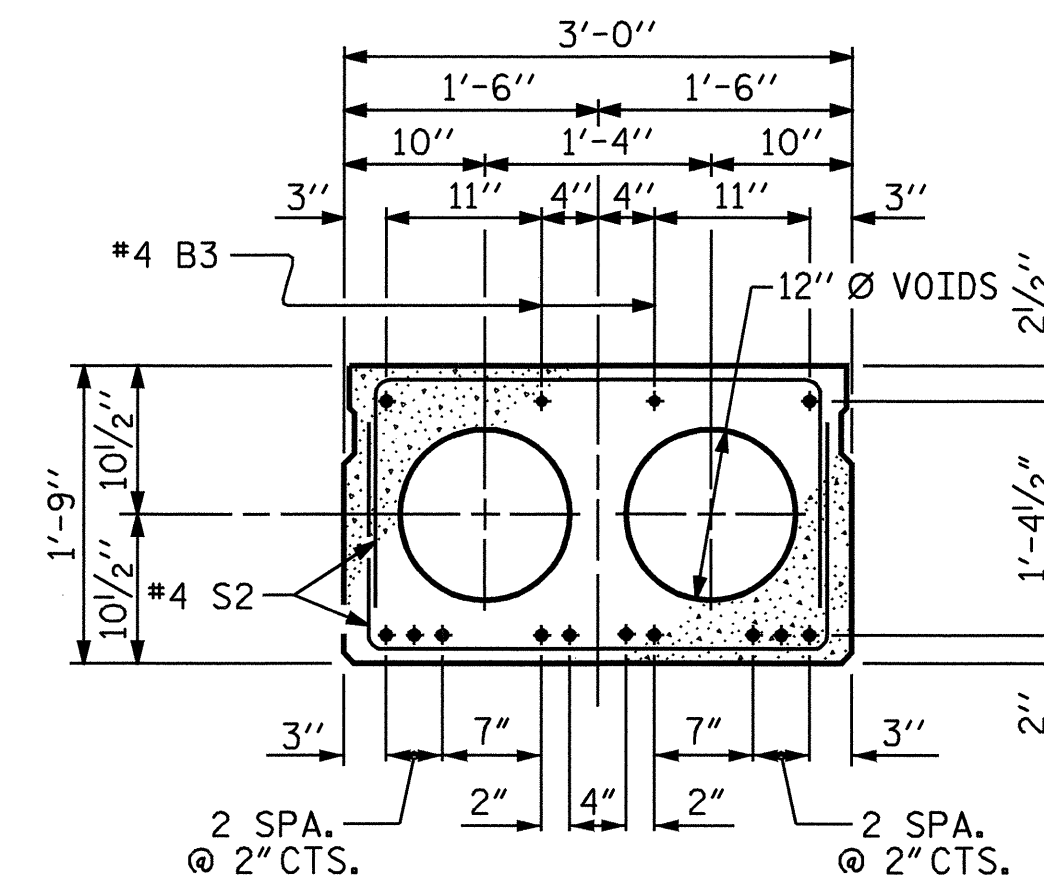
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.



INTERIOR SLAB SECTION
SPAN "A" & "C" (7 STRANDS REQUIRED)



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



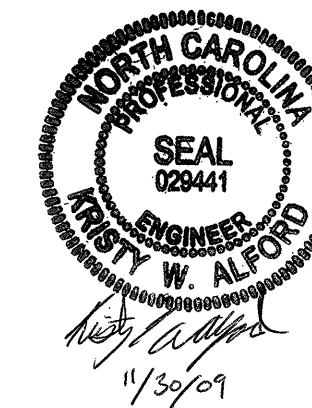
INTERIOR SLAB SECTION
SPAN "B" (12 STRANDS REQUIRED)

0.6" Ø LOW RELAXATION STRAND LAYOUT

PROJECT NO. B-4600
PERSON COUNTY
STATION: 15+12.50 -L-

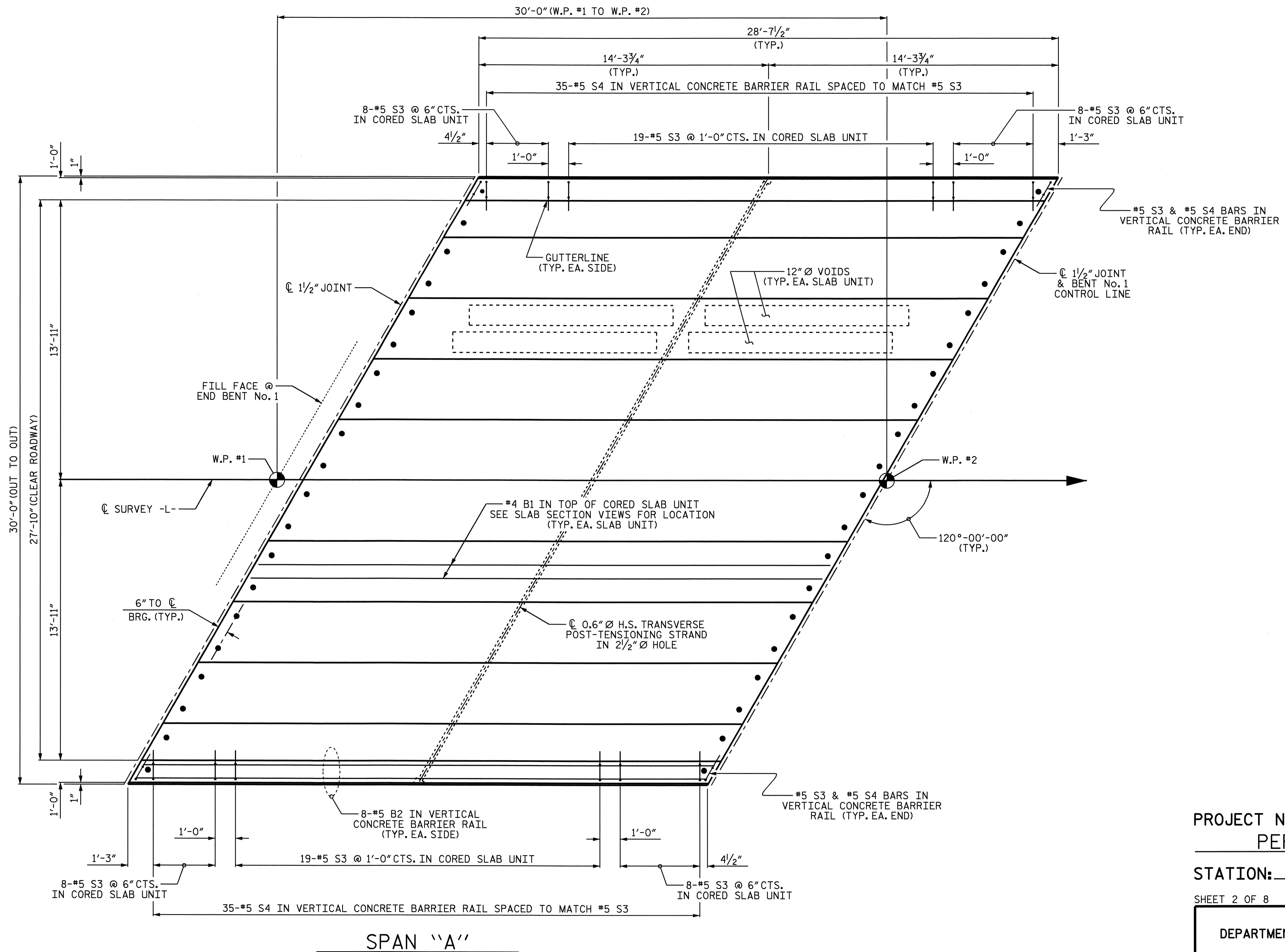
SHEET 1 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
120° SKEW



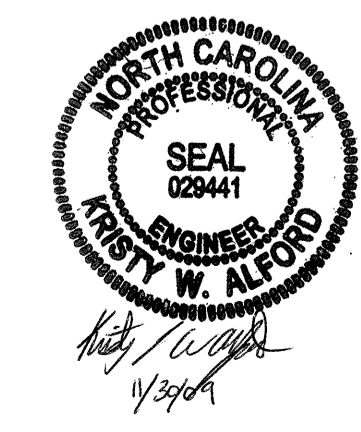
ASSEMBLED BY: T. BANKOVICH DATE: 7-2009
CHECKED BY: A.V. ROYAL DATE: 8-2009
DRAWN BY: DGE 3/09
CHECKED BY: BCH 3/09

REVISIONS						SHEET NO. S-5
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 25
2			4			



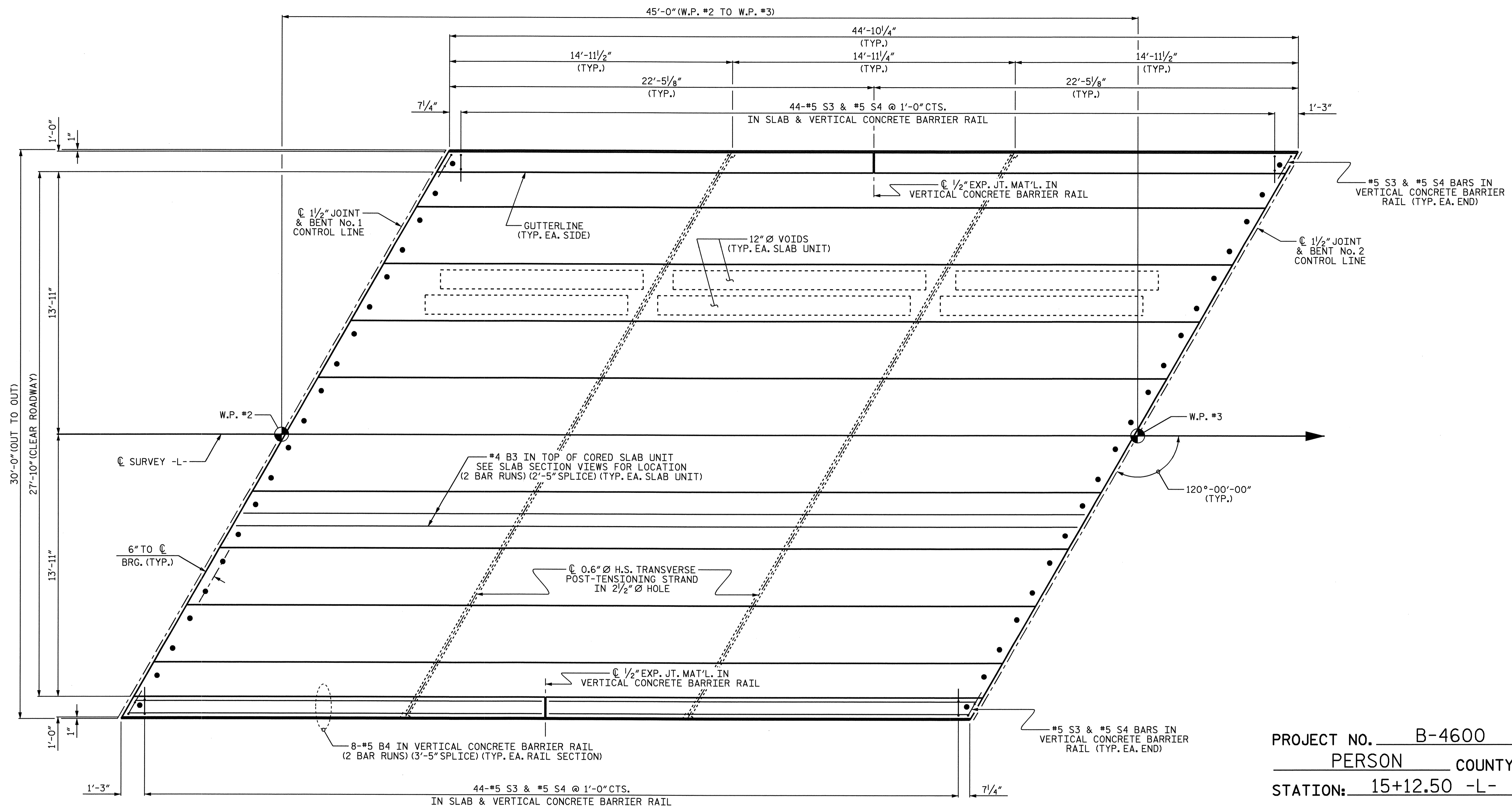
DRAWN BY : T. BANKOVICH DATE : 7-2009
 CHECKED BY : A.V. ROYAL DATE : 8-2009

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 tjbankovich



PROJECT NO. B-4600
 _____ PERSON _____ COUNTY
 STATION: 15+12.50 -L-
 SHEET 2 OF 8

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-6
SUPERSTRUCTURE PLAN OF SPAN "A"						
REVISIONS						TOTAL SHEETS 25
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



SPAN "B"

PROJECT NO. B-4600
 _____ PERSON _____ COUNTY
 STATION: 15+12.50 -L-

SHEET 3 OF 8

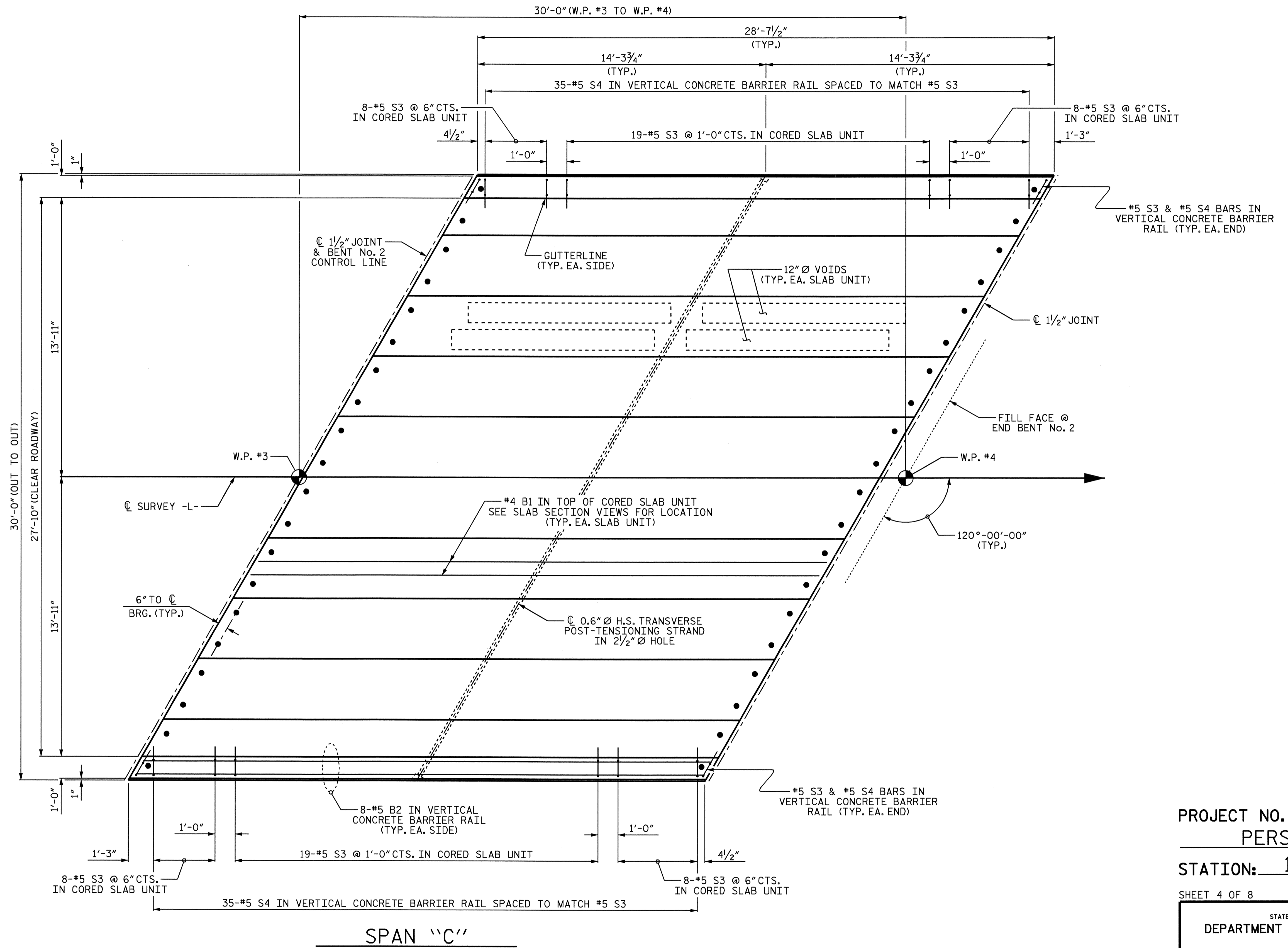
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN "B"



DRAWN BY : T. BANKOVICH DATE : 7-2009
 CHECKED BY : A.V. ROYAL DATE : 8-2009

REVISIONS						SHEET NO. S-7
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 25
2			4			

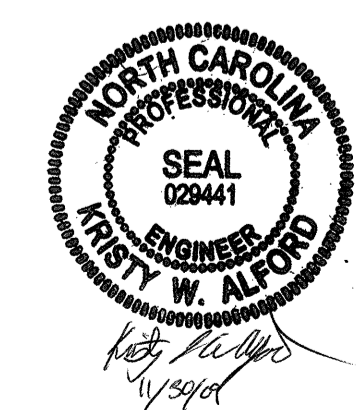
24-NOV-2009 16:30
 r:\structures\super_draw\b-4600.sd.ps.dgn
 tjbankovich



PROJECT NO. B-4600
 _____ PERSON _____ COUNTY
 STATION: 15+12.50 -L-

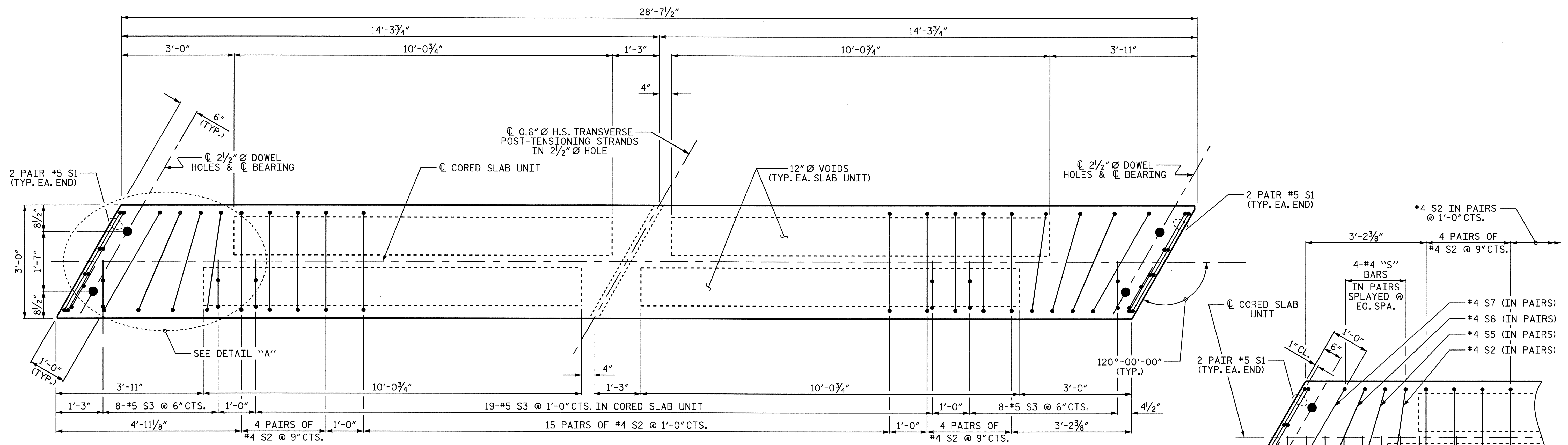
SHEET 4 OF 8

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-8
SUPERSTRUCTURE						TOTAL SHEETS 25
PLAN OF SPAN "C"						
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

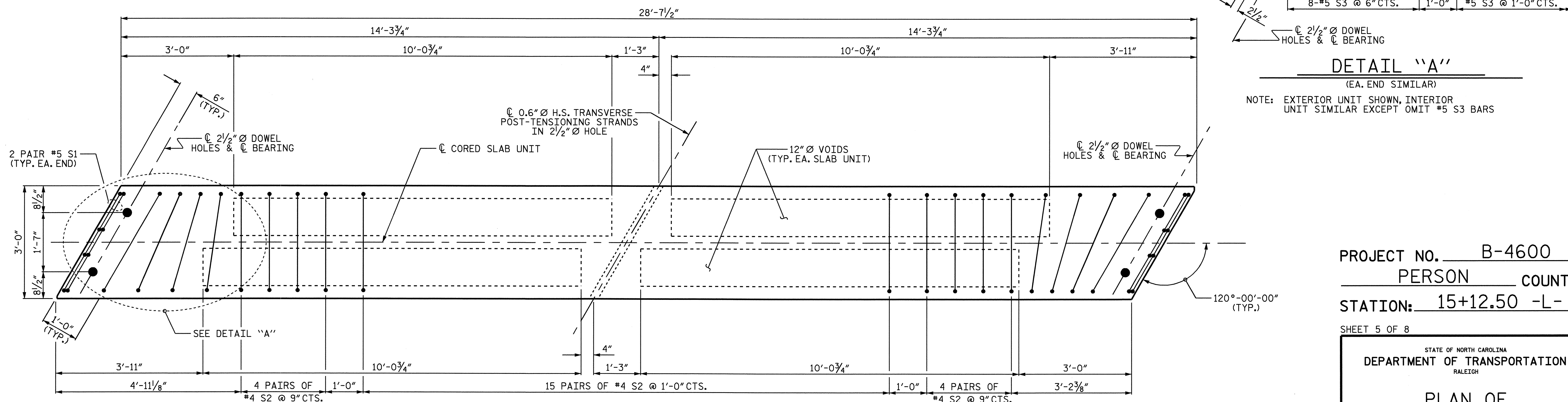


DRAWN BY: T. BANKOVICH DATE: 7-2009
 CHECKED BY: A.V. ROYAL DATE: 8-2009

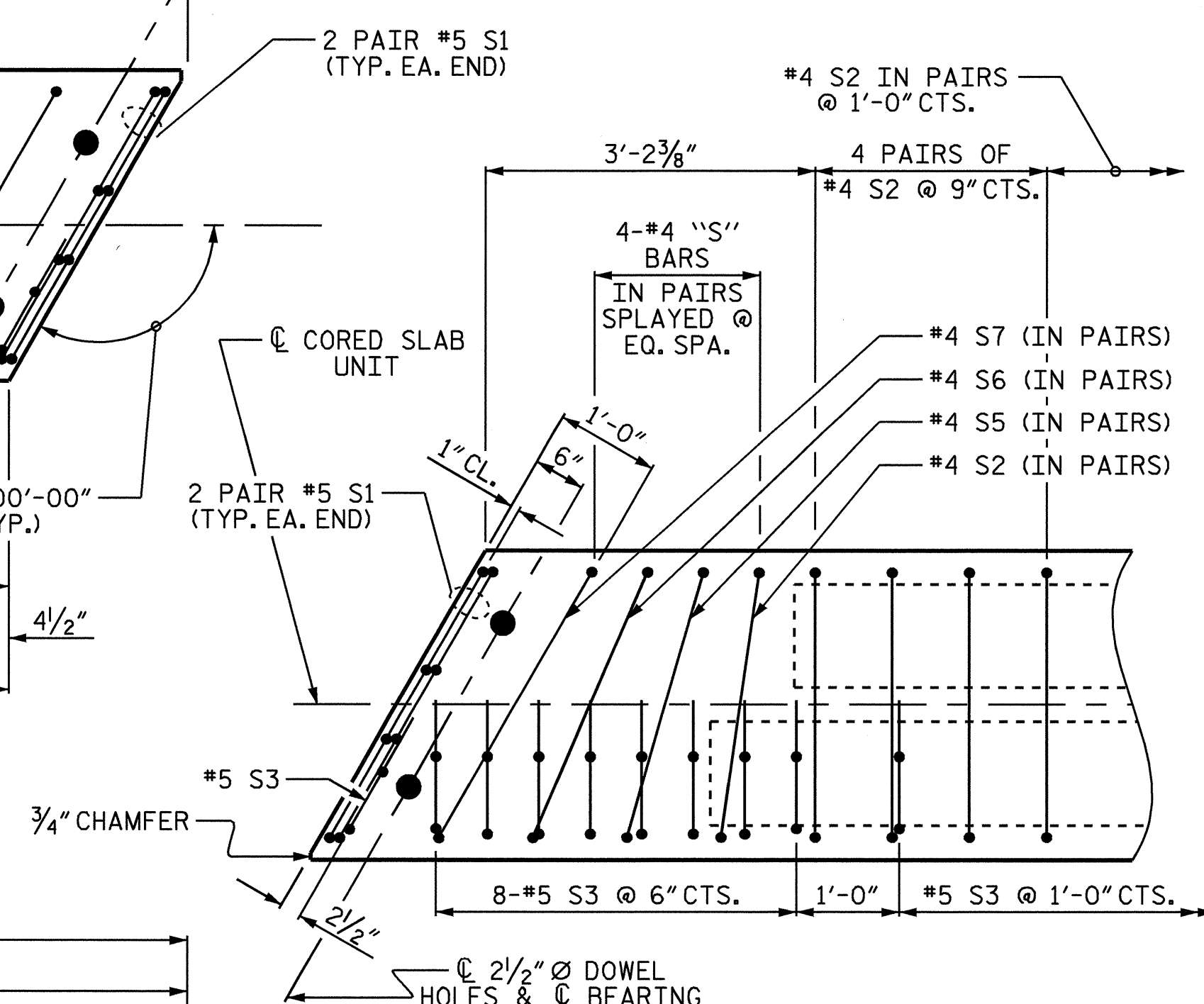
24-NOV-2009 16:30
 r:\structures\super_draw\b-4600.sd.ps.dgn
 tjbankovich



PLAN OF EXTERIOR CORED SLAB UNIT



PLAN OF INTERIOR CORED SLAB UNIT



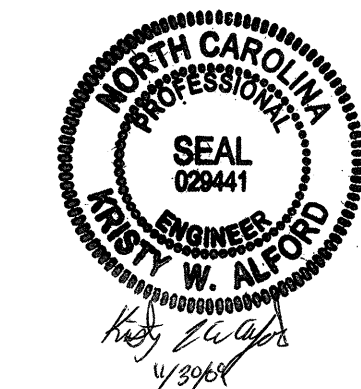
DETAIL "A"

(EA. END SIMILAR)
 NOTE: EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS

NOTE:
 #4 S2 AND #5 S3 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MIN. CLEARANCE TO THE 2 1/2" Ø HOLE AT THE TRANSVERSE POST-TENSIONED STRANDS.

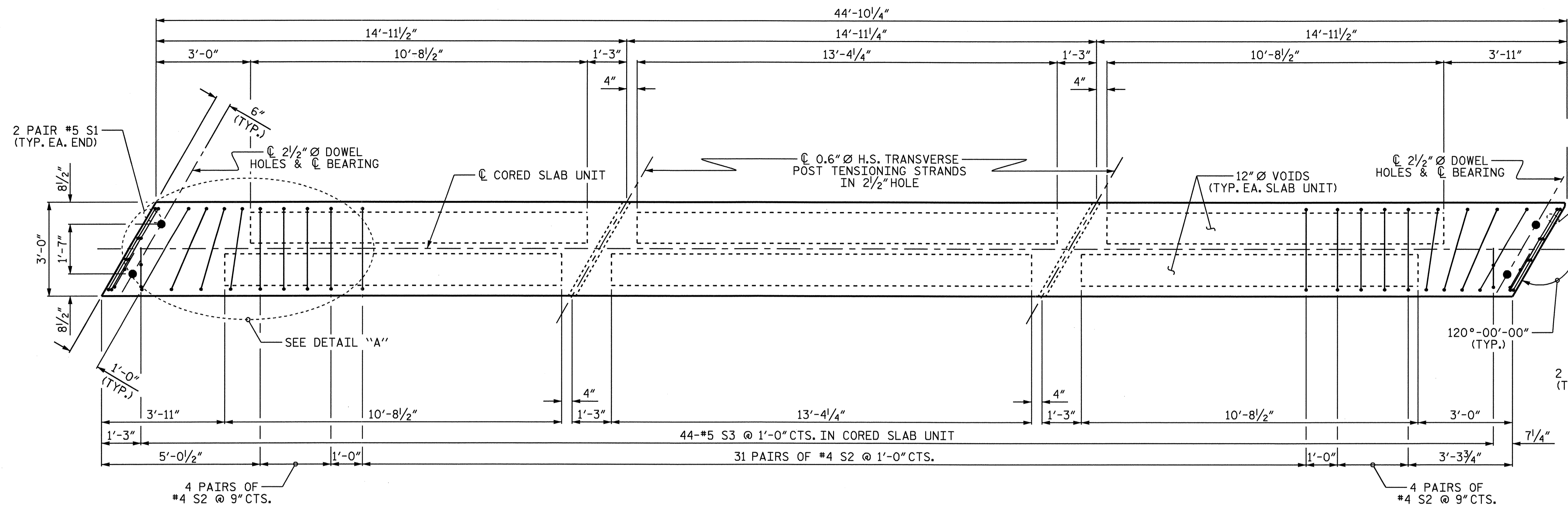
DRAWN BY: T. BANKOVICH DATE: 7-2009
 CHECKED BY: A.V. ROYAL DATE: 8-2009

24-NOV-2009 16:30
 r:\structures\super_draw\b-4600.sd.ps.dgn
 tjbankovich

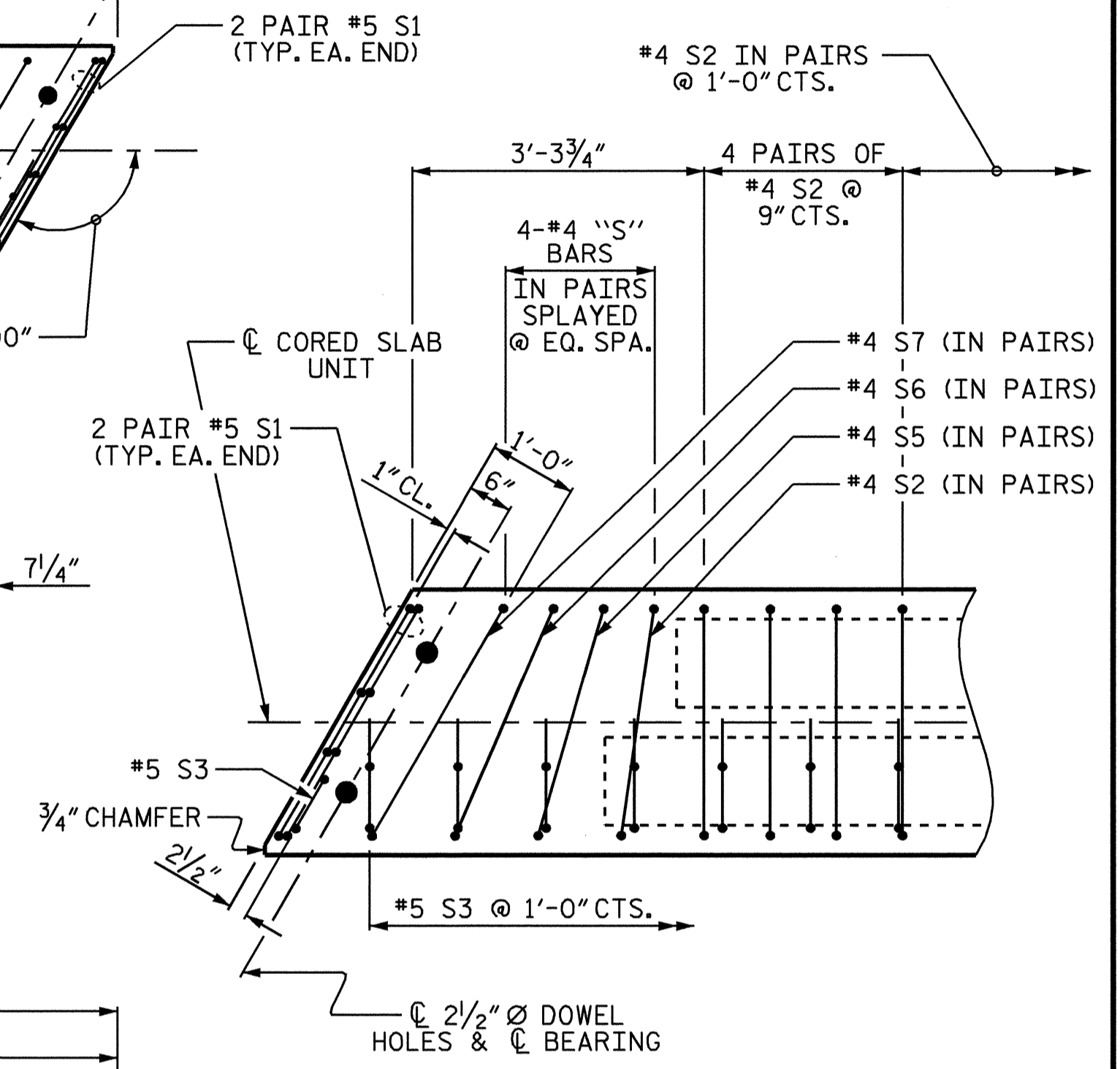


PROJECT NO. B-4600
 PERSON COUNTY
 STATION: 15+12.50 -L-
 SHEET 5 OF 8

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
PLAN OF 3'-0" X 1'-9" CORED SLAB UNIT SPAN "A" & "C"					
SHEET NO. S-9					
TOTAL SHEETS 25					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

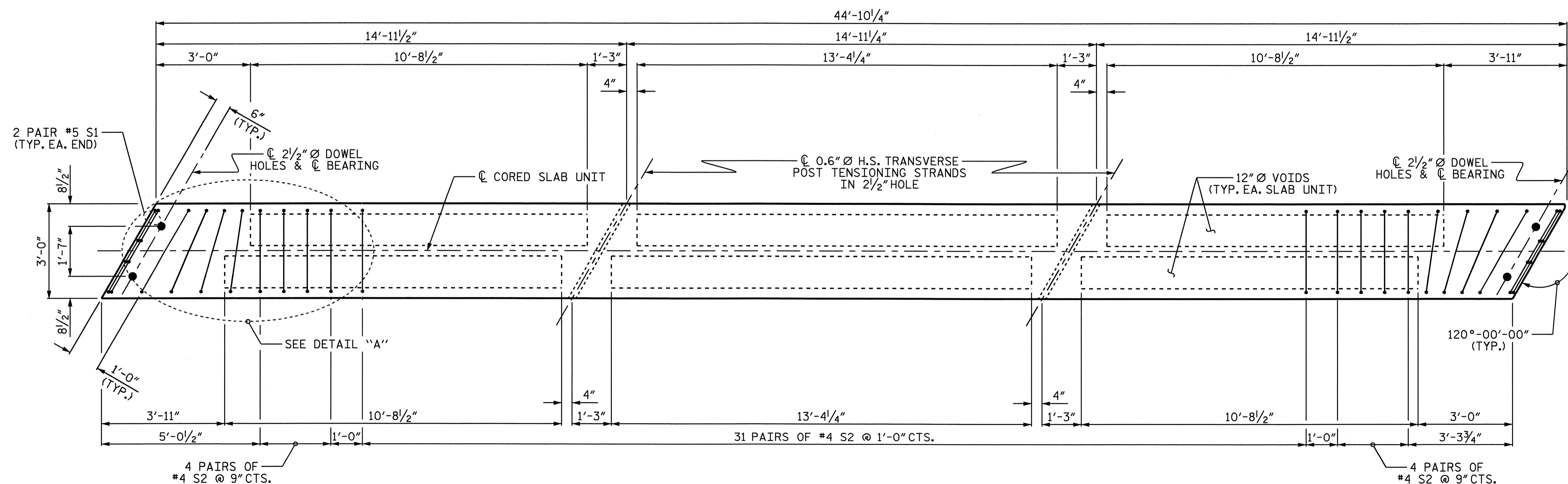


PLAN OF EXTERIOR CORED SLAB UNIT



DETAIL "A"

NOTE: EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS



PLAN OF INTERIOR CORED SLAB UNIT

NOTE:
#4 S2 AND #5 S3 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MIN. CLEARANCE TO THE 2 1/2" Ø HOLE AT THE TRANSVERSE POST-TENSIONED STRANDS.

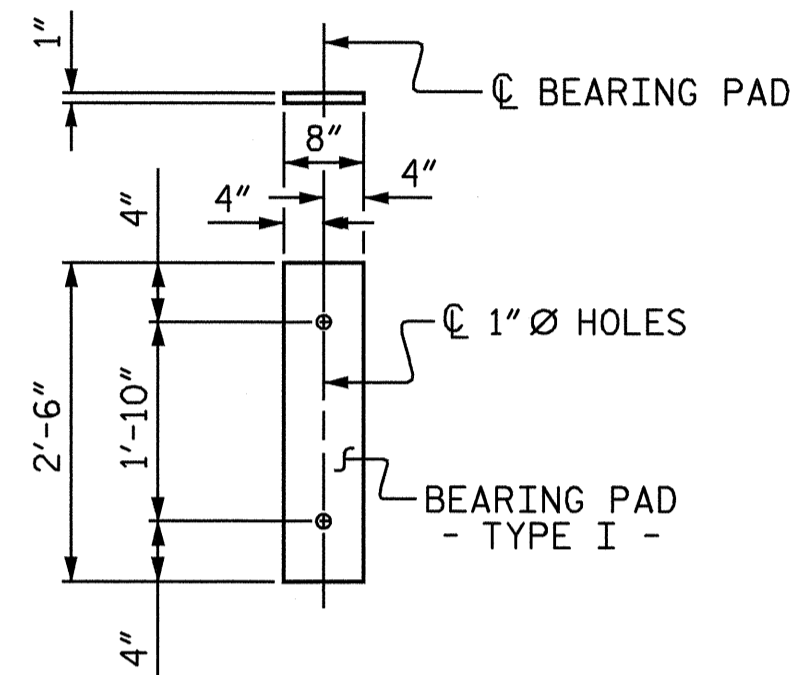


PROJECT NO. B-4600
 PERSON _____ COUNTY _____
 STATION: 15+12.50 -L-
 SHEET 6 OF 8

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
PLAN OF 3'-0" X 1'-9" CORED SLAB UNIT SPAN "B"					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-10
					TOTAL SHEETS 25

DRAWN BY: T. BANKOVICH DATE: 7-2009
 CHECKED BY: A.V. ROYAL DATE: 8-2009

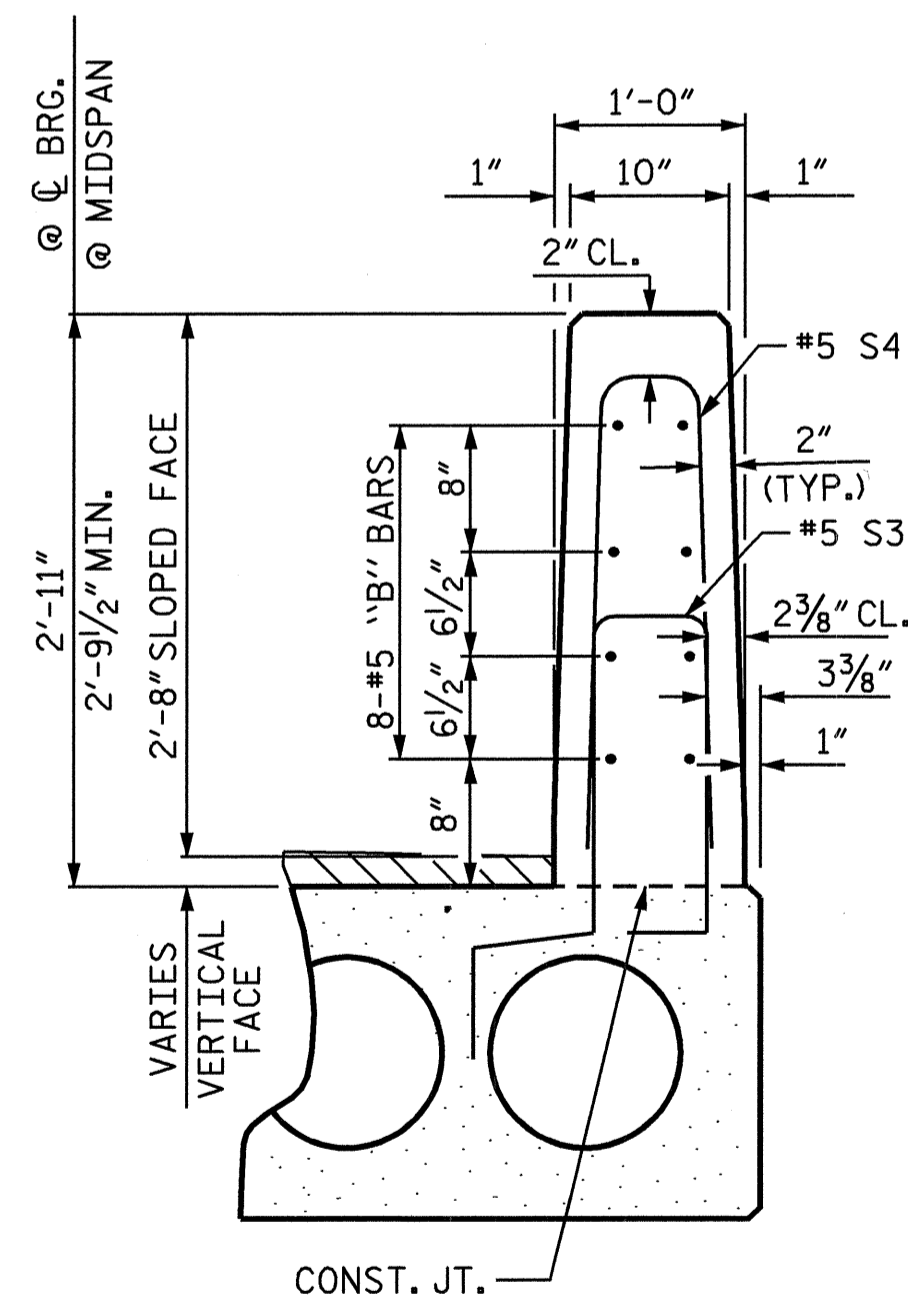
BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL								
BAR	BARS PER SPAN			TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	SPAN "A"	SPAN "B"	SPAN "C"					
* B2	16		16	32	#5	STR	28'-3"	943
* B4		64		64	#5	STR	13'-0"	868
* S4	74	92	74	240	#5	2	5'-6"	1377
* EPOXY COATED REINFORCING STEEL								3188 LBS.
CLASS AA CONCRETE								19.9 C.Y.
TOTAL VERTICAL CONCRETE BARRIER RAIL								204.21 LIN. FT.



FIXED END
(TYPE I - 60 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

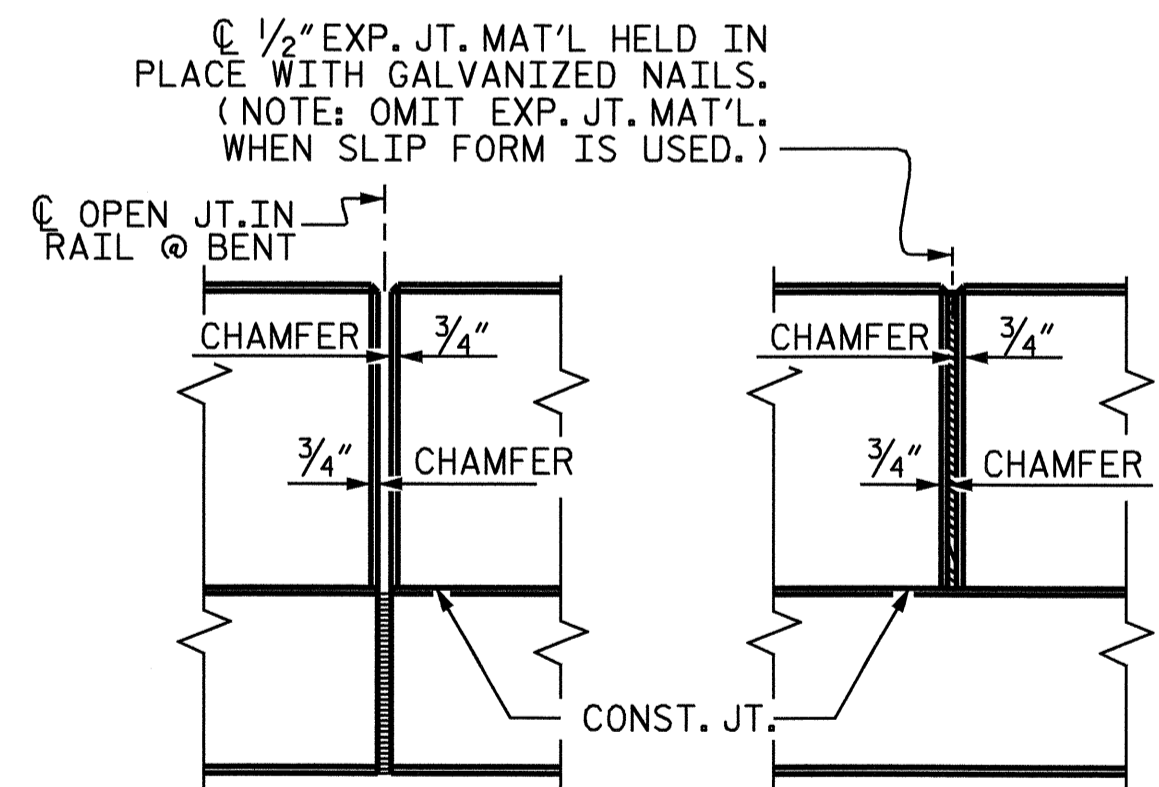


SECTION THRU RAIL

VERTICAL CONCRETE BARRIER RAIL SECTION

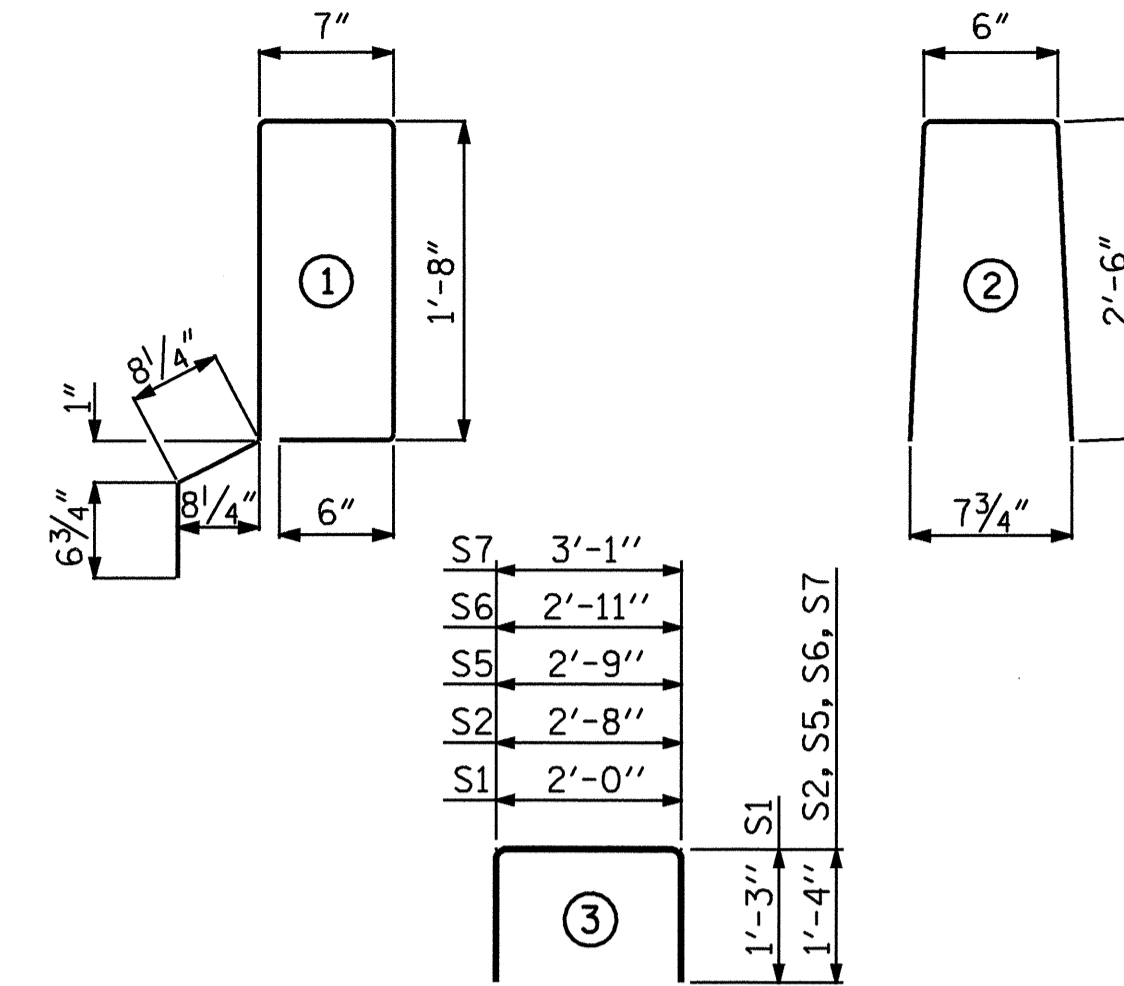
SEE "PLAN OF UNIT" SHEETS FOR SPACING OF S3 & S4 BARS

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



ELEVATION AT EXPANSION JOINTS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE CORED SLAB SECTION

SPAN "A" OR "C"				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B1	2	#4	STR	28'-3"	38	28'-3"	38
S1	8	#5	3	4'-6"	38	4'-6"	38
S2	50	#4	3	5'-4"	178	5'-4"	178
* S3	37	#5	1	5'-8"	219		
S5	4	#4	3	5'-5"	14	5'-5"	14
S6	4	#4	3	5'-7"	15	5'-7"	15
S7	4	#4	3	5'-9"	15	5'-9"	15
REINFORCING STEEL				LBS.	298		298
* EPOXY COATED REINFORCING STEEL				LBS.	219		
5000 P.S.I. CONCRETE				CU. YDS.	4.4		4.3

0.6" Ø L.R. STRANDS	No.	7	7
---------------------	-----	---	---

BILL OF MATERIAL FOR ONE CORED SLAB SECTION

SPAN "B"				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B3	4	#4	STR	23'-6"	63	23'-6"	63
S1	8	#5	3	4'-6"	38	4'-6"	38
S2	82	#4	3	5'-4"	292	5'-4"	292
* S3	46	#5	1	5'-8"	272		
S5	4	#4	3	5'-5"	14	5'-5"	14
S6	4	#4	3	5'-7"	15	5'-7"	15
S7	4	#4	3	5'-9"	15	5'-9"	15
REINFORCING STEEL				LBS.	437		437
* EPOXY COATED REINFORCING STEEL				LBS.	272		
5000 P.S.I. CONCRETE				CU. YDS.	6.7		6.6

0.6" Ø L.R. STRANDS	No.	12	12
---------------------	-----	----	----

CORED SLABS REQUIRED

SPANS "A" AND "C"	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	4	28'-7 1/2"	114'-6"
INTERIOR C.S.	16	28'-7 1/2"	458'-0"
SPAN "B"	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	44'-10 1/4"	89'-8 1/2"
INTERIOR C.S.	8	44'-10 1/4"	358'-10"
TOTAL	30		1021.04'

NOTES

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

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

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

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

THE 2" Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS. THE JOINTS SHALL BE FILLED WITH GROUT.

WHEN CORED SLABS ARE CAST, A POSITIVE HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. THIS SYSTEM SHALL BE DESIGNED TO BE LEFT IN PLACE UNTIL THE CONCRETE HAS REACHED RELEASE STRENGTH. AT LEAST THREE WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAIL SHALL BE EPOXY COATED.

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

DEAD LOAD DEFLECTION AND CAMBER	
	3'-0" X 1'-9"
SPAN "A" OR "C"	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	3/16" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD **	1/16" ↓
FINAL CAMBER	1/8" ↑
SPAN "B"	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1/16" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD **	3/16" ↓
FINAL CAMBER	7/8" ↑

** INCLUDES FUTURE WEARING SURFACE

PROJECT NO. B-4600
PERSON _____ COUNTY _____
STATION: 15+12.50 -L-

SHEET 7 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
120° SKEW



ASSEMBLED BY : T. BANKOVICH	DATE : 7-2009
CHECKED BY : A.V. ROYAL	DATE : 8-2009
DRAWN BY : DGE 3/09	
CHECKED BY : BCH 3/09	

24-NOV-2009 16:30
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tjbankovich

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

S-11
TOTAL SHEETS 25

STD. NO. PCS3_30_120

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.

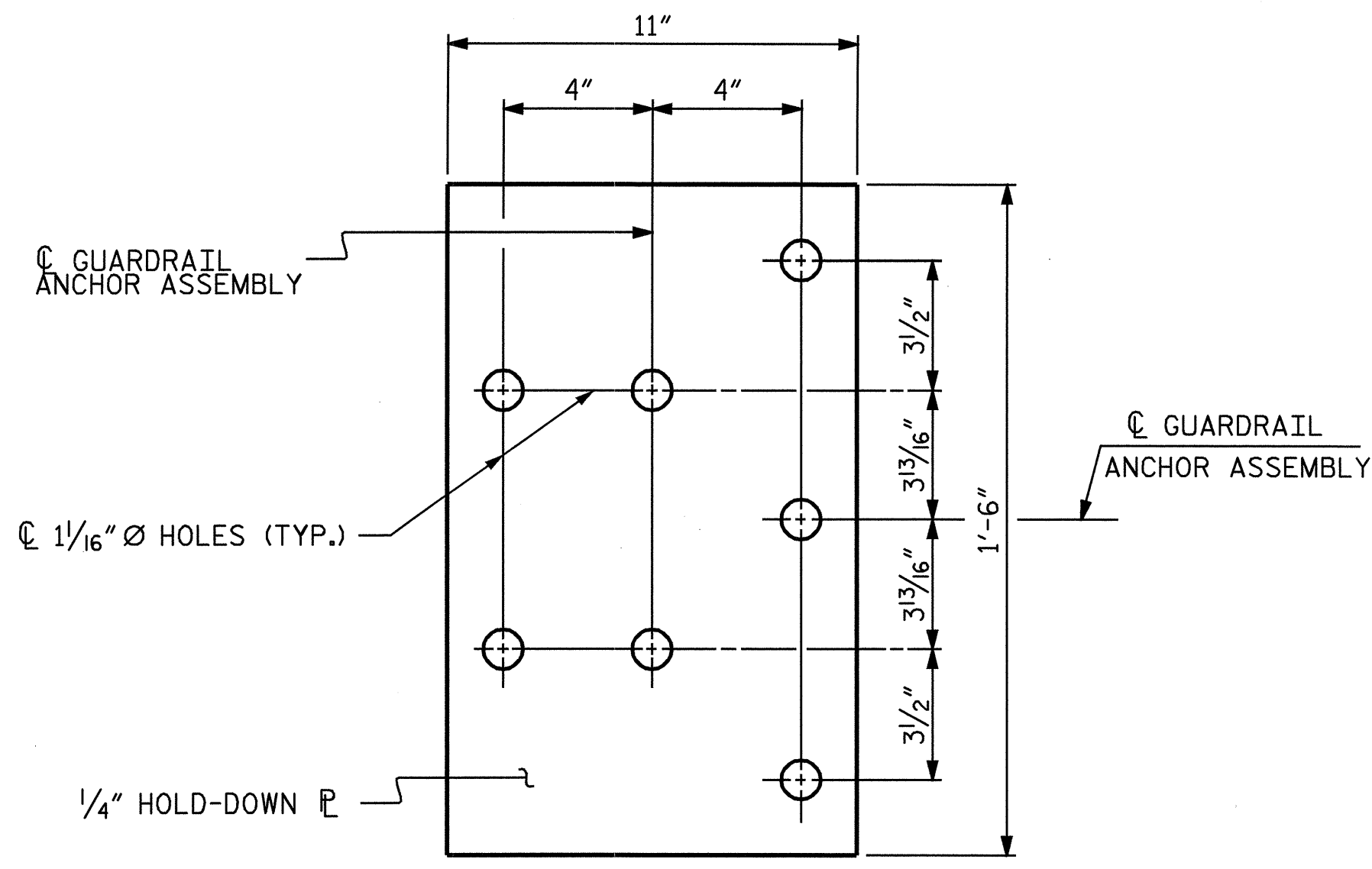
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS.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

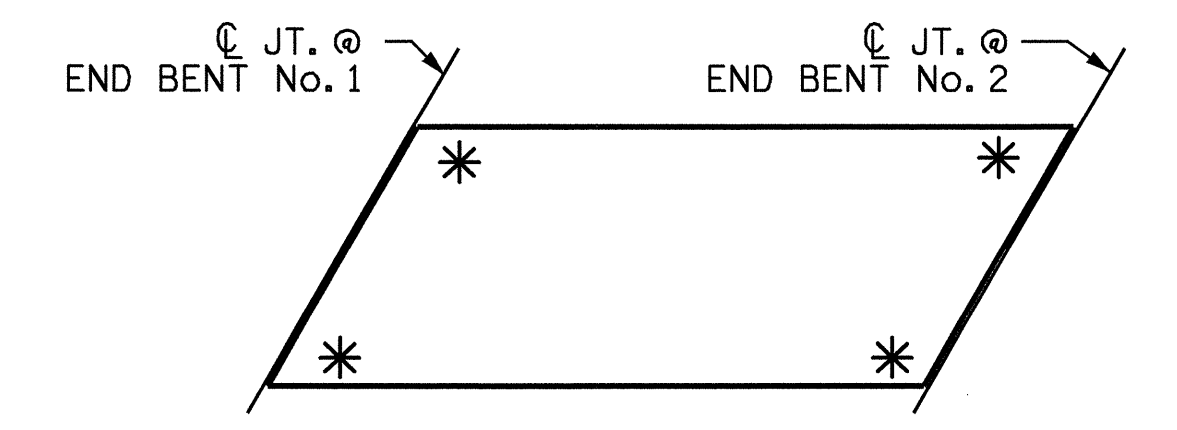
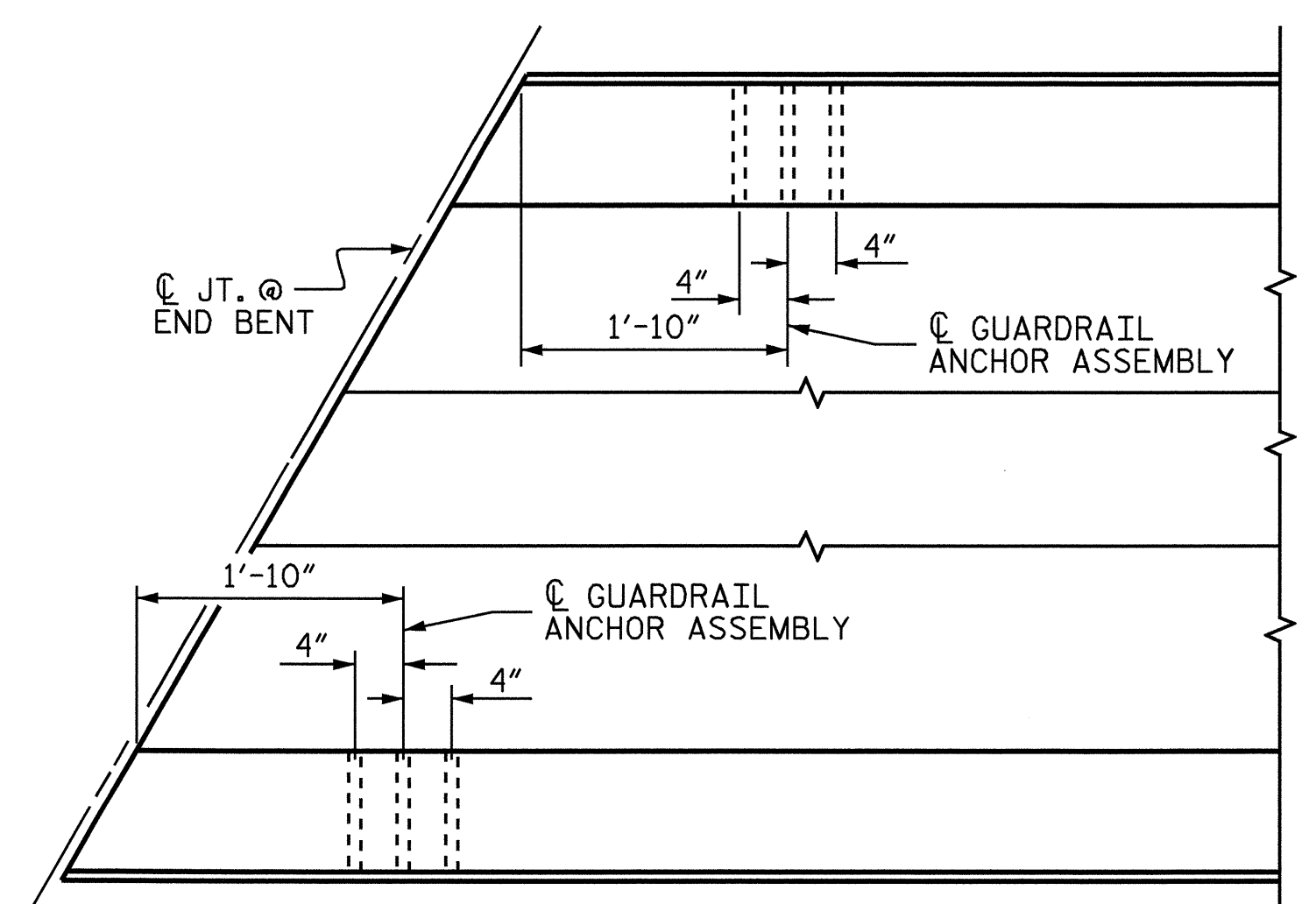
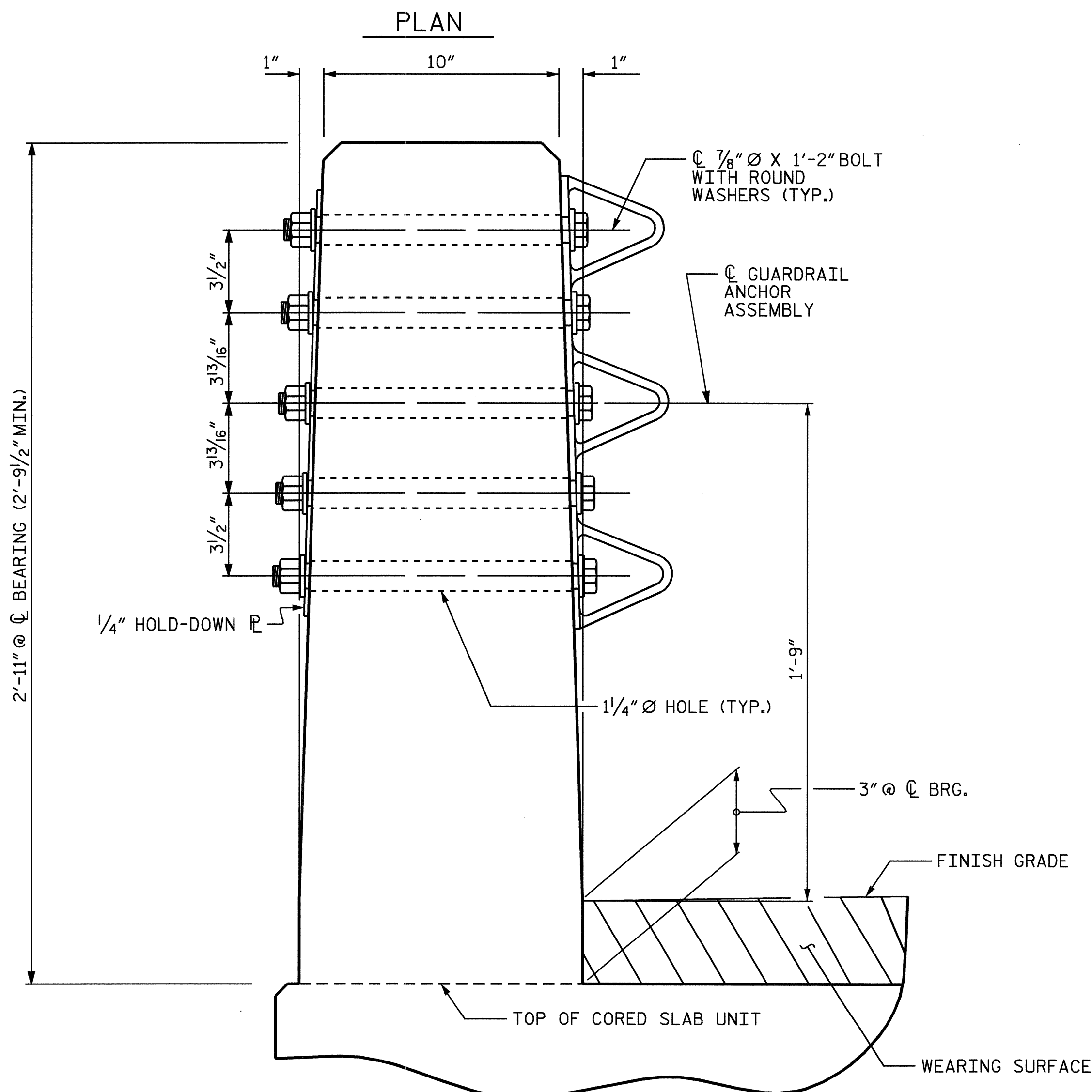
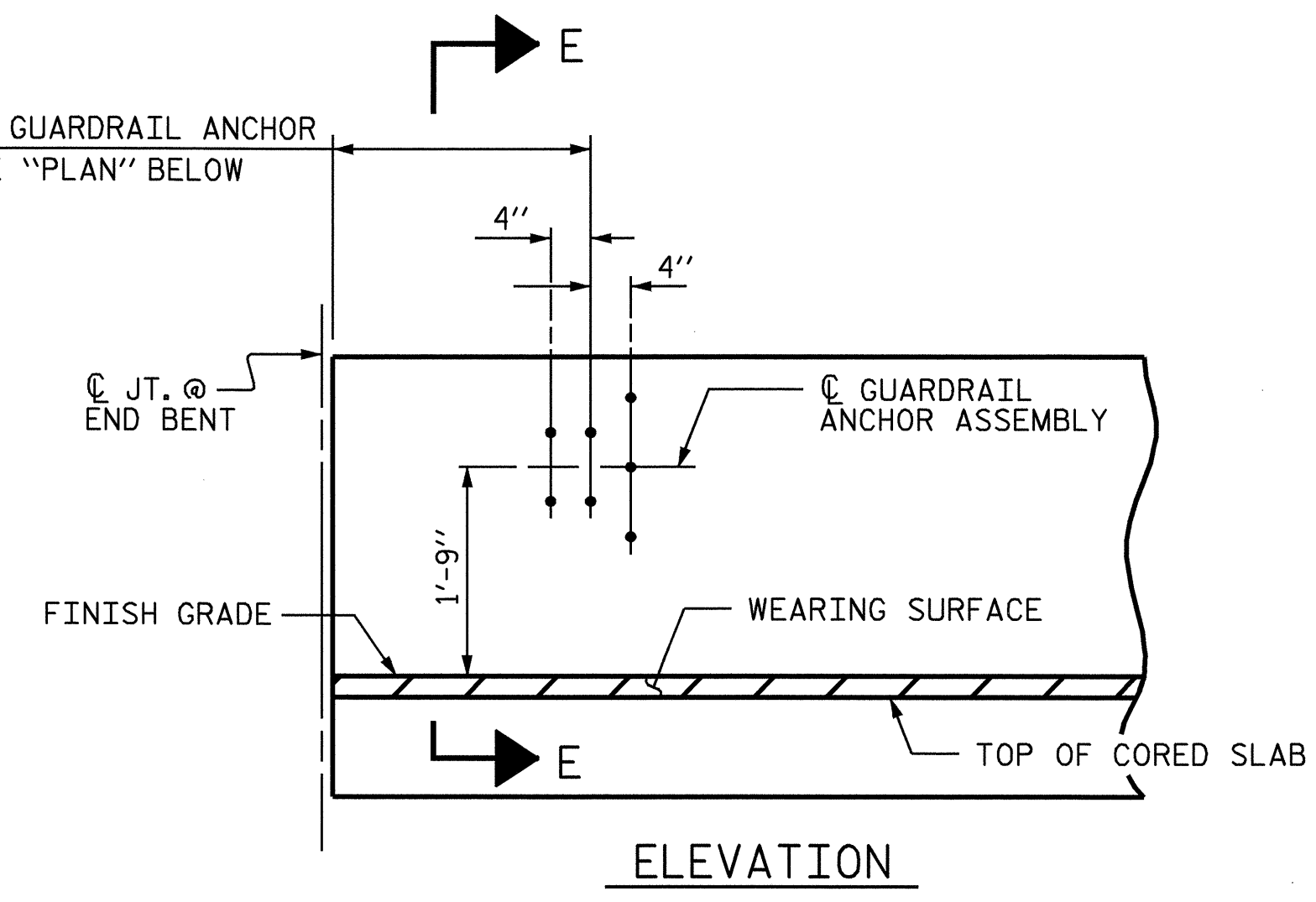
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

THE 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.



FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW



SKETCH SHOWING POINTS OF ATTACHMENTS
* DENOTES GUARDRAIL ANCHOR ASSEMBLY

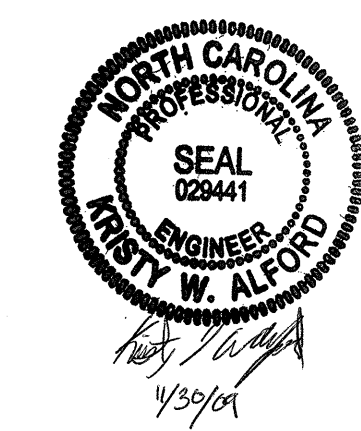
LOCATION OF ANCHORS FOR GUARDRAIL
END BENT #1 SHOWN, END BENT #2 SIMILAR.

SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS

PROJECT NO. B-4600
PERSON _____ COUNTY _____
STATION: 15+12.50 -L-

SHEET 8 OF 8

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



ASSEMBLED BY : T. BANKOVICH	DATE : 7-2009
CHECKED BY : A.V. ROYAL	DATE : 8-2009
DRAWN BY : MAA 12/06	ADDED 12/15/06
CHECKED BY : GM 12/06	

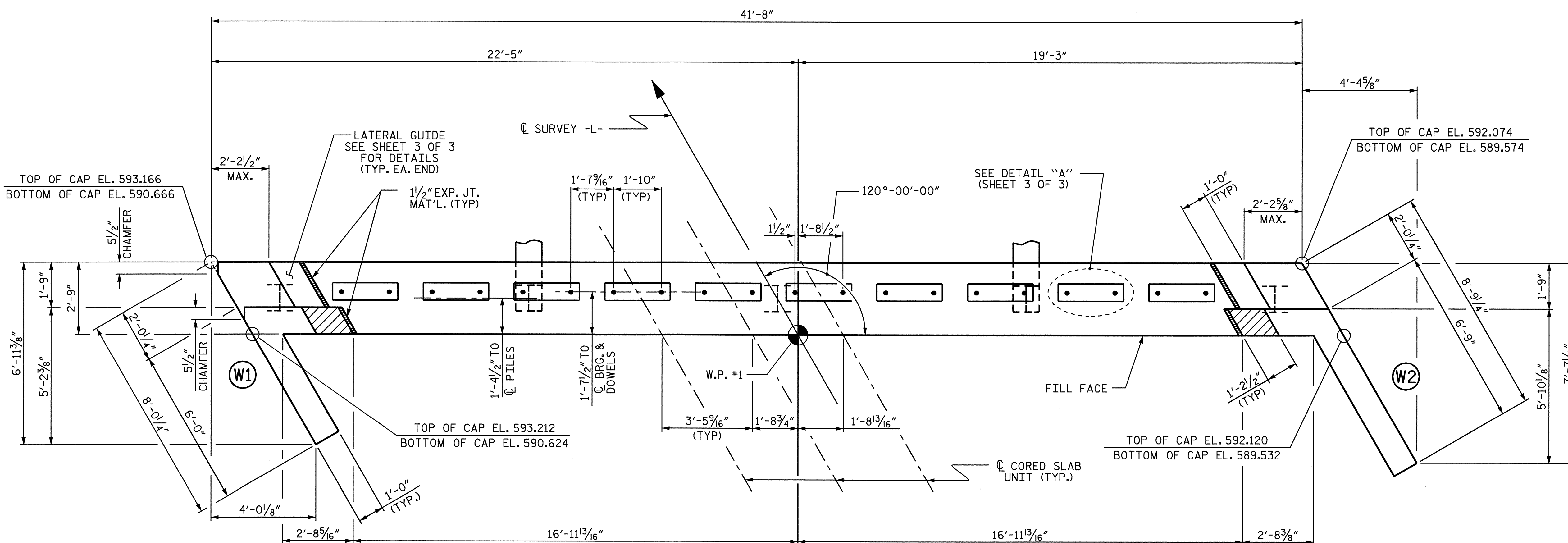
REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
1			3	
2			4	

NOTES

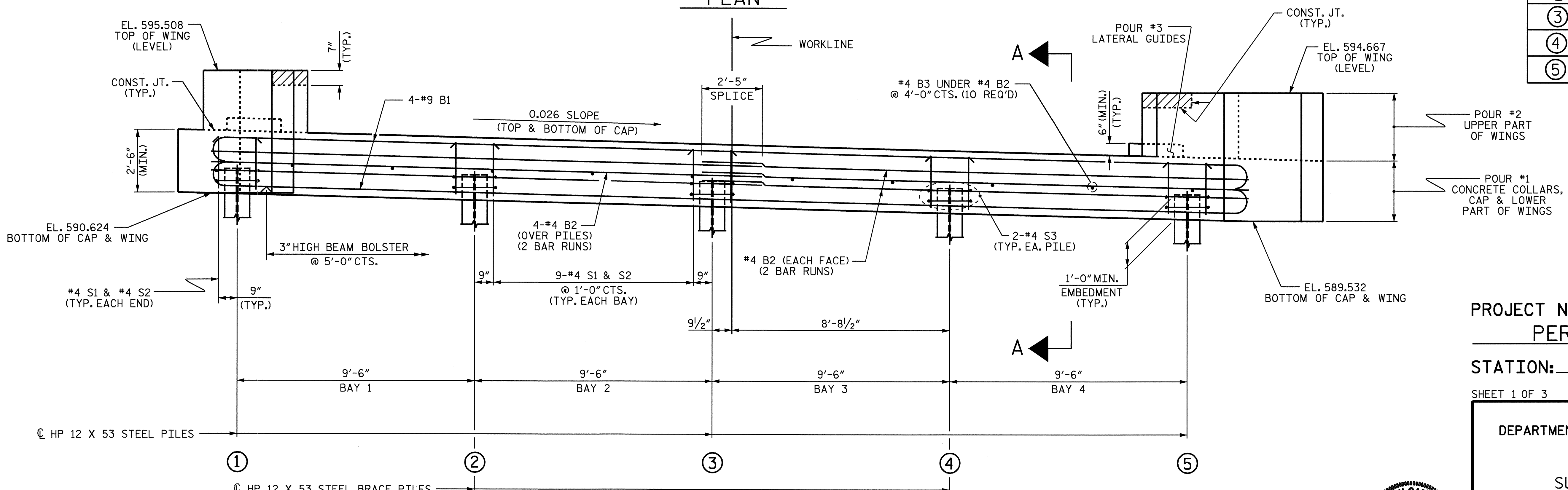
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
 THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

THE TOP SURFACE OF THE END BENT CAP IS SLOPED LONGITUDINALLY AND TRANSVERSELY.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.



PLAN



ELEVATION

TOP OF PILE ELEVATIONS	
①	591.610
②	591.361
③	591.112
④	590.863
⑤	590.614

PROJECT NO. B-4600
 PERSON COUNTY
 STATION: 15+12.50 -L-
 SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

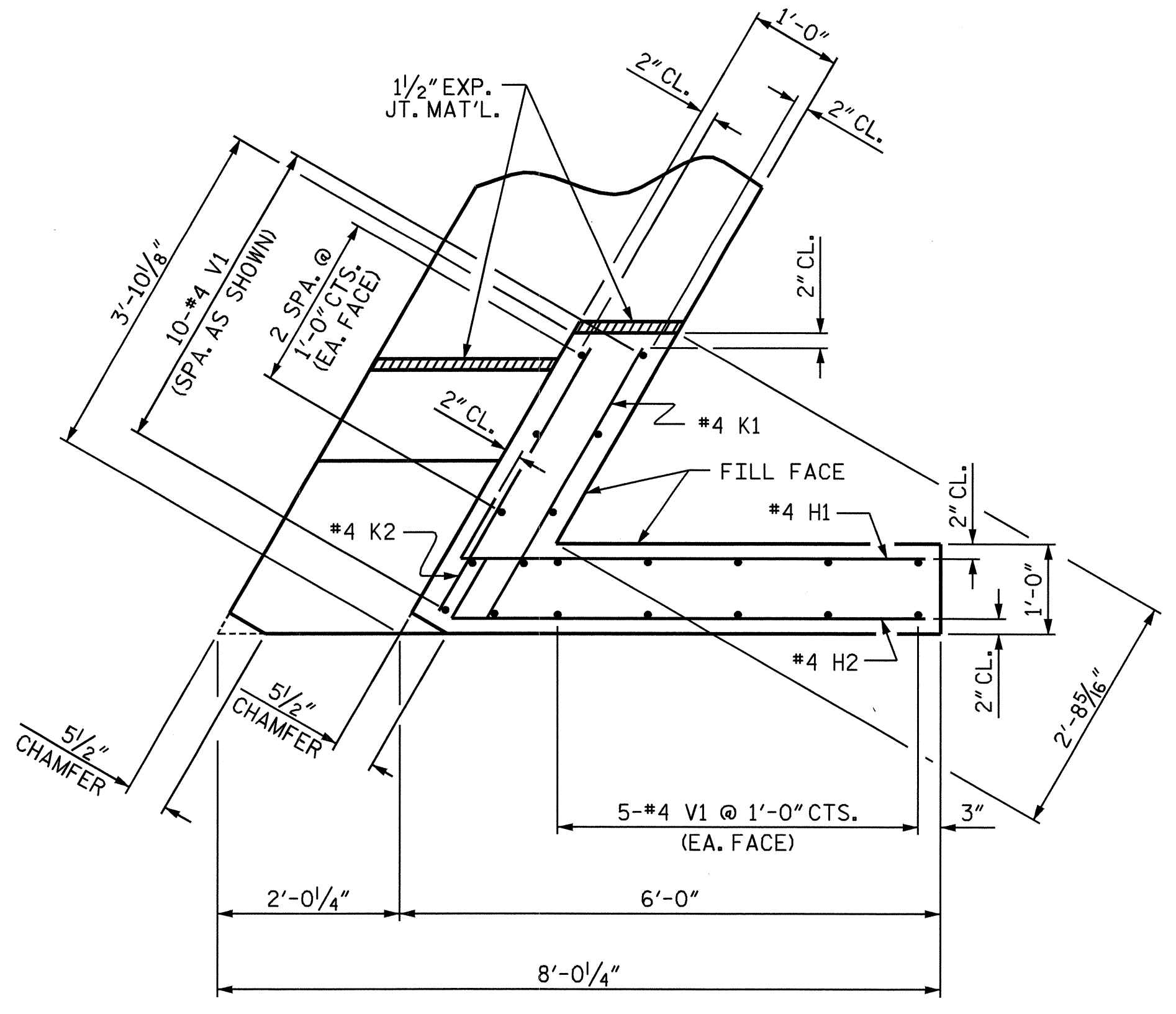
SUBSTRUCTURE
 END BENT No. 1



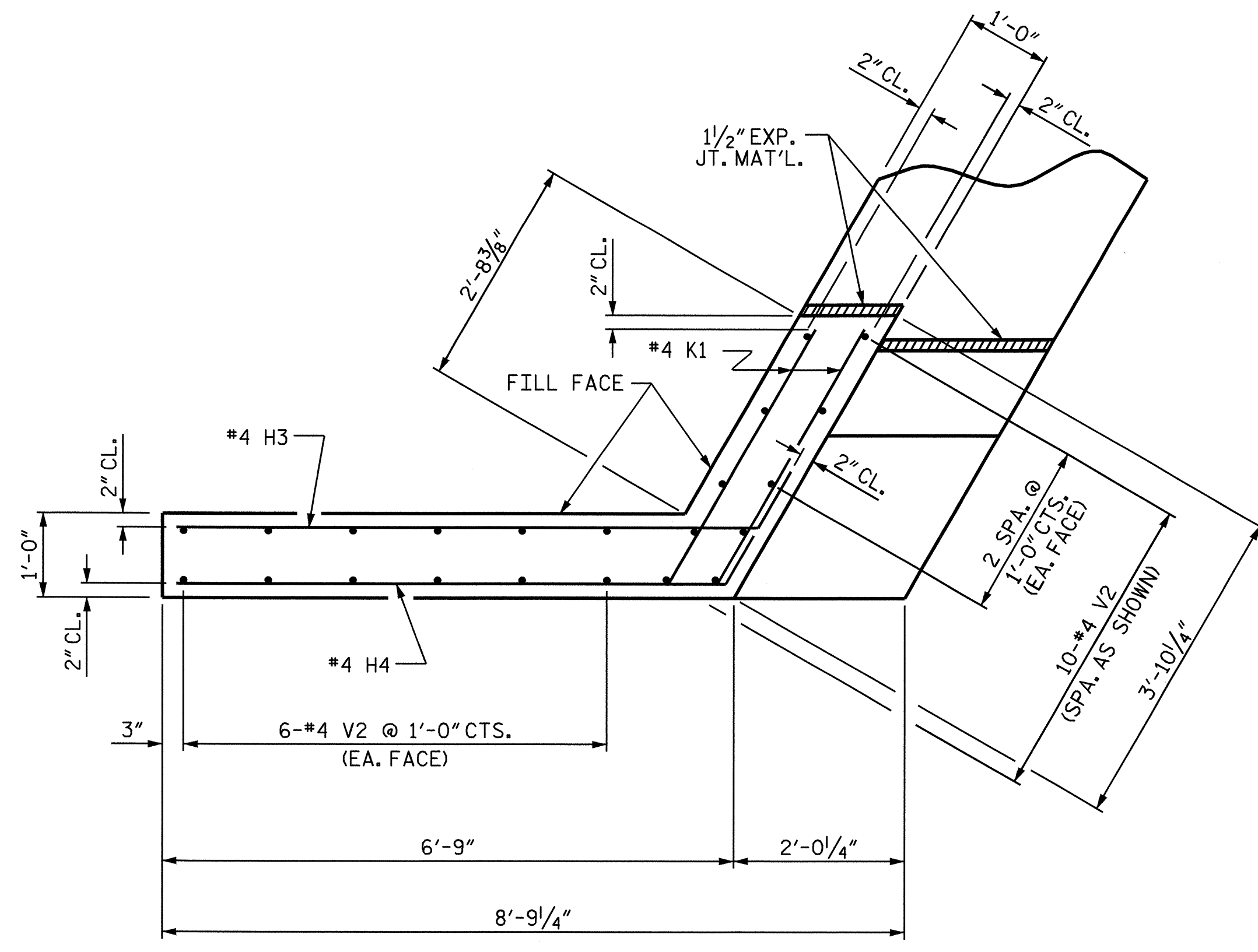
FOR SECTION A-A, SEE SHEET 3 OF 3.
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAILS", SHEET 3 OF 3.

DRAWN BY: D. G. ELY DATE: 8/2009
 CHECKED BY: A. V. ROYAL DATE: 8/2009

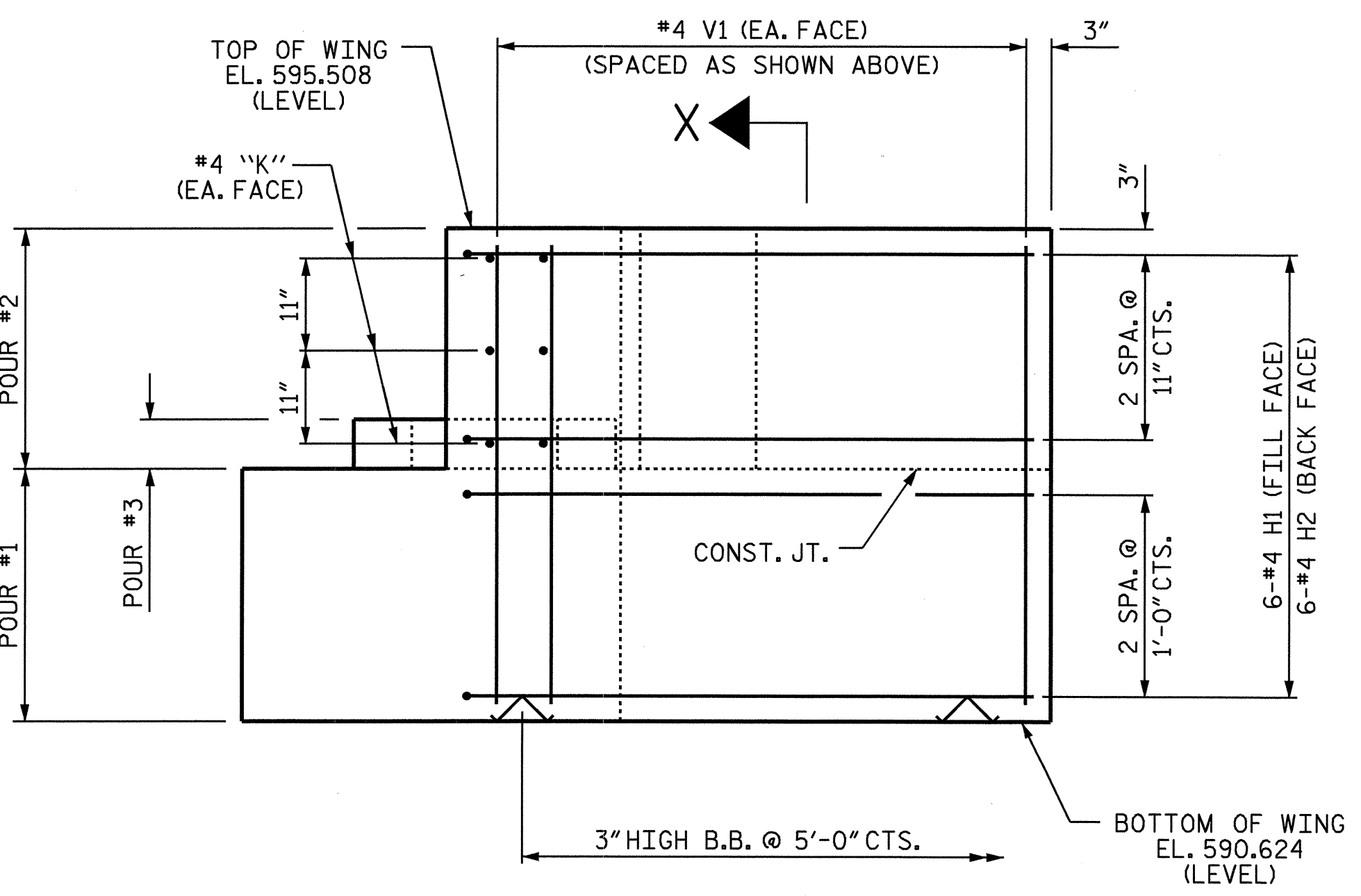
REVISIONS				SHEET NO.
NO.	BY:	DATE:	DATE:	S-13
1				TOTAL SHEETS
2				25



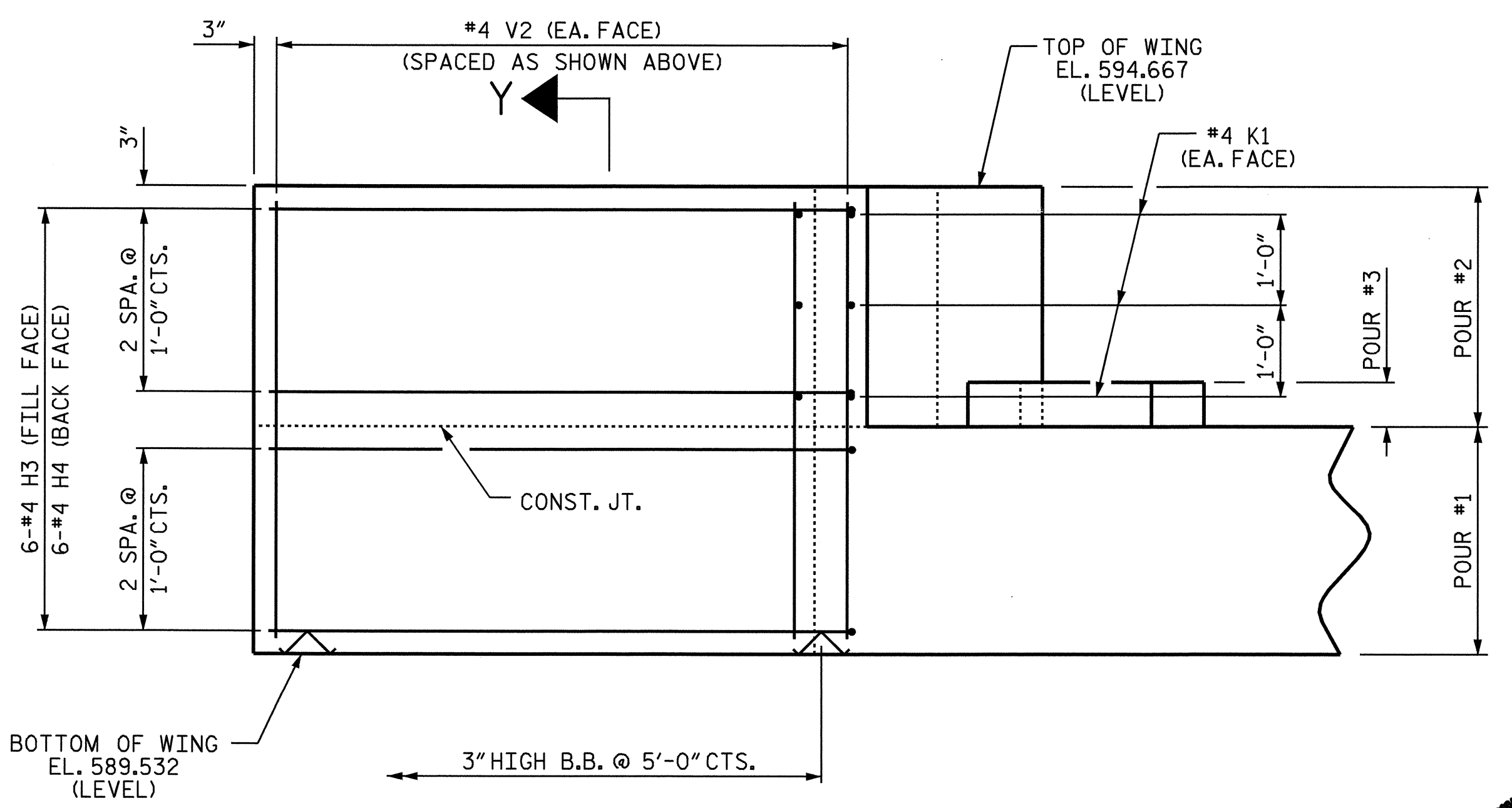
PLAN OF WING (W1)



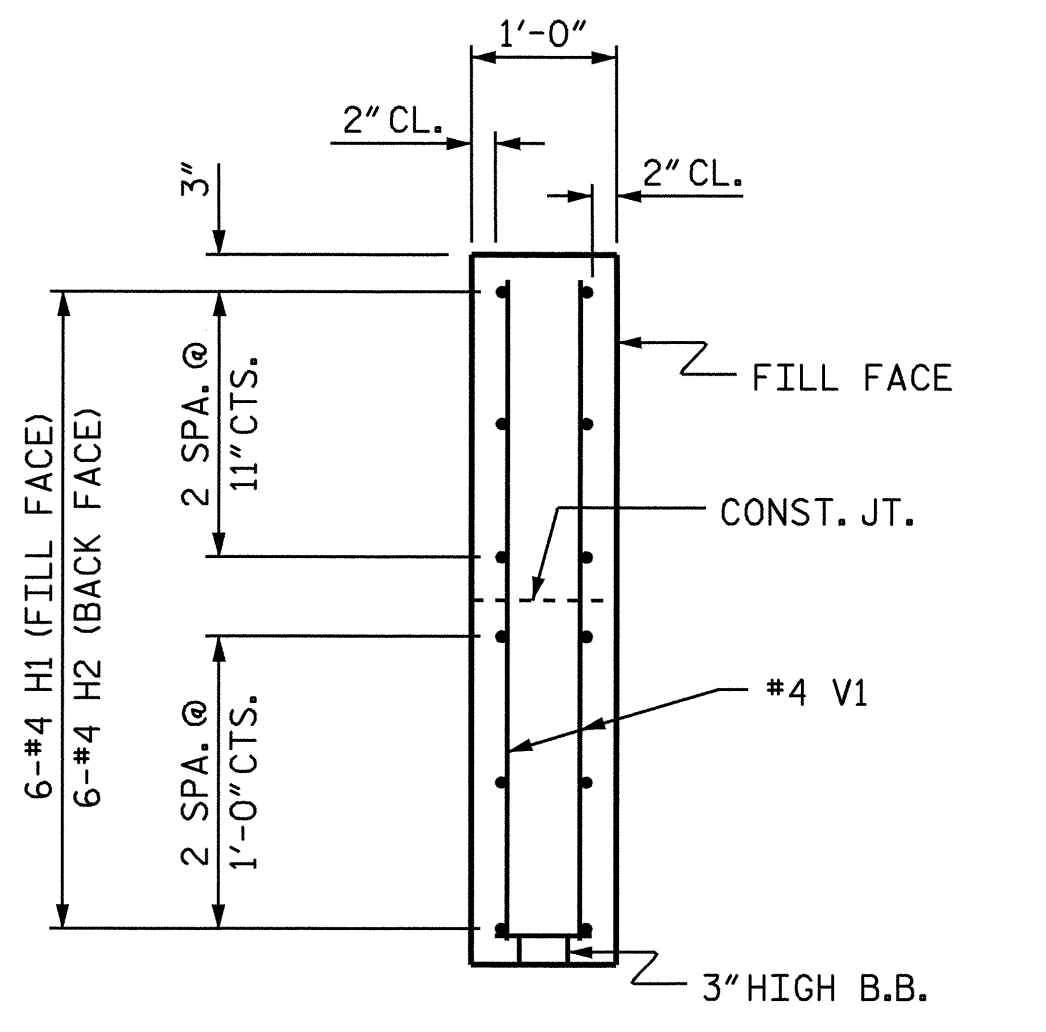
PLAN OF WING (W2)



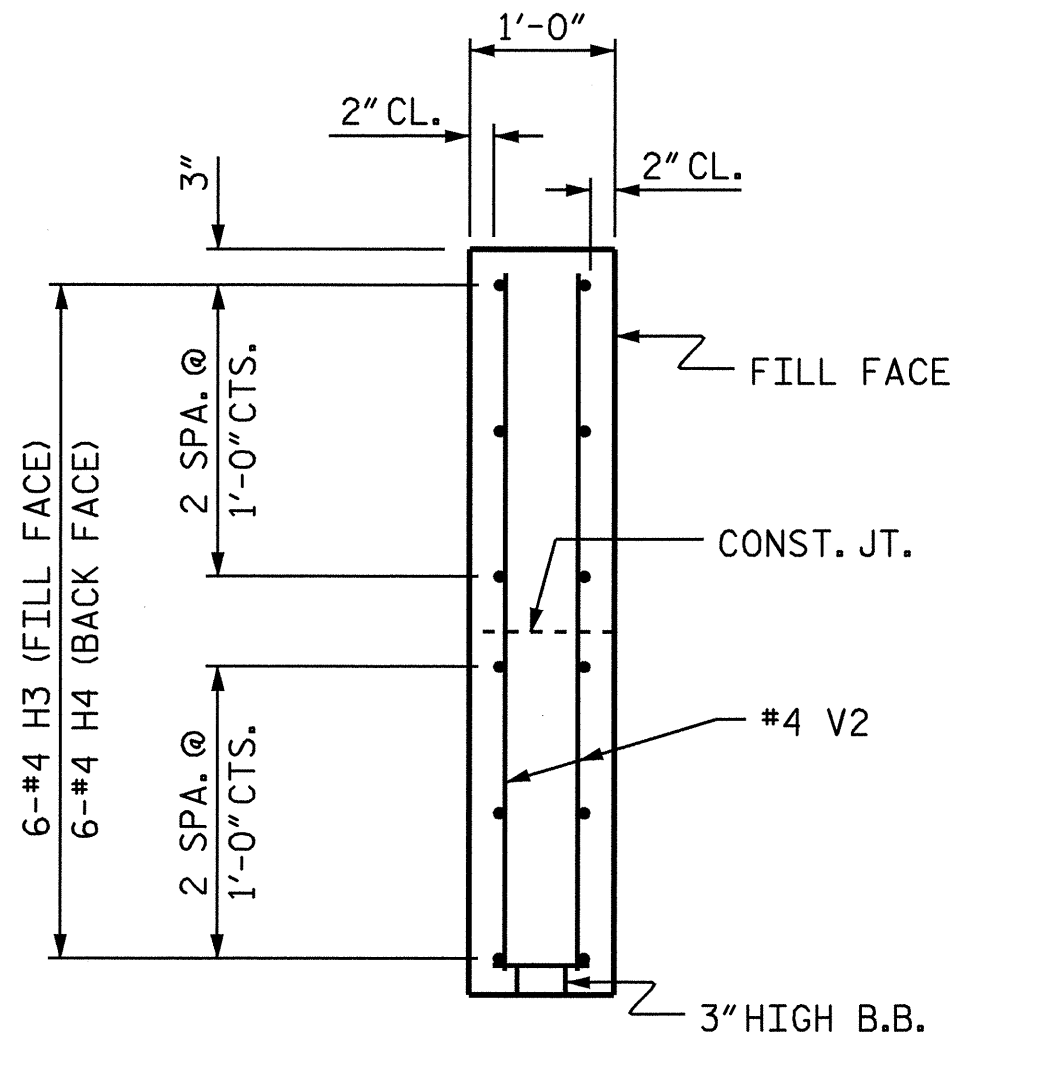
ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION X-X



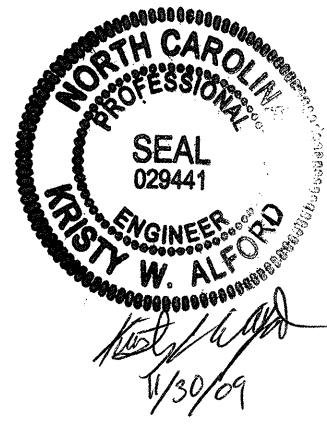
SECTION Y-Y

PROJECT NO. B-4600
 PERSON COUNTY
 STATION: 15+12.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

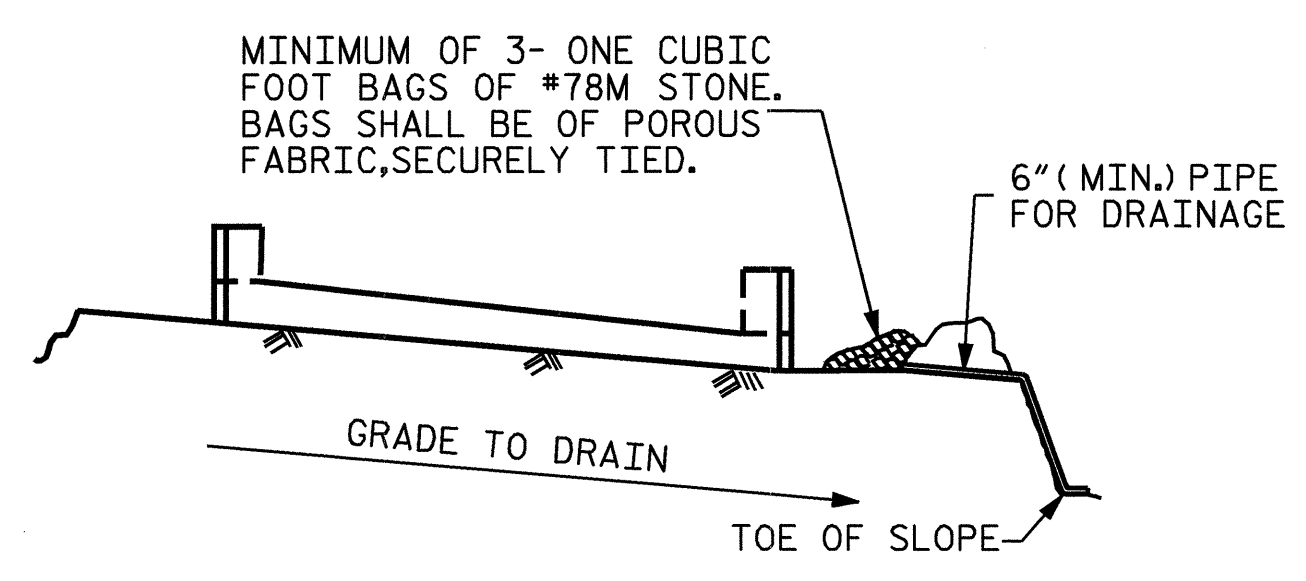
SUBSTRUCTURE
 END BENT No. 1



DRAWN BY: D. G. ELY DATE: 8/2009
 CHECKED BY: A. V. ROYAL DATE: 8/2009

REVISIONS						SHEET NO. S-14
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 25
2			4			

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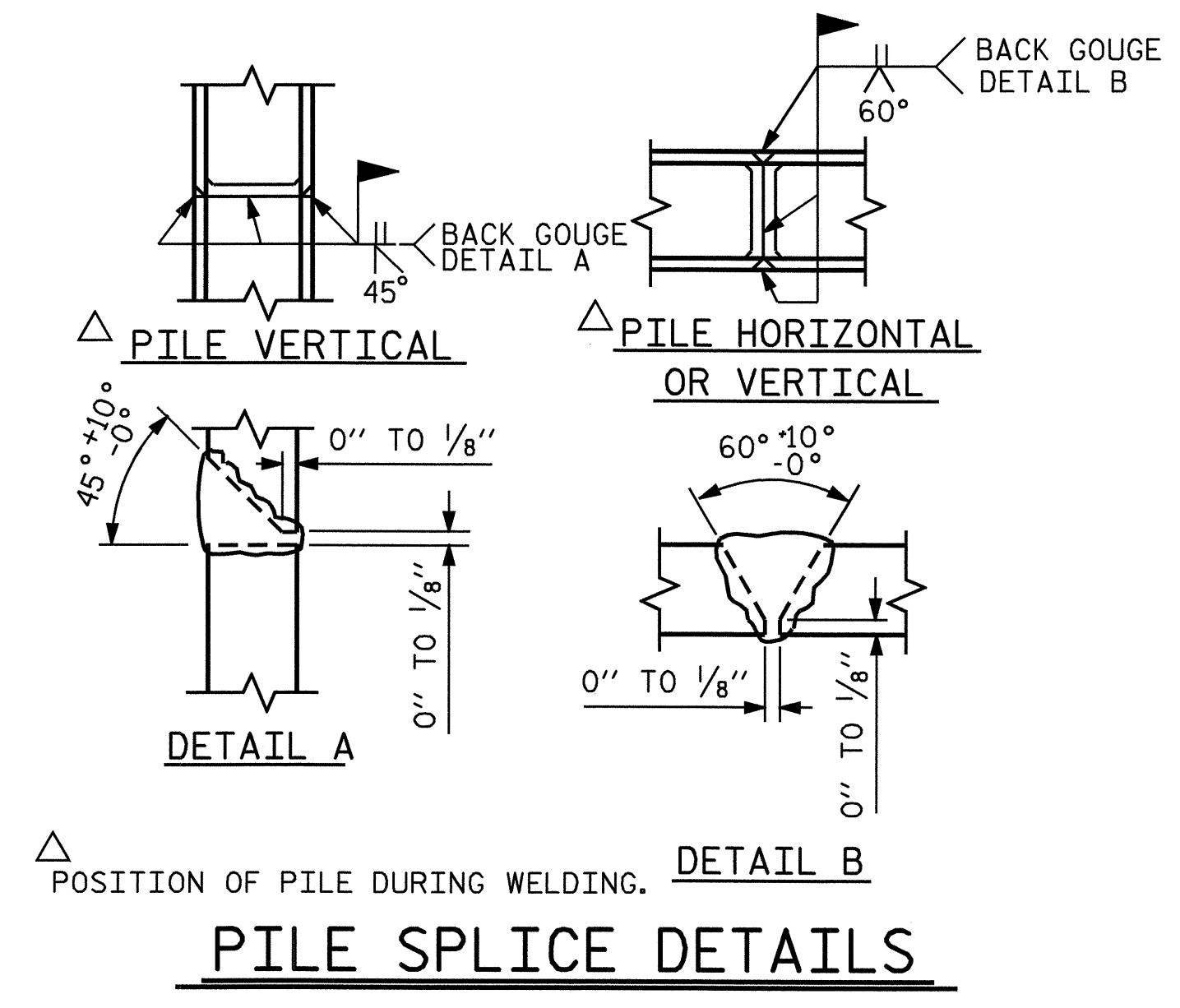


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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



BAR TYPES

1: HK. 1'-3" 41'-2" 1'-3"

2: 4" 8" 5'-1" H1 5'-3" H2

3: 4" 6'-10" H3 6'-5" H4

4: 4 1/2" 2'-5" 4 1/2" HK.

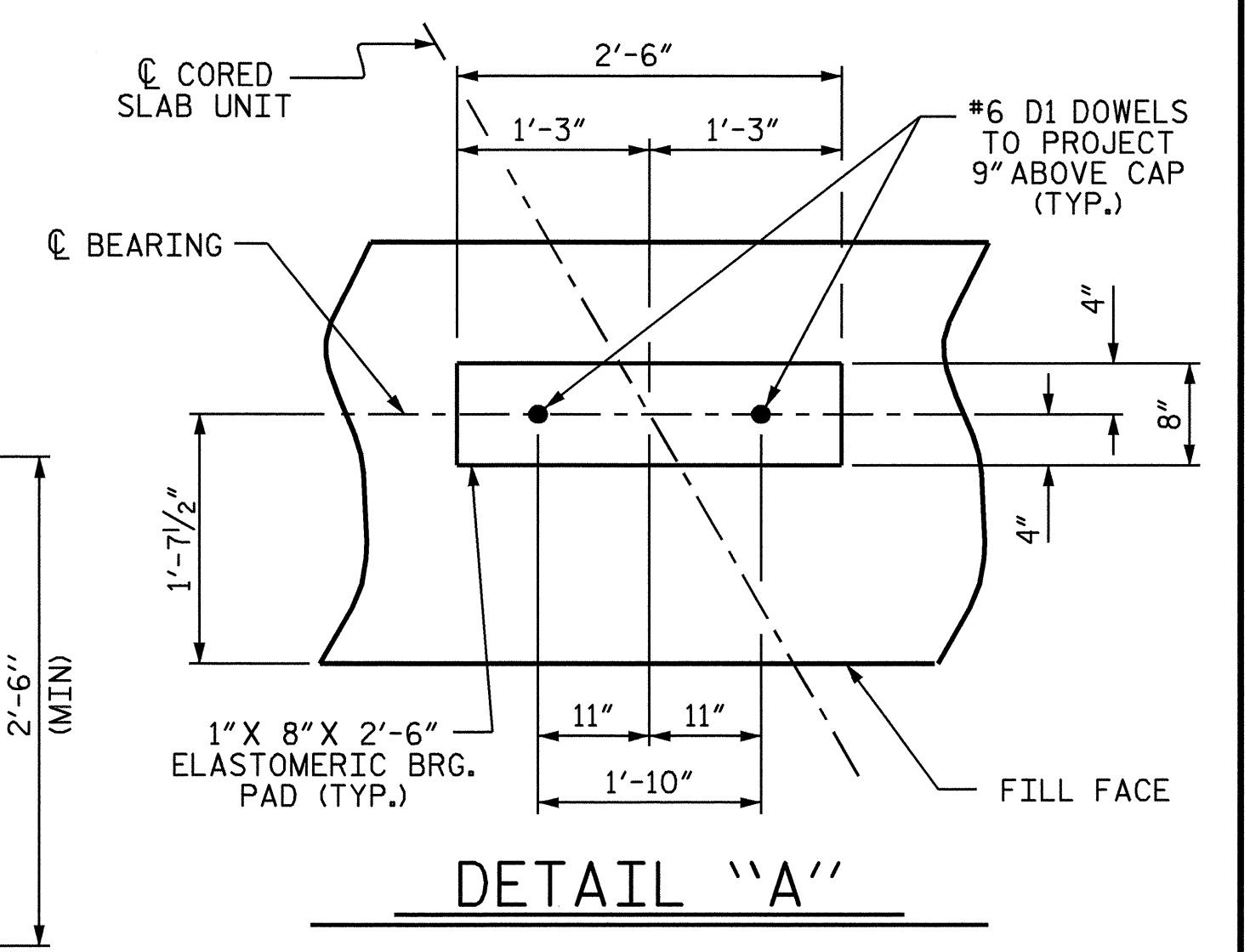
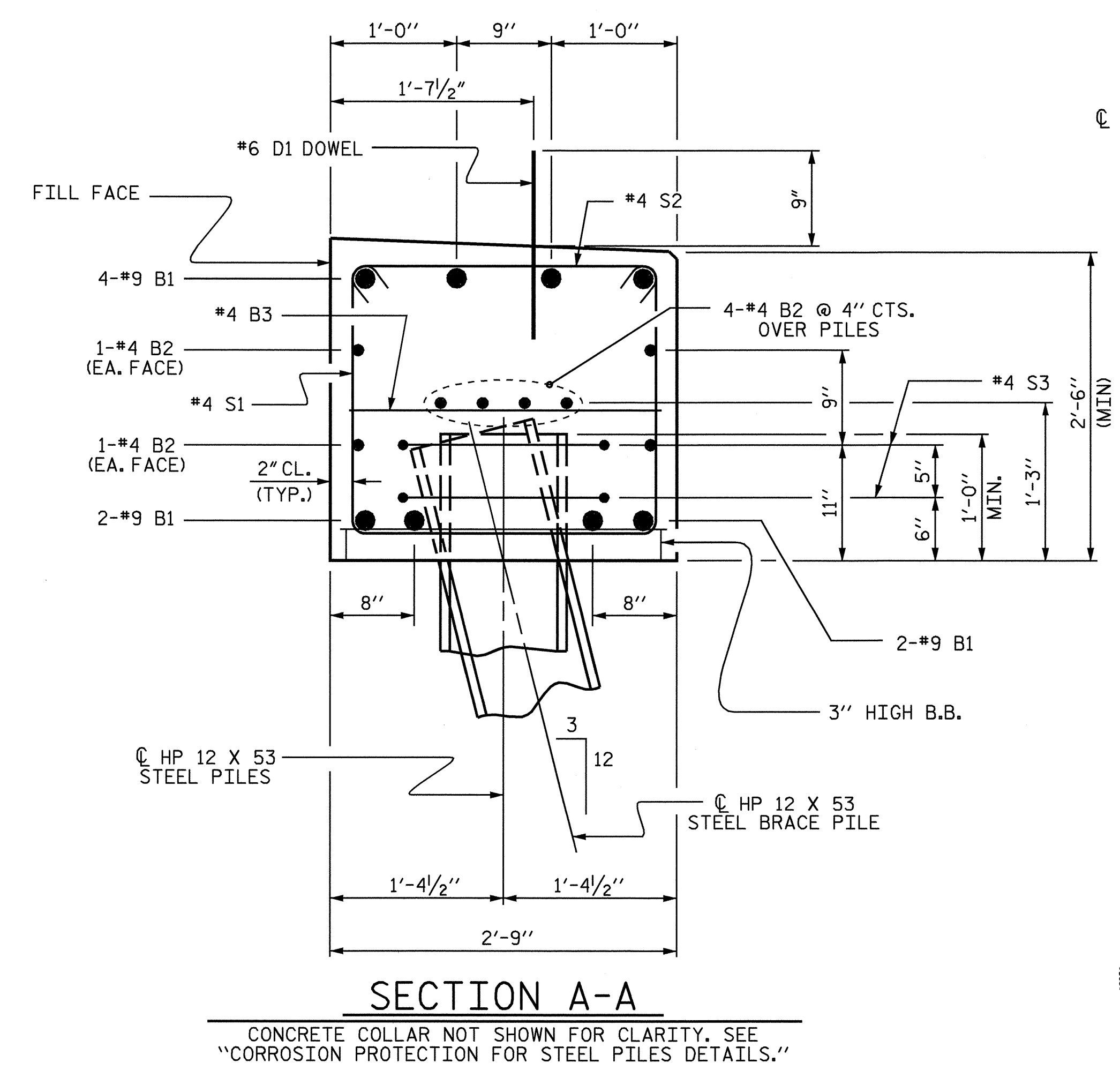
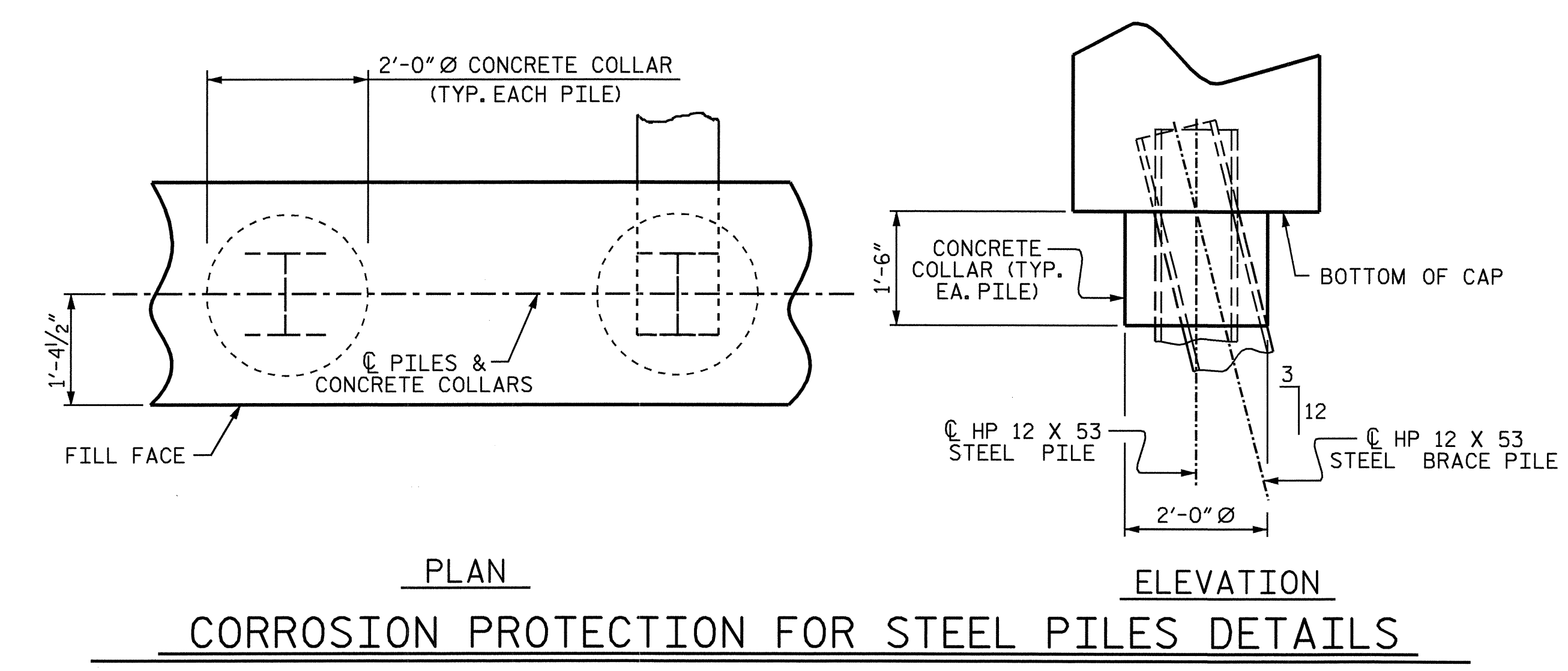
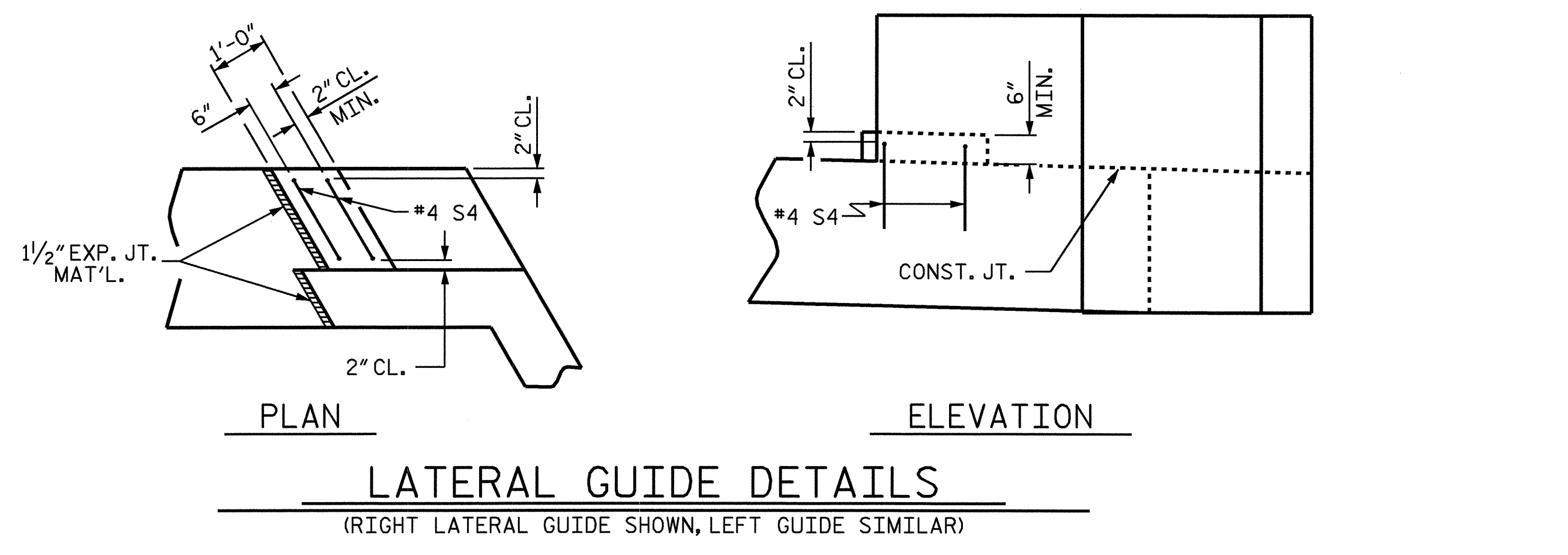
5: 4 1/2" 2'-5" 4 1/2" HK.

6: 1'-3" MIN. LAP 1'-8" Ø

7: 1'-7" 1'-6"

ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
END BENT No. 1					
BAR	No.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9		43'-8"	1188
B2	16	#4	STR	21'-11"	234
B3	10	#4	STR	2'-5"	16
D1	20	#6	STR	1'-6"	45
H1	6	#4	2	5'-9"	23
H2	6	#4	2	5'-11"	24
H3	6	#4	3	7'-6"	30
H4	6	#4	3	7'-1"	28
K1	9	#4	STR	3'-5"	21
K2	3	#4	STR	3'-4"	7
S1	38	#4	4	7'-5"	188
S2	38	#4	5	3'-2"	80
S3	10	#4	6	6'-6"	43
S4	4	#4	7	4'-7"	12
V1	20	#4	STR	4'-6"	60
V2	22	#4	STR	4'-9"	70
REINFORCING STEEL				2069 LBS.	
CLASS A CONCRETE					
POUR #1 (CAP, LOWER WINGS & CONCRETE COLLARS)				12.6 C.Y.	
POUR #2 (UPPER WINGS)				1.6 C.Y.	
POUR #3 (LATERAL GUIDE)				0.1 C.Y.	
TOTAL =				14.3 C.Y.	
HP 12 X 53 STEEL PILES					
No. = 5				75 LIN. FT.	

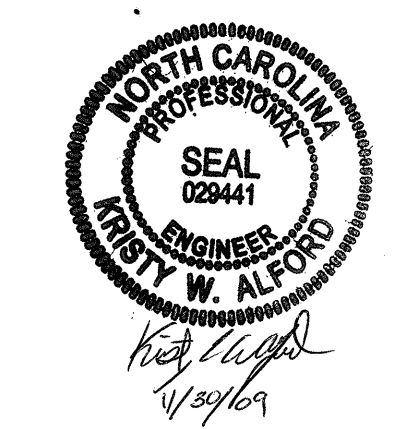


PROJECT NO. B-4600

PERSON _____ COUNTY _____

STATION: 15+12.50 -L-

SHEET 3 OF 3



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
END BENT No. 1					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-15
					TOTAL SHEETS 25

DRAWN BY: D. G. ELY DATE: 8/2009

CHECKED BY: A. V. ROYAL DATE: 8/2009

NOTES:

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

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

FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.

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.

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

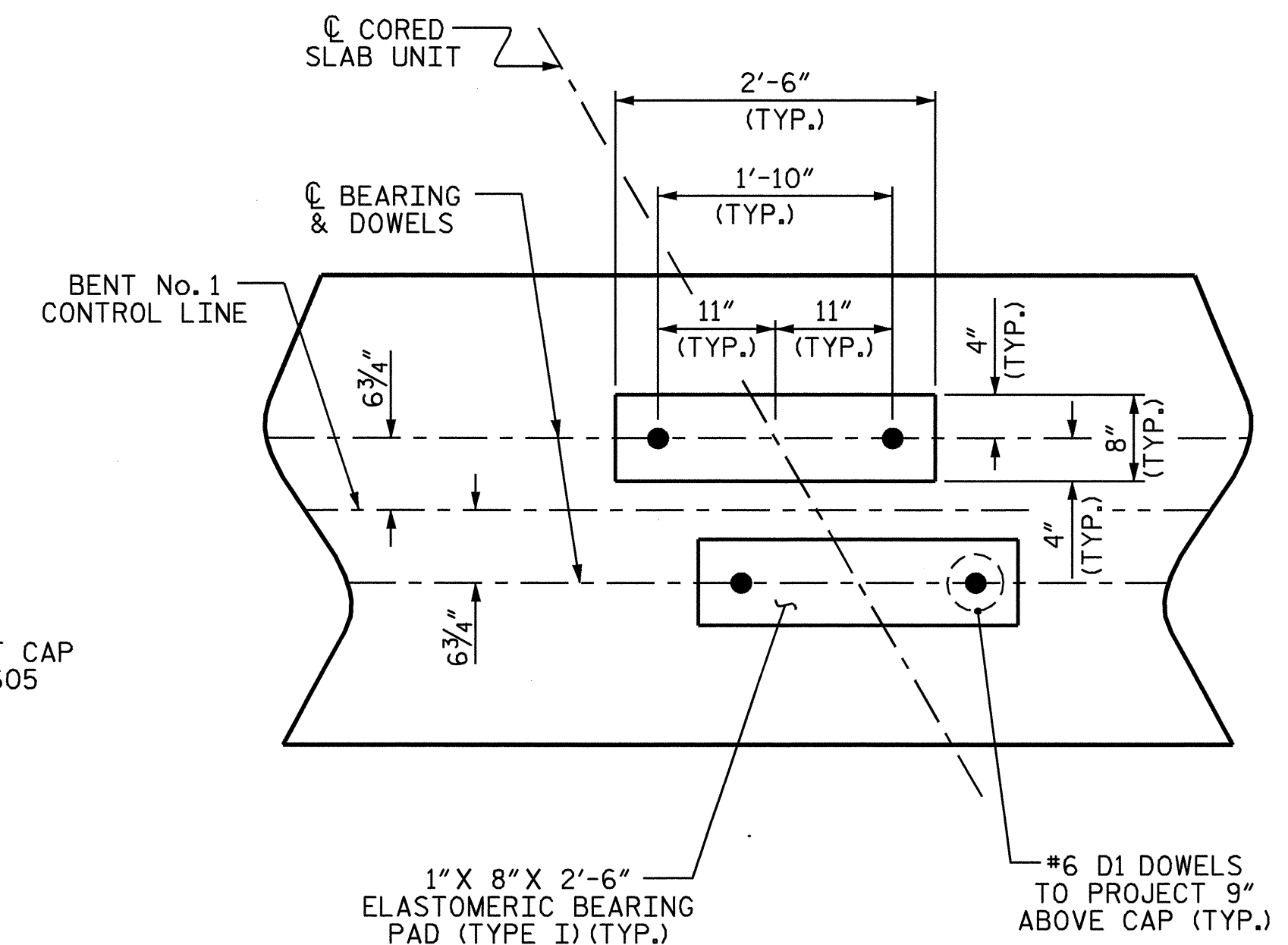
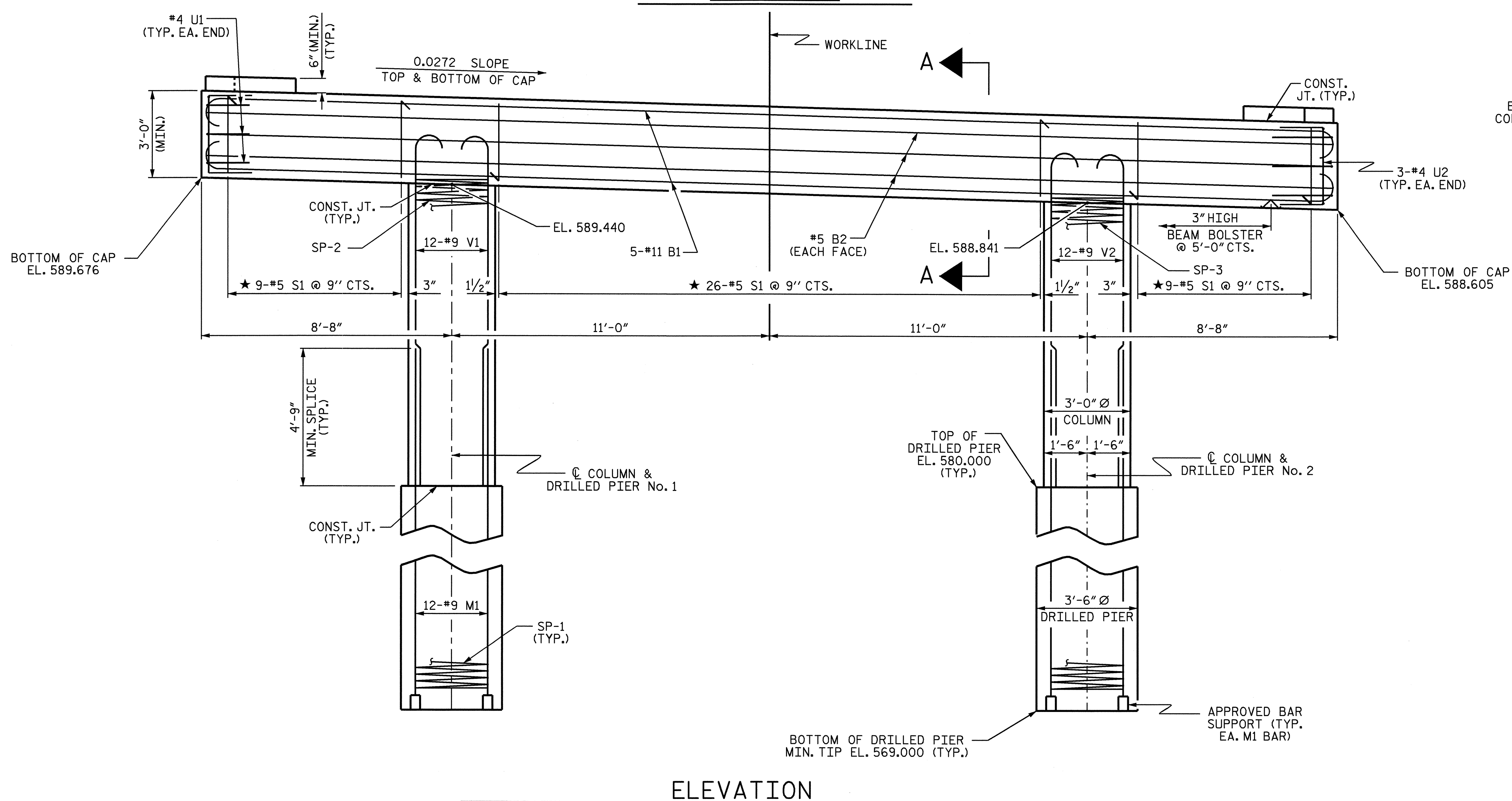
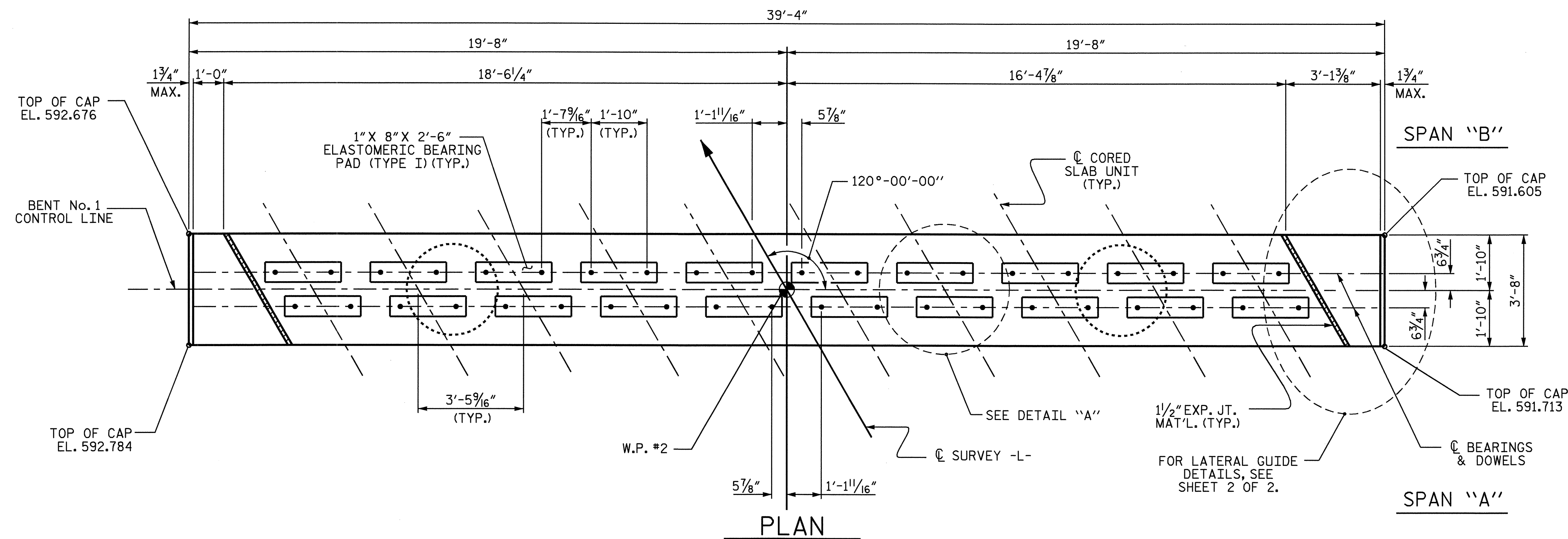
FOR PERMANENT STEEL CASING, SEE SPECIAL PROVISION FOR DRILLED PIERS.

THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

★ INVERT ALTERNATE STIRRUPS AS SHOWN.

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

THE TOP OF THE BENT CAP IS SLOPED LONGITUDINALLY AND TRANSVERSELY.

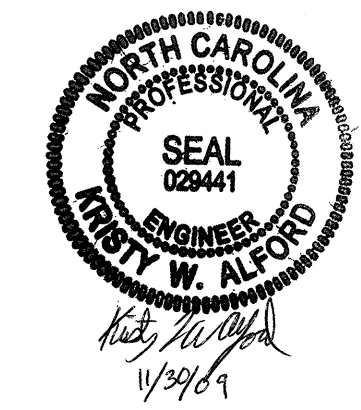


DIMENSIONS & REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN & DRILLED PIER UNLESS OTHERWISE NOTED.

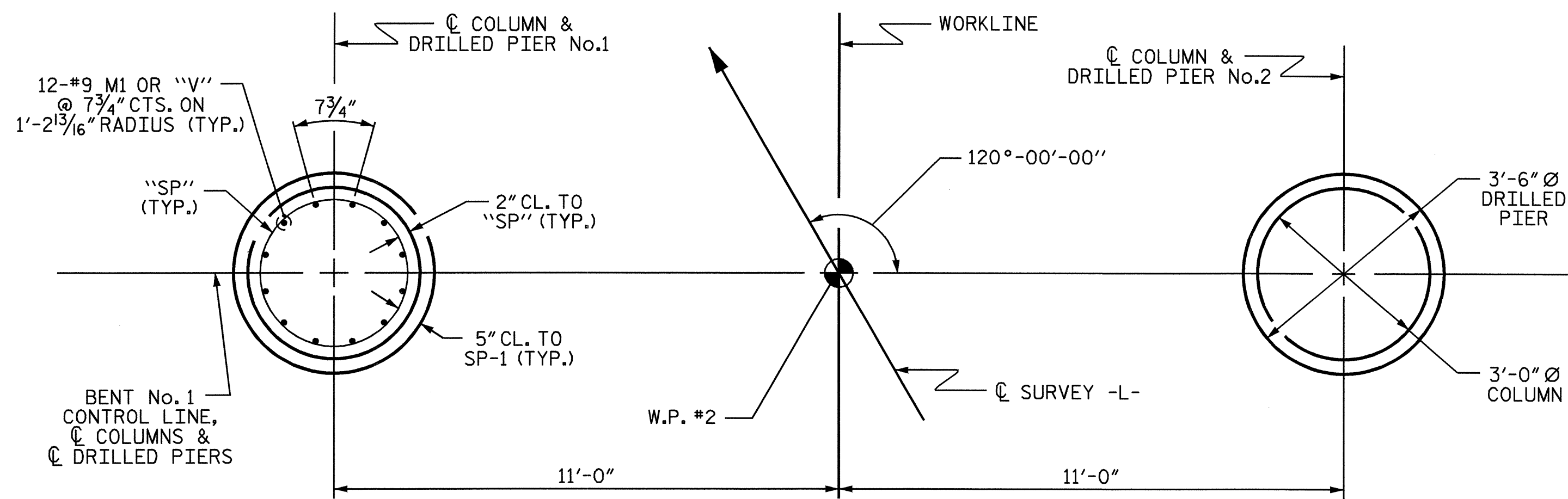
PROJECT NO. B-4600
 _____ PERSON _____ COUNTY
 STATION: 15+12.50 -L-

SHEET 1 OF 2

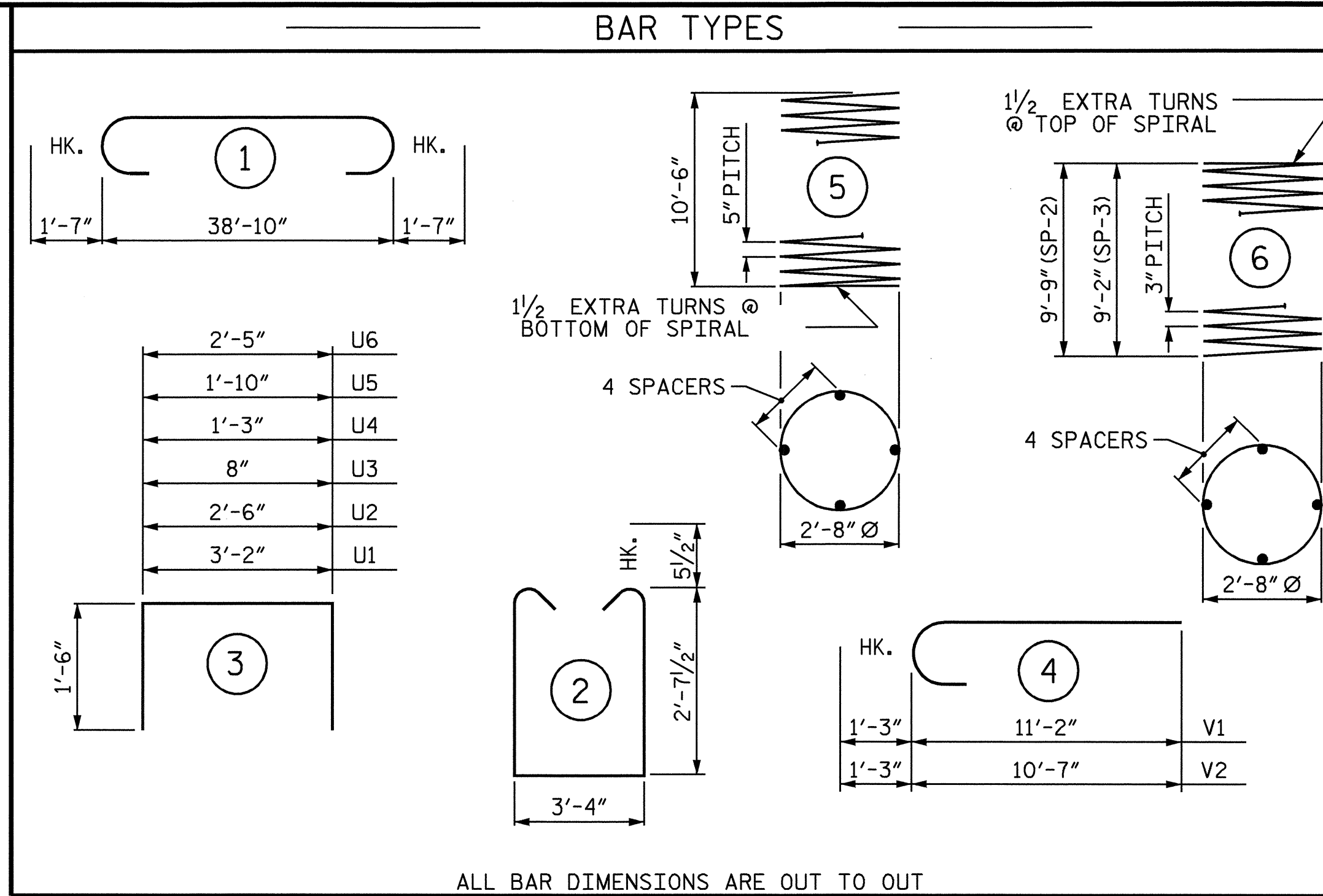
REVISIONS						SHEET NO. S-16
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 25
2			4			



DRAWN BY: D.G. ELY DATE: 10/09
 CHECKED BY: M. K. TOM DATE: 10/09



PLAN OF DRILLED PIERS & COLUMNS

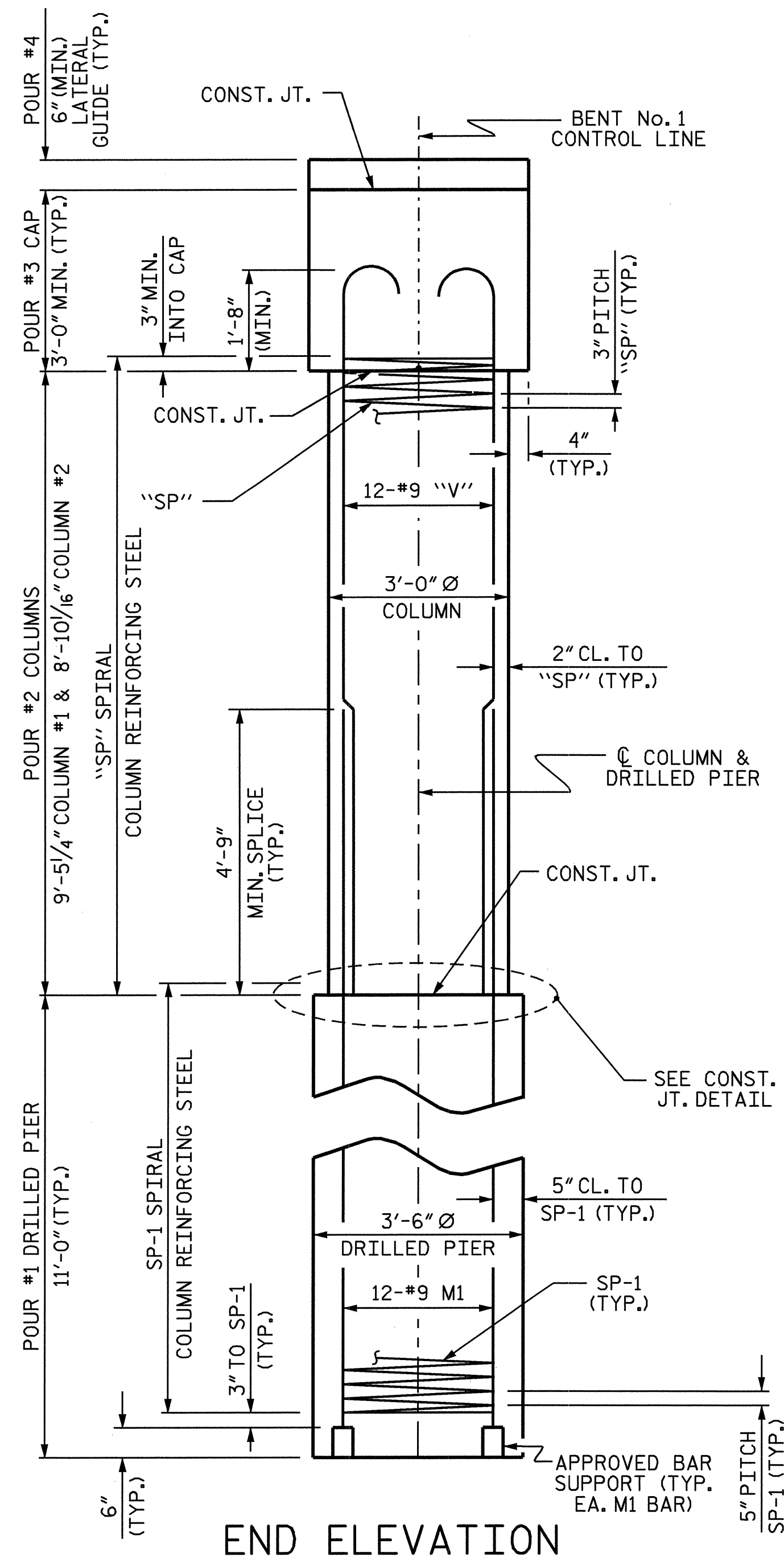


ALL BAR DIMENSIONS ARE OUT TO OUT

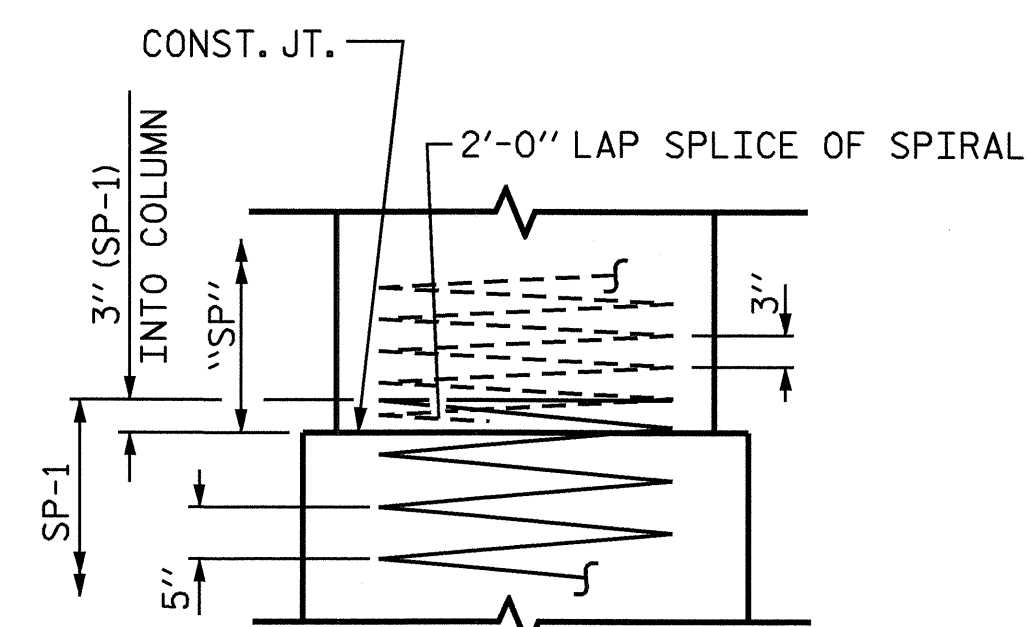
BILL OF MATERIAL

BENT No. 1

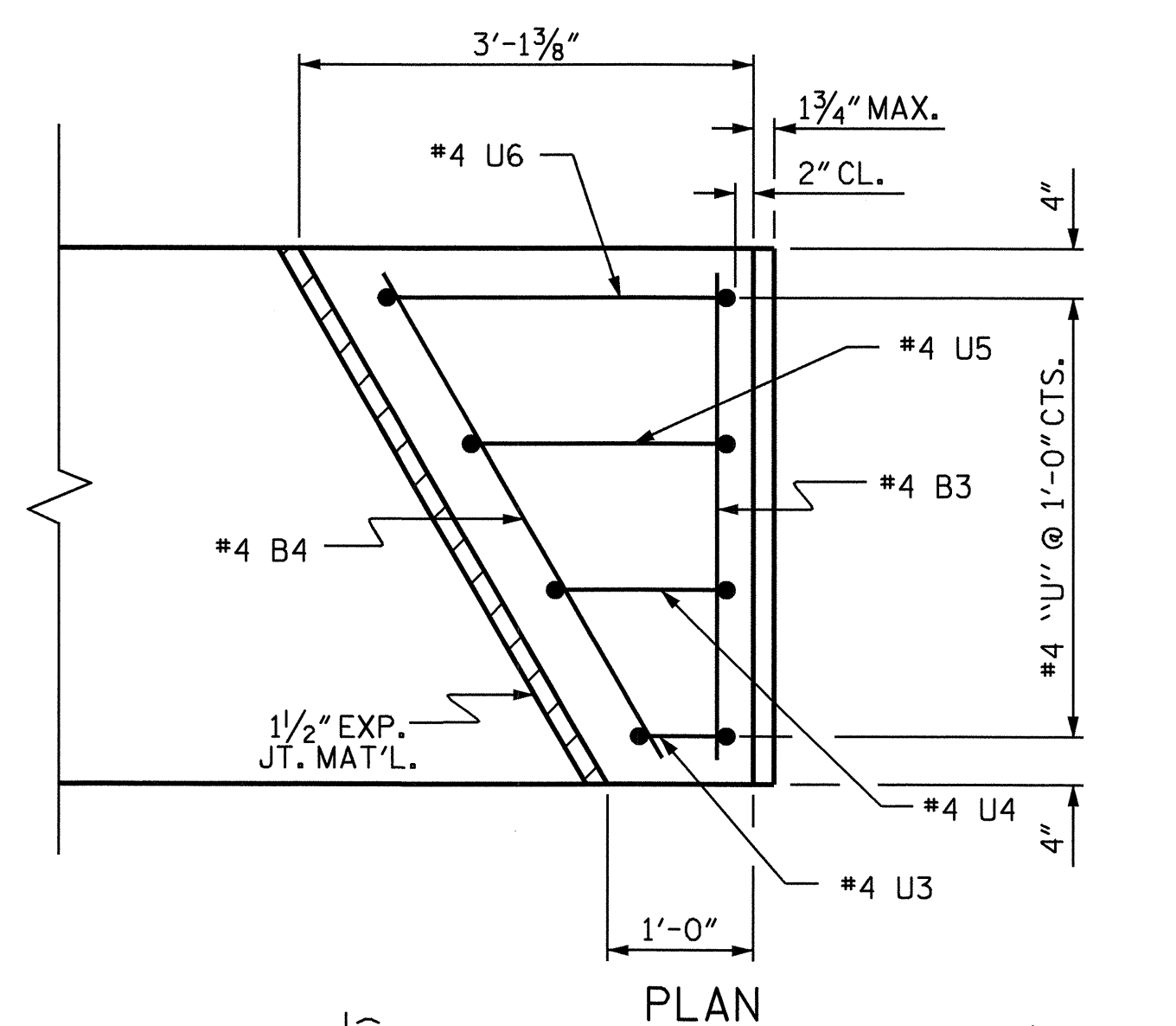
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11		42'-0"	2231
B2	6	#5	STR	39'-0"	244
B3	2	#4	STR	3'-4"	4
B4	2	#4	STR	3'-10"	5
D1	40	#6	STR	1'-6"	90
M1	24	#9	STR	18'-3"	1489
S1	44	#5		9'-6"	436
U1	6	#4		6'-2"	25
U2	6	#4		5'-6"	22
U3	2	#4		3'-8"	5
U4	2	#4		4'-3"	6
U5	2	#4		4'-10"	6
U6	2	#4		5'-5"	7
V1	12	#9		12'-5"	507
V2	12	#9		11'-10"	483
REINFORCING STEEL					5560



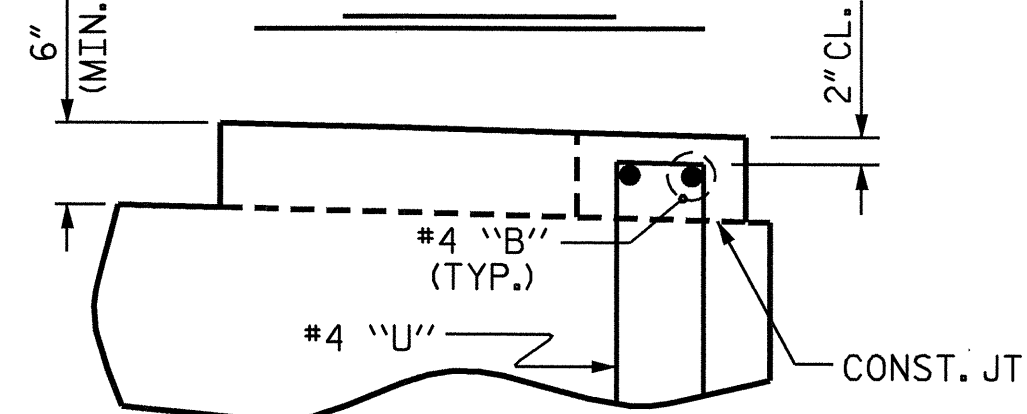
END ELEVATION



CONSTRUCTION JOINT DETAIL



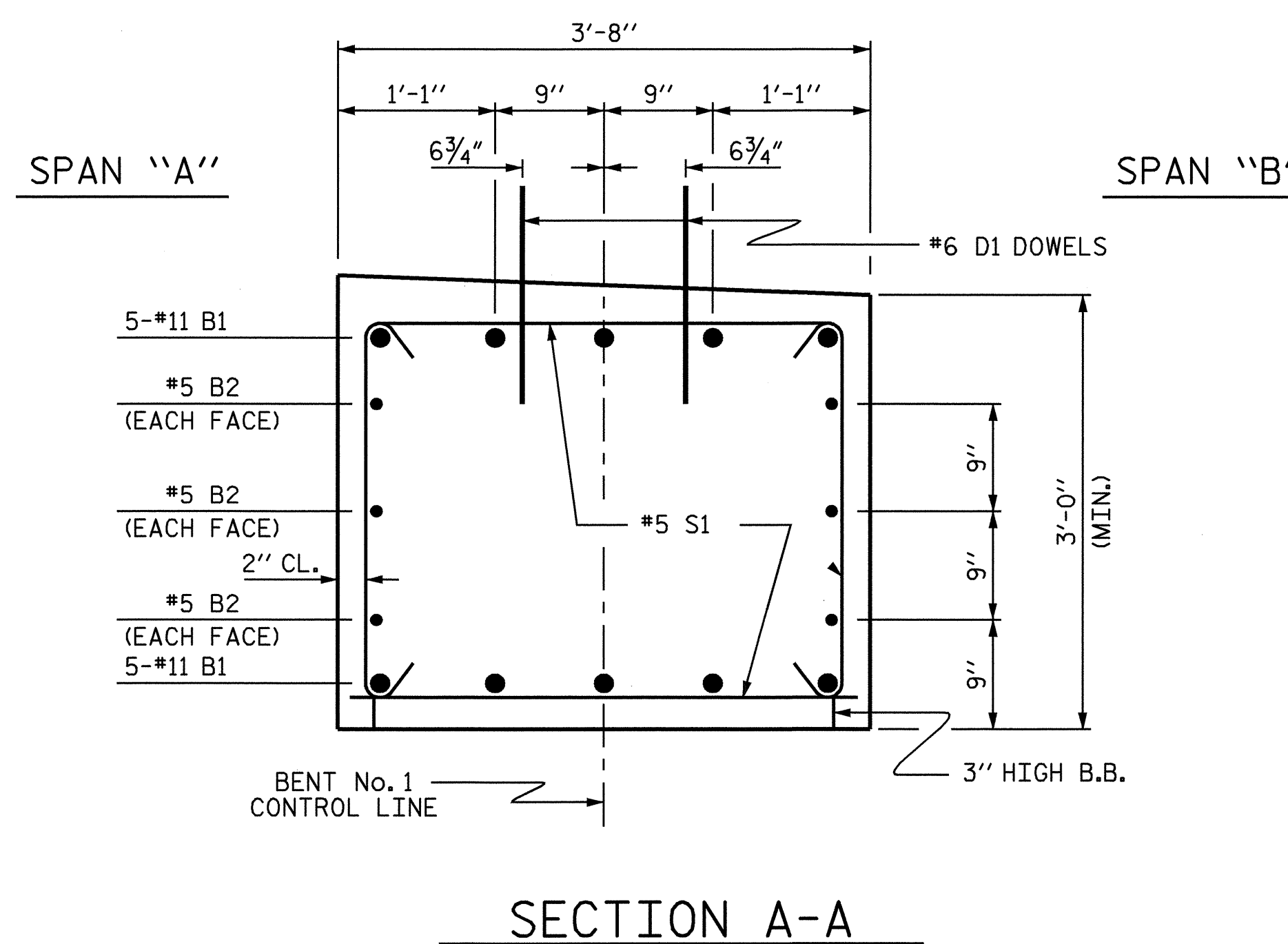
PLAN



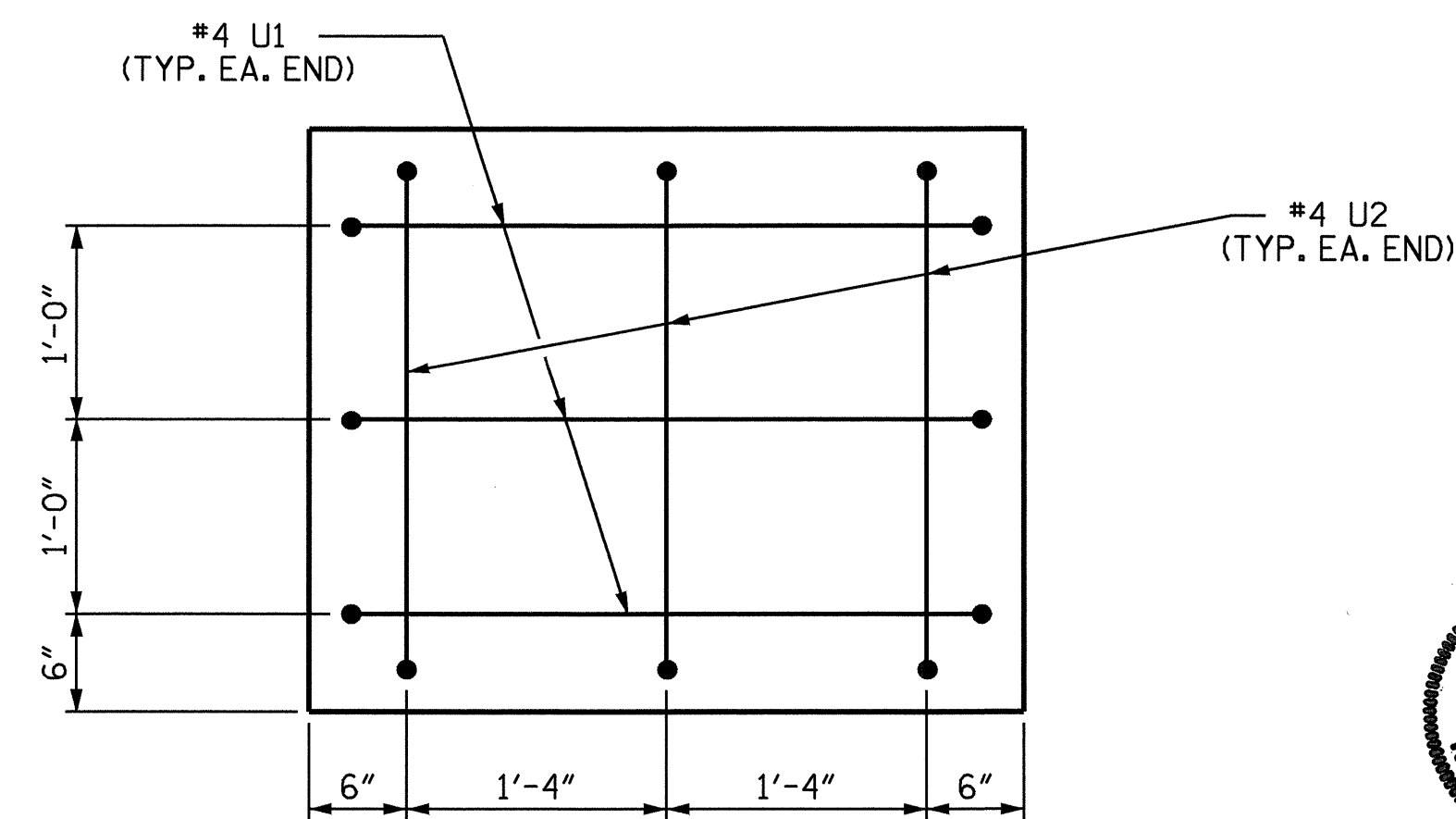
ELEVATION

LATERAL GUIDE DETAIL

(RIGHT LATERAL GUIDE SHOWN, LEFT SIDE SIMILAR)



SECTION A-A



END OF CAP VIEW

(TYPICAL BOTH ENDS)

SP-1 2 * 5 222'-1" 463
 SP-2 1 ** 6 338'-4" 226
 SP-3 1 ** 6 321'-10" 215

SPIRAL COLUMN REINFORCING STEEL 904 LBS.

* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR
 ** THE SP-2 & SP-3 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR

CLASS A CONCRETE BREAKDOWN

POUR #2 (COLUMNS)	4.8 C.Y.
POUR #3 (CAP)	16.3 C.Y.
POUR #4 (LATERAL GUIDE)	0.3 C.Y.
TOTAL CLASS A CONCRETE	21.4 C.Y.

DRILLED PIERS:

DRILLED PIER CONCRETE	
POUR #1 (DRILLED PIERS)	7.8 C.Y.
3'-6" Ø DRILLED PIER NOT IN SOIL	14 LIN. FT.
3'-6" Ø DRILLED PIER IN SOIL	8 LIN. FT.
PERMANENT STEEL CASING FOR 3'-6" Ø DRILLED PIER	9 LIN. FT.
CSL TUBES	108 LIN. FT.

PROJECT NO. B-4600

PERSON COUNTY

STATION: 15+12.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT No. 1



REVISIONS

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

SHEET NO.	
S-17	TOTAL SHEETS 25

DRAWN BY: D.G. ELY DATE: 10/09
 CHECKED BY: M.K. TOM DATE: 10/09

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NC005

NOTES:

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

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

FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.

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.

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

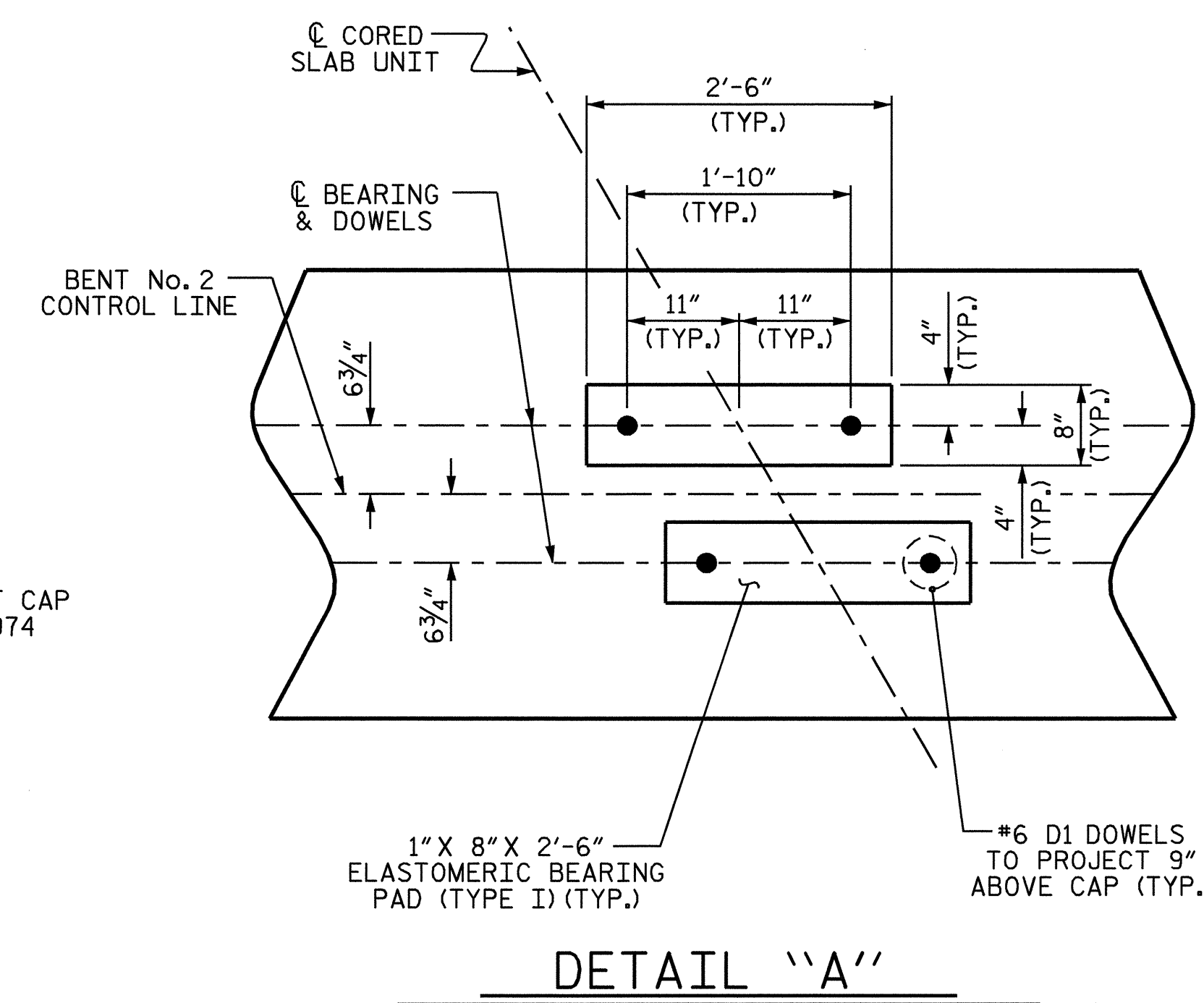
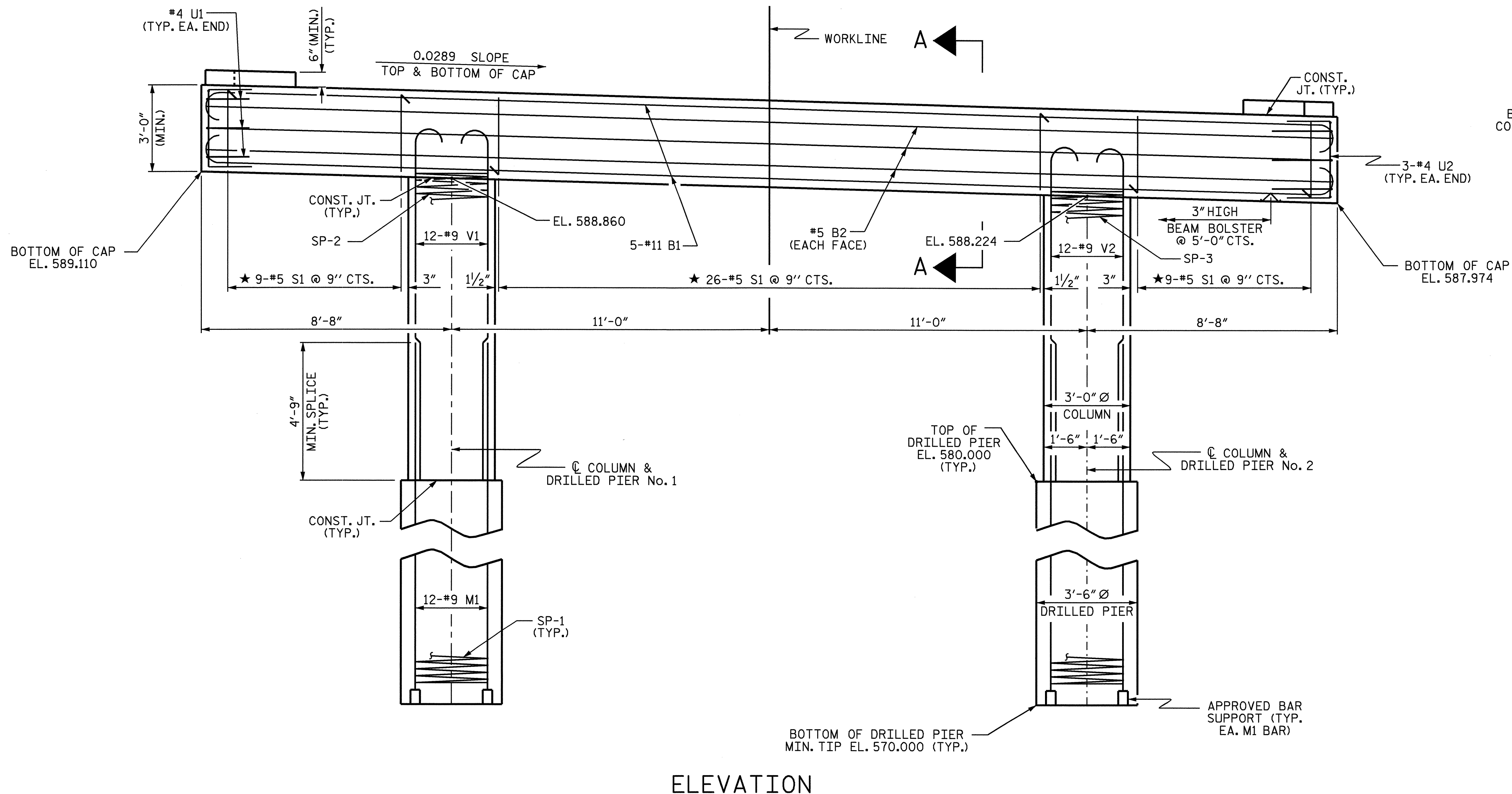
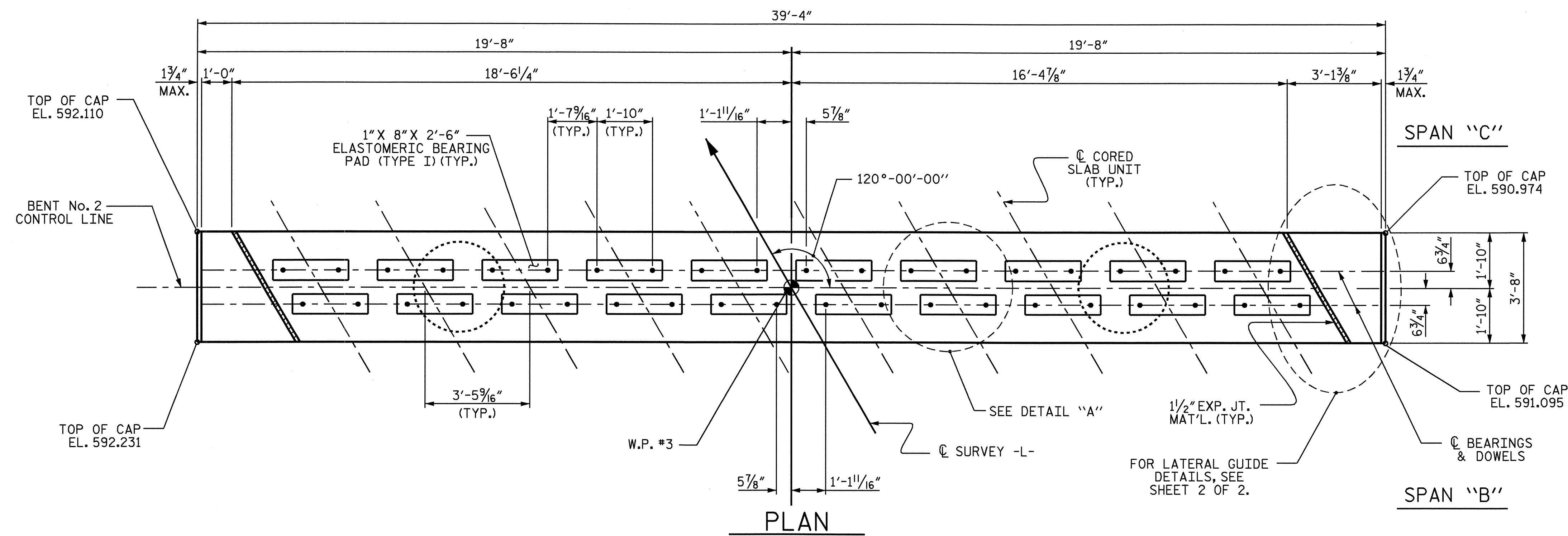
FOR PERMANENT STEEL CASING, SEE SPECIAL PROVISION FOR DRILLED PIERS.

THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

★INVERT ALTERNATE STIRRUPS AS SHOWN.

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

THE TOP OF THE BENT CAP IS SLOPED LONGITUDINALLY AND TRANSVERSELY.



PROJECT NO. B-4600
 _____ PERSON _____ COUNTY
 STATION: 15+12.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT No. 2



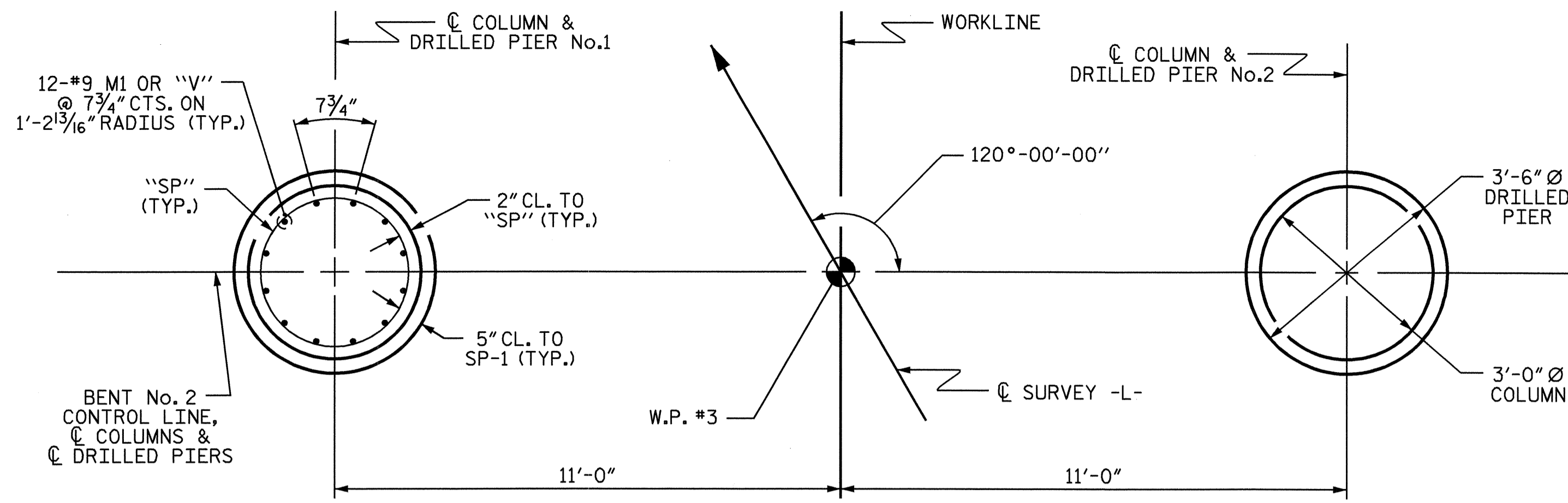
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 25
2			4			

DRAWN BY : D.G. ELY DATE : 10/09
 CHECKED BY : M.K. TOM DATE : 10/09

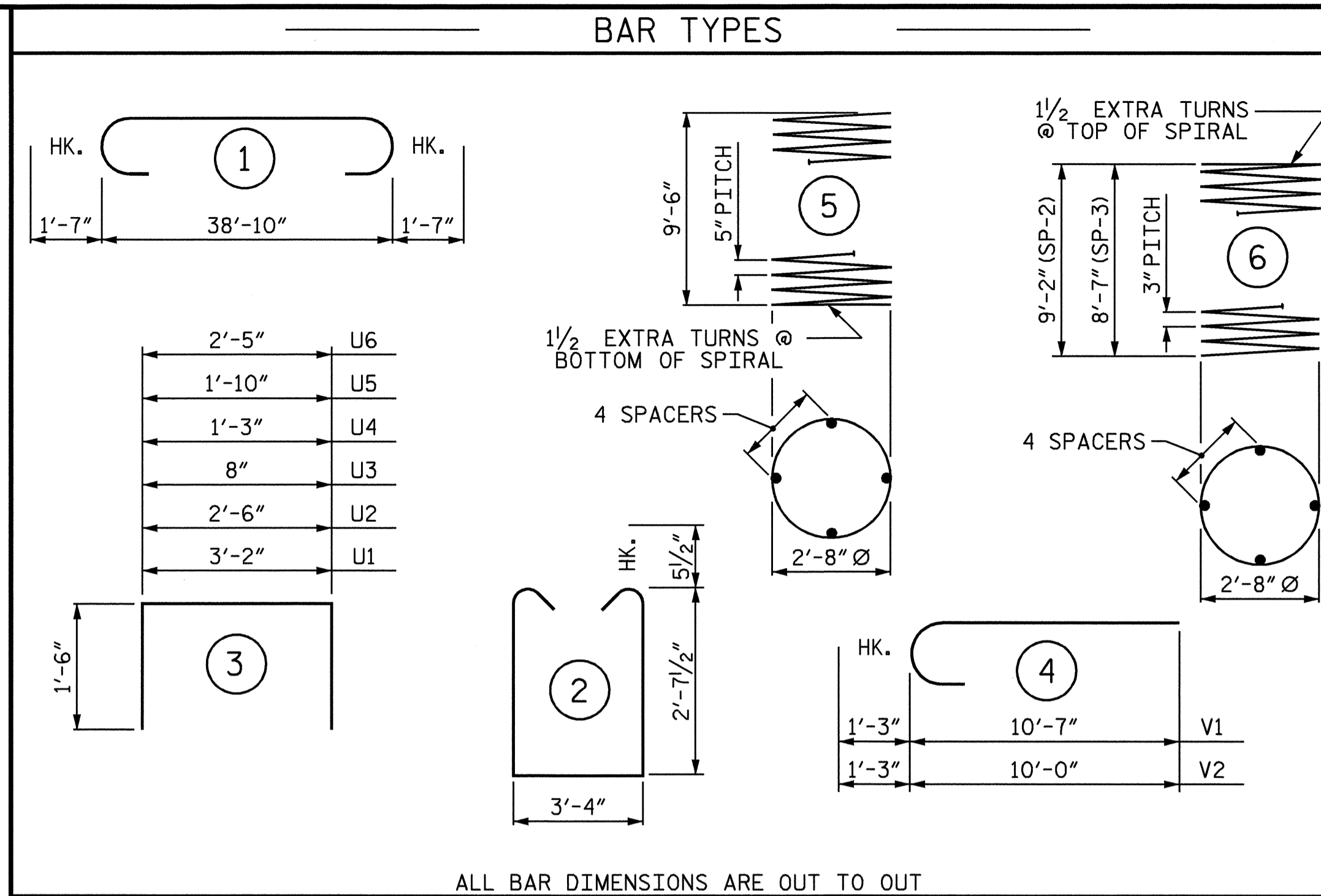
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DIMENSIONS & REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN & DRILLED PIER UNLESS OTHERWISE NOTED.

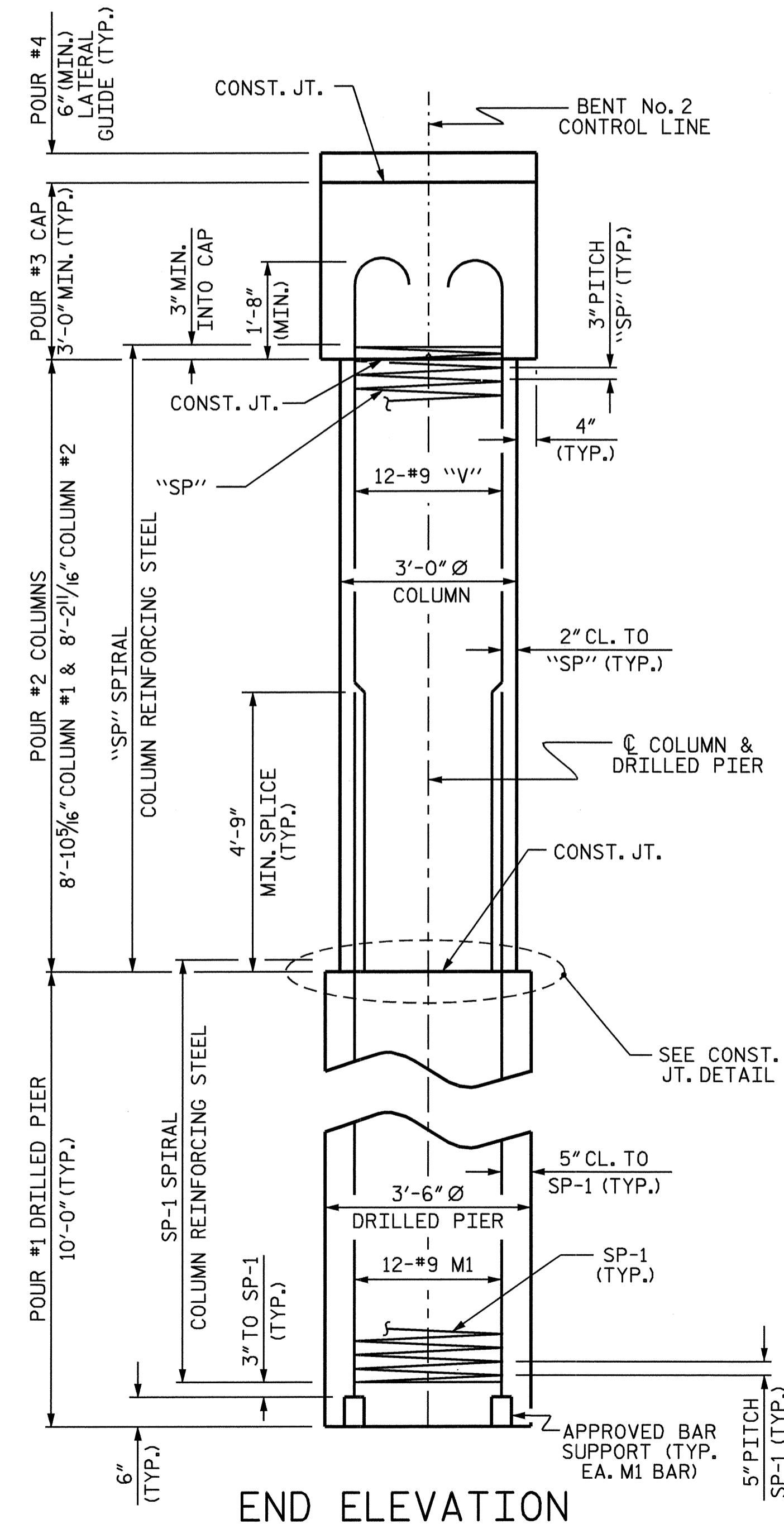
NC005



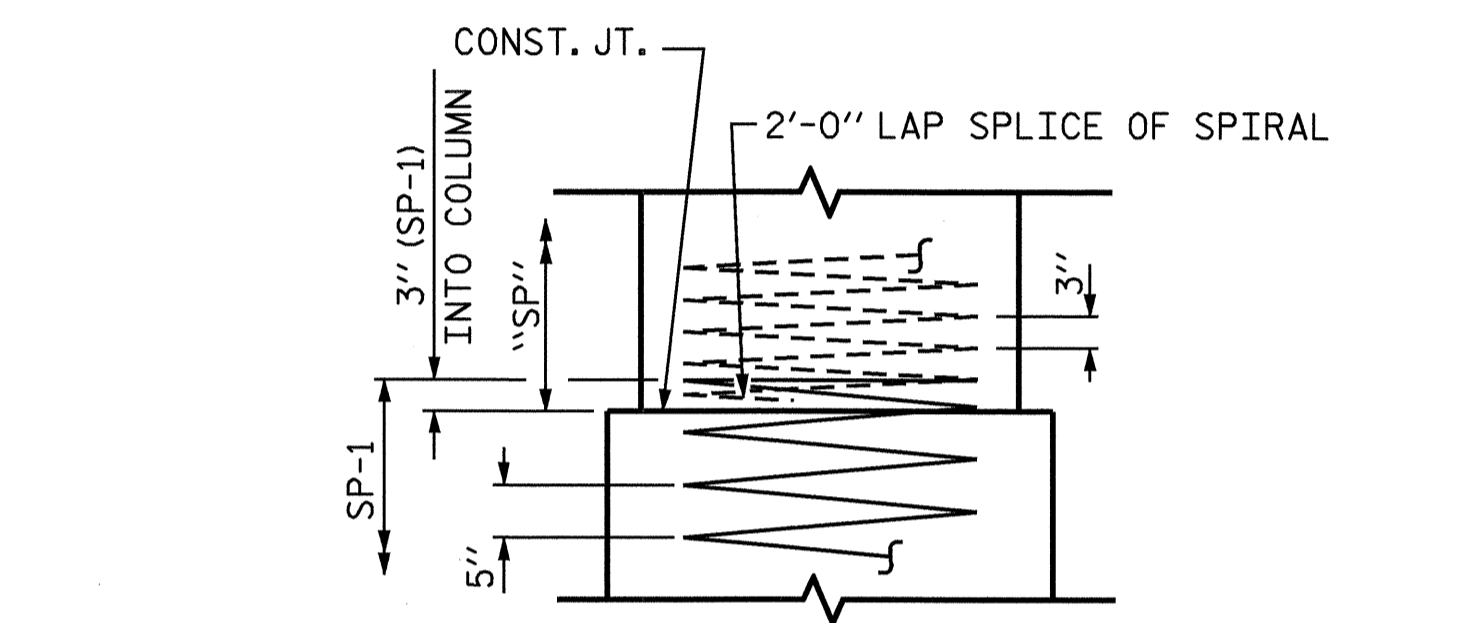
PLAN OF DRILLED PIERS & COLUMNS



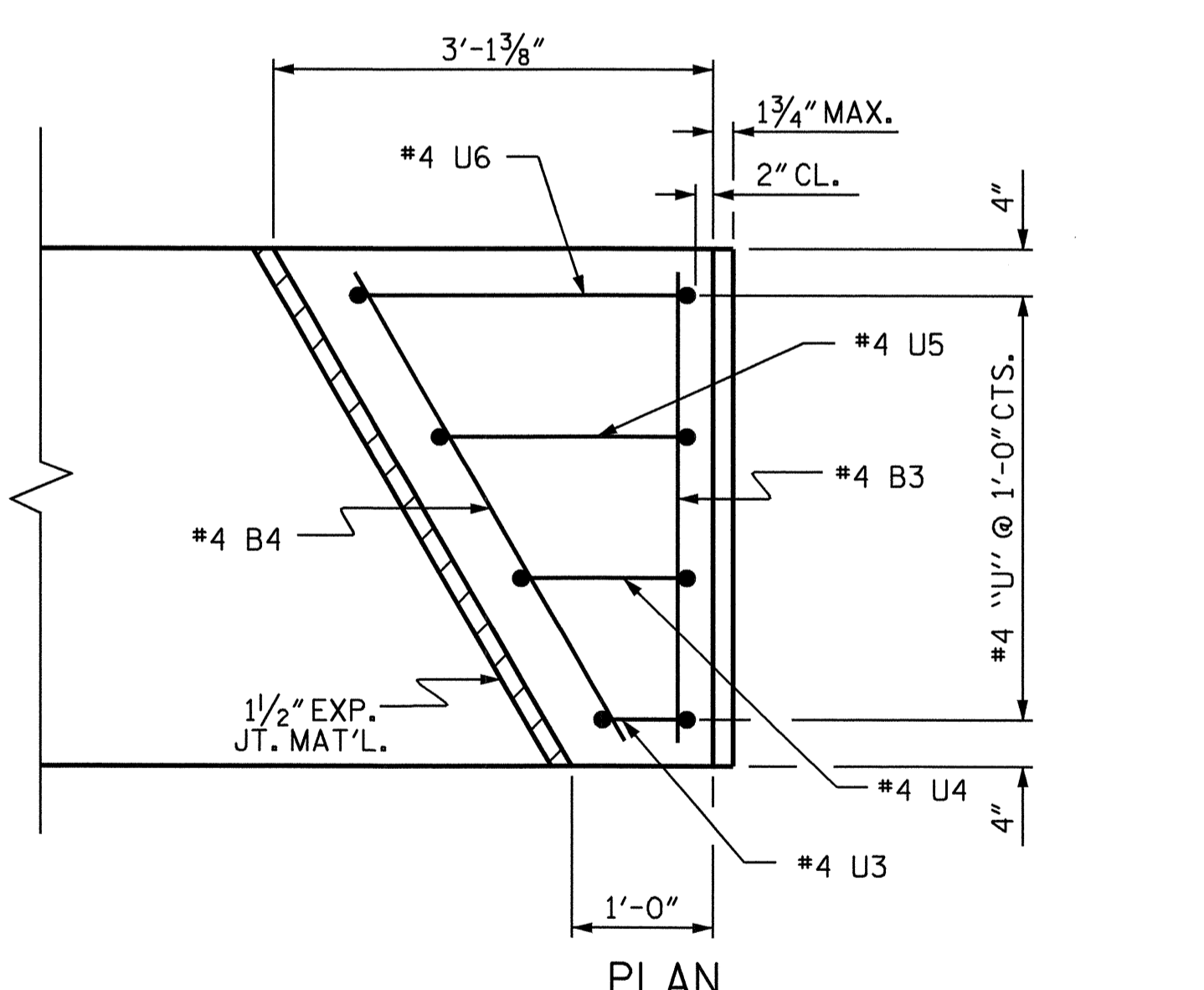
BILL OF MATERIAL					
BENT No. 2					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11		42'-0"	2231
B2	6	#5	STR	39'-0"	244
B3	2	#4	STR	3'-4"	4
B4	2	#4	STR	3'-10"	5
D1	40	#6	STR	1'-6"	90
M1	24	#9	STR	17'-3"	1408
S1	44	#5	2	9'-6"	436
U1	6	#4	3	6'-2"	25
U2	6	#4	3	5'-6"	22
U3	2	#4	3	3'-8"	5
U4	2	#4	3	4'-3"	6
U5	2	#4	3	4'-10"	6
U6	2	#4	3	5'-5"	7
V1	12	#9	4	11'-10"	483
V2	12	#9	4	11'-3"	459
REINFORCING STEEL					5431 LBS.
SP-1	2	*	5	205'-8"	429
SP-2	1	*	6	321'-10"	215
SP-3	1	*	6	297'-0"	198
SPIRAL COLUMN REINFORCING STEEL					842 LBS.



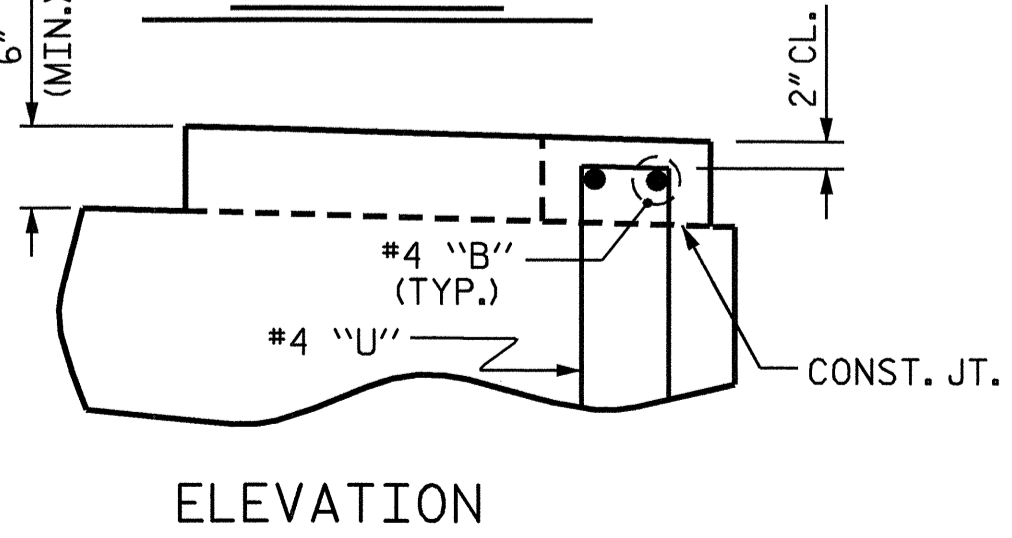
END ELEVATION



CONSTRUCTION JOINT DETAIL



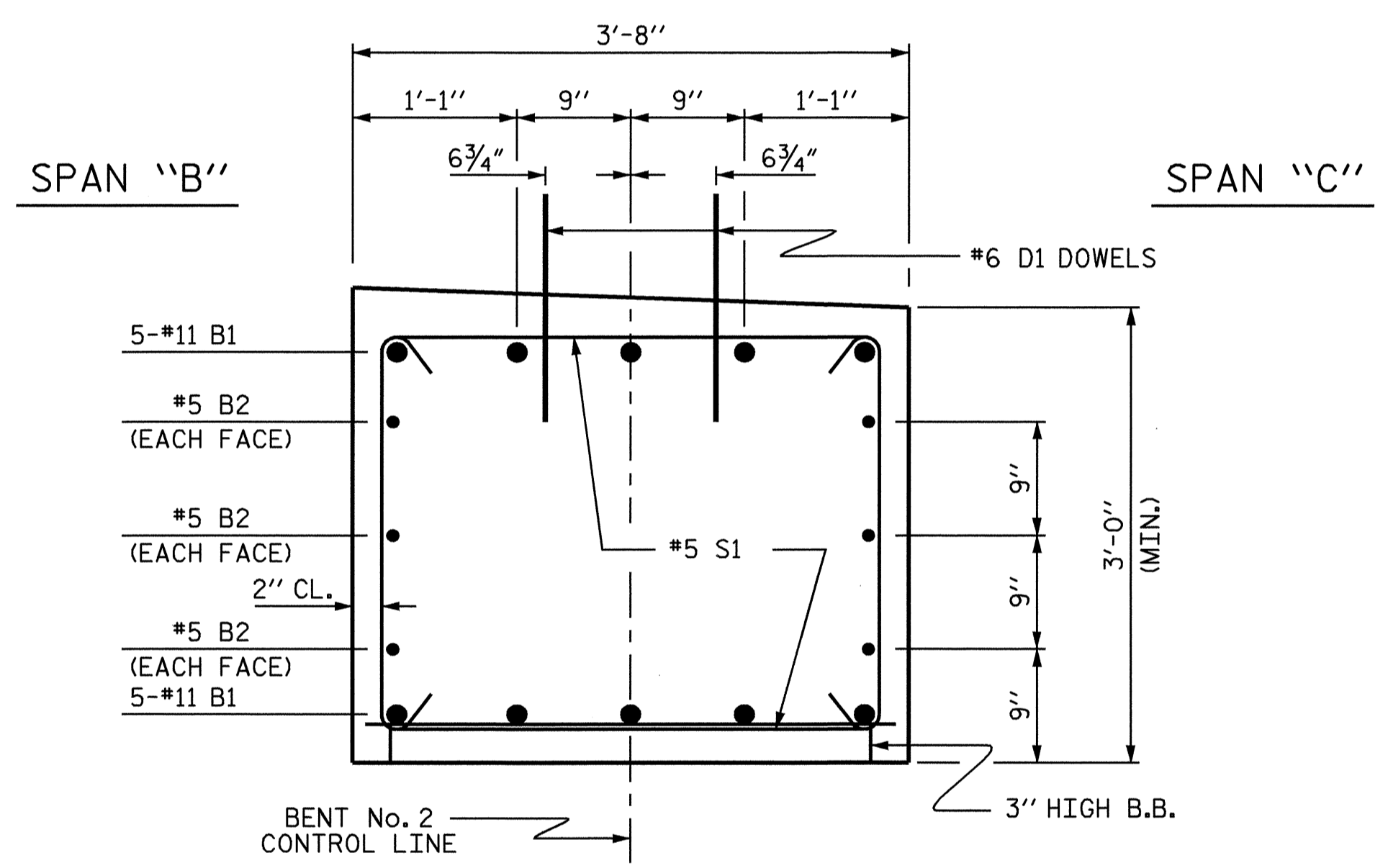
PLAN



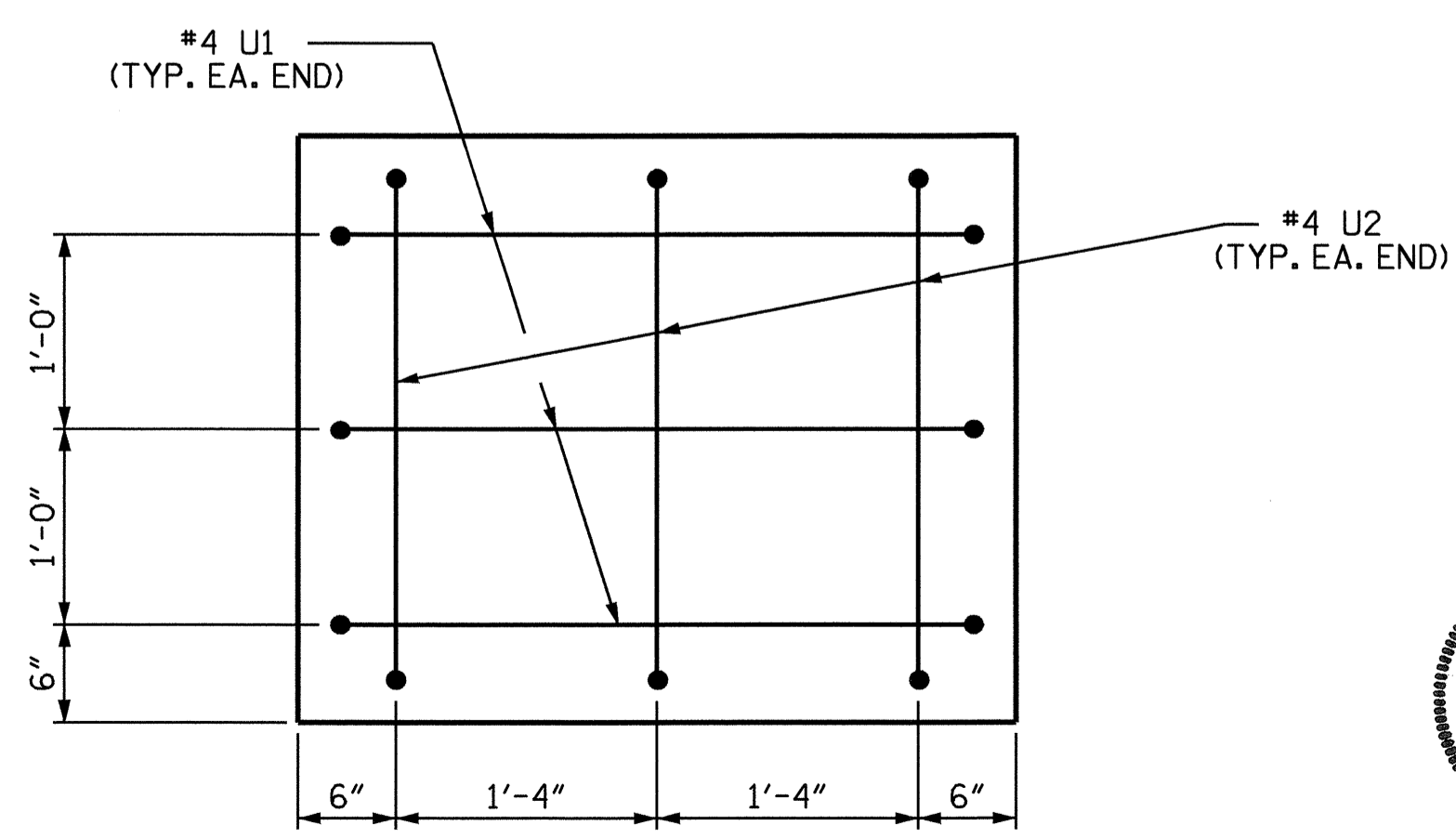
ELEVATION

LATERAL GUIDE DETAIL

(RIGHT LATERAL GUIDE SHOWN, LEFT SIDE SIMILAR)



SECTION A-A



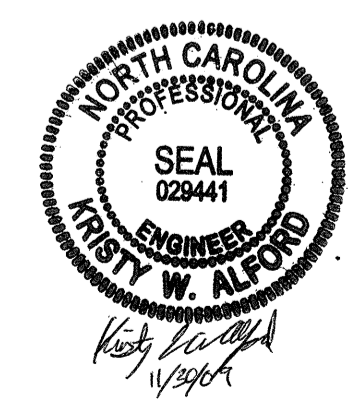
END OF CAP VIEW

(TYPICAL BOTH ENDS)

CLASS A CONCRETE BREAKDOWN	
POUR #2 (COLUMNS)	4.5 C.Y.
POUR #3 (CAP)	16.3 C.Y.
POUR #4 (LATERAL GUIDE)	0.3 C.Y.
TOTAL CLASS A CONCRETE	21.1 C.Y.

DRILLED PIERS:	
DRILLED PIER CONCRETE	7.1 C.Y.
POUR #1 (DRILLED PIERS)	7.1 C.Y.
3'-6" Ø DRILLED PIER NOT IN SOIL	13 LIN. FT.
3'-6" Ø DRILLED PIER IN SOIL	7 LIN. FT.
PERMANENT STEEL CASING FOR 3'-6" Ø DRILLED PIER	9 LIN. FT.
CSL TUBES	100 LIN. FT.

PROJECT NO. B-4600
 PERSON _____ COUNTY _____
 STATION: 15+12.50 -L-
 SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT No. 2

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

DRAWN BY: D.G. ELY DATE: 10/09
 CHECKED BY: M.K. TOM DATE: 10/09

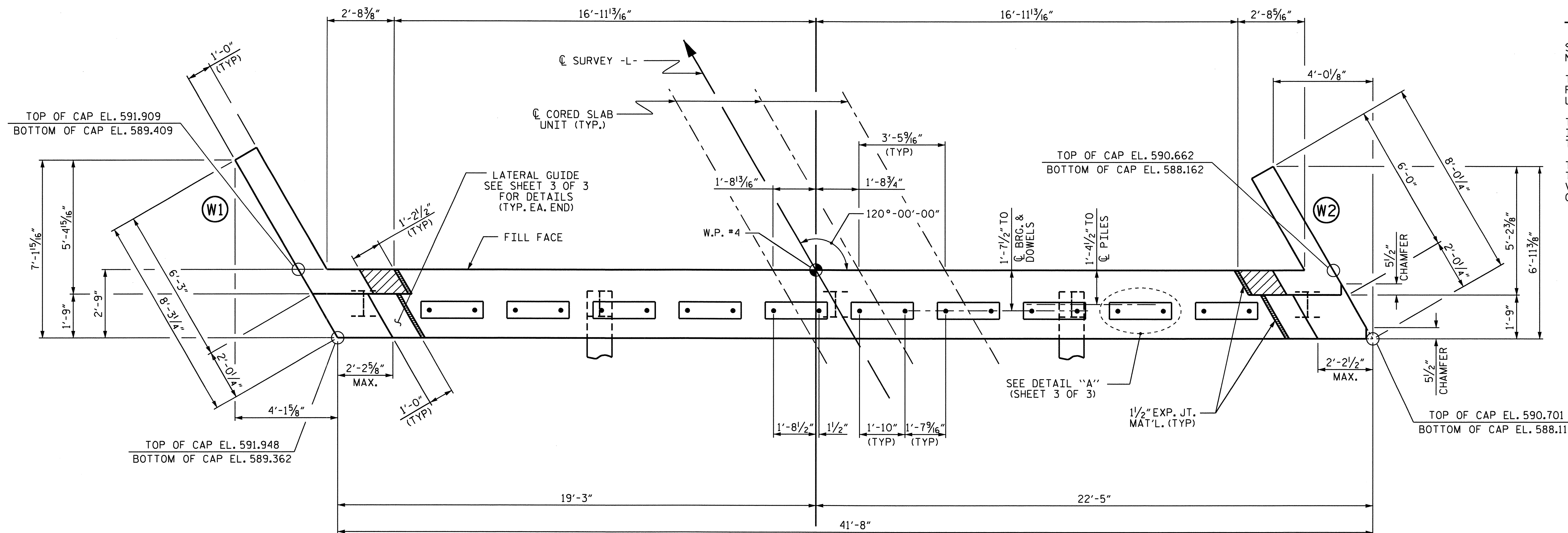
NOTES

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

THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

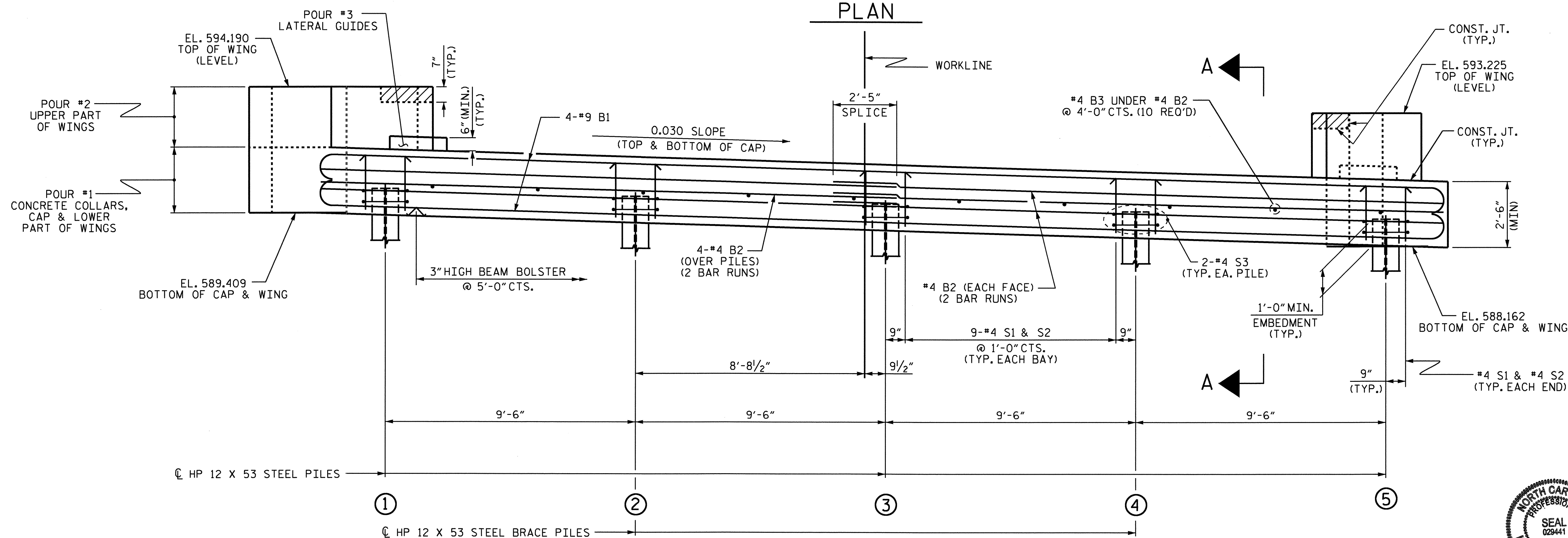
THE TOP SURFACE OF THE END BENT CAP IS SLOPED LONGITUDINALLY AND TRANSVERSELY.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.



TOP OF PILE ELEVATIONS	
①	590.346
②	590.061
③	589.777
④	589.492
⑤	589.209

PLAN



ELEVATION

PROJECT NO. B-4600
 PERSON _____ COUNTY _____
 STATION: 15+12.50 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

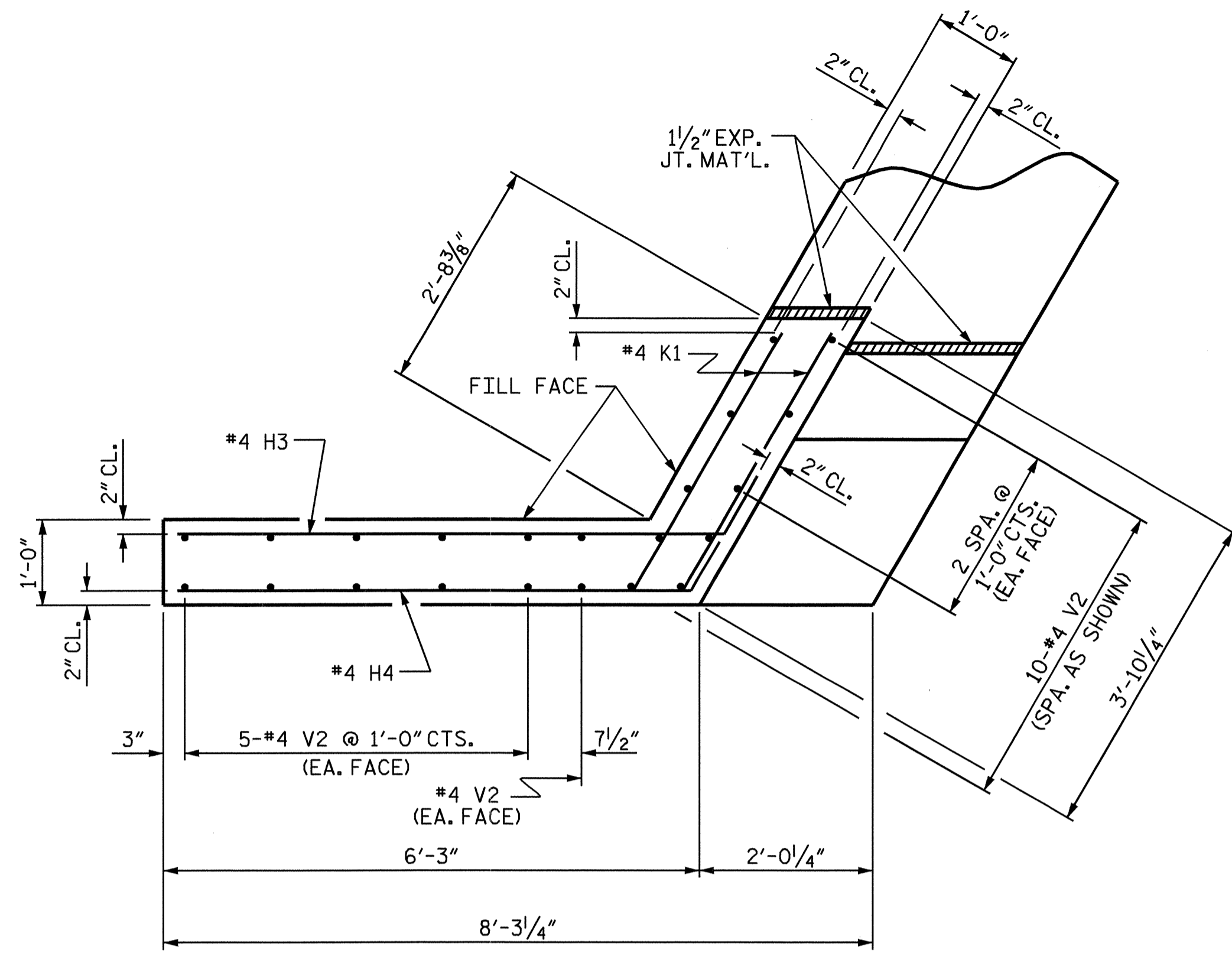
SUBSTRUCTURE
 END BENT No. 2



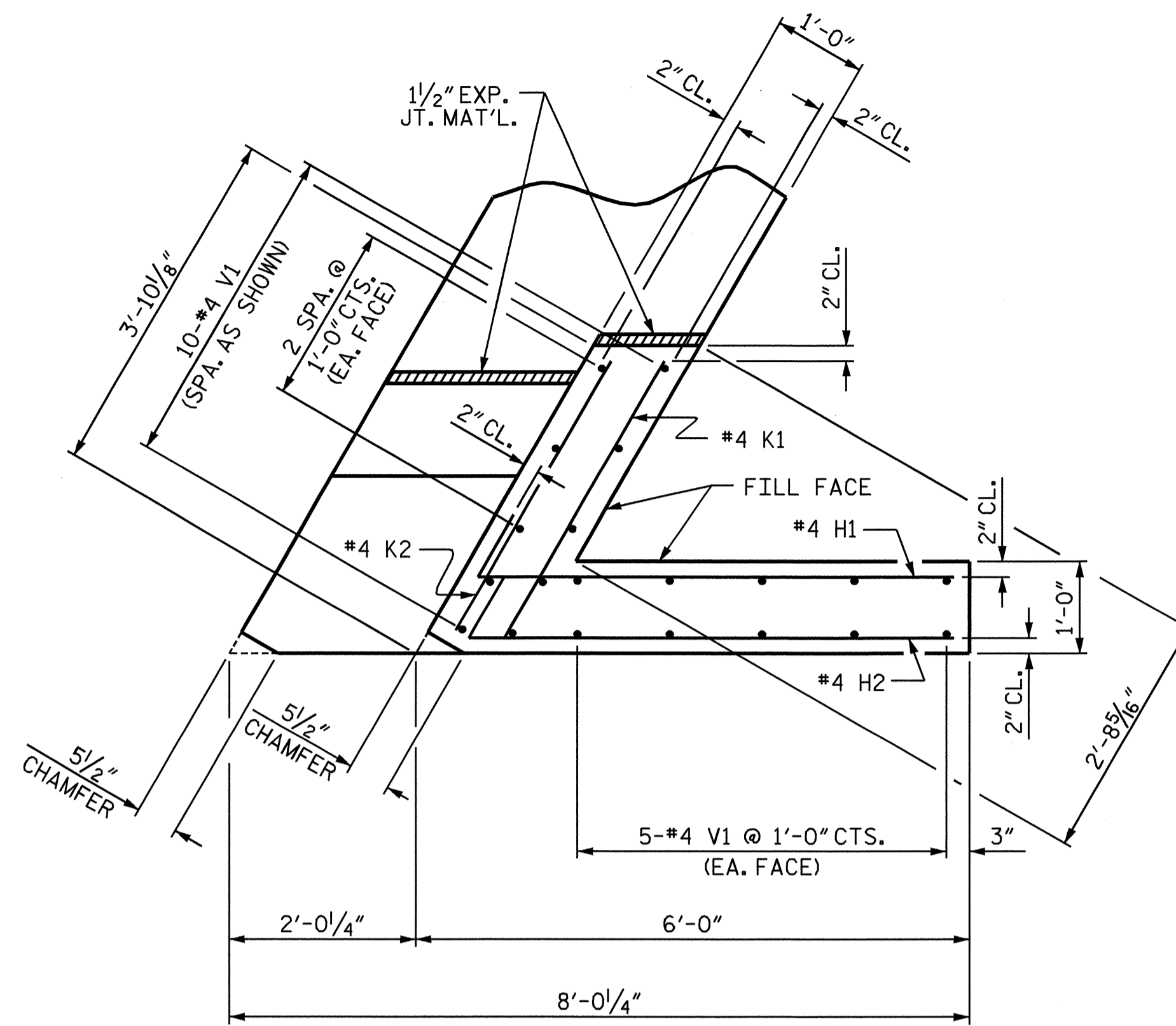
REVISIONS						SHEET NO. S-20
No.	By:	Date:	No.	By:	Date:	
1			3			TOTAL SHEETS 25
2			4			

DRAWN BY: D. G. ELY DATE: 8/2009
 CHECKED BY: A. V. ROYAL DATE: 8/2009

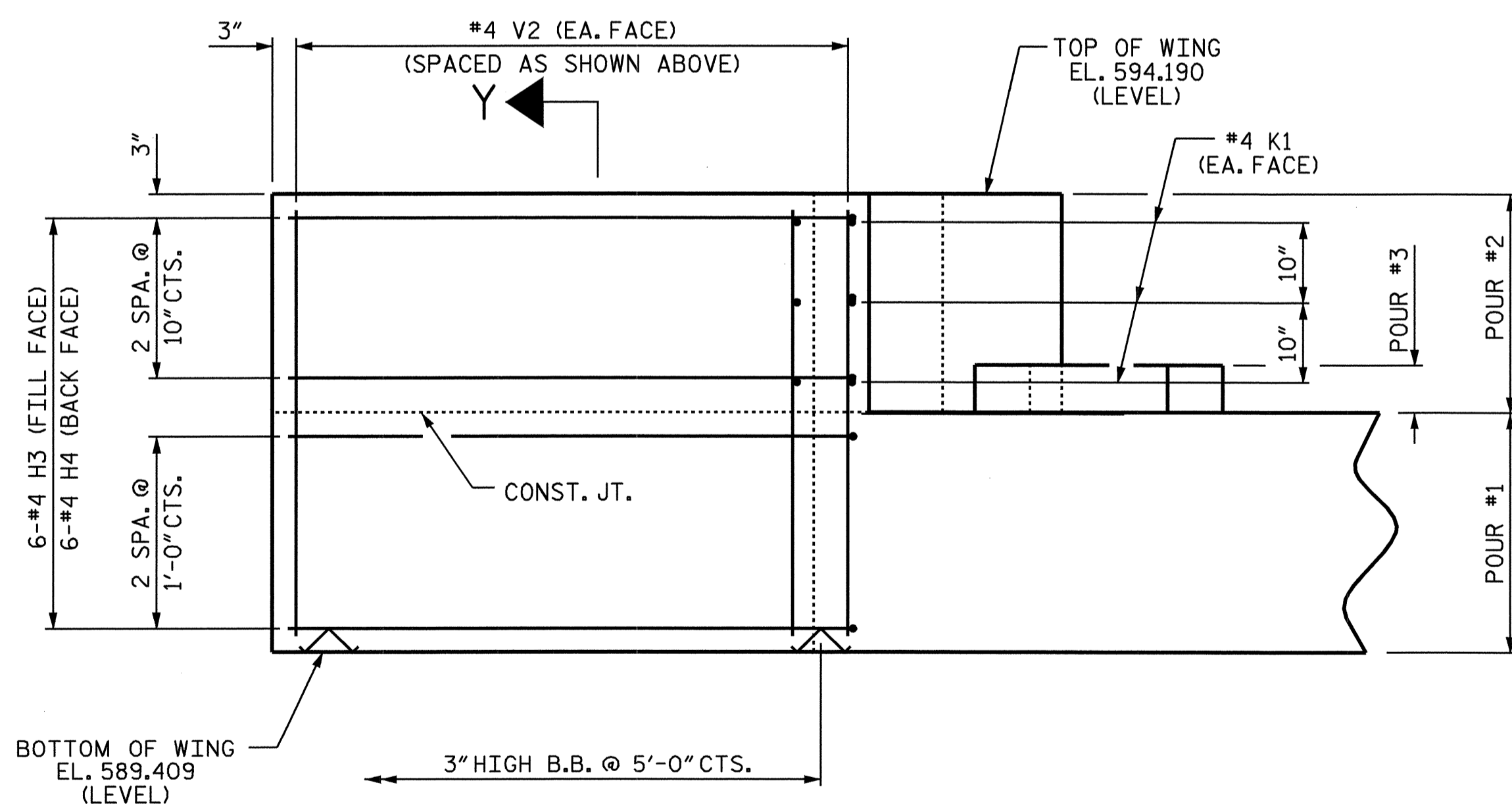
FOR SECTION A-A, SEE SHEET 3 OF 3.
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAILS", SHEET 3 OF 3.



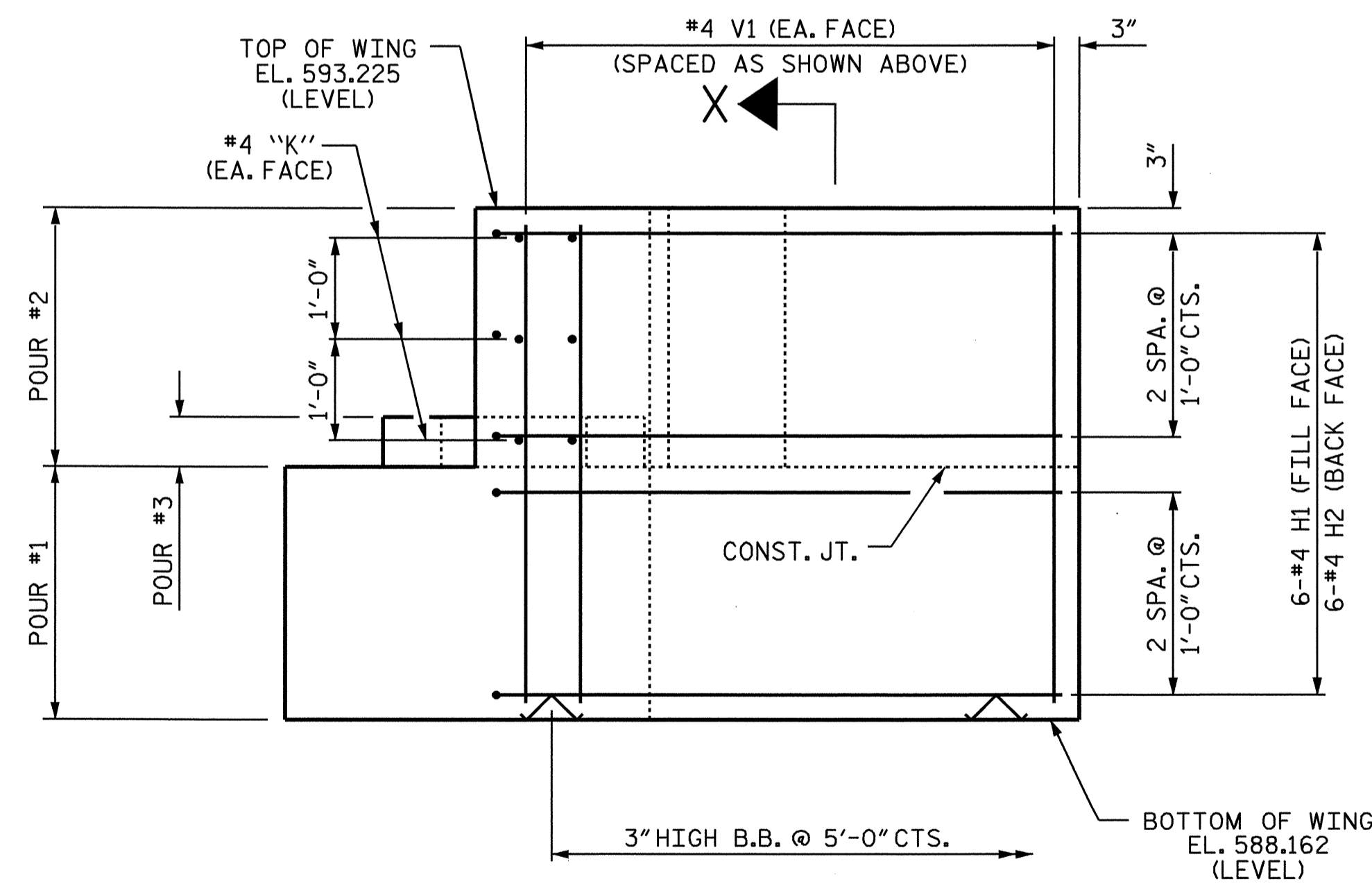
PLAN OF WING (W1)



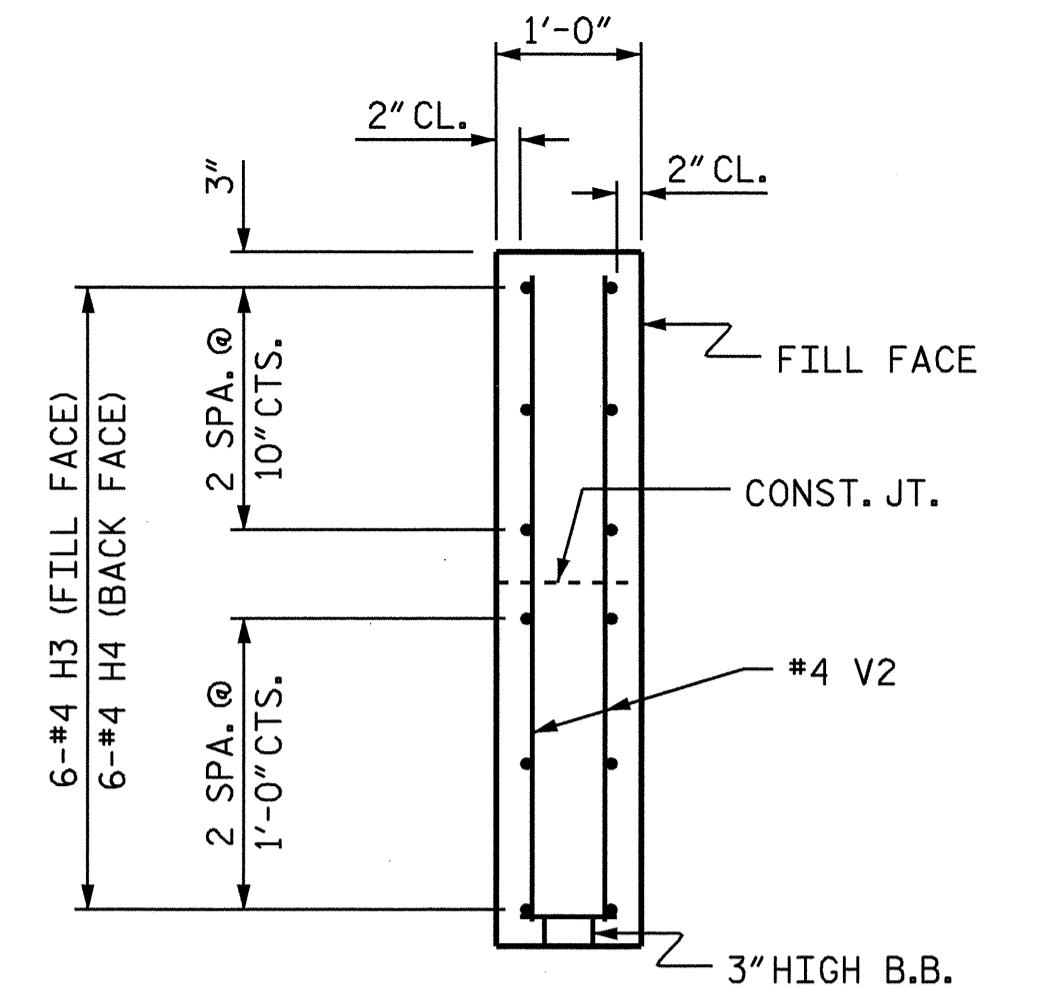
PLAN OF WING (W2)



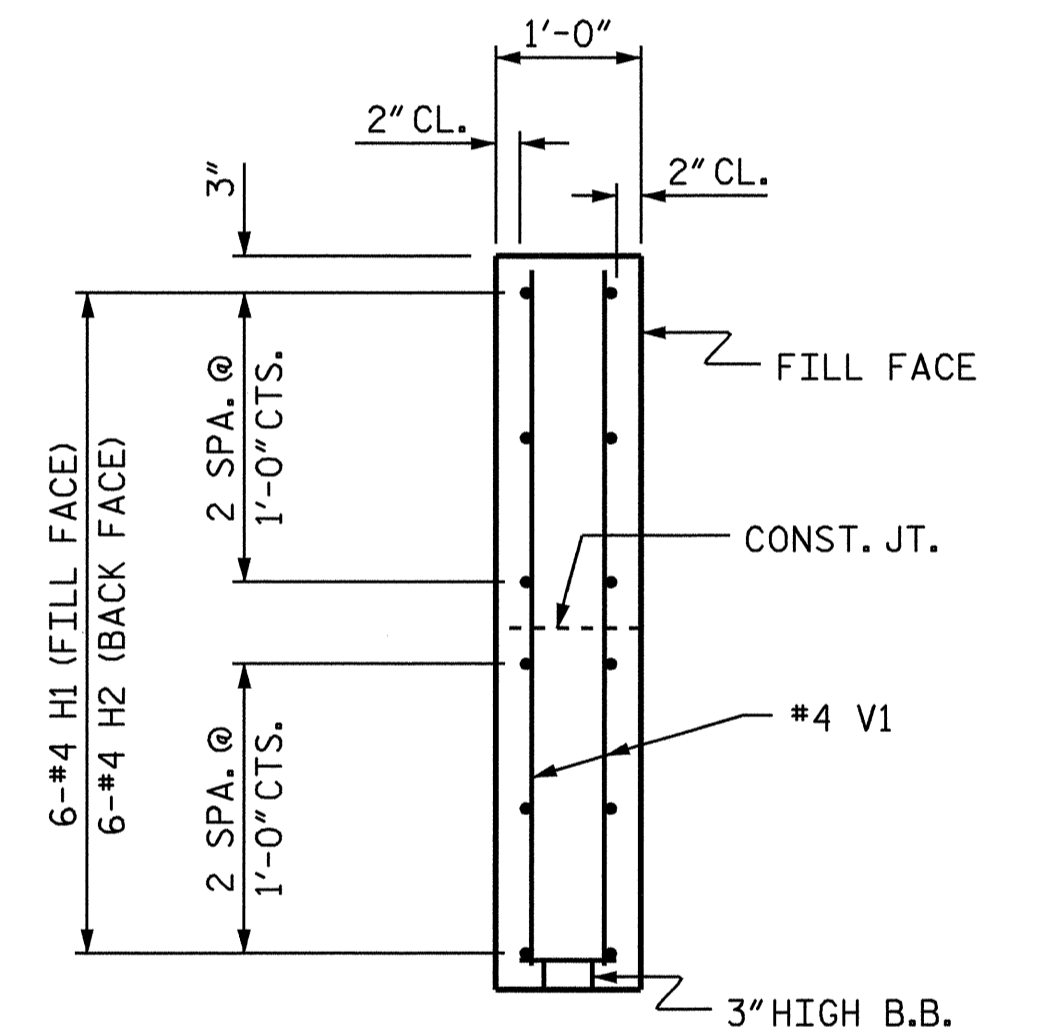
ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION Y-Y



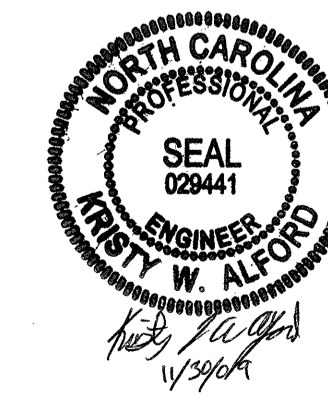
SECTION X-X

PROJECT NO. B-4600
 PERSON COUNTY
 STATION: 15+12.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

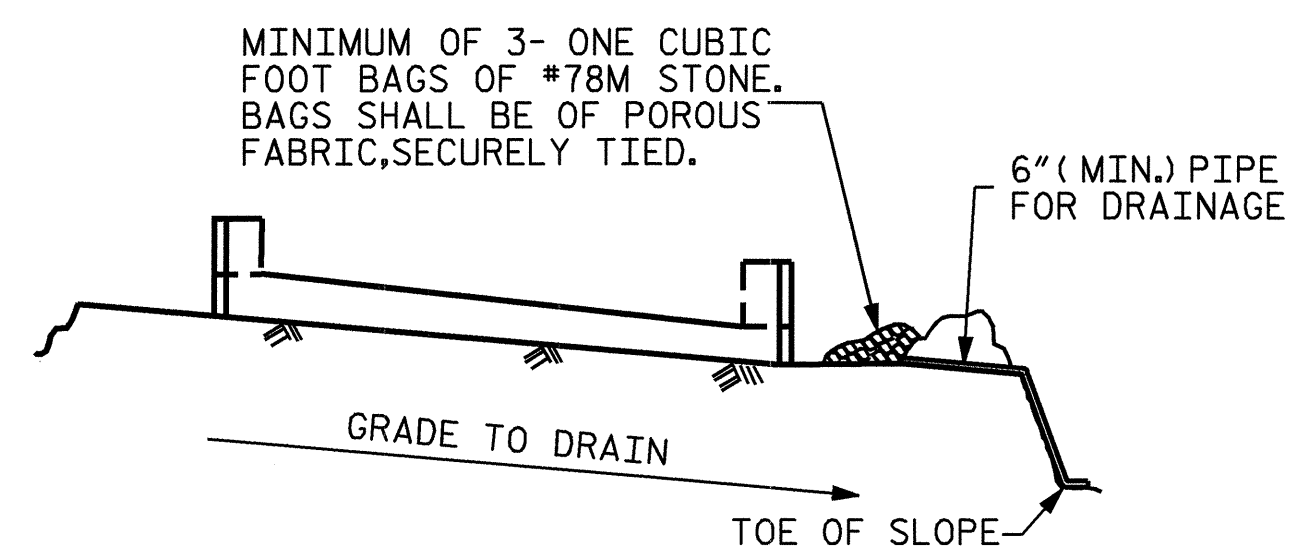
SUBSTRUCTURE
 END BENT No. 2



DRAWN BY: D. G. ELY DATE: 8/2009
 CHECKED BY: A. V. ROYAL DATE: 8/2009

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REVISIONS						SHEET NO. S-21
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1			3			TOTAL SHEETS 25
2			4			

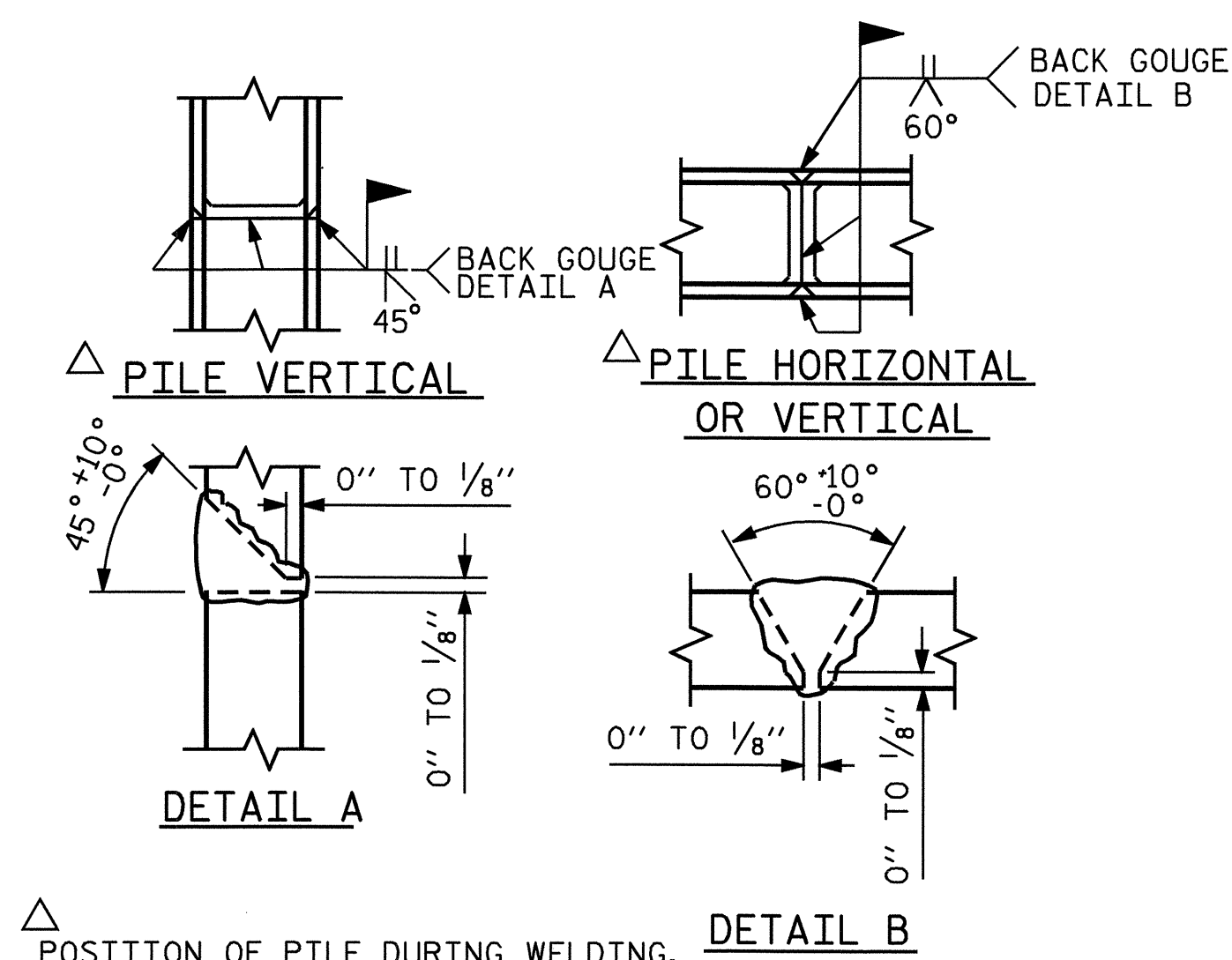


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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



PILE SPLICE DETAILS

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
END BENT No. 2					
BAR	No.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	43'-8"	1188
B2	16	#4	STR	21'-11"	234
B3	10	#4	STR	2'-5"	16
D1	20	#6	STR	1'-6"	45
H1	6	#4	2	5'-9"	23
H2	6	#4	2	5'-11"	24
H3	6	#4	3	7'-0"	28
H4	6	#4	3	6'-7"	26
K1	9	#4	STR	3'-5"	21
K2	3	#4	STR	3'-4"	7
S1	38	#4	4	7'-5"	188
S2	38	#4	5	3'-2"	80
S3	10	#4	6	6'-6"	43
S4	4	#4	7	4'-7"	12
V1	20	#4	STR	4'-8"	62
V2	22	#4	STR	4'-5"	65

REINFORCING STEEL 2062 LBS.

CLASS A CONCRETE

POUR #1 (CAP, LOWER WINGS & CONCRETE COLLARS) 12.6 C.Y.

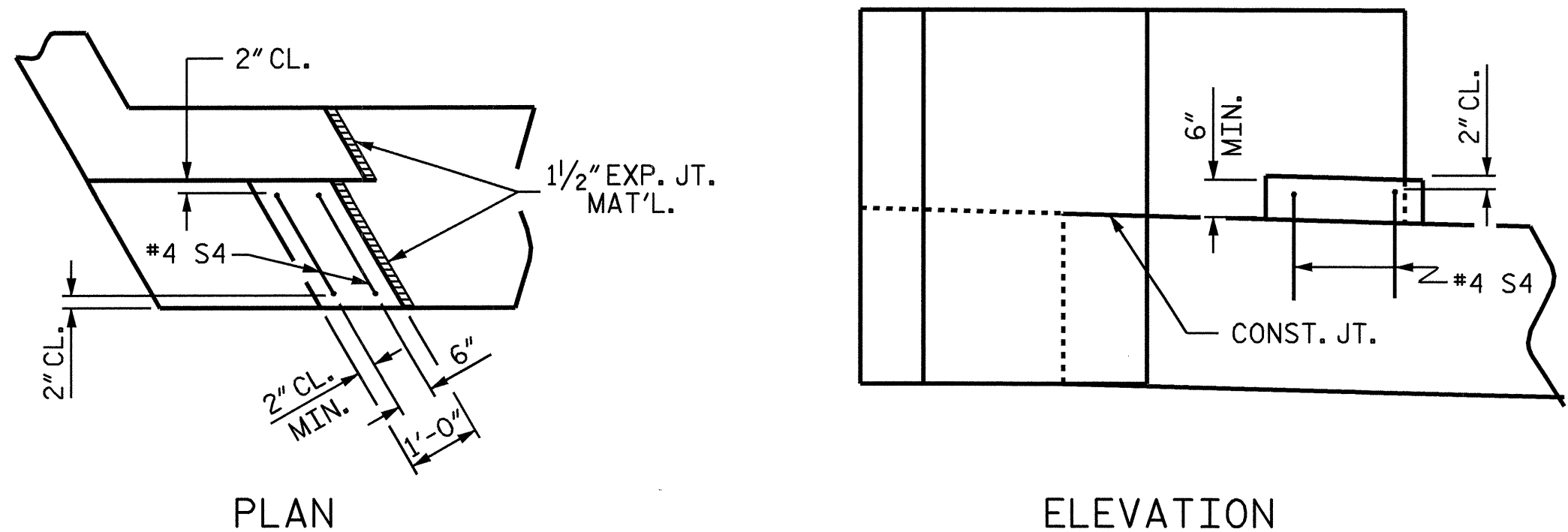
POUR #2 (UPPER WINGS) 1.6 C.Y.

POUR #3 (LATERAL GUIDE) 0.1 C.Y.

TOTAL = 14.3 C.Y.

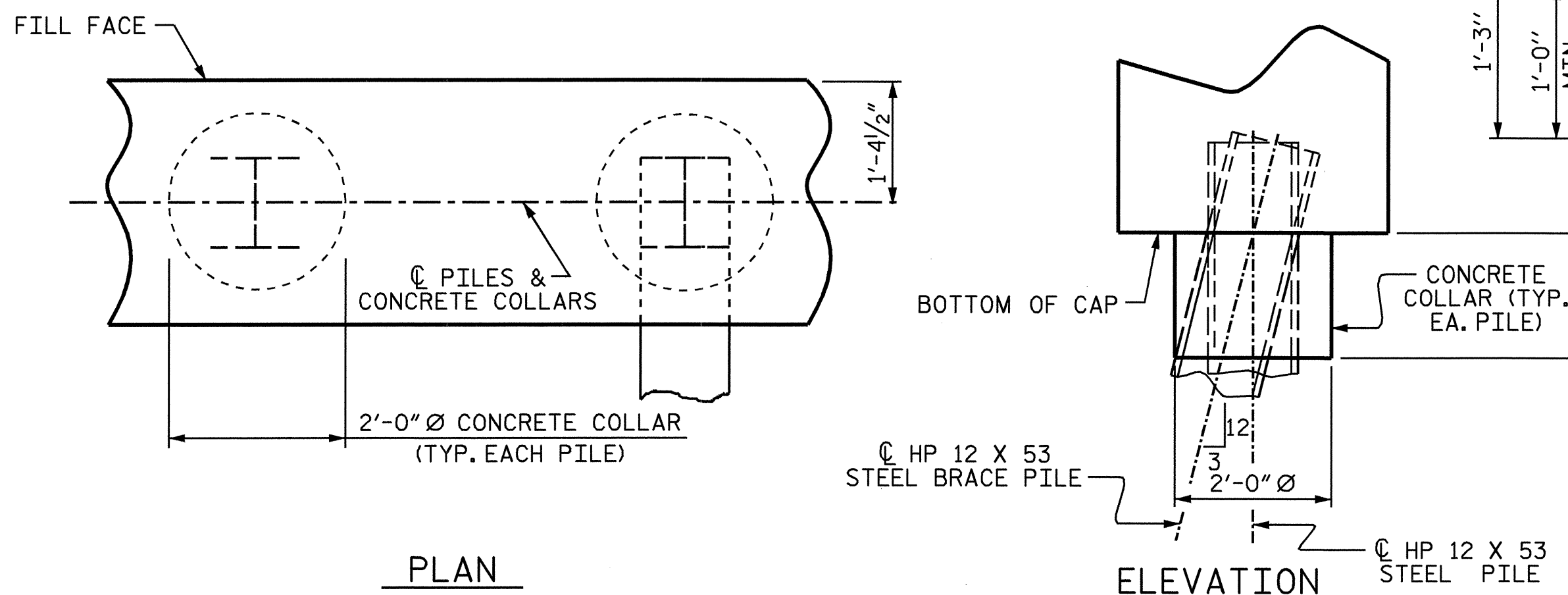
HP 12 X 53 STEEL PILES

No. = 5 75 LIN. FT.

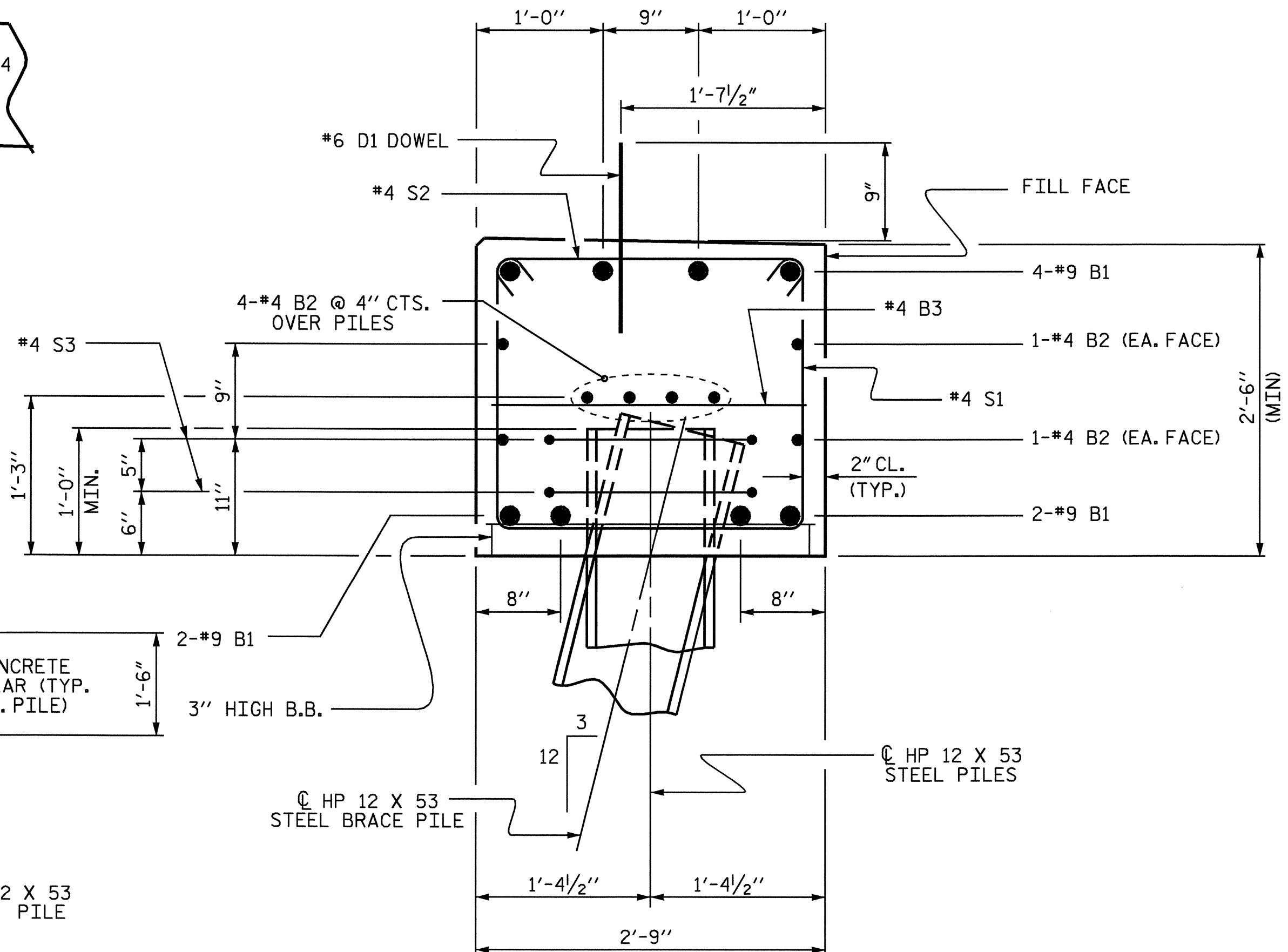


LATERAL GUIDE DETAILS

(LEFT LATERAL GUIDE SHOWN, RIGHT GUIDE SIMILAR)

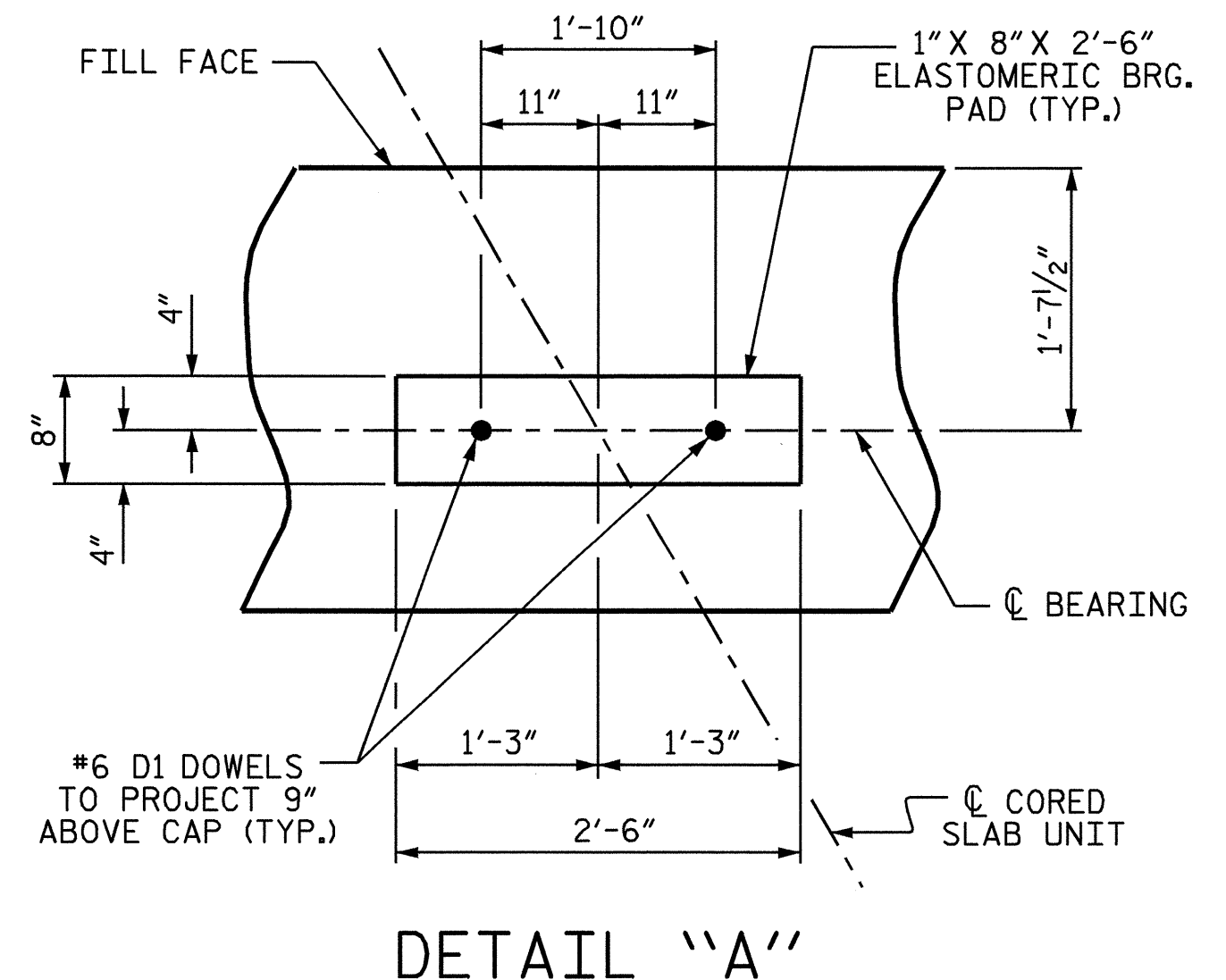


CORROSION PROTECTION FOR STEEL PILES DETAILS



SECTION A-A

CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAILS."



PROJECT NO. B-4600

PERSON COUNTY

STATION: 15+12.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

SUBSTRUCTURE

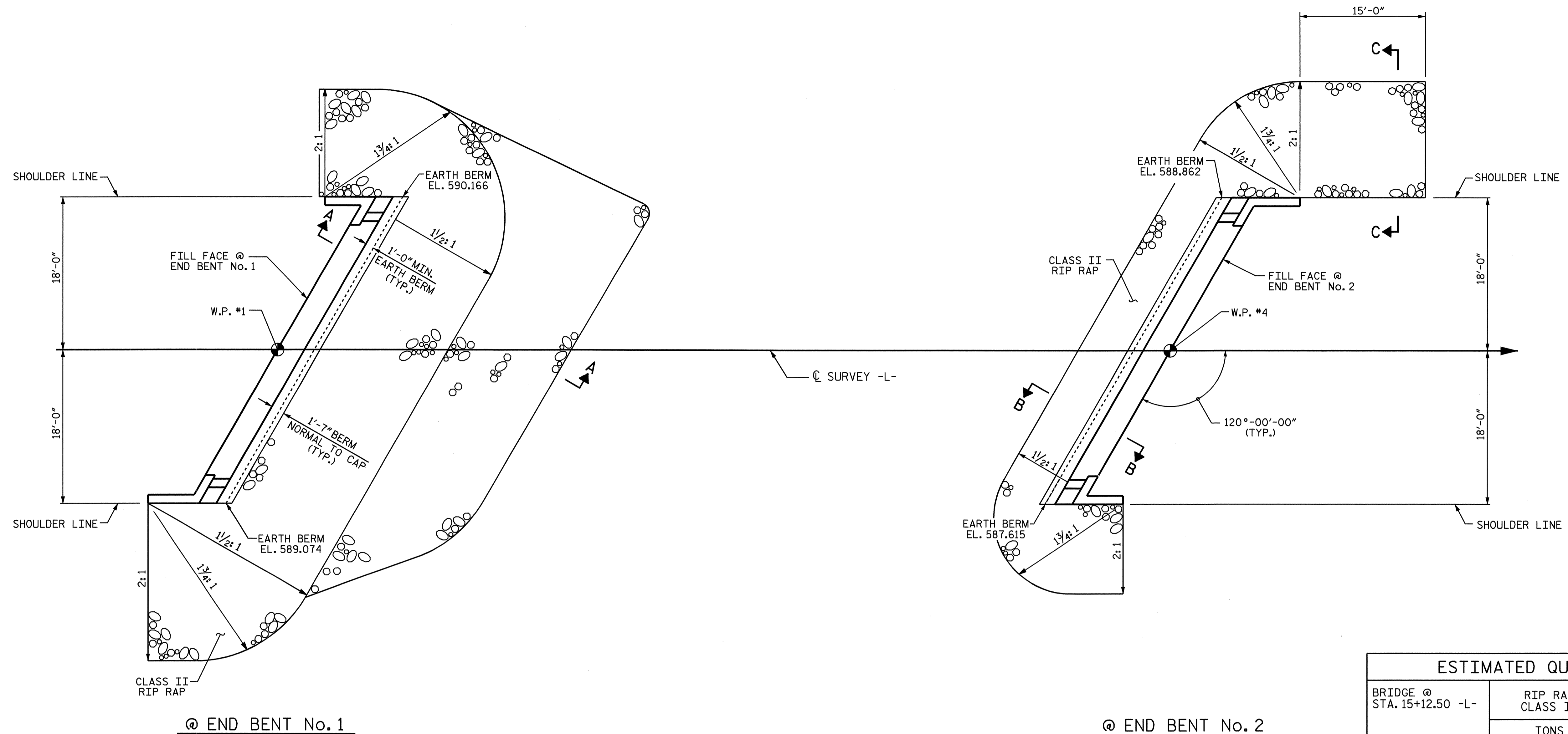
END BENT No. 2



REVISIONS					
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SHEET NO. S-22

TOTAL SHEETS 25

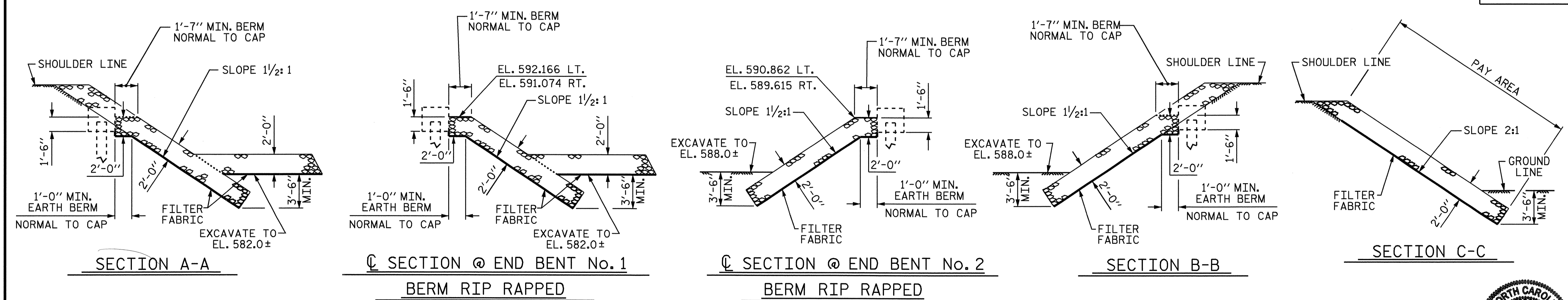


@ END BENT No. 1

@ END BENT No. 2

PLAN OF RIP RAP

ESTIMATED QUANTITIES		
BRIDGE @ STA. 15+12.50 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT No. 1	285	317
END BENT No. 2	120	134



SECTION A-A

SECTION @ END BENT No. 1
BERM RIP RAPPED

SECTION @ END BENT No. 2
BERM RIP RAPPED

SECTION B-B

SECTION C-C

PROJECT NO. B-4600
 _____ PERSON _____ COUNTY
 STATION: 15+12.50 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

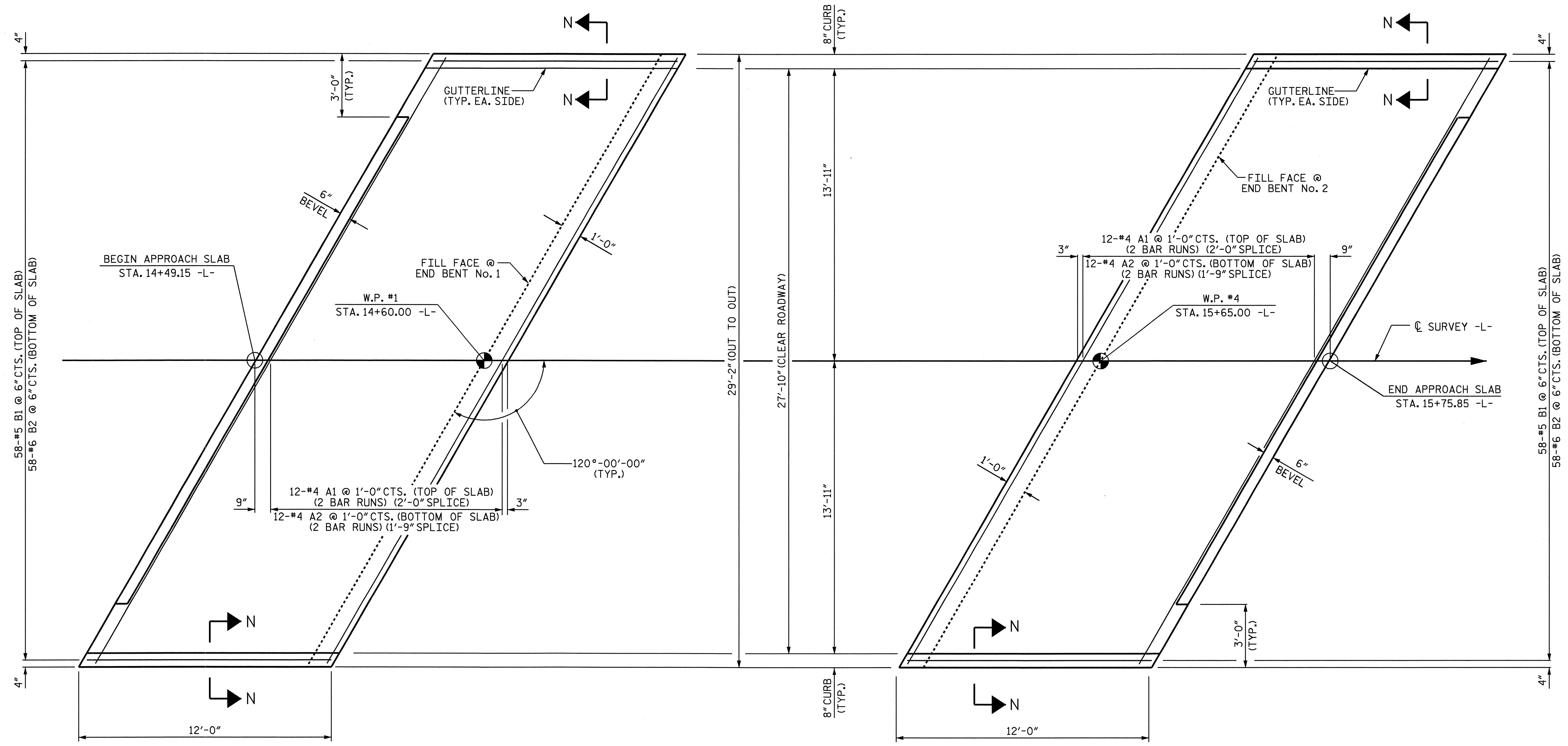
RIP RAP DETAILS



DRAWN BY : A. V. ROYAL DATE : 9/09
 CHECKED BY : D. G. ELY DATE : 9/09

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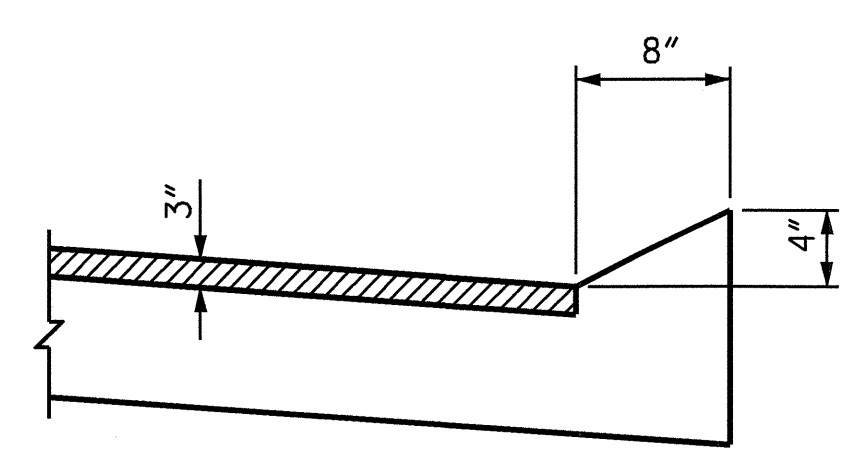
REVISIONS						SHEET NO. S-23
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 25
2			4			



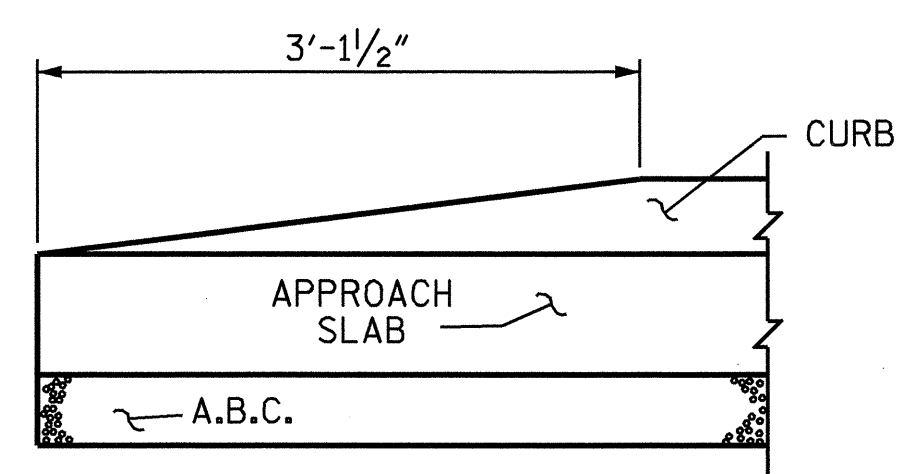
PLAN AT END BENT No. 1

PLAN AT END BENT No. 2

PLAN OF APPROACH SLABS



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

PROJECT NO. B-4600
 _____ PERSON _____ COUNTY
 STATION: 15+12.50 -L-

SHEET 1 OF 2

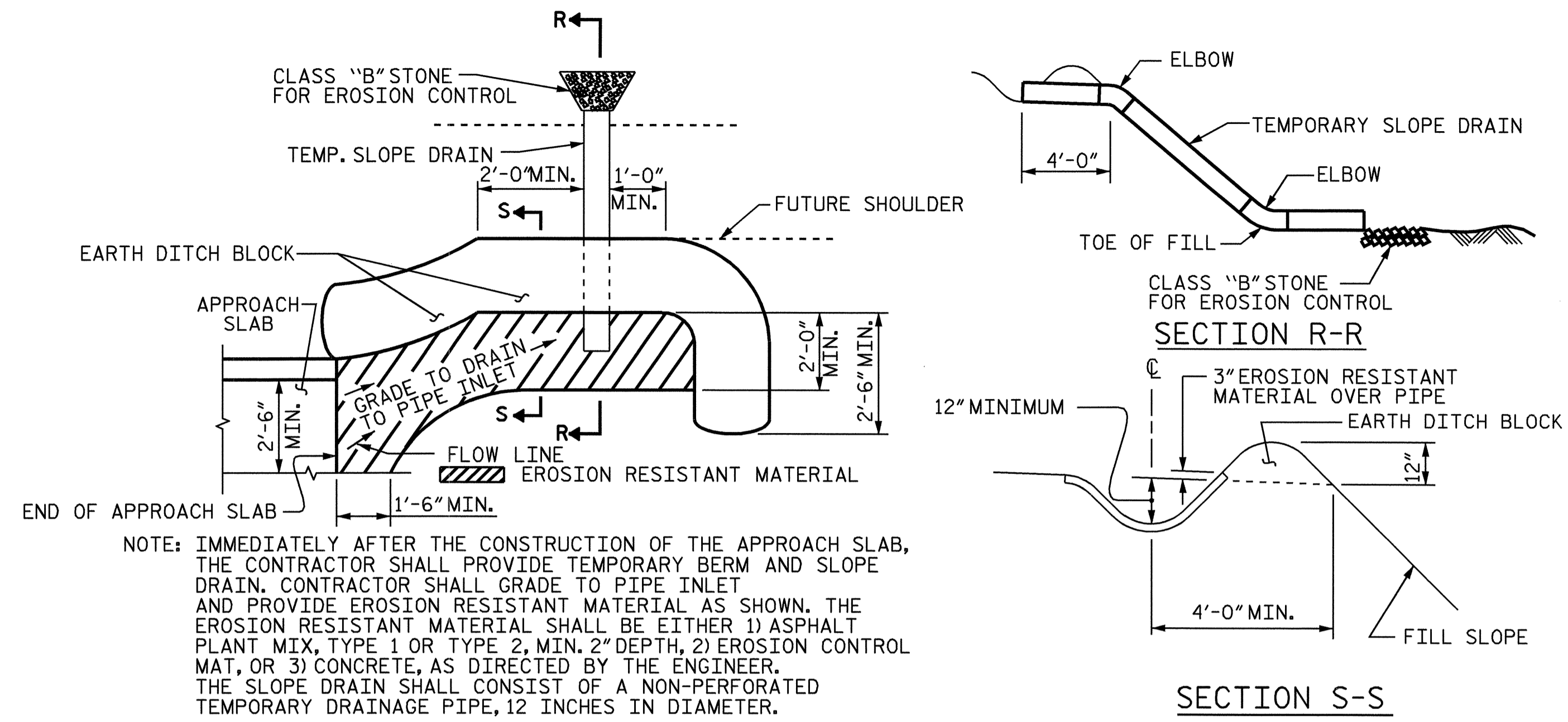
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR PRESTRESSED CONCRETE
 CORED SLAB



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24
1			3			TOTAL SHEETS
2			4			25

DRAWN BY : A. V. ROYAL DATE : 9/2009
 CHECKED BY : M. K. TOM DATE : 9/2009

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

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

NOTES

FOR BRIDGE APPROACH FILL INCLUDING FABRIC, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY PLANS.

FABRIC SHALL BE TYPE 1 ENGINEERING FABRIC IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

#78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

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.

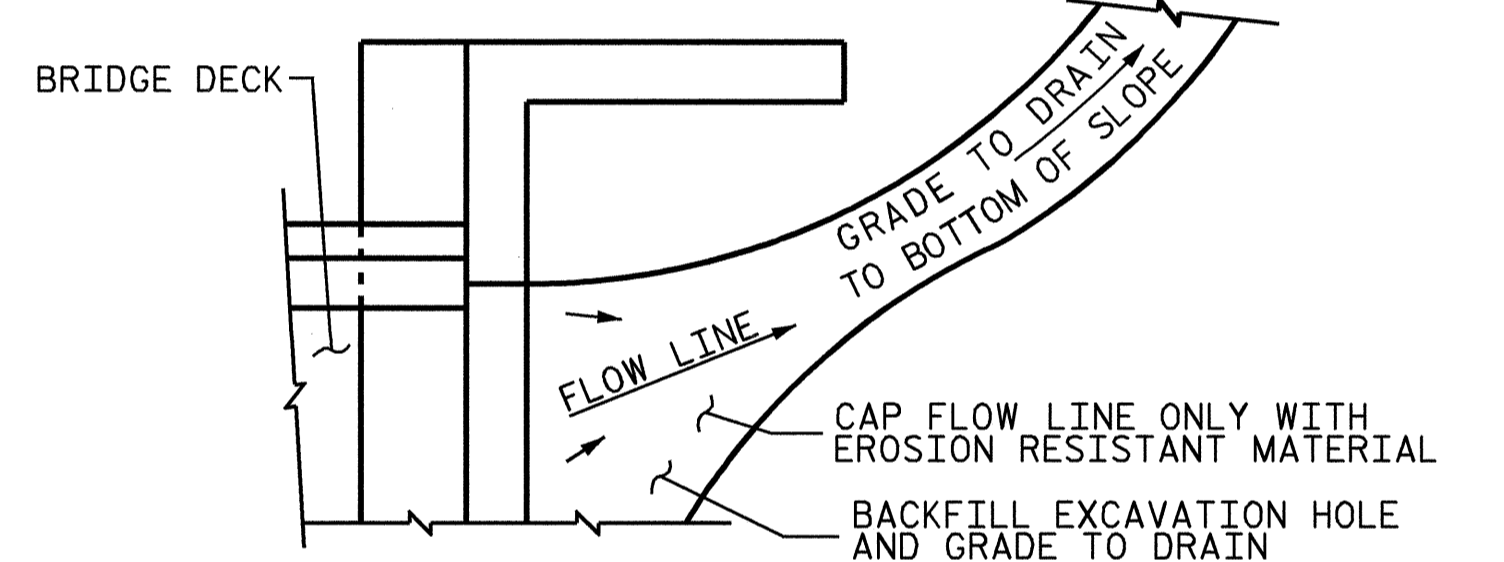
THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER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

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

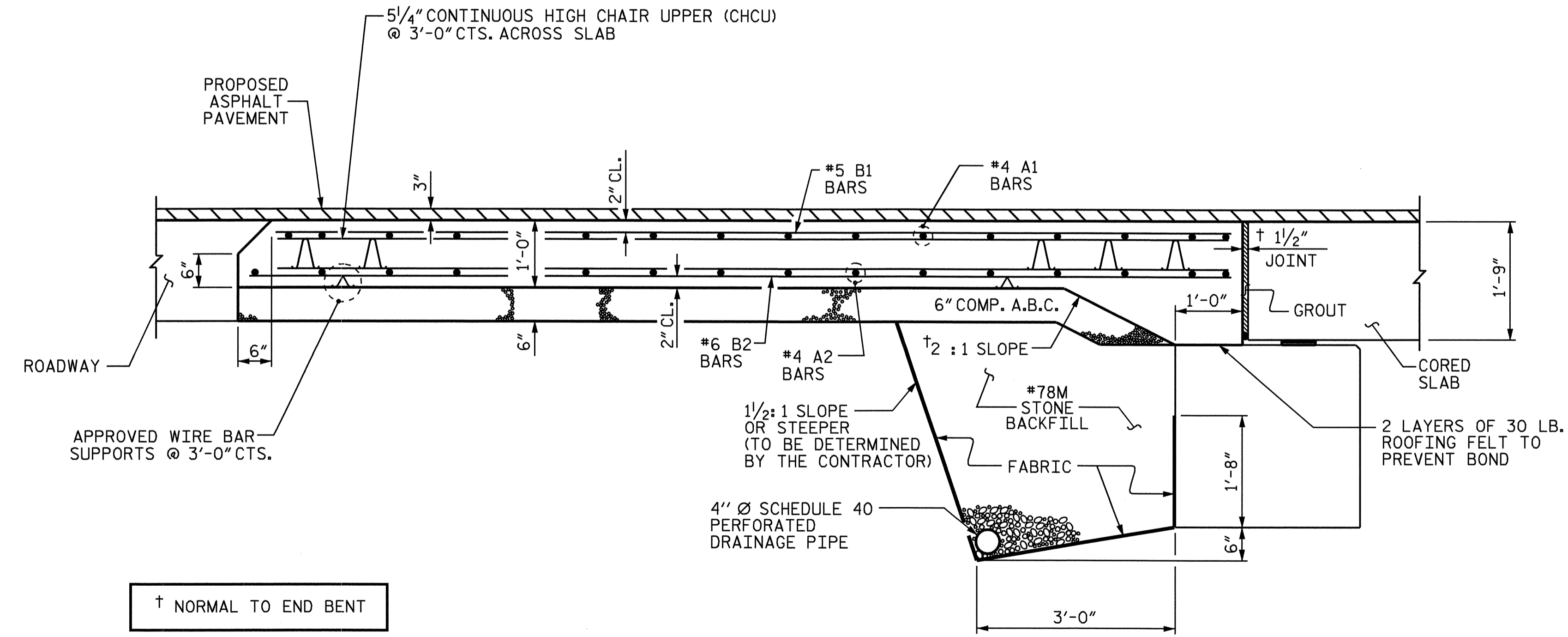
APPROACH SLAB GROOVING IS NOT REQUIRED.

BILL OF MATERIAL					
APPROACH SLAB AT EB #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	24	#4	STR	17'-8"	283
A2	24	#4	STR	17'-7"	282
*B1	58	#5	STR	11'-1"	670
B2	58	#6	STR	11'-7"	1009
REINFORCING STEEL					LBS. 1291
*EPOXY COATED REINFORCING STEEL					LBS. 953
CLASS AA CONCRETE					C.Y. 15.0
APPROACH SLAB AT EB #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	24	#4	STR	17'-8"	283
A2	24	#4	STR	17'-7"	282
*B1	58	#5	STR	11'-1"	670
B2	58	#6	STR	11'-7"	1009
REINFORCING STEEL					LBS. 1291
*EPOXY COATED REINFORCING STEEL					LBS. 953
CLASS AA CONCRETE					C.Y. 15.0



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.

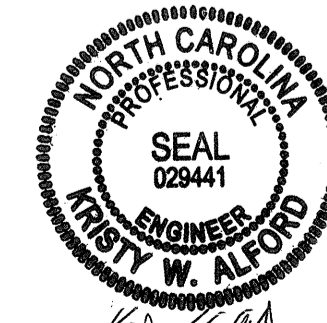
TEMPORARY DRAINAGE DETAIL



SECTION THRU SLAB

PROJECT NO. B-4600
 PERSON _____ COUNTY _____
 STATION: 15+12.50 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD					
BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 25

ASSEMBLED BY : A. V. ROYAL	DATE : 9/2009
CHECKED BY : M. K. TOM	DATE : 9/2009
DRAWN BY : FCJ 6/87	REV. 7/10/01 LES/RDR
CHECKED BY : EGA 6/87	REV. 5/7/03R RWW/JTE
	REV. 5/1/06 TLA/GM

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