

09/08/2019

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4414		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
38358.1.2	N/A	PE	
38358.2.1	N/A	RW & UTIL.	
38358.3.1	N/A	CONST.	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BEAUFORT COUNTY

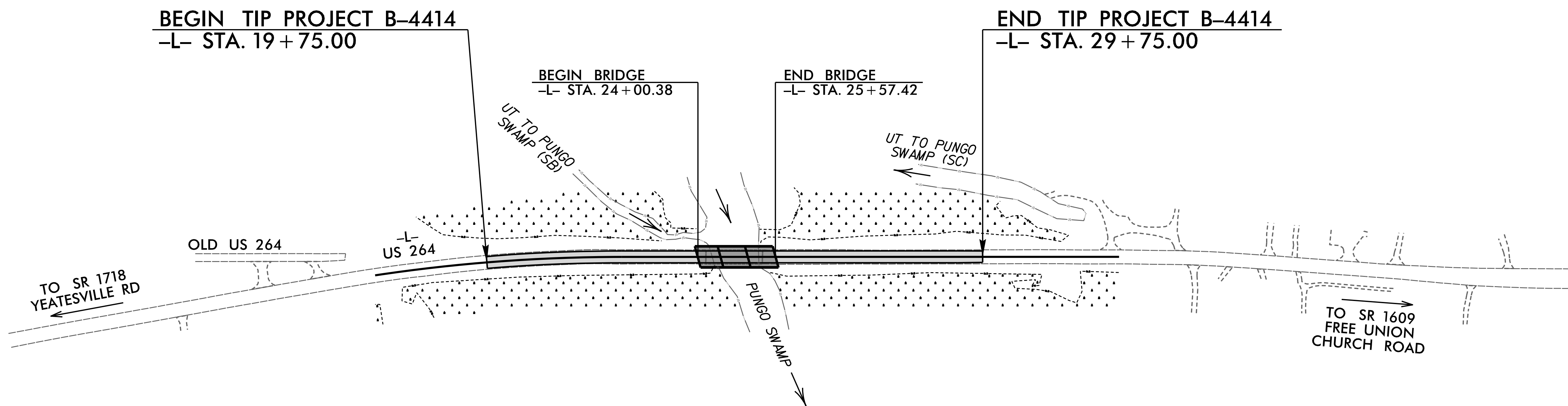
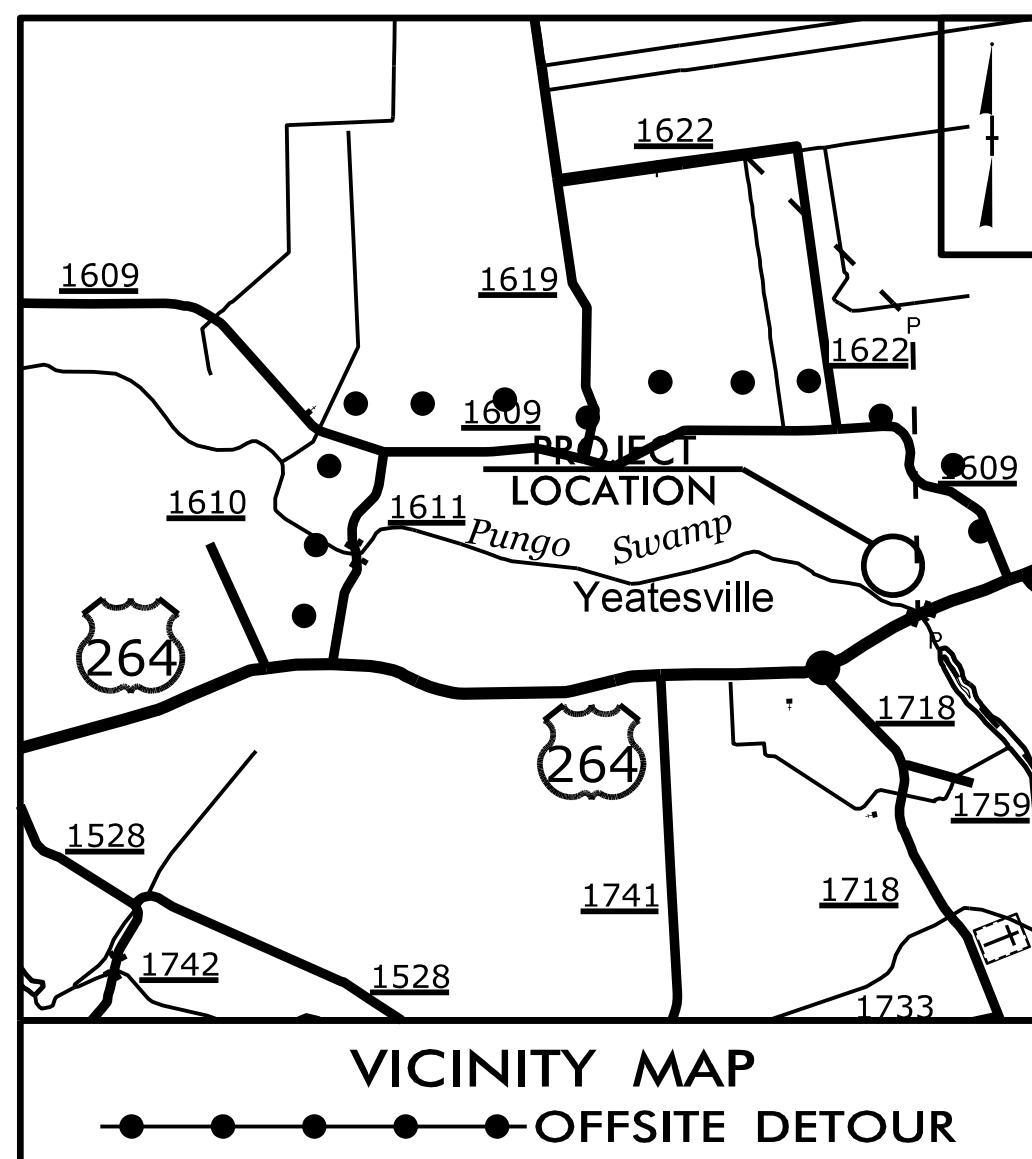
LOCATION: REPLACE BRIDGE NO. 43 OVER
PUNGO CREEK ON US 264

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

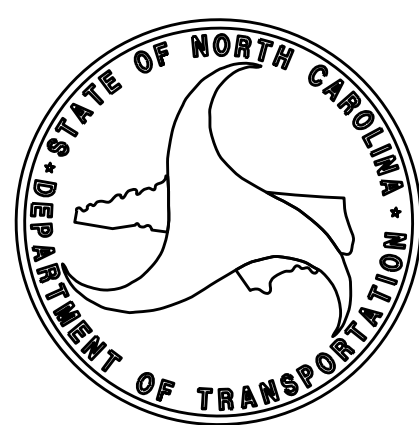
TIP PROJECT: B-4414

CONTRACT: C204178

STRUCTURE



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2021	=	5820
ADT 2041	=	7900
K	=	9 %
D	=	55 %
T	=	7 % *
V	=	60 MPH

* (TTST 3% + DUAL 4%)

FUNC CLASS =
MINOR ARTERIAL

REGIONAL TIER DESIGN

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4414	=	0.159 mile
LENGTH STRUCTURES TIP PROJECT B-4414	=	0.030 mile
TOTAL LENGTH TIP PROJECT B-4414	=	0.189 mile

PLANS PREPARED BY:

TGS ENGINEERS
706 HILLSBOROUGH ST
SUITE 200
RALEIGH, NC 27603

PLANS PREPARED FOR:

DAVID STUTTS, P.E.
NCDOT CONTACT

LETTING DATE:
APRIL 20, 2021

MARC CHEEK, PE
STRUCTURES DESIGN ENGINEER

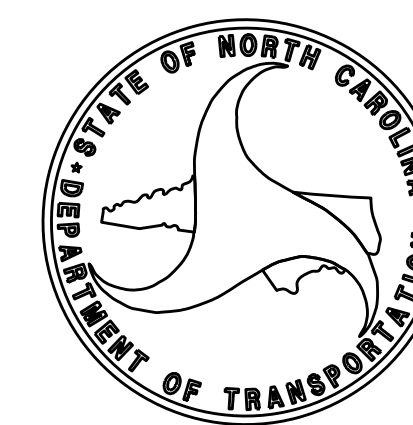
2018 STANDARD SPECIFICATIONS

STRUCTURES DESIGN ENGINEER



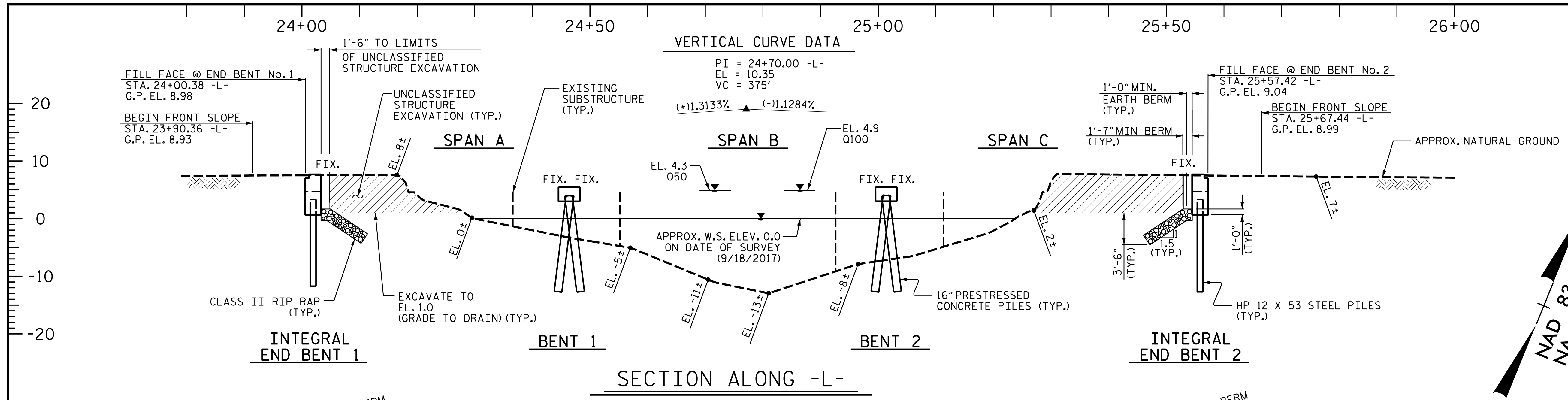
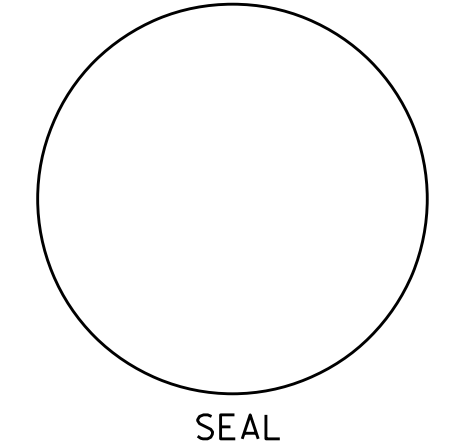
SIGNATURE

2/8/2021



10/5/2020
\$\$\$\$\$\$\$\$\$DCN\$\$\$\$\$\$\$\$\$
User:smasinnoble

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS.

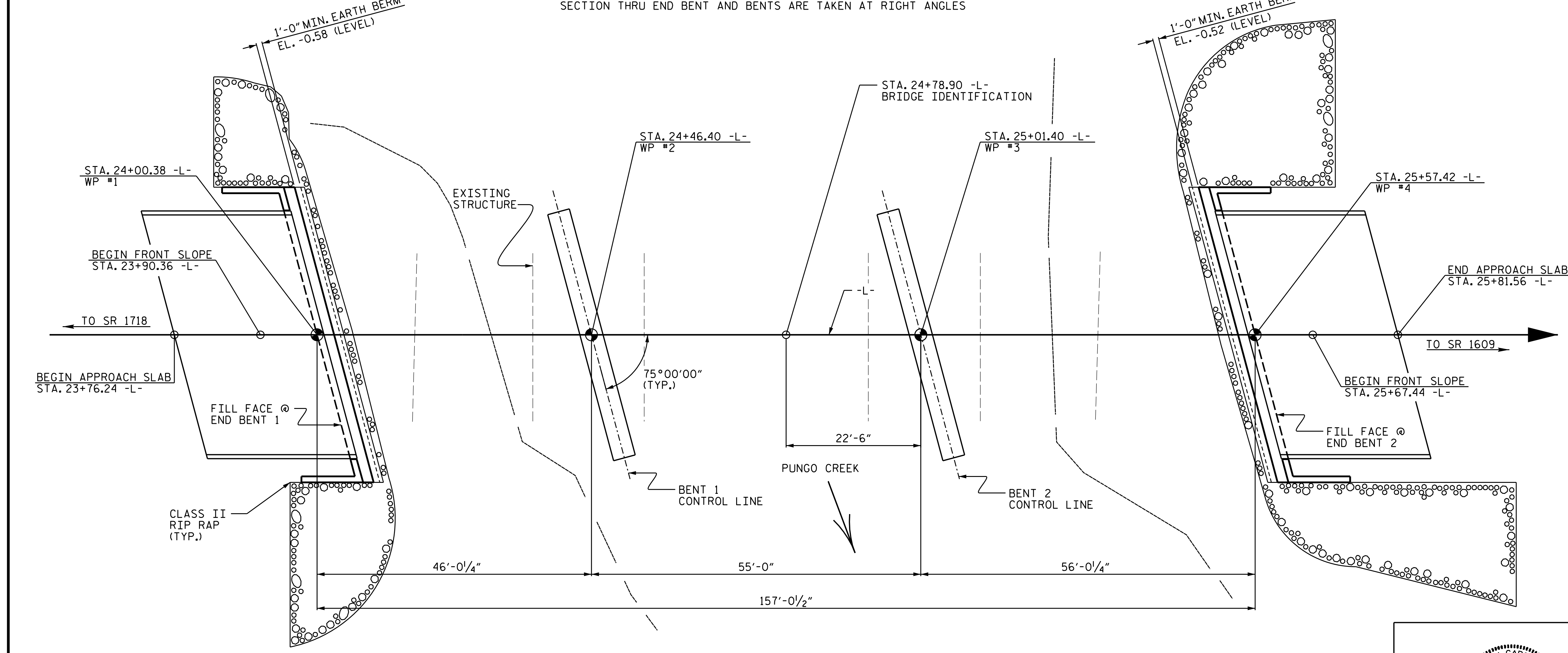


SECTION ALONG -L-
SECTION THRU END BENT AND BENTS ARE TAKEN AT RIGHT ANGLES

HYDRAULIC DATA:	
DESIGN DISCHARGE	4,838 CFS
FREQUENCY OF DESIGN DISCHARGE	50 YRS.
DESIGN HIGH WATER ELEVATION	4.3'
DRAINAGE AREA	57.6 SQ. MI.
BASE DISCHARGE	5,881 CFS
FREQUENCY OF BASE DISCHARGE	100 YRS.
BASE HIGH WATER ELEVATION	4.9'
OVERTOPPING FLOOD DATA:	
OVERTOPPING DISCHARGE	6,300 CFS
FREQUENCY OF OVERTOPPING FLOOD	100+ YRS.
OVERTOPPING FLOOD ELEVATION	5.1 *

* OVERTOPPING OCCURS AT LOWEST HIGH POINT ON DECK/ROADWAY @ STA. 29+81.00 -L-.

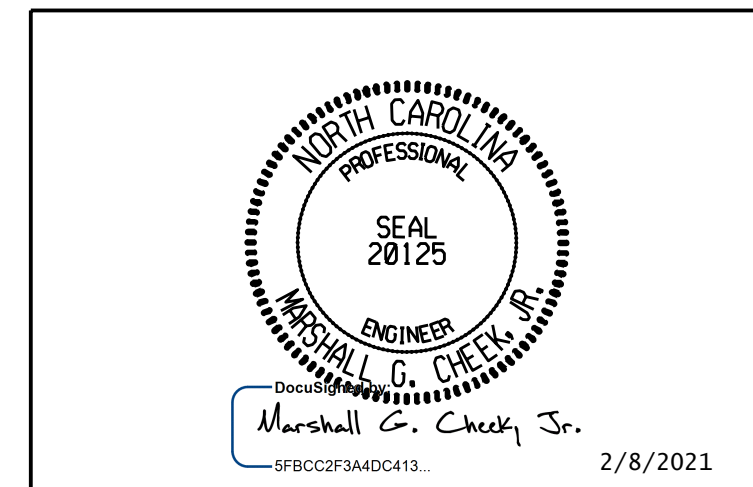
LOW CHORD ELEVATION	
EB1	4.56
EB2	4.62



PLAN
PILES NOT SHOWN IN PLAN VIEW FOR CLARITY.

PROJECT NO. B-4414
BEAUFORT COUNTY
STATION: 24+78.90 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 0043

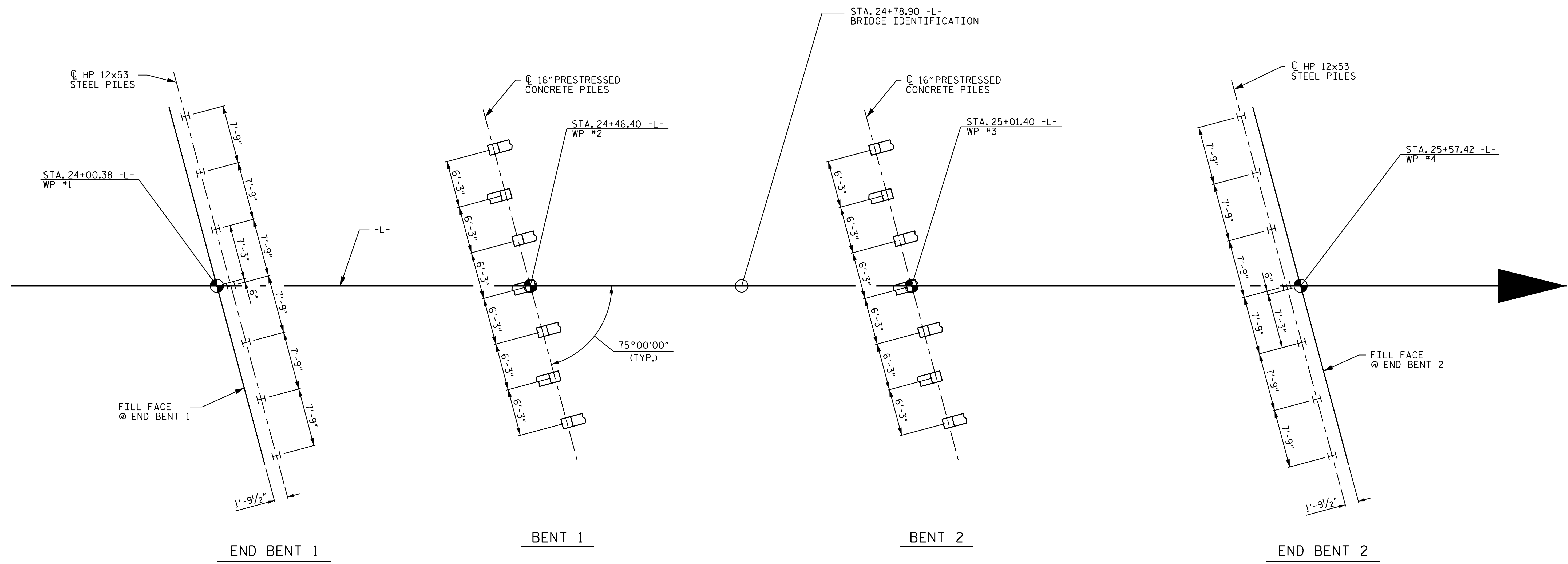


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
FOR BRIDGE OVER
PUNGO CREEK ON US 264
BETWEEN SR 1718 AND SR 1609

DRAWN BY :	STM	DATE :	04/19
CHECKED BY :	MGC	DATE :	12/19
DESIGN ENGINEER OF RECORD:	MGC	DATE :	03/20

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
TGS ENGINEERS
706 HILLSBOROUGH STREET SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

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



FOUNDATION LAYOUT PLAN

ALL END BENT PILES ARE HP 12x53 STEEL PILES. DIMENSIONS LOCATING PILES ARE SHOWN TO THE CENTERLINE OF PILES. ORIENT PILES AS SHOWN. ALL BENT PILES ARE 16\"/>

FOUNDATION RECOMMENDATION NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS. PILES AT END BENT NO.1 AND END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 80 TONS PER PILE. DRIVE PILES AT END BENT NO.1 AND END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 135 TONS PER PILE. STEEL PILE POINTS ARE REQUIRED FOR STEEL PILES AT END BENT NO.1 AND 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 110 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT BENT NO.1 AND BENT NO.2. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(DX2) OF THE STANDARD SPECIFICATIONS. PILES AT BENT NO.1 AND BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 140 TONS AND 145 TONS PER PILE, RESPECTIVELY. DRIVE PILES AT BENT NO.1 AND BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 235 TONS AND 245 TONS PER PILE, RESPECTIVELY. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR SCOUR. THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 AND BENT NO.2 ARE -16 FT AND -24 FT, RESPECTIVELY. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

TESTING PILES WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PROJECT NO. B-4414
BEAUFORT COUNTY
 STATION: 24+78.90 -L-
 SHEET 2 OF 3

DRAWN BY : STM DATE : 11/19
 CHECKED BY : MGC DATE : 12/19
 DESIGN ENGINEER OF RECORD: MGC DATE : 03/20

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

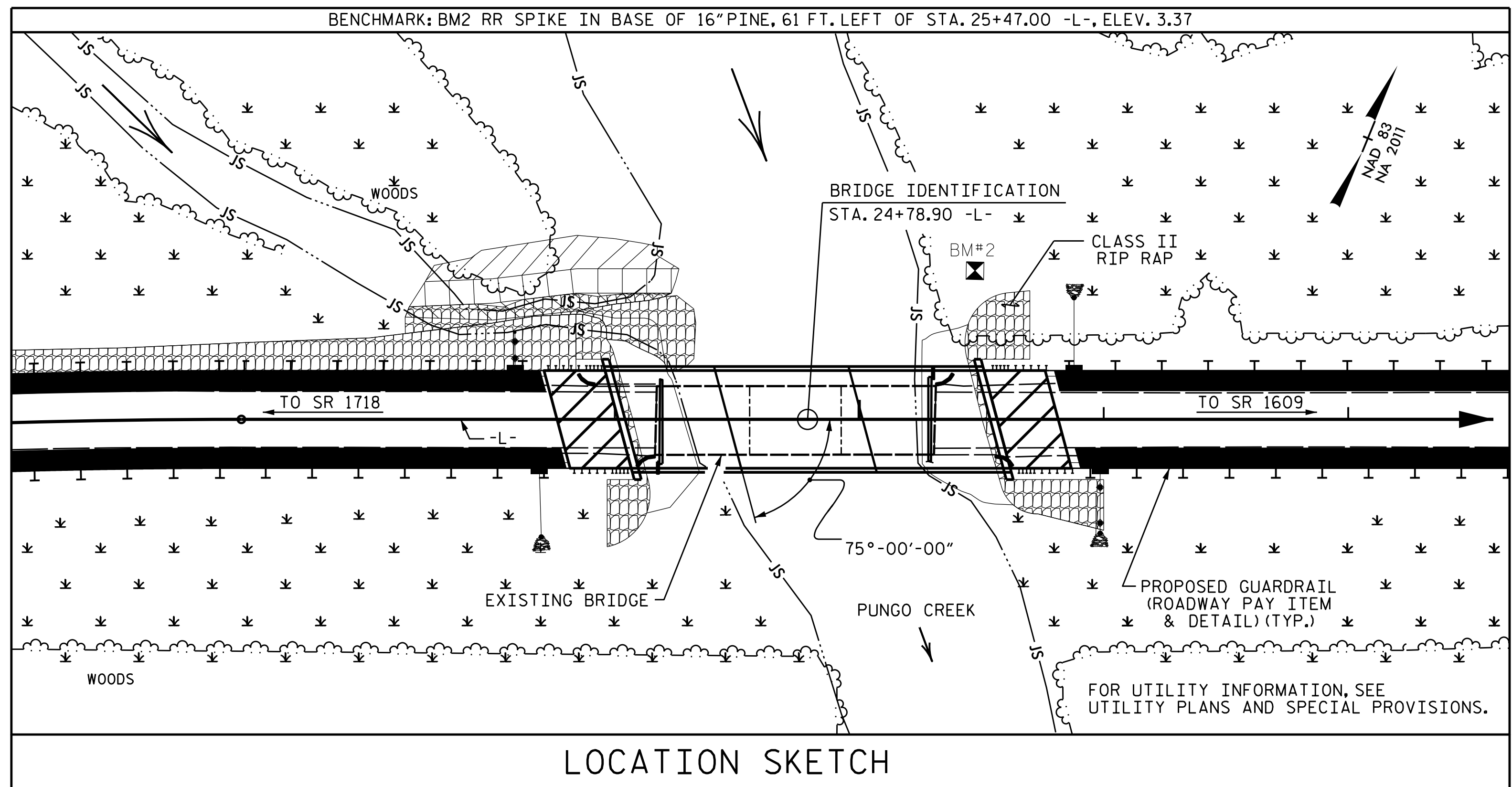
TGS ENGINEERS
 706 HILLSBOROUGH STREET
 SUITE 200
 RALEIGH, NC 27603
 PH (919) 773-8887
 CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER
 PUNGO CREEK ON US 264
 BETWEEN SR 1718 AND SR 1609

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



LOCATION SKETCH

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 EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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

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

ALL METALIZED SURFACES SHALL RECEIVE A SEAL COATING AS SPECIFIED IN THE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

THE EXISTING 5-SPAN STRUCTURE (1 @ 19'-2", 1 @ 19'-0", 1 @ 37'-4", 2 @ 19'-0") CONSISTING OF A REINFORCED CONCRETE DECK ON STEEL I-BEAMS WITH A 5" ASPHALT WEARING SURFACE AND A CLEAR ROADWAY WIDTH OF 28'-2" AND WITH A SUBSTRUCTURE CONSISTING OF REINFORCED CONCRETE CAPS/PPC PILES AT END BENT 1 & 2, BENT 2 & 3, AND STEEL CAPS/STEEL PILE CRUTCH BENTS AT BENT 1 & 4, AND LOCATED AT THE SITE OF THE PROPOSED BRIDGE 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.

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

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

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

PRESTRESSED CONCRETE GIRDERS, PRECAST DECK PANELS, AND PRESTRESSED CONCRETE PILES SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITORS.

CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE END BENT AND BENT CAPS AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR.

ALL BAR SUPPORTS AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE CONCRETE IN THE END BENT AND BENT CAPS, AND PRESTRESSED CONCRETE PILES OF BENTS 1 & 2 SHALL CONTAIN SILICA FUME. SILICA FUME SHALL BE SUBSTITUTED FOR 5% OF THE PORTLAND CEMENT BY WEIGHT. IF THE OPTION OF ARTICLE 1024-1 OF THE STANDARD SPECIFICATIONS TO PARTIALLY SUBSTITUTE CLASS F FLY ASH FOR PORTLAND CEMENT IS EXERCISED, THEN THE RATE OF FLY ASH SUBSTITUTION SHALL BE REDUCED TO 1.0 LBS OF FLY ASH PER 1.0 LB CEMENT. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

THIS STRUCTURE CONTAINS THE NECESSARY CORROSION PROTECTION REQUIRED FOR A CORROSIVE SITE.

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 BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 35 FT. LT AND 40 FT. RT OF THE CENTERLINE ROADWAY AT END BENT 1 AND 40 FT. LT AND 35 FT. RT OF CENTERLINE ROADWAY AT END BENT 2 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.

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

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

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 24+78.90 -L-".

TOTAL BILL OF MATERIAL

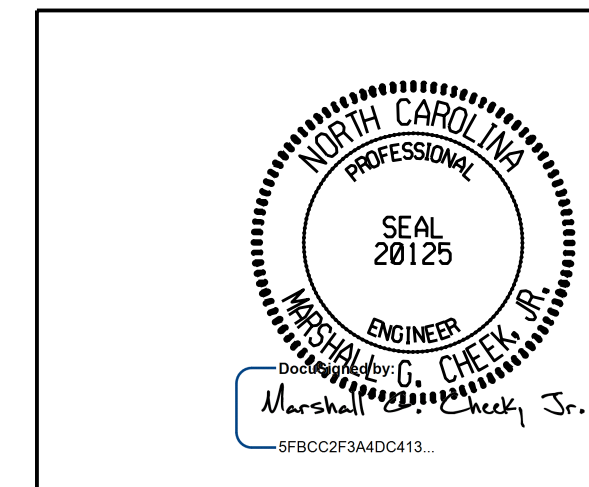
ITEM	REMOVAL OF EXISTING STRUCTURE	ASBESTOS ASSESSMENT	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS AA CONCRETE	BRIDGE APPROACH SLABS	EPOXY COATED REINFORCING STEEL	36" PRESTRESSED CONCRETE GIRDERS	PILE DRIVING EQUIPMENT SETUP FOR 16" PRESTRESSED CONCRETE PILES	PILE DRIVING EQUIPMENT SETUP FOR HP 12x53 STEEL PILES	16" PRESTRESSED CONCRETE PILES	HP 12x53 STEEL PILES			
	LUMP SUM	LUMP SUM	EACH	LUMP SUM	SO. FT.	SO. FT.	C.Y.	LUMP SUM	LBS.	NO.	LIN. FT.	EACH	EACH	NO.	LIN. FT.	NO.	LIN. FT.
SUPERSTRUCTURE					6,717	7,520				15	770.00						
END BENT 1				LUMP SUM			36.4		4,003			7				7	280
BENT 1							12.8		2,544			7	280				
BENT 2							12.8		2,544			7	315				
END BENT 2				LUMP SUM			36.4		4,003			7				7	280
TOTALS	LUMP SUM	LUMP SUM	1	LUMP SUM	6,717	7,520	98.4	LUMP SUM	13,094	15	770.00	14	14	14	595	14	560

TOTAL BILL OF MATERIAL

ITEM	STEEL PILE POINTS	PILE REDRIVES	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS
	EACH	EACH	LIN. FT.	TONS	SO. YDS.	LUMP SUM
SUPERSTRUCTURE			310.63			
END BENT 1	7	4		90	100	
BENT 1		4				
BENT 2		4				
END BENT 2	7	4		165	185	
TOTALS	14	16	310.63	255	285	LUMP SUM

PROJECT NO. B-4414
BEAUFORT COUNTY
 STATION: 24+78.90 -L-
 SHEET 3 OF 3

DRAWN BY : STM DATE : 11/19
 CHECKED BY : MGC DATE : 12/19



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TGS ENGINEERS
 706 HILLSBOROUGH STREET
 SUITE 200
 RALEIGH, NC 27603
 PH (919) 773-8887
 CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER
 PUNGO CREEK ON US 264
 BETWEEN SR 1718 AND SR 1609

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

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{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
						MOMENT					SHEAR					MOMENT									
						LIVE-LOAD FACTORS (γ_{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (γ_{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)			
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.45	--	1.75	.796	1.72	A	EL	21.66	.948	1.45	A	I	30.60	0.80	.796	1.52	C	EL	26.66			
	HL-93 (OPERATING)	N/A	--	2.13	--	1.35	.796	2.23	A	EL	21.66	.950	2.13	C	I	15.73	N/A	--	--	--	--	--			
	HS-20 (INVENTORY)	36.000	②	1.91	68.76	1.75	.796	2.13	A	EL	21.66	.950	1.91	C	I	15.73	0.80	.796	1.92	C	EL	26.66			
	HS-20 (OPERATING)	36.000	--	2.52	90.72	1.35	.796	2.76	A	EL	21.66	.950	2.52	C	I	15.73	N/A	--	--	--	--	--			
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500	--	3.29	44.42	1.40	.796	5.13	A	EL	21.66	.950	5.25	C	I	15.73	0.80	.796	3.29	C	EL	26.66		
		SNGARBS2	20.000	--	2.52	50.40	1.40	.796	4.07	A	EL	17.20	.950	3.84	C	I	15.73	0.80	.796	2.52	C	EL	26.66		
		SNAGRIS2	22.000	--	2.40	52.80	1.40	.796	3.90	A	EL	17.20	.950	3.62	C	I	15.73	0.80	.796	2.40	C	EL	26.66		
		SNCOTTS3	27.250	--	1.62	44.15	1.40	.796	2.53	A	EL	21.66	.950	2.56	C	I	15.73	0.80	.796	1.62	C	EL	26.66		
		SNAGGRS4	34.925	--	1.39	48.55	1.40	.796	2.21	A	EL	21.66	.950	2.20	C	I	15.73	0.80	.796	1.39	C	EL	26.66		
		SNS5A	35.550	--	1.35	47.99	1.40	.796	2.16	A	EL	21.66	.950	2.30	C	I	15.73	0.80	.796	1.35	C	EL	26.66		
		SNS6A	39.950	--	1.25	49.94	1.40	.796	2.03	A	EL	21.66	.950	2.14	C	I	15.73	0.80	.796	1.25	C	EL	26.66		
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000	--	1.54	50.82	1.40	.796	2.50	A	EL	21.66	.950	2.53	C	I	15.73	0.80	.796	1.54	C	EL	26.66		
		TNT4A	33.075	--	1.55	51.27	1.40	.796	2.50	A	EL	21.66	.950	2.41	C	I	15.73	0.80	.796	1.55	C	EL	26.66		
		TNT6A	41.600	--	1.27	52.83	1.40	.796	2.10	A	EL	21.66	.950	2.33	C	I	15.73	0.80	.796	1.27	C	EL	26.66		
		TNT7A	42.000	--	1.29	54.18	1.40	.796	2.13	A	EL	21.66	.950	2.15	C	I	15.73	0.80	.796	1.29	C	EL	26.66		
		TNT7B	42.000	--	1.34	56.28	1.40	.796	2.21	A	EL	21.66	.950	2.06	C	I	15.73	0.80	.796	1.34	C	EL	26.66		
		TNAGRIT4	43.000	--	1.27	54.61	1.40	.796	2.12	A	EL	17.20	.950	1.98	C	I	15.73	0.80	.796	1.27	C	EL	26.66		
		TNAGT5A	45.000	--	1.19	53.55	1.40	.796	1.97	A	EL	21.66	.950	2.04	C	I	15.73	0.80	.796	1.19	C	EL	26.66		
TNAGT5B	45.000	③	1.17	52.65	1.40	.796	1.92	A	EL	21.66	.950	1.85	C	I	15.73	0.80	.796	1.17	C	EL	26.66				

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

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

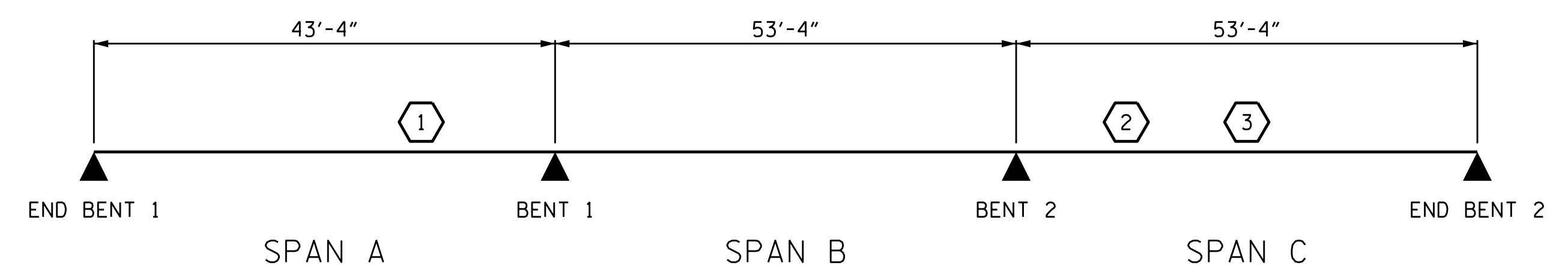
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY
 DIMENSIONS SHOWN ARE BEARING-BEARING.

PROJECT NO. B-4414
BEAUFORT COUNTY
 STATION: 24+78.90 -L-

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TGS ENGINEERS
 706 HILLSBOROUGH STREET
 SUITE 200
 RALEIGH, NC 27603
 PH (919) 773-8887
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STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

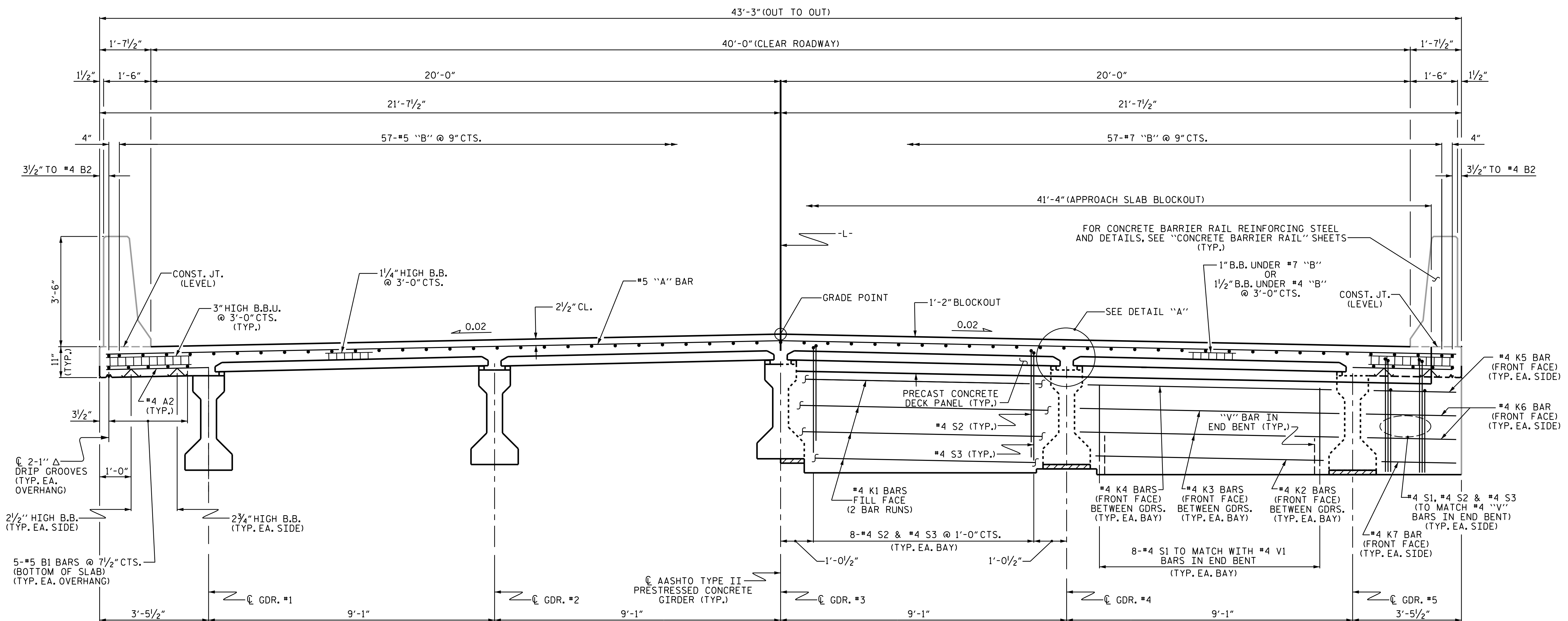
STANDARD
 LRFR SUMMARY FOR
 PRESTRESSED
 CONCRETE GIRDERS
 (NON-INTERSTATE TRAFFIC)

REVISIONS

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

SHEET NO. S-4
 TOTAL SHEETS 33

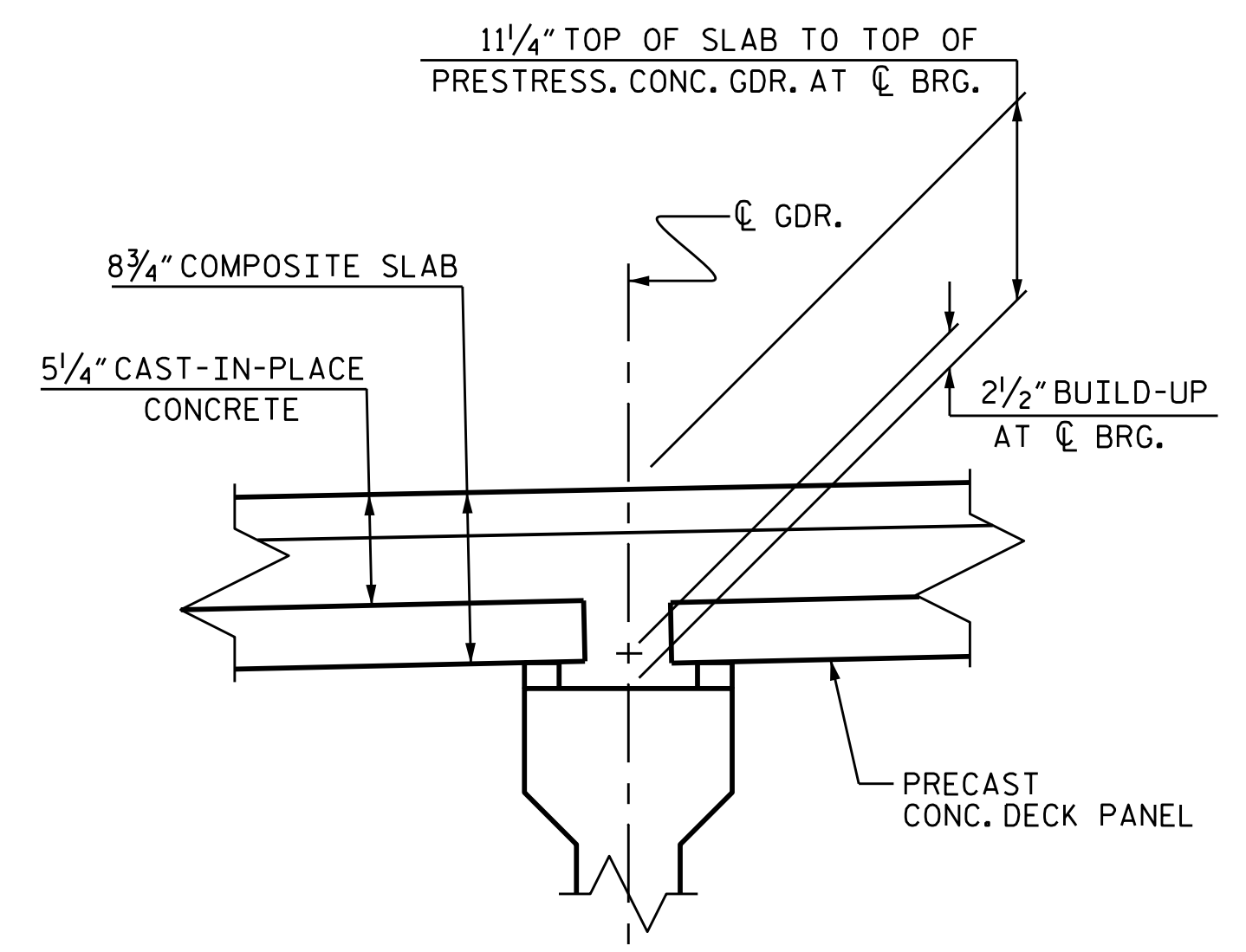
ASSEMBLED BY : STM DATE : 06/19
 CHECKED BY : MGC DATE : 03/20
 DRAWN BY : MAA 1/08 REV. 11/2/08RR MAA/GM
 CHECKED BY : GM/DI 2/08 REV. 10/1/11 MAA/GM
 REV. 12/17 MAA/THC



HALF SECTION @ BENTS
(SHOWING LINK SLAB)

HALF SECTION @ END BENTS
(SHOWING INTEGRAL END BENTS)

TYPICAL SECTION



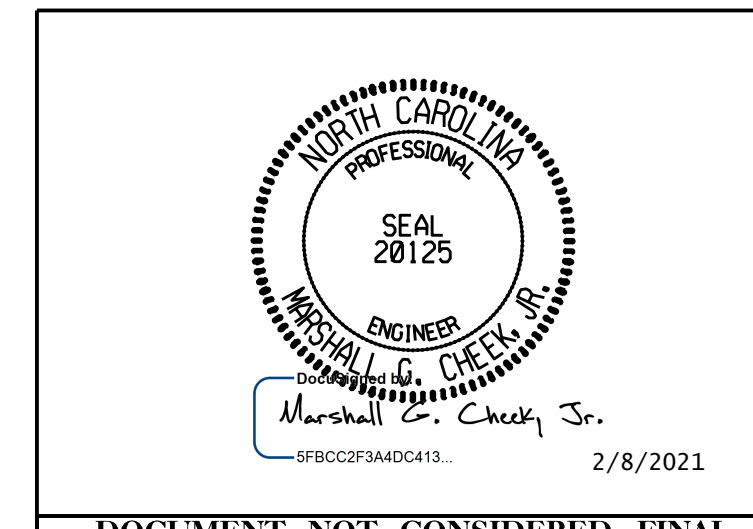
DETAIL "A"

NOTES:

- 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 THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.
- LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.
- PRESTRESSED CONCRETE GIRDERS ARE DESIGNED FOR 0 PSI TENSION IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

PROJECT NO. B-4414
BEAUFORT COUNTY
 STATION: 24+78.90 -L-

SHEET 1 OF 2

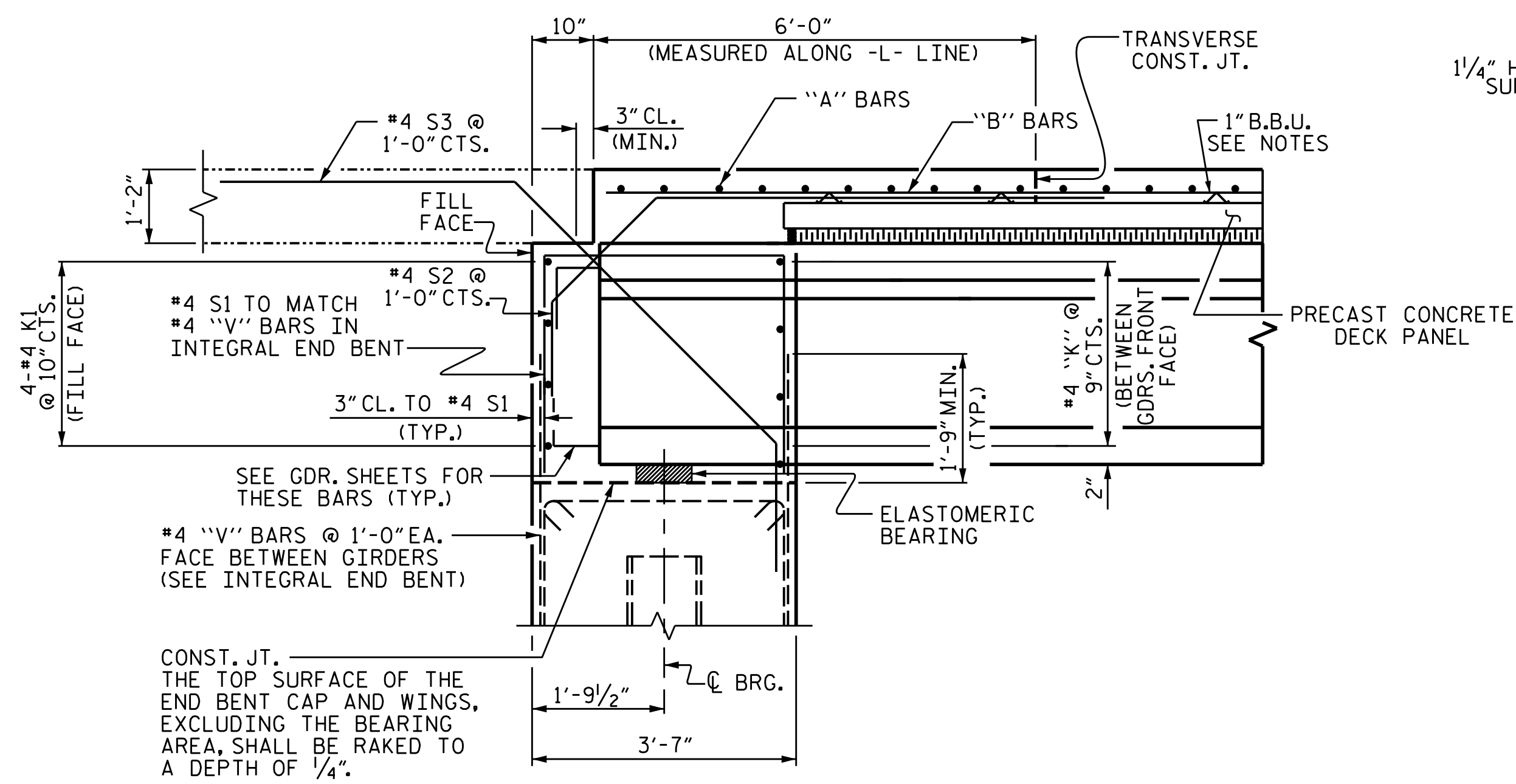


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 TYPICAL SECTION

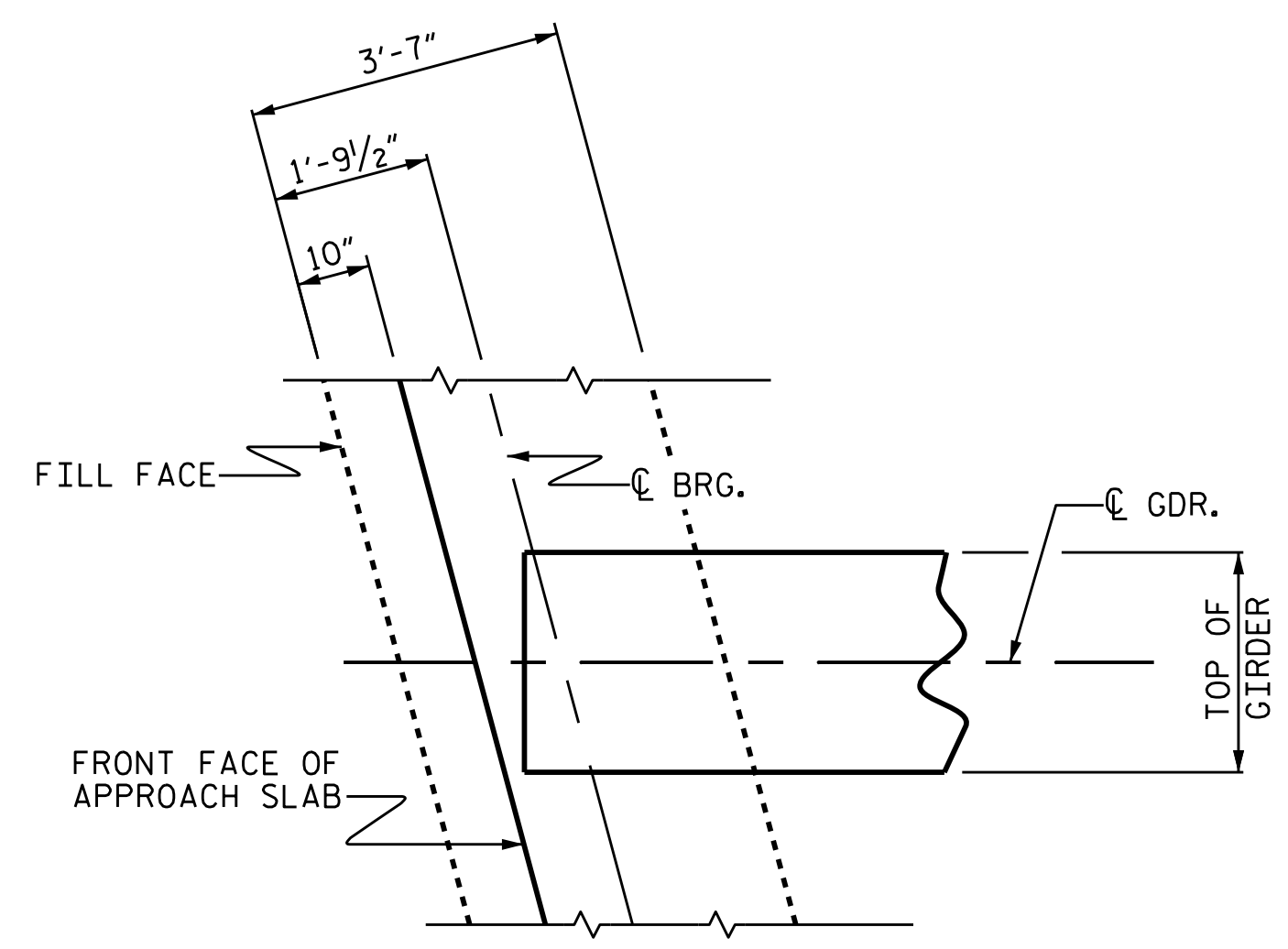
DRAWN BY : S. B. WILLIAMS DATE : 7-19
 CHECKED BY : MGC DATE : 2/20
 DESIGN ENGINEER OF RECORD: MGC DATE : 03/20

DOCUMENT NOT CONSIDERED FINAL
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 TGS ENGINEERS
 706 HILLSBOROUGH STREET
 SUITE 200
 RALEIGH, NC 27603
 PH (919) 773-8887
 CORP. LICENSE NO.: C-0275

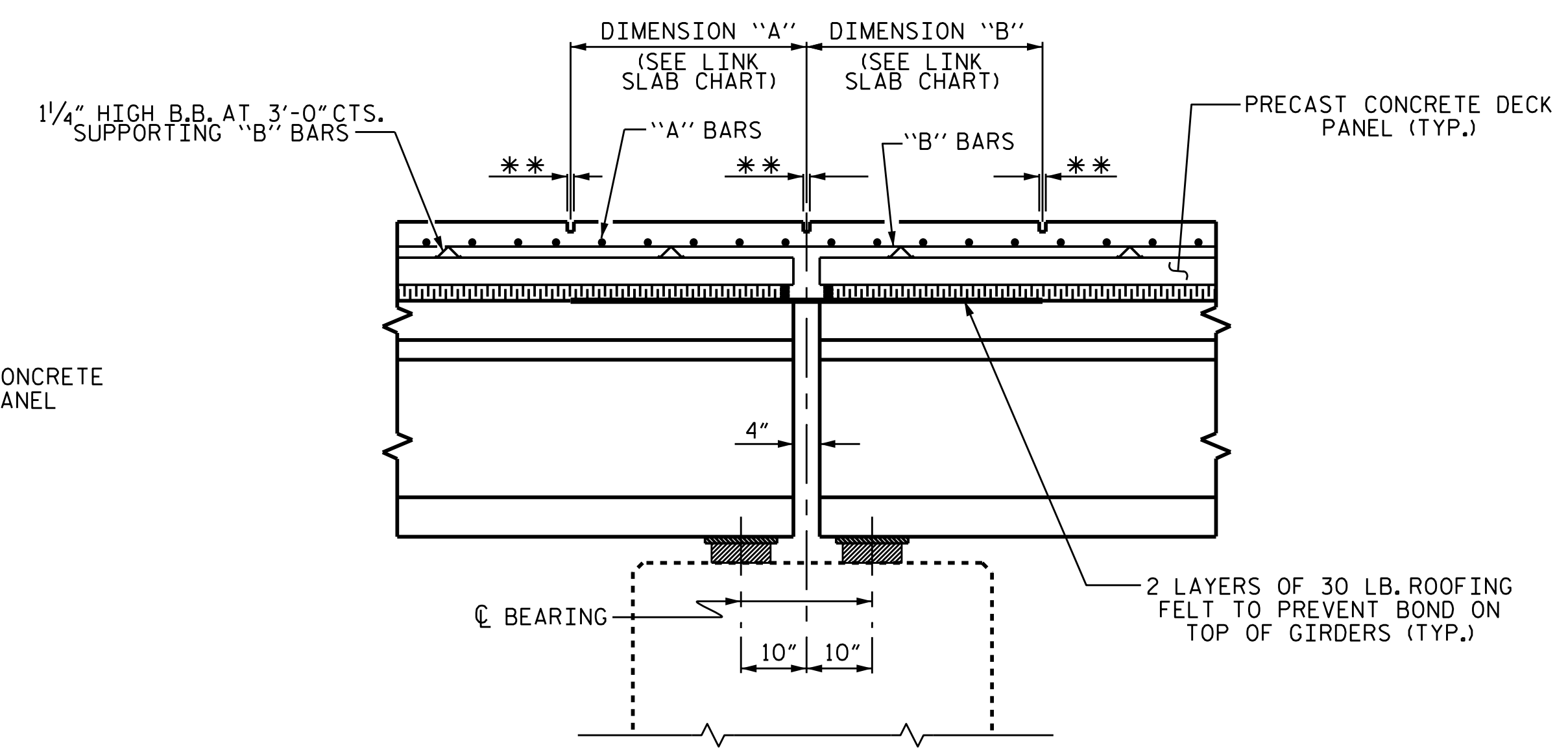
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			33



SECTION THRU INTEGRAL END BENT



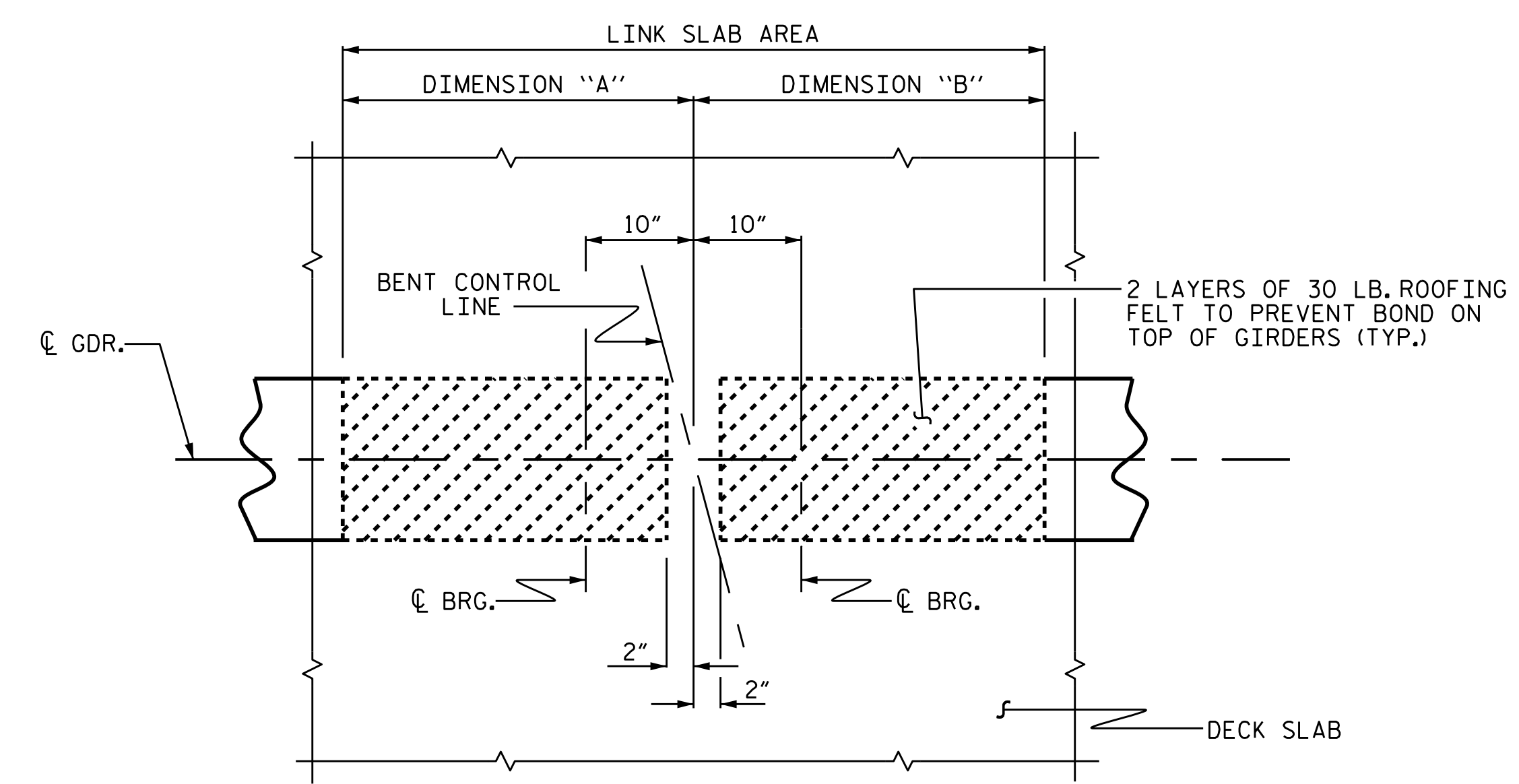
PLAN OF GIRDER AT INTEGRAL END BENT



SECTION THRU LINK SLAB

* 1/2" DEEP CONTRACTION JOINTS, SHALL BE SAWN WITHIN 24 HOURS OF POURING THE DECK. THE JOINTS SHALL BE FILLED WITH JOINT SEALER MATERIAL. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE B LOW MODULUS SILICONE SEALANT, SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

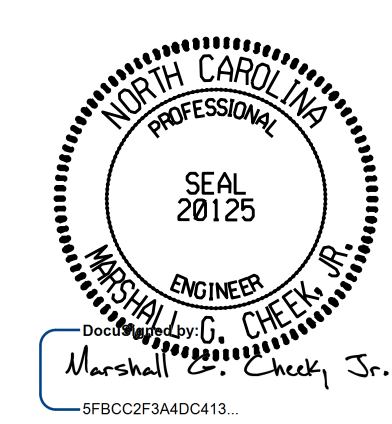
LINK SLAB CHART		
BENT NO.	DIMENSION "A"	DIMENSION "B"
1	3'-2"	3'-8"
2	3'-8"	3'-8"



PLAN OF LINK SLAB

PROJECT NO. B-4414
BEAUFORT COUNTY
 STATION: 24+78.90 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 TYPICAL SECTION

DRAWN BY : S. B. WILLIAMS DATE : 7-19
 CHECKED BY : MGC DATE : 2/20
 DESIGN ENGINEER OF RECORD: MGC DATE : 03/20

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 RALEIGH, NC 27603
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 CORP. LICENSE NO.: C-0275

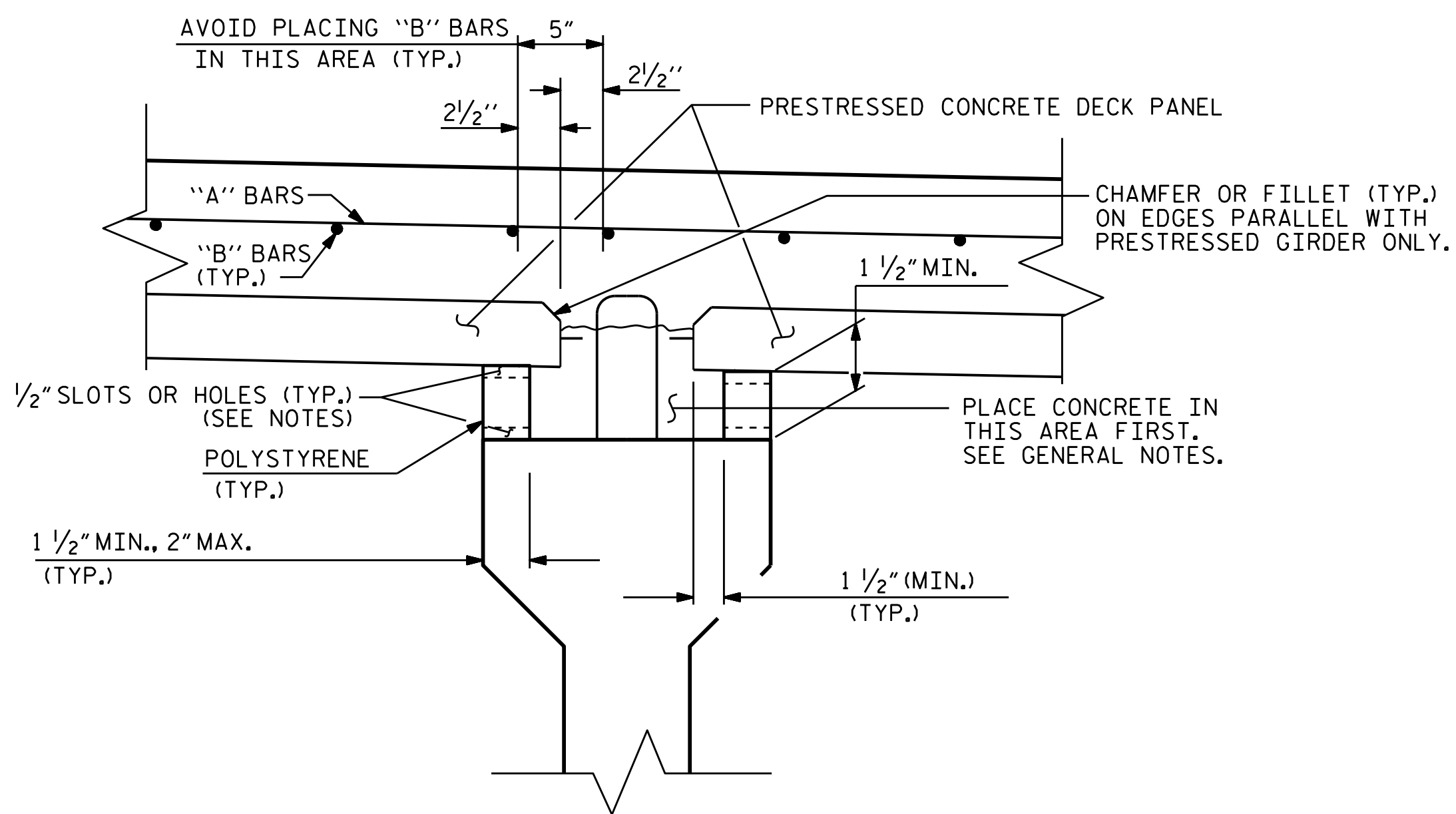
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			33

DECK PANEL SUPPORTS

THE CONTRACTOR SHALL PROVIDE THE DECK PANEL SUPPORT SYSTEM SHOWN OR HE MAY SUBMIT A DECK PANEL SUPPORT SYSTEM OF HIS OWN DESIGN TO THE ENGINEER FOR APPROVAL.

POLYSTYRENE SUPPORT SYSTEM

1. ALL POLYSTYRENE SHALL BE DOW STYROFOAM 60 HIGH-LOAD, UC INDUSTRIES FOAMULAR 600 OR APPROVED EQUAL.
2. THE POLYSTYRENE SUPPORT SYSTEM SHALL CONSIST OF ONE LAYER WITH A MINIMUM WIDTH OF 1 1/2" AND A MAXIMUM WIDTH OF 2". THE POLYSTYRENE SHALL HAVE 1/2" X 1/2" WIDE SLOTS OR 1/2" DIAMETER HOLES AT 4'-0" CENTERS STAGGERED ALONG THE TOP AND BOTTOM.
3. THE POLYSTYRENE MAY BE CUT AND PLACED ON EDGE AS NECESSARY TO MATCH THE REQUIRED BUILDUP PROFILE ALONG THE GIRDER.
4. ADHESIVE, AS APPROVED BY THE ENGINEER, SHALL BE APPLIED TO THE TOP OF THE GIRDER IN A CONTINUOUS BEAD AND IN SUFFICIENT AMOUNT TO PREVENT THE POLYSTYRENE FROM BLOWING OUT AND TO PREVENT GAPS FROM FORMING BETWEEN THE POLYSTYRENE AND THE GIRDER. PRIOR TO PLACEMENT OF THE DECK PANELS, THE ADHESIVE SHALL ALSO BE APPLIED TO THE TOP OF THE POLYSTYRENE.
5. CONCRETE-FILLED BUCKETS, STACKS OF DECK PANELS, BUNDLED REINFORCING BARS OR OTHER HEAVY CONCENTRATED LOADS WILL NOT BE PERMITTED ON THE DECK PANEL ONCE THE PANEL HAS BEEN PLACED ON THE POLYSTYRENE SUPPORT SYSTEM.

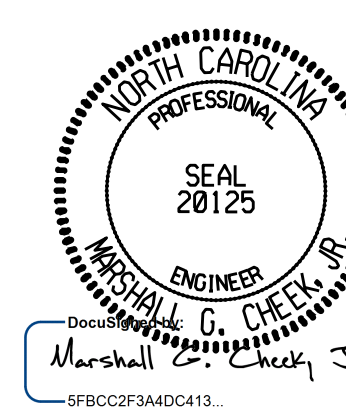


POLYSTYRENE SUPPORT

GENERAL NOTES

1. THE DESIGN COMPRESSIVE STRENGTH (f'c) FOR THE CONCRETE IN PRESTRESSED PANELS SHALL BE 5000 PSI MINIMUM AT 28 DAYS. COMPRESSIVE STRENGTH OF CONCRETE AT TIME OF RELEASE OF STRANDS SHALL BE 4000 PSI MINIMUM.
2. THE PRECAST PRESTRESSED PANEL SHALL HAVE A THICKNESS OF 3 1/2" WITH THE PRESTRESSED STRANDS LOCATED AT HALF THE DEPTH OF THE PANEL.
3. FOR SKEWED SPANS, TRAPEZOIDAL CLOSURE PANELS SHALL HAVE A MINIMUM WIDTH OF 2 FEET ON THE SHORT SIDE.
4. ALL PRESTRESSING STRANDS SHALL EXTEND 2" BEYOND THE PANEL EDGES.
5. SHEAR REINFORCING OF 0.60 SQ. INCHES OF REINFORCING STEEL PER 10 SQ. FEET OF PANEL SURFACE SHALL BE PROVIDED IN THE PANEL TO ENSURE COMPOSITE ACTION BETWEEN PANEL AND THE CAST-IN-PLACE CONCRETE. SHEAR REINFORCEMENT SHALL BE MADE OF WELDED WIRE HAVING A MINIMUM YIELD STRENGTH OF 60 KSI.
6. SHEAR REINFORCEMENT AND LIFTING DEVICES SHALL BE CONSTRUCTED AND PLACED SO AS TO AVOID ANY INTERFERENCE WITH REINFORCING STEEL IN THE CAST-IN-PLACE DECK SLAB AND TO ALLOW FOR PROPER CONCRETE CONSOLIDATION IN THE DECK PANEL.
7. SHIFT LONGITUDINAL "B" BARS AS NECESSARY TO OBTAIN A MINIMUM CLEAR DISTANCE OF 2 1/2" TO THE RIGHT OR LEFT OF THE EDGE OF THE DECK PANEL. IF, IN SHIFTING TO OBTAIN THIS CLEARANCE, THE "B" BAR INTERFERES WITH THE STIRRUP IN THE TOP OF THE GIRDER THE "B" BAR MAY BE ELIMINATED.
8. WHEN CASTING THE DECK, PLACE CONCRETE FIRST OVER THE GIRDERS IN CONTINUOUS STRIPS A MINIMUM OF THREE PANEL LENGTHS AHEAD OF THE REST OF THE CONCRETE. CAREFULLY VIBRATE THE CONCRETE OVER THE GIRDERS SO THAT CONCRETE COMPLETELY FILLS THE AREA UNDER THE DECK PANEL OVERHANGS. THEN PLACE AND VIBRATE THE REMAINING DECK CONCRETE.
9. PRECAST PANELS SHALL BE DESIGNED FOR AN ALLOWABLE TENSILE STRESS OF 0 PSI IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.
10. PRECAST PANELS SHALL CONTAIN CALCIUM NITRATE CORROSION INHIBITOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
11. ALL BAR SUPPORTS AND INCIDENTAL REINFORCING STEEL USED IN THE PRECAST PANELS SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

PROJECT NO. B-4414
BEAUFORT COUNTY
 STATION: 24+78.90 -L-

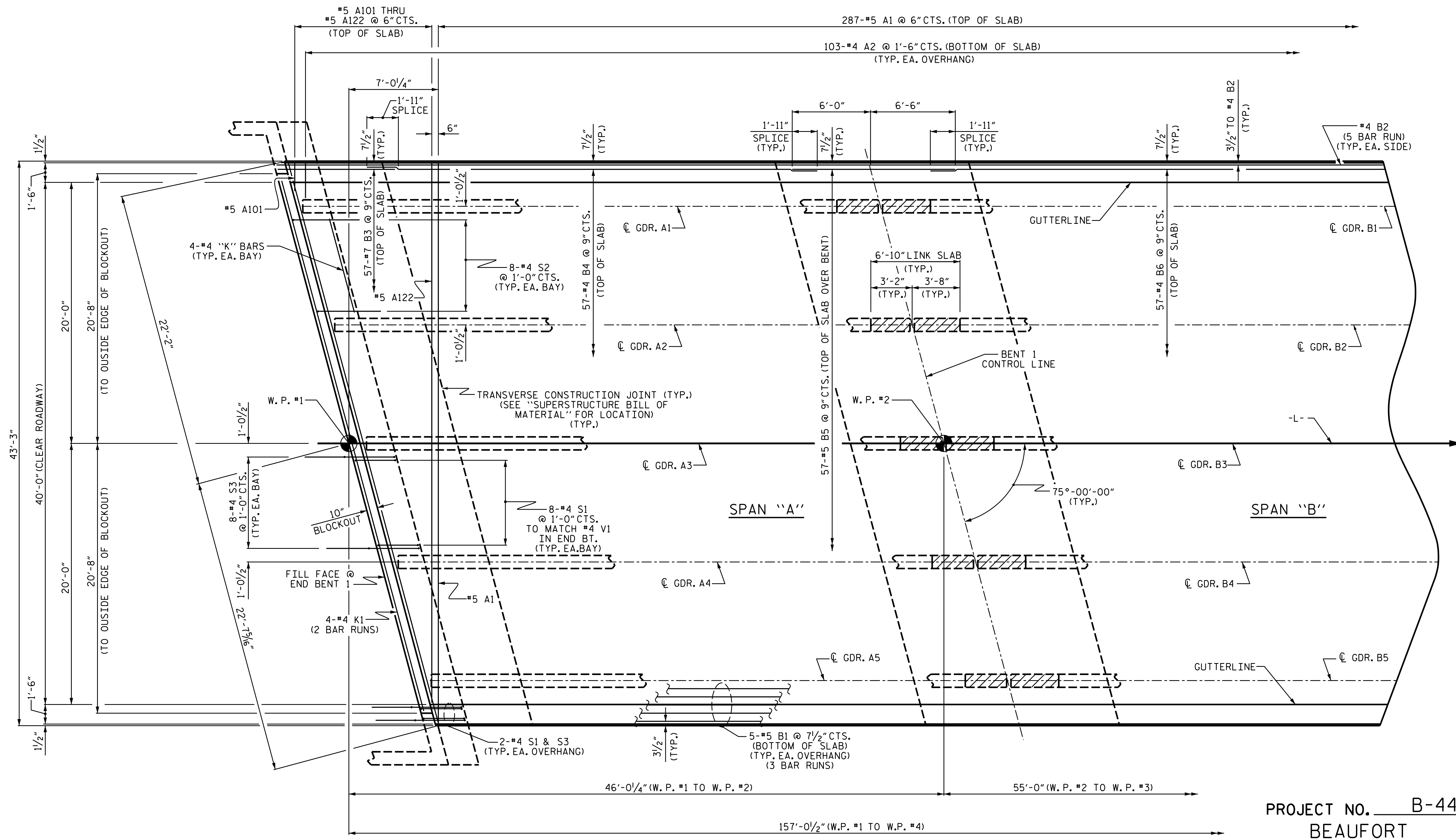


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD

PRECAST PRESTRESSED
 CONCRETE DECK PANELS

ASSEMBLED BY : S. B. WILLIAMS	DATE : 8-26-19
CHECKED BY : MGC	DATE : 2/20
DRAWN BY : ELR 1/92	REV. 5/1/06R TLA/GM
CHECKED BY : GRP 4/92	REV. 10/1/11 MAA/GM
	REV. 12/17 MAA/THC

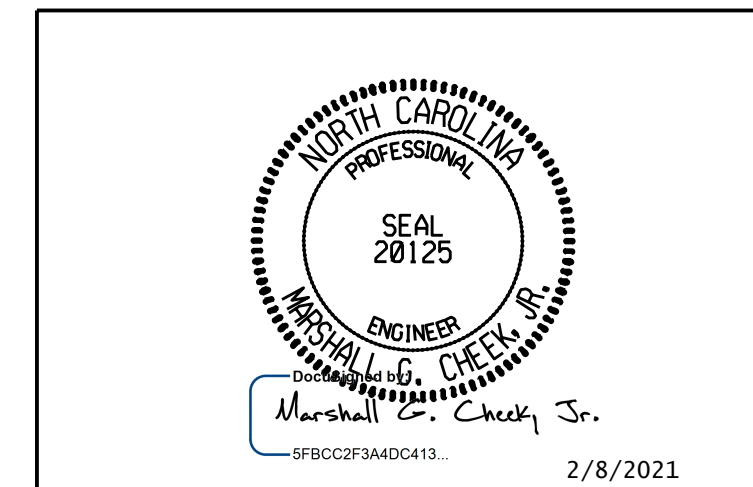
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED					
TGS ENGINEERS					
706 HILLSBOROUGH STREET SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-7
					TOTAL SHEETS 33



PROJECT NO. B-4414
BEAUFORT COUNTY
 STATION: 24+78.90 -L-

SHEET 1 OF 2

PARTIAL PLAN OF SPANS
 FOR BARRIER RAIL DETAILS & REINFORCING STEEL,
 SEE "CONCRETE BARRIER RAIL" SHEETS.



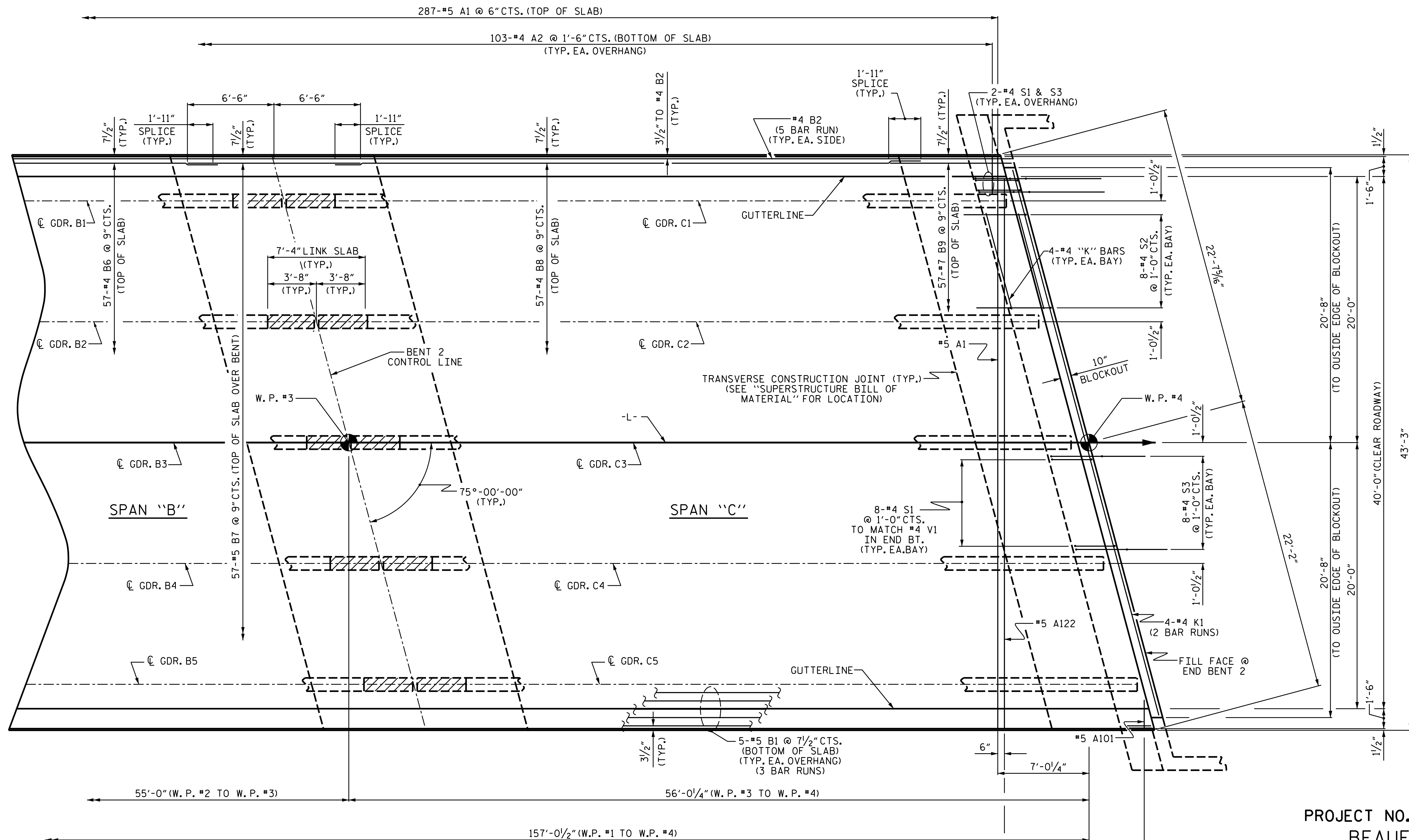
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN

DRAWN BY : S. B. WILLIAMS DATE : 9-19
 CHECKED BY : MGC DATE : 2-20
 DESIGN ENGINEER OF RECORD: MGC DATE : 03-20

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TGS ENGINEERS
 706 HILLSBOROUGH STREET
 SUITE 200
 RALEIGH, NC 27603
 PH (919) 773-8887
 CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-8
2			4			TOTAL SHEETS 33



PROJECT NO. B-4414
BEAUFORT COUNTY
 STATION: 24+78.90 -L-

SHEET 2 OF 2

PARTIAL PLAN OF SPANS
 FOR BARRIER RAIL DETAILS & REINFORCING STEEL,
 SEE "CONCRETE BARRIER RAIL" SHEETS.

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

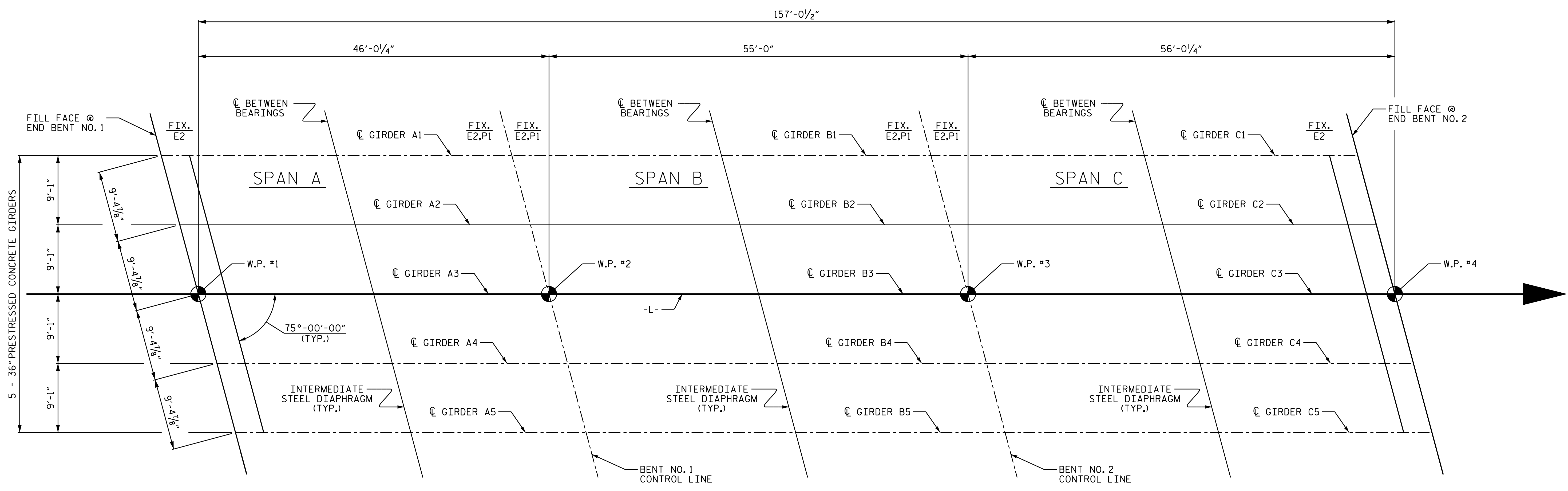
SEAL
 20125
 MARSHALL G. CHECK, JR.
 ENGINEER
 2/8/2021

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 UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
 706 HILLSBOROUGH STREET
 SUITE 200
 RALEIGH, NC 27603
 PH (919) 773-8887
 CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
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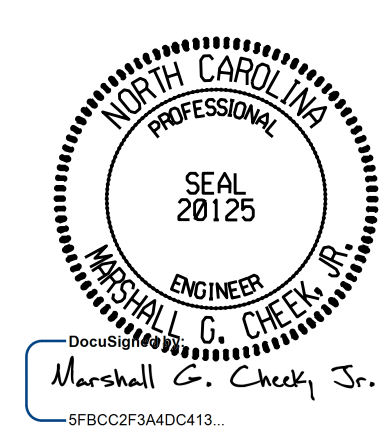
DRAWN BY : S. B. WILLIAMS DATE : 1-20
 CHECKED BY : MGC DATE : 2-20
 DESIGN ENGINEER OF RECORD: MGC DATE : 03-20



FRAMING PLAN

FOR SOLE PLATES, SEE "ELASTOMERIC BEARINGS" SHEET.

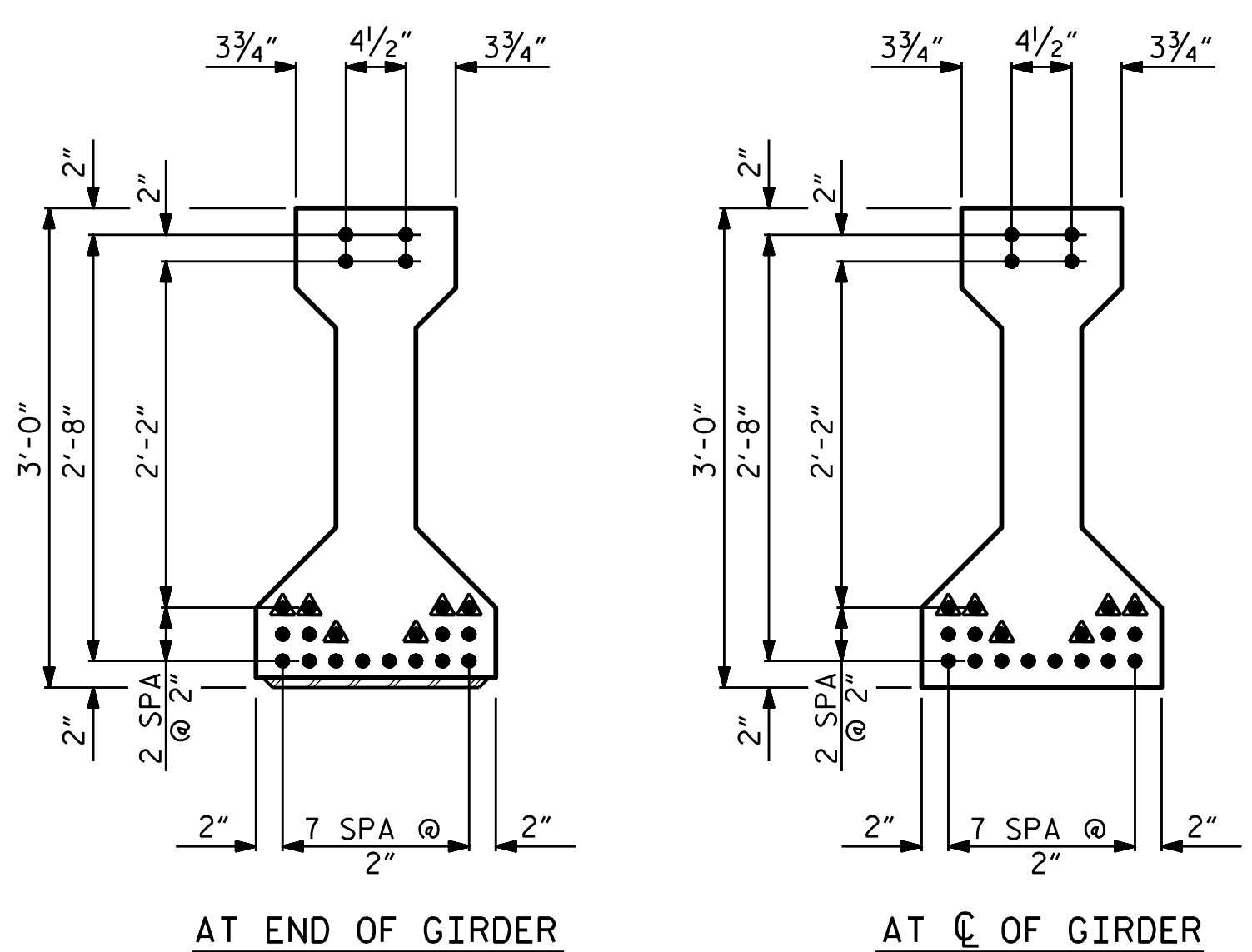
PROJECT NO. B-4414
BEAUFORT COUNTY
 STATION: 24+78.90 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 FRAMING PLAN
 (SPANS A, B, & C)

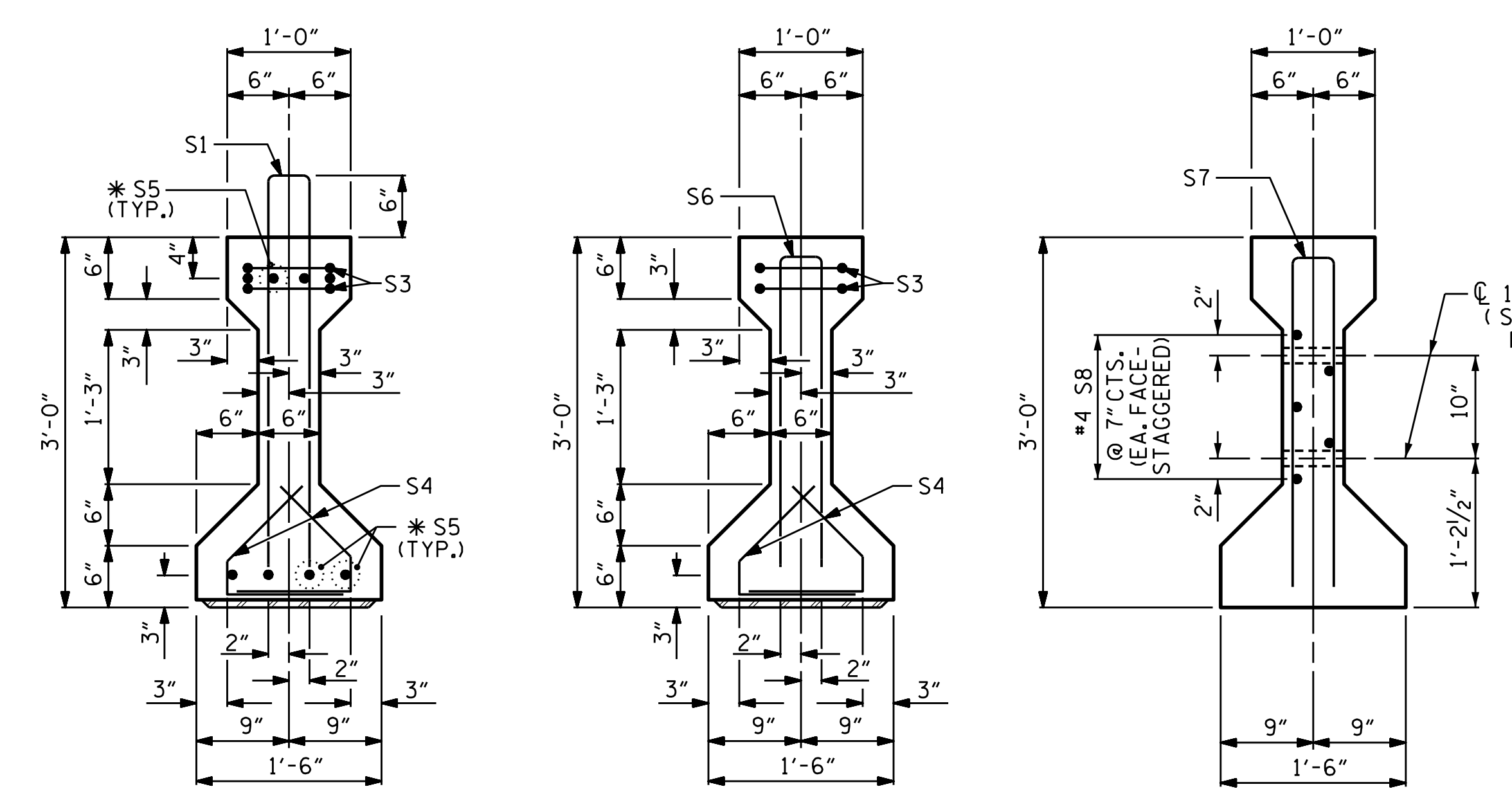
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 CHECKED BY : MGC DATE : 12/19
 DESIGN ENGINEER OF RECORD: MGC DATE : 03/20

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TGS ENGINEERS 706 HILLSBOROUGH STREET SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275						NO.	BY:	DATE:	NO.	BY:	DATE:	S-10	
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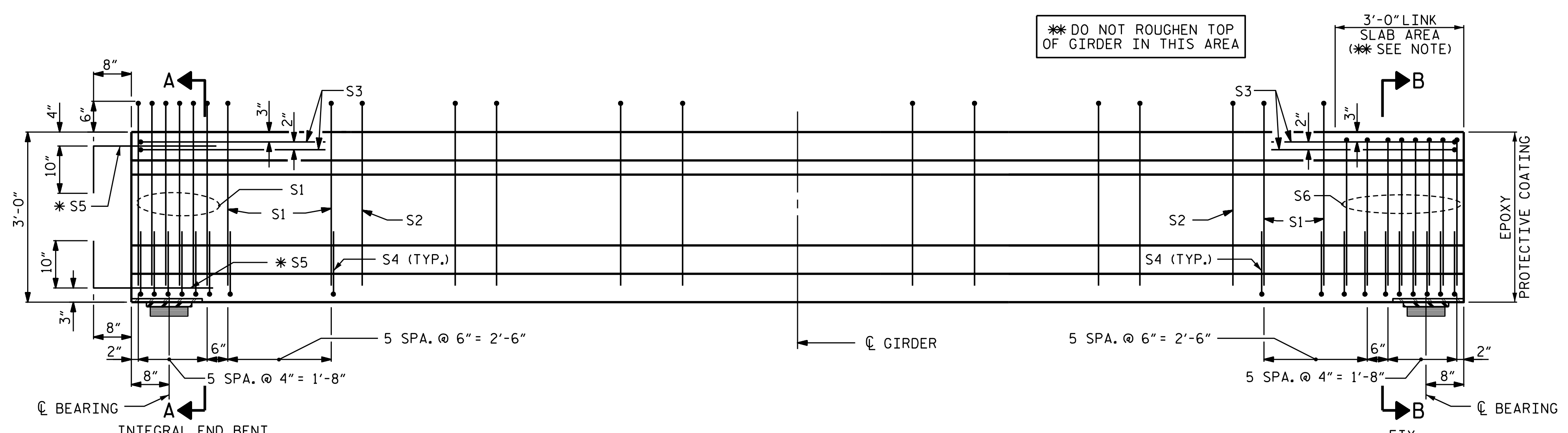
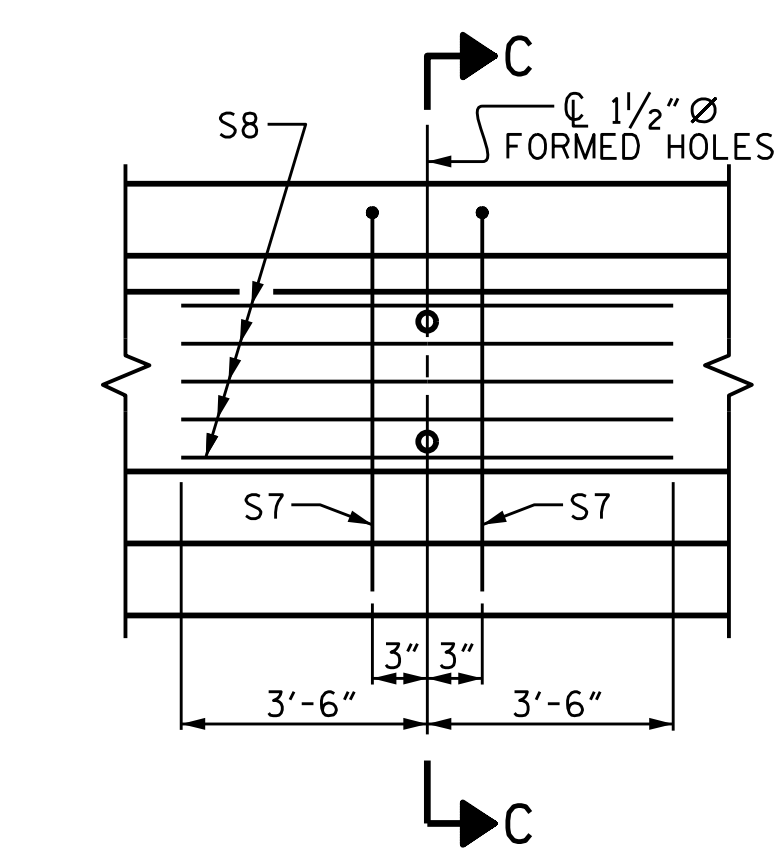
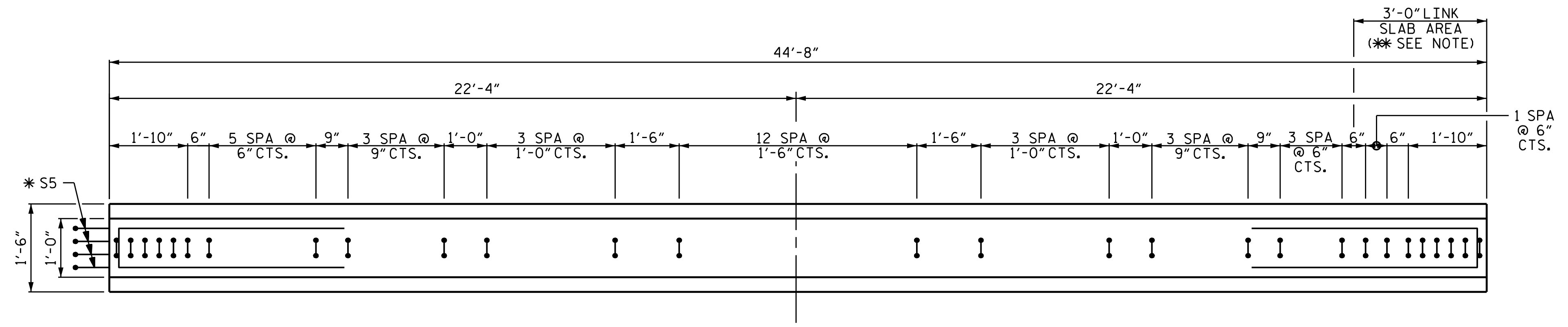


0.6" Ø LOW RELAXATION STRAND LAYOUT

▲ OPTIONAL FULLY DEBONDED STRANDS.



1/2" Ø FORMED HOLE
(SEE FRAMING PLAN FOR LOCATION)



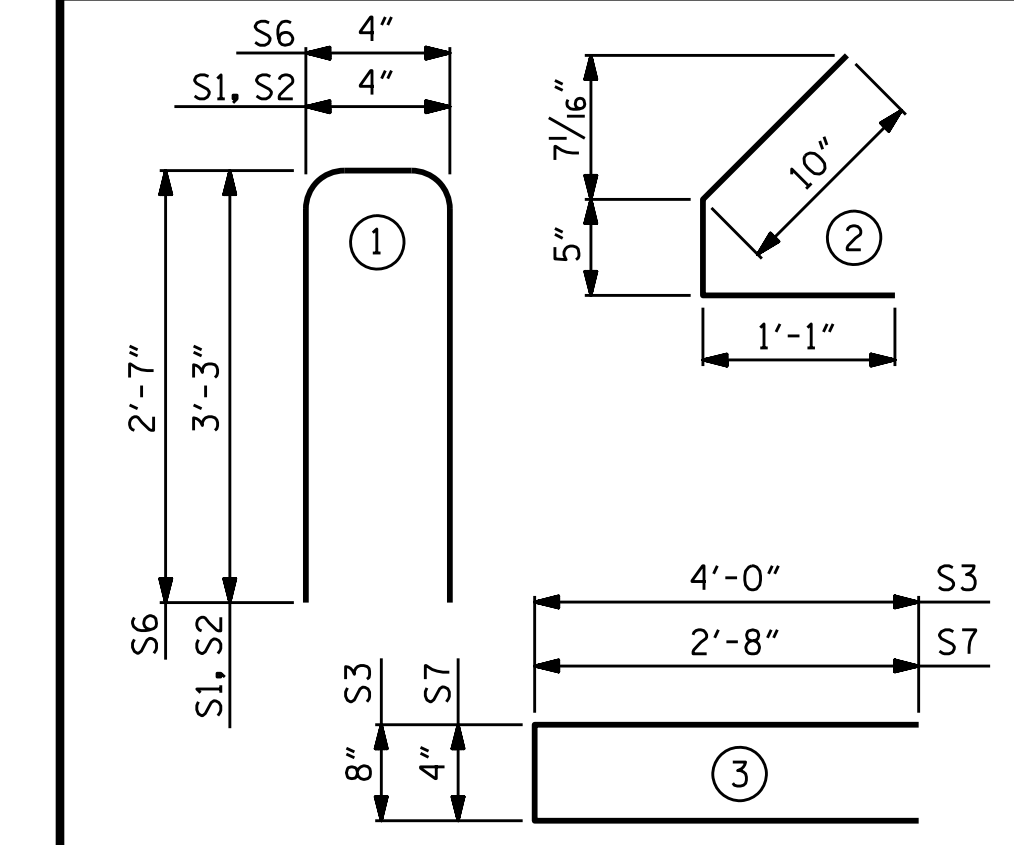
** DO NOT ROUGHEN TOP OF GIRDER IN THIS AREA

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	16	#5	1	6'-10"	114
S2	29	#4	1	6'-10"	132
S3	4	#4	3	8'-8"	23
S4	48	#4	2	2'-4"	75
* S5	8	#5	STR	3'-8"	31
S6	8	#5	1	5'-6"	46
S7	2	#5	3	5'-8"	12
S8	5	#4	STR	7'-0"	23

* NOTE: S5 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES
ALL BAR DIMENSIONS ARE OUT-TO-OUT

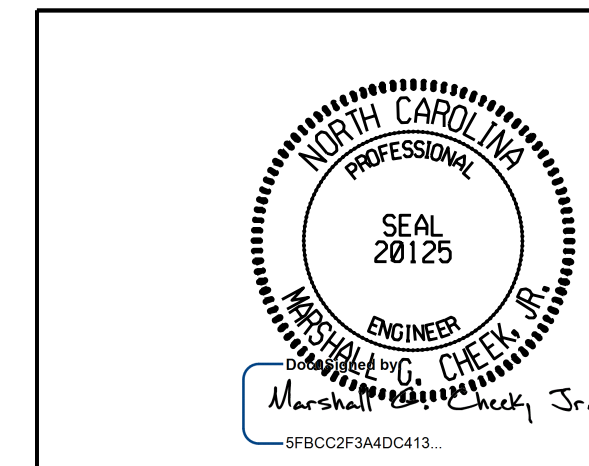


QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL LB.	7500 PSI CONCRETE C.Y.	0.6" Ø L. R. STRANDS No.
GIRDERS 1-5	456	4.2	16

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
5	44'-8"	223'-4"

PROJECT NO. B-4414
BEAUFORT COUNTY
STATION: 24+78.90 -L-

SHEET 1 OF 5



2/8/2021

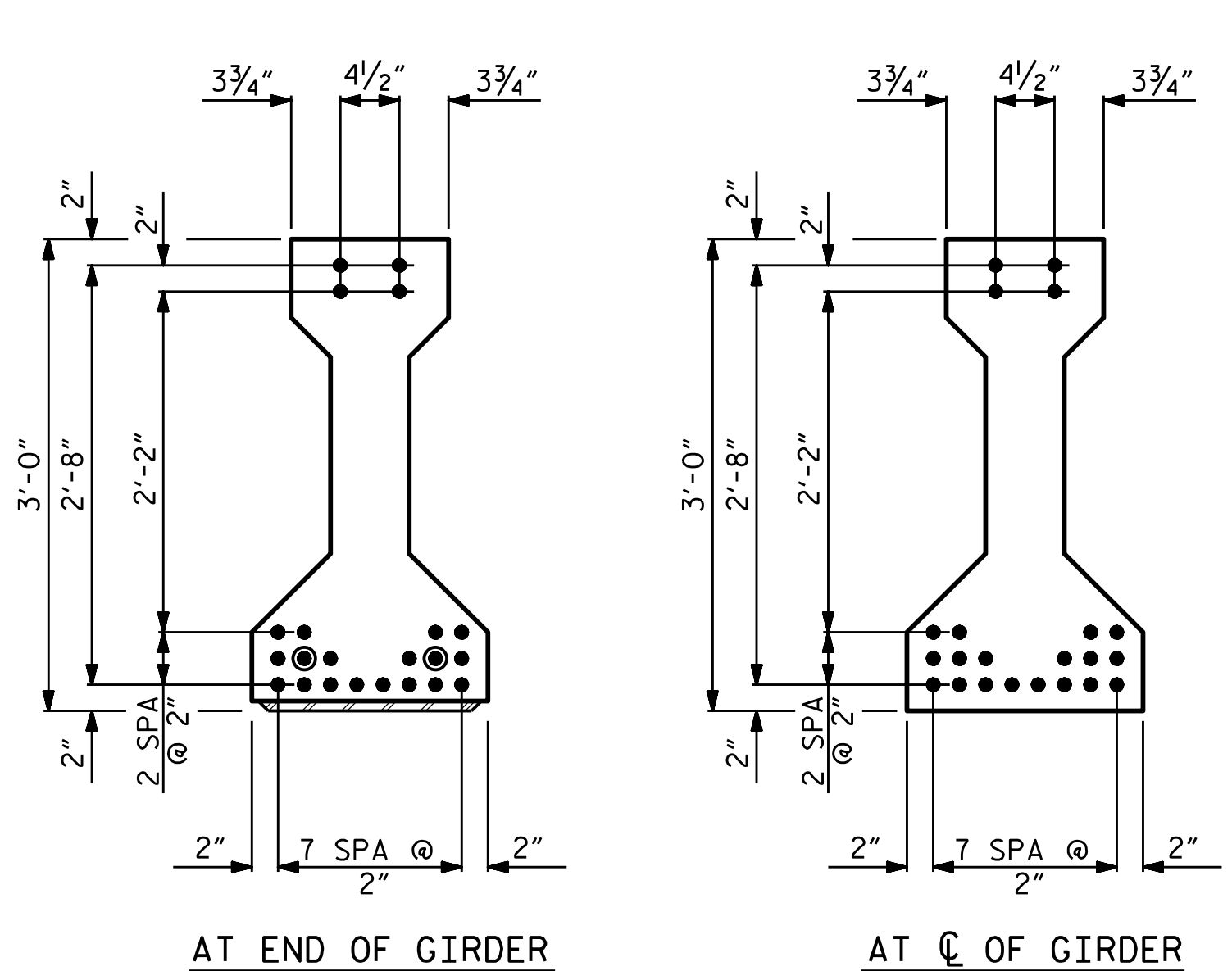
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SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

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

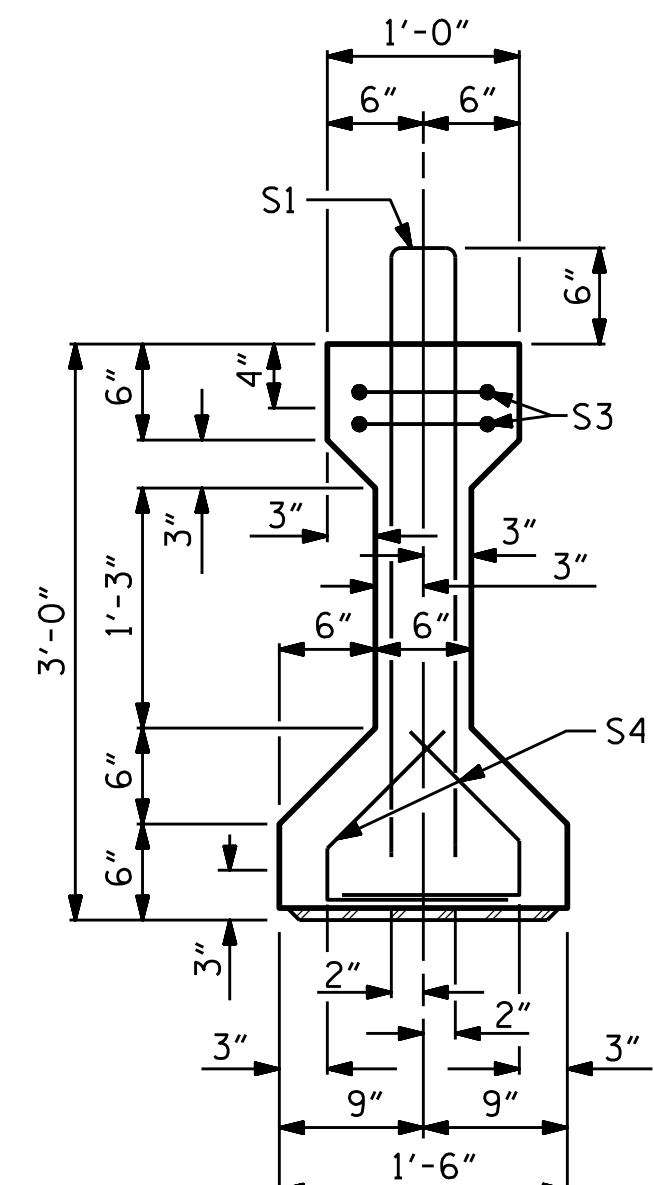
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CHECKED BY : MGC	DATE : 11/19
DESIGN ENGINEER OF RECORD: TBE	DATE : 03/20
DRAWN BY : ELR 8/91	REV. 10/1/11 MAA/GM
CHECKED BY : GRP 8/91	REV. 1/15 MAA/TMG
	REV. 12/17 MAA/THC

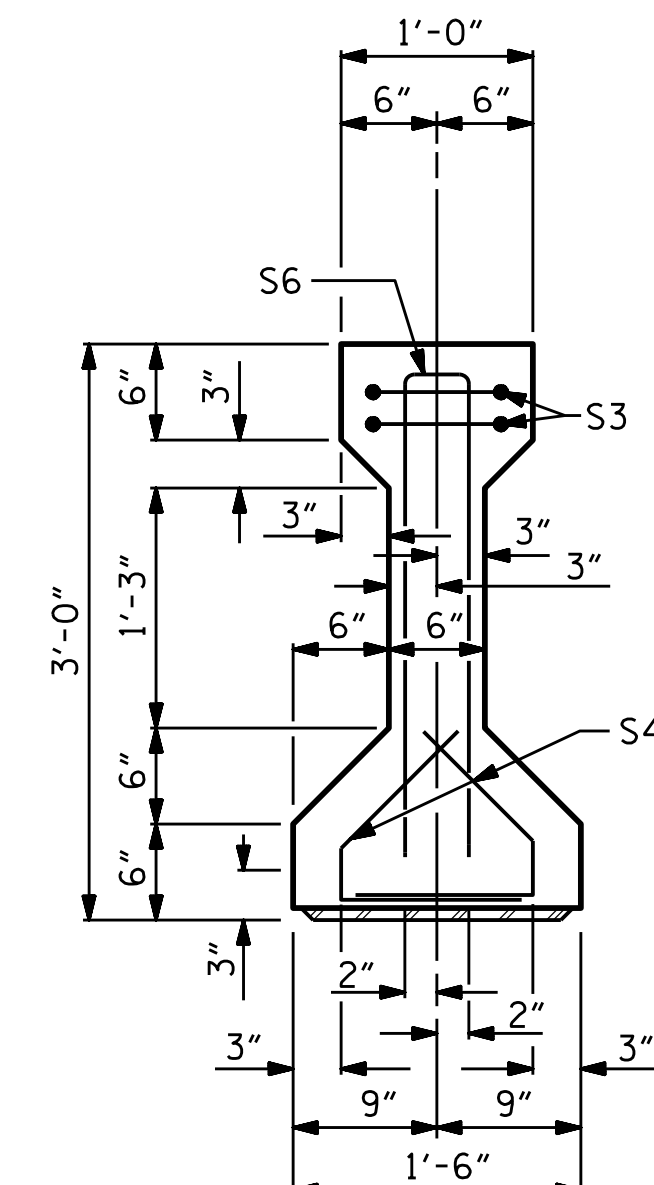


0.6" Ø LOW RELAXATION STRAND LAYOUT

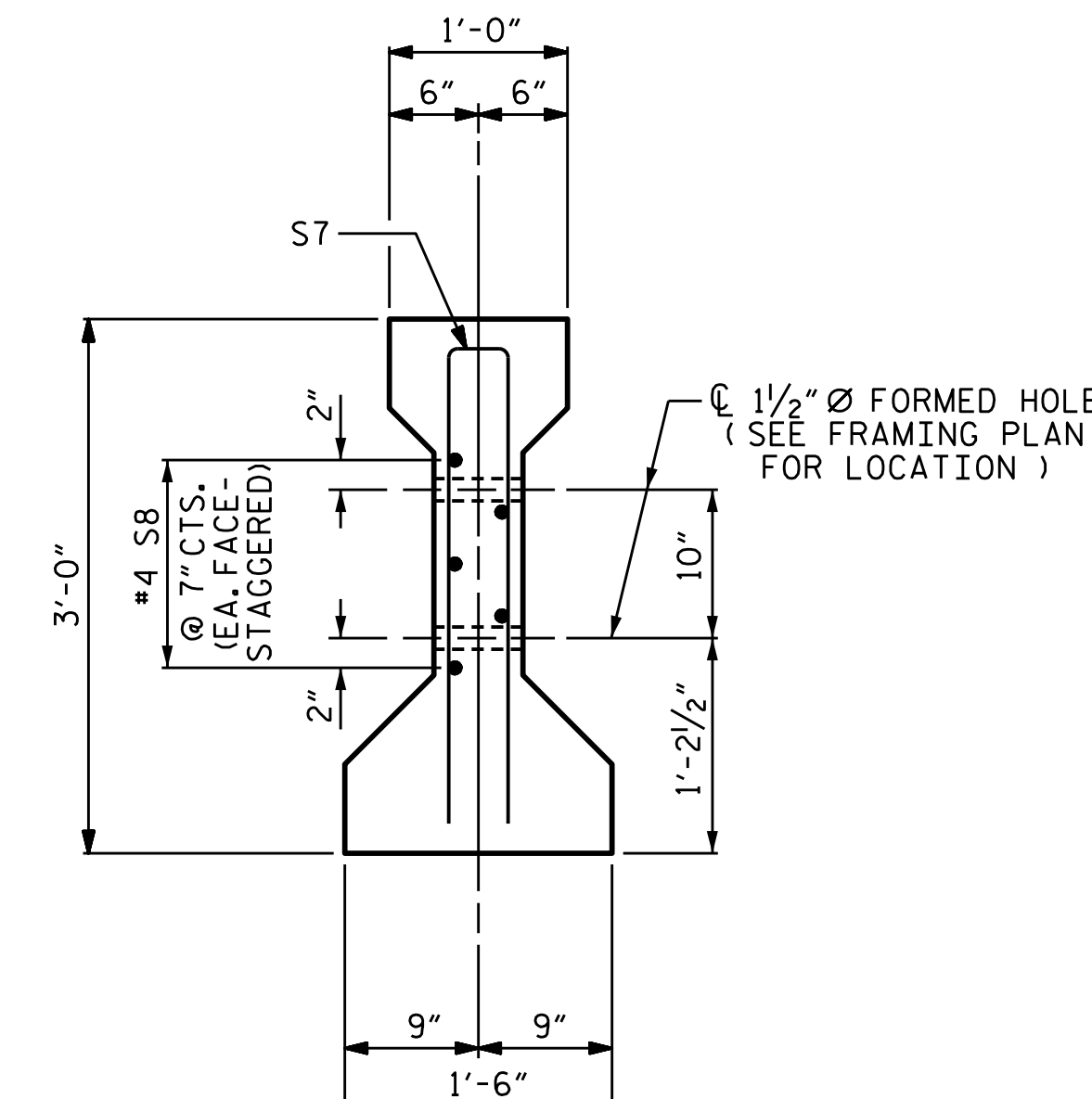
● STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER



SECTION A-A

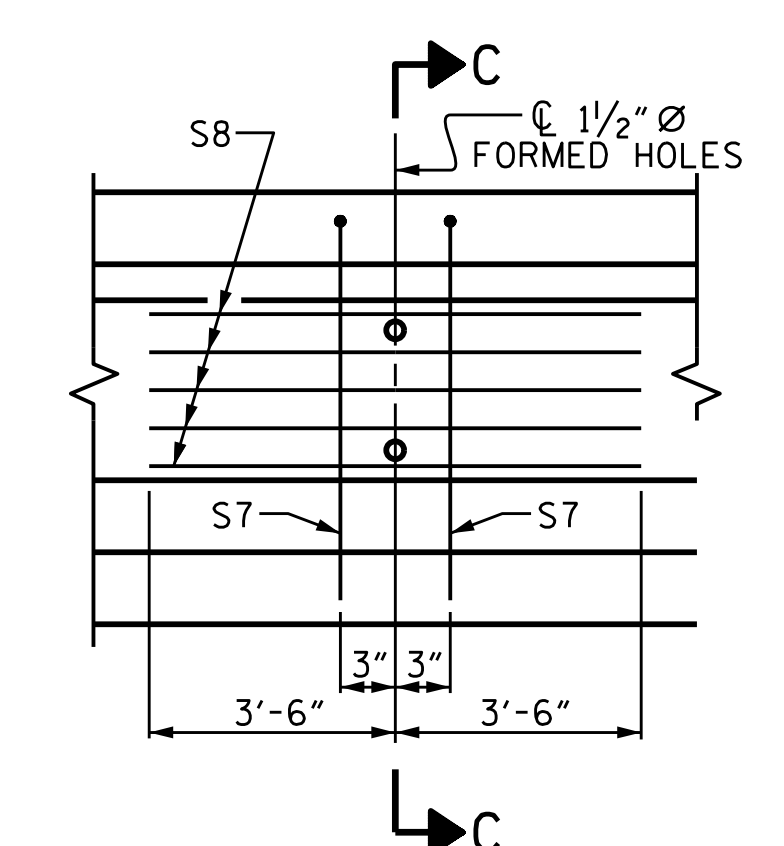
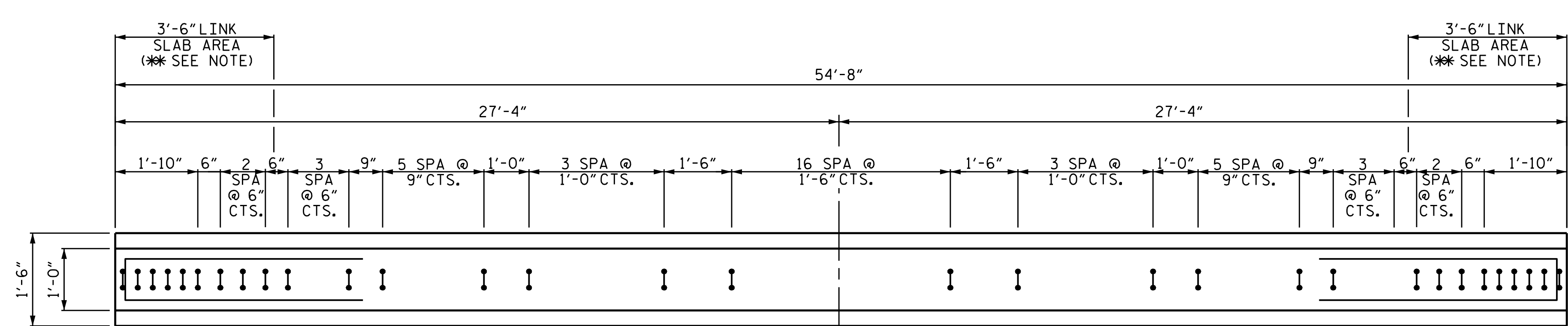


SECTION B-B



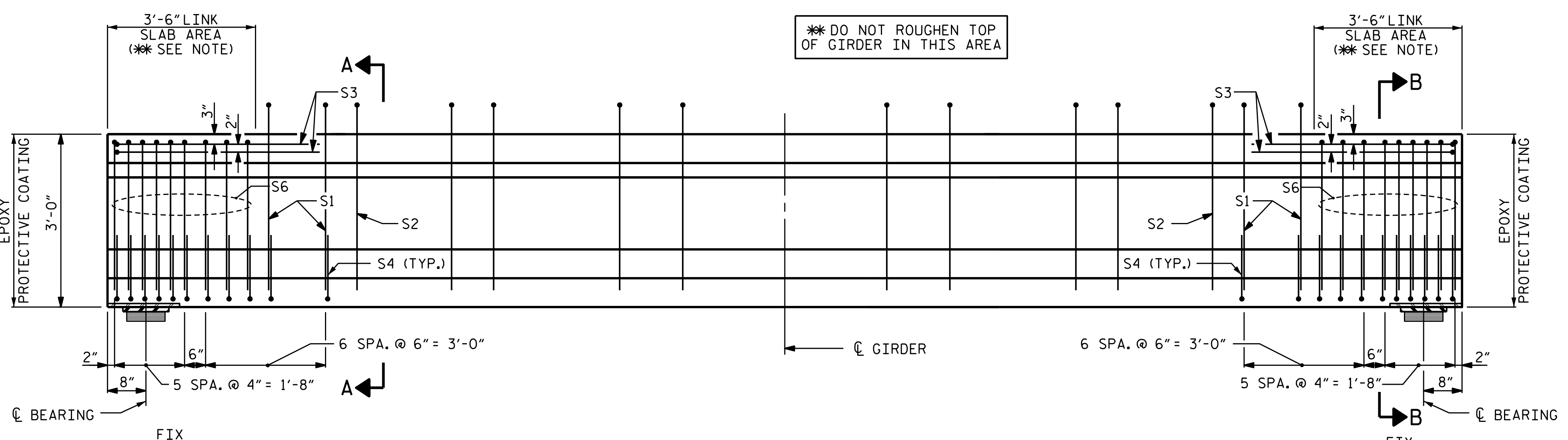
SECTION C-C

(S2 BARS NOT SHOWN)



PARTIAL ELEVATION

SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL.

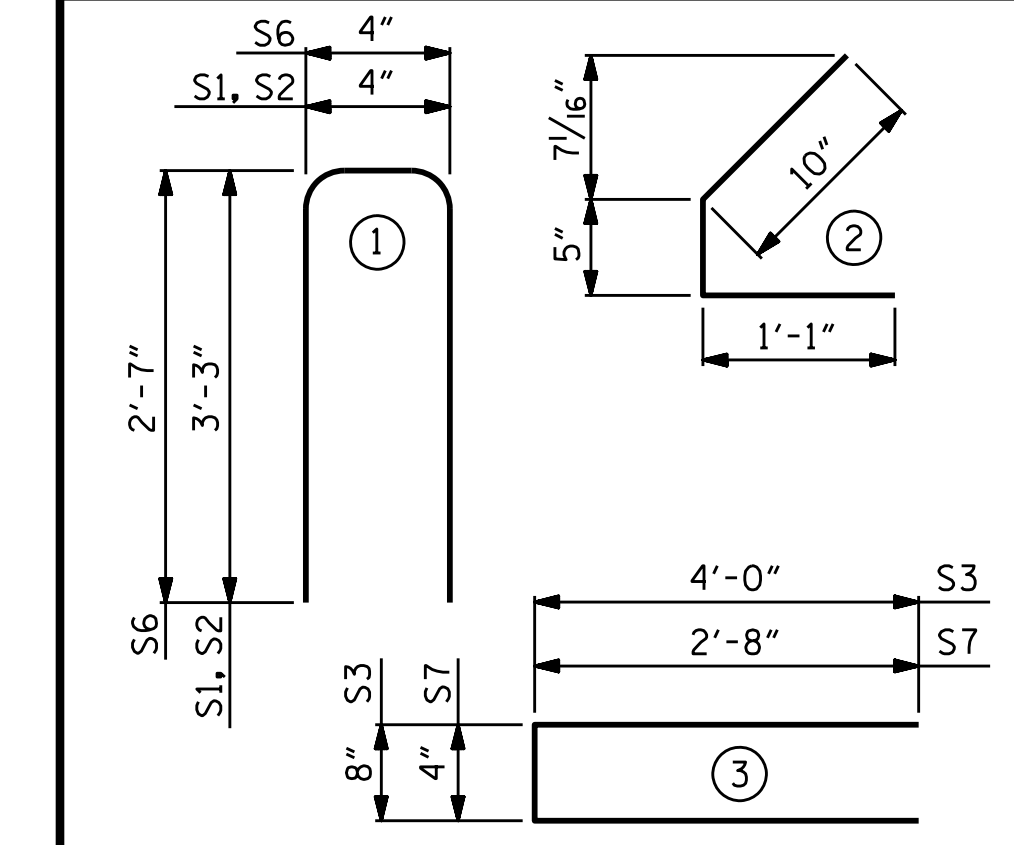


** DO NOT ROUGHEN TOP OF GIRDER IN THIS AREA

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	8	#5	1	6'-10"	57
S2	37	#4	1	6'-10"	169
S3	4	#4	3	8'-8"	23
S4	52	#4	2	2'-4"	81
S6	18	#5	1	5'-6"	103
S7	2	#5	3	5'-8"	12
S8	5	#4	STR	7'-0"	23

BAR TYPES
ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER			
GIRDERS 1-5	REINFORCING STEEL	7500 PSI CONCRETE	0.6" Ø L. R. STRANDS
	LB.	C.Y.	No.
	468	5.2	22

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
5	54'-8"	273'-4"

PROJECT NO. B-4414
BEAUFORT COUNTY
STATION: 24+78.90 -L-

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

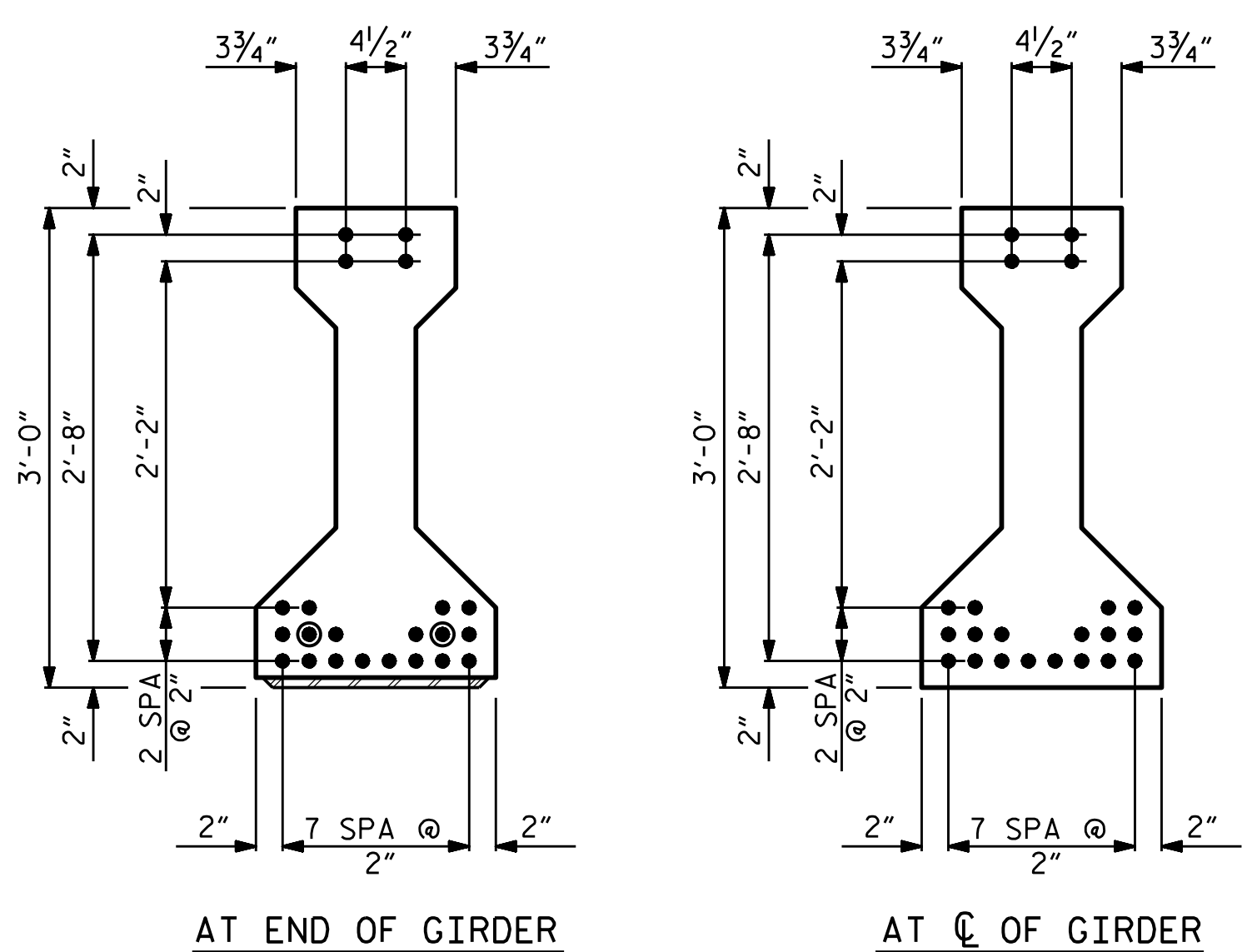
Professional Engineer Seal for Marshall G. Check, Jr., License No. SFBC02F340C413, dated 2/8/2021.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

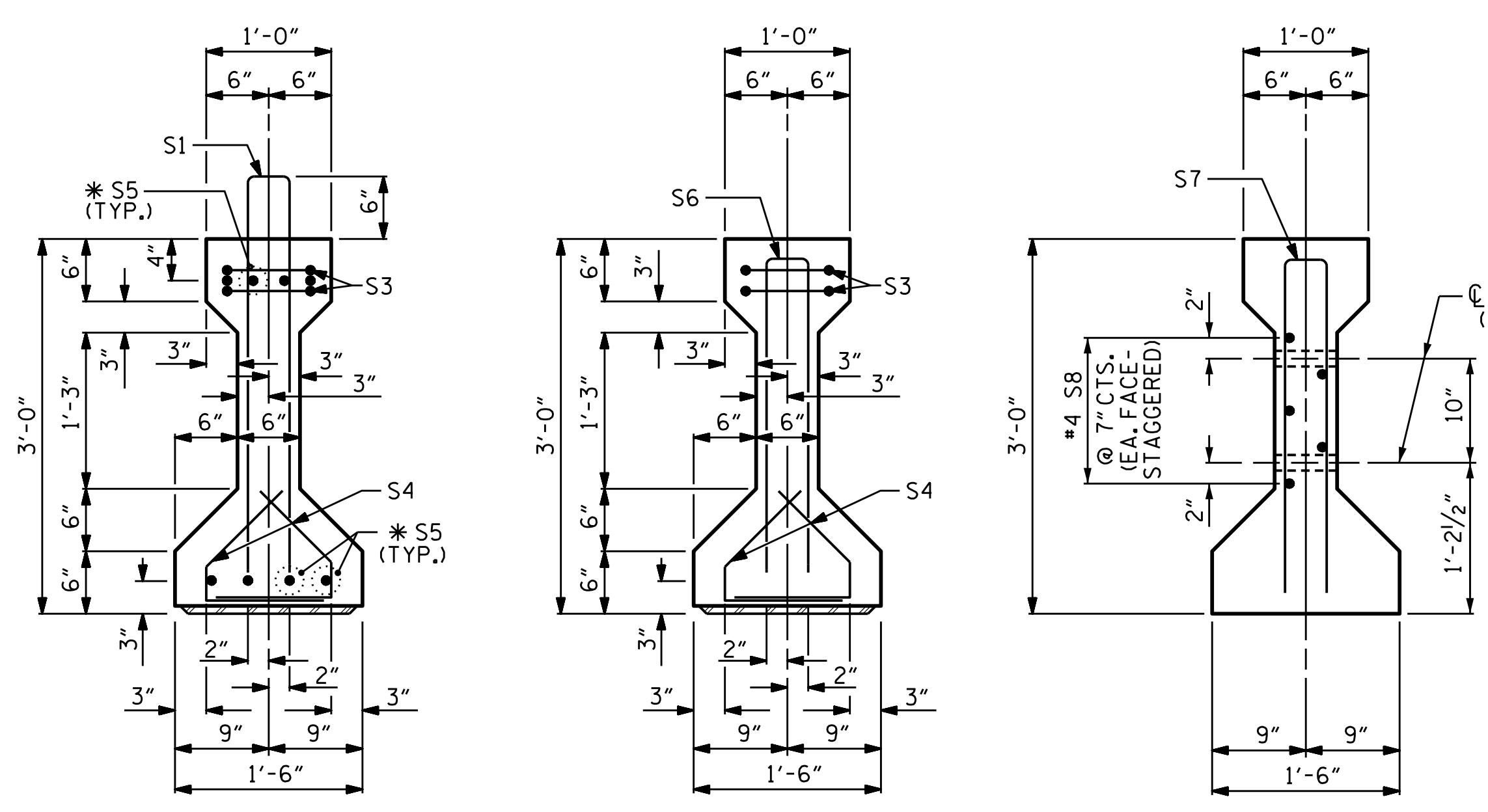
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

DRAWN BY: STM	DATE: 05/19
CHECKED BY: MGC	DATE: 11/19
DESIGN ENGINEER OF RECORD: TBE	DATE: 03/20
DRAWN BY: ELR 8/91	REV. 10/1/11 MAA/GM
CHECKED BY: GRP 8/91	REV. 1/15 MAA/TMG
	REV. 12/17 MAA/THC



0.6" Ø LOW RELAXATION STRAND LAYOUT

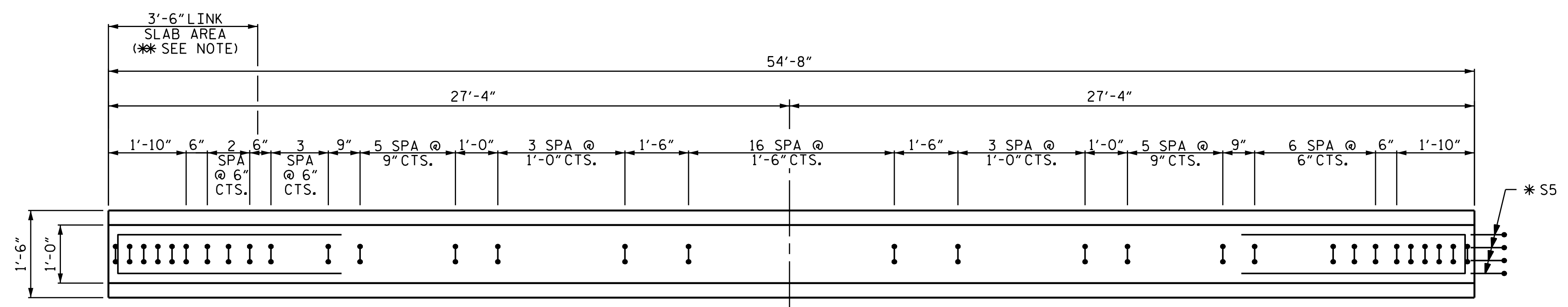
● STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER



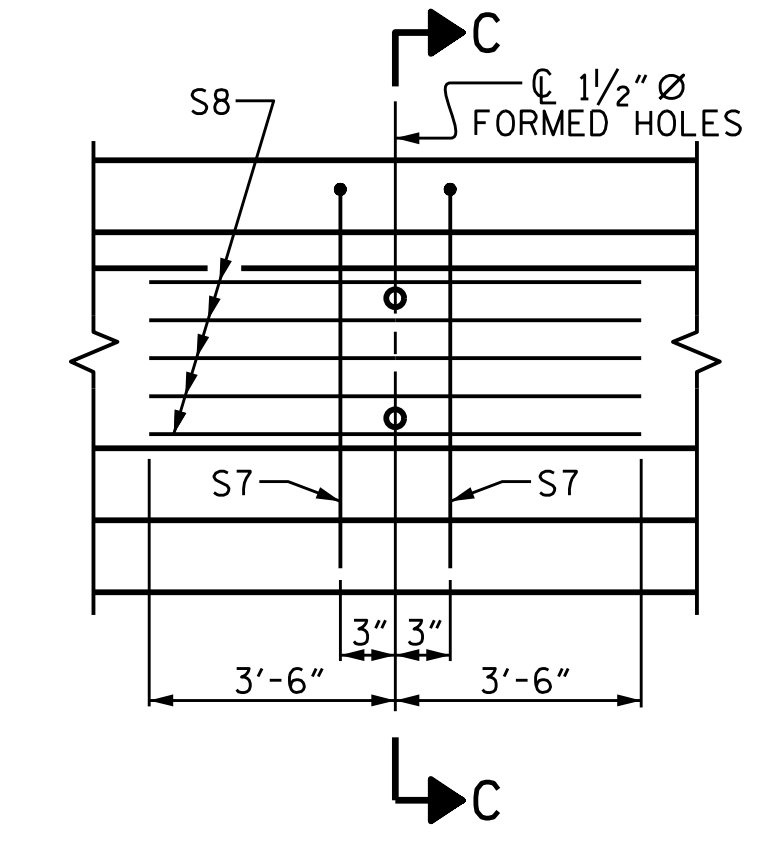
SECTION A-A

SECTION B-B

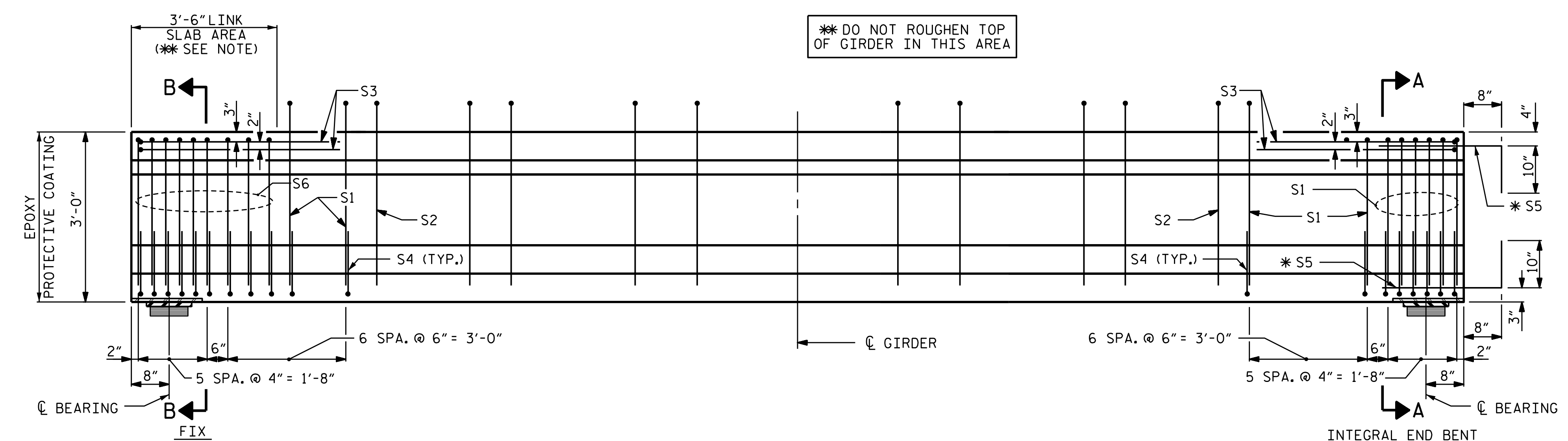
SECTION C-C
(S2 BARS NOT SHOWN)



** DO NOT ROUGHEN TOP OF GIRDER IN THIS AREA



PARTIAL ELEVATION
SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL.



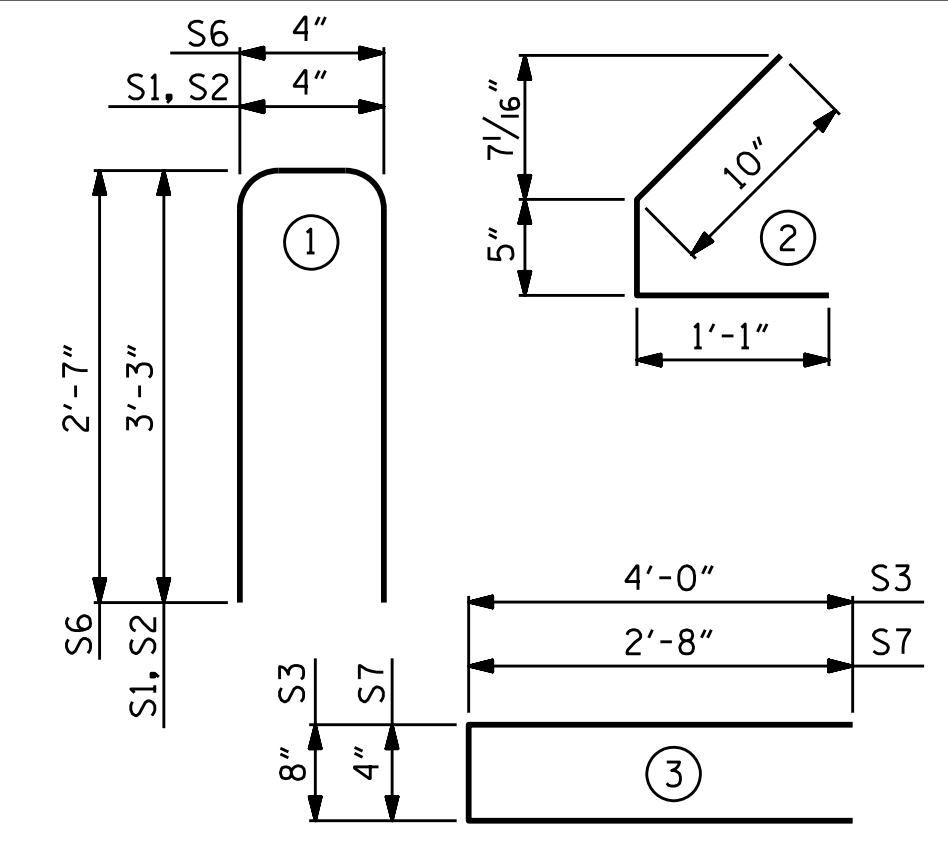
INTEGRAL END BENT

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	17	#5	1	6'-10"	121
S2	37	#4	1	6'-10"	169
S3	4	#4	3	8'-8"	23
S4	52	#4	2	2'-4"	81
* S5	8	#5	STR	3'-8"	31
S6	9	#5	1	5'-6"	52
S7	2	#5	3	5'-8"	12
S8	5	#4	STR	7'-0"	23

* NOTE: S5 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES
ALL BAR DIMENSIONS ARE OUT-TO-OUT

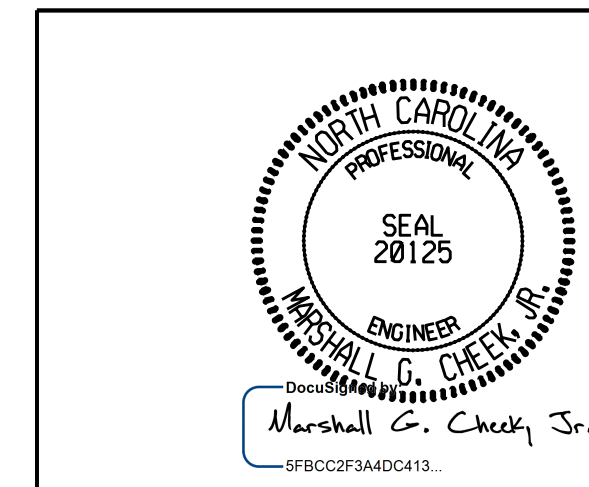


QUANTITIES FOR ONE GIRDER			
GIRDERS 1-5	REINFORCING STEEL	7500 PSI CONCRETE	0.6" Ø L. R. STRANDS
	LB.	C.Y.	No.
	512	5.2	22

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
5	54'-8"	273'-4"

PROJECT NO. B-4414
BEAUFORT COUNTY
STATION: 24+78.90 -L-

SHEET 3 OF 5



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706 HILLSBOROUGH STREET SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

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

REVISIONS						SHEET NO. S-13
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 33
2			4			

DRAWN BY: STM	DATE: 05/19
CHECKED BY: MGC	DATE: 11/19
DESIGN ENGINEER OF RECORD: TBE	DATE: 03/20
DRAWN BY: ELR 8/91	REV. 10/1/11 MAA/GM
CHECKED BY: GRP 8/91	REV. 1/15 MAA/TMG
	REV. 12/17 MAA/THC

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.

APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES INDICATED IN ELEVATION VIEW.

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.

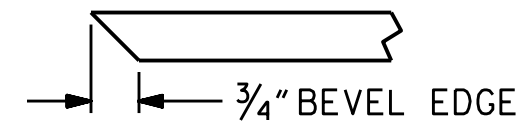
AT ENDS OF GIRDERS TO BE EMBEDDED IN CONCRETE DIAPHRAGMS OR END WALLS, PRESTRESSING STRANDS MAY EXTEND A MAXIMUM OF 2" BEYOND THE GIRDER ENDS. OTHERWISE, PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE GIRDER ENDS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6500 PSI.

THE TOP SURFACE OF THE GIRDER, EXCLUDING THE OUTSIDE 4", SHALL BE RAKED TO A DEPTH OF 1/4", EXCEPT AS NOTED ON THE PLANS.

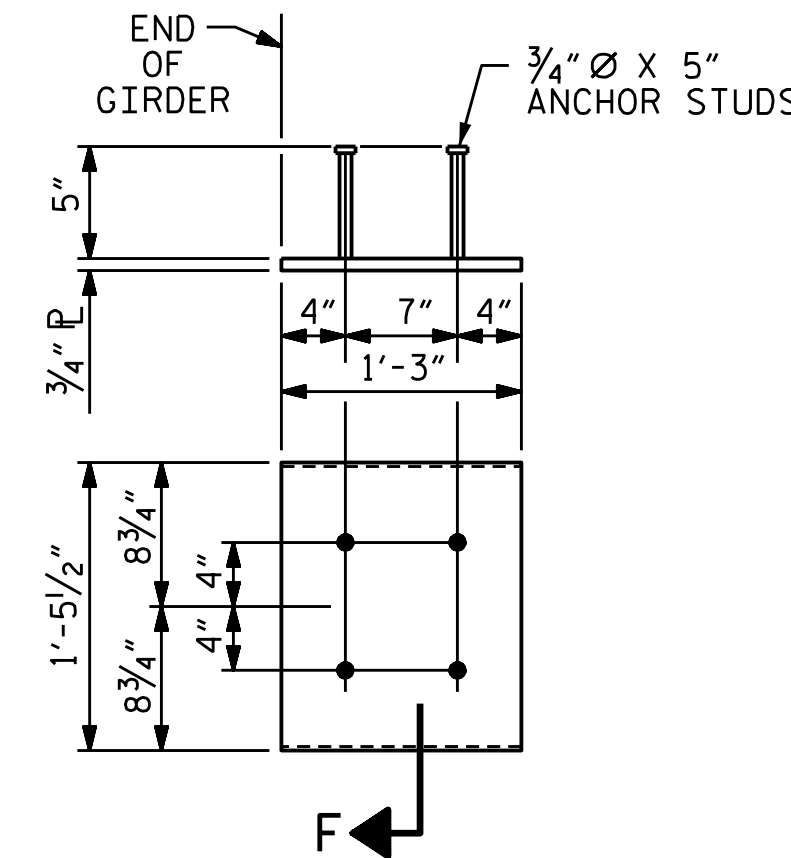
PRESTRESSED CONCRETE GIRDERS ARE DESIGNED FOR 0 PSI TENSION IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

PRESTRESSED CONCRETE GIRDERS SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.



SECTION "F"

(SEE NOTES)



EMBEDDED PLATE "B-1" DETAILS FOR AASHTO TYPE II GIRDER

(2 REQ'D PER GIRDER)

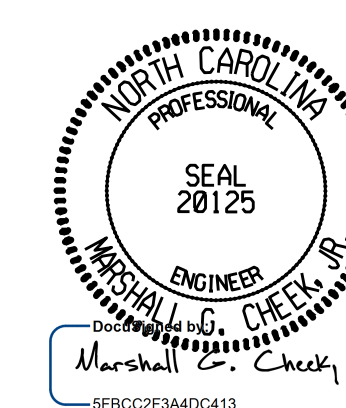
DEAD LOAD DEFLECTION TABLE FOR GIRDERS																								
0.6" Ø LOW RELAXATION STRANDS	SPAN A GIRDERS 1 & 5											SPANS A GIRDERS 2 - 4												
TENTH POINTS	CL BRG.	.1	.2	.3	.4	.5	.6	.7	.8	.9	CL BRG.	CL BRG.	.1	.2	.3	.4	.5	.6	.7	.8	.9	CL BRG.		
CAMBER (GIRDER ALONE IN PLACE)	↑	.000	.015	.028	.039	.045	.048	.045	.039	.028	.015	.000	↑	.000	.015	.028	.038	.045	.047	.045	.038	.028	.015	.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	.000	.008	.017	.023	.028	.029	.028	.023	.017	.008	.000	↓	.000	.008	.017	.023	.027	.029	.027	.023	.016	.008	.000
FINAL CAMBER	↑	0	1/16"	1/8"	3/16"	3/16"	1/4"	3/16"	3/16"	1/8"	1/16"	0	↑	0	1/16"	1/8"	3/16"	3/16"	1/4"	3/16"	3/16"	1/8"	1/16"	0

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																								
0.6" Ø LOW RELAXATION STRANDS	SPANS B & C GIRDERS 1 - 5											SPANS B & C GIRDERS 2 - 4												
TENTH POINTS	CL BRG.	.1	.2	.3	.4	.5	.6	.7	.8	.9	CL BRG.	CL BRG.	.1	.2	.3	.4	.5	.6	.7	.8	.9	CL BRG.		
CAMBER (GIRDER ALONE IN PLACE)	↑	.000	.037	.069	.095	.111	.117	.111	.095	.069	.037	.000	↑	.000	.036	.069	.094	.111	.116	.111	.094	.069	.036	.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	.000	.019	.038	.053	.062	.066	.062	.053	.038	.019	.000	↓	.000	.019	.038	.053	.062	.065	.062	.053	.038	.019	.000
FINAL CAMBER	↑	0	3/16"	3/8"	1/2"	9/16"	5/8"	9/16"	1/2"	3/8"	3/16"	0	↑	0	3/16"	3/8"	1/2"	9/16"	5/8"	9/16"	1/2"	3/8"	3/16"	0

* INCLUDES FUTURE WEARING SURFACE
ALL VALUES ARE SHOWN IN FEET, EXCEPT "FINAL CAMBER" WHICH IS SHOWN IN INCHES.

PROJECT NO. B-4414
BEAUFORT COUNTY
STATION: 24+78.90 -L-

SHEET 4 OF 5



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

ASSEMBLED BY :	STM	DATE :	05/19
CHECKED BY :	MGC	DATE :	11/19
DRAWN BY :	ELR 11/91	REV. 1/15	MAA/TMG
CHECKED BY :	GRP 11/91	REV. 2/15	MAA/TMG
		REV. 12/17	MAA/THC

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
TGS ENGINEERS
706 HILLSBOROUGH STREET SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			33

STRUCTURAL STEEL NOTES

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

TENSION ON THE ASTM A325 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 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.

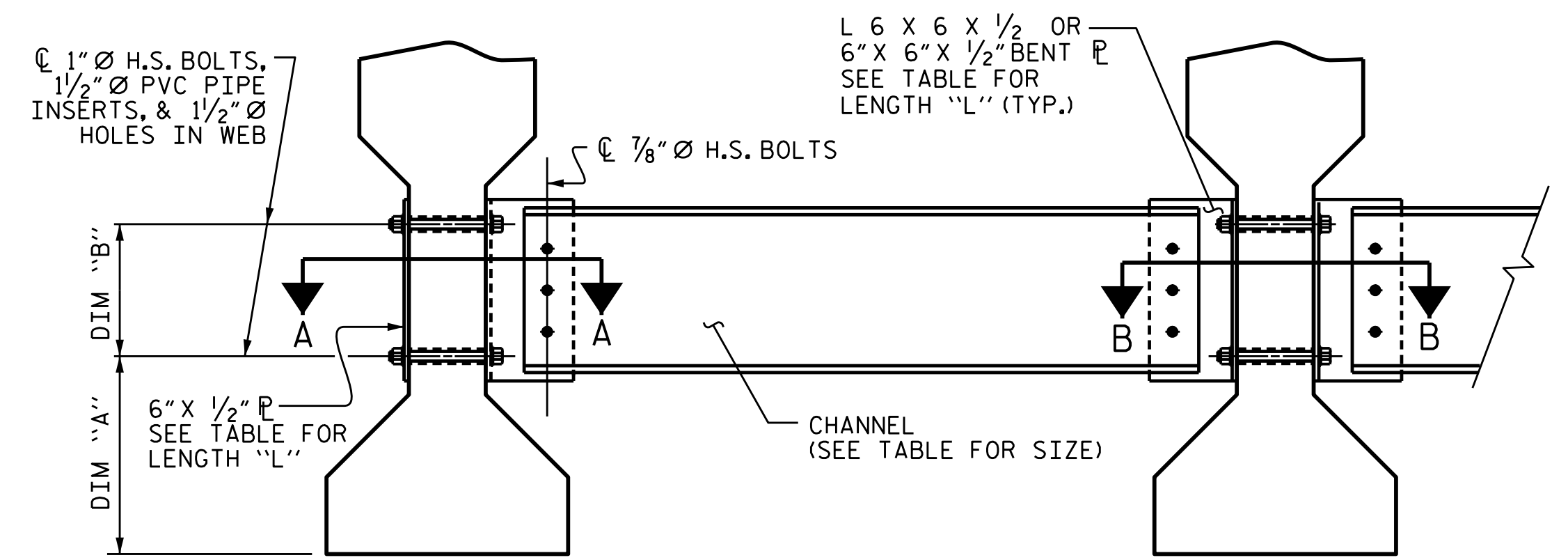
FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF THREADS ON ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

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

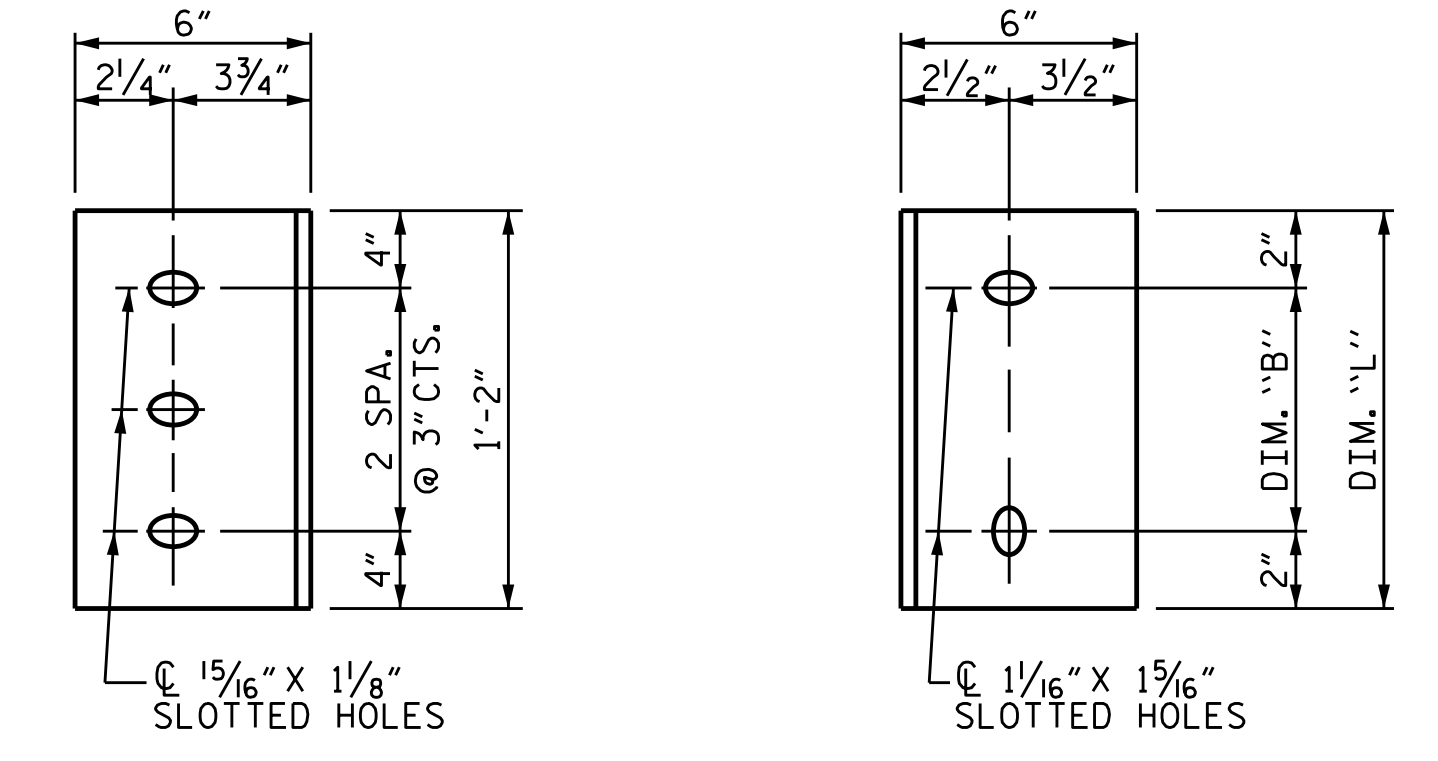
SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

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



DIAPHRAGM FACE
WEB FACE
CONNECTOR PLATE DETAILS

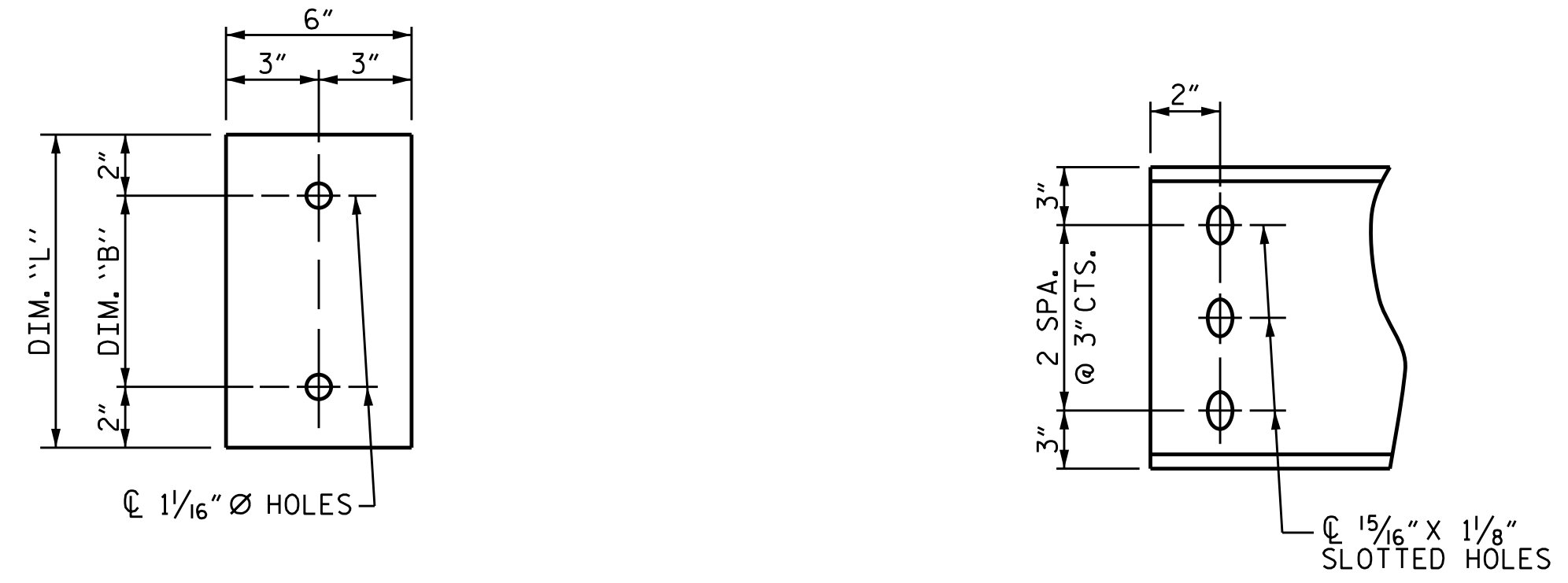
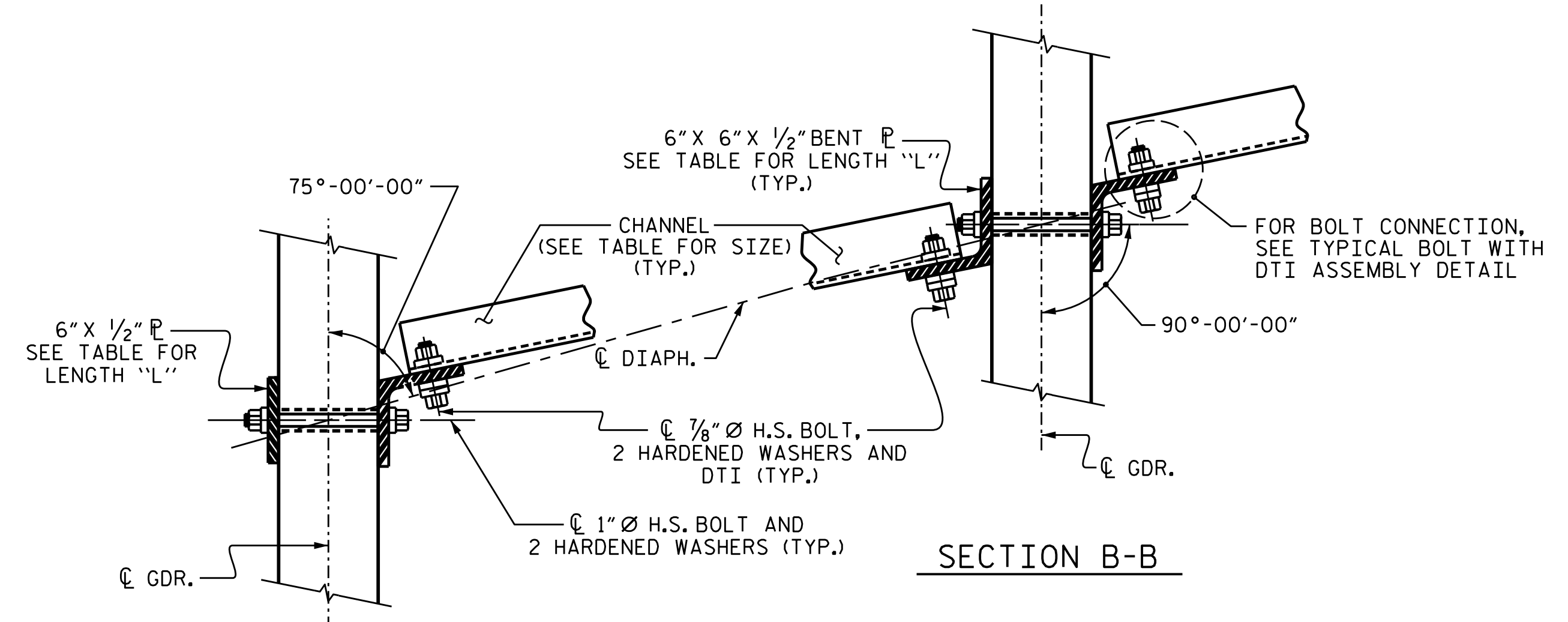


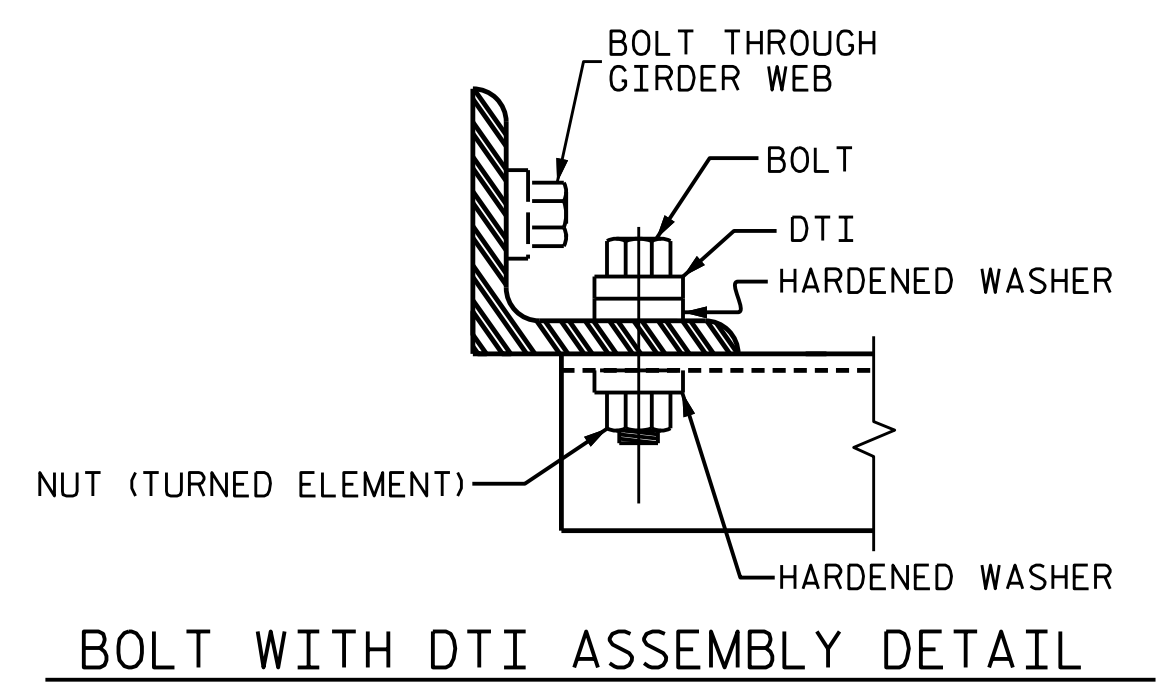
PLATE DETAILS
CHANNEL END

TABLE

GIRDER TYPE	CHANNEL SIZE	DIM "A"	DIM "B"	DIM "L"
II	MC 12 x 31	1'-2 1/2"	10"	1'-2"



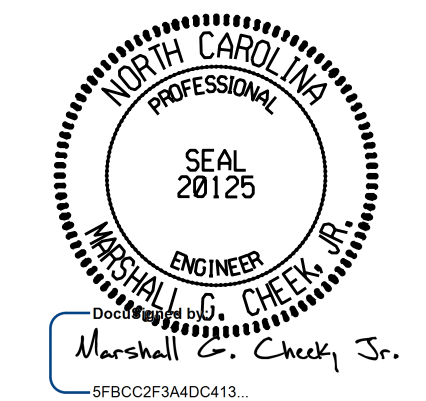
CONNECTION DETAILS



BOLT WITH DTI ASSEMBLY DETAIL

PROJECT NO. B-4414
BEAUFORT COUNTY
 STATION: 24+78.90 -L-

SHEET 5 OF 5



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

ASSEMBLED BY : STM	DATE : 05/19
CHECKED BY : MGC	DATE : 11/19
DRAWN BY : TLA 6/05	REV. 5/1/06RRR KMM/GM
CHECKED BY : VC 6/05	REV. 10/1/11 MAA/GM
	REV. 12/17 MAA/THC

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			33

NOTES

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

STEEL SOLE PLATES, ANCHOR BOLTS AND NUTS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

WHEN WELDING THE SOLE PLATE TO THE EMBEDDED PLATE IN THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

SOLE PLATE "P", BOLTS AND NUTS SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

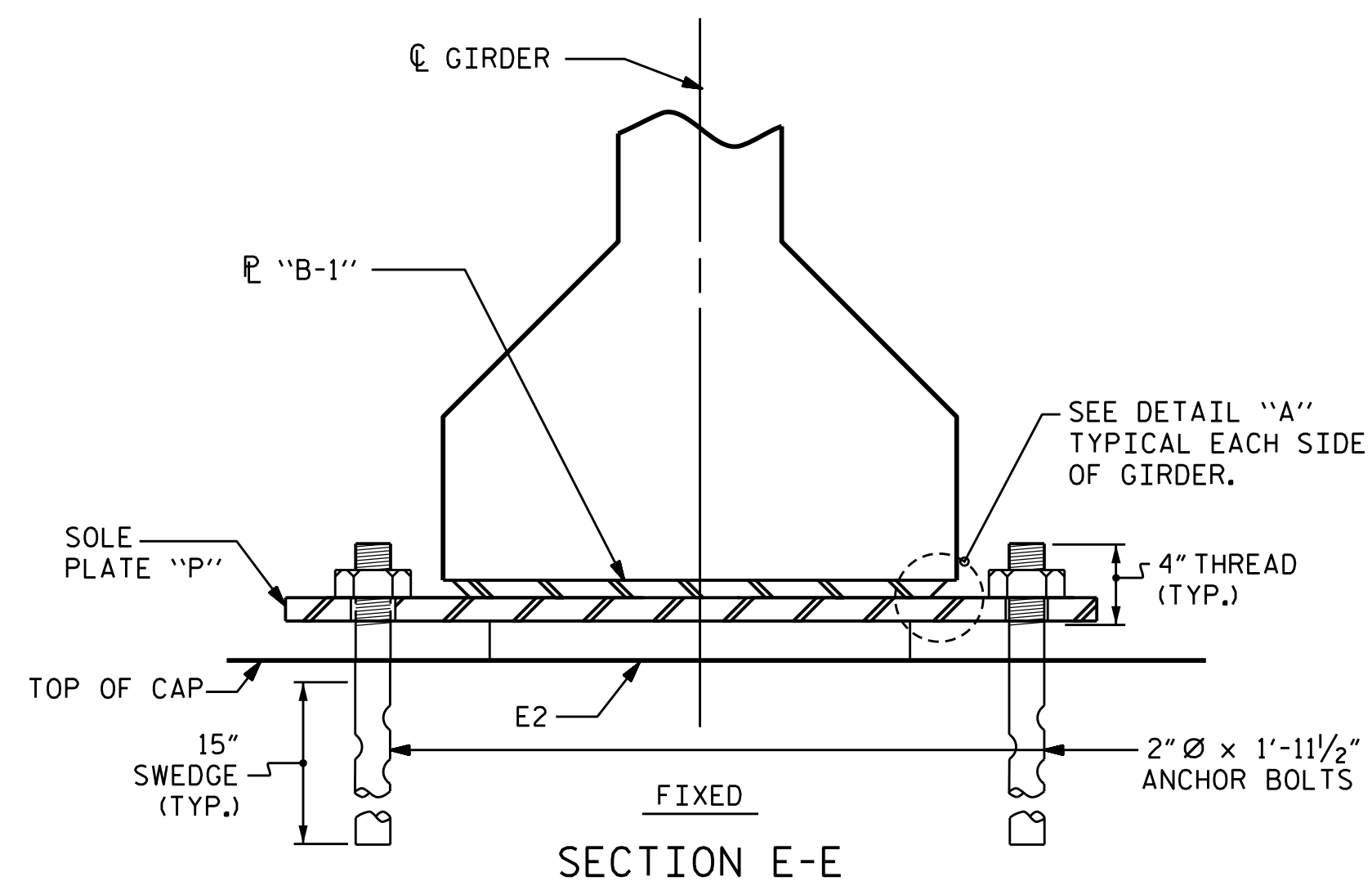
ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLT AND NUTS. SHOP INSPECTION IS REQUIRED.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

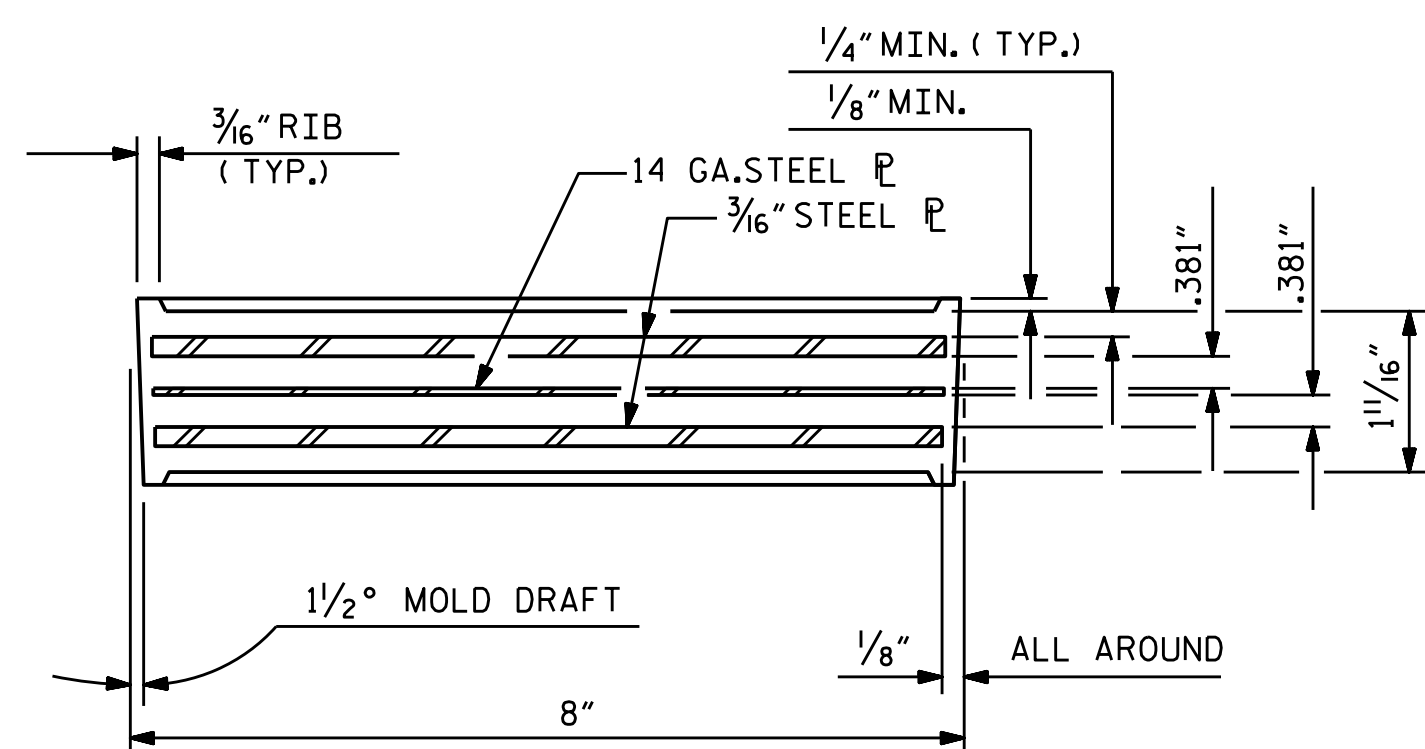
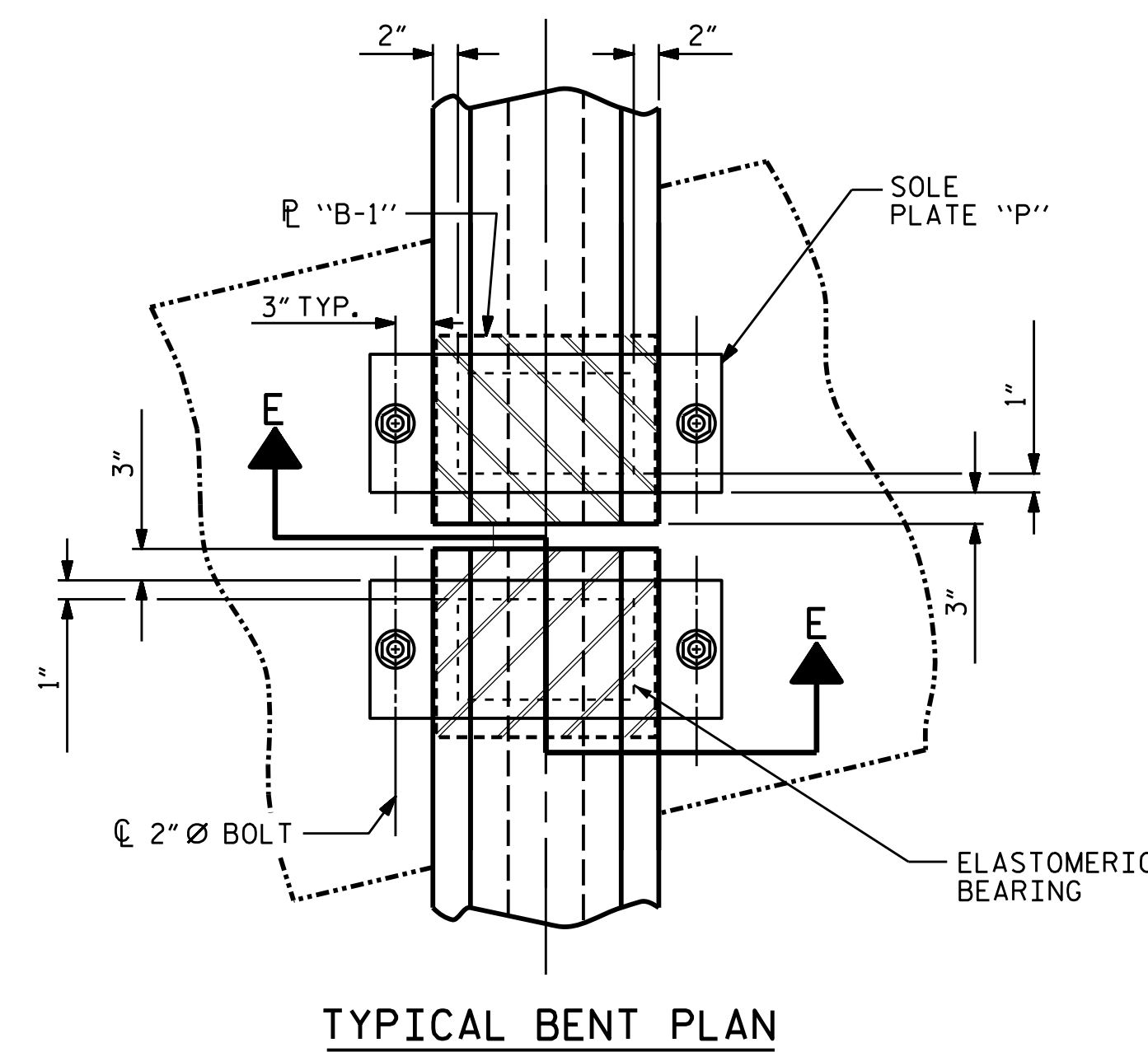
THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 KSI, IN ACCORDANCE WITH AASHTO M251.

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

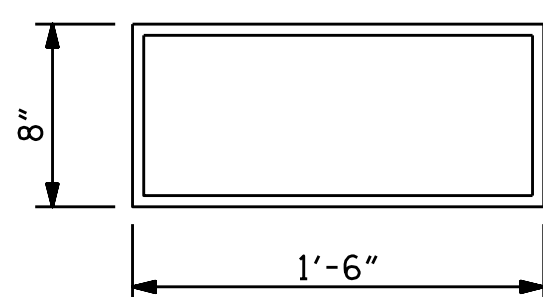
ALL SOLE PLATES SHALL BE AASHTO M270 GRADE 36.



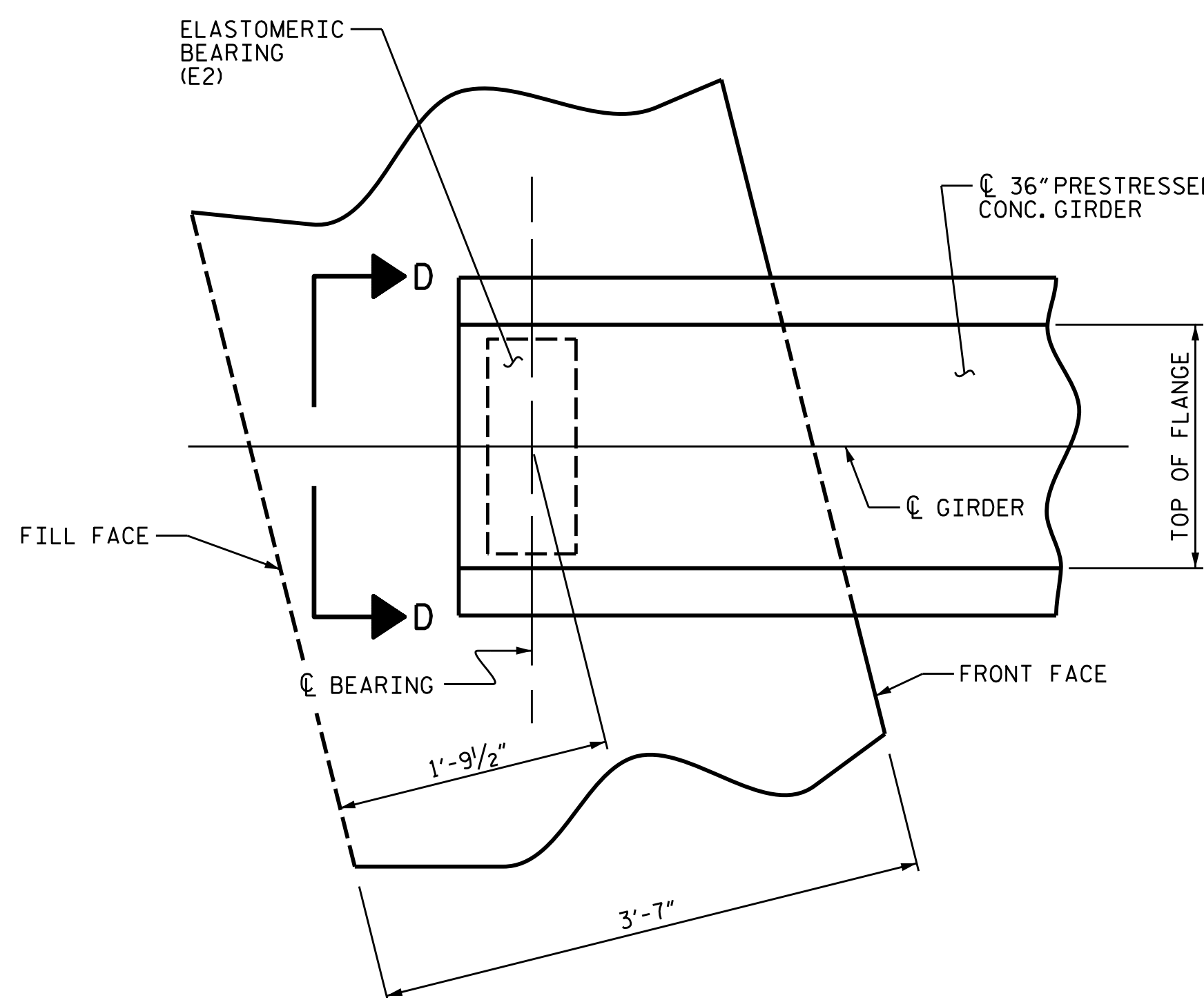
MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE III	205 k



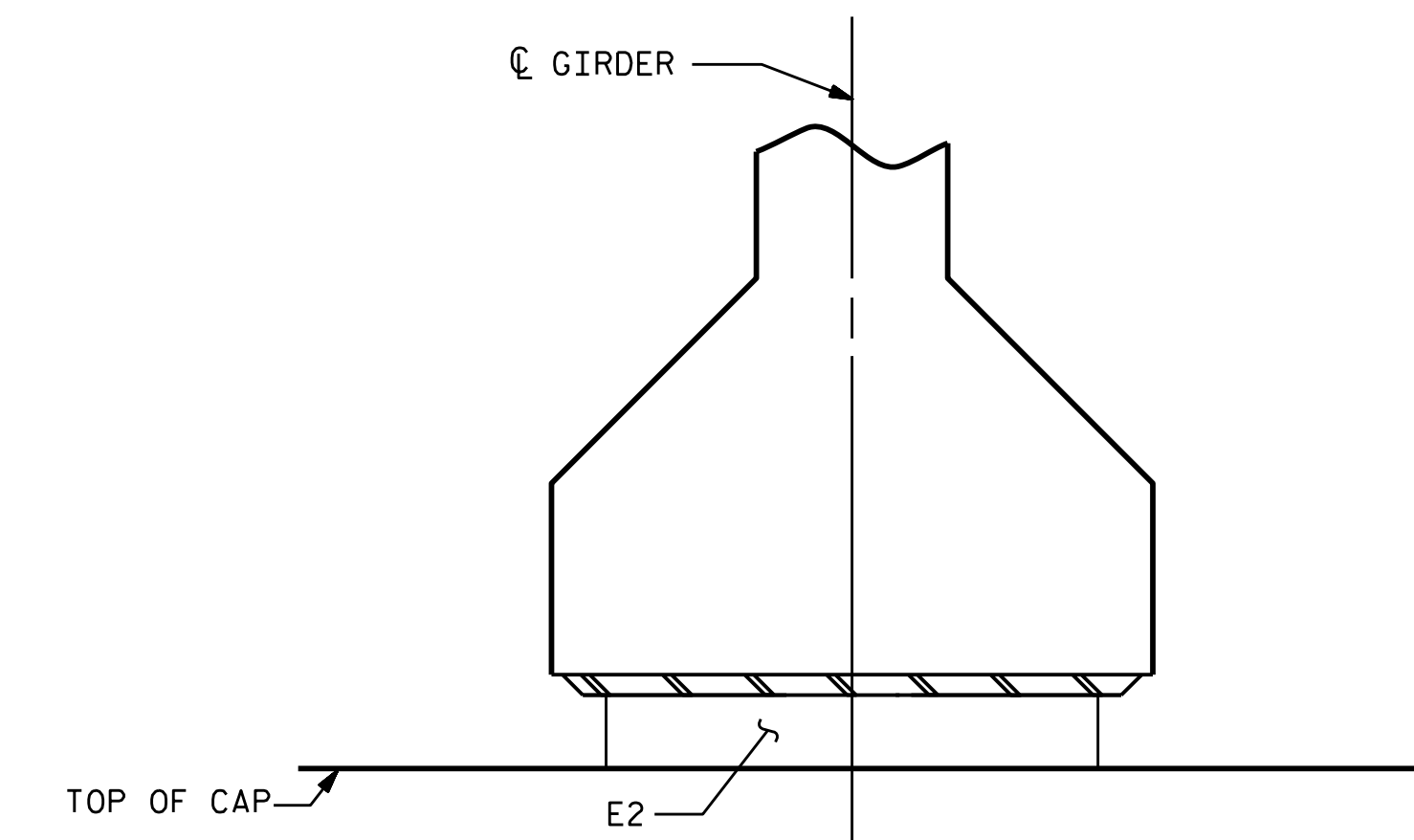
TYPICAL SECTION OF ELASTOMERIC BEARINGS



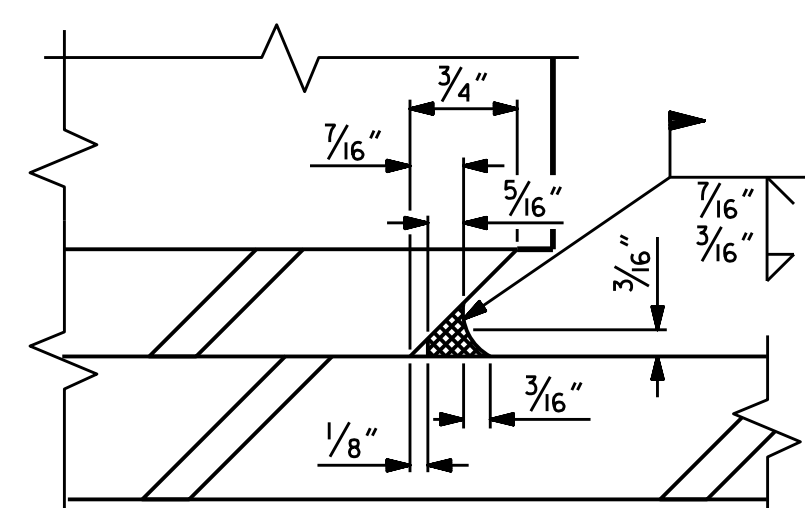
E2 (30 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING
TYPE III



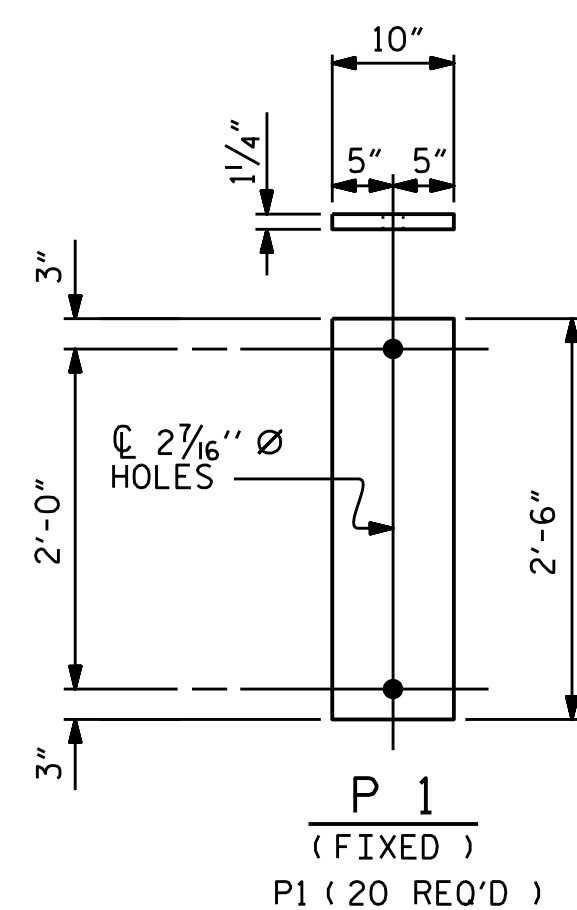
PLAN OF GIRDER @ INTEGRAL END BENT



SECTION D-D

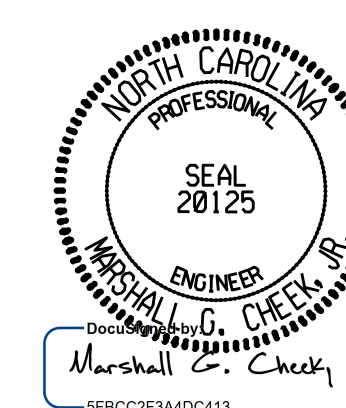


DETAIL "A"



SOLE PLATE DETAIL ("P")

PROJECT NO. B-4414
BEAUFORT COUNTY
 STATION: 24+78.90 -L-



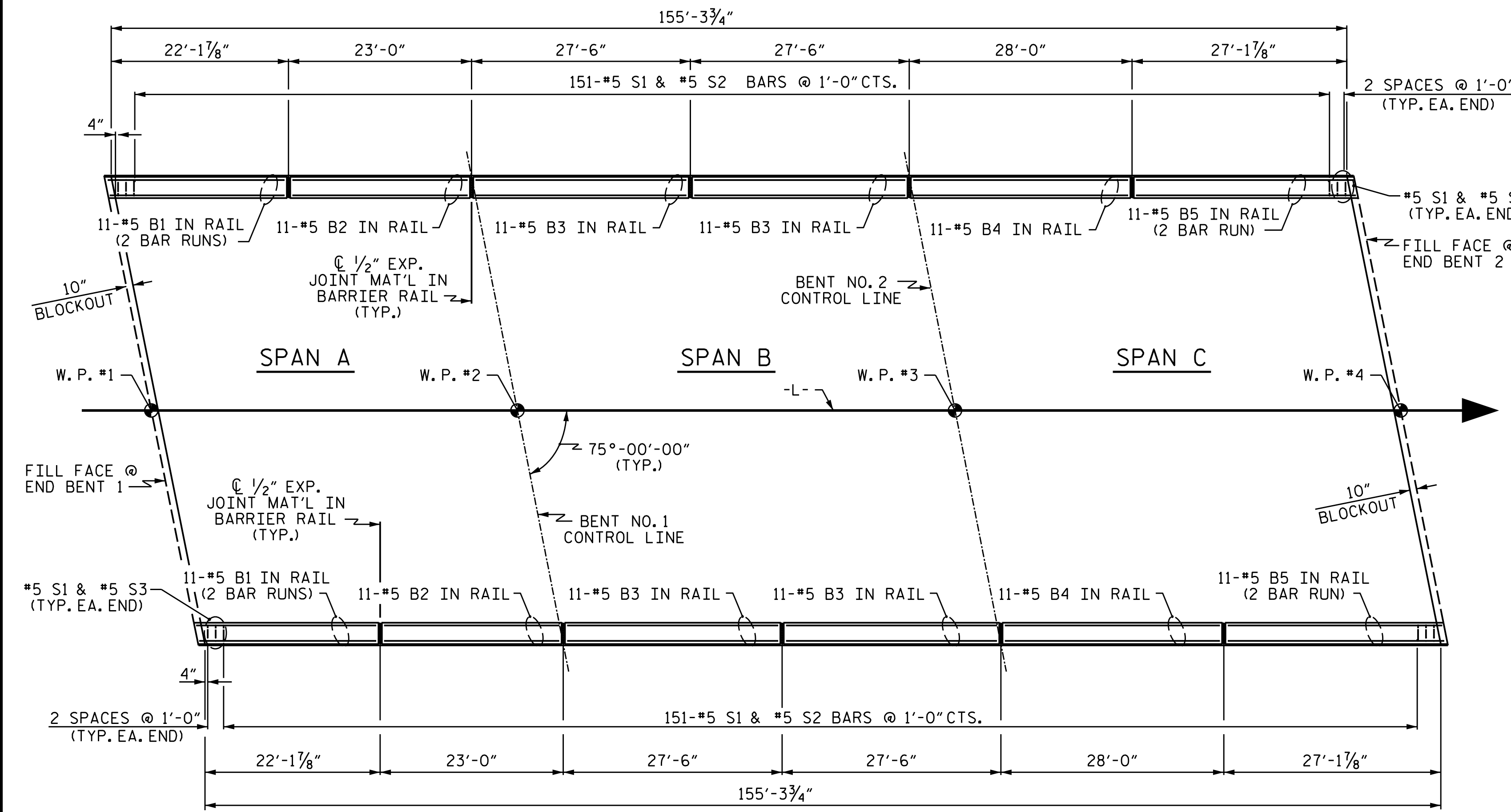
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
**ELASTOMERIC BEARING
 DETAILS**
 PRESTRESSED CONCRETE GIRDER
 SUPERSTRUCTURE

ASSEMBLED BY : ZCS	DATE : 11/19
CHECKED BY : MGC	DATE : 12/19
DRAWN BY : WJH 8/89	REV. 6/13 AAC/MAA
CHECKED BY : CRK 8/89	REV. 1/15 MAA/TMG
	REV. 12/17 MAA/THC

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
 706 HILLSBOROUGH STREET
 SUITE 200
 RALEIGH, NC 27603
 PH (919) 773-8887
 CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			33



PLAN OF CONCRETE BARRIER RAIL

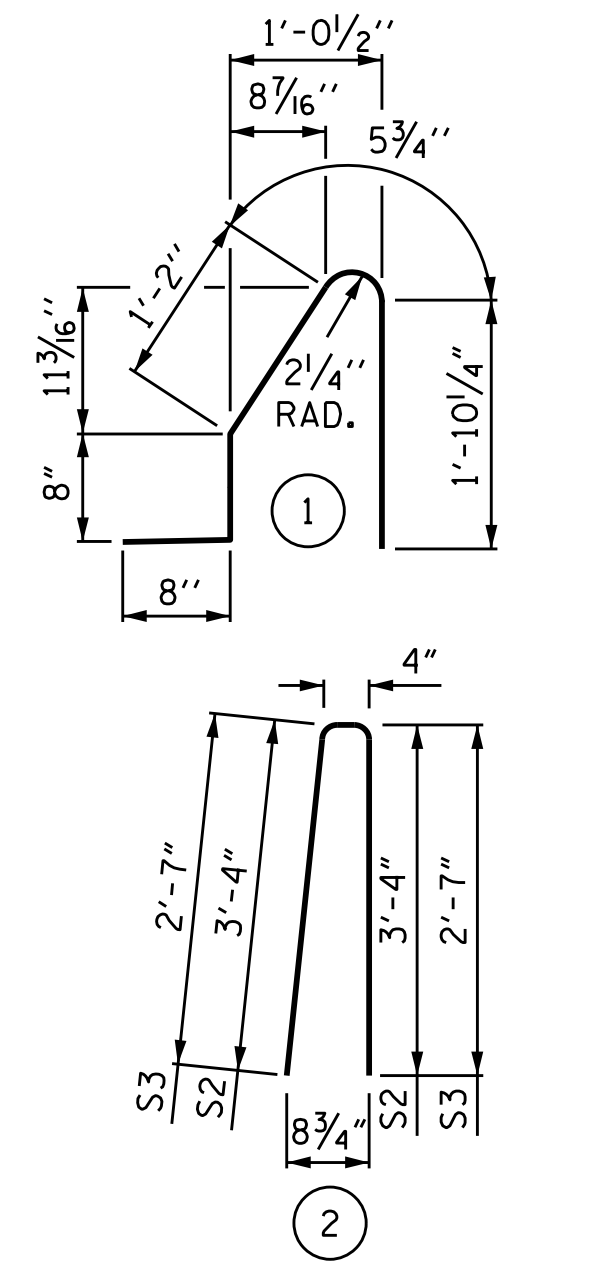
NOTES

THE 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.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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



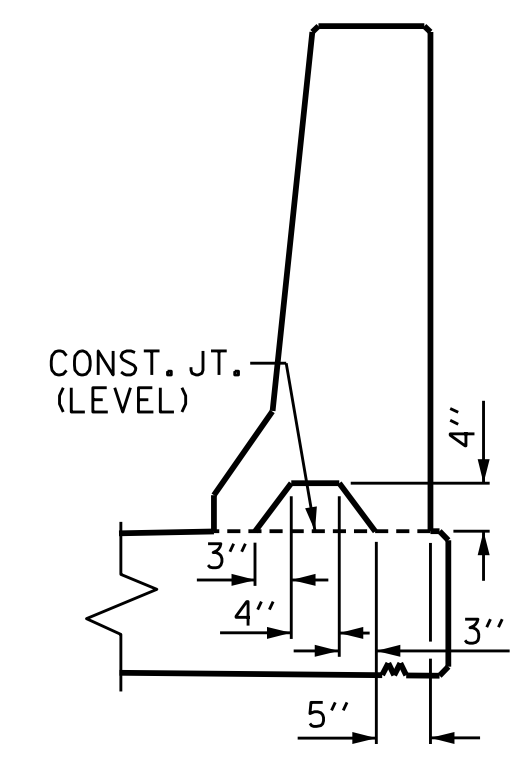
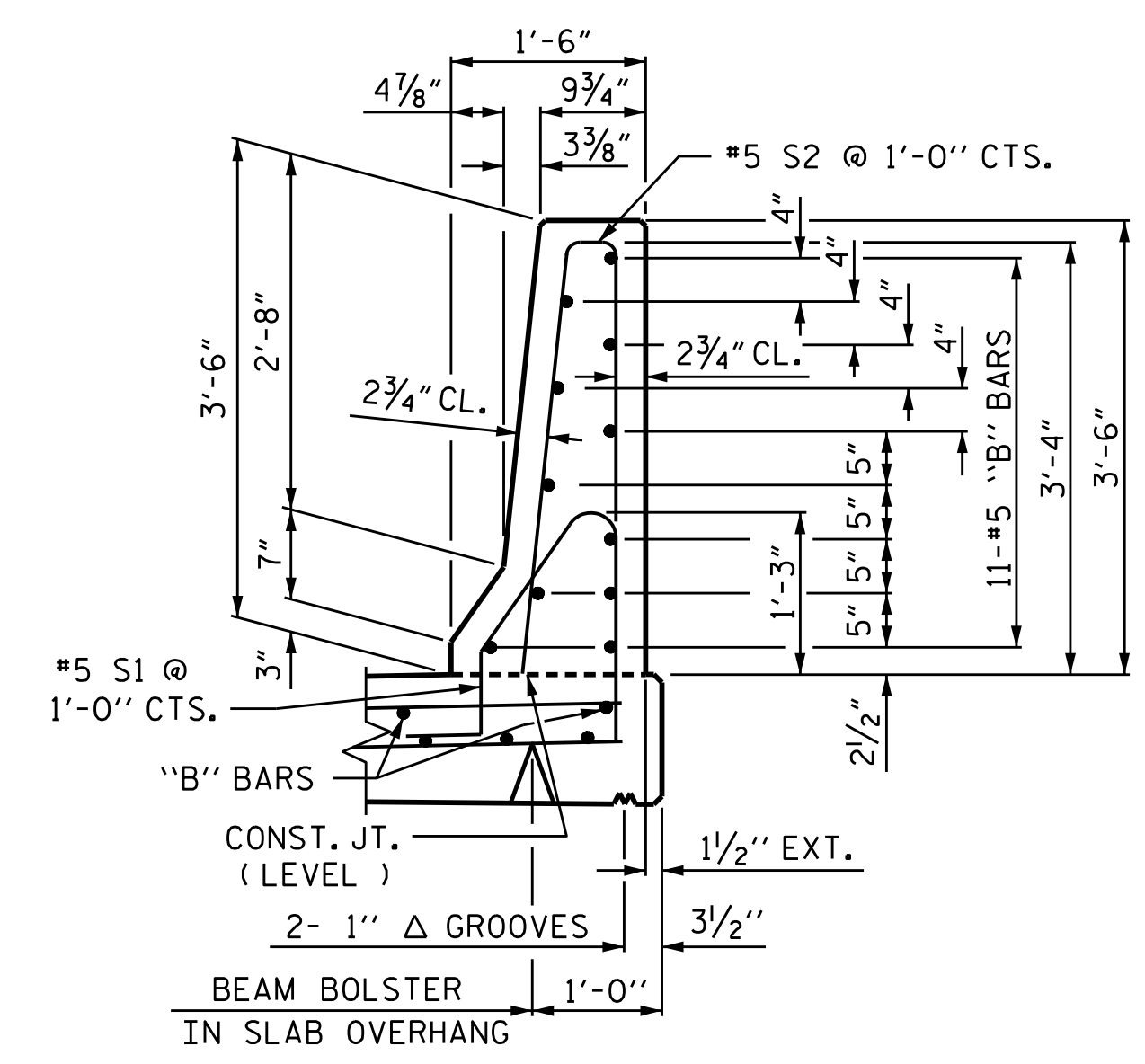
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY

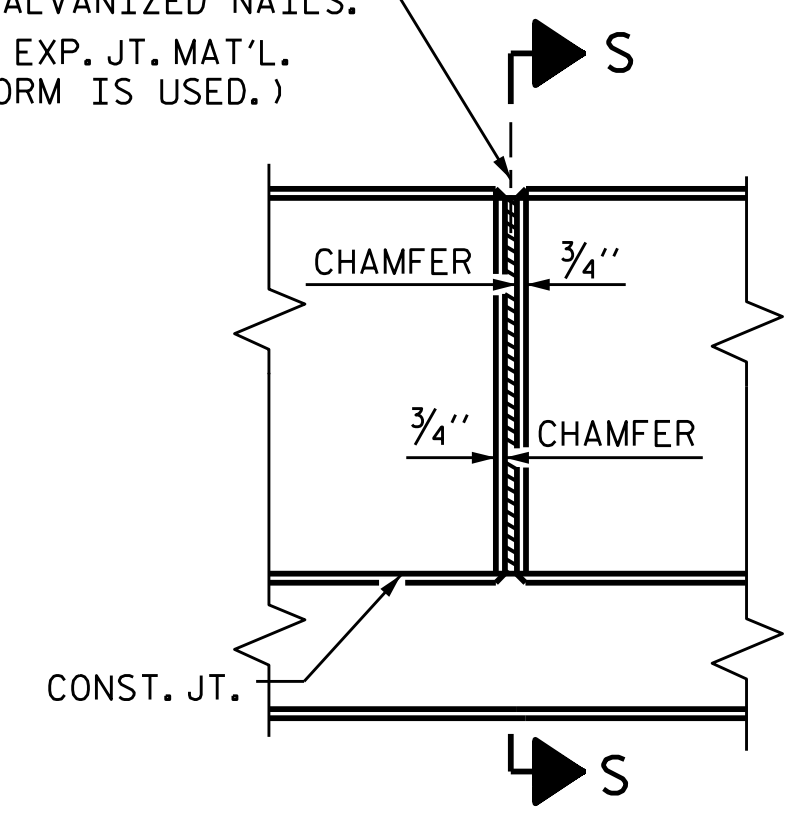
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	44	#5	STR	12'-9"	585
*B2	22	#5	STR	22'-7"	518
*B3	44	#5	STR	27'-1"	1243
*B4	22	#5	STR	27'-7"	633
*B5	44	#5	STR	15'-3"	700
*S1	310	#5	1	4'-10"	1563
*S2	302	#5	2	7'-0"	2205
*S3	8	#5	2	5'-6"	46

* EPOXY COATED REINFORCING STEEL 7493 LBS.
 CLASS AA CONCRETE 42.3 CU. YDS.
 CONCRETE BARRIER RAIL 310.63 LIN. FT.

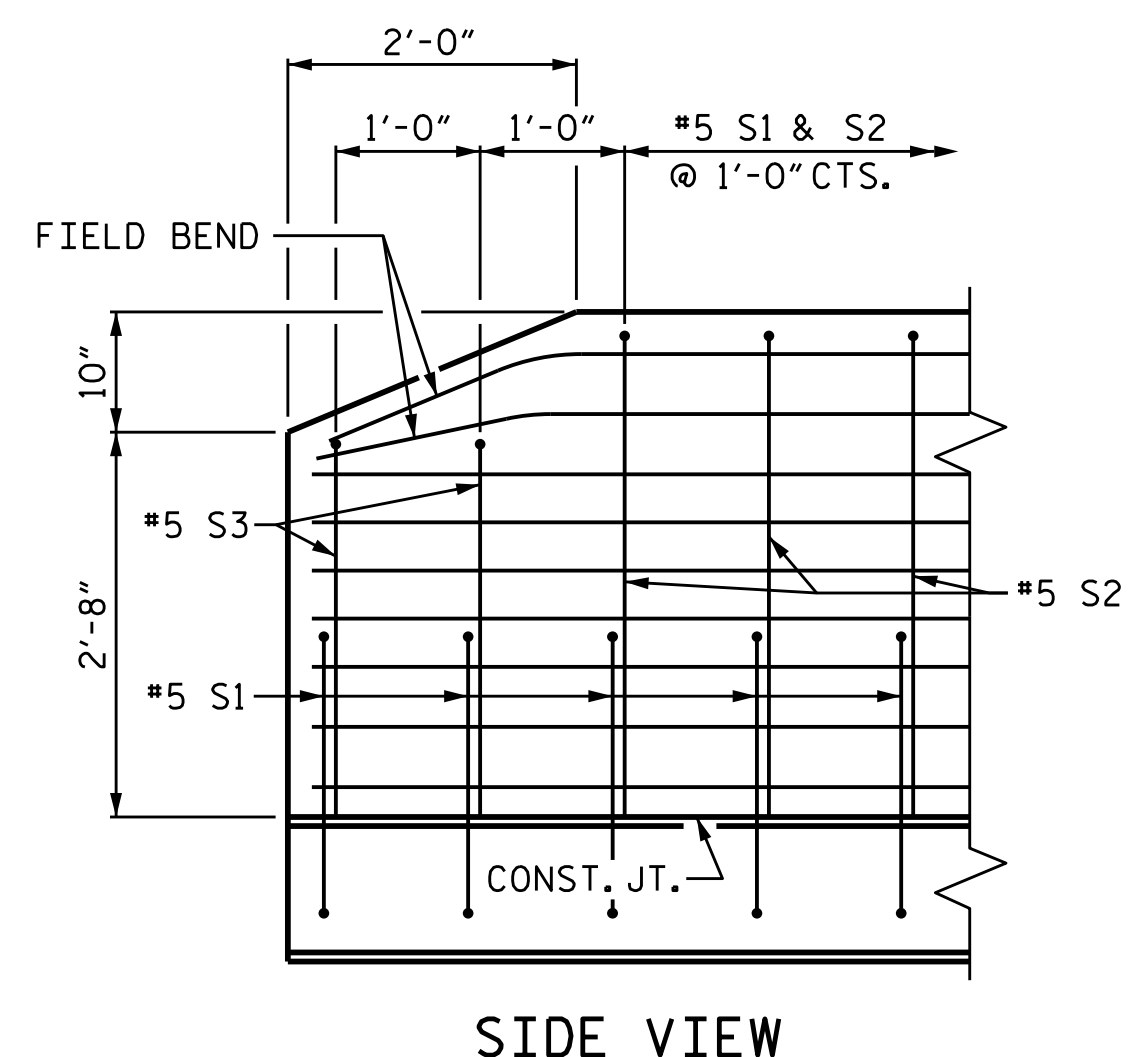
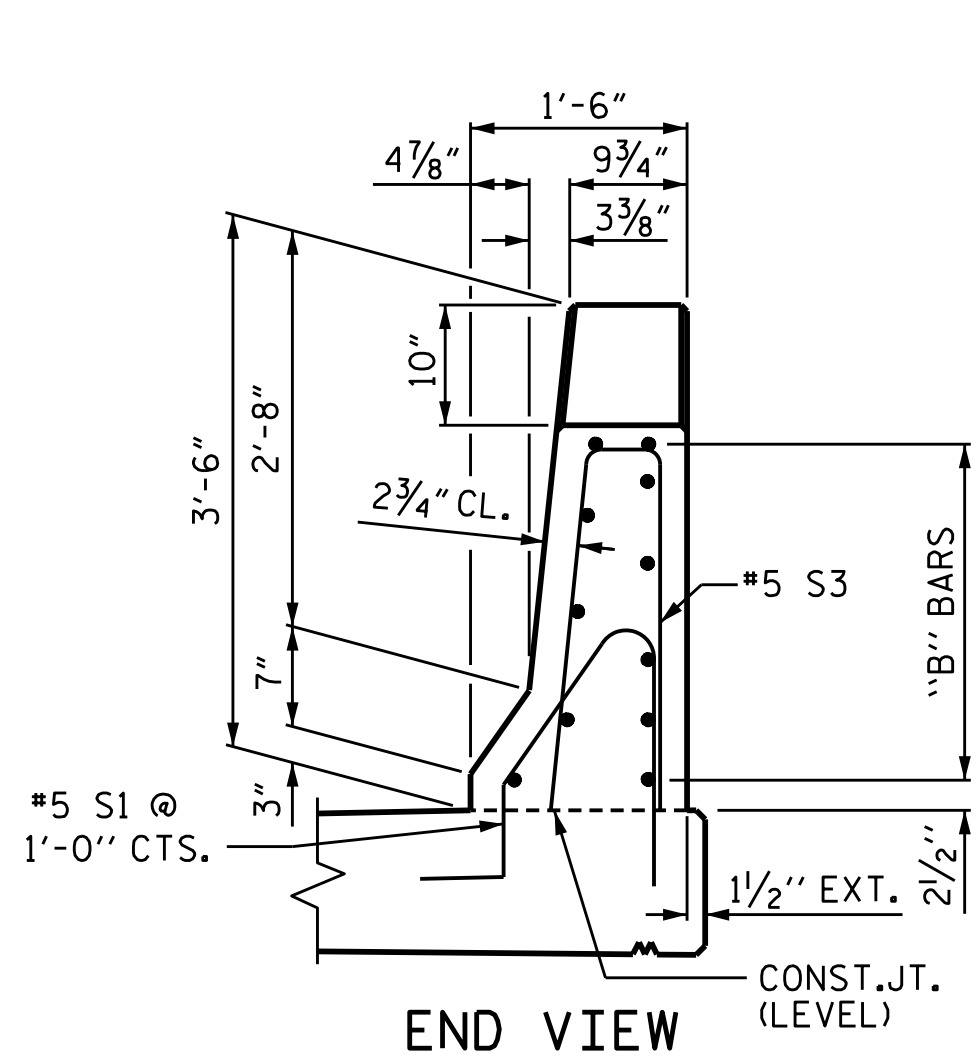


AT DAM IN OPEN JOINT (THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

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

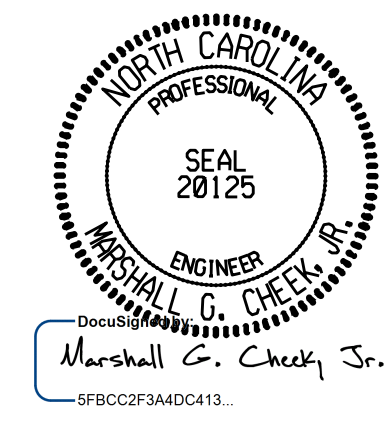


ELEVATION AT EXPANSION JOINTS BARRIER RAIL DETAILS



END OF RAIL DETAILS

PROJECT NO. B-4414
 BEAUFORT COUNTY
 STATION: 24+78.90 -L-



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

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 706 HILLSBOROUGH STREET SUITE 200
 RALEIGH, NC 27603
 PH (919) 773-8887
 CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			33

ASSEMBLED BY : STM	DATE : 12/19
CHECKED BY : SBW	DATE : 03/20
DRAWN BY : ARB 5/87	REV. 7/12 MAA/GM
CHECKED BY : SJD 9/87	REV. 6/13 MAA/GM
	REV. 12/17 MAA/THC

NOTES

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

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

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

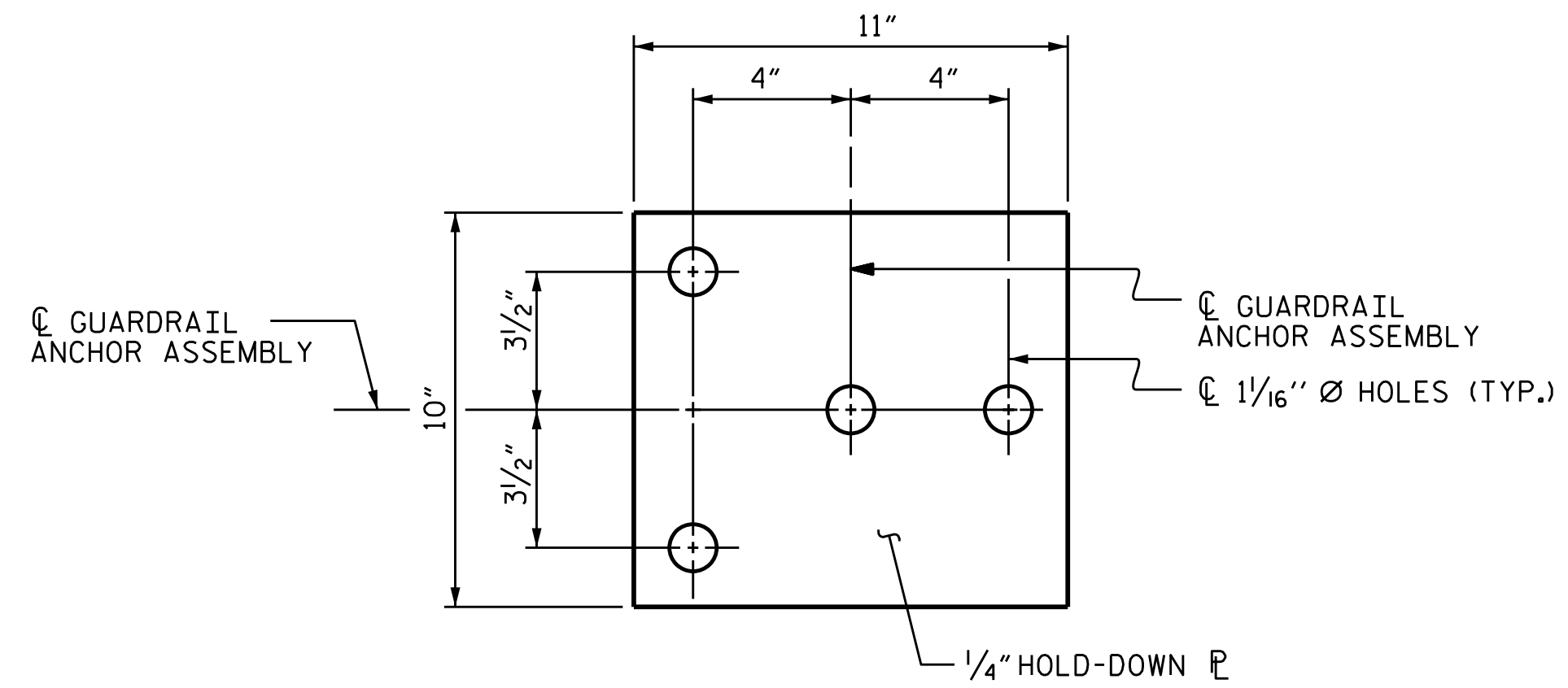
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

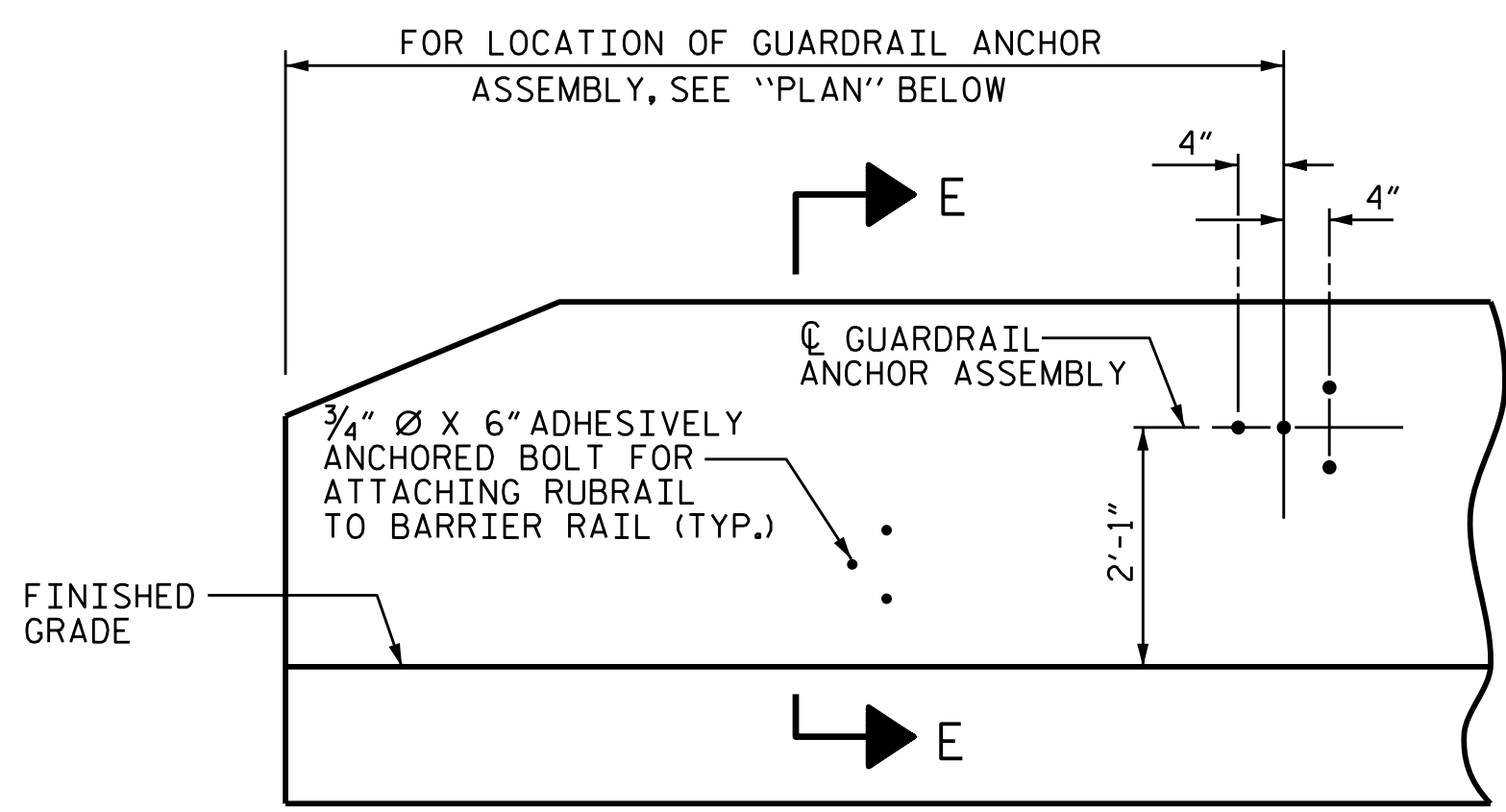
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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

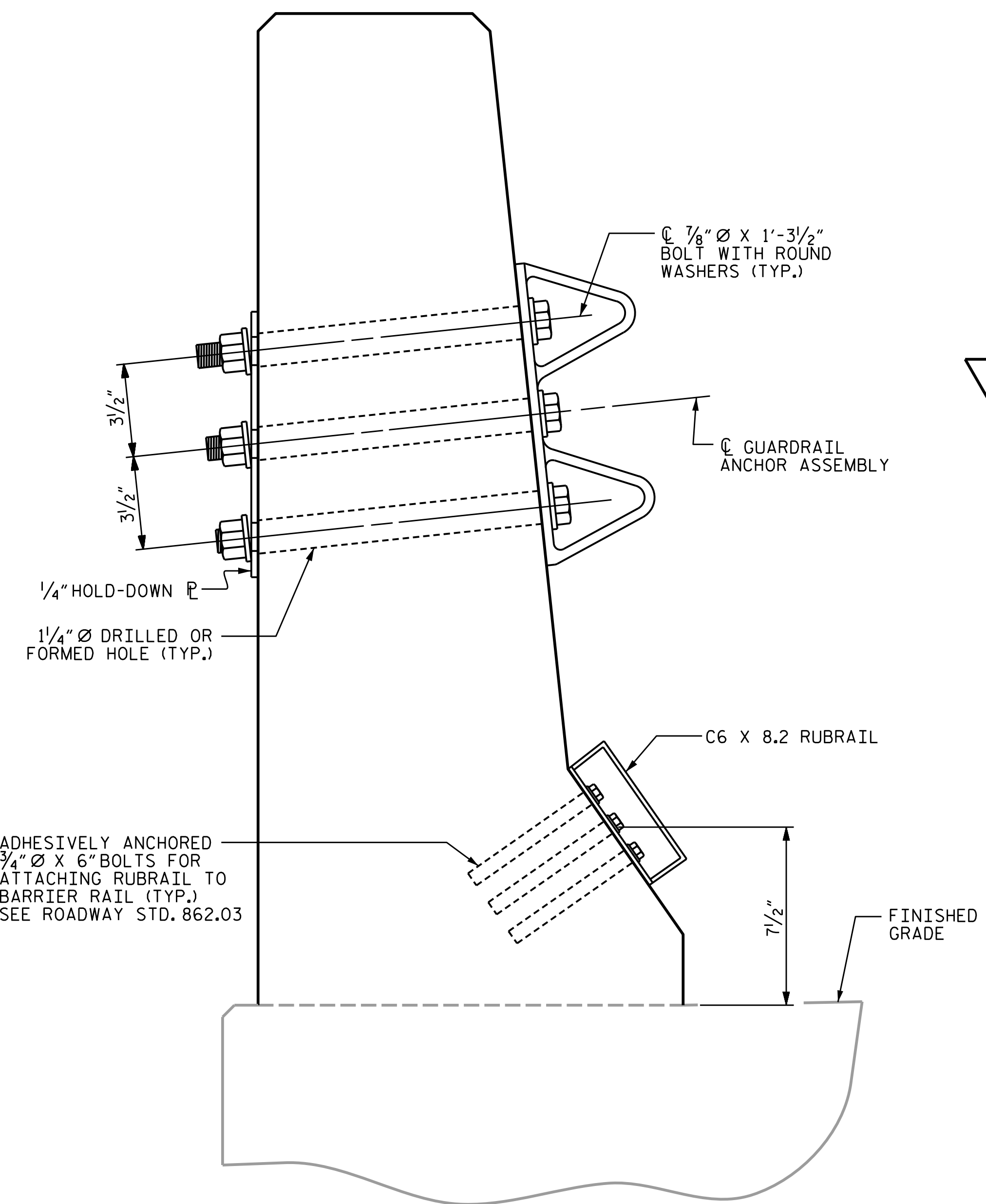
THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS. SEE ROADWAY STANDARD 862.03 FOR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



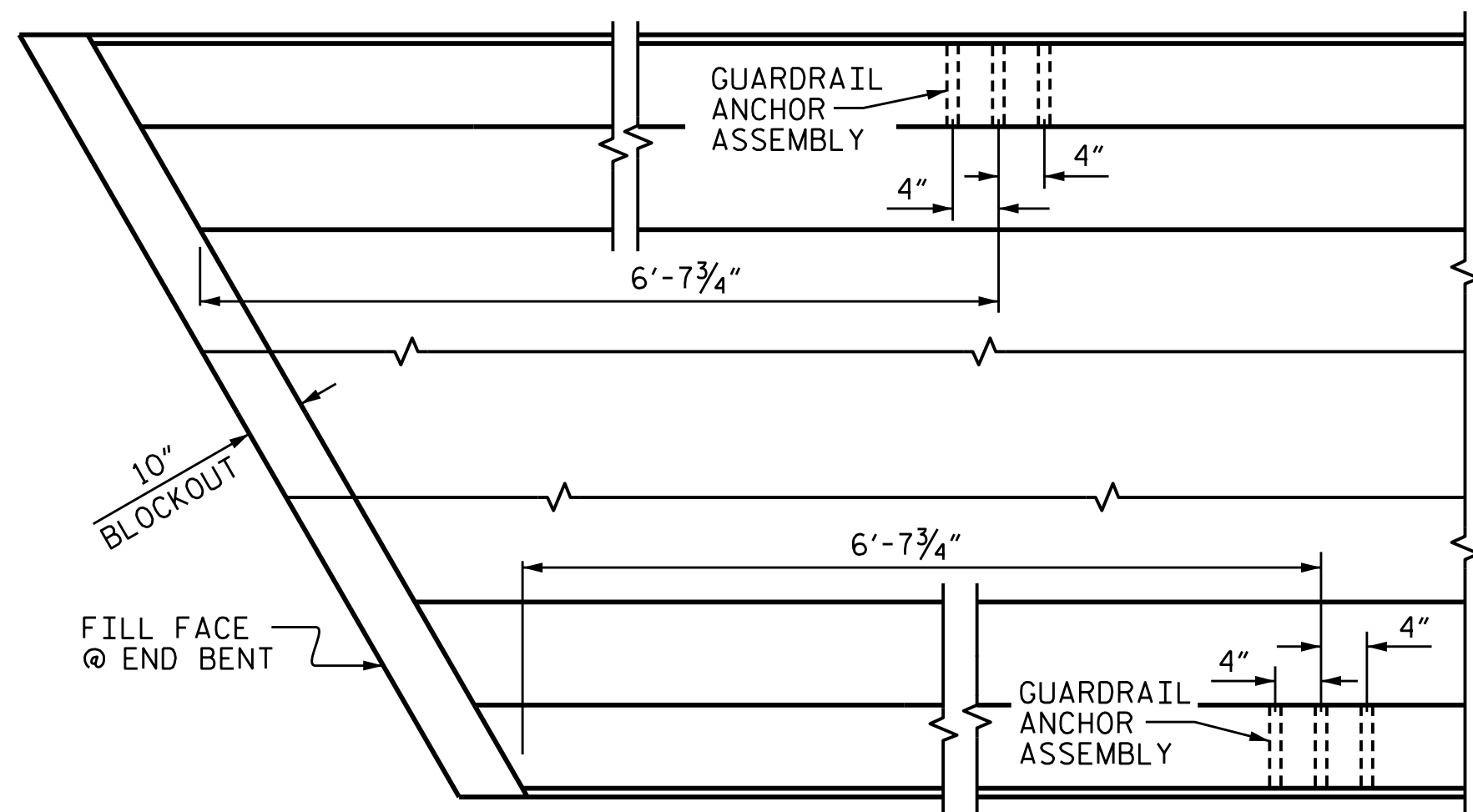
PLAN



ELEVATION



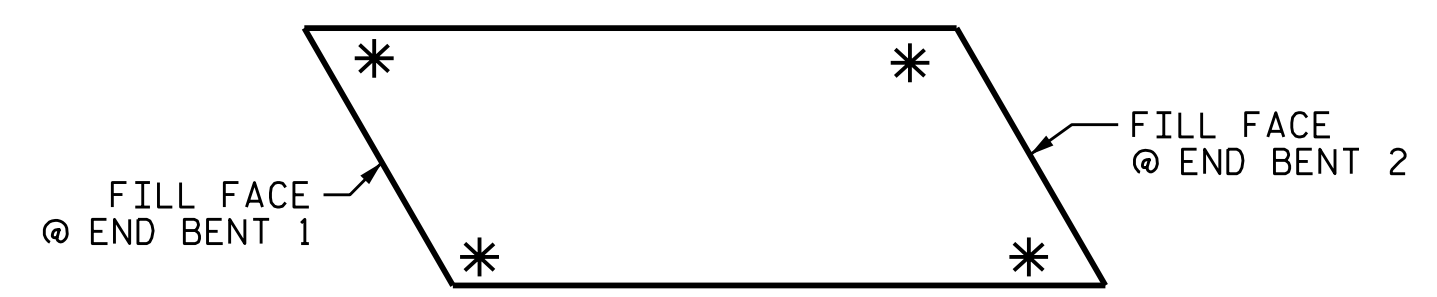
SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

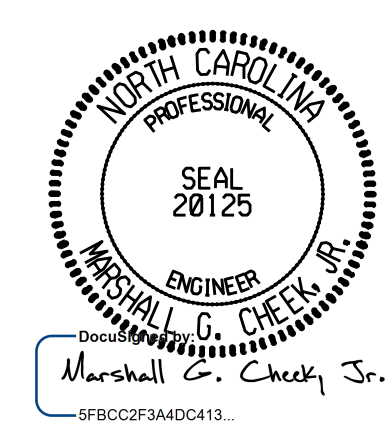
END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-4414
BEAUFORT COUNTY
 STATION: 24+78.90 -L-



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

ASSEMBLED BY : STM	DATE : 04/20
CHECKED BY : MGC	DATE : 04/20
DRAWN BY : TLA 5/06	REV. 7/12
CHECKED BY : GM 5/06	REV. 6/13
	REV. 12/17
	MAA/GM
	MAA/OM
	MAA/THC

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 TCS ENGINEERS
 706 HILLSBOROUGH STREET
 SUITE 200
 RALEIGH, NC 27603
 PH (919) 773-8887
 CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			33

CLASS AA CONCRETE BREAKDOWN

POUR #1	
SPAN A	28.6 CU. YDS.
SPAN B	35.6 CU. YDS.
SPAN C	37.1 CU. YDS.
TOTAL POUR #1	101.3 CU. YDS.
POUR #2	
@ W. P. #1	26.0 CU. YDS.
@ W. P. #2	13.2 CU. YDS.
@ W. P. #3	13.7 CU. YDS.
@ W. P. #4	26.0 CU. YDS.
TOTAL POUR #2	78.9 CU. YDS.
TOTAL	180.2 CU. YDS.

FOR LOCATION OF POURS, SEE "POUR SEQUENCE"

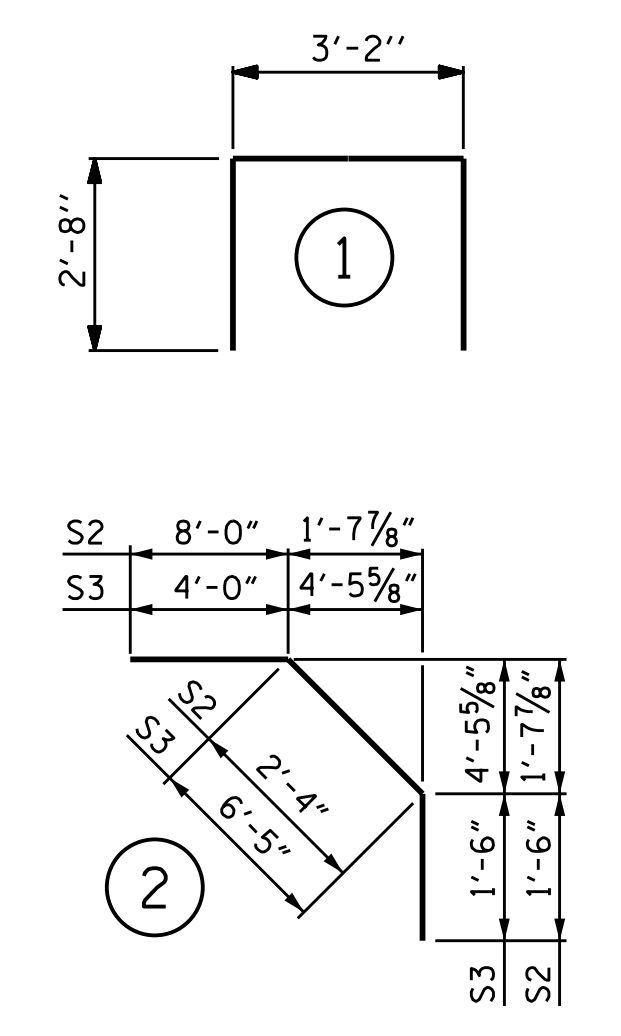
GROOVING BRIDGE FLOORS

APPROACH SLABS	1,786	SO.FT.
BRIDGE DECK	5,660	SO.FT.
TOTAL	7,520	SO.FT.

REINFORCING BAR SCHEDULE

SPANS A-B-C						
BAR	No.	SIZE	TYPE	LENGTH	WEIGHT	
* A1	287	#5	STR.	42'-11"	12,847	
* A2	206	#4	STR.	3'-3"	447	
* A101	2	#5	STR.	3'-2"	7	
* A102	2	#5	STR.	5'-0"	10	
* A103	2	#5	STR.	6'-11"	14	
* A104	2	#5	STR.	8'-9"	18	
* A105	2	#5	STR.	10'-7"	22	
* A106	2	#5	STR.	12'-6"	26	
* A107	2	#5	STR.	14'-4"	30	
* A108	2	#5	STR.	16'-3"	34	
* A109	2	#5	STR.	18'-1"	38	
* A110	2	#5	STR.	20'-0"	42	
* A111	2	#5	STR.	21'-10"	46	
* A112	2	#5	STR.	23'-8"	49	
* A113	2	#5	STR.	25'-7"	53	
* A114	2	#5	STR.	27'-5"	57	
* A115	2	#5	STR.	29'-4"	61	
* A116	2	#5	STR.	31'-2"	65	
* A117	2	#5	STR.	33'-0"	69	
* A118	2	#5	STR.	34'-11"	73	
* A119	2	#5	STR.	36'-9"	77	
* A120	2	#5	STR.	38'-7"	80	
* A121	2	#5	STR.	40'-5"	84	
* A122	2	#5	STR.	42'-4"	88	
* B1	30	#5	STR.	53'-4"	1,669	
* B2	10	#4	STR.	32'-11"	220	
* B3	57	#7	STR.	9'-3"	1,078	
* B4	57	#4	STR.	33'-8"	1,282	
* B5	57	#5	STR.	12'-6"	743	
* B6	57	#4	STR.	45'-10"	1,745	
* B7	57	#5	STR.	13'-0"	773	
* B8	57	#4	STR.	41'-2"	1,567	
* B9	57	#7	STR.	11'-3"	1,311	
* K1	16	#4	STR	23'-3"	248	
* K2	8	#4	STR	7'-6"	40	
* K3	16	#4	STR	8'-5"	90	
* K4	8	#4	STR	7'-11"	42	
* K5	4	#4	STR	2'-8"	7	
* K6	8	#4	STR	3'-0"	16	
* K7	4	#4	STR	2'-5"	6	
* S1	72	#4	1	8'-6"	409	
* S2	72	#4	2	11'-10"	569	
* S3	72	#4	2	11'-11"	573	
* EPOXY COATED REINFORCING STEEL					26,725	LBS.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

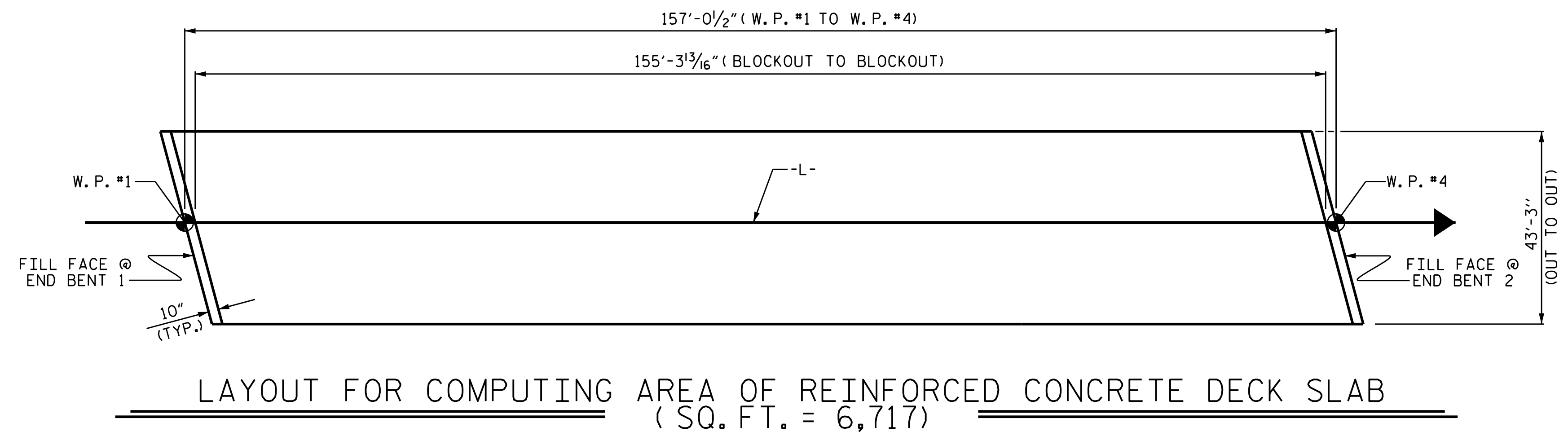
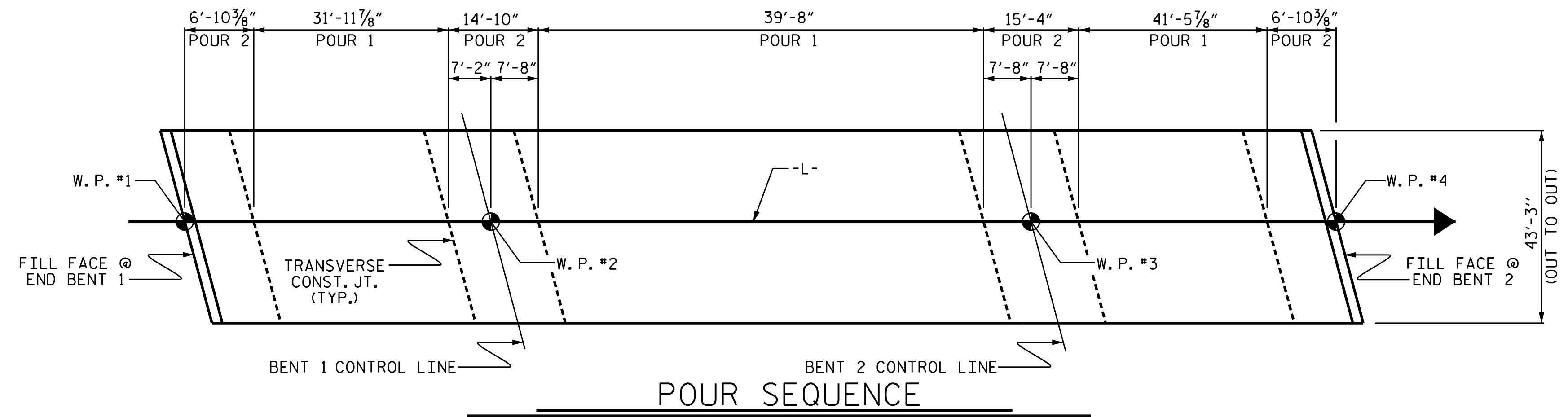
SUPERSTRUCTURE BILL OF MATERIAL

	CLASS AA CONCRETE (CU. YDS.)	EPOXY COATED REINFORCING STEEL (LBS.)
SPANS A-B-C	180.2	26,725
TOTALS**	180.2	26,725

**QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

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

BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPETS, AND BARRIER RAILS		APPROACH SLABS		PARAPETS AND BARRIER RAILS
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	1'-11"	1'-7"	1'-11"	1'-7"	2'-6"
#5	2'-5"	2'-0"	2'-5"	2'-0"	3'-1"
#6	2'-10"	2'-5"	3'-7"	2'-5"	3'-8"
#7	4'-2"	2'-9"			
#8	4'-9"	3'-2"			



PROJECT NO. B-4414
BEAUFORT COUNTY
 STATION: 24+78.90 -L-



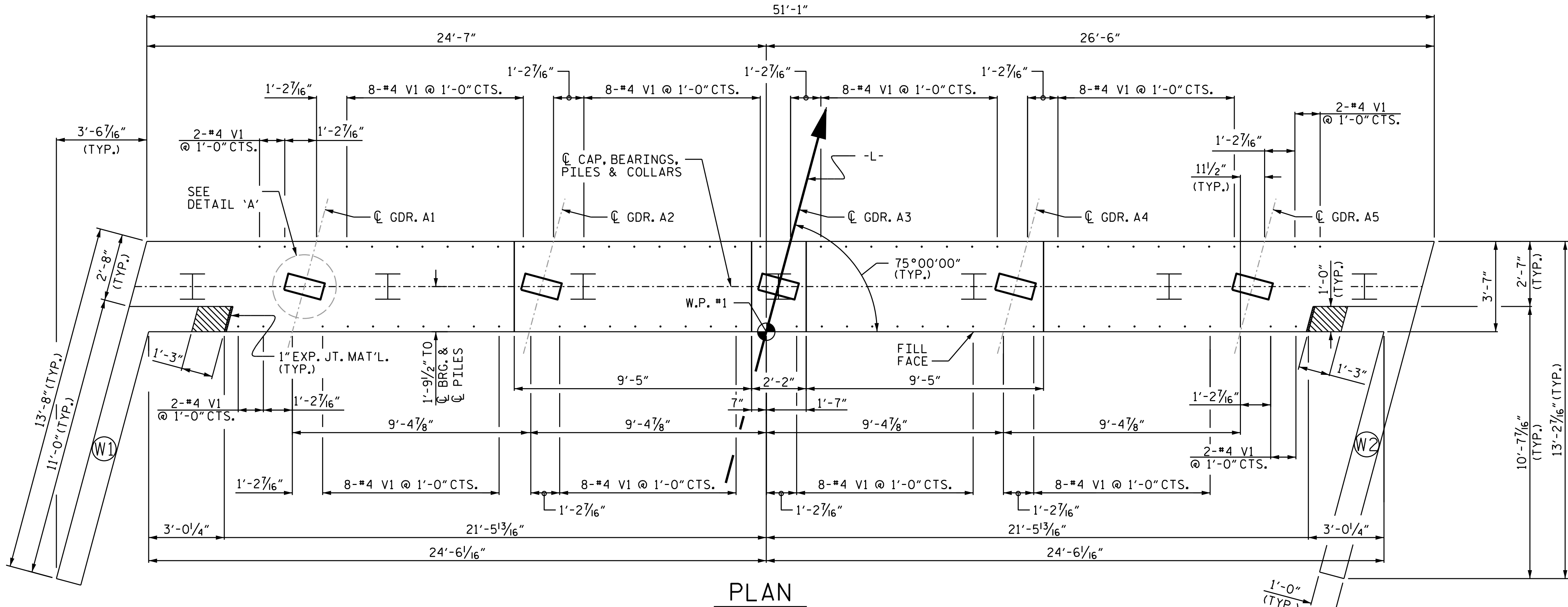
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE BILL OF MATERIAL

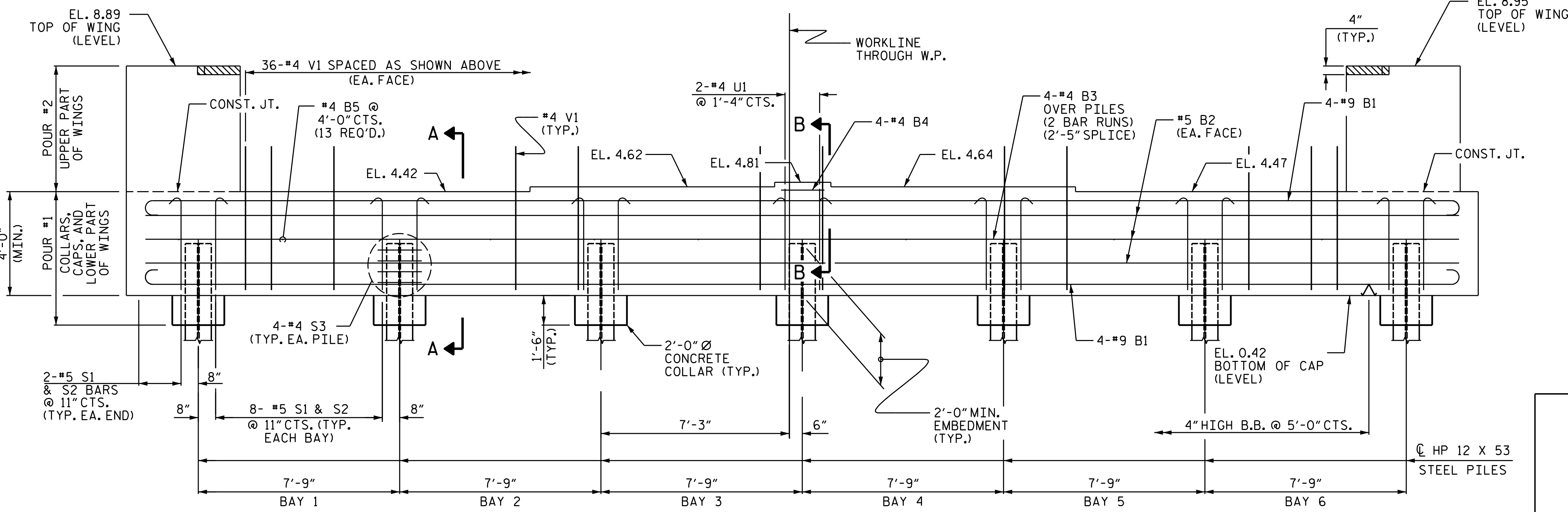
ASSEMBLED BY : S. B. WILLIAMS	DATE : 10/19
CHECKED BY : MGC	DATE : 2-20
DRAWN BY : JMB 5/87	REV. 10/1/11 MAA/GM
CHECKED BY : SJD 9/87	REV. 12/17 MAA/THC
	REV. 06/19 BNB/THC

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 PH (919) 773-8887
 CORP. LICENSE NO.: C-0275

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2			4			



PLAN

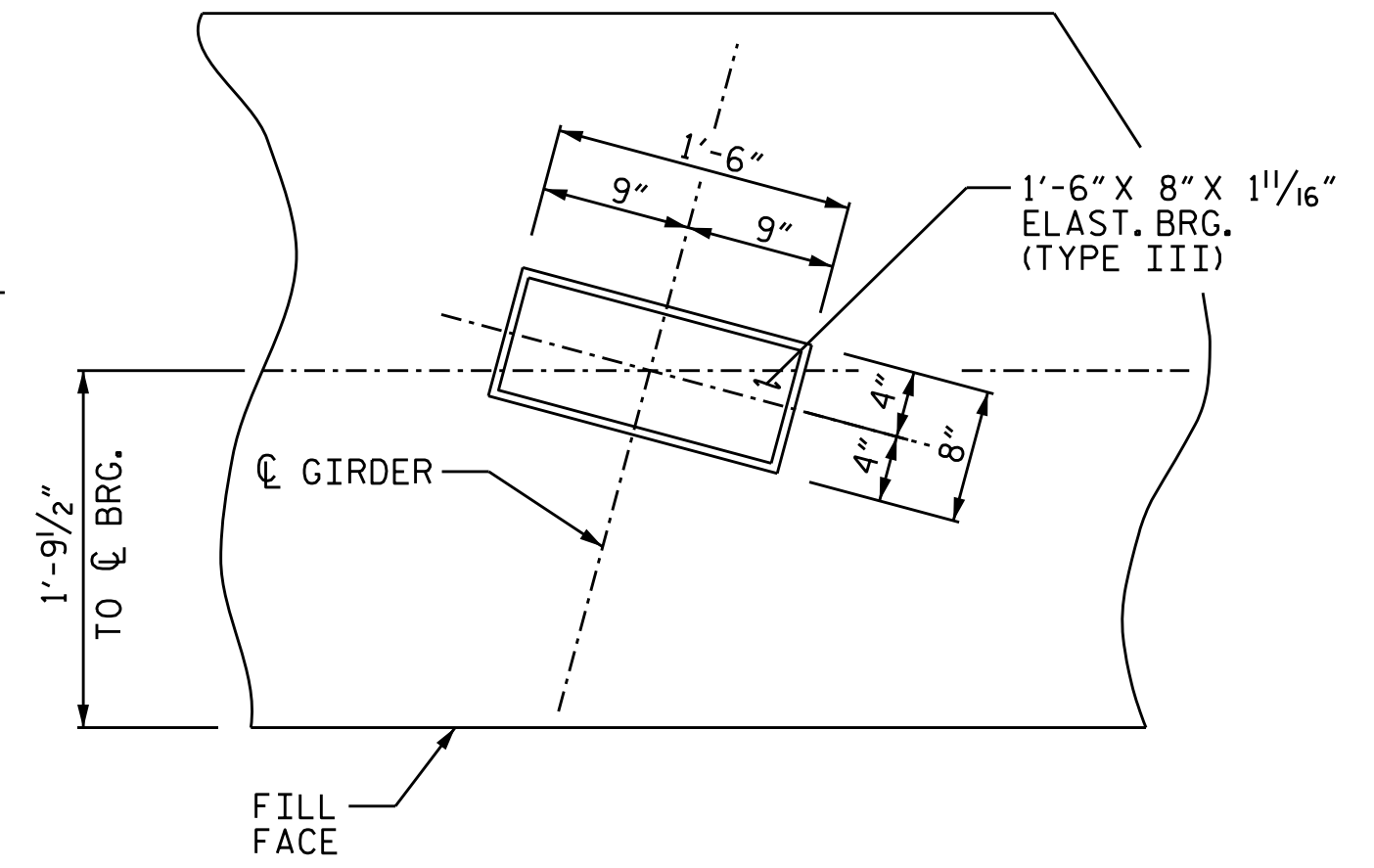


ELEVATION

WINGS NOT SHOWN FOR CLARITY

NOTES

- APPLY AN 8 MIL THICK 1350 ALUMINUM (W-AL-1350) THERMAL SPRAY COATING WITH A 0.5 MIL THICK SEAL COAT TO THE PILES, IN ACCORDANCE WITH THE THERMAL SPRAYED COATINGS SPECIAL PROVISION AND SECTION 442 OF THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS, SEE SPECIAL PROVISIONS.
- AFTER DRIVING THE PILES, APPLY 1 COAT EACH OF 1080-12 BROWN AND 1080-12 GRAY PAINT TO THE EMBEDDED SECTION OF THE METALLIZED PILE PRIOR TO CONCRETE EMBEDMENT IN ACCORDANCE WITH SECTION 442 OF THE STANDARD SPECIFICATIONS.
- ALL REINFORCING STEEL SHALL BE EPOXY COATED.
- CLASS AA CONCRETE SHALL BE USED IN THE END BENTS AND SHALL CONTAIN CALCIUM NITRATE CORROSION INHIBITOR.
- THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.



DETAIL "A"

(TYP. EA. GIRDER)

PROJECT NO. B-4414
BEAUFORT COUNTY
 STATION: 24+78.90 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 INTEGRAL
 END BENT 1**

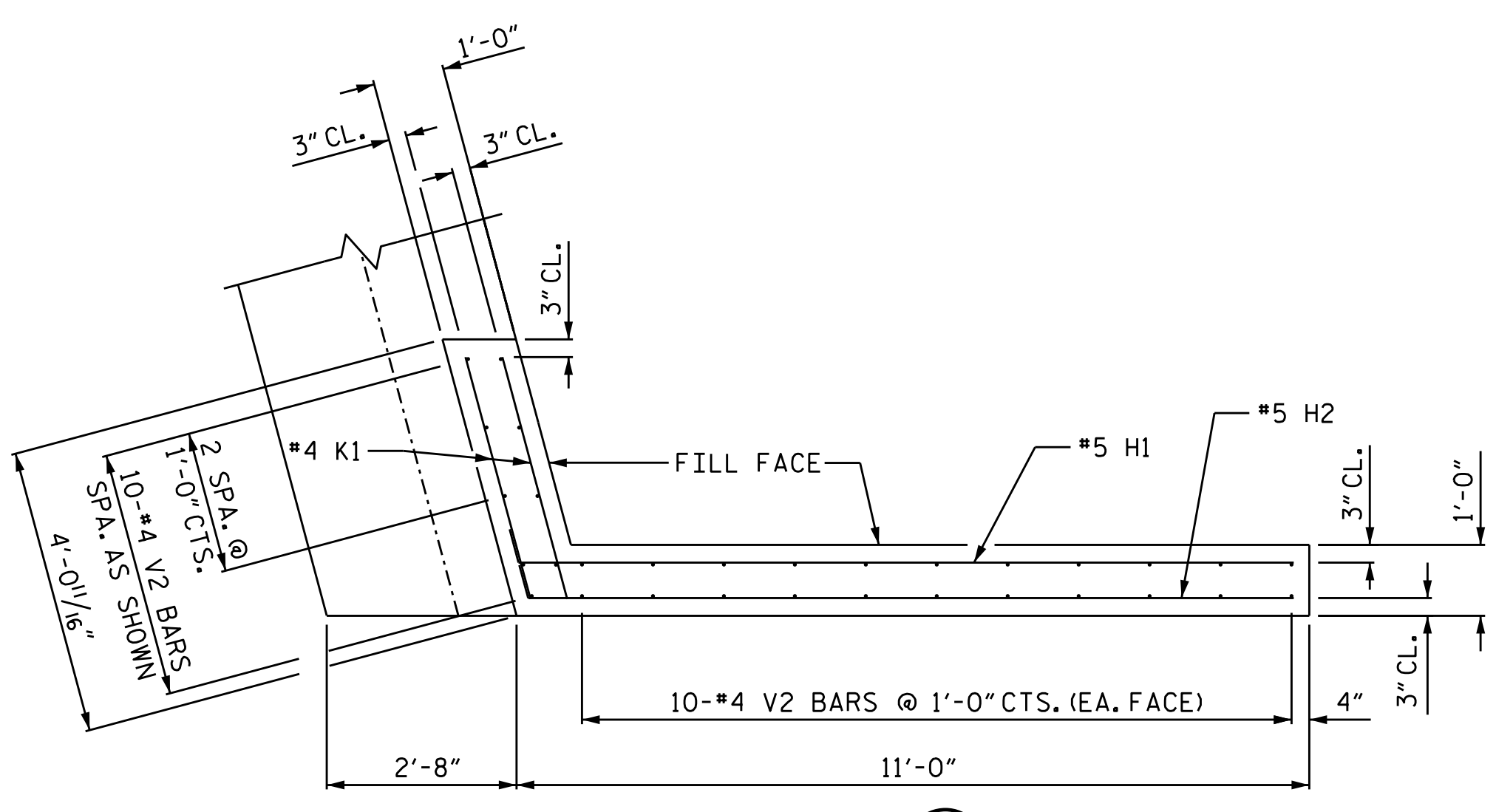
2/8/2021

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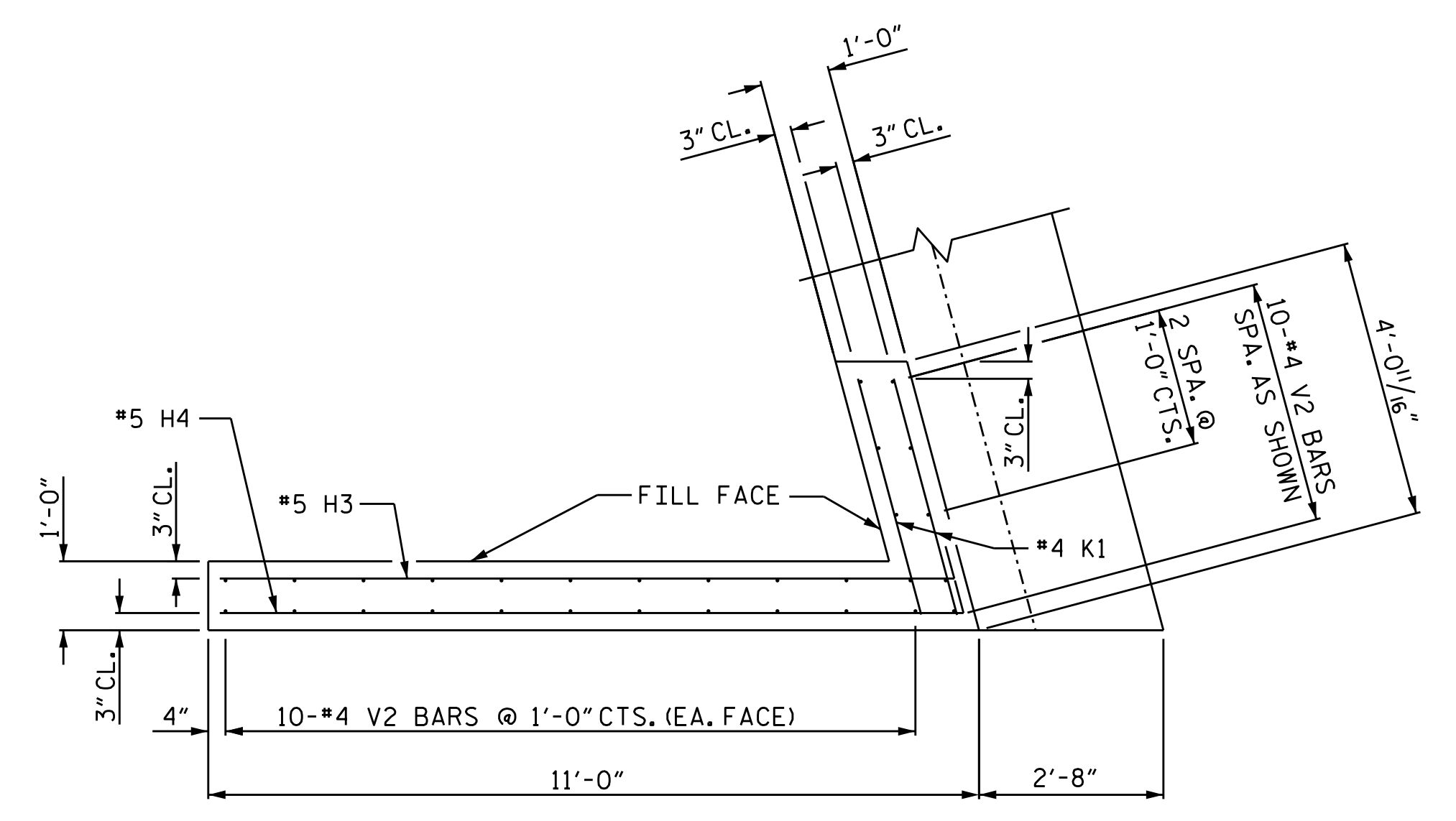
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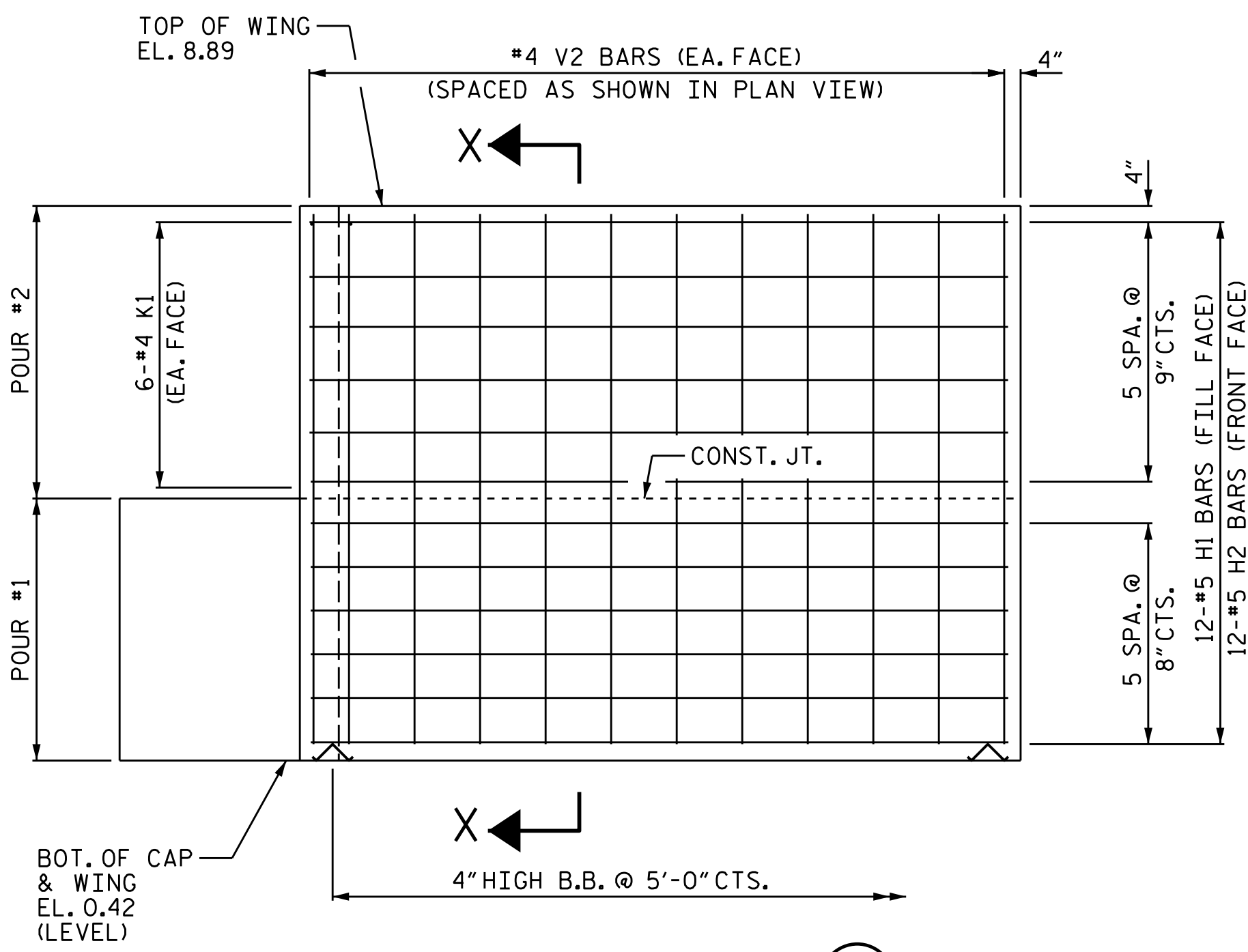
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 CHECKED BY : MGC DATE : 12/19
 DESIGN ENGINEER OF RECORD: TBE DATE : 03/20



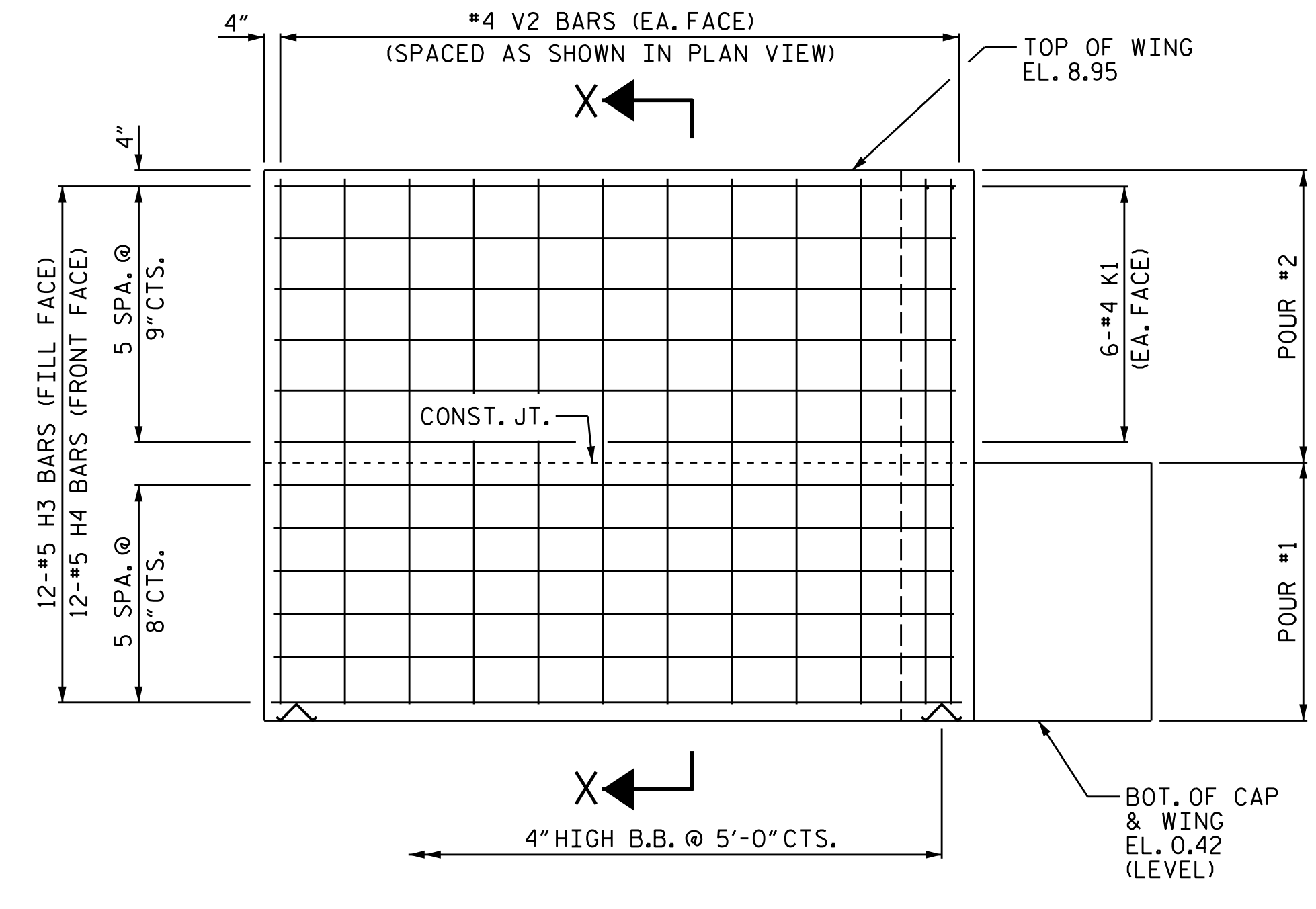
PLAN OF WING (W1)



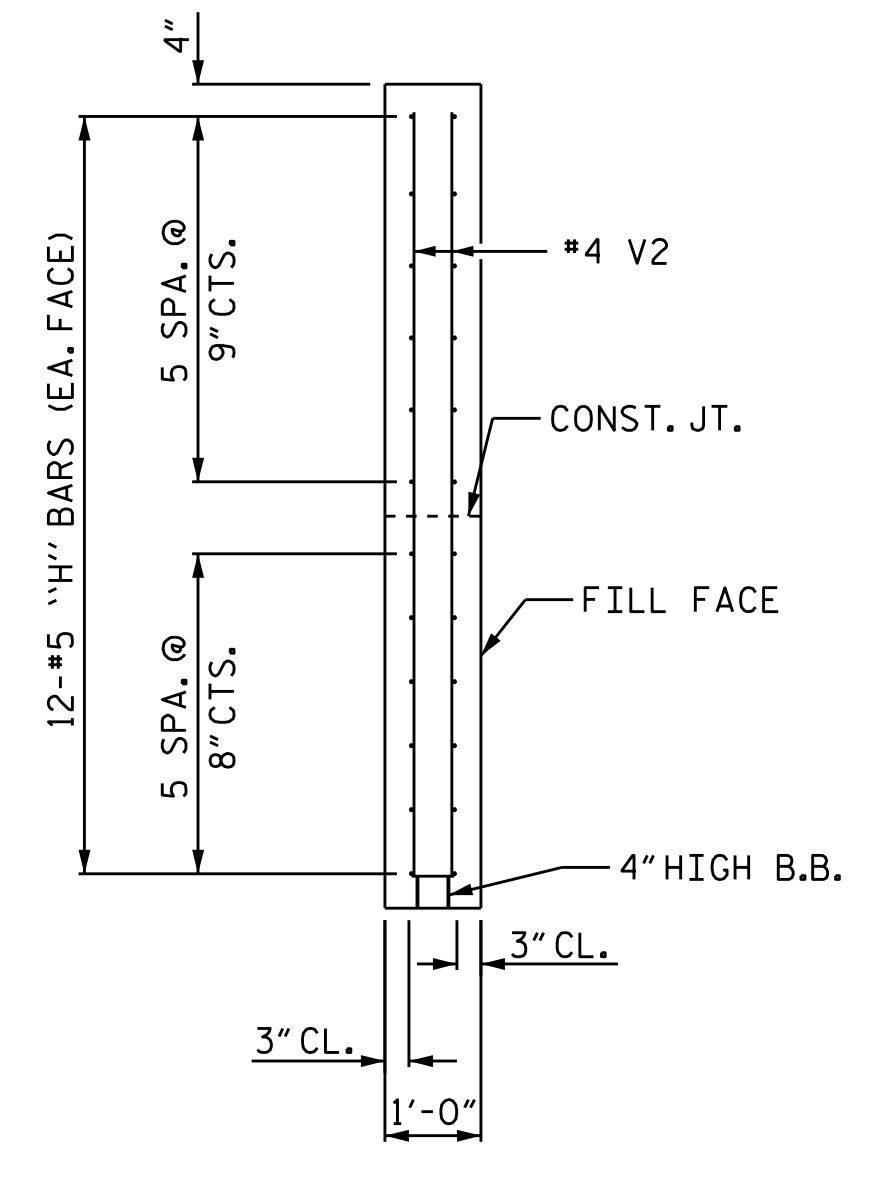
PLAN OF WING (W2)



ELEVATION OF WING (W1)

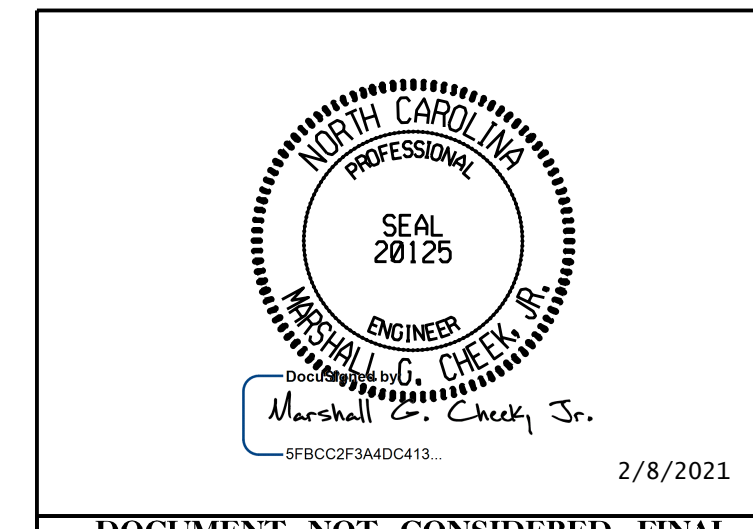


ELEVATION OF WING (W2)



SECTION X-X

PROJECT NO. B-4414
BEAUFORT COUNTY
 STATION: 24+78.90 -L-
 SHEET 2 OF 3

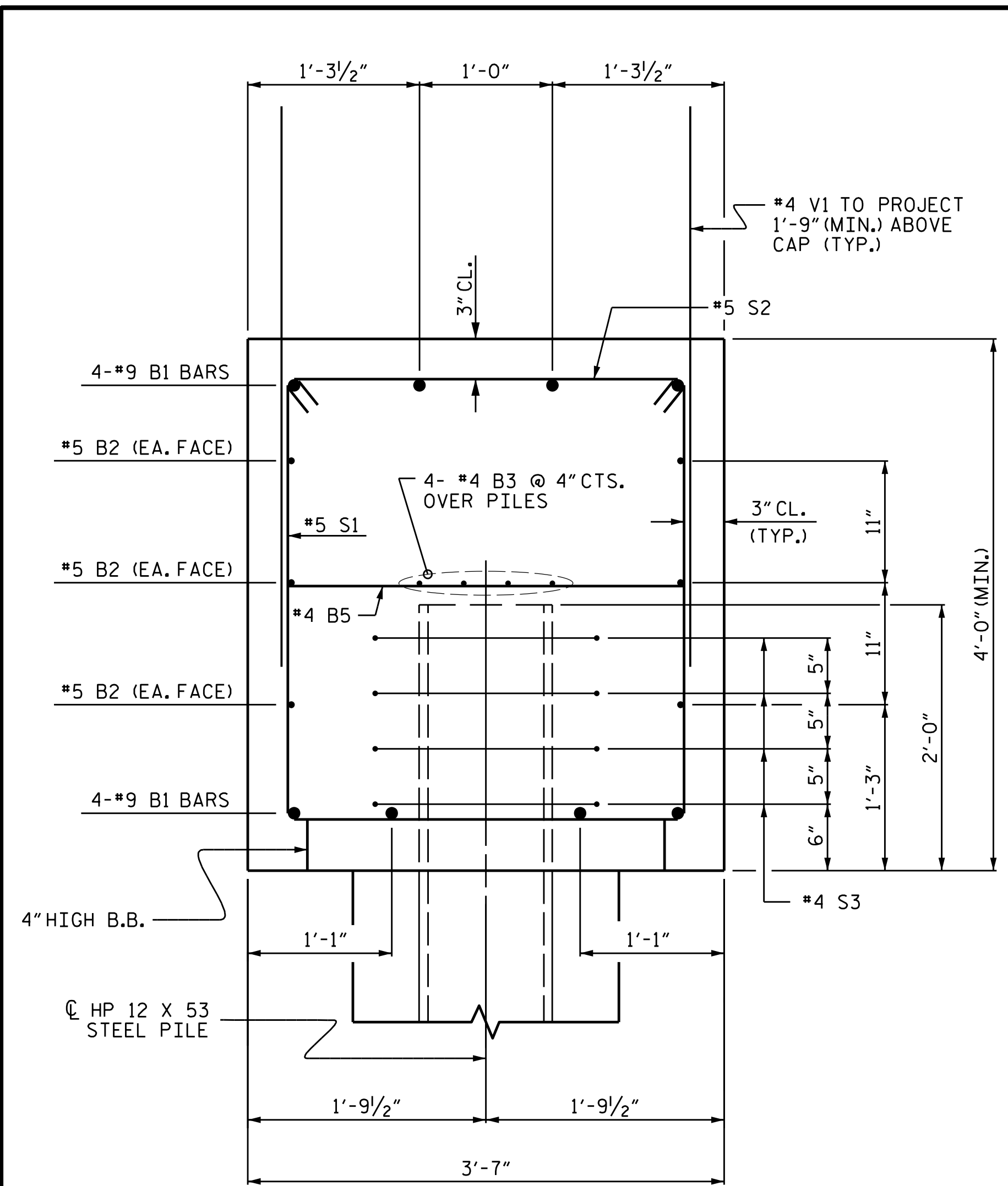


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 INTEGRAL
 END BENT 1

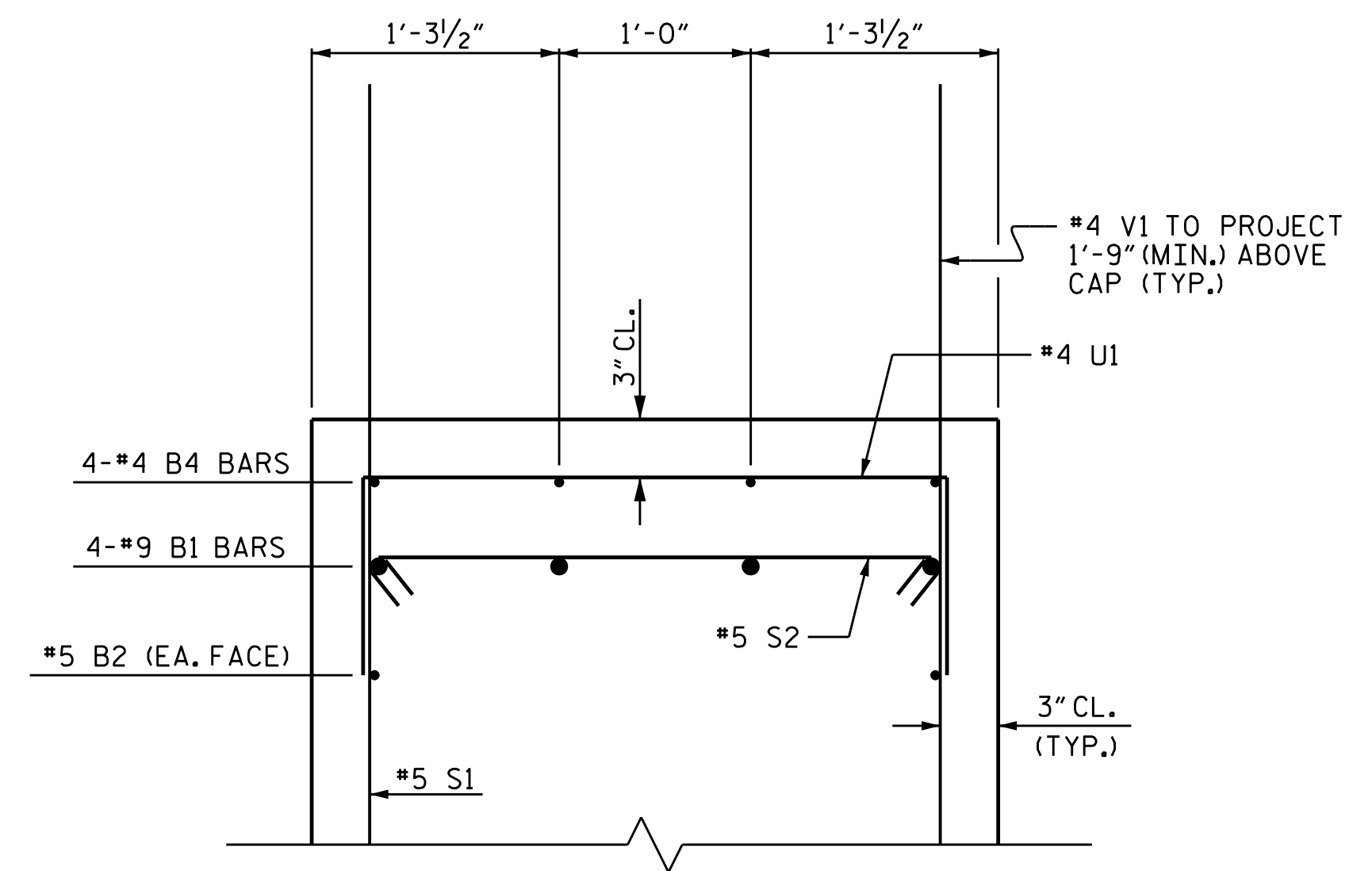
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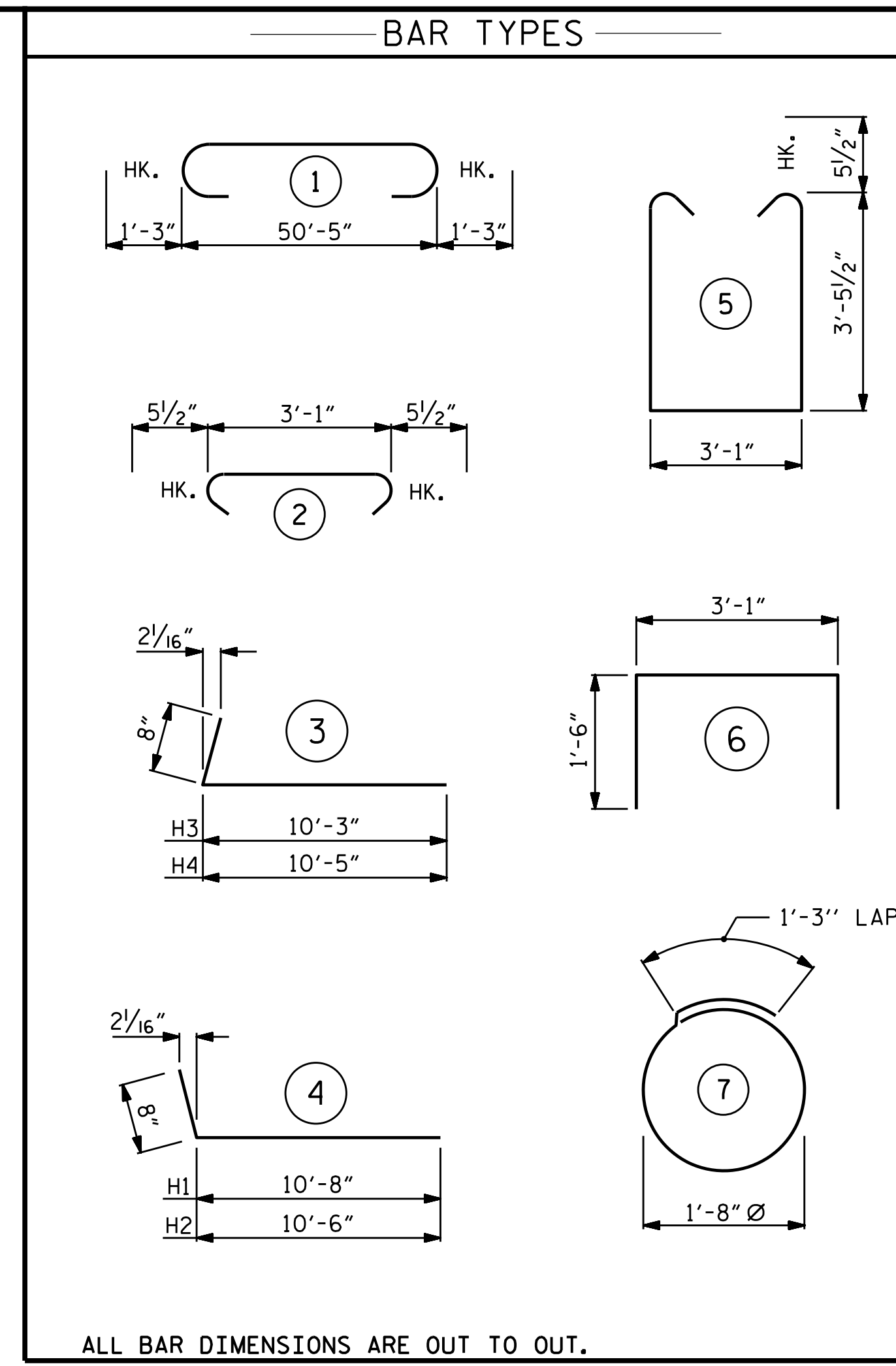
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SECTION A-A

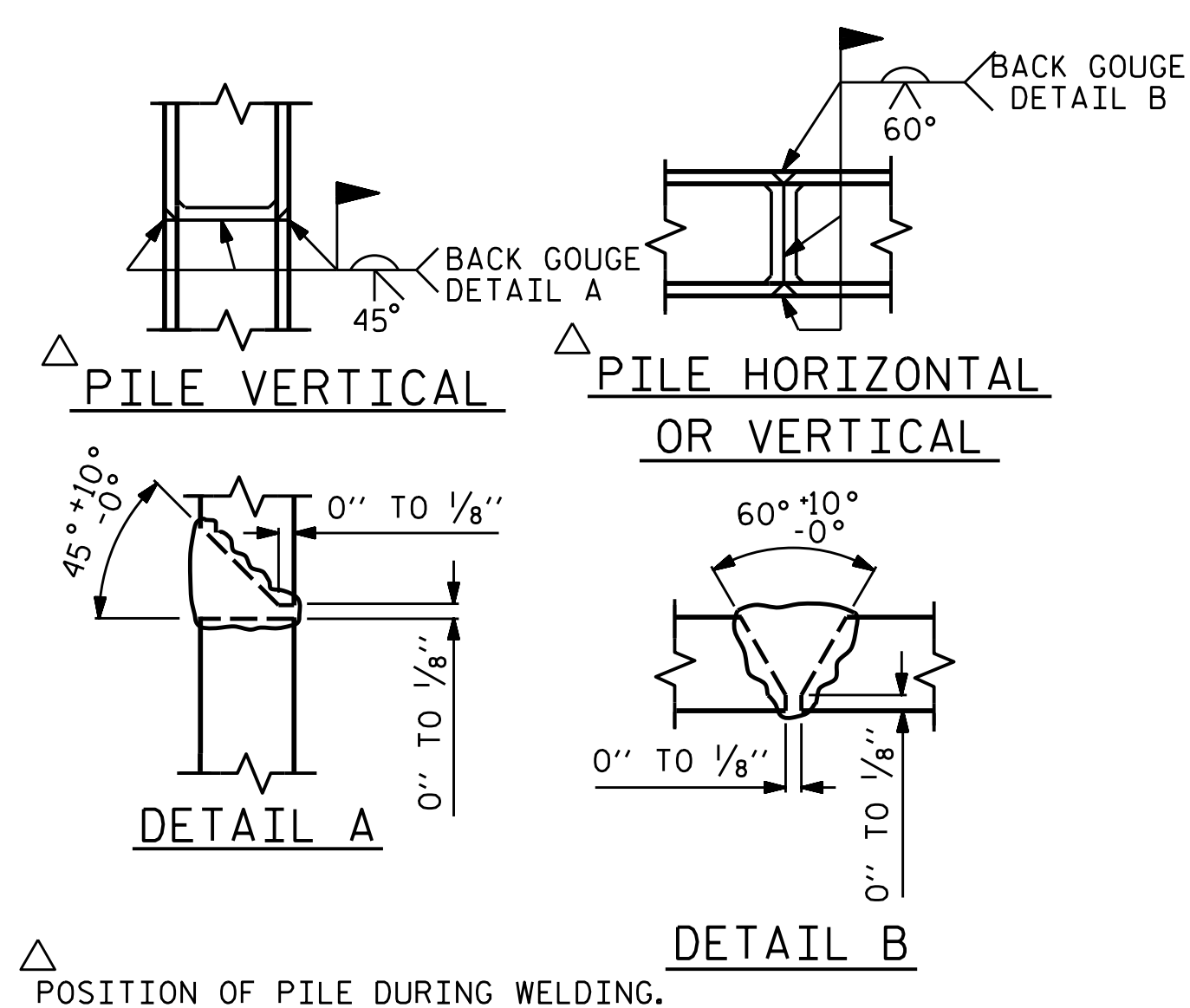


PARTIAL SECTION B-B

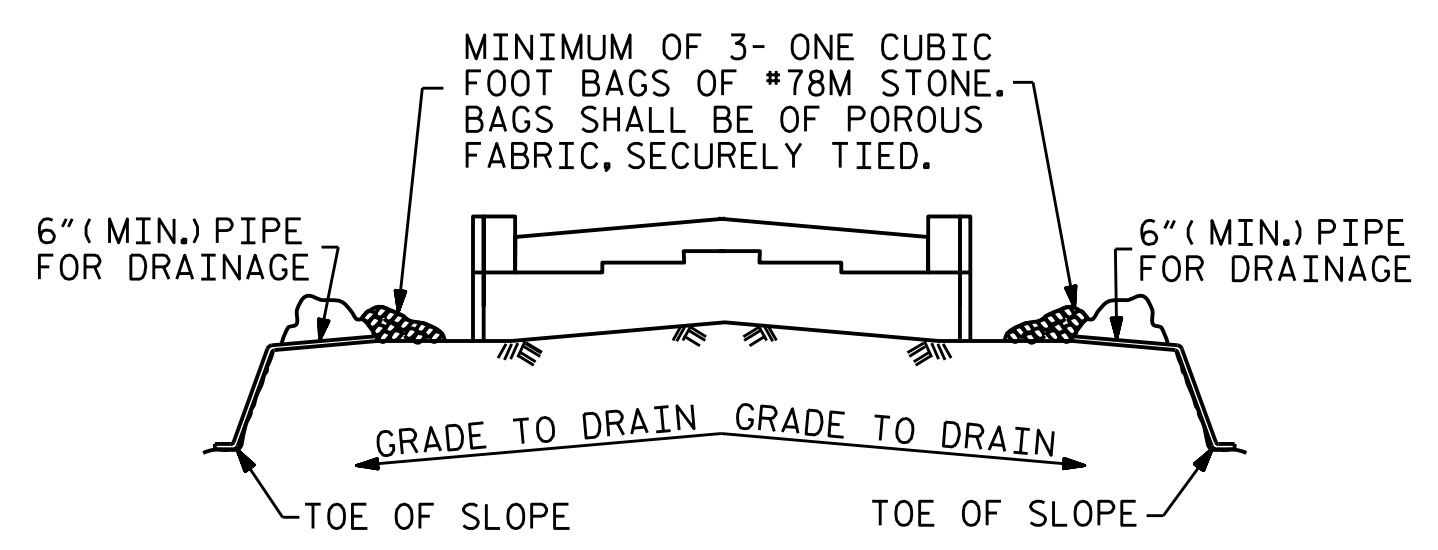


ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
END BENT 1					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
*B1	#9	1	52'-11"	1439	
*B2	#5	STR	50'-7"	317	
*B3	#4	STR	26'-6"	142	
*B4	#4	STR	1'-8"	4	
*B5	#4	STR	3'-1"	27	
*H1	#5	4	11'-4"	142	
*H2	#5	4	11'-2"	140	
*H3	#5	3	10'-11"	137	
*H4	#5	3	11'-1"	139	
*K1	#4	STR	3'-6"	56	
*S1	#5	5	10'-11"	592	
*S2	#5	2	4'-0"	217	
*S3	#4	7	6'-6"	122	
*U1	#4	6	6'-1"	8	
*V1	#4	STR	4'-3"	204	
*V2	#4	STR	7'-11"	317	
*EPOXY COATED REINFORCING STEEL				4003 LBS.	
CLASS AA CONCRETE BREAKDOWN					
POUR #1 CAP, LOWER PART OF WINGS & COLLARS				32.2 C.Y.	
POUR #2 UPPER PART OF WINGS				4.2 C.Y.	
TOTAL CLASS AA CONCRETE				36.4 C.Y.	
HP 12 X 53 STEEL PILES					
NO: 7				LIN. FT.= 280	
PILE DRIVING EQUIPMENT SET UP FOR HP 12 X 53 STEEL PILES					
				NO: 7 EA.	
STEEL PILE POINTS				NO: 7 EA.	
PILE REDRIVES				NO: 4 EA.	



PILE SPLICE DETAILS



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

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

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

TEMPORARY DRAINAGE AT END BENT

PROJECT NO. B-4414
BEAUFORT COUNTY
 STATION: 24+78.90 -L-
 SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
INTEGRAL
END BENT 1

SEAL 20125
 MARSHALL C. CHECK JR.
 ENGINEER
 2/8/2021

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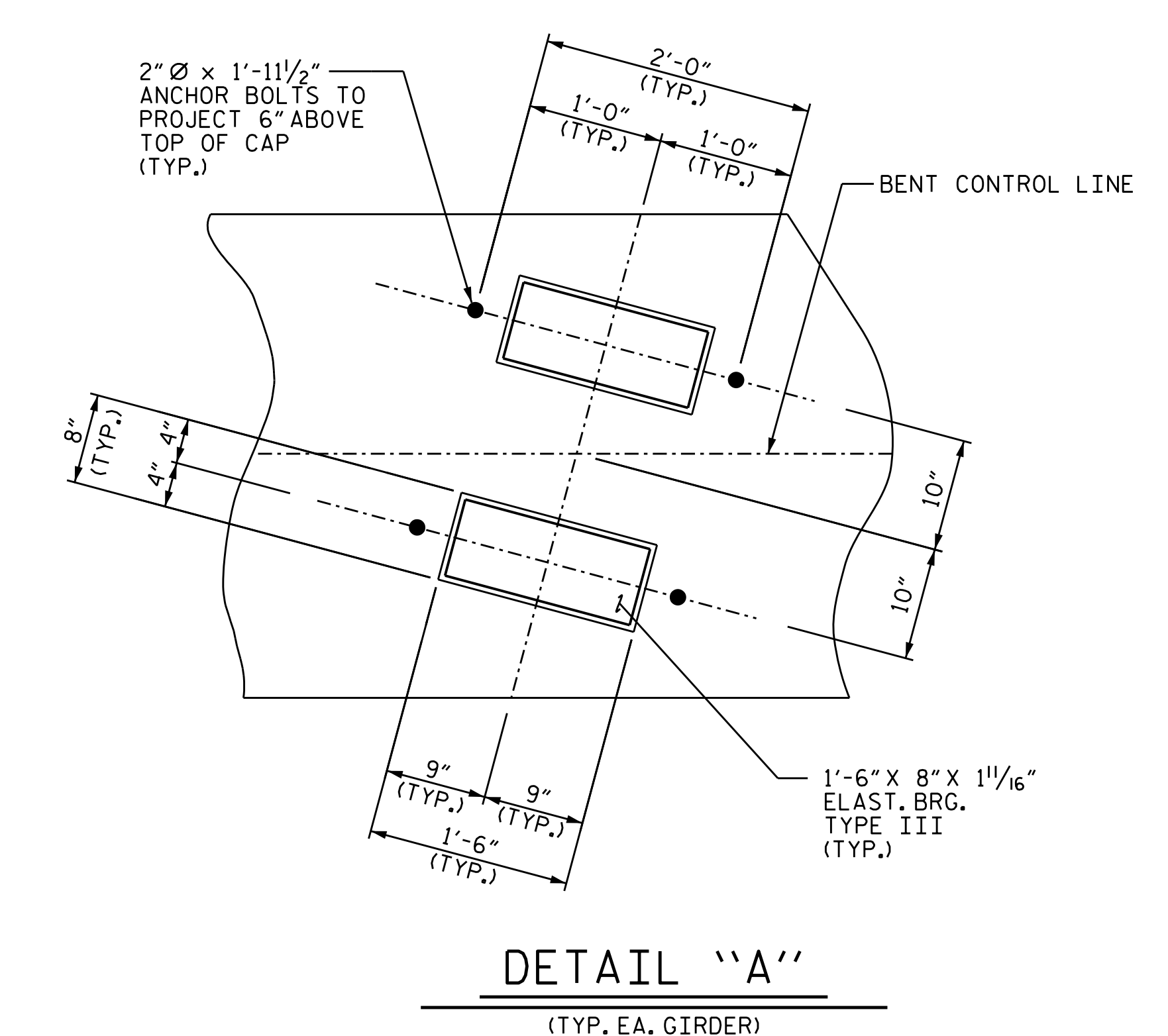
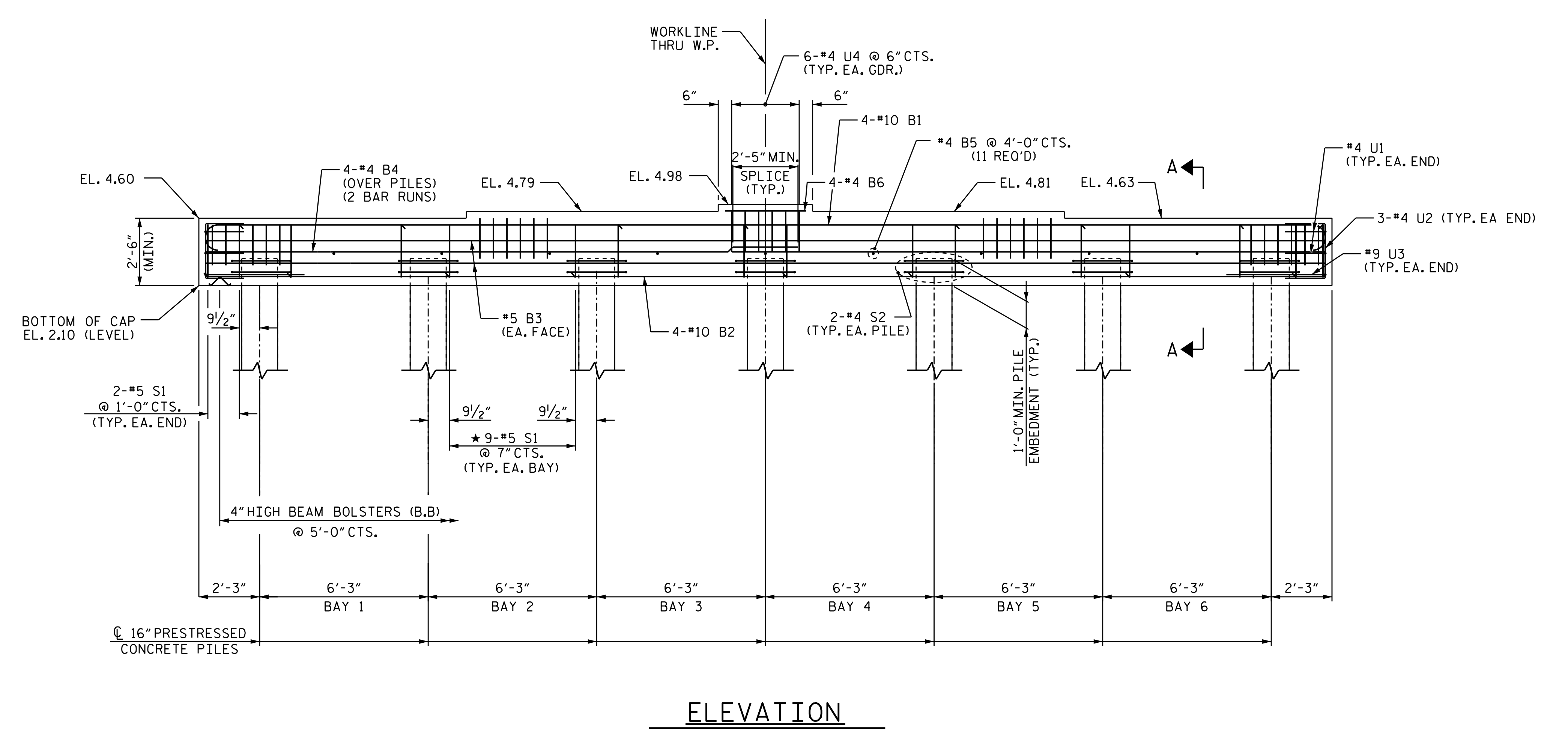
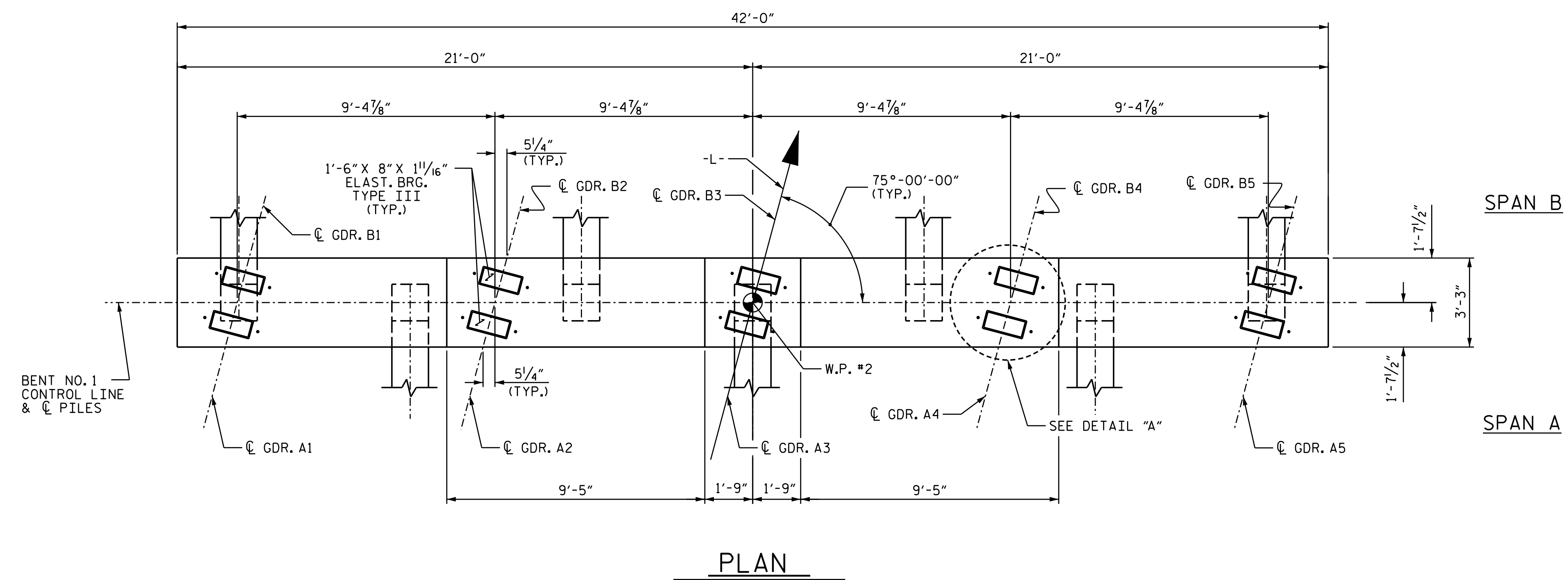
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 PH (919) 773-8887
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2			4			

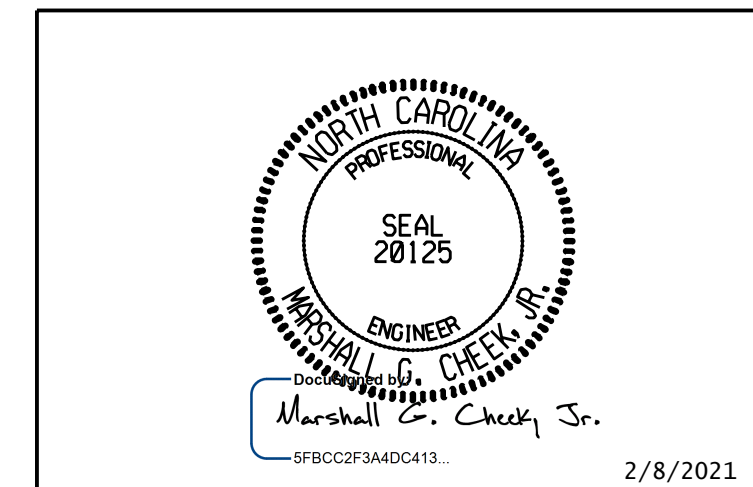
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CHECKED BY :	MGC	DATE :	12/19
DESIGN ENGINEER OF RECORD:	TBE	DATE :	03/20

NOTES

- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- FOR SECTION A-A, SEE SHEET 2 OF 2.
- ★ INVERT ALTERNATE STIRRUPS.
- ALL REINFORCING STEEL SHALL BE EPOXY COATED.
- CLASS AA CONCRETE SHALL BE USED IN THE BENT CAP AND SHALL CONTAIN CALCIUM NITRATE CORROSION INHIBITOR.
- ALL BAR SUPPORTS IN THE BENT CAP AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.



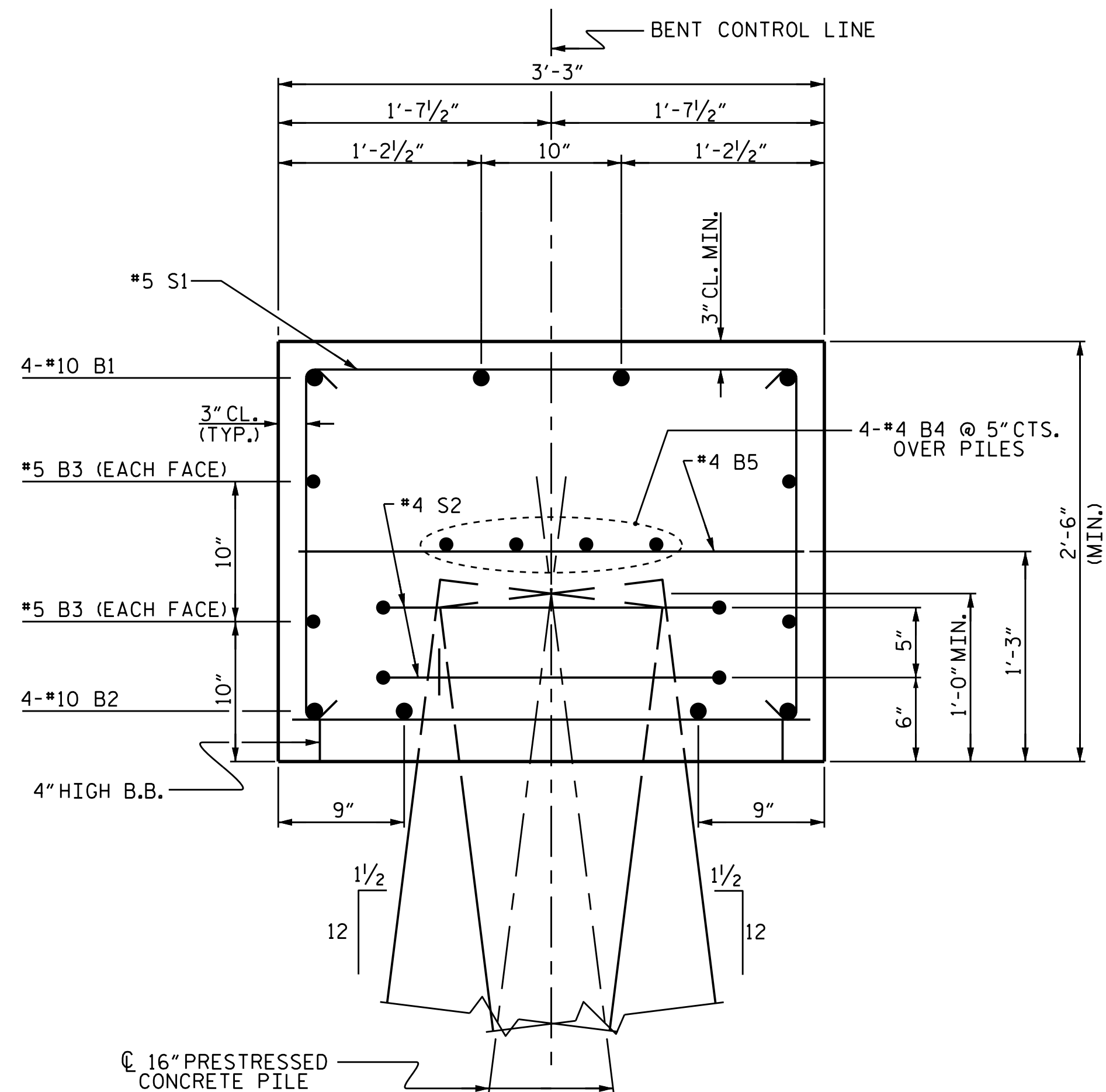
PROJECT NO. B-4414
BEAUFORT COUNTY
 STATION: 24+78.90 -L-
 SHEET 1 OF 2



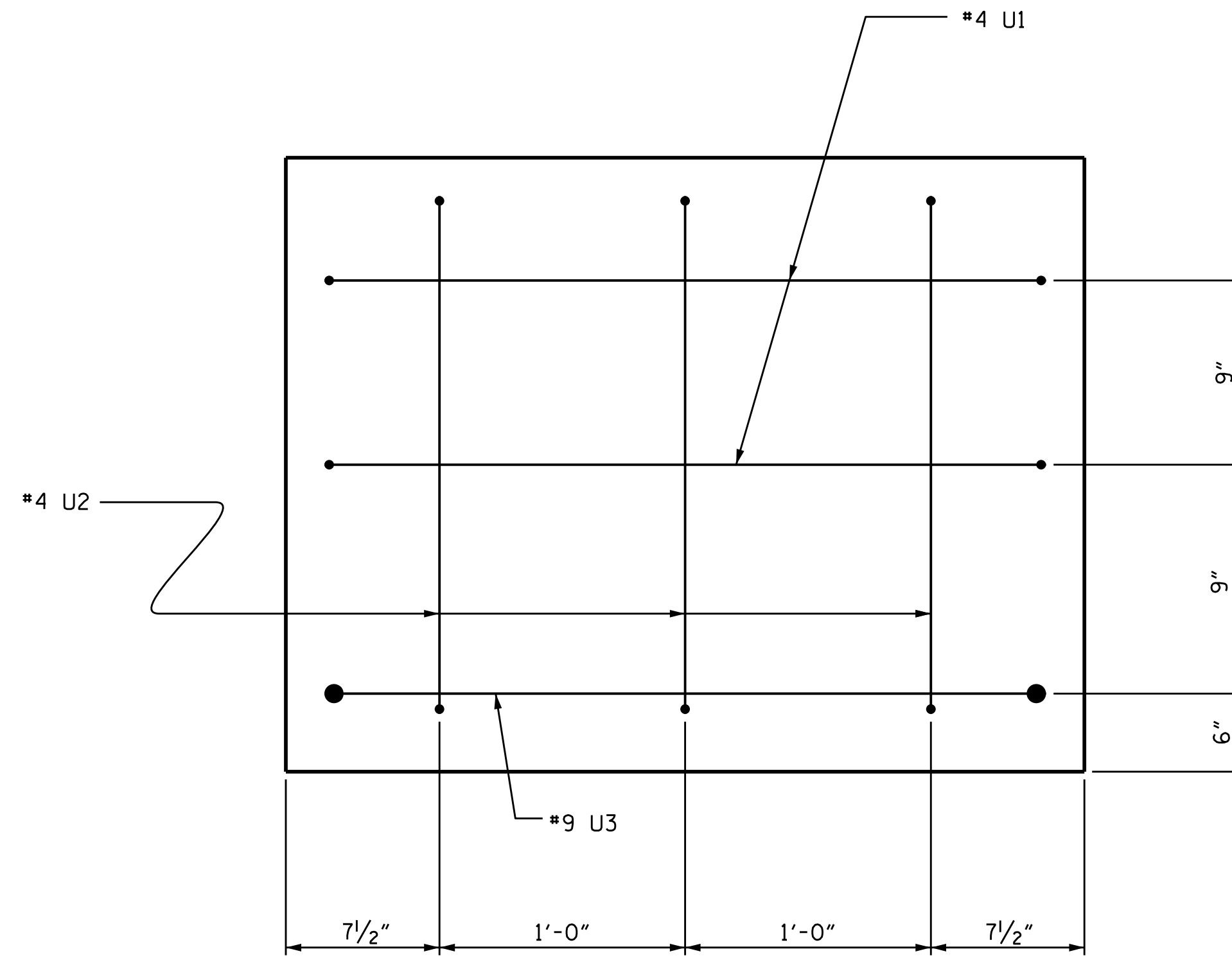
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT 1

DRAWN BY : ZCS DATE : 11/19
 CHECKED BY : MGC DATE : 11/19
 DESIGN ENGINEER OF RECORD: TBE DATE : 03/20

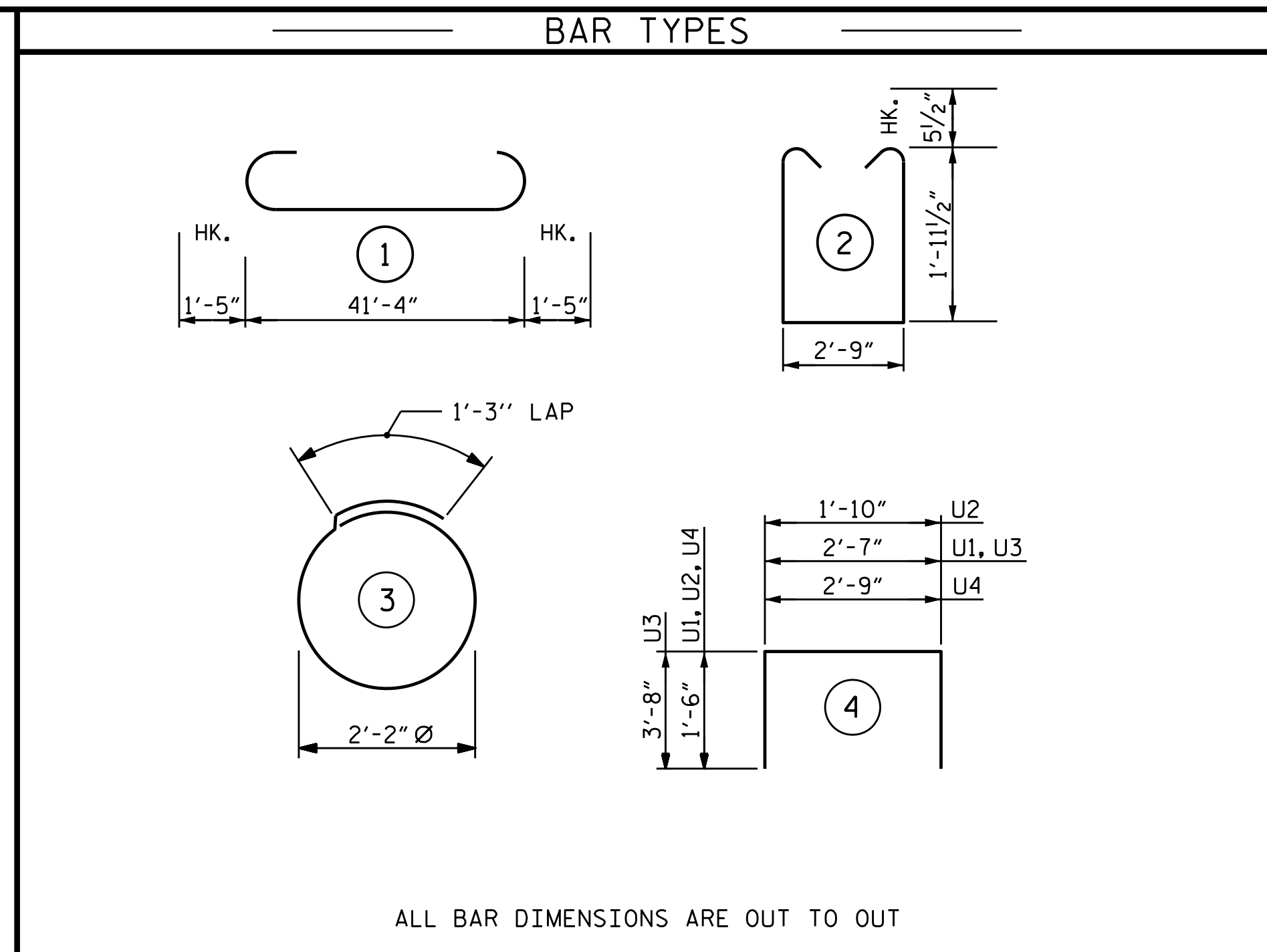
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TGS ENGINEERS 706 HILLSBOROUGH STREET SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-23
					TOTAL SHEETS 33



SECTION A-A



END OF CAP VIEW
(TYPICAL BOTH ENDS)



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR BENT No. 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	4	#10	1	44'-2"	760
*B2	4	#10	STR	41'-6"	714
*B3	4	#5	STR	41'-6"	173
*B4	8	#4	STR	22'-0"	118
*B5	11	#4	STR	2'-9"	20
*B6	4	#4	STR	3'-0"	8
*S1	58	#5	2	7'-7"	459
*S2	14	#4	3	8'-2"	76
*U1	4	#4	4	5'-7"	15
*U2	6	#4	4	4'-10"	19
*U3	2	#9	4	9'-11"	67
*U4	30	#4	4	5'-9"	115

*EPOXY COATED REINFORCING STEEL 2544 LBS.

* CLASS AA CONCRETE
TOTAL CLASS AA CONCRETE 12.8 C.Y.

16" PRESTRESSED CONCRETE PILES NO. 7 280 LIN. FT.
PILE REDRIVES 4 EA.

PILE DRIVING EQUIPMENT SETUP FOR 16" PRESTRESSED CONCRETE PILES 7 EA.

* CONCRETE DISPLACED BY THE 16" PRESTRESSED CONCRETE PILES HAS BEEN DEDUCTED FROM THE CONCRETE QUANTITY.

PROJECT NO. B-4414
BEAUFORT COUNTY
STATION: 24+78.90 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SEAL
20125
MARSHALL G. CHECK, JR.
ENGINEER
2/8/2021

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DESIGN ENGINEER OF RECORD: TBE DATE : 03/20

NOTES

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

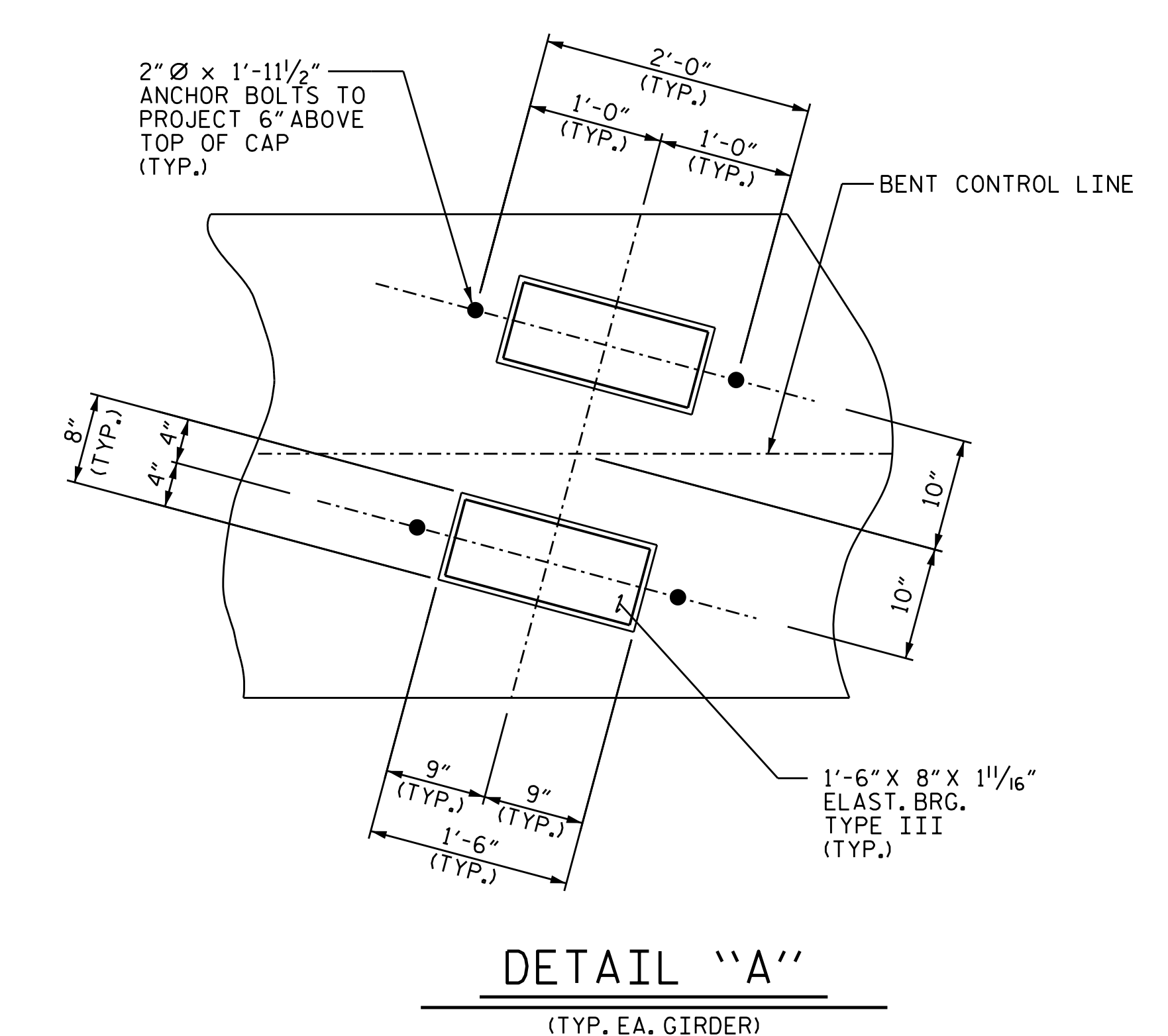
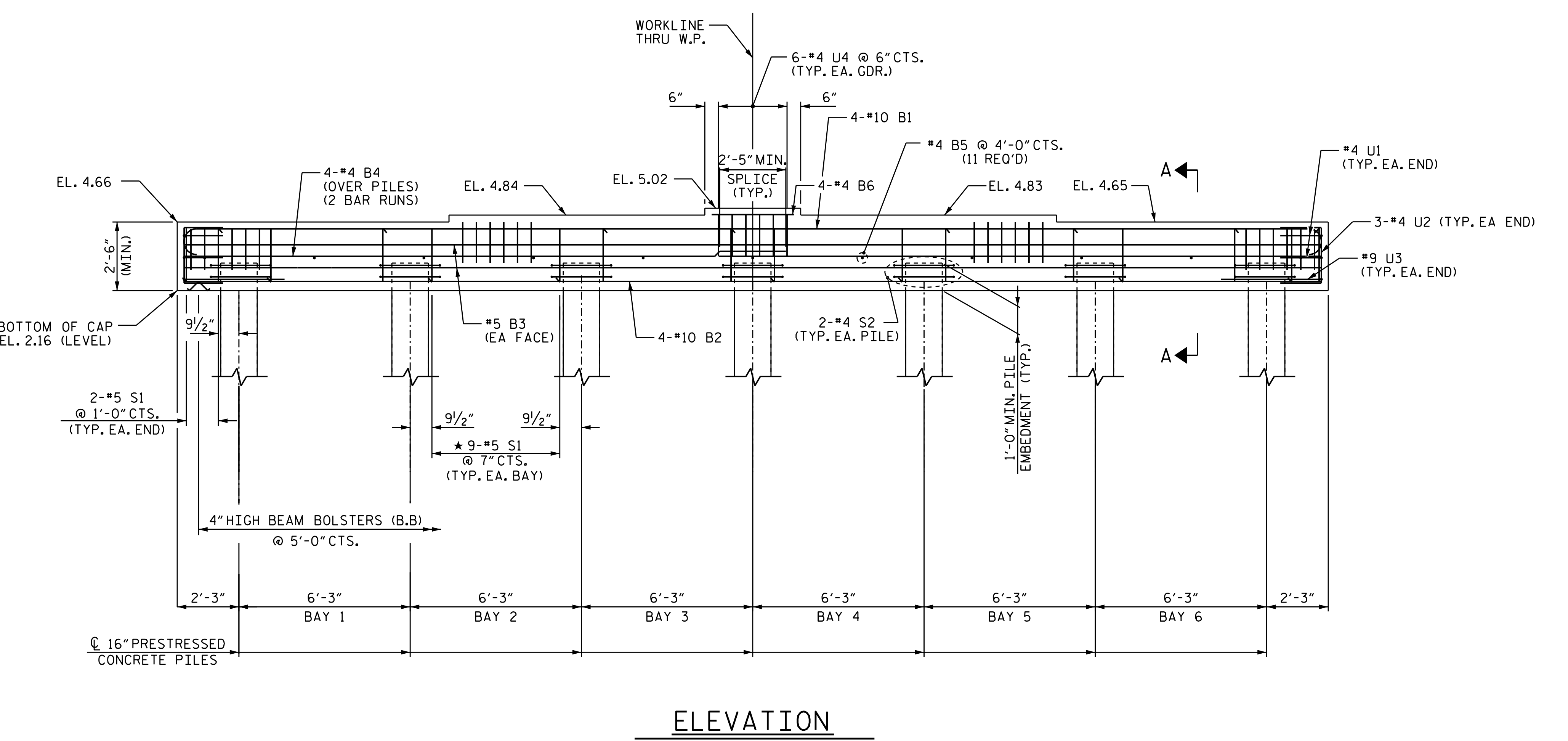
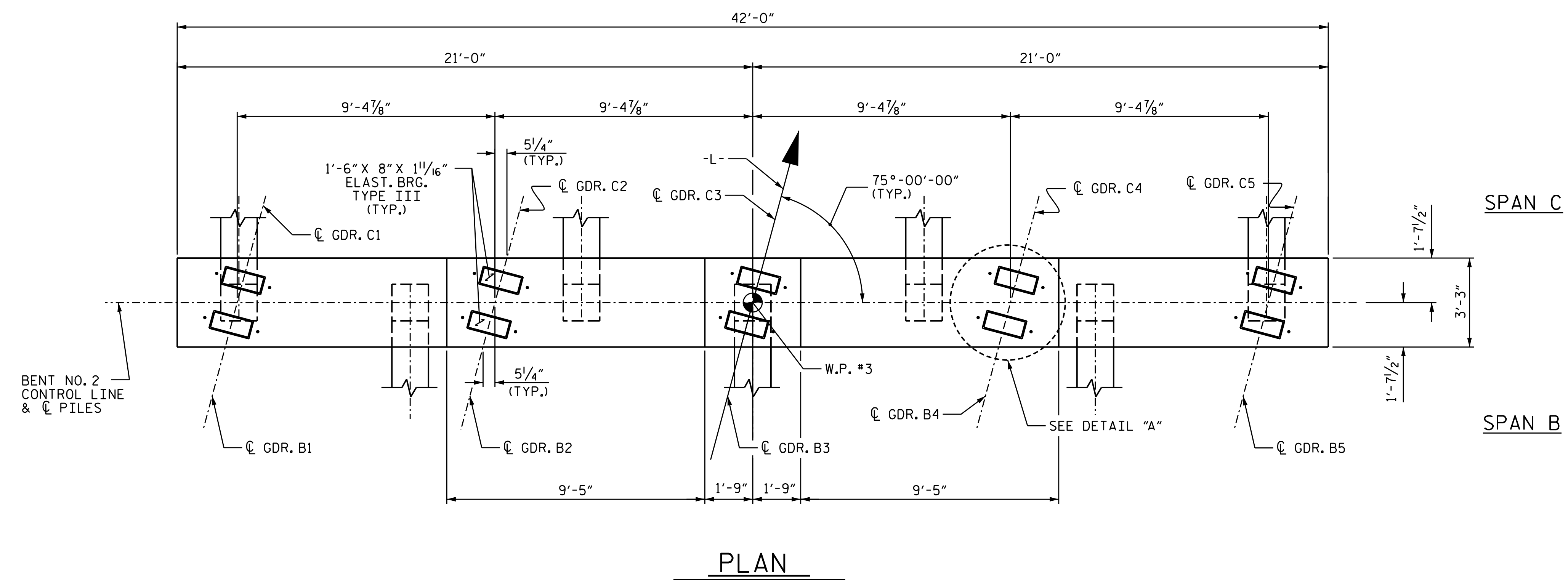
FOR SECTION A-A, SEE SHEET 2 OF 2.

★ INVERT ALTERNATE STIRRUPS.

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

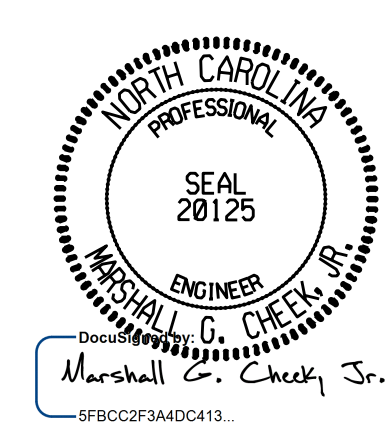
CLASS AA CONCRETE SHALL BE USED IN THE BENT CAP AND SHALL CONTAIN CALCIUM NITRATE CORROSION INHIBITOR.

ALL BAR SUPPORTS IN THE BENT CAP AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.



PROJECT NO. B-4414
BEAUFORT COUNTY
 STATION: 24+78.90 -L-

SHEET 1 OF 2



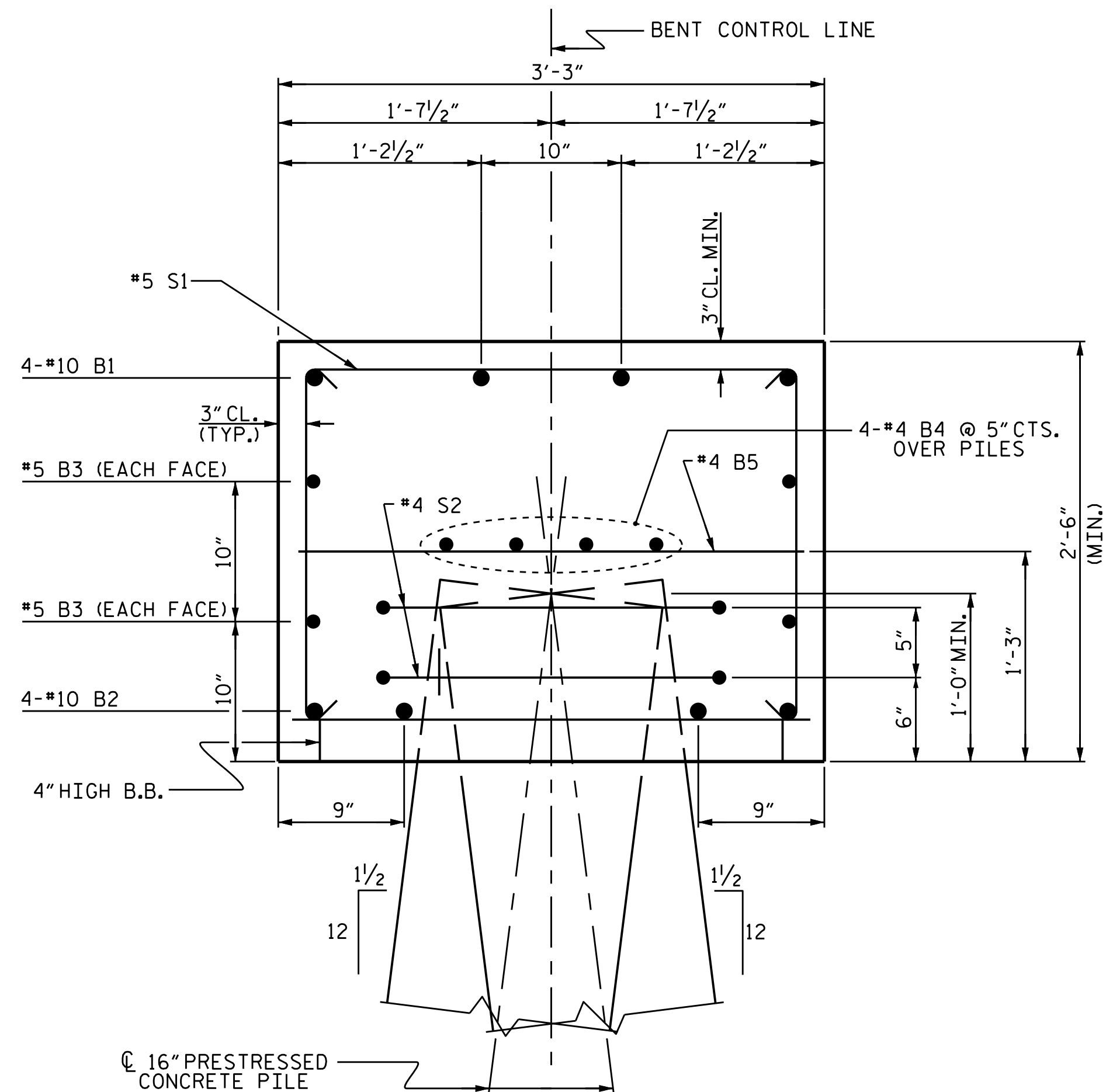
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT 2

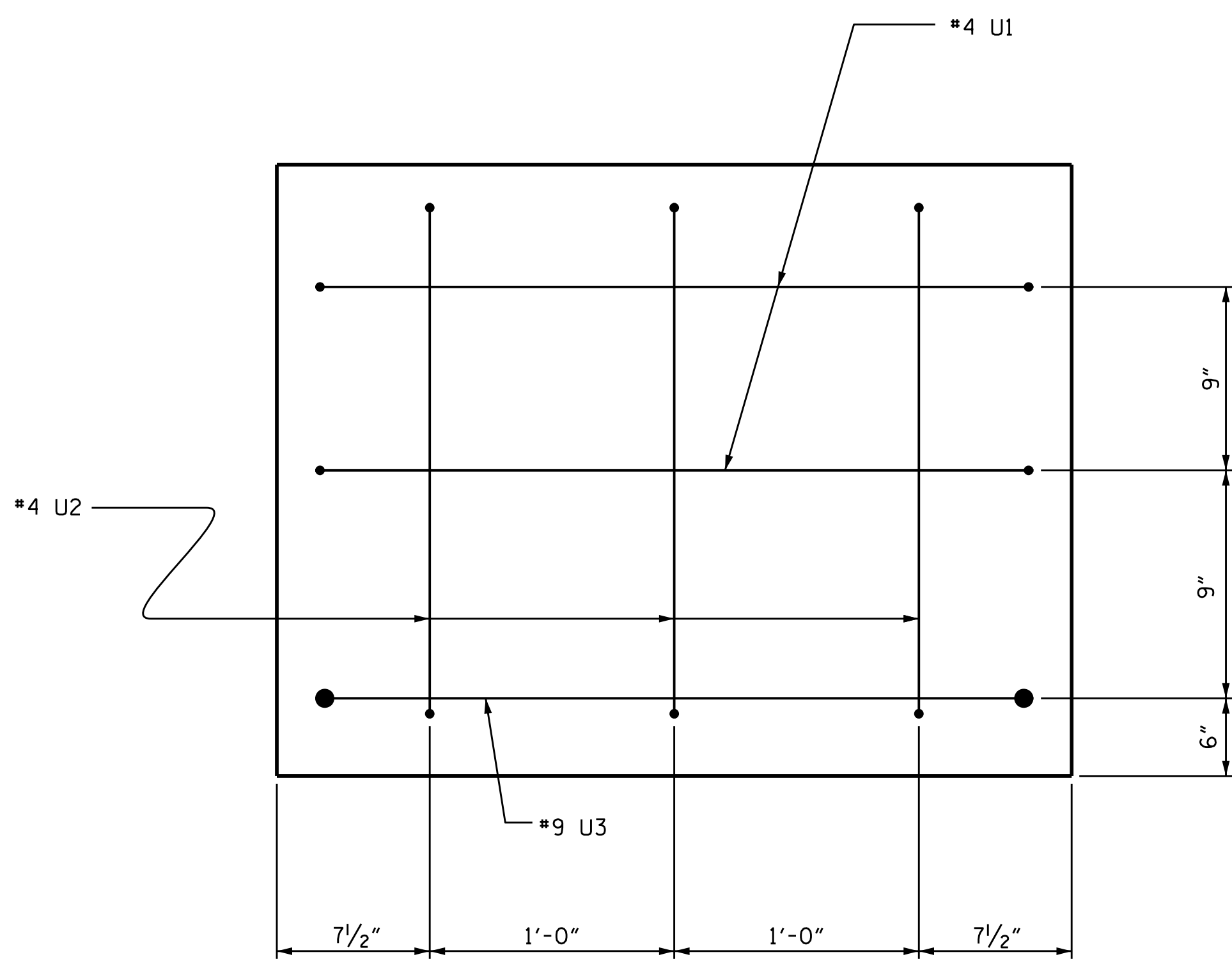
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 CHECKED BY : MGC DATE : 11/19
 DESIGN ENGINEER OF RECORD: TBE DATE : 03/20

12/18/2020
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 Users\sbwilliams

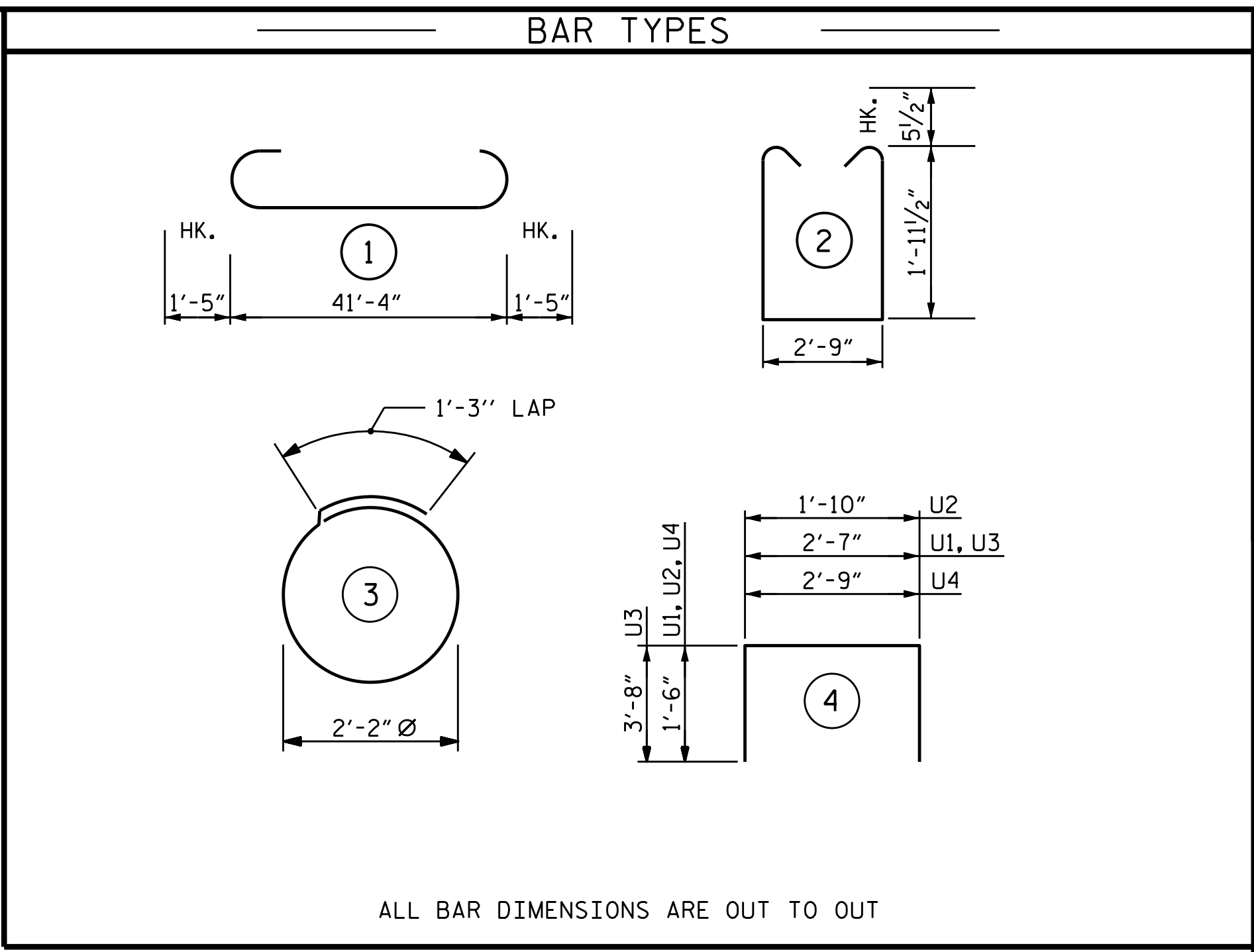
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED					
TGS ENGINEERS 706 HILLSBOROUGH STREET SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. <u>S-25</u>					TOTAL SHEETS <u>33</u>



SECTION A-A



END OF CAP VIEW
(TYPICAL BOTH ENDS)



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR BENT No. 2						
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*B1	4	#10	1	44'-2"	760	
*B2	4	#10	STR	41'-6"	714	
*B3	4	#5	STR	41'-6"	173	
*B4	8	#4	STR	22'-0"	118	
*B5	11	#4	STR	2'-9"	20	
*B6	4	#4	STR	3'-0"	8	
*S1	58	#5	2	7'-7"	459	
*S2	14	#4	3	8'-2"	76	
*U1	4	#4	4	5'-7"	15	
*U2	6	#4	4	4'-10"	19	
*U3	2	#9	4	9'-11"	67	
*U4	30	#4	4	5'-9"	115	

* EPOXY COATED REINFORCING STEEL 2544 LBS.

* CLASS AA CONCRETE
TOTAL CLASS AA CONCRETE 12.8 C.Y.

16" PRESTRESSED CONCRETE PILES NO. 7 315 LIN. FT.
PILE REDRIVES 4 EA.

PILE DRIVING EQUIPMENT SETUP FOR 16" PRESTRESSED CONCRETE PILES 7 EA.

* CONCRETE DISPLACED BY THE 16" PRESTRESSED CONCRETE PILES HAS BEEN DEDUCTED FROM THE CONCRETE QUANTITY.

PROJECT NO. B-4414
BEAUFORT COUNTY
STATION: 24+78.90 -L-
SHEET 2 OF 2

STATE OF NORTH CAROLINA
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RALEIGH

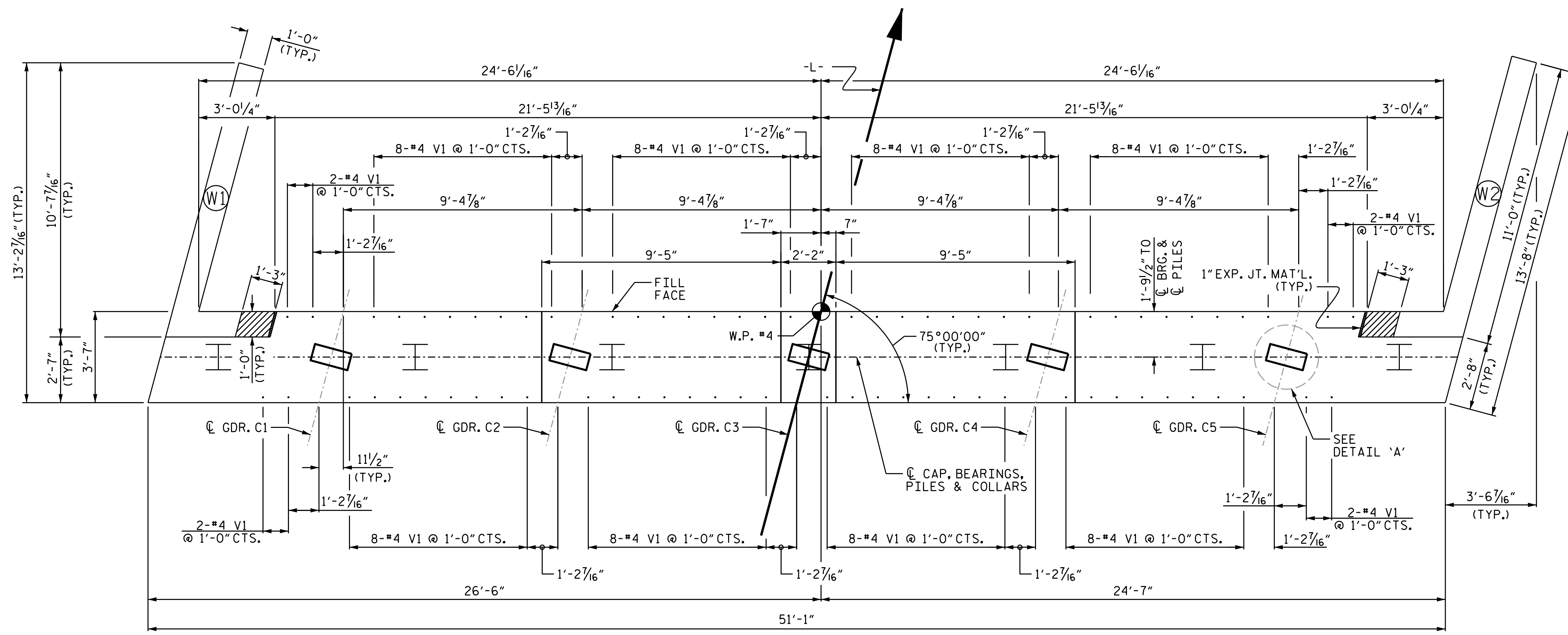
SEAL
20125
MARSHALL G. CHECK, JR.
ENGINEER
SFBICC2F344DC413...
2/8/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-26
2			4			TOTAL SHEETS 33

DRAWN BY :	ZCS	DATE :	11/19
CHECKED BY :	MGC	DATE :	11/19
DESIGN ENGINEER OF RECORD:	TBE	DATE :	03/20



PLAN

NOTES

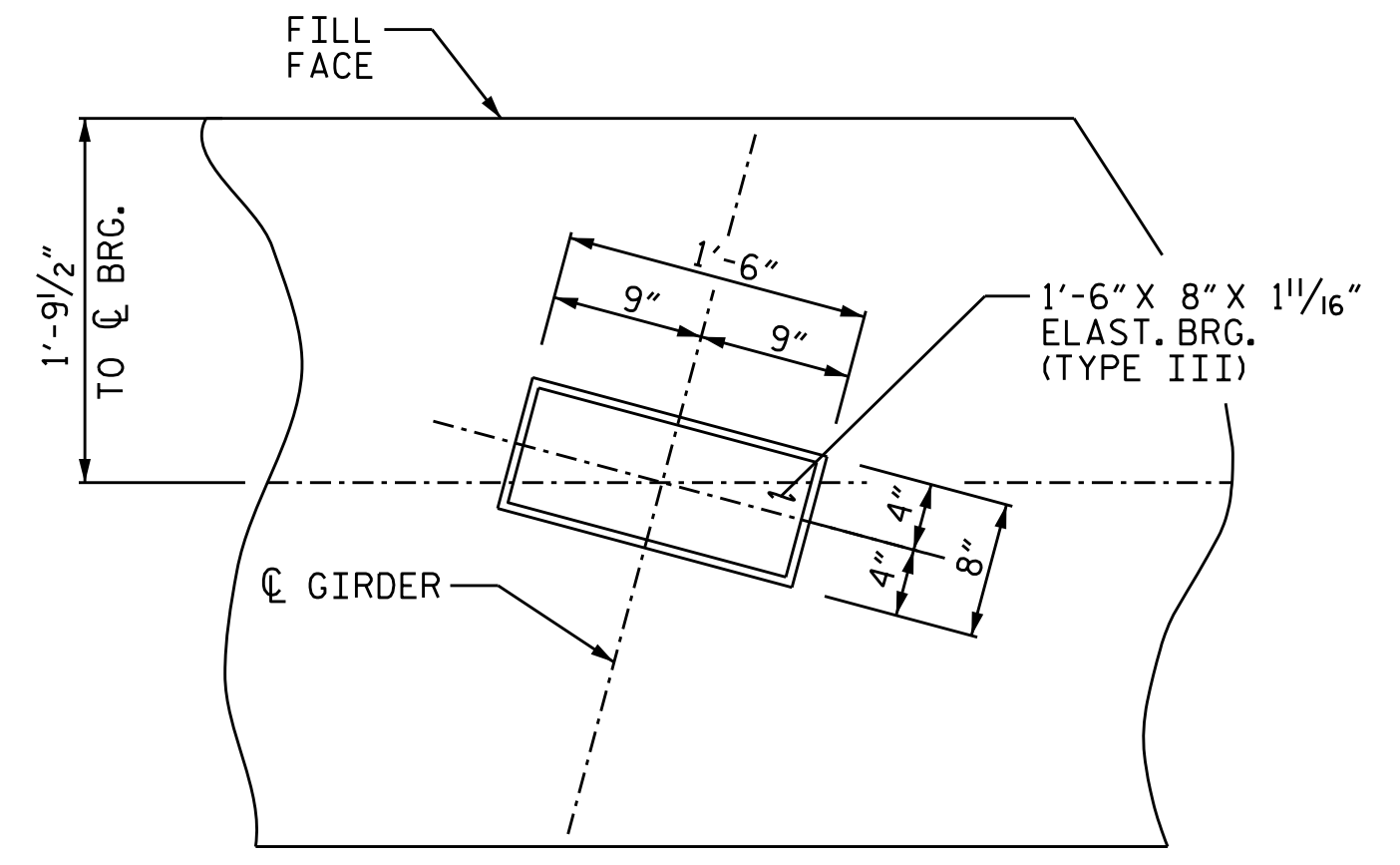
APPLY AN 8 MIL THICK 1350 ALUMINUM (W-AL-1350) THERMAL SPRAY COATING WITH A 0.5 MIL THICK SEAL COAT TO THE PILES, IN ACCORDANCE WITH THE THERMAL SPRAYED COATINGS SPECIAL PROVISION AND SECTION 442 OF THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS, SEE SPECIAL PROVISIONS.

AFTER DRIVING THE PILES, APPLY 1 COAT EACH OF 1080-12 BROWN AND 1080-12 GRAY PAINT TO THE EMBEDDED SECTION OF THE METALLIZED PILE PRIOR TO CONCRETE EMBEDMENT IN ACCORDANCE WITH SECTION 442 OF THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

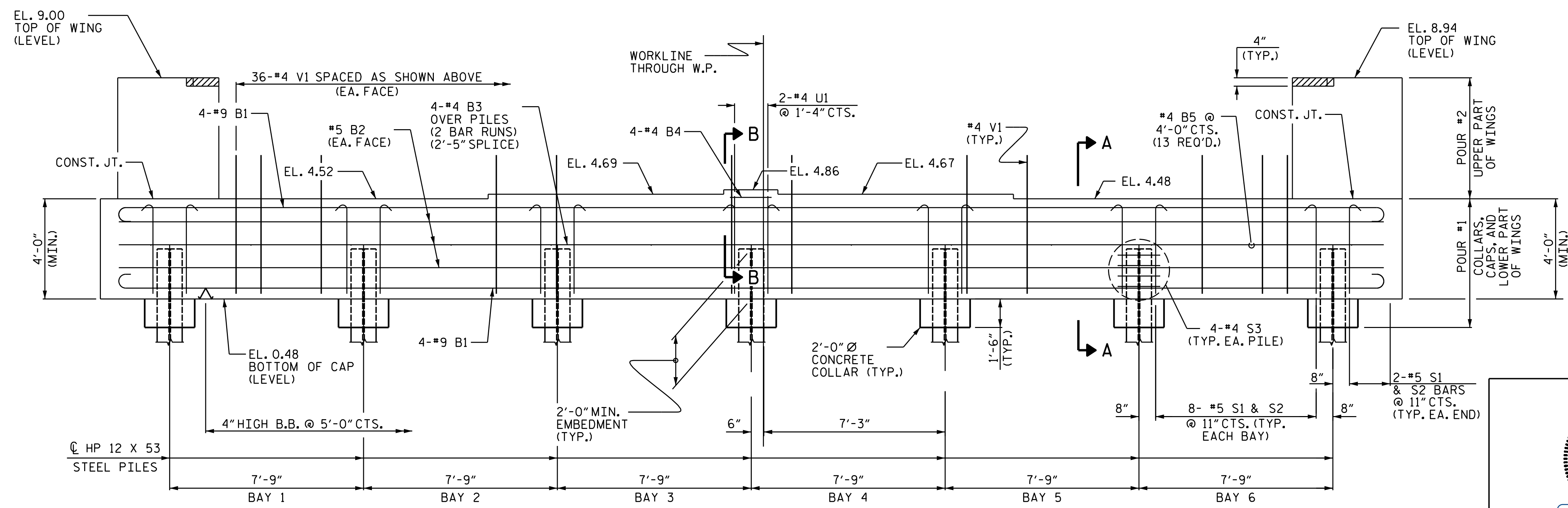
CLASS AA CONCRETE SHALL BE USED IN THE END BENTS AND SHALL CONTAIN CALCIUM NITRATE CORROSION INHIBITOR.

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



DETAIL "A"

(TYP. EA. GIRDER)

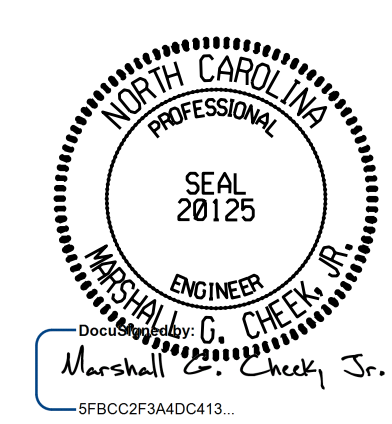


ELEVATION

WINGS NOT SHOWN FOR CLARITY

PROJECT NO. B-4414
 BEAUFORT COUNTY
 STATION: 24+78.90 -L-

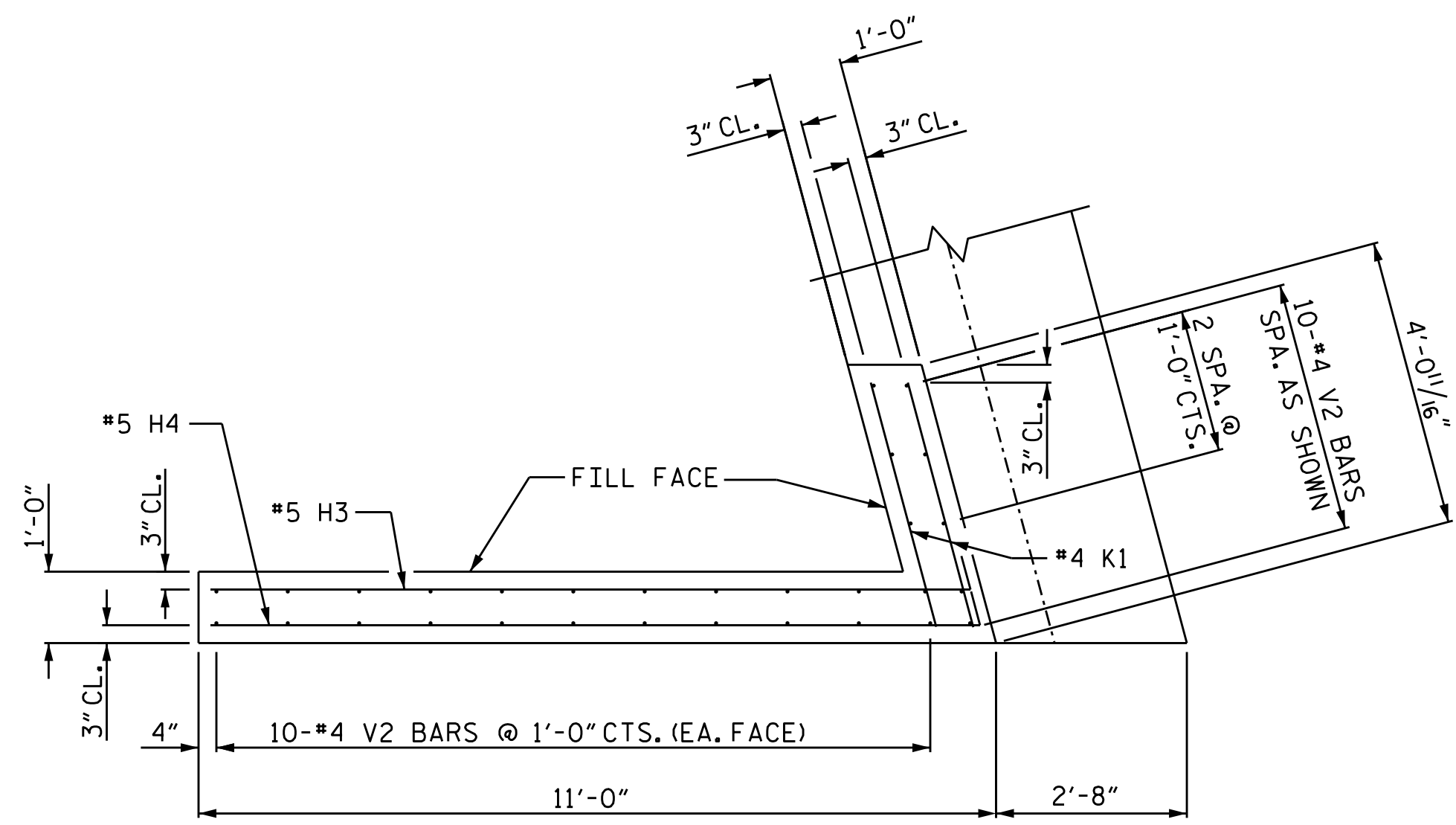
SHEET 1 OF 3



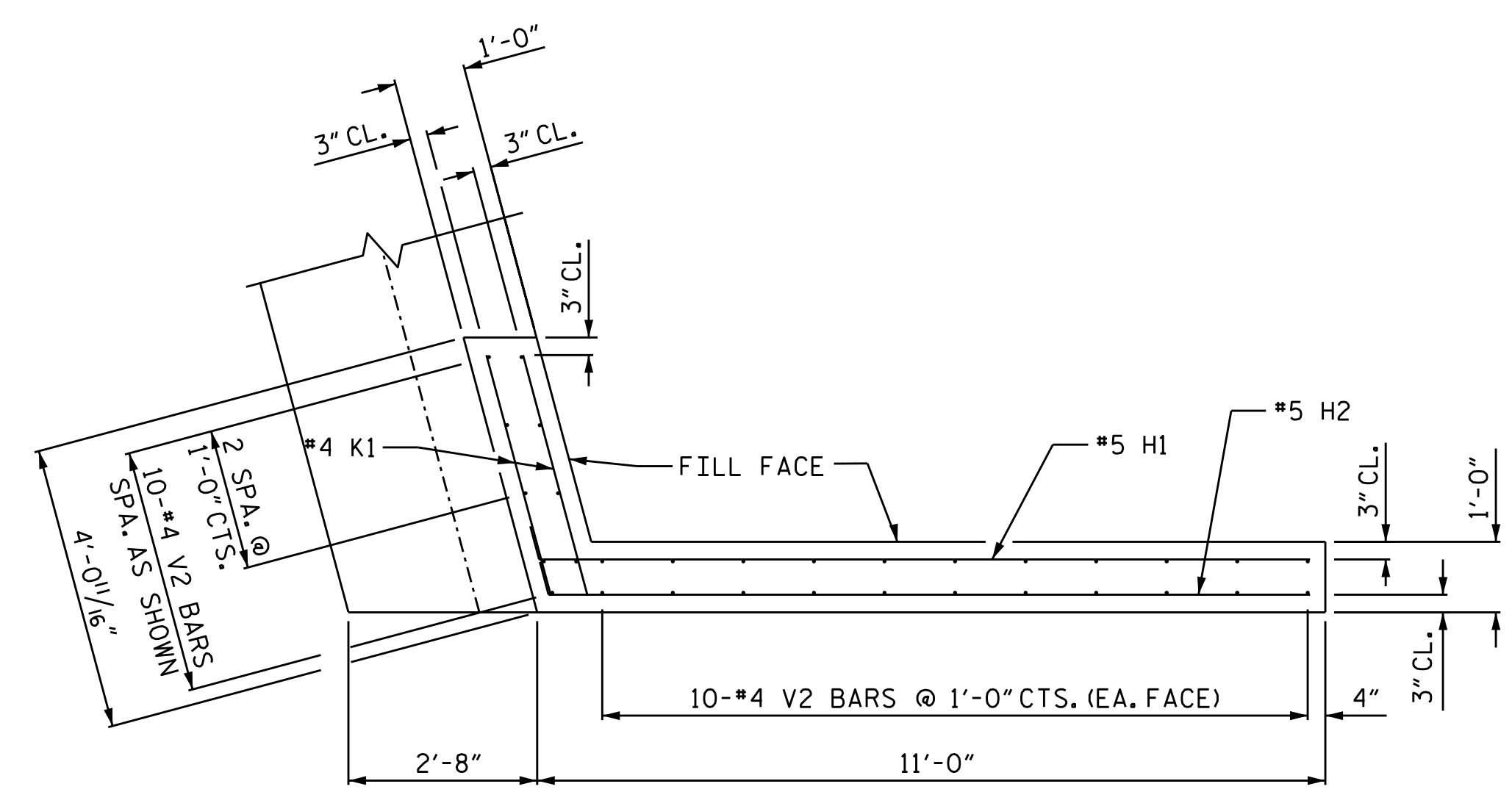
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 INTEGRAL
 END BENT 2

DRAWN BY: STM DATE: 09/19
 CHECKED BY: MGC DATE: 12/19
 DESIGN ENGINEER OF RECORD: TBE DATE: 03/20

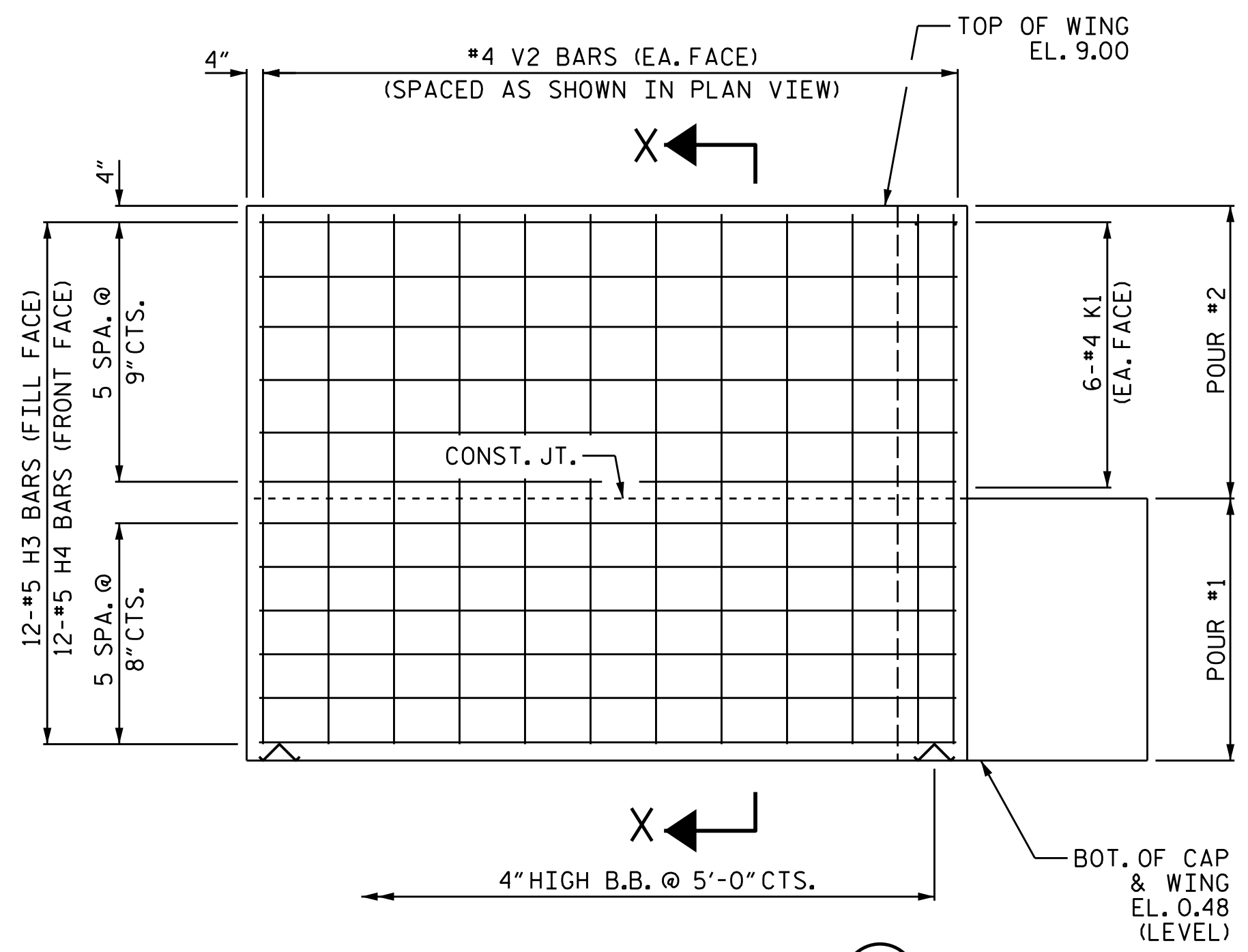
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TGS ENGINEERS 706 HILLSBOROUGH STREET SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
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2			4		
SHEET NO. S-27					TOTAL SHEETS 33



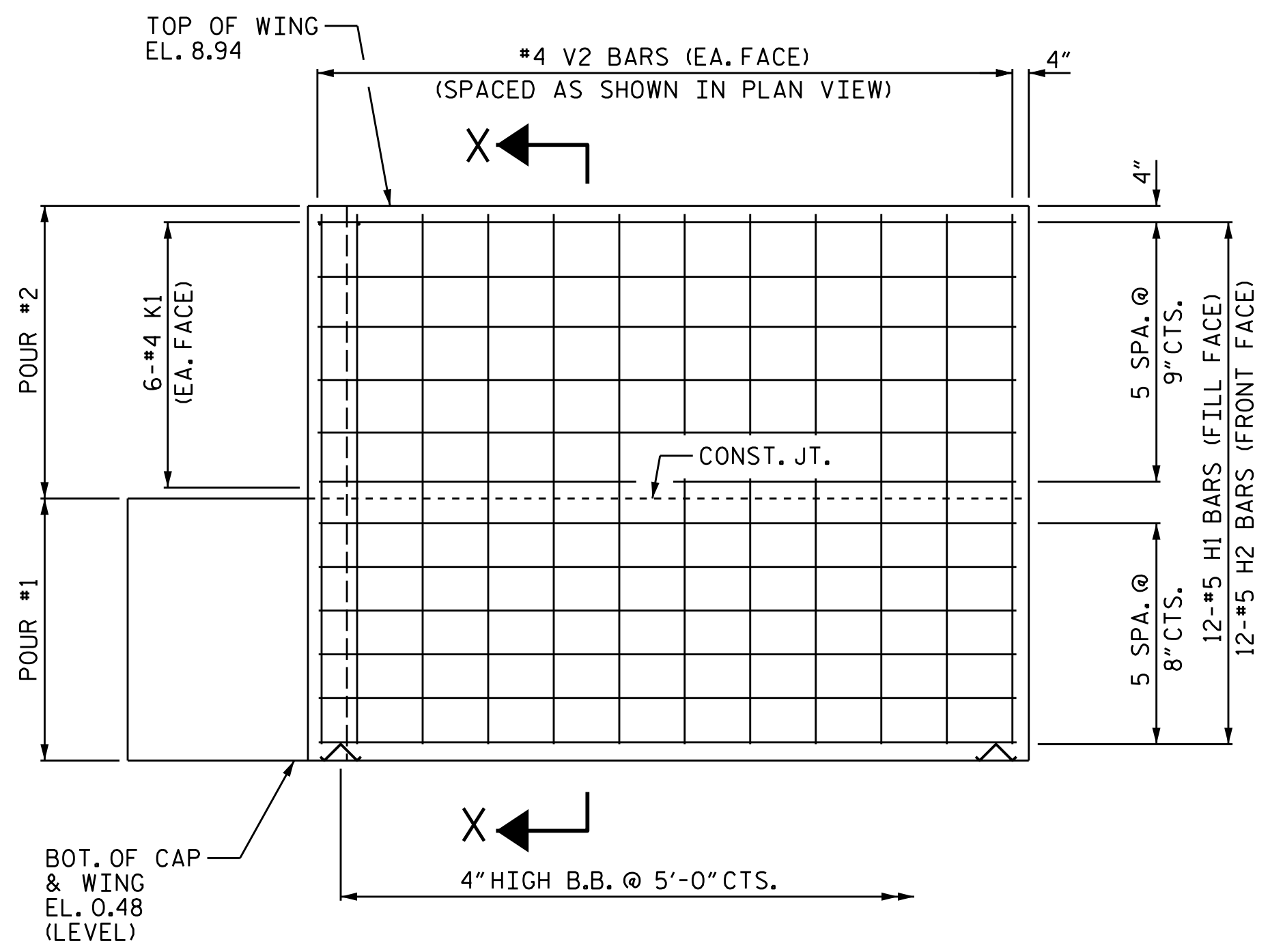
PLAN OF WING (W1)



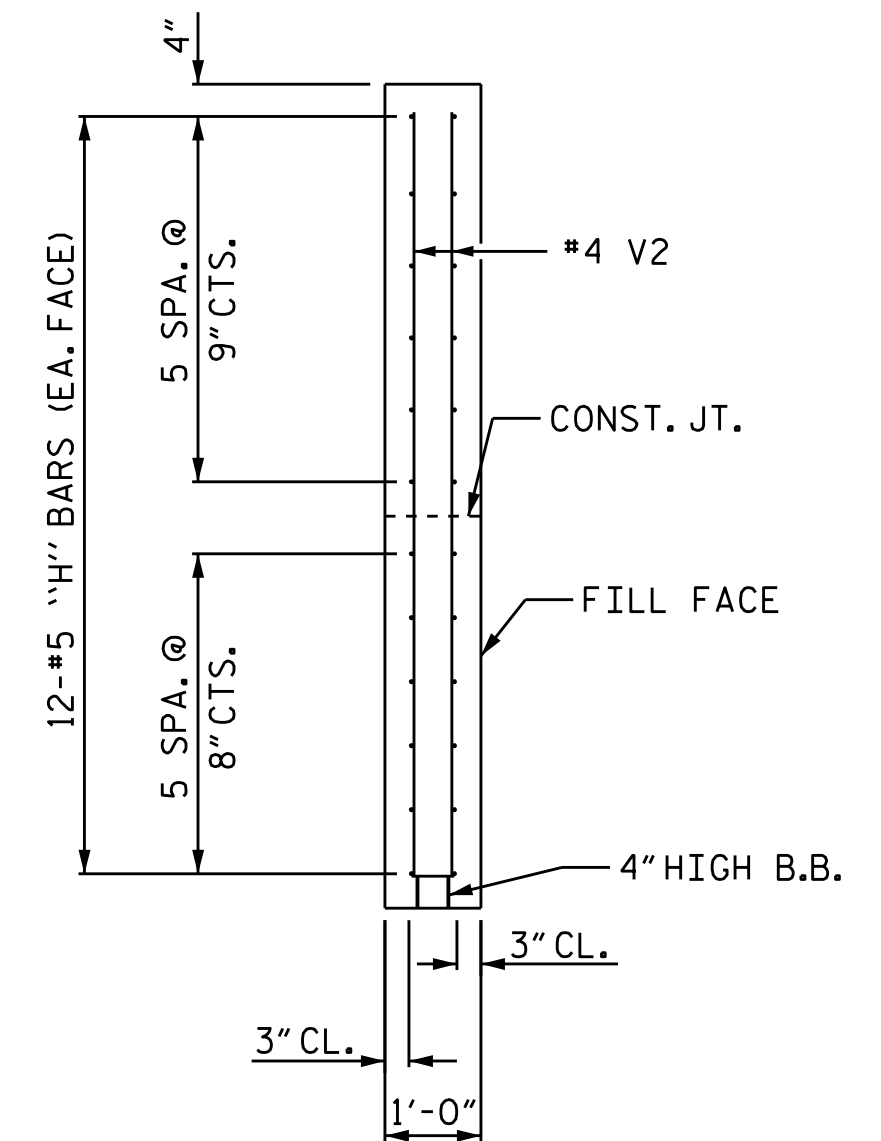
PLAN OF WING (W2)



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



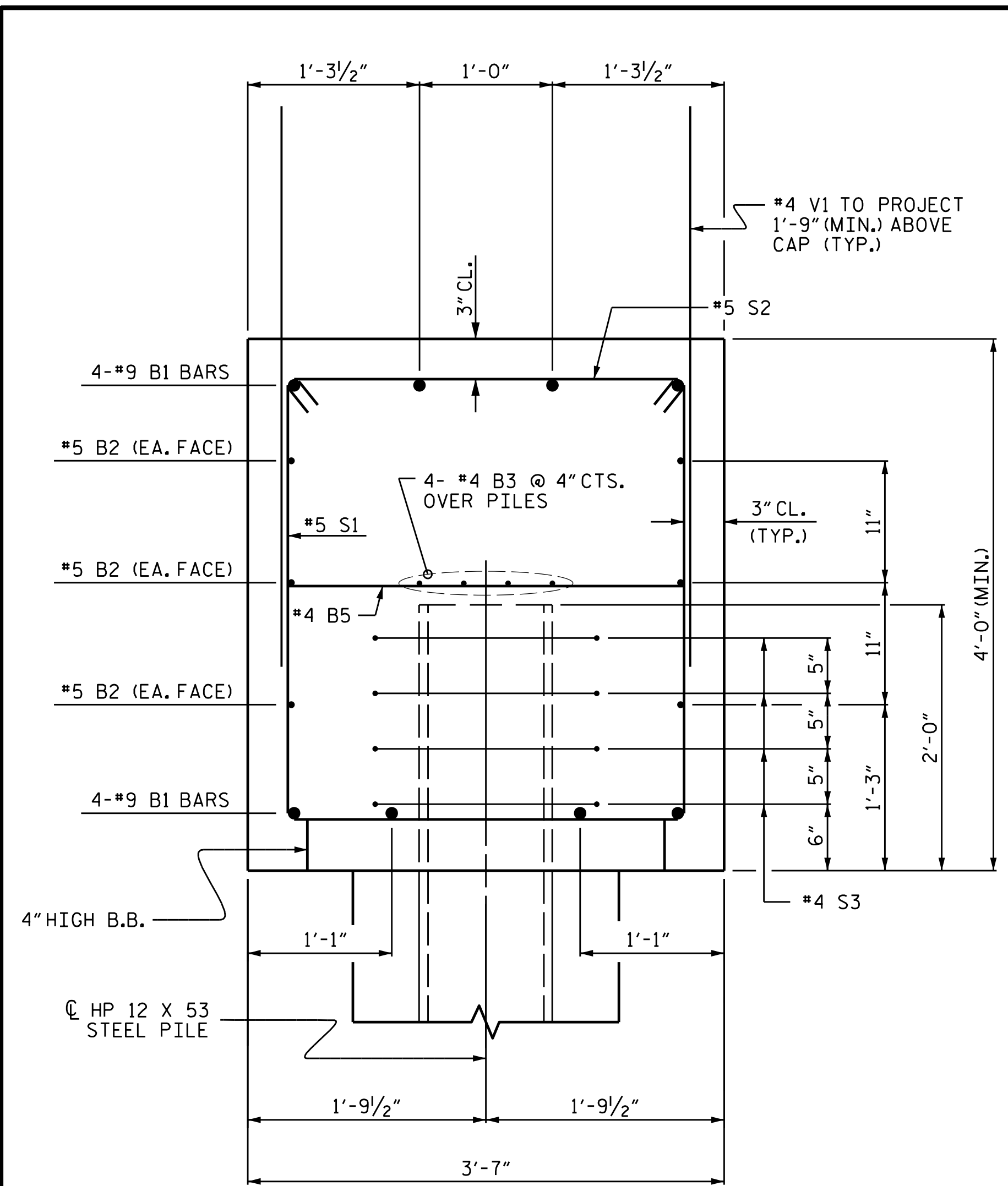
SECTION X-X

PROJECT NO. B-4414
BEAUFORT COUNTY
 STATION: 24+78.90 -L-
 SHEET 2 OF 3

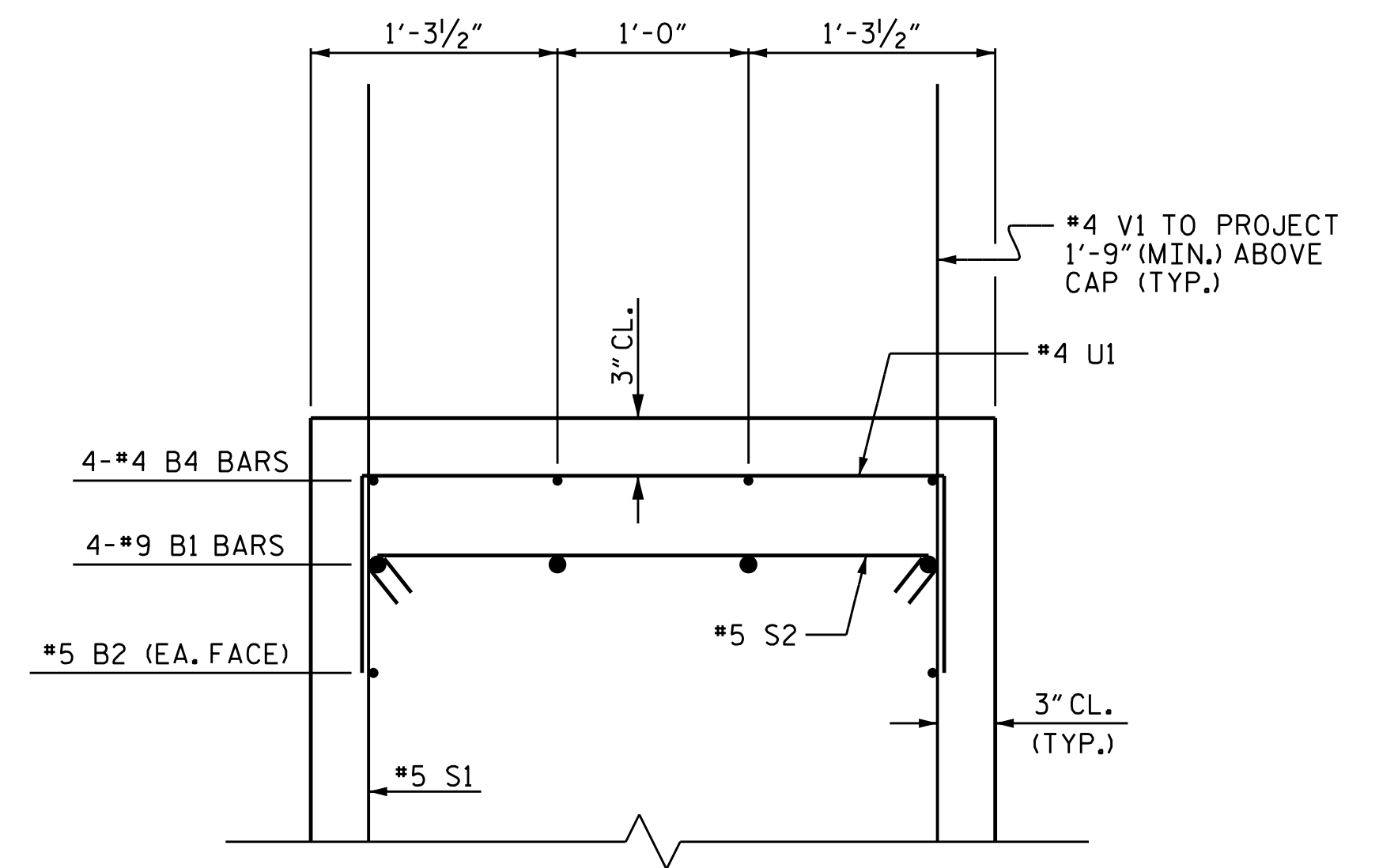
2/8/2021
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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE INTEGRAL END BENT 2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-28
					TOTAL SHEETS 33

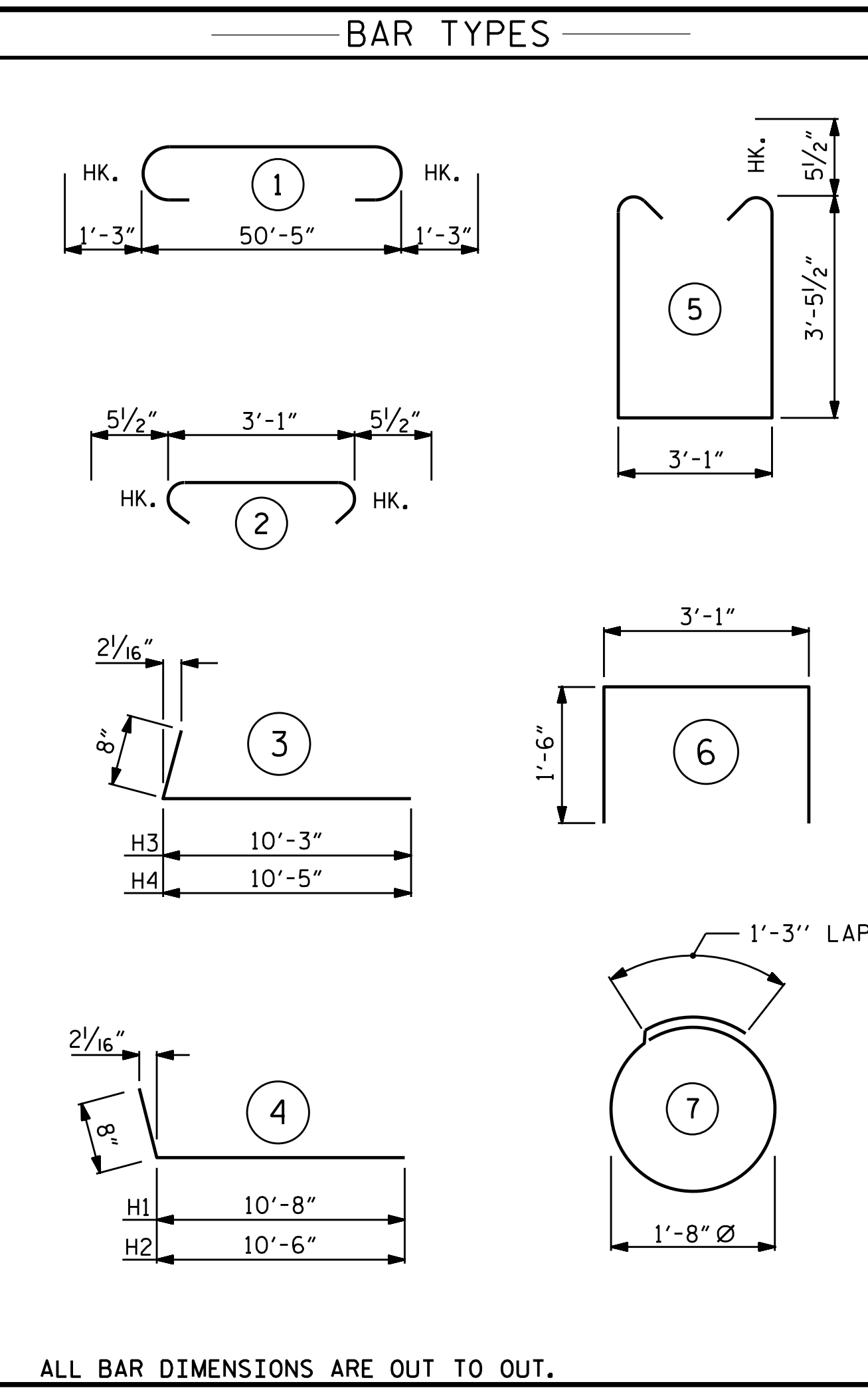
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 CHECKED BY : MGC DATE : 12/19
 DESIGN ENGINEER OF RECORD: TBE DATE : 03/20



SECTION A-A

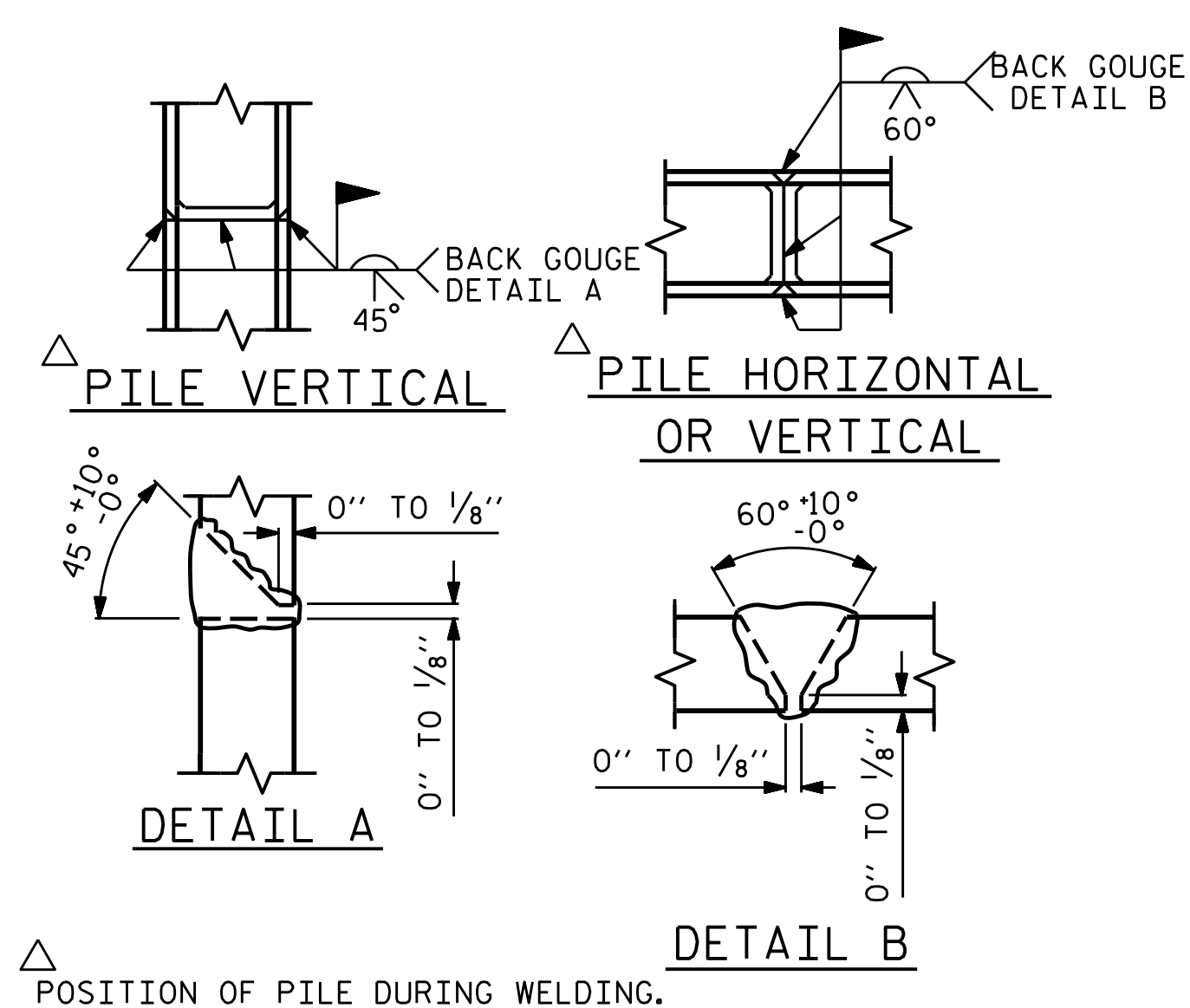


PARTIAL SECTION B-B

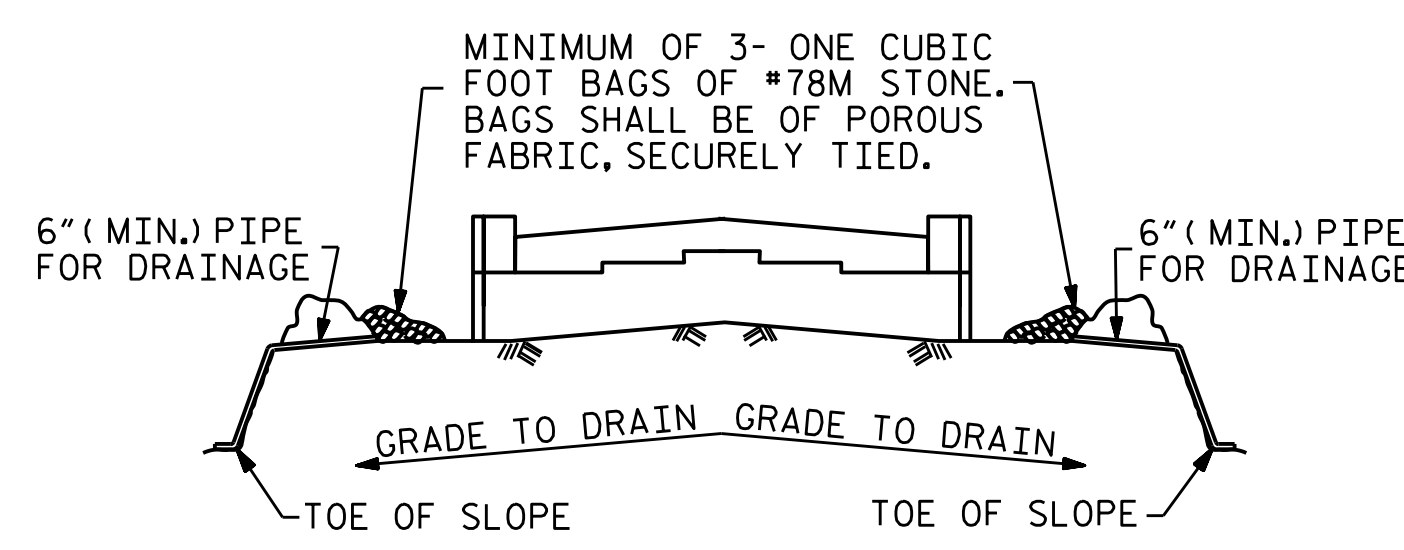


ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
END BENT 2					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
*B1	#8		52'-11"	1439	
*B2	#6	STR	50'-7"	317	
*B3	#4	STR	26'-6"	142	
*B4	#4	STR	1'-8"	4	
*B5	#4	STR	3'-1"	27	
*H1	#5	4	11'-4"	142	
*H2	#5	4	11'-2"	140	
*H3	#5	3	10'-11"	137	
*H4	#5	3	11'-1"	139	
*K1	#4	STR	3'-6"	56	
*S1	#5	5	10'-11"	592	
*S2	#5	2	4'-0"	217	
*S3	#4	7	6'-6"	122	
*U1	#4	6	6'-1"	8	
*V1	#4	STR	4'-3"	204	
*V2	#4	STR	7'-11"	317	
* EPOXY COATED REINFORCING STEEL				4003 LBS.	
CLASS AA CONCRETE BREAKDOWN					
POUR #1 CAP, LOWER PART OF WINGS & COLLARS				32.2 C.Y.	
POUR #2 UPPER PART OF WINGS				4.2 C.Y.	
TOTAL CLASS AA CONCRETE				36.4 C.Y.	
HP 12 X 53 STEEL PILES					
NO: 7				LIN. FT.= 280	
PILE DRIVING EQUIPMENT SET UP FOR HP 12 X 53 STEEL PILES					
				NO: 7 EA.	
STEEL PILE POINTS				NO: 7 EA.	
PILE REDRIVES				NO: 4 EA.	



PILE SPLICE DETAILS



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

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

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

TEMPORARY DRAINAGE AT END BENT

PROJECT NO. B-4414
BEAUFORT COUNTY
 STATION: 24+78.90 -L-
 SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
INTEGRAL END BENT 2

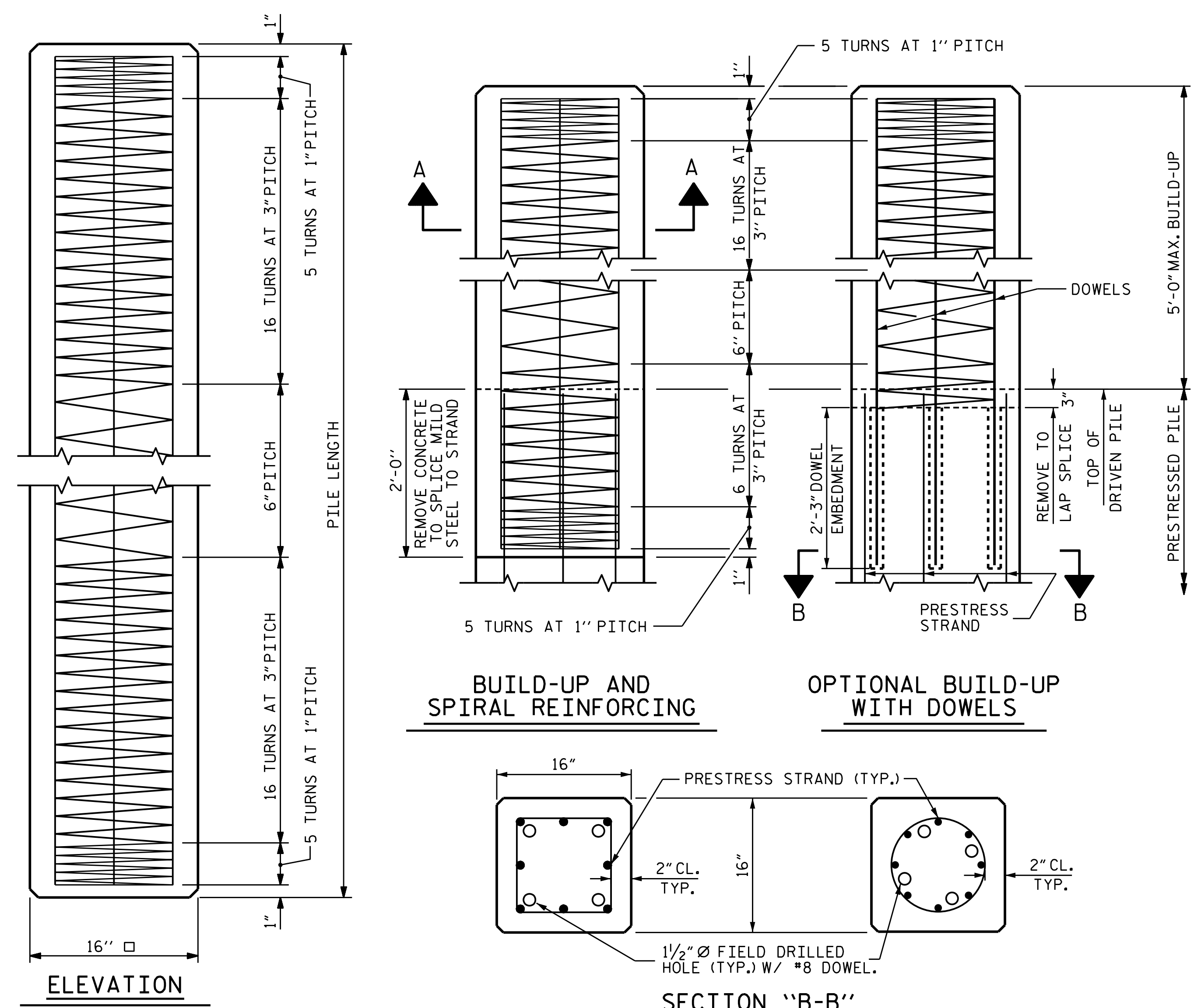
SEAL 20125
 MARSHALL G. CHECK, JR.
 ENGINEER
 2/8/2021

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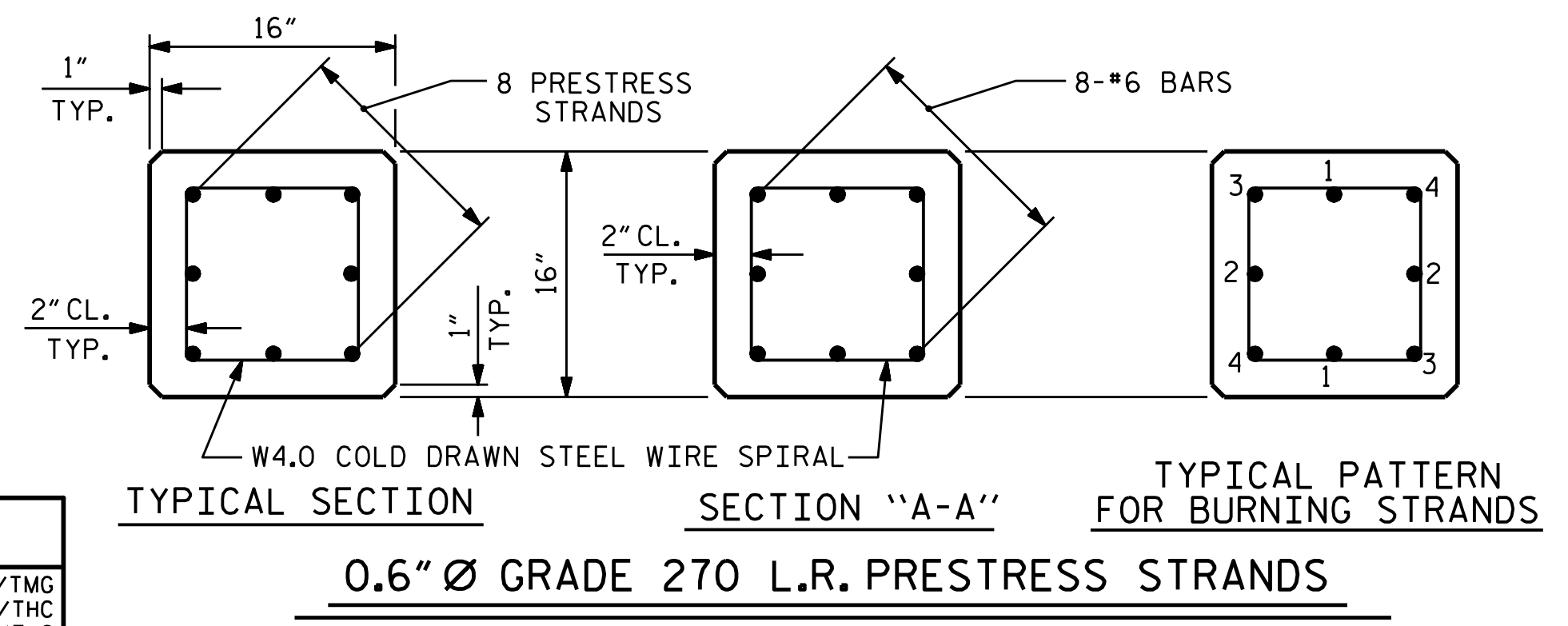
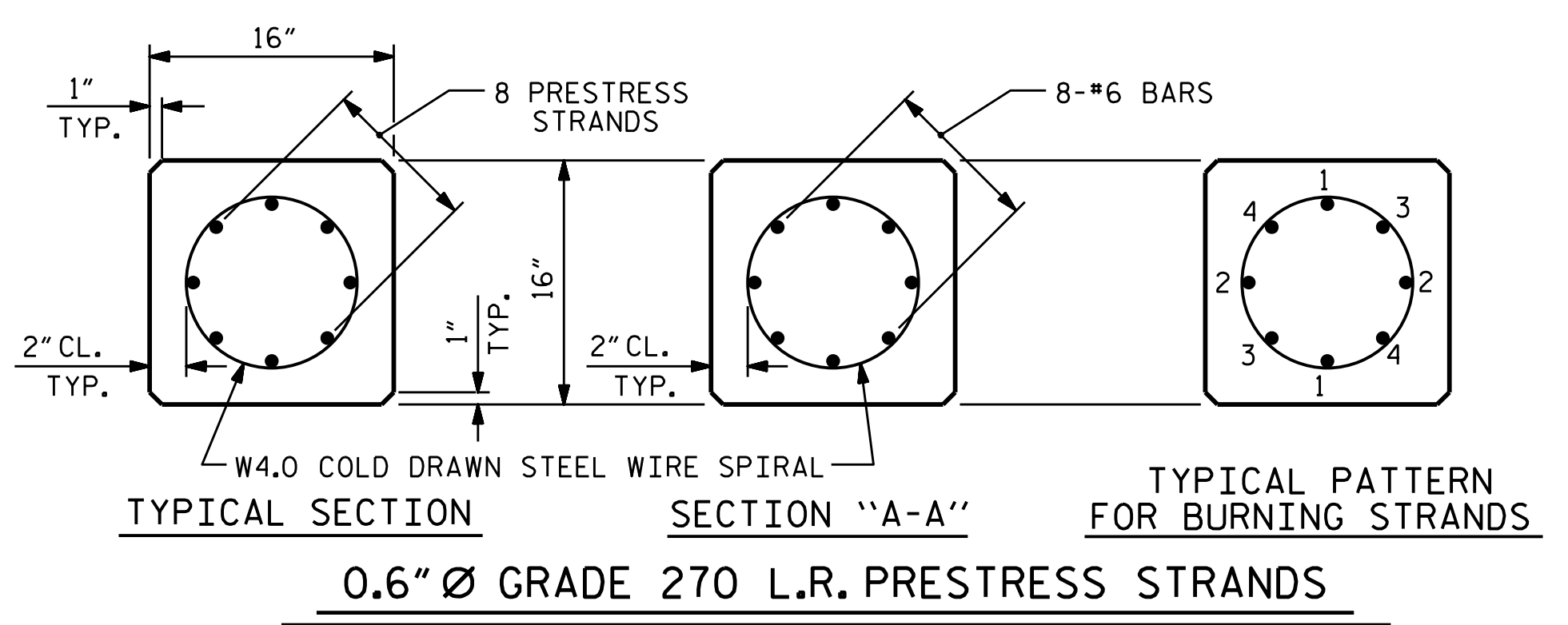
TGS ENGINEERS
 706 HILLSBOROUGH STREET
 SUITE 200
 RALEIGH, NC 27603
 PH (919) 773-8887
 CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
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1			3			S-29
2			4			TOTAL SHEETS 33

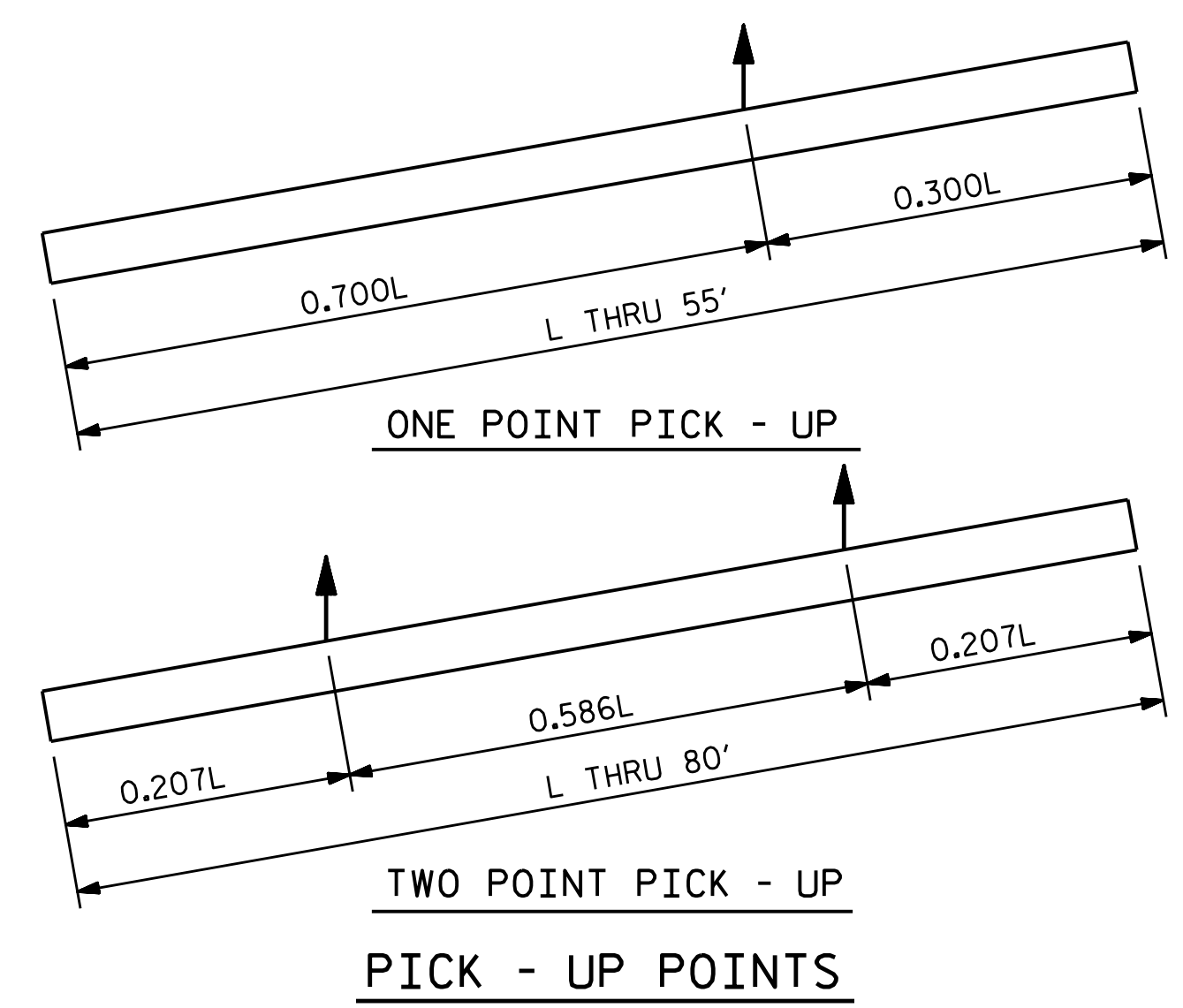
DRAWN BY :	STM	DATE :	12/19
CHECKED BY :	MGC	DATE :	12/19
DESIGN ENGINEER OF RECORD:	TBE	DATE :	03/20



(AT THE CONTRACTOR'S OPTION, PILE BUILD-UP MAY BE CONSTRUCTED WITH DOWELS.)



ASSEMBLED BY : S.B. WILLIAMS DATE : 12-20
 CHECKED BY : MGC DATE : 12-20
 DRAWN BY : RH 9/98 REV. 12/14 MAA/TMG
 CHECKED BY : LES 10/98 REV. 12/17 MAA/THC
 REV. 12/20 BNB/THC



QUANTITIES FOR ONE 16" PRESTRESSED PILE						
LENGTH	CONCRETE CU. YDS.	PILE WT. TONS	ONE POINT PICK-UP		TWO POINT PICK-UP	
			0.300L	0.700L	0.207L	0.586L
25'-0"	1.63	3.31	7'-6"	17'-6"	5'-2"	14'-8"
30'-0"	1.96	3.97	9'-0"	21'-0"	6'-2 1/2"	17'-7"
35'-0"	2.29	4.63	10'-6"	24'-6"	7'-3"	20'-6"
40'-0"	2.61	5.29	12'-0"	28'-0"	8'-3 1/2"	23'-5"
45'-0"	2.94	5.95	13'-6"	31'-6"	9'-4"	26'-4"
50'-0"	3.27	6.61	15'-0"	35'-0"	10'-4"	29'-4"
55'-0"	3.59	7.28	16'-6"	38'-6"	11'-4 1/2"	32'-3"
60'-0"	3.92	7.94			12'-5"	35'-2"
65'-0"	4.25	8.60			13'-5 1/2"	38'-1"
70'-0"	4.57	9.26			14'-6"	41'-0"
75'-0"	4.90	9.92			15'-6 1/2"	43'-11"
80'-0"	5.23	10.58			16'-7"	46'-10"

DOWEL INSTALLATION FOR OPTIONAL BUILD-UP

GROUT COMPRESSION STRENGTH: $f'_c = 5,000$ PSI

BEFORE DRILLING DOWEL HOLES, REMOVE THE UPPER 3" OF CONCRETE FROM THE TOP OF THE PILE WITHOUT DAMAGE TO THE REINFORCING STEEL. THE REMOVAL PLANE SHOULD BE NORMAL TO THE EDGE OF THE PILE.

DOWEL HOLES SHALL BE POSITIONED TO MAINTAIN 1/2" CLEAR TO ALL EXISTING PRESTRESSING STRANDS IN THE CONCRETE PILE.

FIELD DRILLED HOLES SHALL BE CLEAN AND FREE OF ANY OBSTRUCTIONS BEFORE GROUTING OF DOWELS. DOWEL BARS SHALL BE INSTALLED AND GROUTED WITH AN APPROVED NON-SHRINK GROUT.

THE SPIRAL REINFORCING IN ALL BUILD-UPS SHALL BE W4.0 COLD DRAWN WIRE WHICH SHALL BE SECURED TO THE LONGITUDINAL REINFORCEMENT TO MAINTAIN PITCH.

THE SPIRAL REINFORCING IN THE BUILD-UP AND THE PRESTRESSED CONCRETE PILE SHALL BE SPLICED BY OVERLAPPING A MIN. OF ONE TURN.

NOTES

PRESTRESSED CONCRETE STRENGTH : $f'_c = 7,500$ PSI
 BUILD-UP CONCRETE STRENGTH : $f'_c = 7,500$ PSI
 STRAND DATA:

SIZE	GRADE	AREA	ULTIMATE STRENGTH	APPLIED PRESTRESS FORCE
0.6"	270 L.R.	0.217	58,600* PER STRAND	43,940* PER STRAND

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRANDS CONFORMING TO AASHTO M203. STRAND SAMPLING REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE SLIP-FORM METHOD OF CASTING PILES WILL NOT BE PERMITTED.

TRANSFER THE LOAD FROM THE ANCHORAGES TO THE PILE AFTER THE CONCRETE HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI.

IF STRAND STRESS IS RELIEVED BY BURNING, THE STRANDS SHALL BE BURNED IN OPPOSITE PAIRS AS INDICATED IN THE TYPICAL PATTERN SHOWN. FOR ANY NUMBER OF STRANDS, BURN IN OPPOSITE PAIRS AND SYMMETRICALLY ABOUT BOTH THE VERTICAL AND HORIZONTAL AXES. STRANDS 1-1 SHALL BE BURNED BEFORE 2-2, ETC. NOT MORE THAN 4 STRANDS, SAY 3-3 AND 4-4, MAY BE BURNED AT ANY ONE SECTION BEFORE THESE SAME PAIRS OF STRANDS ARE BURNED AT BOTH ENDS OF THE BED AND BETWEEN EACH PAIR OF PILES IN THE BED.

PROPOSED DEVICES FOR LIFTING PILES, RECESS DETAILS, AND PATCHING MATERIAL SHALL BE DETAILED IN SHOP DRAWINGS. AFTER ATTACHMENTS HAVE BEEN REMOVED, OPENINGS SHALL BE REPAIRED SUCH THAT THE APPEARANCE OF THE PILE IS UNIFORM.

WHERE CAST-IN-PLACE LIFTING DEVICES ARE NOT USED, PICK-UP POINTS ARE TO BE INDICATED WITH A 2" WIDE BLACK MARK.

DRIVE PILES USING A METHOD APPROVED BY THE ENGINEER, WHEREBY THE HEAD OF THE PILE IS NOT DAMAGED.

DRIVING OF THE BUILT-UP PILE WILL NOT BE PERMITTED UNTIL THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF 5,000 PSI AND UNTIL A PERIOD OF SEVEN DAYS HAS ELAPSED SINCE CASTING OF THE BUILD-UP.

PRESTRESSED CONCRETE PILES SHALL CONTAIN CALCIUM NITRATE CORROSION INHIBITOR. SEE SPECIAL PROVISIONS FOR CALCIUM NITRATE INHIBITOR.

THE WATER/CEMENT RATIO FOR CONCRETE PILES SHALL NOT EXCEED 0.40.

PROJECT NO. B-4414
BEAUFORT COUNTY
 STATION: 24+78.90 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

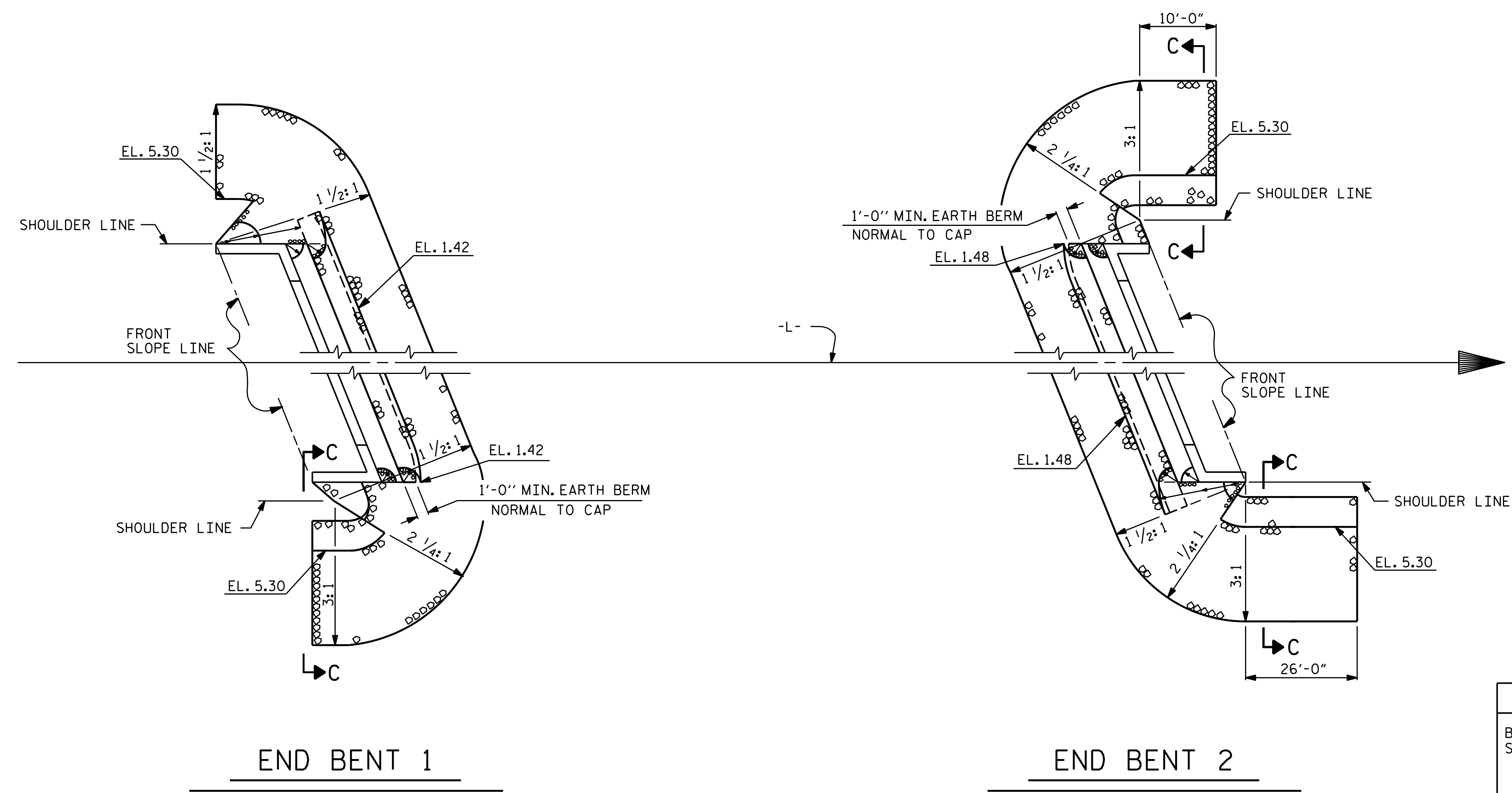
STANDARD
 16" PRESTRESSED
 CONCRETE PILE

Professional Engineer Seal: Marshall G. Checky, Jr., No. 58022, Exp. 2/8/2021

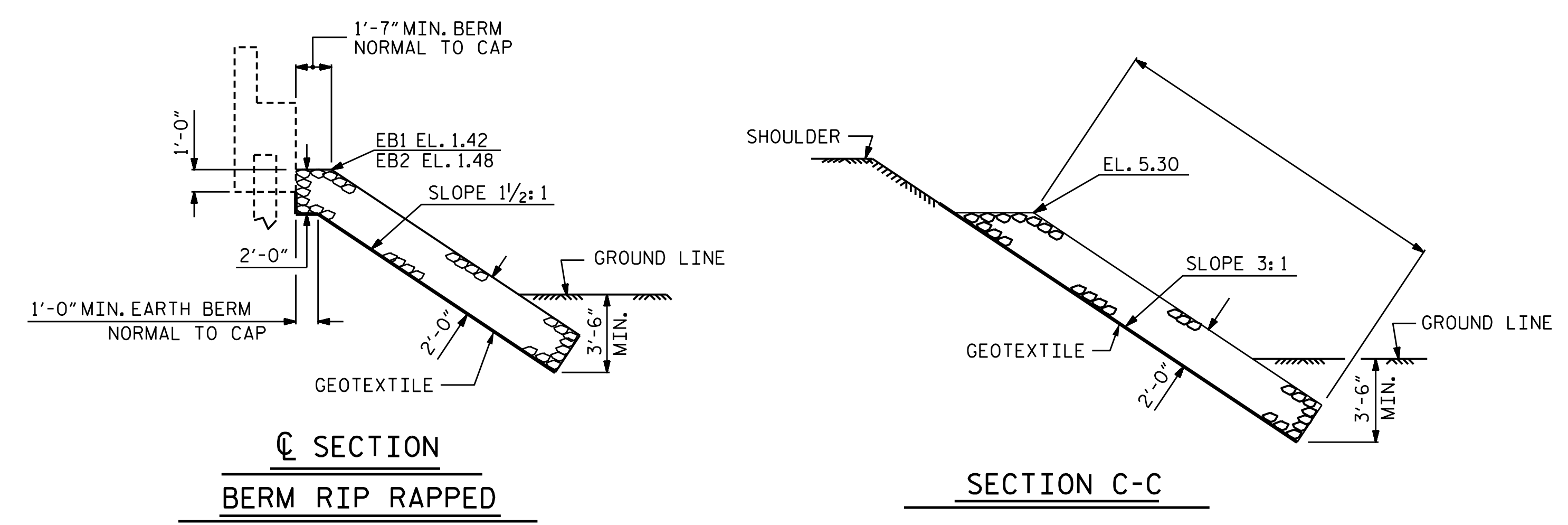
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 CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-30
1			3			TOTAL SHEETS
2			4			33



ESTIMATED QUANTITIES		
BRIDGE @ STA. 24+78.90 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	90	100
END BENT 2	165	185



PROJECT NO. B-4414
BEAUFORT COUNTY
 STATION: 24+78.90 -L-

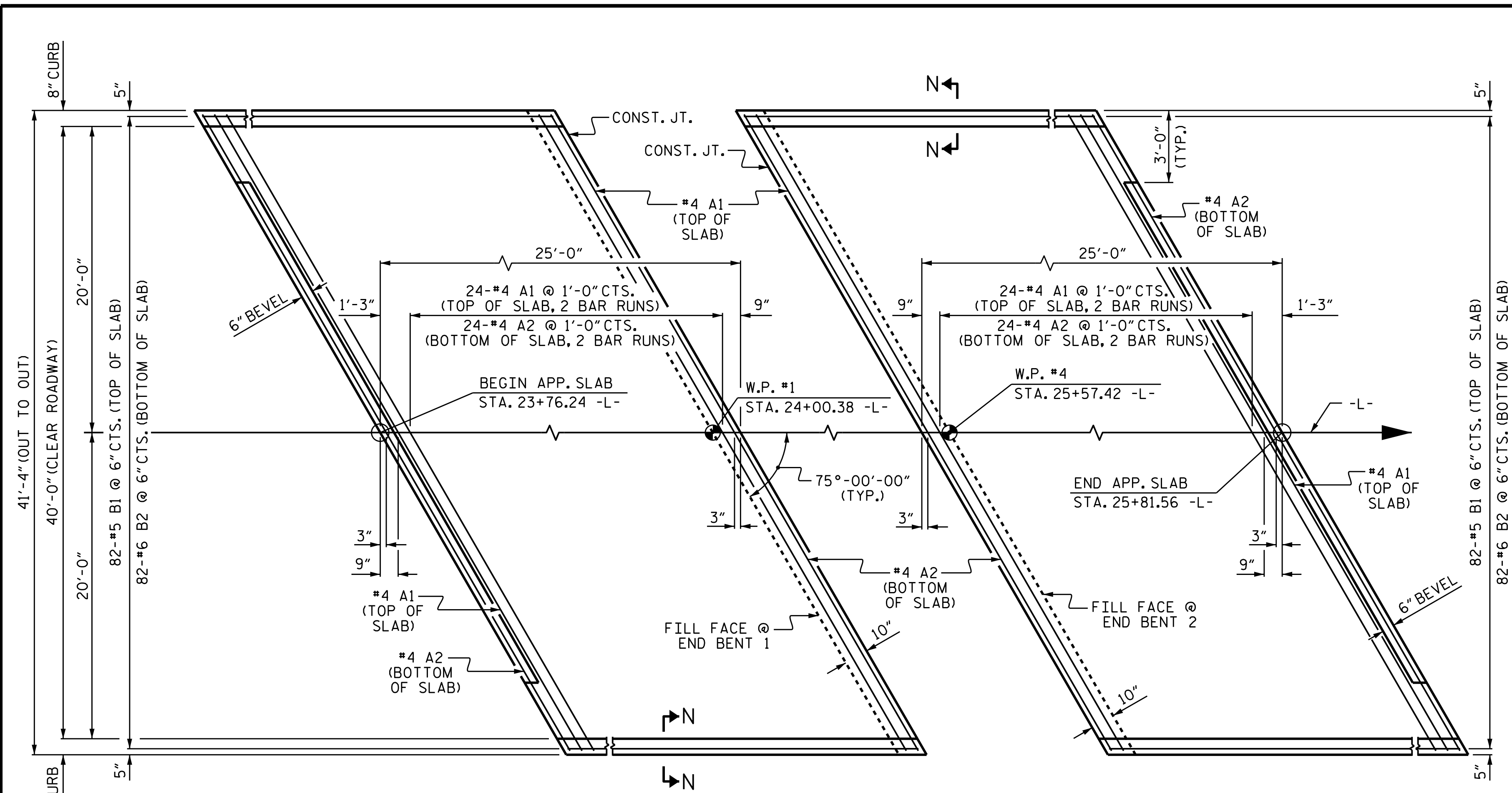
Professional Engineer Seal for Marshall C. Cheek, Jr., No. 20125, State of North Carolina. Date: 2/8/2021.

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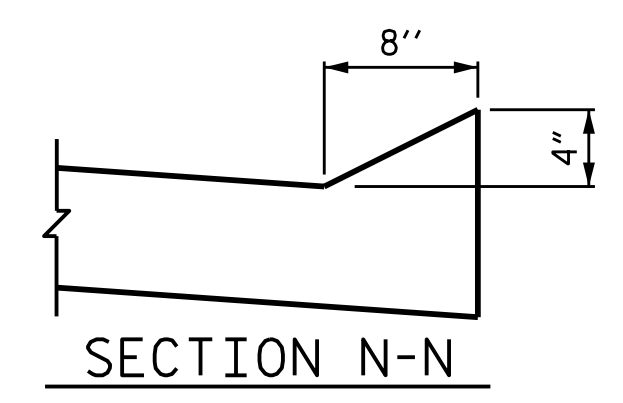
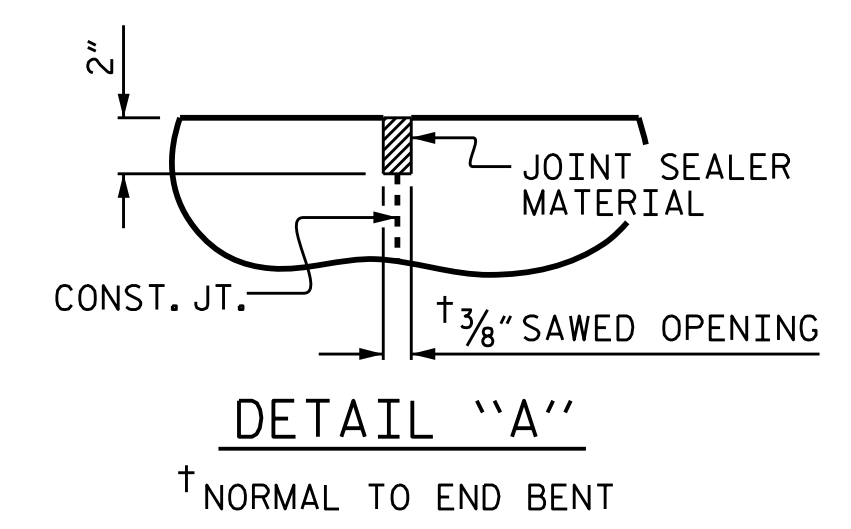
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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.
STANDARD						S-31
RIP RAP DETAILS						TOTAL SHEETS
						33
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

ASSEMBLED BY : STM	DATE : 12/19
CHECKED BY : MGC	DATE : 02/20
DRAWN BY : REK 1/84	REV. 10/1/11 MAA/GM
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	REV. 12/17 MAA/THC

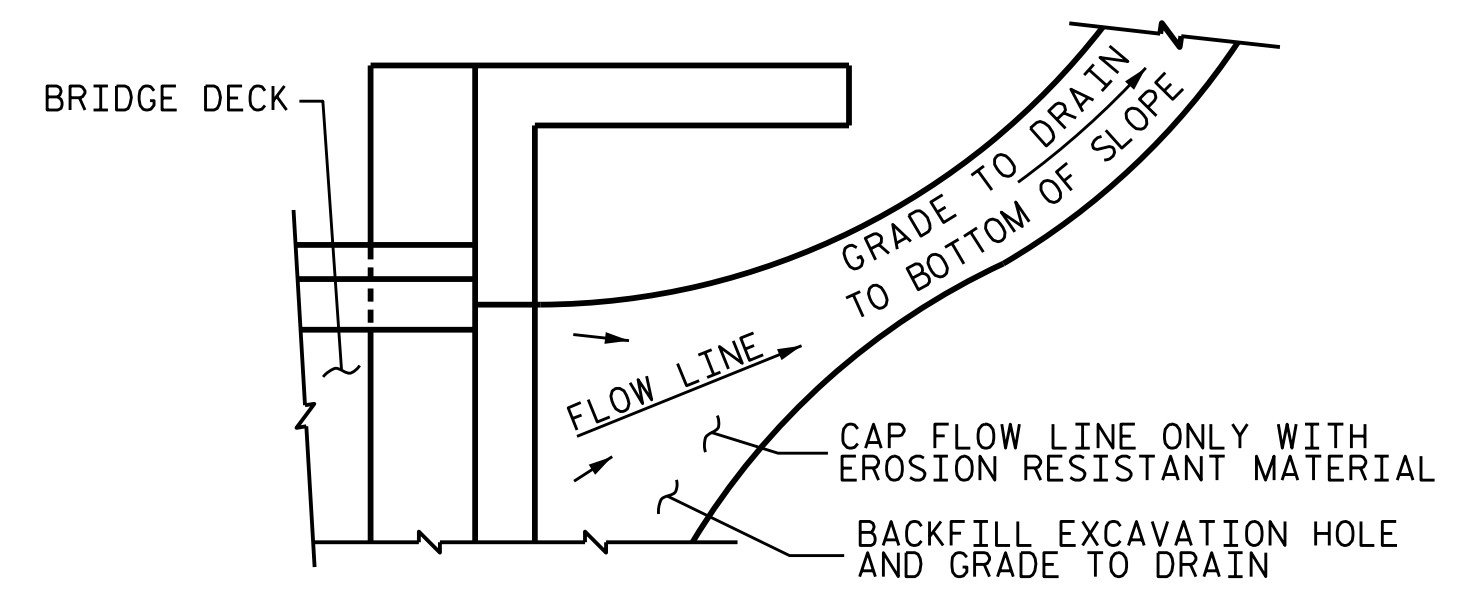


PLAN @ END BENT 1 PLAN @ END BENT 2
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

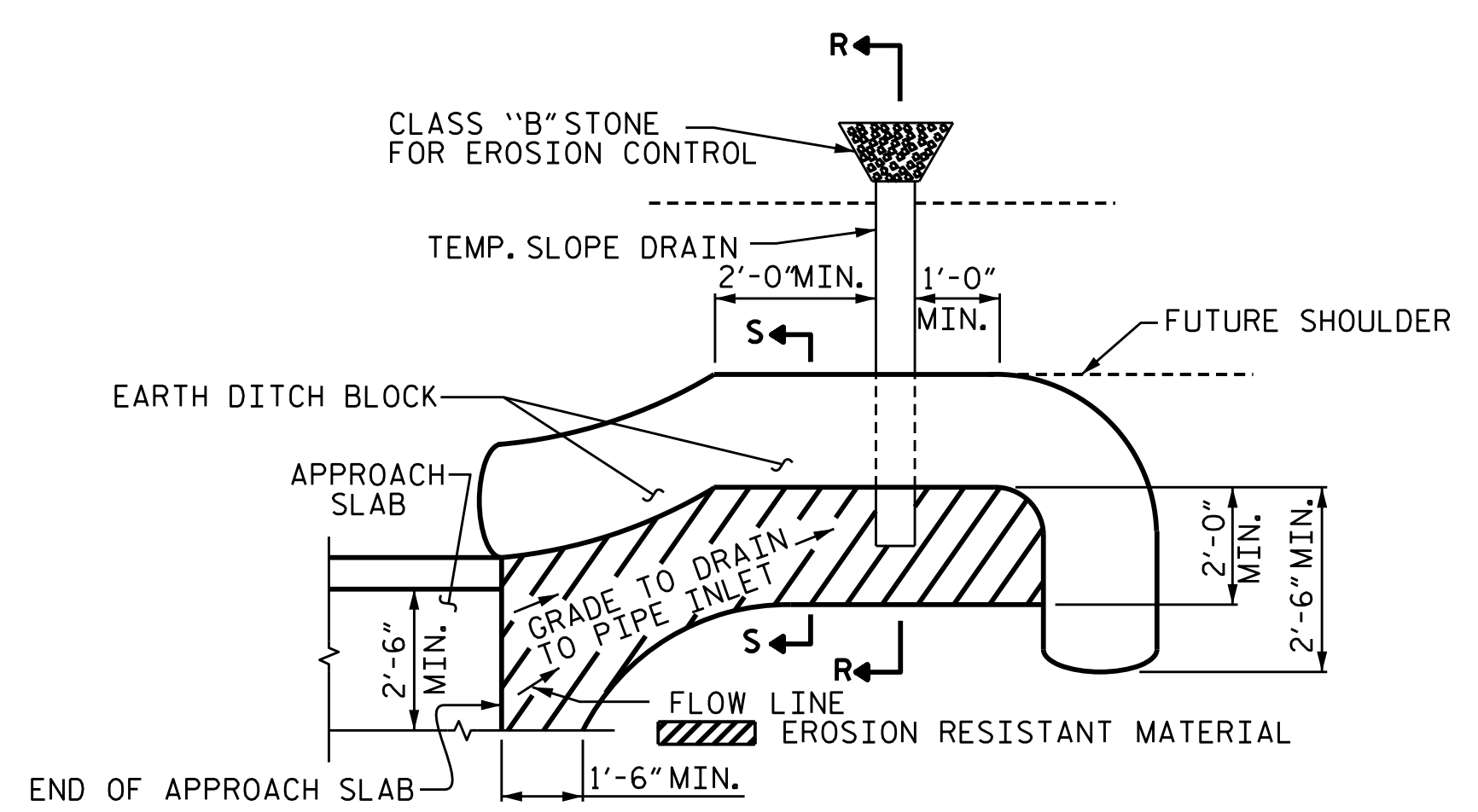


BILL OF MATERIAL					
FOR ONE APPROACH SLAB (2 REQ'D)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	52	#4	STR	22'-3"	773
* A2	52	#4	STR	22'-2"	770
* B1	82	#5	STR	24'-4"	2081
* B2	82	#6	STR	24'-8"	3038
* EPOXY COATED REINFORCING STEEL					6662 LBS.
CLASS AA CONCRETE					44.5 C. Y.

SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"

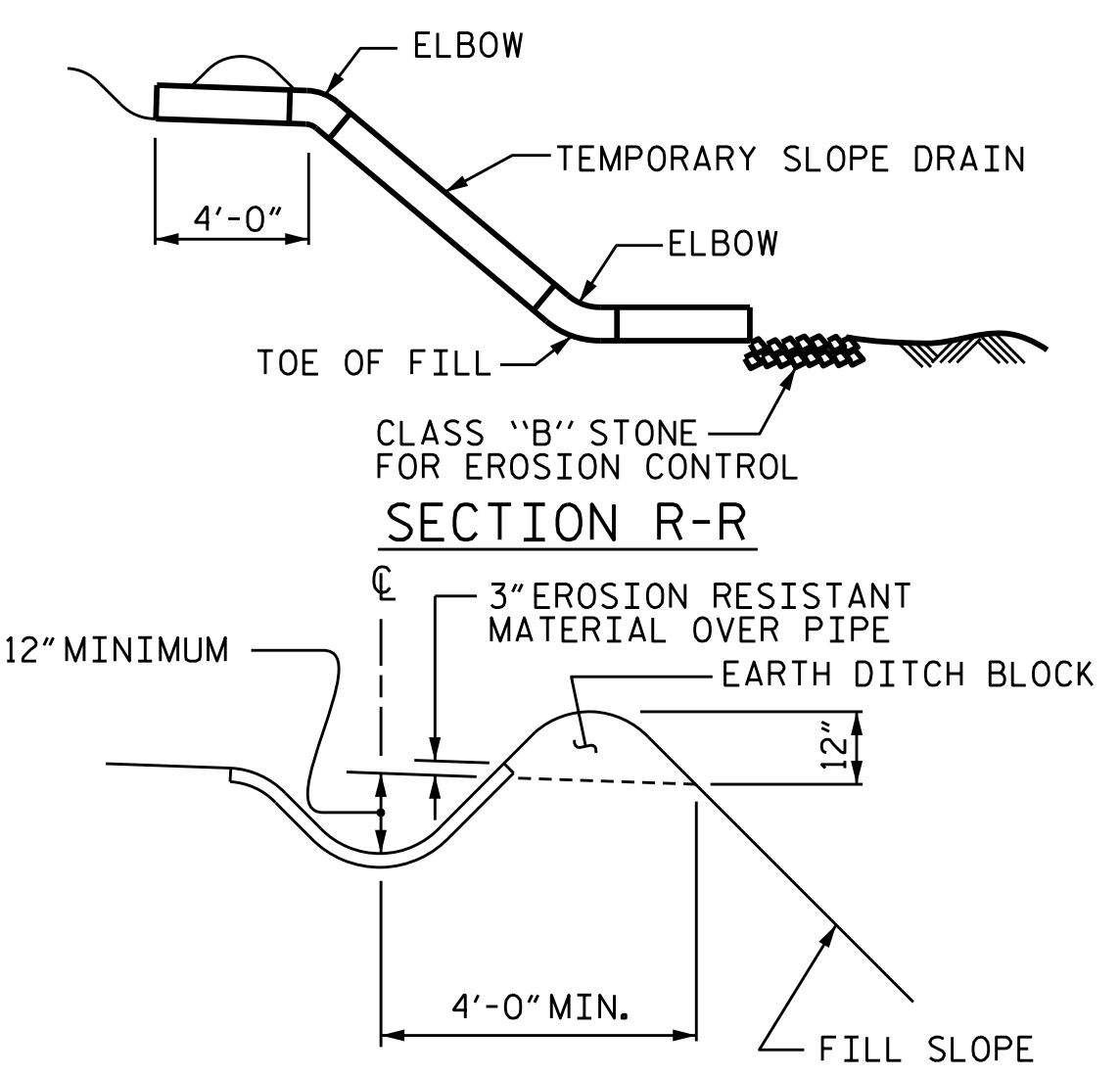


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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



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

PLAN VIEW



SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

PROJECT NO. B-4414
BEAUFORT COUNTY
STATION: 24+78.90 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
BRIDGE APPROACH SLAB
FOR INTEGRAL ABUTMENT
WITH FLEXIBLE PAVEMENT

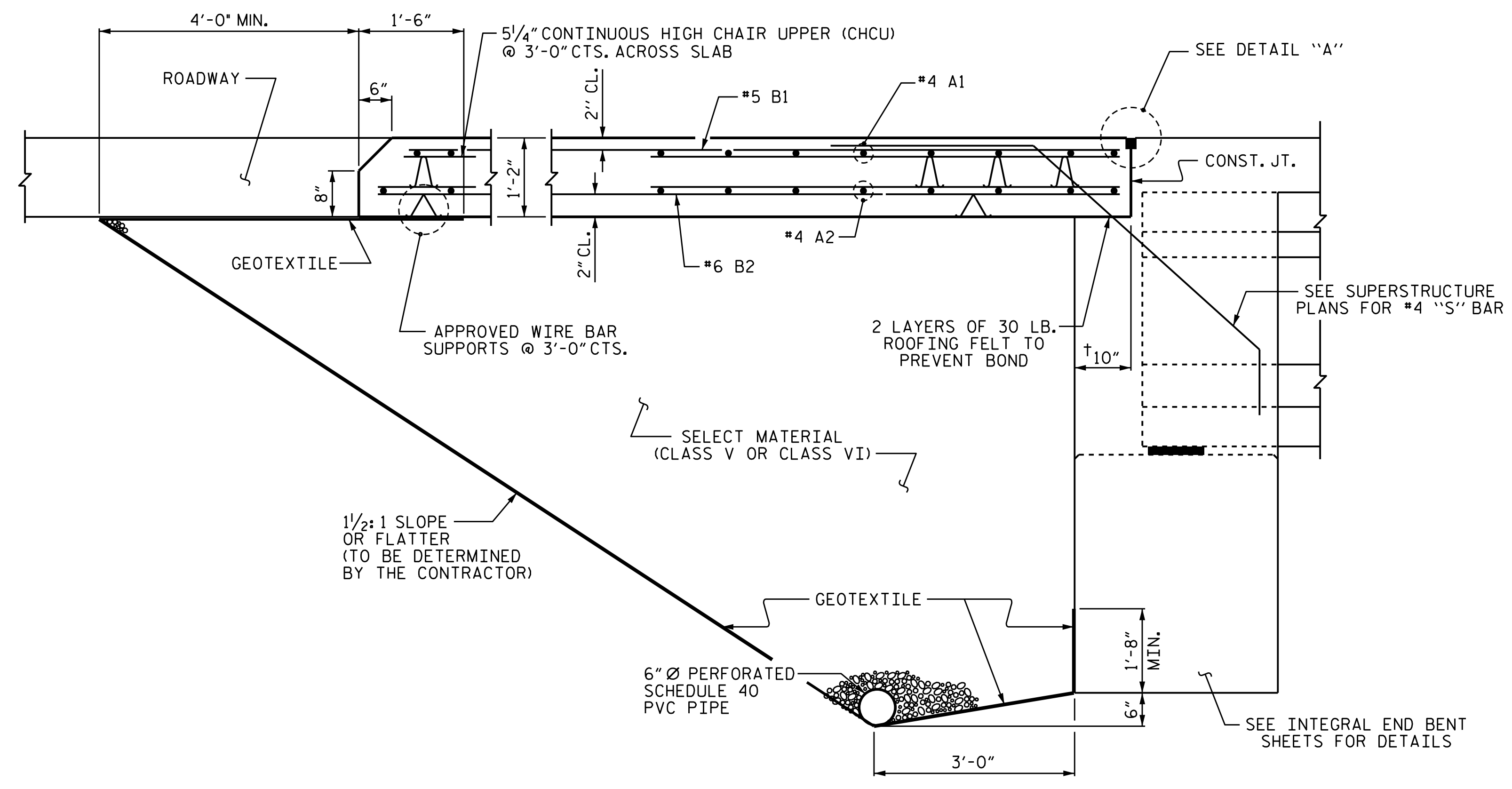
2/8/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

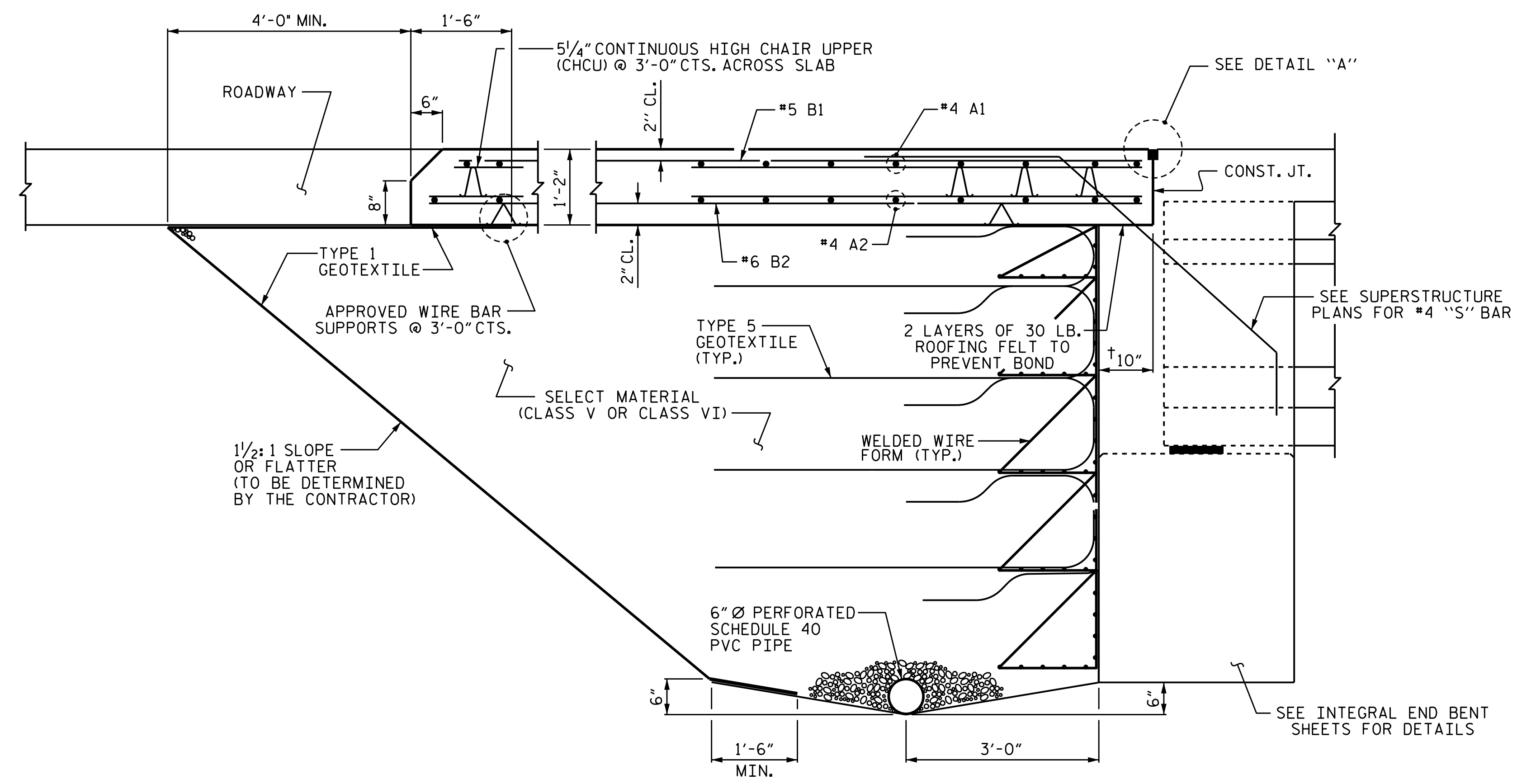
TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-32
1			3			TOTAL SHEETS
2			4			33

ASSEMBLED BY : STM	DATE : 12/19
CHECKED BY : MGC	DATE : 12/19
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 I - STANDARD APPROACH FILL)



SECTION THRU SLAB
(TYPE A - ALTERNATE APPROACH FILL)

† NORMAL TO END BENT

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.
- 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.
- 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.

PROJECT NO. B-4414
BEAUFORT COUNTY
 STATION: 24+78.90 -L-

SHEET 2 OF 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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 706 HILLSBOROUGH STREET
 SUITE 200
 RALEIGH, NC 27603
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 CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**STANDARD
 BRIDGE APPROACH
 SLAB DETAILS**

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

ASSEMBLED BY : STM	DATE : 12/19
CHECKED BY : MGC	DATE : 12/19
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

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2018 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

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

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE $\frac{1}{8}$ " \emptyset SHEAR STUDS FOR THE $\frac{3}{4}$ " \emptyset STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - $\frac{1}{8}$ " \emptyset STUDS FOR 4 - $\frac{3}{4}$ " \emptyset STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF $\frac{1}{8}$ " \emptyset STUDS ALONG THE BEAM AS SHOWN FOR $\frac{3}{4}$ " \emptyset STUDS BASED ON THE RATIO OF 3 - $\frac{1}{8}$ " \emptyset STUDS FOR 4 - $\frac{3}{4}$ " \emptyset STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST $\frac{3}{16}$ " IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

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

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

STD. NO. SN