

CONTRACT: C201621 TIP NO: B-4321

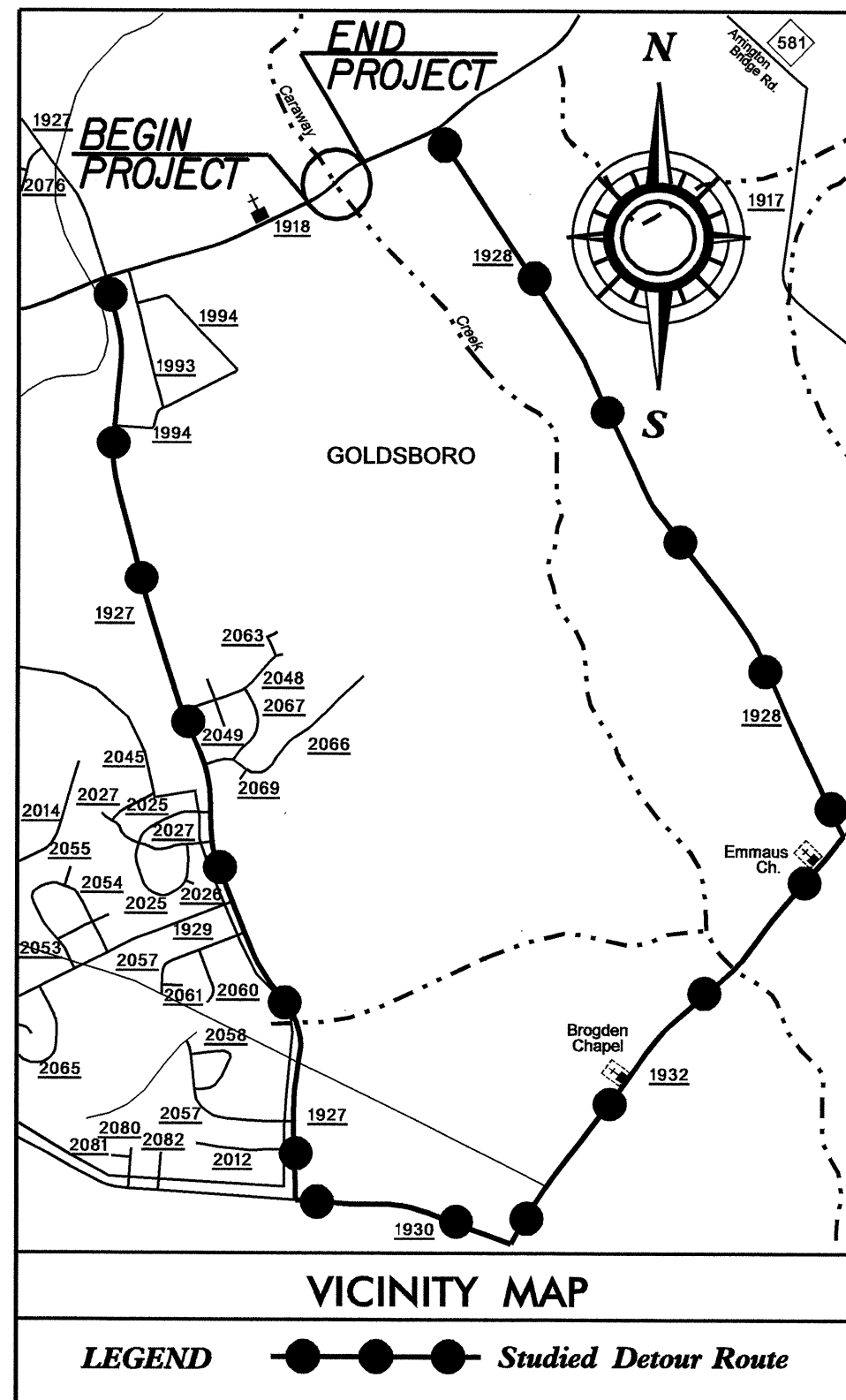
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAYNE COUNTY

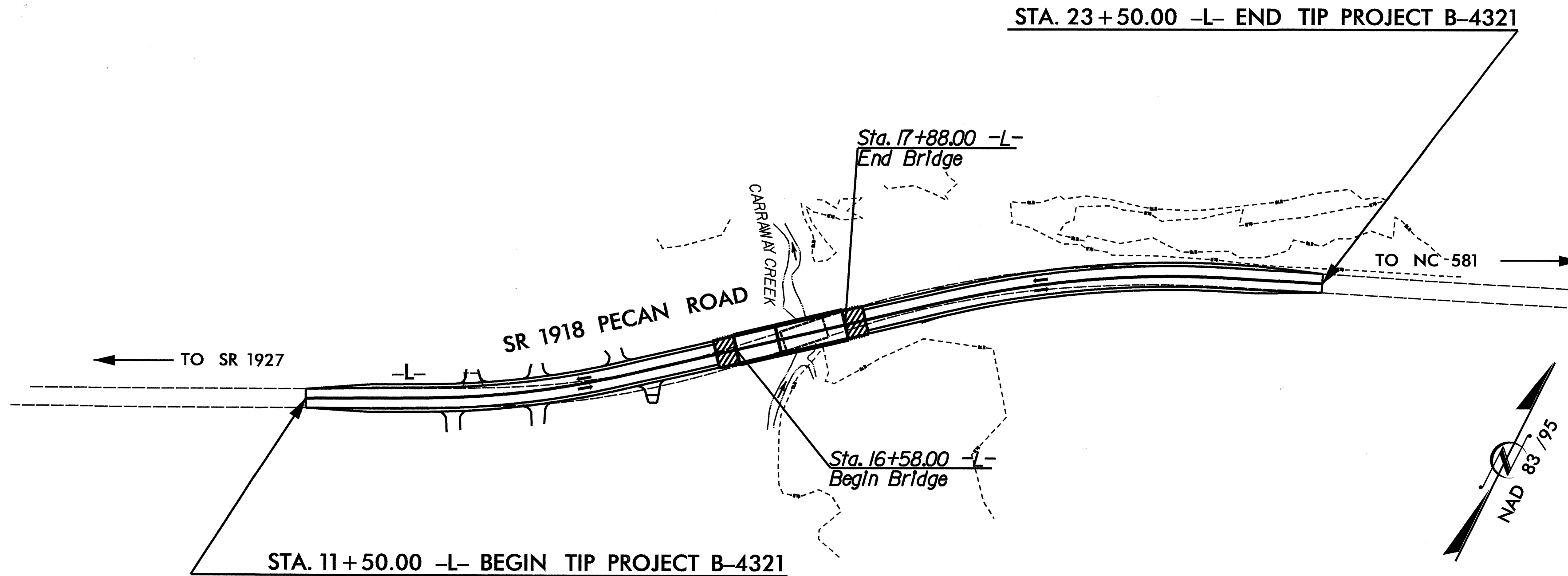
LOCATION: BRIDGE NO. 17 OVER CARRAWAY CREEK
ON SR 1918 (PECAN ROAD) IN GOLDSBORO

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

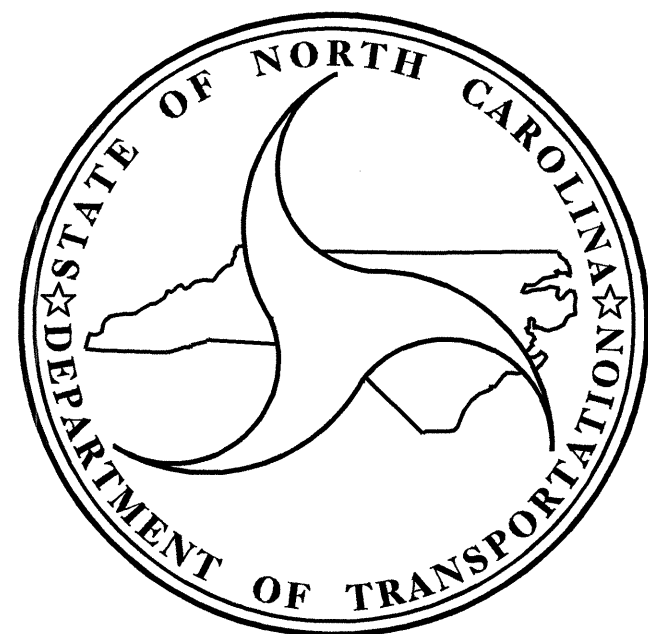
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4321		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33658.1.1	BRSTP-1918(2)	P.E.	
33658.2.1	BRSTP-1918(2)	R/W & UTIL.	
33658.3.1	BRSTP-1918(2)	CONST.	



NEAREST SHIPPING POINT: BROGDEN ON SEABOARD COASTLINE RAILROAD, 3.2 MILES FROM BRIDGE.



STRUCTURE



DESIGN DATA

ADT 2007 =	6,200
ADT 2030 =	10,800
DHV =	60 %
D =	10 %
T =	5 % *
V =	50 MPH
FUNC. CLASS =	URBAN COLLECTOR
* TTST 3% DUAL 2%	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4321 =	0.202 MI
LENGTH STRUCTURE TIP PROJECT B-4321 =	0.025 MI
TOTAL LENGTH TIP PROJECT B-4321 =	0.227 MI

Prepared In the Office of:

DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

LETTING DATE :
April 15, 2008

J.M. BAILEY, P.E.
PROJECT ENGINEER

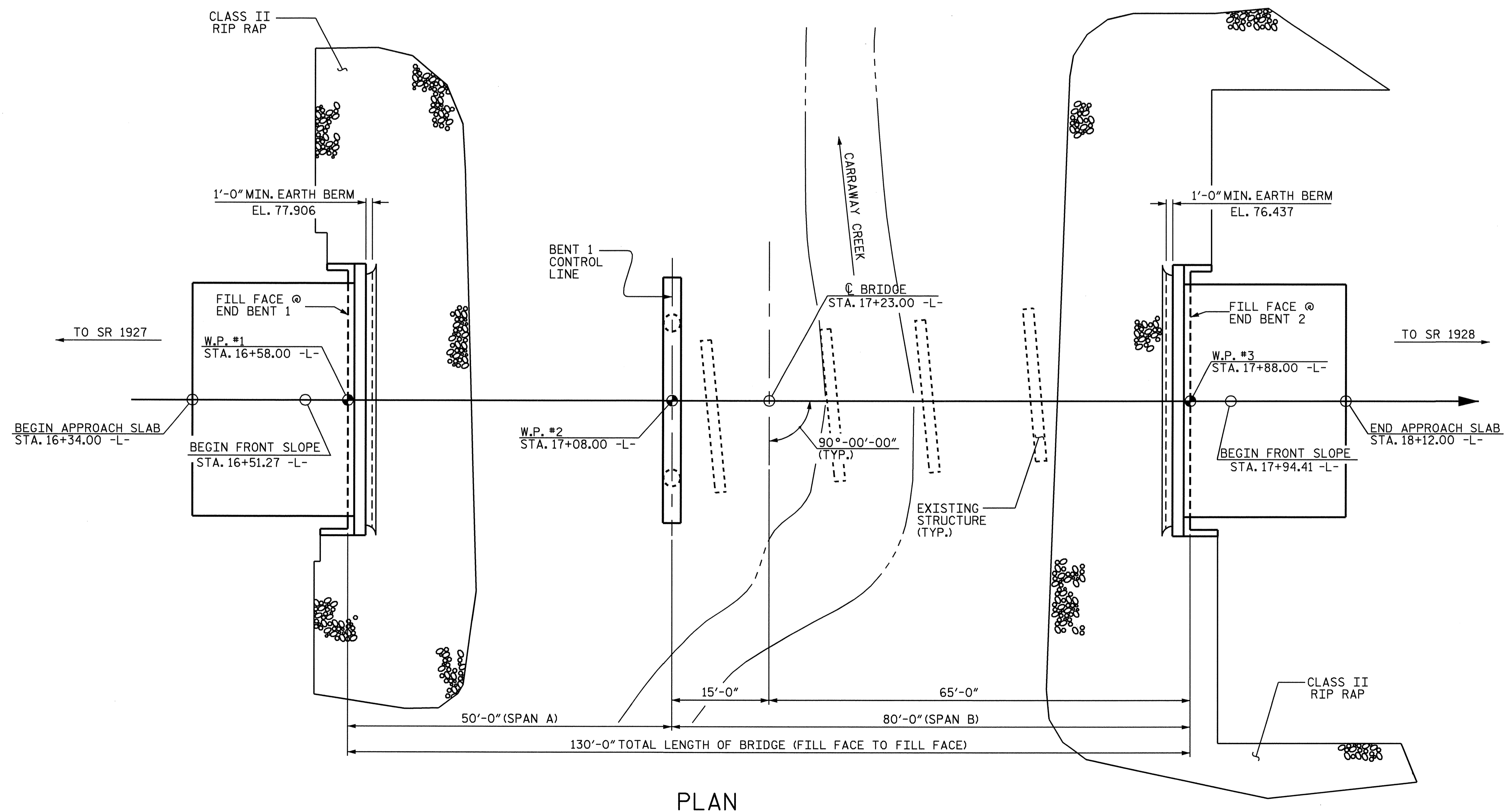
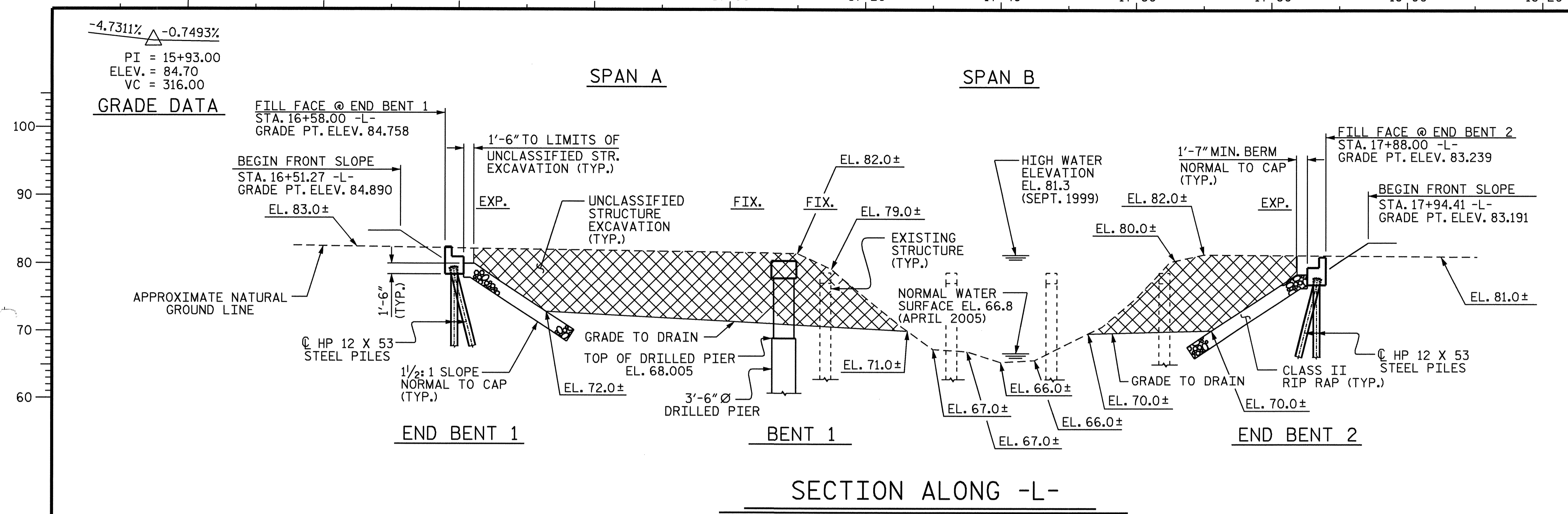
B.D. KLAPPENBACH, P.E.
PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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

APPROVED
DIVISION ADMINISTRATOR
DATE



John McArthur
 3/11/08

PROFESSIONAL SEAL
 NORTH CAROLINA
 SEAL
 022506
 ENGINEER
 JOHN D. McARTHUR

PROFESSIONAL SEAL
 NORTH CAROLINA
 SEAL
 15828
 ENGINEER
 BRUCE D. KLAPPENBACH
 3-12-08

PROJECT NO. B-4321
 WAYNE COUNTY
 STATION: 17+23.00 -L-
 SHEET 1 OF 3 REPLACES BRIDGE NO. 17

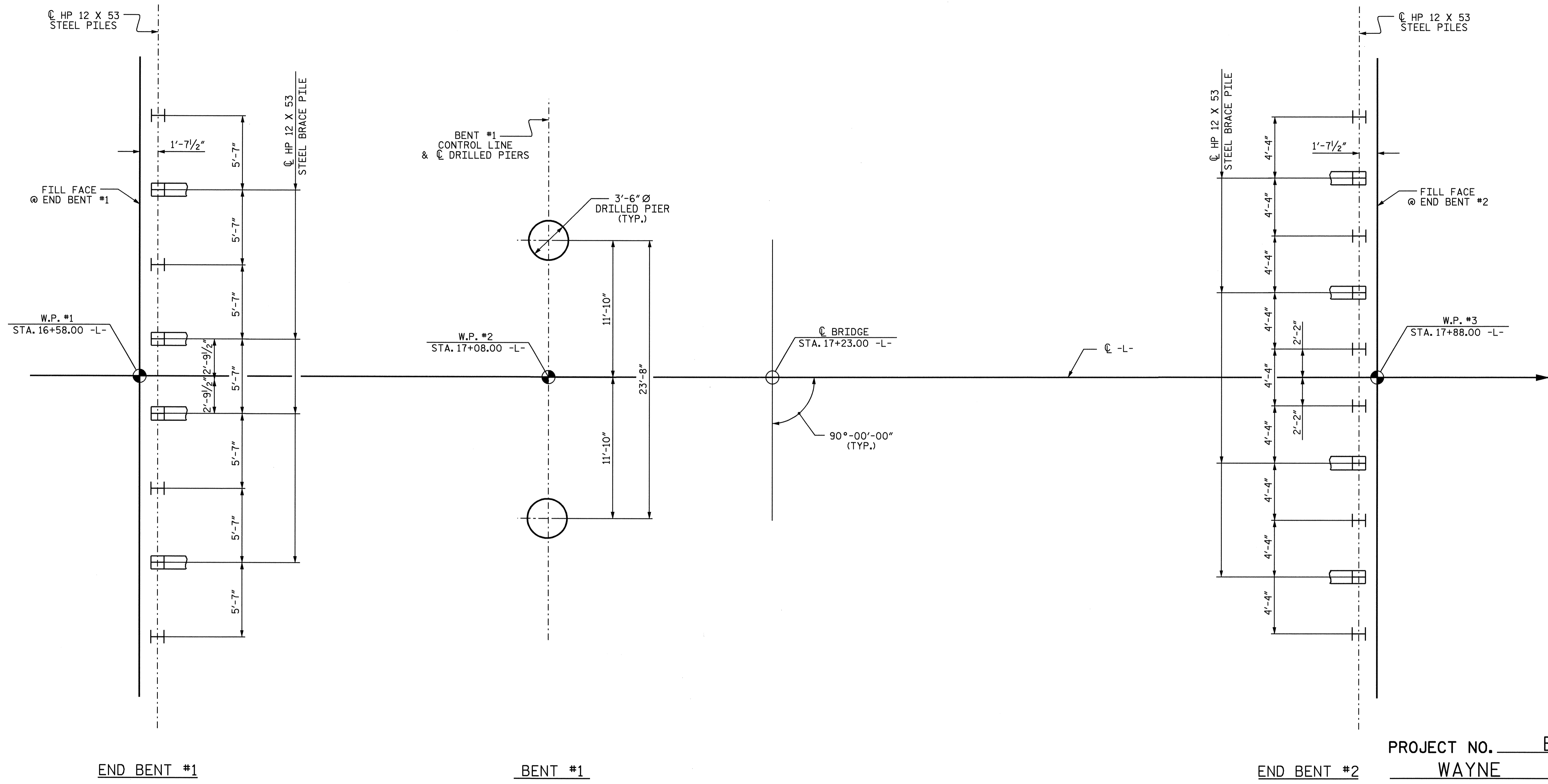
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 BRIDGE ON SR 1918
 OVER CARRAWAY CREEK
 BETWEEN SR 1927 & SR 1928

DRAWN BY : M. G. SHAIKH DATE : 01/02/08
 CHECKED BY B. D. KLAPPENBACH DATE : 02/13/08

(PILES NOT SHOWN IN PLAN VIEW FOR CLARITY)

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



END BENT #1

BENT #1

END BENT #2

FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE.
BRACE PILES AT END BENTS ARE BATTERED 3 : 12.

PROJECT NO. B-4321
WAYNE COUNTY
 STATION: 17+23.00 -L-

SHEET 2 OF 3

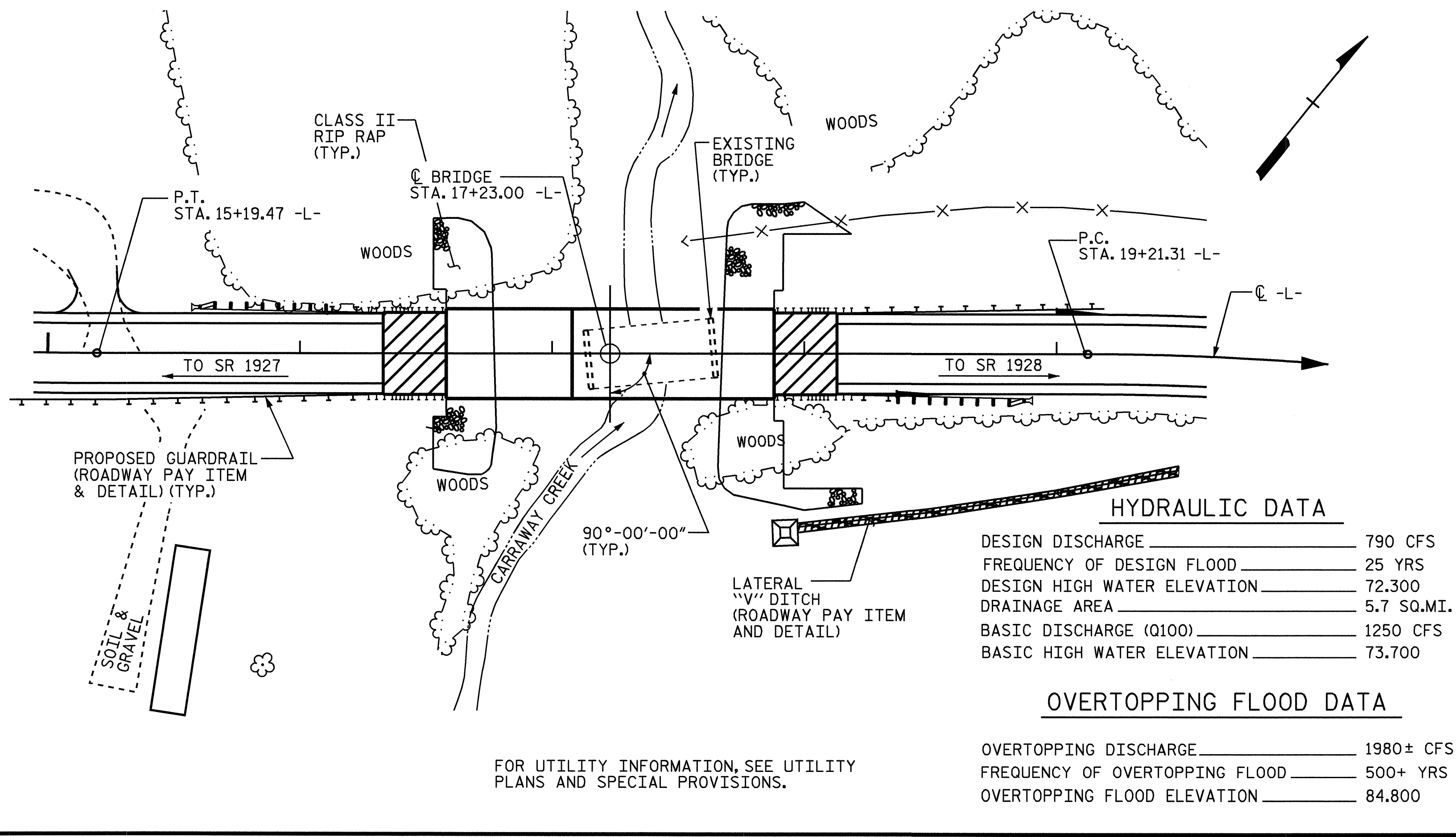
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING FOR
 BRIDGE ON SR 1918
 OVER CARRAWAY CREEK
 BETWEEN SR 1927 & SR 1928



DRAWN BY : M. G. SHAIKH DATE : 1-07-08
 CHECKED BY : B. D. KLAPPENBACH DATE : 2-14-08

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

BENCHMARK: TBM #2 - R.R. SPIKE IN BASE OF 20" SYCAMORE, 40.16' LEFT OF -BL- STA. 14+37.07, ELEV. 76.12



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

HYDRAULIC DATA

DESIGN DISCHARGE	790 CFS
FREQUENCY OF DESIGN FLOOD	25 YRS
DESIGN HIGH WATER ELEVATION	72.300
DRAINAGE AREA	5.7 SQ.MI.
BASIC DISCHARGE (Q100)	1250 CFS
BASIC HIGH WATER ELEVATION	73.700

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	1980± CFS
FREQUENCY OF OVERTOPPING FLOOD	500+ YRS
OVERTOPPING FLOOD ELEVATION	84.800

LOCATION SKETCH

NOTES

ASSUMED LIVE LOAD = HS20 OR ALTERNATE LOADING, EXCEPT THAT BOX BEAM UNITS HAVE BEEN DESIGNED FOR HS25.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

THIS BRIDGE HAS BEEN DESIGNED BY THE STRENGTH DESIGN METHOD AS SPECIFIED IN AASHTO STANDARD SPECIFICATIONS.

THE EXISTING STRUCTURE CONSISTING OF 3 SPANS 1 @ 17'-10", 1 @ 17'-0" AND 1 @ 17'-10" ON A REINFORCED CONCRETE FLOOR WITH A 3.5" ASPHALT WEARING SURFACE ON 19 LINES OF 6 X 12 TIMBER JOISTS ON TIMBER CAPS AND TIMBER PILES AT THE END BENTS AND INTERIOR BENTS WITH A CONCRETE SILL AT THE INTERIOR BENT WITH A CLEAR ROADWAY WIDTH OF 24'-0" AND LOCATED AT THE PROPOSED SITE, SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT.

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 ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 55'-0" EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR UNCLASSIFIED STRUCTURE EXCAVATION.

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

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

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

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

DRIVE PILES AT END BENT NO.1 AND END BENT NO.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 BENT NO. 1 AND END BENT NO. 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 45 TSF.

DRILLED PIERS AT BENT NO.1 ARE DESIGNED FOR AN APPLIED LOAD OF 295 TONS EACH AT THE TOP OF THE COLUMN.

PERMANENT STEEL CASING MAY BE REQUIRED FOR DRILLED PIERS AT BENT NO. 1. DO NOT EXTEND THE CASING BELOW ELEVATION 63.0 FT. WITHOUT PRIOR APPROVAL FROM THE ENGINEER. SEE DRILLED PIERS SPECIAL PROVISIONS.

DRILLED PIERS AT BENT NO.1 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 53.0 FT. AND SATISFY THE REQUIRED END BEARING CAPACITY.

THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 IS ELEVATION 60.00 FT. THE SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.

SPT TESTING IS NOT REQUIRED TO DETERMINE THE END BEARING CAPACITY OF THE DRILLED PIERS AT BENT NO. 1. SEE DRILLED PIERS SPECIAL PROVISION.

SID INSPECTIONS MAY BE REQUIRED TO INSPECT THE BOTTOM CLEANLINESS OF THE DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS. SEE DRILLED PIERS SPECIAL PROVISION.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, 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.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	3'-6" DIA. DRILLED PIERS IN SOIL	3'-6" DIA. DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 3'-6" Ø DRILLED PIER	SID INSPECTION	CROSSHOLE SONIC LOGGING	UNCLASSIFIED STRUCTURE EXCAVATION
	LUMP SUM	LIN.FT.	LIN.FT.	LIN.FT.	EACH	EACH	CU.YDS.
SUPERSTRUCTURE							
END BENT 1							2120
BENT 1		20.0	10.0	10.0	2	2	
END BENT 2							850
TOTAL	LUMP SUM	20.0	10.0	10.0	2	2	2970

TOTAL BILL OF MATERIAL

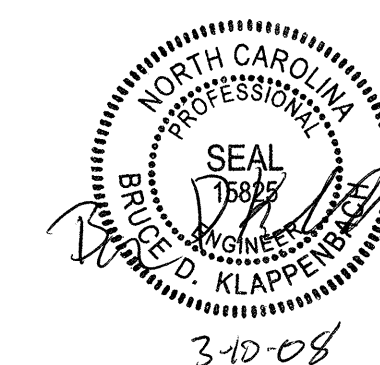
	CONCRETE WEARING SURFACE	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	HP 12 x 53 STEEL PILES	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS	3'-0" x 2'-9" PRESTRESSED CONCRETE BOX BEAMS
	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	LBS.	NO. LIN. FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	LUMP SUM	LIN.FT.
SUPERSTRUCTURE	4164	5188						255.50					1531.50
END BENT 1			18.6		2988		8	120.00	168	187			
BENT 1			25.1		8551	1024							
END BENT 2			18.6		2963		10	150.00	341	379			
TOTAL	4164	5188	62.3	LUMP SUM	14502	1024	18	270.00	509	566	LUMP SUM	LUMP SUM	1531.50

PROJECT NO. B-4321
 WAYNE COUNTY
 STATION: 17+23.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 BRIDGE ON SR 1918
 OVER CARRAWAY CREEK
 BETWEEN SR 1927 & SR 1928



DRAWN BY : M. G. SHAIKH DATE : 01/03/08
 CHECKED BY : B. D. KLAPPENBACH DATE : 02/13/08

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

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 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.

IN SPAN A, 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.

IN SPAN B, 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 4600 PSI.

ALL REINFORCING STEEL IN BARRIER RAILS AND CONCRETE WEARING SURFACE SHALL BE EPOXY COATED.

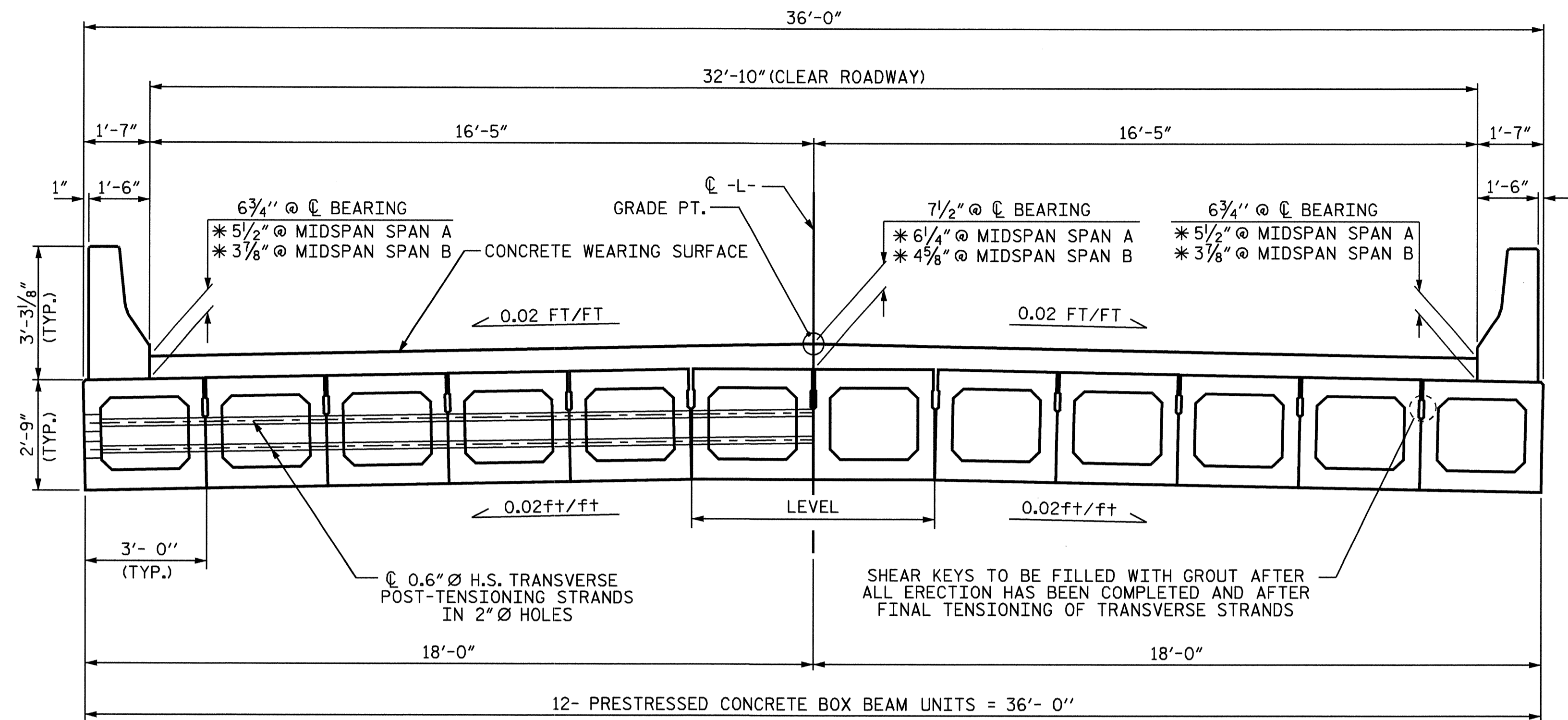
PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE BOX BEAM UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS.

VERTICAL GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A VERTICAL CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

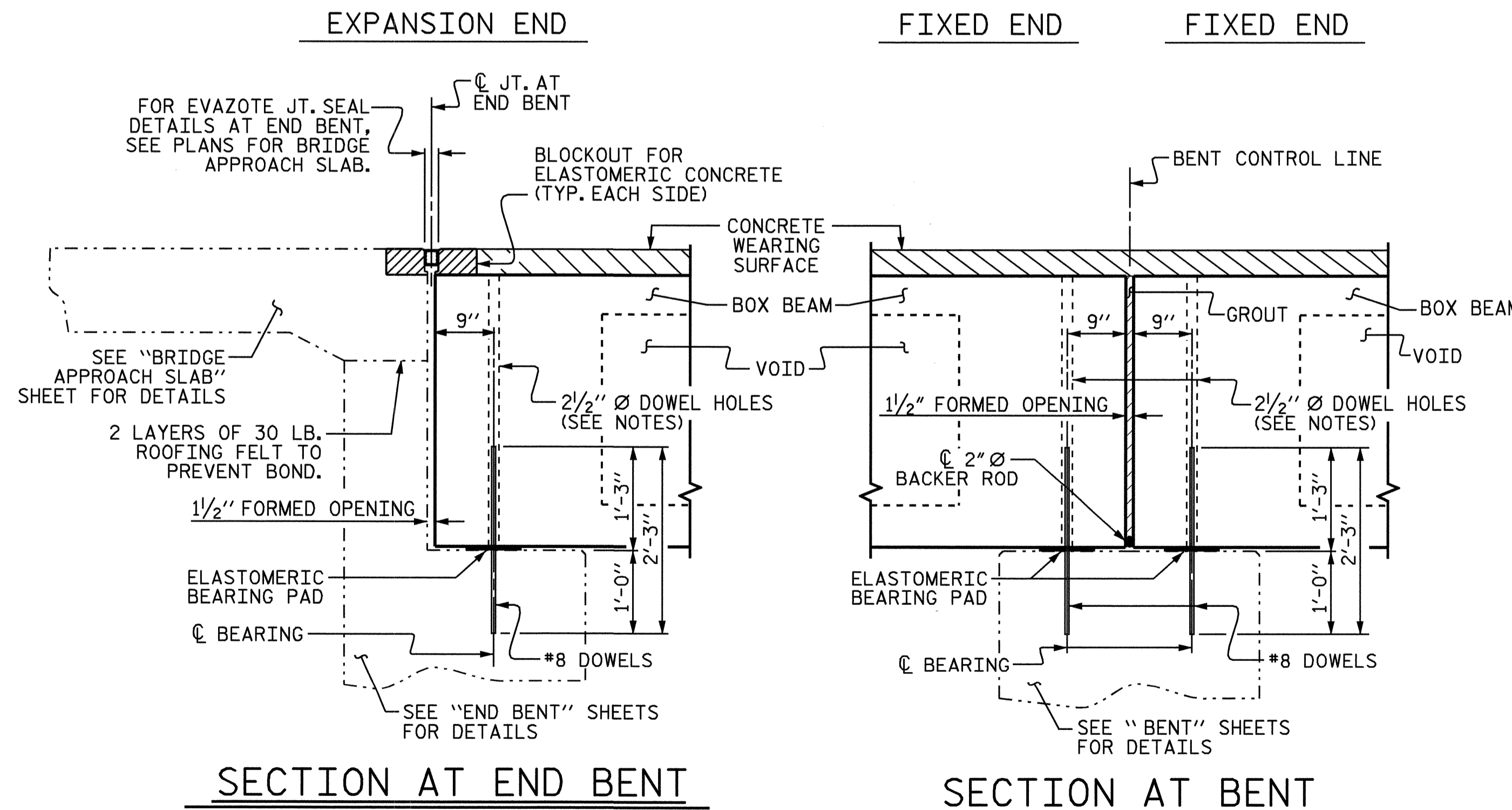
PLACEMENT OF THE CONCRETE WEARING SURFACE SHALL OCCUR AFTER CASTING THE CONCRETE RAIL. THE COST OF THE REINFORCING STEEL CAST WITH THE CONCRETE WEARING SURFACE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE WEARING SURFACE. FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

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



TYPICAL SECTION

*BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS.



SECTION AT END BENT

SECTION AT BENT

PROJECT NO. B-4321
WAYNE COUNTY
 STATION: 17+23.00 -L-

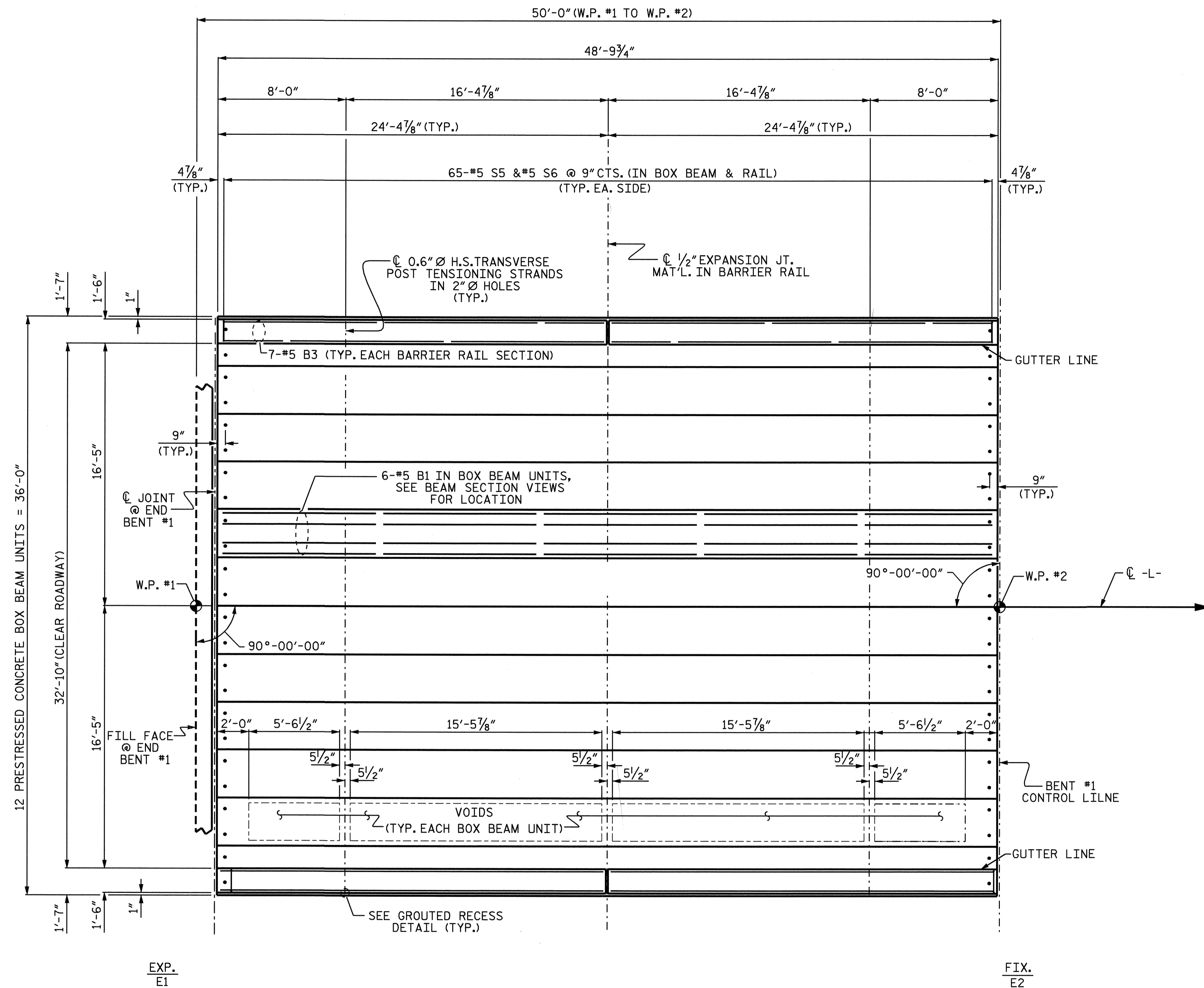
SHEET 1 OF 7

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



ASSEMBLED BY : M. G. SHAIKH DATE : 03-28-06
 CHECKED BY : C. R. YARBROUGH DATE : 11-03-06
 DRAWN BY : TLA 5/05 ADDED 7/11/05R
 CHECKED BY : GM 6/05

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

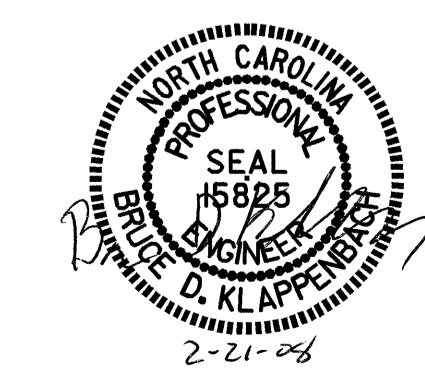


PLAN OF SPAN A

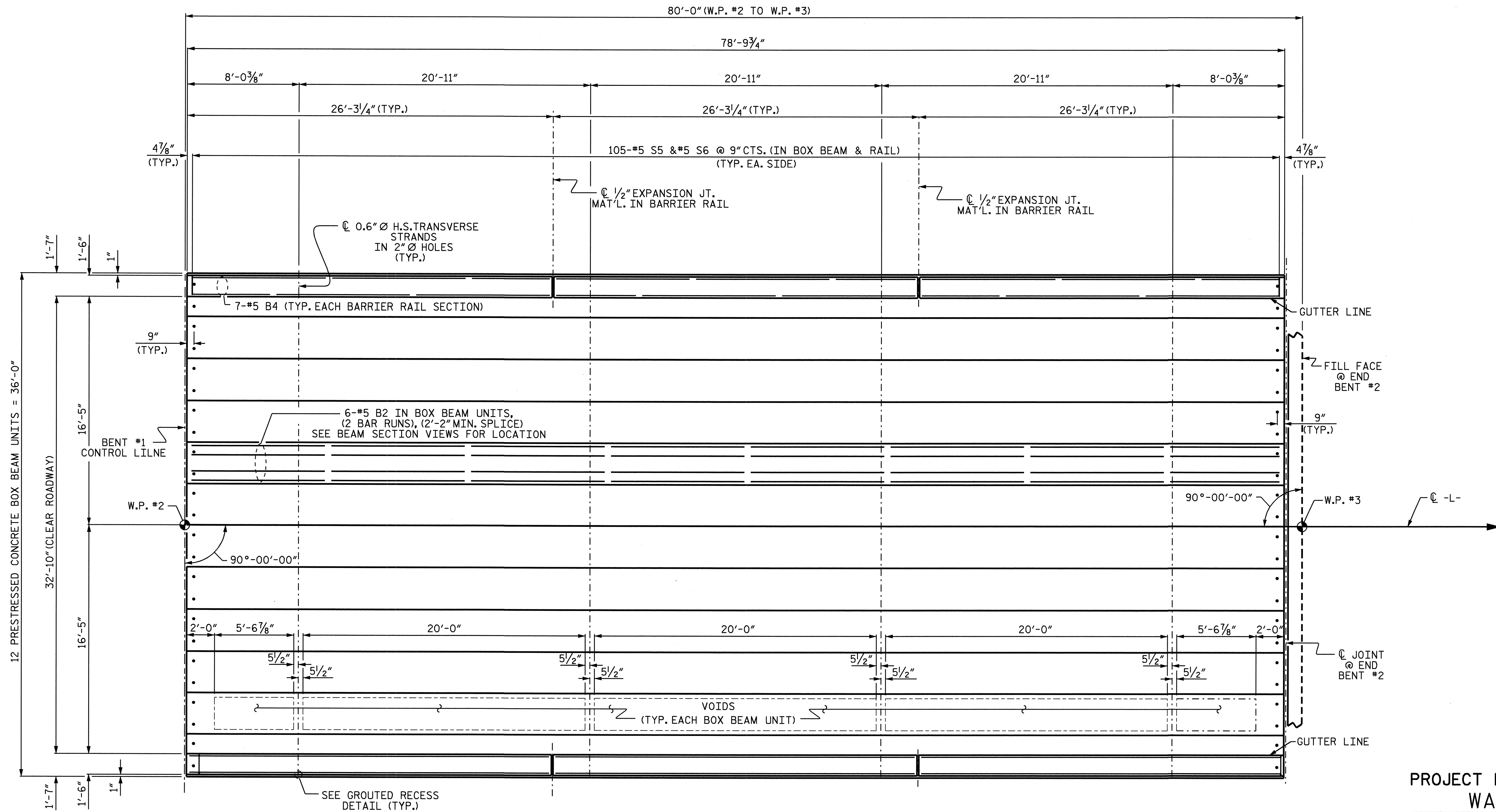
PROJECT NO. B-4321
 WAYNE COUNTY
 STATION: 17+23.00 -L-

SHEET 2 OF 7

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-5
3'-0" x 2'-9" PRESTRESSED CONCRETE BOX BEAM UNIT PLAN OF SPAN A						TOTAL SHEETS 22
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



DRAWN BY : M. G. SHAIKH DATE : 3-29-06
 CHECKED BY : C. R. YARBROUGH DATE : 11-03-06

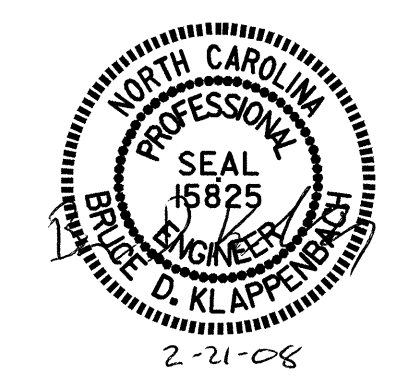


PLAN OF SPAN B

PROJECT NO. B-4321
WAYNE COUNTY
 STATION: 17+23.00 -L-
 SHEET 3 OF 7

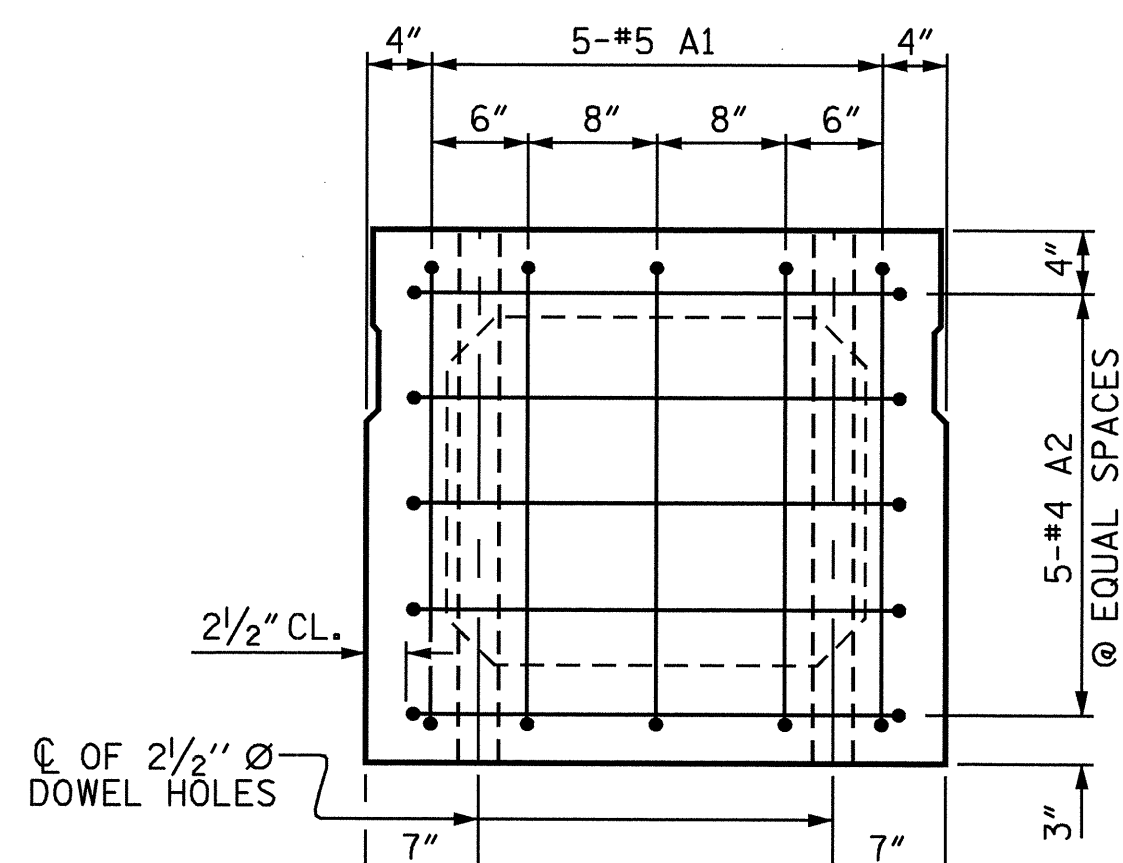
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

3'-0" x 2'-9"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT
 PLAN OF SPAN B

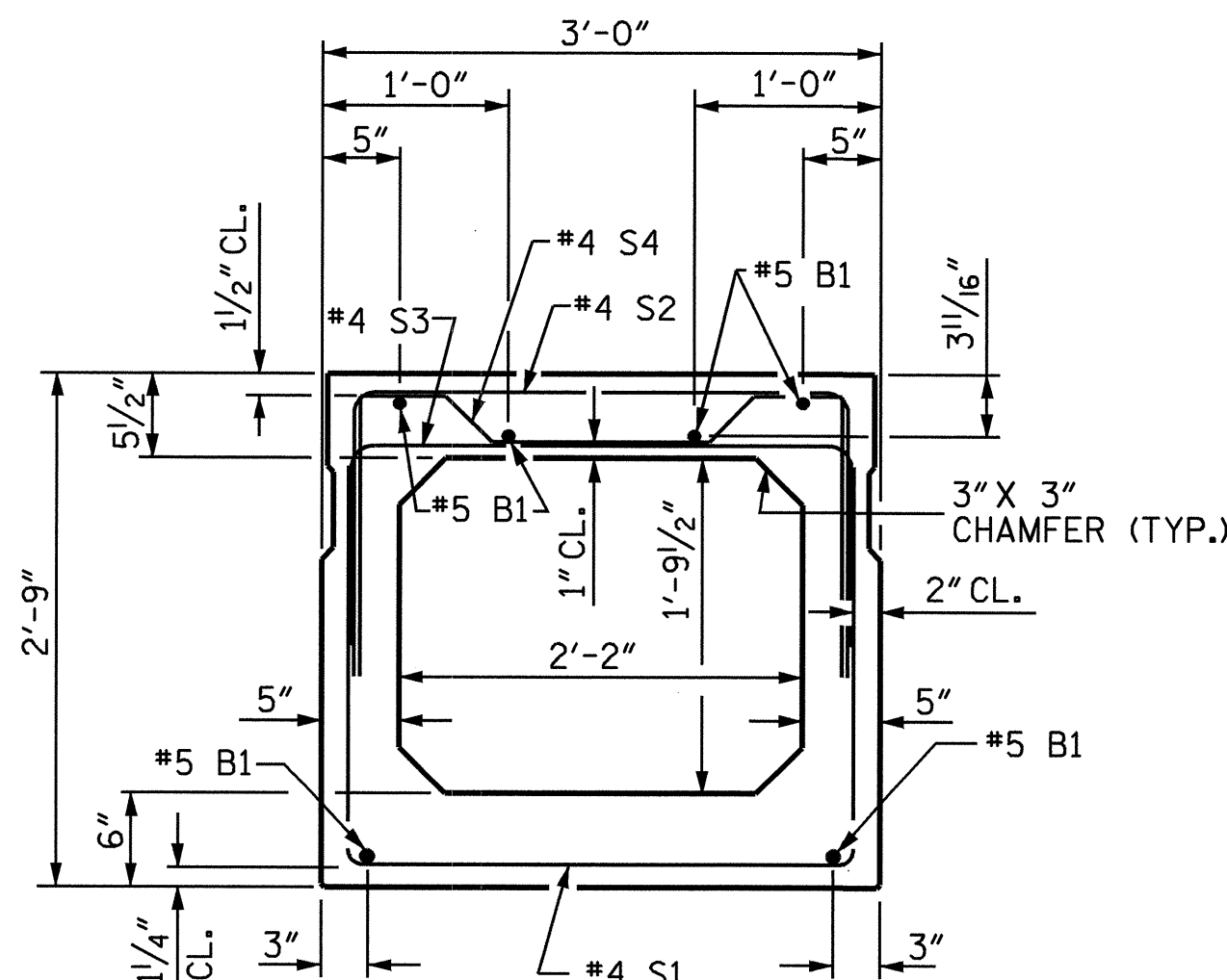


DRAWN BY : M. G. SHAIKH DATE : 3-29-06
 CHECKED BY : C. R. YARBROUGH DATE : 11-03-06

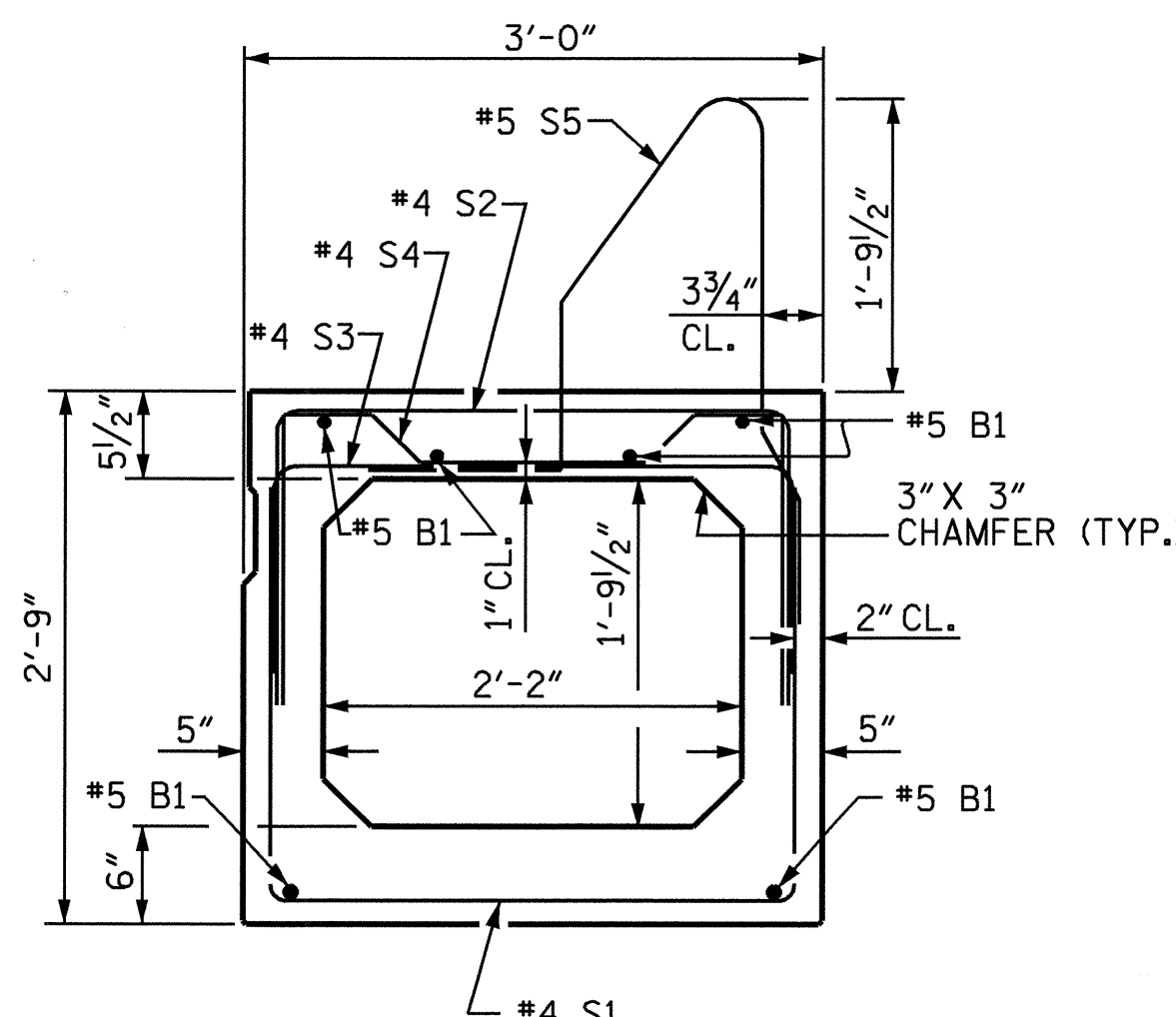
REVISIONS						SHEET NO. S-6
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 22
2			4			



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.)

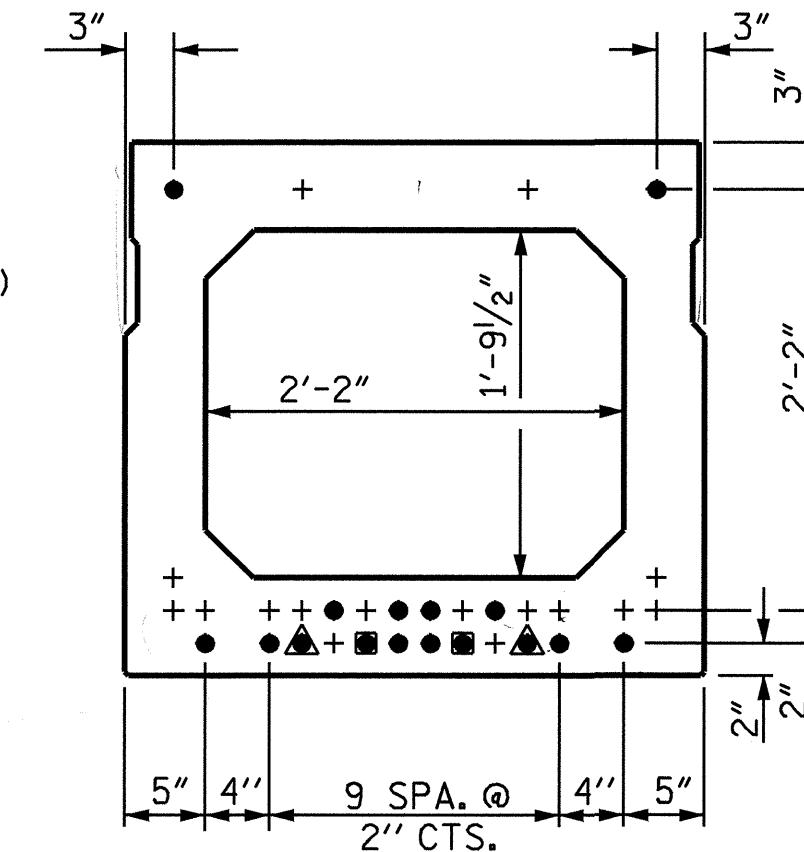


INTERIOR BOX BEAM SECTION
 (STRAND LAYOUT NOT SHOWN)



EXTERIOR BOX BEAM SECTION
 (STRAND LAYOUT NOT SHOWN)

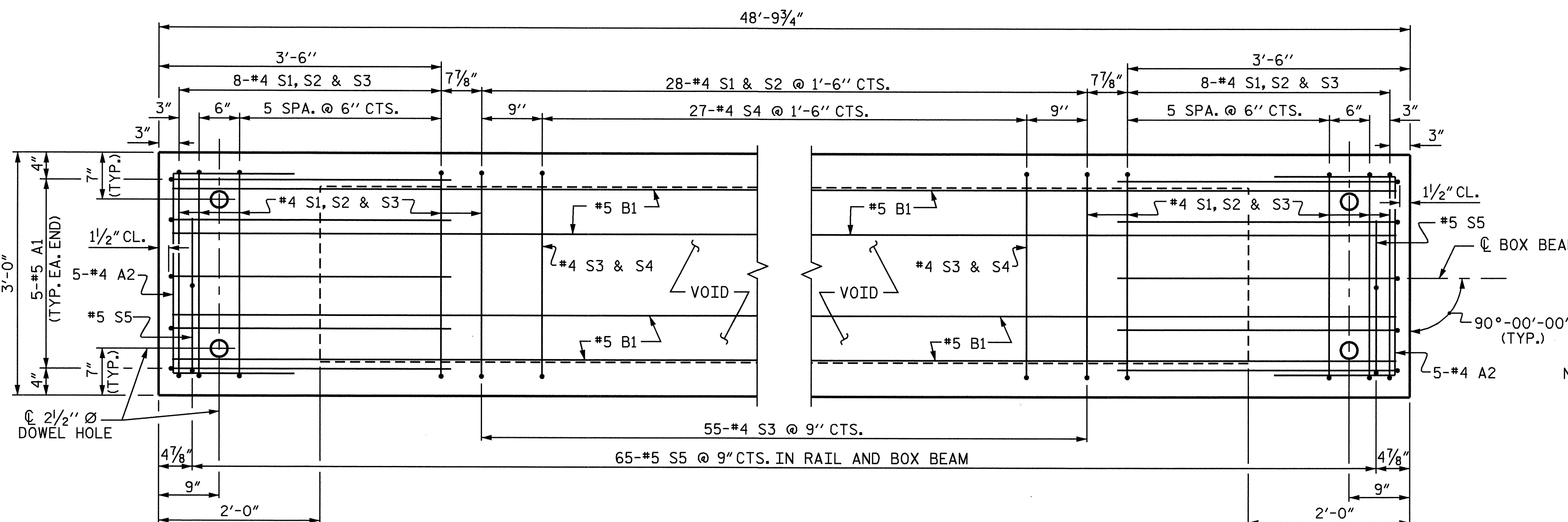
0.6" Ø LOW RELAXATION STRAND LAYOUT



TYPICAL STRAND LOCATION
 (16 STRANDS REQUIRED)
 (INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION)

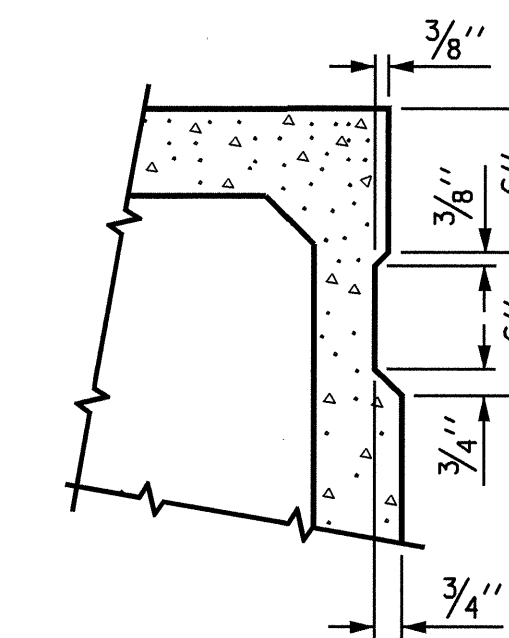
DEBONDING LEGEND

- STRANDS DEBONDED FOR 2'-9" FROM END OF GIRDER
- ▲ STRANDS DEBONDED FOR 4'-9" FROM END OF GIRDER



PLAN OF BOX BEAM

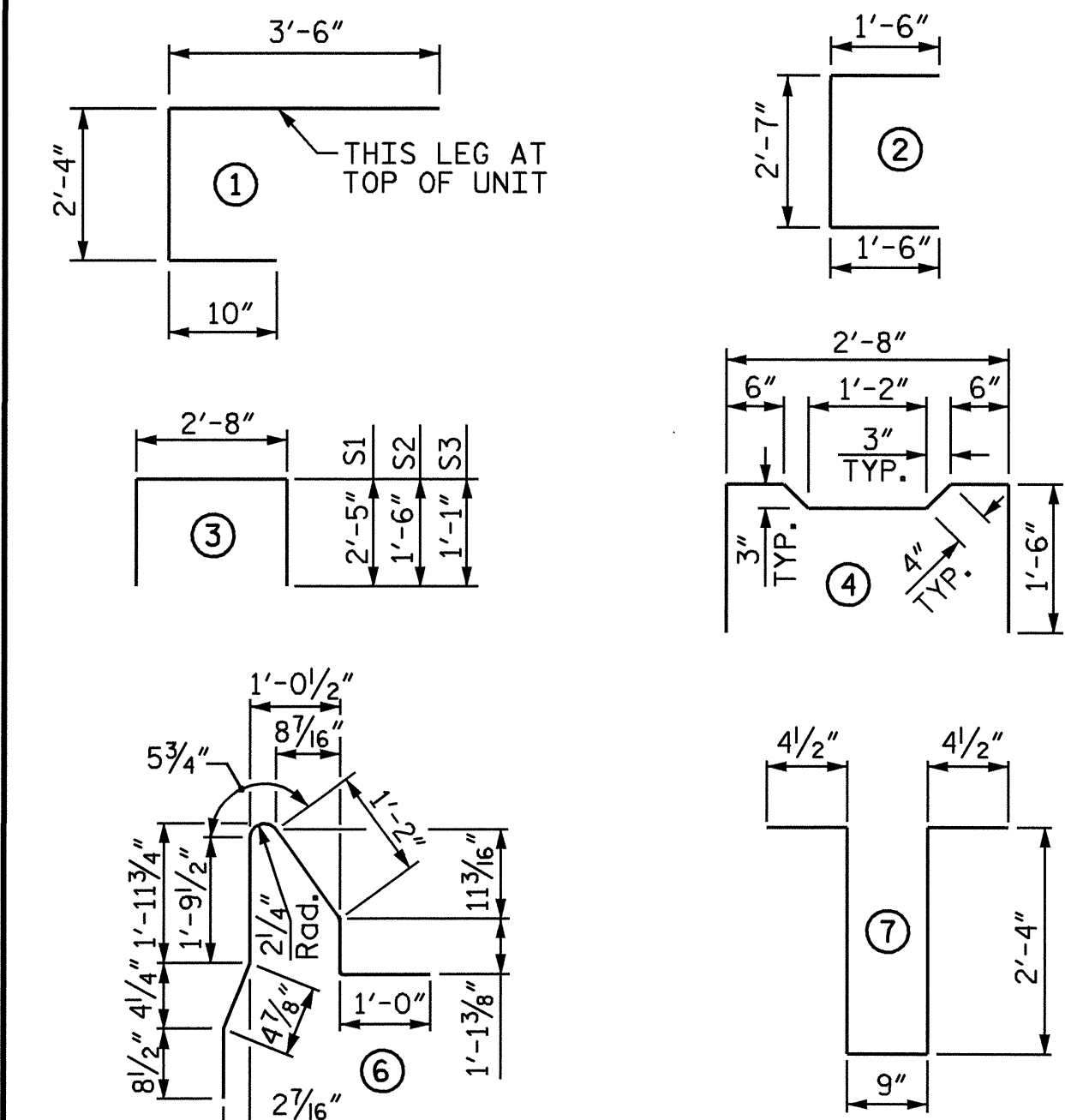
EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S5 BARS.
 FOR LOCATION OF DIAPHRAGMS, SEE PLAN OF SPANS.
 FOR REINFORCING STEEL IN DIAPHRAGMS, SEE DIAPHRAGM DETAILS.



SHEAR KEY DETAIL

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

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE BOX BEAM SECTION

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT 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	48'-5"	303	48'-5"	303
K1	9	#4	7	6'-2"	37	6'-2"	37
K2	6	#4	STR	2'-7"	10	2'-7"	10
S1	44	#4	3	7'-6"	220	7'-6"	220
S2	44	#4	3	5'-8"	167	5'-8"	167
S3	71	#4	3	4'-10"	229	4'-10"	229
S4	27	#4	4	5'-10"	105	5'-10"	105
*S5	65	#5	6	6'-8"	452		

REINFORCING STEEL	1245 LBS.	1245 LBS.
*EPOXY COATED REINF. STEEL	452	
5500 P.S.I. CONCRETE	8.9 CU. YDS.	8.8 CU. YDS.
0.6" Ø L.R. STRANDS	No. 16	No. 16

GRADE 270 STRANDS

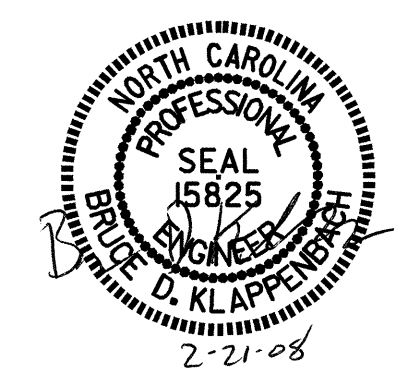
AREA (SQUARE INCHES)	0.6" Ø L.R.
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

PROJECT NO. B-4321
 WAYNE COUNTY
 STATION: 17+23.00 -L-

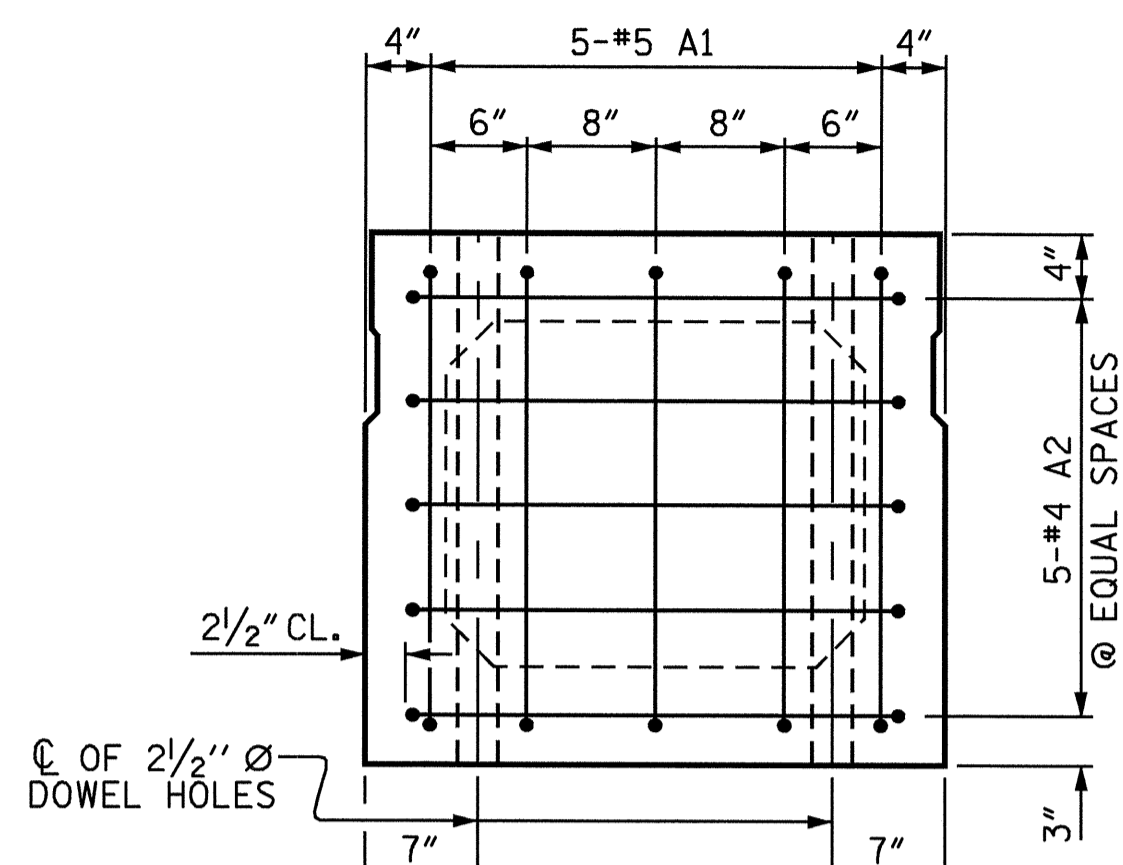
SHEET 4 OF 7

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

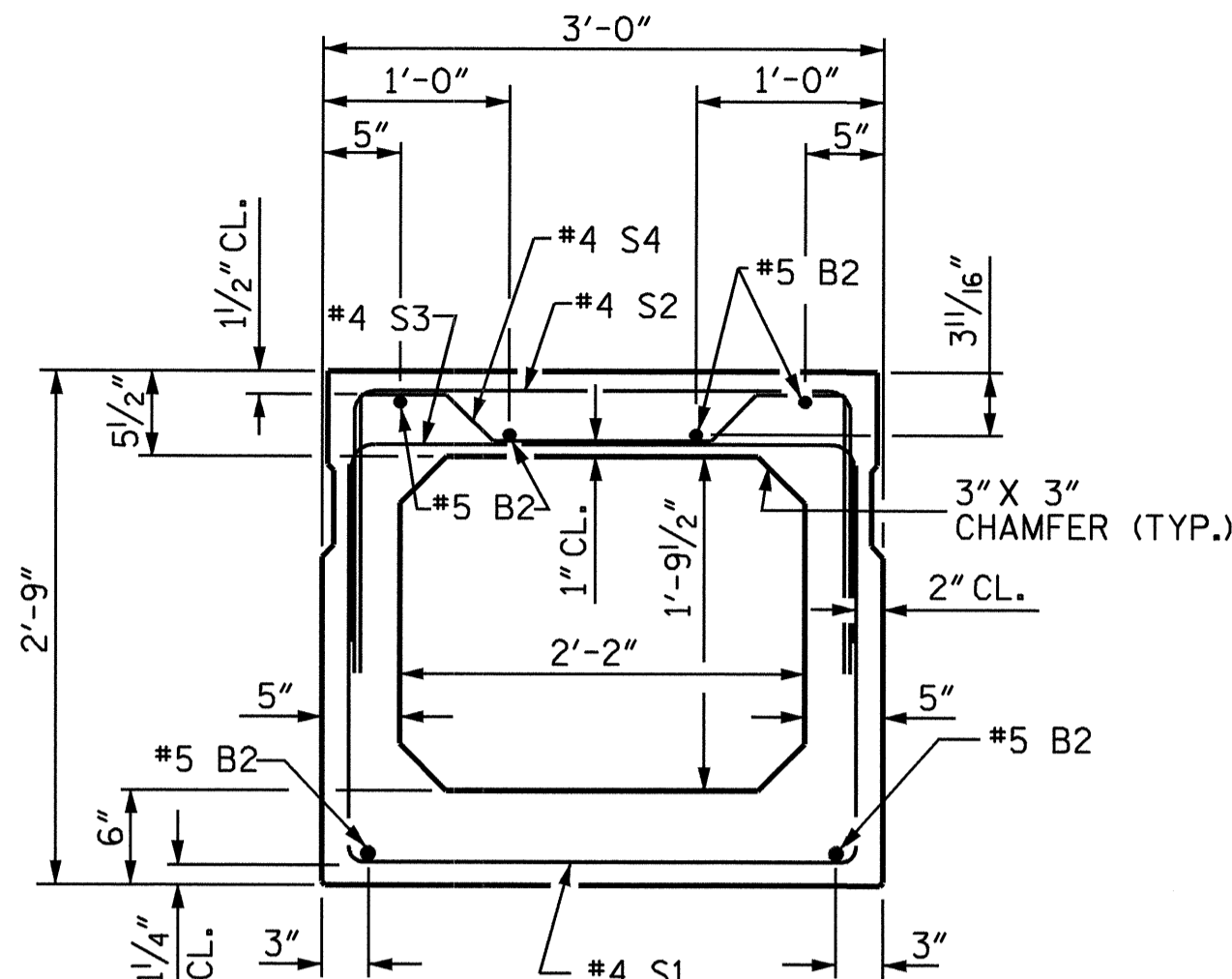
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS 22
2			4			



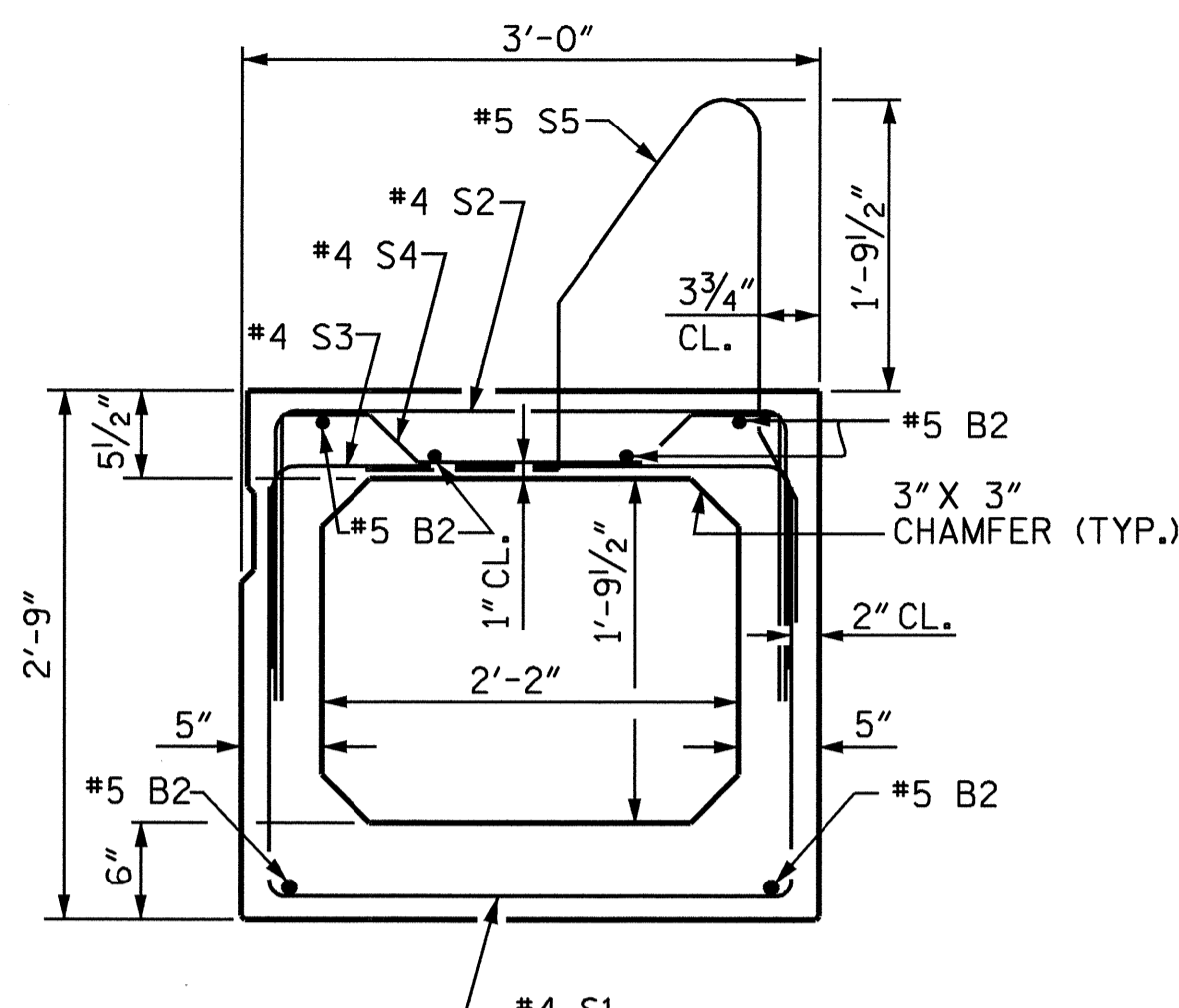
ASSEMBLED BY : M. G. SHAIKH DATE : 03-29-06
 CHECKED BY : C. R. YARBROUGH DATE : 11-03-06
 DRAWN BY : TLA 3/05 ADDED 1/31/05
 CHECKED BY :



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.)

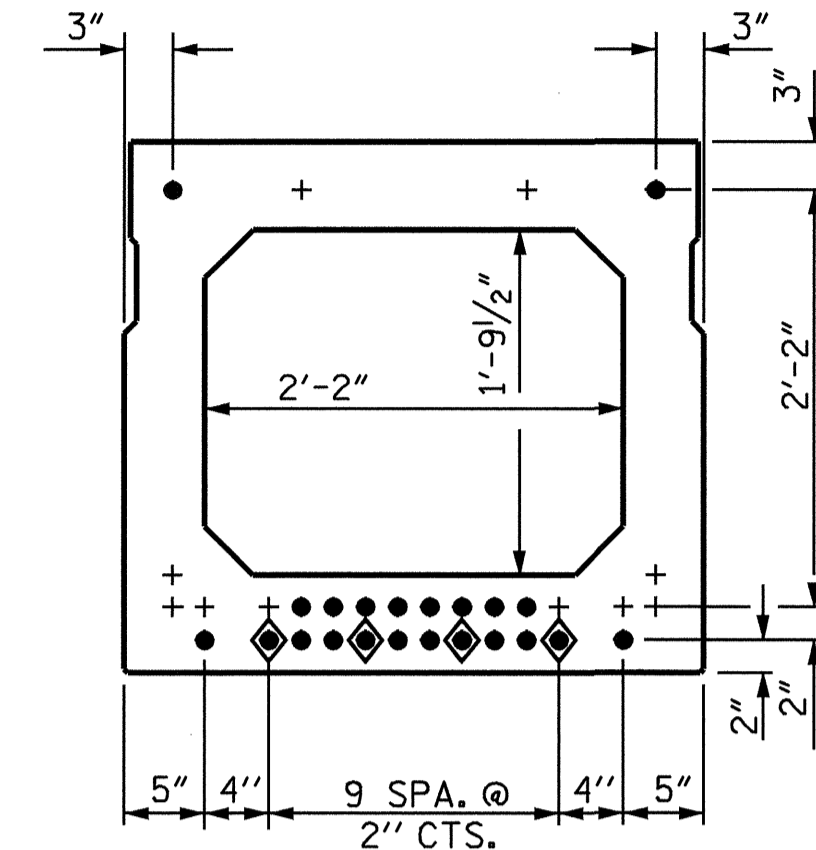


INTERIOR BOX BEAM SECTION
 (STRAND LAYOUT NOT SHOWN)



EXTERIOR BOX BEAM SECTION
 (STRAND LAYOUT NOT SHOWN)

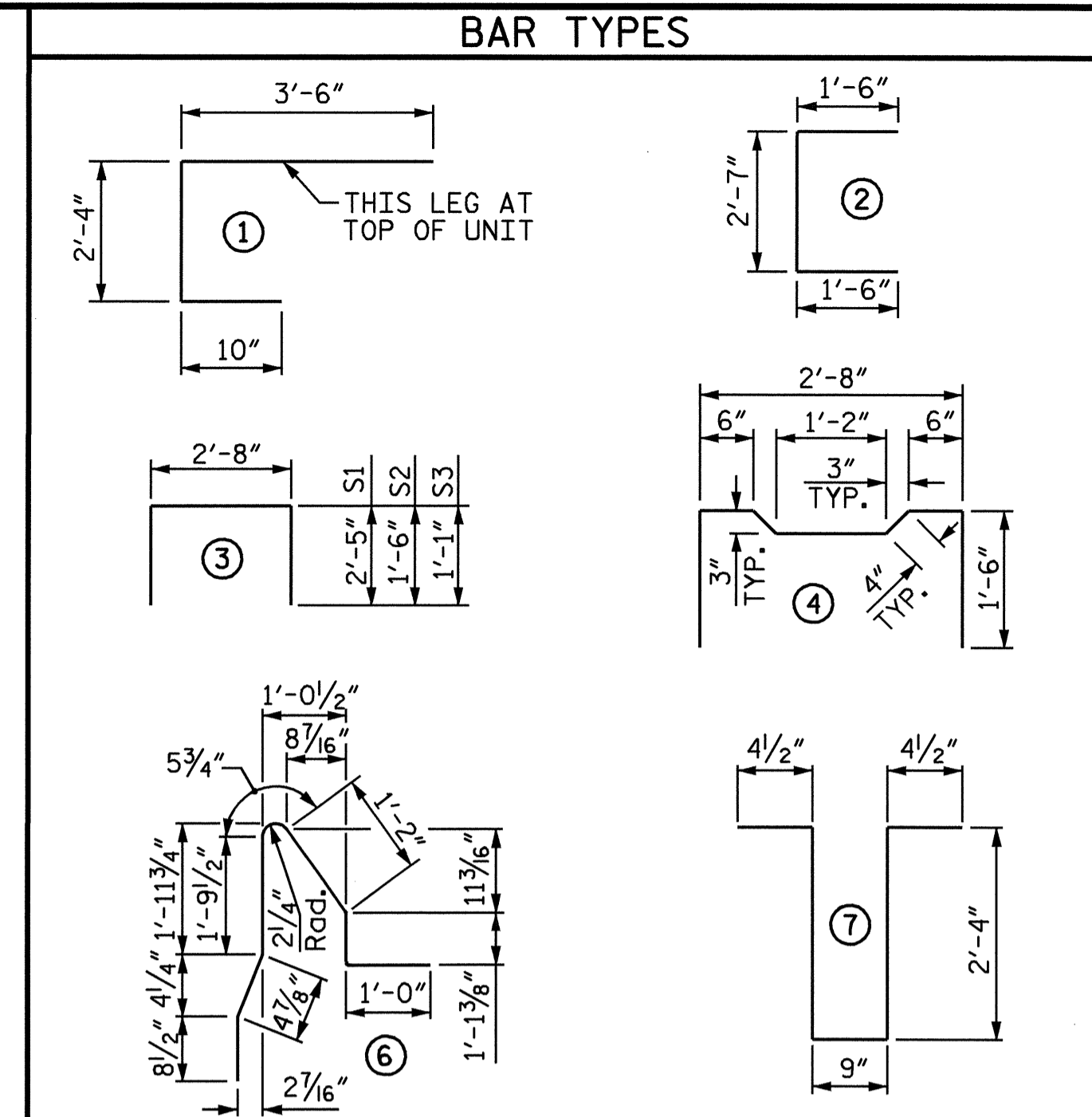
0.6" Ø LOW RELAXATION STRAND LAYOUT



TYPICAL STRAND LOCATION
 (22 STRANDS REQUIRED)
 (INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION)

DEBONDING LEGEND

◆ STRANDS DEBONDED FOR 8'-9" FROM END OF GIRDER



ALL BAR DIMENSIONS ARE OUT TO OUT

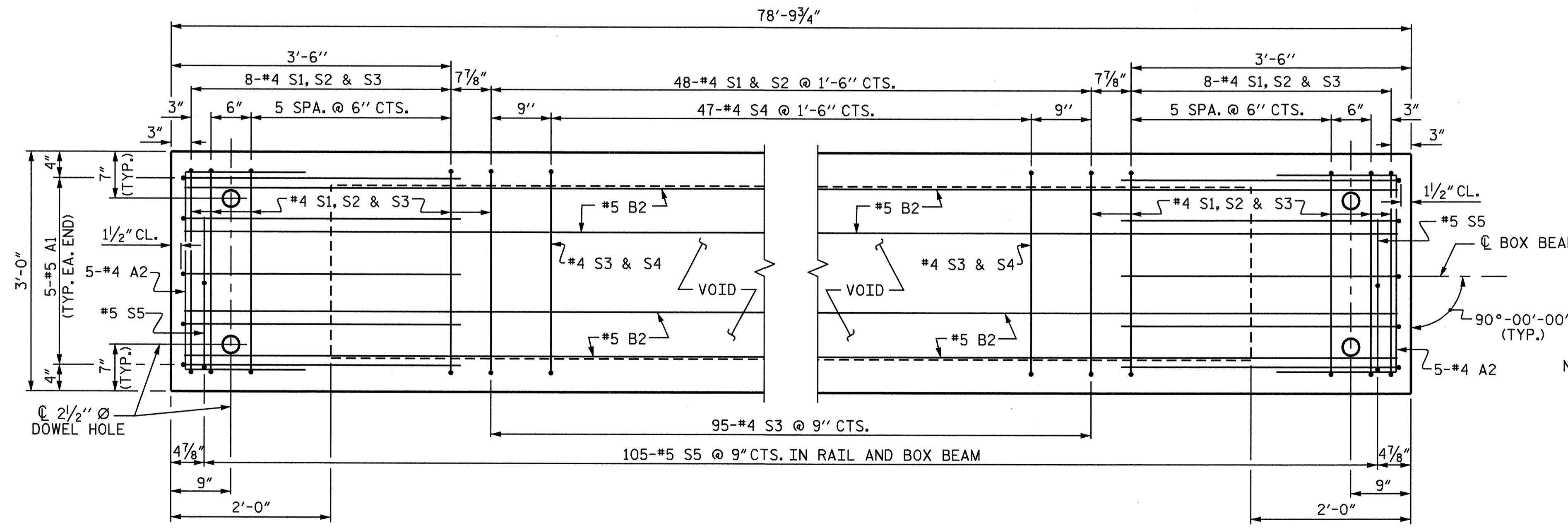
BILL OF MATERIAL FOR ONE BOX BEAM SECTION

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT 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'-4"	505	40'-4"	505
K1	12	#4	7	6'-2"	49	6'-2"	49
K2	8	#4	STR	2'-7"	14	2'-7"	14
S1	64	#4	3	7'-6"	321	7'-6"	321
S2	64	#4	3	5'-8"	242	5'-8"	242
S3	111	#4	3	4'-10"	358	4'-10"	358
S4	47	#4	4	5'-10"	183	5'-10"	183
*S5	105	#5	6	6'-8"	730		

REINFORCING STEEL	1869 LBS.	1869 LBS.
*EPOXY COATED REINF. STEEL	730	
6000 P.S.I. CONCRETE	14.0 CU. YDS.	13.8 CU. YDS.
0.6" Ø L.R. STRANDS	No. 22	No. 22

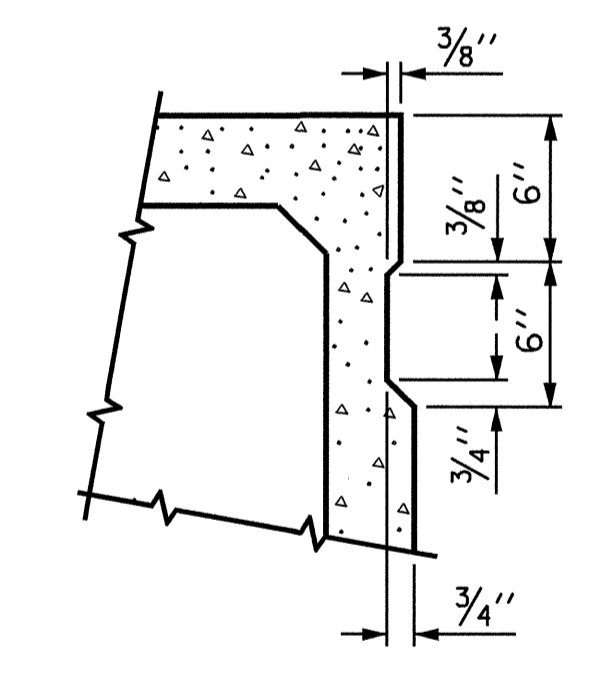
GRADE 270 STRANDS

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



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.

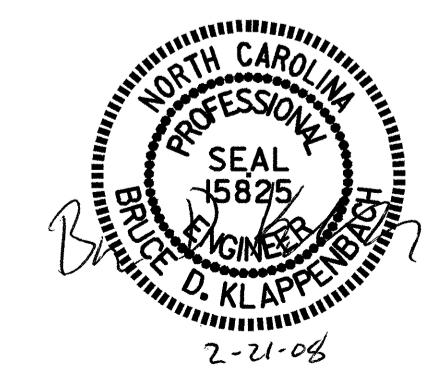


SHEAR KEY DETAIL
 NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR BOX BEAMS.

PROJECT NO. B-4321
WAYNE COUNTY
 STATION: 17+23.00 -L-

SHEET 5 OF 7

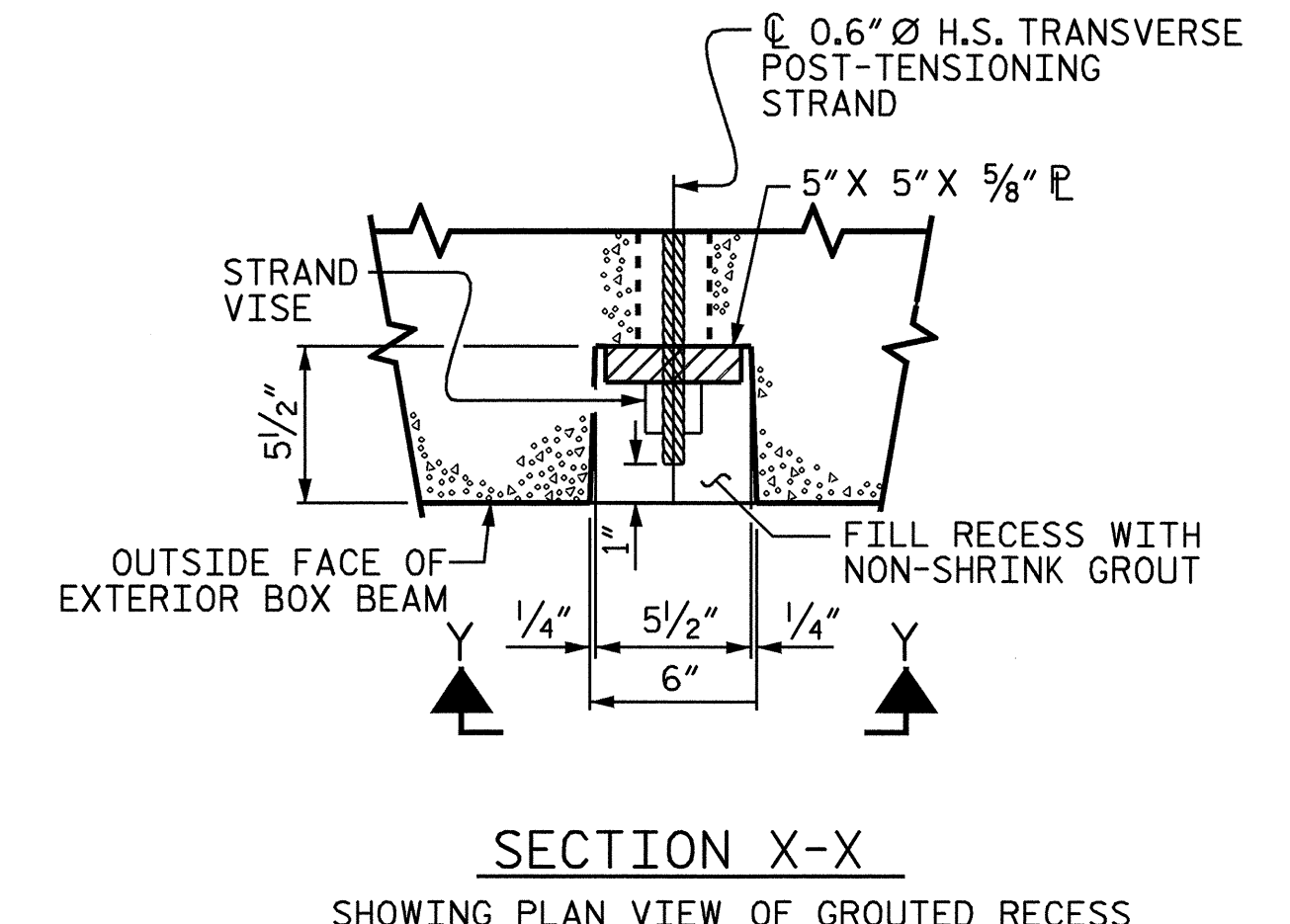
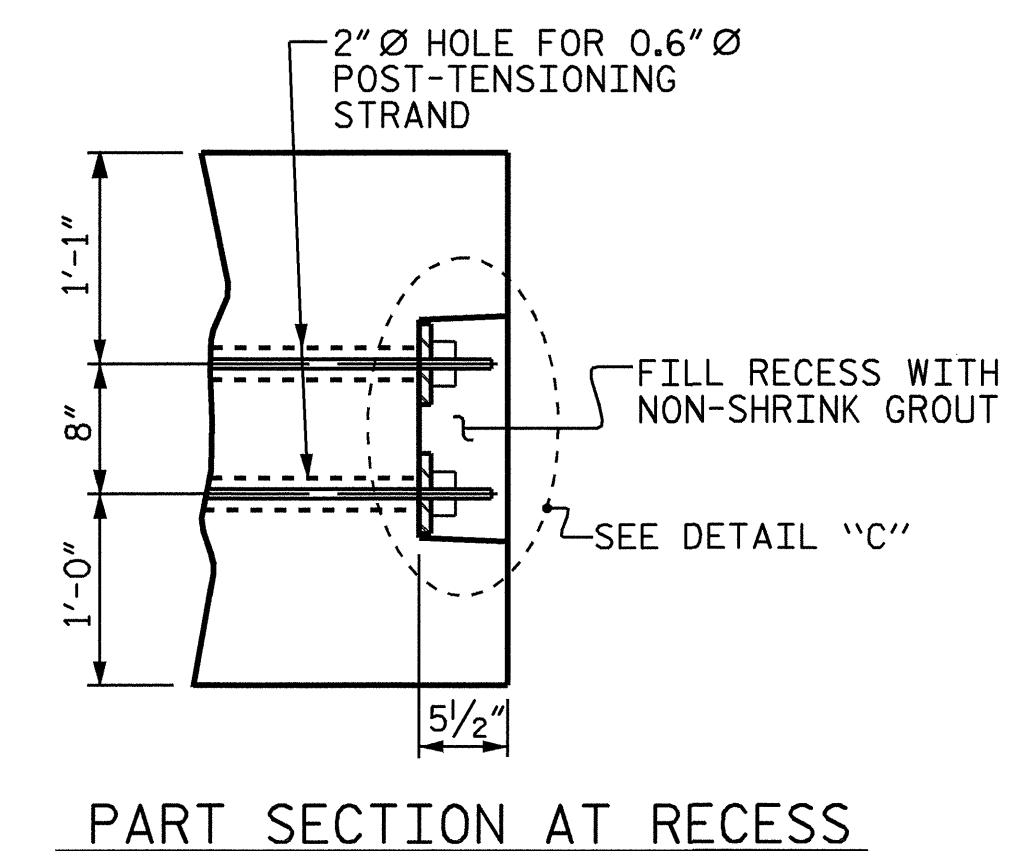
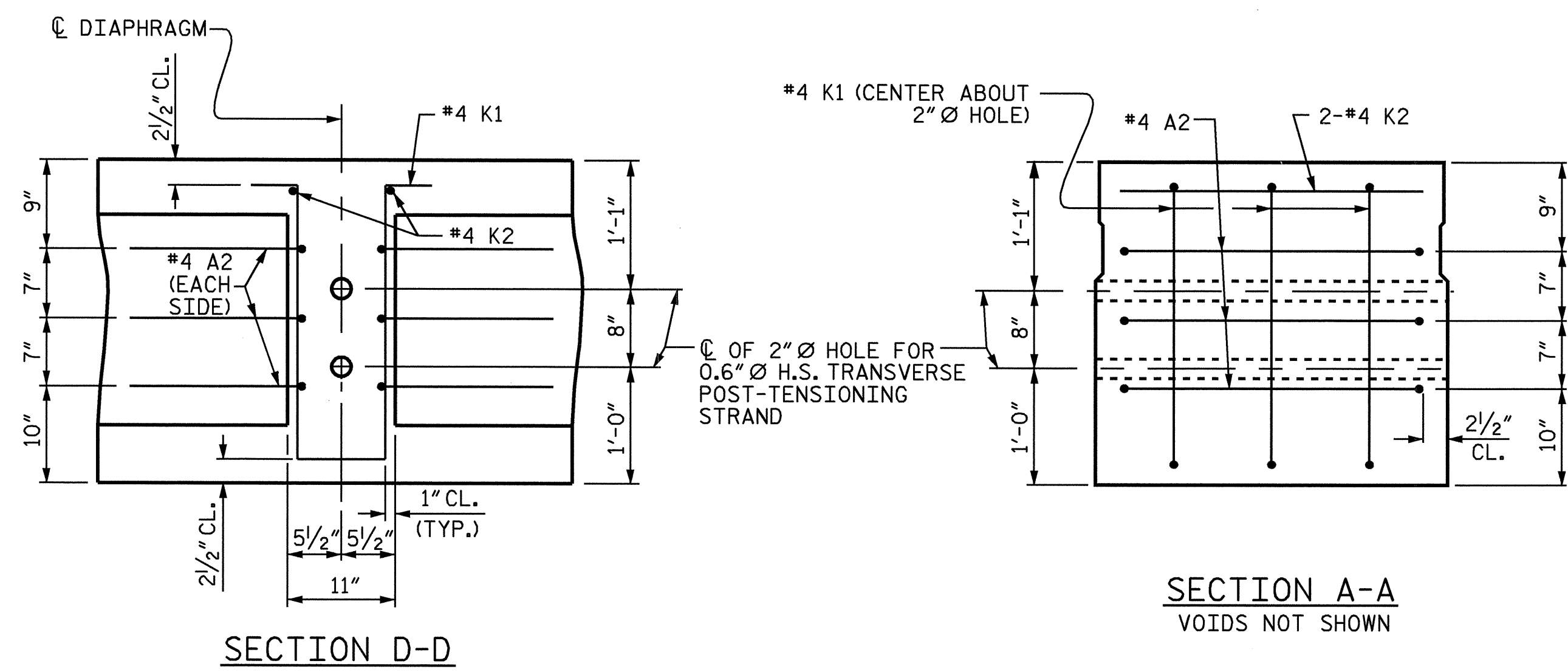
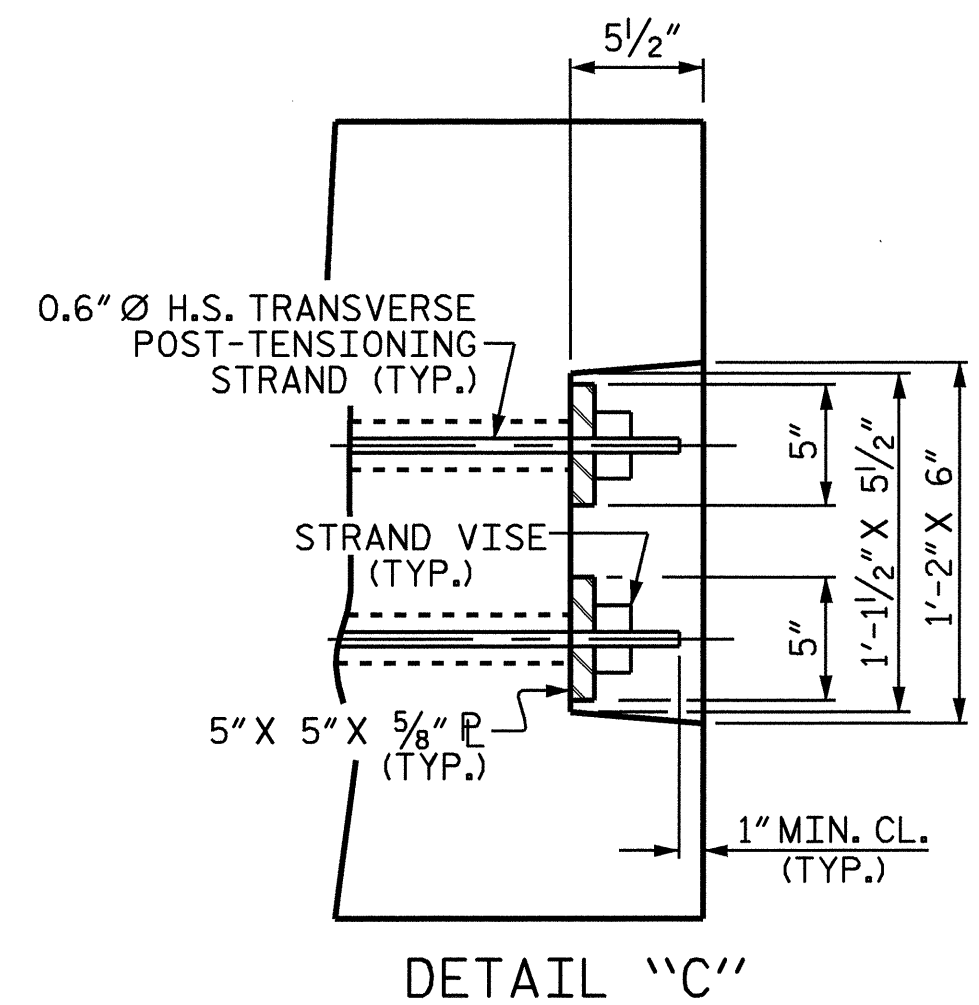
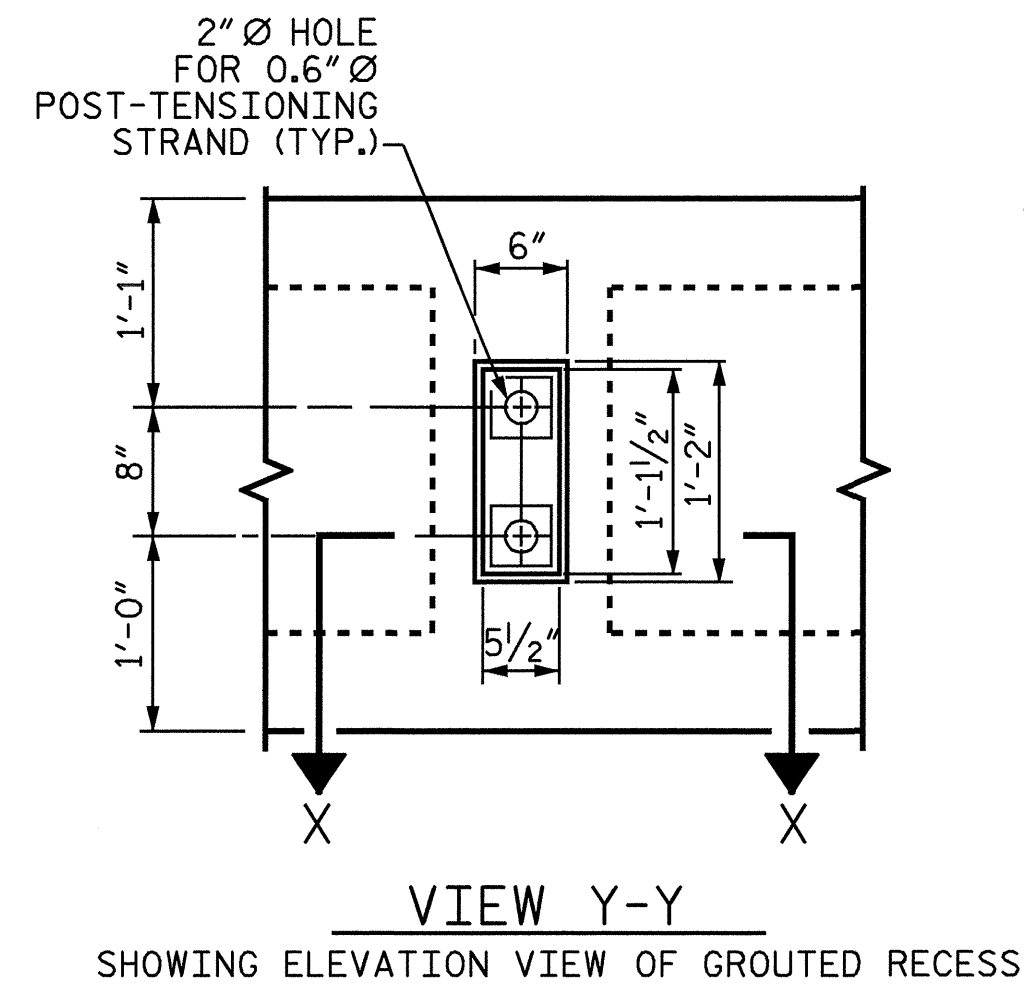
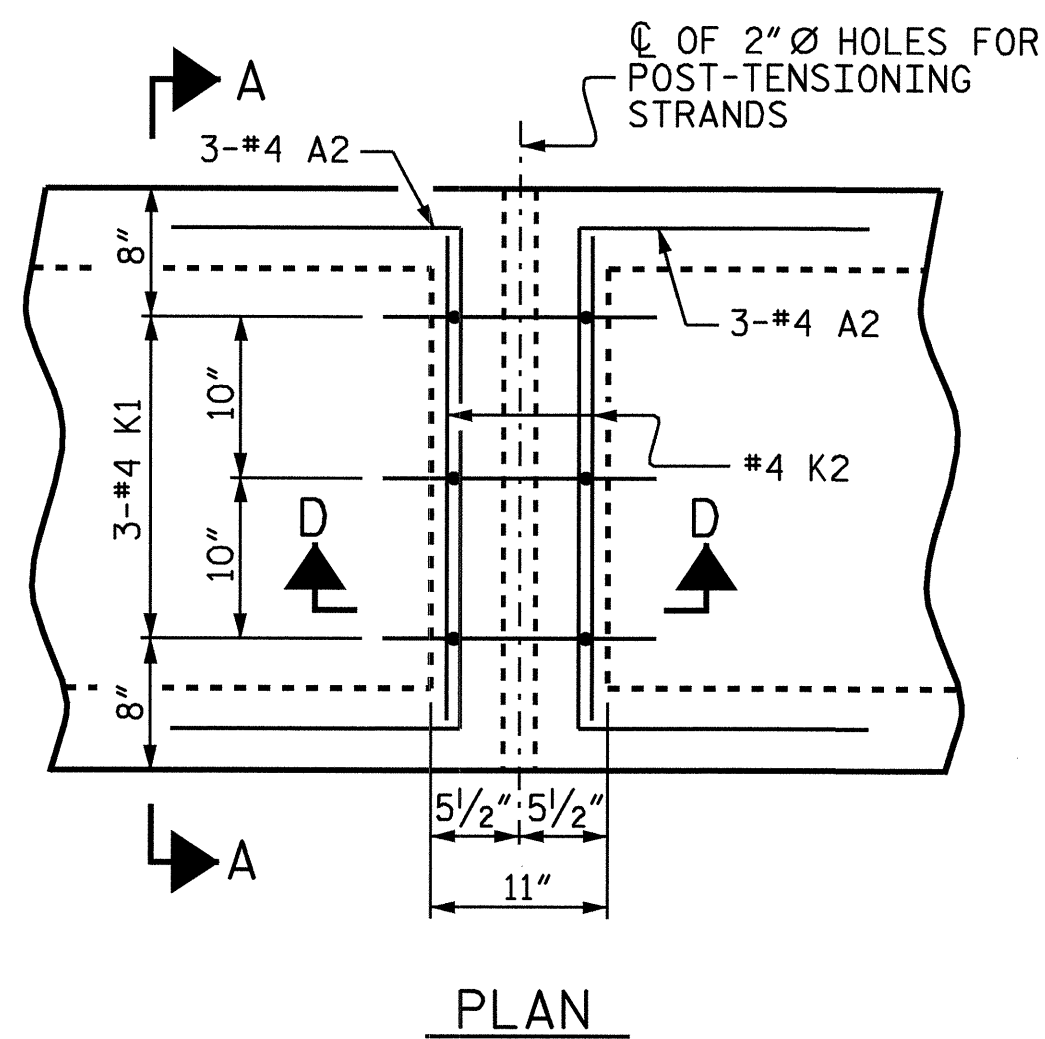
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
3'-0" X 2'-9"
PRESTRESSED CONCRETE
BOX BEAM UNIT
SPAN B



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

MARCH 2005
 SHEET NO. S-8
 TOTAL SHEETS 22

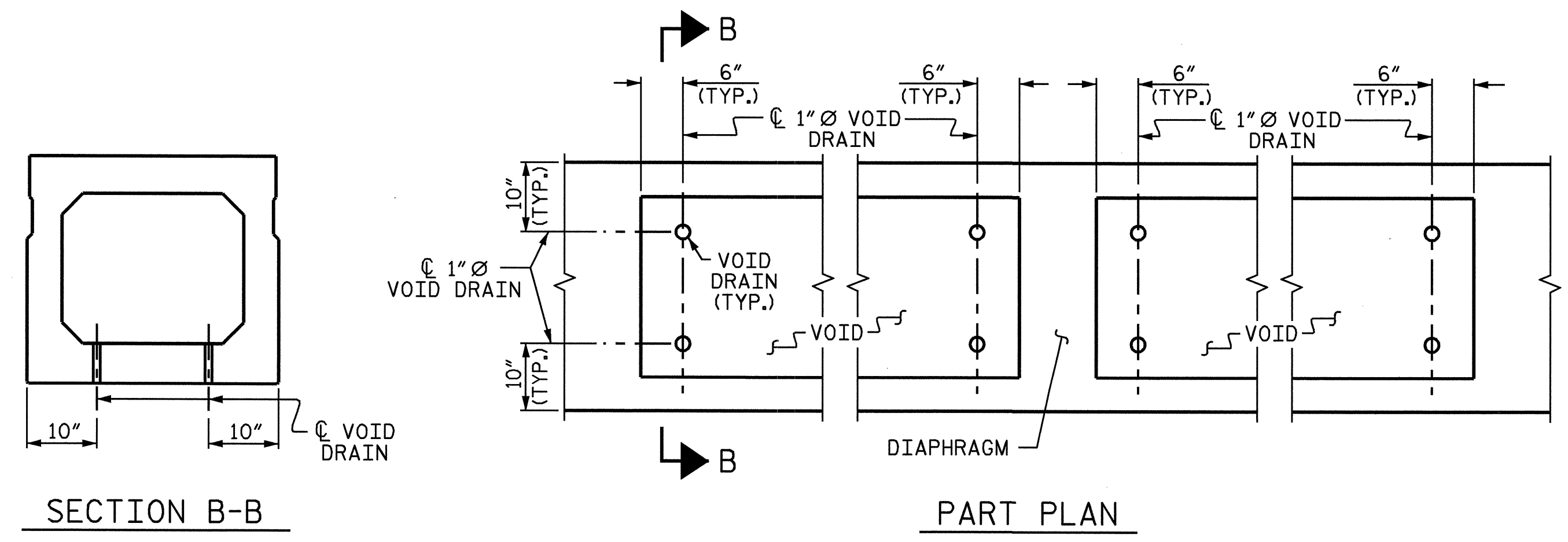
ASSEMBLED BY : M. G. SHAIKH DATE : 03-29-06
 CHECKED BY : C. R. YARBROUGH DATE : 11-03-06
 DRAWN BY : TLA 3/05 ADDED 1/31/05
 CHECKED BY :



DOUBLE DIAPHRAGM DETAILS

*4 "S" BARS NOT SHOWN. *4 "S" BARS MAY BE SHIFTED SLIGHTLY TO CLEAR 2" Ø HOLE.

GROUTED RECESS DETAIL AT END OF POST-TENSIONED STRANDS OF EXTERIOR BOX BEAM



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

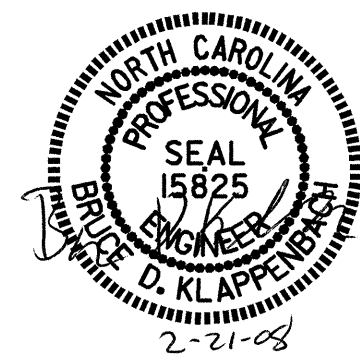
DEAD LOAD DEFLECTION AND CAMBER		
	3'-0" x 2'-9"	
	0.6" Ø L.R. STRAND	
	SPAN A	SPAN B
CAMBER (BEAM ALONE IN PLACE)	↑ 1 5/16"	↑ 3/4"
DEFLECTION DUE TO CONCRETE WEARING SURFACE	↓ 1/16"	↓ 3/8"
FINAL CAMBER	↑ 1/4"	↑ 2 7/8"

PROJECT NO. B-4321
WAYNE COUNTY
STATION: 17+23.00 -L-

SHEET 6 OF 7

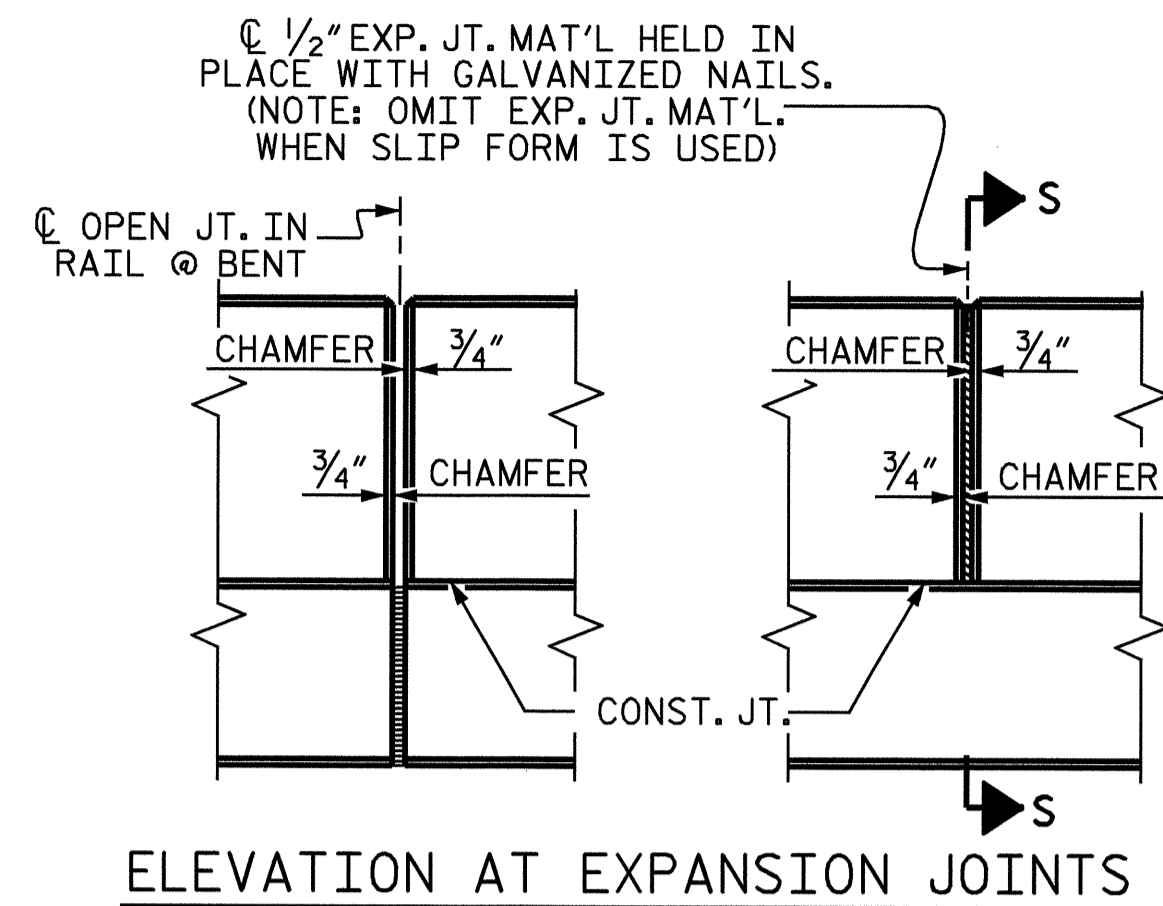
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

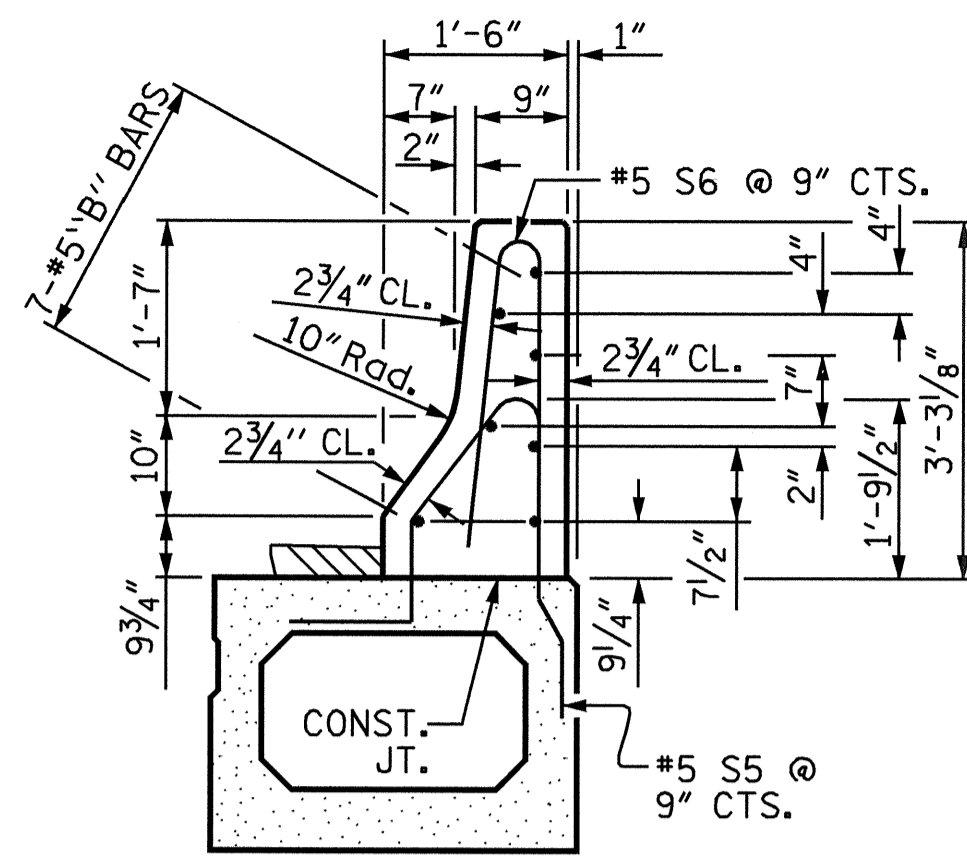


REVISIONS						SHEET NO. S-9
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 22
2			4			

ASSEMBLED BY : M. G. SHAIKH DATE : 3-31-06
CHECKED BY : C. R. YARBROUGH DATE : 11-03-06
DRAWN BY : TLA 3/05 ADDED
CHECKED BY :

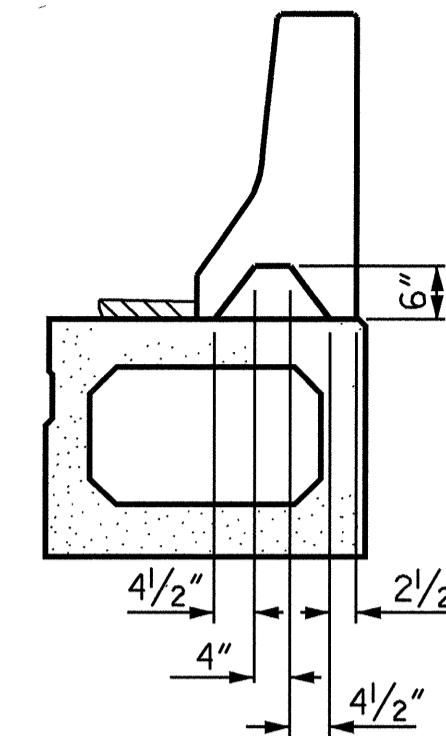


ELEVATION AT EXPANSION JOINTS



SECTION THRU RAIL

BARRIER RAIL DETAILS

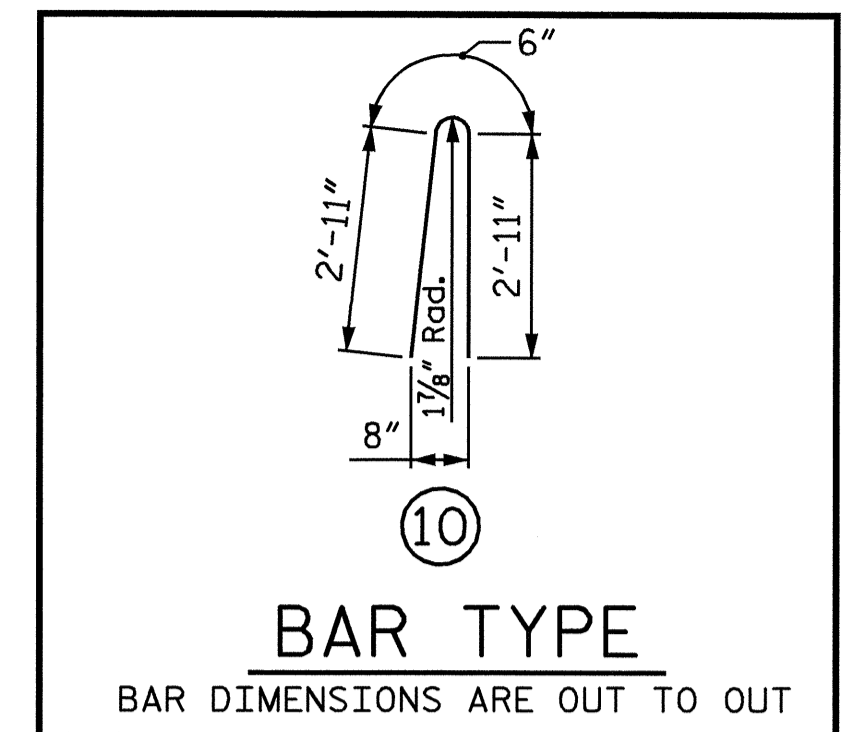


SECTION S-S

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

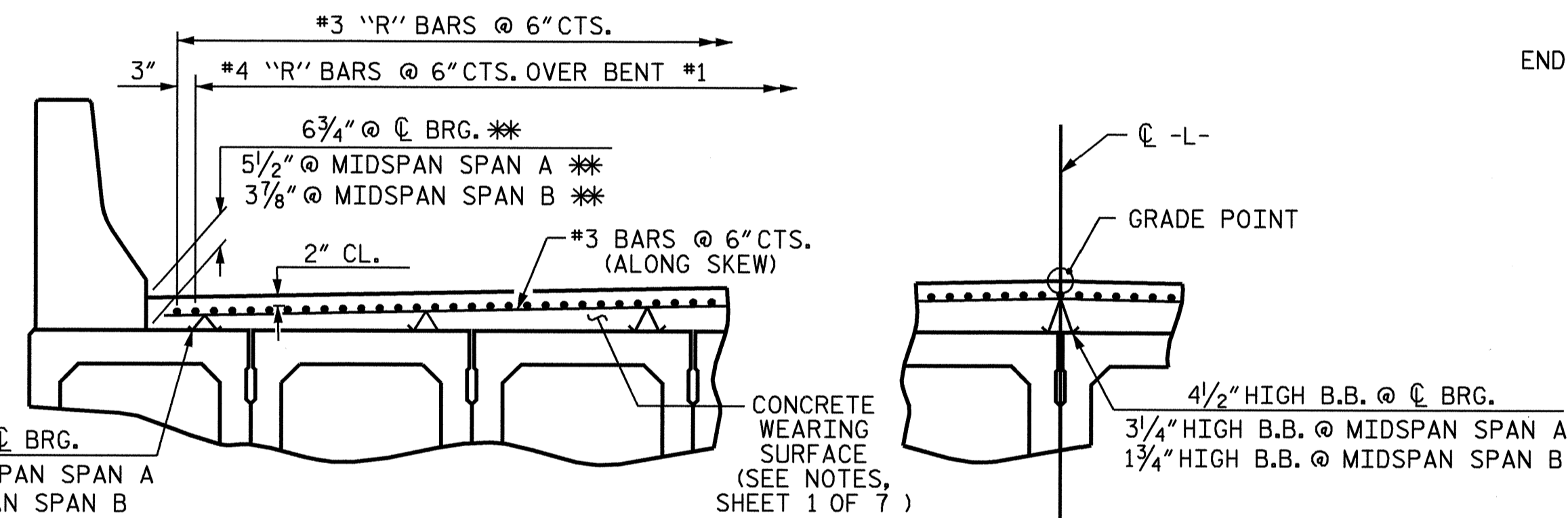
BILL OF MATERIAL FOR REINFORCING STEEL IN CONCRETE OVERLAY

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
* R1	506	# 3	STR	16'-11"	3218
* R2	330	# 3	STR	26'-6"	3288
* R3	65	# 4	STR	20'-0"	868
* EPOXY COATED REINFORCING STEEL					7374 LBS.
CONCRETE WEARING SURFACE					4164 SQ. FT.



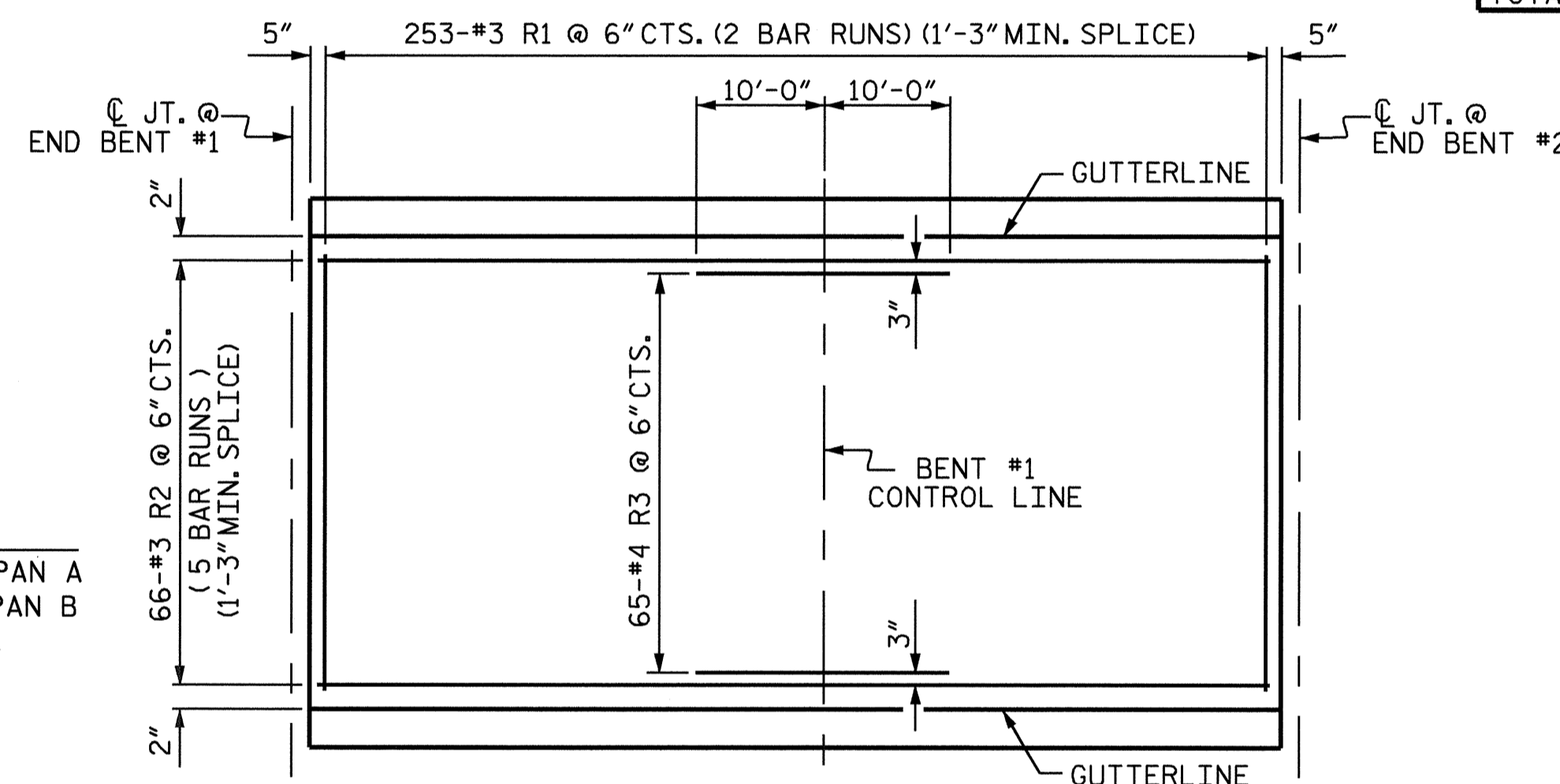
BILL OF MATERIAL FOR CONCRETE BARRIER RAIL

BAR	BARS PER SPAN		TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	SPAN A	SPAN B					
* B3	28		28	#5	STR	24'-0"	701
* B4		42	42	#5	STR	25'-10"	1132
* S6	130	210	340	#5	10	6'-4"	2246
* EPOXY COATED REINFORCING STEEL							LBS. 4079
CLASS AA CONCRETE							CU.YDS. 33.8
TOTAL LIN. FT. OF CONCRETE BARRIER RAIL							255.50



REINFORCING FOR CONCRETE WEARING SURFACE

** BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS



PLAN SHOWING CONCRETE WEARING SURFACE REINFORCING STEEL

GROOVING BRIDGE FLOORS

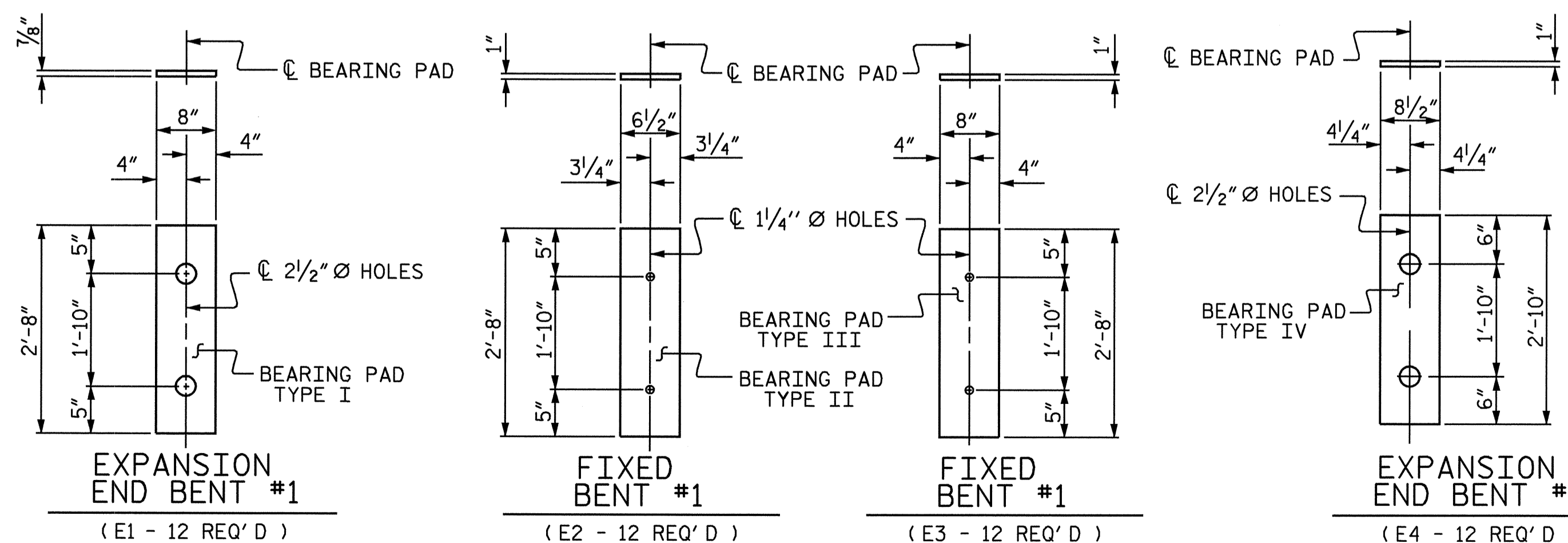
APPROACH SLABS	1415 SQ. FT.
BRIDGE DECK	3773 SQ. FT.
TOTAL	5188 SQ. FT.

SPLICE LENGTH CHART

BAR SIZE	EPOXY COATED
#3	1'-3"

BOX BEAM UNITS REQUIRED

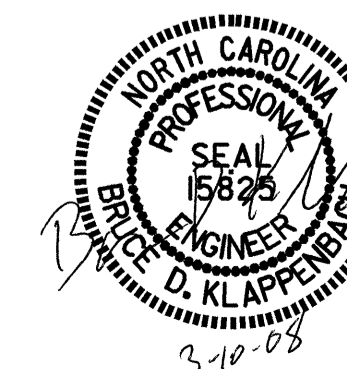
	NUMBER	LENGTH	TOTAL LENGTH
SPAN A	12	48'-9 3/4"	585'-9"
SPAN B	12	78'-9 3/4"	945'-9"
TOTAL			1531'-6"



ELASTOMERIC BEARING DETAILS

ASSEMBLED BY : M. G. SHAIKH DATE : 4-05-06
 CHECKED BY : C. R. YARBROUGH DATE : 11-03-06
 DRAWN BY : TLA 5/05 ADDED 7/11/05R
 CHECKED BY : GM 6/05

10-MAR-2008 14:32
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PROJECT NO. B-4321
 WAYNE COUNTY
 STATION: 17+23.00 -L-

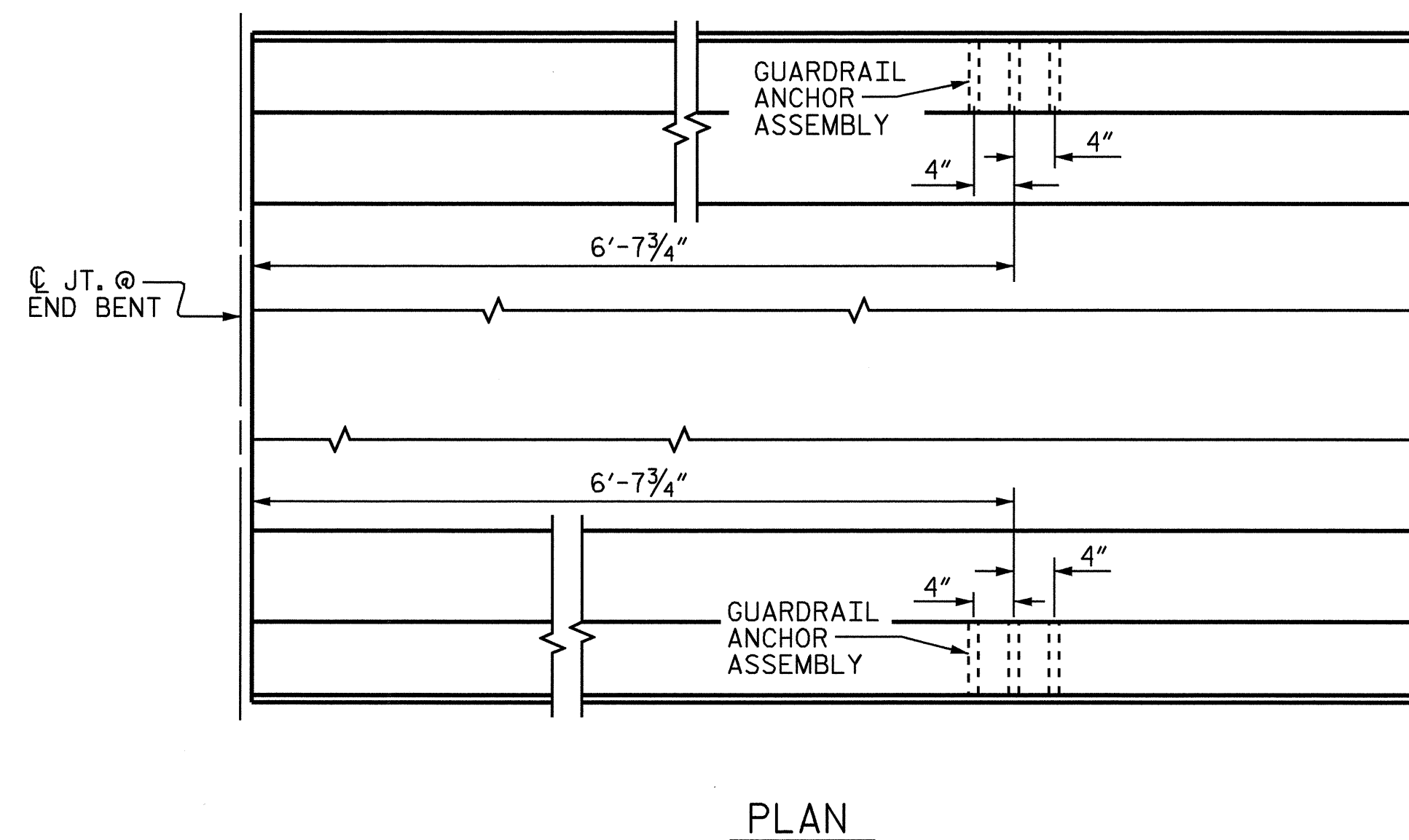
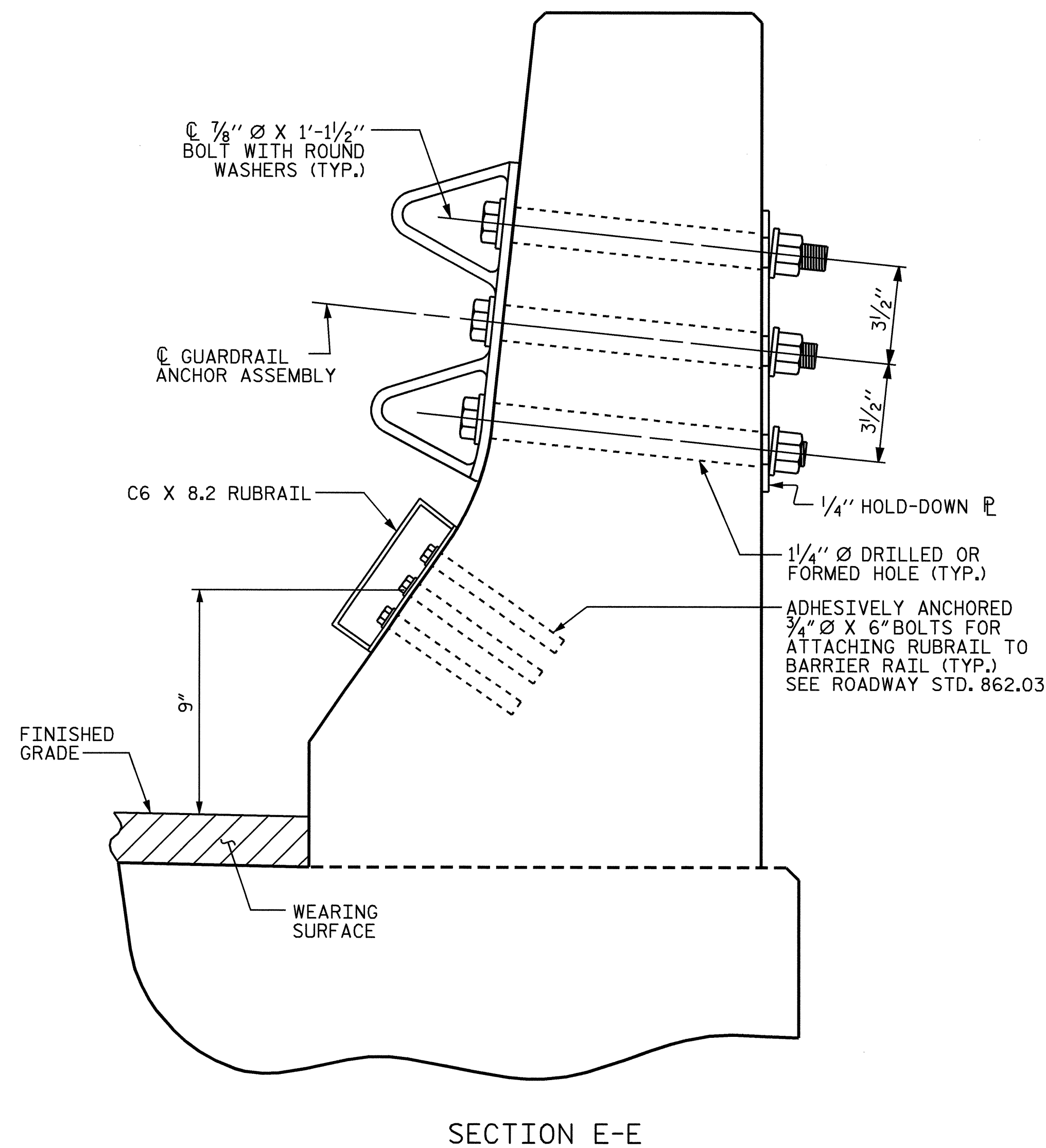
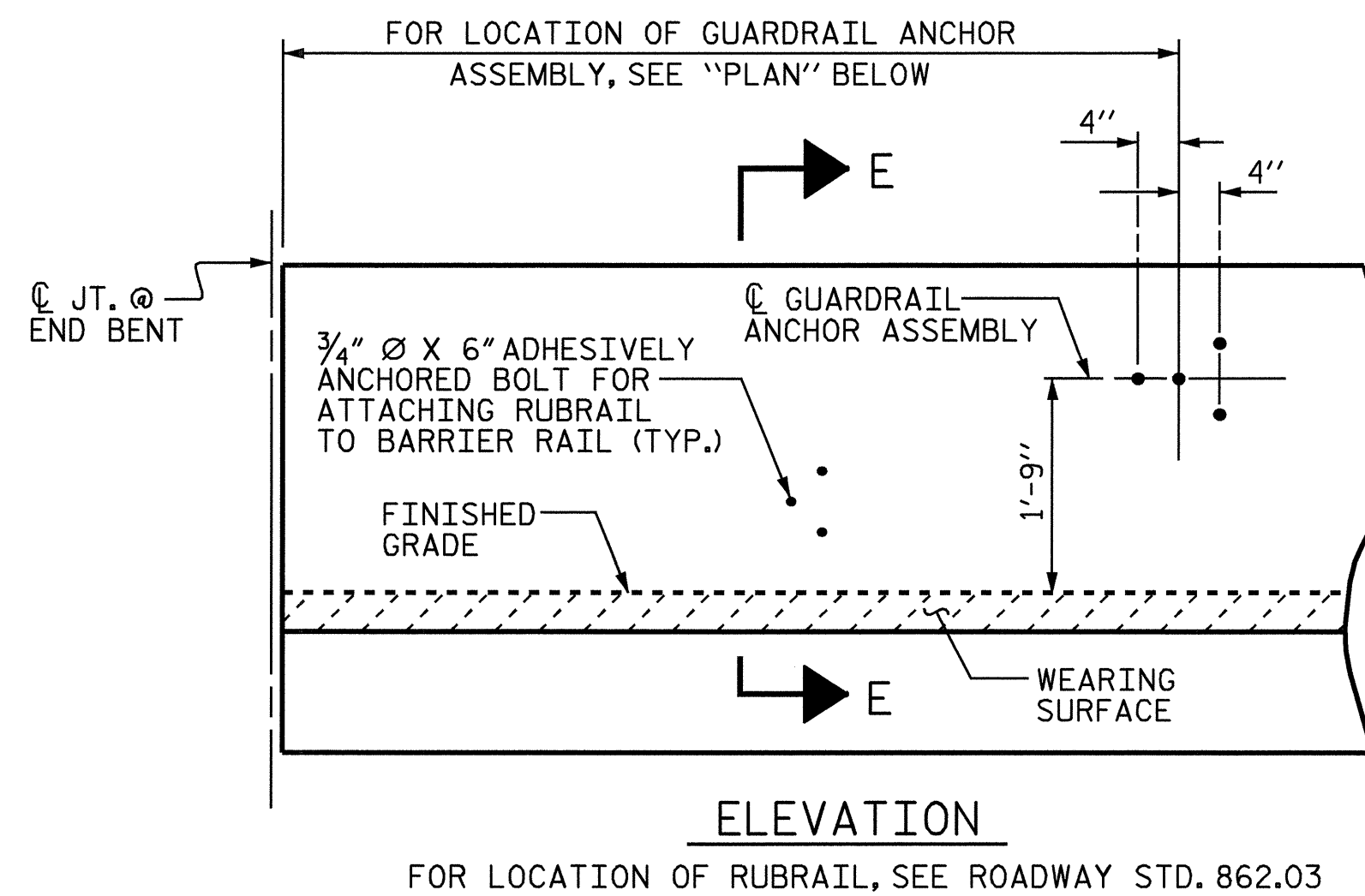
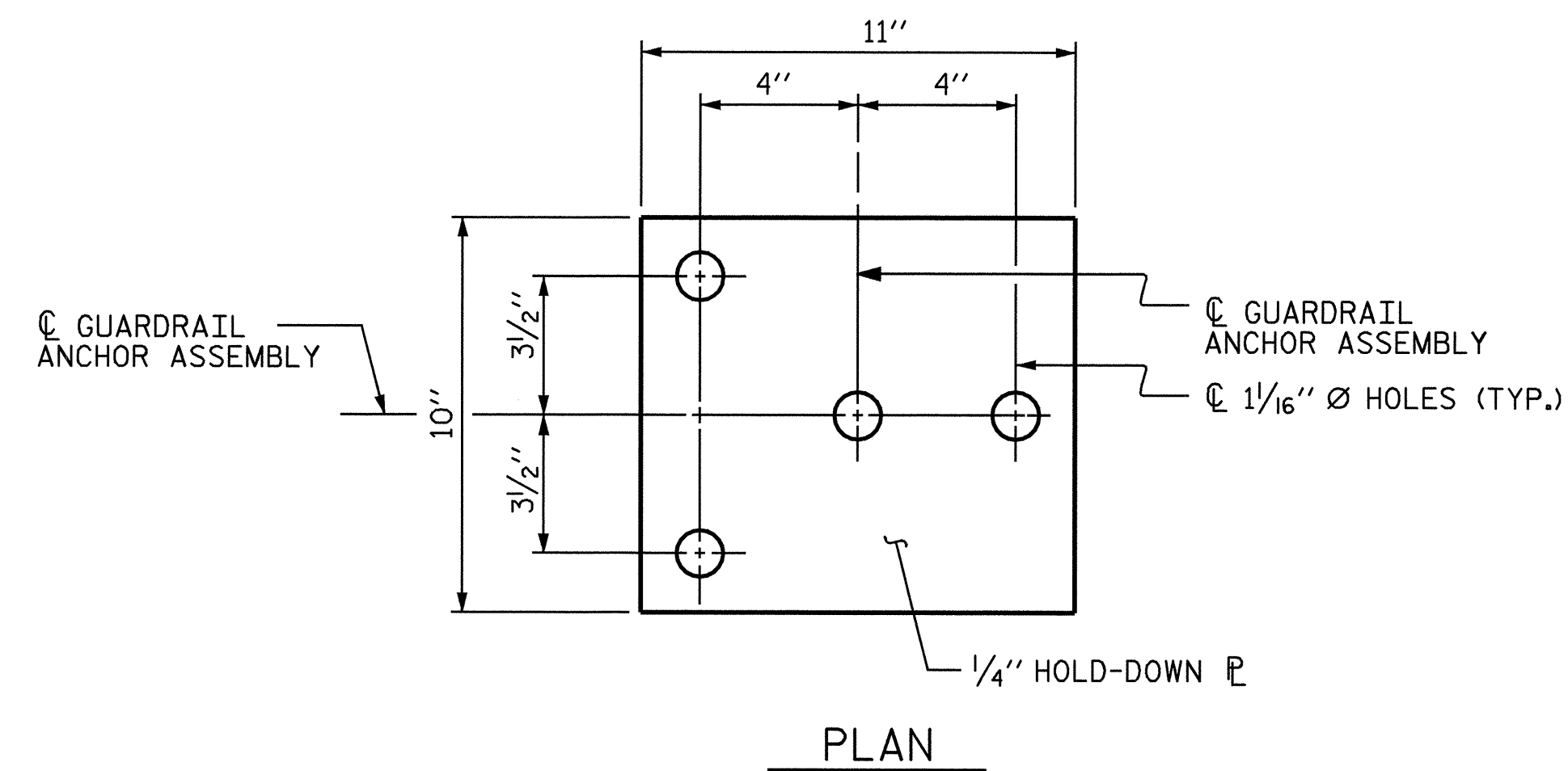
SHEET 7 OF 7

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

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

TOTAL SHEETS 22

STD. NO. PCBB8



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

NOTES

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

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

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

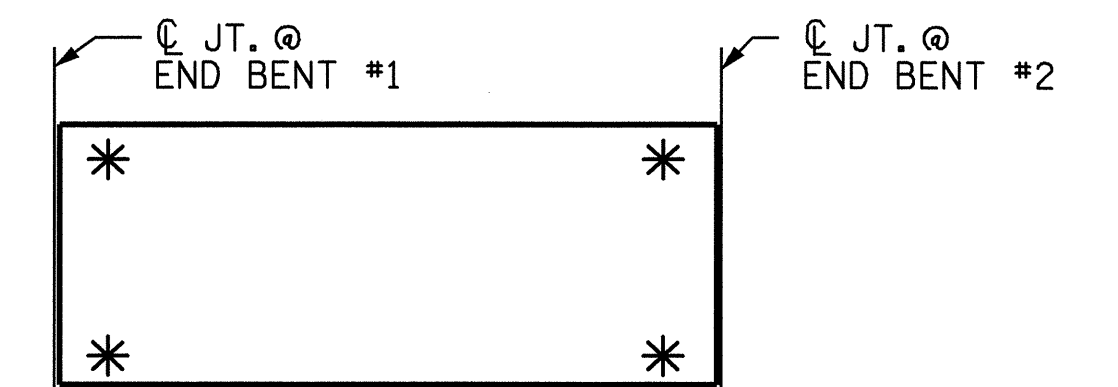
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

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

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

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

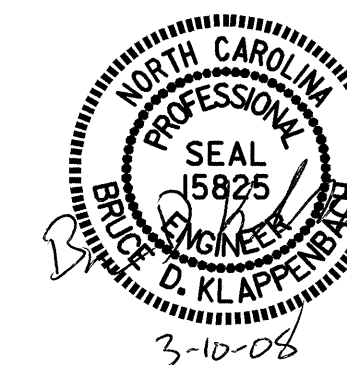


SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-4321
WAYNE COUNTY
STATION: 17+23.00 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-11
STANDARD GUARDRAIL ANCHORAGE FOR BARRIER RAIL						TOTAL SHEETS 22
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



ASSEMBLED BY : M. G. SHAIKH DATE : 02-12-08
CHECKED BY : C. R. YARBROGH DATE : 02-12-08
DRAWN BY : TLA 5/06
CHECKED BY : GM 5/06

ADDED 5/1/06R KMM/GM
10-MAR-2008 12:58
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NOTES

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

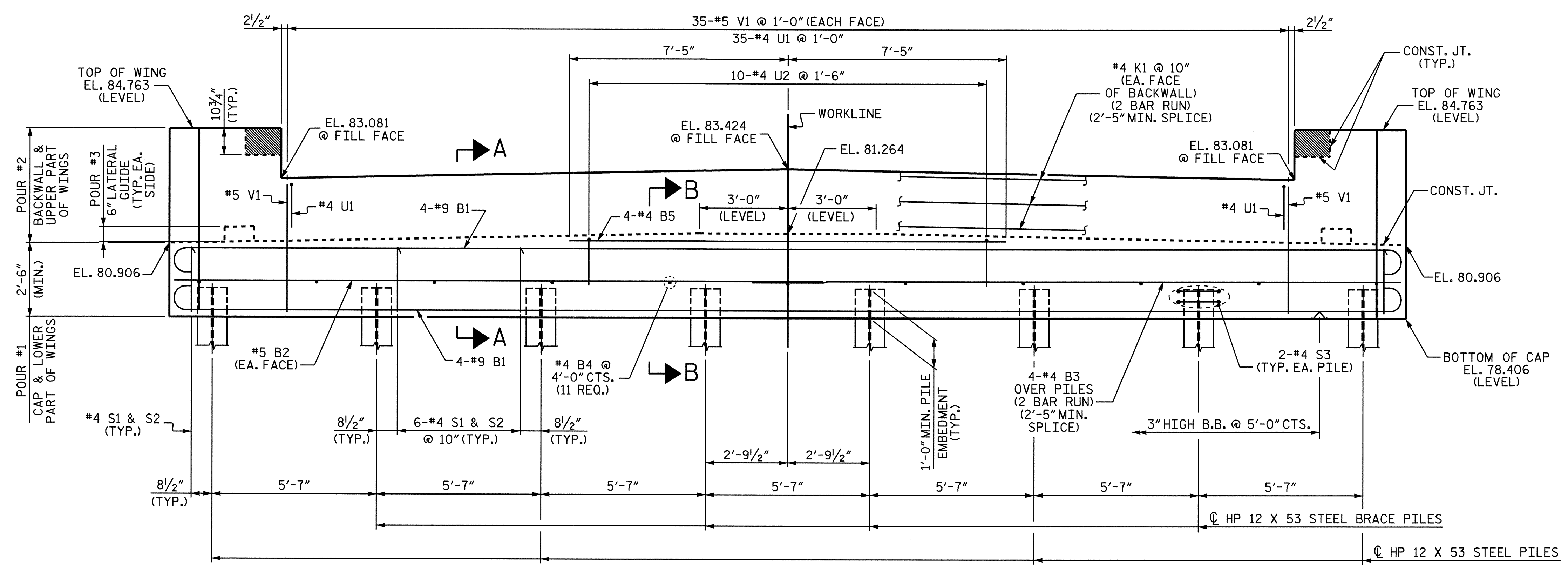
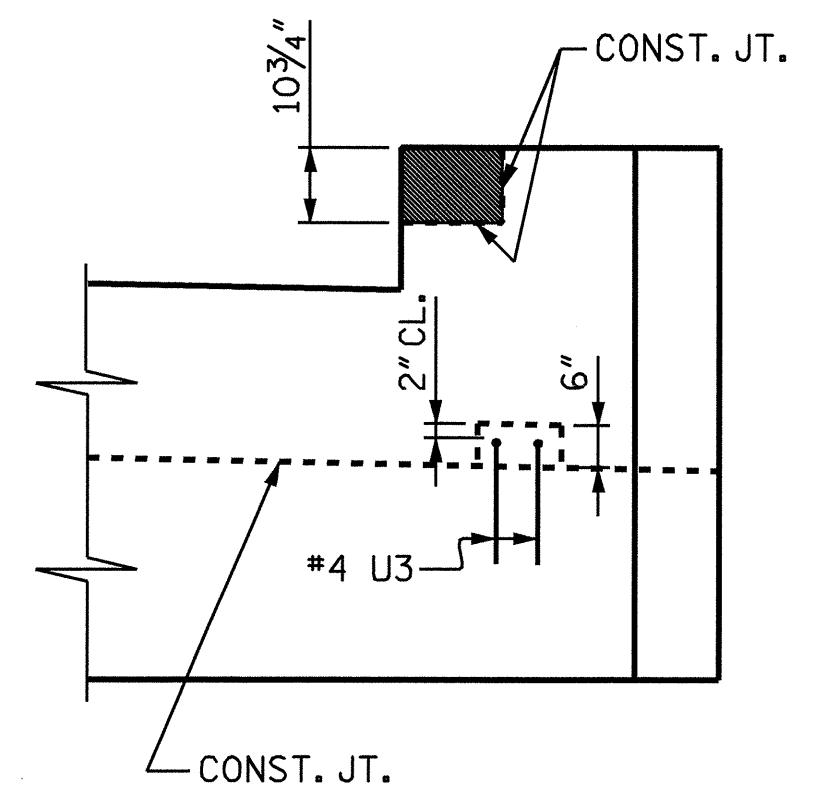
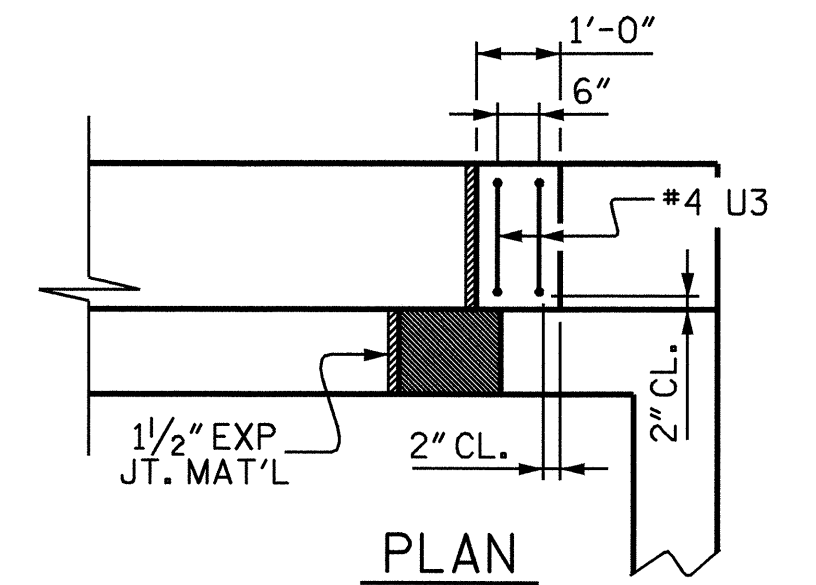
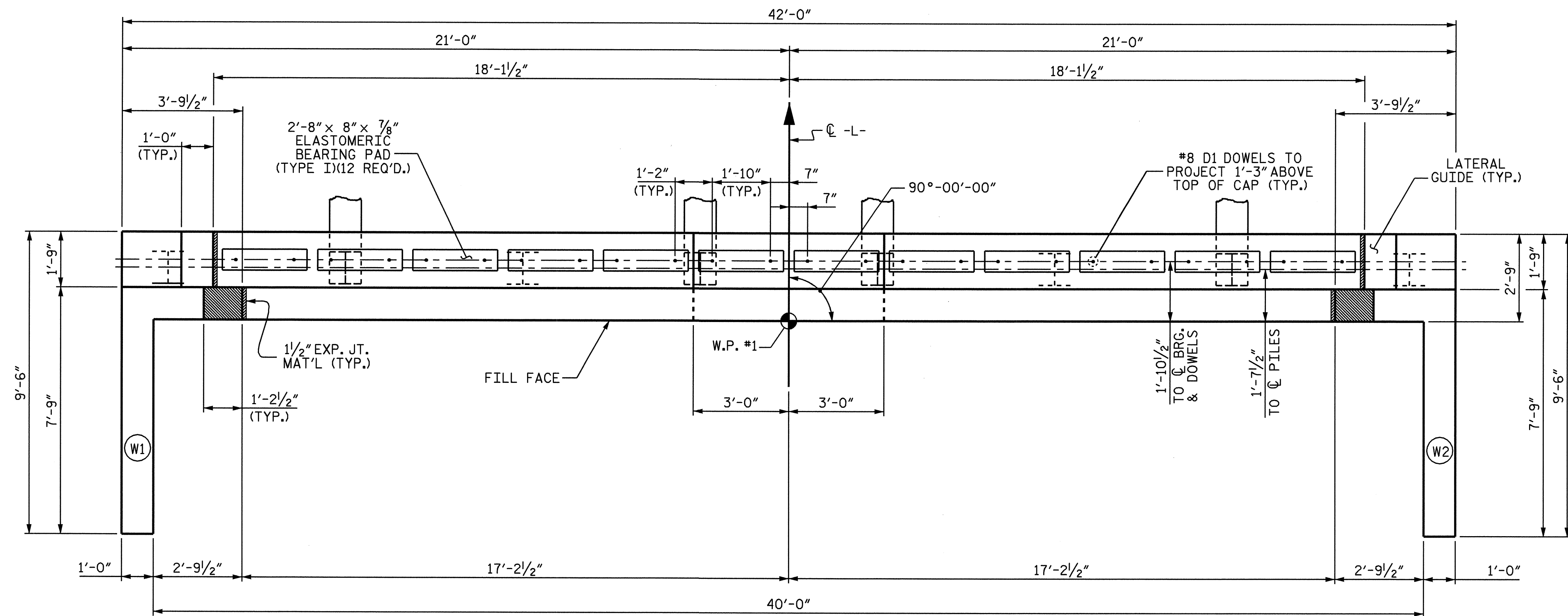
THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS. SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

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

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

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



LATERAL GUIDE DETAILS

PROJECT NO. B-4321
WAYNE COUNTY
 STATION: 17+23.00 -L-

SHEET 1 OF 3

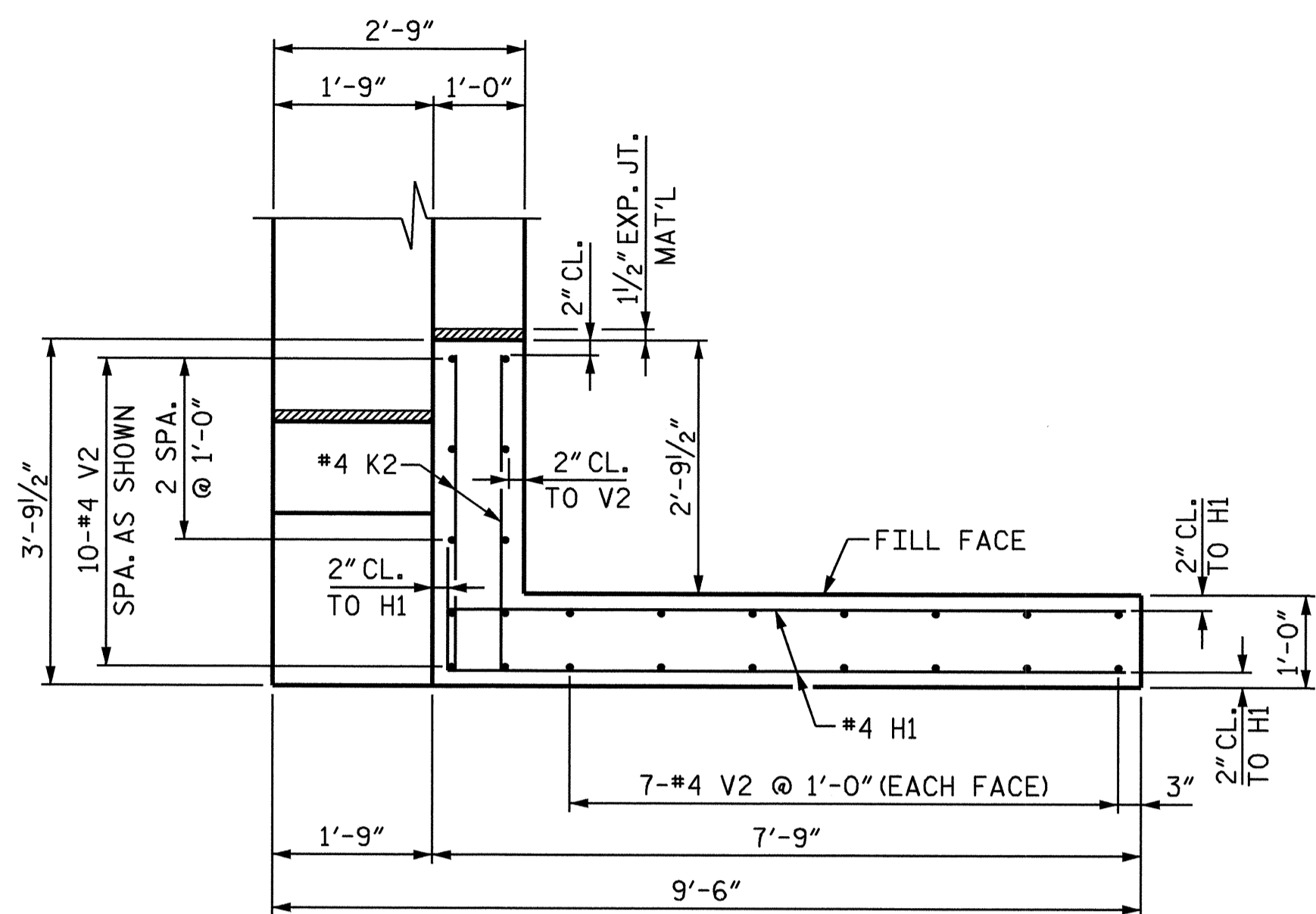
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE END BENT #1

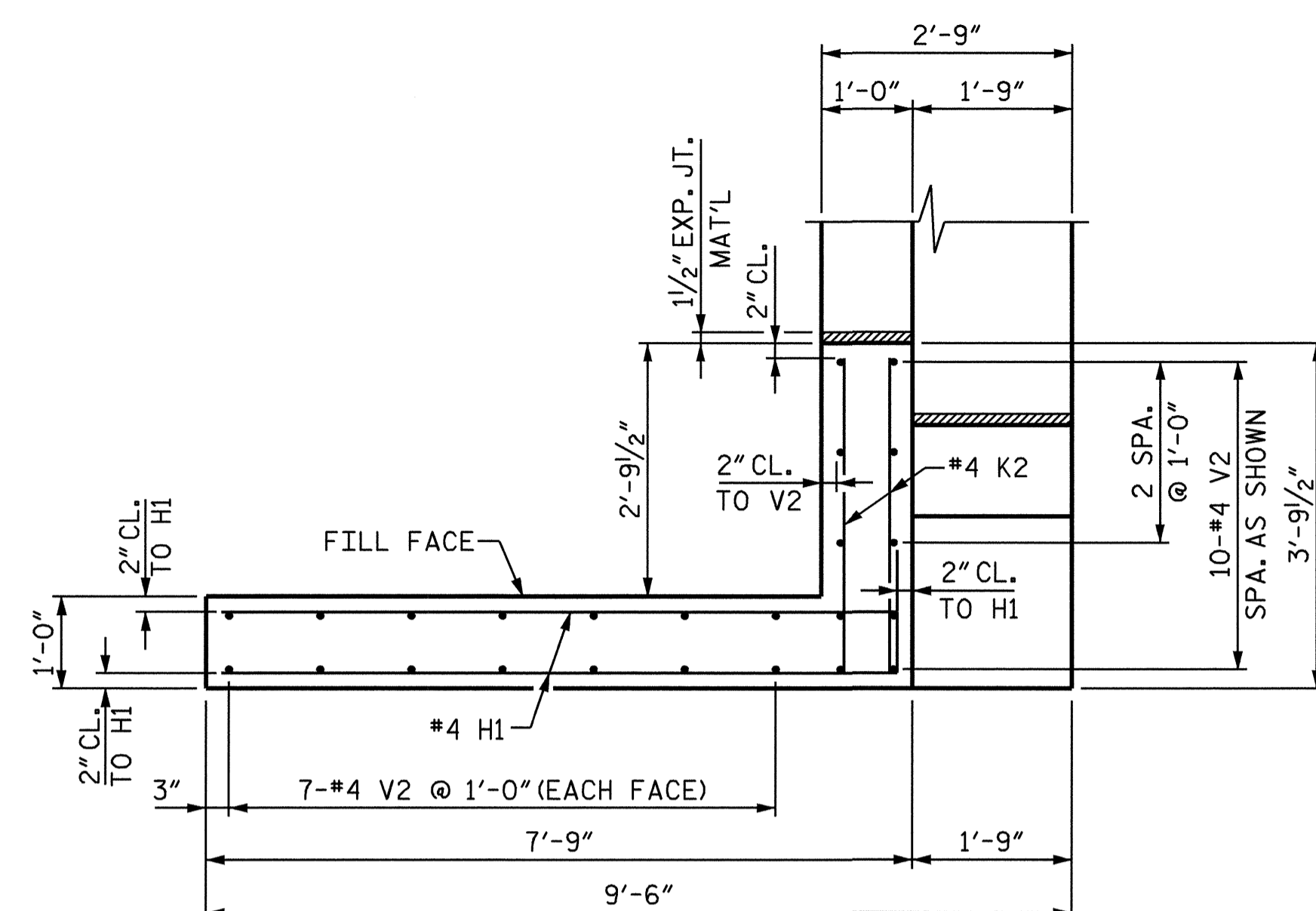
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NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			



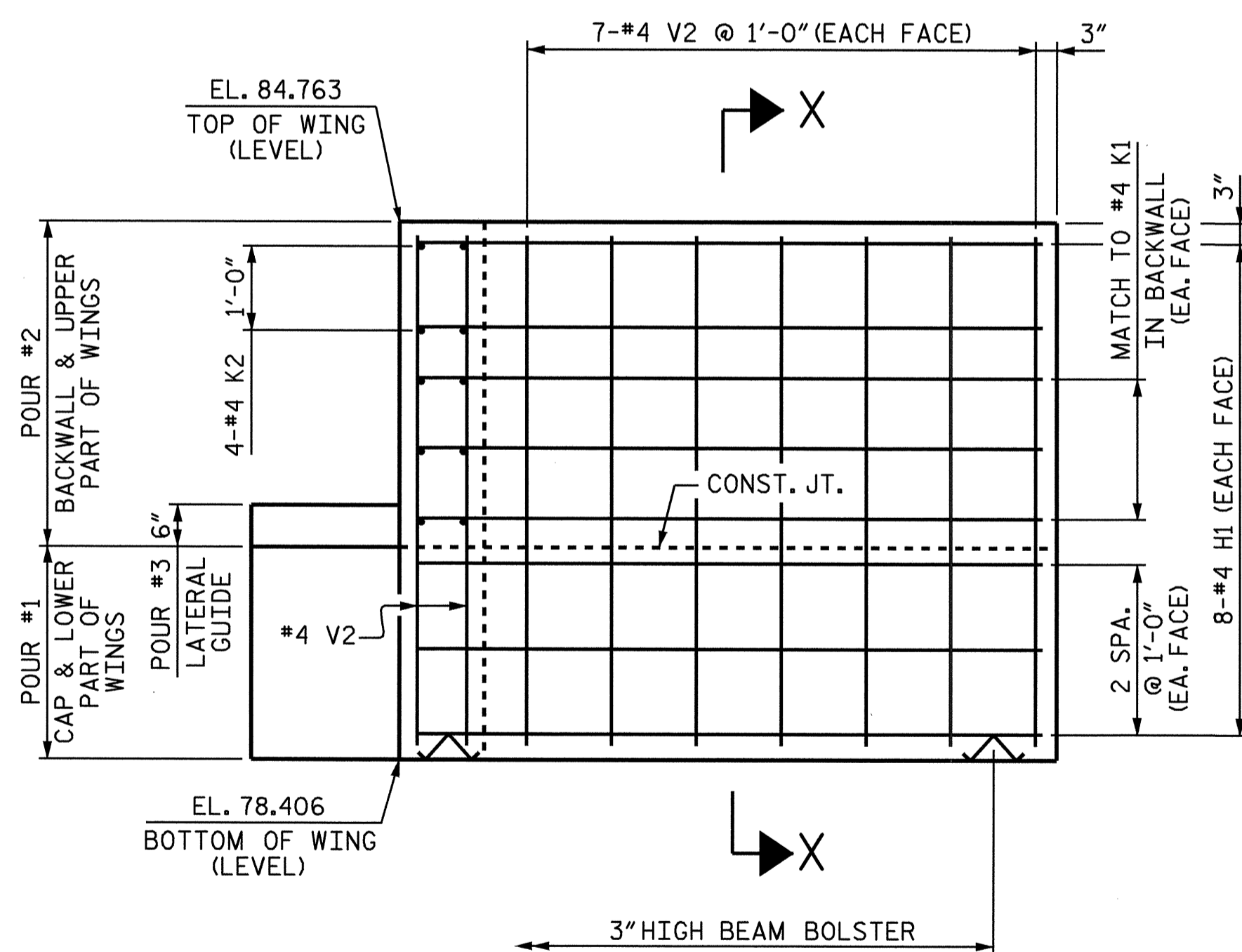
DRAWN BY: A. SORSENGINH DATE: 12/13/07
 CHECKED BY: M. G. SHAIKH DATE: 1/15/08



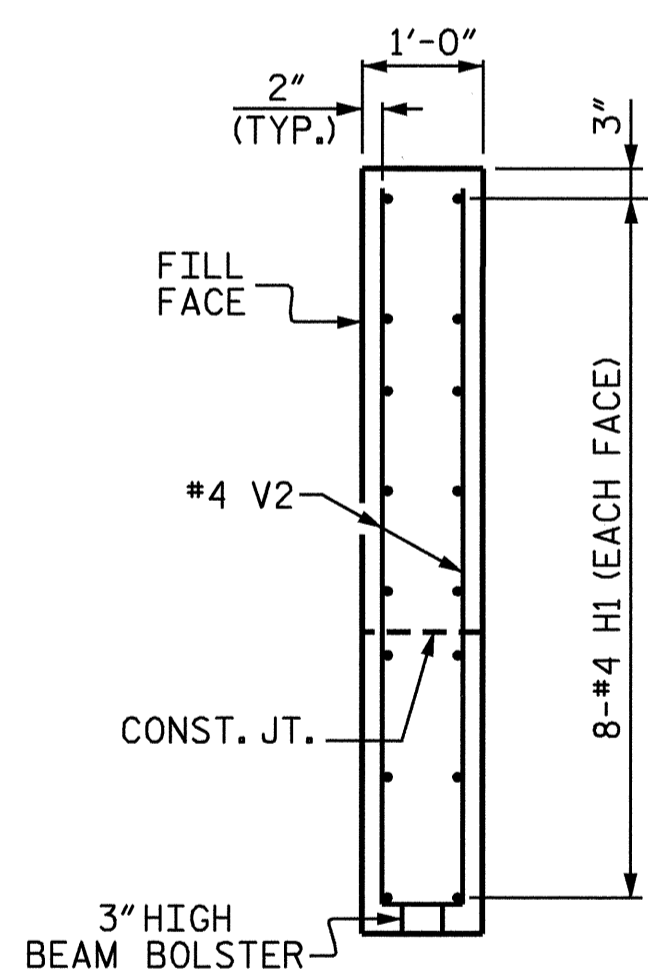
PLAN OF LEFT WING W1



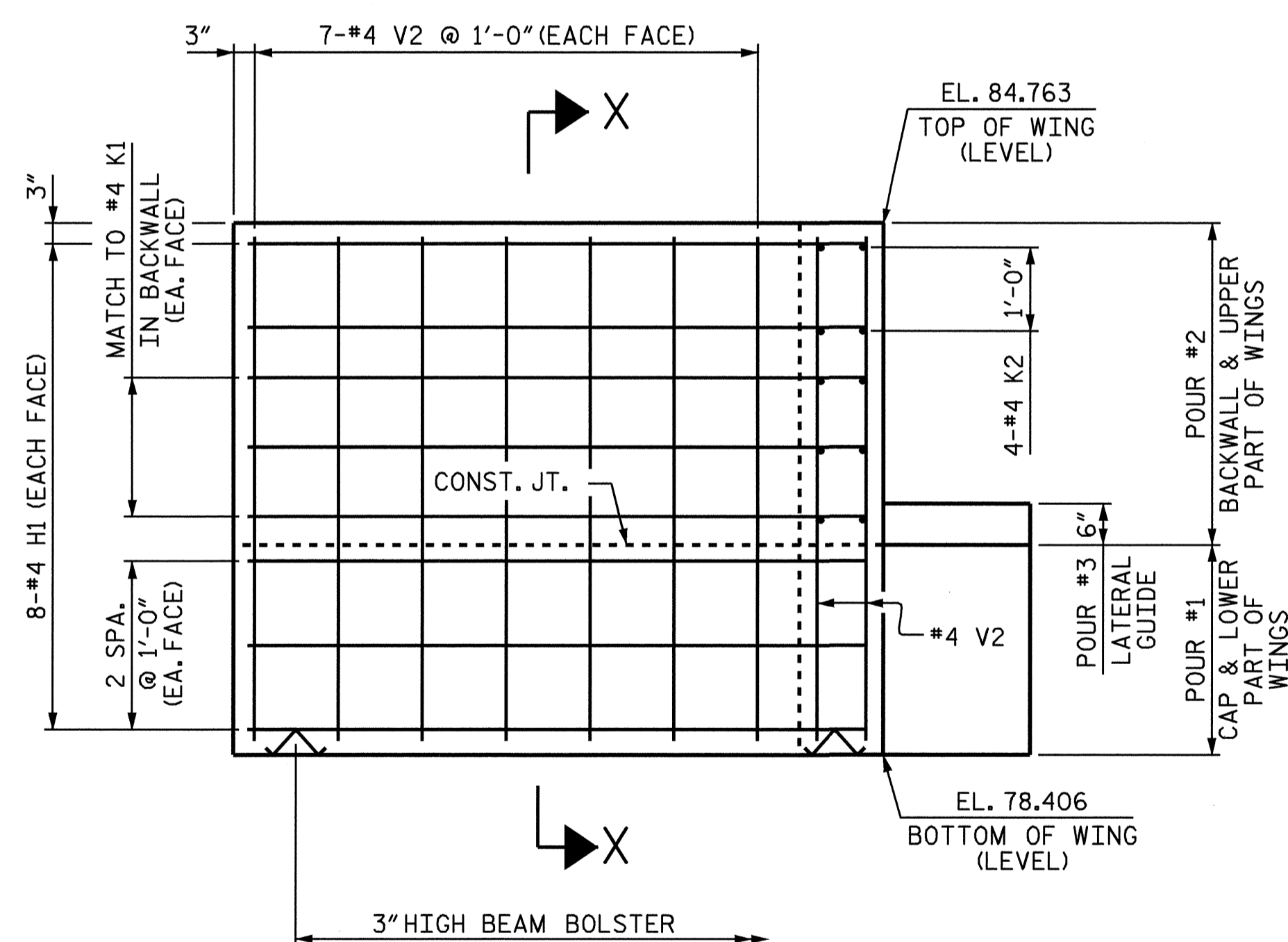
PLAN OF RIGHT WING W2



ELEVATION OF LEFT WING W1



SECTION X-X



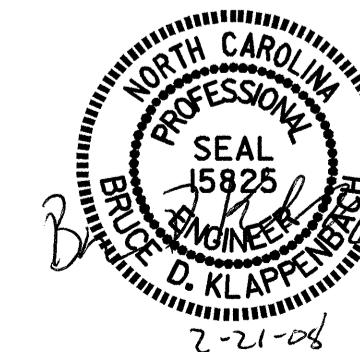
ELEVATION OF RIGHT WING W2

PROJECT NO. B-4321
 WAYNE COUNTY
 STATION: 17+23.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

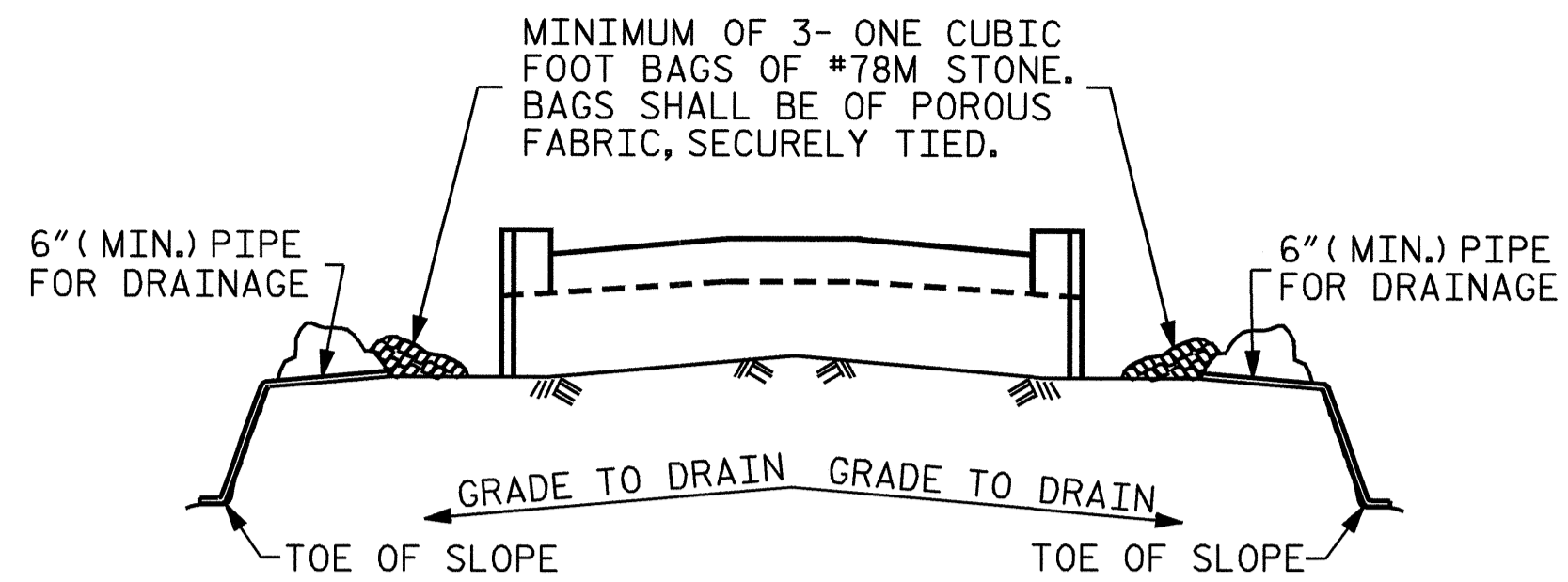
SUBSTRUCTURE
 END BENT #1



DRAWN BY: A. SORSENGINH DATE: 12/13/07
 CHECKED BY: M. G. SHAIKH DATE: 1/15/08

21-FEB-2008 08:28
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REVISIONS						SHEET NO. S-13
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 22
2			4			



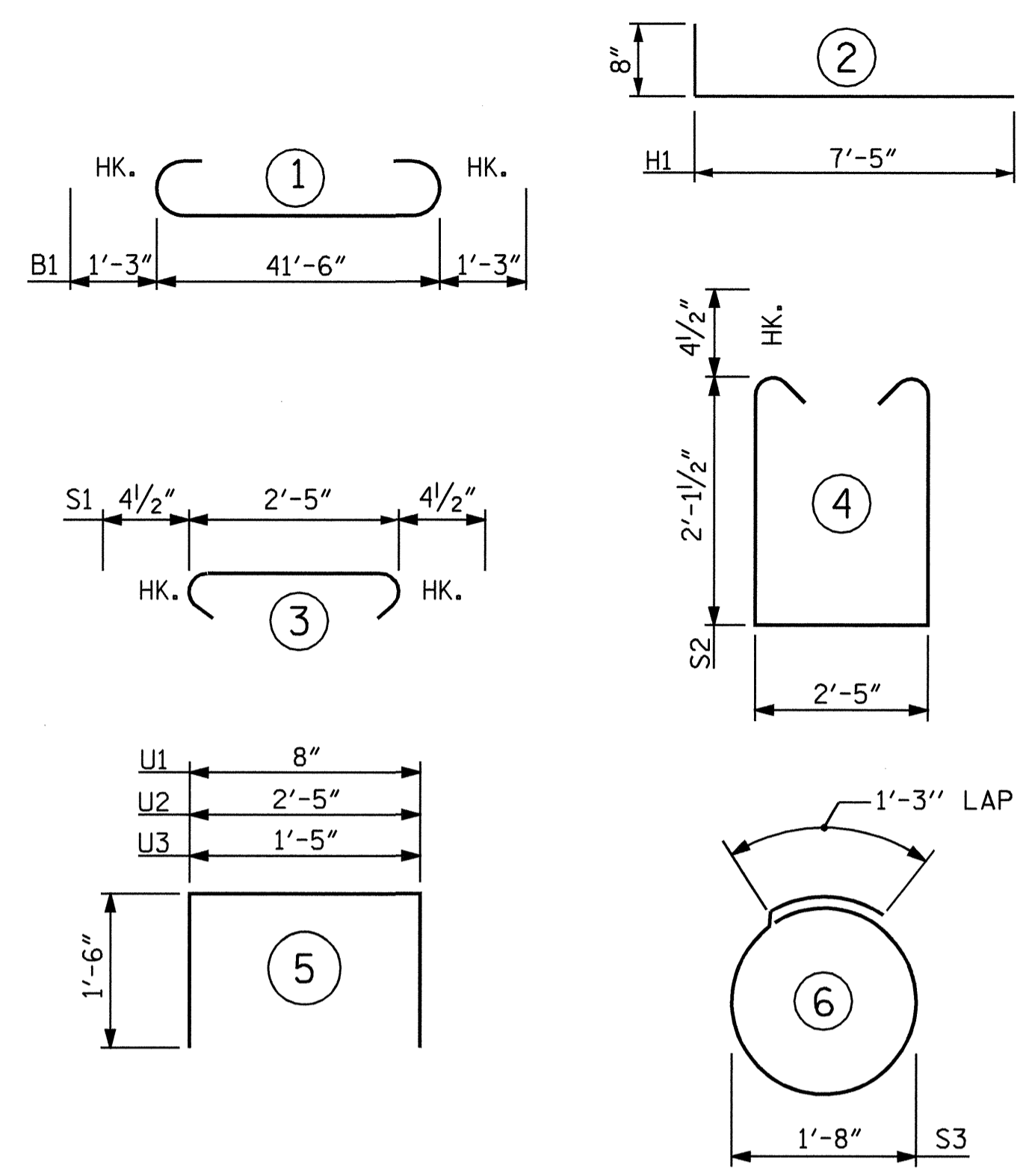
BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

BAR TYPES

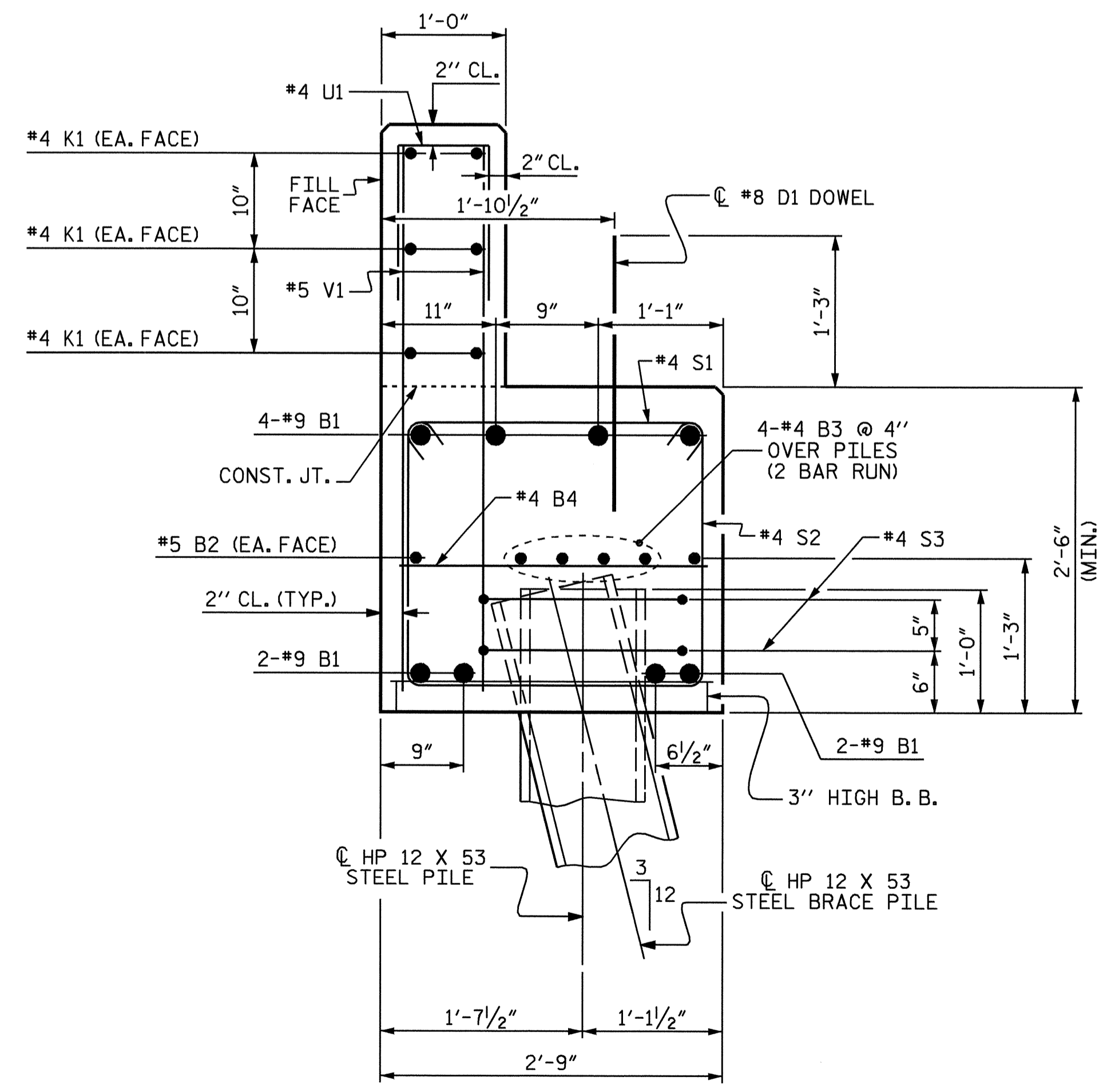


ALL BAR DIMENSIONS ARE OUT TO OUT.

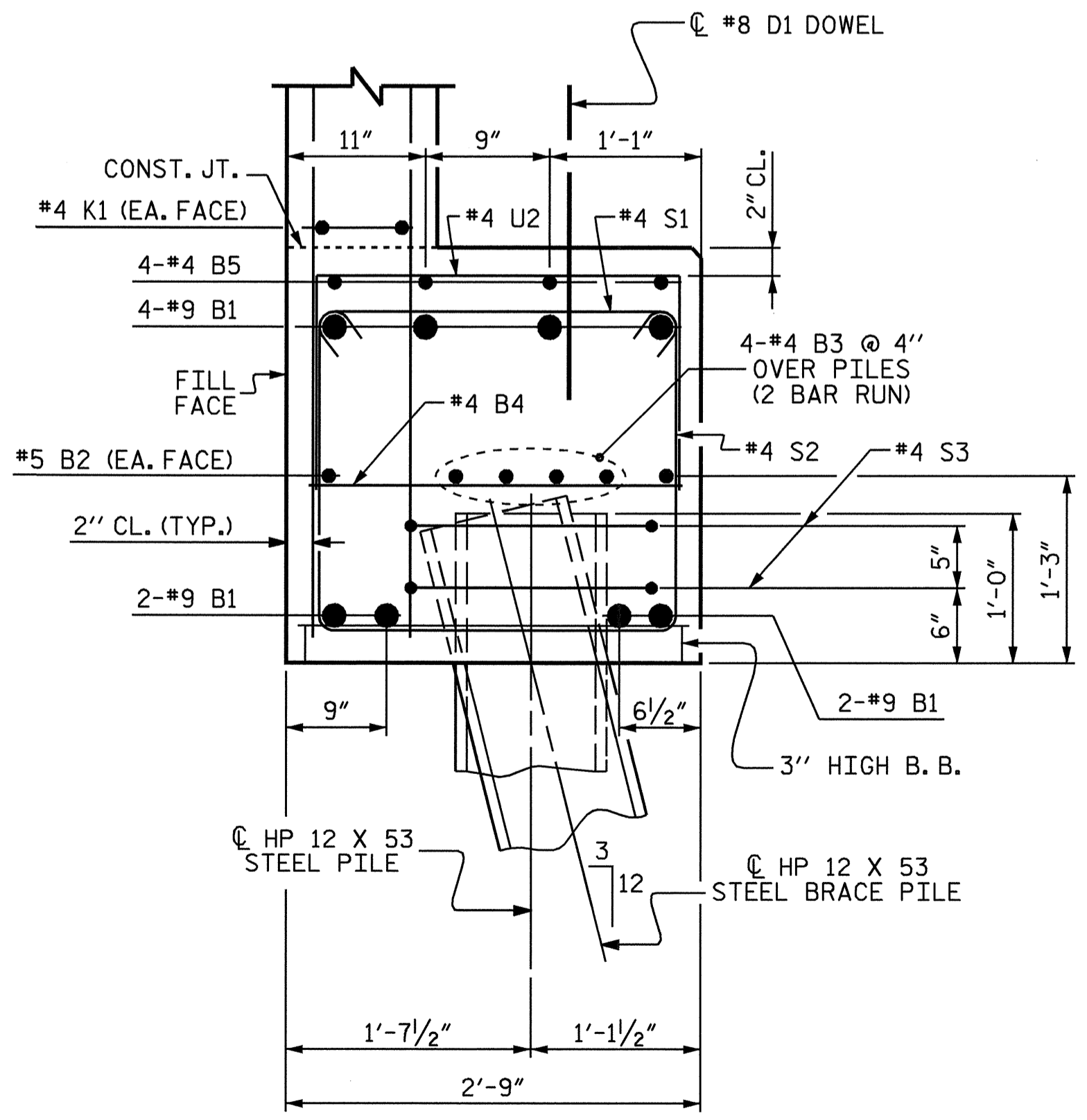
BILL OF MATERIAL

END BENT #1						
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	8	#9	1	44'-0"	1197	
B2	2	#5	STR	41'-8"	87	
B3	8	#4	STR	22'-1"	118	
B4	11	#4	STR	2'-5"	18	
B5	4	#4	STR	14'-10"	40	
D1	24	#8	STR	2'-3"	144	
H1	32	#4	2	8'-1"	173	
K1	12	#4	STR	22'-1"	177	
K2	8	#4	STR	3'-5"	18	
S1	44	#4	3	3'-2"	93	
S2	44	#4	4	7'-5"	218	
S3	16	#4	6	6'-6"	69	
U1	35	#4	5	3'-8"	86	
U2	10	#4	5	5'-5"	36	
U3	4	#4	5	4'-5"	12	
V1	70	#5	STR	4'-3"	310	
V2	48	#4	STR	6'-0"	192	
REINFORCING STEEL				LBS.	2988	
CLASS A CONCRETE BREAKDOWN						
POUR 1 (CAP & LOWER PART OF WINGS)						
					C.Y.	12.8
POUR 2 (BACKWALL & UPPER PART OF WINGS)						
					C.Y.	5.7
POUR 3 (LATERAL GUIDE)						
					C.Y.	0.1
TOTAL					C.Y.	18.6

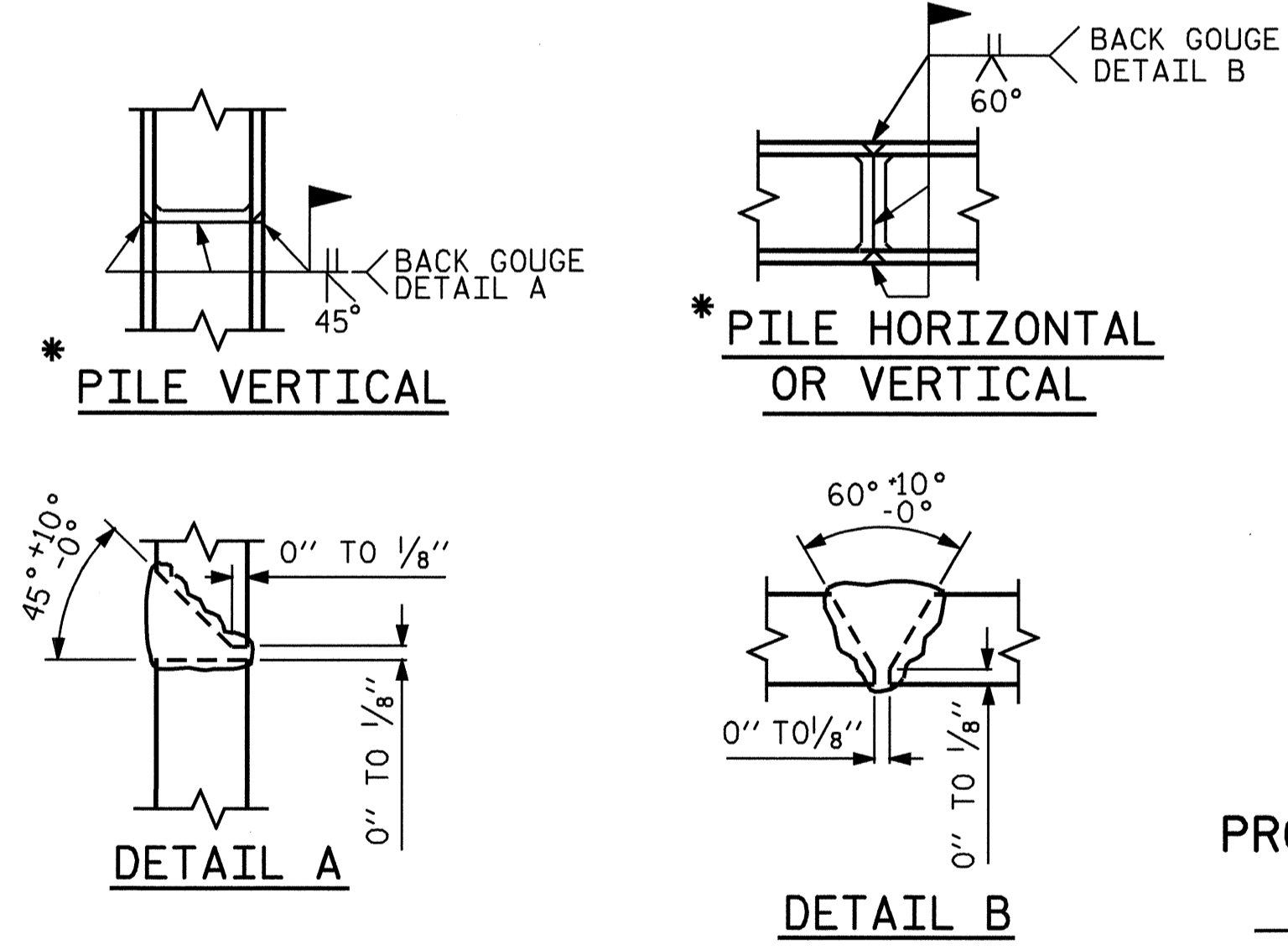
HP 12 X 53 STEEL PILES
NUMBER = 8 LIN. FT. = 120



SECTION A-A



SECTION B-B



PILE SPLICE DETAILS

* POSITION OF PILE DURING WELDING.

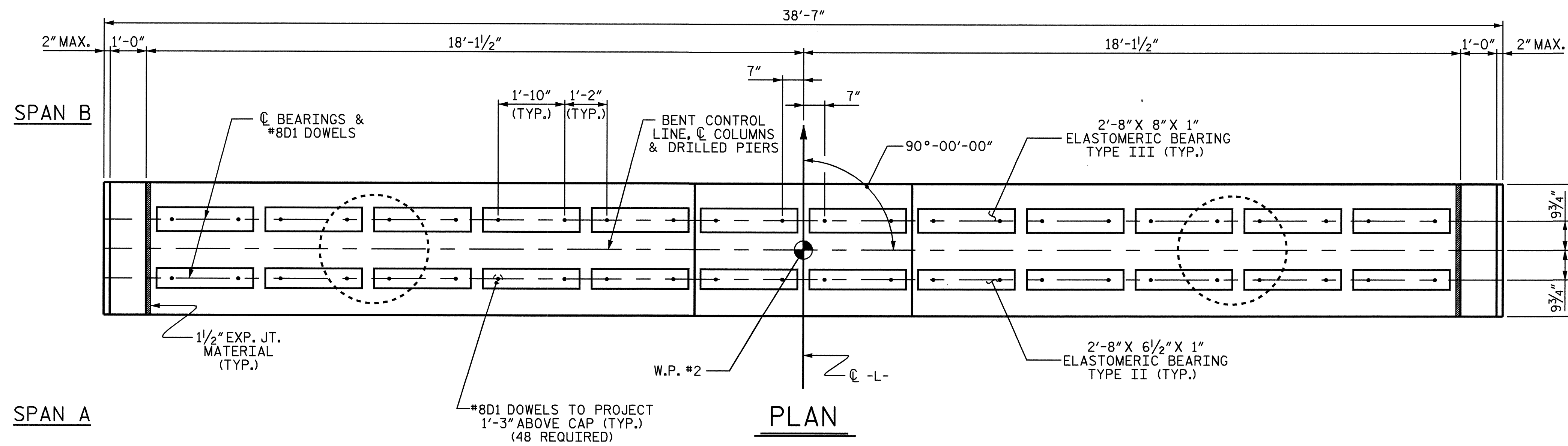
PROJECT NO. B-4321
WAYNE COUNTY
STATION: 17+23.00 -L-
SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE END BENT #1



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14	
1			3			TOTAL SHEETS	22
2			4				



NOTES

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

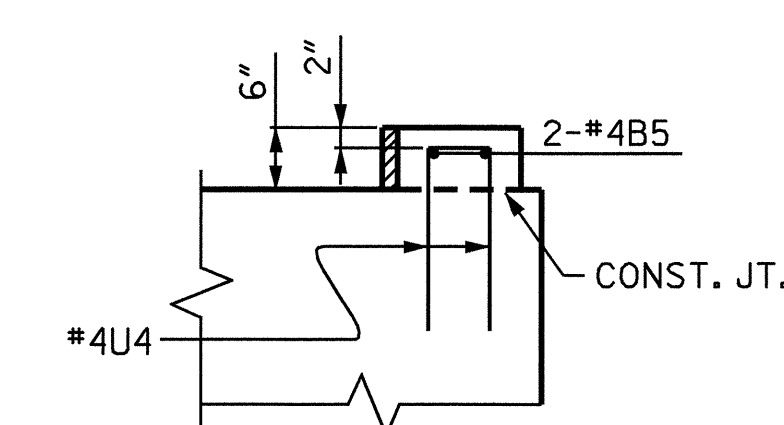
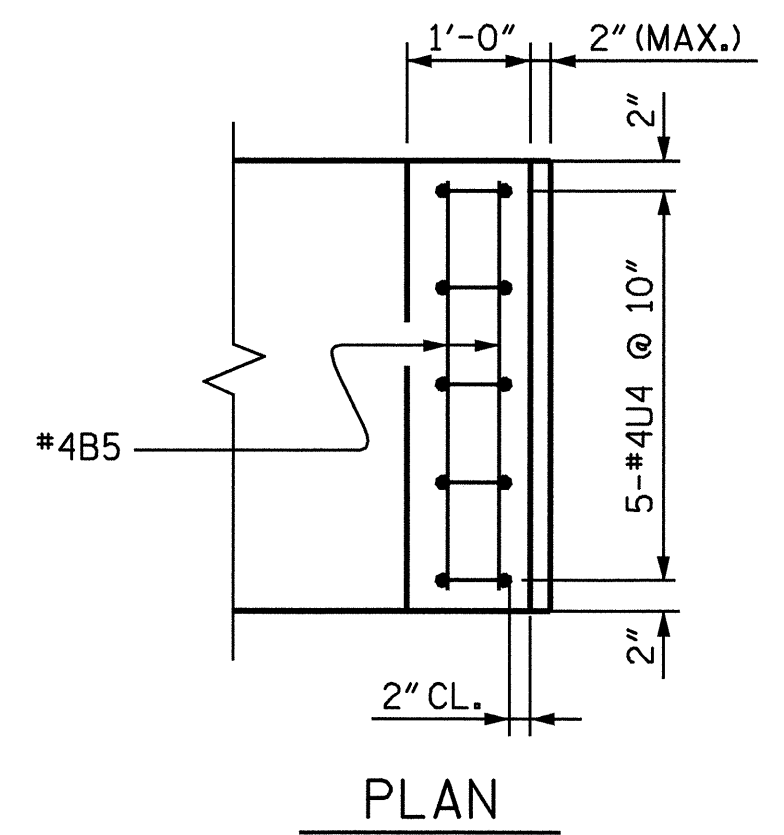
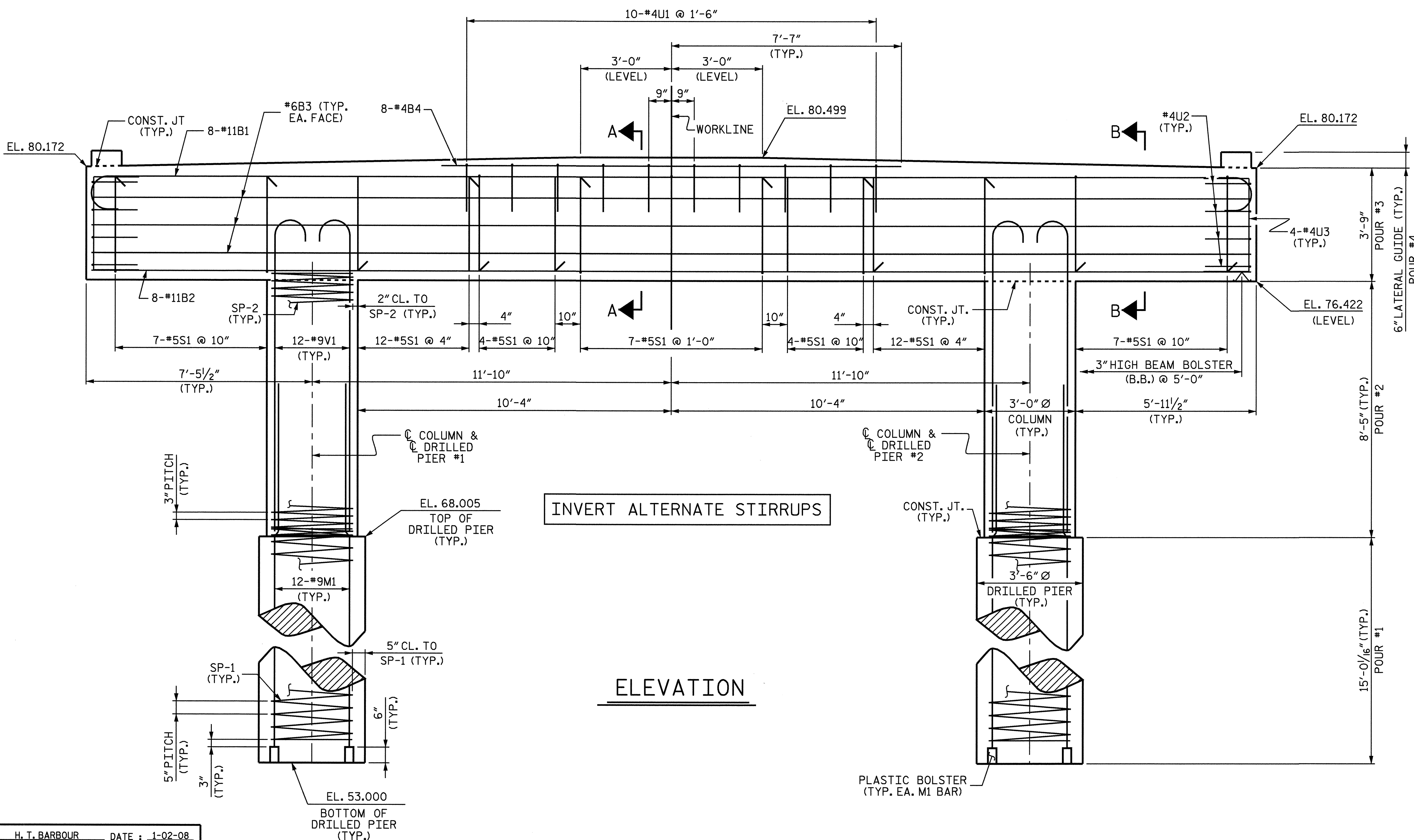
HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

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.

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



LATERAL GUIDE

PROJECT NO. B-4321
WAYNE COUNTY
 STATION: 17+23.00-L-

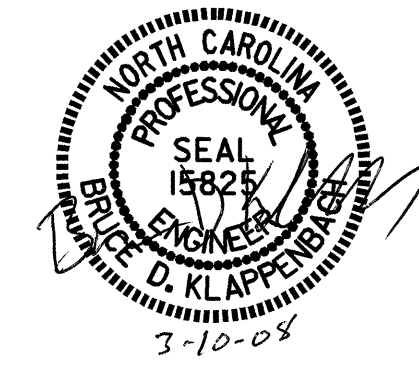
SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

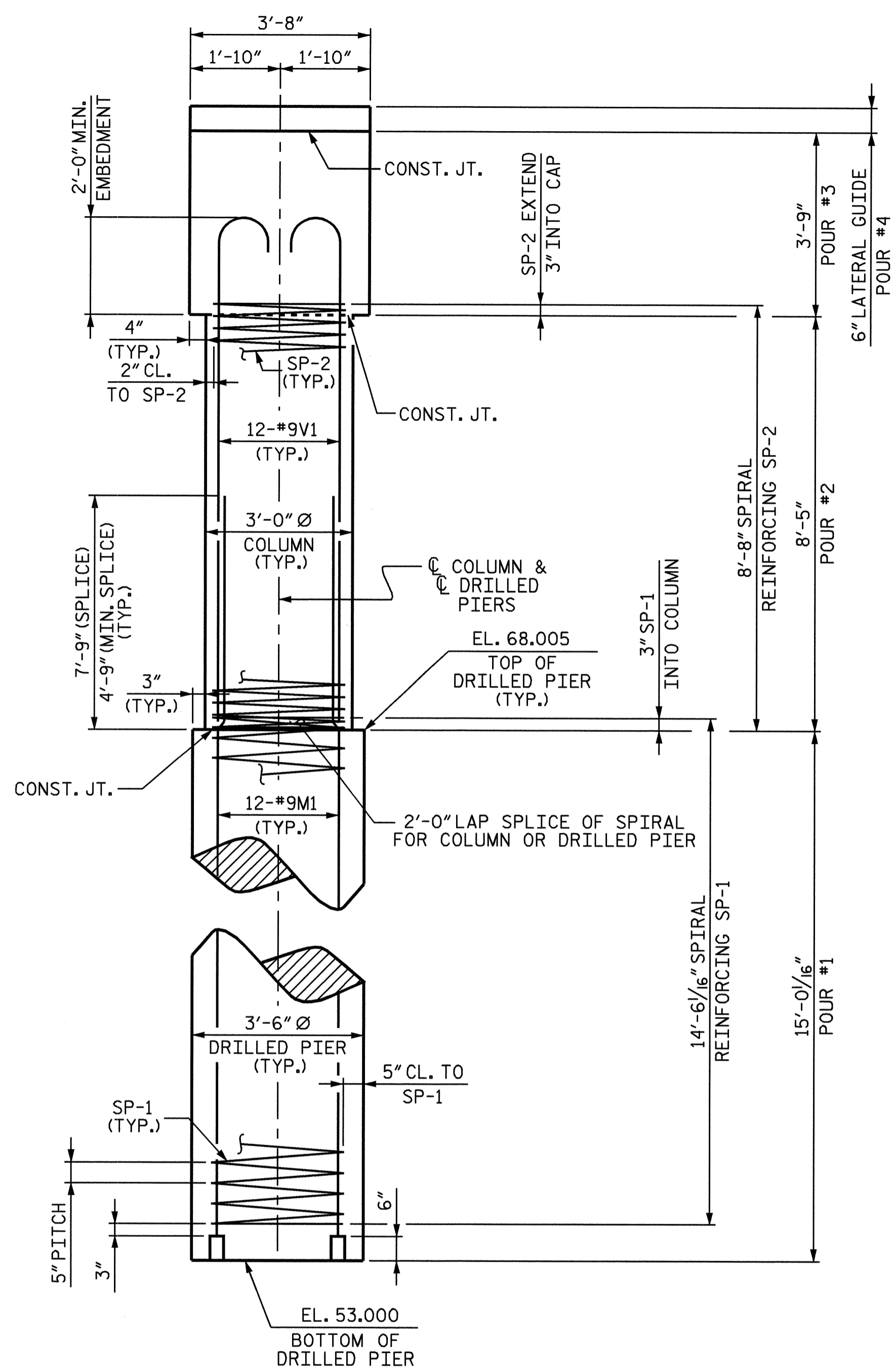
SUBSTRUCTURE BENT #1

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

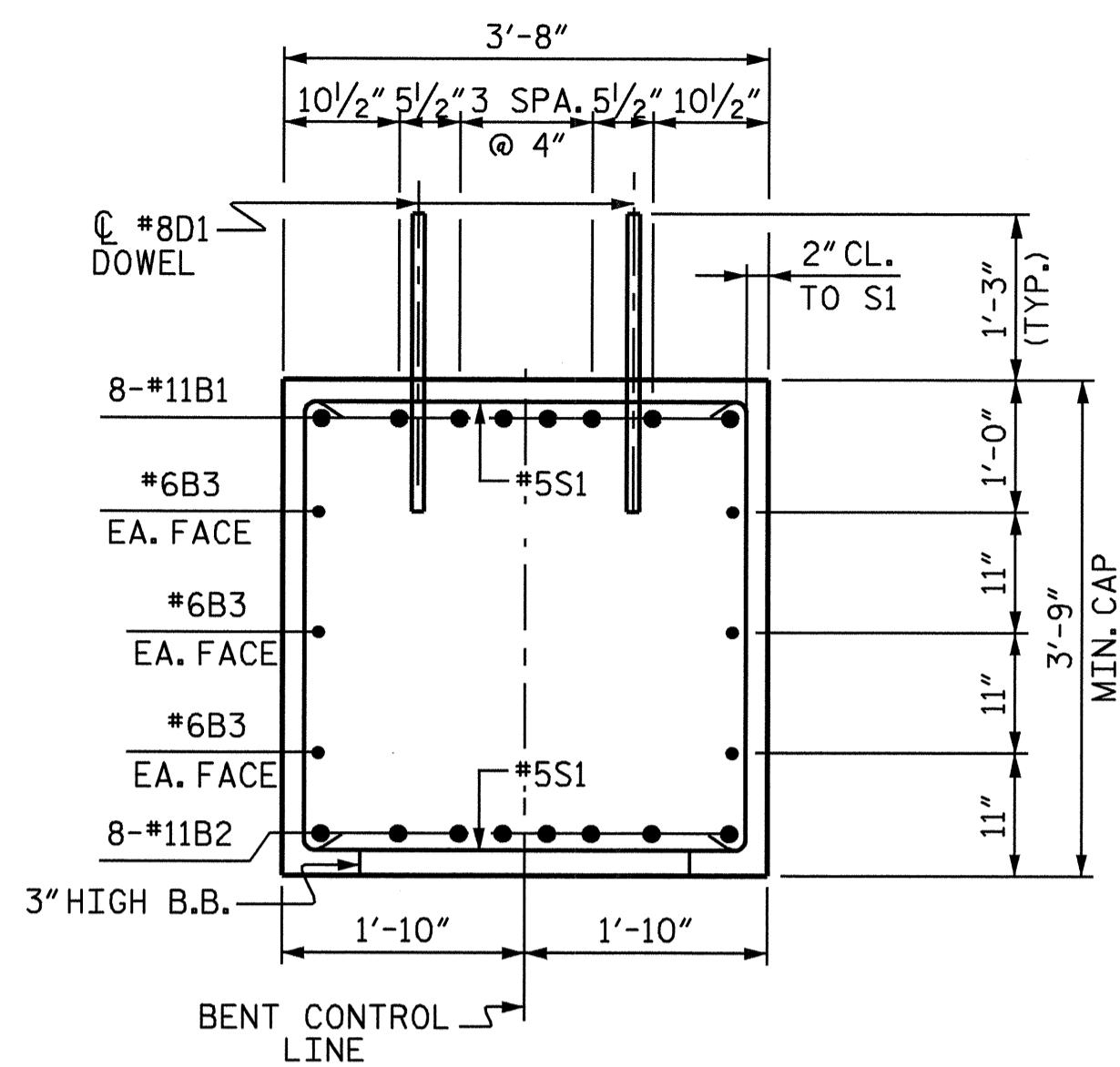
SHEET NO. 5-15
 TOTAL SHEETS 22



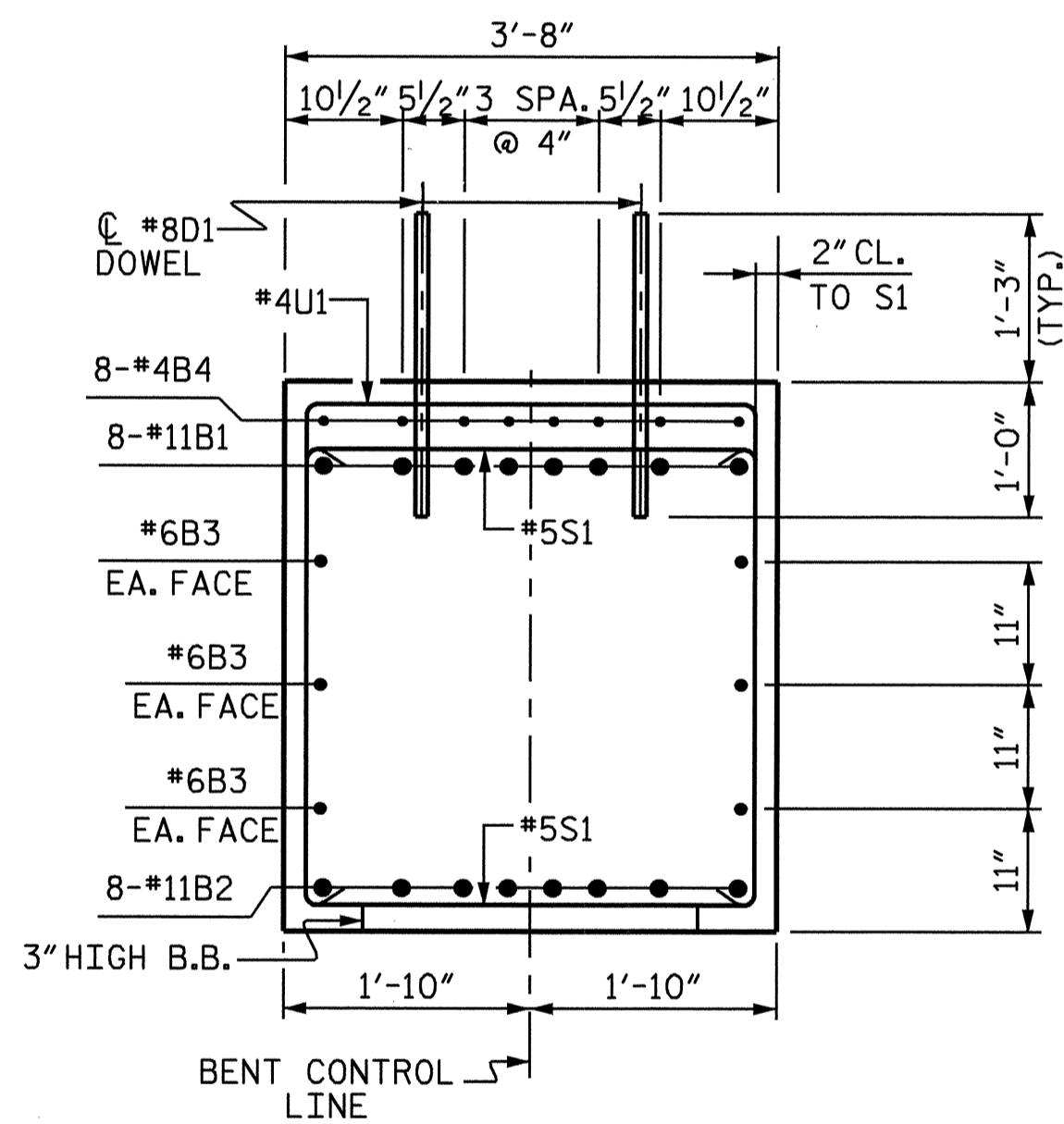
DRAWN BY: H. T. BARBOUR DATE: 1-02-08
 CHECKED BY: A. SORSENGINH DATE: 1-10-08



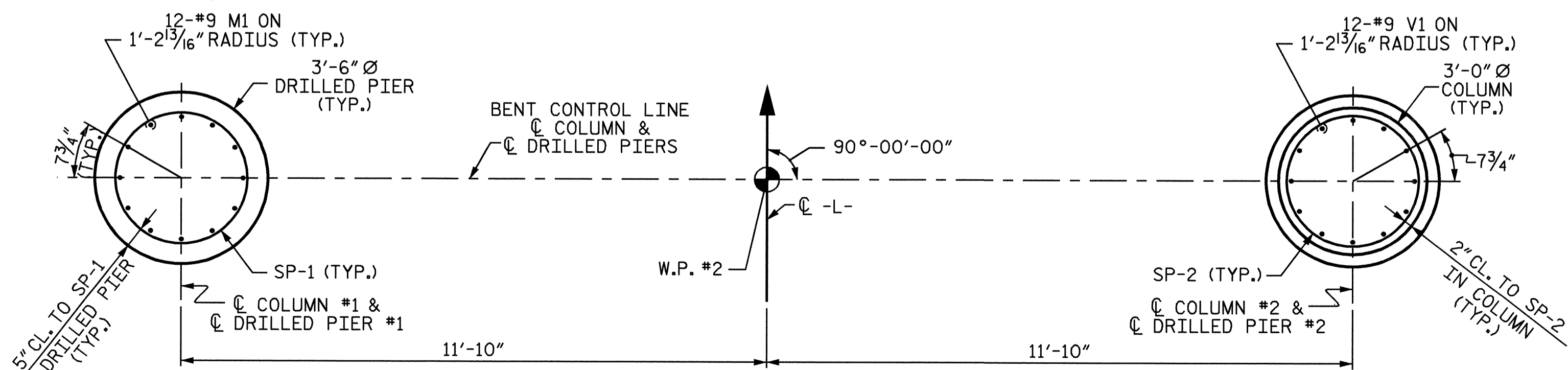
END ELEVATION



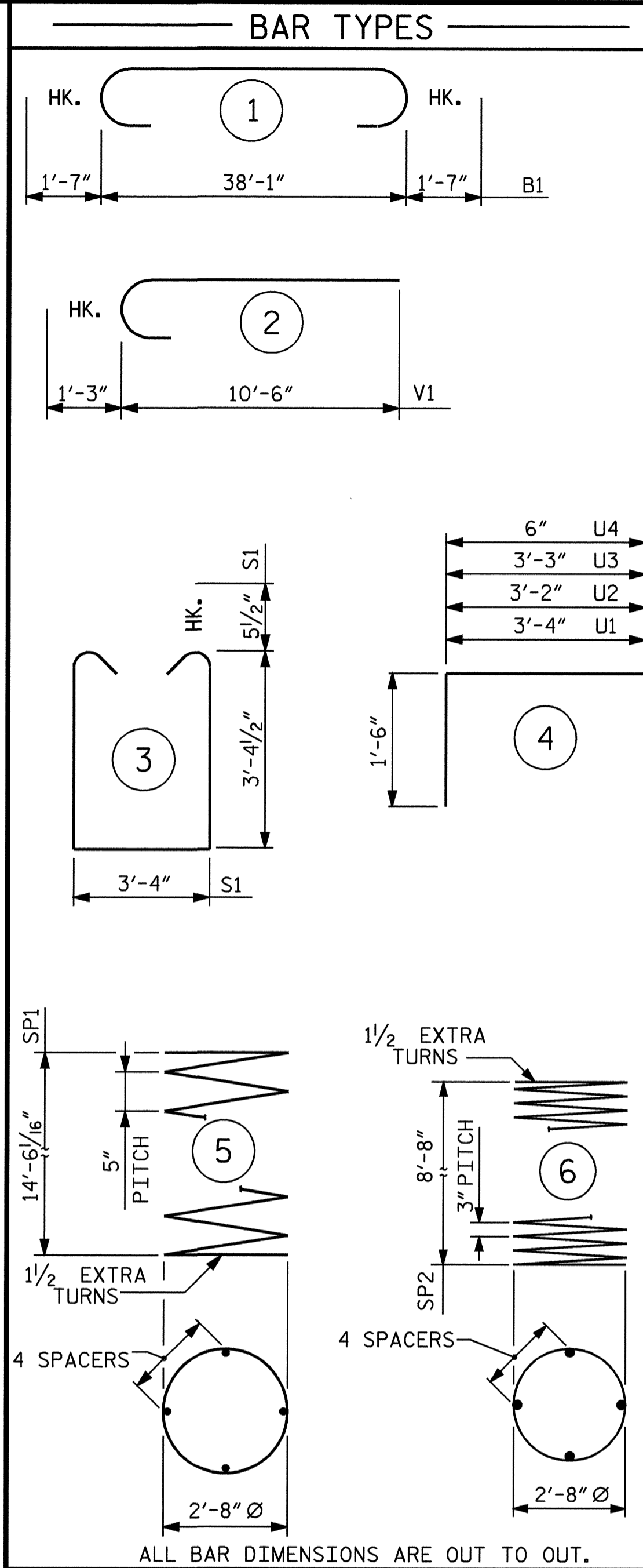
SECTION B-B



SECTION A-A



PLAN OF DRILLED PIERS



ALL BAR DIMENSIONS ARE OUT TO OUT.

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

BILL OF MATERIAL

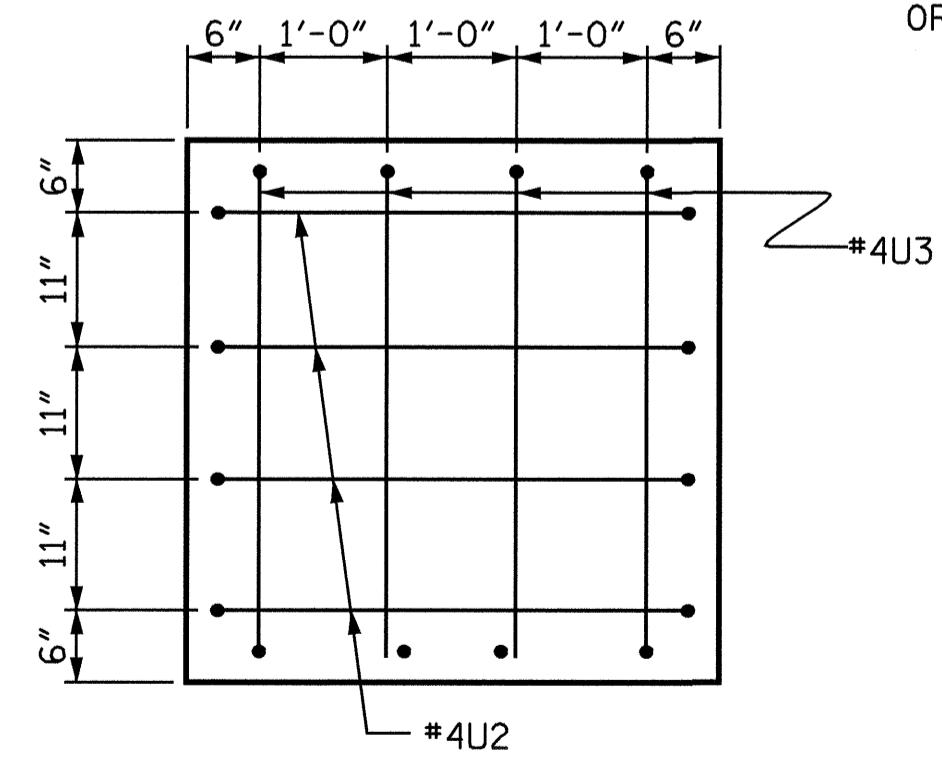
BENT #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#11	1	41'-3"	1753
B2	8	#11	STR.	38'-3"	1626
B3	6	#6	STR.	38'-3"	345
B4	8	#4	STR.	15'-2"	81
B5	4	#4	STR.	3'-4"	9
D1	48	#8	STR.	2'-3"	288
M1	24	#9	STR.	22'-4"	1822
S1	53	#5	3	11'-0"	608
U1	10	#4	4	6'-4"	42
U2	8	#4	4	6'-2"	33
U3	8	#4	4	6'-3"	33
U4	10	#4	4	3'-6"	23
V1	24	#9	2	11'-9"	959
REINFORCING STEEL (LBS.)					8551
SP-1	2	*	5	299'-8"	625
SP-2	2	**	6	298'-6"	399
SPIRAL REINFORCING STEEL (LBS.)					1024

CLASS A CONCRETE

POUR #2 (COLUMN)	4.4 C.Y.
POUR #3 (CAP)	20.6 C.Y.
POUR #4 (LATERAL GUIDES)	0.1 C.Y.
TOTAL	25.1 C.Y.

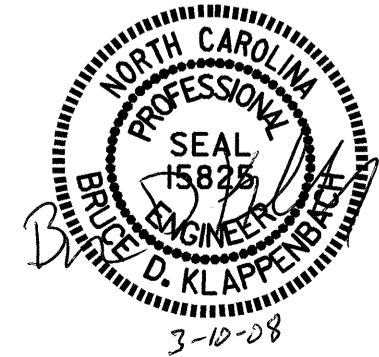
DRILLED PIERS

DRILLED PIER CONCRETE (CU. YARDS)	
POUR #1 (DRILLED PIERS)	10.7 C.Y.
3'-6" Ø DRILLED PIERS IN SOIL	20.0 FT.
3'-6" Ø DRILLED PIERS NOT IN SOIL	10.0 FT.
SID INSPECTION	2 EA.
CROSSHOLE SONIC LOGGING	2 EA.
CSL TUBES	140.0 FT.
PERMANENT STEEL CASING FOR 3'-6" Ø DRILLED PIERS	10.0 FT.



RIGHT & LEFT END VIEWS

2" MIN. CONCRETE COVER FROM END OF CAP REQUIRED FOR ALL #4"U" BARS.
 #4"U" BARS MAY BE SHIFTED UP TO 2" TO CLEAR "B" BARS.



PROJECT NO. B-4321
 WAYNE COUNTY
 STATION: 17+23.00-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
1			3		
2			4		

DRAWN BY : H. T. BARBOUR DATE : 1-02-08
 CHECKED BY : A. SORSENGINH DATE : 1-10-08

NOTES

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

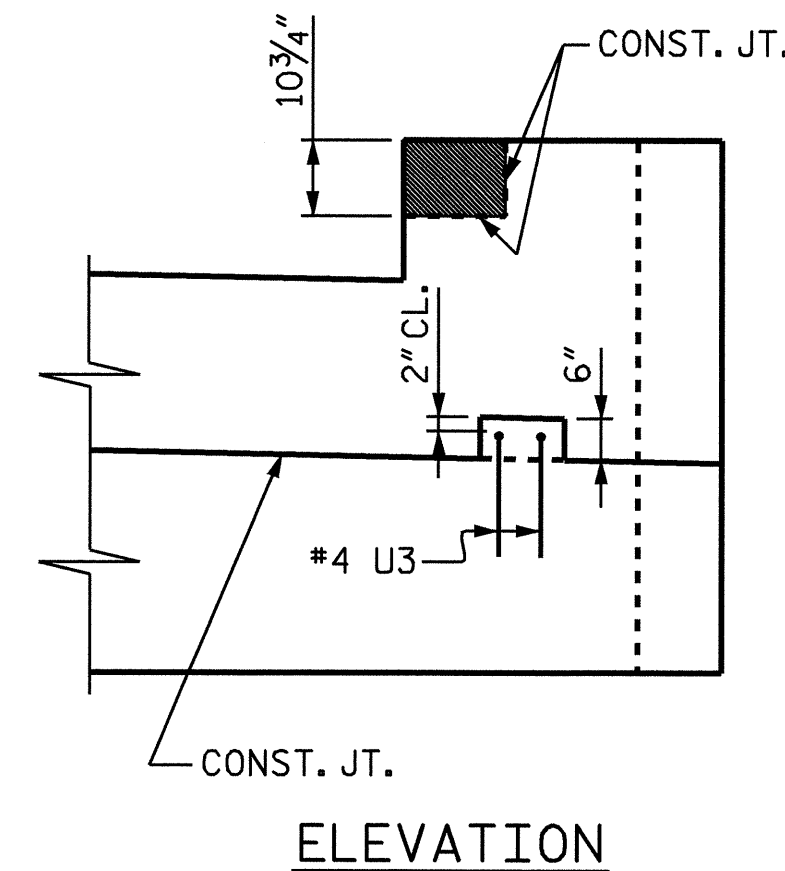
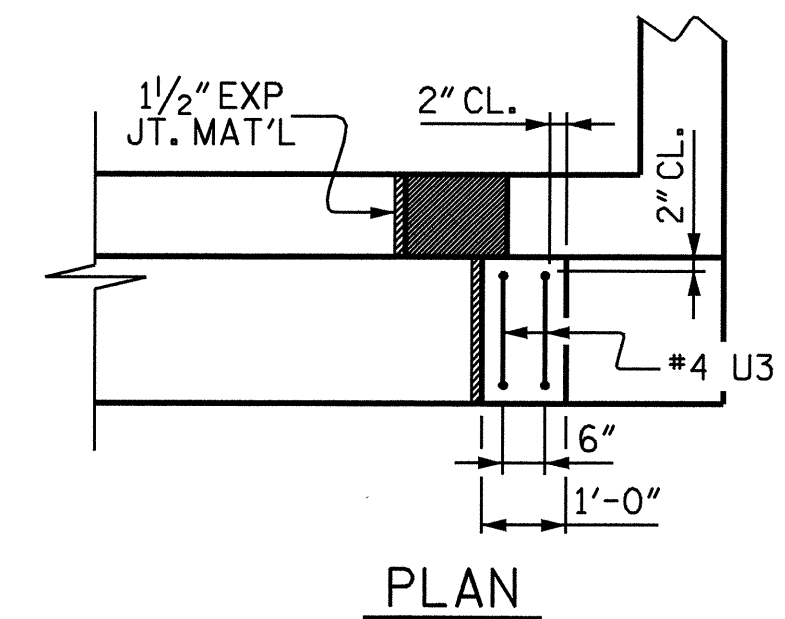
THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

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

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

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



LATERAL GUIDE DETAILS

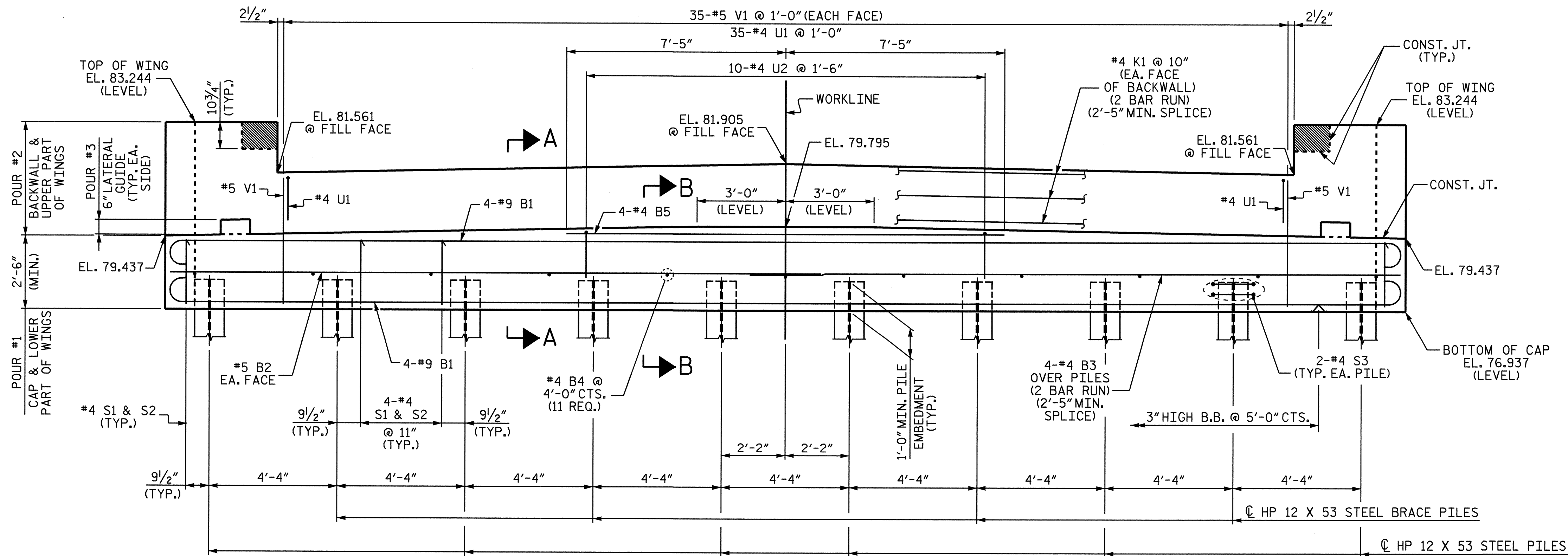
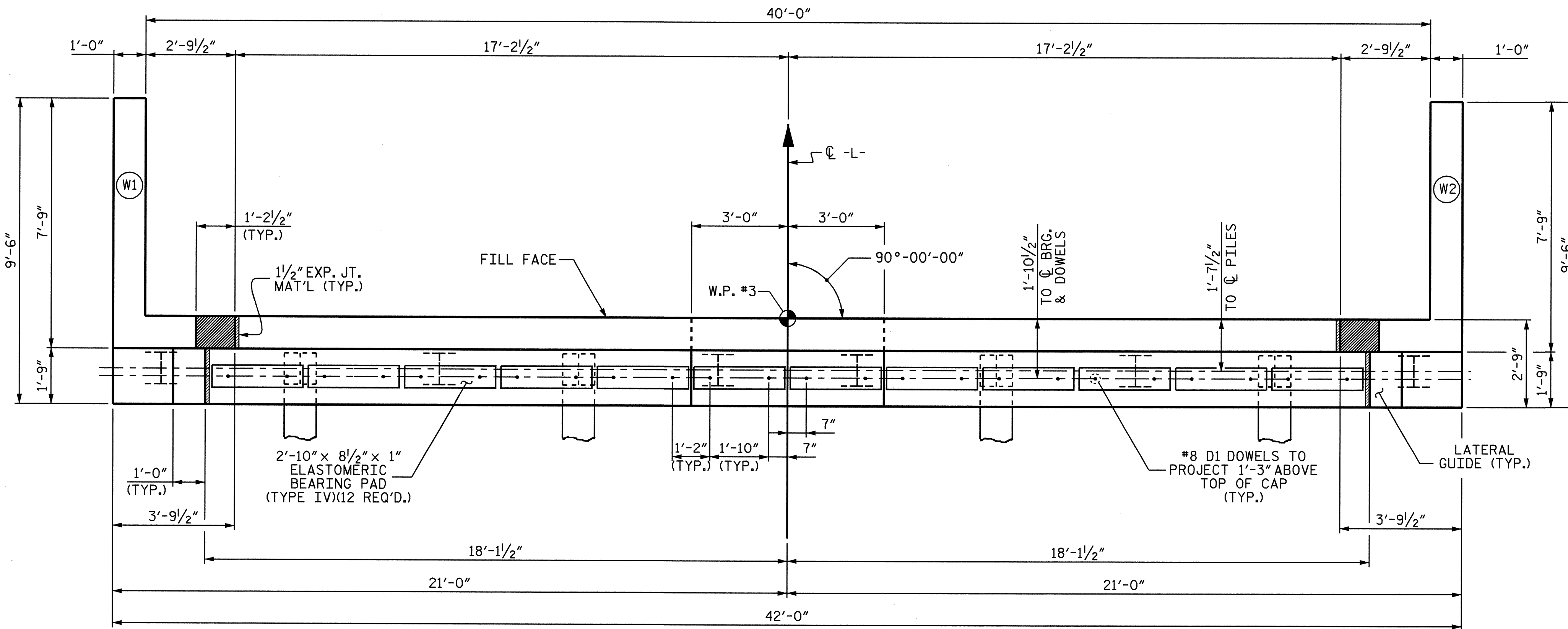
PROJECT NO. B-4321
 WAYNE COUNTY
 STATION: 17+23.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

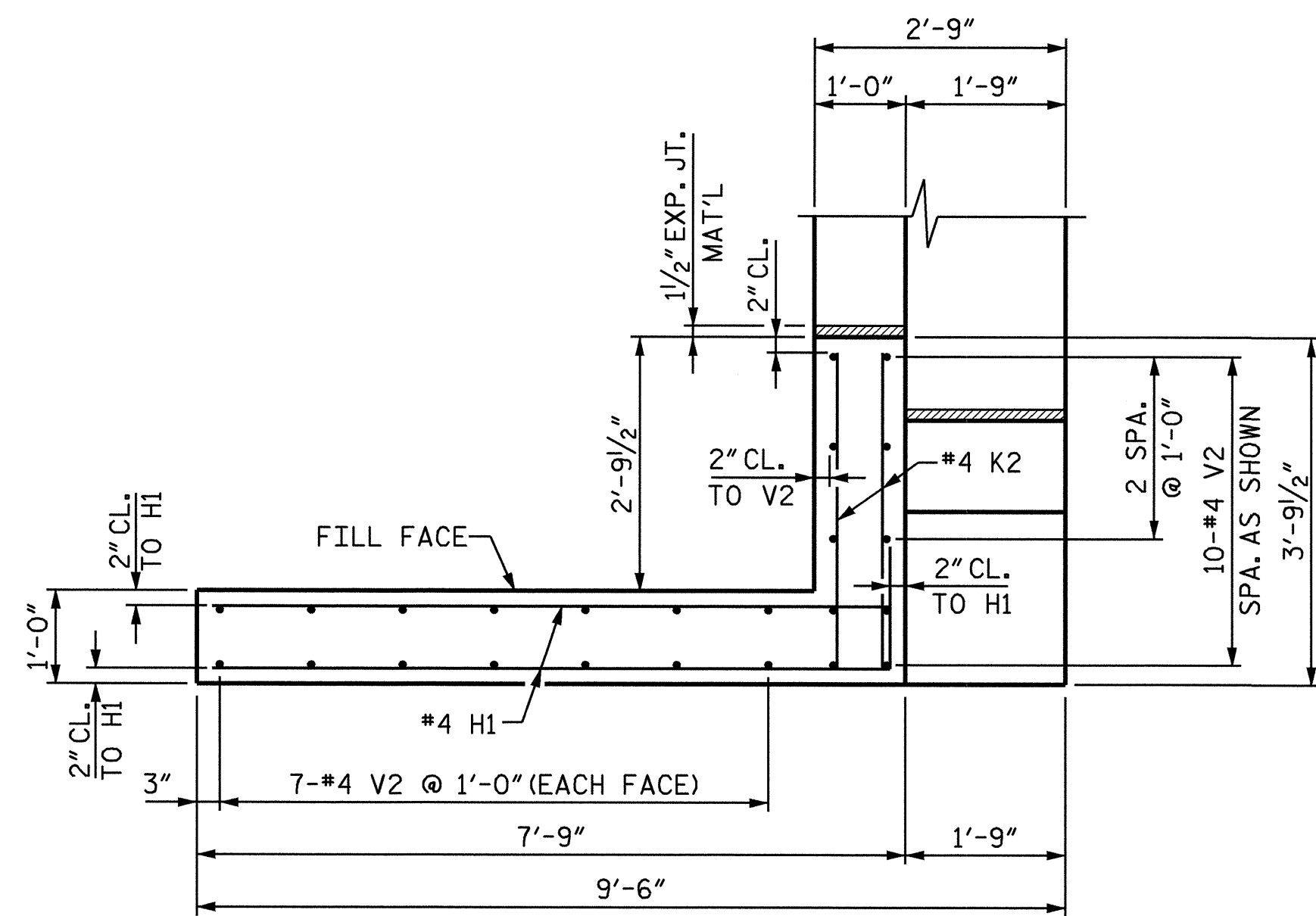
**SUBSTRUCTURE
 END BENT #2**

REVISIONS						SHEET NO. S-17
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 22
2			4			

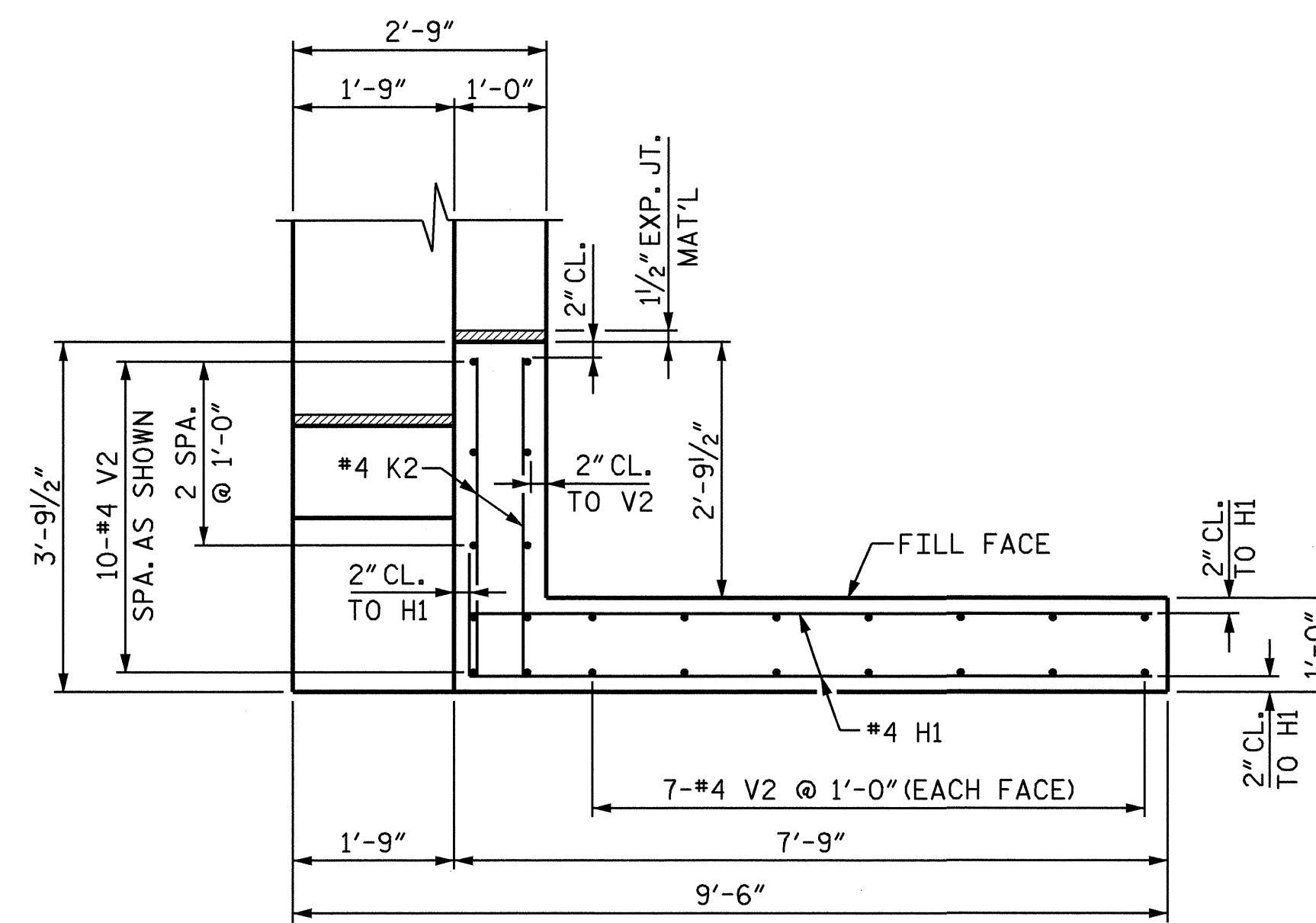


DRAWN BY : A. SORSENGINH DATE : 12/13/07
 CHECKED BY : M. G. SHAIKH DATE : 1/16/08

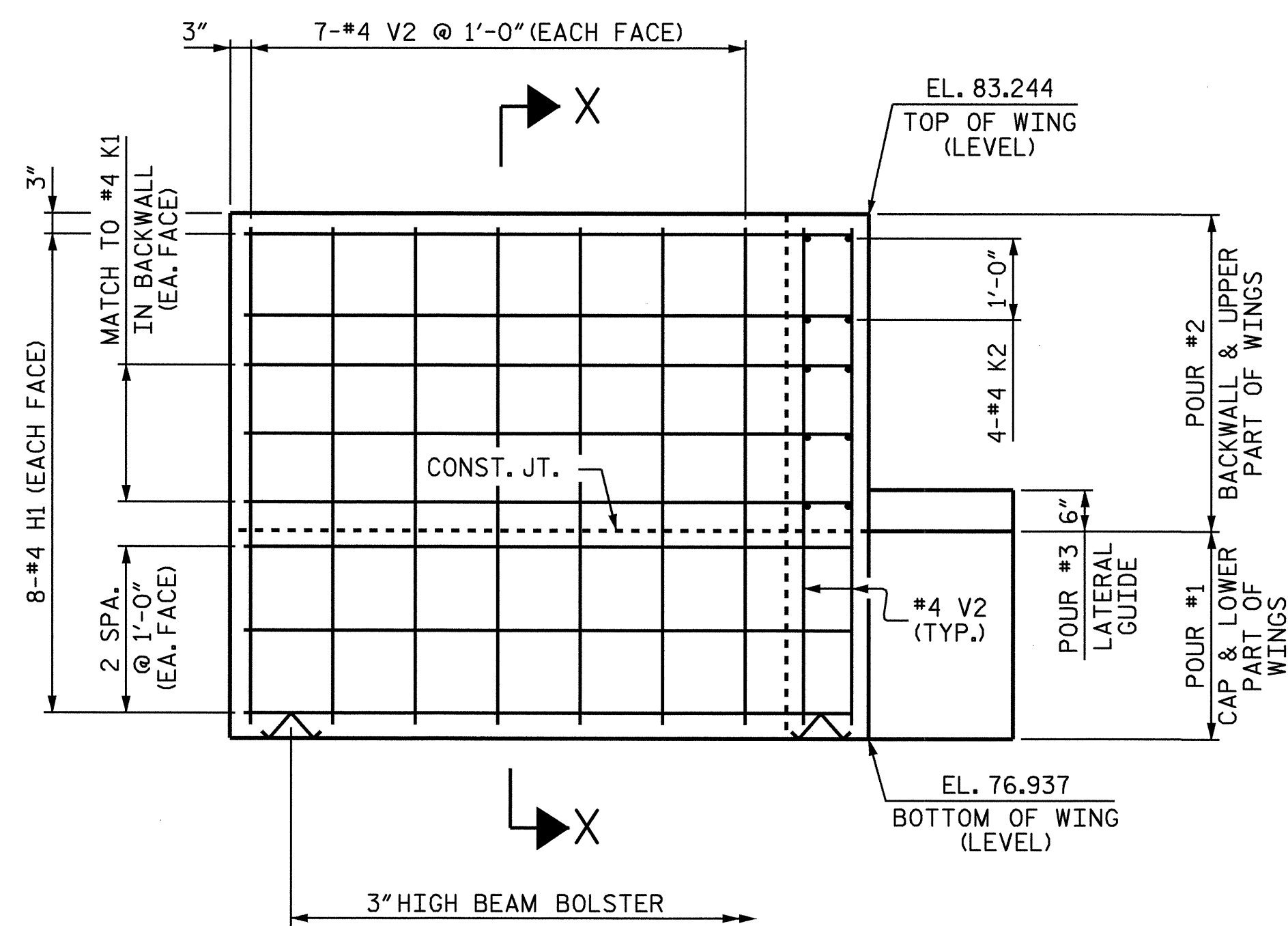
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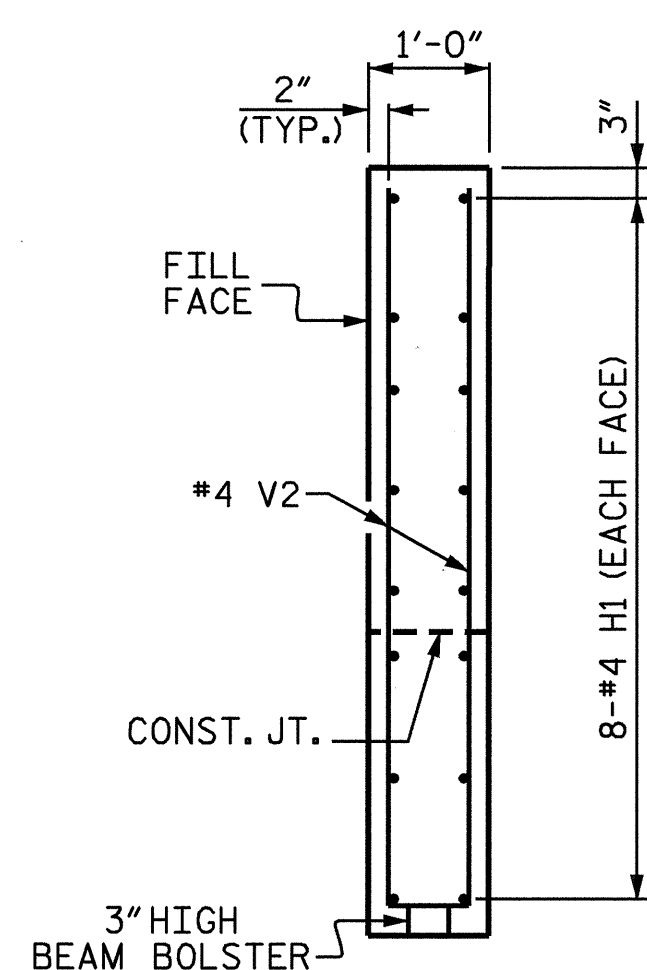
PLAN OF LEFT WING W1



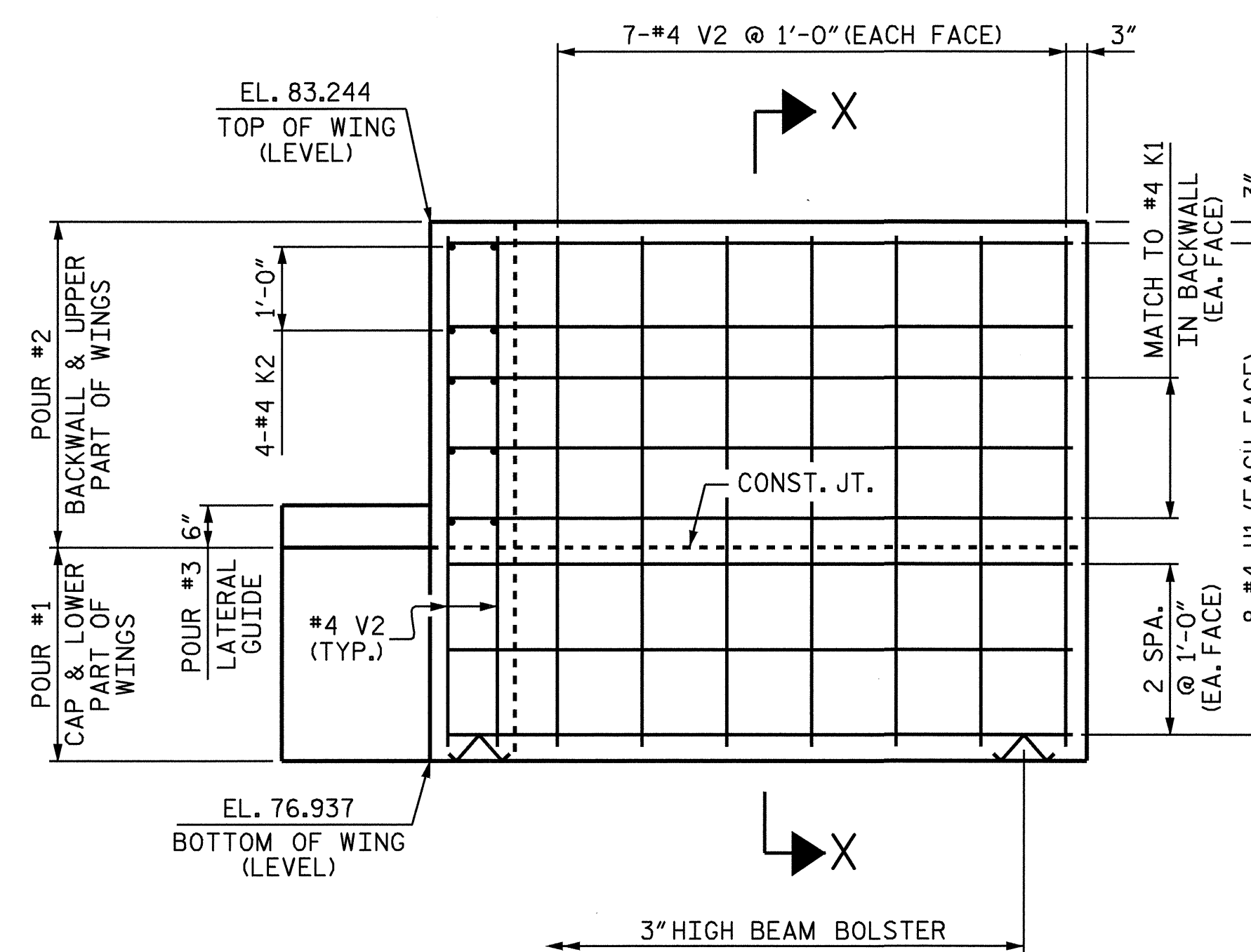
PLAN OF RIGHT WING W2



ELEVATION OF LEFT WING W1



SECTION X-X



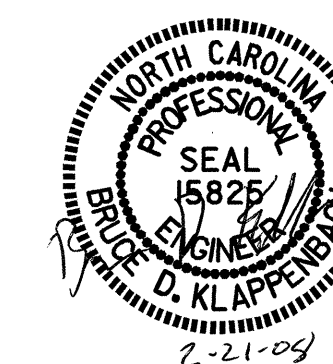
ELEVATION OF RIGHT WING W2

PROJECT NO. B-4321
WAYNE COUNTY
 STATION: 17+23.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

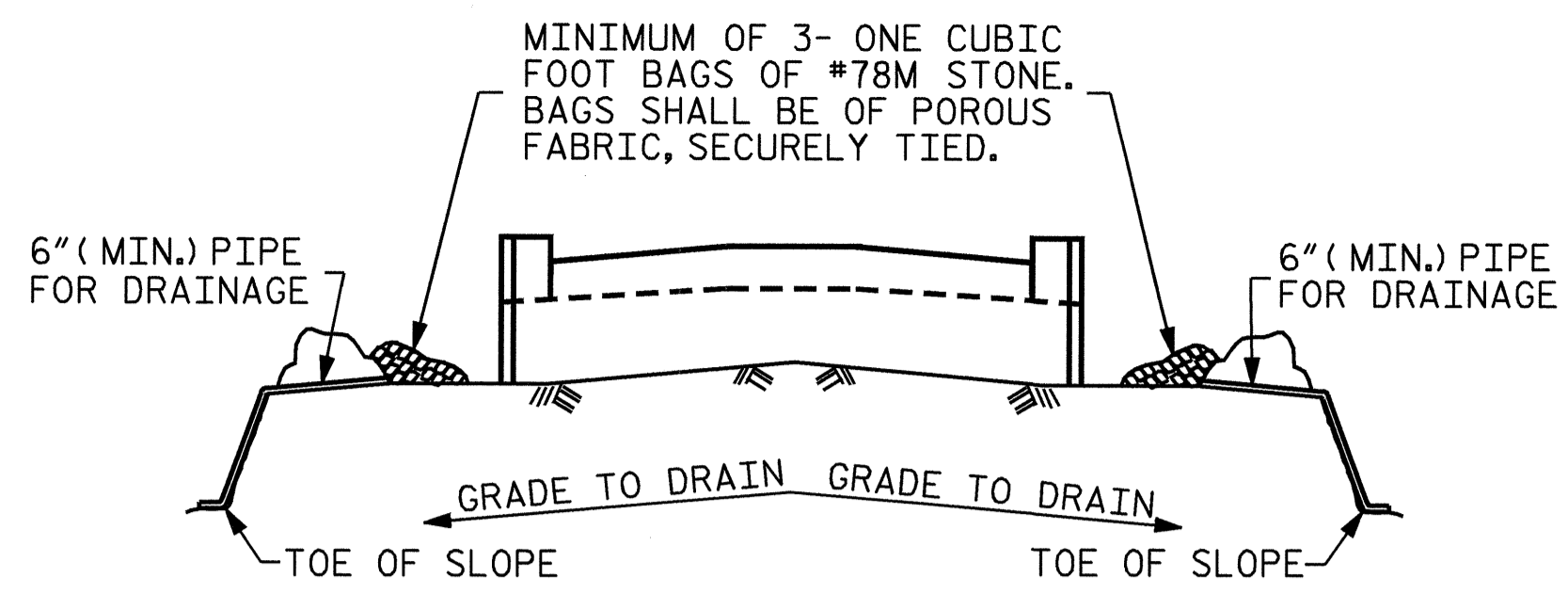
SUBSTRUCTURE
 END BENT #2



DRAWN BY : A. SORSENGINH DATE : 12/13/07
 CHECKED BY : M. G. SHAIKH DATE : 1/16/08

21-FEB-2008 08:27
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 bkappenbach

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-18
1			3			TOTAL SHEETS
2			4			22

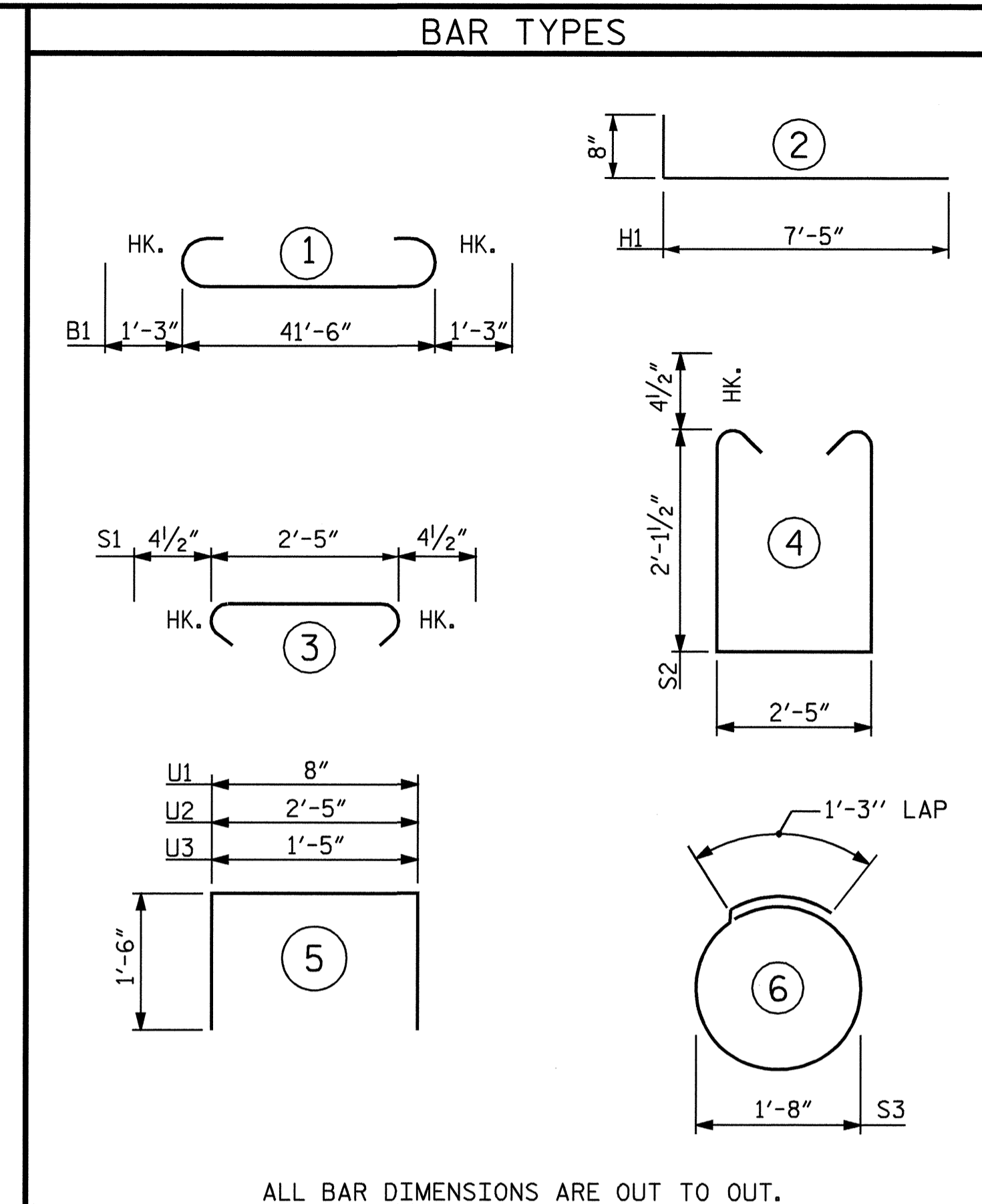


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

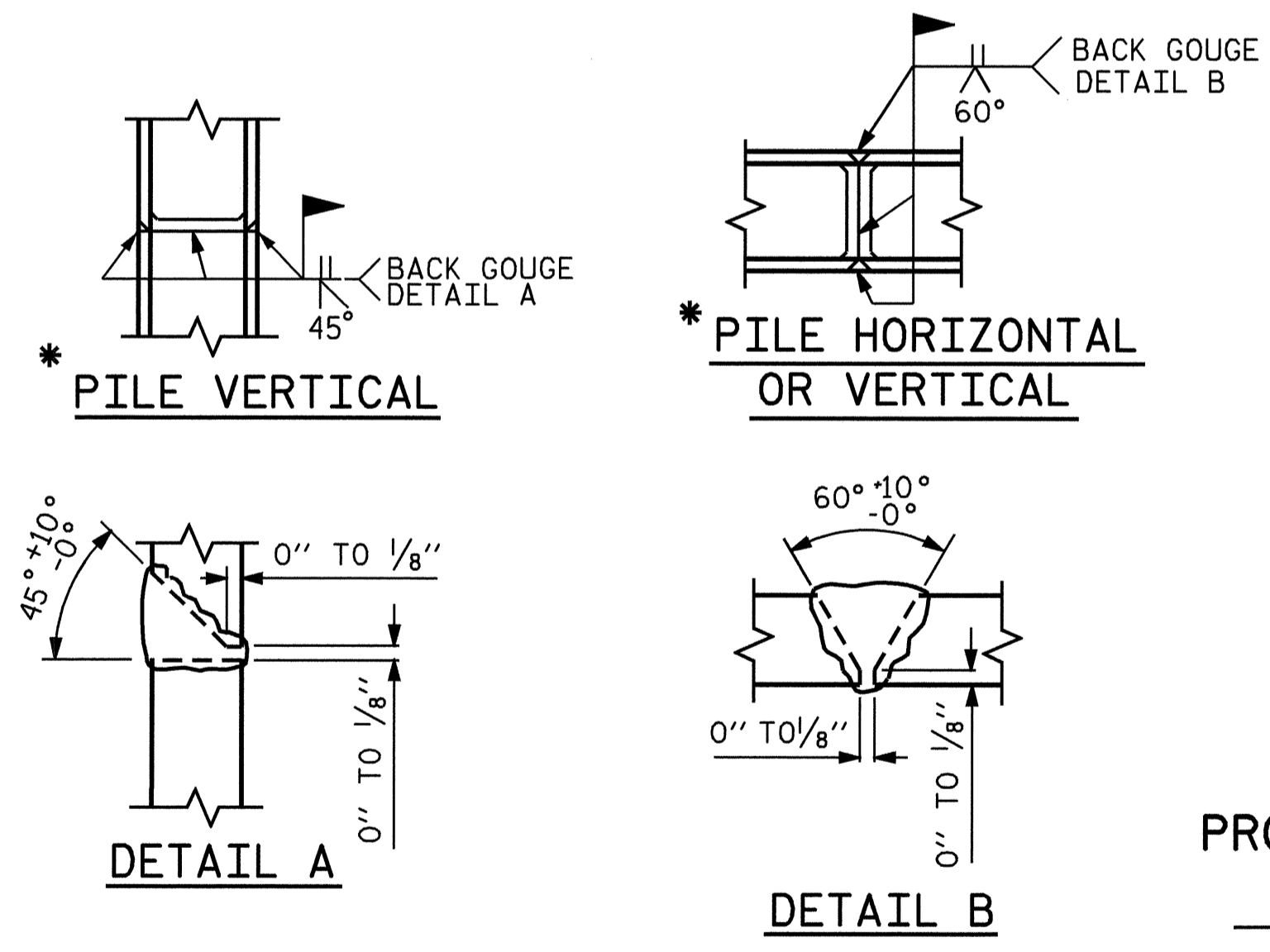
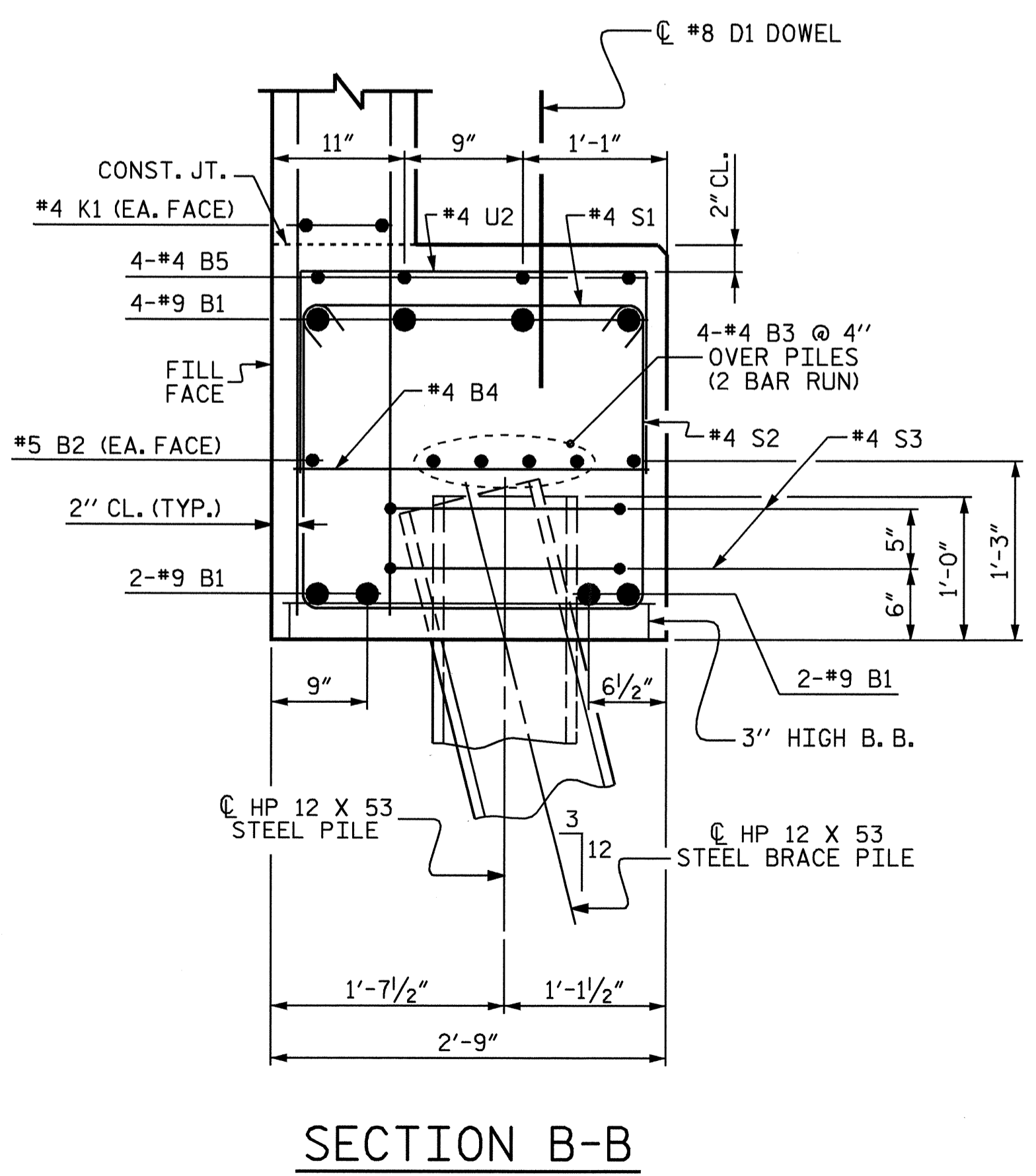
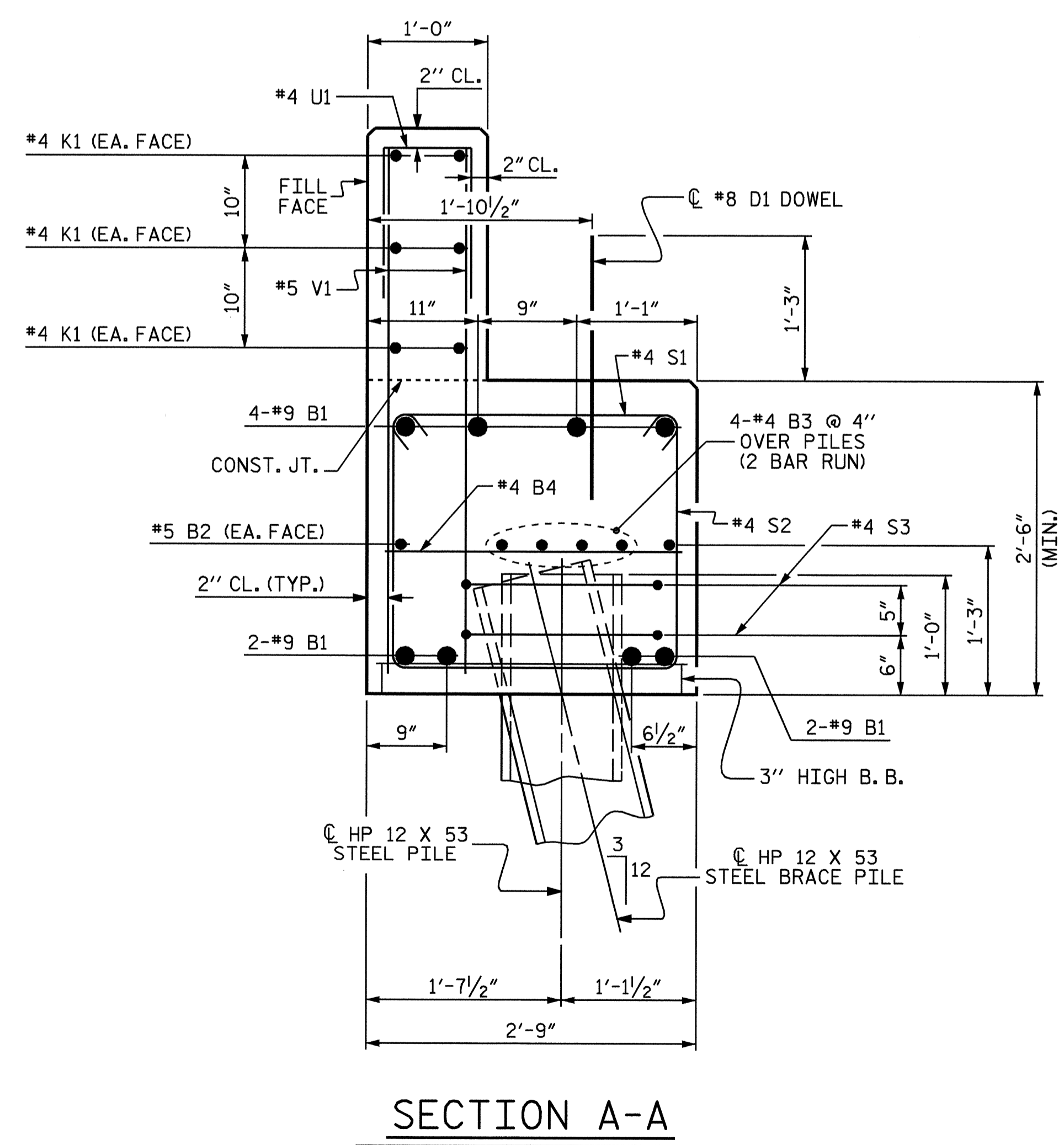
TEMPORARY DRAINAGE AT END BENT



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL						
END BENT #2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	8	#9	1	44'-0"	1197	
B2	2	#5	STR	41'-8"	87	
B3	8	#4	STR	22'-1"	118	
B4	11	#4	STR	2'-5"	18	
B5	4	#4	STR	14'-10"	40	
D1	24	#8	STR	2'-3"	144	
H1	32	#4	2	8'-1"	173	
K1	12	#4	STR	22'-1"	177	
K2	8	#4	STR	3'-5"	18	
S1	38	#4	3	3'-2"	80	
S2	38	#4	4	7'-5"	188	
S3	20	#4	6	6'-6"	87	
U1	35	#4	5	3'-8"	86	
U2	10	#4	5	5'-5"	36	
U3	4	#4	5	4'-5"	12	
V1	70	#5	STR	4'-3"	310	
V2	48	#4	STR	6'-0"	192	
REINFORCING STEEL				LBS.	2963	
CLASS A CONCRETE BREAKDOWN						
POUR 1 (CAP & LOWER PART OF WINGS)					C.Y.	12.8
POUR 2 (BACKWALL & UPPER PART OF WINGS)					C.Y.	5.7
POUR 3 (LATERAL GUIDE)					C.Y.	0.1
TOTAL					C.Y.	18.6

HP 12 X 53 STEEL PILES
NUMBER = 10 LIN. FT. = 150



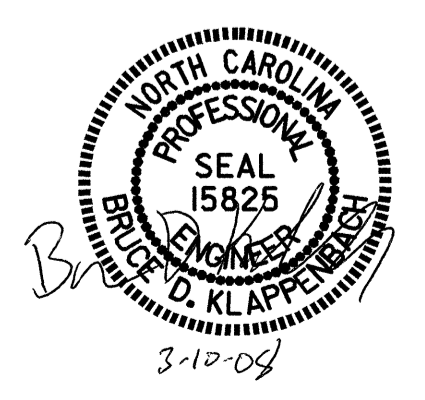
PILE SPLICE DETAILS

* POSITION OF PILE DURING WELDING.

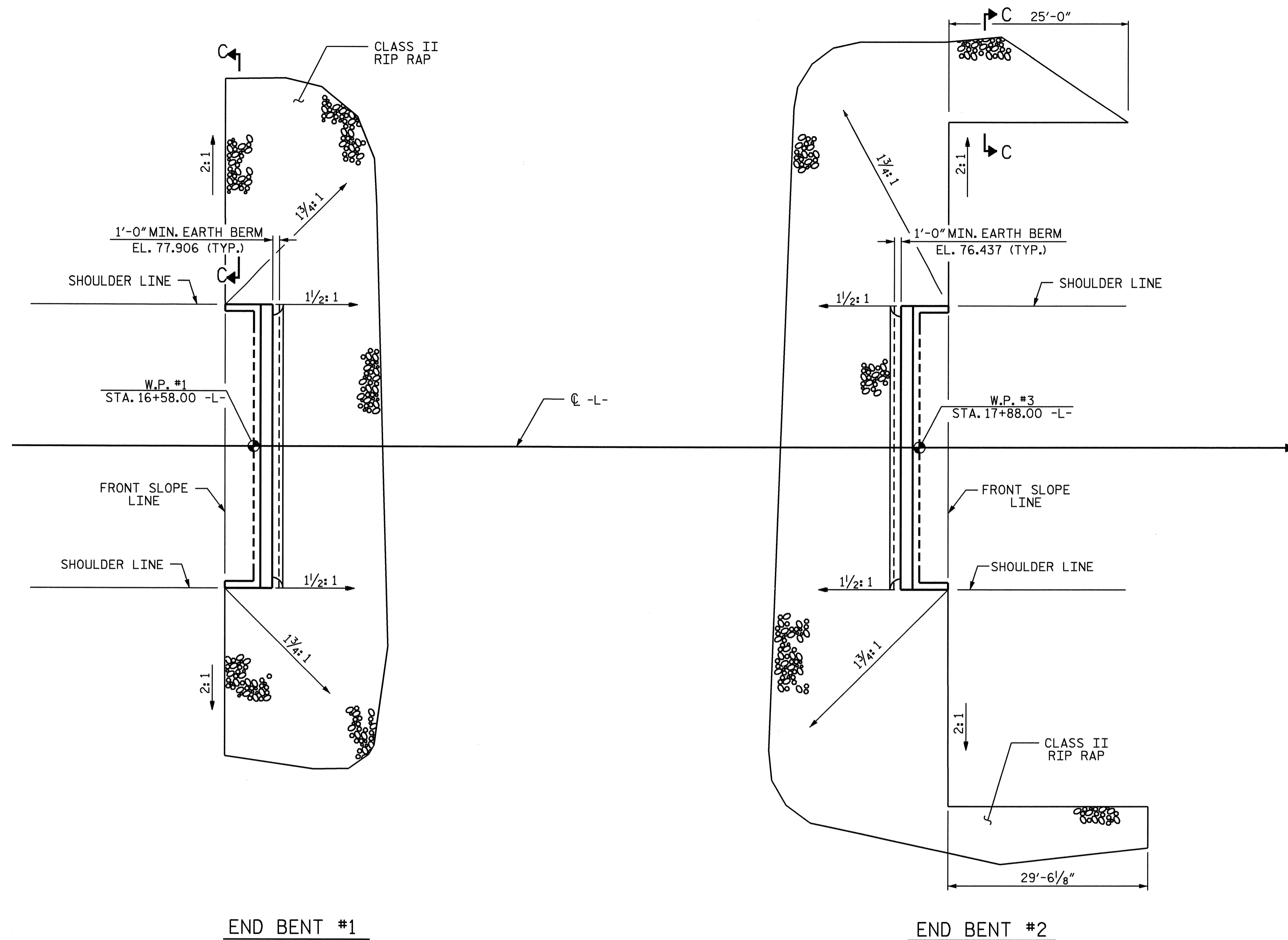
PROJECT NO. B-4321
WAYNE COUNTY
STATION: 17+23.00 -L-
SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**SUBSTRUCTURE
END BENT #2**



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19	
1			3			TOTAL SHEETS	22
2			4				

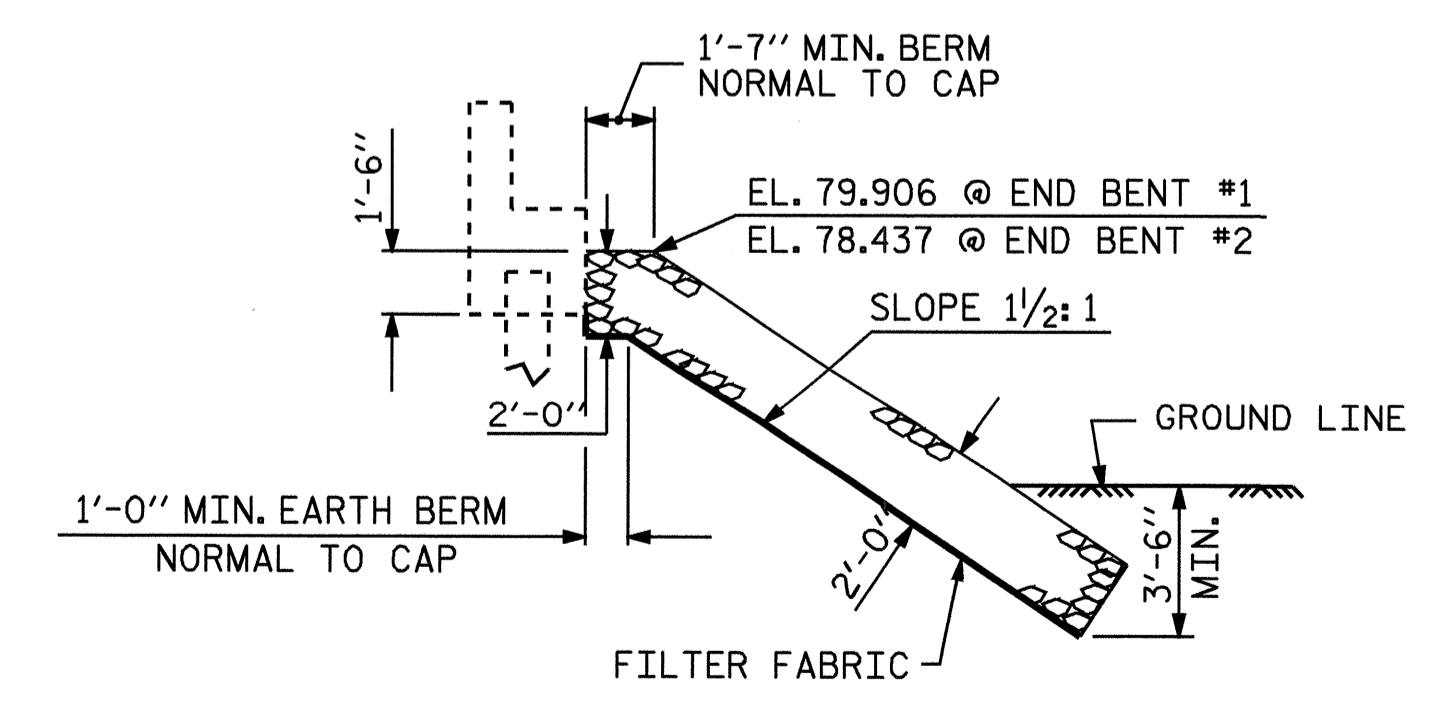


END BENT #1

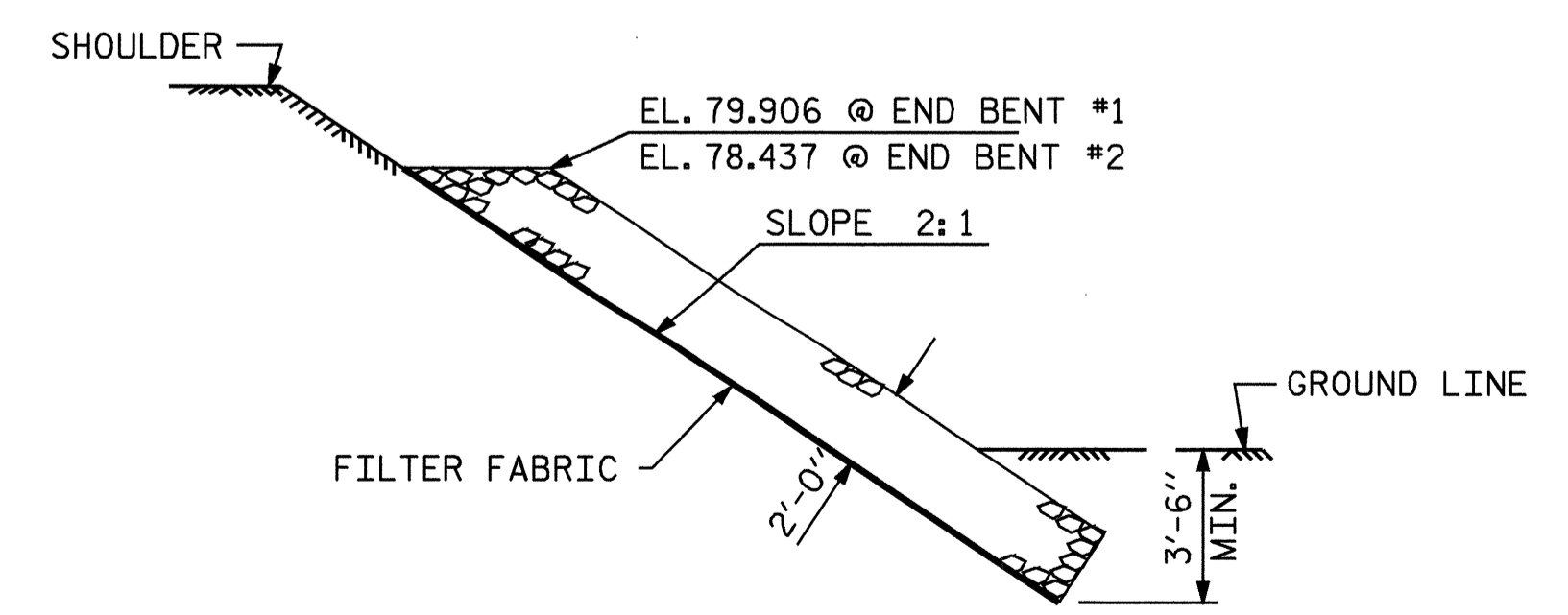
END BENT #2

PLAN

ESTIMATED QUANTITIES		
BRIDGE @ STA. 17+23.00 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	168	187
END BENT 2	341	379
TOTAL	509	566



SECTION C-C



SECTION C-C

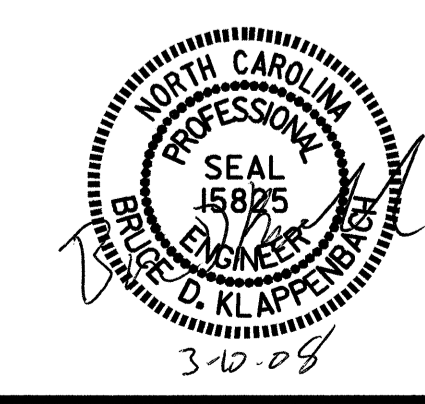
BERM RIP RAPPED

PROJECT NO. B-4321
WAYNE COUNTY
 STATION: 17+23.00 -L-

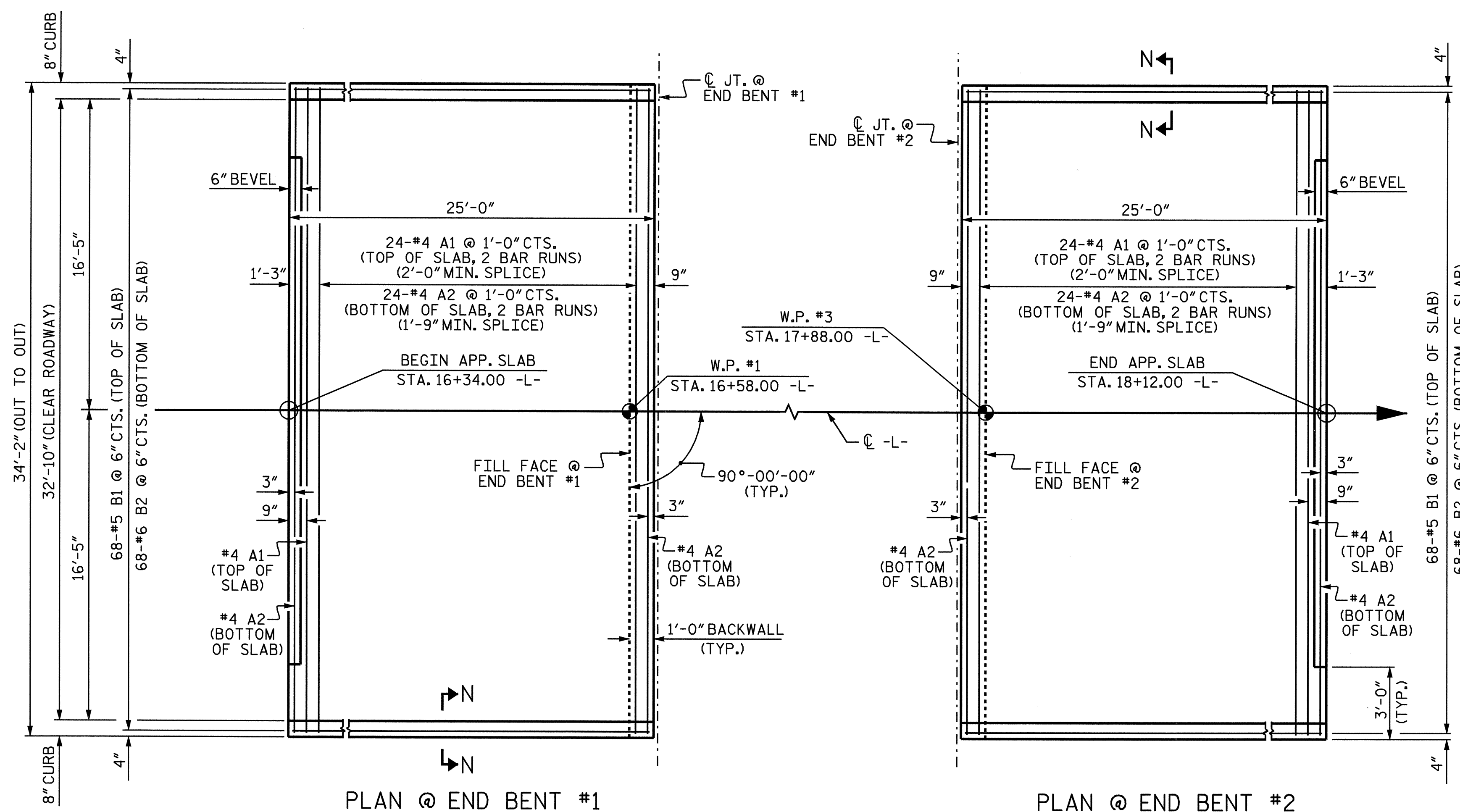
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

RIP RAP DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS 22
2			4			



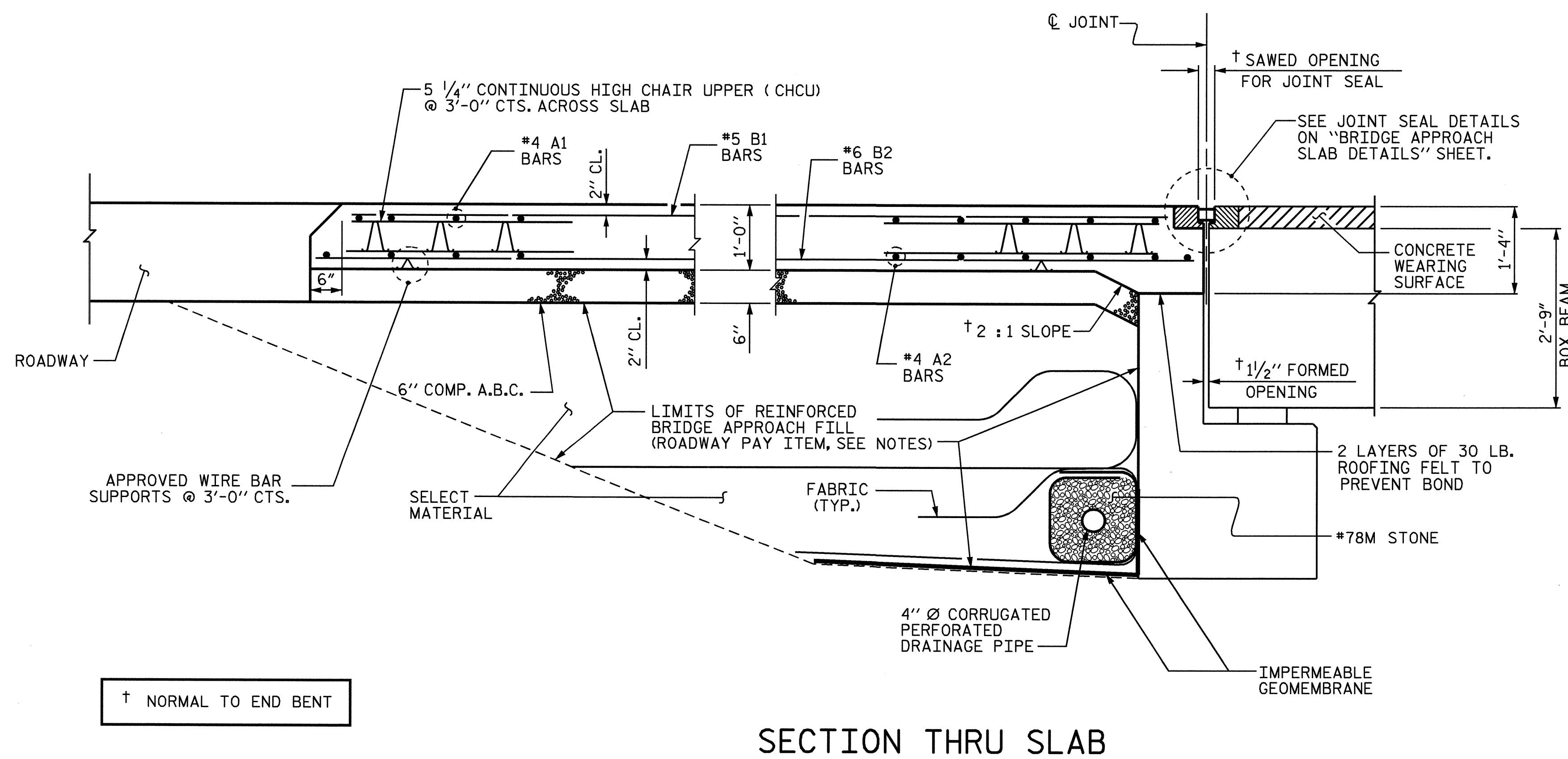
DRAWN BY : M. G. SHAIKH DATE : 4-10-06
 CHECKED BY : A. SORSENGINH DATE : 01-31-08



PLAN @ END BENT #1

PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB

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.

WITH EVAZOTE JOINT SEAL

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

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

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

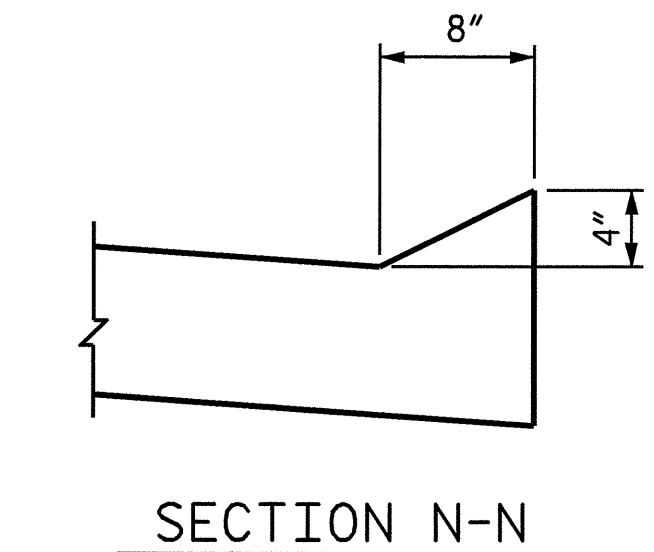
WITH CONCRETE WEARING SURFACE

APPROACH SLABS SHALL BE POURED AFTER CONCRETE OVERLAY IS POURED.

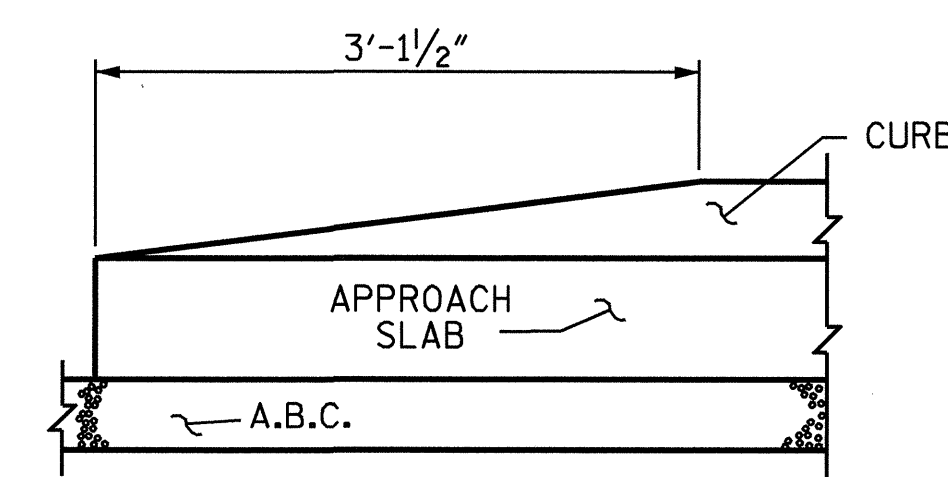
THE JOINT SHALL BE SAWS AFTER THE CASTING OF THE BARRIER RAILS.

BILL OF MATERIAL

APPROACH SLAB AT EB #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	50	#4	STR	17'-11"	598
A2	52	#4	STR	17'-9"	617
*B1	68	#5	STR	23'-8"	1679
B2	68	#6	STR	24'-8"	2519
REINFORCING STEEL				LBS.	3136
*EPOXY COATED REINFORCING STEEL				LBS.	2277
CLASS AA CONCRETE				C.Y.	32.5
APPROACH SLAB AT EB #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	50	#4	STR	17'-11"	598
A2	52	#4	STR	17'-9"	617
*B1	68	#5	STR	23'-8"	1679
B2	68	#6	STR	24'-8"	2519
REINFORCING STEEL				LBS.	3136
*EPOXY COATED REINFORCING STEEL				LBS.	2277
CLASS AA CONCRETE				C.Y.	32.5



SECTION N-N



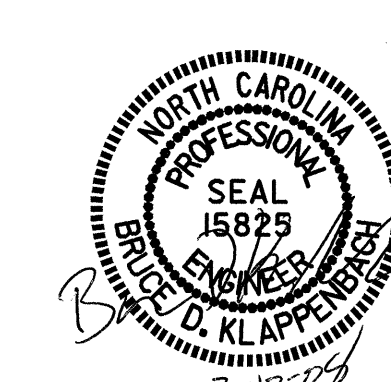
END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

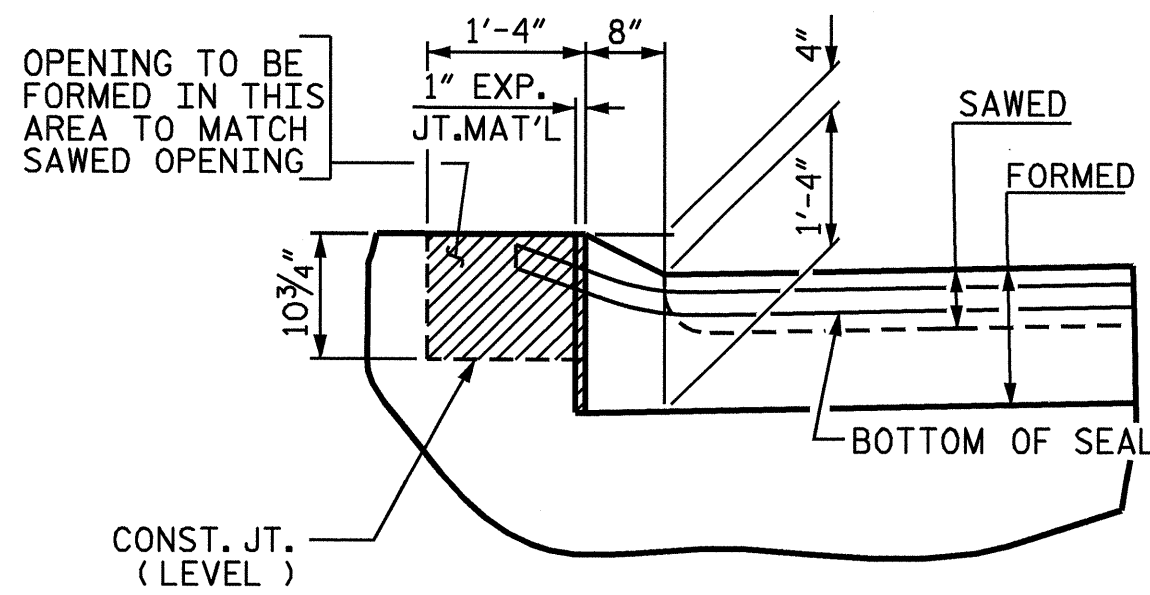
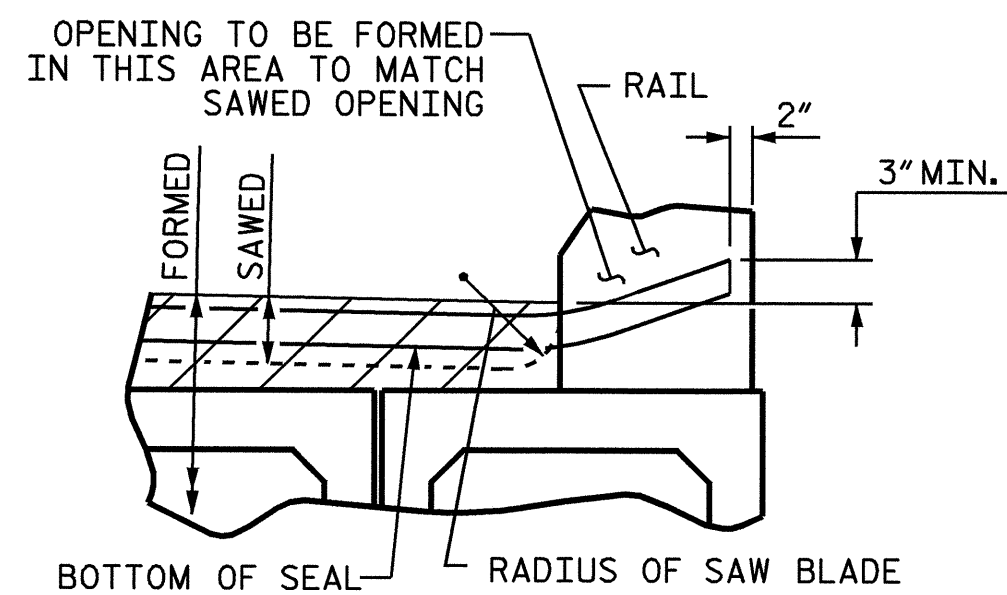
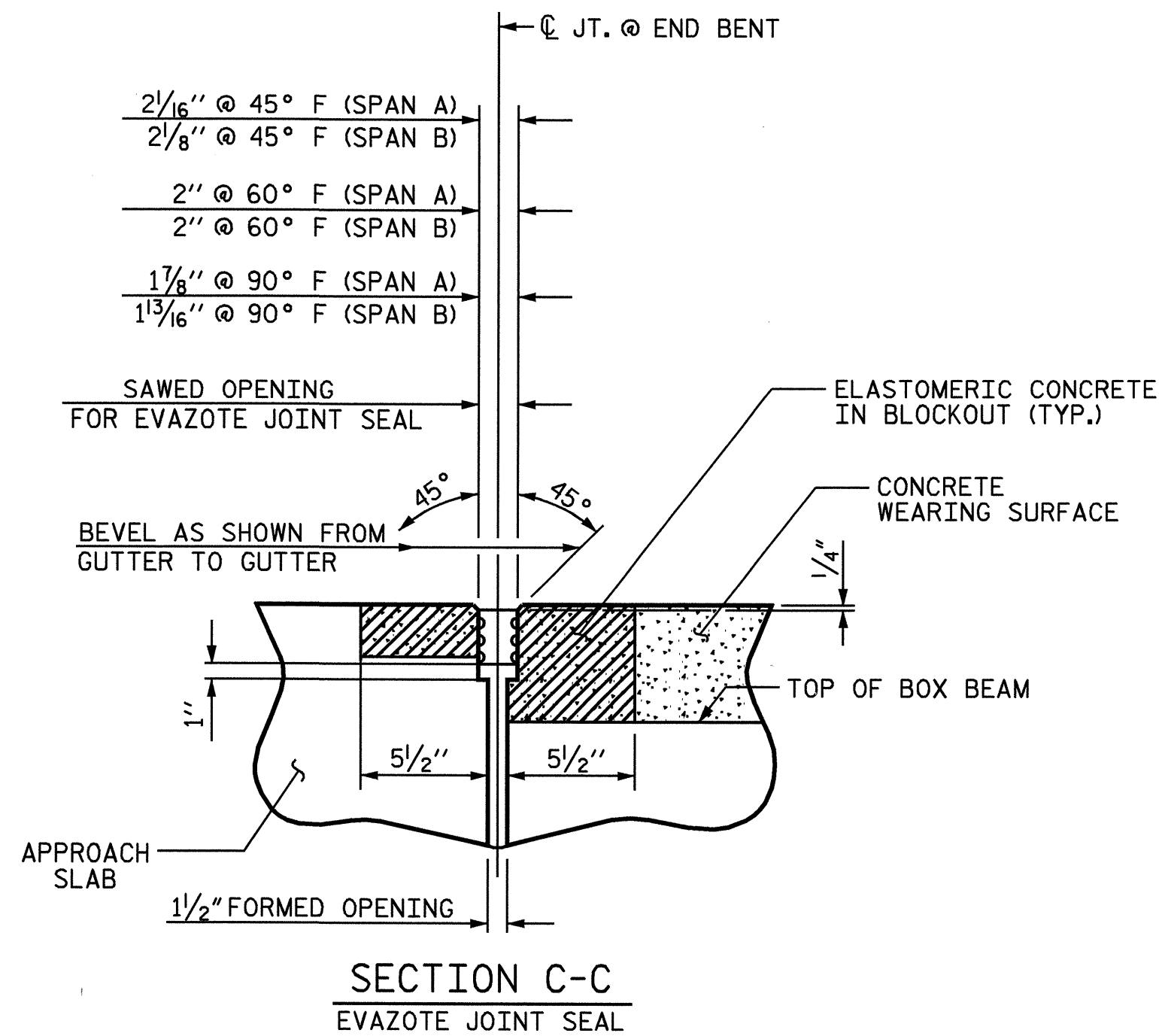
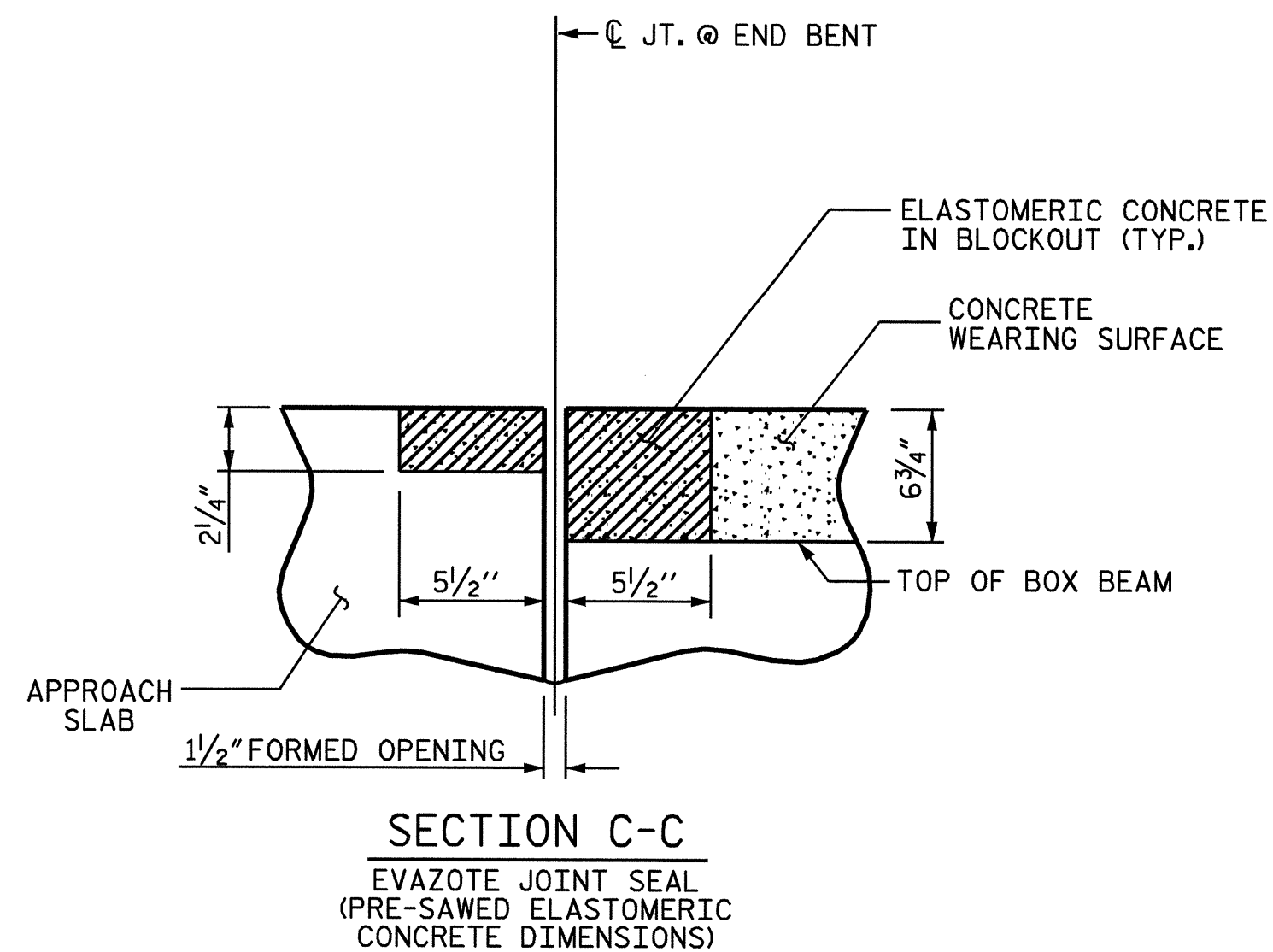
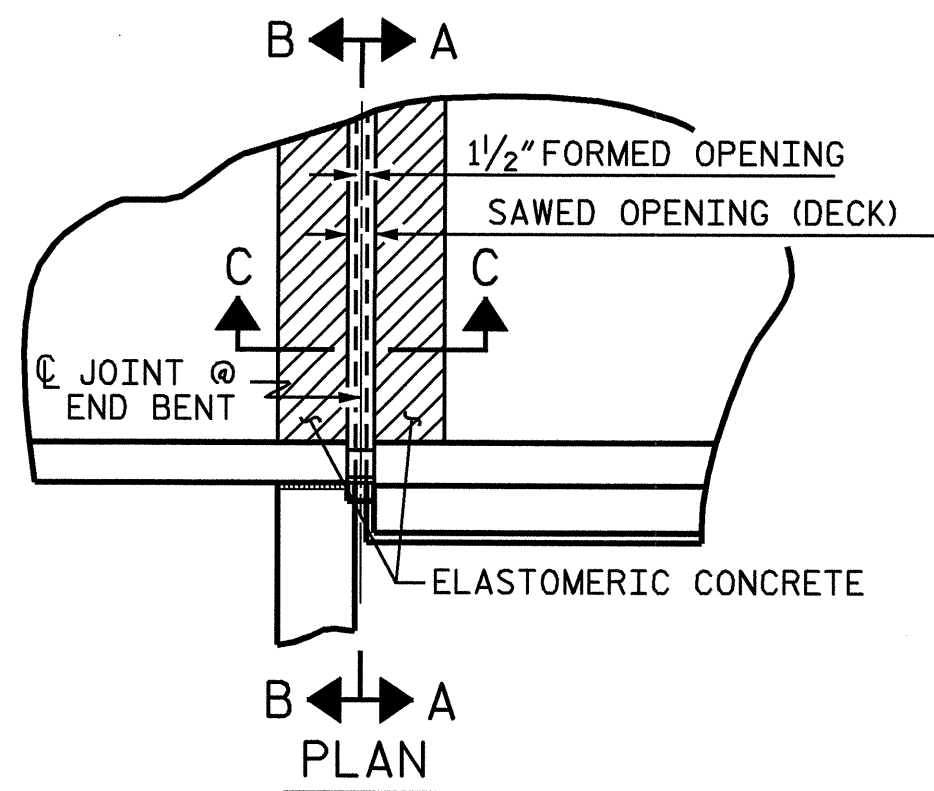
PROJECT NO. B-4321
WAYNE COUNTY
STATION: 17+23.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					22



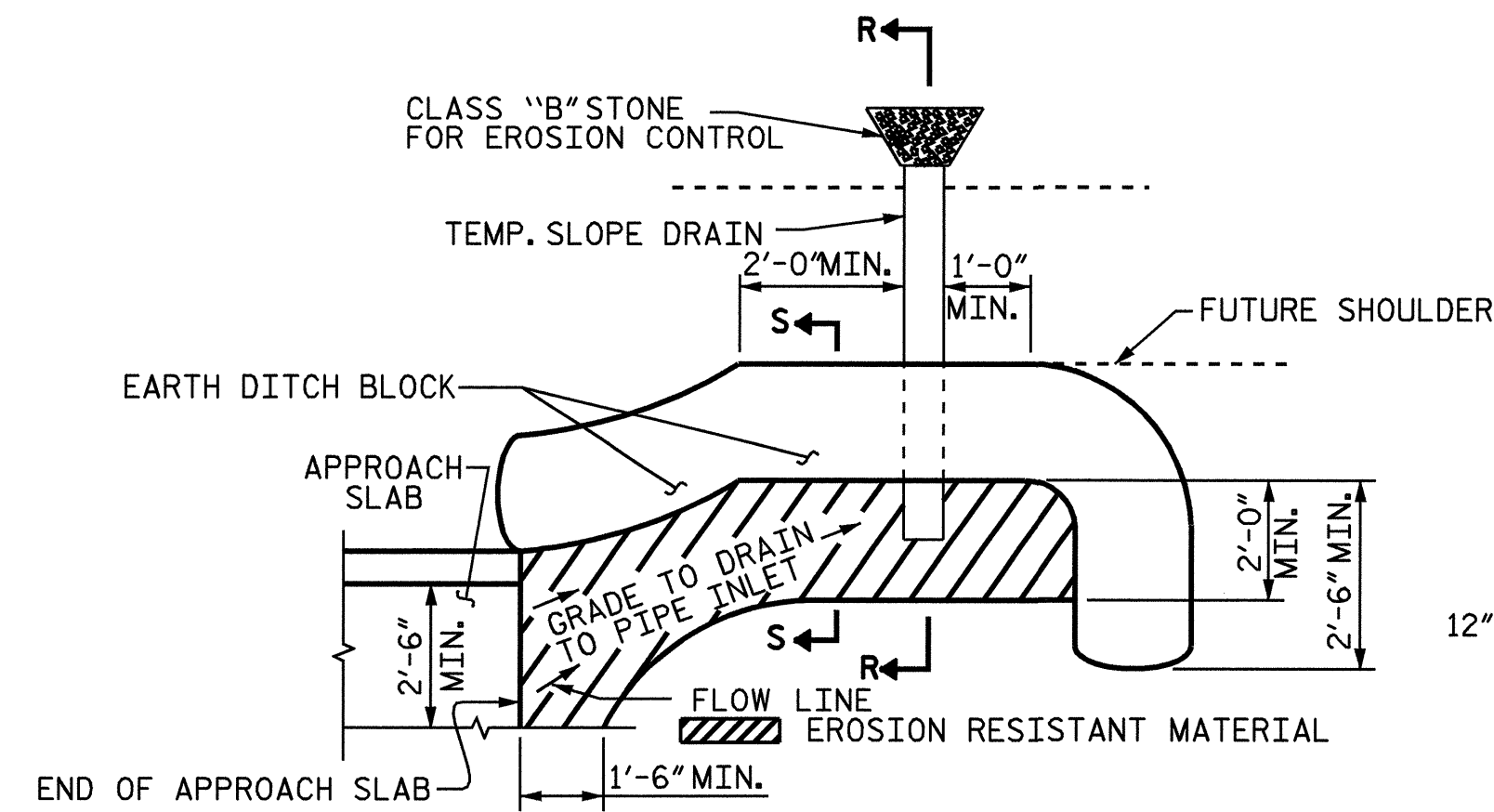
ASSEMBLED BY : M. G. SHAIKH	DATE : 08-25-06
CHECKED BY : D. A. GLADDEN	DATE : 08-25-06
DRAWN BY : EEM 3/95	REV. 7/10/01 LES/RDR
CHECKED BY : VAP 3/95	REV. 5/7/03R RWW/JTE
	REV. 5/1/06 TLA/GM



SECTION A-A

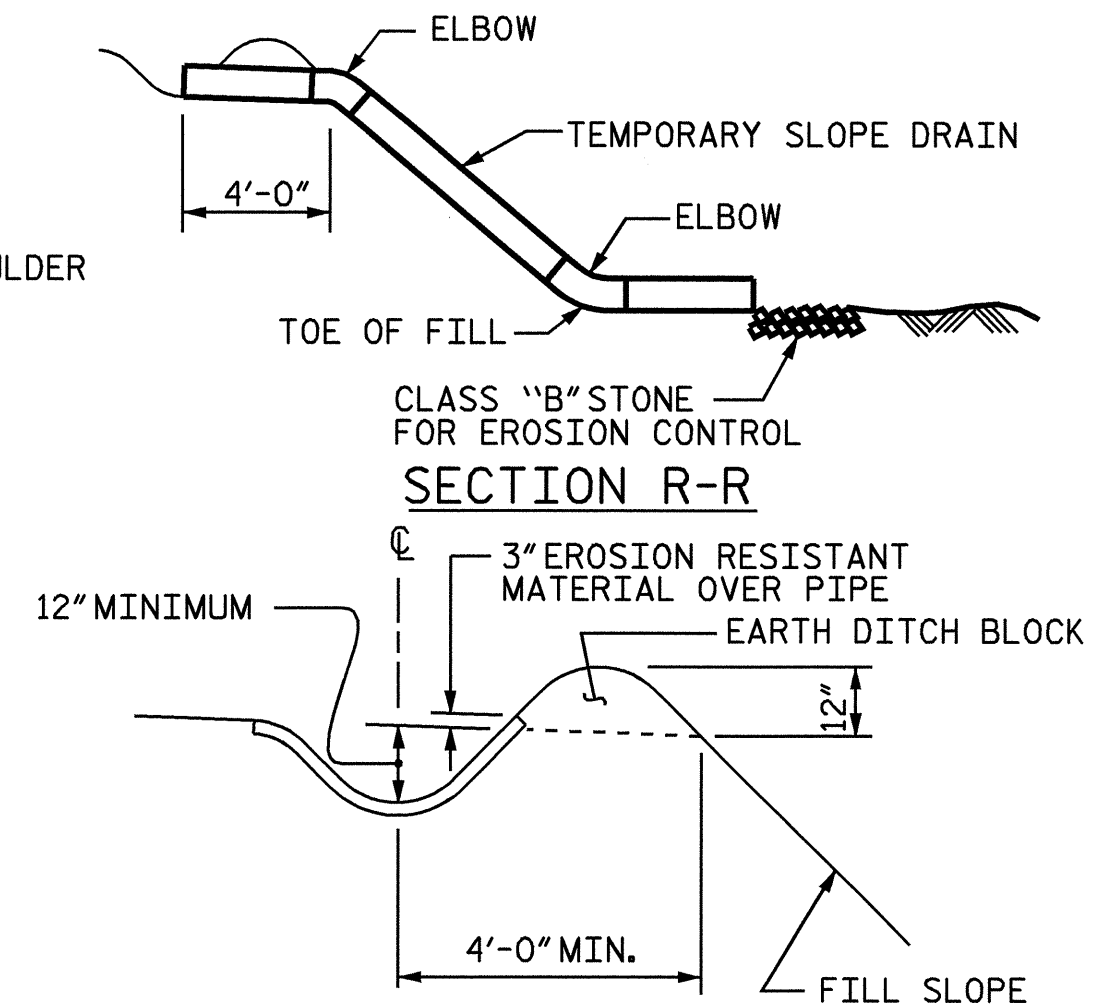
SECTION B-B

JOINT SEAL DETAILS @ END BENT

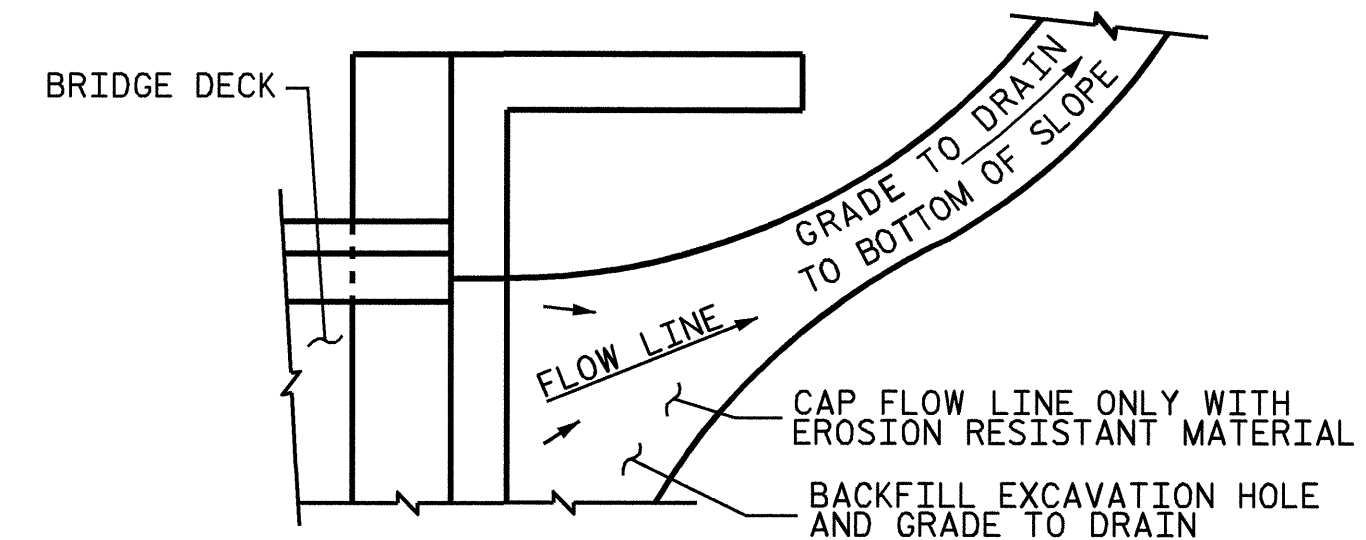


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

ELASTOMERIC CONCRETE	
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	11.3
2	11.3
TOTAL	22.6

* BASED ON THE MINIMUM BLOCKOUT SHOWN.

PROJECT NO. B-4321
WAYNE COUNTY
 STATION: 17+23.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH SLAB
 FOR PRESTRESSED CONCRETE
 BOX BEAM SLAB WITH
 BARRIER RAIL

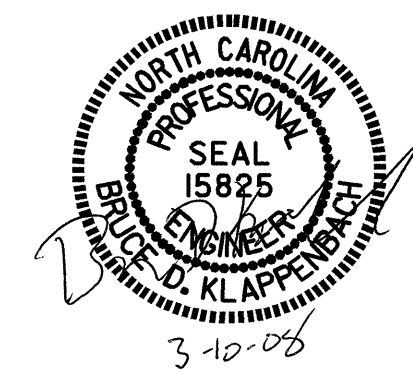
REVISIONS

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

SHEET NO.
S-22

TOTAL SHEETS
22

DRAWN BY : M. G. SHAIKH DATE : 4-07-06
 CHECKED BY : D. A. GLADDEN DATE : 4-27-06



STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

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

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

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

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

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

STD. NO. SN