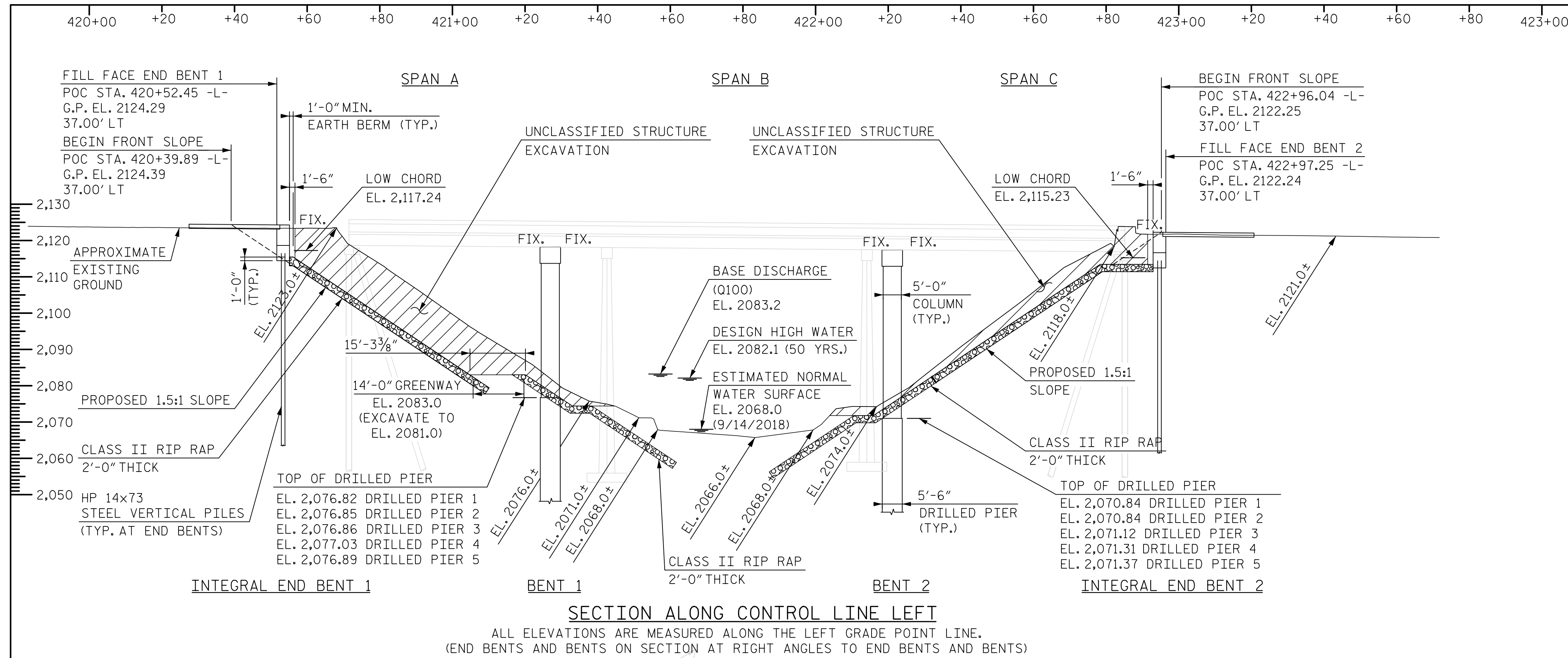


**This electronic collection of documents is provided  
for the convenience of the user  
and is Not a Certified Document –**

**The documents contained herein were originally issued  
and sealed by the individuals whose names and license  
numbers appear on each page, on the dates appearing  
with their signature on that page.**

**This file or an individual page  
shall not be considered a certified document.**

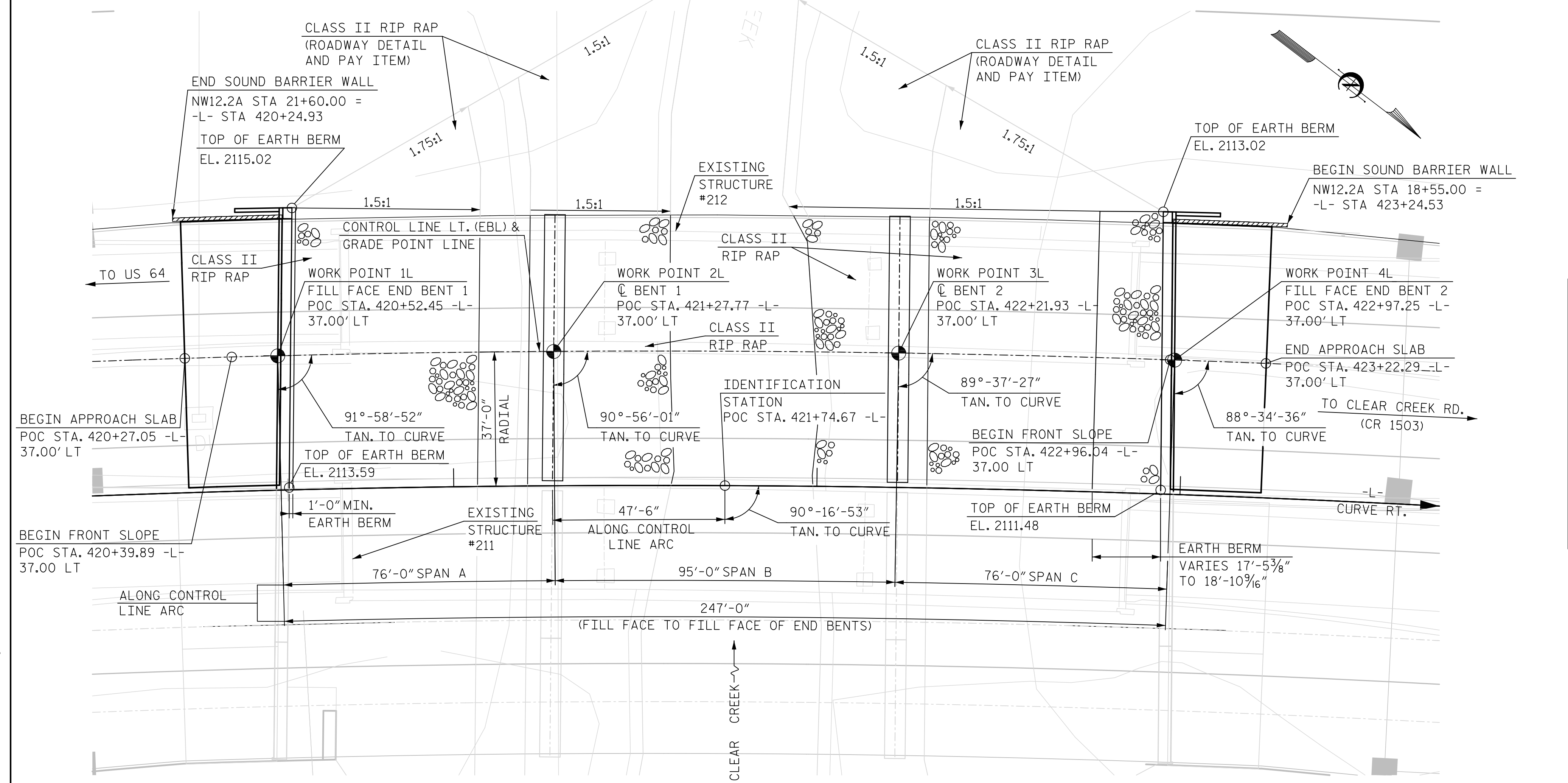
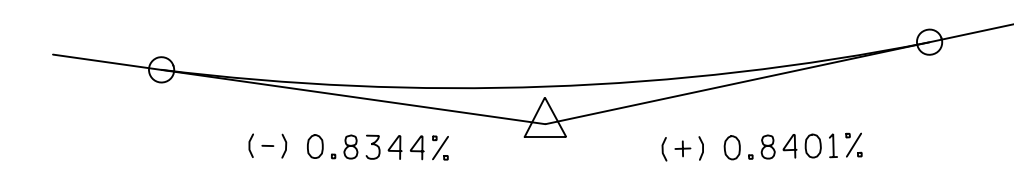


**NOTES:**  
 FOR GENERAL NOTES, SEE SHEET 4 OF 5.

**HYDRAULIC DATA**

DESIGN DISCHARGE	=	7270 CFS
FREQUENCY OF DESIGN DISCHARGE	=	50 YRS.
DESIGN HIGH WATER ELEVATION	=	2082.1 FT
DRAINAGE AREA	=	44.13 SQ. MILES
BASE DISCHARGE (Q100)	=	8560 CFS
BASE HIGH WATER ELEVATION	=	2083.2 FT

PI STA = 426+39.00  
 EL = 2,119.39'  
 VC = 315'



SEE NCDM SECTION 5.1.3, 5.2.8

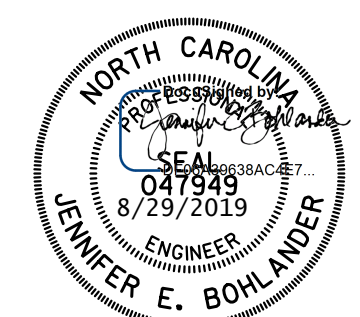
I HEREBY CERTIFY THESE PLANS  
 ARE AS-BUILT PLANS

**CURVE DATA -L-**

PI STA =	418+57.99
Δ =	38°20'00.6" (RT)
D =	1°23'26.4"
L =	2,756.47'
T =	1,432.06'
R =	4,120.00'
SE =	0.05

**PROJECT NO. I-4400 BB**  
**HENDERSON COUNTY**  
**STATION: 421+74.67 -L-**

SHEET 1 OF 5 REPLACES BRIDGE NO. 212



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY	J. SLOAT	DATE	1/10/2019
CHECKED BY	J. BOHLANDER	DATE	1/10/2019
ENGINEER OF RECORD	J. BOHLANDER	DATE	1/10/2019

DWG. NO. 1

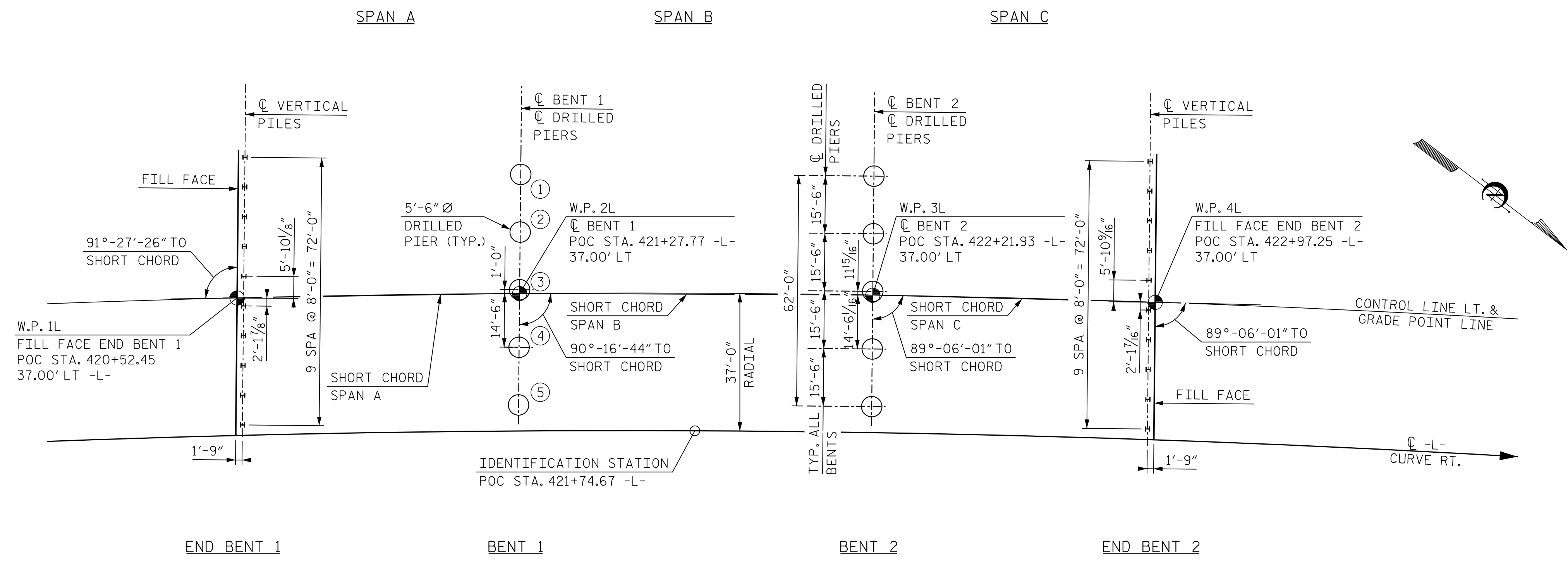
STATE OF NORTH CAROLINA  
**DEPARTMENT OF TRANSPORTATION**  
 RALEIGH

**GENERAL DRAWING FOR BRIDGE ON I-26 OVER CLEAR CREEK BETWEEN US 64 AND CLEAR CREEK RD LEFT LANE**

REVISIONS					SHEET NO. S1-1
NO.	BY	DATE	NO.	DATE	
1			3		TOTAL SHEETS 47
2			4		

8/29/2019 2:23:28 PM \\NOT\_L001\_L1400BB\_SML001\_001\_400212.dgn





**FOUNDATION LAYOUT**

**FOUNDATION NOTES:**

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS

PILES AT END BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 130 TONS PER PILE.

DRIVE PILES AT END BENT NO.1 TO A REQUIRED DRIVING RESISTANCE OF 220 TONS PER PILE.

FOR DRILLED PIERS, SEE SECTON 411 OF THE STANDARD SPECIFICATIONS.

STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT NO.1. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

DRILLED PIERS AT BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 520 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 30 TSF.

PERMANENT STEEL CASINGS ARE REQUIRED FOR DRILLED PIERS AT BENT NO.1. INSTALL PERMANENT CASING TO AN ELEVATION OF 2059 FT AND A PENETRATION OF NO MORE THAN 1 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.

INSTALL DRILLED PIERS AT BENT NO.1 TO A TIP ELEVATION NO HIGHER THAN 2047 FT WITH THE REQUIRED TIP RESISTANCE AND A PENETRATION OF AT LEAST 12 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.

THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 IS ELEVATION 2059 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

DRILLED PIERS AT BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 510 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 30 TSF.

PERMANENT STEEL CASINGS ARE REQUIRED FOR DRILLED PIERS AT BENT NO.2. INSTALL PERMANENT CASING TO AN ELEVATION OF 2059 FT AND A PENETRATION OF NO MORE THAN 1 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.

INSTALL DRILLED PIERS AT BENT NO.2 TO A TIP ELEVATION NO HIGHER THAN 2047 FT WITH THE REQUIRED TIP RESISTANCE AND A PENETRATION OF AT LEAST 12 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.

THE SCOUR CRITICAL ELEVATION FOR BENT NO.2 IS AN ELEVATION OF 2059 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. FOR CSL TESTING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 130 TONS PER PILE.

DRIVE PILES AT END BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 220 TONS PER PILE.

STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT NO.2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 45 TO 60 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT NOS.1 AND 2. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.

DRILLED-IN PILES MAY BE REQUIRED AT END BENT NO.1. EXCAVATE HOLES AT PILE LOCATIONS TO ELEVATION 2070 FT. FOR PILE EXCAVATION, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS. BACKFILL EXCAVATED HOLES WITH CLASS 3 SELECT MATERIALS PRIOR TO DRIVING PILES.

DRILLED-IN PILES MAY BE REQUIRED AT END BENT NO.2. EXCAVATE HOLES AT PILE LOCATIONS TO ELEVATION 2070 FT. FOR PILE EXCAVATION, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS. BACKFILL EXCAVATED HOLES WITH CLASS 3 SELECT MATERIALS PRIOR TO DRIVING PILES.

**NOTES:**

ALL DIMENSIONS ARE PARALLEL OR NORMAL TO  $\phi$  BENTS AND FILL FACES.

ALL END BENT PILES ARE HP 14x73 STEEL PILES.

FOR FOUNDATION ELEVATIONS AND DETAILS, SEE BENT AND END BENT DETAILS.

ALL PILE DIMENSIONS ARE TO  $\phi$  OF PILES.

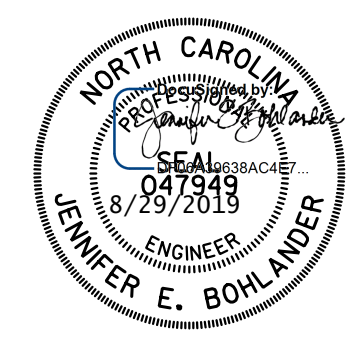
(X) DENOTES PIER NUMBER

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

GENERAL DRAWING  
 FOUNDATION LAYOUT  
 BETWEEN US 64 AND US 26  
 LEFT LANE



**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 1/10/2019	DWG. NO. 2	
CHECKED BY: J. BOHLANDER	DATE: 1/10/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 1/10/2019		

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S1-2
1			3			TOTAL SHEETS
2			4			47

8/29/2019 2:23:30 PM  
 \MOT\_003\_1440009\_SML002\_002\_4402\_12.dgn





**GENERAL NOTES:**

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. 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.

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 SAMPLE BARS SHOULD COME FROM STEEL ACTUALLY USED IN THE PROJECT AND THE SAMPLE BARS SHOULD BE REPLACED BY SPLICED BARS AS SPECIFIED IN THE SAMPLE BAR REPLACEMENT CHART. PAYMENT FOR THE SAMPLE BARS AND REPLACEMENT REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

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

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

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 44 FT. TO THE LEFT OF THE GRADE POINT LINE AND 32 FT TO THE RIGHT OF THE GRADE POINT LINE 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.

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 STRUCTURES AT STATION 421+74.67 -L-".

THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF 3 SPANS AT 71'-2", 71'-7" AND 71'-2" WITH REINFORCED CONCRETE DECK; ON 4 LINES OF 36" STEEL I-BEAMS WITH A CLEAR ROADWAY WIDTH OF 28'-0"; ON REINFORCED CONCRETE END BENTS WITH PILE FOOTINGS AND REINFORCED CONCRETE POST AND BEAM BENTS WITH PILE AND SPREAD FOOTINGS, LOCATED AT THE PROPOSED STRUCTURE SITE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGES IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

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

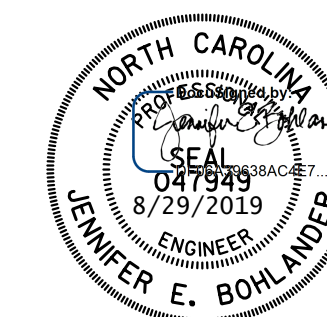
FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

SAMPLE BAR REPLACEMENT		NOTE: SAMPLE BAR REPLACEMENT LENGTHS BASED ON 30" (SAMPLE LENGTH) PLUS TWO SPLICE LENGTHS AND fy = 60ksi.
SIZE	LENGTH	
#3	6'-2"	
#4	7'-4"	
#5	8'-6"	
#6	9'-8"	
#7	10'-10"	
#8	12'-0"	
#9	13'-2"	
#10	14'-6"	
#11	15'-10"	

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 4 OF 5



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

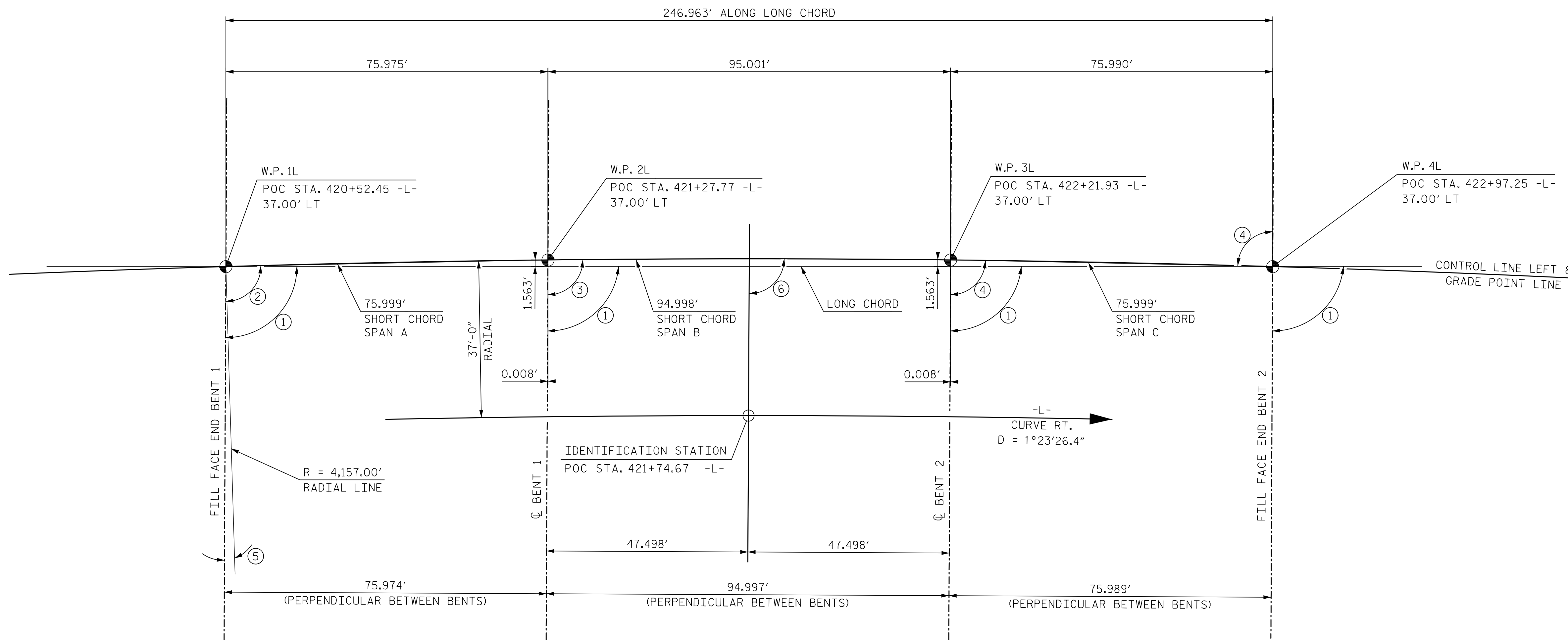
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

GENERAL DRAWING  
 GENERAL NOTES

<b>HNTB</b> HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	REVISIONS					SHEET NO.
	NO.	BY	DATE	NO.	BY	DATE
	1	J. BOHLANDER	1/10/2019	3		
	J. SLOAT	1/10/2019	4			TOTAL SHEETS
ENGINEER OF RECORD	J. BOHLANDER	DATE	1/10/2019			47

8/29/2019 2:23:41 PM ...\\MO1\_LOOT\_1\4400BB\_SML\_G004\_004\_440212.dgn

- ANGLES**
- ① 90°-16'-44" TO LONG CHORD
  - ② 91°-27'-26" TO SHORT CHORD
  - ③ 90°-16'-44" TO SHORT CHORD
  - ④ 89°-06'-01" TO SHORT CHORD
  - ⑤ 01°-58'-52" TO RADIAL LINE
  - ⑥ 90°-16'-44" TANGENT TO CURVE

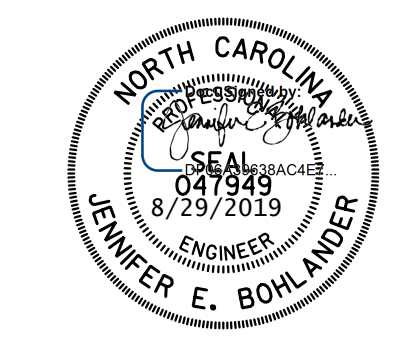


**LONG CHORD LAYOUT**  
ALL END BENTS AND BENTS ARE PARALLEL.

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 GENERAL DRAWING  
 LONG CHORD LAYOUT



**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: M. JULIAN	DATE: 1/10/2019	DWG. NO. 5	
CHECKED BY: J. BOHLANDER	DATE: 1/10/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 1/10/2019		

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S1-5
1			3			TOTAL SHEETS
2			4			47

8/29/2019 2:23:44 PM  
 ...\\MOT\_LO09\_1440009\_SML\_G005\_005\_440212.dgn



LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	$\gamma_{DC}$	$\gamma_{DW}$
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

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

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						LIVE-LOAD FACTORS	MOMENT					SHEAR					LIVE-LOAD FACTORS	MOMENT						
							DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	1	1.00	--	1.75	0.82	1.23	B	EL	46.4	0.93	1.16	B	I	9.3	0.80	0.82	1.00	B	EL	46.4		
	HL-93 (OPERATING)	N/A	--	1.54	--	1.35	0.82	1.60	B	EL	46.4	0.93	1.54	B	I	9.3	--	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	2	1.37	49.3	1.75	0.82	1.70	B	EL	46.4	0.93	1.62	B	I	83.5	0.80	0.82	1.37	B	EL	46.4		
	HS-20 (OPERATING)	36.000	--	2.13	76.7	1.35	0.82	2.20	B	EL	46.4	0.93	2.13	B	I	83.5	--	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SH	12.500	--	3.51	43.9	1.40	0.82	5.42	B	EL	46.4	0.93	5.59	B	I	9.3	0.80	0.82	3.51	B	EL	46.4	
		S3C	21.500	--	2.05	44.1	1.40	0.82	3.17	B	EL	46.4	0.93	3.19	B	I	83.5	0.80	0.82	2.05	B	EL	46.4	
		S3A	22.750	--	1.94	44.1	1.40	0.82	3.00	B	EL	46.4	0.93	3.09	B	I	83.5	0.80	0.82	1.94	B	EL	46.4	
		S4A	26.750	--	1.70	45.5	1.40	0.82	2.64	B	EL	46.4	0.93	2.53	B	I	83.5	0.80	0.82	1.70	B	EL	46.4	
		S5A	30.500	--	1.50	45.8	1.40	0.82	2.33	B	EL	46.4	0.93	2.30	B	I	83.5	0.80	0.82	1.50	B	EL	46.4	
		S6A	34.500	--	1.36	46.9	1.40	0.82	2.11	B	EL	46.4	0.93	2.06	B	I	83.5	0.80	0.82	1.36	B	EL	46.4	
		S7B	38.500	--	1.24	47.7	1.40	0.82	1.91	B	EL	46.4	0.93	1.91	B	I	83.5	0.80	0.82	1.24	B	EL	46.4	
	S7A	40.000	3	1.22	48.8	1.40	0.82	1.89	B	EL	46.4	0.93	1.91	B	I	83.5	0.80	0.82	1.22	B	EL	46.4		
	TRUCK TRACTOR SEMI-TRAILER (TTST)	T4A	28.250	--	1.67	47.2	1.40	0.82	2.59	B	EL	46.4	0.93	2.59	B	I	83.5	0.80	0.82	1.67	B	EL	46.4	
		T5B	32.000	--	1.47	47.0	1.40	0.82	2.28	B	EL	46.4	0.93	2.32	B	I	9.3	0.80	0.82	1.47	B	EL	46.4	
		T6A	36.000	--	1.34	48.2	1.40	0.82	2.08	B	EL	46.4	0.93	2.11	B	I	83.5	0.80	0.82	1.34	B	EL	46.4	
		T7A	40.000	--	1.24	49.6	1.40	0.82	1.92	B	EL	46.4	0.93	1.94	B	I	9.3	0.80	0.82	1.24	B	EL	46.4	
		T7B	40.000	--	1.32	52.8	1.40	0.82	2.04	B	EL	46.4	0.93	1.83	B	I	83.5	0.80	0.82	1.32	B	EL	46.4	

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.  
ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

# CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

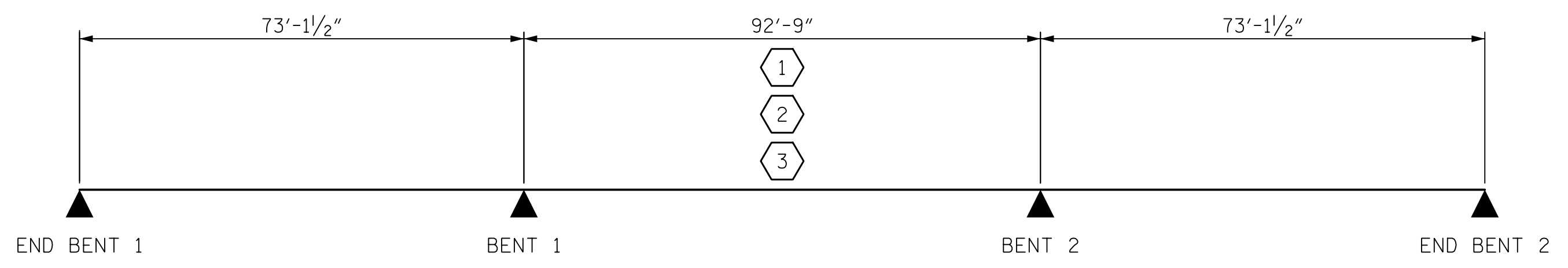
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING \*\*

\*\* SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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

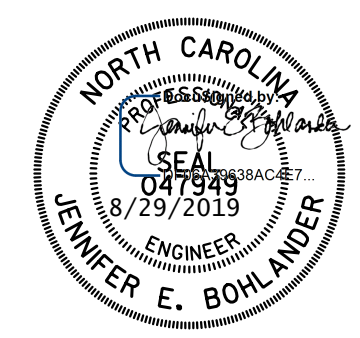


LRFR SUMMARY

NOTE: SPAN LENGTHS PROVIDED ARE BEARING TO BEARING LENGTHS

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
STATION: 421+74.67 -L-

SHEET 1 OF 1



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

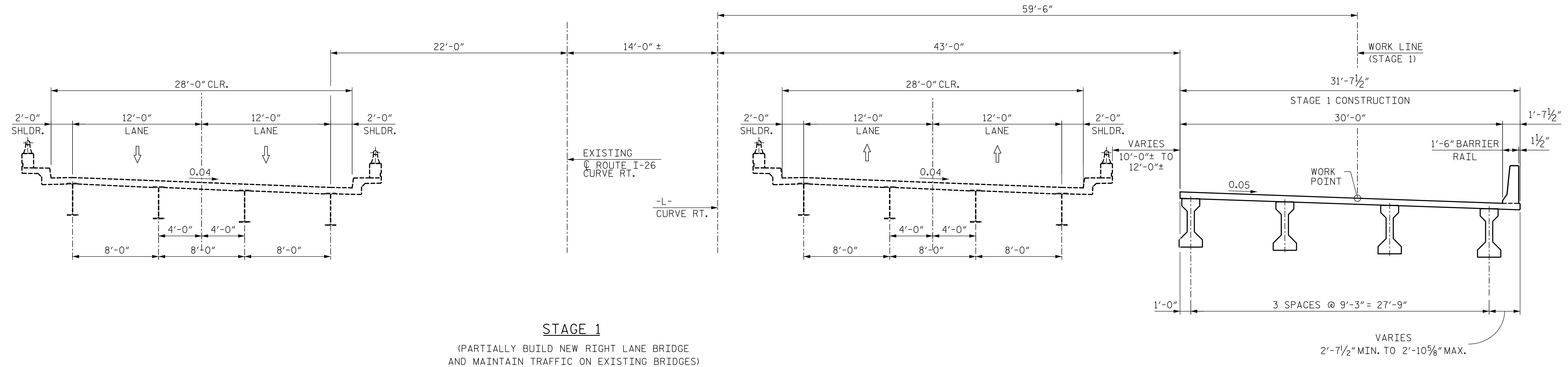
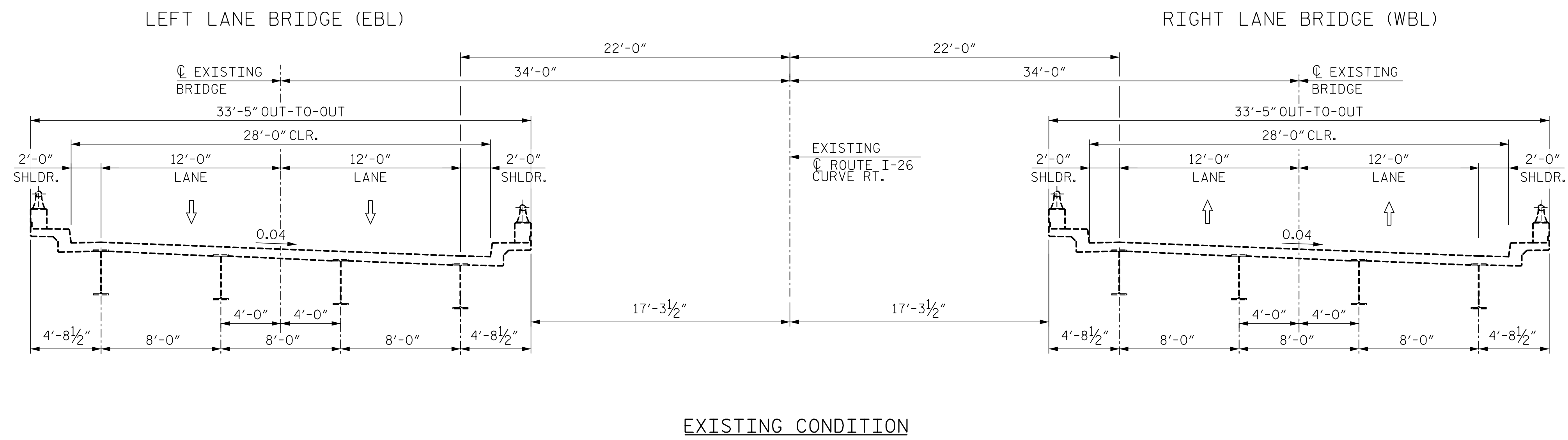
**HNTB** HNTB NORTH CAROLINA, P.C.  
NC License No. C-1554  
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: M. JULIAN DATE: 3/18/2019  
CHECKED BY: J. BOHLANDER DATE: 3/18/2019  
ENGINEER OF RECORD: J. BOHLANDER DATE: 3/18/2019

DWG. NO. 6

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
LRFR SUMMARY

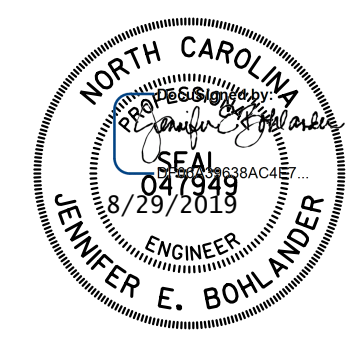
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S1-6
1			3			TOTAL SHEETS
2			4			47



NOTE:  
 1. ALL DIMENSIONS SHOWN ARE RADIAL. ALL GIRDER DIMENSIONS ARE NORMAL TO THE SHORT CHORD.  
 2. CONSTRUCTION SEQUENCE INCLUDES WESTBOUND LANE BRIDGE. SEE PLANS FOR BRIDGE ON I-26 OVER CLEAR CREEK BETWEEN US 64 AND CLEAR CREEK RD RIGHT LANE PLANS FOR DETAILS.

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 1 OF 3



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 1/10/2019	DWG. NO. 7	
CHECKED BY: J. BOHLANDER	DATE: 1/10/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 1/10/2019		

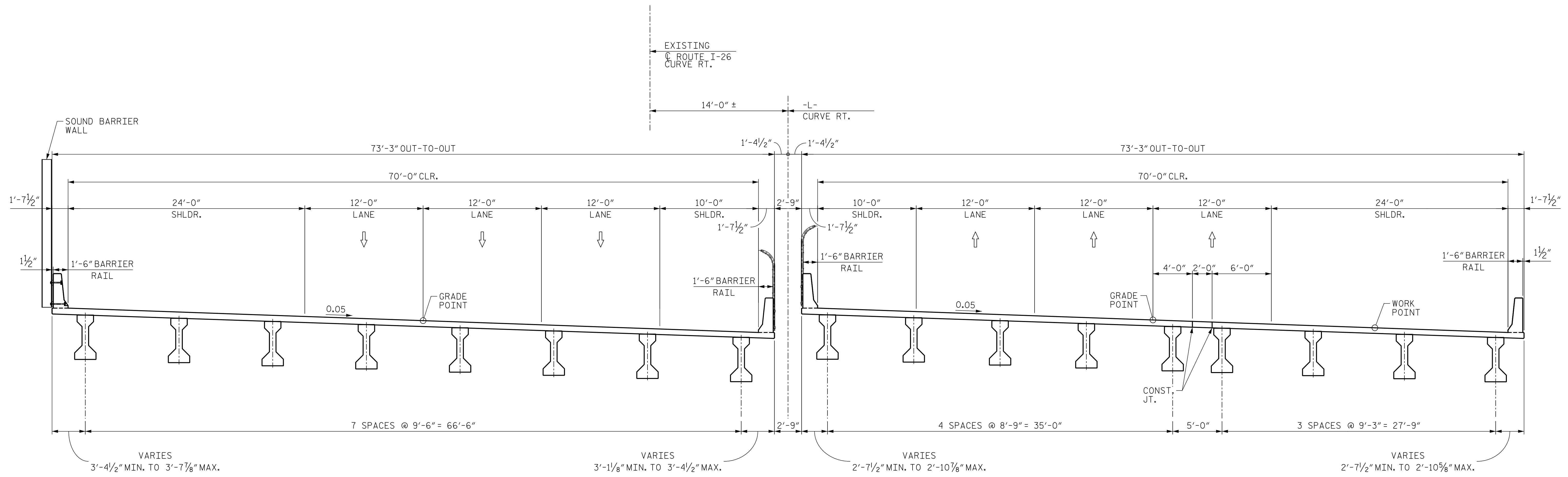
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE CONSTRUCTION SEQUENCE					
REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
TOTAL SHEETS					47
					S1-7

8/29/2019 2:23:47 PM ...MO1\_013\_1\_4400BB\_SML\_P01\_001\_440212.dgn





NOTE: ALL DIMENSIONS SHOWN ARE RADIAL. ALL GIRDER DIMENSIONS ARE NORMAL TO THE SHORT CHORD.

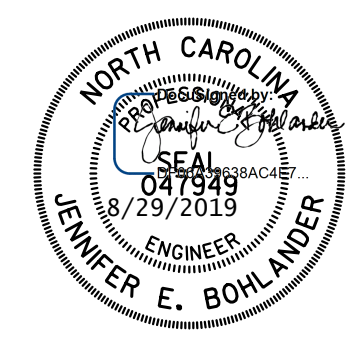


**FINAL CONDITION**

(SHIFT LEFT LANE BRIDGE TRAFFIC TO NEW LEFT LANE BRIDGE. REMOVE PORTABLE CONCRETE BARRIER. MOVE RIGHT BRIDGE TRAFFIC TO FINAL TRAFFIC CONDITION.)

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 3 OF 3 REPLACES BRIDGES NO. 211 & 212



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 1/10/2019	DWG. NO. 9	
CHECKED BY: J. BOHLANDER	DATE: 1/10/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 1/10/2019		

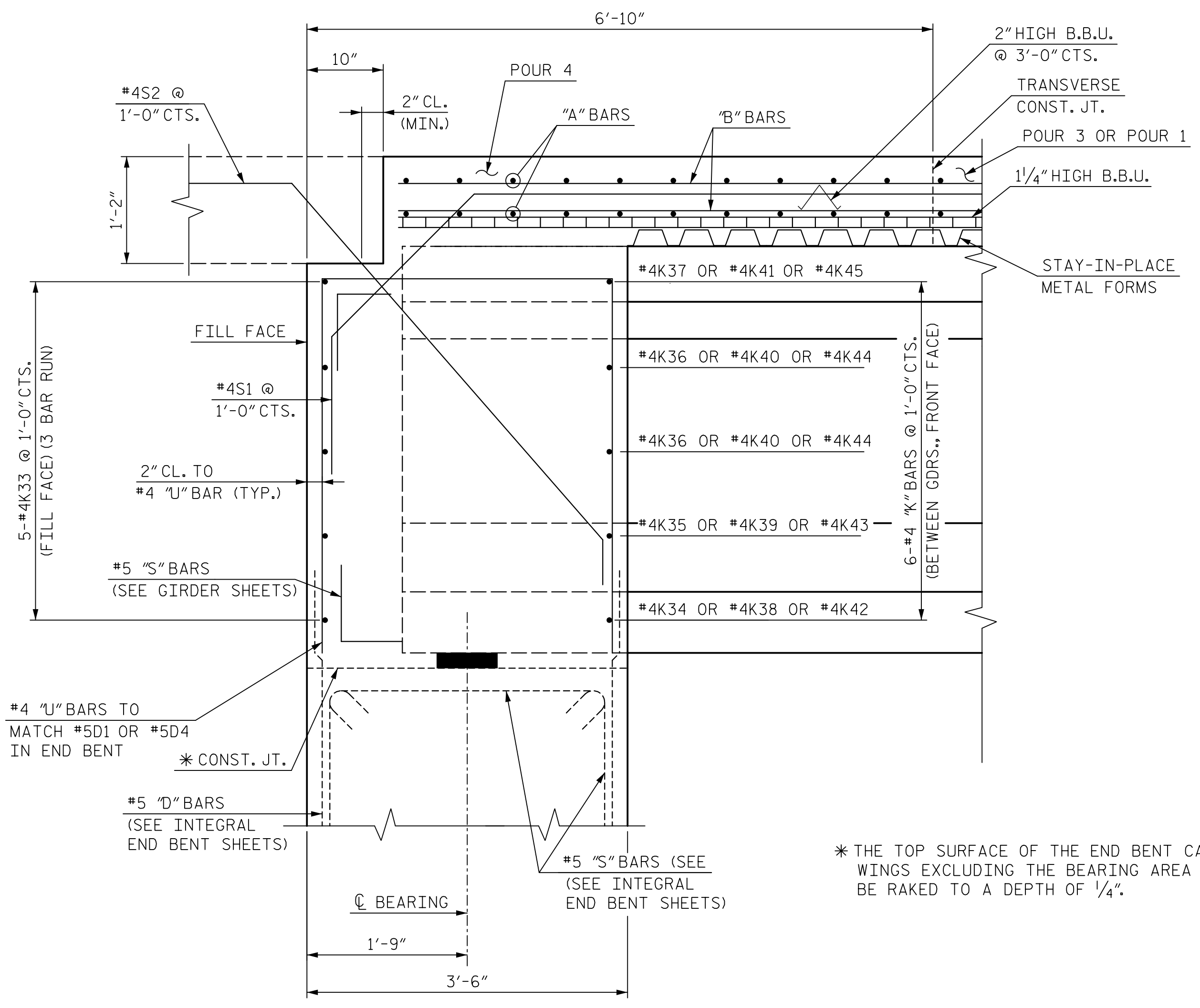
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE CONSTRUCTION SEQUENCE					
REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
TOTAL SHEETS					47
					S1-9

8/29/2019 2:35:11 PM \\MO1017...1440009.SML\_P003\_009\_440212.dgn

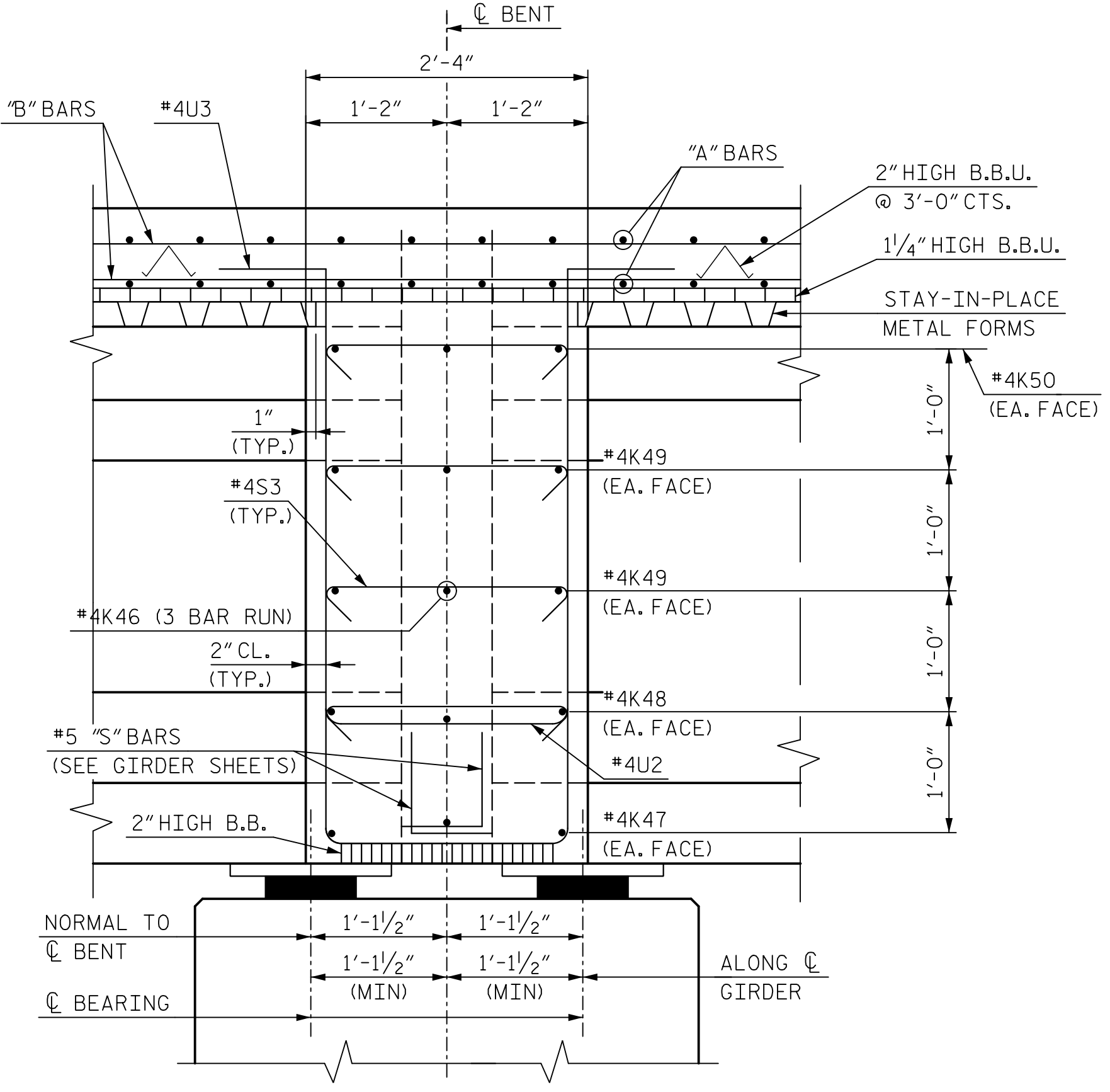




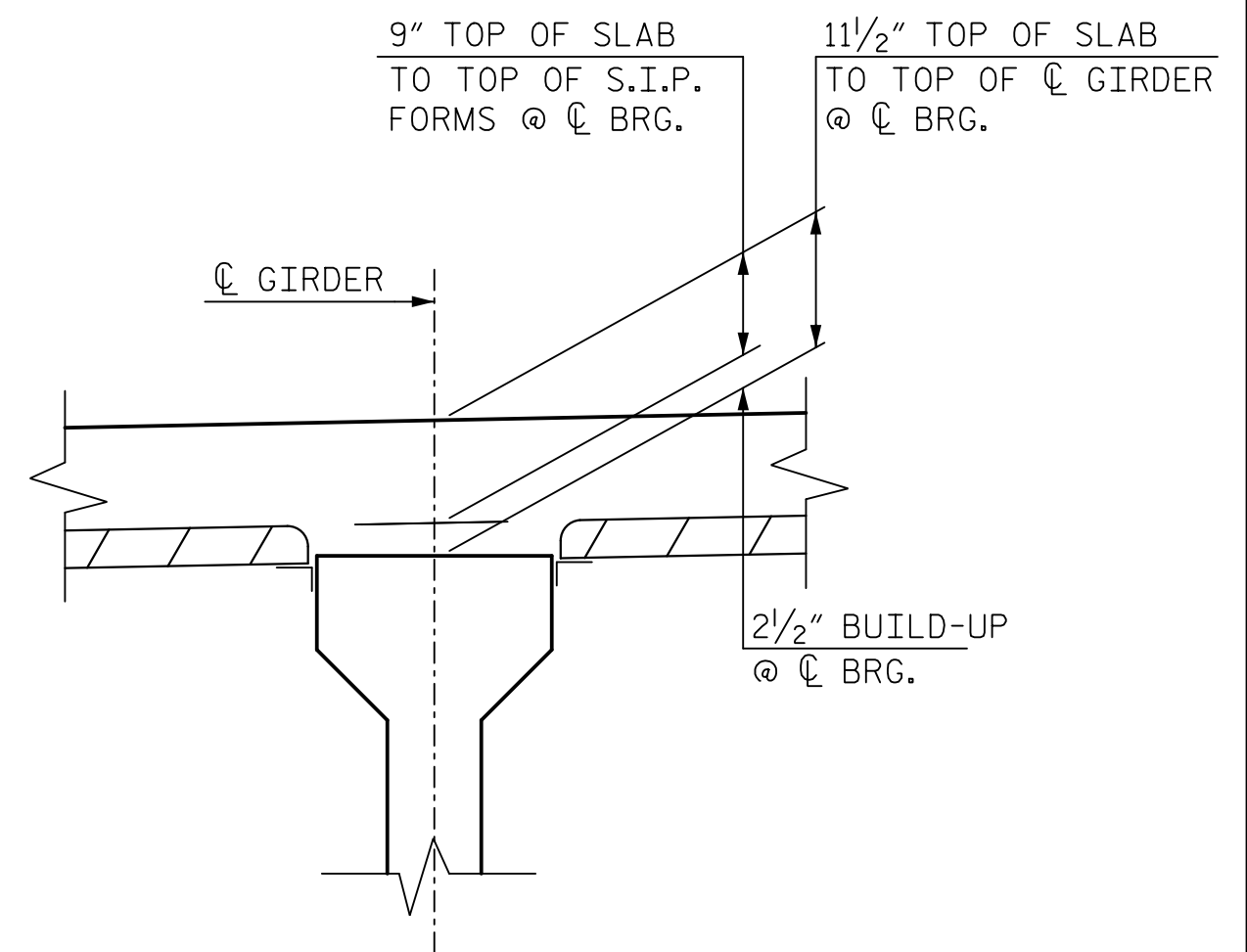




**SECTION A-A**  
(SECTION NORMAL THROUGH END BENT 1 DIAPHRAGM, END BENT 2 SIMILAR)

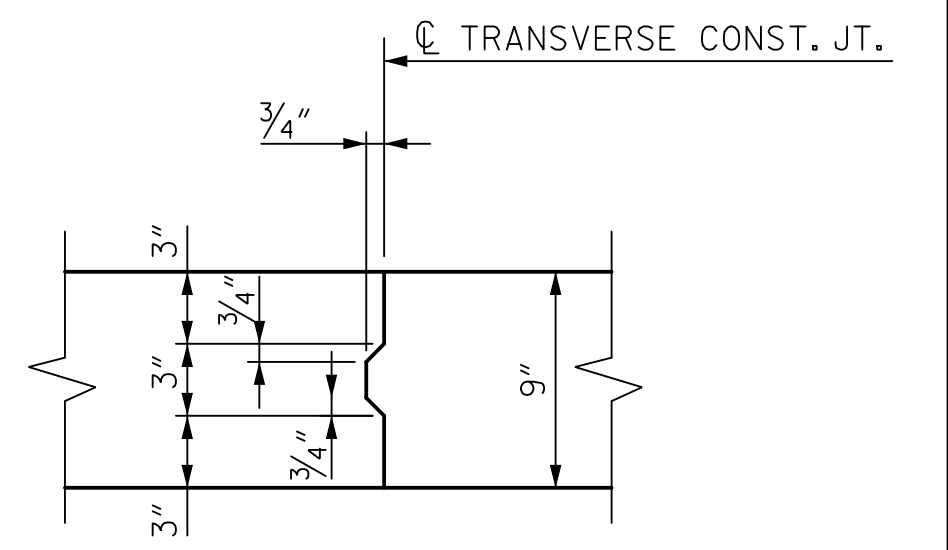


**SECTION B-B**  
(SECTION NORMAL THROUGH BENT 1 AND BENT 2 DIAPHRAGM)



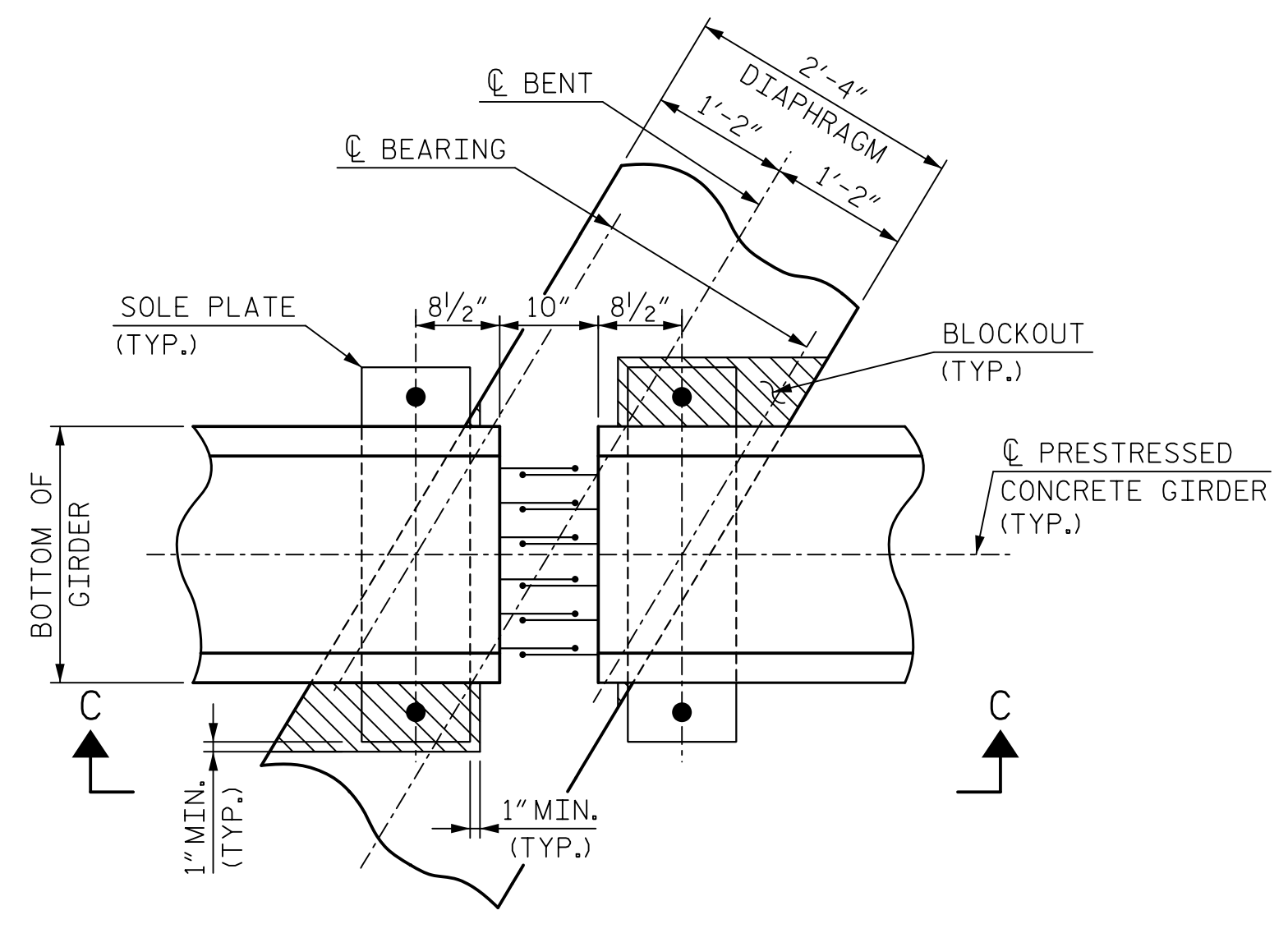
**DETAIL "A"**

NOTE:  
BENT DIAPHRAGM SHALL BE  
CAST MONOLITHICALLY  
WITH DECK SLAB.

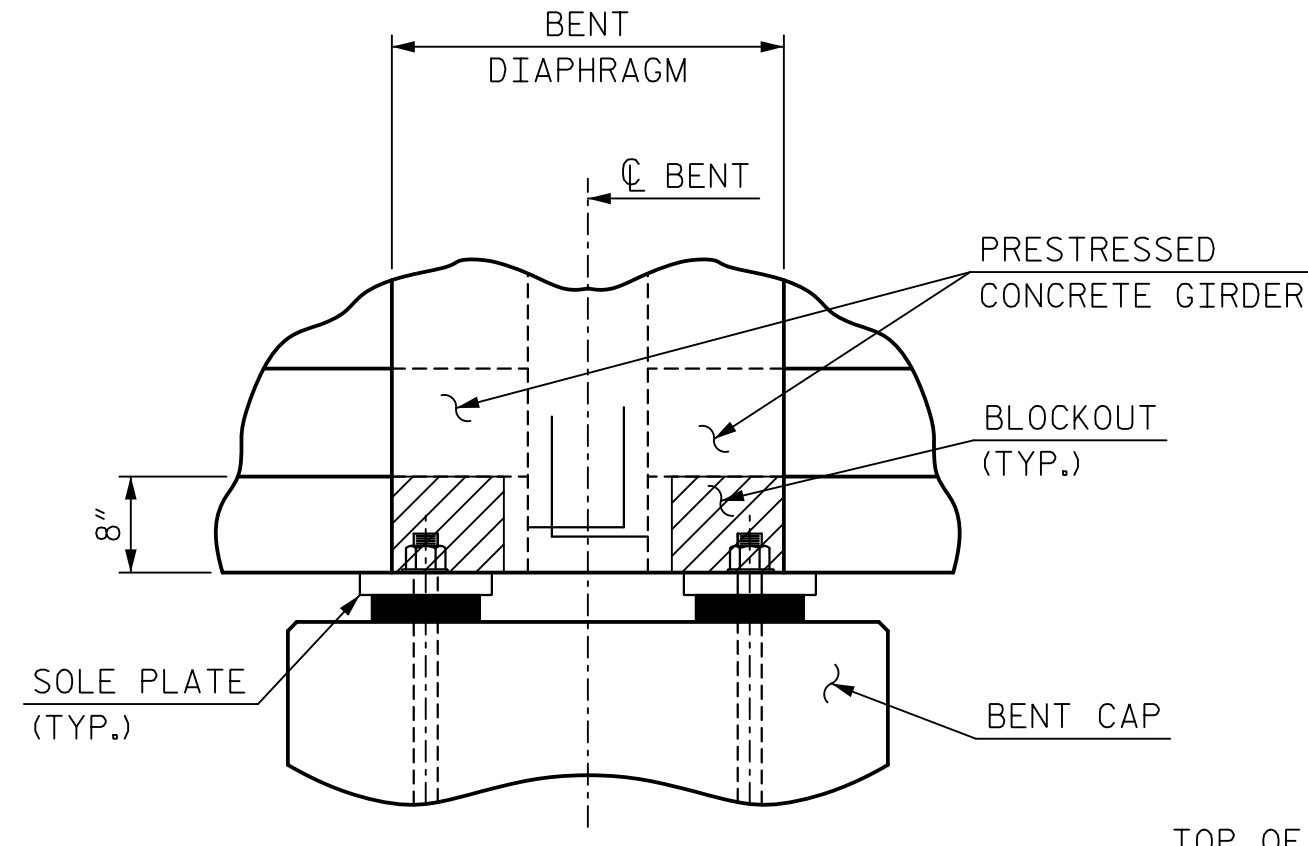


**TRANSVERSE CONSTRUCTION JOINT DETAIL**

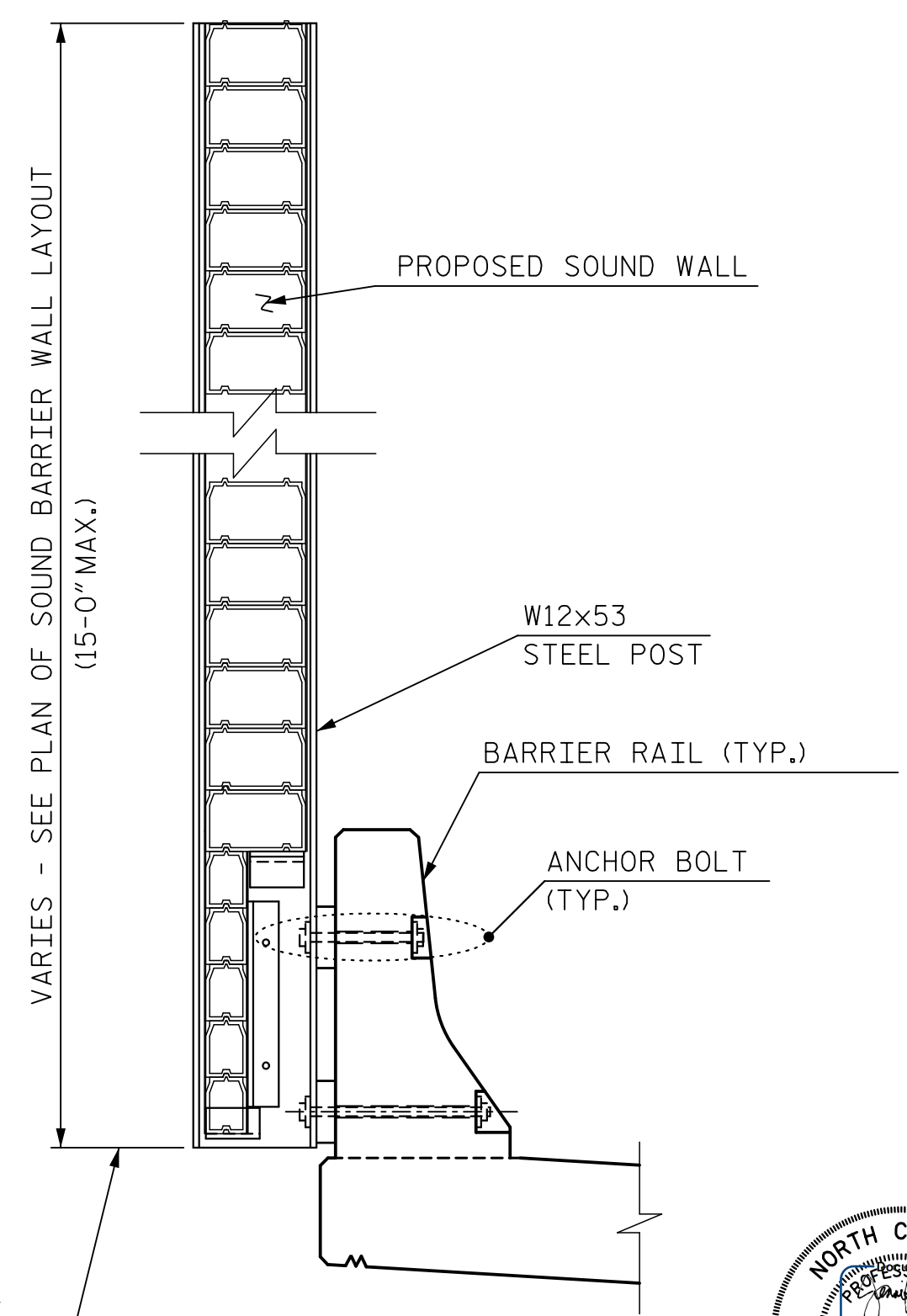
REINFORCING STEEL IN SLAB NOT SHOWN.  
LONGITUDINAL REINFORCING STEEL  
SHALL BE CONTINUOUS THROUGH JOINT.



**BENT DIAPHRAGM BLOCKOUT DETAIL**



**SECTION C-C**



**DETAIL "B"**

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
STATION: 421+74.67 -L-

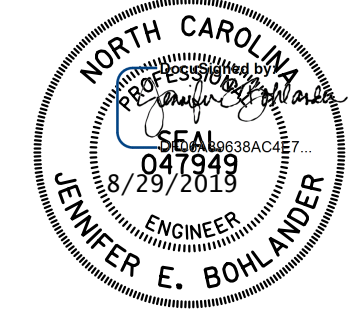
SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE TYPICAL SECTION DETAILS					
SHEET NO. S1-11					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
					TOTAL SHEETS 47

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

<b>HNTB</b>	HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
DRAWN BY: J. SLOAT	DATE: 1/21/2019
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019

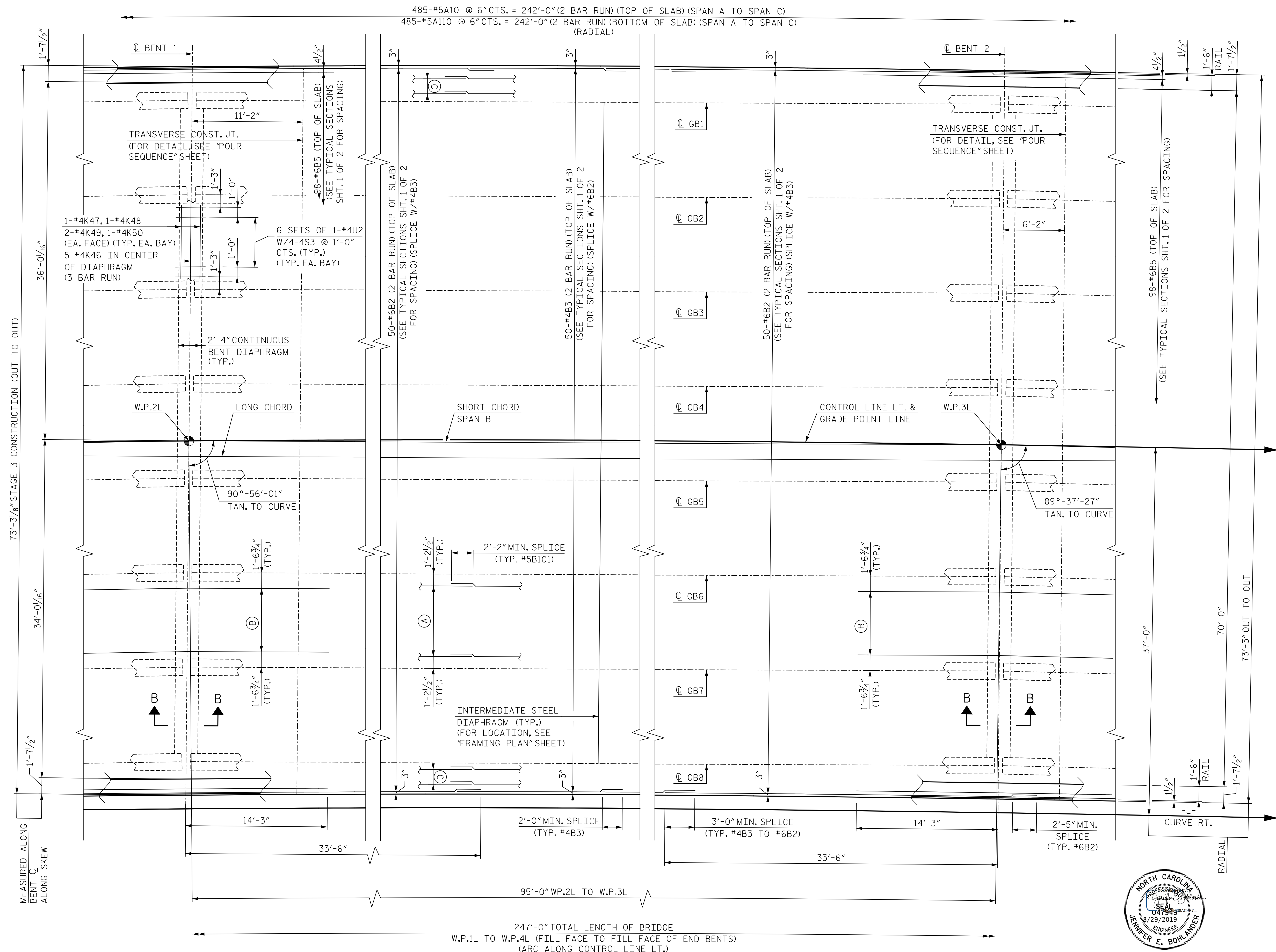
DWG. NO. II



8/29/2019 2:23:55 PM \\MOT\_02\_L14400BB\_SML\_T502\_011\_440212.dgn





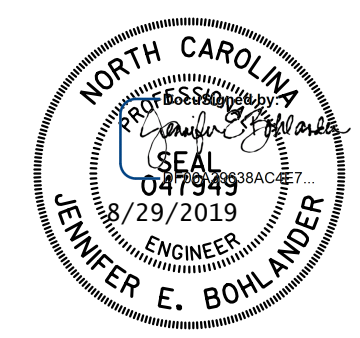


NOTES:  
FOR NOTES, SEE "PLAN OF SPAN A STAGE 3" SHEET.

- (A) 11-#5B101 @ 8 1/2" CTS. = 7'-1" (5 BAR RUN) (TYP. EACH BAY) (BOTTOM OF SLAB)
- (B) 10-#5B103 @ 8 1/2" CTS. = 6'-4 1/2" (TYP. EACH BAY) (BOTTOM OF SLAB)
- (C) 4-#5B101 @ EQ. SPA (5 BAR RUN) (BOTTOM OF SLAB)

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 1 OF 1  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 PLAN OF SPAN B  
 STAGE 3



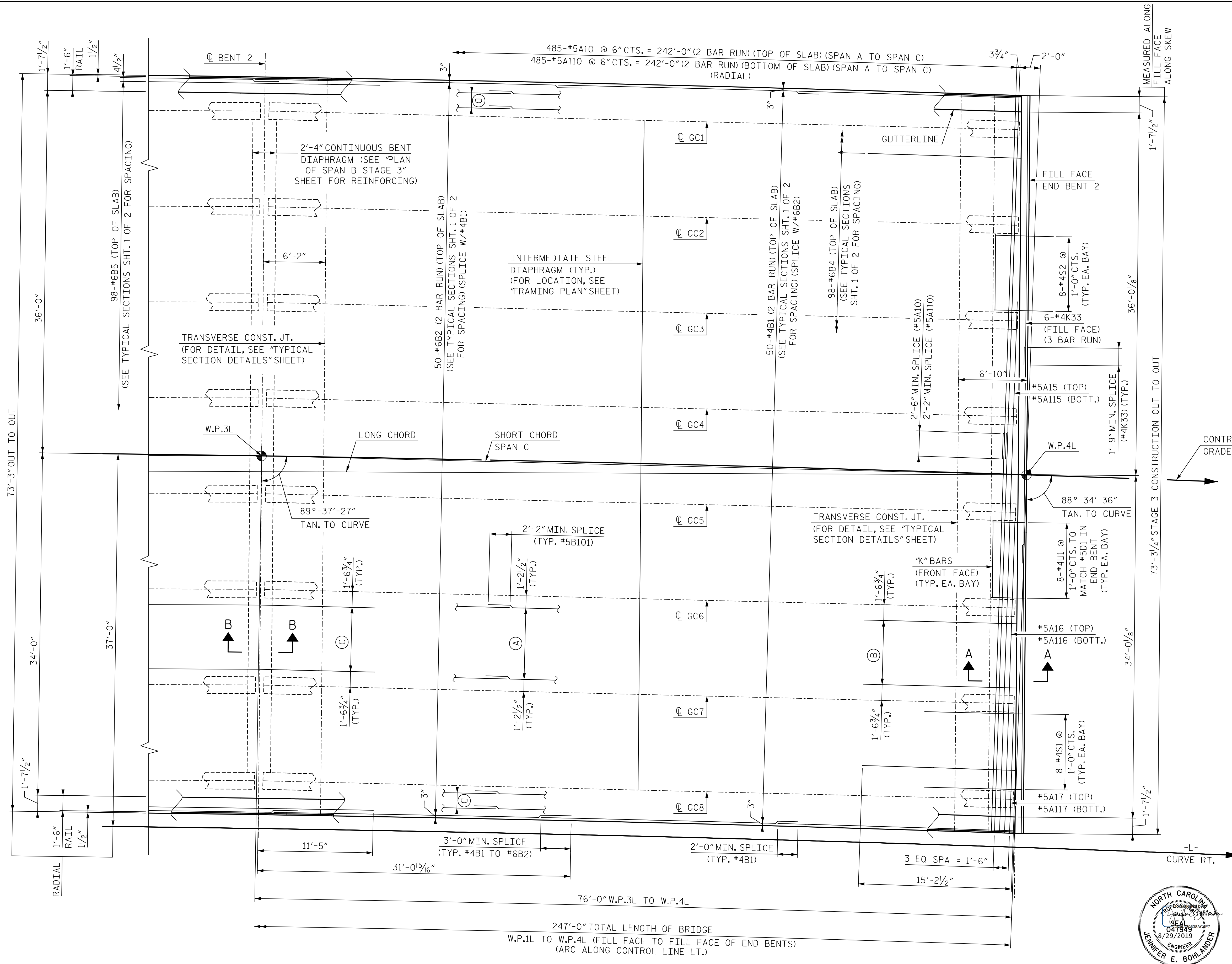
DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: M. VANNOORBECK	DATE: 3/18/2019	DWG. NO. 13	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S1-13
1			3			TOTAL SHEETS
2			4			47

8/29/2019 2:23:55 PM  
 \MOI\_025\_14400BB\_SML\_S02-013\_440212.dgn

PLAN OF SPAN B STAGE 3

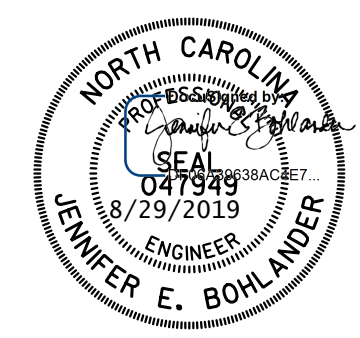


NOTES:  
FOR NOTES, SEE "PLAN OF SPAN A STAGE 3" SHEET.

- (A) 11-#5B101 @ 8 1/2" CTS. = 7'-1" (5 BAR RUN) (TYP. EACH BAY) (BOTTOM OF SLAB)
- (B) 10-#5B102 @ 8 1/2" CTS. = 6'-4 1/2" (TYP. EACH BAY) (BOTTOM OF SLAB)
- (C) 10-#5B103 @ 8 1/2" CTS. = 6'-4 1/2" (TYP. EACH BAY) (BOTTOM OF SLAB)
- (D) 4-#5B101 @ EQ. SPA (5 BAR RUN) (BOTTOM OF SLAB)

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 1 OF 1  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 PLAN OF SPAN C  
 STAGE 3



DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

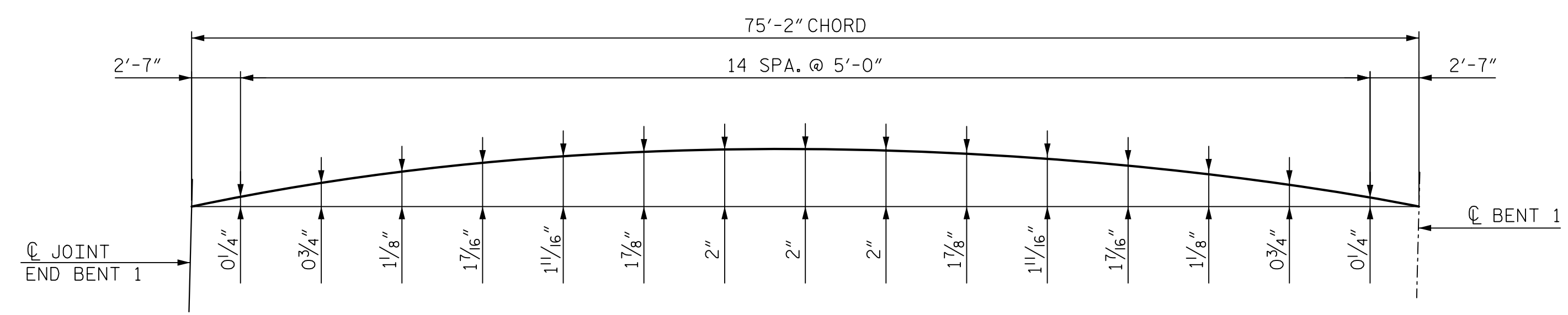
<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: M.VANNOORBECK	DATE: 3/18/2019	DWG. NO. 14	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			47
2			4			

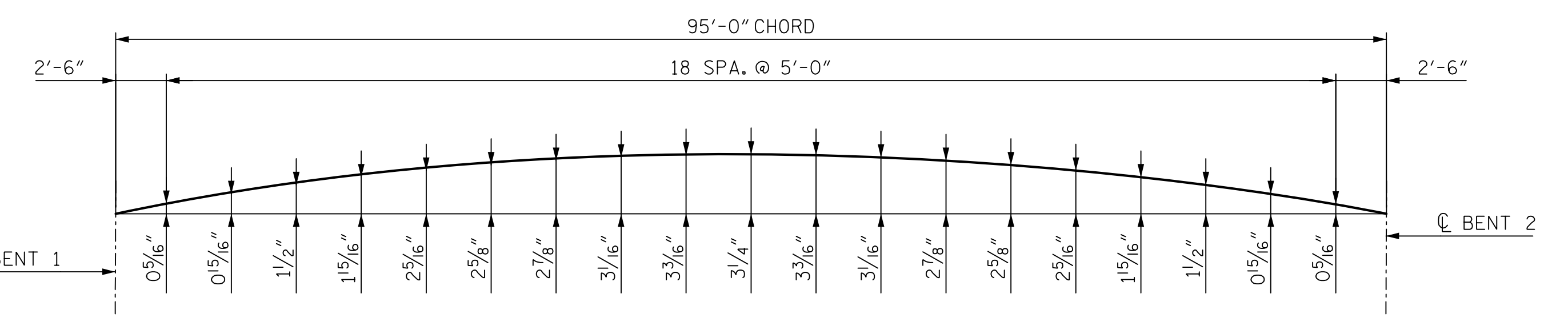
8/29/2019 2:24:01 PM  
 ...NOT\_LOST...

PLAN OF SPAN C STAGE 3





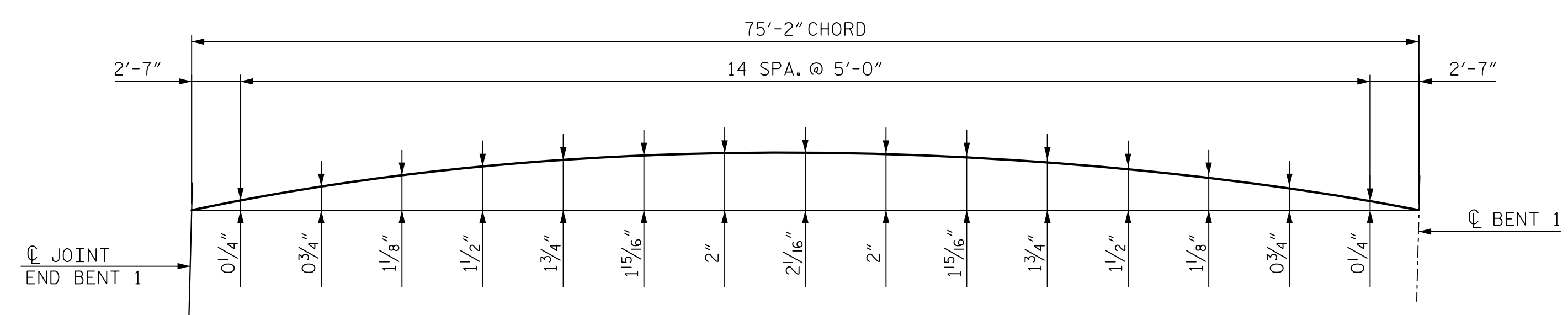
SPAN A



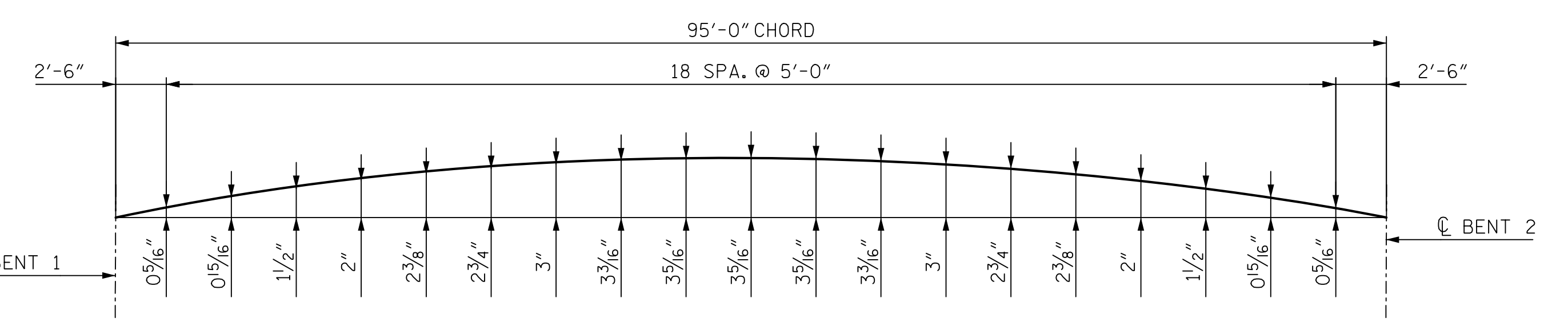
SPAN B

LEFT EDGE OF SLAB

(R = 4194'-7 1/2")



SPAN A



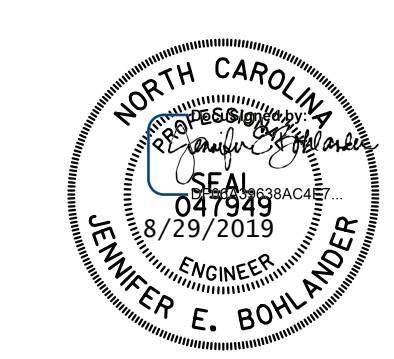
SPAN B

RIGHT EDGE OF SLAB

(R = 4121'-4 1/2")

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 1 OF 1



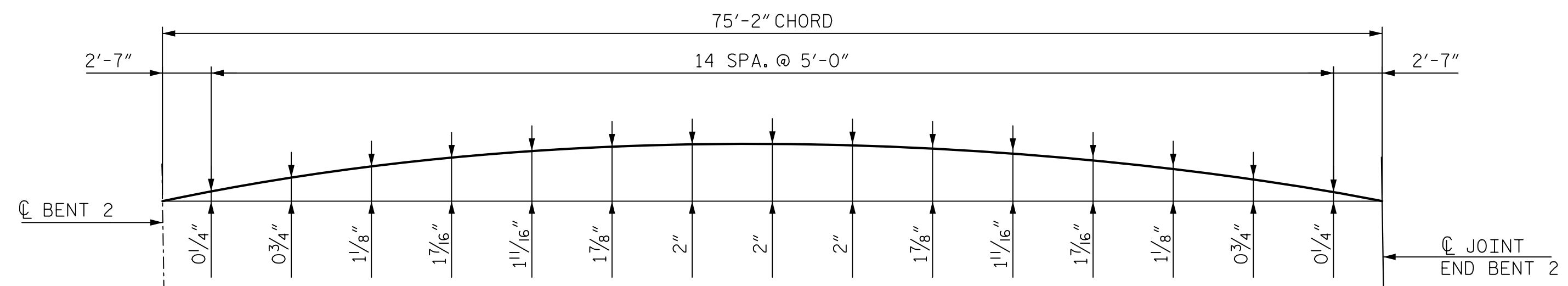
**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: M. VANNOORBECK	DATE: 3/18/2019	DWG. NO. 15	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S1-15
SUPERSTRUCTURE ARC OFFSETS SPAN A AND SPAN B						TOTAL SHEETS 47
REVISIONS						
NO.	BY	DATE	NO.	BY	DATE	
1			3			
2			4			

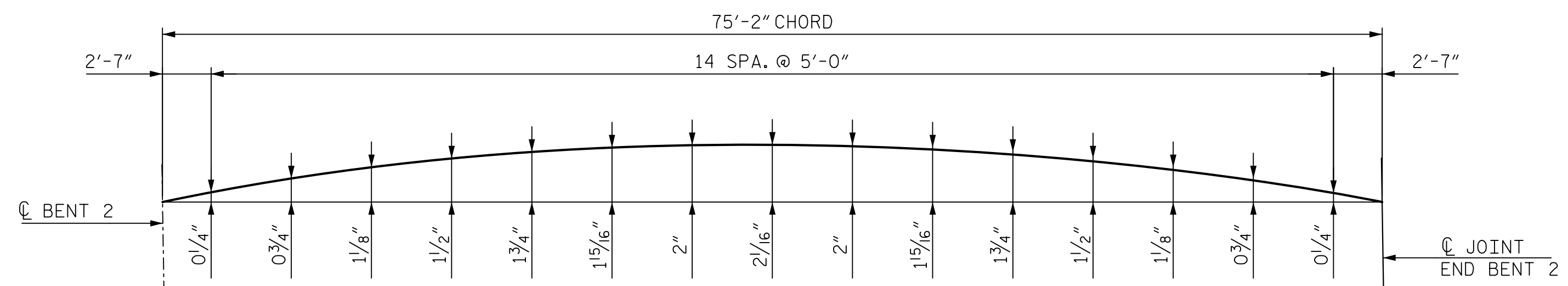
8/29/2019 2:24:03 PM ...\\MOT\_L029\_1440009\_SML\_S04\_015\_440212.dgn





LEFT EDGE OF SLAB

(R = 4194'-7 1/2")

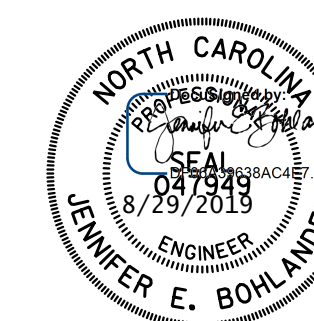


RIGHT EDGE OF SLAB

(R = 4121'-4 1/2")

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 1 OF 1



**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

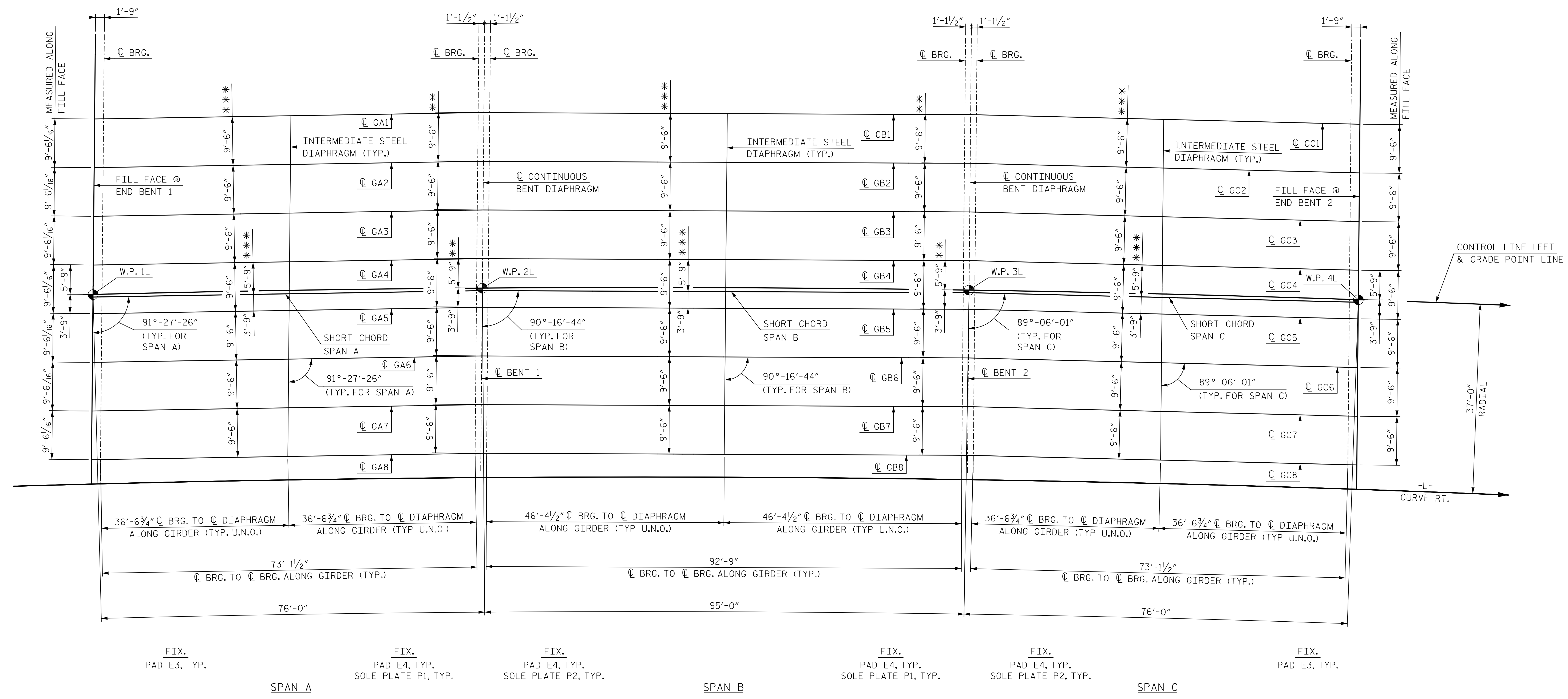
**HNTB** HNTB NORTH CAROLINA, P.C.  
 NC License No. C-1554  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: J. SLOAT DATE: 3/18/2019  
 CHECKED BY: J. BOHLANDER DATE: 3/18/2019  
 ENGINEER OF RECORD: J. BOHLANDER DATE: 3/18/2019

DWG. NO. 16

STATE OF NORTH CAROLINA						SHEET NO. S1-16
DEPARTMENT OF TRANSPORTATION RALEIGH						
SUPERSTRUCTURE ARC OFFSETS SPAN C						
REVISIONS						TOTAL SHEETS 47
NO.	BY	DATE	NO.	BY	DATE	
1			3			
2			4			

8/29/2019 2:24:05 PM ...\_MO1\_03\_L14400BB\_SML\_S05\_016\_440212.dgn



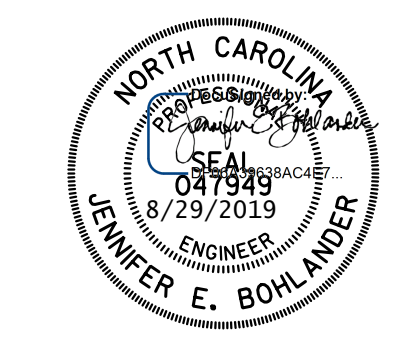
FRAMING PLAN

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 1 OF 1

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 FRAMING PLAN

REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	S1-17	
1			3			TOTAL SHEETS	
2			4			47	



DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

**HNTB** HNTB NORTH CAROLINA, P.C.  
 NC License No. C-1554  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

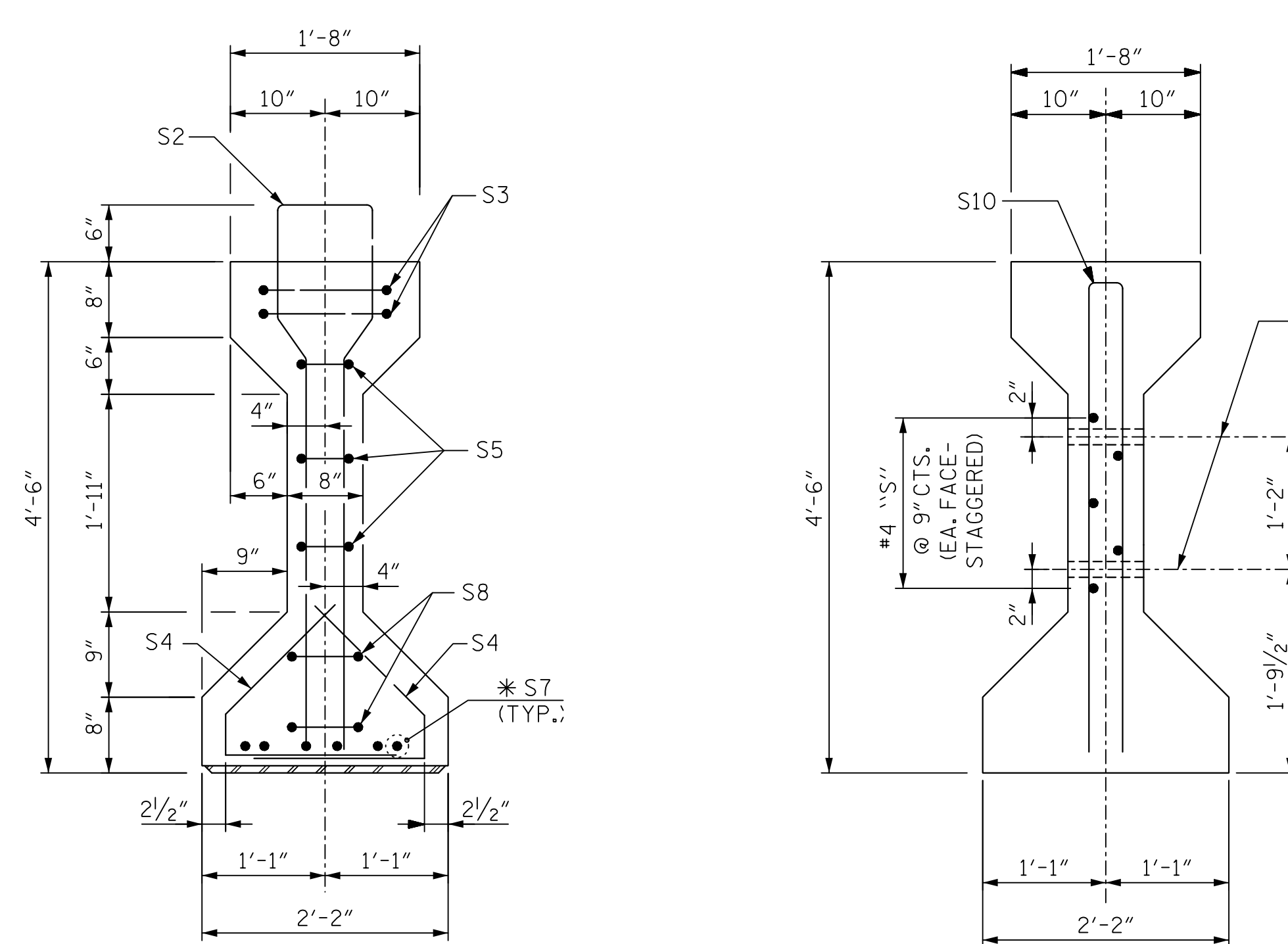
DRAWN BY: J. SLOAT	DATE: 3/18/2019	DWG. NO. 17
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019	
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019	

- NOTES:**
- ALL DIMENSIONS MEASURED ALONG CL GIRDER UNLESS NOTED OTHERWISE.
  - FOR INTERMEDIATE STEEL DIAPHRAGM DETAILS, SEE SHEET "STANDARD INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE IV PRESTRESSED CONCRETE GIRDERS".
  - FOR GIRDER ELEVATIONS AND DETAILS, SEE "PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS" SHEET.
  - GIRDERS ARE SET PARALLEL TO THE CONTROL LINE LT (EBL) SHORT CHORD. SPAN LENGTHS SHOWN ARE CL OF BEARINGS TO CL OF BEARINGS.
  - \*\* DIMENSIONS ARE ALONG CL BENT.
  - \*\*\* DIMENSIONS ARE PERPENDICULAR TO THE CONTROL LINE LT (EBL) SHORT CHORD.
  - "EXP." DENOTES EXPANSION BEARING ASSEMBLY
  - "FIX." DENOTES FIXED BEARING ASSEMBLY
  - "E" DENOTES ELASTOMERIC BEARING PAD MARK.
  - "P" DENOTES STEEL SOLE PLATE MARK.
  - "U.N.O." UNLESS NOTED OTHERWISE

8/29/2019 2:24:07 PM \\MOT\_L033\_14400BB\_SML\_FPT\_01T\_440212.dgn

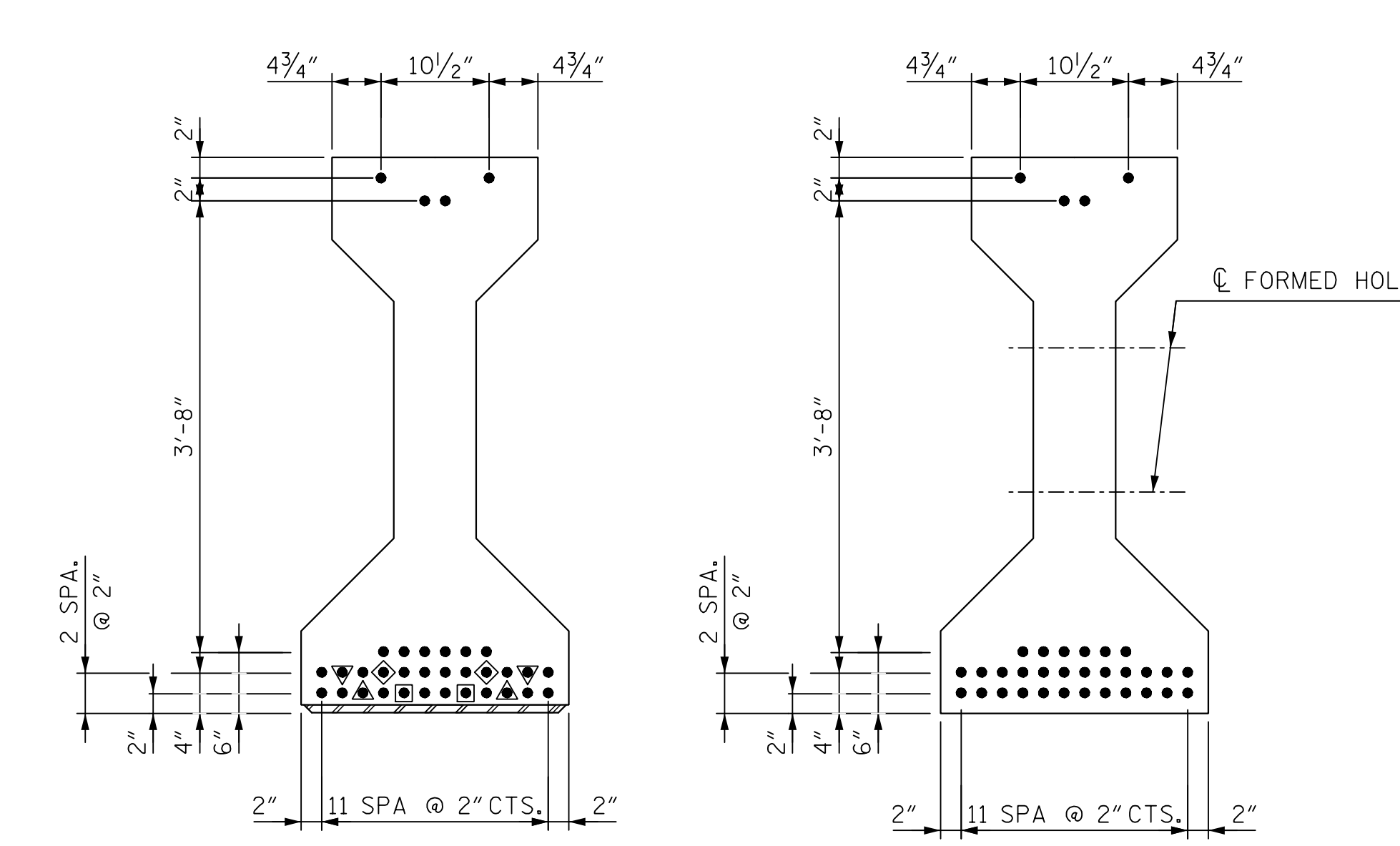






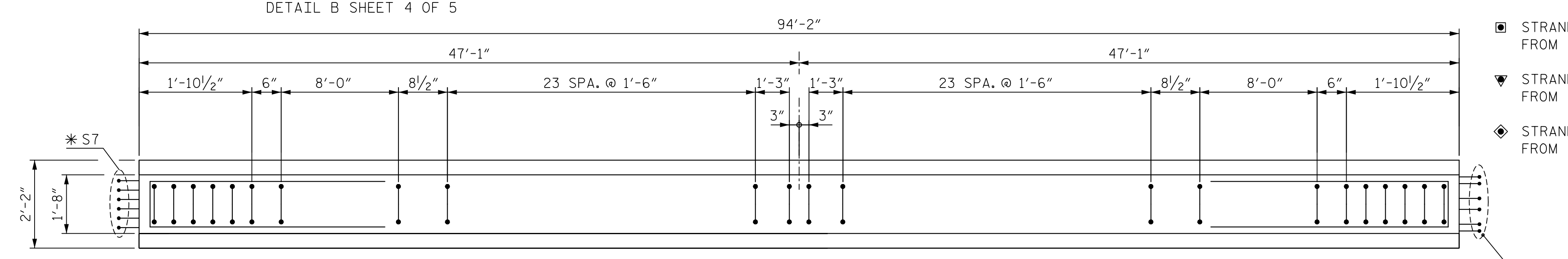
**SECTION A-A**  
\* FOR S7 BARS @ CONTINUOUS BENT, SEE DETAIL B SHEET 4 OF 5

**SECTION B-B**  
(S1 BARS NOT SHOWN)

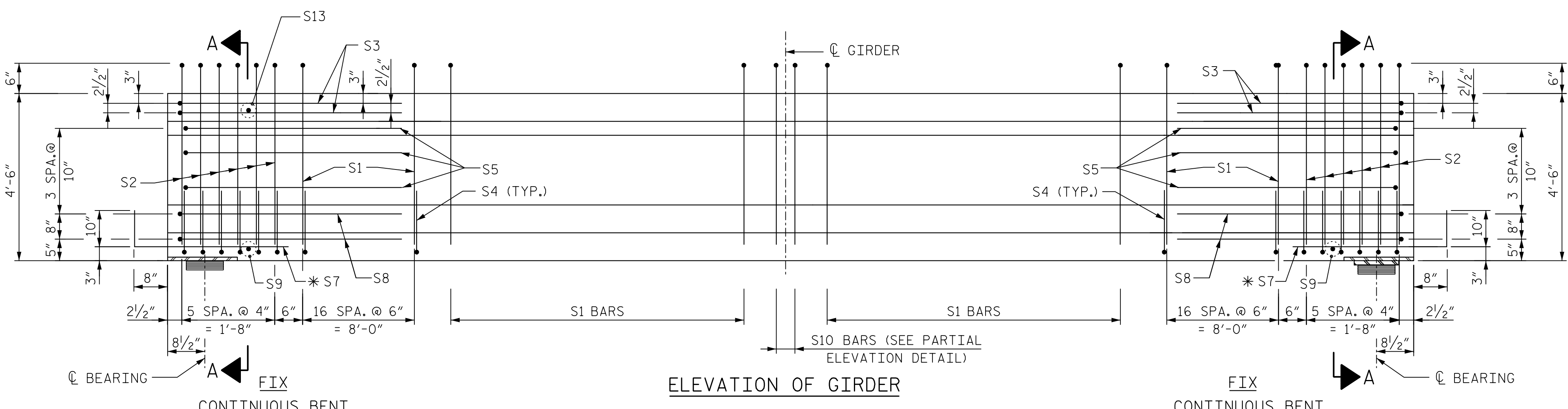


**0.6" Ø LOW RELAXATION STRAND LAYOUT**

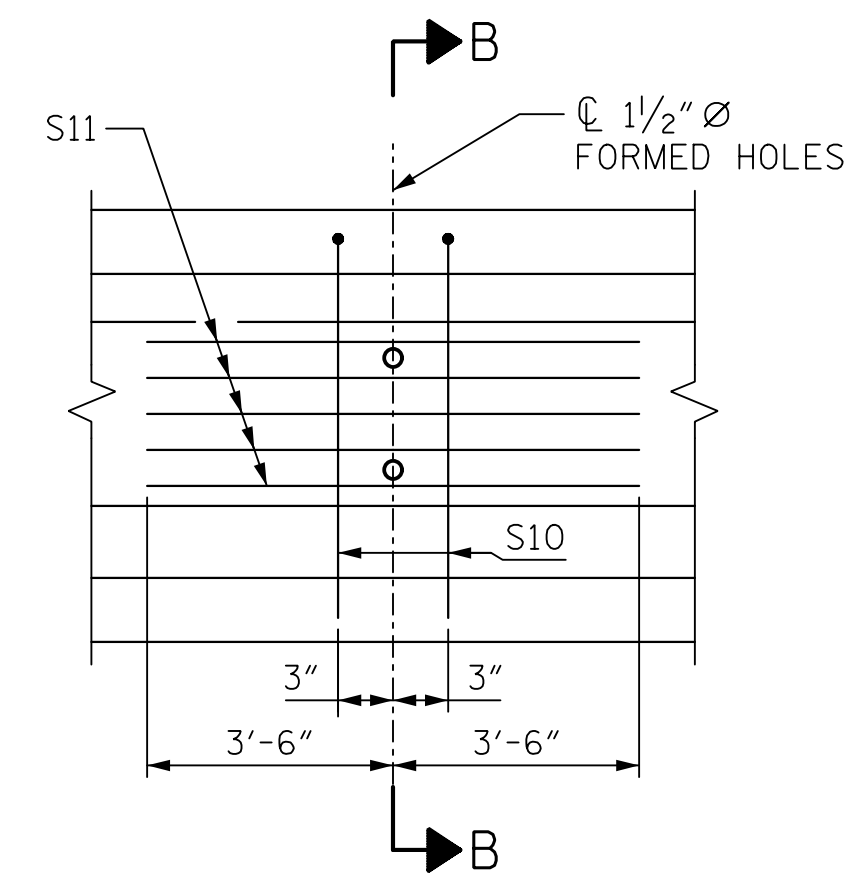
- FULLY BONDED STRANDS
- ▲ STRANDS DEBONDED 10'-0" FROM END OF GIRDER
- ▣ STRANDS DEBONDED 8'-0" FROM END OF GIRDER
- ▼ STRANDS DEBONDED 6'-0" FROM END OF GIRDER
- ◆ STRANDS DEBONDED 4'-0" FROM END OF GIRDER



**PLAN OF GIRDER**



**ELEVATION OF GIRDER**



**PARTIAL ELEVATION**  
SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL

0.6" Ø L.R. GRADE 270 STRANDS		
AREA (SQ. INCHES)	ULTIMATE (LBS. PER STRAND)	APPLIED (LBS. PER STRAND)
0.217	58,600	43,950

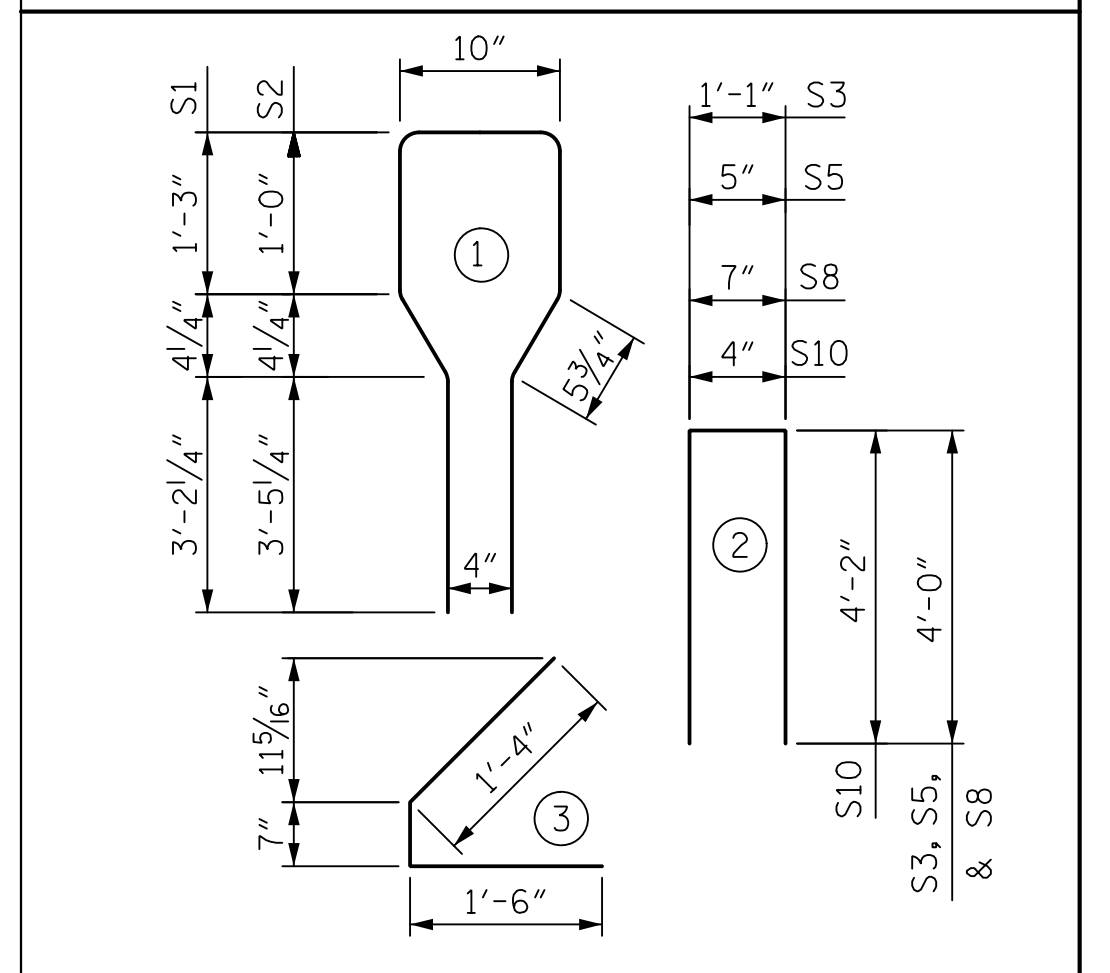
REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	82	#4	1	10'-8"	584
S2	12	#6	1	10'-8"	192
S3	4	#4	2	9'-1"	24
S4	64	#4	3	3'-5"	146
S5	6	#4	2	8'-5"	34
* S7	12	#5	STR	3'-8"	46
S8	4	#4	2	8'-7"	23
S9	2	#3	STR	1'-10"	1
S10	2	#5	2	8'-8"	18
S11	5	#4	STR	7'-0"	23

\* NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

QUANTITIES FOR ONE GIRDER			
REINFORCING STEEL	8,000 PSI CONCRETE	0.6" Ø L.R. STRANDS	
LB.	C.Y.	No.	
1091	19.1	34	

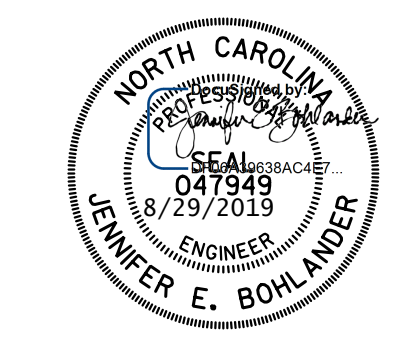
GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
8	94'-2"	753'-4"

BAR TYPES	
ALL BAR DIMENSIONS ARE OUT-TO-OUT	



PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 2 OF 5  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 AASHTO TYPE IV  
 PRESTRESSED CONCRETE  
 GIRDER CONTINUOUS FOR  
 LIVE LOAD  
 SPAN B



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

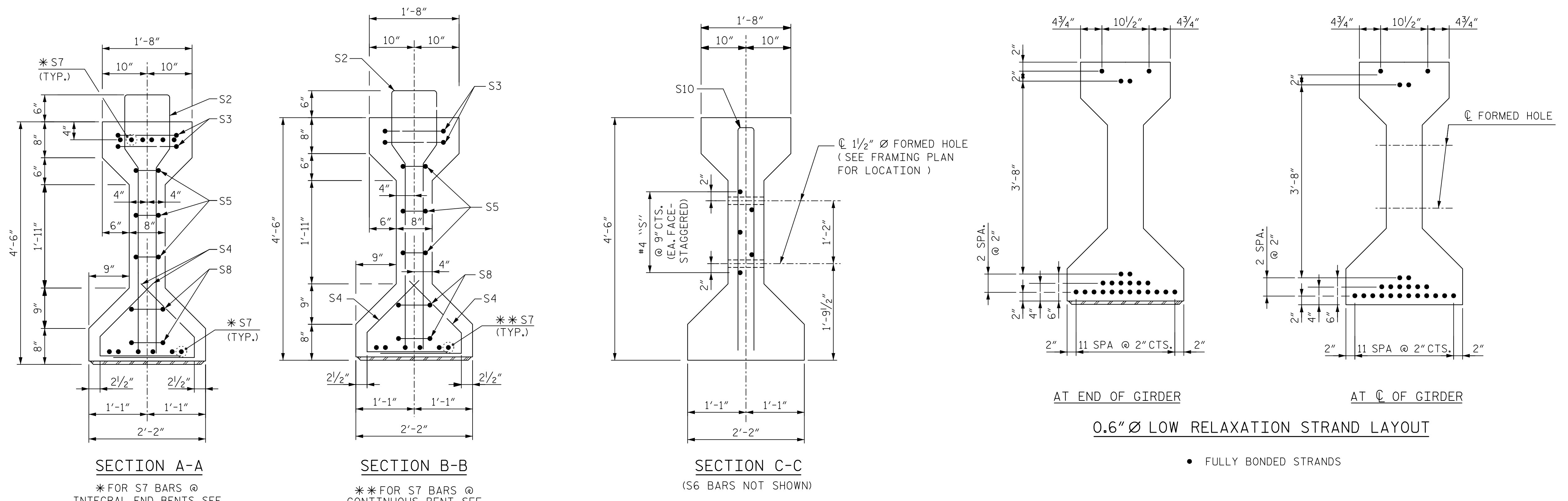
<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 3/18/2019	CHECKED BY: J. BOHLANDER	DATE: 3/18/2019
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019	DWG. NO. 19	

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

TOTAL SHEETS	47
SHEET NO.	S1-19

8/29/2019 2:24:10 PM ...\\M01\_037\_14000B9\_SML\_G02\_019\_440212.dgn

NOTES:  
 FOR LOCATION OF INTERMEDIATE DIAPHRAGM, SEE SHEET 4 OF 5.  
 THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6,100 PSI.  
 GIRDER CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 8,000 PSI AT THE AGE OF 28 DAYS.



0.6" Ø L.R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE (LBS. PER STRAND)	APPLIED (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	62	#4	1	10'-8"	442
S2	12	#6	1	10'-8"	192
S3	4	#4	2	9'-1"	24
S4	64	#4	3	3'-5"	146
S5	6	#4	2	8'-5"	34
* S7	12	#5	STR	3'-8"	46
S8	4	#4	2	8'-7"	23
S9	2	#3	STR	1'-10"	1
S10	2	#5	2	8'-8"	18
S11	5	#4	STR	7'-0"	23

\* NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

QUANTITIES FOR ONE GIRDER			
REINFORCING STEEL	8,000 PSI CONCRETE	0.6" Ø L.R. STRANDS	
LB.	C.Y.	No.	
949	15.1	24	

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
8	74'-6 1/2"	596'-4"

BAR TYPES	
ALL BAR DIMENSIONS ARE OUT-TO-OUT	
	S1, S2, S3, S5, S8, S10
	S10, S3, S5, & S8
	S11

SECTION A-A  
\* FOR S7 BARS @ INTEGRAL END BENTS, SEE DETAIL A SHEET 4 OF 5

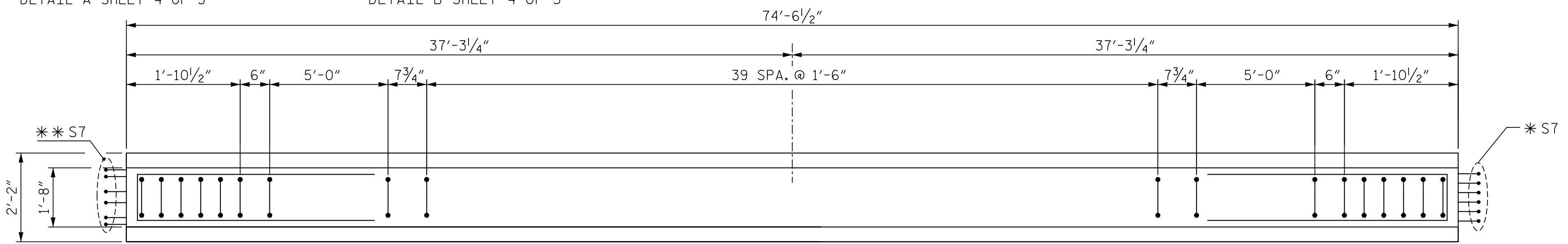
SECTION B-B  
\*\* FOR S7 BARS @ CONTINUOUS BENT, SEE DETAIL B SHEET 4 OF 5

SECTION C-C  
(S6 BARS NOT SHOWN)

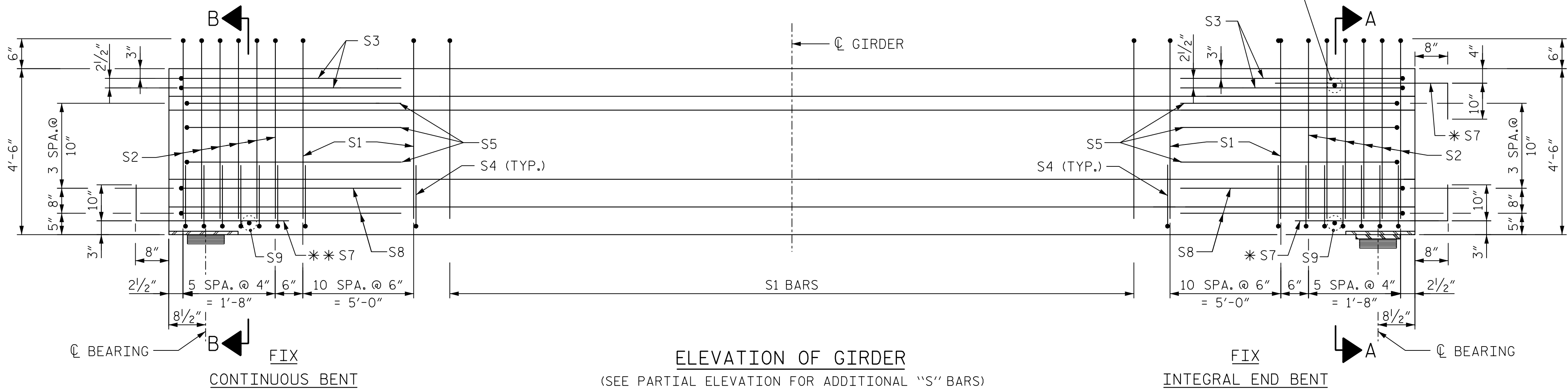
AT END OF GIRDER      AT C OF GIRDER

0.6" Ø LOW RELAXATION STRAND LAYOUT

• FULLY BONDED STRANDS



PLAN OF GIRDER



ELEVATION OF GIRDER

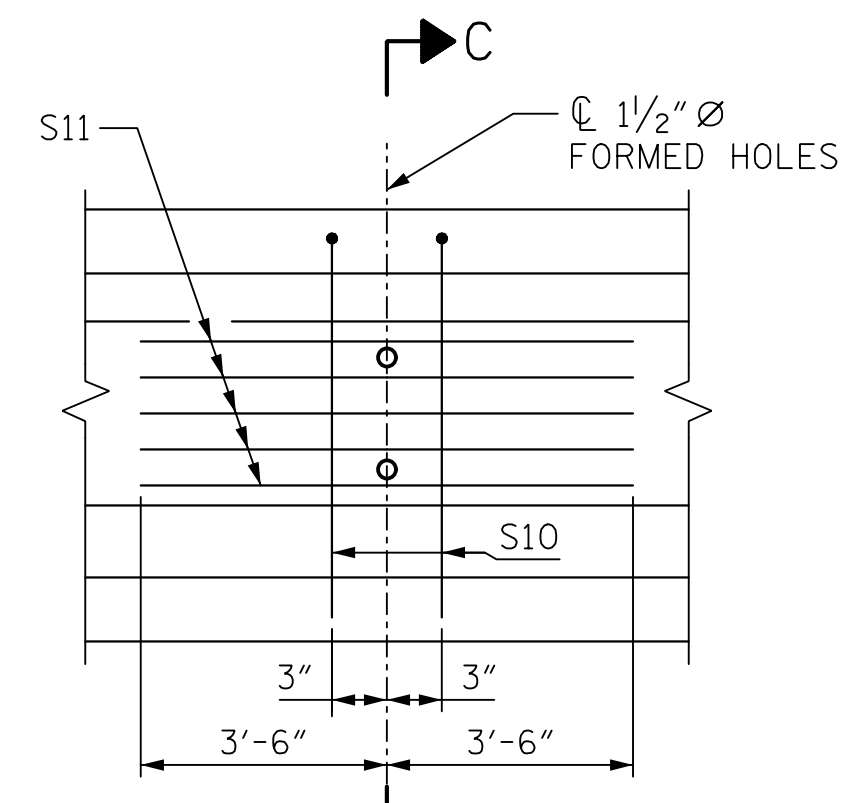
(SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)

FIX INTEGRAL END BENT

NOTES:  
FOR LOCATION OF INTERMEDIATE DIAPHRAGM, SEE SHEET 4 OF 5.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6,000 PSI.

GIRDER CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 8,000 PSI AT THE AGE OF 28 DAYS.

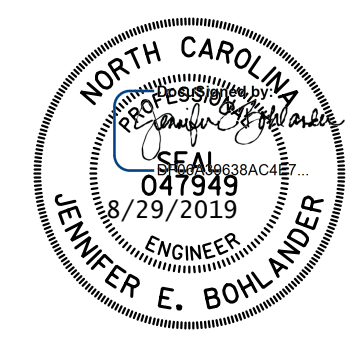


PARTIAL ELEVATION

SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
STATION: 421+74.67 -L-

SHEET 3 OF 5



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 3/18/2019	DWG. NO. 20	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

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

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

TOTAL SHEETS	47
SHEET NO.	S1-20



NOTES

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

ALL REINFORCING STEEL SHALL BE GRADE 60.

EMBEDDED PLATE "B-1" SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

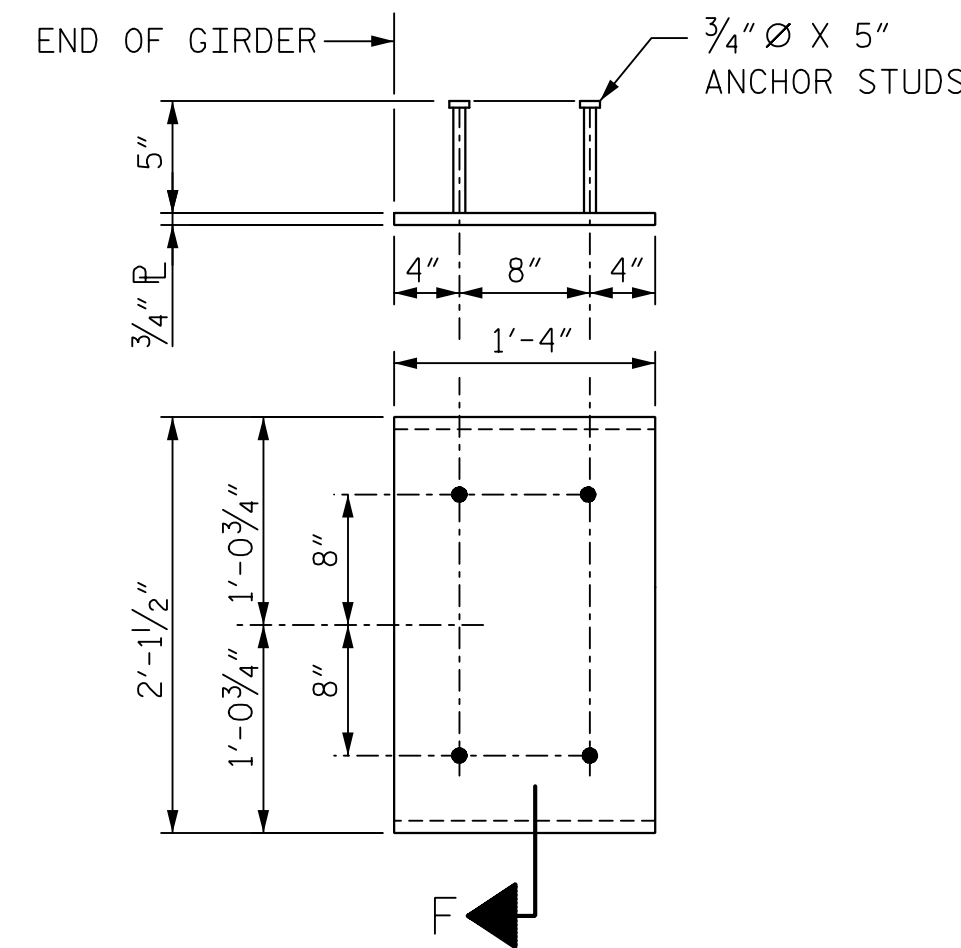
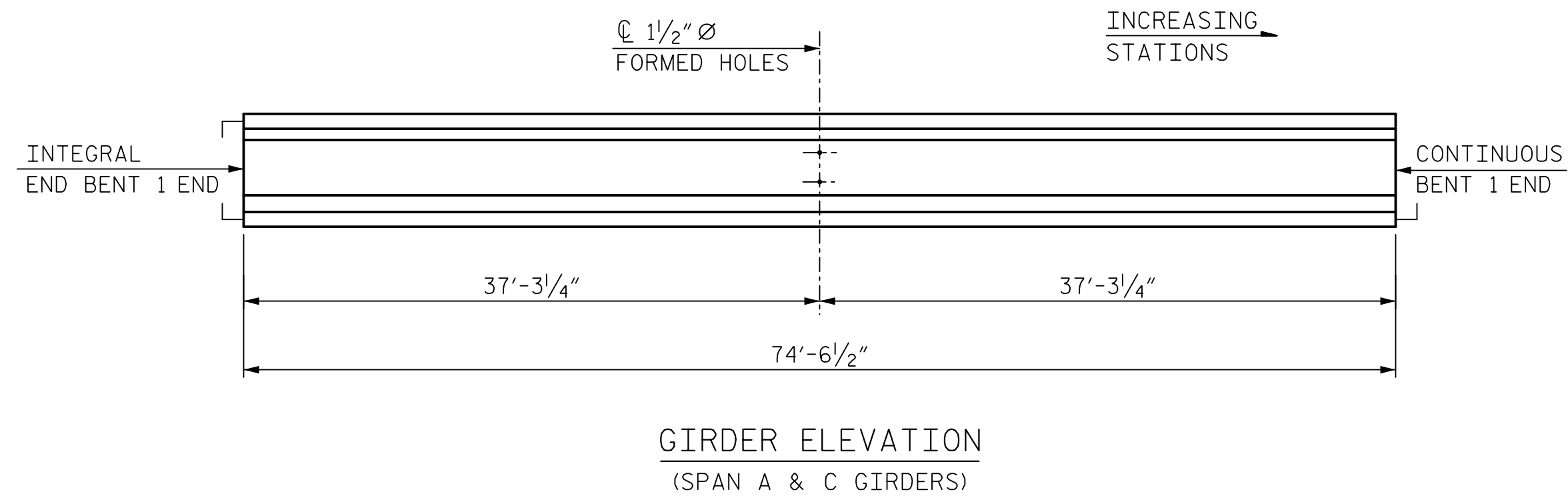
ANCHOR STUDS SHALL CONFORM TO AASHTO M169 GRADES 1010 THROUGH 1020 OR APPROVED EQUAL, AND SHALL MEET THE TYPE "B" REQUIREMENTS OF SUBSECTION 7.3 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

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

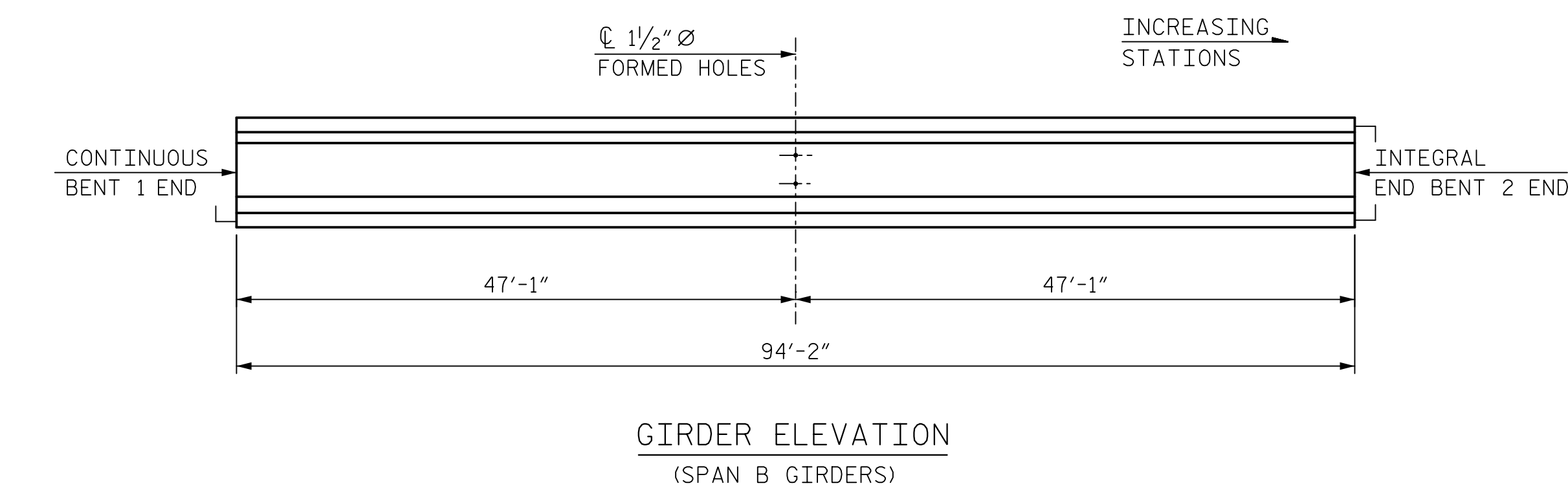
DEPENDING ON THE TYPE OF SYSTEM USED TO SUPPORT THE DECK SLAB FORMS, PRESET ANCHORS MAY BE NECESSARY IN THE PRESTRESSED CONCRETE GIRDER.

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

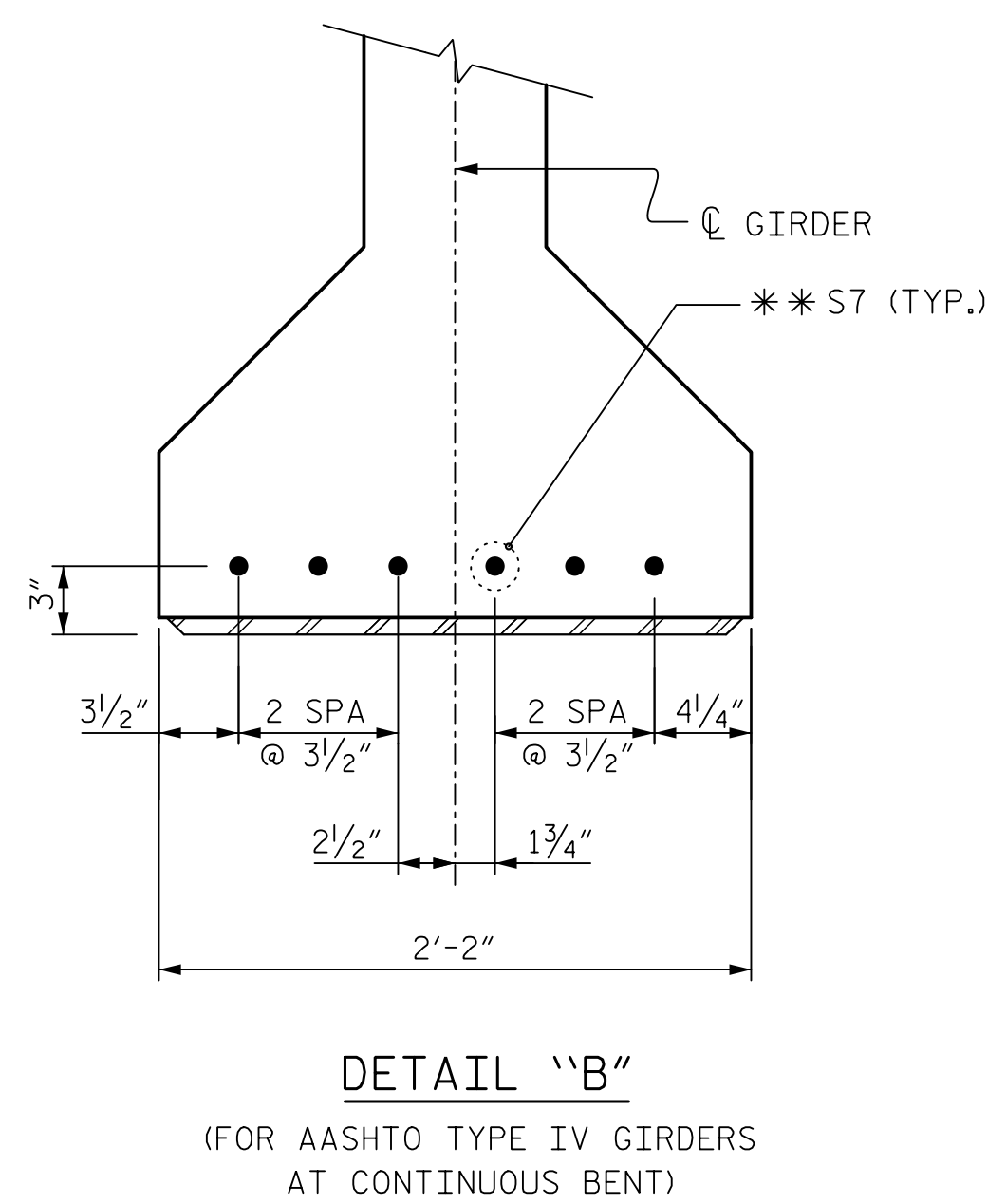
THE CONTRACTOR HAS THE OPTION TO PROVIDE, AT NO ADDITIONAL COST TO THE DEPARTMENT, 2 ADDITIONAL STRANDS AT THE TOP OF THE GIRDER TO FACILITATE TYING OF THE REINFORCING STEEL. THESE STRANDS SHALL BE PULLED TO A LOAD OF 4,500 LBS.



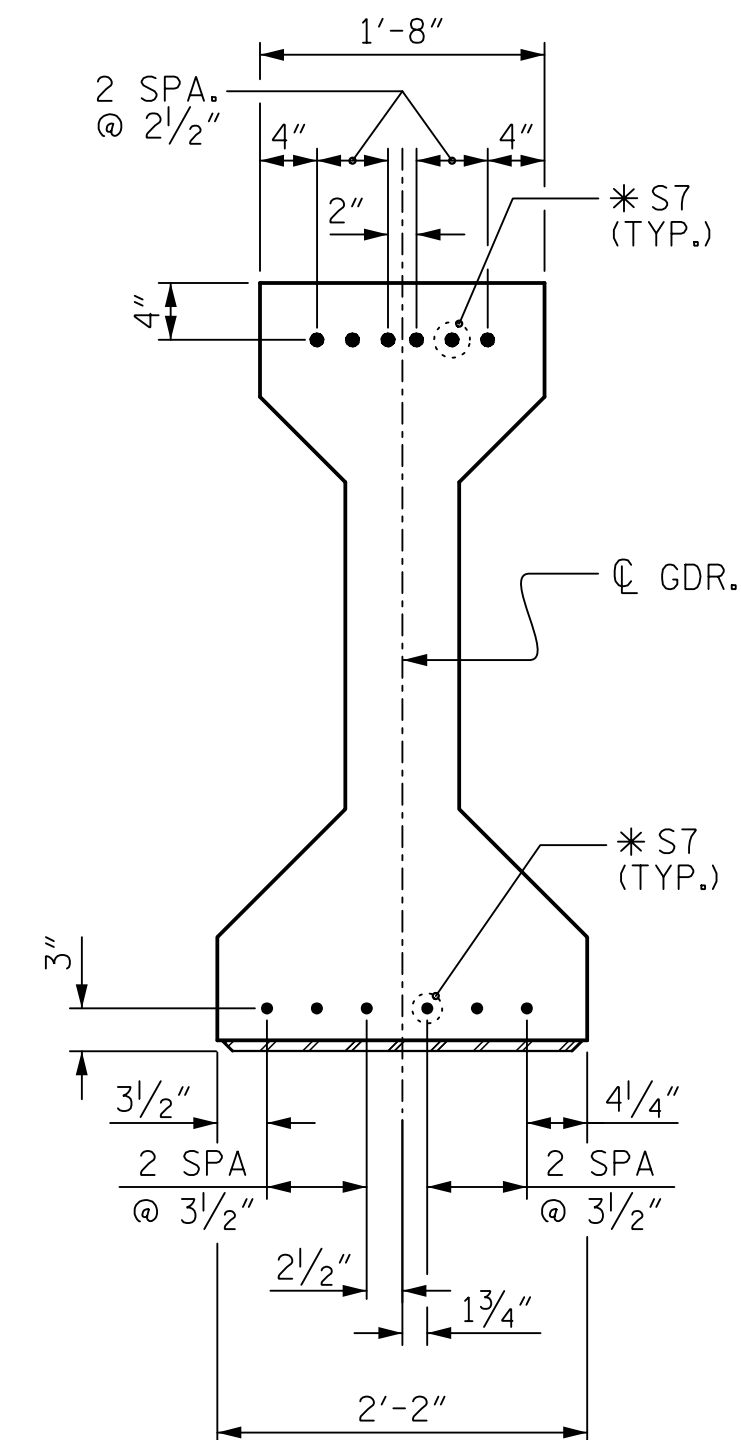
EMBEDDED PLATE "B-1" DETAILS FOR AASHTO TYPE IV GIRDER (2 REQ'D PER GIRDER)



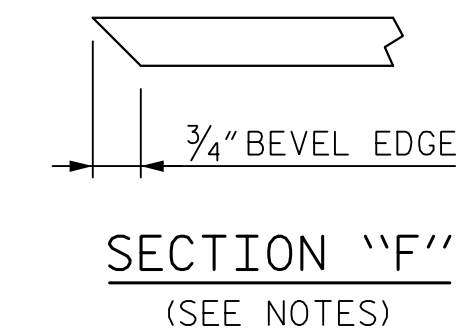
1/2" Ø FORMED HOLE LOCATIONS



DETAIL "B" (FOR AASHTO TYPE IV GIRDERS AT CONTINUOUS BENT)

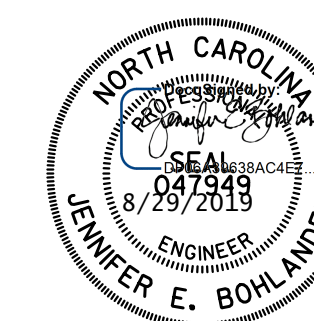


DETAIL "A" (FOR AASHTO TYPE IV GIRDERS AT INTEGRAL END BENT)



PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 4 OF 5



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 3/18/2019	DWG. NO. 21	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

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

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S1-21
1			3			TOTAL SHEETS
2			4			47



STRUCTURAL STEEL NOTES

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

TENSION ON THE ASTM F3125 A325 TYPE 1 BOLTS THROUGH THE CHANNEL MEMBER SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

TENSION ON THE ASTM A449 BOLTS THROUGH THE GIRDER WEB SHALL BE SNUG TIGHTENED FOLLOWED BY AN ADDITIONAL 1/4 TURN.

THE PLATES, BENT PLATES, CHANNELS, AND ANGLES SHALL BE GALVANIZED OR METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

FOR METALLIZATION, APPLY A THERMAL SPRAYED COATING WITH A SEAL COAT TO ALL STEEL DIAPHRAGM SURFACES IN ACCORDANCE WITH THE DEPARTMENTS THERMAL SPRAYED COATINGS (METALLIZATION) PROGRAM, THERMAL SPRAYED COATINGS SPECIAL PROVISION AND SECTION 442 OF THE STANDARD SPECIFICATIONS.

GALVANIZE THE HIGH STRENGTH BOLTS, NUTS, WASHERS AND DIRECT TENSION INDICATORS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

USE AN ASTM F436 HARDENED WASHER WITH STANDARD AND SLOTTED HOLES UNDER EACH BOLT HEAD AND NUT.

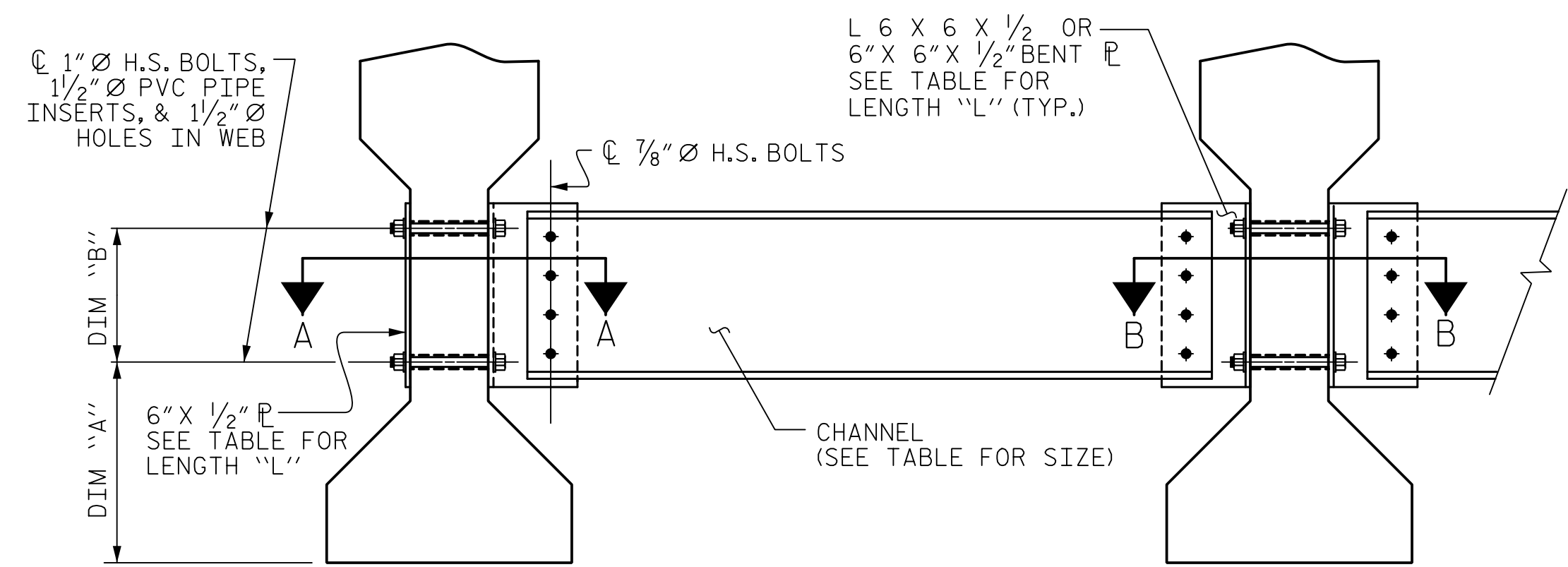
FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF THREADS ON ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

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

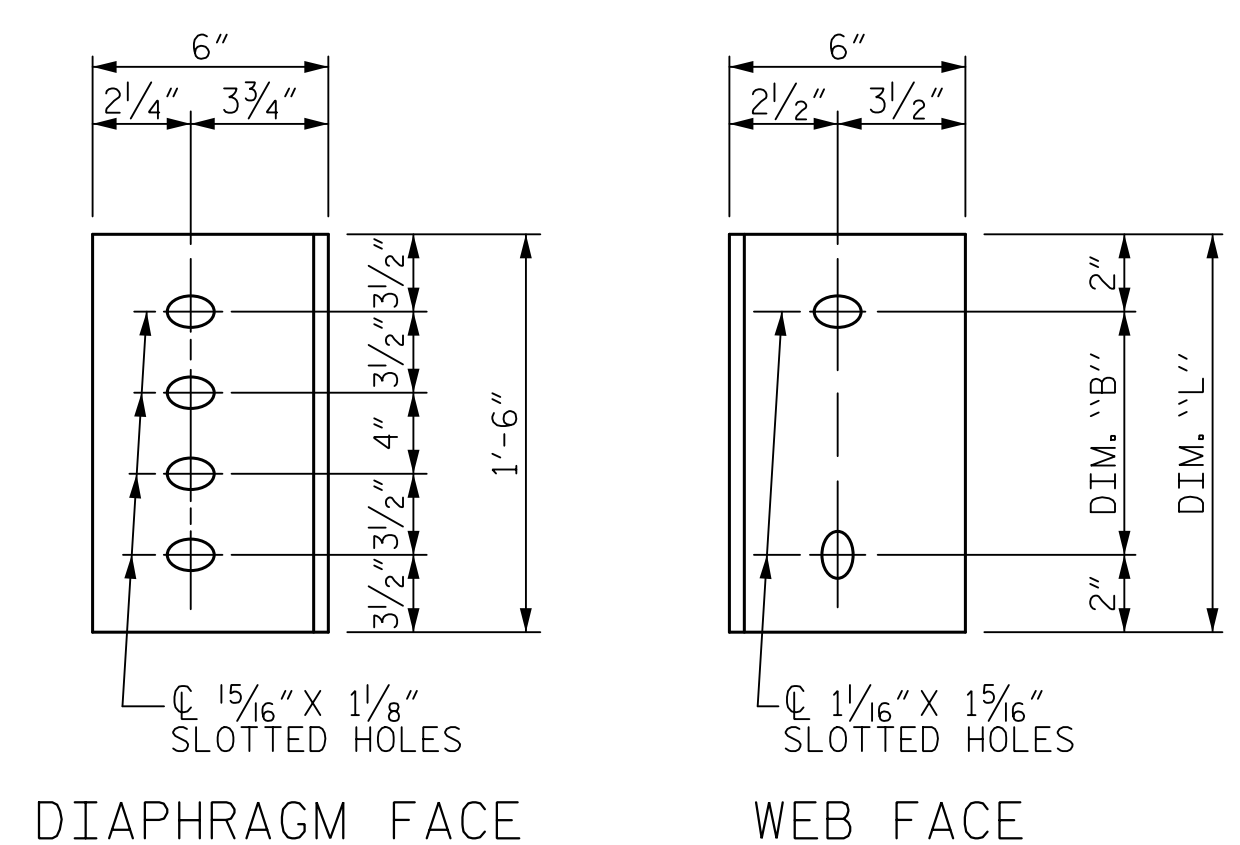
SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

IN THE EXTERIOR BAYS, PLACE TEMPORARY STRUTS BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE STEEL DIAPHRAGMS. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED.

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



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



DIAPHRAGM FACE (TYPE IV GDR.) WEB FACE  
CONNECTOR PLATE DETAILS

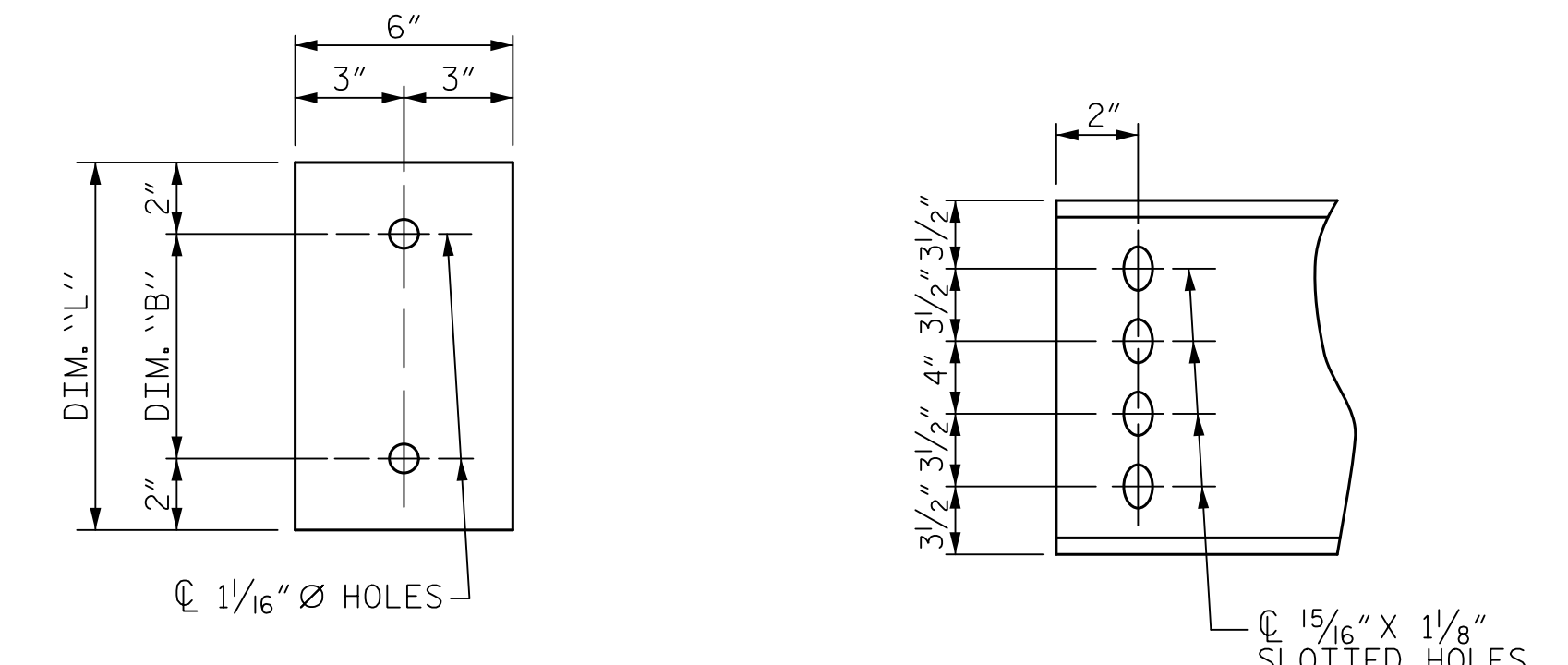
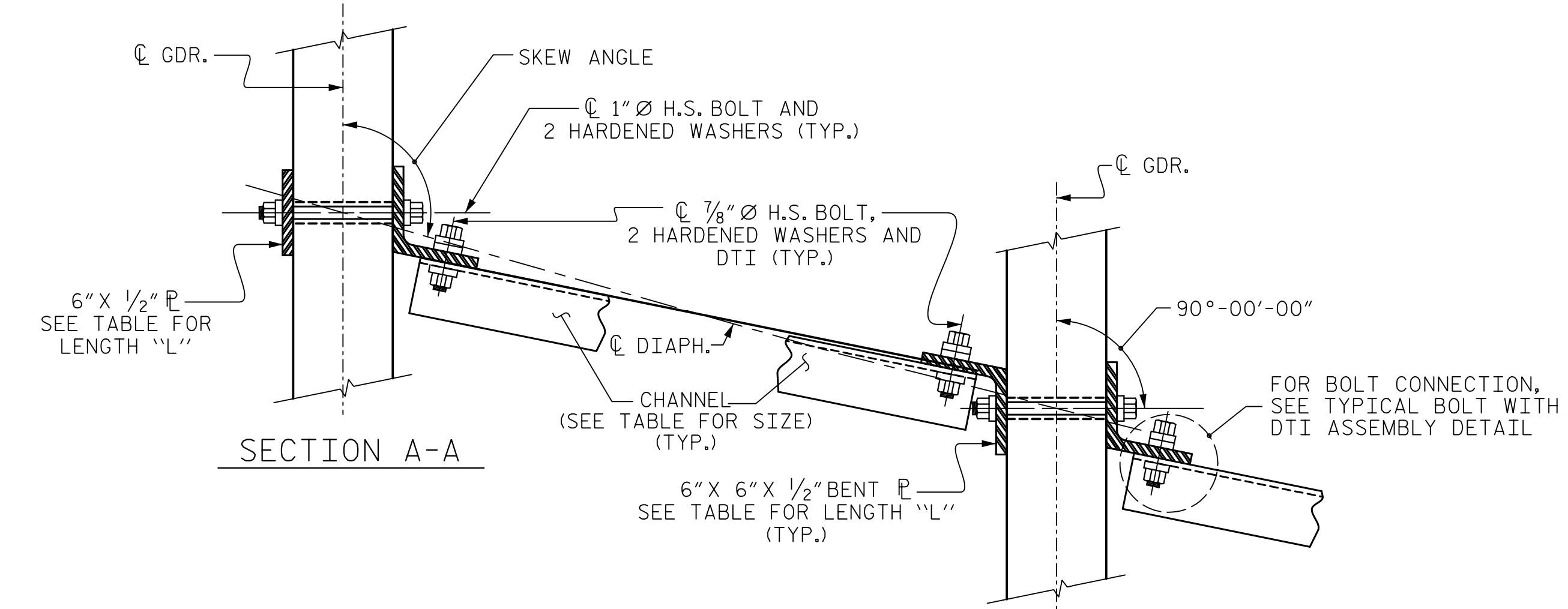
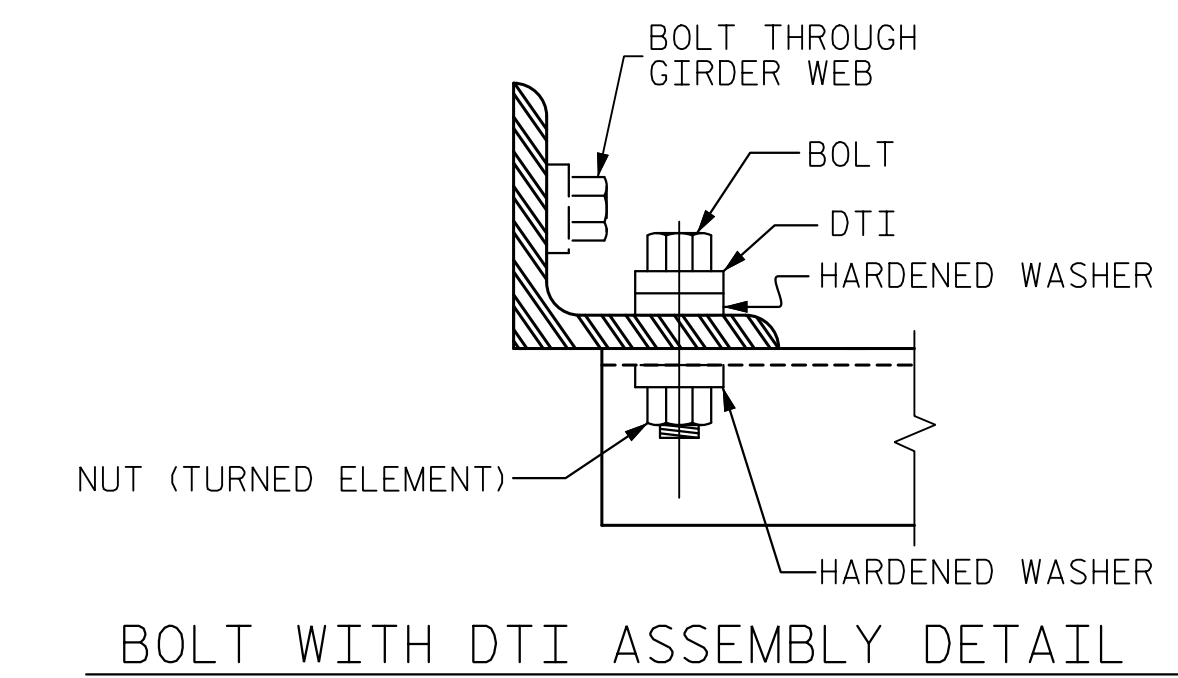


PLATE DETAILS CHANNEL END (TYPE IV GDR.)



SECTION A-A SECTION B-B  
CONNECTION DETAILS  
(90° < SKEW < 110°)  
(90° < SKEW < 110° SHOWN  
70° < SKEW < 90° SIM.)



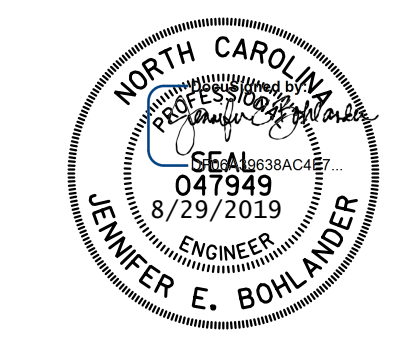
BOLT WITH DTI ASSEMBLY DETAIL

TABLE

GIRDER TYPE	CHANNEL SIZE	DIM "A"	DIM "B"	DIM "L"
IV	MC 18 x 42.7	1'-9 1/2"	1'-2"	1'-6"

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
STATION: 421+74.67 -L-

SHEET 5 OF 5  
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE IV PRESTRESSED CONCRETE GIRDERS

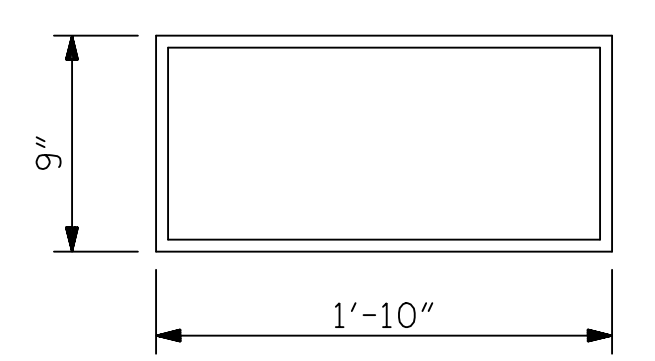
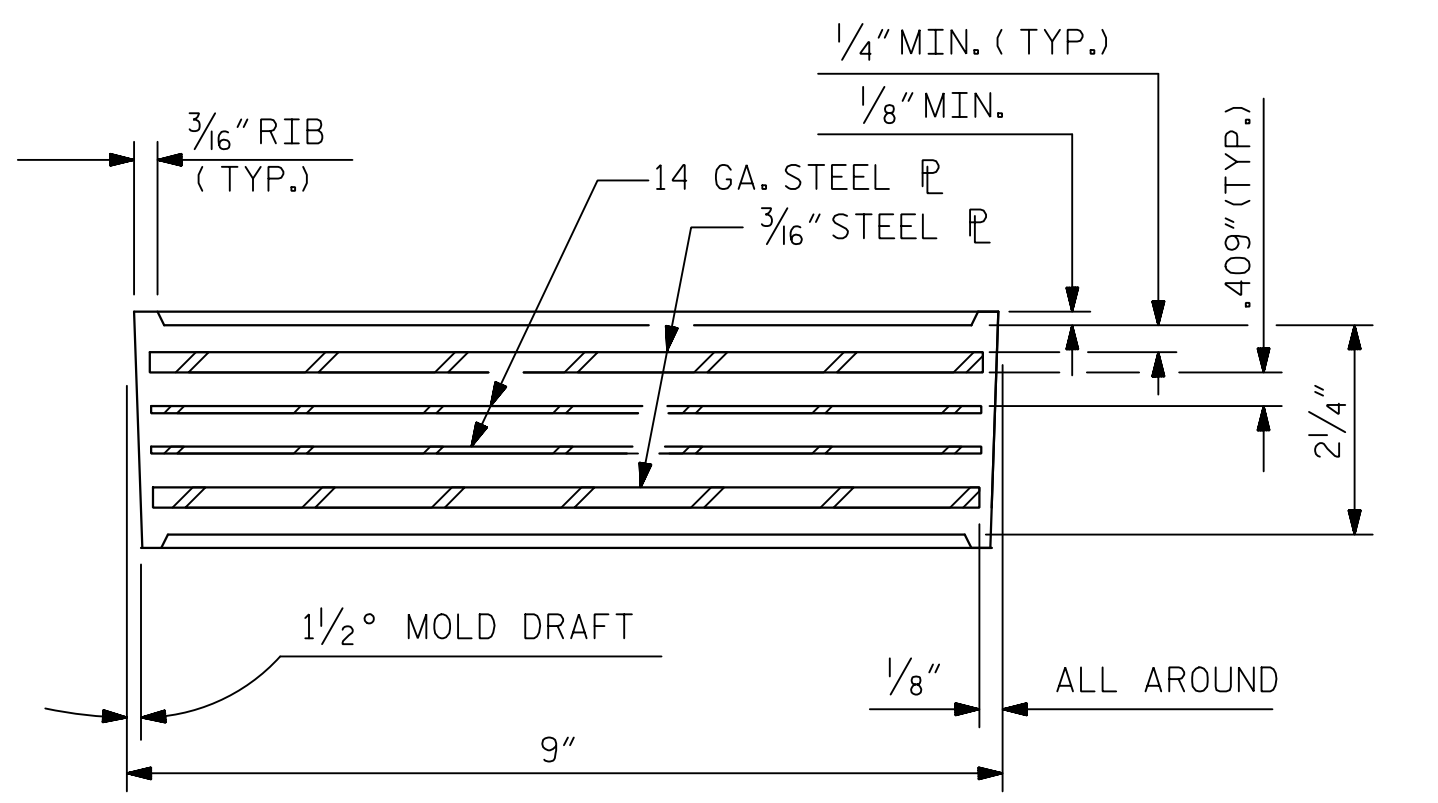
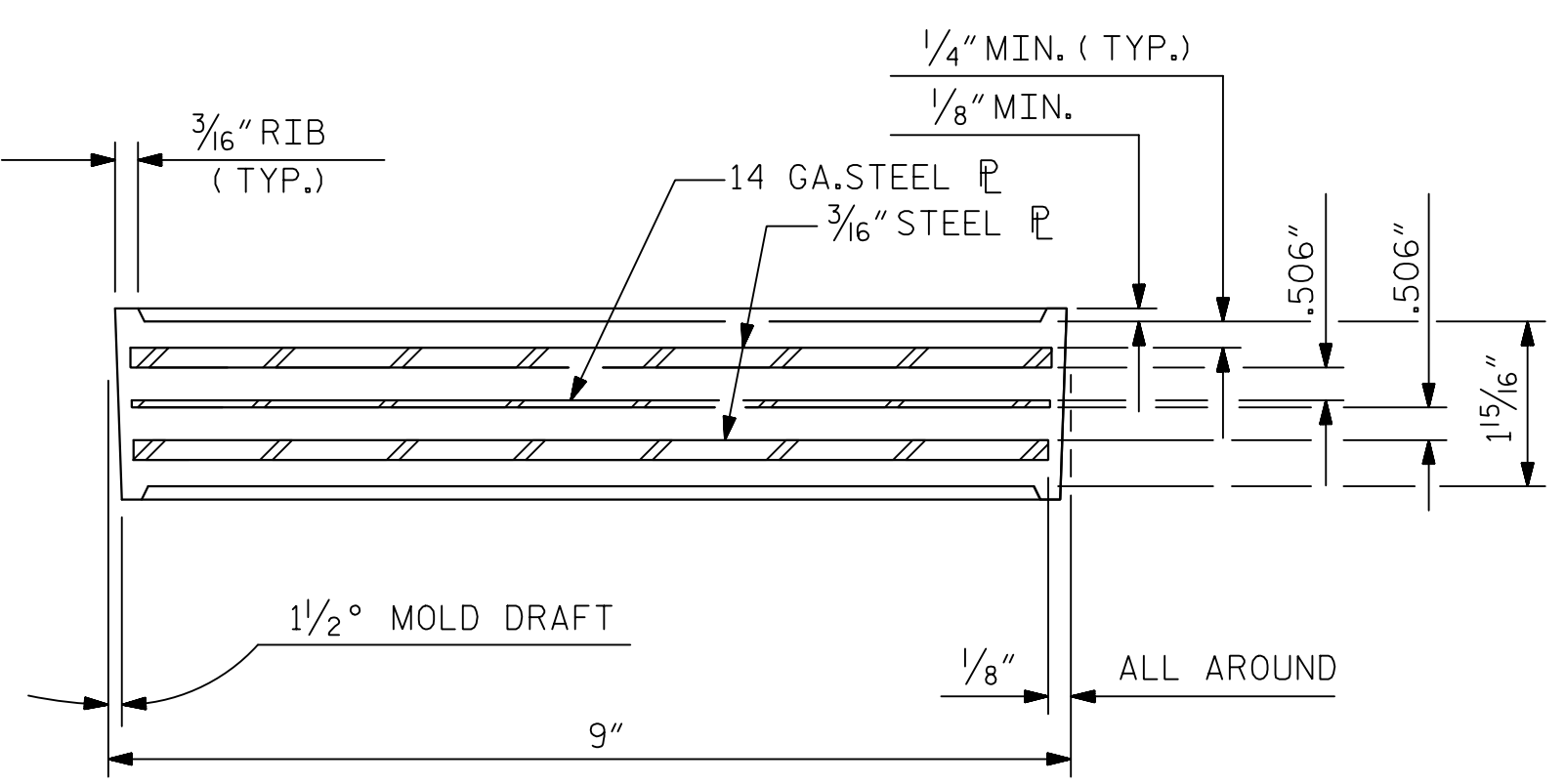
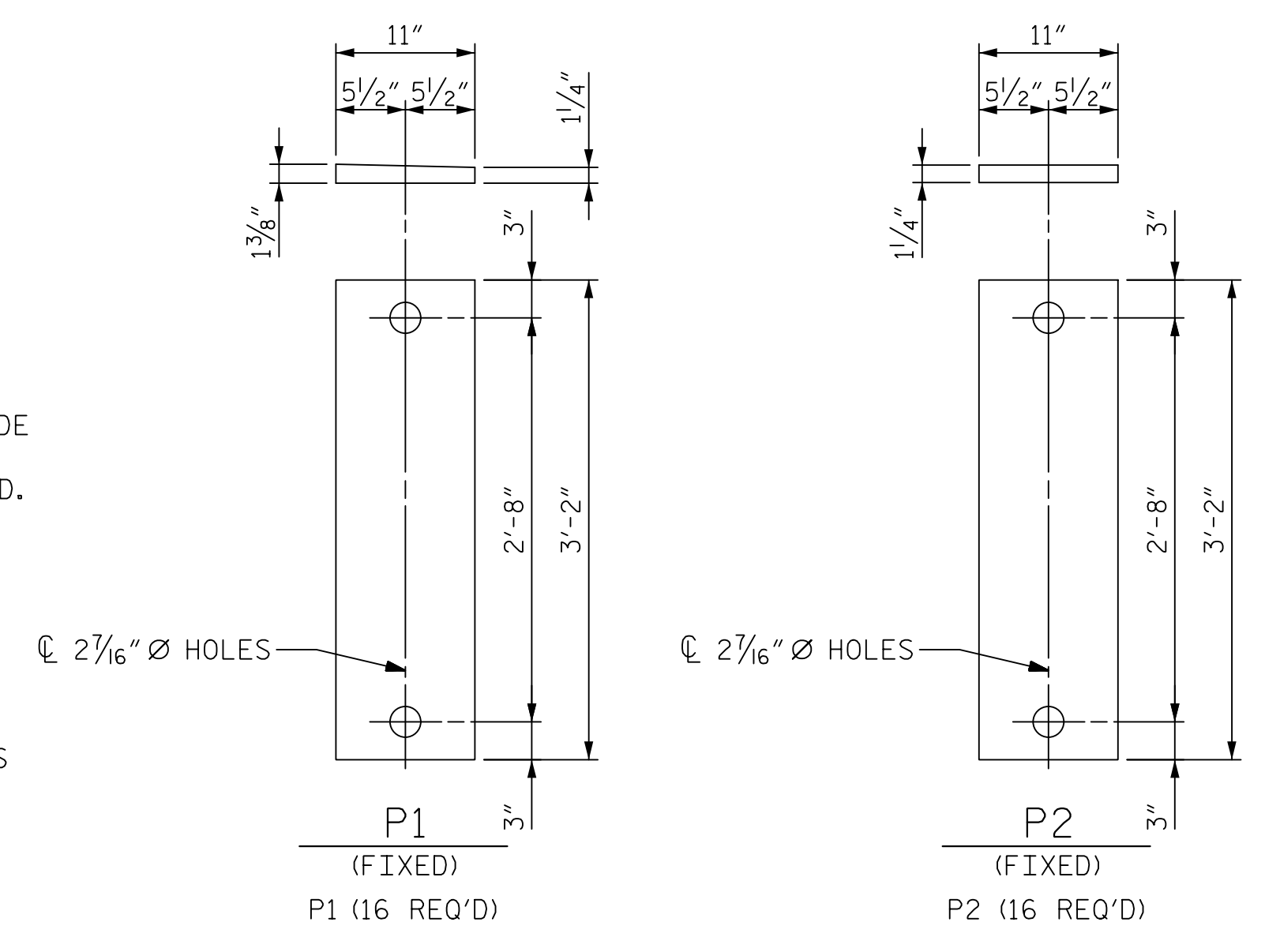
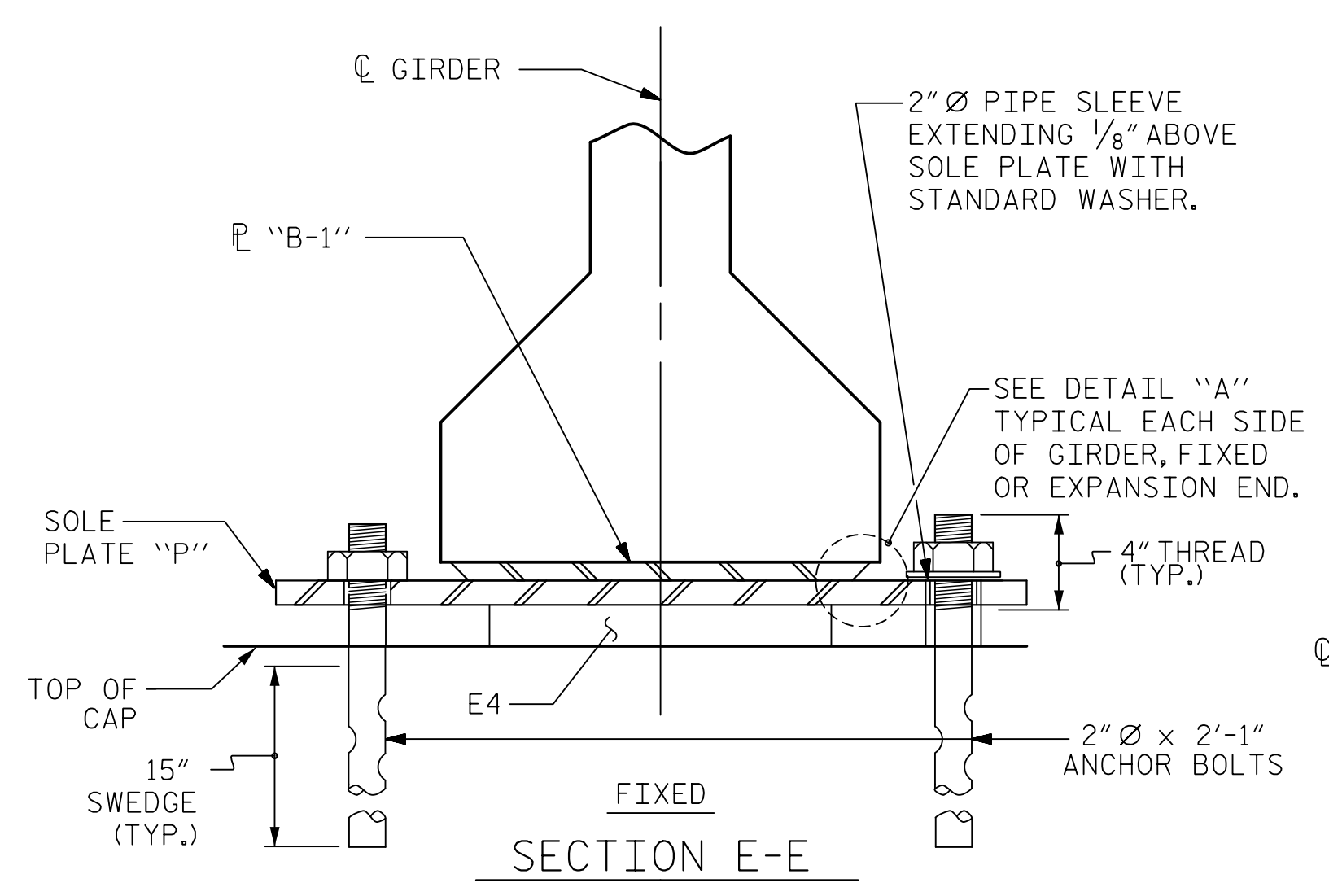
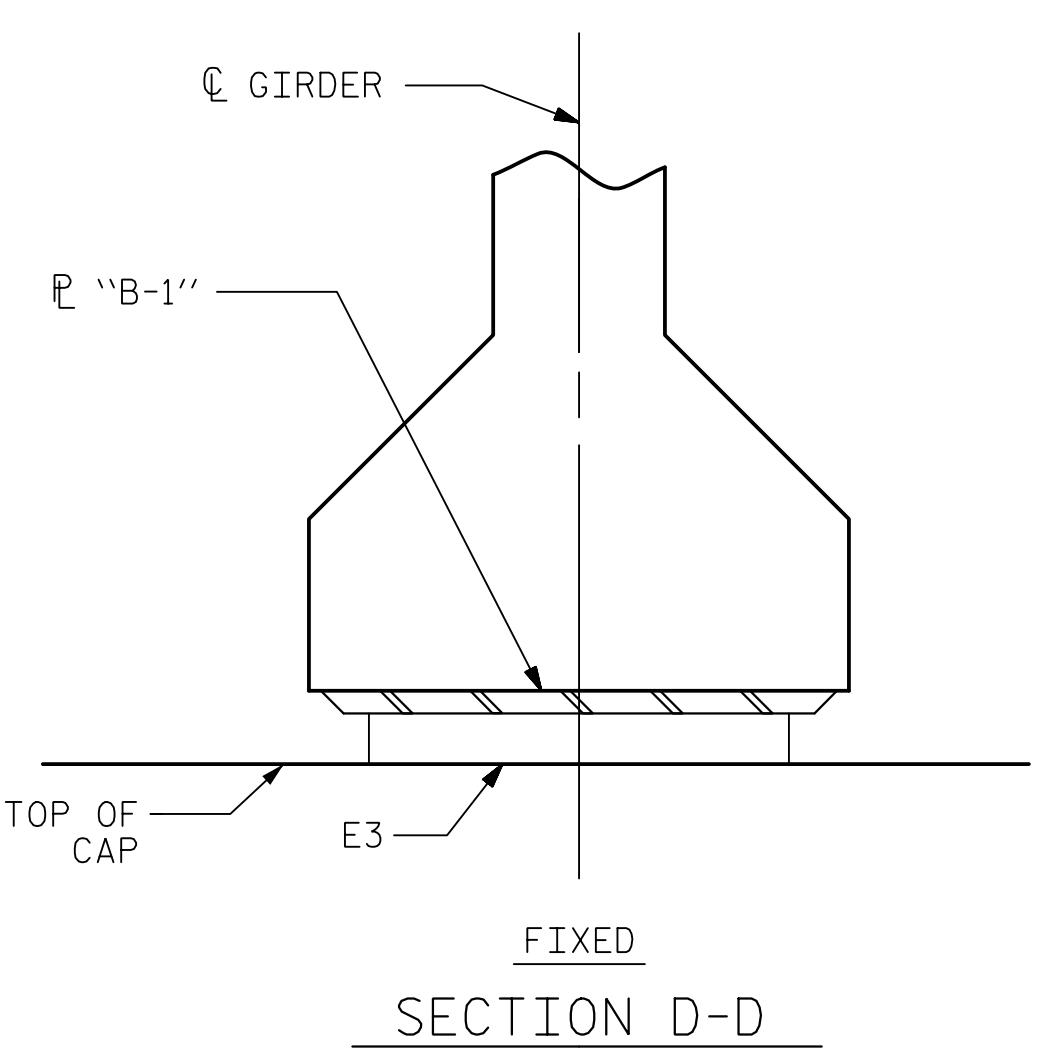


DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

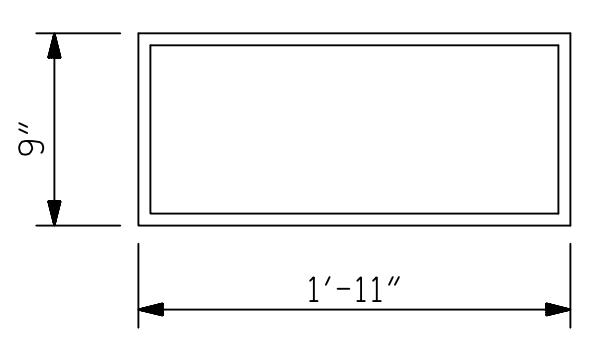
<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 3/18/2019	DWG. NO. 22	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S1-22
1			3			TOTAL SHEETS 47
2			4			

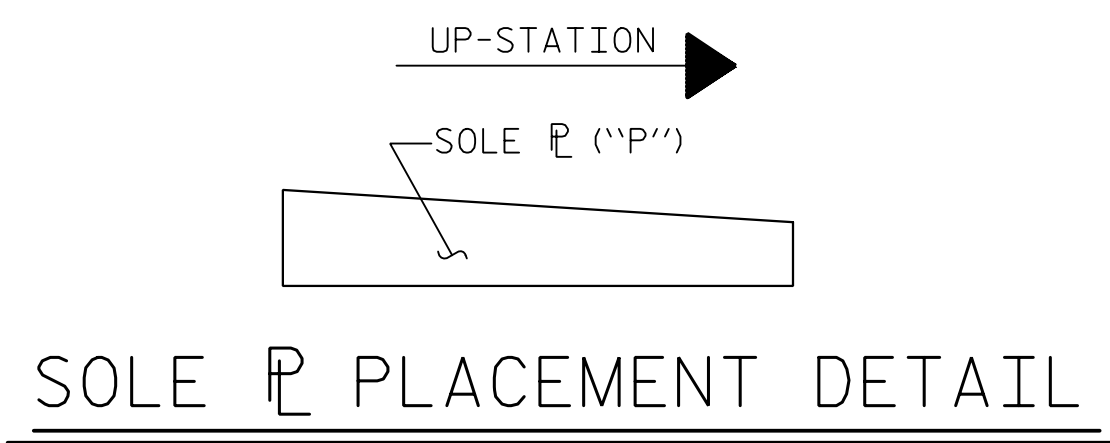
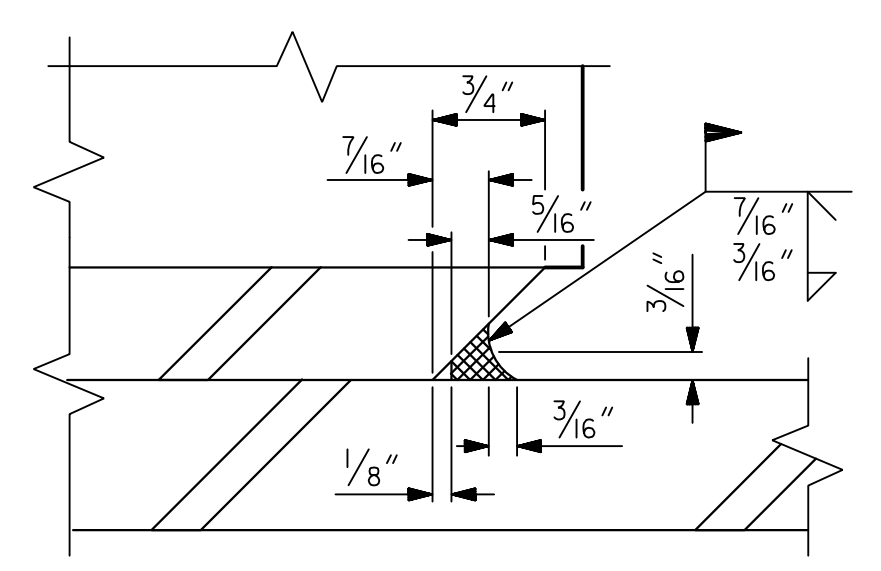
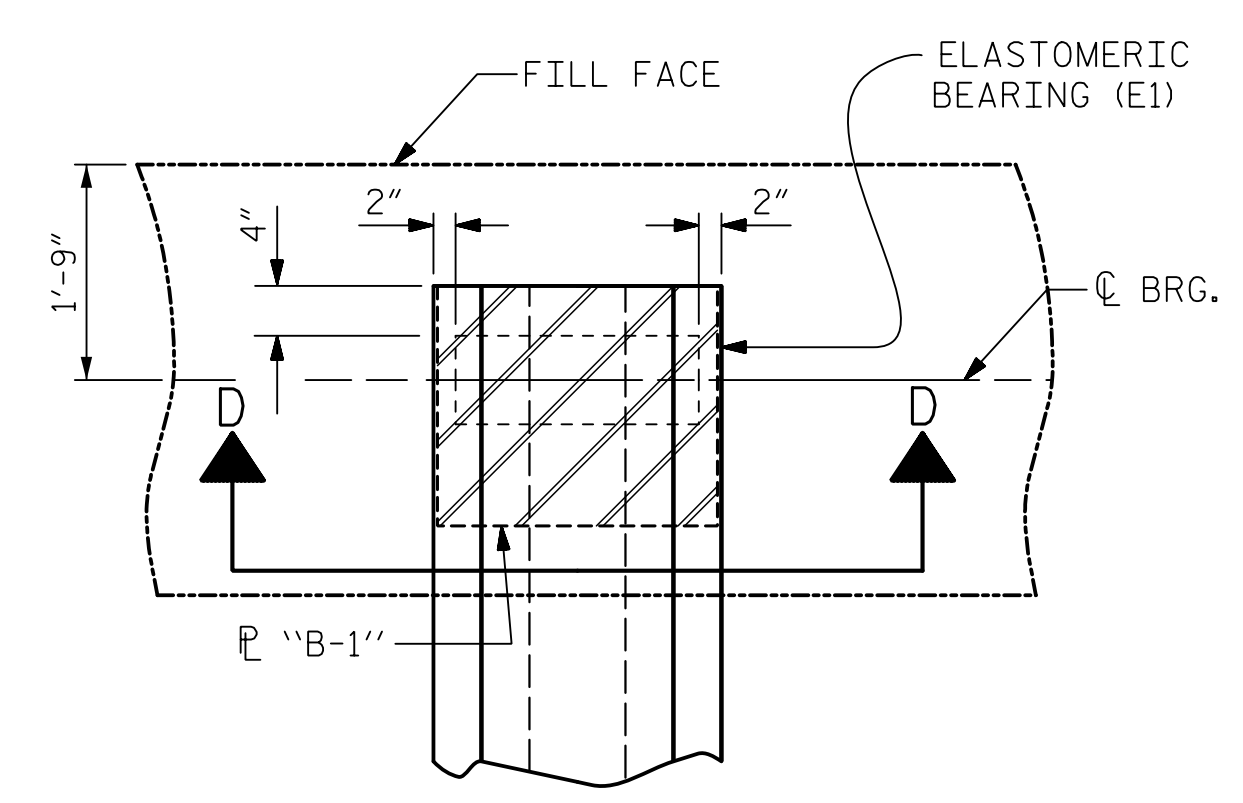
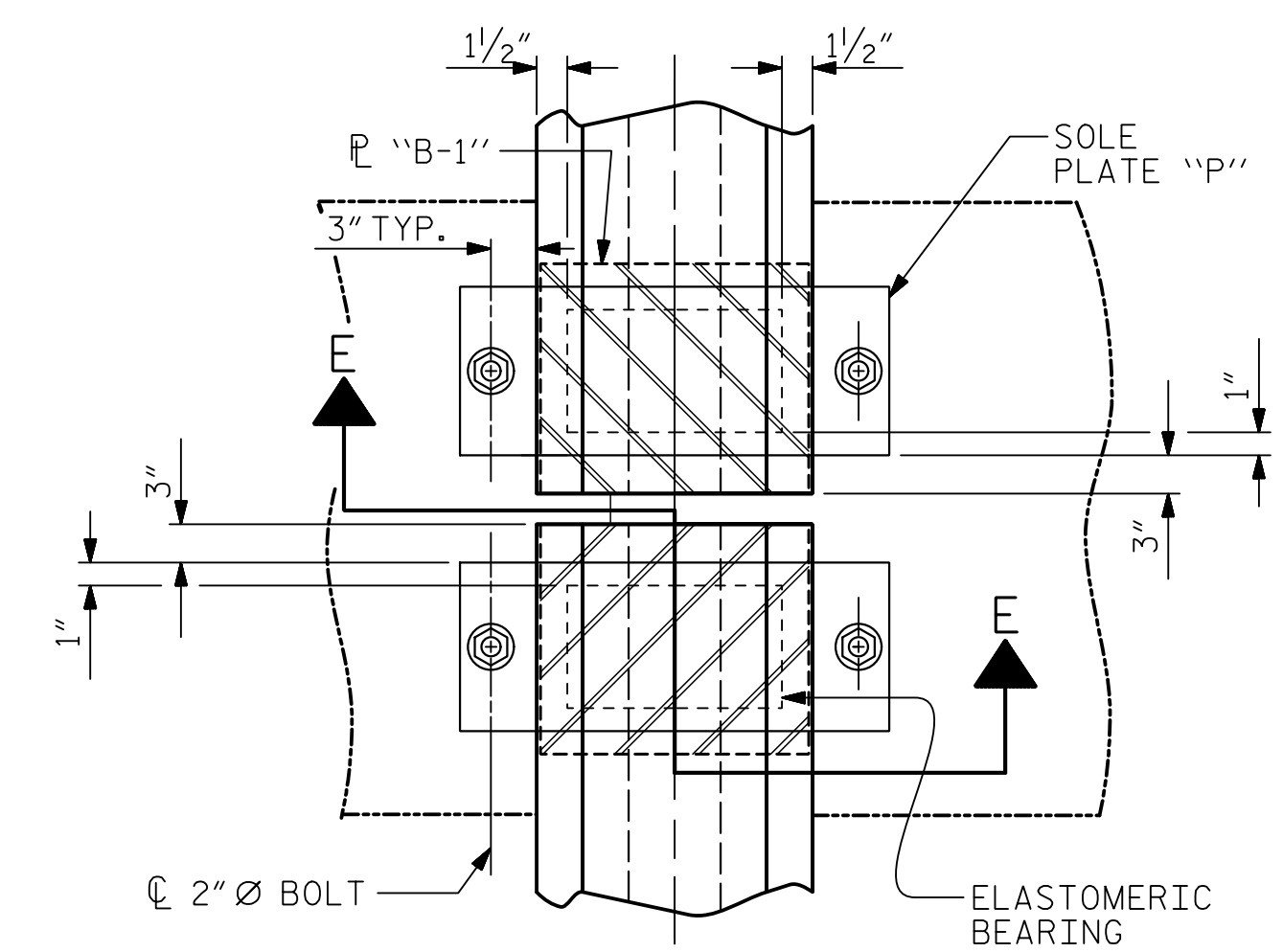
8/29/2019 2:24:22 PM \\MOT\_L043\_1440009\_SML\_G05\_D02\_440212.dgn



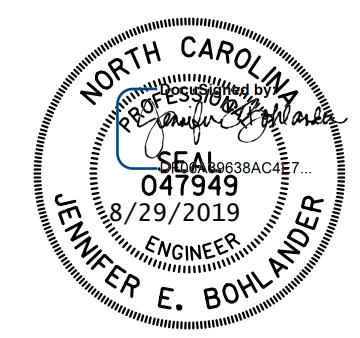
PLAN VIEW OF ELASTOMERIC BEARING  
**TYPE IV**  
(END BENTS 1 & 2)



PLAN VIEW OF ELASTOMERIC BEARING  
**TYPE V**  
(BENTS 1 & 2)



MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE IV	225 k
TYPE V	365 k



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 3/18/2019	DWG. NO. 23	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.
STANDARD						S1-23
ELASTOMERIC BEARING DETAILS PRESTRESSED CONCRETE GIRDER SUPERSTRUCTURE						TOTAL SHEETS
REVISIONS						47
NO.	BY	DATE	NO.	BY	DATE	
1			3			
2			4			

8/29/2019 2:24:24 PM \\MOT\_LMS\_1440009\_SML\_B6\_023\_440212.dgn



DEAD LOAD DEFLECTION TABLE FOR SPANS A & C												
0.6" * L.R. GRADE 270 STRANDS		GIRDERS 1 & 8										
TENTH POINTS		0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.024	0.046	0.063	0.074	0.077	0.074	0.063	0.046	0.024	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓	0.000	0.014	0.027	0.037	0.043	0.045	0.043	0.037	0.027	0.014	0.000
FINAL CAMBER	↑	0	1/8	1/4	5/16	3/8	3/8	3/8	5/16	1/4	1/8	0

DEAD LOAD DEFLECTION TABLE FOR SPANS A & C												
0.6" * L.R. GRADE 270 STRANDS		GIRDERS 2 THRU 7										
TENTH POINTS		0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.024	0.046	0.063	0.074	0.077	0.074	0.063	0.046	0.024	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓	0.000	0.015	0.029	0.041	0.048	0.050	0.048	0.041	0.029	0.015	0.000
FINAL CAMBER	↑	0	1/8	3/16	1/4	5/16	5/16	5/16	1/4	3/16	1/8	0

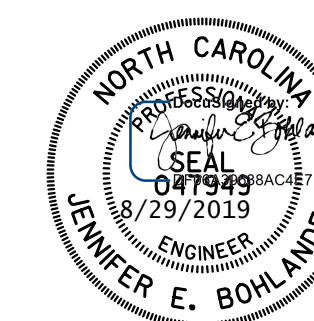
DEAD LOAD DEFLECTION TABLE FOR SPAN B												
0.6" * L.R. GRADE 270 STRANDS		GIRDERS 1 & 8										
TENTH POINTS		0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.058	0.109	0.149	0.175	0.184	0.175	0.149	0.109	0.058	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓	0.000	0.034	0.067	0.093	0.110	0.116	0.110	0.093	0.067	0.034	0.000
FINAL CAMBER	↑	0	5/16	1/2	11/16	3/4	13/16	3/4	11/16	1/2	5/16	0

DEAD LOAD DEFLECTION TABLE FOR SPAN B												
0.6" * L.R. GRADE 270 STRANDS		GIRDERS 2 THRU 7										
TENTH POINTS		0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.058	0.109	0.149	0.175	0.184	0.175	0.149	0.109	0.058	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓	0.000	0.037	0.073	0.102	0.120	0.127	0.120	0.102	0.073	0.037	0.000
FINAL CAMBER	↑	0	1/4	5/16	3/8	11/16	11/16	11/16	3/8	5/16	1/4	0

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

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 1 OF 1



**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 GIRDER  
 DEAD LOAD DEFLECTIONS  
 AND CAMBER

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: M. JULIAN	DATE: 3/18/2019	DWG. NO. 24	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S1-24
1			3			TOTAL SHEETS 47
2			4			

8/29/2019 2:24:26 PM ...\_MOD1\_LOF\_1\_4400BB\_SML\_DL\_024\_440212.dgn





NOTES

WALL SUPPORT SYSTEM

POSTS, BEARING PLATES AND MISCELLANEOUS STEEL SHALL BE AASHTO 270 GRADE 50 STRUCTURAL STEEL - GALVANIZED TO AASHTO M111 AND IN ACCORDANCE TO SECTION 1076 OF THE STANDARD SPECIFICATIONS.

BOLTS, NUTS AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A325 AND SHALL BE GALVANIZED IN ACCORDANCE TO AASHTO M111.

ALL POSTS SHALL BE PLUMB.

SOUND BARRIER WALL

COLOR OF THE SOUND BARRIER WALL PANEL SHALL BE UNIFORM THROUGHOUT THE PULTRUDED COMPOSITE AND IS TO BE APPROVED BY THE ENGINEER. SOUND BARRIER WALL PANEL SHALL HAVE A DRY STACK PATTERN WITH STAIN COLOR FS36173.

SOUND BARRIER WALL SHALL BE DESIGNED TO WITHSTAND A MINIMUM WIND VELOCITY OF 115 MPH AND A MINIMUM WIND PRESSURE OF 0.04 KSF.

SOUND BARRIER WALL WAS NOT DESIGNED FOR VEHICLE IMPACT PER OWNERS DIRECTION.

WEIGHT OF SOUND BARRIER WALL SHALL NOT EXCEED 346 LBS/FT.

SOUND BARRIER WALL SHALL CONSIST OF STACKED TONGUE AND GROOVE STRUCTURAL PLANKS AS DETAILED ON PLANS. THE PLANKS SHALL BE COMPRISED OF A PULTRUDED GLASS REINFORCED THERMOSET COMPOSITE STRUCTURAL BOX FILLED WITH RECYCLED TIRE RUBBER OR ANOTHER SUBSTANCE OF COMPARABLE DENSITY AND NOISE REDUCTION CAPABILITY. ENDS SHALL BE CAPPED SO NOT TO ALLOW FILL MATERIAL TO FALL OUT.

LENGTH OF PLANKS SHALL BE CUT TO A LENGTH NO LESS THAN 4" LESS THAN THE CLEAR SPACING PROVIDED BETWEEN SUPPORT POSTS, NOR SHALL THE LENGTH BE GREATER THAN 3" LESS THAN THE CLEAR SPACING PROVIDED BETWEEN SUPPORT POSTS.

PLANKS SHALL BE CUT SO THAT THE ENDS ARE SMOOTH AND PERPENDICULAR TO EACH PLANKS BASE AND SHALL BE APPROVED BY THE ENGINEER.

EACH PANEL SHALL BE PLACED SO THAT THE TOP OF THE FINISHED PANEL MEETS FLUSH WITH THE TOP OF EACH SUPPORT POST.

FOR PREFORMED BEARING PADS AND ELASTOMERIC BEARING, SEE SECTION 1079 OF THE STANDARD SPECIFICATIONS.

FOR SOUND BARRIER WALL, SEE SPECIAL PROVISION SOUND BARRIER WALL (BRIDGE MOUNTED).

PRIOR TO DRILLING HOLES FOR ANCHOR BOLTS, CONTRACTOR SHALL LOCATE BARRIER RAIL REINFORCING. CONTRACTOR SHALL AVOID DRILLING THROUGH REINFORCING STEEL.

CONTRACTOR SHALL DRILL HOLES FOR ANCHOR BOLTS PRIOR TO PANEL FABRICATION.

FOR SOUND BARRIER WALL LAYOUT, SEE "CONCRETE BARRIER RAIL" SHEET.

SHOP DRAWINGS OF THE SOUND WALL AND SUPPORT SYSTEM SHALL BE SUBMITTED FOR THE ENGINEER'S APPROVAL PRIOR TO CONSTRUCTION.

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 1 OF 1

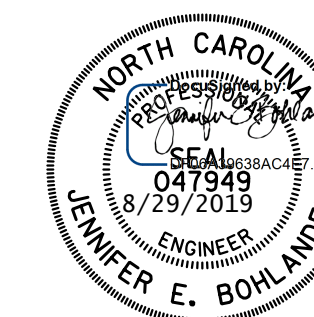
STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

SUPERSTRUCTURE

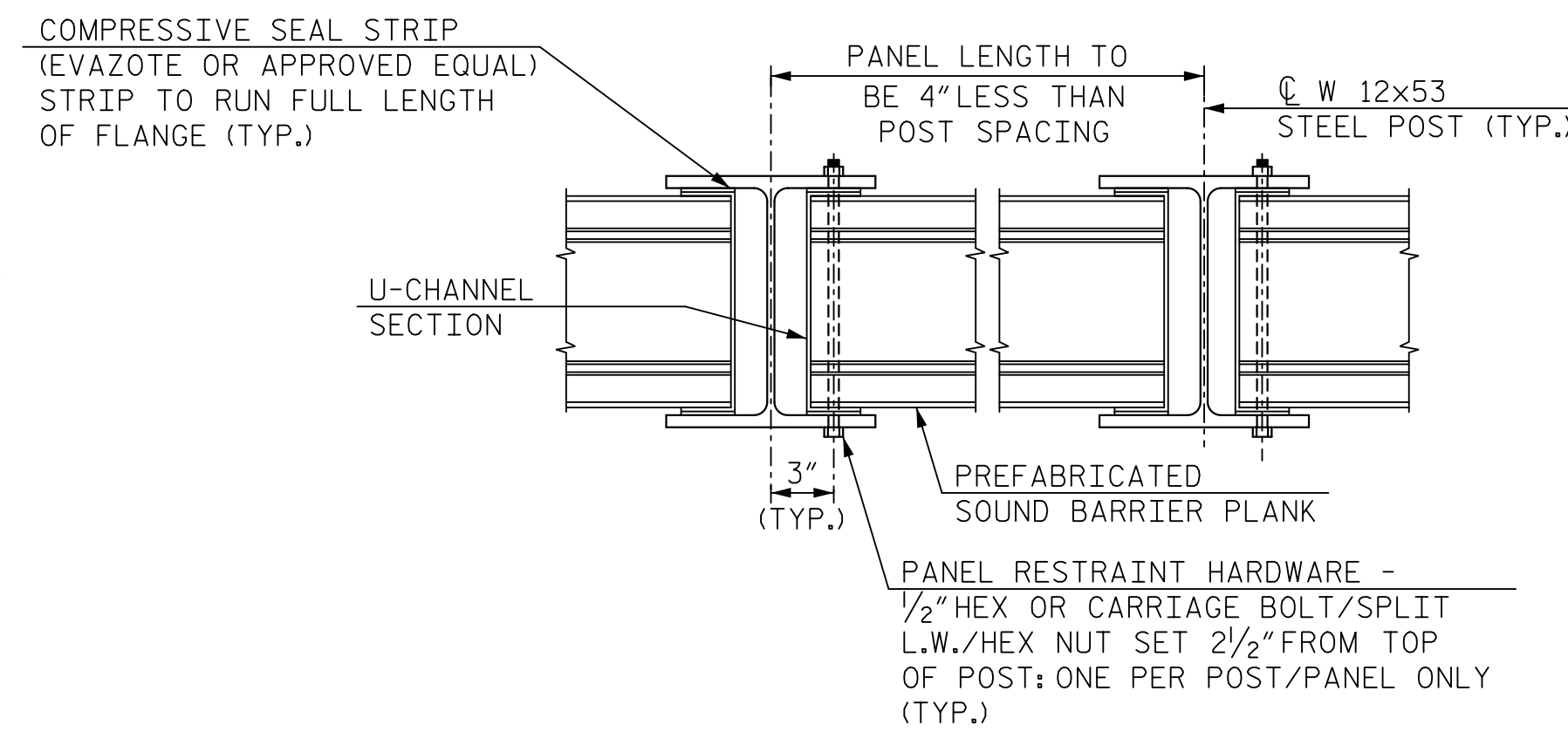
SOUND BARRIER WALL  
 DETAILS



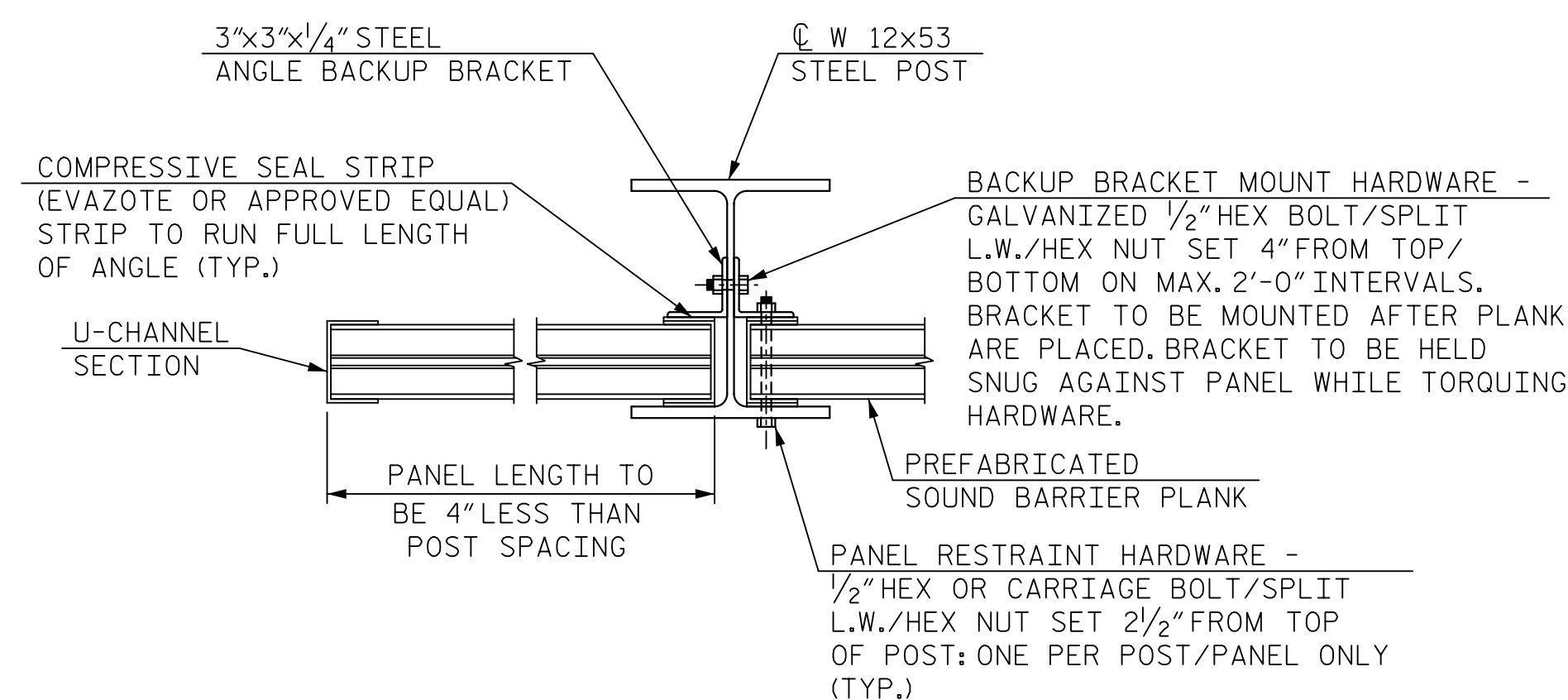
DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 4/23/2019	DWG. NO. 26	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

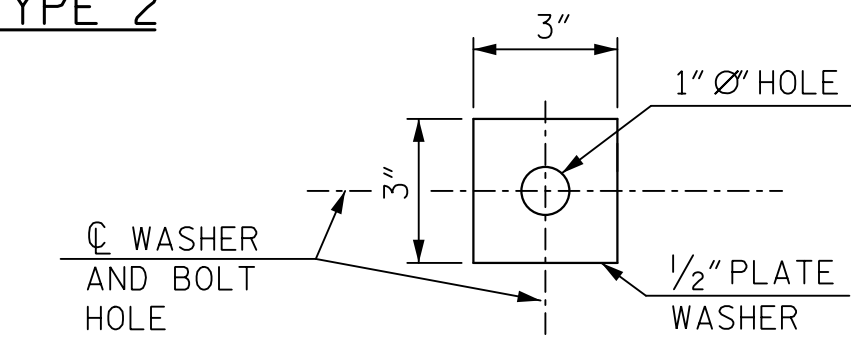
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S1-26
1			3			TOTAL SHEETS
2			4			47



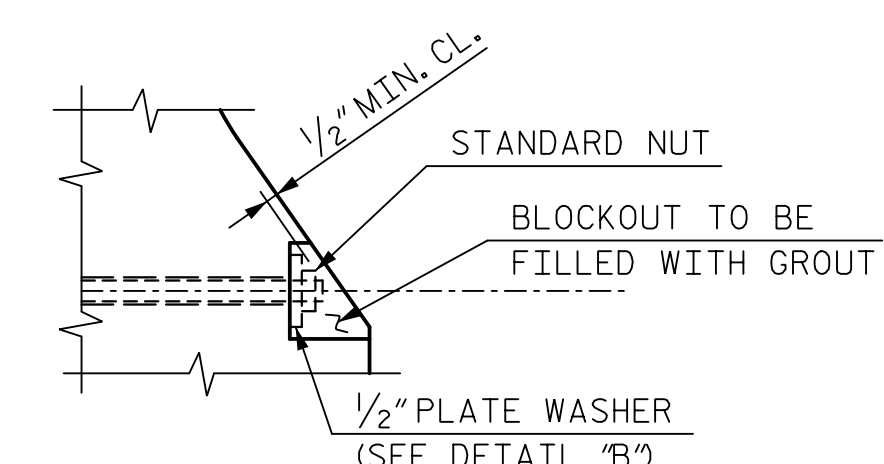
MOUNTING DETAIL - PANEL TYPE 1



MOUNTING DETAIL - PANEL TYPE 2

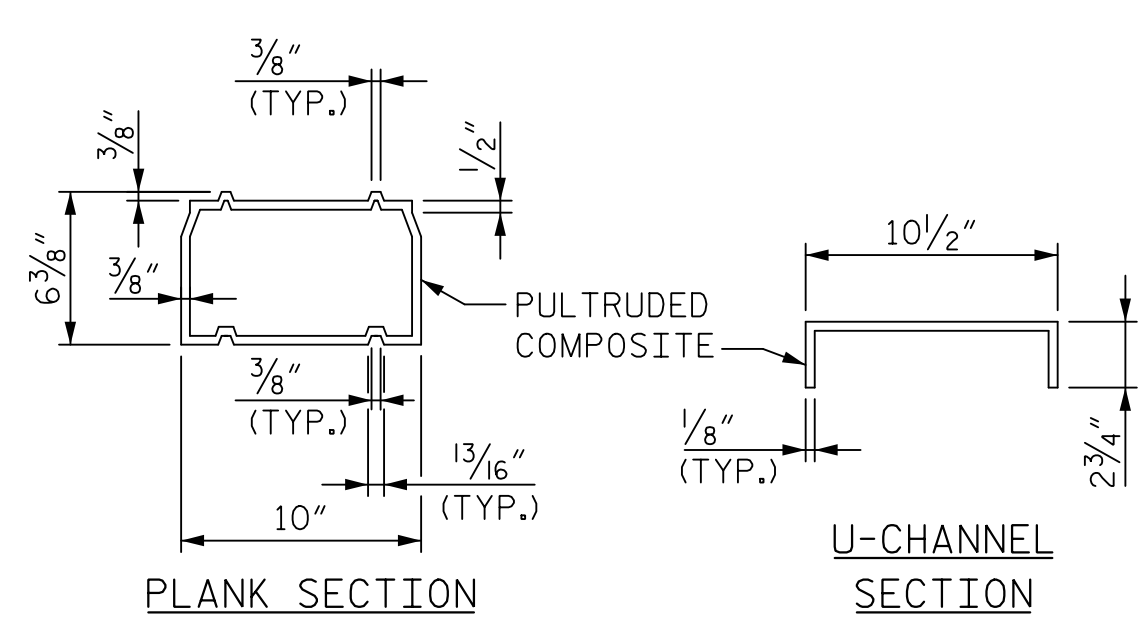


DETAIL "B"

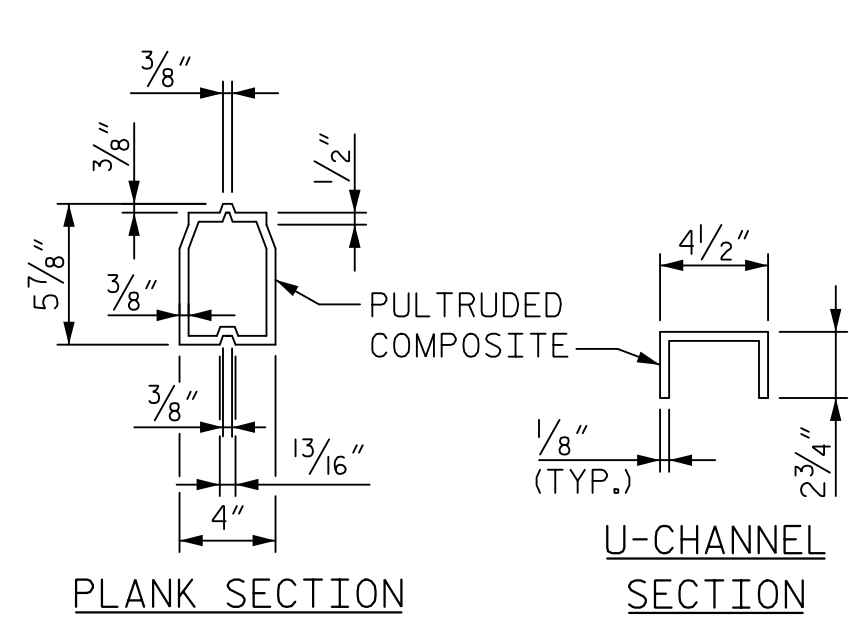


DETAIL "A"

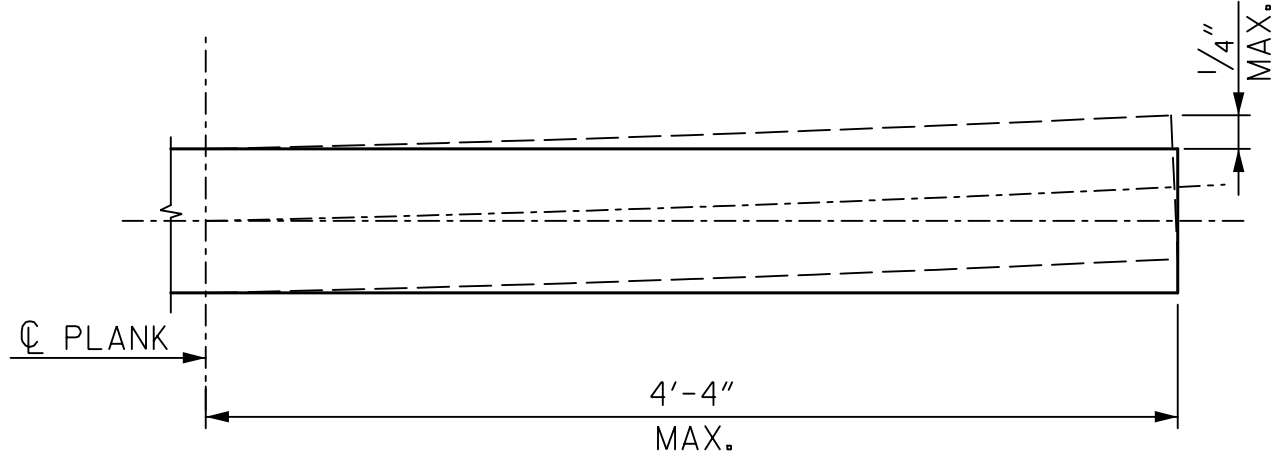
(GROUT SHALL BE IN ACCORDANCE WITH SPECIAL PROVISIONS) (LOWER BLOCKOUT SHOWN, UPPER BLOCKOUT SIMILAR)



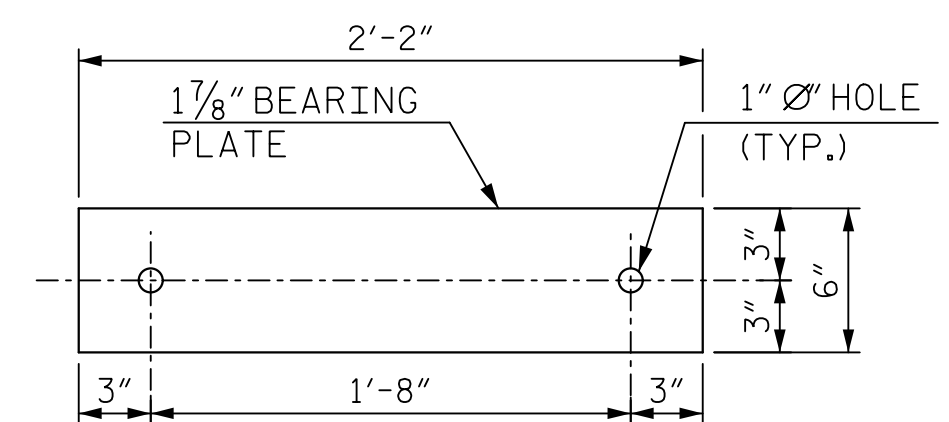
PANEL TYPE 1



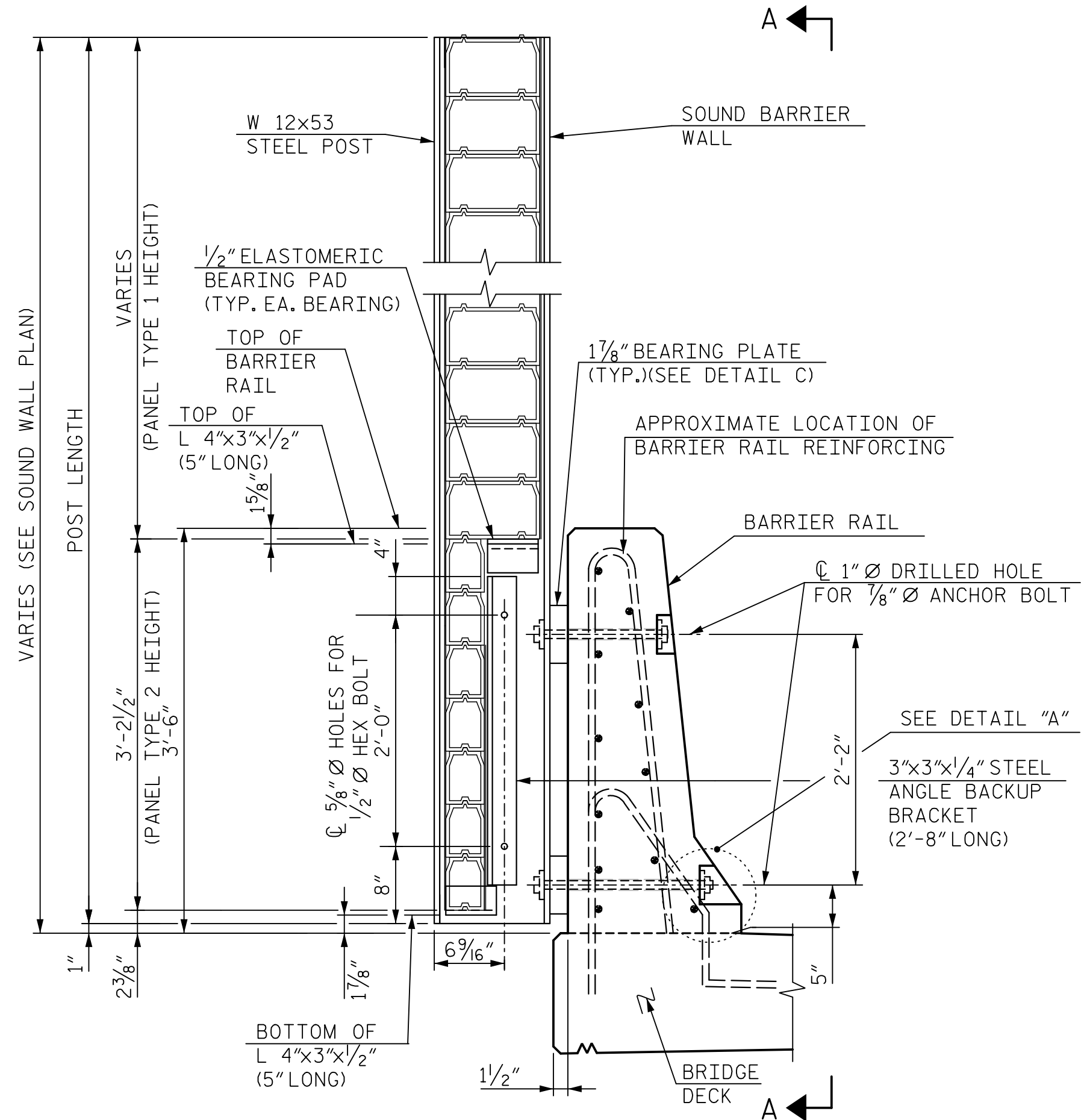
PANEL TYPE 2



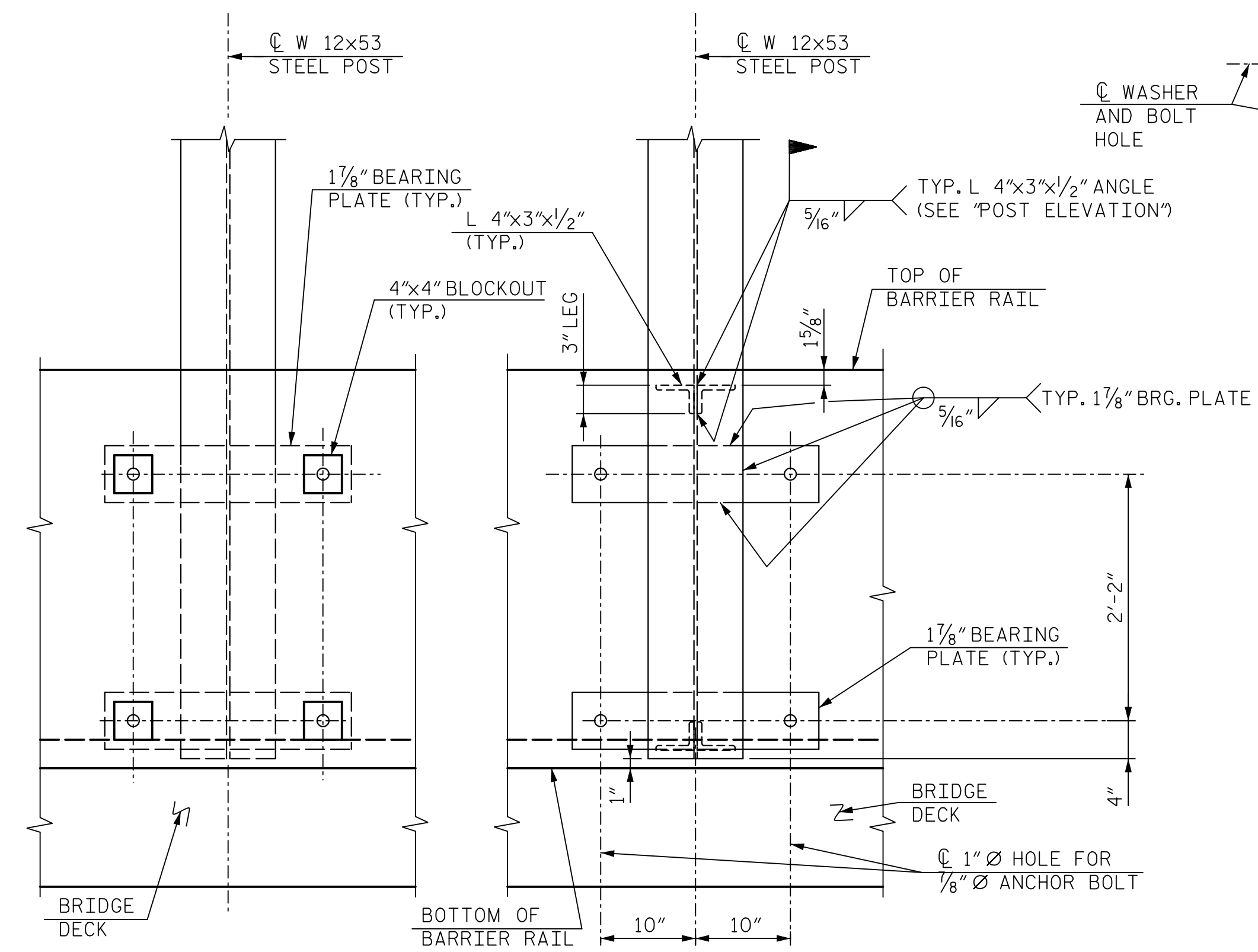
PLANK BOW TOLERANCE



DETAIL "C"



POST ELEVATION



VIEW A-A

SECTION THRU POST

8/29/2019 2:24:31 PM ...NOT\_L05\_L14400BB\_SML\_SB\_026\_440212.dgn



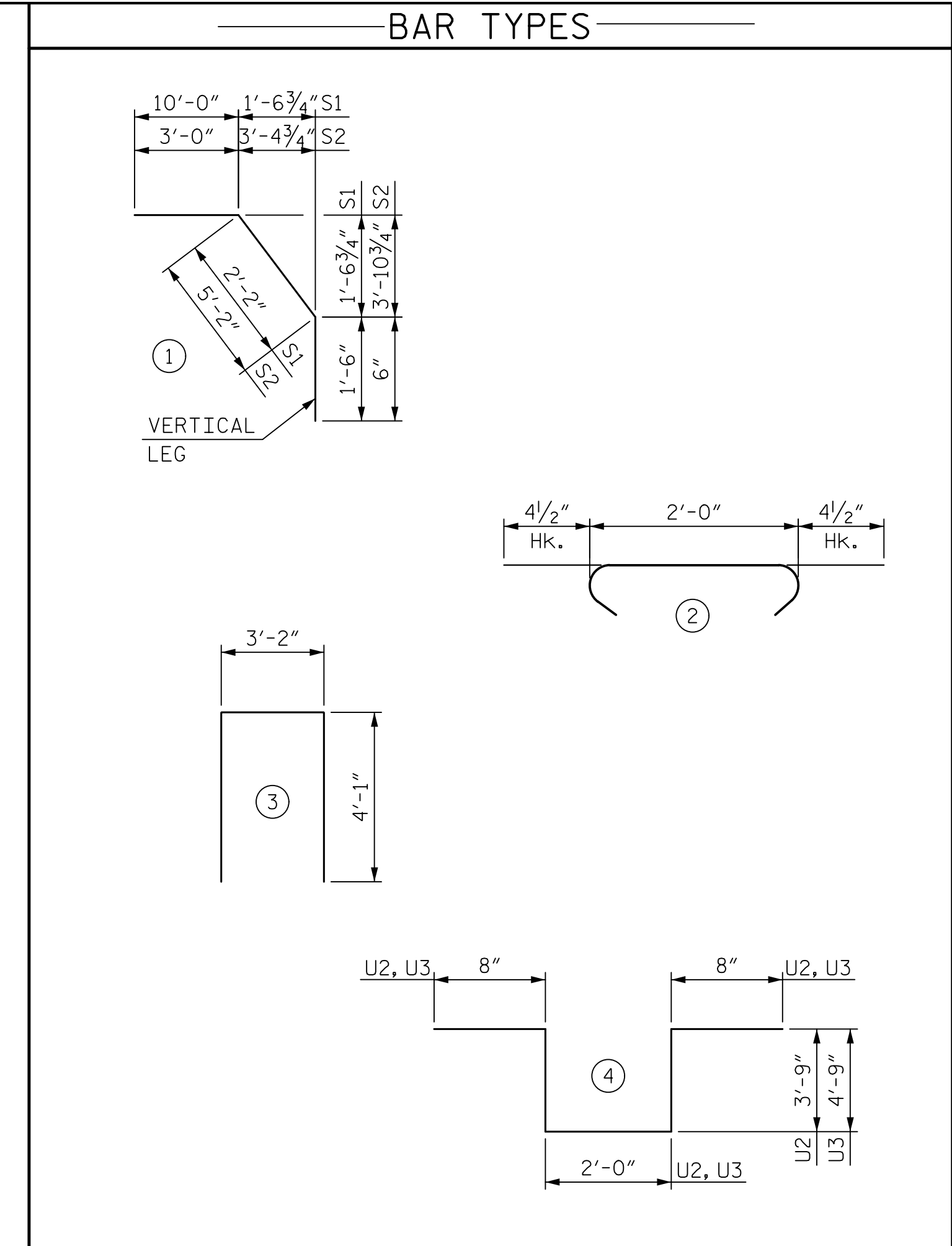




REINFORCING BAR SCHEDULE					
EPOXY COATED					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A10	974	#5	STR	37'-8"	38,307
A11	1	#5	STR	58'-5"	61
A12	1	#5	STR	43'-9"	46
A13	1	#5	STR	29'-1"	30
A14	1	#5	STR	14'-5"	15
A15	1	#5	STR	52'-7"	55
A16	1	#5	STR	32'-2"	34
A17	1	#5	STR	11'-8"	12
B1	200	#4	STR	22'-8"	3,028
B2	100	#6	STR	33'-5"	5,019
B3	100	#4	STR	16'-6"	1,102
B4	196	#6	STR	15'-3"	4,489
B5	196	#6	STR	25'-8"	7,556
S1	112	#4	1	13'-8"	1,022
S2	112	#4	1	8'-8"	648
U2	28	#4	4	10'-10"	203
U3	84	#4	4	12'-10"	720
EPOXY COATED REINFORCING STEEL TOTAL:					62,347

REINFORCING BAR SCHEDULE					
UNCOATED					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A110	974	#5	STR	37'-6"	38,138
A111	1	#5	STR	58'-5"	61
A112	1	#5	STR	43'-9"	46
A113	1	#5	STR	29'-1"	30
A114	1	#5	STR	14'-5"	15
A115	1	#5	STR	52'-7"	55
A116	1	#5	STR	32'-2"	34
A117	1	#5	STR	11'-8"	12
B101	425	#5	STR	49'-4"	21,867
B102	140	#6	STR	15'-3"	3,207
B103	140	#6	STR	25'-8"	5,397
K33	15	#4	STR	25'-6"	255
K34	1	#4	STR	2'-0"	1
K35	1	#4	STR	2'-8"	2
K36	2	#4	STR	2'-9"	4
K37	1	#4	STR	2'-3"	1
K38	7	#4	STR	7'-0"	33
K39	7	#4	STR	8'-5"	39
K40	14	#4	STR	8'-6"	80
K41	7	#4	STR	7'-6"	35
K42	1	#4	STR	2'-0"	1
K43	1	#4	STR	2'-8"	2
K44	2	#4	STR	2'-9"	4
K45	1	#4	STR	2'-3"	1
K46	15	#4	STR	23'-3"	233
UNCOATED REINFORCING STEEL TOTAL:					71,619

REINFORCING BAR SCHEDULE					
UNCOATED					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
K48	7	#4	STR	5'-10"	27
K49	7	#4	STR	8'-5"	39
K50	14	#4	STR	8'-6"	80
K51	7	#4	STR	7'-6"	35
S3	532	#4	2	2'-9"	977
U1	120	#4	3	11'-4"	908
UNCOATED REINFORCING STEEL TOTAL:					71,619



SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

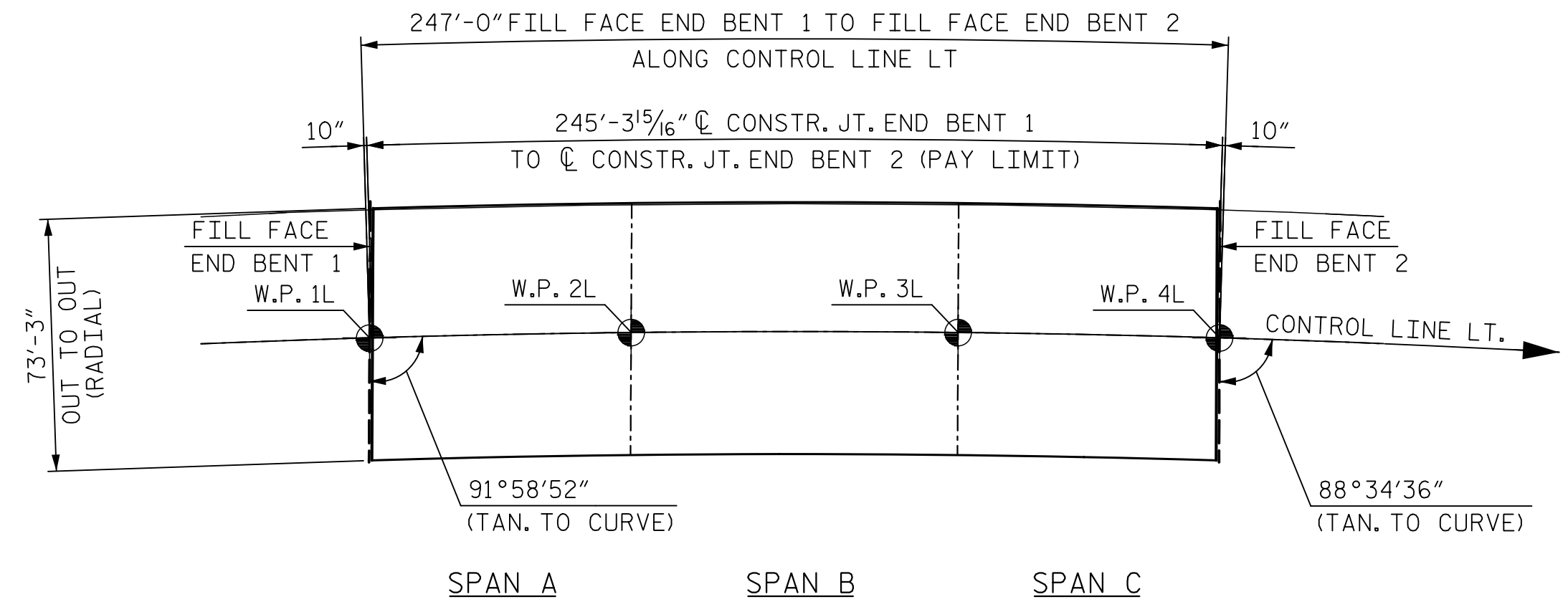
BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	2'-1"	1'-9"	2'-1"	1'-9"	2'-9"
#5	2'-7"	2'-2"	2'-7"	2'-2"	3'-5"
#6	3'-1"	2'-7"	3'-10"	2'-7"	4'-4"
#7	5'-3"	3'-6"			
#8	6'-10"	4'-7"			

ALL BAR DIMENSIONS ARE OUT TO OUT

**—SUPERSTRUCTURE BILL OF MATERIAL—**

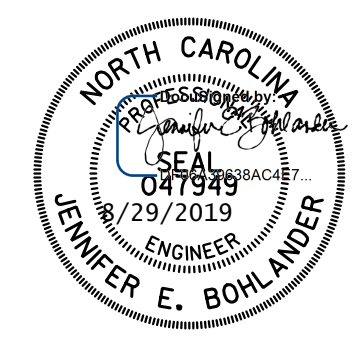
	CLASS AA CONCRETE	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL
	(CU. YDS.)	(LBS.)	(LBS.)
POUR 1	149.6		
POUR 2	243.1		
POUR 3	220.4	71,619	62,347
POUR 4	115.8		
<b>TOTALS**</b>	729.0	71,619	62,347

\*\*QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED.



LAYOUT FOR COMPUTING AREA REINFORCED CONCRETE DECK SLAB (SQ. FT. = 17,970)

GROOVING BRIDGE FLOORS	
APPROACH SLABS	3,526 SQ. FT.
BRIDGE DECK	16,437 SQ. FT.
TOTAL	19,963 SQ. FT.



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

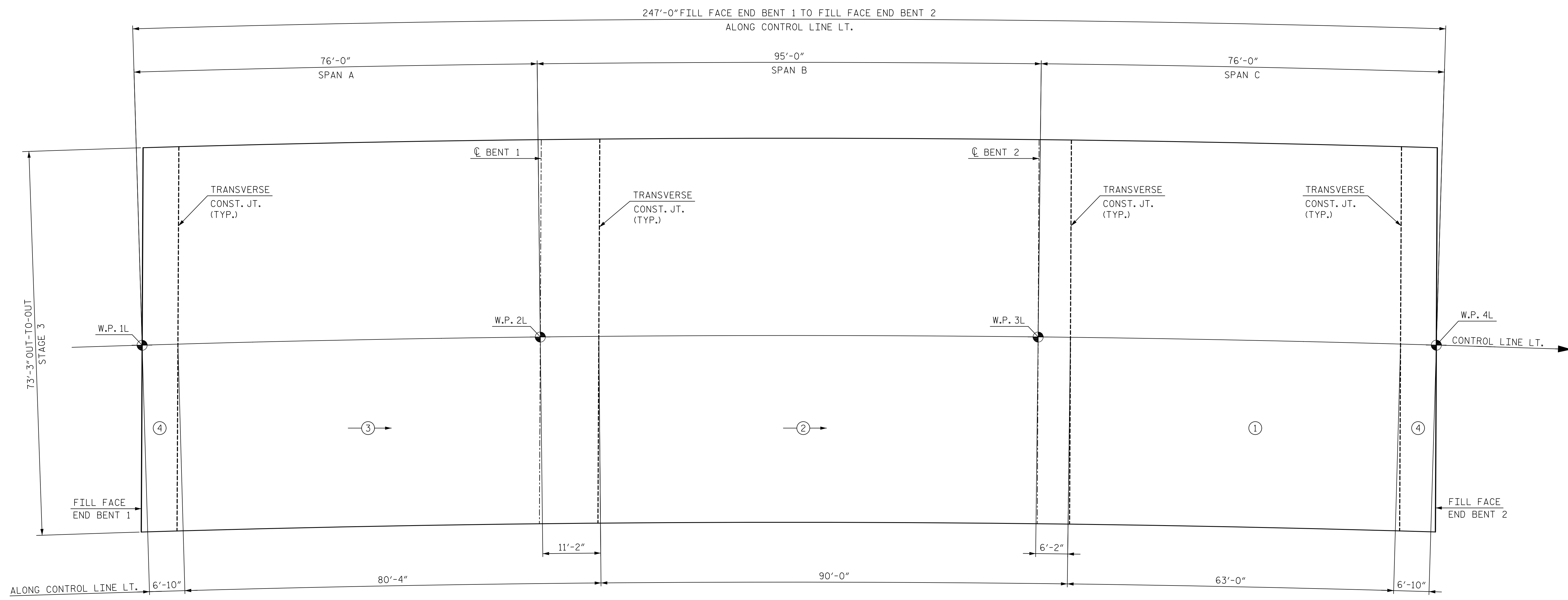
<b>HNTB</b>	HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
DRAWN BY: M. JULIAN	DATE: 3/18/2019
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019
DWG. NO. 28	

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

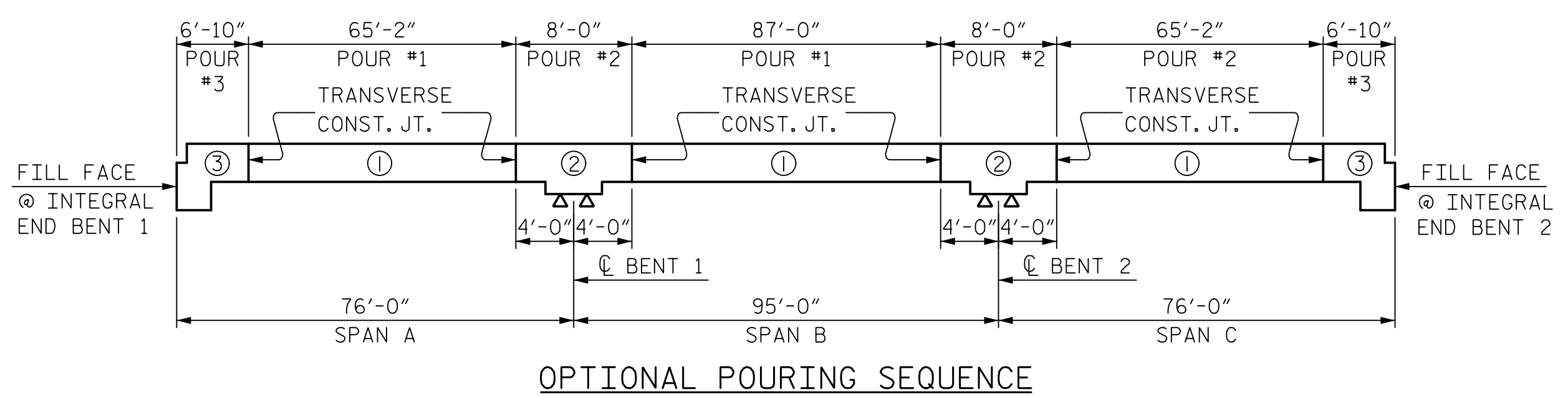
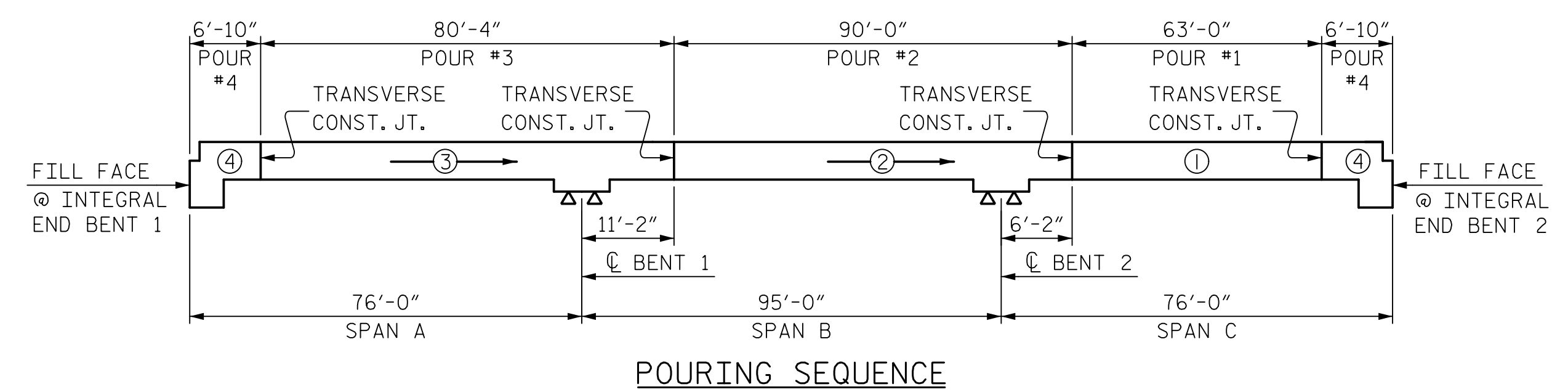
SHEET 1 OF 1

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD SUPERSTRUCTURE BILL OF MATERIALS					
REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
					TOTAL SHEETS 47

8/29/2019 4:11:56 PM ...NOT\_LOSS...I-4400BB\_SML\_BM01\_028\_440212.dgn



**POURING SEQUENCE**  
 (Number in circle with arrow) DENOTES POUR NUMBER AND DIRECTION

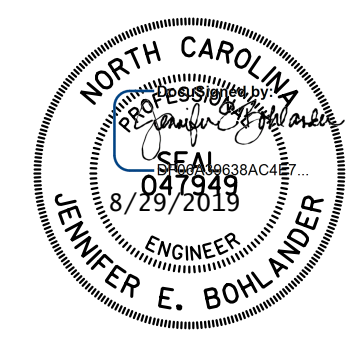


NOTE: ALL DIMENSIONS FOR POURING SEQUENCE AND OPTIONAL POURING SEQUENCE ARE ALONG CONTROL LINE LT.

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 1 OF 1

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 BILL OF MATERIALS  
 AND POUR SEQUENCE



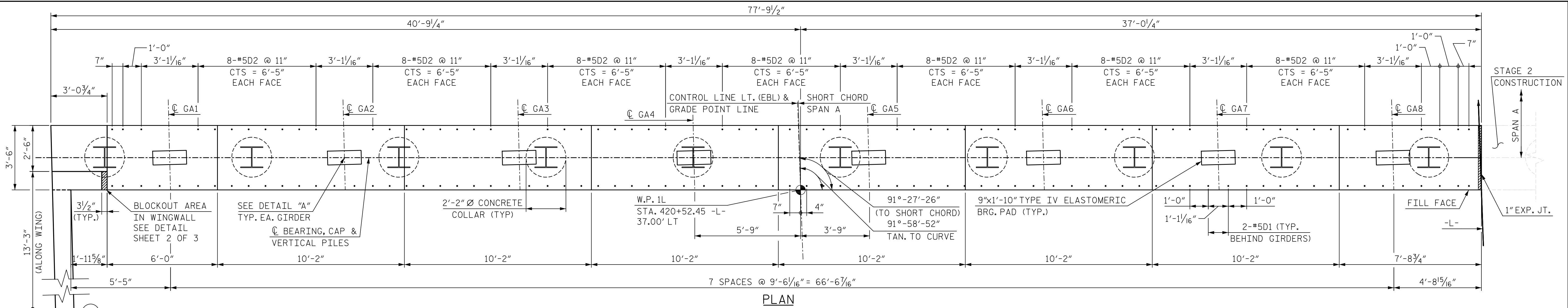
**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 1/10/2019	DWG. NO. 29	
CHECKED BY: J. BOHLANDER	DATE: 1/10/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 1/10/2019		

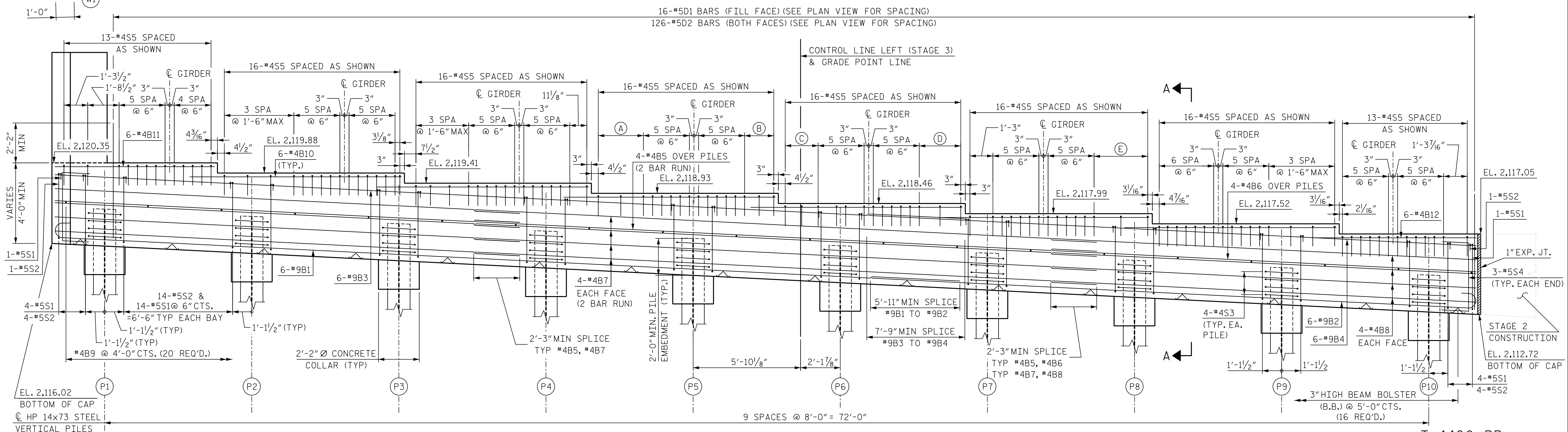
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S1-29
1			3			TOTAL SHEETS 47
2			4			

8/29/2019 2:24:39 PM ...\_MOT\_LO57\_14400009\_SML\_BM02\_029\_4402\_12.dgn





PLAN



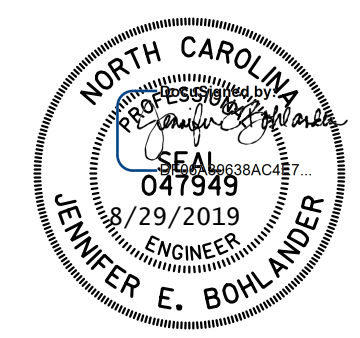
ELEVATION

- (A) 2 EQ. SPA = 2'-5 7/16"
- (B) 2 EQ. SPA = 1'-7"
- (C) 2 EQ. SPA = 1'-9 7/16"
- (D) 2 EQ. SPA = 2'-3 1/16"
- (E) 2 EQ. SPA = 2'-11"

TOP OF PILE ELEVATIONS	
(P1)	2117.90
(P2)	2117.56
(P3)	2117.22
(P4)	2116.88
(P5)	2116.54
(P6)	2116.20
(P7)	2115.86
(P8)	2115.52
(P9)	2115.18
(P10)	2114.84

PROJECT NO. I-4400 BB  
 HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 1 OF 3  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 END BENT 1  
 STAGE 3



DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

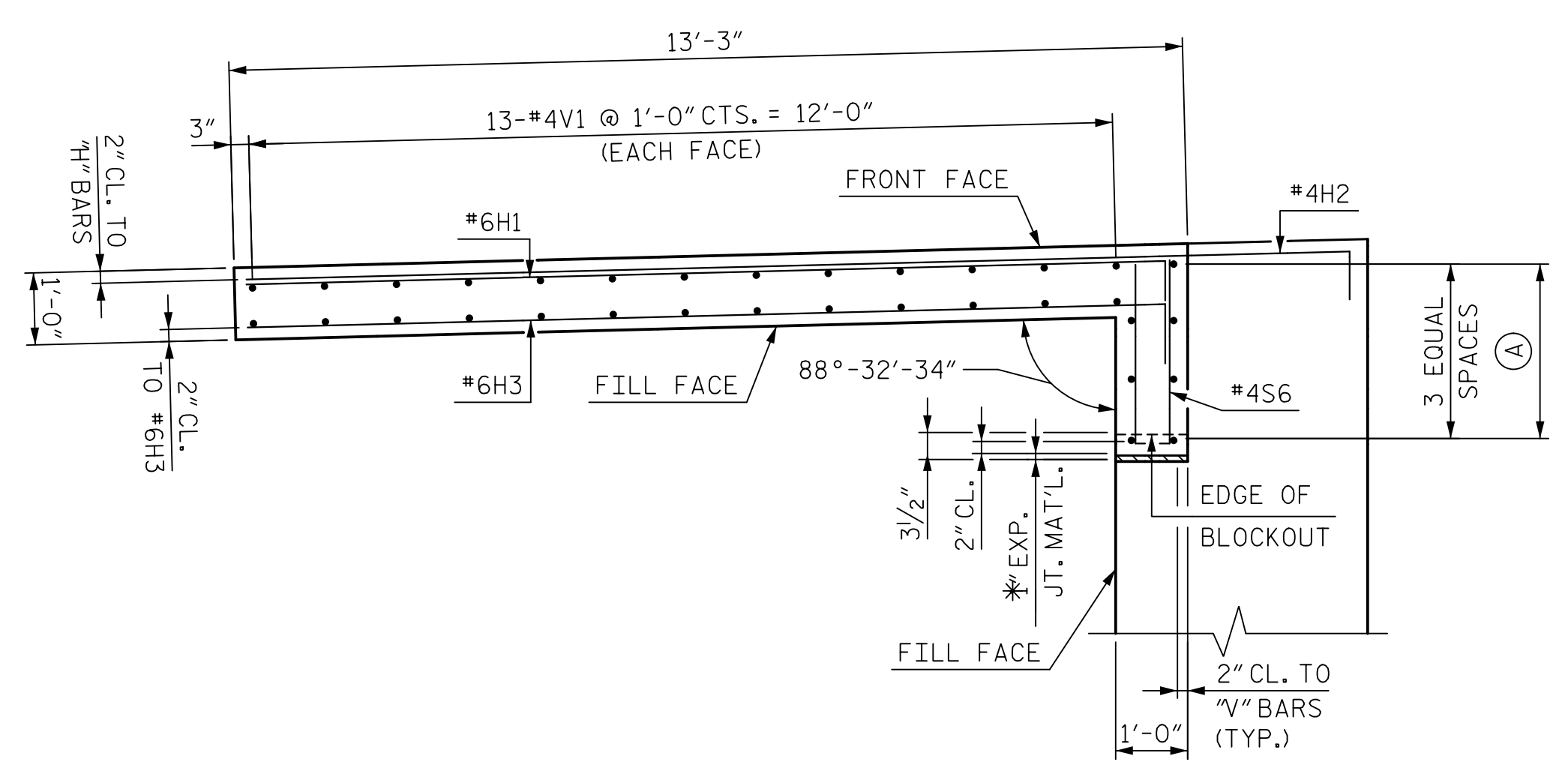
**HNTB** HNTB NORTH CAROLINA, P.C.  
 NC License No. C-1554  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: J. SLOAT DATE: 3/18/2019  
 CHECKED BY: J. BOHLANDER DATE: 3/18/2019  
 ENGINEER OF RECORD: J. BOHLANDER DATE: 3/18/2019

DWG. NO. 30

REVISIONS						SHEET NO. S1-30
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 47
2			4			

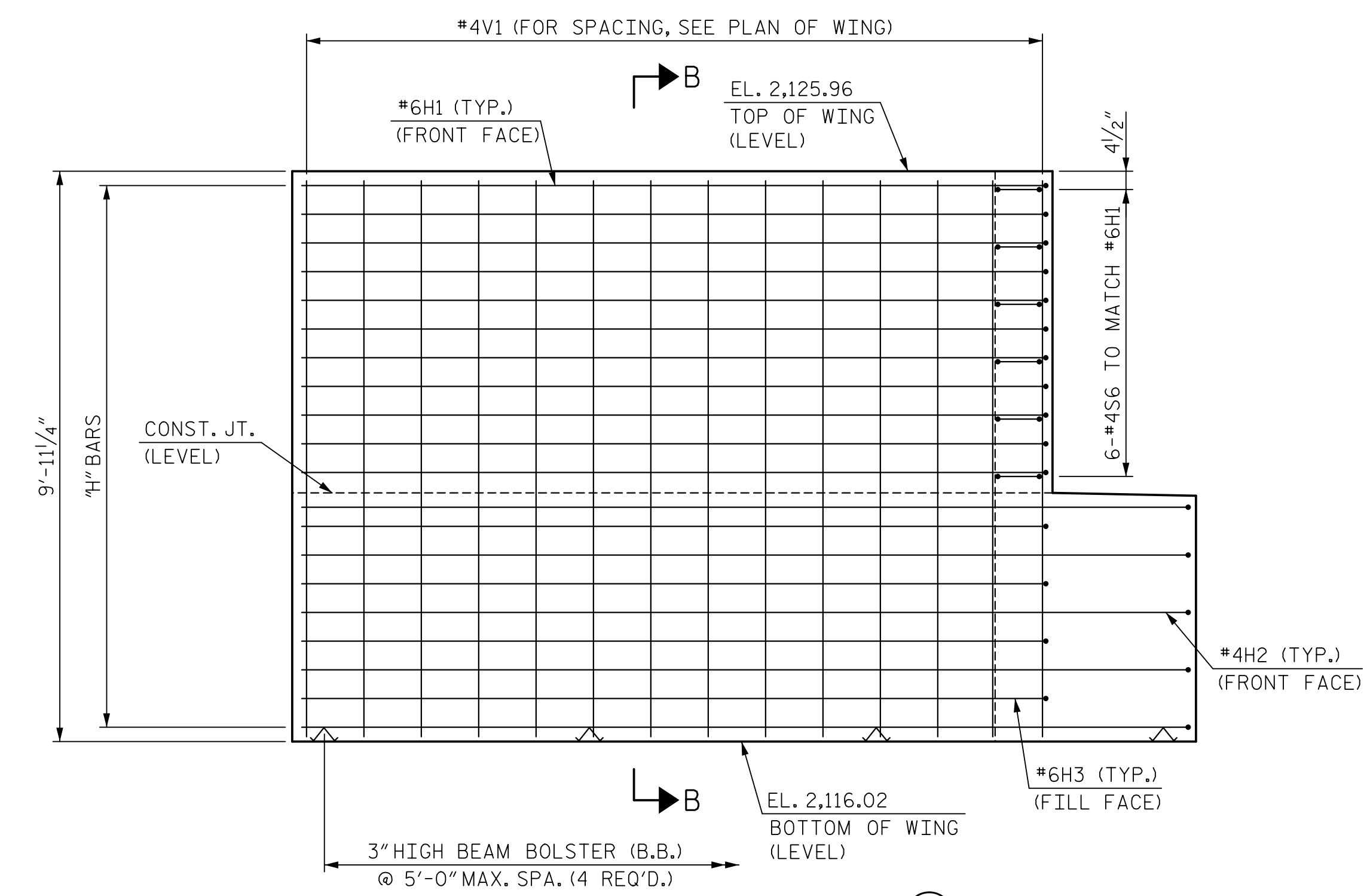
8/29/2019 2:24:42 PM  
 \\MOT\_LOSS\_1\4400BB\_SML\ED1\_030\_4402\2407



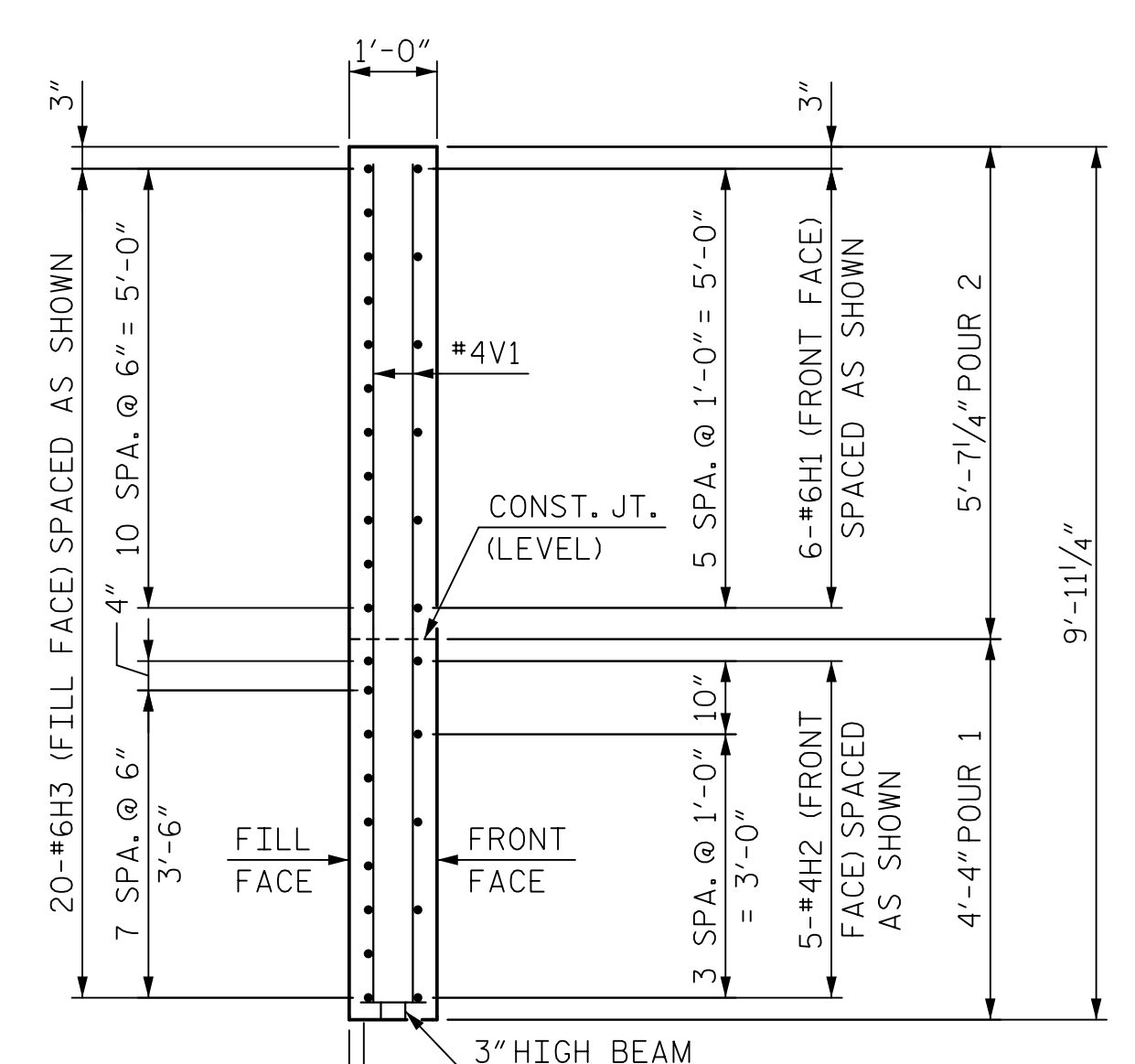
PLAN OF WING (W1)

\* 1" EXP. JT. MAT'L BETWEEN END BENT DIAPHRAGM AND WING

(A) 7-#4V1 (4 FRONT FACE)  
(3 FILL FACE)  
SPACED AS SHOWN



ELEVATION OF WING (W1)

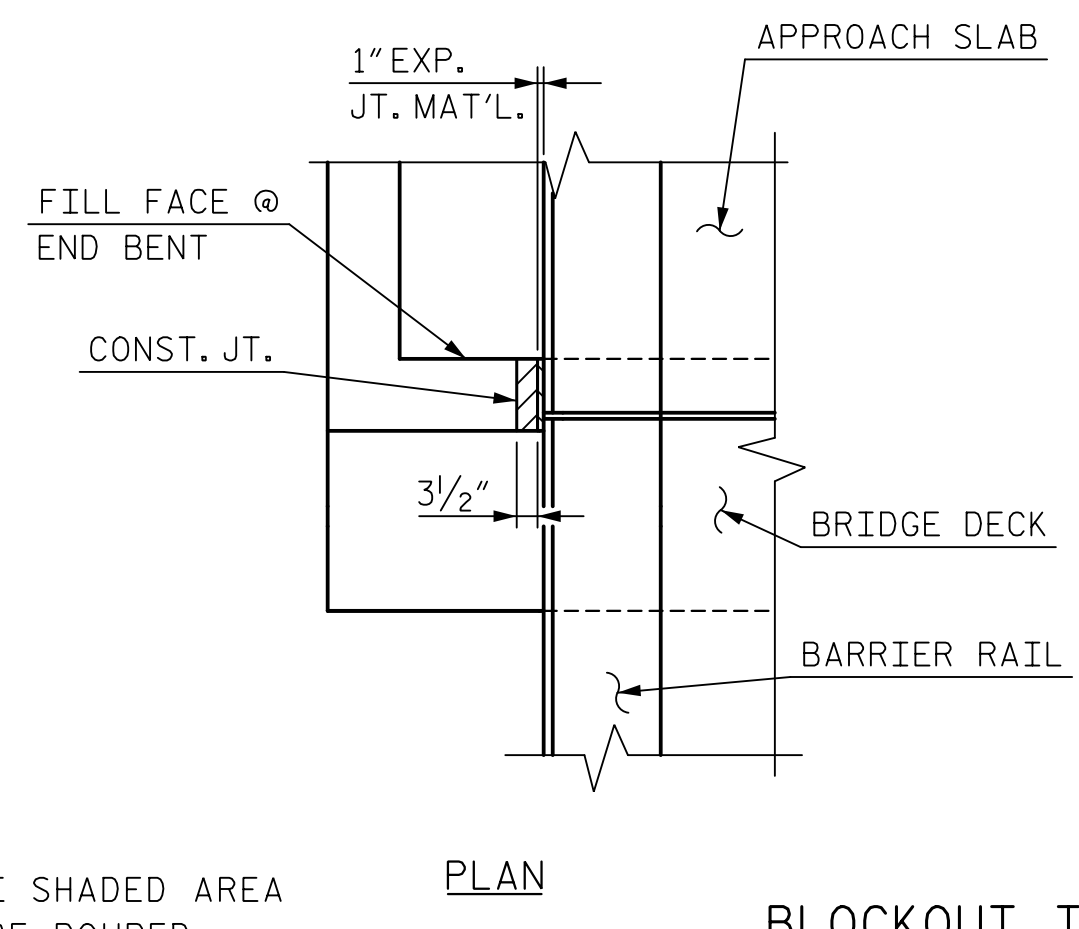


SECTION B-B

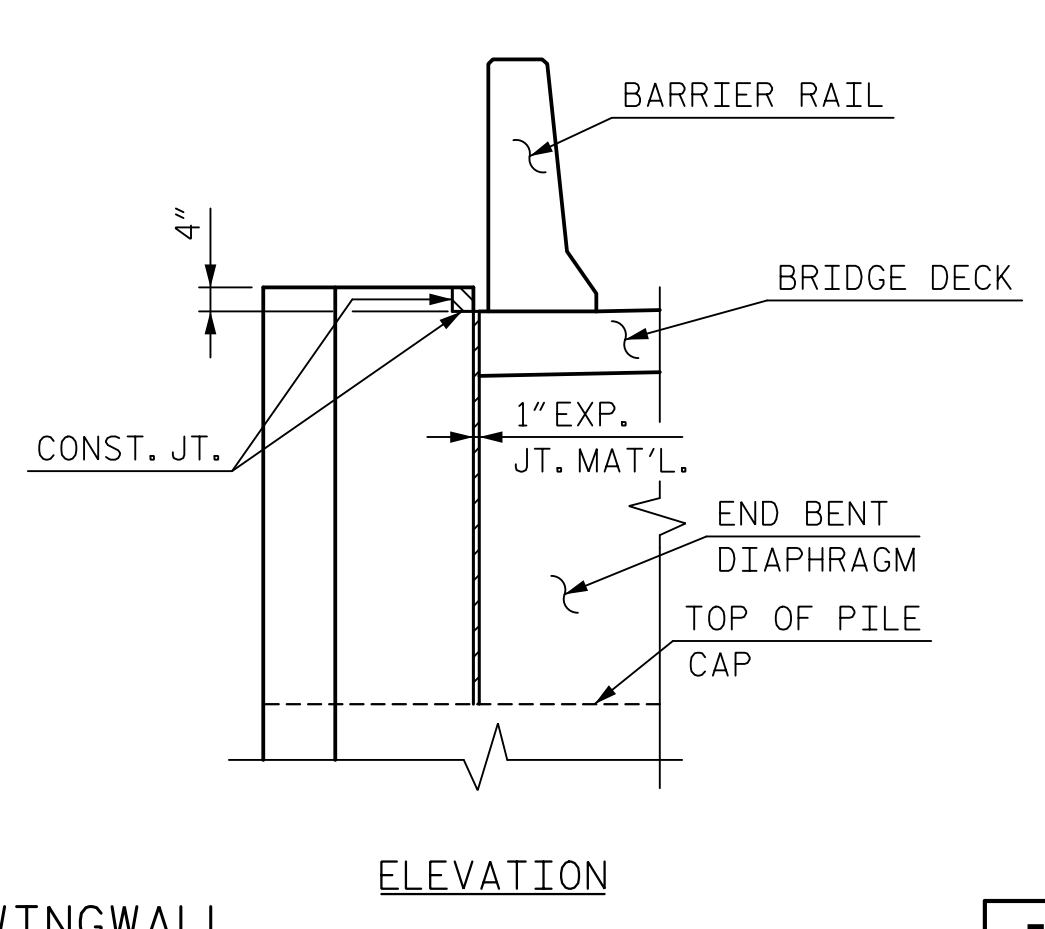
NOTES:

THE TOP SURFACE OF THE END BENT AND WINGS, EXCEPT THE BEARING AREA, SHALL BE RAKED TO A DEPTH OF 1/4".

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



PLAN

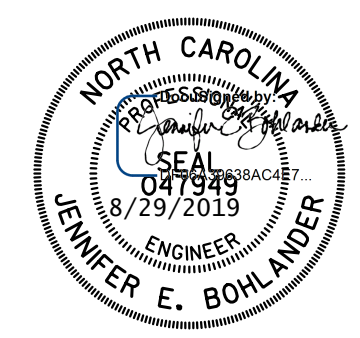


ELEVATION

BLOCKOUT IN WINGWALL

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
STATION: 421+74.67 -L-

SHEET 2 OF 3



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

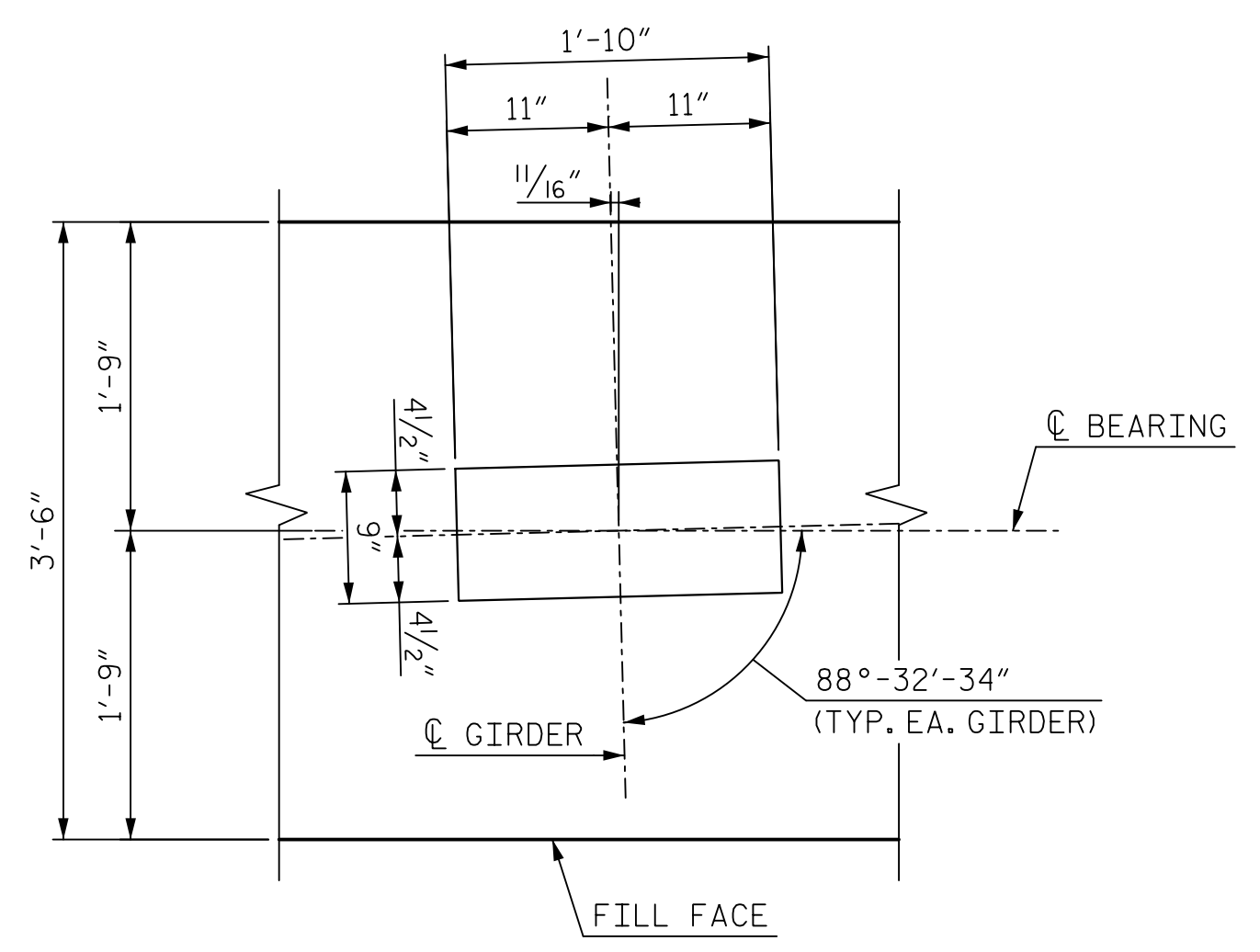
<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 3/18/2019	DWG. NO. 31	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUBSTRUCTURE  
END BENT 1  
DETAILS  
STAGE 3

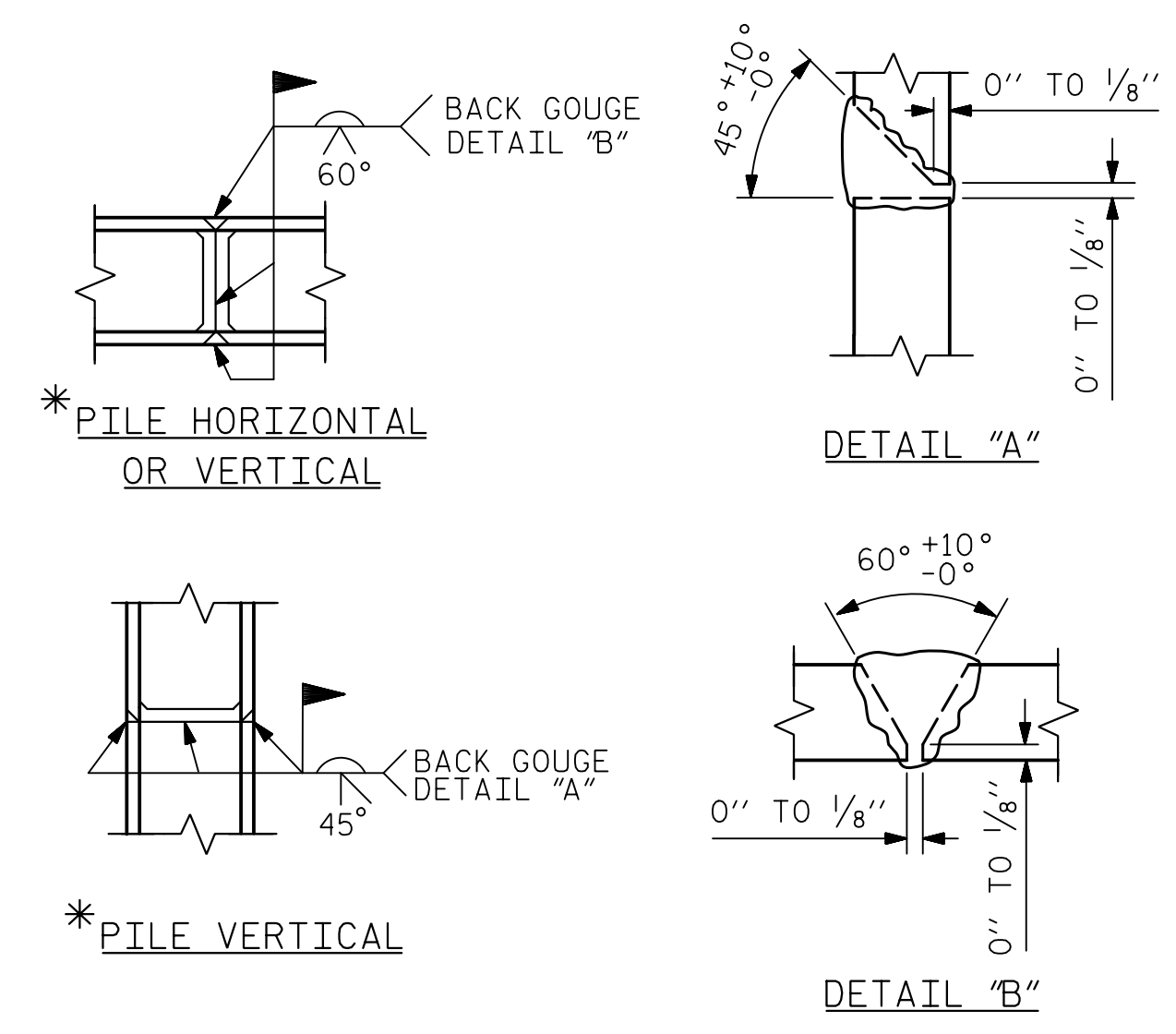
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S1-31
1			3			TOTAL SHEETS
2			4			47

8/29/2019 2:37:47 PM ...NOT LOSE L14400BB\_SML\_E02\_031\_4402 E2.dgn

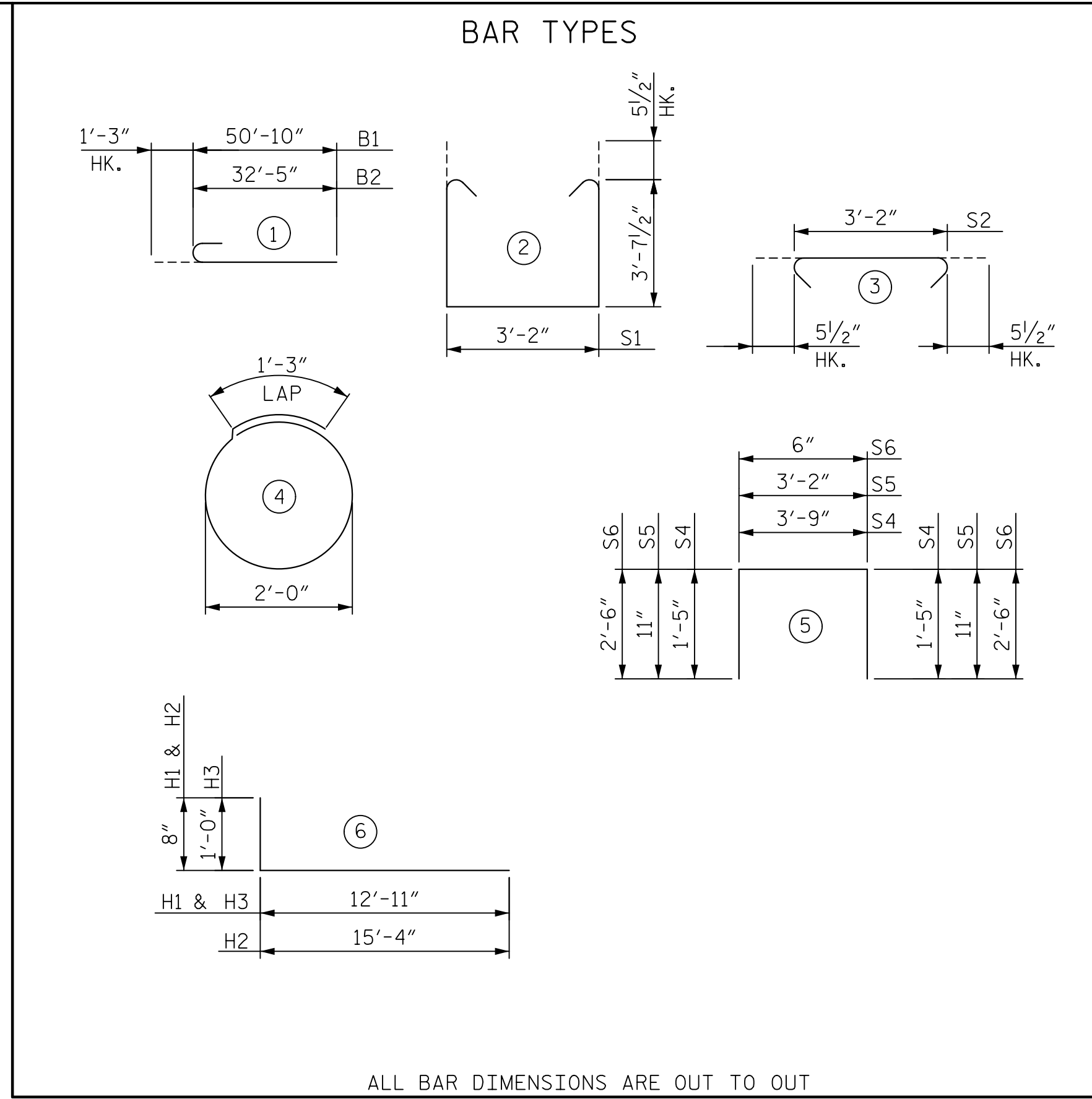




BEARING DETAIL "A"

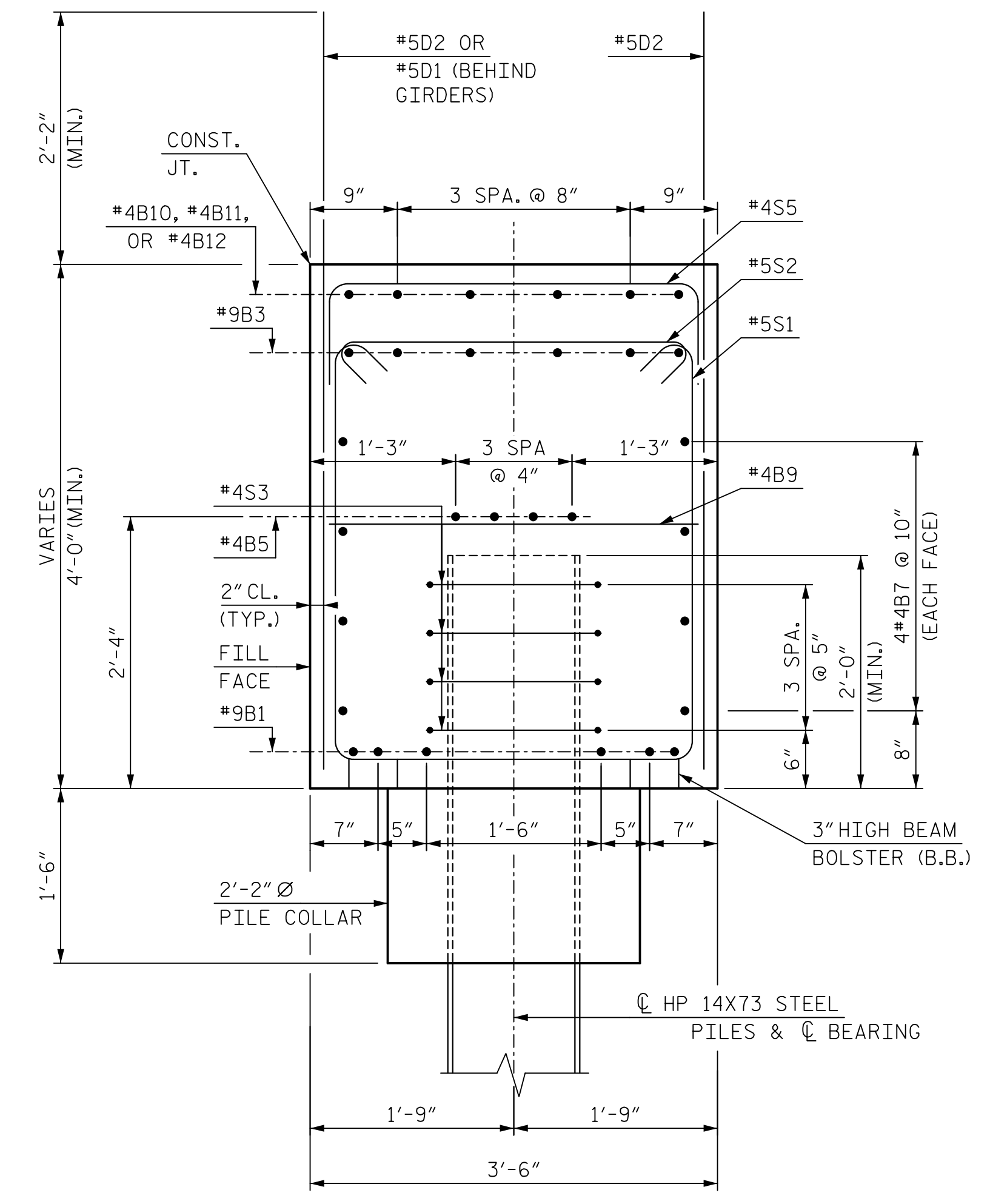


\* POSITION OF PILE DURING WELDING.  
PILE SPLICE DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT

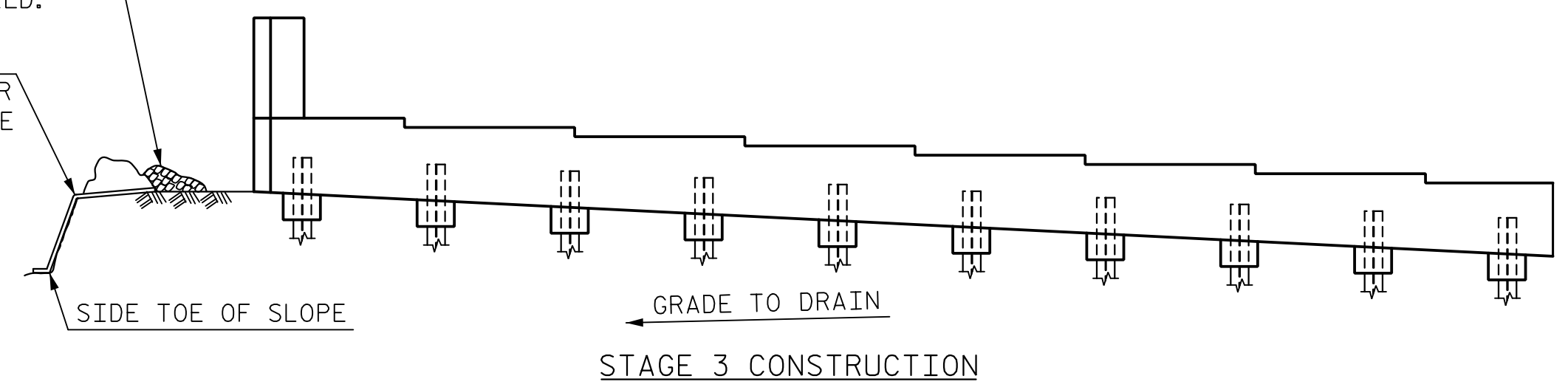
NOTES:  
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.  
THE TOP SURFACE OF THE END BENT AND WINGS, EXCEPT THE BEARING AREA, SHALL BE RAKED TO A DEPTH OF 1/4".



SECTION A-A

MINIMUM OF 3 - ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

6" (MIN.) PIPE FOR DRAINAGE



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

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

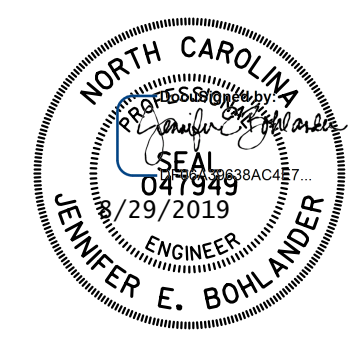
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT 1

BILL OF MATERIAL					
END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#9	1	52'-1"	1,063
B2	6	#9	1	33'-8"	688
B3	6	#9	STR.	52'-0"	1,061
B4	6	#9	STR.	33'-1"	675
B5	8	#4	STR.	28'-11"	154
B6	4	#4	STR.	24'-1"	64
B7	16	#4	STR.	28'-11"	309
B8	8	#4	STR.	24'-1"	129
B9	20	#4	STR.	3'-2"	42
B10	36	#4	STR.	11'-6"	277
B11	6	#4	STR.	8'-8"	35
B12	6	#4	STR.	8'-11"	36
D1	16	#5	STR.	6'-9"	112
D2	126	#5	STR.	6'-9"	882
H1	6	#6	6	13'-7"	122
H2	5	#4	6	16'-0"	53
H3	20	#6	6	13'-11"	418
S1	134	#5	2	11'-4"	1,584
S2	134	#5	3	4'-1"	571
S3	40	#4	4	7'-7"	203
S4	6	#5	5	6'-7"	41
S5	122	#4	5	5'-0"	407
S6	6	#6	5	5'-6"	50
V1	33	#4	STR.	9'-7"	212
QUANTITIES					
REINFORCING STEEL	LBS.	9,188			
CLASS "A" CONCRETE BREAKDOWN					
POUR 1 - CAP, BOT. OF WINGS & CONCRETE COLLARS	CU. YDS.	48.6			
POUR 2 - TOP OF WINGS	CU. YDS.	2.8			
TOTAL	CU. YDS.	51.4			
HP 14x73 STEEL PILES	NO.	10			
	LIN. FT.	600			
PILE EXCAVATION IN SOIL	LIN. FT.	40			
PILE EXCAVATION NOT IN SOIL	LIN. FT.	10			

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

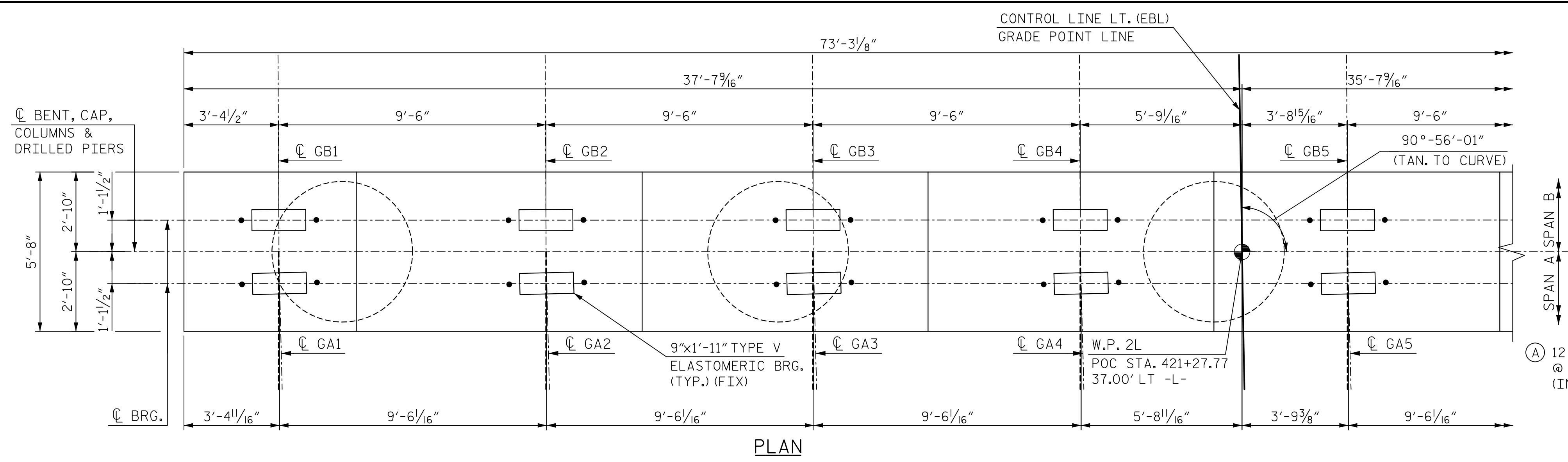
SHEET 3 OF 3  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 END BENT 1  
 DETAILS  
 STAGE 3



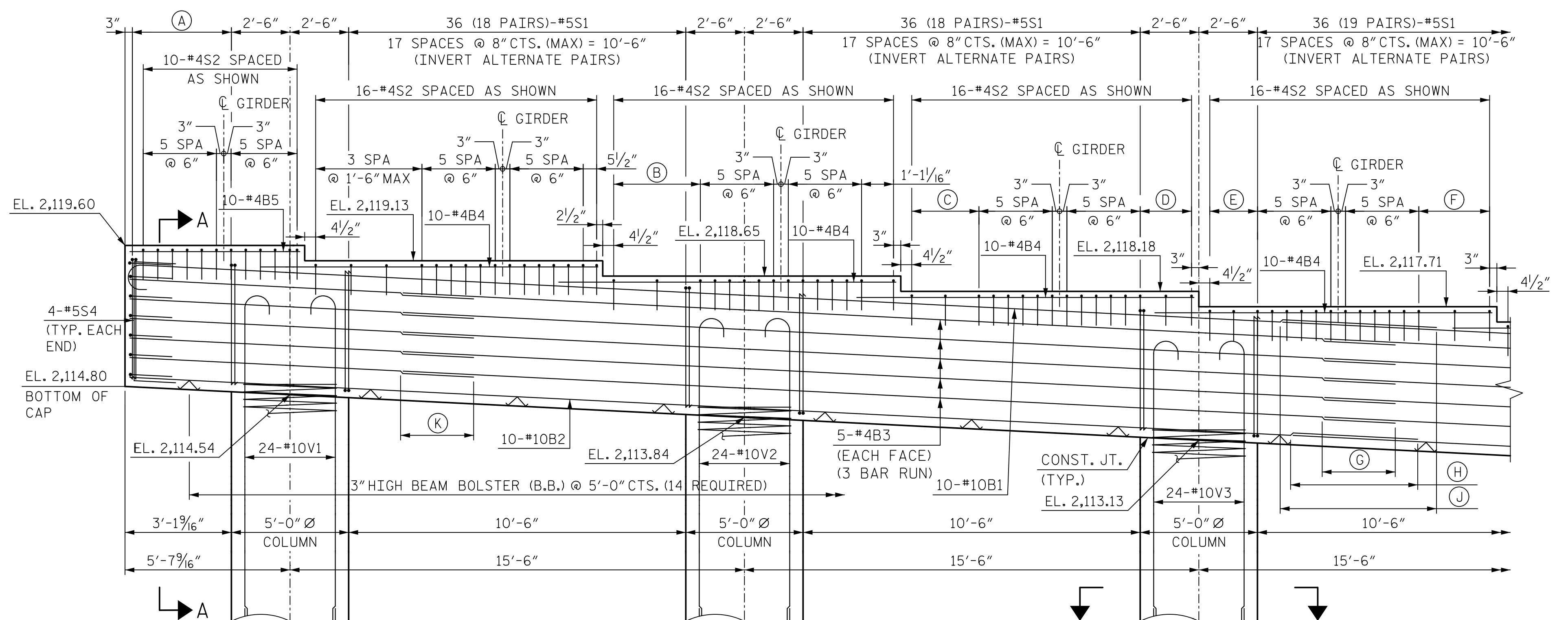
DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

<b>HNTB</b>	HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
DRAWN BY: J. SLOAT	DATE: 3/18/2019
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019
DWG. NO. 32	

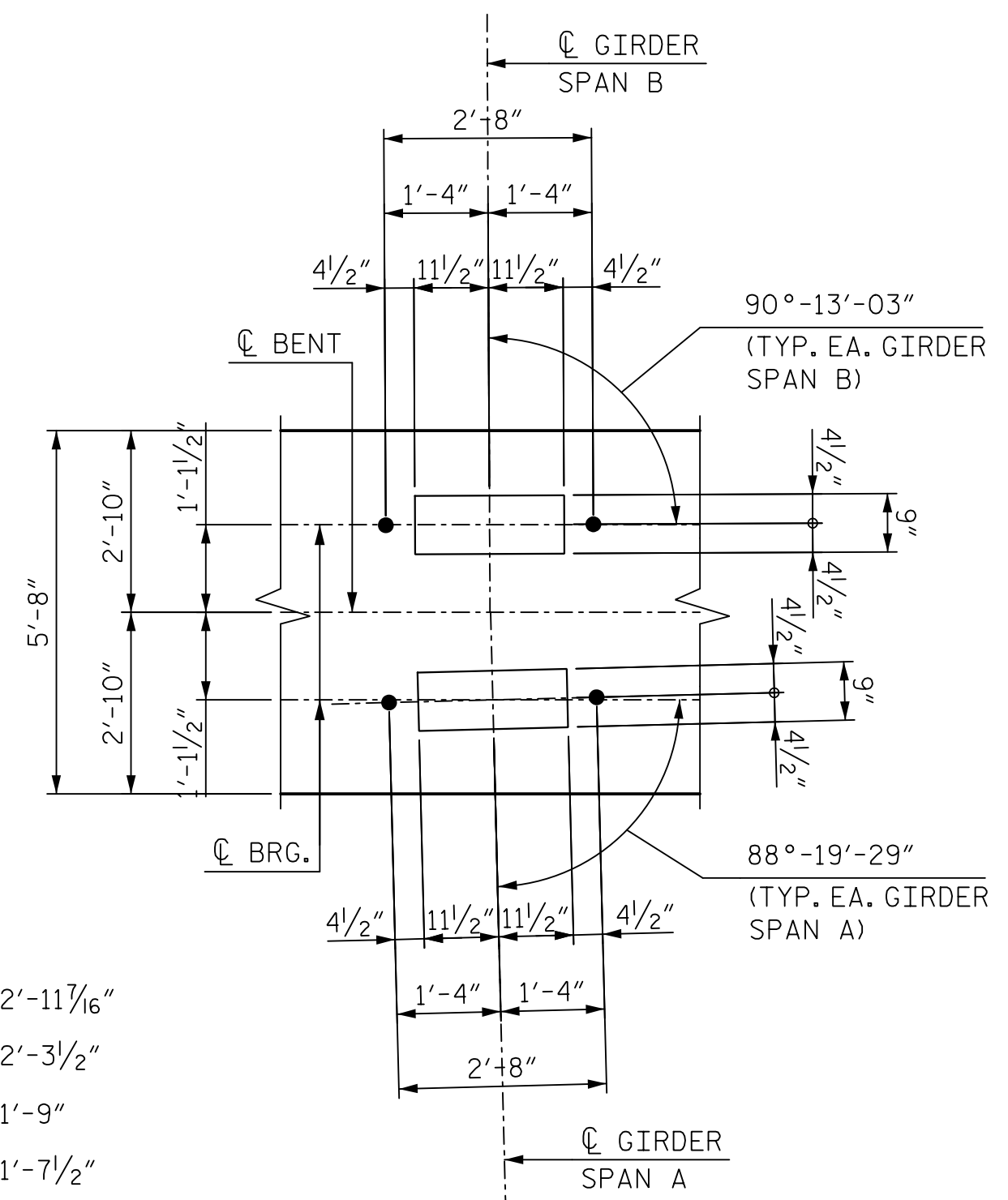
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S1-32
1			3			TOTAL SHEETS 47
2			4			



PLAN



ELEVATION



DETAIL A

- (B) 2 EQ. SPA = 2'-11 1/16"
- (C) 2 EQ. SPA = 2'-3 1/2"
- (D) 2 EQ. SPA = 1'-9"
- (E) 2 EQ. SPA = 1'-7 1/2"
- (F) 2 EQ. SPA = 2'-5"
- (G) 2'-3" MIN SPLICE TYP #4B3
- (H) 3'-2" MIN SPLICE TYP #10B2
- (J) 7'-6" MIN SPLICE TYP #10B1
- (K) 2'-3" MIN SPLICE TYP #4B3

NOTES:

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

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

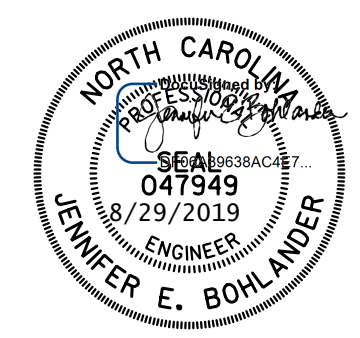
ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".

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

THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIER IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND LINE ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1'-0" BELOW THE GROUND LINE.

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 1 OF 3



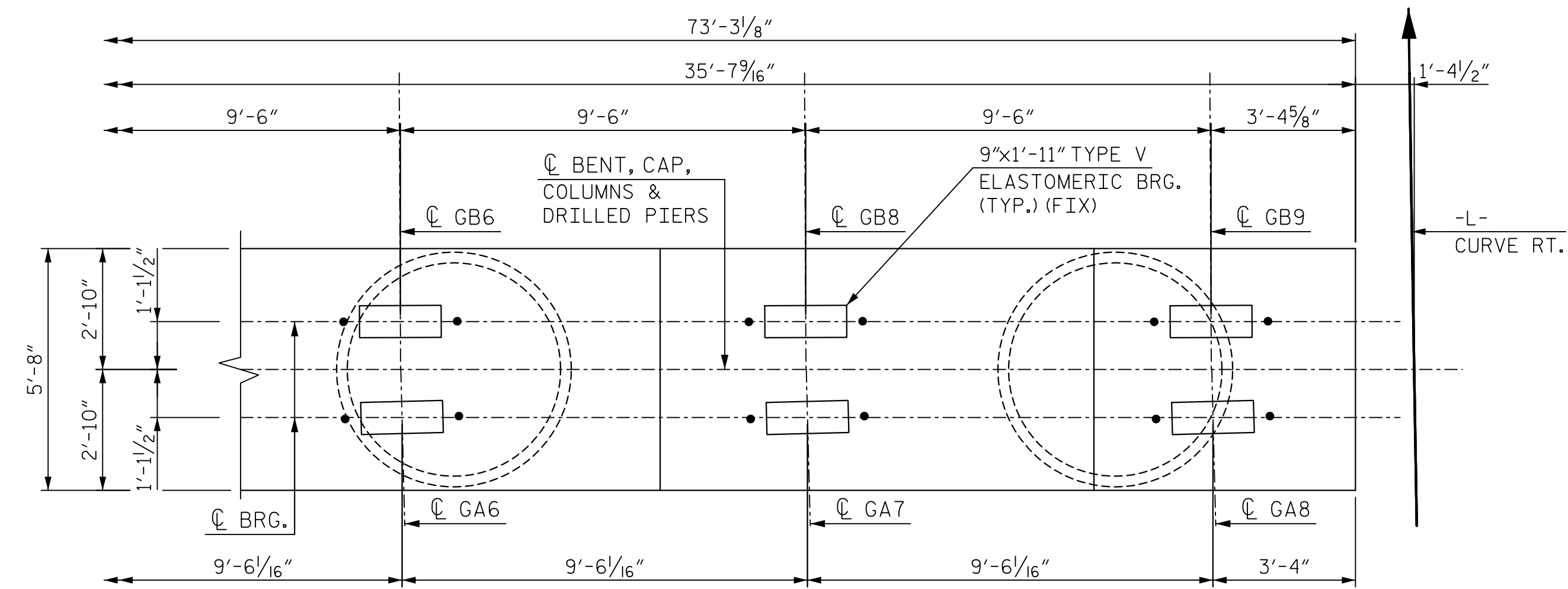
**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 3/18/2019	DWG. NO. 33	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

STATE OF NORTH CAROLINA		DEPARTMENT OF TRANSPORTATION		SHEET NO.	
RALEIGH		SUBSTRUCTURE		S1-33	
BENT 1		STAGE 3		TOTAL SHEETS	
				47	
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

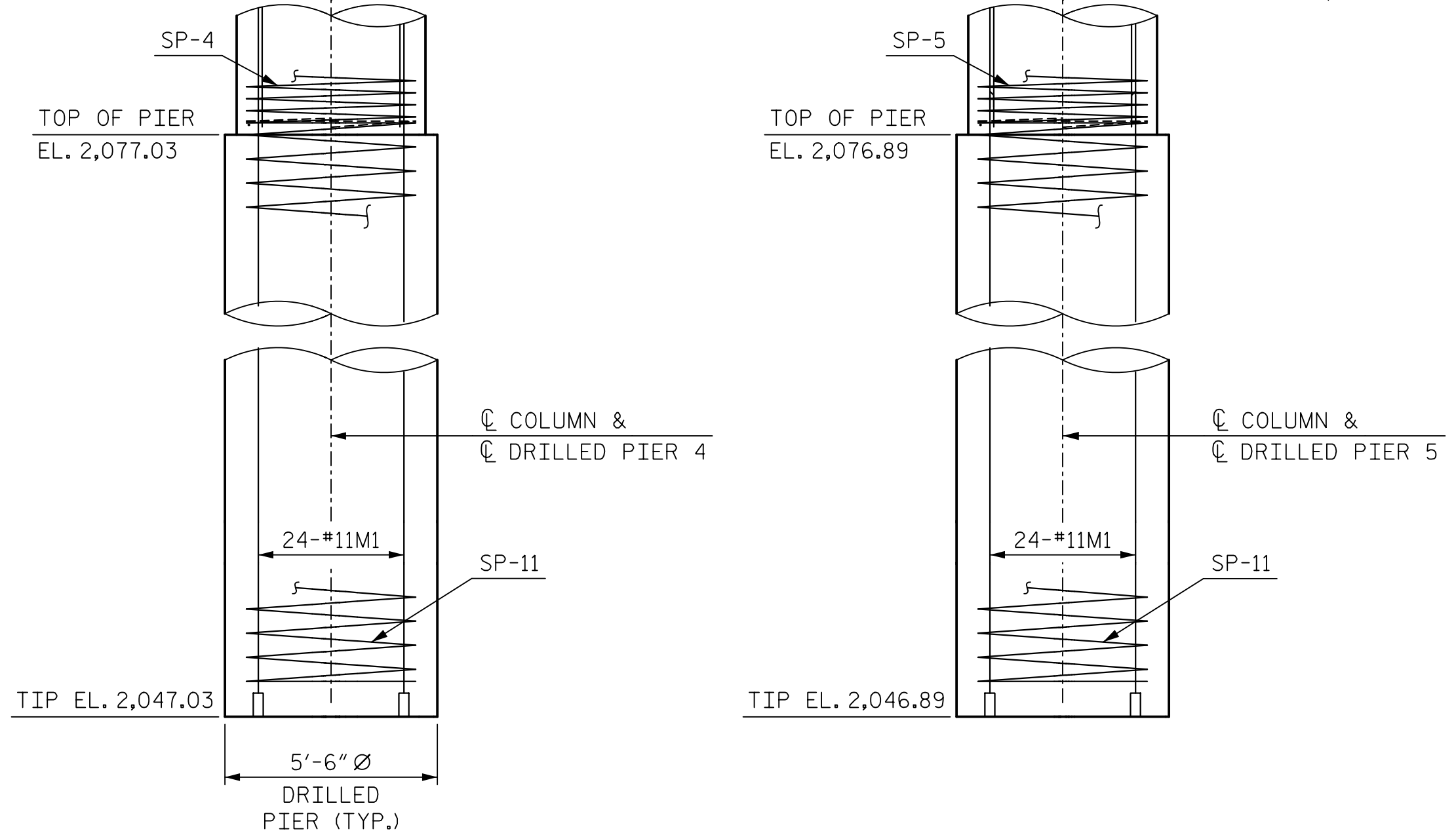
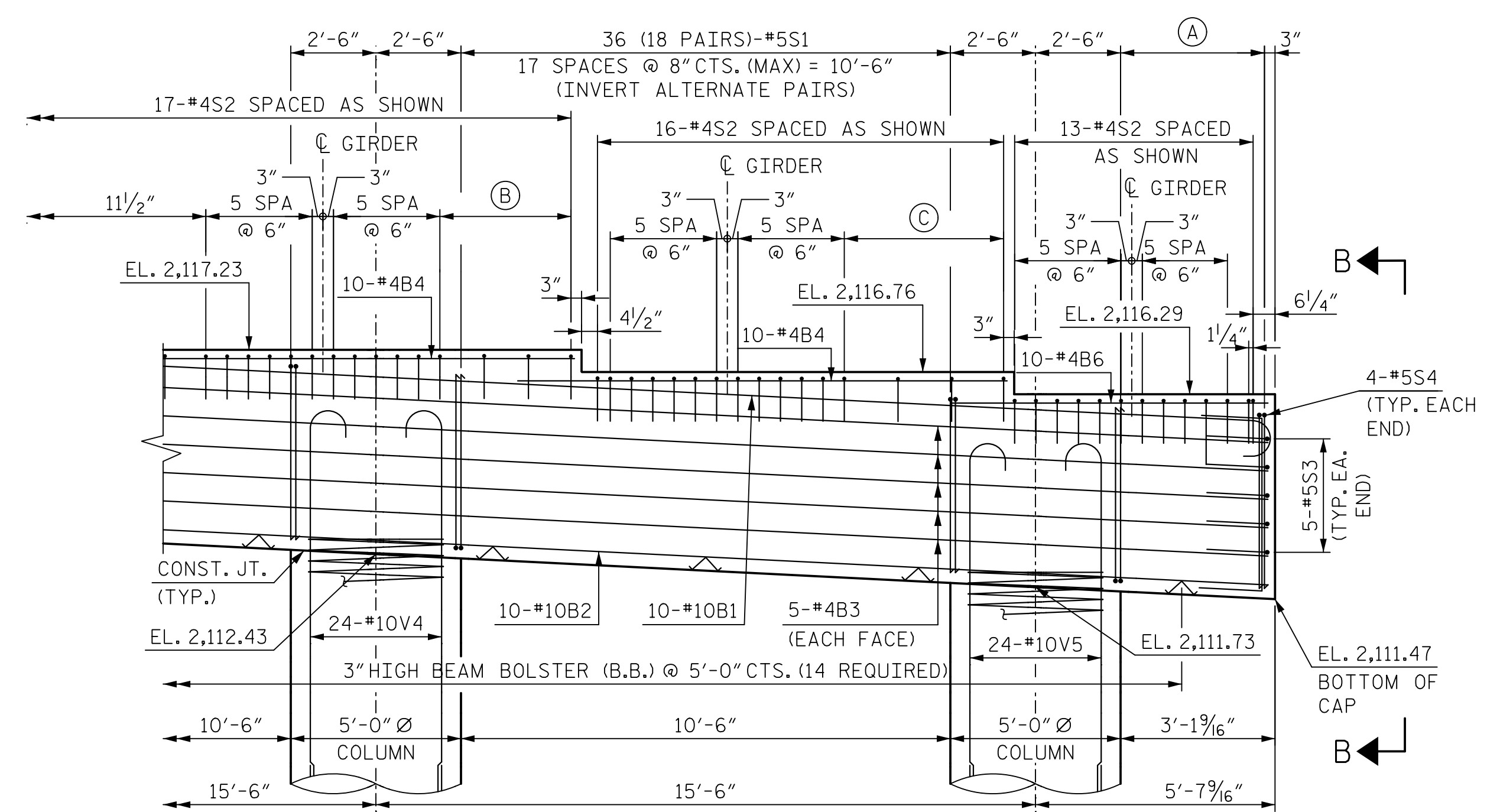
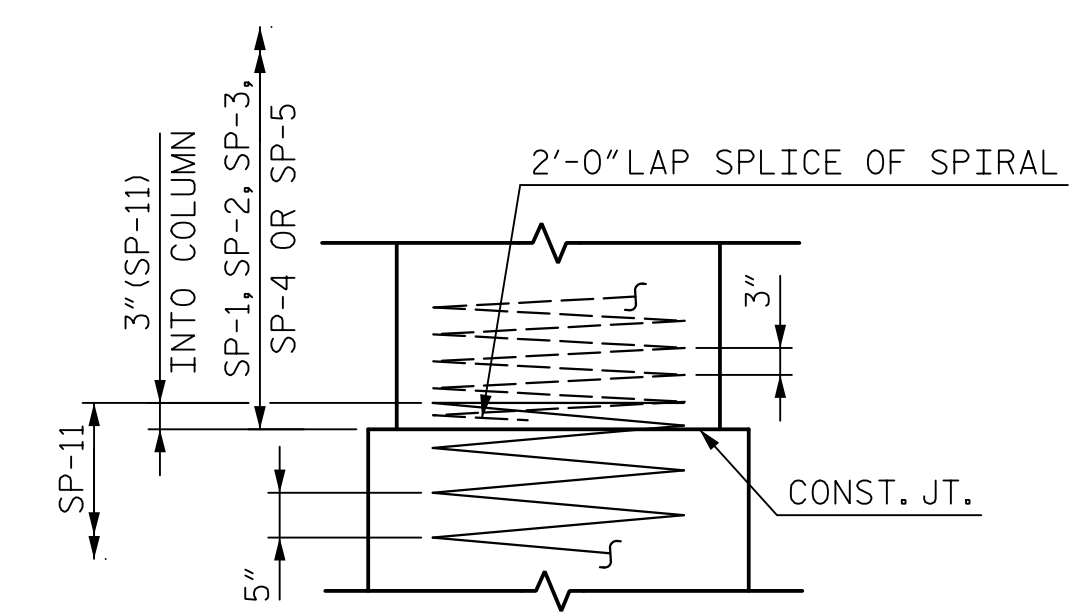
8/29/2019 2:24:49 PM  
 ...\\01\_065\_1440009\_SML\_B01\_033\_440212.dgn



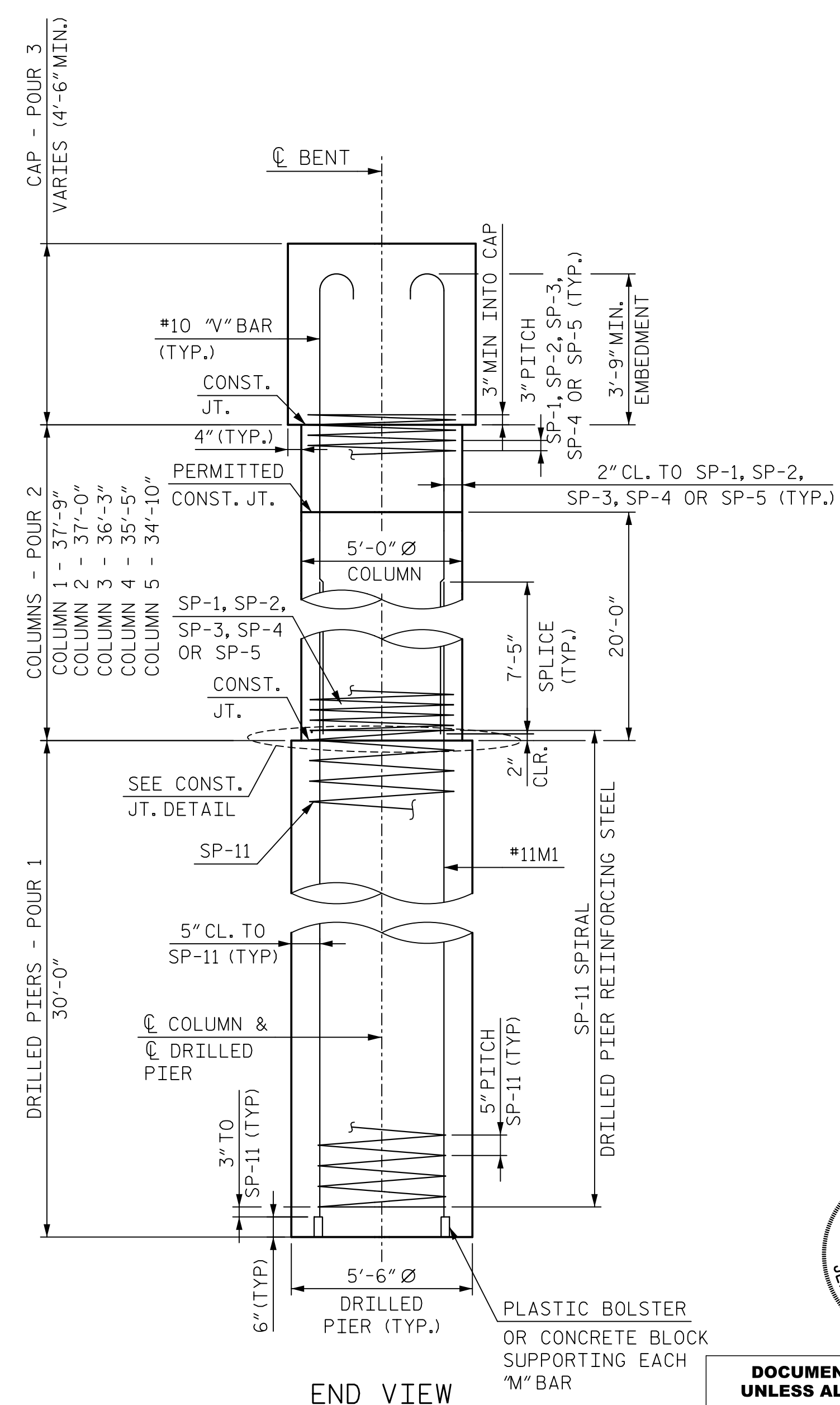


- (A) 12 (6 PAIRS)-#5S1 5 SPACES @ 8" CTS. (MAX.) = 2'-10 3/16" (INVERT ALTERNATE PAIRS)
- (B) 3 EQ. SPA = 3'-1"
- (C) 3 EQ. SPA = 3'-9"

**NOTES:**  
 STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.  
 HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.  
 ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".



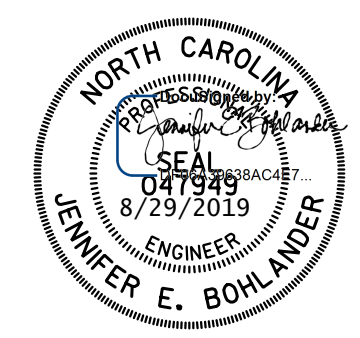
ELEVATION



END VIEW

PROJECT NO. I-4400 BB  
 HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 2 OF 3  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 1  
 STAGE 3

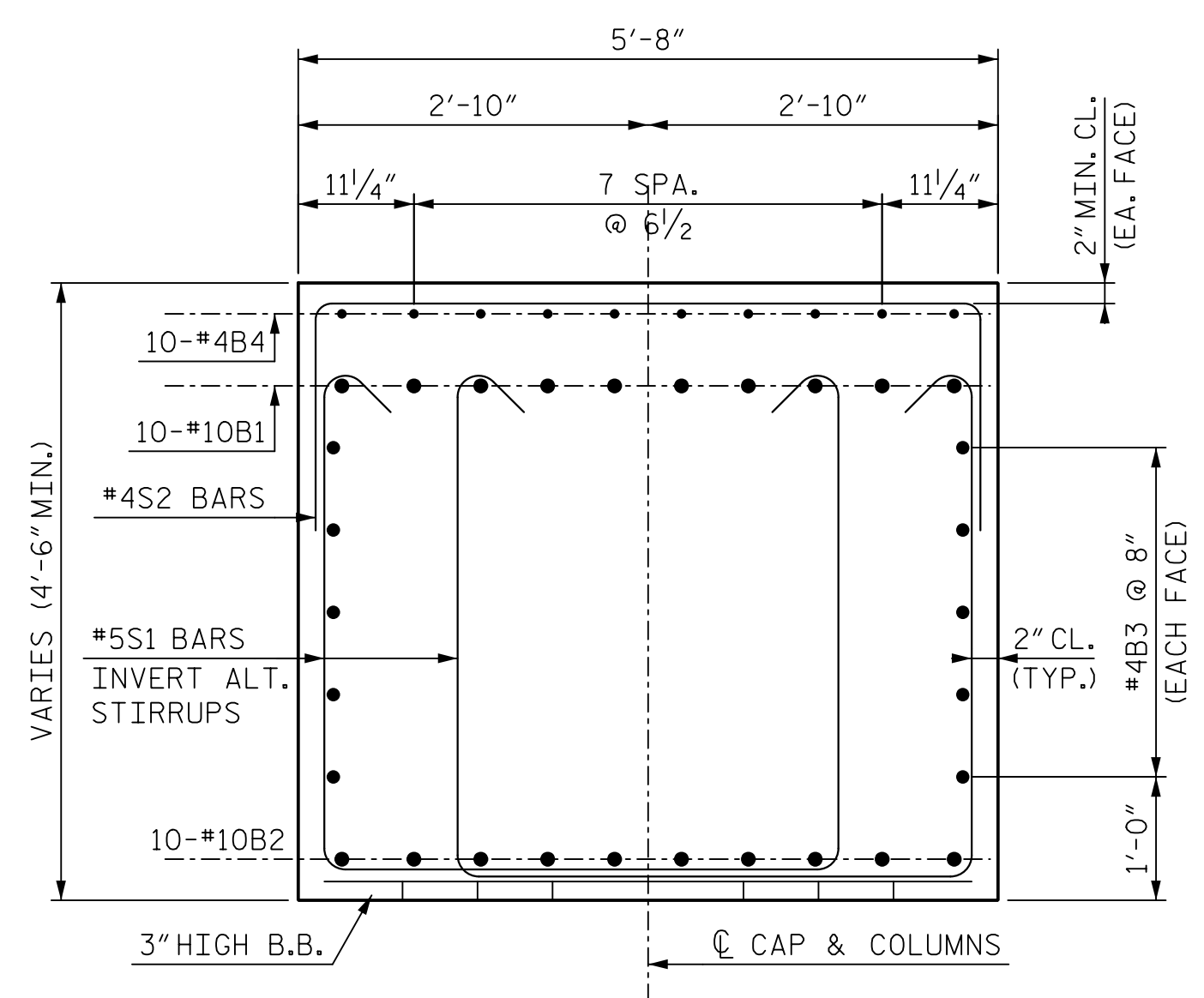


DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

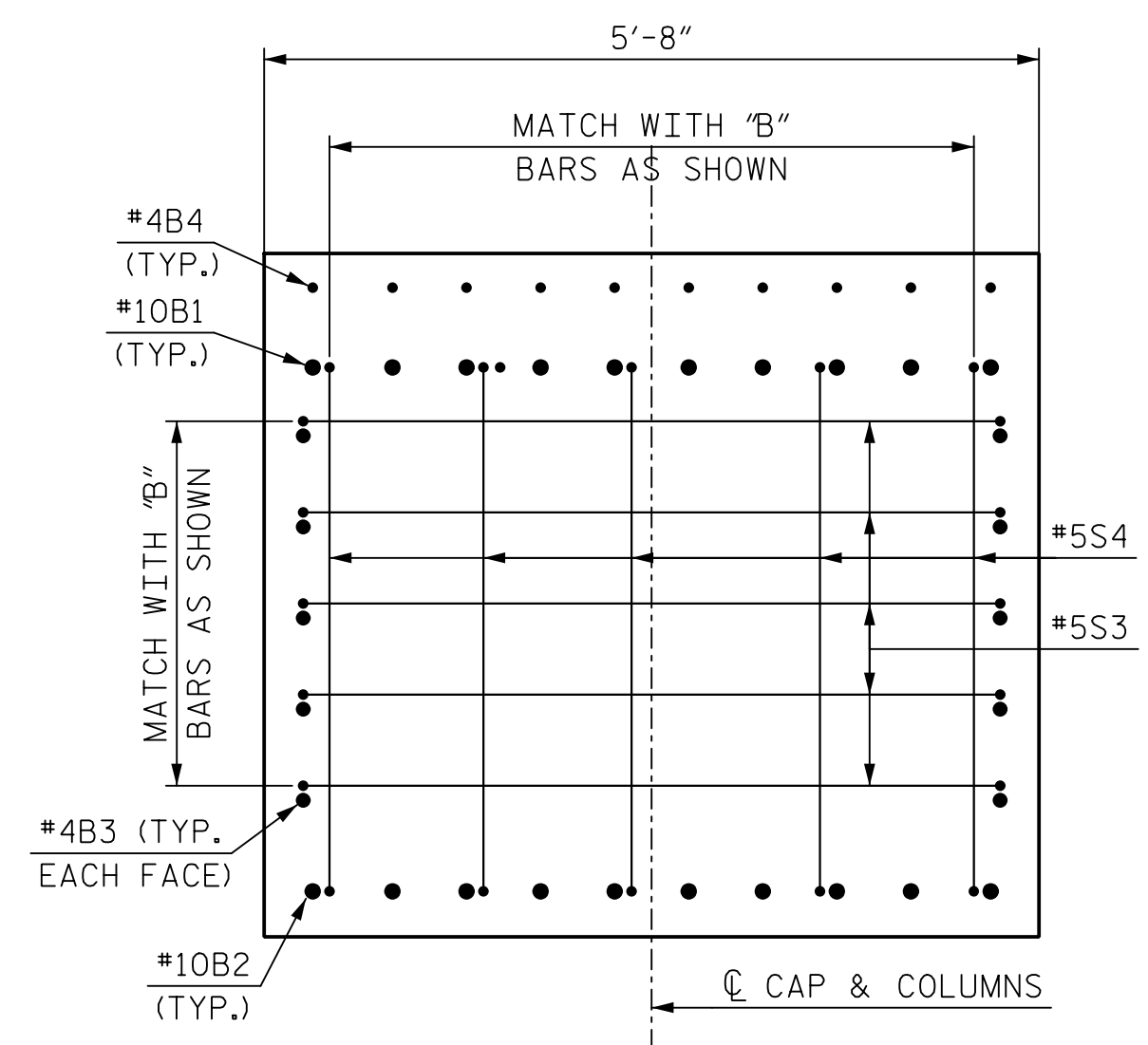
<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 3/18/2019	DWG. NO. 34	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S1-34
1			3			TOTAL SHEETS 47
2			4			

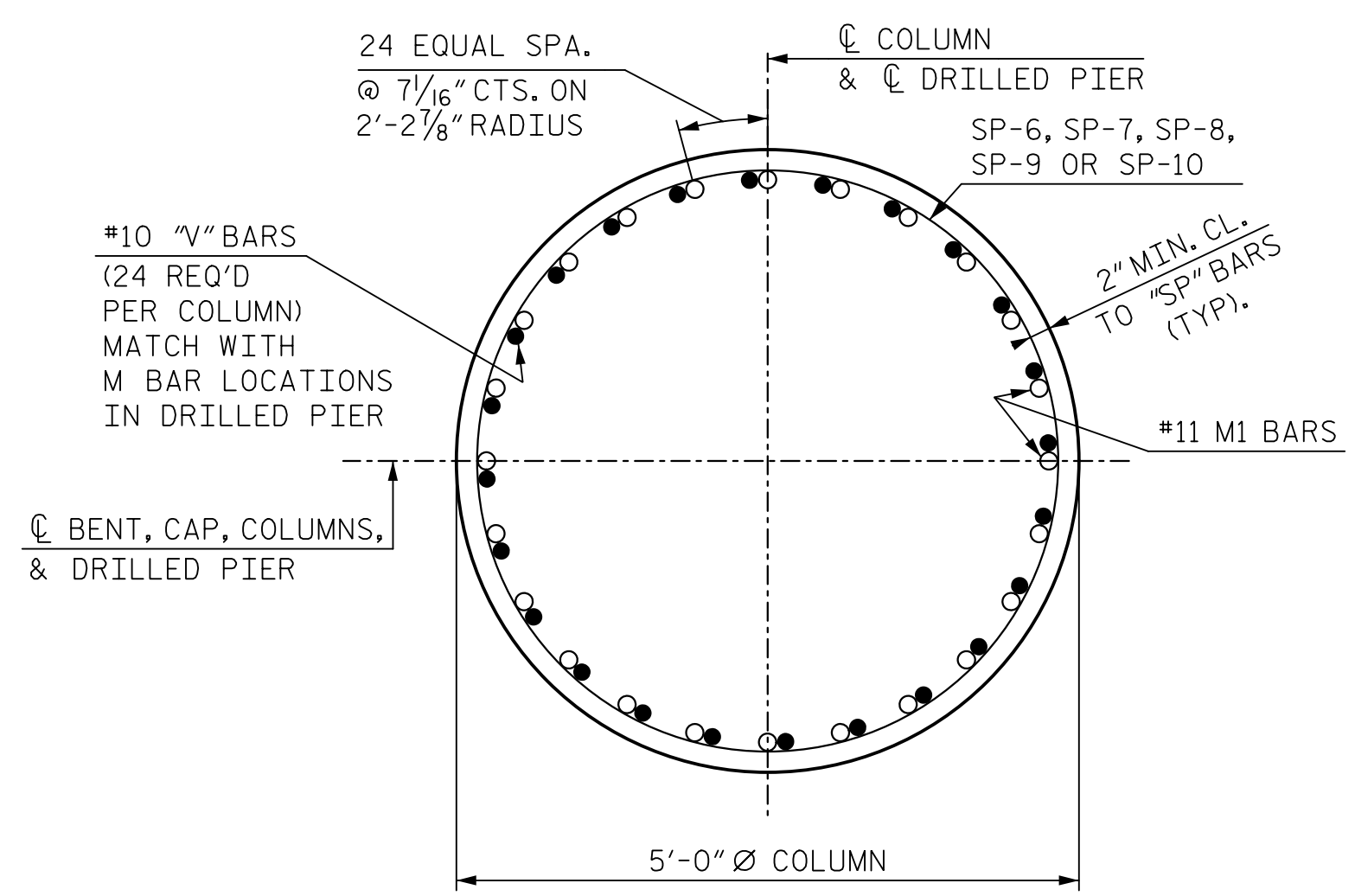
8/29/2019 2:24:51 PM \\MO1067\_1\4400BB\_SML\_R02\_034\_440212.dgn



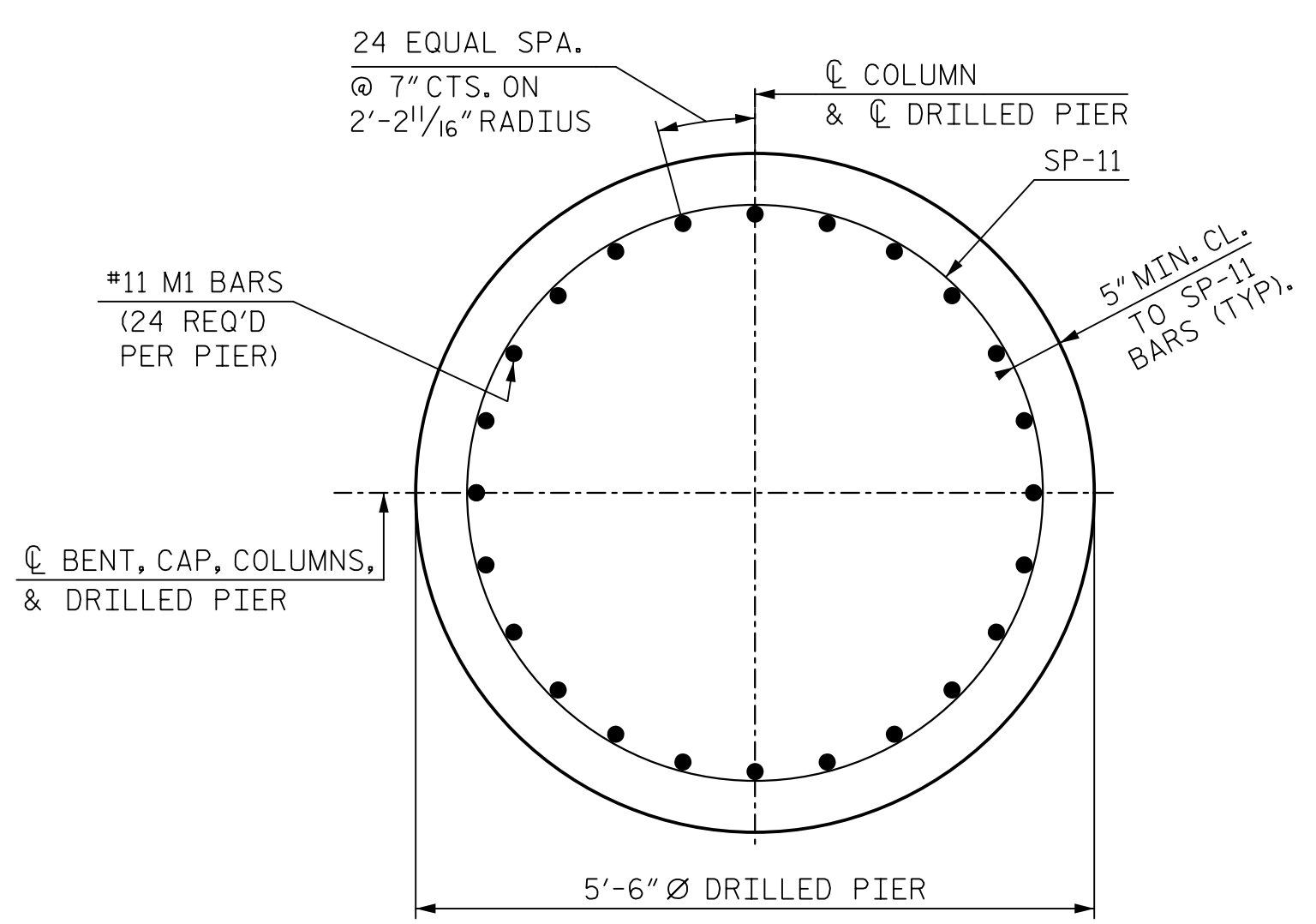
SECTION A-A



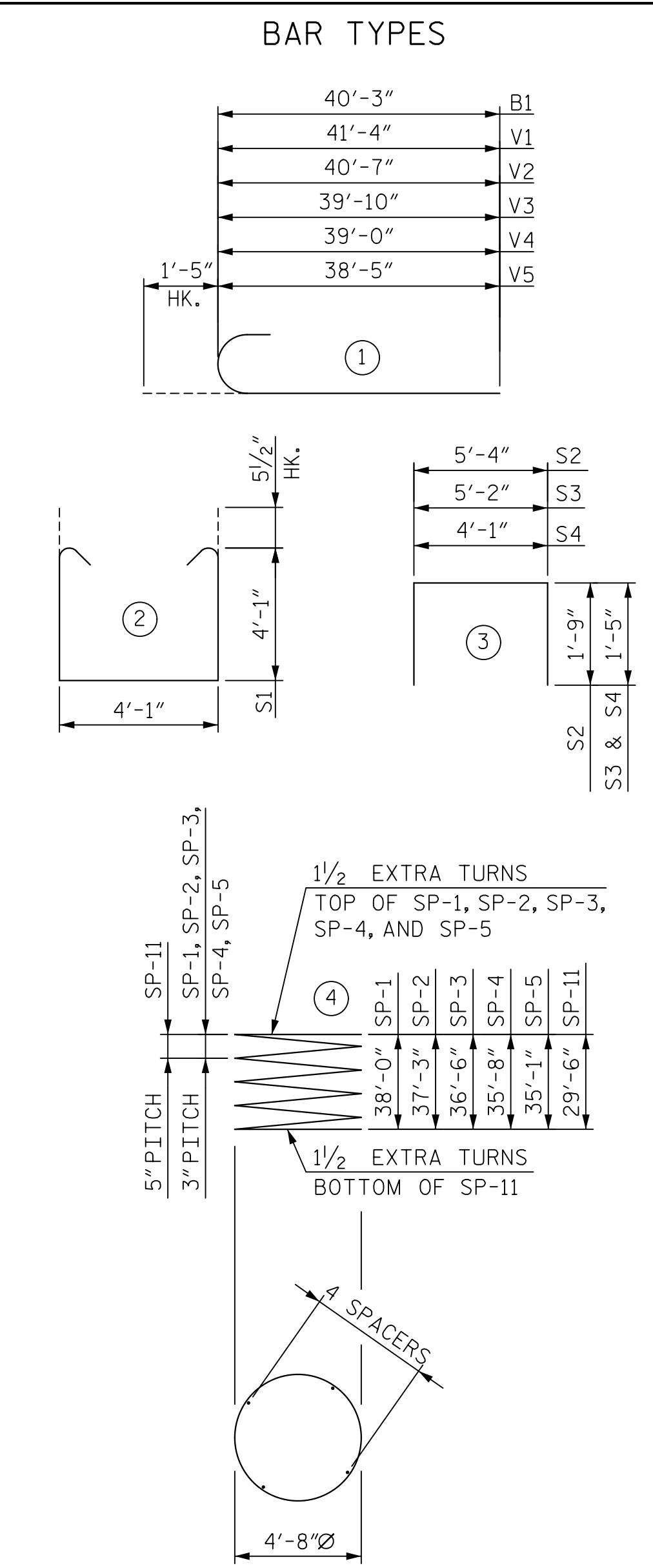
VIEW B-B



SECTION C-C  
(TYP. EA. COL.)



SECTION D-D  
(TYPICAL)



ALL BAR DIMENSIONS ARE OUT TO OUT

\* THE SP-11 SPIRAL REINFORCING STEEL SHALL BE W31 OR D31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

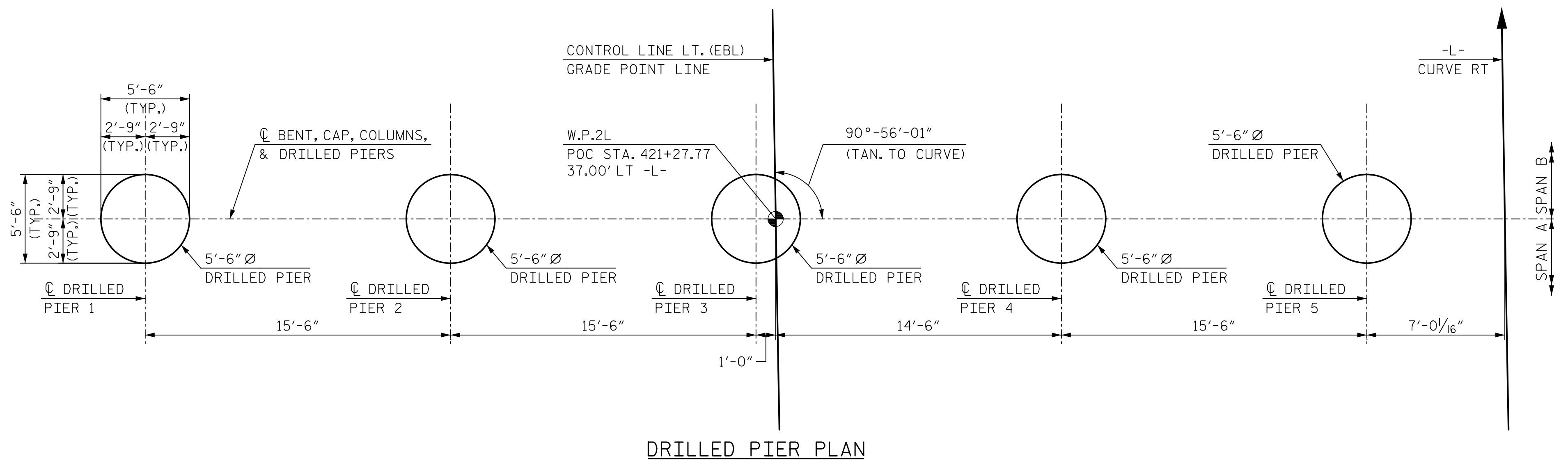
\* THE SP-1, SP-2, SP-3, SP-4, AND SP-5 SPIRAL REINFORCING STEEL SHALL BE W20 OR D20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

BILL OF REINFORCING

BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	20	#10	1	41'-8"	3,586
B2	20	#10	STR.	38'-1"	3,277
B3	30	#4	STR.	25'-10"	518
B4	60	#4	STR.	11'-6"	461
B5	10	#4	STR.	5'-10"	39
B6	10	#4	STR.	7'-6"	50
M1	120	#11	STR.	40'-2"	25,609
S1	168	#5	2	13'-2"	2,307
S2	120	#4	3	8'-10"	708
S3	10	#5	3	8'-0"	83
S4	8	#5	3	6'-11"	58
V1	24	#10	1	42'-9"	4,412
V2	24	#10	1	42'-0"	4,336
V3	24	#10	1	41'-3"	4,262
V4	24	#10	1	40'-5"	4,173
V5	24	#10	1	39'-10"	4,114
SP-1	1	**	4	2229'-1"	1,489
SP-2	1	**	4	2186'-6"	1,461
SP-3	1	**	4	2144'-7"	1,433
SP-4	1	**	4	2094'-3"	1,399
SP-5	1	**	4	2061'-6"	1,377
SP-11	5	*	4	1050'-7"	5,479

QUANTITIES

REINFORCING STEEL	LBS.	57,993
SPIRAL COLUMN REINFORCING STEEL	LBS.	12,638
CLASS "A" CONCRETE BREAKDOWN		
COLUMN POUR 2	CU. YDS.	131.8
CAP POUR 3	CU. YDS.	73.5
TOTAL	CU. YDS.	205.3
DRILLED PIER POUR 1	CU. YDS.	132.0
5'-6" * DRILLED PIERS		
DRILLED PIERS, NOT IN SOIL	LIN. FT.	65
DRILLED PIERS, IN SOIL	LIN. FT.	85
PERMANENT STEEL CASING FOR 5'-6" * DRILLED PIERS	LIN. FT.	89
CSL TUBES	LIN. FT.	945



DRILLED PIER PLAN

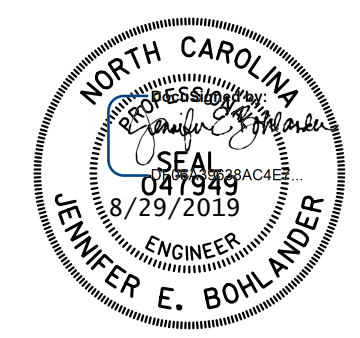
PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE

BENT 1  
 DETAILS  
 STAGE 3



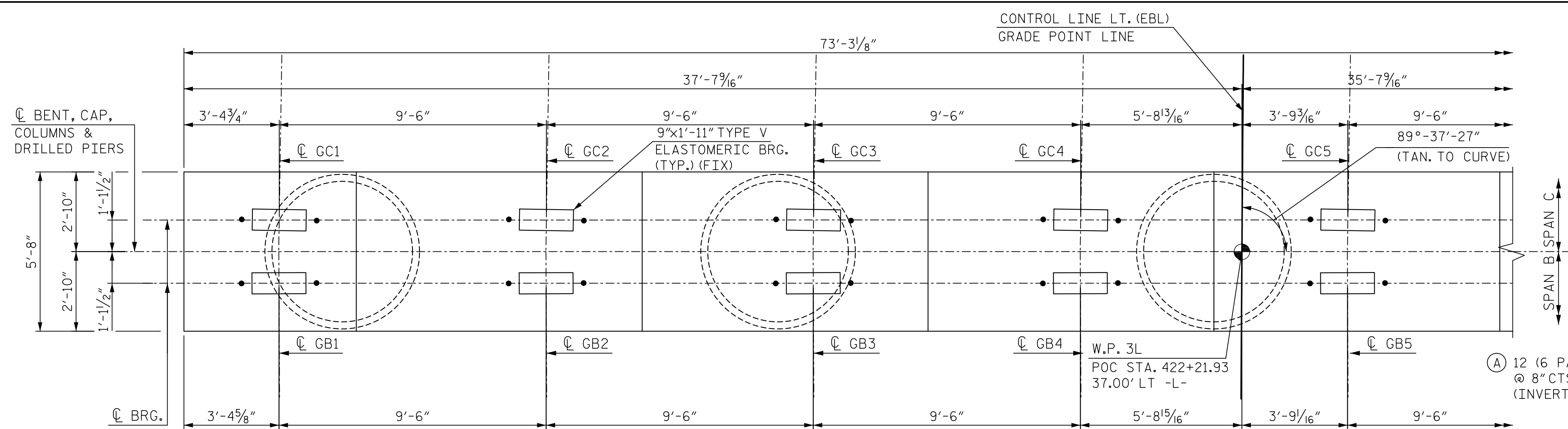
DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 3/18/2019	DWG. NO. 35	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

REVISIONS						SHEET NO. S1-35
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 47
2			4			

8/29/2019 4:13:35 PM ...\\01\_089\_14400BB\_SML\_B03\_035\_440212.dgn

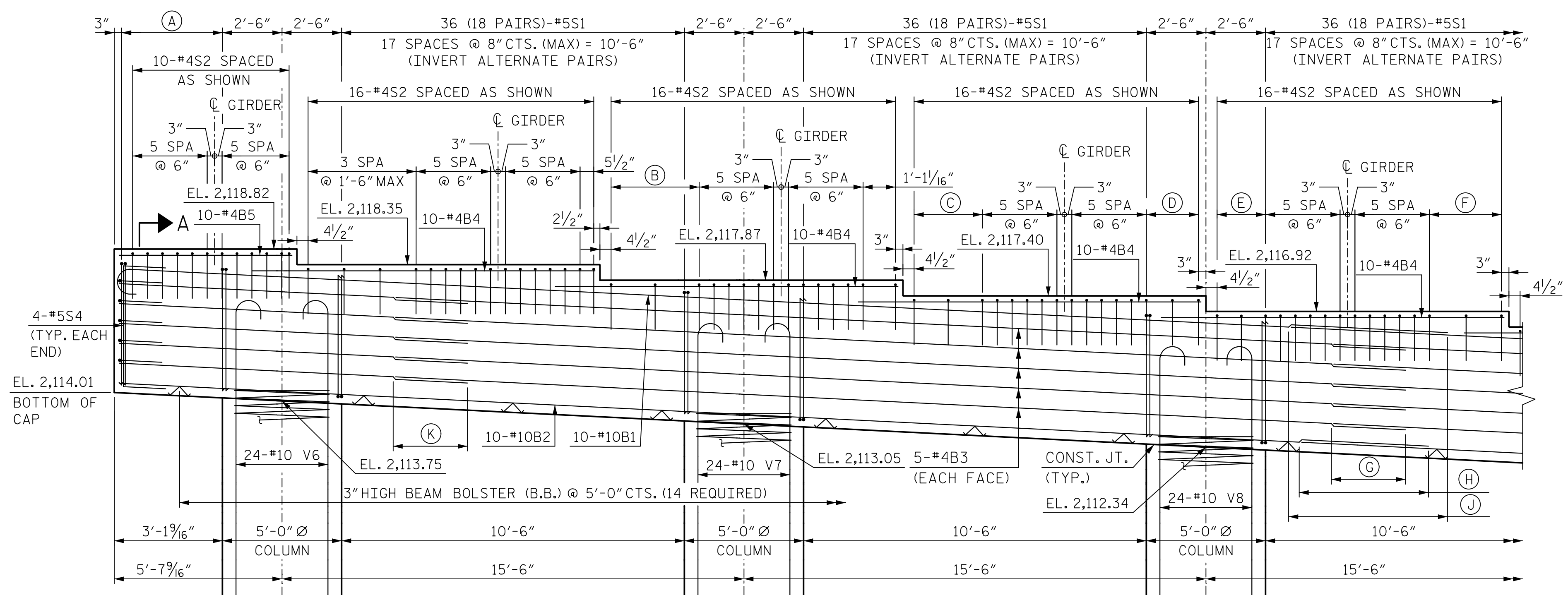




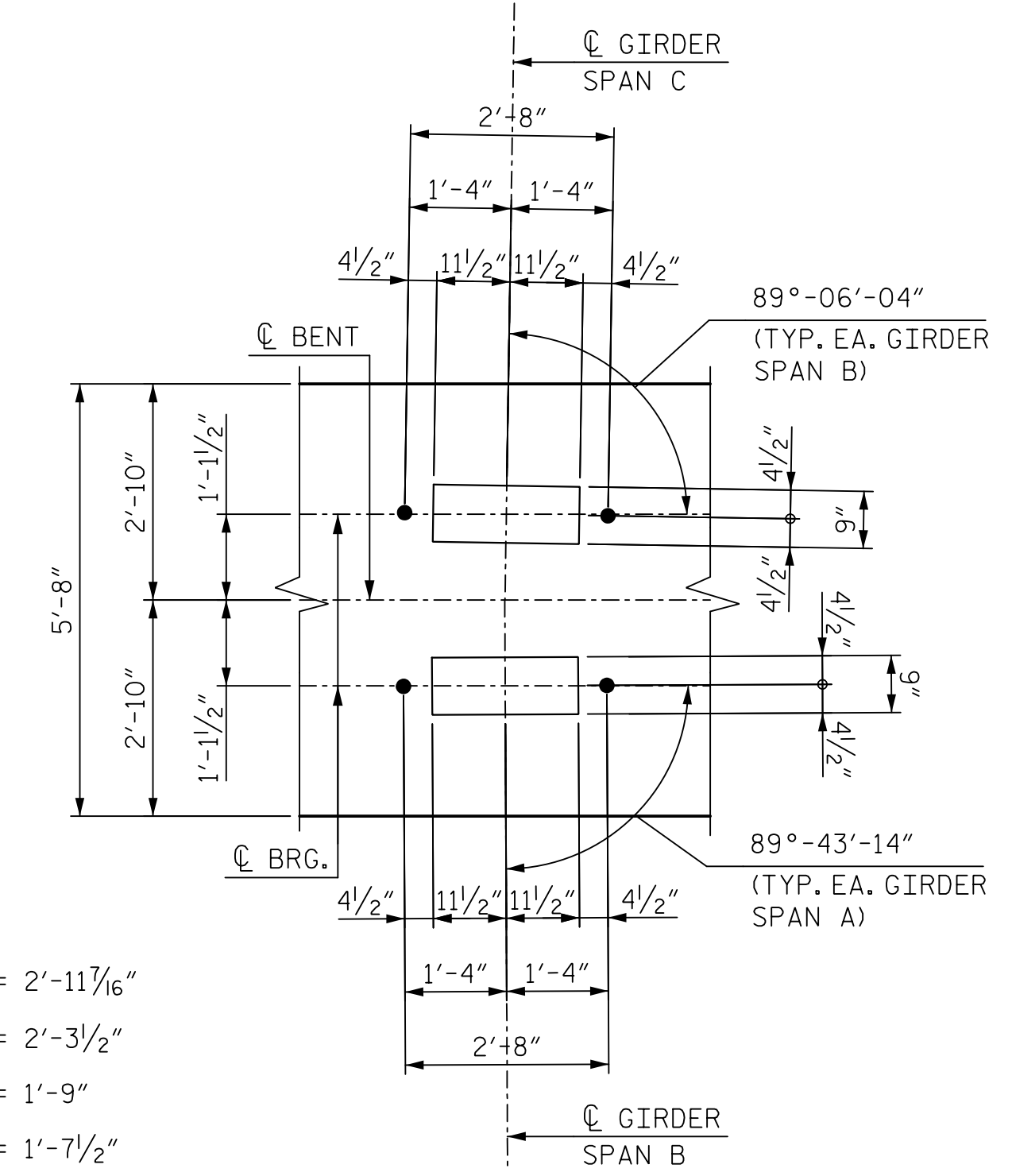
PLAN

NOTES:

- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
- ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".
- THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.
- THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIER IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND LINE ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1'-0" BELOW THE GROUND LINE.



ELEVATION

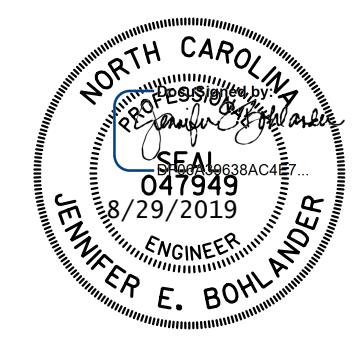


DETAIL A

- (B) 2 EQ. SPA = 2'-11<sup>1</sup>/<sub>16</sub>"
- (C) 2 EQ. SPA = 2'-3<sup>1</sup>/<sub>2</sub>"
- (D) 2 EQ. SPA = 1'-9"
- (E) 2 EQ. SPA = 1'-7<sup>1</sup>/<sub>2</sub>"
- (F) 2 EQ. SPA = 2'-5"
- (G) 2'-3" MIN SPLICE TYP #4B3
- (H) 3'-2" MIN SPLICE TYP #10B2
- (J) 7'-6" MIN SPLICE TYP #10B1
- (K) 2'-3" MIN SPLICE TYP #4B3

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 1 OF 3

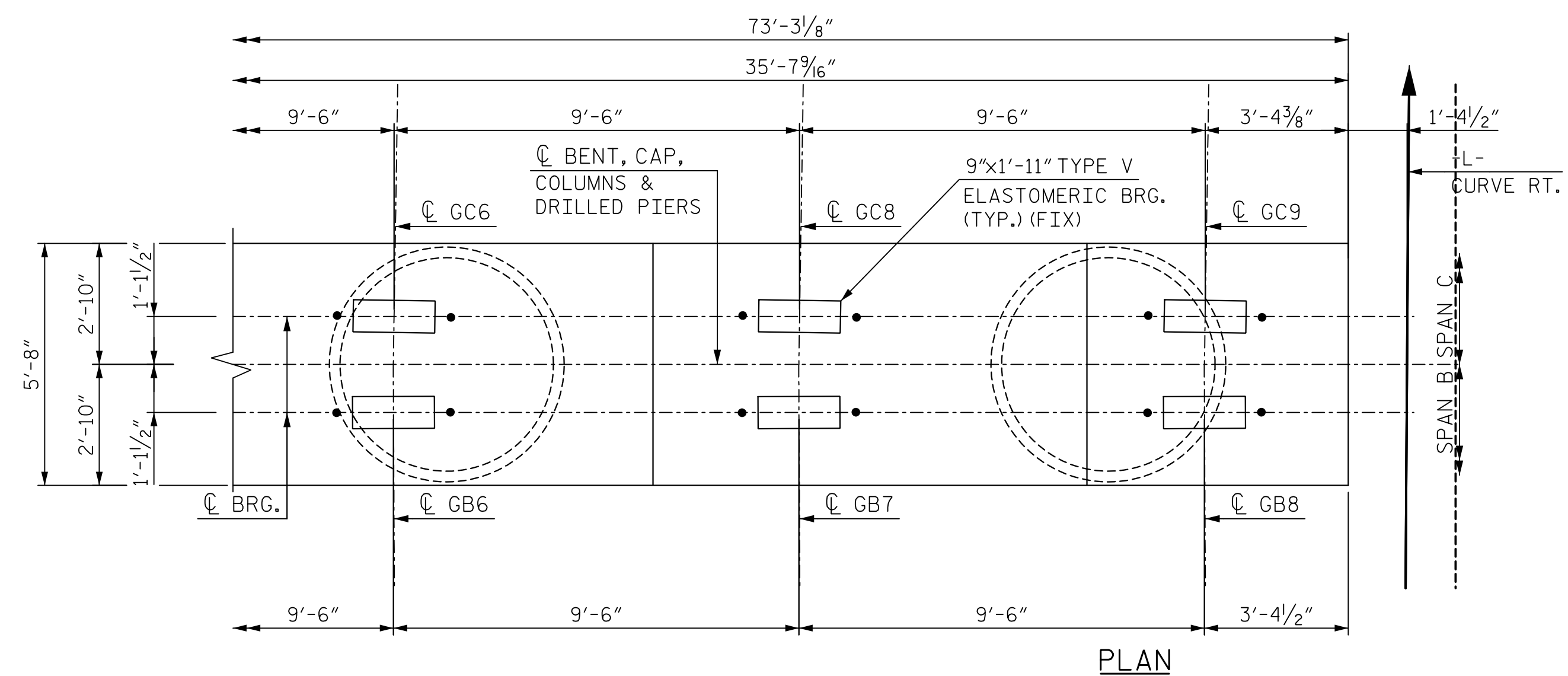


**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 1/24/2019	DWG. NO. 36	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

STATE OF NORTH CAROLINA		SHEET NO.	
DEPARTMENT OF TRANSPORTATION		S1-36	
RALEIGH		TOTAL SHEETS	
SUBSTRUCTURE		47	
BENT 2			
STAGE 3			
REVISIONS			
NO.	BY	DATE	NO.
1			3
2			4

8/29/2019 2:24:56 PM J:\NOTES\14400BB\_SML\B04\_036\_400212.dgn



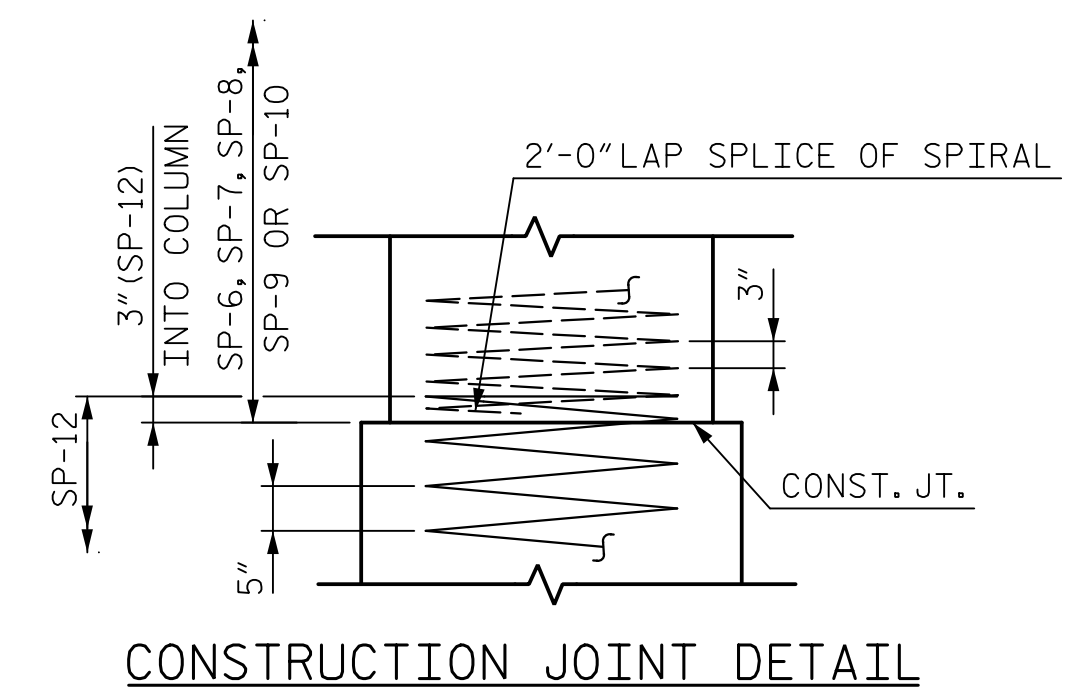
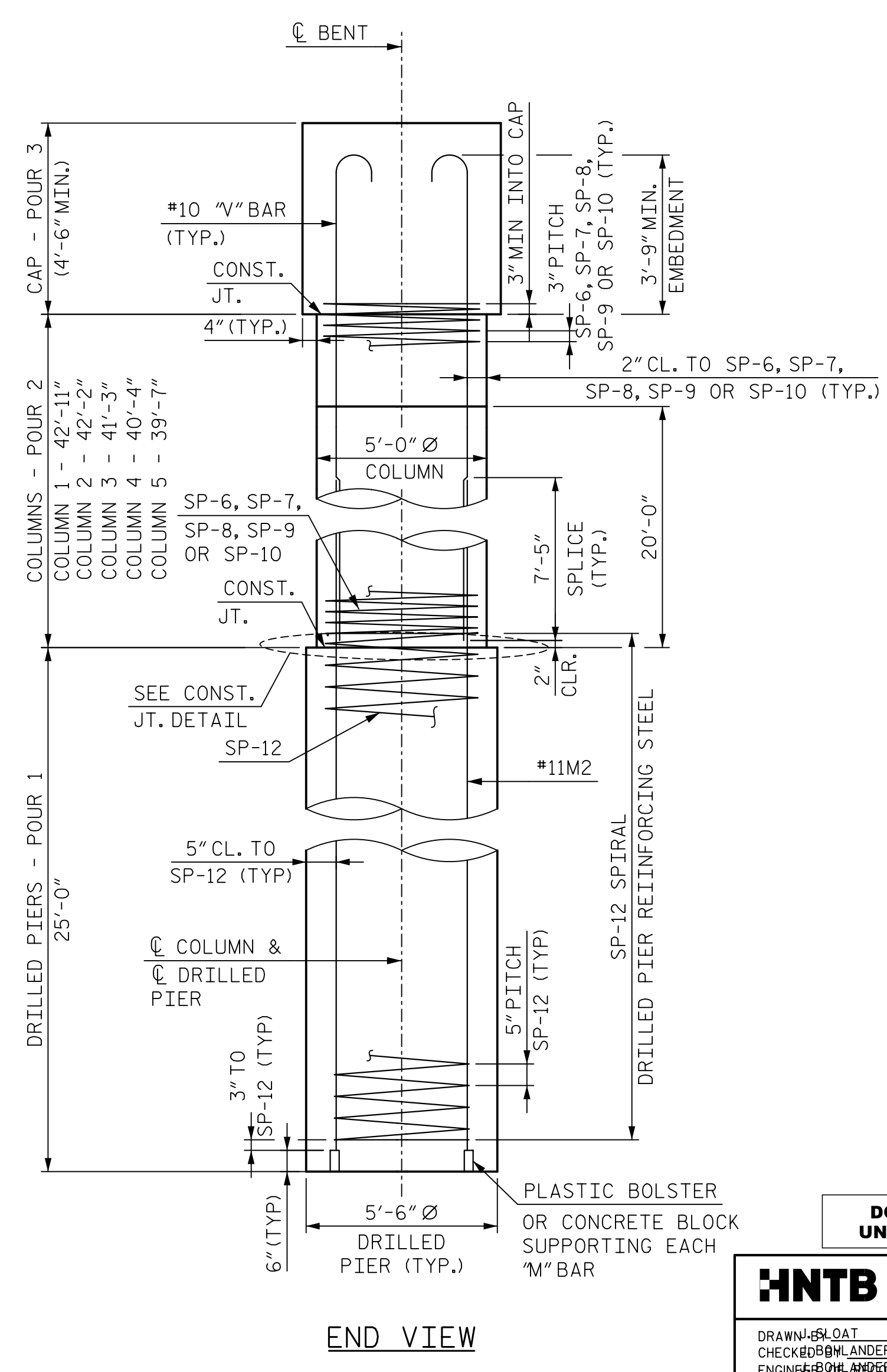
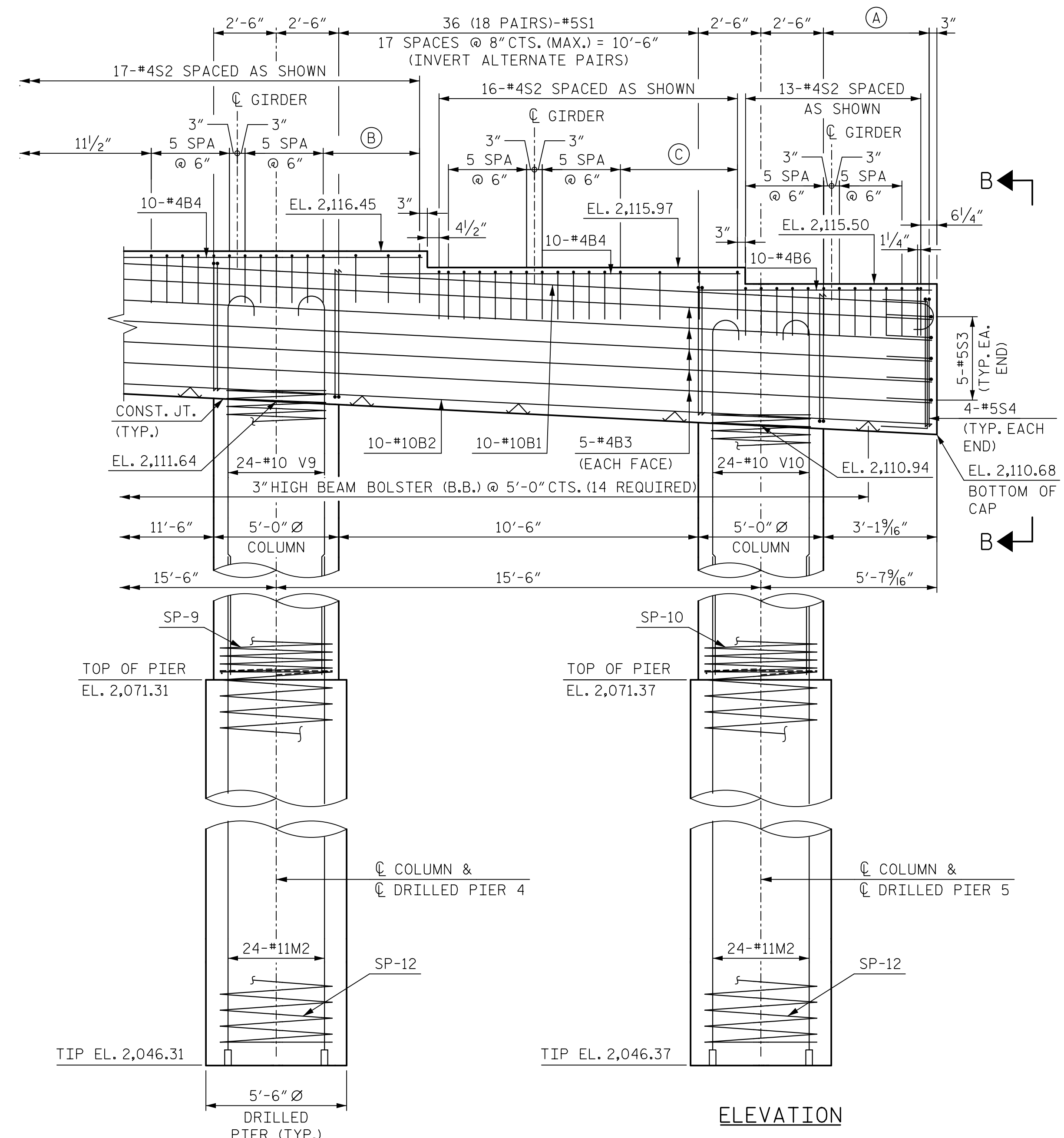
- (A) 12 (6 PAIRS)-#5S1 5 SPACES @ 8" CTS. (MAX.) = 2'-10 3/16" (INVERT ALTERNATE PAIRS)
- (B) 3 EQ. SPA = 3'-1"
- (C) 3 EQ. SPA = 3'-9"

**NOTES:**

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

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

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



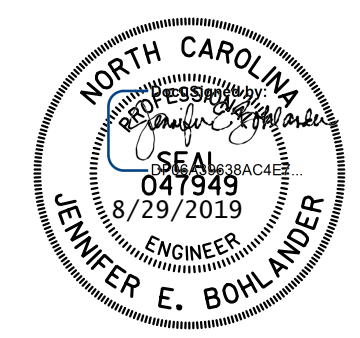
PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE

BENT 2  
 STAGE 3



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

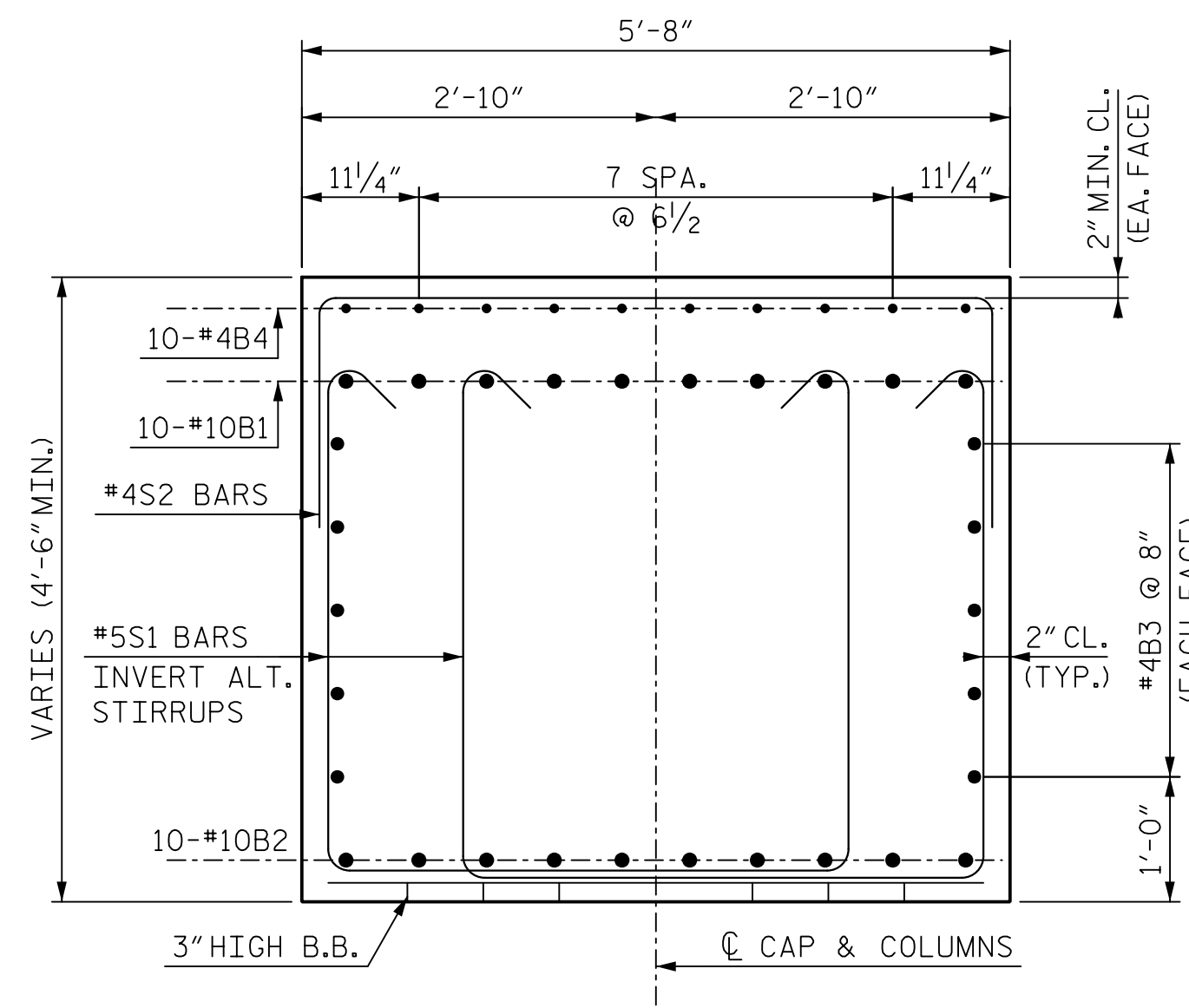
<b>HNTB</b>	HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
DRAWN BY: <u>BL/AT</u>	DATE: <u>3/18/2019</u>
CHECKED BY: <u>BL/ANDLER</u>	DATE: <u>3/18/2019</u>
ENGINEER BY: <u>BL/ANDLER</u>	DATE: <u>3/18/2019</u>

DWG. NO. 37

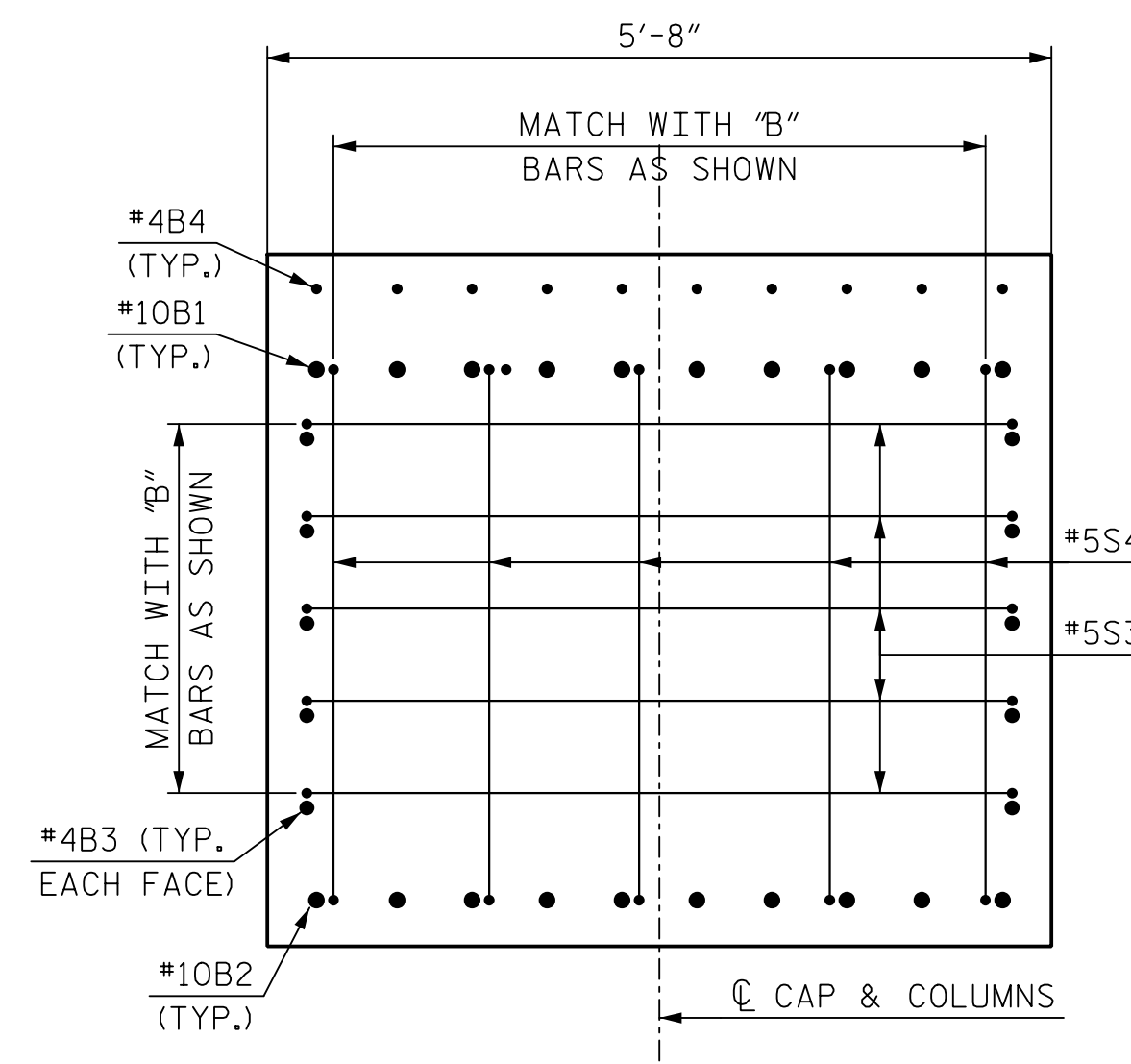
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S1-37
1			3			TOTAL SHEETS
2			4			47

8/29/2019 2:24:55 PM \\MO1\_003\_1440009\_SML\_B05\_037\_440212.dgn

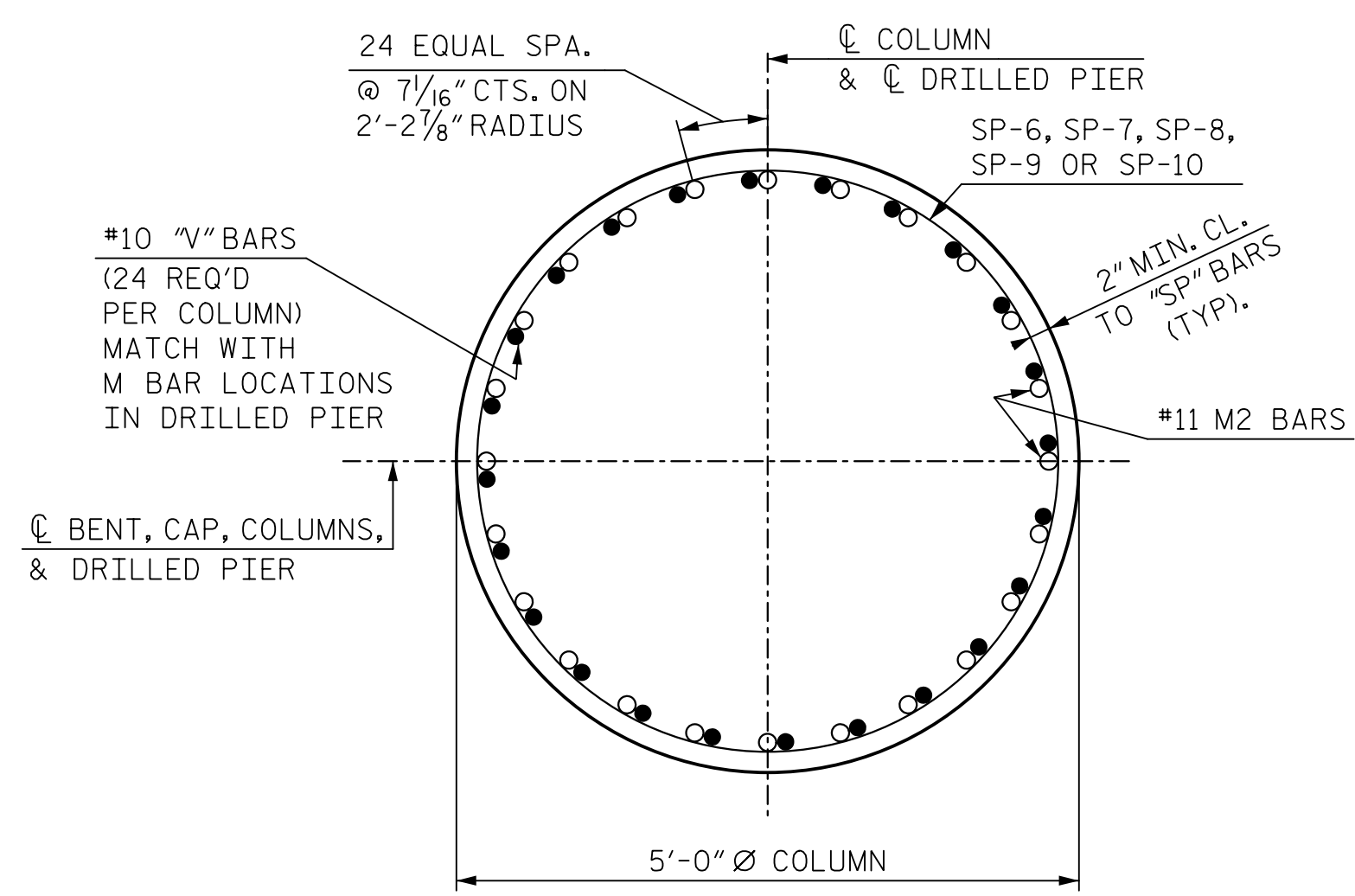




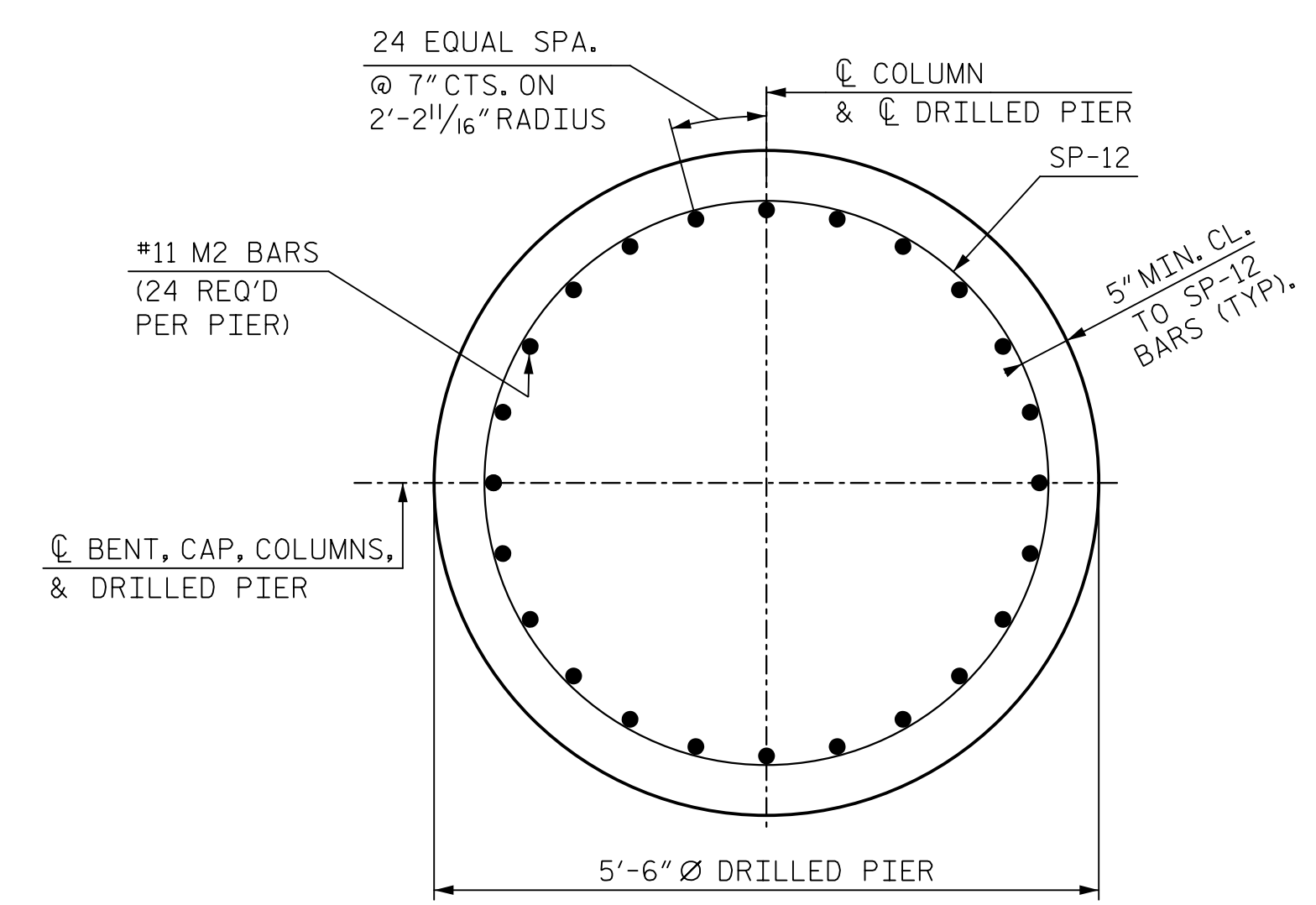
SECTION A-A



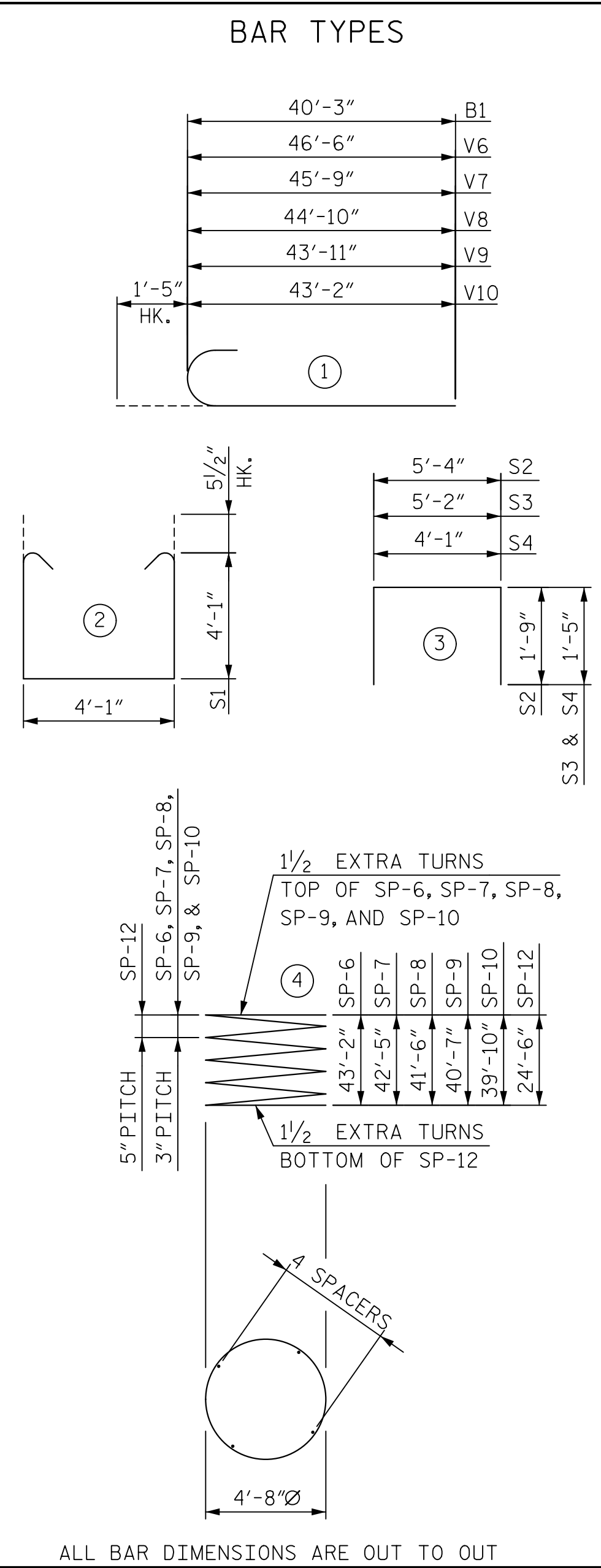
VIEW B-B



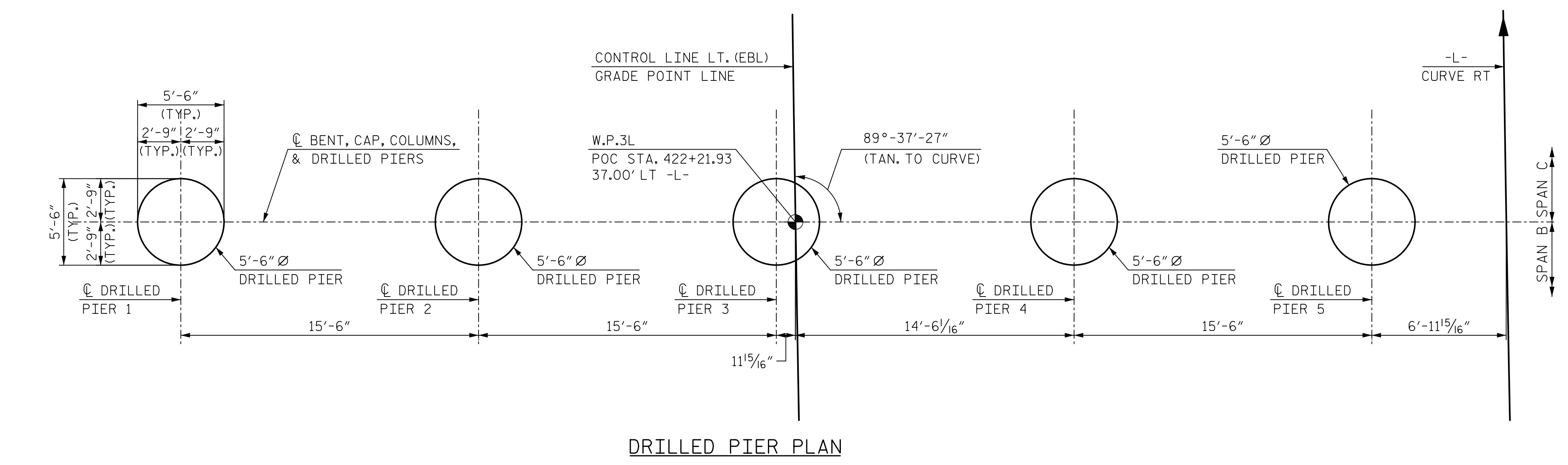
SECTION C-C  
(TYP. EA. COL.)



SECTION D-D  
(TYPICAL)



BILL OF REINFORCING						
BENT 2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	20	#10	1	41'-8"	3,586	
B2	20	#10	STR.	38'-1"	3,277	
B3	30	#4	STR.	25'-10"	518	
B4	60	#4	STR.	11'-6"	461	
B5	10	#4	STR.	5'-10"	39	
B6	10	#4	STR.	7'-6"	50	
M2	120	#11	STR.	35'-2"	22,421	
S1	168	#5	2	13'-2"	2,307	
S2	120	#4	3	8'-10"	708	
S3	10	#5	3	8'-0"	83	
S4	8	#5	3	6'-11"	58	
V6	24	#10	1	47'-11"	4,948	
V7	24	#10	1	47'-2"	4,875	
V8	24	#10	1	46'-3"	4,774	
V9	24	#10	1	45'-4"	4,682	
V10	24	#10	1	44'-7"	4,603	
SP-6	1	**	4	2530'-10"	1,691	
SP-7	1	**	4	2489'-6"	1,663	
SP-8	1	**	4	2432'-9"	1,625	
SP-9	1	**	4	2380'-9"	1,590	
SP-10	1	**	4	2336'-5"	1,561	
SP-12	5	*	4	876'-6"	4,571	
QUANTITIES						
REINFORCING STEEL					LBS.	57,390
SPIRAL COLUMN REINFORCING STEEL					LBS.	12,701
CLASS "A" CONCRETE BREAKDOWN						
COLUMN POUR 2					CU. YDS.	150.0
CAP POUR 3					CU. YDS.	73.5
TOTAL					CU. YDS.	223.5
DRILLED PIER POUR 1					CU. YDS.	110.0
5'-6" * DRILLED PIERS						
DRILLED PIERS, NOT IN SOIL					LIN. FT.	65
DRILLED PIERS, IN SOIL					LIN. FT.	60
PERMANENT STEEL CASING FOR 5'-6" * DRILLED PIERS					LIN. FT.	60
CSL TUBES					LIN. FT.	795



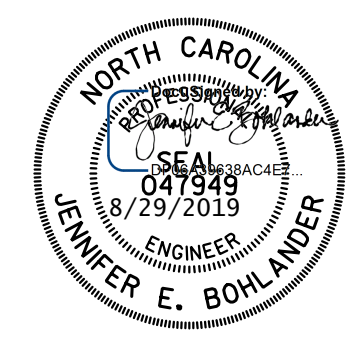
DRILLED PIER PLAN

\* THE SP-12 SPIRAL REINFORCING STEEL SHALL BE W31 OR D31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

\* THE SP-6, SP-7, SP-8, SP-9, AND SP-10 SPIRAL REINFORCING STEEL SHALL BE W20 OR D20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

PROJECT NO. I-4400 BB  
 HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 3 OF 3

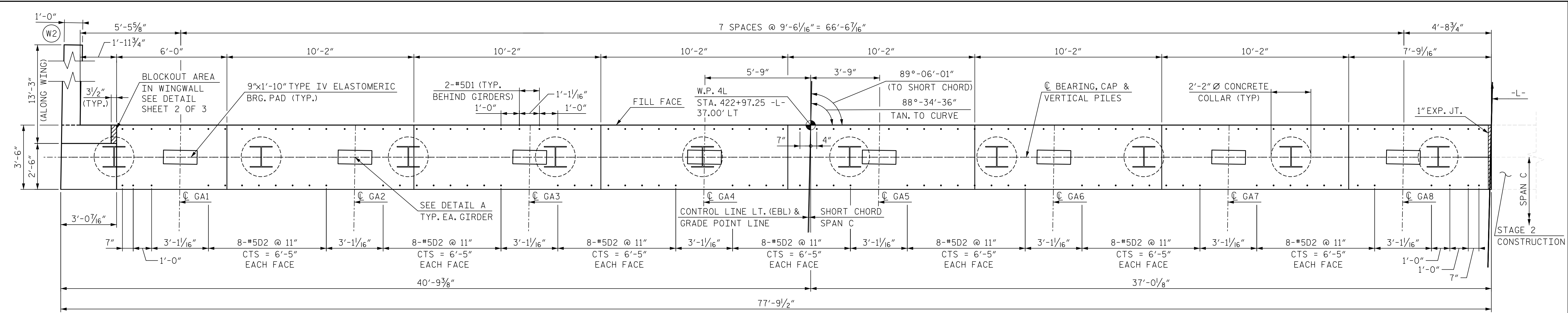


DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

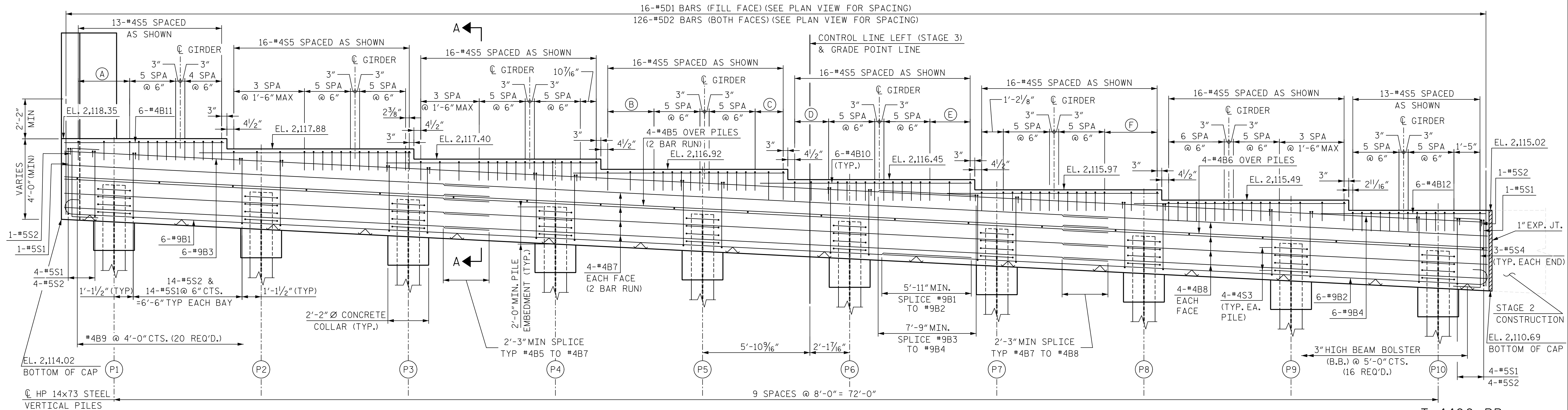
<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 3/18/2019	DWG. NO. 38	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
BENT 2 DETAILS STAGE 3					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
					SHEET NO. S1-38
					TOTAL SHEETS 47

8/29/2019 2:55:01 PM  
 ...\\01\_015\_14400BB\_SML\_B06\_03B\_440212.dgn



PLAN



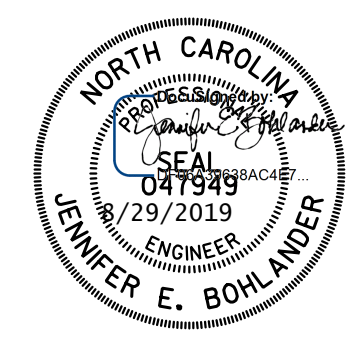
ELEVATION

- (D) 2 EQ. SPA = 2'-9<sup>9</sup>/<sub>16</sub>"
- (B) 2 EQ. SPA = 2'-6<sup>1</sup>/<sub>8</sub>"
- (C) 2 EQ. SPA = 1'-6<sup>3</sup>/<sub>8</sub>"
- (D) 2 EQ. SPA = 1'-10<sup>1</sup>/<sub>8</sub>"
- (E) 2 EQ. SPA = 2'-2<sup>3</sup>/<sub>8</sub>"
- (F) 2 EQ. SPA = 2'-10<sup>3</sup>/<sub>8</sub>"

TOP OF PILE ELEVATIONS	
(P1)	2115.90
(P2)	2115.56
(P3)	2115.21
(P4)	2114.87
(P5)	2114.53
(P6)	2114.18
(P7)	2113.84
(P8)	2113.50
(P9)	2113.15
(P10)	2112.81

PROJECT NO. I-4400 BB  
 HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 1 OF 3  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 END BENT 2  
 STAGE 3



**HNTB** HNTB NORTH CAROLINA, P.C.  
 NC License No. C-1554  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

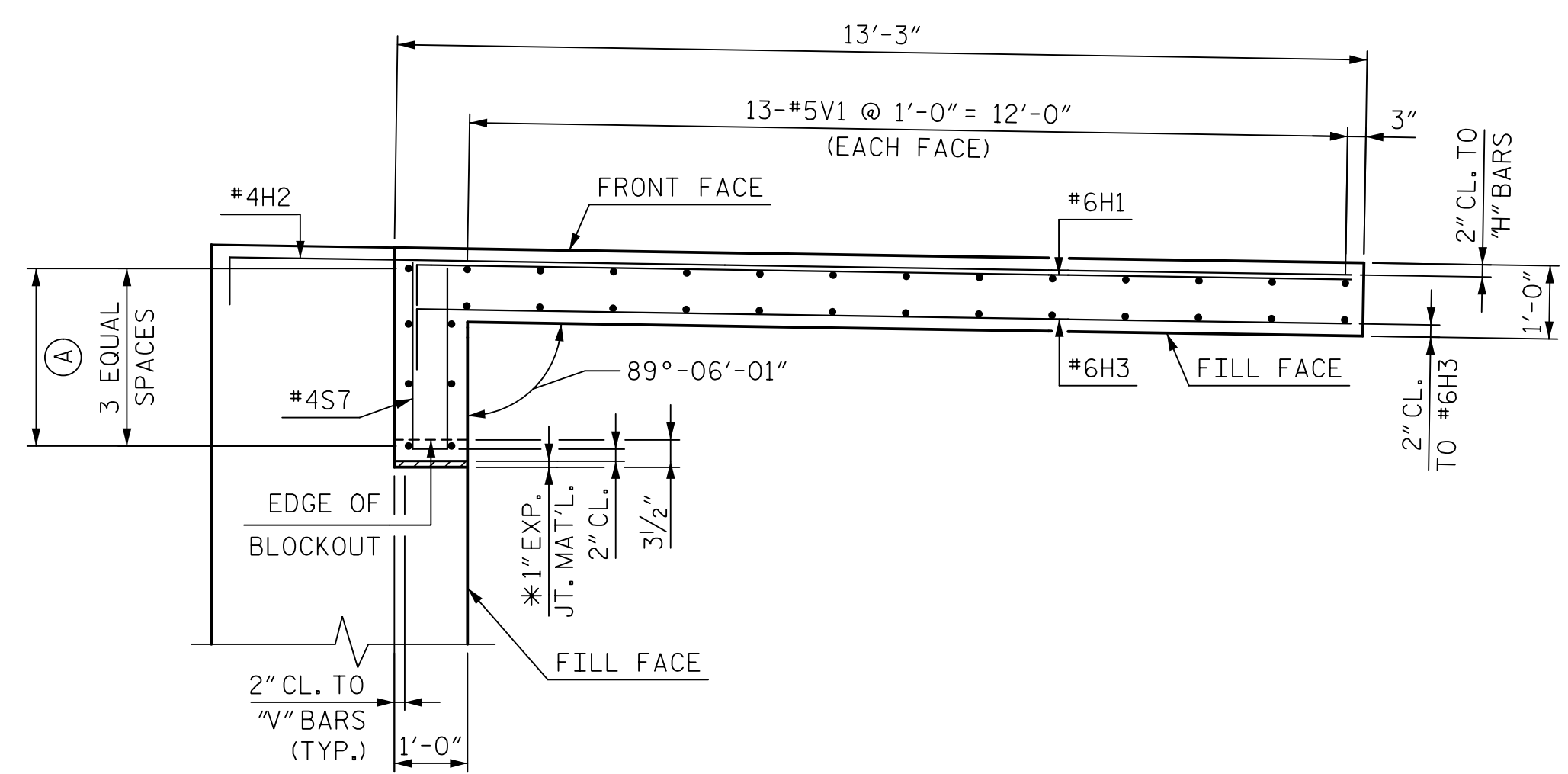
DRAWN BY: J. SLOAT DATE: 3/18/2019  
 CHECKED BY: J. BOHLANDER DATE: 3/18/2019  
 ENGINEER OF RECORD: J. BOHLANDER DATE: 3/18/2019

DWG. NO. 39

REVISIONS						SHEET NO. S1-39
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 47
2			4			

8/29/2019 2:55:03 PM \\MO1\_L011\_14400BB\_SML\_E04\_039\_440212.dgn

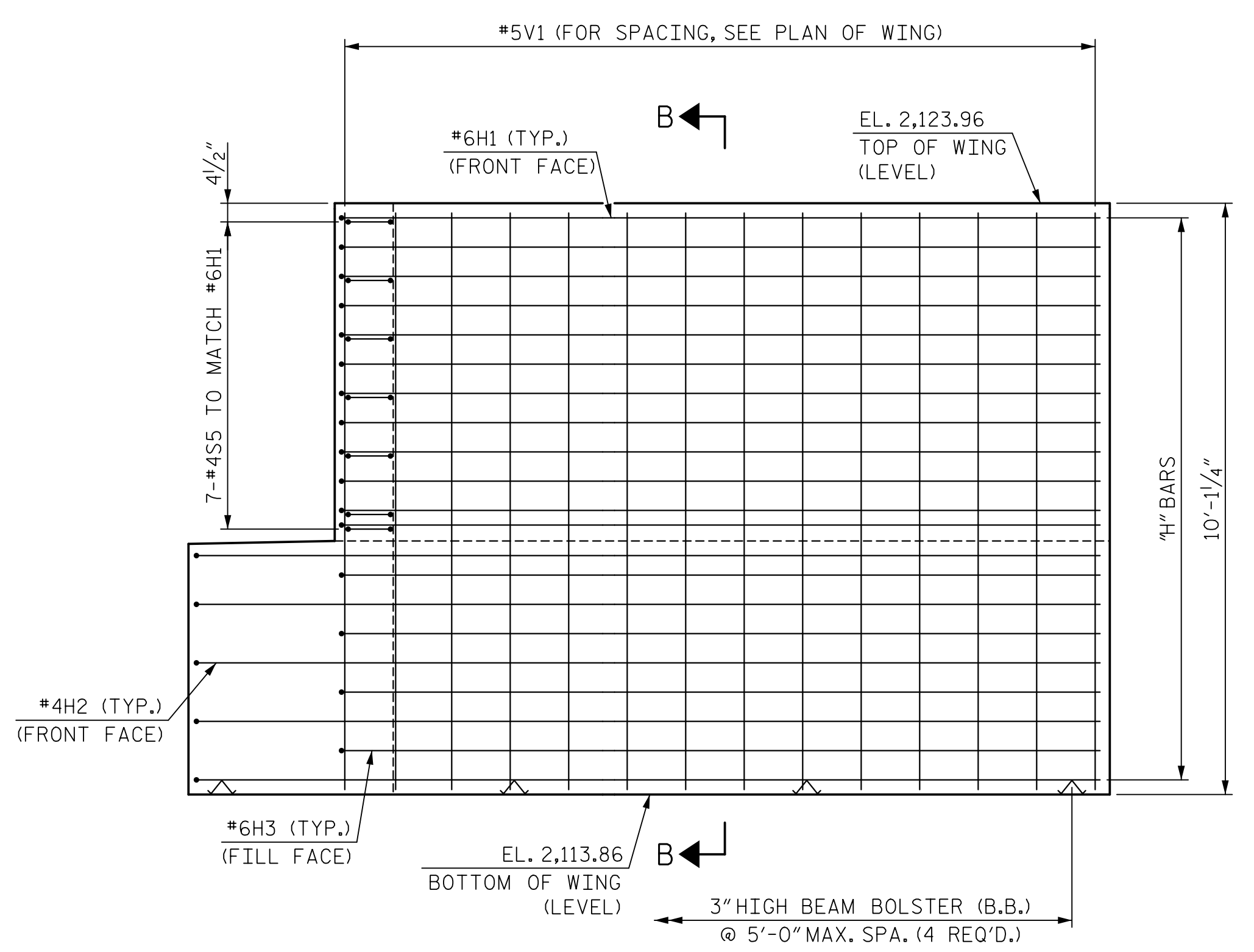




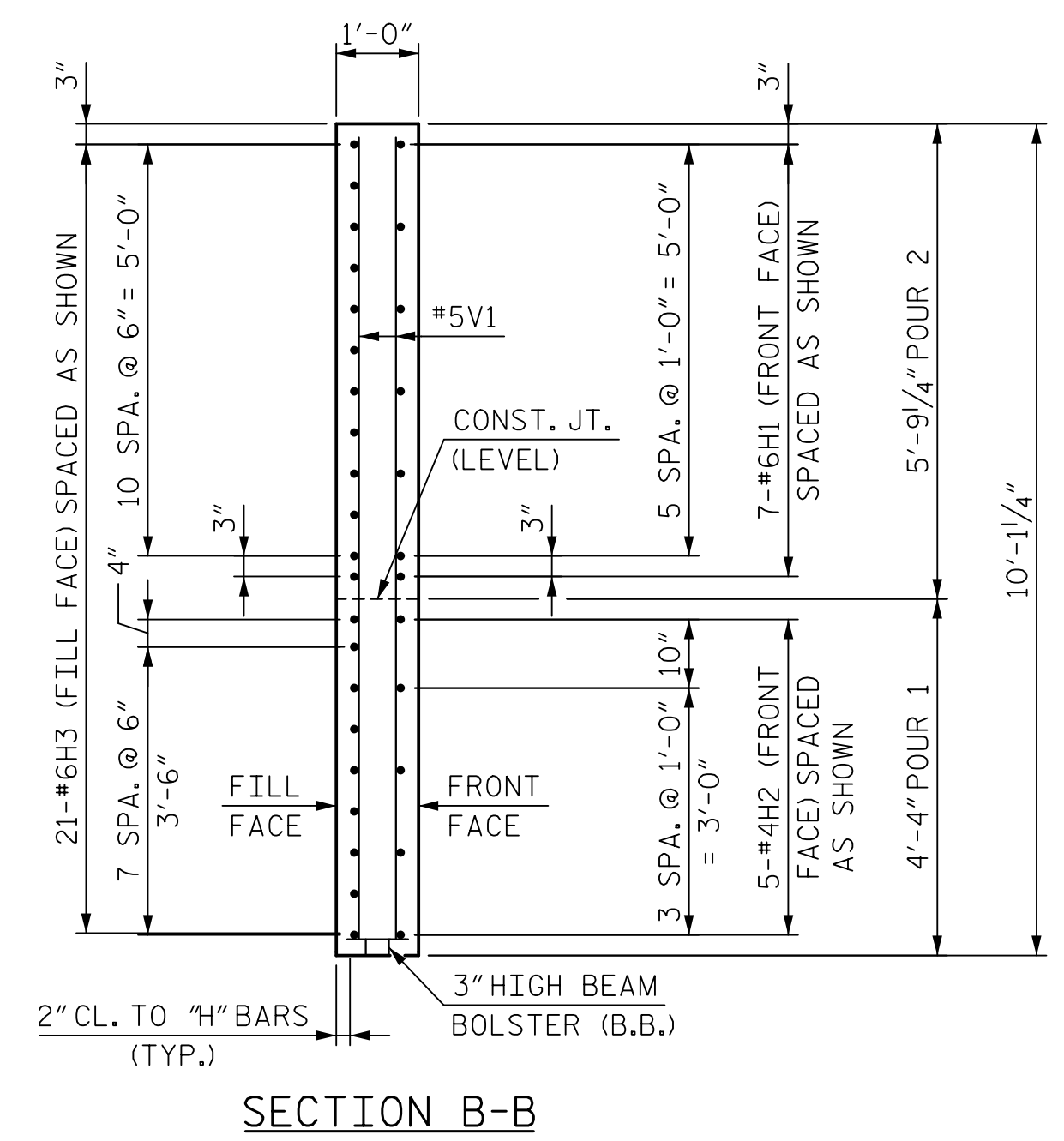
PLAN OF WING (W2)

\*1" EXP. JT. MAT'L BETWEEN END BENT DIAPHRAGM AND WING

(A) 7-#5V1 (4 FRONT FACE)  
(3 FILL FACE)  
SPACED AS SHOWN



ELEVATION OF WING (W2)



SECTION B-B

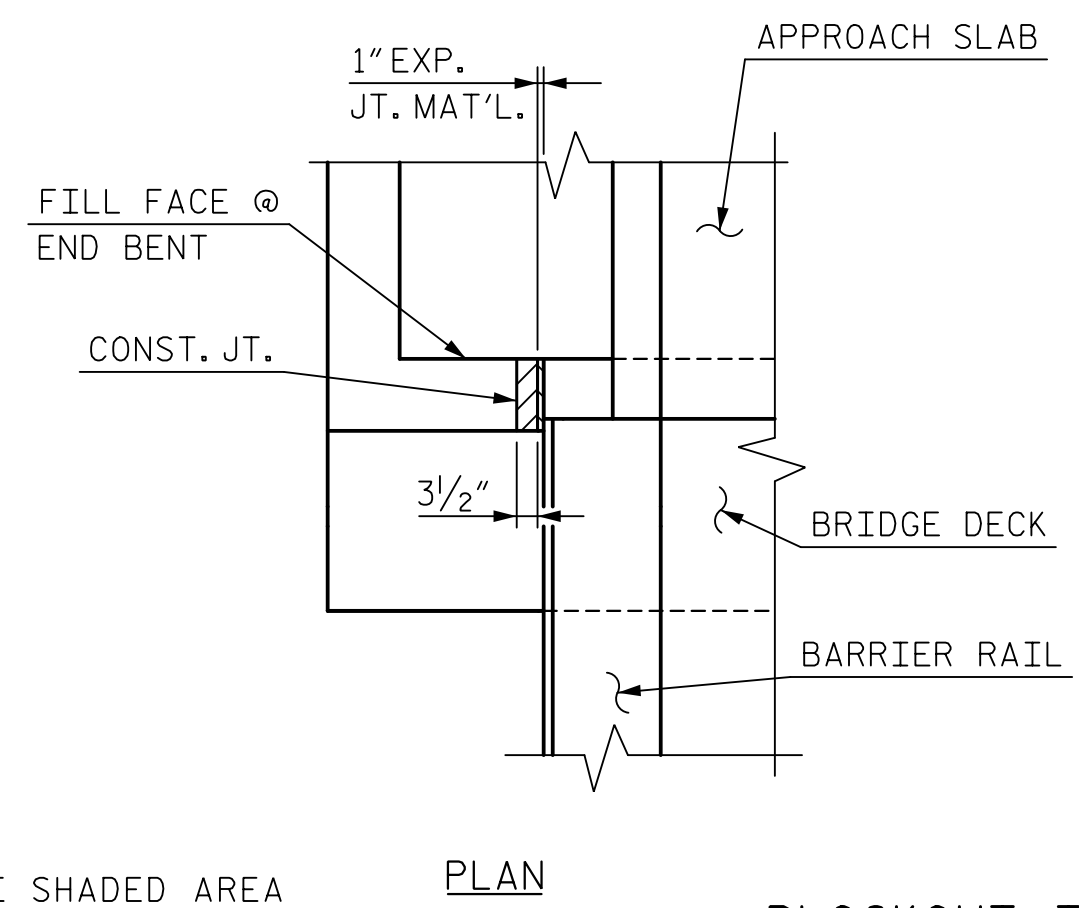
NOTES:

THE TOP SURFACE OF THE END BENT AND WINGS, EXCEPT THE BEARING AREA, SHALL BE RAKED TO A DEPTH OF 1/4".

THE END BENT DIAPHRAGM SHALL BE POURED MONOLITHICALLY WITH THE SUPERSTRUCTURE. CONCRETE AND REINFORCING STEEL QUANTITIES ARE INCLUDED IN THE SUPERSTRUCTURE BILL OF MATERIALS. FOR DETAILS, SEE SUPERSTRUCTURE SHEETS.

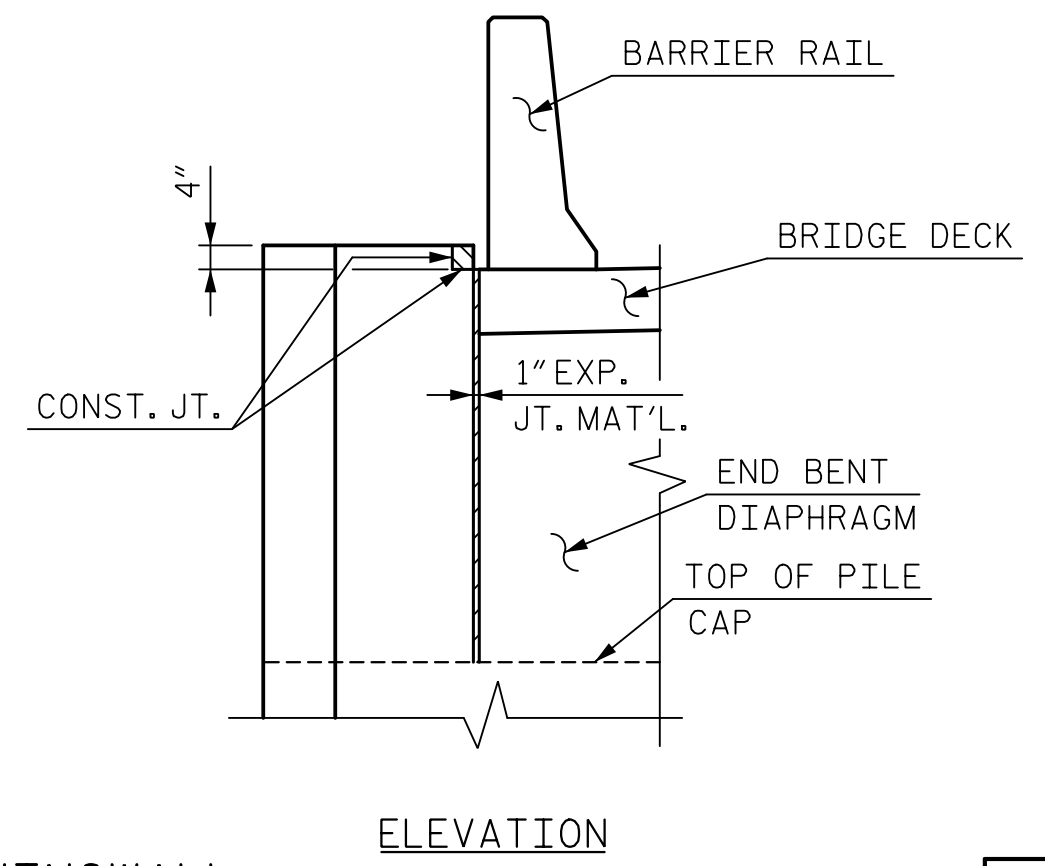
INSTALL THE 4" DIA. DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS. SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

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



PLAN

BLOCKOUT IN WINGWALL

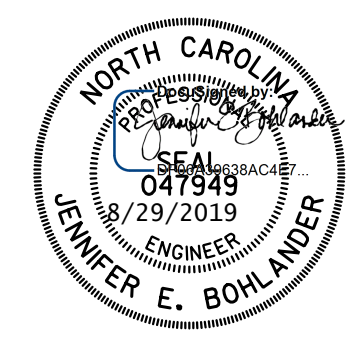


ELEVATION

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
STATION: 421+74.67 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUBSTRUCTURE  
END BENT 2  
DETAILS  
STAGE 3

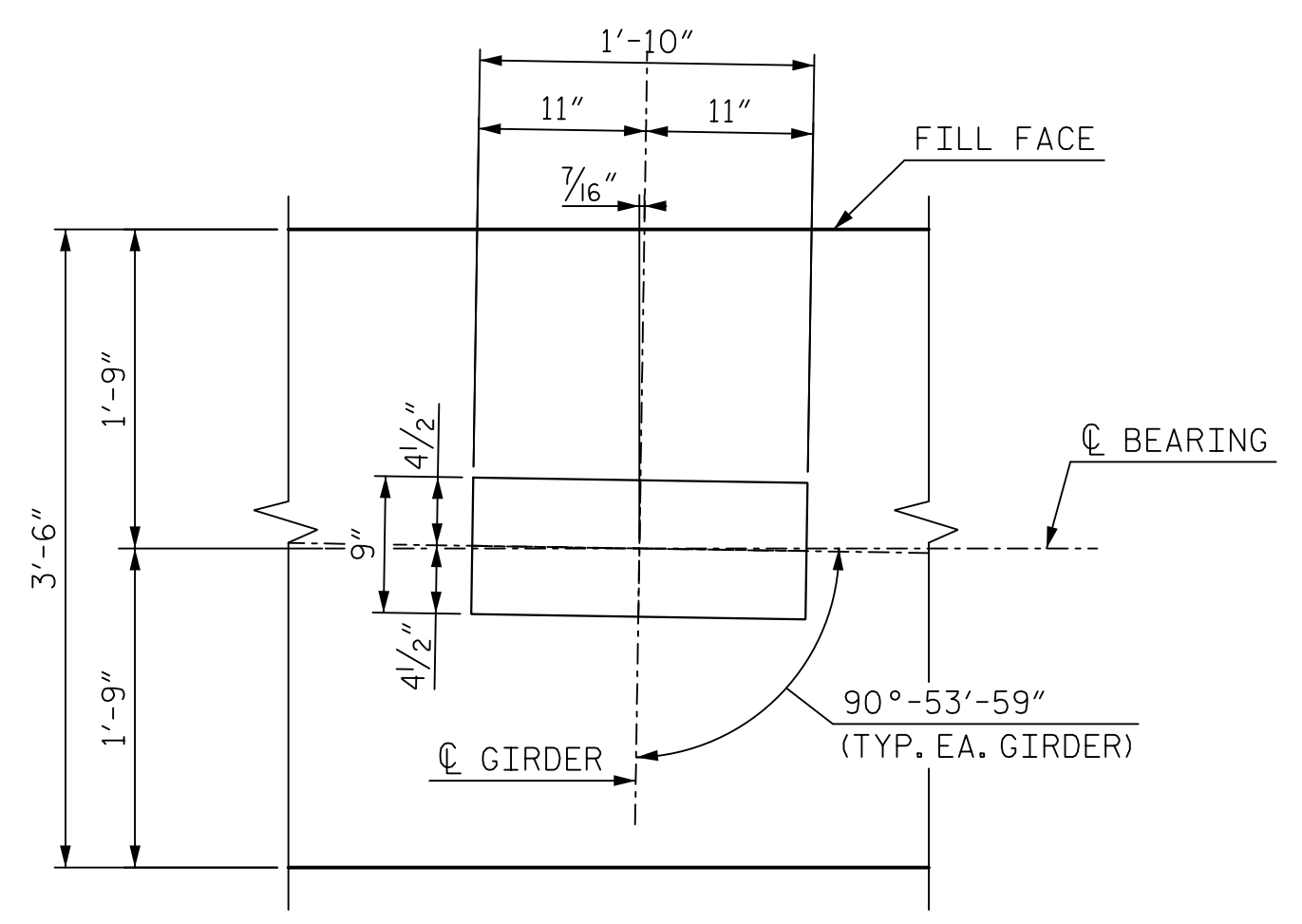


DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 3/18/2019	DWG. NO. 40	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

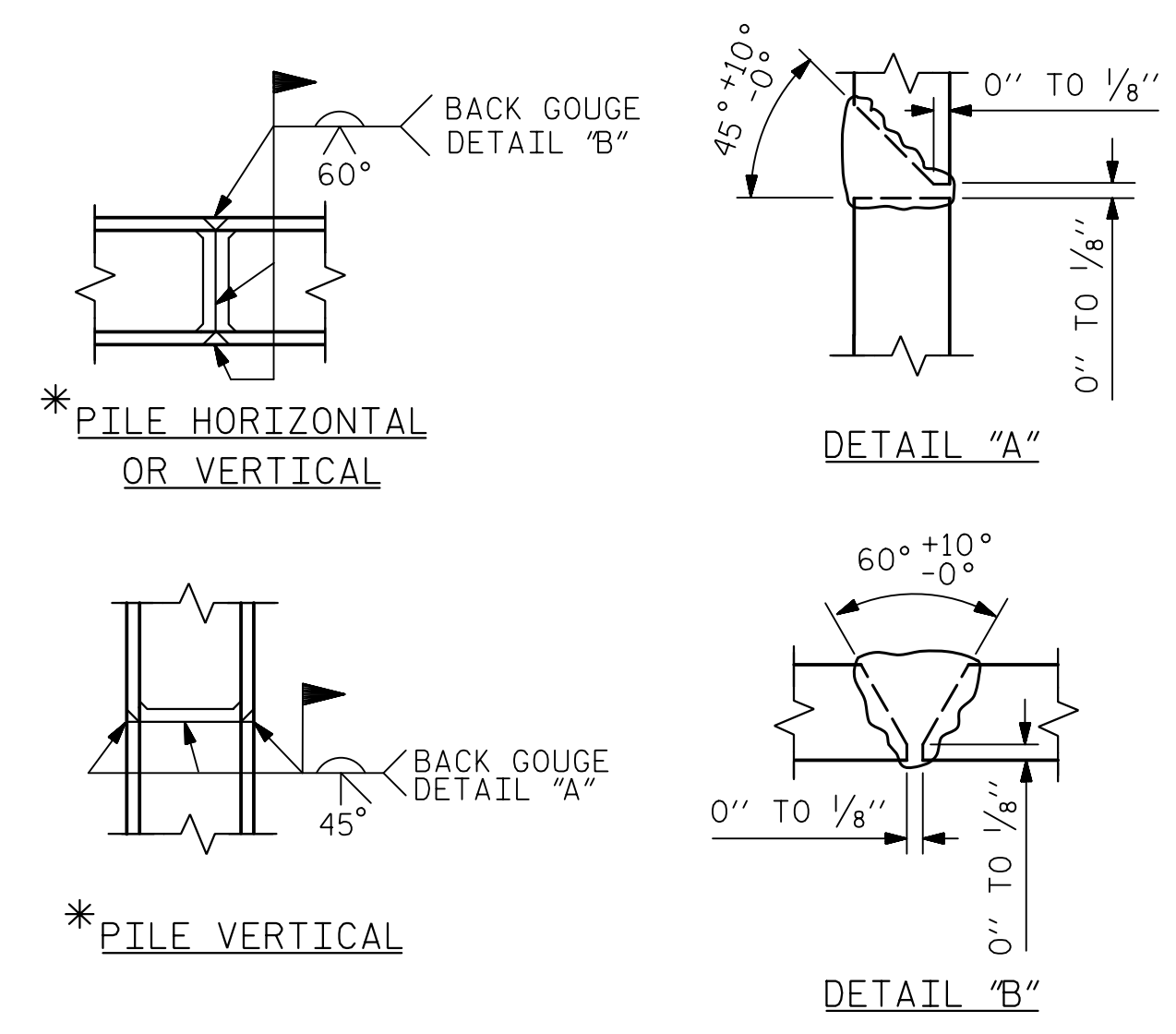
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S1-40
1			3			TOTAL SHEETS
2			4			47

8/29/2019 2:55:05 PM \\MOT\_079\_1\4400BB\_SML\_E05\_040\_440212.dgn

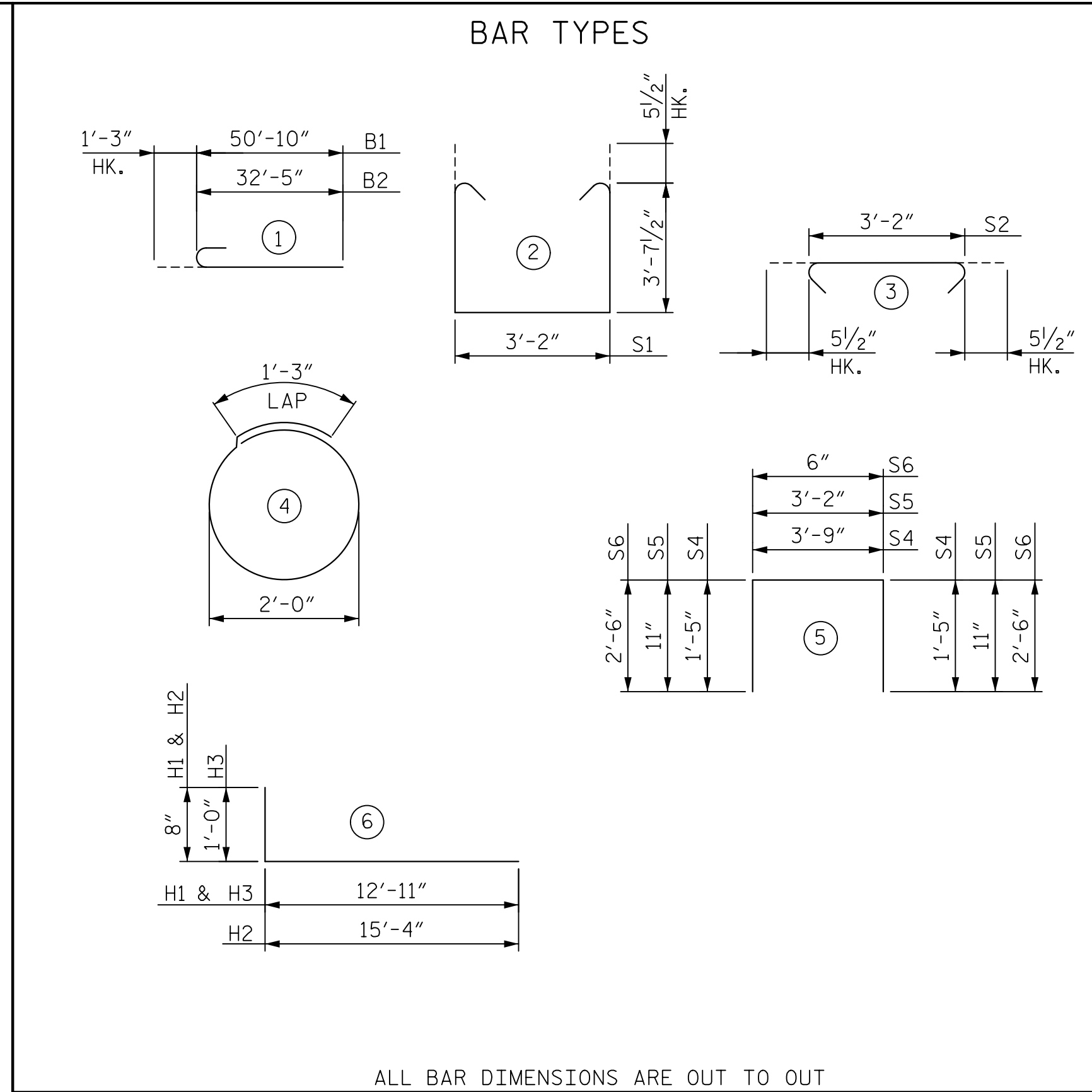


**BEARING DETAIL "A"**

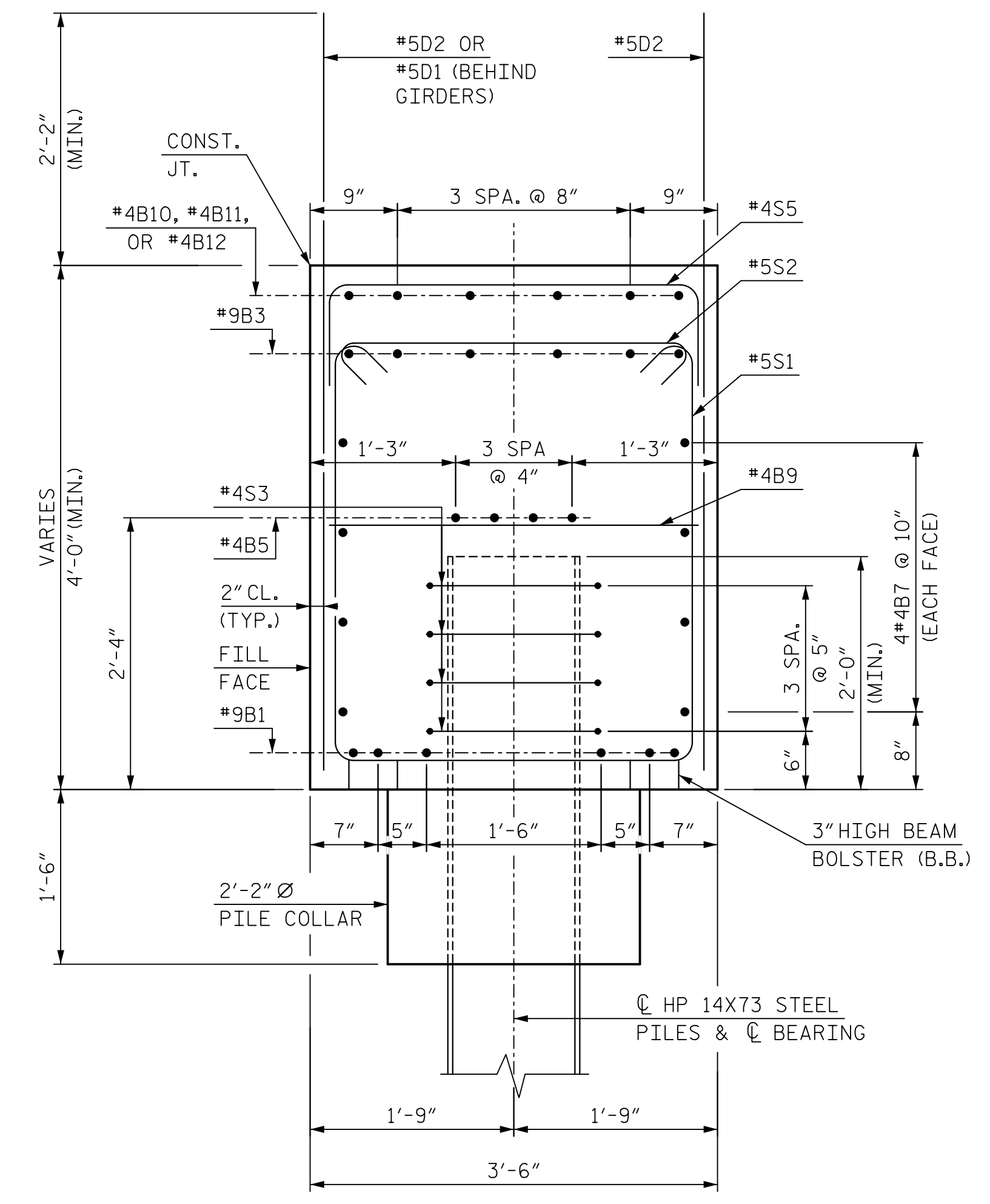
**NOTES:**  
 STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.  
 THE TOP SURFACE OF THE END BENT AND WINGS, EXCEPT THE BEARING AREA, SHALL BE RAKED TO A DEPTH OF 1/4"



**\* POSITION OF PILE DURING WELDING.  
 PILE SPLICE DETAILS**



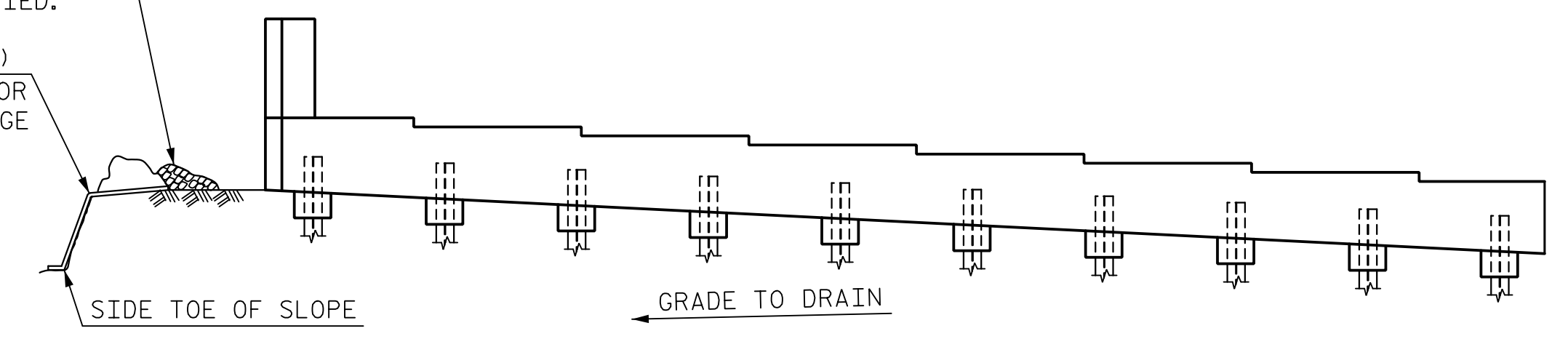
ALL BAR DIMENSIONS ARE OUT TO OUT



**SECTION A-A**

MINIMUM OF 3 - ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

6" (MIN.) PIPE FOR DRAINAGE



**STAGE 3 CONSTRUCTION**

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

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

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

**TEMPORARY DRAINAGE AT END BENT 2**

BILL OF MATERIAL					
END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#9	1	52'-1"	1,063
B2	6	#9	1	33'-8"	688
B3	6	#9	STR.	52'-0"	1,061
B4	6	#9	STR.	33'-1"	675
B5	8	#4	STR.	28'-11"	154
B6	4	#4	STR.	24'-1"	64
B7	16	#4	STR.	28'-11"	309
B8	8	#4	STR.	24'-1"	129
B9	20	#4	STR.	3'-2"	42
B10	36	#4	STR.	11'-6"	277
B11	6	#4	STR.	8'-8"	35
B12	6	#4	STR.	8'-11"	36
D1	16	#5	STR.	6'-9"	112
D2	126	#5	STR.	6'-9"	882
H1	7	#6	6	13'-7"	143
H2	5	#4	6	16'-0"	53
H3	21	#6	6	13'-11"	439
S1	134	#5	2	11'-4"	1,584
S2	134	#5	3	4'-1"	571
S3	40	#4	4	7'-7"	203
S4	6	#5	5	6'-7"	41
S5	122	#4	5	5'-0"	407
S6	6	#6	5	5'-6"	50
V1	33	#4	STR.	9'-9"	215

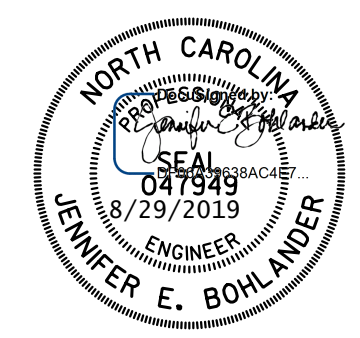
**QUANTITIES**

REINFORCING STEEL	LBS.	9,233
CLASS A CONCRETE		
POUR 1 - CAP, BOT. OF WINGS		
& CONCRETE COLLARS		
CU. YDS.	48.7	
POUR 2 - TOP OF WINGS		
CU. YDS.	2.8	
TOTAL		
CU. YDS.	51.5	
HP 14x73 STEEL PILES	NO.	10
	LIN. FT.	500
PILE EXCAVATION IN SOIL	LIN. FT.	40
PILE EXCAVATION NOT IN SOIL	LIN. FT.	10

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 END BENT 2  
 DETAILS  
 STAGE 3



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

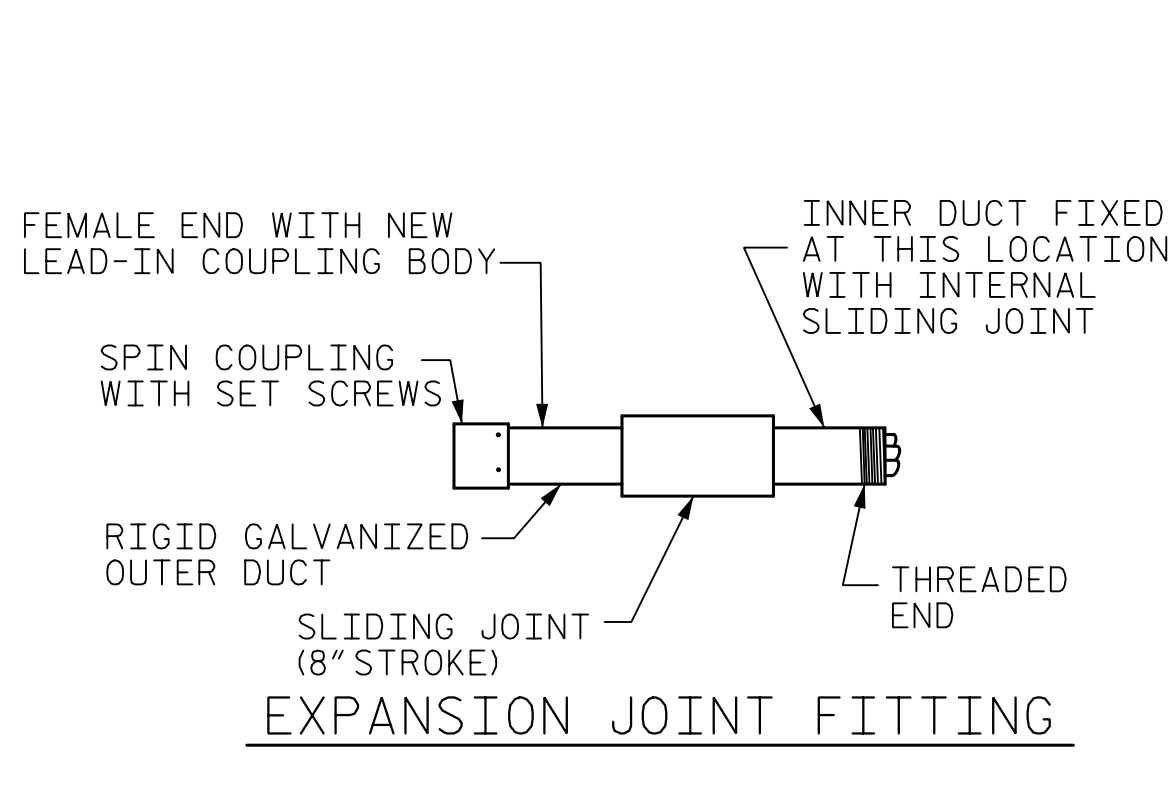
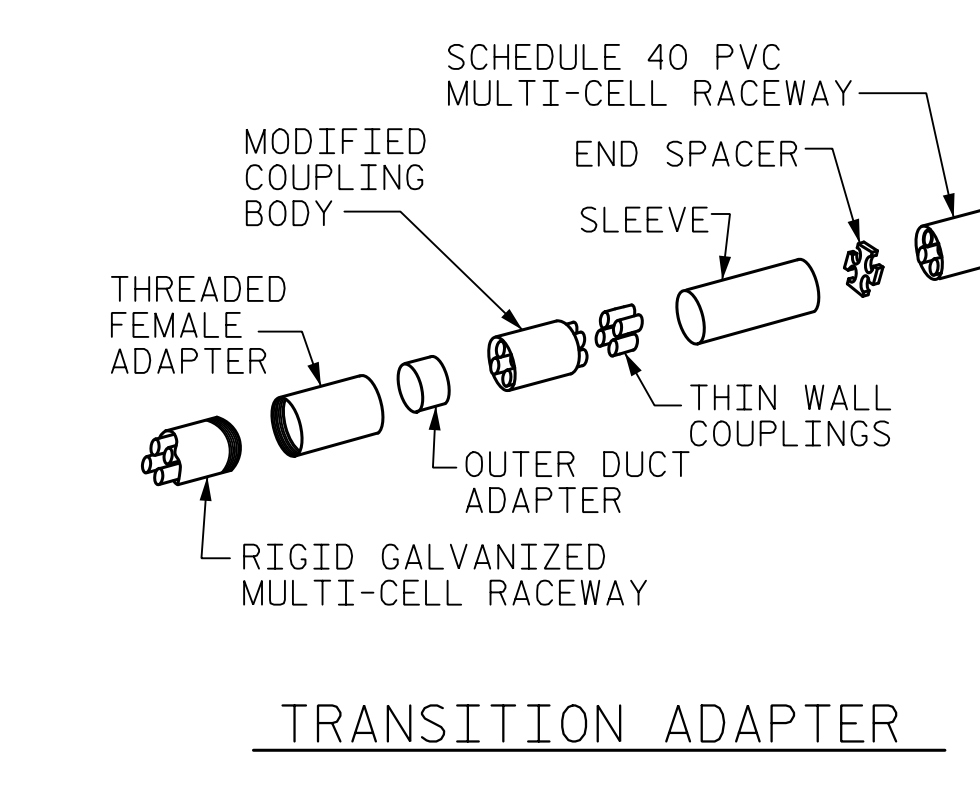
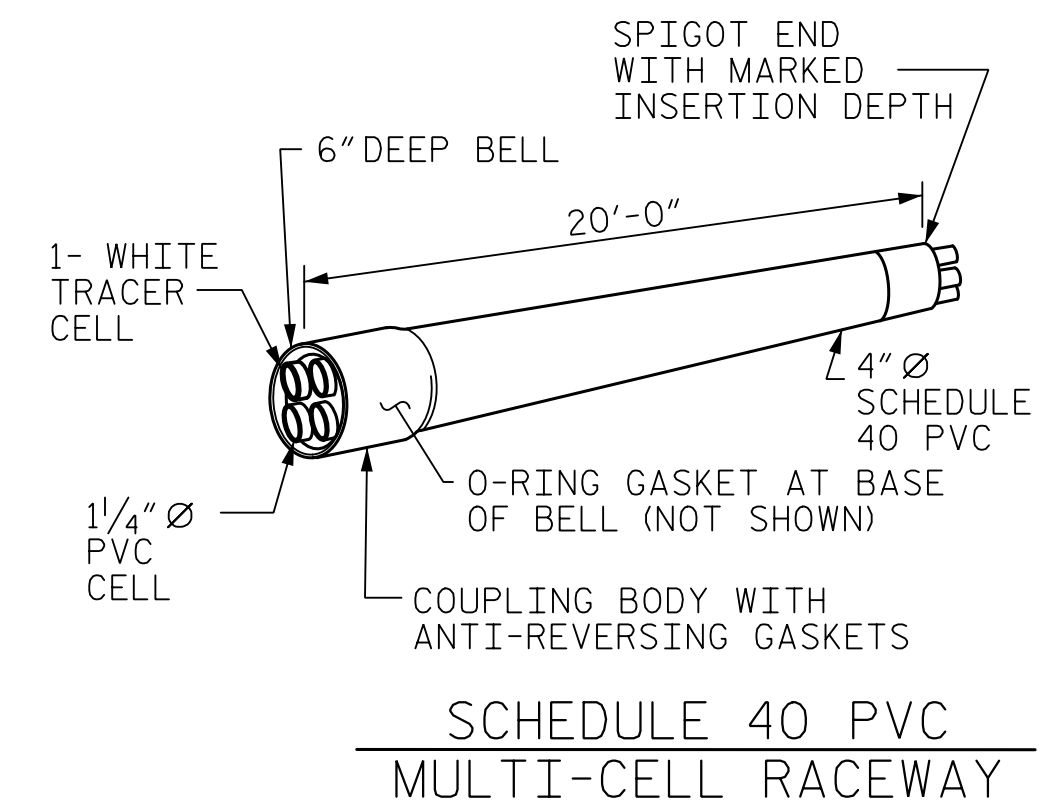
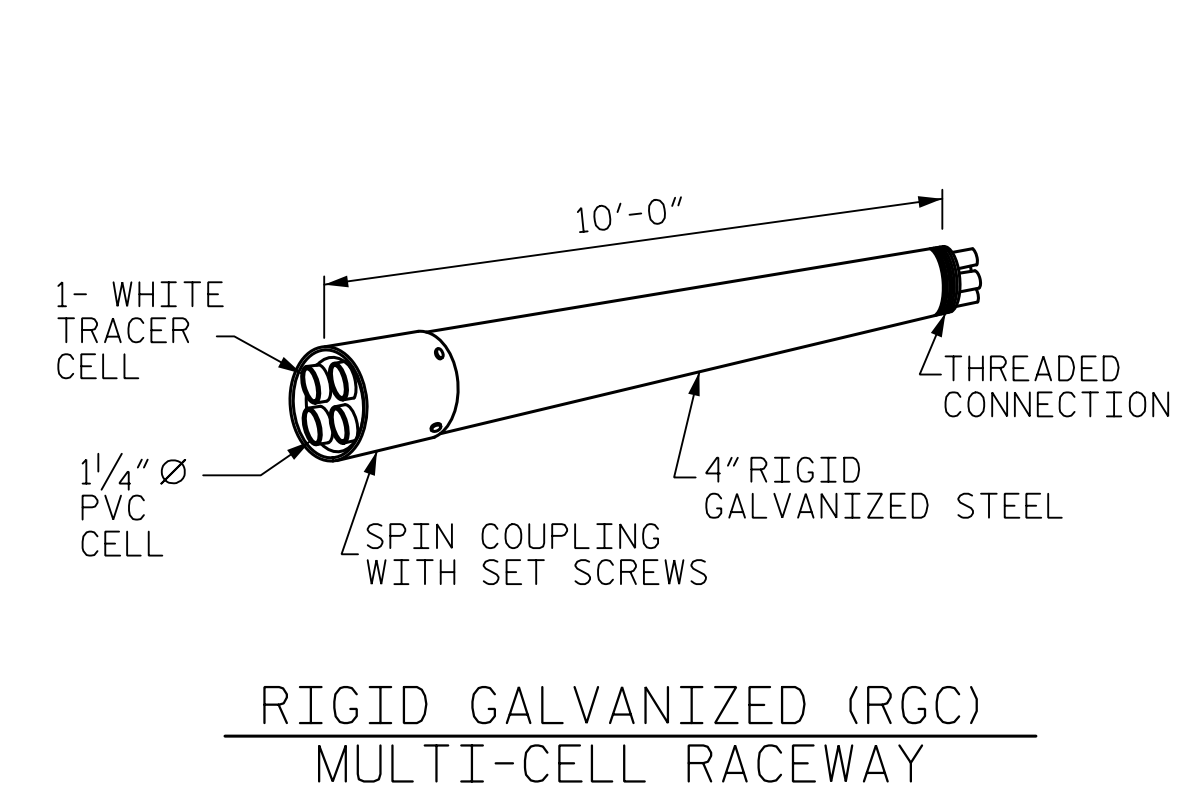
**HNTB** HNTB NORTH CAROLINA, P.C.  
 NC License No. C-1554  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: J. SLOAT DATE: 3/18/2019  
 CHECKED BY: J. BOHLANDER DATE: 3/18/2019  
 ENGINEER OF RECORD: J. BOHLANDER DATE: 3/18/2019

DWG. NO. 41

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S1-41
1			3			TOTAL SHEETS
2			4			47





**NOTES**

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE TOTAL QUANTITY OF CONDUIT NEEDED TO COMPLETE THE WORK AND THAT THE CONDUIT(S) ARE PLACED AT THE NOTED DIMENSION AND ABOVE THE BOTTOM OF THE GIRDER.

THE INSTALLATION OF THE CONDUIT SYSTEM SHALL BE PAID FOR AS LUMP SUM. THE PRICE SHALL INCLUDE ALL CONDUIT, HANGERS, STABILIZERS, EXPANSION JOINTS, CONCRETE INSERTS, PVC SLEEVES AND ALL NECESSARY HARDWARE TO COMPLETE THE WORK.

THE CONTRACTOR SHALL FIELD VERIFY THAT THE CONDUIT SYSTEM IS NOT IN CONFLICT WITH THE GUARDRAIL POSTS.

SEE DETAIL "C" FOR HANGER ASSEMBLY INSTALLATION.

INSTALL SLEEVES PARALLEL TO GIRDERS. SEE DETAIL "B" FOR SLEEVE INSTALLATION.

PROVIDE TRANSITION ADAPTOR AND EXPANSION JOINT FOR CONDUIT AT END BENT 1 AND END BENT 2.

INSTALL STABILIZER'S MIDWAY BETWEEN DECK EXPANSION JOINTS. STABILIZER CAN NOT BE USED INSTEAD OF A HANGER ASSEMBLY.

THE CONCRETE SCREW INSERT SHALL HAVE A ROD SIZE OF 5/8" AND A PULL FORCE OF 1260 lbs.

FOR ELECTRICAL CONDUIT SYSTEM FOR SIGNALS, SEE SPECIAL PROVISIONS.

RIGID GALVANIZED (RGC) MULTI-CELL RACEWAY

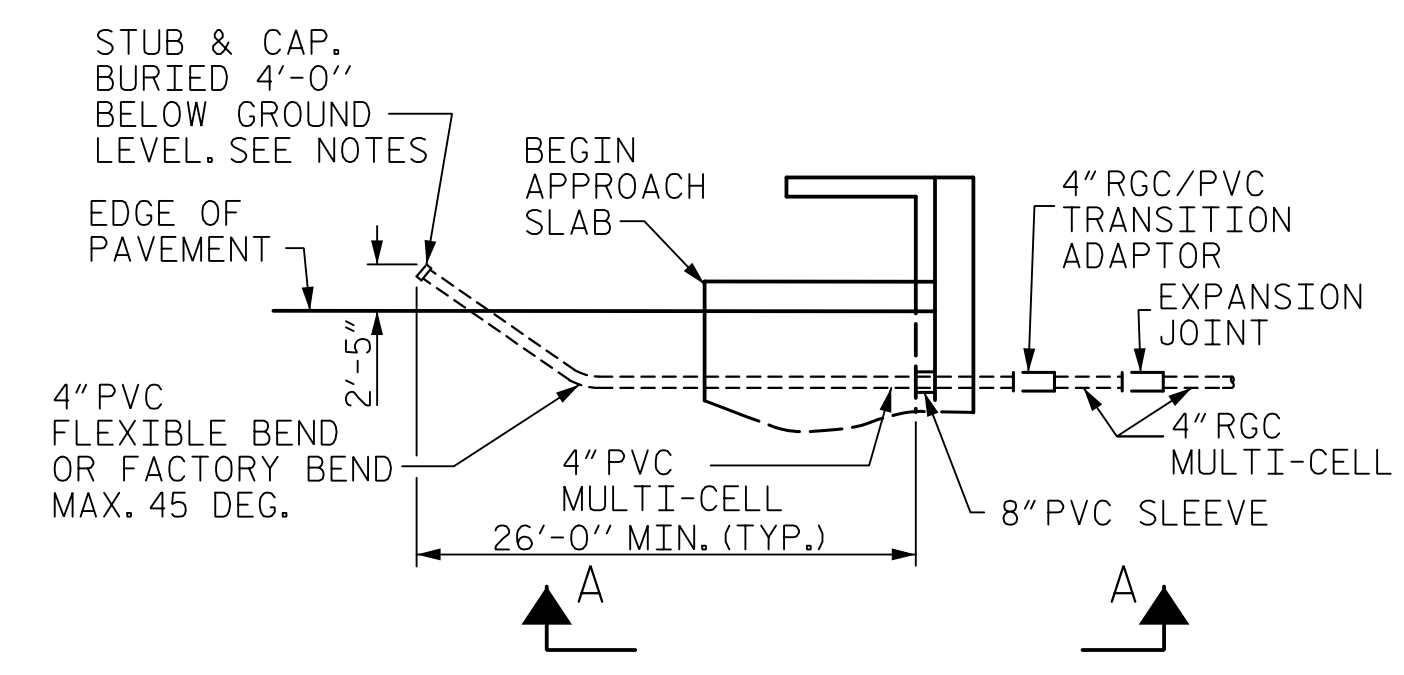
SCHEDULE 40 PVC MULTI-CELL RACEWAY

TRANSITION ADAPTER

EXPANSION JOINT FITTING

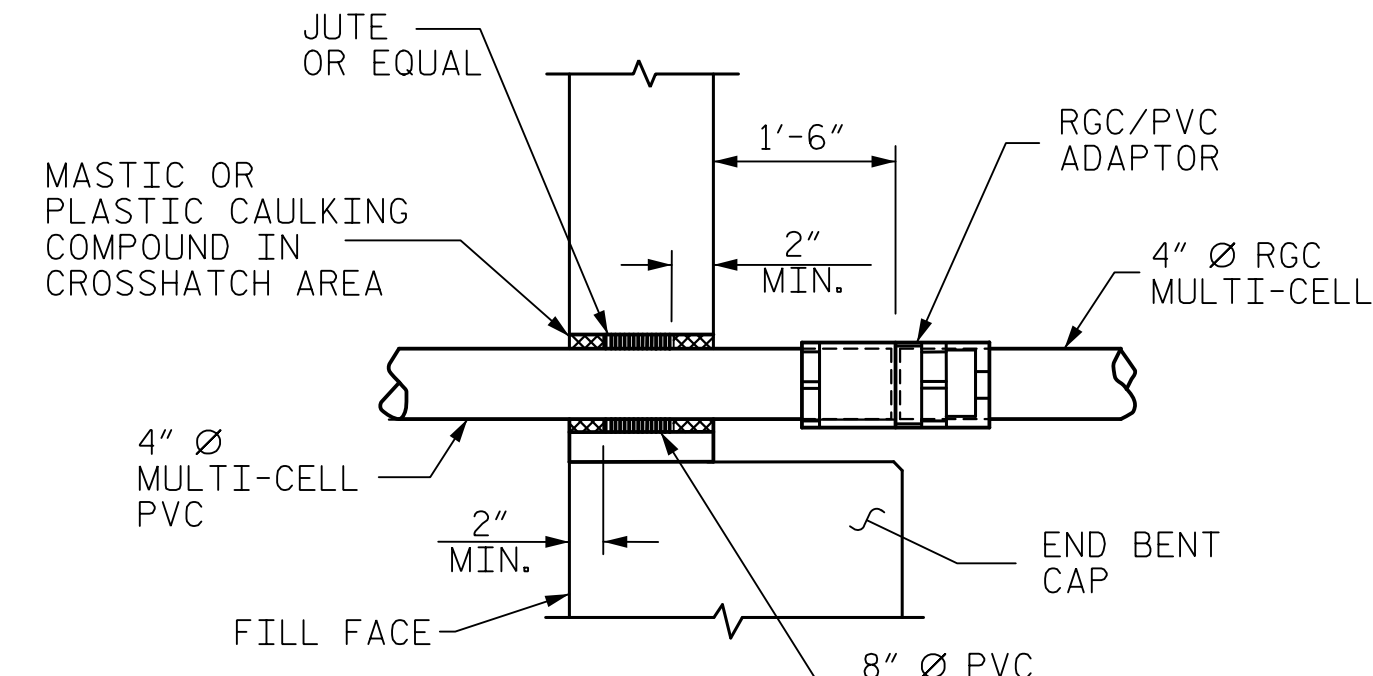
**DETAIL "D"**

4" MULTI-CELL COMPONENTS



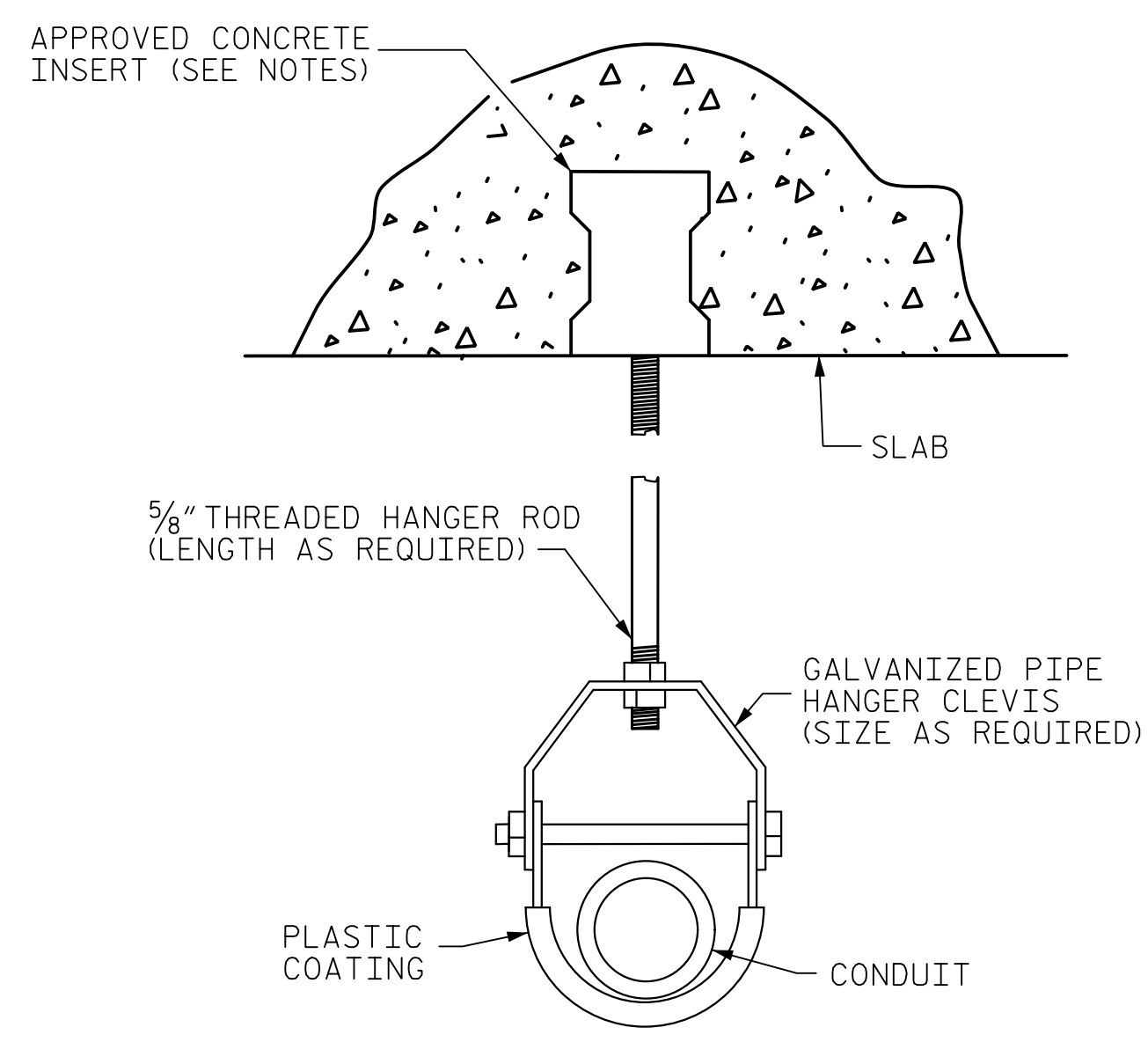
**DETAIL "A"**

TERMINATION OF CONDUIT AT WING WALL END BENT 1 SHOWN, END BENT 2 SIMILAR



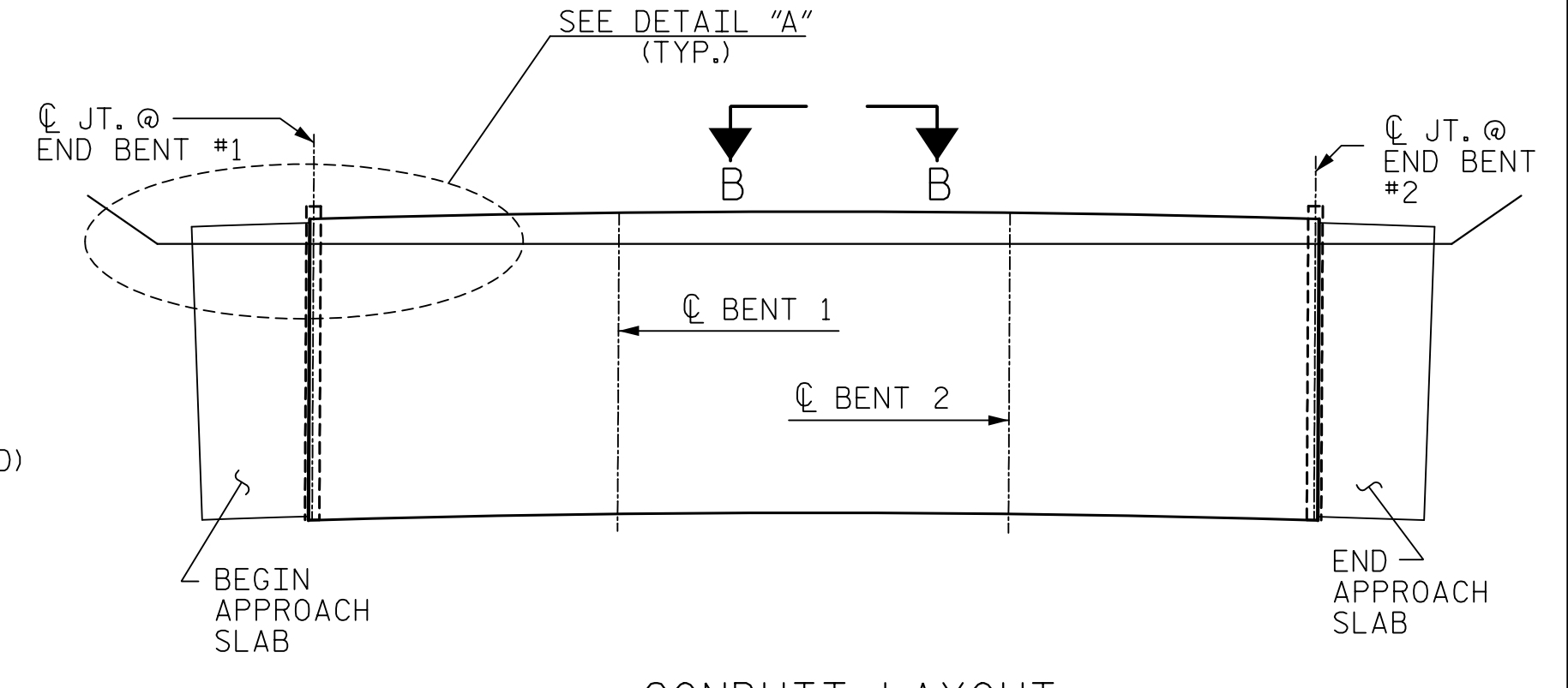
**DETAIL "B"**

PVC SLEEVE INSTALLATION & RGC/PVC ADAPTOR AT BACKWALL.



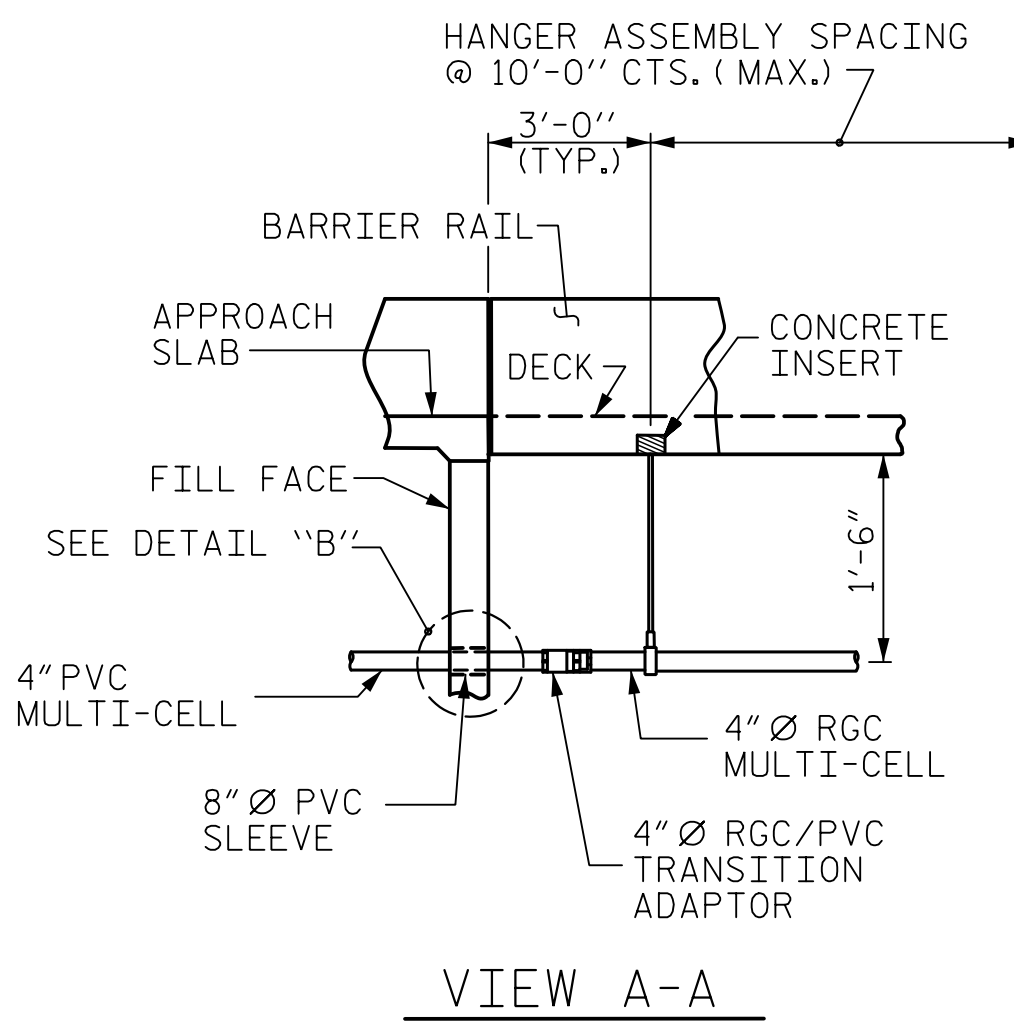
**DETAIL "C"**

HANGER ASSEMBLY

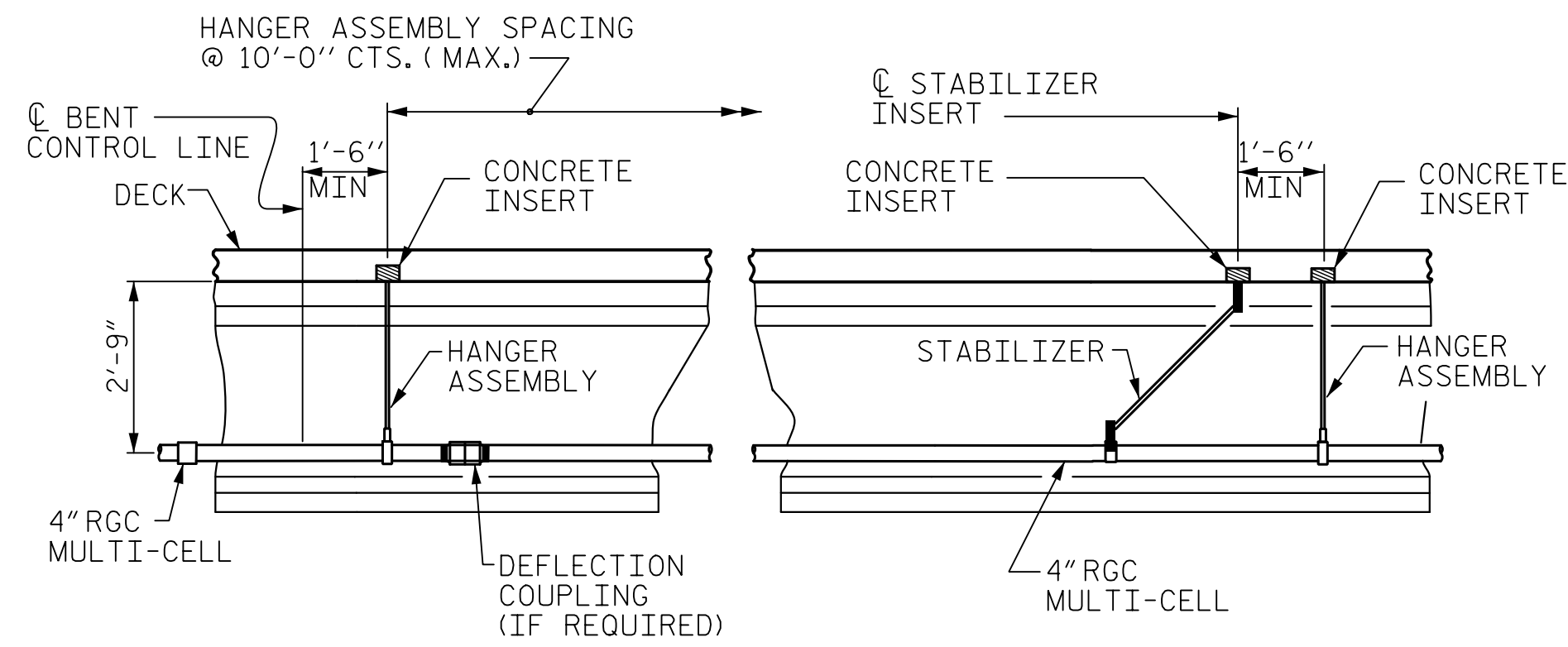


**CONDUIT LAYOUT**

NOTE: SUPERSTRUCTURE IS CONTINUOUS FOR LIVE LOAD OVER INTERIOR BENTS.

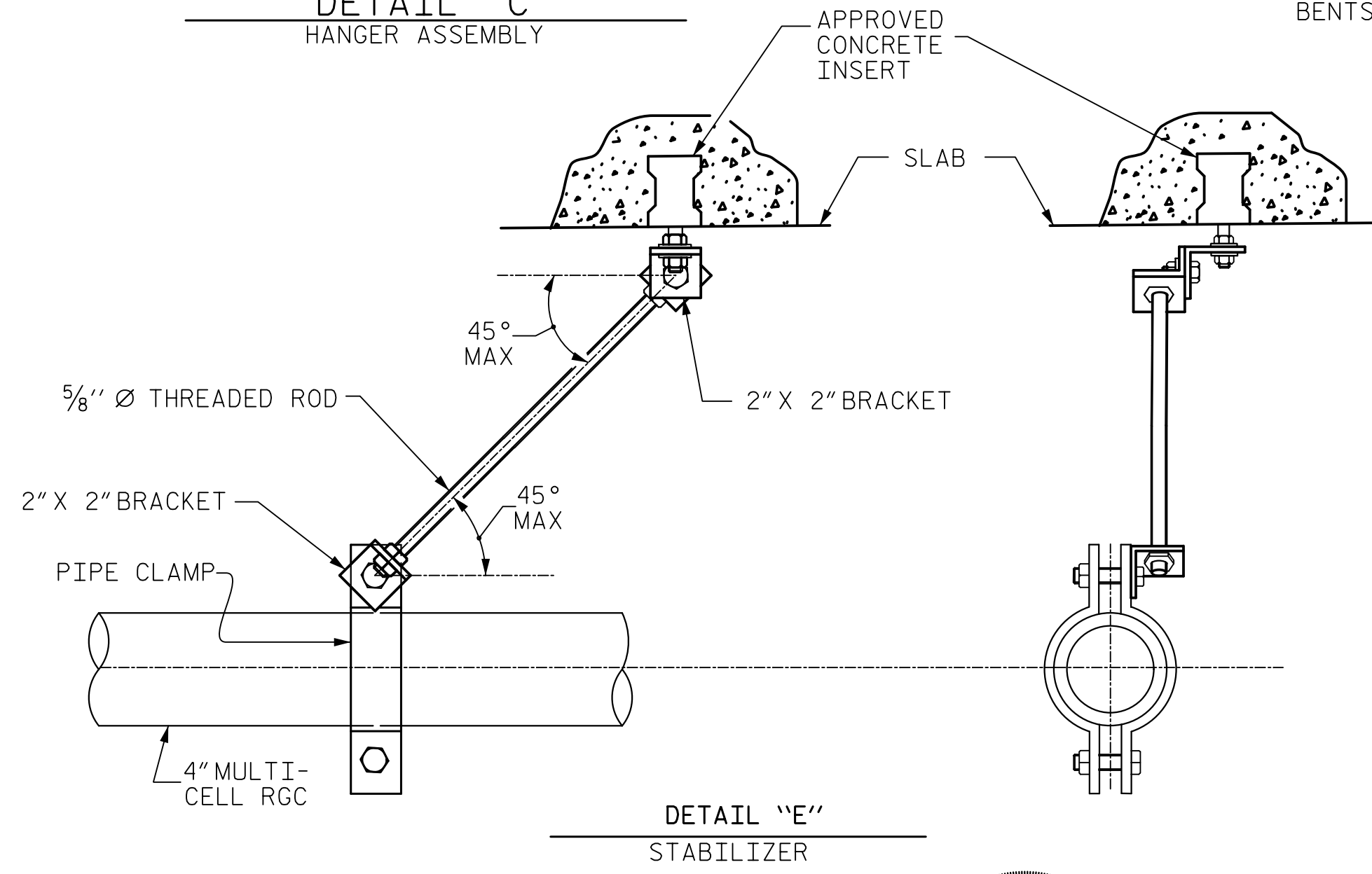


**VIEW A-A**



**VIEW B-B**

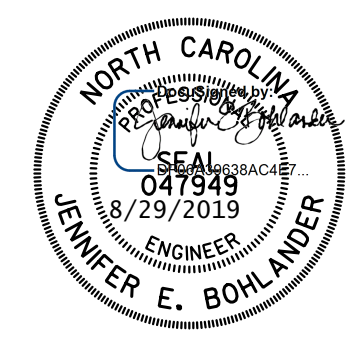
PRESTRESSED GIRDERS CONTINUOUS FOR LIVE LOAD



**DETAIL "E"**

STABILIZER

**ELECTRIC CONDUIT DETAILS**



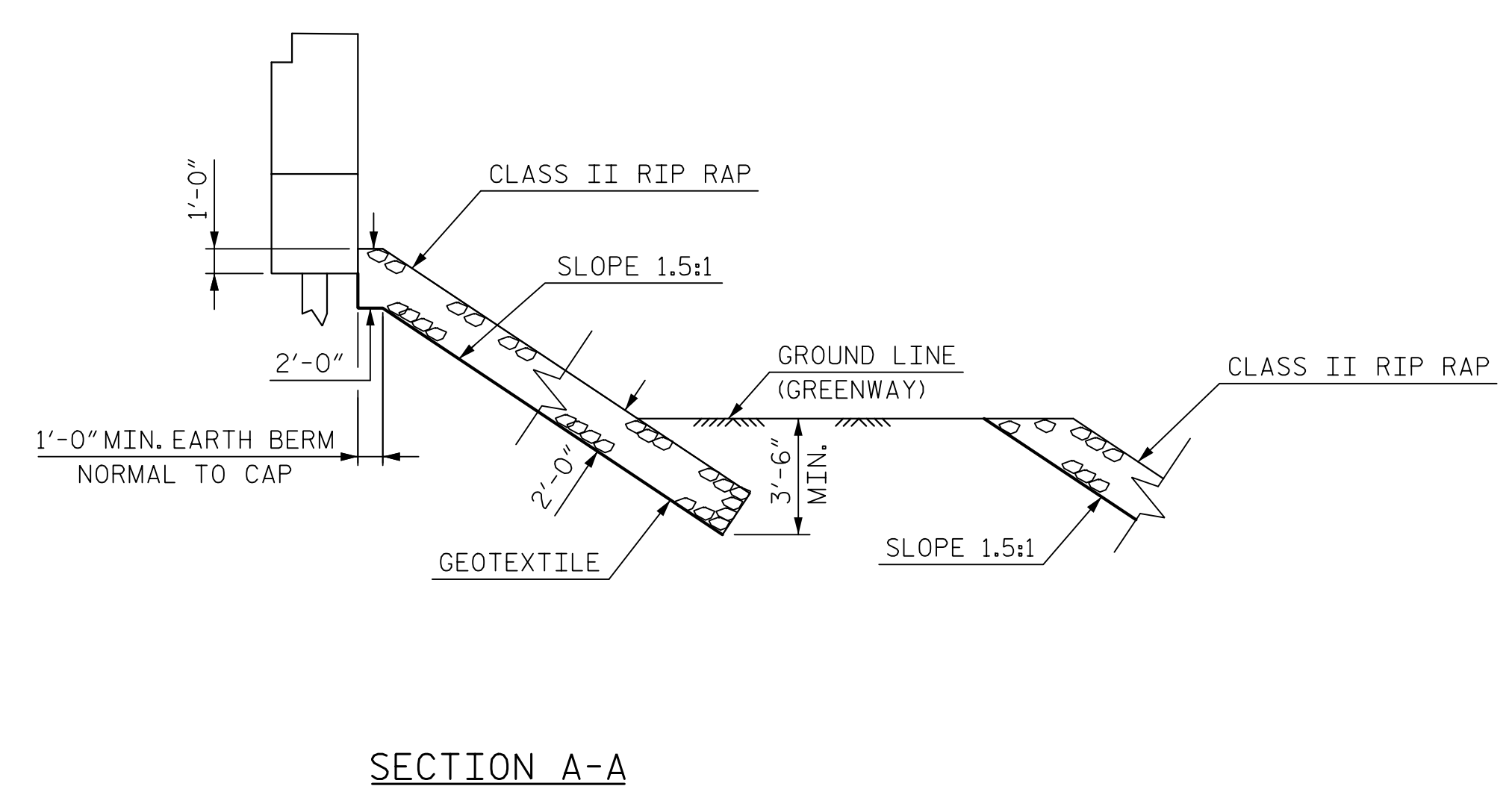
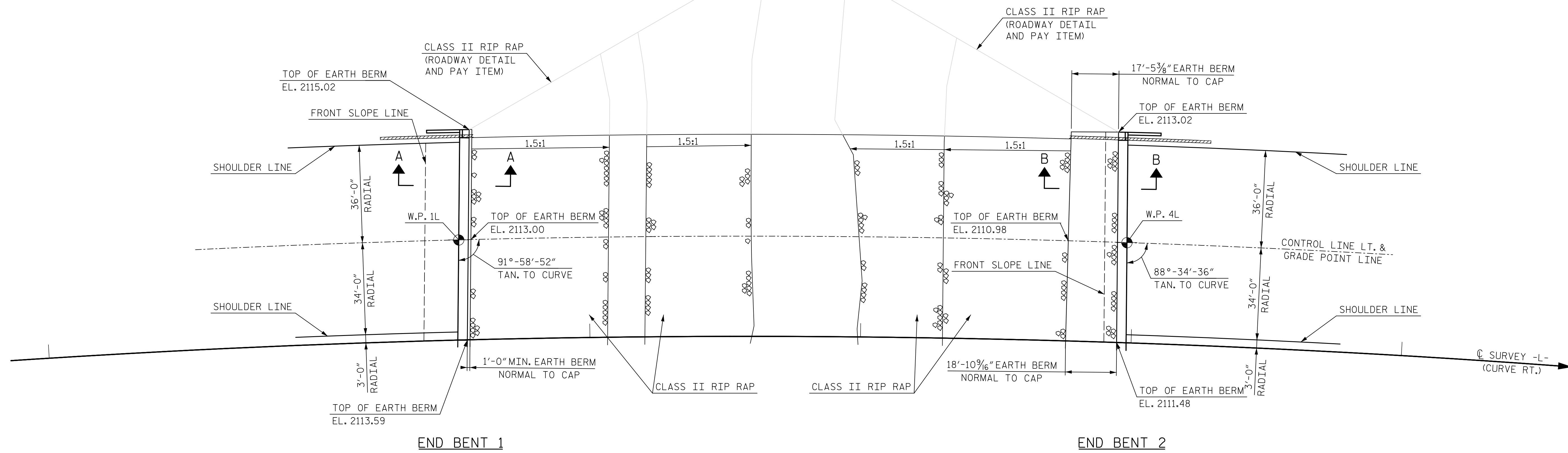
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 3/18/2019	DWG. NO. 42	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

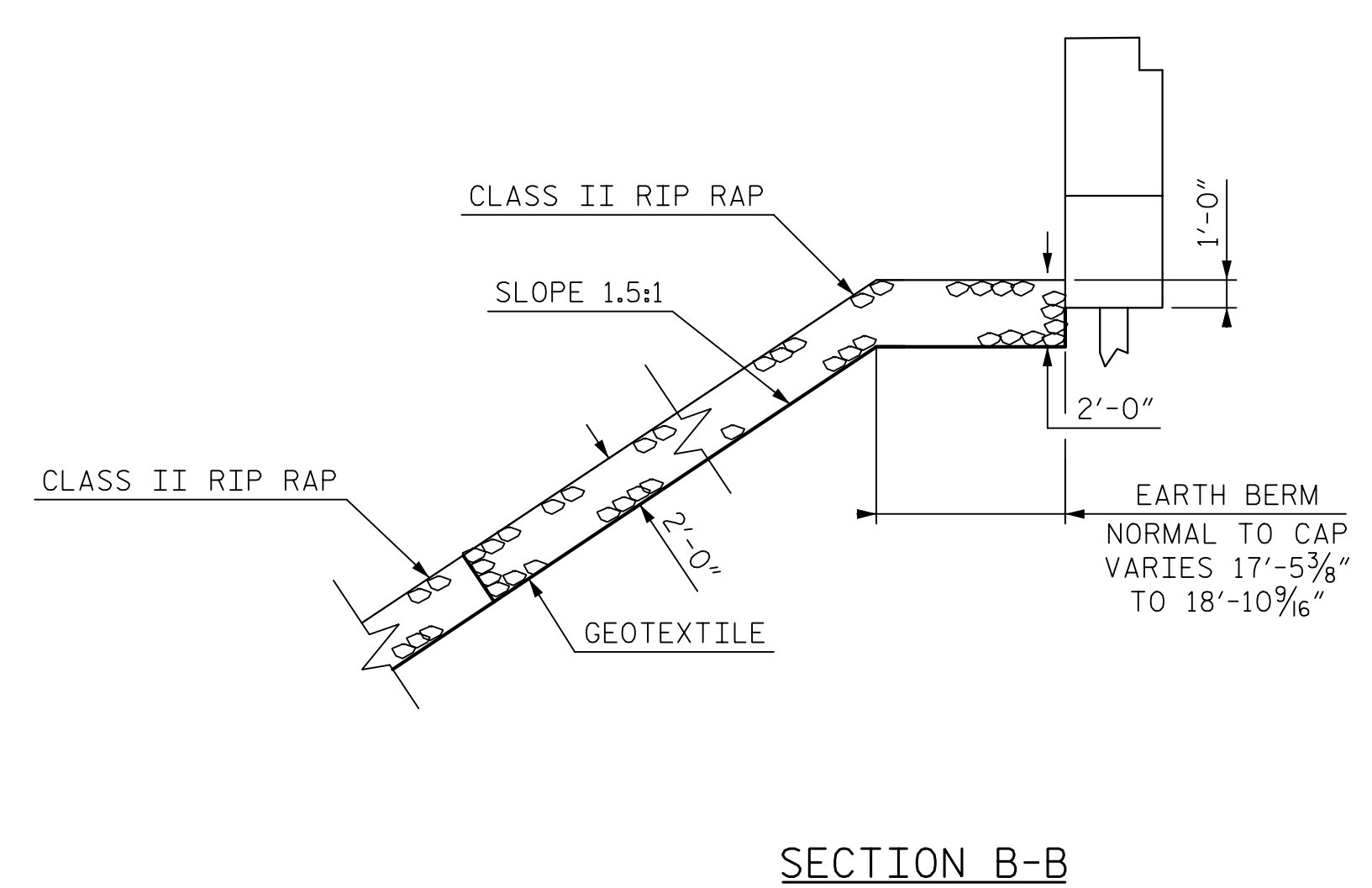
PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.
STANDARD						S1-42
ELECTRICAL CONDUIT SYSTEM FOR SIGNALS						TOTAL SHEETS
						47
REVISIONS						
NO.	BY	DATE	NO.	BY	DATE	
1			3			
2			4			

8/29/2019 2:25:11 PM \\MO1\003\_1440009\_SML\EC\_S042\_440212.dgn



SECTION A-A

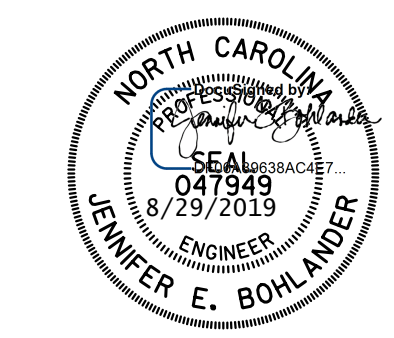


SECTION B-B

ESTIMATED QUANTITIES		
BRIDGE @ POC STA. 421+74.67 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	816	906
END BENT 2	841	934

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 1 OF 1



**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

**HNTB** HNTB NORTH CAROLINA, P.C.  
 NC License No. C-1554  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

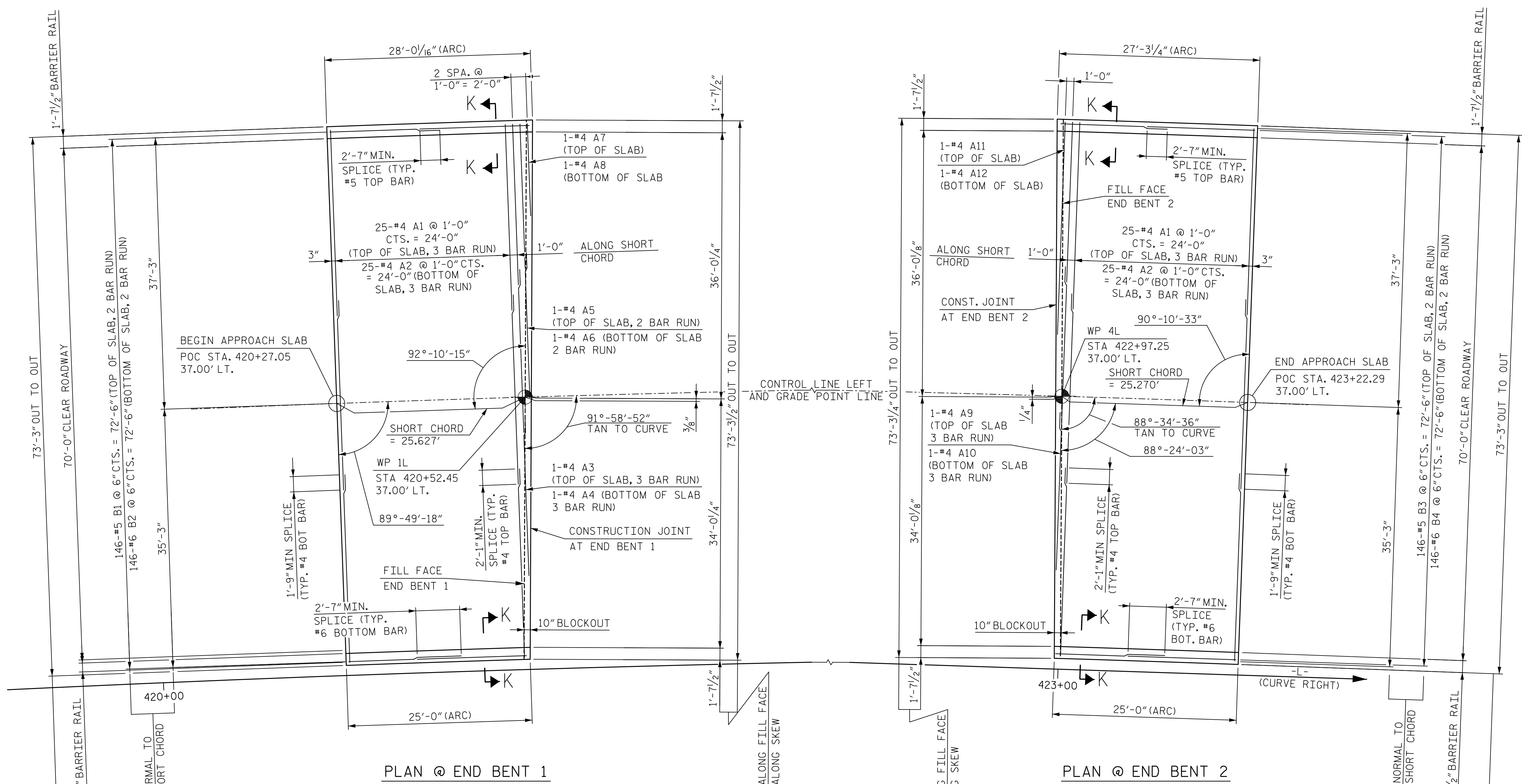
DRAWN BY: M. JULIAN DATE: 3/18/2019  
 CHECKED BY: J. BOHLANDER DATE: 3/18/2019  
 ENGINEER OF RECORD: J. BOHLANDER DATE: 3/18/2019

DWG. NO. 43

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD RIP RAP DETAILS					
REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
					TOTAL SHEETS
					47

8/29/2019 2:25:14 PM ...\\01\_085\_1440009\_SML\_RR\_043\_440212.dgn

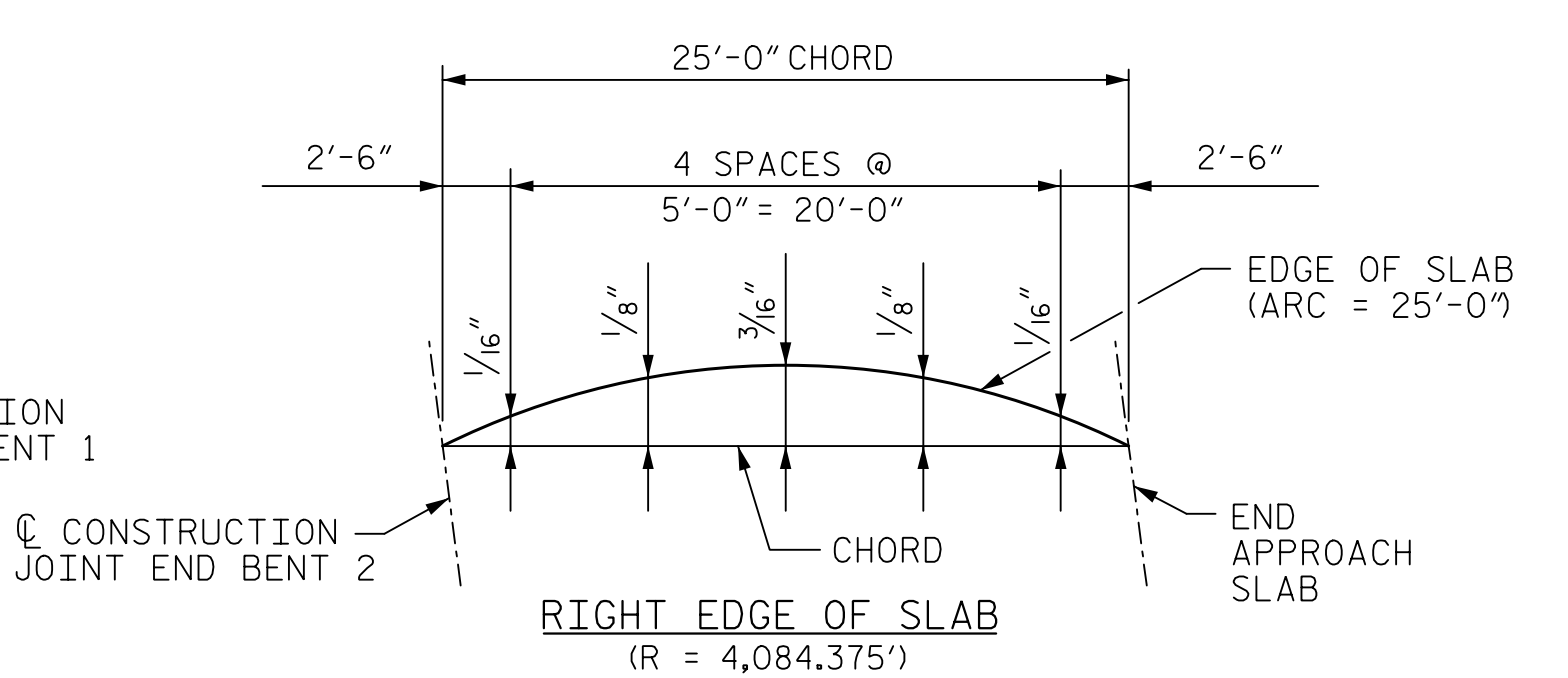
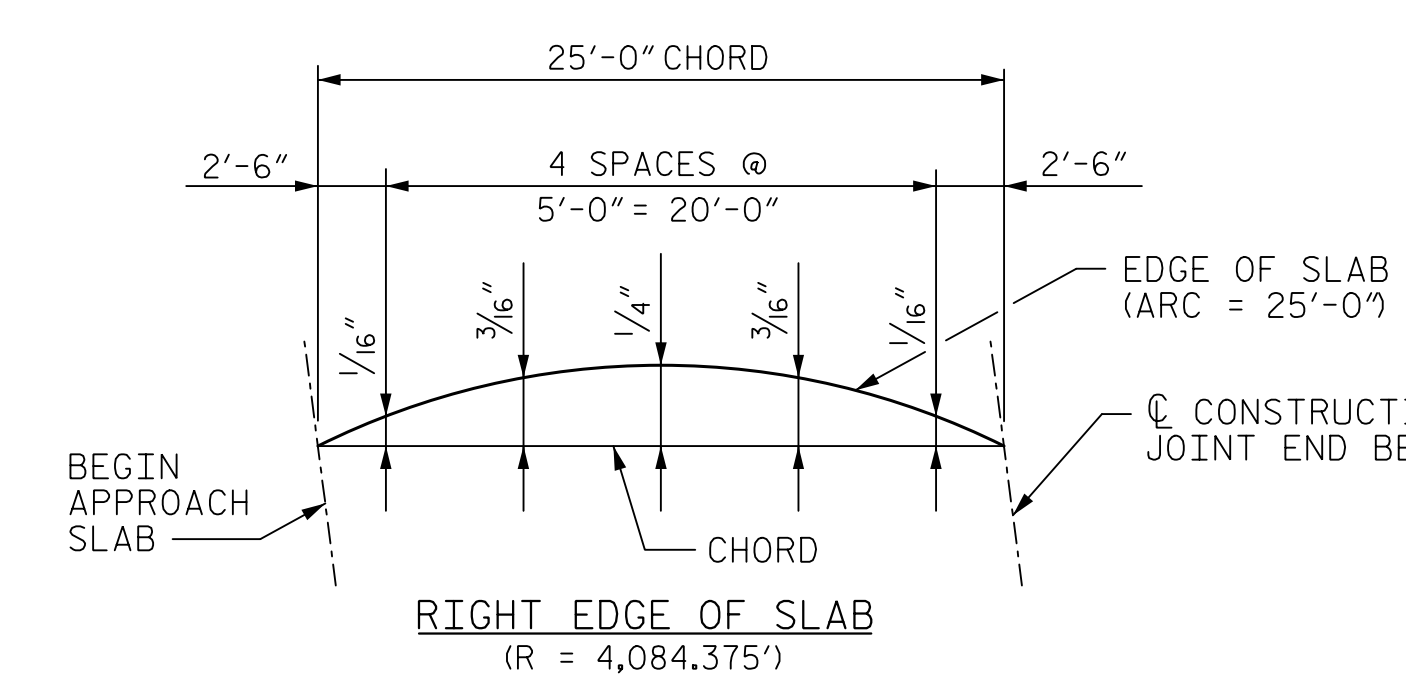
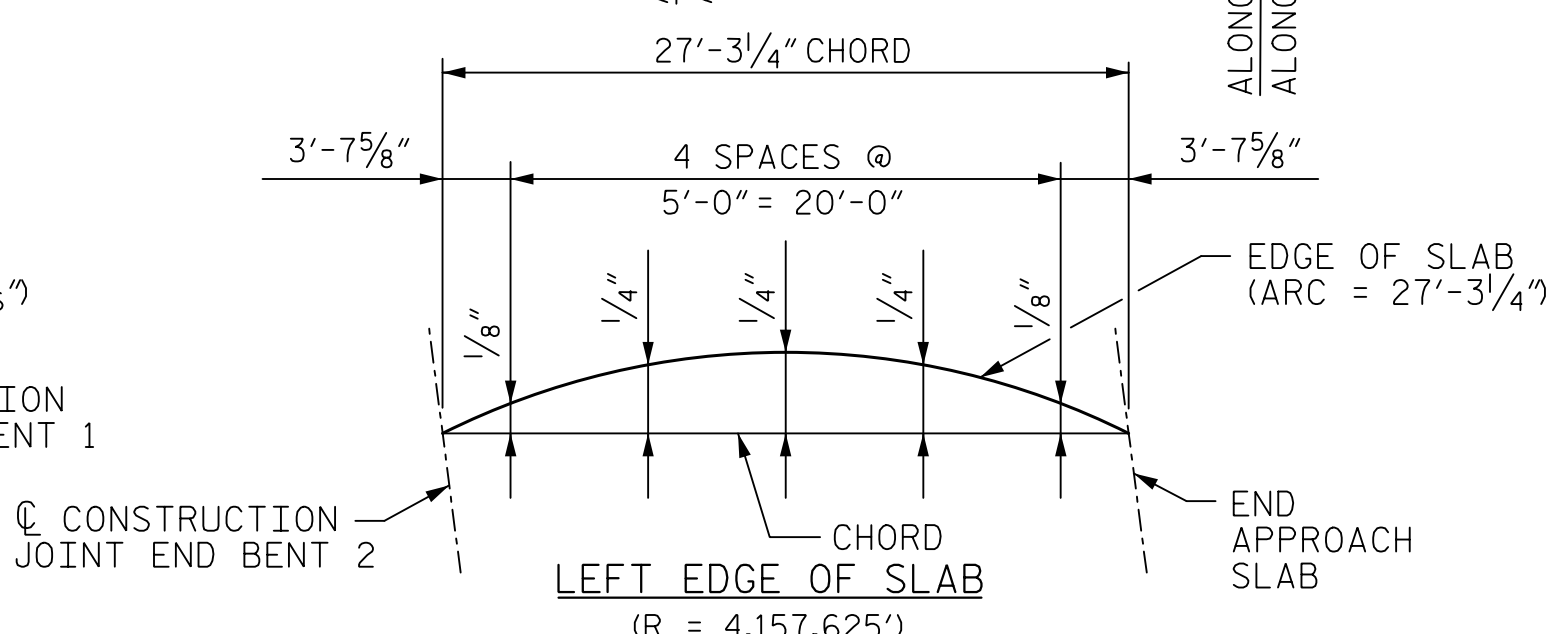
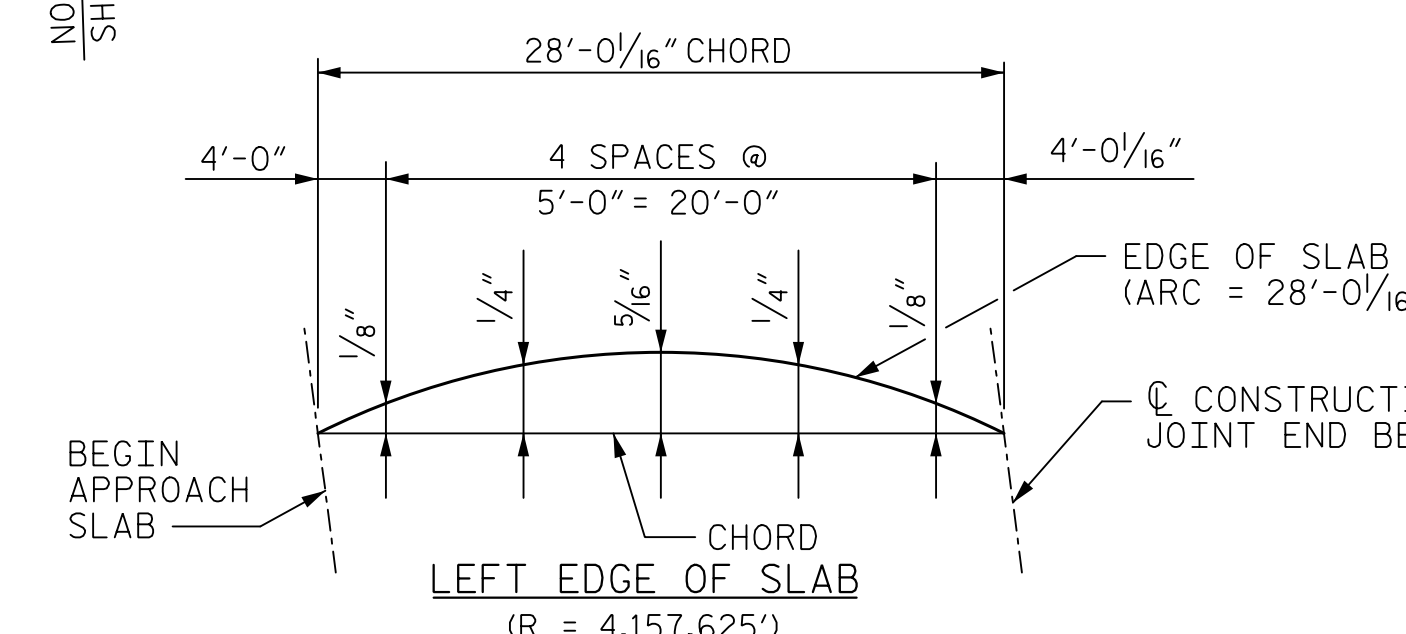




**NOTES:**  
 FOR SECTION K-K, SEE "BRIDGE APPROACH SLAB DETAILS" SHEET 2 OF 4.  
 FOR APPROACH SLAB BILL OF MATERIAL, SEE "BRIDGE APPROACH SLAB DETAILS" SHEET 2 OF 4.  
 FOR SECTION THROUGH SLAB, SEE "BRIDGE APPROACH SLAB DETAILS" SHEET 2 OF 4.

PLAN @ END BENT 1

PLAN @ END BENT 2



CURVE OFFSETS - APPROACH SLAB AT END BENT 1

CURVE OFFSETS - APPROACH SLAB AT END BENT 2

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 1 OF 4



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 3/18/2019	DWG. NO. 44	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD					
BRIDGE APPROACH SLAB FOR INTEGRAL END BENT					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
					SHEET NO. S1-44
					TOTAL SHEETS 47

8/29/2019 2:52:11 PM ...\_NOT\_LOST\_14400BB\_SML\_ASO1\_04\_440212.dgn

### NOTES

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

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 6" Ø DRAINAGE PIPE, AND SELECT MATERIAL, SEE ROADWAY PLANS.

GEOTEXTILE SHALL BE TYPE I IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

SELECT MATERIAL BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 6" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

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

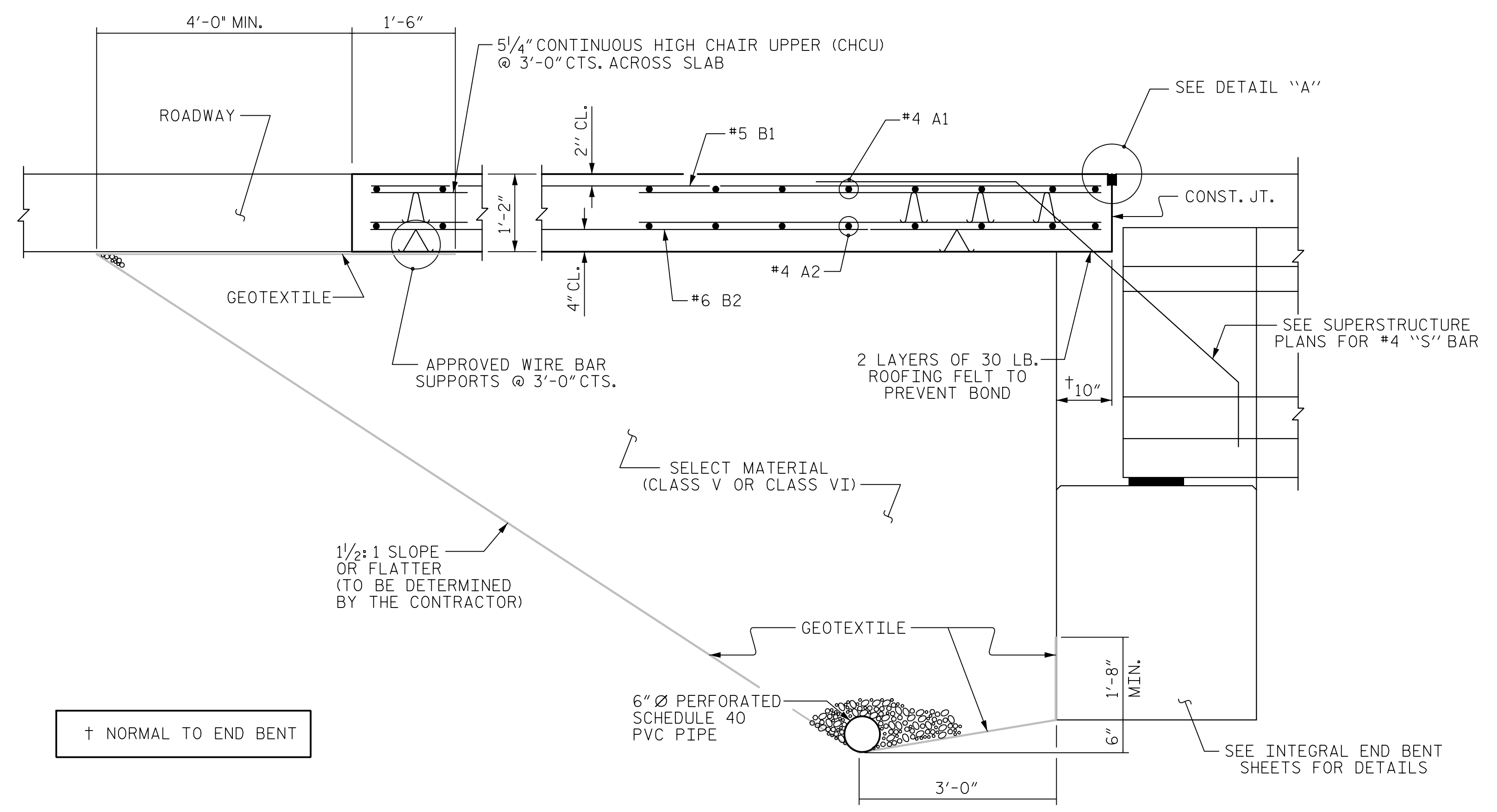
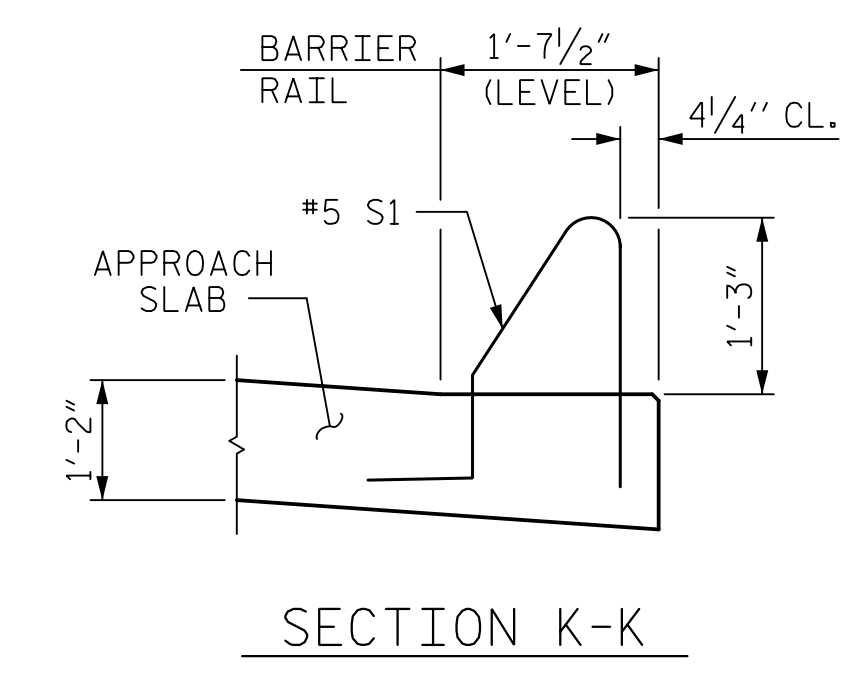
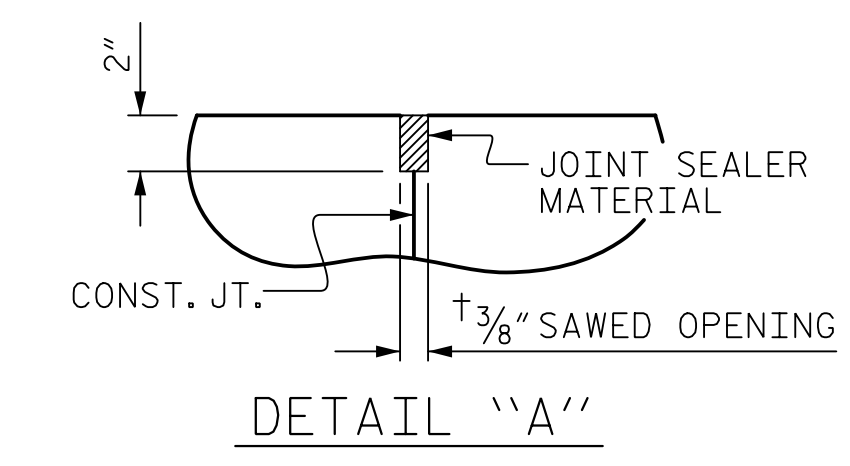
THE JOINT OPENING AT THE APPROACH SLAB/DECK INTERFACE SHALL BE SAWED NO MORE THAN 12 HOURS AFTER THE APPROACH SLAB IS CAST. THE JOINT SHALL BE CLEANED OF ALL DEBRIS BEFORE THE SEALANT IS APPLIED. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1028-3 OF THE STANDARD SPECIFICATIONS.

AT THE CONTRACTORS OPTION, "TYPE A - ALTERNATE APPROACH FILL" IN LIEU OF TYPE I - STANDARD APPROACH FILL MAY BE CONSTRUCTED AT NO ADDITIONAL COST TO THE DEPARTMENT. SEE SHEET 2 OF 4 FOR DETAILS AND NOTES.

BILL OF MATERIAL					
FOR APPROACH SLAB AT END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	75	#4	STR	25'-9"	1,290
A2	75	#4	STR	25'-6"	1,278
* A3	3	#4	STR	22'-2"	44
A4	3	#4	STR	22'-0"	44
* A5	2	#4	STR	19'-11"	27
A6	2	#4	STR	19'-9"	26
* A7	1	#4	STR	13'-2"	9
A8	1	#4	STR	13'-2"	9
* B1	292	#5	STR	15'-2"	4,619
B2	292	#6	STR	15'-2"	6,652
REINFORCING STEEL				LBS.	8,009
* EPOXY COATED REINFORCING STEEL				LBS.	5,989
CLASS AA CONCRETE				CU. YDS.	83.9

BILL OF MATERIAL					
FOR APPROACH SLAB AT END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	75	#4	STR	25'-9"	1,290
A2	75	#4	STR	25'-6"	1,278
* A9	3	#4	STR	21'-11"	44
A10	3	#4	STR	21'-9"	44
* A11	1	#4	STR	29'-2"	19
A12	1	#4	STR	29'-2"	19
* B3	292	#5	STR	14'-10"	4,518
B4	292	#6	STR	14'-10"	6,506
REINFORCING STEEL				LBS.	7,847
* EPOXY COATED REINFORCING STEEL				LBS.	5,871
CLASS AA CONCRETE				CU. YDS.	82.7

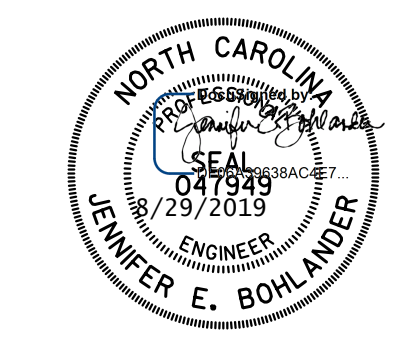


SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-1"	1'-9"
#5	2'-7"	2'-2"
#6	3'-10"	2'-7"

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 2 OF 4

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



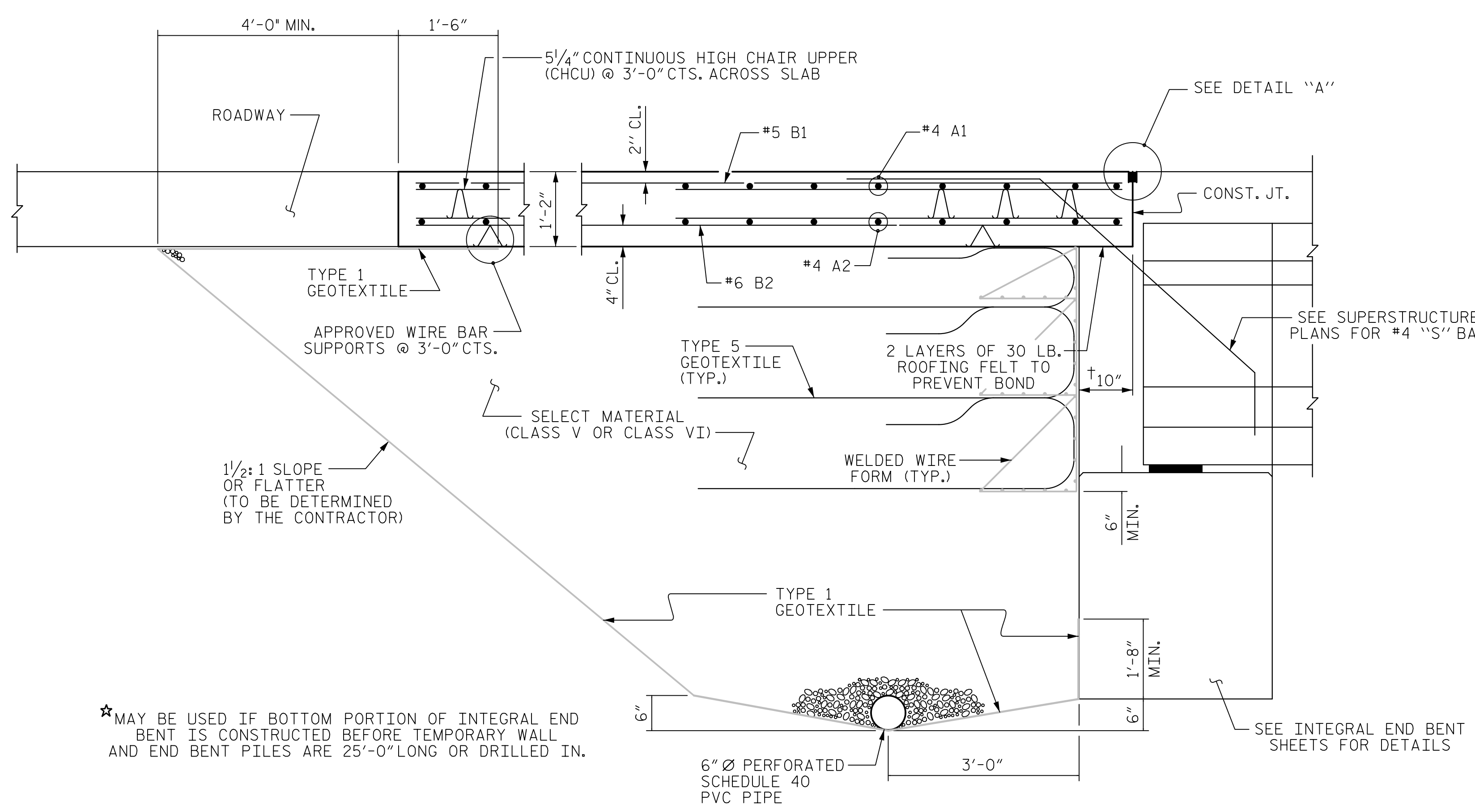
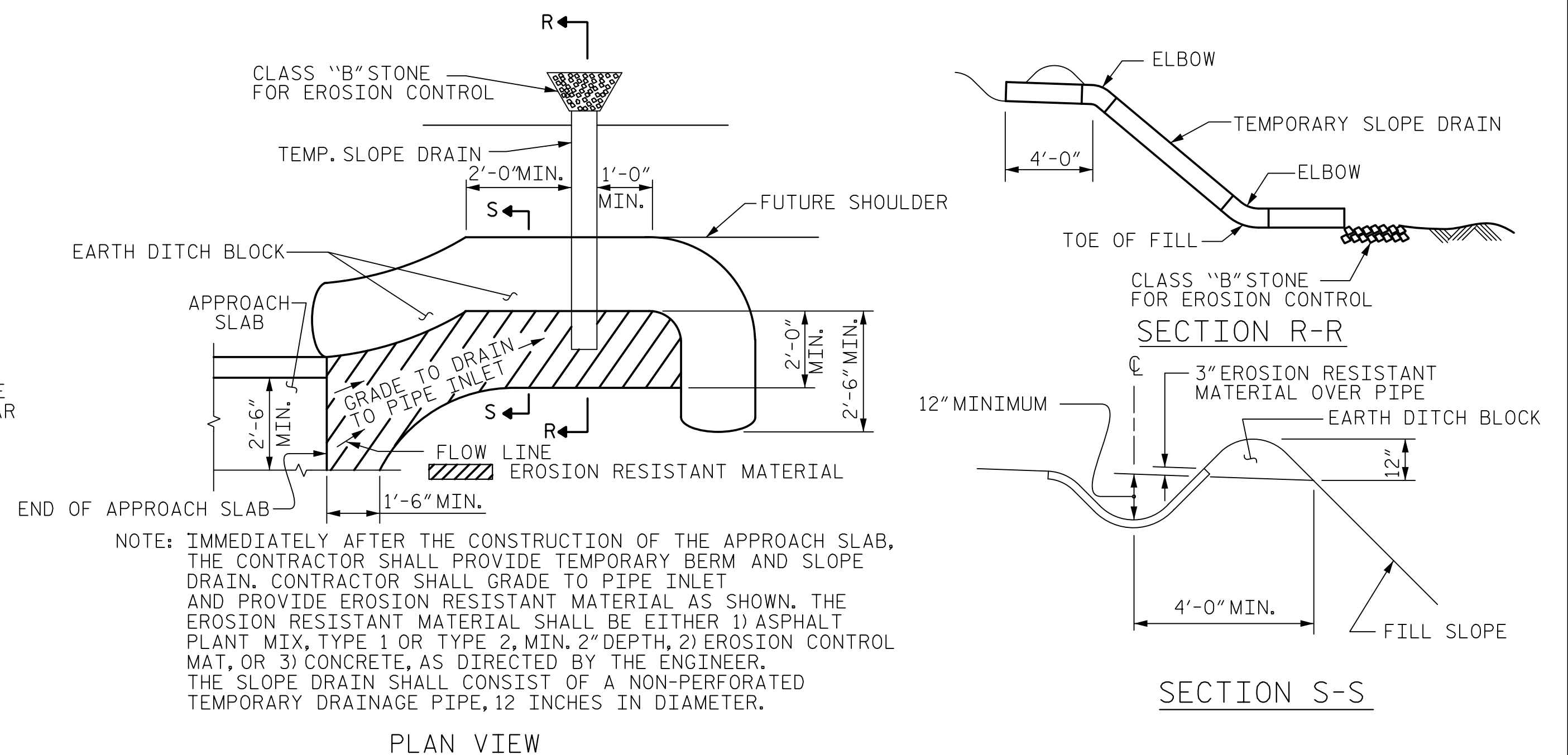
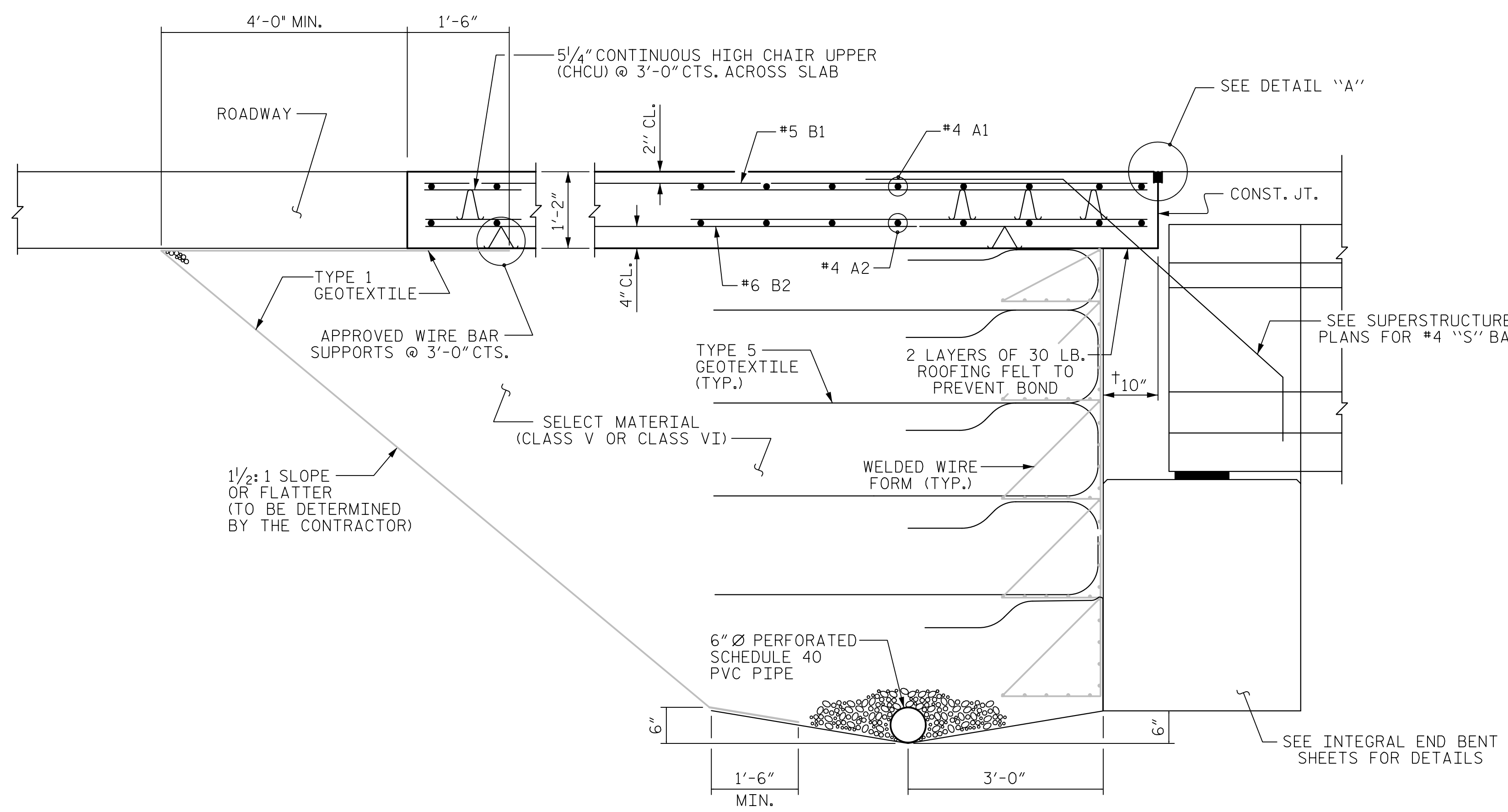
**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 3/18/2019	DWG. NO. 45	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S1-45
1			3			TOTAL SHEETS 47
2			4			

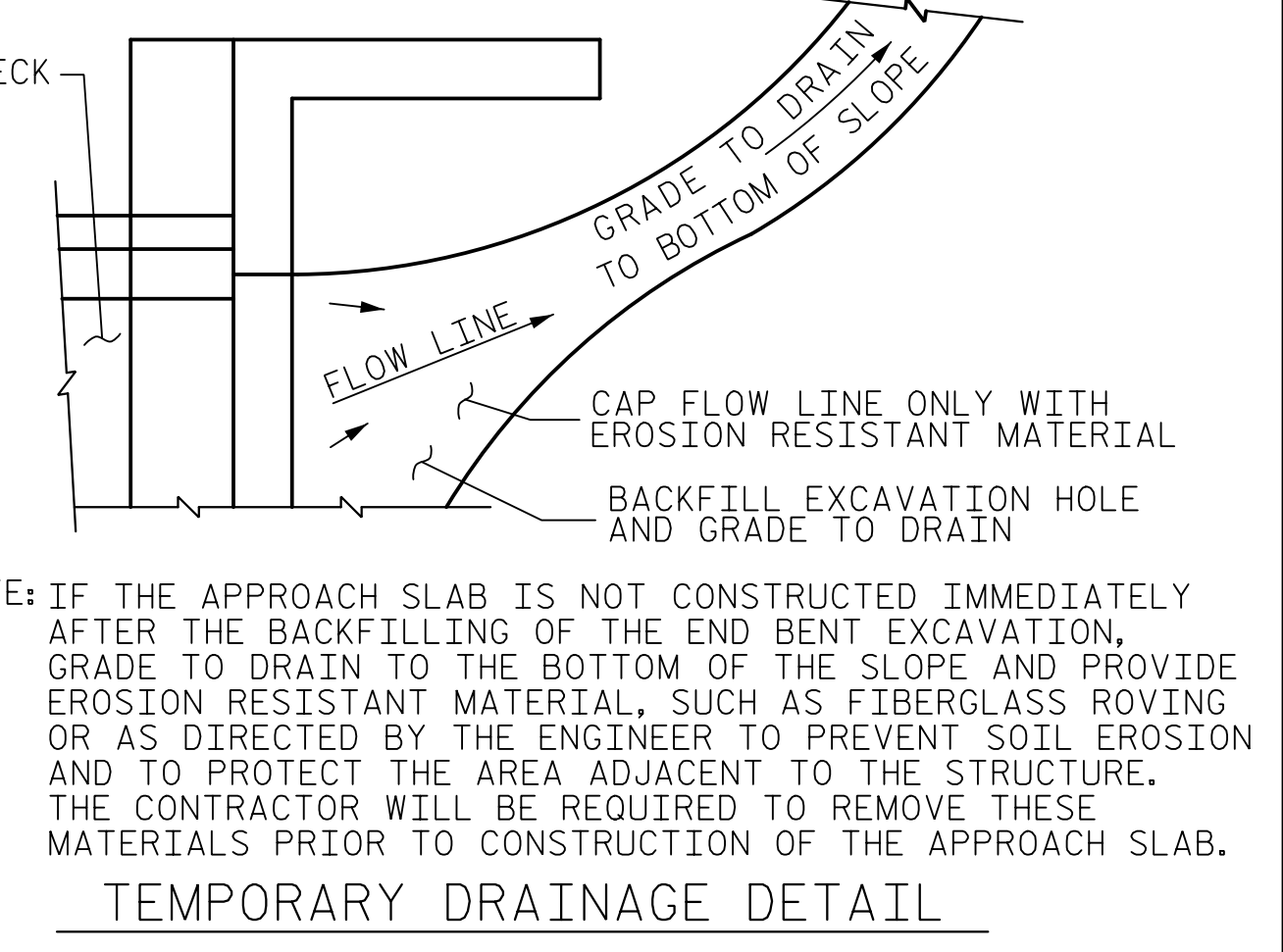
8/29/2019 2:55:23 PM \\MOT\_L089\_144000B9\_SML\_AS02\_045\_4402\_12.dgn





NOTES

- APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.
- FOR TEMPORARY GEOTEXTILE WALL INCLUDING GEOTEXTILE, 6" Ø DRAINAGE PIPE, WELDED WIRE FORM, AND SELECT MATERIAL, SEE ROADWAY PLANS.
- GEOTEXTILE (TYPE 1 OR TYPE 5) SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.
- SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.
- SELECT MATERIAL BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.
- FOR THE 6" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.
- AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.
- THE JOINT OPENING AT THE APPROACH SLAB/DECK INTERFACE SHALL BE SAWS NO MORE THAN 12 HOURS AFTER THE APPROACH SLAB IS CAST. THE JOINT SHALL BE CLEANED OF ALL DEBRIS BEFORE THE SEALANT IS APPLIED. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1028-3 OF THE STANDARD SPECIFICATIONS.



PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 3 OF 4

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

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S1-46
1			3			TOTAL SHEETS 47
2			4			

**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

**HNTB** HNTB NORTH CAROLINA, P.C.  
 NC License No. C-1554  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

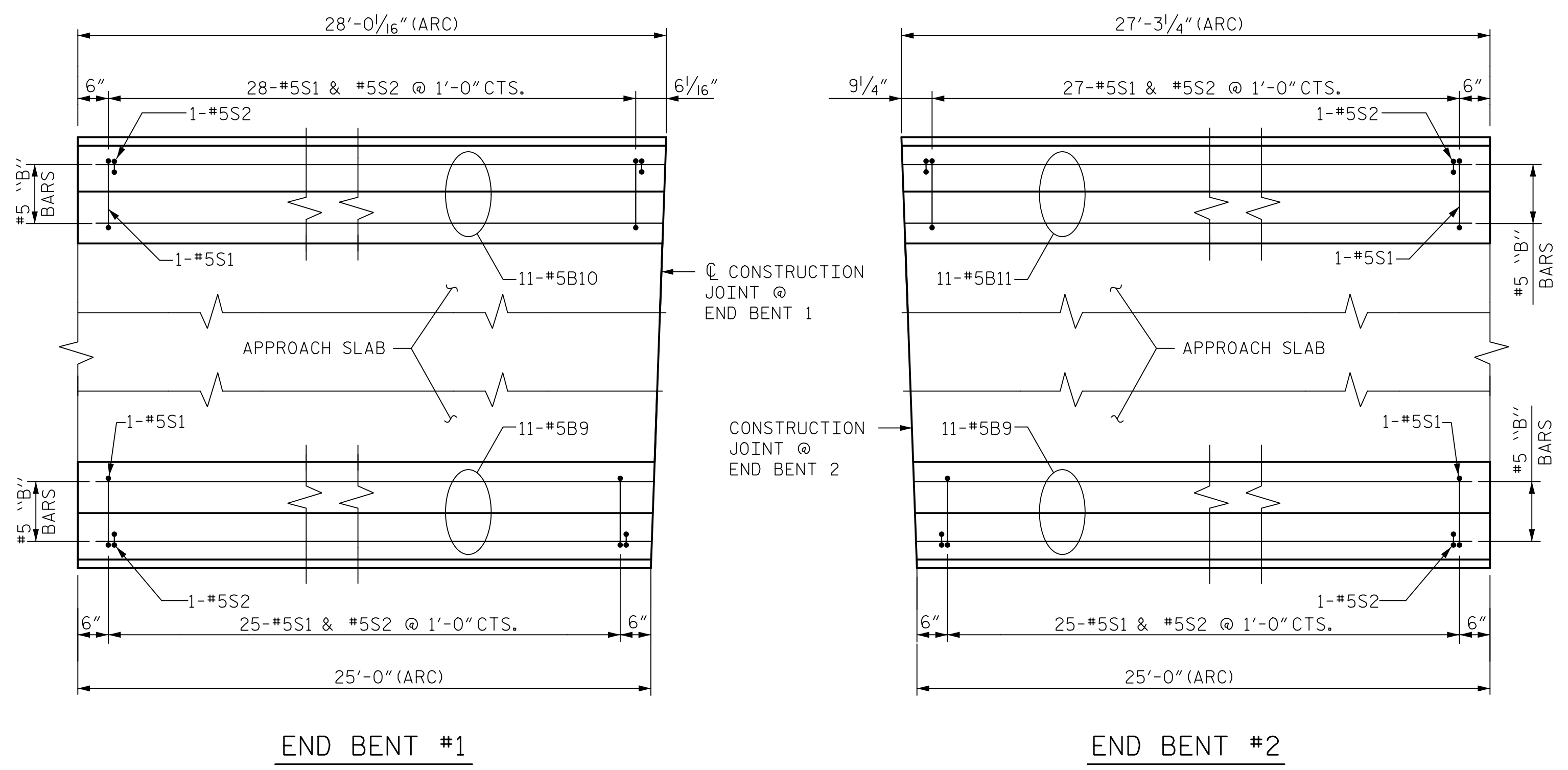
DRAWN BY: J. SLOAT DATE: 3/18/2019  
 CHECKED BY: J. BOHLANDER DATE: 3/18/2019  
 ENGINEER OF RECORD: J. BOHLANDER DATE: 3/18/2019

DWG. NO. 46

8/29/2019 2:55:25 PM \\MOT\_L091.L1440089\_SML\_A503\_046\_440212.dgn

ASSEMBLED BY : N.HART	DATE : 7/12/19
CHECKED BY :	DATE :
DRAWN BY : TLA 10/05	REV. 12/21/11 MAA/GM
CHECKED BY : GM 5/06	REV. 6/13 MAA/GM
	REV. 12/17 MAA/THC

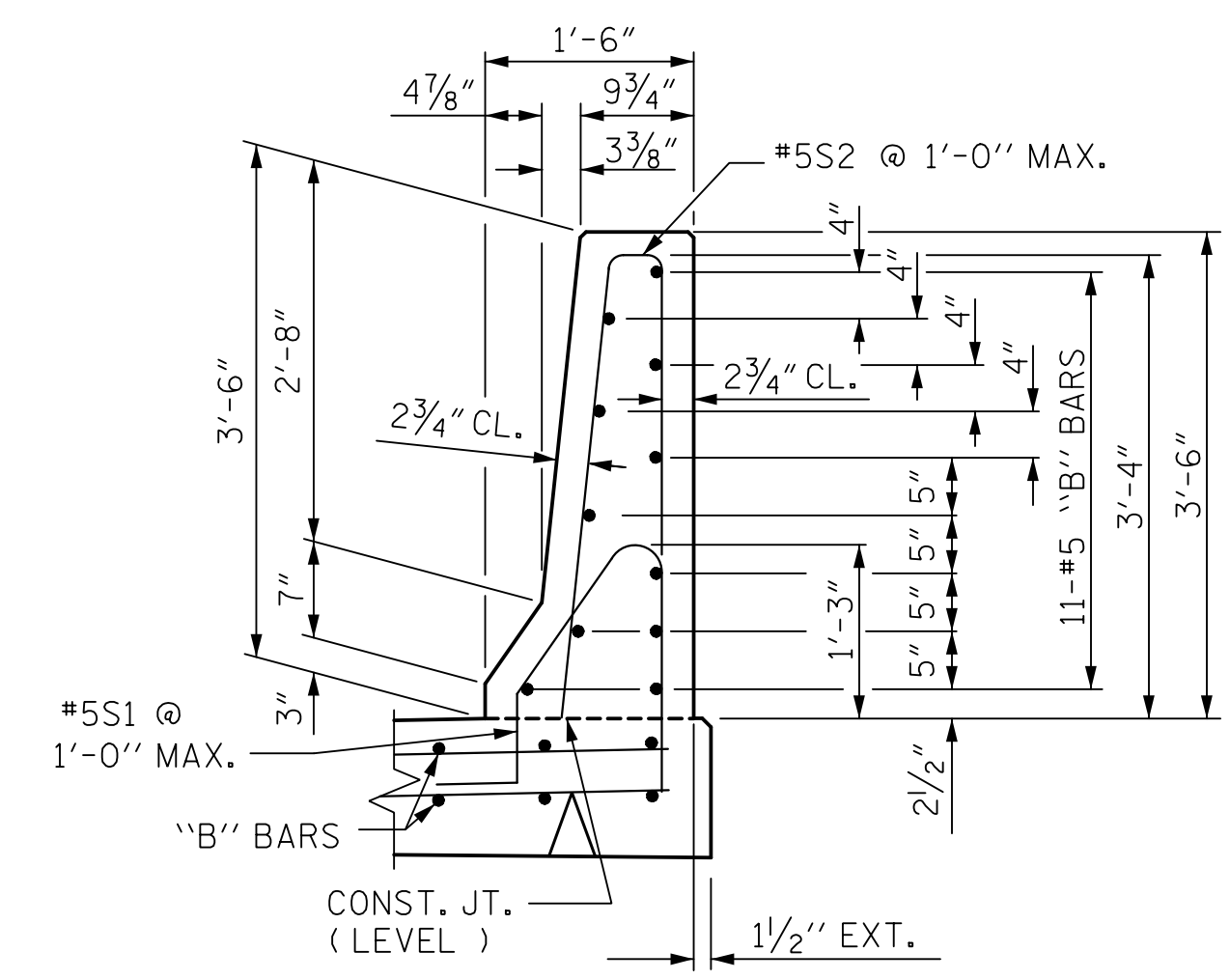
SECTION THRU SLAB  
 (TYPE A - ALTERNATE APPROACH FILL)



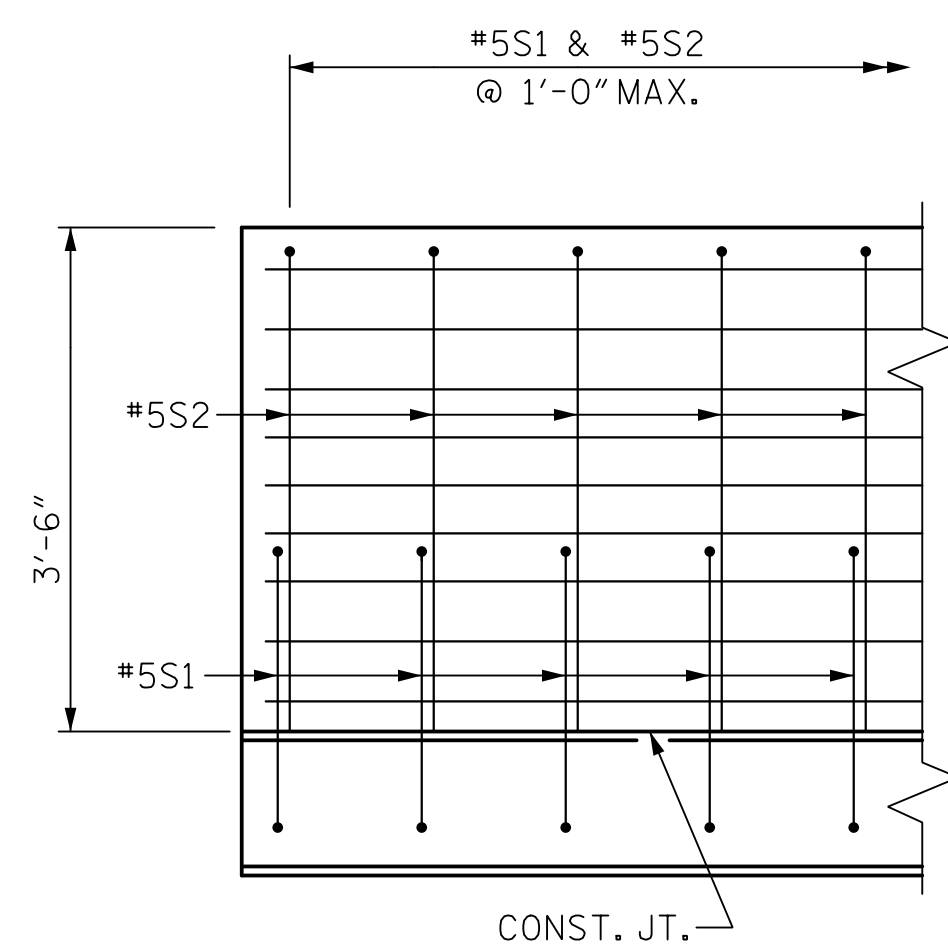
END BENT #1

END BENT #2

PLAN OF BARRIER RAIL



SECTION THRU RAIL

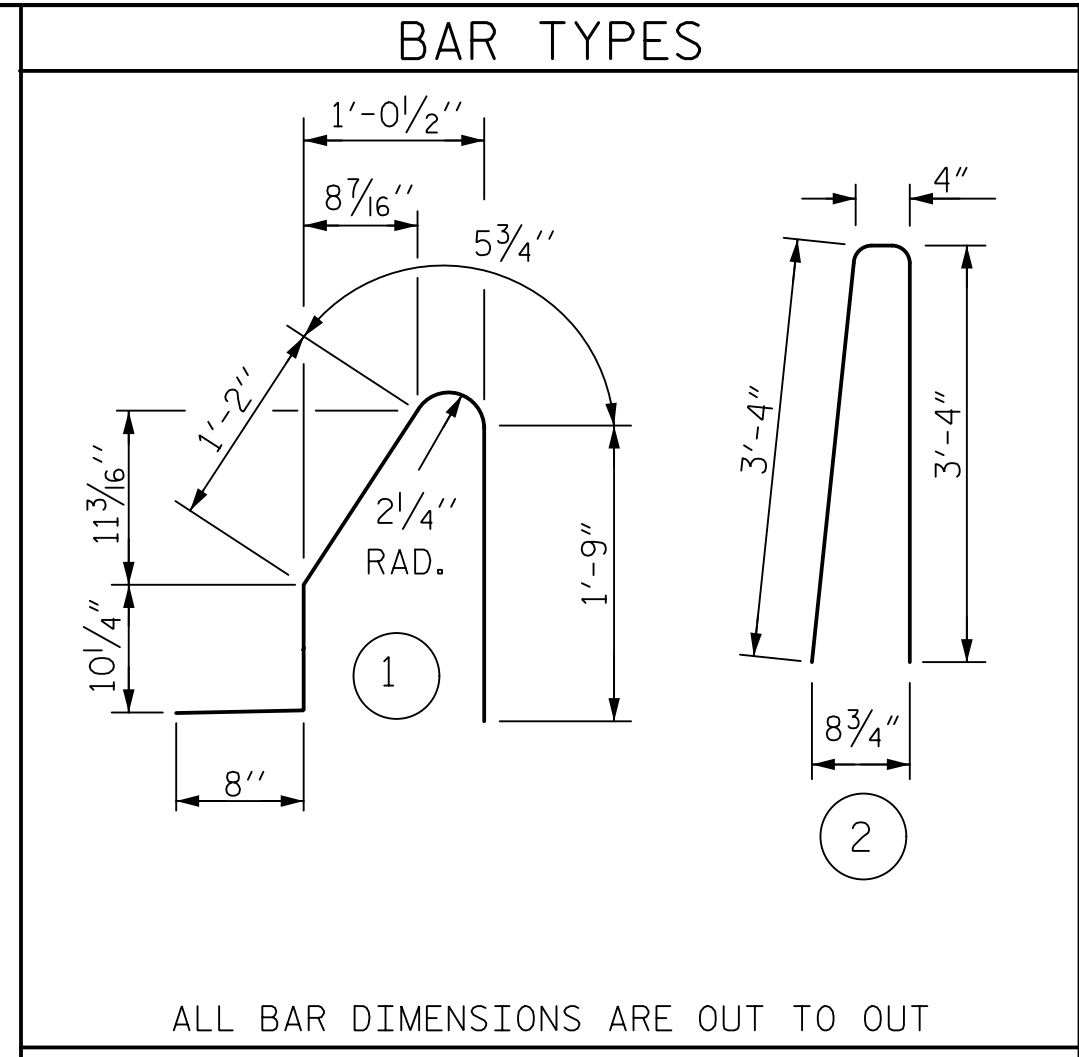


SIDE VIEW

END OF RAIL DETAILS

NOTES:

- THE COST OF BARRIER RAIL ON THE APPROACH SLAB SHALL BE INCLUDED IN THE LINEAR FOOT CONCRETE BID PRICE "CONCRETE BARRIER RAIL".
- THE BARRIER RAIL SHALL NOT BE CAST UNTIL ALL APPROACH SLAB CONCRETE HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.
- ALL REINFORCEMENT IN THE BARRIER RAIL SHALL BE EPOXY COATED.
- SOUND BARRIER WALL NOT SHOWN FOR CLARITY. FOR SOUND BARRIER WALL LAYOUT AND DETAILS, SEE "CONCRETE BARRIER RAIL" AND "SOUND BARRIER WALL DETAILS" SHEETS, RESPECTIVELY.



ALL BAR DIMENSIONS ARE OUT TO OUT

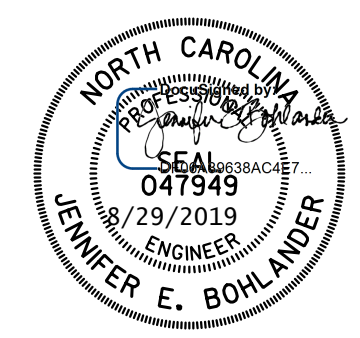
BILL OF MATERIAL					
BARRIER RAIL ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B9	22	#5	STR	24'-8"	566
* B10	11	#5	STR	27'-7"	316
* B11	11	#5	STR	26'-10"	308
* S1	105	#5	1	4'-11"	538
* S2	105	#5	2	7'-0"	767
				LBS.	2,495
* EPOXY COATED REINFORCING STEEL					
CLASS AA CONCRETE				CU. YDS.	14.3
CONCRETE BARRIER RAIL				LIN. FT.	105.28

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 4 OF 4

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

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S1-47
1			3			TOTAL SHEETS
2			4			47



DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

**HNTB** HNTB NORTH CAROLINA, P.C.  
 NC License No. C-1554  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: J. SLOAT DATE: 3/18/2019  
 CHECKED BY: J. BOHLANDER DATE: 3/18/2019  
 ENGINEER OF RECORD: J. BOHLANDER DATE: 3/18/2019

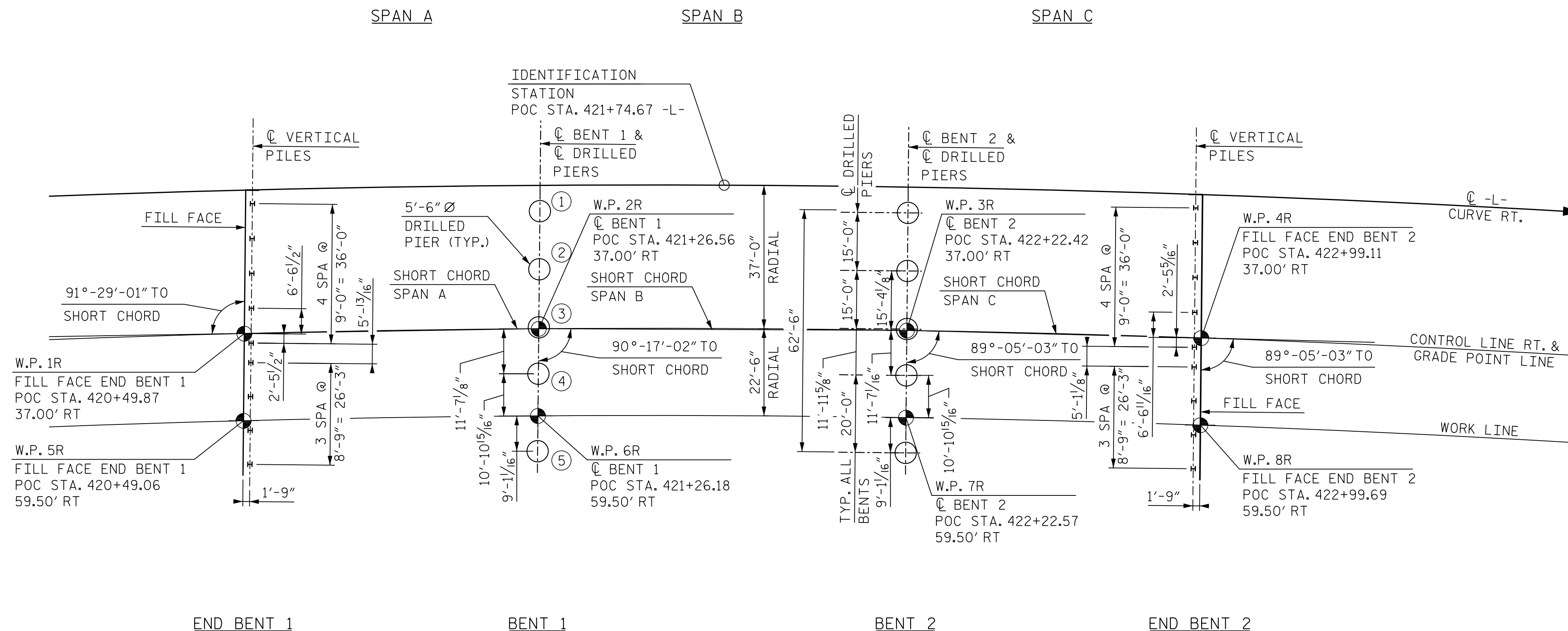
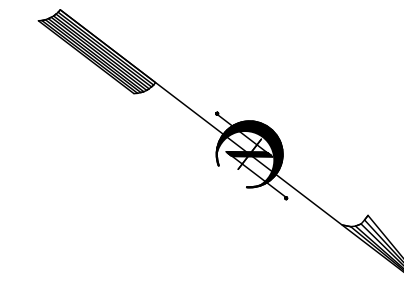
DWG. NO. 47

8/29/2019 2:55:27 PM \\MOT\_L033.T440009.SMLAS04.DWG\_4402 (2).dgn









**FOUNDATION LAYOUT**

**FOUNDATION NOTES:**

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO. 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 140 TONS PER PILE.

DRIVE PILES AT END BENT NO. 1 TO A REQUIRED DRIVING RESISTANCE OF 235 TONS PER PILE.

STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT NO. 1. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

DRILLED PIERS AT BENT NO. 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 520 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 60 TSF.

PERMANENT STEEL CASINGS ARE REQUIRED FOR DRILLED PIERS AT BENT NO. 1. INSTALL PERMANENT CASING TO AN ELEVATION OF 2059 FT AND A PENETRATION OF NO MORE THAN 1 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.

INSTALL DRILLED PIERS AT BENT NO. 1 TO A TIP ELEVATION NO HIGHER THAN 2047 FT WITH THE REQUIRED TIP RESISTANCE AND A PENETRATION OF AT LEAST 12 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.

THE SCOUR CRITICAL ELEVATION FOR BENT NO. 1 IS ELEVATION 2059 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

DRILLED PIERS AT BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 510 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 30 TSF.

PERMANENT STEEL CASINGS ARE REQUIRED FOR DRILLED PIERS AT BENT NO. 2. INSTALL PERMANENT CASING TO AN ELEVATION OF 2059 FT AND A PENETRATION OF NO MORE THAN 1 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.

INSTALL DRILLED PIERS AT BENT NO. 2 TO A TIP ELEVATION NO HIGHER THAN 2047 FT WITH THE REQUIRED TIP RESISTANCE AND A PENETRATION OF AT LEAST 12 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.

THE SCOUR CRITICAL ELEVATION FOR BENT NO. 2 IS AN ELEVATION OF 2059 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. FOR CSL TESTING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 140 TONS PER PILE.

DRIVE PILES AT END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 220 TONS PER PILE.

STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT NO. 1. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 45 TO 60 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT NOS. 1 AND 2. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.

DRILLED-IN PILES MAY BE REQUIRED AT END BENT NO. 1. EXCAVATE HOLES AT PILE LOCATIONS TO ELEVATION 2070 FT. FOR PILE EXCAVATION, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS. BACKFILL EXCAVATED HOLES WITH CLASS 3 SELECT MATERIALS PRIOR TO DRIVING PILES.

DRILLED-IN PILES MAY BE REQUIRED AT END BENT NO. 2. EXCAVATE HOLES AT PILE LOCATIONS TO ELEVATION 2080 FT. FOR PILE EXCAVATION, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS. BACKFILL EXCAVATED HOLES WITH CLASS 3 SELECT MATERIALS PRIOR TO DRIVING PILES.

**NOTES:**

ALL DIMENSIONS ARE PARALLEL OR NORMAL TO C BENTS AND FILL FACES.

ALL END BENT PILES ARE HP 14x73 STEEL PILES.

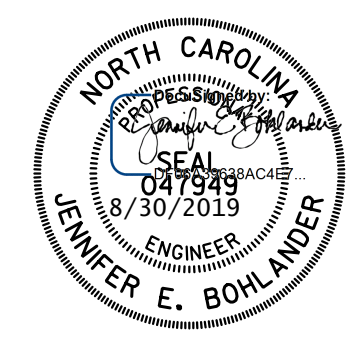
FOR FOUNDATION ELEVATIONS AND DETAILS, SEE BENT AND END BENT DETAILS.

ALL PILE DIMENSIONS ARE TO C OF PILES.

(X) DENOTES PIER NUMBER

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 2 OF 5



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

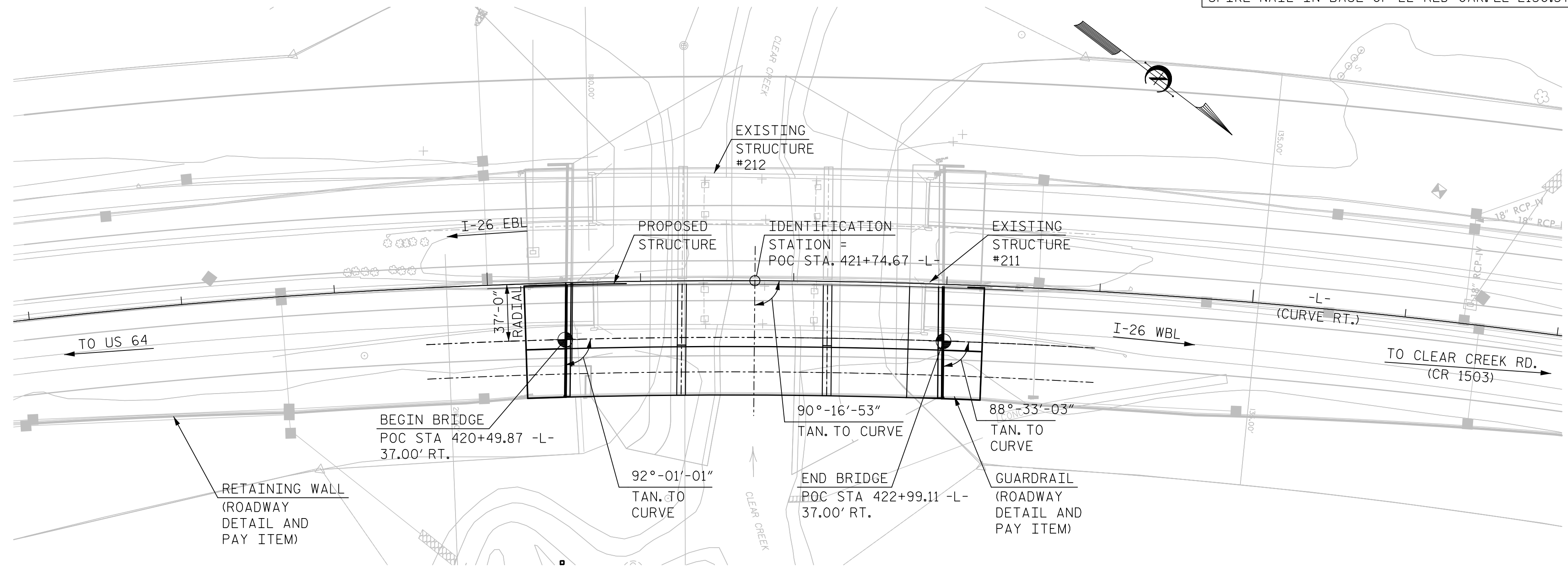
<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: M. JULIAN	DATE: 11/12/2019	DWG. NO. 2	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING FOUNDATION LAYOUT BETWEEN US 64 AND US 26 RIGHT LANE					
REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
TOTAL SHEETS					54

8/30/2019 1:02:56 AM ...\\MOE\_003\_14400BB\_SML\_G002\_002\_440211



BM "BM11"-L- STA 416+30.52, 113.61' LT.,  
SPIKE NAIL IN BASE OF 22" RED OAK, EL=2130.37



LOCATION SKETCH

NOTE: FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

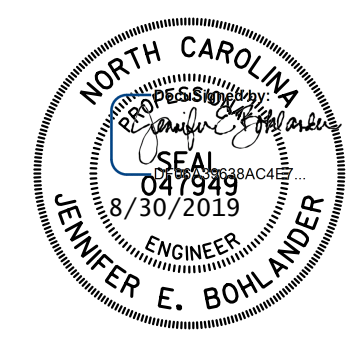
	REMOVAL OF EXISTING STRUCTURE AT STATION 421+74.67 -L-	ASBESTOS ASSESSMENT	PILE EXCAVATION IN SOIL	PILE EXCAVATION NOT IN SOIL	5'-6" DIA. DRILLED PIERS IN SOIL	5'-6" DIA. DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 5'-6" DIA. DRILLED PIER	UNCLASSIFIED STRUCTURE EXCAVATION	CSL TESTING	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE
	LUMP SUM	LUMP SUM	L.F.	L.F.	L.F.	L.F.	EACH	LUMP SUM	EACH	SQ. FT.	SQ. FT.	CU. YDS.
SUPERSTRUCTURE	---	---	---	---	---	---	---	LUMP SUM	---	17,970	19,967	---
END BENT 1	---	---	40	10	---	---	---	---	---	---	---	43.5
BENT 1	---	---	---	---	85	65	80	---	---	---	---	206.0
BENT 2	---	---	---	---	65	65	63	---	---	---	---	215.6
END BENT 2	---	---	40	10	---	---	---	---	---	---	---	43.5
TOTAL	LUMP SUM	LUMP SUM	80	20	150	130	143	LUMP SUM	1	17,970	19,967	508.5

TOTAL BILL OF MATERIAL

	BRIDGE APPROACH SLABS AT STATION 421+74.67 -L-	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	54" PRESTRESSED CONCRETE GIRDERS	PILE DRIVING EQUIPMENT SETUP FOR HP 14x73 STEEL PILES	HP 14x73 STEEL PILES	STEEL PILE POINTS	CONCRETE BARRIER RAIL	72" CHAIN LINK FENCE	2'-0" CLASS II RIP RAP	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS		
	LUMP SUM	LBS.	LBS.	NO.	L.F.	EACH	NO.	L.F.	EACH	L.F.	TONS	SQ. YD.	LUMP SUM	
SUPERSTRUCTURE	LUMP SUM	---	---	27	2,189.25	---	---	---	---	---	---	---	LUMP SUM	
END BENT 1	---	7,978	---	---	---	9	9	495	9	---	763	848	---	
BENT 1	---	58,917	13,036	---	---	---	---	---	---	---	---	---	---	
BENT 2	---	57,940	12,835	---	---	---	---	---	---	---	---	---	---	
END BENT 2	---	8,174	---	---	---	9	9	275	9	---	813	903	---	
TOTAL	LUMP SUM	133,009	25,871	27	2,189.25	18	18	770	18	596.01	245.00	1,576	1,751	LUMP SUM

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
STATION: 421+74.67 -L-

SHEET 3 OF 5



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
  
GENERAL DRAWING  
LOCATION SKETCH AND  
TOTAL BILL OF MATERIALS

<b>HNTB</b>	HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
DRAWN BY: M. JULIAN	DATE: 11/1/2018
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019
DWG. NO. 3	

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S2-3
1			3			TOTAL SHEETS
2			4			54

8/30/2019 2:15:23 PM \\M02-005-14400BB\_SML\_G003\_003\_440211

**GENERAL NOTES:**

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. 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.

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 SAMPLE BARS SHOULD COME FROM STEEL ACTUALLY USED IN THE PROJECT AND THE SAMPLE BARS SHOULD BE REPLACED BY SPLICED BARS AS SPECIFIED IN THE SAMPLE BAR REPLACEMENT CHART. PAYMENT FOR THE SAMPLE BARS AND REPLACEMENT REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

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

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

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 41 FT. TO THE LEFT OF THE GRADE POINT LINE AND 37 FT TO THE RIGHT OF THE GRADE POINT LINE 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.

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 STRUCTURES AT STATION 421+74.67 -L-".

THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF 3 SPANS AT 71'-2", 71'-7" AND 71'-2" WITH REINFORCED CONCRETE DECK; ON 4 LINES OF 36" STEEL I-BEAMS WITH A CLEAR ROADWAY WIDTH OF 28'-0"; ON REINFORCED CONCRETE END BENTS WITH PILE FOOTINGS AND REINFORCED CONCRETE POST AND BEAM BENTS WITH PILE AND SPREAD FOOTINGS, LOCATED AT THE PROPOSED STRUCTURE SITE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATES DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGES IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

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

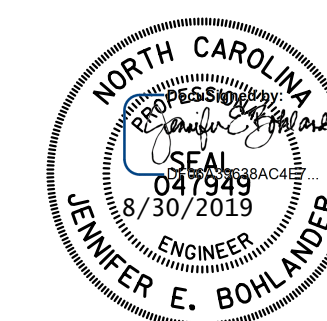
FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

SAMPLE BAR REPLACEMENT		NOTE: SAMPLE BAR REPLACEMENT LENGTHS BASED ON 30" (SAMPLE LENGTH) PLUS TWO SPLICE LENGTHS AND fy = 60ksi.
SIZE	LENGTH	
#3	6'-2"	
#4	7'-4"	
#5	8'-6"	
#6	9'-8"	
#7	10'-10"	
#8	12'-0"	
#9	13'-2"	
#10	14'-6"	
#11	15'-10"	

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 4 OF 5 REPLACES BRIDGE NO. 211



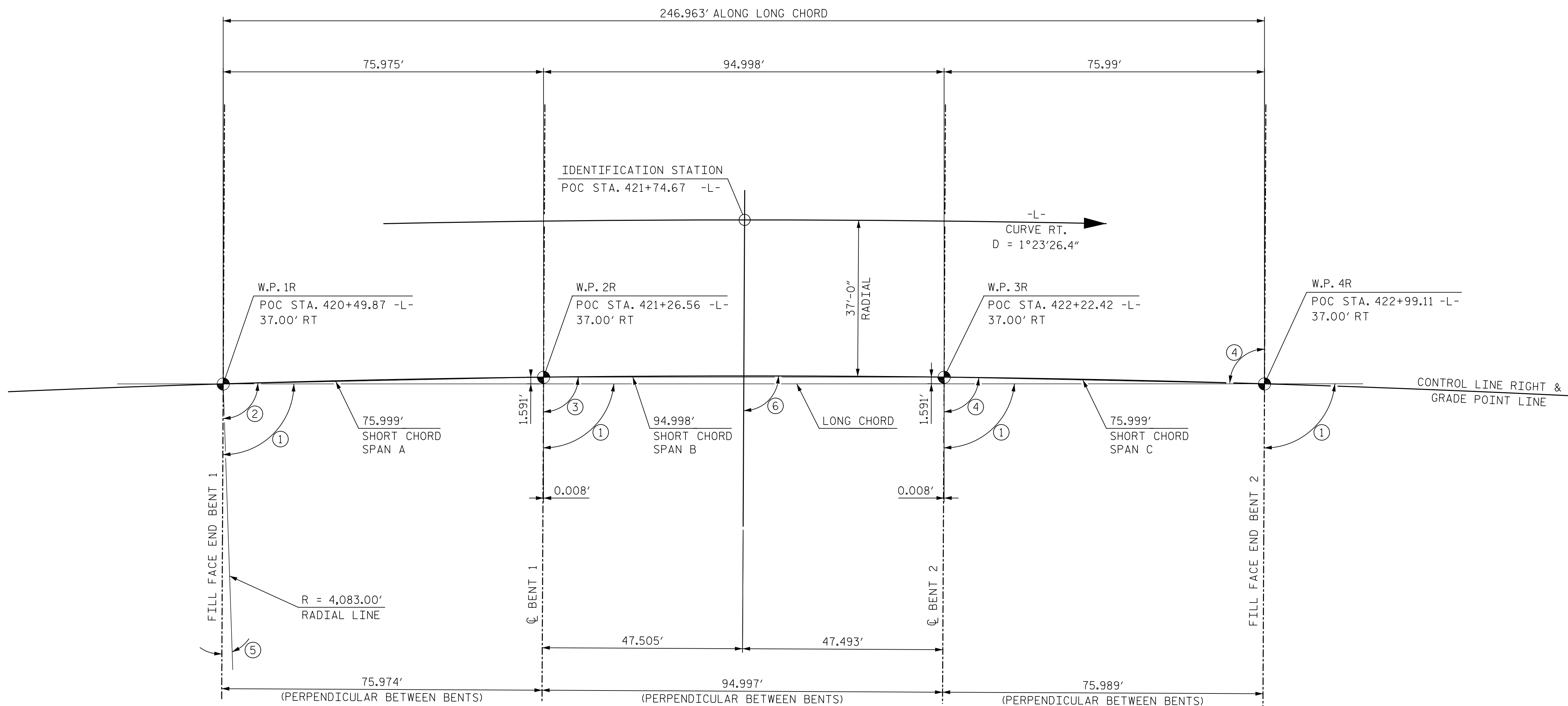
**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 GENERAL DRAWING  
 GENERAL NOTES

<b>HNTB</b> HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	REVISIONS					SHEET NO. S2-4	
	NO.	BY	DATE	NO.	BY		DATE
	1	J. BOHLANDER	3/18/2019	3			
	2			4			
DRAWN BY: M. JULIAN DATE: 11/1/2018 CHECKED BY: J. BOHLANDER DATE: 3/18/2019 ENGINEER OF RECORD: J. BOHLANDER DATE: 3/18/2019	DWG. NO. 4		TOTAL SHEETS 54				



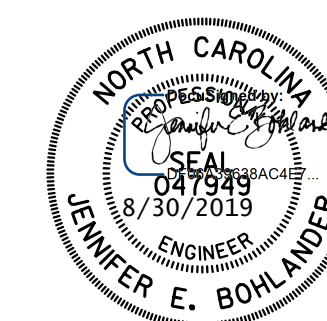
- ANGLES**
- ① 90°-17'-02" TO LONG CHORD
  - ② 91°-29'-01" TO SHORT CHORD
  - ③ 90°-17'-02" TO SHORT CHORD
  - ④ 89°-05'-03" TO SHORT CHORD
  - ⑤ 02°-01'-01" TO RADIAL LINE
  - ⑥ 90°-17'-02" TANGENT TO CURVE



**LONG CHORD LAYOUT**  
ALL END BENTS AND BENTS ARE PARALLEL.

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
STATION: 421+74.67 -L-

SHEET 5 OF 5



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 1/16/2019	DWG. NO. 5	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S2-5
GENERAL DRAWING LONG CHORD LAYOUT RIGHT LANE						TOTAL SHEETS 54
REVISIONS						
NO.	BY	DATE	NO.	BY	DATE	
1			3			
2			4			

8/30/2019 10:55:53 AM \\N02-009-140000-SM-LG005-005-440211

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	$\gamma_{DC}$	$\gamma_{DW}$
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

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

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						LIVE-LOAD FACTORS ( $\gamma_{LL}$ )	MOMENT					SHEAR					LIVE-LOAD FACTORS ( $\gamma_{LL}$ )	MOMENT						
							DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	1	1.06	--	1.75	0.78	1.37	A	I	36.6	0.92	1.17	B	I	9.3	0.8	0.73	1.06	B	I	46.4		
	HL-93 (OPERATING)	N/A	--	1.55	--	1.35	0.78	1.78	A	I	36.6	0.92	1.55	B	I	9.3	--	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	2	1.46	52.6	1.75	0.78	1.80	A	I	36.6	0.92	1.58	B	I	83.5	0.8	0.73	1.46	B	I	46.4		
	HS-20 (OPERATING)	36.000	--	2.08	74.9	1.35	0.78	2.34	A	I	36.6	0.92	2.08	B	I	9.3	--	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SH	12.500	--	3.75	46.9	1.40	0.78	5.43	A	I	36.6	0.92	5.82	B	I	9.3	0.80	0.73	3.75	B	I	46.4	
		S3C	21.500	--	2.19	47.1	1.40	0.78	3.15	A	I	36.6	0.92	3.32	B	I	83.5	0.80	0.73	2.19	B	I	46.4	
		S3A	22.750	--	2.08	47.3	1.40	0.78	2.99	A	I	36.6	0.92	3.21	B	I	9.3	0.80	0.73	2.08	B	I	46.4	
		S4A	26.750	--	1.82	48.7	1.40	0.78	2.65	A	I	36.6	0.92	2.64	B	I	83.5	0.80	0.73	1.82	B	I	46.4	
		S5A	30.500	--	1.61	49.1	1.40	0.78	2.34	A	I	36.6	0.92	2.39	B	I	9.3	0.80	0.73	1.61	B	I	46.4	
		S6A	34.500	--	1.45	50.0	1.40	0.78	2.12	A	I	36.6	0.92	2.14	B	I	83.5	0.80	0.73	1.45	B	I	46.4	
		S7B	38.500	--	1.32	50.8	1.40	0.78	1.94	A	I	36.6	0.92	1.98	B	I	83.5	0.80	0.73	1.32	B	I	46.4	
	S7A	40.000	3	1.30	52.0	1.40	0.78	1.93	A	I	36.6	0.92	1.98	B	I	83.5	0.80	0.73	1.30	B	I	46.4		
	TRUCK TRACTOR SEMI-TRAILER (TTST)	T4A	28.250	--	1.79	50.6	1.40	0.78	2.73	A	I	36.6	0.92	2.69	B	I	83.5	0.80	0.73	1.79	B	I	46.4	
		T5B	32.000	--	1.57	50.2	1.40	0.78	2.39	A	I	36.6	0.92	2.41	B	I	83.5	0.80	0.73	1.57	B	I	46.4	
		T6A	36.000	--	1.44	51.8	1.40	0.78	2.20	A	I	36.6	0.92	2.20	B	I	9.3	0.80	0.73	1.44	B	I	46.4	
		T7A	40.000	--	1.33	53.2	1.40	0.78	2.05	A	I	36.6	0.92	2.01	B	I	83.5	0.80	0.73	1.33	B	I	46.4	
		T7B	40.000	--	1.41	56.4	1.40	0.78	2.21	A	I	36.6	0.92	1.90	B	I	83.5	0.80	0.73	1.41	B	I	46.4	

NOTES:  
 MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.  
 ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

# CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

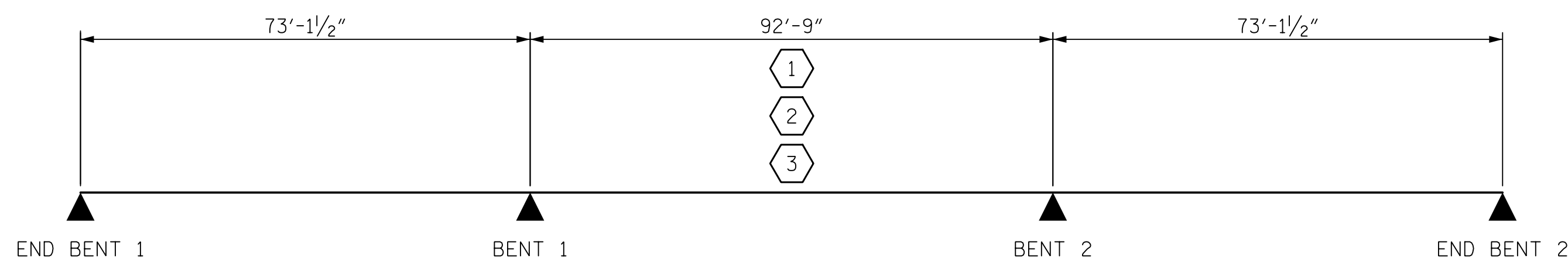
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING \*\*

\*\* SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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

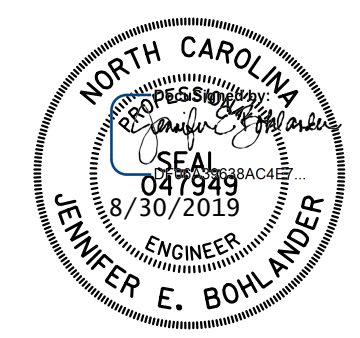


LRFR SUMMARY

NOTE: SPAN LENGTHS PROVIDED ARE BEARING TO BEARING LENGTHS

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 1 OF 1

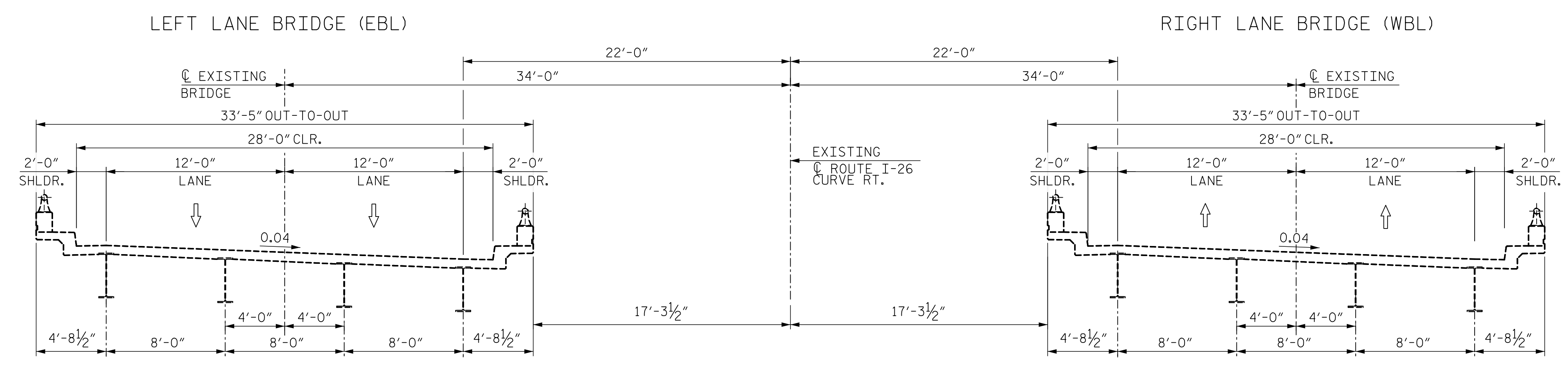


DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

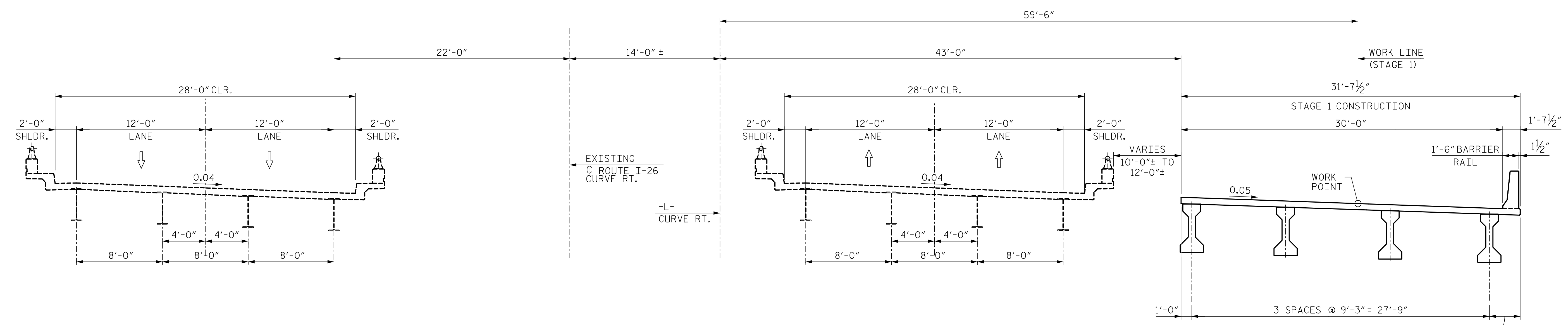
<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 11/12/2018	DWG. NO. 6	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

STATE OF NORTH CAROLINA		DEPARTMENT OF TRANSPORTATION		RALEIGH		STANDARD		LRFR SUMMARY	
NO.		BY		DATE		NO.		DATE	
1		3		4		SHEET NO. S2-6		TOTAL SHEETS 54	





**EXISTING CONDITION**

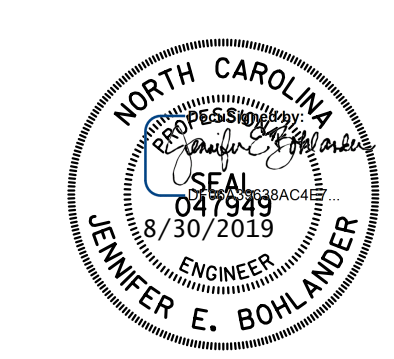


**STAGE 1**  
(PARTIALLY BUILD NEW RIGHT LANE BRIDGE AND MAINTAIN TRAFFIC ON EXISTING BRIDGES)

- NOTE:
1. ALL DIMENSIONS SHOWN ARE RADIAL. ALL GIRDER DIMENSIONS ARE NORMAL TO THE SHORT CHORD.
  2. CONSTRUCTION SEQUENCE INCLUDES EASTBOUND LANE BRIDGE. SEE PLANS FOR BRIDGE ON I-26 OVER CLEAR CREEK BETWEEN US 64 AND CLEAR CREEK RD LEFT LANE PLANS FOR DETAILS.

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 1 OF 3 REPLACES BRIDGES NO. 211 & 212

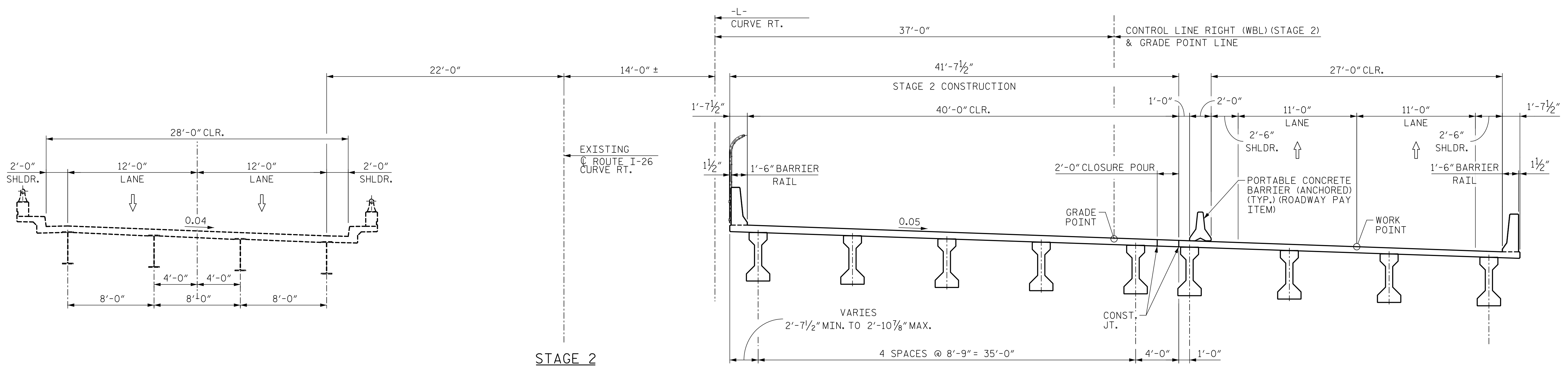


**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

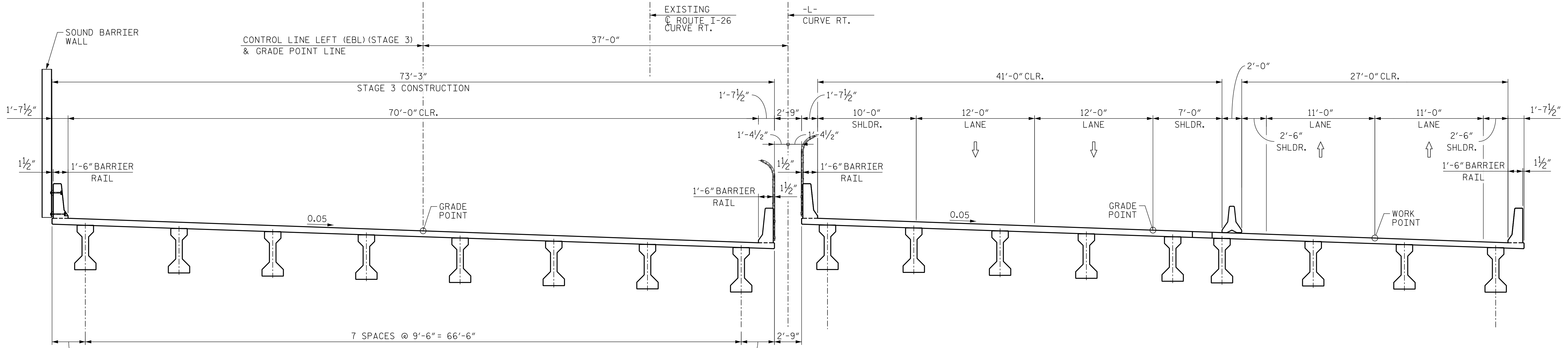
<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: M. JULIAN	DATE: 10/25/2018	DWG. NO. 7	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE CONSTRUCTION SEQUENCE					
REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
TOTAL SHEETS					54

8/30/2019 10:55:58 AM \\M02-013\_14400BB\_SML\_P01\_007\_440211



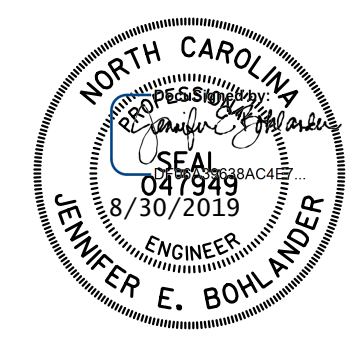
**STAGE 2**  
 (PLACE A PORTABLE CONCRETE BARRIER IN STAGE 1 CONSTRUCTION AND SHIFT EXISTING RIGHT LANE BRIDGE TRAFFIC TO NEW RIGHT LANE BRIDGE. REMOVE EXISTING RIGHT LANE BRIDGE. WIDEN NEW RIGHT LANE BRIDGE TO FINAL WIDTH. TIE TO STAGE 1 CONSTRUCTION WITH CLOSURE POUR.)



**STAGE 3**  
 (SHIFT EXISTING LEFT LANE BRIDGE TRAFFIC TO NEW RIGHT LANE BRIDGE. REMOVE EXISTING LEFT LANE BRIDGE. BUILD NEW LEFT LANE BRIDGE.)

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 2 OF 3 REPLACES BRIDGES NO. 211 & 212



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: M. JULIAN	DATE: 10/25/2018	DWG. NO. 8	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

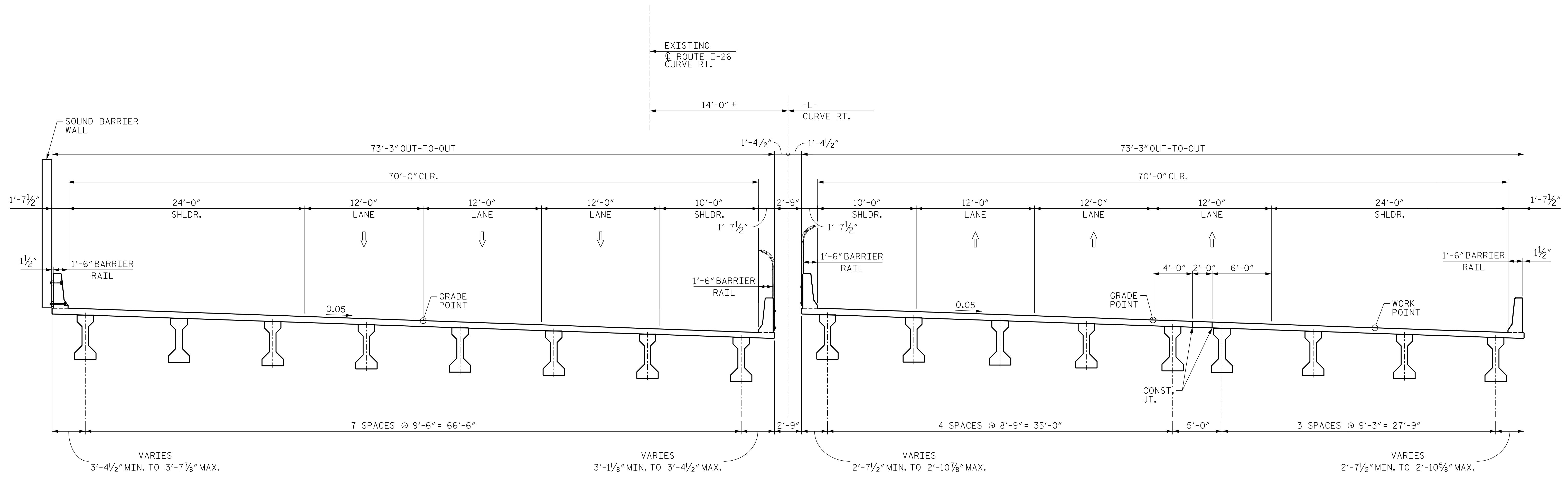
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE CONSTRUCTION SEQUENCE		REVISIONS				SHEET NO.		
		NO.	BY	DATE	NO.	BY	DATE	S2-8
		1			3			TOTAL SHEETS
		2			4			54

NOTE: ALL DIMENSIONS SHOWN ARE RADIAL. ALL GIRDER DIMENSIONS ARE NORMAL TO THE SHORT CHORD.

8/30/2019 10:56:00 AM  
 \\MOE-015-1-1400099\_SML\_P002\_D08\_440211



NOTE: ALL DIMENSIONS SHOWN ARE RADIAL. ALL GIRDER DIMENSIONS ARE NORMAL TO THE SHORT CHORD.

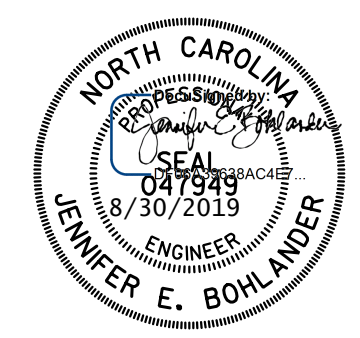


**FINAL CONDITION**

(SHIFT LEFT LANE BRIDGE TRAFFIC TO NEW LEFT LANE BRIDGE. REMOVE PORTABLE CONCRETE BARRIER. MOVE RIGHT BRIDGE TRAFFIC TO FINAL TRAFFIC CONDITION.)

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 3 OF 3



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

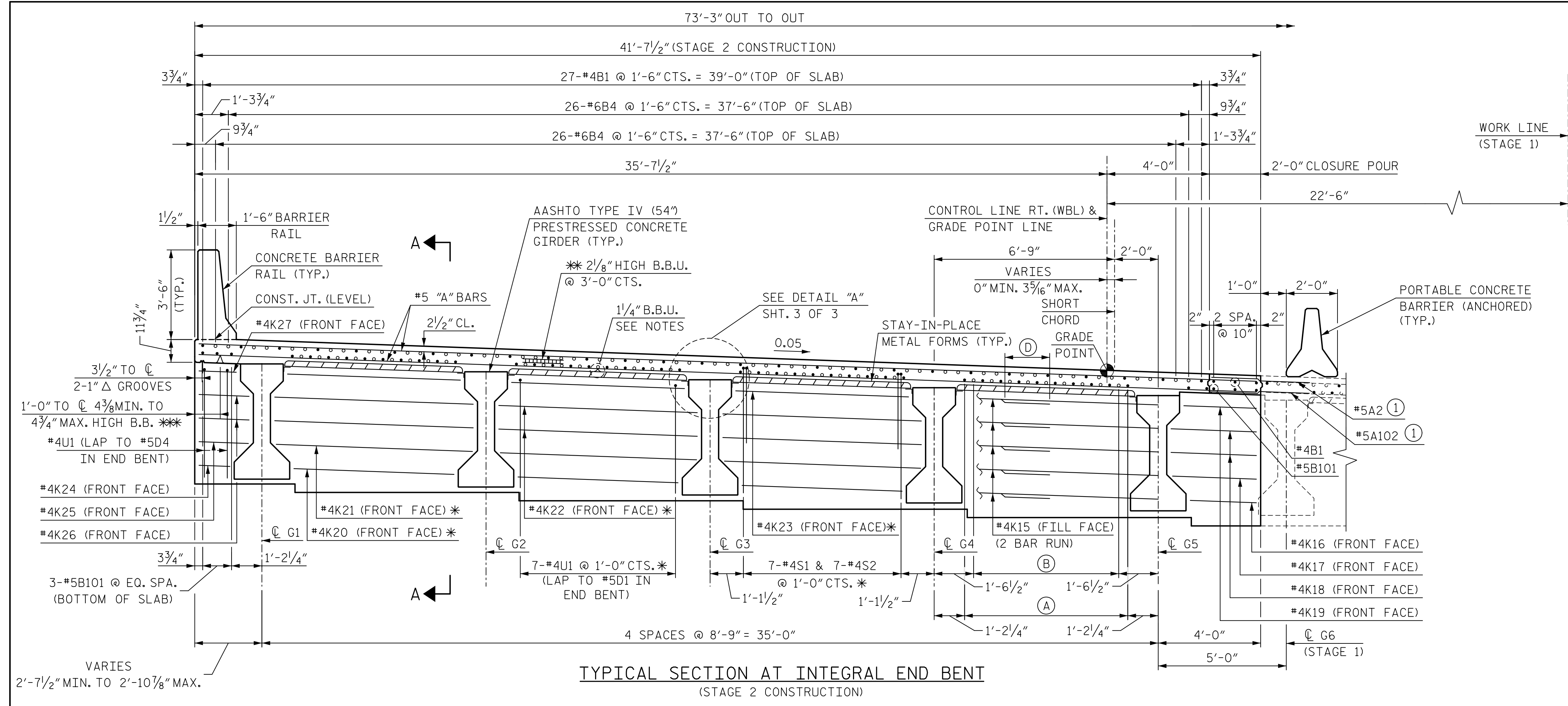
<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: M. JULIAN	DATE: 10/25/2018	DWG. NO. 9	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE CONSTRUCTION SEQUENCE					
REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
TOTAL SHEETS					54

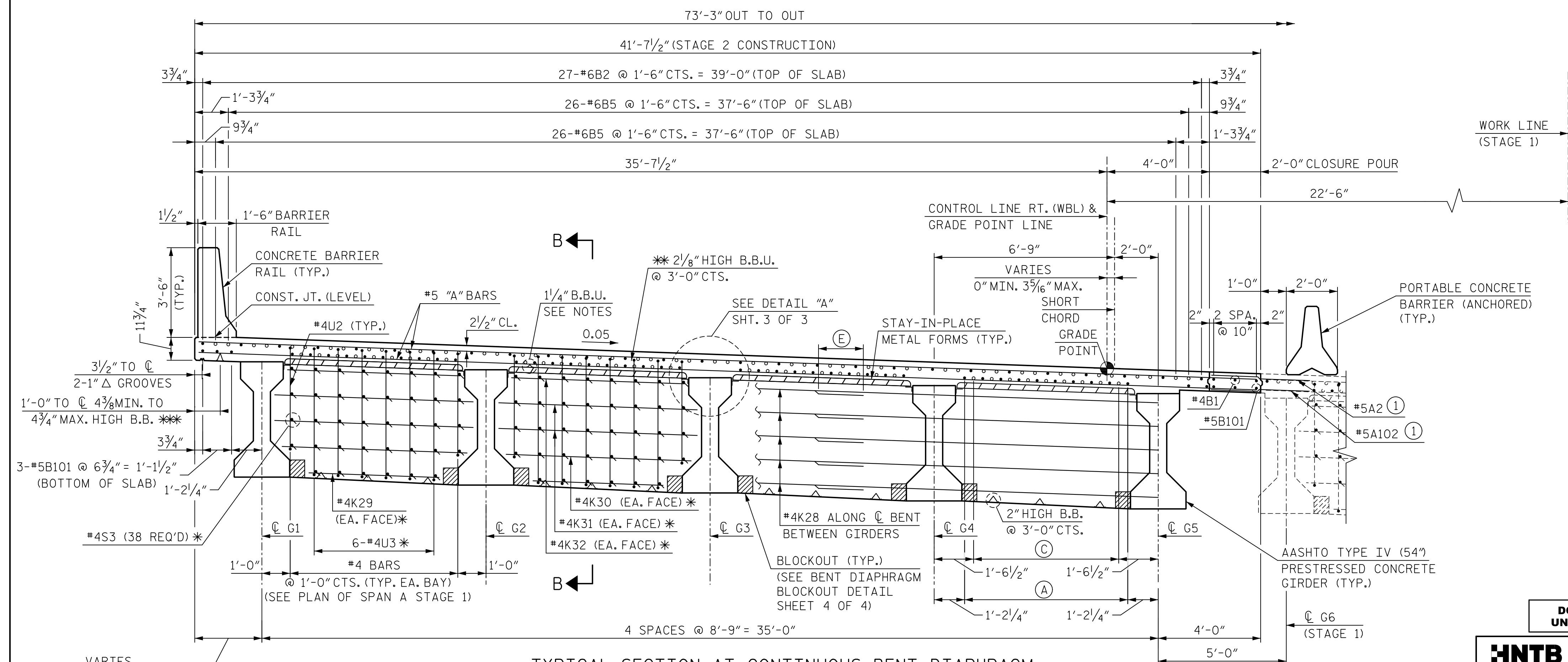
8/30/2019 10:56:02 AM ...\_M02\_017\_14000B9\_SML\_P003\_009\_440211







**TYPICAL SECTION AT INTEGRAL END BENT**  
(STAGE 2 CONSTRUCTION)



**TYPICAL SECTION AT CONTINUOUS BENT DIAPHRAGM**  
(STAGE 2 CONSTRUCTION)  
(NOTE: NO BENT DIAPHRAGM AT CLOSURE POUR BAY)

**NOTES:**

FOR ADDITIONAL NOTES, SEE "TYPICAL SECTION STAGE 1" SHEET.  
SEE TRAFFIC CONTROL PLANS FOR LOCATION AND PAY LIMITS OF THE ANCHORED PORTABLE CONCRETE BARRIER.  
FOR SECTION VIEWS, SEE "TYPICAL SECTION DETAILS" SHEET.  
REMOVABLE FORMS SHALL BE USED AT CLOSURE BAY.

- \* (TYP. EACH BAY)
- \*\* TO MAINTAIN PROPER LOCATION OF "A" BARS IN TOP OF SLAB, B.B.U. DEPTH MUST VARY IN UNIT AS THE MAXIMUM SIZE OF THE "B" BARS IN THE TOP OF SLAB VARIES. A 2 1/2" B.B.U. SHALL BE USED WHERE ONLY #4 "B" BARS ARE PRESENT. WHERE #6 "B" BARS ARE PRESENT, A 2 1/8" B.B.U. SHALL BE USED.
- \*\*\* THE HEIGHT OF THE BEAM BOLSTER VARIES ALONG THE LENGTH OF THE SPAN DUE TO THE CAMBER AND THE VARYING HEIGHT REQUIRED FOR THE BUILD UP. THE CONTRACTOR SHALL HAVE SUFFICIENT SIZES TO PROPERLY SUPPORT THE REINFORCING STEEL.

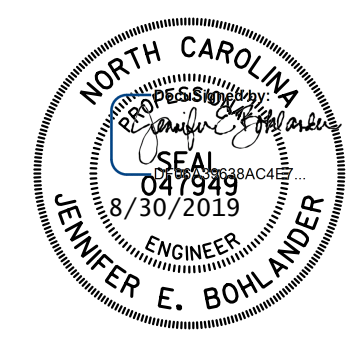
- (A) 10-#5B101 @ 8 1/2" CTS. = 6'-4 1/2" (5 BAR RUN) (TYP. EA. BAY) (BOTTOM OF SLAB)
- (B) 9-#6B102 @ 8 1/2" CTS. = 5'-8" (TYP. EA. BAY) (BOTTOM OF SLAB)
- (C) 9-#6B103 @ 8 1/2" CTS. = 5'-8" (TYP. EA. BAY) (BOTTOM OF SLAB)
- (D) 1'-9" MIN. SPLICE (TYP. #4K15)
- (E) 1'-9" MIN. SPLICE (TYP. #4K28)

**"B" BAR KEY**

- CONTINUOUS BAR RUN  
SEE PLAN OF SPAN SHEETS.
- NON-CONTINUOUS BAR RUN  
FOR NEGATIVE MOMENT REGIONS,  
SEE PLAN OF SPAN SHEETS.
- ① DOWELS SHALL BE PLACED IN THE SAME HORIZONTAL PLANE AS THE TOP AND BOTTOM SLAB REINFORCING STEEL

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
STATION: 421+74.67 -L-

SHEET 2 OF 3

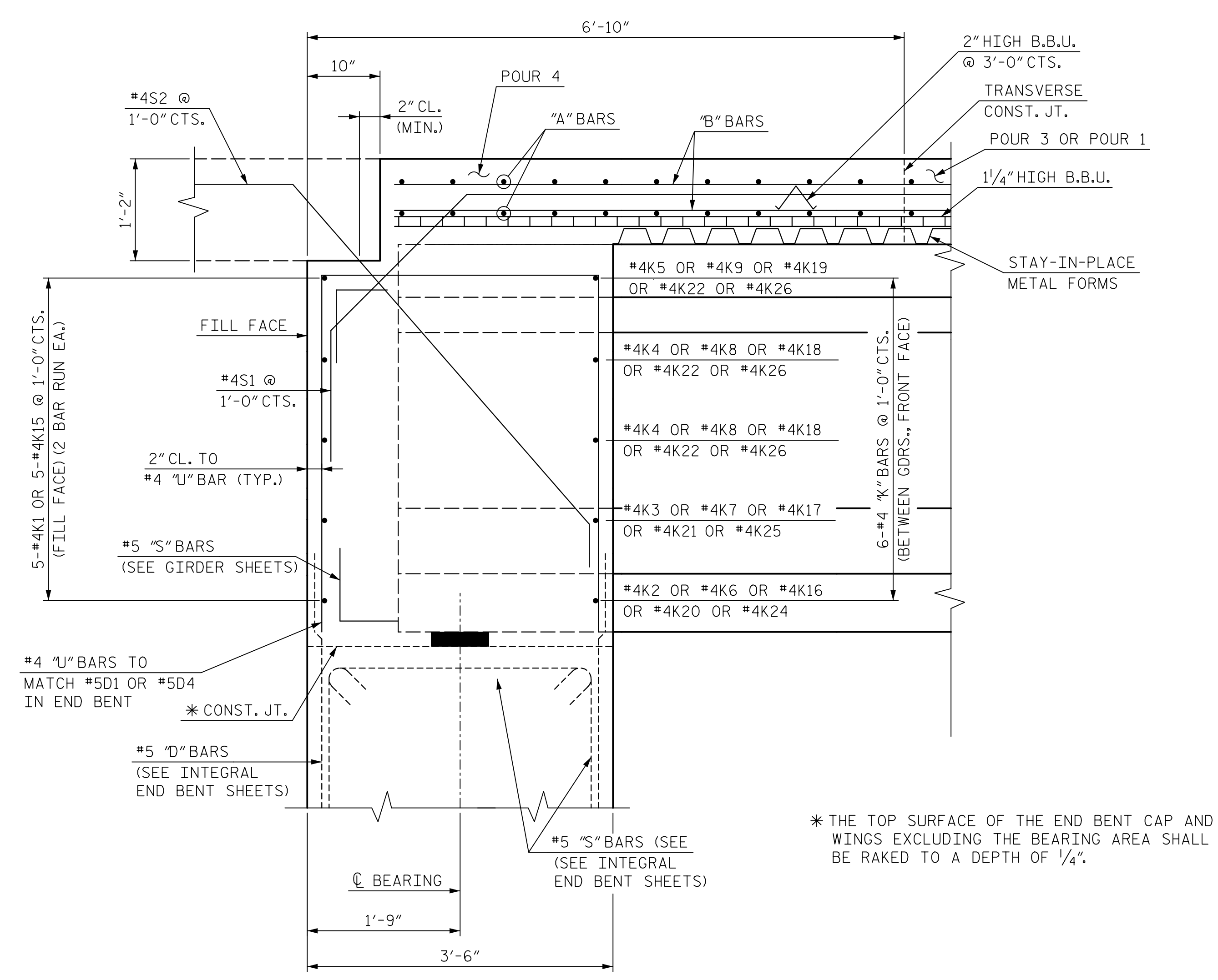


**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

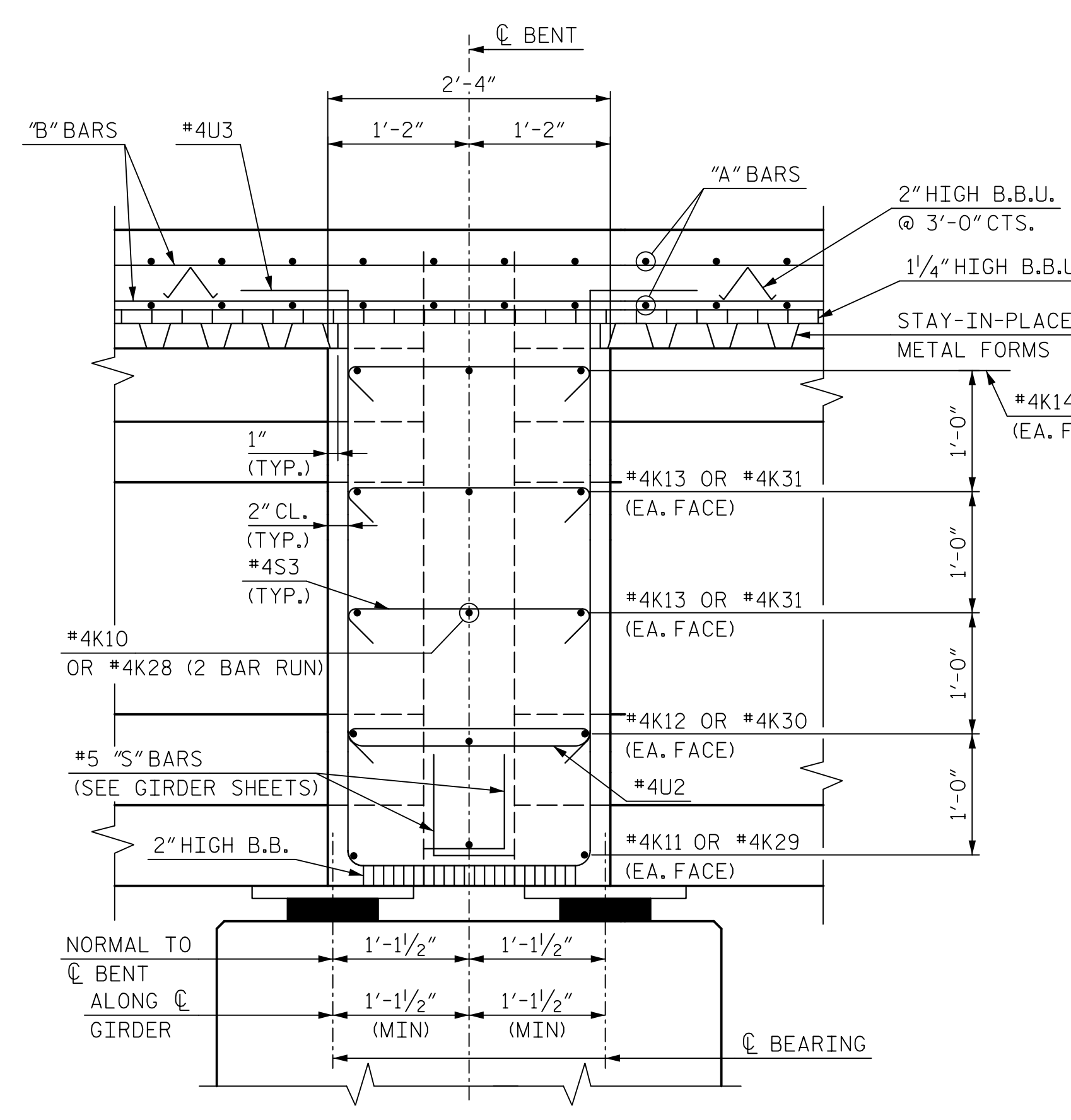
<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 1/21/2019	DWG. NO. II	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.
SUPERSTRUCTURE TYPICAL SECTION STAGE 2						S2-11
REVISIONS						TOTAL SHEETS
NO.	BY	DATE	NO.	BY	DATE	54
1			3			
2			4			

8/30/2019 2:16:30 PM ...

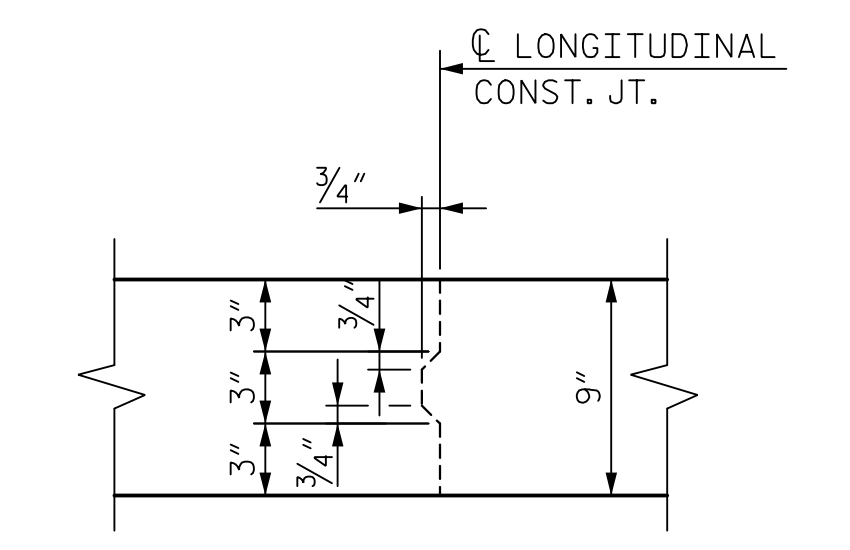


**SECTION A-A**  
(SECTION NORMAL THROUGH END BENT 1 DIAPHRAGM, END BENT 2 SIMILAR)

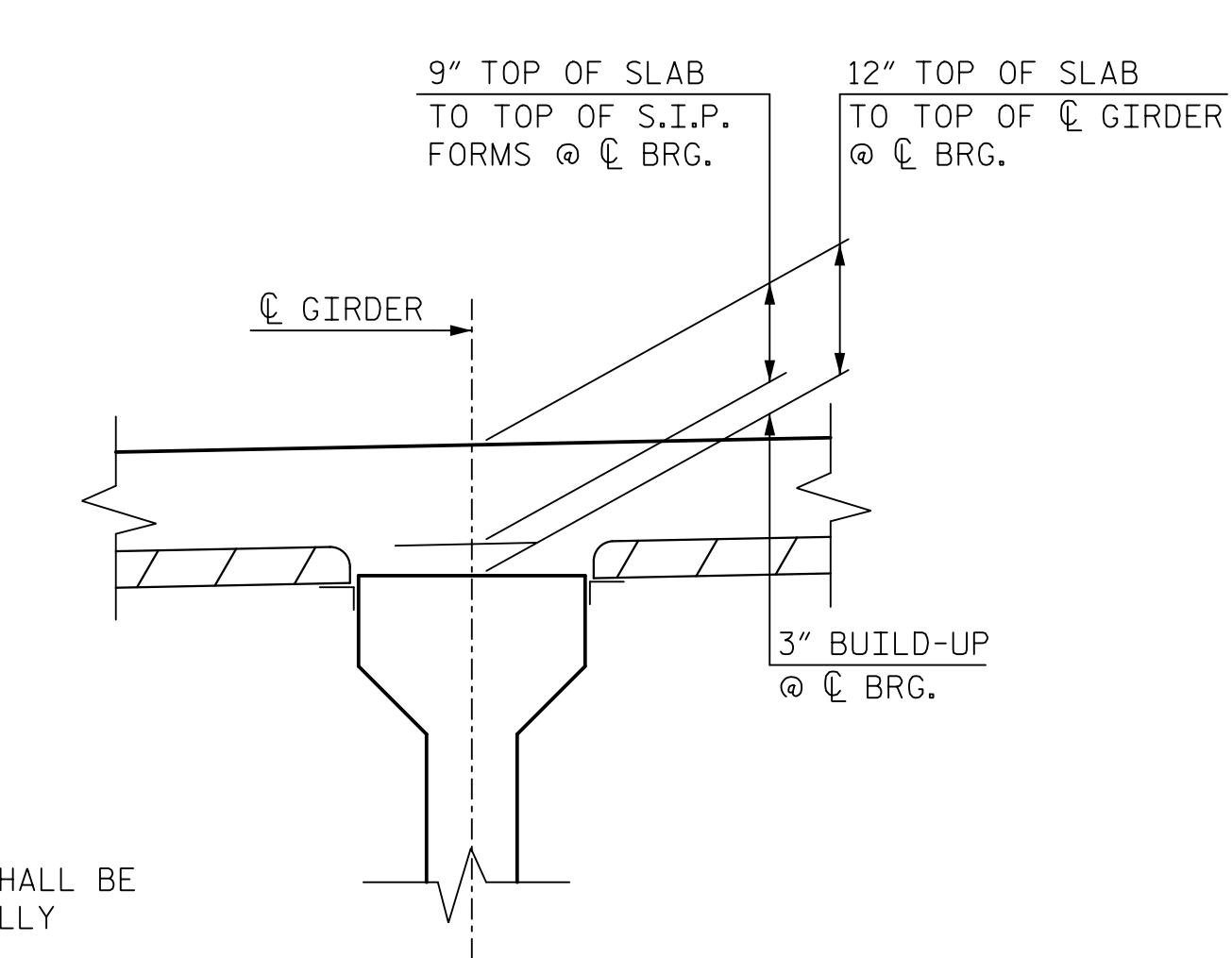


**SECTION B-B**  
(SECTION NORMAL THROUGH BENT 1 AND BENT 2 DIAPHRAGM)

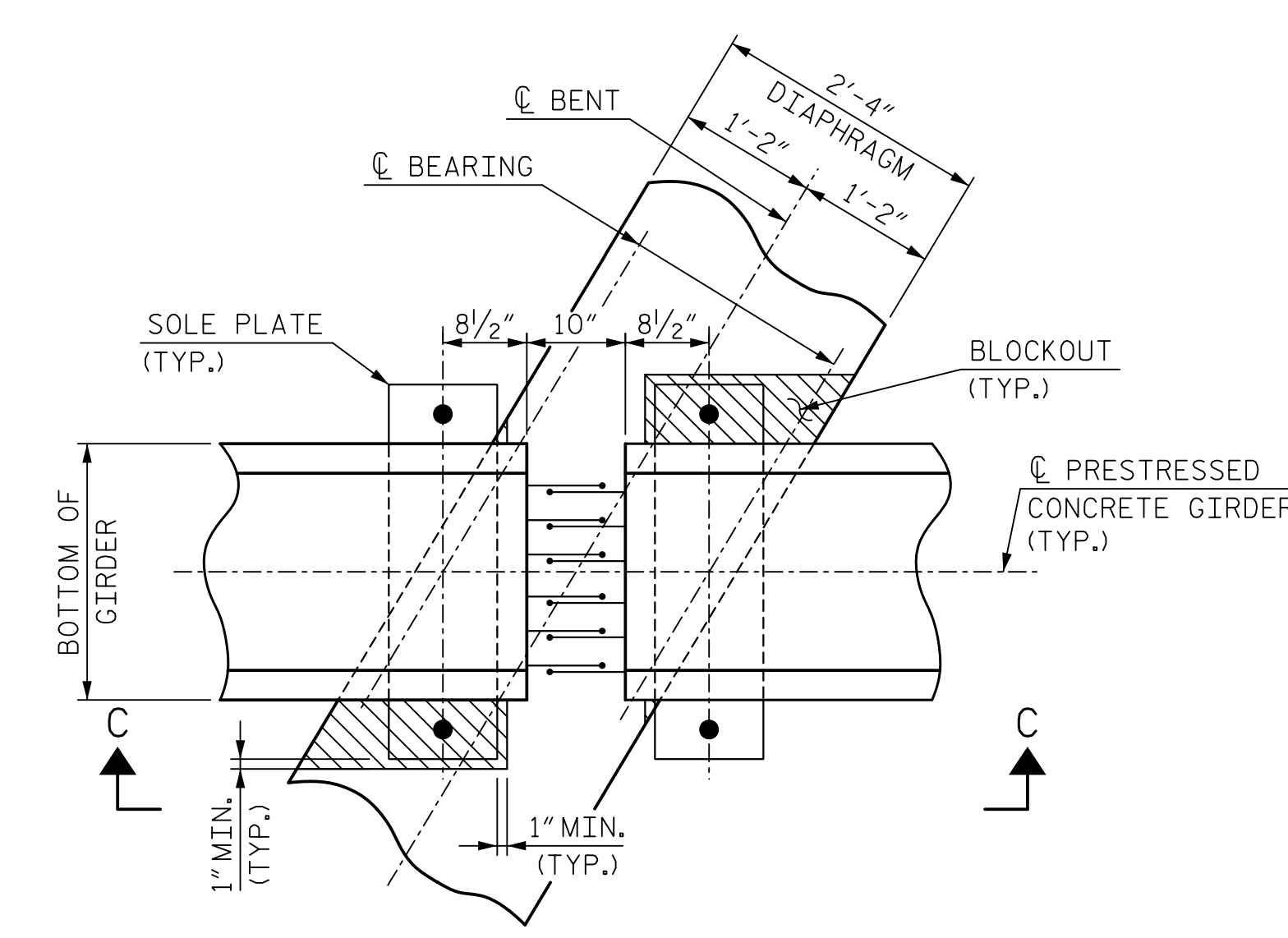
NOTE:  
BENT DIAPHRAGM SHALL BE CAST MONOLITHICALLY WITH DECK SLAB.



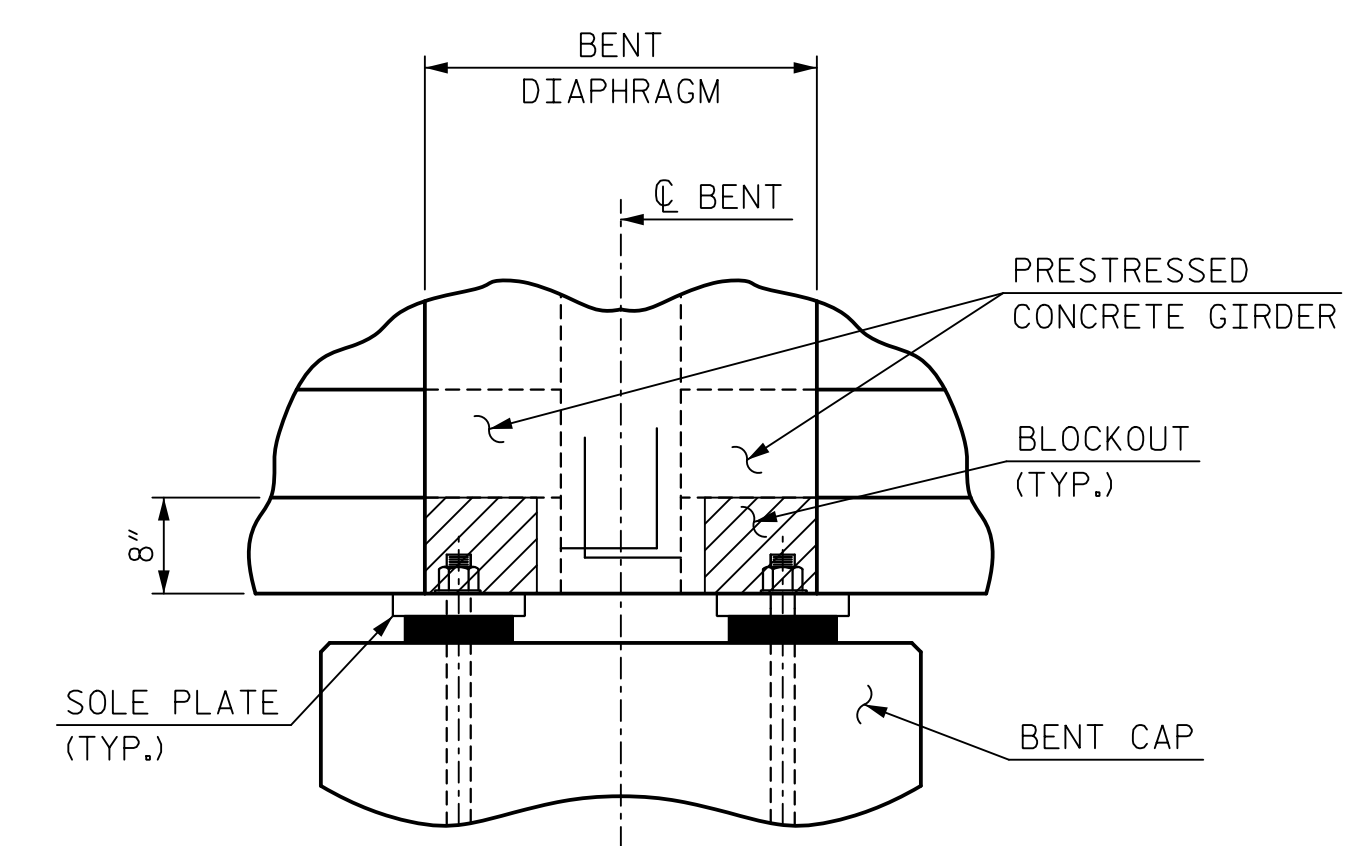
**DECK SLAB LONGITUDINAL CONSTRUCTION JOINT DETAIL**  
REINFORCING STEEL IN SLAB NOT SHOWN.



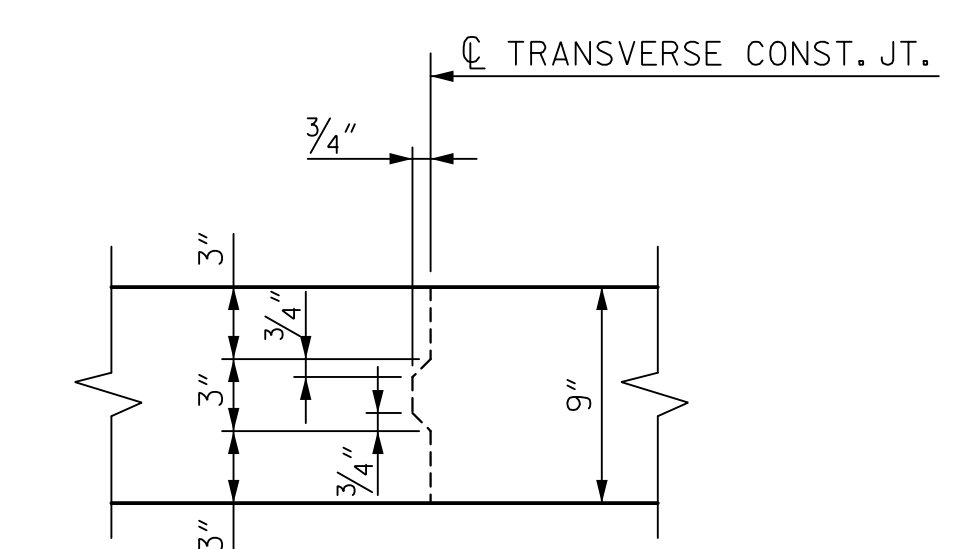
**DETAIL "A"**



**BENT DIAPHRAGM BLOCKOUT DETAIL**



**SECTION C-C**



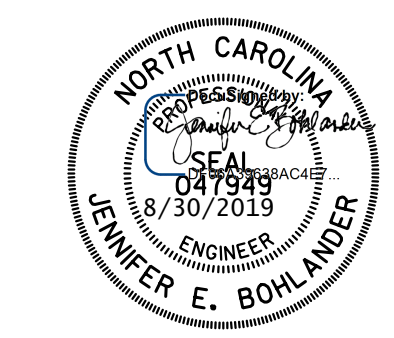
**TRANSVERSE CONSTRUCTION JOINT DETAIL**

REINFORCING STEEL IN SLAB NOT SHOWN.  
LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THROUGH JOINT.

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
STATION: 421+74.67 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
TYPICAL SECTION  
DETAILS



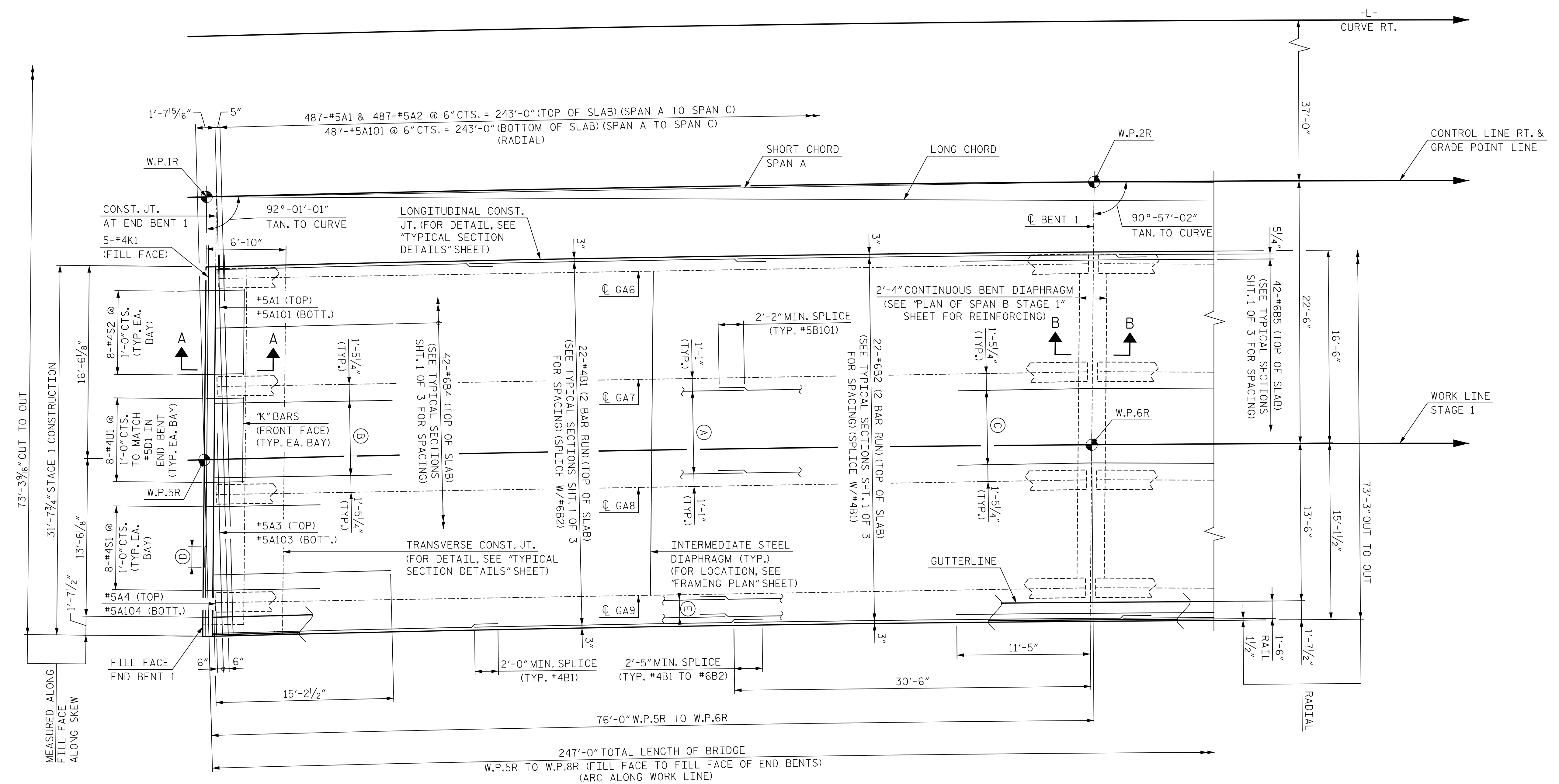
**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

<b>HNTB</b>	HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
DRAWN BY: J. SLOAT	DATE: 1/21/2019
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019
DWG. NO. 12	

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S2-12
1			3			TOTAL SHEETS
2			4			54

8/30/2019 10:56:09 AM \\V02-023\_1400009\_SML\_T503.012\_440211





PLAN OF SPAN A STAGE 1

PROJECT NO. I-4400 BB  
 HENDERSON COUNTY  
 STATION: 421+74.67 -L-

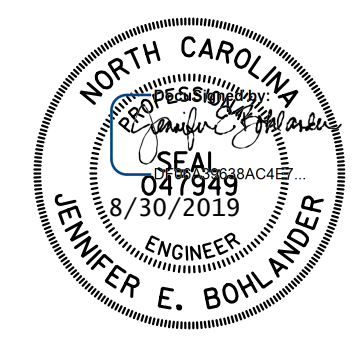
NOTES:

FOR CONCRETE BARRIER RAIL DIMENSIONS, REINFORCING STEEL, AND JOINT SPACING, SEE "CONCRETE BARRIER RAIL" SHEET.

FOR SECTION VIEWS, SEE "SUPERSTRUCTURE TYPICAL SECTION DETAILS" SHEET 3 OF 3.

FOR INTERMEDIATE STEEL DIAPHRAGMS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE IV PRESTRESSED CONCRETE GIRDERS" SHEET FOR DETAILS. FOR LOCATION, SEE "SUPERSTRUCTURE FRAMING PLANS" SHEET.

- (A) 11-#5B101 @ 8 1/2" CTS. = 7'-1" (5 BAR RUN) (TYP. EACH BAY) (BOTTOM OF SLAB)
- (B) 10-#6B102 @ 8 1/2" CTS. = 6'-4 1/2" (TYP. EACH BAY) (BOTTOM OF SLAB)
- (C) 10-#6B103 @ 8 1/2" CTS. = 6'-4 1/2" (TYP. EACH BAY) (BOTTOM OF SLAB)
- (D) 1'-9" MIN. SPLICE (#4K1) (TYP.)
- (E) 4-#5B101 @ EQ. SPA (5 BAR RUN) (BOTTOM OF SLAB)



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 1/7/2019	DWG. NO. 13	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

SHEET 1 OF 3

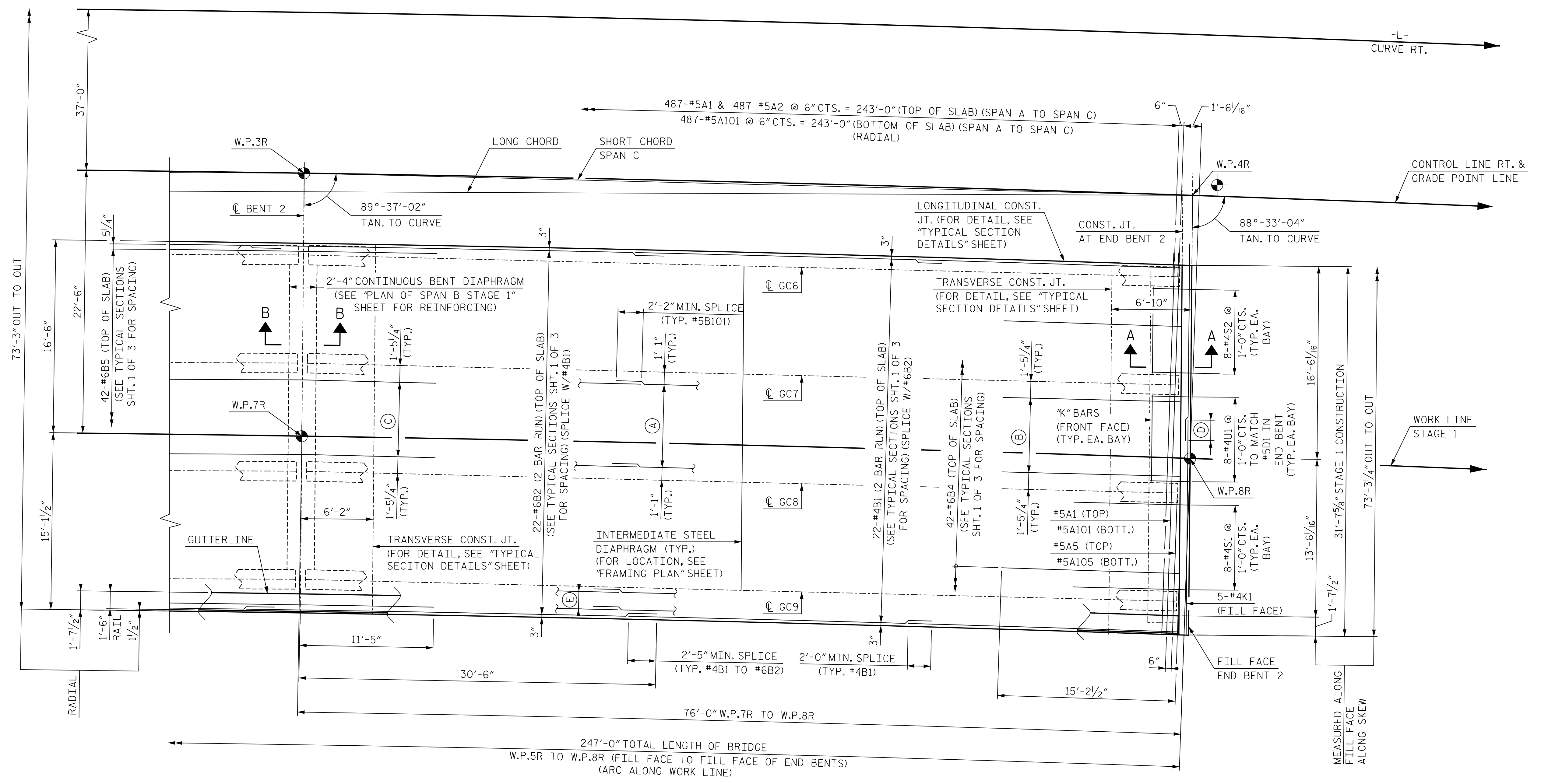
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 PLAN OF SPAN A  
 STAGE 1

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S2-13
1			3			TOTAL SHEETS
2			4			54

8/30/2019 10:56:12 AM ...\\002\_025\_1400009\_SML\_S01\_013\_440211





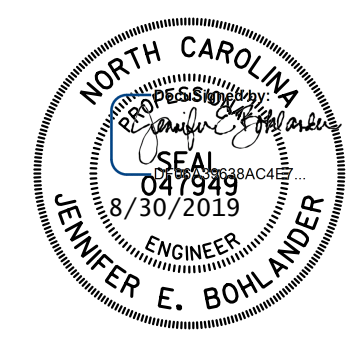


PLAN OF SPAN C STAGE 1

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

NOTES:  
 FOR NOTES, SEE "PLAN OF SPAN A STAGE 1" SHEET.

- (A) 11-#5B101 @ 8 1/2" CTS. = 7'-1" (5 BAR RUN) (TYP. EACH BAY) (BOTTOM OF SLAB)
- (B) 10-#6B102 @ 8 1/2" CTS. = 6'-4 1/2" (TYP. EACH BAY) (BOTTOM OF SLAB)
- (C) 10-#6B103 @ 8 1/2" CTS. = 6'-4 1/2" (TYP. EACH BAY) (BOTTOM OF SLAB)
- (D) 1'-9" MIN. SPLICE (#4K1) (TYP.)
- (E) 4-#5B101 @ EQ. SPA (5 BAR RUN) (BOTTOM OF SLAB)



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 1/24/2019	DWG. NO. 15	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

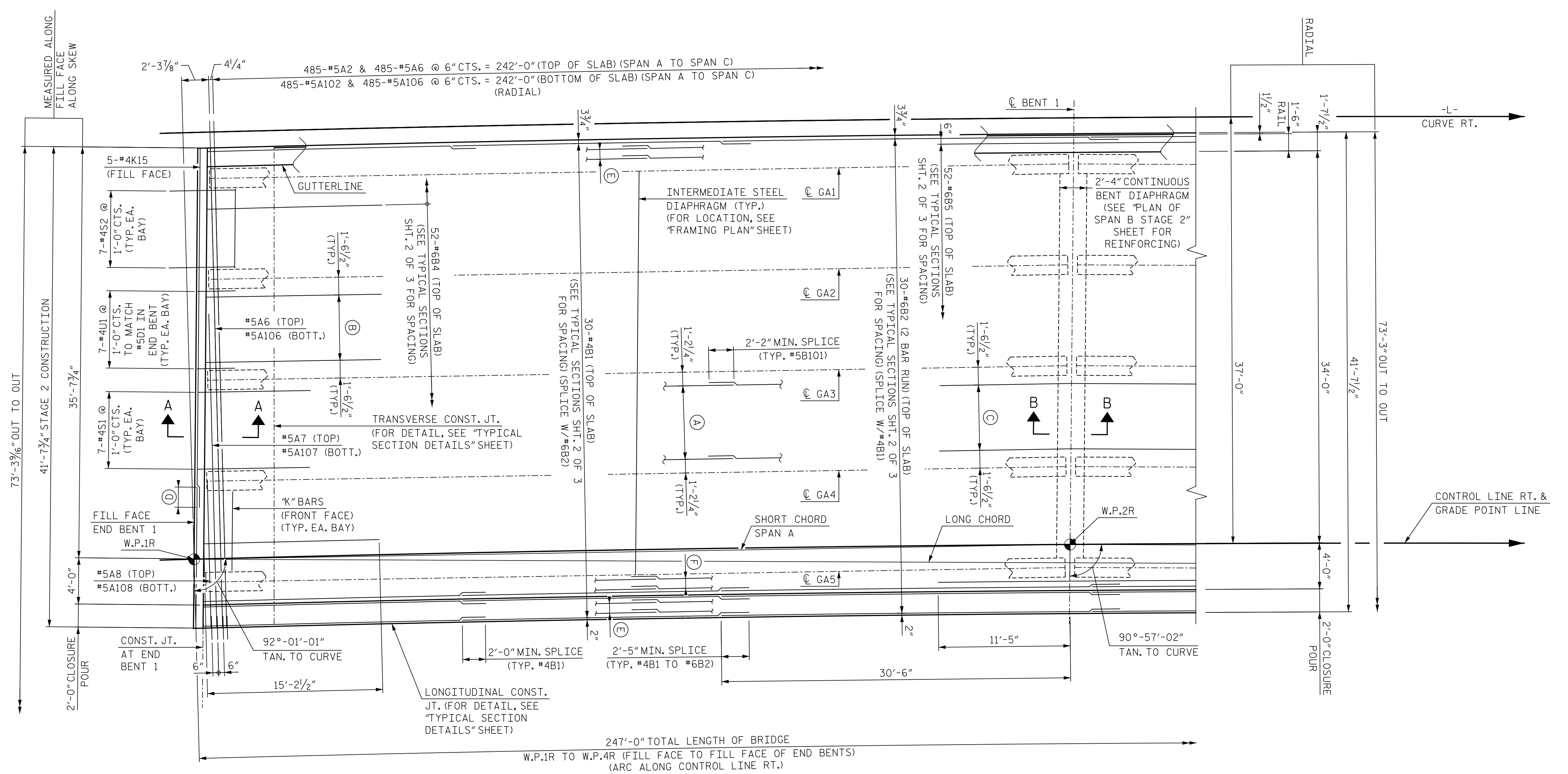
SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUPERSTRUCTURE  
 PLAN OF SPAN C  
 STAGE 1**

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S2-15
1			3			TOTAL SHEETS
2			4			54

8/30/2019 10:56:16 AM ...\\MOD\_029\_1400DBB\_SML\_S03\_015\_440211



PLAN OF SPAN A STAGE 2

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUPERSTRUCTURE  
 PLAN OF SPAN A  
 STAGE 2

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S2-16
1			3			TOTAL SHEETS
2			4			54

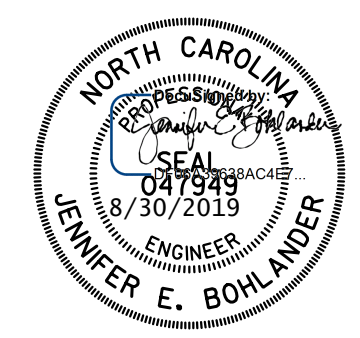
NOTES:

FOR CONCRETE BARRIER RAIL DIMENSIONS, REINFORCING STEEL, AND JOINT SPACING, SEE "CONCRETE BARRIER RAIL" SHEET.

FOR SECTION VIEWS, SEE "SUPERSTRUCTURE TYPICAL SECTION DETAILS" SHEET 3 OF 3.

FOR INTERMEDIATE STEEL DIAPHRAGMS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE IV PRESTRESSED CONCRETE GIRDERS" SHEET FOR DETAILS. FOR LOCATION, SEE "SUPERSTRUCTURE FRAMING PLANS" SHEET.

- (A) 10-#5B101 @ 8 1/2" CTS. = 6'-4 1/2" (5 BAR RUN) (TYP. EACH BAY) (BOTTOM OF SLAB)
- (B) 9-#6B102 @ 8 1/2" CTS. = 5'-8" (TYP. EACH BAY) (BOTTOM OF SLAB)
- (C) 9-#6B103 @ 8 1/2" CTS. = 5'-8" (TYP. EACH BAY) (BOTTOM OF SLAB)
- (D) 1'-9" MIN. SPLICE (#4K15) (TYP.)
- (E) 3-#5B101 @ EQ. SPA (5 BAR RUN) (BOTTOM OF SLAB)
- (F) 2-#5B101 @ EQ. SPA (5 BAR RUN) (BOTTOM OF SLAB)



DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

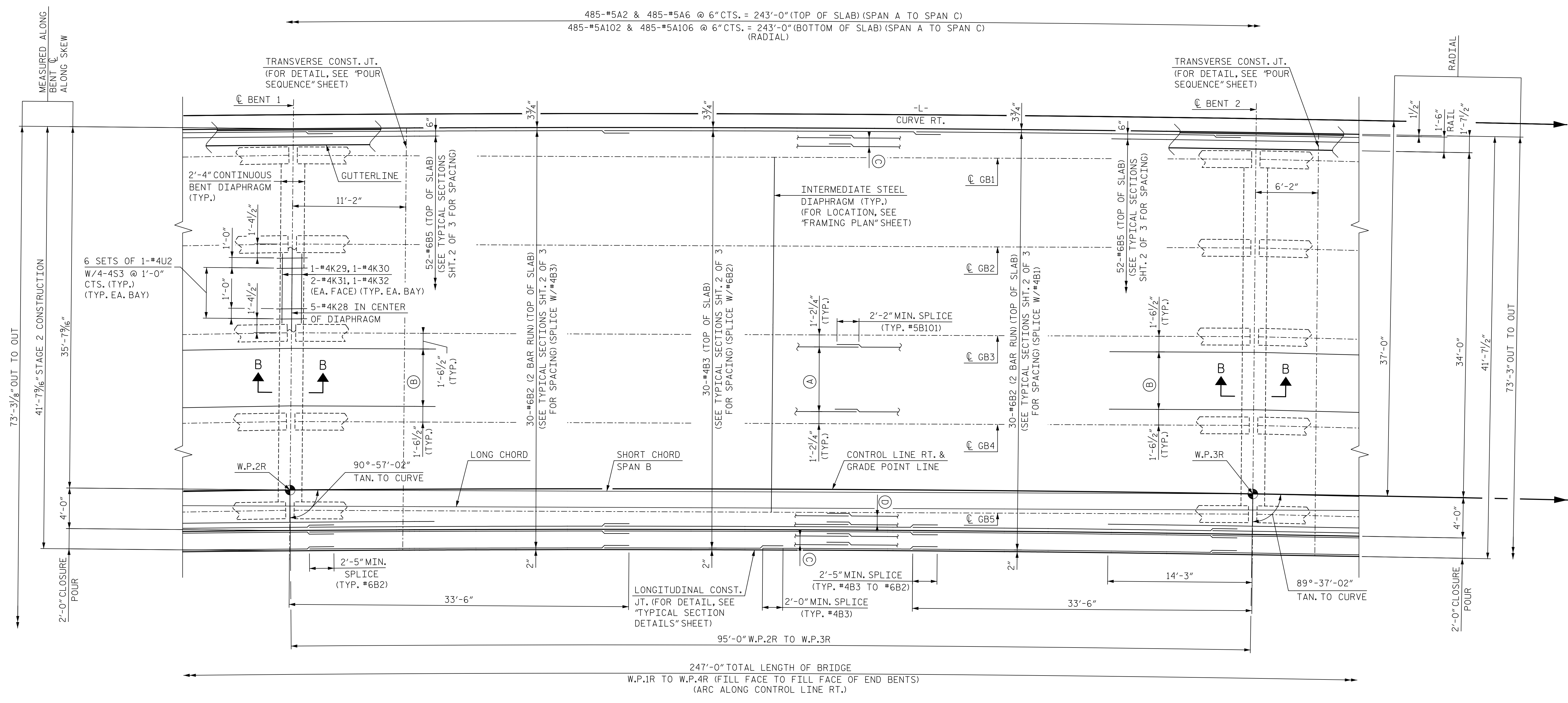
**HNTB** HNTB NORTH CAROLINA, P.C.  
 NC License No. C-1554  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: J. SLOAT DATE: 1/24/2019  
 CHECKED BY: J. BOHLANDER DATE: 3/18/2019  
 ENGINEER OF RECORD: J. BOHLANDER DATE: 3/18/2019

DWG. NO. 16

8/20/2019 11:16:16 AM ...\\02.03.1\_1400BB\_SML\_S01\_016\_440211



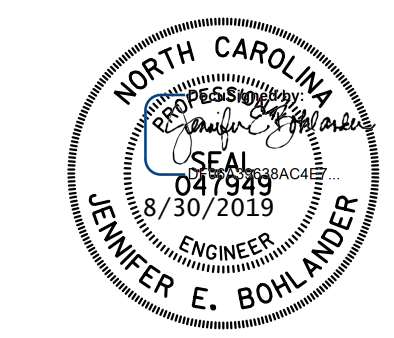


PLAN OF SPAN B STAGE 2

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

NOTES:  
 FOR NOTES, SEE "PLAN OF SPAN A STAGE 2" SHEET.

- (A) 10-#5B101 @ 8 1/2" CTS. = 6'-4 1/2" (TYP. EACH BAY) (BOTTOM OF SLAB)
- (B) 9-#6B103 @ 8 1/2" CTS. = 5'-8" (TYP. EACH BAY) (BOTTOM OF SLAB)
- (C) 3-#5B101 @ E.O. SPA (5 BAR RUN) (BOTTOM OF SLAB)
- (D) 2-#5B101 @ E.O. SPA (5 BAR RUN) (BOTTOM OF SLAB)

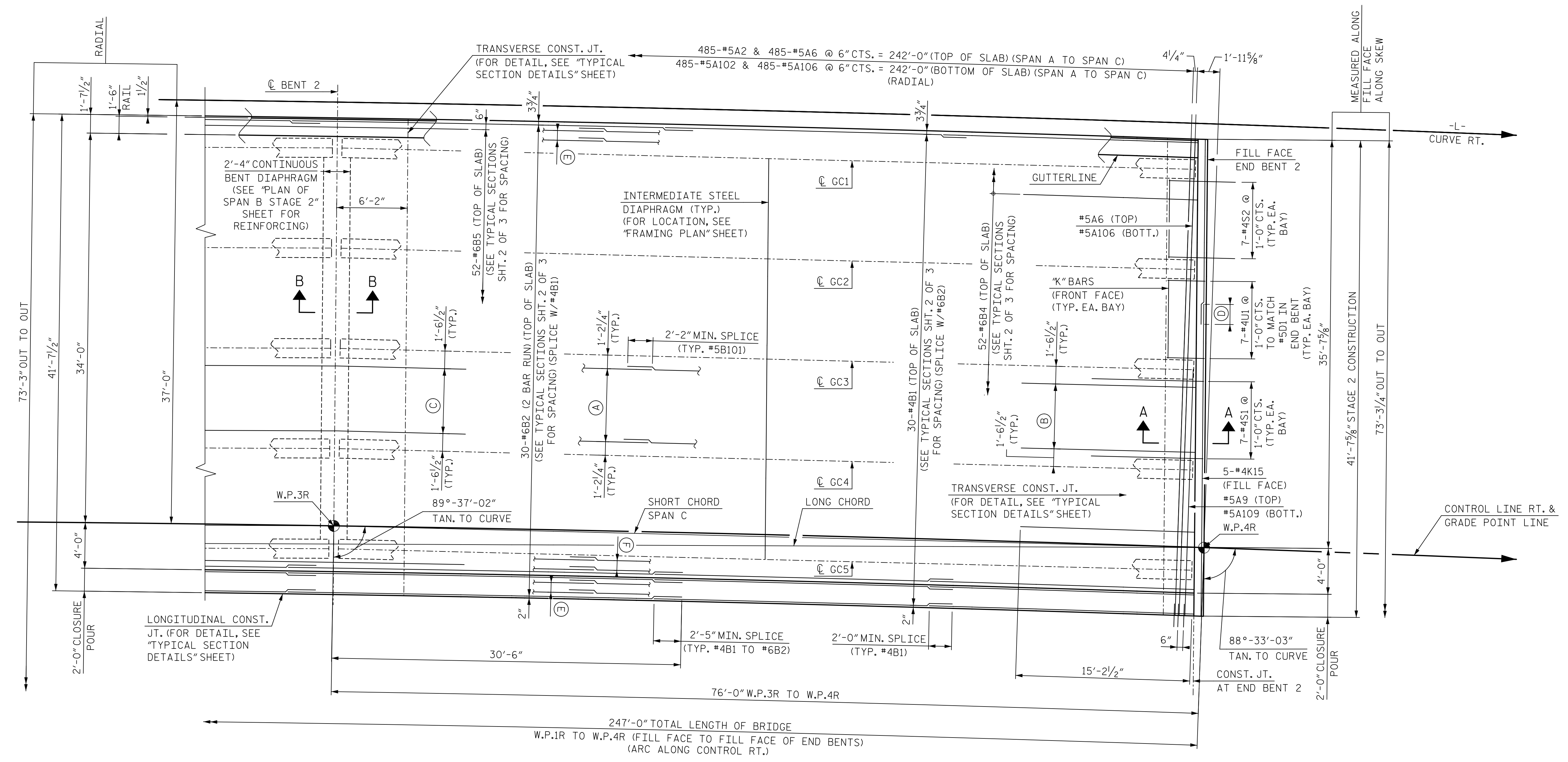


**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 1/28/2019	DWG. NO. 17	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PLAN OF SPAN B STAGE 2					
SHEET 2 OF 3					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
					SHEET NO. S2-17
					TOTAL SHEETS 54

8/30/2019 10:56:21 AM  
 \_WD02\_033\_14400099\_SML\_S02\_017\_440211

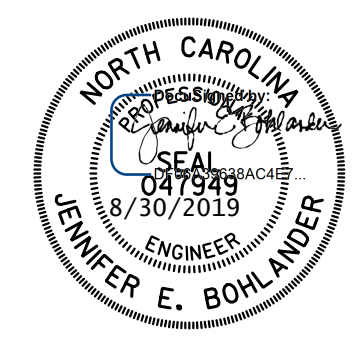


PLAN OF SPAN C STAGE 2

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

NOTES:  
 FOR NOTES, SEE "PLAN OF SPAN A PHASE 2" SHEET.

- (A) 10-#5B101 @ 8 1/2" CTS. = 6'-4 1/2" (5 BAR RUN) (TYP. EACH BAY) (BOTTOM OF SLAB)
- (B) 9-#6B102 @ 8 1/2" CTS. = 5'-8" (TYP. EACH BAY) (BOTTOM OF SLAB)
- (C) 9-#6B103 @ 8 1/2" CTS. = 5'-8" (TYP. EACH BAY) (BOTTOM OF SLAB)
- (D) 1'-9" MIN. SPLICE (#4K15) (TYP.)
- (E) 3-#5B101 @ EQ. SPA (5 BAR RUN) (BOTTOM OF SLAB)
- (F) 2-#5B101 @ EQ. SPA (5 BAR RUN) (BOTTOM OF SLAB)



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 1/30/2019	DWG. NO. 18	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

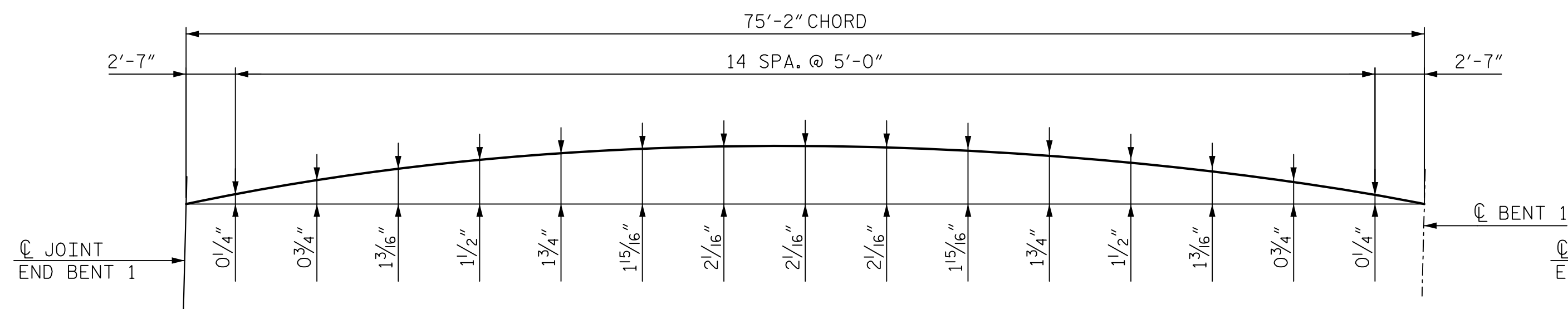
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUPERSTRUCTURE  
 PLAN OF SPAN C  
 STAGE 2**

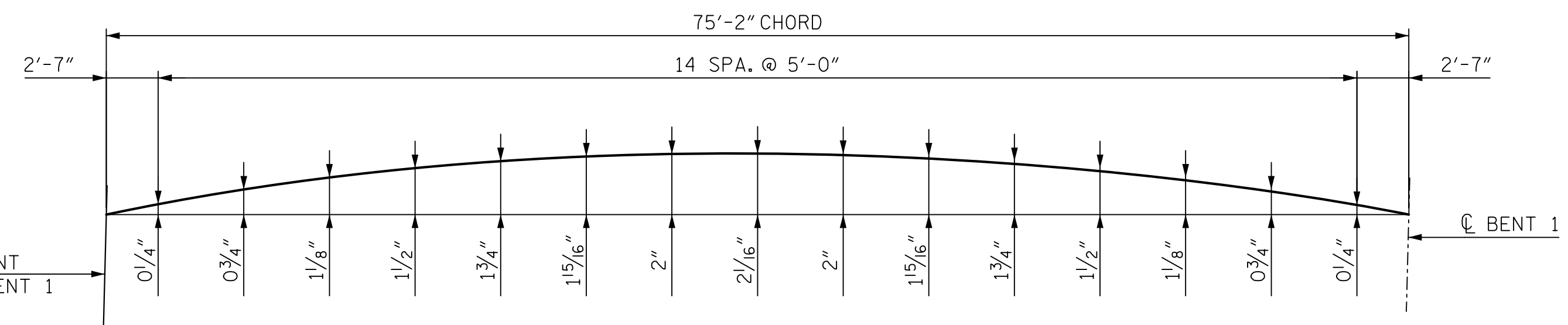
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S2-18
1			3			TOTAL SHEETS
2			4			54

8/30/2019 1:10:36 AM ...\\02.035.1400089\_SML\_S03.01B\_440211



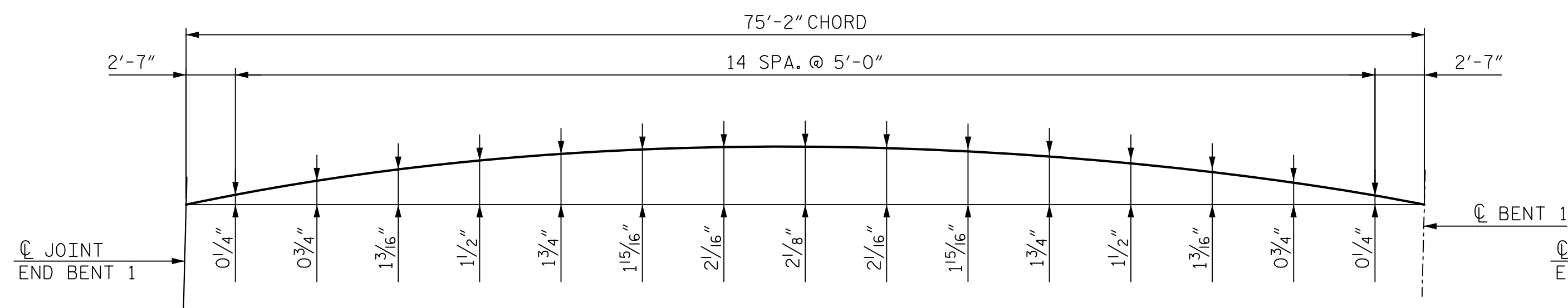


LEFT EDGE OF SLAB (STAGE 1)  
(R = 4077'-0")

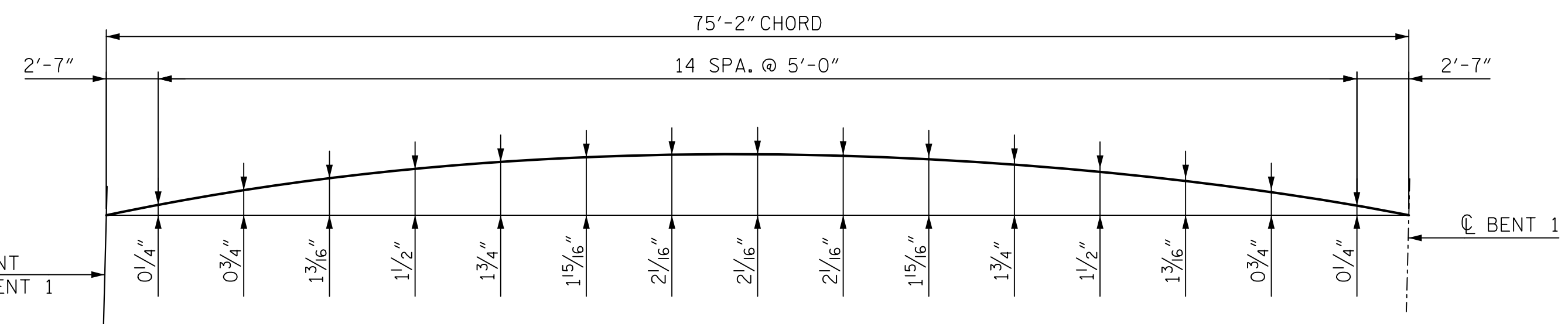


LEFT EDGE OF SLAB (STAGE 2)  
(R = 4118'-7 1/2")

SPAN A



RIGHT EDGE OF SLAB (STAGE 1)  
(R = 4045'-4 1/2")

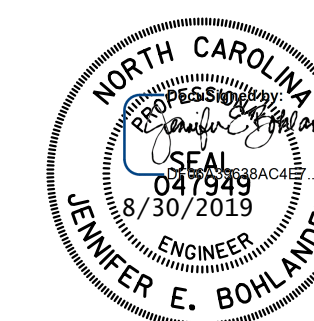


RIGHT EDGE OF SLAB (STAGE 2)  
(R = 4079'-0")

SPAN A

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
STATION: 421+74.67 -L-

SHEET 1 OF 3

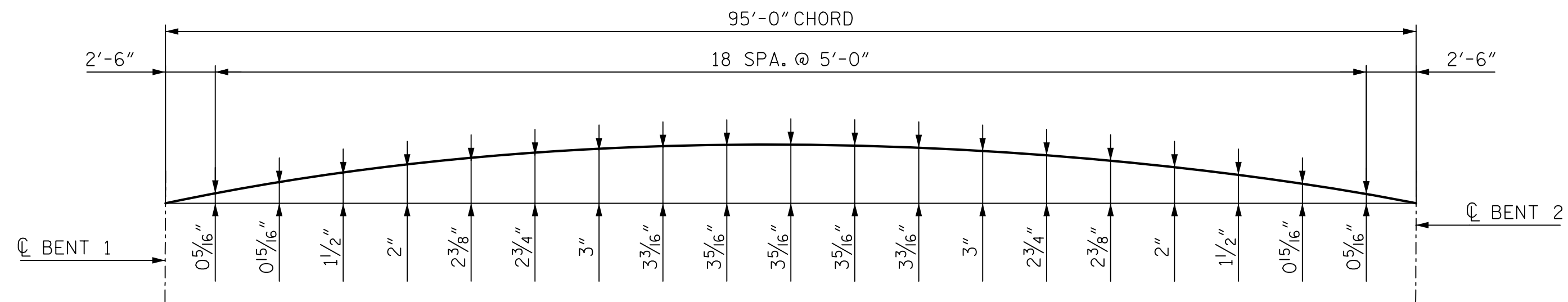


**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

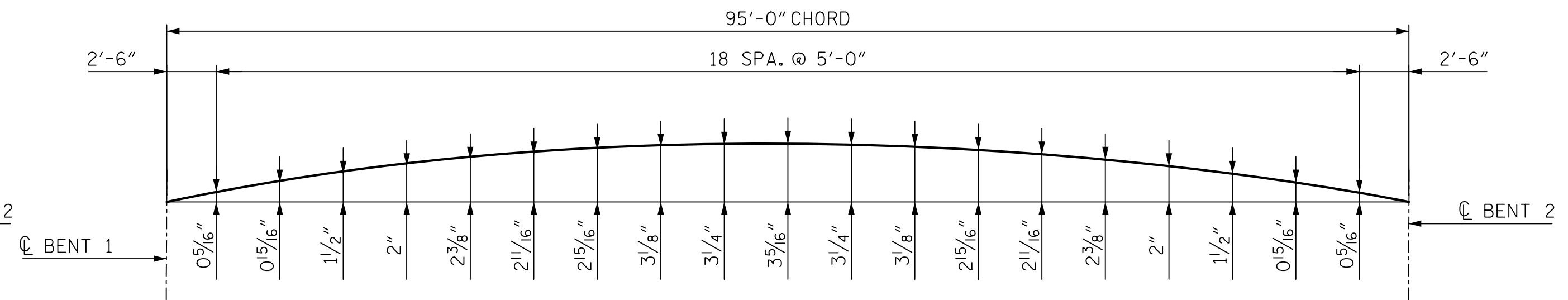
<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 1/30/2019	DWG. NO. 19	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S2-19
SUPERSTRUCTURE ARC OFFSETS SPAN A						TOTAL SHEETS 54
REVISIONS						
NO.	BY	DATE	NO.	BY	DATE	
1			3			
2			4			

8/30/2019 10:56:25 AM ...\\MOD\_037\_14400BB\_SML\_S04\_019\_440211

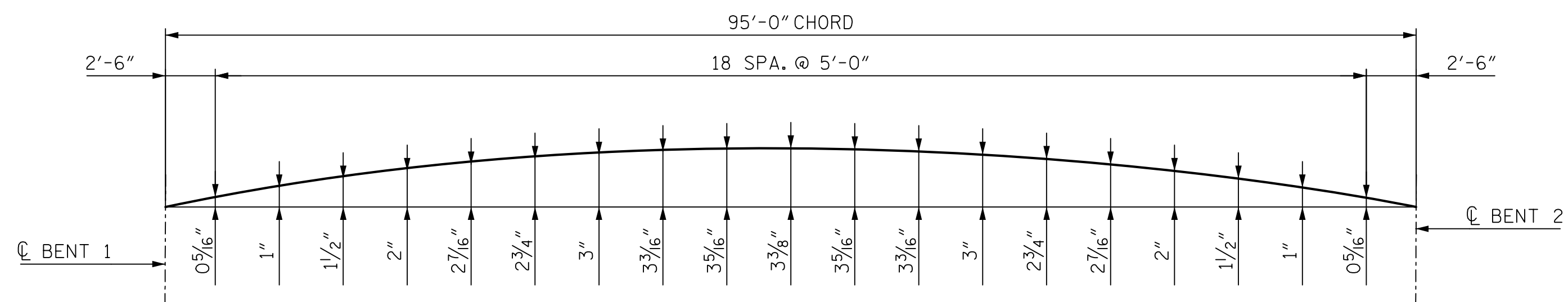


LEFT EDGE OF SLAB (STAGE 1)  
(R = 4077'-0")

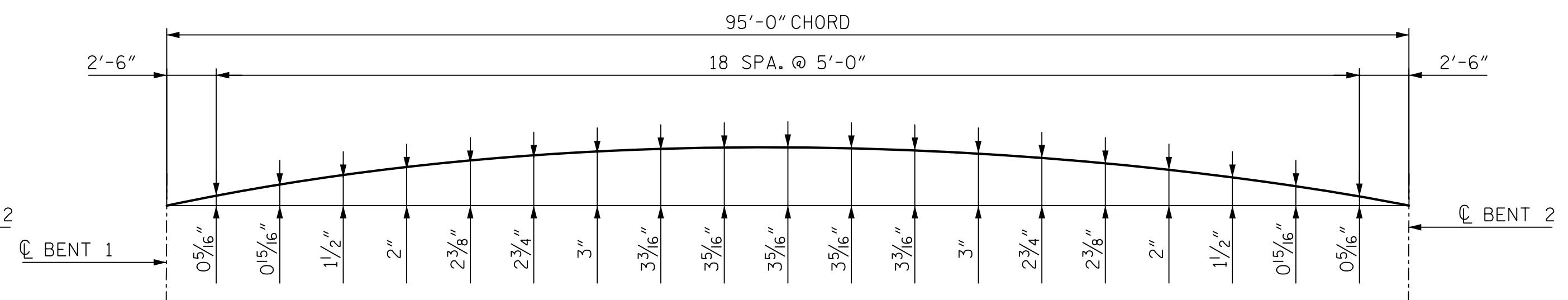


LEFT EDGE OF SLAB (STAGE 2)  
(R = 4118'-7 1/2")

SPAN B



RIGHT EDGE OF SLAB (STAGE 1)  
(R = 4045'-4 1/2")

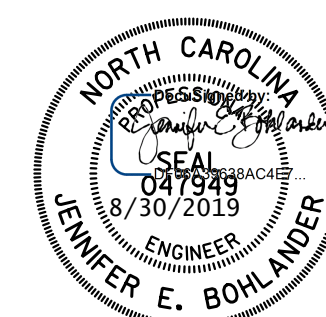


RIGHT EDGE OF SLAB (STAGE 2)  
(R = 4079'-0")

SPAN B

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 2 OF 3



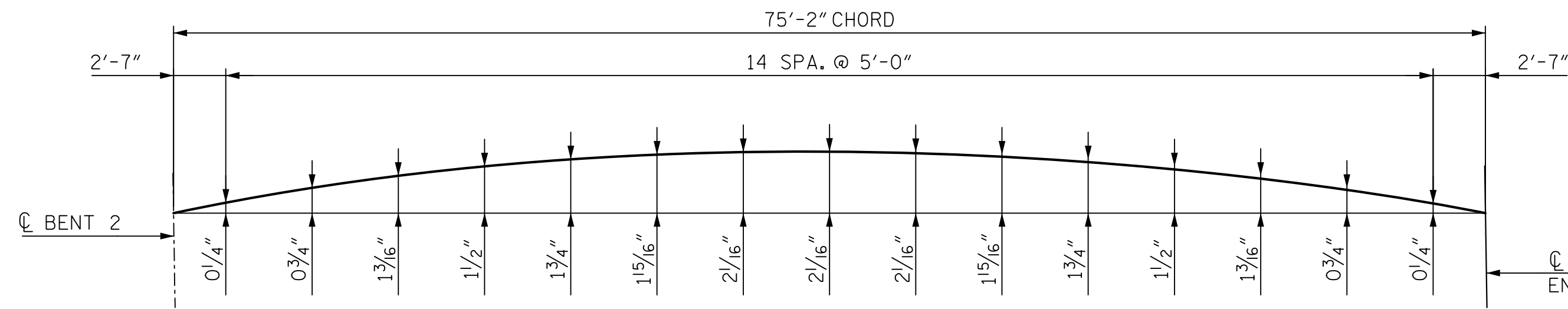
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 2/26/2019	DWG. NO. 20	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

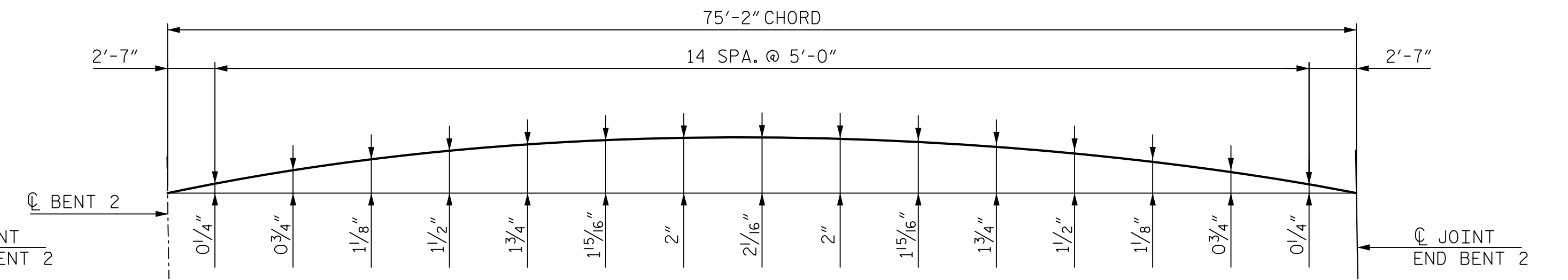
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S2-20
SUPERSTRUCTURE ARC OFFSETS SPAN B						TOTAL SHEETS 54
REVISIONS						
NO.	BY	DATE	NO.	BY	DATE	
1			3			
2			4			

8/30/2019 10:56:28 AM  
 ...\\MO2\_039\_14400BB\_SML\_S05\_D02\_440211



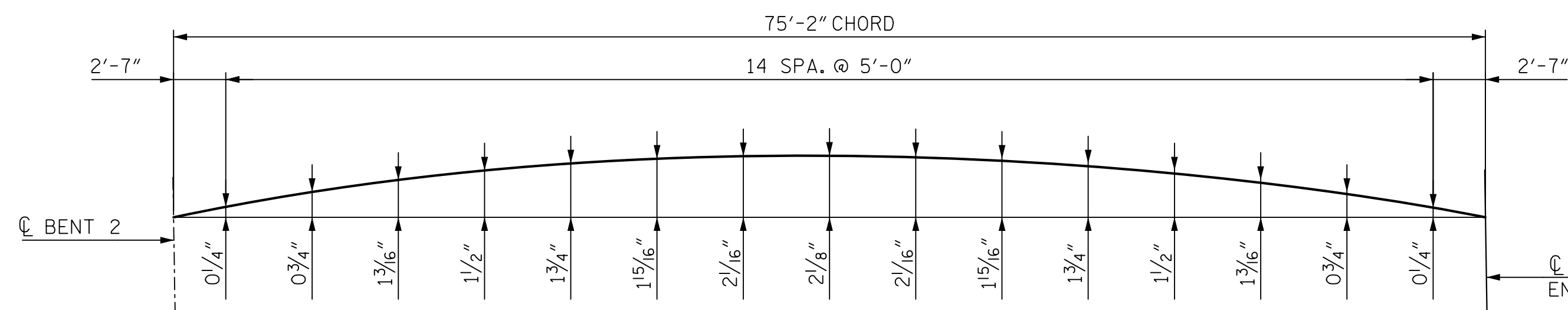


LEFT EDGE OF SLAB (STAGE 1)  
(R = 4077'-0")

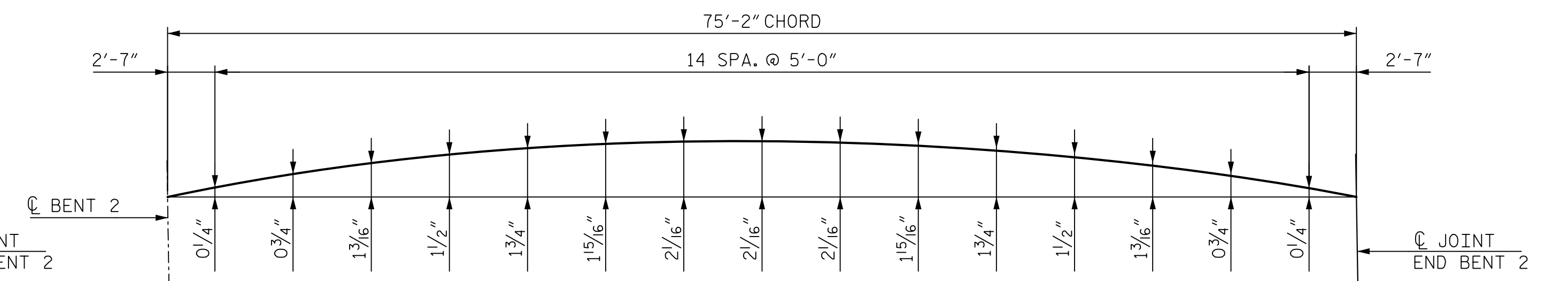


LEFT EDGE OF SLAB (STAGE 2)  
(R = 4118'-7 1/2")

SPAN C



RIGHT EDGE OF SLAB (STAGE 1)  
(R = 4045'-4 1/2")



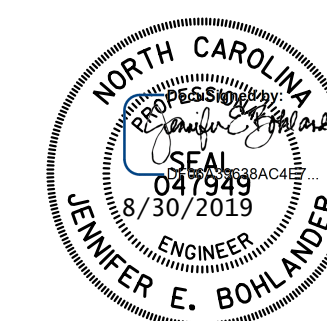
RIGHT EDGE OF SLAB (STAGE 2)  
(R = 4079'-0")

SPAN C

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 3 OF 3

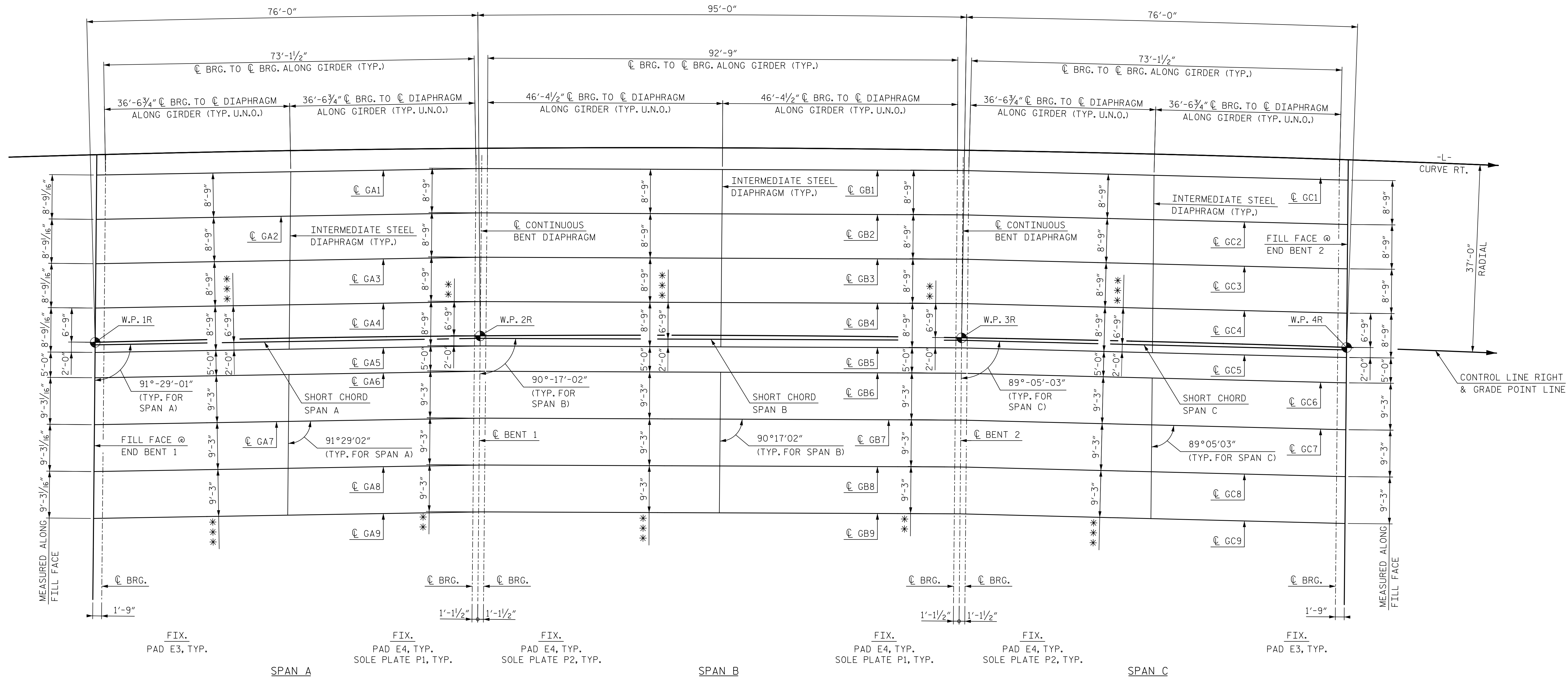
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 ARC OFFSETS  
 SPAN C



DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 2/26/2019	DWG. NO. 21	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S2-21
1			3			TOTAL SHEETS
2			4			54

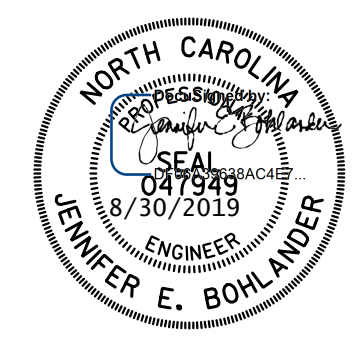


FRAMING PLAN

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 1 OF 1

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 FRAMING PLAN  
 RIGHT LANE



DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 11/8/2018	DWG. NO. 22	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S2-22
1			3			TOTAL SHEETS
2			4			54

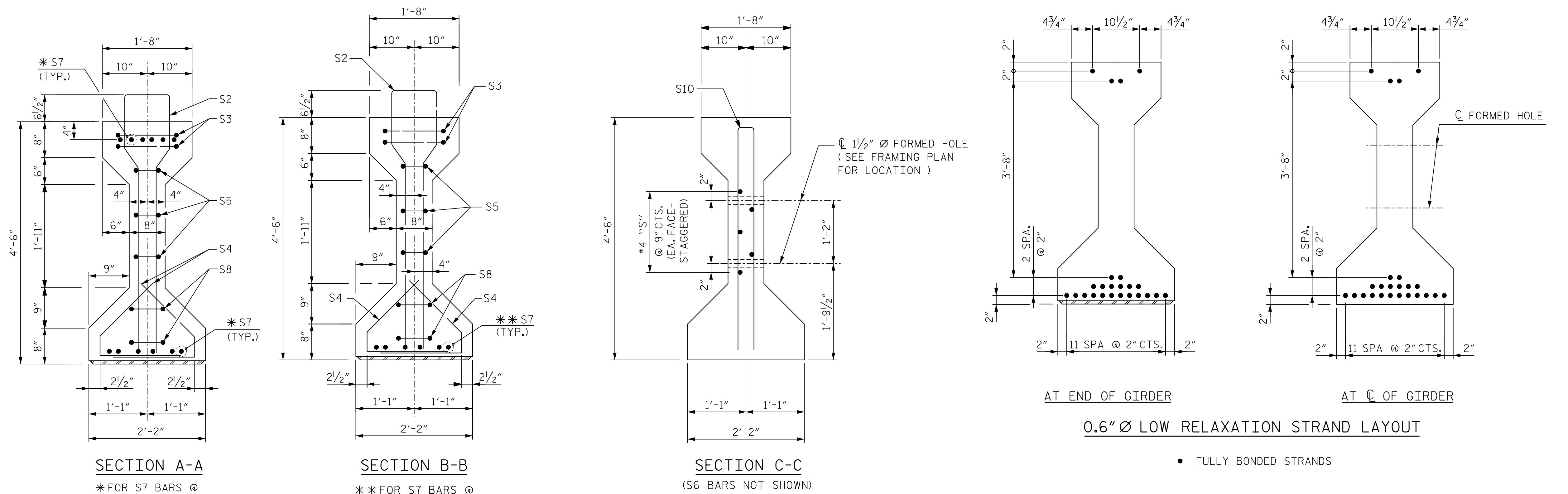
**NOTES:**  
 ALL DIMENSIONS MEASURED ALONG  $\text{\textcircled{C}}$  GIRDER UNLESS NOTED OTHERWISE.  
 FOR INTERMEDIATE STEEL DIAPHRAGM DETAILS, SEE SHEET "STANDARD INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE IV PRESTRESSED CONCRETE GIRDERS".  
 FOR GIRDER ELEVATIONS AND DETAILS, SEE "PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS" SHEET.  
 GIRDERS ARE SET PARALLEL TO THE CONTROL LINE RT (WBL) SHORT CHORD. SPAN LENGTHS SHOWN ARE  $\text{\textcircled{C}}$  OF BEARINGS.

"EXP." DENOTES EXPANSION BEARING ASSEMBLY  
 "FIX." DENOTES FIXED BEARING ASSEMBLY  
 "E" DENOTES ELASTOMERIC BEARING PAD MARK.  
 "P" DENOTES STEEL SOLE PLATE MARK.  
 "U.N.O." UNLESS NOTED OTHERWISE

\*\* DIMENSIONS ARE ALONG  $\text{\textcircled{C}}$  BENT.  
 \*\*\* DIMENSIONS ARE PERPENDICULAR TO THE CONTROL LINE RT (WBL) SHORT CHORD.

8/30/2019 10:56:32 AM \\M02-CAS-1-4400BB-SM-LFP-022-440211





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

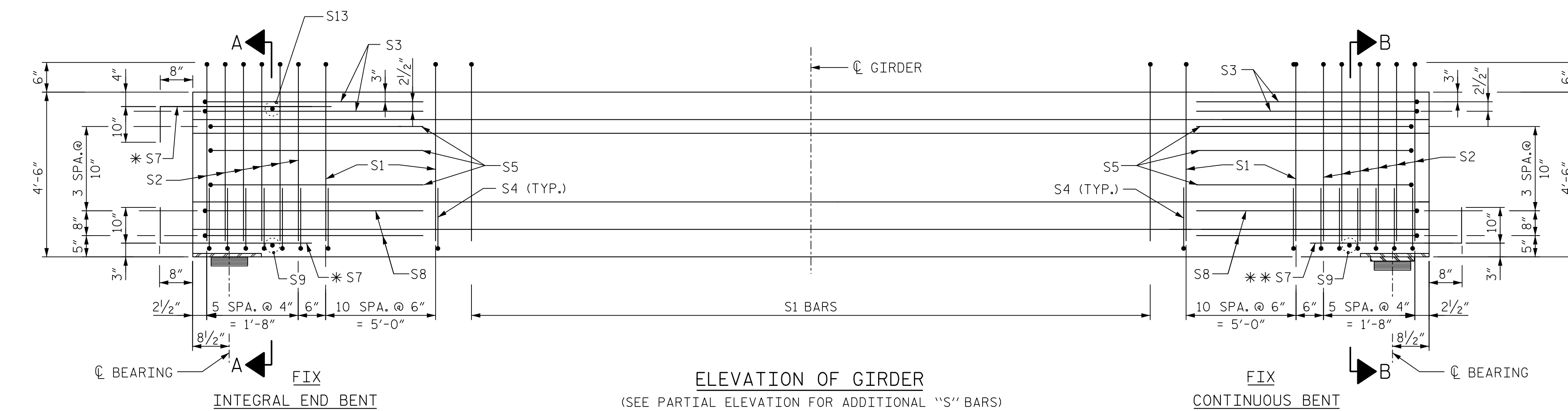
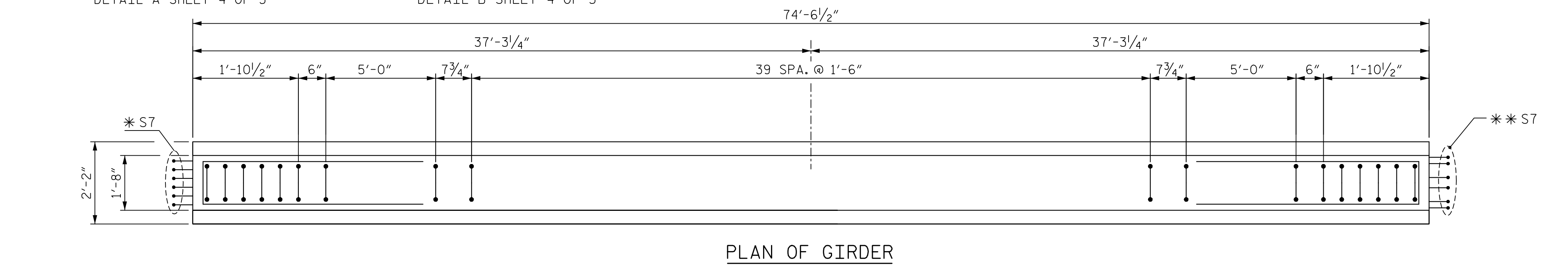
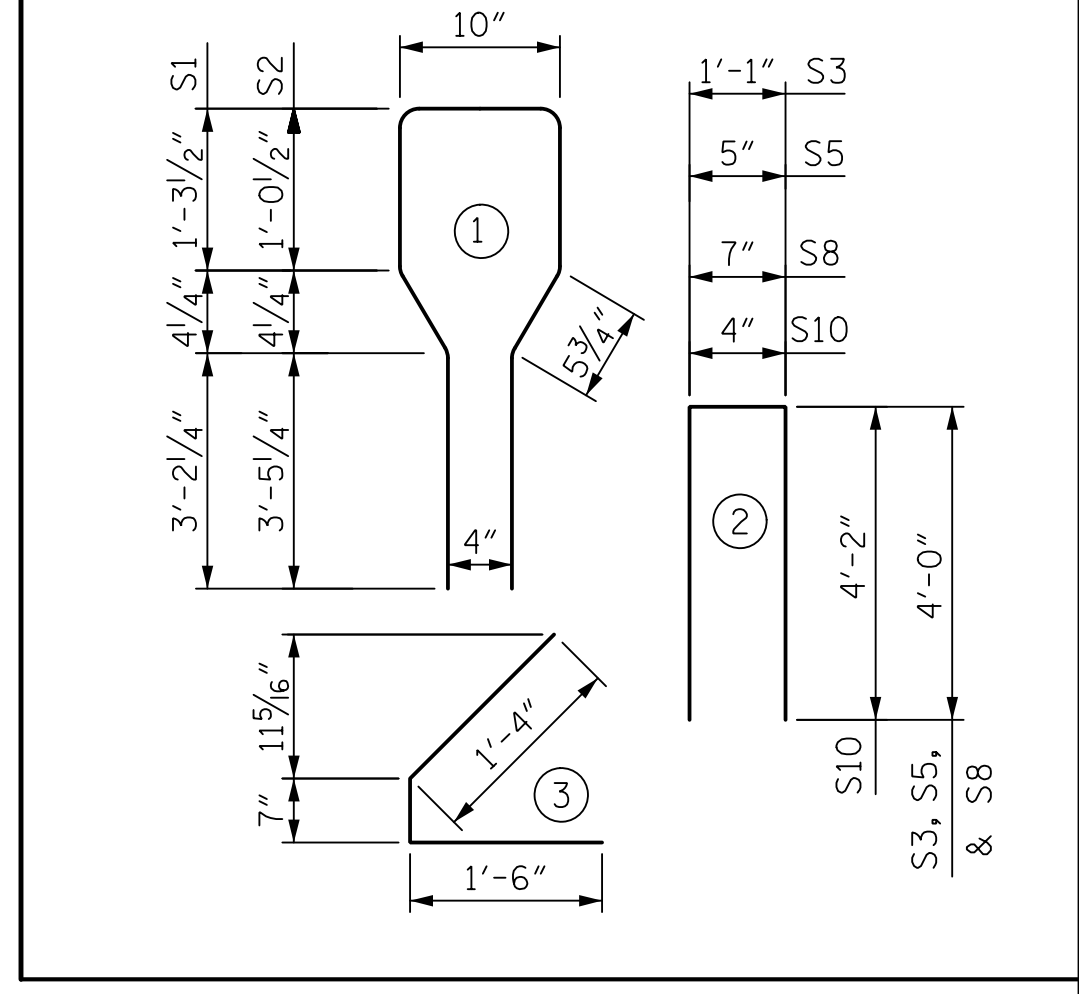
REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	62	#4	1	10'-9"	445
S2	12	#6	1	10'-9"	194
S3	4	#4	2	9'-1"	24
S4	64	#4	3	3'-5"	146
S5	6	#4	2	8'-5"	34
* S7	12	#5	STR	3'-8"	46
S8	4	#4	2	8'-7"	23
S9	2	#3	STR	1'-10"	1
S10	2	#5	2	8'-8"	18
S11	5	#4	STR	7'-0"	23

\* NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

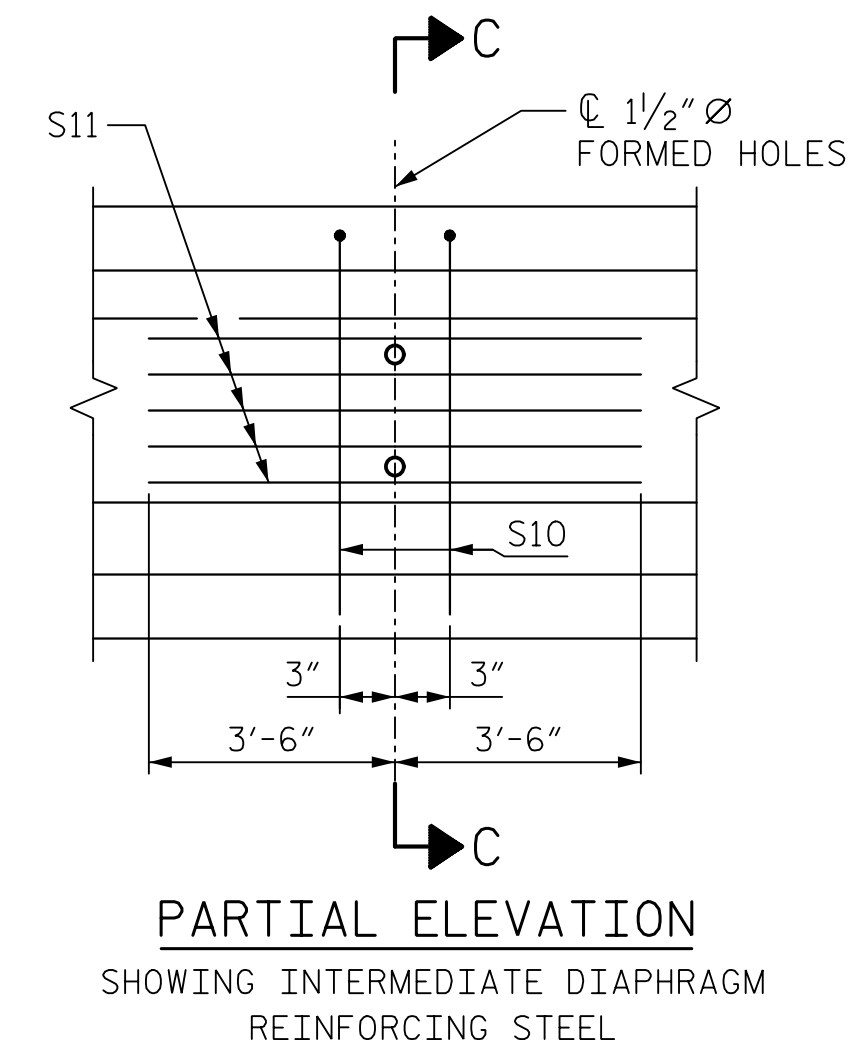
QUANTITIES FOR ONE GIRDER			
REINFORCING STEEL	8,000 PSI CONCRETE	0.6" Ø L.R. STRANDS	
LB.	C.Y.	No.	
SPAN A	954	15.1	24

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
9	74'-6 1/2"	670'-10 1/2"

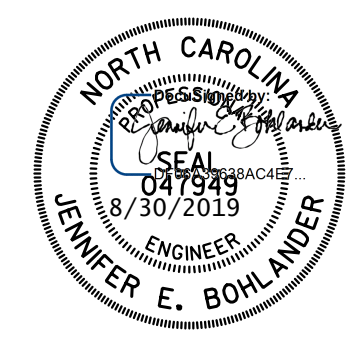
BAR TYPES  
ALL BAR DIMENSIONS ARE OUT-TO-OUT



NOTES:  
FOR LOCATION OF INTERMEDIATE DIAPHRAGM, SEE SHEET 4 OF 5.  
THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6,000 PSI.  
GIRDER CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 8,000 PSI AT THE AGE OF 28 DAYS.



PARTIAL ELEVATION  
SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL



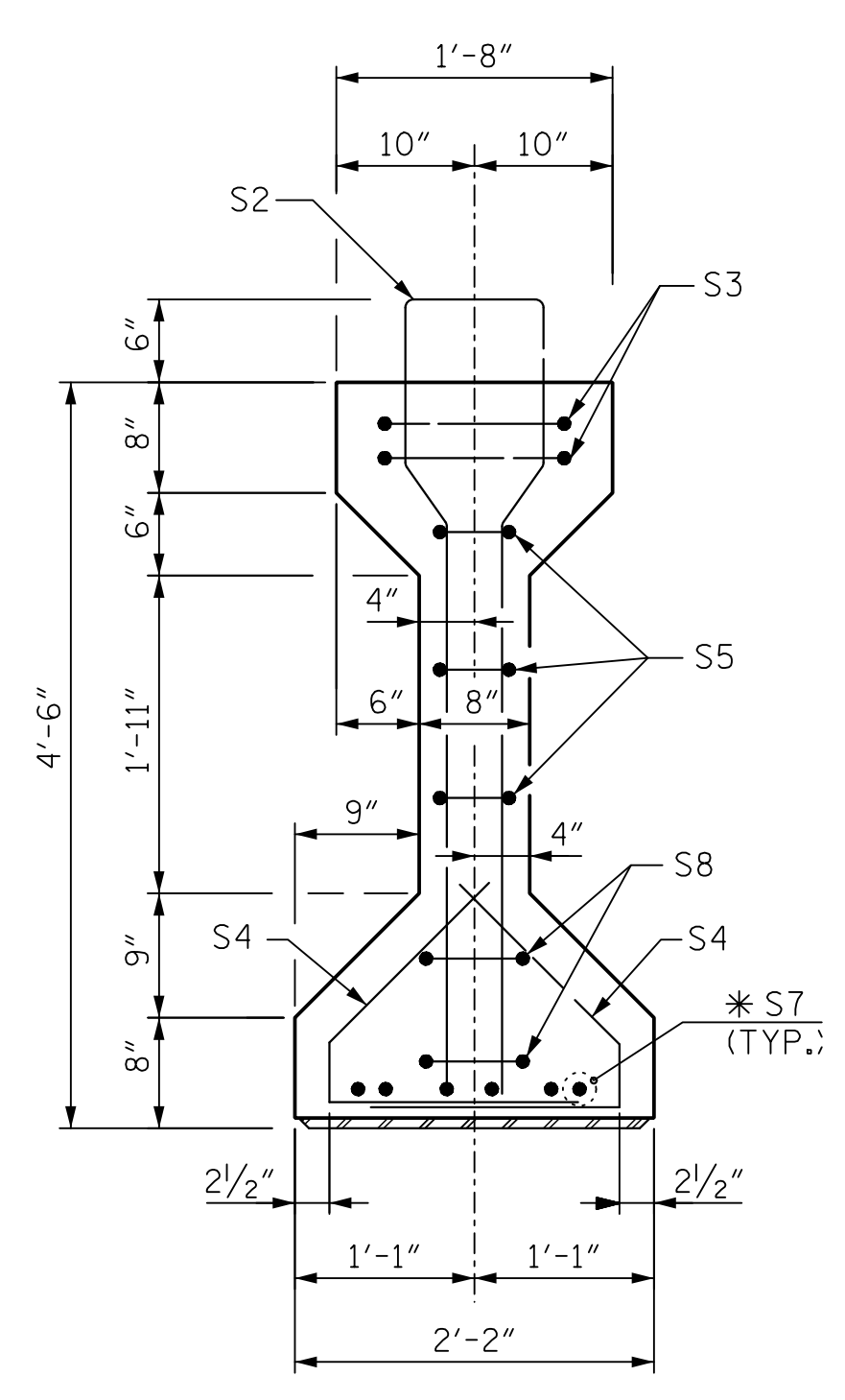
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 3/1/2019	DWG. NO. 23	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

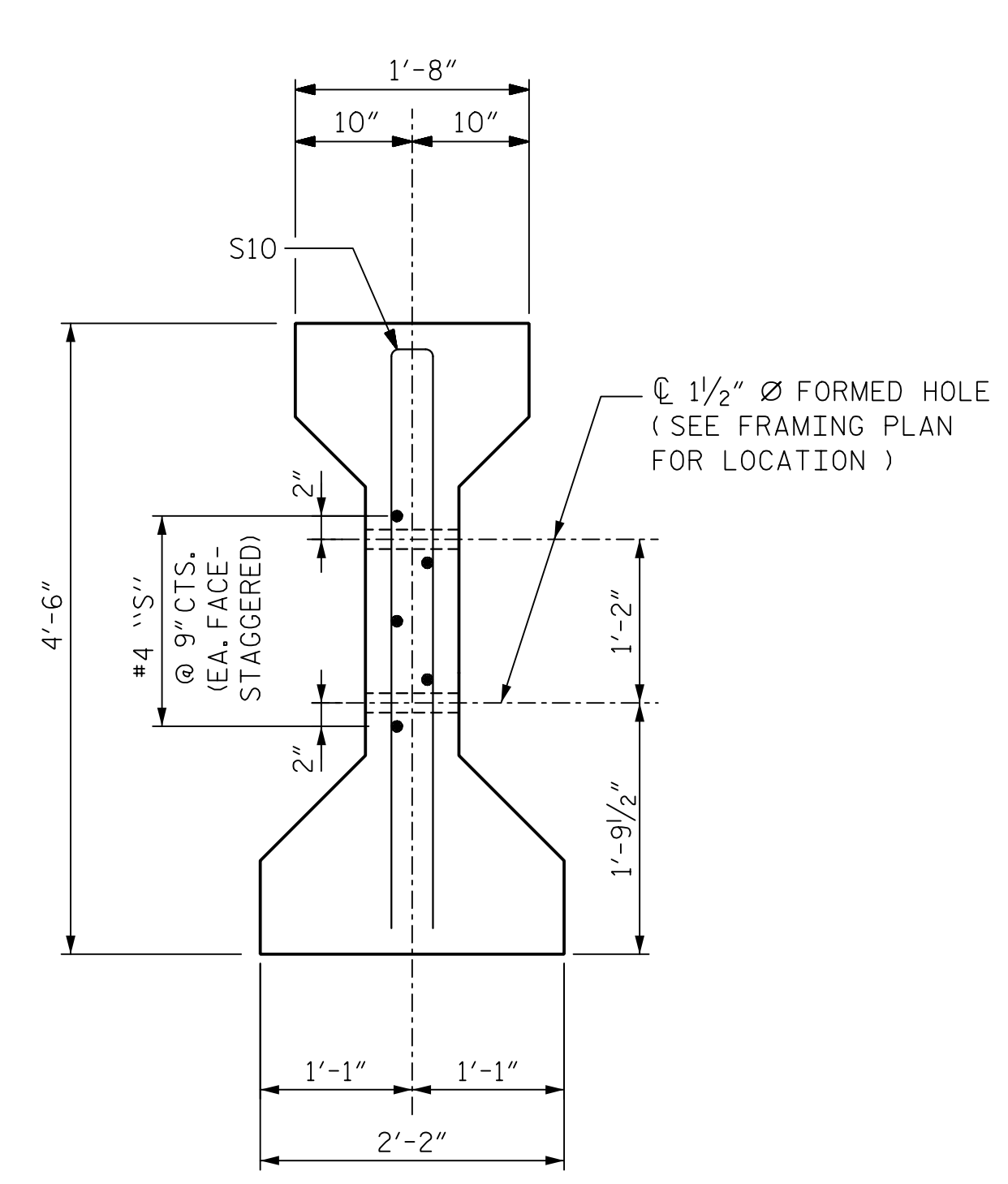
PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
STATION: 421+74.67 -L-

SHEET 1 OF 5  
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
AASHTO TYPE IV  
PRESTRESSED CONCRETE  
GIRDER CONTINUOUS FOR  
LIVE LOAD  
SPAN A

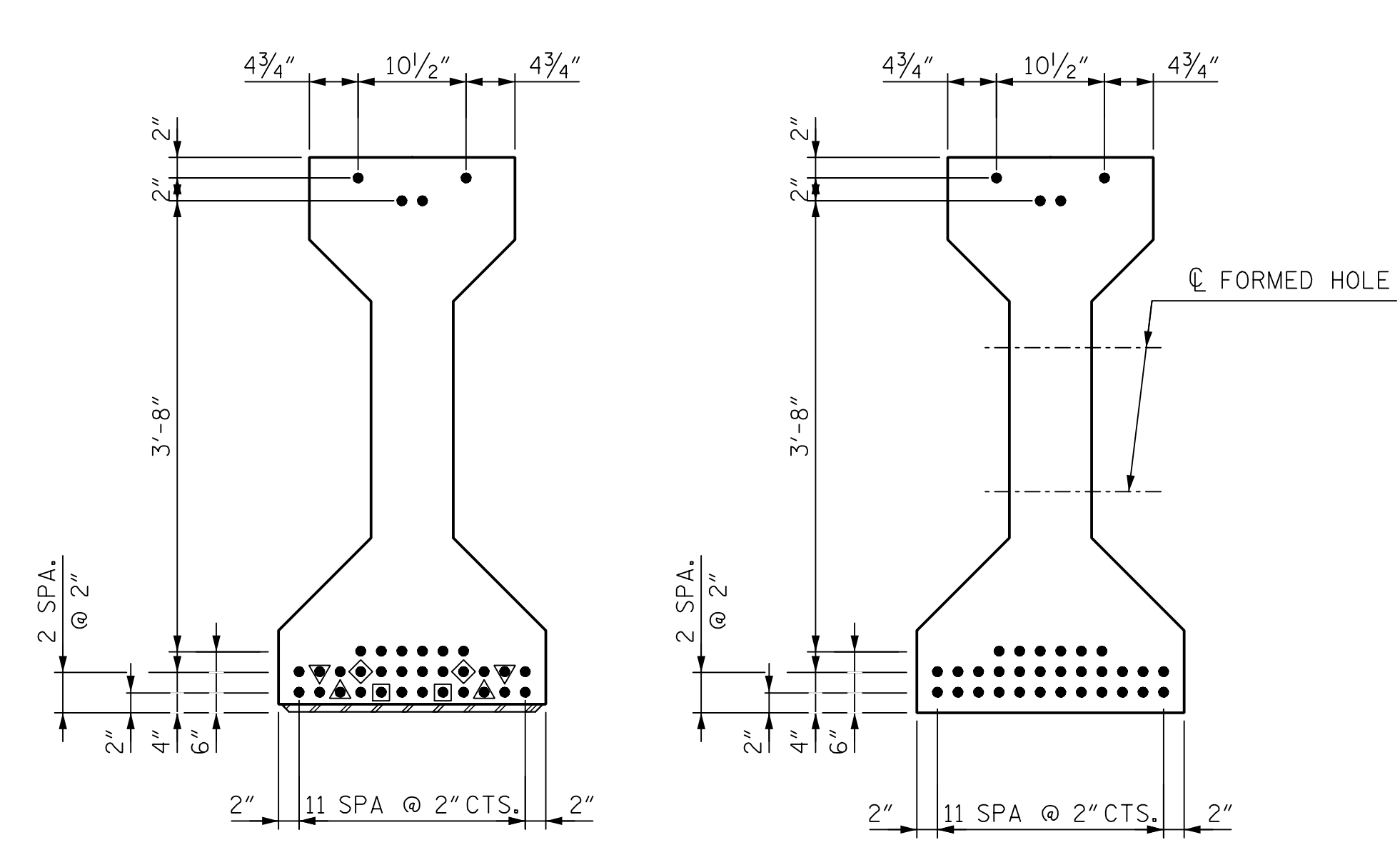
REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		



**SECTION A-A**  
\* FOR S7 BARS @ CONTINUOUS BENT, SEE DETAIL B SHEET 4 OF 5

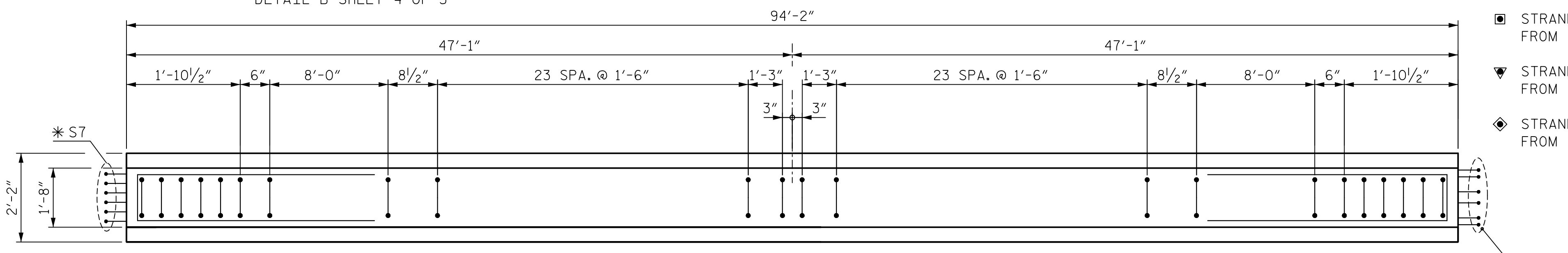


**SECTION B-B**  
(S1 BARS NOT SHOWN)

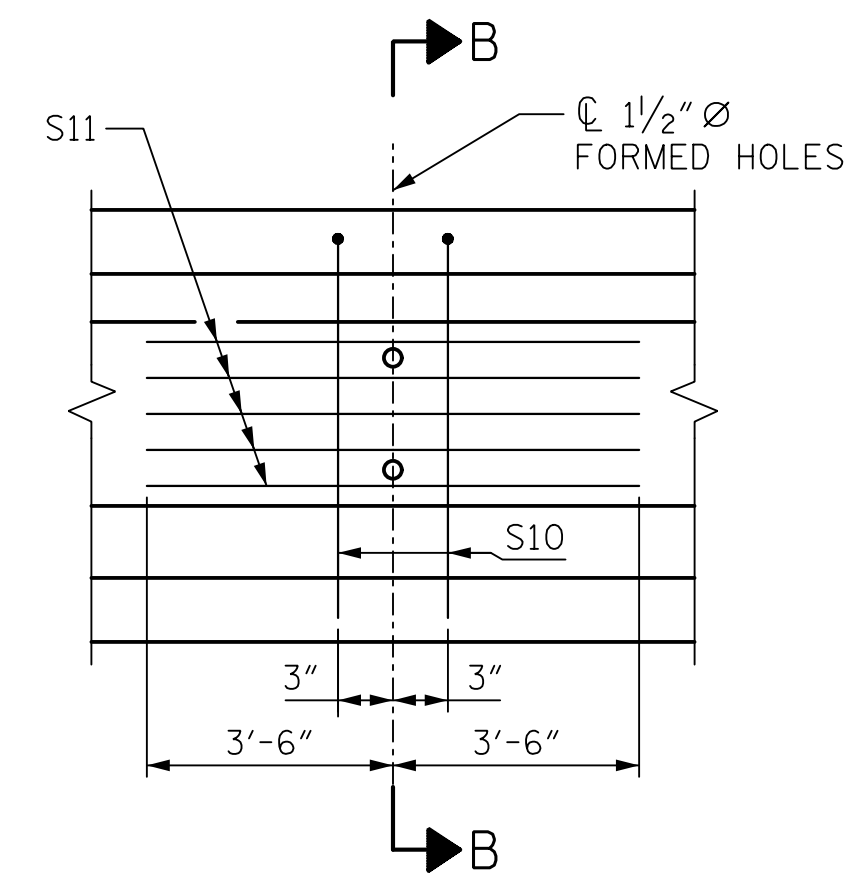


**0.6" Ø LOW RELAXATION STRAND LAYOUT**

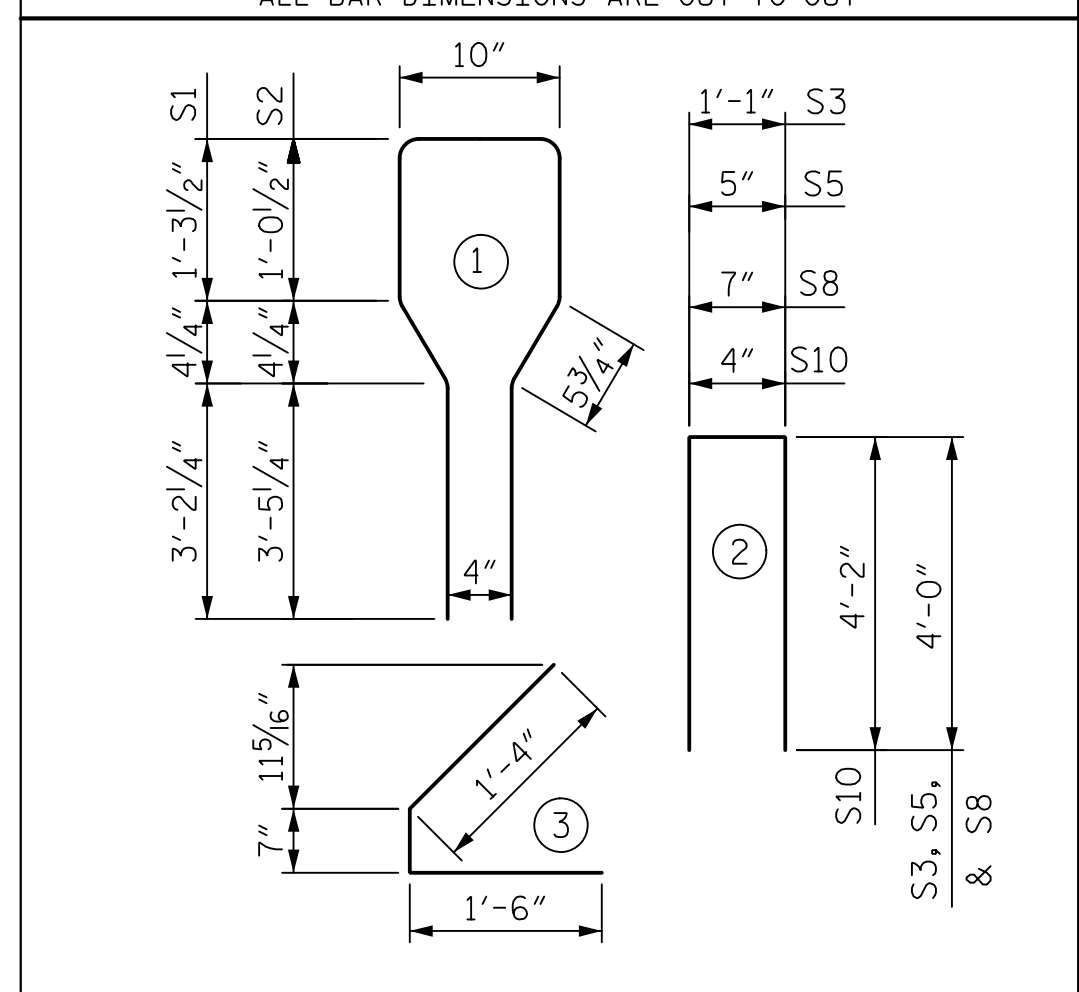
- FULLY BONDED STRANDS
- ▲ STRANDS DEBONDED 10'-0" FROM END OF GIRDER
- ▣ STRANDS DEBONDED 8'-0" FROM END OF GIRDER
- ▼ STRANDS DEBONDED 6'-0" FROM END OF GIRDER
- ◆ STRANDS DEBONDED 4'-0" FROM END OF GIRDER



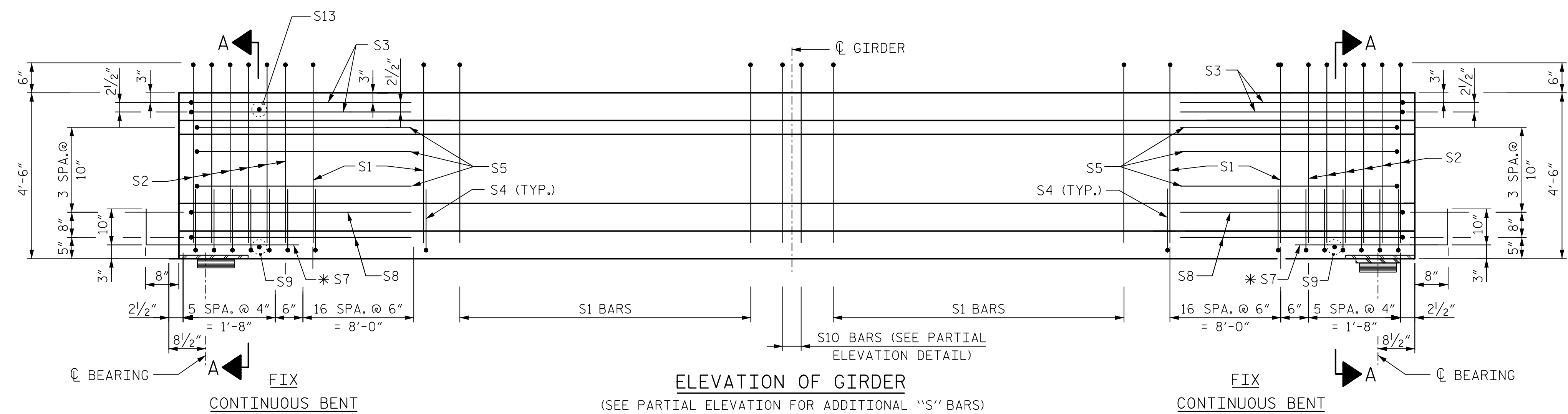
**PLAN OF GIRDER**



**PARTIAL ELEVATION**  
SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL



**BAR TYPES**  
ALL BAR DIMENSIONS ARE OUT-TO-OUT



**ELEVATION OF GIRDER**  
(SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)

NOTES:  
FOR LOCATION OF INTERMEDIATE DIAPHRAGM, SEE SHEET 4 OF 5.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6,100 PSI.

GIRDER CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 8,000 PSI AT THE AGE OF 28 DAYS.

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

REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	82	#4	1	10'-9"	589
S2	12	#6	1	10'-9"	194
S3	4	#4	2	9'-1"	24
S4	64	#4	3	3'-5"	146
S5	6	#4	2	8'-5"	34
* S7	12	#5	STR	3'-8"	46
S8	4	#4	2	8'-7"	23
S9	2	#3	STR	1'-10"	1
S10	2	#5	2	8'-8"	18
S11	5	#4	STR	7'-0"	23

\* NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

QUANTITIES FOR ONE GIRDER			
SPAN B	REINFORCING STEEL	8,000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
	1098	19.1	34

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
9	94'-2"	847'-6"

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
9	94'-2"	847'-6"

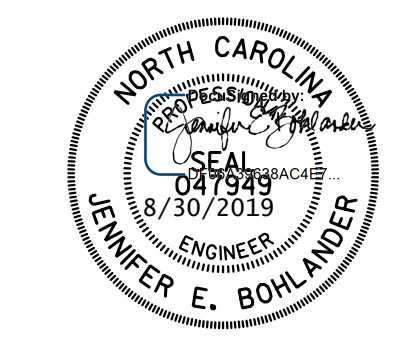
ALL BAR DIMENSIONS ARE OUT-TO-OUT

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
STATION: 421+74.67 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

STANDARD  
AASHTO TYPE IV  
PRESTRESSED CONCRETE  
GIRDER CONTINUOUS FOR  
LIVE LOAD  
SPAN B



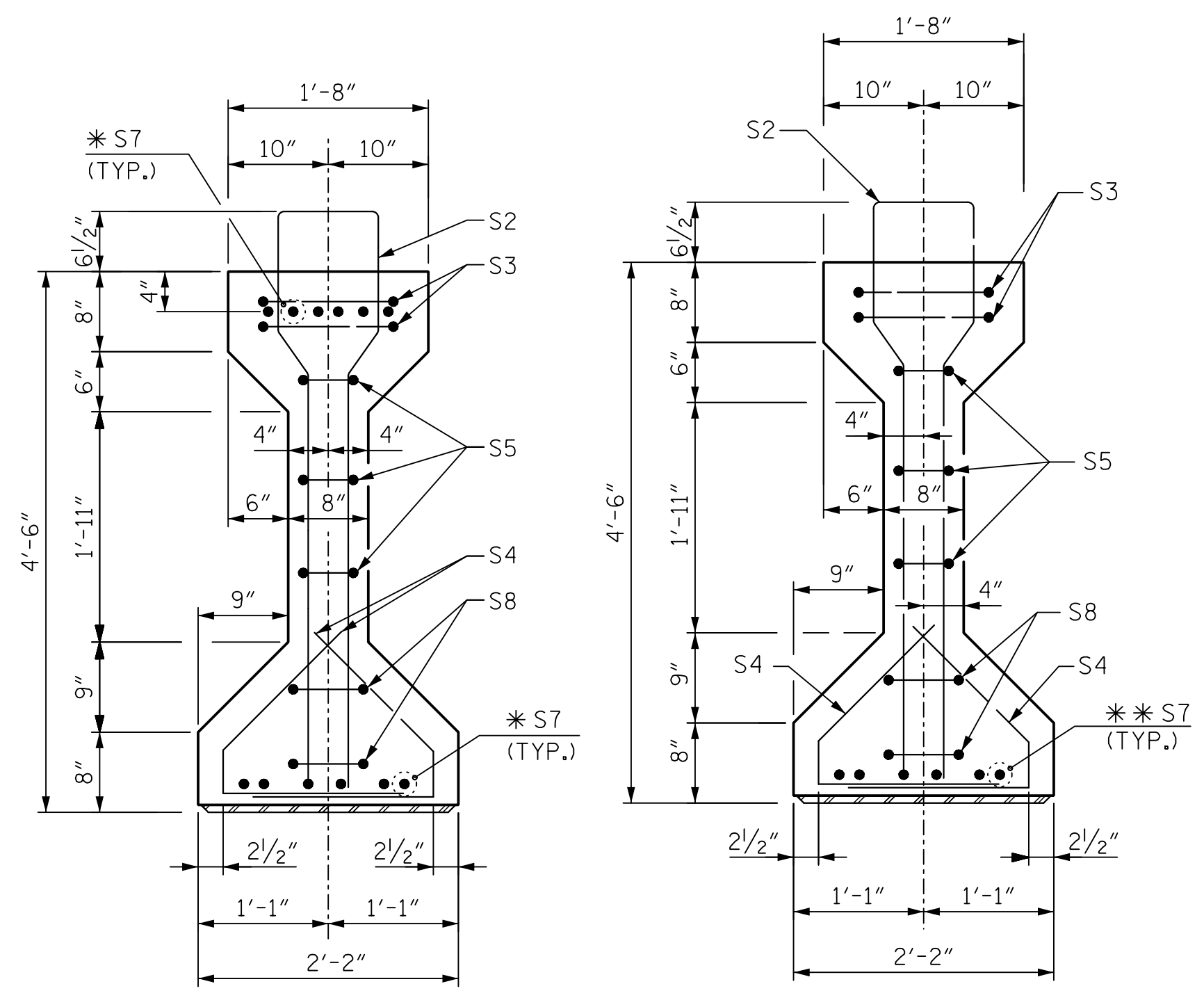
**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 3/1/2019	DWG. NO. 24	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

REVISIONS					SHEET NO. S2-24
NO.	BY	DATE	NO.	DATE	
1			3		TOTAL SHEETS 54
2			4		

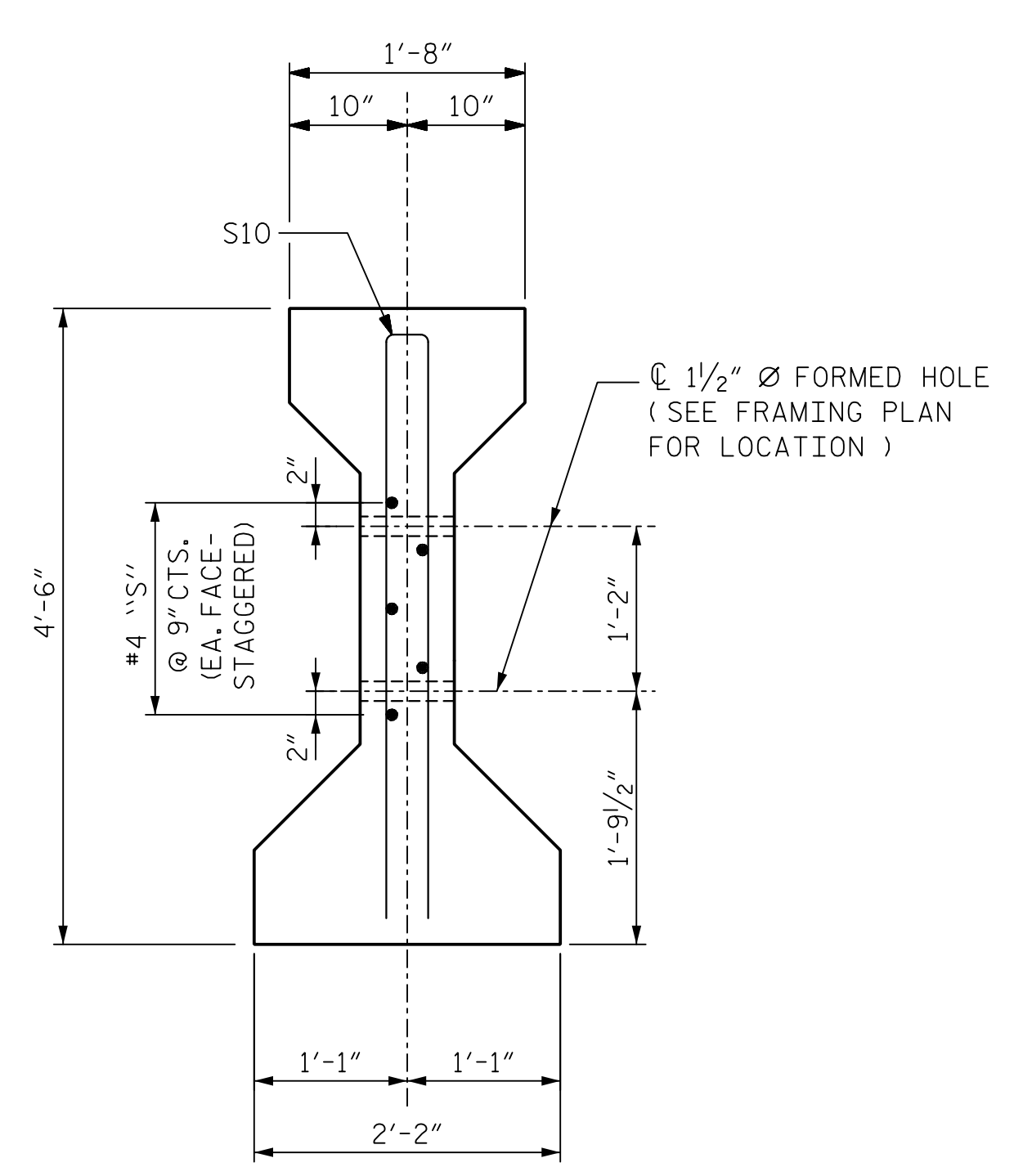
8/30/2019 2:17:49 PM ...\\MOD\_CMT\_14400BB\_SML\_002\_024\_#00211



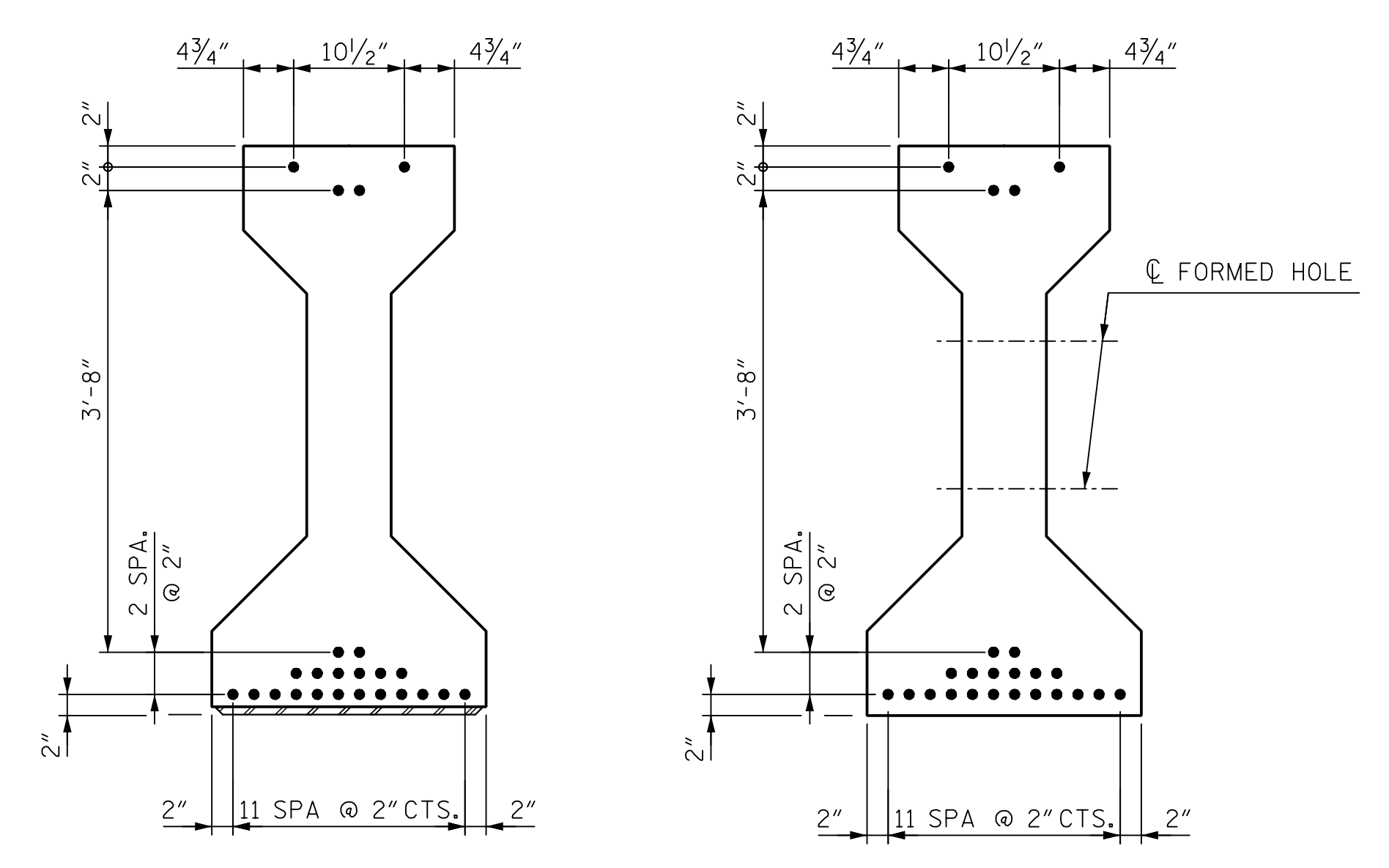


**SECTION A-A**  
\* FOR S7 BARS @ INTEGRAL END BENTS, SEE DETAIL A SHEET 3 OF 4

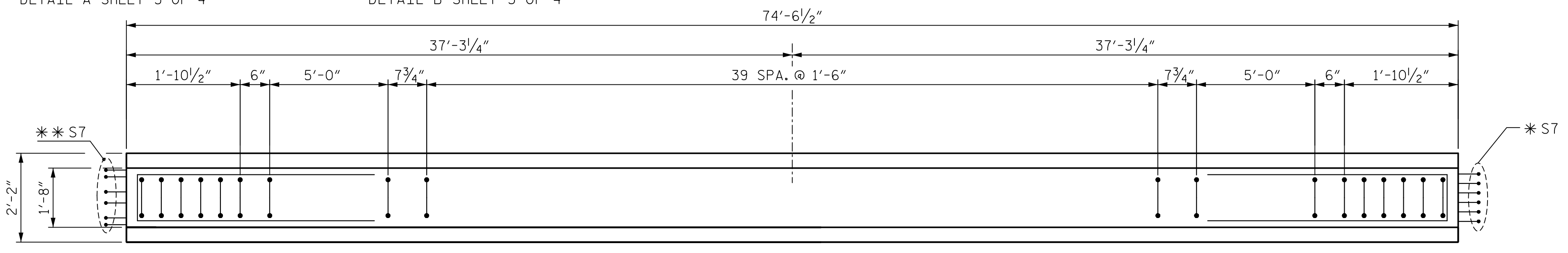
**SECTION B-B**  
\*\* FOR S7 BARS @ CONTINUOUS BENT, SEE DETAIL B SHEET 3 OF 4



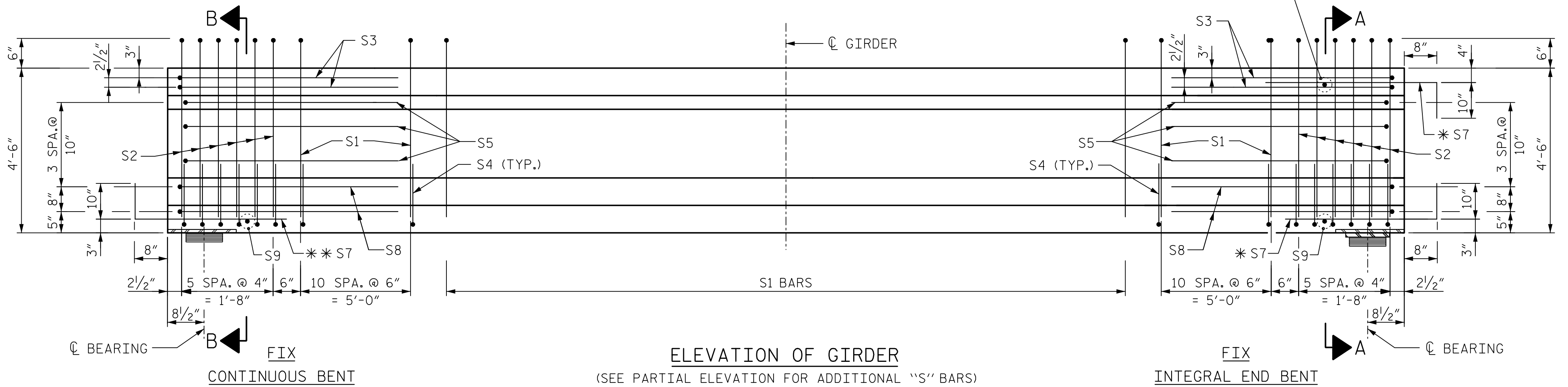
**SECTION C-C**  
(S6 BARS NOT SHOWN)



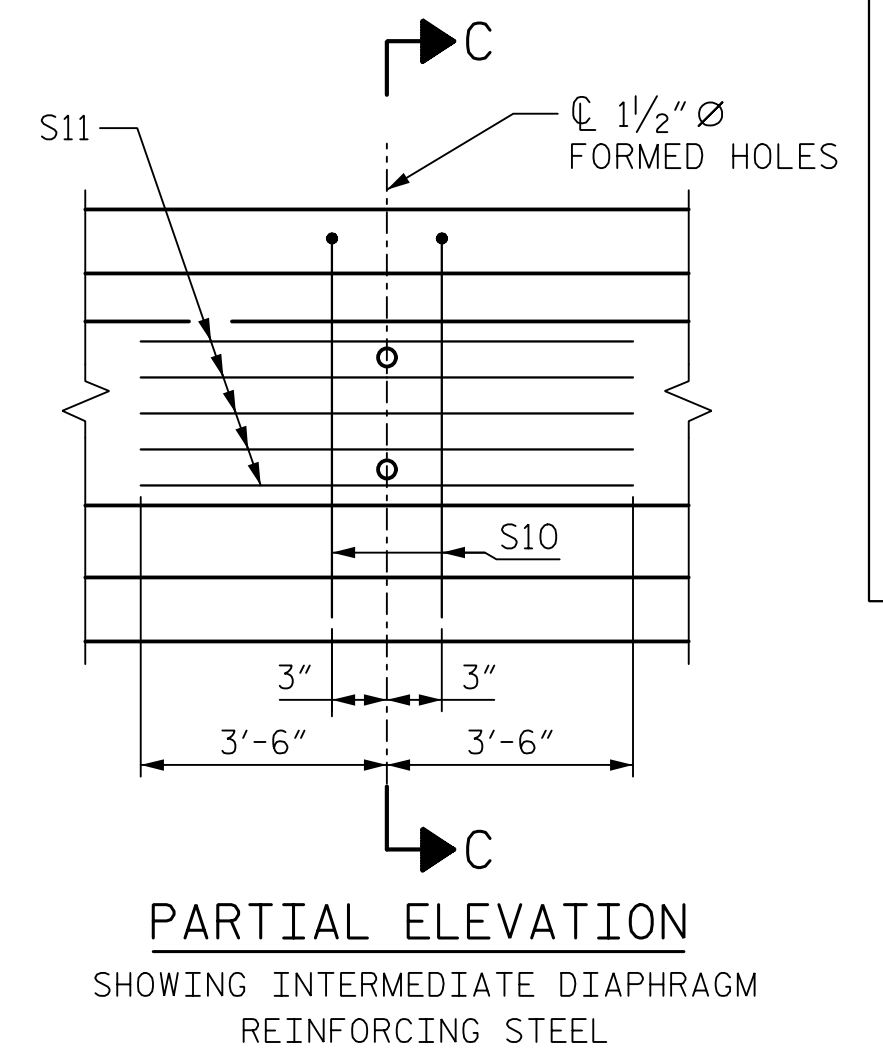
**0.6" Ø LOW RELAXATION STRAND LAYOUT**  
• FULLY BONDED STRANDS



**PLAN OF GIRDER**



**ELEVATION OF GIRDER**  
(SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)



**PARTIAL ELEVATION**  
SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL

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

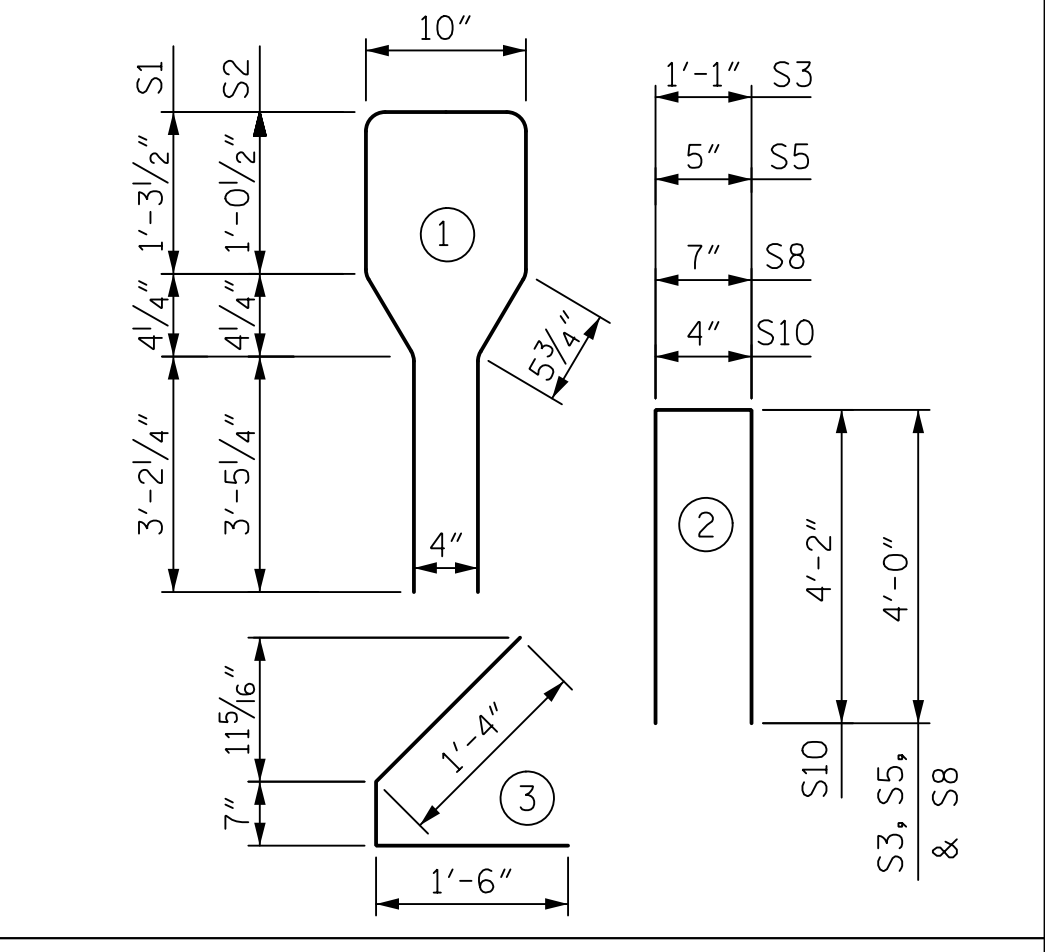
REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	62	#4	1	10'-9"	445
S2	12	#6	1	10'-9"	194
S3	4	#4	2	9'-1"	24
S4	64	#4	3	3'-5"	146
S5	6	#4	2	8'-5"	34
*S7	12	#5	STR	3'-8"	46
S8	4	#4	2	8'-7"	23
S9	1	#3	STR	1'-10"	1
S10	2	#5	2	8'-8"	18
S11	5	#4	STR	7'-0"	23

\* NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

QUANTITIES FOR ONE GIRDER			
REINFORCING STEEL	8,000 PSI CONCRETE	0.6" Ø L.R. STRANDS	
LB.	C.Y.	No.	
SPAN C	954	15.1	24

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
9	74'-6 1/2"	670'-10 1/2"

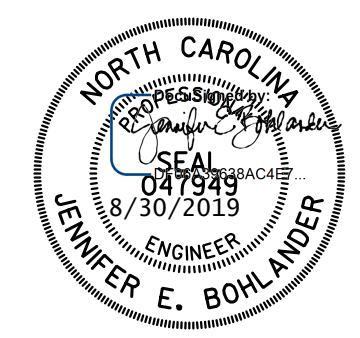
**BAR TYPES**  
ALL BAR DIMENSIONS ARE OUT-TO-OUT



**PROJECT NO. I-4400 BB**  
**HENDERSON COUNTY**  
**STATION: 421+74.67 -L-**

SHEET 3 OF 5  
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
AASHTO TYPE IV  
PRESTRESSED CONCRETE  
GIRDER CONTINUOUS FOR  
LIVE LOAD  
SPAN C

NOTES:  
FOR LOCATION OF INTERMEDIATE DIAPHRAGM, SEE SHEET 4 OF 5.  
THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6,000 PSI.  
GIRDER CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 8,000 PSI AT THE AGE OF 28 DAYS.



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

<b>HNTB</b>	HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
DRAWN BY: J. SLOAT	DATE: 3/1/2019
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019

REVISIONS						SHEET NO. S2-25
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 54
2			4			

NOTES

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

ALL REINFORCING STEEL SHALL BE GRADE 60.

EMBEDDED PLATE "B-1" SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

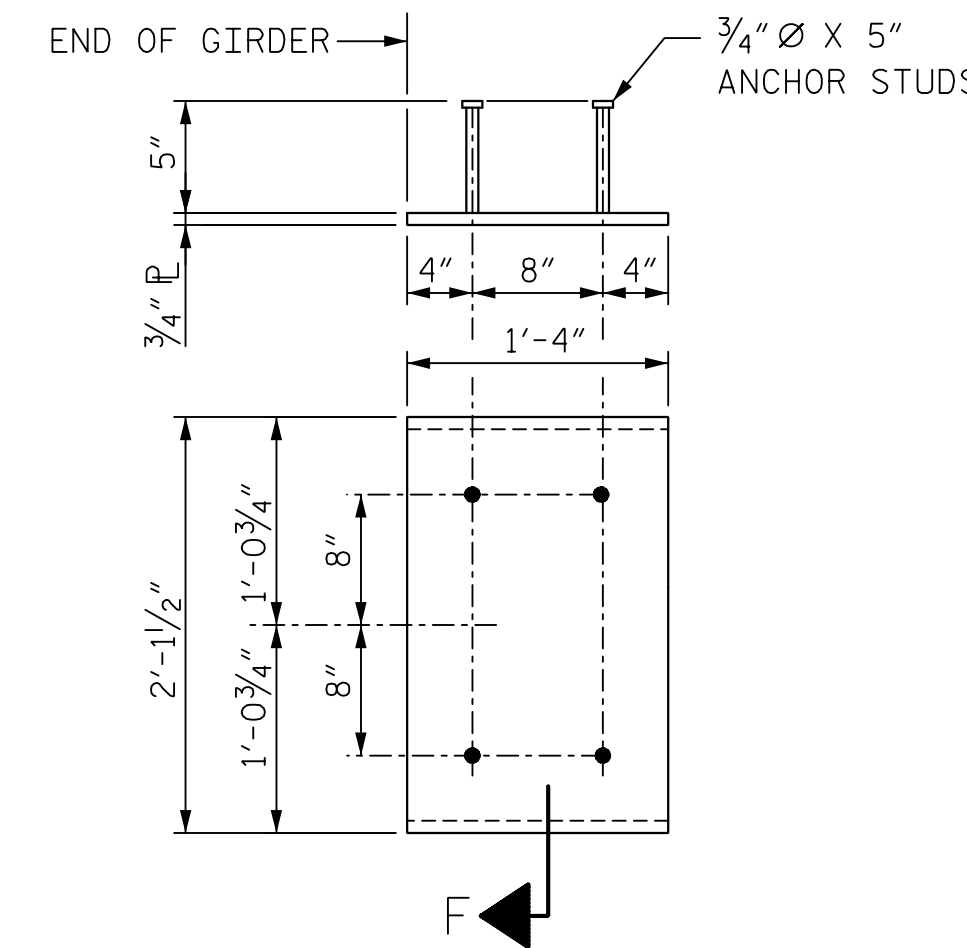
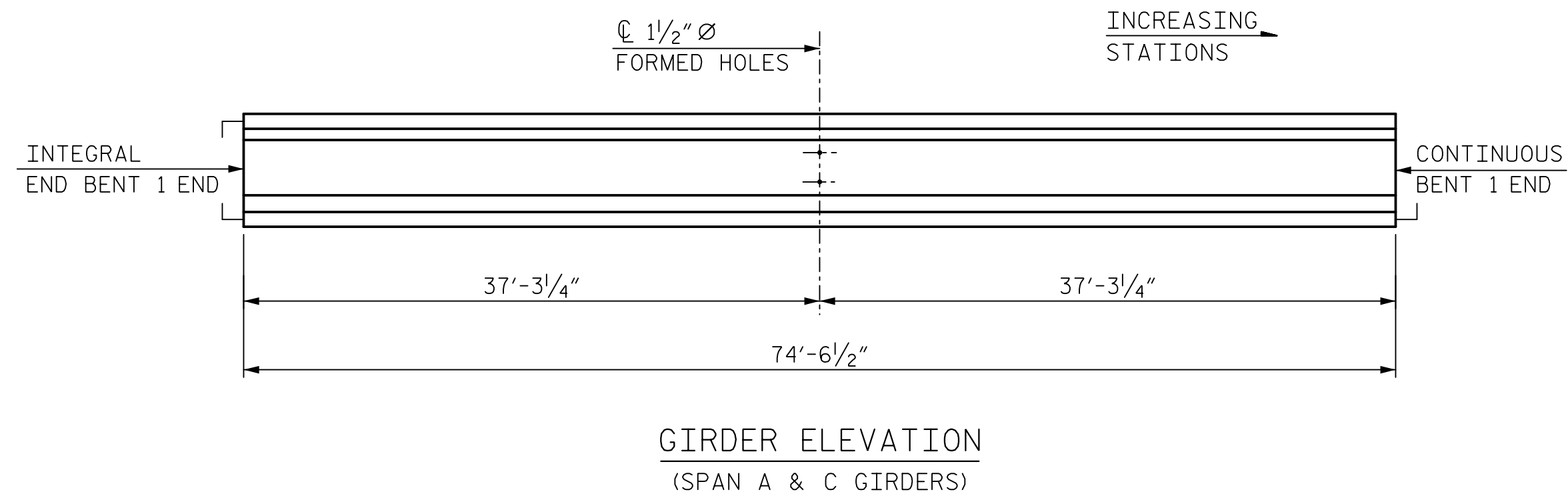
ANCHOR STUDS SHALL CONFORM TO AASHTO M169 GRADES 1010 THROUGH 1020 OR APPROVED EQUAL, AND SHALL MEET THE TYPE "B" REQUIREMENTS OF SUBSECTION 7.3 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

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

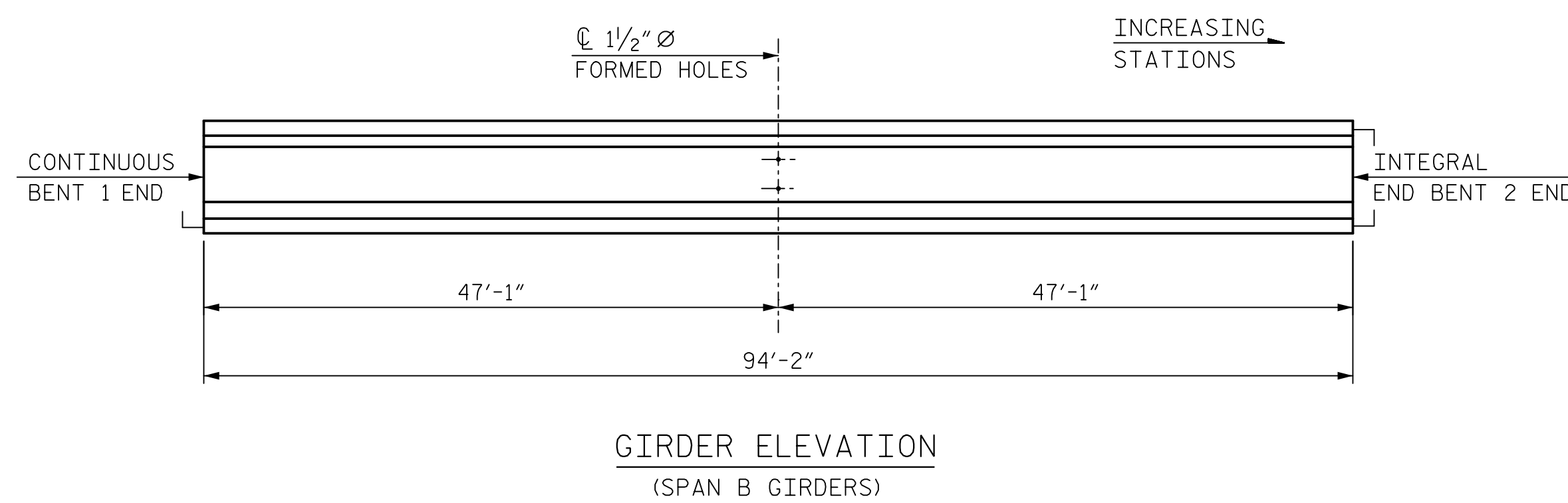
DEPENDING ON THE TYPE OF SYSTEM USED TO SUPPORT THE DECK SLAB FORMS, PRESET ANCHORS MAY BE NECESSARY IN THE PRESTRESSED CONCRETE GIRDER.

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

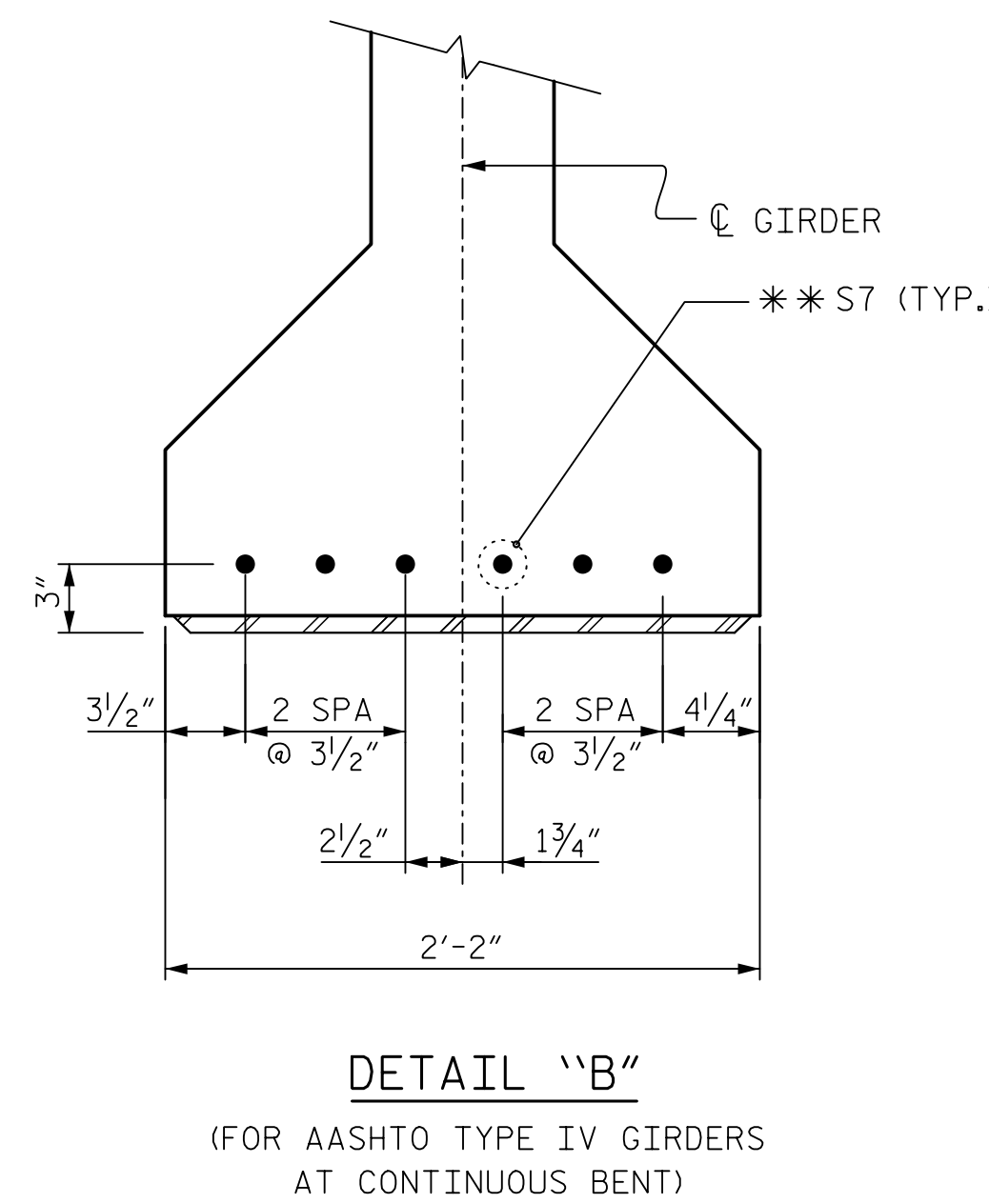
THE CONTRACTOR HAS THE OPTION TO PROVIDE, AT NO ADDITIONAL COST TO THE DEPARTMENT, 2 ADDITIONAL STRANDS AT THE TOP OF THE GIRDER TO FACILITATE TYING OF THE REINFORCING STEEL. THESE STRANDS SHALL BE PULLED TO A LOAD OF 4,500 LBS.



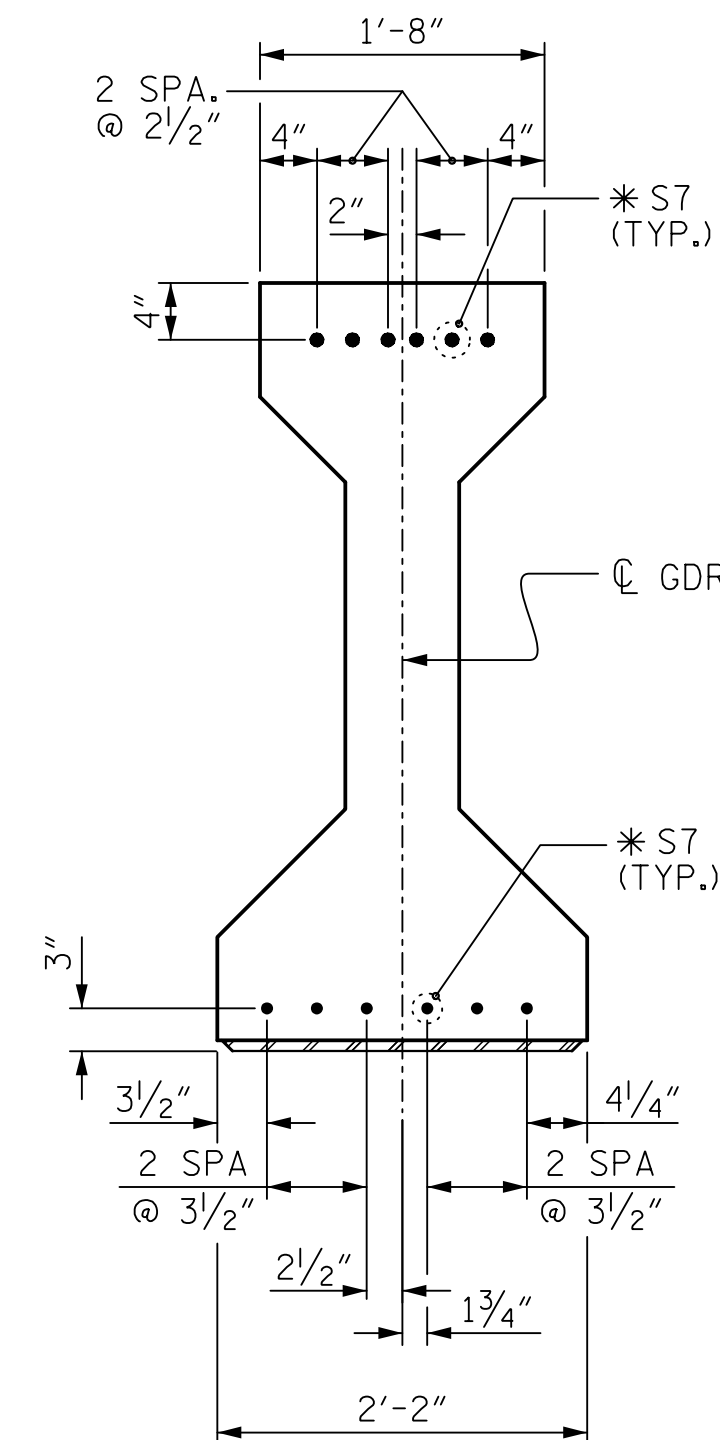
EMBEDDED PLATE "B-1" DETAILS FOR AASHTO TYPE IV GIRDER (2 REQ'D PER GIRDER)



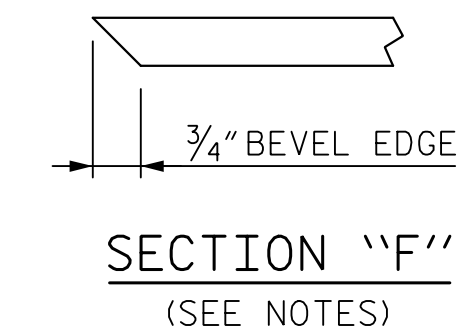
1/2" Ø FORMED HOLE LOCATIONS



DETAIL "B" (FOR AASHTO TYPE IV GIRDERS AT CONTINUOUS BENT)

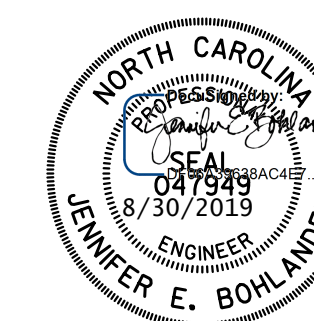


DETAIL "A" (FOR AASHTO TYPE IV GIRDERS AT INTEGRAL END BENT)



PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 4 OF 5



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 3/1/2019	DWG. NO. 26	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

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

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			54
2			4			

8/30/2019 10:56:49 AM \_WD02\_05\_1\_1400089\_SMULG04\_D05\_440211



STRUCTURAL STEEL NOTES

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

TENSION ON THE ASTM F3125 A325 TYPE 1 BOLTS THROUGH THE CHANNEL MEMBER SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

TENSION ON THE ASTM A449 BOLTS THROUGH THE GIRDER WEB SHALL BE SNUG TIGHTENED FOLLOWED BY AN ADDITIONAL 1/4 TURN.

THE PLATES, BENT PLATES, CHANNELS, AND ANGLES SHALL BE GALVANIZED OR METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

FOR METALLIZATION, APPLY A THERMAL SPRAYED COATING WITH A SEAL COAT TO ALL STEEL DIAPHRAGM SURFACES IN ACCORDANCE WITH THE DEPARTMENTS THERMAL SPRAYED COATINGS (METALLIZATION) PROGRAM. THERMAL SPRAYED COATINGS SPECIAL PROVISION AND SECTION 442 OF THE STANDARD SPECIFICATIONS.

GALVANIZE THE HIGH STRENGTH BOLTS, NUTS, WASHERS AND DIRECT TENSION INDICATORS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

USE AN ASTM F436 HARDENED WASHER WITH STANDARD AND SLOTTED HOLES UNDER EACH BOLT HEAD AND NUT.

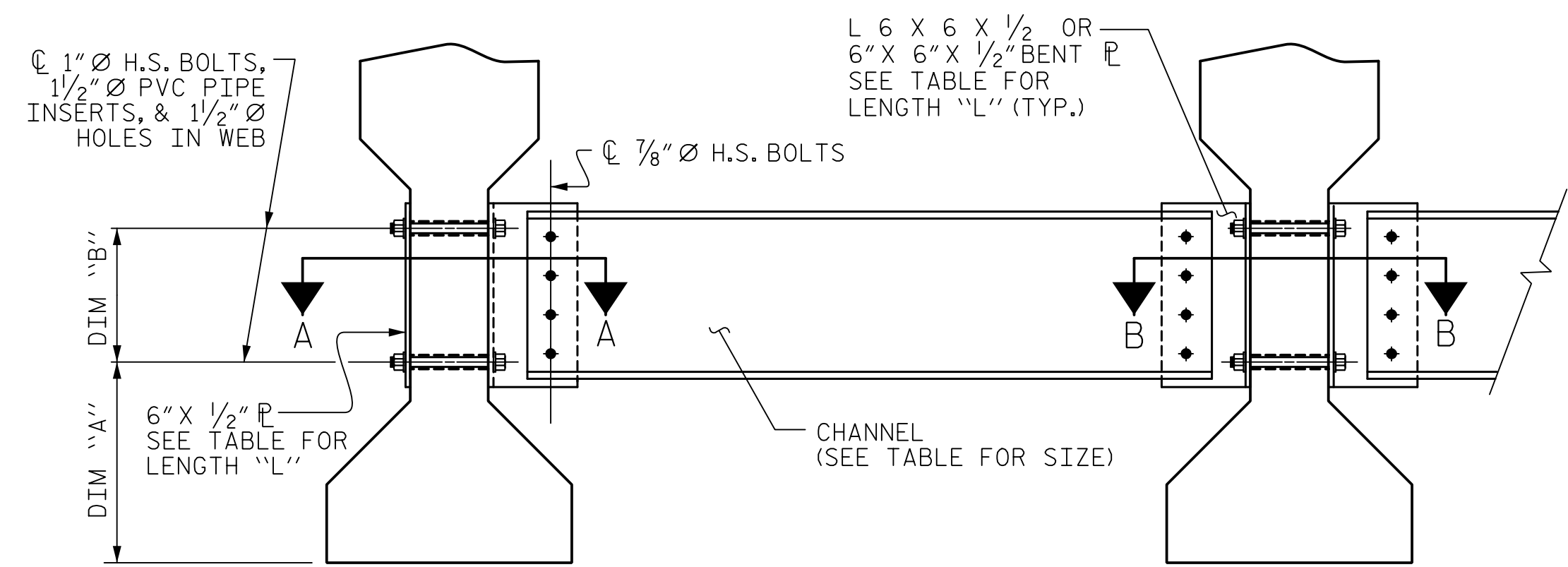
FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF THREADS ON ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

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

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

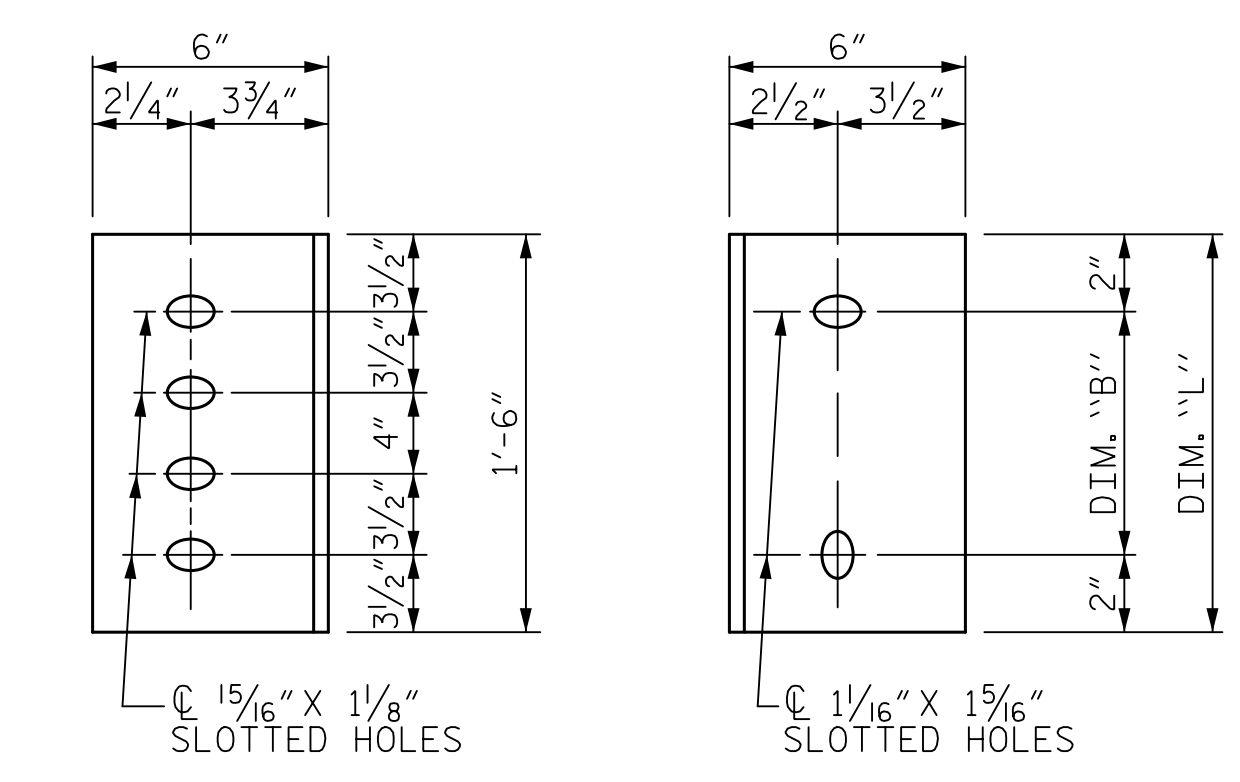
IN THE EXTERIOR BAYS, PLACE TEMPORARY STRUTS BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE STEEL DIAPHRAGMS. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED.

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



EXTERIOR GIRDER INTERIOR GIRDER

PART SECTION AT INTERMEDIATE DIAPHRAGM (TYPE IV GIRDER SHOWN)



DIAPHRAGM FACE (TYPE IV GDR.) WEB FACE CONNECTOR PLATE DETAILS

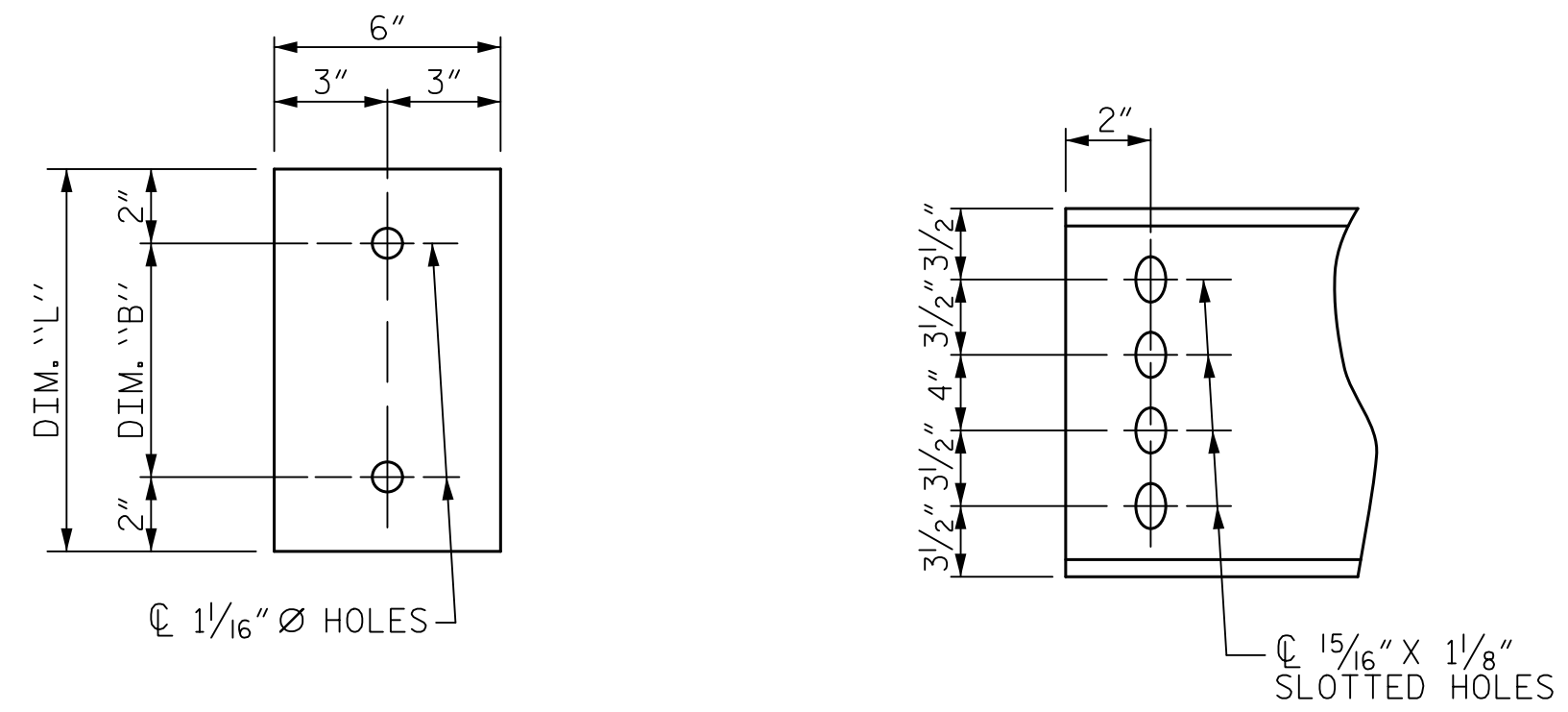
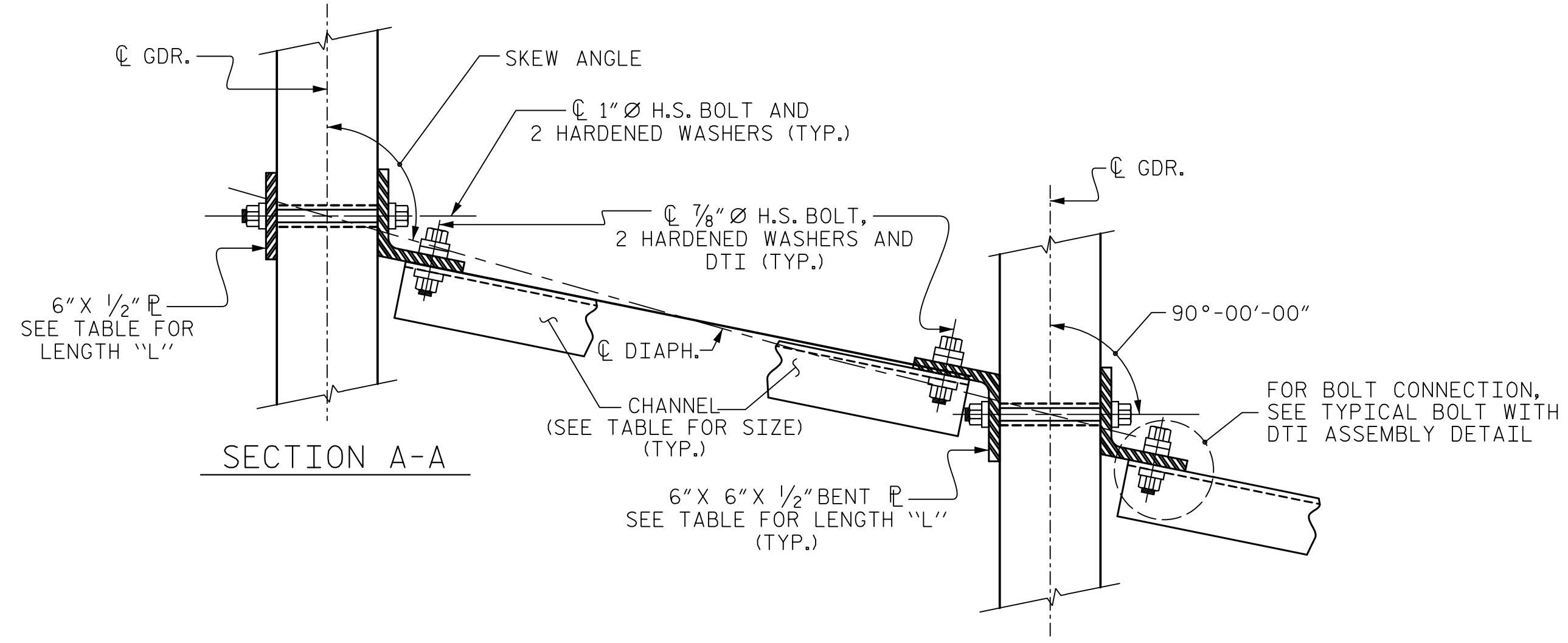


PLATE DETAILS CHANNEL END (TYPE IV GDR.)



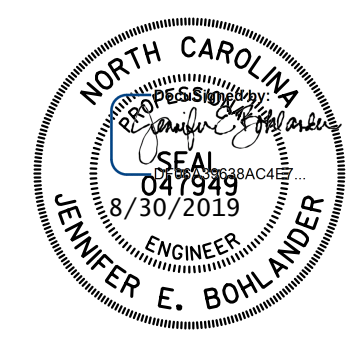
CONNECTION DETAILS (90° < SKEW ≤ 110°) (90° < SKEW ≤ 110° SHOWN 70° ≤ SKEW < 90° SIM.)

TABLE

GIRDER TYPE	CHANNEL SIZE	DIM "A"	DIM "B"	DIM "L"
IV	MC 18 x 42.7	1'-9 1/2"	1'-2"	1'-6"

PROJECT NO. I-4400 BB  
 HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 5 OF 5



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 2/27/2019	DWG. NO. 27	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE IV PRESTRESSED CONCRETE GIRDERS

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

TOTAL SHEETS: 54

8/30/2019 10:56:52 AM \\M02.053.1440009.SML.G05.DZT\_440211





DEAD LOAD DEFLECTION TABLE FOR SPANS A & C											
0.6" * L.R. GRADE 270 STRANDS	GIRDER 1										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.024	0.046	0.063	0.074	0.077	0.074	0.063	0.046	0.024	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓ 0.000	0.012	0.024	0.033	0.039	0.041	0.039	0.033	0.024	0.012	0.000
FINAL CAMBER	↑ 0	1/8	1/4	3/8	7/16	7/16	7/16	3/8	1/4	1/8	0

DEAD LOAD DEFLECTION TABLE FOR SPAN B											
0.6" * L.R. GRADE 270 STRANDS	GIRDER 1										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.058	0.109	0.149	0.175	0.184	0.175	0.149	0.109	0.058	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓ 0.000	0.030	0.059	0.083	0.098	0.103	0.098	0.083	0.059	0.030	0.000
FINAL CAMBER	↑ 0	5/16	5/8	13/16	15/16	1	15/16	13/16	5/8	5/16	0

DEAD LOAD DEFLECTION TABLE FOR SPANS A & C											
0.6" * L.R. GRADE 270 STRANDS	GIRDERS 2 THRU 4										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.024	0.046	0.063	0.074	0.077	0.074	0.063	0.046	0.024	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓ 0.000	0.014	0.027	0.038	0.045	0.047	0.045	0.038	0.027	0.014	0.000
FINAL CAMBER	↑ 0	1/8	1/4	5/16	3/8	3/8	3/8	5/16	1/4	1/8	0

DEAD LOAD DEFLECTION TABLE FOR SPAN B											
0.6" * L.R. GRADE 270 STRANDS	GIRDERS 2 THRU 4										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.058	0.109	0.149	0.175	0.184	0.175	0.149	0.109	0.058	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓ 0.000	0.033	0.065	0.091	0.108	0.113	0.108	0.091	0.065	0.033	0.000
FINAL CAMBER	↑ 0	5/16	1/2	11/16	13/16	7/8	13/16	11/16	1/2	5/16	0

DEAD LOAD DEFLECTION TABLE FOR SPANS A & C											
0.6" * L.R. GRADE 270 STRANDS	GIRDER 5										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.024	0.046	0.063	0.074	0.077	0.074	0.063	0.046	0.024	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓ 0.000	0.011	0.022	0.030	0.036	0.037	0.036	0.030	0.022	0.011	0.000
FINAL CAMBER	↑ 0	3/16	5/16	3/8	7/16	1/2	7/16	3/8	5/16	3/16	0

DEAD LOAD DEFLECTION TABLE FOR SPAN B											
0.6" * L.R. GRADE 270 STRANDS	GIRDER 5										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.058	0.109	0.149	0.175	0.184	0.175	0.149	0.109	0.058	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓ 0.000	0.027	0.052	0.073	0.086	0.091	0.086	0.073	0.052	0.027	0.000
FINAL CAMBER	↑ 0	3/8	11/16	15/16	1 1/16	1 1/8	1 1/16	15/16	11/16	3/8	0

DEAD LOAD DEFLECTION TABLE FOR SPANS A & C											
0.6" * L.R. GRADE 270 STRANDS	GIRDER 6										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.024	0.046	0.063	0.074	0.077	0.074	0.063	0.046	0.024	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓ 0.000	0.012	0.023	0.032	0.037	0.039	0.037	0.032	0.023	0.012	0.000
FINAL CAMBER	↑ 0	1/8	1/4	3/8	7/16	7/16	7/16	3/8	1/4	1/8	0

DEAD LOAD DEFLECTION TABLE FOR SPAN B											
0.6" * L.R. GRADE 270 STRANDS	GIRDER 6										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.058	0.109	0.149	0.175	0.184	0.175	0.149	0.109	0.058	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓ 0.000	0.028	0.055	0.077	0.091	0.095	0.091	0.077	0.055	0.028	0.000
FINAL CAMBER	↑ 0	3/8	5/8	7/8	1	1 1/16	1	7/8	5/8	3/8	0

DEAD LOAD DEFLECTION TABLE FOR SPANS A & C											
0.6" * L.R. GRADE 270 STRANDS	GIRDERS 7 & 8										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.024	0.046	0.063	0.074	0.077	0.074	0.063	0.046	0.024	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓ 0.000	0.015	0.029	0.041	0.047	0.050	0.047	0.041	0.029	0.015	0.000
FINAL CAMBER	↑ 0	1/8	3/16	1/4	5/16	7/16	7/16	1/4	3/16	1/8	0

DEAD LOAD DEFLECTION TABLE FOR SPAN B											
0.6" * L.R. GRADE 270 STRANDS	GIRDERS 7 & 8										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.058	0.109	0.149	0.175	0.184	0.175	0.149	0.109	0.058	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓ 0.000	0.035	0.069	0.096	0.114	0.120	0.114	0.096	0.069	0.035	0.000
FINAL CAMBER	↑ 0	1/4	1/2	3/4	7/8	1	7/8	3/4	1/2	1/4	0

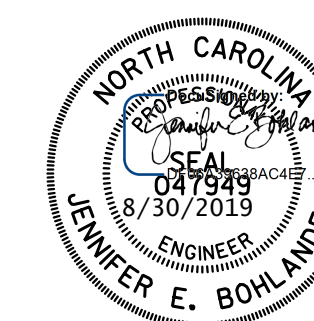
DEAD LOAD DEFLECTION TABLE FOR SPANS A & C											
0.6" * L.R. GRADE 270 STRANDS	GIRDER 9										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.024	0.046	0.063	0.074	0.077	0.074	0.063	0.046	0.024	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓ 0.000	0.013	0.024	0.035	0.041	0.042	0.041	0.035	0.024	0.013	0.000
FINAL CAMBER	↑ 0	1/8	1/4	5/16	3/8	7/16	3/8	5/16	1/4	1/8	0

DEAD LOAD DEFLECTION TABLE FOR SPAN B											
0.6" * L.R. GRADE 270 STRANDS	GIRDER 9										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.058	0.109	0.149	0.175	0.184	0.175	0.149	0.109	0.058	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓ 0.000	0.030	0.060	0.084	0.100	0.105	0.100	0.084	0.060	0.030	0.000
FINAL CAMBER	↑ 0	5/16	3/8	1/2	5/8	15/16	7/8	3/4	5/16	5/16	0

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

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 1 OF 1



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 1/10/2019	DWG. NO. 29	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE GIRDER DEAD LOAD DEFLECTIONS AND CAMBER					
REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
TOTAL SHEETS					54

### NOTES

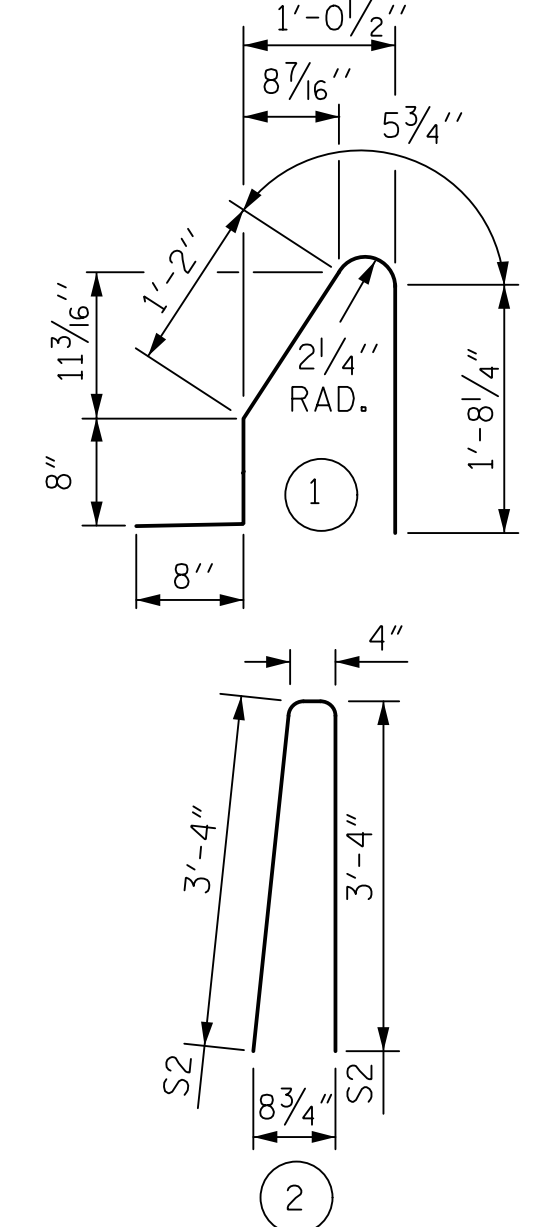
THE BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

THE #5S1 AND #5S2 BARS MAY BE SHIFTED SLIGHTLY AS REQUIRED TO PROVIDE 2" MINIMUM CONCRETE COVER AT THE 1/2" EXPANSION JOINTS IN THE BARRIER RAIL.

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

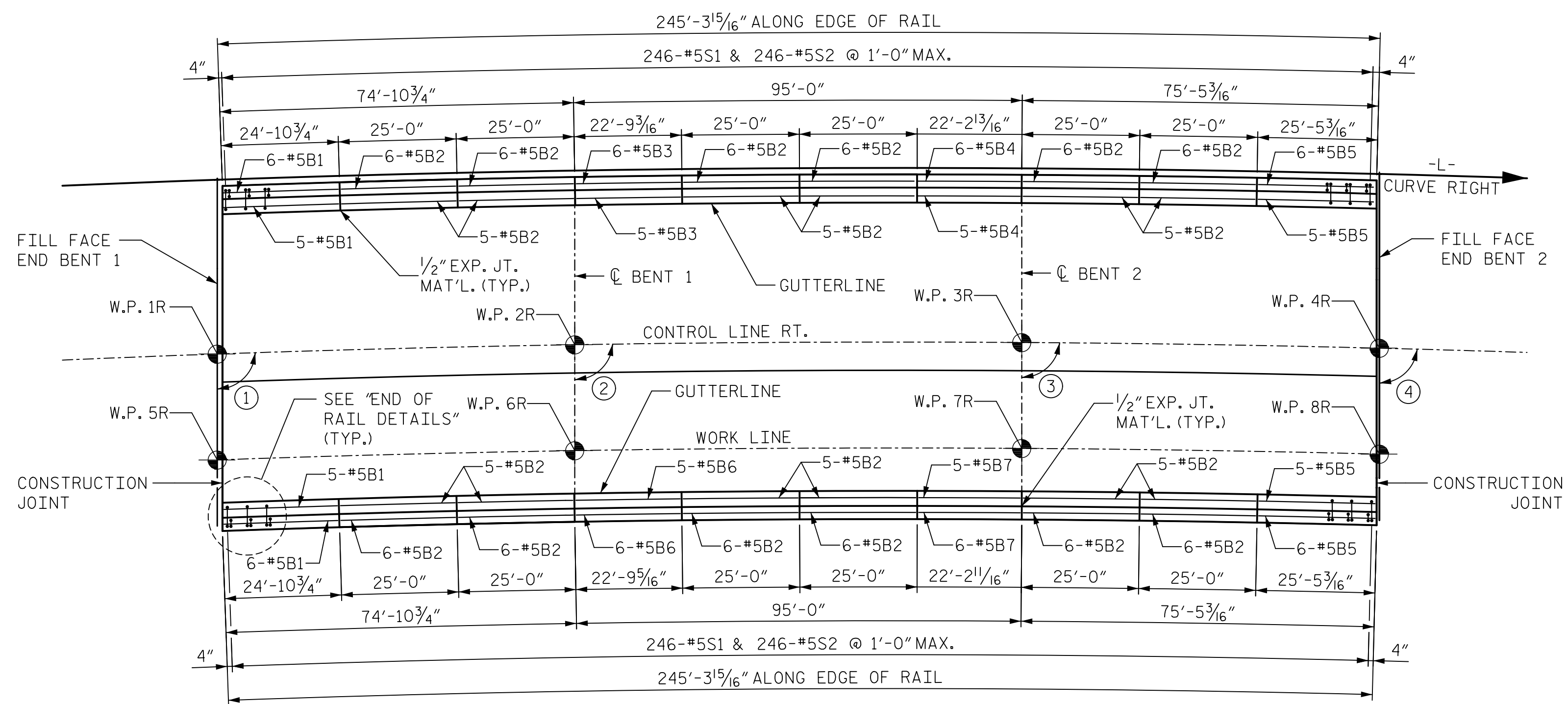
### BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

### BILL OF MATERIAL

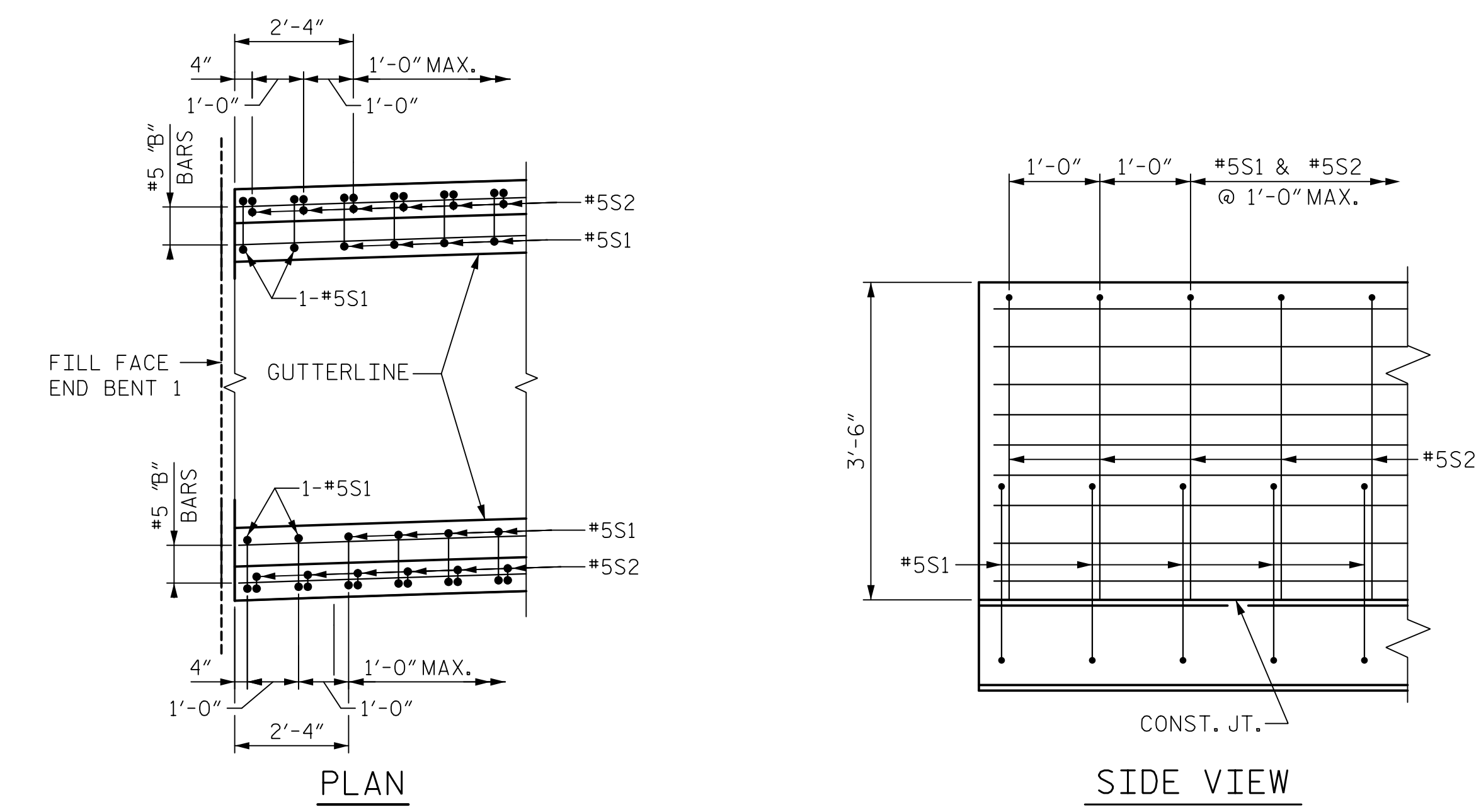
FOR CONCRETE BARRIER RAIL ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	22	#5	STR	24'-6"	562
* B2	132	#5	STR	24'-7"	3,387
* B3	11	#5	STR	22'-3"	256
* B4	11	#5	STR	21'-9"	250
* B5	22	#5	STR	25'-0"	574
* B6	11	#5	STR	22'-4"	257
* B7	11	#5	STR	21'-9"	250
* S1	492	#5	1	4'-8"	2,395
* S2	492	#5	2	7'-0"	3,592
* EPOXY COATED REINFORCING STEEL				LBS.	11,523
CLASS AA CONCRETE				CUL. YDS.	66.6
CONCRETE BARRIER RAIL				LIN. FT.	490.66



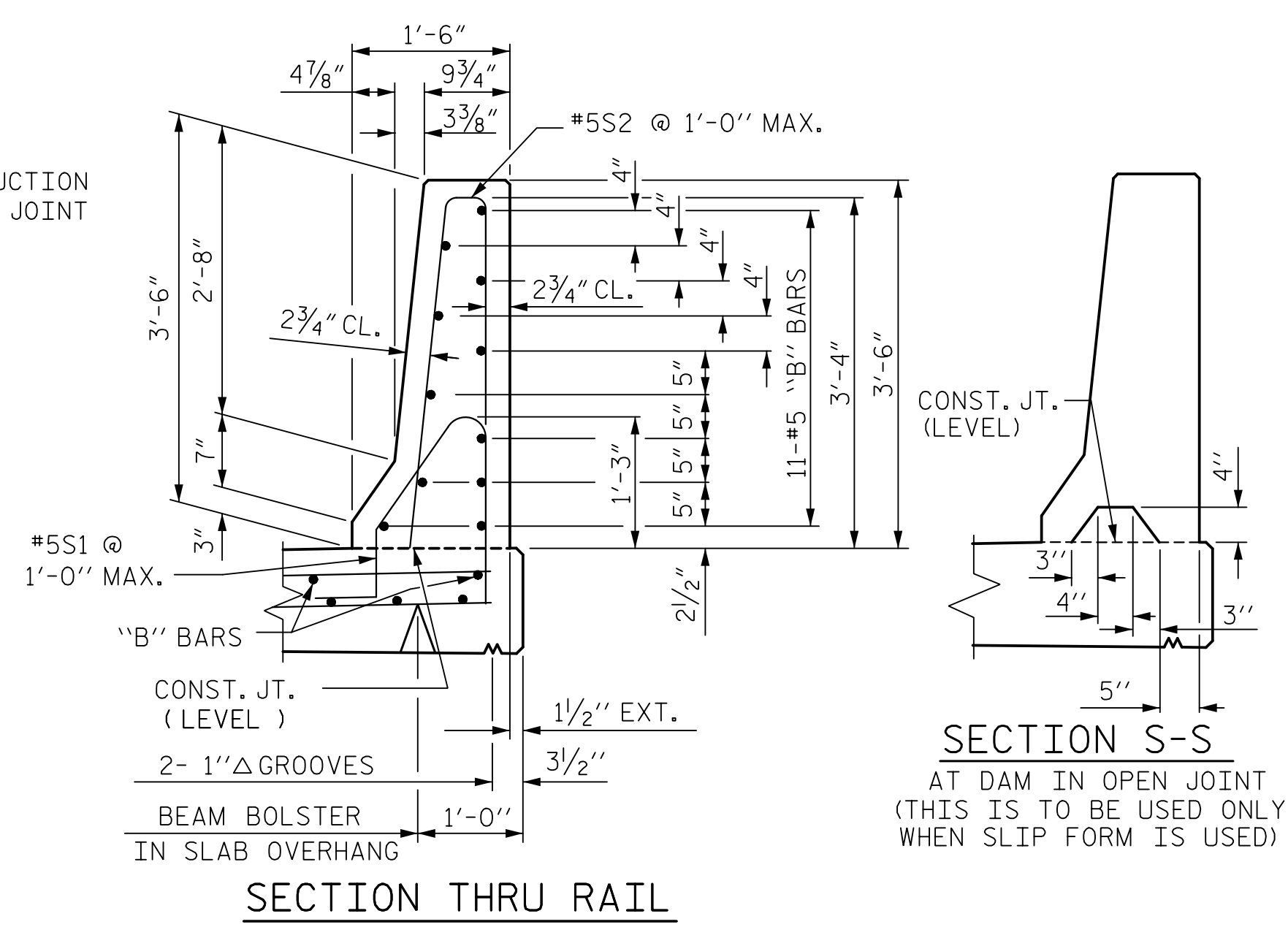
- ANGLES
- ① 92°-01'-01"
  - ② 90°-57'-02"
  - ③ 89°-37'-02"
  - ④ 88°-33'-03"

### PLAN OF BARRIER RAIL

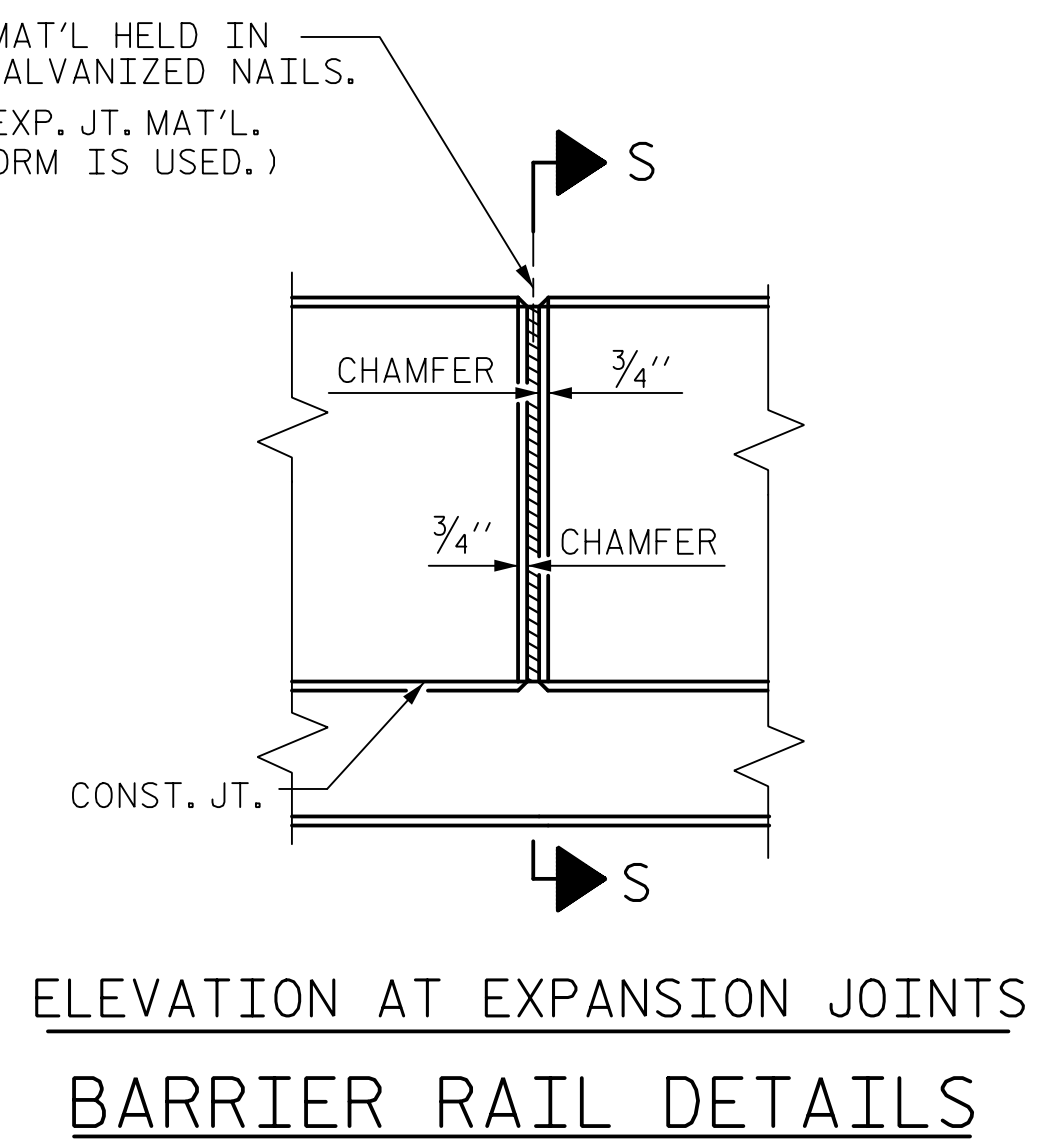
NOTE: EDGE OF SLAB NOT SHOWN FOR CLARITY.



### END OF RAIL DETAILS



### SECTION THRU RAIL

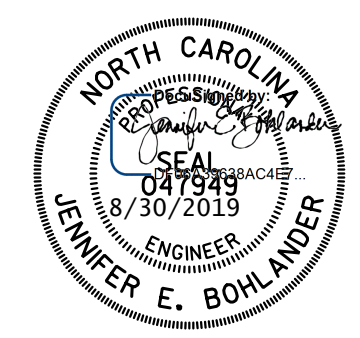


### ELEVATION AT EXPANSION JOINTS BARRIER RAIL DETAILS

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

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 1 OF 1  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 CONCRETE BARRIER RAIL



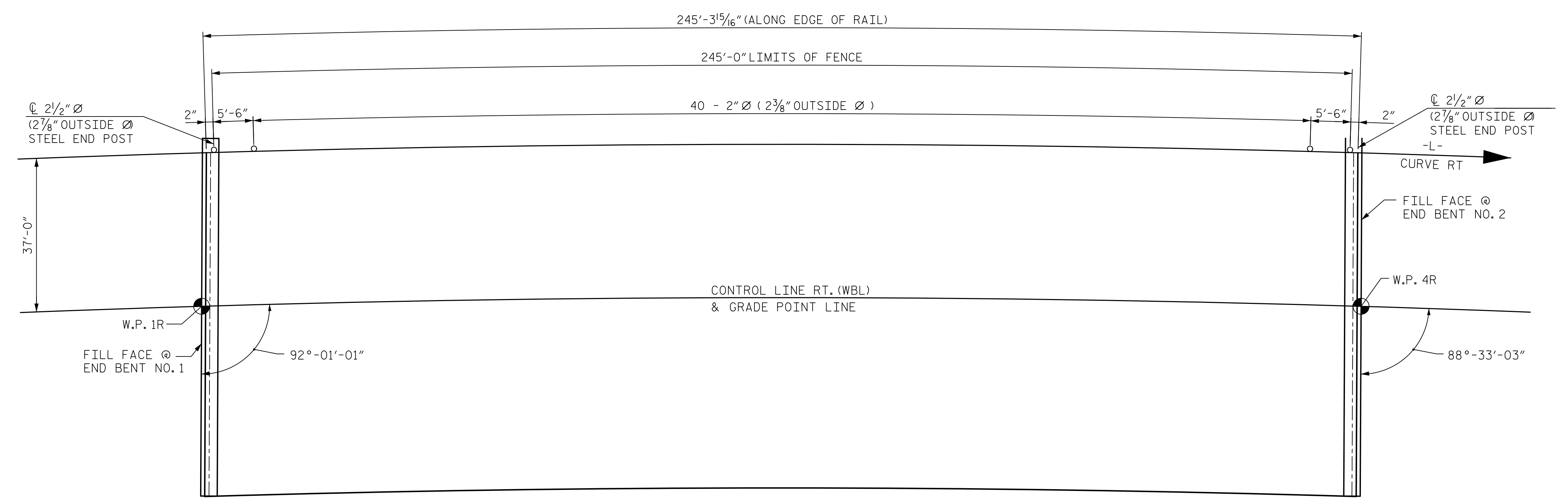
**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 2/26/2019	DWG. NO. 30	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

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

TOTAL SHEETS	54
--------------	----





**NOTES:**

FOR 72" CHAIN LINK FENCE, SEE SPECIAL PROVISIONS.

MATERIAL FOR ANCHOR BOLTS SHALL BE TYPE 304 STAINLESS STEEL WITH A MINIMUM 9000 PSI ULTIMATE STRENGTH. NUTS AND WASHERS SHALL BE TYPE 304 STAINLESS STEEL. ANCHOR BOLTS SHALL BE EMBEDDED AS PER ADHESIVE BONDING SYSTEM MANUFACTURER SPECIFICATIONS. NUTS SHALL BE AMERICAN STANDARD FINISHED HEXAGON THICK NUTS, CLASS 2B THREADS.

FOR SETTING ANCHOR BOLTS, THE CONTRACTOR SHALL USE AN ADHESIVE BONDING SYSTEM. SEE STANDARD SPECIFICATIONS SECTION 420-13 FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS. LEVEL ONE FIELD TESTING OF BONDING SYSTEM IS REQUIRED AND THE YIELD LOAD OF THE 3/4" Ø BOLTS IS 12.0 KIPS.

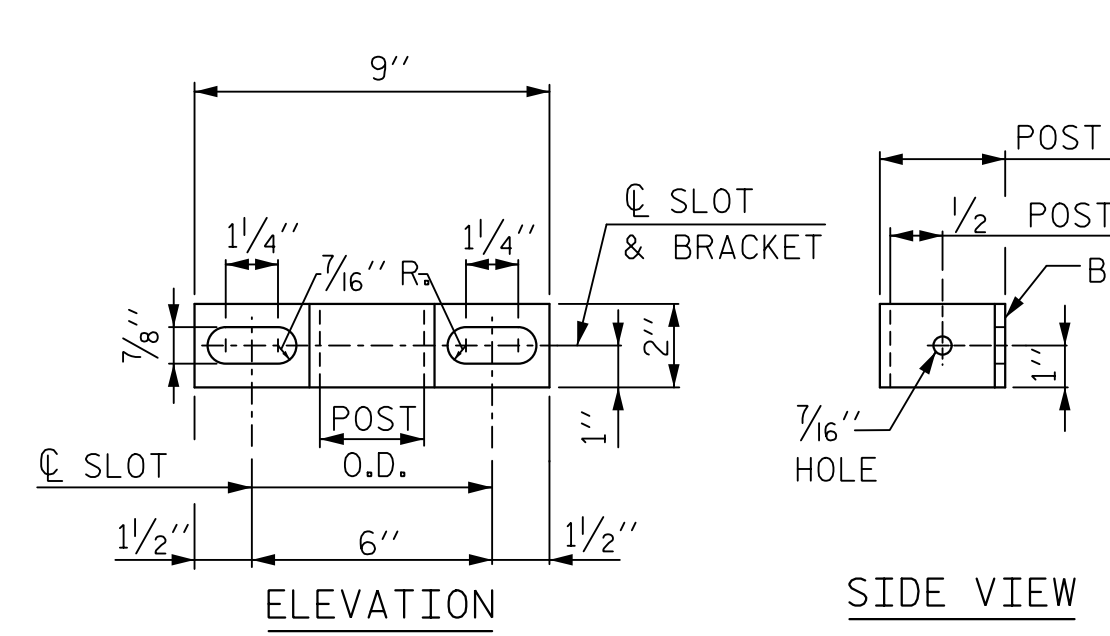
ALL FENCE MATERIAL SHALL MEET THE REQUIREMENTS OF SECTION 1050 OF THE STANDARD SPECIFICATIONS, GALVANIZE ALL STEEL PARTS AND HARDWARE IN ACCORDANCE WITH ARTICLE 1076 OF THE STANDARD SPECIFICATIONS.

FENCE POST LOCATIONS SHALL BE SHIFTED, AS NECESSARY, TO MAINTAIN 12" MINIMUM DISTANCE FROM ANCHOR BOLT TO JOINTS IN BARRIER RAIL.

DIMENSIONS ARE SHOWN ALONG OUTSIDE FACE OF BARRIER RAIL.

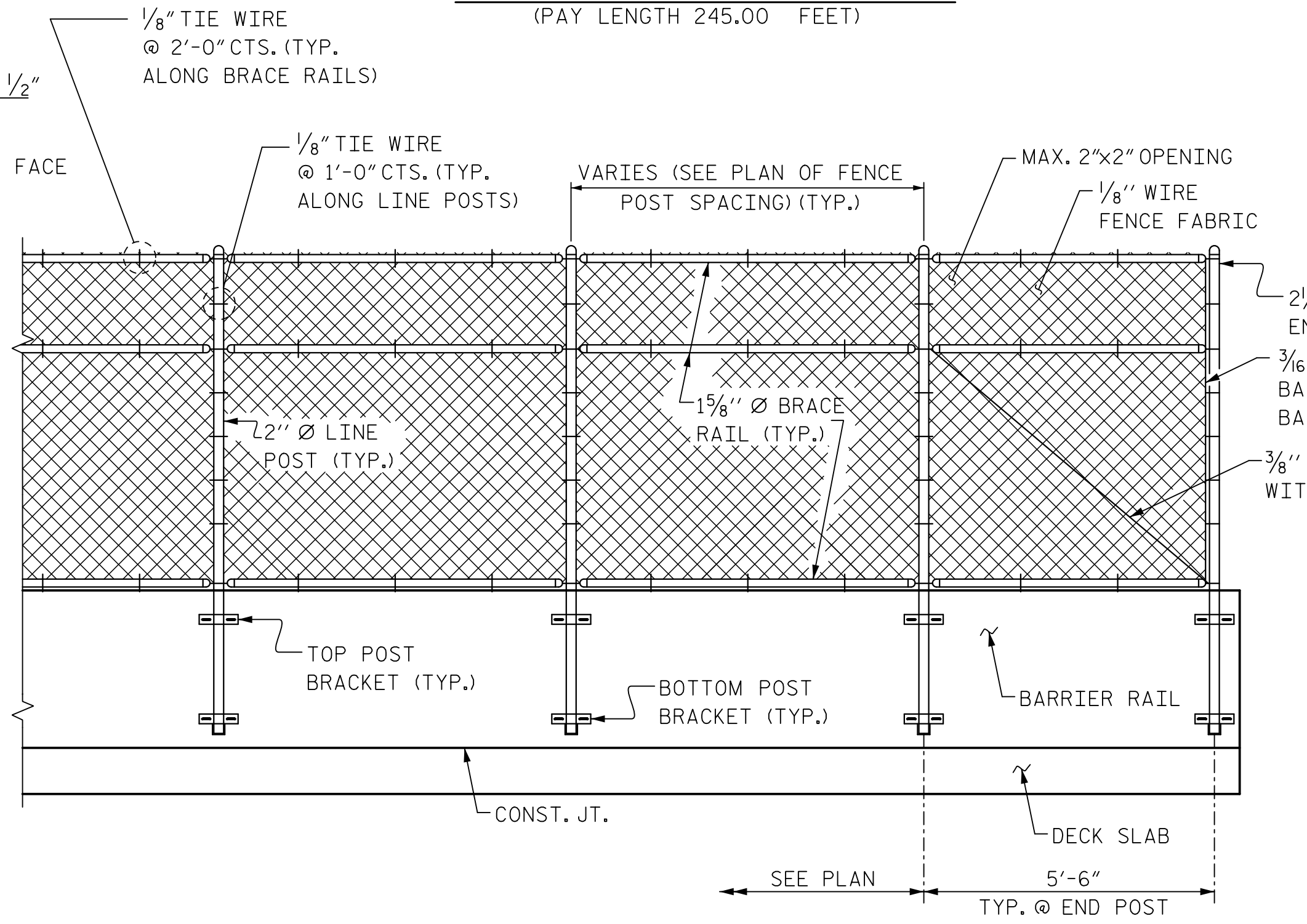
**PLAN OF FENCE POST SPACING**  
(PAY LENGTH 245.00 FEET)

NOTE: EDGE OF SLAB NOT SHOWN FOR CLARITY.

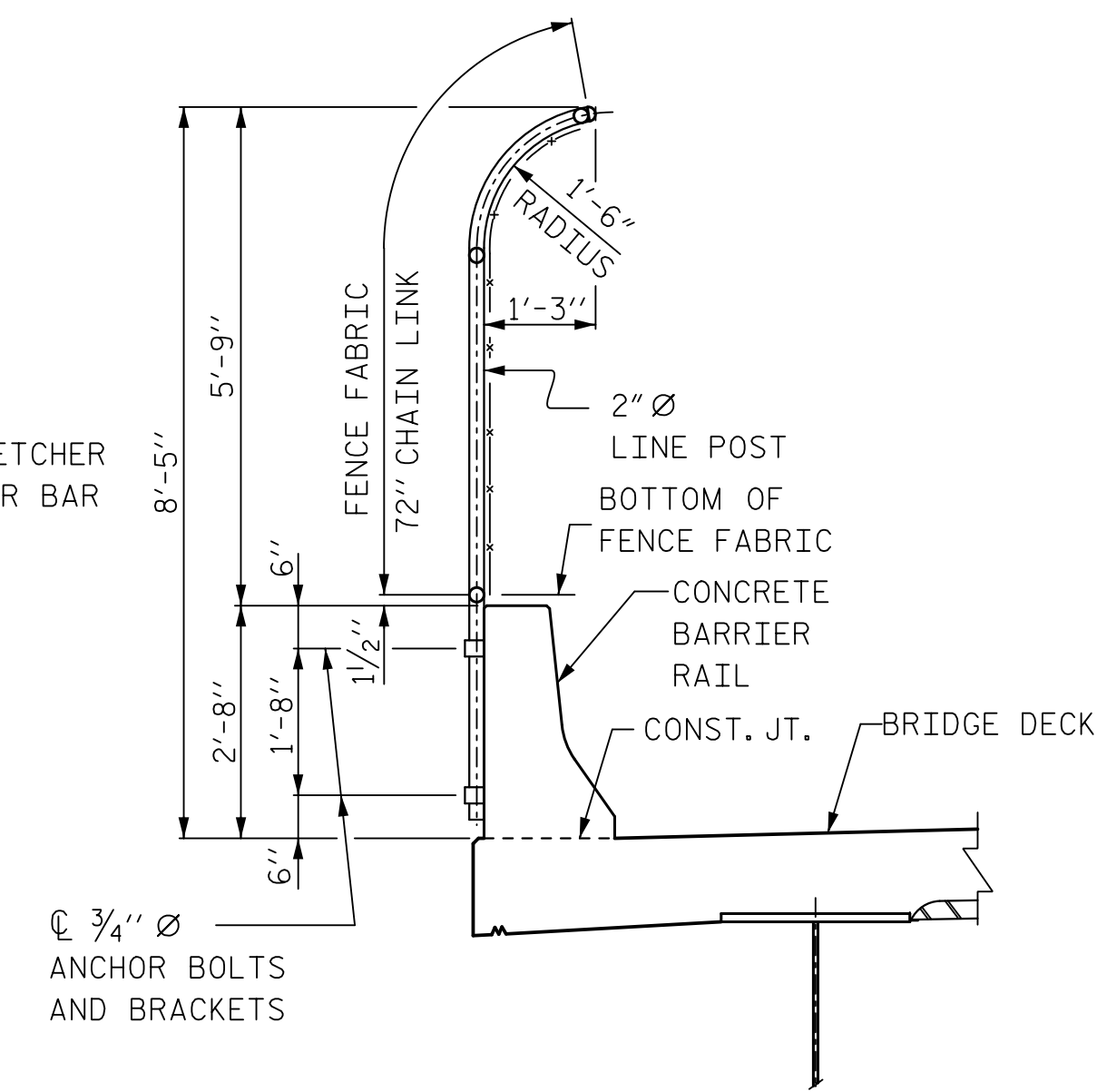


**ELEVATION**

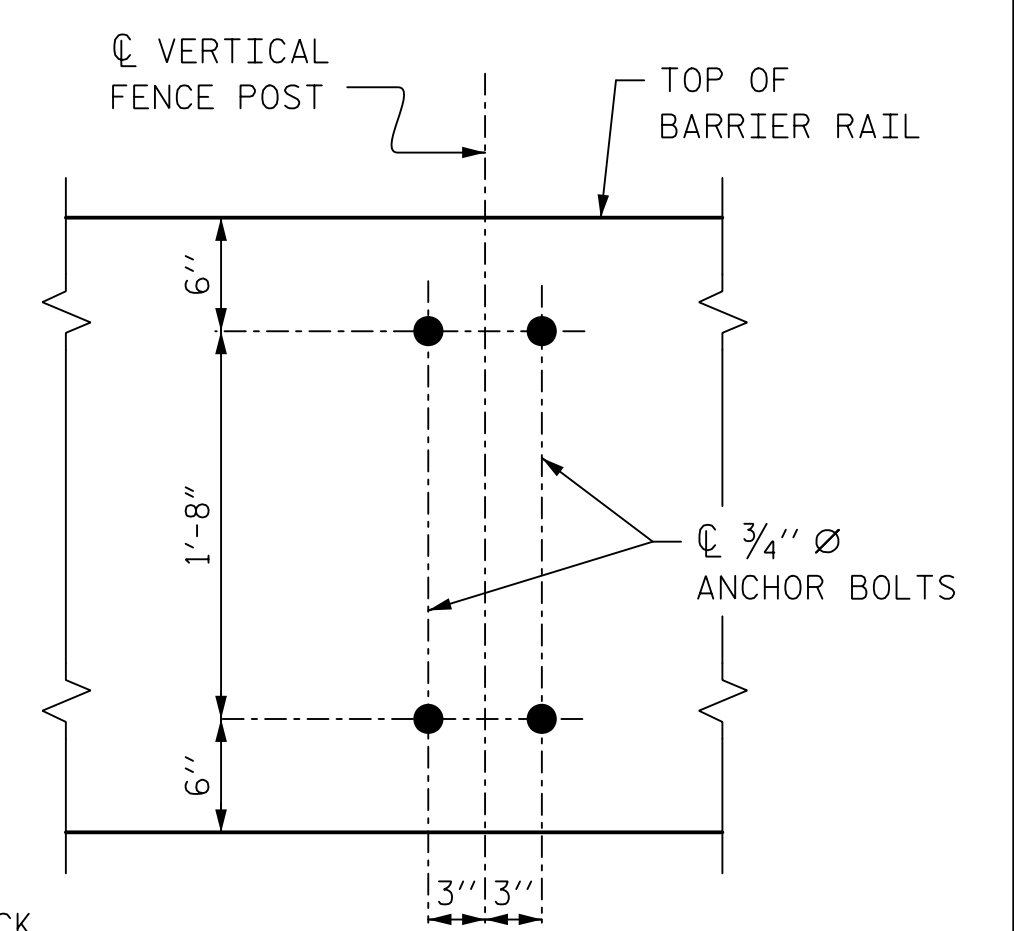
**SIDE VIEW**



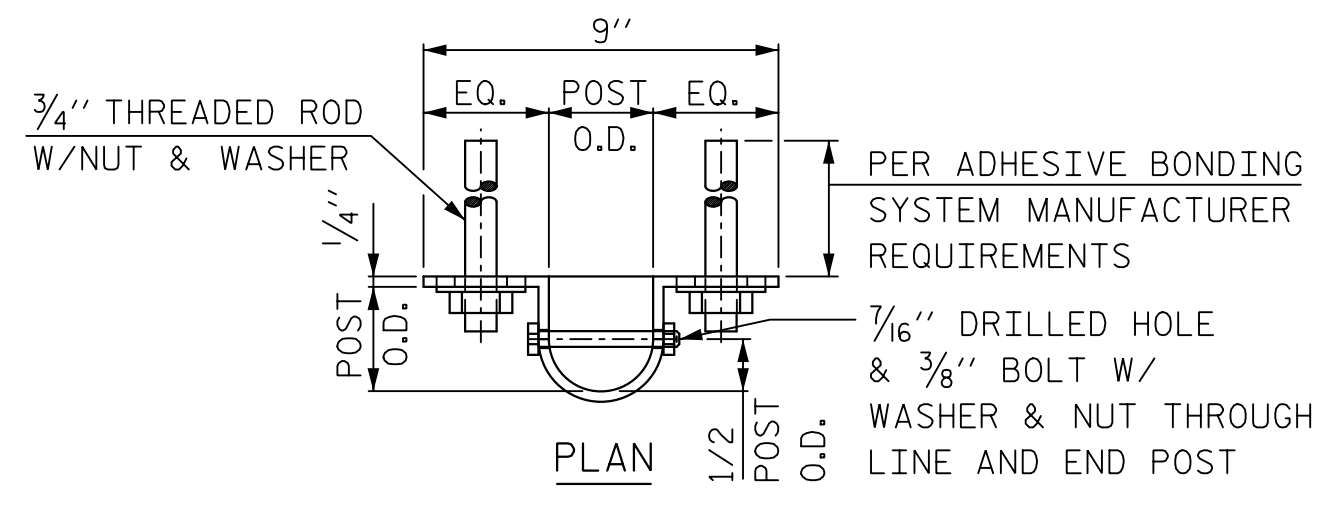
**PARTIAL ELEVATION**



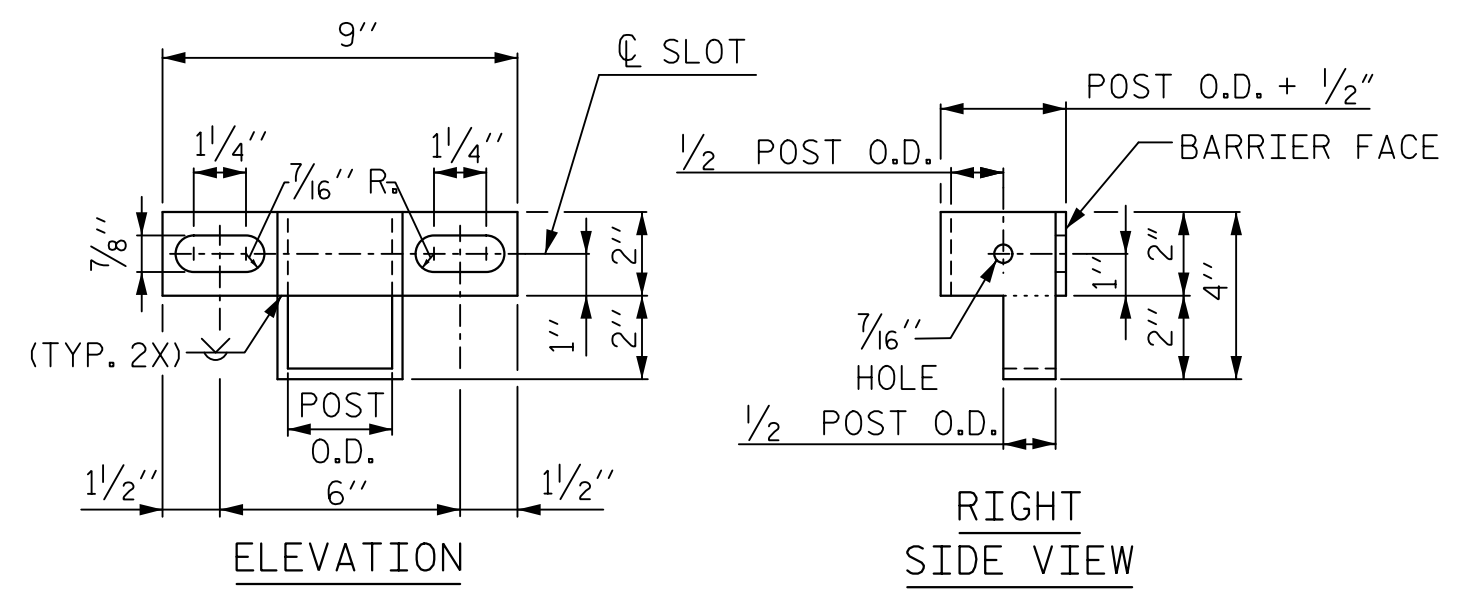
**SECTION THRU FENCE**



**BOLT SETTING DETAIL**

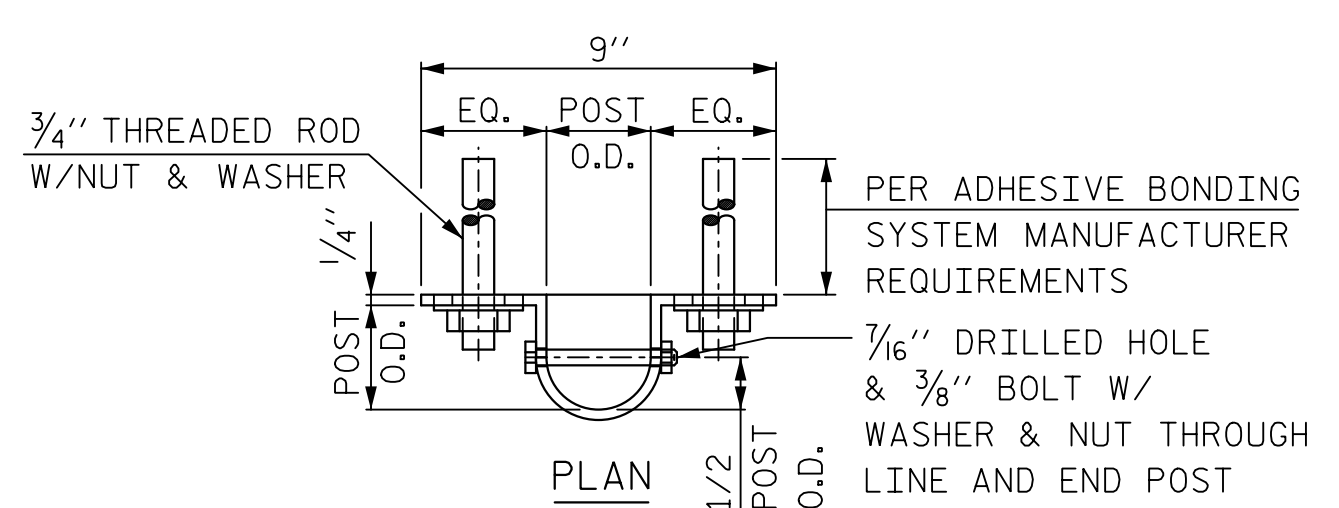


**TOP POST BRACKET**



**ELEVATION**

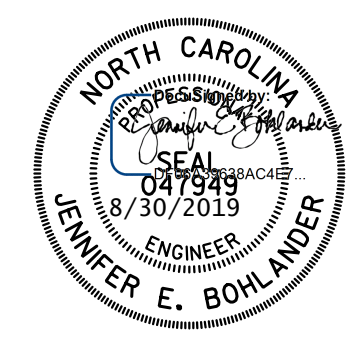
**RIGHT SIDE VIEW**



**BOTTOM POST BRACKET**

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
STATION: 421+74.67 -L-

SHEET 1 OF 1



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 4/23/2019	DWG. NO. 31	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE BRIDGE MOUNTED CHAIN LINK FENCE DETAILS					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
					SHEET NO. S2-31
					TOTAL SHEETS 54

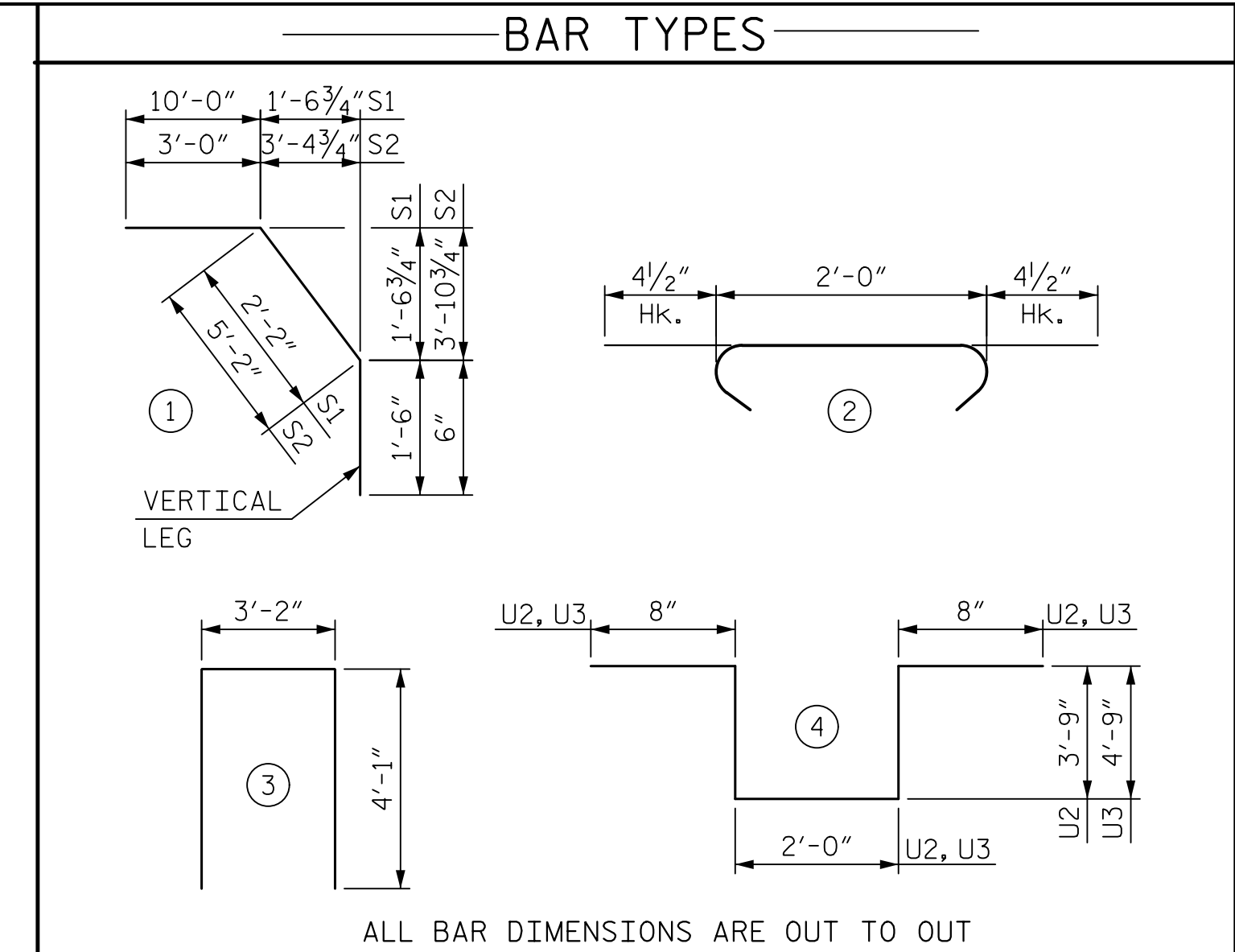
8/30/2019 11:22:24 AM \_WD02\_06\_1\_1400099\_SML\_CIF\_031\_440211

REINFORCING BAR SCHEDULE					
EPOXY COATED - STAGE 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	489	#5	STR	31'-3"	15,938
A2	489	#5	STR	4'-5"	2,253
A3	1	#5	STR	17'-3"	18
A4	1	#5	STR	3'-0"	3
A5	1	#5	STR	11'-8"	12
B1	88	#4	STR	24'-11"	1,462
B2	88	#6	STR	32'-0"	4,230
B3	44	#4	STR	17'-5"	512
B4	84	#6	STR	15'-3"	1,919
B5	84	#6	STR	25'-8"	3,238
S1	48	#4	1	13'-8"	438
S2	48	#4	1	8'-8"	278
U2	12	#4	4	10'-10"	87
U3	36	#4	4	12'-10"	309
EPOXY COATED REINFORCING STEEL TOTAL:				30,697	

REINFORCING BAR SCHEDULE					
UNCOATED - STAGE 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A101	489	#5	STR	31'-3"	15,938
A103	1	#5	STR	17'-3"	18
A104	1	#5	STR	3'-0"	3
A105	1	#5	STR	11'-8"	12
B101	185	#5	STR	47'-9"	9,214
B102	60	#6	STR	32'-0"	2,884
B103	60	#6	STR	32'-10"	2,959
K1	20	#4	STR	18'-4"	245
K2	2	#4	STR	1'-6"	2
K3	2	#4	STR	2'-2"	3
K4	4	#4	STR	2'-3"	6
K5	2	#4	STR	1'-9"	2
K6	6	#4	STR	6'-9"	27
K7	6	#4	STR	8'-2"	33
K8	12	#4	STR	8'-3"	66
K9	6	#4	STR	7'-3"	29
K10	10	#4	STR	27'-9"	185
K11	12	#4	STR	5'-7"	45
K12	12	#4	STR	7'-9"	62
K13	24	#4	STR	8'-3"	132
K14	12	#4	STR	7'-3"	58
S3	228	#4	2	2'-9"	419
U1	52	#4	3	11'-4"	394
UNCOATED REINFORCING STEEL TOTAL:				32,736	

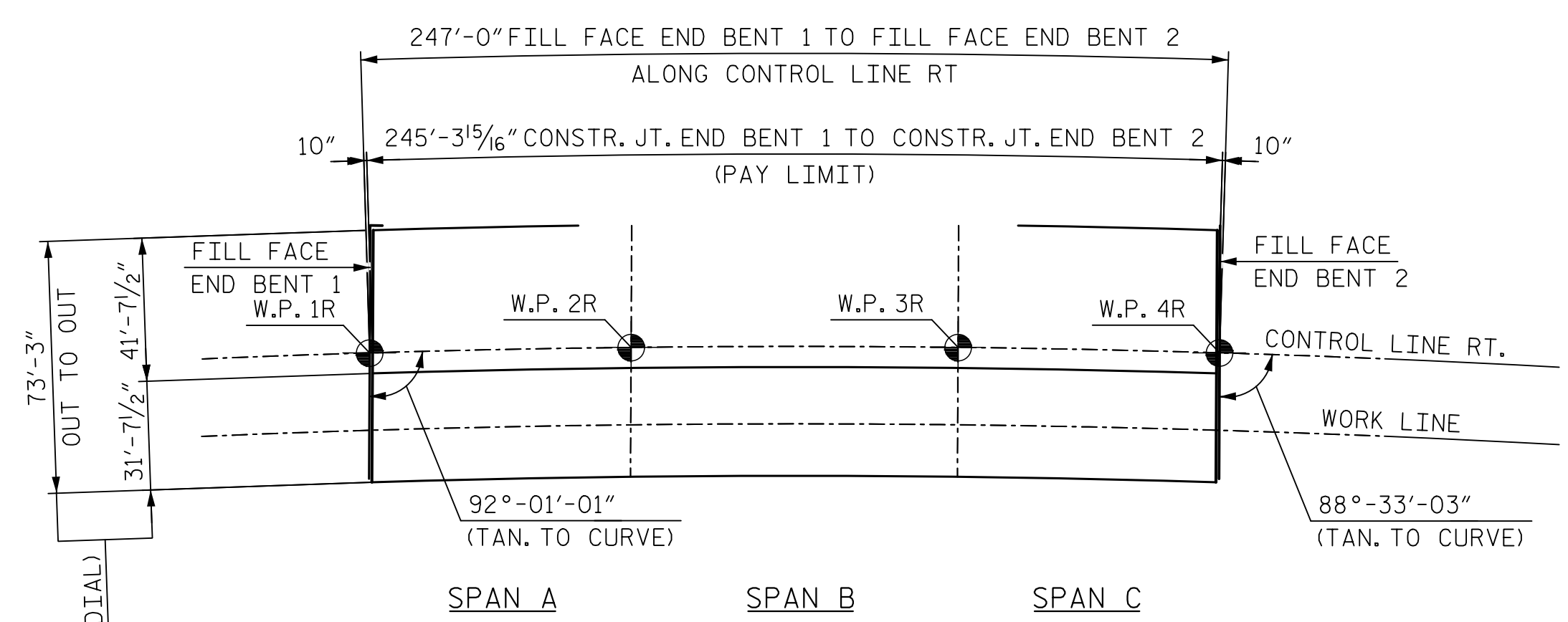
REINFORCING BAR SCHEDULE					
EPOXY COATED - STAGE 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A2	487	#5	STR	4'-5"	2,243
A6	487	#5	STR	41'-8"	21,143
A7	1	#5	STR	27'-3"	28
A8	1	#5	STR	12'-10"	13
A9	1	#5	STR	21'-6"	22
B1	120	#4	STR	24'-11"	1,994
B2	120	#6	STR	32'-0"	5,768
B3	60	#4	STR	17'-5"	698
B4	104	#6	STR	15'-3"	2,376
B5	104	#6	STR	25'-8"	4,009
S1	56	#4	1	13'-8"	511
S2	56	#4	1	8'-8"	324
U2	16	#4	4	10'-10"	116
U3	48	#4	4	12'-10"	411
EPOXY COATED REINFORCING STEEL TOTAL:				39,656	

REINFORCING BAR SCHEDULE					
UNCOATED - STAGE 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A102	487	#5	STR	4'-5"	2,243
A106	487	#5	STR	41'-8"	21,143
A107	1	#5	STR	27'-3"	28
A108	1	#5	STR	12'-10"	13
A109	1	#5	STR	21'-6"	22
B101	215	#5	STR	47'-9"	10,708
B102	72	#6	STR	32'-0"	3,461
B103	72	#6	STR	32'-10"	3,551
K15	20	#4	STR	21'-0"	281
K16	2	#4	STR	2'-7"	3
K17	2	#4	STR	3'-3"	4
K18	4	#4	STR	3'-4"	9
K19	2	#4	STR	2'-10"	4
K20	8	#4	STR	6'-3"	33
K21	8	#4	STR	7'-8"	41
K22	16	#4	STR	7'-9"	83
K23	8	#4	STR	6'-9"	36
K24	2	#4	STR	1'-3"	2
K25	2	#4	STR	1'-11"	3
K26	4	#4	STR	2'-0"	5
K27	2	#4	STR	1'-6"	2
K28	20	#4	STR	36'-9"	491
K29	16	#4	STR	5'-1"	54
K30	16	#4	STR	7'-3"	77
K31	32	#4	STR	7'-9"	166
K32	16	#4	STR	6'-9"	72
S3	304	#4	2	2'-9"	558
U1	60	#4	3	11'-4"	454
UNCOATED REINFORCING STEEL TOTAL:				43,547	



—SUPERSTRUCTURE BILL OF MATERIAL—			
STAGE 1			
	CLASS AA CONCRETE	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL
	(CU. YDS.)	(LBS.)	(LBS.)
POUR 1	69.4		
POUR 2	112.3		
POUR 3	101.9	32,736	30,697
POUR 4	53.7		
TOTALS**	337.3	32,736	30,697
STAGE 2			
	CLASS AA CONCRETE	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL
	(CU. YDS.)	(LBS.)	(LBS.)
POUR 5	81.2		
POUR 6	132.8		
POUR 7	120.3	43,547	39,656
POUR 8	54.9		
POUR 9	13.6		
TOTALS**	402.8	43,547	39,656

\*\*QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED.

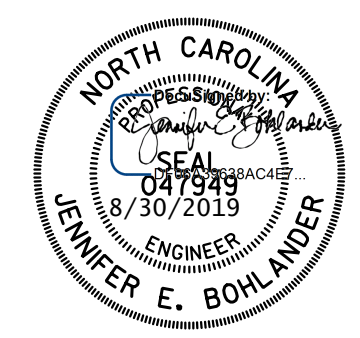


LAYOUT FOR COMPUTING AREA REINFORCED CONCRETE DECK SLAB (SQ. FT. = 17,970)

SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	2'-1"	1'-9"	2'-1"	1'-9"	2'-9"
#5	2'-7"	2'-2"	2'-7"	2'-2"	3'-5"
#6	3'-1"	2'-7"	3'-10"	2'-7"	4'-4"
#7	5'-3"	3'-6"			
#8	6'-10"	4'-7"			

GROOVING BRIDGE FLOORS	
APPROACH SLABS	3,530 SQ. FT
BRIDGE DECK	16,437 SQ. FT
TOTAL	19,967 SQ. FT



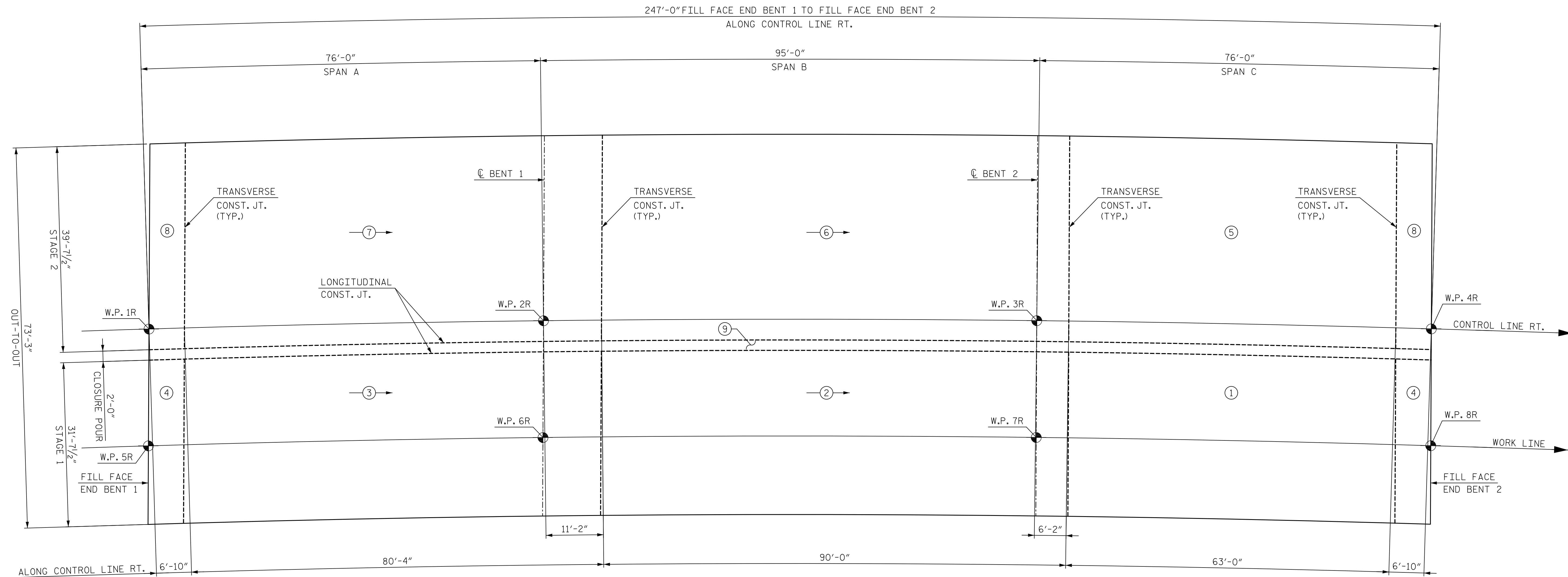
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 2/27/2019	DWG. NO. 32	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

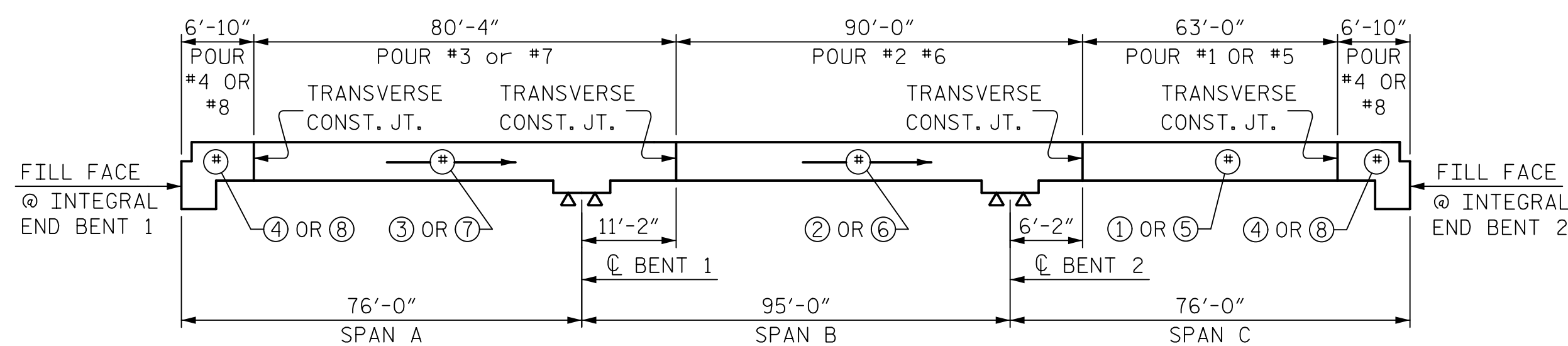
PROJECT NO. I-4400 BB  
 HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 1 OF 1					
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD SUPERSTRUCTURE BILL OF MATERIALS					
REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
TOTAL SHEETS					54

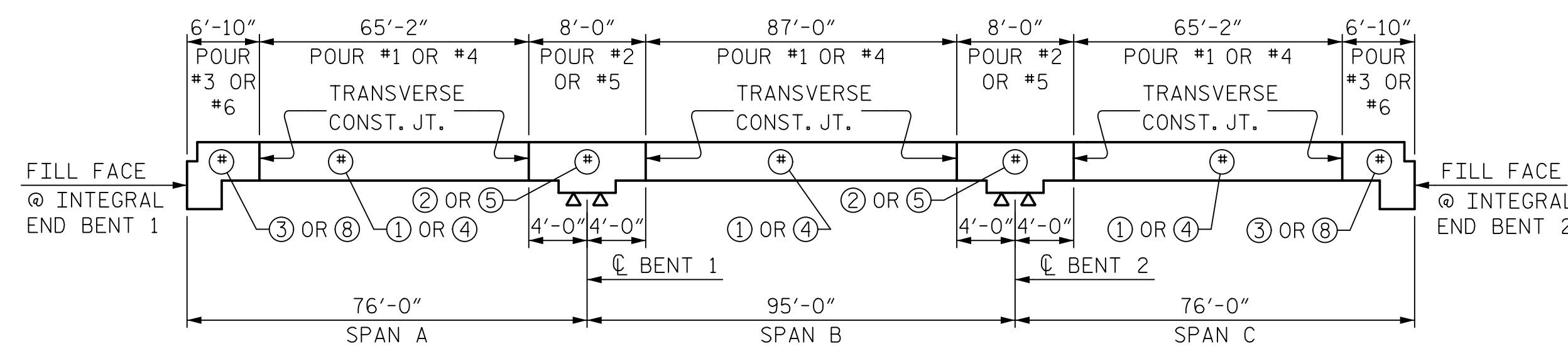




**POURING SEQUENCE**  
 (⊕) → DENOTES POUR NUMBER AND DIRECTION



**POURING SEQUENCE**

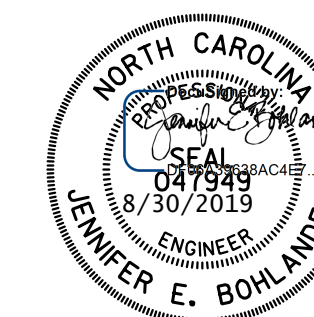


**OPTIONAL POURING SEQUENCE**

NOTE: ALL DIMENSIONS FOR POURING SEQUENCE AND OPTIONAL POURING SEQUENCE ARE ALONG CONTROL LINE RT.

PROJECT NO. I-4400 BB  
 HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 1 OF 1

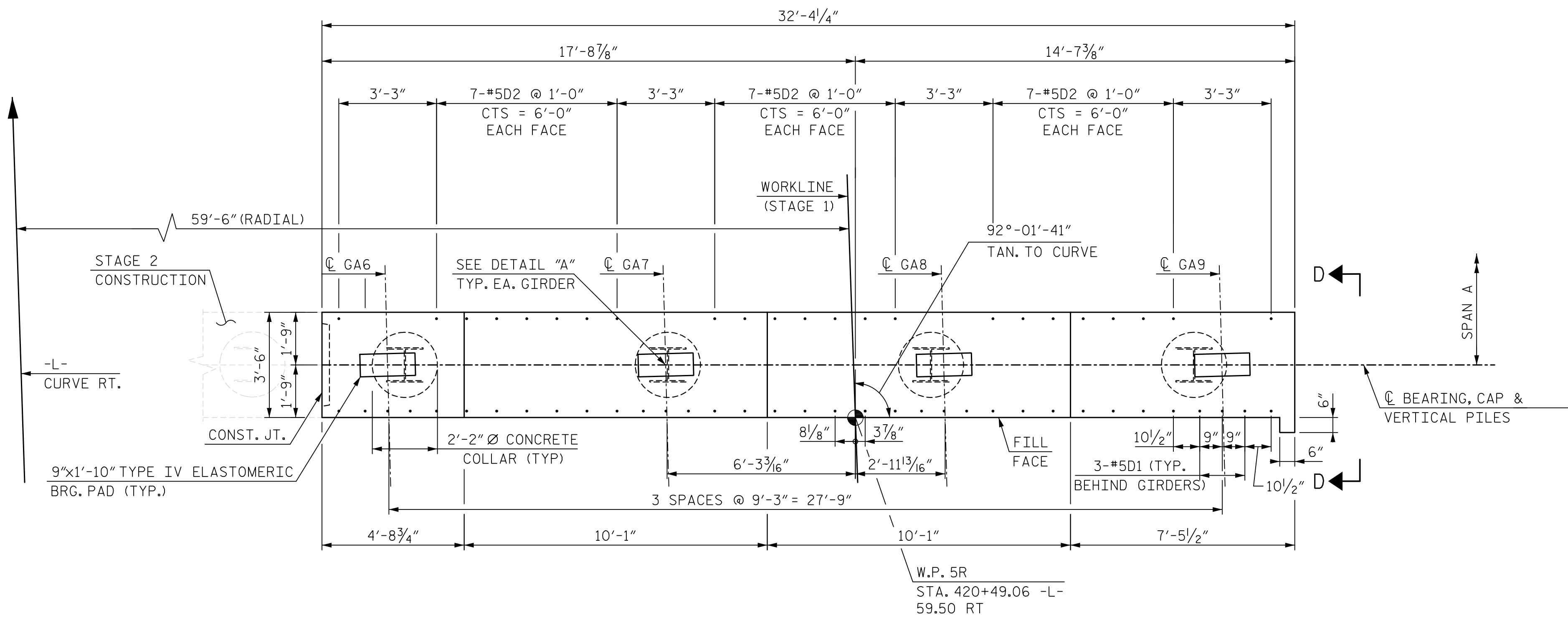


**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

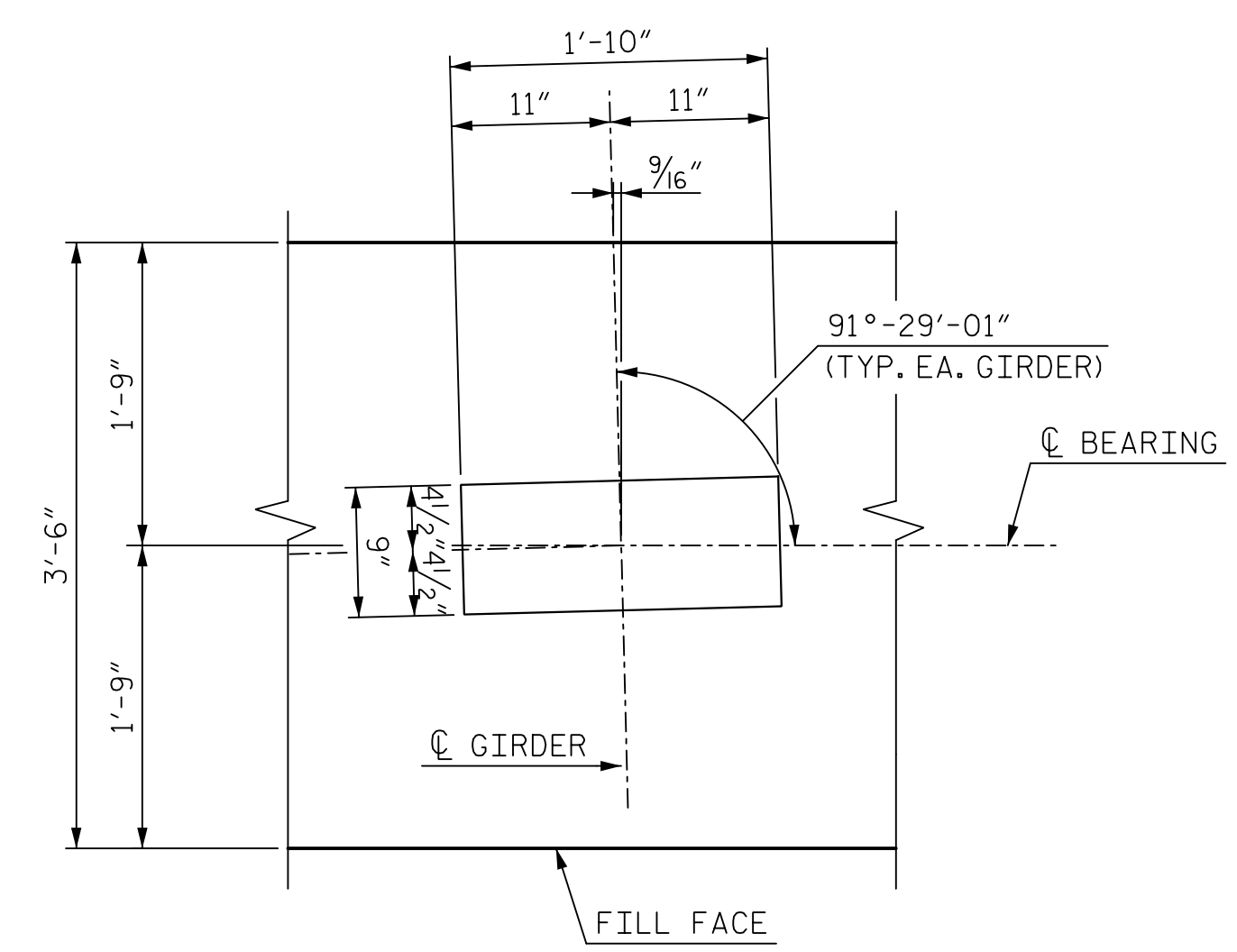
<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 2/27/2019	DWG. NO. 33	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BILL OF MATERIALS  
 AND POUR SEQUENCE

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S2-33
1			3			TOTAL SHEETS
2			4			54

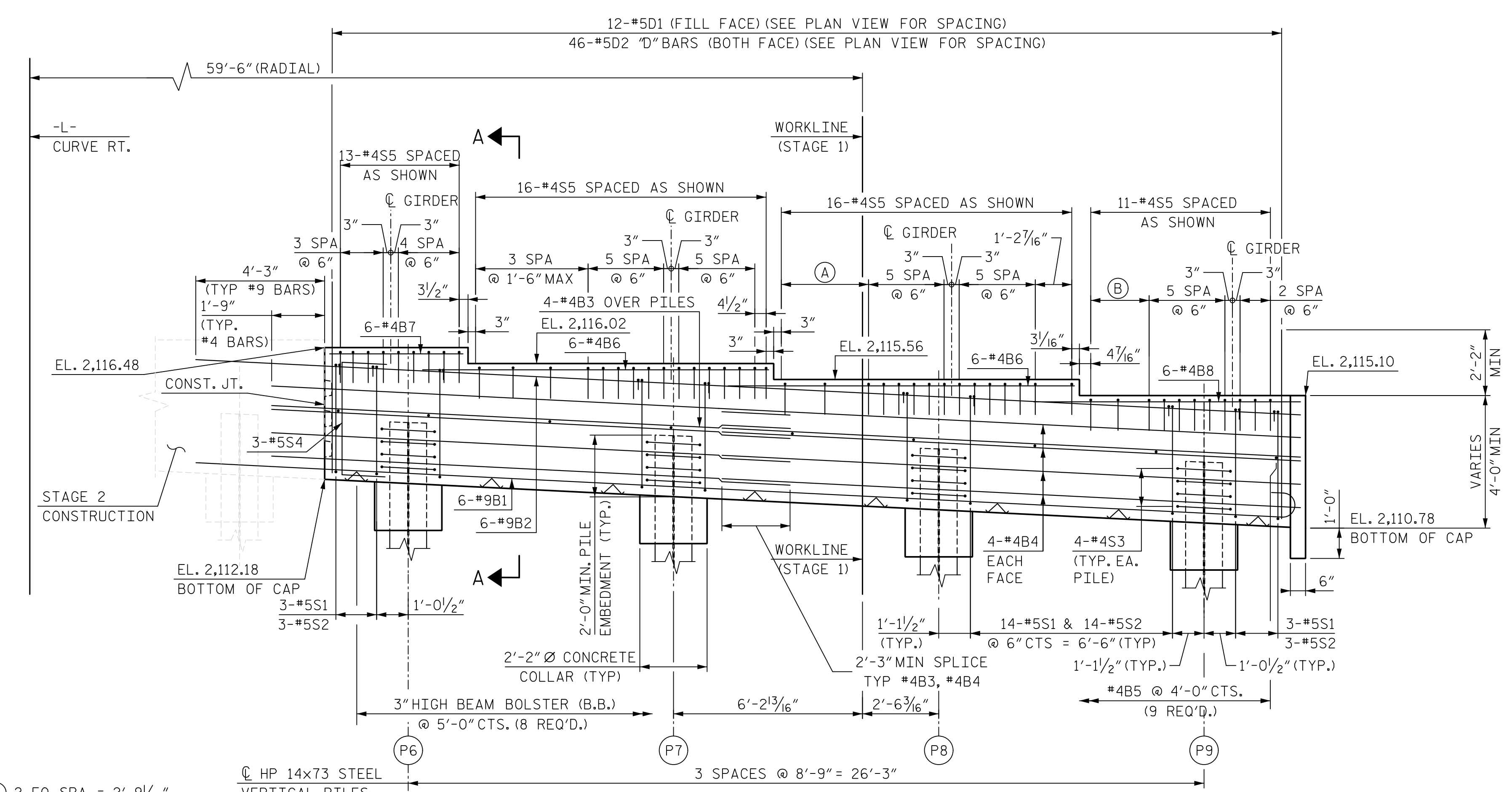


PLAN



BEARING DETAIL "A"

NOTE: GIRDERS WERE SET PARALLEL TO THE CONTROL LINE RT (WBL) SHORT CHORD.



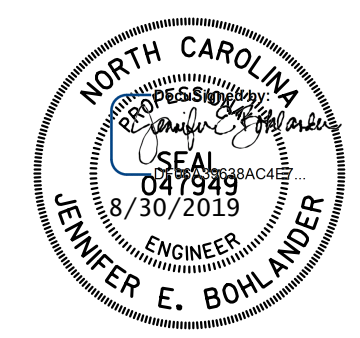
ELEVATION

TOP OF PILE ELEVATIONS	
(P6)	2114.06
(P7)	2113.68
(P8)	2113.30
(P9)	2112.92

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 1 OF 4

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



DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

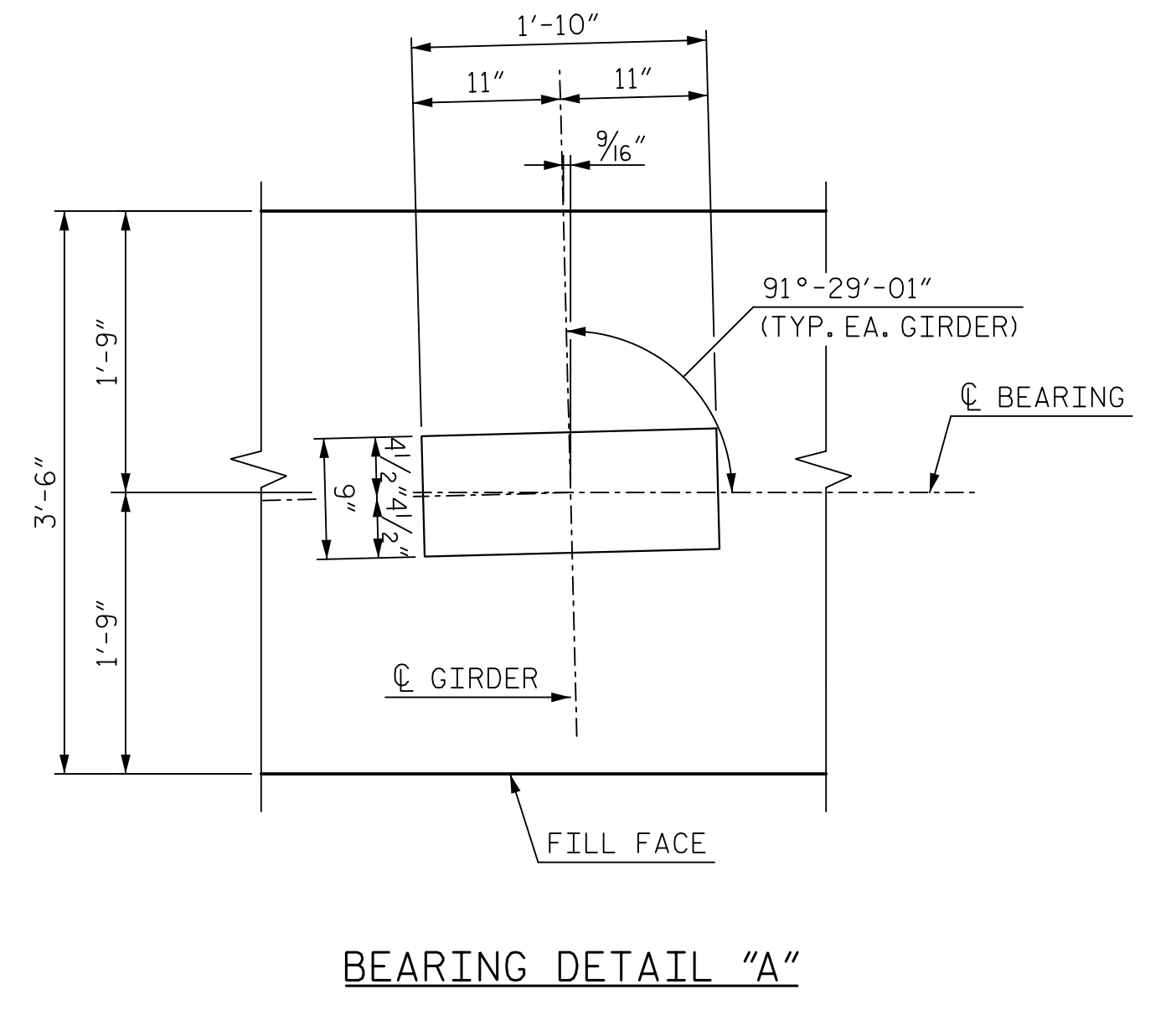
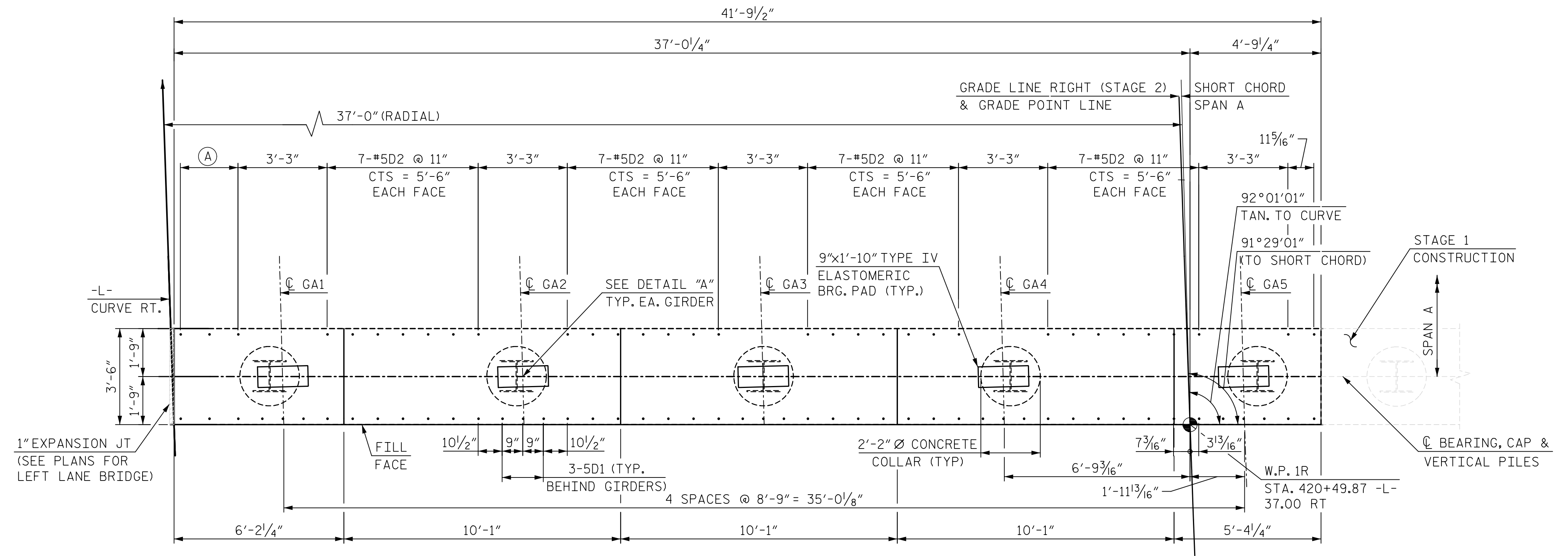
<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 1/24/2019	DWG. NO. 34	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S2-34
1			3			TOTAL SHEETS
2			4			54

8/20/2019 10:57:13 AM ...\\002.DWG...I-4400BB\_SML1\_E01\_D34\_440211

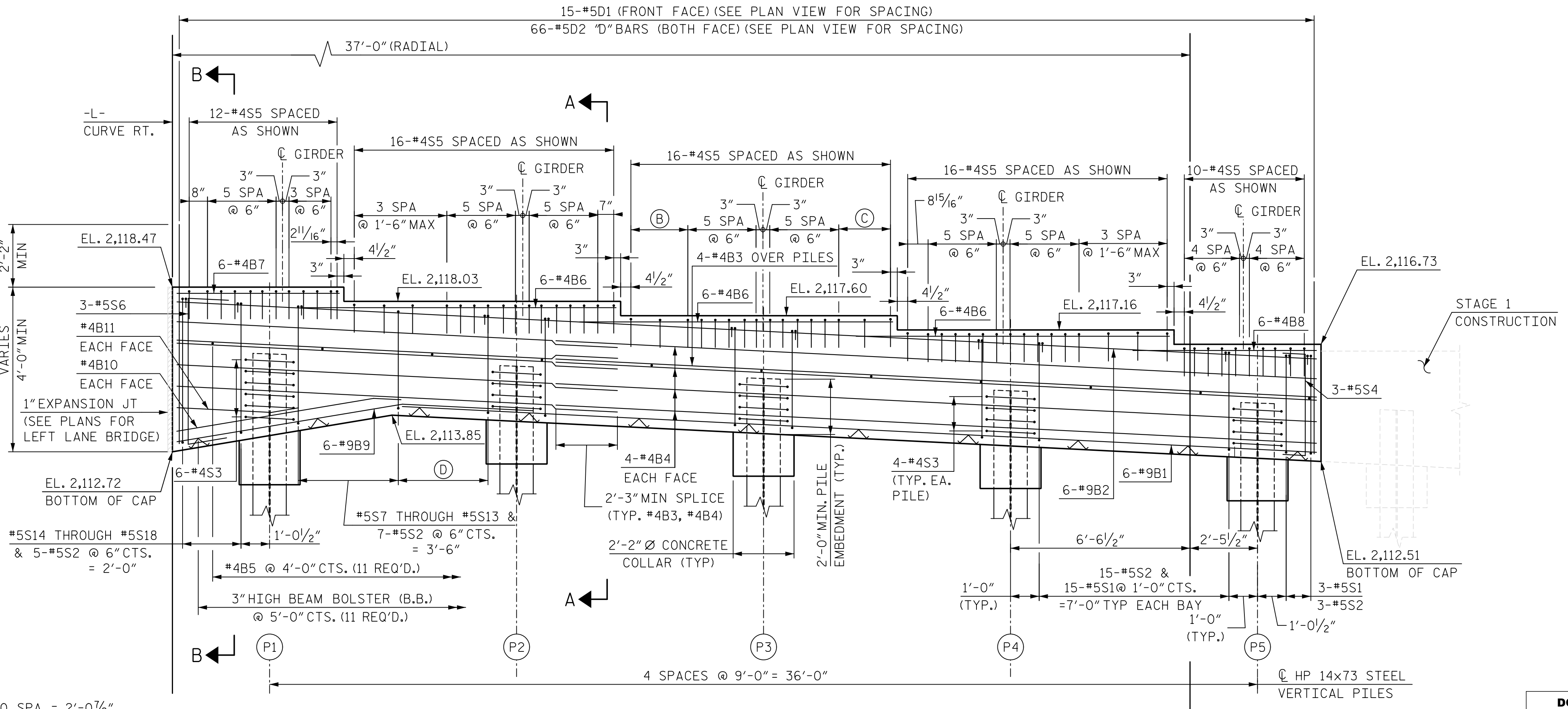
- (A) 2 EQ. SPA = 2'-9 1/16"
- (B) 2 EQ. SPA = 1'-11 1/8"





Ⓐ 2 EQ. SPA = 2'-13/16"

PLAN



TOP OF PILE ELEVATIONS	
Ⓐ P1	2116.41
Ⓐ P2	2115.96
Ⓐ P3	2115.52
Ⓐ P4	2115.07
Ⓐ P5	2114.62

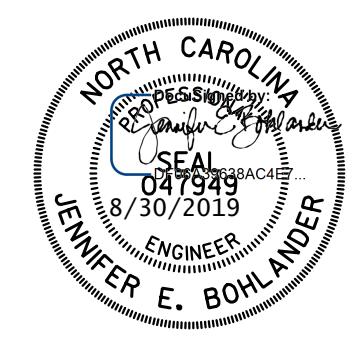
Ⓑ 2 EQ. SPA = 2'-0 7/8"  
 Ⓒ 2 EQ. SPA = 1'-10 5/8"  
 Ⓓ 8-#5S1 + 8-#5S2 @ 6" CTS. = 4'-6"

ELEVATION

PROJECT NO. I-4400 BB  
 HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 2 OF 4

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



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

**HNTB** HNTB NORTH CAROLINA, P.C.  
 NC License No. C-1554  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: J. SLOAT DATE: 1/29/2019  
 CHECKED BY: J. BOHLANDER DATE: 3/18/2019  
 ENGINEER OF RECORD: J. BOHLANDER DATE: 3/18/2019

DWG. NO. 35

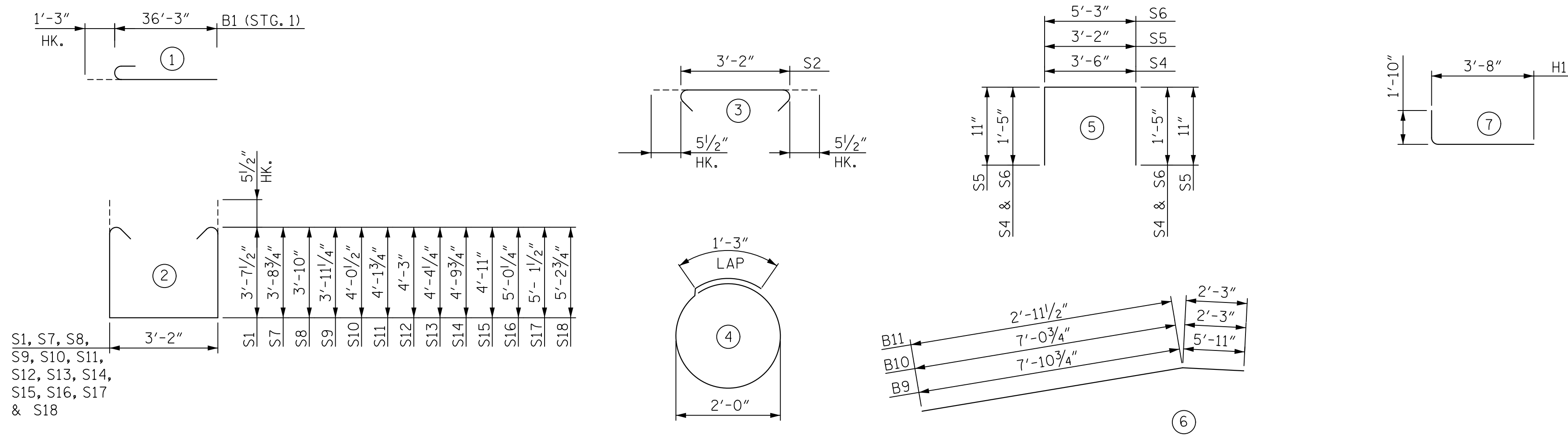
REVISIONS						SHEET NO. S2-35
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 54
2			4			

8/30/2019 10:57:17 AM \\V02.DWG\_14400BB\_SML\_E02\_035\_440211





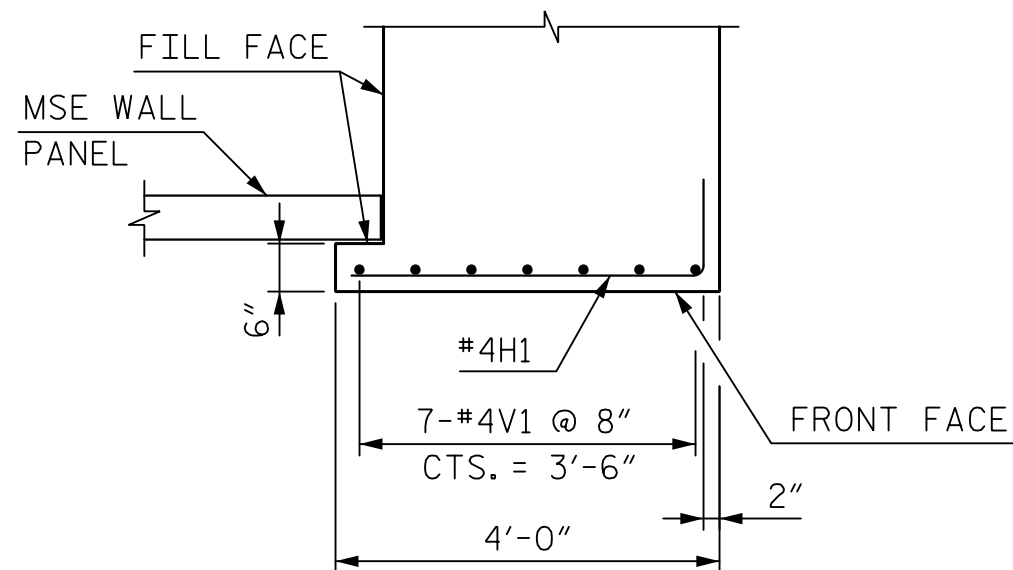
BAR TYPES



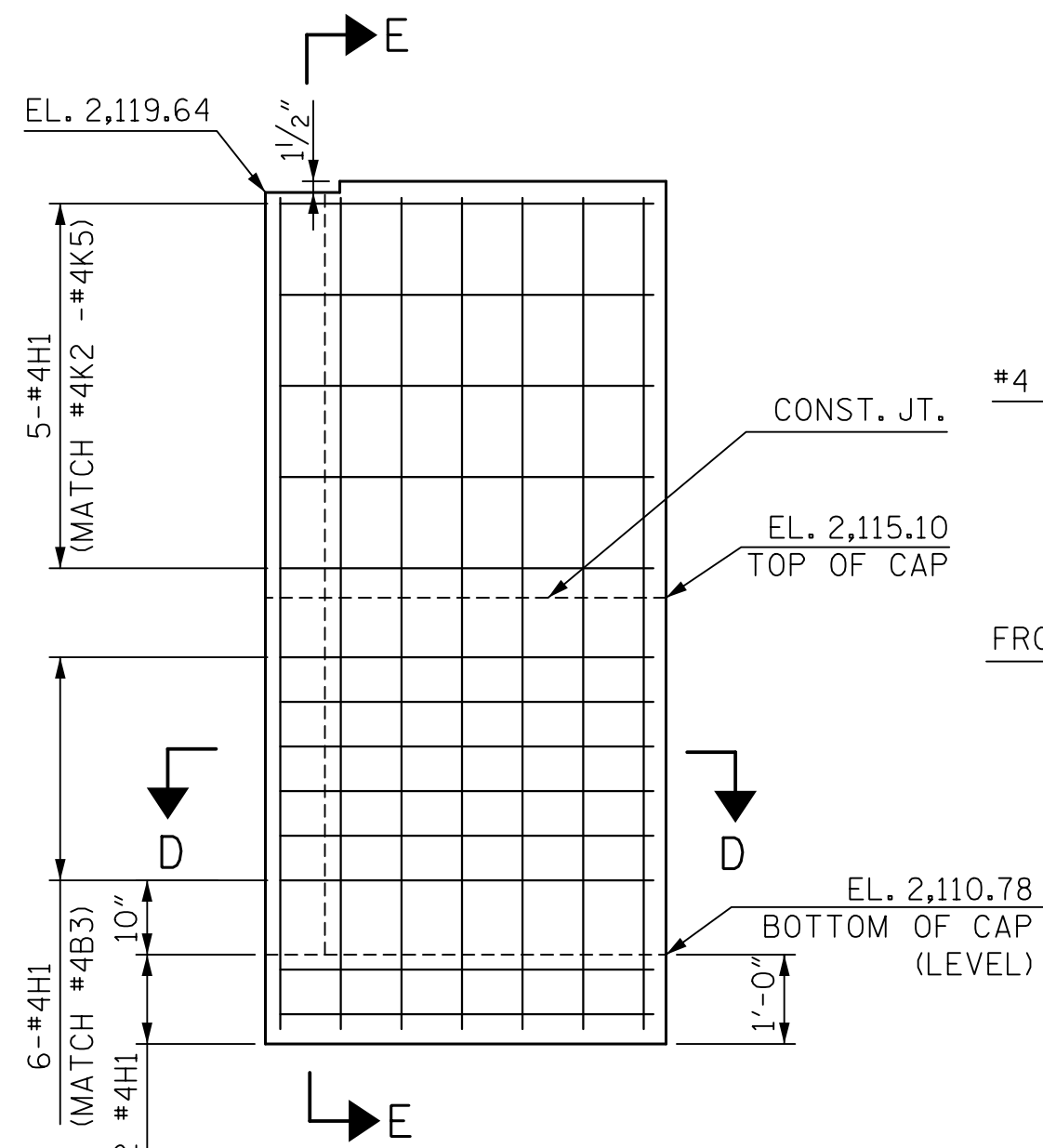
BILL OF MATERIAL

STAGE 1										END BENT 1					STAGE 2				
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT		
B1	6	#9	1	37'-6"	765	B1	6	#9	STR.	33'-4"	680	B1	6	#9	STR.	33'-4"	680		
B2	6	#9		36'-6"	744	B2	6	#9	STR.	41'-7"	848	B2	6	#9	STR.	41'-7"	848		
B3	8	#4	STR.	18'-1"	97	B3	8	#4	STR.	21'-11"	117	B3	8	#4	STR.	21'-11"	117		
B4	16	#4	STR.	18'-1"	194	B4	16	#4	STR.	21'-11"	234	B4	16	#4	STR.	21'-11"	234		
B5	9	#4	STR.	3'-2"	19	B5	11	#4	STR.	3'-2"	23	B5	11	#4	STR.	3'-2"	23		
B6	12	#4	STR.	11'-5"	92	B6	18	#4	STR.	11'-5"	137	B6	18	#4	STR.	11'-5"	137		
B7	6	#4	STR.	6'-7"	26	B7	6	#4	STR.	5'-11"	24	B7	6	#4	STR.	5'-11"	24		
B8	6	#4	STR.	8'-3"	33	B8	6	#4	STR.	6'-8"	27	B8	6	#4	STR.	6'-8"	27		
						B9	6	#9	6	13'-10"	282	B9	6	#9	6	13'-10"	282		
						B10	2	#4	6	9'-4"	12	B10	2	#4	6	9'-4"	12		
						B11	2	#4	6	5'-3"	7	B11	2	#4	6	5'-3"	7		
D1	12	#5	STR.	6'-9"	84	D1	15	#5	STR.	6'-9"	105	D1	15	#5	STR.	6'-9"	105		
D2	46	#5	STR.	6'-9"	322	D2	66	#5	STR.	6'-9"	462	D2	66	#5	STR.	6'-9"	462		
H1	13	#4	7	5'-6"	48														
S1	48	#5	2	11'-4"	567	S1	56	#5	2	11'-4"	662	S1	56	#5	2	11'-4"	662		
S2	48	#5	3	4'-1"	204	S2	68	#5	3	4'-0"	285	S2	68	#5	3	4'-0"	285		
S3	16	#4	4	7'-7"	81	S3	22	#4	4	7'-7"	112	S3	22	#4	4	7'-7"	112		
S4	3	#5	5	6'-4"	20	S4	3	#5	5	6'-4"	20	S4	3	#5	5	6'-4"	20		
S5	56	#4	5	5'-0"	187	S5	70	#4	5	5'-0"	234	S5	70	#4	5	5'-0"	234		
						S6	2	#5	5	8'-1"	17	S6	2	#5	5	8'-1"	17		
						S7	1	#5	2	11'-7"	12	S7	1	#5	2	11'-7"	12		
						S8	1	#5	2	11'-9"	12	S8	1	#5	2	11'-9"	12		
						S9	1	#5	2	12'-0"	12	S9	1	#5	2	12'-0"	12		
						S10	1	#5	2	12'-2"	13	S10	1	#5	2	12'-2"	13		
						S11	1	#5	2	12'-5"	13	S11	1	#5	2	12'-5"	13		
						S12	1	#5	2	12'-7"	13	S12	1	#5	2	12'-7"	13		
						S13	1	#5	2	12'-10"	13	S13	1	#5	2	12'-10"	13		
						S14	1	#5	2	13'-9"	14	S14	1	#5	2	13'-9"	14		
						S15	1	#5	2	13'-11"	15	S15	1	#5	2	13'-11"	15		
						S16	1	#5	2	14'-2"	15	S16	1	#5	2	14'-2"	15		
						S17	1	#5	2	14'-4"	15	S17	1	#5	2	14'-4"	15		
						S18	1	#5	2	14'-7"	15	S18	1	#5	2	14'-7"	15		
V1	7	#4	STR.	9'-6"	45														

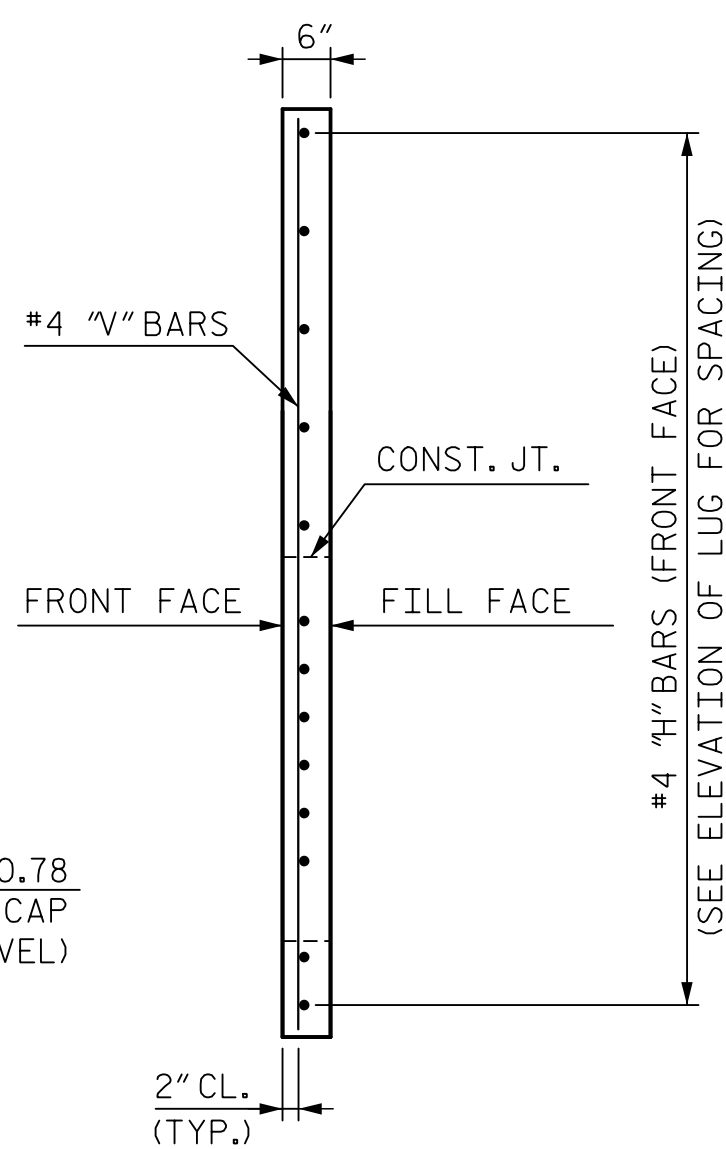
SECTION D-D



VIEW E-E



SECTION E-E



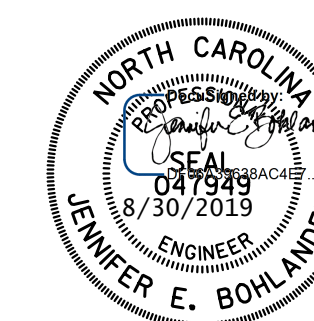
QUANTITIES

QUANTITIES

REINFORCING STEEL	LBS.	3,528	REINFORCING STEEL	LBS.	4,450
CLASS "A" CONCRETE BREAKDOWN			CLASS "A" CONCRETE BREAKDOWN		
POUR 1 - CAP, LUG & CONCRETE COLLARS	CU. YDS.	18.7	POUR 1 - CAP & CONC. COLLARS	CU. YDS.	24.8
HP 14x73 STEEL PILES	NO.	4	HP 14x73 STEEL PILES	NO.	5
	LIN. FT.	220		LIN. FT.	275
PILE EXCAVATION IN SOIL	LIN. FT.	17.8	PILE EXCAVATION IN SOIL	LIN. FT.	22.2
PILE EXCAVATION NOT IN SOIL	LIN. FT.	4.4	PILE EXCAVATION NOT IN SOIL	LIN. FT.	5.6

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 4 OF 4



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

<b>HNTB</b>	HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
DRAWN BY: J. SLOAT	DATE: 6/6/2019
CHECKED BY: J. BOHLANDER	DATE: 6/7/2019
ENGINEER OF RECORD: J. BOHLANDER	DATE: 6/7/2019

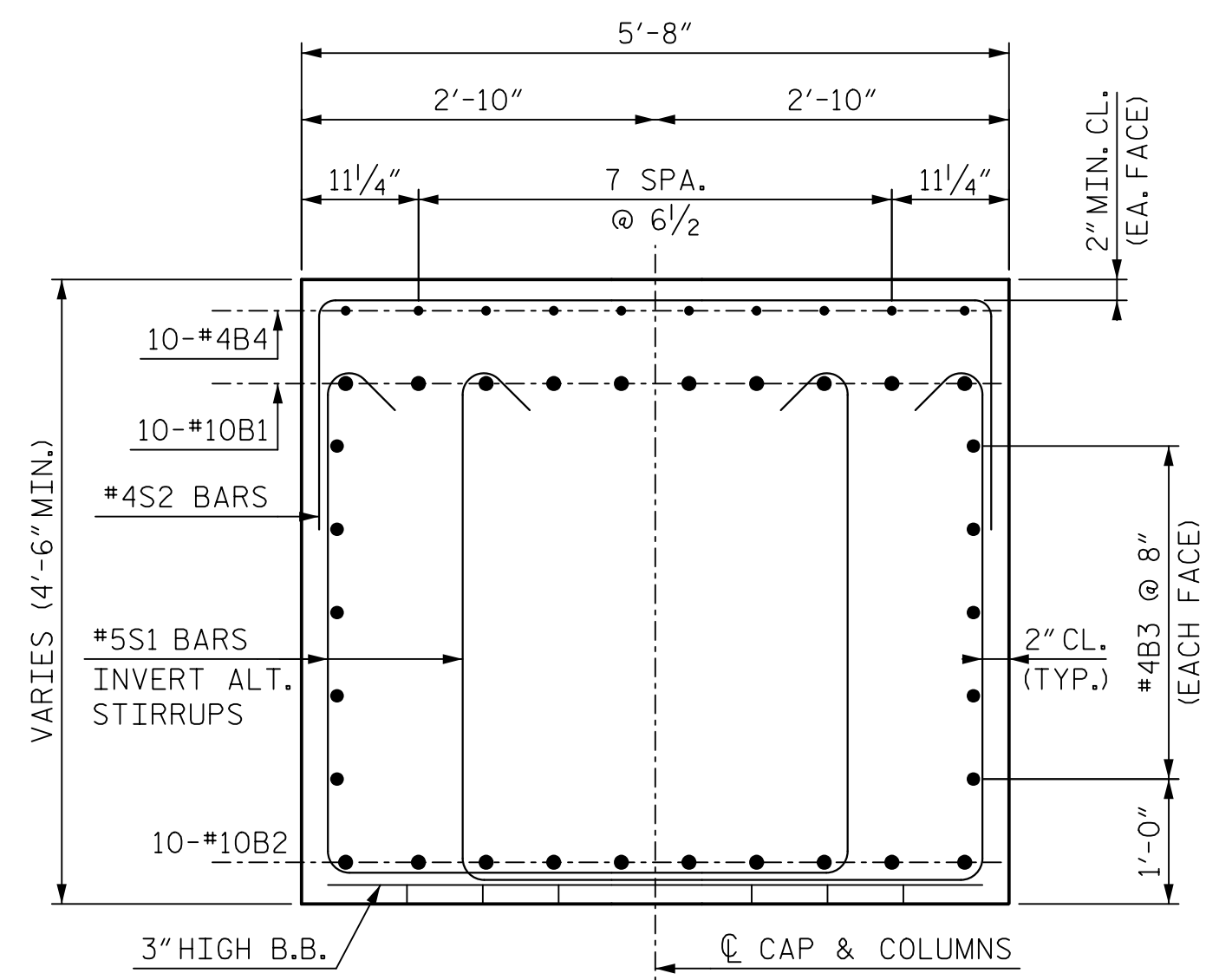
DWG. NO. 37

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S2-37
1			3			TOTAL SHEETS
2			4			54

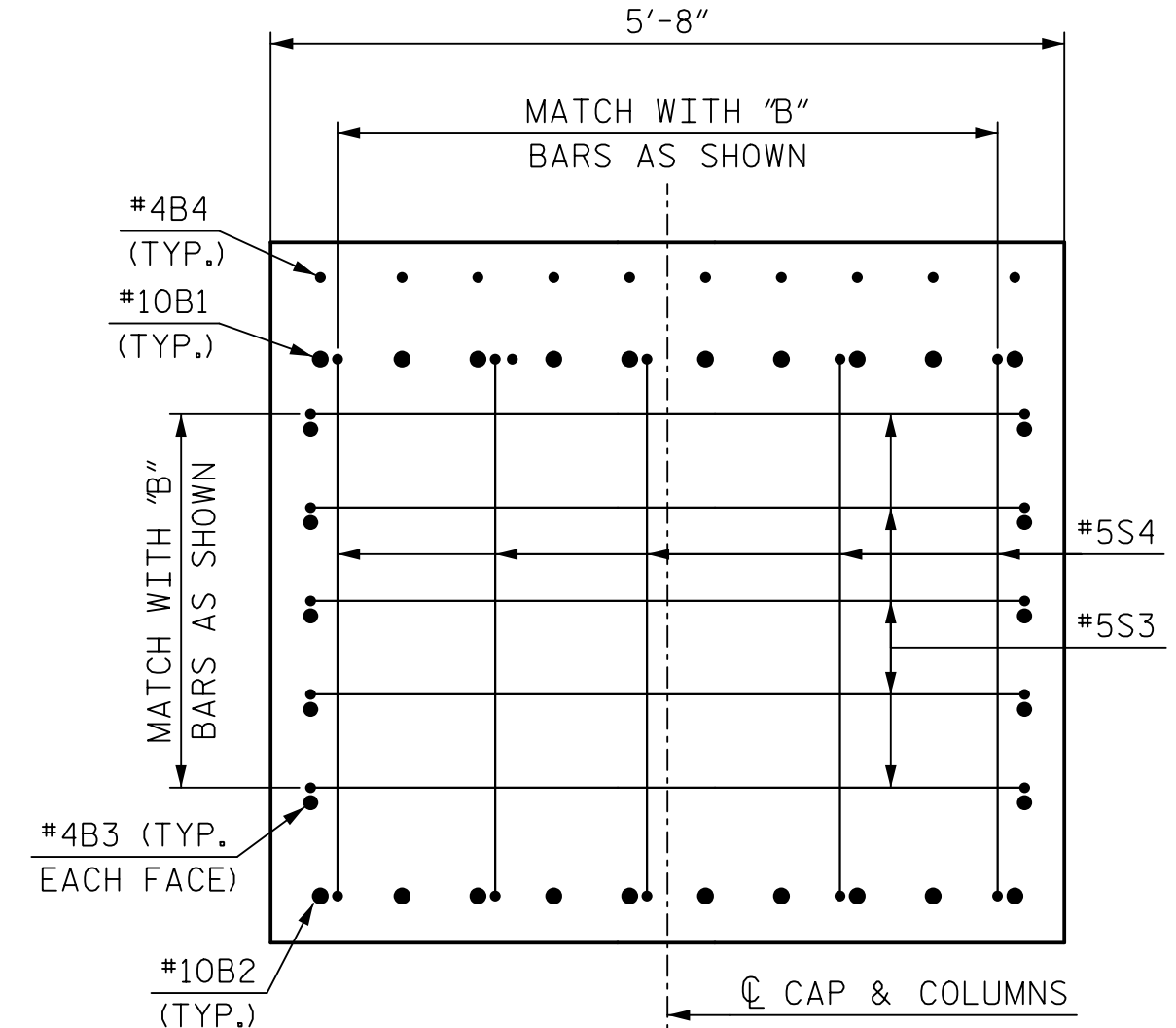
8/30/2019 10:57:25 AM ...\\002.073.1\400006\_SML\_E04\_D37\_440211



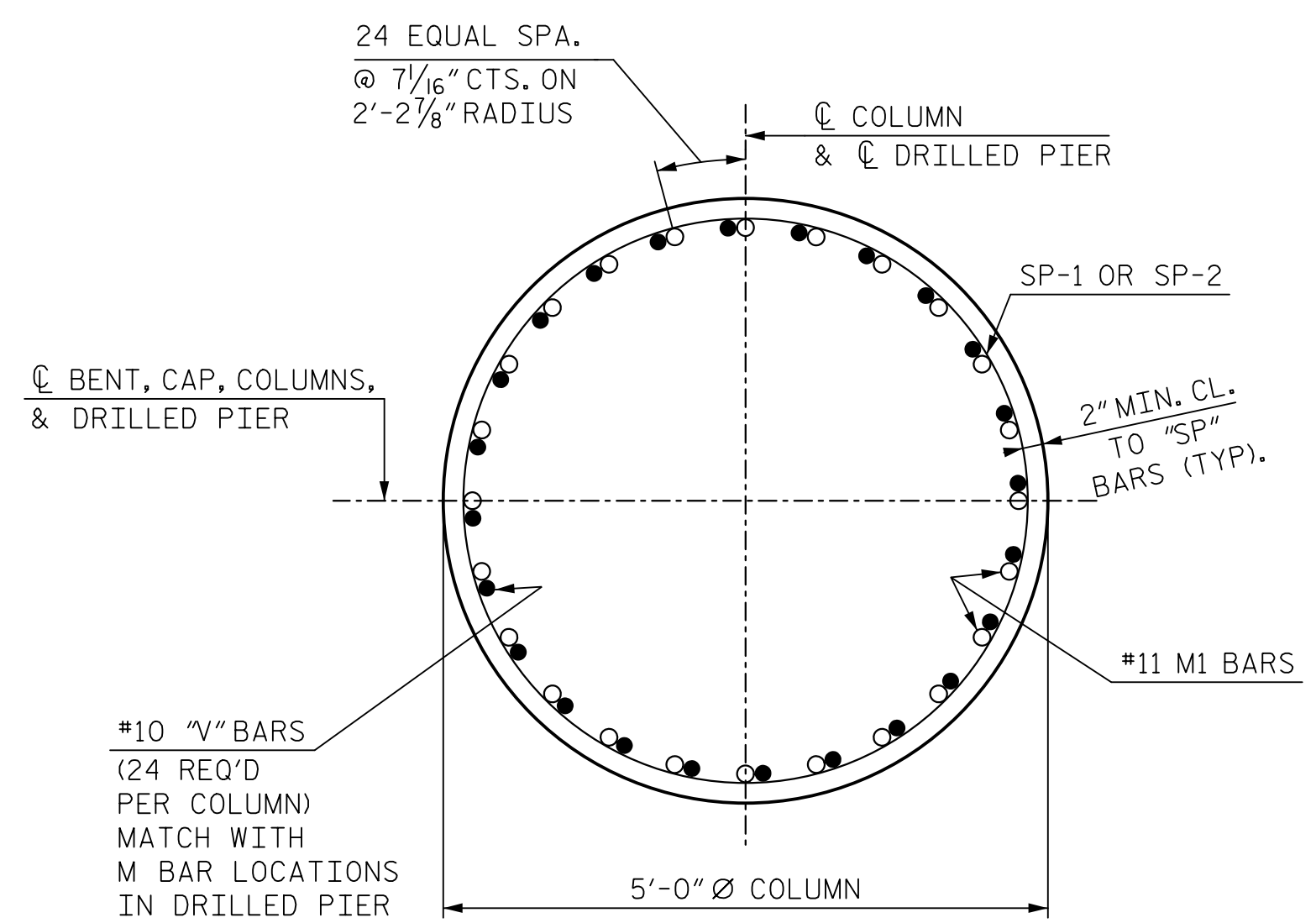




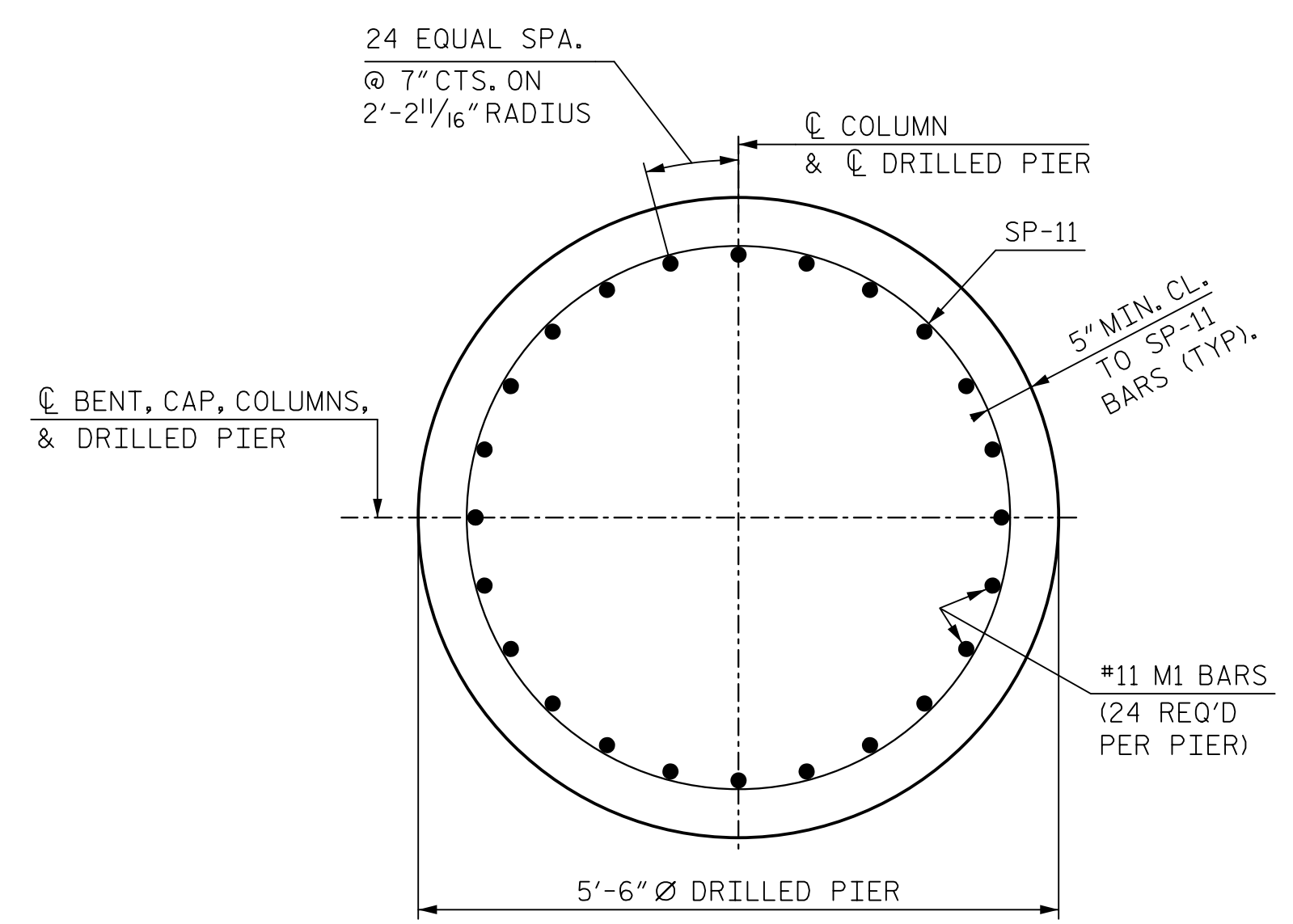
SECTION A-A



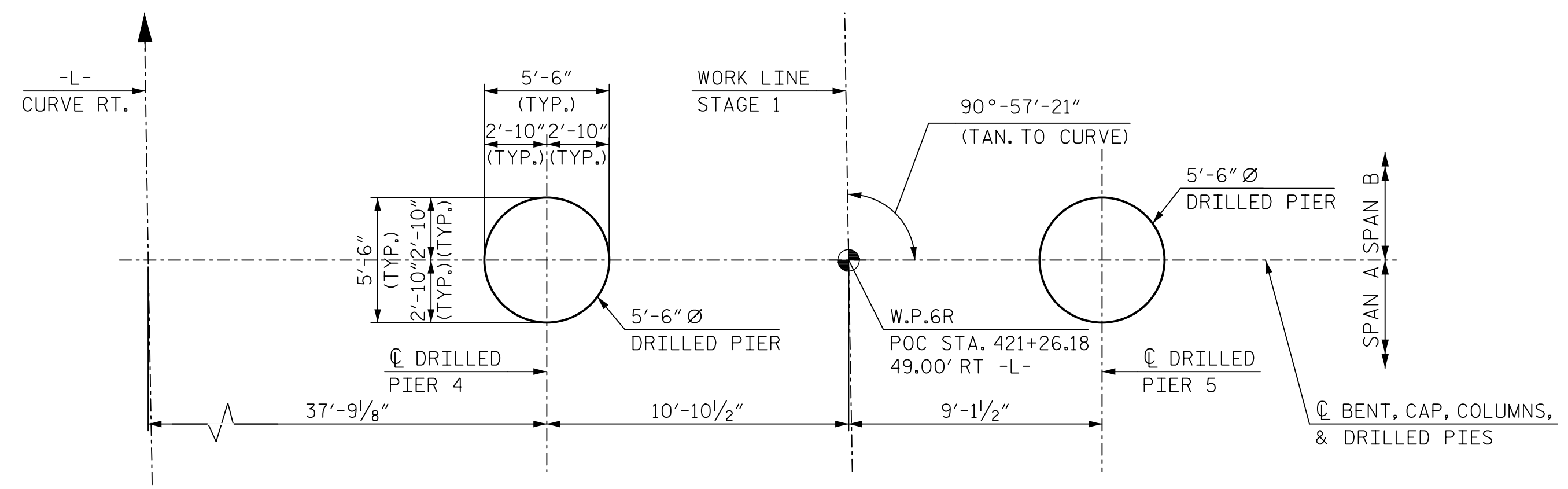
VIEW B-B



SECTION C-C  
(TYP. EA. COL.)

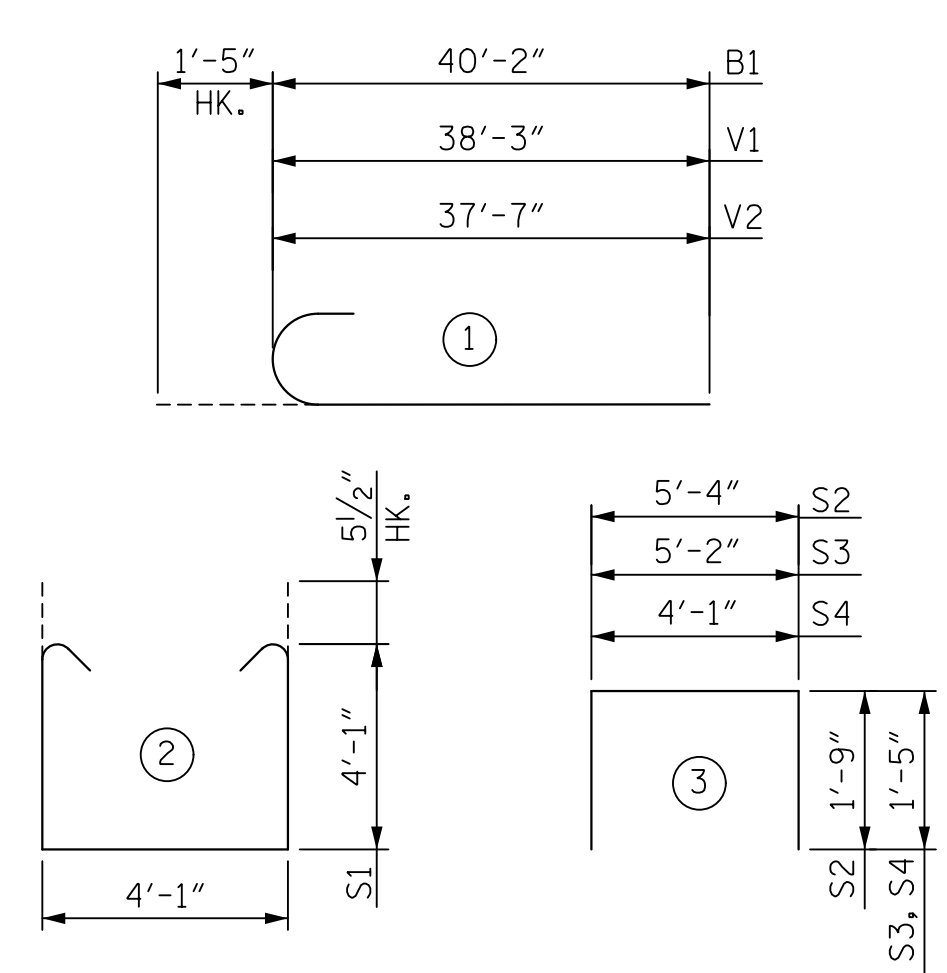


SECTION D-D  
(TYPICAL)



DRILLED PIER PLAN

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF REINFORCING

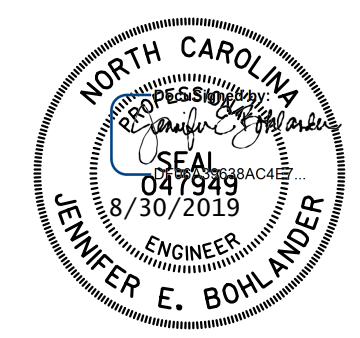
BENT 1						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	10	#10	1	41'-7"	1,791	
B2	10	#10	STR.	38'-1"	1,638	
B3	20	#4	STR.	18'-8"	249	
B4	20	#4	STR.	11'-5"	153	
B5	10	#4	STR.	4'-8"	31	
B6	10	#4	STR.	8'-10"	59	
M1	48	#11	STR.	40'-2"	10,243	
S1	128	#5	2	13'-2"	1,758	
S2	58	#4	3	8'-10"	342	
S3	10	#5	3	8'-0"	83	
S4	10	#5	3	6'-11"	72	
V1	24	#10	1	39'-8"	4,094	
V2	24	#10	1	39'-0"	4,028	
SP-1	1	**	4	2050'-0"	1,369	
SP-2	1	**	4	2012'-7"	1,344	
SP-11	2	*	4	1050'-7"	2,192	
QUANTITIES						
REINFORCING STEEL					LBS.	24,541
SPIRAL COLUMN REINFORCING STEEL					LBS.	4,905
CLASS "A" CONCRETE BREAKDOWN						
COLUMN POUR 2					CU. YDS.	49.9
CAP POUR 3					CU. YDS.	32.5
TOTAL					CU. YDS.	82.4
DRILLED PIER POUR 1					CU. YDS.	52.8
5'-6" Ø DRILLED PIERS					LIN. FT.	26
DRILLED PIERS, NOT IN SOIL					LIN. FT.	34
DRILLED PIERS, IN SOIL					LIN. FT.	34
PERMANENT STEEL CASING FOR 5'-6" Ø DRILLED PIERS					LIN. FT.	34
CSL TUBES					LIN. FT.	378

\* THE SP-11 SPIRAL REINFORCING STEEL SHALL BE W31 OR D31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

\* THE SP-1 AND SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 2 OF 4



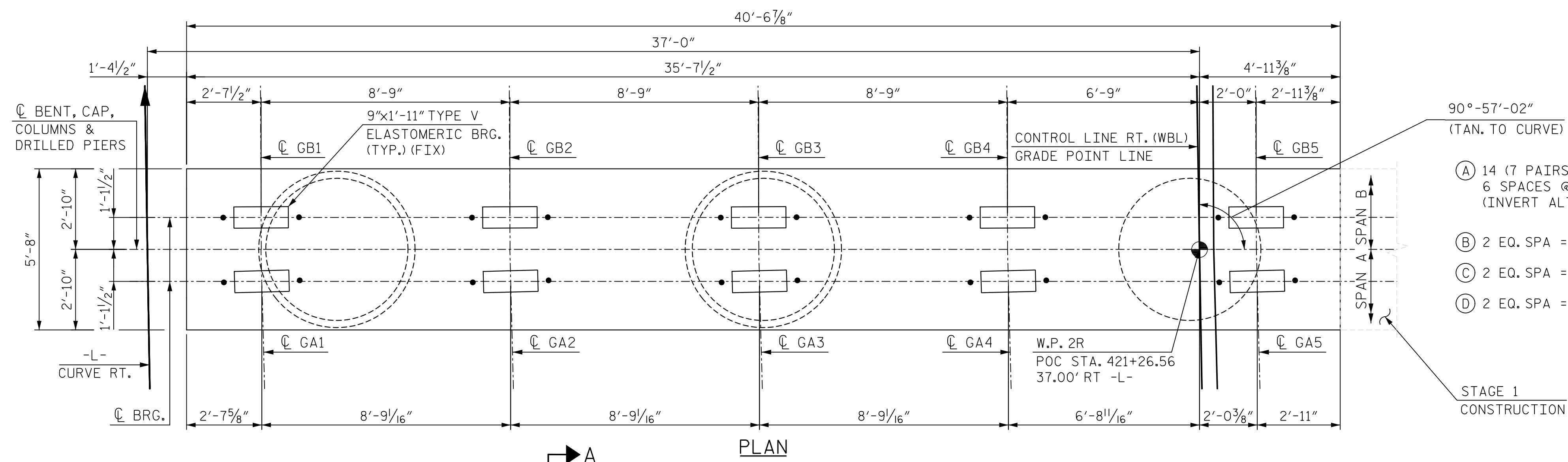
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 2/4/2019	DWG. NO. 39	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
BENT 1 STAGE 1 DETAILS					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO.	S2-39
TOTAL SHEETS	54

8/30/2019 10:57:32 AM ...\\002.DTT\_14400BB\_SML\_B02\_039\_440211



- 90°-57'-02" (TAN. TO CURVE)
- Ⓐ 14 (7 PAIRS)-#5S1  
6 SPACES @ 6" CTS. (MAX.) = 2'-6 7/16"  
(INVERT ALTERNATE PAIRS)
  - Ⓑ 2 EQ. SPA = 2'-11 5/16"
  - Ⓒ 2 EQ. SPA = 1'-8"
  - Ⓓ 2 EQ. SPA = 2'-3 1/2"

**NOTES:**

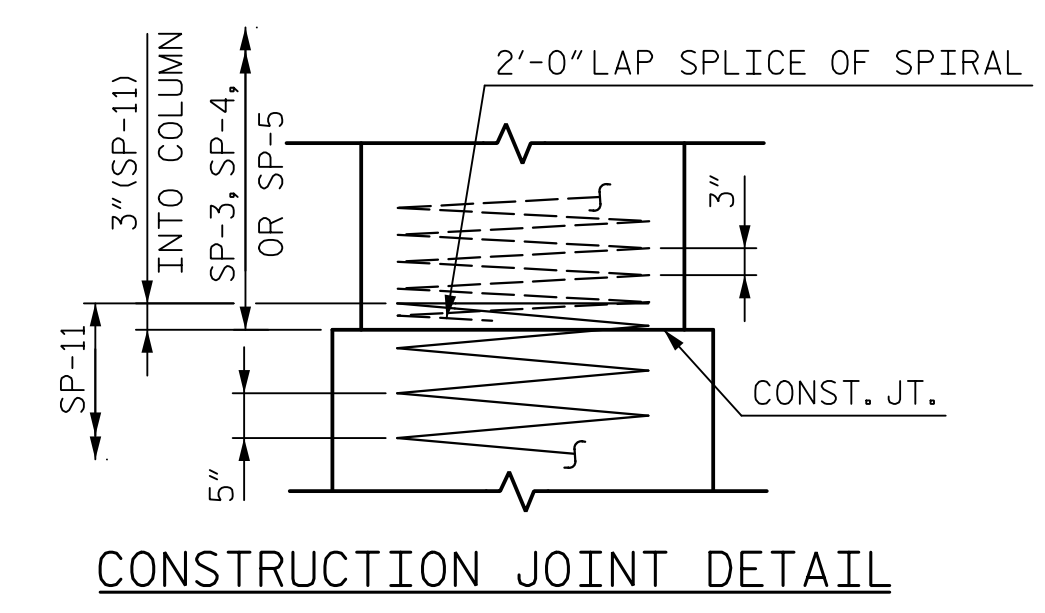
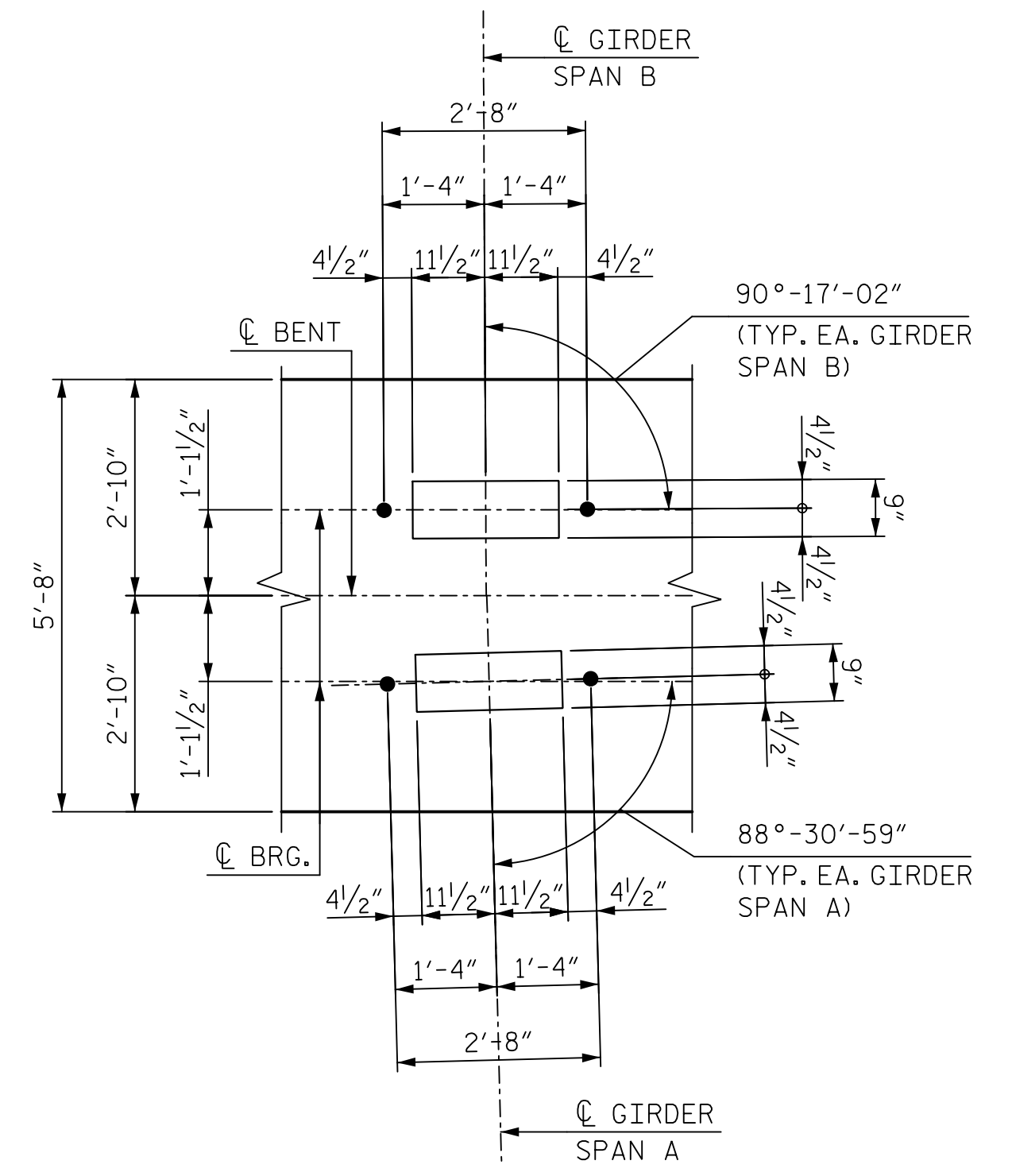
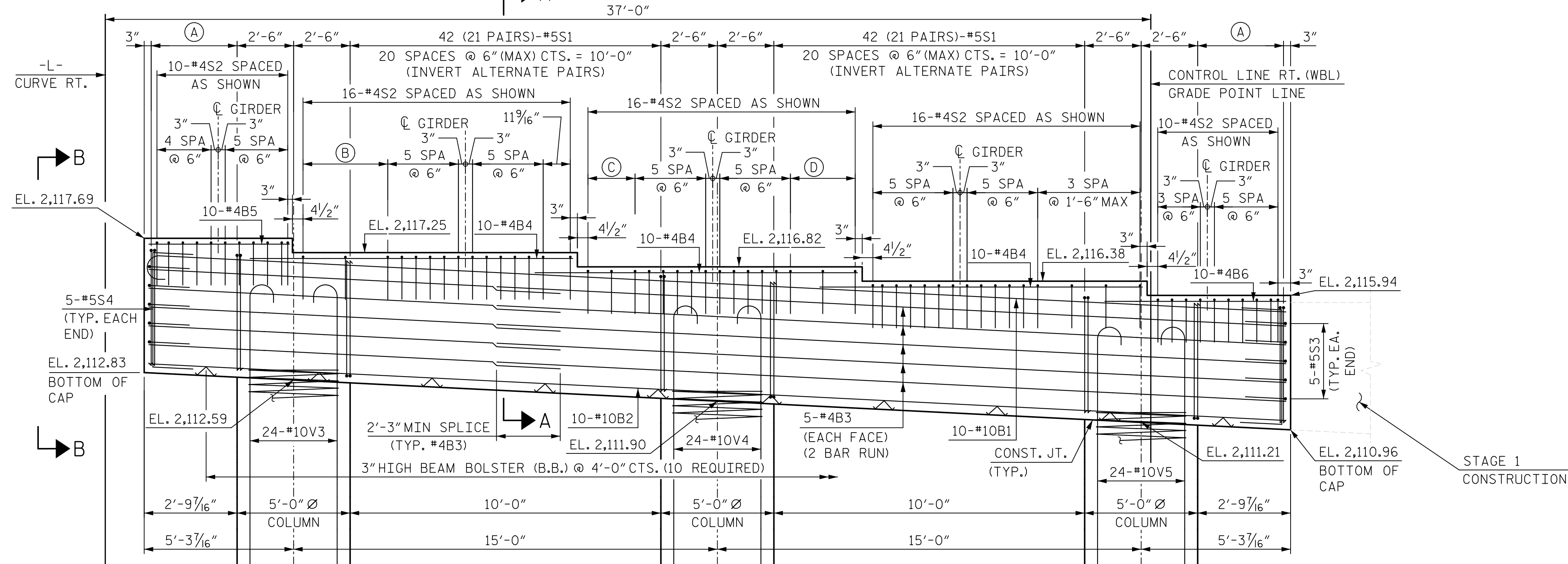
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

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

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

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

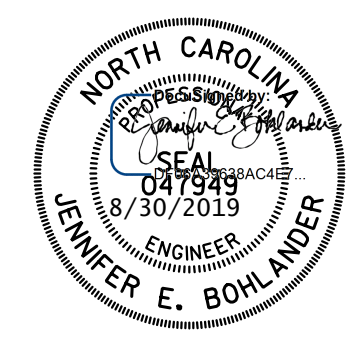
THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIER IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND LINE ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1'-0" BELOW THE GROUND LINE.



PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 1  
 STAGE 2



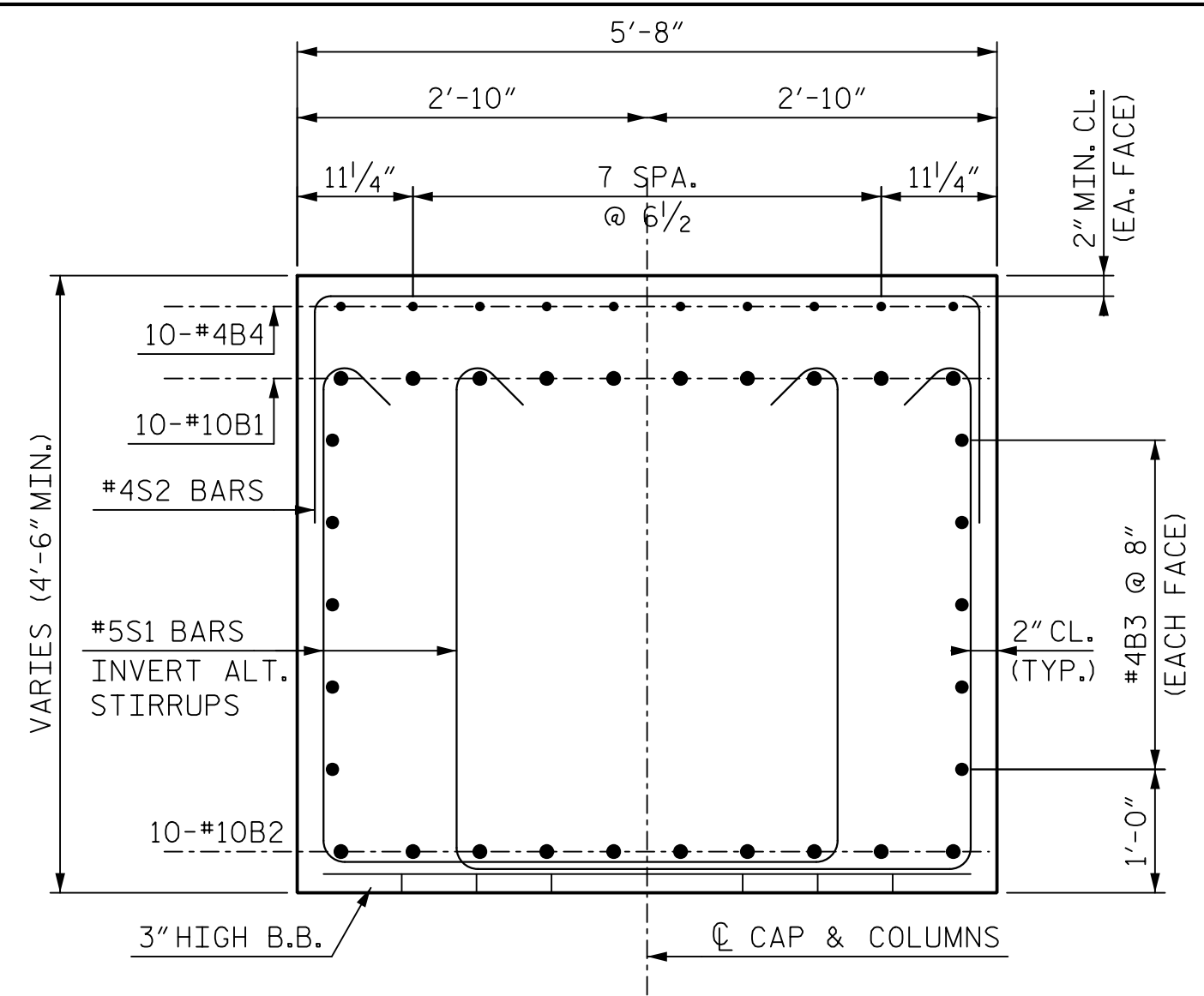
**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 2/4/2019	DWG. NO. 40	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

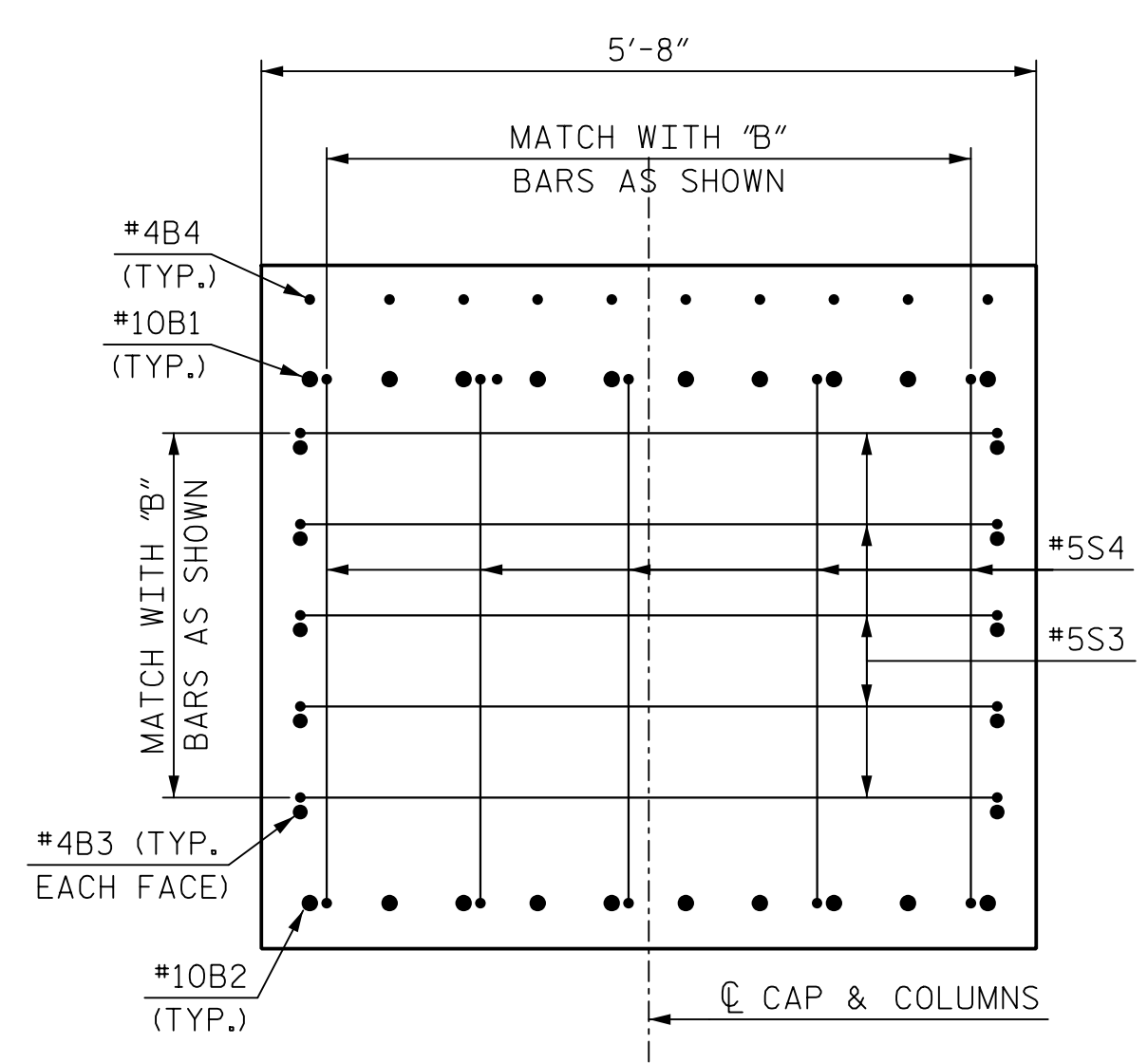
REVISIONS				SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
				TOTAL SHEETS	54

8/30/2019 10:57:36 AM  
 ...\\002.079...T4400BB\_SML\_B03.DWG\_440211



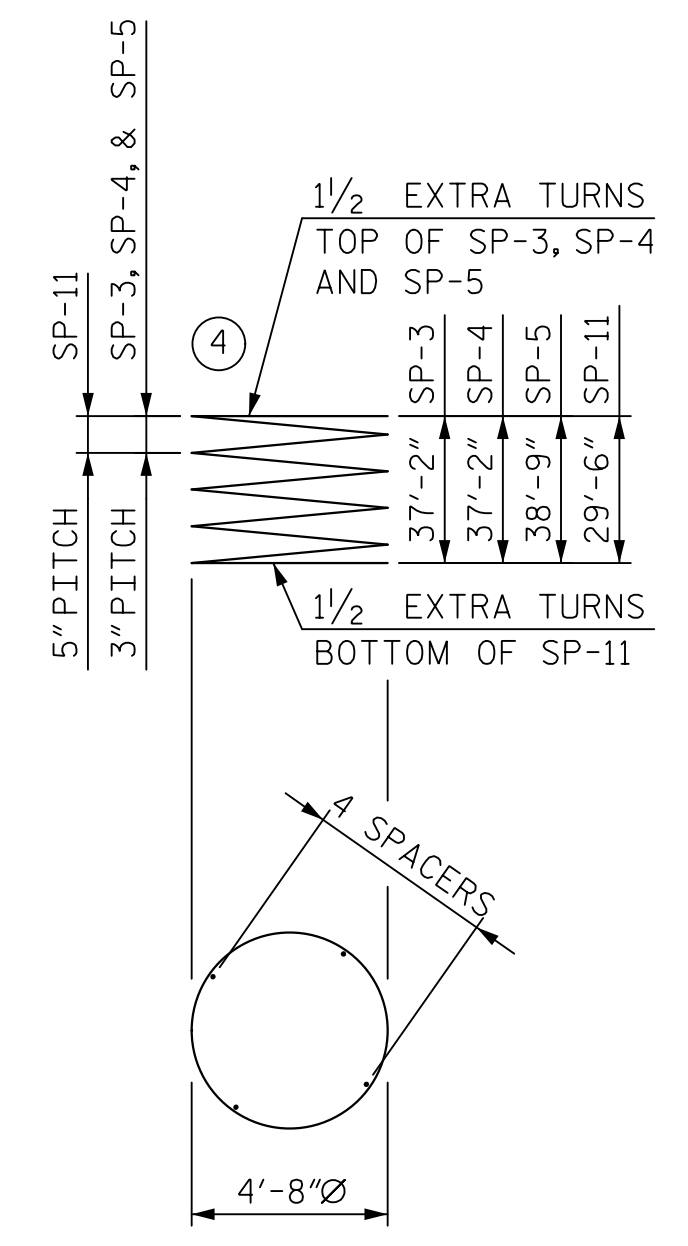
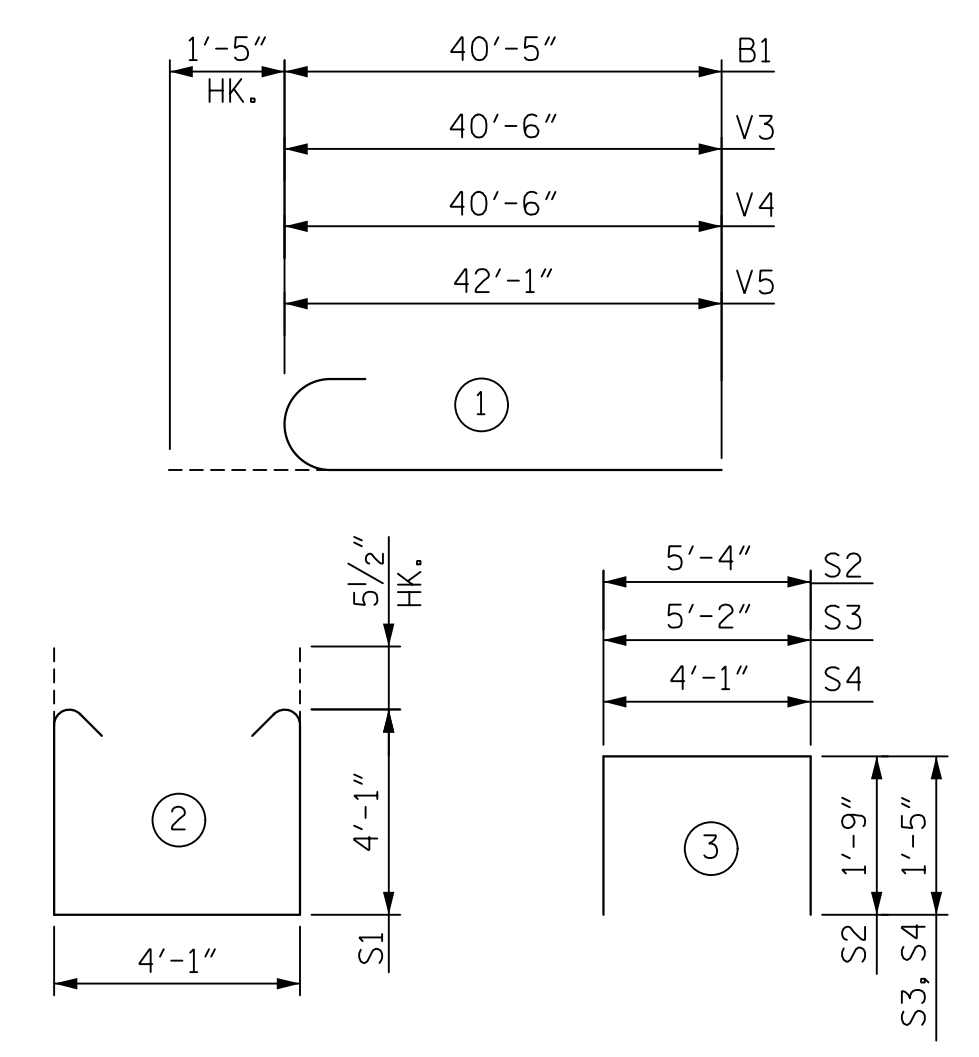


SECTION A-A



VIEW B-B

BAR TYPES



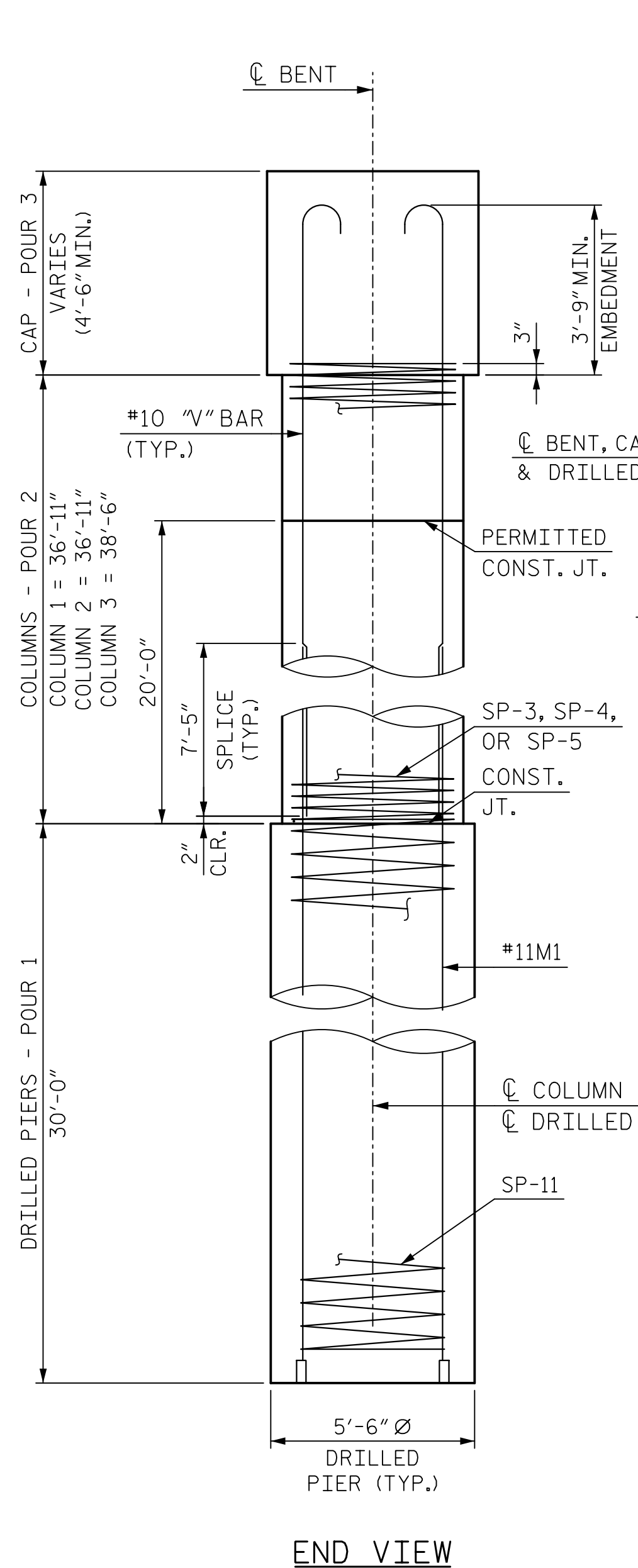
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF REINFORCING

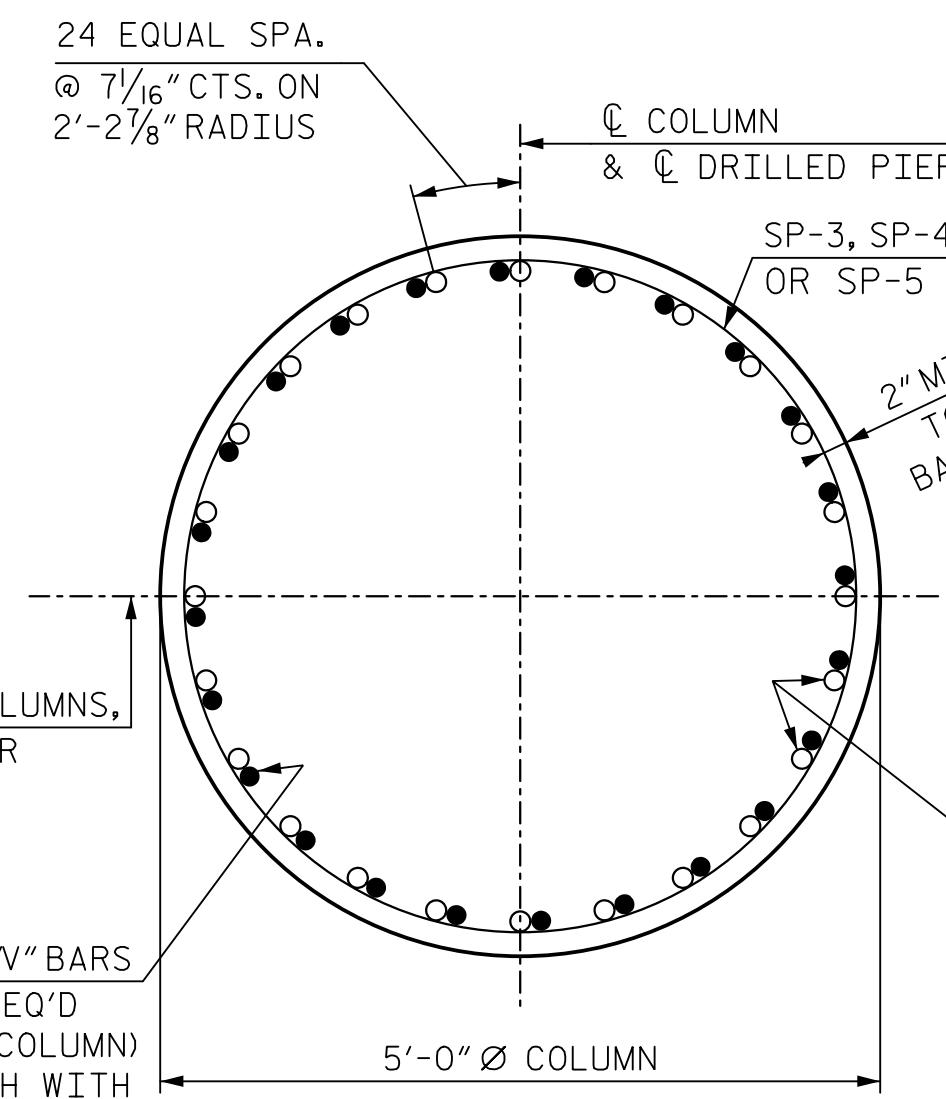
BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#10	1	41'-4"	1,780
B2	10	#10	STR.	40'-4"	1,734
B3	20	#4	STR.	21'-3"	284
B4	30	#4	STR.	11'-5"	229
B5	10	#4	STR.	5'-0"	33
B6	10	#4	STR.	6'-5"	43
M1	72	#11	STR.	40'-2"	15,365
S1	88	#5	2	13'-2"	1,208
S2	68	#4	3	8'-10"	401
S3	10	#5	3	8'-0"	83
S4	10	#5	3	6'-11"	72
V3	24	#10	1	41'-11"	4,326
V4	24	#10	1	41'-11"	4,325
V5	24	#10	1	43'-6"	4,493
SP-3	1	**	4	2180'-10"	1,457
SP-4	1	**	4	2180'-2"	1,457
SP-5	1	**	4	2886'-6"	1,929
SP-11	3	*	4	1050'-7"	3,288

QUANTITIES

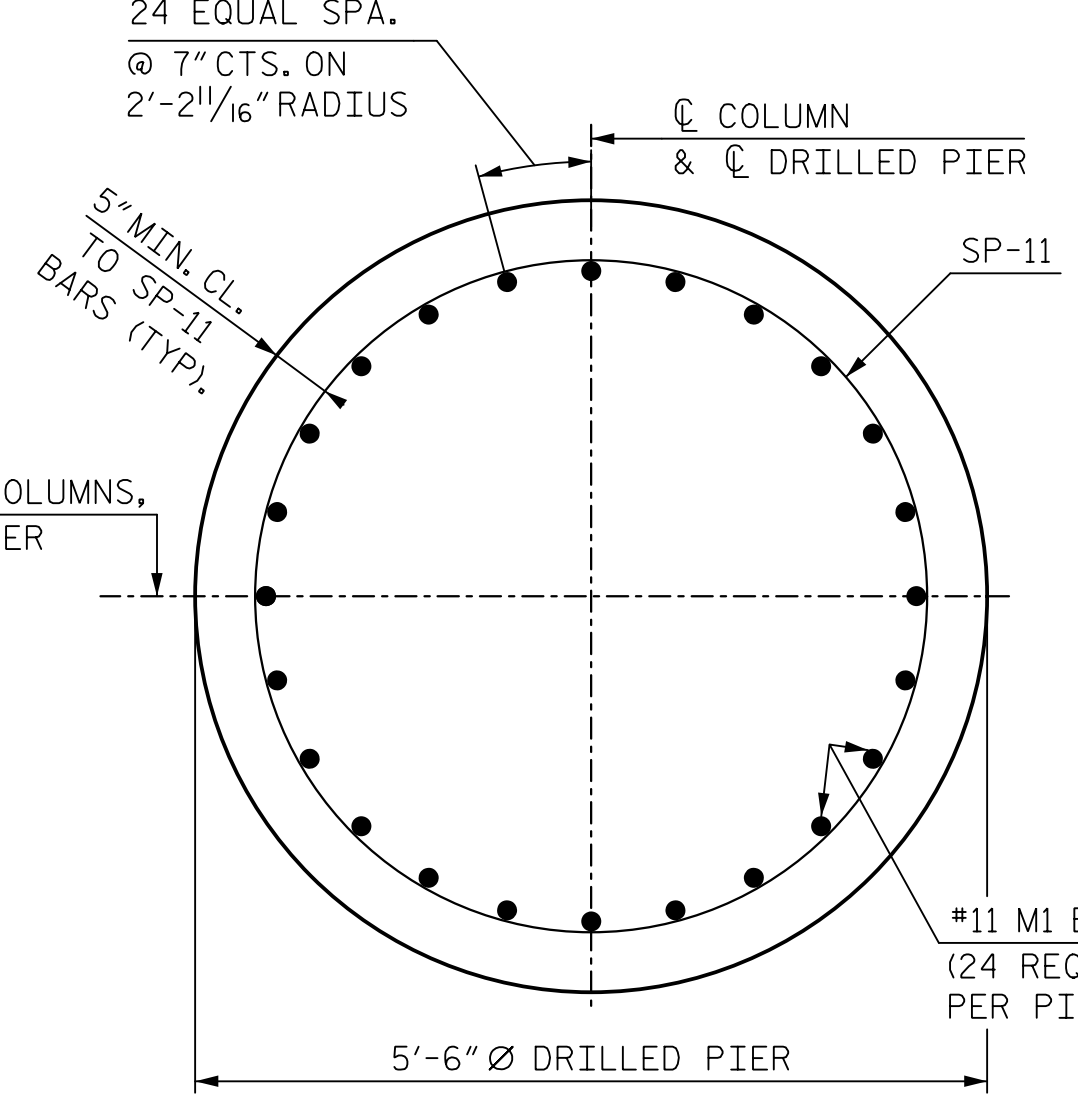
REINFORCING STEEL	LBS.	34,376
SPIRAL COLUMN REINFORCING STEEL	LBS.	8,131
CLASS "A" CONCRETE BREAKDOWN		
COLUMN POUR 2	CU. YDS.	81.7
CAP POUR 3	CU. YDS.	41.9
TOTAL	CU. YDS.	123.6
DRILLED PIER POUR 1	CU. YDS.	79.2
5'-6" Ø DRILLED PIERS		
DRILLED PIERS, NOT IN SOIL	LIN. FT.	39
DRILLED PIERS, IN SOIL	LIN. FT.	51
PERMANENT STEEL CASING FOR 5'-6" Ø DRILLED PIERS	LIN. FT.	46
CSL TUBES	LIN. FT.	567



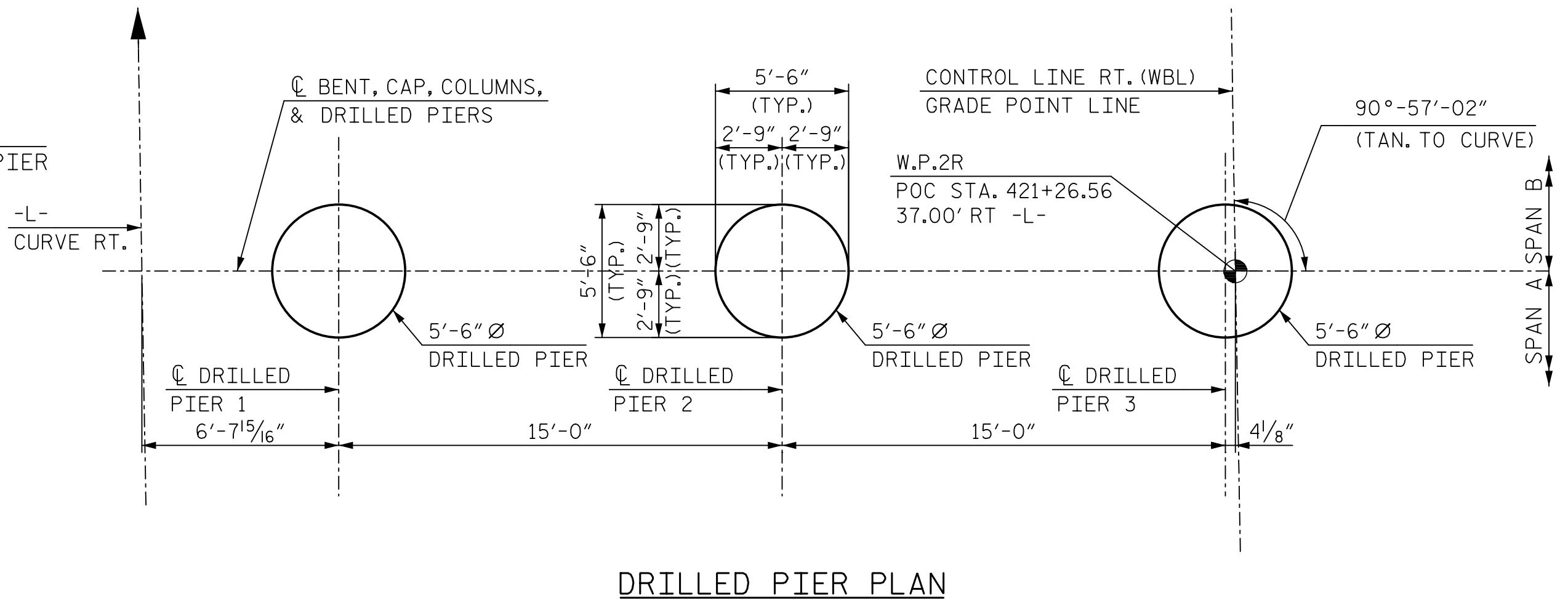
END VIEW



SECTION E-E (TYP. EA. COL.)



SECTION D-D (TYPICAL)

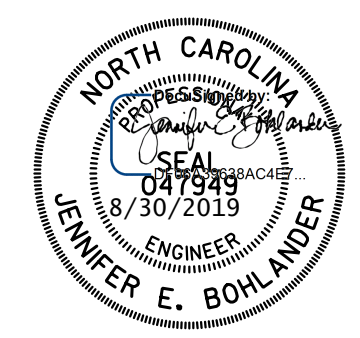


DRILLED PIER PLAN

\* THE SP-11 SPIRAL REINFORCING STEEL SHALL BE W31 OR D31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.  
 \* THE SP-3, SP-4 AND SP-5 SPIRAL REINFORCING STEEL SHALL BE W20 OR D20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

PROJECT NO. I-4400 BB  
 HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 4 OF 4  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 1  
 STAGE 2 DETAILS

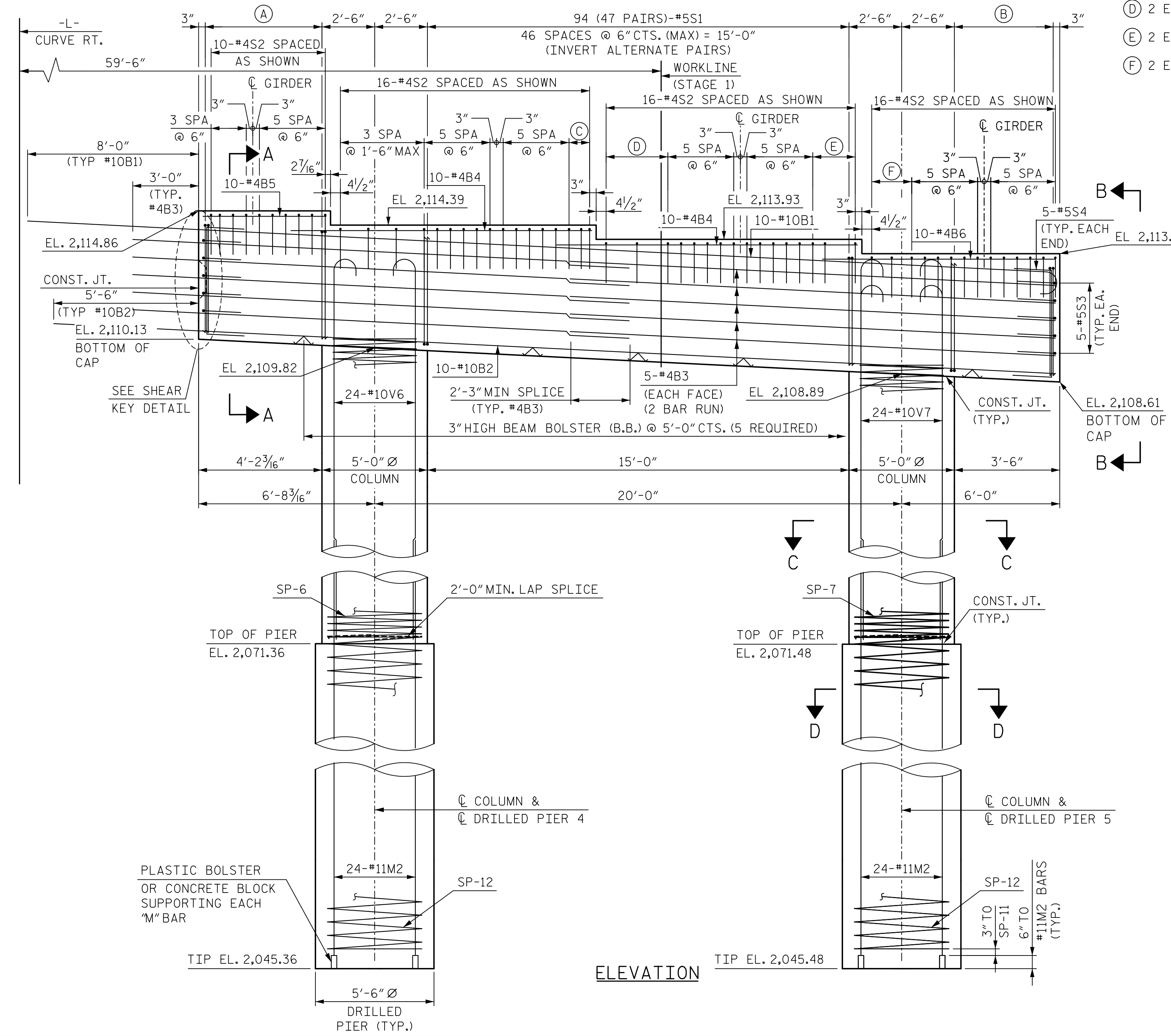
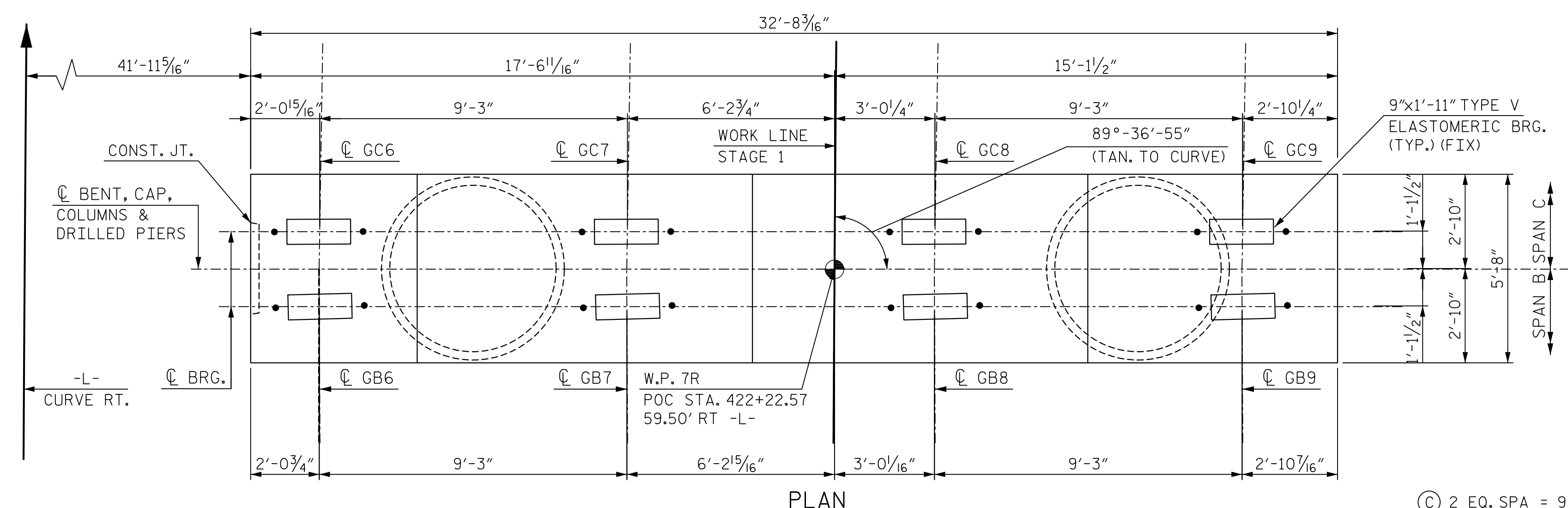


DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

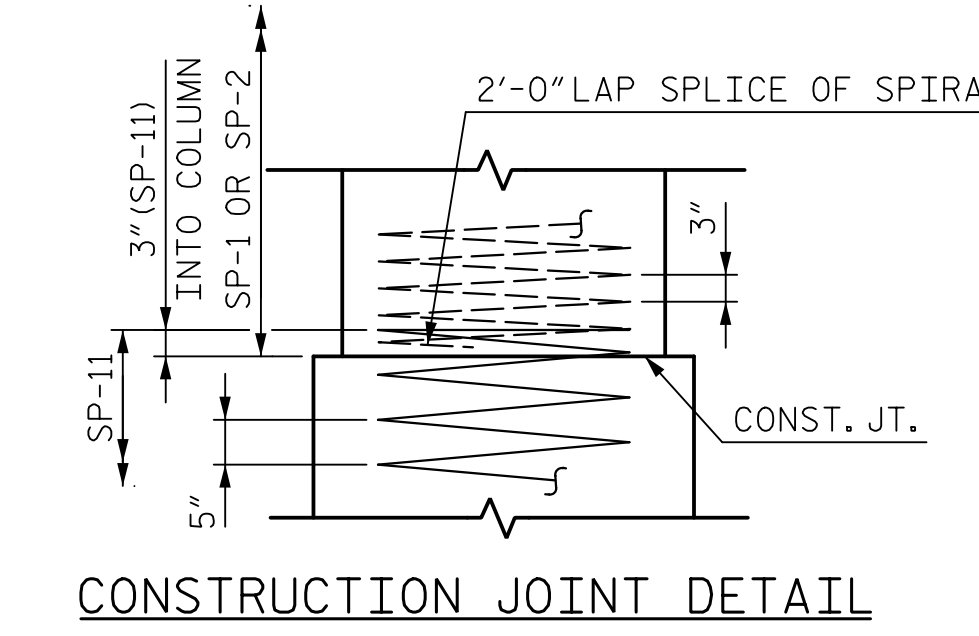
<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 2/7/2019	DWG. NO. 41	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

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

8/30/2019 10:57:42 AM \\N02.08.1.140009.SML\_B04.D01\_40211



- (A) 18 (9 PAIRS)-#5S1 8 SPACES @ 6" CTS. (MAX.) = 3'-11 3/16" (INVERT ALTERNATE PAIRS)
- (B) 16 (8 PAIRS)-#5S1 7 SPACES @ 6" CTS. (MAX.) = 3'-3" (INVERT ALTERNATE PAIRS)
- (C) 2 EQ. SPA = 9 3/8"
- (D) 2 EQ. SPA = 2'-4 3/16"
- (E) 2 EQ. SPA = 1'-7 5/16"
- (F) 2 EQ. SPA = 1'-6 3/16"



**NOTES:**

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

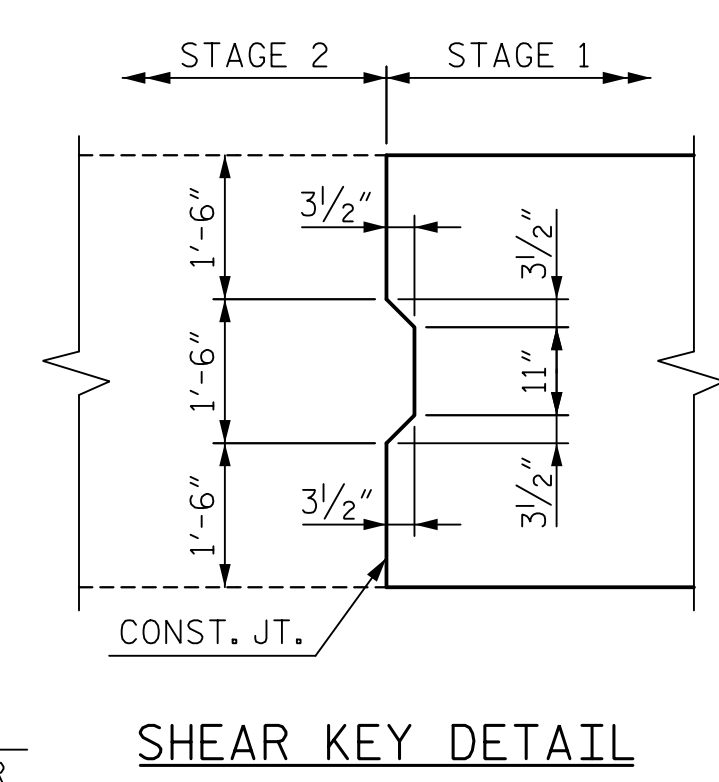
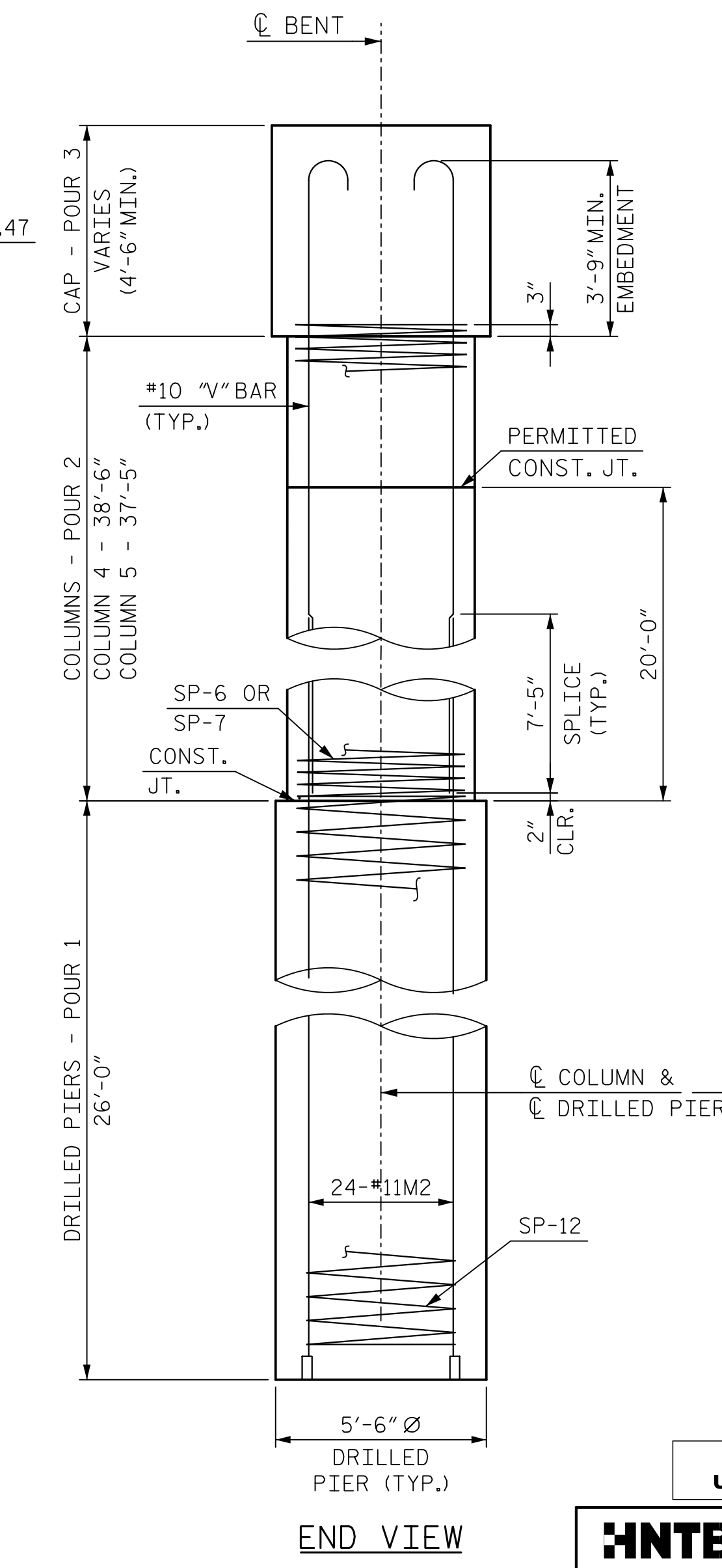
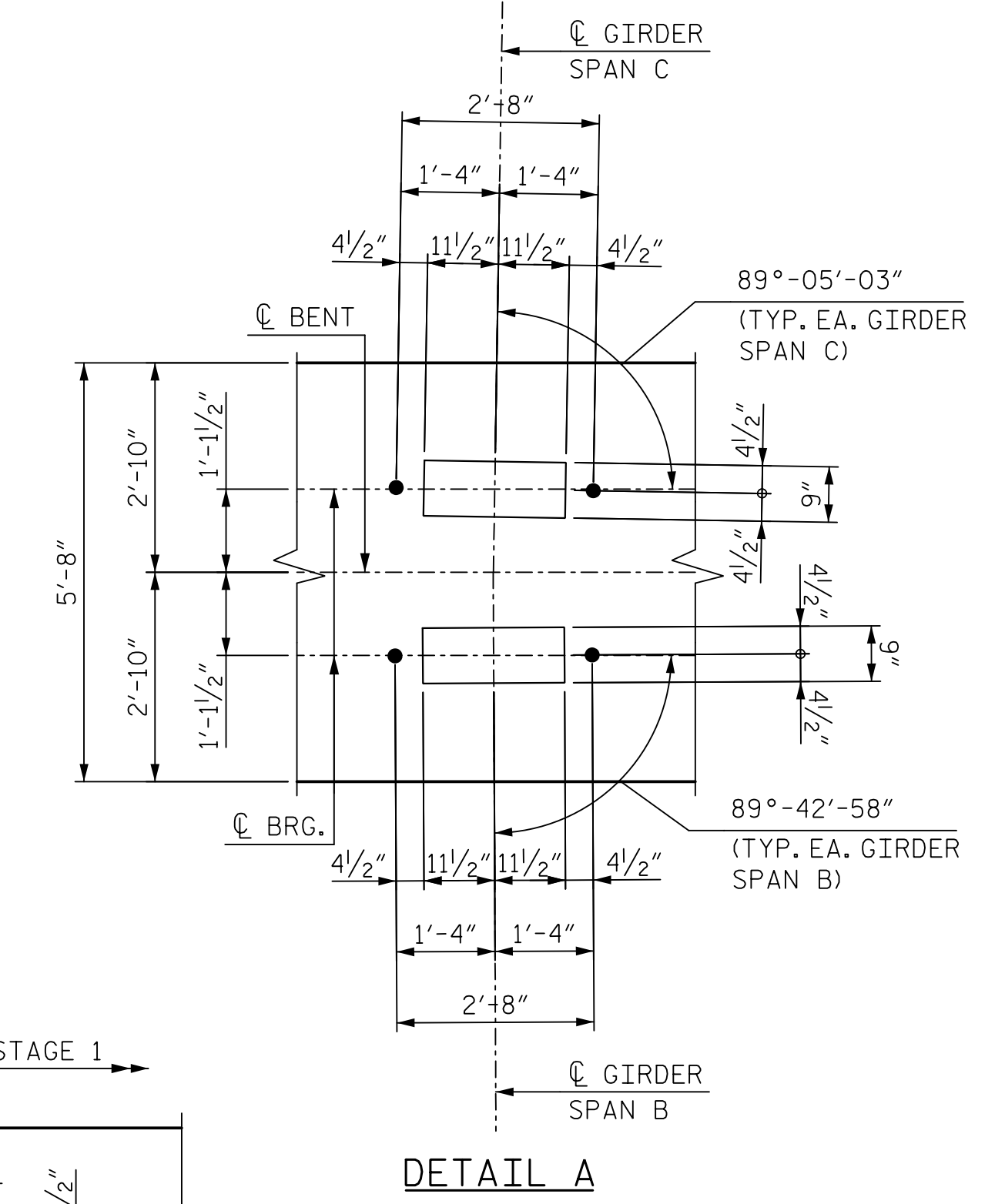
HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

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

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

THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIER IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND LINE ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1'-0" BELOW THE GROUND LINE.

GIRDERS WERE SET PARALLEL TO THE CONTROL LINE RT (WBL) SHORT CHORD.



PROJECT NO. I-4400 BB  
 HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE**

**BENT 2**  
**STAGE 1**

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

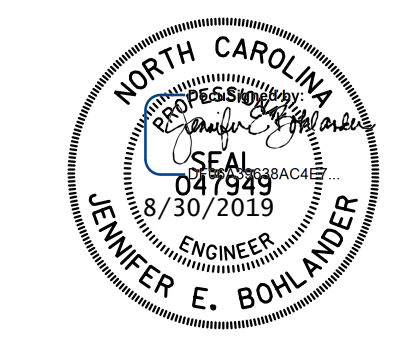
SHEET NO. S2-42  
 TOTAL SHEETS 54

**HNTB** HNTB NORTH CAROLINA, P.C.  
 NC License No. C-1554  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

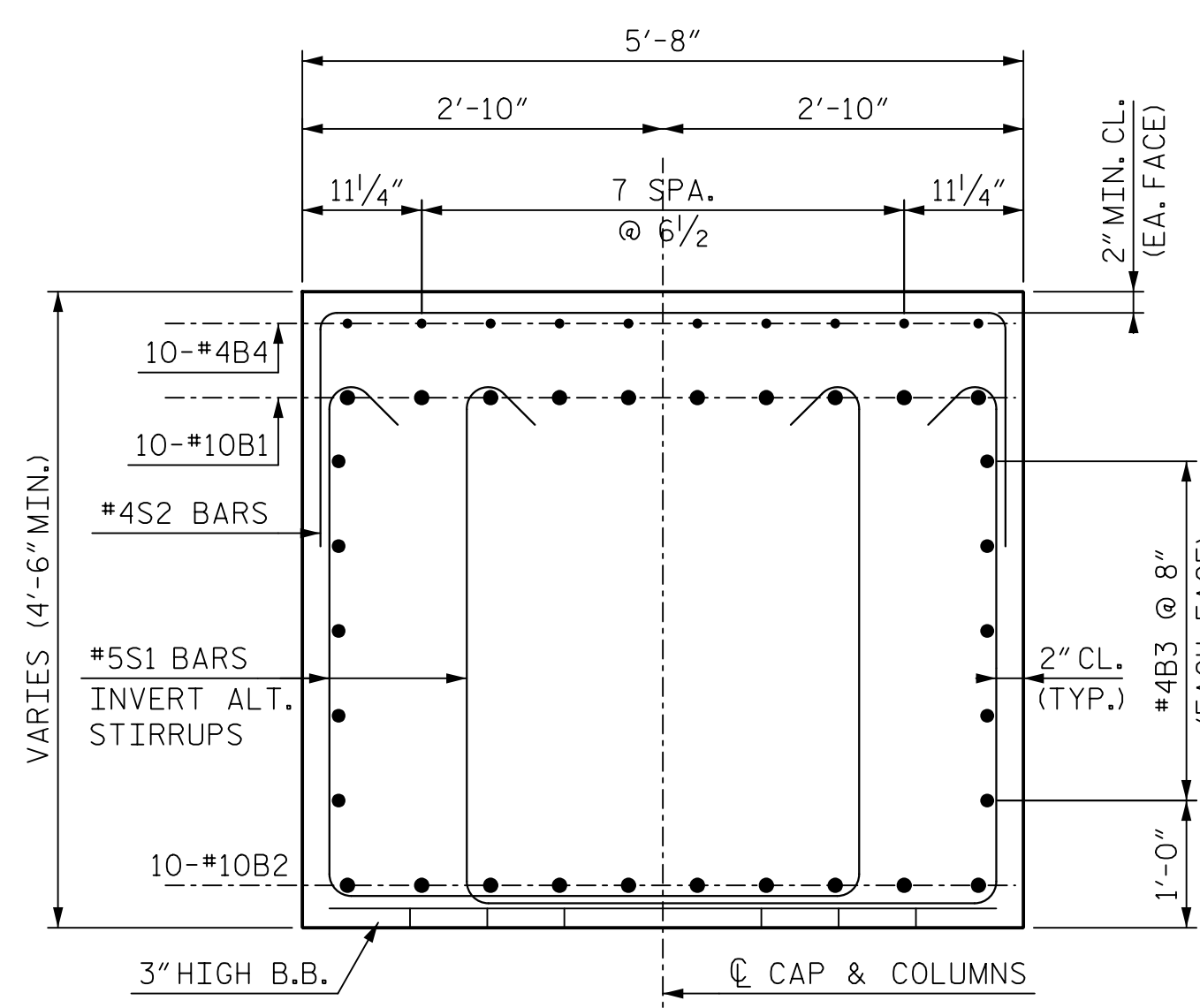
DRAWN BY: J. SLOAT DATE: 2/7/2019  
 CHECKED BY: J. BOHLANDER DATE: 3/18/2019  
 ENGINEER OF RECORD: J. BOHLANDER DATE: 3/18/2019

DWG. NO. 42

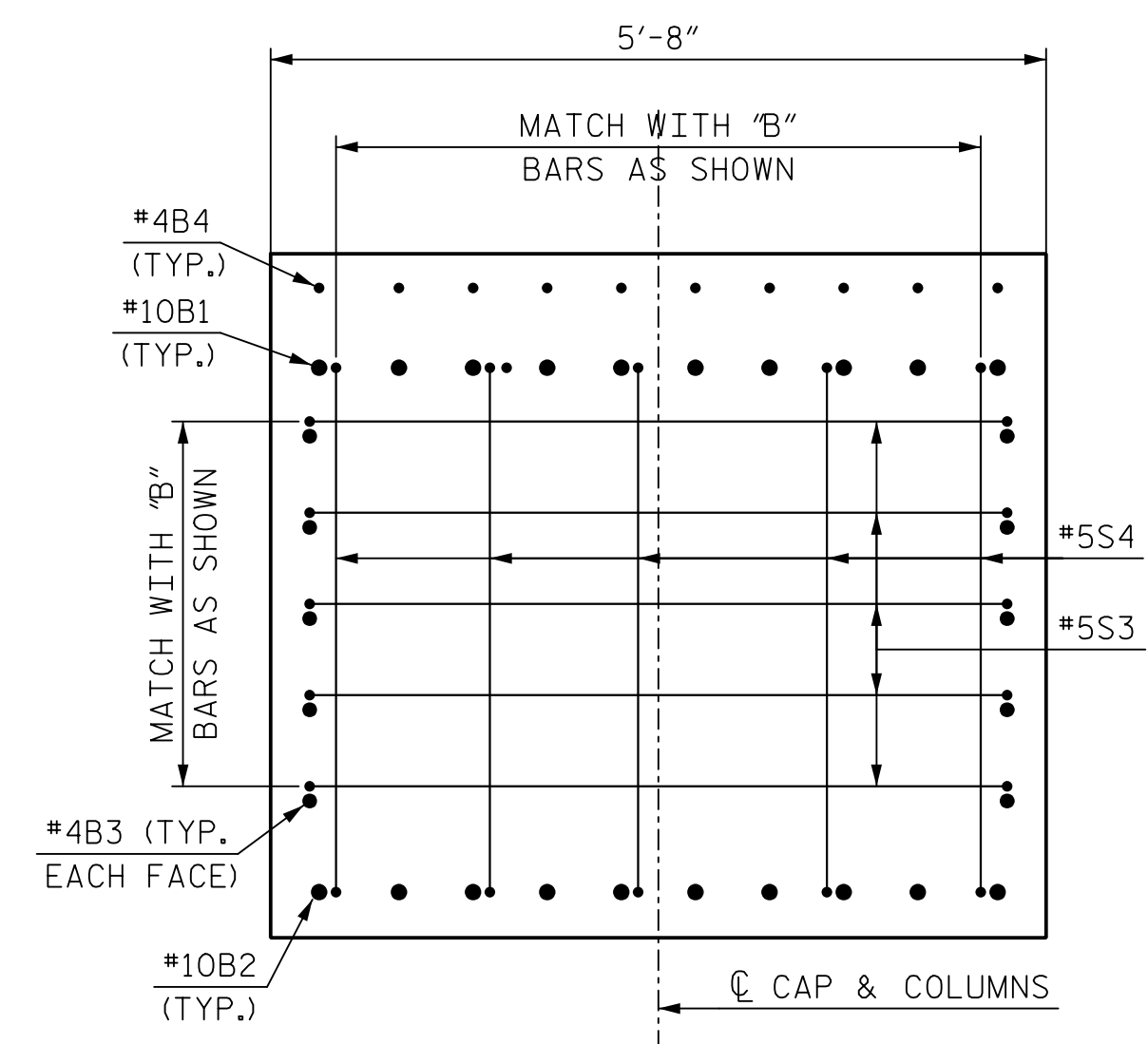


8/30/2019 10:57:45 AM ...\\002\_083\_1400089\_SML\_B05\_042\_440211

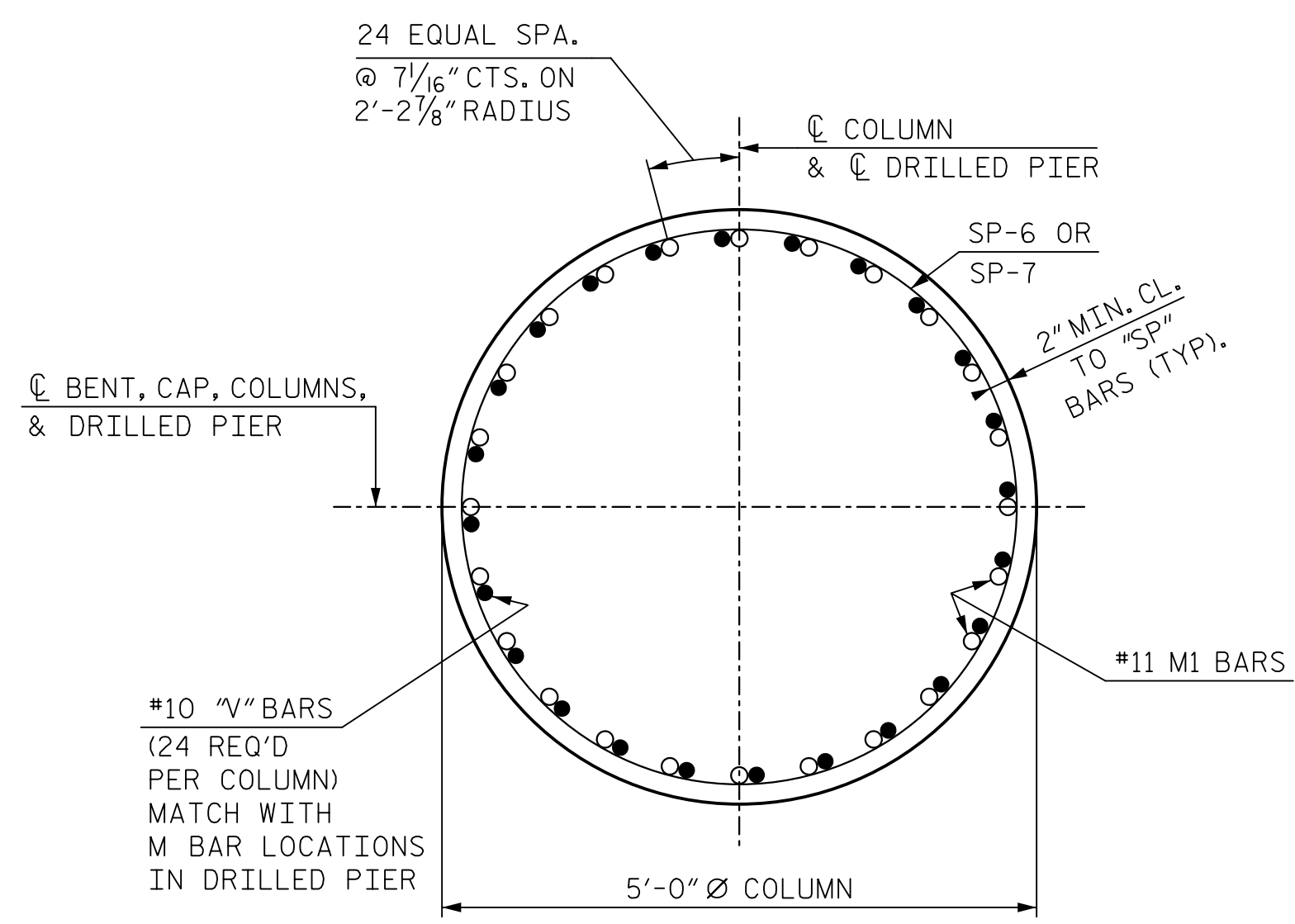




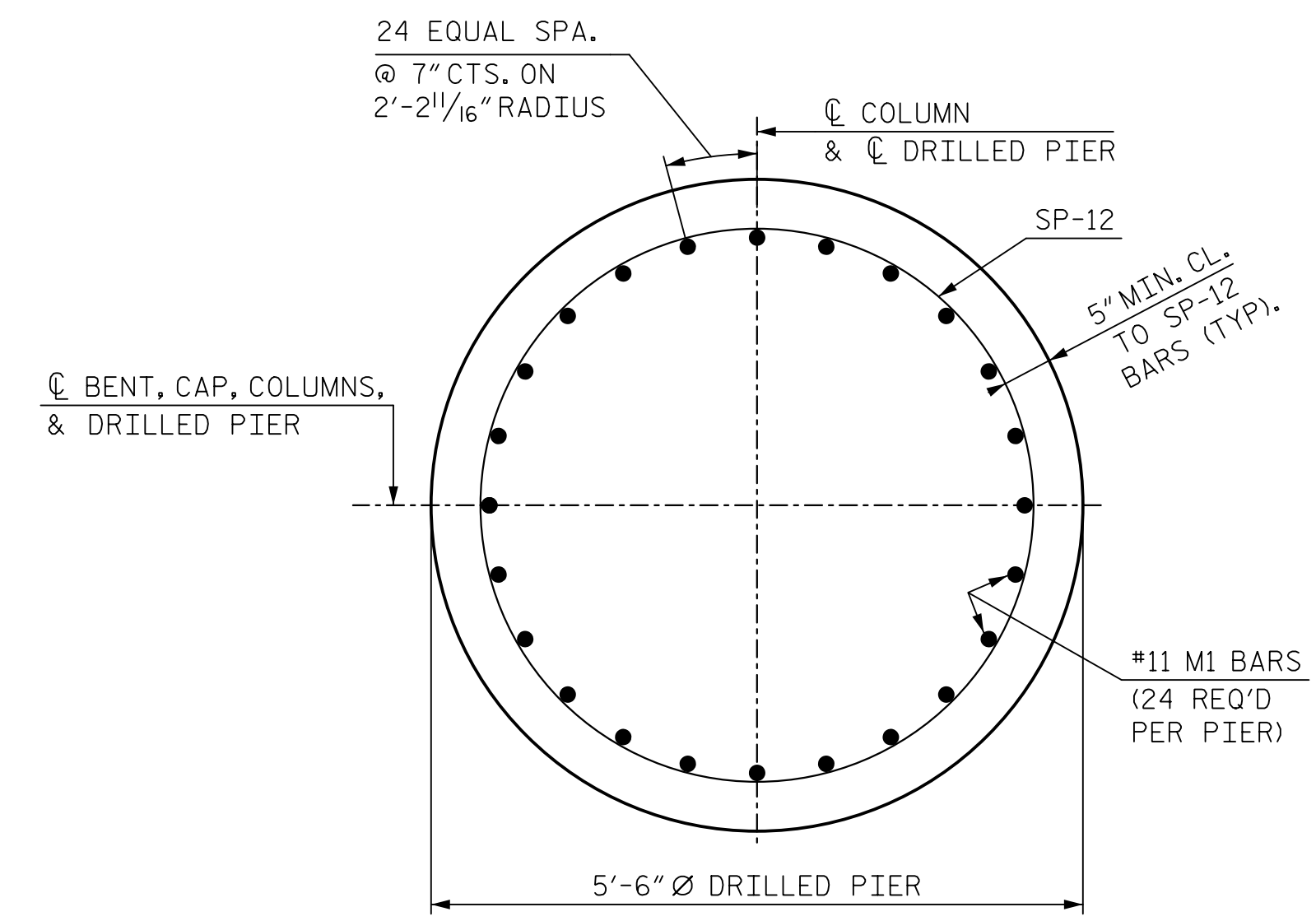
SECTION A-A



VIEW B-B

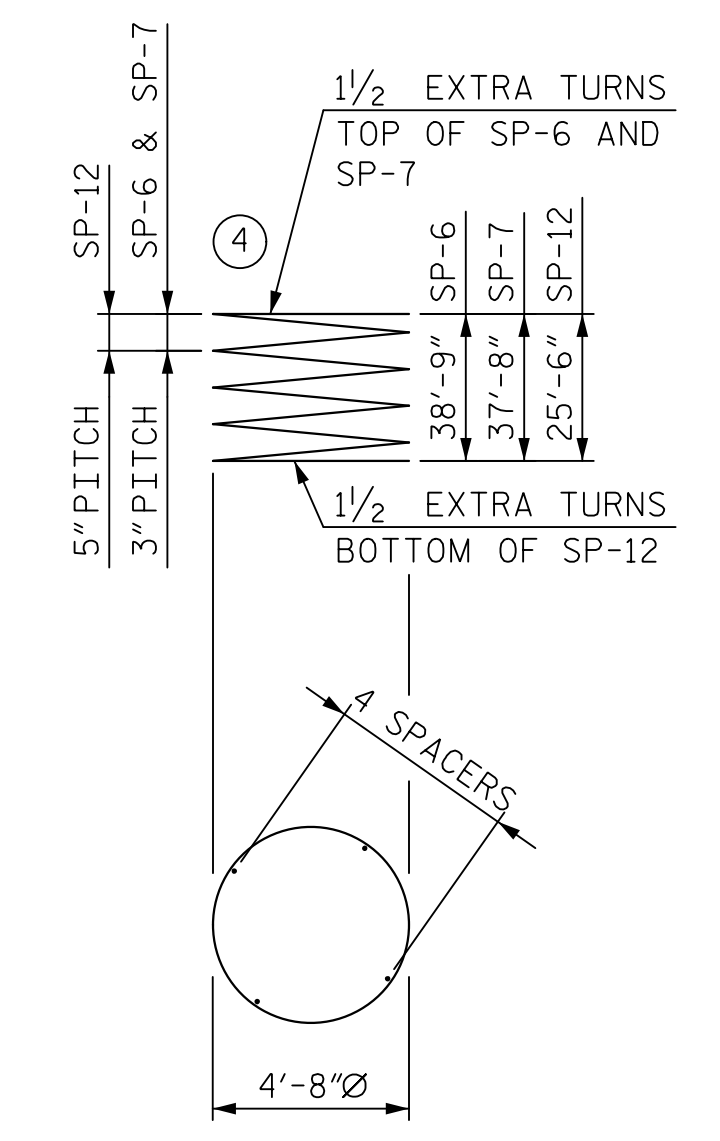
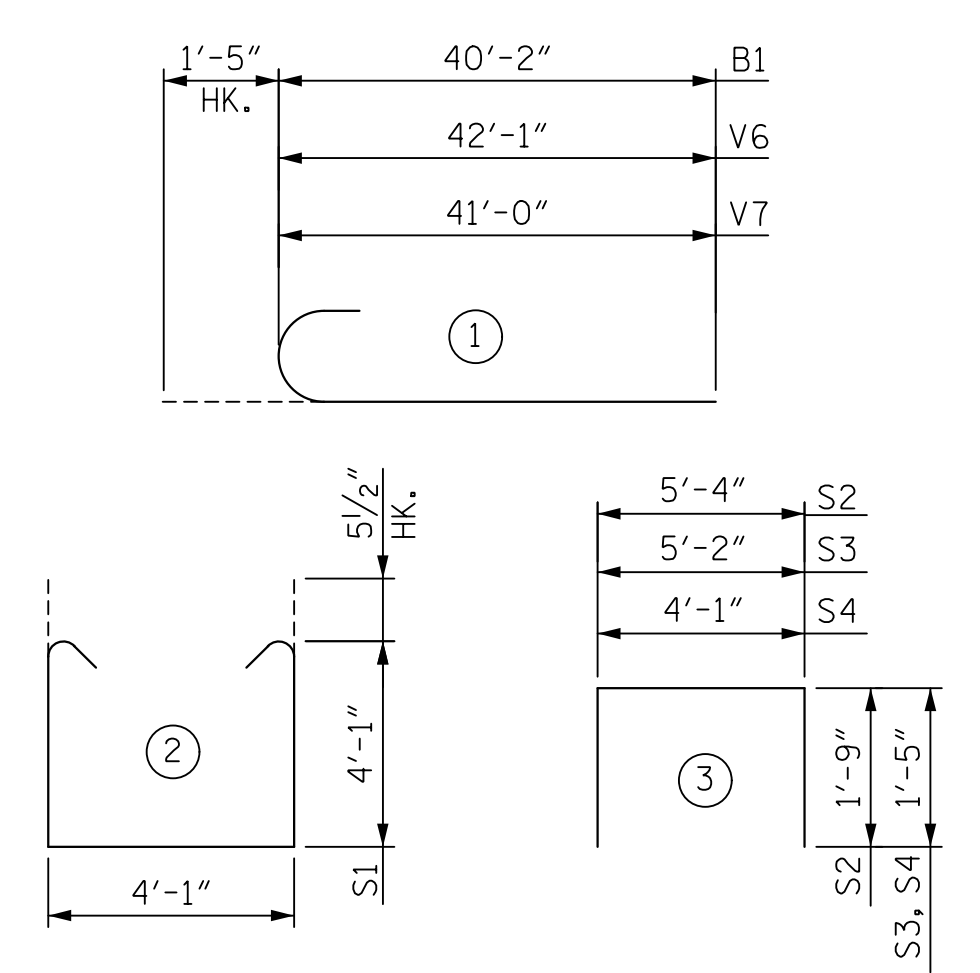


SECTION C-C  
(TYP. EA. COL.)



SECTION D-D  
(TYPICAL)

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF REINFORCING

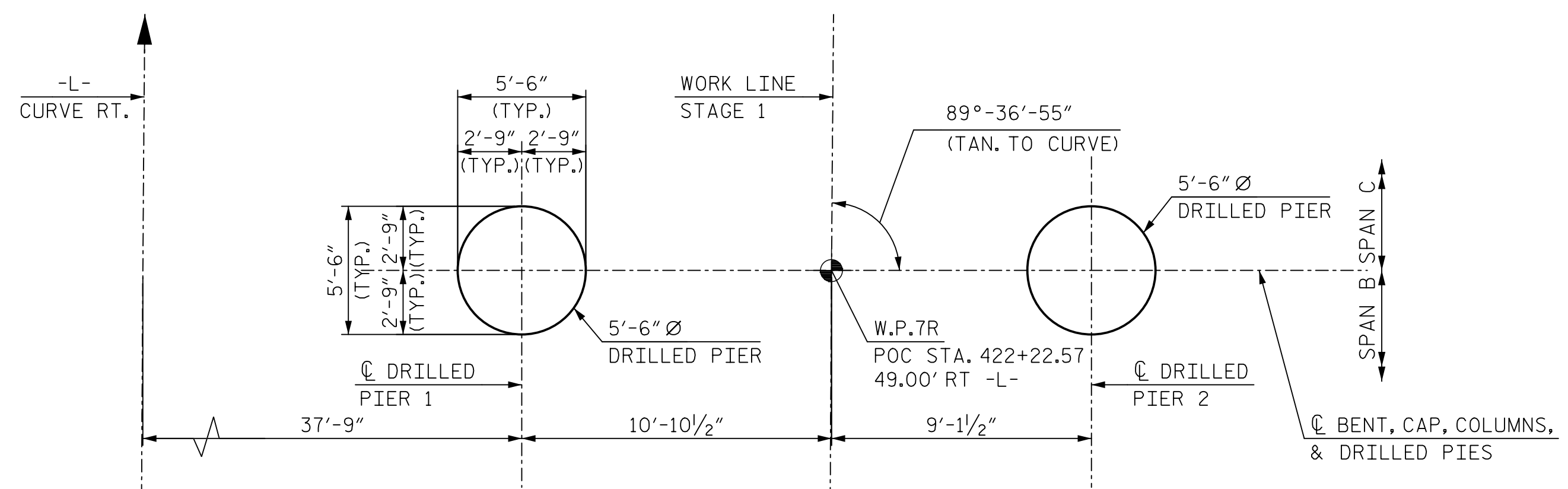
BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#10	1	41'-7"	1,791
B2	10	#10	STR.	38'-1"	1,638
B3	10	#4	STR.	18'-8"	125
B4	20	#4	STR.	11'-5"	153
B5	10	#4	STR.	4'-8"	31
B6	10	#4	STR.	8'-10"	59
M2	48	#11	STR.	36'-2"	9,223
S1	128	#5	2	13'-2"	1,758
S2	58	#4	3	8'-10"	342
S3	10	#5	3	8'-0"	83
S4	10	#5	3	6'-11"	72
V6	24	#10	1	43'-6"	4,488
V7	24	#10	1	42'-5"	4,379
SP-6	1	**	4	2271'-11"	1,518
SP-7	1	**	4	2210'-8"	1,477
SP-12	2	*	4	911'-4"	1,902

QUANTITIES

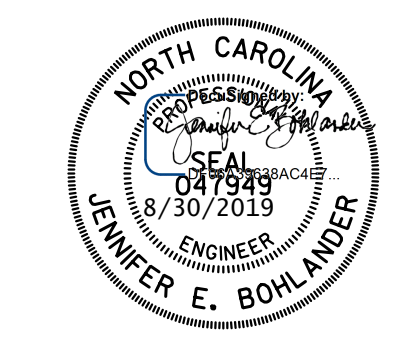
REINFORCING STEEL	LBS.	24,142
SPIRAL COLUMN REINFORCING STEEL	LBS.	4,897
CLASS "A" CONCRETE BREAKDOWN		
COLUMN POUR 2	CU. YDS.	55.2
CAP POUR 3	CU. YDS.	32.5
TOTAL	CU. YDS.	87.7
DRILLED PIER POUR 1	CU. YDS.	45.8
5'-6" Ø DRILLED PIERS		
DRILLED PIERS, NOT IN SOIL	LIN. FT.	26
DRILLED PIERS, IN SOIL	LIN. FT.	26
PERMANENT STEEL CASING FOR 5'-6" Ø DRILLED PIERS	LIN. FT.	25
CSL TUBES	LIN. FT.	330

\* THE SP-12 SPIRAL REINFORCING STEEL SHALL BE W31 OR D31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.  
 \*\* THE SP-6 AND SP-7 SPIRAL REINFORCING STEEL SHALL BE W20 OR D20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-



DRILLED PIER PLAN

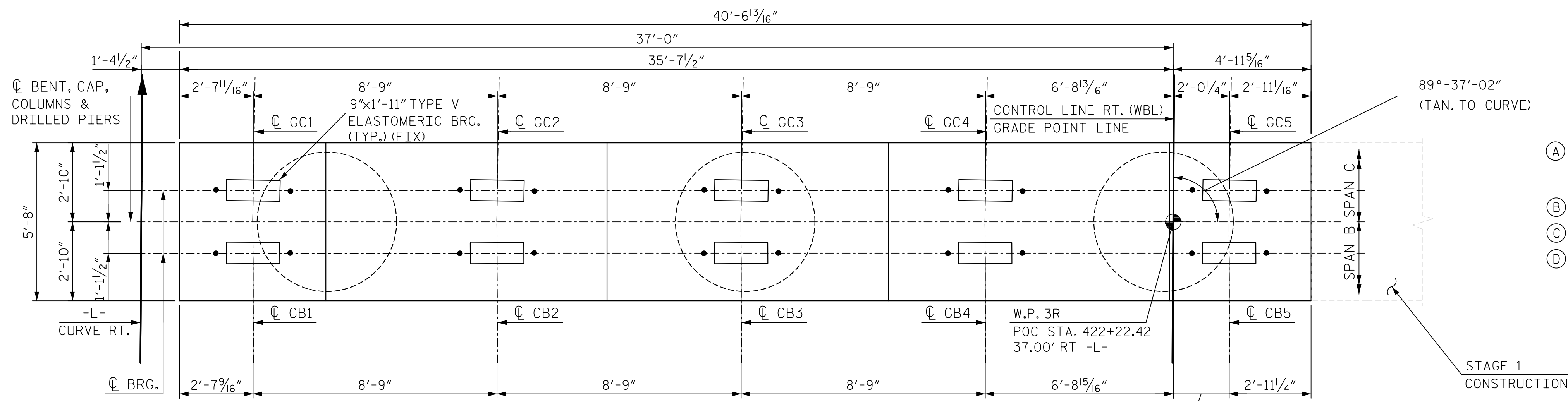


DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 2/7/2019	DWG. NO. 43	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S2-43
1			3			TOTAL SHEETS
2			4			54

8/30/2019 10:57:57 AM  
 ...\\002\_085\_14400BB\_SMLR06\_043\_440211



- (A) 14 (7 PAIRS)-#5S1 @ 6" CTS. (MAX.) = 2'-6 1/16" (INVERT ALTERNATE PAIRS)
- (B) 2 EQ. SPA = 2'-11 5/16"
- (C) 2 EQ. SPA = 1'-8"
- (D) 2 EQ. SPA = 2'-3 1/2"

**NOTES:**

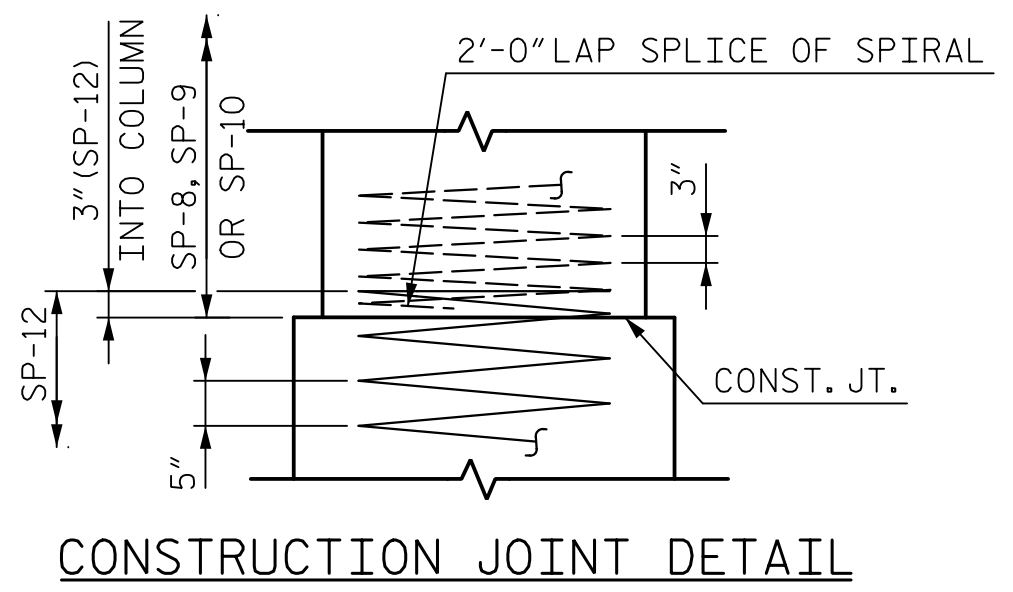
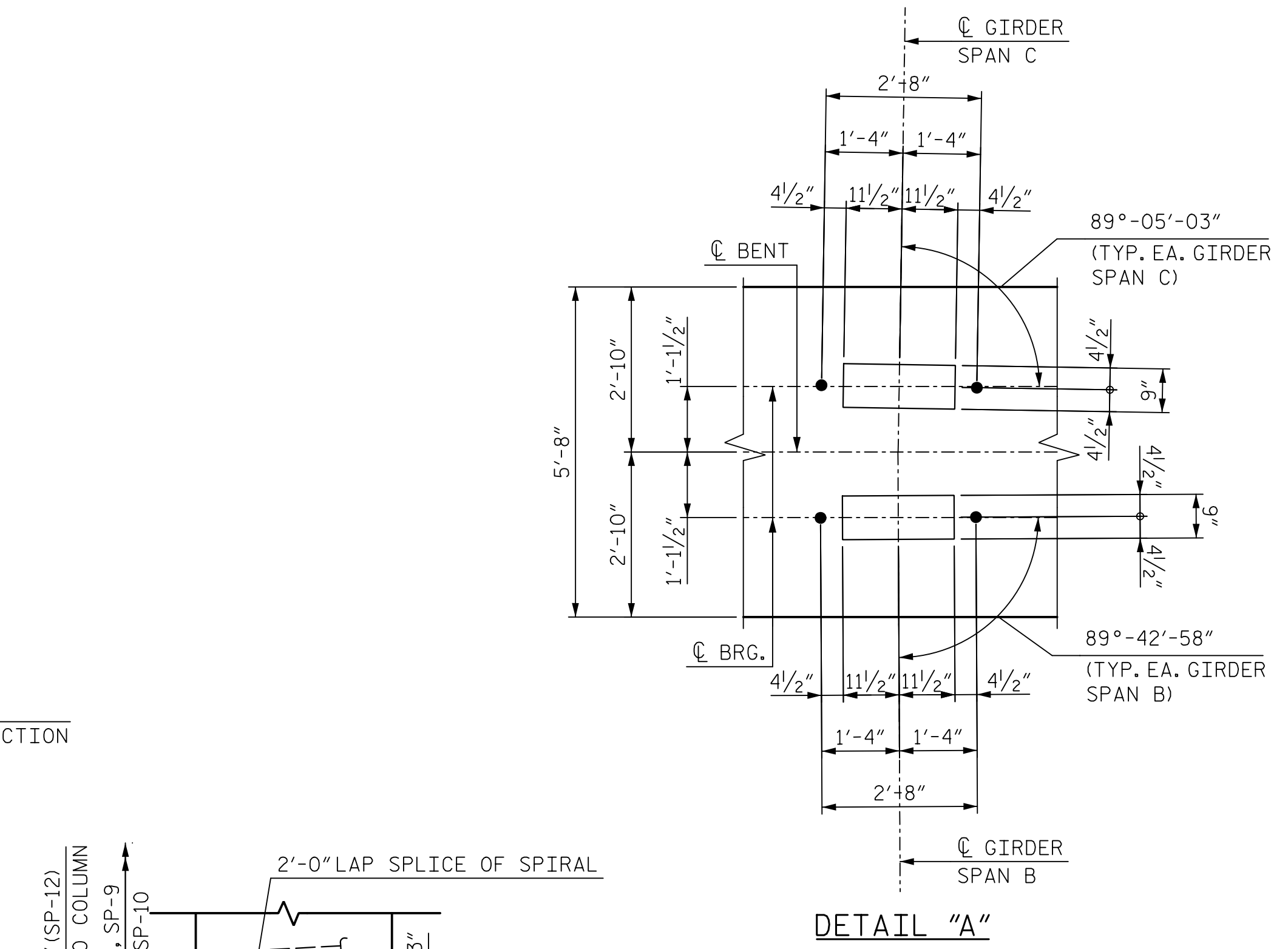
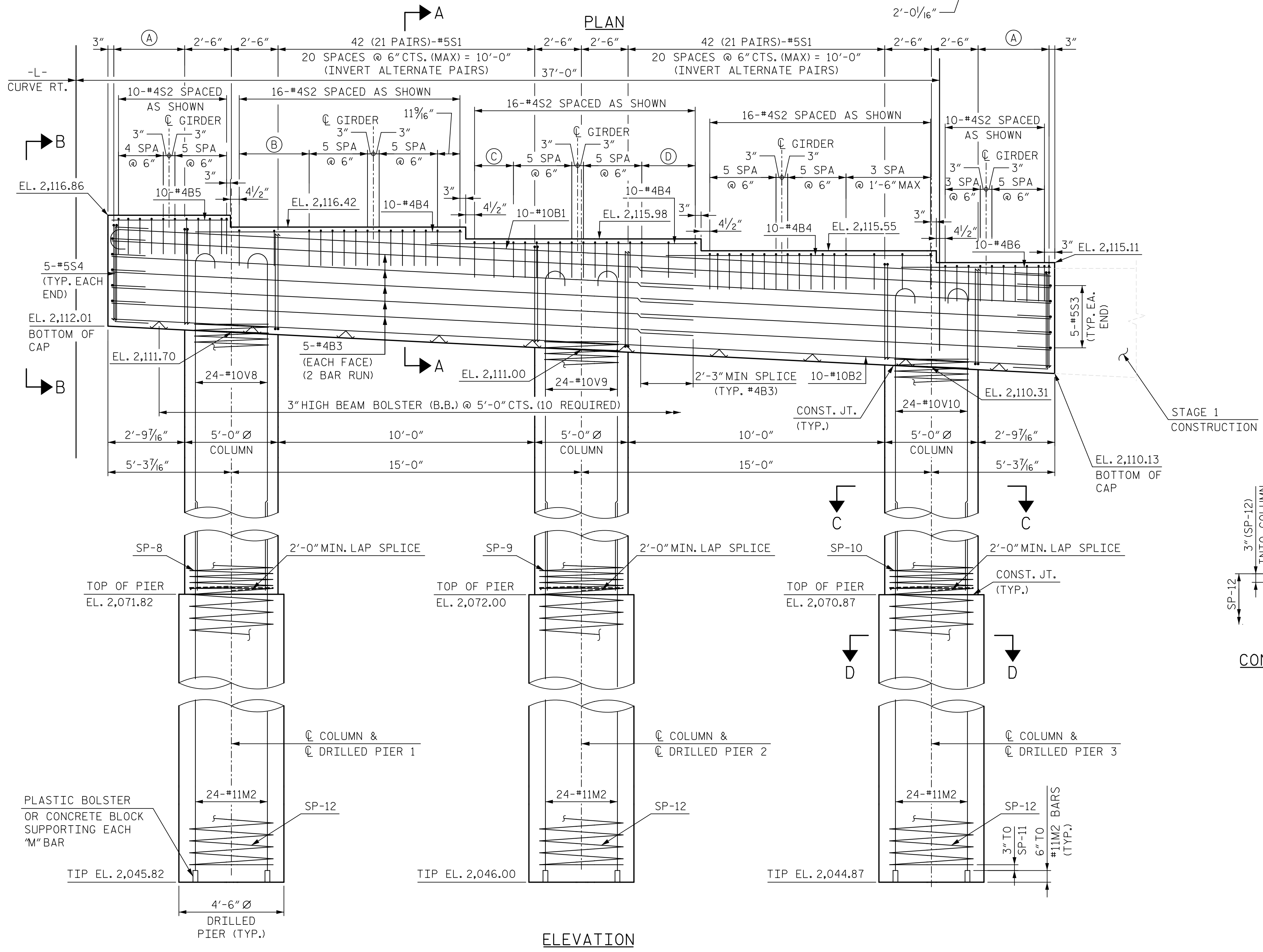
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

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

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

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

THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIER IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND LINE ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1'-0" BELOW THE GROUND LINE.



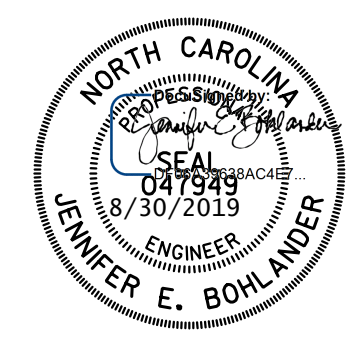
PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE**

**BENT 2**  
**STAGE 2**



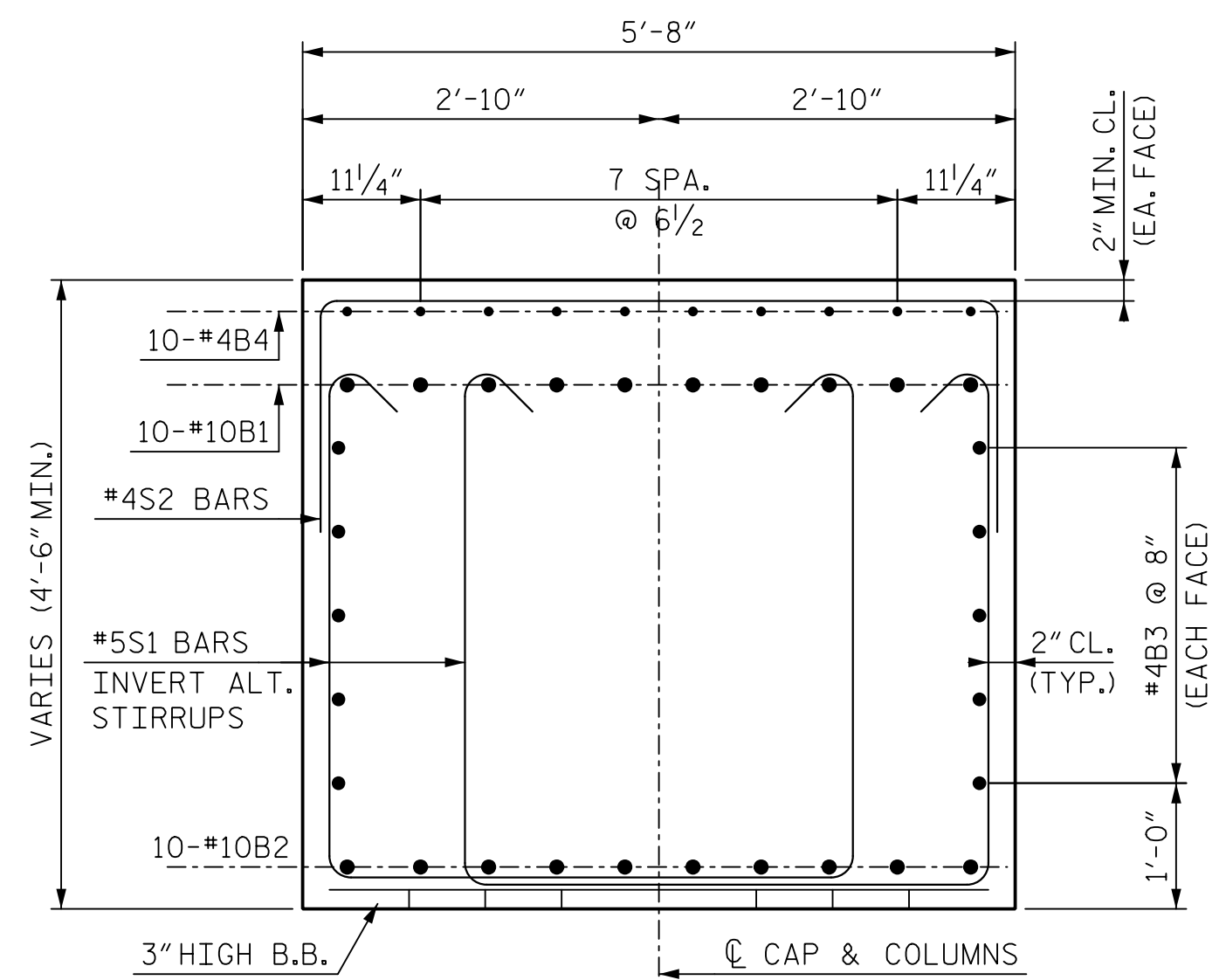
**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

<b>HNTB</b>	HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
DRAWN BY: J. SLOAT	DATE: 2/7/2019
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019
DWG. NO. 44	

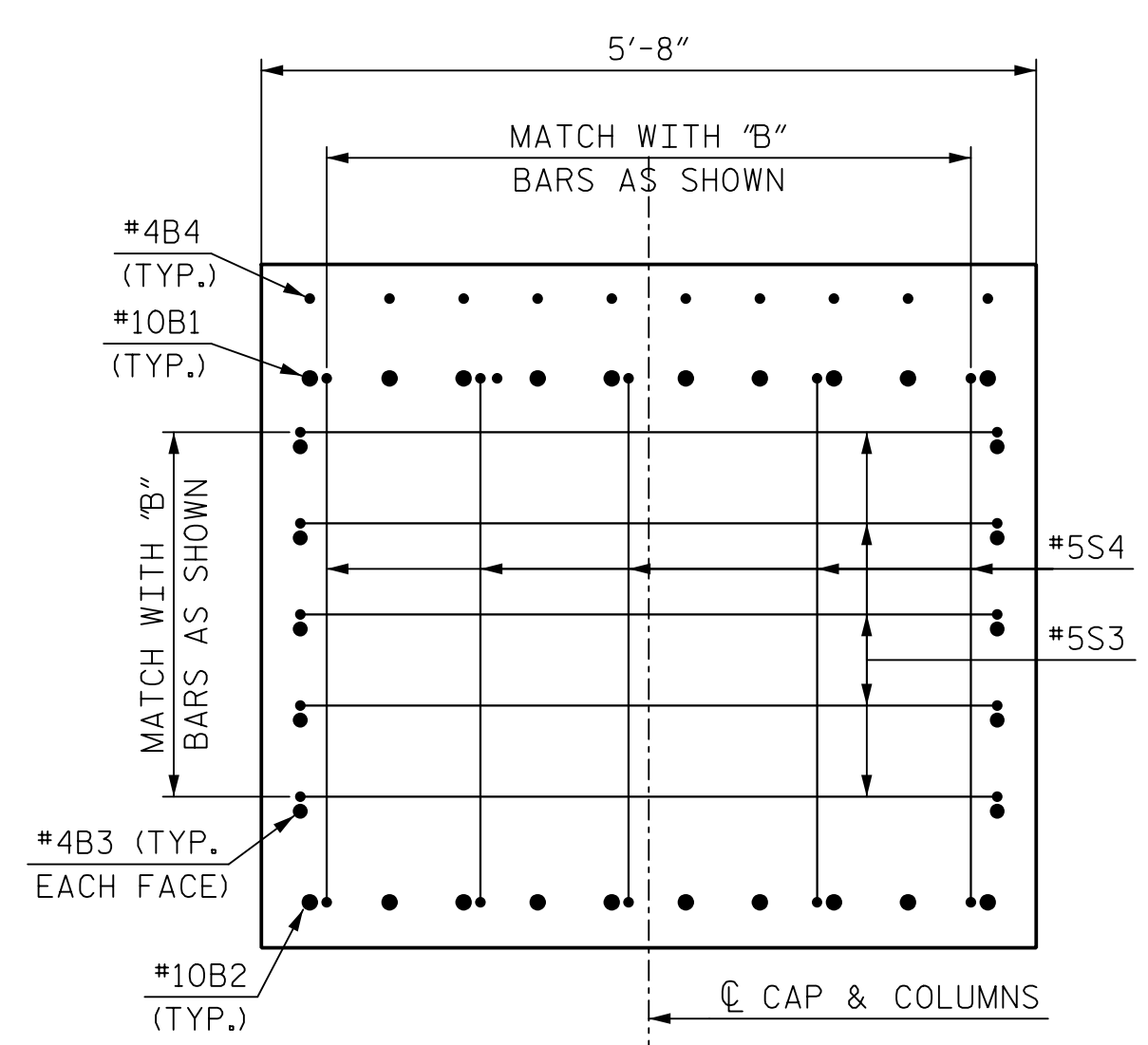
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S2-44
1			3			TOTAL SHEETS
2			4			54

8/20/2019 10:56:03 AM \\NOR2\_CBT\_14400BB\_SML\_BOT\_044\_440211

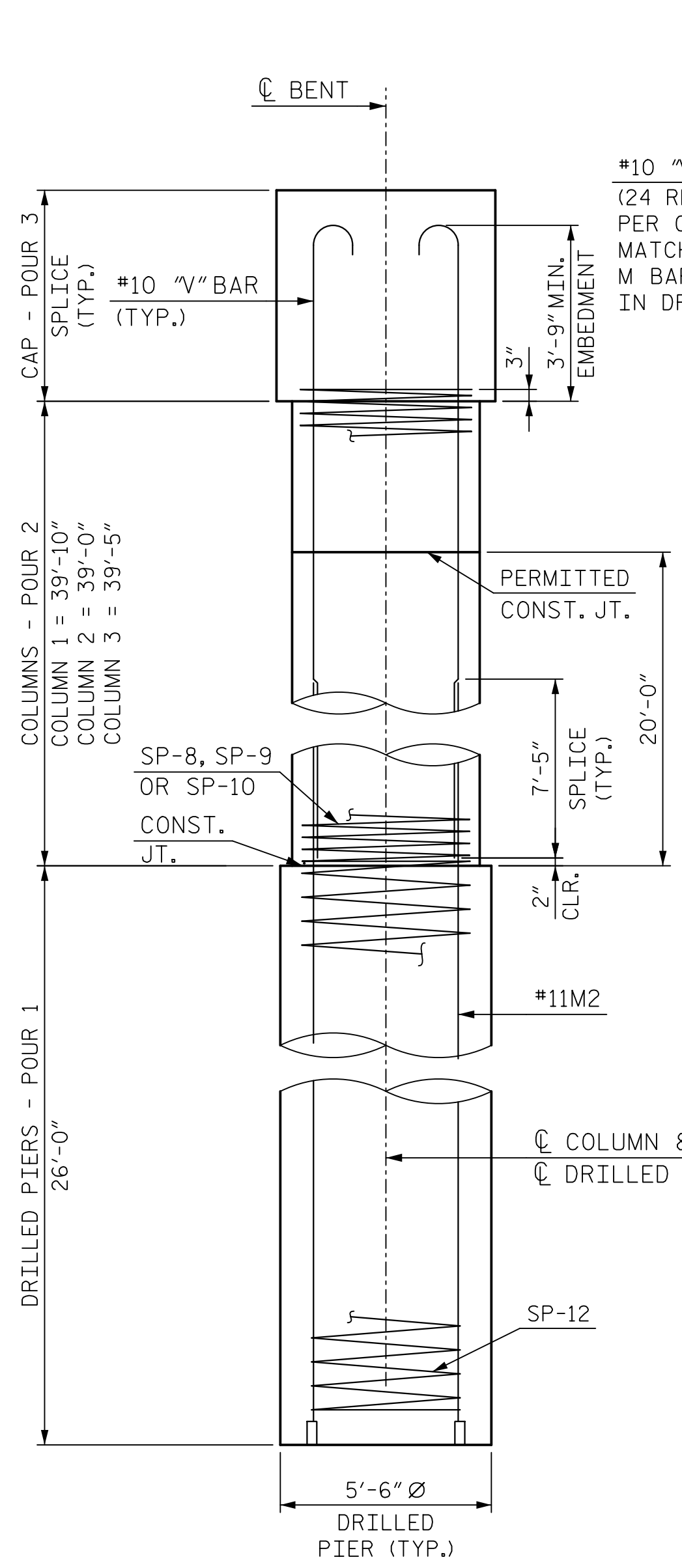




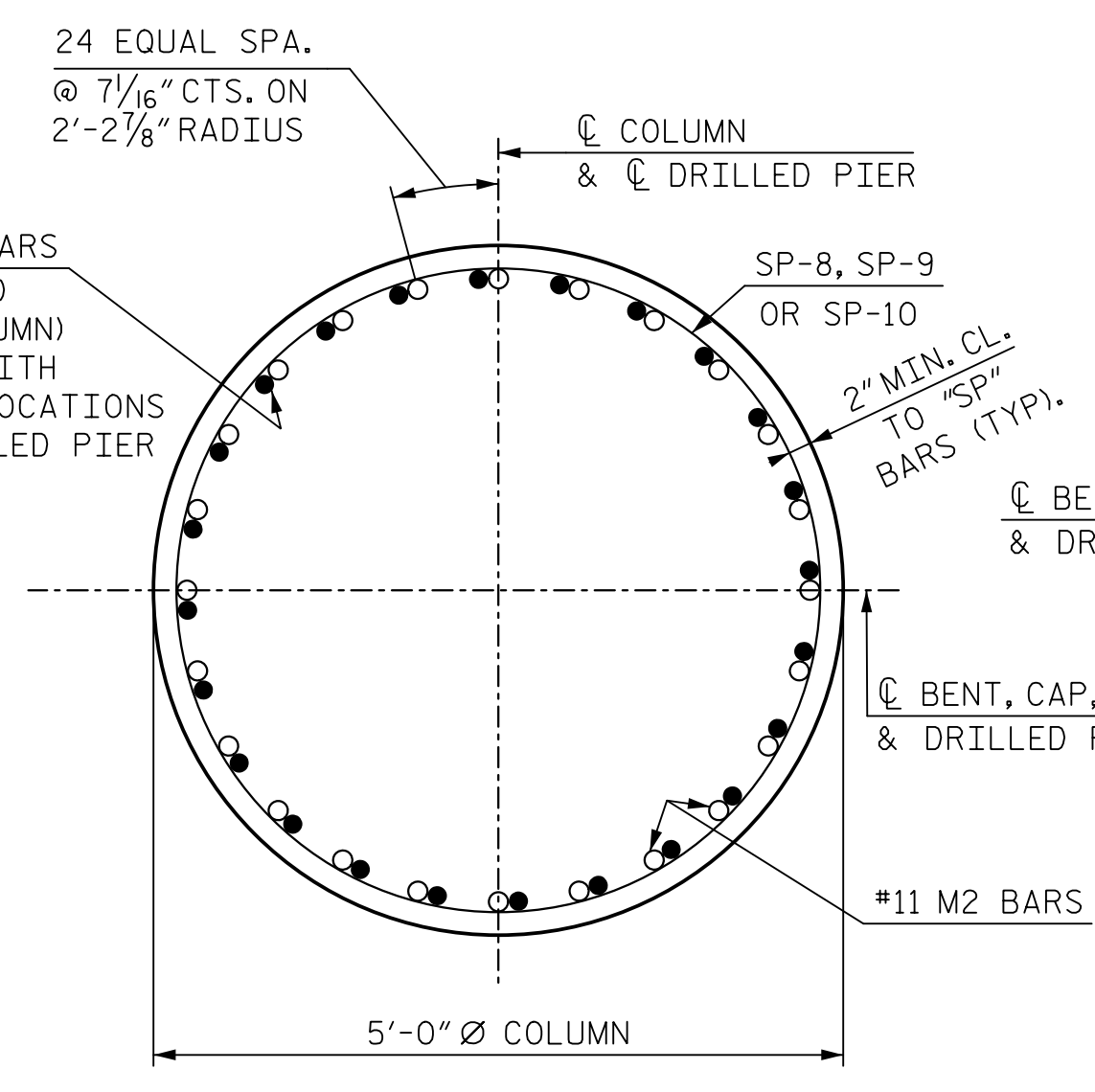
SECTION A-A



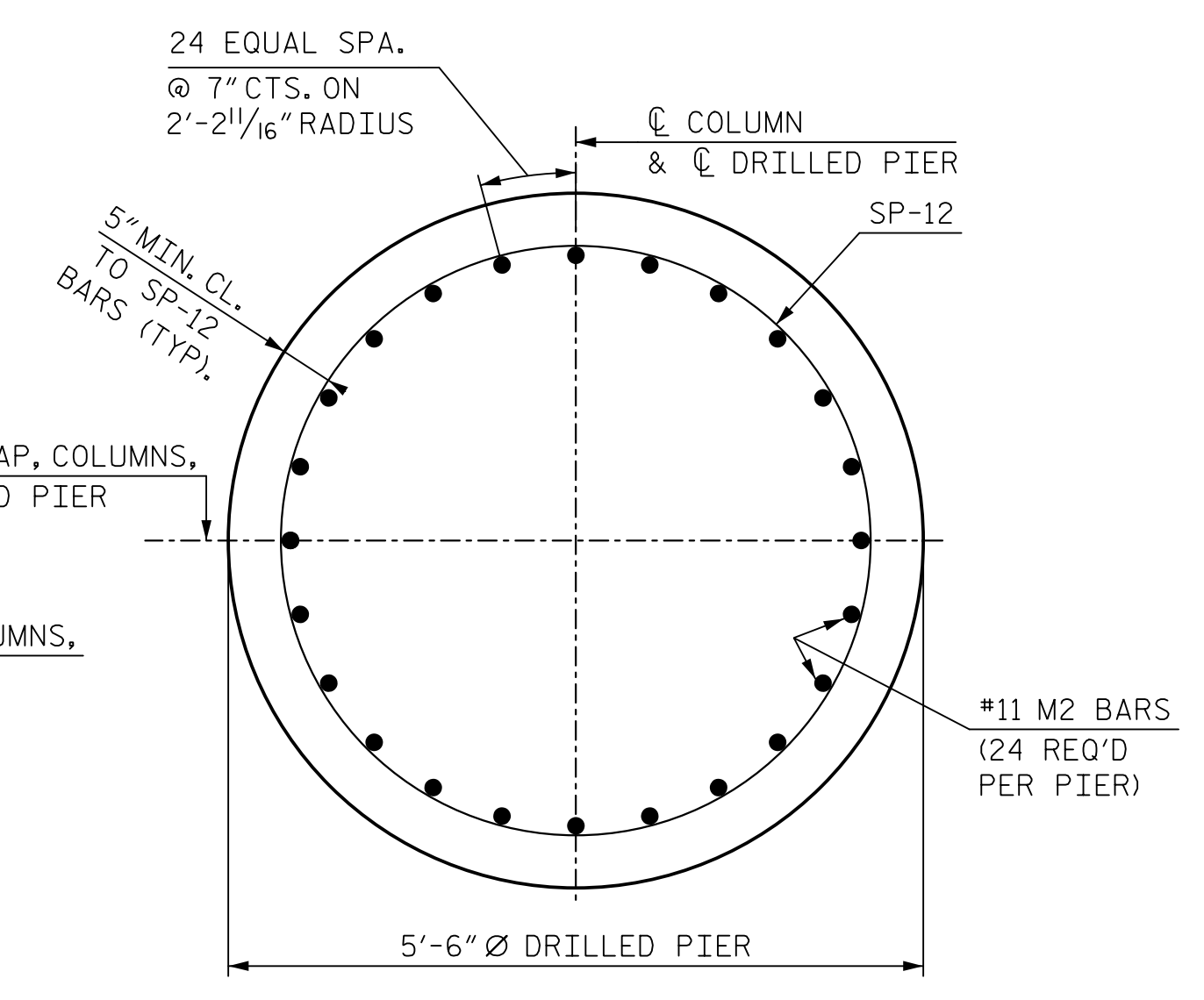
VIEW B-B



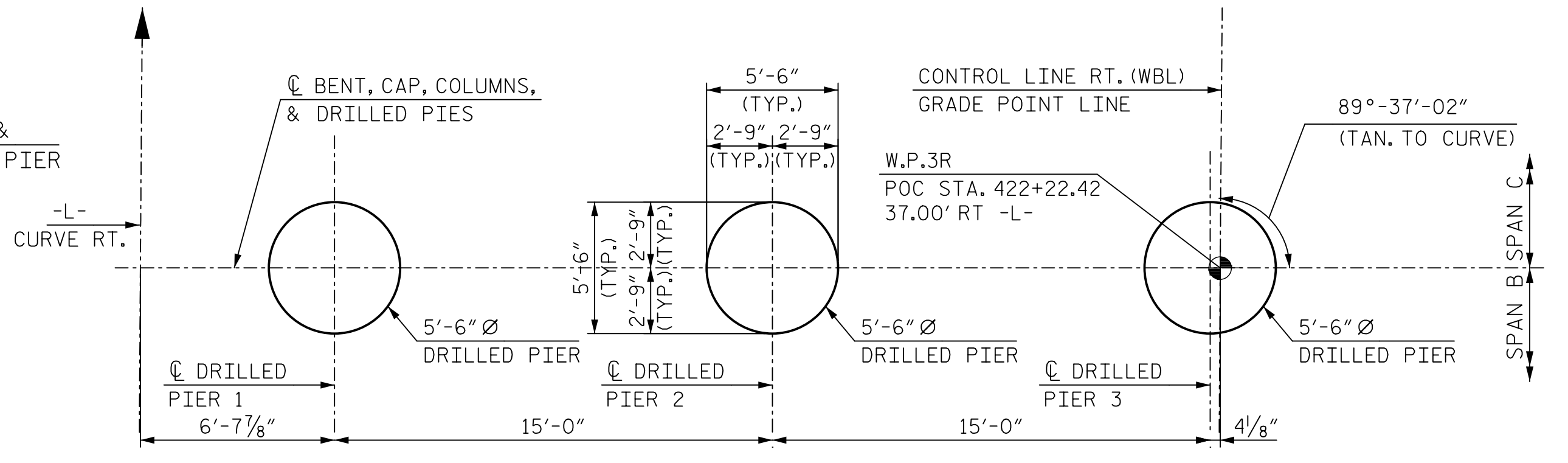
END VIEW



SECTION C-C  
(TYP. EA. COL.)

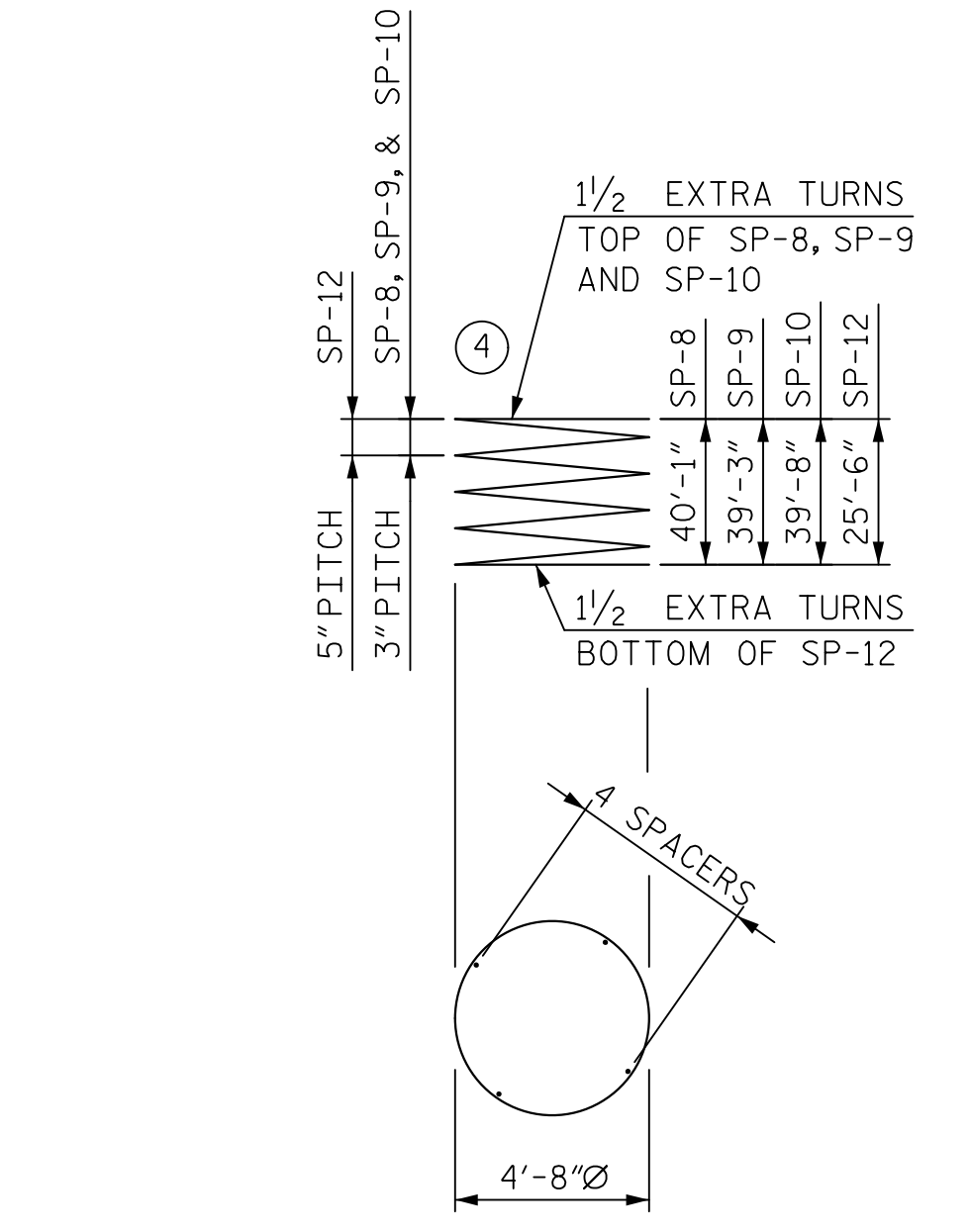
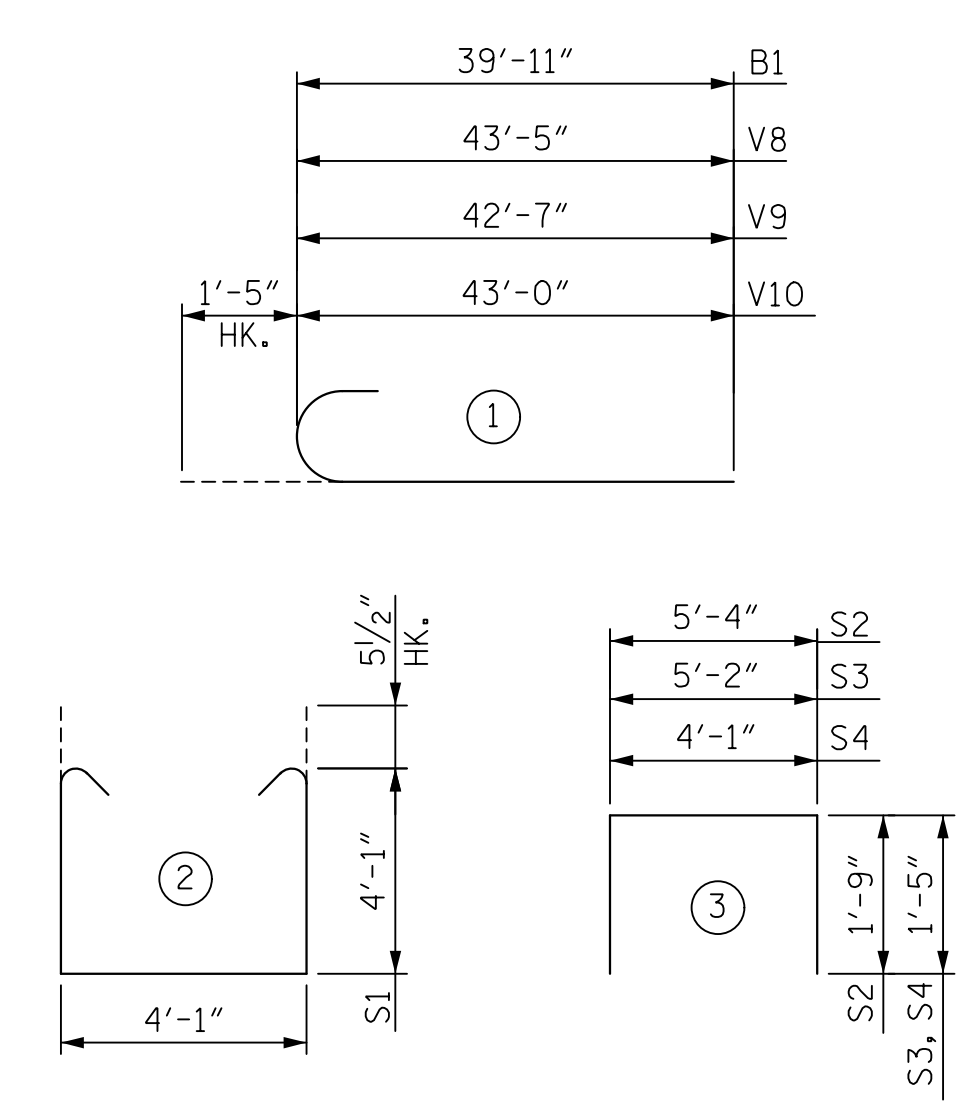


SECTION D-D  
(TYPICAL)



DRILLED PIER PLAN

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF REINFORCING

BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#10	1	41'-4"	1,780
B2	10	#10	STR.	40'-3"	1,733
B3	20	#4	STR.	21'-3"	284
B4	30	#4	STR.	11'-5"	229
B5	10	#4	STR.	5'-0"	33
B6	10	#4	STR.	6'-5"	43
M2	72	#11	STR.	36'-2"	13,835
S1	112	#5	2	13'-2"	1,538
S2	68	#4	3	8'-10"	401
S3	10	#5	3	8'-0"	83
S4	10	#5	3	6'-11"	72
V8	24	#10	1	44'-10"	4,634
V9	24	#10	1	43'-12"	4,544
V10	24	#10	1	44'-5"	4,589
SP-8	1	**	4	2354'-1"	1,573
SP-9	1	**	4	2303'-3"	1,539
SP-10	1	**	4	2954'-9"	1,974
SP-12	3	*	4	911'-4"	2,852

QUANTITIES

REINFORCING STEEL	LBS.	33,798
SPIRAL COLUMN REINFORCING STEEL	LBS.	7,938
CLASS "A" CONCRETE BREAKDOWN		
COLUMN POUR 2	CU. YDS.	86.0
CAP POUR 3	CU. YDS.	41.9
TOTAL	CU. YDS.	127.9
DRILLED PIER POUR 1	CU. YDS.	68.6
5'-6" Ø DRILLED PIERS		
DRILLED PIERS, NOT IN SOIL	LIN. FT.	39
DRILLED PIERS, IN SOIL	LIN. FT.	39
PERMANENT STEEL CASING FOR 5'-6" Ø DRILLED PIERS	LIN. FT.	38
CSL TUBES	LIN. FT.	495

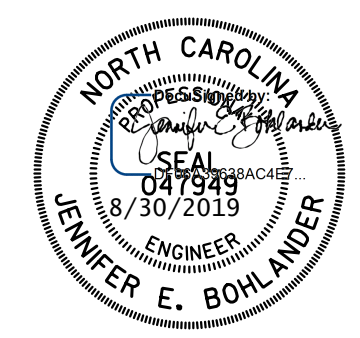
\* THE SP-12 SPIRAL REINFORCING STEEL SHALL BE W31 OR D31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

\* THE SP-8, SP-9 AND SP-10 SPIRAL REINFORCING STEEL SHALL BE W20 OR D20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 2  
 STAGE 2 DETAILS



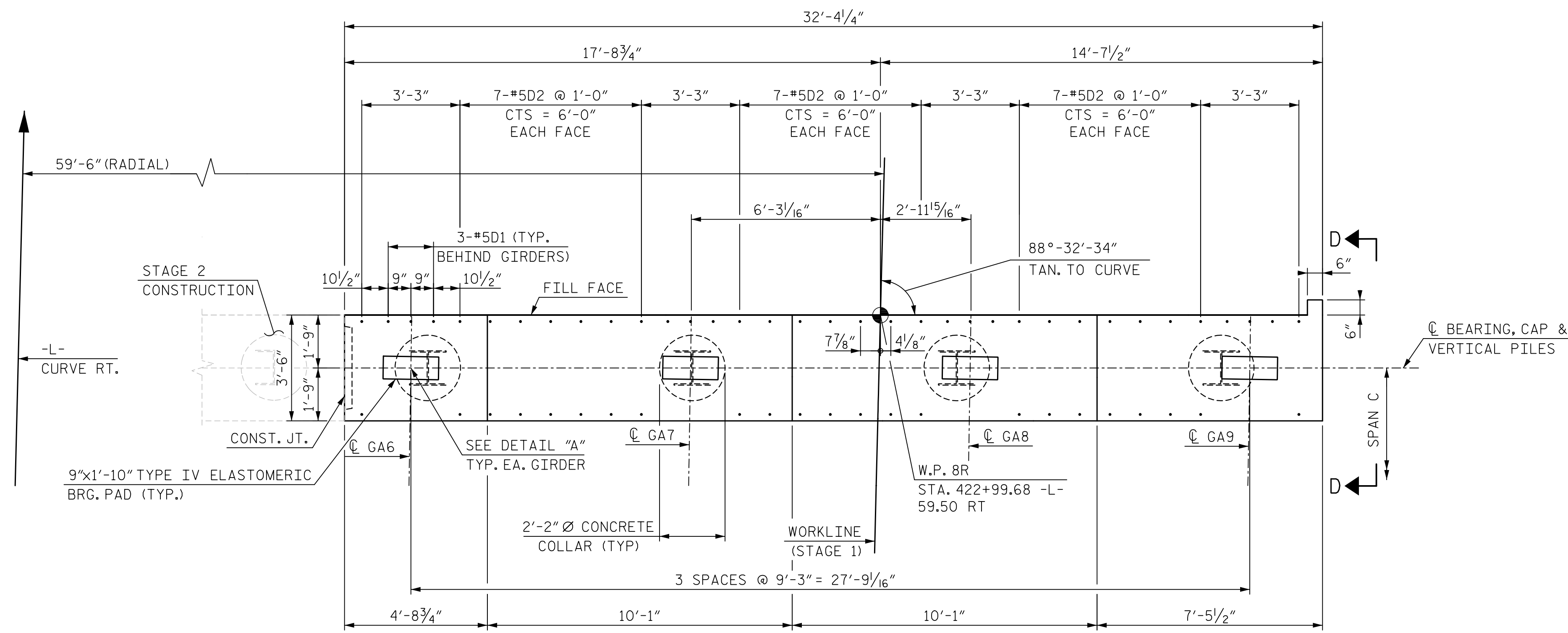
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

<b>HNTB</b>	HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
DRAWN BY: J. SLOAT	DATE: 1/30/2019
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019

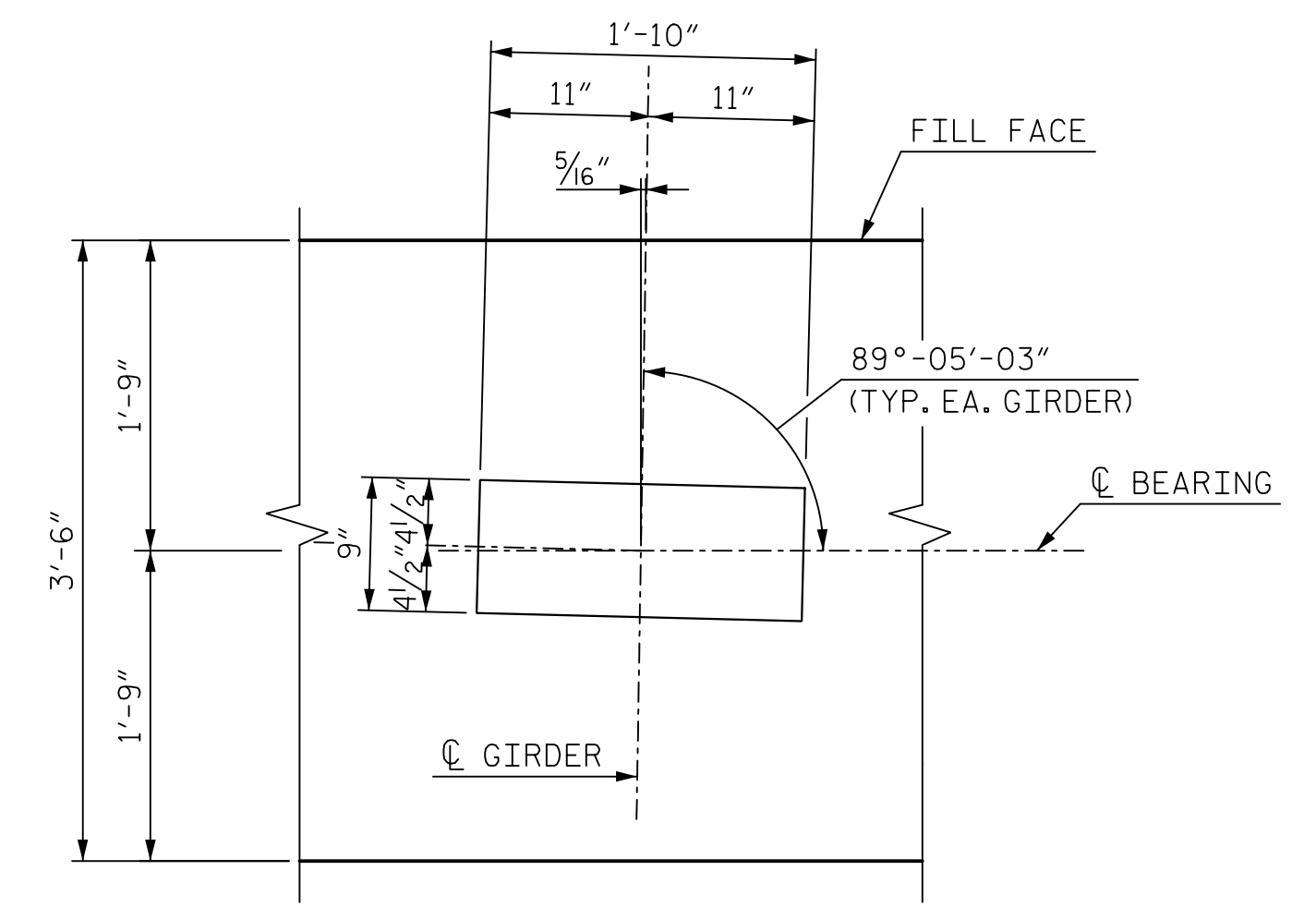
REVISIONS						SHEET NO. S2-45
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS
2			4			54

8/20/2019 10:56:13 AM  
 ...\\002\_089\_1\_4400BB\_SML\_008\_045\_440211

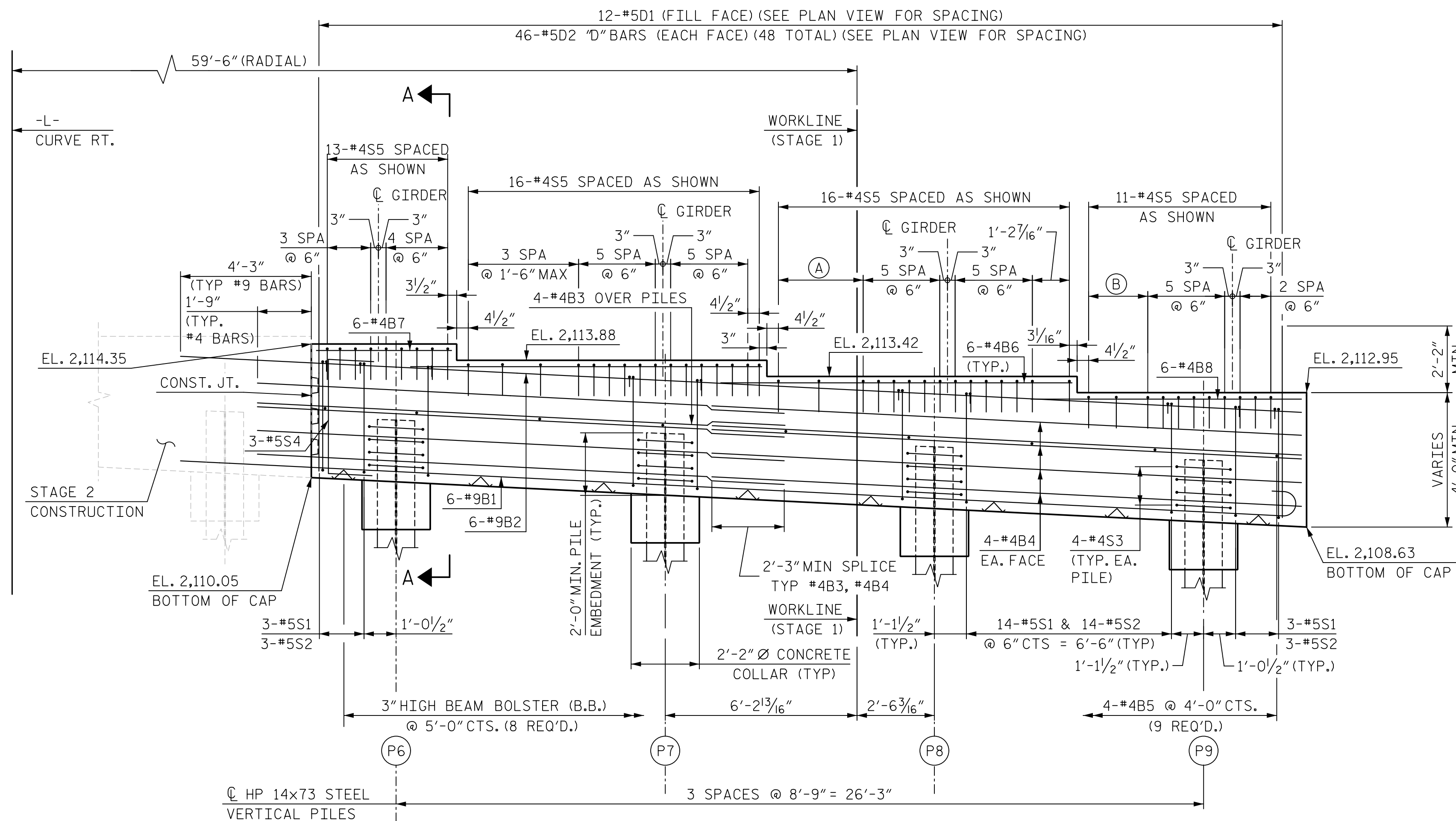
NOTE: GIRDERS WERE SET PARALLEL TO THE CONTROL LINE RT (WBL) SHORT CHORD.



PLAN



BEARING DETAIL "A"

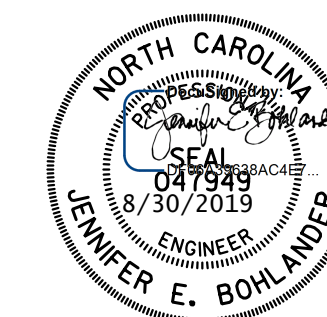


ELEVATION

TOP OF PILE ELEVATIONS	
(P6)	2111.92
(P7)	2111.54
(P8)	2111.16
(P9)	2110.77

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 1 OF 4



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE

END BENT 2  
 STAGE 1

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

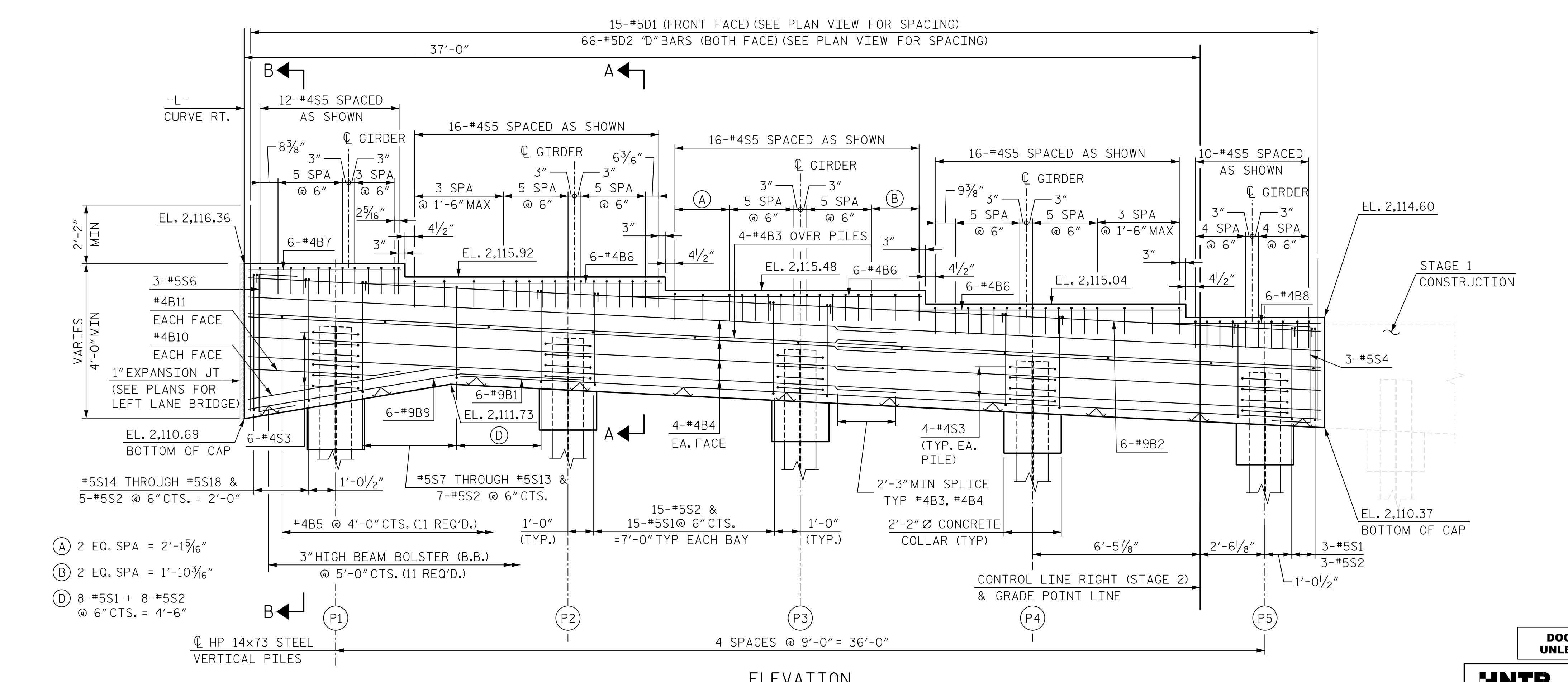
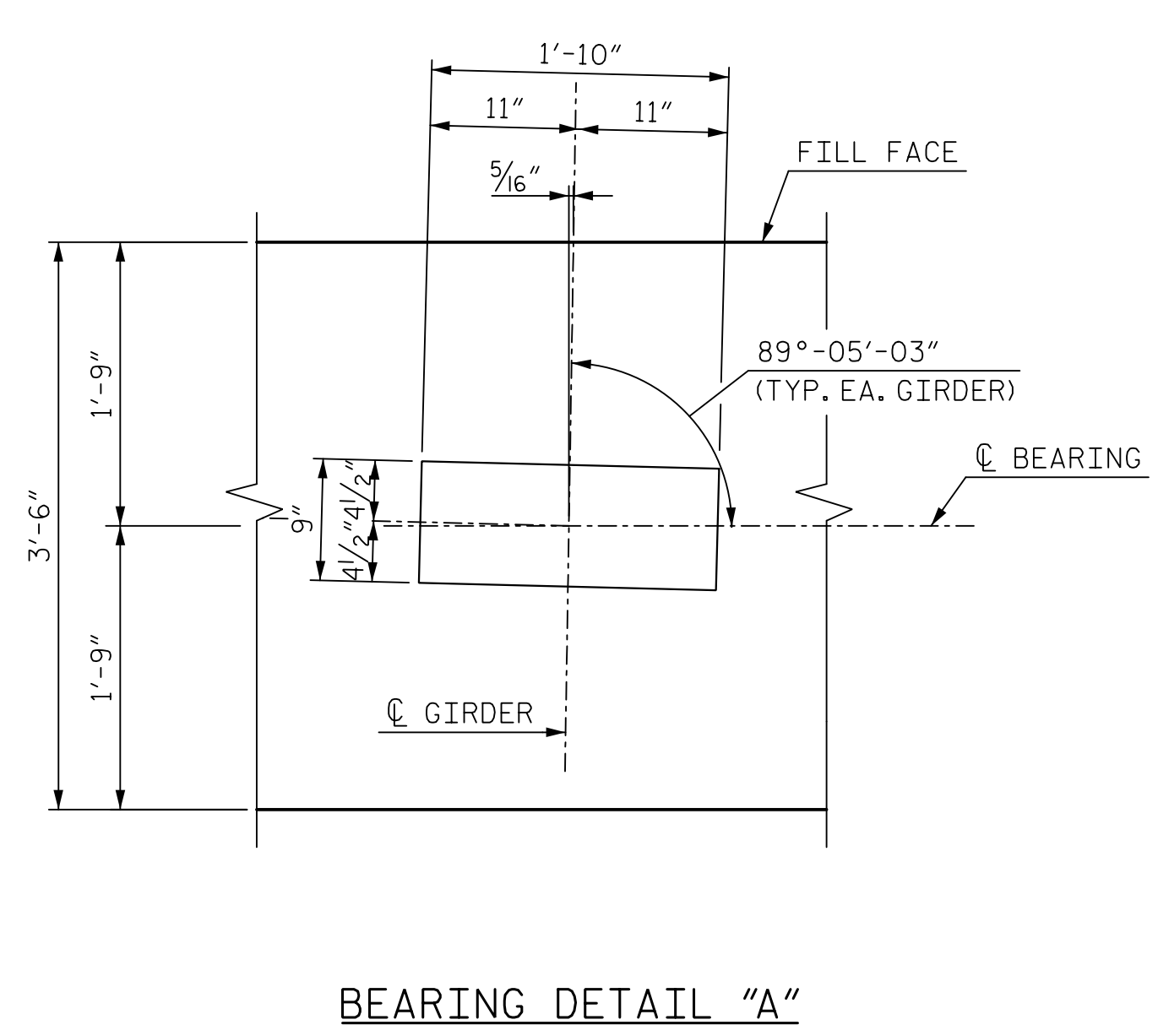
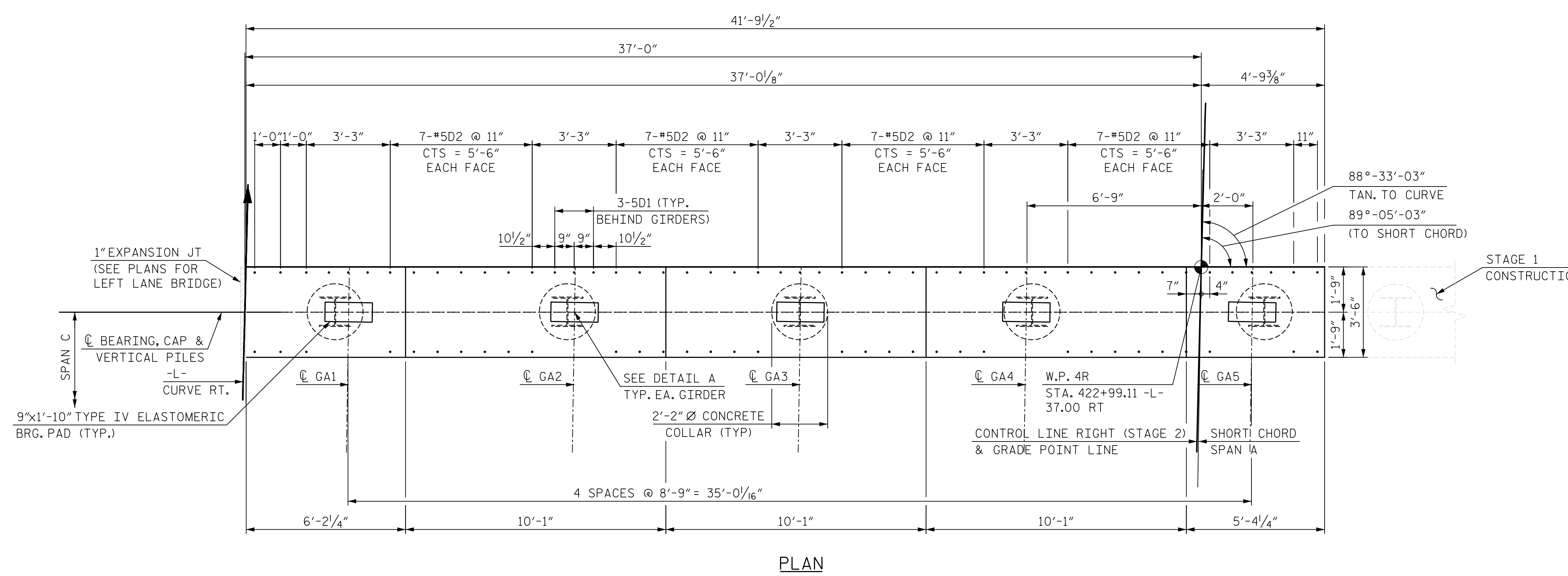
<b>HNTB</b>	HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
DRAWN BY: J. SLOAT	DATE: 1/30/2019
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019

REVISIONS						SHEET NO. S2-46
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS
2			4			54

8/30/2019 11:05:59 AM \\M02-09-1-140009-SMULE05-046-440211

- (A) 2 EQ. SPA = 2'-9<sup>1</sup>/<sub>16</sub>"
- (B) 2 EQ. SPA = 1'-11<sup>1</sup>/<sub>8</sub>"





TOP OF PILE ELEVATIONS	
P1	2114.30
P2	2113.85
P3	2113.40
P4	2112.94
P5	2112.49

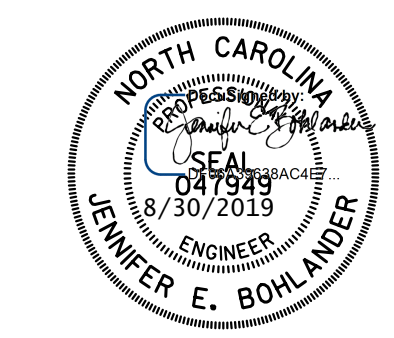
PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE**

END BENT 2  
 STAGE 2



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

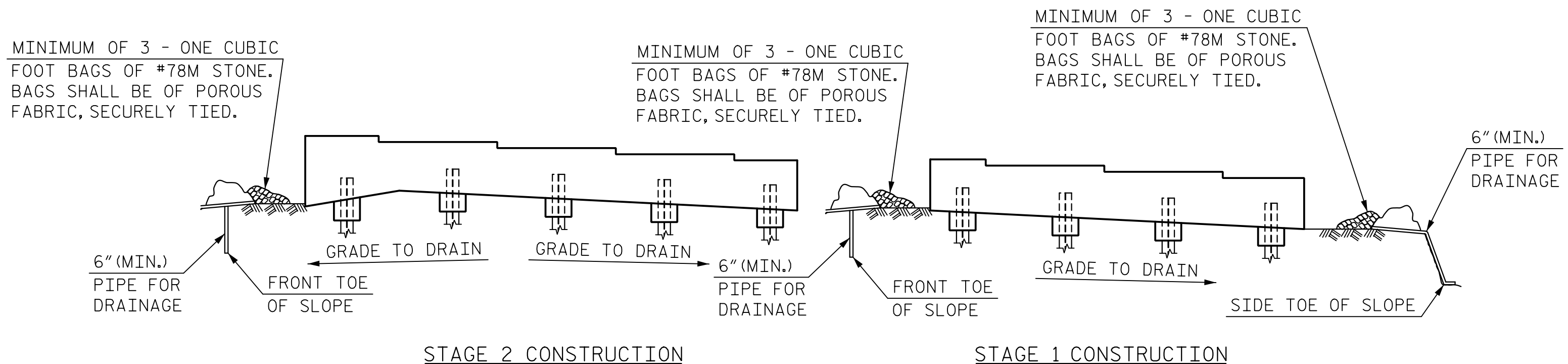
**HNTB** HNTB NORTH CAROLINA, P.C.  
 NC License No. C-1554  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: J. SLOAT DATE: 1/30/2019  
 CHECKED BY: J. BOHLANDER DATE: 3/18/2019  
 ENGINEER OF RECORD: J. BOHLANDER DATE: 3/18/2019

DWG. NO. 47

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S2-47
1			3			TOTAL SHEETS
2			4			54

8/30/2019 10:56:25 AM \\M02-093-1-4400BB-SMILE06-DWG\_440211



STAGE 2 CONSTRUCTION

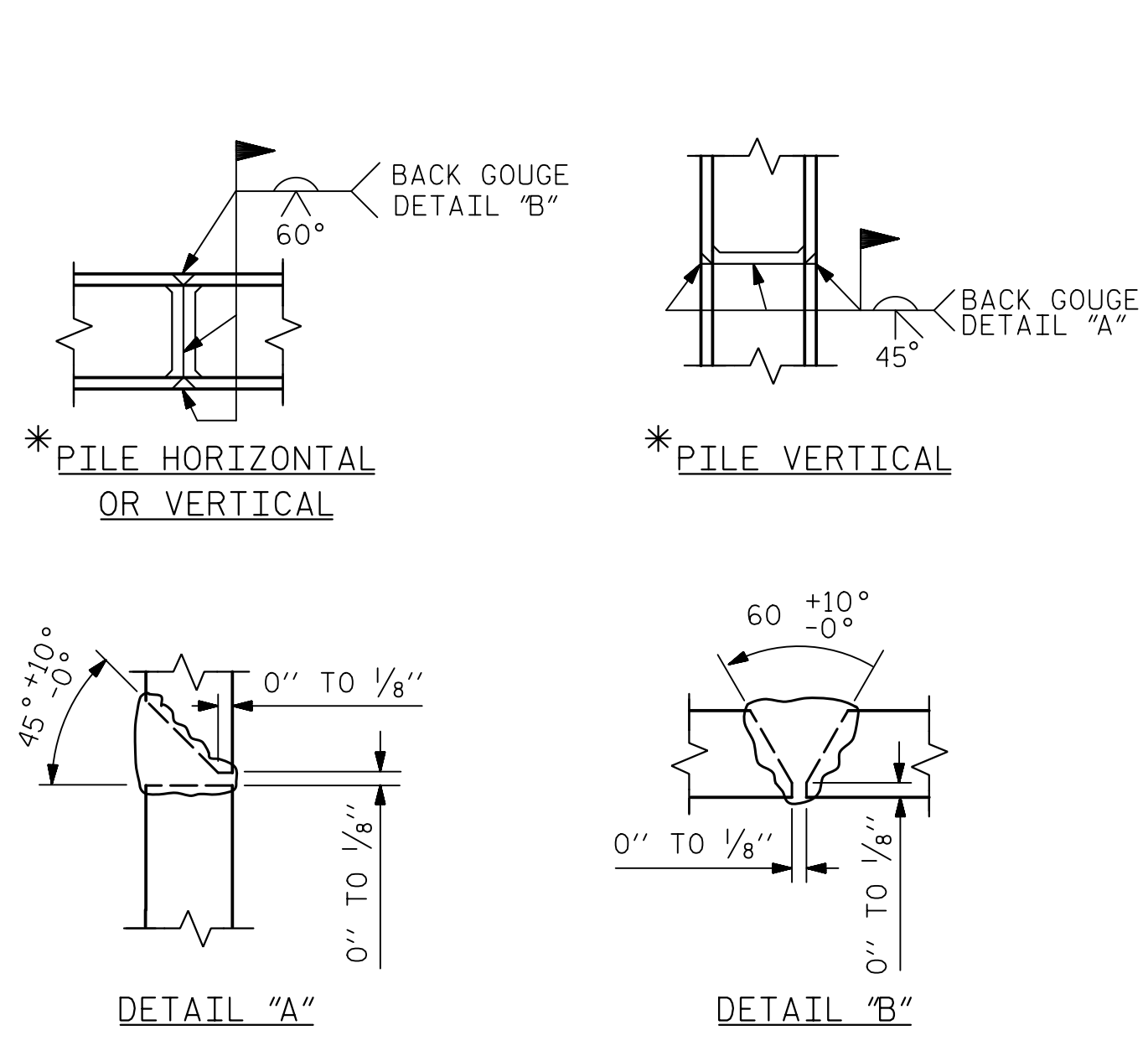
STAGE 1 CONSTRUCTION

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

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

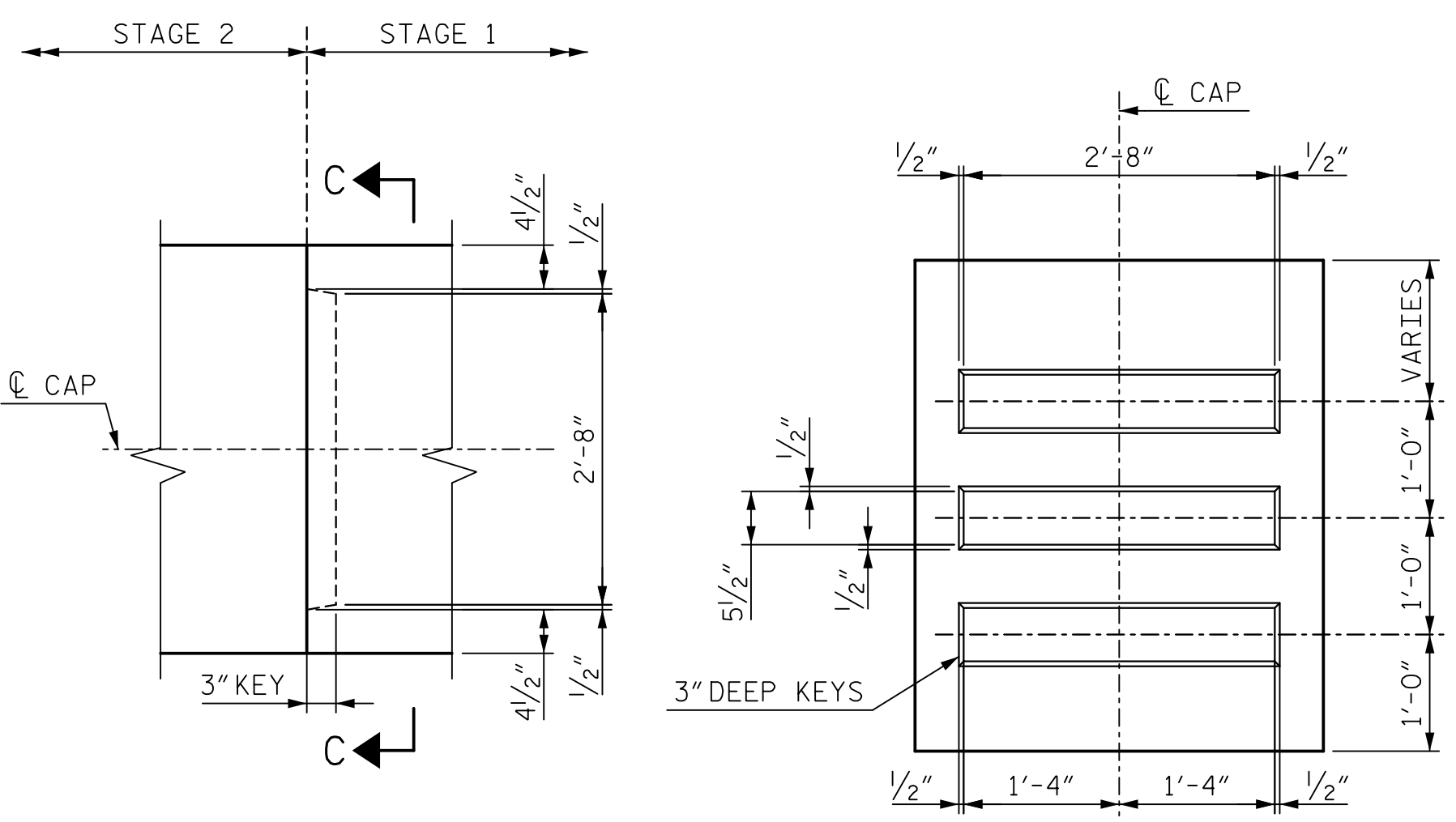
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT 2



\* POSITION OF PILE DURING WELDING.

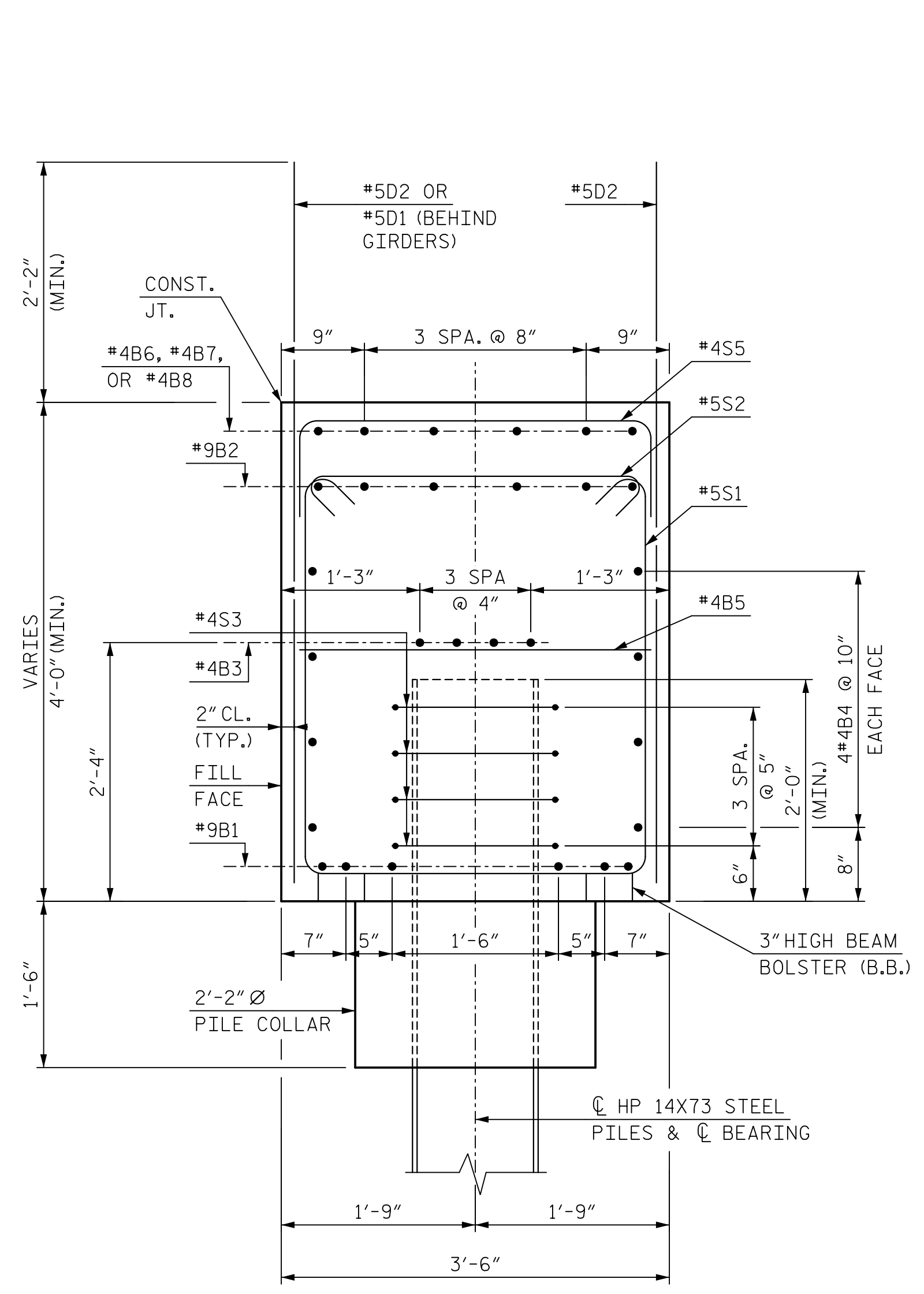
PILE SPLICE DETAILS



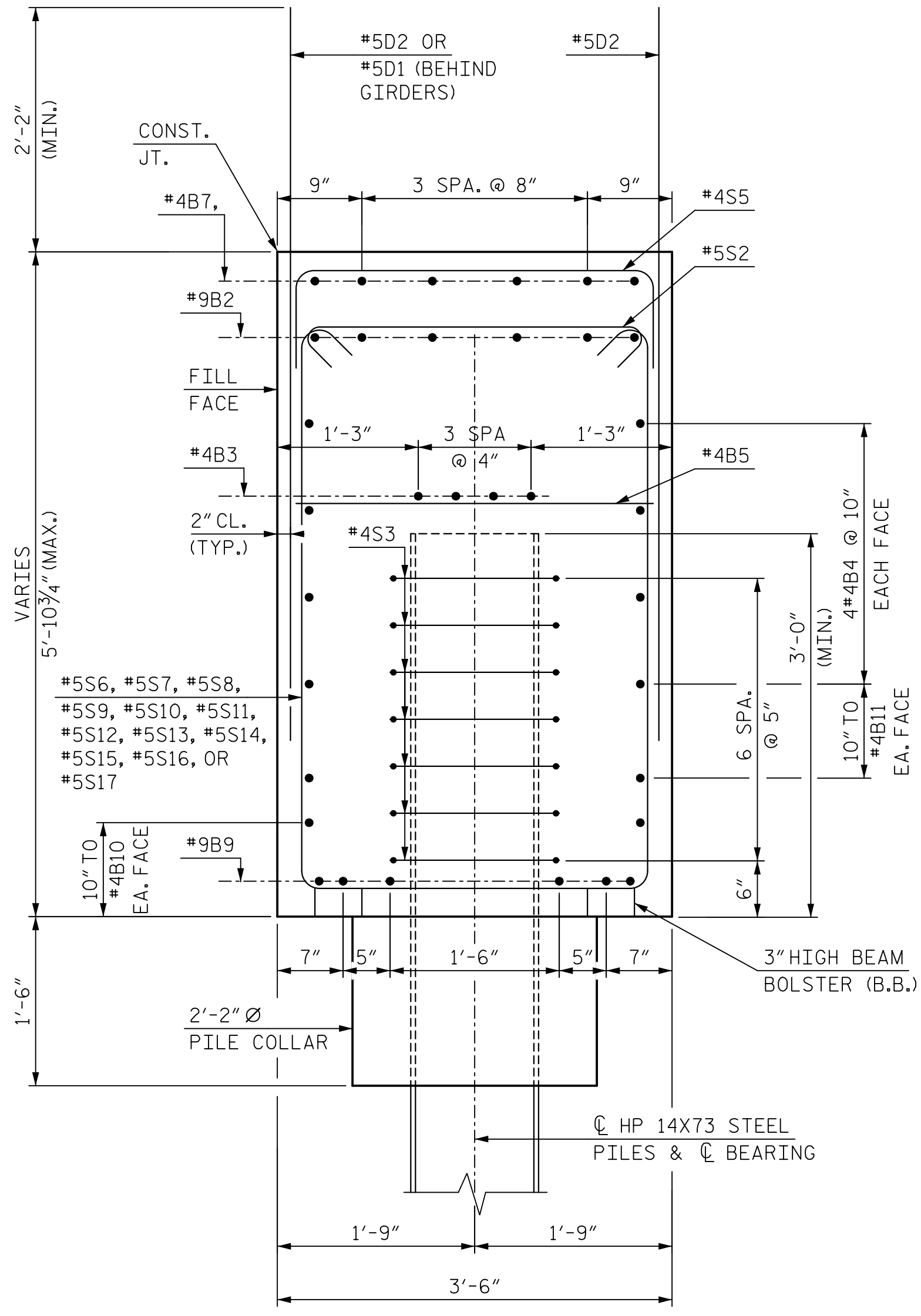
PLAN

SECTION C-C

KEYED CONSTRUCTION JOINT DETAILS



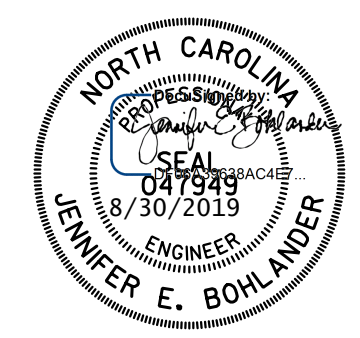
SECTION A-A



SECTION B-B

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 3 OF 4



DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

**HNTB** HNTB NORTH CAROLINA, P.C.  
 NC License No. C-1554  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: J. SLOAT DATE: 1/30/2019  
 CHECKED BY: J. BOHLANDER DATE: 3/18/2019  
 ENGINEER OF RECORD: J. BOHLANDER DATE: 3/18/2019

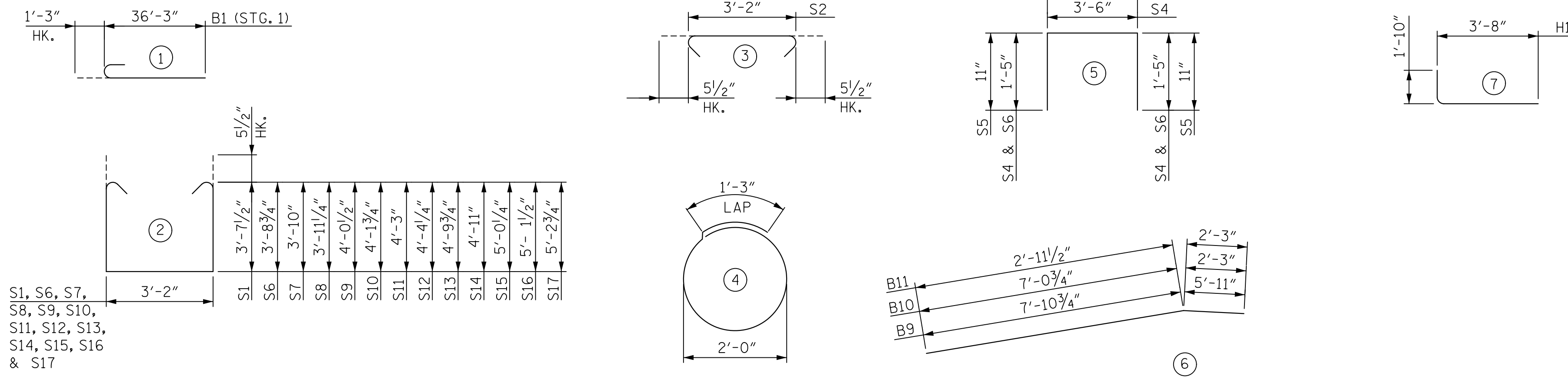
DWG. NO. 48

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S2-48
1			3			TOTAL SHEETS
2			4			54

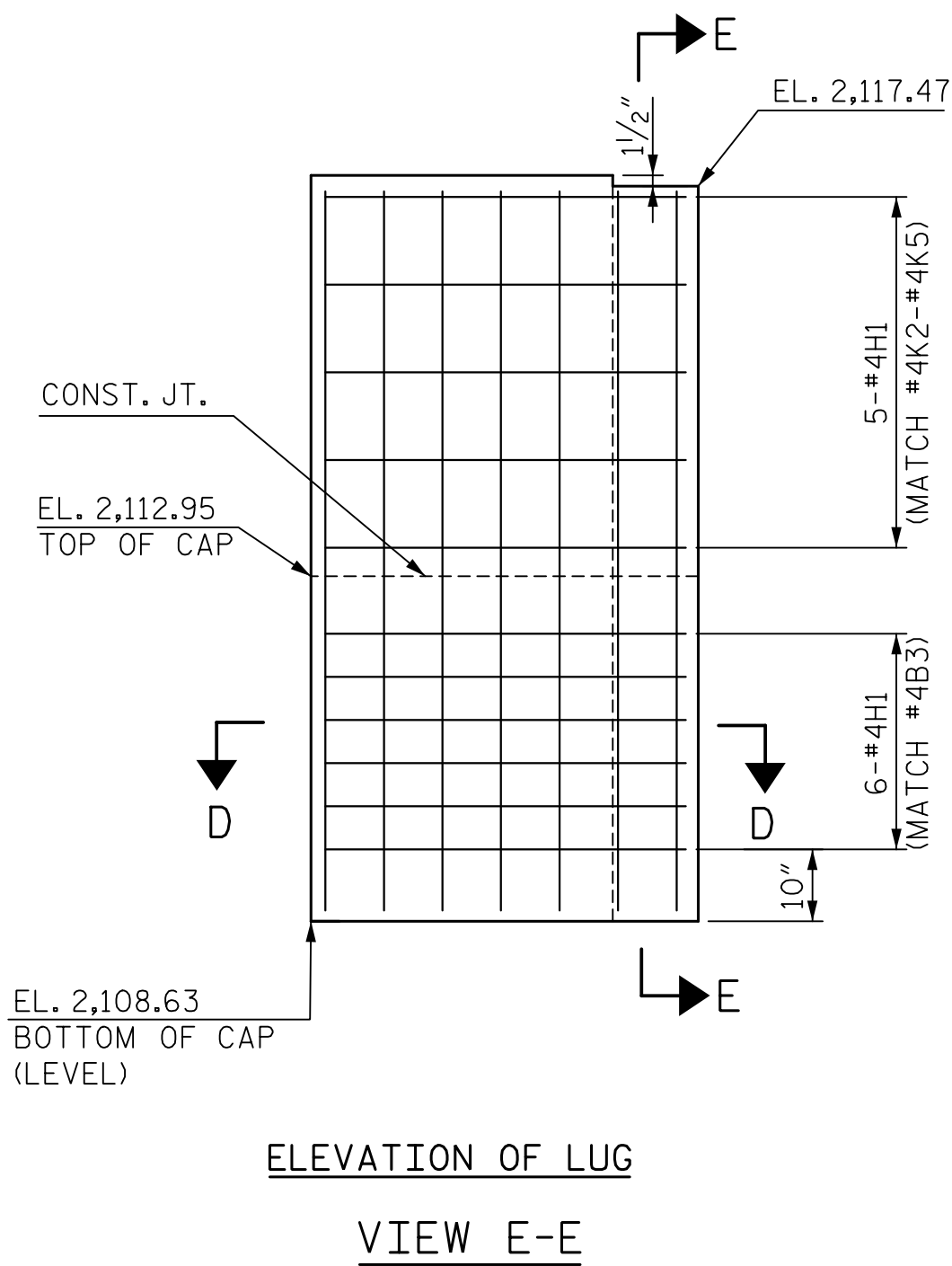
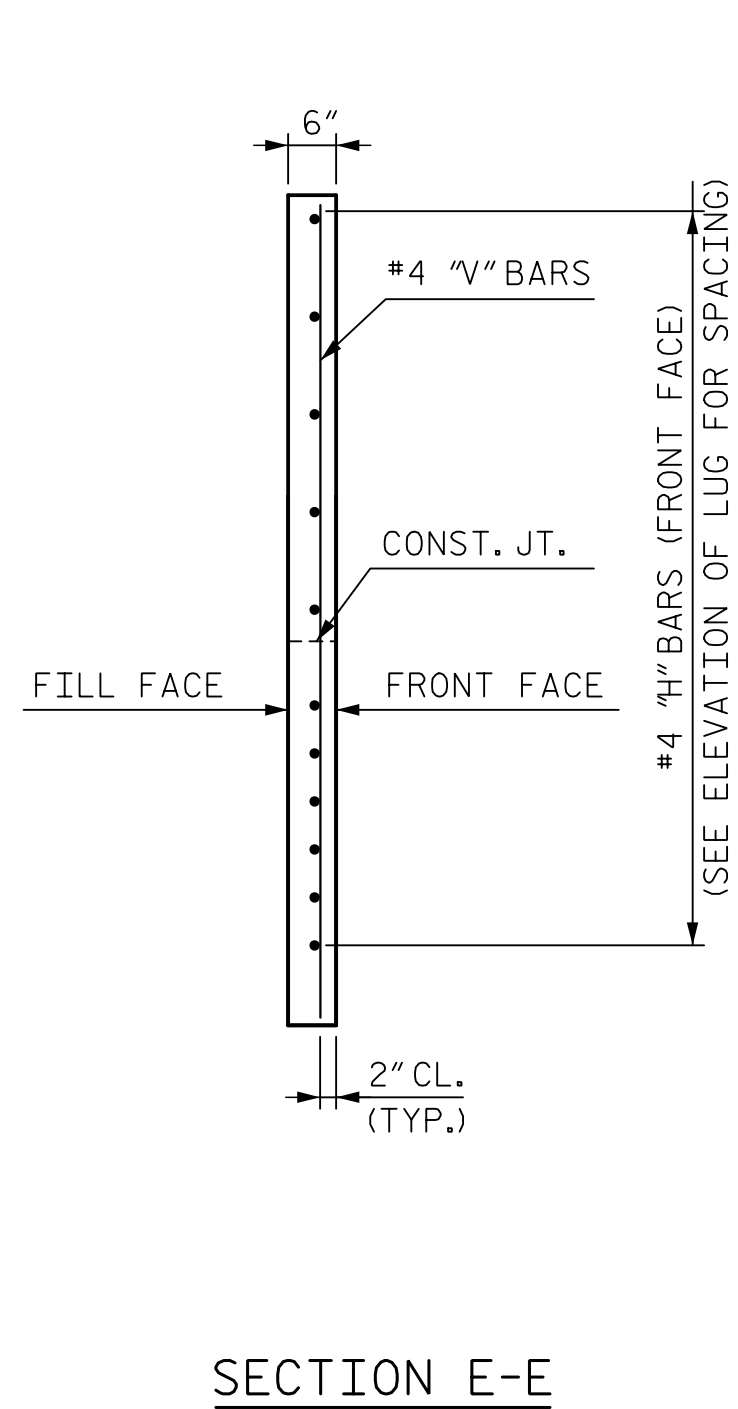
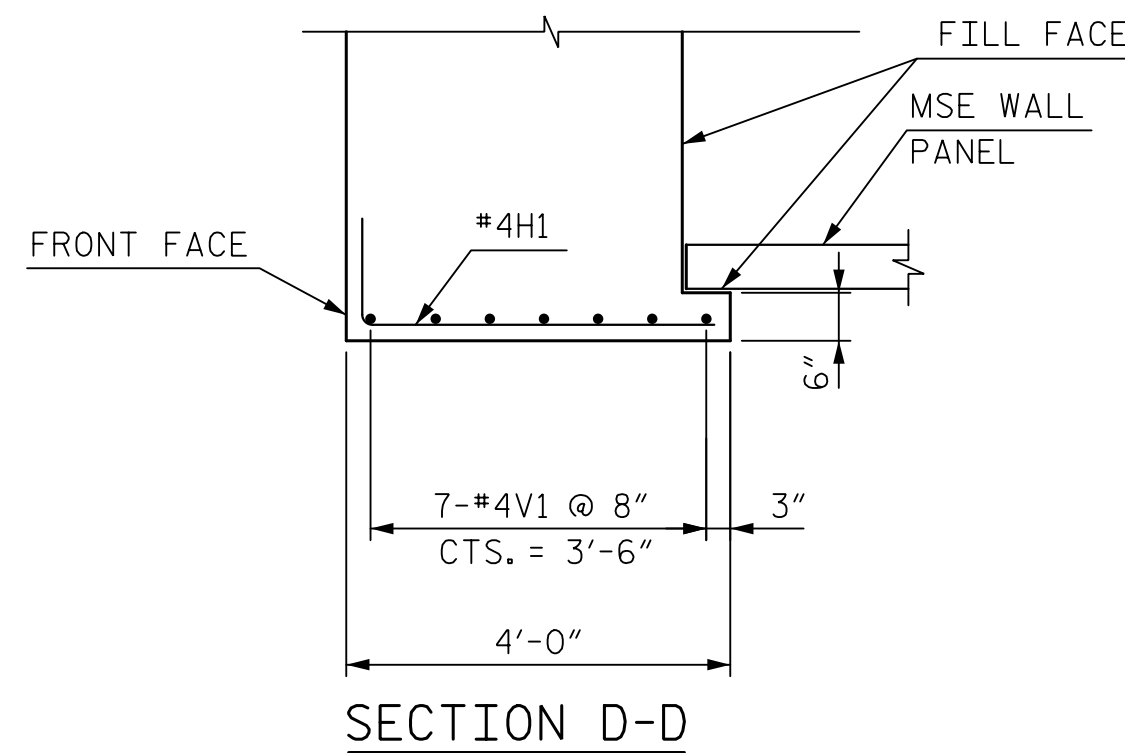
8/30/2019 10:56:28 AM \\M02-095-1-4400BB\_SML-LOT\_046\_440211



BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT



BILL OF MATERIAL

STAGE 1					END BENT 2					STAGE 2							
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#9		37'-6"	765	B1	6	#9	STR.	33'-4"	680	B1	6	#9	STR.	33'-4"	680
B2	6	#9		36'-6"	744	B2	6	#9	STR.	41'-7"	848	B2	6	#9	STR.	41'-7"	848
B3	8	#4	STR.	18'-1"	97	B3	8	#4	STR.	21'-11"	117	B3	8	#4	STR.	21'-11"	117
B4	16	#4	STR.	18'-1"	194	B4	16	#4	STR.	21'-11"	234	B4	16	#4	STR.	21'-11"	234
B5	9	#4	STR.	3'-2"	19	B5	11	#4	STR.	3'-2"	23	B5	11	#4	STR.	3'-2"	23
B6	12	#4	STR.	11'-5"	92	B6	18	#4	STR.	11'-5"	137	B6	18	#4	STR.	11'-5"	137
B7	6	#4	STR.	6'-7"	26	B7	6	#4	STR.	5'-11"	24	B7	6	#4	STR.	5'-11"	24
B8	6	#4	STR.	8'-3"	33	B8	6	#4	STR.	6'-8"	27	B8	6	#4	STR.	6'-8"	27
						B9	6	#9		6	282	B9	6	#9		6	282
						B10	2	#4		6	12	B10	2	#4		6	12
						B11	2	#4		6	7	B11	2	#4		6	7
D1	12	#5	STR.	6'-9"	84	D1	15	#5	STR.	6'-9"	105	D1	15	#5	STR.	6'-9"	105
D2	46	#5	STR.	6'-9"	322	D2	66	#5	STR.	6'-9"	462	D2	66	#5	STR.	6'-9"	462
H1	11	#4		5'-6"	40												
S1	48	#5		11'-4"	567	S1	56	#5		11'-4"	662	S1	56	#5		11'-4"	662
S2	48	#5		8'-1"	405	S2	68	#5		4'-0"	285	S2	68	#5		4'-0"	285
S3	16	#4		7'-7"	81	S3	22	#4		7'-7"	112	S3	22	#4		7'-7"	112
S4	3	#5		6'-4"	20	S4	3	#5		6'-4"	20	S4	3	#5		6'-4"	20
S5	56	#4		5'-0"	187	S5	70	#4		5'-0"	234	S5	70	#4		5'-0"	234
						S6	3	#5		8'-1"	25	S6	3	#5		8'-1"	25
						S7	1	#5		2	12	S7	1	#5		2	12
						S8	1	#5		2	12	S8	1	#5		2	12
						S9	1	#5		2	12	S9	1	#5		2	12
						S10	1	#5		2	13	S10	1	#5		2	13
						S11	1	#5		2	13	S11	1	#5		2	13
						S12	1	#5		2	13	S12	1	#5		2	13
						S13	1	#5		2	13	S13	1	#5		2	13
						S14	1	#5		2	14	S14	1	#5		2	14
						S15	1	#5		2	15	S15	1	#5		2	15
						S16	1	#5		2	15	S16	1	#5		2	15
						S17	1	#5		2	15	S17	1	#5		2	15
						S18	1	#5		2	15	S18	1	#5		2	15
V1	7	#4	STR.	8'-6"	40												

QUANTITIES

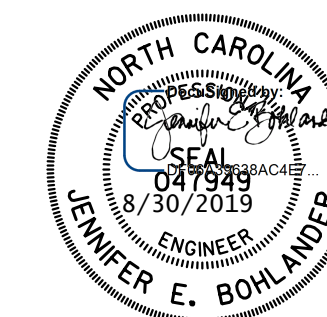
QUANTITIES

REINFORCING STEEL	LBS.	3,716	REINFORCING STEEL	LBS.	4,458
CLASS "A" CONCRETE BREAKDOWN			CLASS "A" CONCRETE BREAKDOWN		
POUR 1 - CAP, LUG &			POUR 1 - CAP & CONC. COLLARS		
CONCRETE COLLARS	CU. YDS.	18.7	CONCRETE COLLARS	CU. YDS.	24.8
HP 14x73 STEEL PILES	NO.	4	HP 14x73 STEEL PILES	NO.	5
	LIN. FT.	100		LIN. FT.	175
PILE EXCAVATION IN SOIL	LIN. FT.	17.8	PILE EXCAVATION IN SOIL	LIN. FT.	22.2
PILE EXCAVATION NOT IN SOIL	LIN. FT.	4.4	PILE EXCAVATION NOT IN SOIL	LIN. FT.	5.6

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 4 OF 4

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

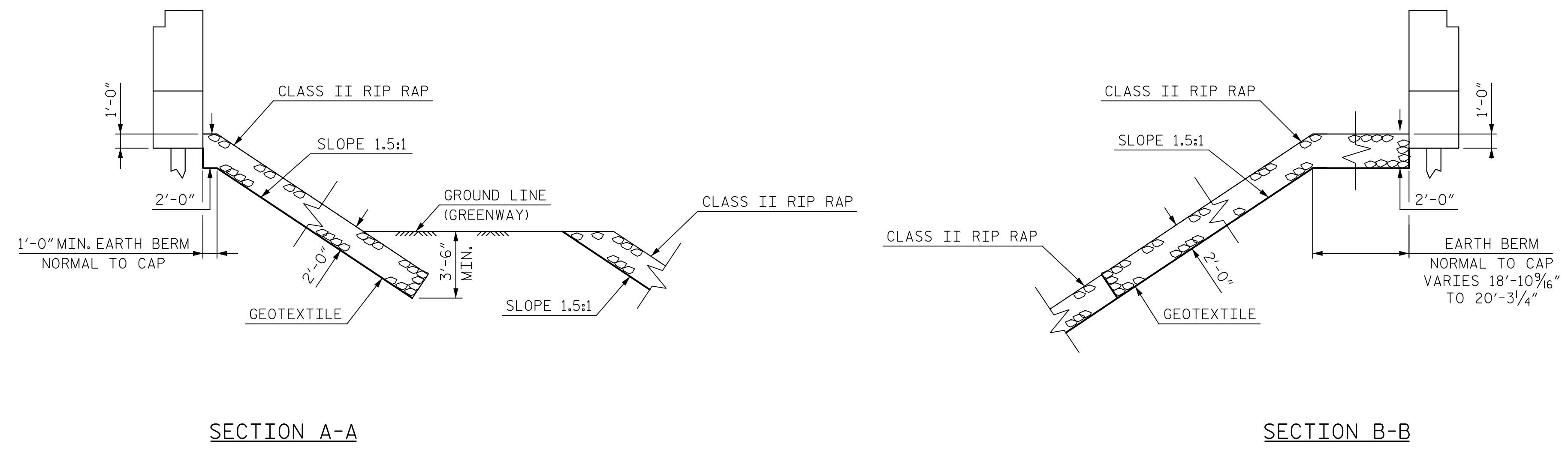
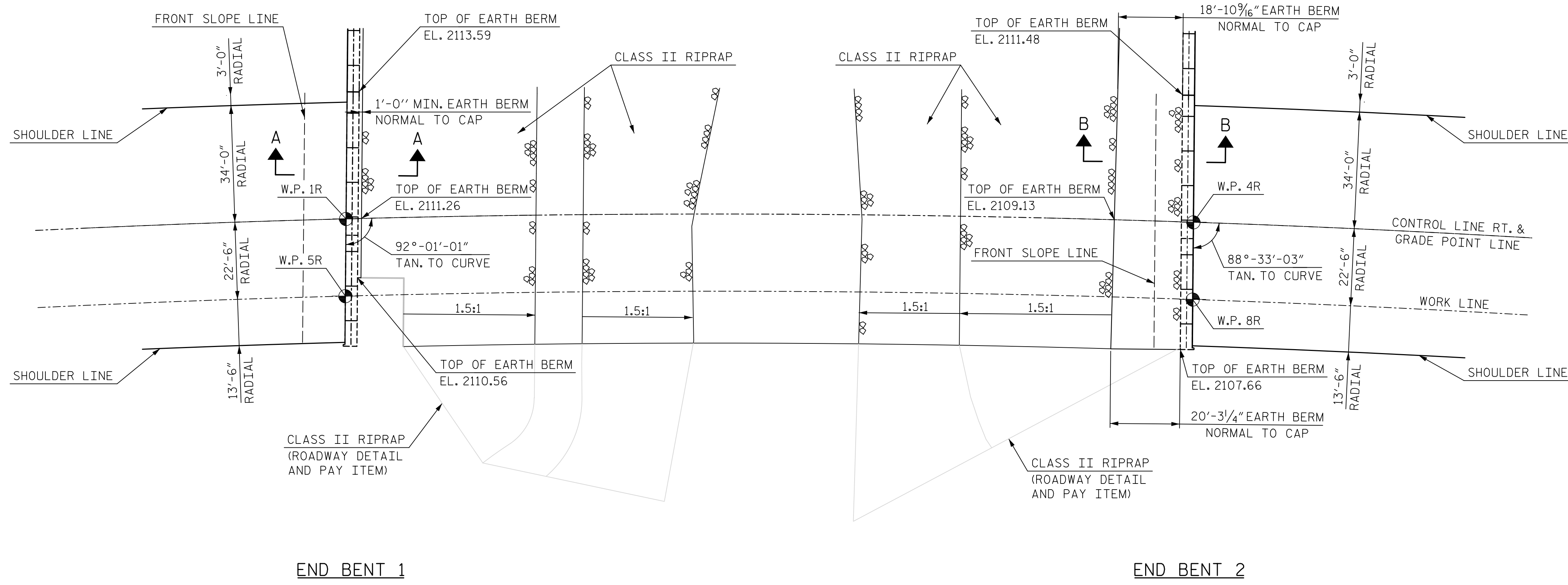


DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

<b>HNTB</b>	HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
DRAWN BY: J. SLOAT	DATE: 6/6/2019
CHECKED BY: J. BOHLANDER	DATE: 6/7/2019
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019

DWG. NO. 49

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S2-49
1			3			TOTAL SHEETS
2			4			54



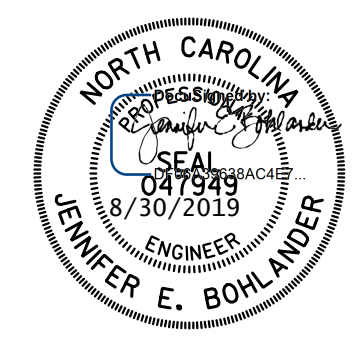
ESTIMATED QUANTITIES		
BRIDGE @ POC STA. 421+74.67 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	763	848
END BENT 2	813	903

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 1 OF 1

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

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S2-50
1			3			TOTAL SHEETS
2			4			54



**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

**HNTB** HNTB NORTH CAROLINA, P.C.  
 NC License No. C-1554  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

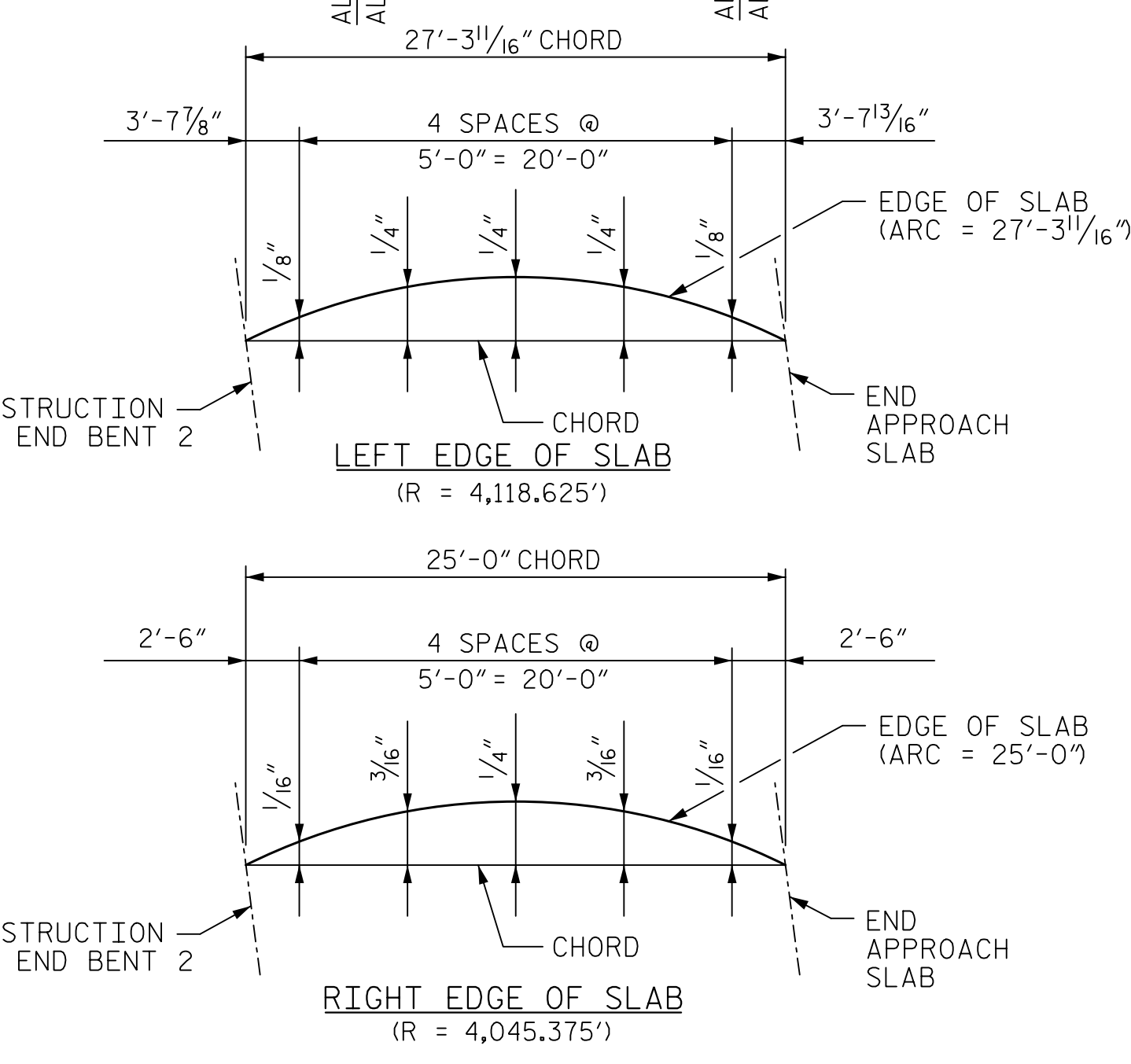
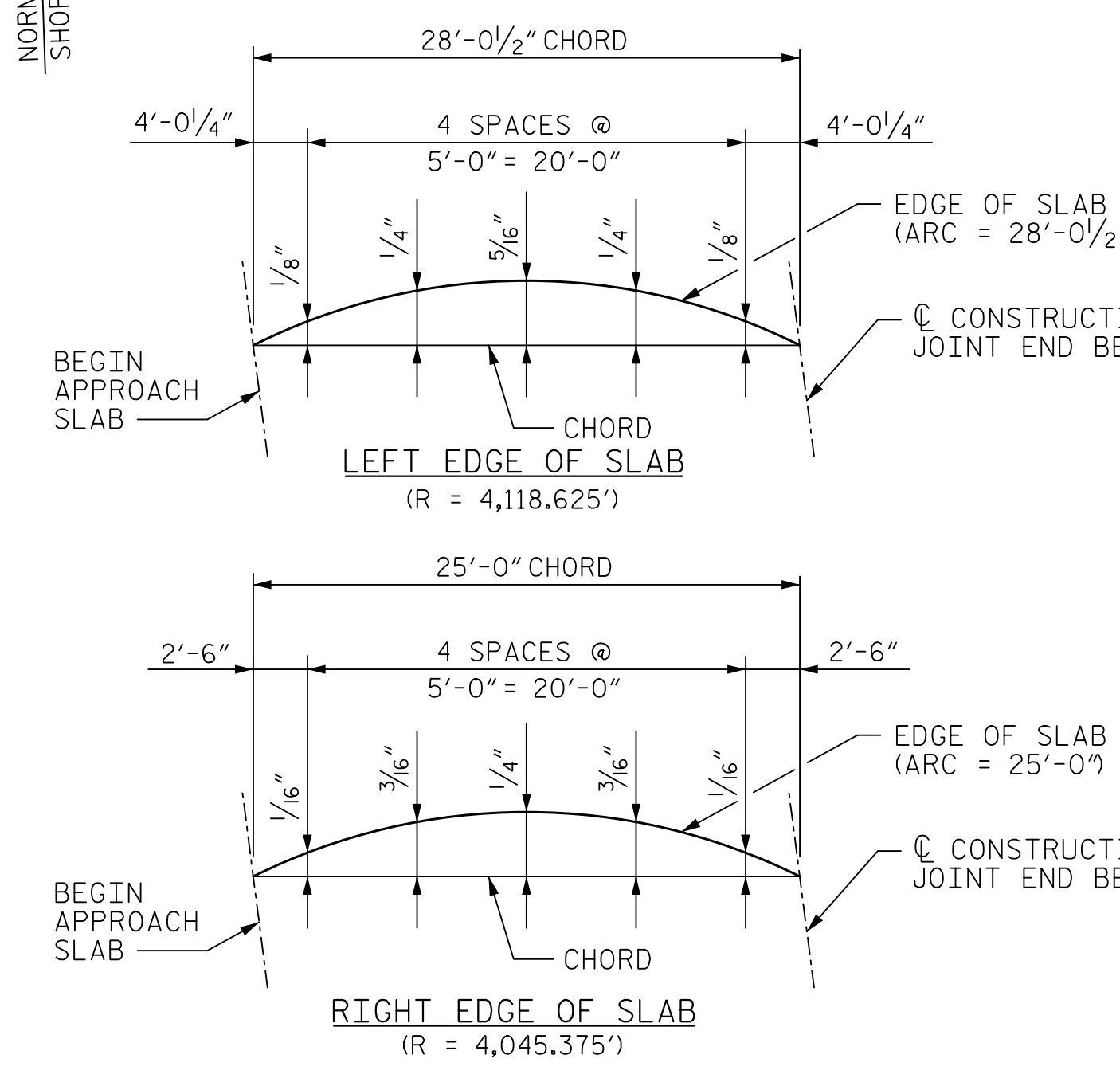
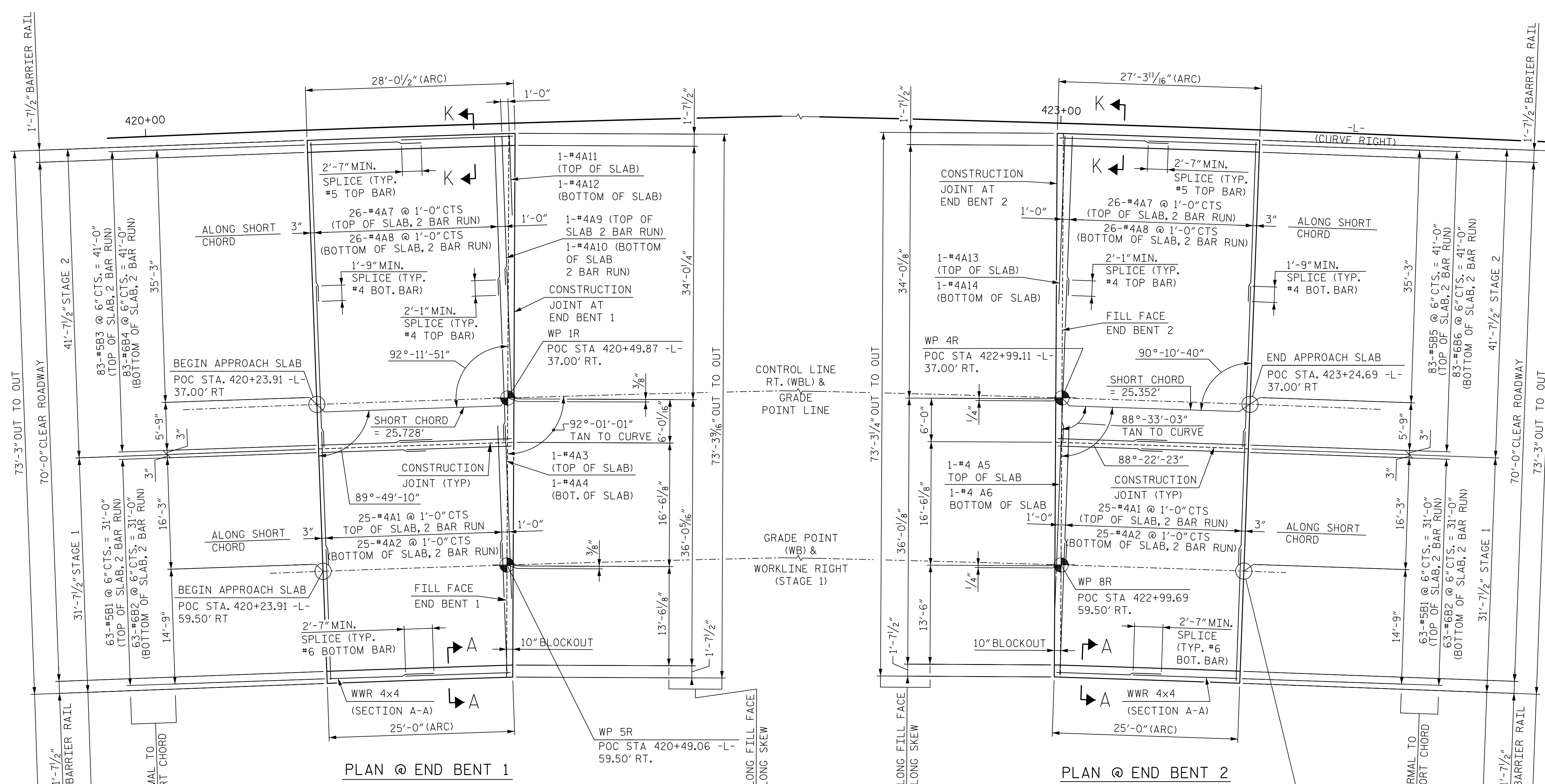
DRAWN BY: M. JULIAN DATE: 2/12/2019  
 CHECKED BY: J. BOHLANDER DATE: 3/18/2019  
 ENGINEER OF RECORD: J. BOHLANDER DATE: 6/7/2019

DWG. NO. 50

8/30/2019 10:56:34 AM  
 \_WD2\_099\_14400BB\_SML\_P16\_050\_440211



**NOTES:**  
 FOR SECTION K-K, SEE "BRIDGE APPROACH SLAB DETAILS" SHEET 2 OF 4.  
 FOR APPROACH SLAB BILL OF MATERIAL, SEE "BRIDGE APPROACH SLAB DETAILS" SHEET 2 OF 4.  
 FOR SECTION THROUGH SLAB, SEE "BRIDGE APPROACH SLAB DETAILS" SHEET 2 OF 4.

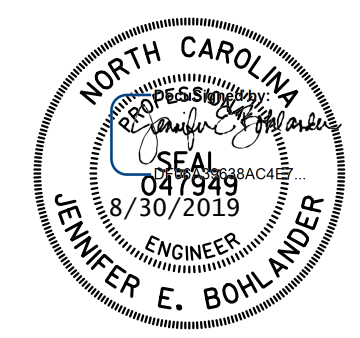


CURVE OFFSETS - APPROACH SLAB AT END BENT 1

CURVE OFFSETS - APPROACH SLAB AT END BENT 2

PROJECT NO. I-4400 BB  
 HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 1 OF 4  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 BRIDGE APPROACH SLAB  
 FOR INTEGRAL END BENT



**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 2/26/2019	DWG. NO. 51	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S2-51
1			3			TOTAL SHEETS
2			4			54

8/20/2019 10:56:55 AM \_X02\_ TO I\_4400BB\_SML\_ASO1\_051\_440211



### NOTES

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

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 6" Ø DRAINAGE PIPE, AND SELECT MATERIAL, SEE ROADWAY PLANS.

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

SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

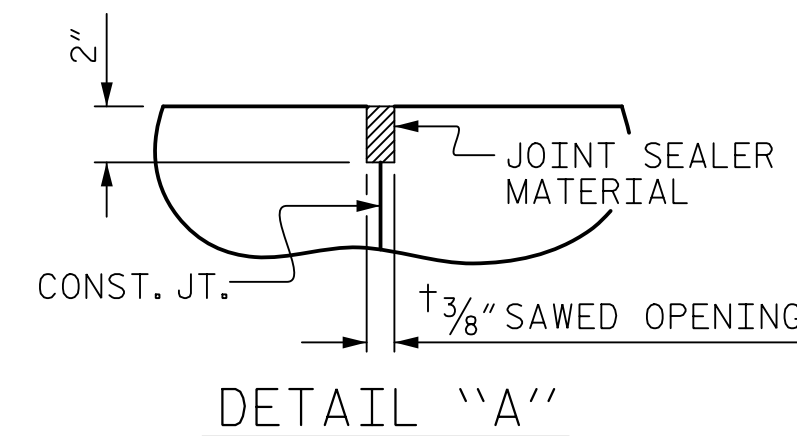
SELECT MATERIAL BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 6" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

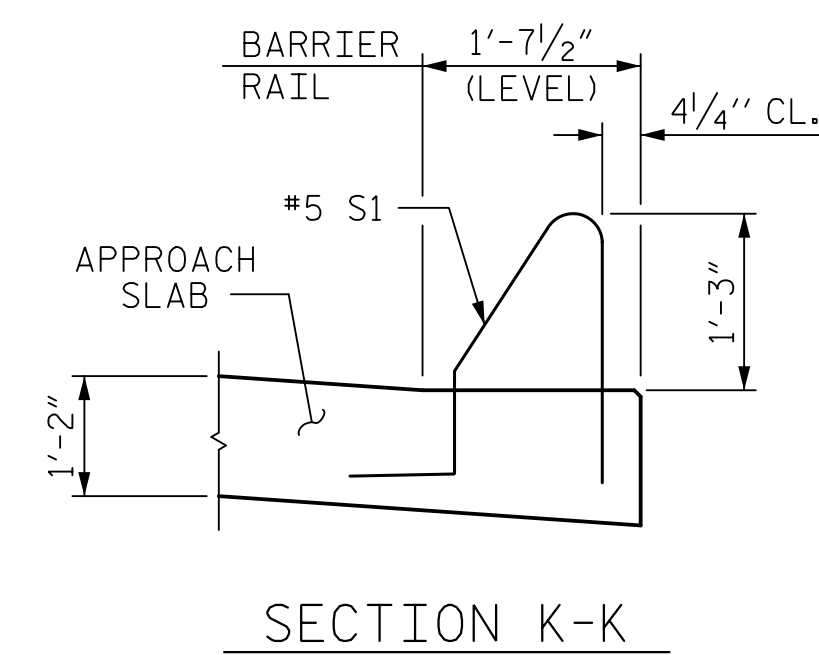
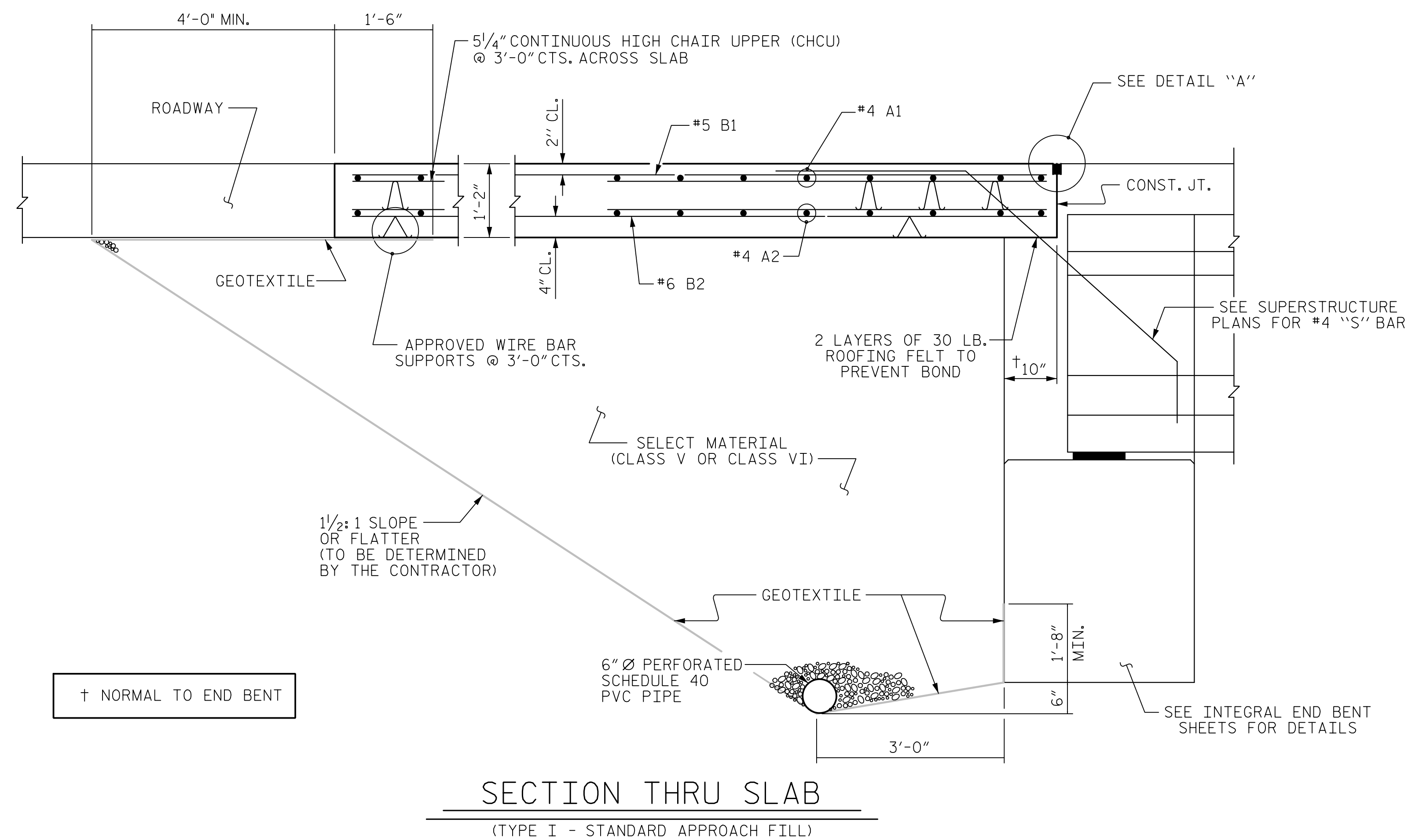
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

THE JOINT OPENING AT THE APPROACH SLAB/DECK INTERFACE SHALL BE SAWED NO MORE THAN 12 HOURS AFTER THE APPROACH SLAB IS CAST. THE JOINT SHALL BE CLEANED OF ALL DEBRIS BEFORE THE SEALANT IS APPLIED. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1028-3 OF THE STANDARD SPECIFICATIONS.

AT THE CONTRACTORS OPTION, "TYPE A - ALTERNATE APPROACH FILL" IN LIEU OF TYPE I - STANDARD APPROACH FILL" MAY BE CONSTRUCTED AT NO ADDITIONAL COST TO THE DEPARTMENT. SEE SHEET 2 OF 4 FOR DETAILS AND NOTES.



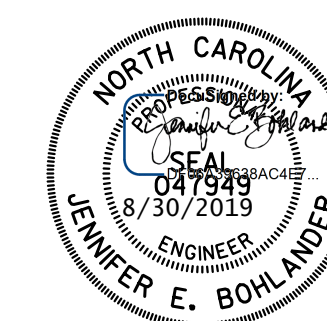
BILL OF MATERIAL													
FOR STAGE 1 END BENT 1 APPROACH SLAB						FOR STAGE 1 END BENT 2 APPROACH SLAB							
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT		
* A1	50	#4	STR	17'-11"	598	* A1	50	#4	STR	17'-11"	598		
A2	50	#4	STR	17'-9"	593	A2	50	#4	STR	17'-9"	593		
* A3	1	#4	STR	23'-4"	16	* A5	1	#4	STR	25'-11"	17		
A4	1	#4	STR	23'-0"	15	A6	1	#4	STR	25'-8"	17		
* B1	126	#5	STR	14'-3"	1,873	* B1	126	#5	STR	14'-3"	1,873		
B2	126	#6	STR	14'-3"	2,697	B2	126	#6	STR	14'-3"	2,697		
REINFORCING STEEL					LBS.	3,305	REINFORCING STEEL					LBS.	3,307
* EPOXY COATED REINFORCING STEEL					LBS.	2,487	* EPOXY COATED REINFORCING STEEL					LBS.	2,488
CLASS AA CONCRETE					CU. YDS.	36.0	CLASS AA CONCRETE					CU. YDS.	35.7
FOR STAGE 2 END BENT 1 APPROACH SLAB						FOR STAGE 2 END BENT 2 APPROACH SLAB							
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT		
* A7	52	#4	STR	21'-9"	756	* A7	52	#4	STR	21'-9"	756		
A8	52	#4	STR	21'-7"	750	A8	52	#4	STR	21'-7"	750		
* A9	2	#4	STR	20'-3"	27	* A13	1	#4	STR	27'-4"	18		
A10	2	#4	STR	20'-1"	27	A14	1	#4	STR	27'-4"	18		
* A11	1	#4	STR	14'-3"	10	* B3	166	#5	STR	14'-10"	2,568		
A12	1	#4	STR	14'-3"	10	B4	166	#6	STR	14'-10"	3,698		
* B3	166	#5	STR	15'-2"	2,626								
B4	166	#6	STR	15'-2"	3,782								
REINFORCING STEEL					LBS.	4,569	REINFORCING STEEL					LBS.	4,466
* EPOXY COATED REINFORCING STEEL					LBS.	3,419	* EPOXY COATED REINFORCING STEEL					LBS.	3,342
CLASS AA CONCRETE					CU. YDS.	48.9	CLASS AA CONCRETE					CU. YDS.	47.9



SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-1"	1'-9"
#5	2'-7"	2'-2"
#6	3'-10"	2'-7"

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 2 OF 4



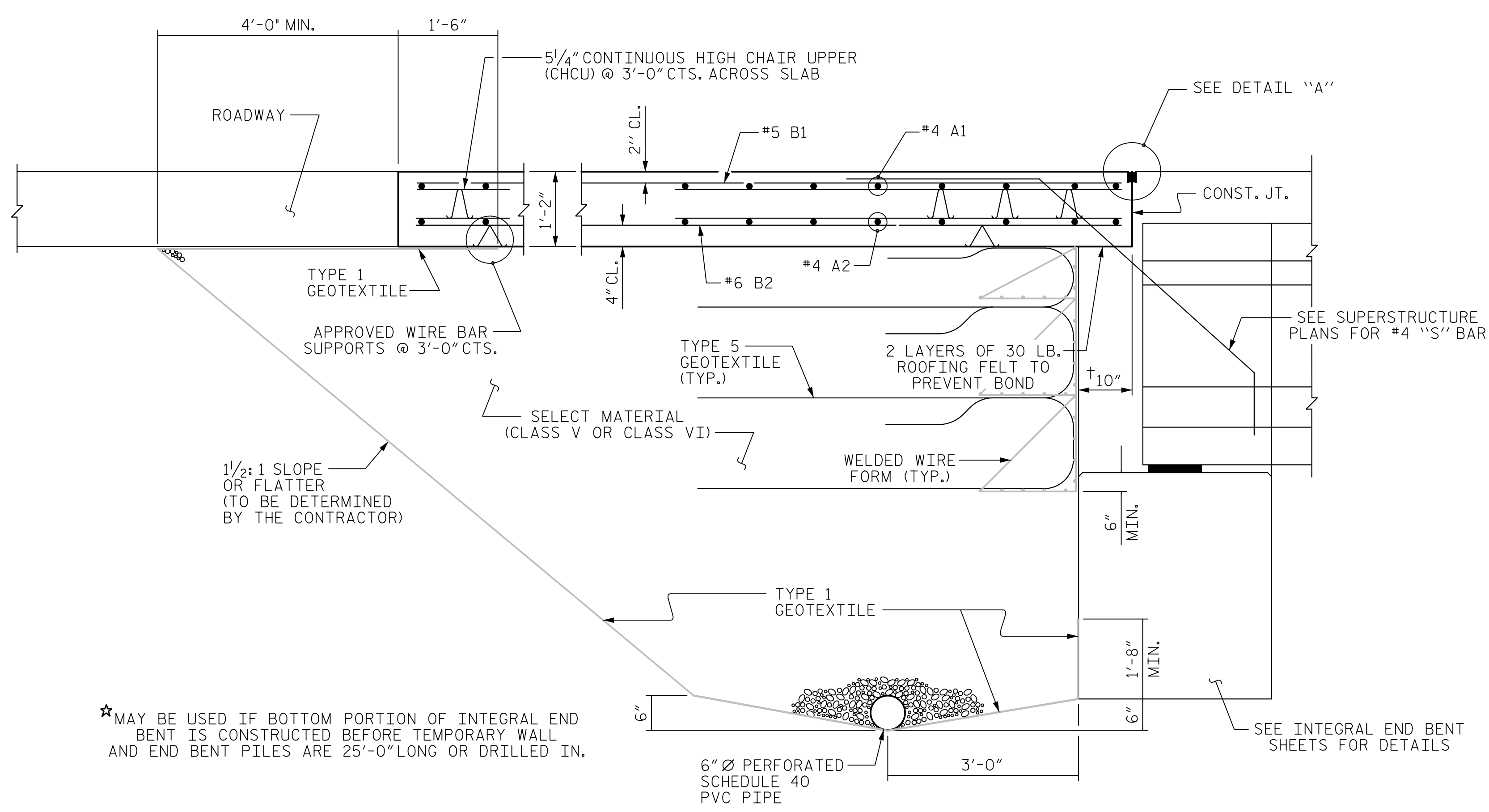
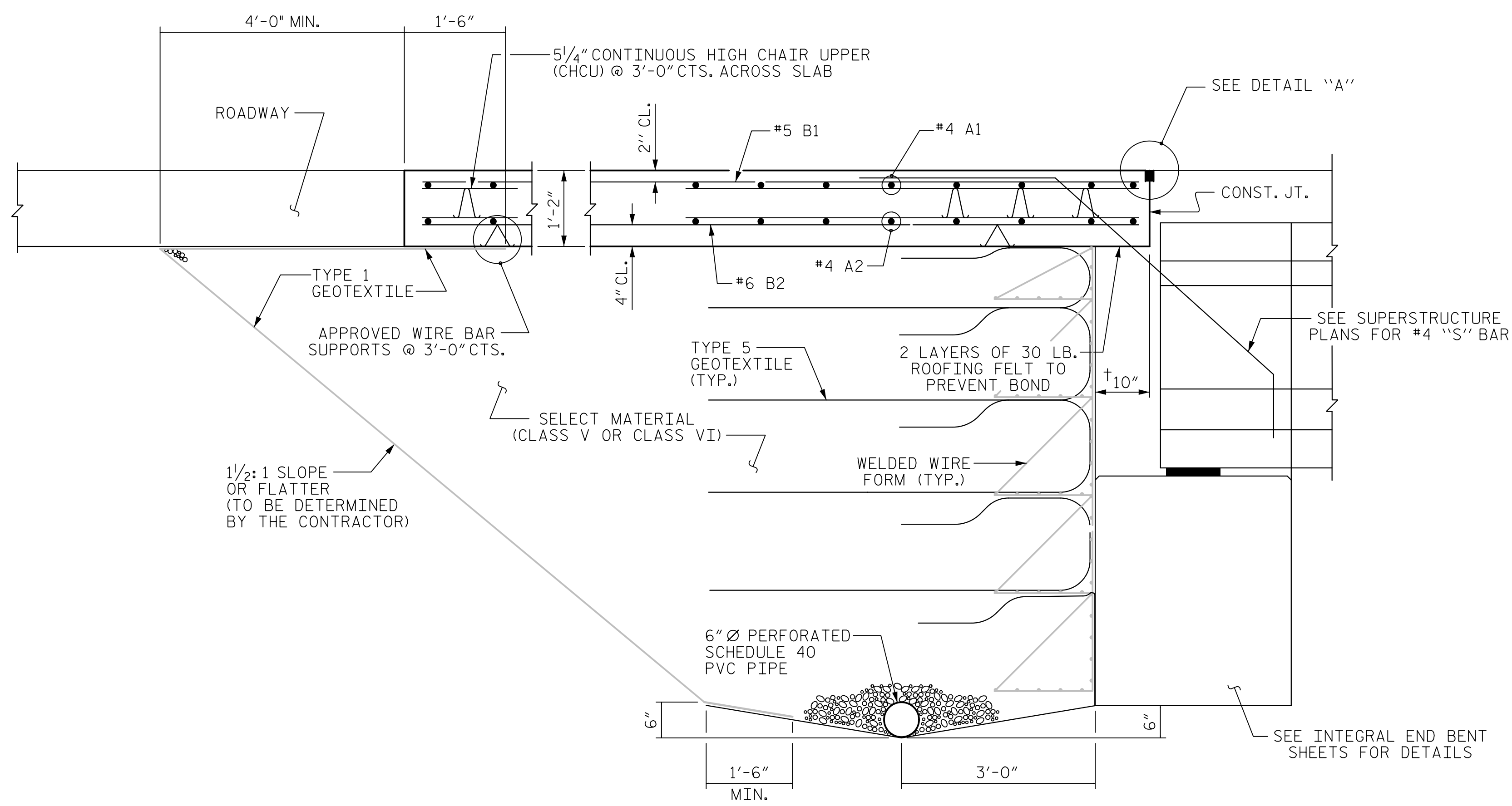
**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 2/26/2019	DWG. NO. 52	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD BRIDGE APPROACH SLAB DETAILS					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

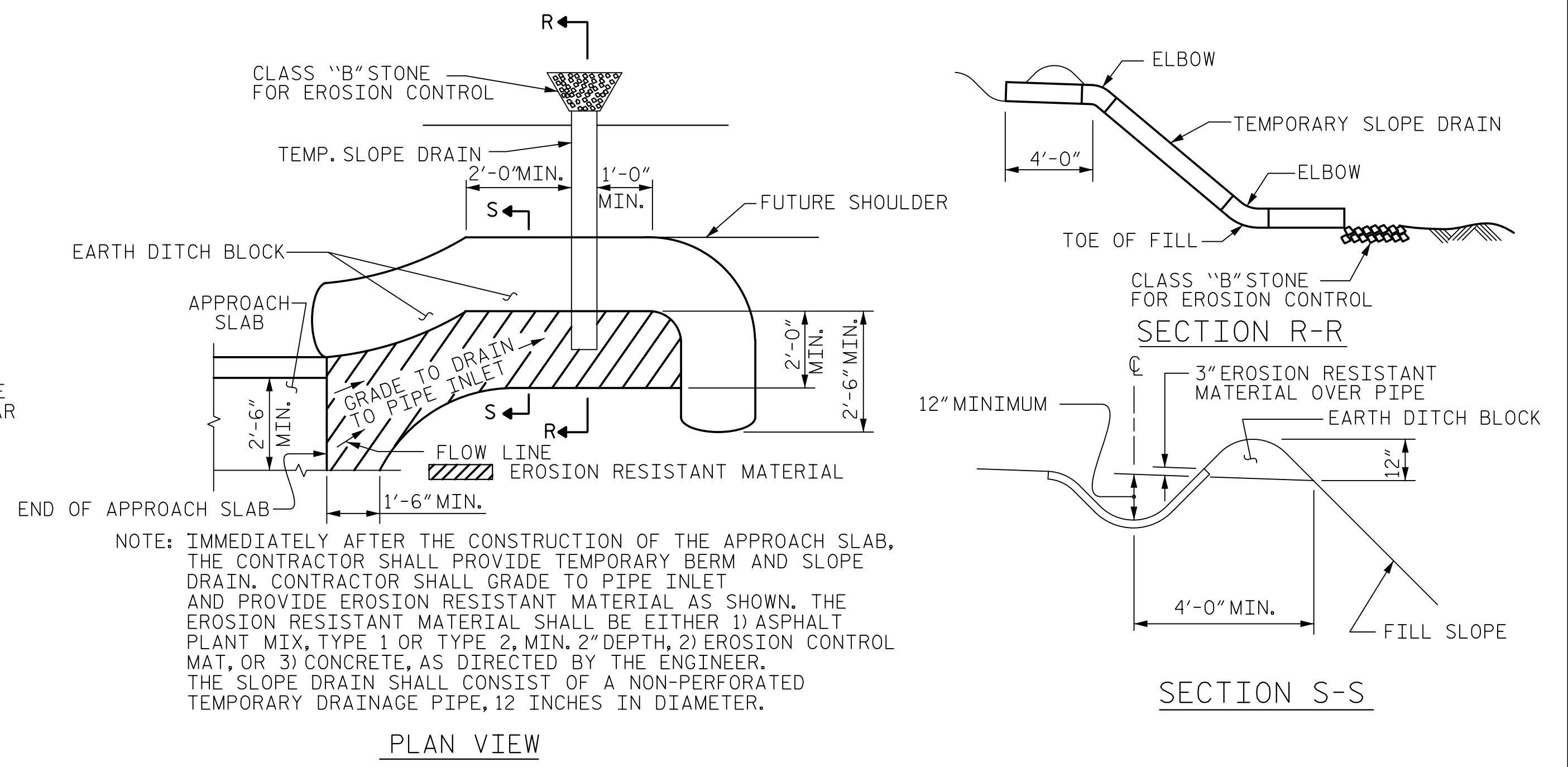
SHEET NO.	S2-52
TOTAL SHEETS	54





ASSEMBLED BY : N.HART	DATE : 7/12/19
CHECKED BY :	DATE :
DRAWN BY : TLA 10/05	REV. 12/21/11 MAA/GM
CHECKED BY : GM 5/06	REV. 6/13 MAA/GM
	REV. 12/17 MAA/THC

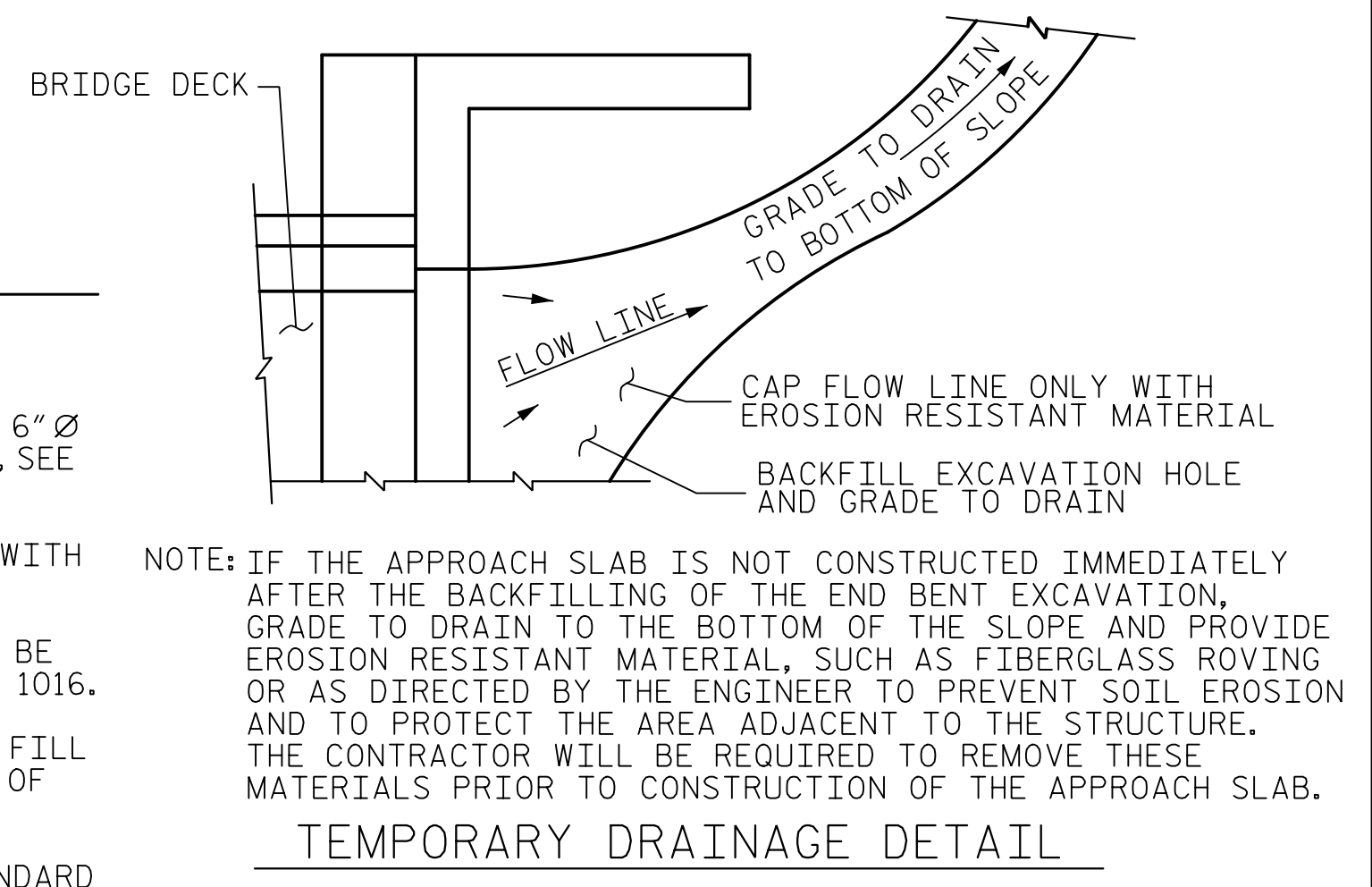
SECTION THRU SLAB  
(TYPE A - ALTERNATE APPROACH FILL)



TEMPORARY BERM AND SLOPE DRAIN DETAILS  
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

NOTES

- APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.
- FOR TEMPORARY GEOTEXTILE WALL INCLUDING GEOTEXTILE, 6" Ø DRAINAGE PIPE, WELDED WIRE FORM, AND SELECT MATERIAL, SEE ROADWAY PLANS.
- GEOTEXTILE (TYPE 1 OR TYPE 5) SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.
- SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.
- SELECT MATERIAL BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.
- FOR THE 6" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.
- AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.
- THE JOINT OPENING AT THE APPROACH SLAB/DECK INTERFACE SHALL BE SAWED NO MORE THAN 12 HOURS AFTER THE APPROACH SLAB IS CAST. THE JOINT SHALL BE CLEANED OF ALL DEBRIS BEFORE THE SEALANT IS APPLIED. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1028-3 OF THE STANDARD SPECIFICATIONS.



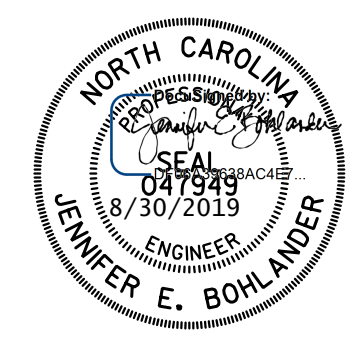
PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 3 OF 4

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

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

SHEET NO. S2-53  
 TOTAL SHEETS 47



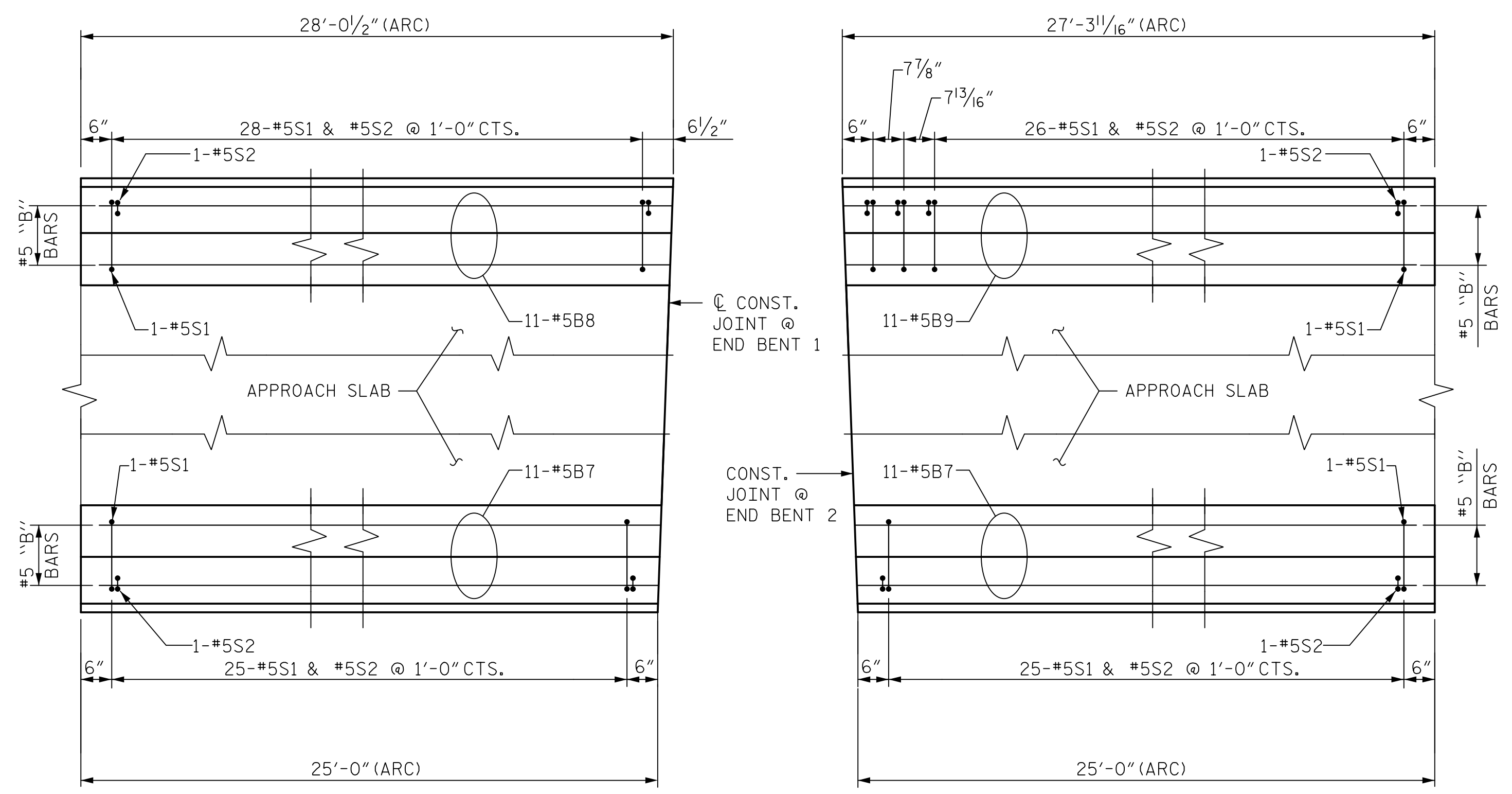
**HNTB** HNTB NORTH CAROLINA, P.C.  
 NC License No. C-1554  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

DRAWN BY: J.SLOAT DATE: 2/26/2019  
 CHECKED BY: J.BOHLANDER DATE: 3/18/2019  
 ENGINEER OF RECORD: J.BOHLANDER DATE: 3/18/2019

DWG. NO. 53

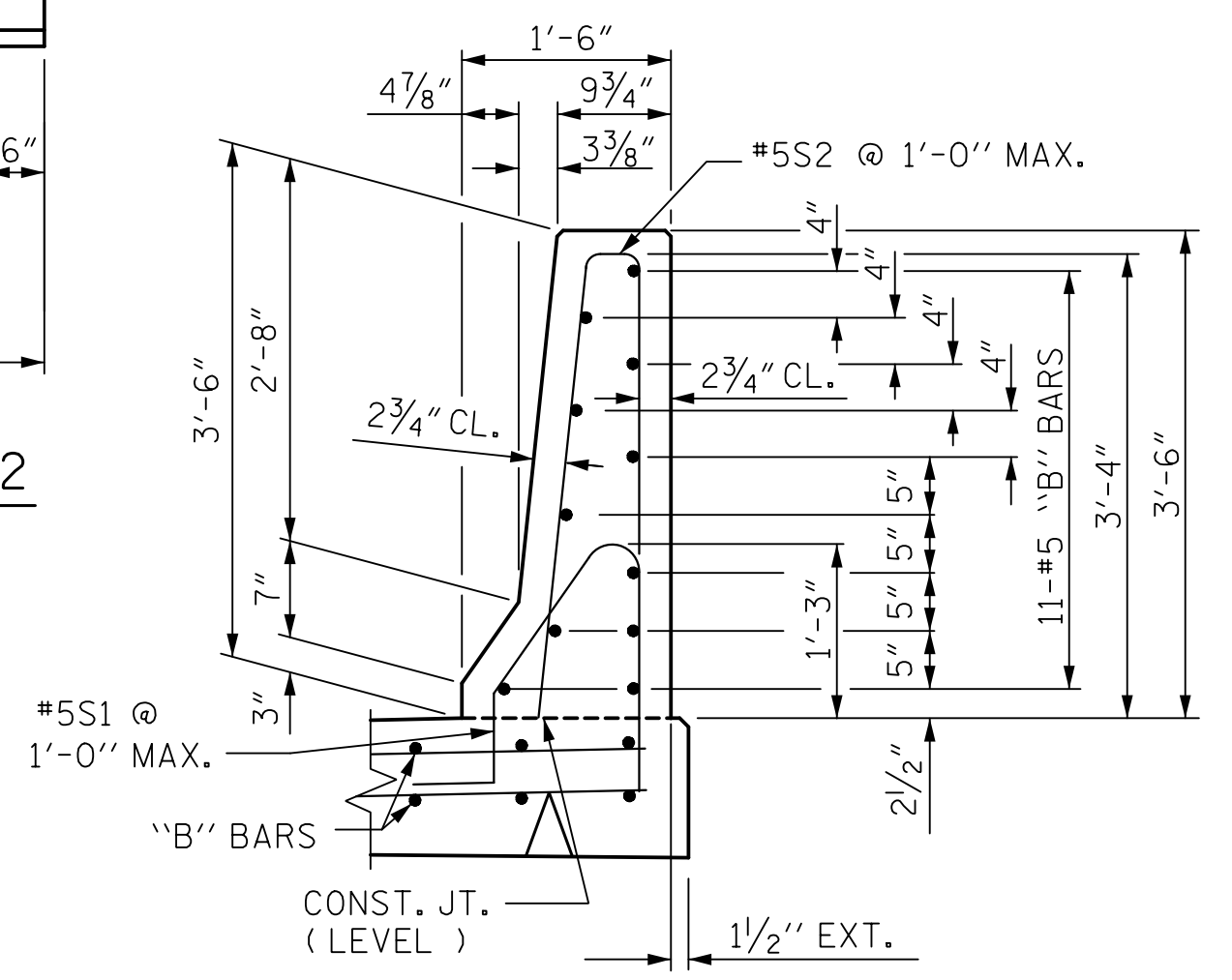
8/30/2019 10:56:07 AM \_MOE\_105\_14400BB\_SML\_A503\_053\_440211



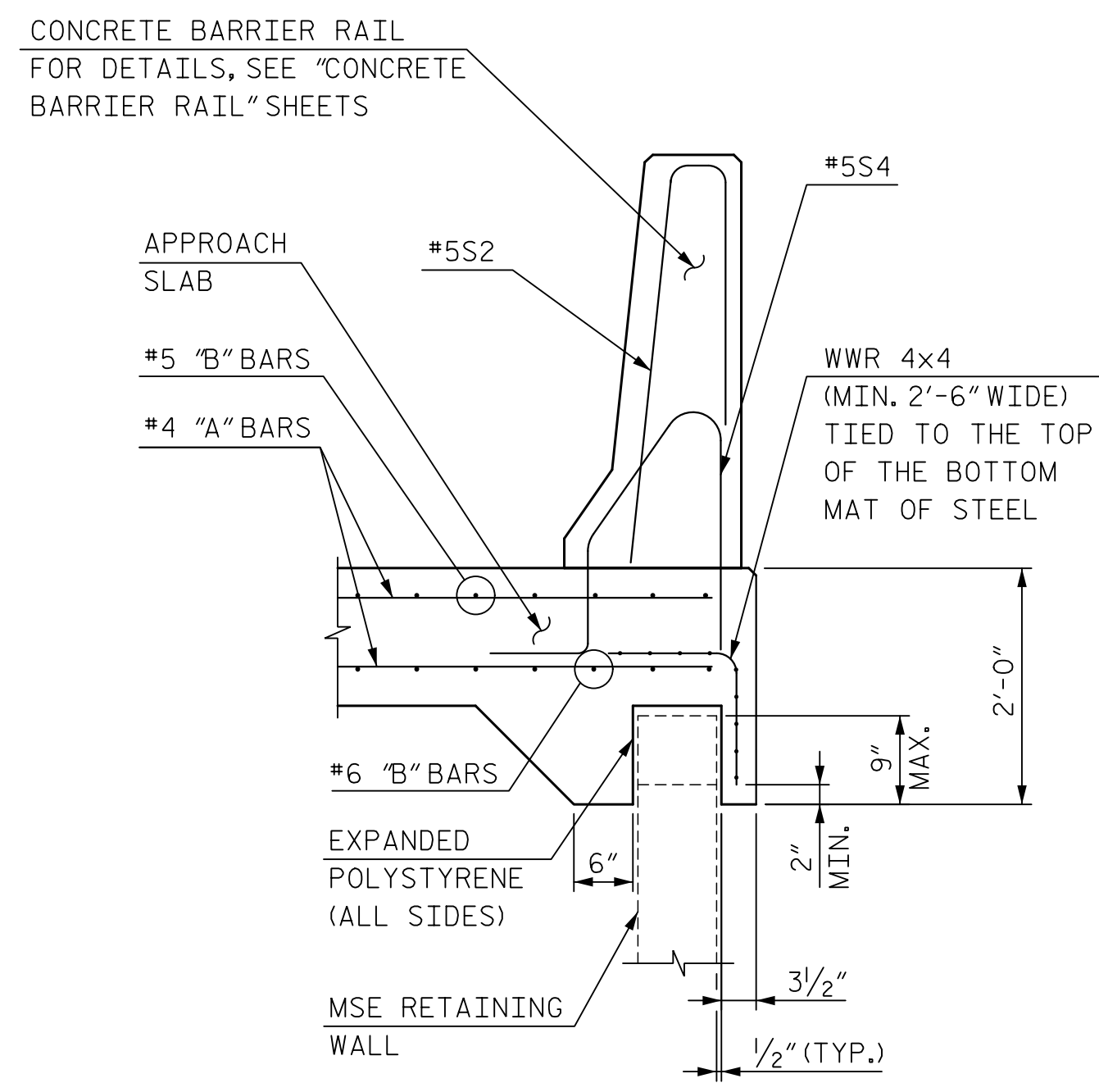
END BENT #1

PLAN OF BARRIER RAIL

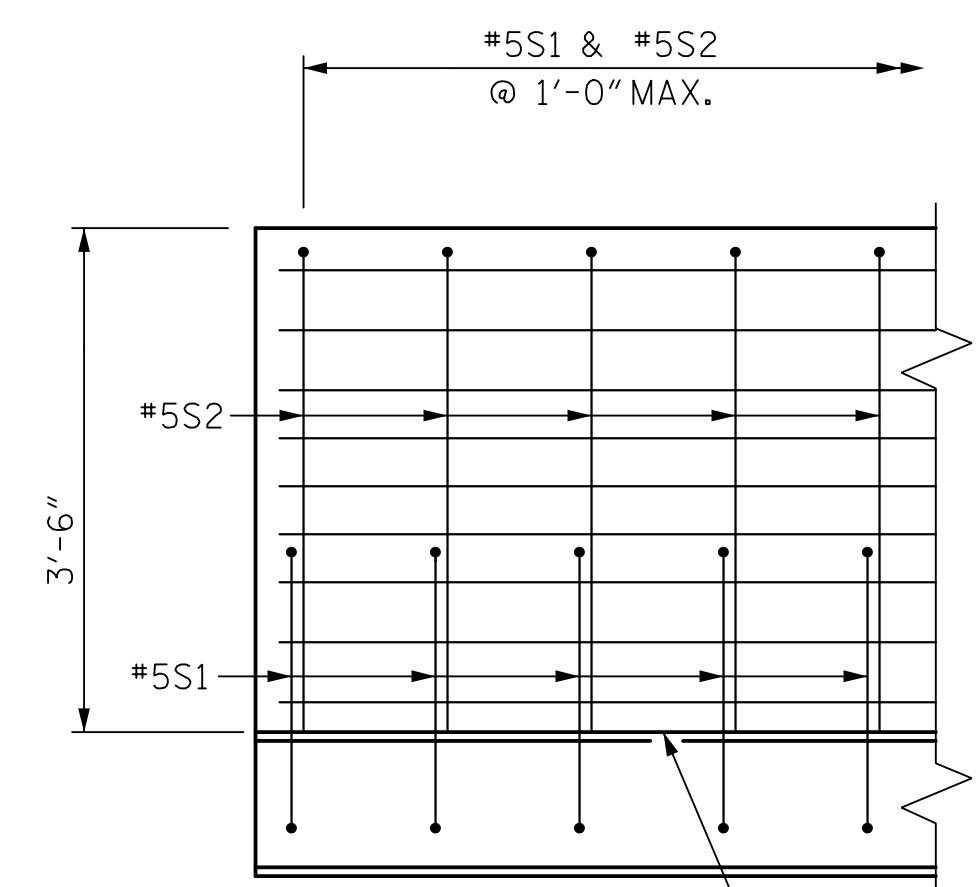
END BENT #2



SECTION THRU RAIL

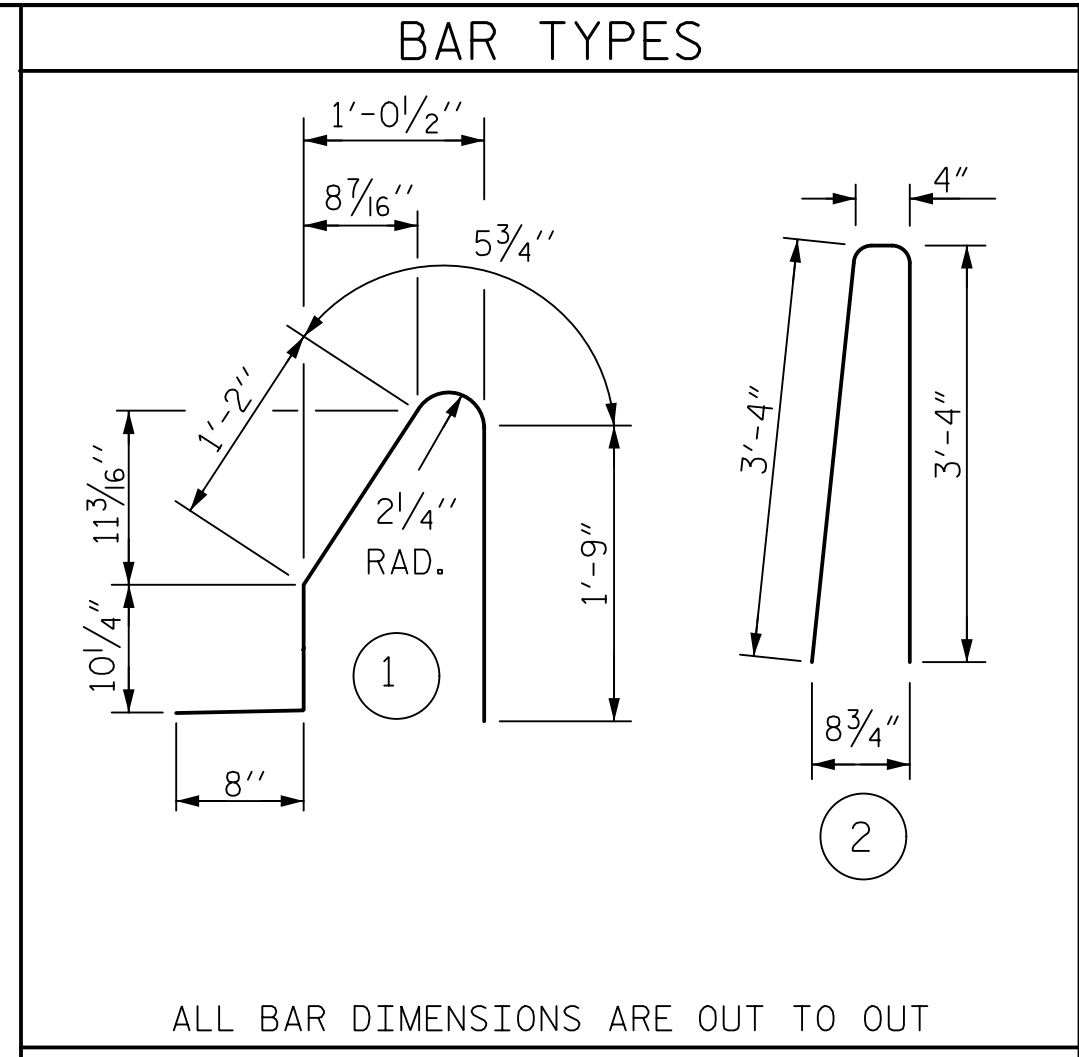


SECTION A-A



SIDE VIEW

END OF RAIL DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT

**BILL OF MATERIAL**

**BARRIER RAIL ONLY**

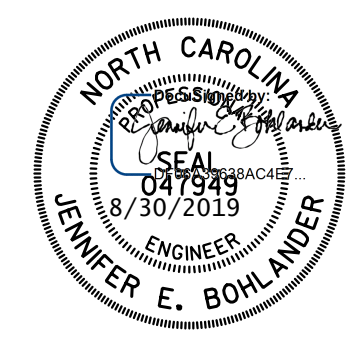
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B7	22	#5	STR	24'-8"	566
* B8	11	#5	STR	27'-7"	316
* B9	11	#5	STR	26'-11"	309
* S1	106	#5	1	4'-11"	544
* S2	106	#5	2	7'-0"	774
				* EPOXY COATED REINFORCING STEEL	LBS. 2,509
				CLASS AA CONCRETE	CU. YDS. 14.3
				CONCRETE BARRIER RAIL	LIN. FT. 105.35

**NOTES:**

- THE COST OF BARRIER RAIL ON THE APPROACH SLAB SHALL BE INCLUDED IN THE LINEAR FOOT CONCRETE BID PRICE "CONCRETE BARRIER RAIL".
- THE BARRIER RAIL SHALL NOT BE CAST UNTIL ALL APPROACH SLAB CONCRETE HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.
- ALL REINFORCEMENT IN THE BARRIER RAIL SHALL BE EPOXY COATED.

PROJECT NO. I-4400 BB  
HENDERSON COUNTY  
 STATION: 421+74.67 -L-

SHEET 4 OF 4



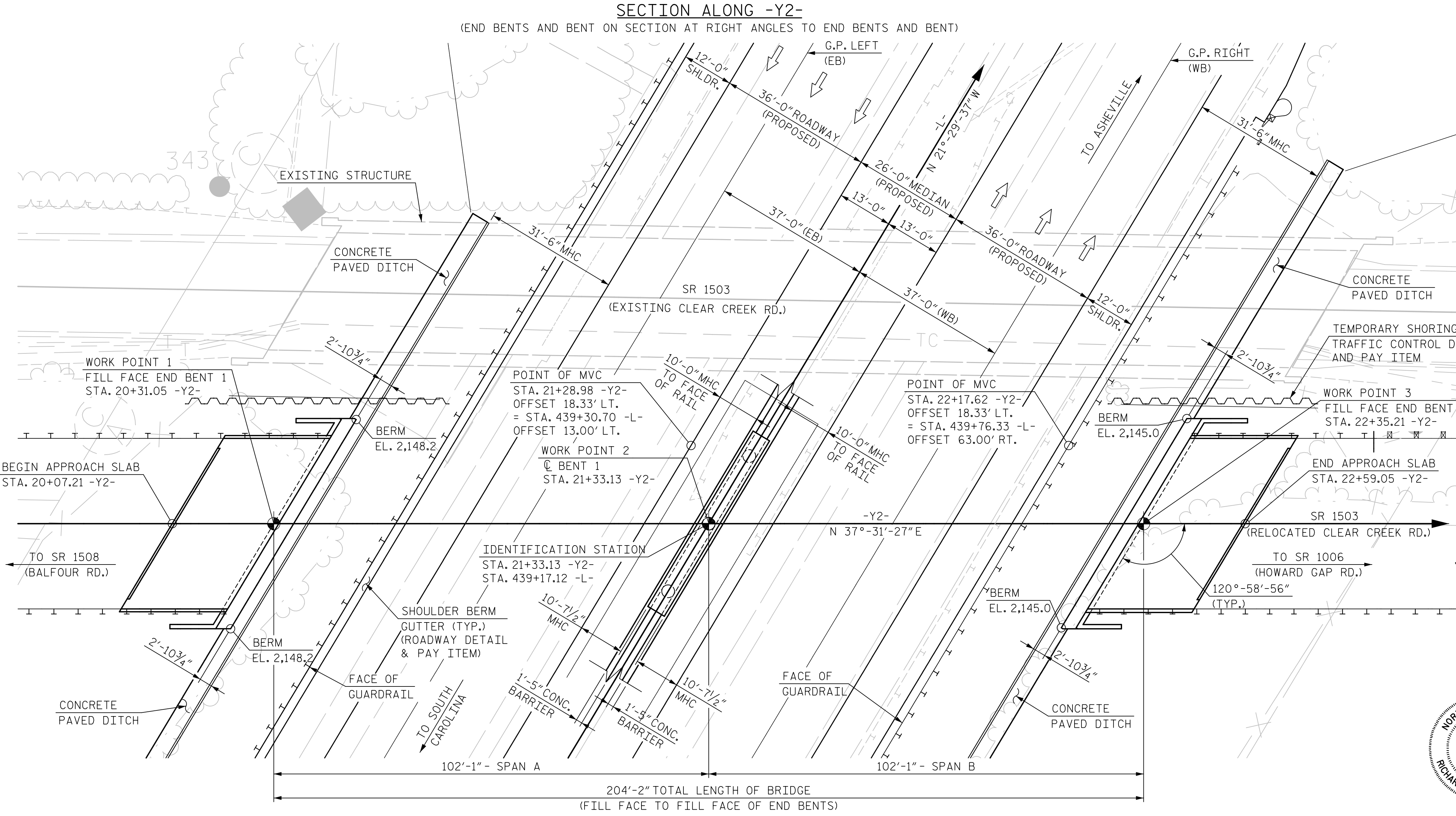
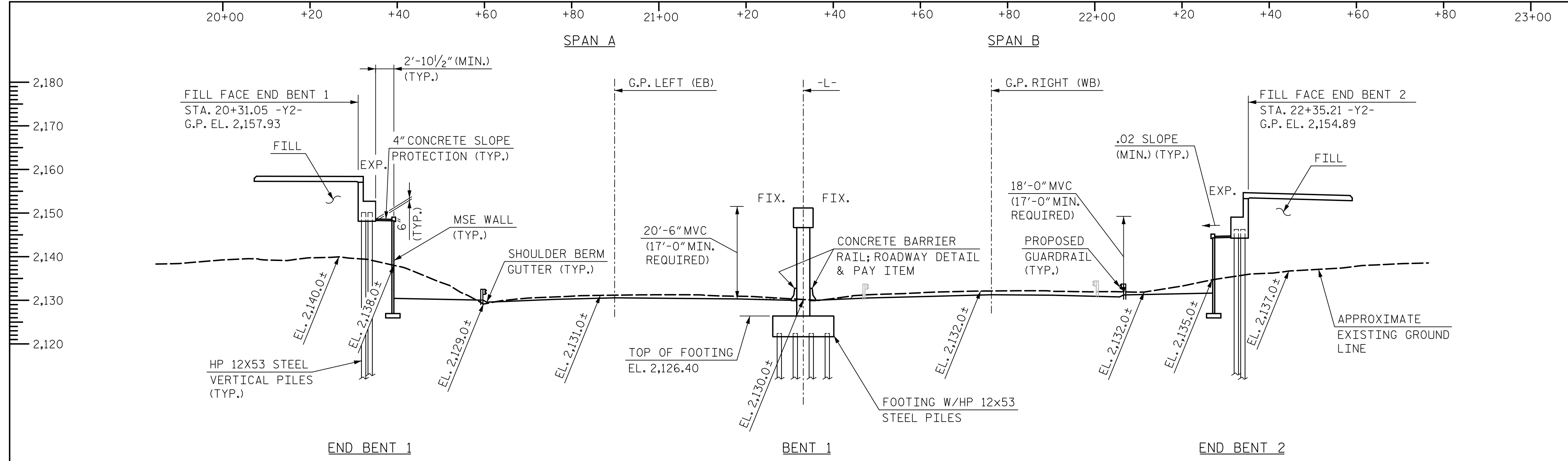
**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: J. SLOAT	DATE: 2/26/2019	DWG. NO. 54	
CHECKED BY: J. BOHLANDER	DATE: 3/18/2019		
ENGINEER OF RECORD: J. BOHLANDER	DATE: 3/18/2019		

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					SHEET NO. S2-54
STANDARD					
BRIDGE APPROACH SLAB DETAILS					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
TOTAL SHEETS					54

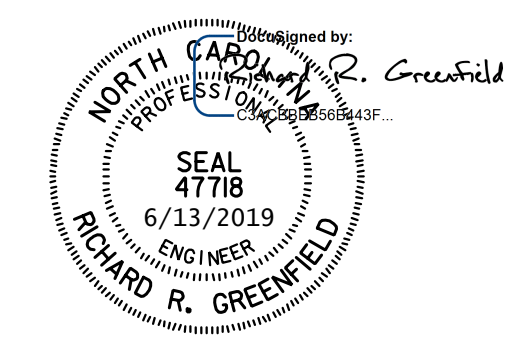
8/30/2019 10:59:04 AM \_MOE\_TOT\_1400BB\_SMLAS04\_051\_440211





PROJECT NO. I-4400BB  
 HENDERSON COUNTY  
 STATION: STA. 21+33.13 -Y2-  
STA. 439+17.12 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 217  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 GENERAL DRAWING  
 BRIDGE ON SR 1503  
 (CLEAR CREEK ROAD)  
 OVER I-26 BETWEEN  
 SR 1508 AND SR 1006



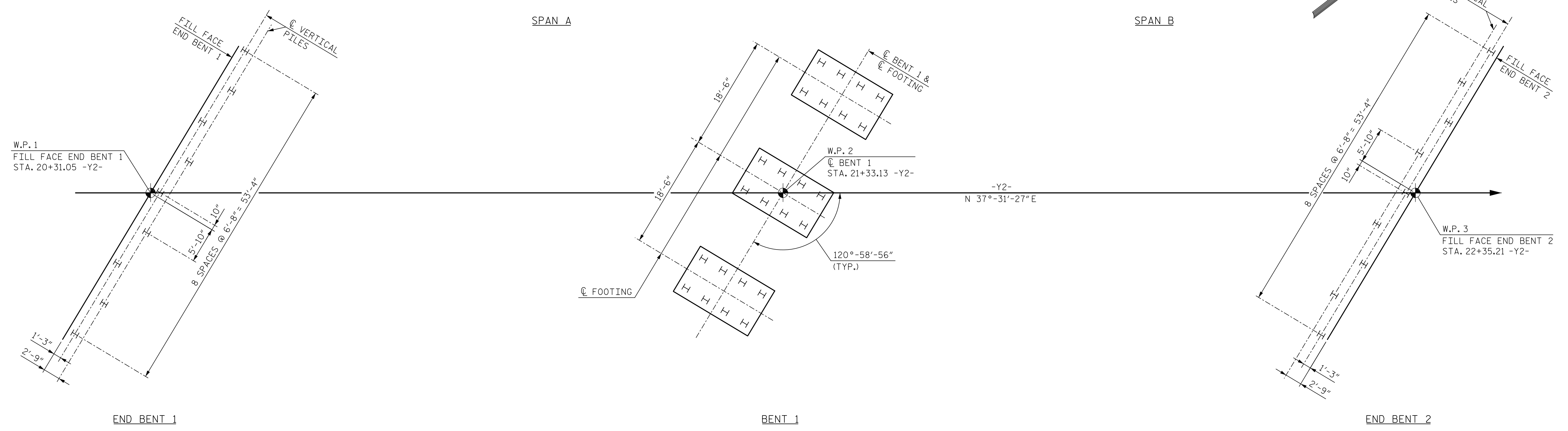
<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: C. TOMPKINS	DATE: 2/19	DWG. NO. 1	REVISIONS
CHECKED BY: C. SUTARIA	DATE: 2/19		
DESIGN ENGINEER OF RECORD: R. GREENFIELD	DATE: 3/19		

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

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

6/13/2019 2:40:53 PM I:\4400BB-SM\GD01-001-440217.dgn





FOUNDATION LAYOUT

**FOUNDATION NOTES:**

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT 1 AND END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 90 TONS PER PILE.

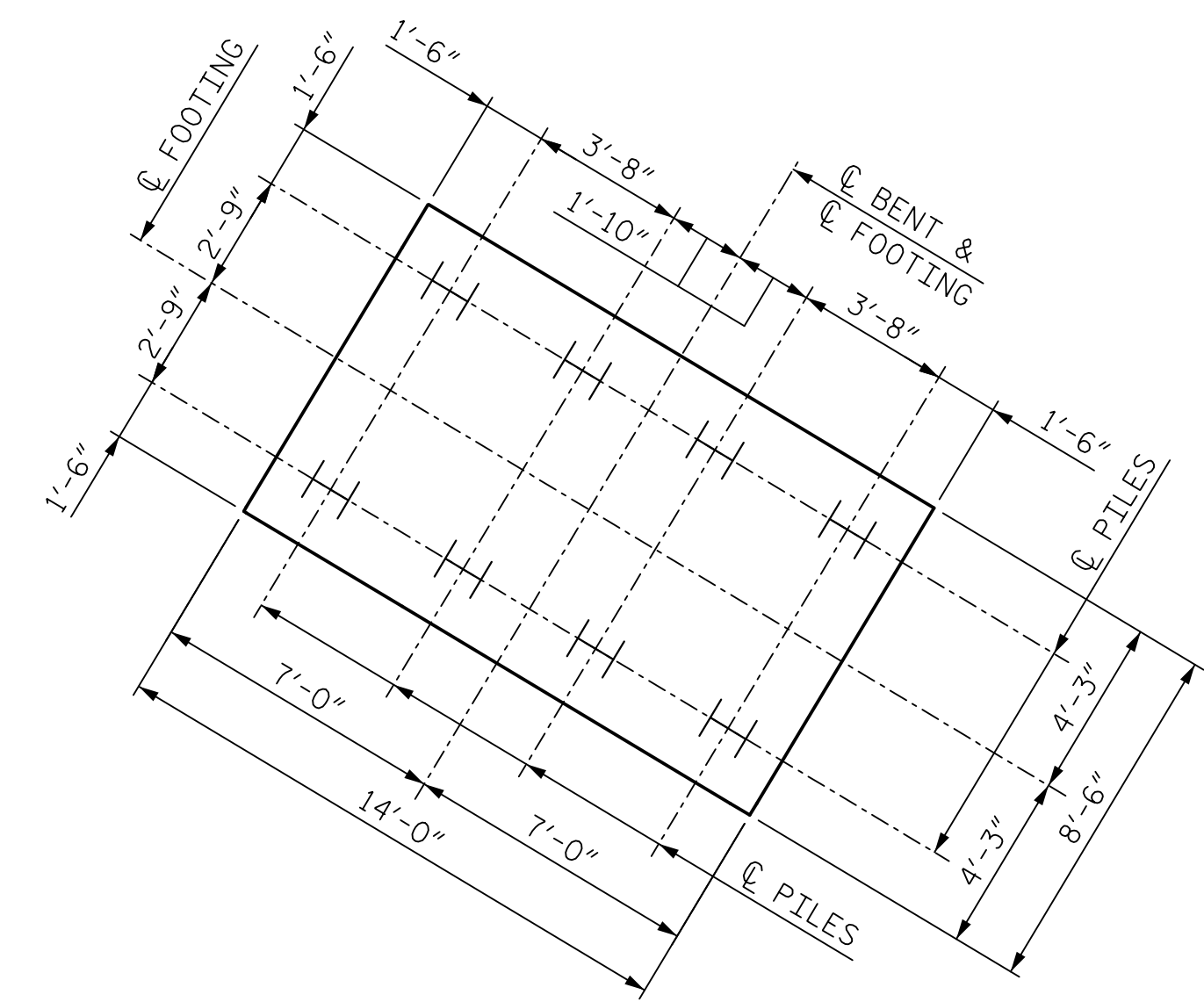
DRIVE PILES AT END BENT 1 AND END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.

PILES AT BENT 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 125 TONS PER PILE.

DRIVE PILES AT BENT 1 TO A REQUIRED DRIVING RESISTANCE OF 208 TONS PER PILE.

PREDRILLING FOR THE 16 PILES IN THE LEFT AND CENTER FOOTING IS REQUIRED FOR BENT 1. PREDRILL PILE LOCATIONS TO AN ELEVATION NO LOWER THAN 2,105 FT. WITH THE EQUIPMENT THAT WILL RESULT IN A MAXIMUM PREDRILLING DIAMETER OF 12". FOR PREDRILLING FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT BENT 1. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.



TYPICAL FOOTING LAYOUT BENT 1

**NOTES:**

ALL DIMENSIONS ARE PARALLEL OR NORMAL TO  $\text{\textcircled{C}}$  BENTS AND FILL FACES.

ALL END BENT PILES ARE HP 12X53 STEEL PILES.

ALL BENT PILES ARE HP 12X53 STEEL PILES.

FOR FOUNDATION ELEVATIONS AND DETAILS, SEE BENT AND END BENT DETAILS.

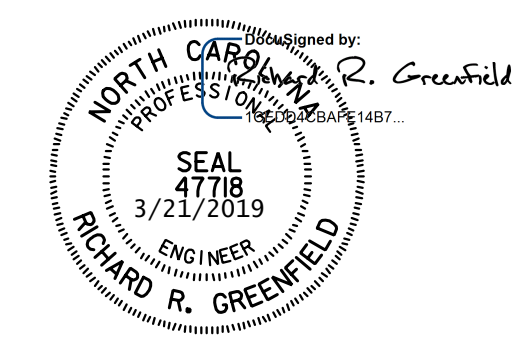
ALL PILE DIMENSIONS ARE TO  $\text{\textcircled{C}}$  OF PILES.

PROJECT NO. I-4400BB  
HENDERSON COUNTY  
 STATION: STA. 21+33.13 -Y2-

SHEET 2 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

GENERAL DRAWING  
 FOUNDATION LAYOUT



**HNTB** HNTB NORTH CAROLINA, P.C.  
 NC License No. C-1554  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: C. TOMPKINS DATE: 2/19  
 CHECKED BY: A. WAGNER DATE: 2/19  
 DESIGN ENGINEER OF RECORD: R. GREENFIELD DATE: 3/19

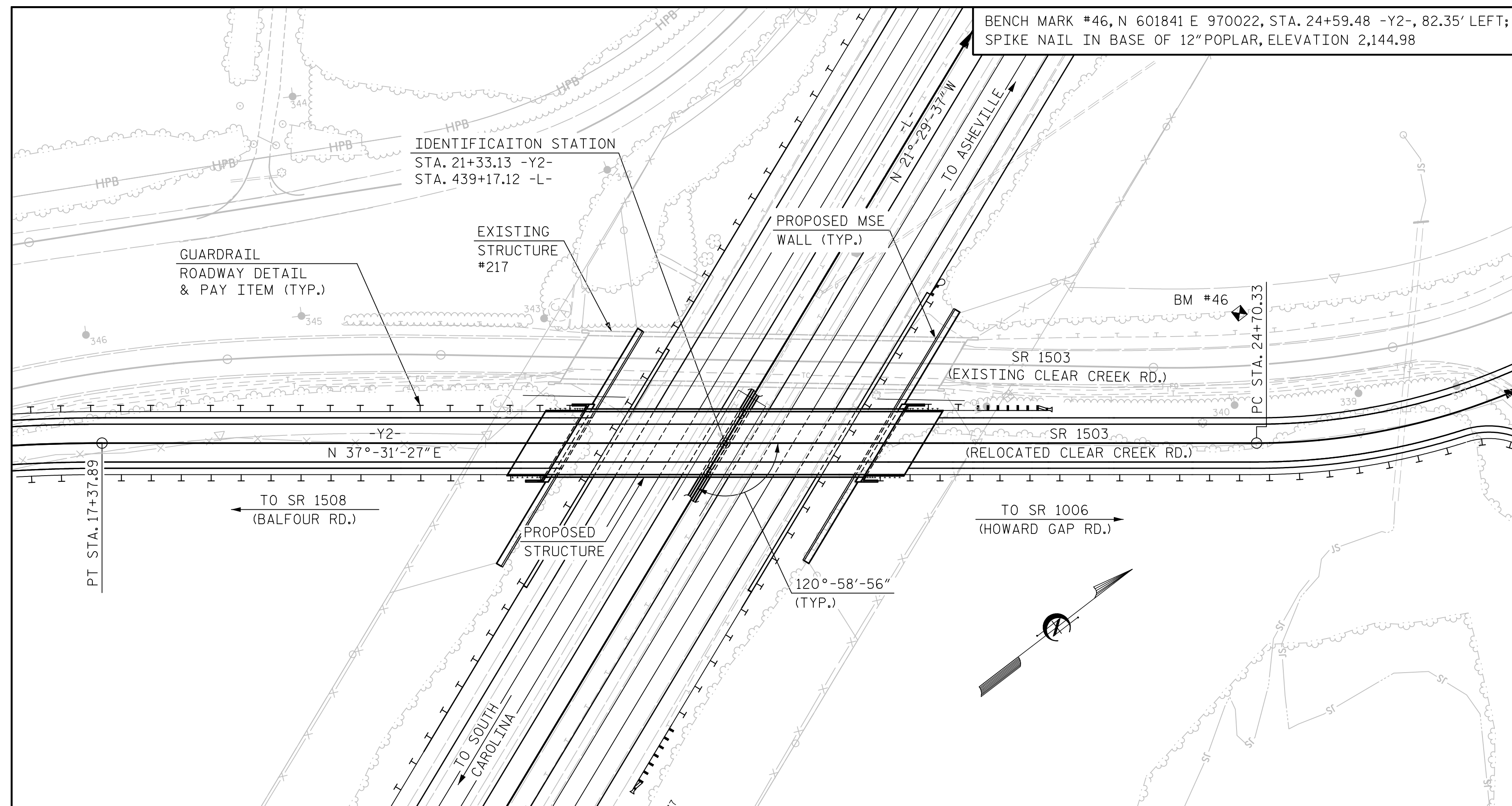
DWG. NO. 2

**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S3-2
1			3			TOTAL SHEETS
2			4			30

3/21/2019 3:40:00 PM S:\4400BB\_SML\_GDD2.DOC 44021.dgn





LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

**GENERAL NOTES:**

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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 SAMPLE BARS SHOULD COME FROM STEEL ACTUALLY USED IN THE PROJECT AND THE SAMPLE BARS SHOULD BE REPLACED BY SPLICED BARS AS SPECIFIED IN THE SAMPLE BAR REPLACEMENT CHART. PAYMENT FOR THE SAMPLE BARS AND REPLACEMENT REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

THE ELEVATION(S) AND CLEARANCE(S) SHOWN ON THE PLANS AT THE POINT(S) OF MINIMUM VERTICAL CLEARANCE ARE FROM THE BEST INFORMATION AVAILABLE. PRIOR TO BEGINNING BRIDGE CONSTRUCTION, VERIFY THE ELEVATION(S) ON THE EXISTING PAVEMENT AND CHECK THE CLEARANCE. REPORT ANY VARIATIONS TO THE ENGINEER. ANY PLAN REVISIONS NECESSARY TO ACHIEVE THE REQUIRED MINIMUM VERTICAL CLEARANCE WILL BE PROVIDED BY THE DEPARTMENT.

FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, SEE SPECIAL PROVISIONS.

PRESTRESSED CONCRETE DECK PANELS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS. THE SKEWED END CONDITIONS ARE SUCH THAT THE USE OF 4' WIDE PRESTRESSED CONCRETE DECK PANELS IS NOT POSSIBLE; USE OF 8' WIDE PRESTRESSED CONCRETE DECK PANELS IS NECESSARY.

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

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

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 21+33.13 -Y2-".

THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

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.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF 4 SPANS AT 63'-5", 66'-3", 66'-3" AND 44'-5" WITH REINFORCED CONCRETE DECK; ON 4 LINES OF 36" STEEL I-BEAMS WITH A CLEAR ROADWAY WIDTH OF 28'-0"; ON REINFORCED CONCRETE END BENTS WITH PILE FOOTINGS AND REINFORCED CONCRETE POST AND BEAM BENTS WITH PILE FOOTINGS, LOCATED ADJACENT TO THE PROPOSED STRUCTURE SITE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

FOR ARCHITECTURAL CONCRETE SURFACE TREATMENT, SEE SPECIAL PROVISIONS.

FOR APPLICATION OF BRIDGE COATING, SEE SPECIAL PROVISIONS.

SAMPLE BAR REPLACEMENT		NOTE:
SIZE	LENGTH	SAMPLE BAR REPLACEMENT LENGTHS BASED ON 30" (SAMPLE LENGTH) PLUS TWO SPLICE LENGTHS AND fy = 60ksi. BAR LENGTHS IN THIS TABLE ARE A GUIDE. THE ENGINEER SHALL APPROVE FINAL LENGTHS BASED ON THE TYPE AND LOCATION OF SAMPLE BAR.
#3	6'-2"	
#4	7'-4"	
#5	8'-6"	
#6	9'-8"	
#7	10'-10"	
#8	12'-0"	
#9	13'-2"	
#10	14'-6"	
#11	15'-10"	

TOTAL BILL OF MATERIAL											
	REMOVAL OF EXISTING STRUCTURE AT STATION 21+33.13 -Y2-	ASBESTOS ASSESSMENT	FOUNDATION EXCAVATION FOR BENT 1, AT STATION 21+33.13 -Y2-	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS, STATION 21+33.13 -Y2-	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	54" PRESTRESSED CONCRETE GIRDERS	
	LUMP SUM	LUMP SUM		SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	LBS.	NO.	L.F.
SUPERSTRUCTURE	---	---	---	8,725	10,070	---	LUMP SUM	---	---	10	994.58
END BENT 1	---	---	---	---	---	56.3	---	7,601	---	---	---
BENT 1	---	---	LUMP SUM	---	---	119.3	---	17,019	1,372	---	---
END BENT 2	---	---	---	---	---	57.1	---	7,536	---	---	---
<b>TOTAL</b>	LUMP SUM	LUMP SUM	LUMP SUM	8,725	10,070	232.7	LUMP SUM	32,156	1,372	10	994.58

TOTAL BILL OF MATERIAL										
	PILE DRIVING EQUIPMENT SETUP FOR HP 12x53 STEEL PILES	HP 12x53 STEEL PILES	STEEL PILE POINTS	PREDRILLING FOR PILES	CONCRETE BARRIER RAIL	4" SLOPE PROTECTION	ELASTOMERIC BEARINGS	FOAM JOINT SEALS	ARCHITECTURAL CONCRETE SURFACE TREATMENT	APPLICATION OF BRIDGE COATING
	EACH	NO.	L.F.	NO.	L.F.	SQ. YD.	LUMP SUM	LUMP SUM	SQ. FT.	LUMP SUM
SUPERSTRUCTURE	---	---	---	---	---	403.20	LUMP SUM	LUMP SUM	1,764.6	LUMP SUM
END BENT 1	9	9	360	---	---	72	---	---	499.8	LUMP SUM
BENT 1	24	24	680	24	272	---	---	---	510.7	LUMP SUM
END BENT 2	9	9	585	---	---	70	---	---	501.3	LUMP SUM
<b>TOTAL</b>	42	42	1,625	24	272	403.20	LUMP SUM	LUMP SUM	3,276.4	LUMP SUM

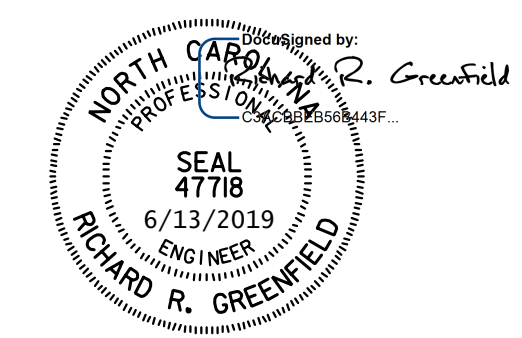
PROJECT NO. I-4400BB  
HENDERSON COUNTY  
 STATION: STA. 21+33.13 -Y2-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

GENERAL DRAWING

LOCATION SKETCH AND  
 TOTAL BILL OF MATERIAL



**HNTB** HNTB NORTH CAROLINA, P.C.  
 NC License No. C-1554  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: C. TOMPKINS DATE: 2/19  
 CHECKED BY: C. SUTARIA DATE: 2/19  
 DESIGN ENGINEER OF RECORD: R. GREENFIELD DATE: 3/19

DWG. NO. 3

**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S3-3
1			3			TOTAL SHEETS
2			4			30

6/13/2019 10:05:44 AM 4400BB\_SML\_GD03\_003\_44021.dgn



**NOTES:**

PROVIDE 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF "A" BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (CHCM) AT 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF "A" BARS A CLEAR DISTANCE OF 2 1/2" ABOVE THE TOP OF THE REMOVABLE FORM.

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

PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.

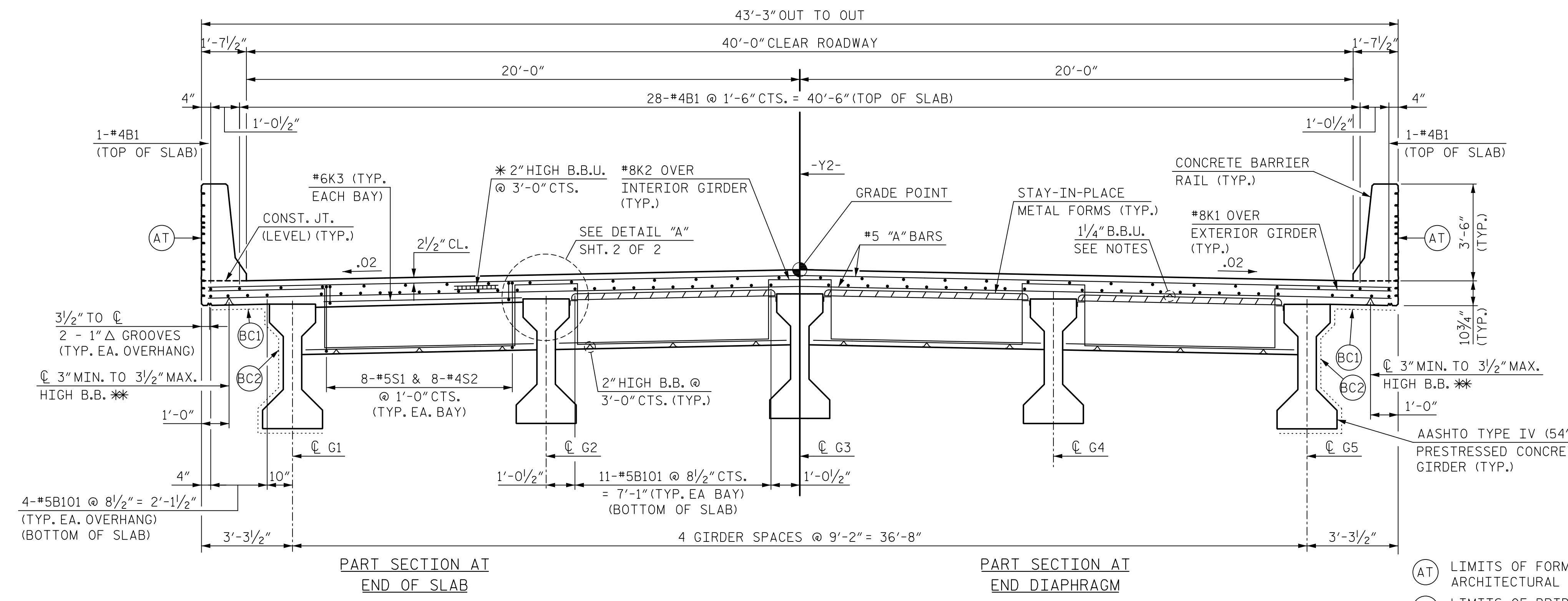
BARRIER RAIL IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

NO CHAMFER IS REQUIRED ON CORNERS OF GIRDER BUILDUPS.

\*5G1 BAR MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.

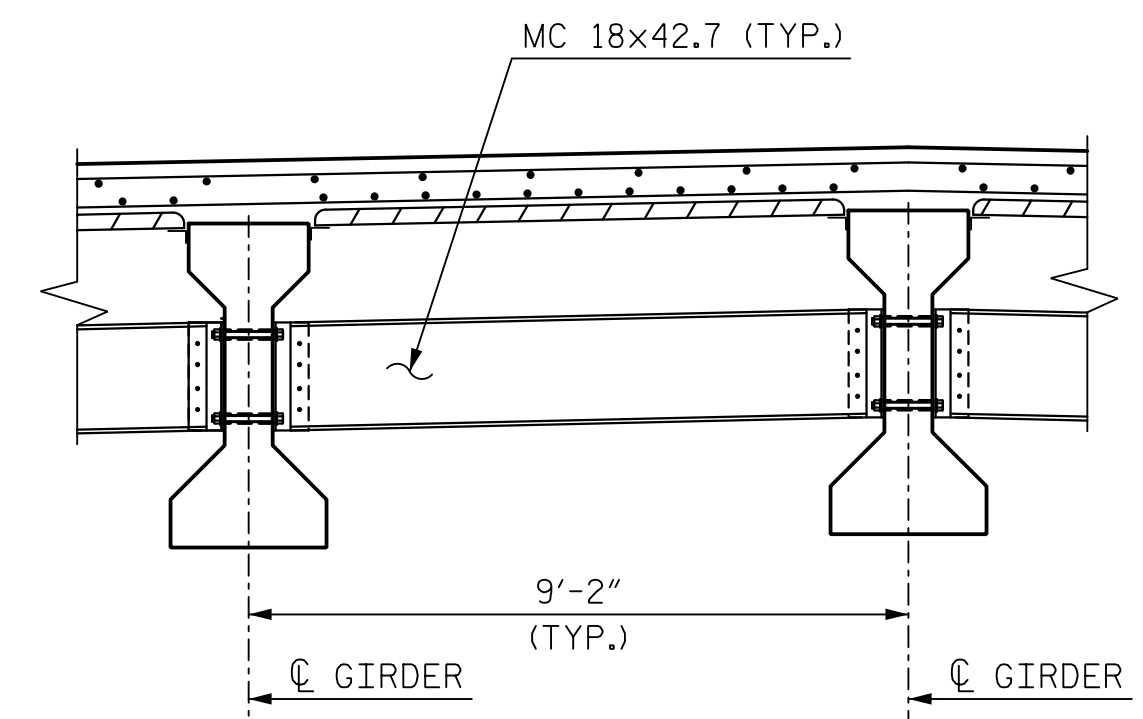
\* TO MAINTAIN PROPER LOCATION OF "A" BARS IN TOP OF SLAB, B.B.U. DEPTH MUST VARY IN UNIT AS THE MAXIMUM SIZE OF THE "B" BARS IN THE TOP OF SLAB VARIES. A 2" B.B.U. SHALL BE USED WHERE ONLY #4 "B" BARS ARE PRESENT. WHERE #7 "B" BARS ARE PRESENT, A 1 3/4" B.B.U. SHALL BE USED.

\* THE HEIGHT OF THE BEAM BOLSTER VARIES ALONG THE LENGTH OF THE SPAN DUE TO CAMBER AND THE VARYING HEIGHT REQUIRED FOR THE BUILDUP. THE CONTRACTOR SHALL HAVE SUFFICIENT SIZES TO PROPERLY SUPPORT THE REINFORCING STEEL.

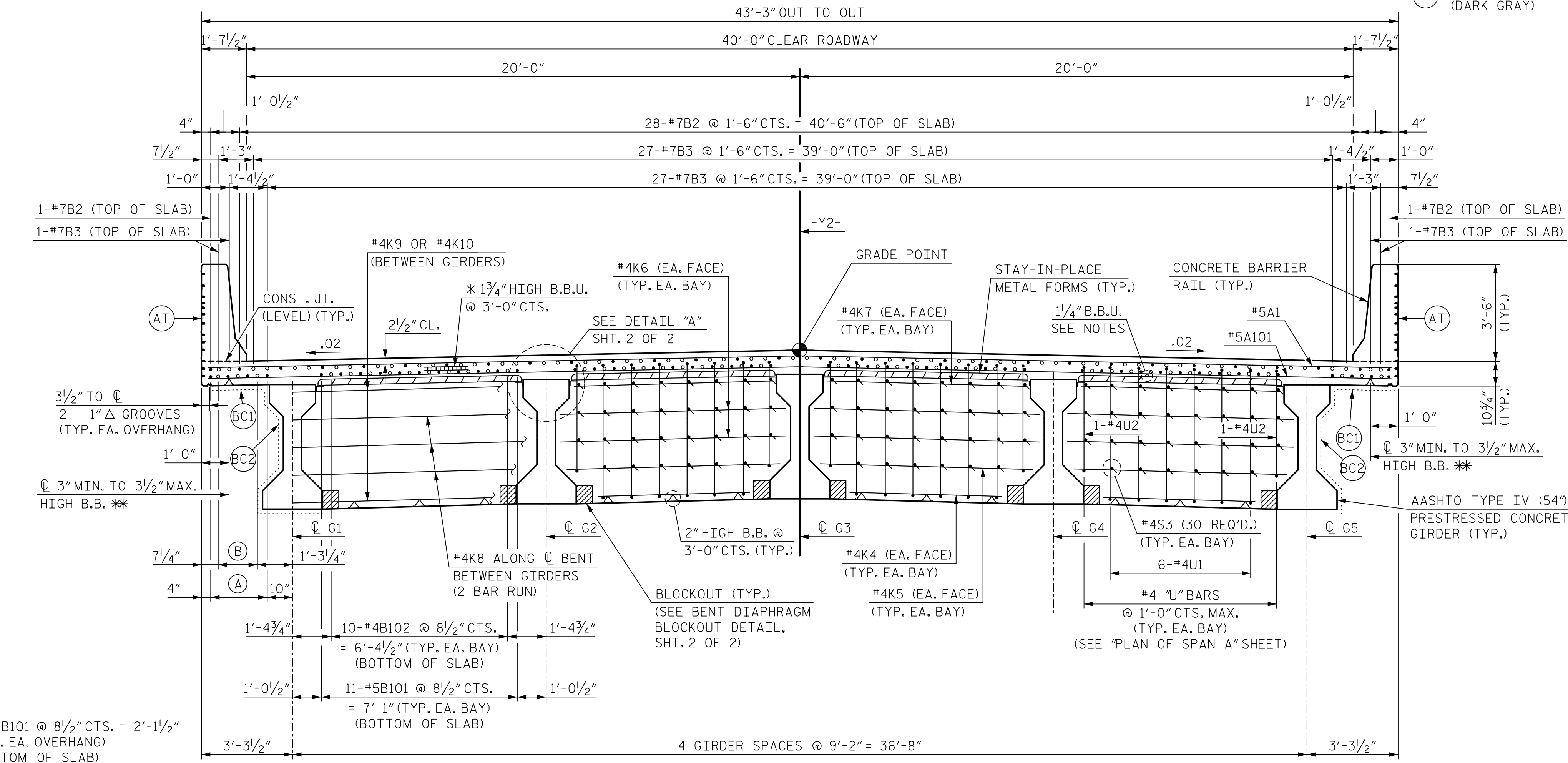


TYPICAL SECTION AT END BENT

- (AT) LIMITS OF FORM LINED ARCHITECTURAL TREATMENT
- (BC1) LIMITS OF BRIDGE COATING (LIGHT GRAY)
- (BC2) LIMITS OF BRIDGE COATING (DARK GRAY)



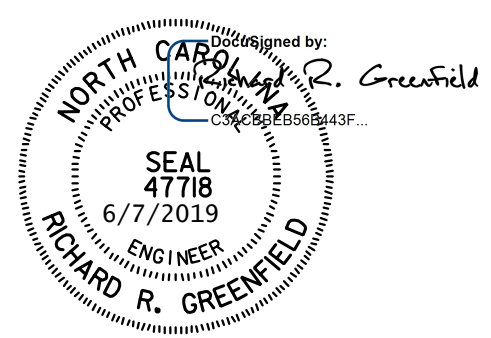
PART SECTION AT INTERMEDIATE DIAPHRAGM  
(FOR DETAILS OF DIAPHRAGM, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE IV PRESTRESSED CONCRETE GIRDERS")



TYPICAL SECTION AT CONTINUOUS BENT DIAPHRAGM

**"B" BAR KEY**

- CONTINUOUS BAR RUN  
SEE PLAN OF SPAN SHEETS.
- NON-CONTINUOUS BAR RUN  
FOR NEGATIVE MOMENT REGIONS,  
SEE PLAN OF SPAN SHEETS.



PROJECT NO. I-4400BB  
HENDERSON COUNTY  
 STATION: STA. 21+33.13 -Y2-

SHEET 1 OF 2

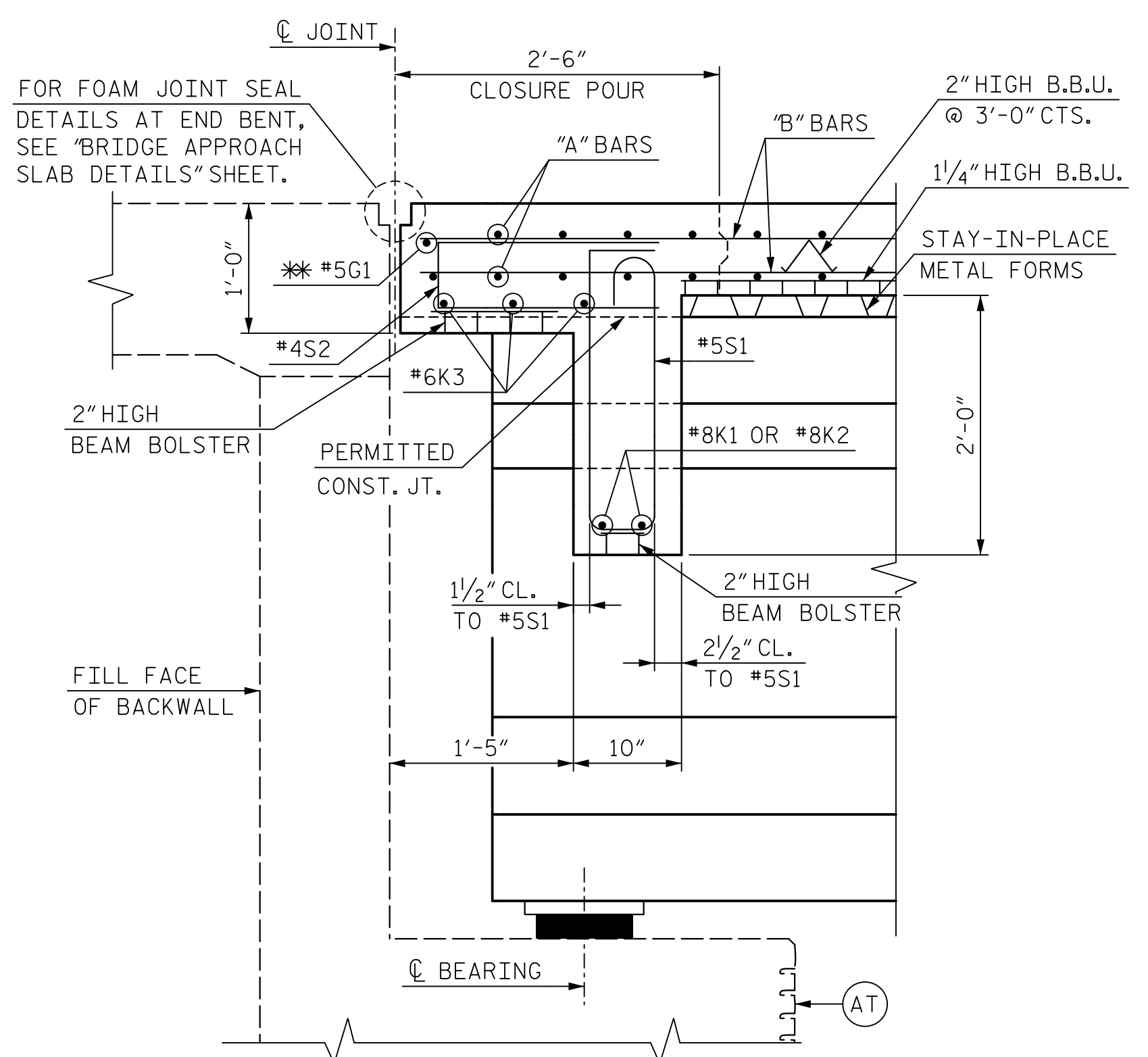
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S3-5
SUPERSTRUCTURE TYPICAL SECTIONS						
REVISIONS						TOTAL SHEETS 30
NO.	BY	DATE	NO.	BY	DATE	
1			3			
2			4			

<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY	C. TOMPKINS	DATE	12/18
CHECKED BY	C. SUTARIA	DATE	12/18
DESIGN ENGINEER OF RECORD	R. GREENFIELD	DATE	3/19

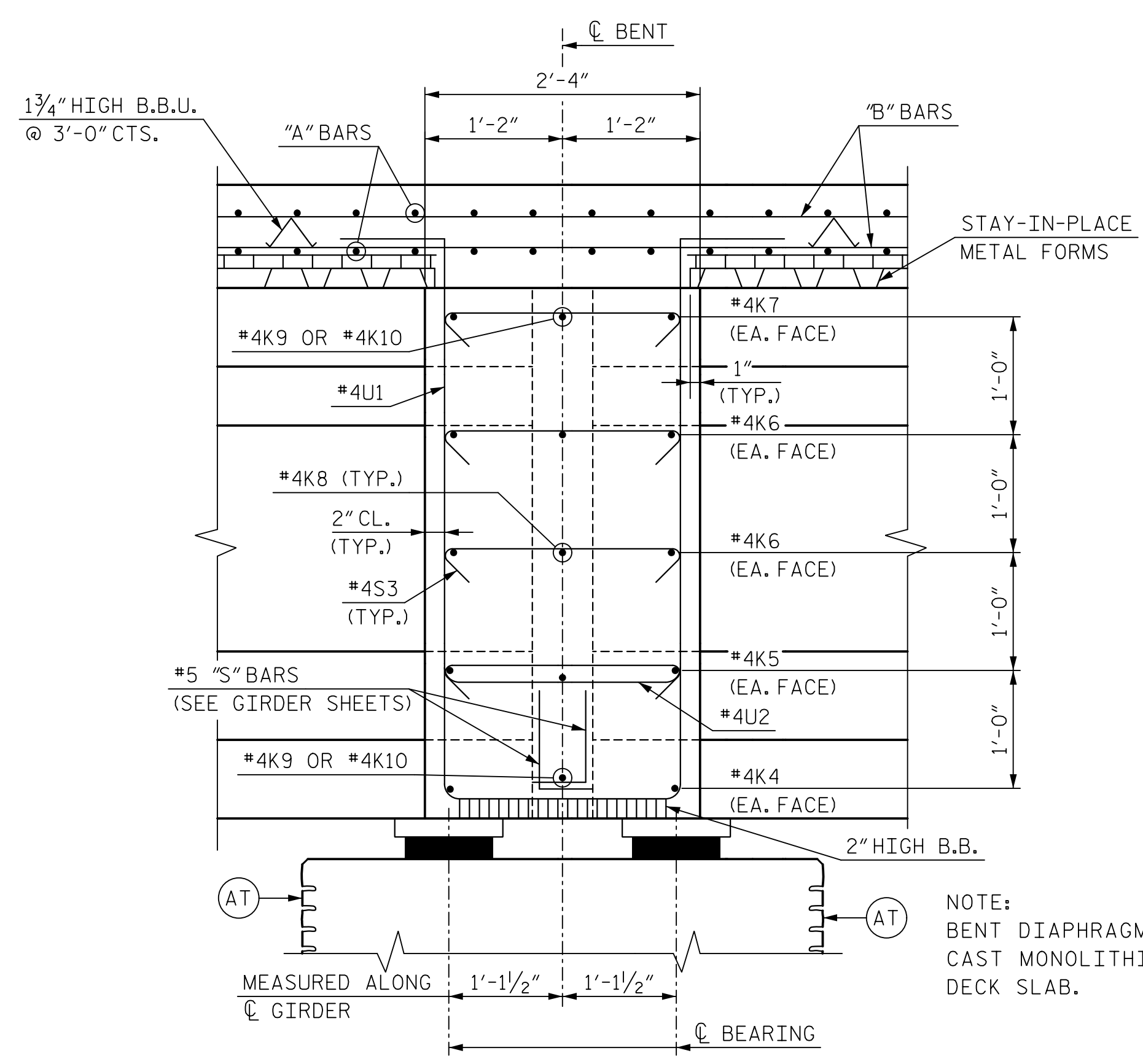
**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

6/7/2019 9:40:53 AM I:\4400BB\_SML\_TSO\_05\_44021.dgn

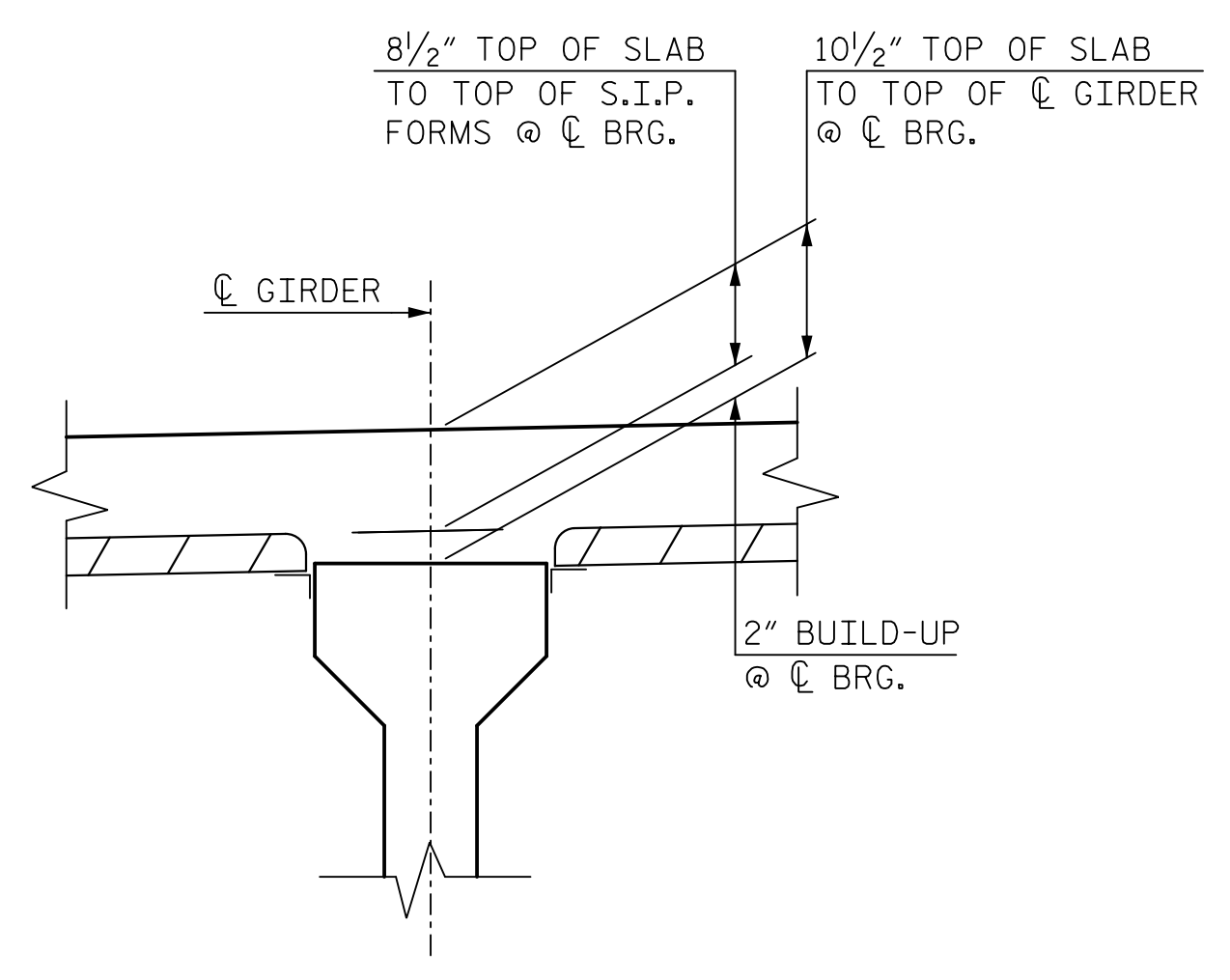




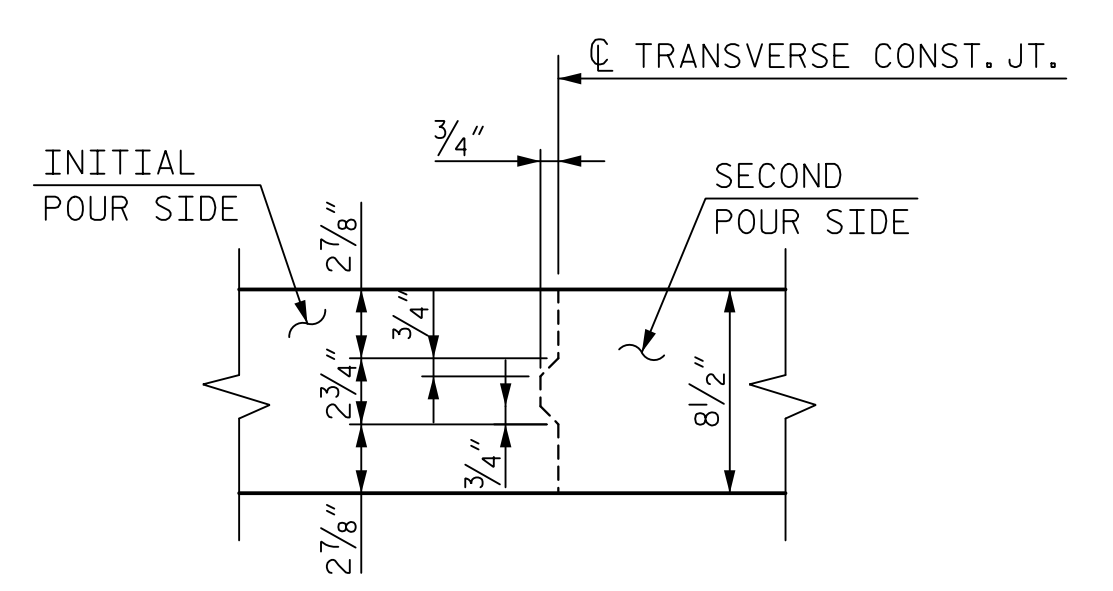
**SECTION A-A**  
SECTION NORMAL THRU END BENT 1 DIAPHRAGM, END BENT 2 SIMILAR  
\*\* #5 "G" BAR MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR REINFORCING STEEL AND STIRRUPS.



**SECTION B-B**  
SECTION NORMAL THRU BENT 1 DIAPHRAGM



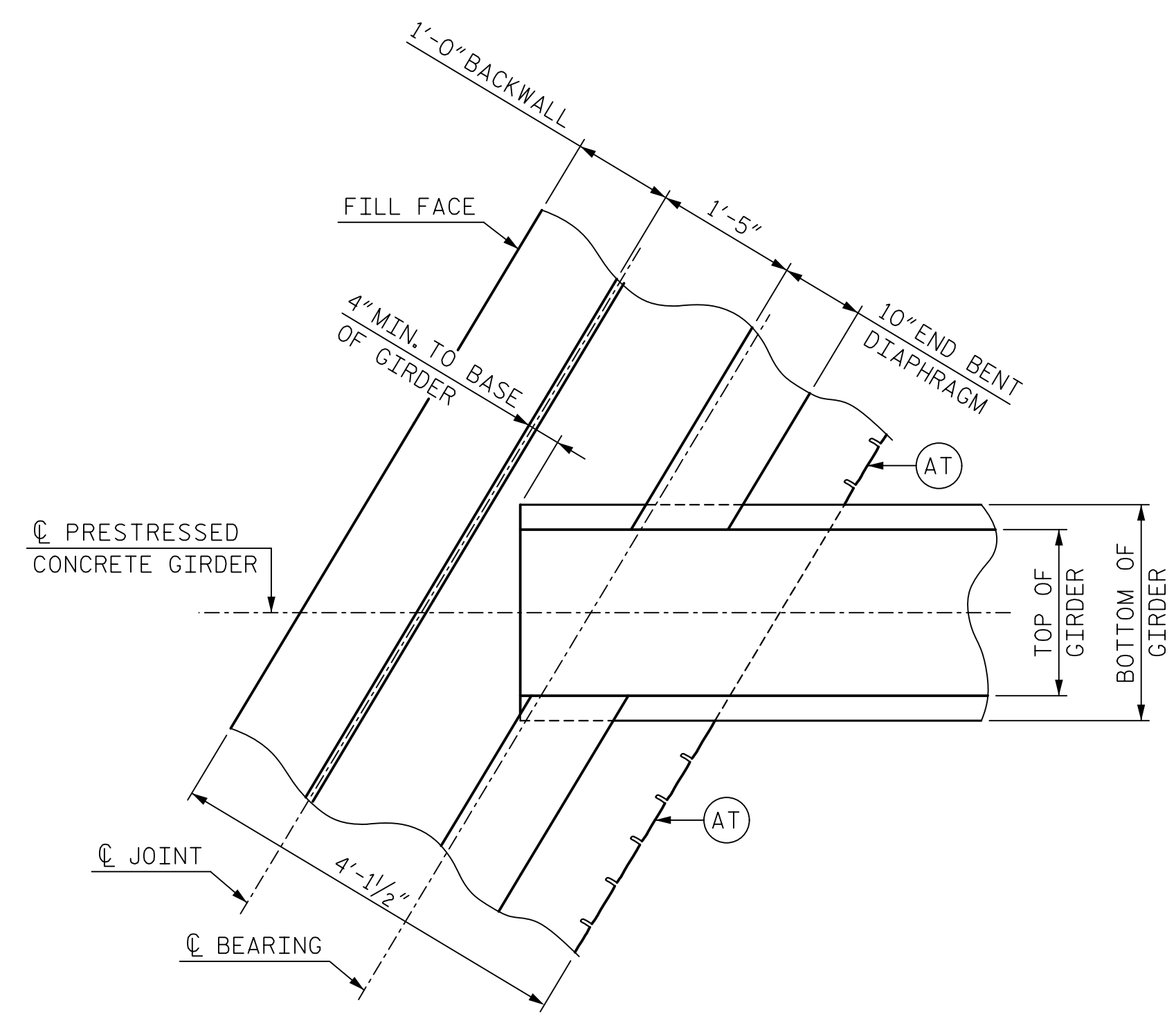
**DETAIL "A"**



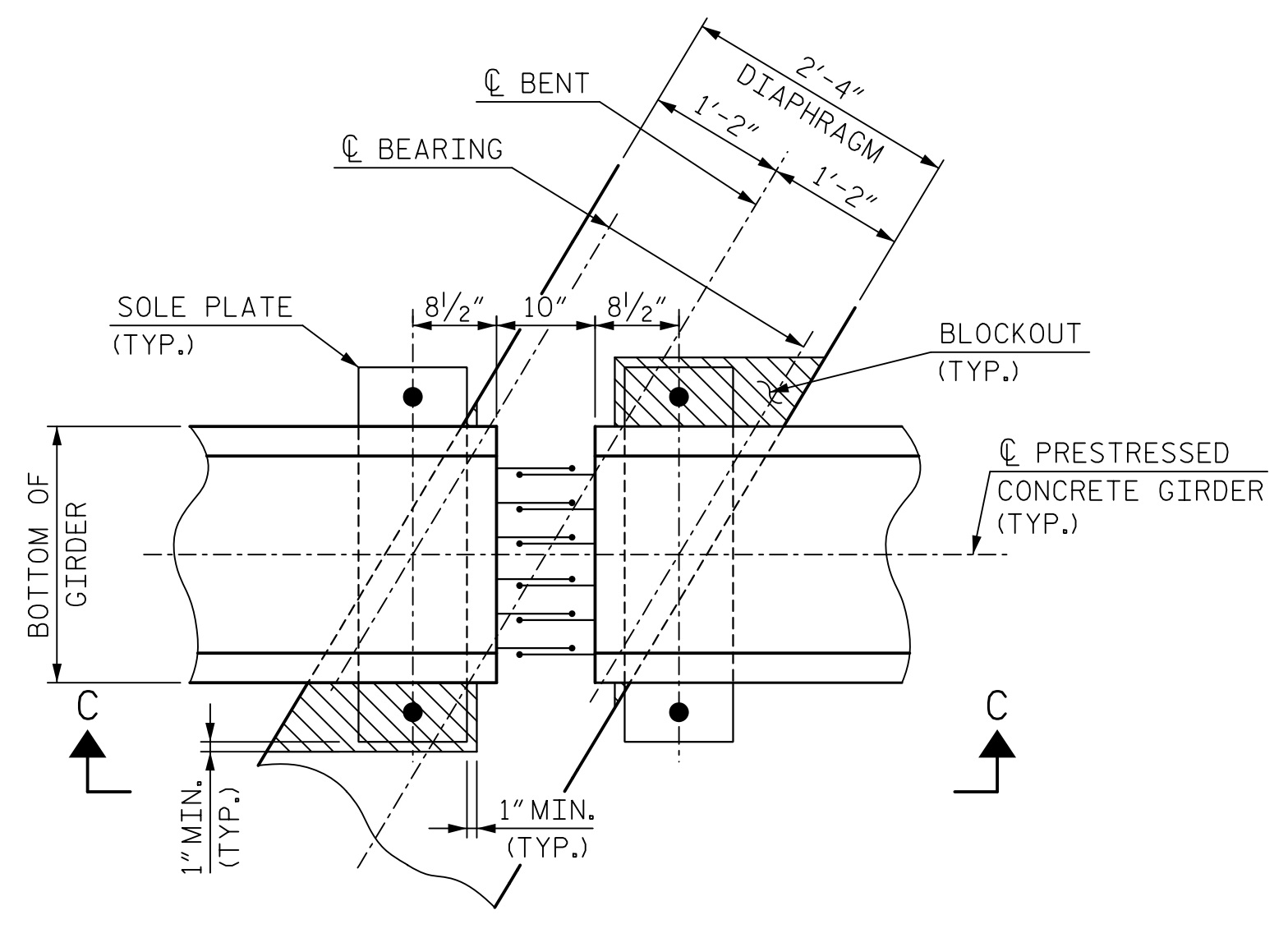
**TRANSVERSE CONSTRUCTION JOINT DETAIL**

REINFORCING STEEL IN SLAB NOT SHOWN. REINFORCING STEEL SHALL BE CONTINUOUS THROUGH JOINT.

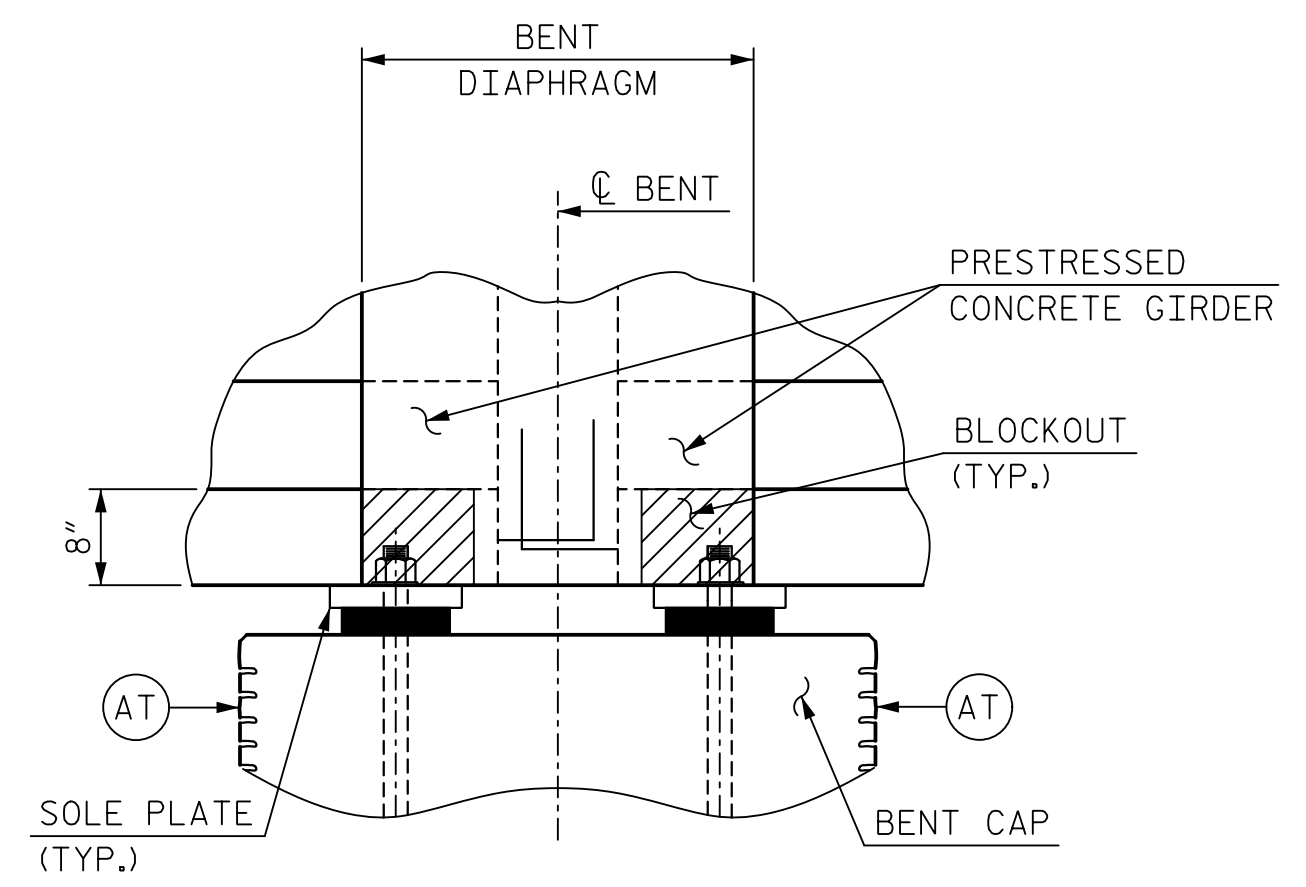
(AT) LIMITS OF FORM LINED ARCHITECTURAL TREATMENT



**PLAN OF GIRDER AT END BENT 1**  
(END BENT 2 SIMILAR)



**BENT DIAPHRAGM BLOCKOUT DETAIL**

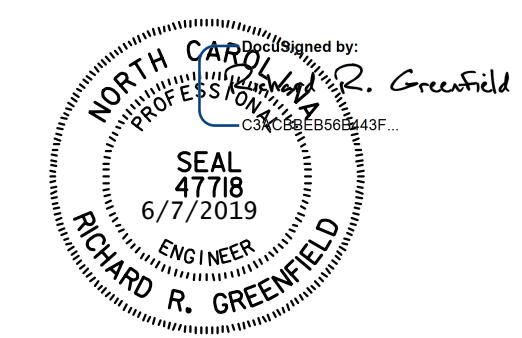


**SECTION C-C**

PROJECT NO. I-4400BB  
HENDERSON COUNTY  
STATION: STA. 21+33.13 -Y2-

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
TYPICAL SECTION DETAILS

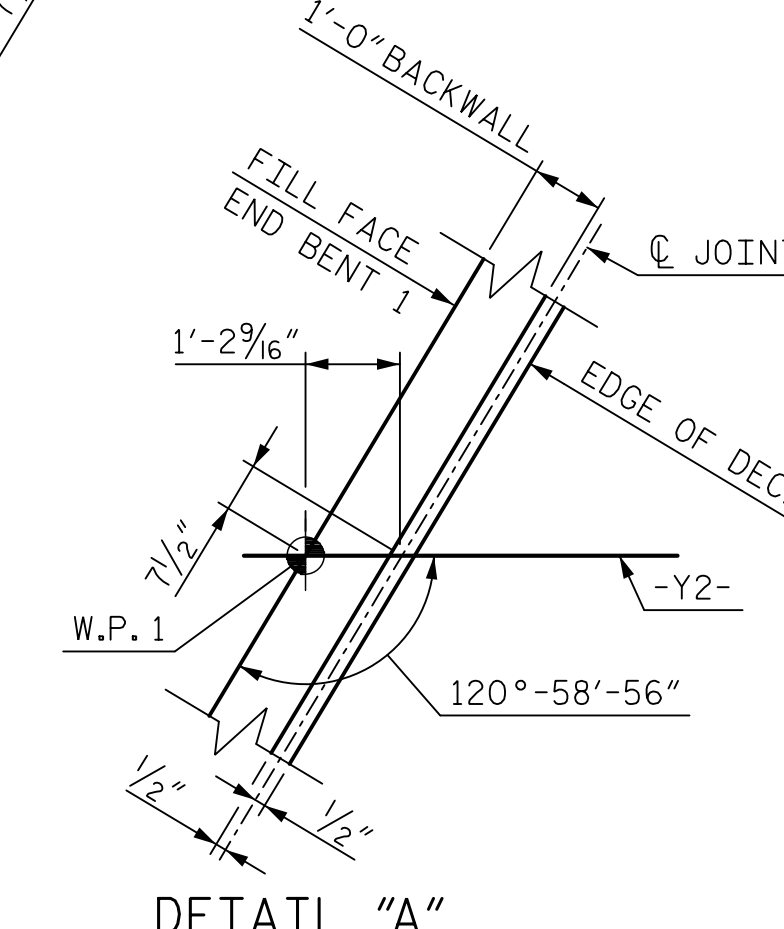
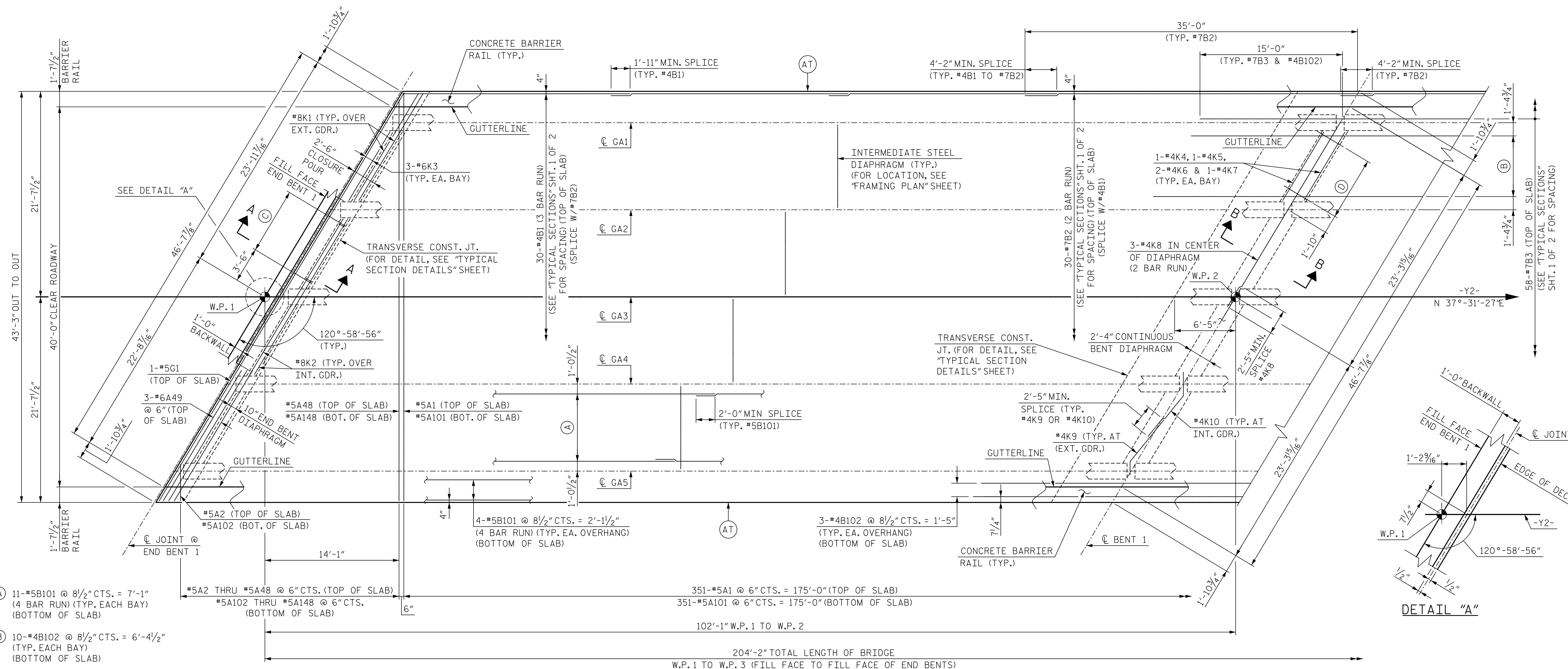


<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: C. TOMPKINS	DATE: 12/18	DWG. NO. 6	TOTAL SHEETS: 30
CHECKED BY: C. SUTARIA	DATE: 12/18		
DESIGN ENGINEER OF RECORD: R. GREENFIELD	DATE: 3/19		

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S3-6
1			3			TOTAL SHEETS
2			4			30

**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

6/7/2019 9:40:50 AM I:\4400BB-SMU-TS02-006-44021.dgn

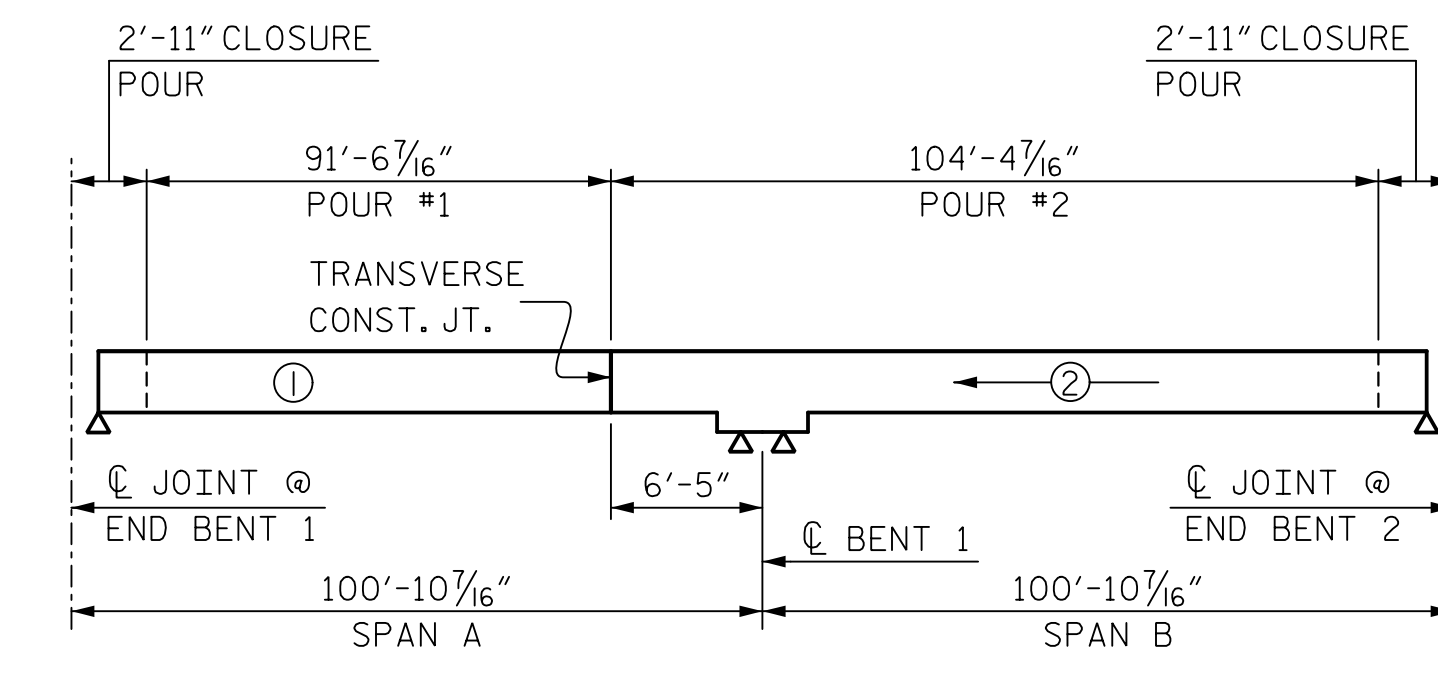


- (A) 11-#5B101 @ 8 1/2" CTS. = 7'-1" (4 BAR RUN) (TYP. EACH BAY) (BOTTOM OF SLAB)
- (B) 10-#4B102 @ 8 1/2" CTS. = 6'-4 1/2" (TYP. EACH BAY) (BOTTOM OF SLAB)
- (C) 8-#5S1 & 8-#4S2 @ 1'-0" CTS. = 7'-0" (TYP. EACH BAY)
- (D) 7 SPACES @ 1'-0" = 7'-0" 6-#4U1, 2-#4U2 & 30-#4S3 (TYP. EACH BAY)

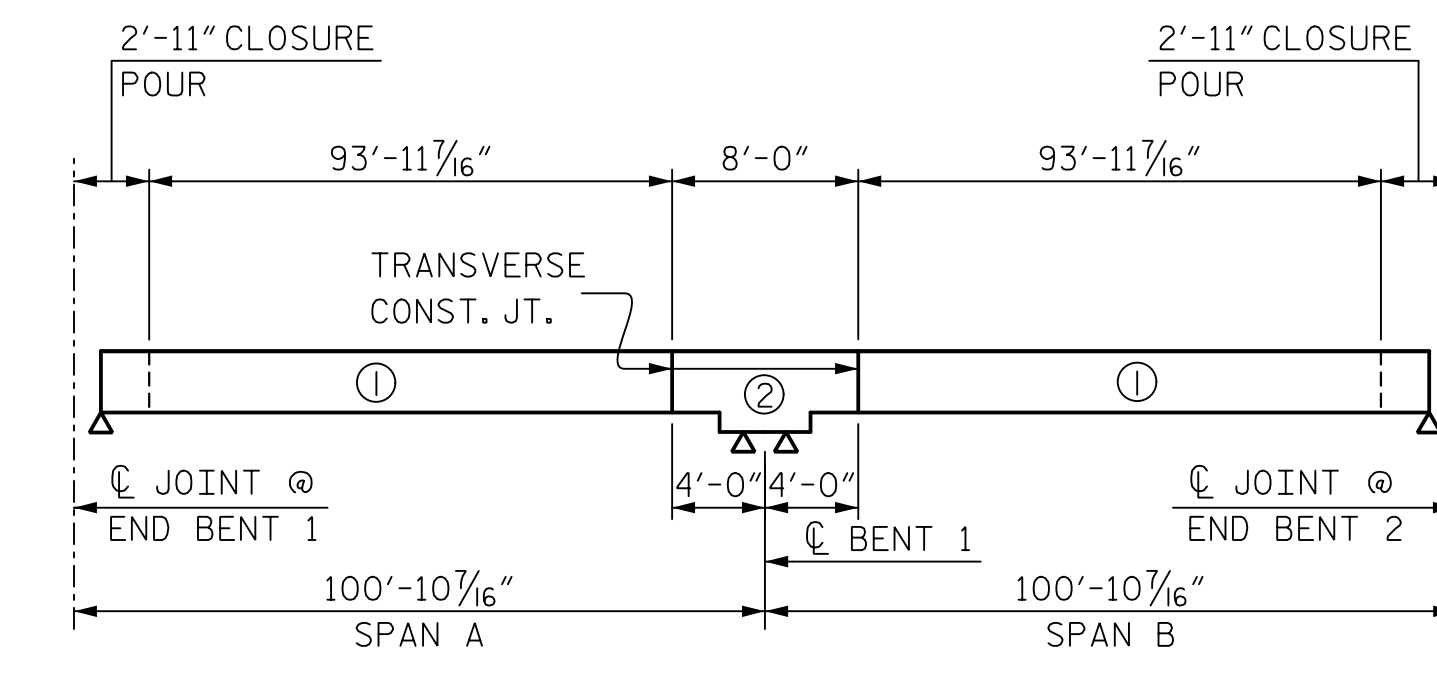
**PLAN OF SPAN A**  
 (AT) LIMITS OF FORM LINED ARCHITECTURAL TREATMENT

NOTE: POUR ② CAN NOT BE STARTED UNTIL BOTH ADJACENT ① POURS REACH A MINIMUM OF 3000 PSI.

**NOTES:**  
 FOR CONCRETE BARRIER RAIL DIMENSIONS, REINFORCING STEEL, AND JOINT SPACING, SEE "CONCRETE BARRIER RAIL" SHEET.  
 FOR SECTION VIEWS, SEE "TYPICAL SECTION DETAILS" SHEET.  
 FOR INTERMEDIATE STEEL DIAPHRAGMS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE IV PRESTRESSED CONCRETE GIRDERS" SHEET FOR DETAILS. FOR LOCATION, SEE "FRAMING PLAN" SHEET.



**POURING SEQUENCE**

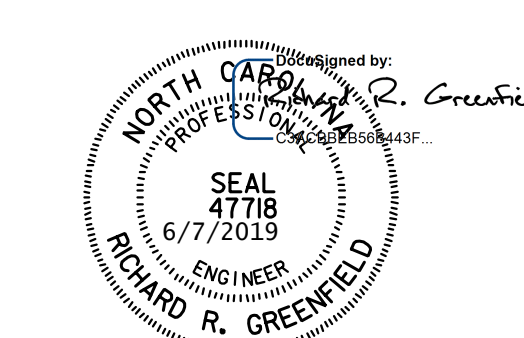


**OPTIONAL POURING SEQUENCE**

NOTE: ALL DIMENSIONS FOR POURING SEQUENCE AND OPTIONAL POURING SEQUENCE ARE ALONG -Y2-.

PROJECT NO. I-4400BB  
HENDERSON COUNTY  
 STATION: STA. 21+33.13 -Y2-

SHEET 1 OF 2  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 PLAN OF SPAN A



<b>HNTB</b>		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: C. TOMPKINS	DATE: 12/18	DWG. NO. 7	REVISIONS
CHECKED BY: C. SUTARIA	DATE: 12/18		
DESIGN ENGINEER OF RECORD: R. GREENFIELD	DATE: 3/19		

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

**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**