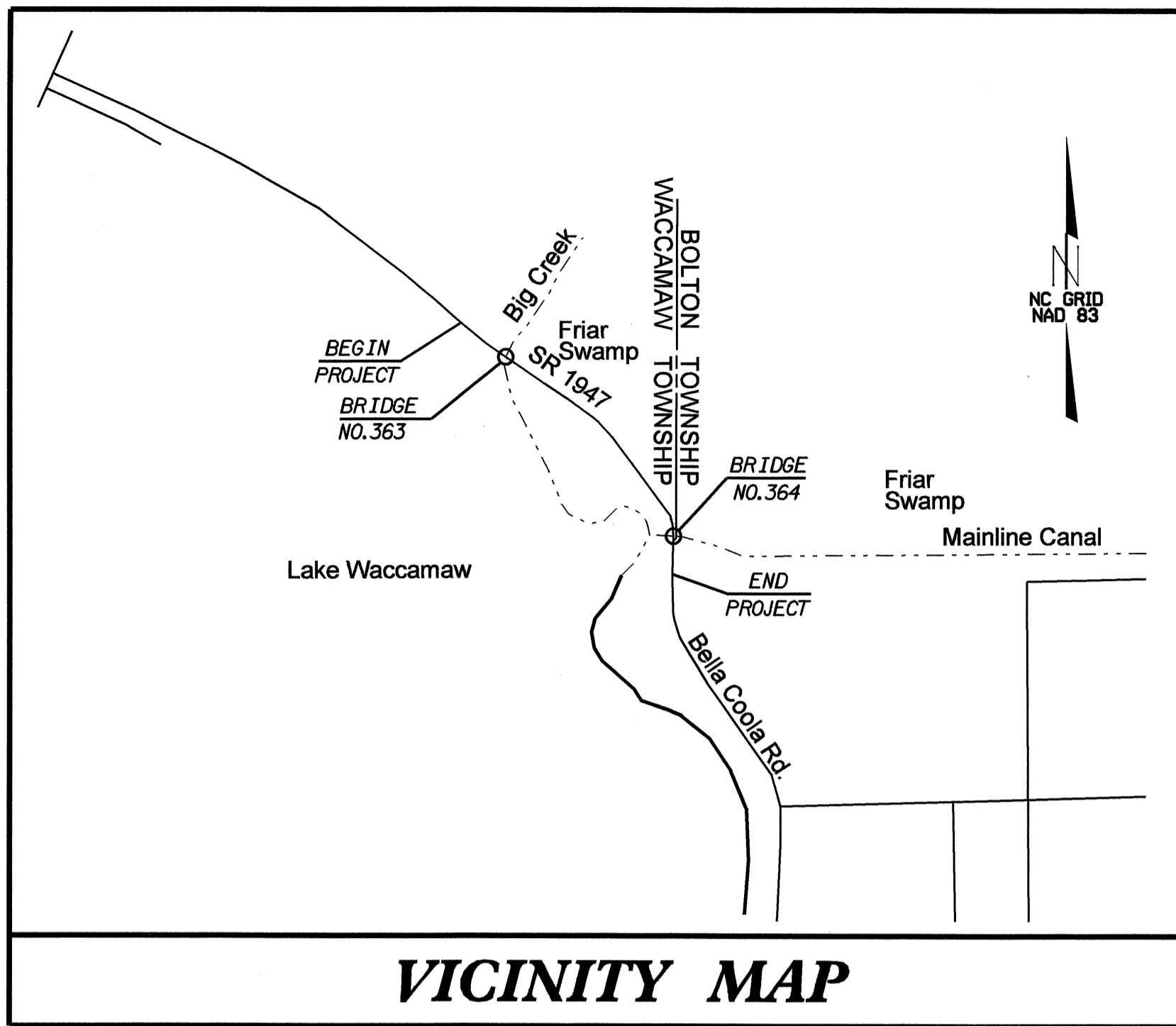


CONTRACT: C201923 TIP PROJECT: B-3830

STRUCTURES



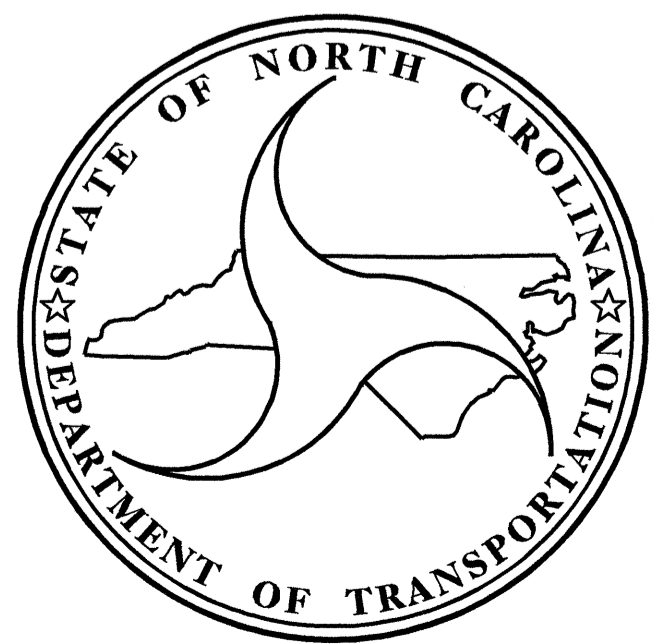
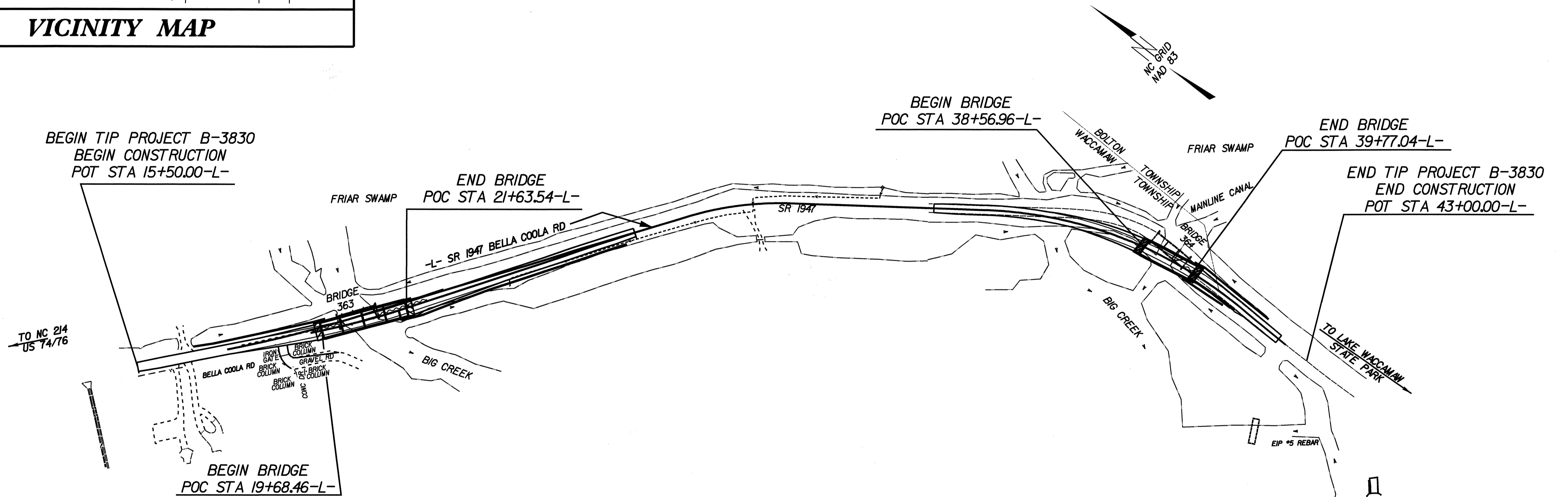
VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
COLUMBUS COUNTY

LOCATION: BRIDGE NO. 363 AND NO. 364 OVER FRIAR SWAMP AND BIG CREEK ON SR 1947 (BELLA COOLE RD)

TYPE OF WORK: GRADING, DRAINAGE, STRUCTURE, PAVING, RETAINING WALL AND TEMPORARY SIGNAL.

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3830		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33281.1.1	BRZ-1947(1)	P.E.	
33281.2.1	BRZ-1947(1)	ROW / UTILITIES	
33281.3.1	BRZ-1947(2)	CONST.	



DESIGN DATA

ADT 2007 =	800
ADT 2027 =	1470
DHV =	14 %
D =	65 %
T =	3 %
V =	50 MPH
(TTST 1% DUALS 2%)	
FUNCTION =	RURAL
CLASS.	LOCAL

PROJECT LENGTH

LENGTH ROADWAY OF F.A. PROJECT =	0.461 MI
LENGTH STRUCTURE OF F.A. PROJECT =	0.060 MI
TOTAL LENGTH OF F.A. PROJECT =	0.521 MI

Prepared In the Office of:
DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

LETTING DATE : March 17, 2009	J. C. FRYE, P.E. <small>PROJECT ENGINEER</small>
	W. A. DAVIS, P.E. <small>PROJECT DESIGN ENGINEER</small>

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

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE DESIGN ENGINEER

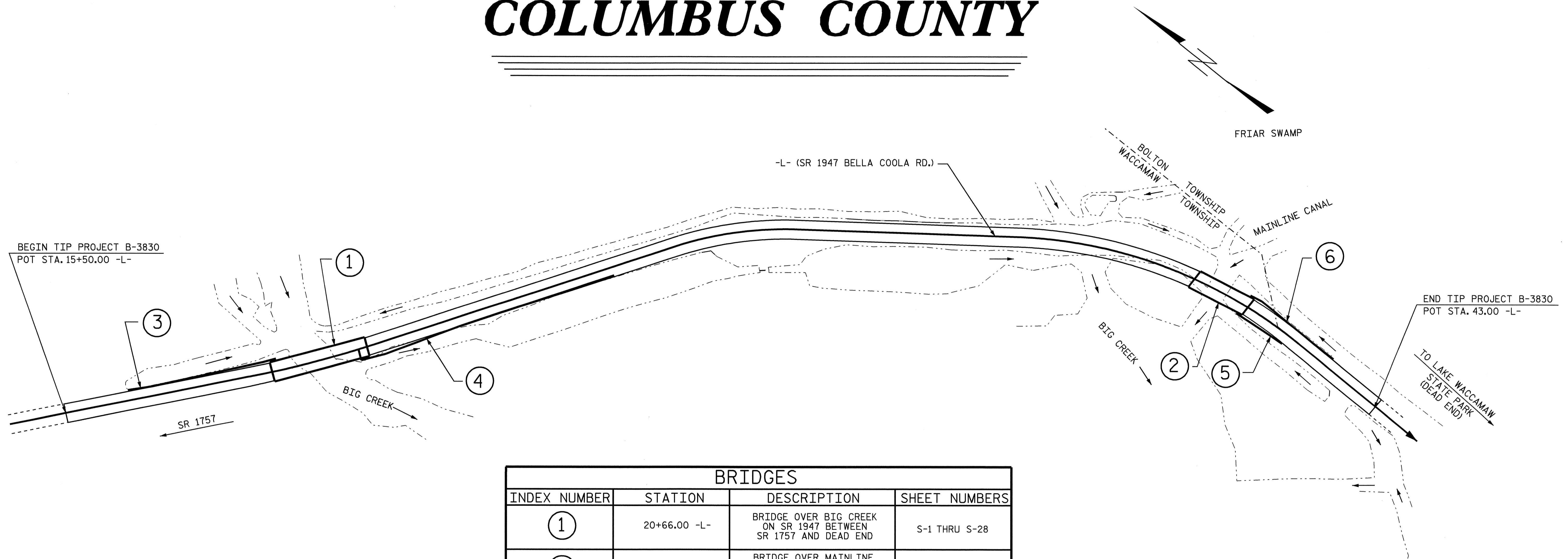
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED _____
DIVISION ADMINISTRATOR

DATE _____

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

COLUMBUS COUNTY



BRIDGES			
INDEX NUMBER	STATION	DESCRIPTION	SHEET NUMBERS
①	20+66.00 -L-	BRIDGE OVER BIG CREEK ON SR 1947 BETWEEN SR 1757 AND DEAD END	S-1 THRU S-28
②	39+17.00 -L-	BRIDGE OVER MAINLINE CANAL ON SR 1947 BETWEEN SR 1757 AND DEAD END	S-29 THRU S-56
WALLS			
INDEX NUMBER	STATION	DESCRIPTION	SHEET NUMBERS
③	16+80.00 -L-	RETAINING WALL 1	W-1
④	21+46.00 -L-	RETAINING WALL 2	W-2, W-3
⑤	39+63.00 -L-	RETAINING WALL 3	W-4
⑥	39+69.00 -L-	RETAINING WALL 4	W-5

PROJECT NO. B-3830
COLUMBUS COUNTY

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

INDEX SHEET

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

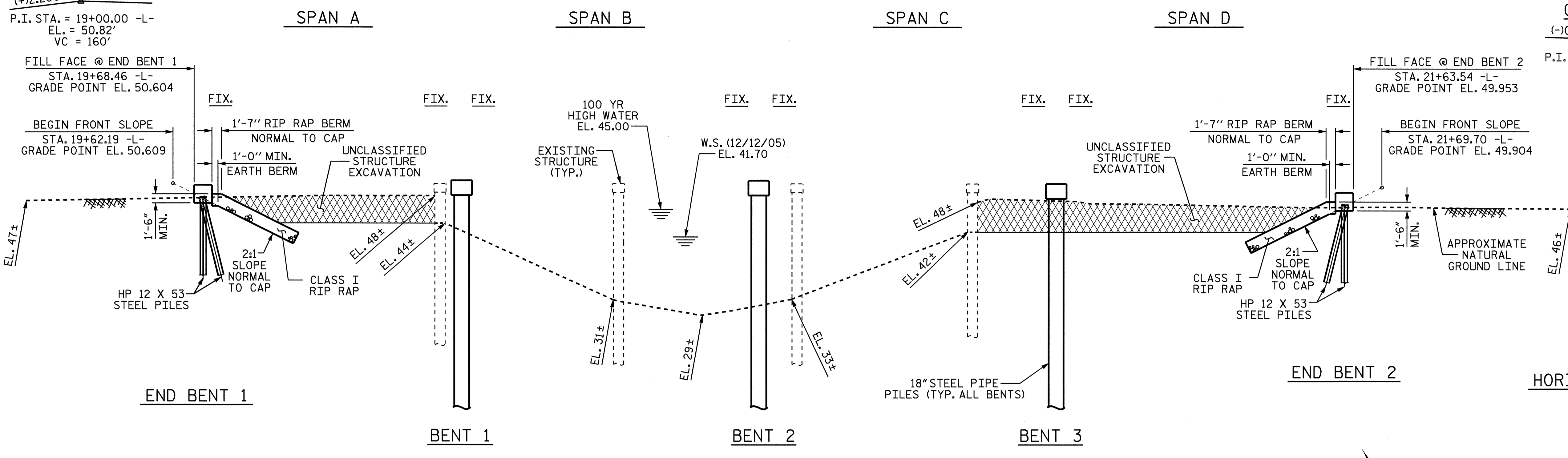
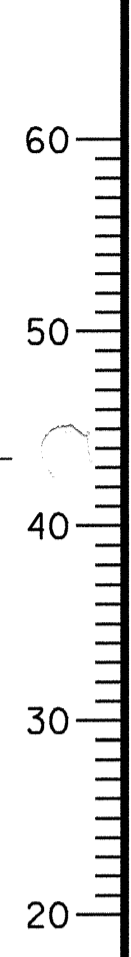
DRAWN BY : A.R.CHESSON DATE : 7-08
CHECKED BY : W.A.DAVIS DATE : 7-11-08

GRADE DATA

(+)2.2000% (-)0.3000%
 P.I. STA. = 19+00.00 -L-
 EL. = 50.82'
 VC = 160'

GRADE DATA

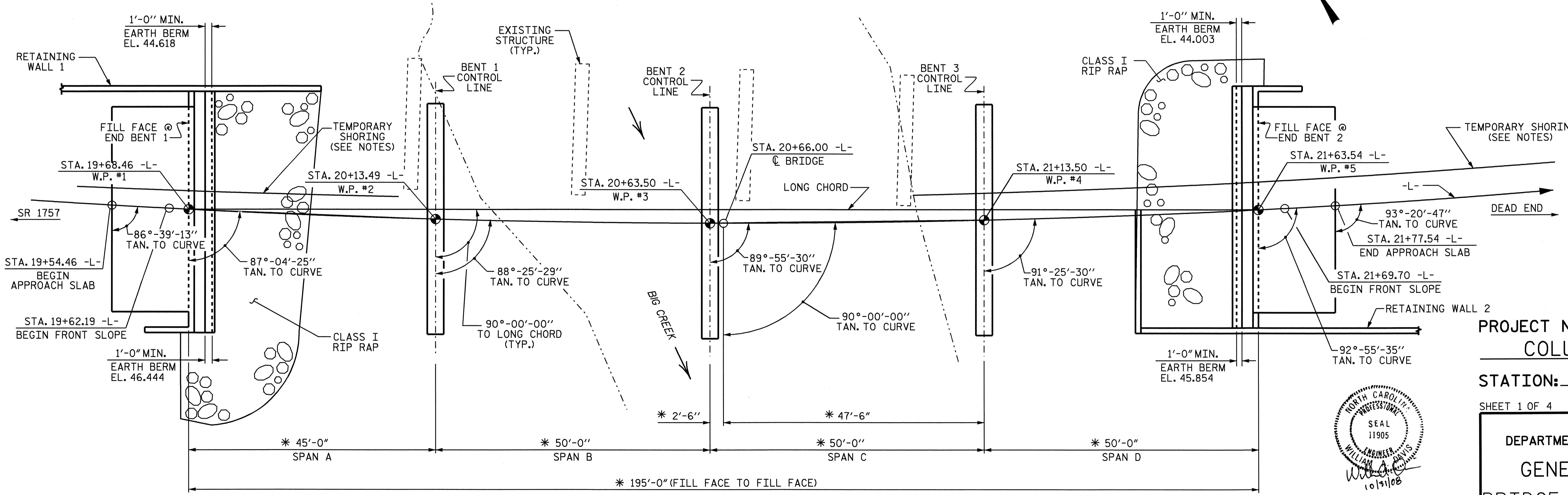
(-)0.3000% (-)2.2000%
 P.I. STA. = 22+00.00 -L-
 EL. = 49.92'
 VC = 140'



SECTION ALONG -L-

HORIZONTAL CURVE DATA FOR -L-

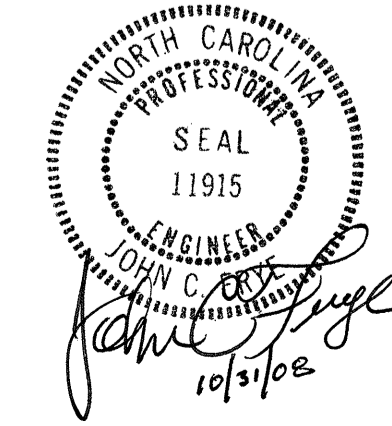
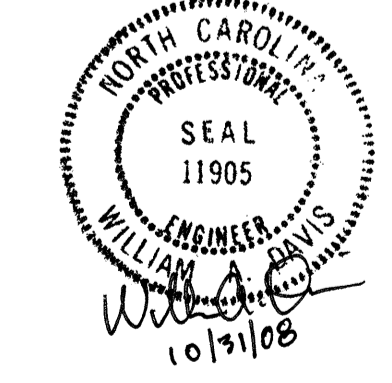
P.I. STA. = 20+60.32 -L-
 $\Delta = 07^\circ-03'-46.5''$ (LT)
 $D = 3^\circ-00'-00''$
 $L = 235.43'$
 $T = 117.86'$
 $R = 1909.86'$



PLAN

PILES NOT SHOWN FOR CLARITY
 * MEASURED ALONG LONG CHORD

DRAWN BY: QT NGUYEN DATE: 5-08
 CHECKED BY: A.R. CHESSON DATE: 6-08

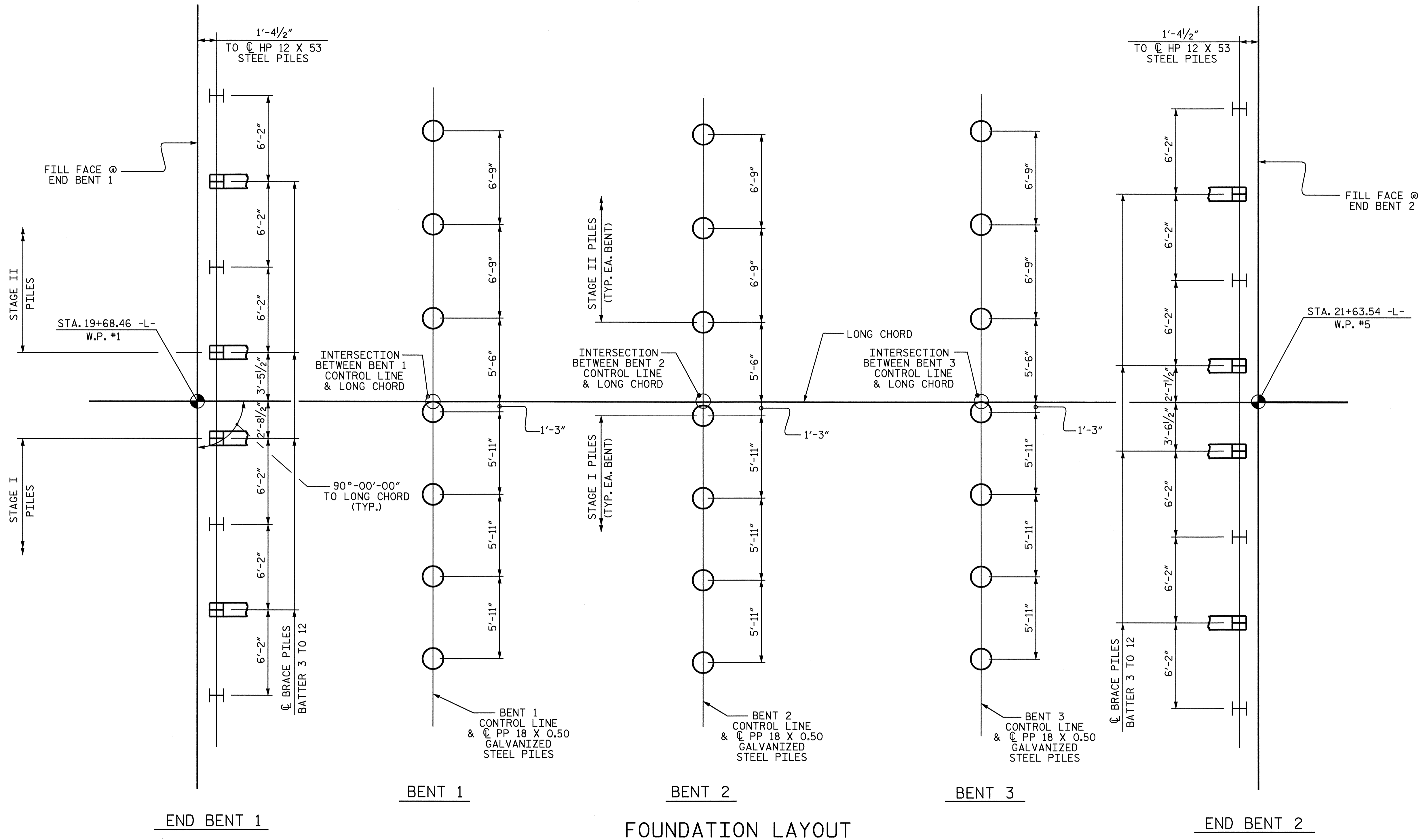


PROJECT NO. B-3830
 COLUMBUS COUNTY
 STATION: 20+66.00 -L-

SHEET 1 OF 4 REPLACES BRIDGE NO. 363

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 BRIDGE OVER BIG CREEK
 ON SR 1947 BETWEEN
 SR 1757 AND DEAD END

REVISIONS						SHEET NO. S-1
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			56



FOUNDATION LAYOUT

DIMENSION LOCATING PIPE PILES ARE TO THE PILE CENTER LINE

NOTES:

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.

DRIVE PILES AT BENT NO.1, BENT NO.2 AND BENT NO.3 TO A REQUIRED BEARING CAPACITY OF 230 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO PLUS ANY ADDITIONAL CAPACITY TO ACCOUNT FOR DOWN DRAG OR NEGATIVE SKIN FRICTION AND SCOUR.

THE ALLOWABLE BEARING CAPACITY FOR PILES AT BENT NO.1, BENT NO.2 AND BENT NO.3 IS 110 TONS PER PILE.

DRIVE PILES AT BENT NO.1, BENT NO.2 AND BENT NO.3 TO A TIP ELEVATION NO HIGHER THAN 0.0 FEET.

THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 AND BENT NO.3 IS ELEVATION 30 FEET. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THE SCOUR CRITICAL ELEVATION FOR BENT NO.2 IS ELEVATION 22 FEET. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

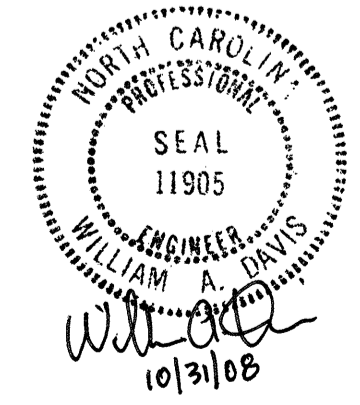
IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 55,000 TO 95,000 FOOT-POUNDS PER BLOW WILL BE REQUIRED TO DRIVE THE PILES AT BENT NO.1, BENT NO.2 AND BENT NO.3. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM ARTICLE 450-5 OF THE STANDARD SPECIFICATIONS.

TESTING THE FIRST PRODUCTION PIPE PILE WITH THE PILE DRIVING ANALYZER (PDA) DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED AT BENT NO.1 OR BENT NO.2. SEE PILE DRIVING ANALYZER SPECIAL PROVISION

GALVANIZE THE TOP 30 FT. MINIMUM OF EACH STEEL PIPE PILE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

DRAWN BY : QT NGUYEN DATE : 4-08
 CHECKED BY : A.R. CHESSON DATE : 6-08

30-OCT-2008 12:00
 o:\structures\b3830\final plans\str. 1\b-3830_sd.gd 1.dgn
 qtnguyen



PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 20+66.00 -L-

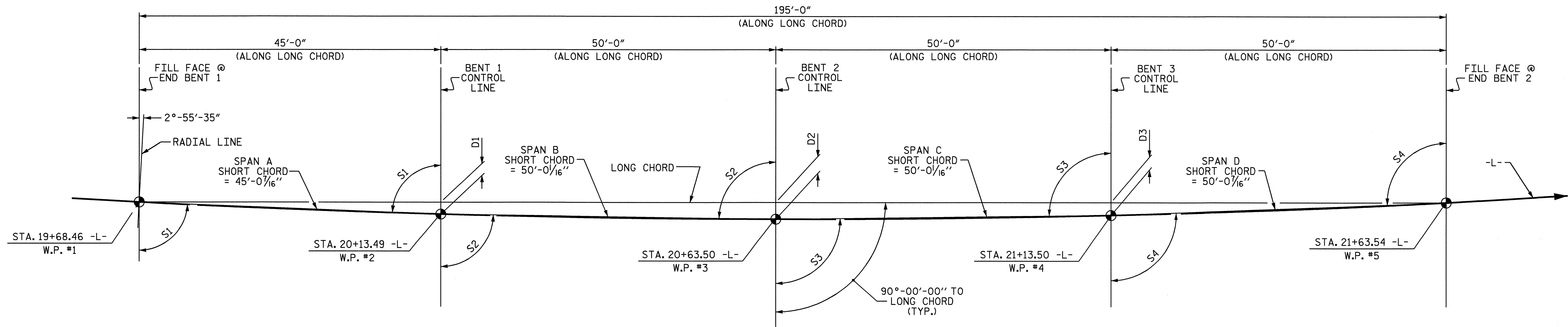
SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 BRIDGE OVER BIG CREEK
 ON SR 1947 BETWEEN
 SR 1757 AND DEAD END

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2	
1			3			TOTAL SHEETS	
2			4			56	

STR. #1

NC006



LONG CHORD LAYOUT

ALL BENTS ARE PARALLEL

HORIZONTAL CURVE DATA -L-

P.I. STA. 20+60.32 -L-
 $\Delta = 7^\circ-03'-46.5''$ (LT)
 $L = 235.43'$
 $T = 117.86'$
 $R = 1909.86'$

SHORT CHORD ANGLES	
S1	87°-44'-57"
S2	89°-10'-30"
S3	90°-40'-30"
S4	92°-10'-33"

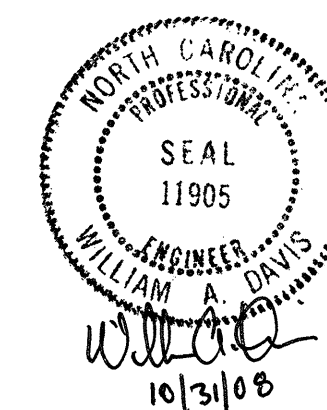
OFFSETS	
D1	1'-9 ¹ / ₄ "
D2	2'-5 ⁷ / ₈ "
D3	1'-10 ¹³ / ₁₆ "

PROJECT NO. B-3830

COLUMBUS COUNTY

STATION: 20+66.00 -L-

SHEET 3 OF 4



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 BRIDGE OVER BIG CREEK
 ON SR 1947 BETWEEN
 SR 1757 AND DEAD END

DRAWN BY : QT NGUYEN DATE : 5-08
 CHECKED BY : A.R. CHESSON DATE : 6-08

30-OCT-2008 09:46
 o:\structures\b3830\final plans\str. 1\b-3830.sd 1.dgn
 qtnguyen

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			56

STR. #1

BM #2: SPIKE IN 24" PINE TREE 38.55' RT. -L-, STA. 19+88.48, EL. 46.86

HYDRAULIC DATA

DESIGN DISCHARGE = 3650 cfs
 FREQUENCY OF DESIGN FLOOD = 25 YR.
 DESIGN HIGH WATER ELEVATION = 44.1 FT
 DRAINAGE AREA = 80.3 SQ. MI.
 BASIC DISCHARGE (Q100) = 5300 cfs
 BASIC HIGH WATER ELEVATION = 45.0 FT

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 3650 cfs
 FREQUENCY OF OVERTOPPING FLOOD = 25 YR.
 OVERTOPPING FLOOD ELEVATION = 44.3 FT

NOTES

ASSUMED LIVE LOAD = HS20 OR ALTERNATE LOADING, EXCEPT THAT CORED SLAB 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 1 @ 30'-8", 1 @ 30'-0", 1 @ 30'-8" PRESTRESSED CONCRETE CHANNEL SPANS, WITH A CLEAR ROADWAY WIDTH OF 24' ON CONCRETE CAPS ON TIMBER PILES SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT. SEE SPECIAL PROVISIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 24 FT LEFT AND 30 FT RIGHT EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE 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.

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.

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

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.

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 20+66.00 -L-."

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

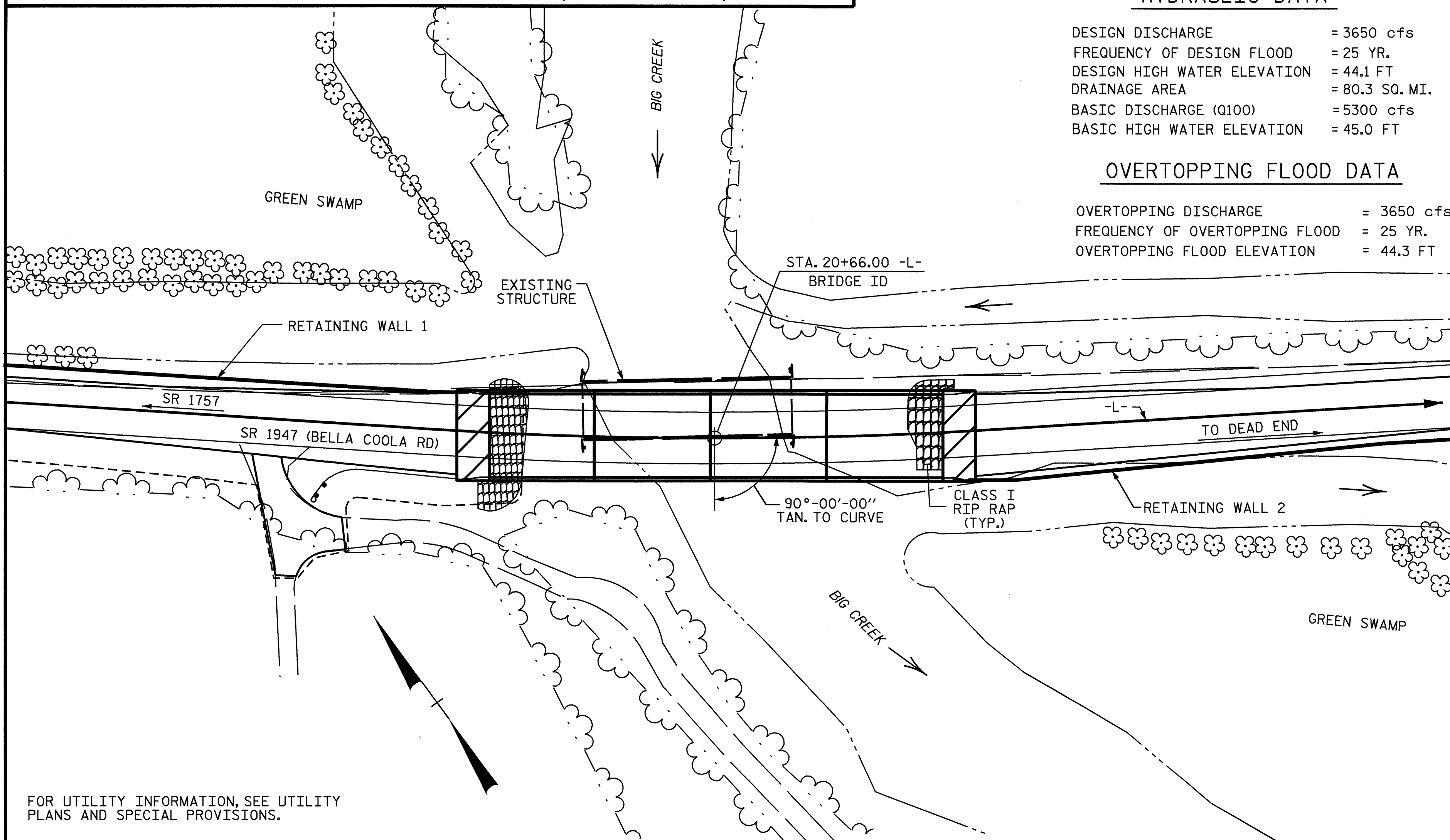
FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.



LOCATION SKETCH

THIS BRIDGE SHALL BE CONSTRUCTED USING TOP-DOWN CONSTRUCTION METHODS. THE USE OF A TEMPORARY CAUSEWAY OR WORK BRIDGE IS NOT PERMITTED.

TOTAL BILL OF MATERIAL

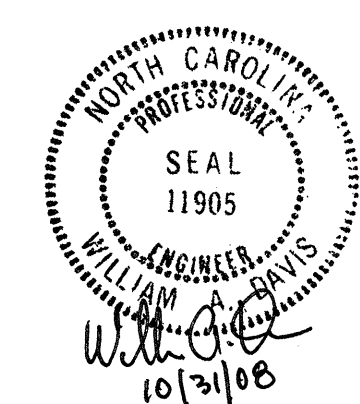
	REMOVAL OF EXISTING STRUCTURE	PDA TESTING	PDA ASSISTANCE	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X .53 STEEL PILES	PP 18 X 0.50 GALVANIZED STEEL PILES	PILE REDRIVES	CONCRETE BARRIER RAIL	RIP RAP CLASS I	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS			
	LUMP SUM	EA.	EA.	CU. YDS	CU. YDS	LUMP SUM	LBS.	NO.	LIN. FT.	NO.	LIN. FT.	EA.	LIN. FT.	TON	SQ.YDS.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE	LUMP SUM					LUMP SUM					384.74						52	2500.88
END BENT #1				210	13.9		2153	8	640					98	109			
BENT #1					12.7		2187			4								
BENT #2					12.7		2187			4								
BENT #3					12.7		2187			4								
END BENT #2				460	13.4		2170	8	640					95	105			
TOTAL	LUMP SUM	2	2	670	65.4	LUMP SUM	10884	16	1280	21	1610	20	384.74	193	214	LUMP SUM	52	2500.88

DRAWN BY : QT NGUYEN DATE : 5-08
 CHECKED BY : A.R. CHESSON DATE : 6-08

30-OCT-2008 09:46
 o:\structures\3830\final plans\str. 1\3830_sd.gd 1.dgn
 qtnguyen

PROJECT NO. B-3830
 COLUMBUS COUNTY
 STATION: 20+66.00 -L-

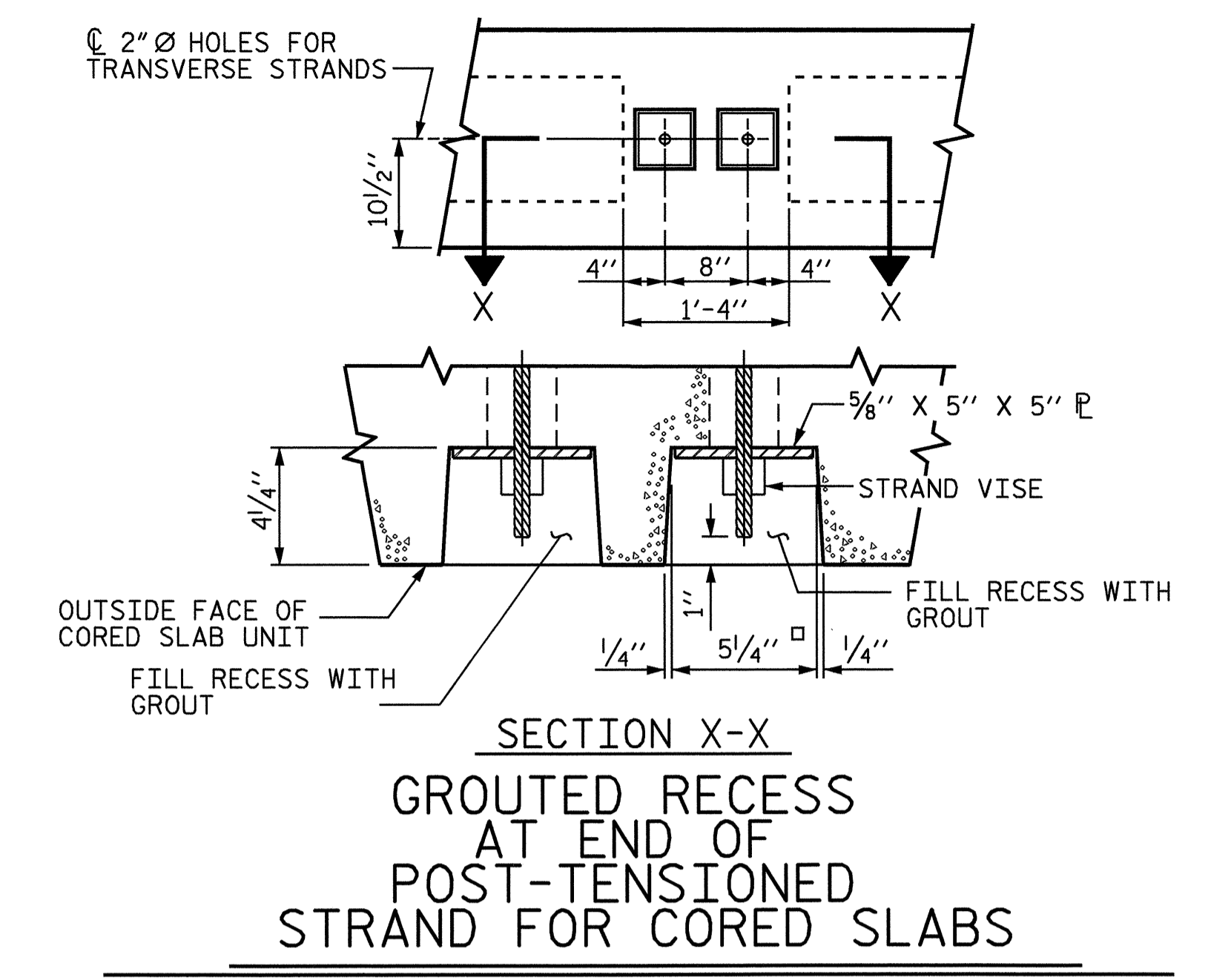
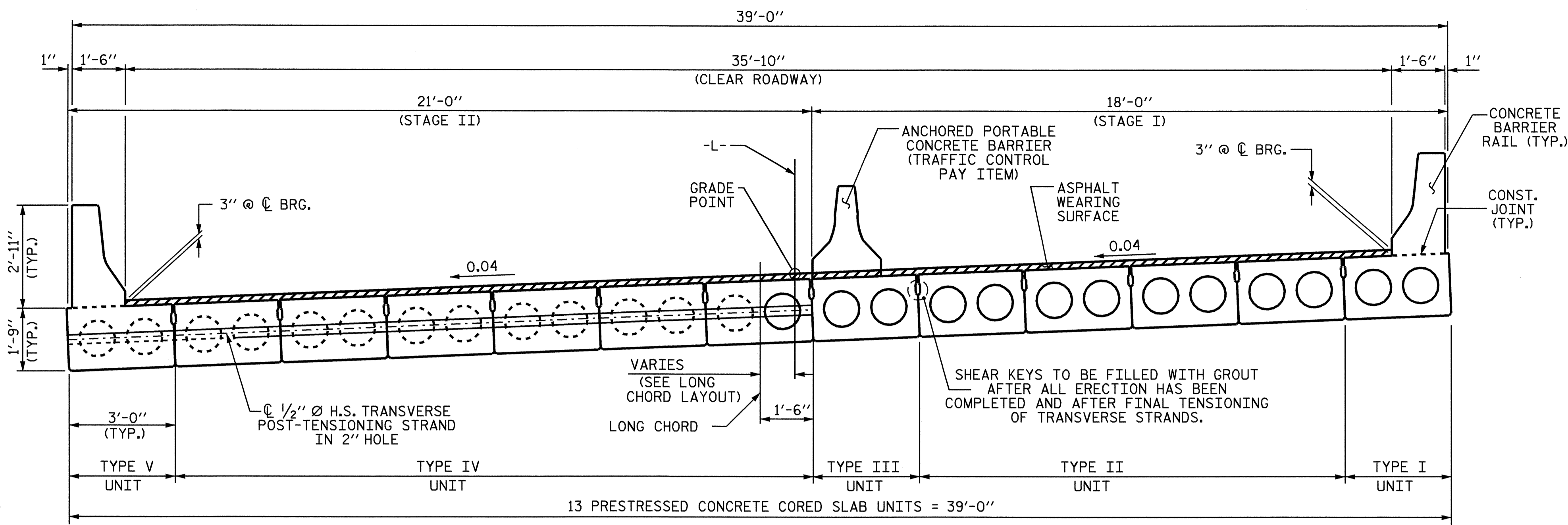
SHEET 4 OF 4



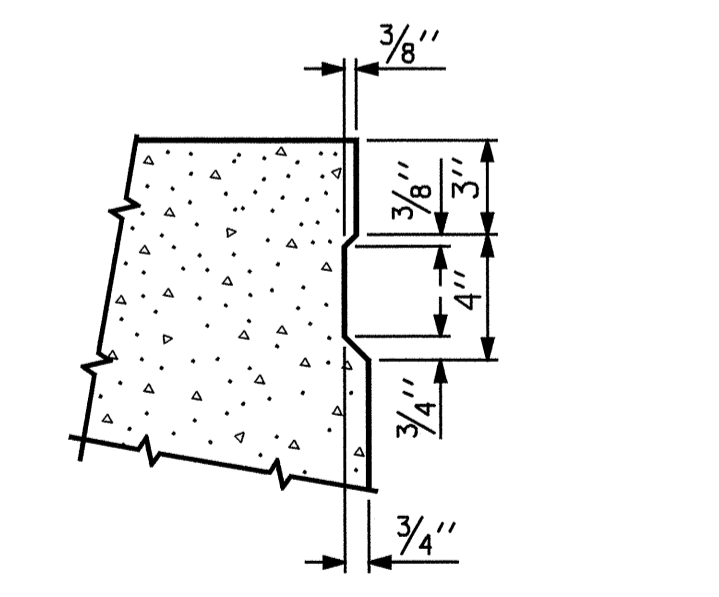
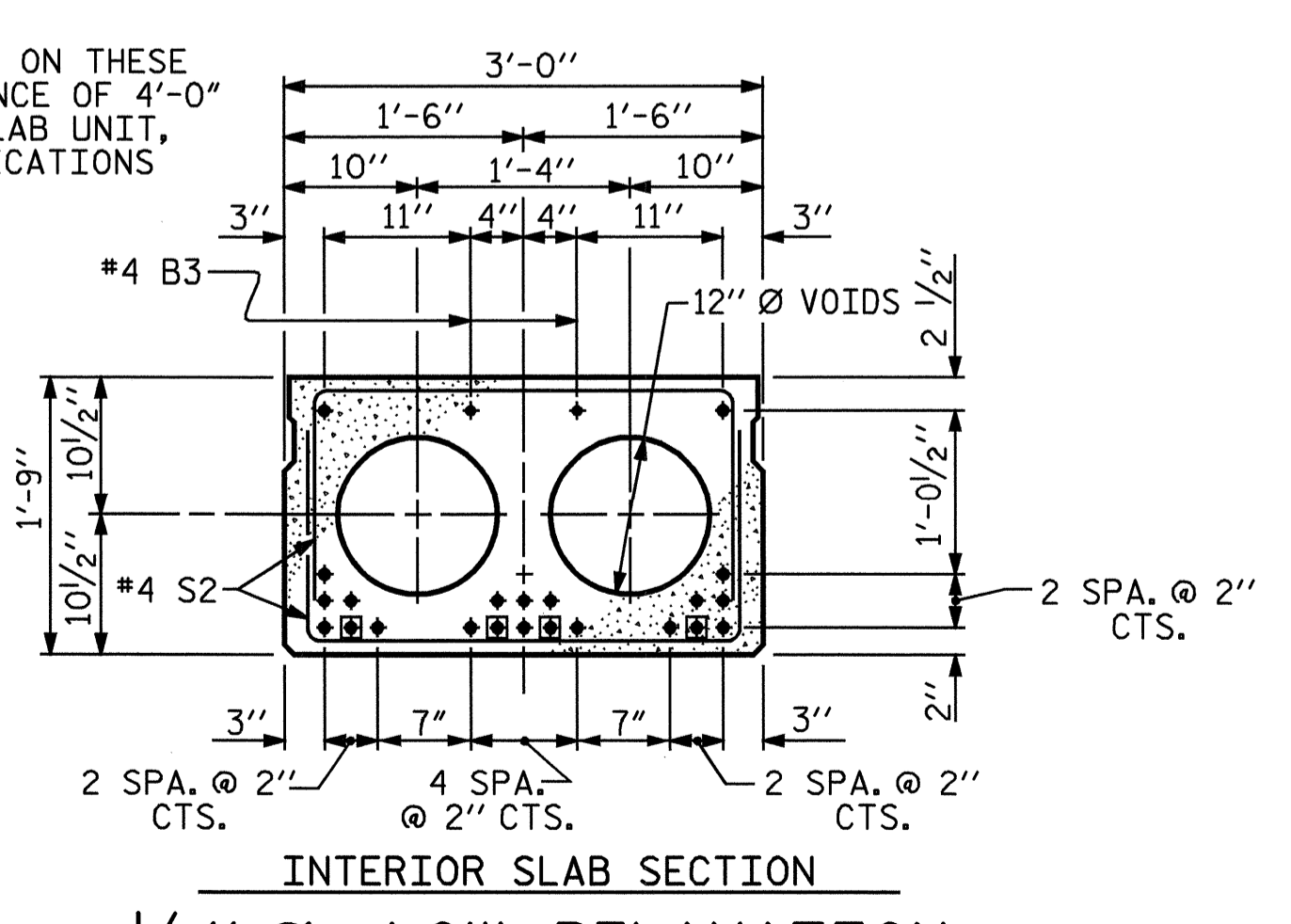
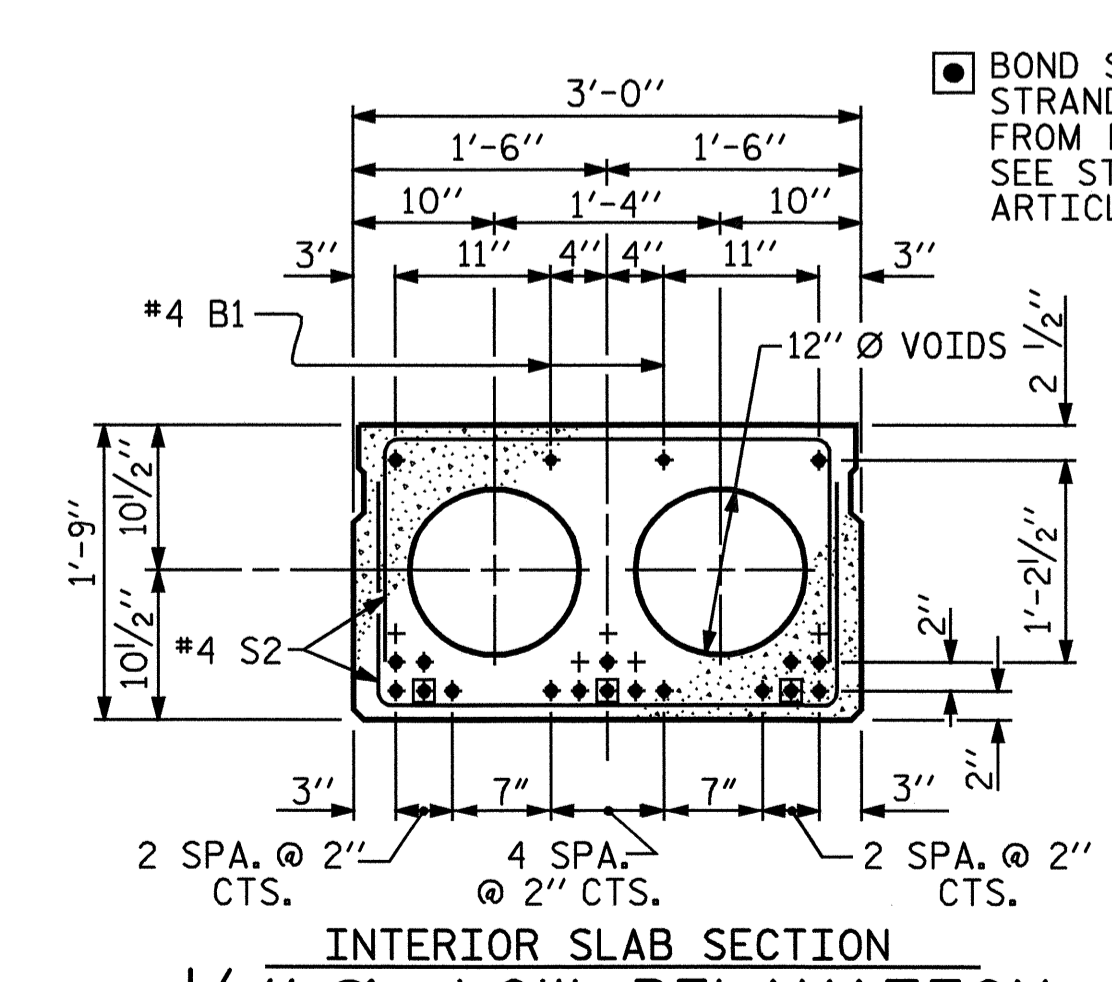
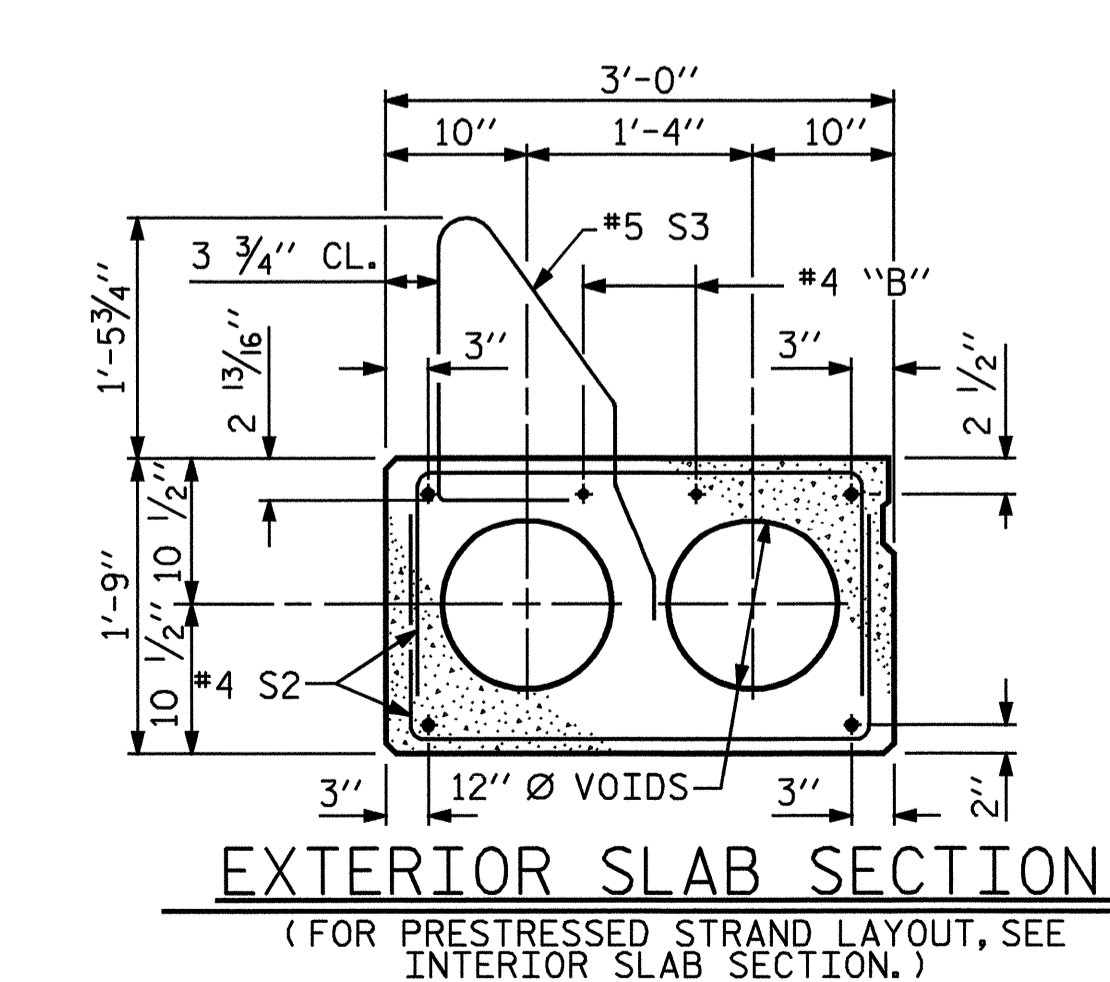
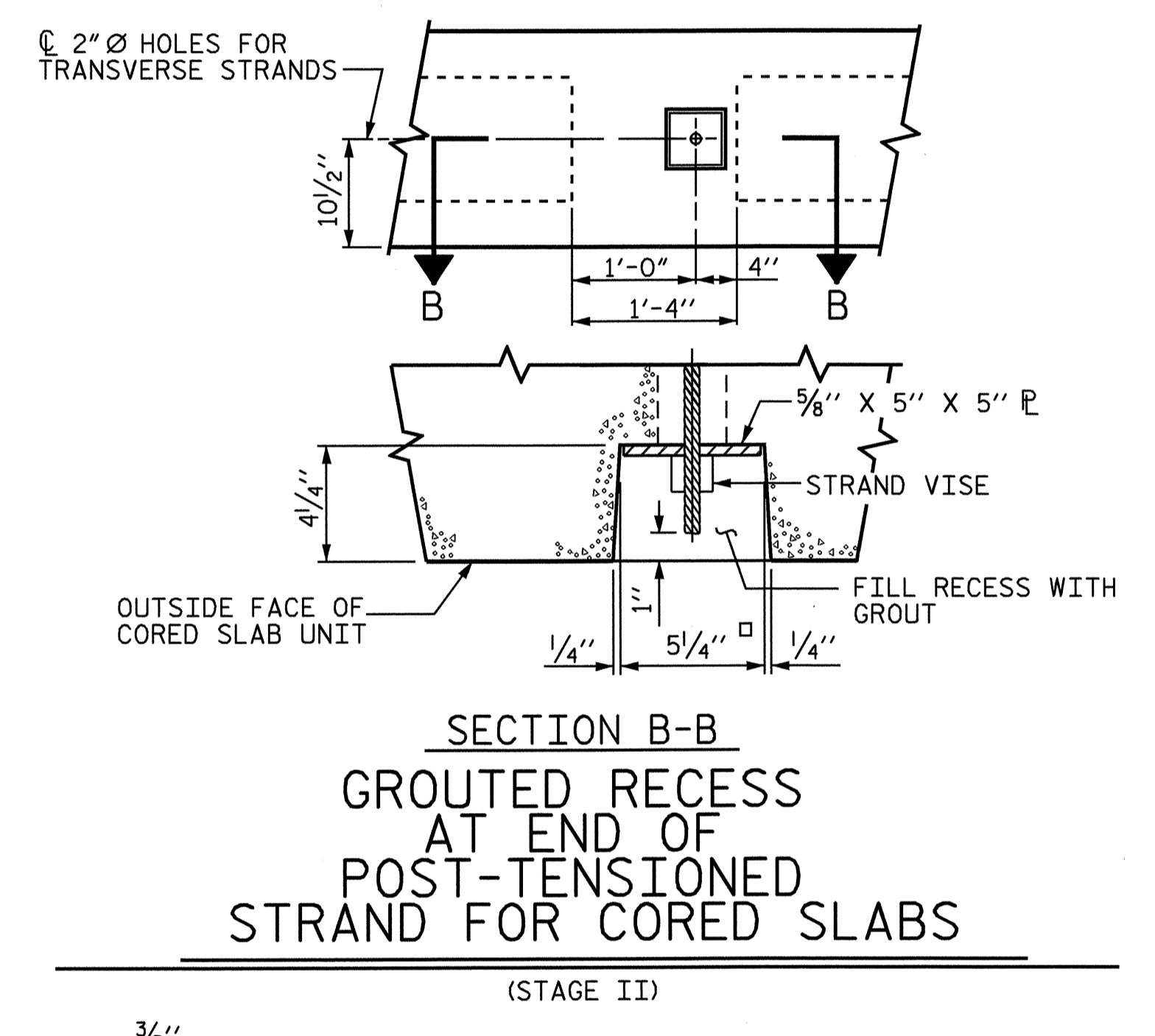
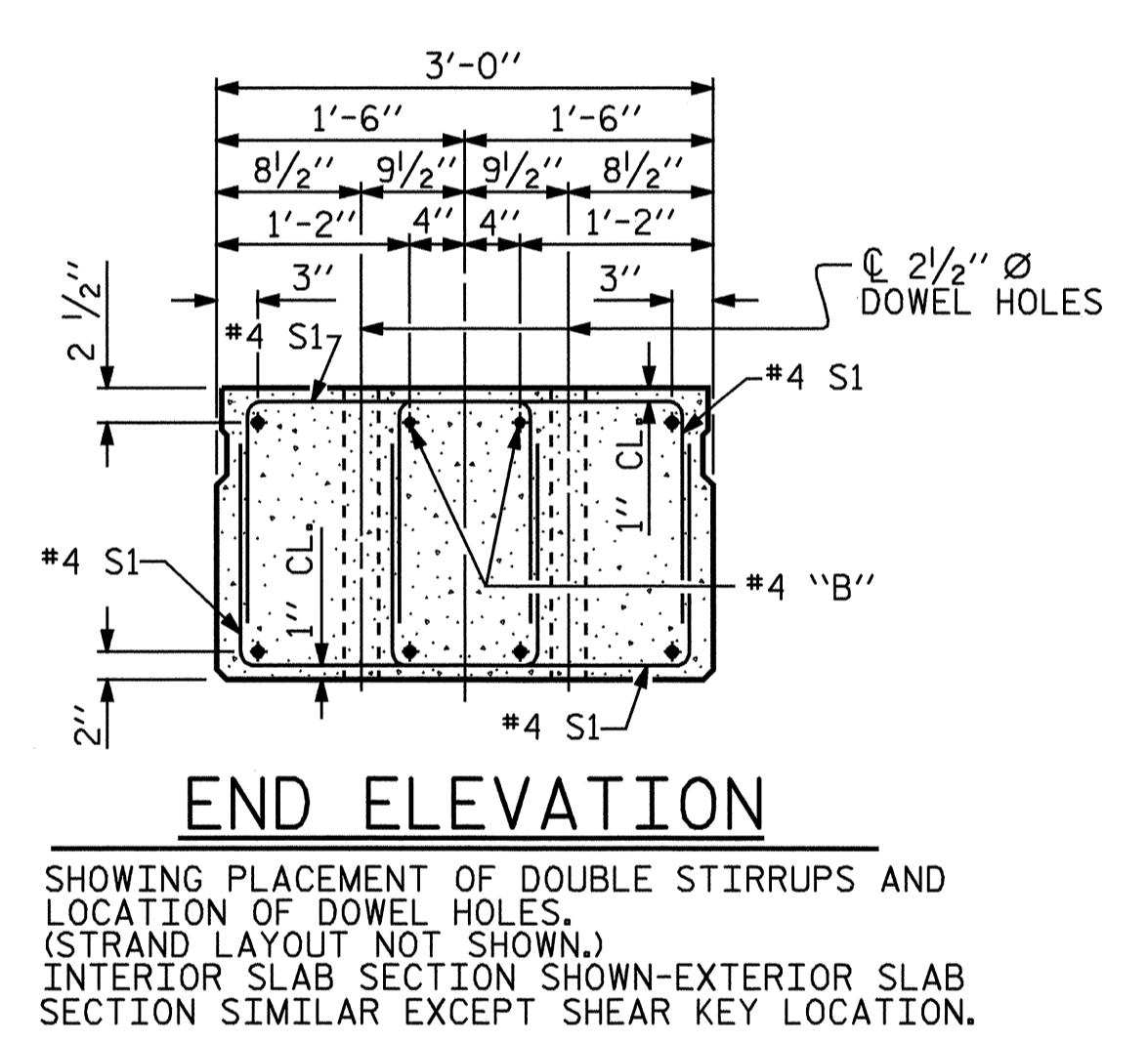
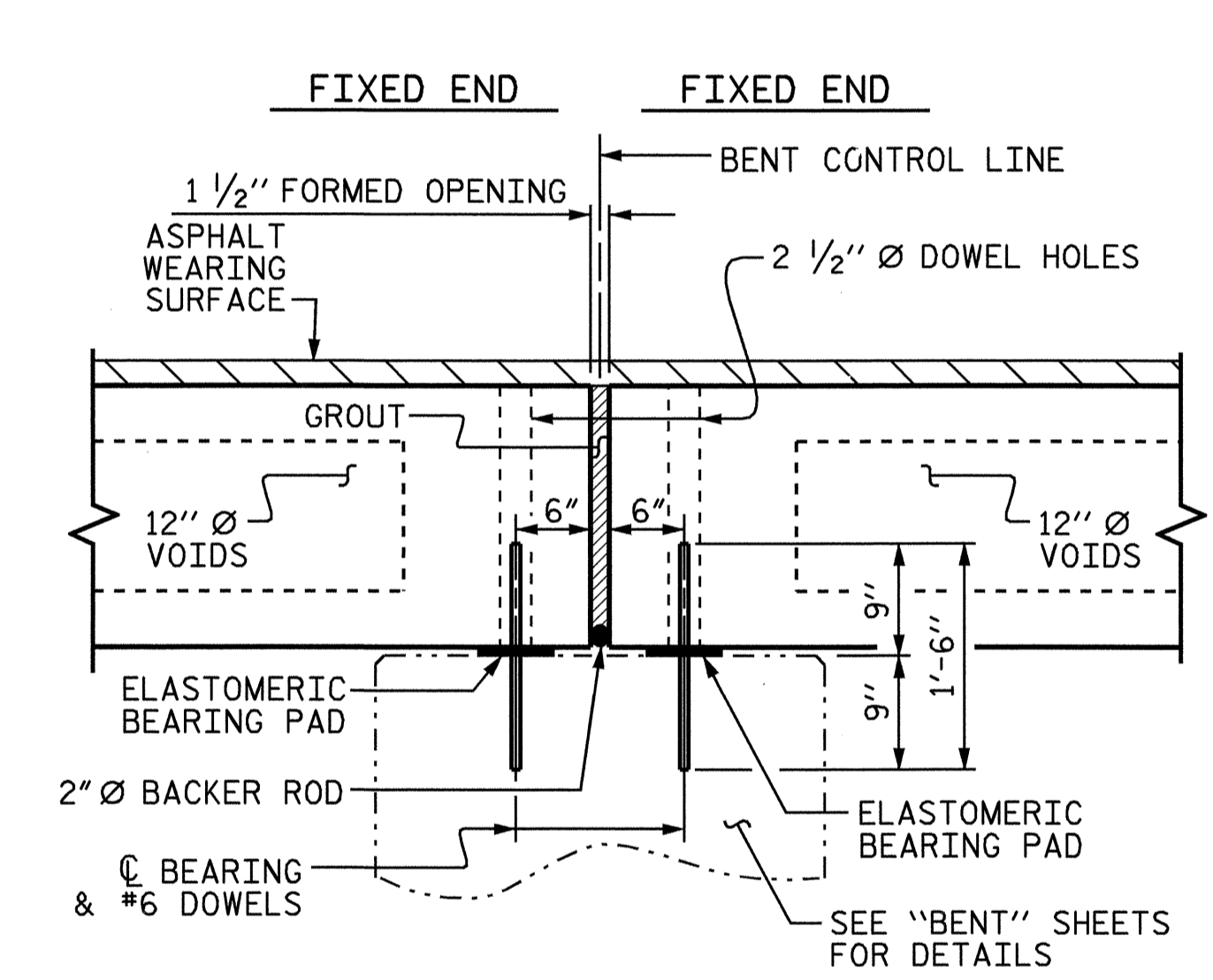
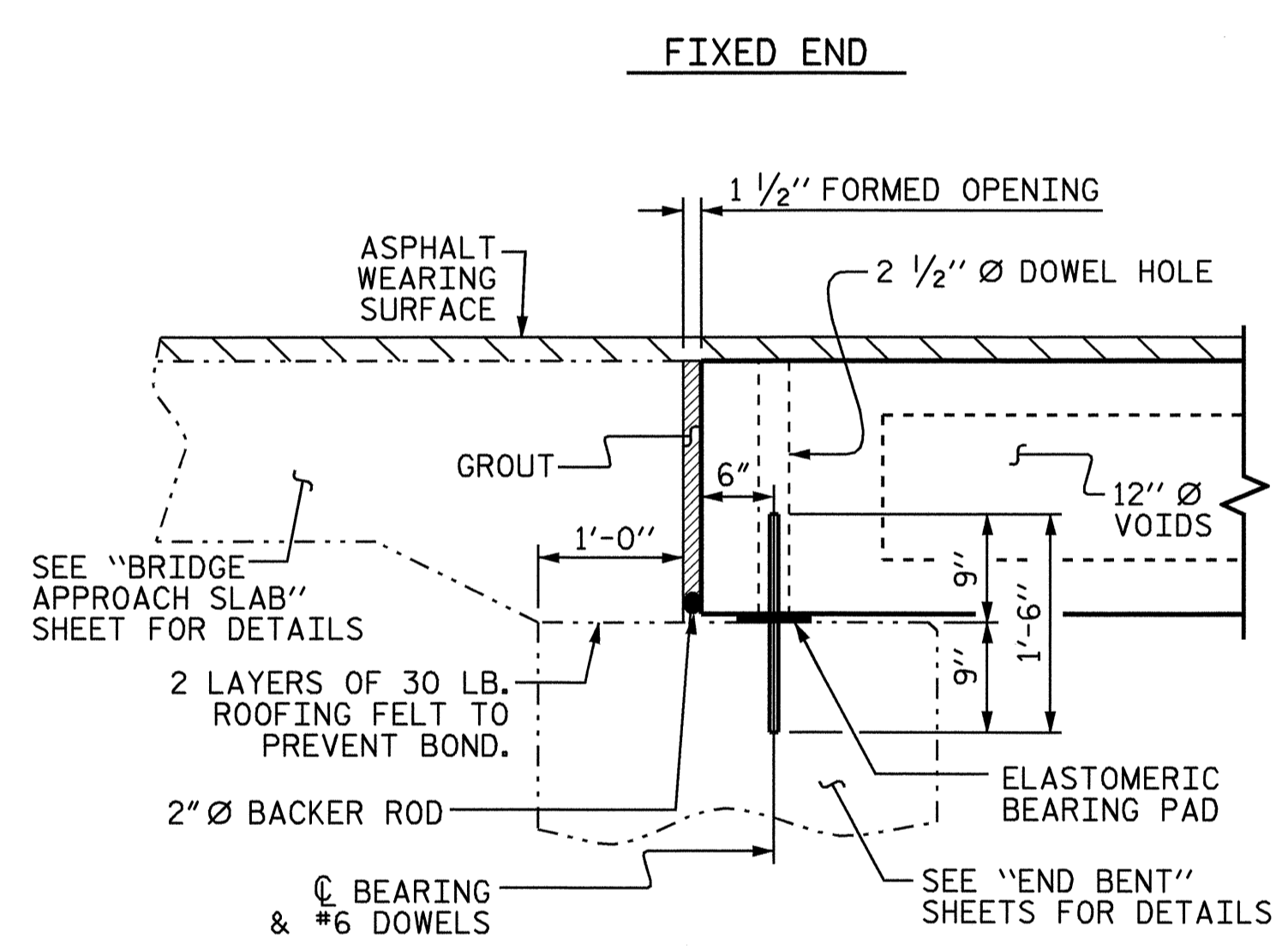
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 BRIDGE OVER BIG CREEK
 ON SR 1947 BETWEEN
 SR 1757 AND DEAD END

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS 56
2			4			

STR. #1



HALF-SECTION THRU INTERMEDIATE DIAPHRAGMS
HALF-SECTION AT END BENTS & BENTS
TYPICAL SECTION



ASSEMBLED BY: QT NGUYEN DATE: 1-08
CHECKED BY: A.R. CHESSON DATE: 4-08
DRAWN BY: WJH 4/89
CHECKED BY: FCJ 5/89
REV. 10/17/00 RWW/LES
REV. 7/10/01RR RWW/LES
REV. 5/1/06 TLA/GM

REVISIONS

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

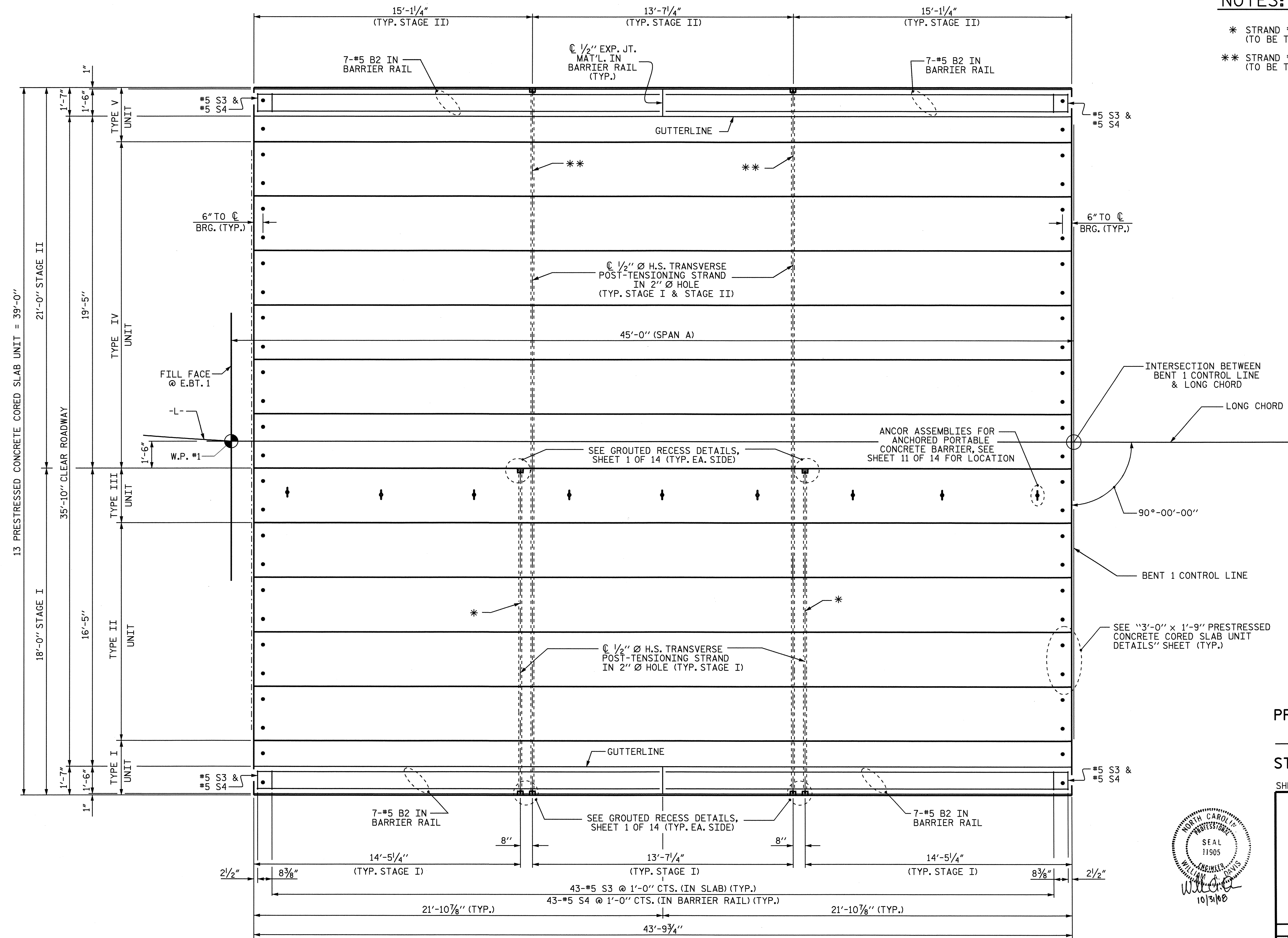
PROJECT NO. B-3830
COLUMBUS COUNTY
STATION: 20+66.00 -L-
SHEET 1 OF 14

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

STR. #1
STD. NO. PCS2

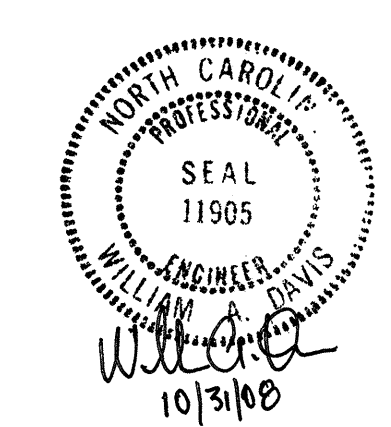
NOTES:

- * STRAND #1 GOES THRU 6 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE I CONSTRUCTION)
- ** STRAND #2 GOES THRU ALL 13 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE 2 CONSTRUCTION)



PROJECT NO. B-3830
 COLUMBUS COUNTY
 STATION: 20+66.00 -L-

SHEET 2 OF 14



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

REVISIONS						SHEET NO. S-6
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 56
2			4			

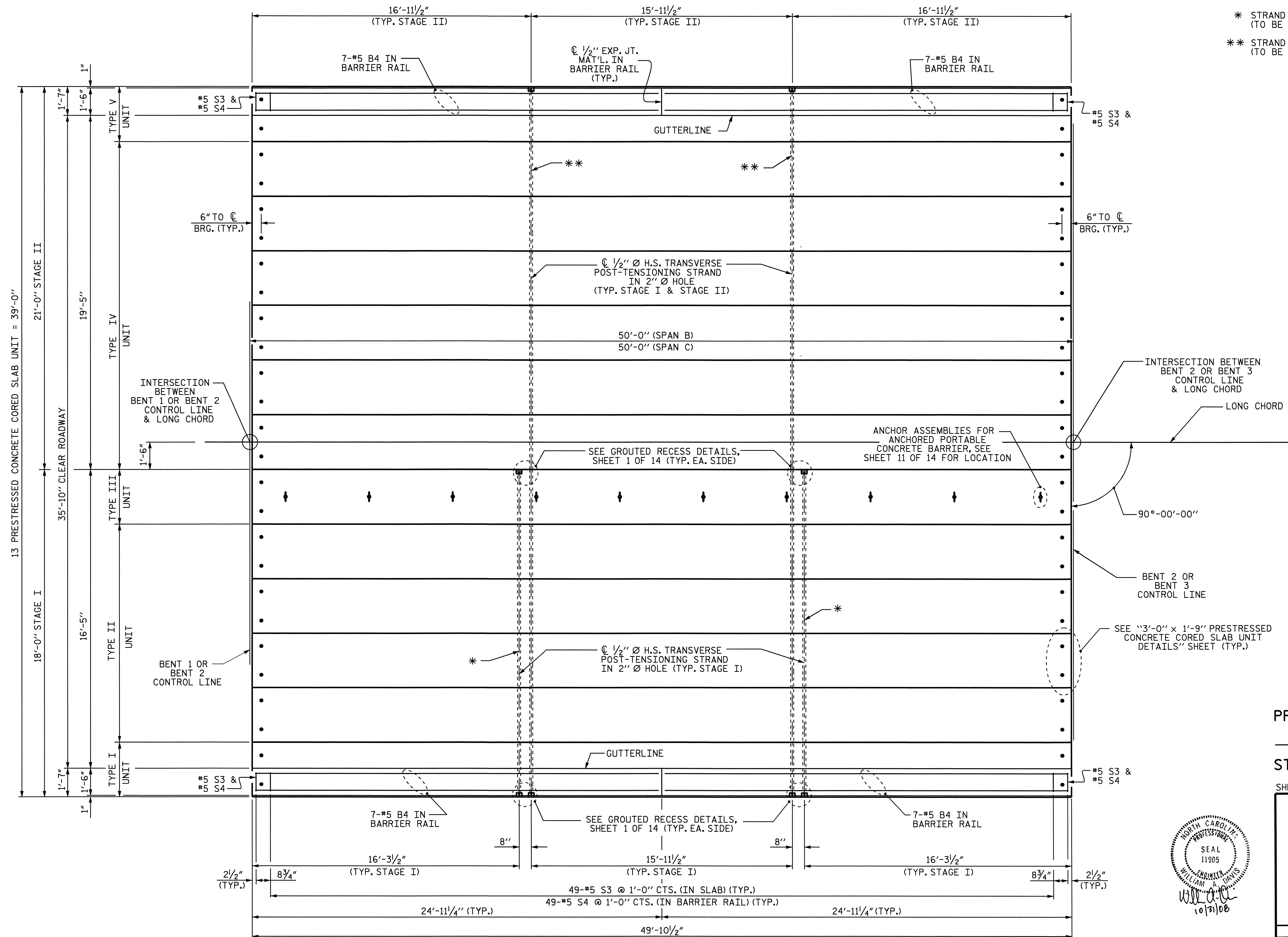
DRAWN BY : QT NGUYEN DATE : 1-08
 CHECKED BY : A.R. CHESSON DATE : 4-08

31-OCT-2008 13:50
 F:\structures\b3830\final plans\str. 1\b3830_sd.csl.dgn
 sdbmrowaki

PLAN OF SPAN A

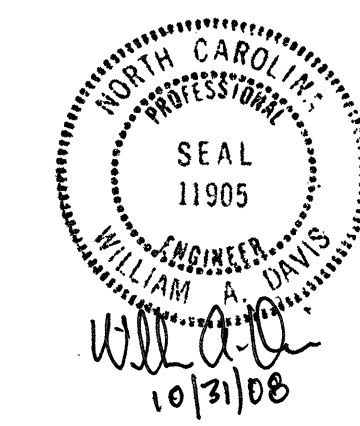
NOTES:

- * STRAND #1 GOES THRU 6 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE I CONSTRUCTION)
- ** STRAND #2 GOES THRU ALL 13 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE 2 CONSTRUCTION)



PLAN OF SPAN B OR C

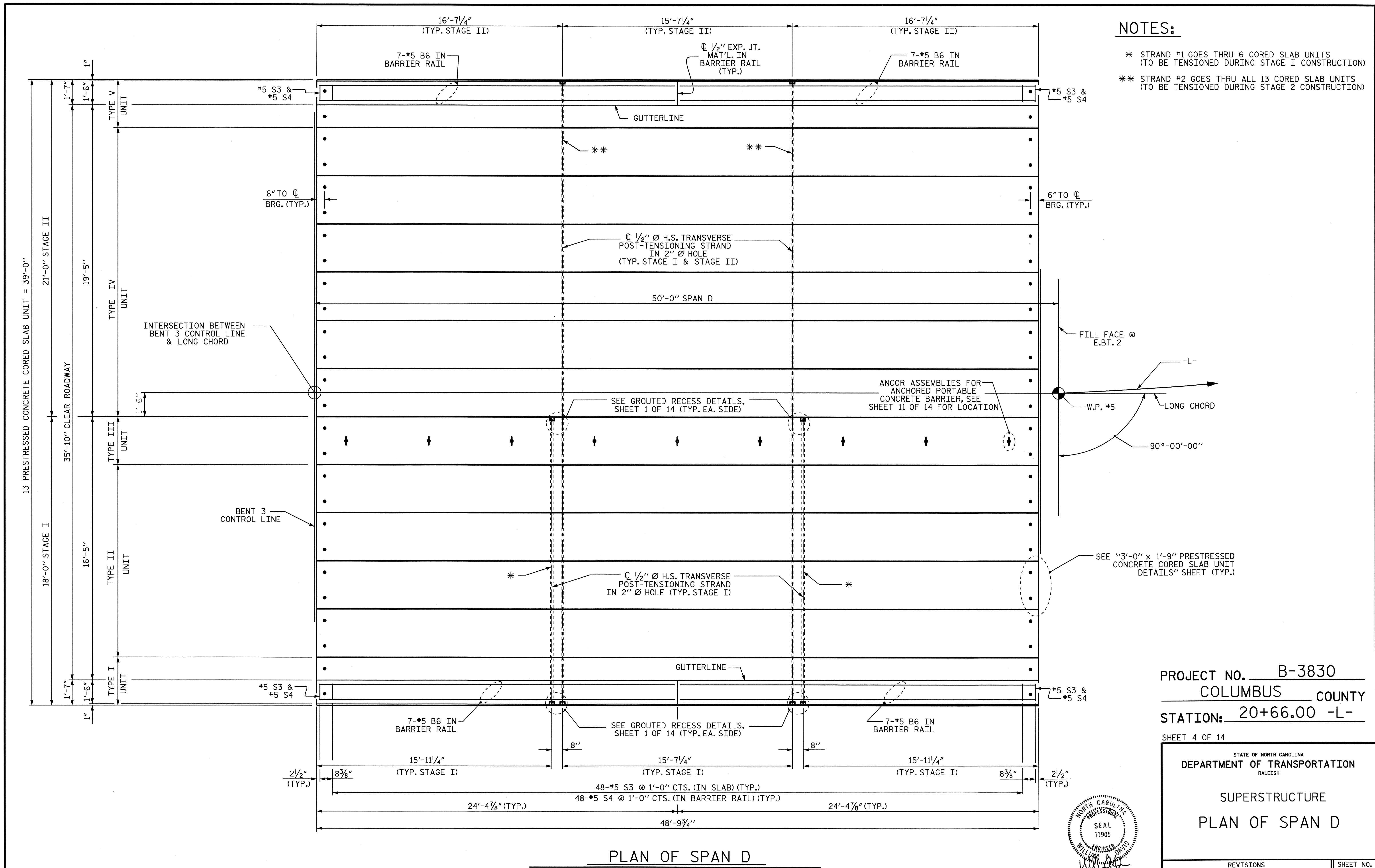
PROJECT NO. B-3830
 COLUMBUS COUNTY
 STATION: 20+66.00 -L-
 SHEET 3 OF 14



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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS 56
2			4			

DRAWN BY: QT. NGUYEN DATE: 1-08
 CHECKED BY: A.R. CHESSON DATE: 4-08



NOTES:

- * STRAND #1 GOES THRU 6 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE I CONSTRUCTION)
- ** STRAND #2 GOES THRU ALL 13 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE 2 CONSTRUCTION)

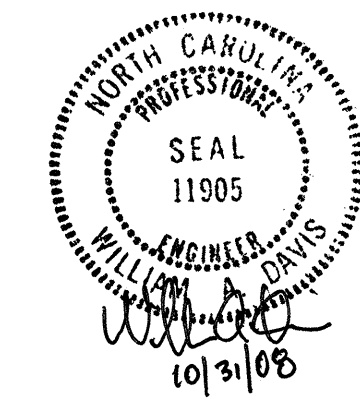
PROJECT NO. B-3830
 COLUMBUS COUNTY
 STATION: 20+66.00 -L-

SHEET 4 OF 14

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

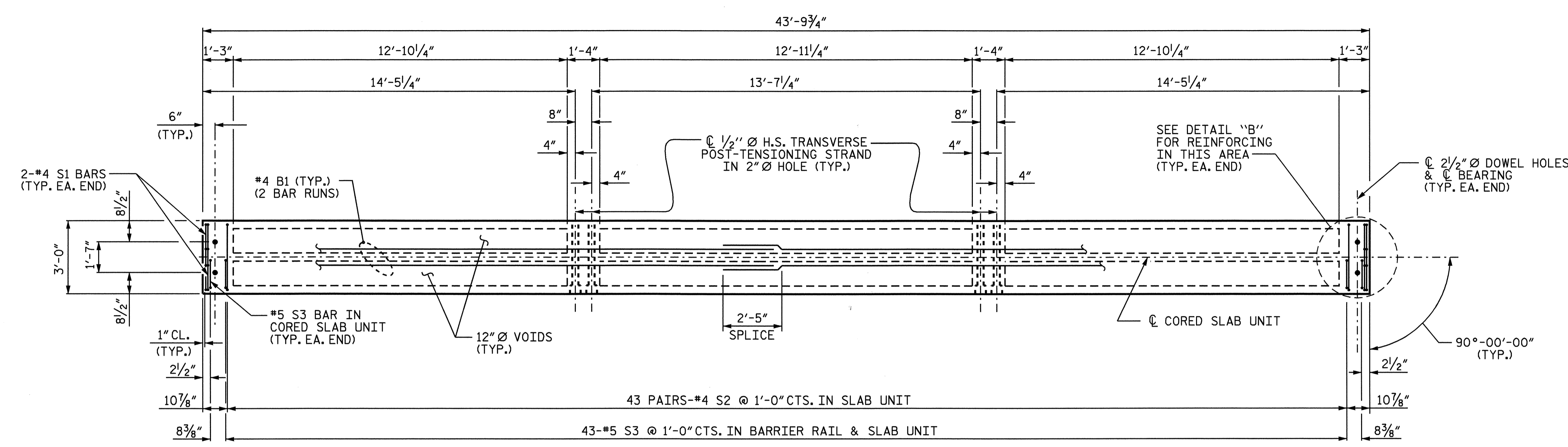
SUPERSTRUCTURE
 PLAN OF SPAN D

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			28

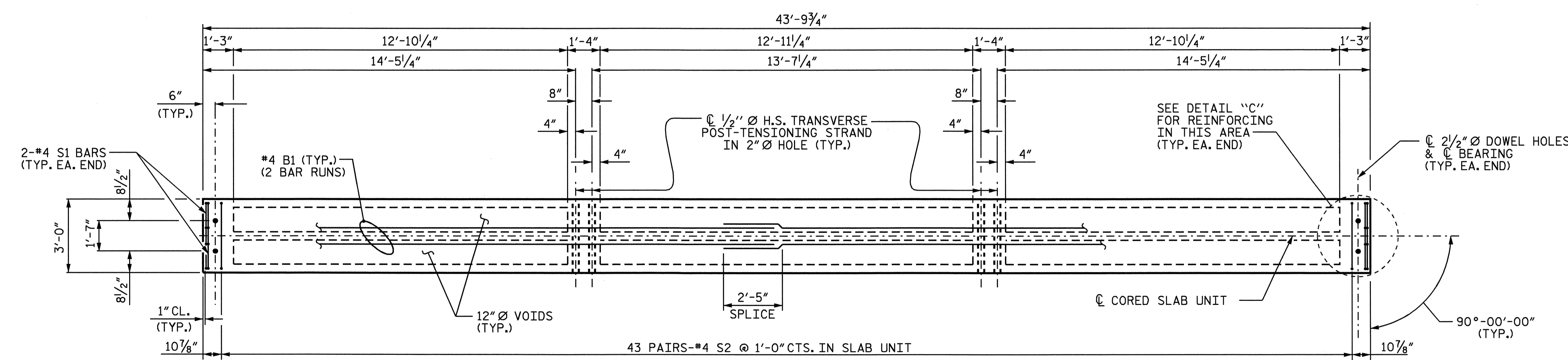
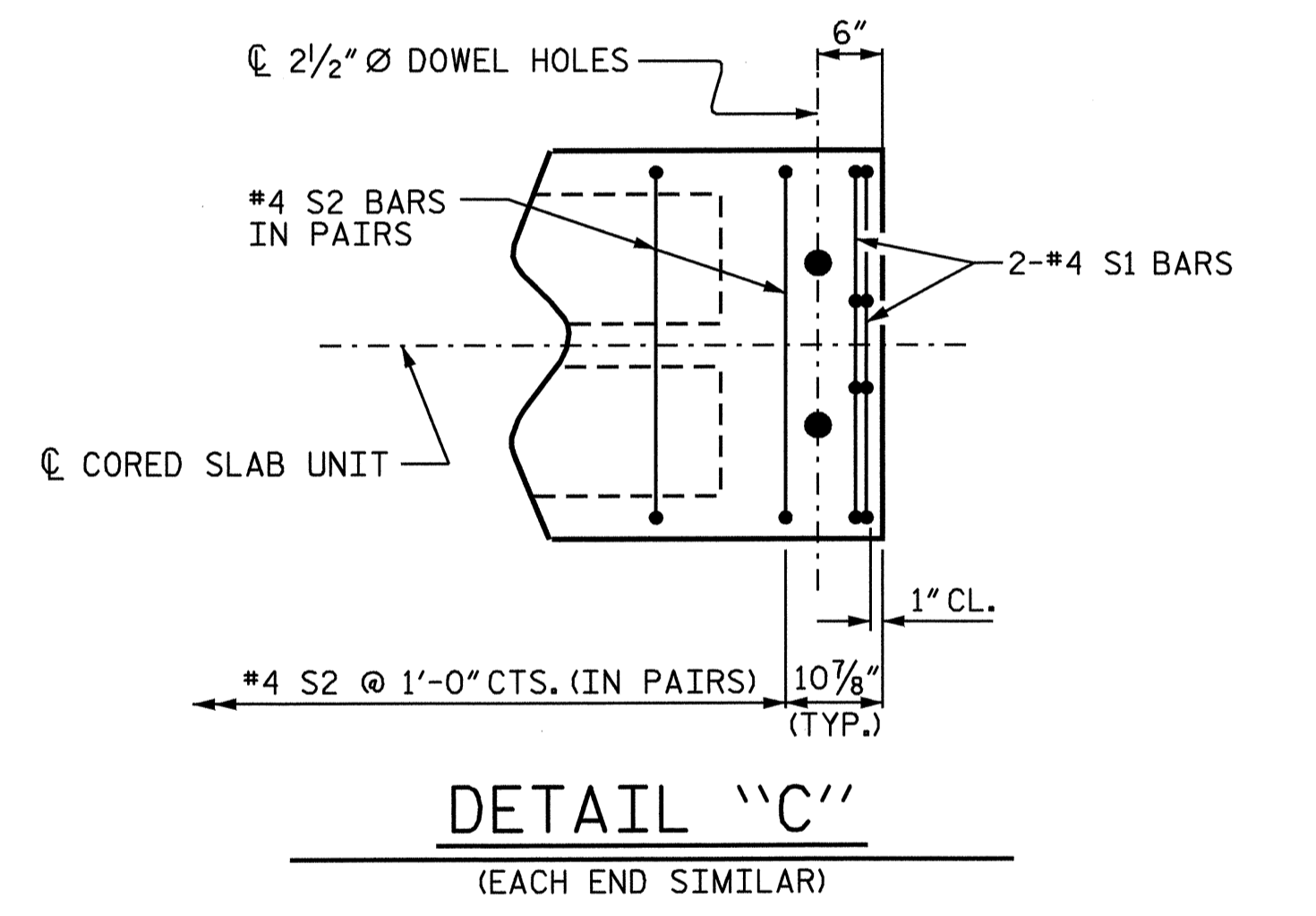
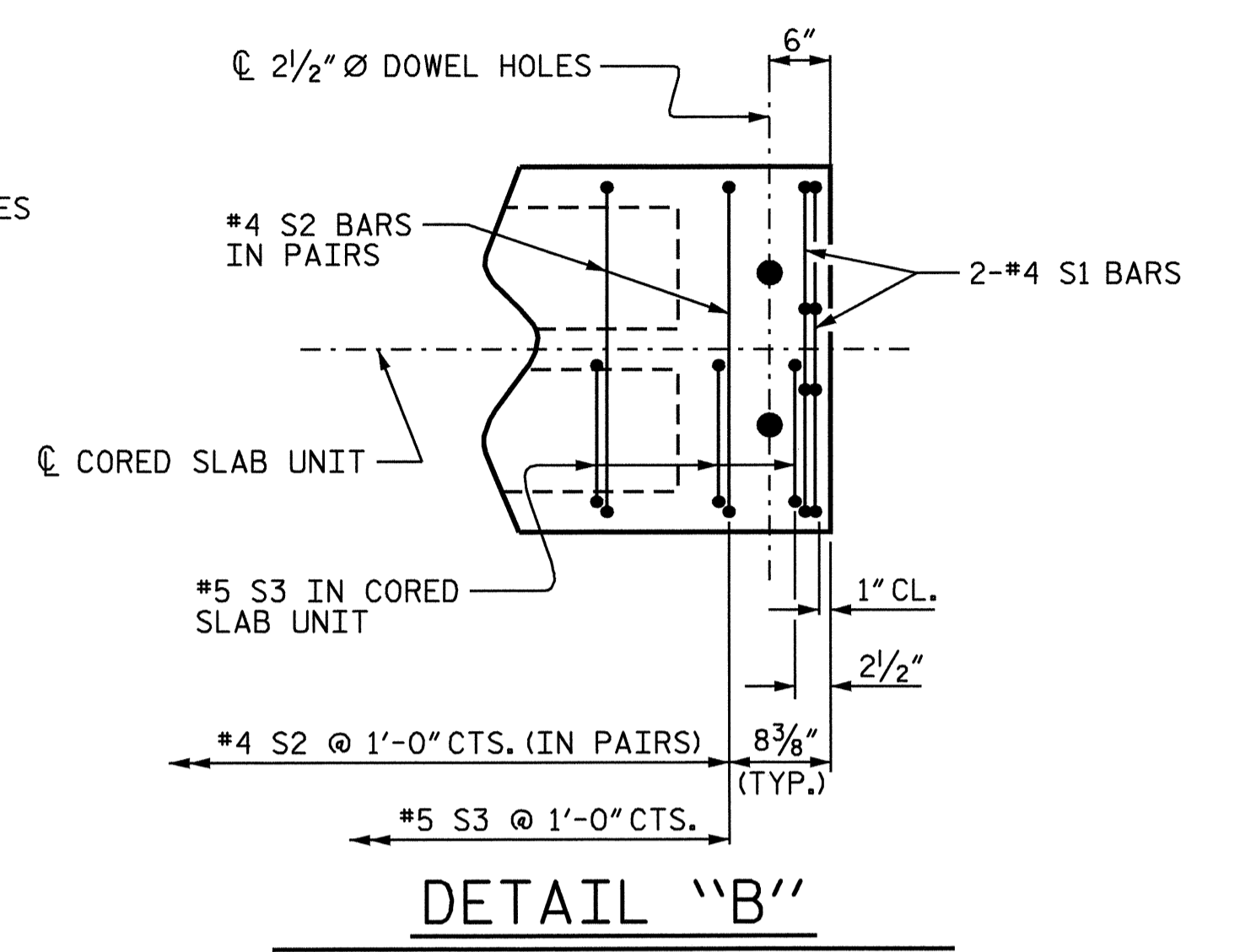


DRAWN BY : QT NGUYEN DATE : 1-08
 CHECKED BY : A.R. CHESSON DATE : 4-08

NOTES:
 FOR GROUTED RECESS SEE "SUPERSTRUCTURE TYPICAL SECTION" SHEET 1 OF 14.
 THE #4 S2 AND #5 S3 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MIN. CLEARANCE TO THE 2" Ø HOLES.



PLAN OF TYPE I CORED SLAB UNIT (STAGE I)

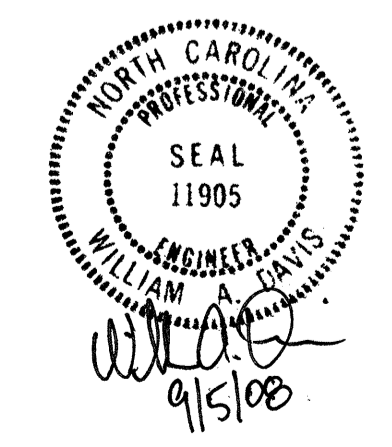


PLAN OF TYPE II CORED SLAB UNIT (STAGE I)

PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 20+66.00 -L-

SHEET 5 OF 14

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 3'-0" X 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 DETAILS - SPAN A



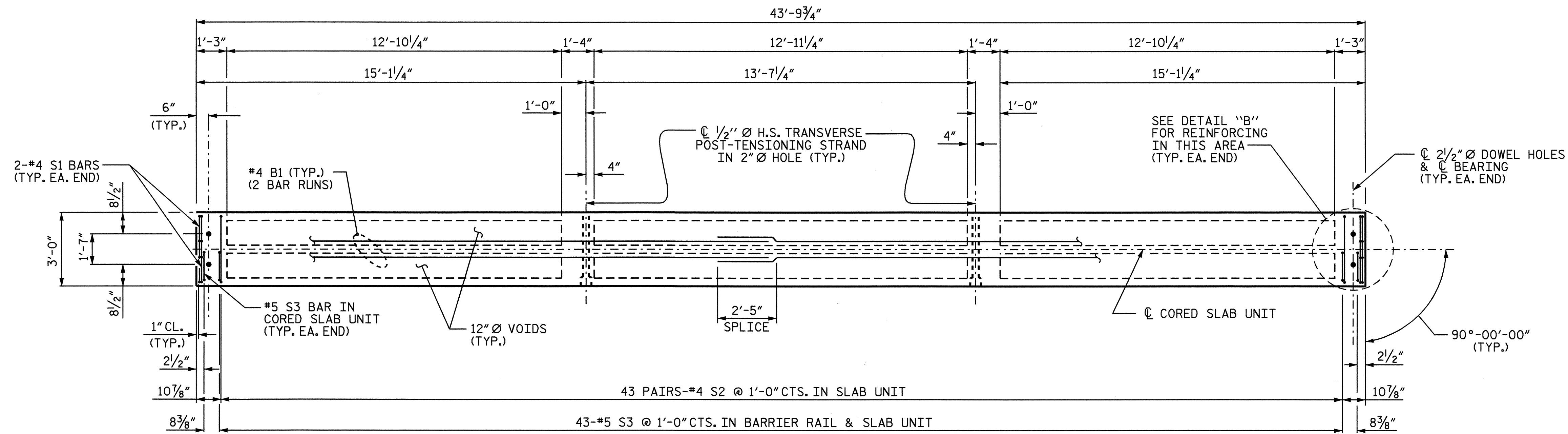
DRAWN BY: QT NGUYEN DATE: 1-08
 CHECKED BY: A.R. CHESSON DATE: 5-08

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9	
1			3			TOTAL SHEETS	
2			4			56	

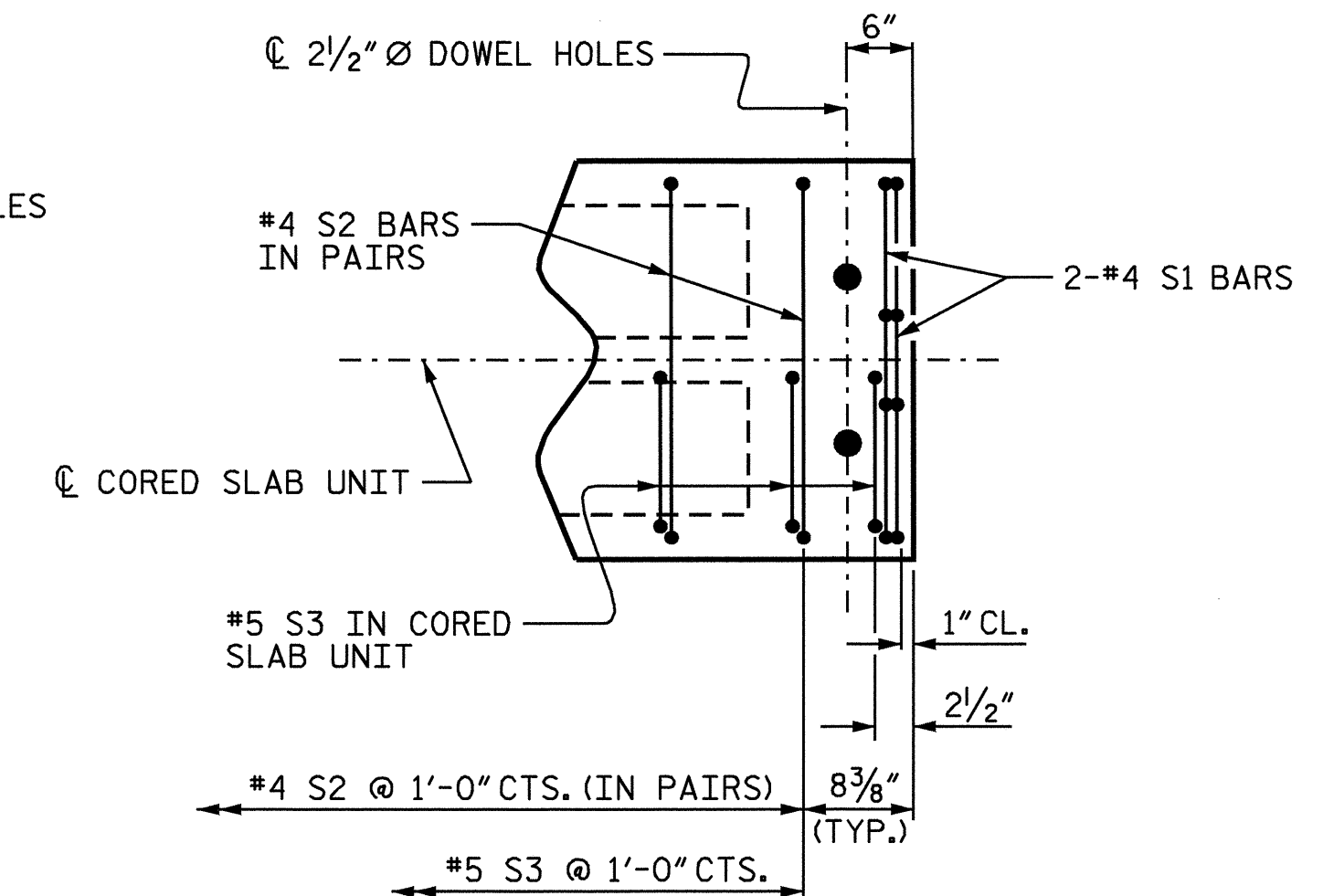
NOTES:

FOR GROUTED RECESS SEE "SUPERSTRUCTURE TYPICAL SECTION" SHEET 1 OF 14.

THE #4 S2 AND #5 S3 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MIN. CLEARANCE TO THE 2" Ø HOLES.

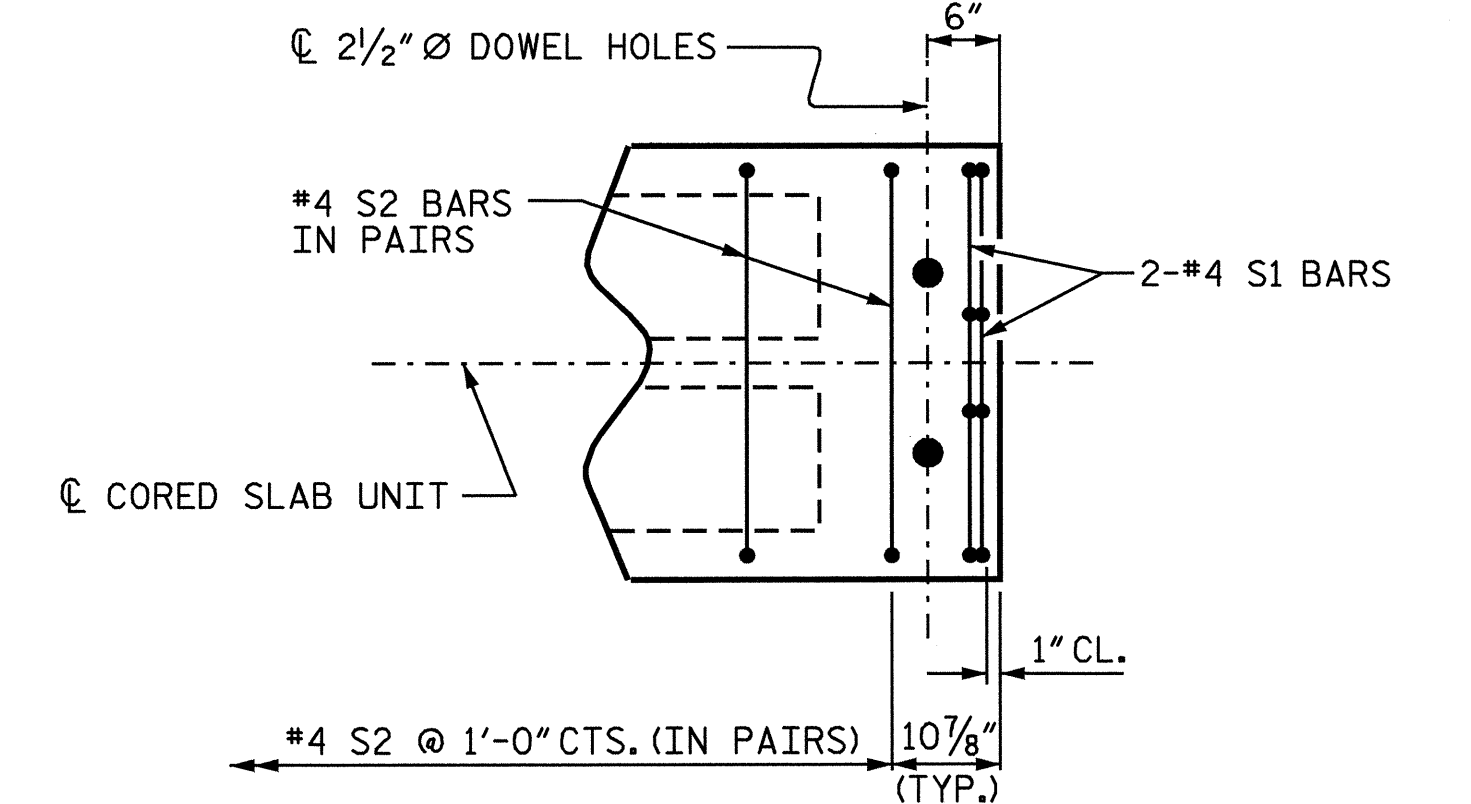


PLAN OF TYPE V CORED SLAB UNIT (STAGE II)



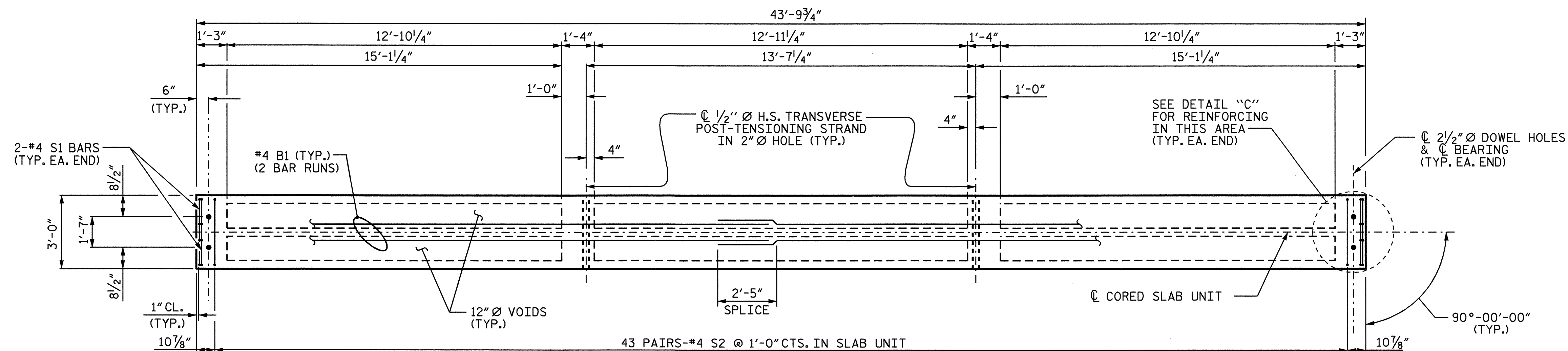
DETAIL "B"

(EACH END SIMILAR)



DETAIL "C"

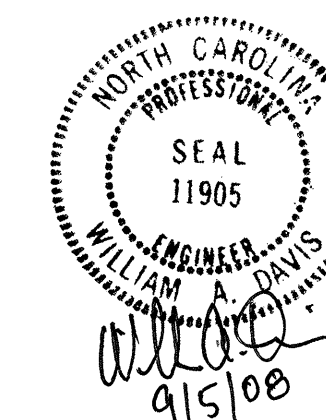
(EACH END SIMILAR)



PLAN OF TYPE IV CORED SLAB UNIT (STAGE II)

PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 20+66.00 -L-

SHEET 6 OF 14



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
DETAILS - SPAN A

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			56

DRAWN BY: QT NGUYEN DATE: 1-08
 CHECKED BY: A.R. CHESSON DATE: 5-08

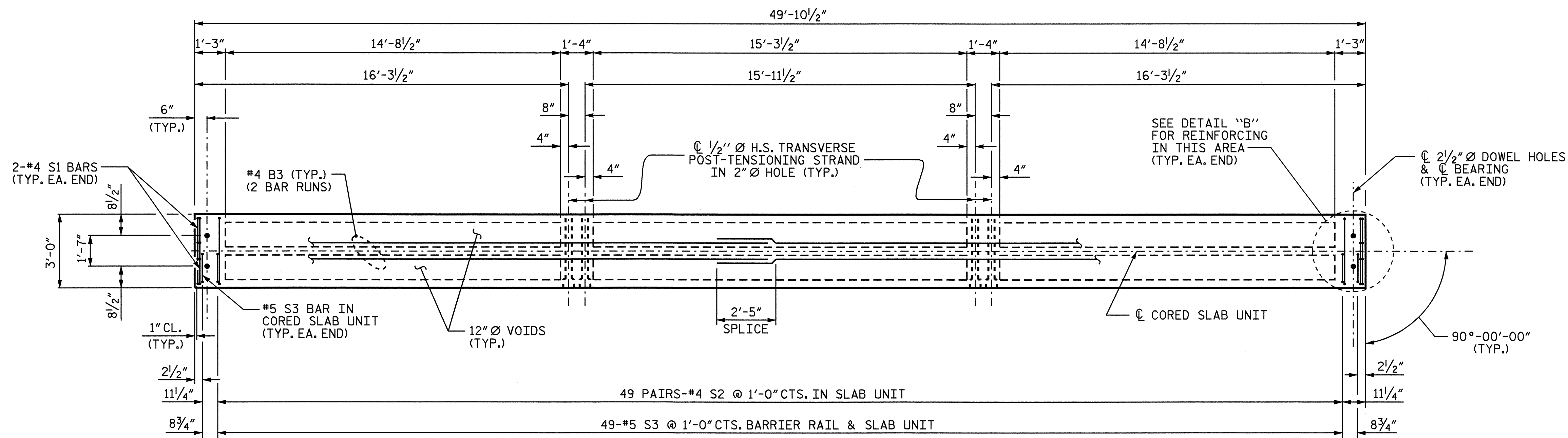
05-SEP-2008 12:36
 q:\structures\3830\final plans\str. 1\3830_sd.csl.dgn
 qtnguyen

STR. #1

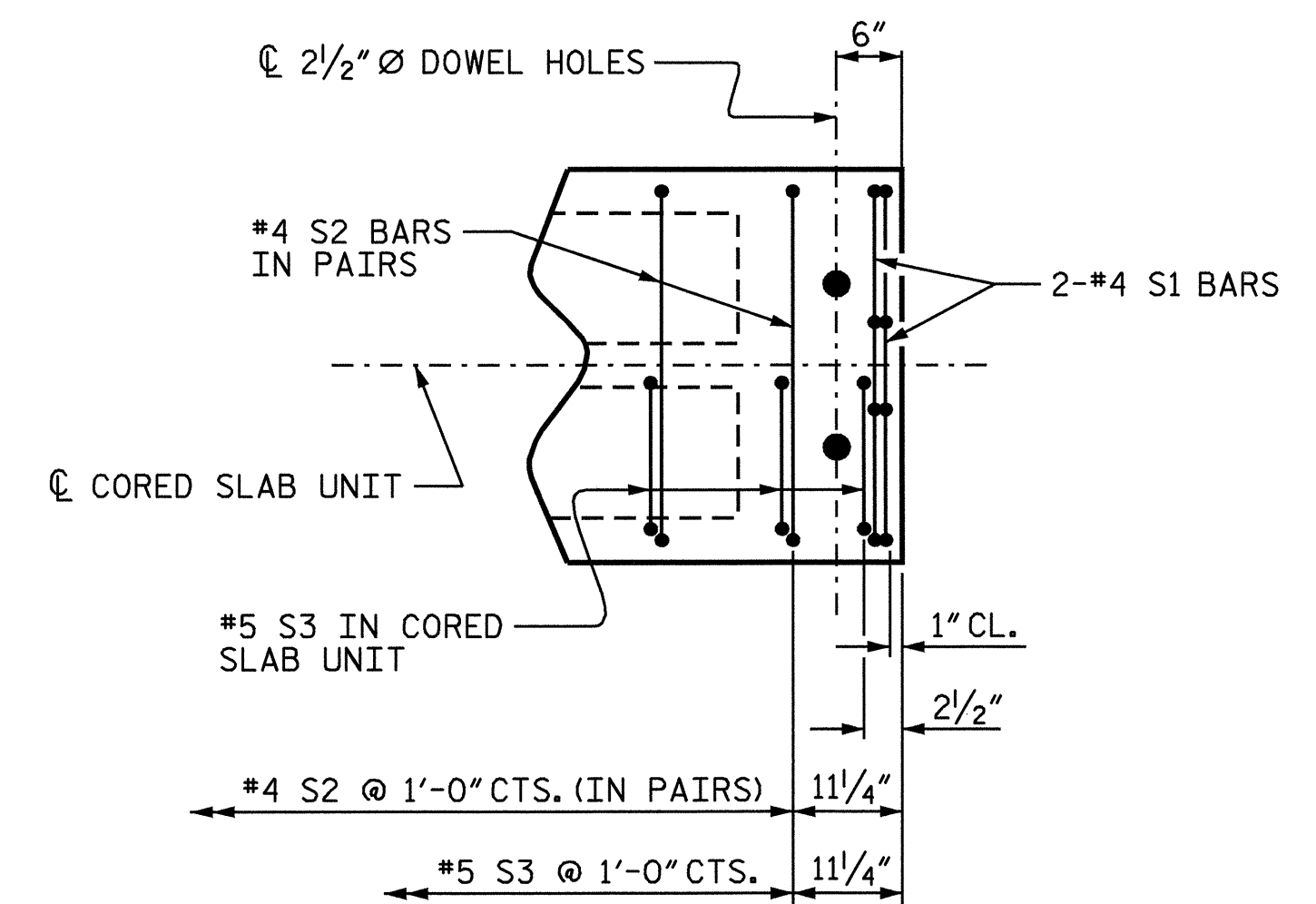
NOTES:

FOR GROUTED RECESS SEE "SUPERSTRUCTURE TYPICAL SECTION" SHEET 1 OF 14.

THE #4 S2 AND #5 S3 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MIN. CLEARANCE TO THE 2" Ø HOLES.

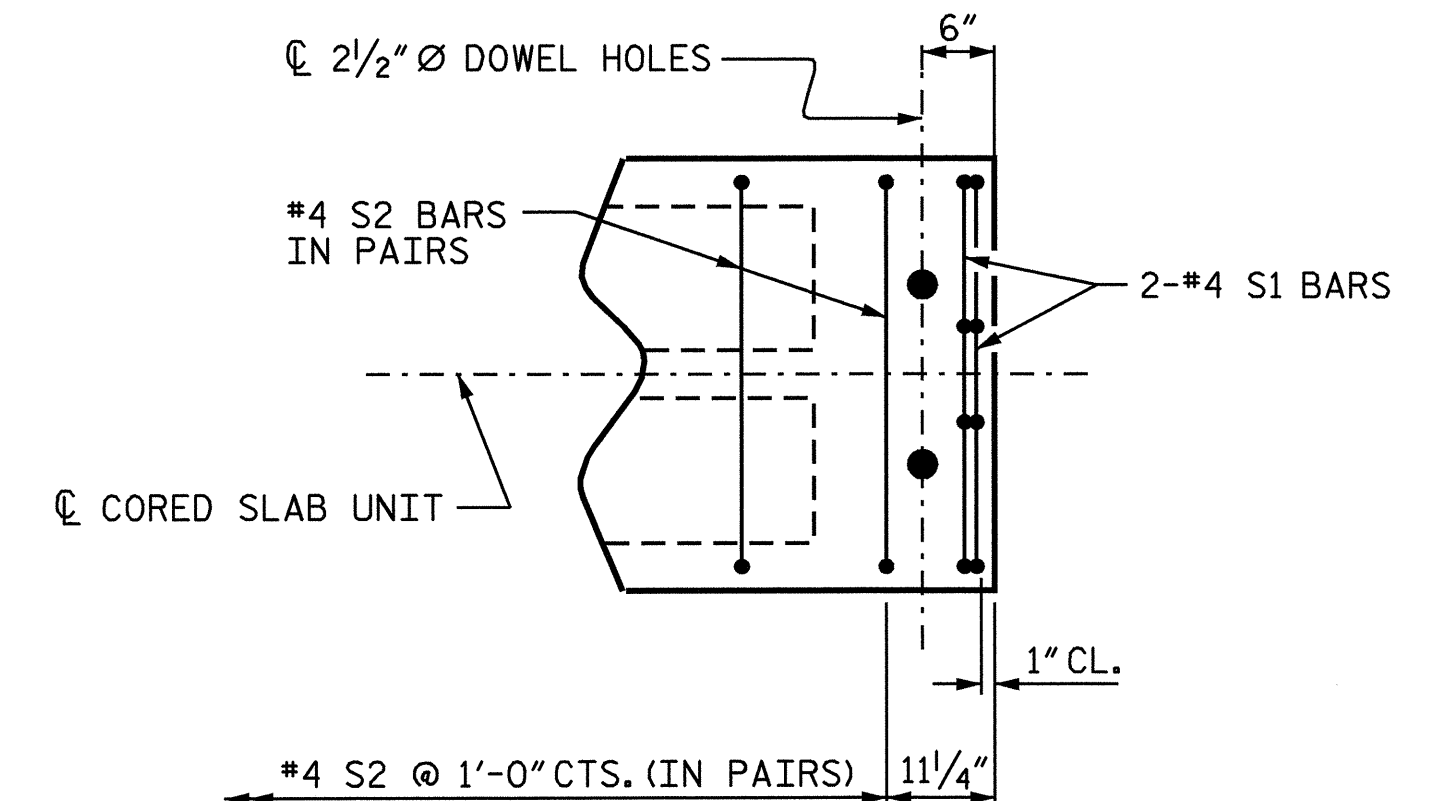


PLAN OF TYPE I CORED SLAB UNIT (STAGE I)



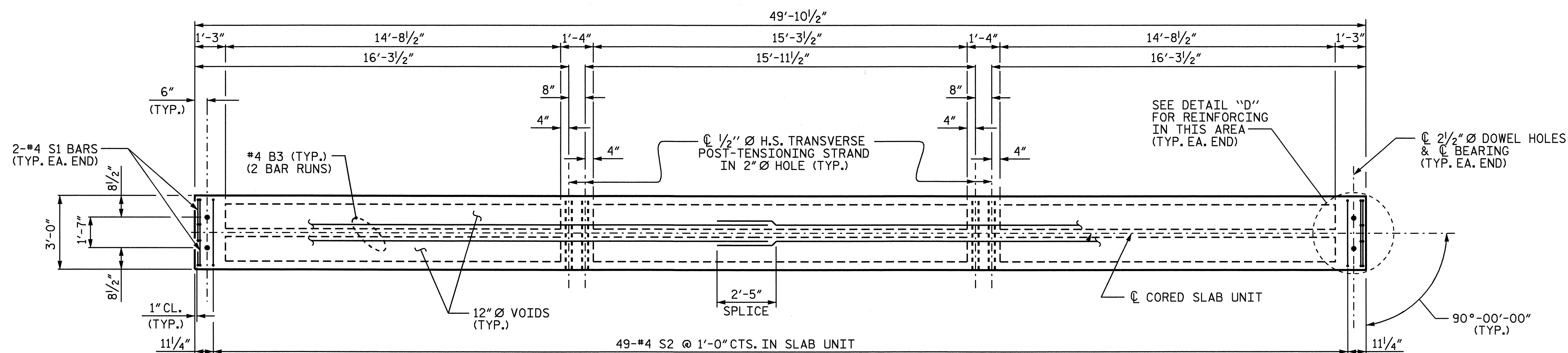
DETAIL "B"

(EACH END SIMILAR)



DETAIL "D"

(EACH END SIMILAR)

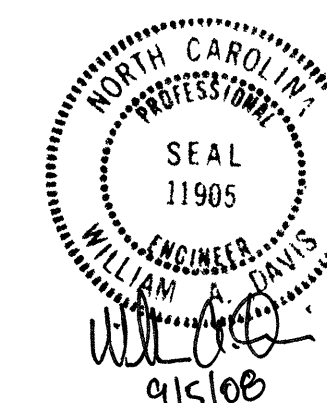


PLAN OF TYPE II CORED SLAB UNIT (STAGE I)

PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 20+66.00 -L-

SHEET 7 OF 14

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 3'-0" X 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 DETAILS-SPAN B OR C



DRAWN BY: QT NGUYEN DATE: 1-08
 CHECKED BY: A.R. CHESSON DATE: 5-08

05-SEP-2008 12:36
 q:\structures\B3830\final plans\str. 1\B3830_sd.csl.dgn
 qtnguyen

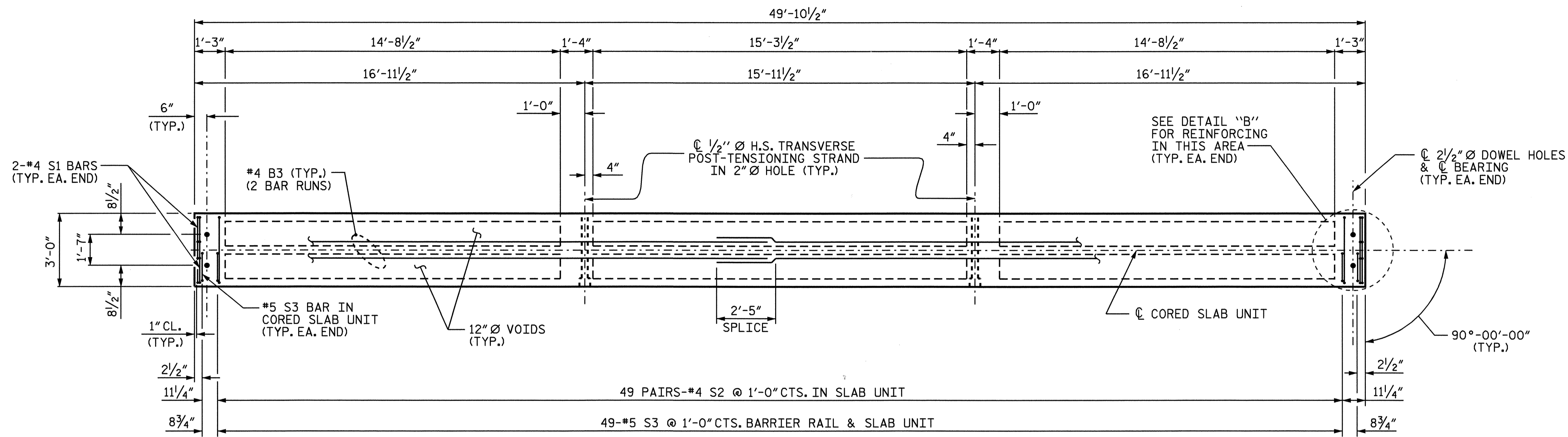
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			56

STR. #1

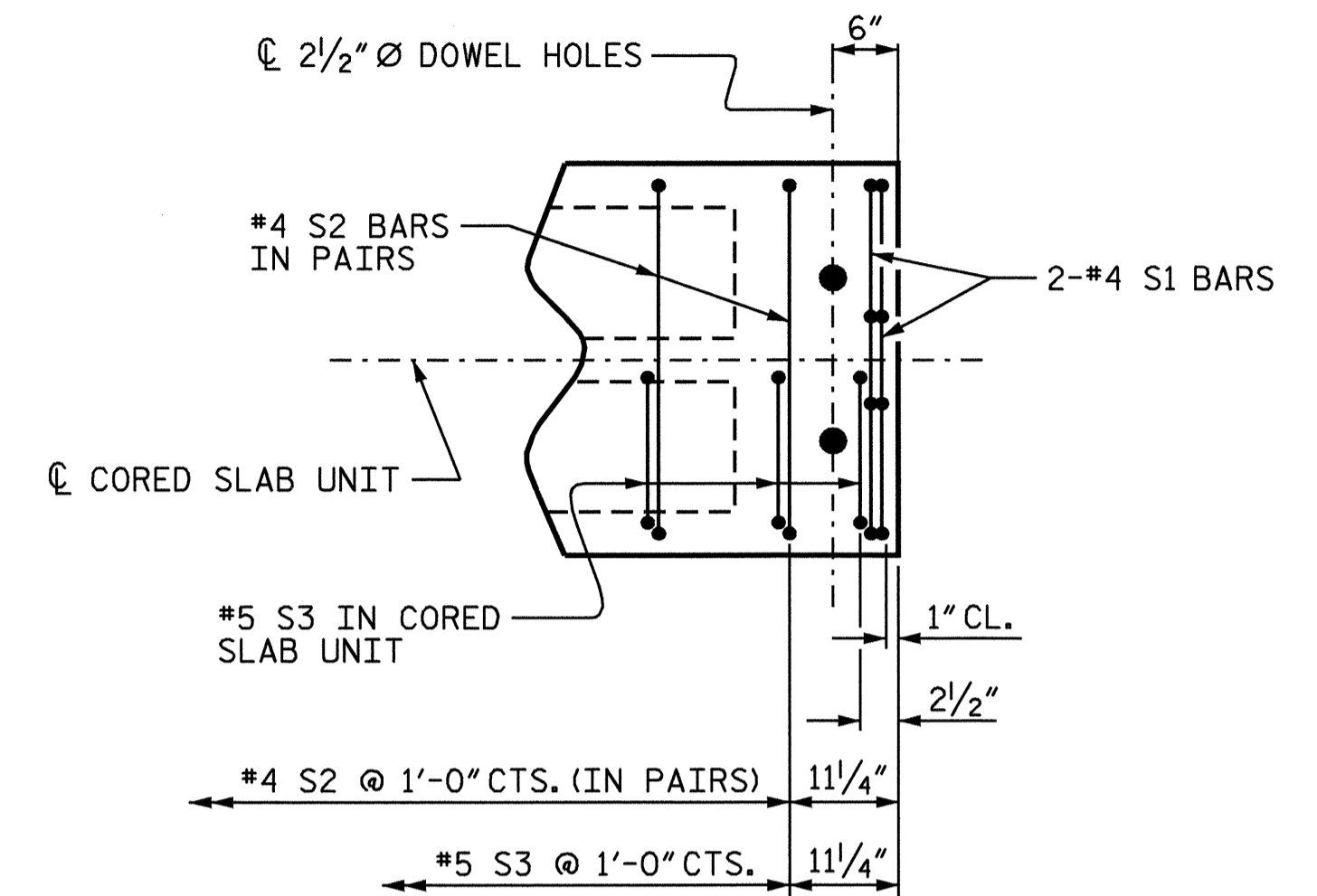
NOTES:

FOR GROUTED RECESS SEE "SUPERSTRUCTURE TYPICAL SECTION" SHEET 1 OF 14.

THE #4 S2 AND #5 S3 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MIN. CLEARANCE TO THE 2" Ø HOLES.

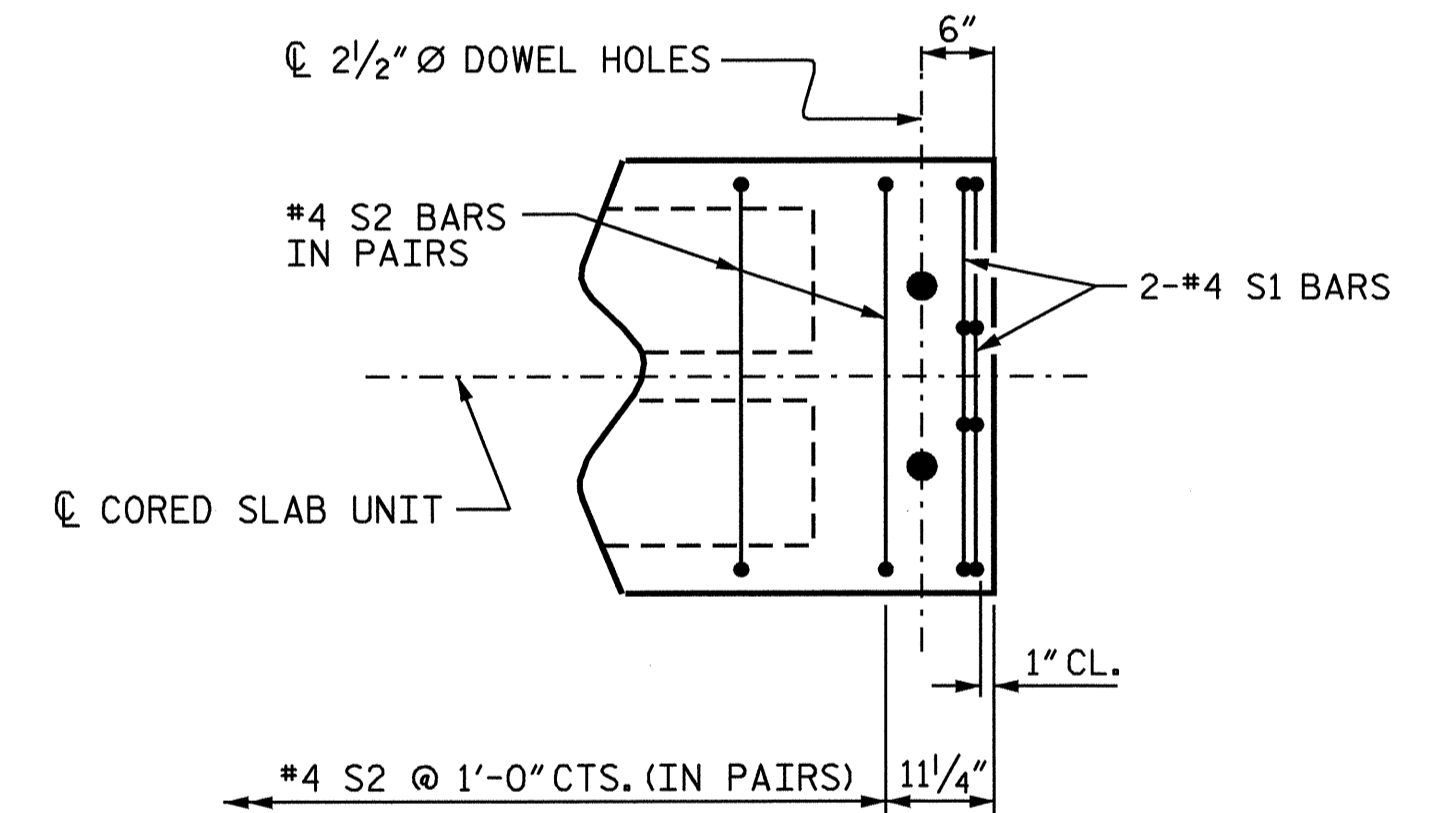


PLAN OF TYPE V CORED SLAB UNIT (STAGE II)



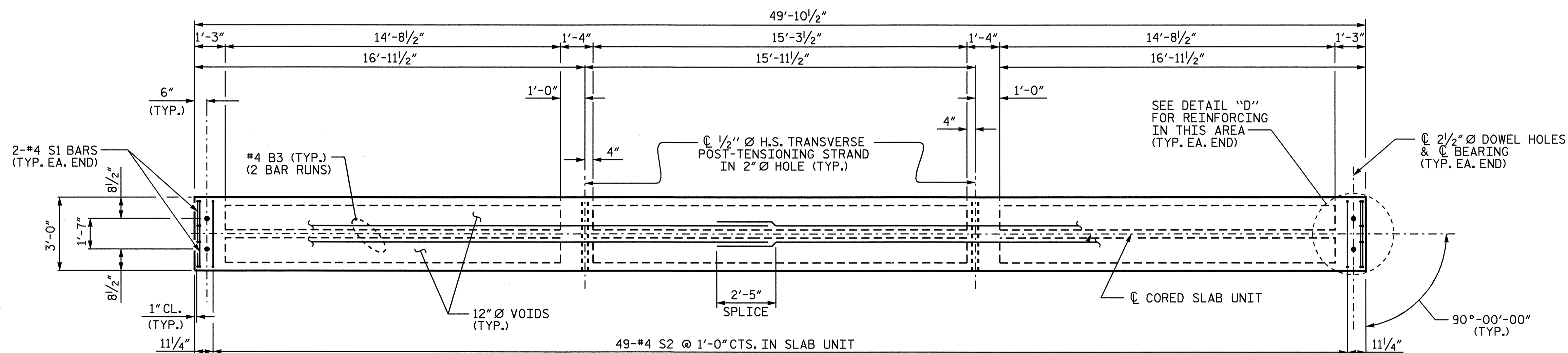
DETAIL "B"

(EACH END SIMILAR)



DETAIL "D"

(EACH END SIMILAR)

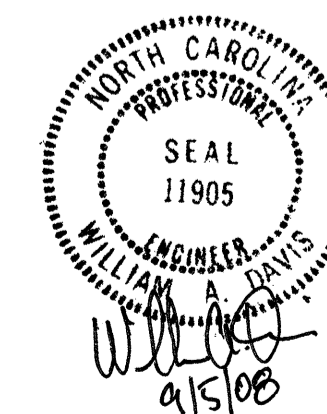


PLAN OF TYPE IV CORED SLAB UNIT (STAGE II)

PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 20+66.00 -L-

SHEET 8 OF 14

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 3'-0" X 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 DETAILS-SPAN B OR C



DRAWN BY: QT NGUYEN DATE: 1-08
 CHECKED BY: A.R. CHESSON DATE: 5-08

05-SEP-2008 12:35
 Q:\STRUCTURES\B3830\Final Plans\str. 1\B3830_sd.csl.dgn
 qtnguyen

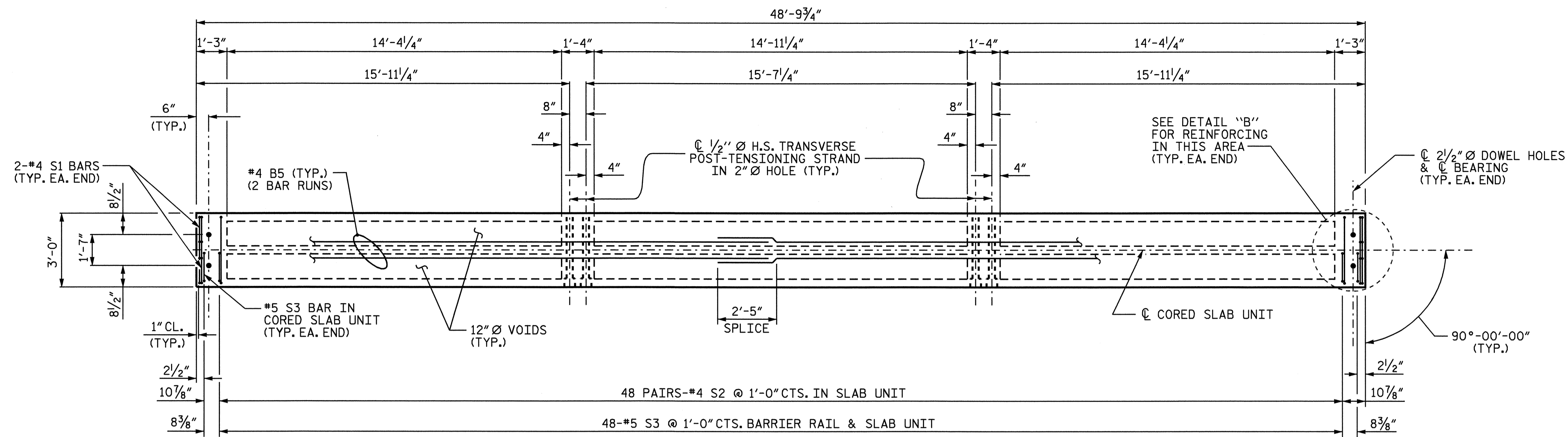
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			56

STR. #1

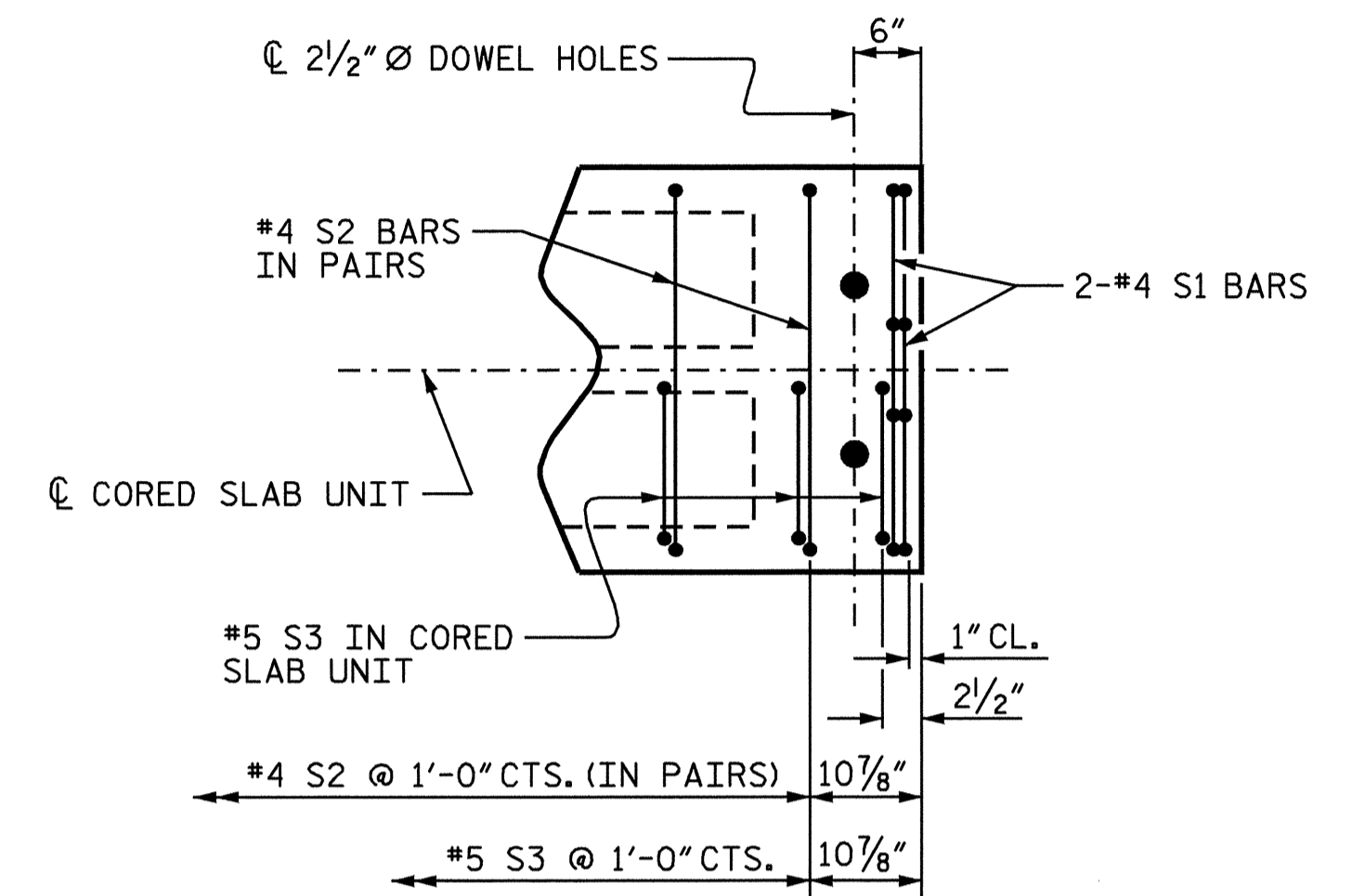
NOTES:

FOR GROUTED RECESS SEE "SUPERSTRUCTURE TYPICAL SECTION" SHEET 1 OF 14.

THE #4 S2 AND #5 S3 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MIN. CLEARANCE TO THE 2" Ø HOLES.

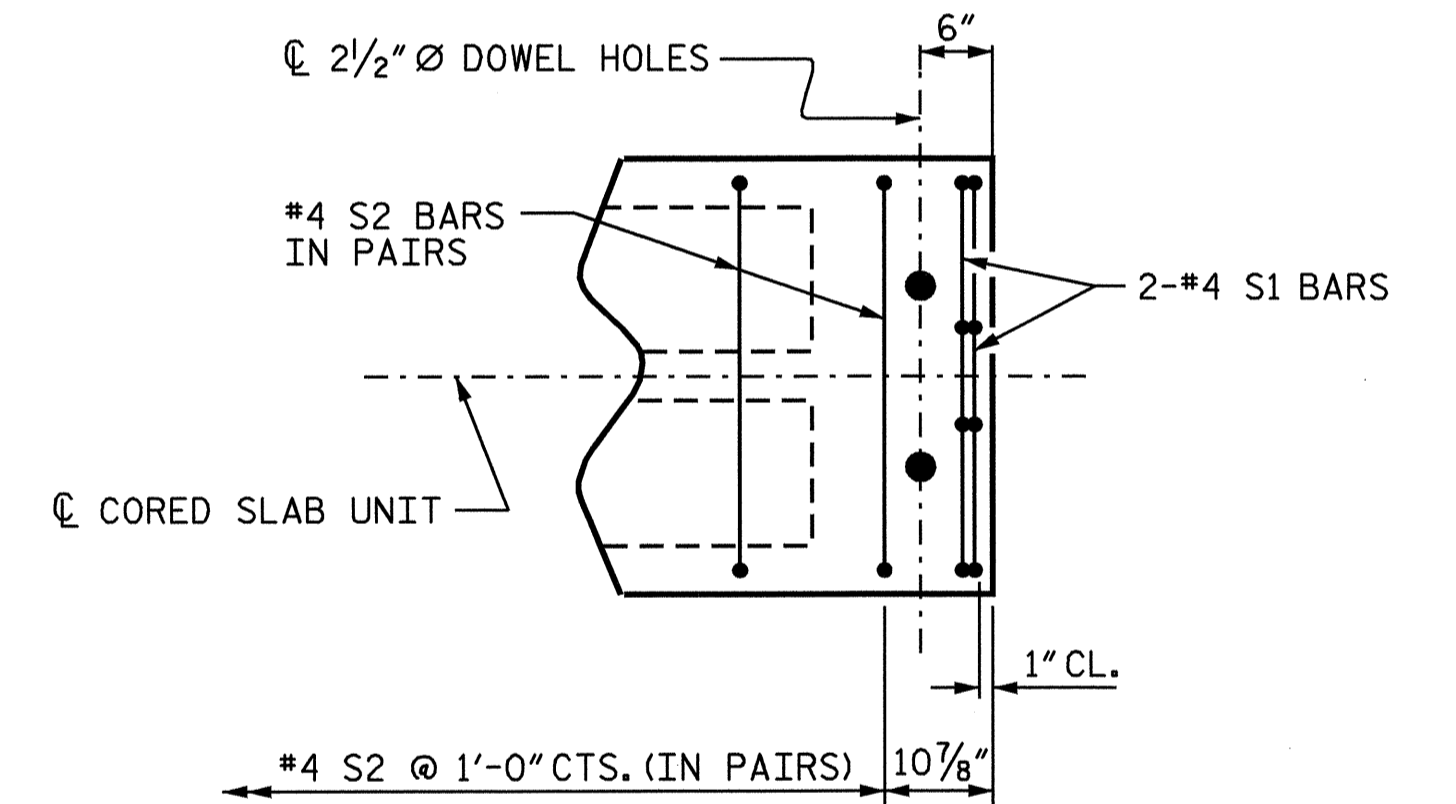


PLAN OF TYPE I CORED SLAB UNIT (STAGE I)



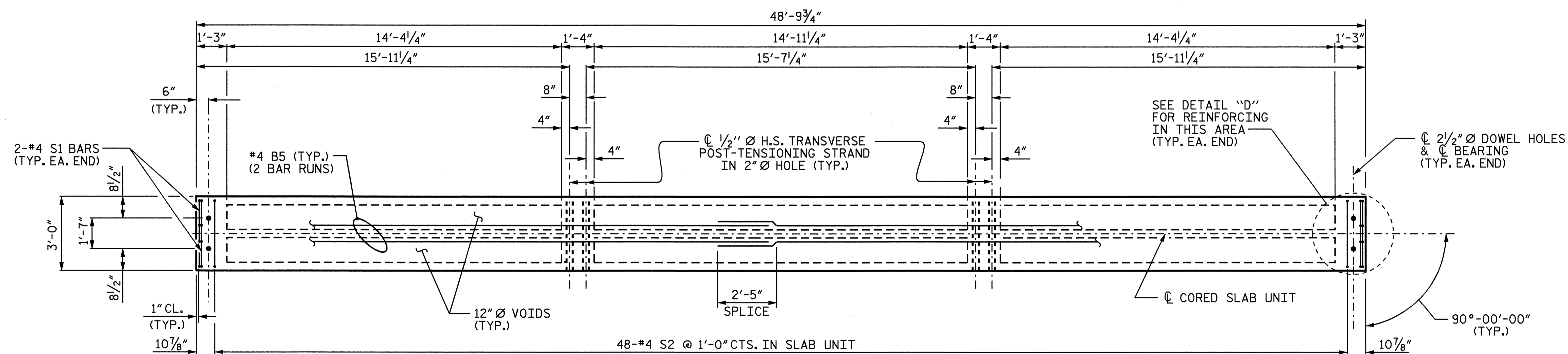
DETAIL "B"

(EACH END SIMILAR)



DETAIL "D"

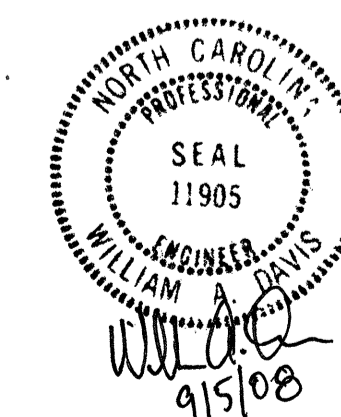
(EACH END SIMILAR)



PLAN OF TYPE II CORED SLAB UNIT (STAGE I)

PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 20+66.00 -L-

SHEET 9 OF 14



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 3'-0" X 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 DETAILS-SPAN D

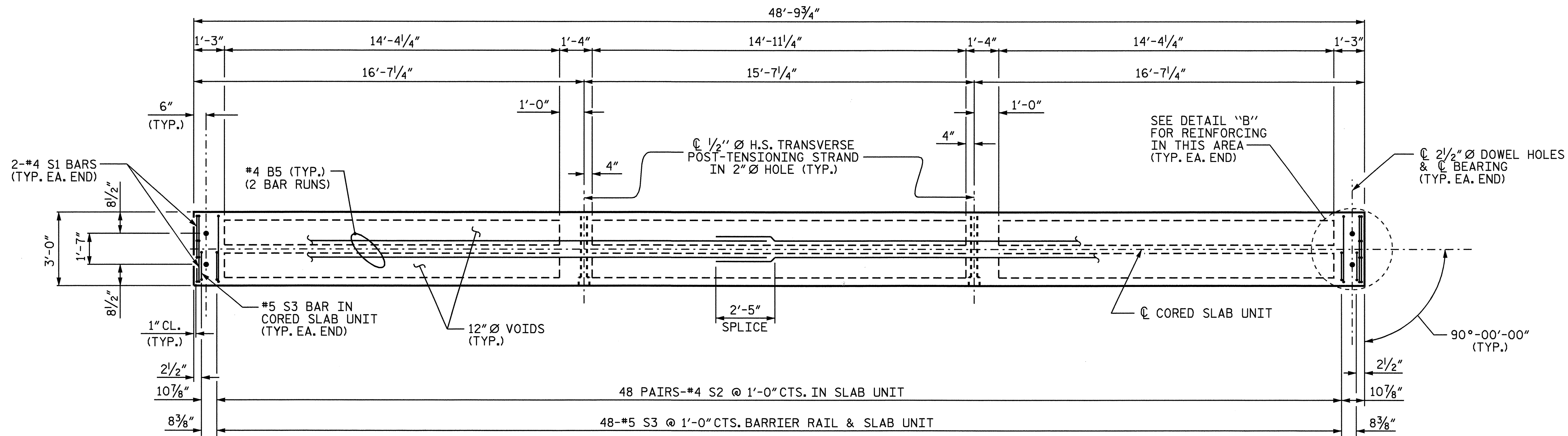
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			56

DRAWN BY: QT NGUYEN DATE: 1-08
 CHECKED BY: A.R. CHESSON DATE: 5-08

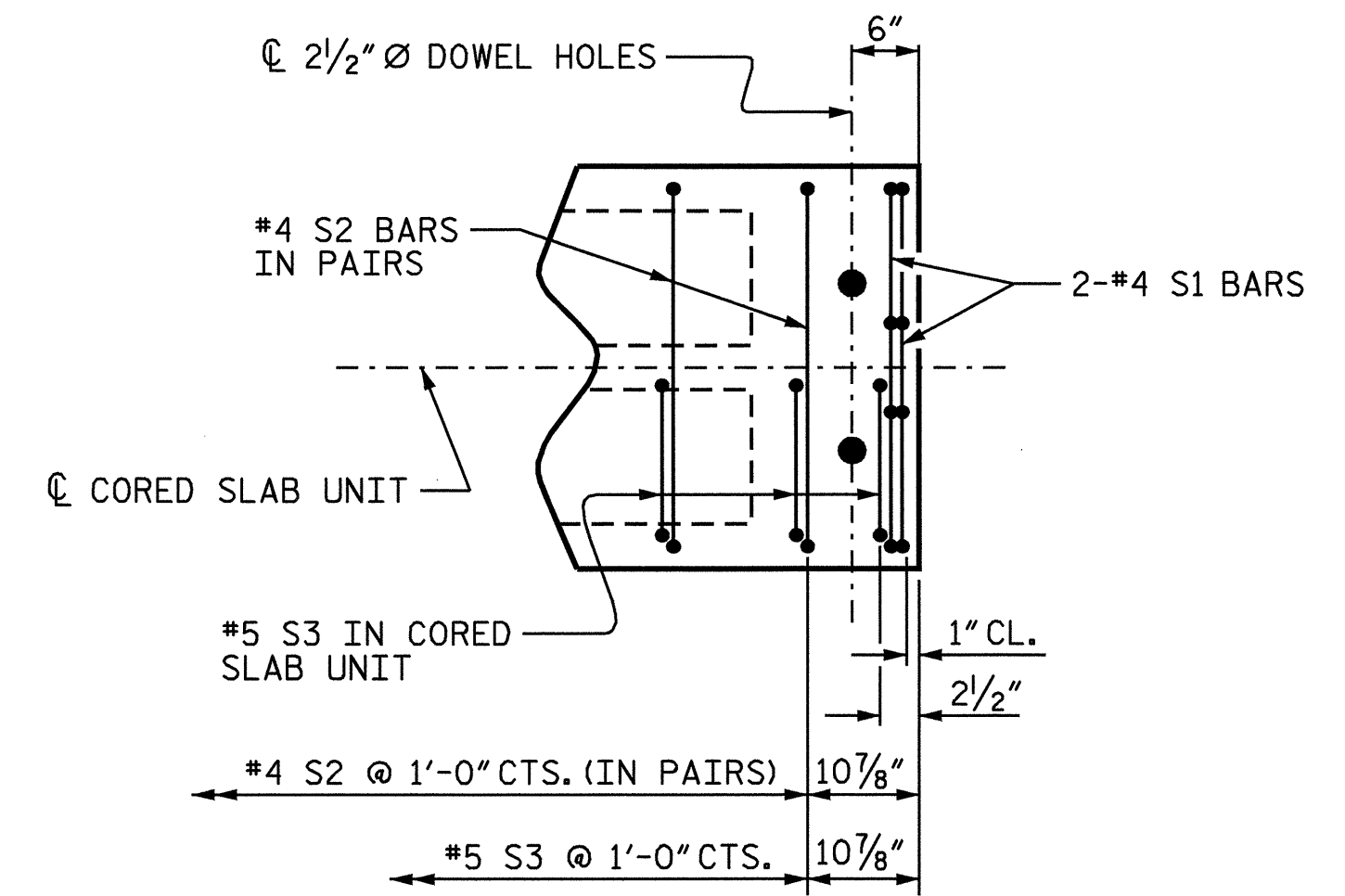
NOTES:

FOR GROUTED RECESS SEE "SUPERSTRUCTURE TYPICAL SECTION" SHEET 1 OF 14.

THE #4 S2 AND #5 S3 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MIN. CLEARANCE TO THE 2" Ø HOLES.

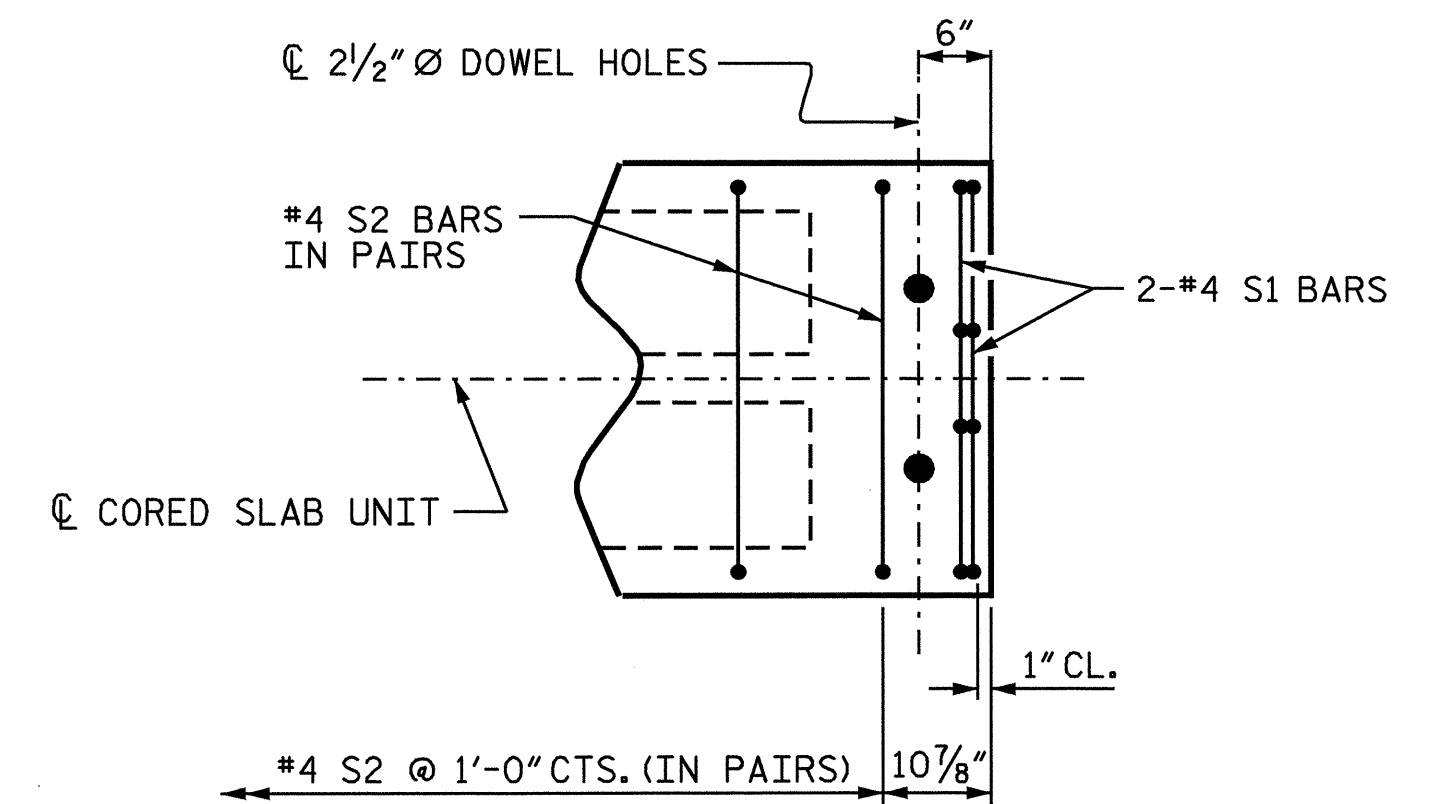


PLAN OF TYPE V CORED SLAB UNIT (STAGE II)



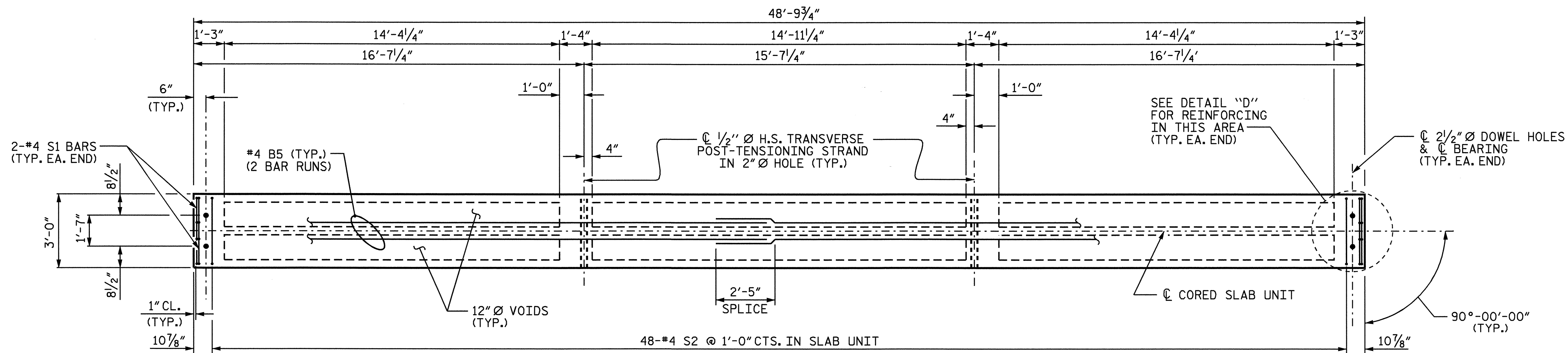
DETAIL "B"

(EACH END SIMILAR)



DETAIL "D"

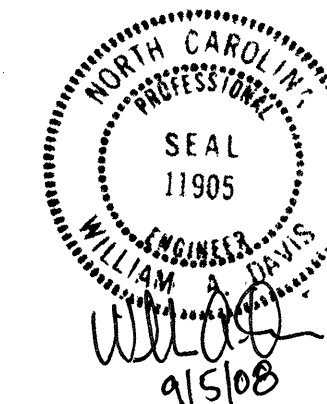
(EACH END SIMILAR)



PLAN OF TYPE IV CORED SLAB UNIT (STAGE II)

PROJECT NO. B-3830
 COLUMBUS COUNTY
 STATION: 20+66.00 -L-

SHEET 10 OF 14



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 3'-0" X 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 DETAILS-SPAN D

REVISIONS						SHEET NO. S-14
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 56
2			4			

DRAWN BY: QT NGUYEN DATE: 1-08
 CHECKED BY: A.R. CHESSON DATE: 5-08

05-SEP-2008 12:35
 q:\structures\b3830\final plans\str. 1\b3830_sd.csl.dgn
 qtnguyen

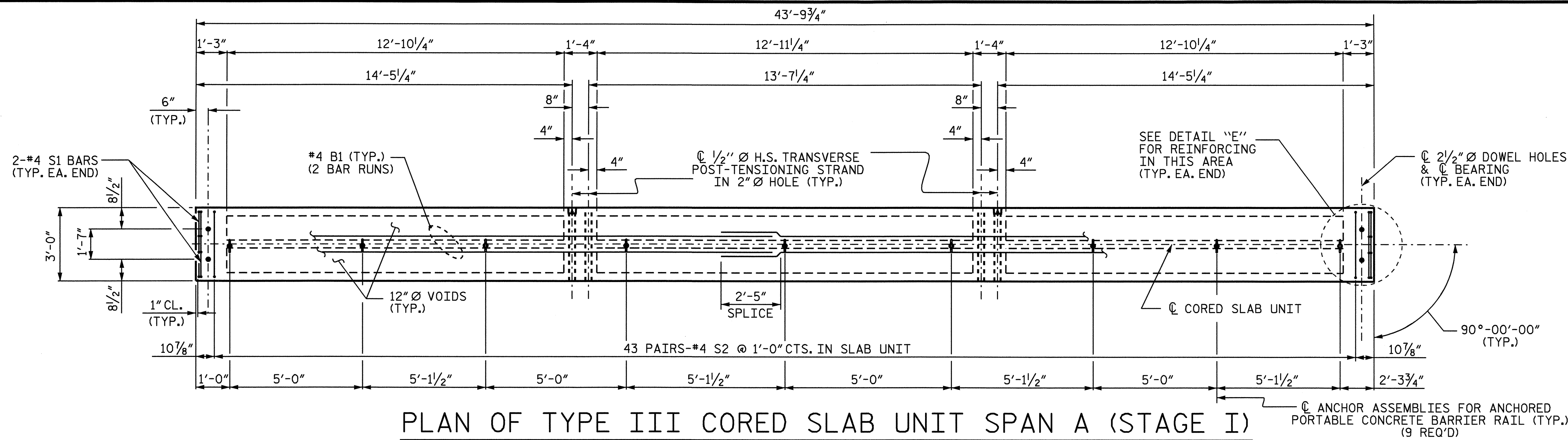
STR. #1

NOTES:

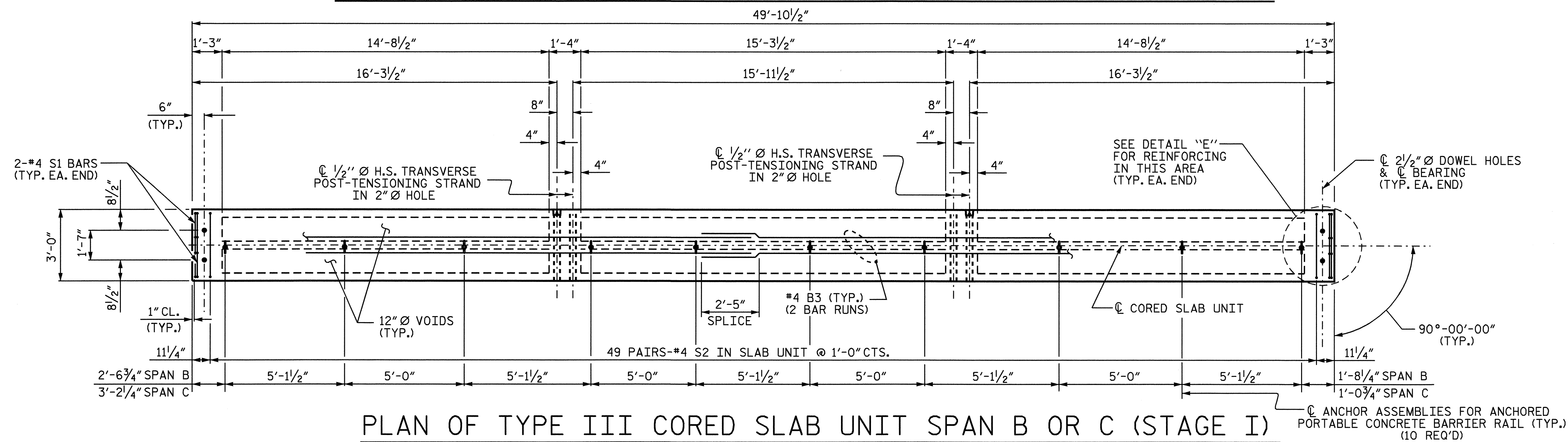
FOR GROUTED RECESS SEE "SUPERSTRUCTURE TYPICAL SECTION" SHEET 1 OF 14.

THE #4 S2 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MIN. CLEARANCE TO THE 2" Ø HOLES.

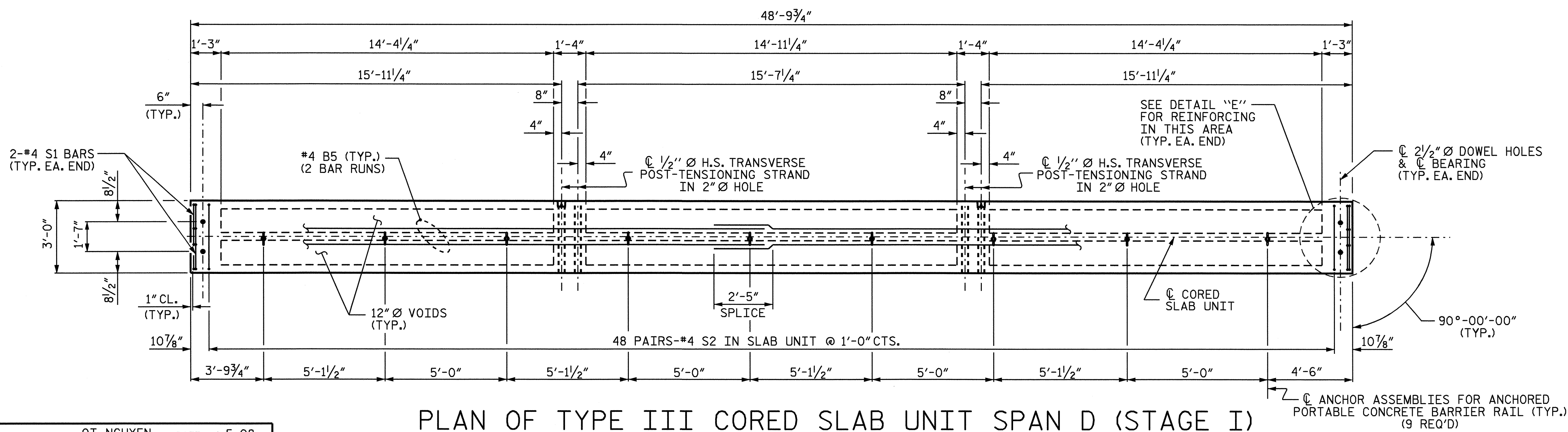
ANCHORS FOR PORTABLE CONCRETE BARRIER HAVE BEEN SPACED ACCORDING TO ROADWAY STANDARD 1170.01. THE CONTRACTOR SHALL CONFIRM THE USE OF BARRIERS MATCHING THIS STANDARD AND THE LOCATIONS OF THE ANCHORS. IF THE PORTABLE CONCRETE BARRIER DOES NOT MEET THE STANDARD'S DETAILS AND THE SPACING OF THE ANCHORS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING ANCHORS PROPERLY SPACED FOR THE PROPOSED BARRIERS AS APPROVED BY THE ENGINEER.



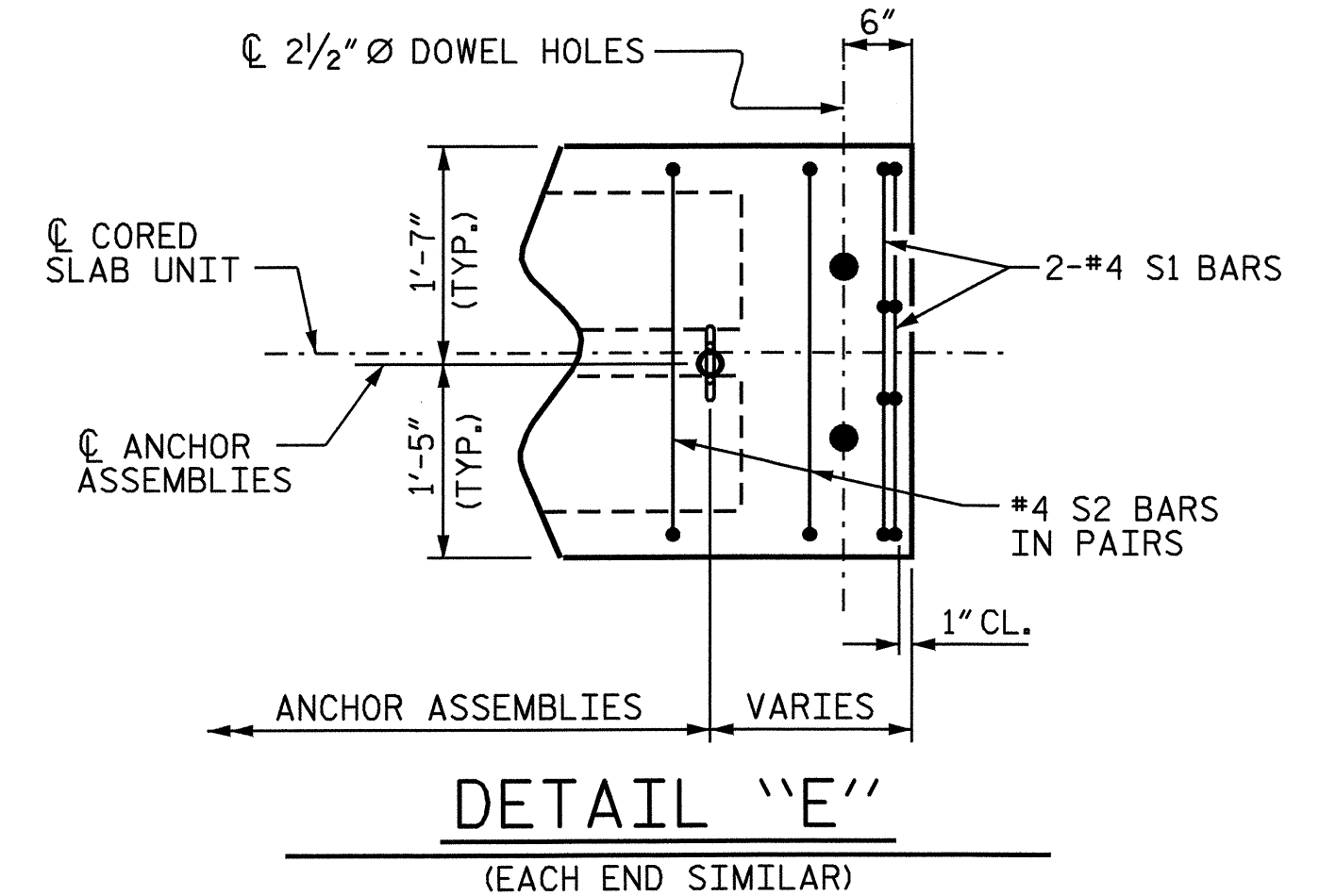
PLAN OF TYPE III CORED SLAB UNIT SPAN A (STAGE I)



PLAN OF TYPE III CORED SLAB UNIT SPAN B OR C (STAGE I)



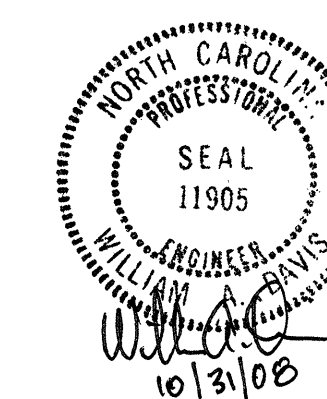
PLAN OF TYPE III CORED SLAB UNIT SPAN D (STAGE I)



DETAIL "E"
(EACH END SIMILAR)

PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 20+66.00 -L-

SHEET 11 OF 14



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**ANCHORED PORTABLE
 CONCRETE BARRIER
 RAIL ANCHORAGE
 DETAILS FOR TYPE III
 CORED SLAB UNIT
 SPANS A, B, C & D**

REVISIONS					SHEET NO. S-15
NO.	BY:	DATE:	NO.	DATE:	
1			3		TOTALS 56
2			4		

DRAWN BY: QT NGUYEN DATE: 5-08
 CHECKED BY: A.R. CHESSON DATE: 5-08

NOTES

- THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 5/8".
 - B. 1 - 7/8" Ø X 8 1/2" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A325. BOLT AND WASHER SHALL BE GALVANIZED. AT THE CONTRACTORS OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø X 8 1/2" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A325. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.
 - C. WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI.
 - D. STRUCTURAL CONCRETE INSERT ASSEMBLIES SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE COST OF THE STRUCTURAL CONCRETE INSERT ASSEMBLY, COMPLETE IN PLACE, SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS.

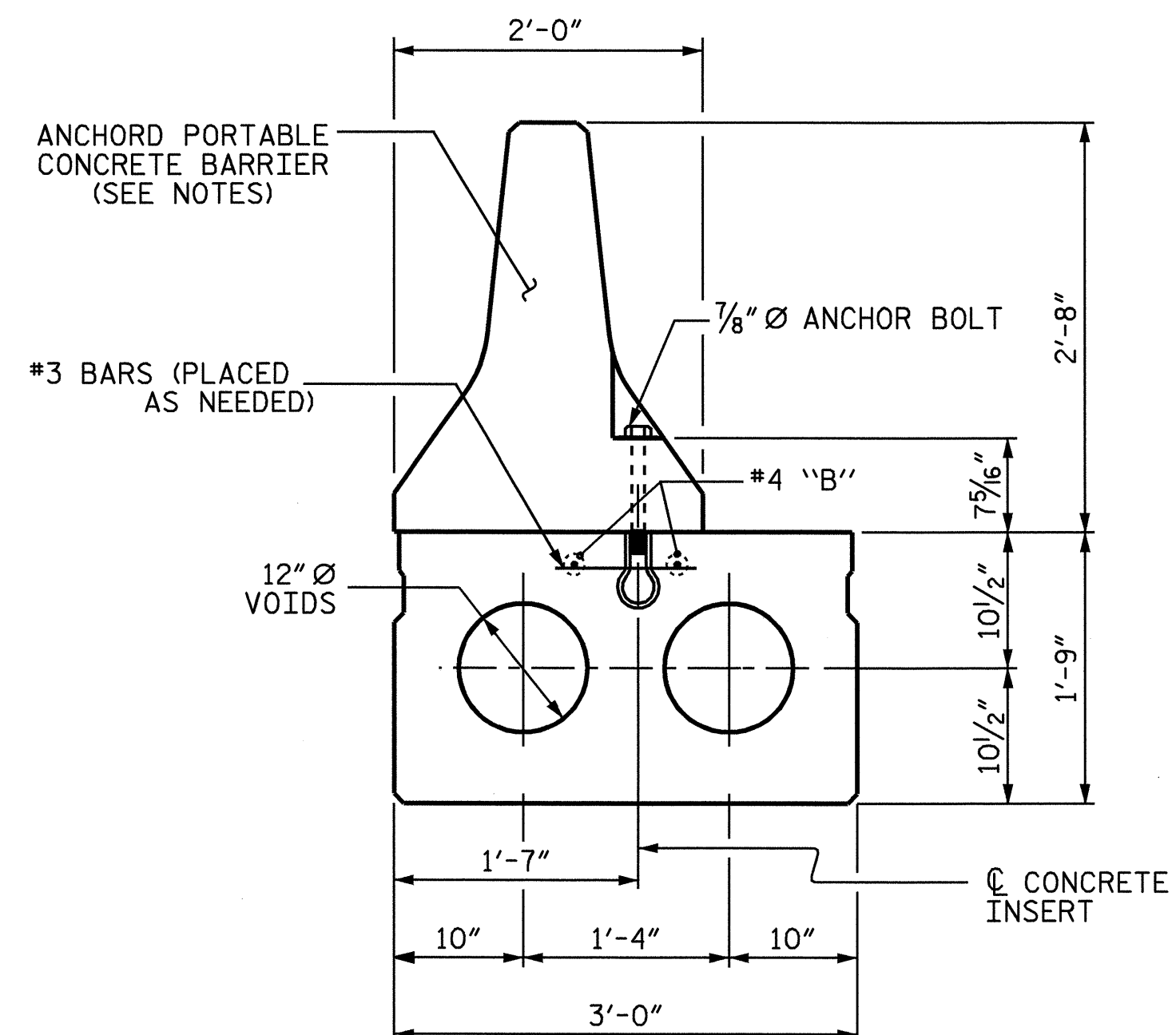
TO FACILITATE PLACEMENT OF STRUCTURAL CONCRETE INSERT ASSEMBLIES, #3 BARS MAY BE TIED TO THE #4 B1 BARS IN THE CORED SLAB UNITS. THE COST OF THE #3 BARS SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS.

STIRRUPS IN THE CORED SLAB UNITS MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR STRUCTURAL CONCRETE INSERT ASSEMBLIES.

FERRULES TO BE PLUGGED DURING CASTING OF THE CORED SLAB UNITS AS RECOMMENDED BY THE MANUFACTURER.

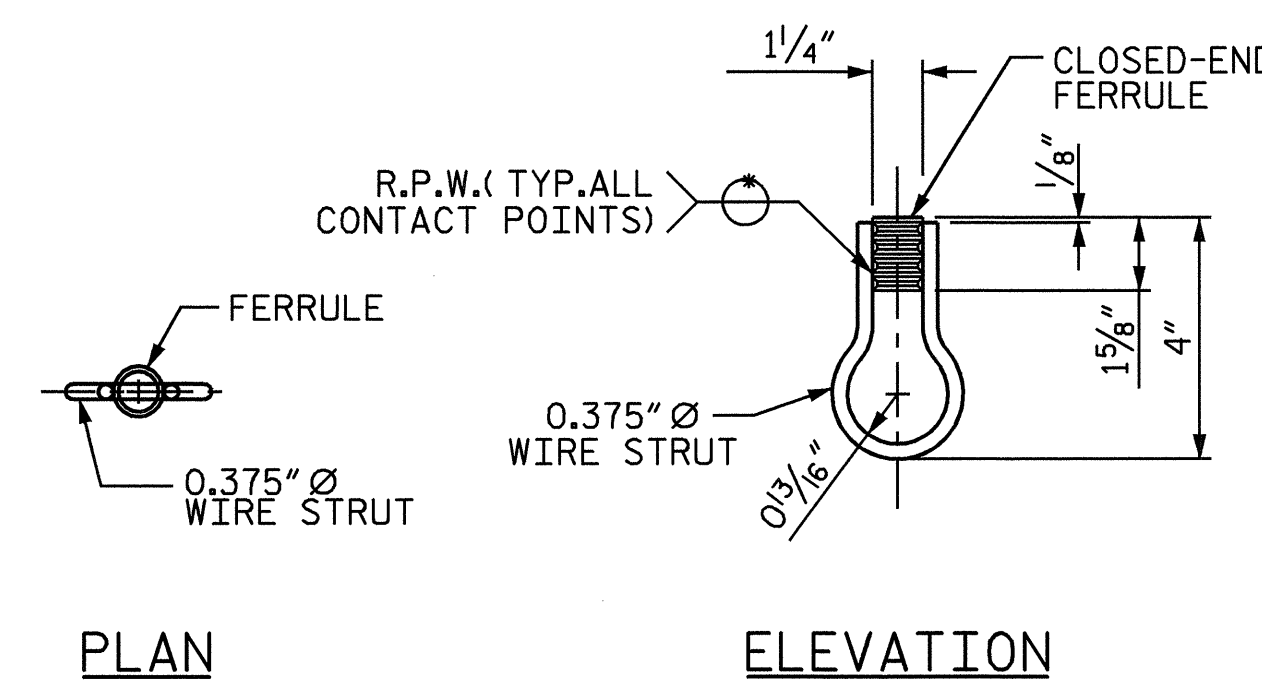
SEE TRAFFIC CONTROL PLANS FOR PAY LIMITS OF THE ANCHORED PORTABLE CONCRETE BARRIER.

AFTER REMOVAL OF TEMPORARY BARRIER RAIL, THE STRUCTURAL CONCRETE INSERTS SHALL BE FILLED WITH GROUT.



SECTION OF CONCRETE INSERT LOCATION

(TYPE III CORED SLAB UNIT, STAGE I)



STRUCTURAL CONCRETE INSERT

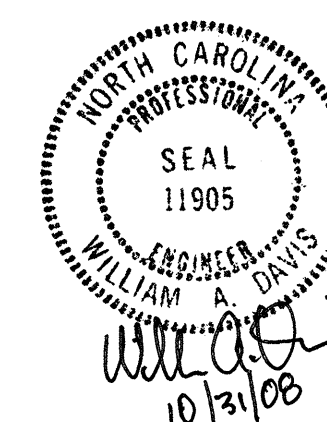
* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.

PROJECT NO. B-3830

COLUMBUS COUNTY

STATION: 20+66.00 -L-

SHEET 12 OF 14



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ANCHORED PORTABLE
CONCRETE BARRIER
RAIL ANCHORAGE
DETAILS FOR TYPE III
CORED SLAB UNIT
SPANS A, B, C & D

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			56

DRAWN BY : QT NGUYEN DATE : 5-08
CHECKED BY : A.R. CHESSON DATE : 5-08

NOTES

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

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

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 1/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

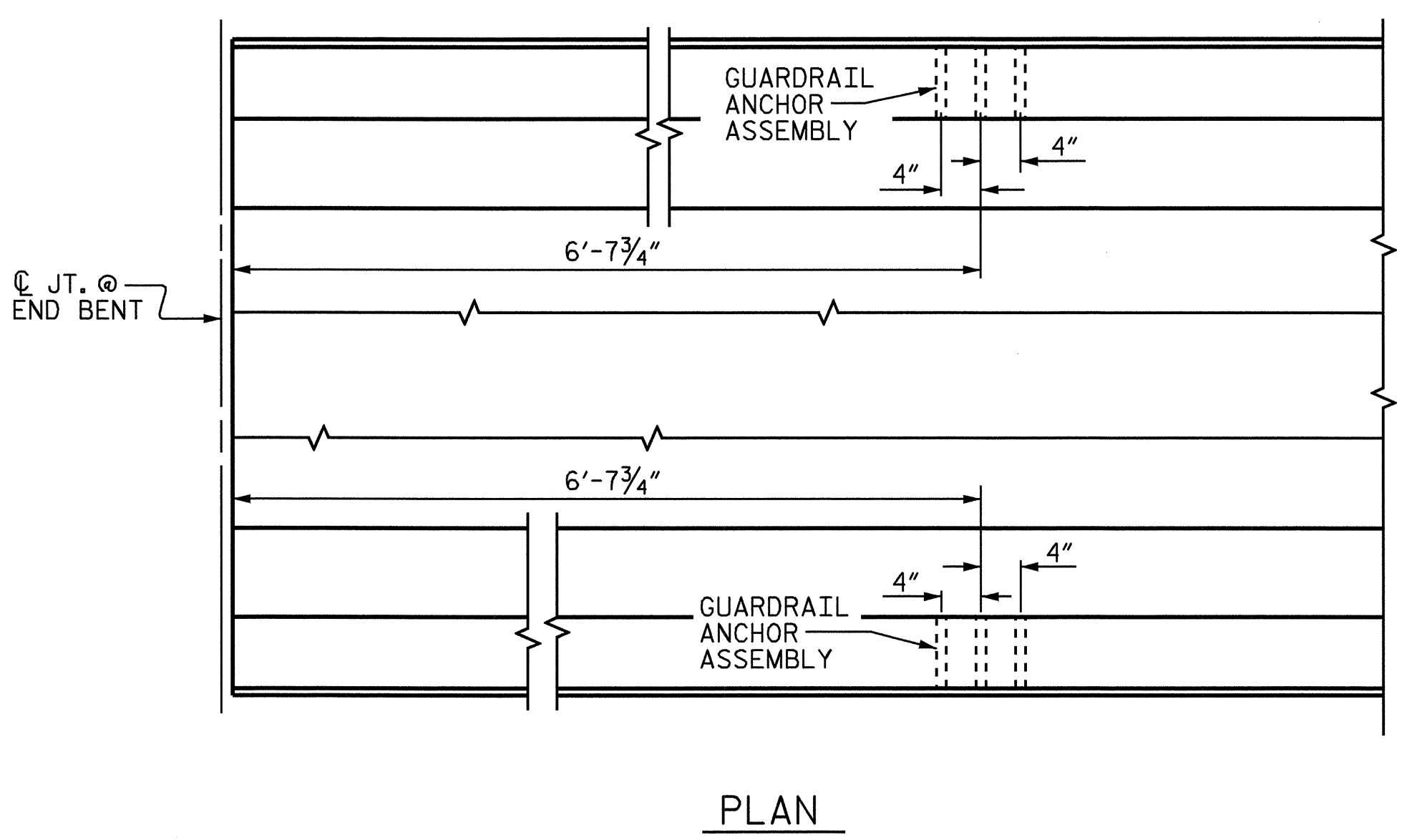
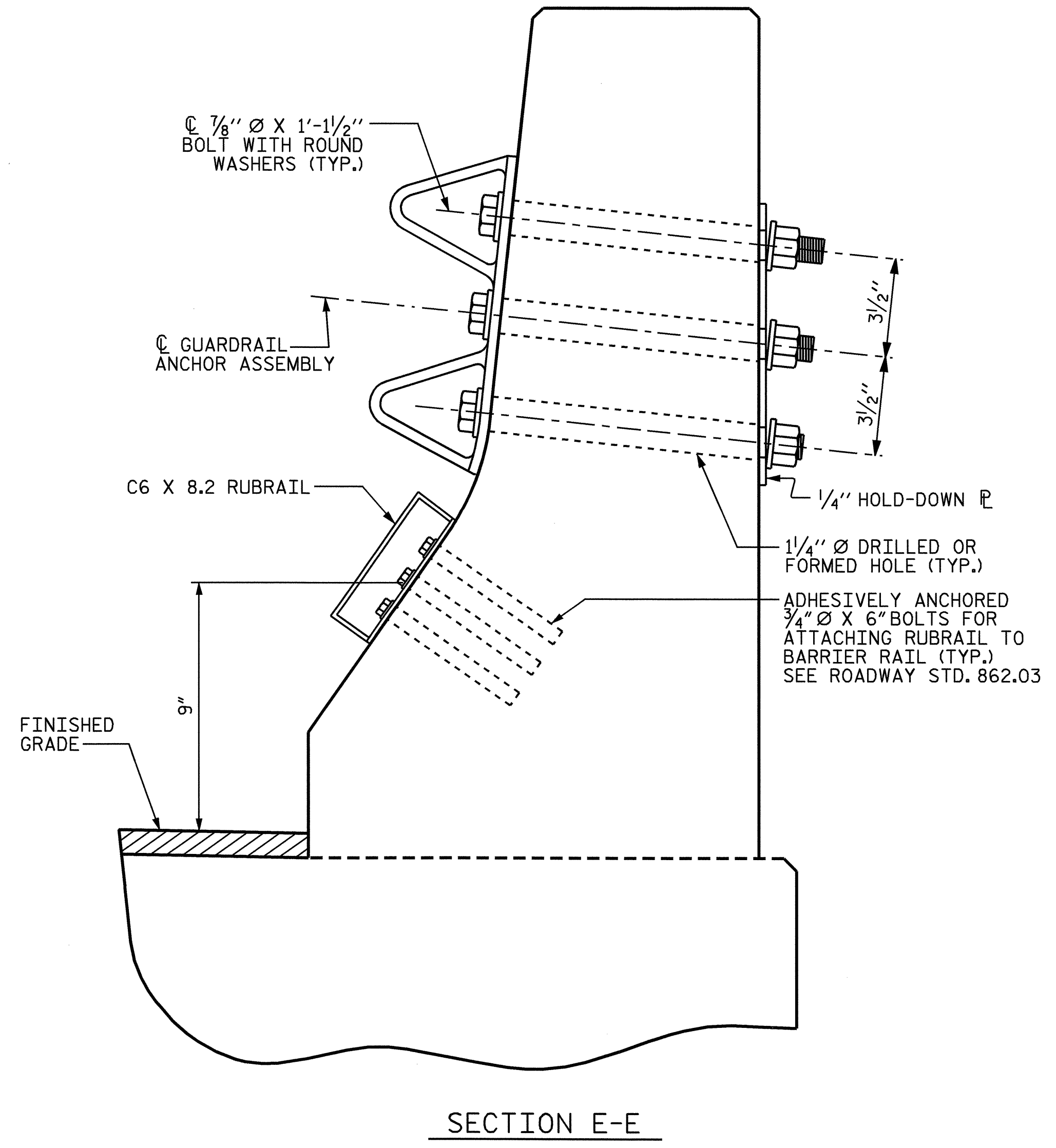
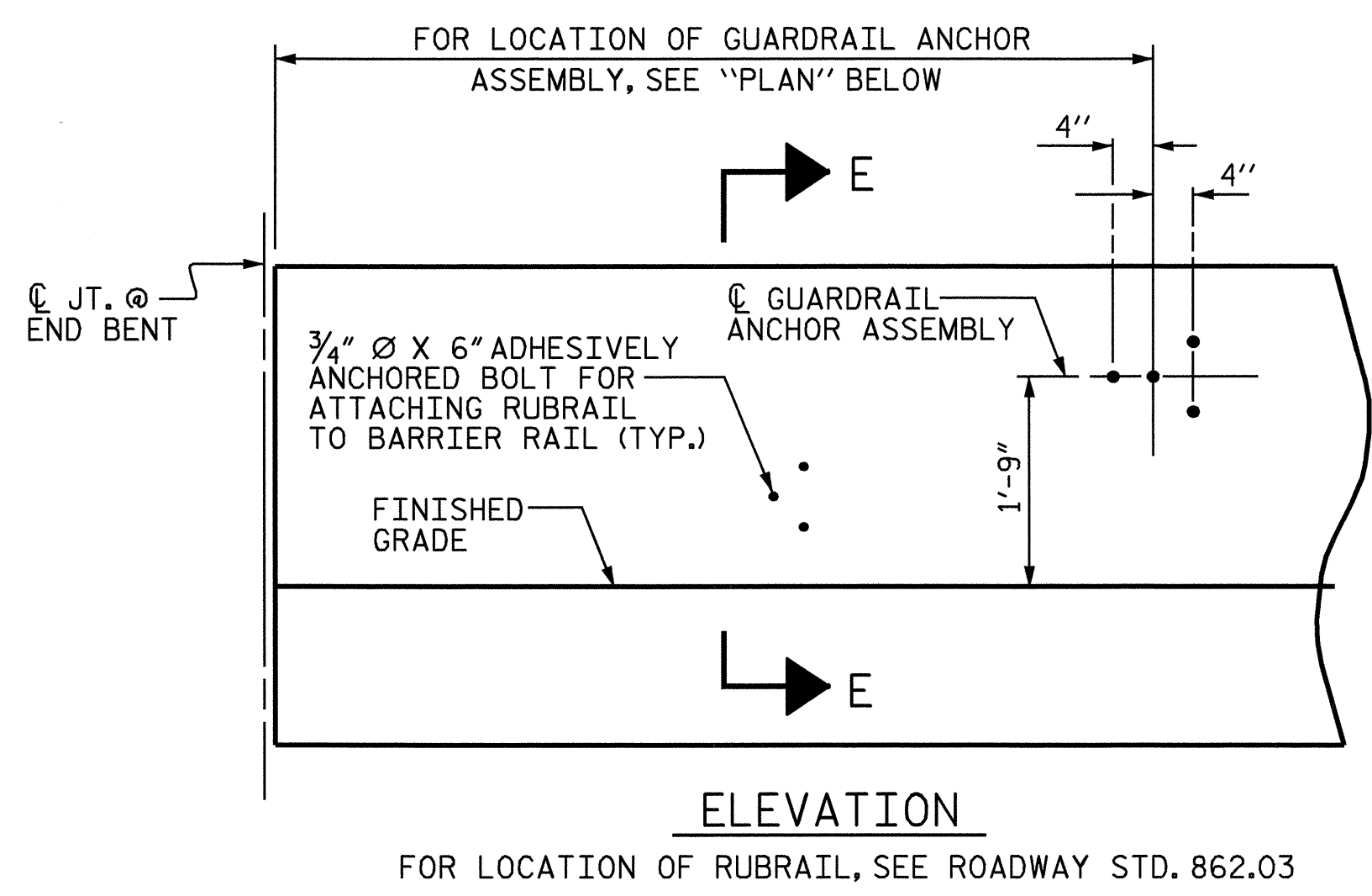
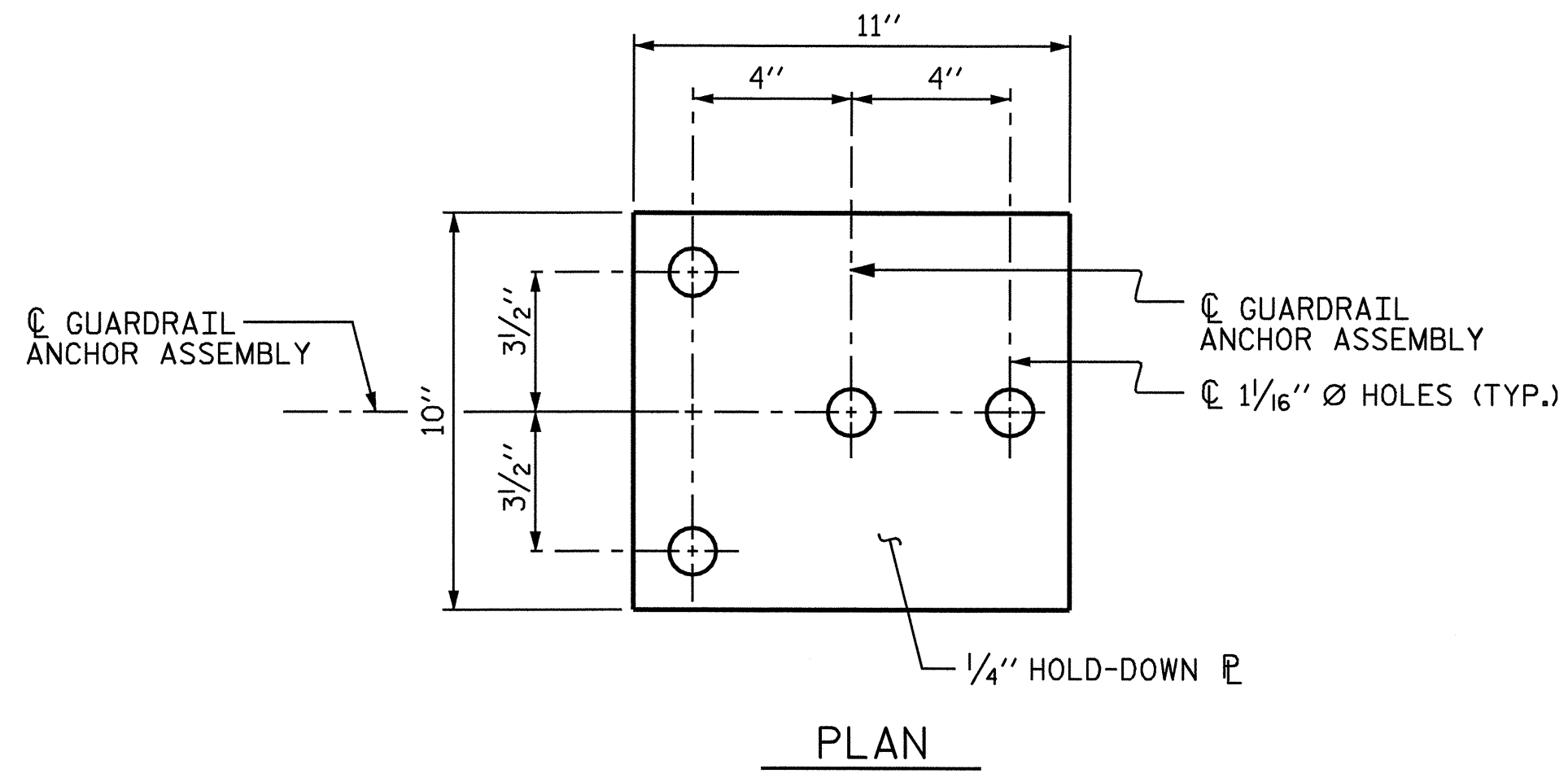
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

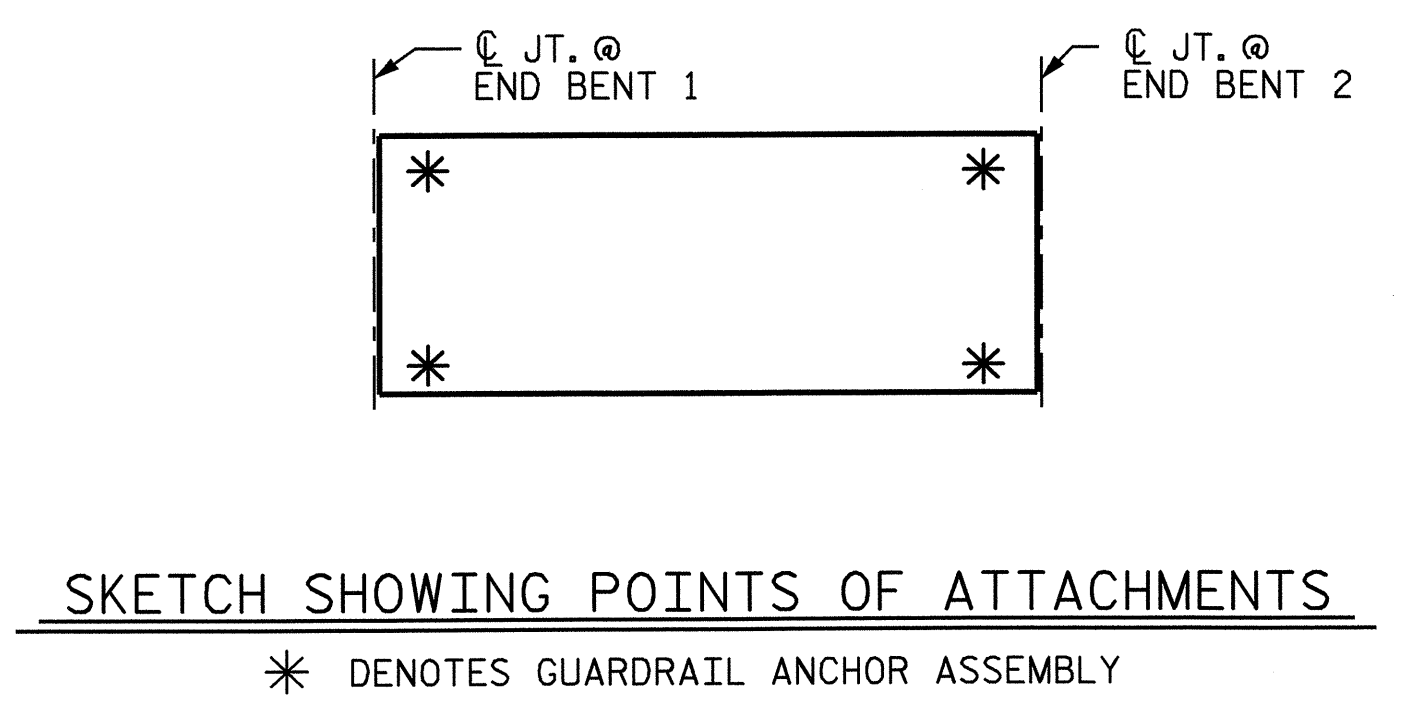
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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

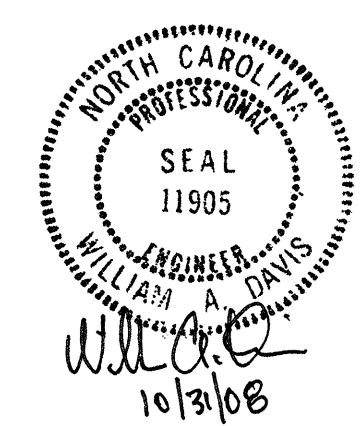
THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS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



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



PROJECT NO. B-3830
COLUMBUS COUNTY
STATION: 20+66.00 -L-
SHEET 13 OF 14



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

ASSEMBLED BY : QT NGUYEN	DATE : 5-08
CHECKED BY : A.R. CHESSON	DATE : 5-08
DRAWN BY : TLA	5/06
CHECKED BY : GM	5/06
ADDED 5/1/06R	KMM/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			56

BILL OF MATERIAL FOR ONE CORED SLAB SECTION														
SPAN A			STAGE I				STAGE II							
			TYPE I UNIT		TYPE II UNIT		TYPE III UNIT		TYPE V UNIT		TYPE IV UNIT			
BAR	SIZE	TYPE	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT
B1	#4	STR	4	23'-0"	61	4	23'-0"	61	4	23'-0"	61	4	23'-0"	61
S1	#4	2	8	4'-3"	23	8	4'-3"	23	8	4'-3"	23	8	4'-3"	23
S2	#4	2	43	5'-4"	153	43	5'-4"	153	43	5'-4"	153	43	5'-4"	153
*S3	#5	1	43	5'-5"	243				43	5'-5"	243			
REINFORCING STEEL			237		237		237		237		237		237	
* EPOXY COATED REINFORCING STEEL			LBS. 243						243					
5,000 P.S.I. CONCRETE			CU. YDS. 6.0		6.0		6.0		6.0		6.0		6.0	
1/2" Ø L.R. STRANDS			No. 18		18		18		18		18		18	

BILL OF MATERIAL FOR ONE CORED SLAB SECTION														
SPAN B OR C			STAGE I				STAGE II							
			TYPE I UNIT		TYPE II UNIT		TYPE III UNIT		TYPE V UNIT		TYPE IV UNIT			
BAR	SIZE	TYPE	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT
B3	#4	STR	4	26'-0"	69	4	26'-0"	69	4	26'-0"	69	4	26'-0"	69
S1	#4	2	8	4'-3"	23	8	4'-3"	23	8	4'-3"	23	8	4'-3"	23
S2	#4	2	49	5'-4"	175	49	5'-4"	175	49	5'-4"	175	49	5'-4"	175
*S3	#5	1	49	5'-5"	277	49	5'-5"	277	49	5'-5"	277	49	5'-5"	277
REINFORCING STEEL			267		267		267		267		267		267	
* EPOXY COATED REINFORCING STEEL			LBS. 277		277		277		277		277		277	
5,000 P.S.I. CONCRETE			CU. YDS. 6.8		6.8		6.8		6.8		6.8		6.8	
1/2" Ø L.R. STRANDS			No. 22		22		22		22		22		22	

BILL OF MATERIAL FOR ONE CORED SLAB SECTION														
SPAN D			STAGE I				STAGE II							
			TYPE I UNIT		TYPE II UNIT		TYPE III UNIT		TYPE V UNIT		TYPE IV UNIT			
BAR	SIZE	TYPE	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT
B5	#4	STR	4	25'-6"	68	4	25'-6"	68	4	26'-0"	68	4	26'-0"	68
S1	#4	2	8	4'-3"	23	8	4'-3"	23	8	4'-3"	23	8	4'-3"	36
S2	#4	2	48	5'-4"	171	48	5'-4"	171	48	5'-4"	171	48	5'-4"	171
*S3	#5	1	48	5'-5"	271				48	5'-5"	271			
REINFORCING STEEL			262		262		262		262		262		262	
* EPOXY COATED REINFORCING STEEL			LBS. 271						271					
5,000 P.S.I. CONCRETE			CU. YDS. 6.6		6.6		6.6		6.6		6.6		6.6	
1/2" Ø L.R. STRANDS			No. 22		22		22		22		22		22	

CORED SLABS REQUIRED-SPAN A			
SPAN A	NUMBER	LENGTH	TOTAL LENGTH
STAGE I	TYPE I	1	43'-9 3/4"
	TYPE II	4	43'-9 3/4"
	TYPE III	1	43'-9 3/4"
	STAGE I TOTAL	6	262'-10 1/2"
STAGE II	TYPE V	1	43'-9 3/4"
	TYPE IV	6	43'-9 3/4"
	STAGE II TOTAL	7	306'-8 1/4"
STAGES I & II TOTAL		13	569'-6 3/4"

CORED SLABS REQUIRED-SPANS B & C			
SPAN B AND C	NUMBER	LENGTH	TOTAL LENGTH
STAGE I	TYPE I	2	49'-10 1/2"
	TYPE II	8	49'-10 1/2"
	TYPE III	2	49'-10 1/2"
	STAGE I TOTAL	12	598'-6"
STAGE II	TYPE V	2	49'-10 1/2"
	TYPE IV	12	49'-10 1/2"
	STAGE II TOTAL	14	684'-3"
STAGES I & II TOTAL		26	1296'-9"

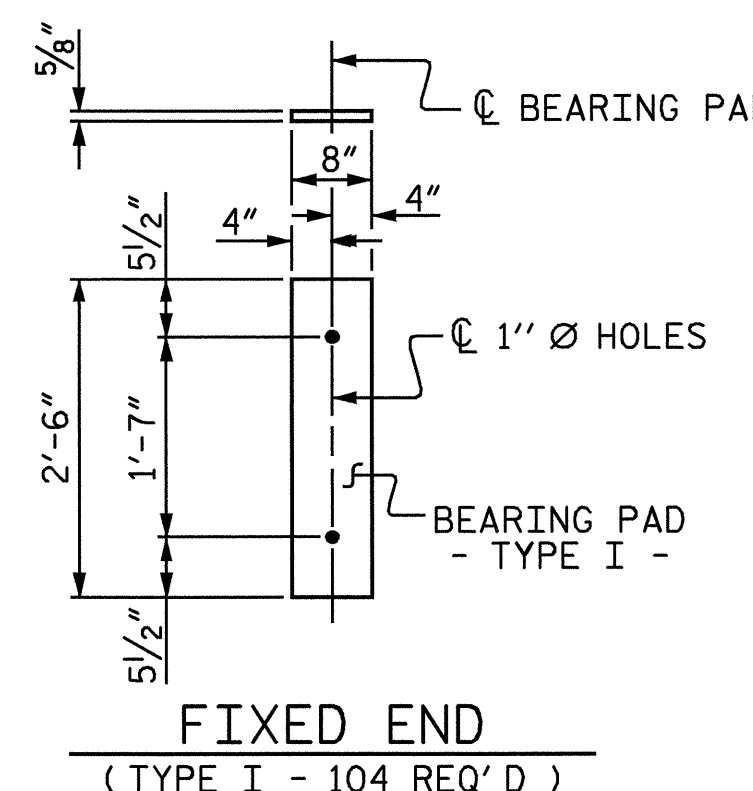
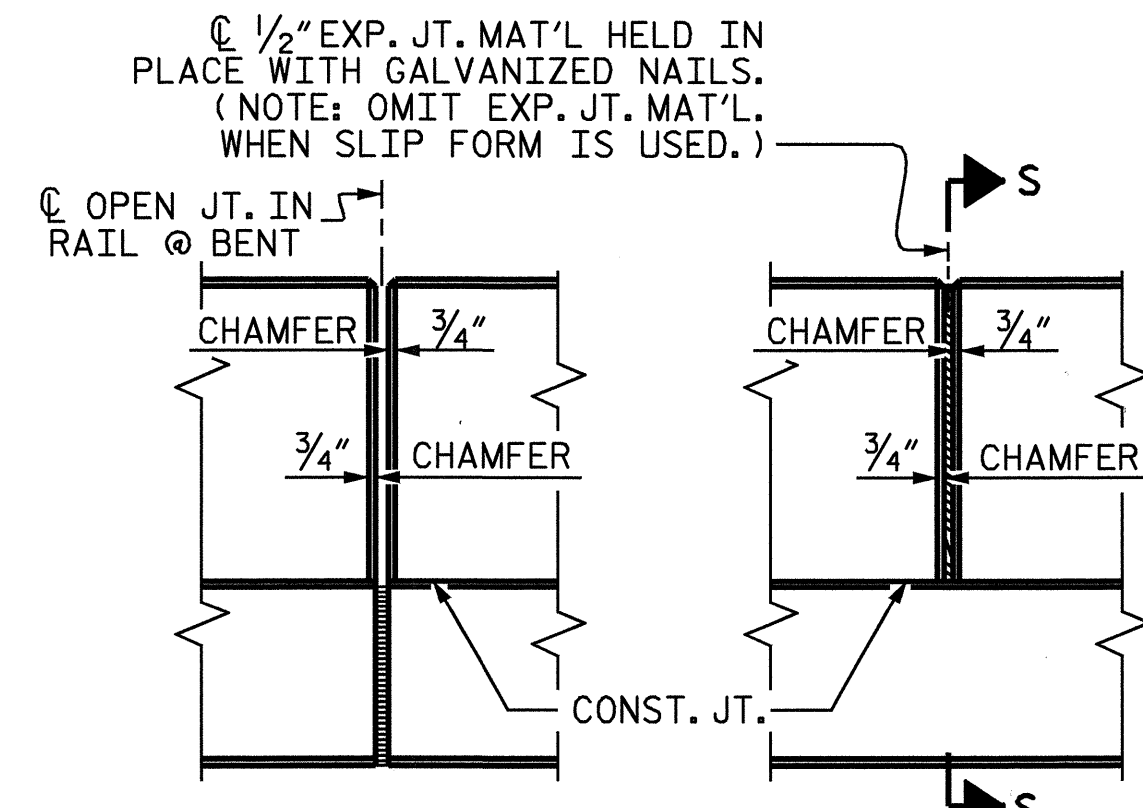
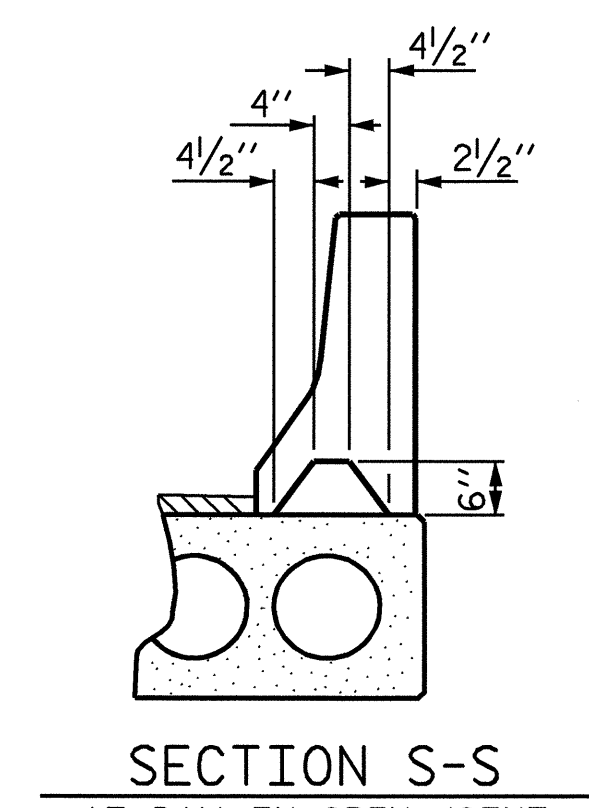
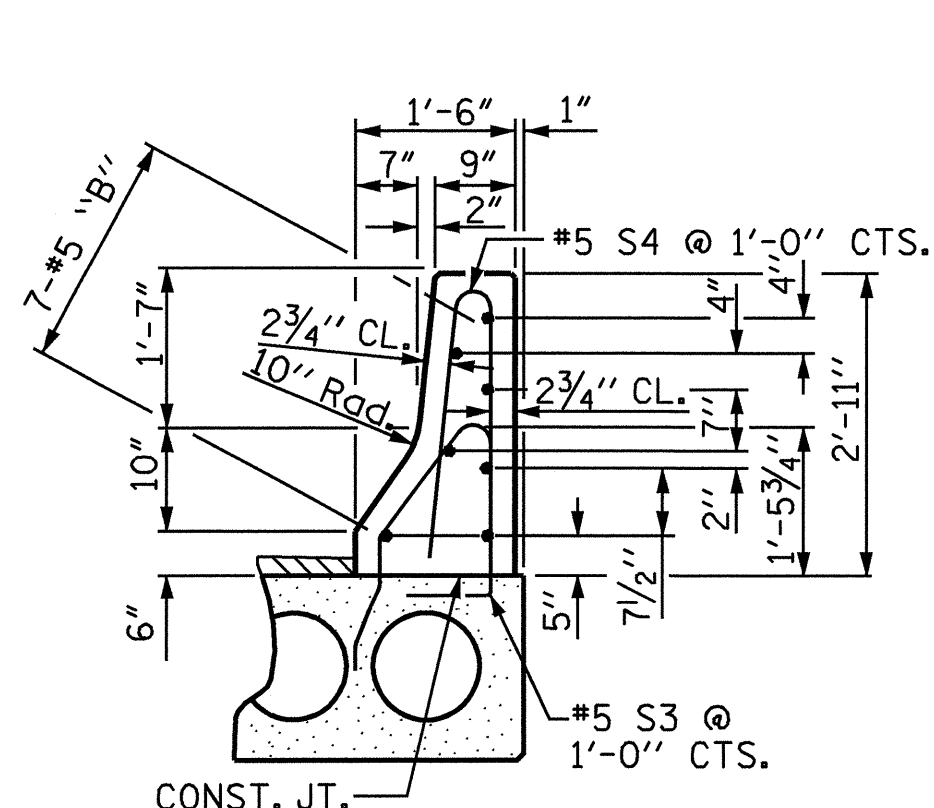
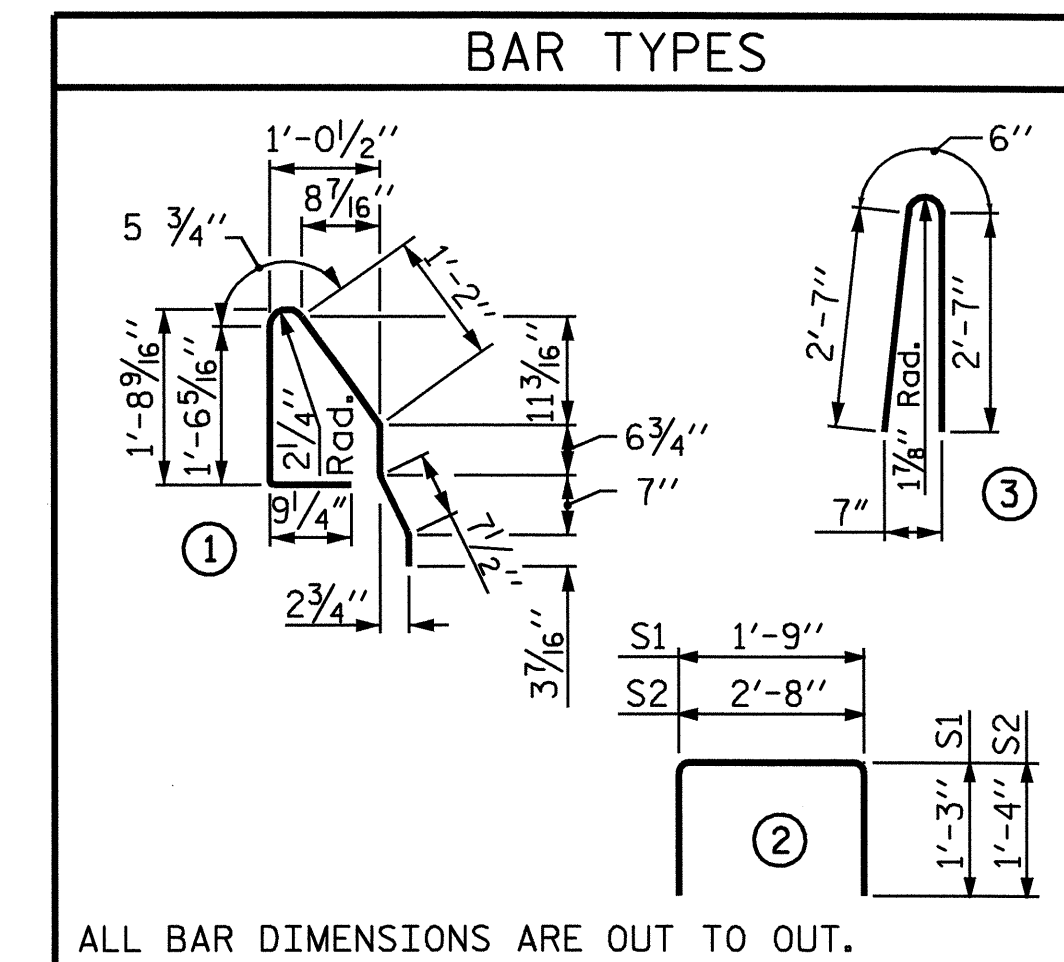
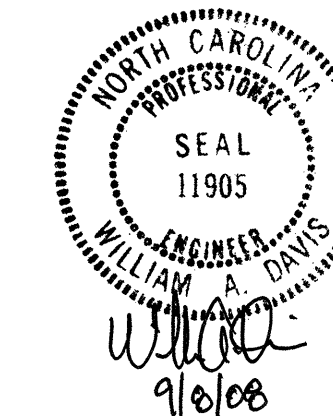
CORED SLABS REQUIRED-SPAN D			
SPAN D	NUMBER	LENGTH	TOTAL LENGTH
STAGE I	TYPE I	1	48'-9 3/4"
	TYPE II	4	48'-9 3/4"
	TYPE III	1	48'-9 3/4"
	STAGE I TOTAL	6	292'-10 1/2"
STAGE II	TYPE V	1	48'-9 3/4"
	TYPE IV	6	48'-9 3/4"
	STAGE II TOTAL	7	341'-8 1/4"
STAGES I & II TOTAL		13	634'-6 3/4"

TOTAL CORED SLABS REQUIRED FOR STAGES I & II		
SPANS A, B, C, & D	NUMBER	TOTAL LENGTH
	52	2500'-10 1/2"

BILL OF MATERIAL FOR CONCRETE BARRIER RAIL									
			STAGE I			STAGE II			
BAR	SIZE	TYPE	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	
*B2	#5	STR	14	21'-6"	314	14	21'-6"	314	* TOTAL EPOXY COATED REINF. STEEL LBS. 4928
*B4	#5	STR	28	24'-7"	718	28	24'-7"	718	TOTAL CLASS AA CONCRETE CU.YDS. 40.24
*B6	#5	STR	14	24'-0"	350	14	24'-0"	350	TOTAL CONCRETE BARRIER RAIL LIN. FT. 384.74
*S4	#5	3	189	5'-8"	1077	189	5'-8"	1077	
*EPOXY COATED REINF. STEEL			LBS. 2459			2459			
CLASS AA CONCRETE			CU.YDS. 20.12			20.12			
CONCRETE BARRIER RAIL			LIN. FT. 192.37			192.37			

DEAD LOAD DEFLECTION AND CAMBER		
3'-0" x 1'-9" 1/2" Ø L.R. STRAND		
	SPAN A	SPANS B, C & D
CAMBER (SLAB ALONE IN PLACE) ↑	1 5/16"	1 7/8"
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD * ↓	1/4"	5/16"
FINAL CAMBER ↑	1 1/8"	1 9/16"
* INCLUDES FUTURE WEARING SURFACE.		

GRADE 270 STRANDS	
AREA (SQUARE INCHES)	1/2" Ø L.R.
ULTIMATE STRENGTH (LBS. PER STRAND)	41,300
APPLIED PRESTRESS (LBS. PER STRAND)	30,980



ELASTOMERIC BEARING DETAILS

ASSEMBLED BY : QT NGUYEN DATE : 1-08
 CHECKED BY : A.R. CHESSON DATE : 5-08
 DRAWN BY : WJH 4/89 REV. 7/10/01 RWW/LES
 CHECKED BY : FCJ 5/89 REV. 5/7/03RRR RWW/JTE
 REV. 5/1/06 TLA/GM

PROJECT NO. B-3830
 COLUMBUS COUNTY
 STATION: 20+66.00 -L-

SHEET 14 OF 14

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-18
TOTAL SHEETS 56

NOTES

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

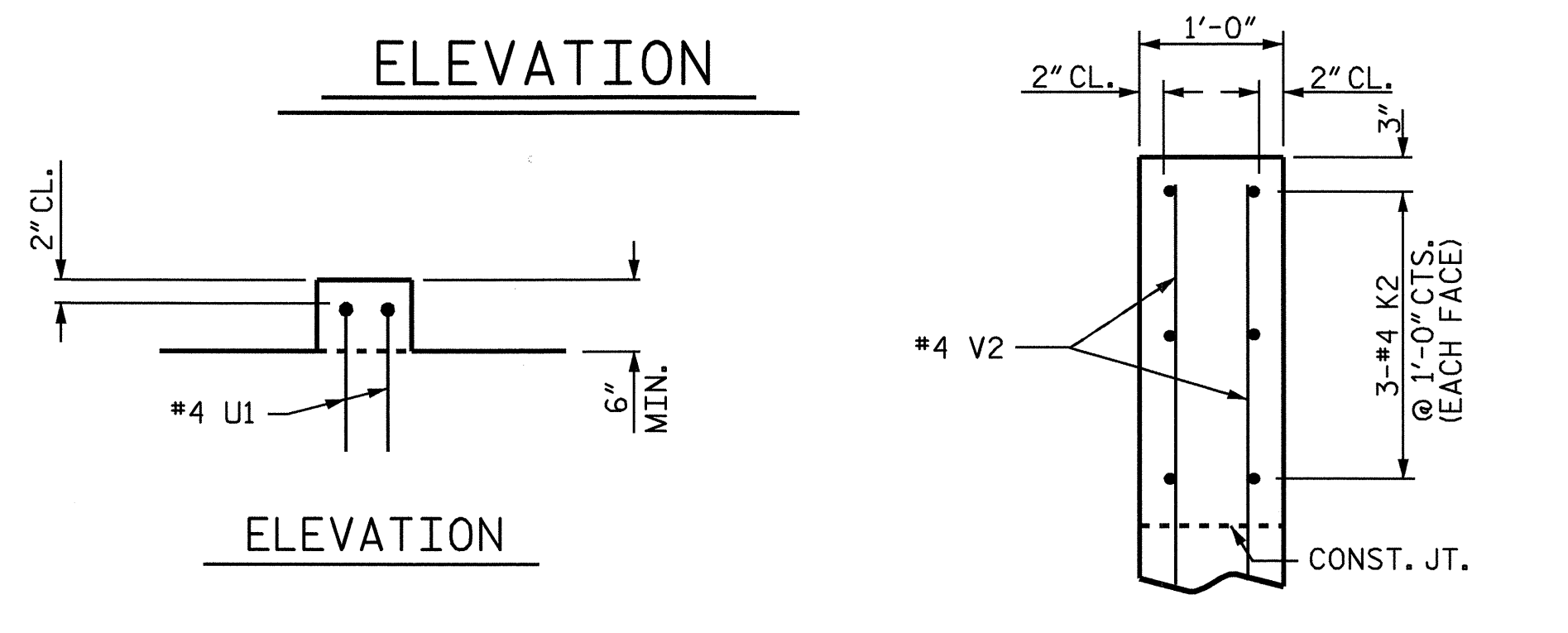
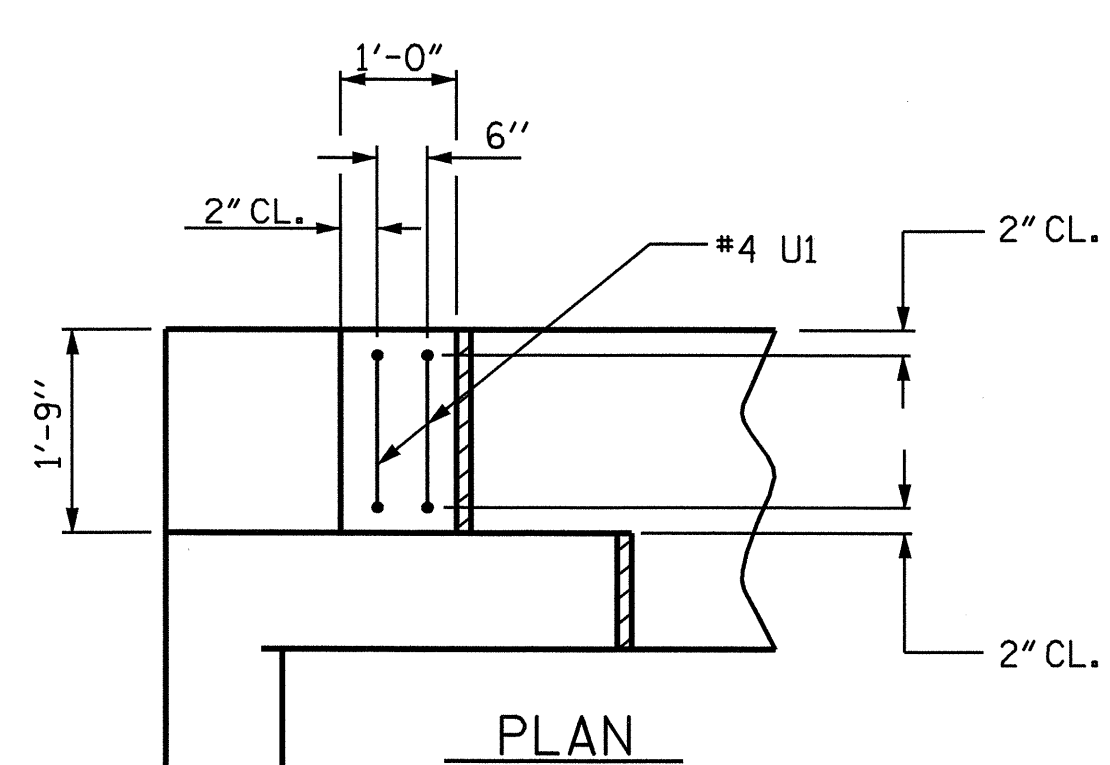
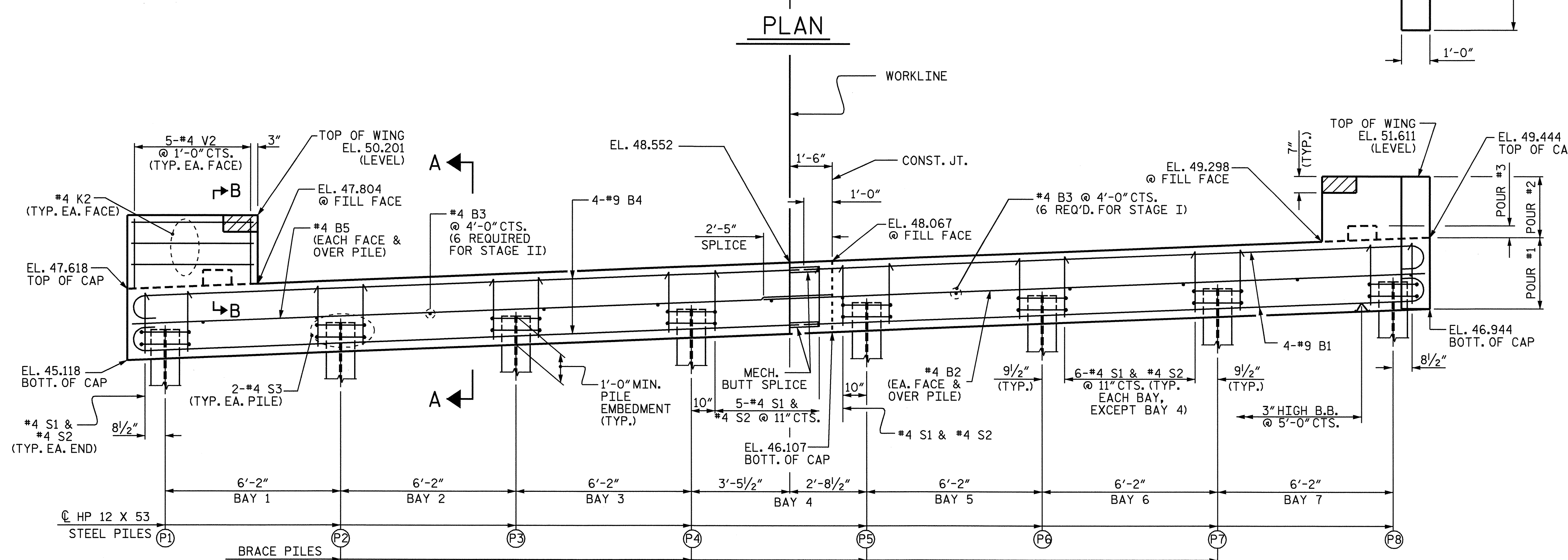
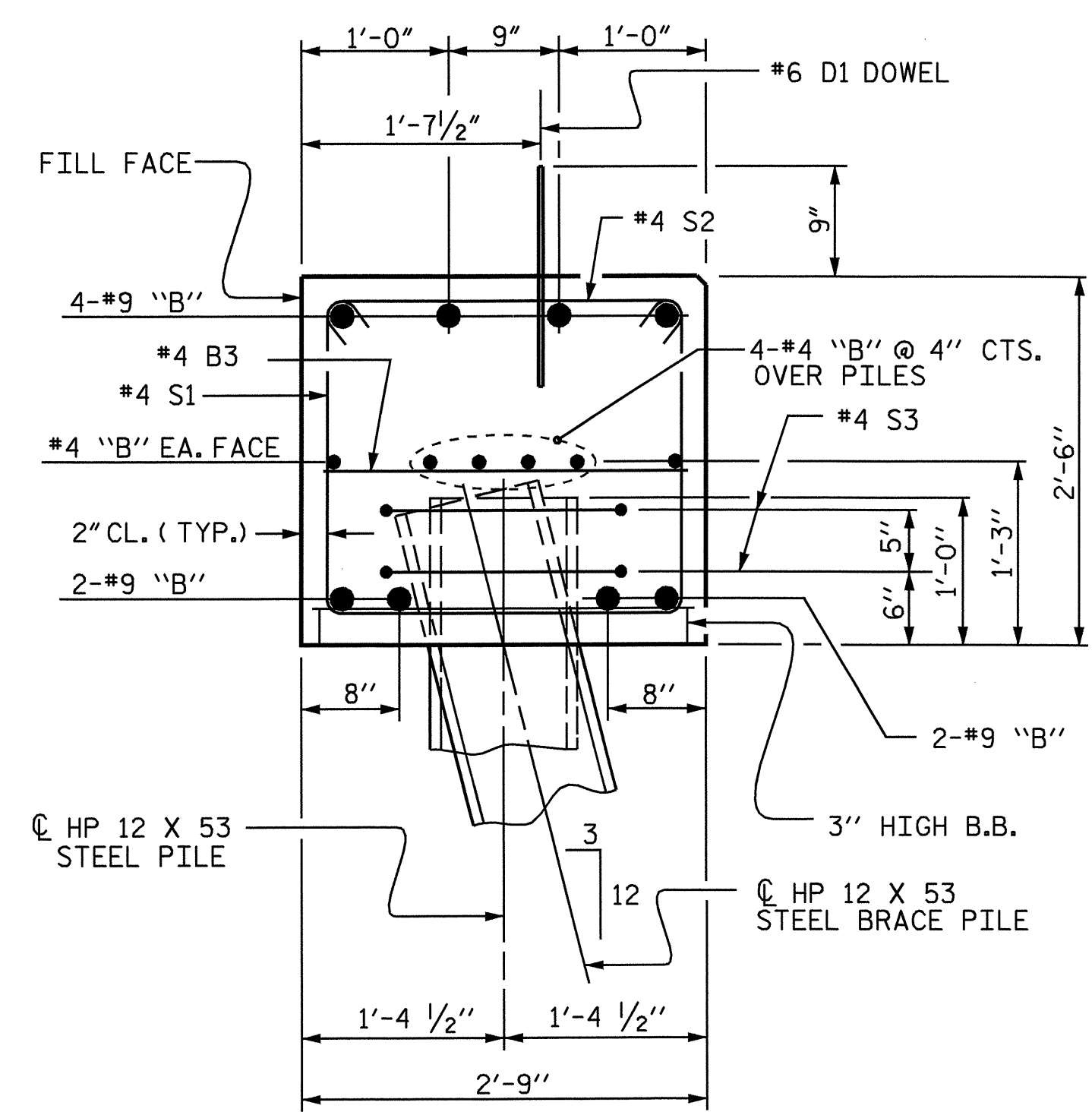
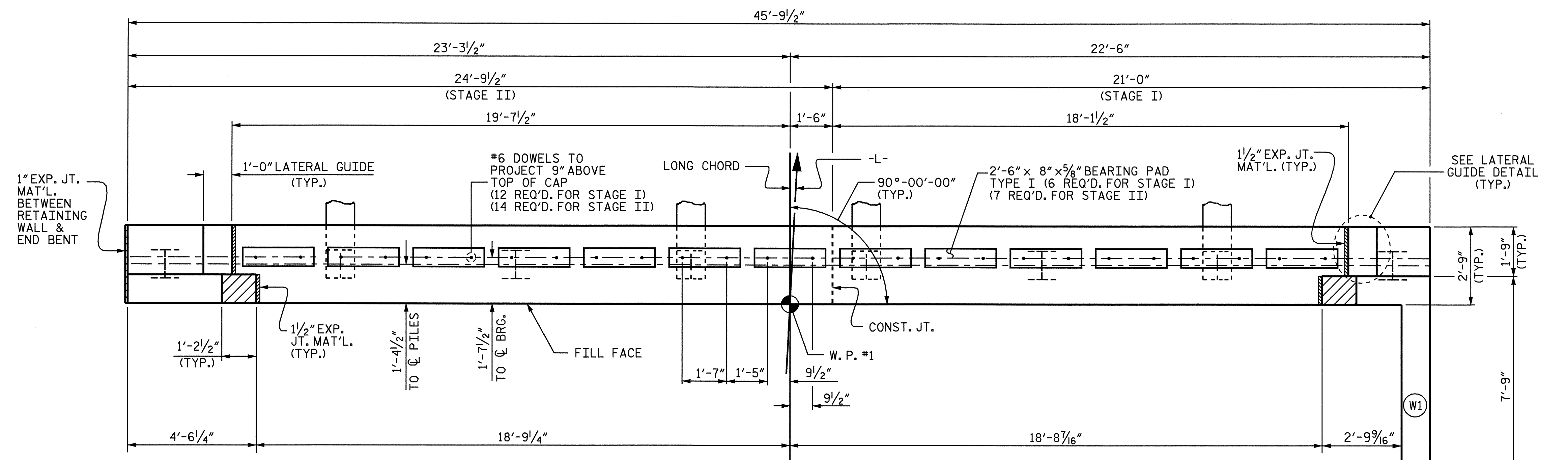
FOR PILE SPLICE DETAILS, SEE SHEET 2 OF 2.

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

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

END BENT SHALL BE CAST WITH 1" EXPANSION JOINT MATERIAL AGAINST RETAINING WALL. THERE IS NO ADDITIONAL COMPENSATION FOR CONCRETE FILLING CORRUGATIONS OF SHEET PILES OR FOR ADJUSTMENT TO LENGTHS OF "B" BARS.

"B" BARS MAY BE CUT TO FIT ACTUAL RETAINING WALL LOCATION AS APPROVED BY THE ENGINEER. BARS DO NOT HAVE TO BE LENGTHENED TO FIT CORRUGATIONS OF SHEET PILES.



PILE	ELEV.
1	46.174
2	46.421
3	46.667
4	46.914
5	47.161
6	47.407
7	47.654
8	47.901

PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 20+66.00 -L-

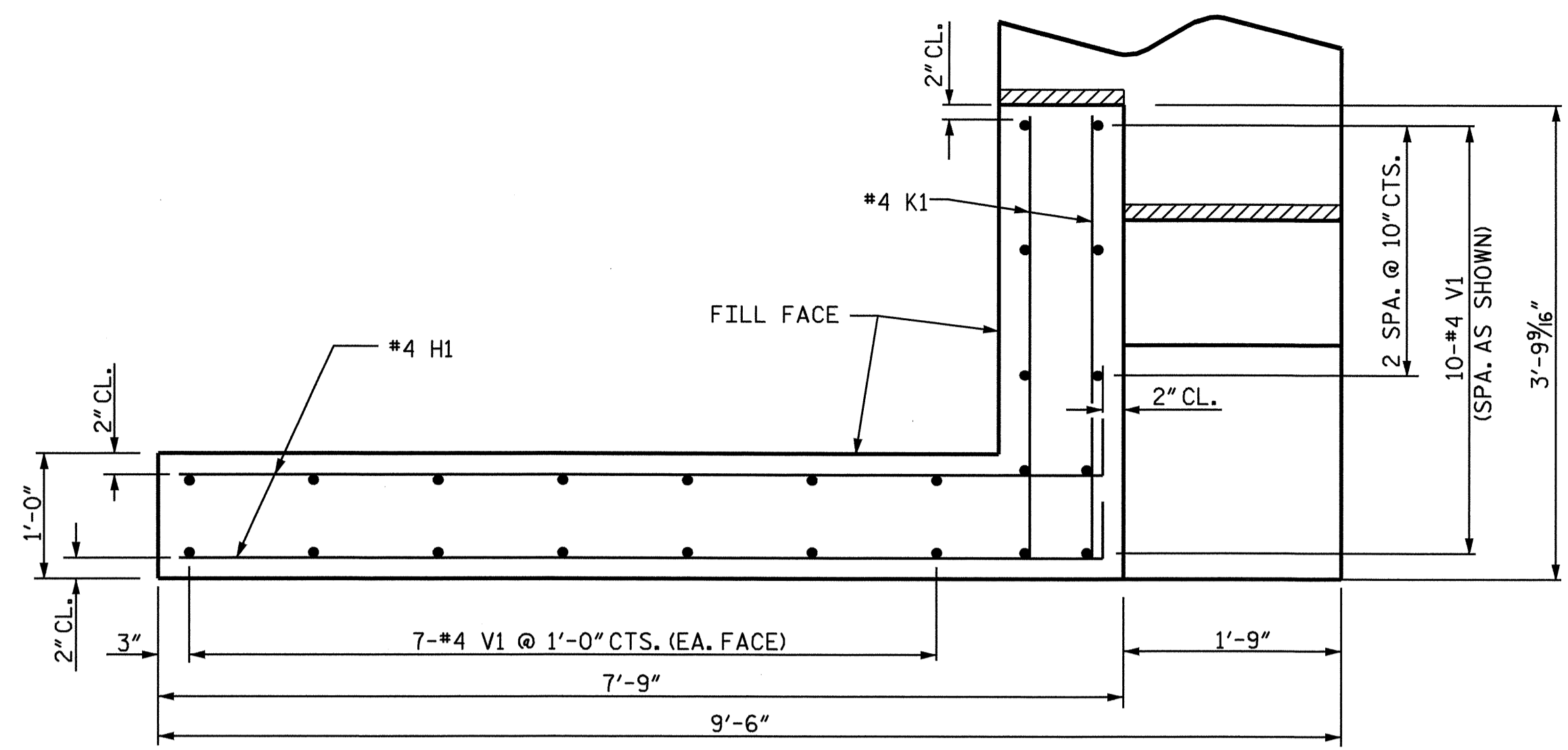
SHEET 1 OF 2
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			56

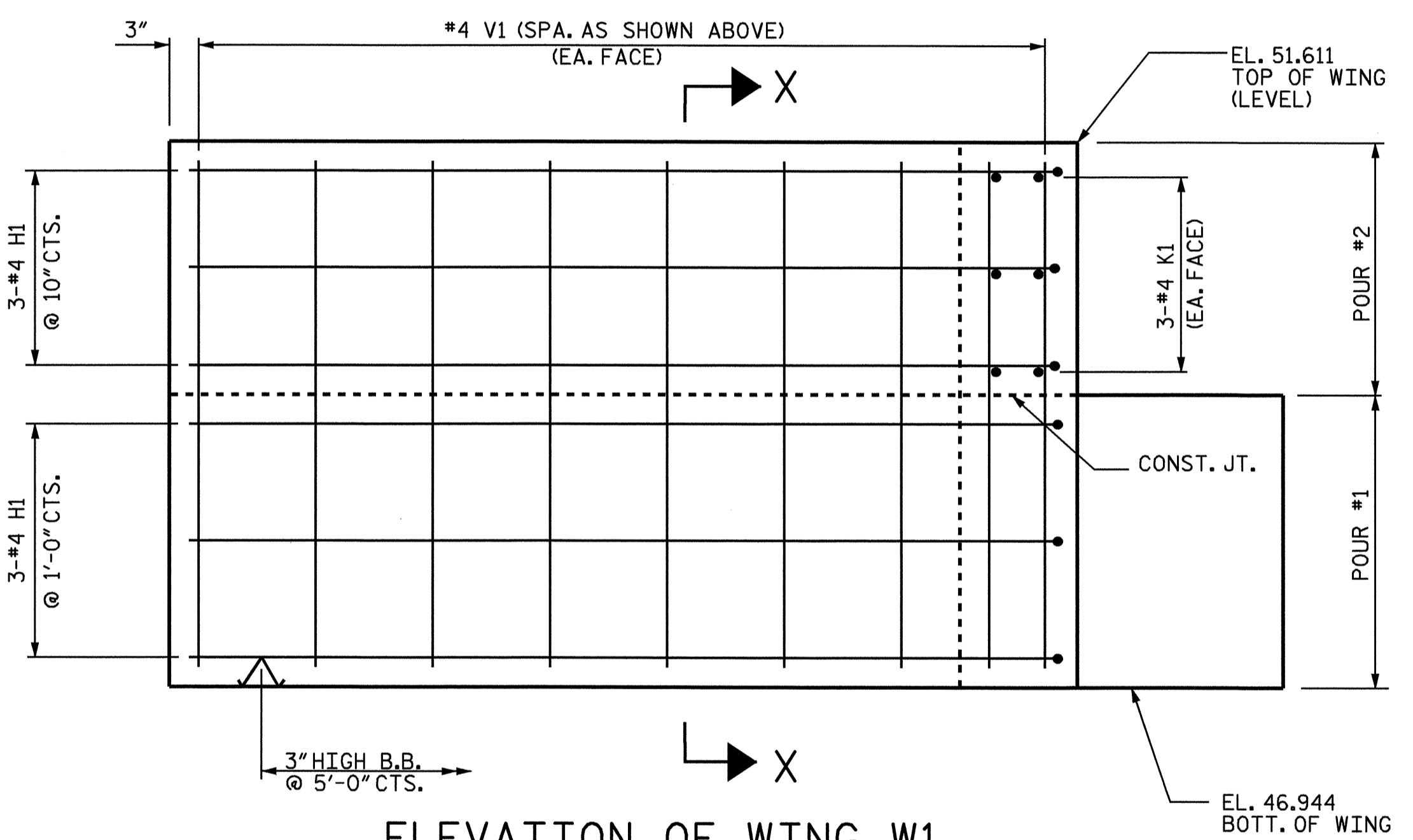
DRAWN BY: HARISH SHAH DATE: 4/17/08
 CHECKED BY: Q. T. NGUYEN DATE: 4-08



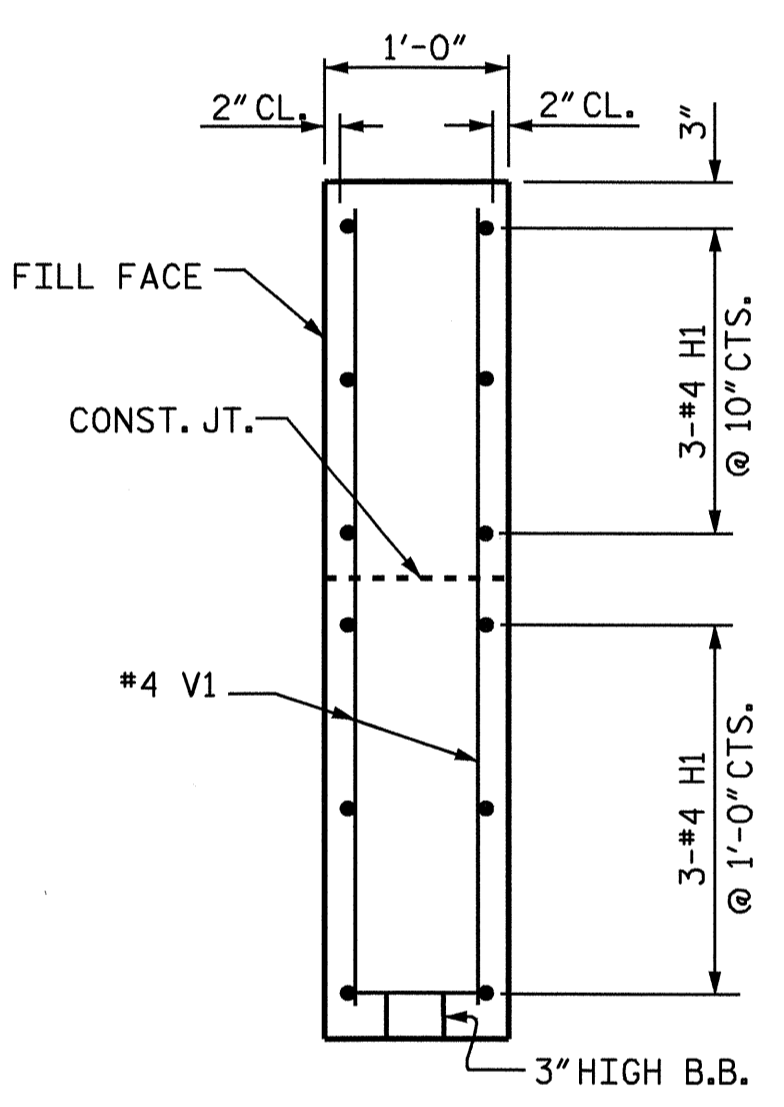
31-OCT-2008 13:49
 R:\structures\b3830\final plans\str. 1\b3830_sd.ebl.dgn
 sdombrowski



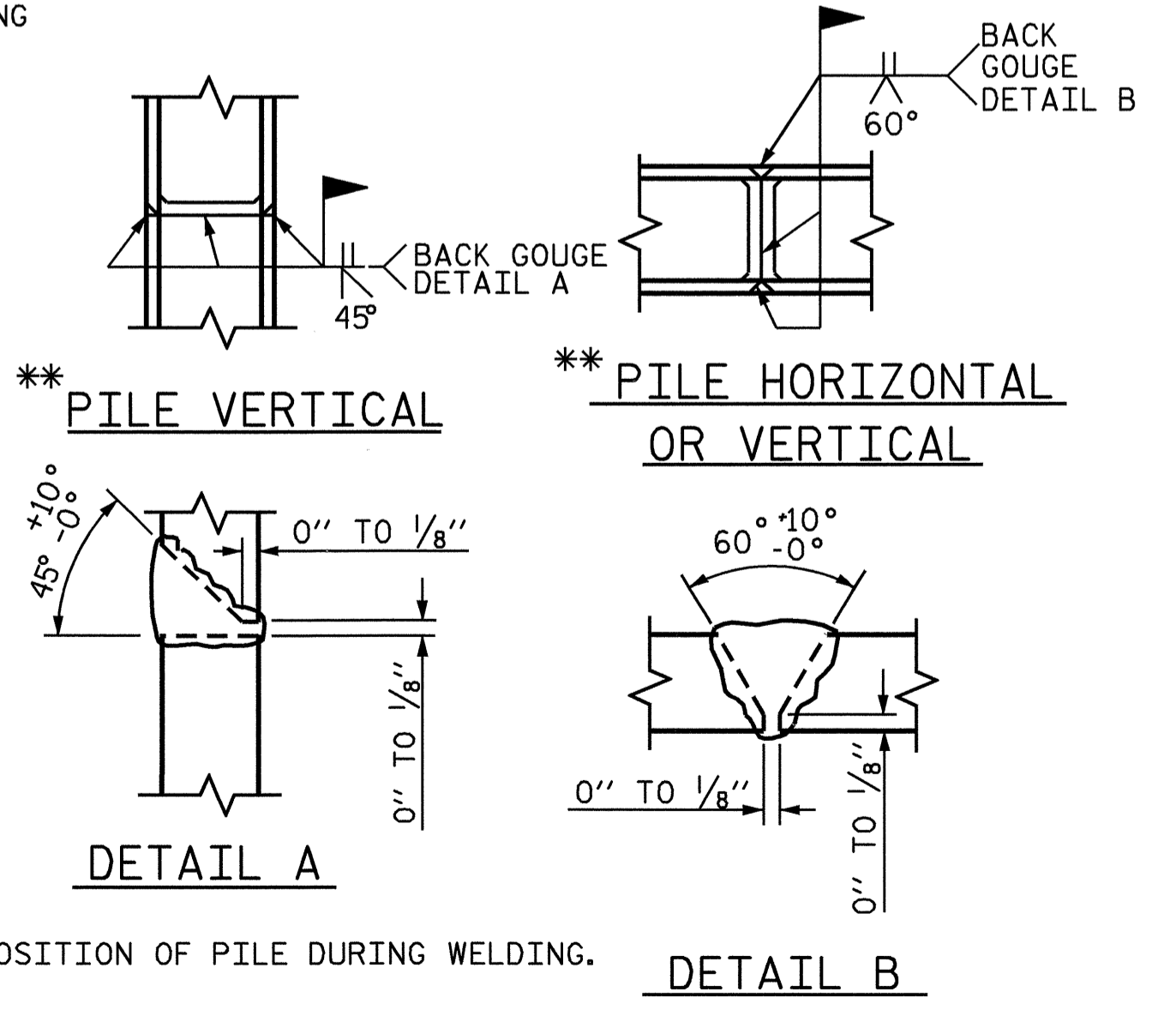
PLAN OF WING W1



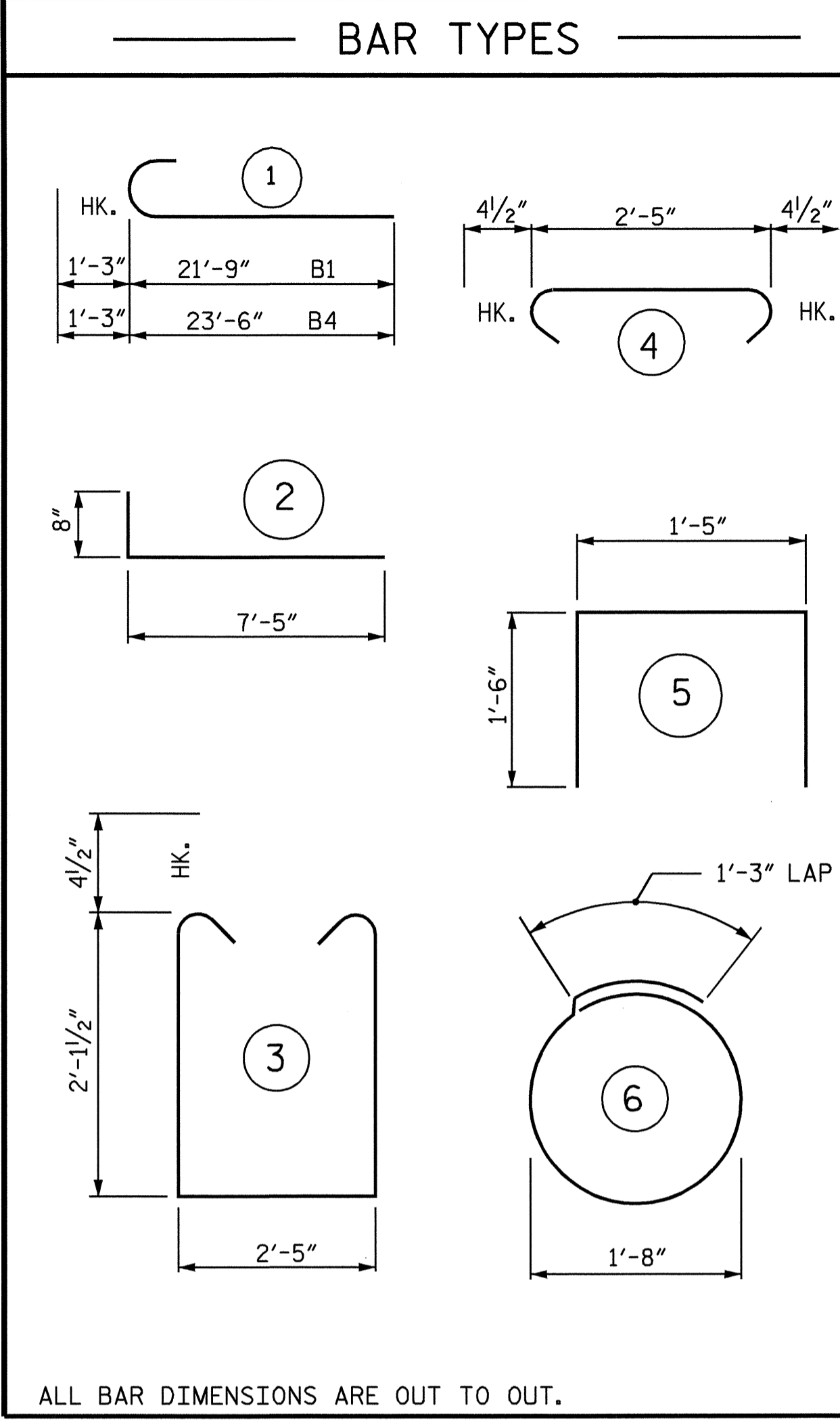
ELEVATION OF WING W1



SECTION X-X



PILE SPLICE DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT.

TOTAL BILL OF MATERIAL	
REINFORCING STEEL	2153 LBS.
CLASS A CONCRETE	13.9 C.Y.
HP 12 X 53 STEEL PILES NO. 8	640 LIN. FT.
PILE REDRIVES	4 EA.

BILL OF MATERIAL

END BENT 1 (STAGE I)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	23'-0"	626
B2	6	#4	STR	23'-3"	93
B3	6	#4	STR	2'-5"	10
D1	12	#6	STR	1'-6"	27
H1	12	#4	2	8'-1"	65
K1	6	#4	STR	3'-5"	14
S1	20	#4	3	7'-5"	99
S2	20	#4	4	3'-2"	42
S3	8	#4	6	6'-6"	35
U1	2	#4	5	4'-5"	6
V1	24	#4	STR	4'-4"	69

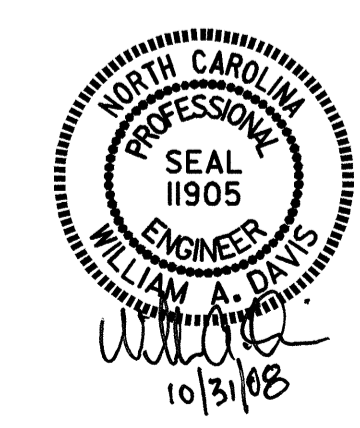
REINFORCING STEEL = 1086 LBS.
 CLASS A CONCRETE
 POUR #1: CAP & LOWER WING 6.0 C.Y.
 POUR #2: UPPER WING 0.8 C.Y.
 POUR #3: LATERAL GUIDE 0.1 C.Y.
 TOTAL CLASS A CONCRETE 6.9 C.Y.
 HP 12 X 53 STEEL PILES
 NO. 4 320 LIN. FT.
 PILE REDRIVES 2 EA.

END BENT 1 (STAGE II)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B3	6	#4	STR	2'-5"	10
B4	8	#9	1	24'-9"	673
B5	6	#4	STR	23'-6"	94
D1	14	#6	STR	1'-6"	32
K2	6	#4	STR	4'-2"	17
S1	24	#4	3	7'-5"	119
S2	24	#4	4	3'-2"	51
S3	8	#4	6	6'-6"	35
U1	2	#4	5	4'-5"	6
V2	10	#4	STR	4'-6"	30

REINFORCING STEEL = 1067 LBS.
 CLASS A CONCRETE
 POUR #1: CAP 6.3 C.Y.
 POUR #2: TOP OF WING 0.6 C.Y.
 POUR #3: LATERAL GUIDE 0.1 C.Y.
 TOTAL CLASS A CONCRETE 7.0 C.Y.
 HP 12 X 53 STEEL PILES
 NO. 4 320 LIN. FT.
 PILE REDRIVES 2 EA.

PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 20+66.00 -L-

SHEET 2 OF 2
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 1

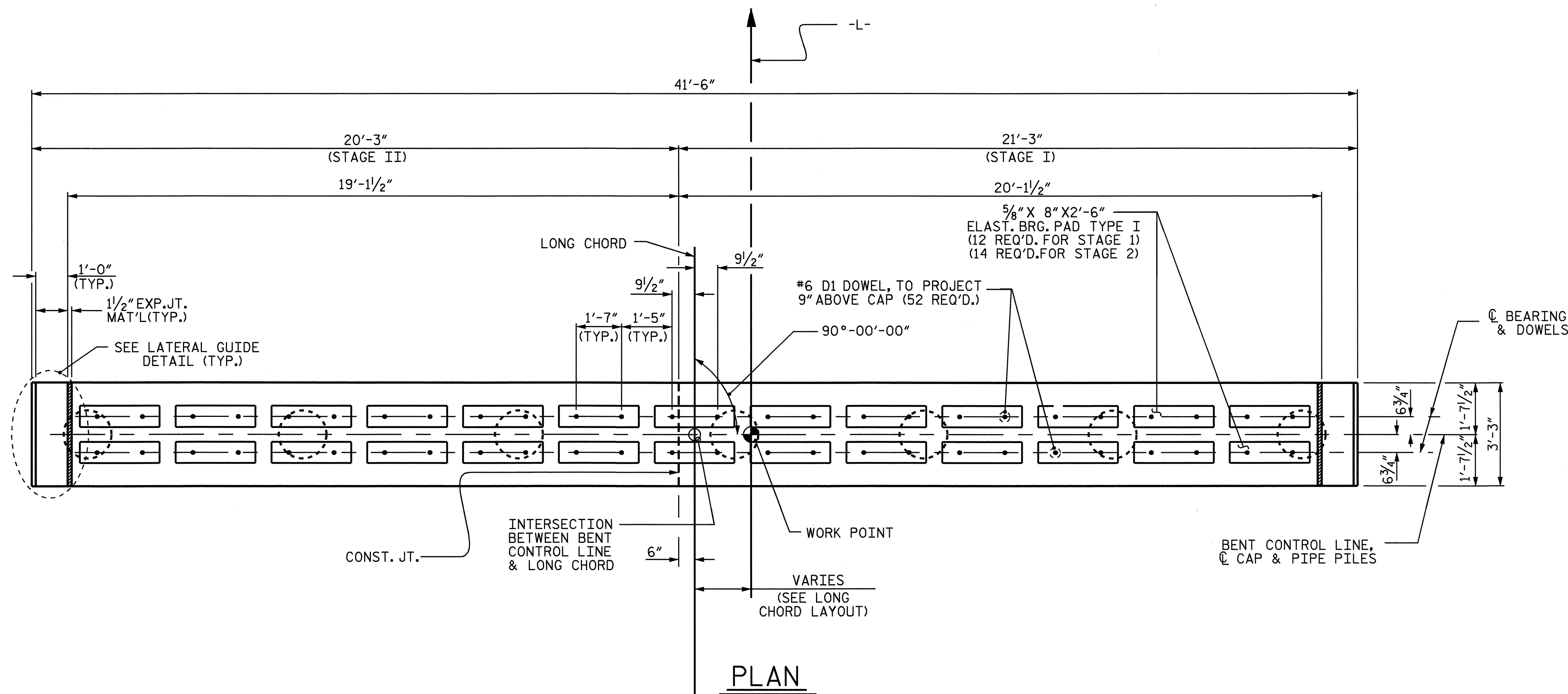


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			56

DRAWN BY: HARISH SHAH DATE: 04/18/08
 CHECKED BY: Q.T. NGUYEN DATE: 04-08

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 FOR REINFORCING STEEL IN PIPE PILES, SEE "18" STEEL PIPE PILE" SHEET.
 LATERAL GUIDES AT THE END OF THE CAP ARE NOT TO BE POURED UNTIL AFTER CORED SLAB UNITS ARE IN PLACE.

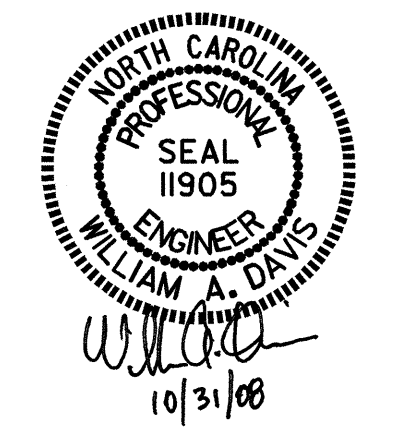
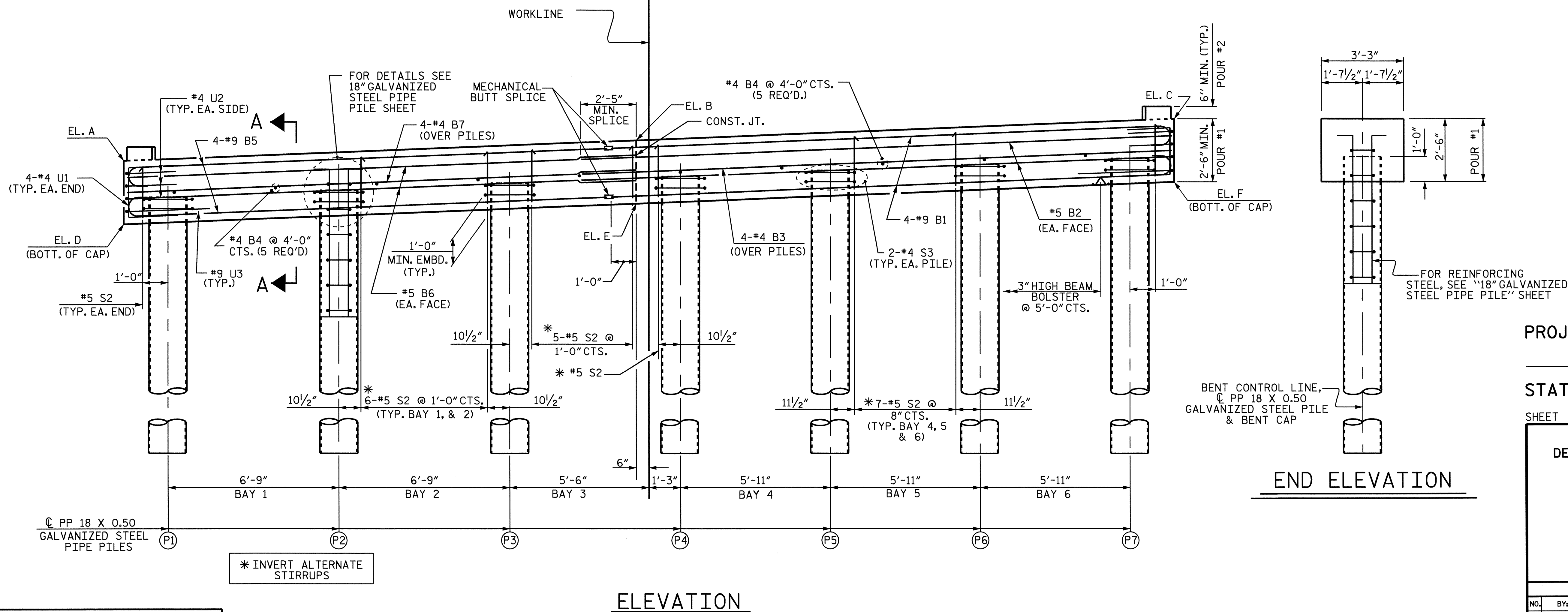


CAP ELEVATIONS

	BENT 1	BENT 2	BENT 3
EL. A	47.529	47.348	47.220
EL. B	48.337	48.158	48.031
EL. C	49.185	49.008	48.883
EL. D	45.029	44.848	44.720
EL. E	45.837	45.658	45.531
EL. F	46.685	46.508	46.383

ELEVATIONS @ TOP OF PILES

	BENT 1	BENT 2	BENT 3
P1	46.129	45.948	45.820
P2	46.398	46.218	46.091
P3	46.667	46.488	46.361
P4	46.937	46.758	46.632
P5	47.173	46.995	46.869
P6	47.409	47.231	47.106
P7	47.645	47.468	47.343



PROJECT NO. B-3830
 COLUMBUS COUNTY
 STATION: 20+66.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE

BENTS

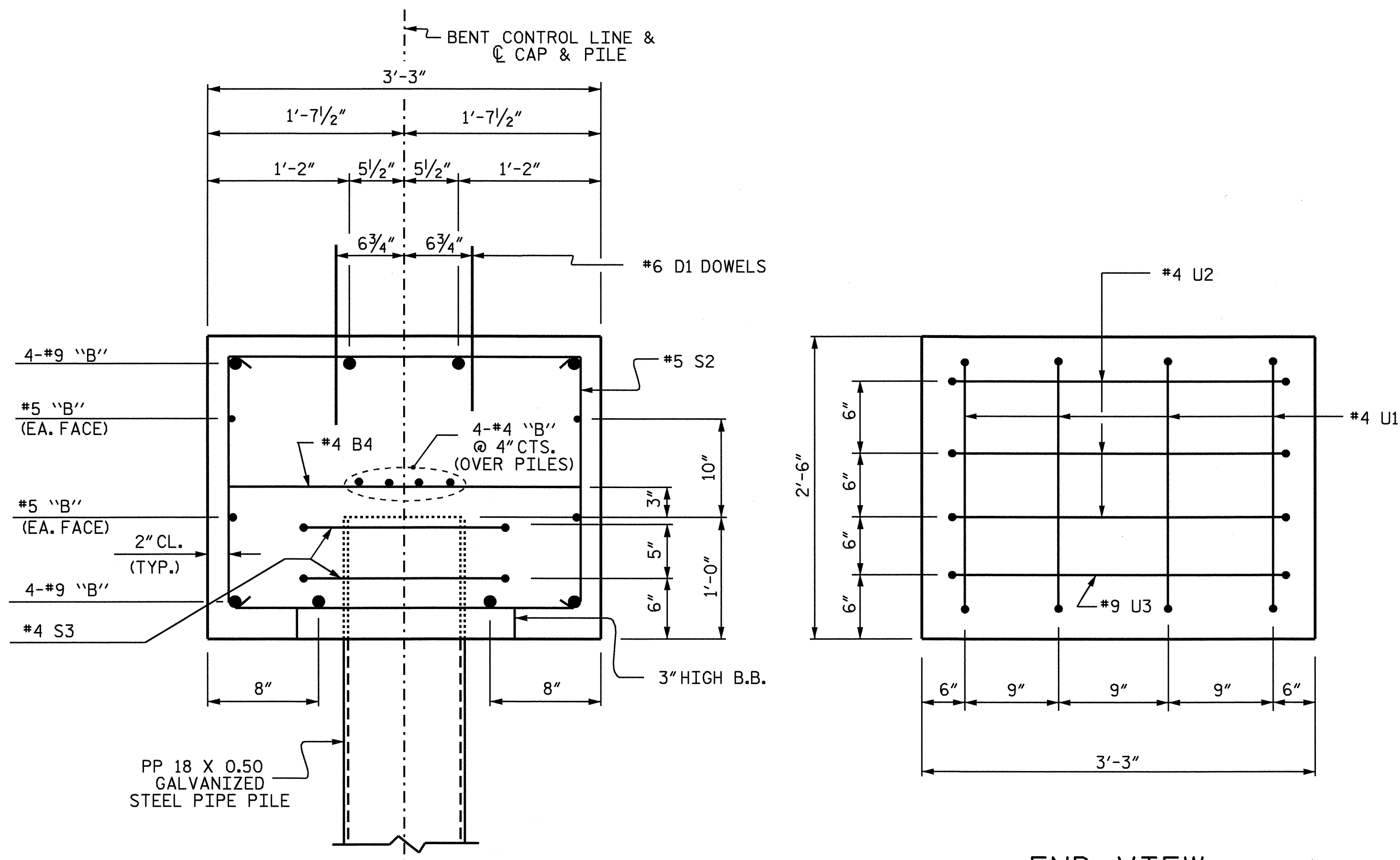
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS
2			4			56

DRAWN BY: HARISH SHAH DATE: 03-08
 CHECKED BY: Q.T. NGUYEN DATE: 05-08

30-OCT-2008 12:09
 o:\structures\B3830\final plans\str. 1\B-3830_sd.bent1.dgn
 qtnguyen

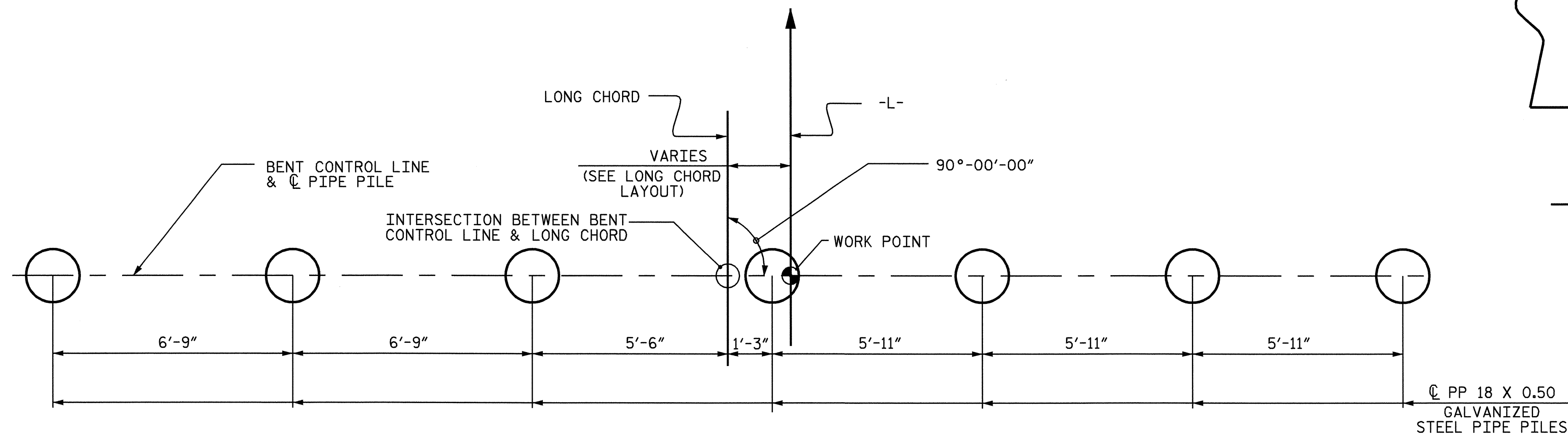
STR. #1

NC006



SECTION A-A

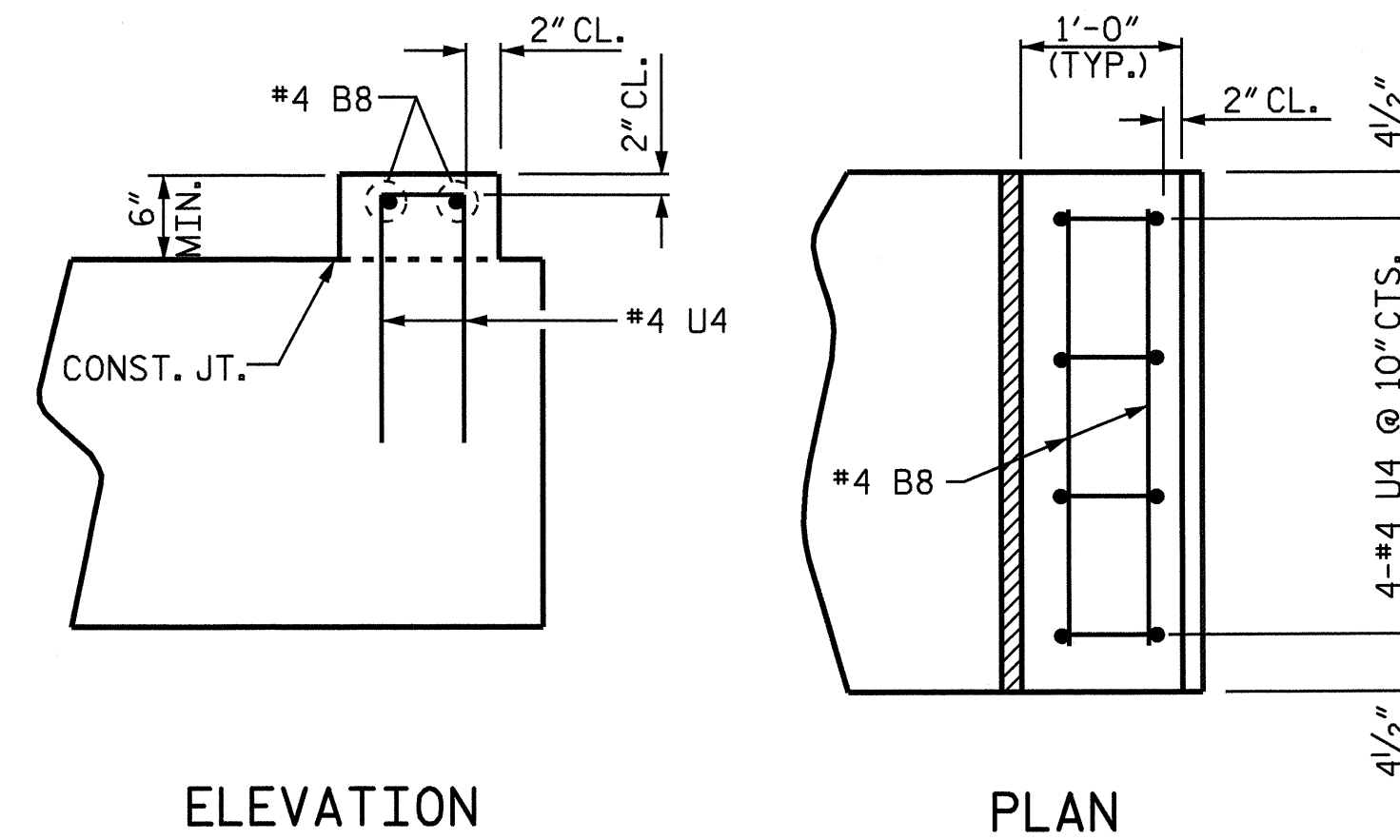
END VIEW



PLAN OF STEEL PIPE PILES

BAR TYPES						BILL OF MATERIAL FOR ONE BENT (STAGE I)						BILL OF MATERIAL FOR ONE BENT (STAGE II)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	23'-3"	632	B5	8	#9	1	20'-3"	551	D1	26	#6	STR	1'-6"	59
B2	4	#5	STR	22'-1"	92	B6	4	#5	STR	20'-1"	84	S2	22	#5	2	8'-1"	185
B3	4	#4	STR	22'-1"	59	B7	4	#4	STR	20'-1"	54	S3	8	#4	4	8'-7"	46
B4	5	#4	STR	2'-11"	10	B8	2	#4	STR	2'-11"	4	U1	4	#4	3	5'-0"	13
B8	2	#4	STR	2'-11"	4							U2	3	#4	3	5'-9"	12
												U3	1	#9	3	10'-1"	34
												U4	4	#4	3	4'-0"	11
												U4	4	#4	3	4'-0"	11
REINFORCING STEEL = 1157 LBS.						REINFORCING STEEL = 1030 LBS.											
CLASS A CONCRETE						CLASS A CONCRETE											
POUR #1 CAP = 6.4 C.Y.						POUR #1 CAP = 6.1 C.Y.											
POUR #2 LATERAL GUIDE = 0.1 C.Y.						POUR #2 LATERAL GUIDE = 0.1 C.Y.											
TOTAL = 6.5 C.Y.						TOTAL = 6.2 C.Y.											
PP 18 X 0.50 GALVANIZED STEEL PIPE PILES						PP 18 X 0.50 GALVANIZED STEEL PIPE PILES											
NO. 4 (BENT 1 OR BENT 3) LIN. FT. 300						NO. 3 (BENT 1 OR BENT 3) LIN. FT. 225											
NO. 4 (BENT 2) LIN. FT. 320						NO. 3 (BENT 2) LIN. FT. 240											
PILE REDRIVES = 2 EA.						PILE REDRIVES = 2 EA.											

ALL BAR DIMENSIONS ARE OUT TO OUT.



ELEVATION

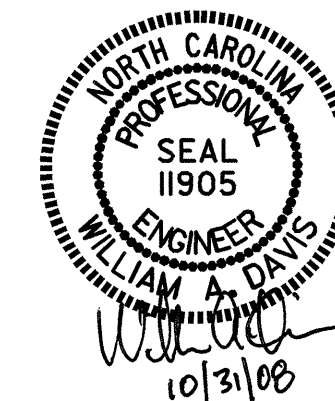
PLAN

LATERAL GUIDE DETAILS

PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 20+66.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENTS

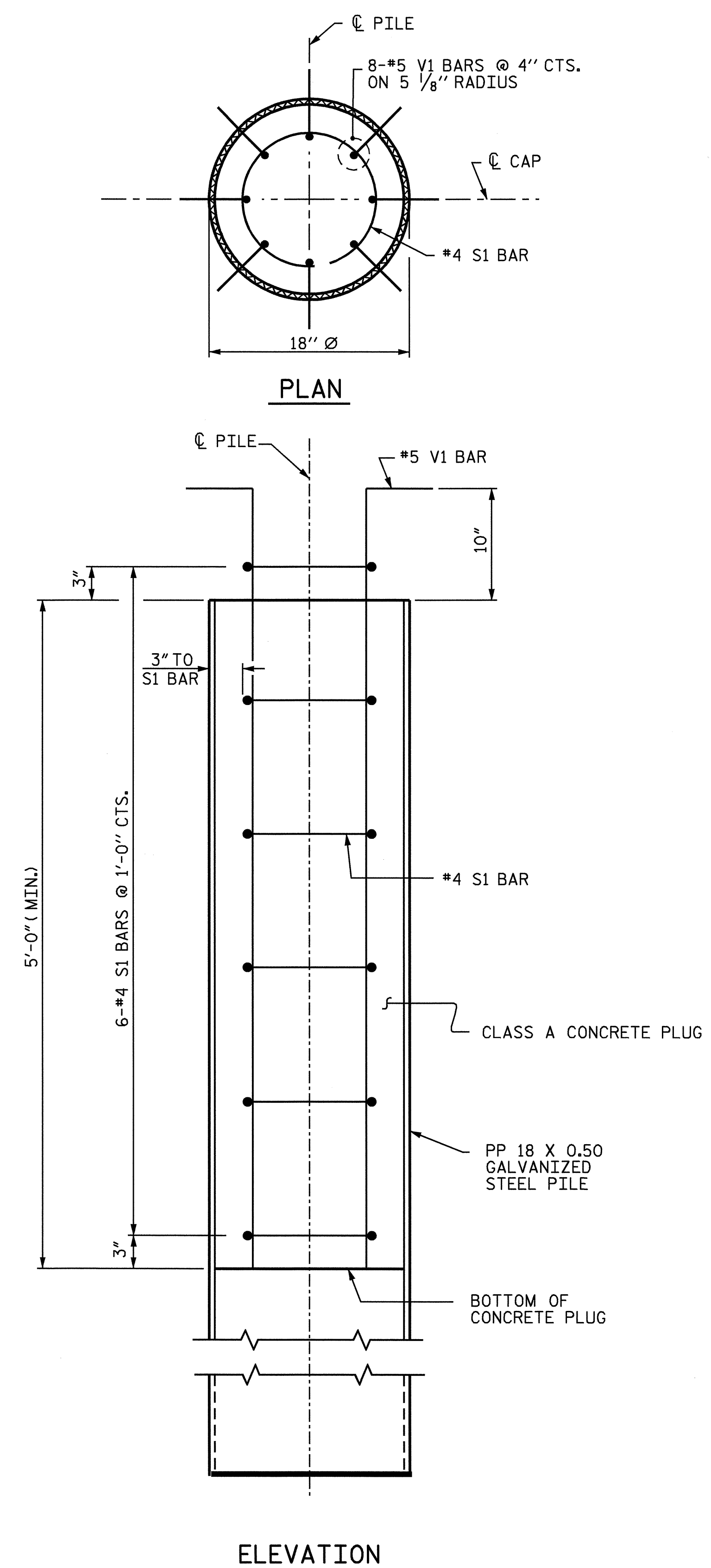


DRAWN BY: HARISH SHAH DATE: 04/04/08
 CHECKED BY: Q.T. NGUYEN DATE: 05-08

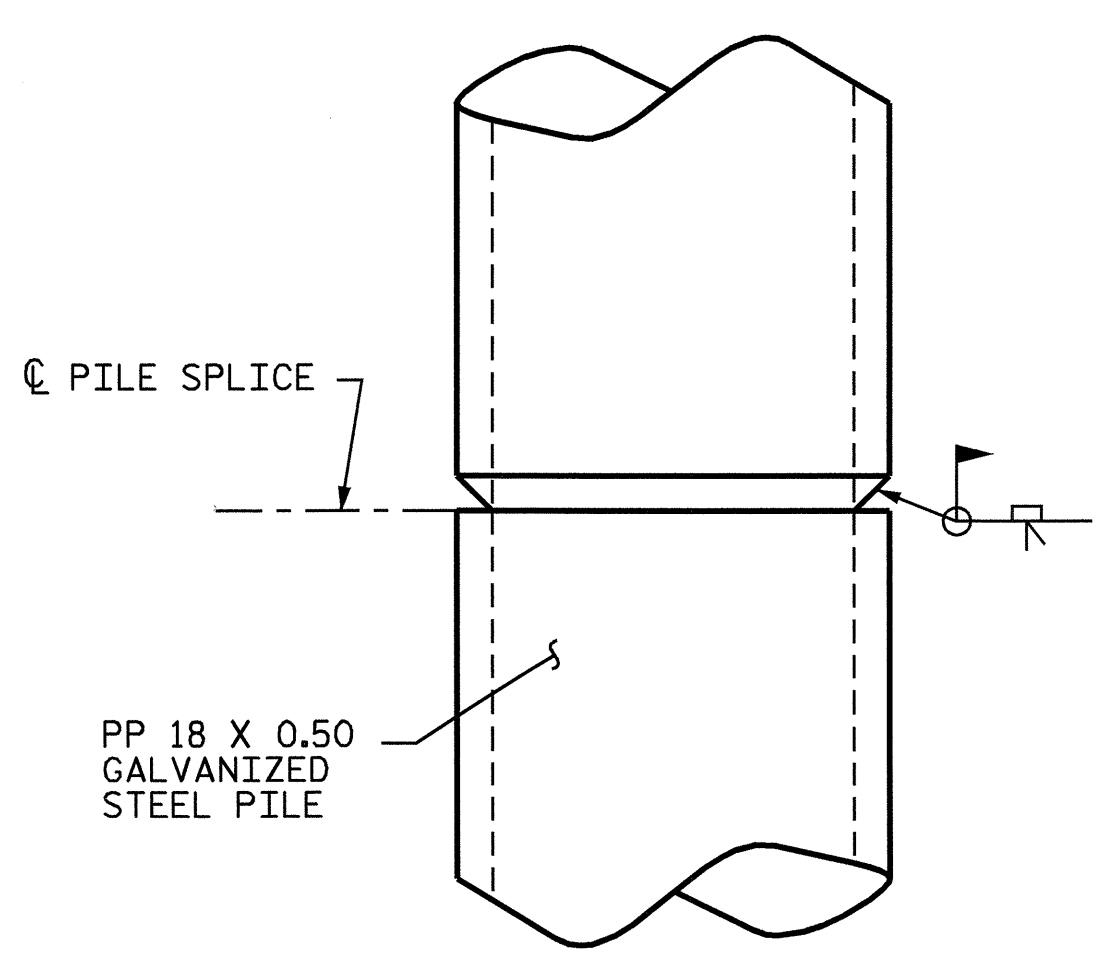
30-OCT-2008 09:40
 o:\structures\B3830\final plans\str. 1\B-3830_sd.bent1.dgn
 qtnguyen

REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	DATE:	S-22
1			3		TOTAL SHEETS
2			4		56

STR. #1



PP 18 X 0.50 GALVANIZED STEEL PILE
(OPEN END)



PIPE PILE SPLICE DETAIL

NOTES

PIPE PILES SHALL BE IN ACCORDANCE WITH SECTION 1084 OF THE STANDARD SPECIFICATIONS.

GALVANIZE THE TOP 30 FT. MINIMUM OF EACH STEEL PIPE PILE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

PIPE PILE PLATES, IF REQUIRED, SHALL BE IN ACCORDANCE WITH SECTION 450 OF THE STANDARD SPECIFICATIONS.

REMOVE AND REPLACE OR REPAIR TO THE SATISFACTION OF THE ENGINEER PILES THAT ARE DAMAGED, DEFORMED OR COLLAPSED DURING INSTALLATION OR DRIVING.

PILE SPLICES SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND AWS D1.1.

FOR OPEN END PIPE PILES, REMOVE ENOUGH SOIL AND WATER FROM INSIDE THE PILES TO CONSTRUCT THE CONCRETE PLUG WITHOUT FOULING THE CONCRETE.

FORM THE CONCRETE PLUG SUCH THAT THE REINFORCING STEEL OR CONCRETE DOES NOT MOVE AND THE CLEARANCE FROM THE REINFORCING STEEL TO THE INSIDE OF THE PILE IS MAINTAINED AFTER CONCRETE PLACEMENT. DO NOT PLACE CONCRETE IN THE BENT CAP UNTIL THE CONCRETE PLUG HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI.

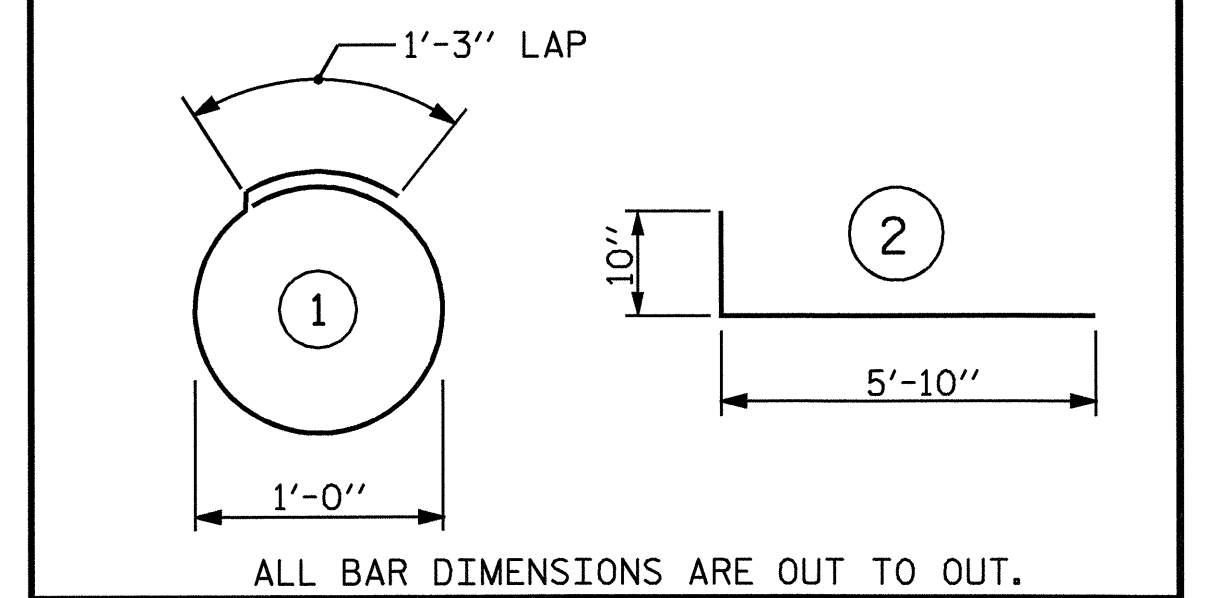
THE REINFORCING STEEL, CLASS A CONCRETE, AND GALVANIZING ARE CONSIDERED INCIDENTAL TO THE CONTRACT UNIT PRICE BID PER LINEAR FOOT FOR PP 18 X 0.50 GALVANIZED STEEL PILES.

BILL OF MATERIAL FOR ONE PP 18 X 0.50 GALVANIZED STEEL PILE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
S1	6	#4	1	4'-5"	18
V1	8	#5	2	6'-8"	56
REINFORCING STEEL =				74	lbs

CLASS A CONCRETE
5'-0" MINIMUM PLUG 0.3 CY

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. B-3830
COLUMBUS COUNTY
STATION: 20+66.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
18" GALVANIZED
STEEL PIPE PILE

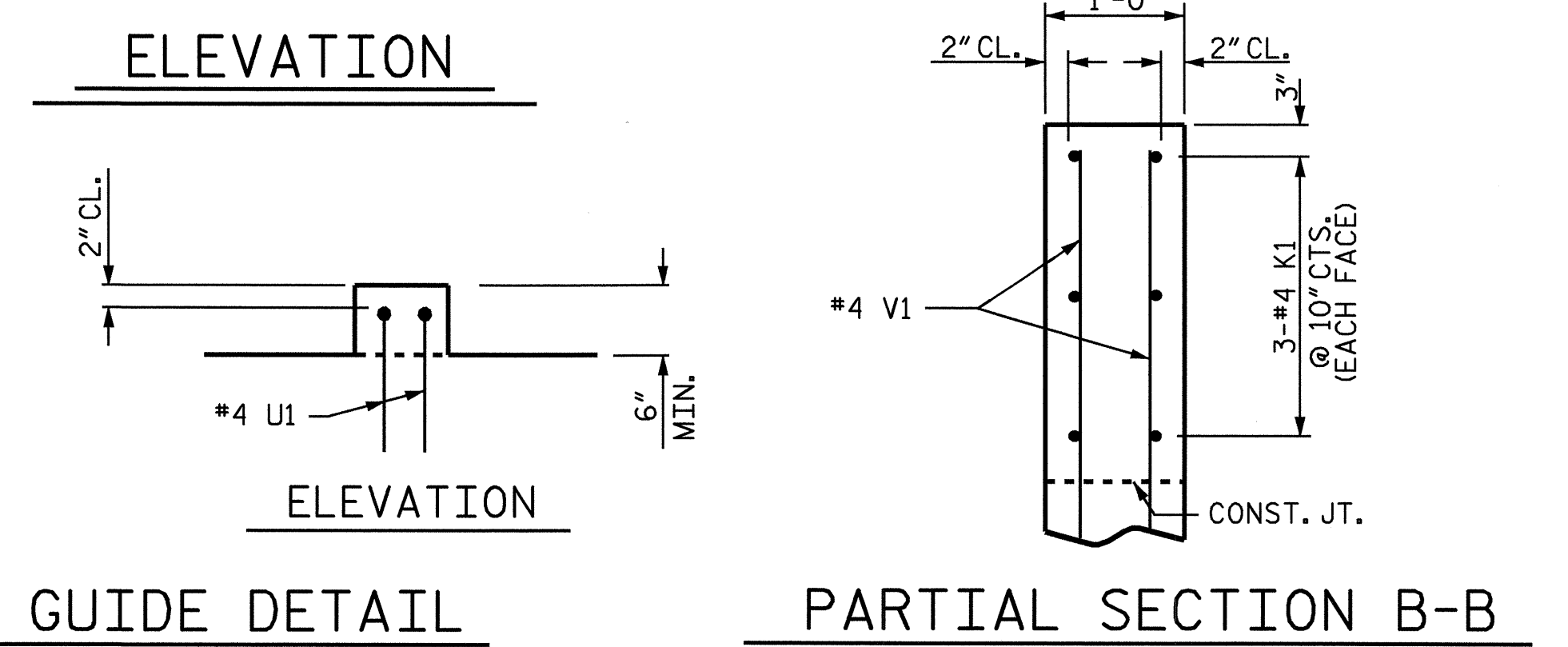
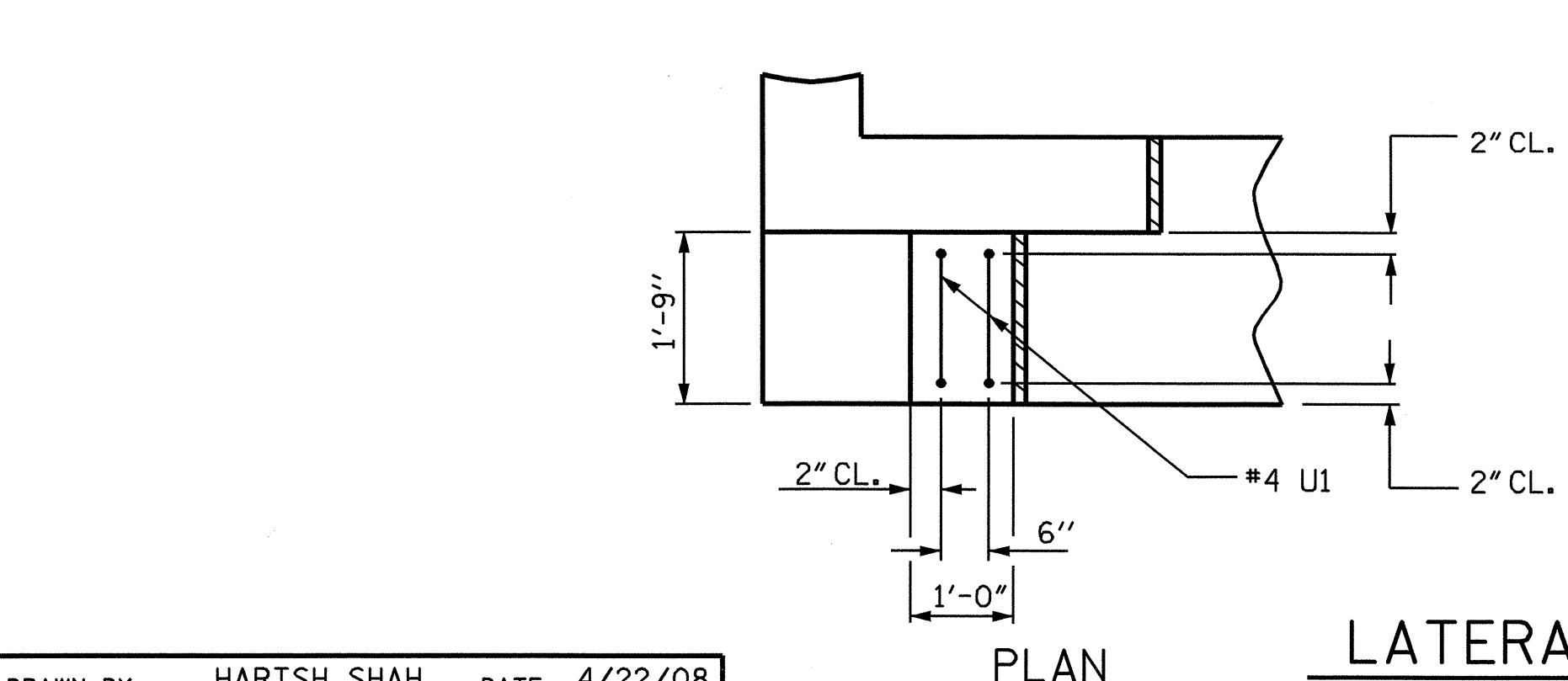
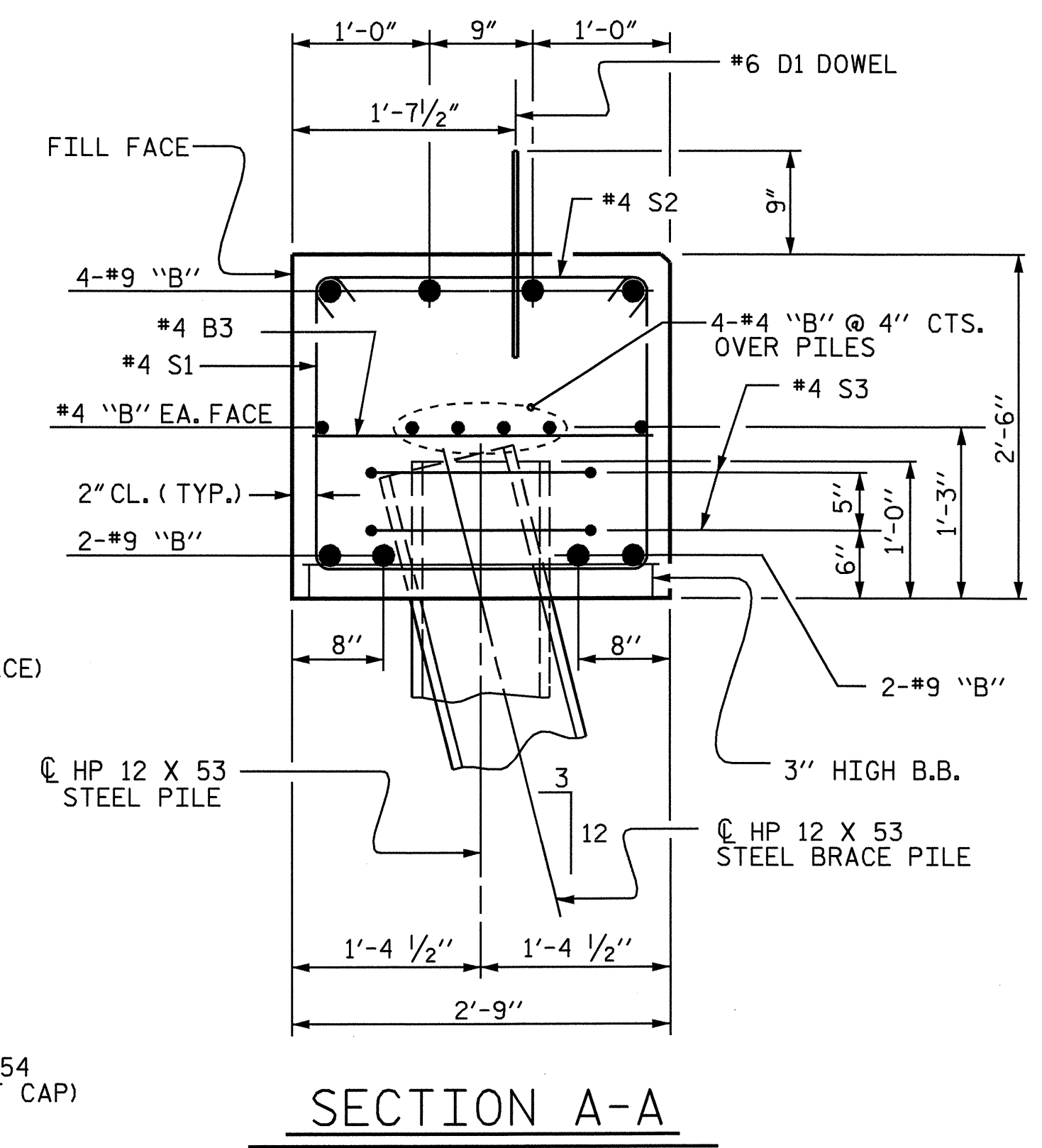
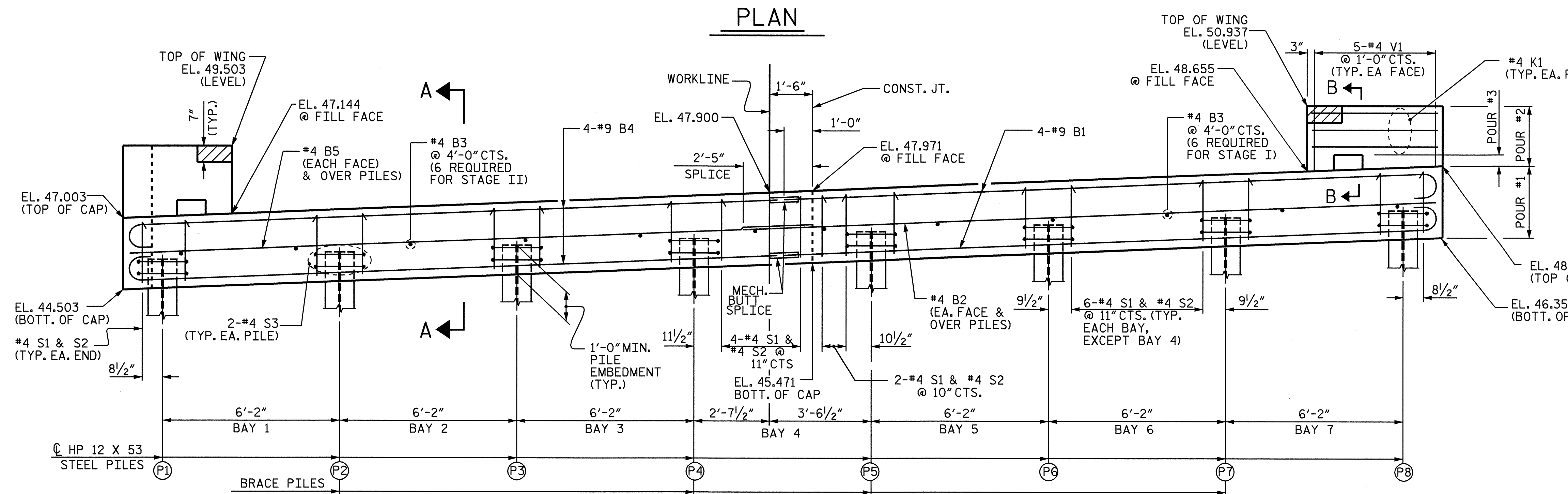
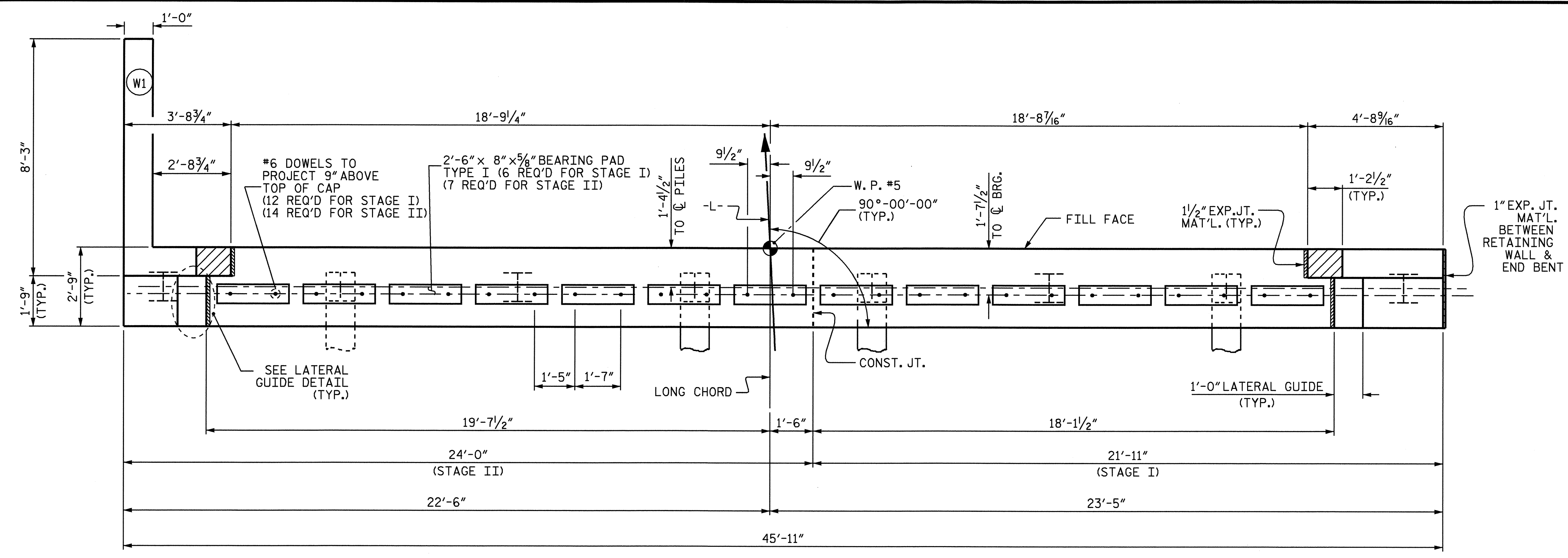


ASSEMBLED BY : HARISH SHAH	DATE : 04/04/08
CHECKED BY : Q.T. NGUYEN	DATE : 05-08
DRAWN BY : RWW 1/01	REV. 5/7/03 RWW/JTE
CHECKED BY : LES 1/01	REV. 10/1/05 LBG/TLA
	REV. 5/1/06R MAA/KMM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS
2			4			56

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
 FOR PILE SPlice DETAILS, SEE SHEET 2 OF 2.
 THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE
 POURED UNTIL AFTER CORED SLAB UNITS ARE IN PLACE.
 THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED
 AFTER THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.
 END BENT SHALL BE CAST WITH 1" EXPANSION JOINT MATERIAL
 AGAINST RETAINING WALL. THERE IS NO ADDITIONAL COMPENSATION
 FOR CONCRETE FILLING CORRUGATIONS OF SHEET PILES OR FOR
 ADJUSTMENT TO LENGTHS OF "B" BARS.
 "B" BARS MAY BE CUT TO FIT ACTUAL RETAINING WALL LOCATION
 AS APPROVED BY THE ENGINEER. BARS DO NOT HAVE TO BE LENGTHENED
 TO FIT CORRUGATIONS OF SHEET PILES.



TOP OF PILE ELEVATIONS	
PILE	ELEV.
1	45.549
2	45.798
3	46.047
4	46.295
5	46.544
6	46.792
7	47.041
8	47.290



PROJECT NO. B-3830
 COLUMBUS COUNTY
 STATION: 20+66.00 -L-

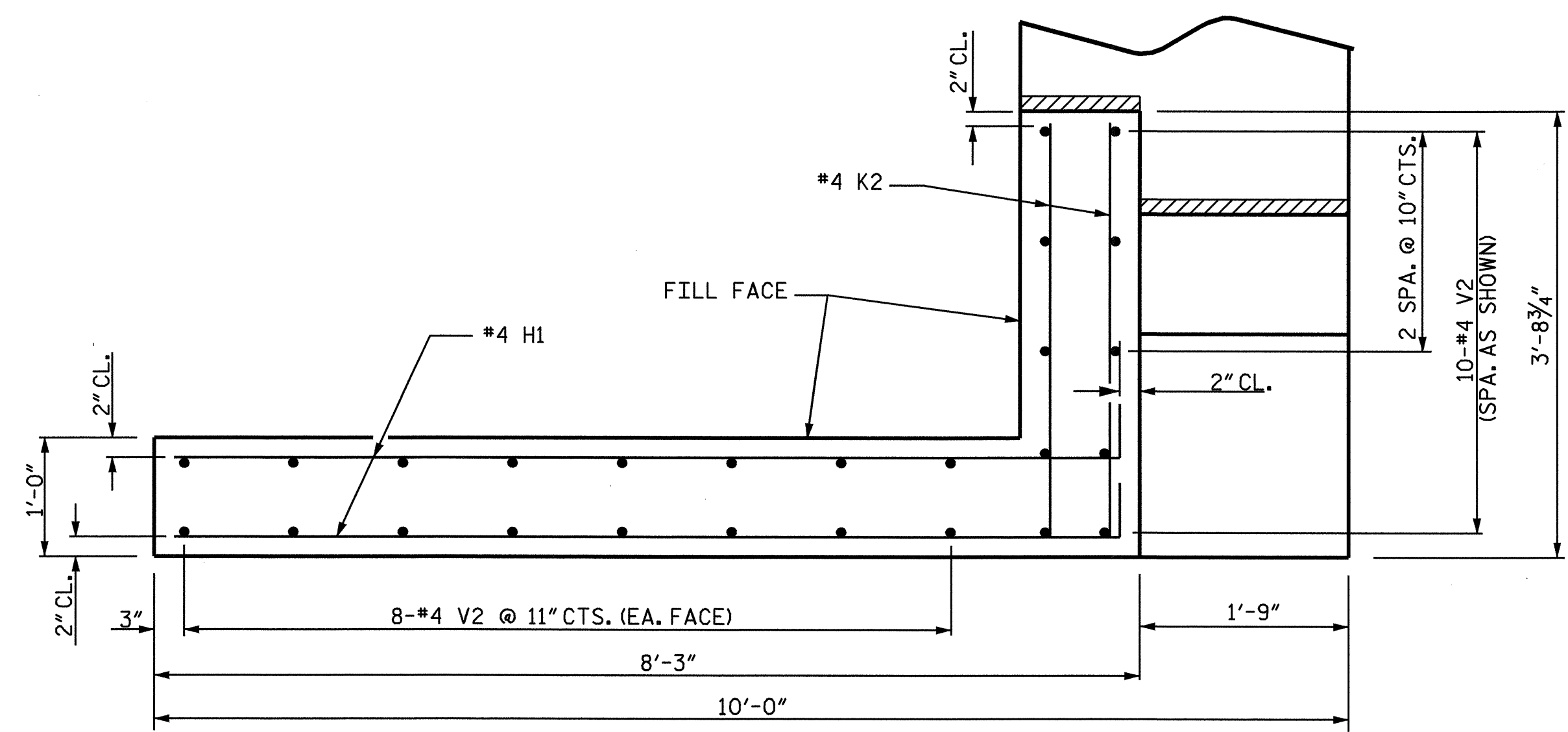
SHEET 1 OF 2

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

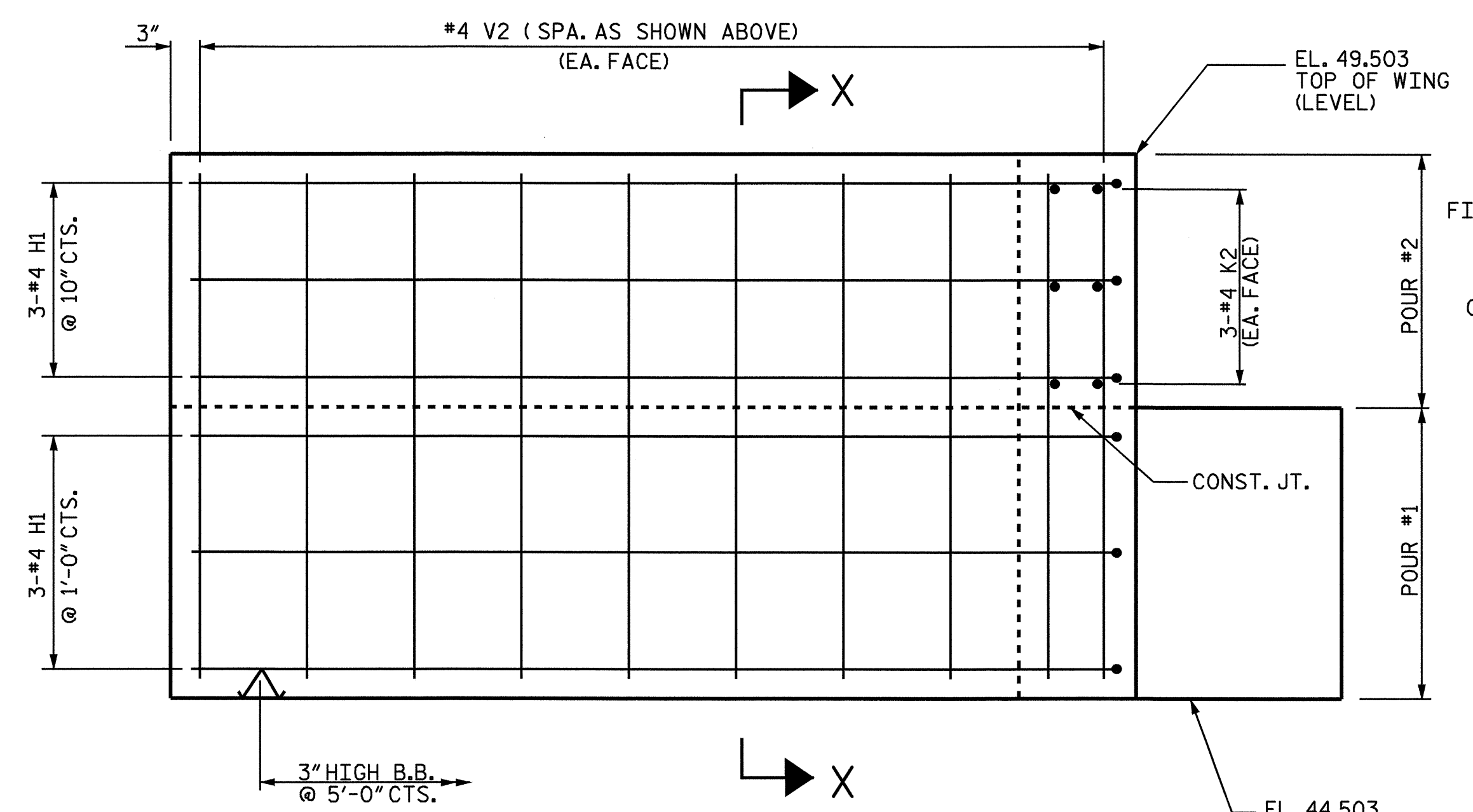
REVISIONS					SHEET NO. S-24
NO.	BY:	DATE:	NO.	DATE:	
1			3		TOTAL SHEETS 56
2			4		

DRAWN BY: HARISH SHAH DATE: 4/22/08
 CHECKED BY: Q.T. NGUYEN DATE: 4-08

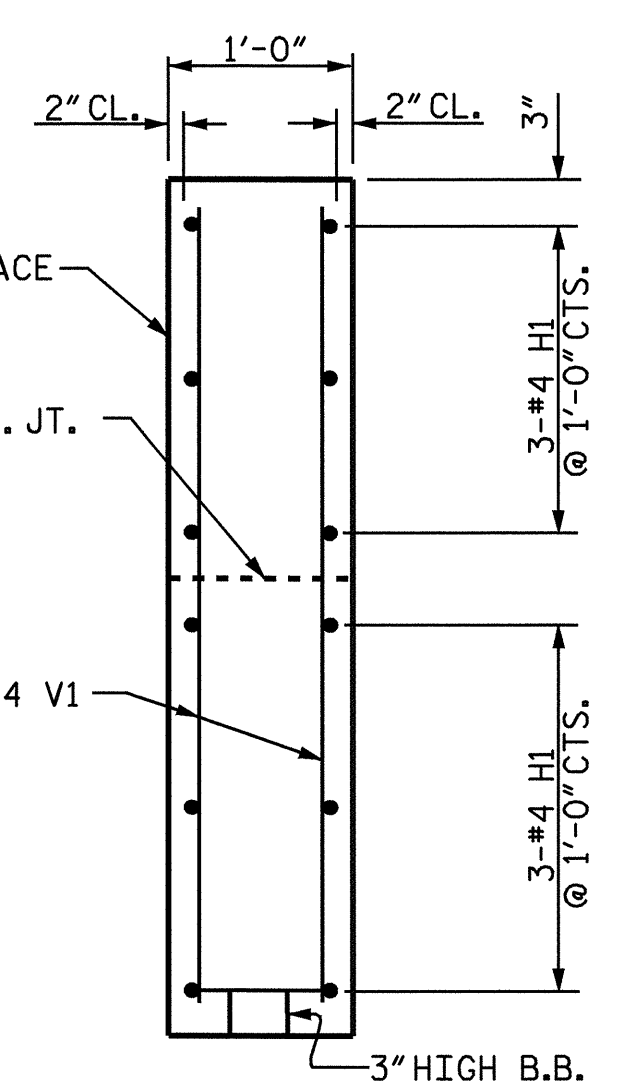
31-OCT-2008 13:48
 P:\structures\B3830\final plans\str. 1\B3830_sd_ebl.dgn
 sdbrowski



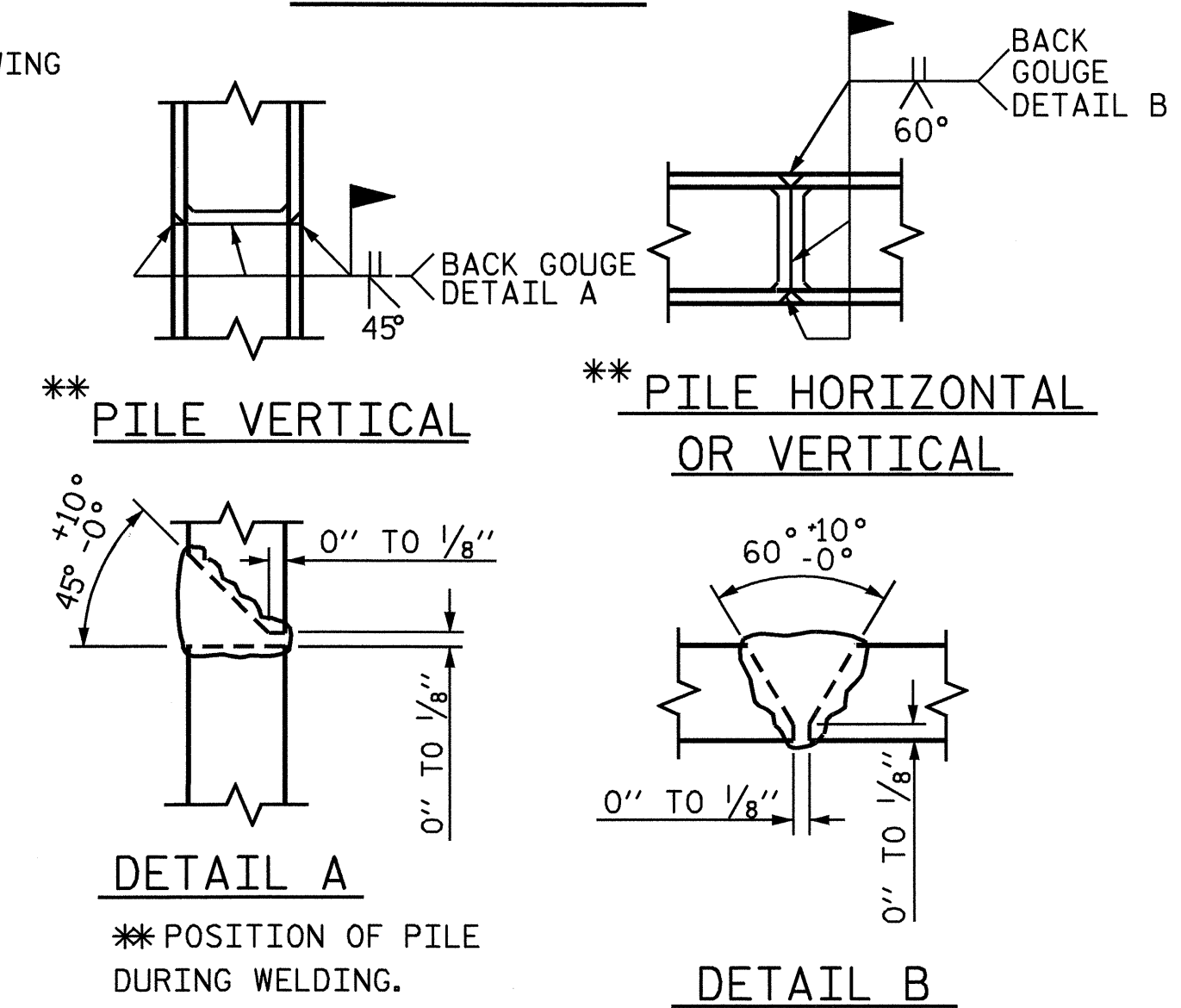
PLAN OF WING W1



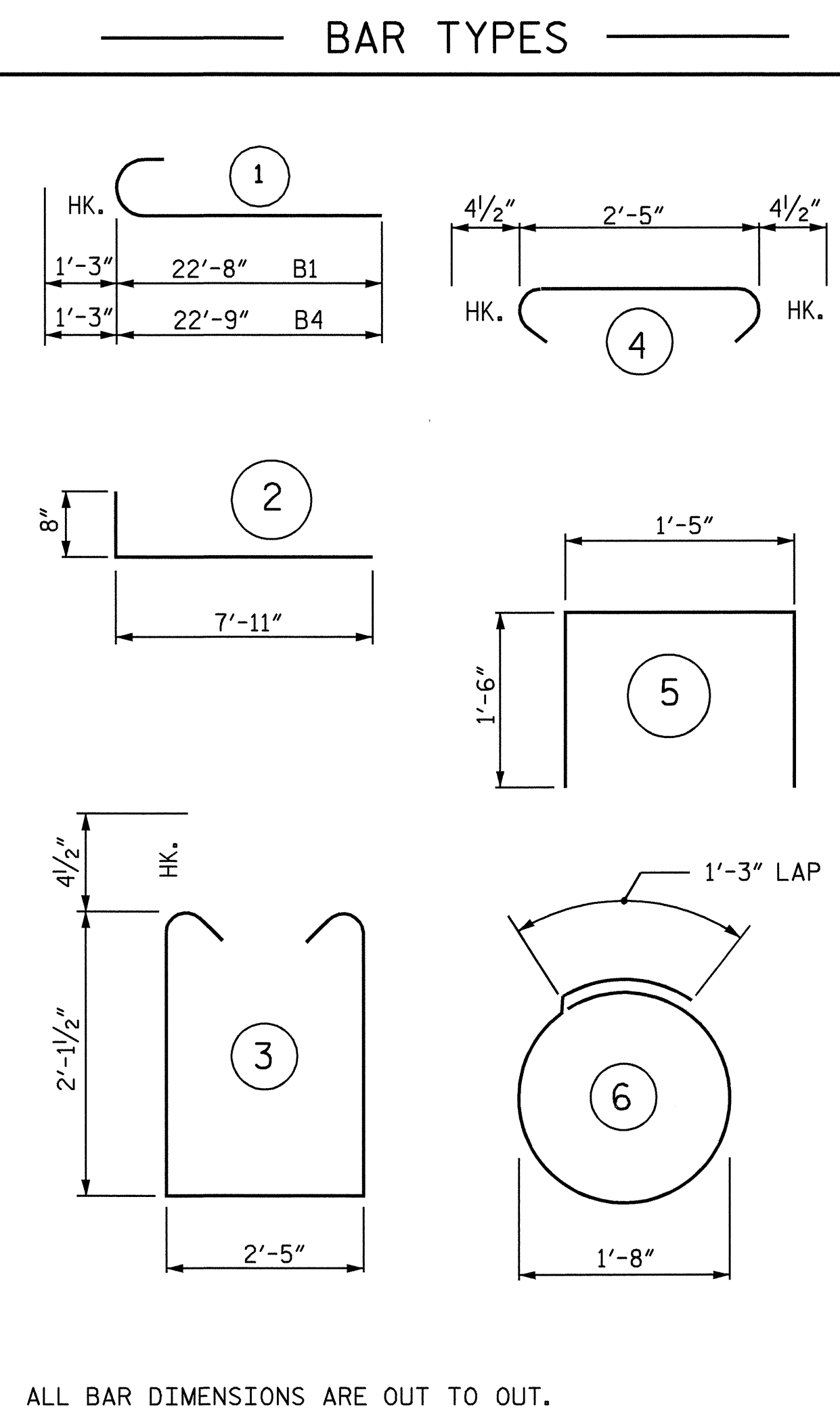
ELEVATION OF WING W1



SECTION X-X



PILE SPICE DETAILS



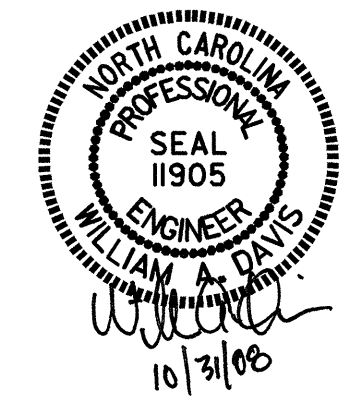
TOTAL BILL OF MATERIAL	
REINFORCING STEEL	2170 LBS.
CLASS A CONCRETE	13.4 C.Y.
HP 12 X 53 STEEL PILES NO. 8	640 LIN. FT.
PILE REDRIVES	4 EA.

BILL OF MATERIAL					
END BENT 2 (STAGE I)					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	23'-11"	651
B2	6	#4	STR	24'-4"	98
B3	6	#4	STR	2'-5"	10
D1	12	#6	STR	1'-6"	27
K1	6	#4	STR	4'-4"	17
S1	21	#4	3	7'-5"	104
S2	21	#4	4	3'-2"	44
S3	8	#4	6	6'-6"	35
U1	2	#4	5	4'-5"	6
V1	10	#4	STR	4'-2"	28
REINFORCING STEEL = 1020 LBS.					
CLASS A CONCRETE					
POUR #1: CAP 5.6 C.Y.					
POUR #2: UPPER WING 0.4 C.Y.					
POUR #3: LATERAL GUIDE 0.1 C.Y.					
TOTAL CLASS A CONCRETE 6.1 C.Y.					
HP 12 X 53 STEEL PILES NO. 4 320 LIN. FT.					
PILE REDRIVES 2 EA.					
END BENT 2 (STAGE II)					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B3	6	#4	STR	2'-5"	10
B4	8	#9	1	24'-0"	653
B5	6	#4	STR	22'-9"	91
D1	14	#6	STR	1'-6"	32
H1	12	#4	2	8'-7"	69
K2	6	#4	STR	3'-4"	13
S1	23	#4	3	7'-5"	114
S2	23	#4	4	3'-2"	49
S3	8	#4	6	6'-6"	35
U1	2	#4	5	4'-5"	6
V2	26	#4	STR	4'-6"	78
REINFORCING STEEL = 1150 LBS.					
CLASS A CONCRETE					
POUR #1: CAP & LOWER WING 6.5 C.Y.					
POUR #2: UPPER WING 0.7 C.Y.					
POUR #3: LATERAL GUIDE 0.1 C.Y.					
TOTAL CLASS A CONCRETE 7.3 C.Y.					
HP 12 X 53 STEEL PILES NO. 4 320 LIN. FT.					
PILE REDRIVES 2 EA.					

PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 20+66.00 -L-

SHEET 2 OF 2

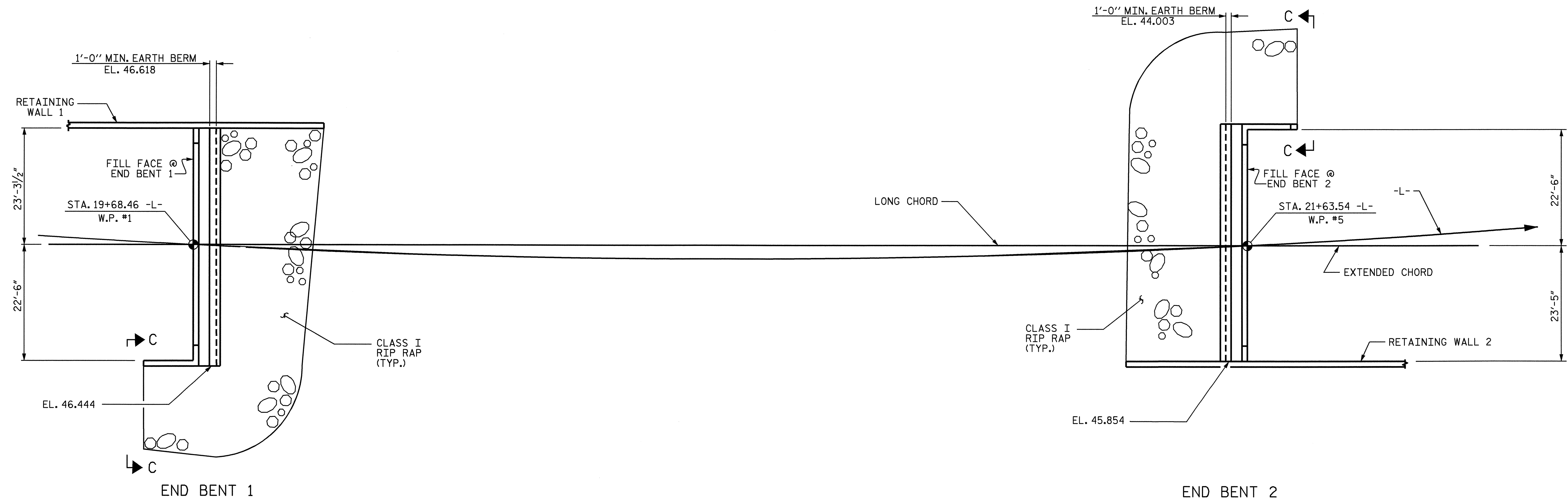
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2



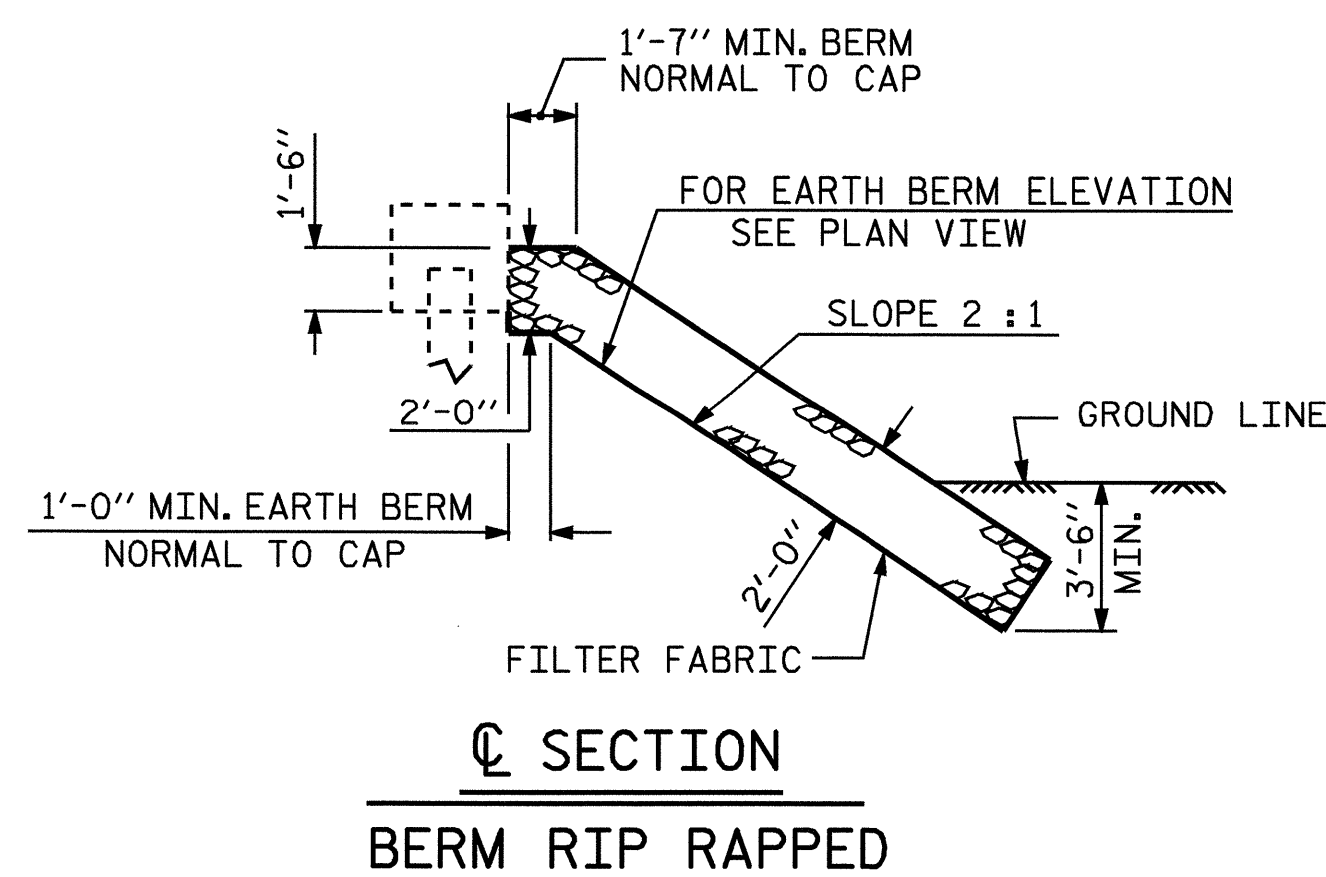
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25
1			3			TOTAL SHEETS 56
2			4			

DRAWN BY: HARISH SHAH DATE: 04/18/08
 CHECKED BY: Q.T. NGUYEN DATE: 04-08

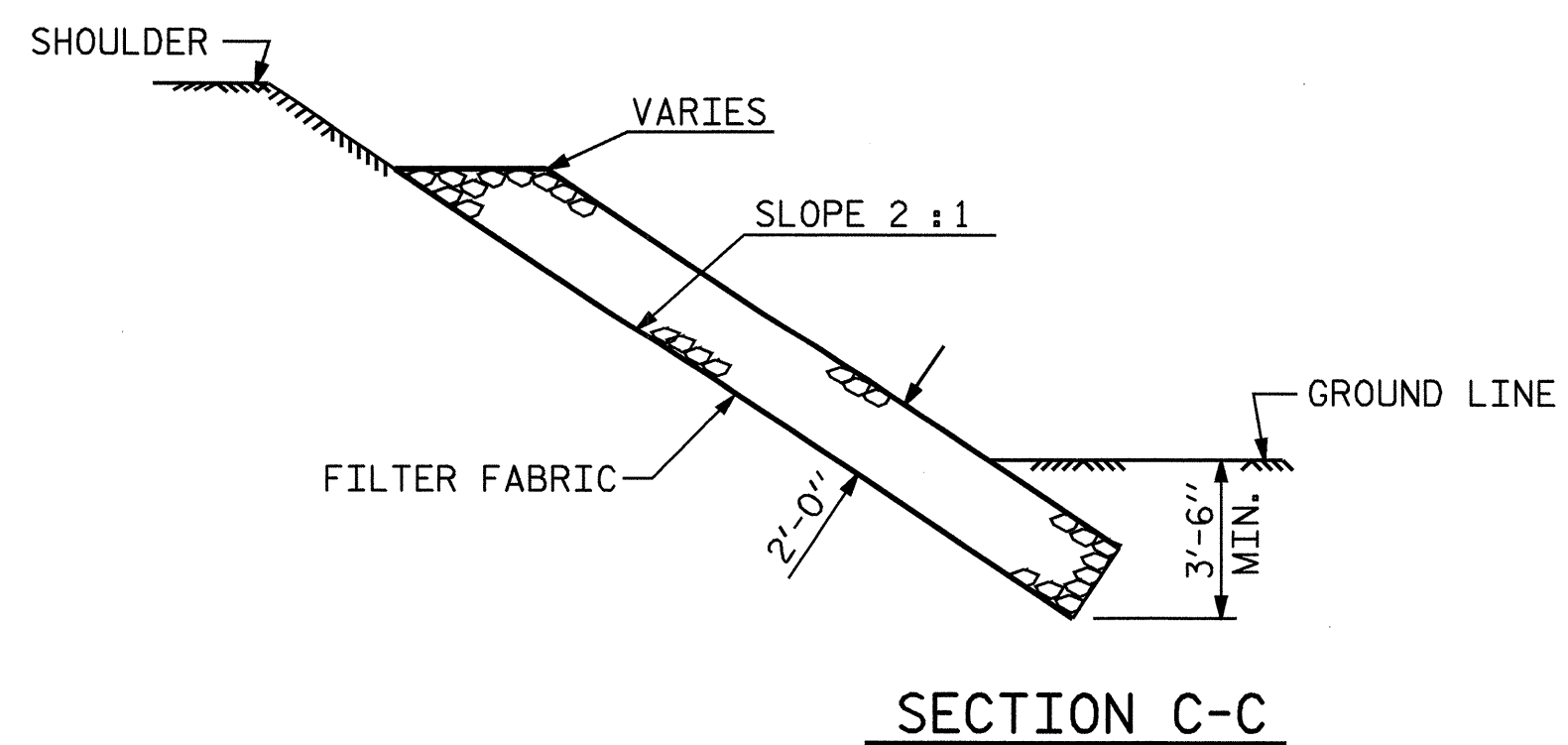
ESTIMATED QUANTITIES		
BRIDGE @ STA. 20+66.00 -L-	RIP RAP CLASS I	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	98	109
END BENT 2	95	105



PLAN

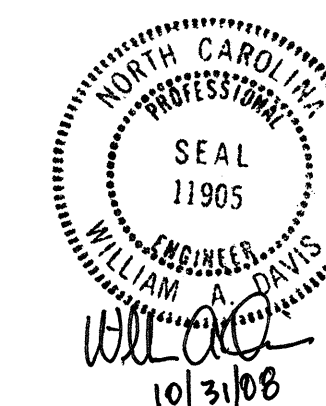


SECTION
BERM RIP RAPPED



SECTION C-C

PROJECT NO. B-3830
COLUMBUS COUNTY
STATION: 20+66.00 -L-



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

ASSEMBLED BY : QT NGUYEN	DATE : 2-08
CHECKED BY : A.R. CHESSON	DATE : 5-08
DRAWN BY : FCJ 2/88	REV. 8/16/99 RWW/LES
CHECKED BY : ARB 8/88	REV. 10/17/00 RWW/LES
	REV. 5/1/06 TLA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-26
1			3			TOTAL SHEETS
2			4			56

NOTES

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.

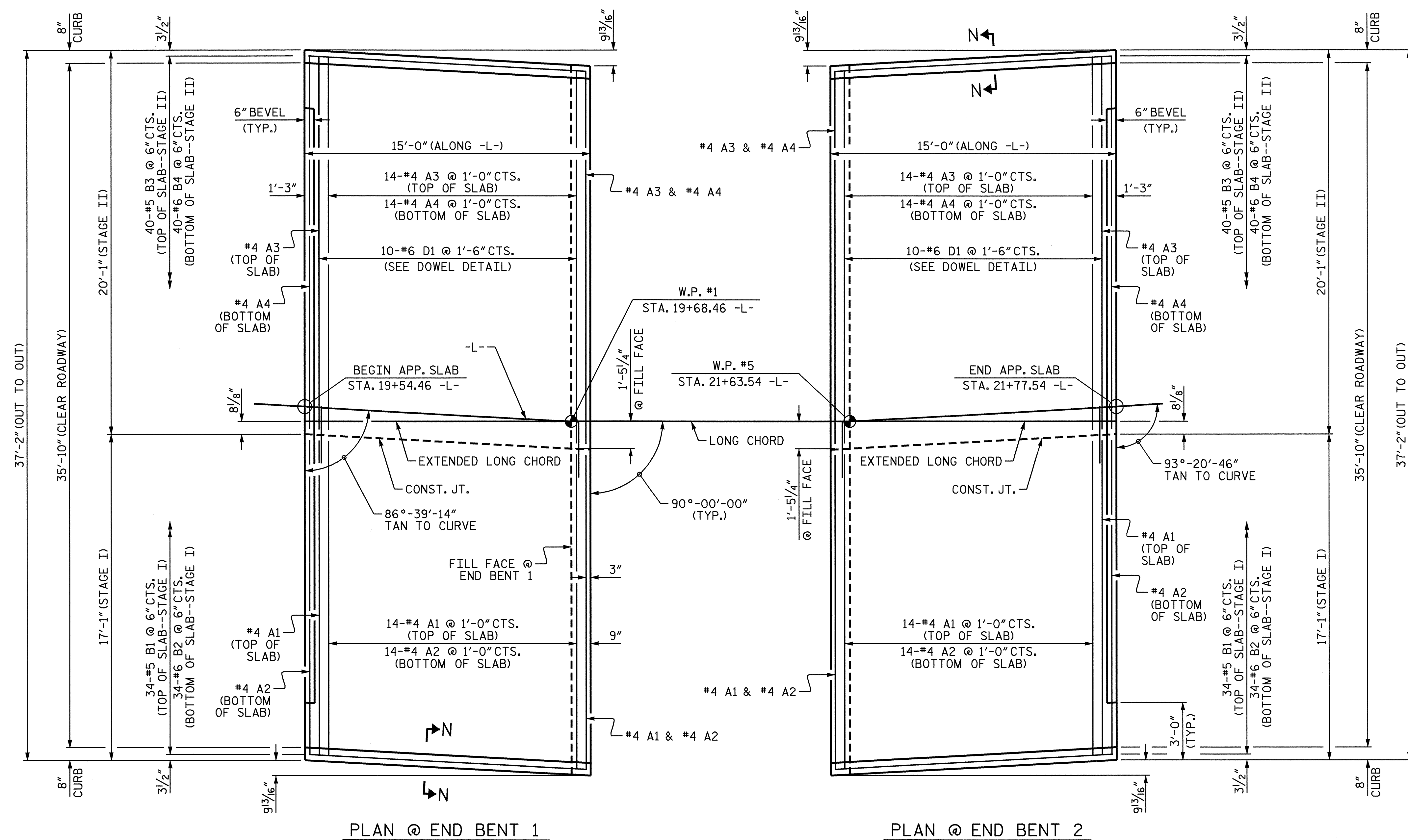
THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

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.

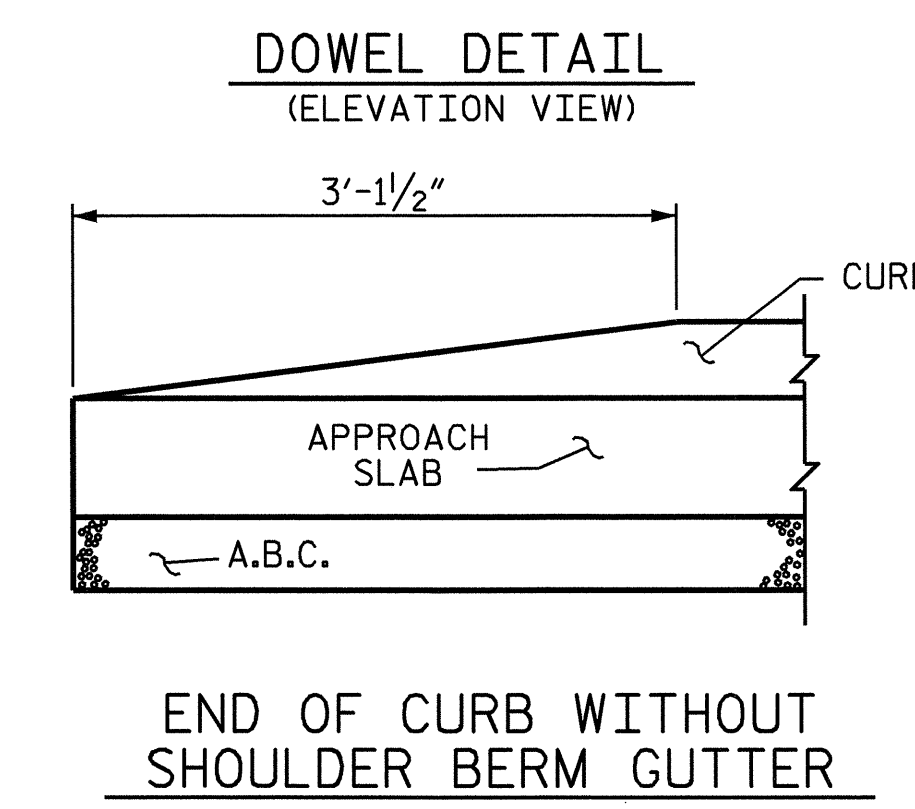
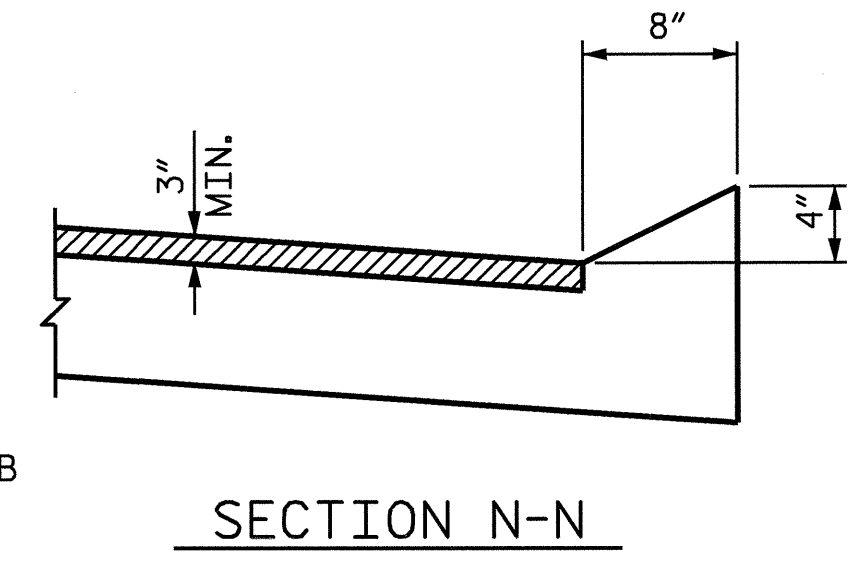
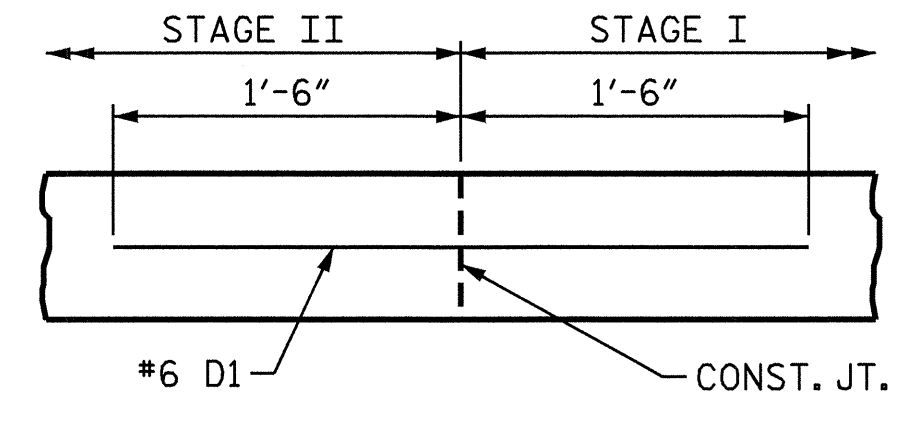
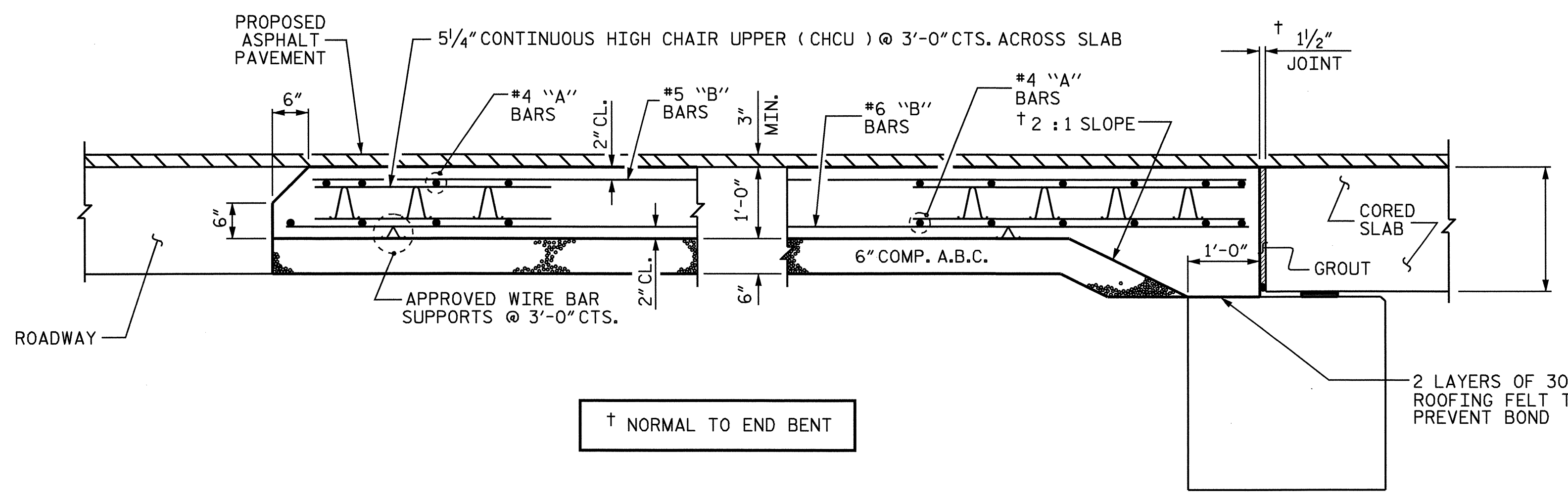
THE JOINT AT THE END BENT SHALL BE GROUTED AS SOON AS PRACTICAL AFTER THE CONSTRUCTION OF THE APPROACH SLABS.

APPROACH SLAB GROOVING IS NOT REQUIRED.



BILL OF MATERIAL						BILL OF MATERIAL							
APPROACH SLAB AT E.B.T. 1						APPROACH SLAB AT E.B.T. 2							
STAGE I						STAGE I							
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT		
*A1	16	#4	STR	16'-8"	178	*A1	16	#4	STR	16'-8"	178		
A2	16	#4	STR	16'-8"	178	A2	16	#4	STR	16'-8"	178		
*B1	34	#5	STR	14'-1"	499	*B1	34	#5	STR	14'-1"	499		
B2	34	#6	STR	14'-7"	745	B2	34	#6	STR	14'-7"	745		
*D1	10	#6	STR	3'-0"	45	*D1	10	#6	STR	3'-0"	45		
REINFORCING STEEL					LBS.	923	REINFORCING STEEL					LBS.	923
*EPOXY COATED REINFORCING STEEL					LBS.	722	*EPOXY COATED REINFORCING STEEL					LBS.	722
CLASS AA CONCRETE					C. Y.	10.4	CLASS AA CONCRETE					C. Y.	10.4

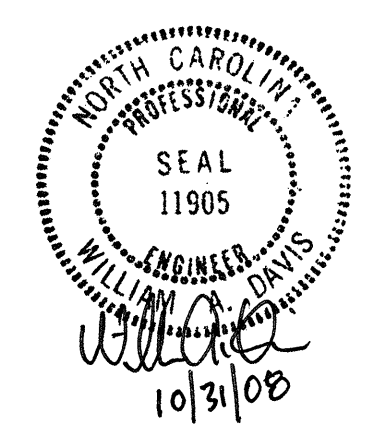
BILL OF MATERIAL						BILL OF MATERIAL							
APPROACH SLAB AT E.B.T. 1						APPROACH SLAB AT E.B.T. 2							
STAGE II						STAGE II							
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT		
*A3	16	#4	STR	19'-8"	210	*A3	16	#4	STR	19'-8"	210		
A4	16	#4	STR	19'-8"	210	A4	16	#4	STR	19'-8"	210		
*B1	40	#5	STR	14'-1"	588	*B1	40	#5	STR	14'-1"	588		
B2	40	#6	STR	14'-7"	876	B2	40	#6	STR	14'-7"	876		
REINFORCING STEEL					LBS.	1086	REINFORCING STEEL					LBS.	1086
*EPOXY COATED REINFORCING STEEL					LBS.	798	*EPOXY COATED REINFORCING STEEL					LBS.	798
CLASS AA CONCRETE					C. Y.	12.3	CLASS AA CONCRETE					C. Y.	12.3



PROJECT NO. B-3830
 COLUMBUS COUNTY
 STATION: 20+66.00 -L-

SHEET 1 OF 2

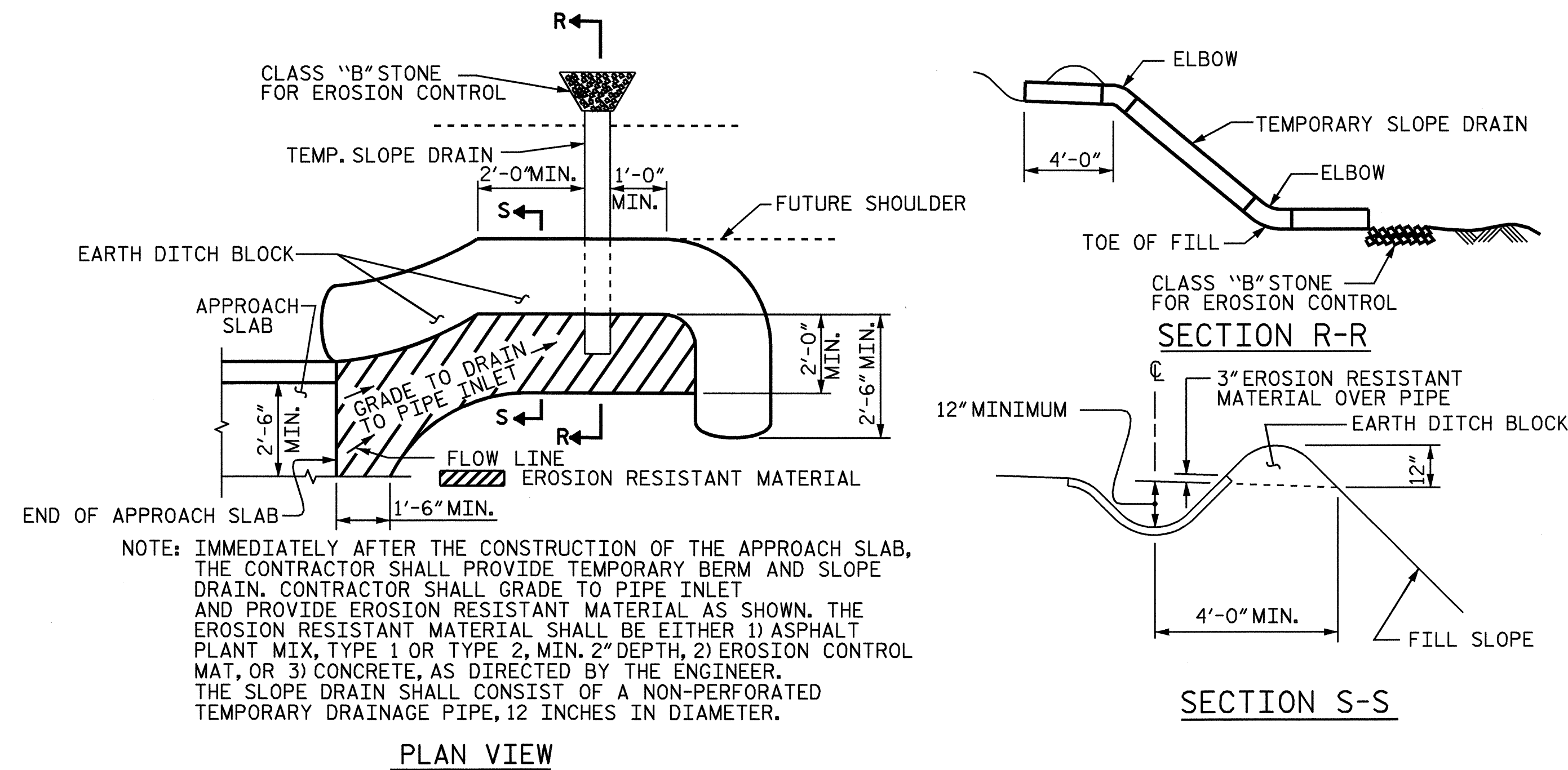
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR PRESTRESSED
 CONCRETE CORED SLAB



ASSEMBLED BY: HARISH SHAH DATE: 5-08
 CHECKED BY: P.K. NEWTON DATE: 9-08
 DRAWN BY: KMM 3-08
 CHECKED BY: GM 3-08

30-OCT-2008 09:37
 o:\structures\b3830\final plans\str. 1\b3830.sd.asl.dgn
 qtnguyen

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-27	
1			3			TOTAL SHEETS	56
2			4				

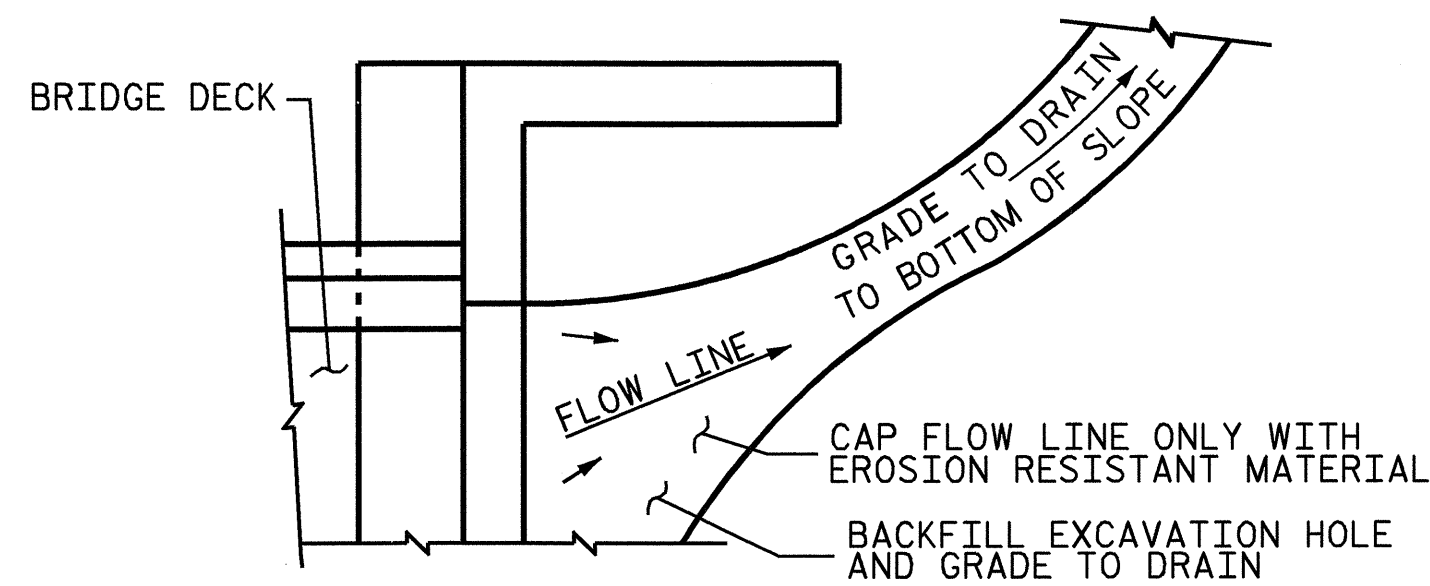


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

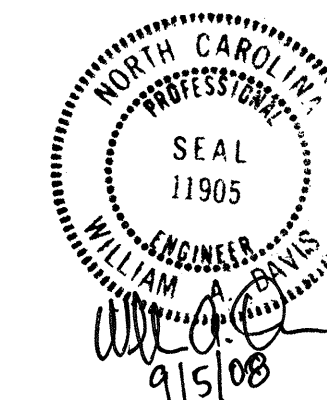


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 20+66.00 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH
 SLAB DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			56
2			4			

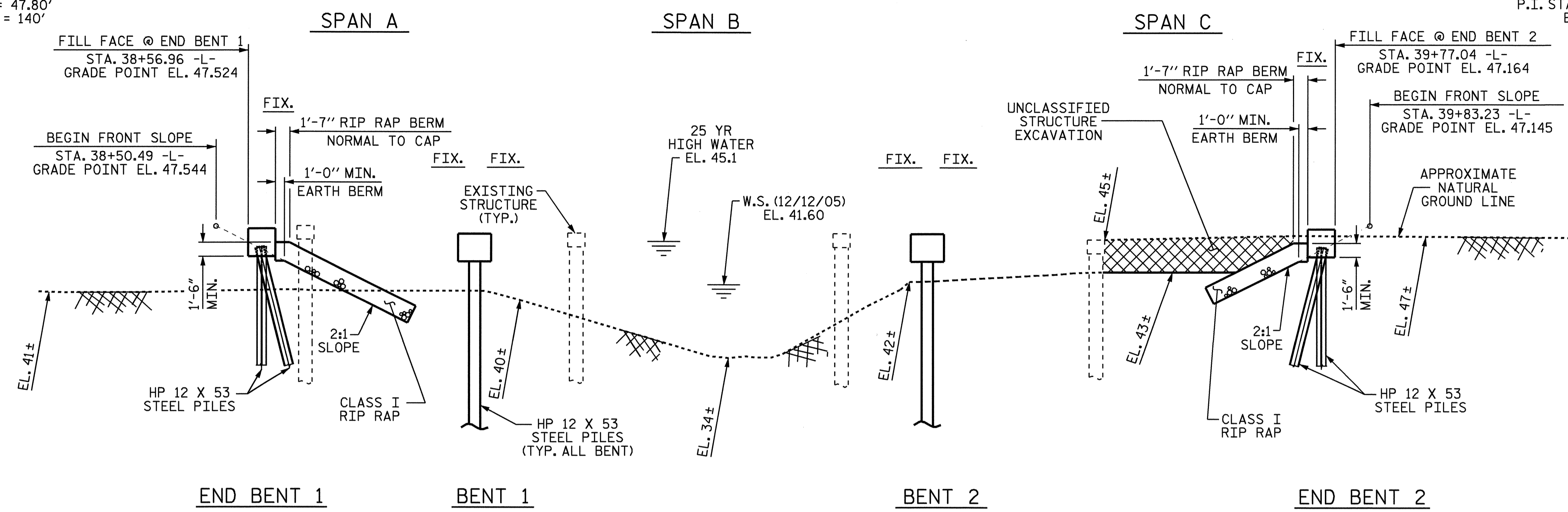
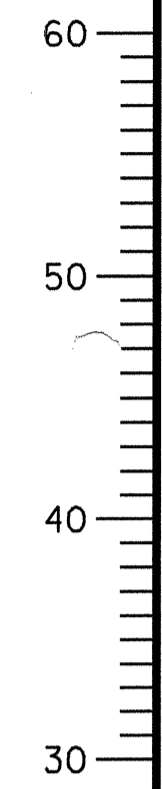
ASSEMBLED BY :	HARISH SHAH	DATE :	6-08
CHECKED BY :	QT NGUYEN	DATE :	6-08
DRAWN BY :	FCJ 11/88	REV. 10/17/00	RWW/LES
CHECKED BY :	ARB 11/88	REV. 5/7/03	RWW/JTE
		REV. 5/1/06R	MAA/KMM

GRADE DATA

(+) 1.1200% (-) 0.3000%
 P.I. STA. = 37+65.00 -L-
 EL. = 47.80'
 VC = 140'

GRADE DATA

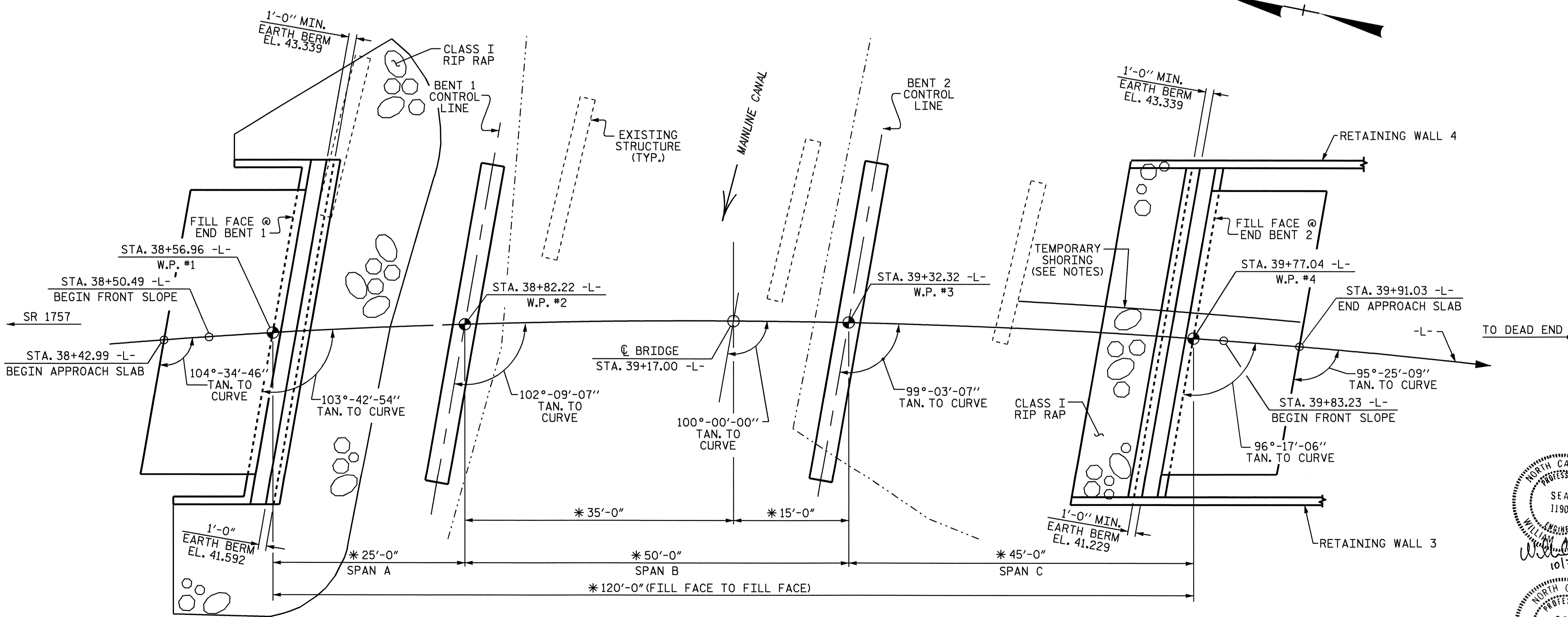
(-) 0.3000% (-) 1.2000%
 P.I. STA. = 40+10.00 -L-
 EL. = 47.06'
 VC = 80'



HORIZONTAL CURVE DATA FOR -L-

P.I. = 38+07.94 -L-
 $\Delta = 37^\circ-40'-24.4''$ (RT)
 $D = 6^\circ-11'-14.8''$
 $L = 608.87'$
 $T = 315.90'$
 $R = 926.00'$

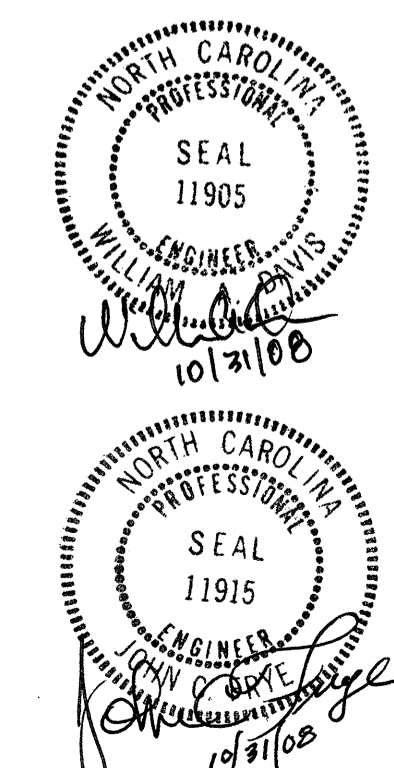
SECTION ALONG -L-



DRAWN BY: QT NGUYEN DATE: 6-08
 CHECKED BY: W.A. DAVIS DATE: 7-08

30-OCT-2008 11:01
 o:\structures\3830\final plans\str. 2\b-3830.sd.gd 2.dgn
 qtnguyen

PLAN
 PILES NOT SHOWN FOR CLARITY * MEASURED ALONG LONG CHORD

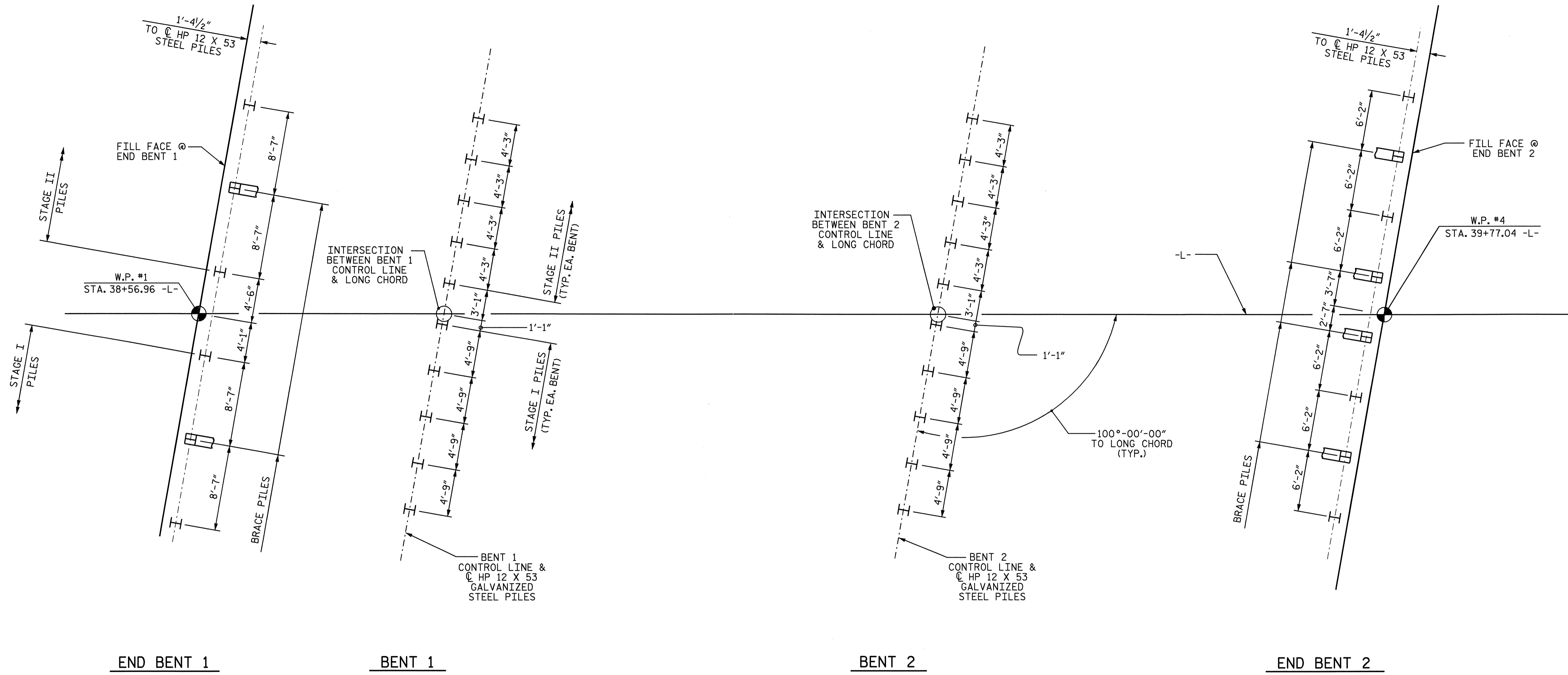


PROJECT NO. B-3830
 COLUMBUS COUNTY
 STATION: 39+17.00 -L-

SHEET 1 OF 4 REPLACES BRIDGE NO. 364

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 BRIDGE OVER MAINLINE
 CANAL ON SR 1947
 BETWEEN SR 1757
 AND DEAD END

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-29	
1			3			TOTAL SHEETS	
2			4			56	



FOUNDATION LAYOUT
 DIMENSION LOCATING STEEL PILES ARE TO STEEL PILE CENTER

NOTES:

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.

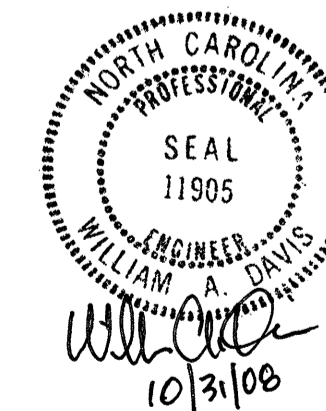
DRIVE PILES AT END BENT NO.1 AND END BENT NO.2 TO A REQUIRED BEARING CAPACITY OF 130 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO PLUS ANY ADDITIONAL CAPACITY TO ACCOUNT FOR DOWN DRAG OR NEGATIVE SKIN FRICTION AND SCOUR.

THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENT NO.1 IS 60 TONS PER PILE.

DRIVE PILES AT BENT NO.1 AND BENT NO.2 TO A TIP ELEVATION NO HIGHER THAN 15.0 FEET.

THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 AND BENT NO.2 IS ELEVATION 30.0 FEET. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE

GALVANIZE THE TOP 20 FT. MINIMUM OF EACH STEEL PILE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.



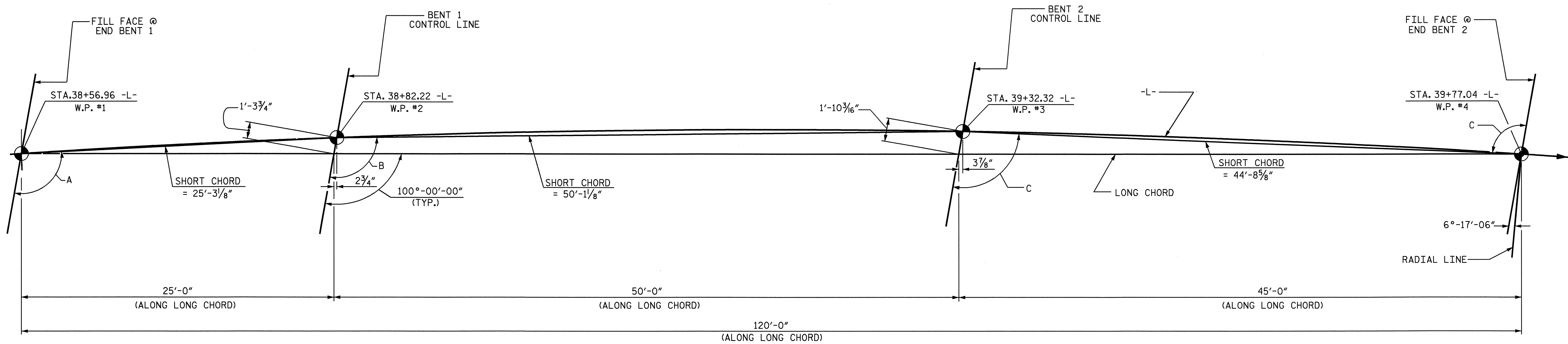
PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 39+17.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 BRIDGE OVER MAINLINE
 CANAL ON SR 1947
 BETWEEN SR 1757
 AND DEAD END

DRAWN BY : QT NGUYEN DATE : 6-08
 CHECKED BY : W.A. DAVIS DATE : 7-08

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-30	
1			3			TOTAL	56
2			4			SHEETS	



LONG CHORD LAYOUT

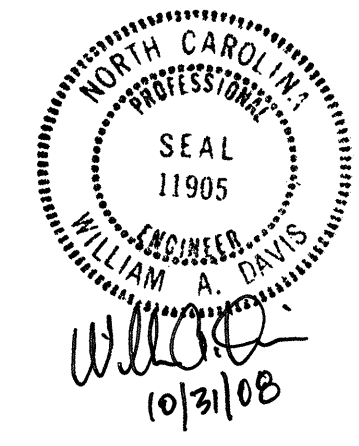
ALL BENTS ARE PARALLEL.

SHORT CHORD ANGLES

A	102°-56'-01"
B	100°-36'-07"
C	97°-40'-06"

HORIZONTAL CURVE DATA -L-

P.I. = 38+07.94
 Δ = 37°-40'-24.4 (RT.)
 D = 6°-11'-14.8"
 L = 608.87'
 T = 315.90
 R = 926.0'



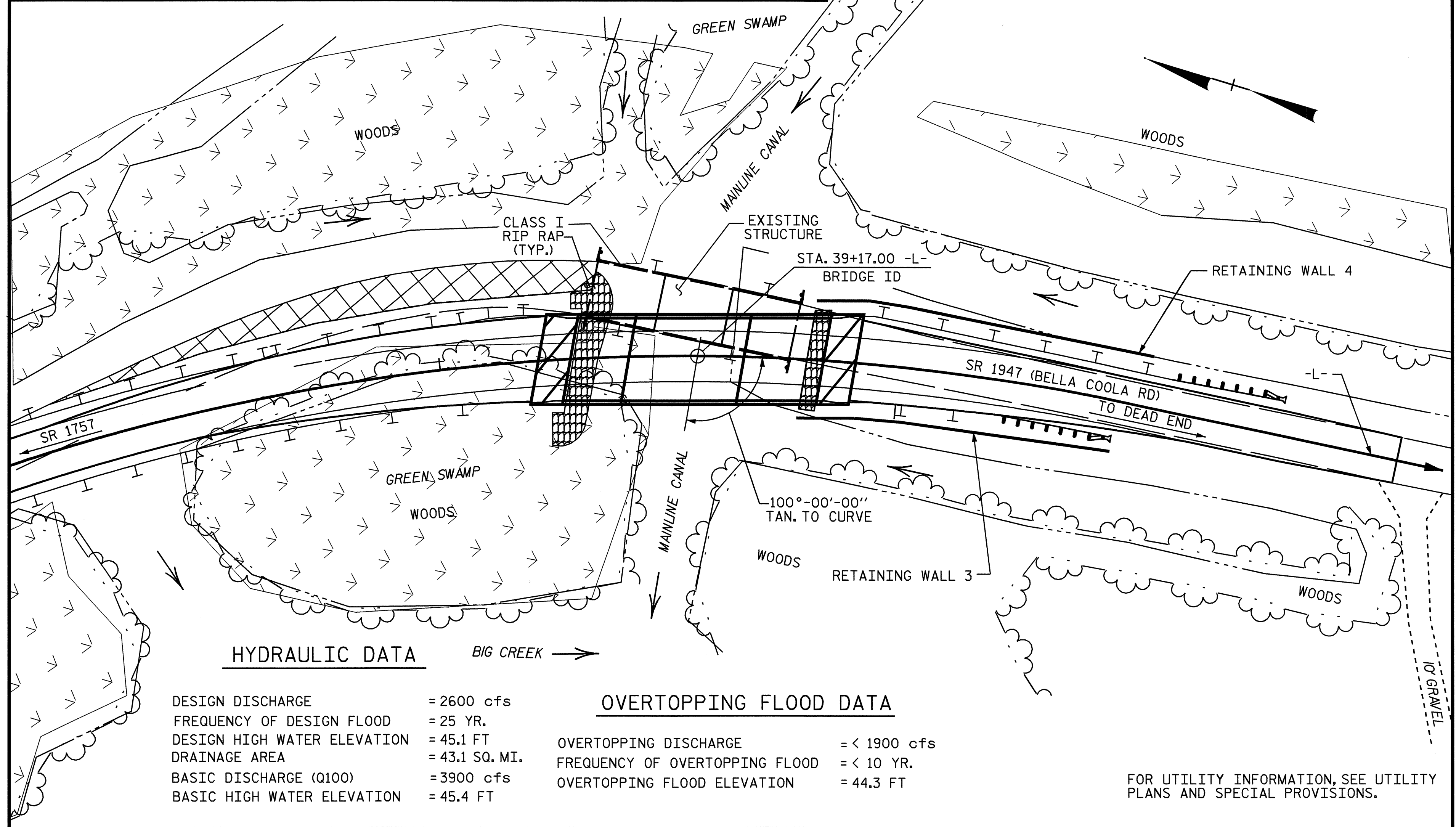
PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 39+17.00 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 BRIDGE OVER MAINLINE
 CANAL ON SR 1947
 BETWEEN SR 1757
 AND DEAD END

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-31
1			3			TOTAL SHEETS
2			4			56

DRAWN BY : QT NGUYEN DATE : 6-08
 CHECKED BY : W.A. DAVIS DATE : 7-08



HYDRAULIC DATA

DESIGN DISCHARGE	= 2600 cfs
FREQUENCY OF DESIGN FLOOD	= 25 YR.
DESIGN HIGH WATER ELEVATION	= 45.1 FT
DRAINAGE AREA	= 43.1 SQ. MI.
BASIC DISCHARGE (Q100)	= 3900 cfs
BASIC HIGH WATER ELEVATION	= 45.4 FT

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= < 1900 cfs
FREQUENCY OF OVERTOPPING FLOOD	= < 10 YR.
OVERTOPPING FLOOD ELEVATION	= 44.3 FT

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

THIS BRIDGE SHALL BE CONSTRUCTED USING TOP-DOWN CONSTRUCTION METHODS. THE USE OF A TEMPORARY CAUSEWAY OR WORK BRIDGE IS NOT PERMITTED.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES	HP 12 X 53 GALVANIZED STEEL PILES	PILE REDRIVES	CONCRETE BARRIER RAIL	RIP RAP CLASS I	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS	
	LUMP SUM	LUMP SUM	CU. YDS	LUMP SUM	LBS.	NO.	LIN. FT.	EA.	LIN. FT.	TON	SQ.YDS.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE	LUMP SUM	LUMP SUM		LUMP SUM					234.92				39	1526.96
END BENT #1			13.8		2250	6	360	3		107	118			
BENT #1			12.1		2166			5						
BENT #2			12.1		2166			5						
END BENT #2			13.5		2049	8	640	4		67	75			
TOTAL	LUMP SUM	LUMP SUM	51.5	LUMP SUM	8631	14	1000	17	234.92	174	193	LUMP SUM	39	1526.96

DRAWN BY: QT NGUYEN DATE: 6-08
 CHECKED BY: W.A. DAVIS DATE: 7-08

30-OCT-2008 11:00
 c:\structures\b3830\final plans\str. 2\b-3830.sd.gd 2.dgn
 qtnguyen

NOTES

ASSUMED LIVE LOAD = HS20 OR ALTERNATE LOADING, EXCEPT THAT CORED SLAB 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 1 @ 30'-6", 1 @ 30'-6", 1 @ 30'-6" PRESTRESSED CONCRETE CHANNEL, WITH A CLEAR ROADWAY WIDTH OF 24.2' ON CONCRETE CAPS ON TIMBER PILES SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT. SEE SPECIAL PROVISIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 24 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.

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.

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

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.

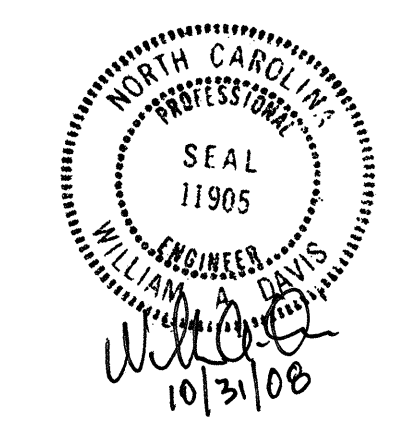
THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE 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.

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 39+17.00 -L-."

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
 FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
 FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.
 FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
 FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.

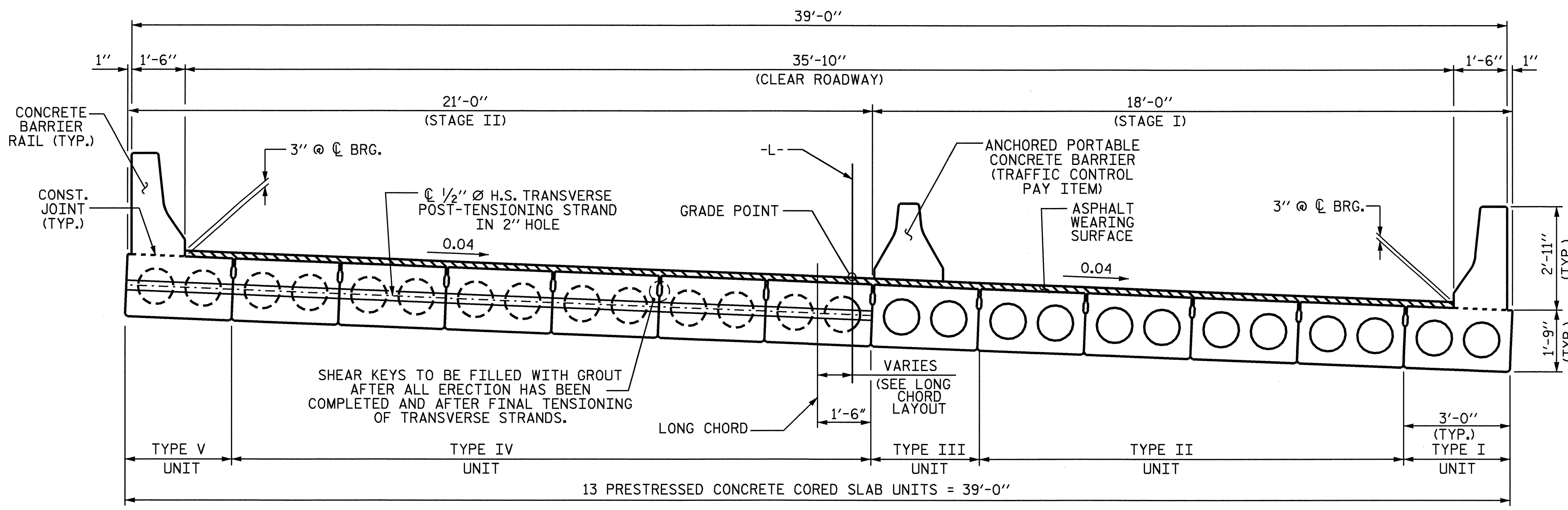
PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 39+17.00 -L-

SHEET 4 OF 4



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 BRIDGE OVER MAINLINE
 CANAL ON SR 1947
 BETWEEN SR 1751
 AND DEAD END

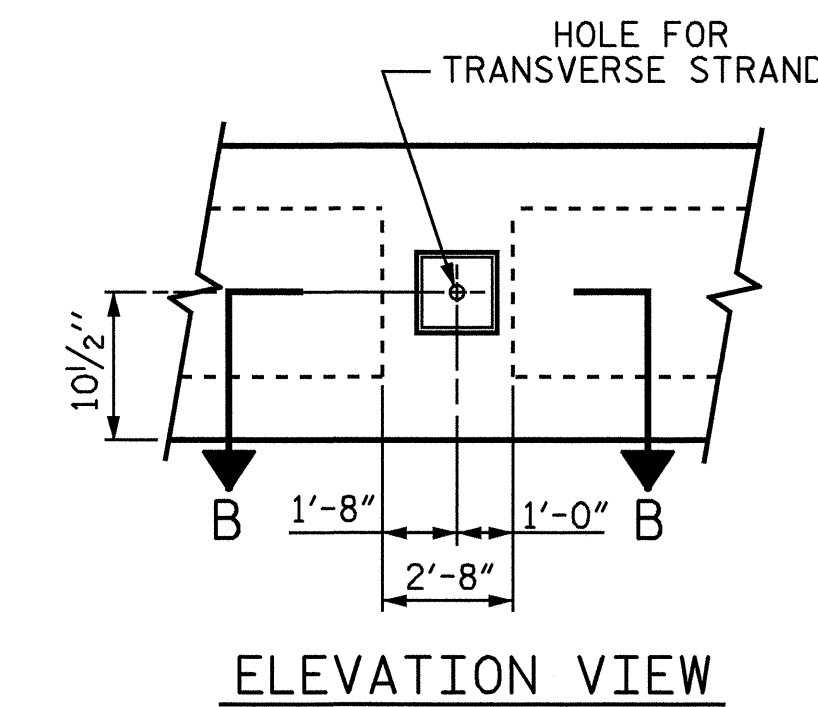
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-32
1			3			TOTAL SHEETS
2			4			56



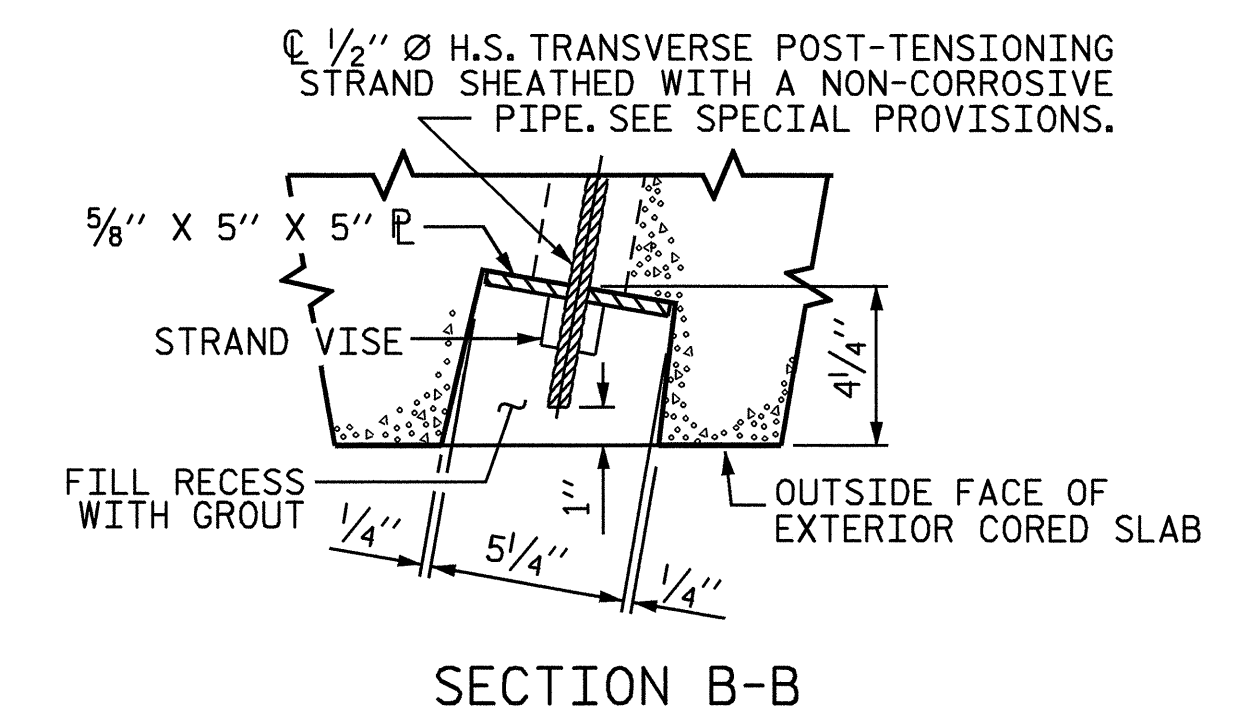
HALF SECTION THRU INTERMEDIATE DIAPHRAGMS

HALF SECTION AT END BENTS & BENTS

TYPICAL SECTION



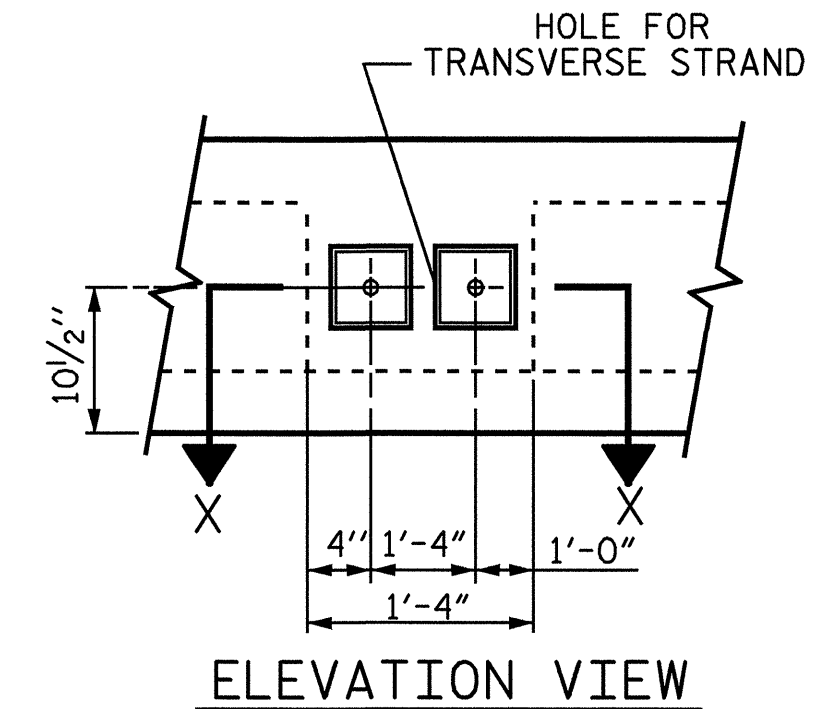
ELEVATION VIEW



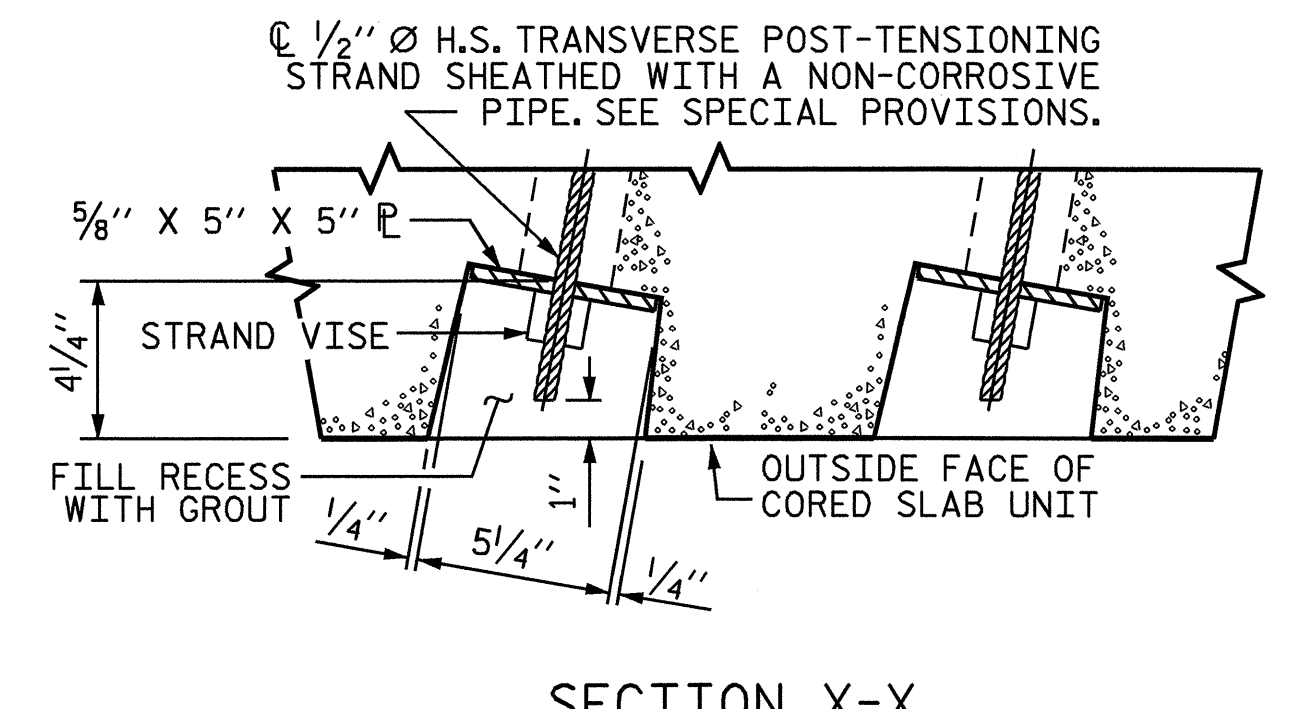
SECTION B-B

GRouted RECESS AT END OF POST-TENSIONED STRAND CORED SLABS

(STAGE II)



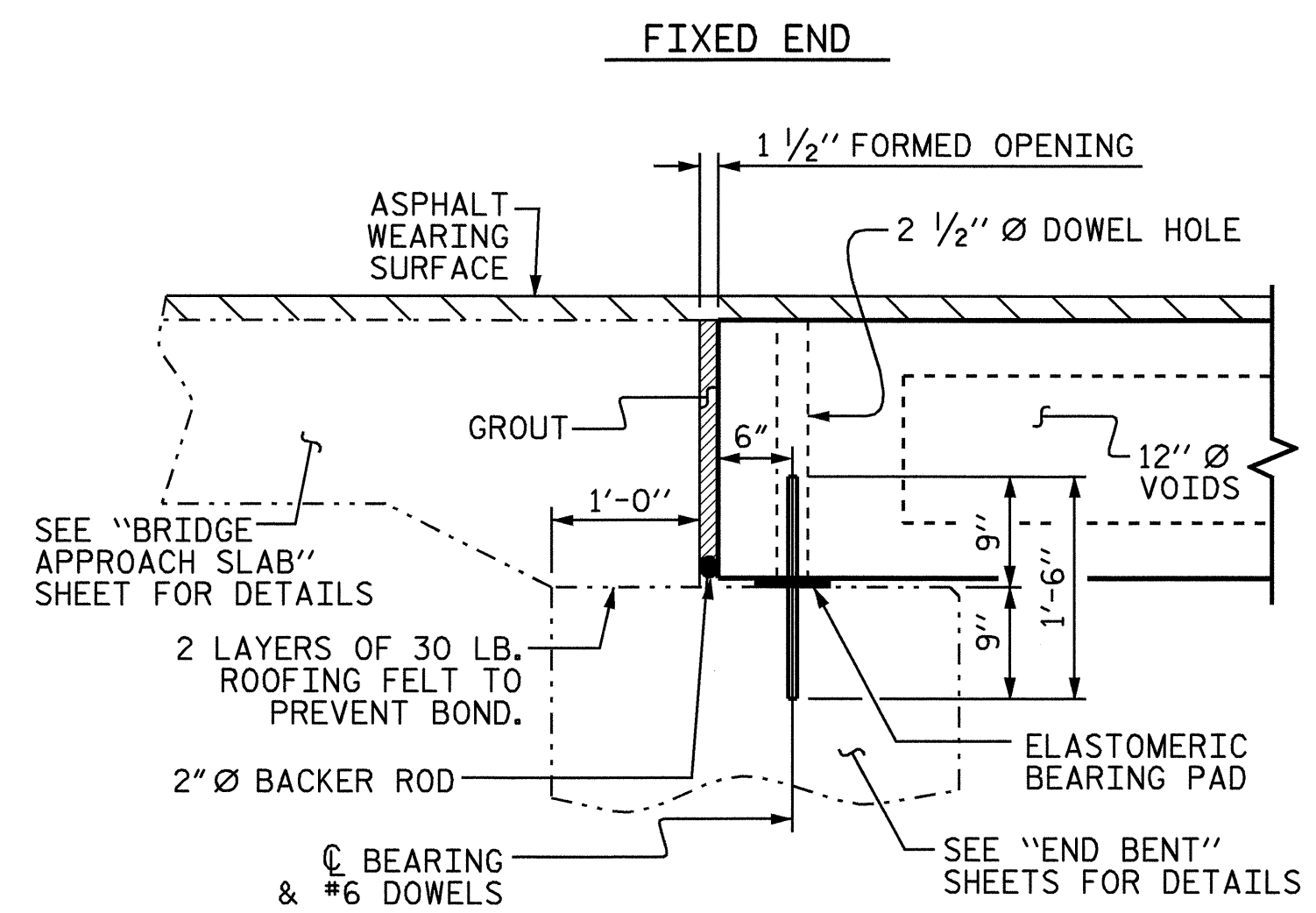
ELEVATION VIEW



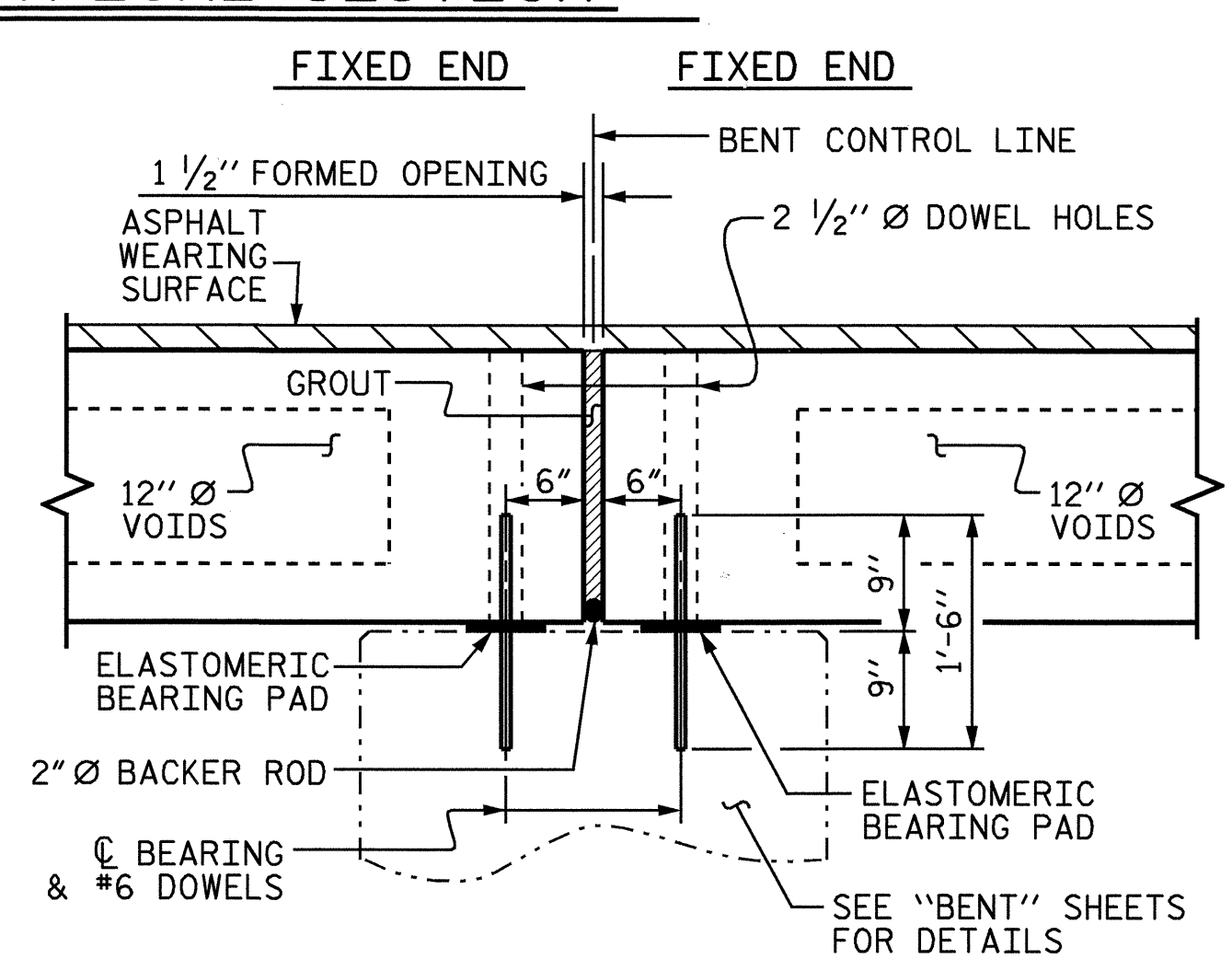
SECTION X-X

GRouted RECESS AT END OF POST-TENSIONED STRAND CORED SLABS

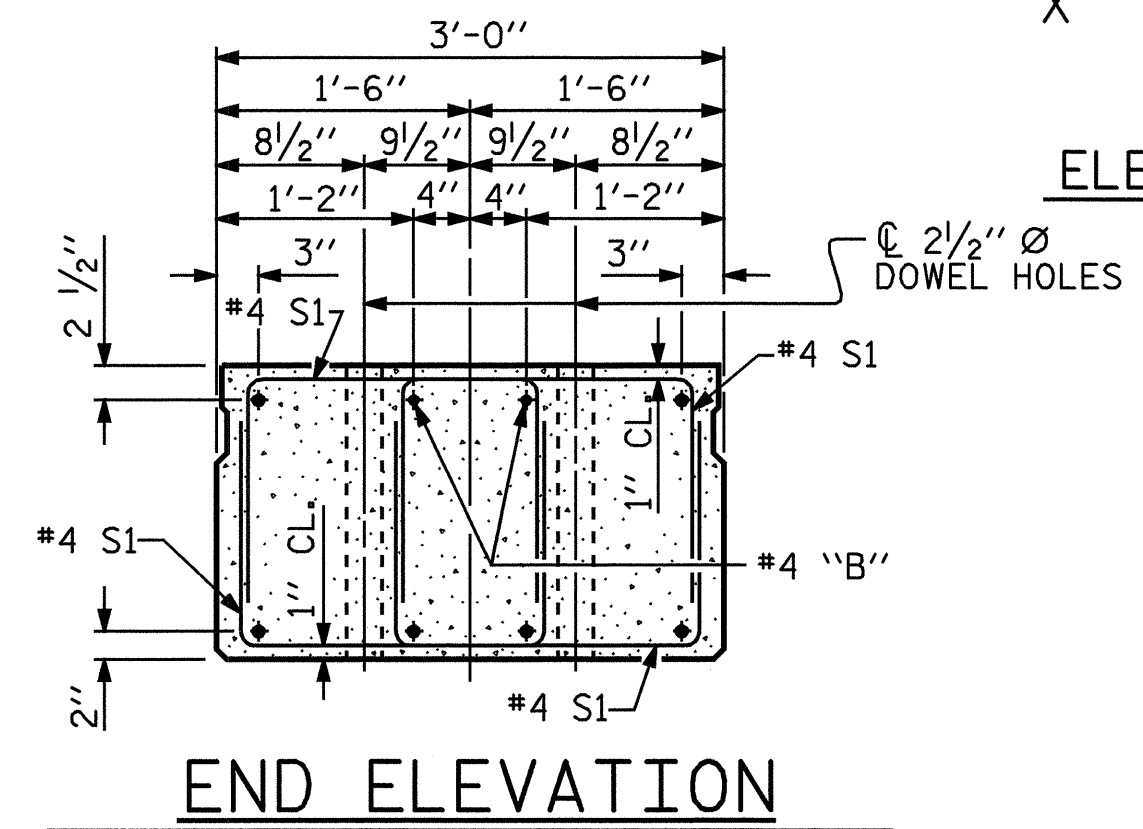
(STAGE I)



SECTION AT END BENT

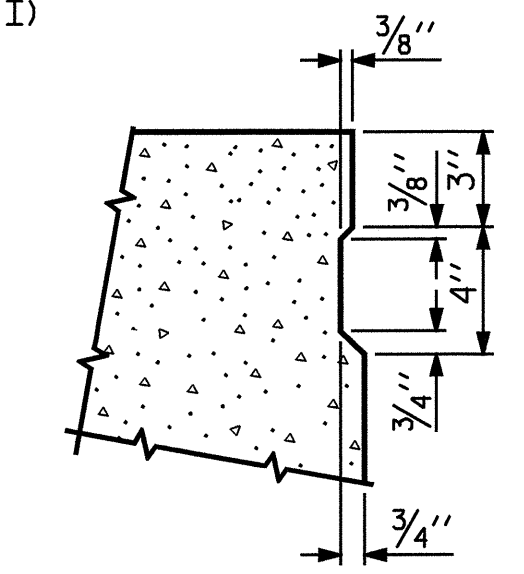


SECTION AT BENT



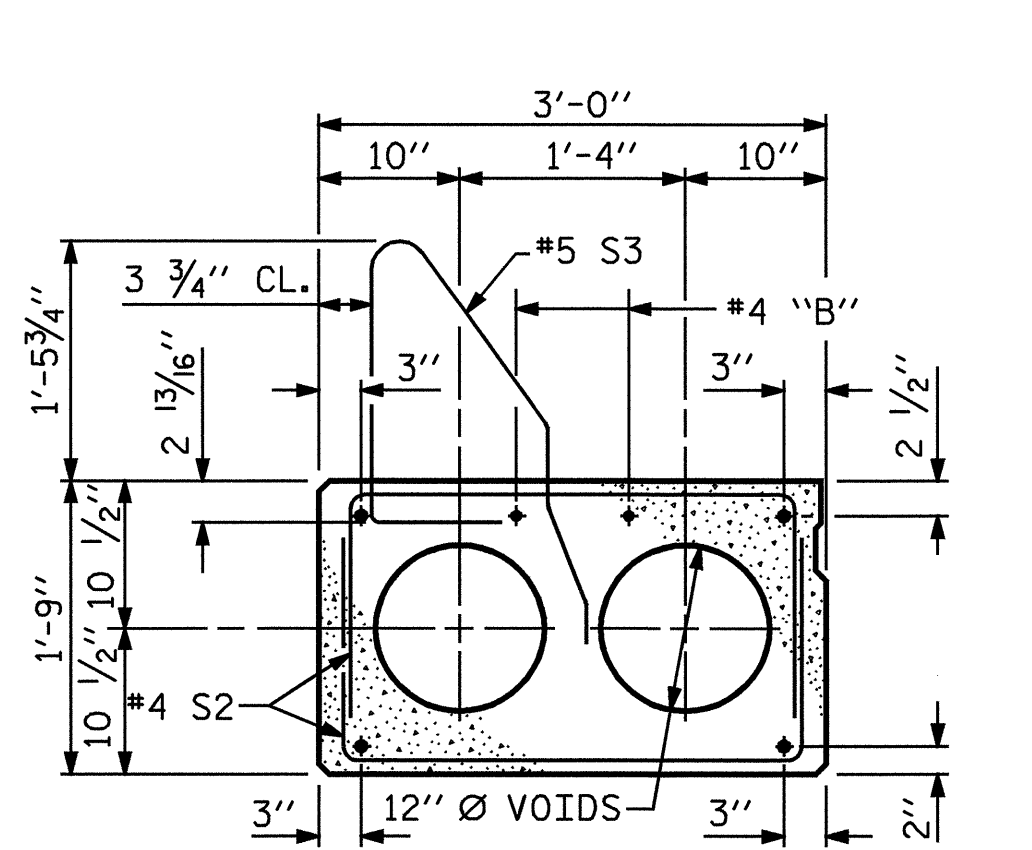
END ELEVATION

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



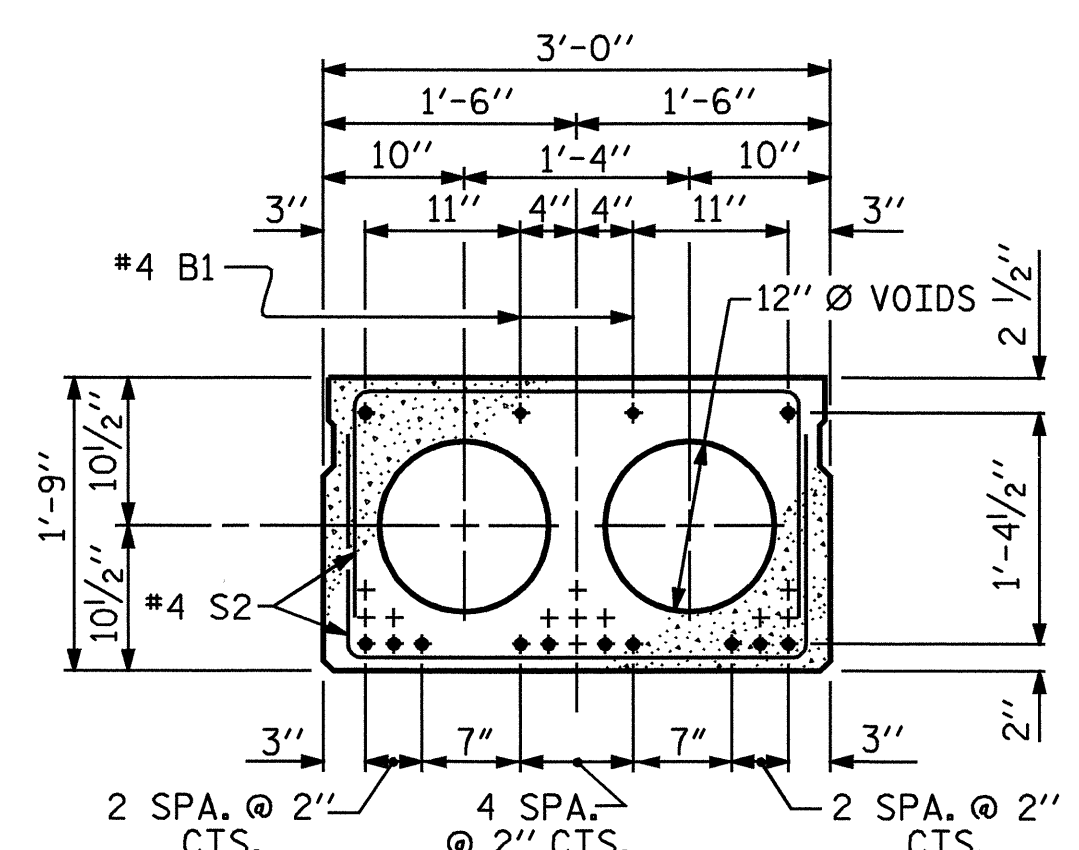
SHEAR KEY DETAIL

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



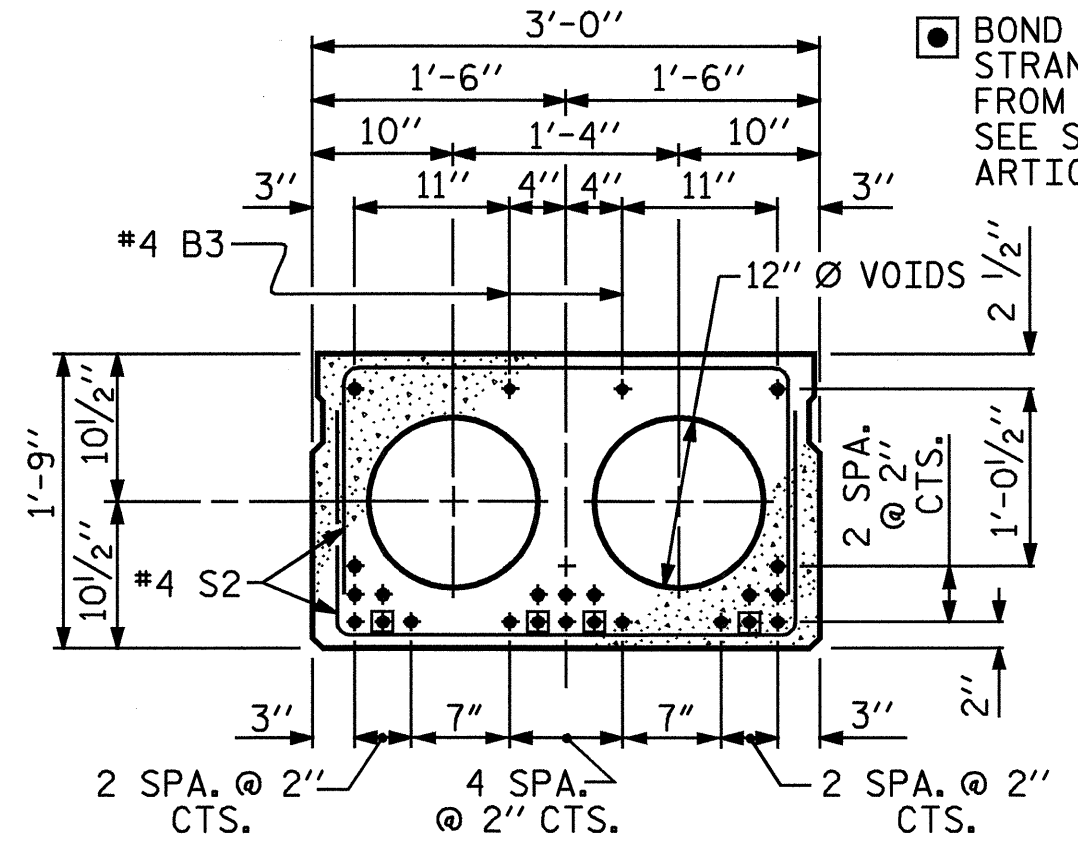
EXTERIOR SLAB SECTION

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



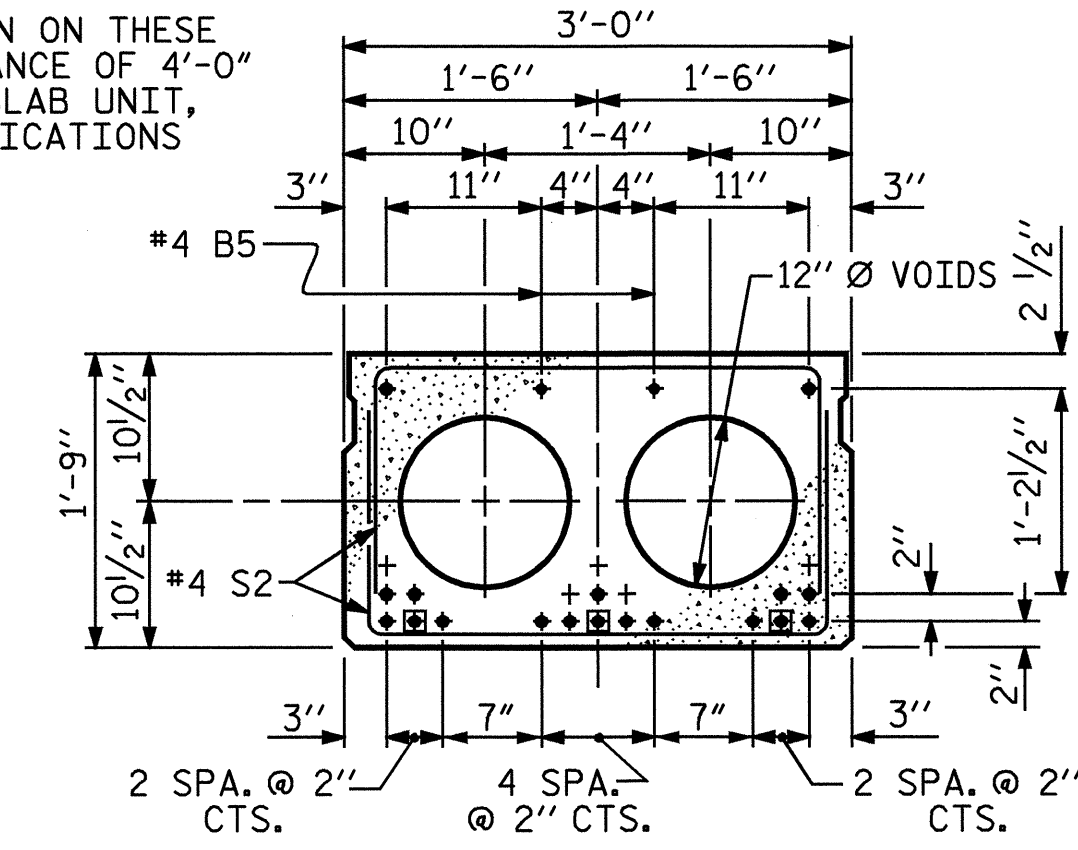
INTERIOR SLAB SECTION
1/2" Ø LOW RELAXATION STRAND LAYOUT

SPAN A
(12 STRANDS)



INTERIOR SLAB SECTION
1/2" Ø LOW RELAXATION STRAND LAYOUT

SPAN B
(22 STRANDS, 4 SHEATHED)



INTERIOR SLAB SECTION
1/2" Ø LOW RELAXATION STRAND LAYOUT

SPAN C
(18 STRANDS, 3 SHEATHED)

■ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 4'-0" FROM END OF CORED SLAB UNIT, SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

ASSEMBLED BY :	QT NGUYEN	DATE :	4-08
CHECKED BY :	A.R. CHESSON	DATE :	6-08
DRAWN BY :	WJH	4/89	REV. 10/17/00 RWW/LES
CHECKED BY :	FCJ	5/89	REV. 7/10/01RR RWW/LES
			REV. 5/10/06 TLG/GM

PROJECT NO. B-3830
COLUMBUS COUNTY
STATION: 39+17.00 -L-

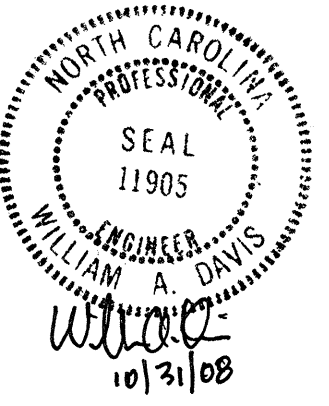
SHEET 1 OF 14

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

REVISIONS						SHEET NO. S-33
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 56
2			4			

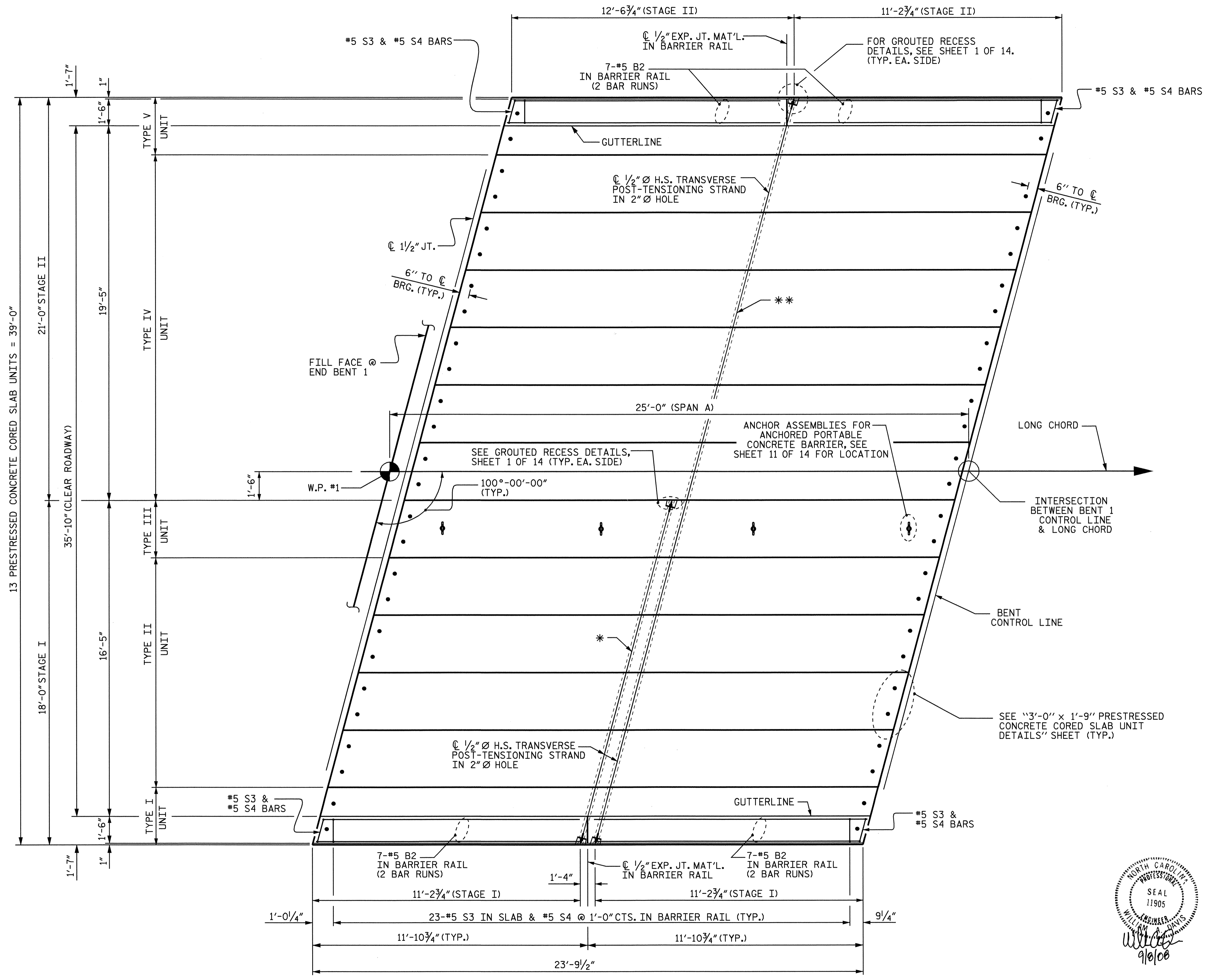
STR. #2

STD. NO. PCS2



NOTES:

- * STRAND #1 GOES THRU 6 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE 1 CONSTRUCTION)
- * STRAND #2 GOES THRU ALL 13 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE 2 CONSTRUCTION)

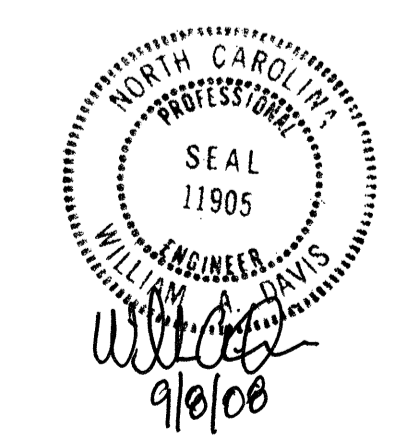


PLAN OF SPAN A

PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 39+17.00 -L-

SHEET 2 OF 14

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

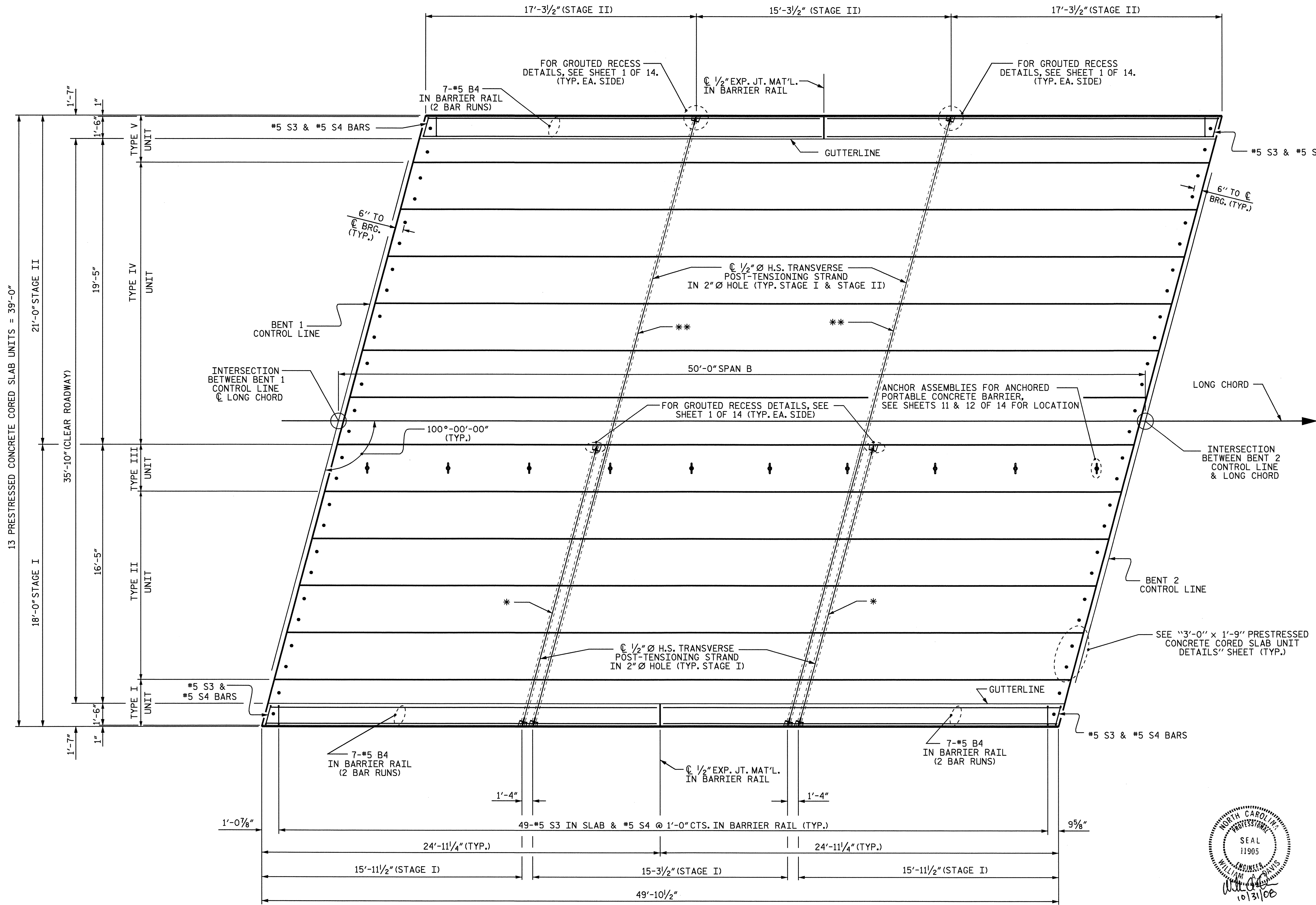


DRAWN BY: QT NGUYEN DATE: 4-08
 CHECKED BY: A.R. CHESSON DATE: 6-08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-34
1			3			TOTAL SHEETS
2			4			56

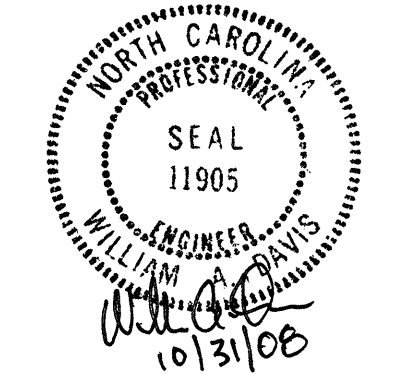
NOTES:

- * STRAND #1 GOES THRU 6 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE 1 CONSTRUCTION)
- * STRAND #2 GOES THRU ALL 13 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE 2 CONSTRUCTION)



PLAN OF SPAN B

PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 39+17.00 -L-
 SHEET 3 OF 14



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 PLAN OF SPAN B**

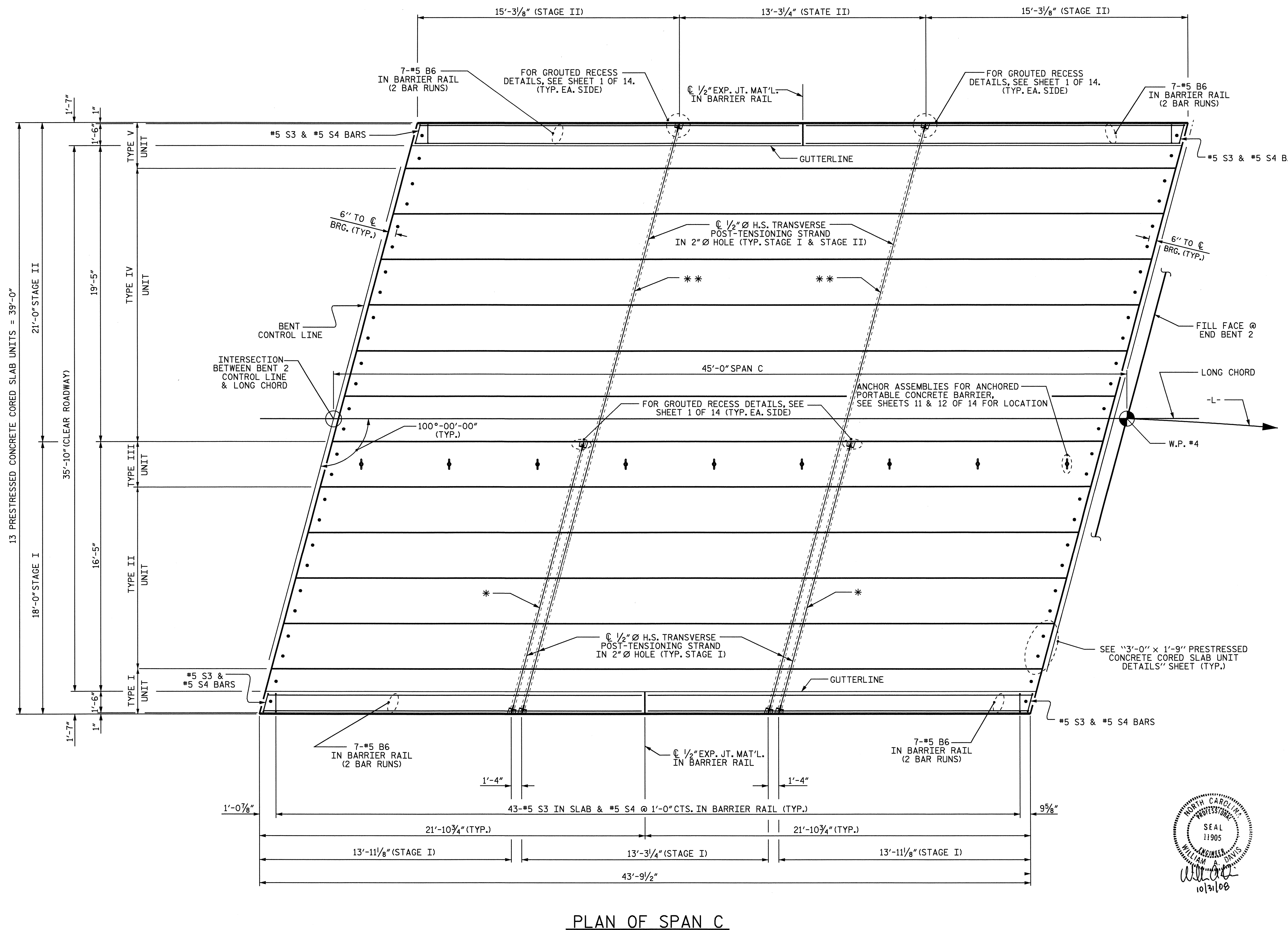
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-35
1			3			TOTAL SHEETS
2			4			56

DRAWN BY : QT NGUYEN DATE : 4-08
 CHECKED BY : A.R. CHESSON DATE : 6-08

31-OCT-2008 13:48
 r:\structures\B3830\final plans\str. 2\b3830_sd_cs2.dgn
 sdombrawski

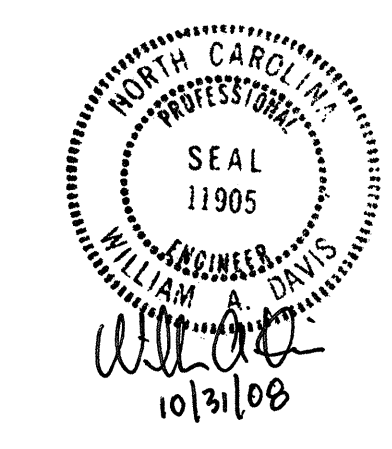
NOTES:

- * STRAND #1 GOES THRU 6 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE 1 CONSTRUCTION)
- * * STRAND #2 GOES THRU ALL 13 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE 2 CONSTRUCTION)



PROJECT NO. B-3830
 COLUMBUS COUNTY
STATION: 39+17.00 -L-

SHEET 4 OF 14



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

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

SHEET NO. S-36	
TOTAL SHEETS 56	

PLAN OF SPAN C

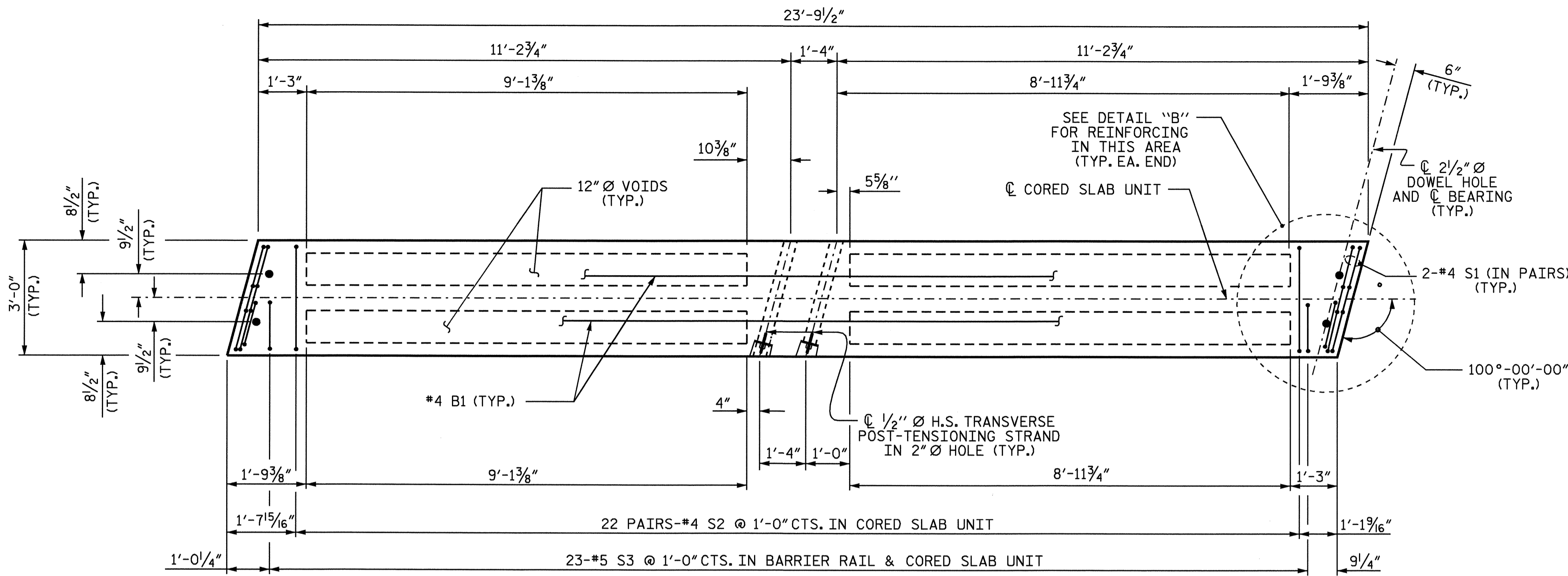
DRAWN BY: QT NGUYEN DATE: 4-08
CHECKED BY: A.R. CHESSON DATE: 6-08

31-OCT-2008 13:48
r:\structures\b3830\final plans\str. 2\b3830.sd.cs2.dgn
sdombrowek1

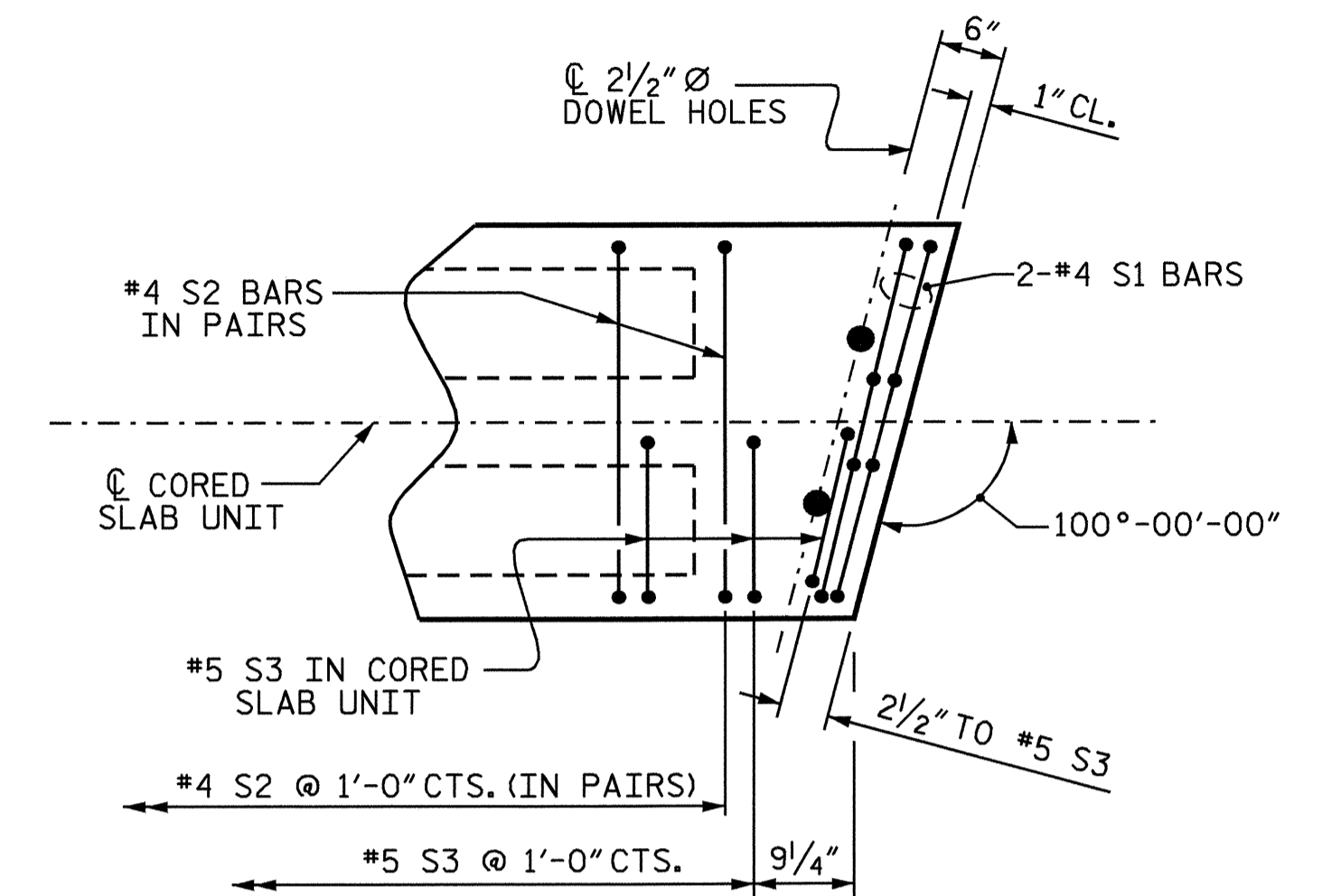
NOTES:

FOR GROUTED RECESS SEE "SUPERSTRUCTURE TYPICAL SECTION" SHEET 1 OF 14.

THE #4 S2 AND #5 S3 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MIN. CLEARANCE TO THE 2" Ø HOLES.

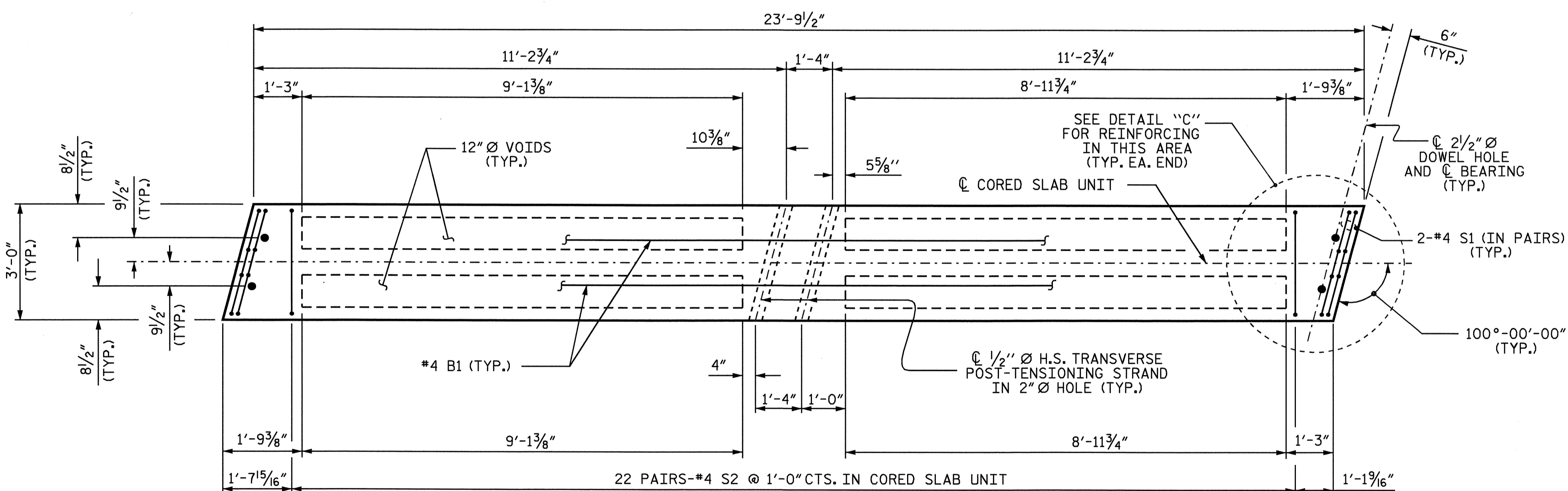


PLAN OF TYPE I CORED SLAB UNIT (STAGE I)

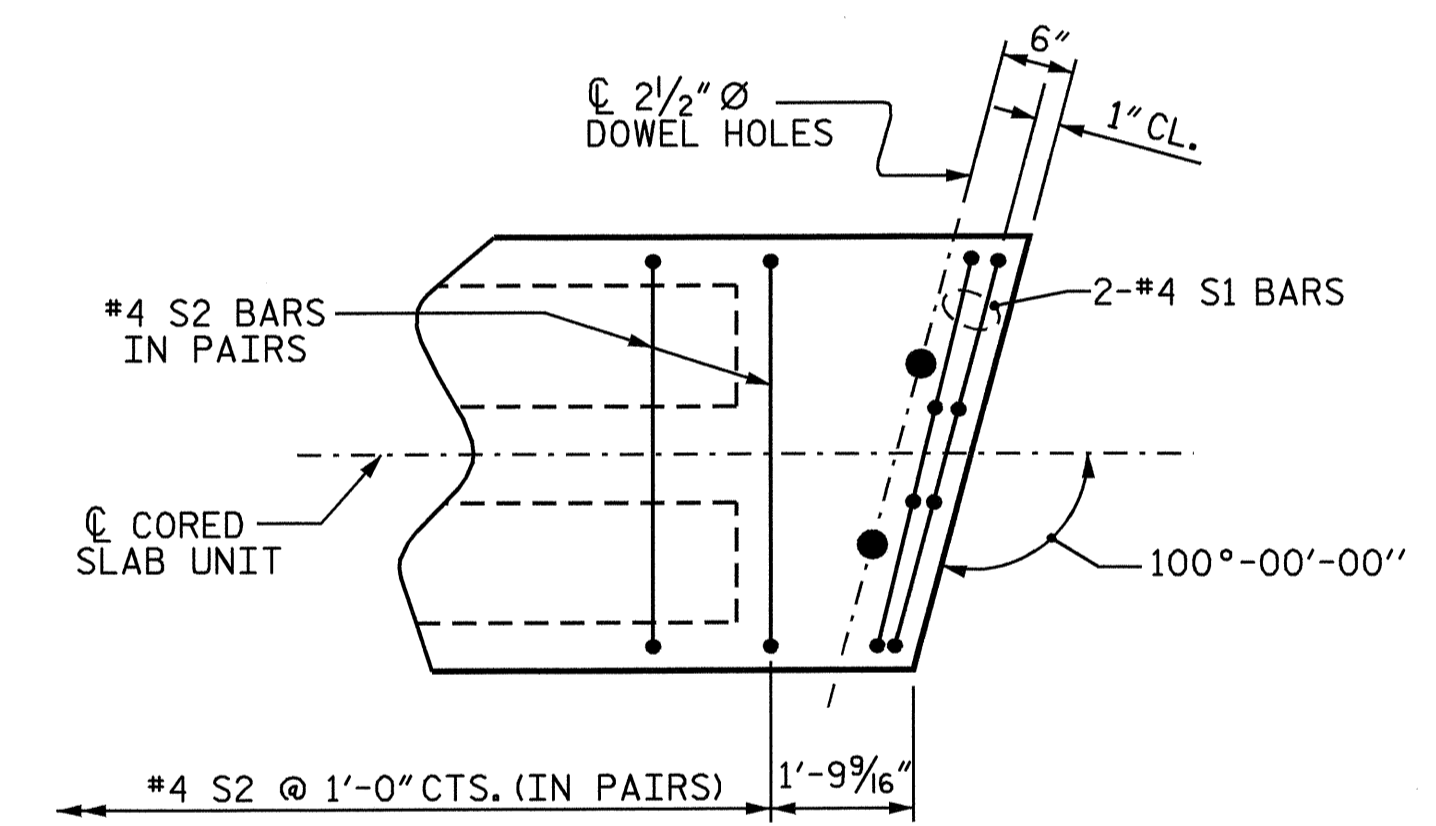


DETAIL "B"

(EA. END SIMILAR)



PLAN OF TYPE II CORED SLAB UNIT (STAGE I)

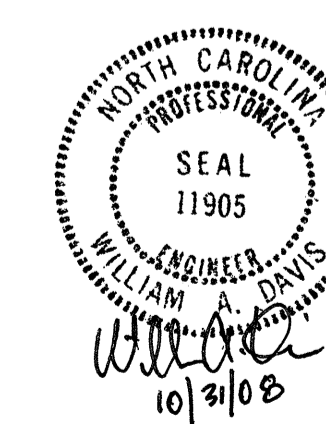


DETAIL "C"

(EA. END SIMILAR)

PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 39+17.00 -L-

SHEET 5 OF 14



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 3'-0" x 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 DETAILS-SPAN A

DRAWN BY : QT NGUYEN DATE : 4-08
 CHECKED BY : A.R. CHESSON DATE : 6-08

31-OCT-2008 13:47
 F:\struc\trues\b3830\final plans\str. 2\b3830.ed.oe2.dgn

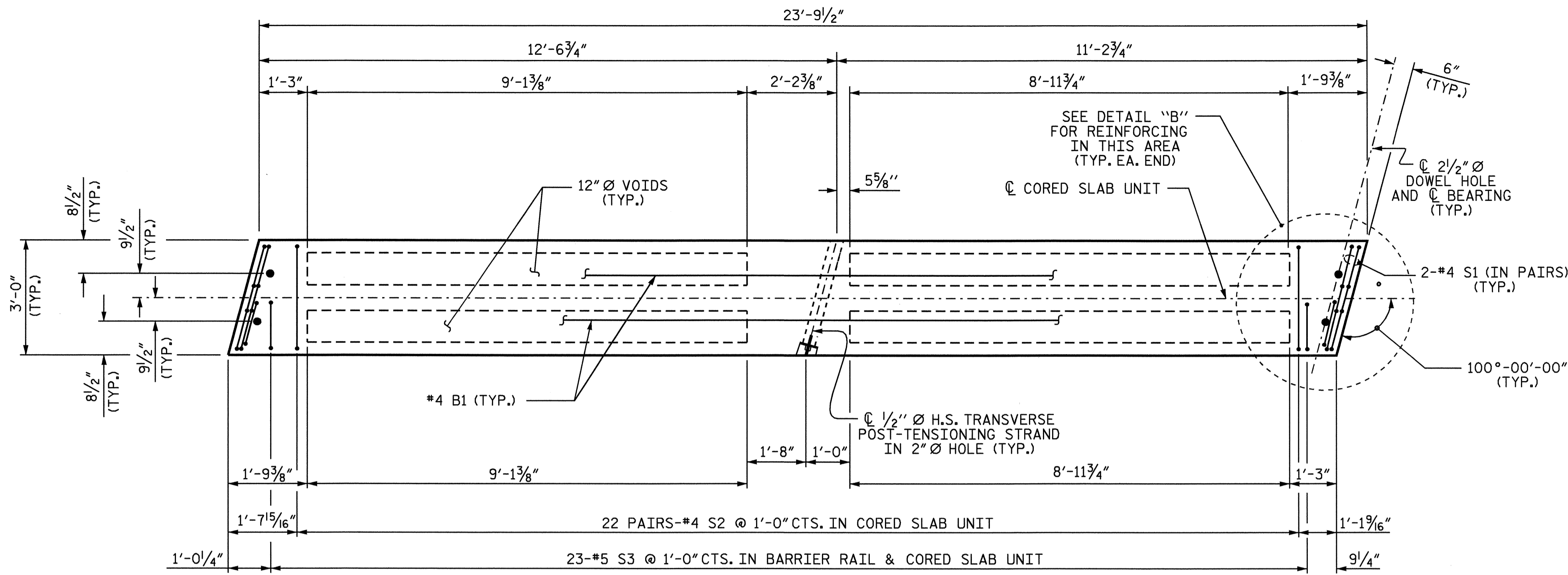
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-37
1			3			TOTAL SHEETS
2			4			56

STR. #2

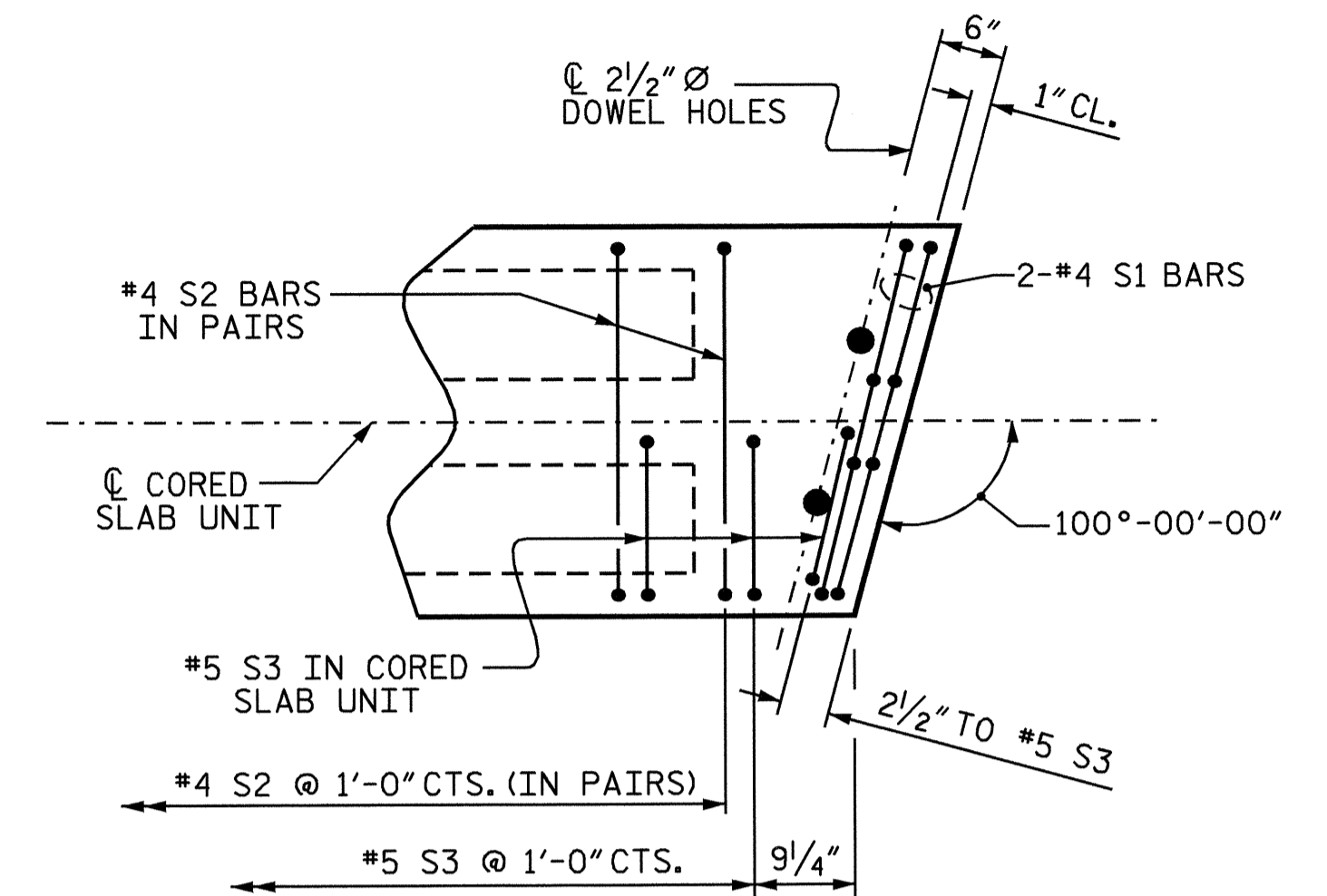
NOTES:

FOR GROUTED RECESS SEE "SUPERSTRUCTURE TYPICAL SECTION" SHEET 1 OF 14.

THE #4 S2 AND #5 S3 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MIN. CLEARANCE TO THE 2" Ø HOLES.

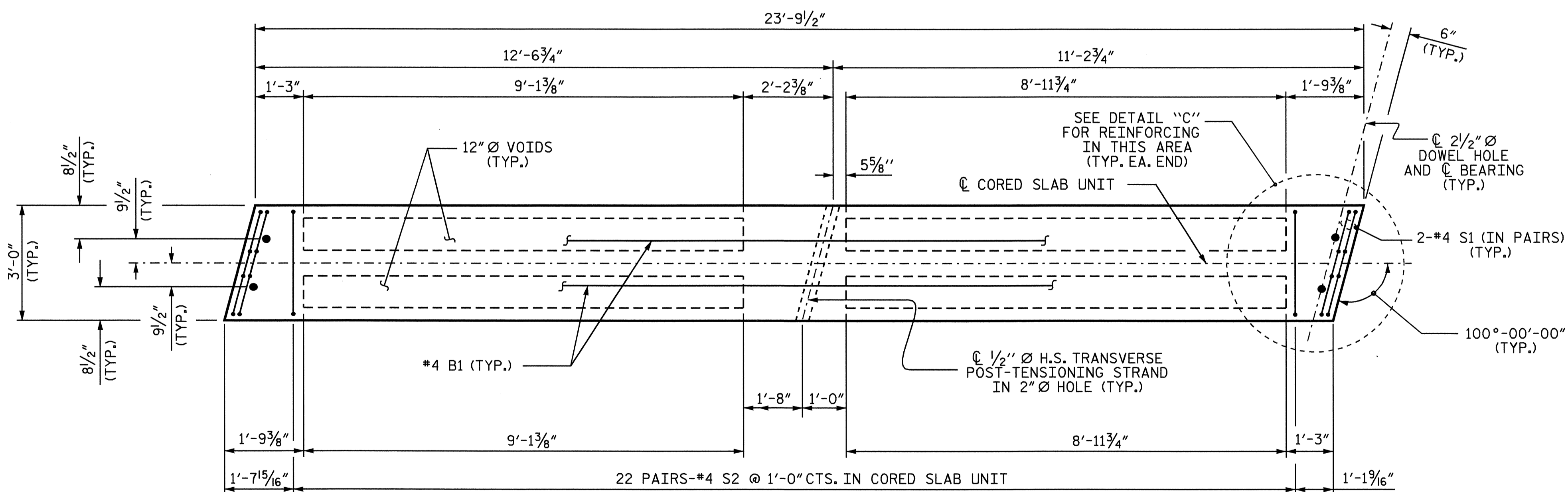


PLAN OF TYPE V CORED SLAB UNIT (STAGE II)

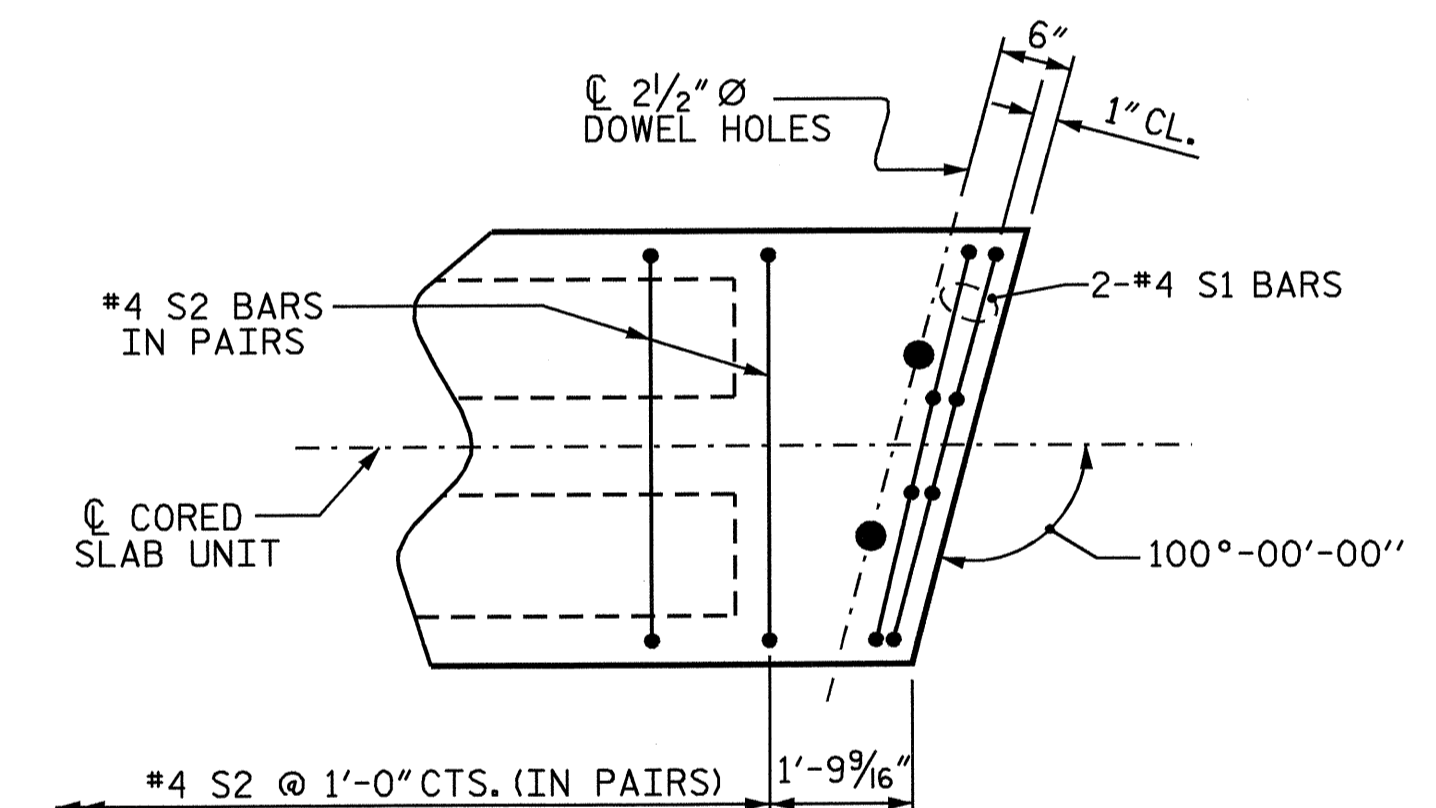


DETAIL "B"

(EA. END SIMILAR)



PLAN OF TYPE IV CORED SLAB UNIT (STAGE II)

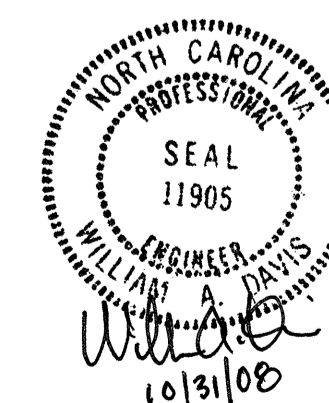


DETAIL "C"

(EA. END SIMILAR)

PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 39+17.00 -L-

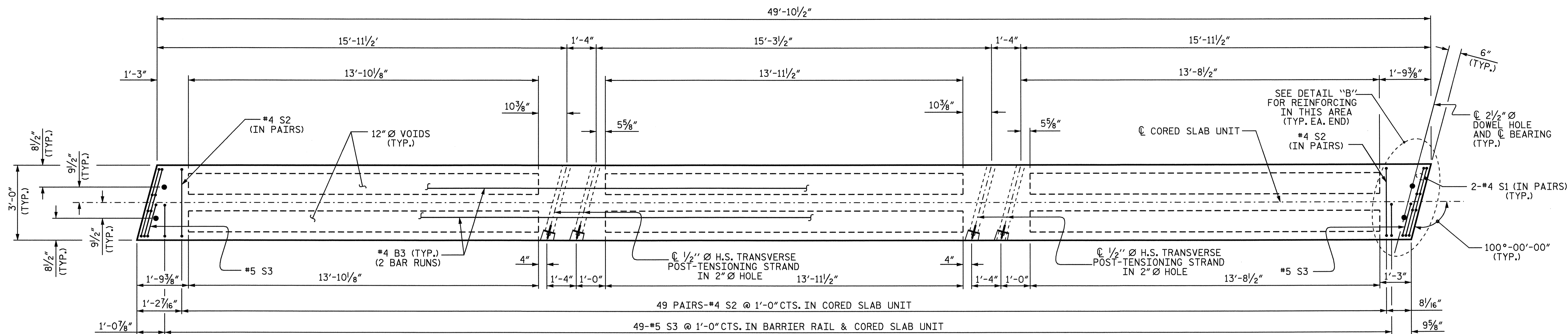
SHEET 6 OF 14



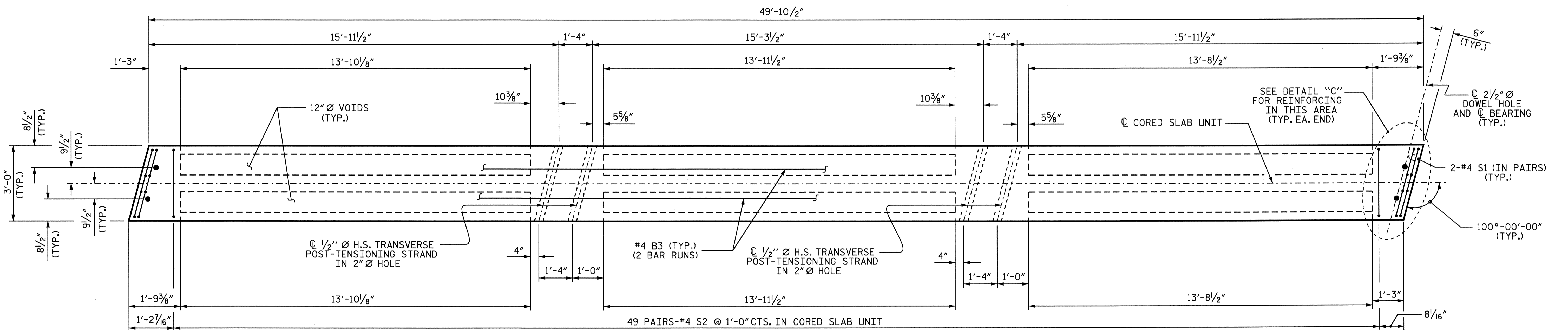
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 3'-0" x 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 DETAILS-SPAN A

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-38
1			3			TOTAL SHEETS
2			4			56

DRAWN BY: QT NGUYEN DATE: 4-08
 CHECKED BY: A.R. CHESSON DATE: 6-08



PLAN OF TYPE I CORED SLAB UNIT (STAGE I)

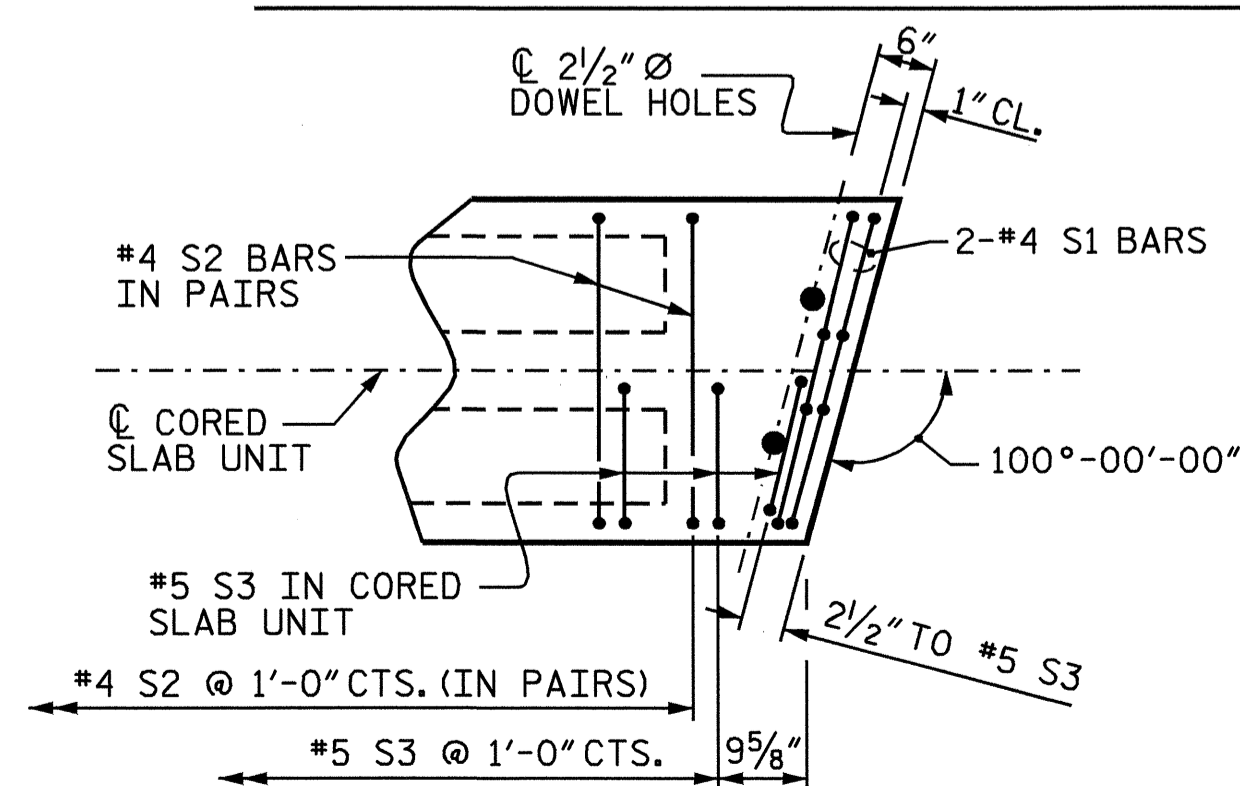


PLAN OF TYPE II CORED SLAB UNIT (STAGE I)

NOTES:

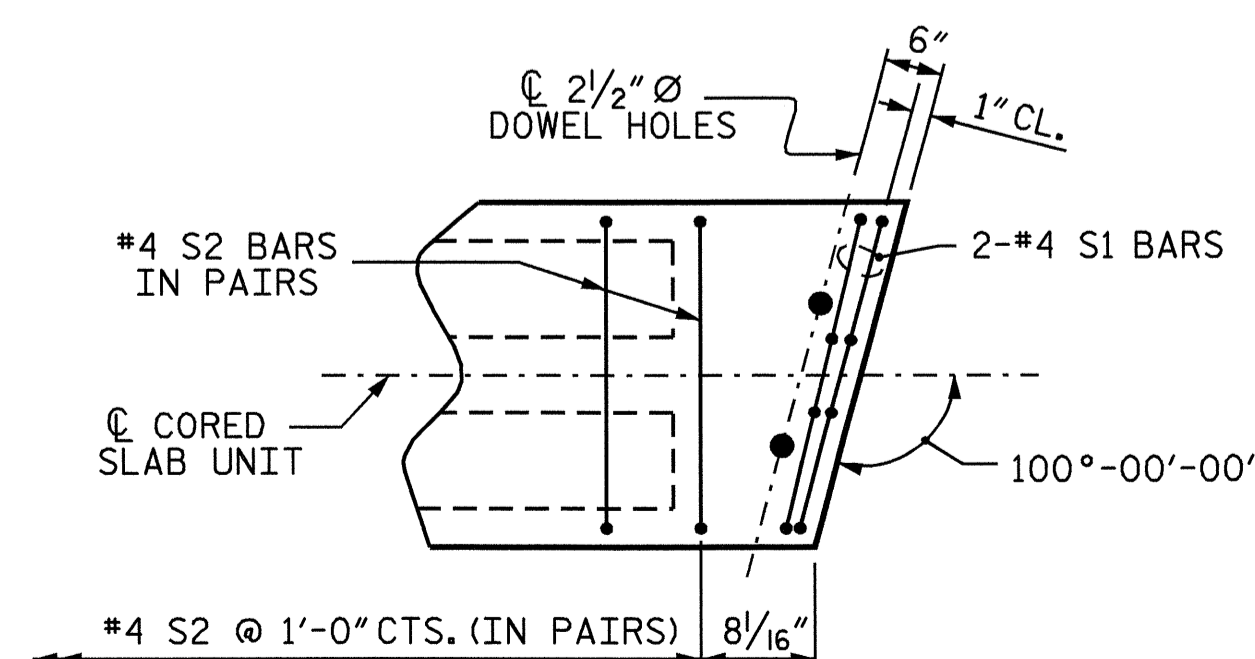
FOR GROUTED RECESS SEE "SUPERSTRUCTURE TYPICAL SECTION" SHEET 1 OF 14.

THE #4 S2 AND #5 S3 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MIN. CLEARANCE TO THE 2" Ø HOLES.



DETAIL "B"

(EA. END SIMILAR)

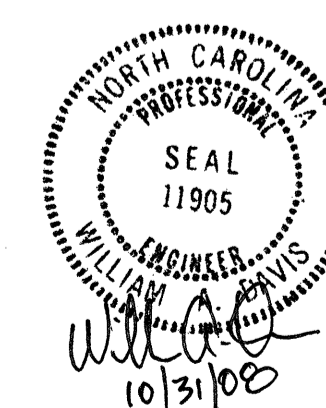


DETAIL "C"

(EA. END SIMILAR)

PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 39+17.00 -L-

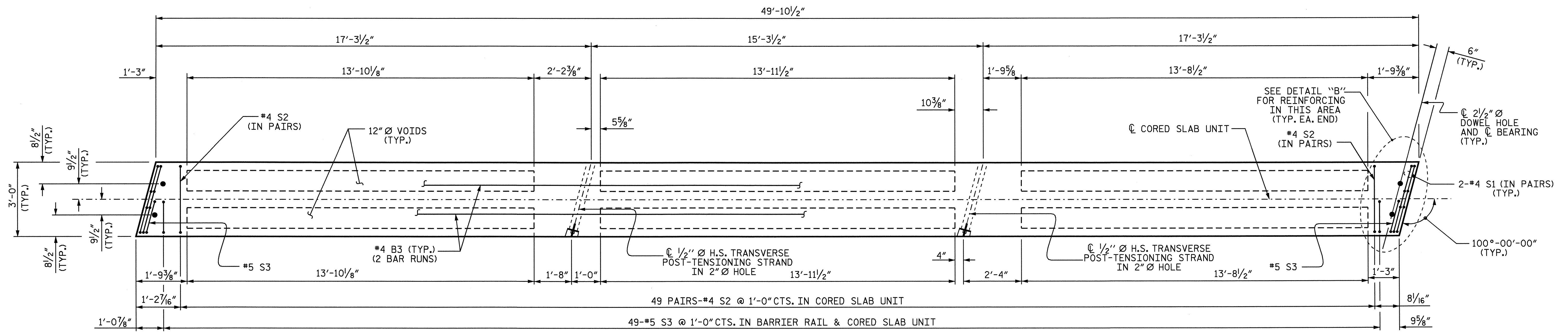
SHEET 7 OF 14



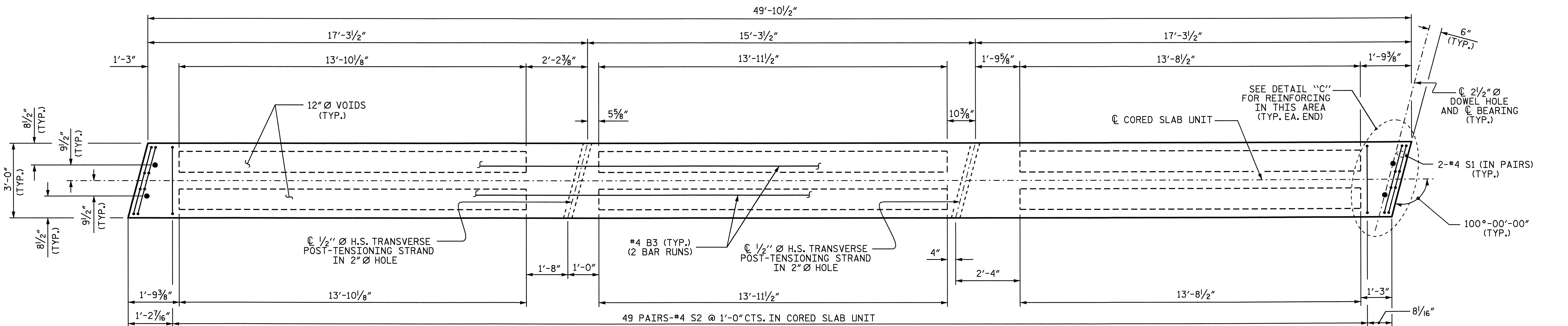
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 3'-0" x 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 DETAILS-SPAN B

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-39
1			3			TOTAL SHEETS
2			4			56

DRAWN BY: QT NGUYEN DATE: 4-08
 CHECKED BY: A.R. CHESSON DATE: 6-08



PLAN OF TYPE V CORED SLAB UNIT (STAGE II)

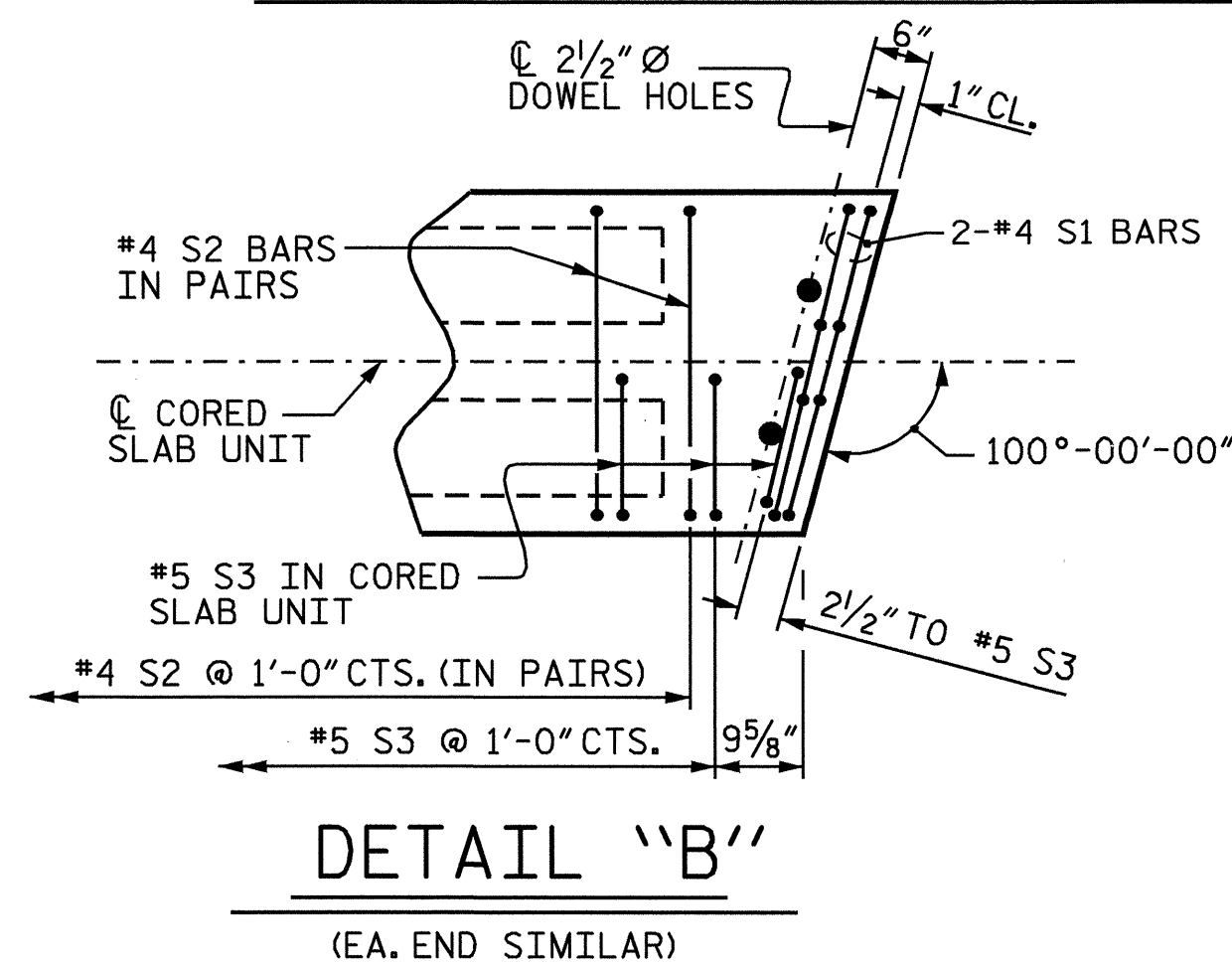


PLAN OF TYPE IV CORED SLAB UNIT (STAGE II)

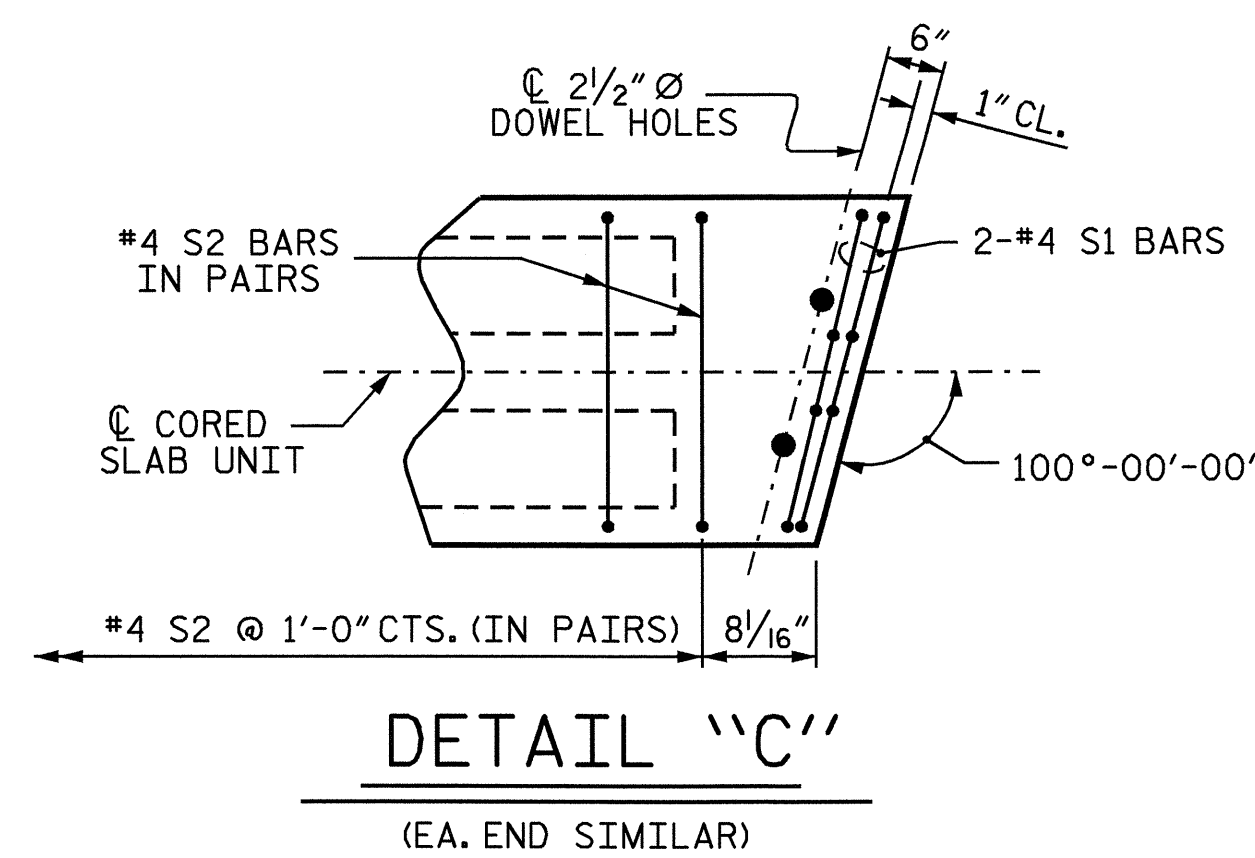
NOTES:

FOR GROUDED RECESS SEE "SUPERSTRUCTURE TYPICAL SECTION" SHEET 1 OF 14.

THE #4 S2 AND #5 S3 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MIN. CLEARANCE TO THE 2" Ø HOLES.



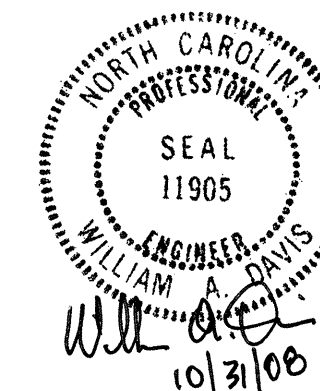
DETAIL "B"
(EA. END SIMILAR)



DETAIL "C"
(EA. END SIMILAR)

PROJECT NO. B-3830
COLUMBUS COUNTY
STATION: 39+17.00 -L-

SHEET 8 OF 14

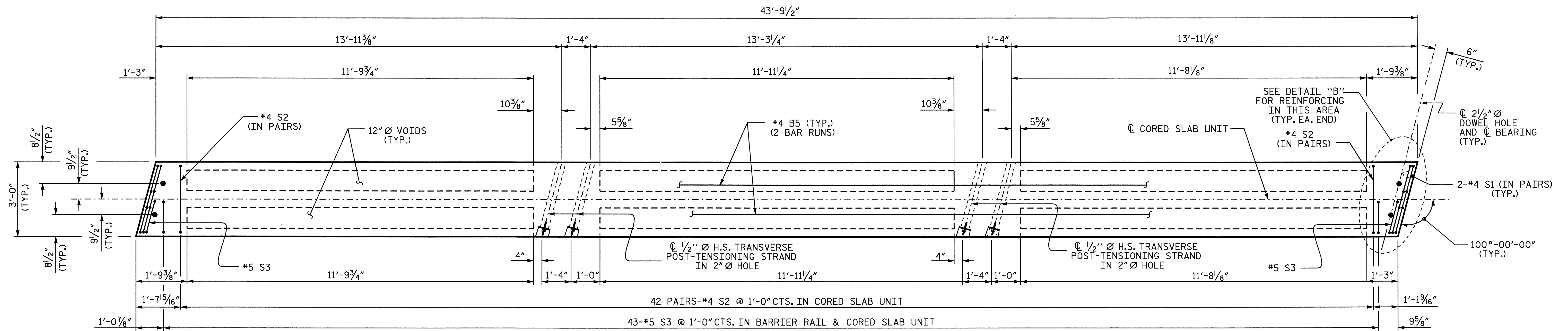


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
3'-0" x 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
DETAILS-SPAN B

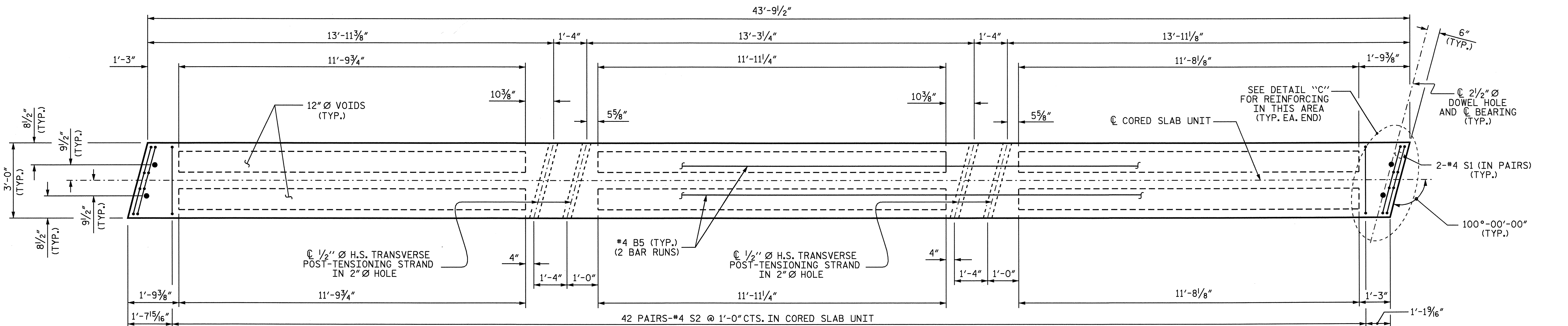
REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

TOTAL SHEETS: 56

DRAWN BY: QT NGUYEN DATE: 4-08
CHECKED BY: A.R. CHESSON DATE: 6-08



PLAN OF TYPE I CORED SLAB UNIT (STAGE I)

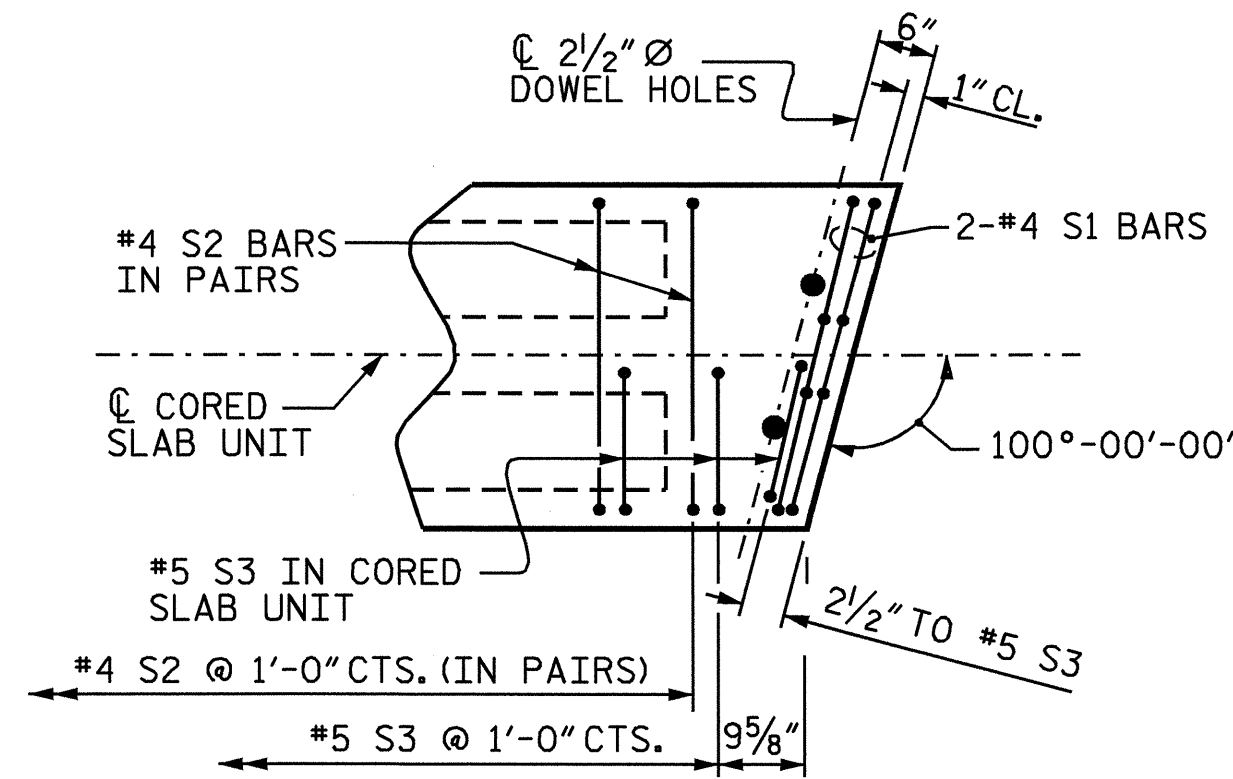


PLAN OF TYPE II CORED SLAB UNIT (STAGE I)

NOTES:

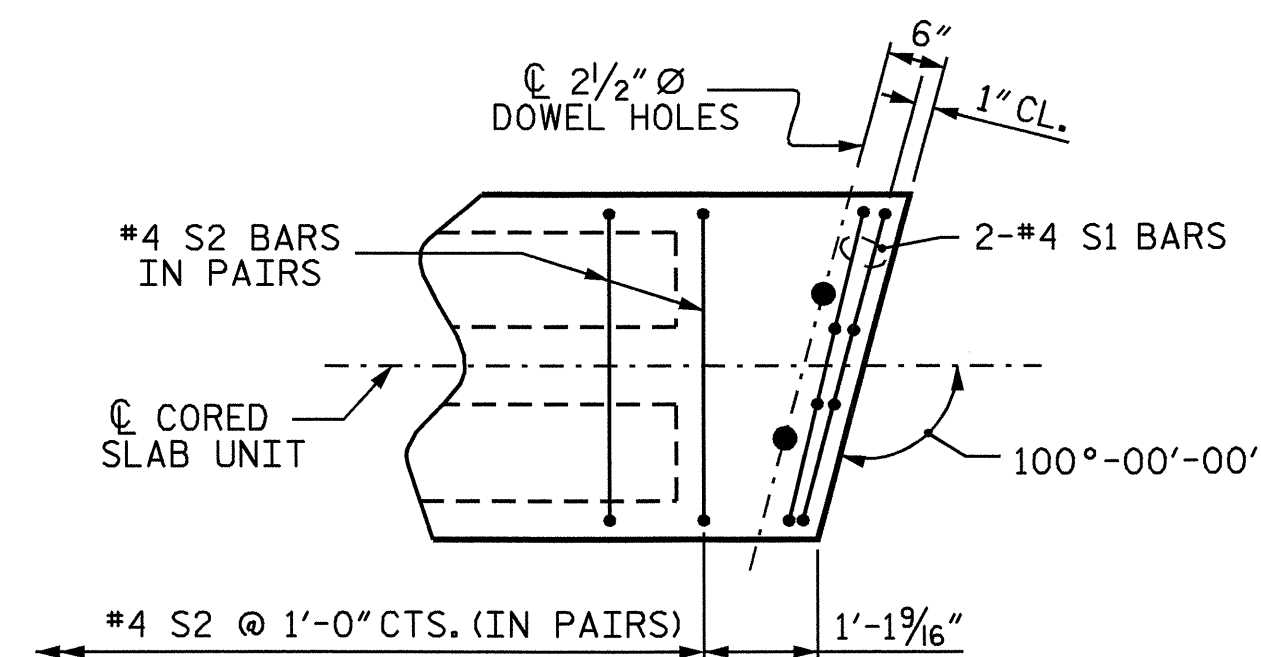
FOR GROUDED RECESS SEE "SUPERSTRUCTURE TYPICAL SECTION" SHEET 1 OF 14.

THE #4 S2 AND #5 S3 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MIN. CLEARANCE TO THE 2" Ø HOLES.



DETAIL "B"

(EA. END SIMILAR)

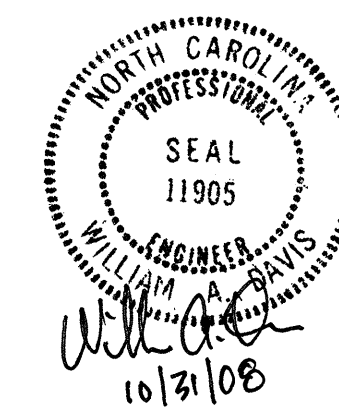


DETAIL "C"

(EA. END SIMILAR)

PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 39+17.00 -L-

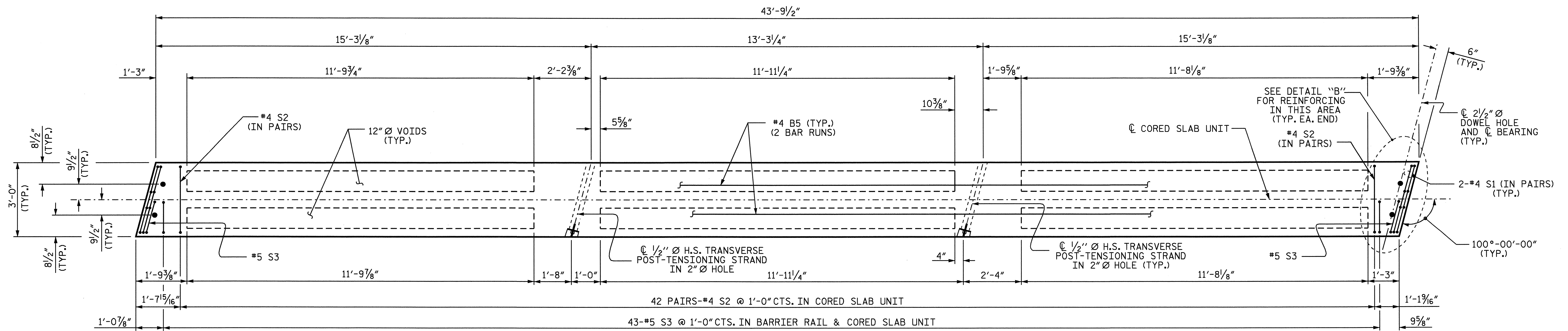
SHEET 9 OF 14



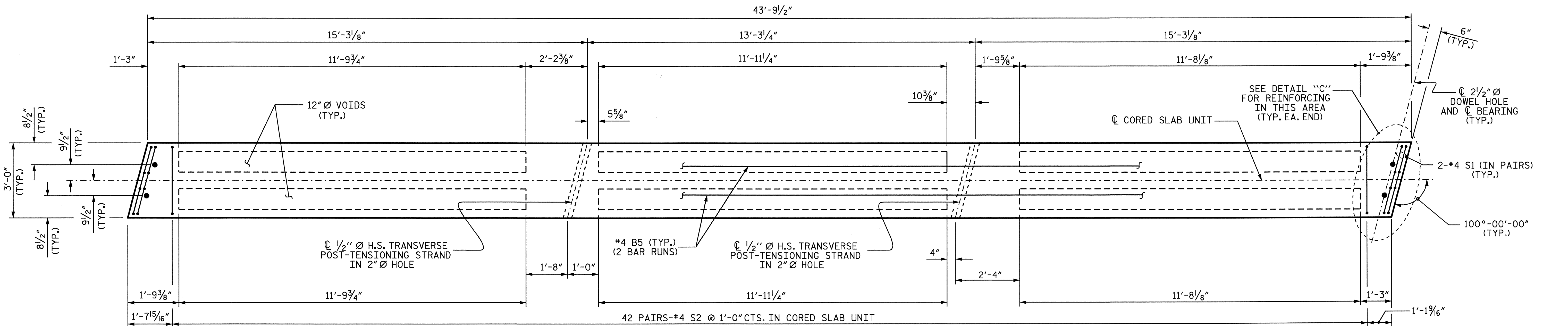
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 3'-0" x 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 DETAILS-SPAN C

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-41
1			3			TOTAL SHEETS
2			4			56

DRAWN BY: QT NGUYEN DATE: 4-08
 CHECKED BY: A.R. CHESSON DATE: 6-08



PLAN OF TYPE V CORED SLAB UNIT (STAGE II)

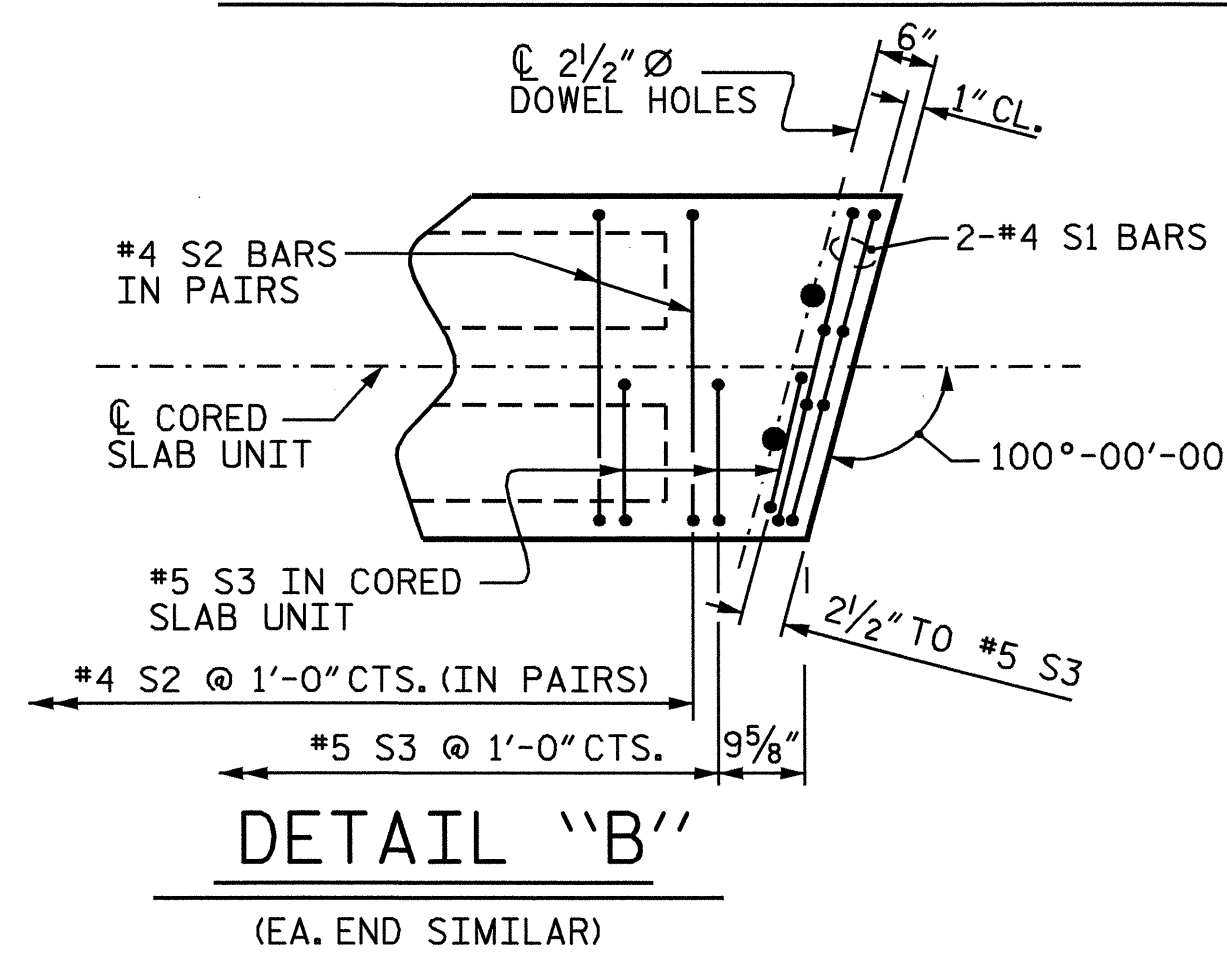


PLAN OF TYPE IV CORED SLAB UNIT (STAGE II)

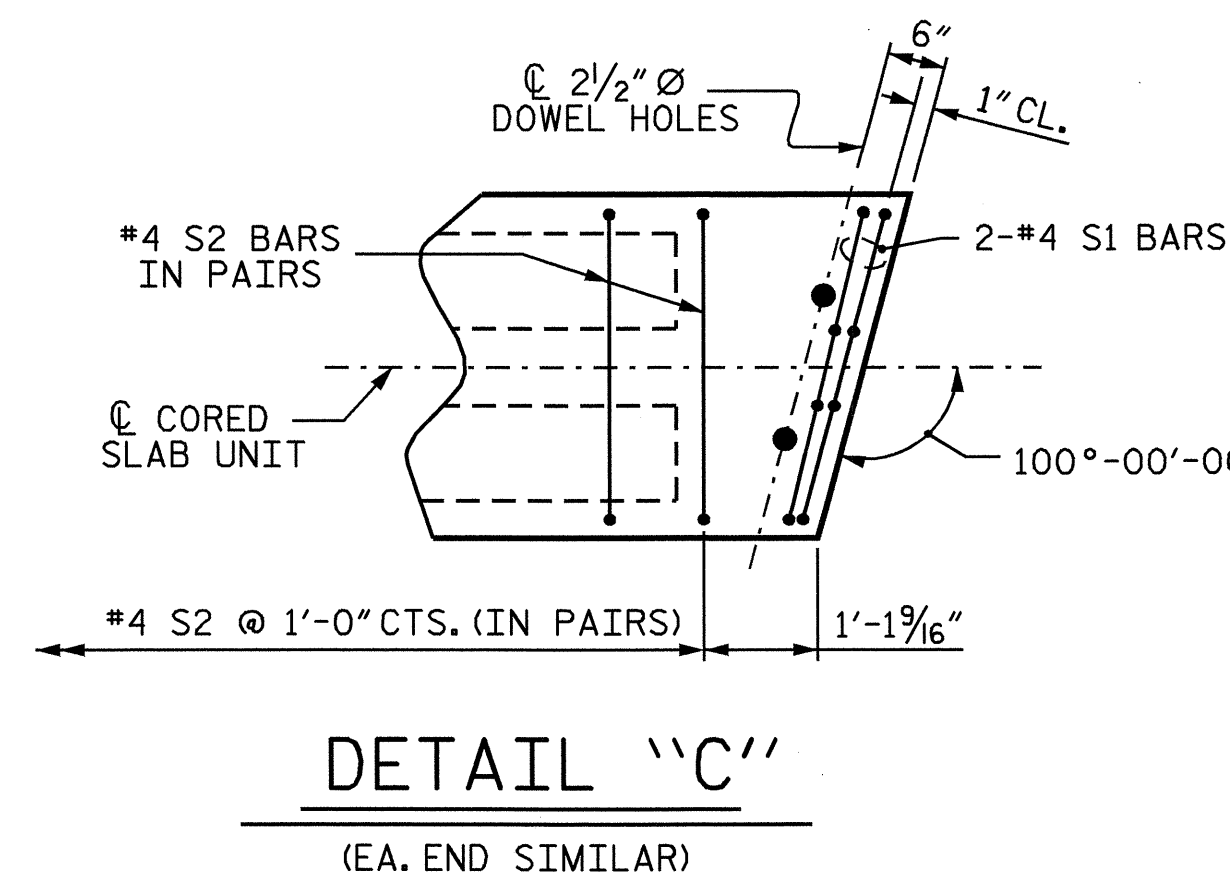
NOTES:

FOR GROUTED RECESS SEE "SUPERSTRUCTURE TYPICAL SECTION" SHEET 1 OF 14.

THE #4 S2 AND #5 S3 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MIN. CLEARANCE TO THE 2" Ø HOLES.



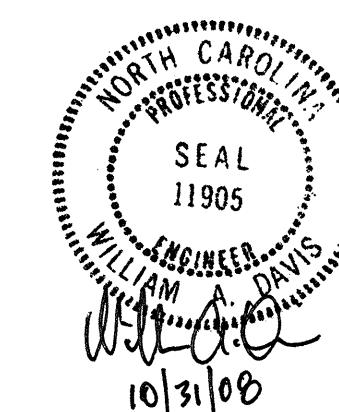
DETAIL "B"
(EA. END SIMILAR)



DETAIL "C"
(EA. END SIMILAR)

PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 39+17.00 -L-

SHEET 10 OF 14



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 3'-0" x 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 DETAILS-SPAN C

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-42
1			3			TOTAL SHEETS 56
2			4			

DRAWN BY: QT NGUYEN DATE: 4-08
 CHECKED BY: A.R. CHESSON DATE: 6-08

NOTES

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

- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 5/8".
- B. 1 - 7/8" Ø X 8 1/2" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A325. BOLT AND WASHER SHALL BE GALVANIZED. AT THE CONTRACTORS OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø X 8 1/2" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A325. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.
- C. WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI.
- D. STRUCTURAL CONCRETE INSERT ASSEMBLIES SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE COST OF THE STRUCTURAL CONCRETE INSERT ASSEMBLY, COMPLETE IN PLACE, SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS.

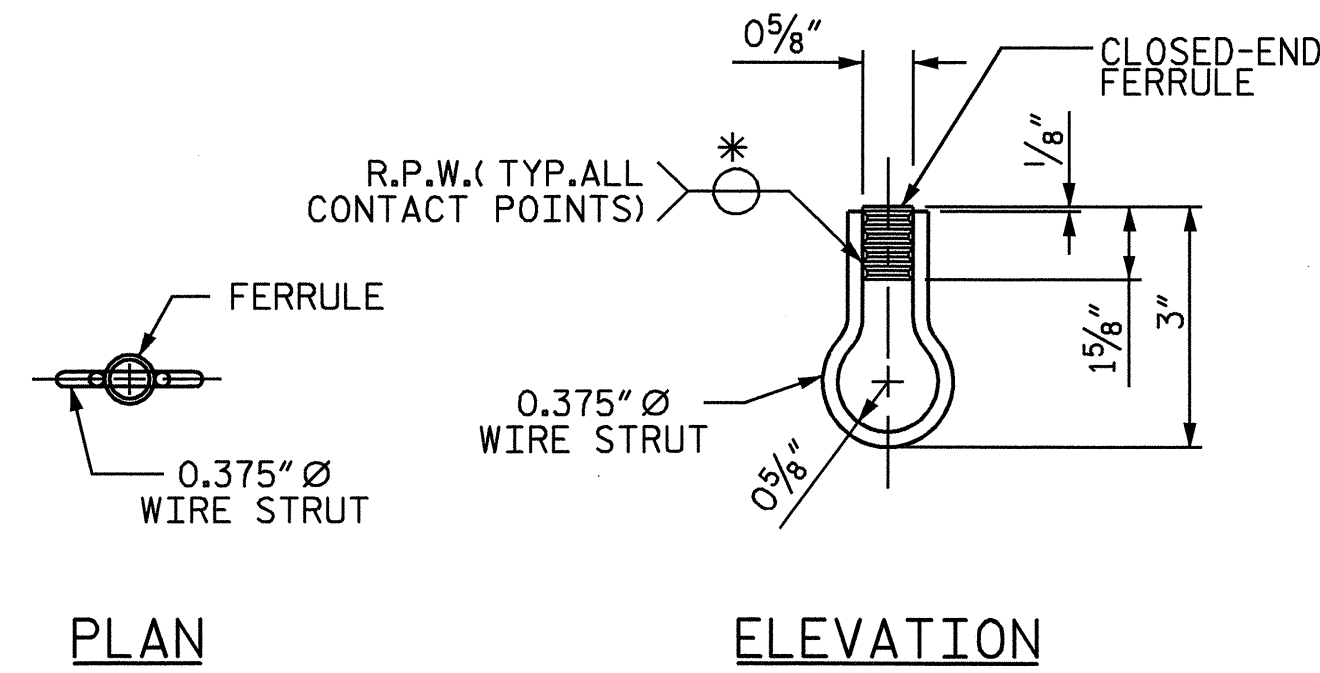
TO FACILITATE PLACEMENT OF STRUCTURAL CONCRETE INSERT ASSEMBLIES, #3 BARS MAY BE TIED TO THE #4 B1 BARS IN THE CORED SLAB UNITS. THE COST OF THE #3 BARS SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS.

STIRRUPS IN THE CORED SLAB UNITS MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR STRUCTURAL CONCRETE INSERT ASSEMBLIES.

FERRULES TO BE PLUGGED DURING CASTING OF THE CORED SLAB UNITS AS RECOMMENDED BY THE MANUFACTURER.

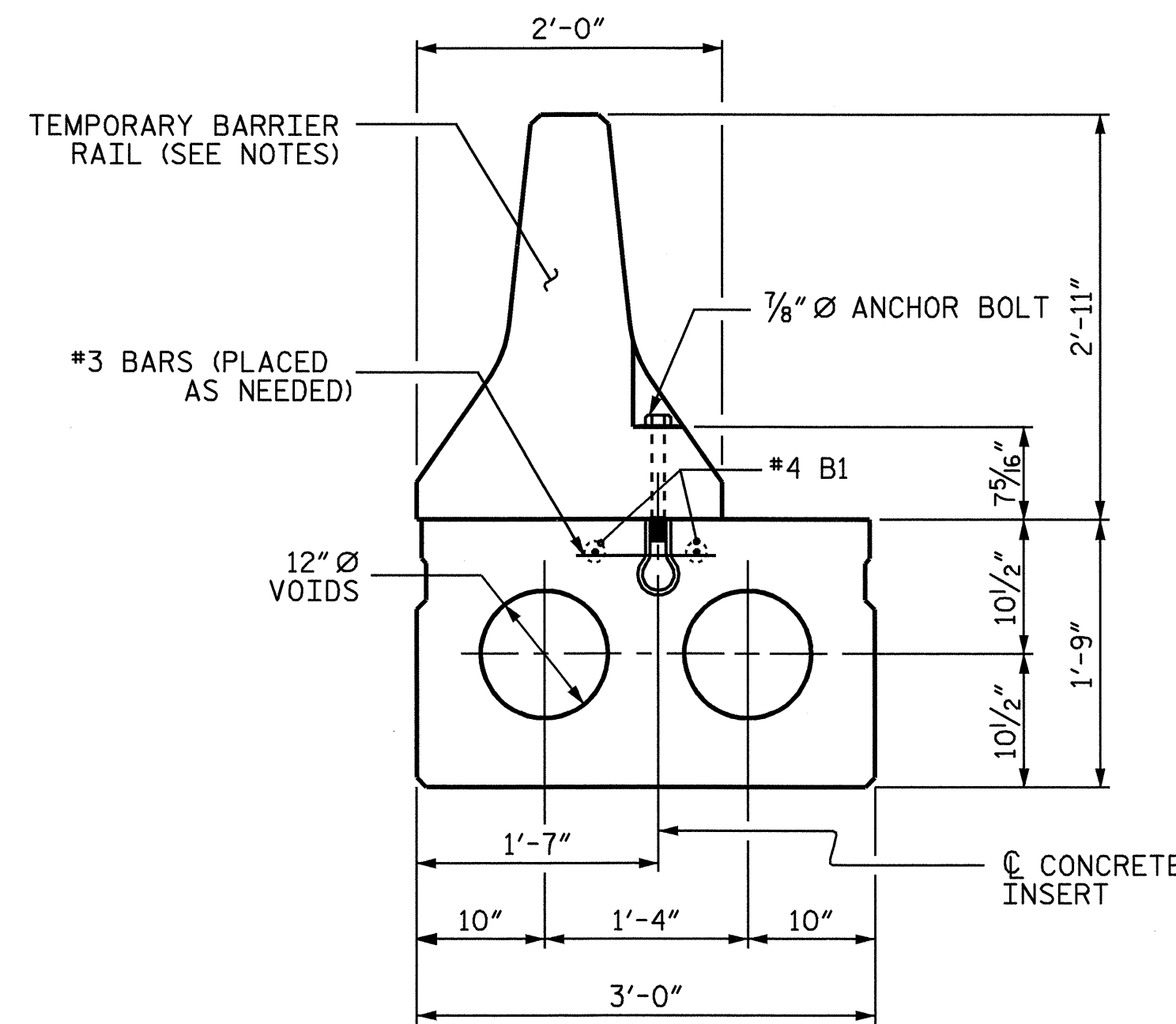
SEE TRAFFIC CONTROL PLANS FOR TEMPORARY BARRIER RAIL.

AFTER REMOVAL OF TEMPORARY BARRIER RAIL, THE STRUCTURAL CONCRETE INSERTS SHALL BE FILLED WITH GROUT.



STRUCTURAL CONCRETE INSERT

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



SECTION OF CONCRETE INSERT LOCATION

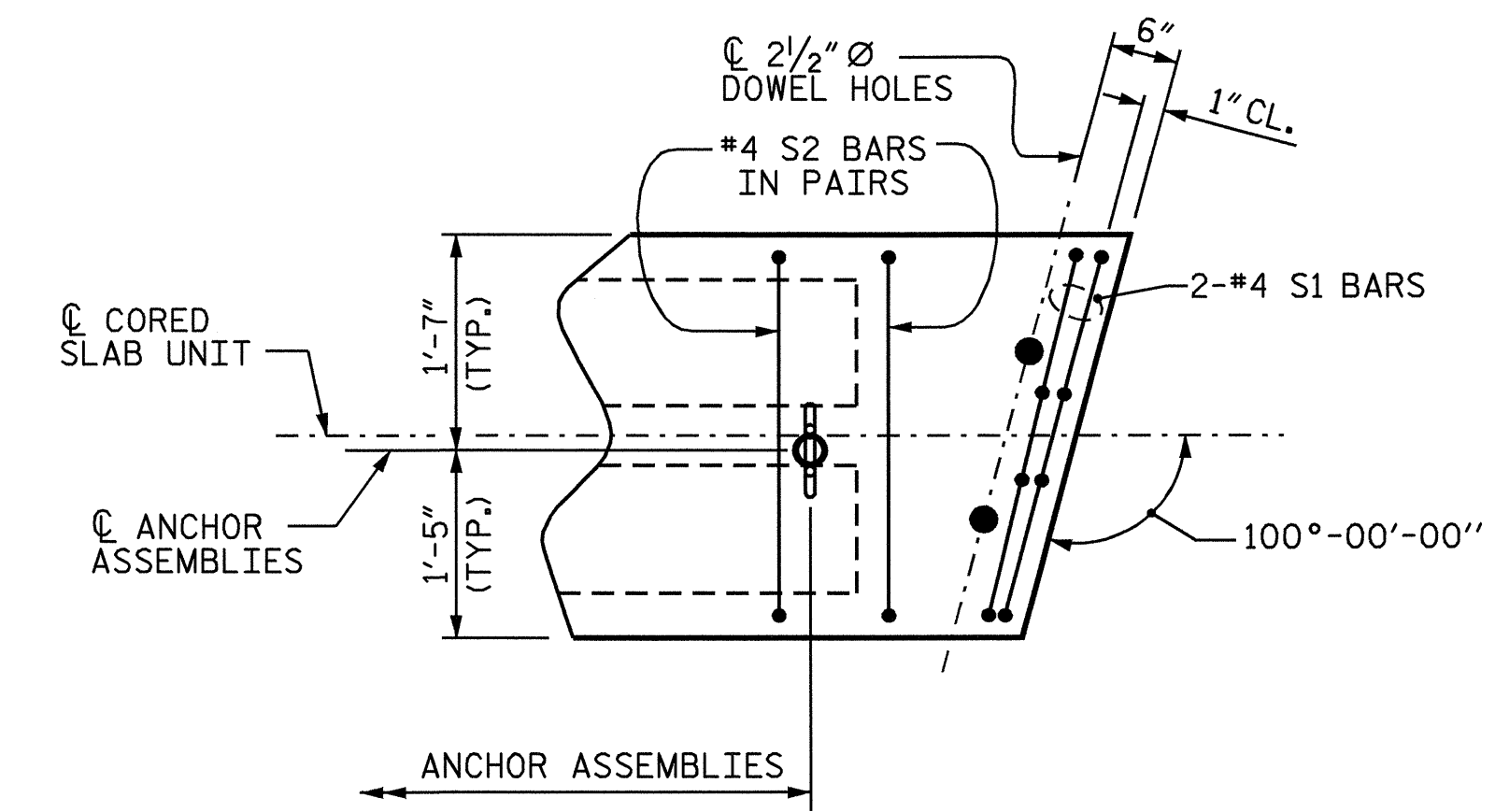
(TYPE III UNIT, STAGE I)

NOTES:

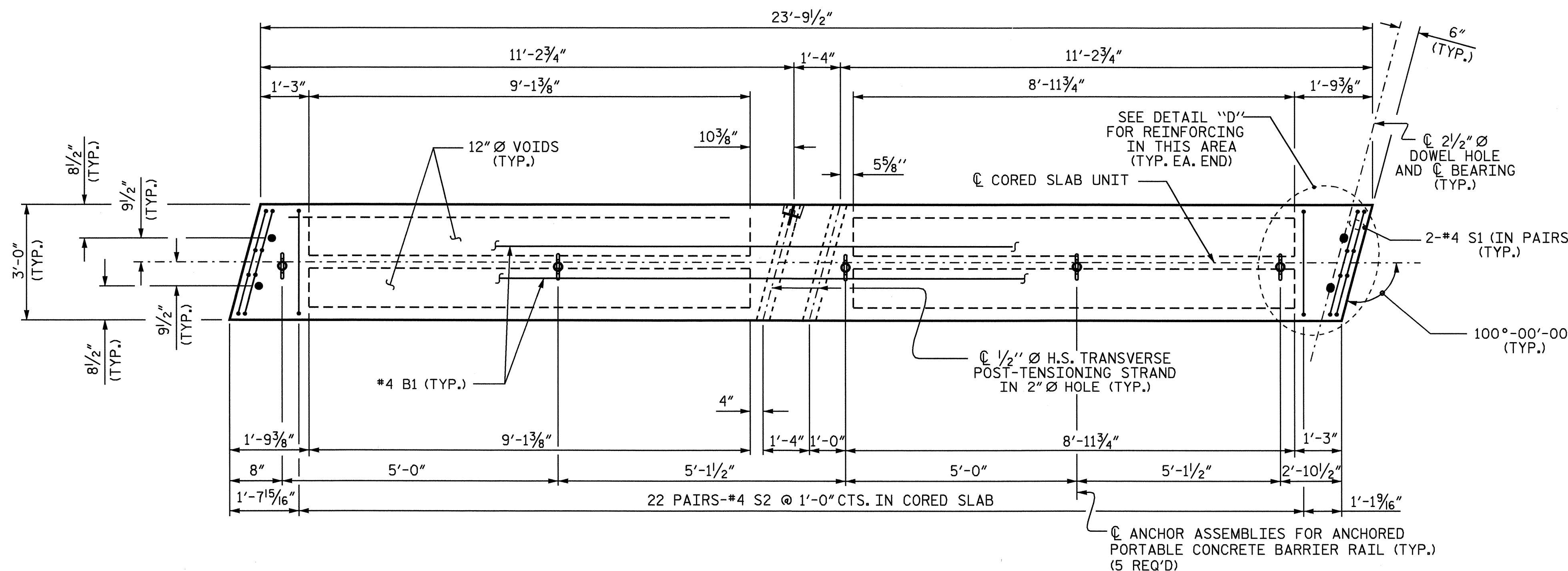
FOR GROUTED RECESS SEE "SUPERSTRUCTURE TYPICAL SECTION" SHEET 1 OF 14.

THE #4 S2 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MIN. CLEARANCE TO THE 2" Ø HOLES.

ANCHORS FOR PORTABLE CONCRETE BARRIER HAVE BEEN SPACED ACCORDING TO ROADWAY STANDARD 1170.01. THE CONTRACTOR SHALL CONFIRM THE USE OF BARRIERS MATCHING THIS STANDARD AND THE LOCATIONS OF THE ANCHORS. IF THE PORTABLE CONCRETE BARRIER DOES NOT MEET THE STANDARD'S DETAILS AND THE SPACING OF THE ANCHORS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING ANCHORS PROPERLY SPACED FOR THE PROPOSED BARRIERS AS APPROVED BY THE ENGINEER.



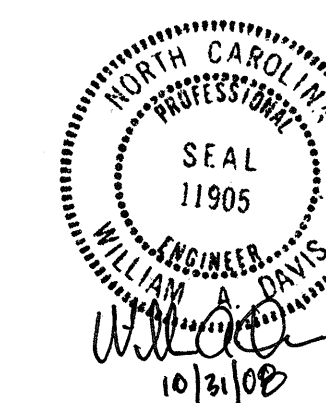
DETAIL "D"
(EA. END SIMILAR)



PLAN OF TYPE III CORED SLAB UNIT (STAGE I)

PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 39+17.00 -L-

SHEET 11 OF 14

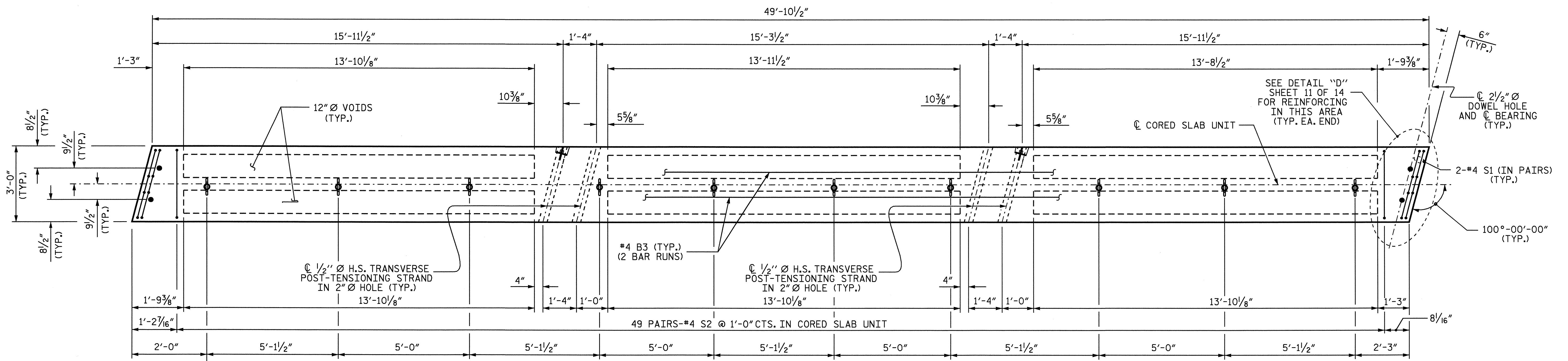


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 TEMPORARY BARRIER
 RAIL ANCHORAGE
 DETAILS FOR TYPE III
 CORED SLAB UNIT
 SPAN A

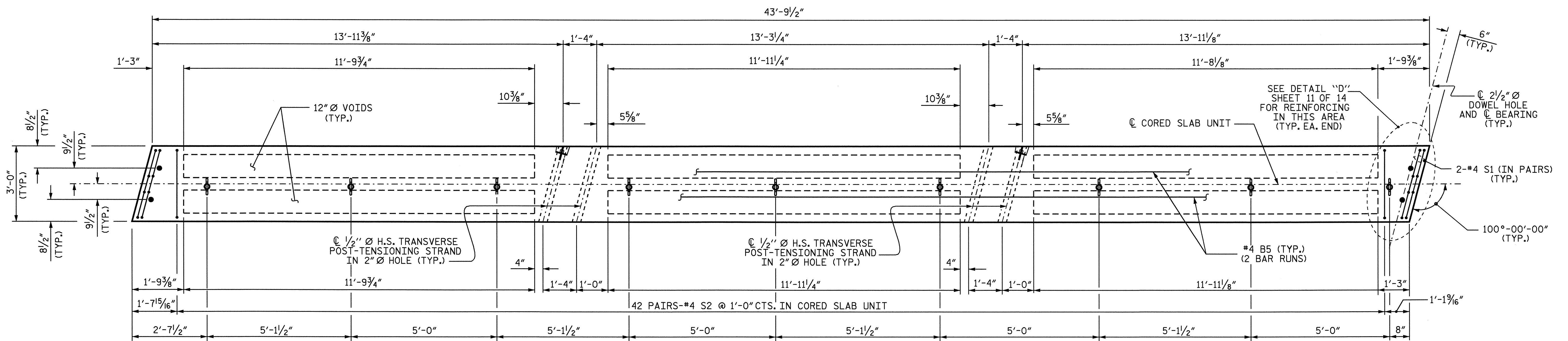
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

TOTAL SHEETS: 56

DRAWN BY: QT NGUYEN DATE: 4-08
 CHECKED BY: A.R. CHESSON DATE: 6-08



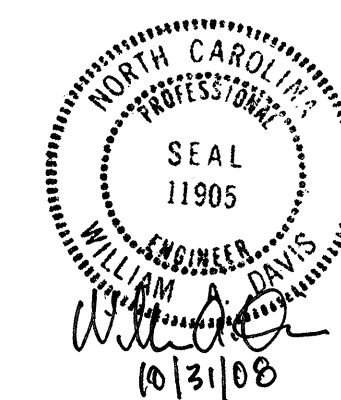
PLAN OF TYPE III CORED SLAB UNIT (STAGE I) - SPAN B



PLAN OF TYPE III CORED SLAB UNIT (STAGE I) - SPAN C

PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 39+17.00 -L-

SHEET 12 OF 14



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 TEMPORARY BARRIER
 RAIL ANCHORAGE
 DETAILS FOR TYPE III
 CORED SLAB UNIT
 SPAN B OR SPAN C

DRAWN BY: QT NGUYEN DATE: 4-08
 CHECKED BY: A.R. CHESSON DATE: 6-08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-44
1			3			TOTAL SHEETS
2			4			56

NOTES

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

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

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 1/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

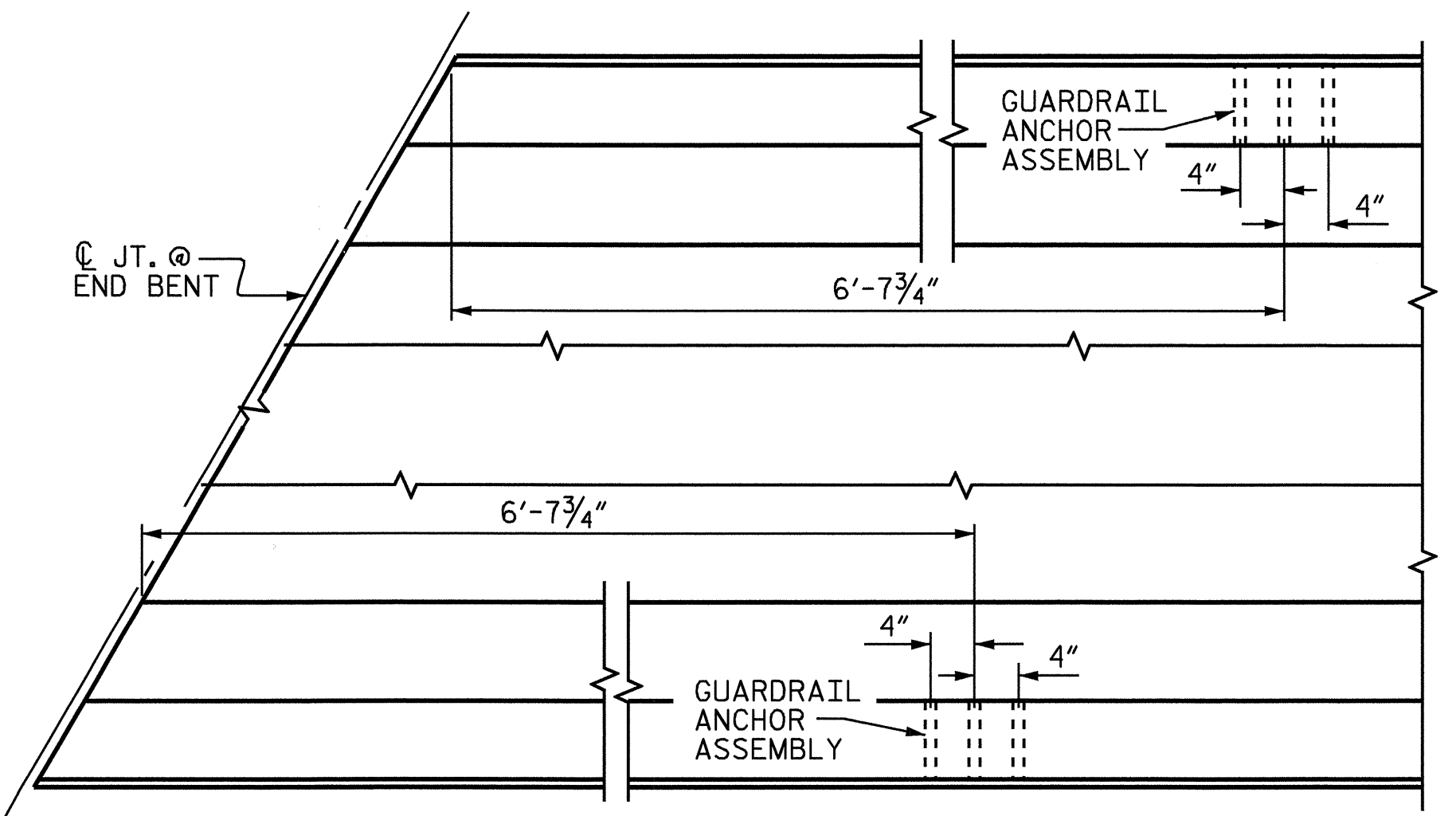
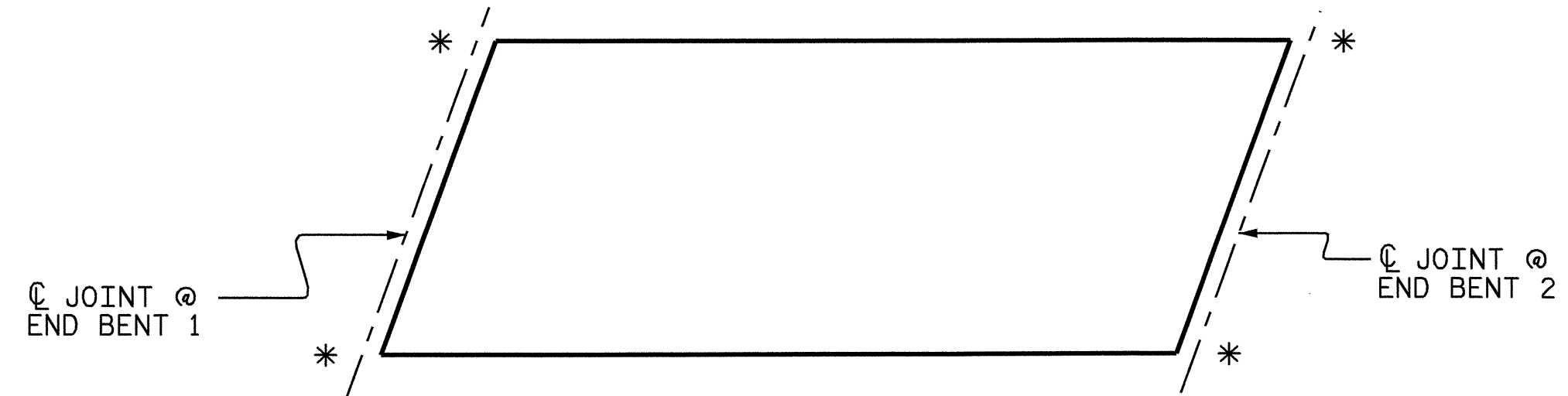
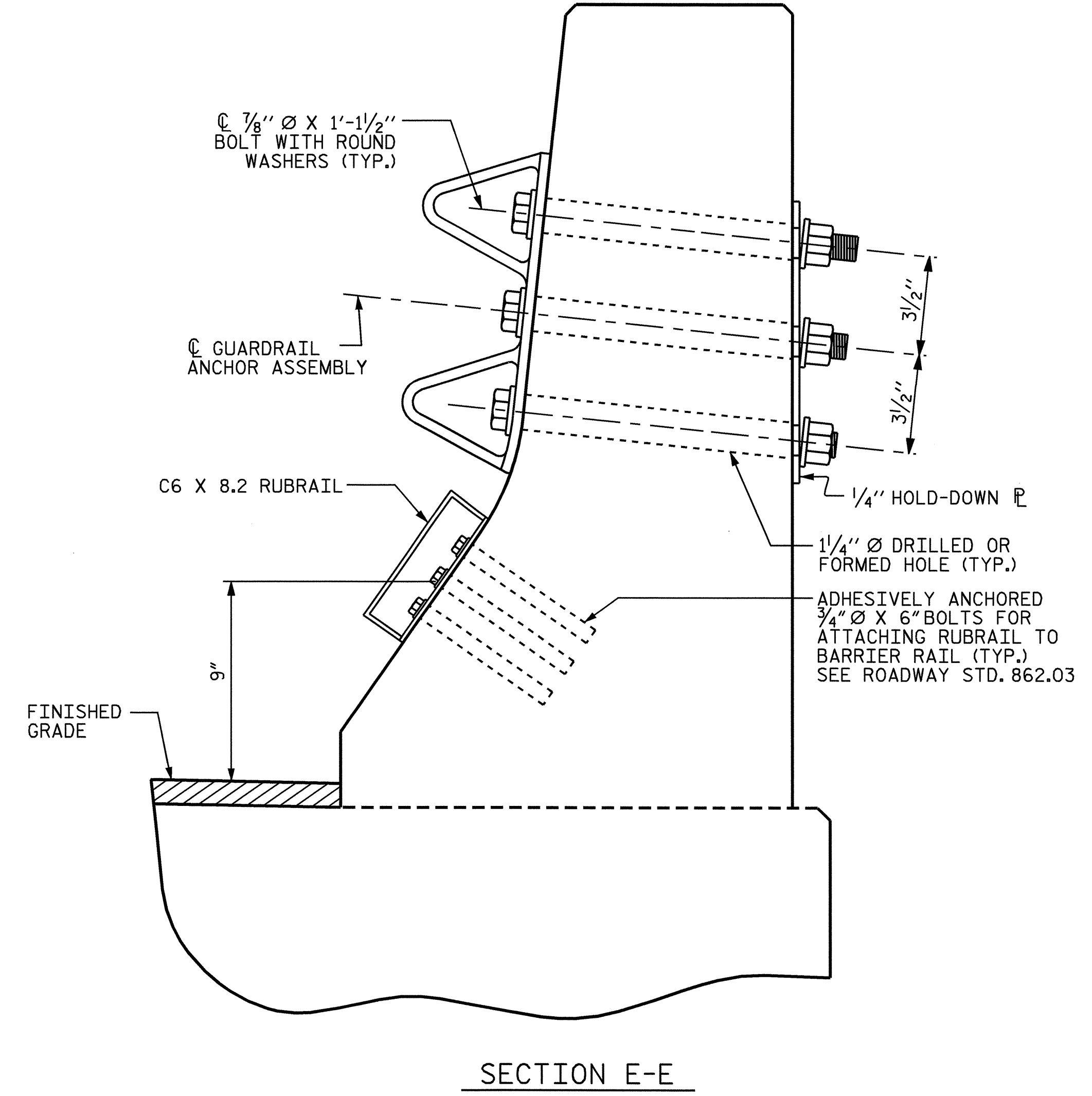
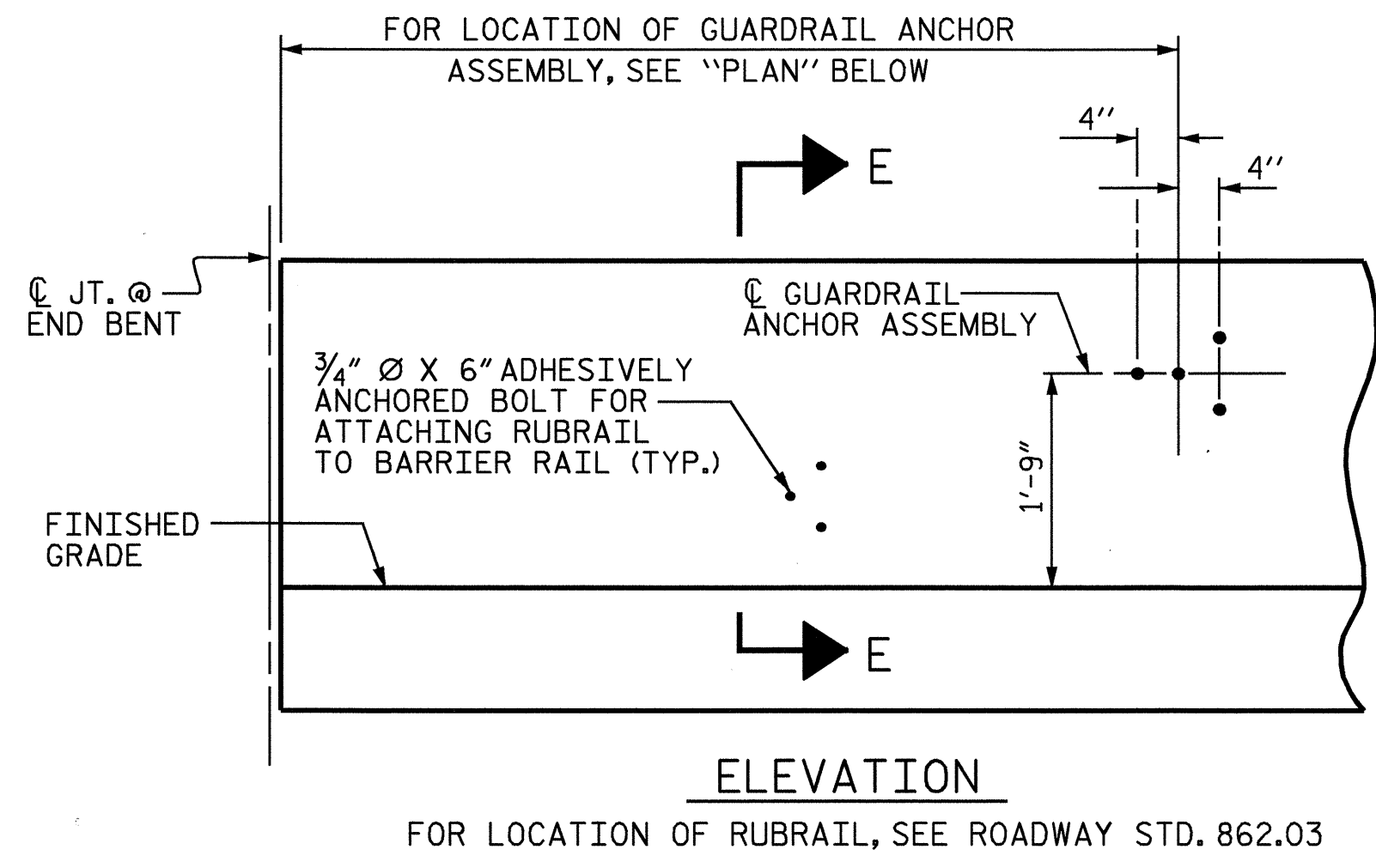
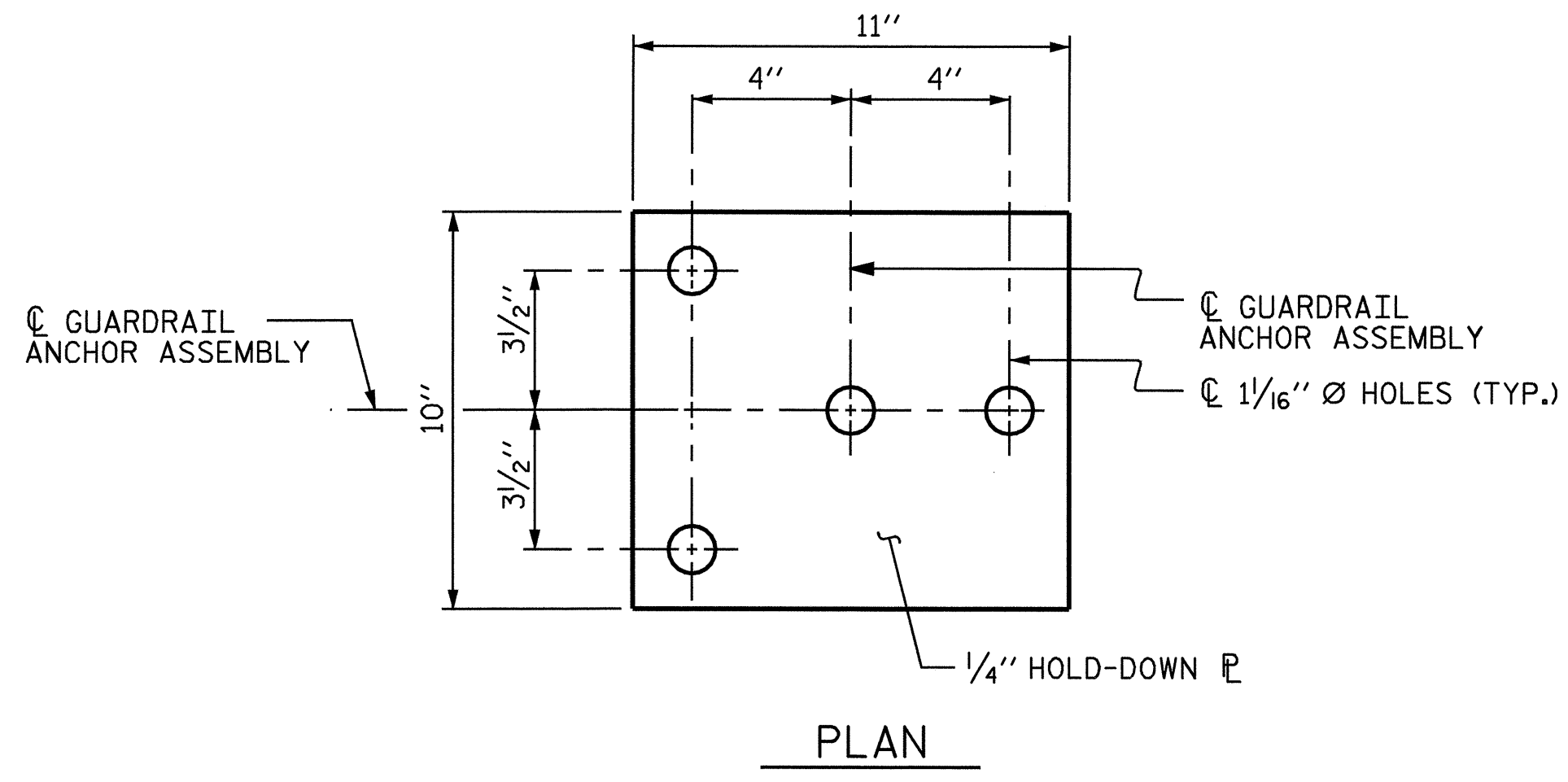
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

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

THE 1/4" 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 ATTACHMENT
* DENOTES GUARDRAIL ANCHOR ASSEMBLY

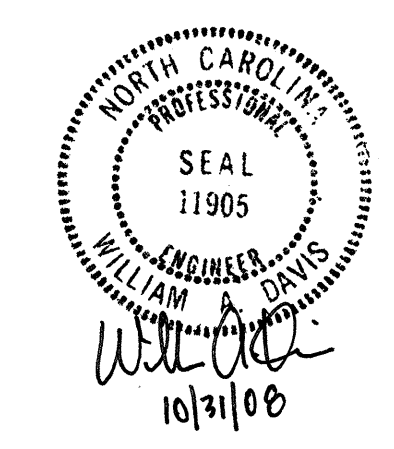
GUARDRAIL ANCHOR ASSEMBLY DETAILS

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT 1 SHOWN, END BENT 2 SIMILAR.

PROJECT NO. B-3830
COLUMBUS COUNTY
STATION: 39+17.00 -L-

SHEET 13 OF 14



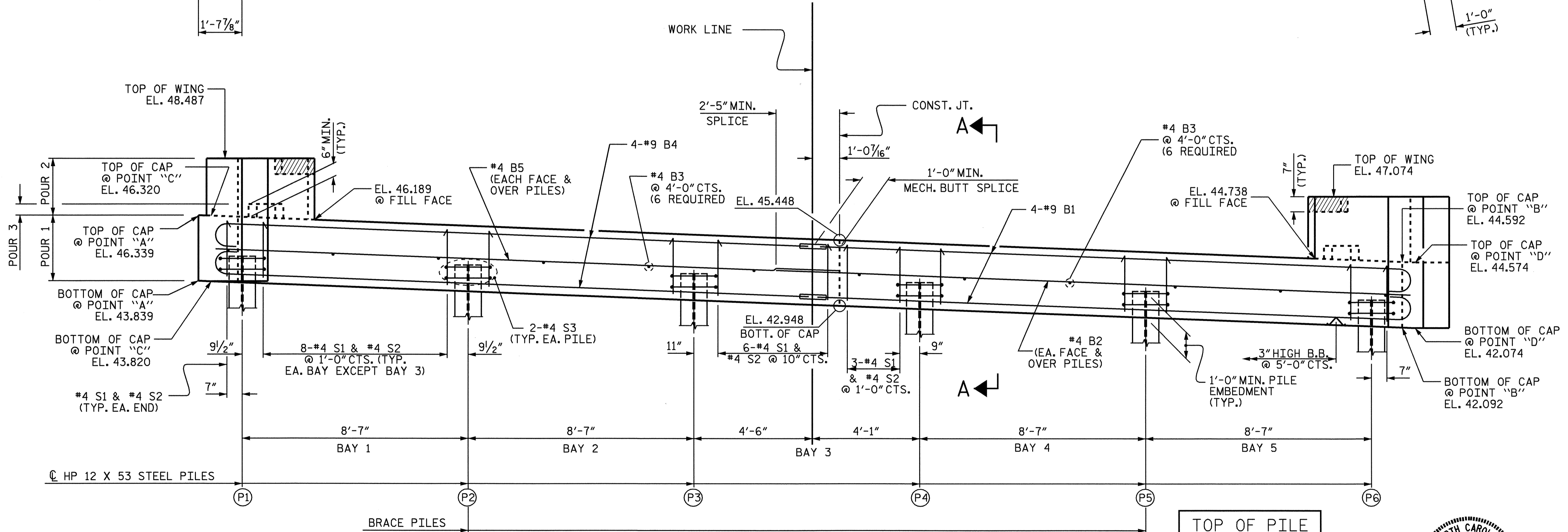
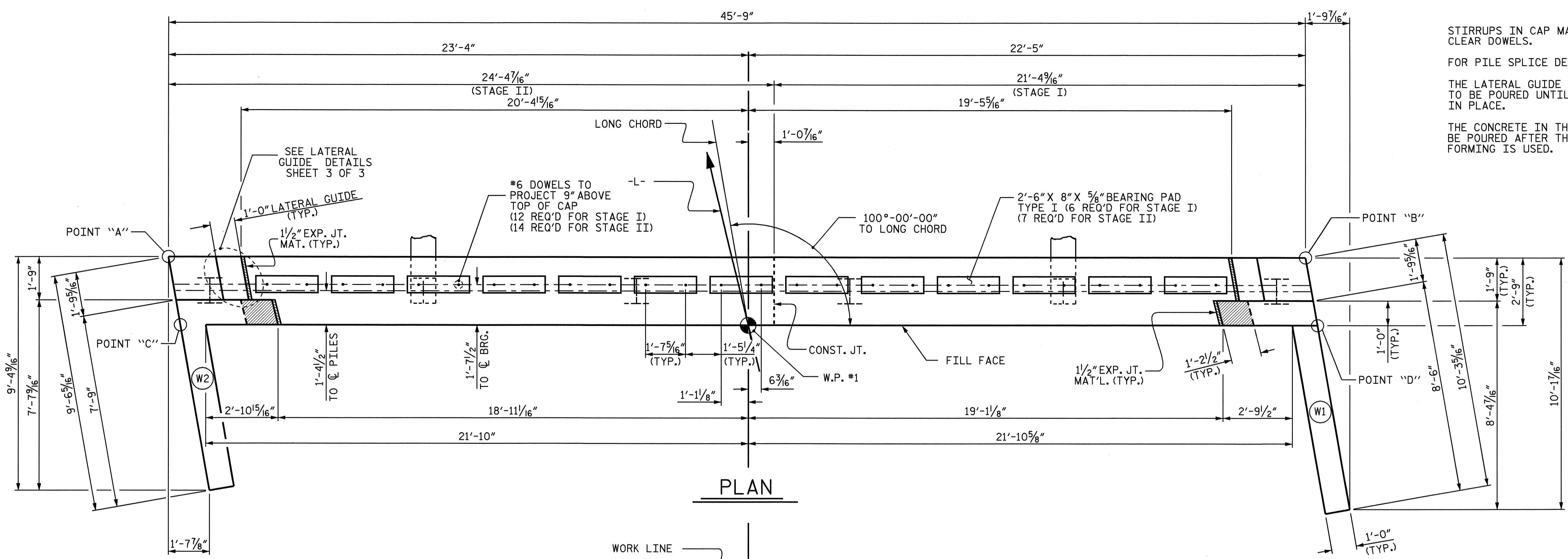
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
GUARDRAIL ANCHORAGE
FOR BARRIER RAIL

ASSEMBLED BY : QT NGUYEN	DATE : 4-08
CHECKED BY : A.R. CHESSON	DATE : 6-08
DRAWN BY : TLA	5/06
CHECKED BY : GM	5/06
ADDED	5/1/06R KMM/GM

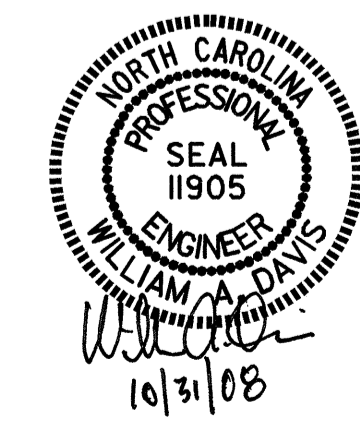
REVISIONS						SHEET NO. S-45
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 28
2			4			

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
 FOR PILE SPLICE DETAILS, SEE SHEET 3 OF 3.
 THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER CORED SLAB UNITS ARE IN PLACE.
 THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.



TOP OF PILE ELEVATIONS	
PILE	ELEV.
1	44.794
2	44.466
3	44.139
4	43.811
5	43.484
6	43.156



PROJECT NO. B-3830
 COLUMBUS COUNTY
 STATION: 39+17.00 -L-

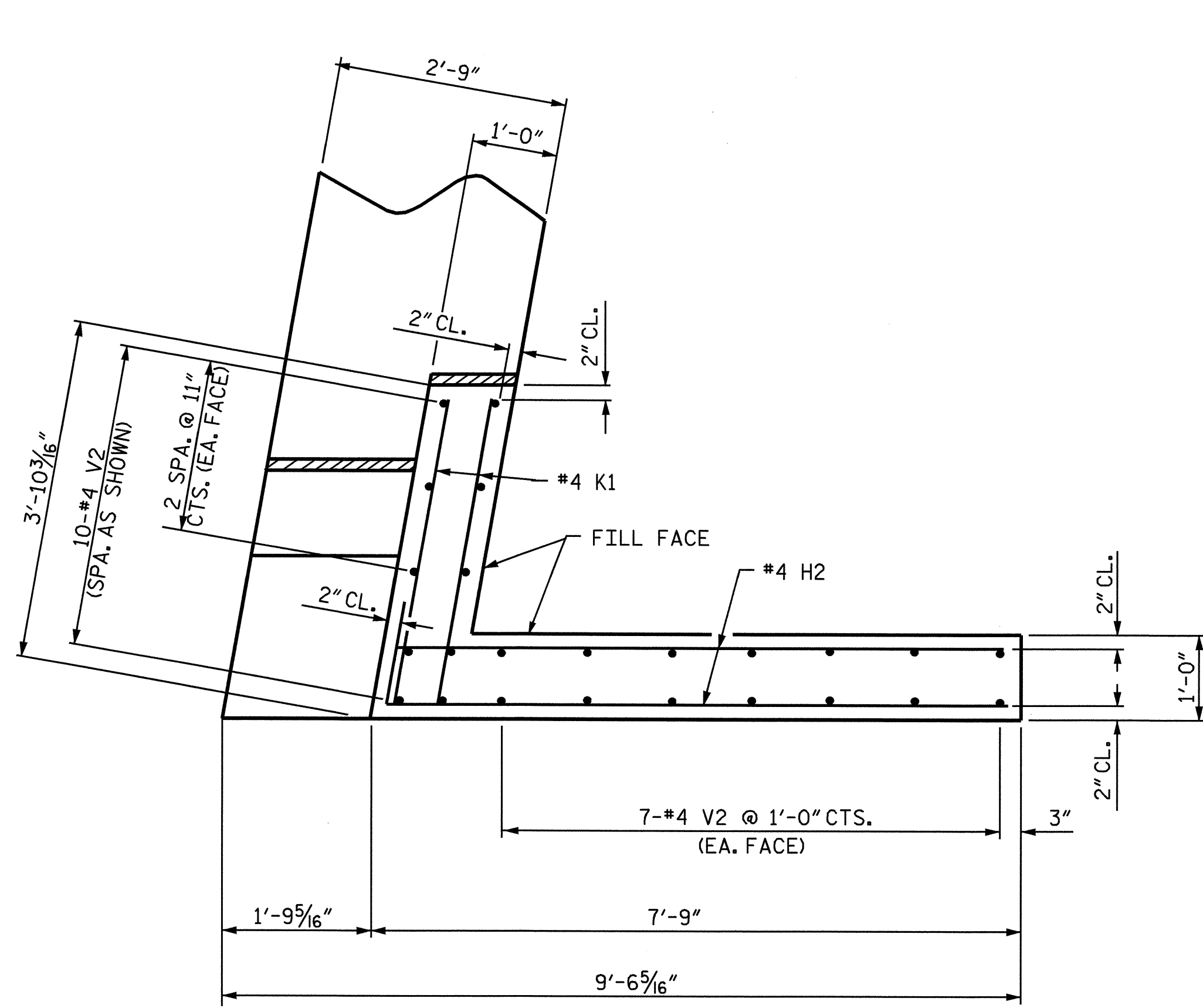
SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 1

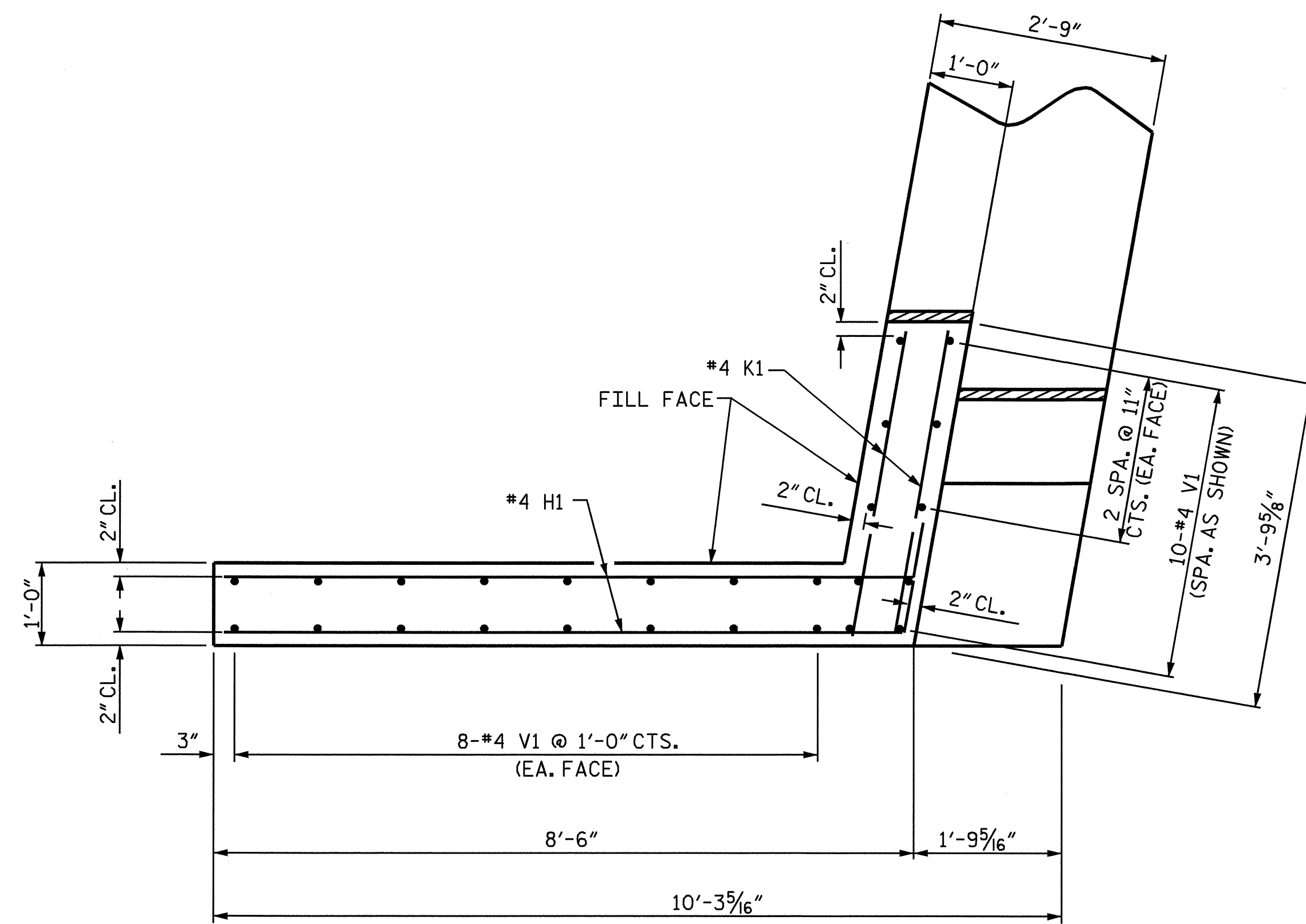
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-47
1			3			TOTAL SHEETS 56
2			4			

DRAWN BY: HARISH SHAH DATE: 4/29/08
 CHECKED BY: QT NGUYEN DATE: 6-08

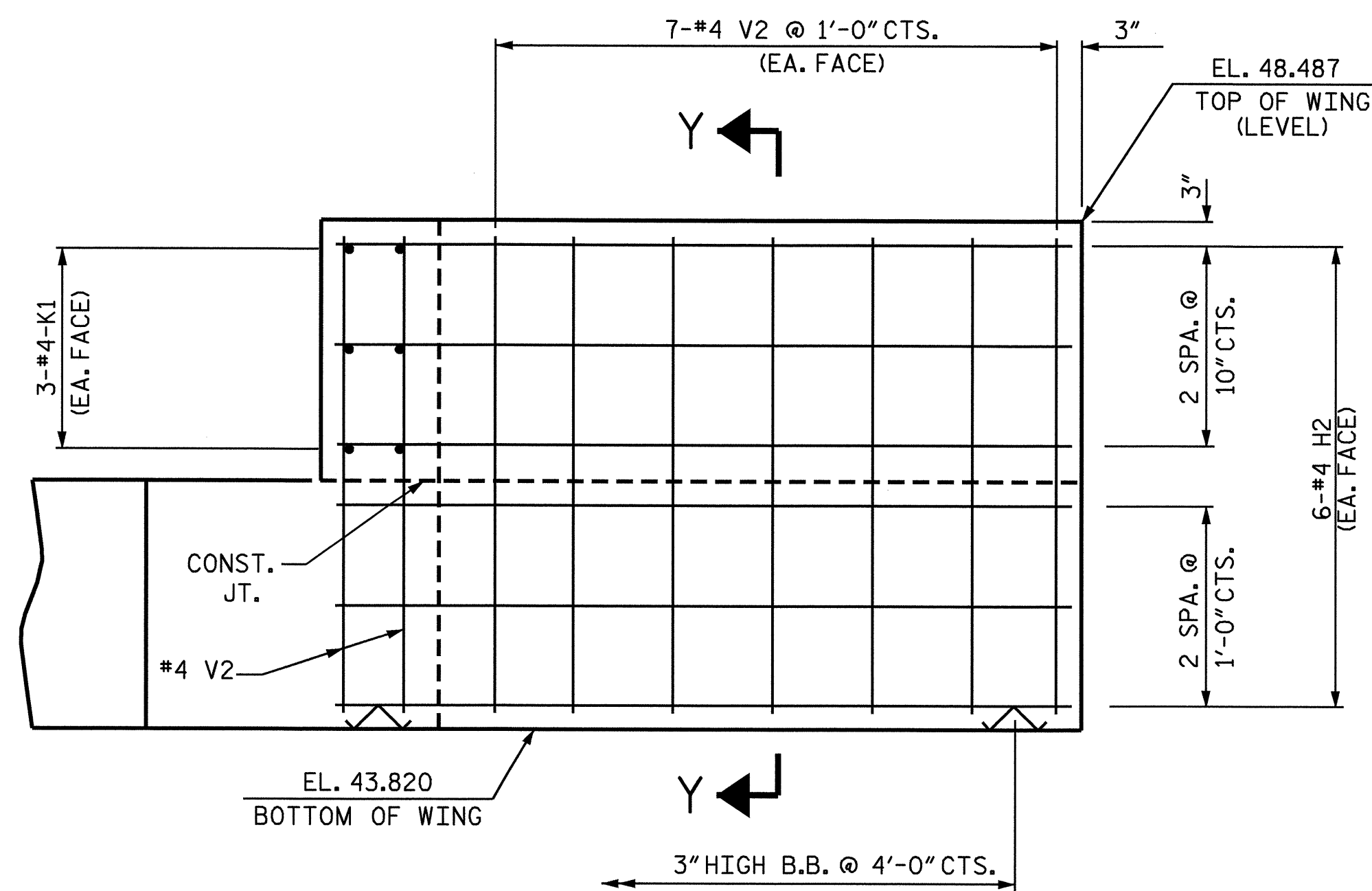
30-OCT-2008 10:56
 c:\structures\b3830\final plans\str. 2\b3830_sd_ebt2.dgn
 qtnguyen



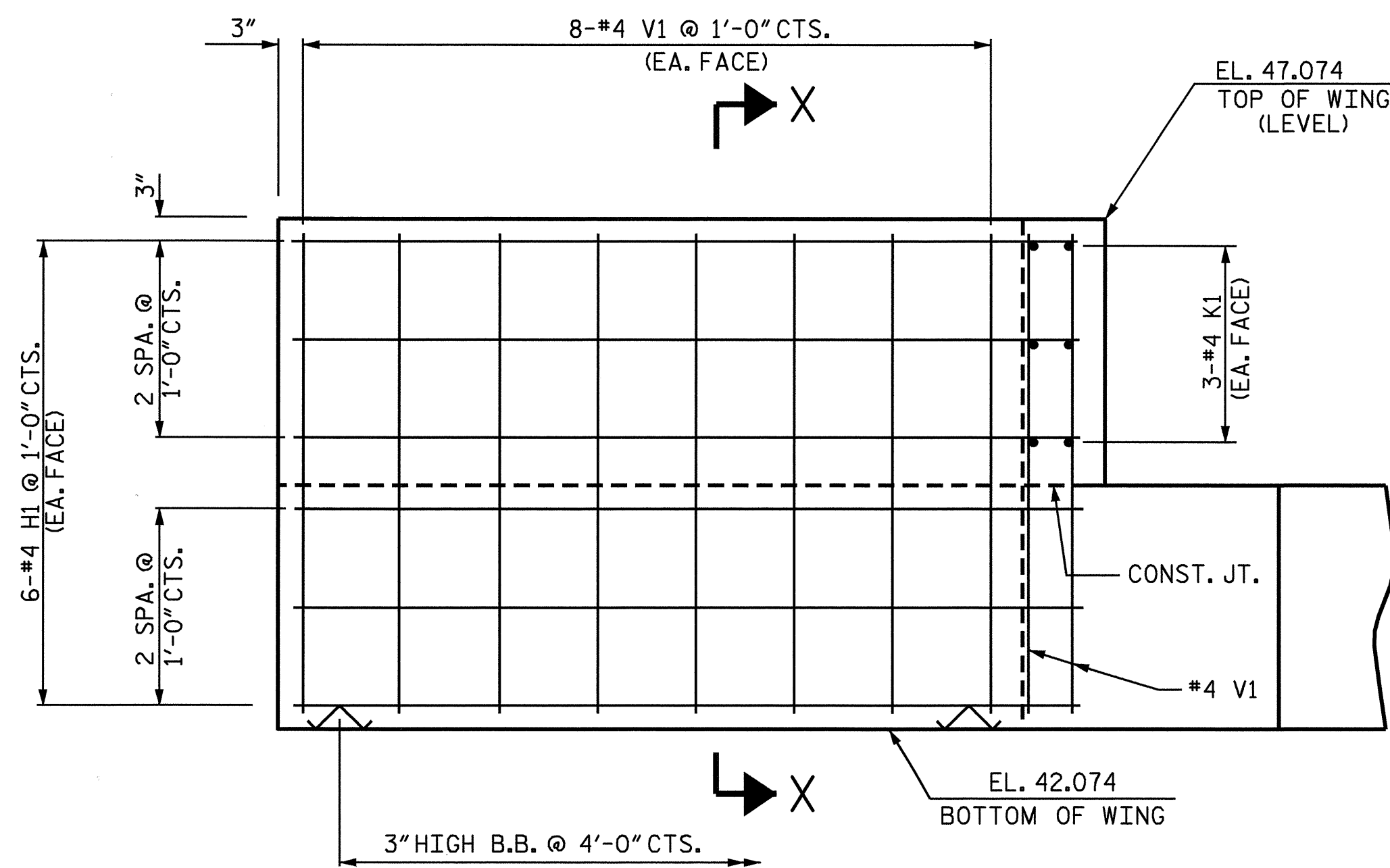
PLAN OF WING - W2



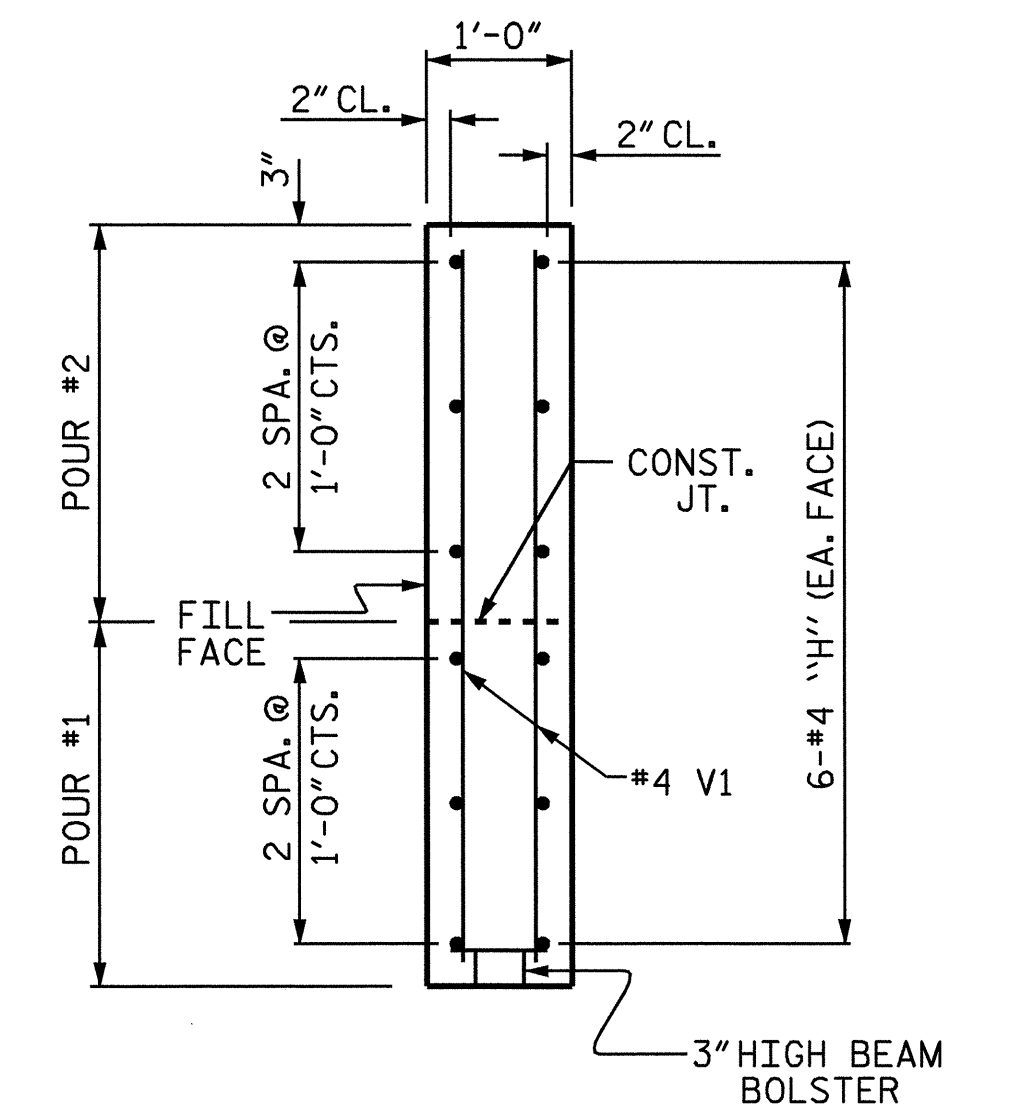
PLAN OF WING - W1



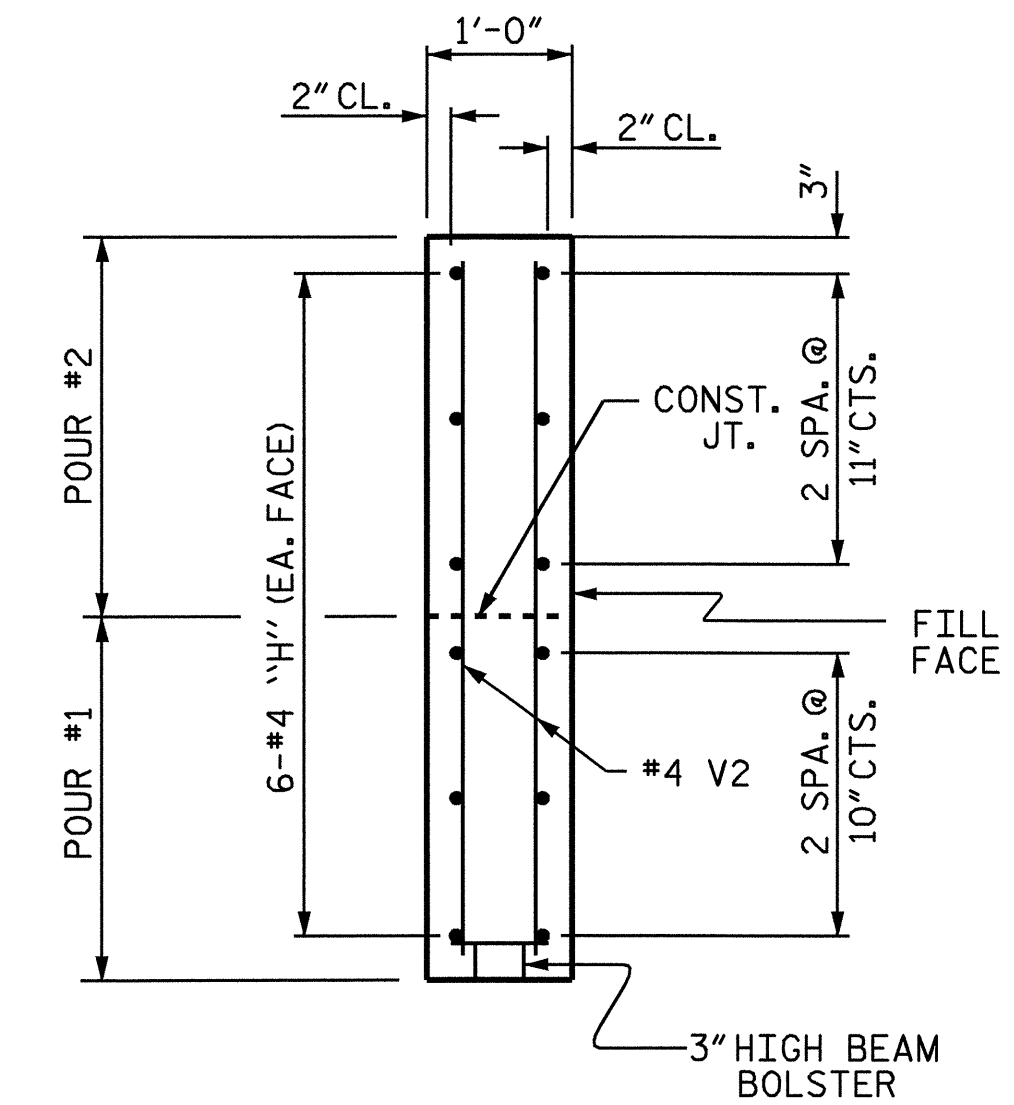
ELEVATION OF WING - W2



ELEVATION OF WING - W1



SECTION X-X

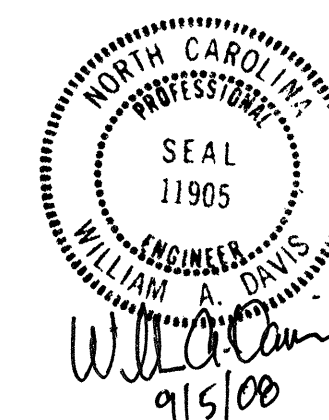


SECTION Y-Y

PROJECT NO. B-3830
 COLUMBUS COUNTY
 STATION: 39+17.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 1

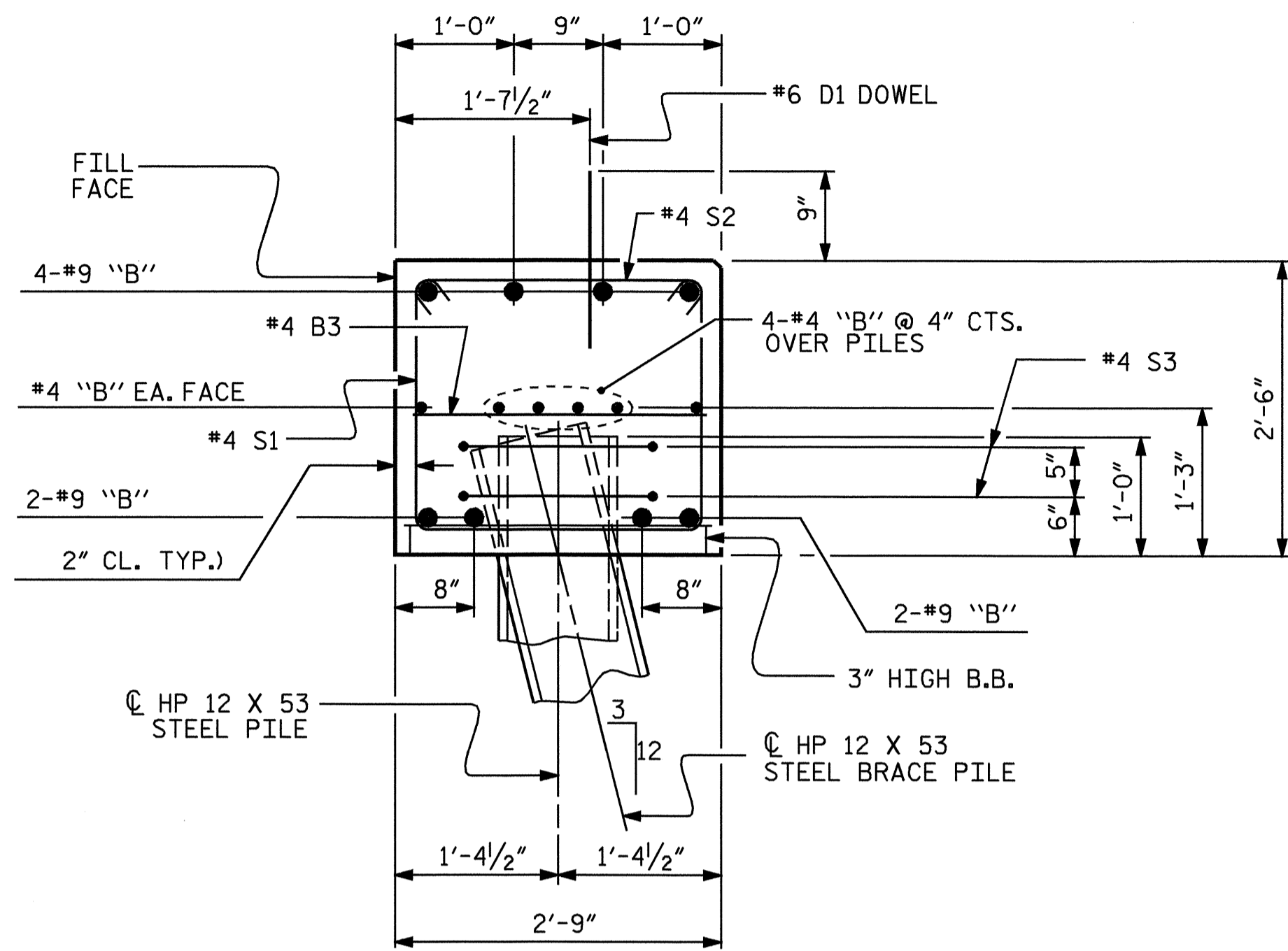


DRAWN BY: HARISH SHAH DATE: 4/29/08
 CHECKED BY: QT NGUYEN DATE: 6-08

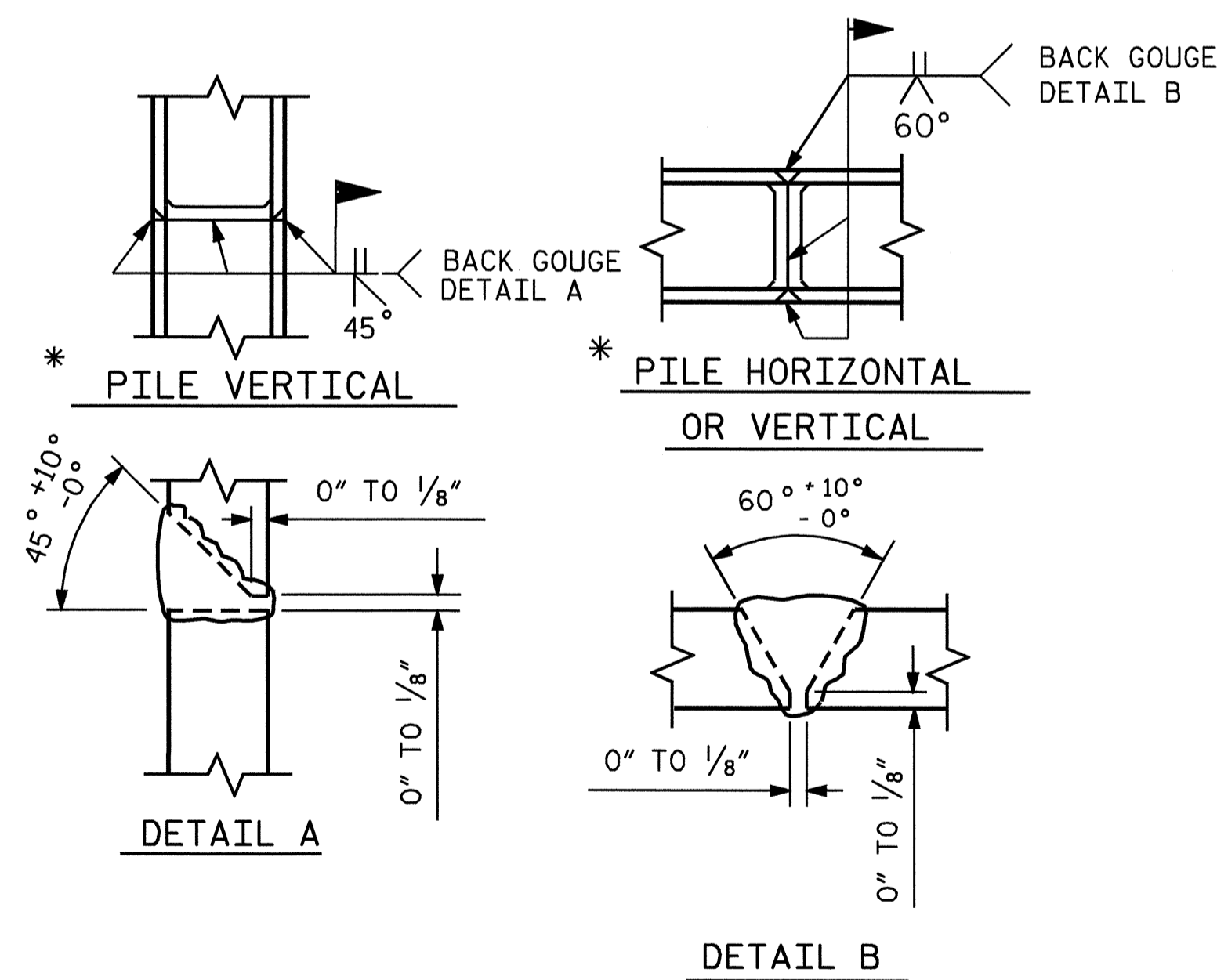
05-SEP-2008 12:59
 V:\Structures\B3830\FINAL PLANS\STR. 2\B3830.sd_eb12.dgn
 cdhasson

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-48
1			3			TOTAL SHEETS 56
2			4			

STR. #2

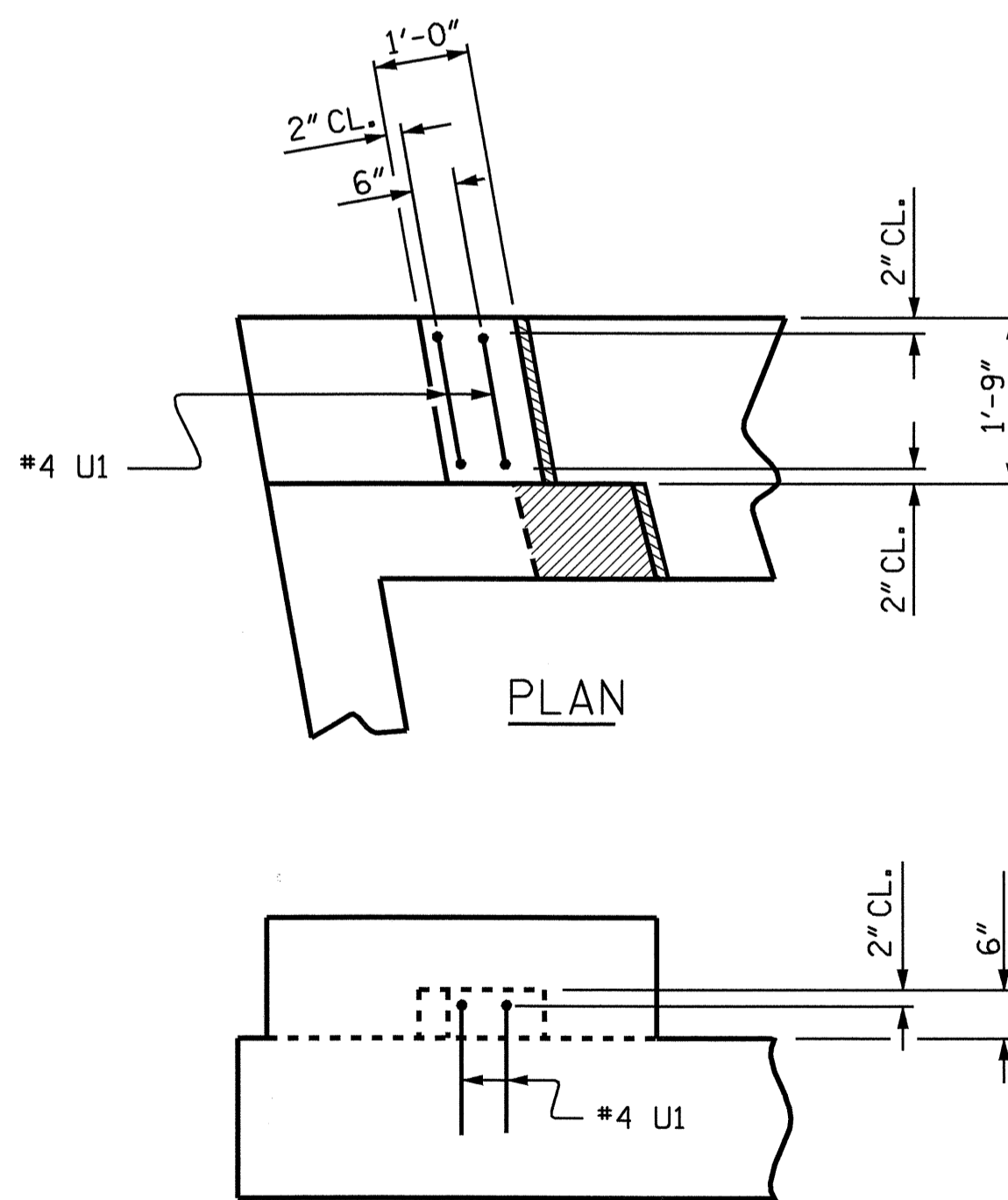


SECTION A-A



PILE SPICE DETAILS

* POSITION OF PILE DURING WELDING.

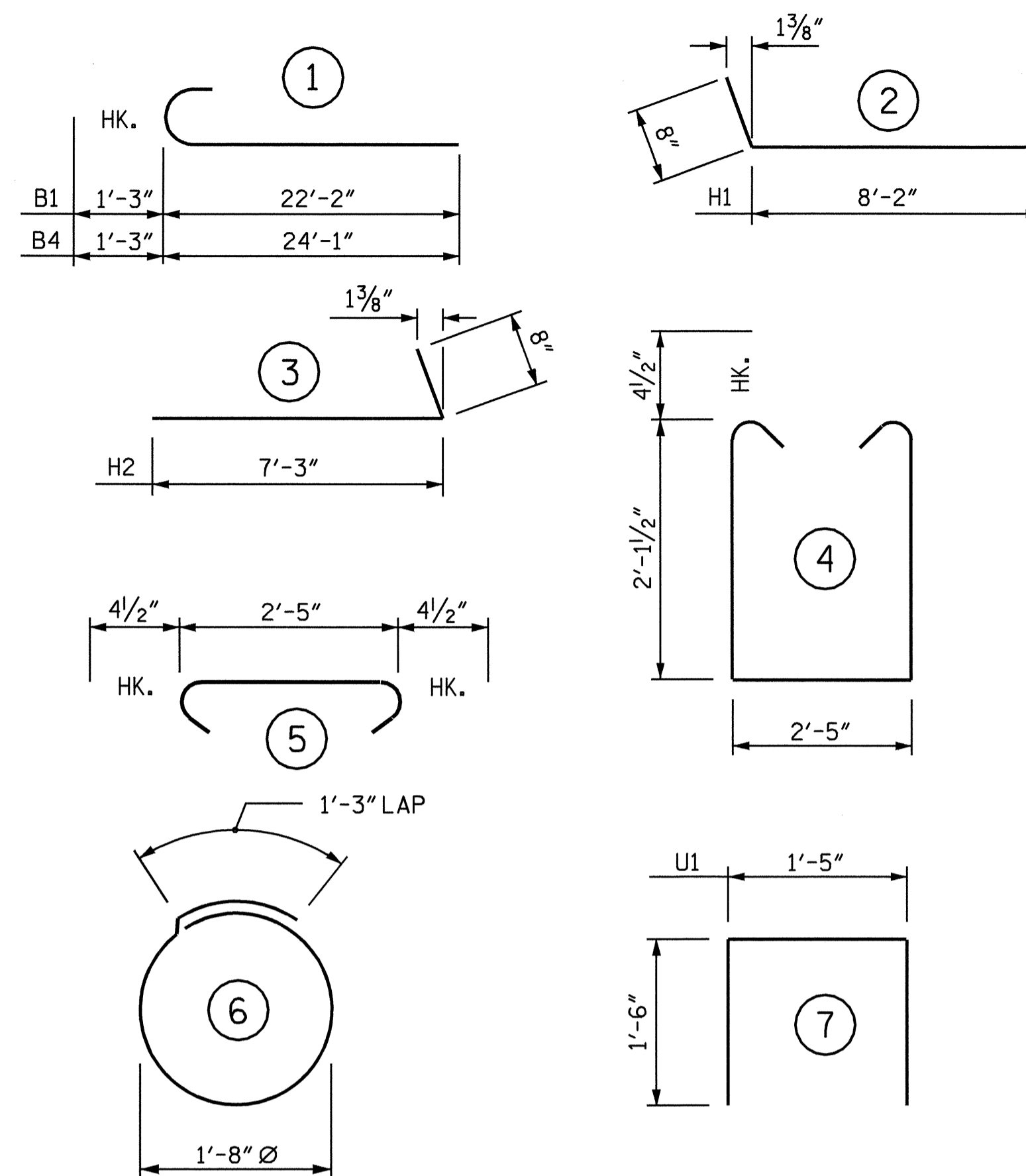


ELEVATION

LATERAL GUIDE DETAIL

(EACH END SIMILAR)

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

END BENT 1 (STAGE I)						END BENT 1 (STAGE II)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	23'-5"	637	B3	6	#4	1	2'-5"	10
B2	6	#4	STR	23'-8"	95	B4	8	#9	STR	25'-4"	689
B3	6	#4	STR	2'-5"	10	B5	6	#4	STR	24'-2"	97
D1	12	#6	STR	1'-6"	27	D1	14	#6	STR	1'-6"	32
H1	12	#4	2	8'-10"	71	H2	12	#4	3	7'-11"	64
K1	6	#4	STR	3'-5"	14	K1	6	#4	STR	3'-5"	14
S1	20	#4	4	6'-5"	86	S1	23	#4	4	6'-5"	99
S2	20	#4	5	3'-2"	42	S2	23	#4	5	3'-2"	49
S3	6	#4	6	6'-6"	26	S3	6	#4	6	6'-6"	26
U1	2	#4	7	4'-5"	6	U1	2	#4	7	4'-5"	6
V1	26	#4	STR	4'-8"	81	V2	24	#4	STR	4'-4"	69
REINFORCING STEEL = 1095 LBS.						REINFORCING STEEL = 1155 LBS.					
CLASS AA CONCRETE						CLASS AA CONCRETE					
POUR #1 CAP & LOWER WINGS 6.1 C.Y.						POUR #1 CAP & LOWER WINGS 6.8 C.Y.					
POUR #2 UPPER WINGS 0.4 C.Y.						POUR #2 UPPER WINGS 0.3 C.Y.					
POUR #3 LATERAL GUIDE 0.1 C.Y.						POUR #2 UPPER WINGS 0.1 C.Y.					
TOTAL 6.6 C.Y.						TOTAL 7.2 C.Y.					
HP 12 X 53 STEEL PILES						HP 12 X 53 STEEL PILES					
NO. 3 LIN. FT. 180						NO. 3 LIN. FT. 180					
PILE REDRIVES 2 EA.						PILE REDRIVES 1 EA.					

TOTAL BILL OF MATERIAL	
REINFORCING STEEL	2250 LBS.
CLASS A CONCRETE	13.8 C.Y.
HP 12 X 53 STEEL PILES NO. 6	360 LIN. FT.
PILE REDRIVES	3 EA.

PROJECT NO. B-3830
 COLUMBUS COUNTY
 STATION: 39+17.00 -L-

SHEET 3 OF 3

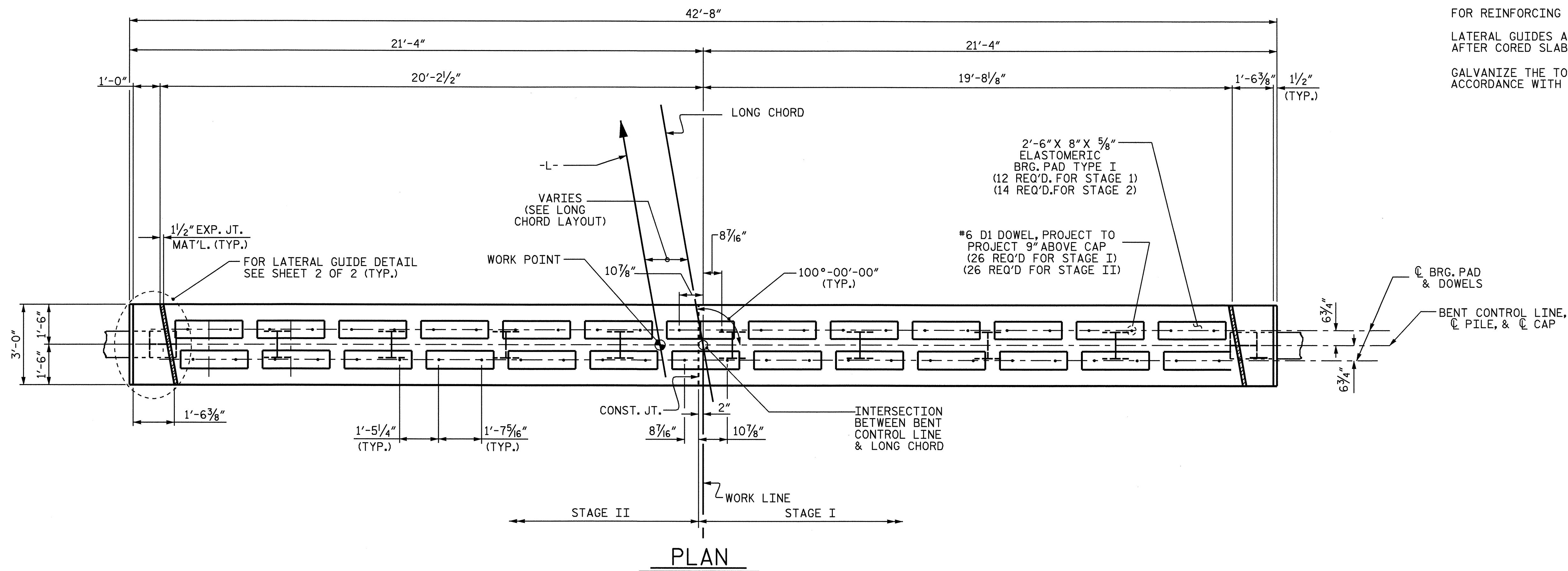


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.
SUBSTRUCTURE						S-49
END BENT 1						TOTAL SHEETS
REVISIONS						56
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

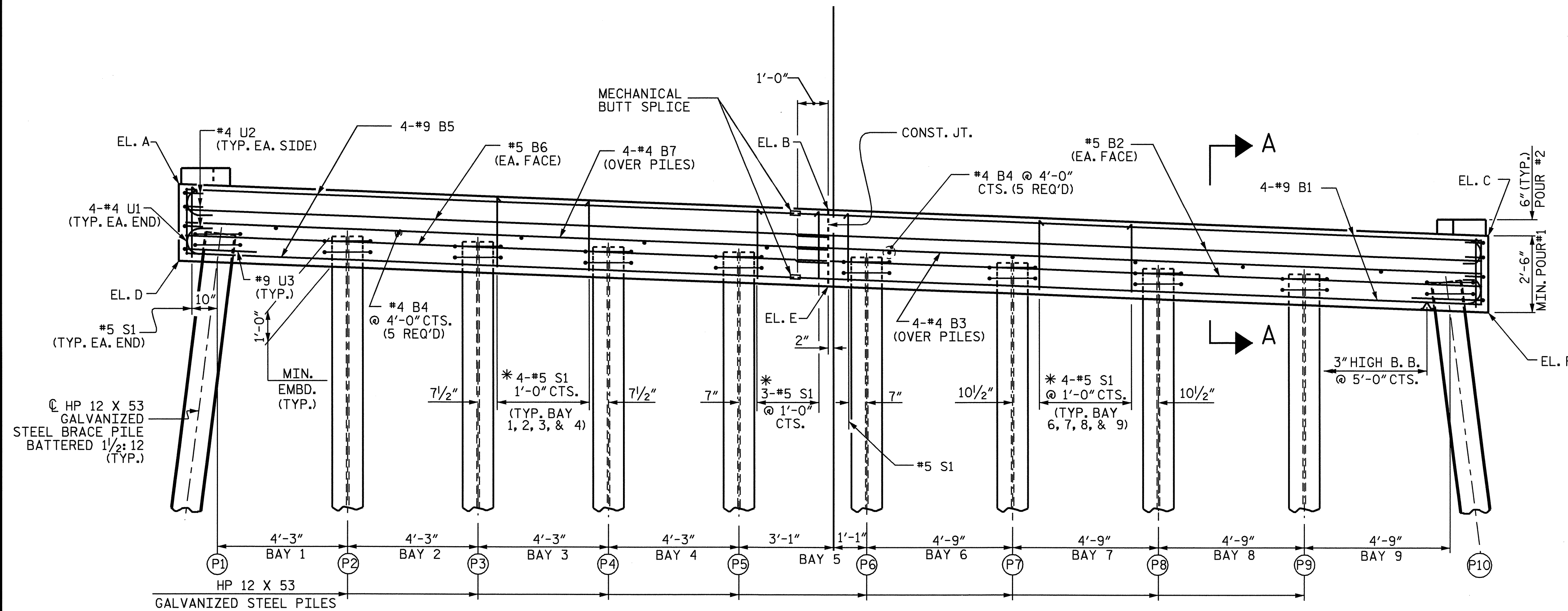
DRAWN BY: HARISH SHAH DATE: 5/1/08
 CHECKED BY: QT NGUYEN DATE: 6-08

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 FOR REINFORCING STEEL IN PIPE PILES, SEE "18" STEEL PIPE PILE SHEET.
 LATERAL GUIDES AT THE END OF THE CAP ARE NOT TO BE POURED UNTIL AFTER CORED SLAB UNITS ARE IN PLACE.
 GALVANIZE THE TOP 20 FT. MINIMUM OF EACH STEEL PIPE PILE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.



PLAN



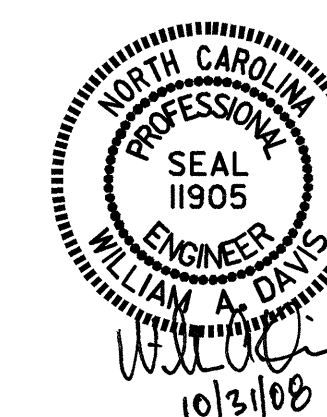
ELEVATION

ELEVATIONS @ TOP OF PILES		
	BENT 1	BENT 2
PILE 1	44.638	44.478
PILE 2	44.474	44.313
PILE 3	44.310	44.147
PILE 4	44.146	43.981
PILE 5	43.982	43.815
PILE 6	43.822	43.652
PILE 7	43.639	43.467
PILE 8	43.456	43.282
PILE 9	43.273	43.096
PILE 10	43.090	42.911

CAP ELEVATIONS		
	BENT 1	BENT 2
EL. A	46.167	46.007
EL. B	45.351	45.180
EL. C	44.525	44.342
EL. D	43.667	43.507
EL. E	42.851	42.680
EL. F	42.025	41.842

PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 39+17.00 -L-

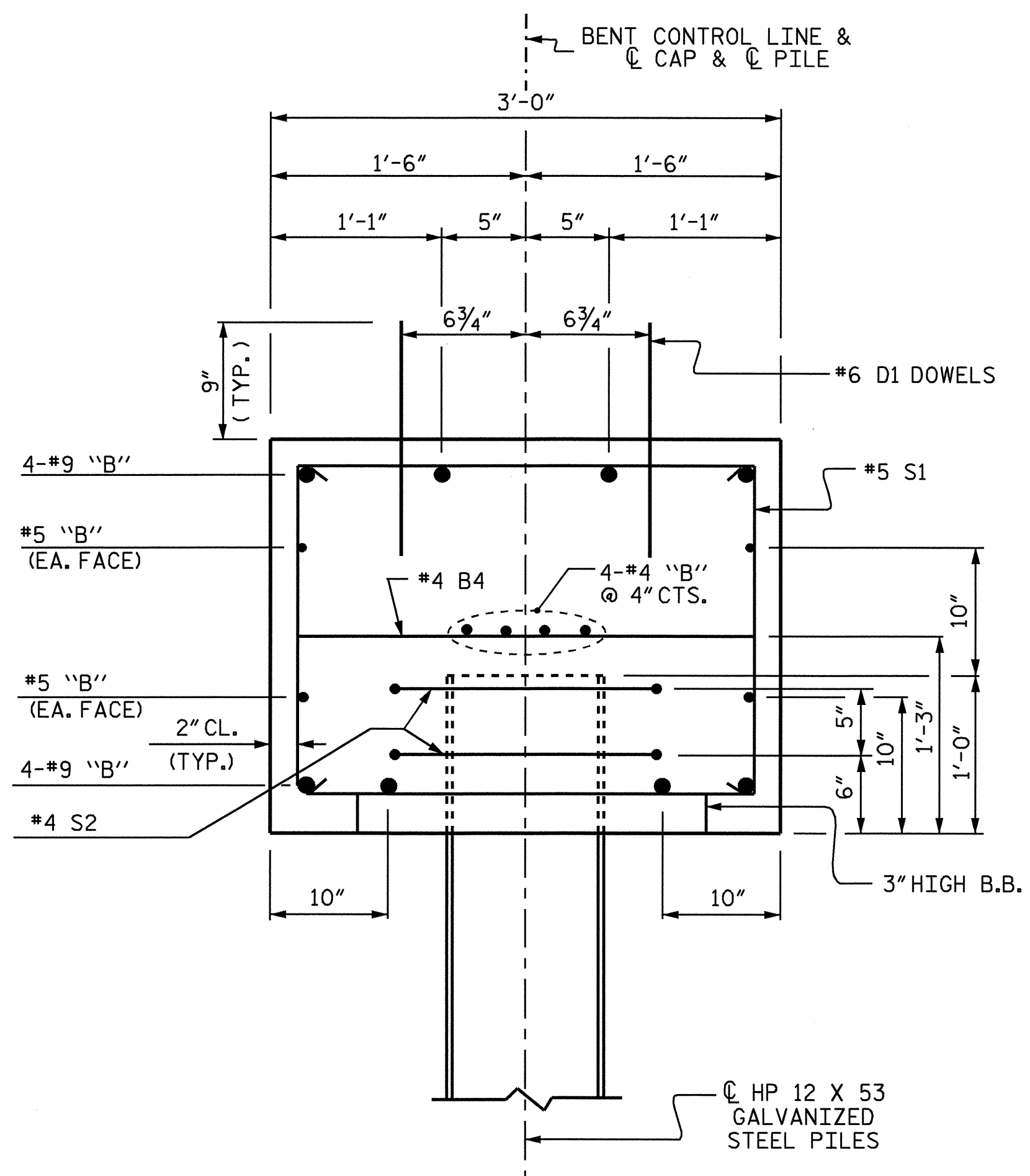
SHEET 1 OF 2



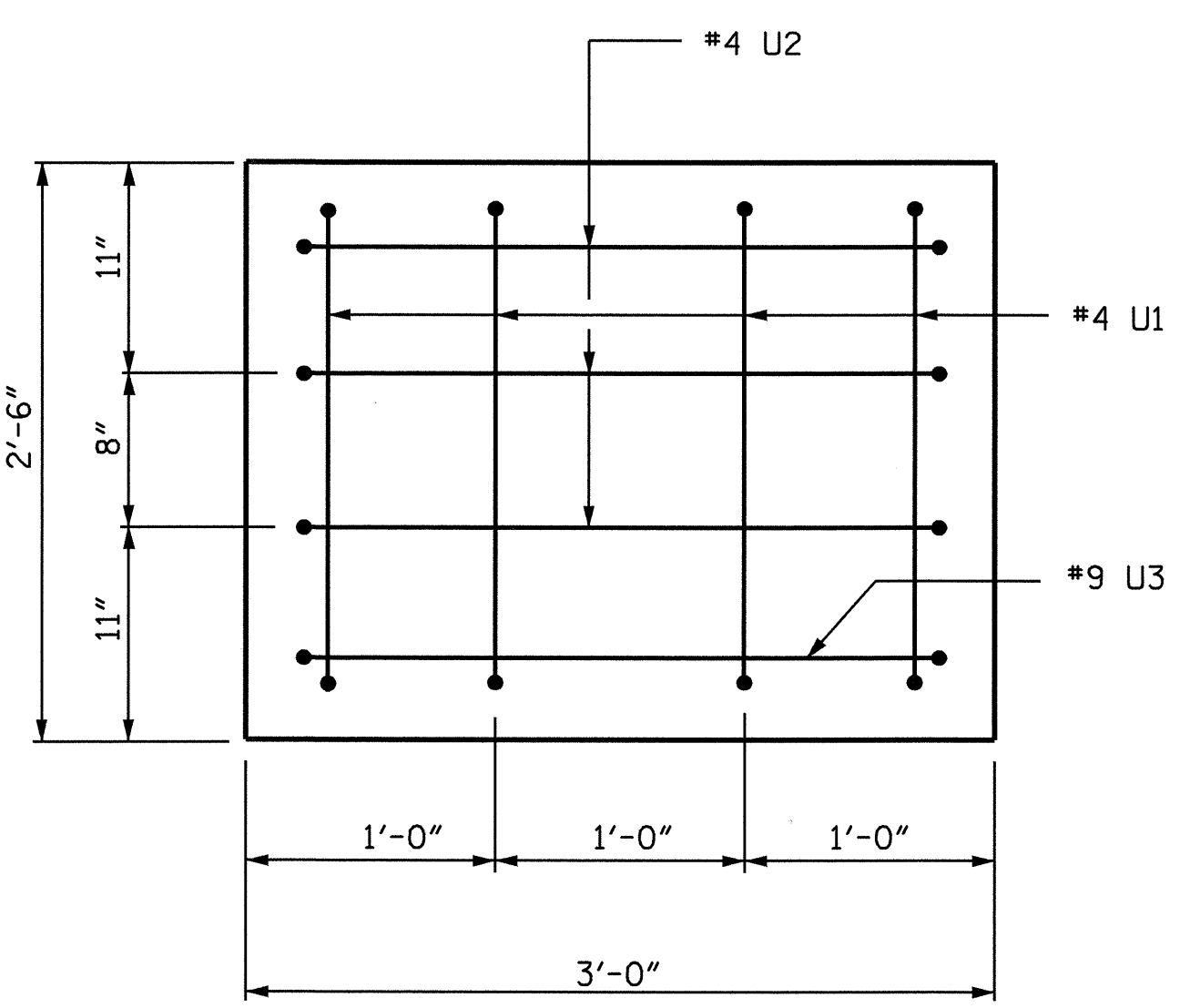
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
BENTS

DRAWN BY: HARISH SHAH DATE: 4-08
 CHECKED BY: QT NGUYEN DATE: 6-08

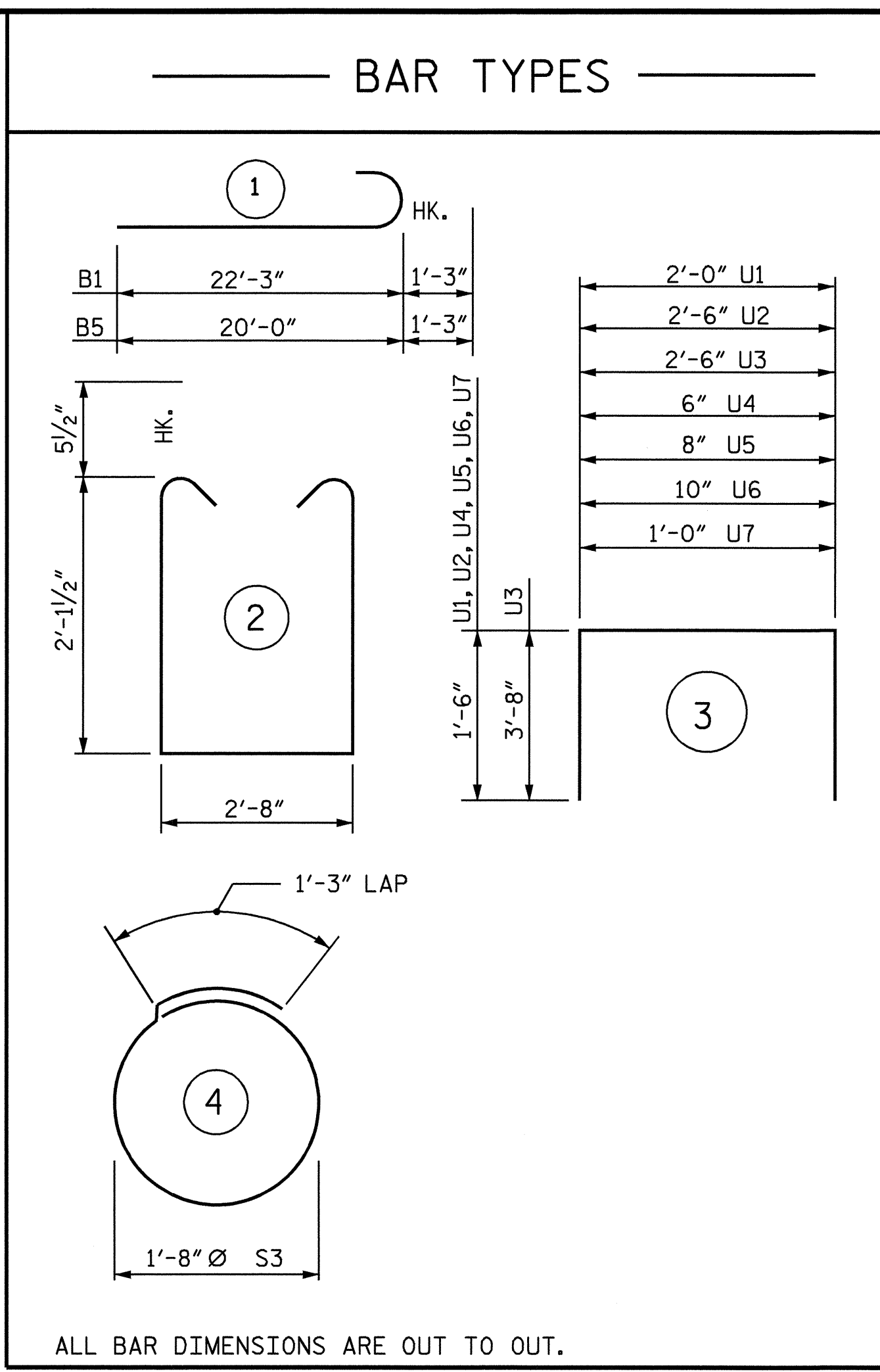
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-50
1			3			TOTAL SHEETS
2			4			56



SECTION A-A

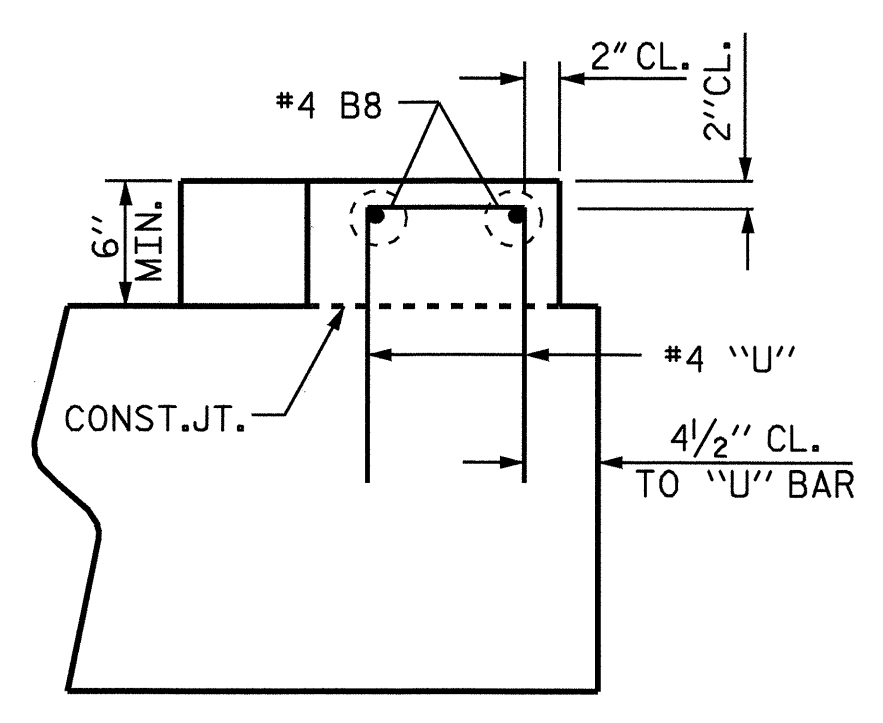


END VIEW

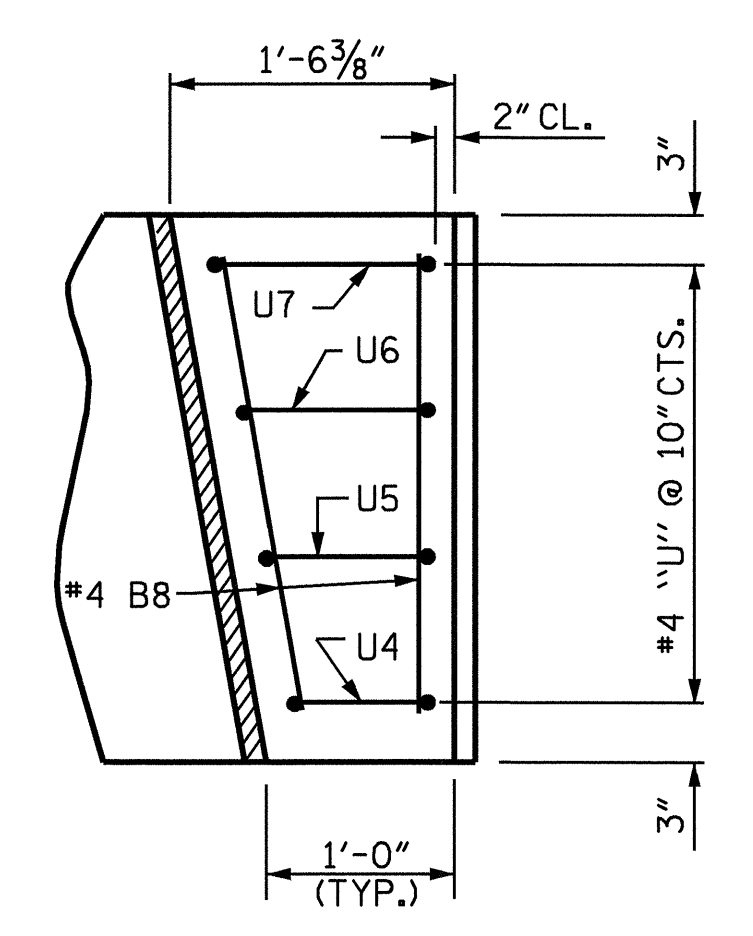


ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR ONE BENT (STAGE I)						BILL OF MATERIAL FOR ONE BENT (STAGE II)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	23'-6"	639	B4	5	#4	STR	2'-8"	9
B2	4	#5	STR	22'-4"	93	B5	8	#9	1	21'-3"	578
B3	4	#4	STR	22'-4"	60	B6	4	#5	STR	19'-11"	83
B4	5	#4	STR	2'-8"	9	B7	4	#4	STR	19'-11"	53
B8	2	#4	STR	2'-8"	4	B8	2	#4	STR	2'-8"	4
D1	26	#6	STR	1'-6"	59	D1	26	#6	STR	1'-6"	58
S1	18	#5	2	7'-10"	147	S1	20	#5	2	7'-10"	163
S2	10	#4	4	6'-6"	43	S2	10	#4	4	6'-6"	43
U1	4	#4	3	5'-0"	13	U1	4	#4	3	5'-0"	13
U2	3	#4	3	5'-6"	11	U2	3	#4	3	5'-6"	11
U3	1	#9	3	9'-10"	33	U3	2	#5	4	9'-10"	20
U4	1	#4	3	3'-6"	2	U4	1	#4	3	3'-6"	2
U5	1	#4	3	3'-8"	2	U5	1	#4	3	3'-8"	2
U6	1	#4	3	3'-10"	3	U6	1	#4	3	3'-10"	3
U7	1	#4	3	4'-0"	3	U7	1	#4	3	4'-0"	3
REINFORCING STEEL = 1021 LBS.						REINFORCING STEEL = 1045 LBS.					
CLASS A CONCRETE						CLASS A CONCRETE					
POUR #1 CAP 6.0 C.Y.						POUR #1 CAP 5.9 C.Y.					
POUR #2 LATERAL GUIDE 0.1 C.Y.						POUR #2 LATERAL GUIDE 0.1 C.Y.					
TOTAL 6.1 C.Y.						TOTAL 6.0 C.Y.					
HP 12 X 53 GALVANIZED STEEL PILES						HP 12 X 53 GALVANIZED STEEL PILES					
NO. 5 LIN. FT. 300						NO. 5 LIN. FT. 300					
PILE REDRIVES 3 EA.						PILE REDRIVES 2 EA.					



ELEVATION



PLAN

LATERAL GUIDE DETAILS

PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 39+17.00 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENTS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

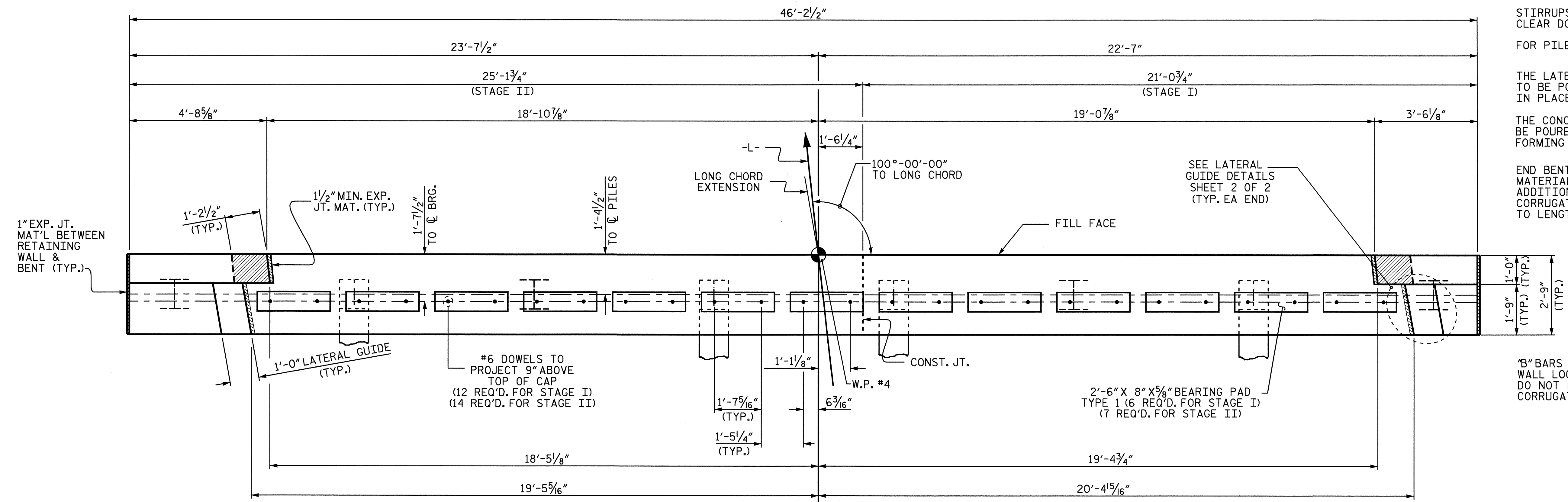
DRAWN BY: H. B. SHAH DATE: 04-08
 CHECKED BY: QT. NGUYEN DATE: 06-08

30-OCT-2008 10:57
 o:\structures\B3830\final plans\str. 2\B-3830.sd.bent2.dgn
 qtnguyen

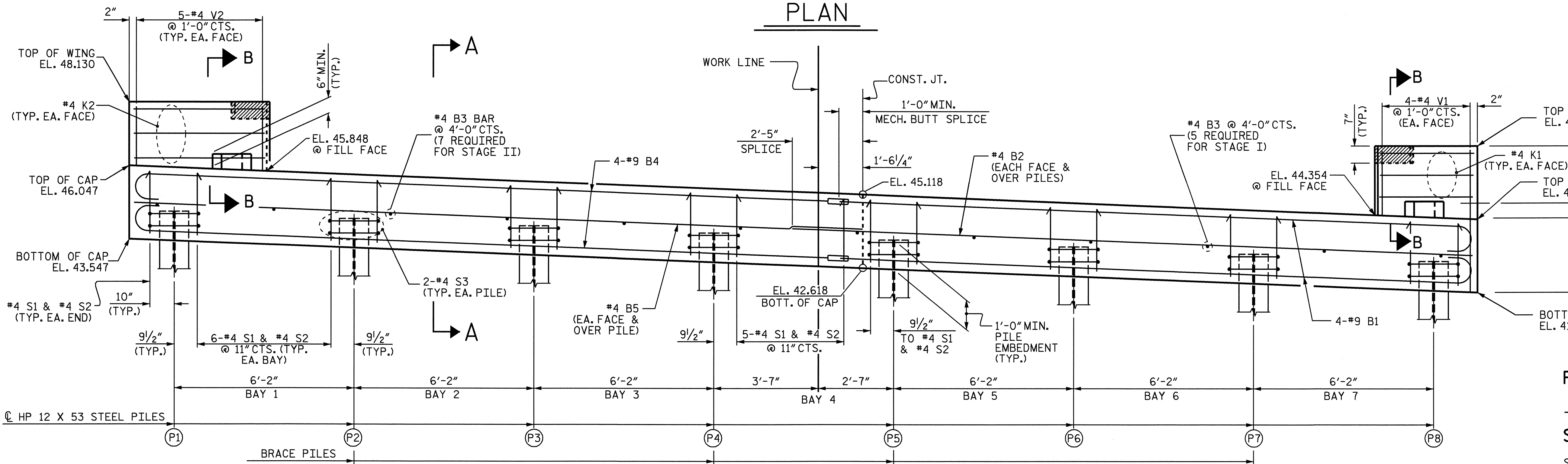
NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
 FOR PILE SPLICE DETAILS, SEE SHEET 2 OF 2.
 THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER CORED SLAB UNITS ARE IN PLACE.
 THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.
 END BENT SHALL BE CAST WITH 1" EXPANSION JOINT MATERIAL AGAINST RETAINING WALL. THERE IS NO ADDITIONAL COMPENSATION FOR CONCRETE FILLING CORRUGATIONS OF SHEET PILES OR FOR ADJUSTMENT TO LENGTHS OF "B" BARS.

"B" BARS MAY BE CUT TO FIT THE ACTUAL RETAINING WALL LOCATION AS APPROVED BY THE ENGINEER. BARS DO NOT HAVE TO BE LENGTHENED TO FIT CORRUGATIONS OF SHEET PILES.

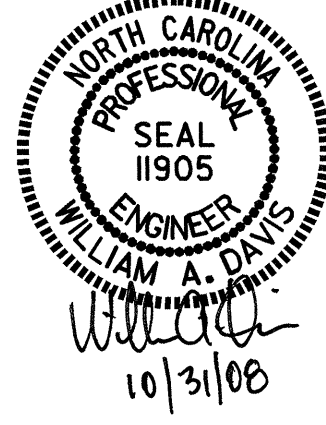


PLAN



ELEVATION

TOP OF PILE ELEVATIONS	
PILE	ELEV.
1	44.486
2	44.243
3	44.001
4	43.758
5	43.516
6	43.273
7	43.031
8	42.788



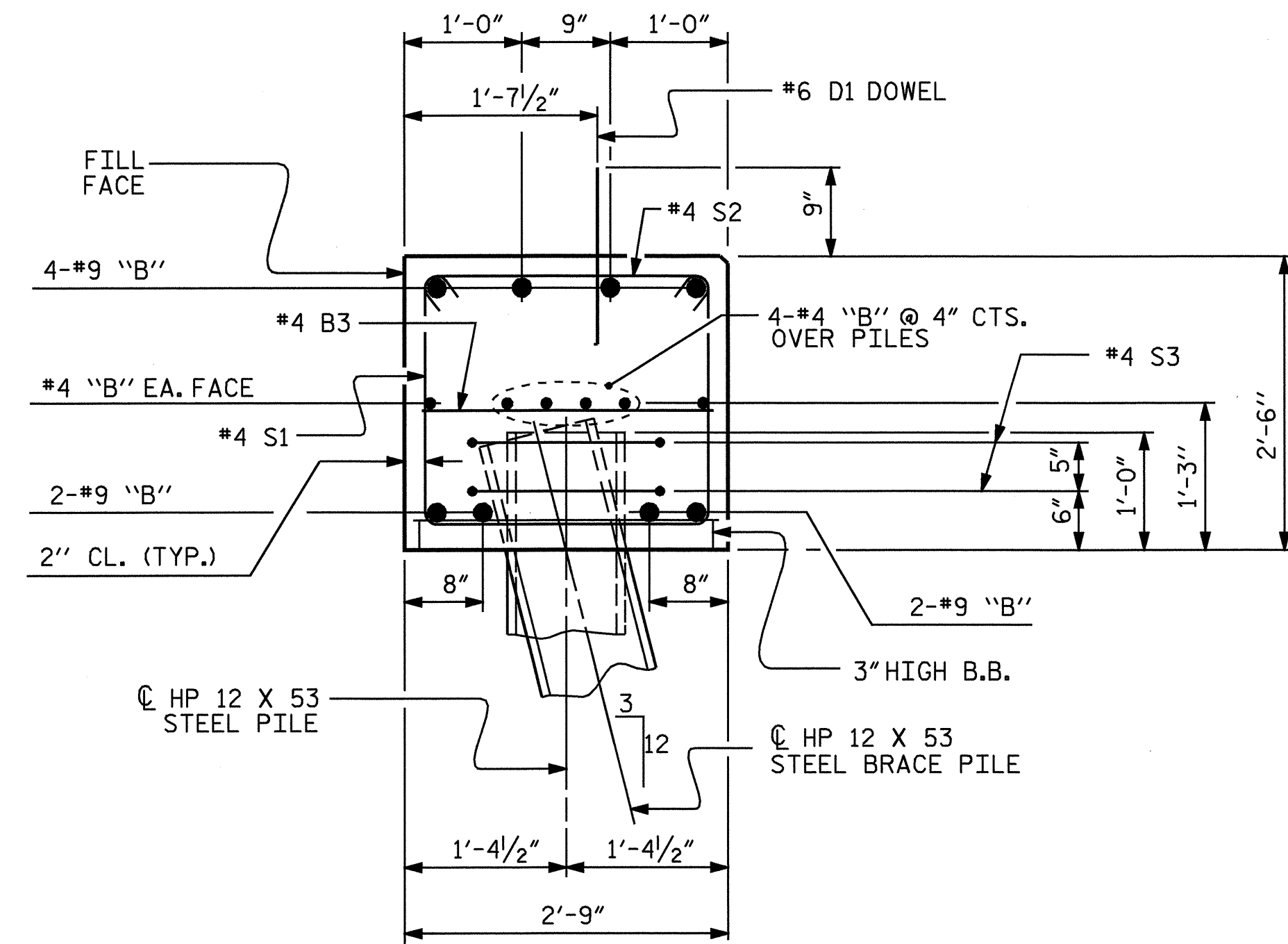
PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 39+17.00 -L-

SHEET 1 OF 2
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2

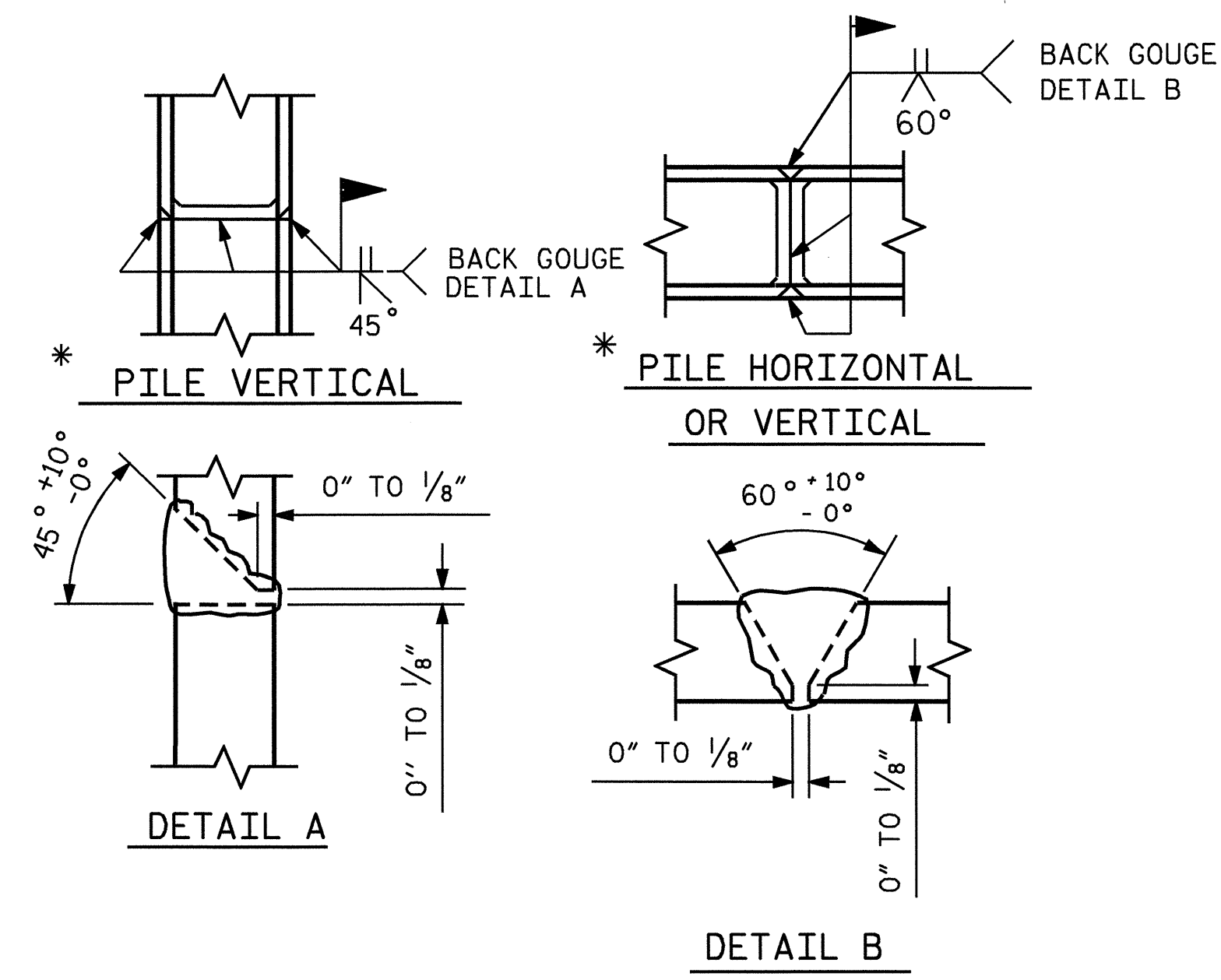
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-52
1			3			TOTAL SHEETS
2			4			56

DRAWN BY: HARISH SHAH DATE: 5/9/08
 CHECKED BY: QT NGUYEN DATE: 6-08

31-OCT-2008 13:45
 r:\structures\b3830\final plans\str. 2\b3830.ed.ebt2.dgn
 sdbrowski

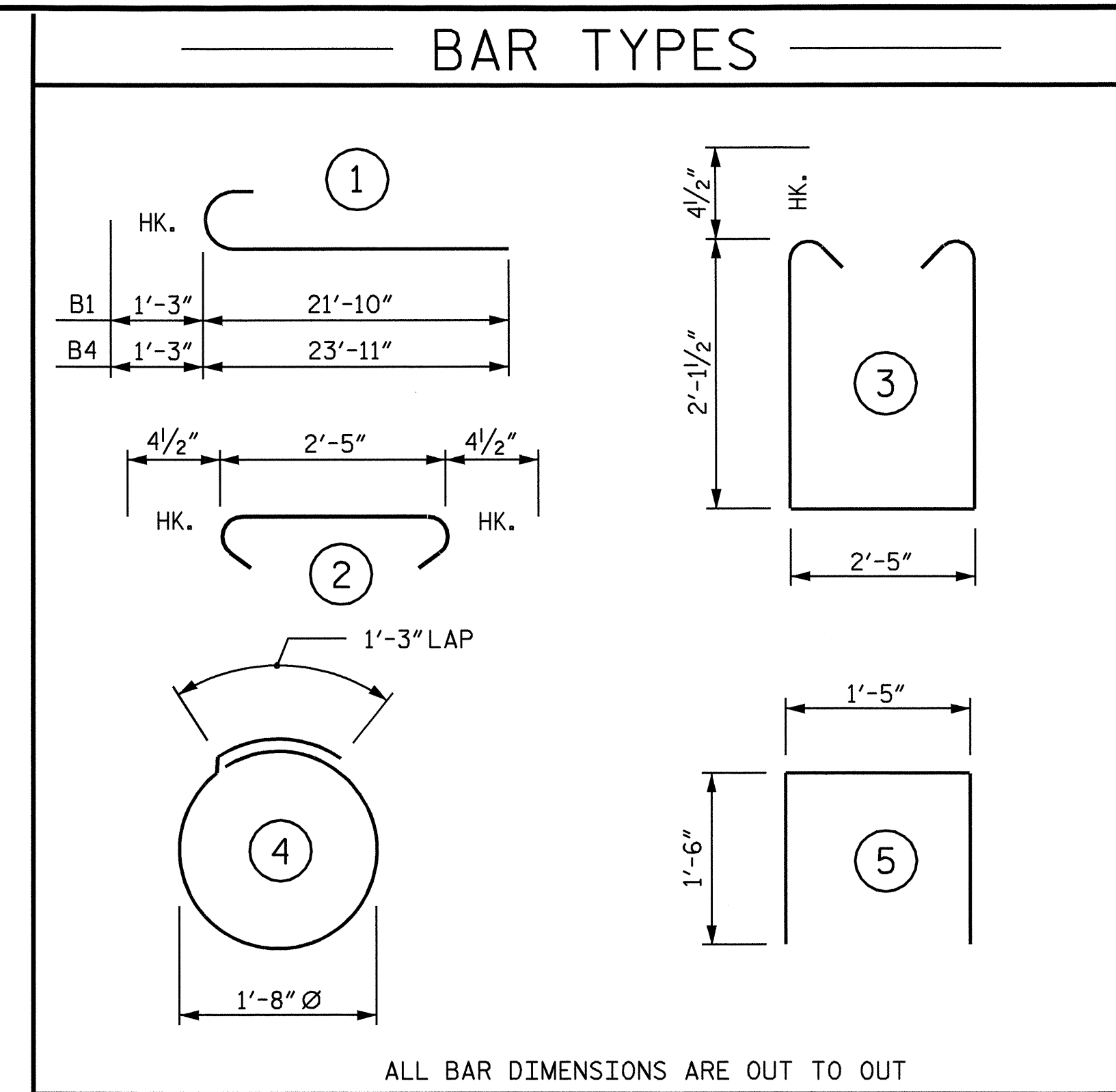


SECTION A-A



PILE SPICE DETAILS

* POSITION OF PILE DURING WELDING.

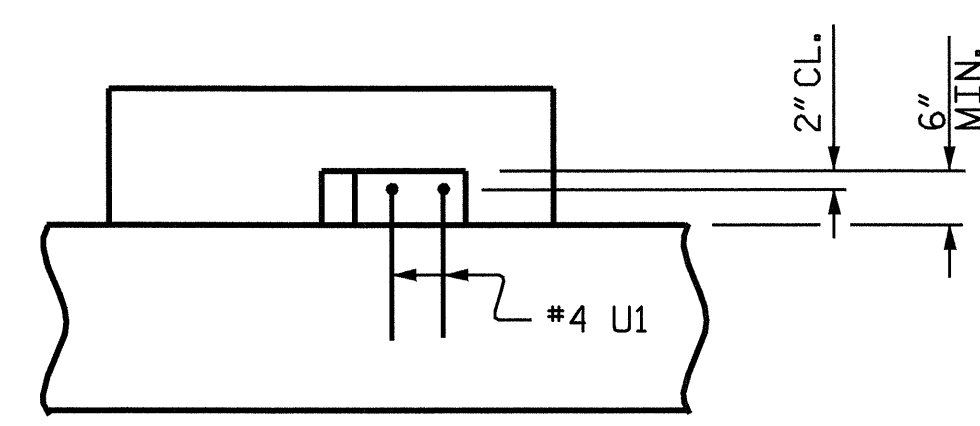
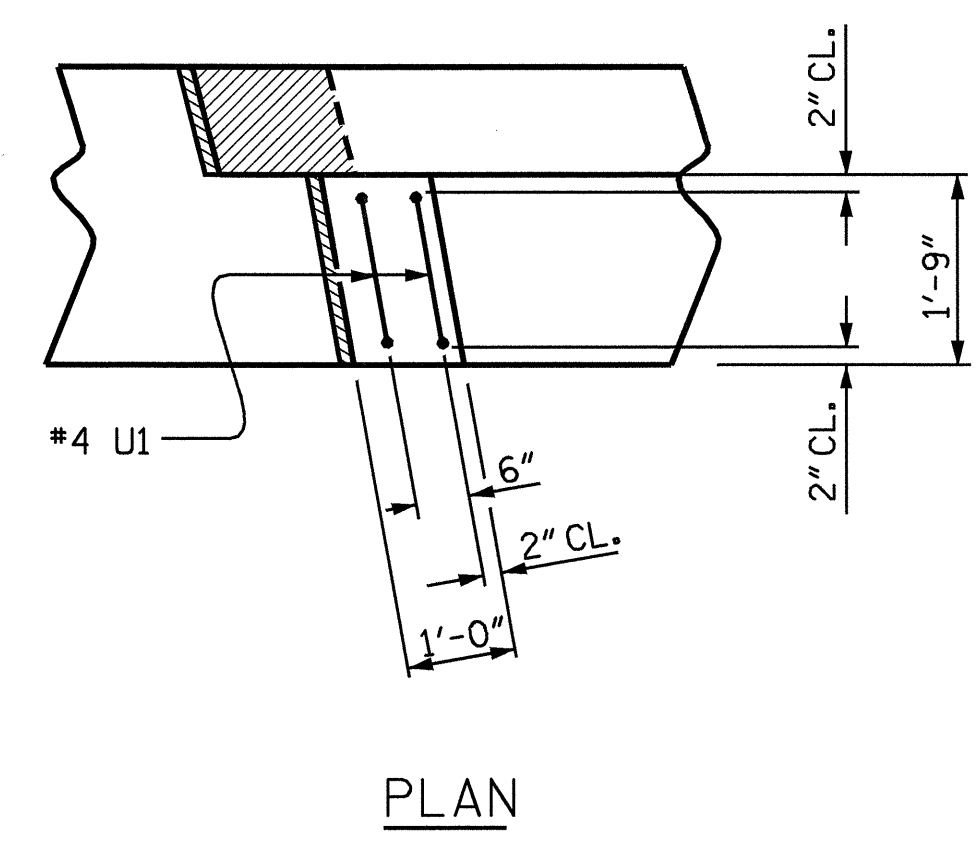


ALL BAR DIMENSIONS ARE OUT TO OUT

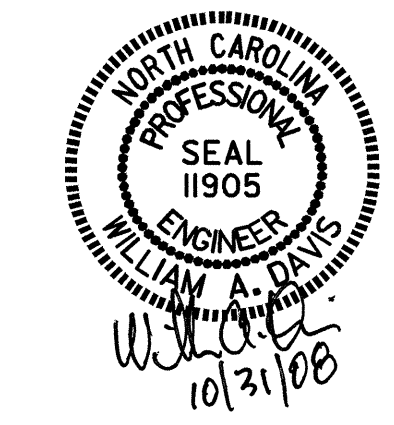
BILL OF MATERIAL

END BENT 2 (STAGE I)					END BENT 2 (STAGE II)						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	23'-1"	628	B3	7	#4	STR	2'-5"	11
B2	6	#4	STR	23'-4"	94	B4	8	#9	1	25'-2"	685
B3	5	#4	STR	2'-5"	9	B5	6	#4	STR	24'-11"	100
D1	12	#6	STR	1'-6"	27	D1	14	#6	STR	1'-6"	32
K1	6	#4	STR	3'-1"	12	K2	6	#4	STR	4'-6"	18
S1	19	#4	3	7'-5"	94	S1	25	#4	3	7'-5"	124
S2	19	#4	2	3'-2"	40	S2	25	#4	2	3'-2"	53
S3	8	#4	4	6'-6"	35	S3	8	#4	4	6'-6"	35
U1	2	#4	5	4'-5"	6	U1	2	#4	5	4'-5"	6
V1	6	#4	STR	4'-5"	18	V2	8	#4	STR	4'-2"	22
REINFORCING STEEL = 963 LBS.					REINFORCING STEEL = 1086 LBS.						
CLASS AA CONCRETE					CLASS AA CONCRETE						
POUR #1 CAP & LOWER WING 5.7 C.Y.					POUR #1 CAP & LOWER WING 6.9 C.Y.						
POUR #2 UPPER WING 0.3 C.Y.					POUR #2 UPPER WING 0.4 C.Y.						
POUR #3 LATERAL GUIDE 0.1 C.Y.					POUR #3 LATERAL GUIDE 0.1 C.Y.						
TOTAL 6.1 C.Y.					TOTAL 7.4 C.Y.						
HP 12 X 53 STEEL PILES NO. 4 LIN. FT. 320					HP 12 X 53 STEEL PILES NO. 4 LIN. FT. 320						
PILE REDRIVES 2 EA.					PILE REDRIVES 2 EA.						

TOTAL BILL OF MATERIAL	
REINFORCING STEEL	2049 LBS.
CLASS A CONCRETE	13.5 C.Y.
HP 12 X 53 STEEL PILES NO. 8	640 LIN. FT.
PILE REDRIVES	4 EA.



LATERAL GUIDE DETAIL (EACH END SIMILAR)

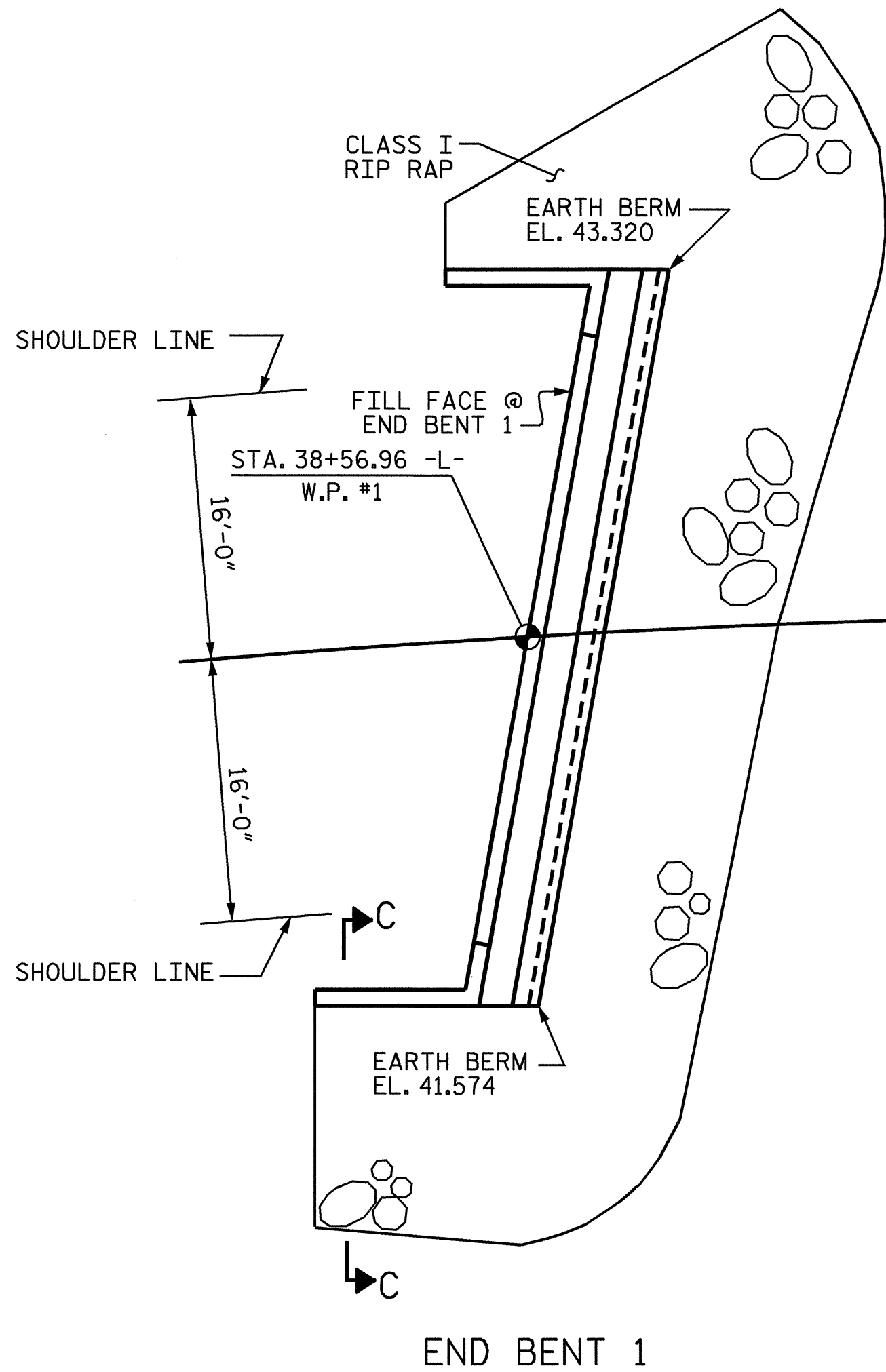


PROJECT NO. B-3830
COLUMBUS COUNTY
STATION: 39+17.00 -L-

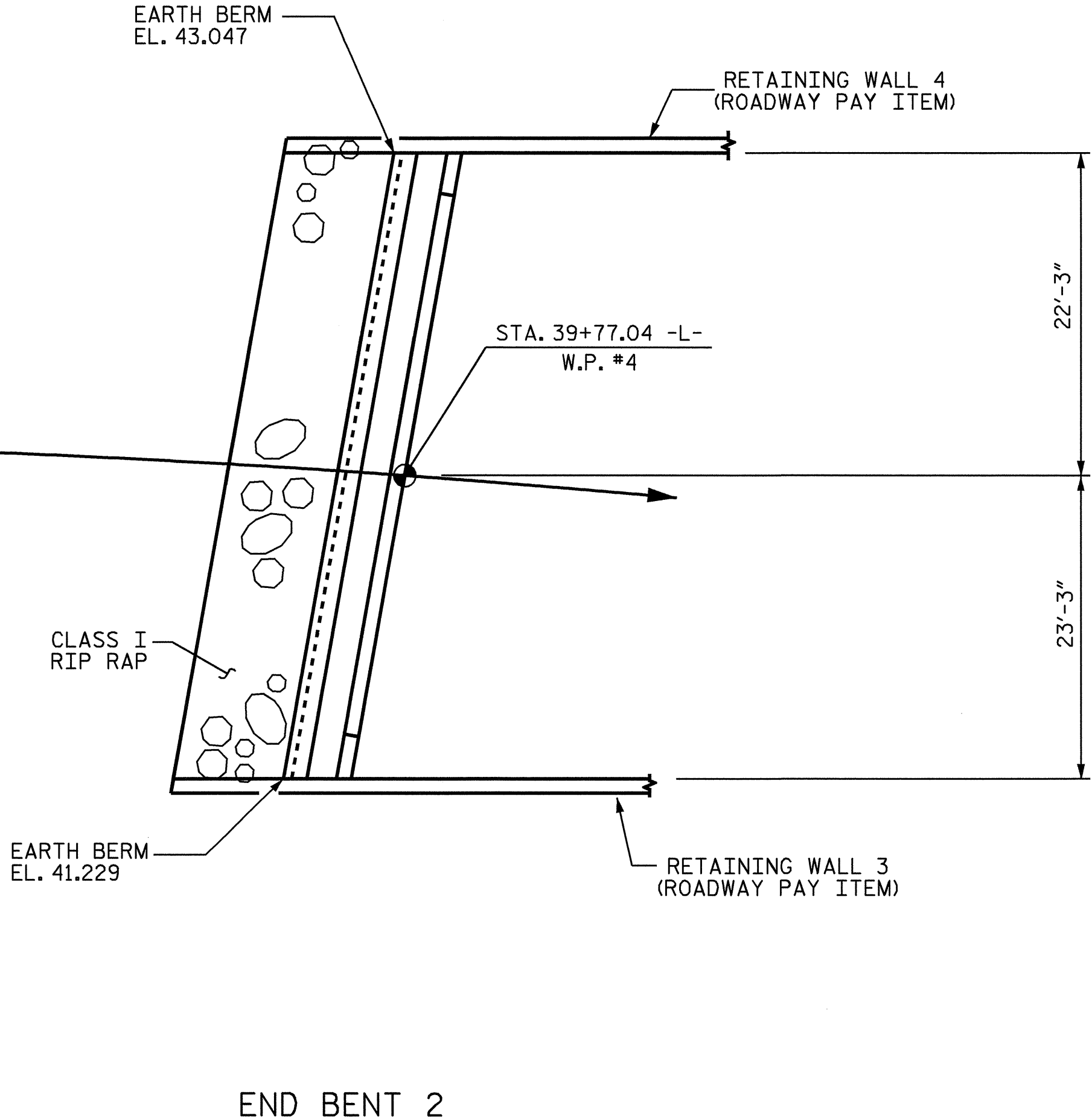
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

DRAWN BY: HARISH SHAH DATE: 5/9/08
CHECKED BY: QT NGUYEN DATE: 6-08

ESTIMATED QUANTITIES		
BRIDGE @ STA. 39+17.00 -L-	RIP RAP CLASS I	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	107	118
END BENT 2	67	75

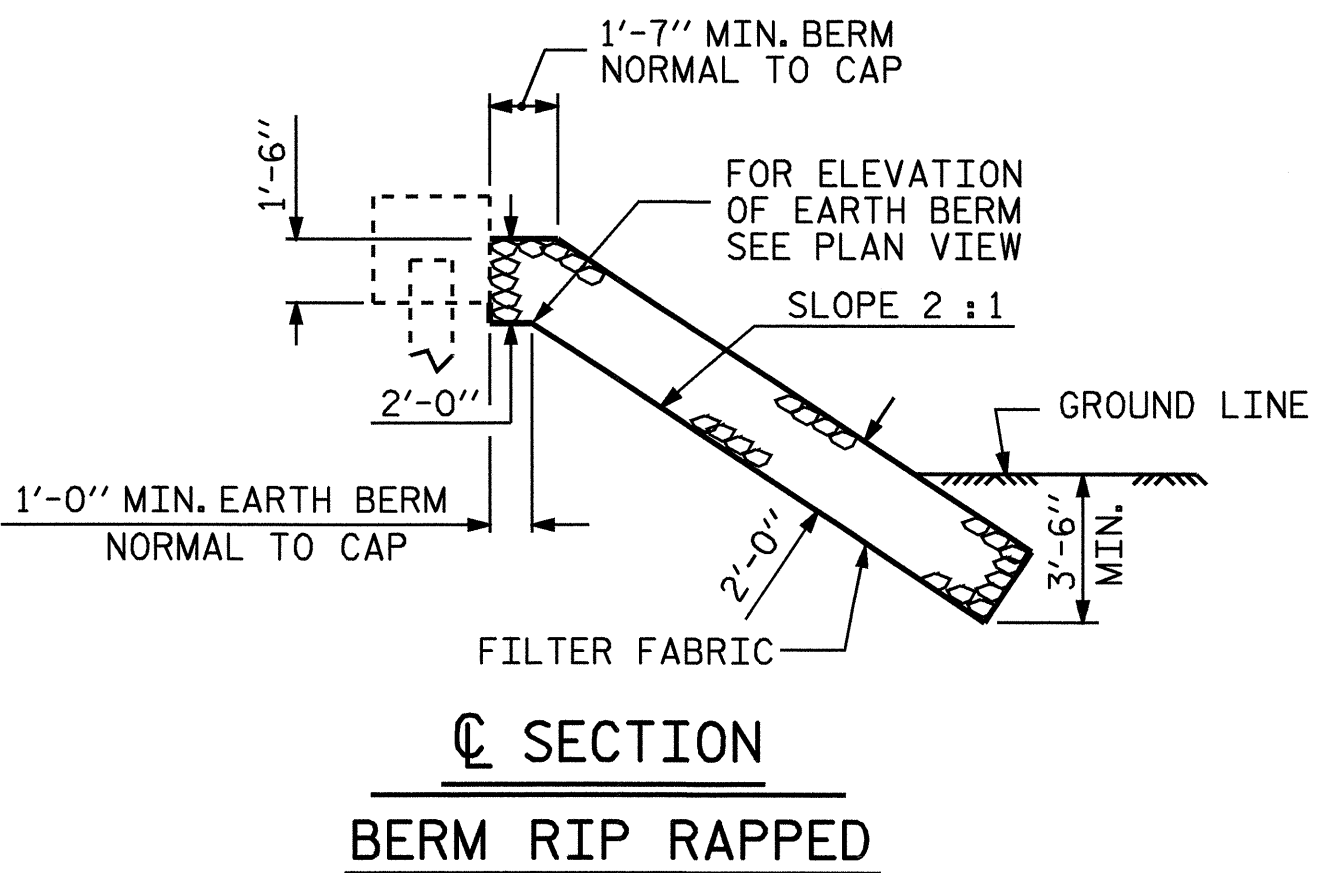


END BENT 1



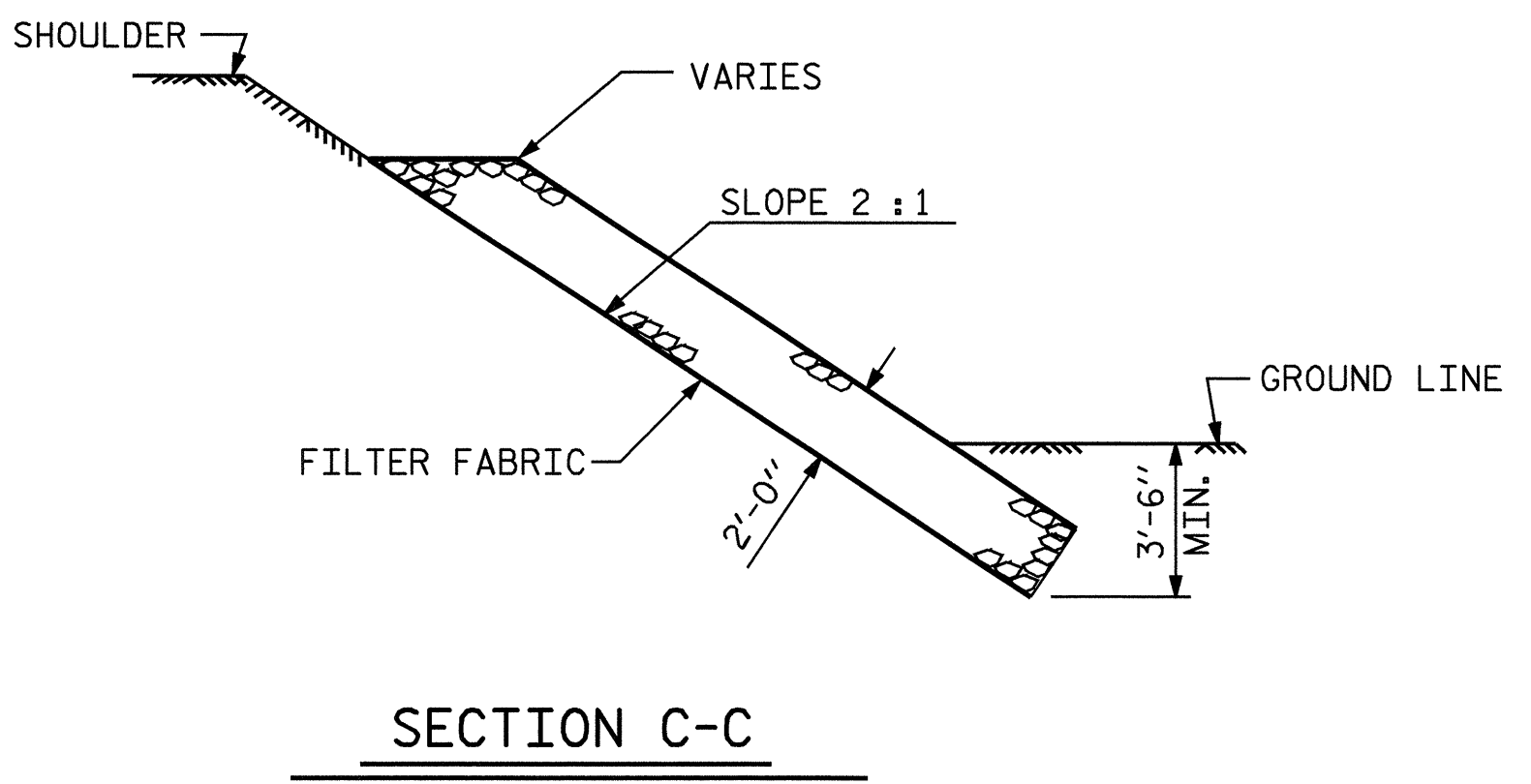
END BENT 2

PLAN



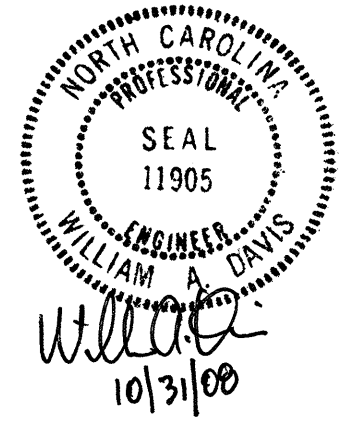
SECTION C-C

BERM RIP RAPPED



SECTION C-C

PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 39+17.00 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

— RIP RAP DETAILS —

ASSEMBLED BY : QT NGUYEN	DATE : 2-08
CHECKED BY :	DATE :
DRAWN BY : FCJ 2/88	REV. 8/16/99 RWW/LES
CHECKED BY : ARB 8/88	REV. 10/17/00 RWW/LES
	REV. 5/1/06 TLA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-54
1			3			TOTAL SHEETS
2			4			56

30-OCT-2008 10:54
 o:\structures\b3830\final plans\str. 2\b3830_sd_rr2.dgn
 qtnguyen

NOTES

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.

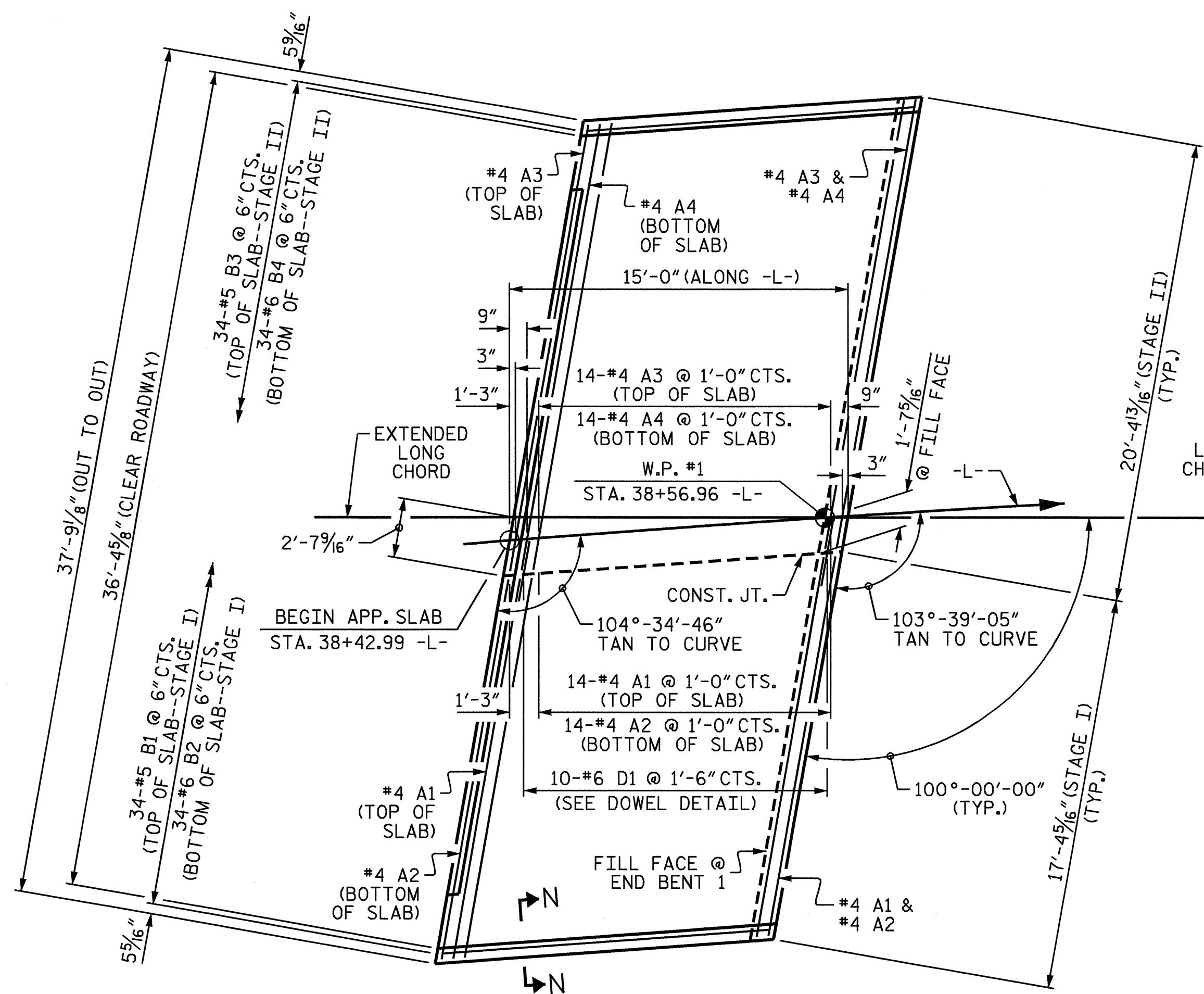
THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

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.

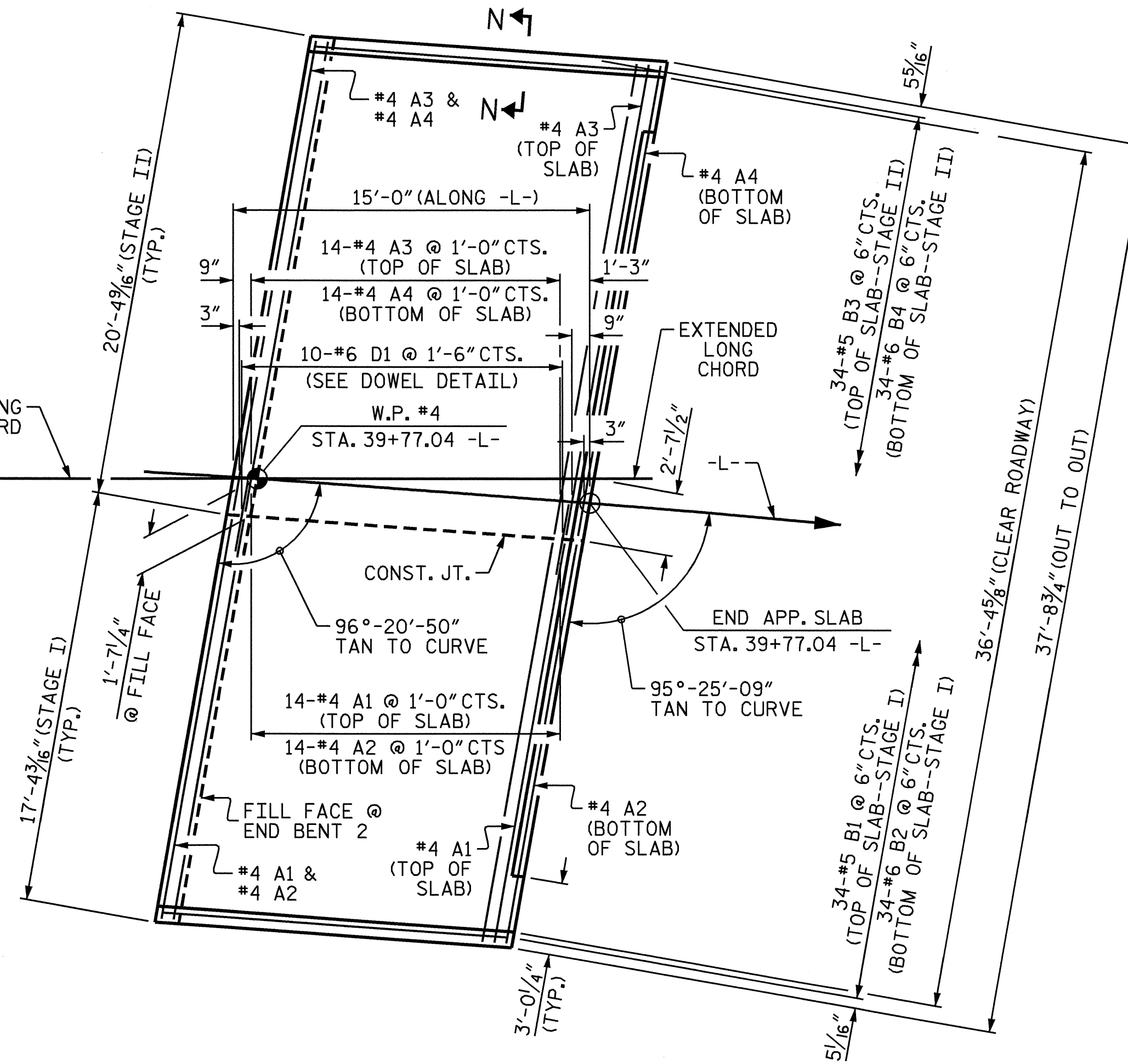
FOR JOINT DETAILS, SEE "PRESTRESSED CONCRETE CORED SLAB UNIT" SHEETS.

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

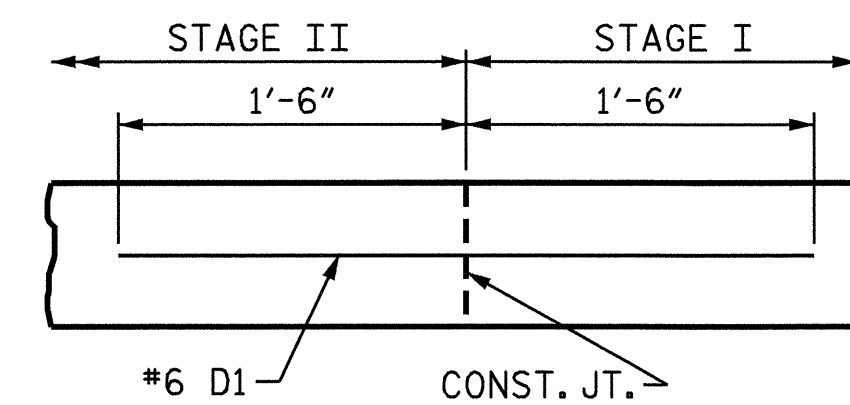
APPROACH SLAB GROOVING IS NOT REQUIRED.



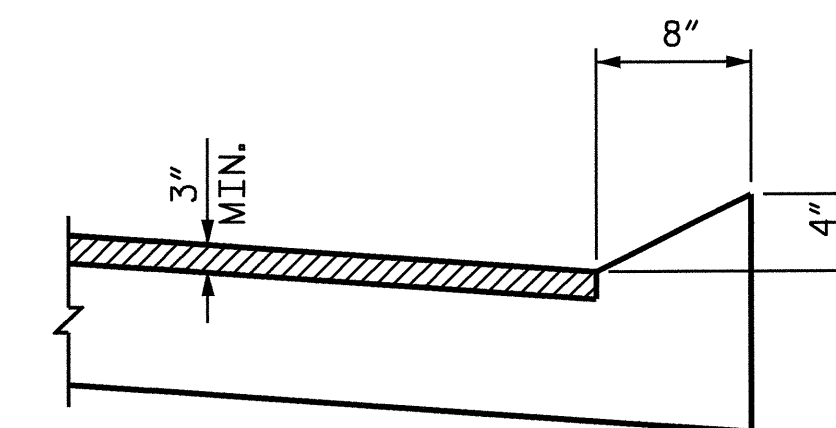
PLAN @ END BENT 1



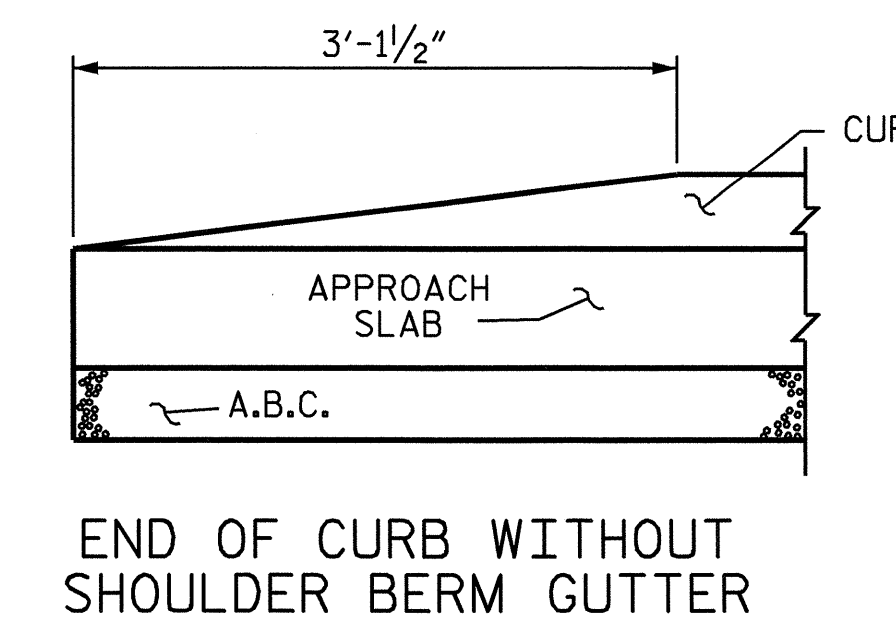
PLAN @ END BENT 2



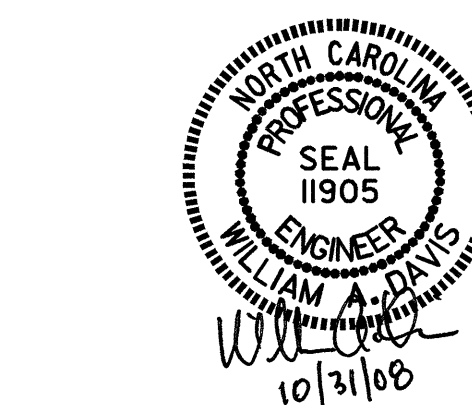
DOWEL DETAIL (ELEVATION VIEW)



SECTION N-N



CURB DETAILS



10/31/08

BILL OF MATERIAL						BILL OF MATERIAL					
APPROACH SLAB AT E.B.T.1						APPROACH SLAB AT E.B.T.2					
STAGE I						STAGE I					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	16	#4	STR	17'-0"	182	*A1	16	#4	STR	17'-0"	182
A2	16	#4	STR	17'-0"	182	A2	16	#4	STR	17'-0"	182
*B1	34	#5	STR	14'-1"	499	*B1	34	#5	STR	14'-1"	499
B2	34	#6	STR	14'-7"	745	B2	34	#6	STR	14'-7"	745
*D1	10	#6	STR	3'-0"	45	*D1	10	#6	STR	3'-0"	45
REINFORCING STEEL LBS. 927						REINFORCING STEEL LBS. 927					
*EPOXY COATED REINFORCING STEEL LBS. 726						*EPOXY COATED REINFORCING STEEL LBS. 726					
CLASS AA CONCRETE C. Y. 10.3						CLASS AA CONCRETE C. Y. 10.6					
APPROACH SLAB AT E.B.T.1						APPROACH SLAB AT E.B.T.2					
STAGE II						STAGE II					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A3	16	#4	STR	20'-0"	214	*A3	16	#4	STR	20'-0"	214
A4	16	#4	STR	20'-0"	214	A4	16	#4	STR	20'-0"	214
*B1	40	#5	STR	14'-1"	588	*B1	40	#5	STR	14'-1"	588
B2	40	#6	STR	14'-7"	876	B2	40	#6	STR	14'-7"	876
REINFORCING STEEL LBS. 1090						REINFORCING STEEL LBS. 1090					
*EPOXY COATED REINFORCING STEEL LBS. 802						*EPOXY COATED REINFORCING STEEL LBS. 802					
CLASS AA CONCRETE C. Y. 12.1						CLASS AA CONCRETE C. Y. 12.4					

PROJECT NO. B-3830
COLUMBUS COUNTY
STATION: 39+17.00 -L-

SHEET 1 OF 2

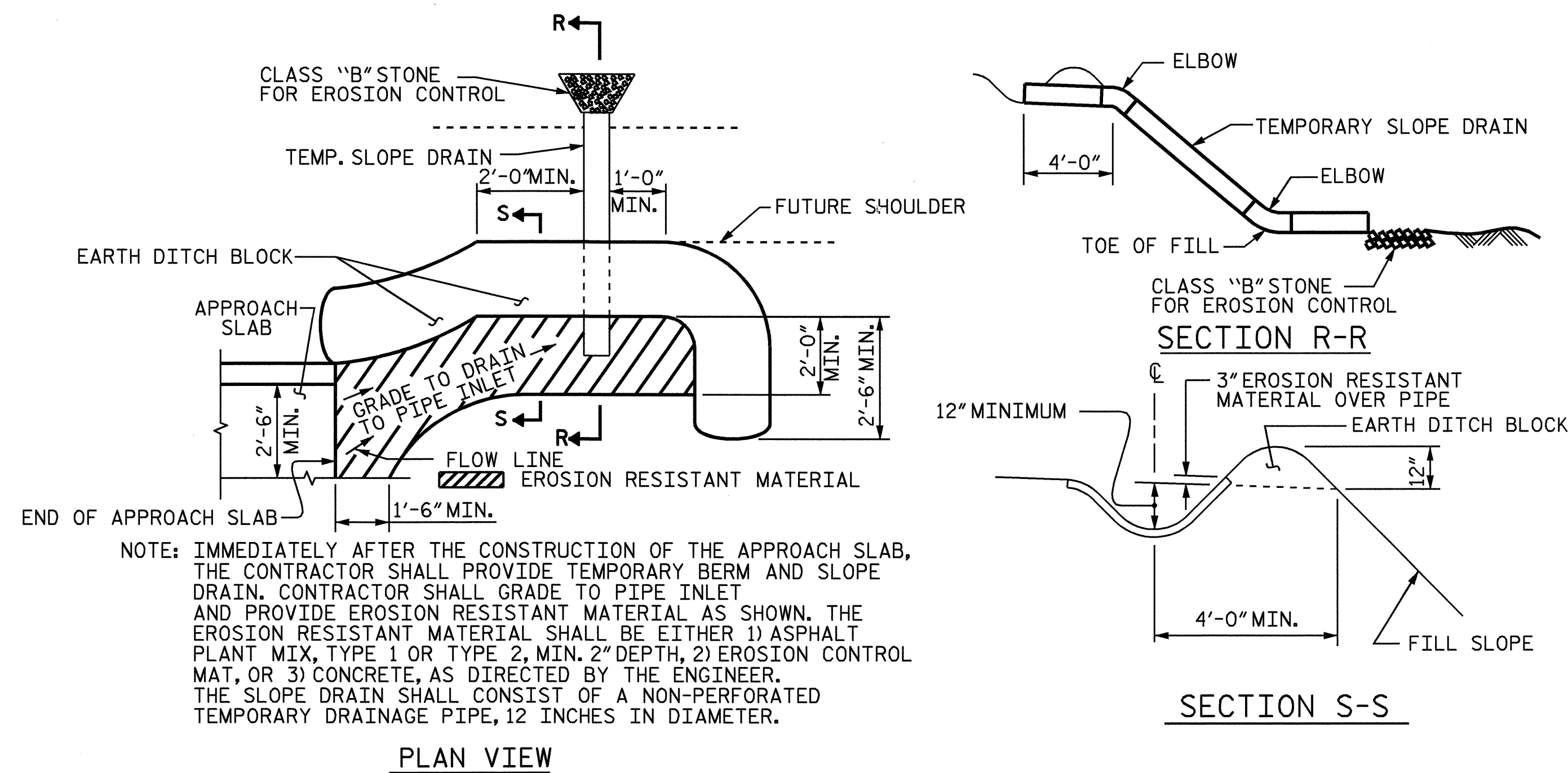
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
BRIDGE APPROACH SLAB
FOR PRESTRESSED
CONCRETE CORED SLAB

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-55
1			3			TOTAL SHEETS 56
2			4			

STR. #2

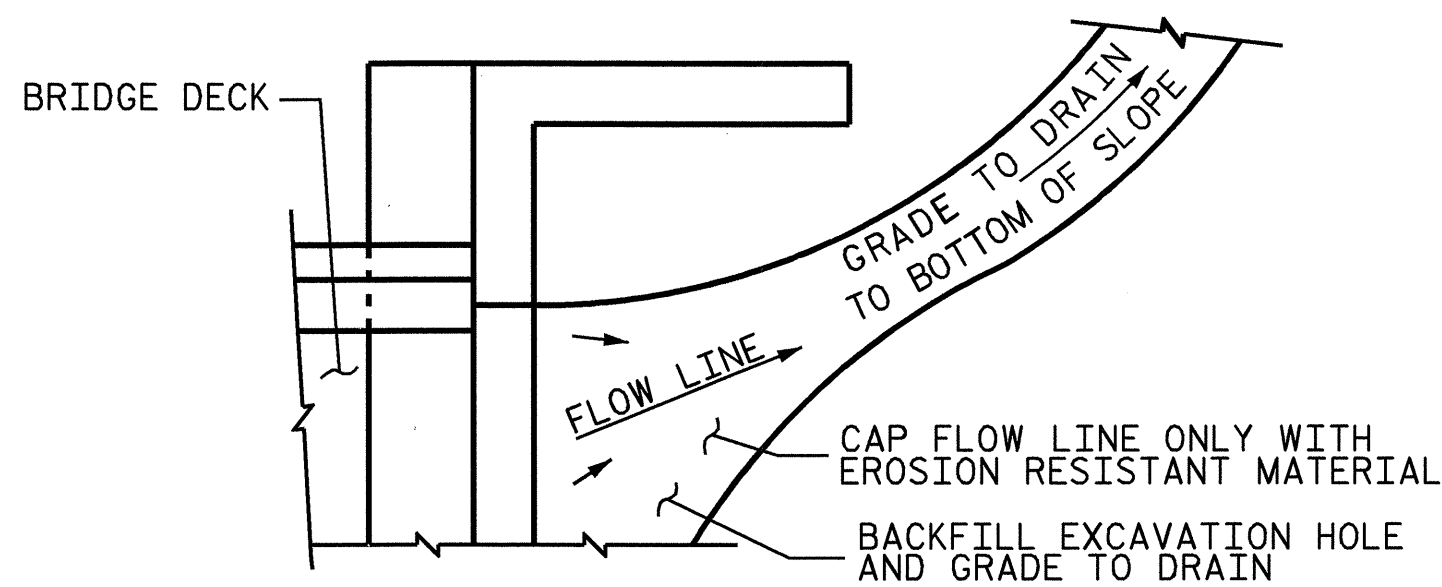
STD. NO. BAS7 (SHT 2)

ASSEMBLED BY: HARISH SHAH	DATE: 5-08
CHECKED BY: P.K. NEWTON	DATE: 9-08
DRAWN BY: FCJ	6/87
CHECKED BY: EGA	6/87
REV. 7/10/01	LES/RDR
REV. 5/7/03R	RWW/JTE
REV. 5/1/06R	KMM/GM



TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

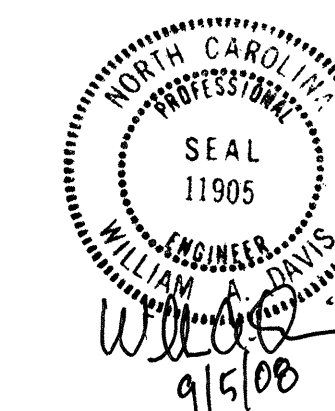


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 39+17.00 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH
 SLAB DETAILS

ASSEMBLED BY :	HARISH SHAH	DATE :	6-08
CHECKED BY :	QT NGUYEN	DATE :	6-08
DRAWN BY :	FCJ	11/88	REV. 10/17/00
CHECKED BY :	ARB	11/88	REV. 5/7/03
			REV. 5/1/06R
			RWW/LJS
			RWW/JTE
			MAA/KMM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-56
1			3			TOTAL SHEETS
2			4			56

NOTES

THE CONSTRUCTION SEQUENCE OF THE STEEL SHEET PILE RETAINING WALLS SHALL BE AS FOLLOWS, UNLESS DIRECTED BY THE ENGINEER.

1. INSTALL SHEET PILES TO A TIP ELEVATION NOT HIGHER THAN 14.5 FEET.
2. INSTALL TEMPORARY SHORING AND PERFORM UNDERCUT AS SHOWN ON THE ROADWAY PLANS.
3. PLACE AND COMPACT SELECT GRANULAR MATERIAL AND/OR BORROW MATERIAL AS BACKFILL, ACCORDING TO THE STANDARD SPECIFICATIONS, BEHIND THE SHEET PILE WALLS.
4. INSTALL COPING ON SHEET PILES AS SHOWN ON THE PLANS.

STEEL SHEET PILES SHALL BE PZ27 SECTIONS AND SHALL CONFORM TO ASTM GRADE A690.

STEEL CHANNEL COPING SHALL CONFORM TO AASHTO M 270 GRADE 36 AND SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE STEEL CHANNEL COPING, BOLTS, NUTS, AND WASHERS SHALL BE INCLUDED AS INCIDENTAL TO THE COST OF THE STEEL SHEET PILE RETAINING WALL.

THE QUANTITY SHOWN IN THE TOTAL BILL OF MATERIAL IS THE EXPOSED SURFACE AREA OF THE WALL AS DEFINED IN THE STANDARD SPECIFICATIONS.

	STA	OFFSET	TOP ELEV	EXISTING GROUND
WALL 1	16+80	20.0	45.8	41.8
	17+00	19.6	46.1	41.7
	17+30	19.0	46.7	42.0
	17+50	19.4	47.1	42.2
	18+00	20.2	48.2	42.4
	18+50	21.0	49.1	42.6
	19+00	21.8	49.7	43.7
	19+50	22.6	49.8	46.0
	19+53	22.7	49.8	46.1
	19+67	23.4	49.9	46.6
	19+81	23.5	42.9	40.4

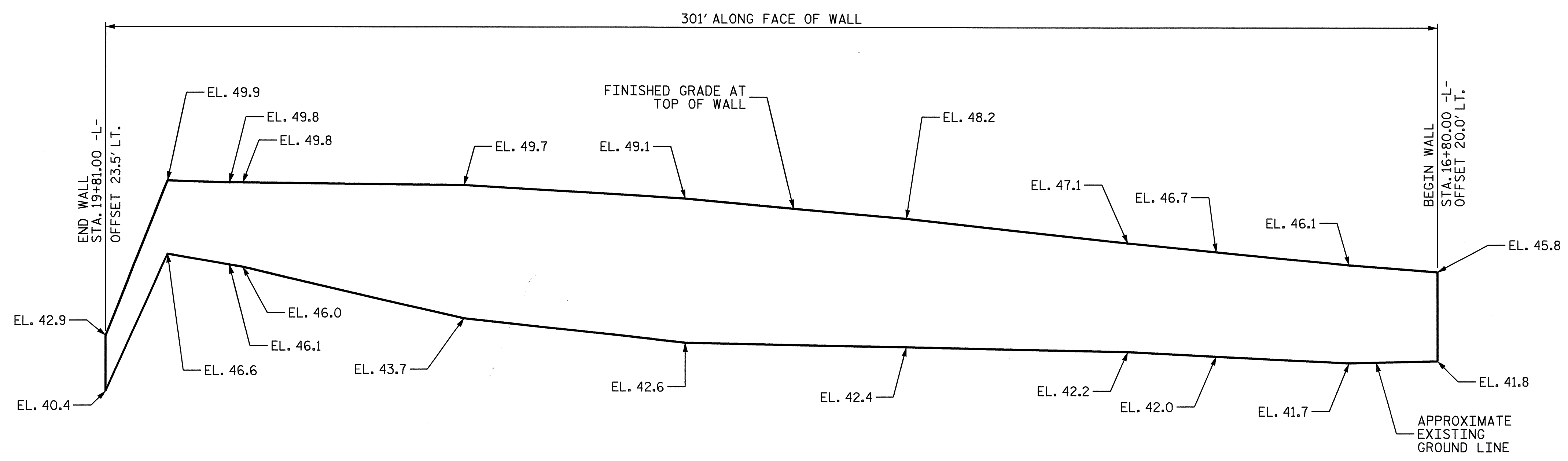
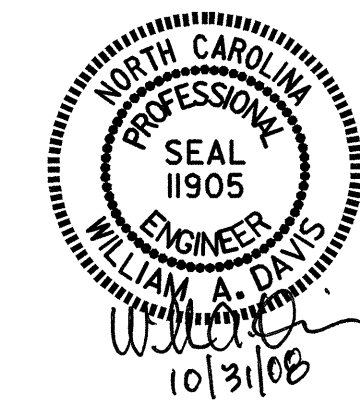
TOTAL BILL OF MATERIAL	
SHEET PILE RETAINING WALLS	1550 SQ. FT.

PROJECT NO. B-3830
 COLUMBUS COUNTY
 STATION: 16+80.00 -L-

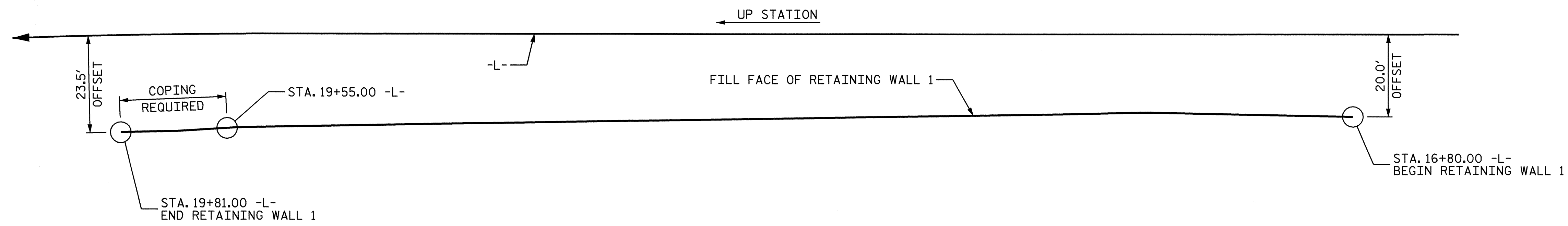
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

RETAINING WALL 1

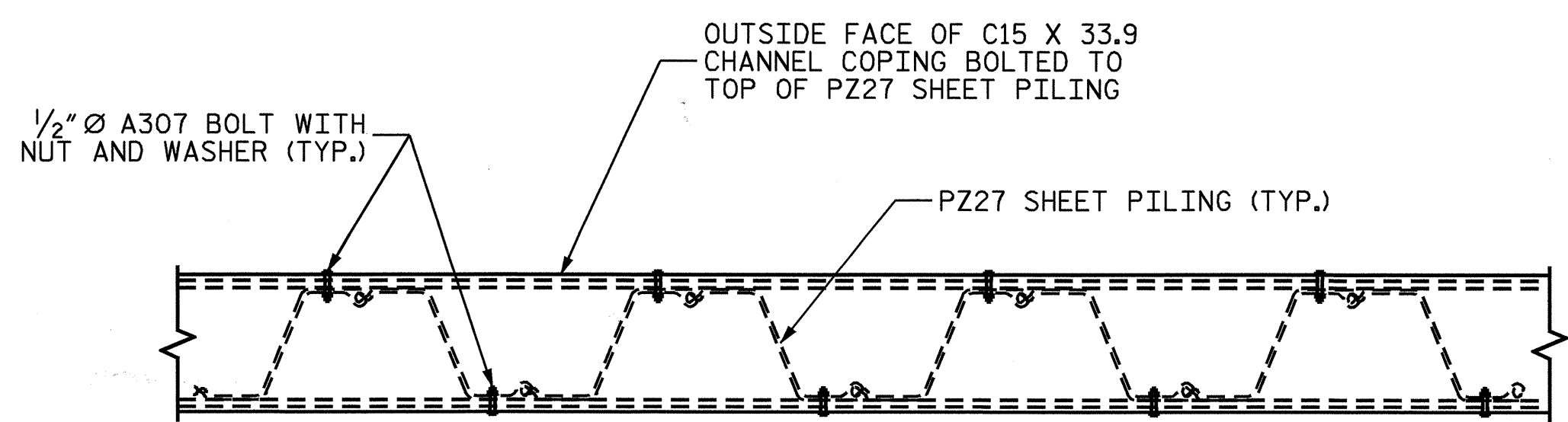
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		



ELEVATION--RETAINING WALL 1

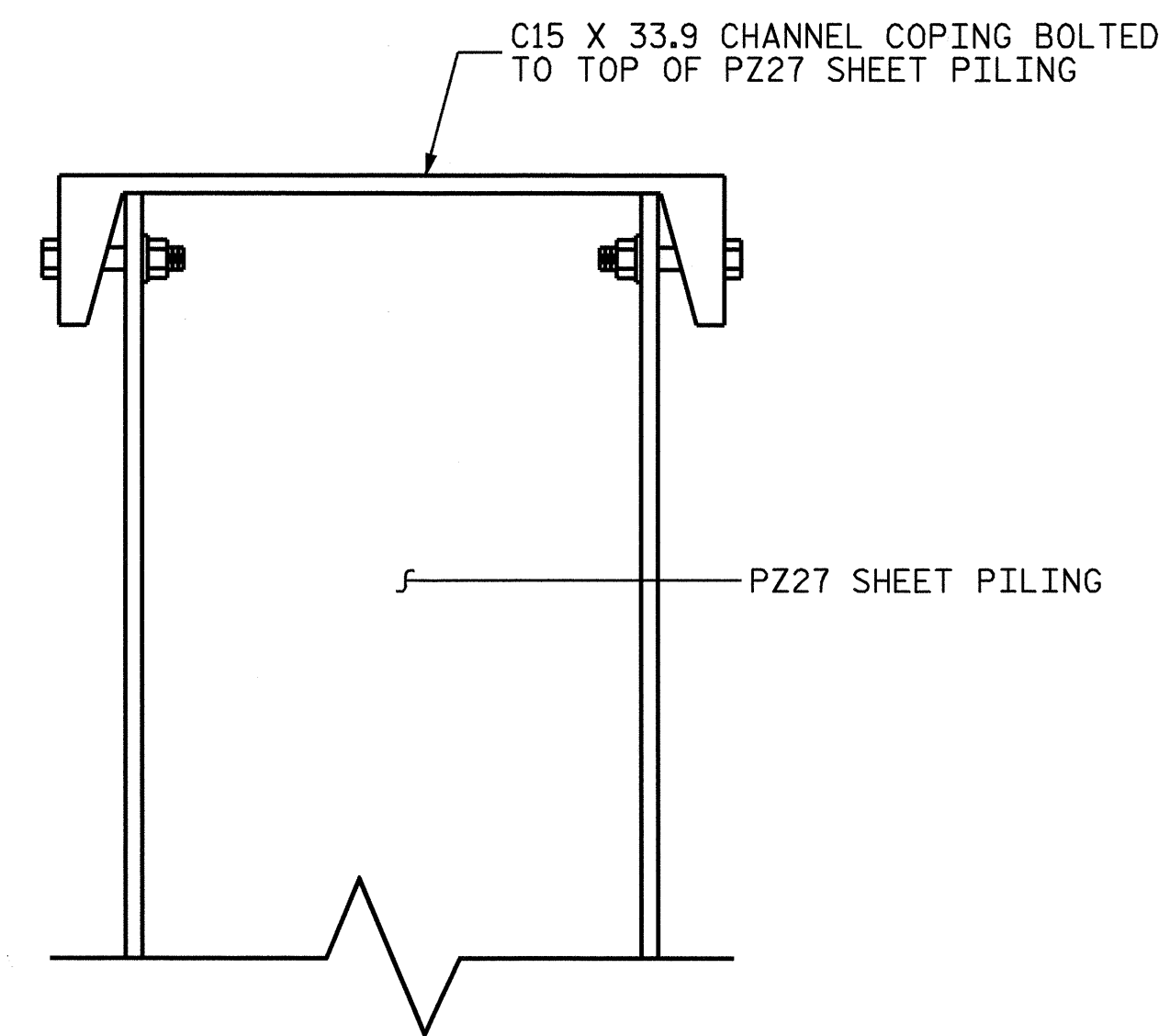


PLAN
 OFFSET DIMENSIONS ARE TO THE SHEETING FILL FACE



PARTIAL PLAN SHOWING COPING

INSTALL COPING FROM THE BEGINNING OF THE APPROACH SLAB (STATION 19+55.00 -L-) TO THE END OF THE WALL (STATION 19+81.00 -L-).



SECTION SHOWING COPING

DRAWN BY: P. K. NEWTON DATE: 8/4/08
 CHECKED BY: W. A. DAVIS DATE: 8/5/08

NOTES

THE CONSTRUCTION SEQUENCE OF THE STEEL SHEET PILE RETAINING WALLS SHALL BE AS FOLLOWS, UNLESS DIRECTED BY THE ENGINEER.

1. INSTALL SHEET PILES FOR RETAINING WALLS TO A TIP ELEVATION NOT HIGHER THAN 16 FEET BETWEEN STATIONS 21+46 AND 23+75. INSTALL SHEET PILES FOR RETAINING WALLS TO A TIP ELEVATION NOT HIGHER THAN 24.5 FEET BETWEEN STATIONS 23+75 AND 26+75.
2. INSTALL TEMPORARY SHORING AND PERFORM UNDERCUT AS SHOWN ON THE ROADWAY PLANS.
3. PLACE AND COMPACT SELECT GRANULAR MATERIAL AND/OR BORROW MATERIAL AS BACKFILL, ACCORDING TO THE STANDARD SPECIFICATIONS, BEHIND THE SHEET PILE WALLS.
4. INSTALL SHEET PILES FOR THE ANCHOR WALL TO A TIP ELEVATION NOT HIGHER THAN 31 FEET AND TIEBACK ANCHORS AS SHOWN ON THE PLANS. THESE SHEET PILES MUST BE INSTALLED OR CUT BELOW THE BOTTOM OF THE CAP @ END BENT 2.
5. INSTALL COPING ON SHEET PILES AS SHOWN ON THE PLANS.

FOR RETAINING WALL 2 AND THE ANCHOR WALL, ALL SHEET PILES SHALL CONFORM TO ASTM GRADE A690.

FOR RETAINING WALL 2, THE STEEL SHEET PILES SHALL BE PZ27 SECTIONS FROM STATION 21+46 TO STATION 23+75. FROM STATION 23+75 TO STATION 26+75, THE STEEL SHEET PILES CAN BE EITHER PZ27 SECTIONS OR PZ22 SECTIONS.

FOR THE ANCHOR WALL, THE STEEL SHEET PILES SHALL BE PZ27 SECTIONS.

FOR RETAINING WALL 2, ALL TIE RODS, CHANNELS, PLATES, AND PIPE SPACERS SHALL CONFORM TO AASHTO M 270 GRADE 36 AND SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

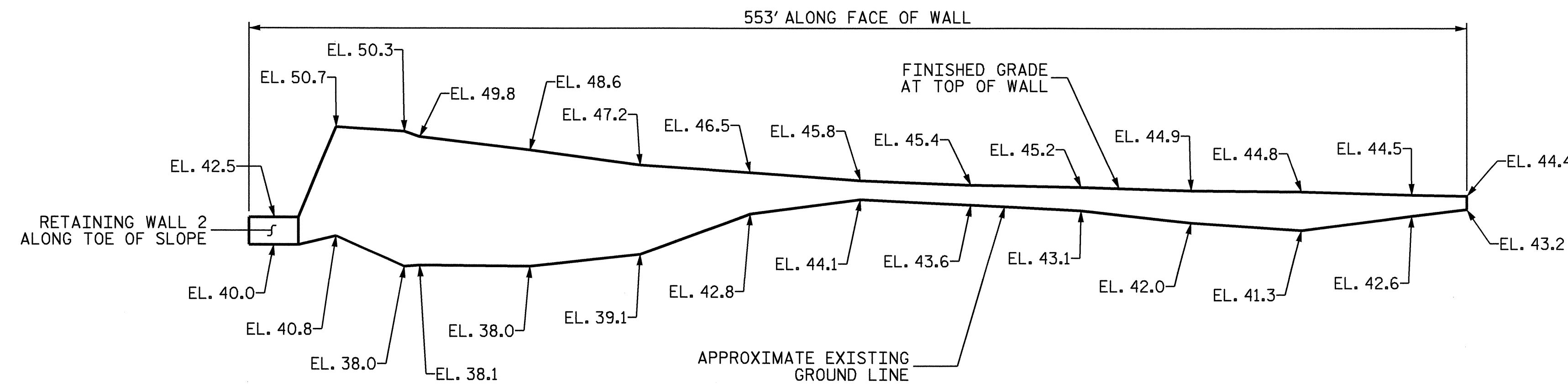
ALL TURNBUCKLES, BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

FOR TIEBACK STEEL SHEET PILE RETAINING WALLS, SEE SPECIAL PROVISIONS.

FOR COPING AND TIEBACK DETAILS, SEE SHEET 2 OF 2.

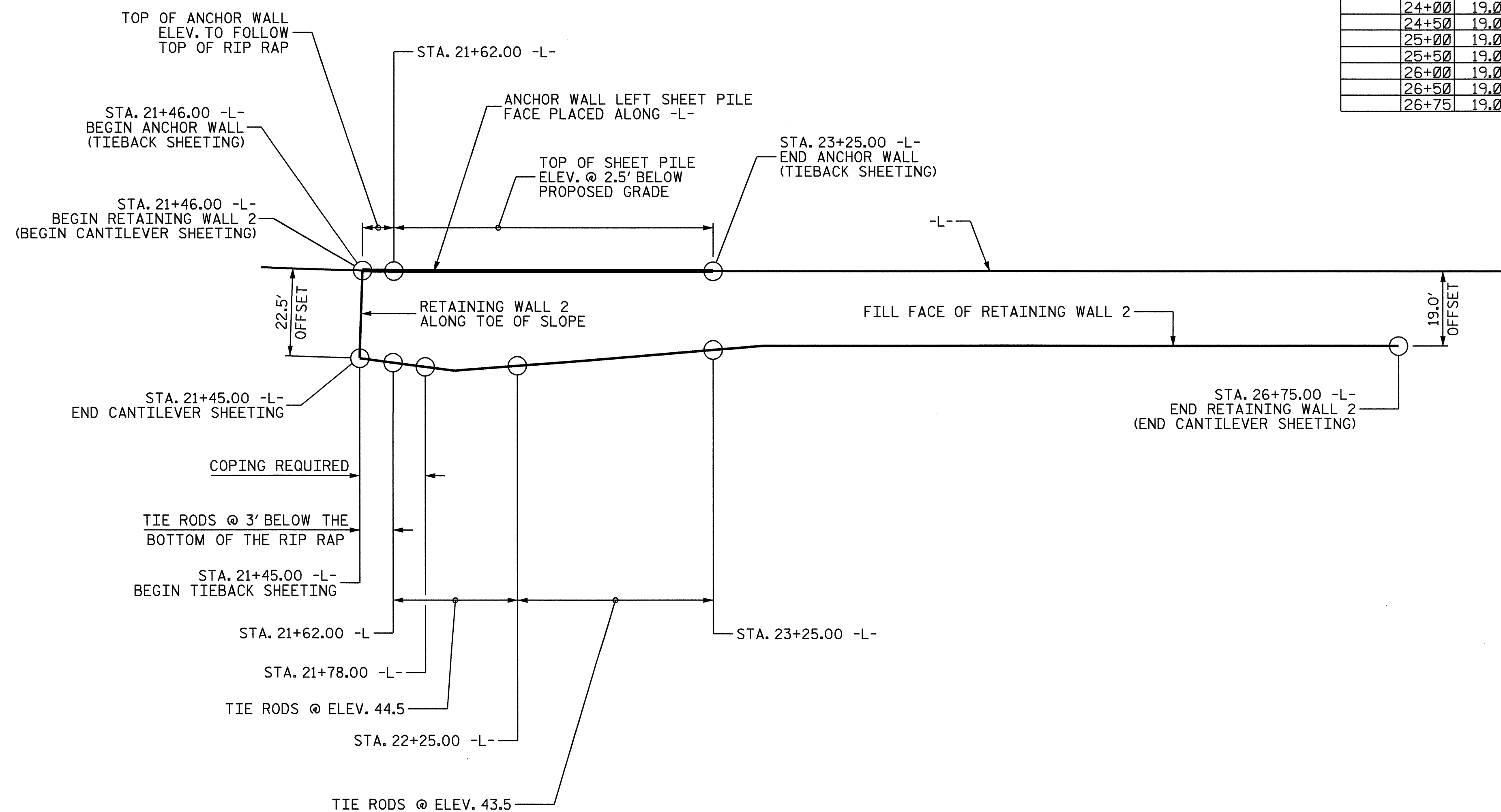
THE STEEL CHANNEL COPING, ANCHOR WALL, AND ALL TIE RODS, TURNBUCKLES, CHANNELS, BOLTS, NUTS, WASHERS, PLATES, AND PIPE SPACERS SHALL BE INCLUDED AS INCIDENTAL TO THE COST OF THE STEEL SHEET PILE RETAINING WALL.

THE QUANTITY SHOWN IN THE TOTAL BILL OF MATERIAL IS THE TOTAL AREA OF THE WALL AS INDICATED IN THE SPECIAL PROVISIONS.



ELEVATION--RETAINING WALL 2

	STA	OFFSET	TOP ELEV	EXISTING GROUND
WALL 2	21+46	0.0	42.5	40.0
	21+45	22.5	42.5	40.0
	21+62	23.4	50.7	40.8
	21+93	25.3	50.3	38.0
	22+00	25.0	49.8	38.1
	22+50	23.1	48.6	38.0
	23+00	21.1	47.2	39.1
	23+50	19.0	46.5	42.8
	24+00	19.0	45.8	44.1
	24+50	19.0	45.4	43.6
	25+00	19.0	45.2	43.1
	25+50	19.0	44.9	42.0
	26+00	19.0	44.8	41.3
	26+50	19.0	44.5	42.6
	26+75	19.0	44.4	43.2

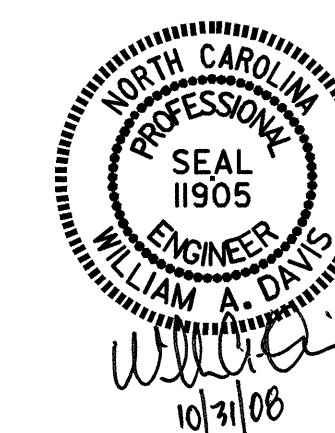


PLAN
OFFSET DIMENSIONS ARE TO THE SHEETING FILL FACE

TOTAL BILL OF MATERIAL FOR RETAINING WALL 2	
TIEBACK STEEL SHEET PILE RETAINING WALLS	16888 SQ. FT.

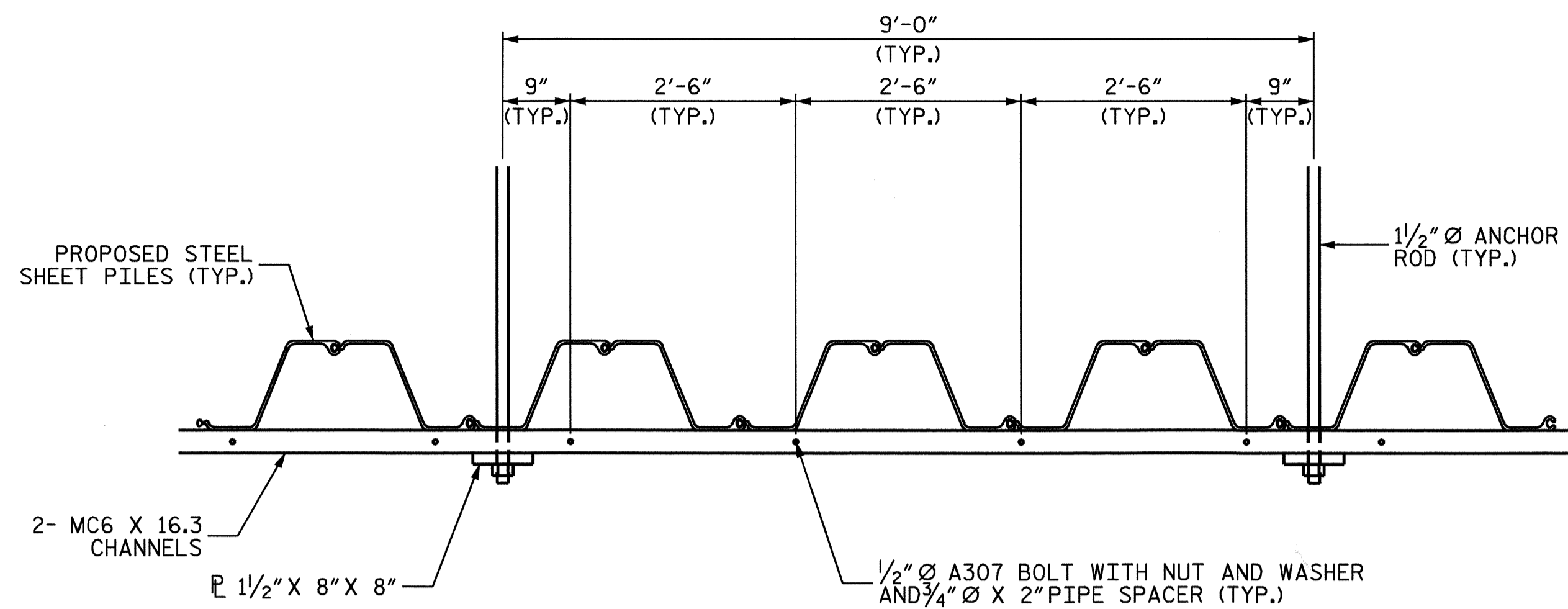
PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 21+46.00 -L-

SHEET 1 OF 2

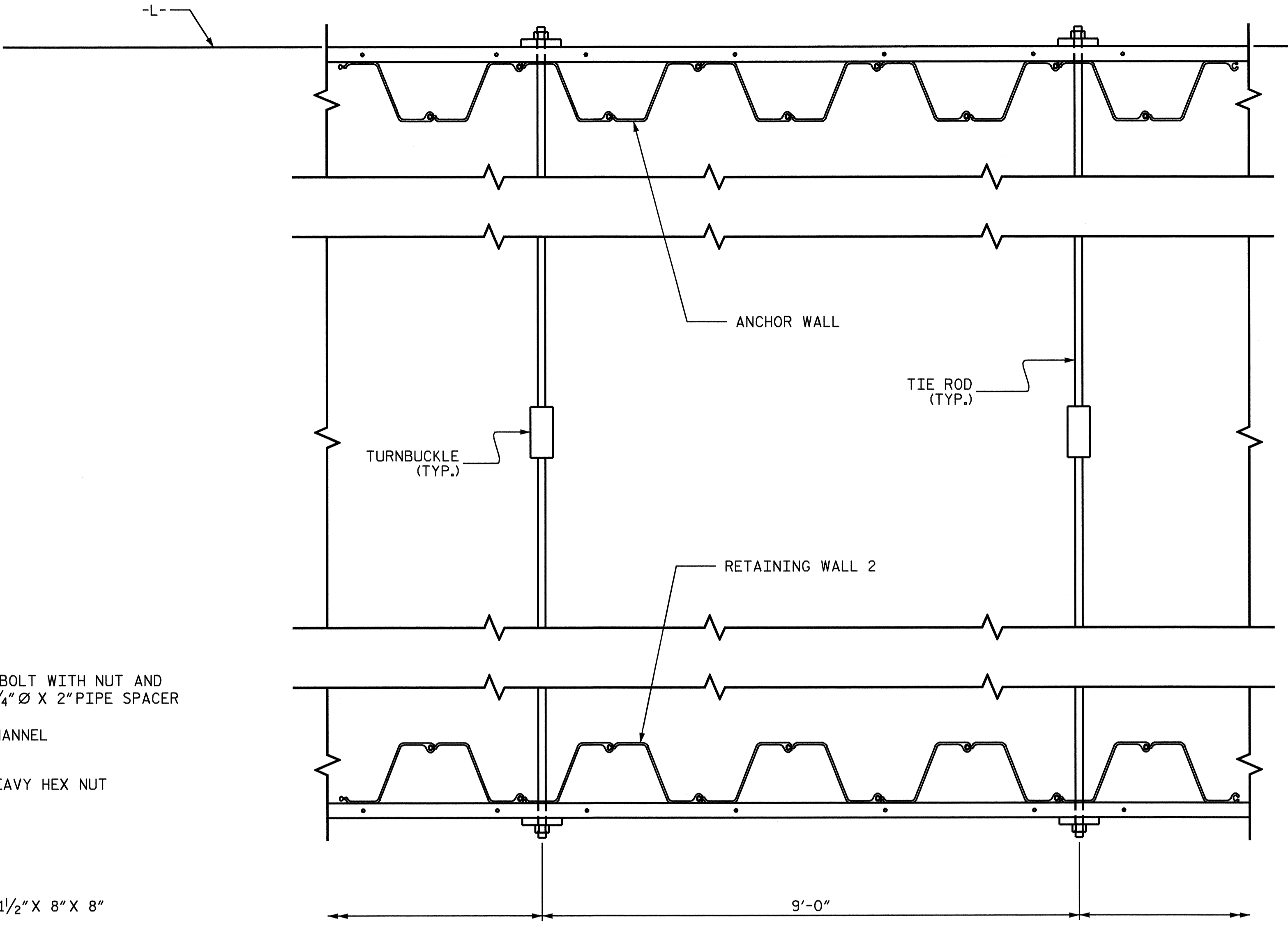


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. W-2	
RETAINING WALL 2						TOTAL SHEETS 5	
REVISIONS							
NO.	BY:	DATE:	NO.	BY:	DATE:		
1			3				
2			4				

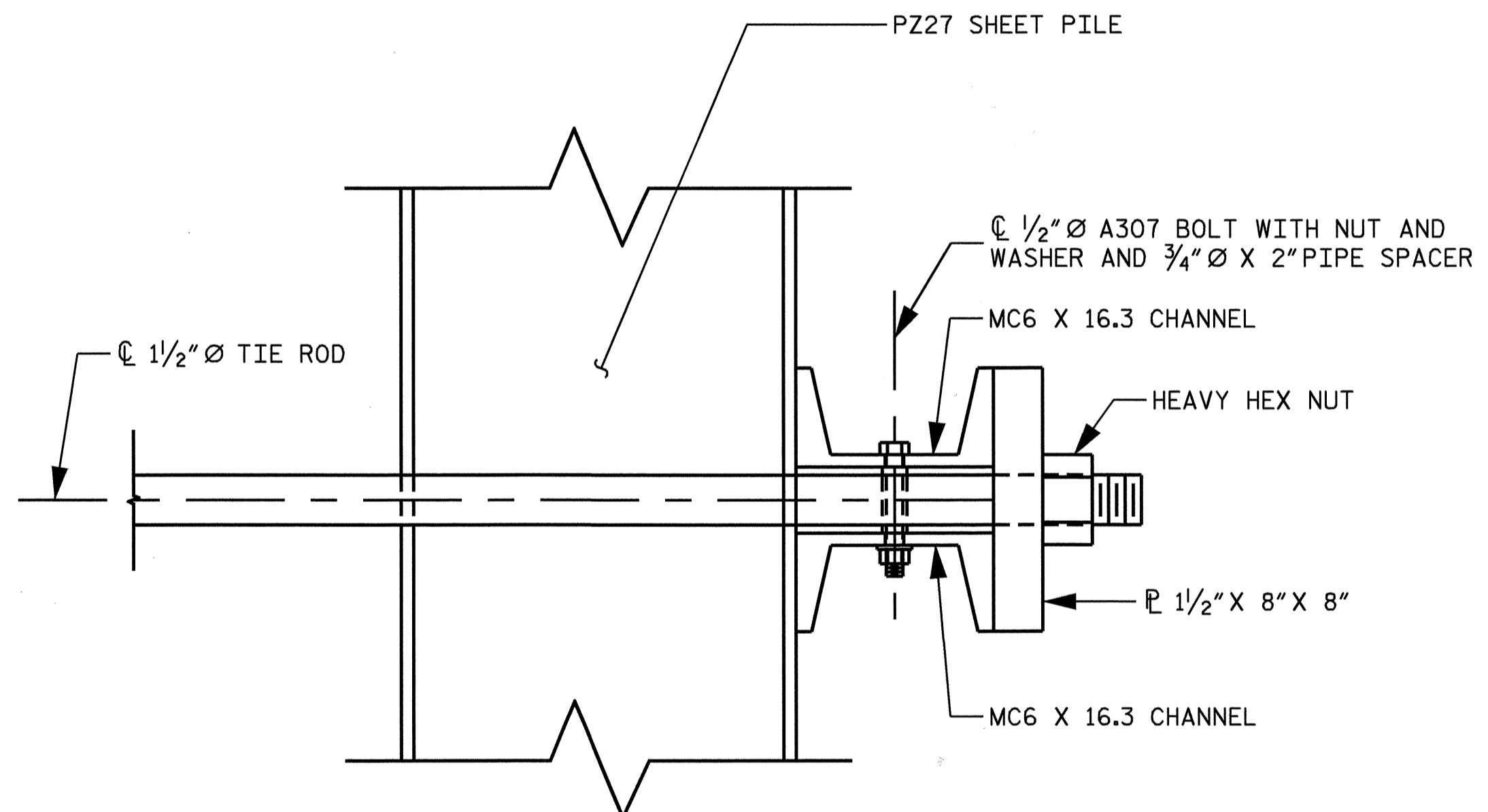
DRAWN BY : P. K. NEWTON DATE : 8/5/08
 CHECKED BY : W. A. DAVIS DATE : 8/5/08



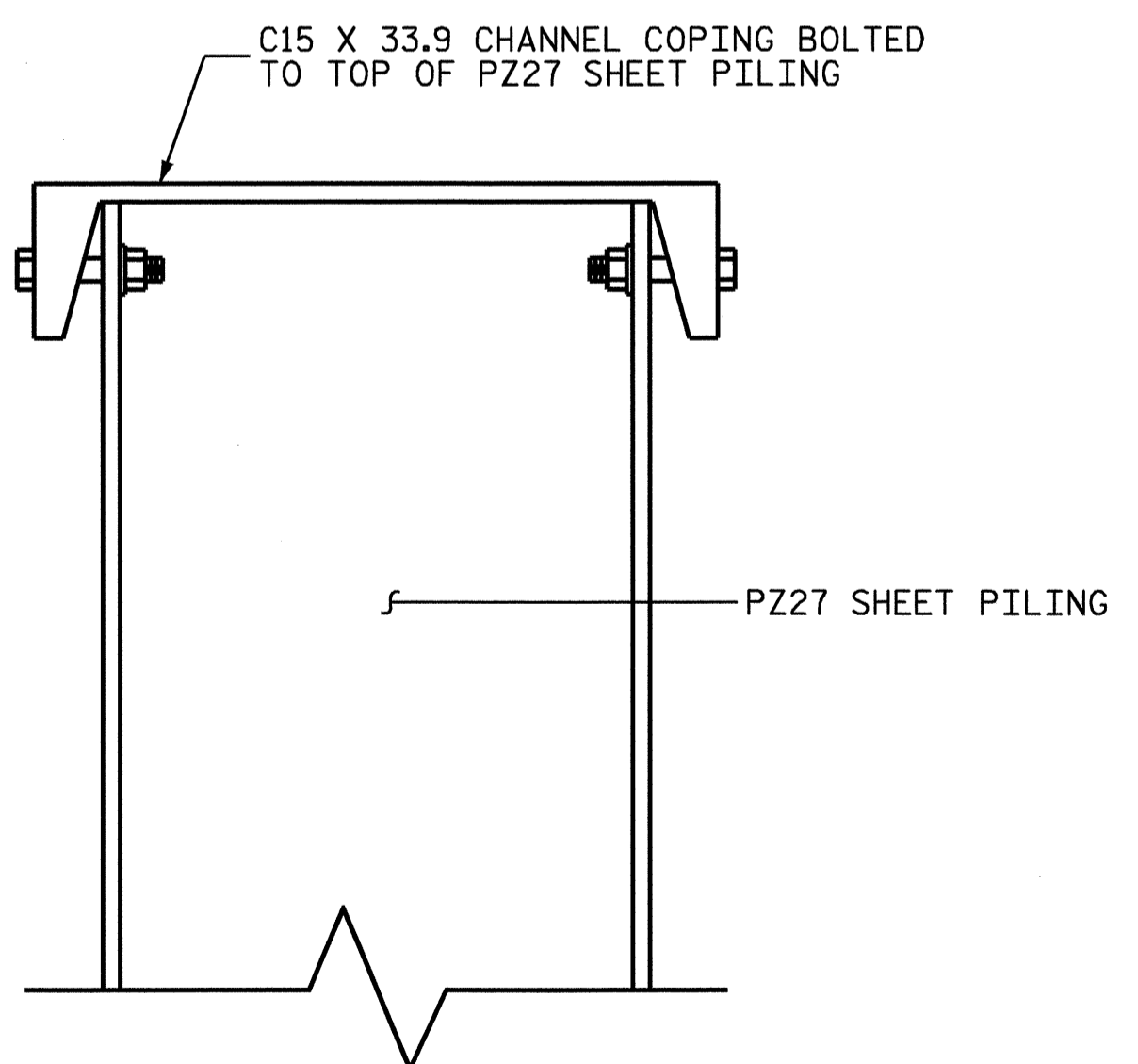
TIE ROD ANCHORAGE SYSTEM



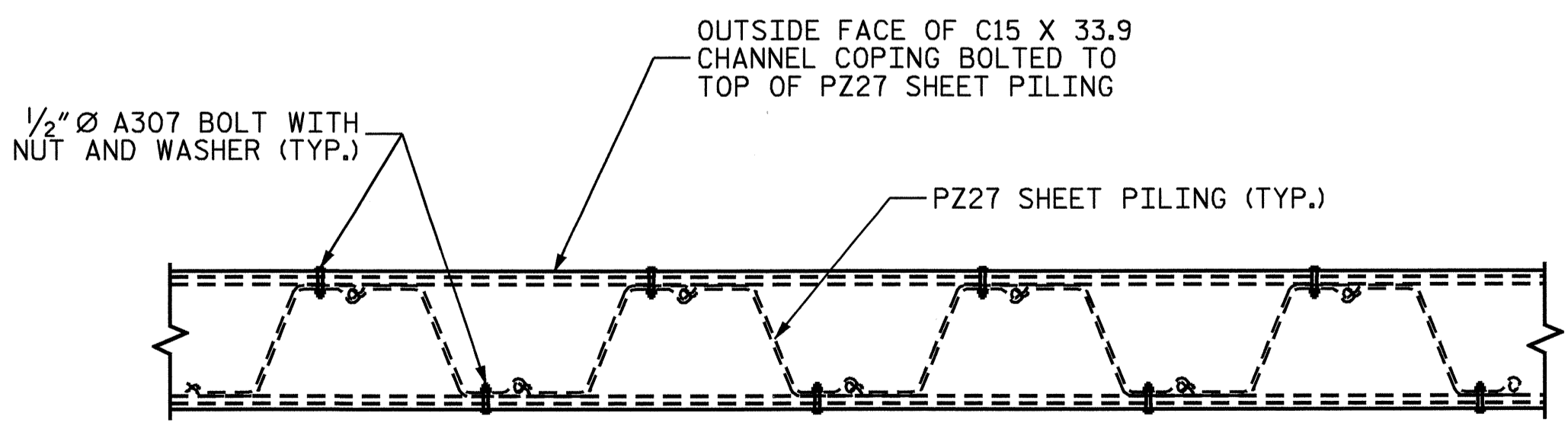
TIE ROD LAYOUT



SECTION AT TIE ROD ANCHOR

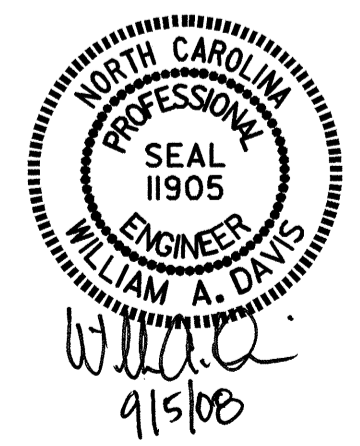


SECTION SHOWING COPING



PARTIAL PLAN SHOWING COPING

INSTALL COPING FROM THE BEGINNING OF THE WALL (STATION 21+46.00 -L-) TO THE END OF THE APPROACH SLAB (STATION 21+78.00 -L-).



PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 21+46.00 -L-

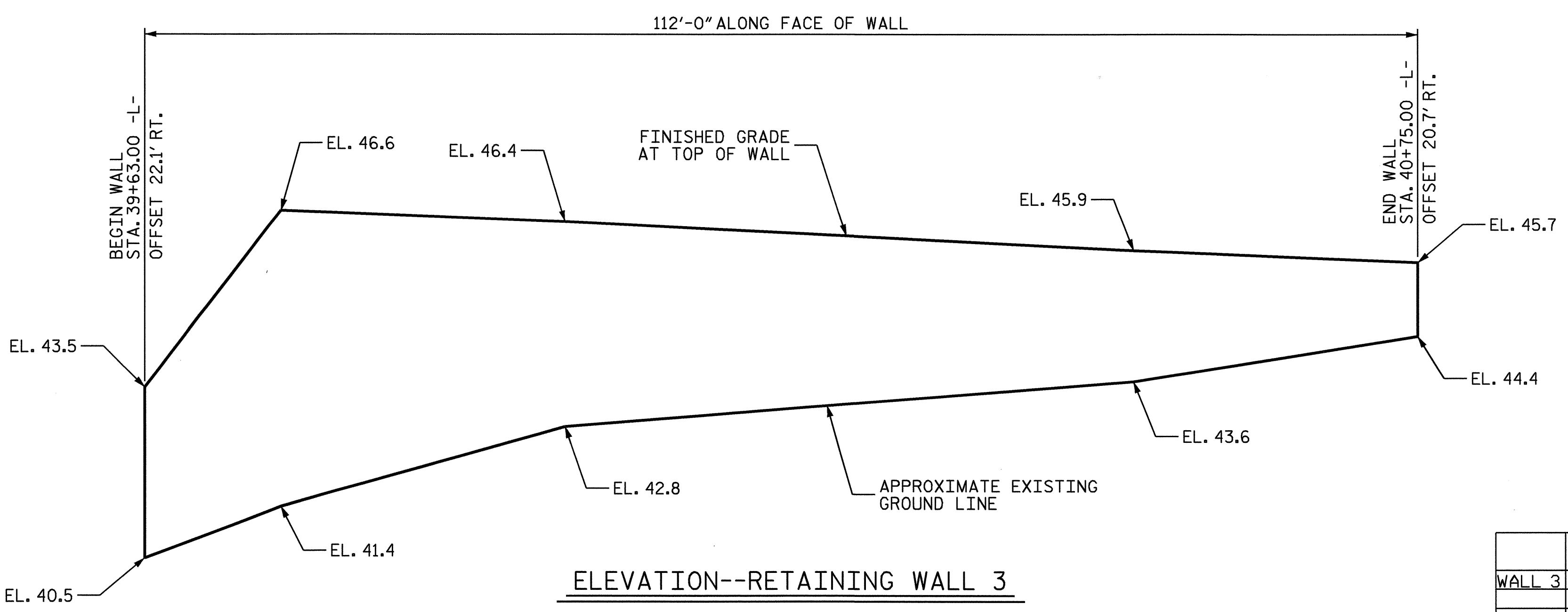
SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

RETAINING WALL 2

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

DRAWN BY: P. K. NEWTON DATE: 8/5/08
 CHECKED BY: W. A. DAVIS DATE: 8/5/08



	STA	OFFSET	TOP ELEV	EXISTING GROUND
WALL 3	39+63	22.1	43.5	40.5
	39+75	22.5	46.6	41.4
	40+00	22.6	46.4	42.8
	40+50	22.0	45.9	43.6
	40+75	20.7	45.7	44.4

NOTES

THE CONSTRUCTION SEQUENCE OF THE STEEL SHEET PILE RETAINING WALLS SHALL BE AS FOLLOWS, UNLESS DIRECTED BY THE ENGINEER.

1. INSTALL SHEET PILES FOR RETAINING WALLS TO A TIP ELEVATION NOT HIGHER THAN 32 FEET.
2. INSTALL TEMPORARY SHORING AND PERFORM UNDERCUT AS SHOWN ON THE ROADWAY PLANS.
3. PLACE AND COMPACT SELECT GRANULAR MATERIAL AND/OR BORROW MATERIAL AS BACKFILL, ACCORDING TO THE STANDARD SPECIFICATIONS, BEHIND THE SHEET PILE WALLS.
4. INSTALL COPING ON SHEET PILES AS SHOWN ON THE PLANS.

THE STEEL SHEET PILES SHALL BE PZ22 SECTIONS AND SHALL CONFORM TO ASTM GRADE A690.

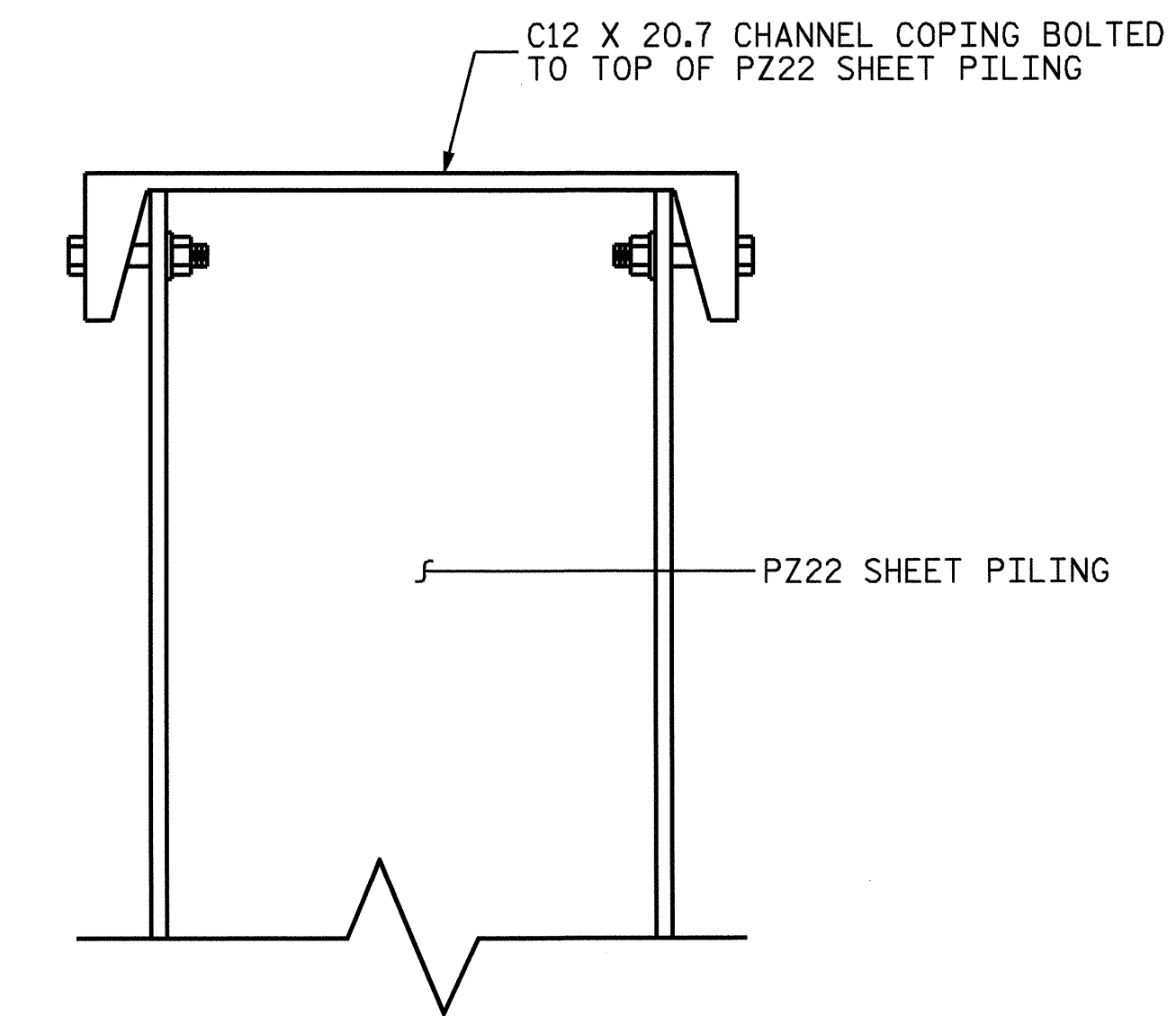
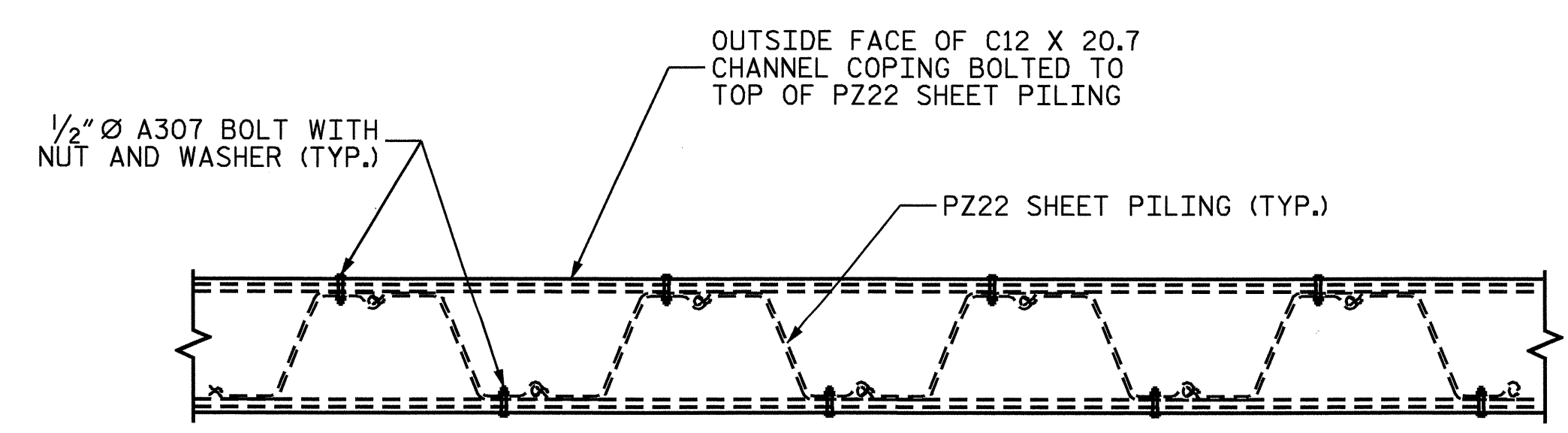
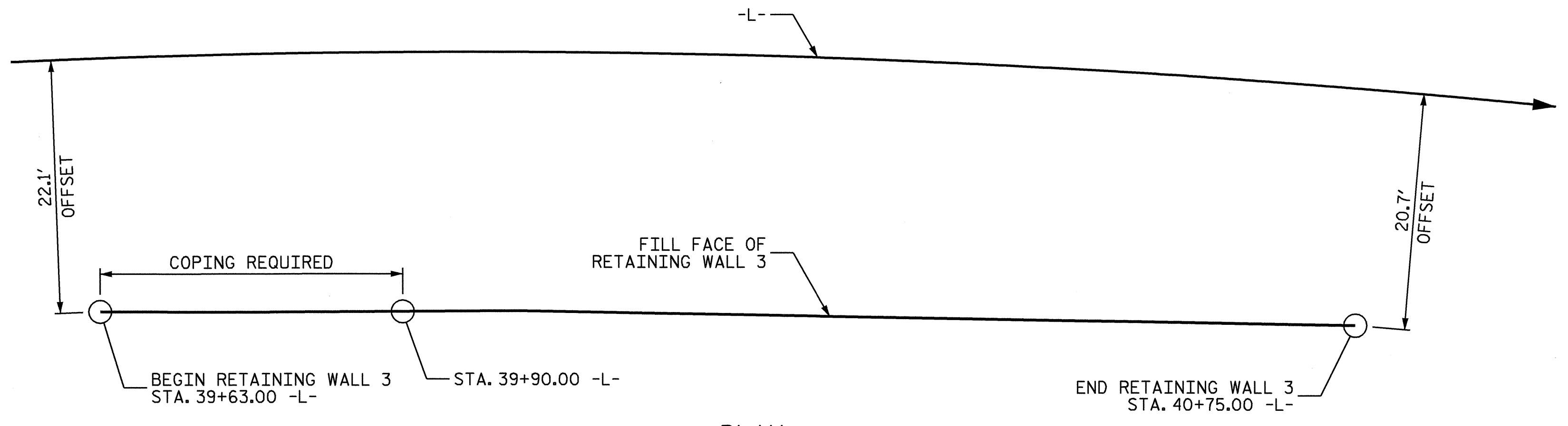
THE STEEL CHANNELS SHALL CONFORM TO AASHTO M 270 GRADE 36, AND SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE STEEL CHANNEL COPING, BOLTS, NUTS, AND WASHERS SHALL BE INCLUDED AS INCIDENTAL TO THE COST OF THE STEEL SHEET PILE RETAINING WALL.

THE QUANTITY SHOWN IN THE TOTAL BILL OF MATERIAL IS THE EXPOSED SURFACE AREA OF THE WALL AS DEFINED IN THE STANDARD SPECIFICATIONS.

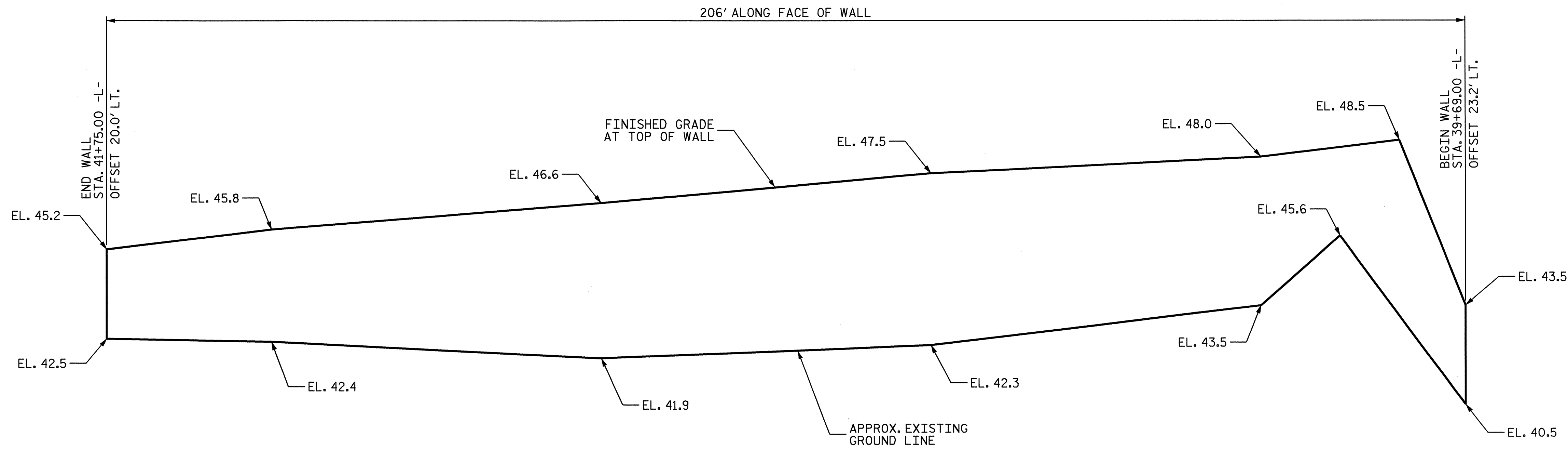
TOTAL BILL OF MATERIAL	
SHEET PILE RETAINING WALLS	352 SQ. FT.



PROJECT NO. B-3830
COLUMBUS COUNTY
 STATION: 39+63.00 -L-

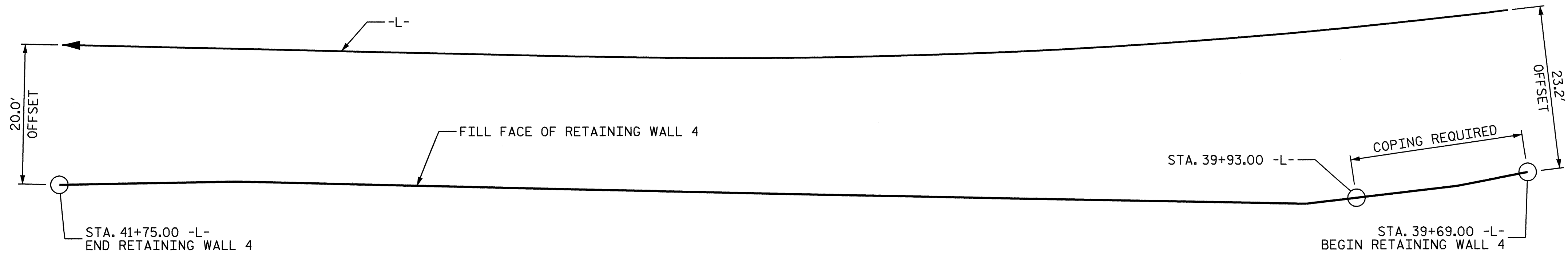
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						RETAINING WALL 3	
REVISIONS							
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.	
1			3			W-4	
2			4			TOTAL SHEETS	
						5	

DRAWN BY : P. K. NEWTON DATE : 8/5/08
 CHECKED BY : W. A. DAVIS DATE : 8/5/08



ELEVATION--RETAINING WALL 4

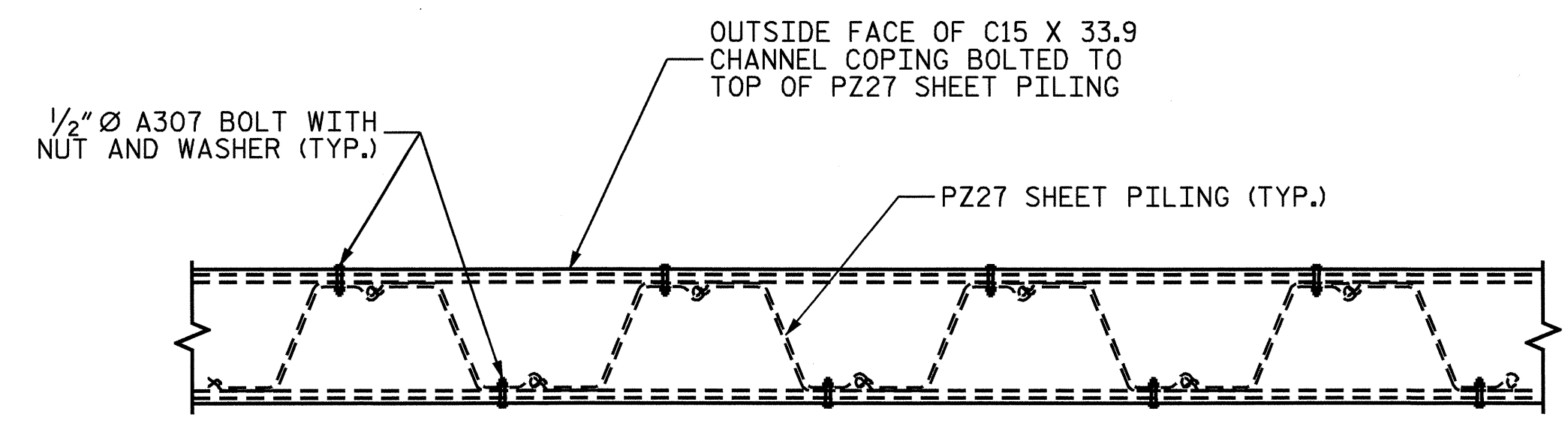
- NOTES**
1. INSTALL SHEET PILES FOR RETAINING WALLS TO A TIP ELEVATIONS NOT HIGHER THAN 18.5 FEET.
 2. INSTALL TEMPORARY SHORING AND PERFORM UNDERCUT AS SHOWN ON THE ROADWAY PLANS.
 3. PLACE AND COMPACT SELECT GRANULAR MATERIAL AND/OR BORROW MATERIAL AS BACKFILL, ACCORDING TO THE STANDARD SPECIFICATIONS, BEHIND THE SHEET PILE WALLS.
 4. INSTALL COPING ON SHEET PILES AS SHOWN ON THE PLANS.
- THE STEEL SHEET PILES SHALL BE PZ27 SECTIONS AND SHALL CONFORM TO ASTM GRADE A690.
- THE STEEL CHANNELS SHALL CONFORM TO AASHTO M 270 GRADE 36, AND SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
- ALL BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
- THE STEEL CHANNEL COPING, BOLTS, NUTS, AND WASHERS SHALL BE INCLUDED AS INCIDENTAL TO THE COST OF THE STEEL SHEET PILE RETAINING WALL.
- THE QUANTITY SHOWN IN THE TOTAL BILL OF MATERIAL IS THE EXPOSED SURFACE AREA OF THE WALL AS DEFINED IN THE STANDARD SPECIFICATIONS.



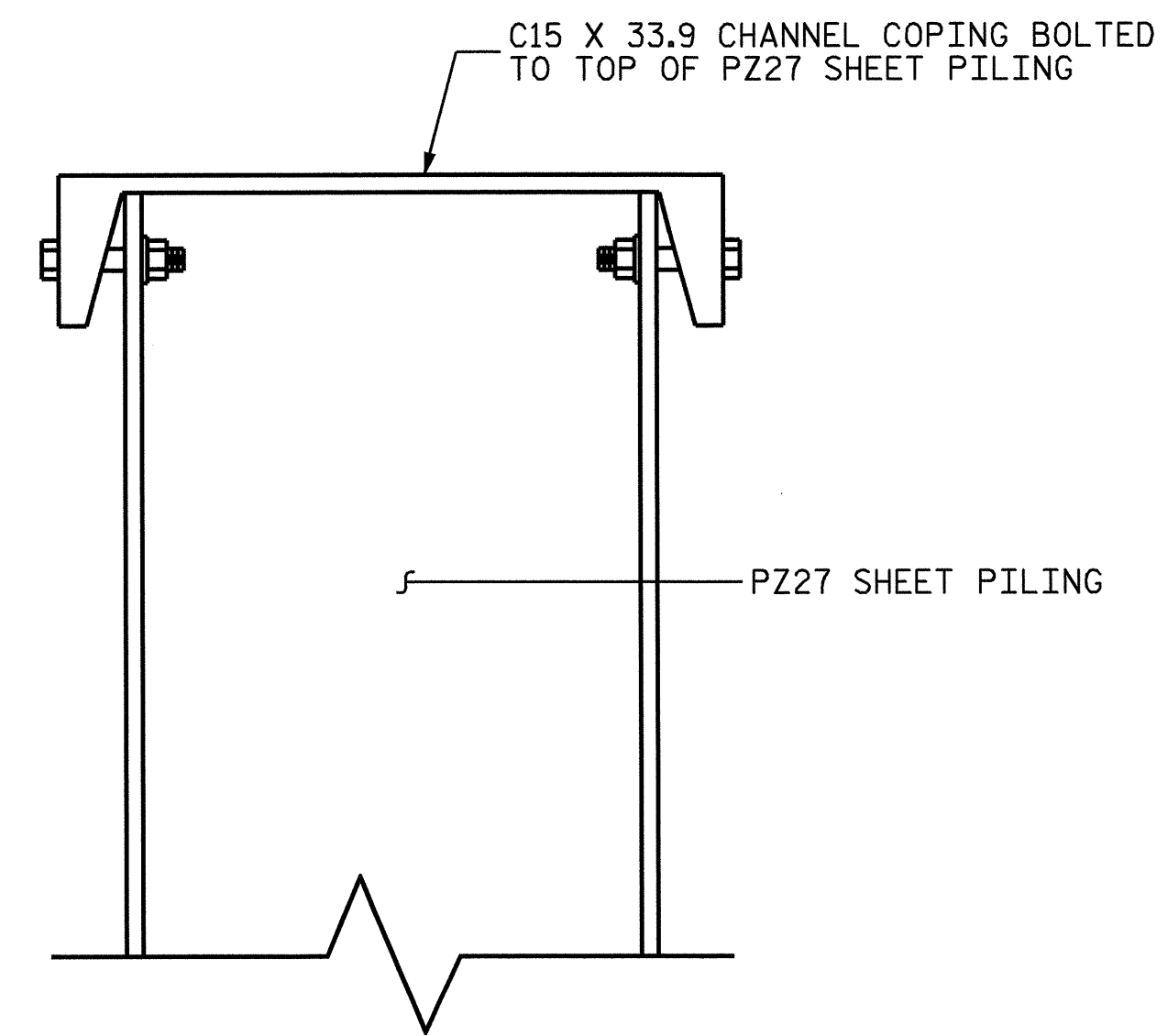
PLAN
OFFSET DIMENSIONS ARE TO THE SHEETING FILL FACE

	STA	OFFSET	TOP ELEV	EXISTING GROUND
WALL 4	39+69	23.2	43.5	40.5
	39+79	24.0	48.5	45.6
	40+00	24.4	48.0	43.5
	40+50	20.4	47.5	42.3
	41+00	19.0	46.6	41.9
	41+50	19.0	45.8	42.4
	41+75	20.0	45.2	42.5

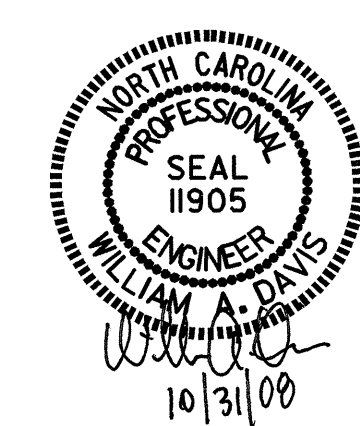
TOTAL BILL OF MATERIAL	
SHEET PILE RETAINING WALLS	890 SQ. FT.



PARTIAL PLAN SHOWING COPING
INSTALL COPING FROM THE BEGINNING OF THE WALL (STATION 39+69.00 -L-) TO THE END OF THE APPROACH SLAB (STATION 39+93.00 -L-).



SECTION SHOWING COPING



PROJECT NO. B-3830
COLUMBUS COUNTY
STATION: 39+69.00 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					SHEET NO. W-5
RETAINING WALL 4					
REVISIONS					TOTAL SHEETS 5
NO.	BY:	DATE:	NO.	BY:	
1			3		
2			4		

DRAWN BY : P. K. NEWTON DATE : 8/5/08
CHECKED BY : W. A. DAVIS DATE : 8/5/08

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. 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