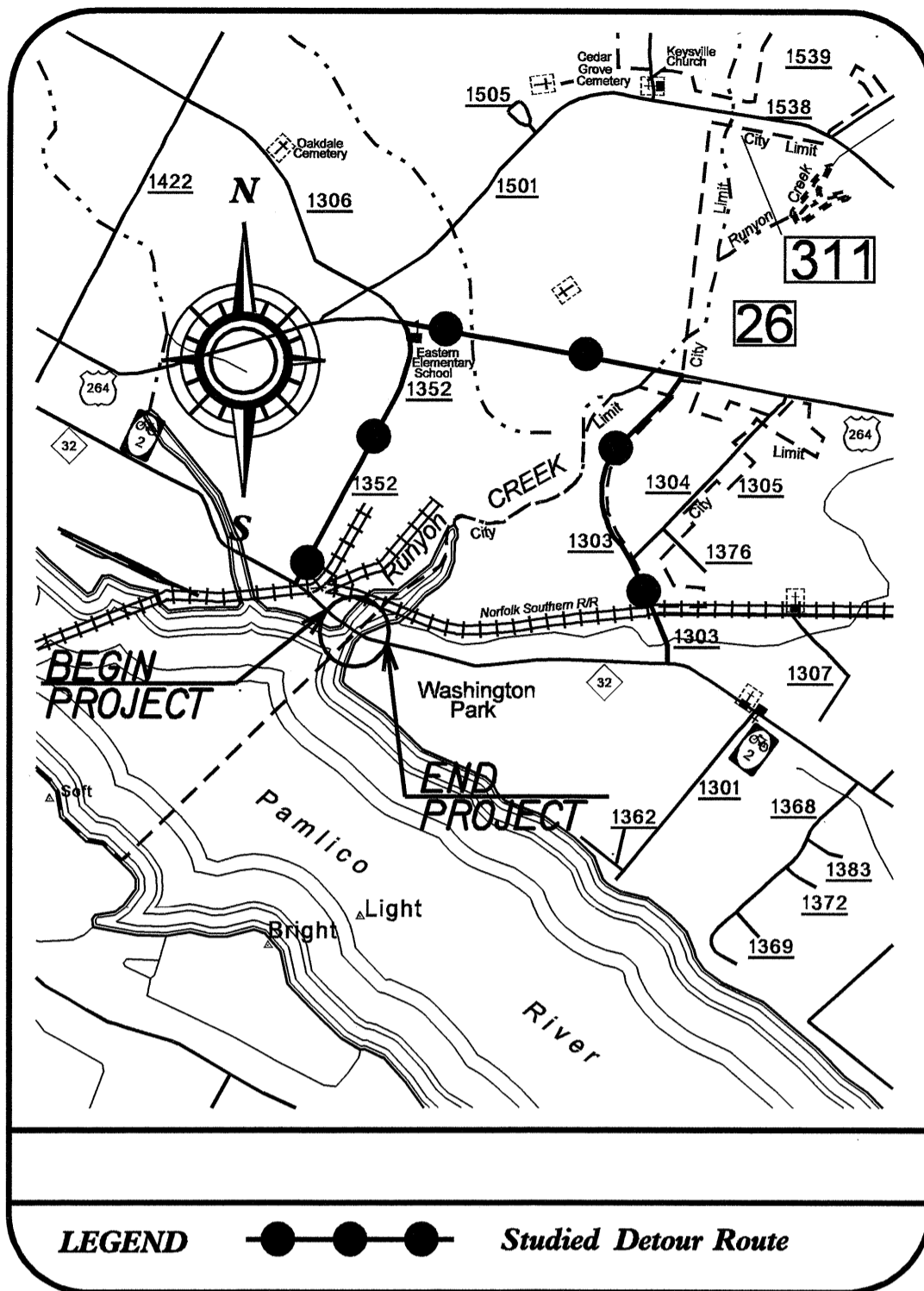


CONTRACT: C201731 TIP PROJECT: B-4019

STRUCTURE

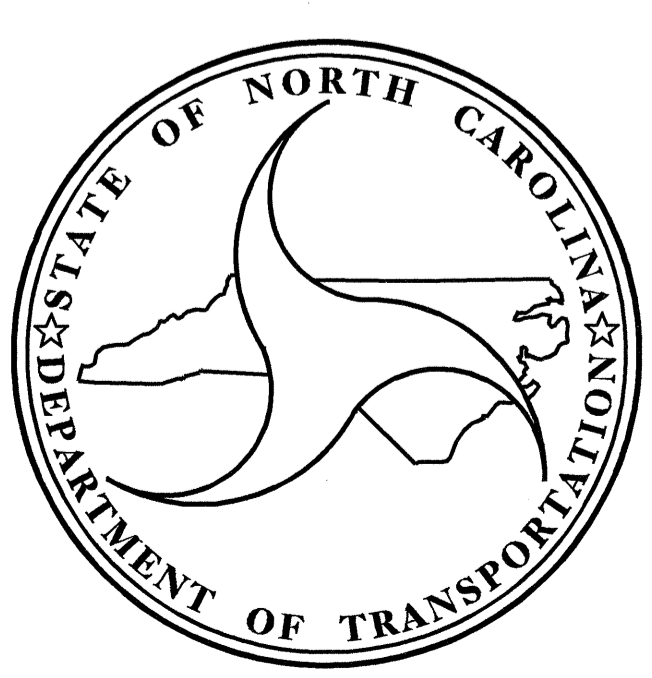
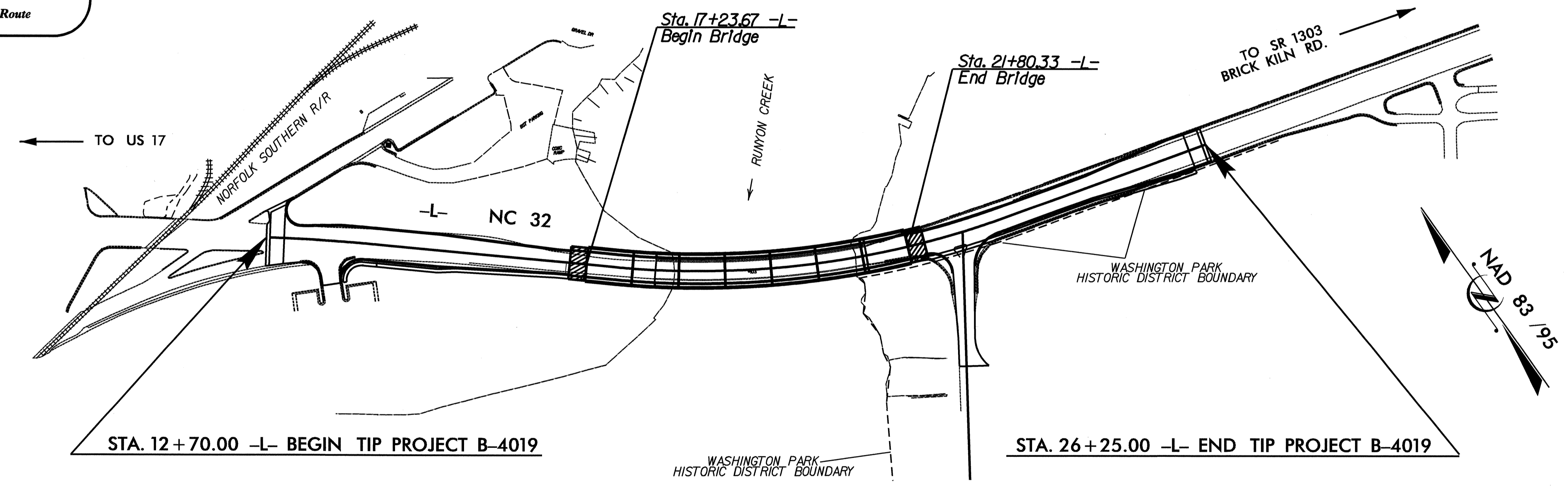


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
BEAUFORT COUNTY

**LOCATION: BRIDGE NO. 103 OVER RUNYON CREEK
ON NC 32 IN WASHINGTON**

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4019		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33386.1.1	BRSTP-32(3)	PE	
33386.2.1	BRSTP-32(3)	UTIL. & RW	
33386.3.1	BRSTP-32(7)	CONST.	



DESIGN DATA

ADT 2007	= 12000
ADT 2030	= 19900
DHV	= 10 %
D	= 60 %
T	= 6 % *
V	= 40 MPH
FUN. CLASS	= RURAL MINOR ARTERIAL
* TTST	2% DUAL 4%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4019	= 0.170 MI
LENGTH STRUCTURE TIP PROJECT B-4019	= 0.086 MI
TOTAL LENGTH TIP PROJECT B-4019	= 0.256 MI

Prepared in the Office of:
DIVISION OF HIGHWAYS
2006 STANDARD SPECIFICATIONS

LETTING DATE :
MARCH 19, 2009

J. C. FRYE, P.E.
PROJECT ENGINEER

W.A. DAVIS, P.E.
PROJECT DESIGN ENGINEER

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

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

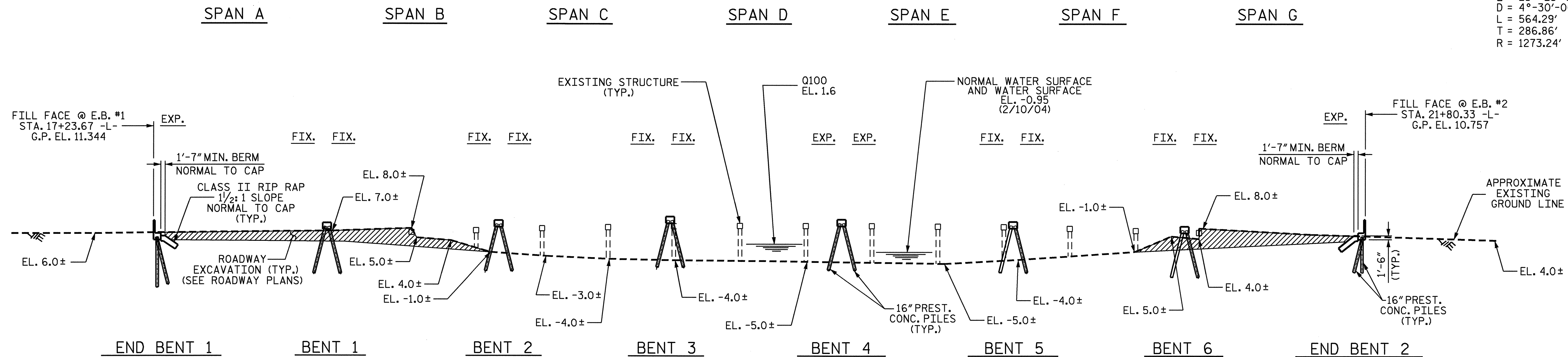
APPROVED _____ DATE _____
DIVISION ADMINISTRATOR

GRADE DATA

P.I. STA. = 19+70.00 -L-
 EL. = 19.000
 V.C. = 385.00

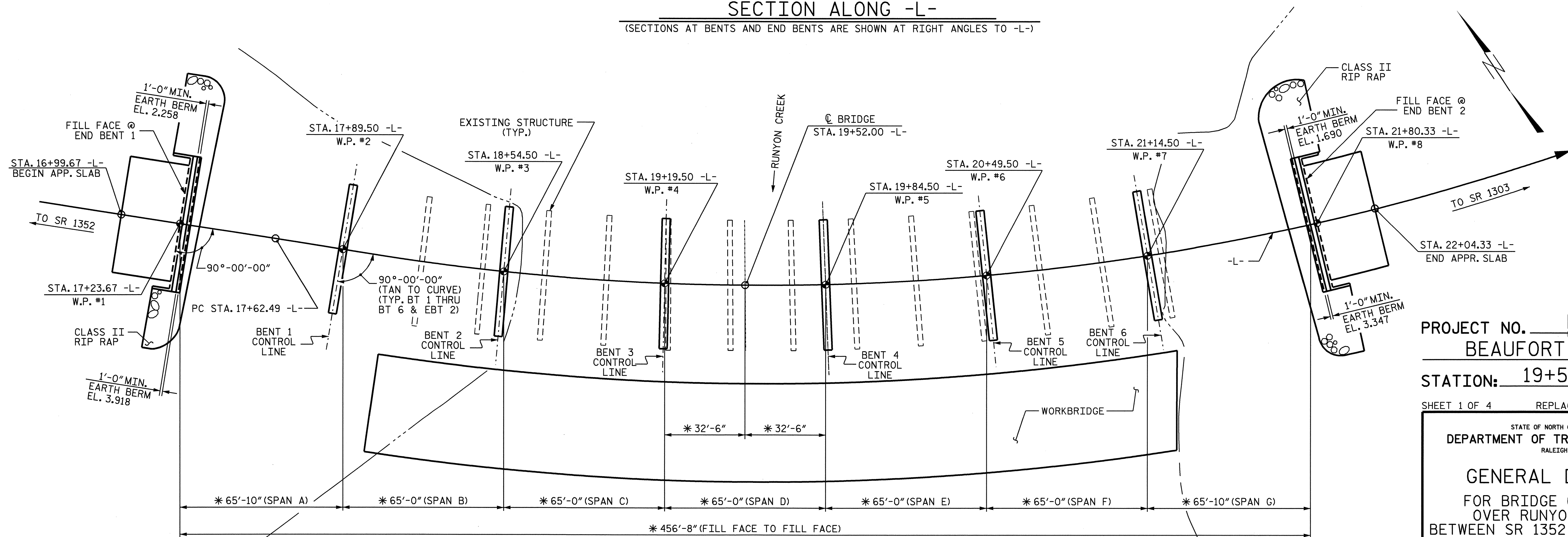
HORIZONTAL CURVE DATA

P.I. STA. = 20+49.35 -L-
 Δ = 25°-23'-35.3" (L.T.)
 D = 4°-30'-00"
 L = 564.29'
 T = 286.86'
 R = 1273.24'



SECTION ALONG -L-

(SECTIONS AT BENTS AND END BENTS ARE SHOWN AT RIGHT ANGLES TO -L-)



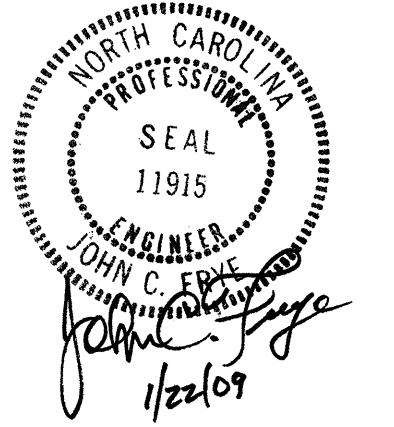
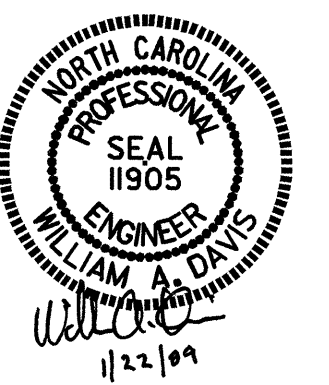
PLAN

(PILES NOT SHOWN IN PLAN VIEW)

* ALONG ARC

DRAWN BY: QT NGUYEN DATE: 5-07
 CHECKED BY: A.R. CHESSON DATE: 7-07

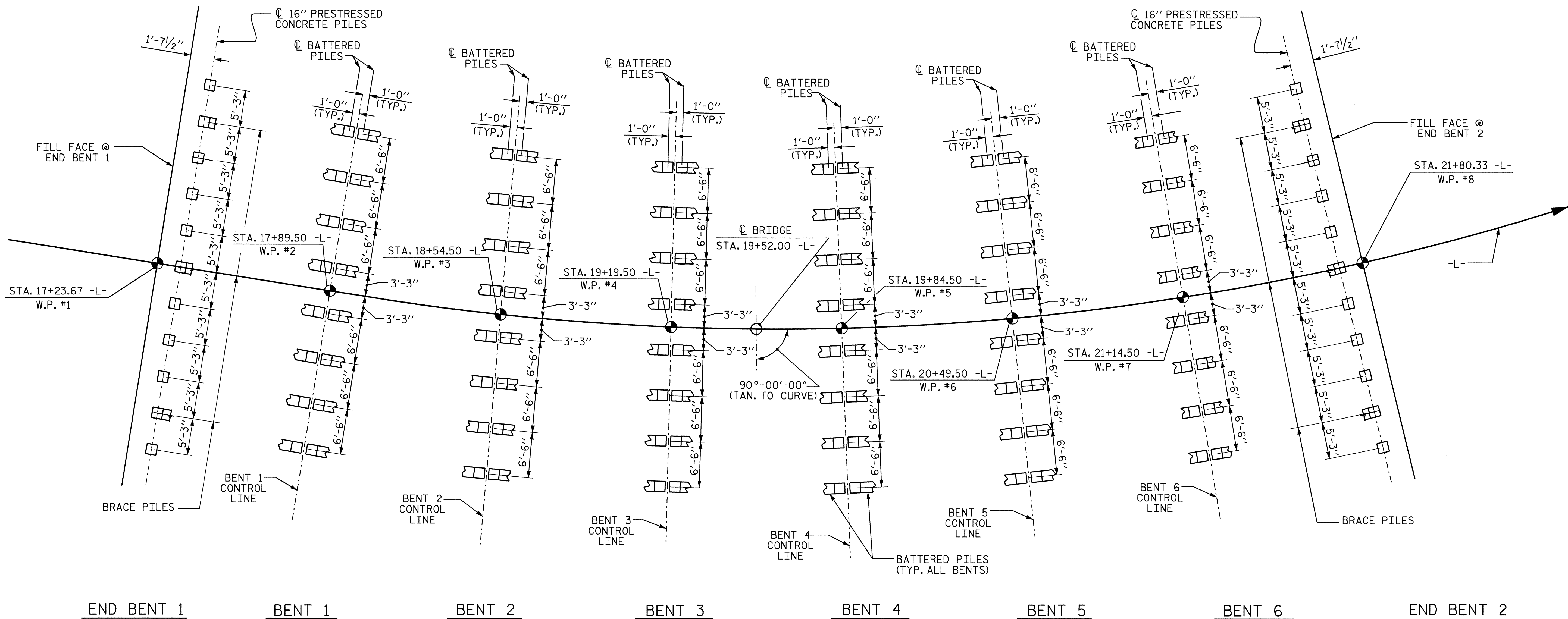
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 qtnguyen



PROJECT NO. B-4019
 BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 1 OF 4 REPLACES BRIDGE #103

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-1
GENERAL DRAWING FOR BRIDGE ON NC 32 OVER RUNYON CREEK BETWEEN SR 1352 AND SR 1303						
REVISIONS						TOTAL SHEETS 55
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



FOUNDATION LAYOUT

ALL PILES AT BENTS ARE 16" PRESTRESSED CONCRETE PILES.
 DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE AND MEASURED ALONG CAP BOTTOM.
 BRACE PILES AT END BENTS ARE BATTERED 3 : 12
 ALL PILES AT BENTS ARE BATTERED 1 1/2 : 12 IN THE DIRECTION SHOWN ON THE PLANS.

NOTES

DRIVE PILES AT END BENT NO. 1 AND 2 TO A REQUIRED BEARING CAPACITY OF 125 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO PLUS ADDITIONAL CAPACITY TO ACCOUNT FOR DOWN DRAG OR NEGATIVE SKIN AND SCOUR.

DRIVE PILES AT BENTS NO. 1 THROUGH 6 TO A REQUIRED BEARING CAPACITY OF 125 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO PLUS ADDITIONAL CAPACITY TO ACCOUNT FOR DOWN DRAG OR NEGATIVE SKIN AND SCOUR.

THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENT NO. 1, BENTS NO. 1 THROUGH 6, AND END BENT NO. 2 IS 60 TONS PER PILE.

STEEL PILE TIPS ARE REQUIRED FOR PRESTRESSED CONCRETE PILES AT BENTS NO. 1 THROUGH 6. SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

THE SCOUR CRITICAL ELEVATION FOR BENT NOS. 1, 2 AND 6 IS -12.5 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEM DURING THE LIFE OF STRUCTURE.

THE SCOUR CRITICAL ELEVATION FOR BENT NOS. 3, 4 AND 5 IS -19 FT., -19 FT. AND -17 FT., RESPECTIVELY. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEM DURING THE LIFE OF STRUCTURE.

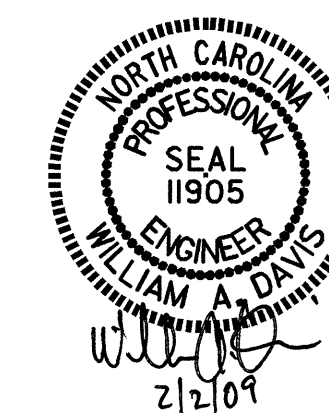
TESTING THE FIRST PRODUCTION PILE WITH THE PILE DRIVING ANALYZER (PDA) DURING DRIVING, RE-STRIKING OR RE-DRIVING IS REQUIRED. SEE PILE DRIVING ANALYZER SPECIAL PROVISION.

OBSERVE A THREE MONTHS WAITING PERIOD AFTER CONSTRUCTING THE EMBANKMENT, END BENT, AND REINFORCED BRIDGE APPROACH FILL, WHEN APPLICABLE, BEFORE BEGINNING APPROACH SLAB CONSTRUCTION AT END BENT NO. 1 AND 2.

THE CONTRACTOR IS ALERTED TO THE PRESENCE OF RIP-RAP AT THE BENT NO. 2 LOCATION. EXCAVATE RIP-RAP AS NECESSARY TO INSTALL 16 IN. CONCRETE PILES. FOR SETTLEMENT PLATES, SEE ROADWAY PLANS.

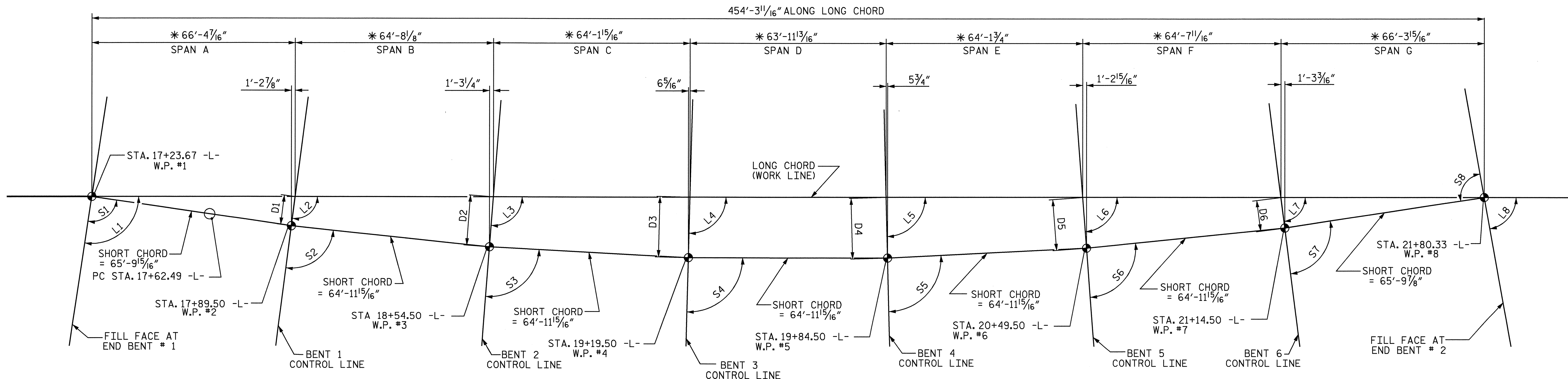
PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 2 OF 4



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-2
GENERAL DRAWING FOR BRIDGE ON NC 32 OVER RUNYON CREEK BETWEEN SR 1352 AND SR 1303						
REVISIONS						TOTAL SHEETS 55
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

DRAWN BY: QT NGUYEN DATE: 5-07
 CHECKED BY: A.R. CHESSON DATE: 7-07



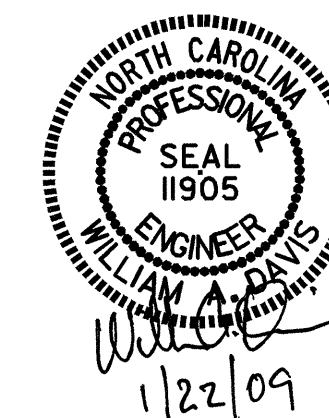
LONG CHORD LAYOUT

ALL BENTS AND END BENTS ARE PERPENDICULAR TO -L-
 * ALONG LONG CHORD

ANGLES					
LONG CHORD		SHORT CHORD		OFFSETS	
L1	98°36'6"	S1	90°14'58"		
L2	97°23'10"	S2	91°27'45"	D1	9'-7 11/16"
L3	94°27'40"	S3	91°27'45"	D2	16'-3 3/16"
L4	91°32'10"	S4	91°27'45"	D3	19'-8 7/8"
L5	88°36'40"	S5	91°27'45"	D4	19'-9 7/8"
L6	85°41'10"	S6	91°27'45"	D5	16'-6 3/16"
L7	82°45'40"	S7	91°28'52"	D6	10'-0 11/16"
L8	79°47'56"	S8	88°31'8"		

HORIZONTAL CURVE DATA

P.I. STA. = 20+49.35 -L-
 Δ = 25°-23'-35.3" (LT.)
 D = 4°-30'-00"
 L = 564.29'
 T = 286.86'
 R = 1273.24'



PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 3 OF 4

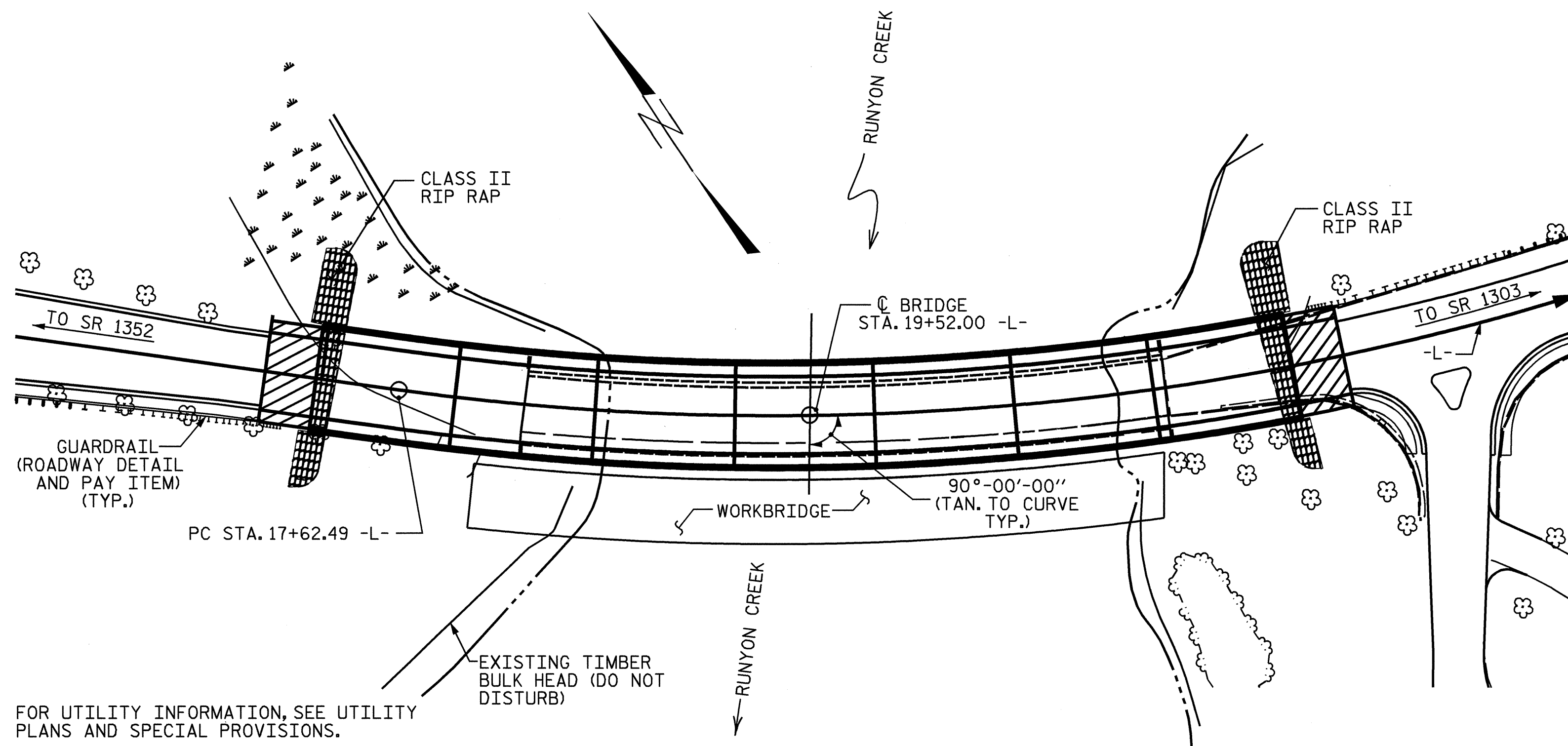
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
LONG CHORD LAYOUT

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

DRAWN BY: QT NGUYEN DATE: 5-07
 CHECKED BY: A.R. CHESSON DATE: 7-07

BM #13: - R.R. SPIKE IN ROOT OF 18" BEECH, 51 FT. RIGHT OF -L- STA. 29+41, ELEV. 6.86.



LOCATION SKETCH

NOTES

ASSUMED LIVE LOAD = HS 20 OR ALTERNATE LOADING. EXCEPT THAT THE GIRDERS HAVE BEEN DESIGNED FOR HS25.

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

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

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

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

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

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

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 19+52.00 -L-".

ALL BAR SUPPORTS USED IN THE BARRIER RAIL, SIDEWALK, DECK, END BENT CAPS AND BENT CAPS AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, SEE SPECIAL PROVISIONS.

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

THE 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.

THE EXISTING STRUCTURE CONSISTING OF 12 SPANS AT 25 FT WITH A REINFORCED CONCRETE DECK CONTINUOUS ON STEEL I-BEAMS WITH A CLEAR ROADWAY WIDTH OF 26.1 FT ON RC CAPS ON TIMBER PILES AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

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

FOR PRECAST CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURE, SEE SPECIAL PROVISIONS.

FOR SECURING OF VESSELS, SEE SPECIAL PROVISIONS.

FOR CLASSIC CONCRETE BRIDGE RAIL, SEE SPECIAL PROVISIONS.

HYDRAULIC DATA

DESIGN DISCHARGE = 2,070 CFS.
 FREQUENCY OF DESIGN FLOOD = 50 YRS.
 DESIGN HIGH WATER ELEVATION = 0.8
 DRAINAGE AREA = 13.50 SQ. MI.
 BASIC DISCHARGE (Q100) = 2,490 CFS.
 BASIC HIGH WATER ELEVATION = 1.6

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = +3,820 CFS.
 FREQUENCY OF OVERTOPPING FLOOD = +500 YRS.
 OVERTOPPING FLOOD ELEVATION = 3.7

TEMPORARY WORK BRIDGE MAY ONLY BE ACCESSED FROM THE WEST END (CITY PARK END) OF THE BRIDGE. TEMPORARY WORK BRIDGE MAY NOT BE ACCESSED THROUGH THE WASHINGTON PARK HISTORIC DISTRICT.

TEMPORARY WORK BRIDGE WILL BE REMOVED PROMPTLY AFTER COMPLETION OF THE PROJECT.

FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS, SEE SPECIAL PROVISIONS.



TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE & REMOVAL OF TEMPORARY ACCESS	REMOVAL OF EXISTING STRUCTURE	PDA TESTING	PDA ASSISTANCE	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS AA CONCRETE	BRIDGE APPROACH SLABS	EPOXY COATED REINFORCING STEEL	45" PRESTRESSED CONCRETE GIRDERS	16" PRESTRESSED CONCRETE PILES	PILE REDRIVES	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS	CLASSIC CONCRETE BRIDGE RAIL		
	LUMP SUM	LUMP SUM	EA.	EA.	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	NO.	LIN. FT.	EA.	TON	SQ. YD.	LUMP SUM	LUMP SUM	LIN. FT.		
SUPERSTRUCTURE					22426	16563				35	2246.05						909.1		
END BENT 1							31.8		4696		11	385	130	140					
BENT 1							29.1		3659		16	560							
BENT 2							29.1		3659		16	560							
BENT 3							29.1		3659		16	720							
BENT 4							29.1		3659		16	720							
BENT 5							29.1		3659		16	800							
BENT 6							29.1		3659		16	800							
END BENT 2							31.8		4688		11	440	110	120					
TOTAL	LUMP SUM	LUMP SUM	2	2	22426	16563	238.2	LUMP SUM	31338	35	2246.05	118	4985	40	240	260	LUMP SUM	LUMP SUM	909.1

PROJECT NO. B-4019
 BEAUFORT COUNTY
 STATION: 19+52.00 -L-

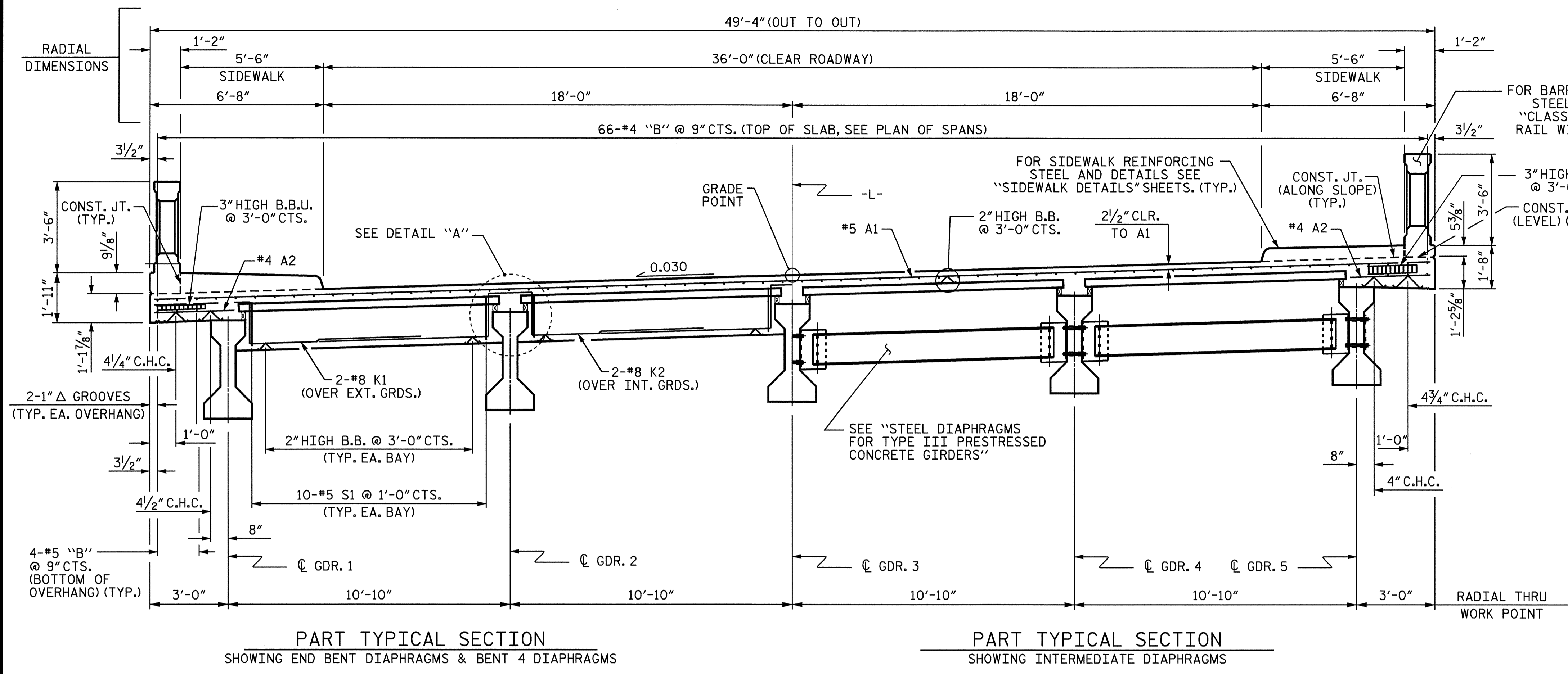
SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON NC 32
 OVER RUNYON CREEK
 BETWEEN SR 1352 AND SR 1303

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

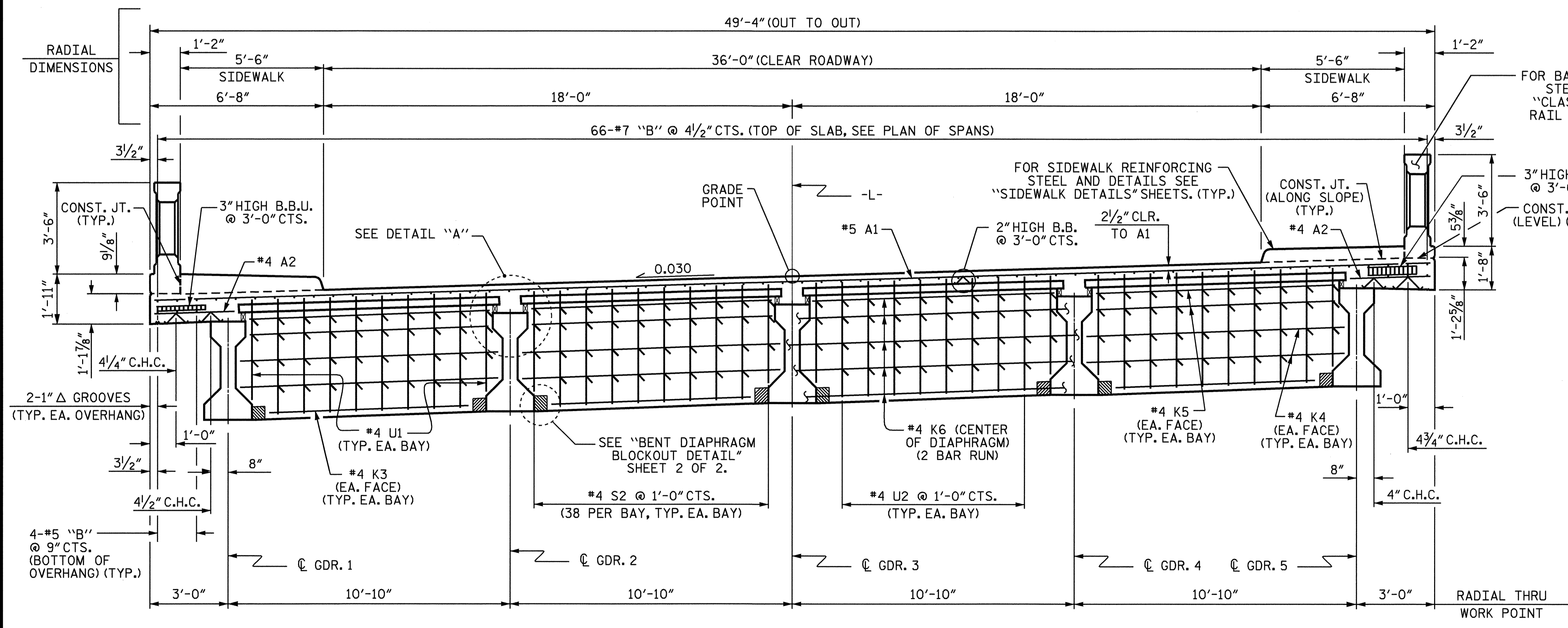
DRAWN BY: QT NGUYEN DATE: 5-07
 CHECKED BY: A.R. CHESSON DATE: 7-07



PART TYPICAL SECTION
SHOWING END BENT DIAPHRAGMS & BENT 4 DIAPHRAGMS

PART TYPICAL SECTION
SHOWING INTERMEDIATE DIAPHRAGMS

TYPICAL SECTION



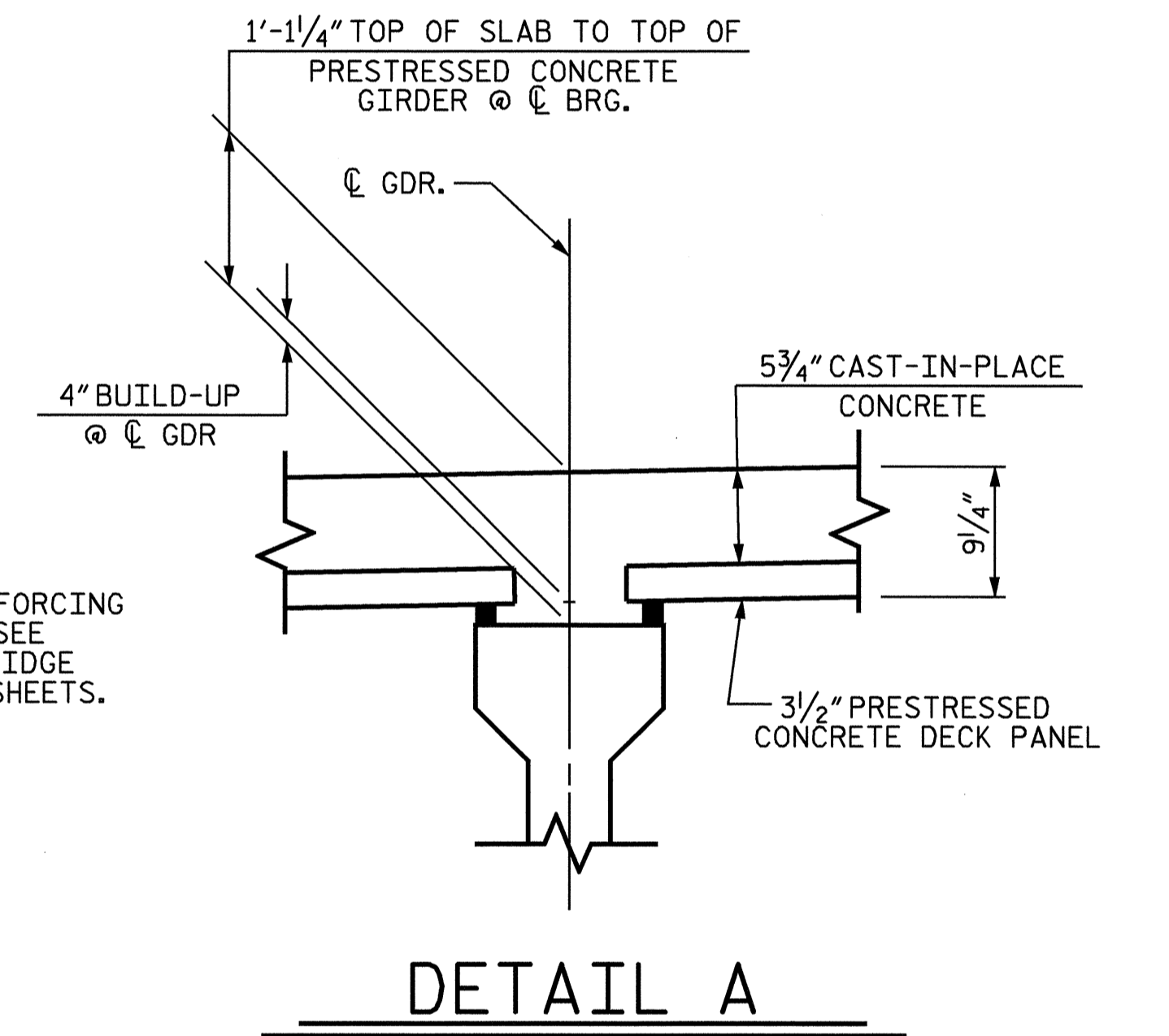
TYPICAL SECTION
SHOWING BENT DIAPHRAGMS FOR BENTS 1, 2, 3, 5 & 6

NOTES

LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.

PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.

BARRIER RAIL AND SIDEWALK 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.



DETAIL A

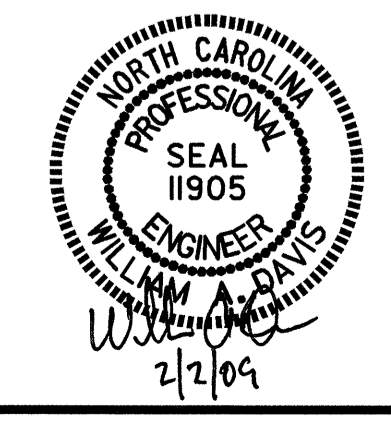
PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 1 OF 2

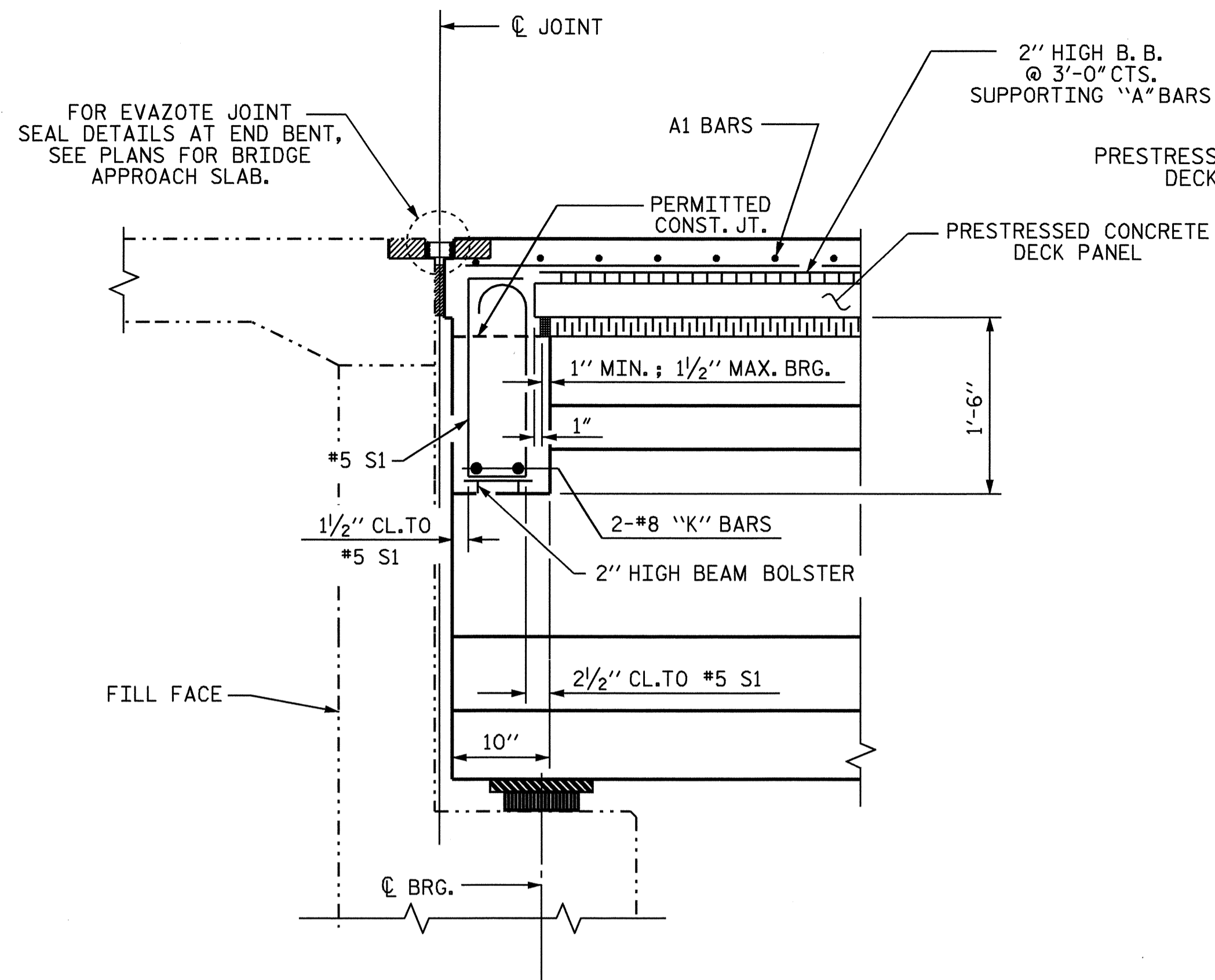
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 TYPICAL SECTION

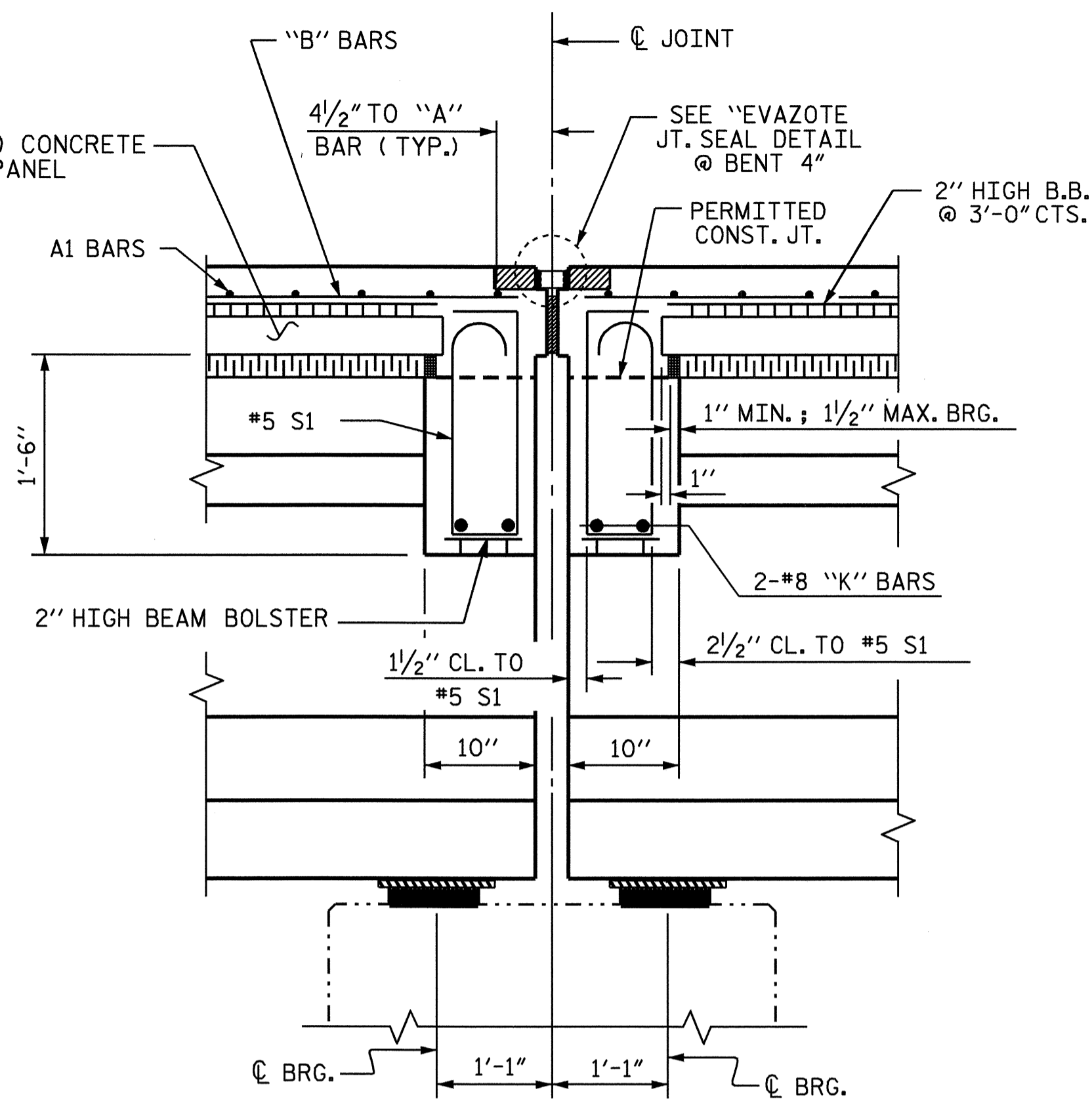
DRAWN BY: D. G. ELY DATE: 10/06
 CHECKED BY: A. R. CHESSON DATE: 2/07



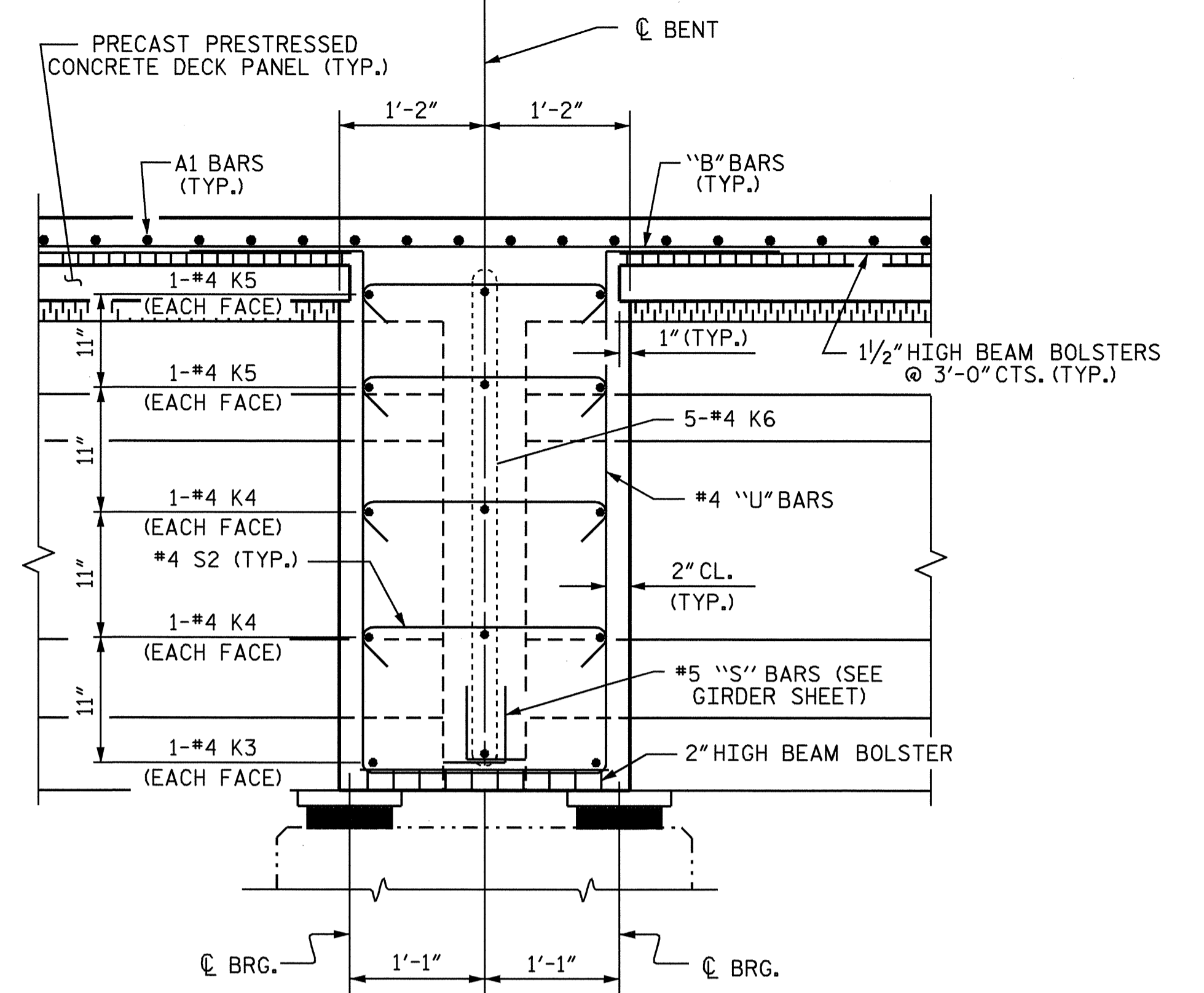
REVISIONS						SHEET NO. S-5
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 55
2			4			



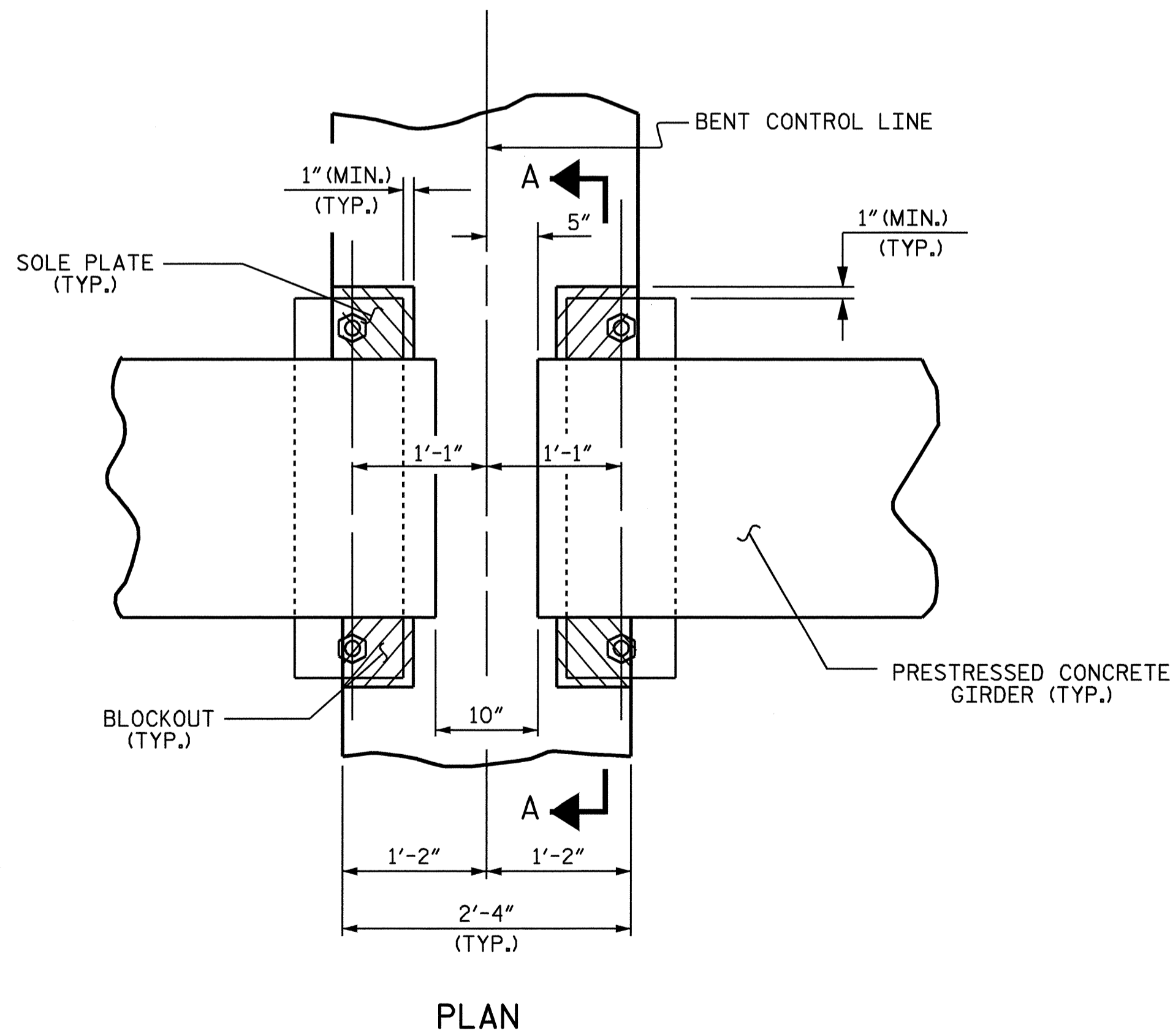
SECTION THRU
END BENT DIAPHRAGM



TYPICAL SECTION THRU
DIAPHRAGM AT BENT 4

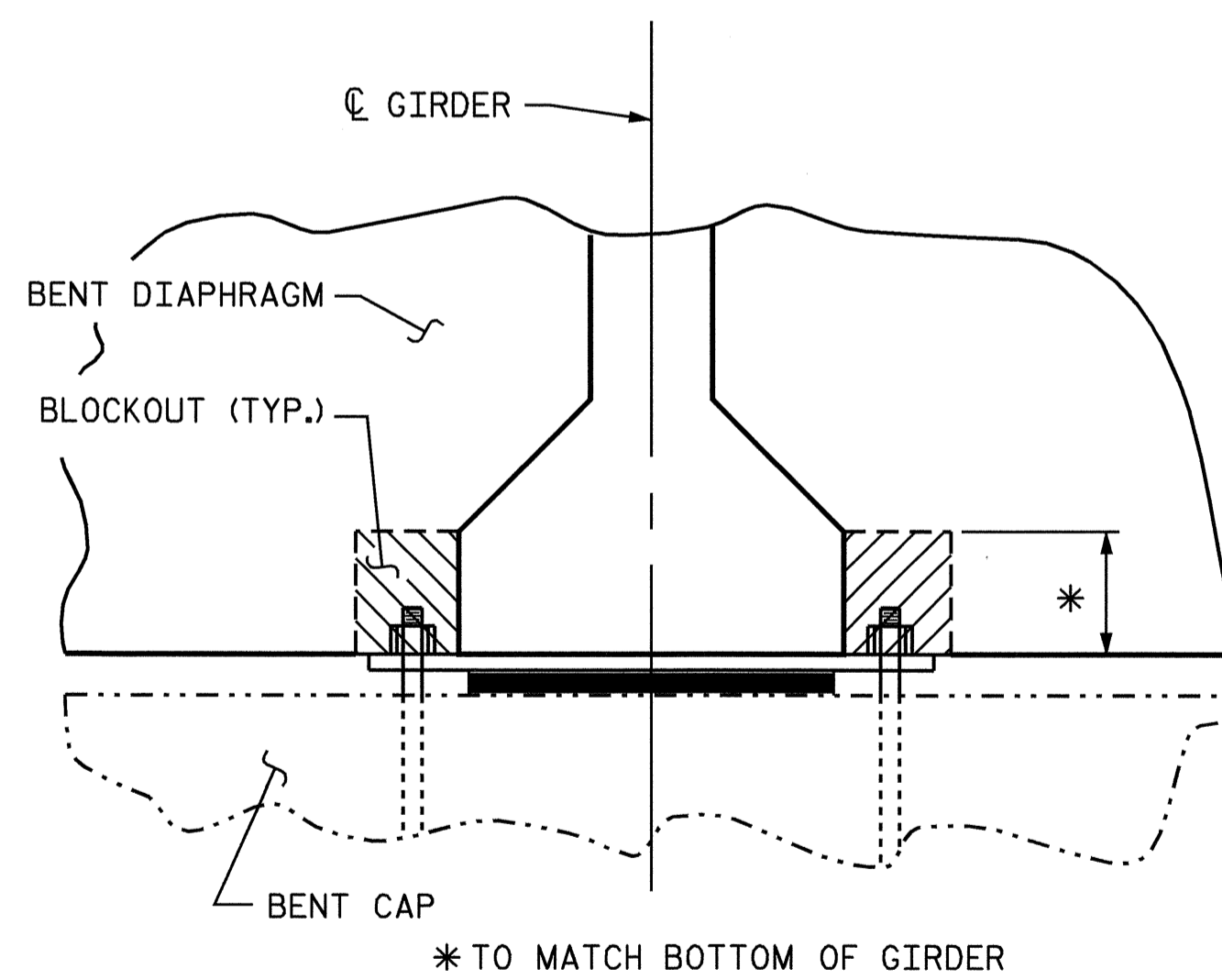


SECTION THRU
BENTS 1, 2, 3, 5 & 6
DIAPHRAGMS

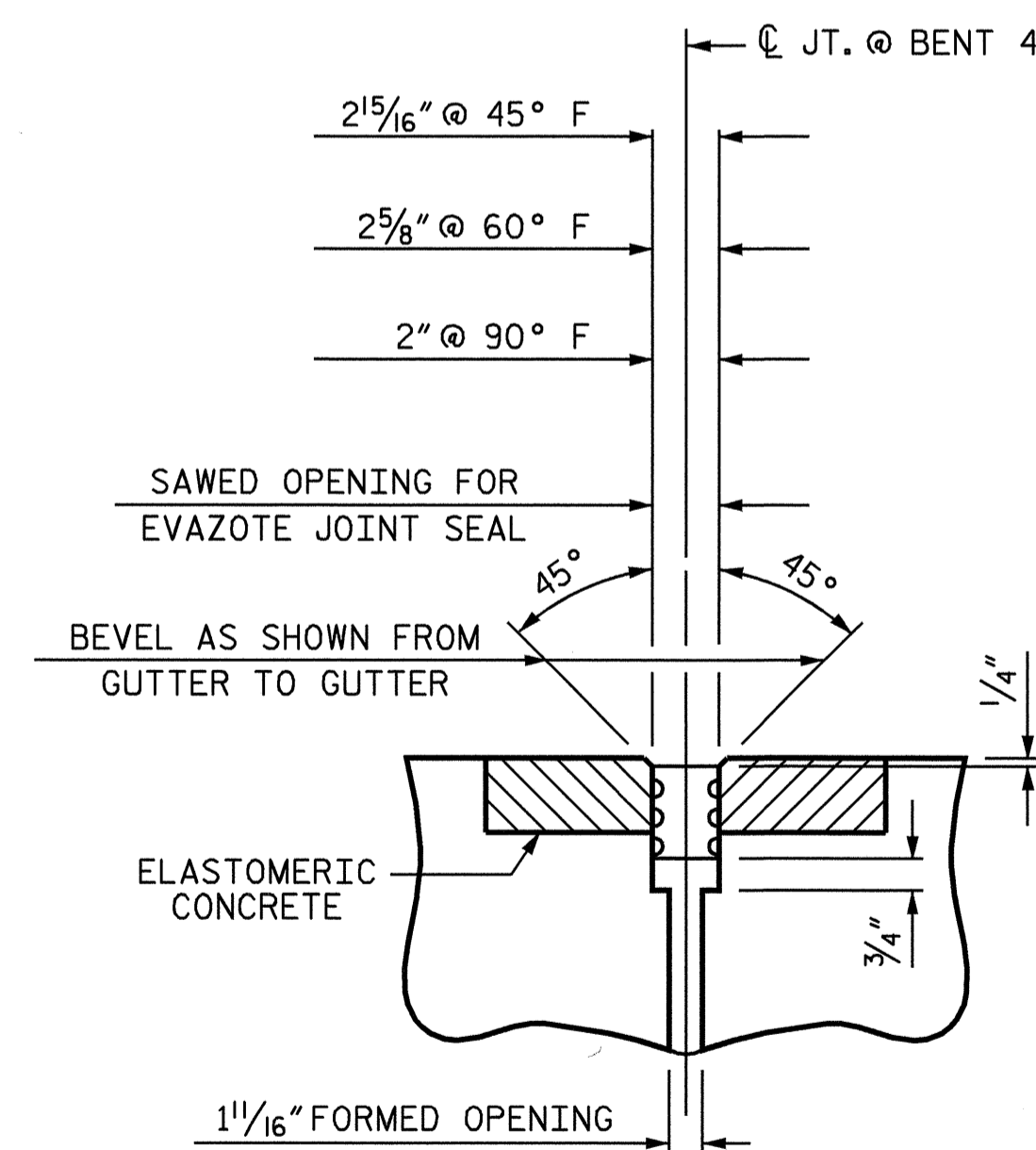


PLAN

BENT DIAPHRAGM BLOCKOUT DETAIL

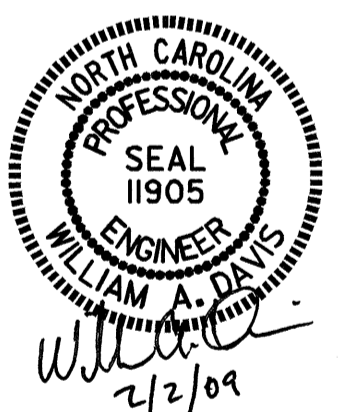


SECTION A-A



EVAZOTE JOINT SEAL DETAIL @ BENT 4

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 3/16" AT BENT 4.
FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.
FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.



PROJECT NO. B-4019
BEAUFORT COUNTY
STATION: 19+52.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
TYPICAL SECTION

DRAWN BY: D. G. ELY DATE: 10/06
CHECKED BY: A. R. CHESSON DATE: 5/07

REVISIONS						SHEET NO. S-6
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			55

DECK PANEL SUPPORTS

GENERAL NOTES

PRESTRESSED CONCRETE DECK PANELS SHALL BE SUPPORTED ON THE END BENT DIAPHRAGM BY LAYERS OF 1/2" THICK BITUMINOUS TYPE MATERIAL. THE BITUMINOUS TYPE MATERIAL SHALL HAVE A MINIMUM WIDTH OF 1" AND A MAXIMUM WIDTH OF 1/2". THE DECK PANEL SHALL OVERHANG THE BITUMINOUS TYPE MATERIAL BY 1".

BITUMINOUS TYPE MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M213.

THE CONTRACTOR MAY SELECT ONE OF THE TWO DECK PANEL SUPPORT SYSTEMS SHOWN, UNLESS OTHERWISE INDICATED, OR HE MAY SUBMIT A DECK PANEL SUPPORT SYSTEM OF HIS OWN DESIGN TO THE ENGINEER FOR APPROVAL.

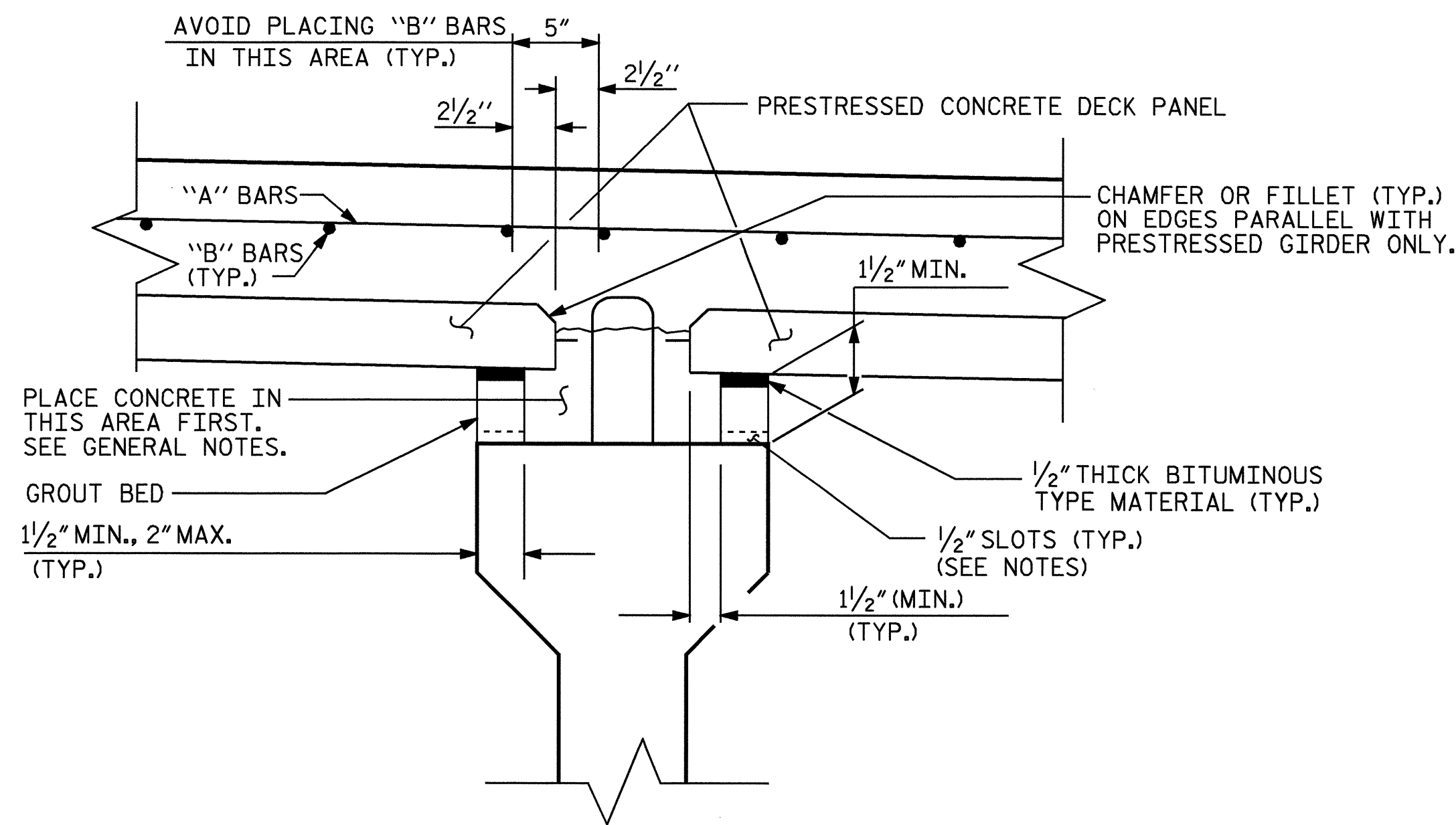
A. GROUT BED SUPPORT SYSTEM

1. THE GROUT BED SHALL HAVE A MINIMUM WIDTH OF 1/2" AND A MAXIMUM WIDTH OF 2". THE VERTICAL FACES OF THE GROUT BED SHALL BE FORMED. ONE LAYER OF 1/2" THICK BITUMINOUS TYPE MATERIAL OF THE SAME WIDTH AS THE GROUT BED SHALL BE GLUED TO THE TOP OF THE GROUT BED; MORE THAN ONE LAYER IS NOT ALLOWED. THE ADHESIVE SHALL BE APPROVED BY THE ENGINEER. THE BITUMINOUS TYPE MATERIAL SHALL HAVE 1/2" SLOTS LOCATED AT 4'-0" CENTERS. THE GROUT BED SHALL HAVE 1/2" X 1/2" WIDE SLOTS OR OTHER EQUIVALENT SIZE OPENINGS @ 4'-0" CENTERS ALONG THE BOTTOM STAGGERED WITH THE SLOTS IN THE TOP.
2. THE GROUT SHALL BE NON-SHRINK, NON-METALLIC GROUT HAVING A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 2500 PSI. THE GROUT SHALL BE APPROVED BY THE ENGINEER.

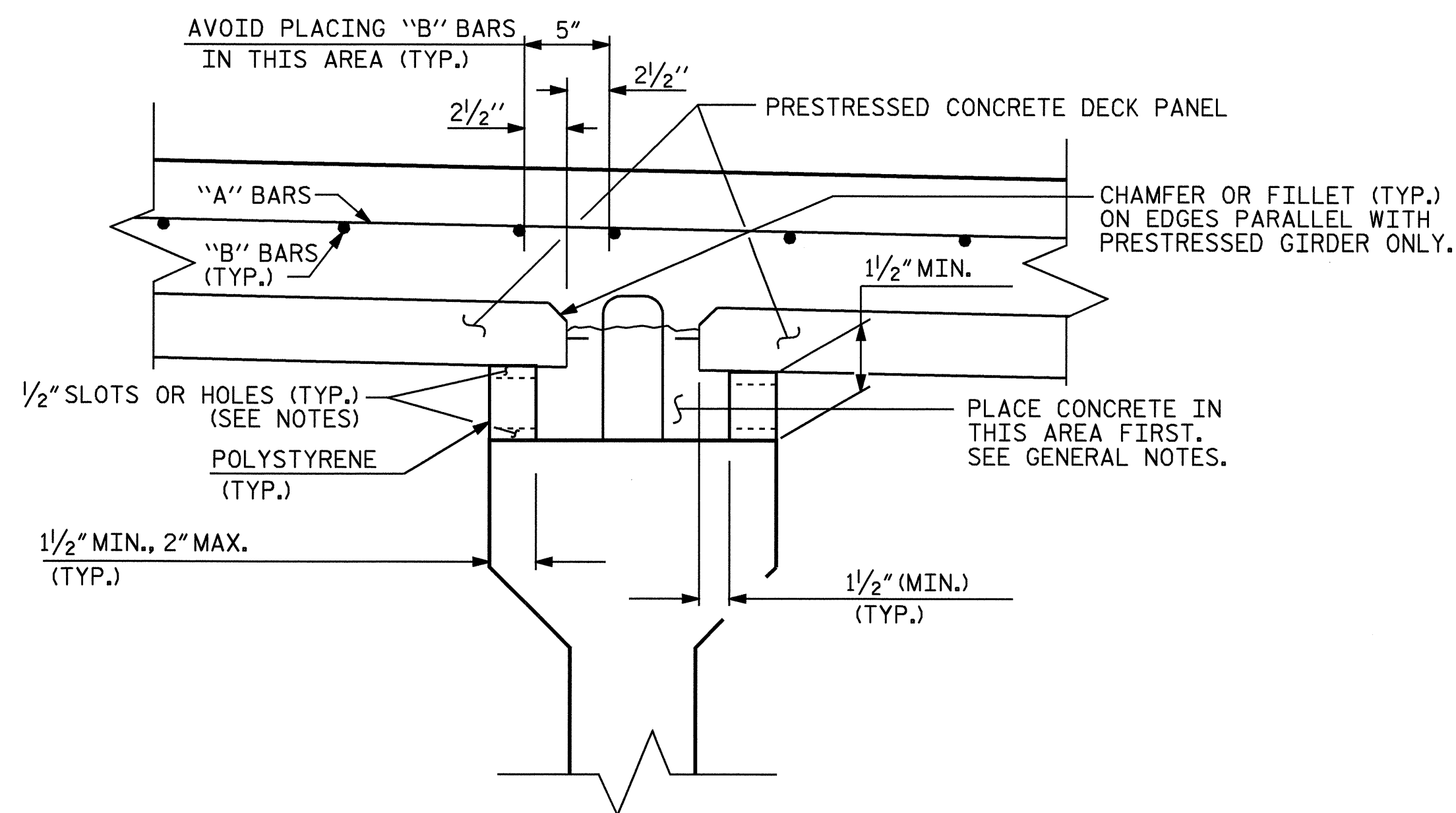
B. POLYSTYRENE SUPPORT SYSTEM

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 1/2" 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.

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 3/2" 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 (0 MPa) IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.
10. PRESTRESSED CONCRETE DECK PANELS SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR.
11. REMOVABLE FORMS MAY BE USED IN LIEU OF PRESTRESSED CONCRETE DECK PANELS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.



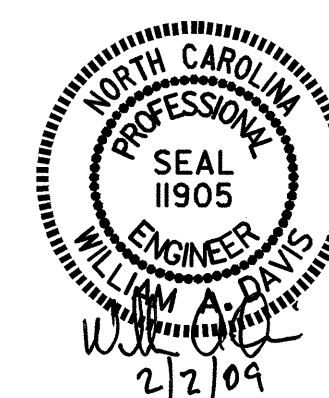
GROUT BED SUPPORT



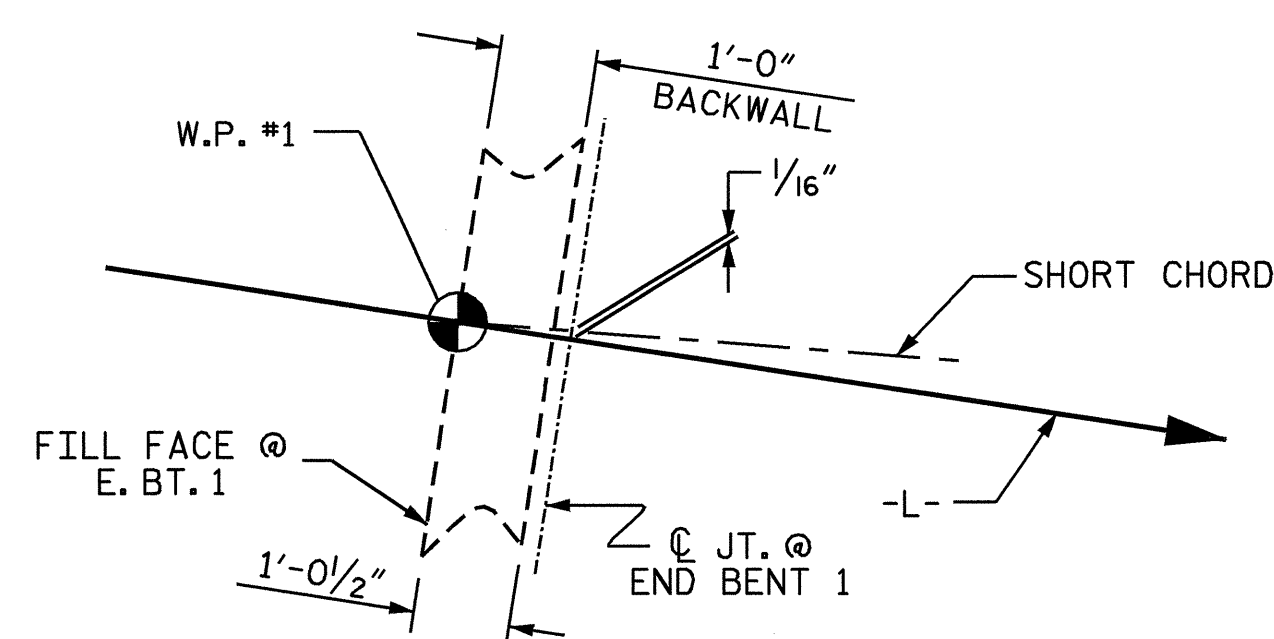
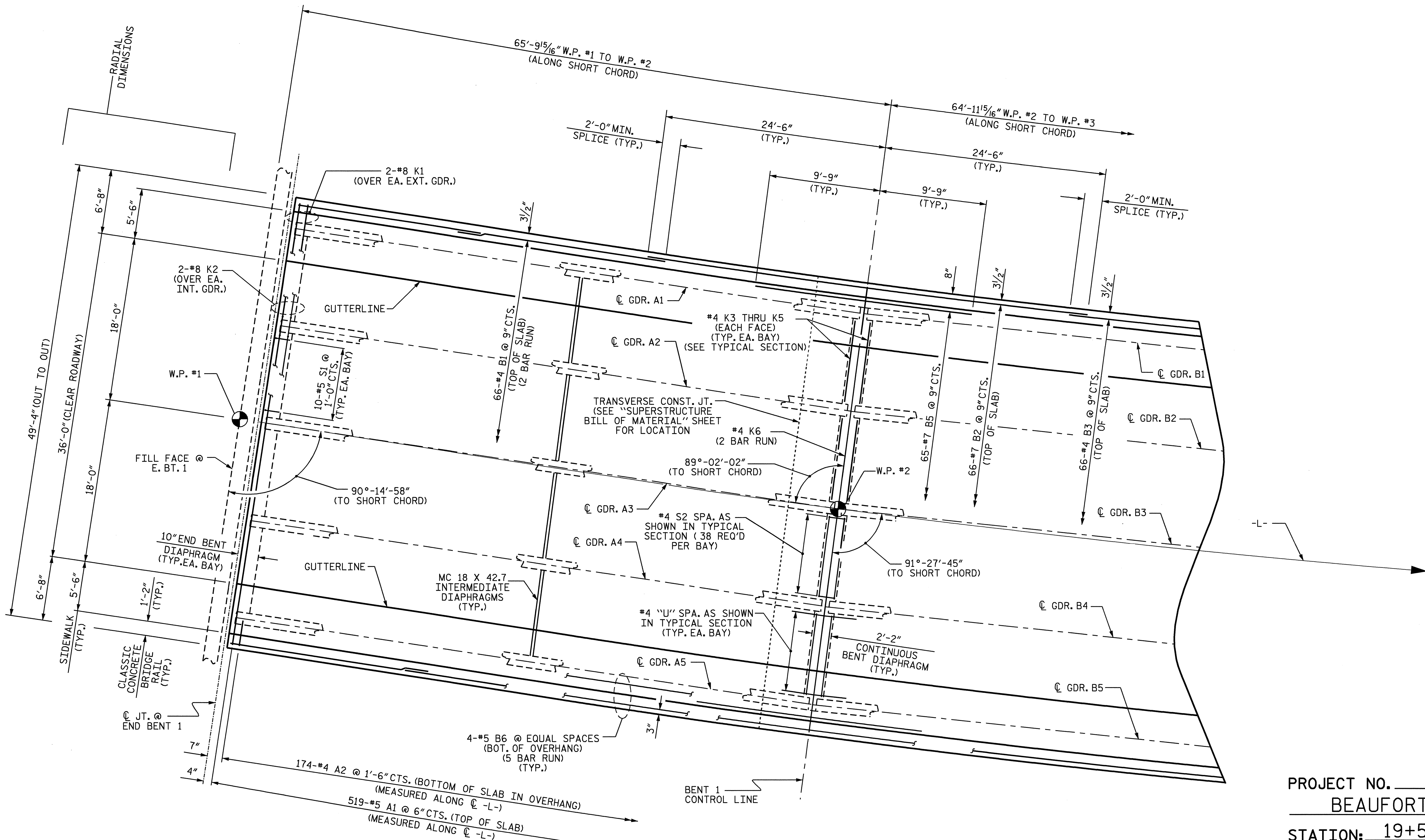
POLYSTYRENE SUPPORT

PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

ASSEMBLED BY : D. G. ELY DATE : 5/07
 CHECKED BY : A. R. CHESSON DATE : 5/07
 DRAWN BY : ELR 1/92 REV. 3/3/93 ELR/RGW
 CHECKED BY : GRP 4/92 REV. 5/7/03R RWW/JTE
 REV. 5/1/06 TLA/GM



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PRECAST PRESTRESSED CONCRETE DECK PANELS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-7 TOTAL SHEETS 55



END BENT 1 DETAIL

PLAN OF SPAN A

#5 A1 BARS SHALL BE PLACED PERPENDICULAR TO THE SHORT CHORD OF SPAN.

FOR TRANSVERSE CONSTRUCTION JOINT, SEE "SUPERSTRUCTURE BILL OF MATERIAL" SHEET.

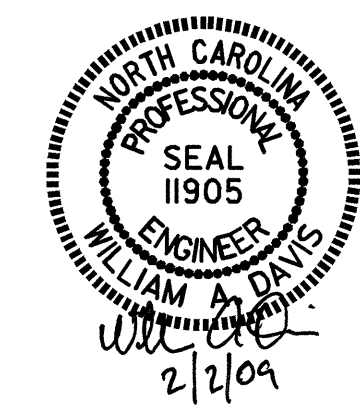
SEE "TYPICAL SECTION" SHEETS FOR DETAILS OF END BENT AND BENT DIAPHRAGMS.

PROJECT NO. B-4019
 BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 1 OF 7

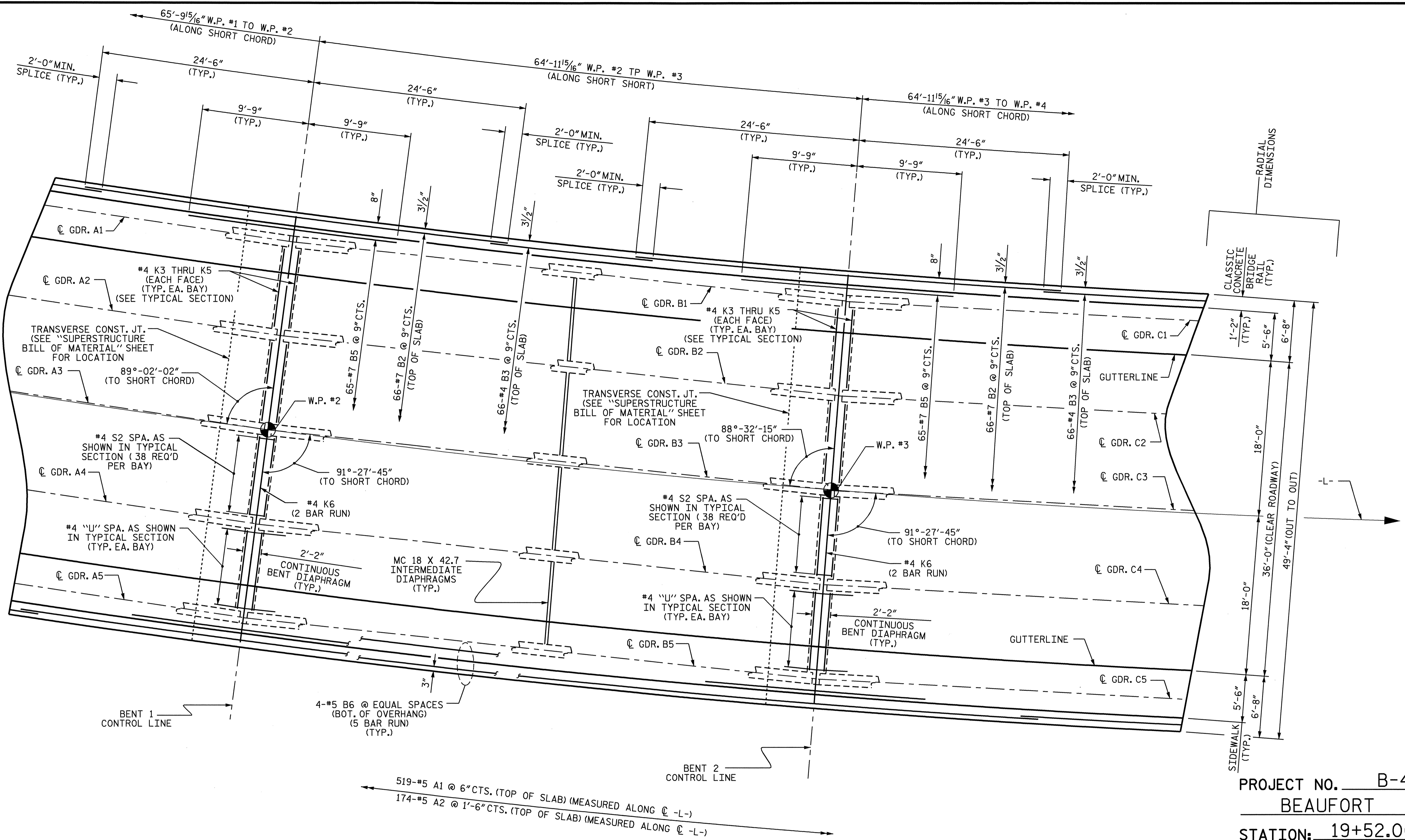
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPAN A



DRAWN BY: D. G. ELY DATE: 10/06
 CHECKED BY: A. R. CHESSON DATE: 2/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-8
2			4			TOTAL SHEETS 55



PLAN OF SPAN B

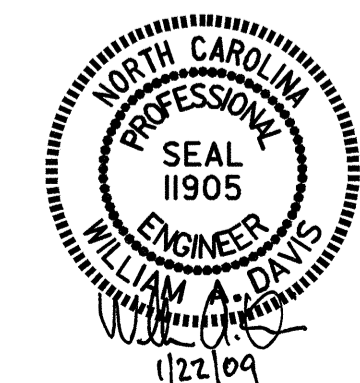
#5 A1 BARS SHALL BE PLACED PERPENDICULAR TO THE SHORT CHORD OF SPAN.
 FOR TRANSVERSE CONSTRUCTION JOINT, SEE "SUPERSTRUCTURE BILL OF MATERIAL" SHEET.
 SEE "TYPICAL SECTION" SHEETS FOR DETAILS OF END BENT AND BENT DIAPHRAGMS.

PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 2 OF 7

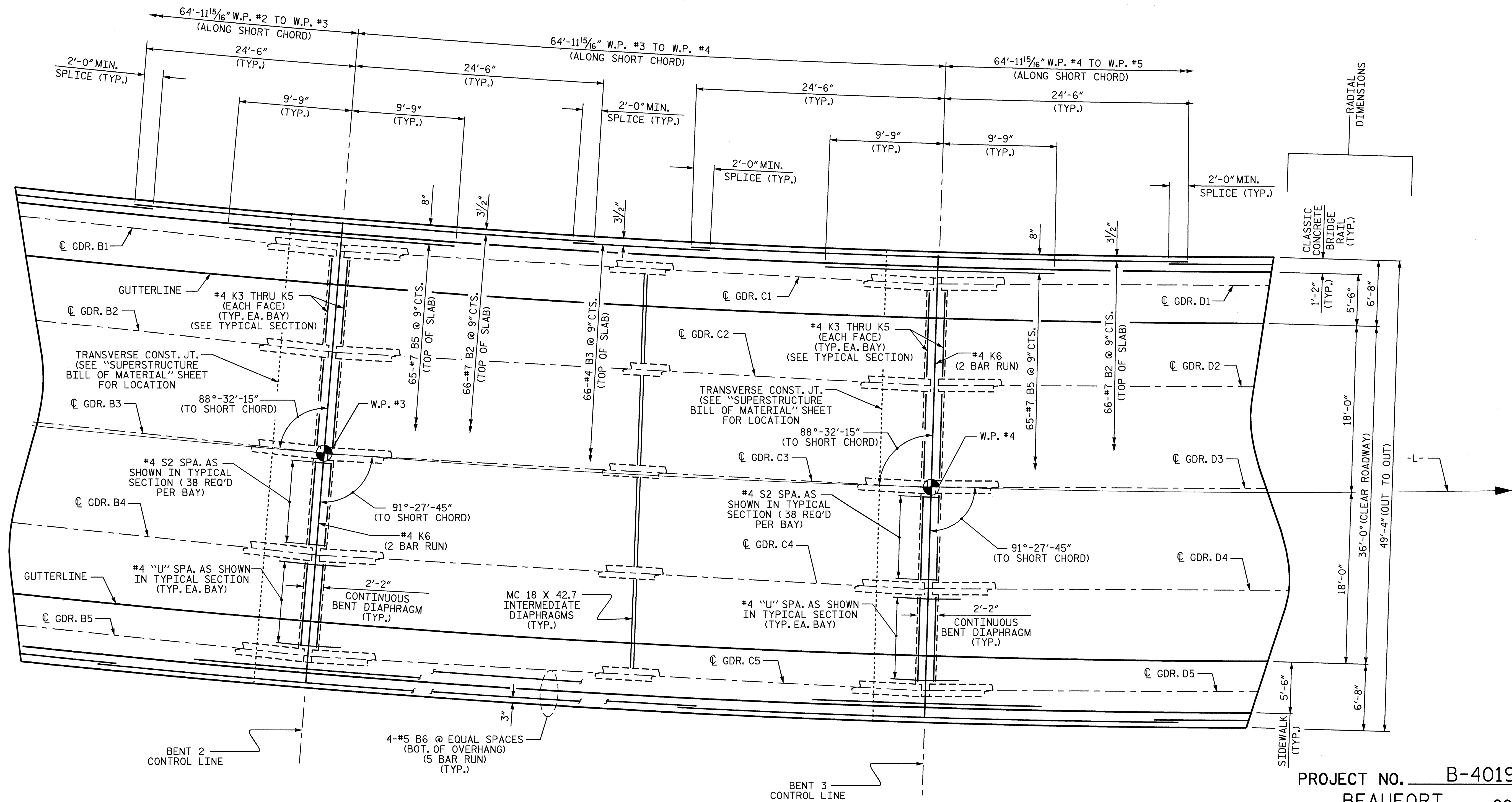
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 PLAN OF SPAN B**



DRAWN BY : D. G. ELY DATE : 10/06
 CHECKED BY : A. R. CHESSON DATE : 2/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			55



PLAN OF SPAN C

#5 A1 BARS SHALL BE PLACED PERPENDICULAR TO THE SHORT CHORD OF SPAN.

FOR TRANSVERSE CONSTRUCTION JOINT, SEE "SUPERSTRUCTURE BILL OF MATERIAL" SHEET.

SEE "TYPICAL SECTION" SHEETS FOR DETAILS OF END BENT AND BENT DIAPHRAGMS.

DRAWN BY : D. G. ELY DATE : 10/06
 CHECKED BY : A. R. CHESSON DATE : 2/07

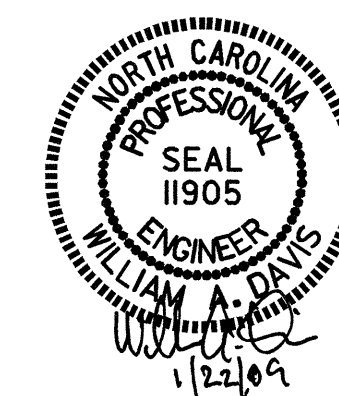
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PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

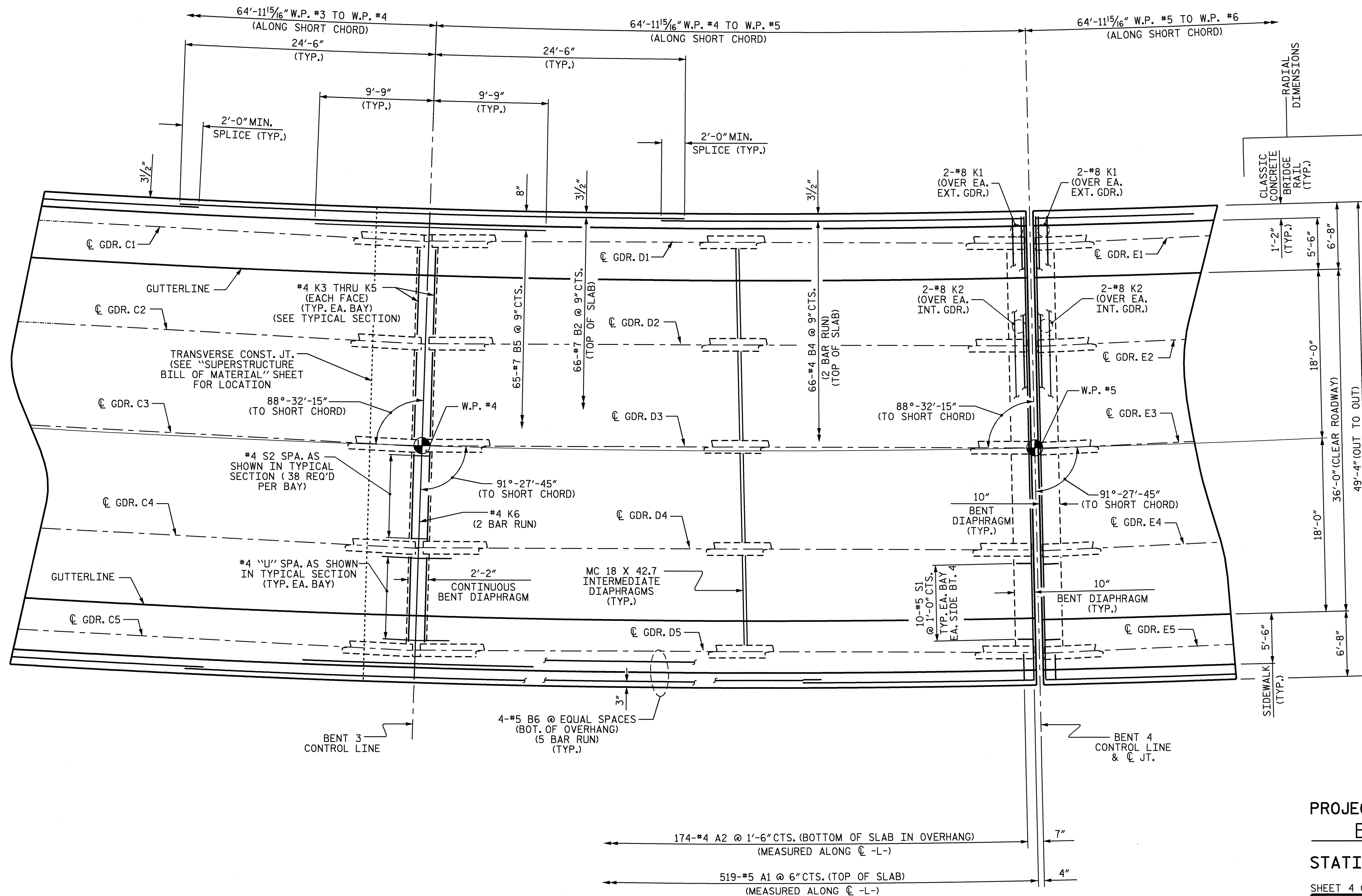
SHEET 3 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE PLAN OF SPAN C



REVISIONS						SHEET NO. S-10
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 55
2			4			



PLAN OF SPAN D

#5 A1 BARS SHALL BE PLACED PERPENDICULAR TO THE SHORT CHORD OF SPAN.

FOR TRANSVERSE CONSTRUCTION JOINT, SEE "SUPERSTRUCTURE BILL OF MATERIAL" SHEET.

SEE "TYPICAL SECTION" SHEETS FOR DETAILS OF END BENT AND BENT DIAPHRAGMS.

DRAWN BY : D. G. ELY DATE : 10/06
 CHECKED BY : A. R. CHESSON DATE : 2/07

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PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

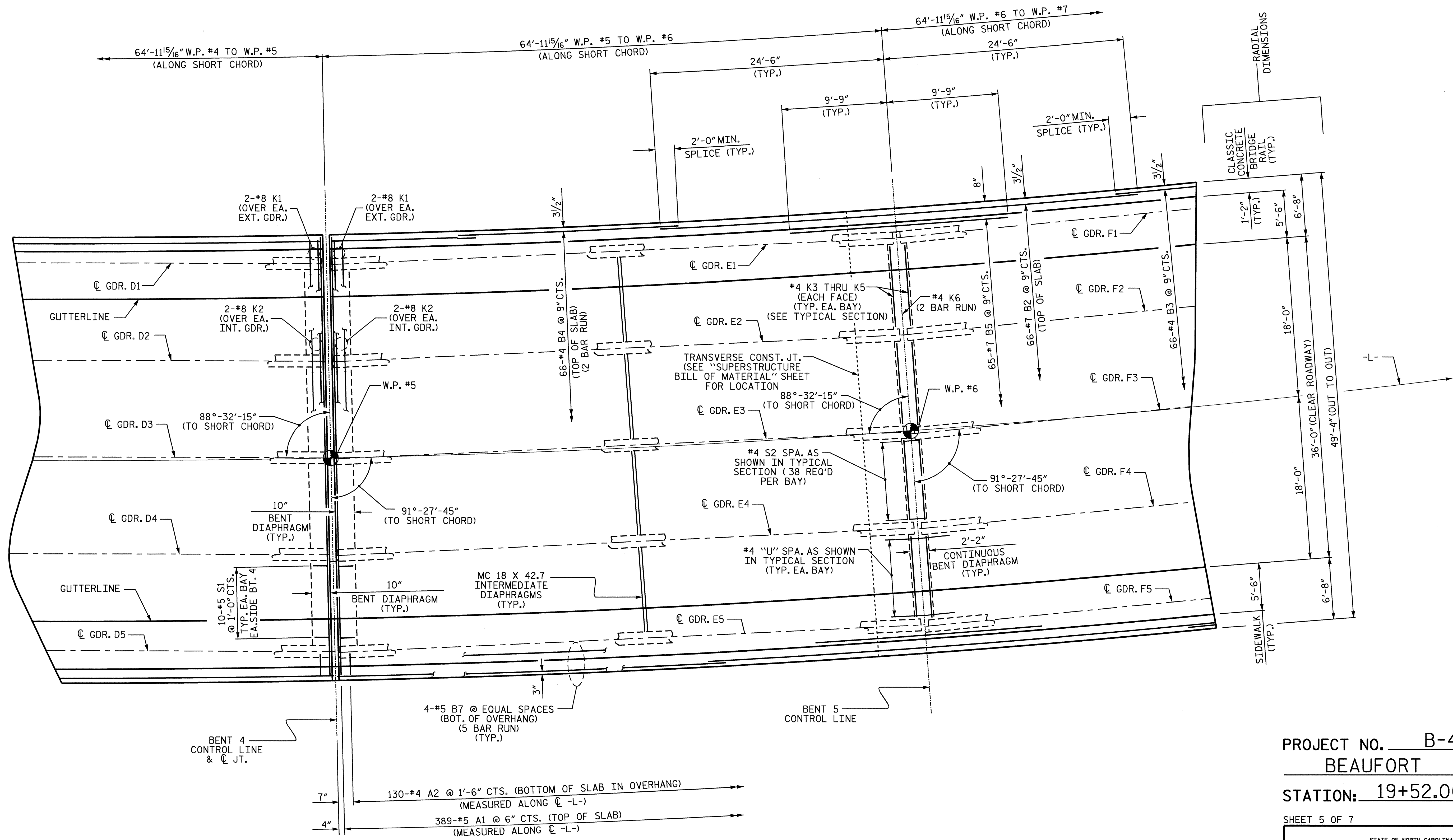
SHEET 4 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 PLAN OF SPAN D**



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			55



PLAN OF SPAN E

#5 A1 BARS SHALL BE PLACED PERPENDICULAR TO THE SHORT CHORD OF SPAN.

FOR TRANSVERSE CONSTRUCTION JOINT, SEE "SUPERSTRUCTURE BILL OF MATERIAL" SHEET.

SEE "TYPICAL SECTION" SHEETS FOR DETAILS OF END BENT AND BENT DIAPHRAGMS.

DRAWN BY : D. G. ELY DATE : 10/06
 CHECKED BY : A. R. CHESSON DATE : 2/07

PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

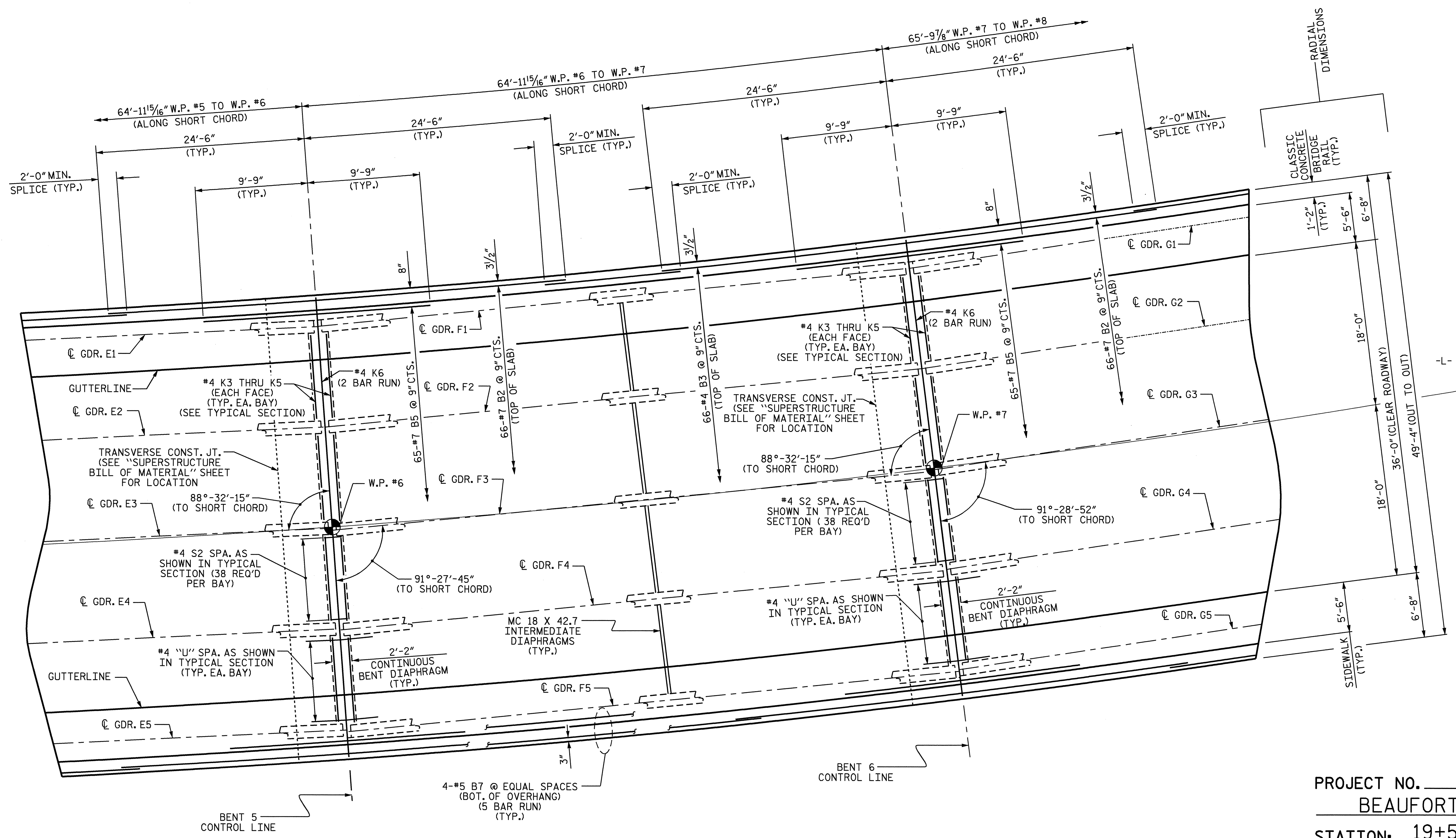
SHEET 5 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 PLAN OF SPAN E**



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-12
2			4			TOTAL SHEETS 55



389-#5 A1 @ 6" CTS. (TOP OF SLAB) (MEASURED ALONG CL -L-)
 130-#4 A2 @ 1'-6" CTS. (BOT. OF SLAB IN OVERHANG) (MEASURED ALONG CL -L-)

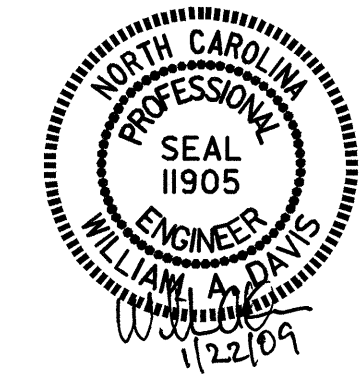
PLAN OF SPAN F

#5 A1 BARS SHALL BE PLACED PERPENDICULAR TO THE SHORT CHORD OF SPAN.
 FOR TRANSVERSE CONSTRUCTION JOINT, SEE "SUPERSTRUCTURE BILL OF MATERIAL" SHEET.
 SEE "TYPICAL SECTION" SHEETS FOR DETAILS OF END BENT AND BENT DIAPHRAGMS.

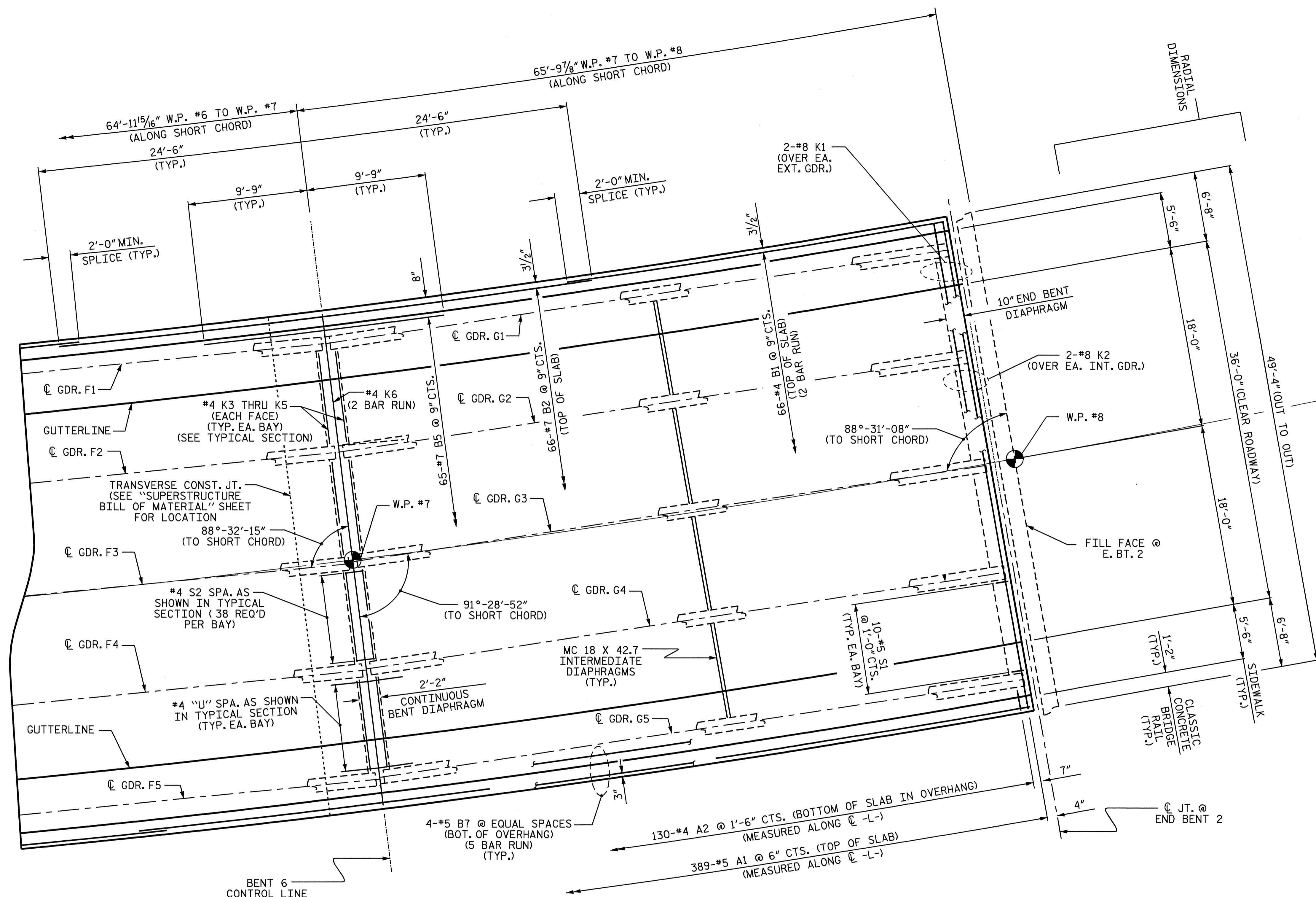
PROJECT NO. B-4019
 BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 6 OF 7

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PLAN OF SPAN F					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-13
					TOTAL SHEETS 55



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 CHECKED BY: A. R. CHESSON DATE: 2/07

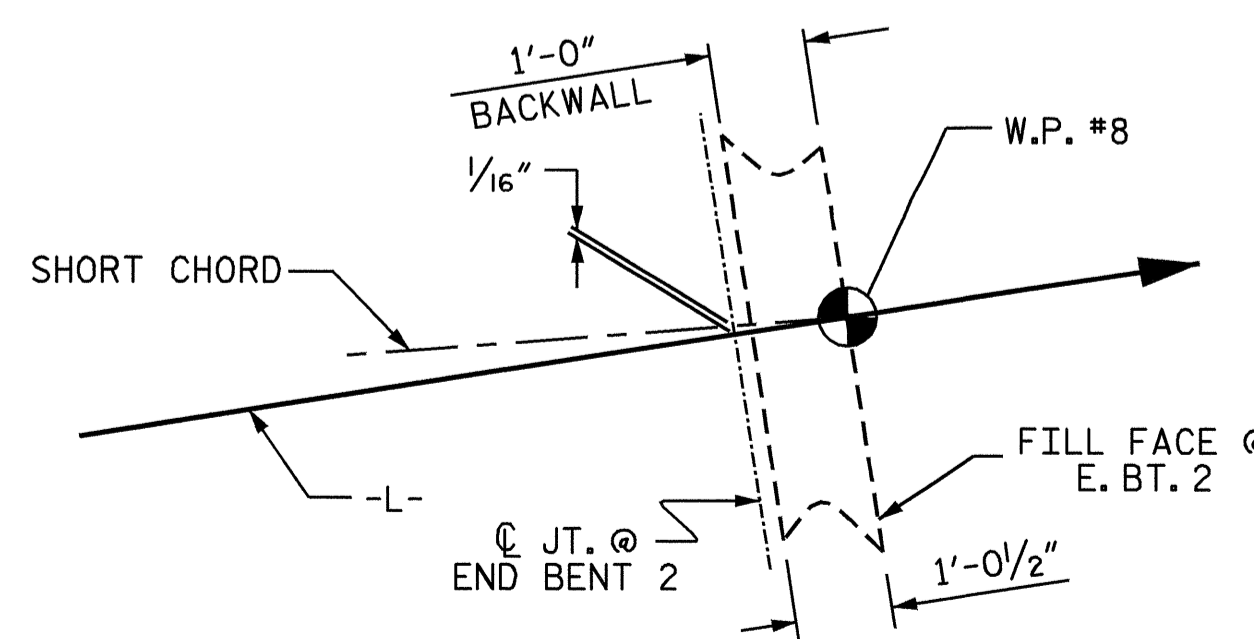


PLAN OF SPAN G

#5 A1 BARS SHALL BE PLACED PERPENDICULAR TO THE SHORT CHORD OF SPAN.

FOR TRANSVERSE CONSTRUCTION JOINT, SEE "SUPERSTRUCTURE BILL OF MATERIAL" SHEET.

SEE "TYPICAL SECTION" SHEETS FOR DETAILS OF END BENT AND BENT DIAPHRAGMS.



END BENT 2 DETAIL

PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 7 OF 7

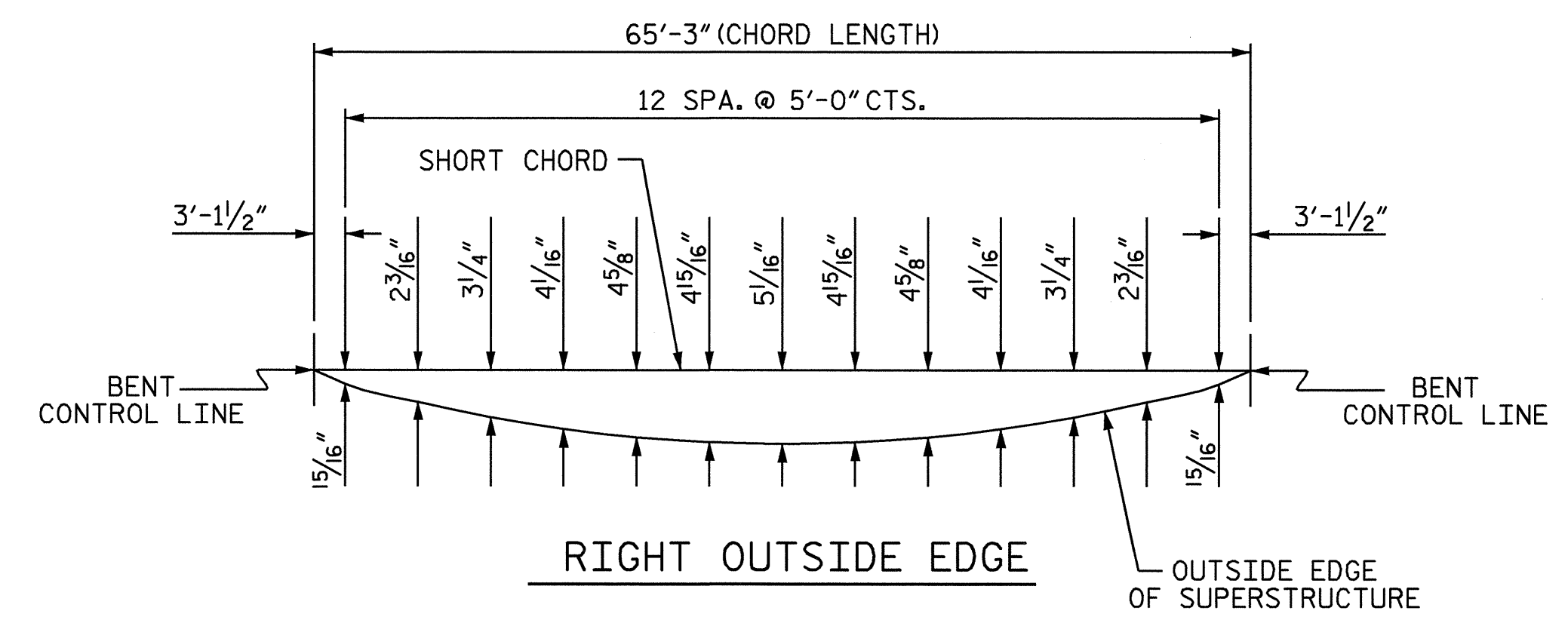
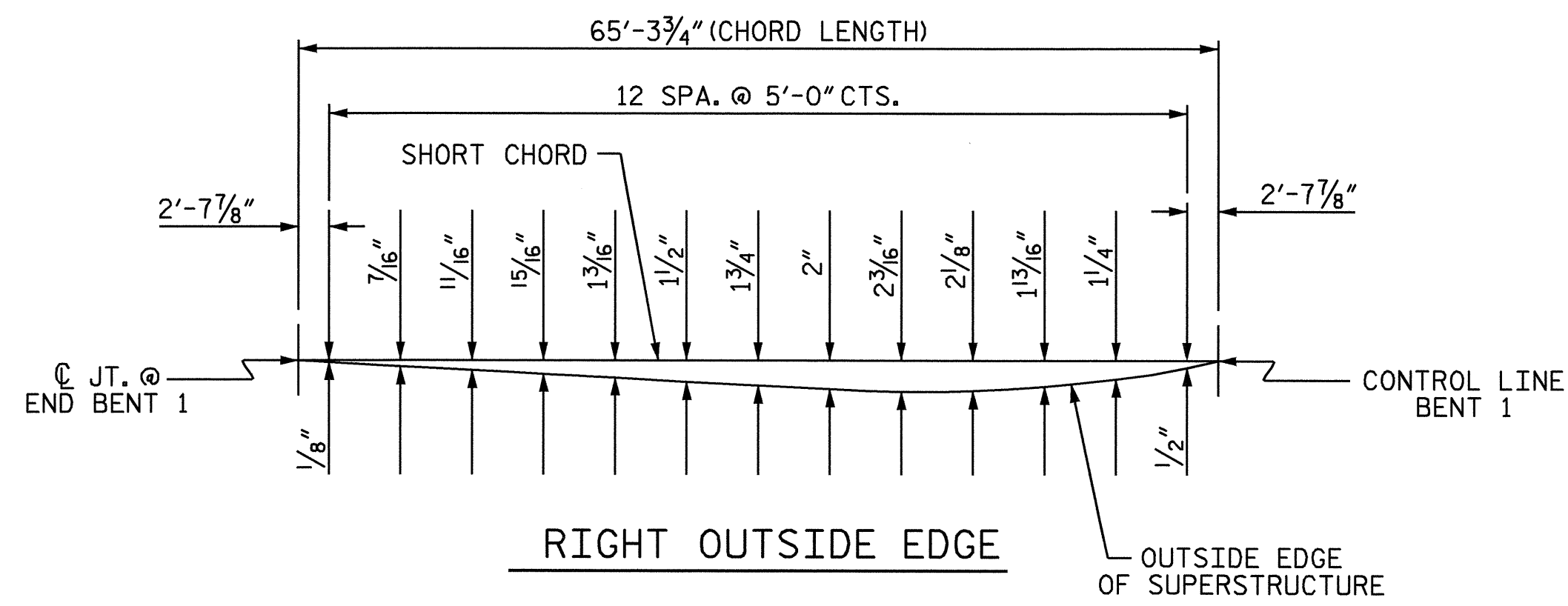
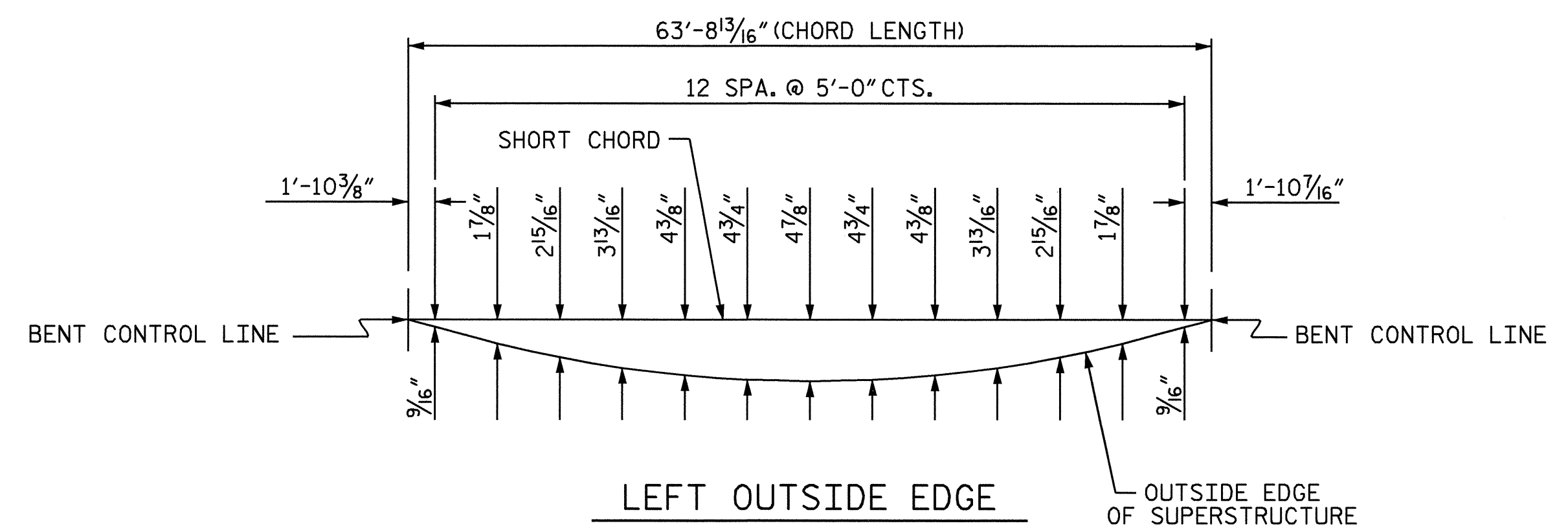
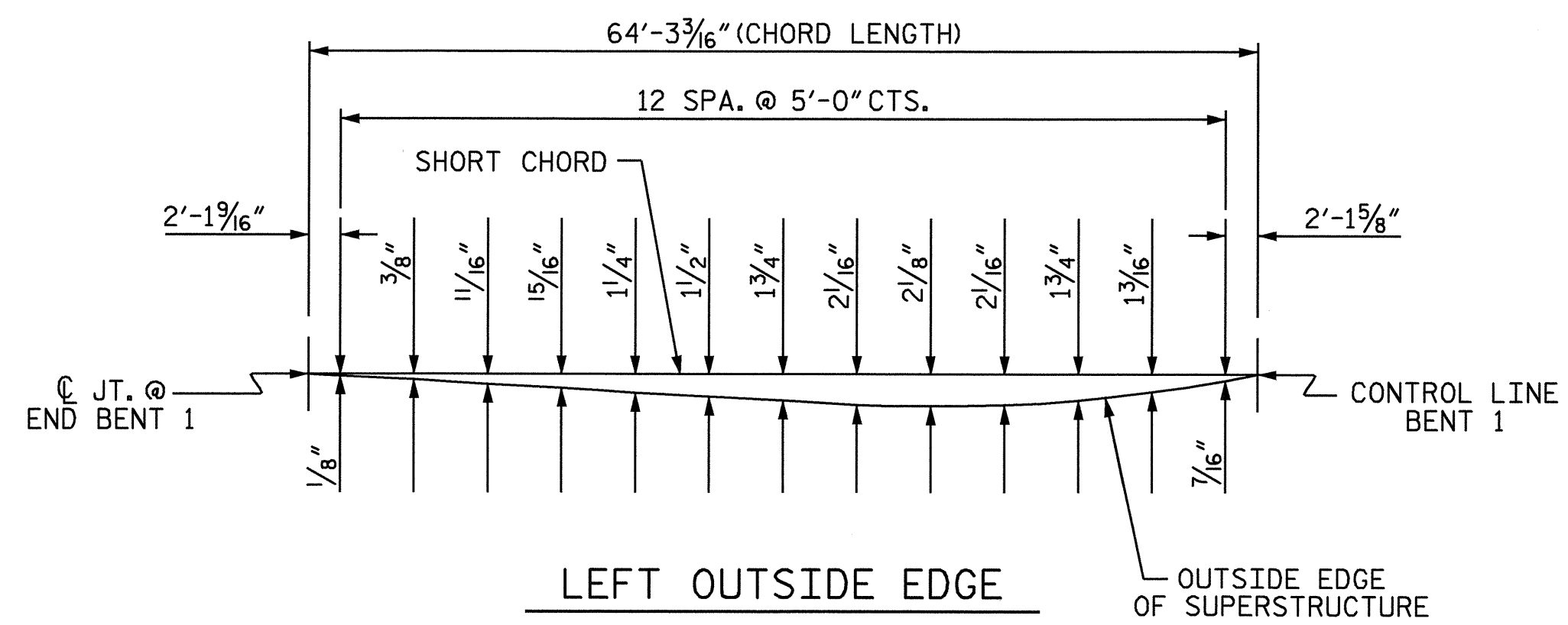
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 PLAN OF SPAN G**



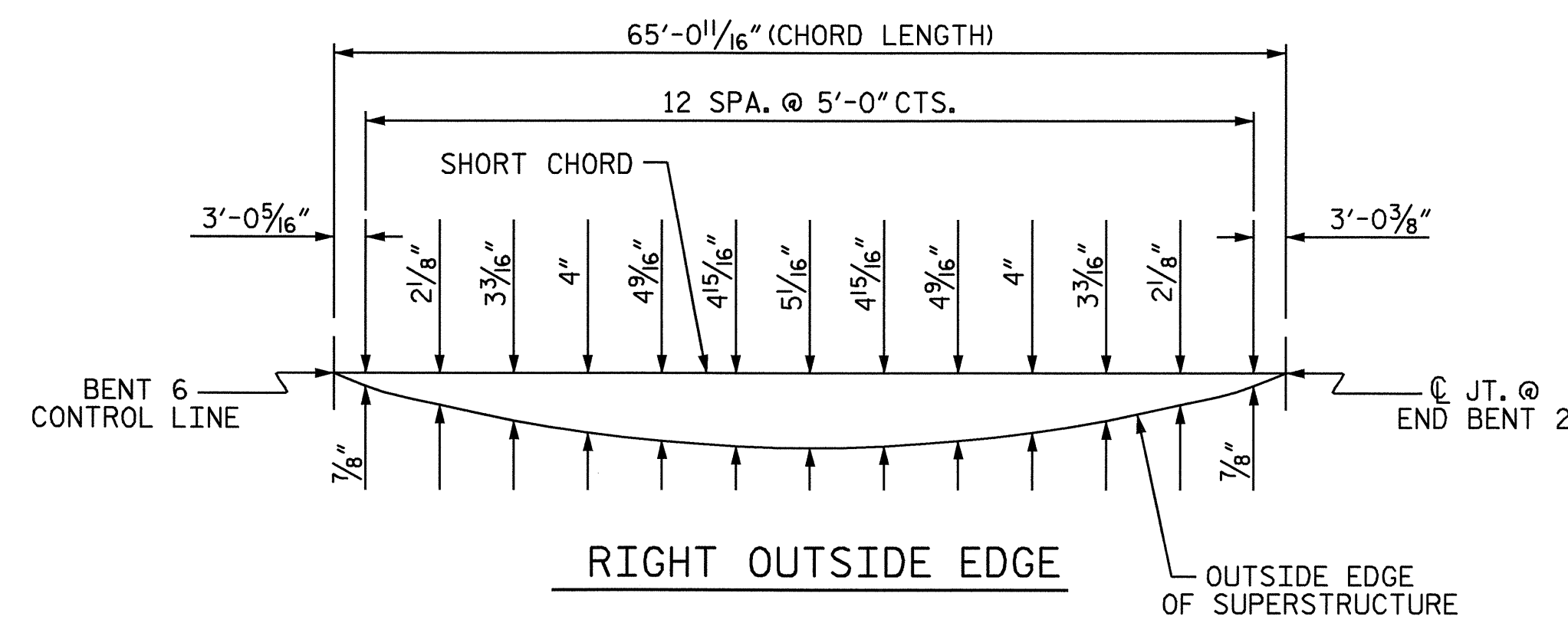
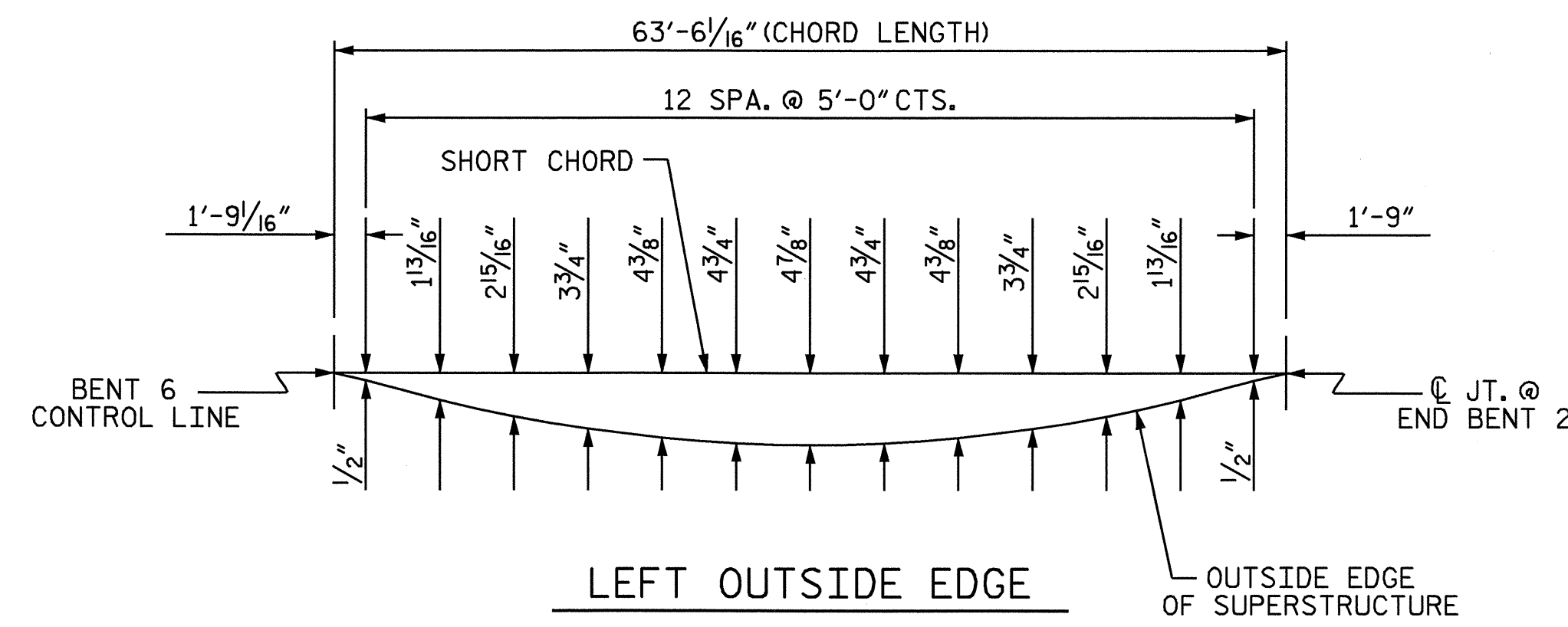
DRAWN BY: D. G. ELY DATE: 10/06
 CHECKED BY: A. R. CHESSON DATE: 2/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			55



ARC OFFSET - SPAN A

ARC OFFSET - SPANS B, C, D, E, & F



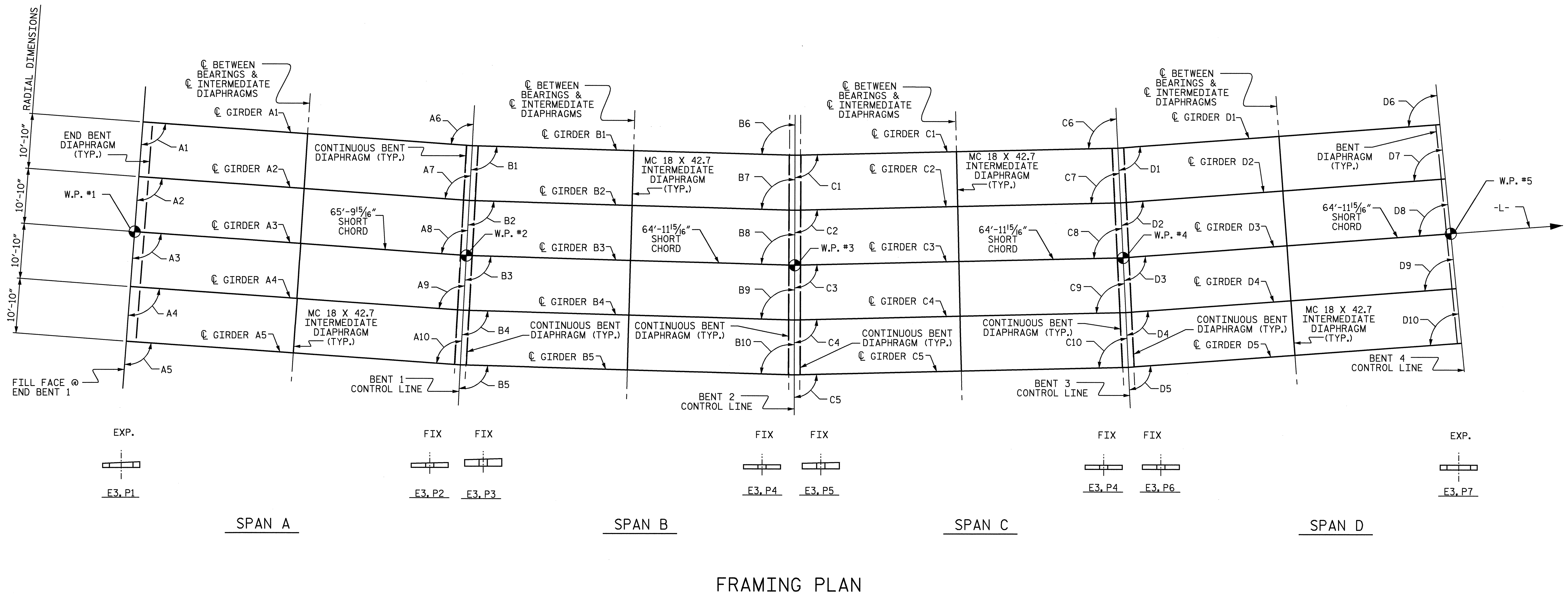
ARC OFFSET - SPAN G

PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.
SUPERSTRUCTURE PLAN OF SPANS						S-15
REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	55
1			3			
2			4			

DRAWN BY : D. G. ELY DATE : 10/06
 CHECKED BY : A. R. CHESSON DATE : 2/07



SPAN	GIRDER	ANGLE TO SHORT CHORD NEAR SIDE	ANGLE TO SHORT CHORD FAR SIDE	GIRDER	ANGLE TO SHORT CHORD NEAR SIDE	ANGLE TO SHORT CHORD FAR SIDE	GIRDER	ANGLE TO SHORT CHORD NEAR SIDE	ANGLE TO SHORT CHORD FAR SIDE	GIRDER	ANGLE TO SHORT CHORD NEAR SIDE	ANGLE TO SHORT CHORD FAR SIDE			
													GIRDER	ANGLE TO SHORT CHORD NEAR SIDE	ANGLE TO SHORT CHORD FAR SIDE
SPAN A	A1	A1 = 90°-14'-49"	A6 = 89°-01'-53"	SPAN B	B1	B1 = 91°-27'-45"	B6 = 88°-32'-15"	SPAN C	C1	C1 = 91°-27'-45"	C6 = 88°-32'-15"	SPAN D	D1	D1 = 91°-27'-45"	D6 = 88°-32'-15"
	A2	A2 = 90°-14'-53"	A7 = 89°-01'-58"		B2	B2 = 91°-27'-45"	B7 = 88°-32'-15"		C2	C2 = 91°-27'-45"	C7 = 88°-32'-15"		D2	D2 = 91°-27'-45"	D7 = 88°-32'-15"
	A3	A3 = 90°-14'-58"	A8 = 89°-02'-02"		B3	B3 = 91°-27'-45"	B8 = 88°-32'-15"		C3	C3 = 91°-27'-45"	C8 = 88°-32'-15"		D3	D3 = 91°-27'-45"	D8 = 88°-32'-15"
	A4	A4 = 90°-15'-02"	A9 = 89°-02'-07"		B4	B4 = 91°-27'-45"	B9 = 88°-32'-15"		C4	C4 = 91°-27'-45"	C9 = 88°-32'-15"		D4	D4 = 91°-27'-45"	D9 = 88°-32'-15"
	A5	A5 = 90°-15'-07"	A10 = 89°-02'-11"		B5	B5 = 91°-27'-45"	B10 = 88°-32'-15"		C5	C5 = 91°-27'-45"	C10 = 88°-32'-15"		D5	D5 = 91°-27'-45"	D10 = 88°-32'-15"

PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 1 OF 2



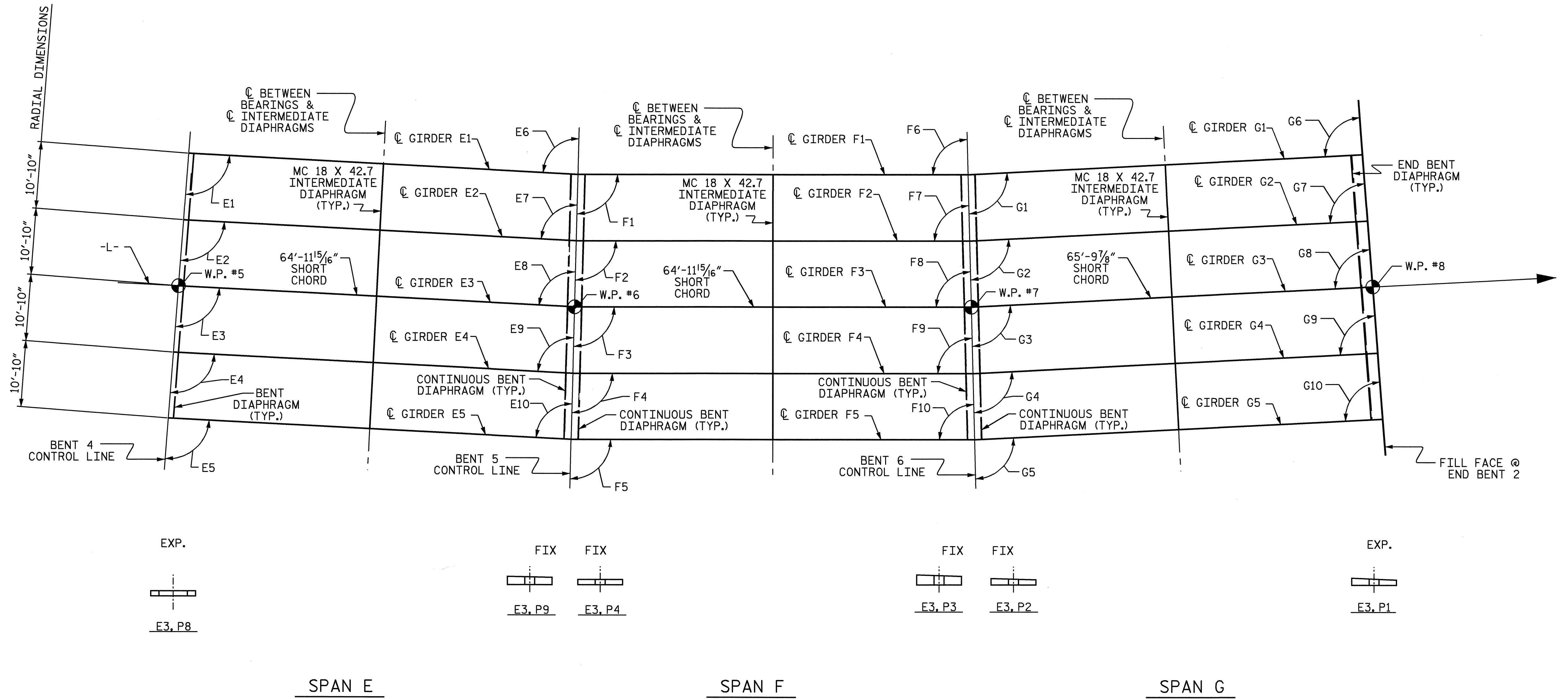
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 FRAMING PLAN**

REVISIONS						SHEET NO. S-16
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 55
2			4			

DRAWN BY: D. G. ELY DATE: 11/06
 CHECKED BY: A. R. CHESSON DATE: 2/07

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FRAMING PLAN

PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 2 OF 2

SPAN	GIRDER	ANGLE TO SHORT CHORD	ANGLE TO SHORT CHORD	GIRDER	ANGLE TO SHORT CHORD	ANGLE TO SHORT CHORD	GIRDER	ANGLE TO SHORT CHORD	ANGLE TO SHORT CHORD		
		NEAR SIDE	FAR SIDE		NEAR SIDE	FAR SIDE		NEAR SIDE	FAR SIDE		
SPAN E	E1	E1 = 91°-27'-45"	E6 = 88°-32'-15"	SPAN F	F1	F1 = 91°-27'-45"	F6 = 88°-32'-15"	SPAN G	G1	G1 = 91°-28'-52"	G6 = 88°-31'-08"
	E2	E2 = 91°-27'-45"	E7 = 88°-32'-15"		F2	F2 = 91°-27'-45"	F7 = 88°-32'-15"		G2	G2 = 91°-28'-52"	G7 = 88°-31'-08"
	E3	E3 = 91°-27'-45"	E8 = 88°-32'-15"		F3	F3 = 91°-27'-45"	F8 = 88°-32'-15"		G3	G3 = 91°-28'-52"	G8 = 88°-31'-08"
	E4	E4 = 91°-27'-45"	E8 = 88°-32'-15"		F4	F4 = 91°-27'-45"	F8 = 88°-32'-15"		G4	G4 = 91°-28'-52"	G9 = 88°-31'-08"
	E5	E5 = 91°-27'-45"	E9 = 88°-32'-15"		F5	F5 = 91°-27'-45"	F9 = 88°-32'-15"		G5	G5 = 91°-28'-52"	G10 = 88°-31'-08"

DRAWN BY: D. G. ELY DATE: 11/06
 CHECKED BY: A. R. CHESSON DATE: 2/07

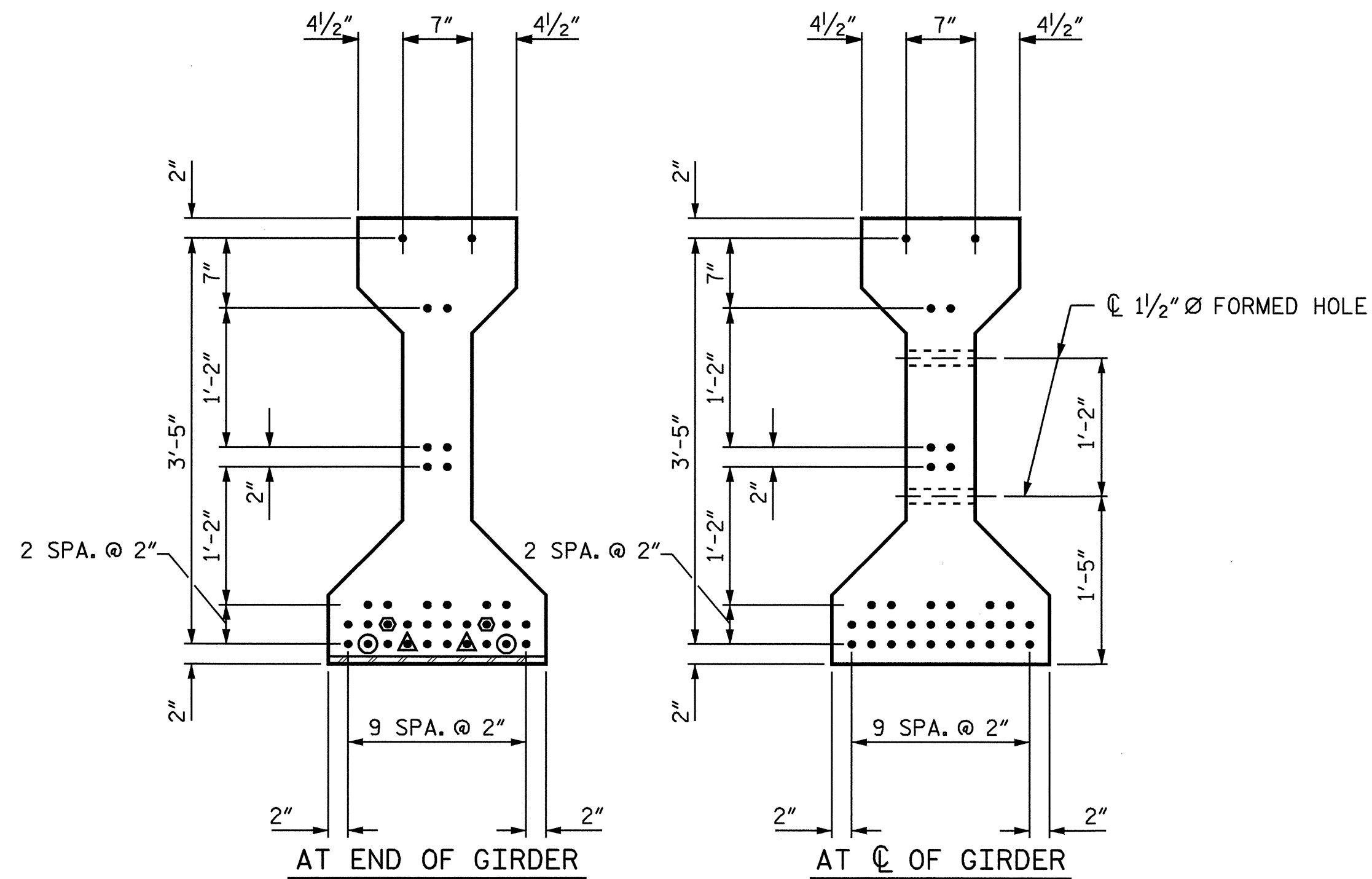
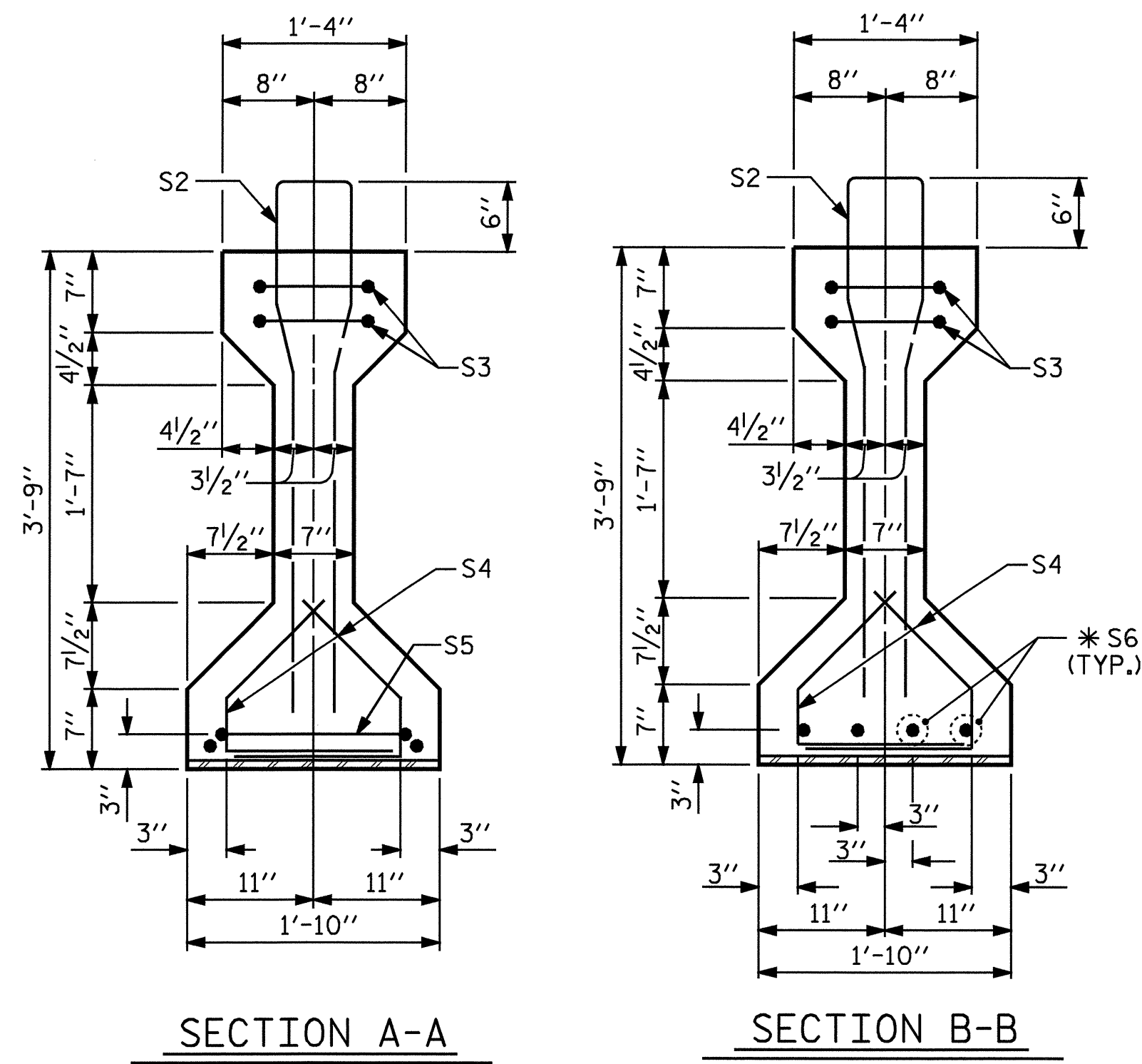
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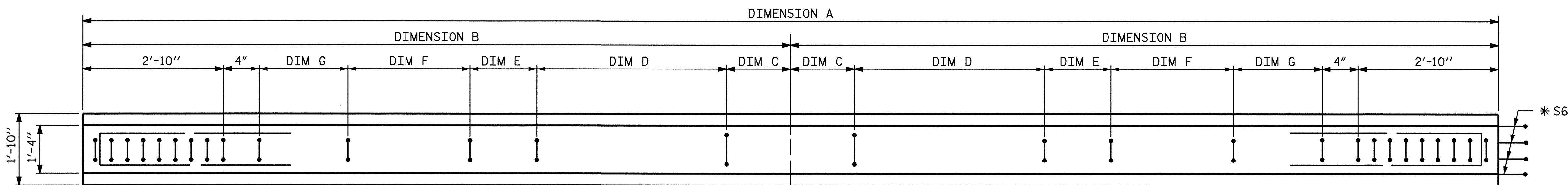
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 FRAMING PLAN

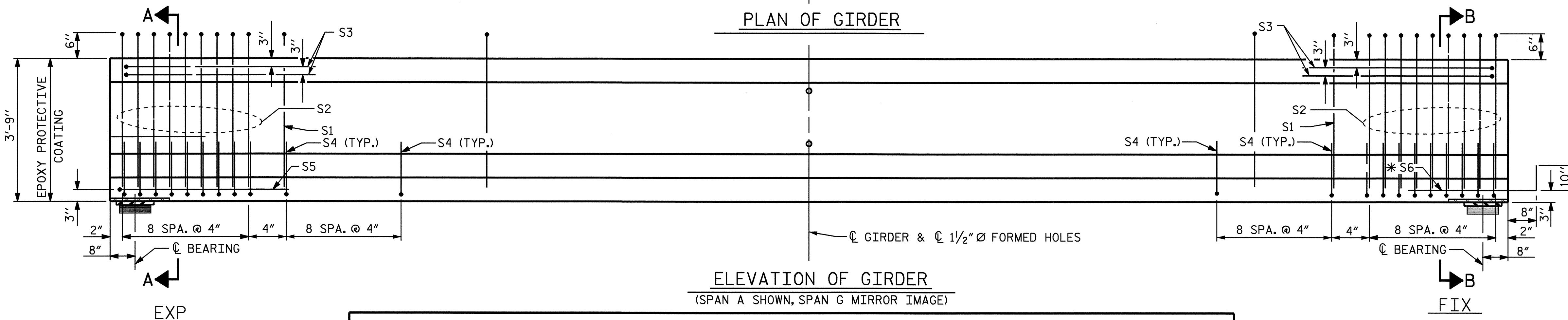
REVISIONS						SHEET NO. S-17
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 55
2			4			



AT END OF GIRDER
AT C OF GIRDER
0.6" Ø LOW RELAXATION STRAND LAYOUT
(34 STRANDS, ALL STRAIGHT)



PLAN OF GIRDER



ELEVATION OF GIRDER
(SPAN A SHOWN, SPAN G MIRROR IMAGE)

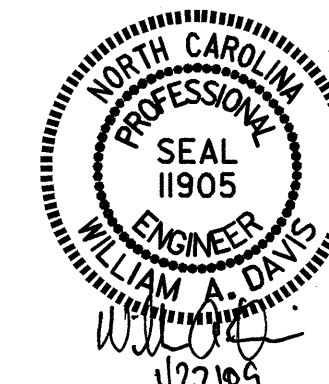
DEBONDING LEGEND

- FULLY BONDED STRANDS
- ▲ STRANDS DEBONDED FOR 6-0" FROM END OF GIRDER
- ⊙ STRANDS DEBONDED FOR 10-0" FROM END OF GIRDER
- ⊙ STRANDS DEBONDED FOR 18-0" FROM END OF GIRDER

DRAWN BY: D. G. ELY DATE: 11/06
CHECKED BY: A. R. CHESSON DATE: 2/07

GIRDER DIMENSIONS - SPAN A							
	DIMENSION A	DIMENSION B	DIMENSION C	DIMENSION D	DIMENSION E	DIMENSION F	DIMENSION G
GIRDER A1	63'-8 7/8"	31'-10 1/16"	10"	14 SPA @ 1'-2"	2 SPA @ 9 7/8"	12 SPA @ 6"	12 SPA @ 4"
GIRDER A2	63'-11 5/8"	31'-11 13/16"	10"	14 SPA @ 1'-2"	2 SPA @ 9 3/16"	12 SPA @ 6"	12 SPA @ 4"
GIRDER A3	64'-2 3/8"	32'-1 3/16"	10"	14 SPA @ 1'-2"	2 SPA @ 10 1/2"	12 SPA @ 6"	12 SPA @ 4"
GIRDER A4	64'-5 1/8"	32'-2 9/16"	10"	14 SPA @ 1'-2"	2 SPA @ 11 3/16"	12 SPA @ 6"	12 SPA @ 4"
GIRDER A5	64'-7 1/8"	32'-3 15/16"	10"	14 SPA @ 1'-2"	2 SPA @ 11 7/8"	12 SPA @ 6"	12 SPA @ 4"
GIRDER DIMENSIONS - SPAN G							
	DIMENSION A	DIMENSION B	DIMENSION C	DIMENSION D	DIMENSION E	DIMENSION F	DIMENSION G
GIRDER G1	63'-1"	31'-6 1/2"	10"	14 SPA @ 1'-2"	2 SPA @ 7 1/8"	12 SPA @ 6"	12 SPA @ 4"
GIRDER G2	63'-7 5/8"	31'-9 13/16"	10"	14 SPA @ 1'-2"	2 SPA @ 8 13/16"	12 SPA @ 6"	12 SPA @ 4"
GIRDER G3	64'-2 3/8"	32'-1 3/16"	10"	14 SPA @ 1'-2"	2 SPA @ 10 1/2"	12 SPA @ 6"	12 SPA @ 4"
GIRDER G4	64'-9 1/8"	32'-4 9/16"	10"	14 SPA @ 1'-2"	2 SPA @ 1'-0 1/8"	12 SPA @ 6"	12 SPA @ 4"
GIRDER G5	65'-3 7/8"	32'-7 15/16"	10"	14 SPA @ 1'-2"	2 SPA @ 1'-1 3/16"	12 SPA @ 6"	12 SPA @ 4"

FOR BEVEL AT ENDS OF GIRDERS, SEE SHEET 4 OF 5.
FOR LOCATION OF 1/2" FORMED HOLES AND LOCATION OF S7 AND S8 BARS IN GIRDERS, SEE SHEET 4 OF 5 AND SHEET 5 OF 5.



0.6" Ø L.R GRADE 270 STRANDS

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

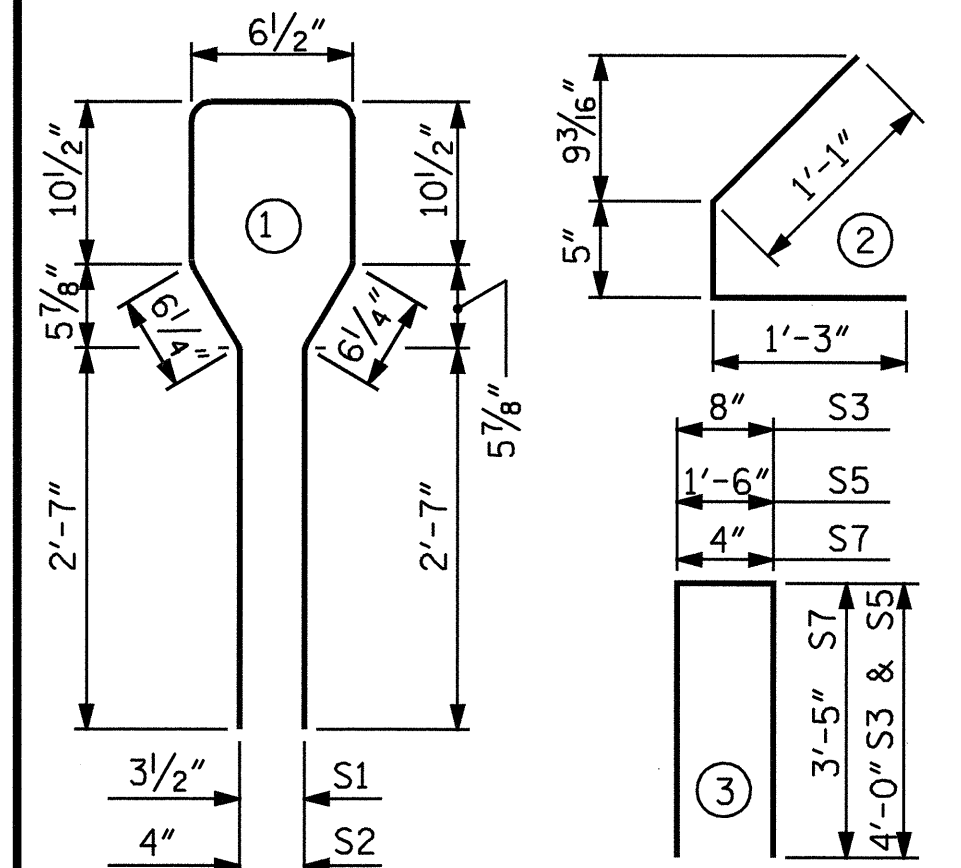
REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	82	#4	1	8'-6"	466
S2	18	#6	1	8'-6"	230
S3	4	#4	3	8'-8"	23
S4	72	#4	2	2'-9"	132
S5	1	#4	3	9'-6"	6
*S6	4	#5	STR	3'-8"	15
S7	2	#5	3	7'-2"	15
S8	5	#4	STR	7'-0"	23

* NOTE: S6 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	8500 PSI CONCRETE	0.6" Ø L.R STRAND
	LB.	C.Y.	No.
A3 OR G3	910	9.2	34

GIRDERS REQUIRED

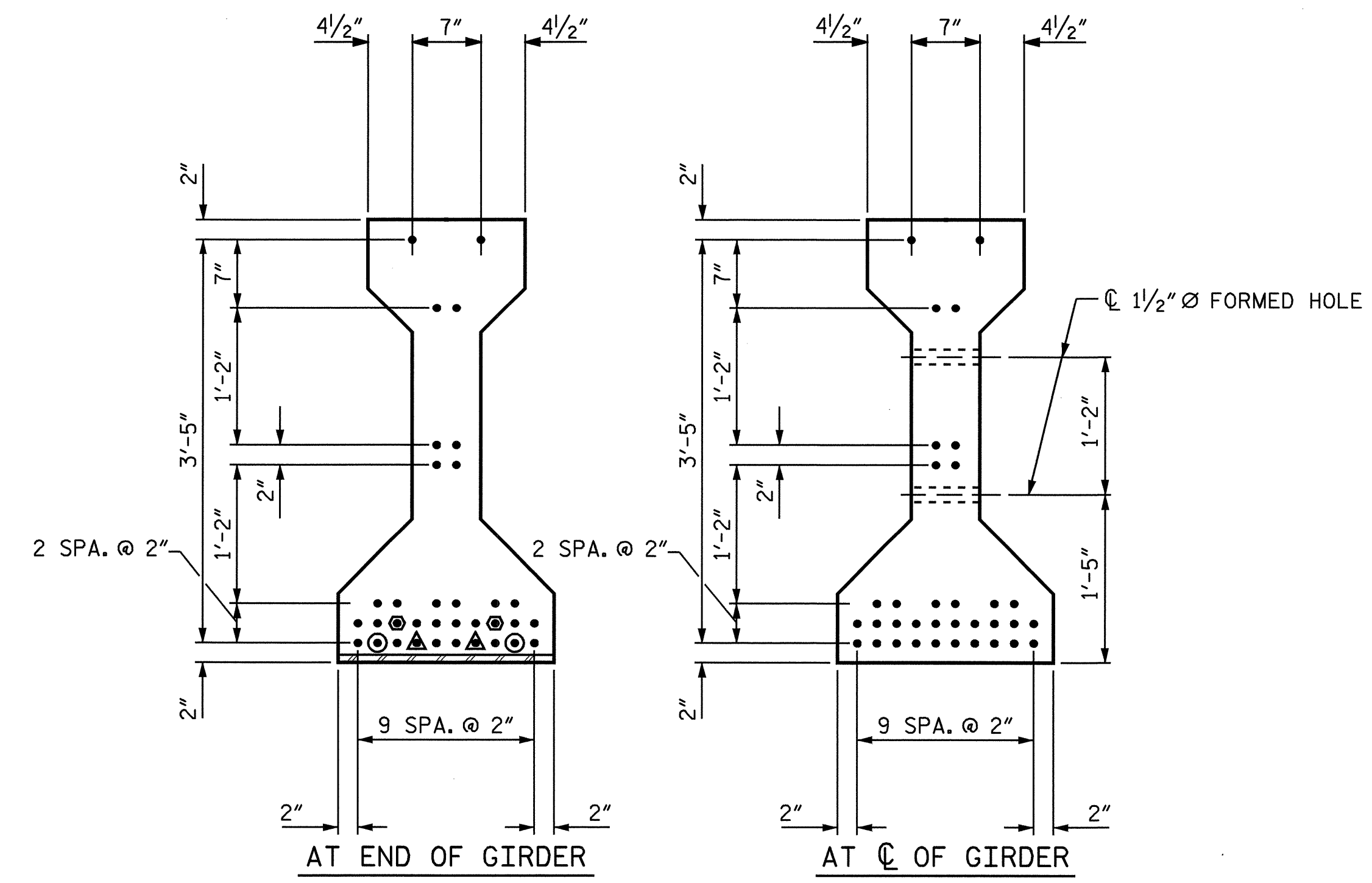
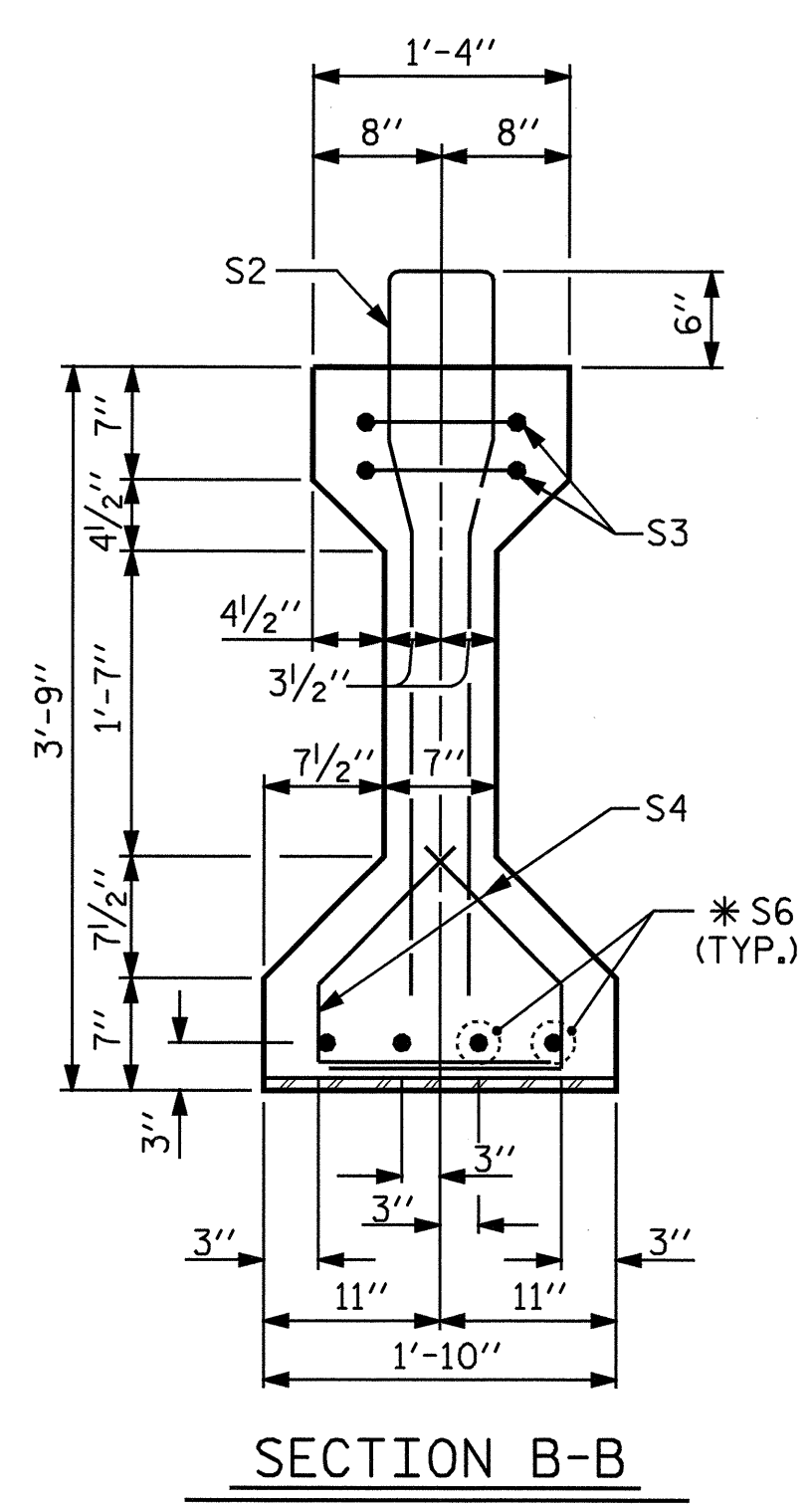
SPAN	NUMBER	LENGTH	TOTAL LENGTH
A	5	SEE CHART	321.00
G	5	SEE CHART	321.00

PROJECT NO. B-4019
BEAUFORT COUNTY
STATION: 19+52.00 -L-

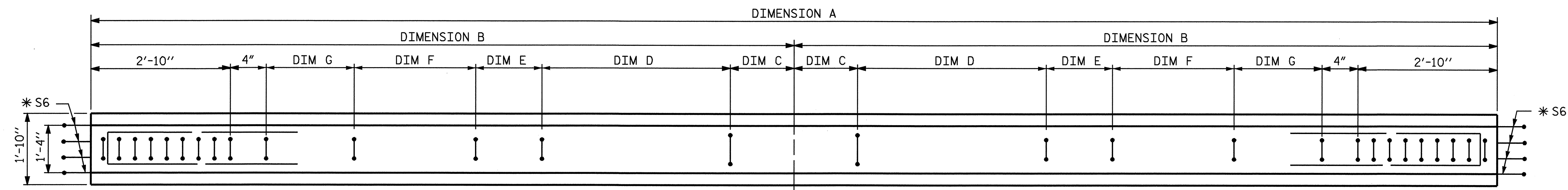
SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
AASHTO TYPE III
PRESTRESSED CONCRETE
GIRDER CONTINUOUS
FOR LIVE LOAD
(SPANS A & G)

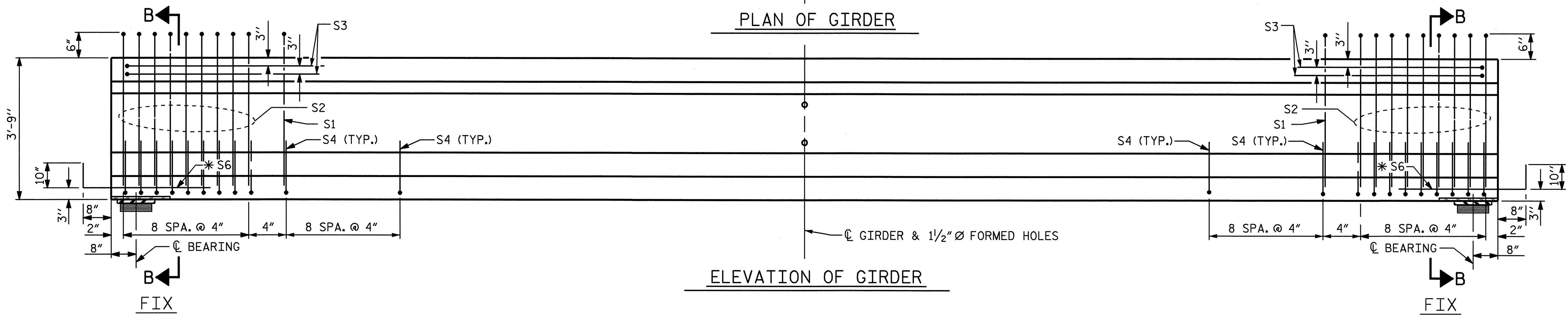
REVISIONS						SHEET NO. S-18
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 55
2			4			



0.6" Ø LOW RELAXATION STRAND LAYOUT
(34 STRANDS, ALL STRAIGHT)



PLAN OF GIRDER



ELEVATION OF GIRDER

0.6" Ø L.R GRADE 270 STRANDS

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

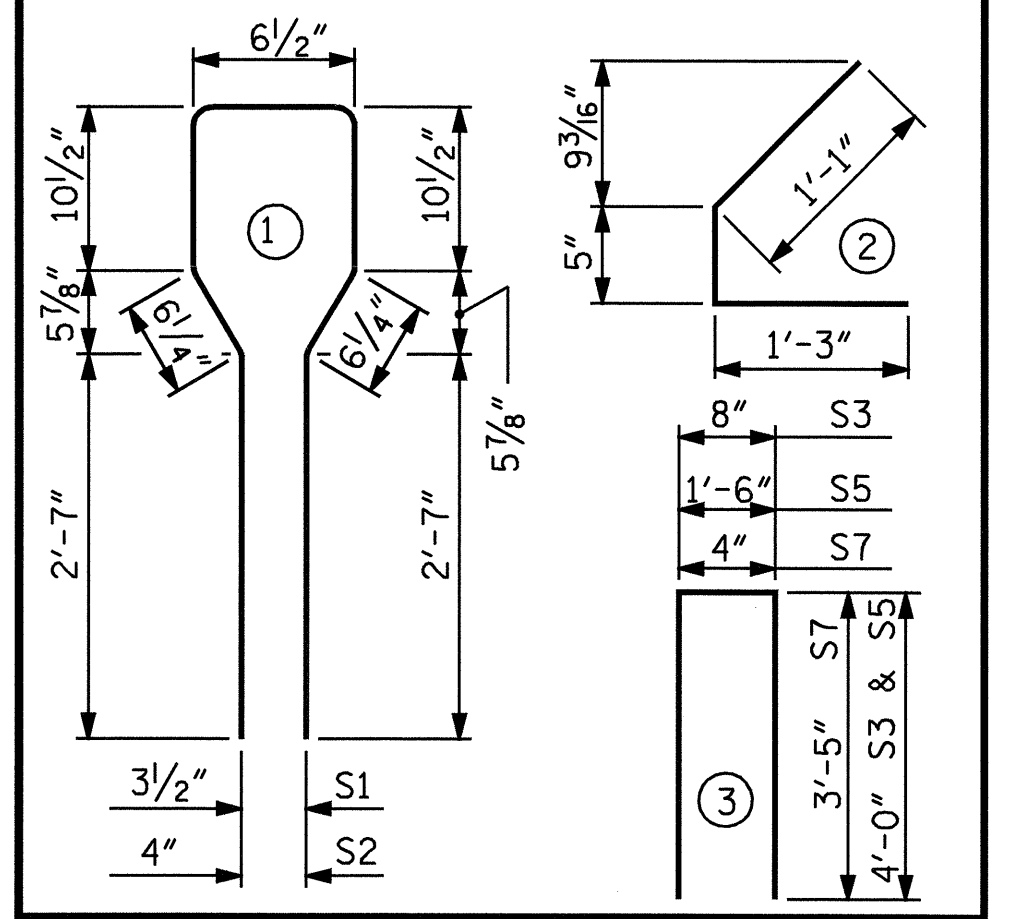
REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	82	#4	1	8'-6"	466
S2	18	#6	1	8'-6"	230
S3	4	#4	3	8'-8"	23
S4	72	#4	2	2'-9"	132
*S6	8	#5	STR	3'-8"	31
S7	2	#5	3	7'-2"	15
S8	5	#4	STR	7'-0"	23

* NOTE: S6 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.	8500 PSI CONCRETE C.Y.	0.6" Ø L.R STRAND No.
B3, C3, F3	920	9.2	34

GIRDERS REQUIRED

SPAN	NUMBER	LENGTH	TOTAL LENGTH
B	5	SEE CHART	320.81
C	5	SEE CHART	320.81
F	5	SEE CHART	320.81

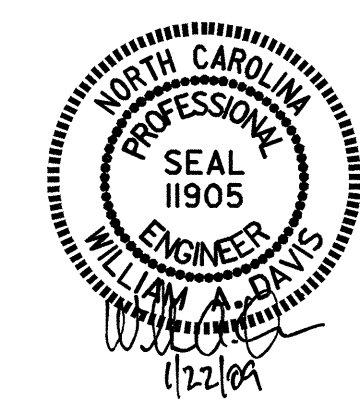
DEBONDING LEGEND

- FULLY BONDED STRANDS
- ▲ STRANDS DEBONDED FOR 6'-0" FROM END OF GIRDER
- ⊙ STRANDS DEBONDED FOR 10'-0" FROM END OF GIRDER
- ⊕ STRANDS DEBONDED FOR 18'-0" FROM END OF GIRDER

CHART
GIRDER DIMENSIONS - SPANS B, C, & F

	DIMENSION A	DIMENSION B	DIMENSION C	DIMENSION D	DIMENSION E	DIMENSION F	DIMENSION G
GIRDER 1	63'-0 ⁵ / ₈ "	31'-6 ⁵ / ₁₆ "	10"	14 SPA @ 1'-2"	2 SPA @ 7 ³ / ₁₆ "	12 SPA @ 6"	12 SPA @ 4"
GIRDER 2	63'-7 ¹ / ₄ "	31'-9 ⁵ / ₁₆ "	10"	14 SPA @ 1'-2"	2 SPA @ 8 ¹³ / ₁₆ "	12 SPA @ 6"	12 SPA @ 4"
GIRDER 3	64'-2"	32'-1"	10"	14 SPA @ 1'-2"	2 SPA @ 10 ¹ / ₂ "	12 SPA @ 6"	12 SPA @ 4"
GIRDER 4	64'-8 ⁵ / ₁₆ "	32'-4 ⁵ / ₁₆ "	10"	14 SPA @ 1'-2"	2 SPA @ 1'-0 ¹ / ₈ "	12 SPA @ 6"	12 SPA @ 4"
GIRDER 5	65'-3 ¹ / ₄ "	32'-7 ⁵ / ₁₆ "	10"	14 SPA @ 1'-2"	2 SPA @ 1'-1 ³ / ₁₆ "	12 SPA @ 6"	12 SPA @ 4"

FOR BEVEL AT ENDS OF GIRDERS, SEE SHEET 4 OF 5.
FOR LOCATION OF 1/2" FORMED HOLES AND LOCATION OF S7 AND S8 BARS IN GIRDERS, SEE SHEET 4 OF 5 AND SHEET 5 OF 5.



DRAWN BY: D. G. ELY DATE: 11/06
CHECKED BY: A. R. CHESSON DATE: 2/07

PROJECT NO. B-4019
BEAUFORT COUNTY
STATION: 19+52.00 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

AASHTO TYPE III
PRESTRESSED CONCRETE
GIRDER CONTINUOUS
FOR LIVE LOAD
(SPANS B, C & F)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			55

0.6"Ø L.R GRADE 270 STRANDS

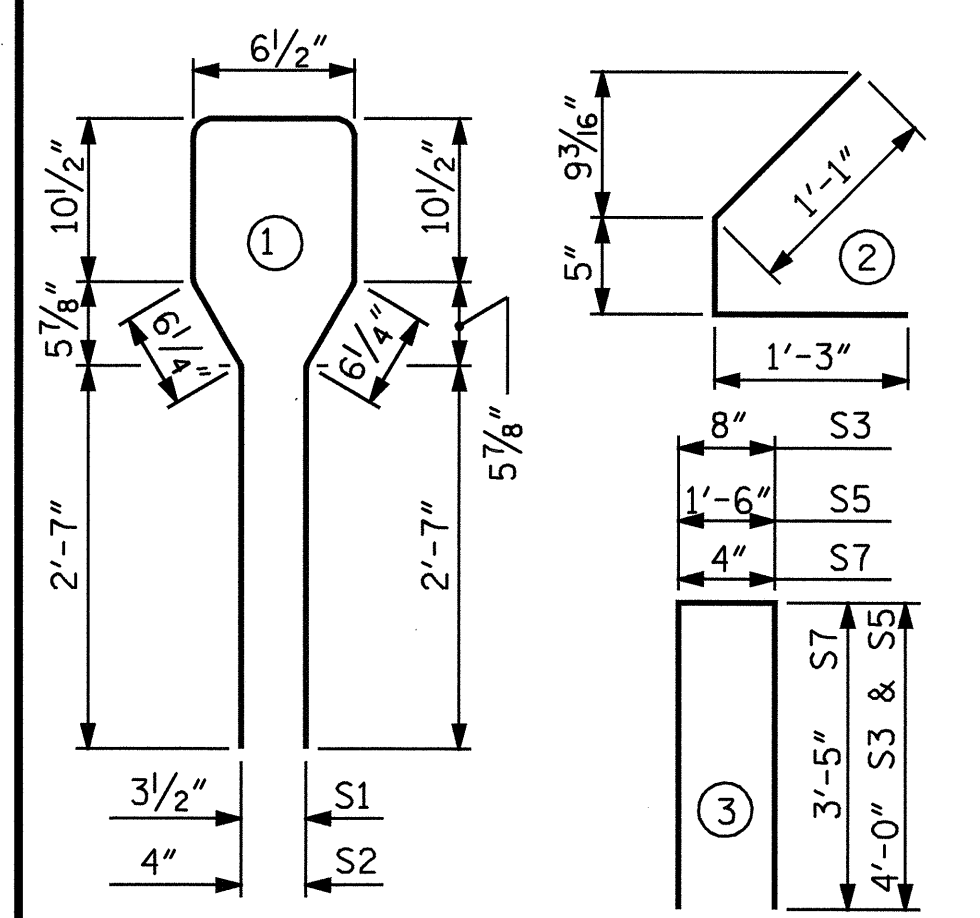
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	82	#4	1	8'-6"	466
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S4	72	#4	2	2'-9"	132
S5	1	#4	3	9'-6"	6
*S6	4	#5	STR	3'-8"	15
S7	2	#5	3	7'-2"	15
S8	5	#4	STR	7'-0"	23

* NOTE: S6 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	8500 PSI CONCRETE	0.6"Ø L.R STRAND
LB.	C.Y.	No.
D3 OR E3	910	9.2
		34

GIRDERS REQUIRED

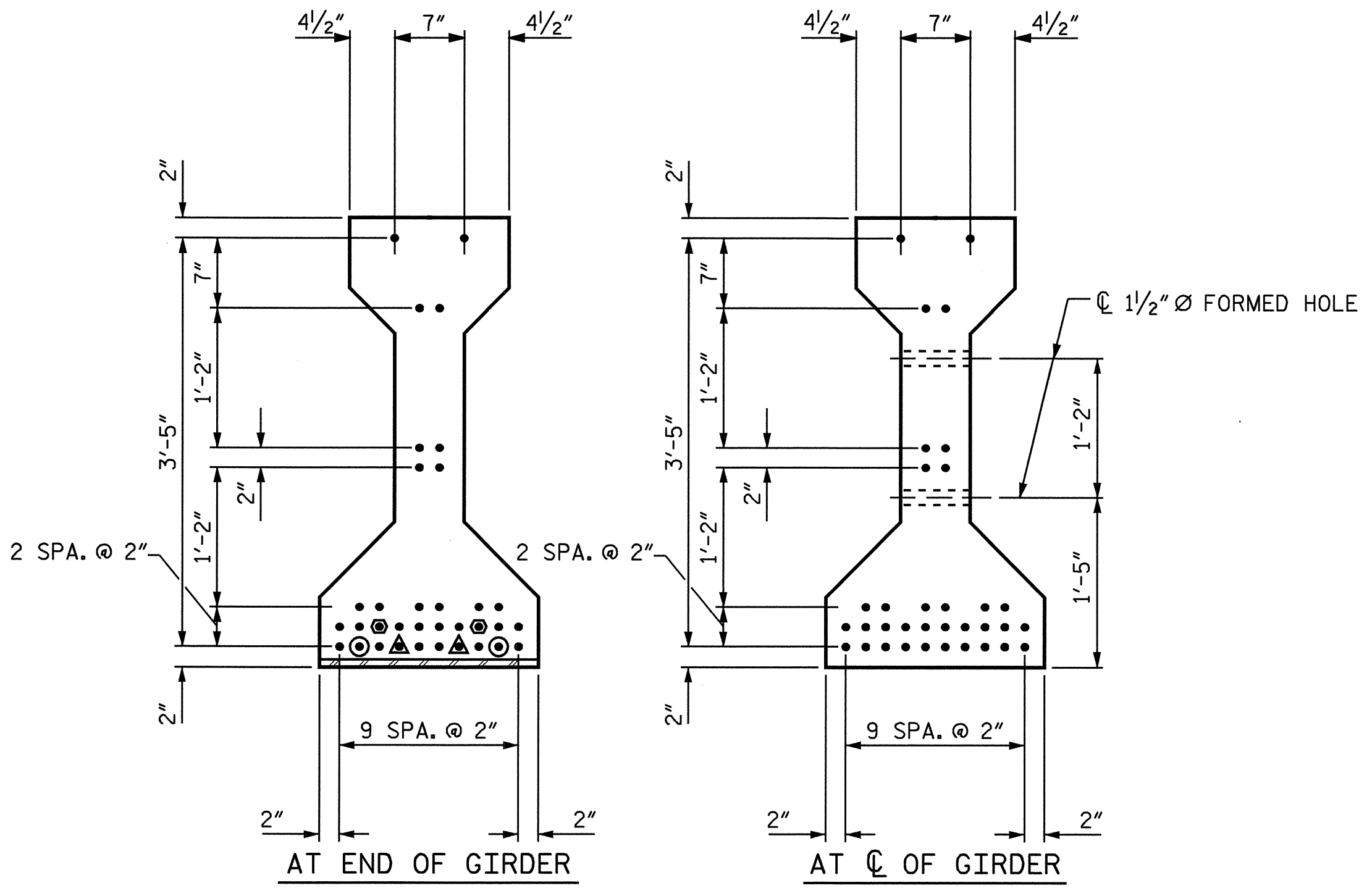
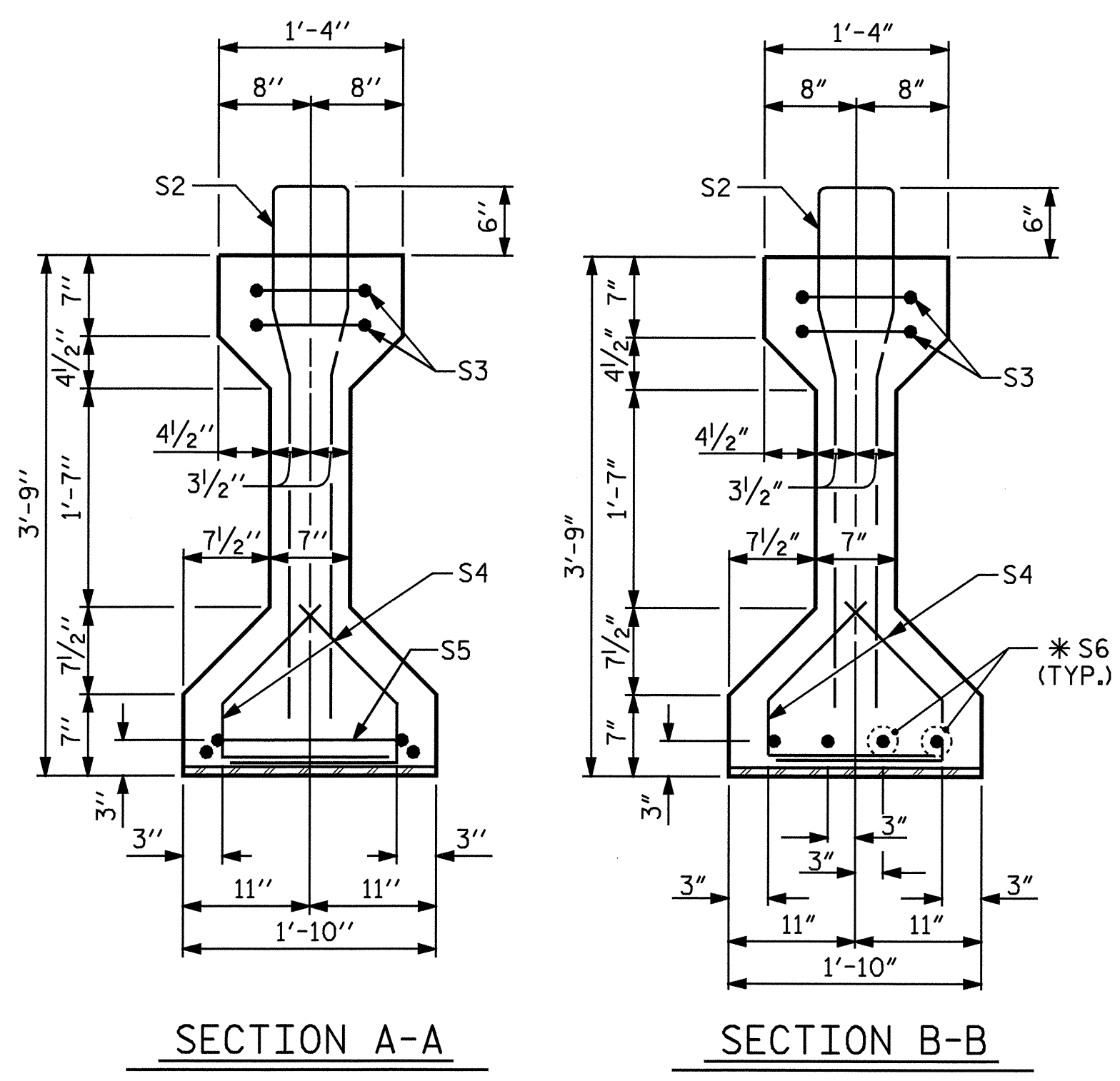
SPAN	NUMBER	LENGTH	TOTAL LENGTH
D	5	SEE CHART	320.81
E	5	SEE CHART	320.81

PROJECT NO. B-4019
BEAUFORT COUNTY
STATION: 19+52.00 -L-

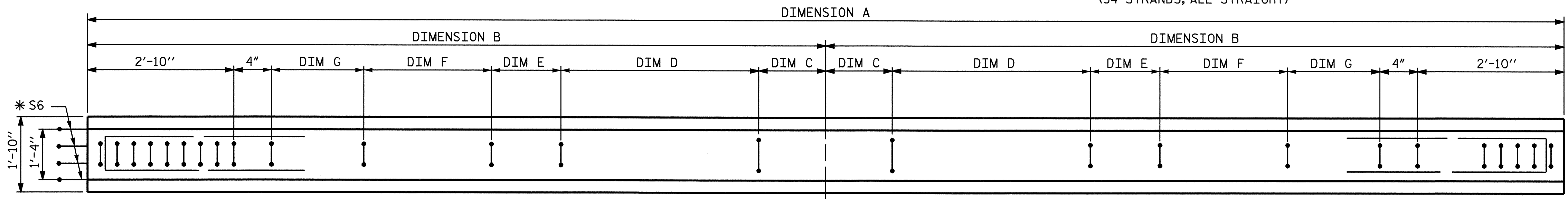
SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
AASHTO TYPE III
PRESTRESSED CONCRETE
GIRDER CONTINUOUS
FOR LIVE LOAD
(SPANS D & E)

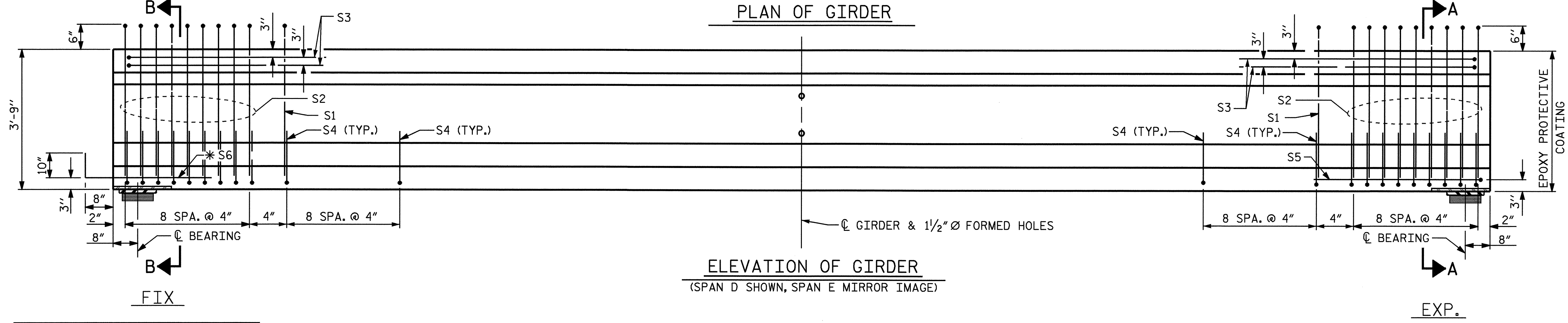
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS 55
2			4			



0.6"Ø LOW RELAXATION STRAND LAYOUT
(34 STRANDS, ALL STRAIGHT)



PLAN OF GIRDER



ELEVATION OF GIRDER
(SPAN D SHOWN, SPAN E MIRROR IMAGE)

FOR BEVEL AT ENDS OF GIRDERS, SEE SHEET 4 OF 5.
FOR LOCATION OF 1/2" FORMED HOLES AND LOCATION OF S7 AND S8 BARS IN GIRDERS, SEE SHEET 4 OF 5 AND SHEET 5 OF 5.

DEBONDING LEGEND

- FULLY BONDED STRANDS
- ▲ STRANDS DEBONDED FOR 6'-0" FROM END OF GIRDER
- STRANDS DEBONDED FOR 10'-0" FROM END OF GIRDER
- ⊙ STRANDS DEBONDED FOR 18'-0" FROM END OF GIRDER

CHART
GIRDER DIMENSIONS - SPANS D, & E

	DIMENSION A	DIMENSION B	DIMENSION C	DIMENSION D	DIMENSION E	DIMENSION F	DIMENSION G
GIRDER 1	63'-0 5/8"	31'-6 5/16"	10"	14 SPA @ 1'-2"	2 SPA @ 7 3/16"	12 SPA @ 6"	12 SPA @ 4"
GIRDER 2	63'-7 1/4"	31'-9 5/8"	10"	14 SPA @ 1'-2"	2 SPA @ 8 3/16"	12 SPA @ 6"	12 SPA @ 4"
GIRDER 3	64'-2"	32'-1"	10"	14 SPA @ 1'-2"	2 SPA @ 10 1/2"	12 SPA @ 6"	12 SPA @ 4"
GIRDER 4	64'-8 5/8"	32'-4 5/16"	10"	14 SPA @ 1'-2"	2 SPA @ 1'-0 1/8"	12 SPA @ 6"	12 SPA @ 4"
GIRDER 5	65'-3 1/4"	32'-7 5/8"	10"	14 SPA @ 1'-2"	2 SPA @ 1'-1 3/16"	12 SPA @ 6"	12 SPA @ 4"

DRAWN BY: D. G. ELY DATE: 11/06
CHECKED BY: A. R. CHESSON DATE: 2/07



DEAD LOAD DEFLECTION TABLE FOR SPANS A, B, C, D, E, F, & G

TENTH POINTS	GIRDER 1											GIRDER 2 & 3 & 4										GIRDER 5											
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
CAMBER (GIRDER ALONE IN PLACE) ↑	0.0	0.078	0.147	0.202	0.236	0.248	0.236	0.202	0.147	0.078	0.0	0.0	0.079	0.150	0.205	0.240	0.252	0.240	0.205	0.150	0.079	0.0	0.0	0.080	0.151	0.206	0.242	0.254	0.242	0.206	0.151	0.080	0.0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0.0	0.019	0.037	0.050	0.059	0.062	0.059	0.050	0.037	0.019	0.0	0.0	0.025	0.048	0.065	0.076	0.080	0.076	0.065	0.048	0.025	0.0	0.0	0.022	0.041	0.057	0.067	0.070	0.067	0.057	0.041	0.022	0.0
FINAL CAMBER ↑	0	1/16"	15/16"	13/16"	2/8"	2/4"	2/8"	13/16"	15/16"	1/16"	0	0	5/8"	1/4"	11/16"	15/16"	2/16"	15/16"	11/16"	1/4"	5/8"	0	0	1/16"	15/16"	13/16"	2/8"	23/16"	2/8"	13/16"	15/16"	1/16"	0

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

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 VIEWS.

EMBEDDED PLATE "B-1" SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. BEVEL EDGES OF PLATE "B-1" TO GIVE CLOSE FIT BUT NOT TIGHT FIT TO STEEL CASTING FORM.

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 7000 PSI.

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

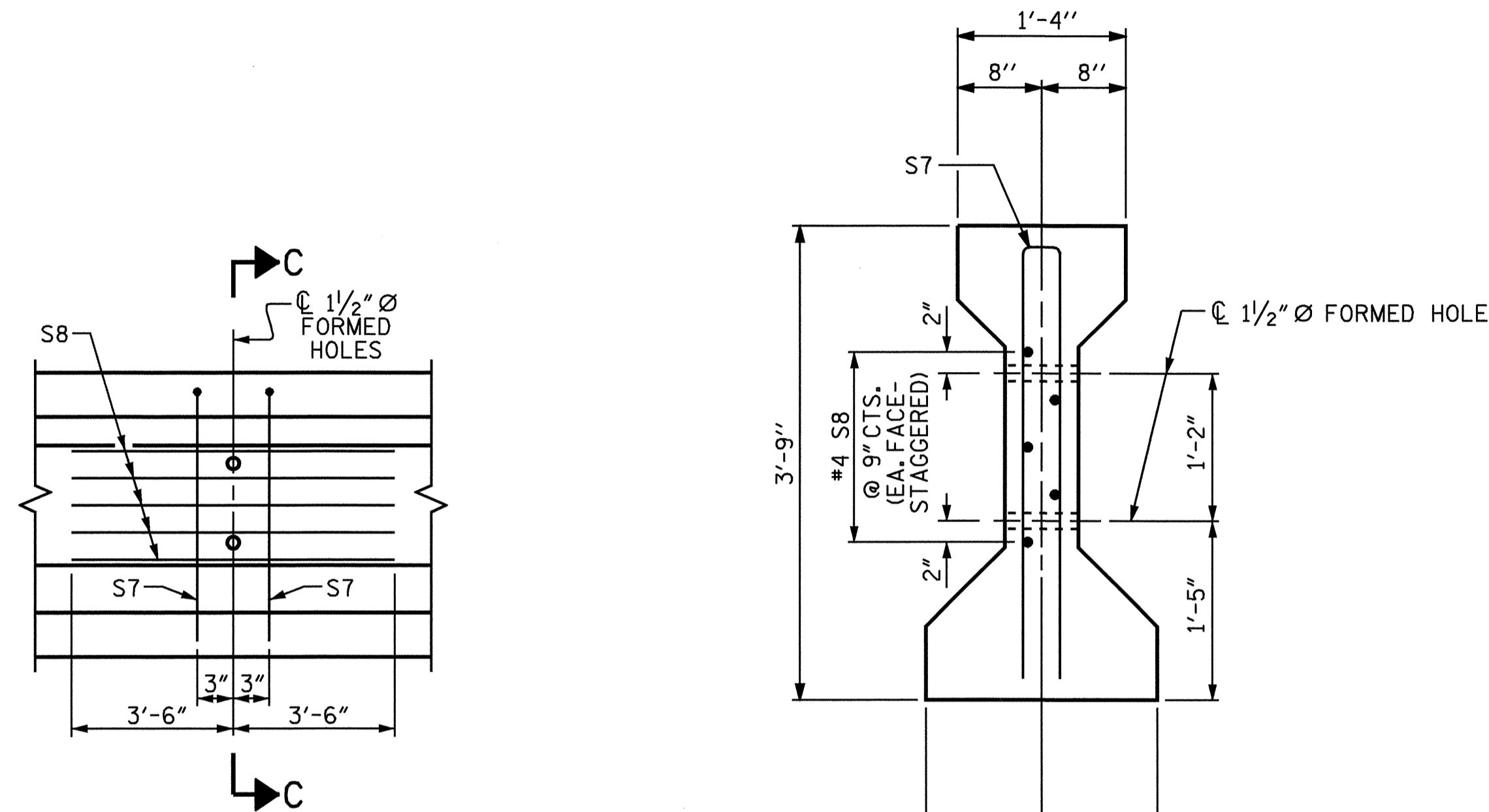
THE TOP SURFACE OF THE GIRDER, EXCLUDING THE OUTSIDE 4", SHALL BE RAKED TO A DEPTH OF 1/4".

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.

FOR CRACK REPAIR OF PRESTRESSED CONCRETE GIRDERS, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

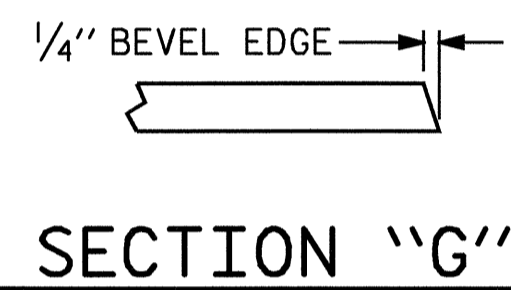


PARTIAL ELEVATION OF 1 1/2" Ø FORMED HOLE

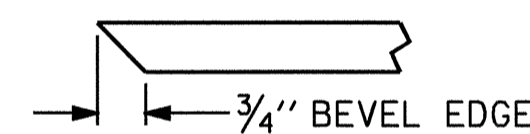
SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL FOR ALL GIRDERS

SECTION C-C

(S1 BARS NOT SHOWN)

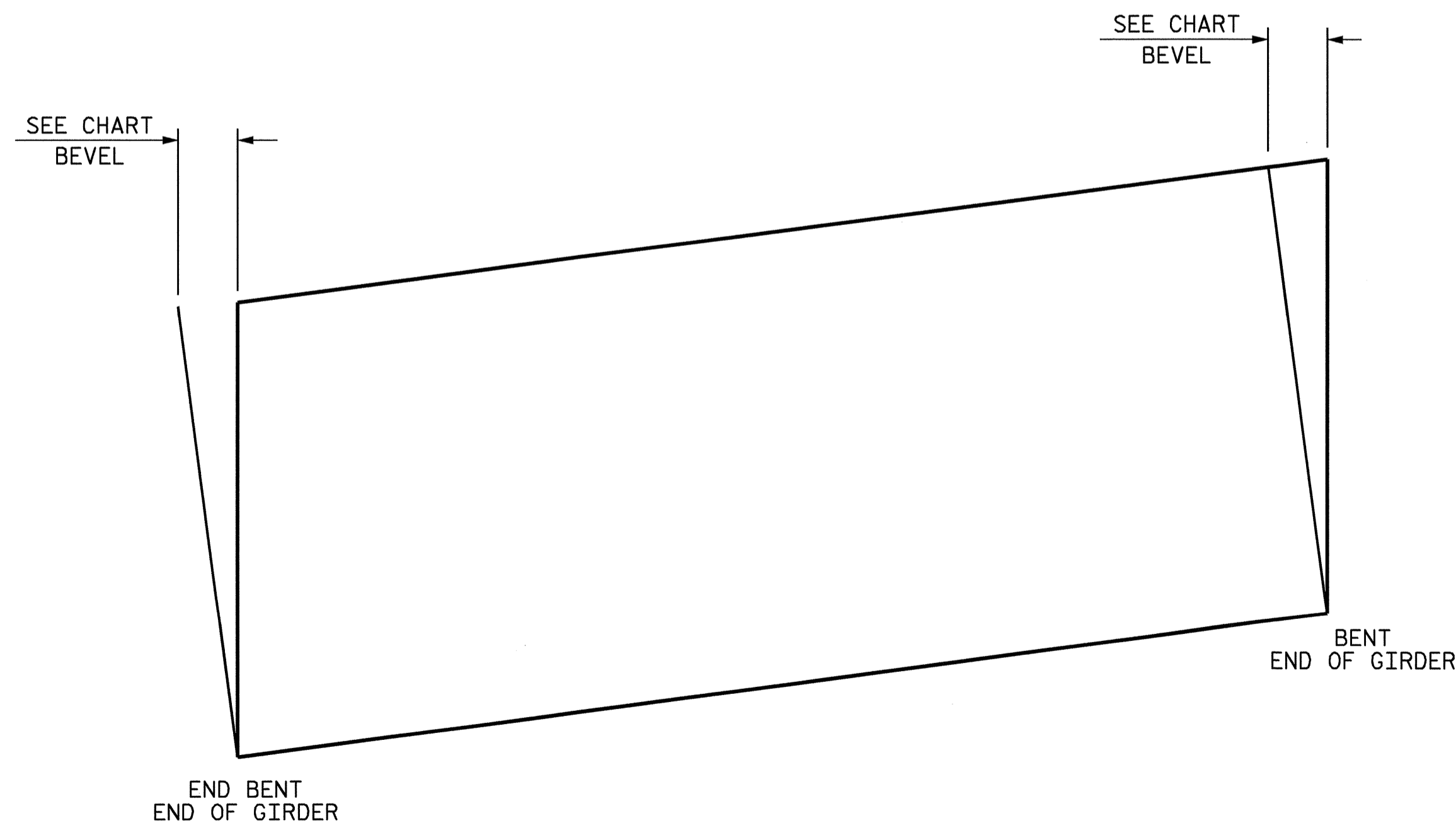


SECTION "G"

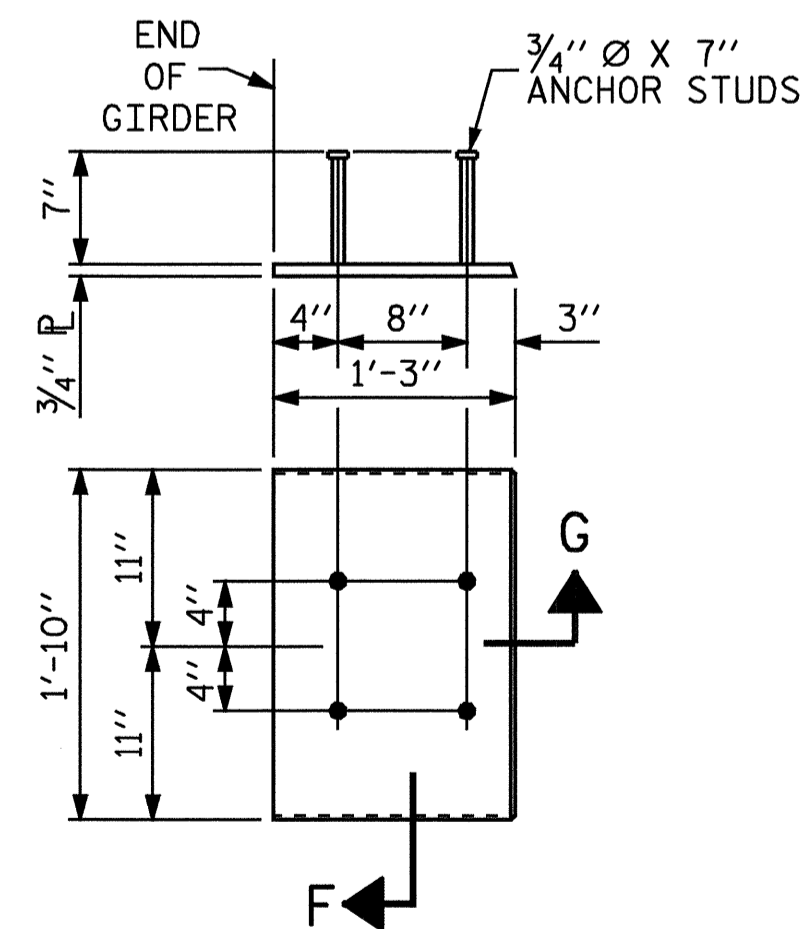


SECTION "F"

(SEE NOTES)



DETAIL FOR BEVELING GIRDER ENDS



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

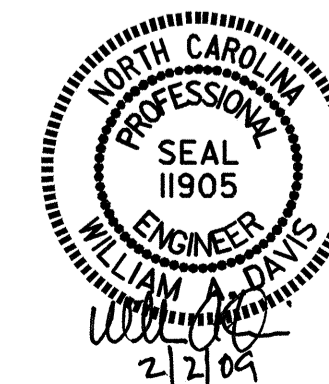
(2 REQ'D PER GIRDER)

BEVEL REQUIREMENTS	
SPAN	BEVEL DIMENSION
A	1 3/8"
G	1 5/8"

PROJECT NO. B-4019
BEAUFORT COUNTY
STATION: 19+52.00 -L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
AASHTO TYPE III
PRESTRESSED CONCRETE
GIRDER CONTINUOUS
FOR LIVE LOAD



DRAWN BY : D. G. ELY DATE : 11/06
CHECKED BY : A. R. CHESSON DATE : 2/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS
2			4			55

STRUCTURAL STEEL NOTES

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

TENSION ON THE AASHTO M164 BOLTS THROUGH THE CHANNEL MEMBER SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS.

TENSION ON THE AASHTO M164 BOLTS THROUGH THE GIRDER WEB SHALL BE SNUG TIGHTENED FOLLOWED BY AN ADDITIONAL 1/4 TURN.

THE CHANNELS, ANGLES, WASHERS, PLATE WASHERS, AND DIRECT TENSION INDICATORS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

GALVANIZE THE HIGH STRENGTH BOLTS, NUTS, AND WASHERS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR HIGH STRENGTH BOLTS, SEE SPECIAL PROVISIONS.

USE A MINIMUM 3/16" THICK PLATE WASHER WITH STANDARD HOLES UNDER EACH BOLT HEAD AND NUT. THE PLATE WASHERS SHALL HAVE SUFFICIENT SIZE TO COVER THE HOLES AFTER INSTALLATION. DIRECT TENSION INDICATORS ARE TO BE USED IN CONJUNCTION WITH THE PLATE WASHERS.

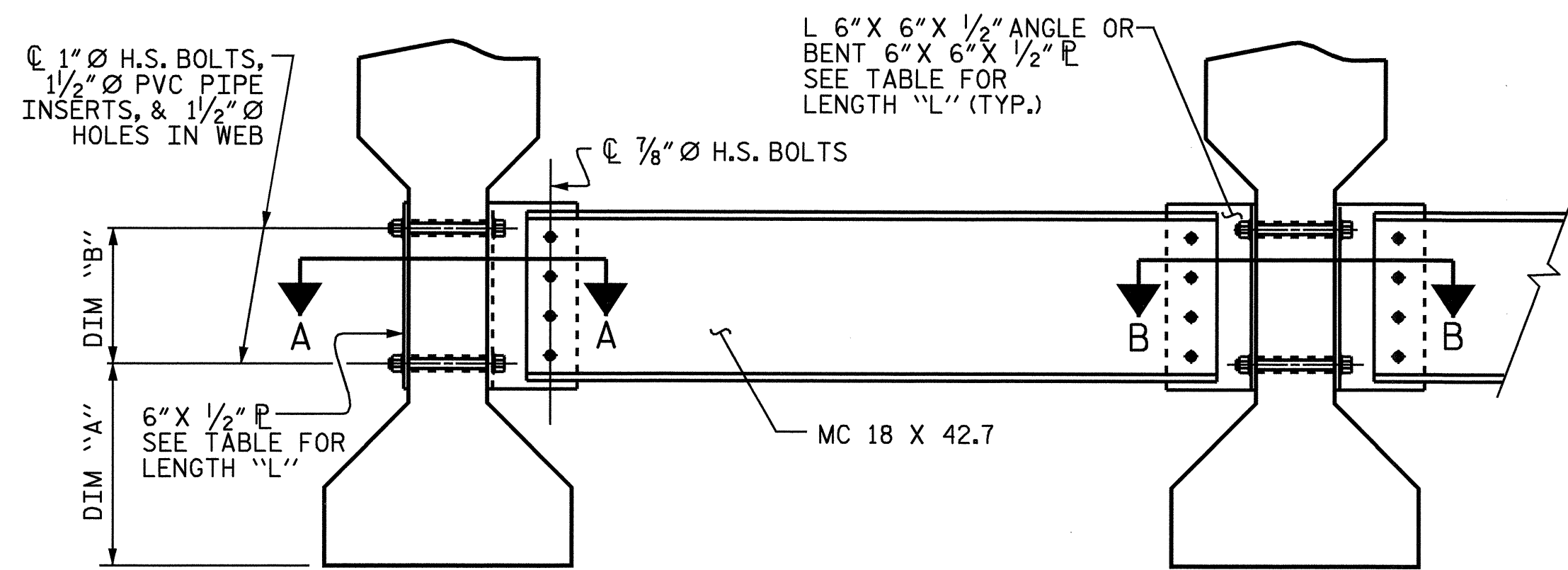
PROVIDE SUFFICIENT LENGTH OF ALL BOLTS TO ACCOMMODATE WASHERS, DIRECT TENSION INDICATORS, THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

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

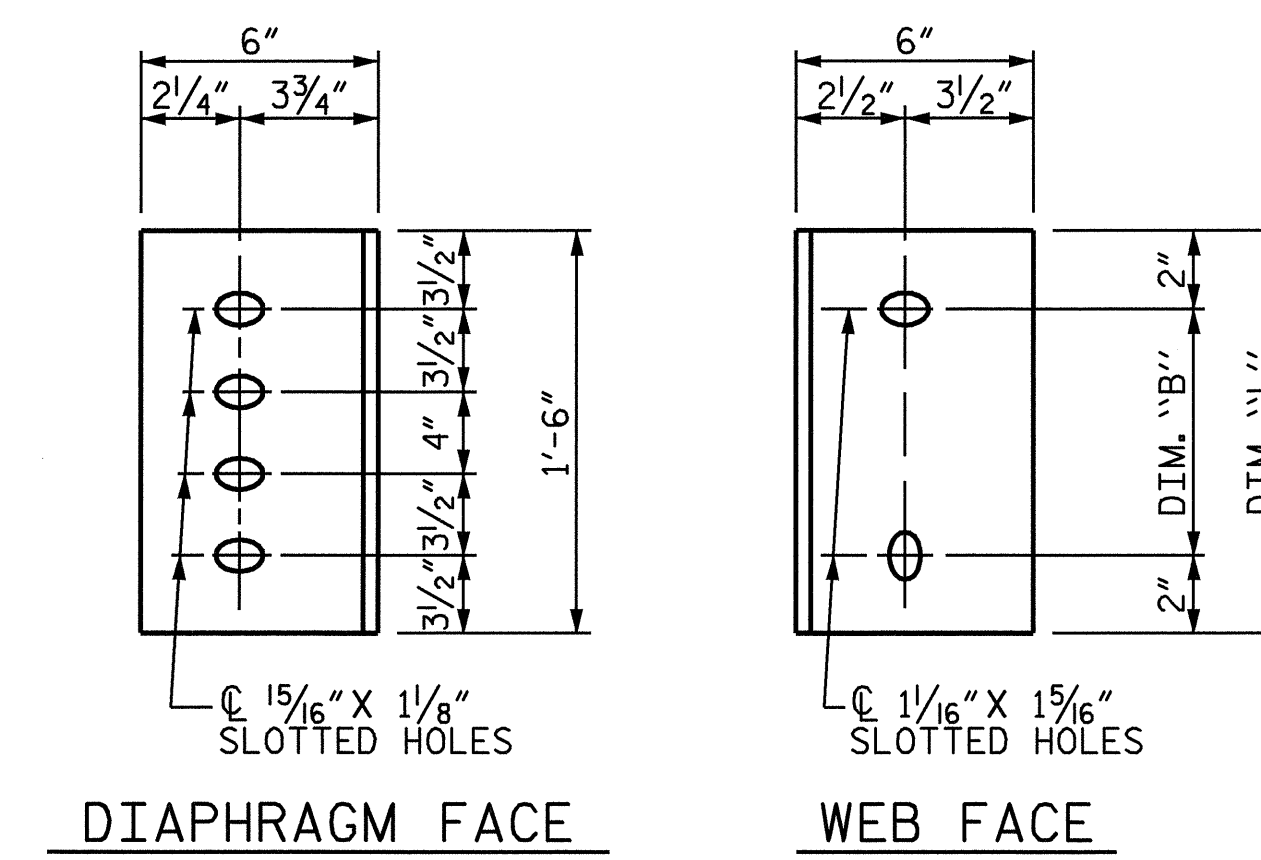
CONTRACTOR SHALL SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

IN THE EXTERIOR BAYS, TEMPORARY STRUTS SHALL BE PLACED BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE STEEL DIAPHRAGMS. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED. ALL AASHTO M164 H.S. BOLTS SHALL BE FULLY TIGHTENED AFTER THE STRUTS HAVE BEEN REMOVED.

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

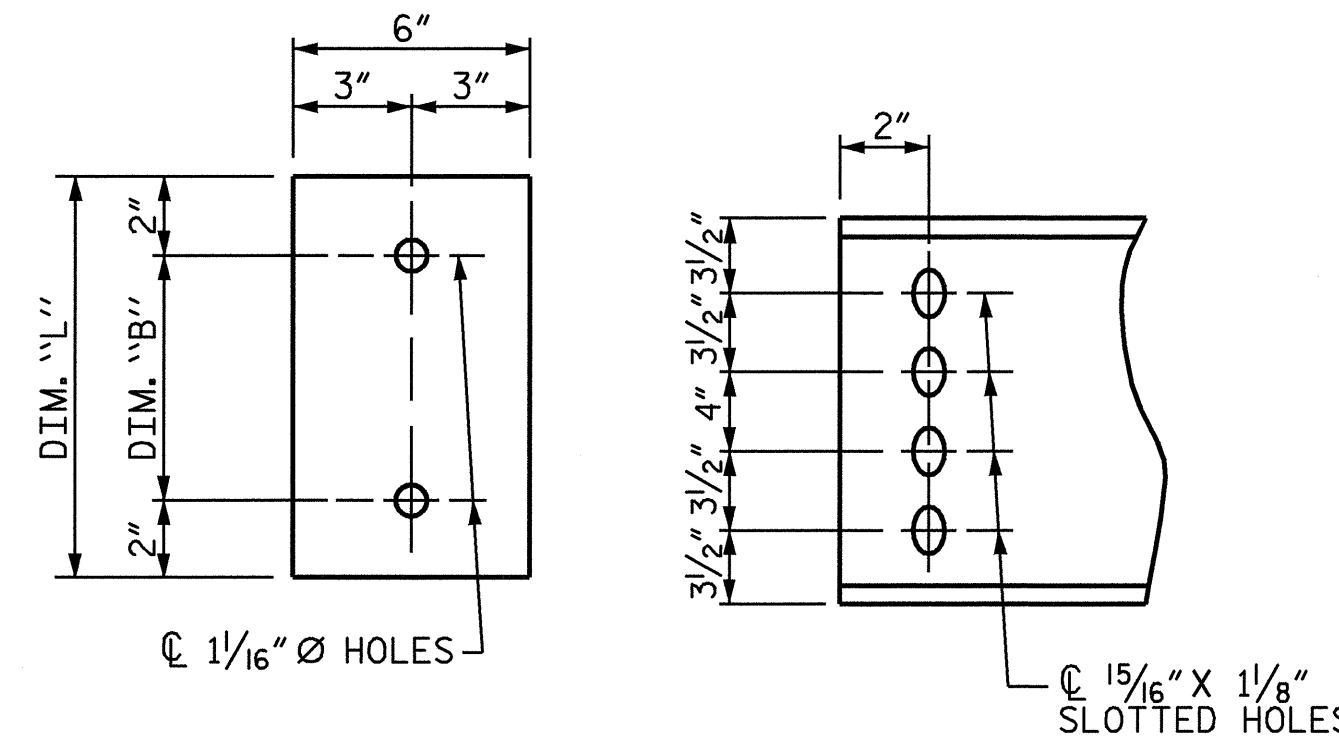
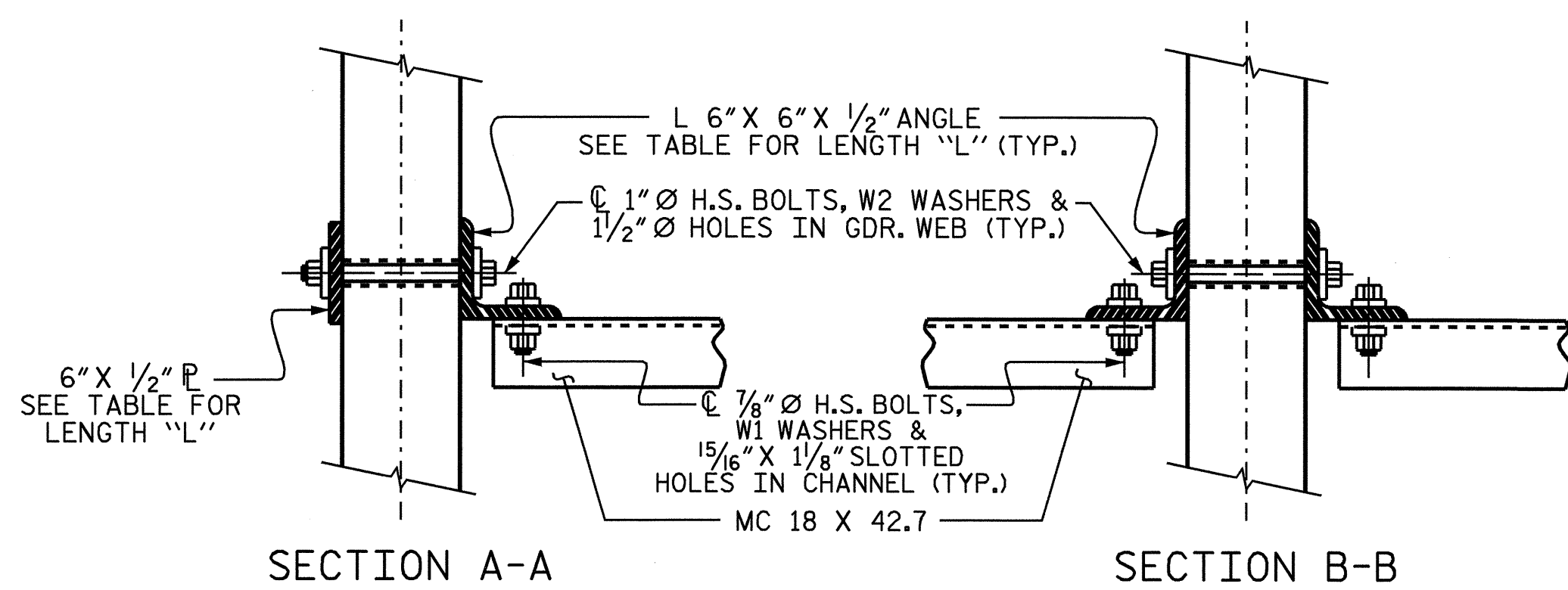


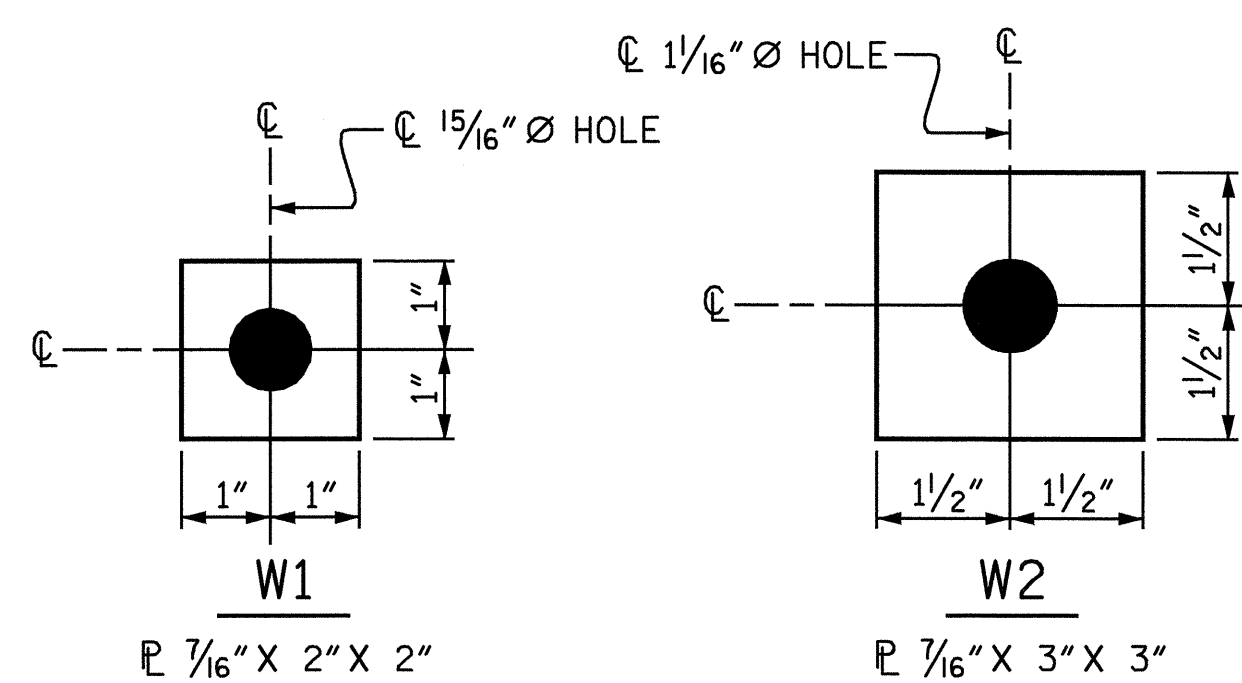
PLATE DETAILS CHANNEL END



SECTION A-A SECTION B-B
CONNECTION DETAILS

TABLE

GIRDER TYPE	CHANNEL SIZE	DIM "A"	DIM "B"	DIM "L"
III	MC 18 x 42.7	1'-5"	1'-2"	1'-6"



USE WITH 3/8" HVY. HEX NUTS & DIRECT TENSION INDICATOR WASHERS AT DIAPHRAGM CHANNEL TO CONNECTOR PLATE CONNECTIONS
USE WITH 1" HVY. HEX NUTS AT CONNECTOR PLATE TO GIRDER CONNECTIONS

WASHER DETAILS

PROJECT NO. B-4019
BEAUFORT COUNTY
STATION: 19+52.00 -L-

SHEET 5 OF 5



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

ASSEMBLED BY : D.G. ELY DATE : 11/06
CHECKED BY : A.R. CHESSON DATE : 2/07
DRAWN BY : TLA 6/05
CHECKED BY : VC 6/05

ADDED 10/21/05
REV. 5/1/06R KMM/GM

REVISIONS						SHEET NO. S-22
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 55
2			4			

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.

THE 2" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.

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

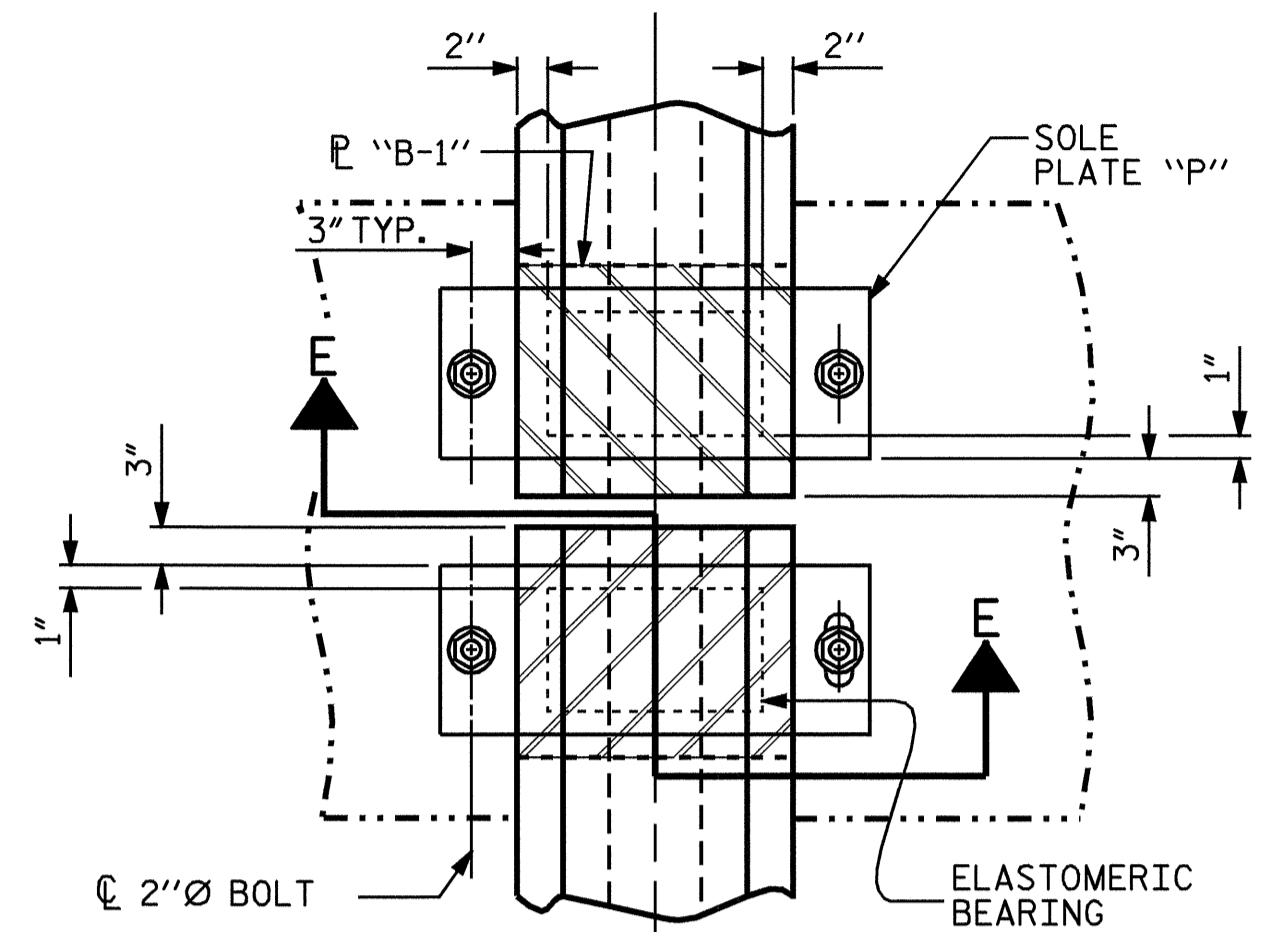
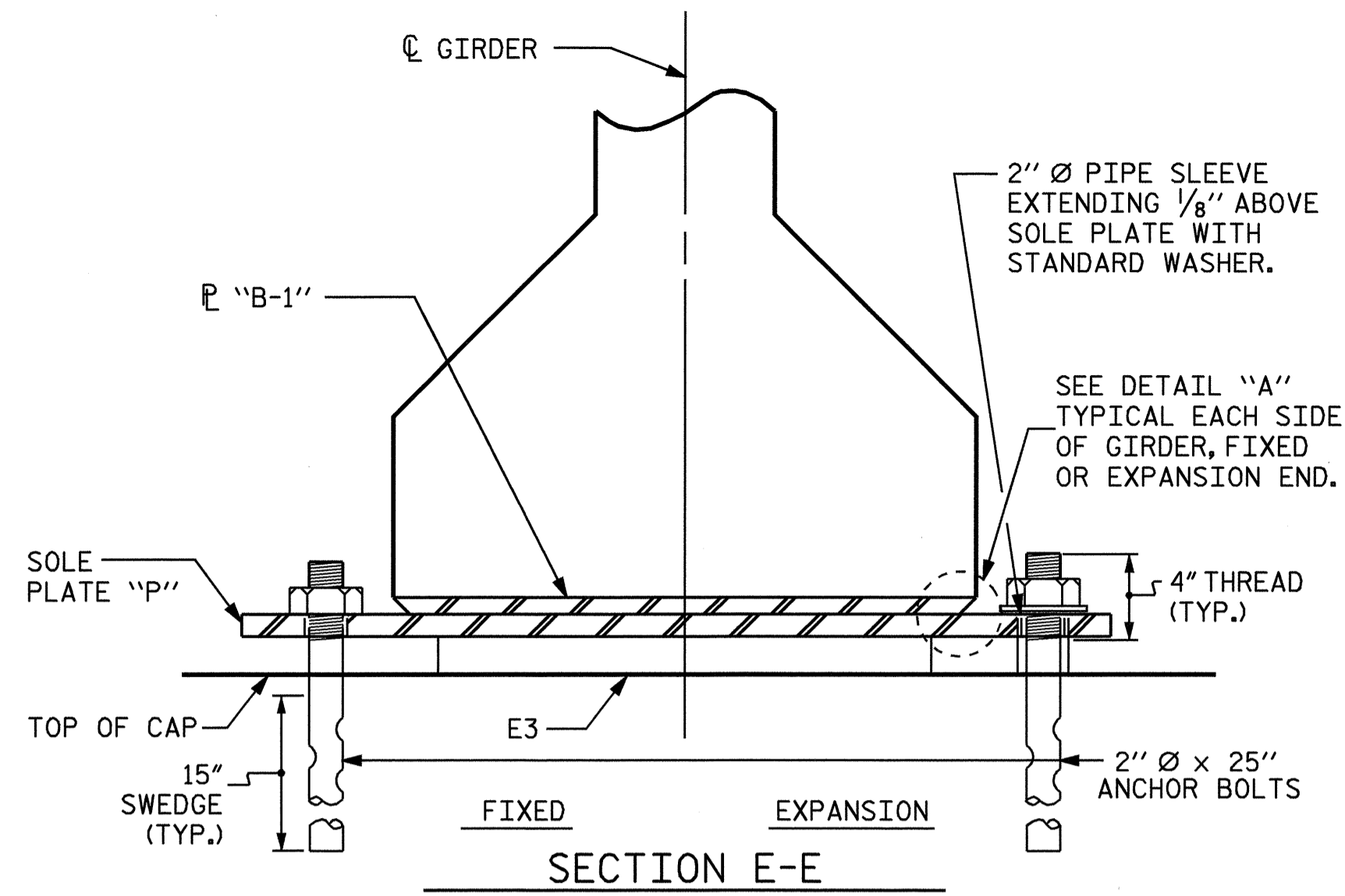
PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

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.

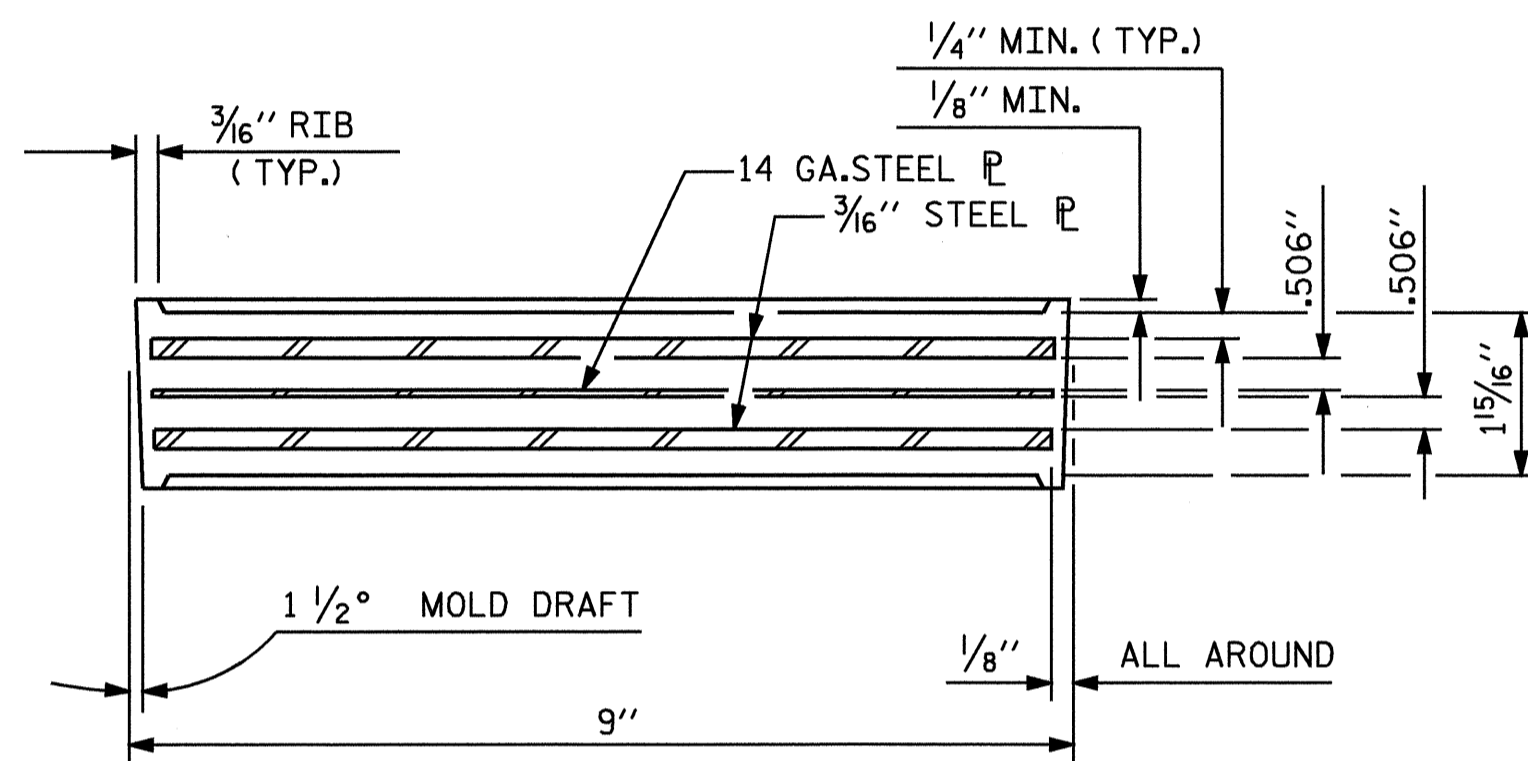
SOLE PLATE "P", BOLTS, NUTS, WASHERS, AND PIPE SLEEVE SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLT, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

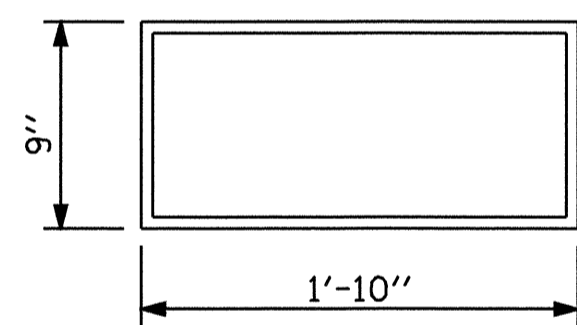
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.



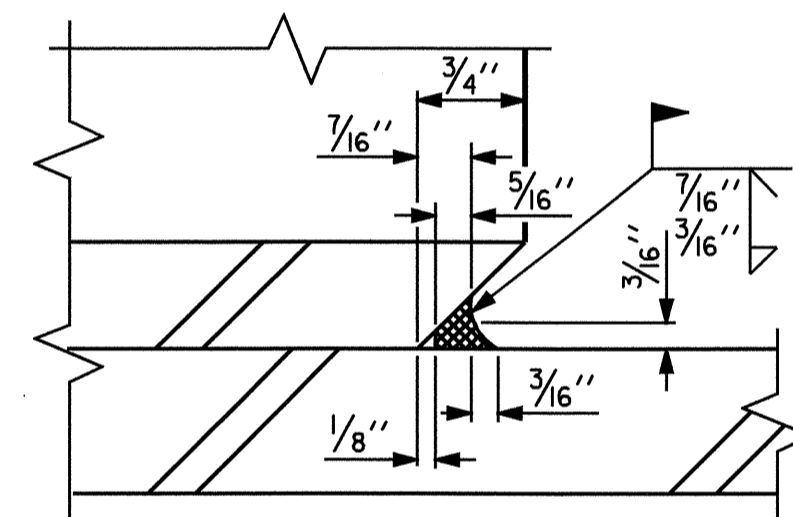
TYPICAL HALF-PLAN
(SHOWING CONTINUOUS BENT) **TYPICAL HALF-PLAN**
(SHOWING SIMPLE SPAN BENT)



TYPICAL SECTION OF ELASTOMERIC BEARINGS

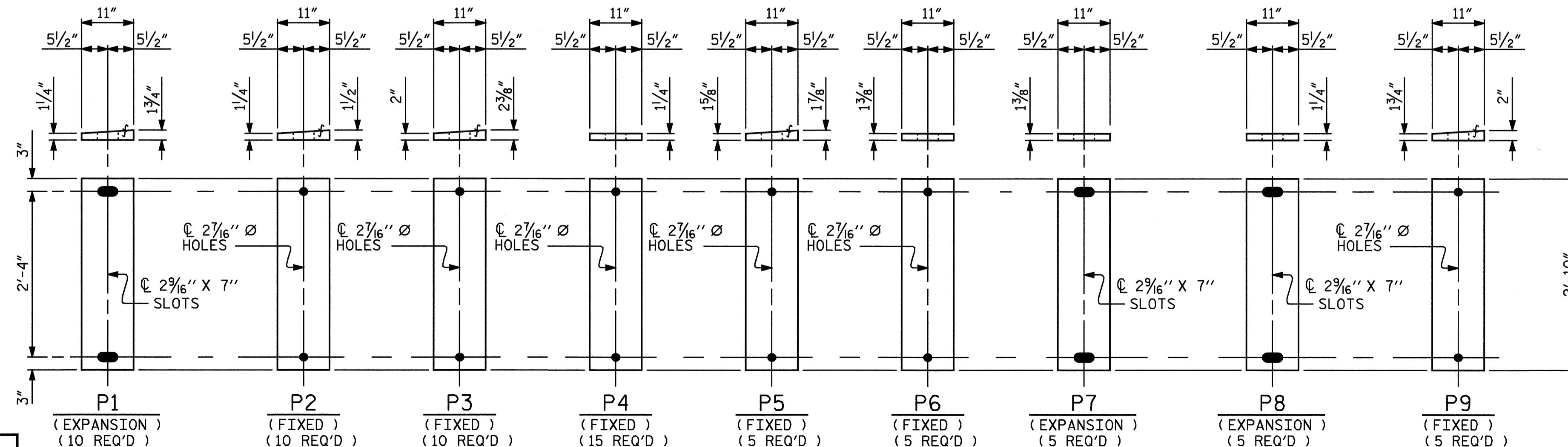


E3 (70 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING
TYPE IV



DETAIL "A"

— LOAD RATINGS —	
	MAX.D.L.+L.L.
45" PCG -TYPE IV	137 K



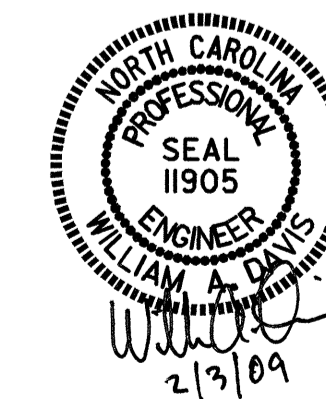
SOLE PLATE DETAILS ("P")

ASSEMBLED BY :	D. G. ELY	DATE :	11/06
CHECKED BY :	A. R. CHESSON	DATE :	2/07
DRAWN BY :	WJH	8/89	REV. 10/17/00
CHECKED BY :	CRK	8/89	REV. 7/10/01
			REV. 5/1/06

RWW/LES
RWW/LES
TLA/GM

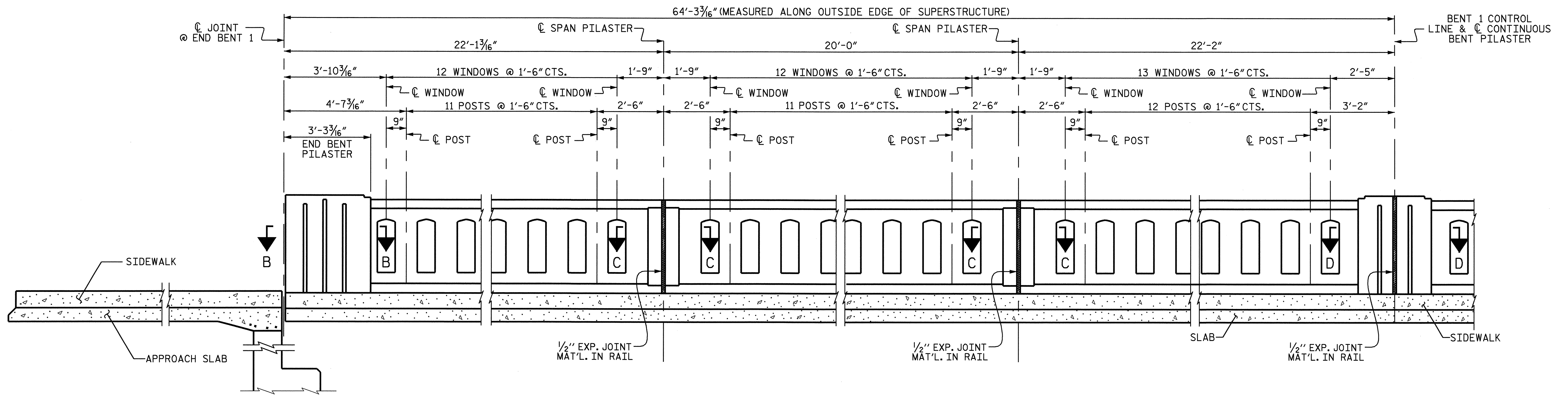
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PROJECT NO. B4019
BEAUFORT COUNTY
STATION: 19+52.00 -L-

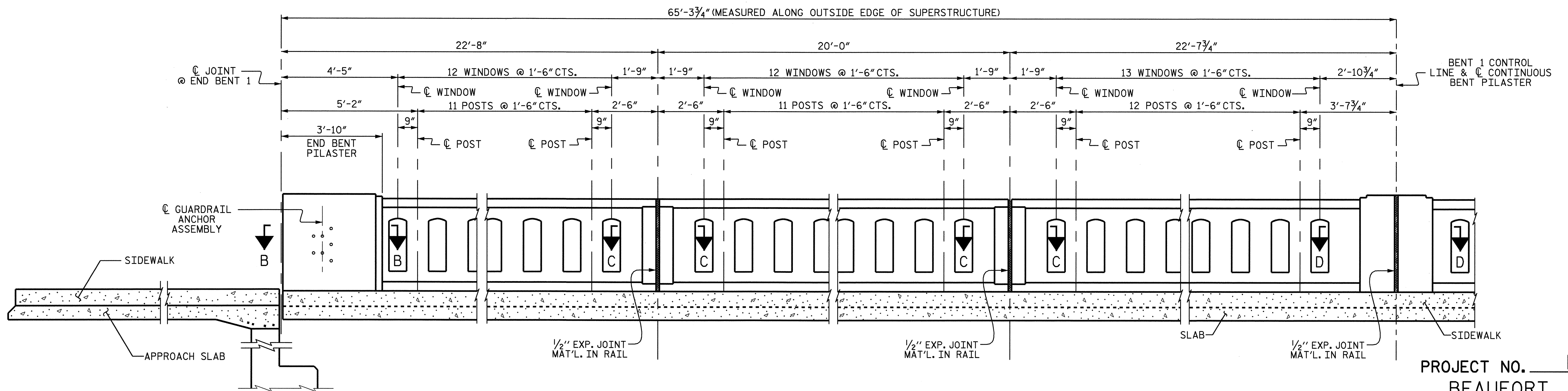


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
ELASTOMERIC BEARING
DETAILS
PRESTRESSED CONCRETE GIRDER
SUPERSTRUCTURE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS
2			4			55



INTERIOR ELEVATION OF RAIL SPAN A - LEFT SIDE



EXTERIOR ELEVATION OF RAIL SPAN A - RIGHT SIDE

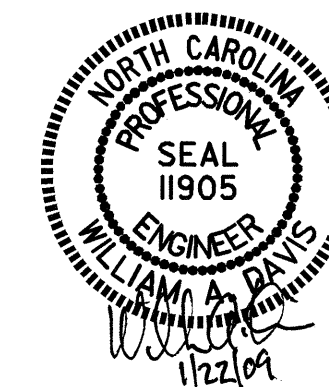
SEE "GUARDRAIL ANCHORAGE DETAILS" SHEET FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 1 OF 15

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 CLASSIC CONCRETE
 BRIDGE RAIL WITH
 SIDEWALK

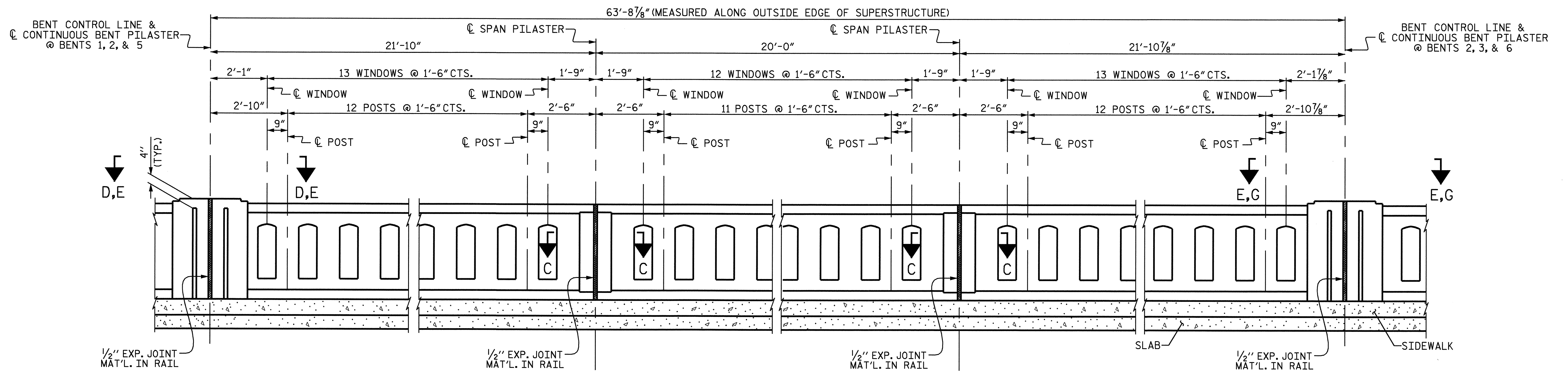


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 CHECKED BY: A. R. CHESSON DATE: 2/07

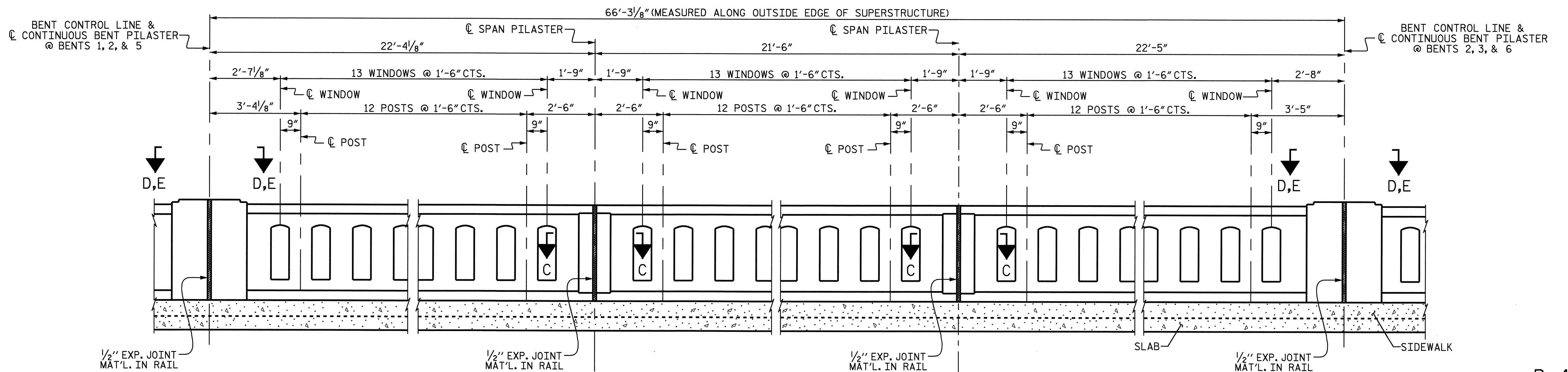
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 qinguyen

STD. No. CCR3



INTERIOR ELEVATION OF RAIL SPANS B, C, & F - LEFT SIDE
 (SECTION D-D @ BENT 1, SECTION E-E @ BENTS 2,3, & 5, SECTION G-G @ BENT 6)

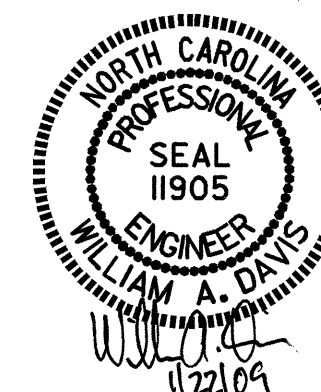


EXTERIOR ELEVATION OF RAIL SPANS B, C, & F - RIGHT SIDE
 (SECTION D-D @ BENT 1, SECTION E-E @ BENTS 2,3, & 5, SECTION G-G @ BENT 6)

PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 2 OF 15

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 CLASSIC CONCRETE
 BRIDGE RAIL WITH
 SIDEWALK

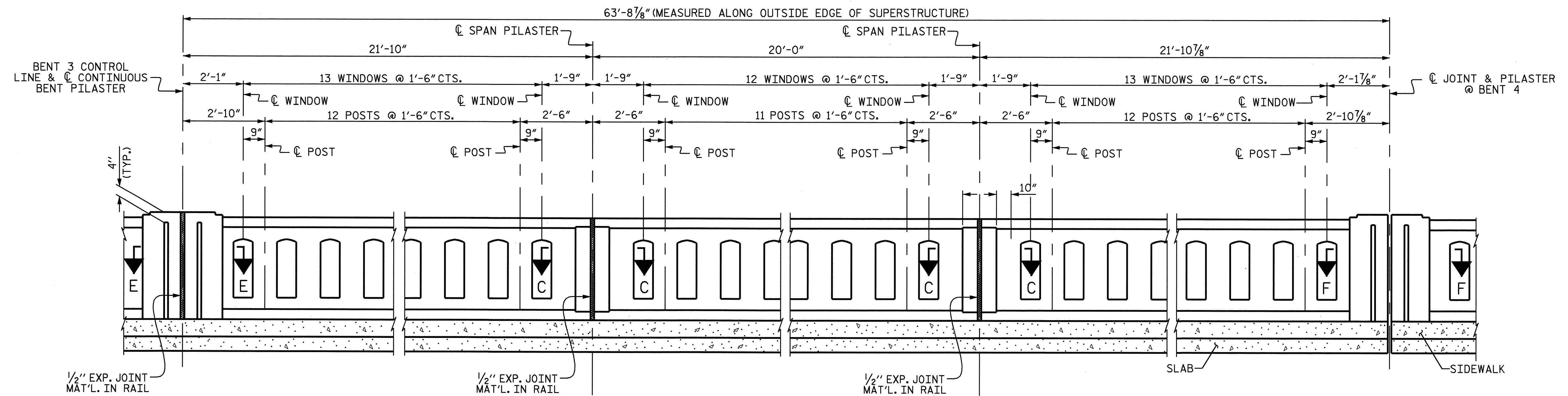


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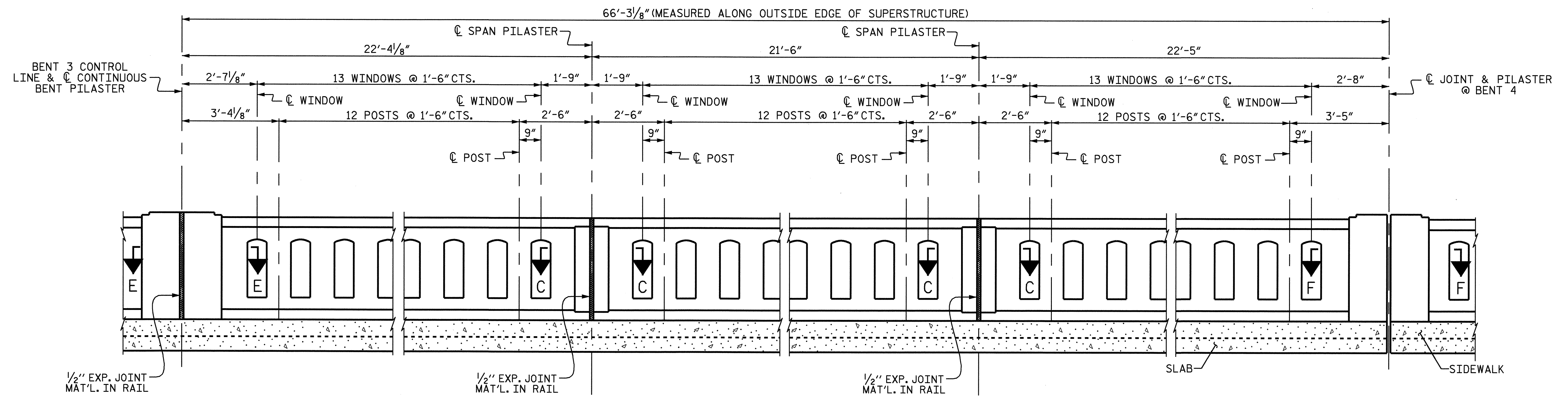
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 CHECKED BY : A. R. CHESSON DATE : 2/07

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STD. No. CCR3



INTERIOR ELEVATION OF RAIL SPANS D - LEFT SIDE



EXTERIOR ELEVATION OF RAIL SPANS D - RIGHT SIDE

PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 3 OF 15

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 CLASSIC CONCRETE
 BRIDGE RAIL WITH
 SIDEWALK

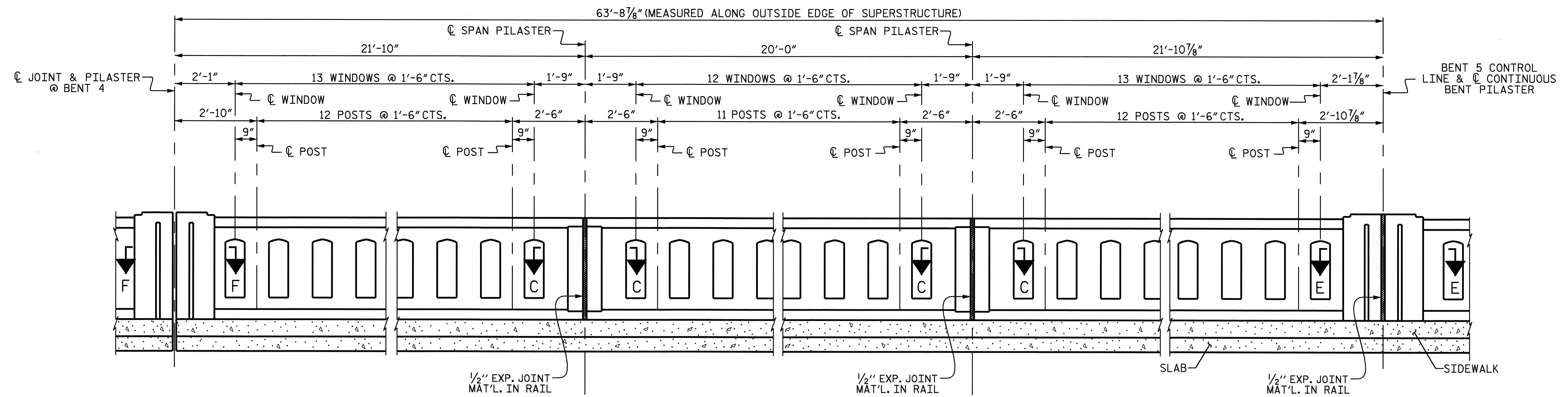


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 CHECKED BY: A. R. CHESSON DATE: 2/07

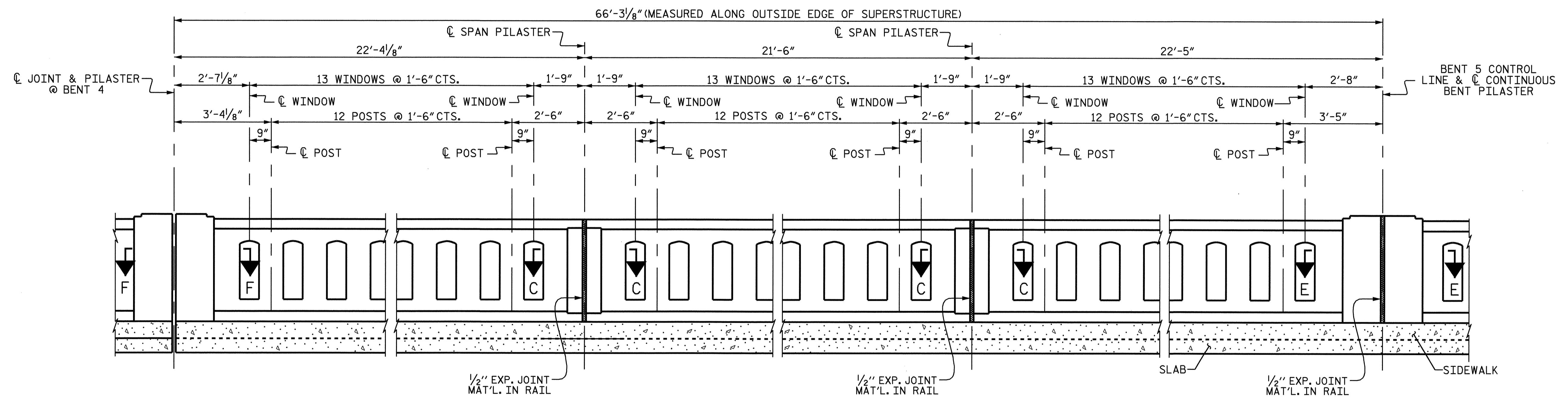
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2			4			55

STD. No. CCR3



INTERIOR ELEVATION OF RAIL SPANS E - LEFT SIDE



EXTERIOR ELEVATION OF RAIL SPANS E - RIGHT SIDE

PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 4 OF 15

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 CLASSIC CONCRETE
 BRIDGE RAIL WITH
 SIDEWALK

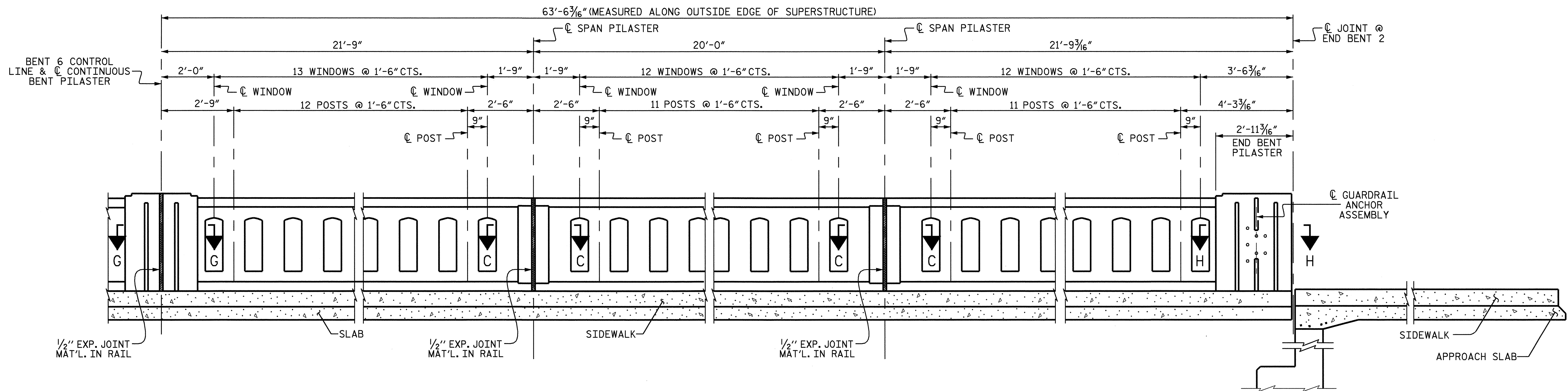


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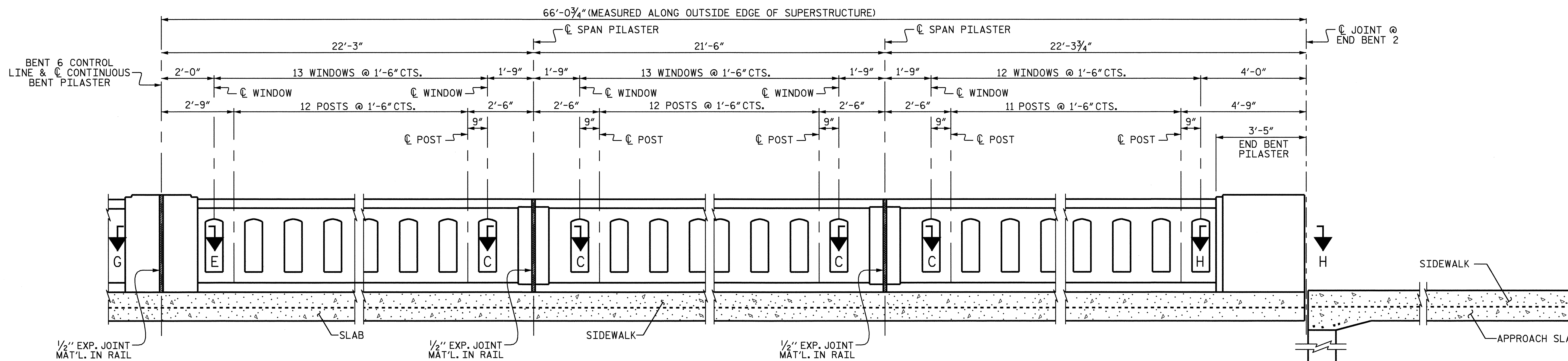
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-27
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STD. No. CCR3



INTERIOR ELEVATION OF RAIL SPAN G - LEFT SIDE

SEE "GUARDRAIL ANCHORAGE DETAILS" SHEET FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY



EXTERIOR ELEVATION OF RAIL SPAN G - RIGHT SIDE

PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 5 OF 15

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 CLASSIC CONCRETE
 BRIDGE RAIL WITH
 SIDEWALK

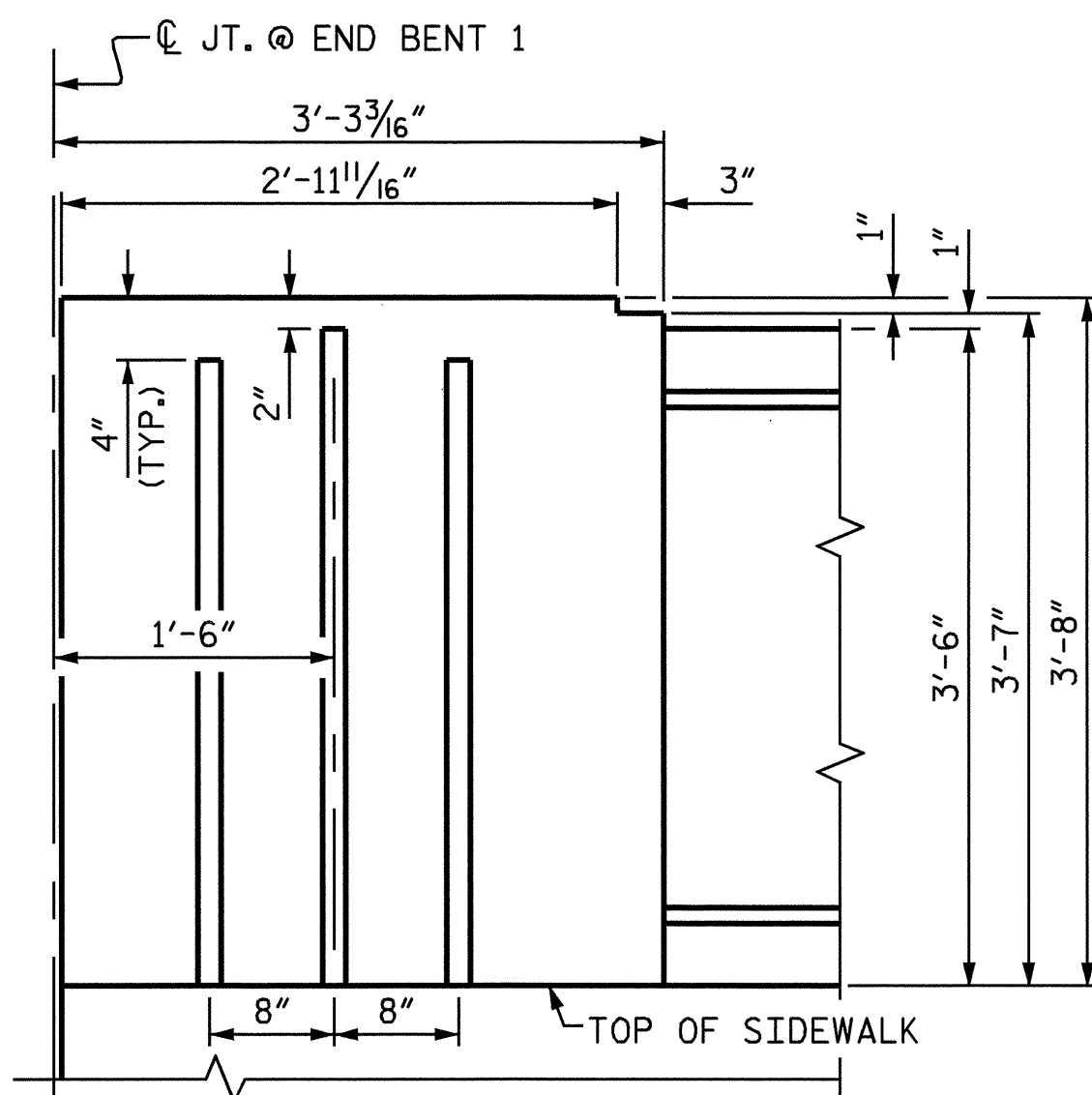


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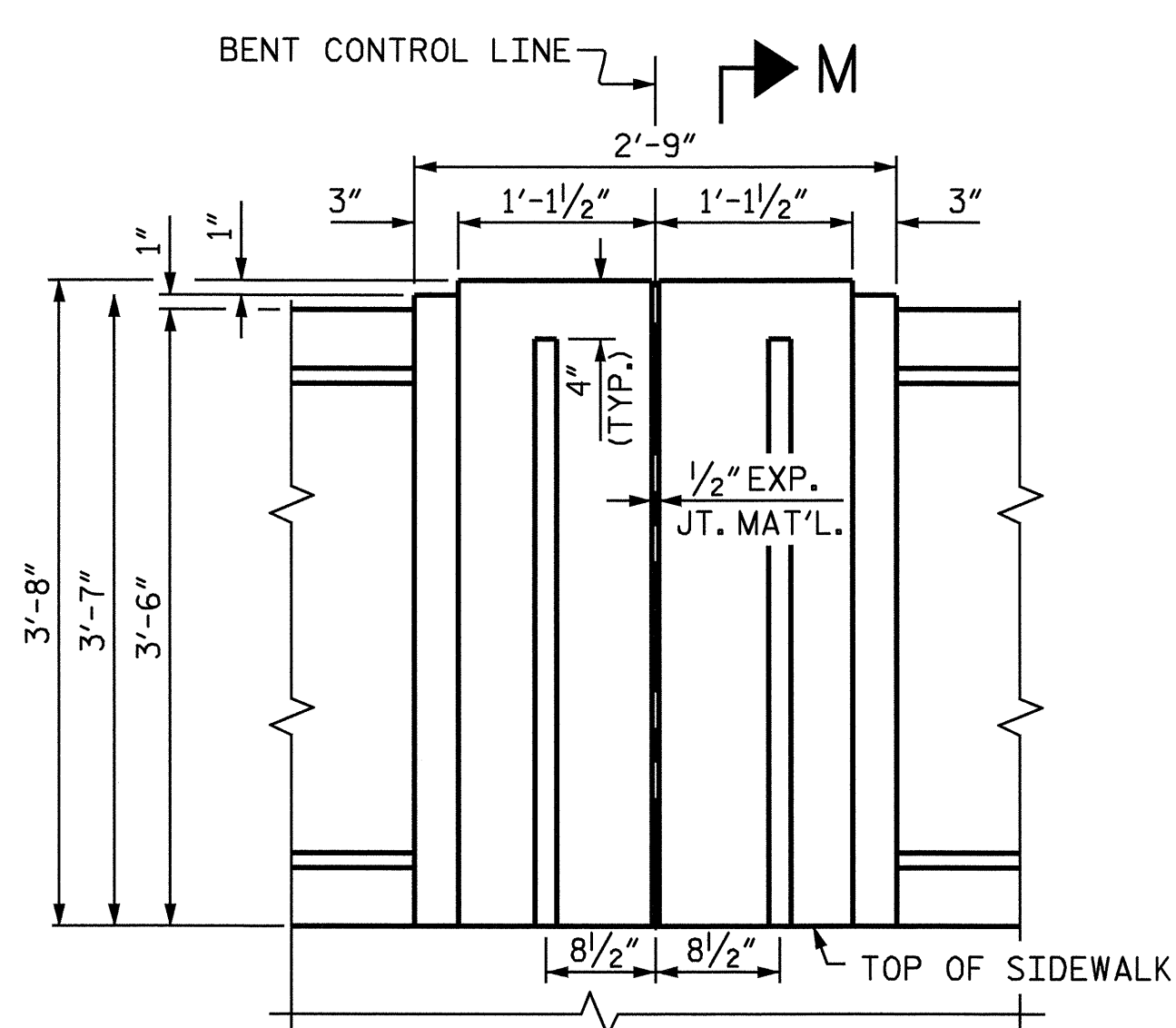
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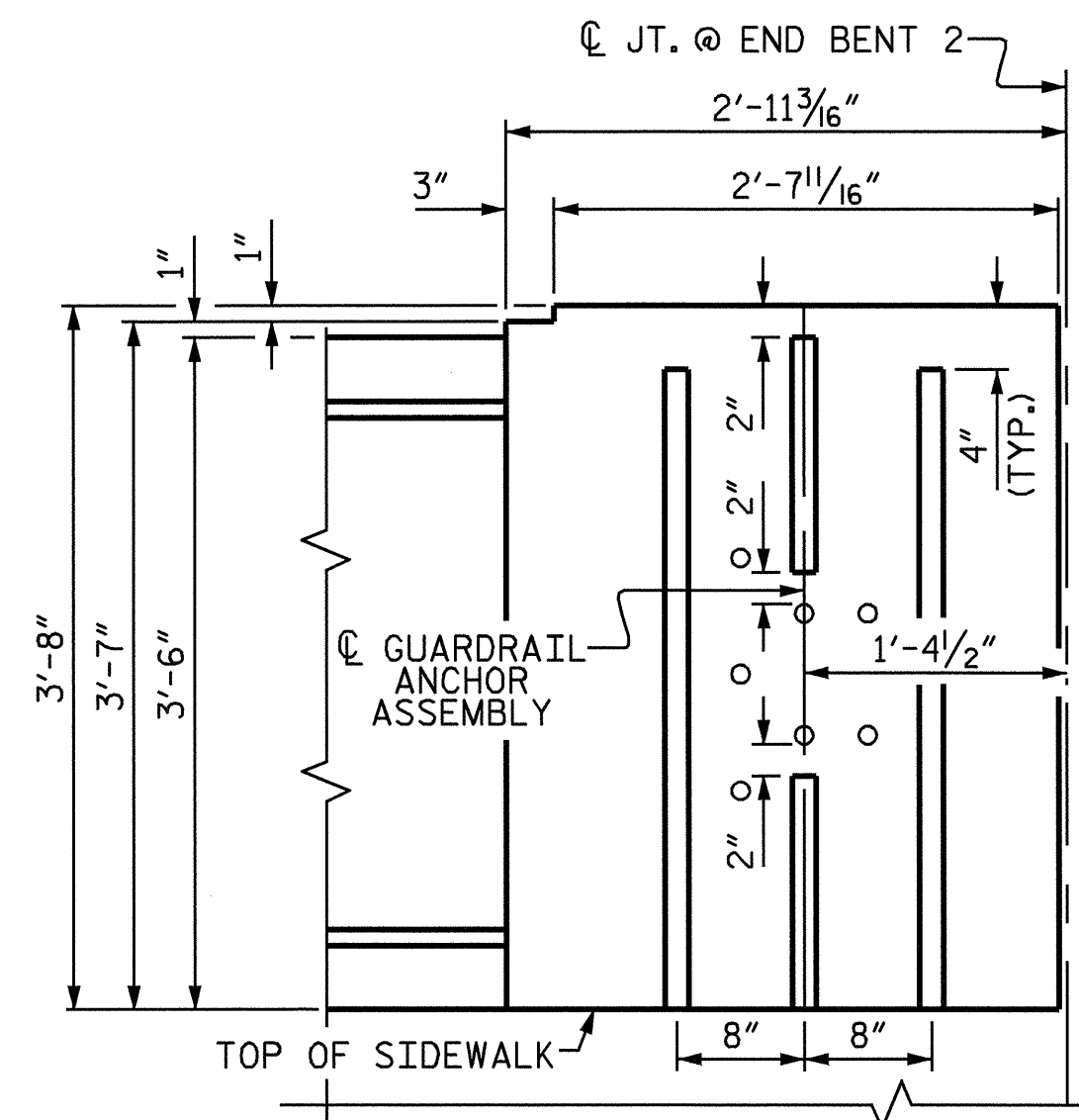
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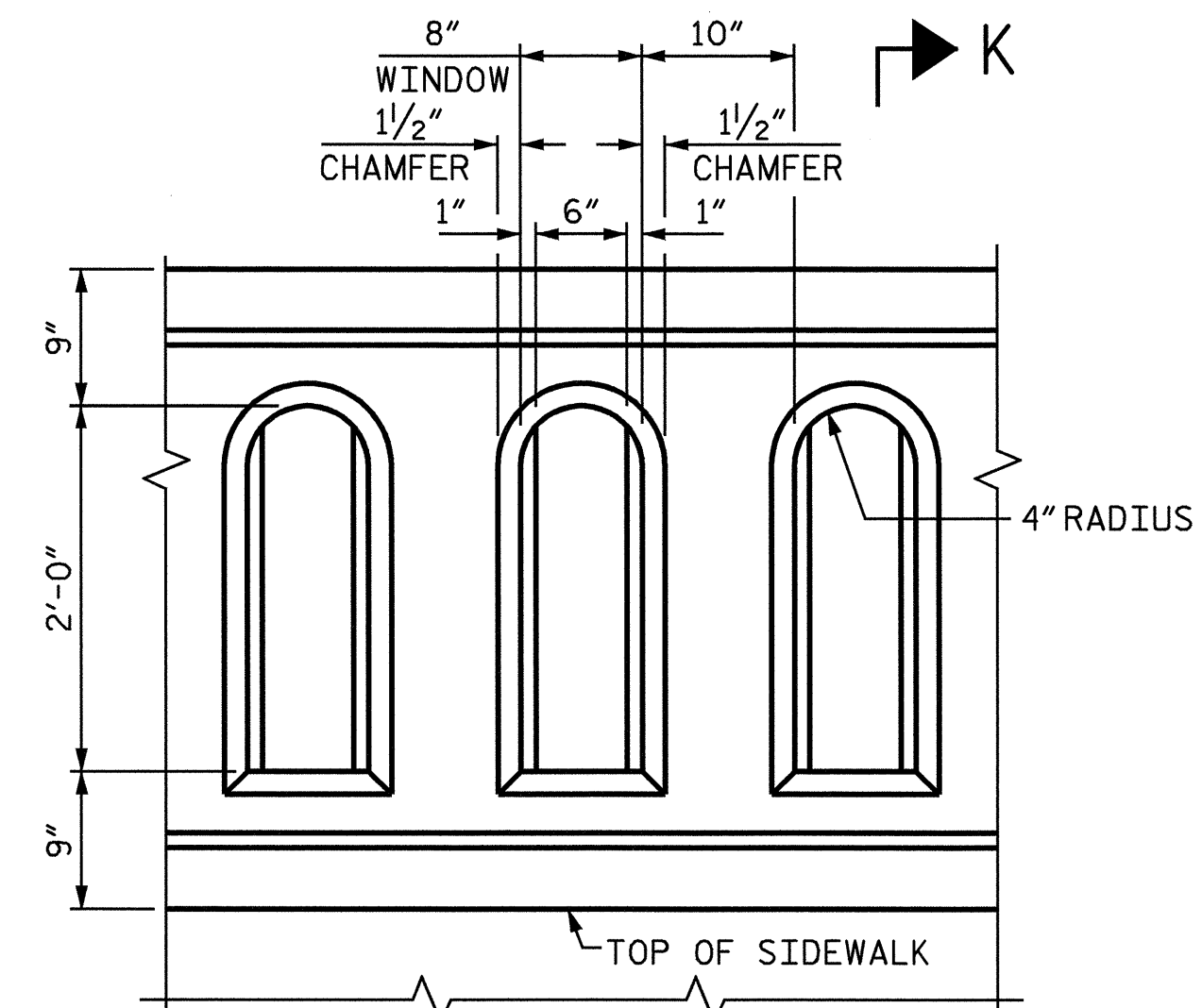
END BENT 1 PILASTER
LEFT INTERIOR ELEVATION



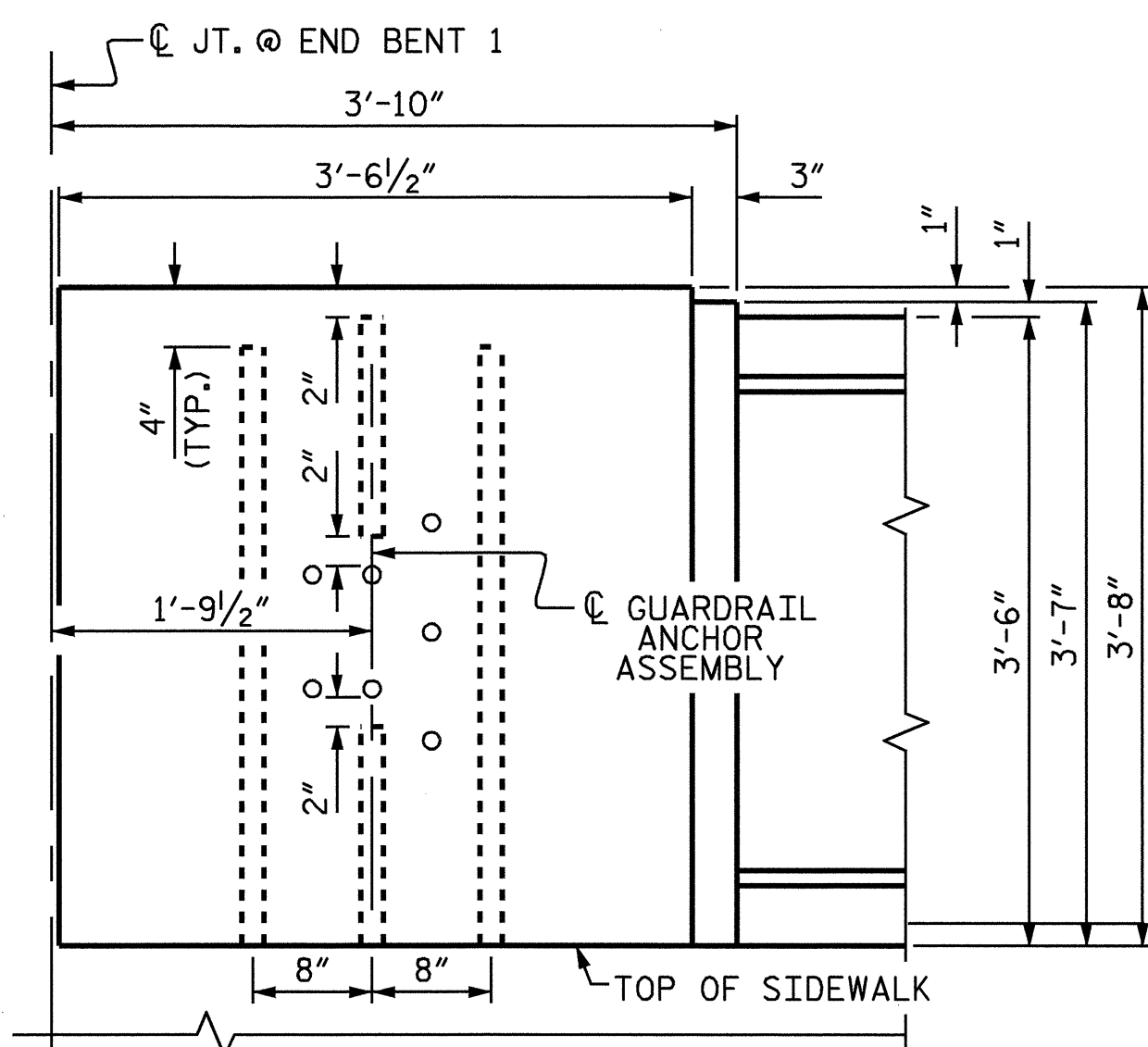
BENTS 1, 2, 3, 5 & 6 PILASTER
LEFT INTERIOR ELEVATION



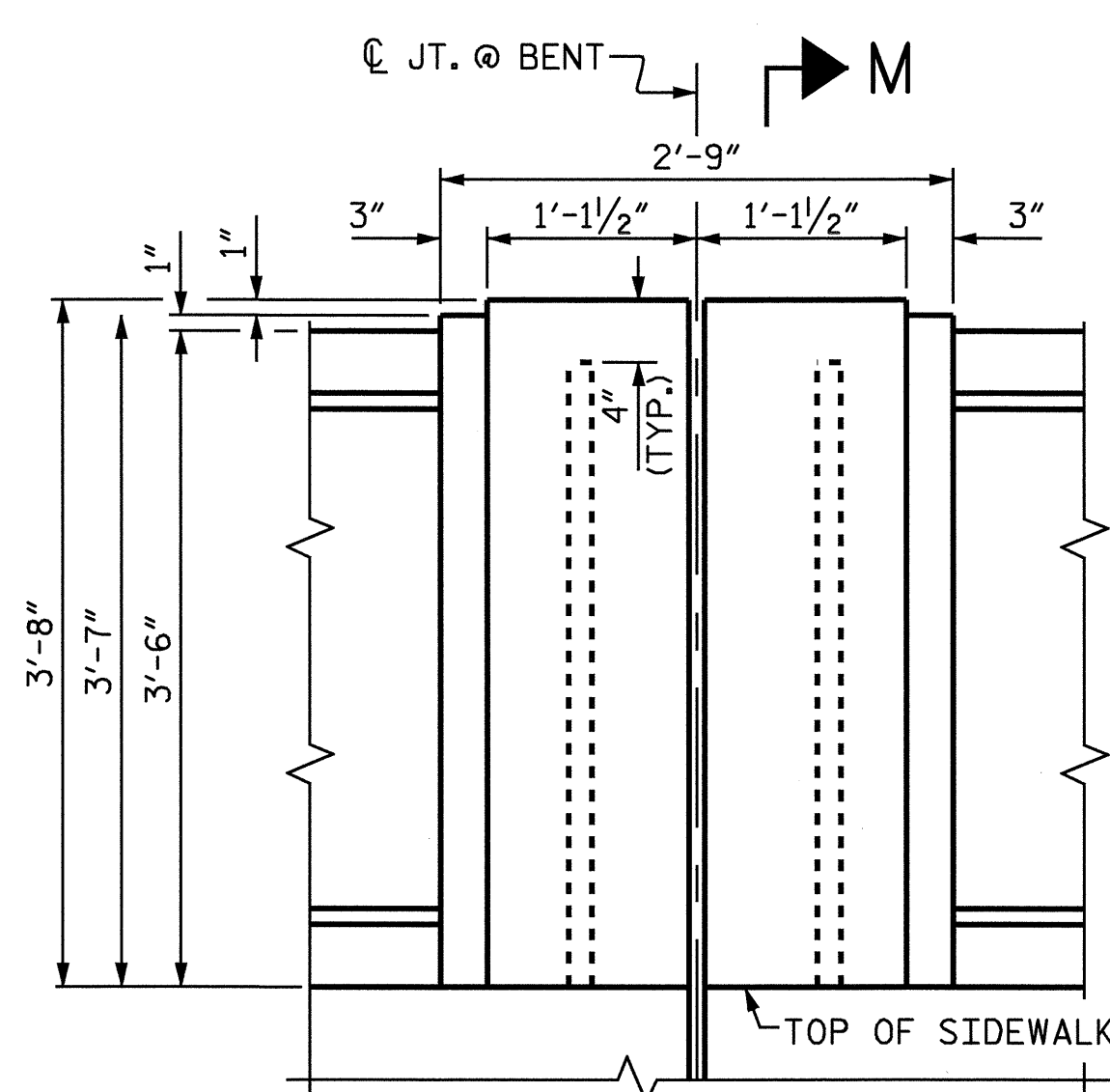
END BENT 2 PILASTER
LEFT INTERIOR ELEVATION



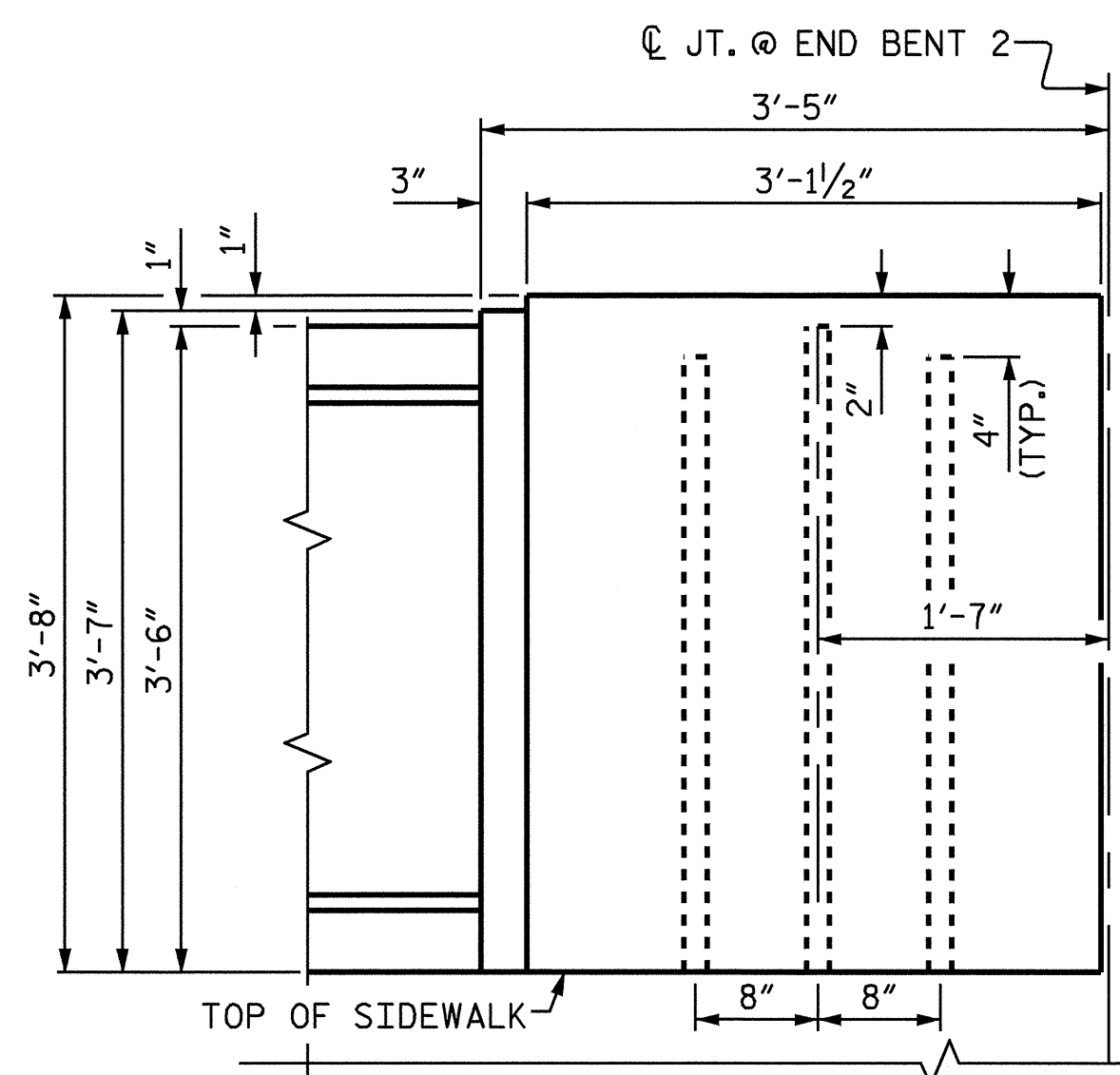
ELEVATION



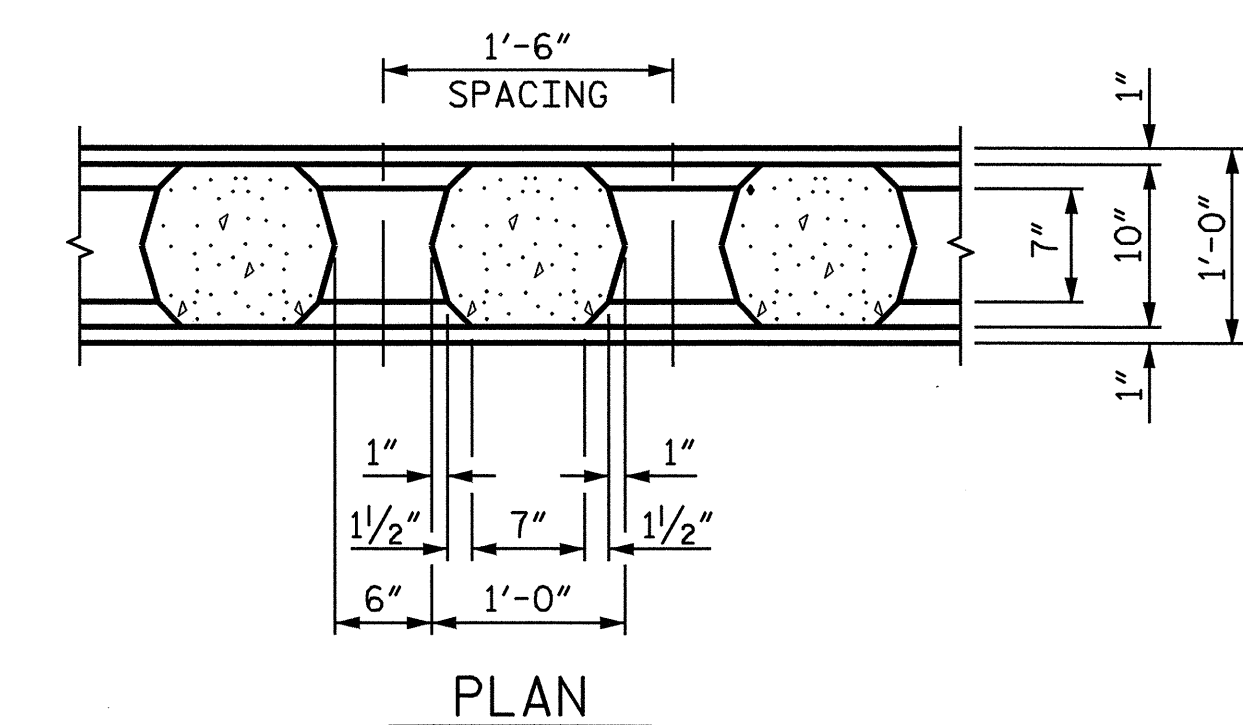
END BENT 1 PILASTER
RIGHT EXTERIOR ELEVATION



BENT 4 PILASTER
RIGHT EXTERIOR ELEVATION

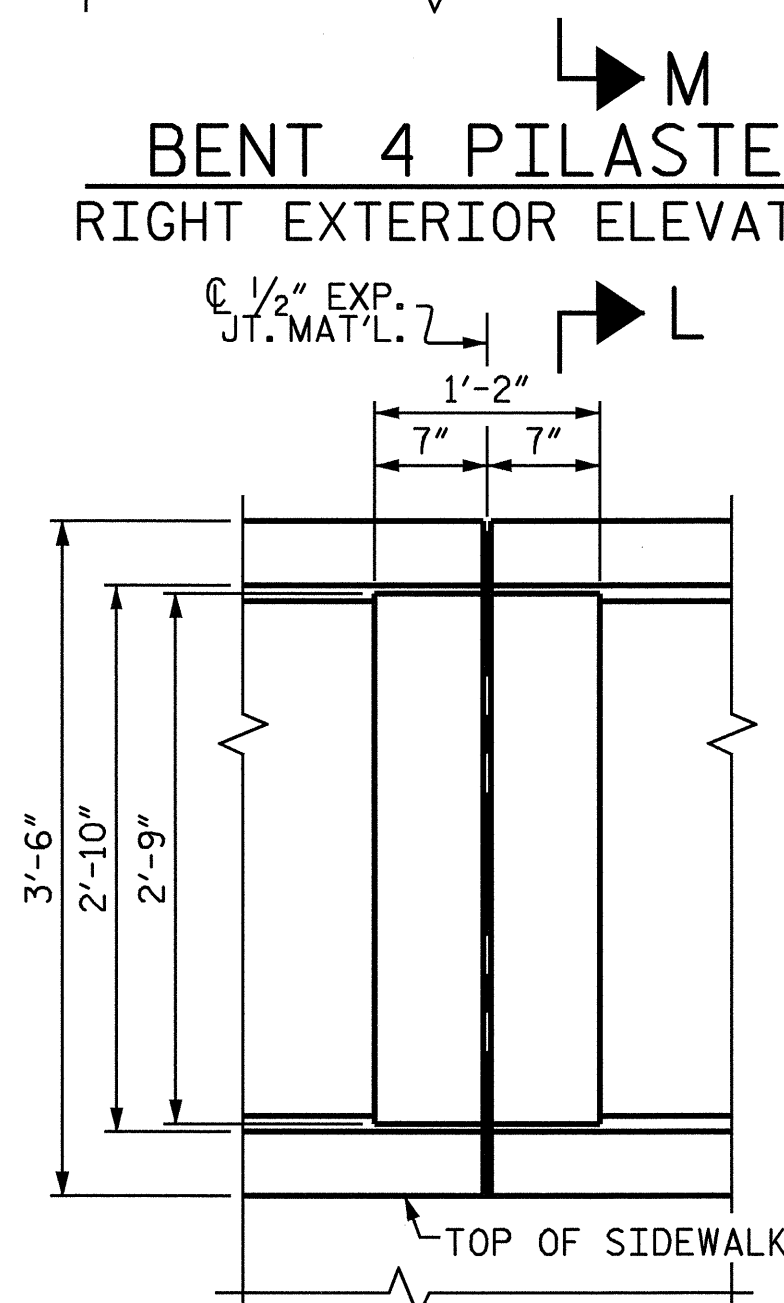


END BENT 2 PILASTER
RIGHT EXTERIOR ELEVATION



PLAN

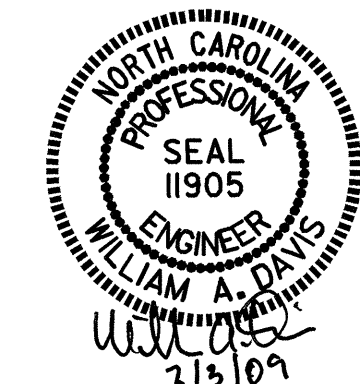
WINDOW DETAIL



SPAN PILASTER

PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 6 OF 15

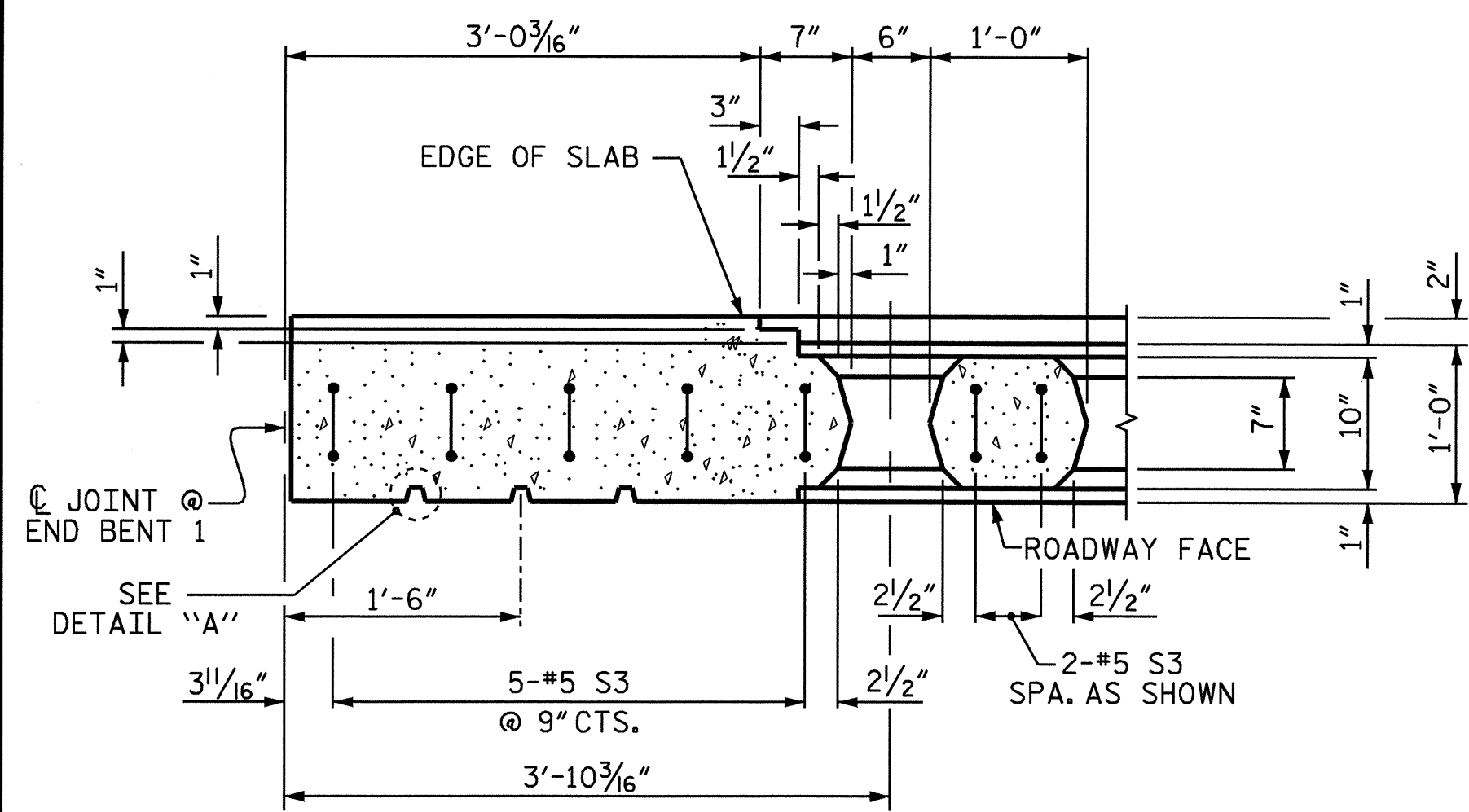


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 CLASSIC CONCRETE
 BRIDGE RAIL WITH
 SIDEWALK

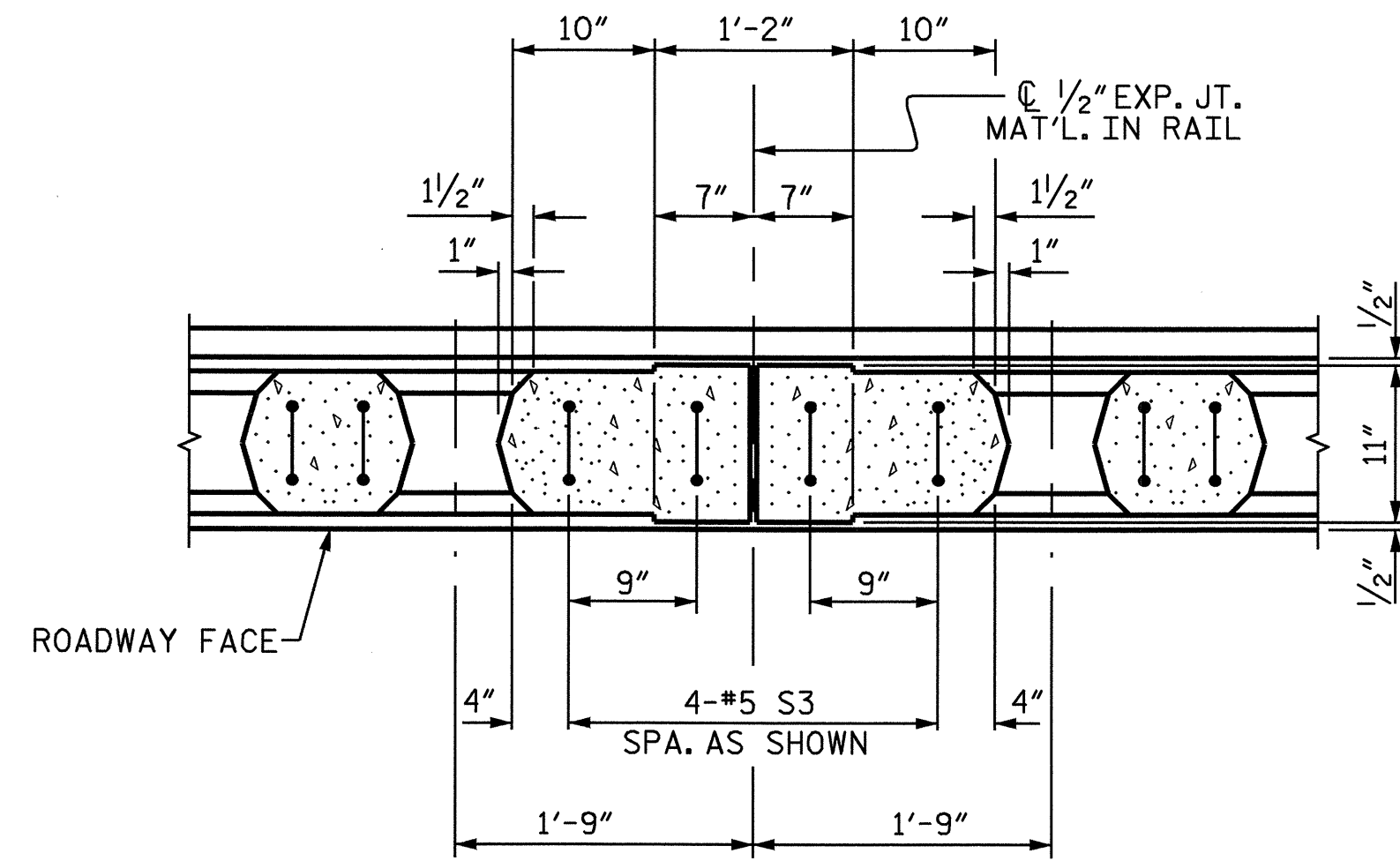
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1			3			TOTAL	55
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DRAWN BY: D. G. ELY DATE: 11/06
 CHECKED BY: A. R. CHESSON DATE: 2/07

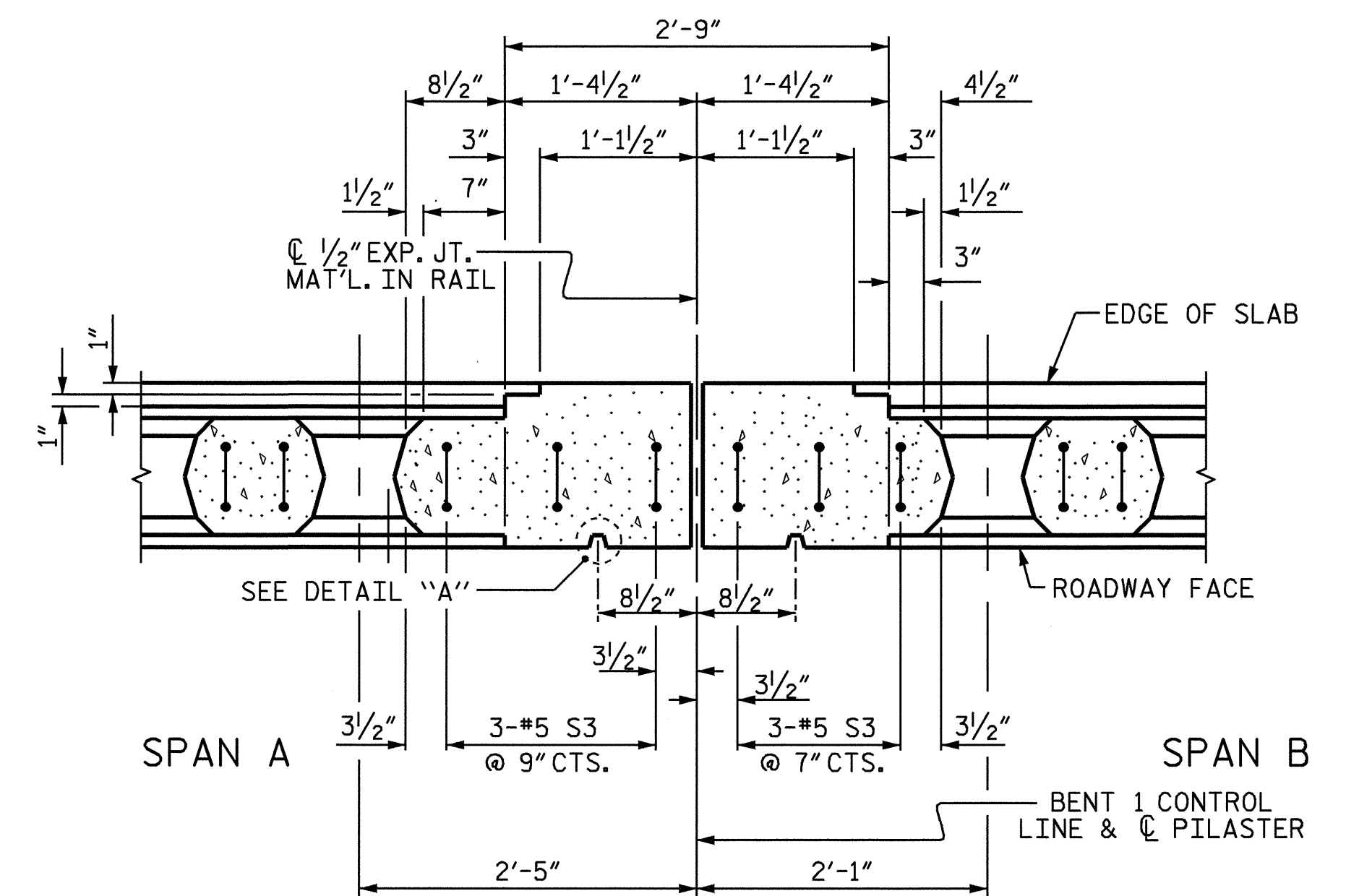
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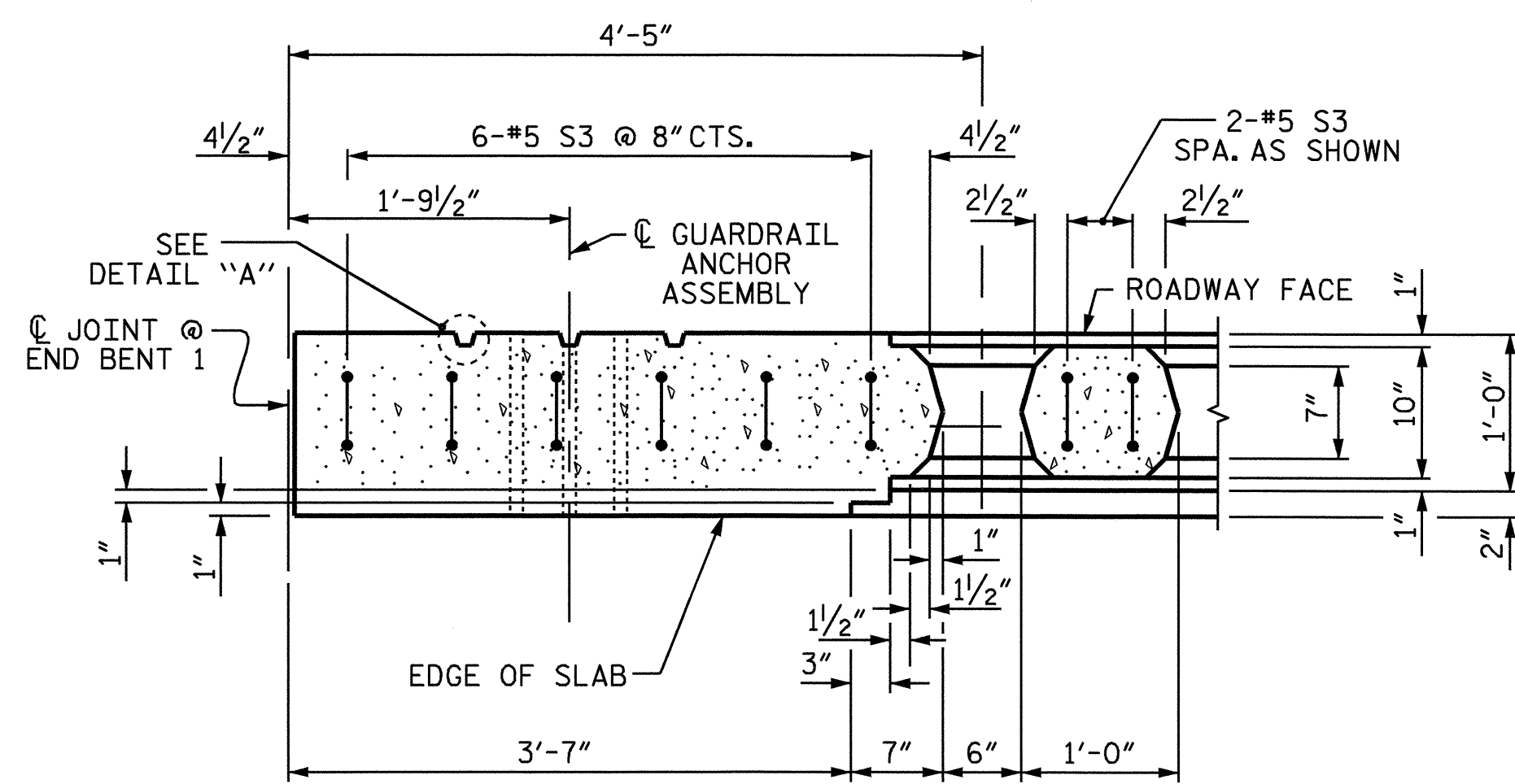
SECTION B-B (LEFT SIDE)
SHOWING END BENT 1 PILASTER



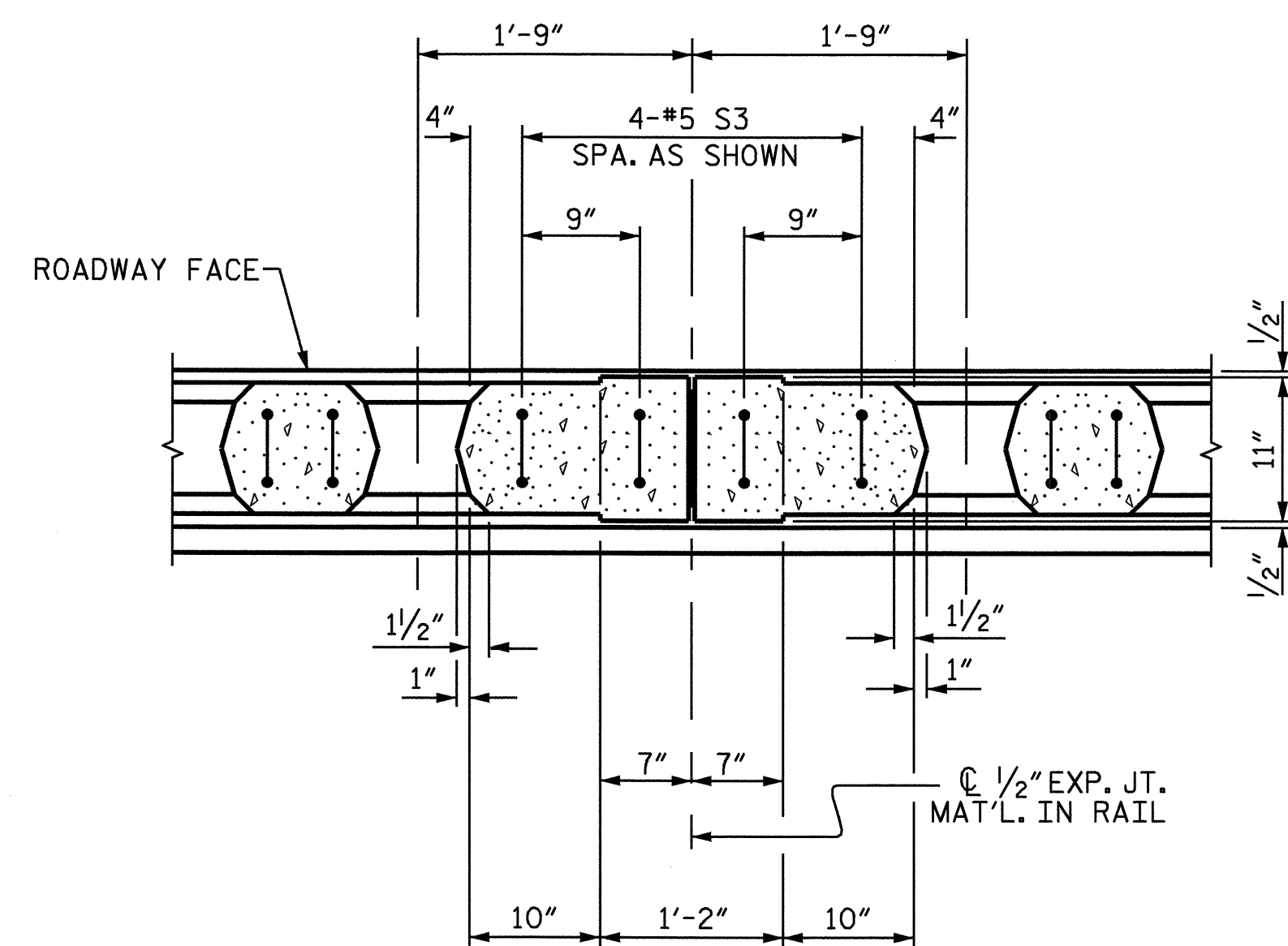
SECTION C-C (LEFT SIDE)
SHOWING SPAN PILASTER



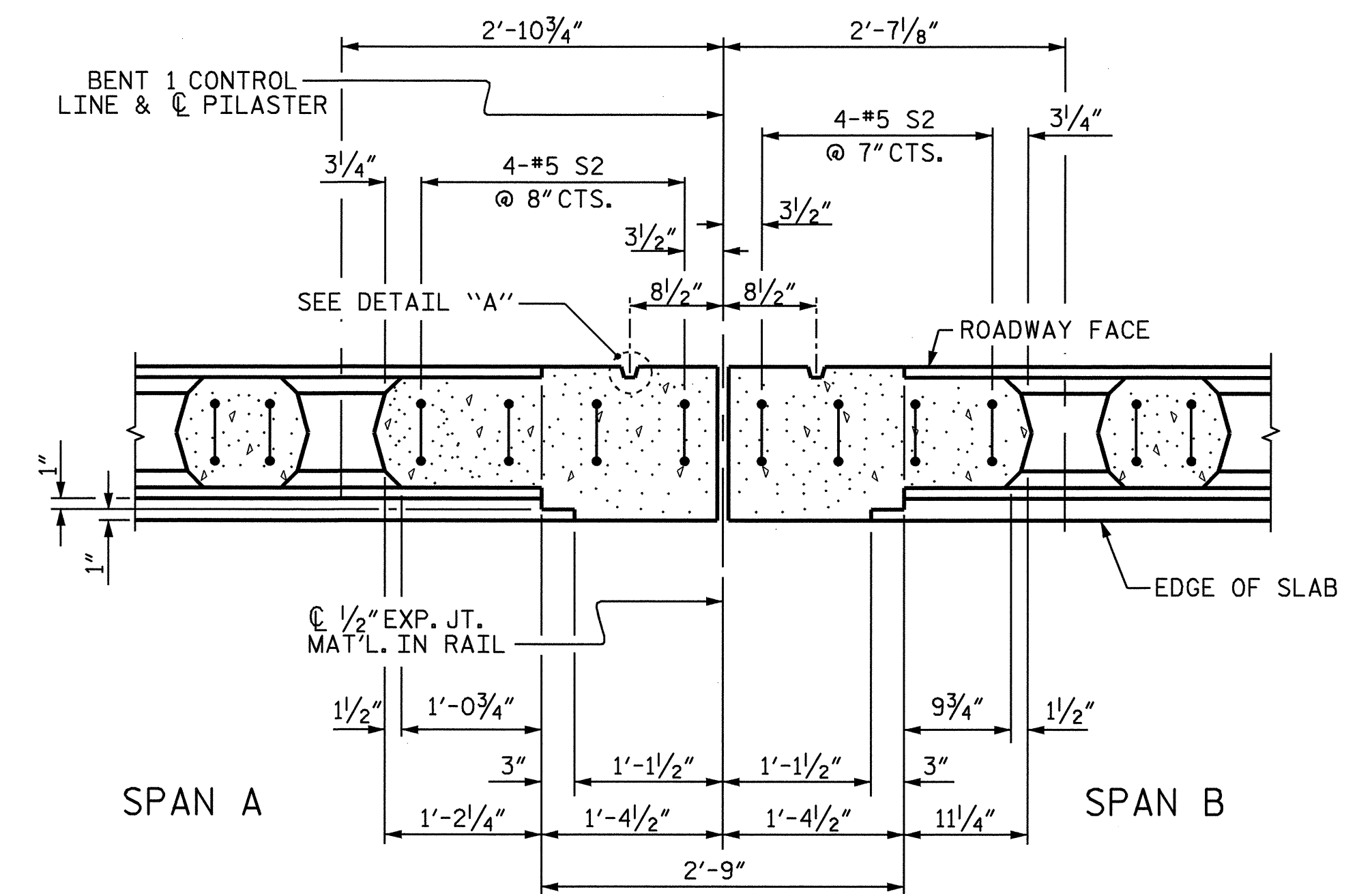
SECTION D-D (LEFT SIDE)
SHOWING CONTINUOUS BENT PILASTER



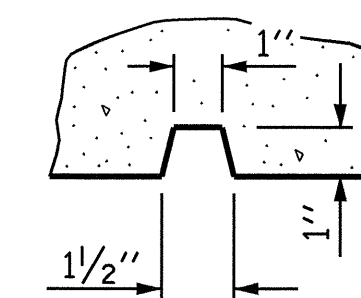
SECTION B-B (RIGHT SIDE)
SHOWING END BENT 1 PILASTER



SECTION C-C (RIGHT SIDE)
SHOWING SPAN PILASTER



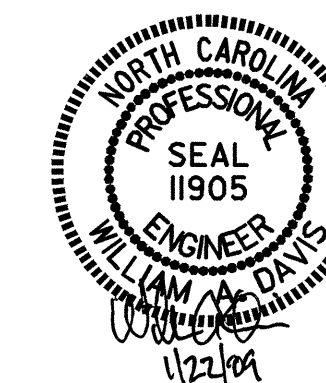
SECTION D-D (RIGHT SIDE)
SHOWING CONTINUOUS BENT PILASTER



DETAIL "A"

PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 7 OF 15



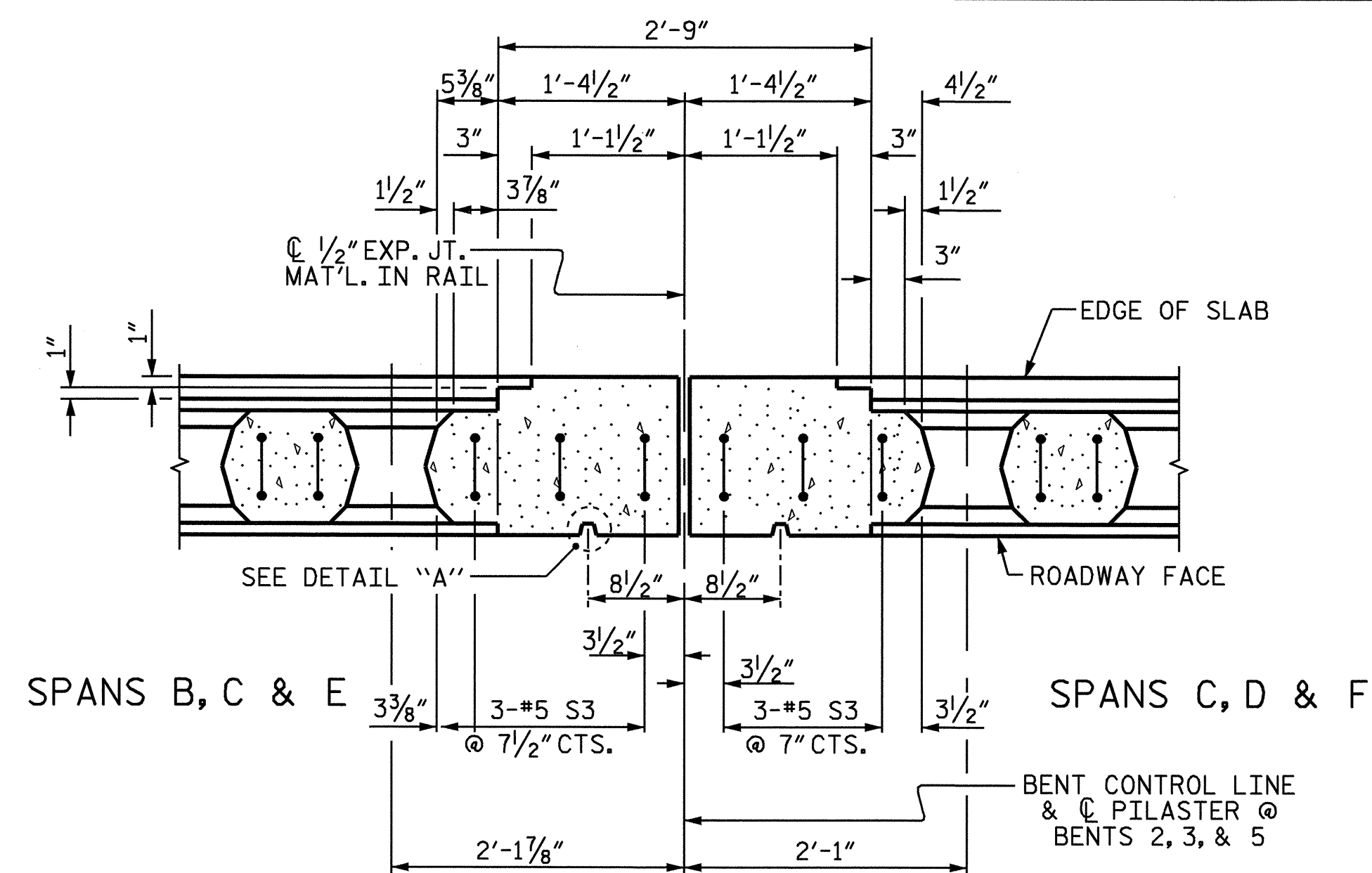
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 CLASSIC CONCRETE
 BRIDGE RAIL WITH
 SIDEWALK

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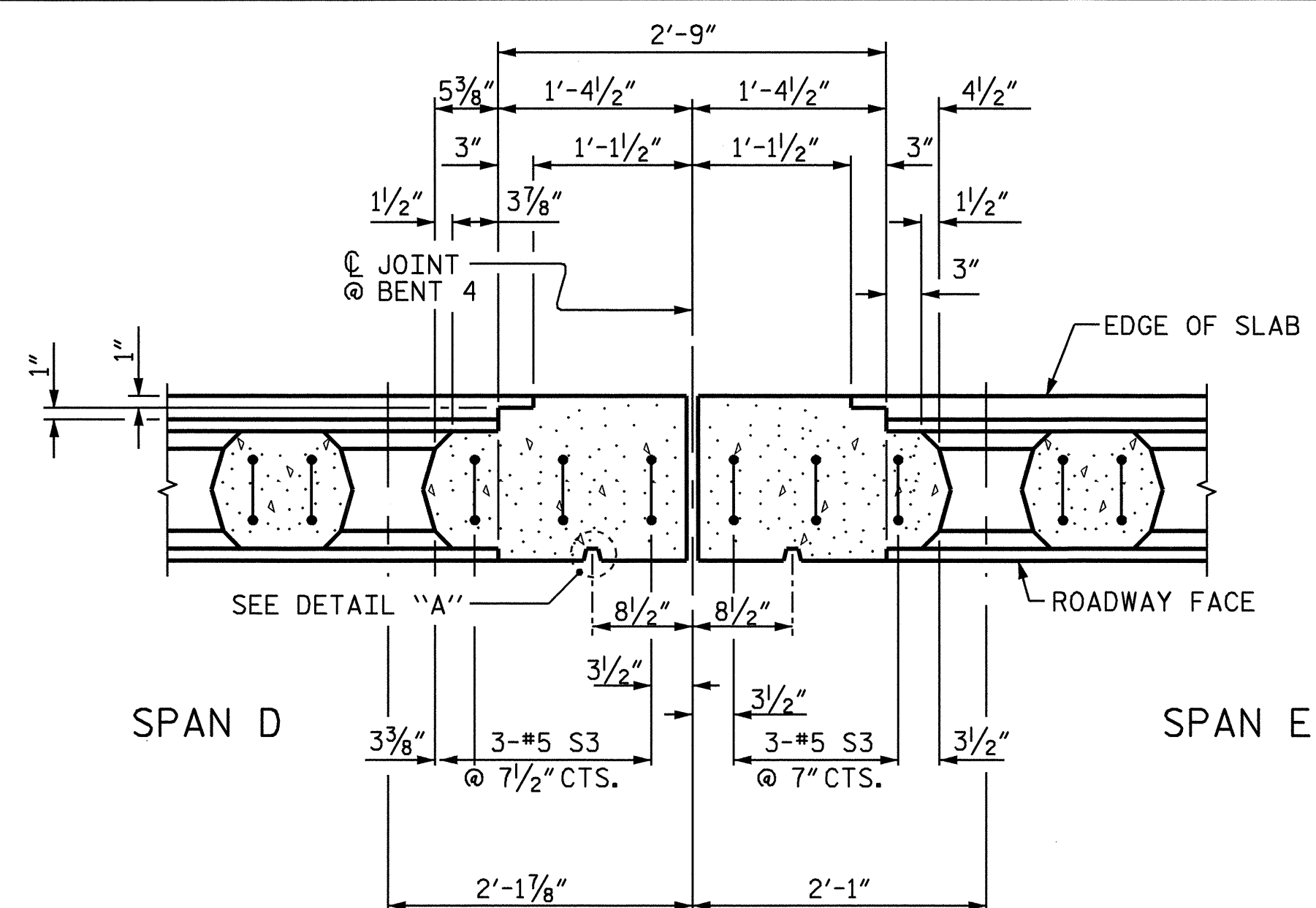
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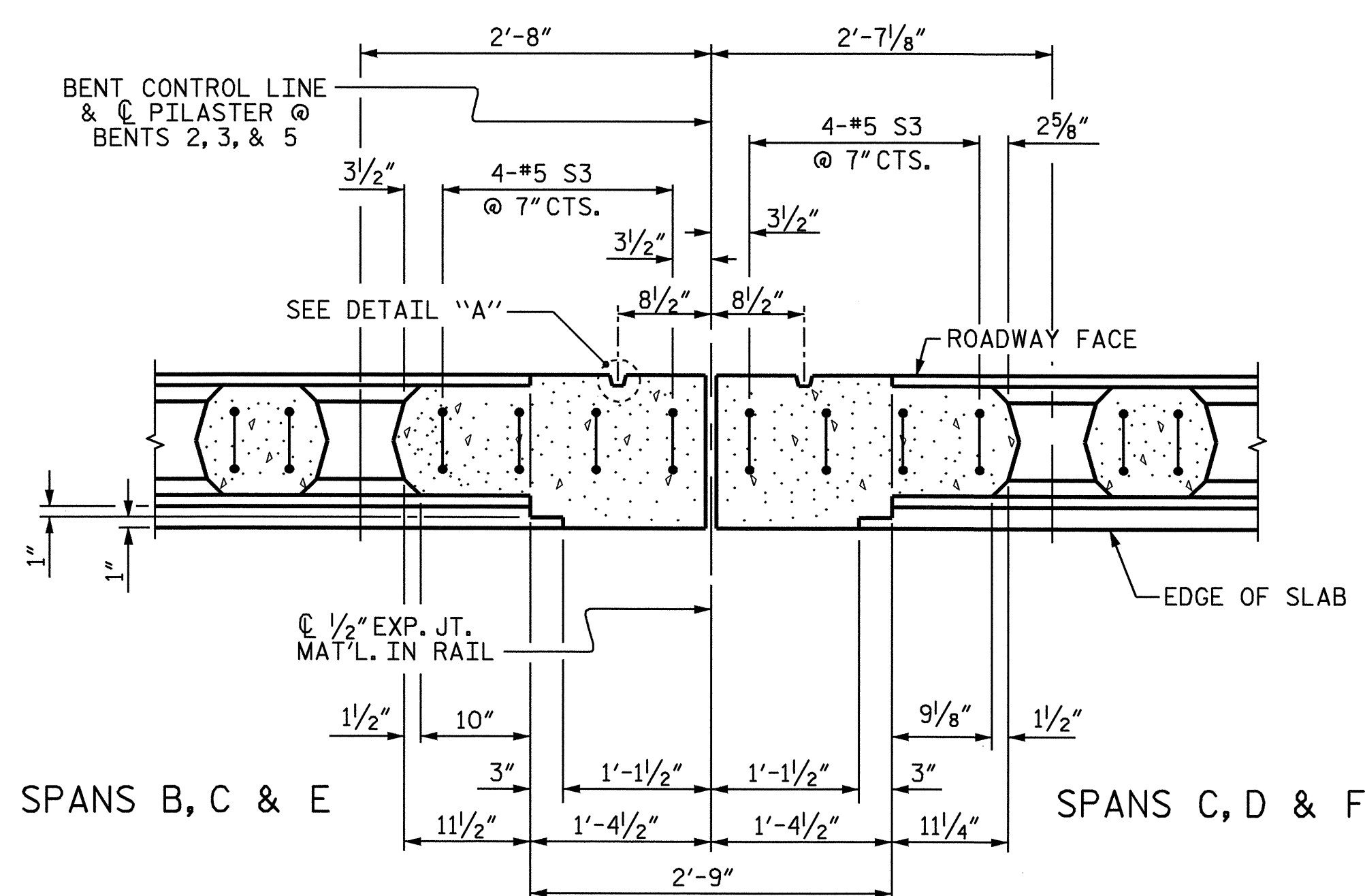
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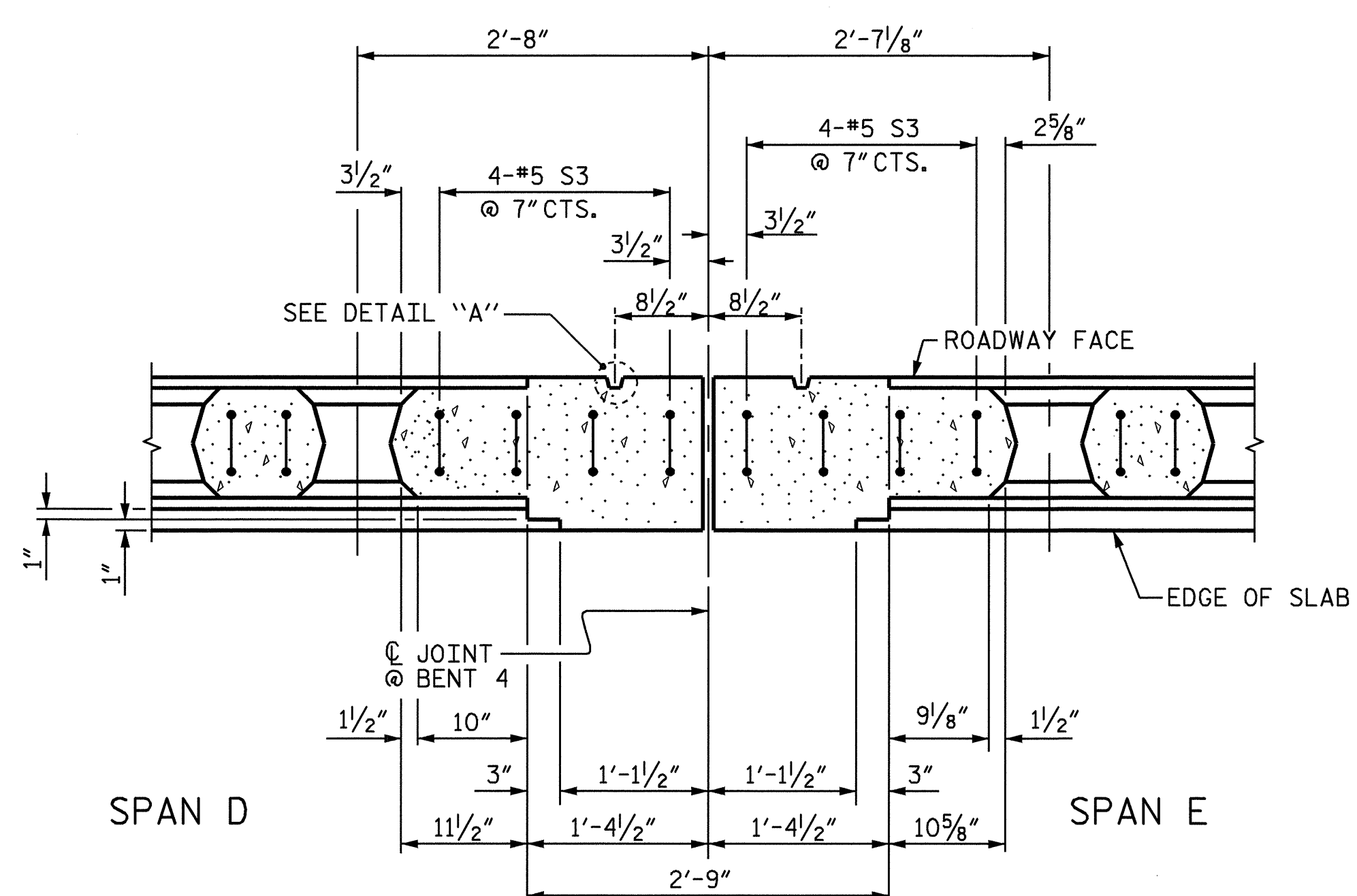
SECTION E-E (LEFT SIDE)
SHOWING CONTINUOUS BENT PILASTER



SECTION F-F (LEFT SIDE)
SHOWING EXPANSION BENT PILASTER



SECTION E-E (RIGHT SIDE)
SHOWING CONTINUOUS BENT PILASTER

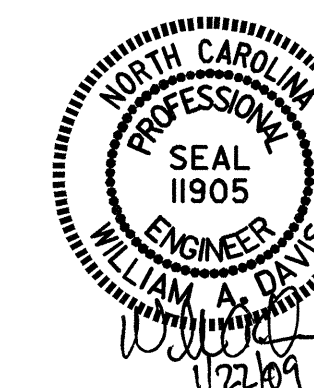


SECTION F-F (RIGHT SIDE)
SHOWING EXPANSION BENT PILASTER

PROJECT NO. B-4019
BEAUFORT COUNTY
STATION: 19+52.00 -L-

SHEET 8 OF 15

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
CLASSIC CONCRETE
BRIDGE RAIL WITH
SIDEWALK

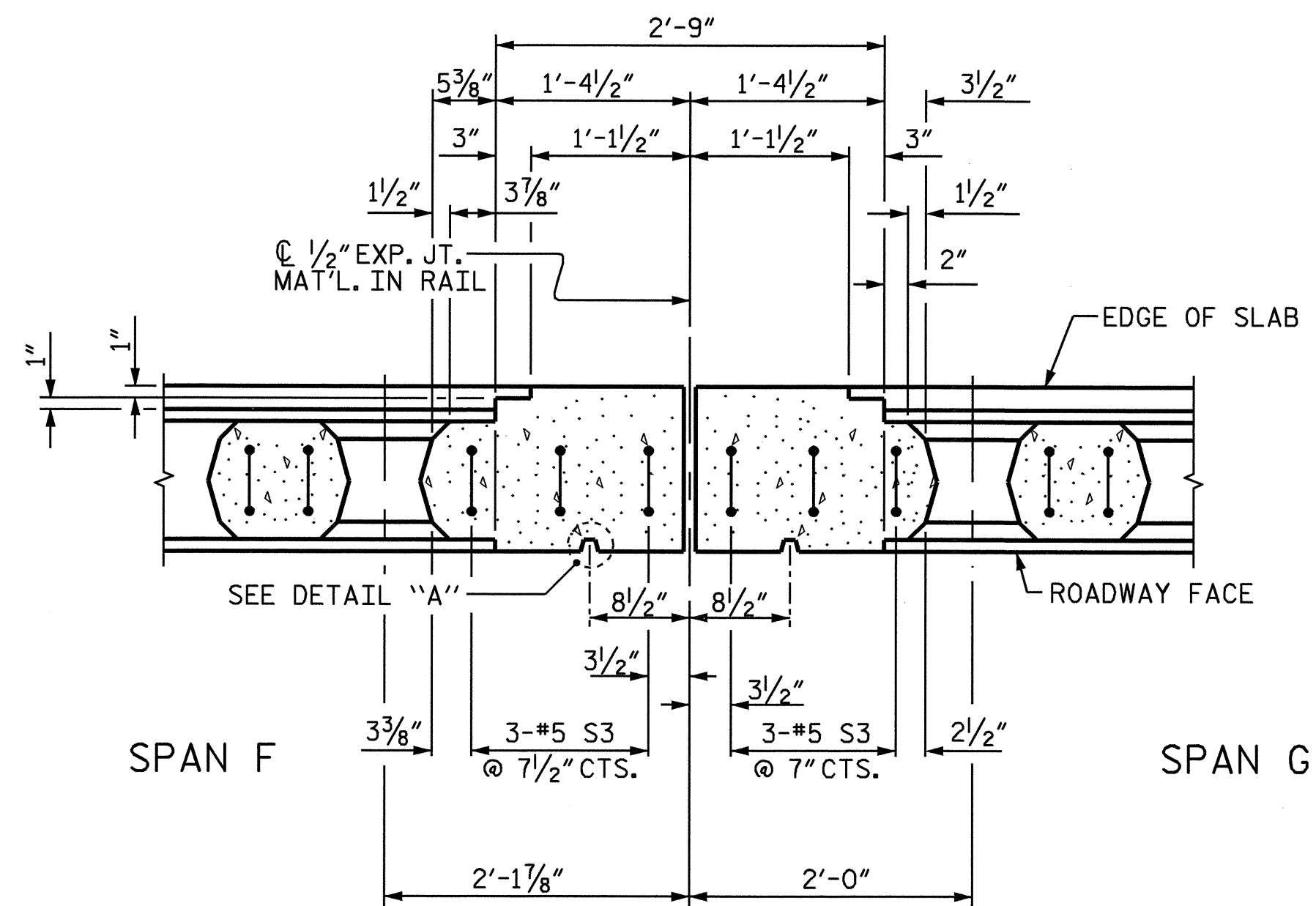


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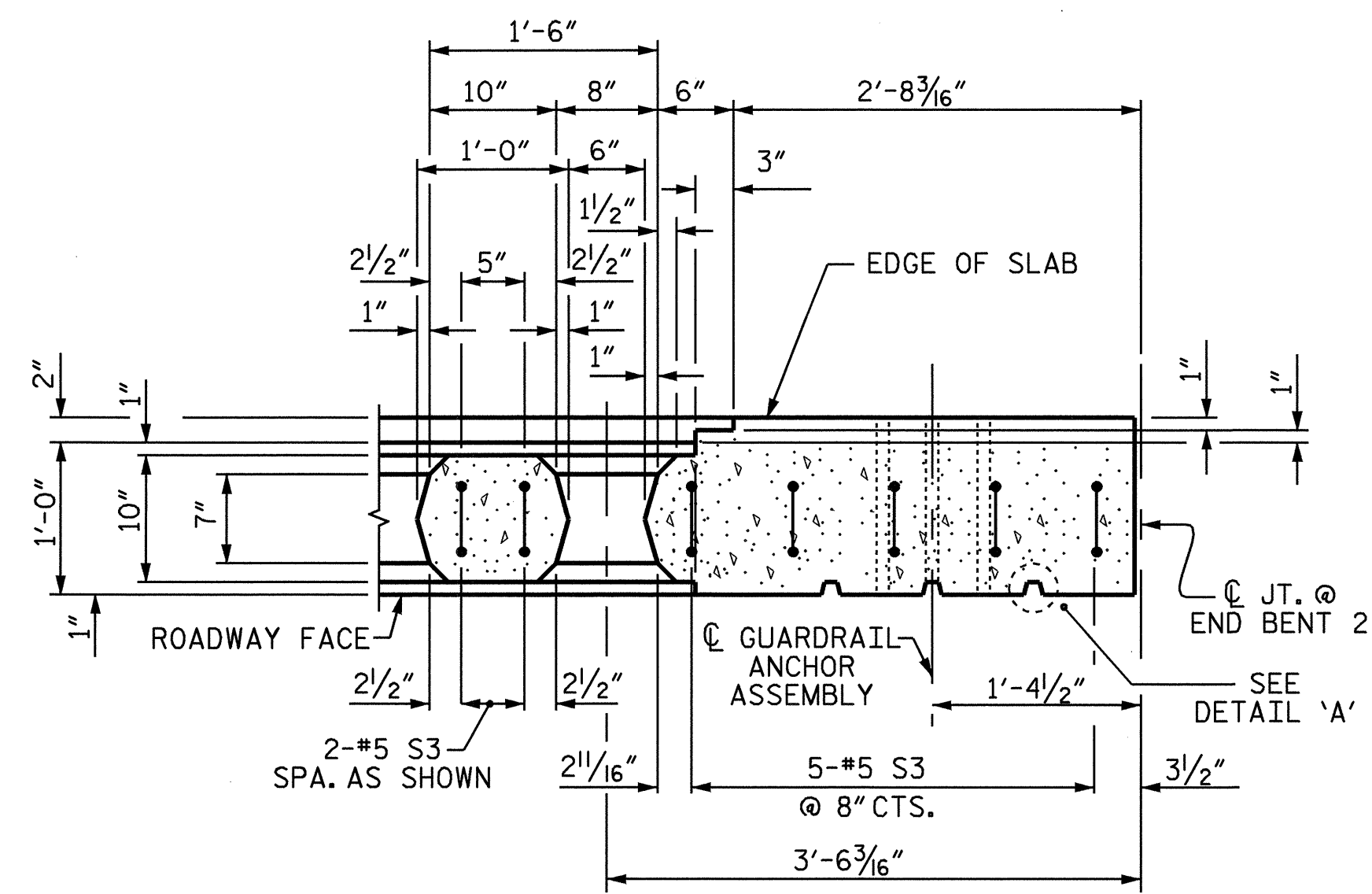
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REVISIONS						SHEET NO. S-31
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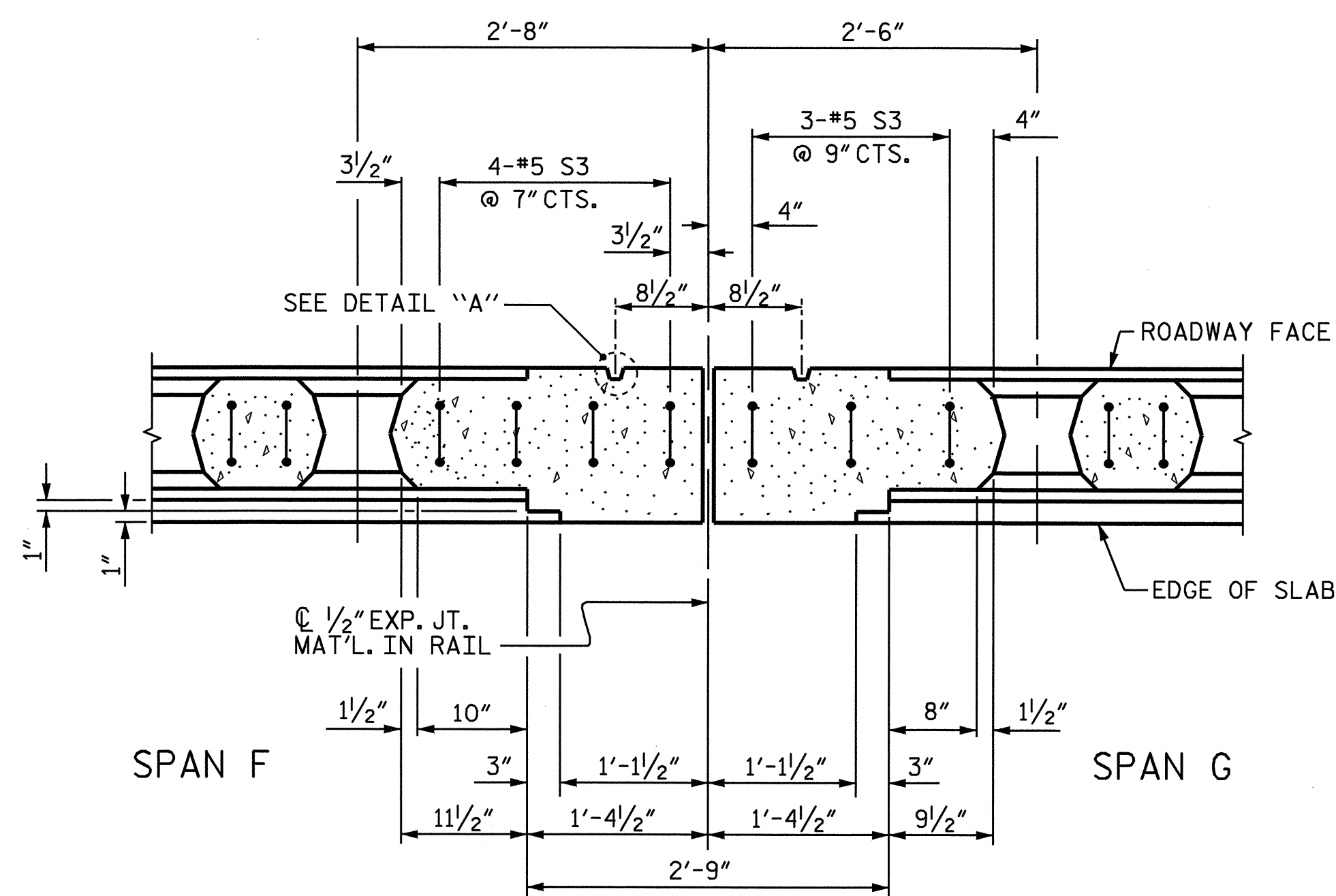
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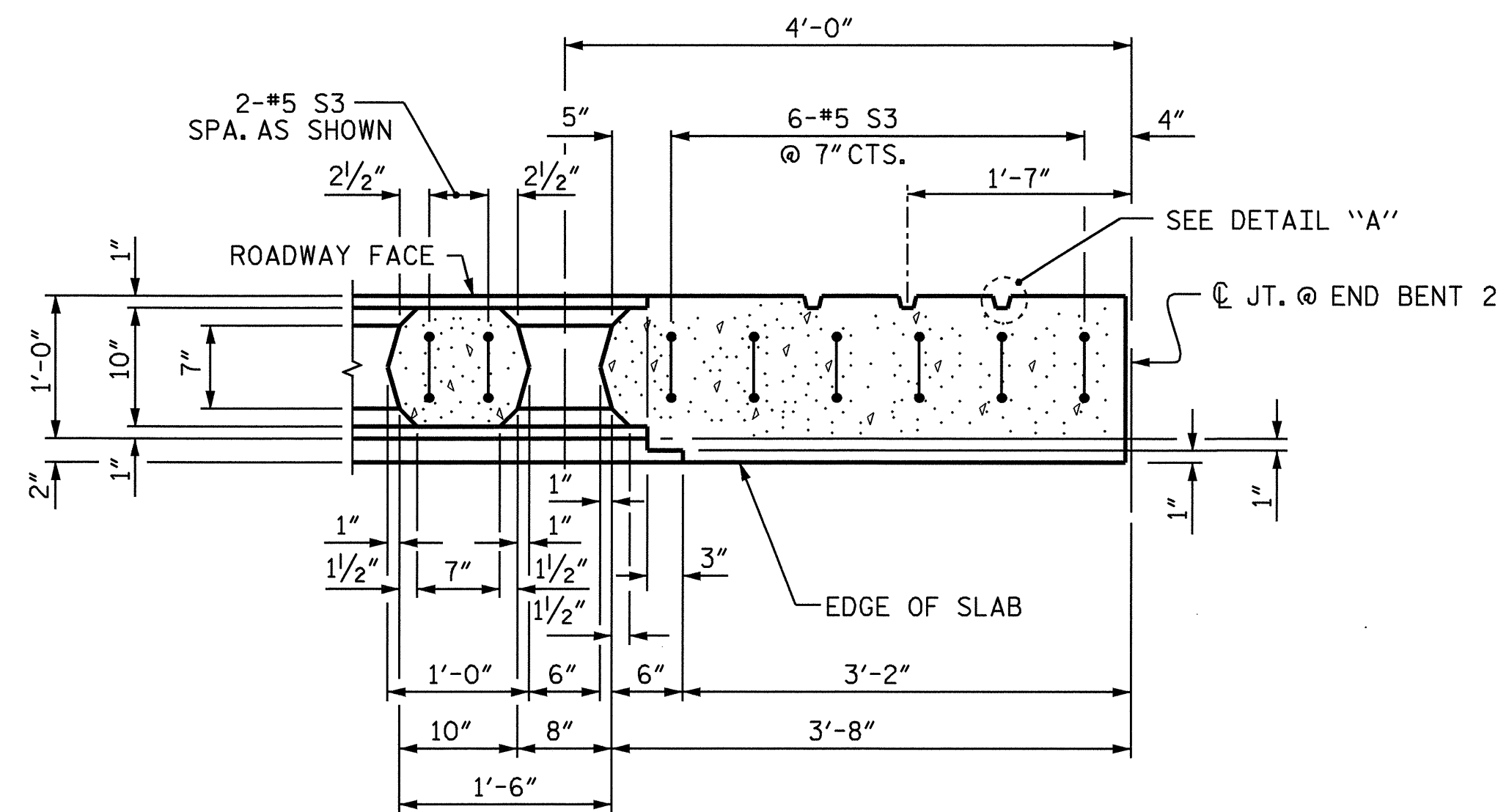
SECTION G-G (LEFT SIDE)
SHOWING CONTINUOUS BENT PILASTER



SECTION H-H (LEFT SIDE)
SHOWING END BENT 2 PILASTER



SECTION G-G (RIGHT SIDE)
SHOWING CONTINUOUS BENT PILASTER

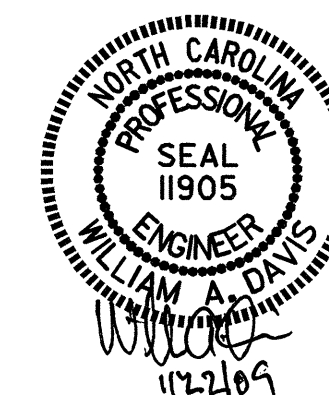


SECTION H-H (RIGHT SIDE)
SHOWING END BENT 2 PILASTER

PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 9 OF 15

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 CLASSIC CONCRETE
 BRIDGE RAIL WITH
 SIDEWALK

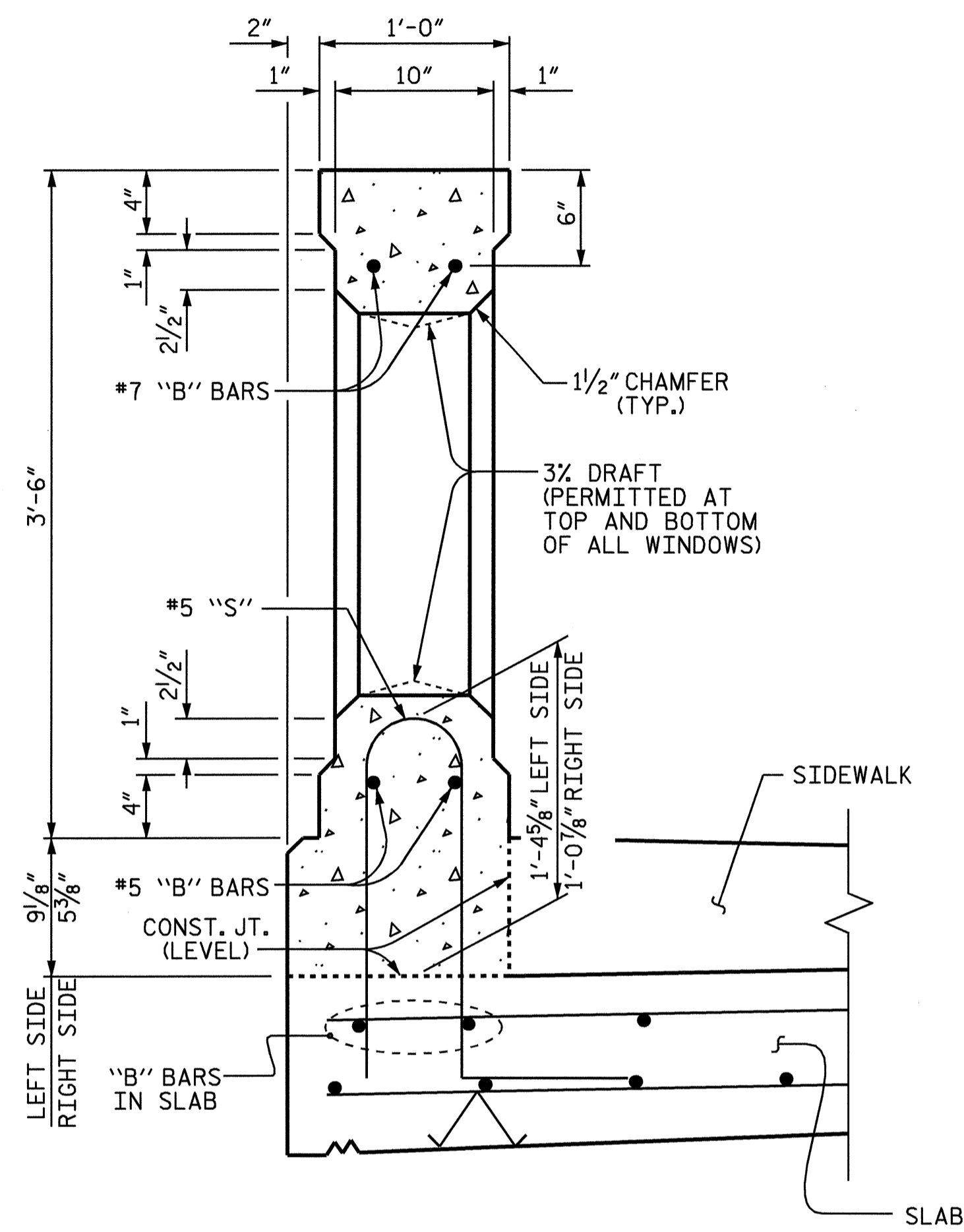


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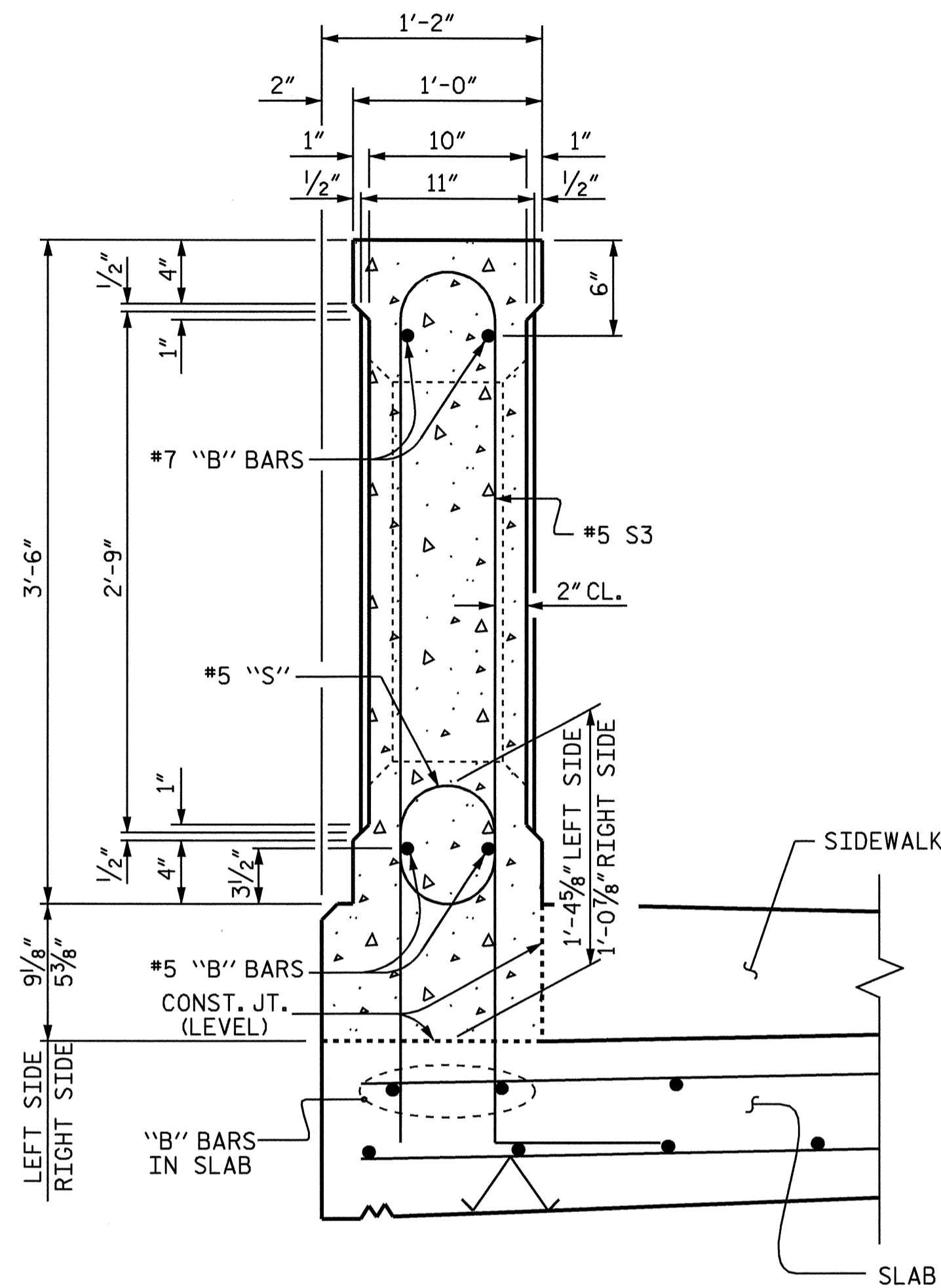
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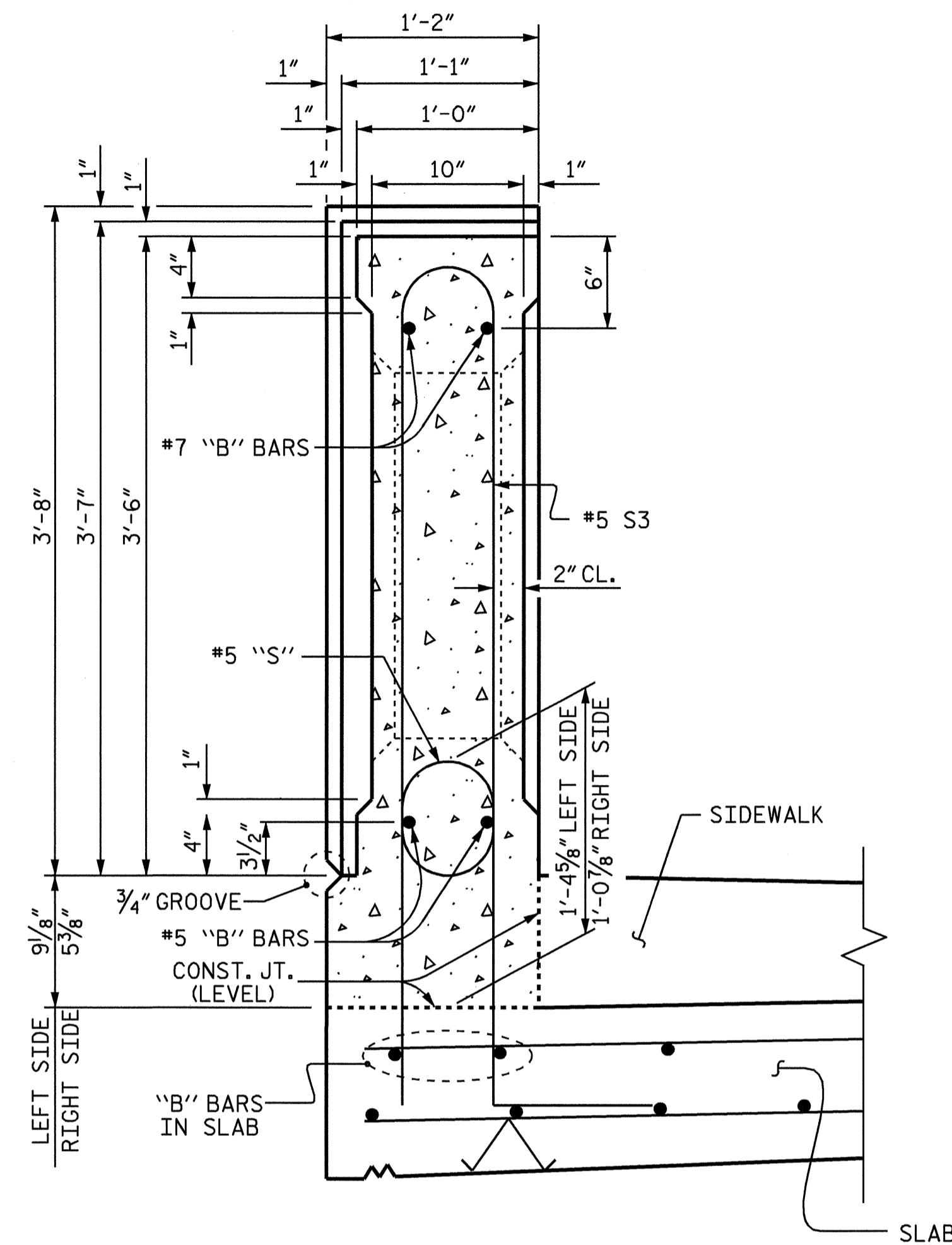
STD. No. CCRI



SECTION K-K
(SHOWING WINDOW OF RAIL)



SECTION L-L
(SHOWING SPAN PILASTER)

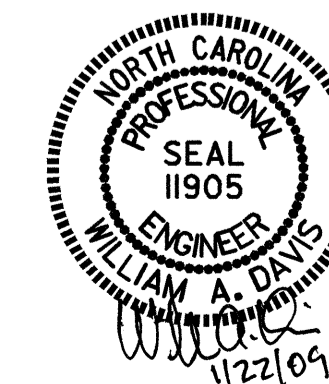


SECTION M-M
(SHOWING BENT & END BENT PILASTERS)

PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 10 OF 15

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 CLASSIC CONCRETE
 BRIDGE RAIL WITH
 SIDEWALK

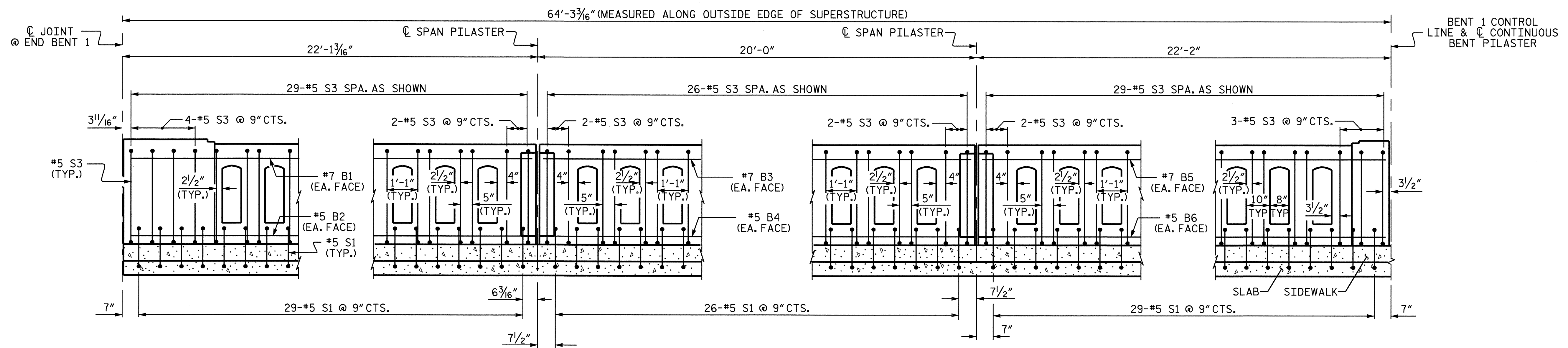


DRAWN BY: D. G. ELY DATE: 11/06
 CHECKED BY: A. R. CHESSON DATE: 2/07

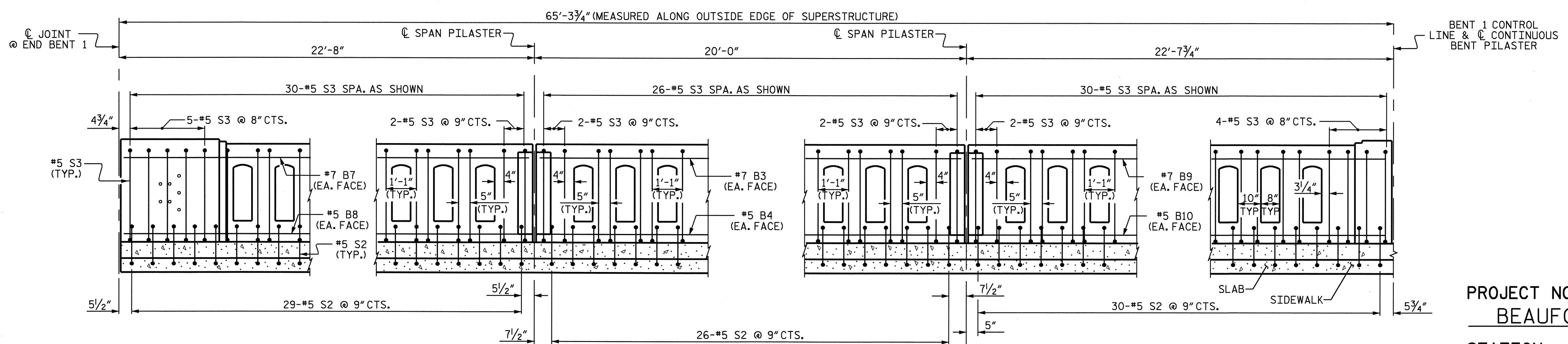
22-JAN-2009 14:11
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 qtnguyen

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-33
1			3			TOTAL SHEETS
2			4			55

STD. No. CCR2



REINFORCING PLACEMENT- SPAN A - LEFT SIDE
 DIMENSIONS SHOWN ARE ALONG OUTSIDE EDGE OF SLAB



REINFORCING PLACEMENT- SPAN A - RIGHT SIDE
 DIMENSIONS SHOWN ARE ALONG OUTSIDE EDGE OF SLAB

PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 11 OF 15

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 CLASSIC CONCRETE
 BRIDGE RAIL WITH
 SIDEWALK

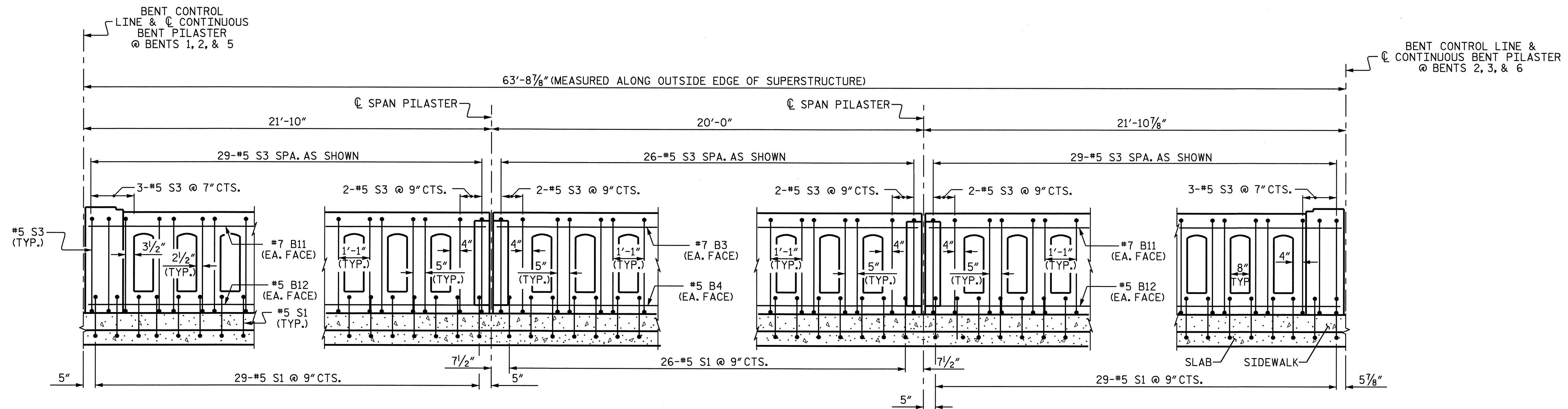


DRAWN BY : D. G. ELY DATE : 12/06
 CHECKED BY : A. R. CHESSON DATE : 2/07

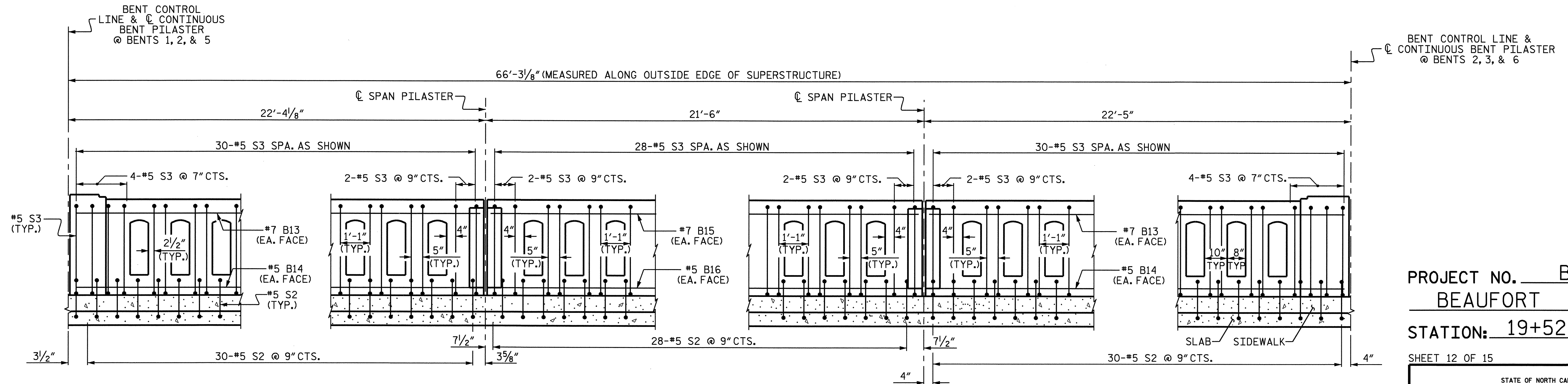
22-JAN-2009 14:10
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 qtnguyen

REVISIONS						SHEET NO. S-34
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 55
2			4			

STD. No. CCR3



REINFORCING PLACEMENT- SPANS B, C & F - LEFT SIDE
 DIMENSIONS SHOWN ARE ALONG OUTSIDE EDGE OF SLAB

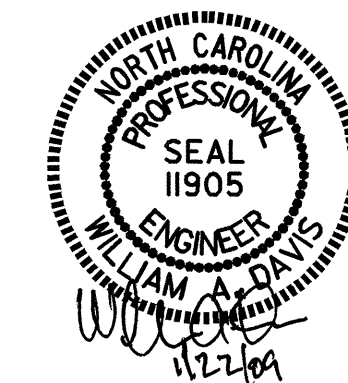


REINFORCING PLACEMENT- SPANS B, C & F - RIGHT SIDE
 DIMENSIONS SHOWN ARE ALONG OUTSIDE EDGE OF SLAB

PROJECT NO. B-4019
 BEAUFORT COUNTY
 STATION: 19+52.00 -L-

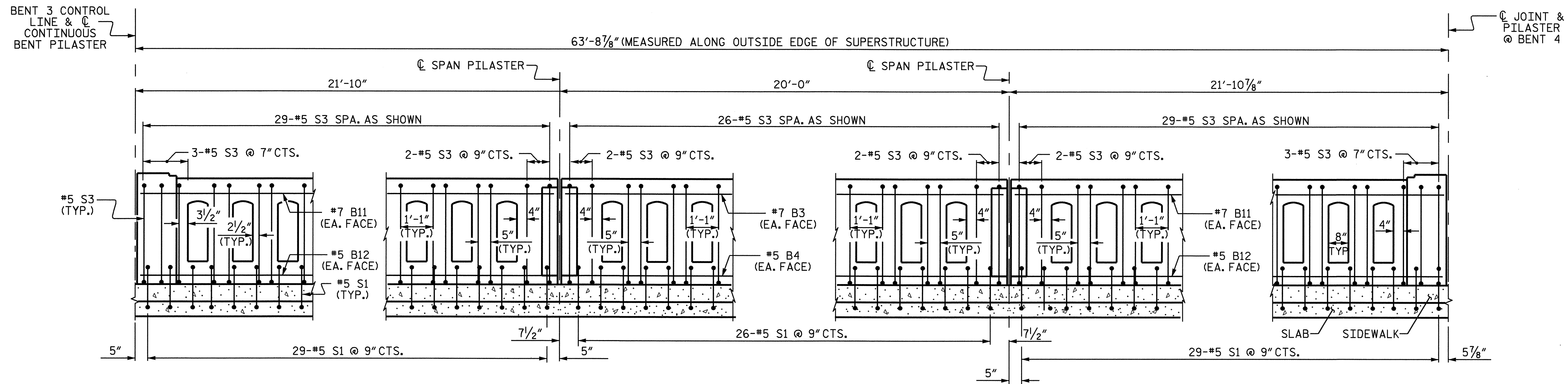
SHEET 12 OF 15

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 CLASSIC CONCRETE
 BRIDGE RAIL WITH
 SIDEWALK



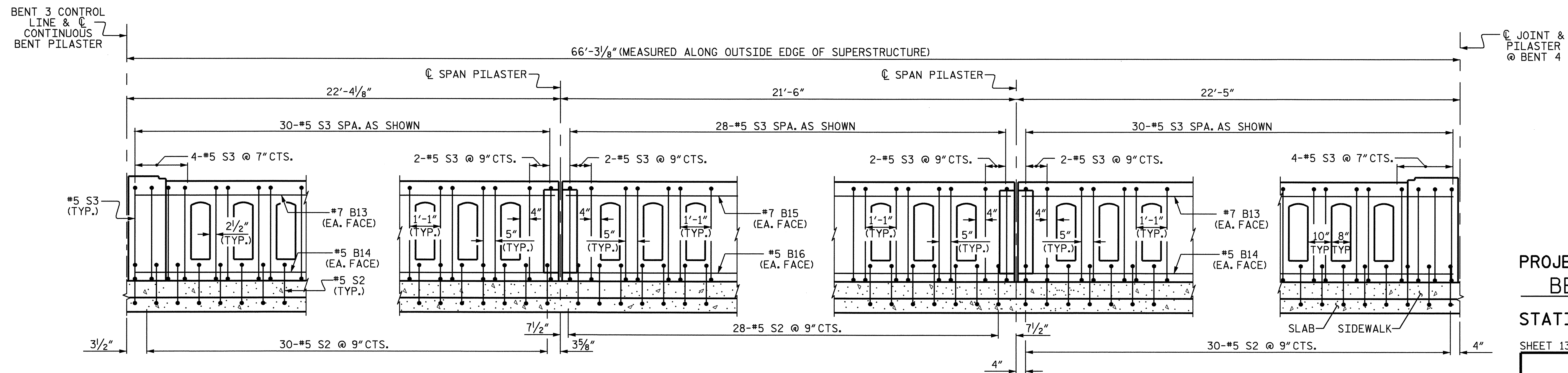
DRAWN BY: D. G. ELY DATE: 12/06
 CHECKED BY: A. R. CHESSON DATE: 2/07

REVISIONS						SHEET NO. S-35
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 55
2			4			



REINFORCING PLACEMENT- SPAN D - LEFT SIDE

DIMENSIONS SHOWN ARE ALONG OUTSIDE EDGE OF SLAB



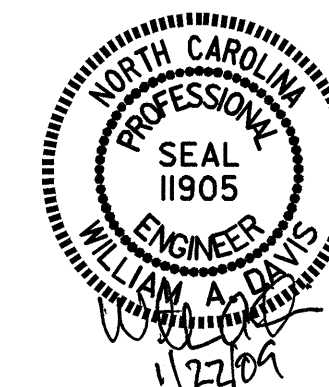
REINFORCING PLACEMENT- SPAN D - RIGHT SIDE

DIMENSIONS SHOWN ARE ALONG OUTSIDE EDGE OF SLAB

PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 13 OF 15

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 CLASSIC CONCRETE
 BRIDGE RAIL WITH
 SIDEWALK

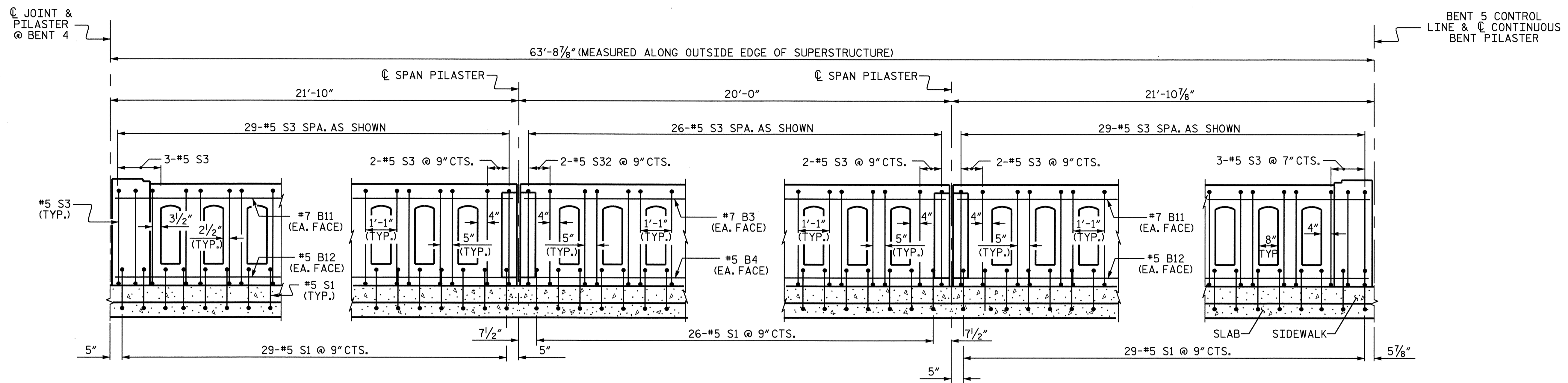


DRAWN BY: D. G. ELY DATE: 12/06
 CHECKED BY: A. R. CHESSON DATE: 2/07

22-JAN-2009 14:10
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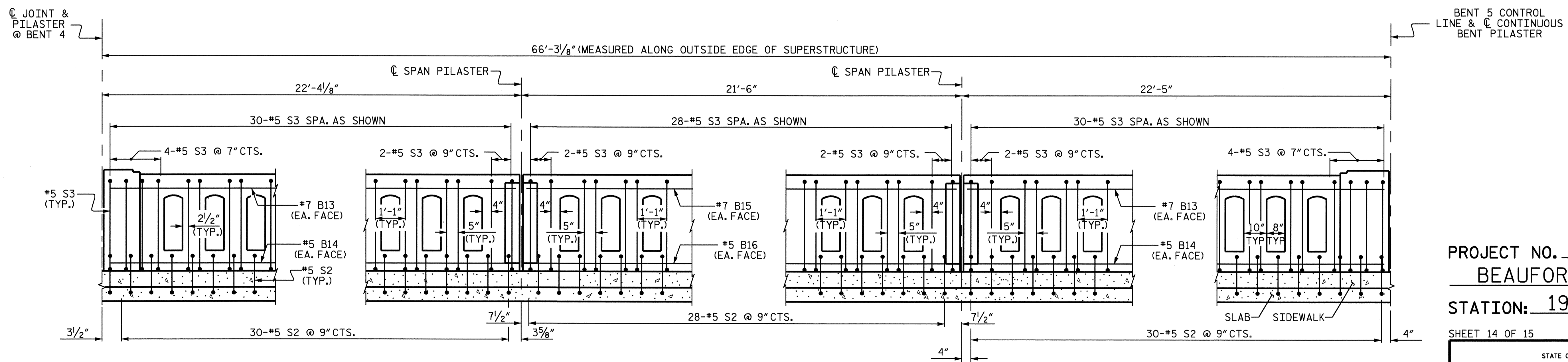
REVISIONS						SHEET NO. S-36
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 55
2			4			

STD. No. CCR3



REINFORCING PLACEMENT- SPAN E - LEFT SIDE

DIMENSIONS SHOWN ARE ALONG OUTSIDE EDGE OF SLAB



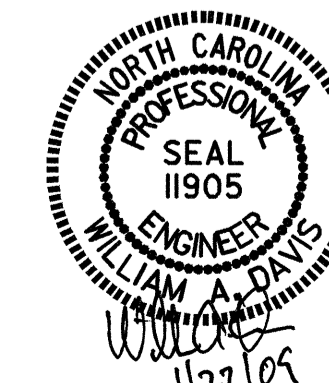
REINFORCING PLACEMENT- SPAN E - RIGHT SIDE

DIMENSIONS SHOWN ARE ALONG OUTSIDE EDGE OF SLAB

PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 14 OF 15

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 CLASSIC CONCRETE
 BRIDGE RAIL WITH
 SIDEWALK



DRAWN BY : D. G. ELY DATE : 12/06
 CHECKED BY : A. R. CHESSON DATE : 2/07

22-JAN-2009 14:09
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 qtnguyen

REVISIONS						SHEET NO. S-37
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 55
2			4			

STD. No. CCR3

NOTES

CLASSIC CONCRETE BRIDGE 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.

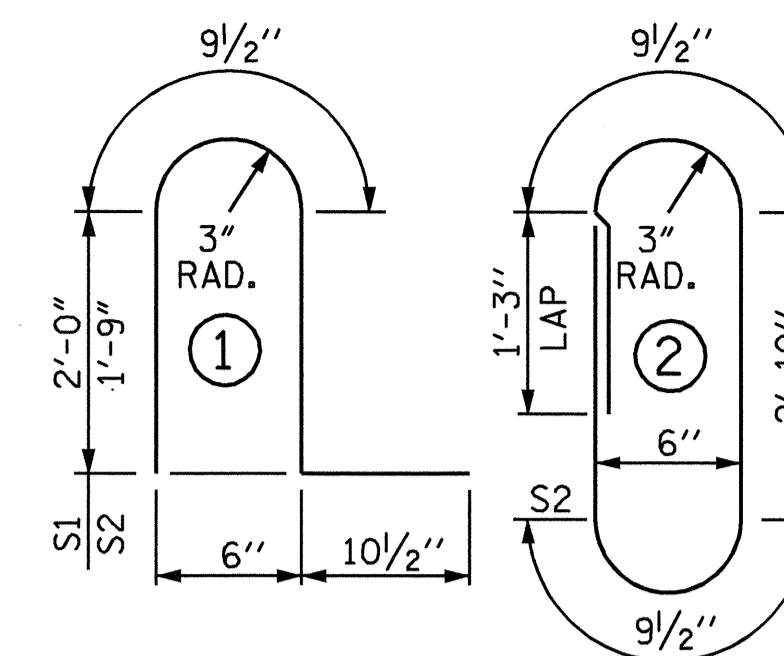
WHEN EVAZOTE JOINT SEAL IS REQUIRED, THE JOINT IN THE DECK SHALL BE SAWED PRIOR TO THE CASTING OF THE CLASSIC CONCRETE RAIL.

ALL REINFORCING STEEL IN THE CLASSIC CONCRETE BRIDGE RAIL SHALL BE EPOXY COATED.

FOR SIDEWALK REINFORCING STEEL & DETAILS, SEE "SIDEWALK DETAILS" SHEET.

FOR CLASSIC CONCRETE BRIDGE RAIL, SEE SPECIAL PROVISIONS.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

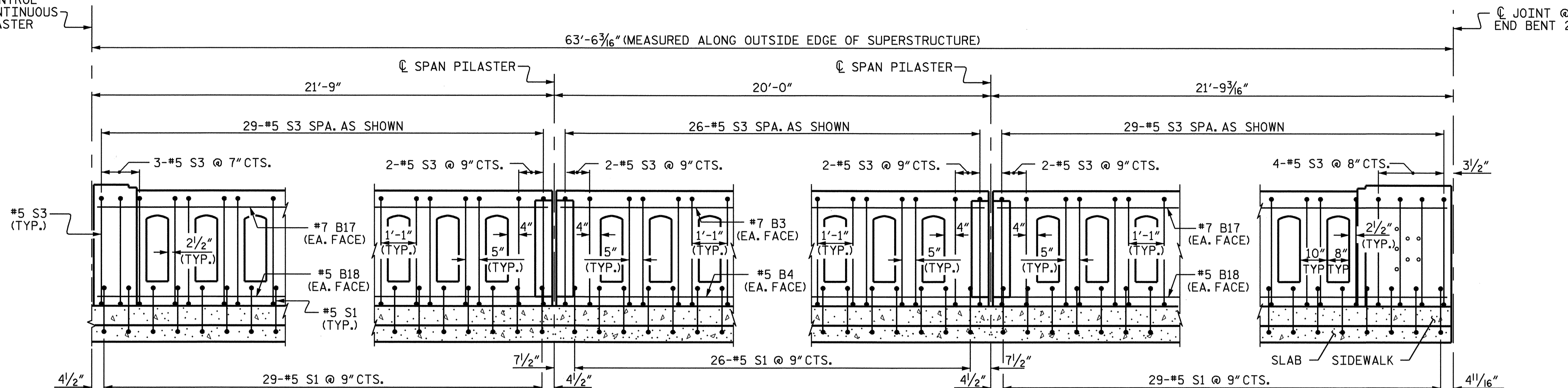
BILL OF MATERIAL

FOR CLASSIC BRIDGE RAILING ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	2	#7	STR	21'-8"	89
*B2	2	#5	STR	21'-8"	45
*B3	16	#7	STR	19'-7"	640
*B4	16	#5	STR	19'-7"	327
*B5	2	#7	STR	21'-9"	89
*B6	2	#5	STR	21'-9"	45
*B7	2	#7	STR	22'-3"	91
*B8	2	#5	STR	22'-3"	46
*B9	2	#7	STR	22'-2"	91
*B10	2	#5	STR	22'-2"	46
*B11	20	#7	STR	21'-5"	876
*B12	20	#5	STR	21'-5"	447
*B13	20	#7	STR	21'-11"	896
*B14	20	#5	STR	21'-11"	457
*B15	12	#7	STR	21'-1"	517
*B16	12	#5	STR	21'-1"	264
*B17	4	#7	STR	21'-4"	174
*B18	4	#5	STR	21'-4"	89
*B19	4	#7	STR	21'-10"	179
*B20	4	#5	STR	21'-10"	91
*S1	588	#5	1	5'-8"	3475
*S2	613	#5	1	5'-2"	3298
*S3	1201	#5	2	8'-6"	10,674

* EPOXY COATED REINFORCING STEEL	22,946	LBS.
CLASS AA CONCRETE	95.7	CU. YDS.
CONCRETE FOR SIDEWALK	85.8	CU. YDS.
CLASSIC CONCRETE BRIDGE RAIL	909.1	LIN. FT.

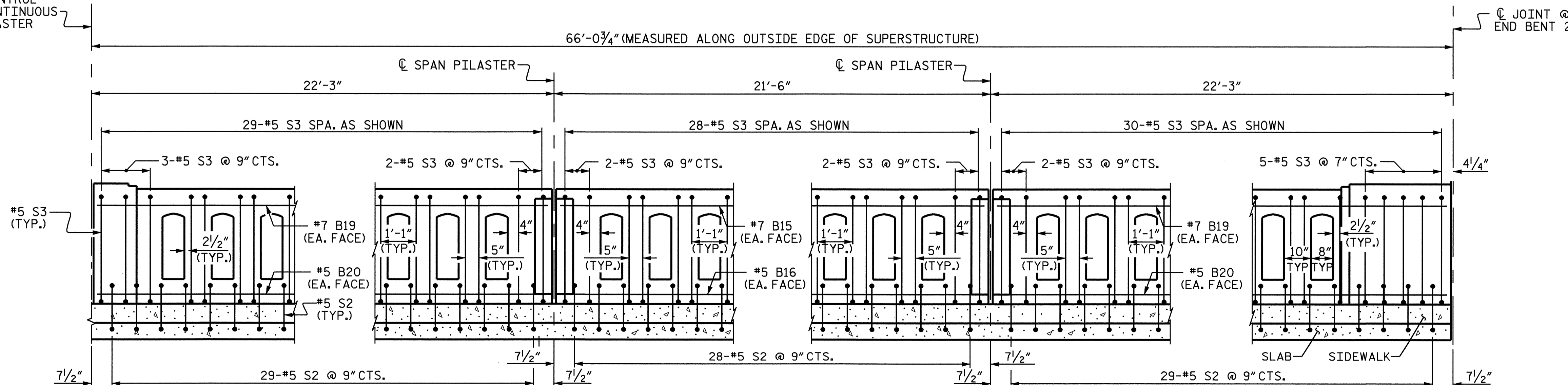
BENT 6 CONTROL LINE & C CONTINUOUS BENT PILASTER



REINFORCING PLACEMENT- SPAN G - LEFT SIDE

DIMENSIONS SHOWN ARE ALONG OUTSIDE EDGE OF SLAB

BENT 6 CONTROL LINE & C CONTINUOUS BENT PILASTER



REINFORCING PLACEMENT- SPAN G - RIGHT SIDE

DIMENSIONS SHOWN ARE ALONG OUTSIDE EDGE OF SLAB

DRAWN BY : D. G. ELY DATE : 12/06
 CHECKED BY : A. R. CHESSON DATE : 2/07

02-FEB-2009 12:33
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PROJECT NO. B-4019
 BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 15 OF 15

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 CLASSIC CONCRETE
 BRIDGE RAIL WITH
 SIDEWALK

REVISIONS						SHEET NO. S-38
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 55
2			4			

STD. No. CCR3

NOTES

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

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M11.

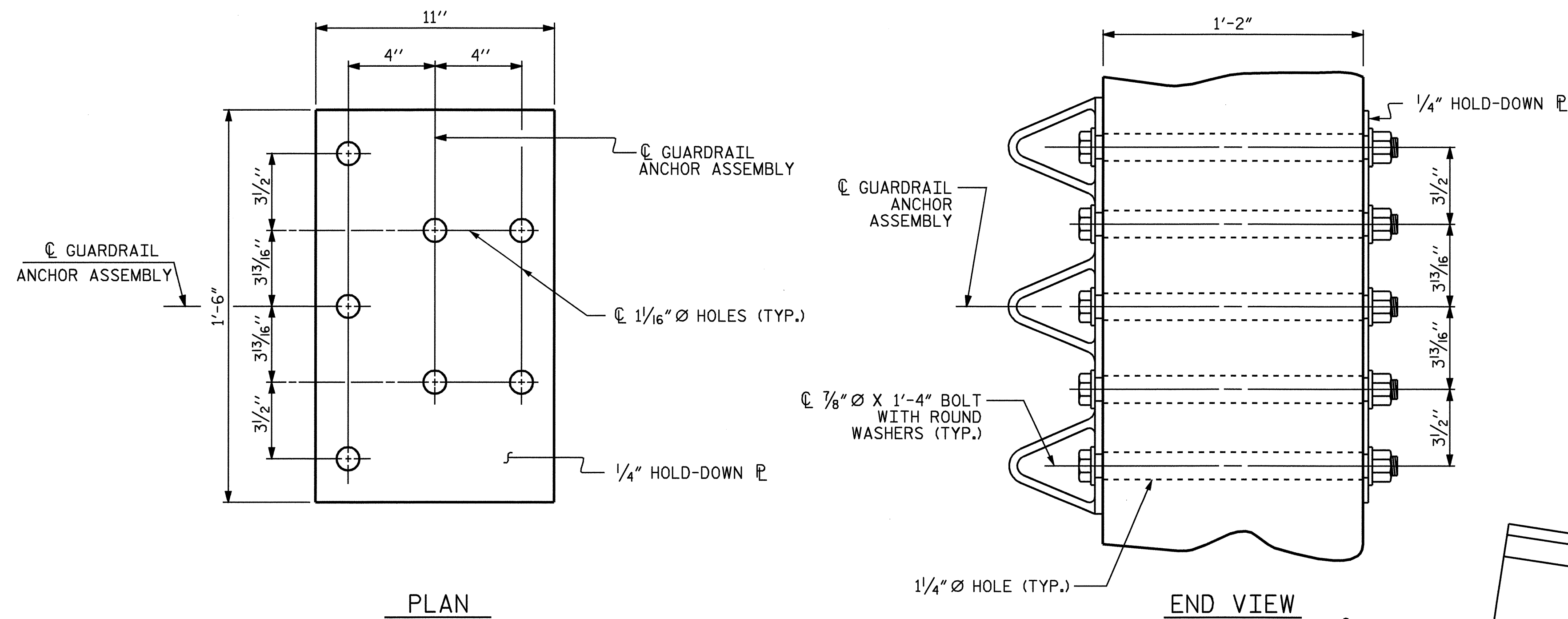
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS.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

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

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

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.

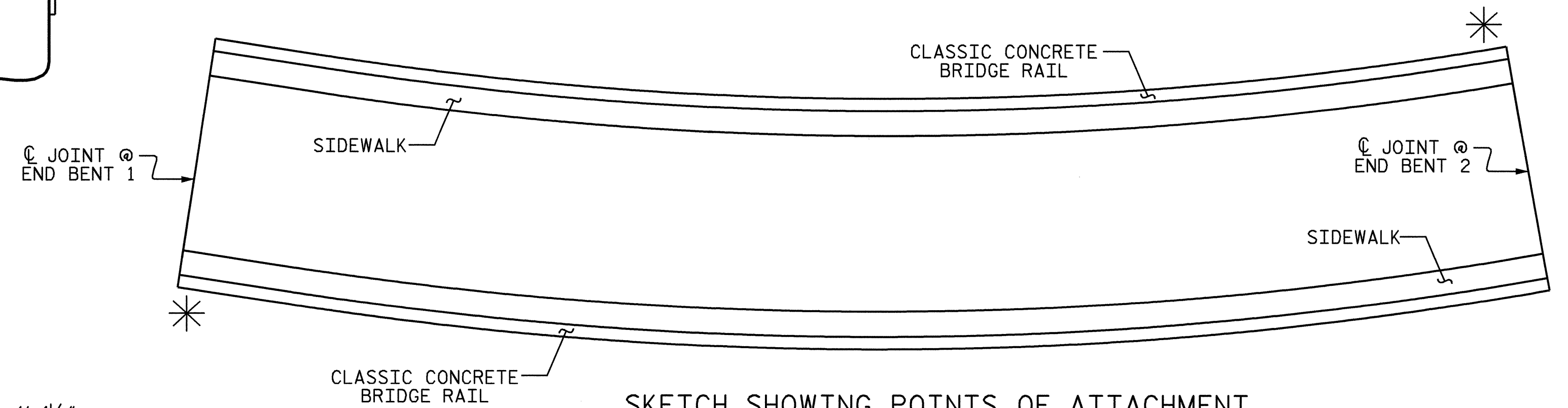
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



PLAN

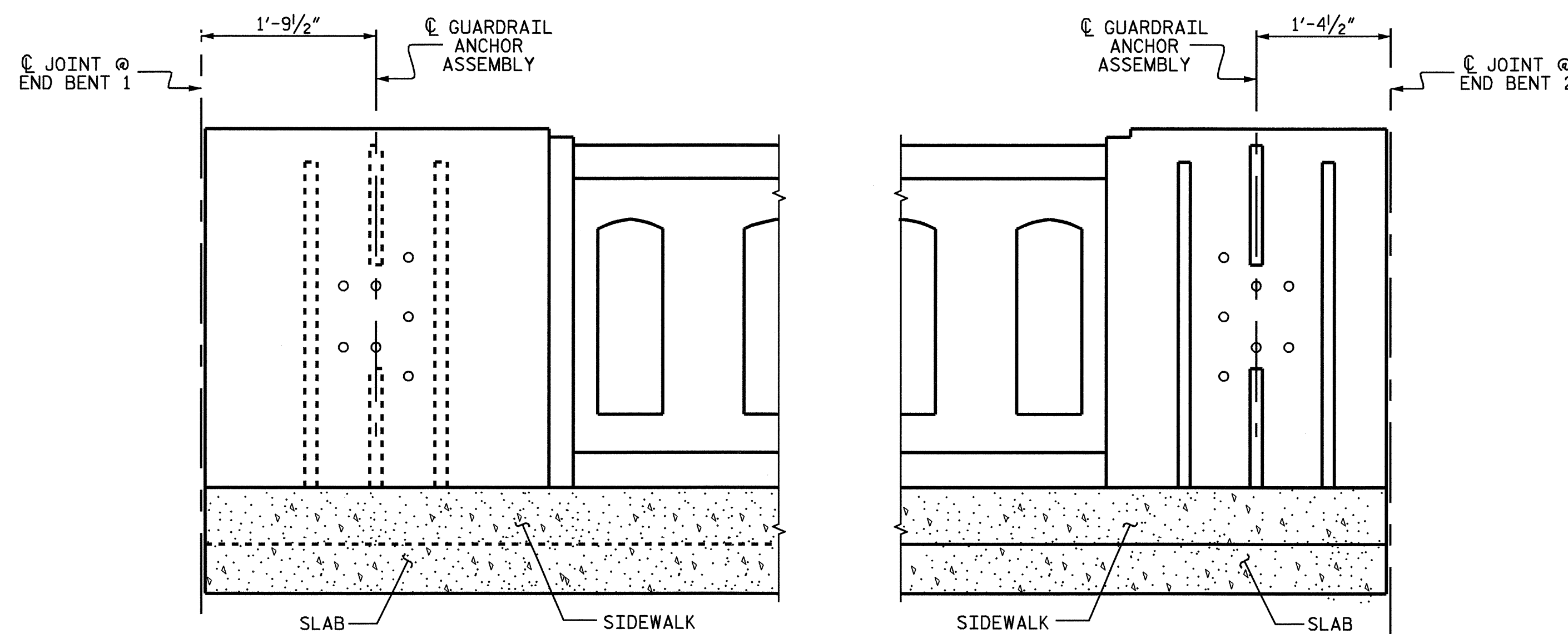
END VIEW

GUARDRAIL ANCHOR ASSEMBLY DETAILS



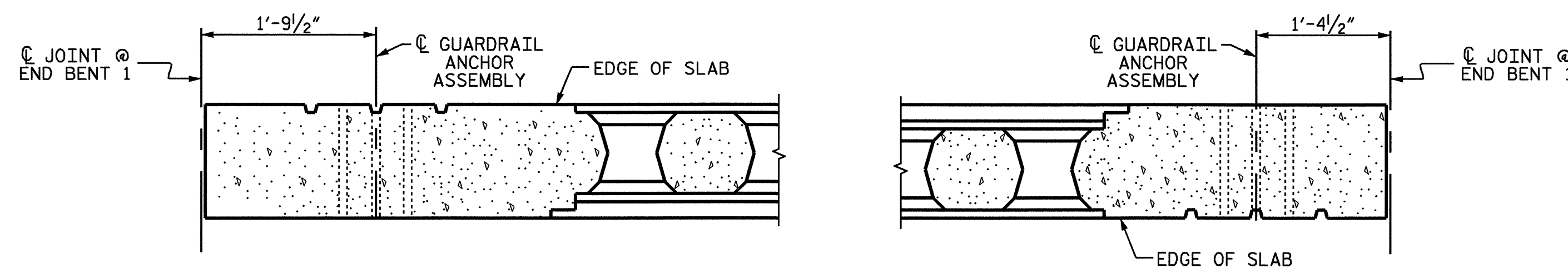
SKETCH SHOWING POINTS OF ATTACHMENT

* LOCATION OF GUARDRAIL ATTACHMENT



EXTERIOR ELEVATION AT END BENT 1

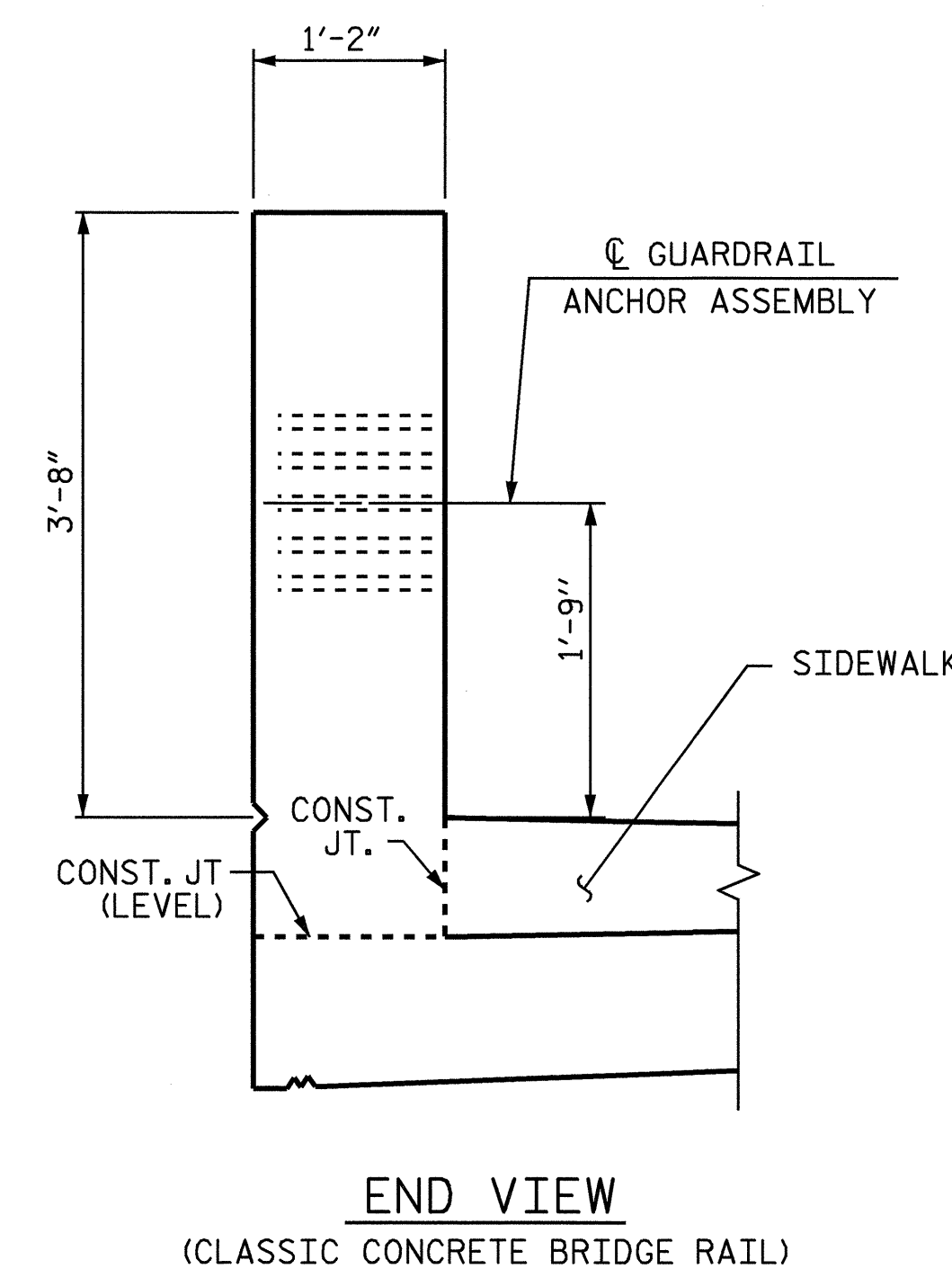
INTERIOR ELEVATION AT END BENT 2



PLAN END BENT 1

PLAN END BENT 2

LOCATION OF GUARDRAIL ANCHOR AT END BENT PILASTER

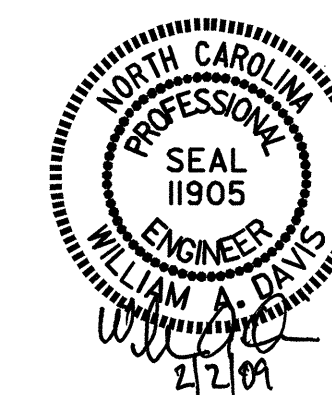


END VIEW

(CLASSIC CONCRETE BRIDGE RAIL)

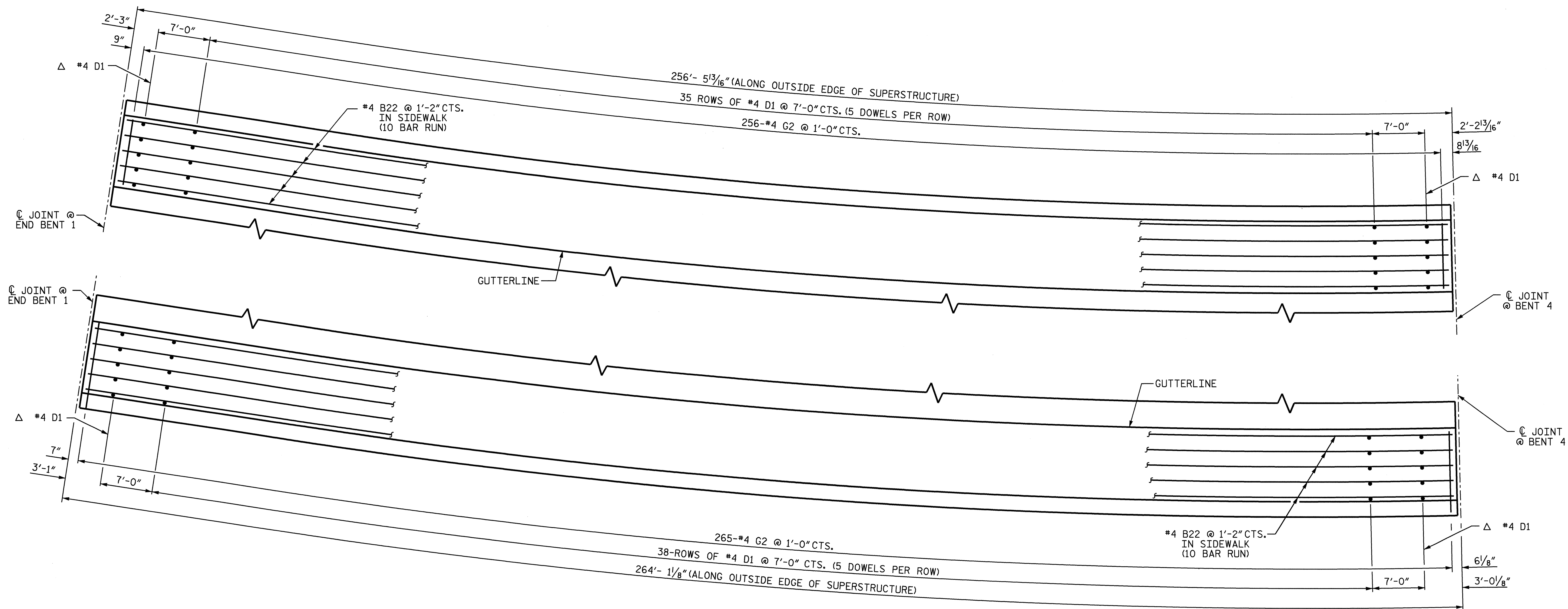
PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 GUARDRAIL ANCHORAGE
 DETAILS FOR
 CLASSIC CONCRETE RAIL



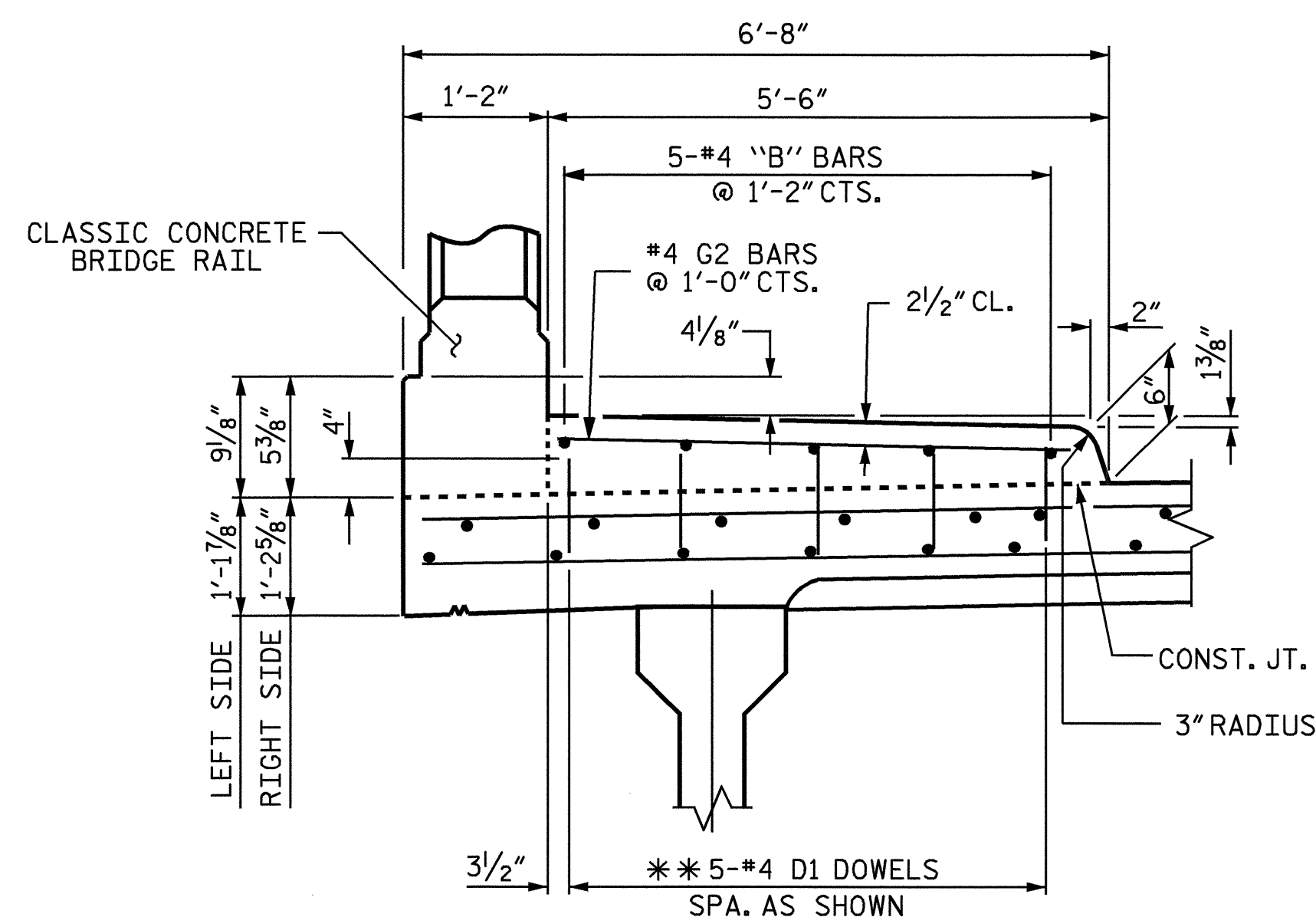
ASSEMBLED BY : D. G. ELY	DATE : 1/07
CHECKED BY : A. R. CHESSON	DATE : 2/07
DRAWN BY : EEM 6/94	REV. 10/17/00 RWW/LES
CHECKED BY : RGW 6/94	REV. 5/7/03 RWW/JTE
	REV. 5/1/06 TLA/GM

REVISIONS						SHEET NO. S-39
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 55
2			4			



PLAN OF SIDEWALK

(SPANS A, B, C & D)



SECTION THRU SIDEWALK

** #4 D1 DOWELS MAY BE PUSHED INTO GREEN CONCRETE AFTER SPAN HAS BEEN SCREEDED OFF.

NOTES :

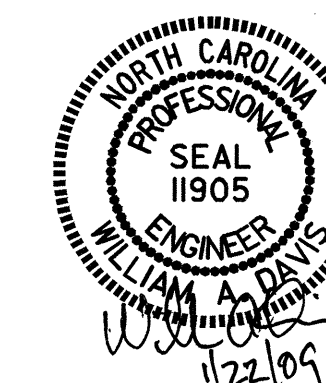
- △ THESE DOWELS ARE TO BE PLACED AFTER SAWING OF THE JOINT. THE HOLES SHALL BE DRILLED AND THE DOWELS GROUTED IN PLACE.
- FOR CLASSIC CONCRETE BRIDGE RAIL REINFORCING STEEL AND DETAILS, SEE "CLASSIC CONCRETE BRIDGE RAIL" SHEETS.
- THE #4 G2 AND #4 D1 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN 2" CLEARANCE TO THE 1/2" EXPANSION JOINT MATERIAL IN SIDEWALK.
- SIDEWALK REINFORCING STEEL AND CONCRETE SHALL BE INCLUDED IN THE PAY ITEM FOR "REINFORCED CONCRETE DECK SLAB".
- THE JOINT IN THE DECK SHALL BE SAWED PRIOR TO THE CASTING OF THE SIDEWALK.
- GROOVED CONTRACTION JOINTS 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF SIDEWALK IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINTS SHALL BE LOCATED AT A SPACING OF 8 FEET TO 10 FEET BETWEEN JOINTS. NO CONTRACTION JOINTS WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FEET IN LENGTH.
- THE SIDEWALK 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 3000 PSI.
- ALL REINFORCING STEEL IN SIDEWALK SHALL BE EPOXY COATED.
- FOR SIDEWALK QUANTITIES, SEE SUPERSTRUCTURE BILL OF MATERIAL SHEET.

PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 1 OF 2

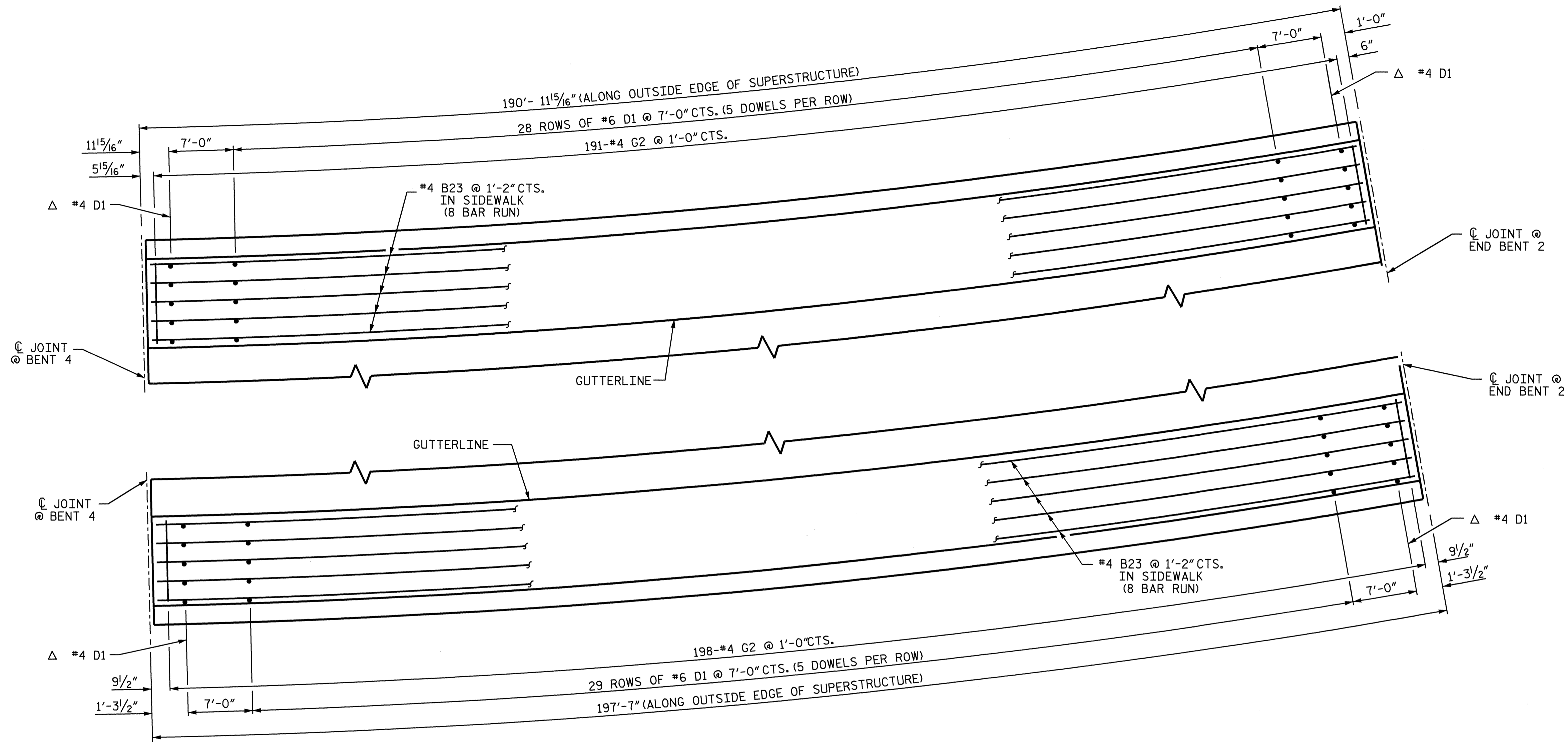
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 SIDEWALK DETAILS



DRAWN BY : D. G. ELY DATE : 1-07
 CHECKED BY : A. R. CHESSON DATE : 3-07

REVISIONS						SHEET NO. S-40
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 55
2			4			



PLAN OF SIDEWALK
(SPANS E, F, & G)

PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

 SUPERSTRUCTURE
 SIDEWALK DETAILS



DRAWN BY : D. G. ELY DATE : 1-07
 CHECKED BY : A. R. CHESSON DATE : 3-07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-41
1			3			TOTAL SHEETS
2			4			55

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

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

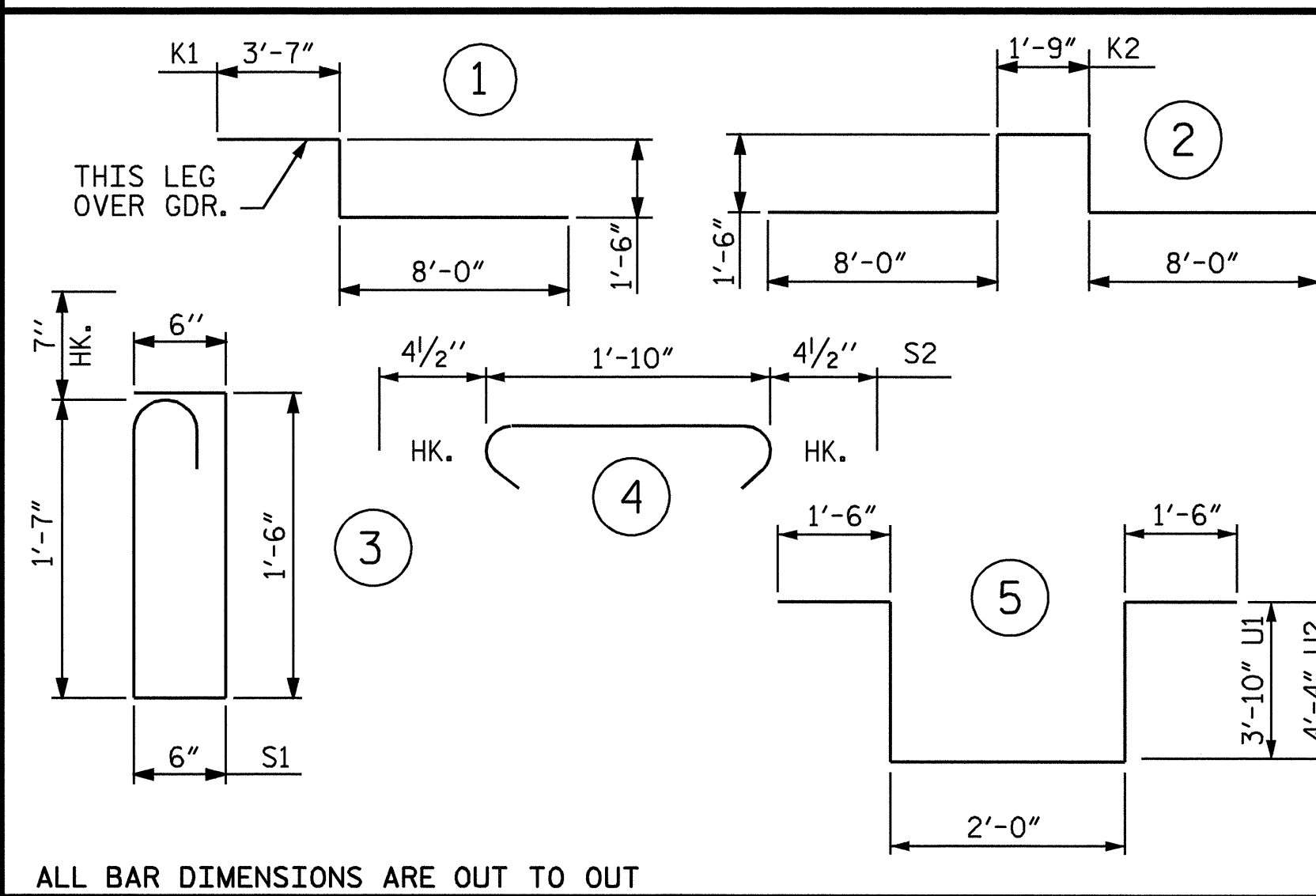
SUPERSTRUCTURE BILL OF MATERIAL

SPANS A, B, C, D, E, F, & G	CLASS AA CONCRETE	EPOXY COATED REINFORCING STEEL
	(CU. YDS.)	(LBS.)
POUR 1	63.0	
POUR 2	72.4	
POUR 3	72.4	
POUR 4	79.3	
POUR 5	63.0	
POUR 6	72.4	
POUR 7	79.3	
SIDEWALK	96.1	
TOTAL	597.9	121,927

GROOVING BRIDGE FLOORS

APPROACH SLABS	1,606	SQ.FT.
BRIDGE DECK	14,957	SQ.FT.
TOTAL	16,563	SQ.FT.

BAR TYPES

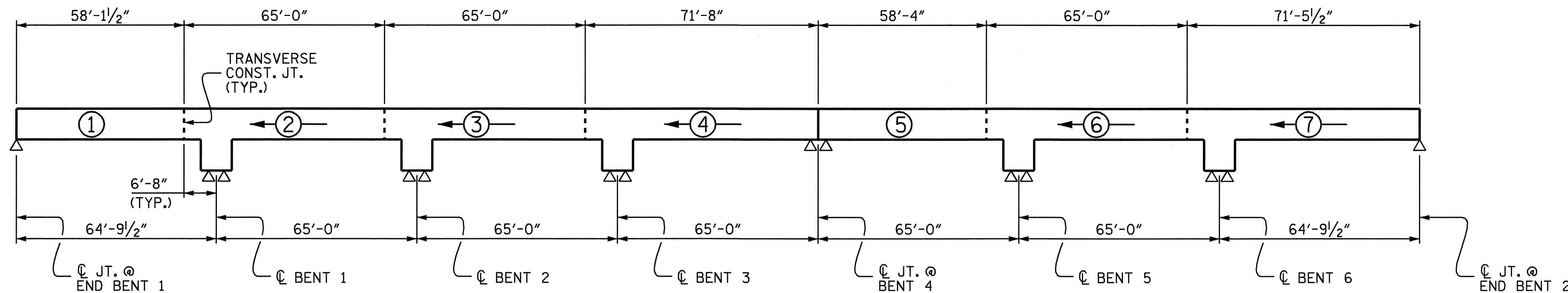


ALL BAR DIMENSIONS ARE OUT TO OUT

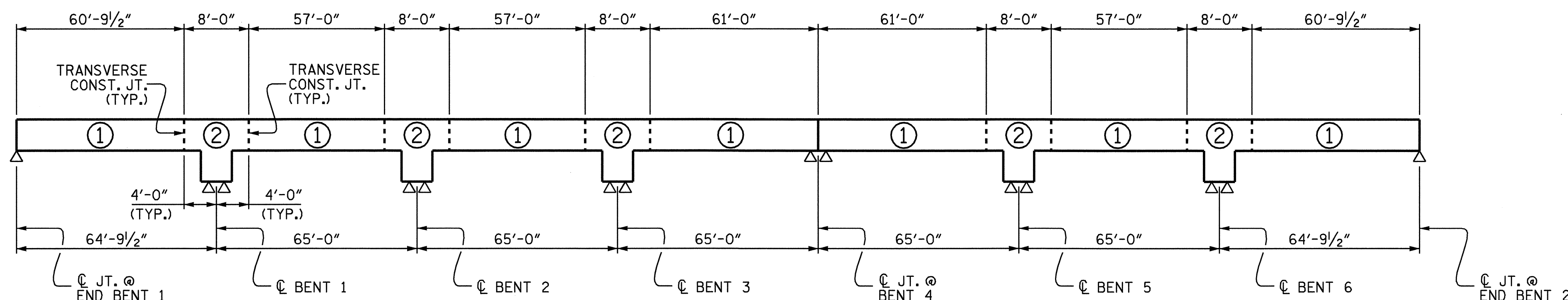
BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	908	#5	STR	49'-0"	46405
* A2	304	#4	STR	2'-10"	575
* B1	264	#4	STR	22'-4"	3939
* B2	330	#7	STR	49'-0"	33051
* B3	198	#4	STR	20'-2"	2689
* B4	264	#4	STR	22'-4"	3939
* B5	325	#7	STR	19'-6"	12954
* B6	40	#5	STR	54'-3"	2263
* B7	40	#5	STR	41'-2"	1717
* B22	100	#4	STR	28'-2"	1882
* B23	80	#4	STR	26'-5"	1412
* D1	690	#4	STR	8"	307
* G2	910	#4	STR	5'-0"	3039
* K1	16	#8	1	13'-1"	559
* K2	24	#8	2	20'-9"	1330
* K3	40	#4	STR	7'-7"	203
* K4	80	#4	STR	9'-11"	530
* K5	80	#4	STR	9'-2"	490
* K6	50	#4	STR	25'-6"	852
* S1	160	#5	3	4'-1"	681
* S2	760	#4	4	2'-7"	1311
* U1	40	#4	5	12'-8"	338
* U2	160	#4	5	13'-8"	1461

* EPOXY COATED REINF. STEEL = 121,927 LBS
* DENOTES EPOXY COATED REINFORCING STEEL

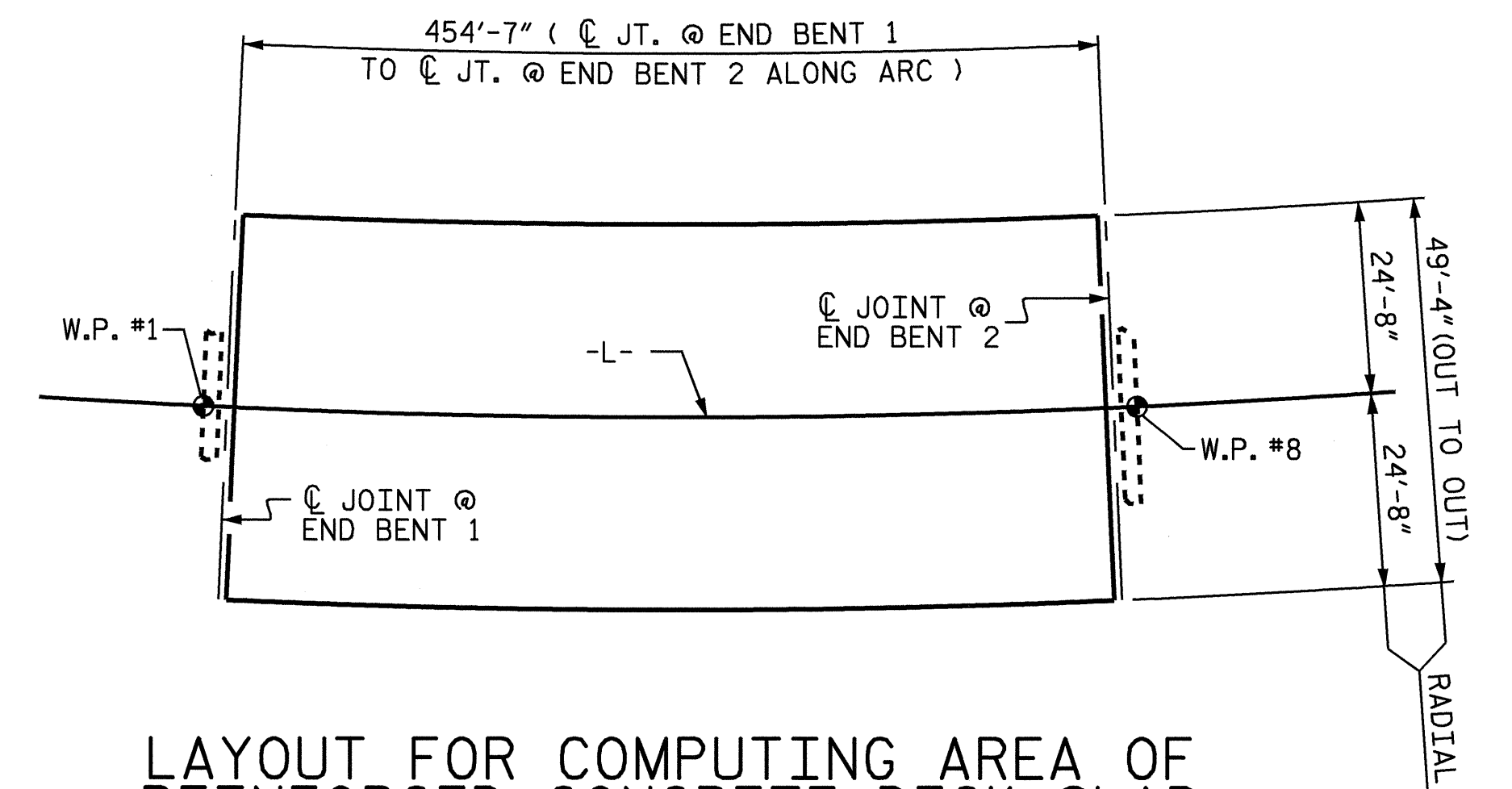


POUR SEQUENCE



OPTIONAL POUR SEQUENCE

POUR ② CANNOT BE STARTED UNTIL BOTH ADJACENT ① POURS REACH A MINIMUM OF 3000 PSI.



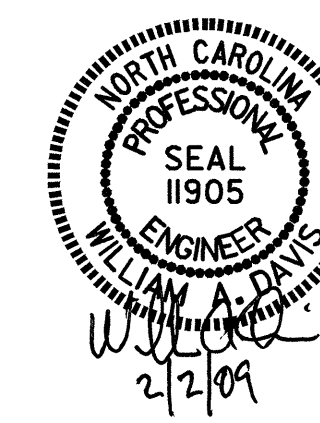
LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB

(SQ. FT. = 22,426)

PROJECT NO. B-4019
BEAUFORT COUNTY
STATION: 19+52.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
SUPERSTRUCTURE
BILL OF MATERIAL



ASSEMBLED BY :	D. G. ELY	DATE :	6/07
CHECKED BY :	A.R. CHESSON	DATE :	2/07
DRAWN BY :	JMB 5/87	REV. 6/1/94	EEM/GRP
CHECKED BY :	SJD 9/87	REV. 8/16/99	RWW/LES
		REV. 5/1/06	TLA/GM

REVISIONS						SHEET NO. S-42
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 55
2			4			

NOTES

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

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

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

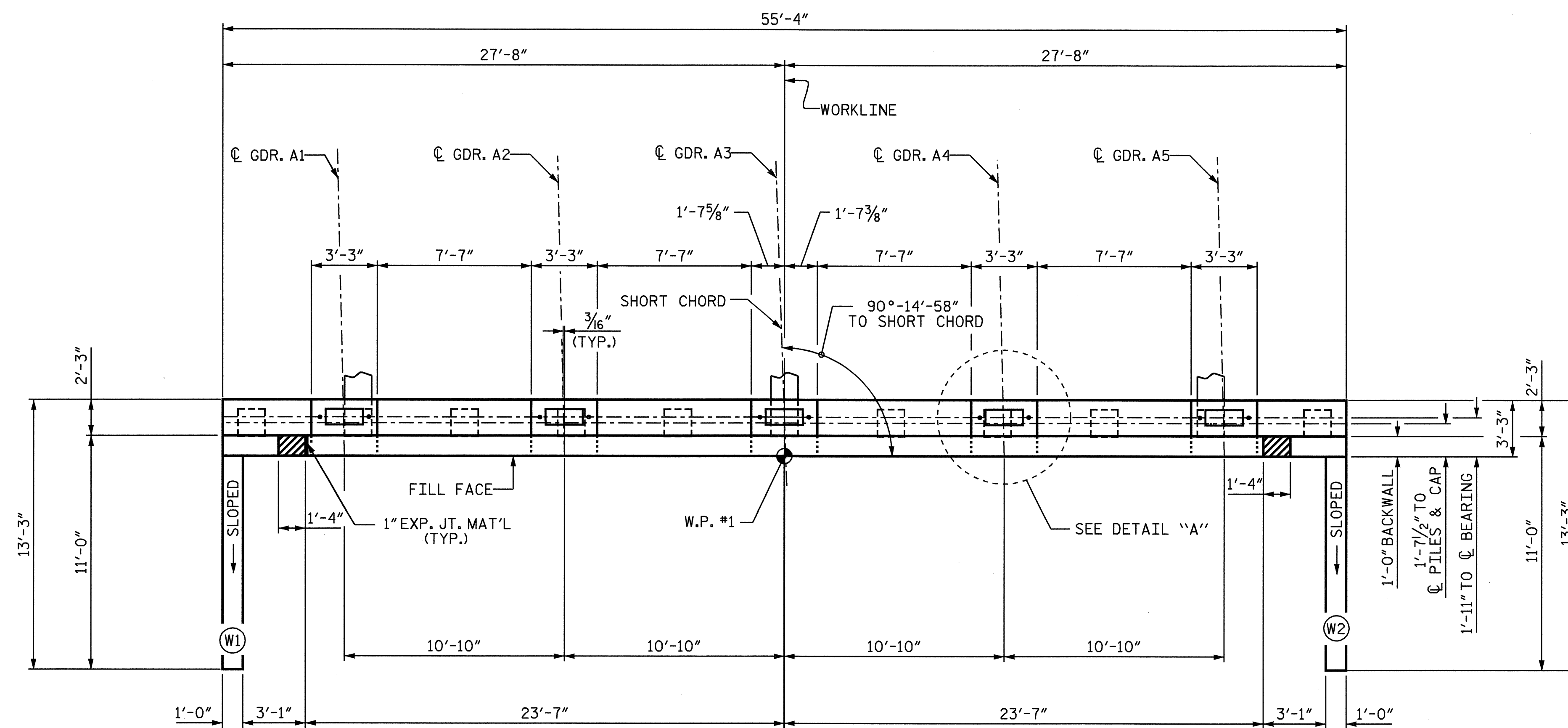
ALL REINFORCING STEEL SHALL BE EPOXY COATED.

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

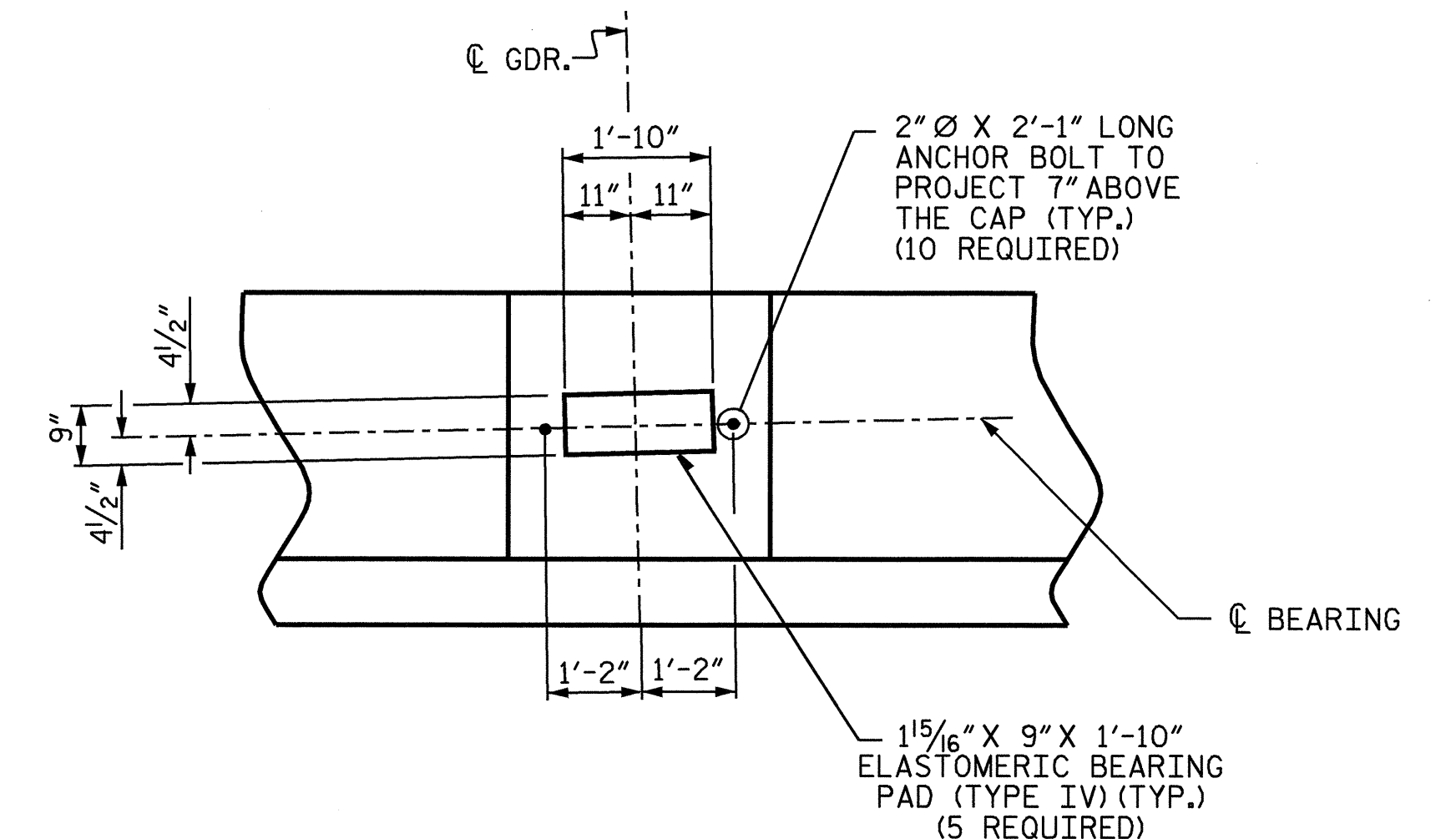
CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE END BENT CAPS AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR.

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

THE CONCRETE IN THE SHADED AREA OF THE WING WALL SHALL BE POURED AFTER THE JOINT BETWEEN THE DECK AND THE APPROACH SLAB HAS BEEN SAWED AND THE CLASSIC RAIL AND END POST ARE CAST IF SLIP FORMING IS USED.

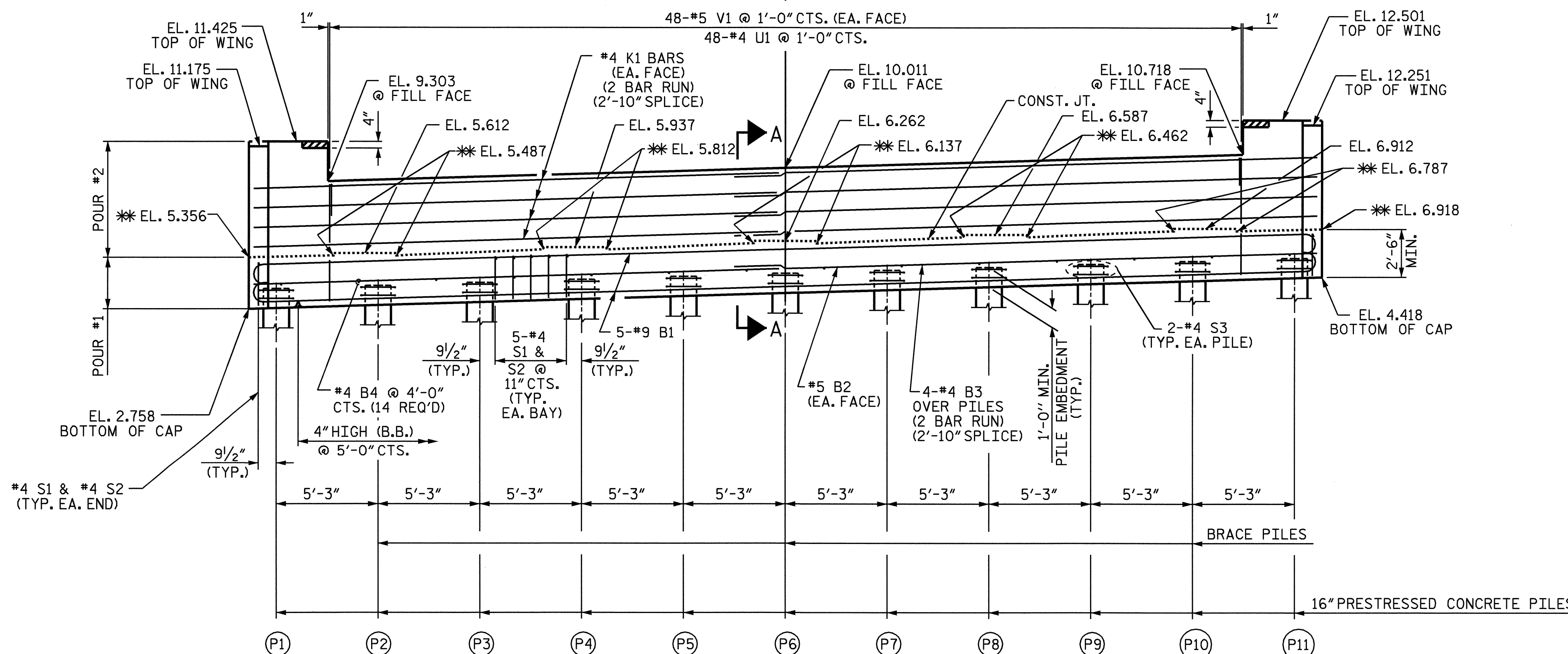


PLAN



DETAIL "A"

(TYP. EA. GIRDER)



ELEVATION

TOP OF PILE ELEVATIONS	
PILE	ELEVATION
P1	3.821
P2	3.978
P3	4.136
P4	4.293
P5	4.451
P6	4.608
P7	4.766
P8	4.923
P9	5.081
P10	5.238
P11	5.396

PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 1 OF 2

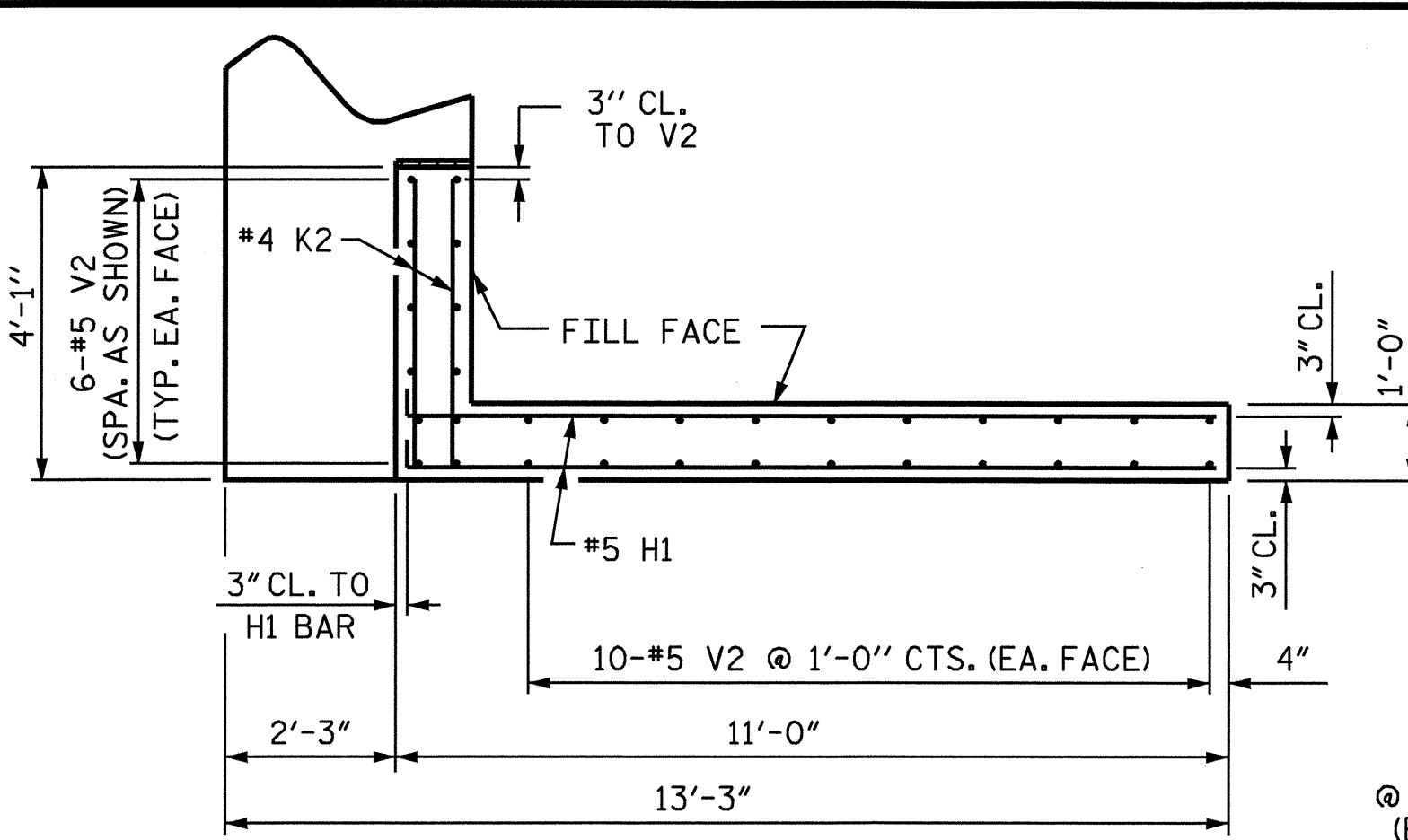
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 1



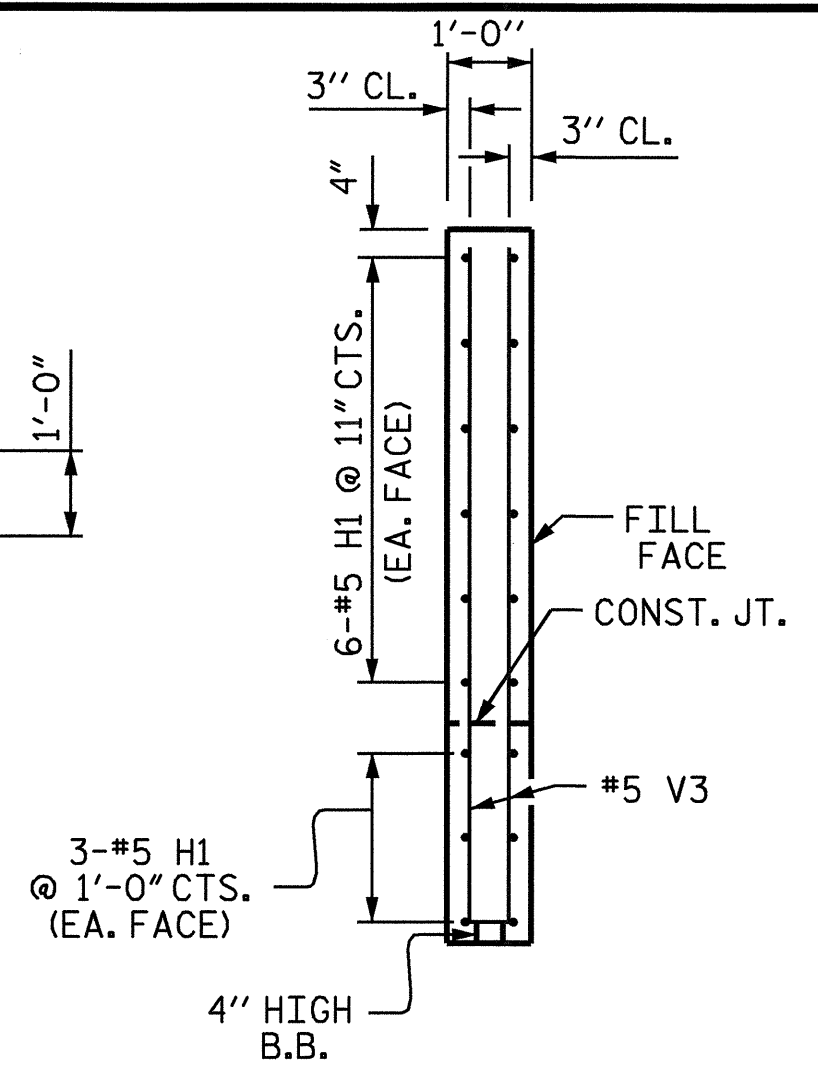
REVISIONS						SHEET NO. S-43
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			

DRAWN BY: J.L. WALTON DATE: 8/8/06
 CHECKED BY: J.P. ADAMS DATE: 7/3/07

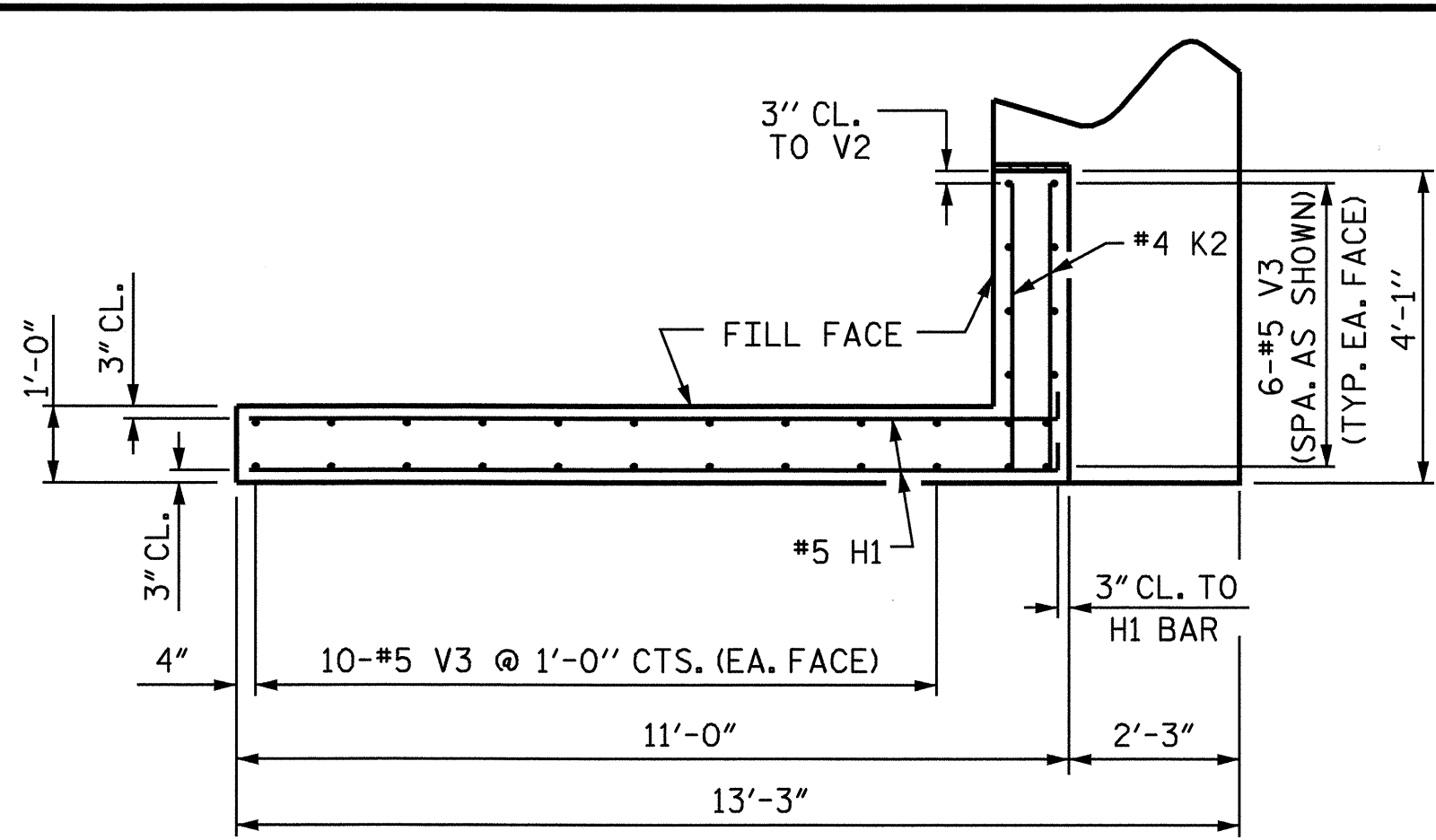
** FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE BUILDUPS, SEE SECTION A-A



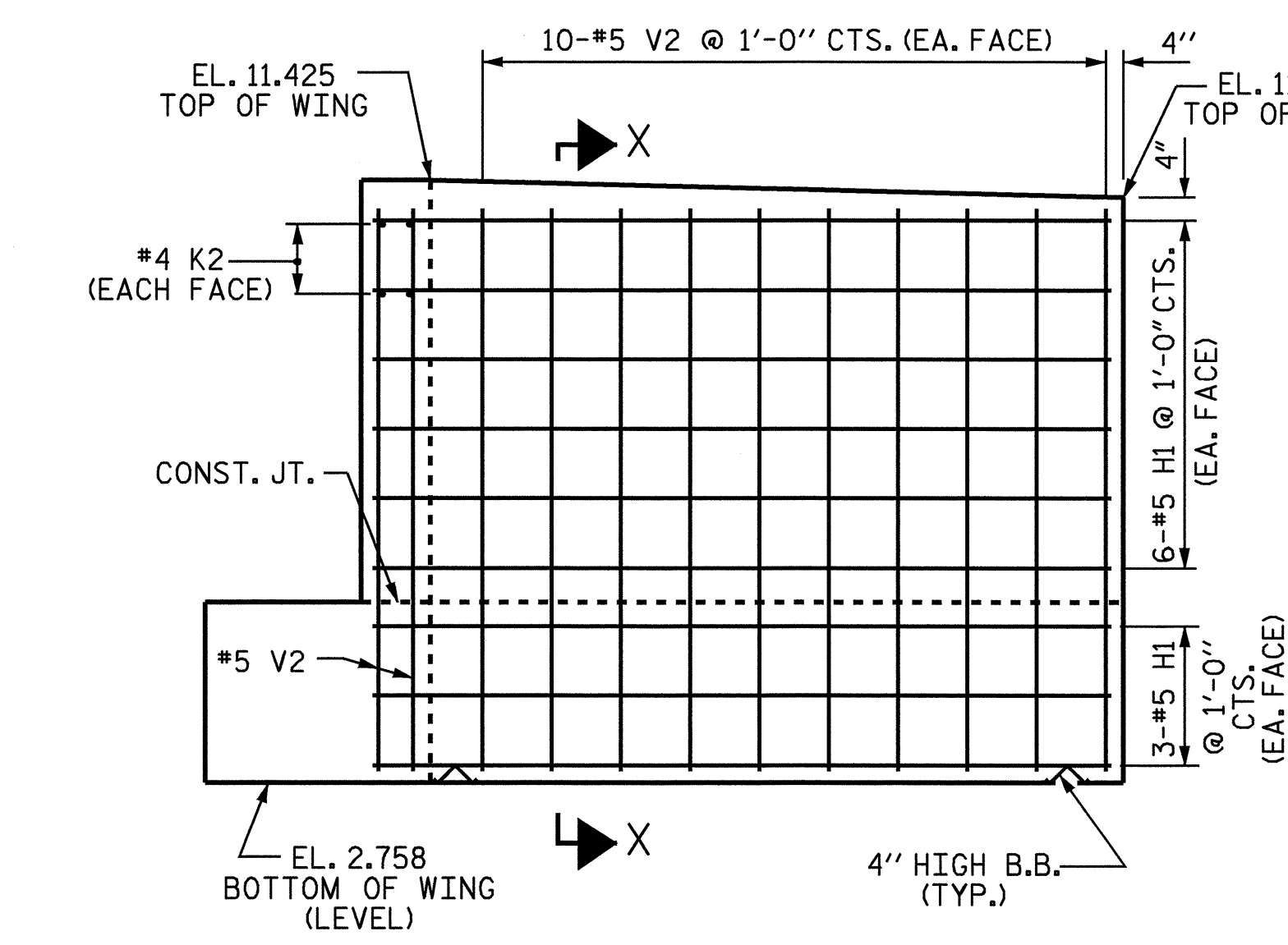
PLAN W1



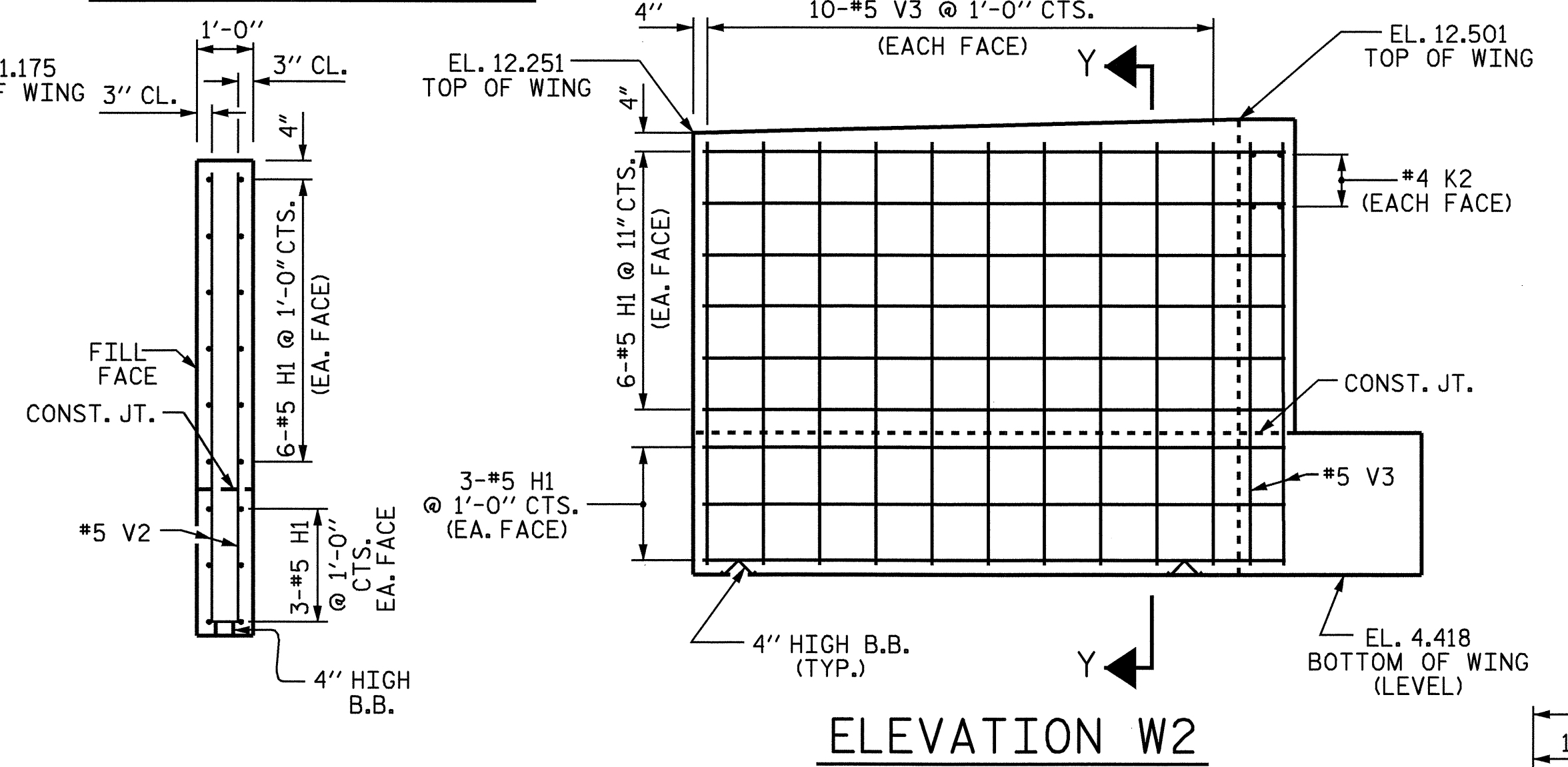
SECTION Y-Y



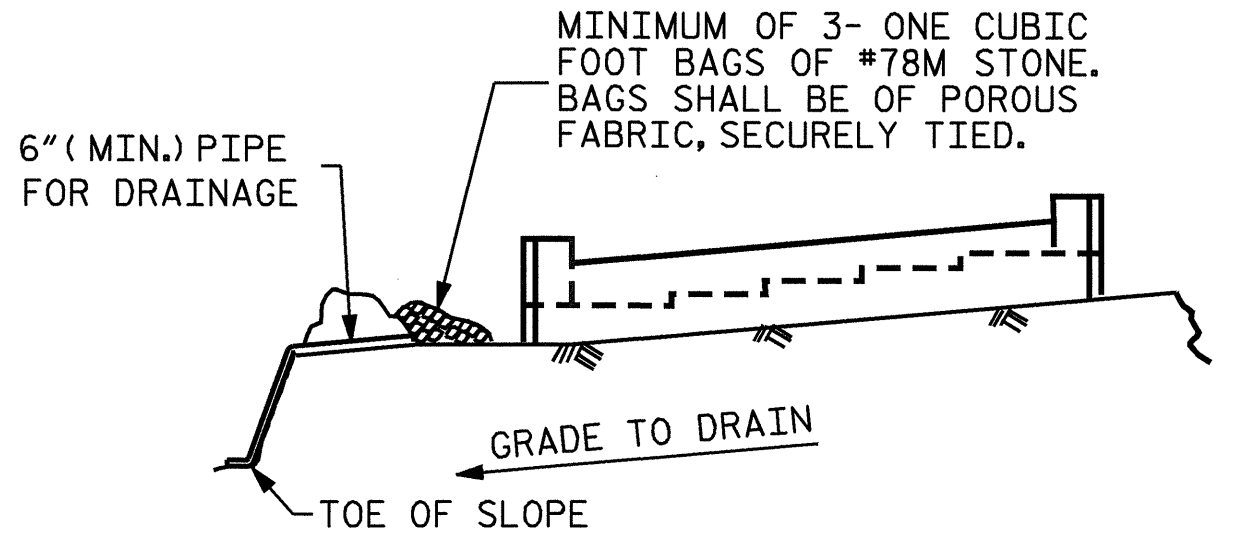
PLAN W2



ELEVATION W1



ELEVATION W2

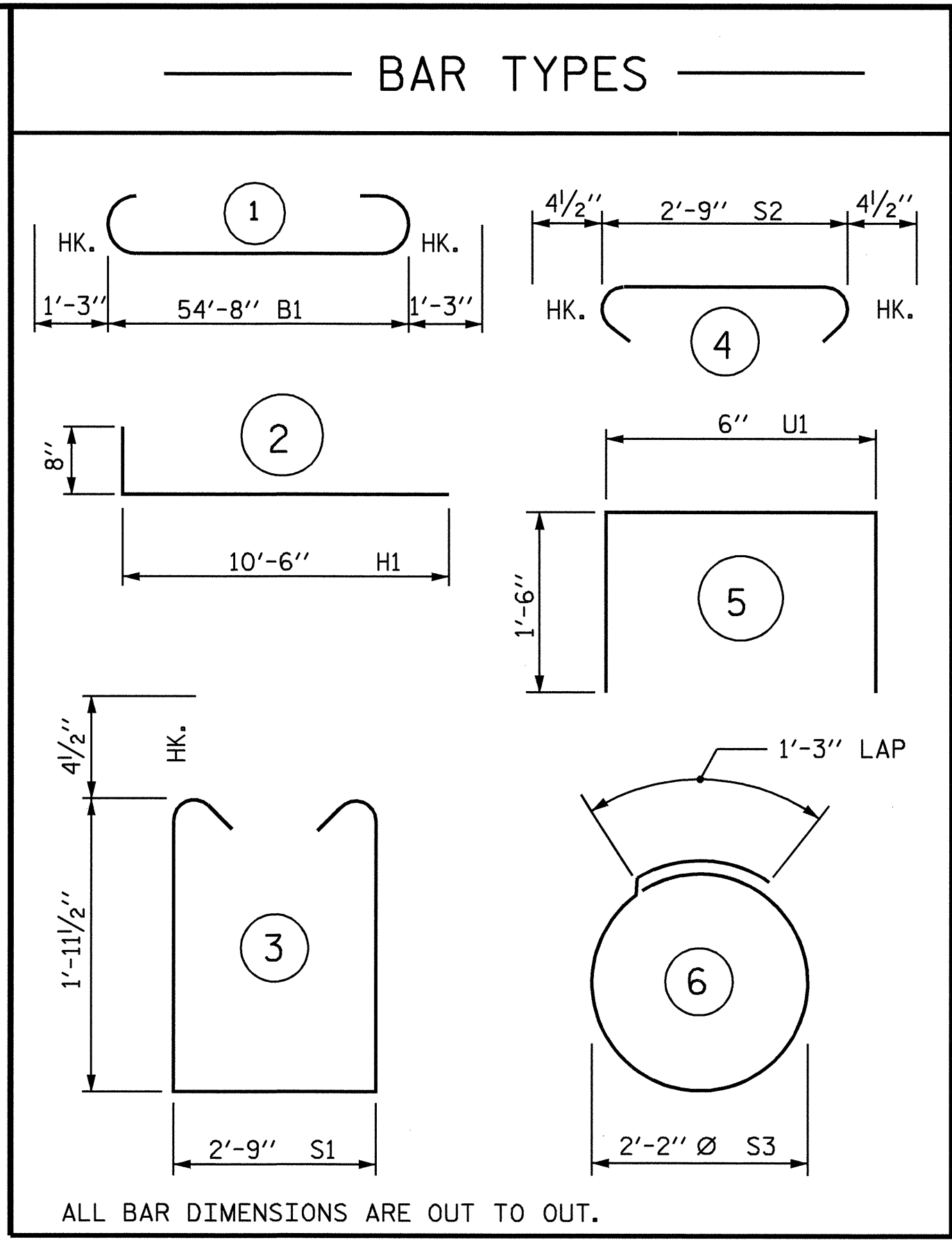


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

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

TEMPORARY DRAINAGE AT END BENT



ALL BAR DIMENSIONS ARE OUT TO OUT.

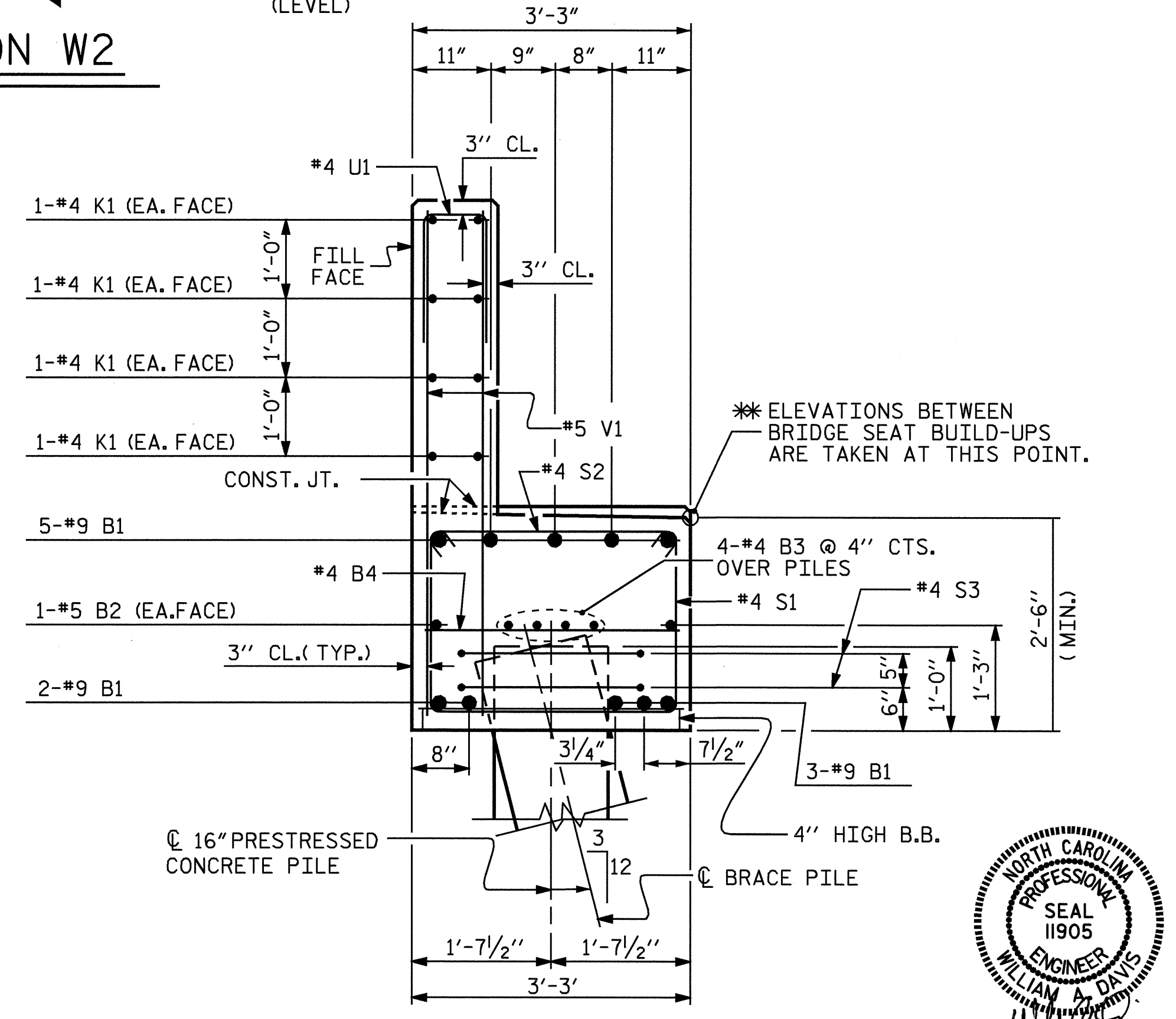
BILL OF MATERIAL END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	10	#9	1	57'-2"	1944
*B2	2	#5	STR	54'-10"	114
*B3	8	#4	STR	28'-10"	154
*B4	14	#4	STR	2'-9"	26
*H1	36	#5	2	11'-2"	419
*K1	16	#4	STR	28'-10"	308
*K2	8	#4	STR	3'-7"	19
*S1	52	#4	3	7'-5"	258
*S2	52	#4	4	3'-6"	122
*S3	22	#4	6	8'-1"	119
*U1	48	#4	5	3'-6"	112
*V1	96	#5	STR	5'-11"	592
*V2	32	#5	STR	7'-11"	264
*V3	32	#5	STR	7'-4"	245

* EPOXY COATED REINFORCING STEEL = 4696 LBS.

CLASS AA CONCRETE
 POUR #1: CAP & LOWER WINGS 19.3 C.Y.
 POUR #2: TOP OF WINGS & BACKWALL 12.5 C.Y.
 TOTAL CLASS AA CONCRETE 31.8 C.Y.

16" PRESTRESSED CONCRETE PILES
 NO. 11 LIN. FEET 385



SECTION A-A

PROJECT NO. B-4019
 BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 2 OF 2

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



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-44	
1			3			TOTAL SHEETS	
2			4			55	

DRAWN BY: J.L. WALTON DATE: 8/8/06
 CHECKED BY: J.P. ADAMS DATE: 7/3/07

NOTES

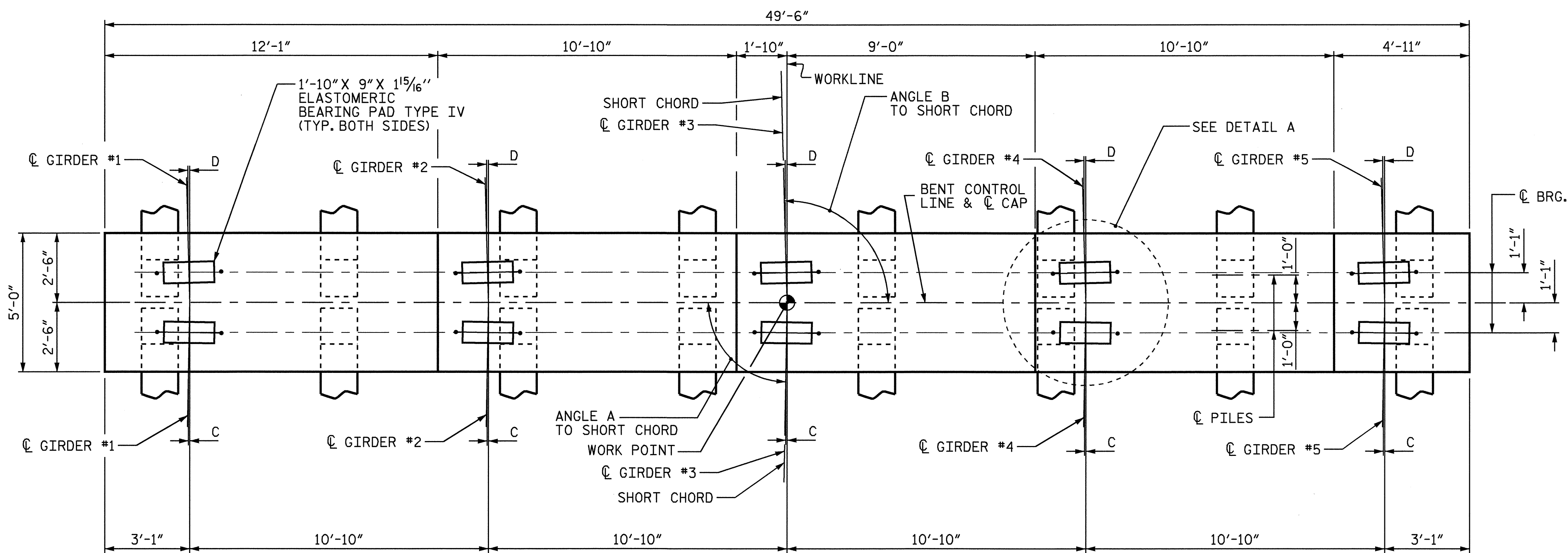
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

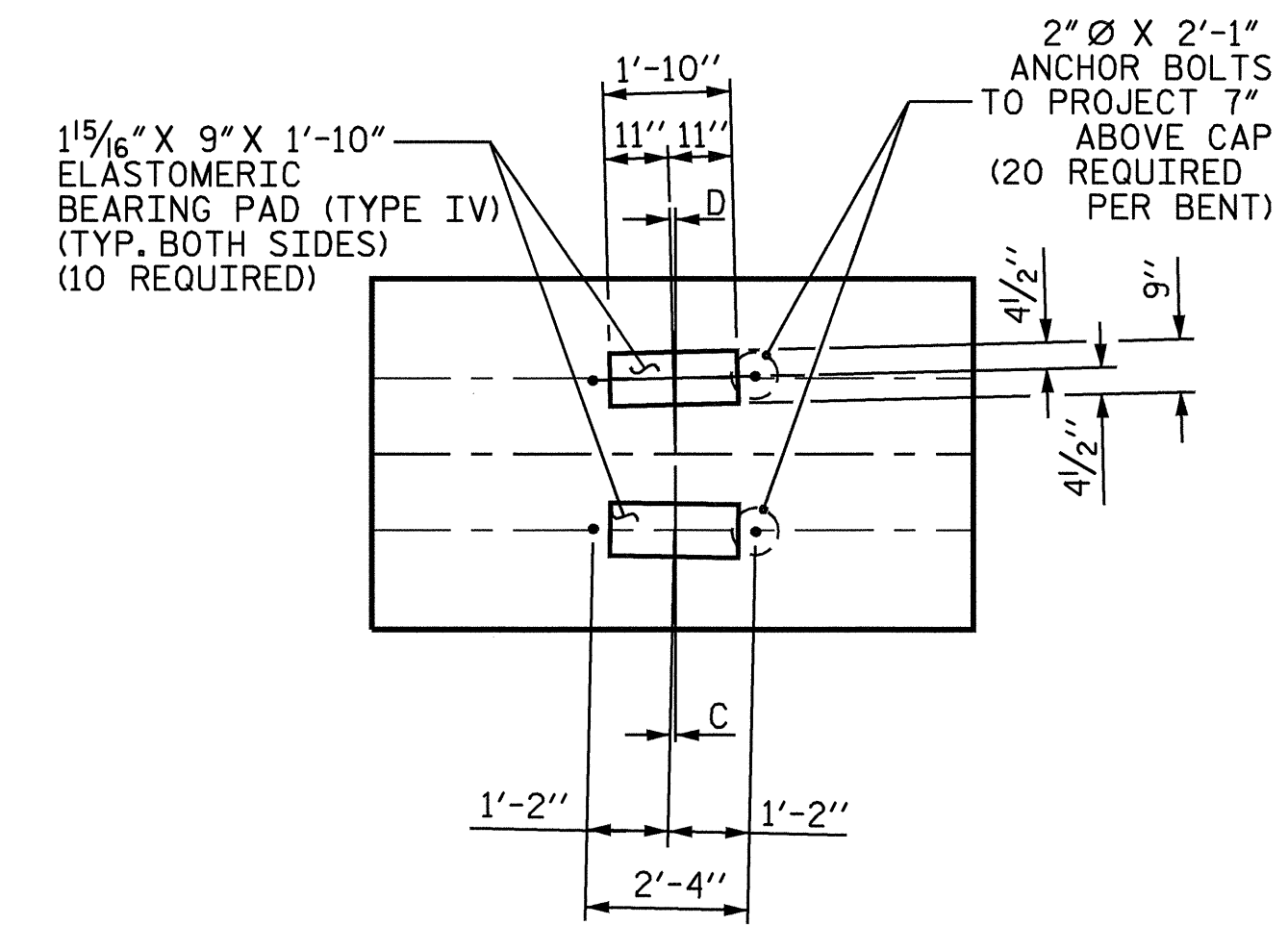
THE CONTRACTOR IS ALERTED TO THE PRESENCE OF RIP-RAP AT BENT NO. 2 LOCATION. EXCAVATE RIP-RAP AS NECESSARY TO INSTALL 16 INCH CONCRETE PILES.

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

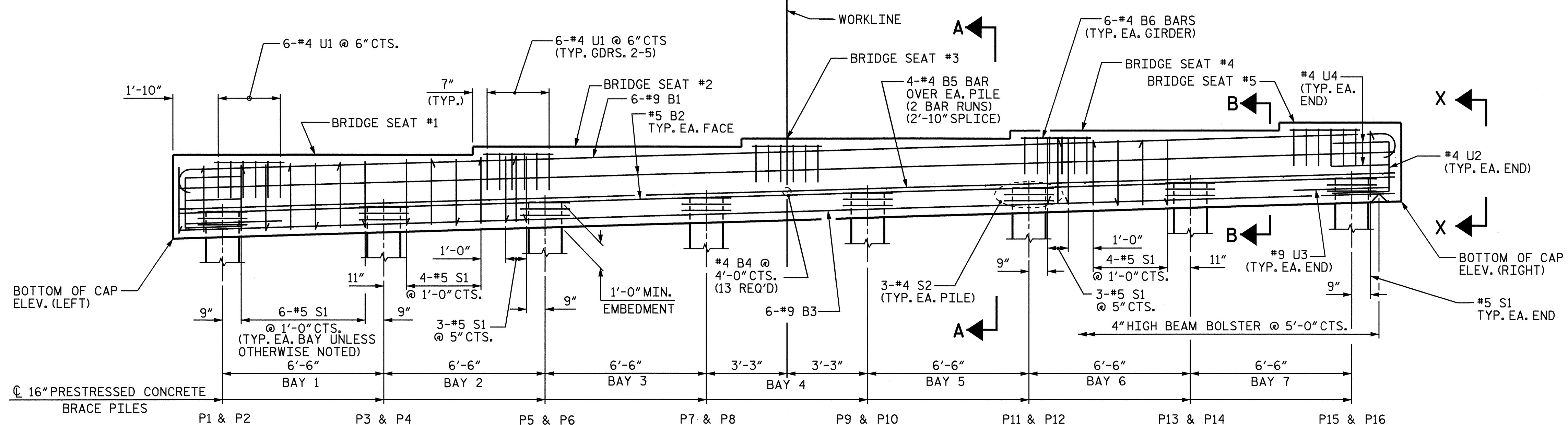
CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE BENT CAPS AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR.



PLAN



DETAIL A



ELEVATION

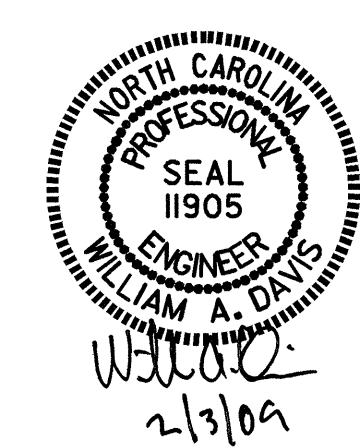
INVERT ALTERNATE STIRRUPS

PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 1 OF 2

DESCRIPTION	WORK POINT #	BRIDGE SEAT ELEVATIONS					BOTTOM OF CAP ELEVATION		SHORT CHORD ANGLE		GIRDER LINE OFFSET	
		#1	#2	#3	#4	#5	LEFT	RIGHT	A	B	C	D
BENT #1	2	7.560	7.884	8.209	8.534	8.859	4.197	5.682	89°02'02"	91°27'45"	1/2"	3/4"
BENT #2	3	9.075	9.400	9.725	10.050	10.375	5.712	7.197	88°32'15"	91°27'45"	3/4"	3/4"
BENT #3	4	9.814	10.139	10.464	10.789	11.114	6.451	7.936	88°32'15"	91°27'45"	3/4"	3/4"
BENT #4	5	9.762	10.087	10.412	10.737	11.062	6.399	7.884	88°32'15"	91°27'45"	3/4"	3/4"
BENT #5	6	8.917	9.242	9.566	9.891	10.216	5.554	7.039	88°32'15"	91°27'45"	3/4"	3/4"
BENT #6	7	7.312	7.636	7.961	8.286	8.610	3.949	5.434	88°32'15"	91°28'52"	3/4"	3/4"

TOP OF PILE ELEVATIONS								
P1 & P2	P3 & P4	P5 & P6	P7 & P8	P9 & P10	P11 & P12	P13 & P14	P15 & P16	
5.257	5.452	5.647	5.842	6.037	6.232	6.427	6.622	
6.772	6.967	7.162	7.357	7.552	7.747	7.942	8.137	
7.511	7.706	7.901	8.096	8.291	8.486	8.681	8.876	
7.459	7.654	7.849	8.044	8.239	8.434	8.629	8.824	
6.614	6.809	7.004	7.199	7.394	7.589	7.784	7.979	
5.009	5.204	5.399	5.594	5.789	5.984	6.179	6.374	



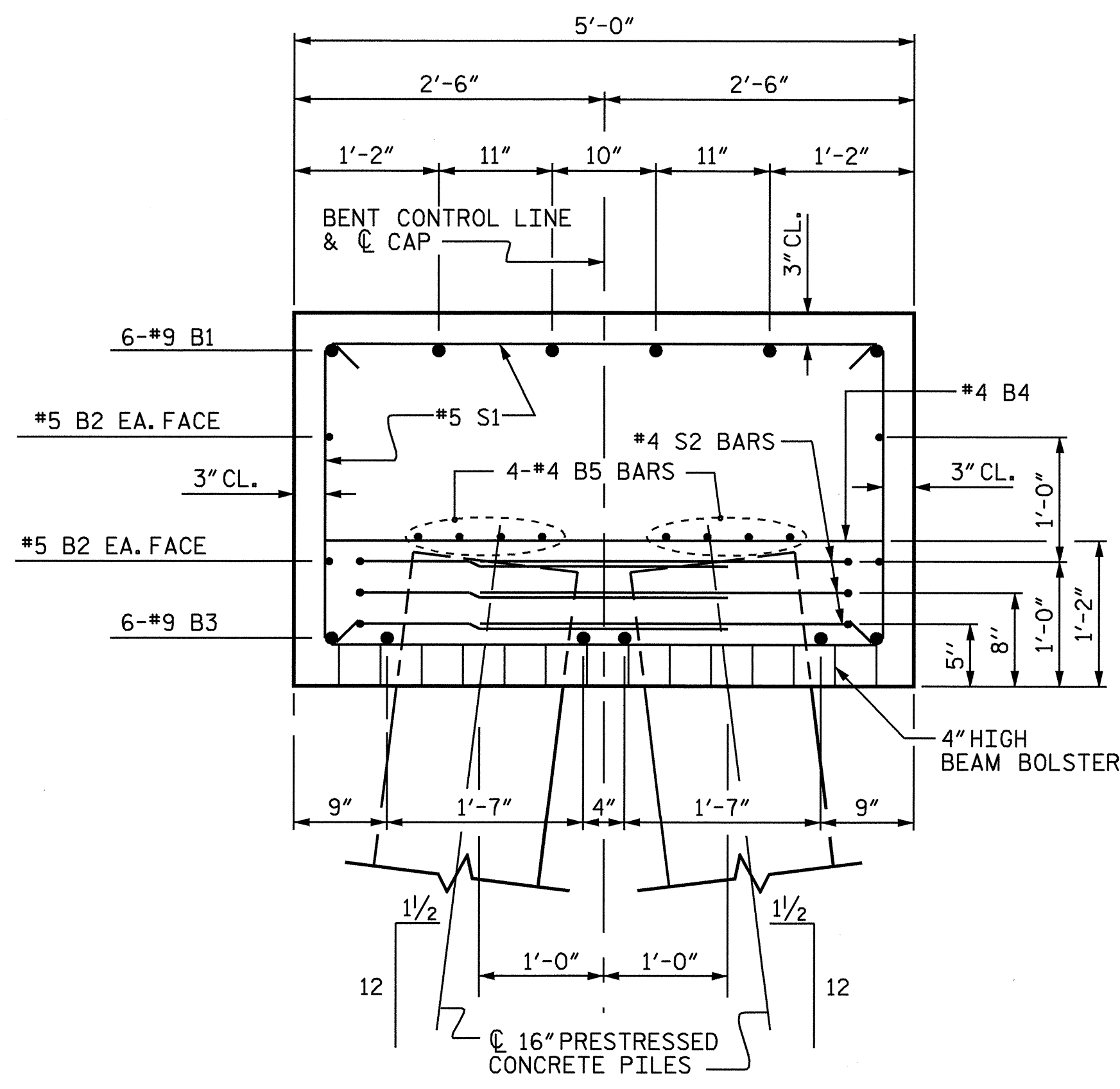
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENTS #1 THRU #6

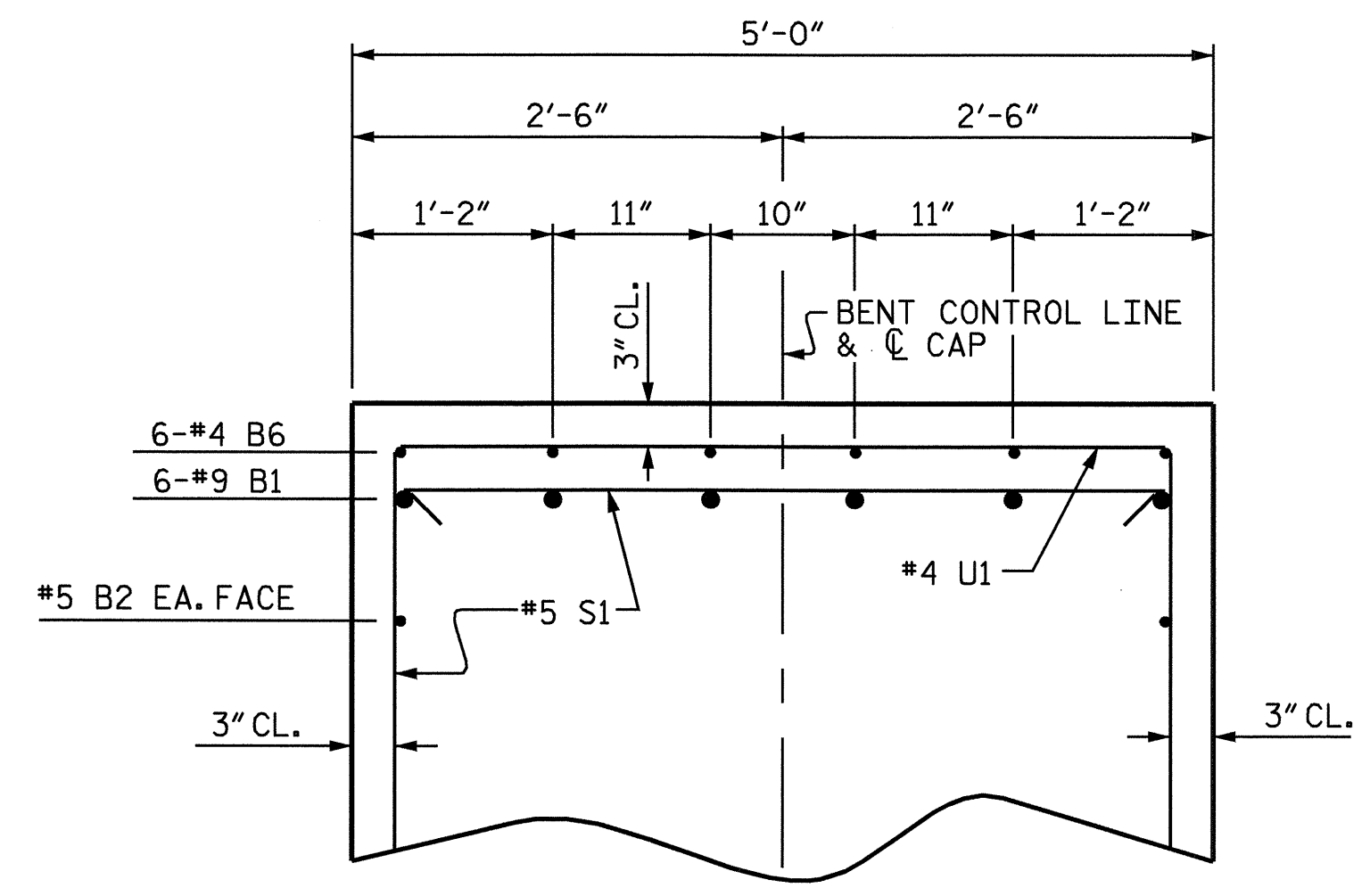
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-45
1			3			TOTAL SHEETS
2			4			55

DRAWN BY: QT NGUYEN DATE: 3-07
 CHECKED BY: J.L. WALTON DATE: 4-17-07

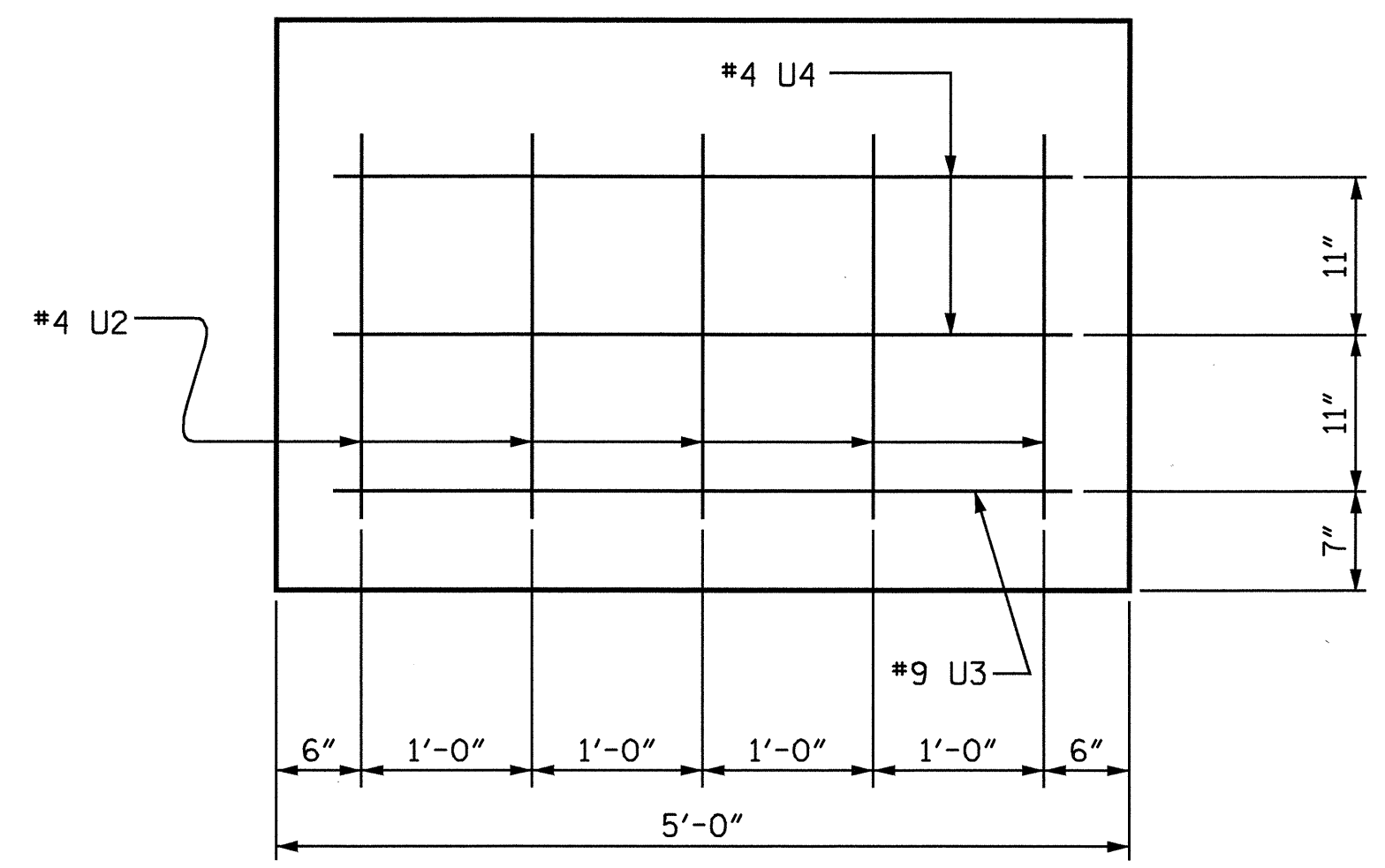
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 kpnwton



SECTION A-A



PARTIAL SECTION B-B



END VIEW X-X

— BAR TYPES —

ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR ONE BENT ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	6	#9	1	51'-4"	1047
*B2	4	#5	STR	49'-0"	204
*B3	6	#9	STR	49'-0"	1000
*B4	13	#4	STR	4'-6"	39
*B5	16	#4	STR	25'-11"	277
*B6	30	#4	STR	2'-10"	57
*S1	46	#5	2	10'-3"	492
*S2	48	#4	3	8'-0"	257
*U1	30	#4	3	7'-6"	150
*U2	10	#4	3	5'-7"	37
*U3	2	#9	3	11'-8"	79
*U4	4	#4	3	7'-4"	20
* EPOXY COATED REINFORCING STEEL					3659 LBS
CLASS AA CONCRETE BREAKDOWN CAP					29.1 C.Y.
16" PRESTRESSED CONCRETE PILES					
NO. 16	LIN. FT. 560 (BENT 1 OR BENT 2)				
	LIN. FT. 720 (BENT 3 OR BENT 4)				
	LIN. FT. 800 (BENT 5 OR BENT 6)				
STEEL PILE TIPS					16 EA.

PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT #1 THRU #6

DRAWN BY : QT NGUYEN DATE : 3-07
 CHECKED BY : J.L. WALTON DATE : 4-17-07

REVISIONS						SHEET NO. S-46
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 55
2			4			

NOTES

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

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

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

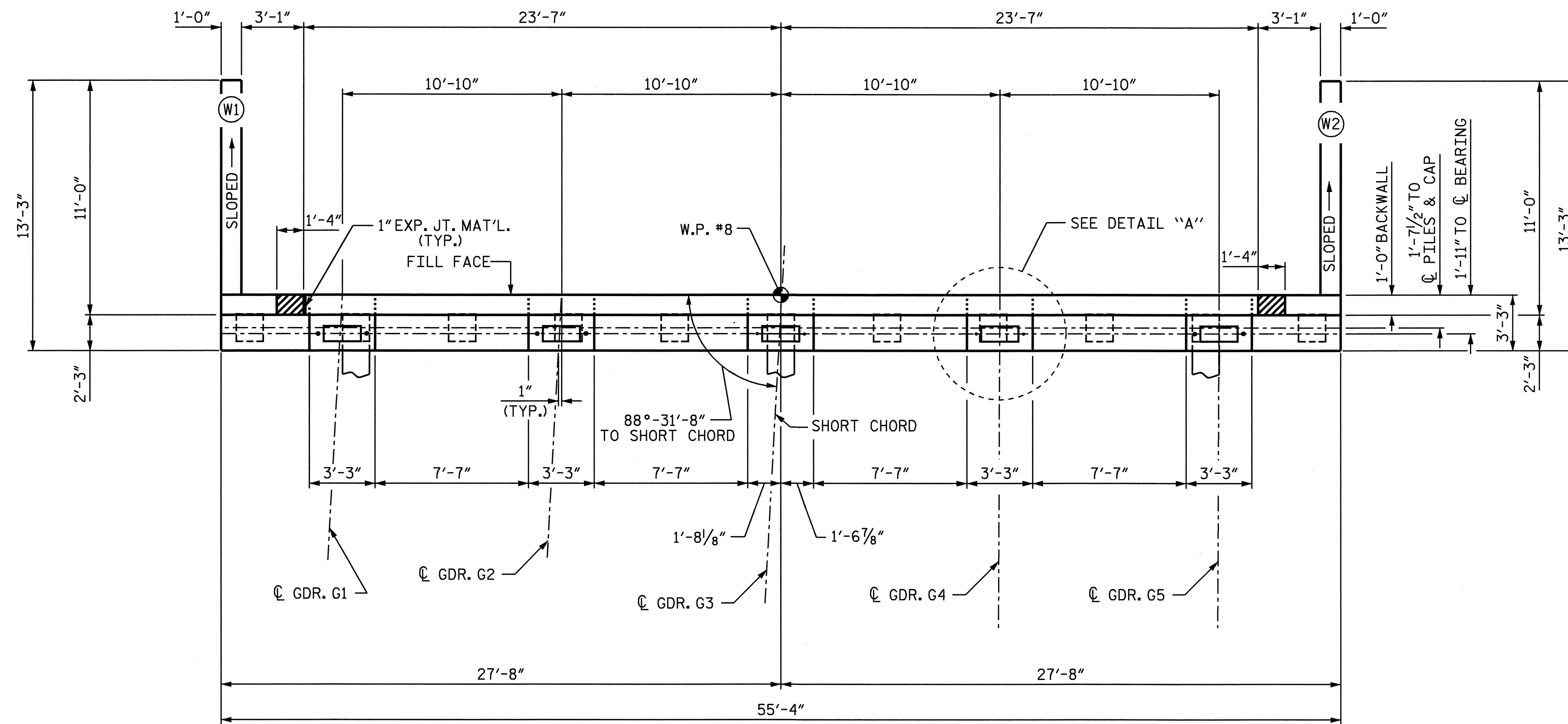
ALL REINFORCING STEEL SHALL BE EPOXY COATED.

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

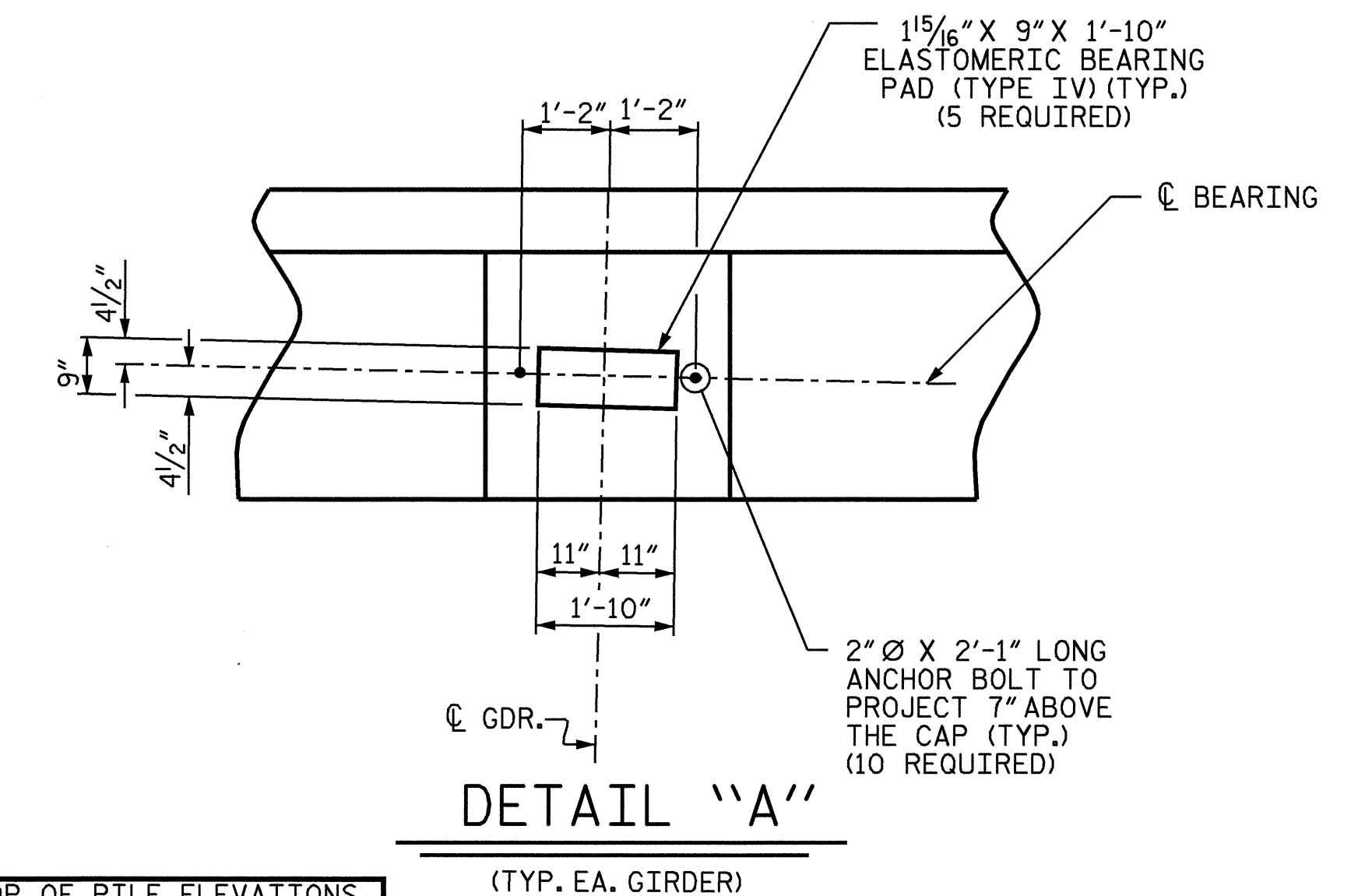
CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE END BENT CAPS AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR.

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

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE DECK AND THE APPROACH SLAB HAS BEEN SAWS AND THE CLASSIC RAIL AND END POST ARE CAST IF SLIP FORMING IS USED.

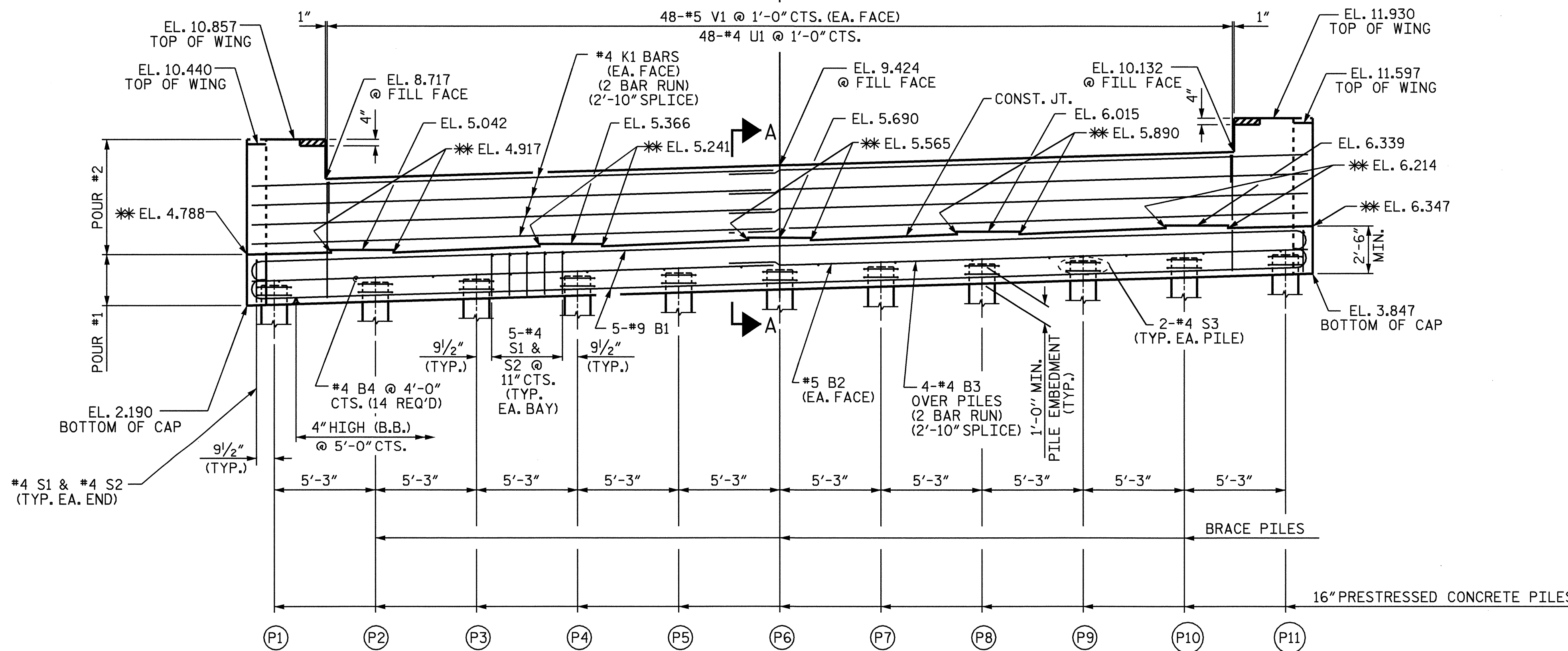


PLAN



DETAIL "A"

PILE	ELEVATION
P1	3.253
P2	3.410
P3	3.568
P4	3.725
P5	3.883
P6	4.040
P7	4.198
P8	4.355
P9	4.513
P10	4.670
P11	4.828



ELEVATION

** FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE BUILDUPS, SEE SECTION A-A

DRAWN BY : J.L. WALTON DATE : 8/8/06
 CHECKED BY : J.P. ADAMS DATE : 7/3/07

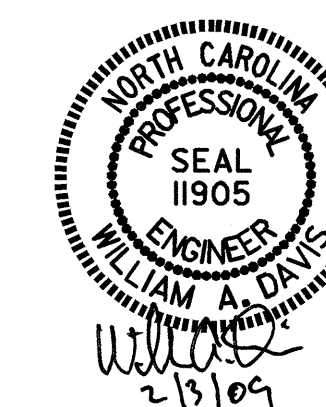
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PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

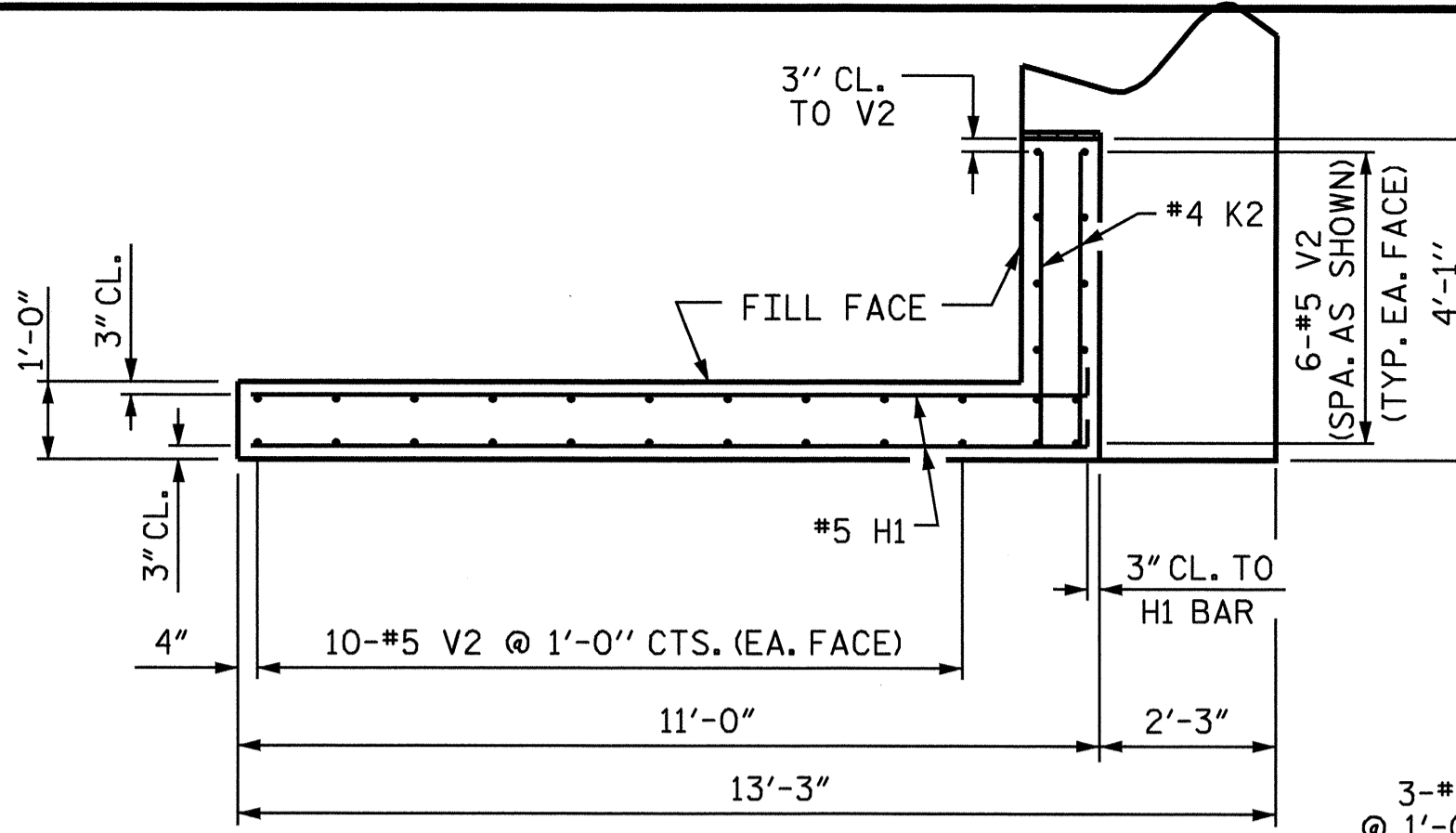
SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

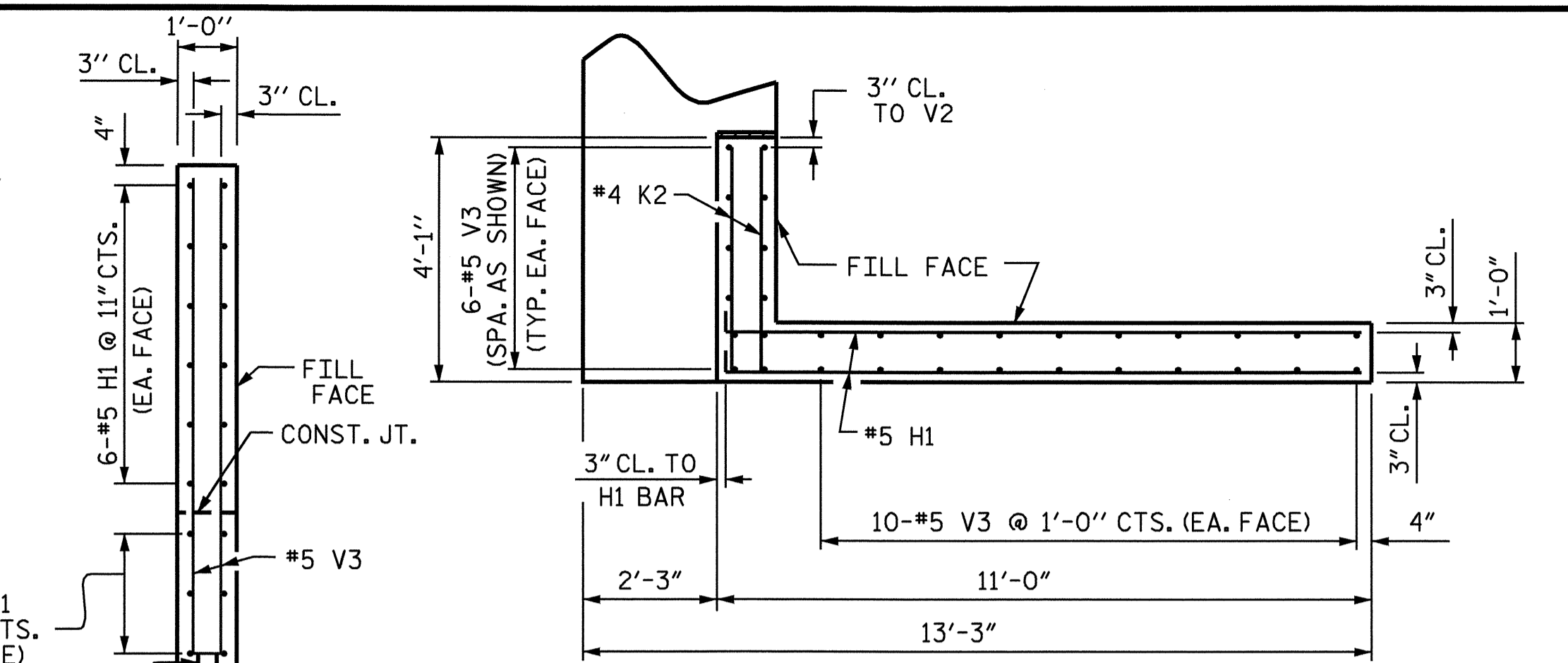
SUBSTRUCTURE
 END BENT 2



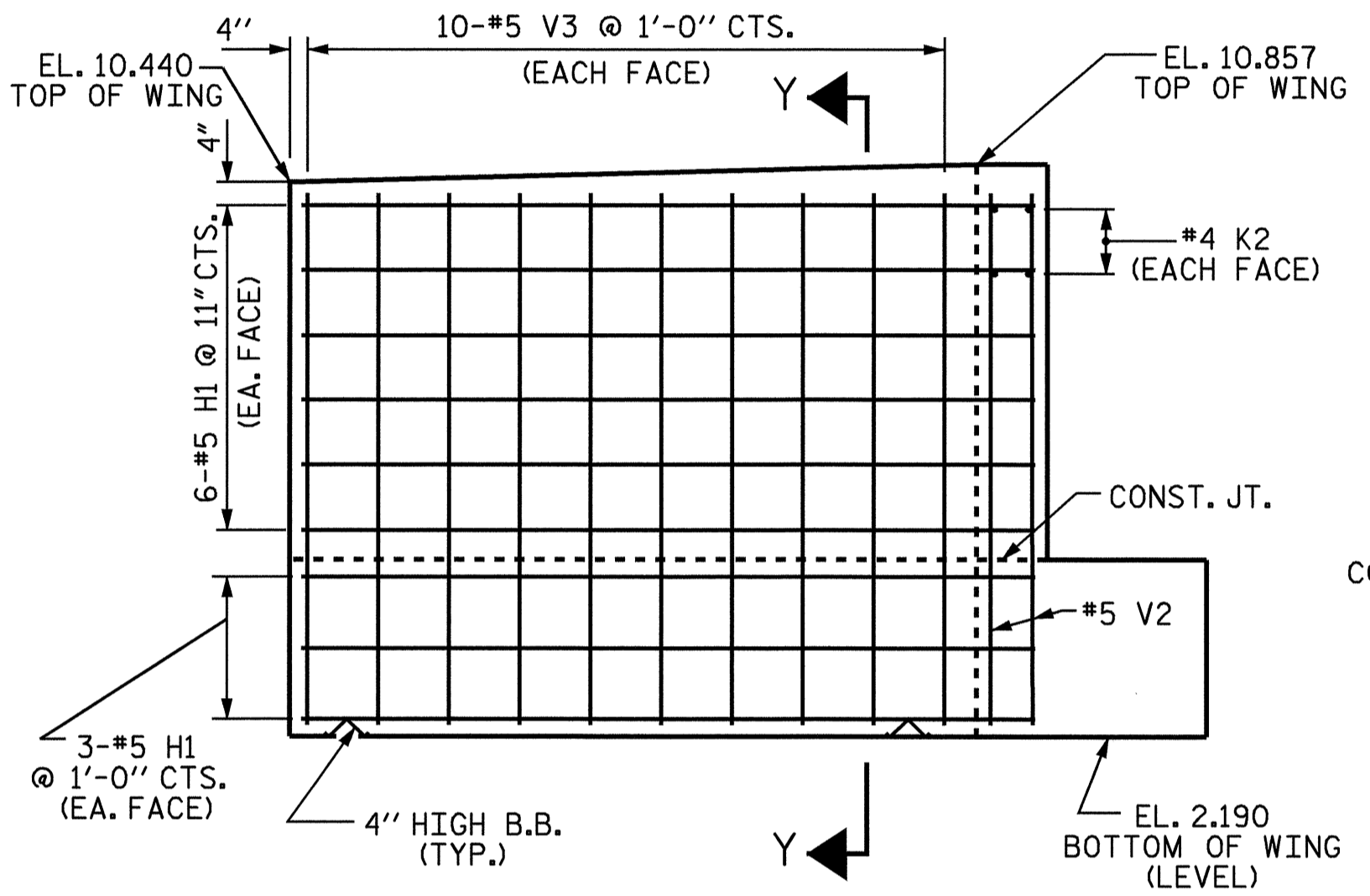
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 55
2			4			



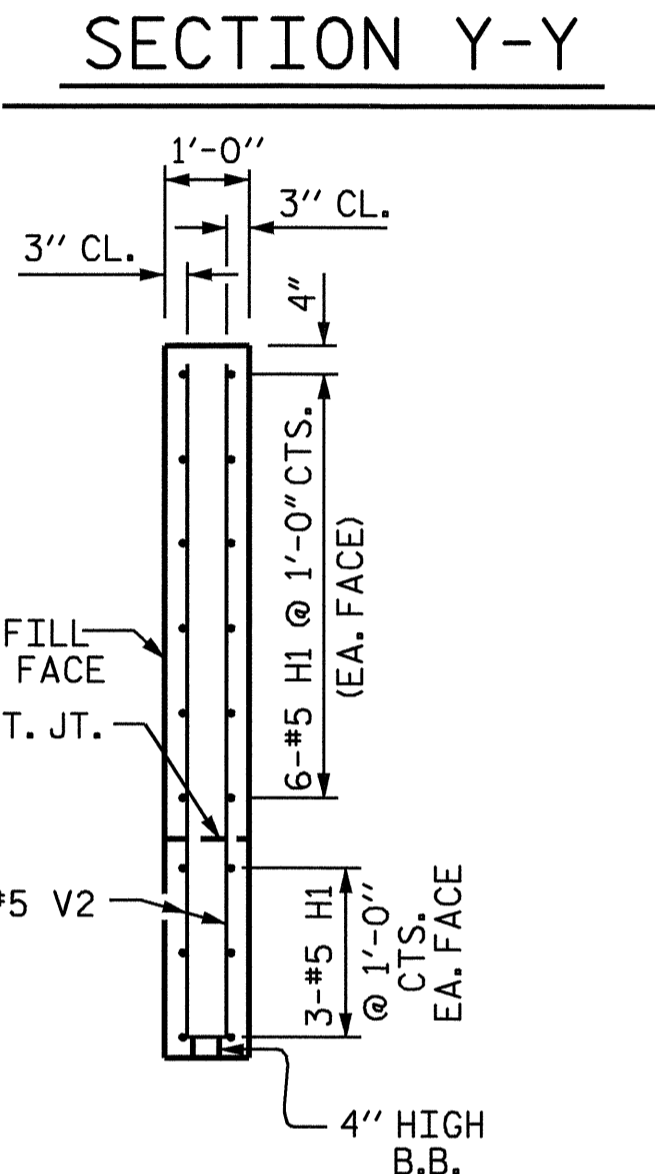
PLAN W2



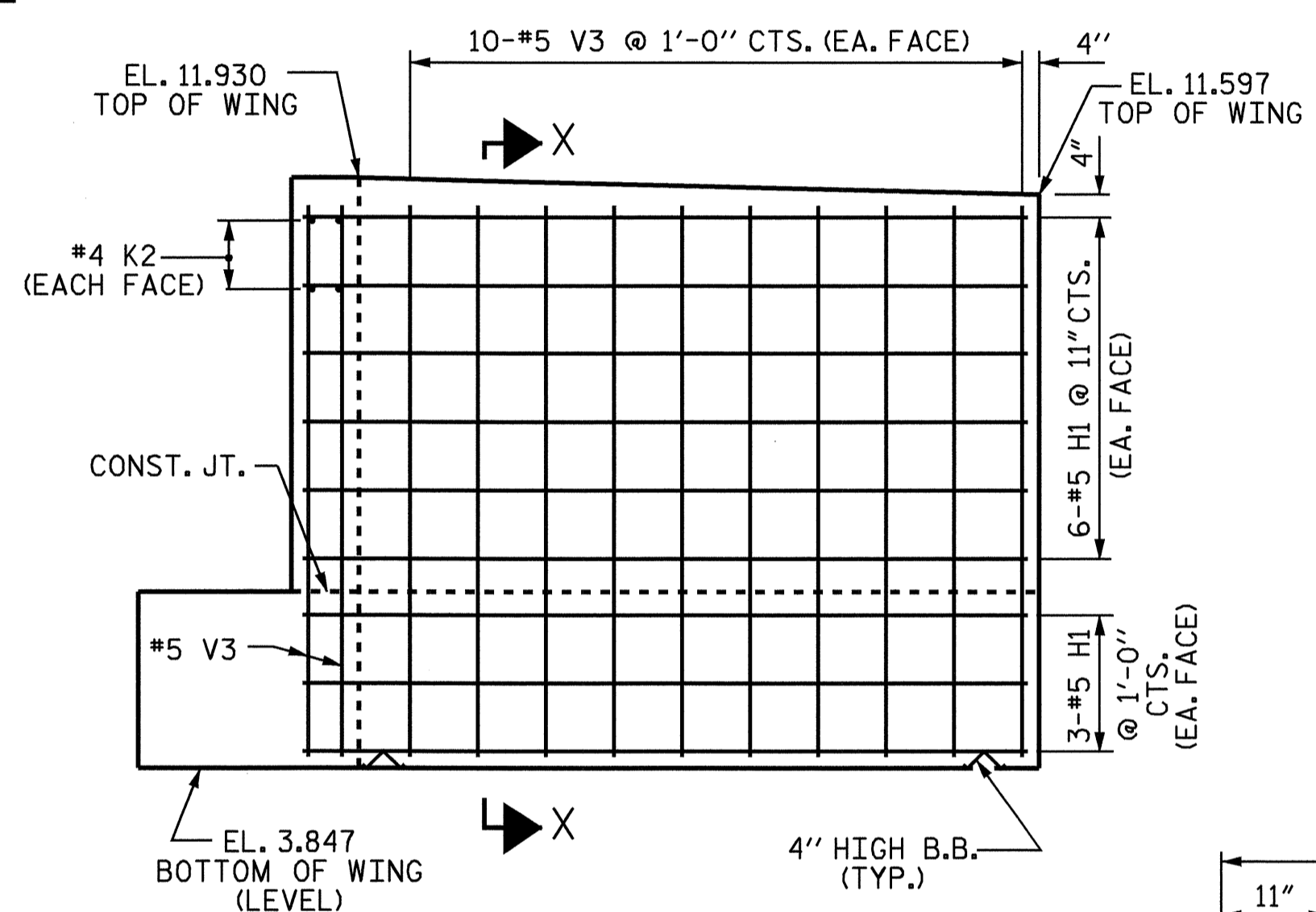
PLAN W1



ELEVATION W1

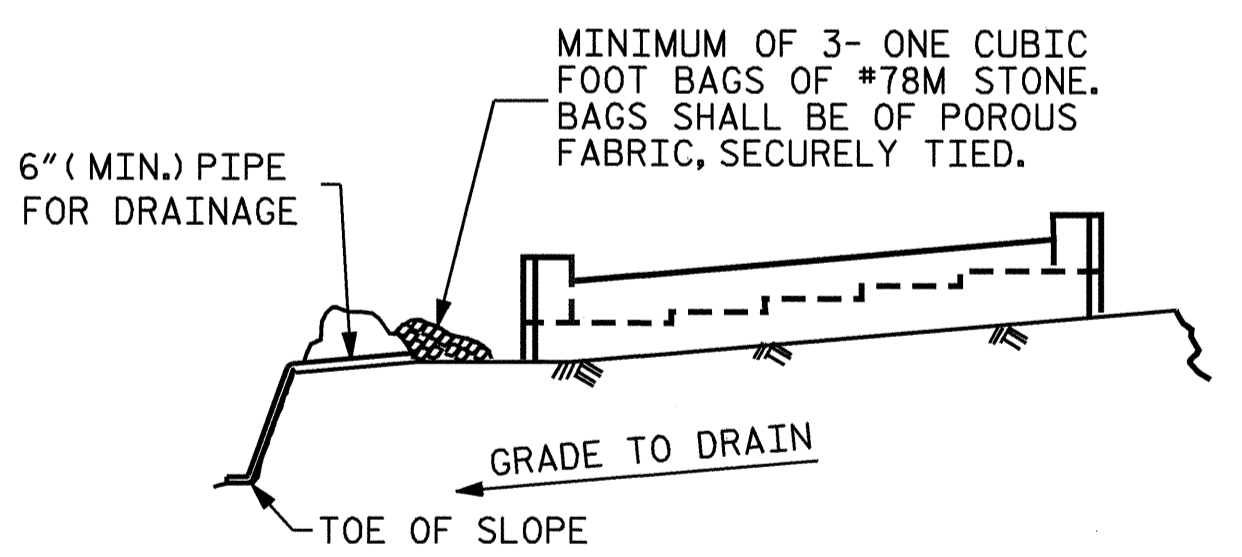


SECTION Y-Y



ELEVATION W2

SECTION X-X

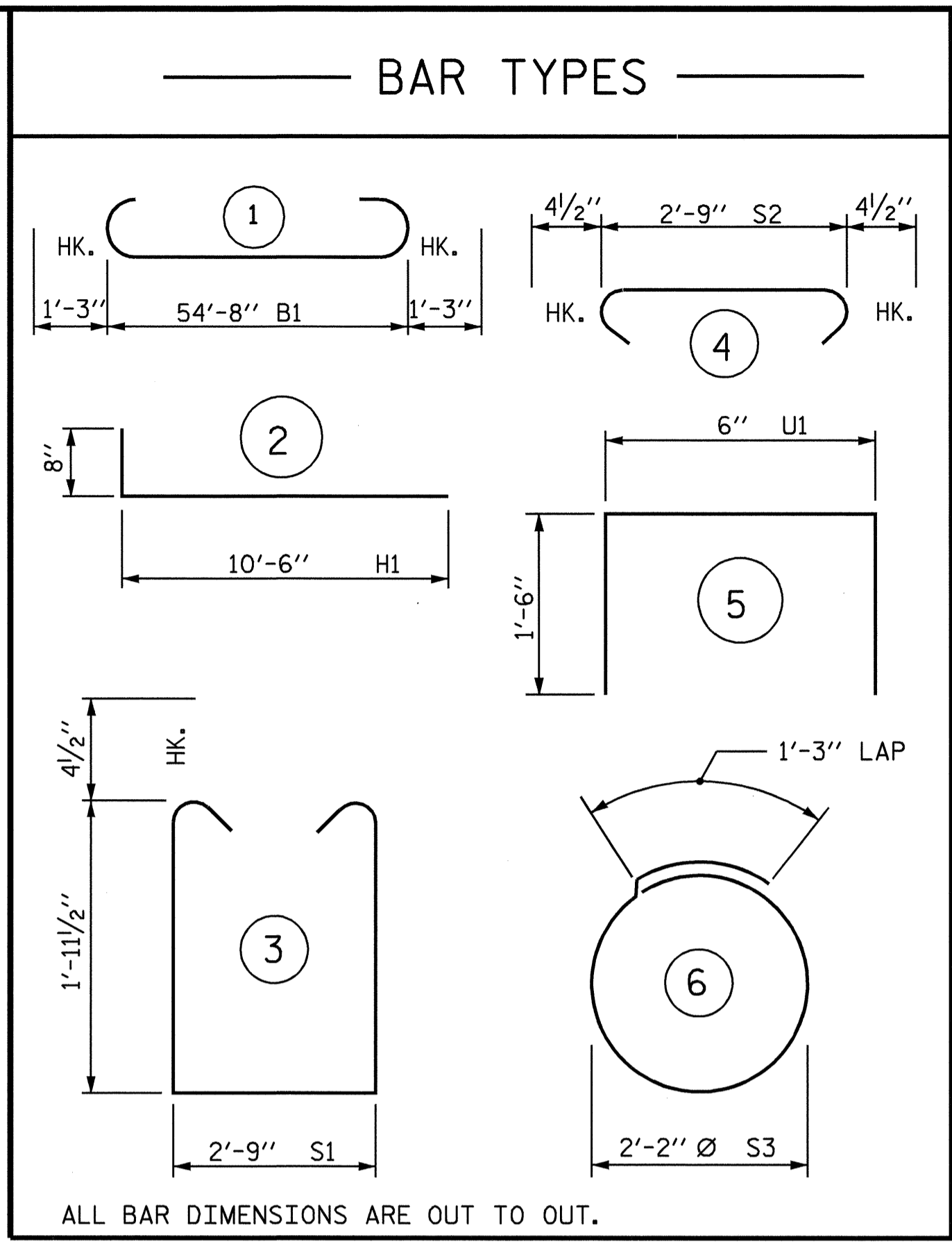


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

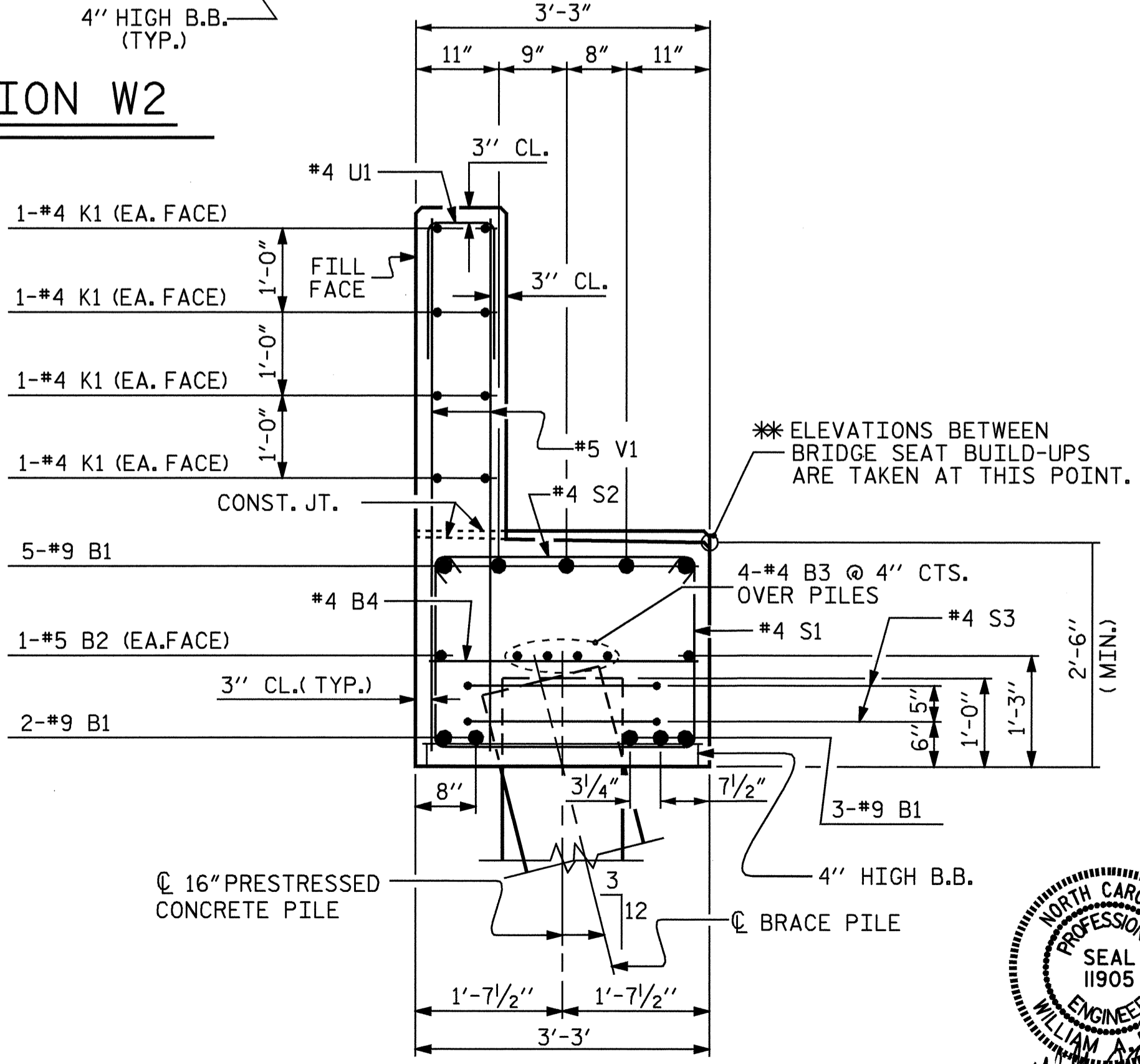
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	10	#9	1	57'-2"	1944
*B2	2	#5	STR	54'-10"	114
*B3	8	#4	STR	28'-10"	154
*B4	14	#4	STR	2'-9"	26
*H1	36	#5	2	11'-2"	419
*K1	16	#4	STR	28'-10"	308
*K2	8	#4	STR	3'-7"	19
*S1	52	#4	3	7'-5"	258
*S2	52	#4	4	3'-6"	122
*S3	22	#4	6	8'-1"	119
*U1	48	#4	5	3'-6"	112
*V1	96	#5	STR	5'-11"	592
*V2	32	#5	STR	7'-9"	259
*V3	32	#5	STR	7'-3"	242
* EPOXY COATED REINFORCING STEEL = 4688 LBS.					
CLASS AA CONCRETE					
POUR #1: CAP & LOWER WINGS 19.3 C.Y.					
POUR #2: TOP OF WINGS & BACKWALL 12.5 C.Y.					
TOTAL CLASS AA CONCRETE 31.8 C.Y.					
16" PRESTRESSED CONCRETE PILES					
NO. 11 LIN. FEET 440					



SECTION A-A

PROJECT NO. B-4019
 BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT 2					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-48
					TOTAL SHEETS 55

DRAWN BY: J.L. WALTON DATE: 8/8/06
 CHECKED BY: J.P. ADAMS DATE: 7/3/07



NOTES

CONCRETE DESIGN DATA : $f'c = 5,000$ PSI ; $fc = 2,000$ PSI

IMPACT IN HANDLING = 50%

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE PILE SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 3,500 PSI.

IN DRIVING PILES, A METHOD APPROVED BY THE ENGINEER SHALL BE USED, WHEREBY THE HEAD OF THE PILE IS NOT DAMAGED.

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 TO BE INDICATED WITH A BLACK MARK 2" WIDE.

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 STANDARD SPECIFICATIONS.

THE CONTRACTOR SHALL USE THE FOLLOWING STRAND TYPE:

SIZE	GRADE	NUMBER OF STRANDS	AREA SQ. IN.	ULTIMATE STRENGTH LBS.	APPLIED PRESTRESS FORCE LBS.
1/2"	270 L.R.	8	0.153	41,300 PER STRAND	30,980 PER STRAND

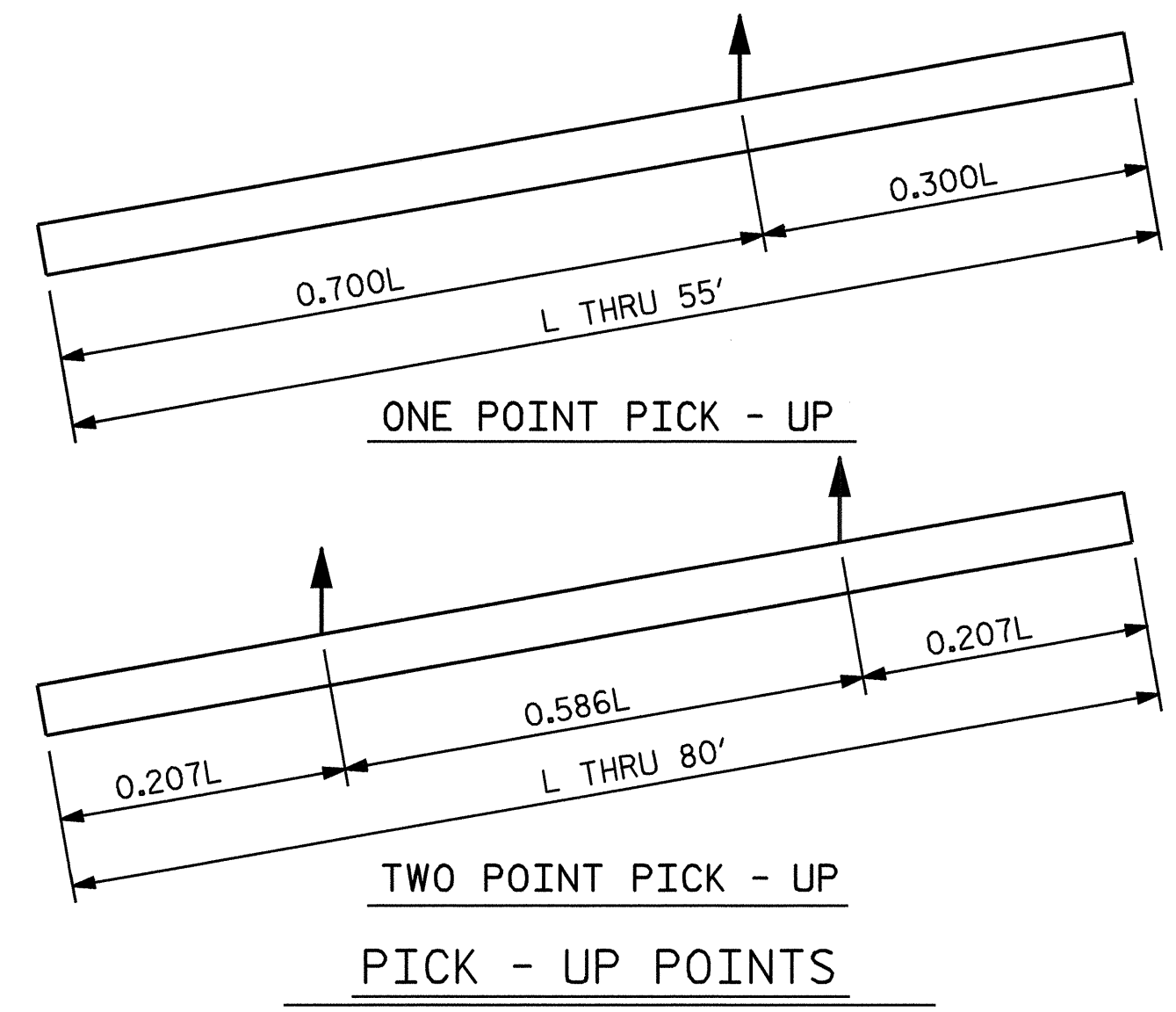
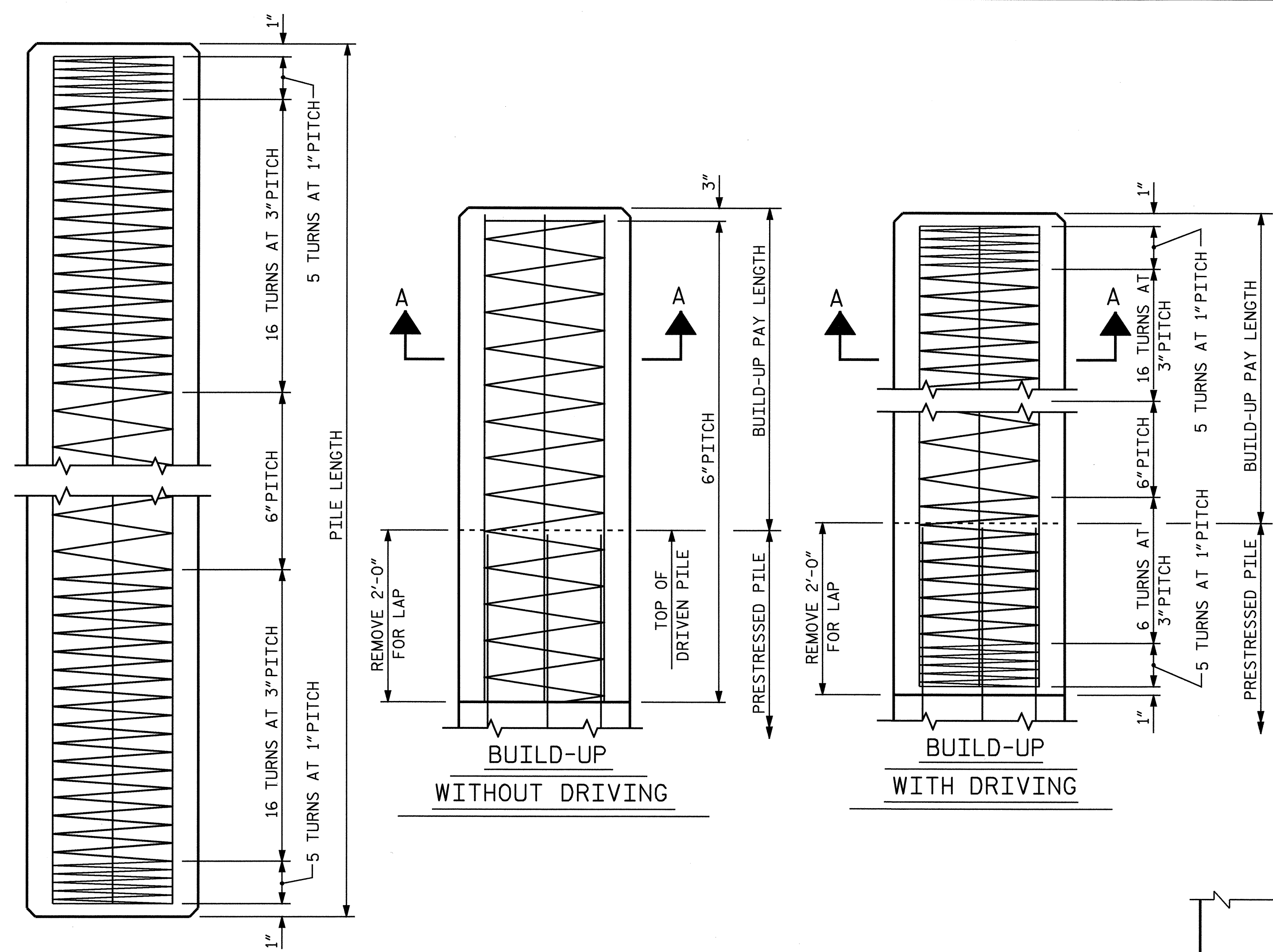
THE SLIP-FORM METHOD OF CASTING PILES WILL NOT BE PERMITTED.

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 SYMMETRICAL ABOUT BOTH 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.

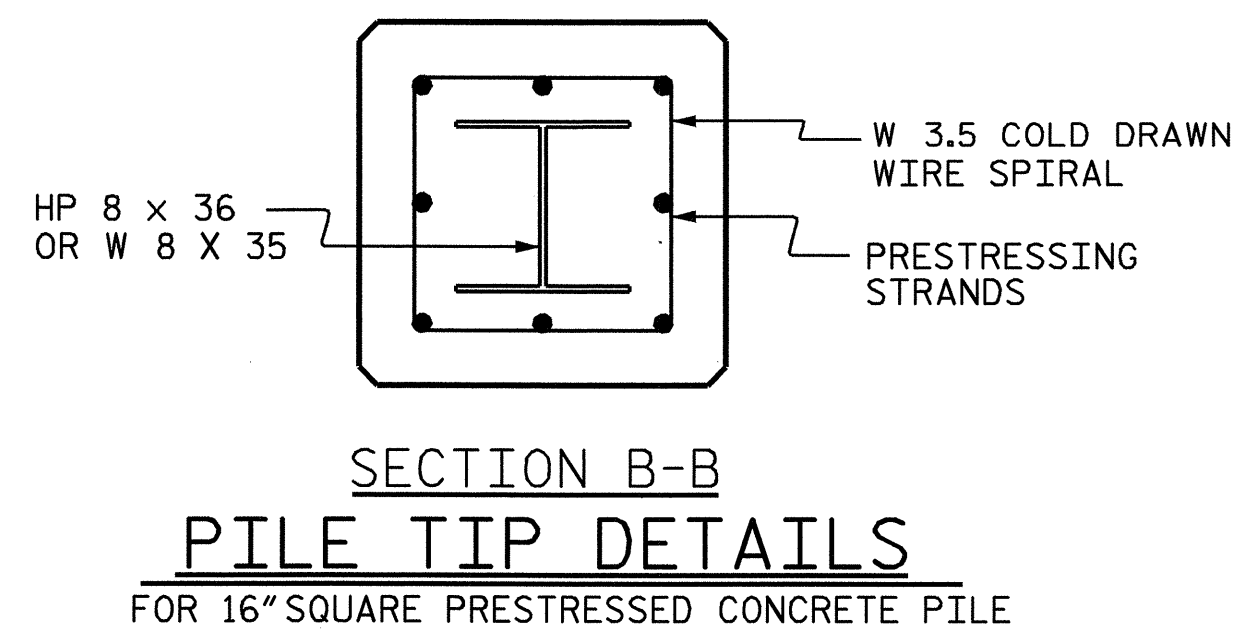
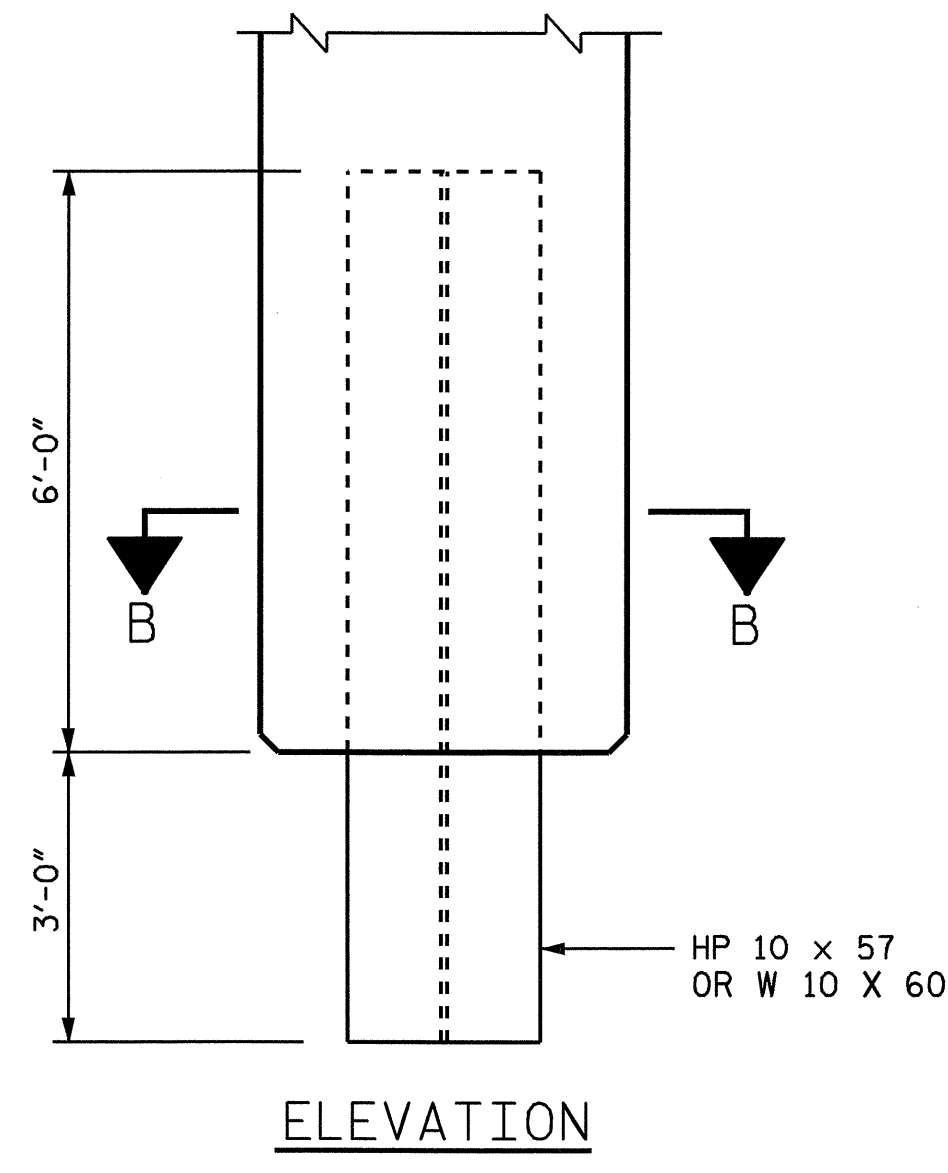
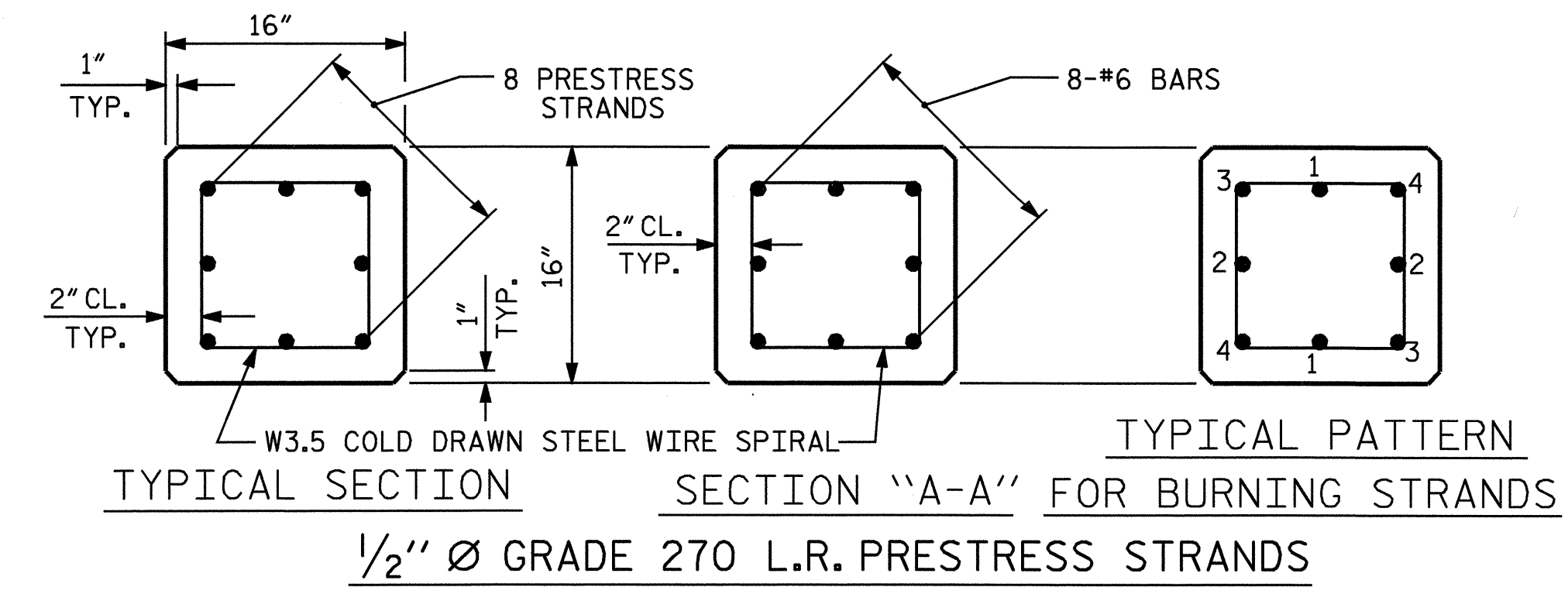
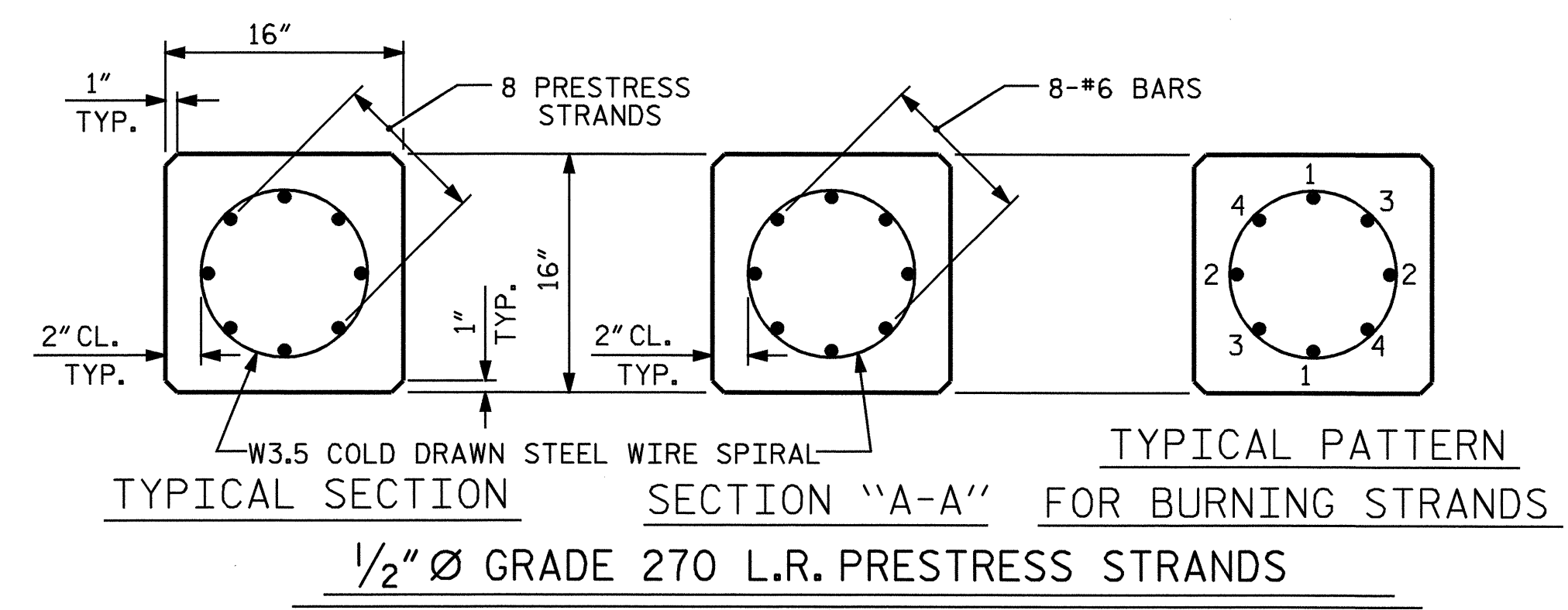
BUILD-UPS SHALL BE 'CLASS A' CONCRETE WITH 20% ADDITIONAL CEMENT. NO DRIVING OF THE BUILT-UP PILE WILL BE PERMITTED UNTIL THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF 3,000 PSI AND UNTIL A PERIOD OF SEVEN DAYS HAS ELAPSED SINCE CASTING OF THE BUILD-UP.

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

PRESTRESSED CONCRETE PILES SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR.



ELEVATION



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"

PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

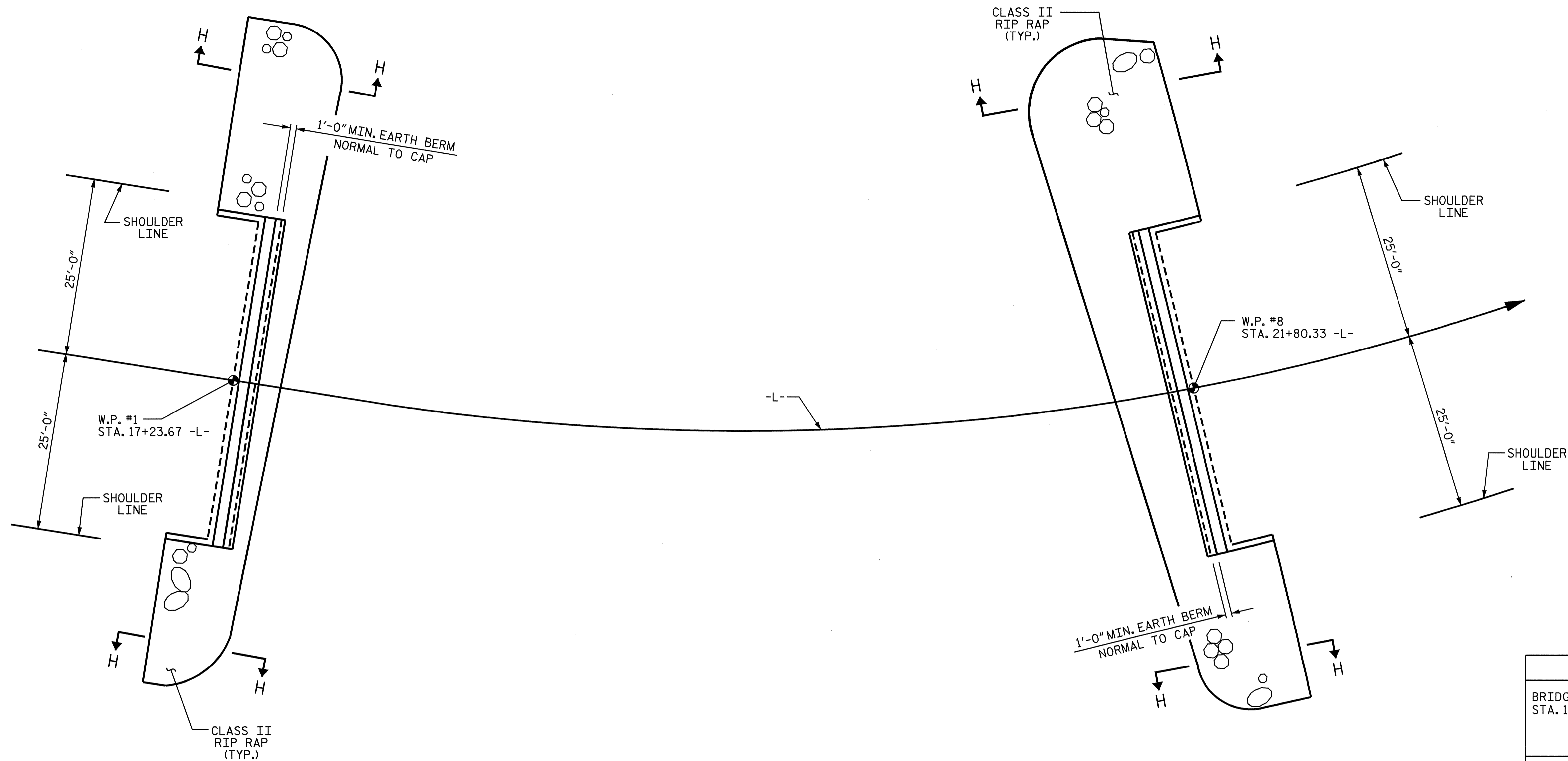
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 16" PRESTRESSED
 CONCRETE PILE

REVISIONS						SHEET NO. S-49
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 55
2			4			

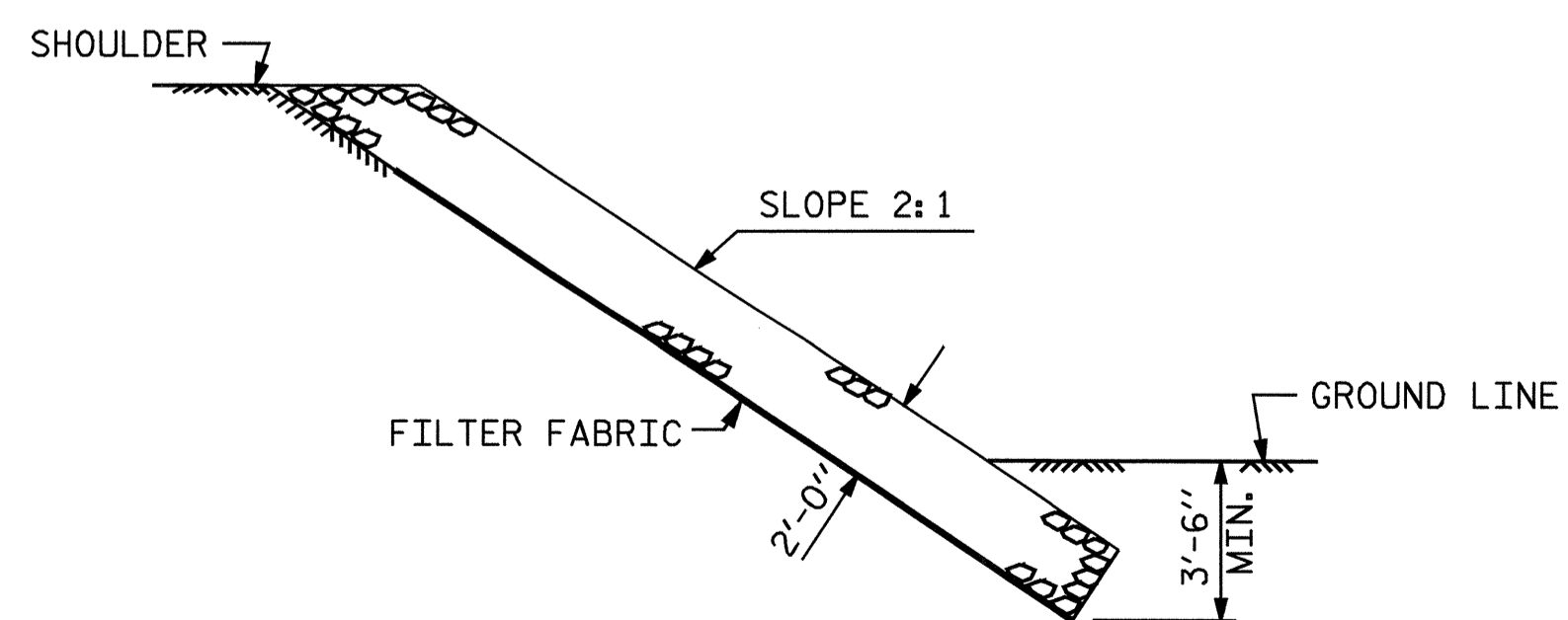


ASSEMBLED BY : QT NGUYEN DATE : 3-07
 CHECKED BY : J.L. WALTON DATE : 4-17-07
 DRAWN BY : RH 9/98
 CHECKED BY : LES 10/98
 ADDED 12/2/98
 REV. 8/16/99RR RWW/LES
 REV. 5/1/06 TLA/GM

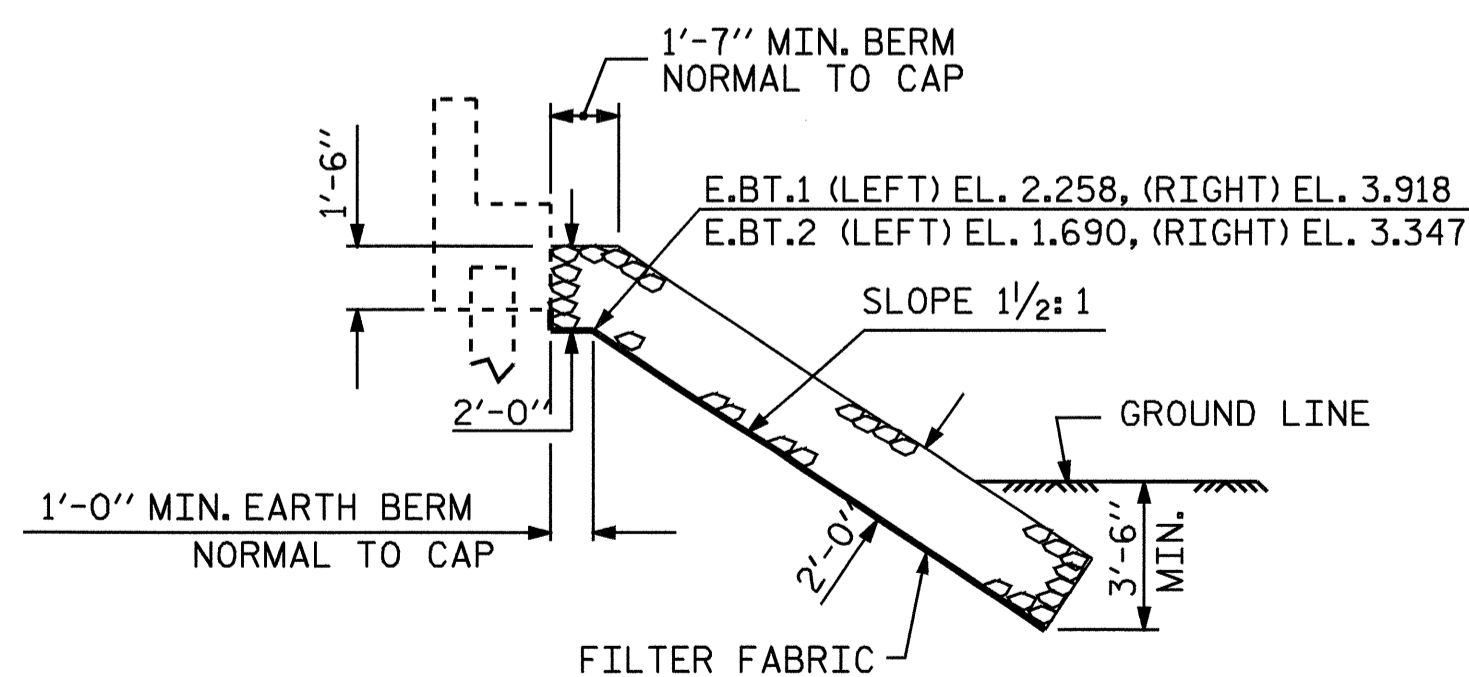


PLAN OF RIP RAP

ESTIMATED QUANTITIES		
BRIDGE @ STA. 19+52.00 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	130	140
END BENT 2	110	120

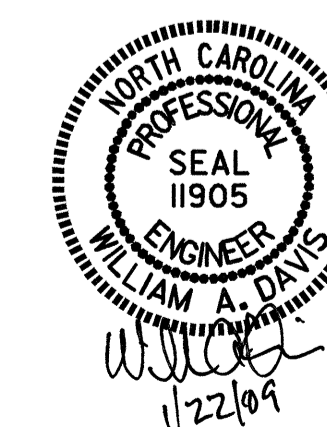


SECTION H-H



SECTION C-C
BERM RIP RAPPED

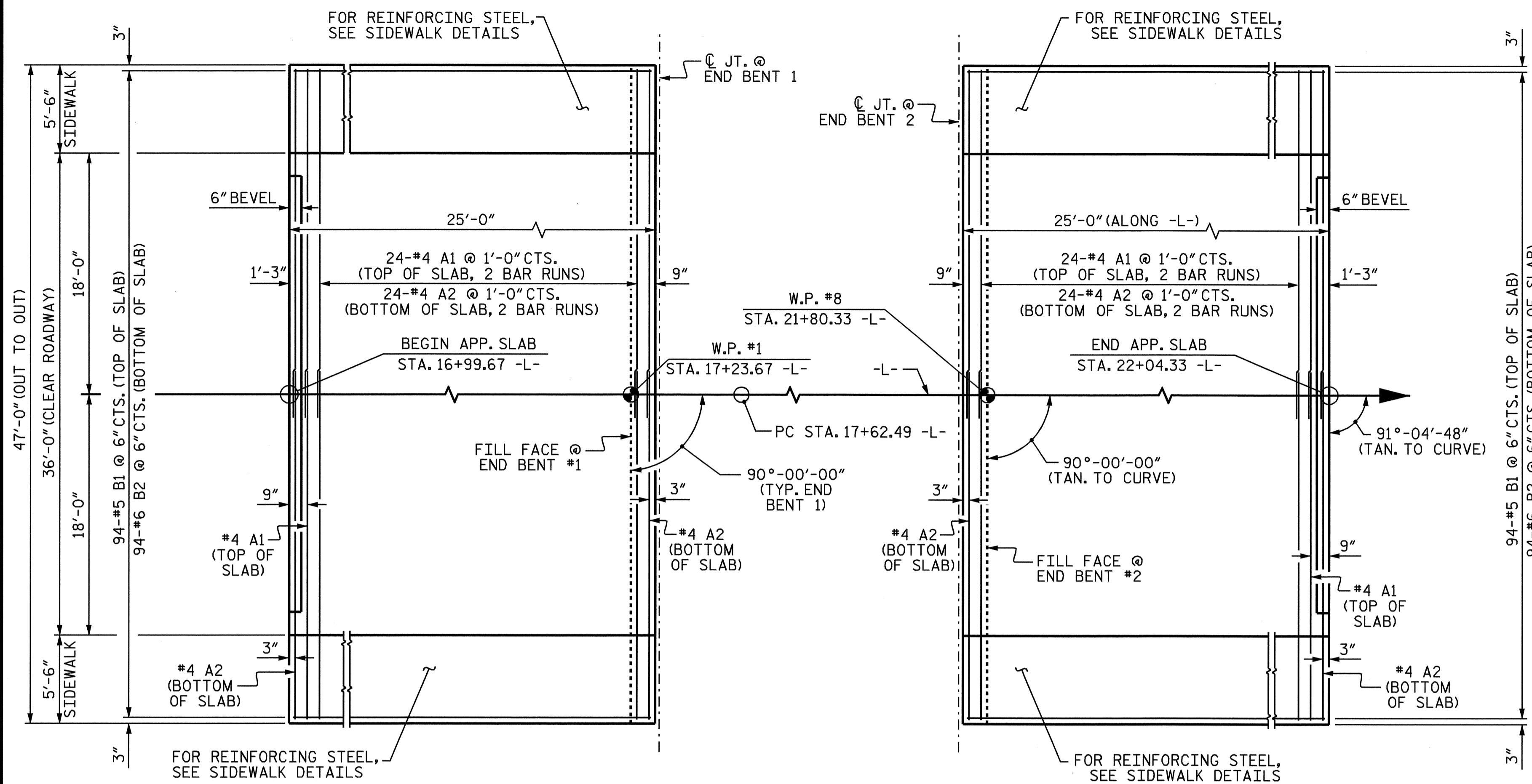
PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-



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

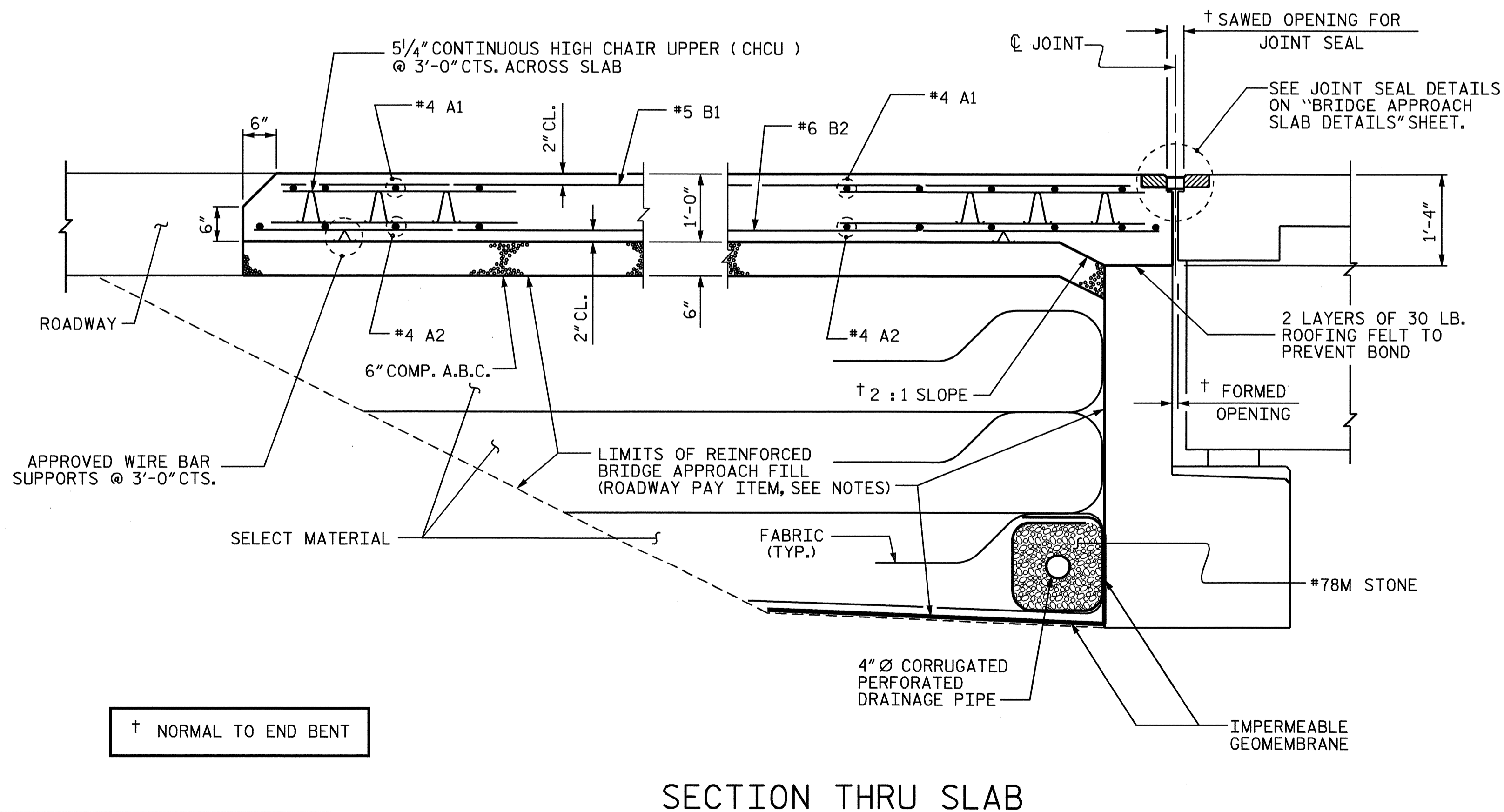
ASSEMBLED BY : D. G. ELY DATE : 10/06
 CHECKED BY : A. R. CHESSON DATE : 5/07
 DRAWN BY : FCJ 2/88 REV. 8/16/99 RWW/LES
 CHECKED BY : ARB 8/88 REV. 10/17/00 RWW/LES
 REV. 5/1/06 TLA/GM

REVISIONS						SHEET NO. S-50
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			55

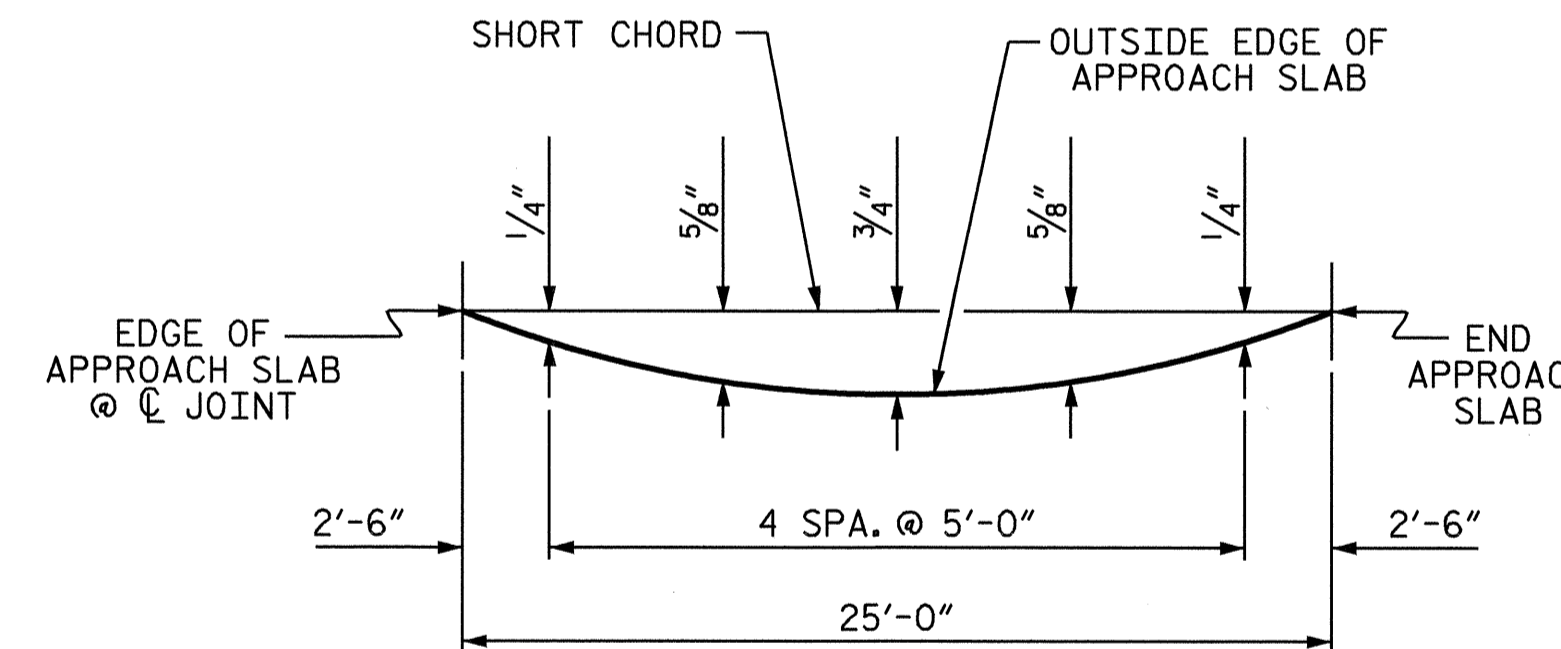


PLAN @ END BENT 1

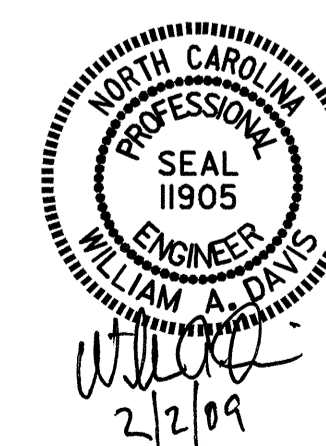
PLAN @ END BENT 2



SECTION THRU SLAB



ARC OFFSETS @ END BENT 2
(LEFT AND RIGHT OUTSIDE EDGES ARE THE SAME)



NOTES

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

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING FABRIC, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, AND SELECT MATERIAL, SEE ROADWAY PLANS.

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

THE 6" COMP. A.B.C. SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB AND SHALL EXTEND 1'-0" OUTSIDE EACH EDGE OF THE APPROACH SLAB.

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

THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER OF 30 LB ROOFING FELT SHALL BE PLACED BETWEEN THE CONCRETE BASE AND THE APPROACH SLAB TO PREVENT BOND. THE APPROACH SLAB SHALL NOT BE CAST UNTIL THE CONCRETE BASE HAS REACHED AN AGE OF THREE CURING DAYS.

THE JOINT SHALL BE SAWED PRIOR TO THE CASTING OF THE CLASSIC RAIL AND END POST.

SIDEWALK REINFORCING STEEL AND CONCRETE ON APPROACH SLAB SHALL BE INCLUDED IN THE LUMP SUM PAY ITEM FOR BRIDGE APPROACH SLABS.

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

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

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL
FOR ONE APPROACH SLAB
(2 REQ'D)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	50	#4	STR	24'-3"	810
*A2	52	#4	STR	24'-3"	842
*B1	94	#5	STR	24'-2"	2369
*B2	94	#6	STR	24'-8"	3483
*B3	8	#4	STR	24'-8"	132
*D1	32	#4	STR	1'-0"	21
*G1	50	#4	STR	5'-2"	173
*EPOXY COATED REINFORCING STEEL				LBS.	7830
CLASS AA CONCRETE				C. Y.	49.8

ASSEMBLED BY :	D. G. ELY	DATE :	10/06
CHECKED BY :	A. R. CHESSON	DATE :	5/07
DRAWN BY :	EEM 3/95	REV. 7/10/01	LES/RDR
CHECKED BY :	VAP 3/95	REV. 5/1/03R	RWW/JTE
		REV. 5/1/06R	KMM/GM

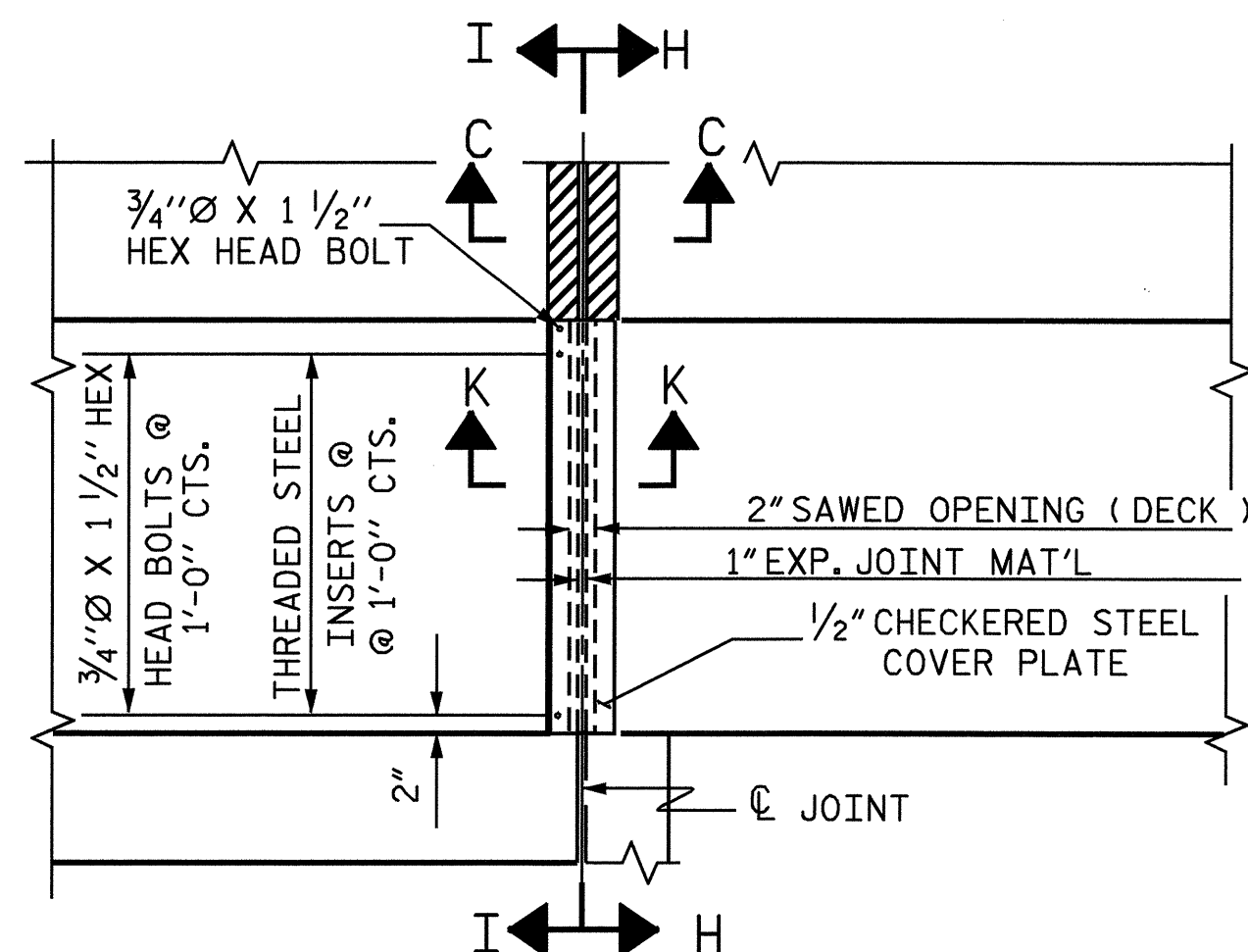
PROJECT NO. B-4019
BEAUFORT COUNTY
STATION: 19+52.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

BRIDGE APPROACH SLAB
FOR FLEXIBLE PAVEMENT

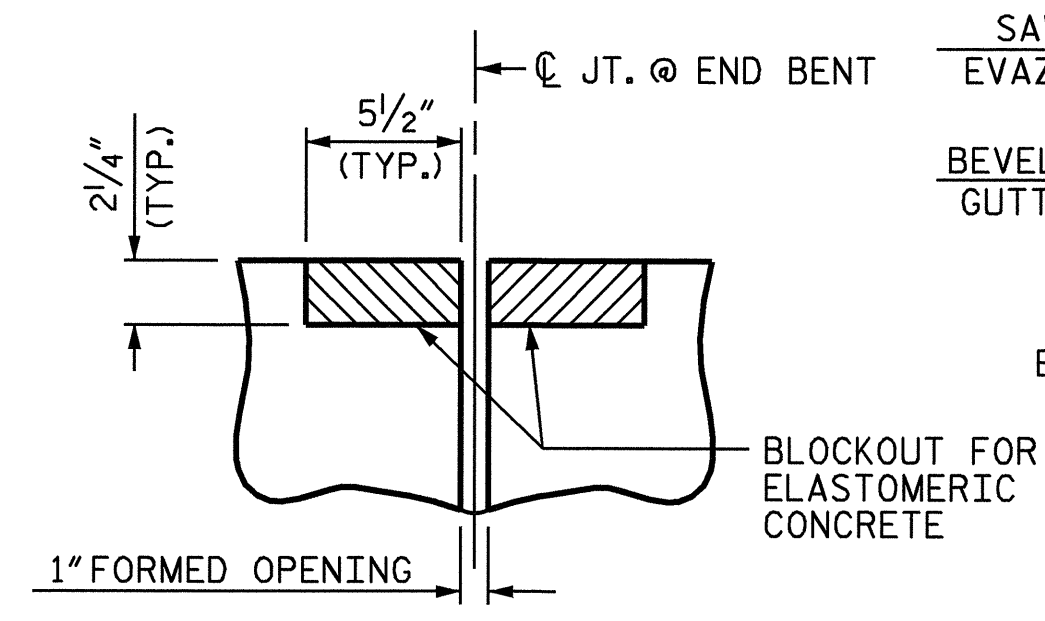
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-51
1			3			TOTAL SHEETS
2			4			55



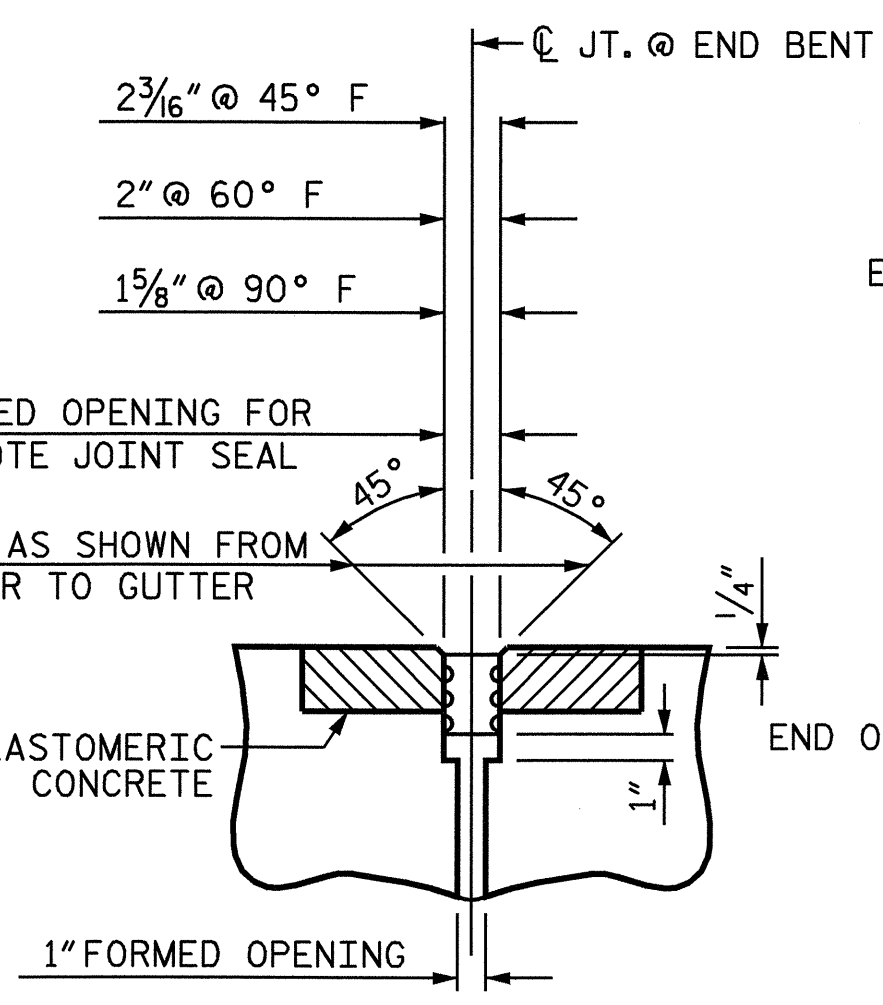
PLAN OF EVAZOTE JOINT SEAL @ END BENT

ELASTOMERIC CONCRETE	
	ELASTOMERIC CONCRETE ** (CU. FT.)
END BENT 1	8.1
BENT 4	8.1
END BENT 2	8.1
TOTAL	24.3

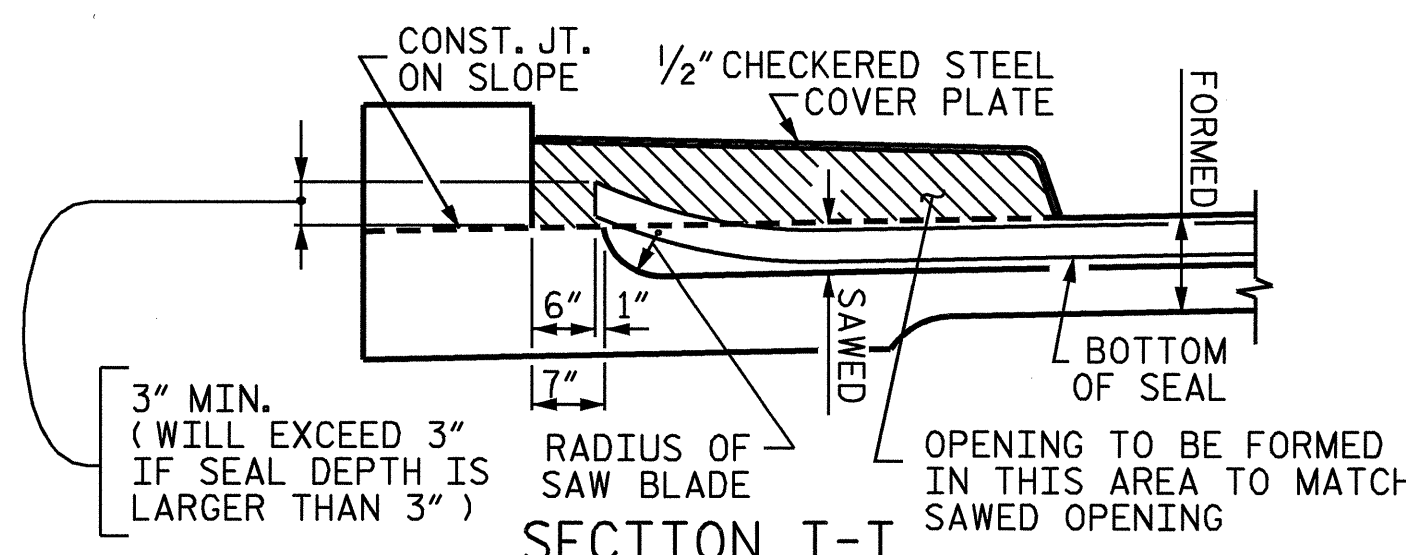
** BASED ON THE MINIMUM BLOCKOUT SHOWN.



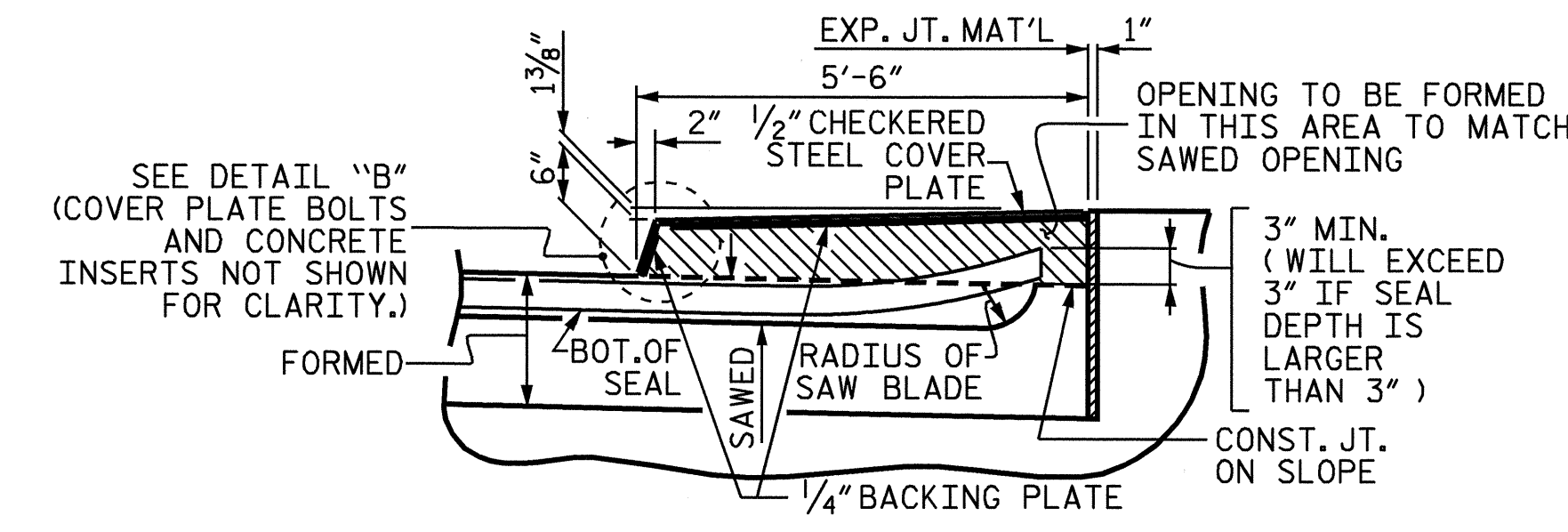
SECTION C-C EVAZOTE JOINT SEAL (PRE-SAWED ELASTOMERIC CONCRETE DIMENSIONS)



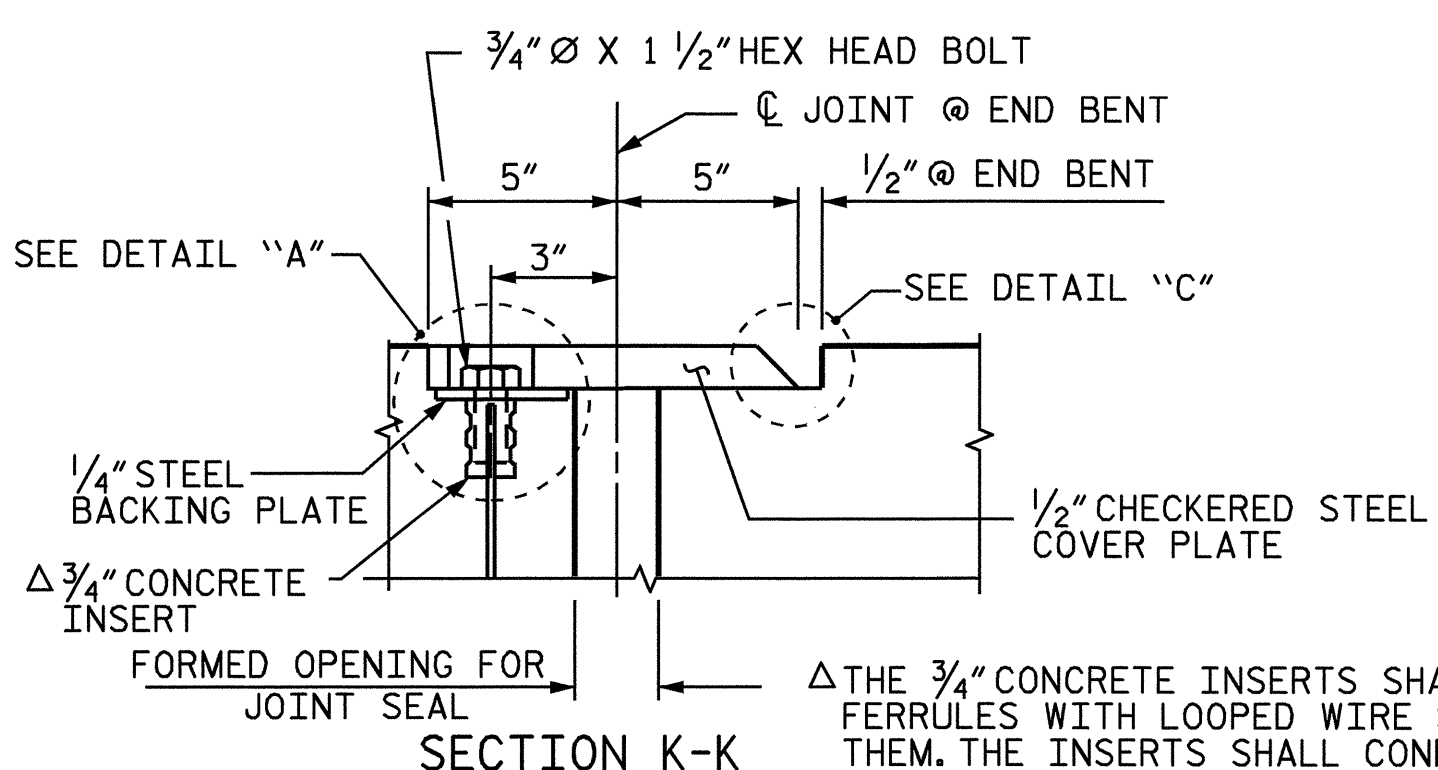
SECTION C-C EVAZOTE JOINT SEAL (EXPANSION)



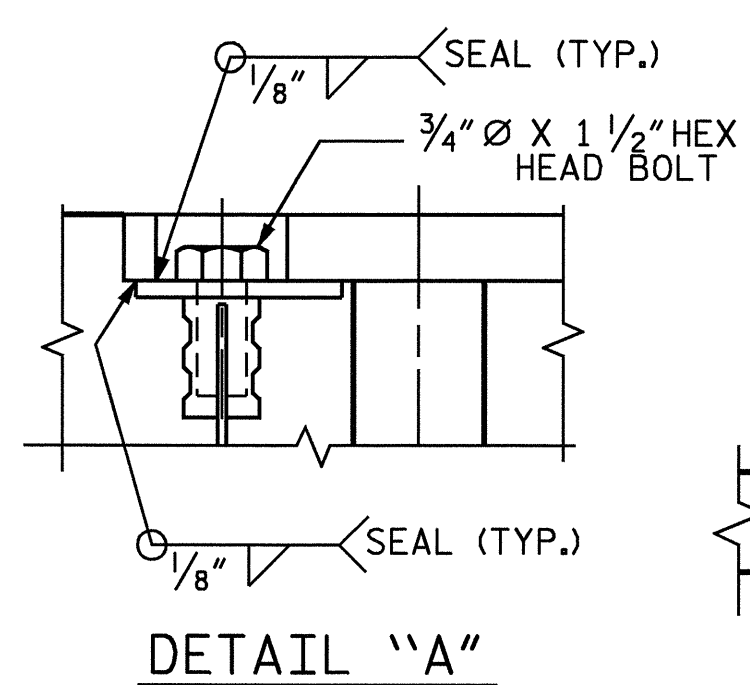
SECTION I-I



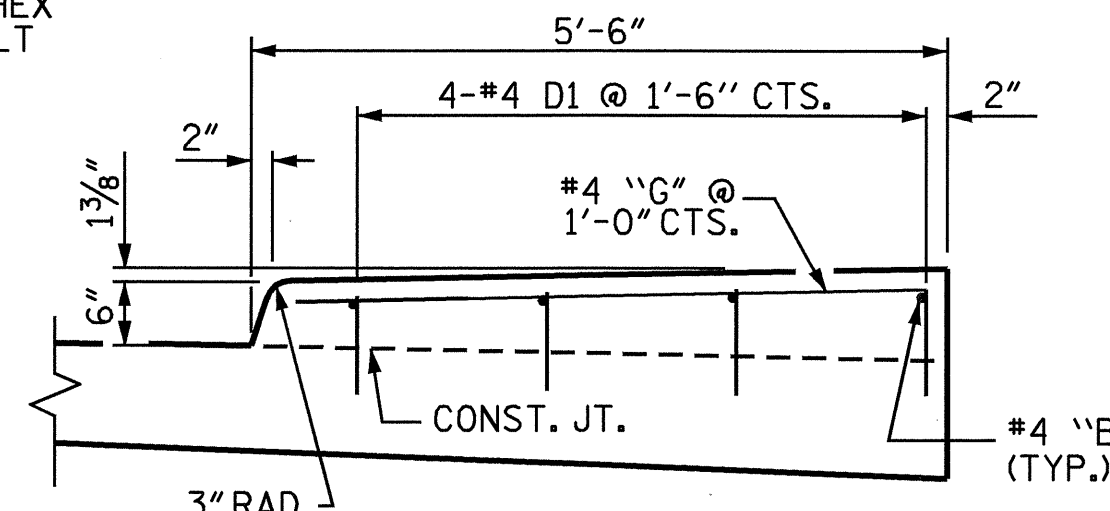
SECTION H-H



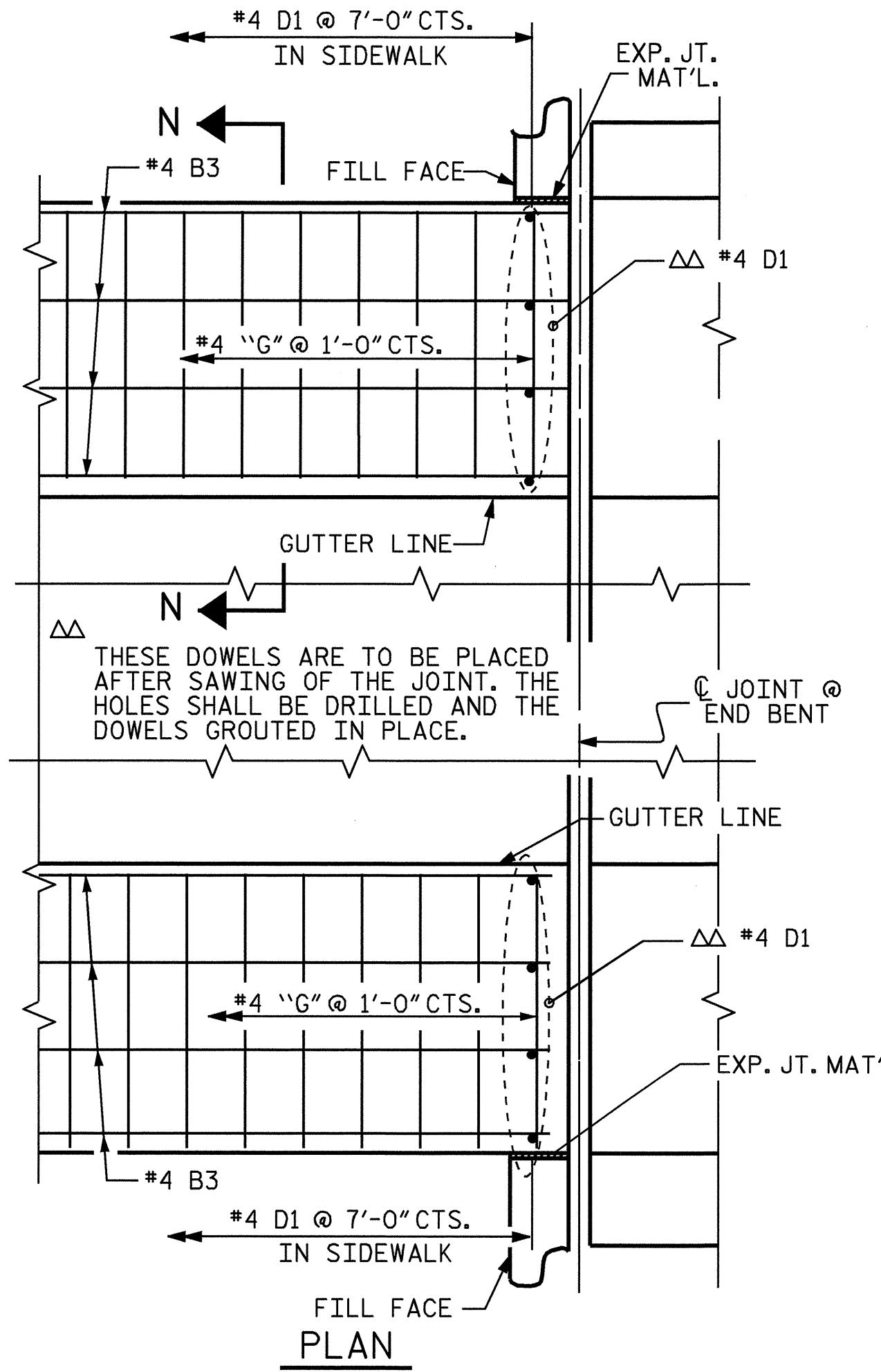
SECTION K-K



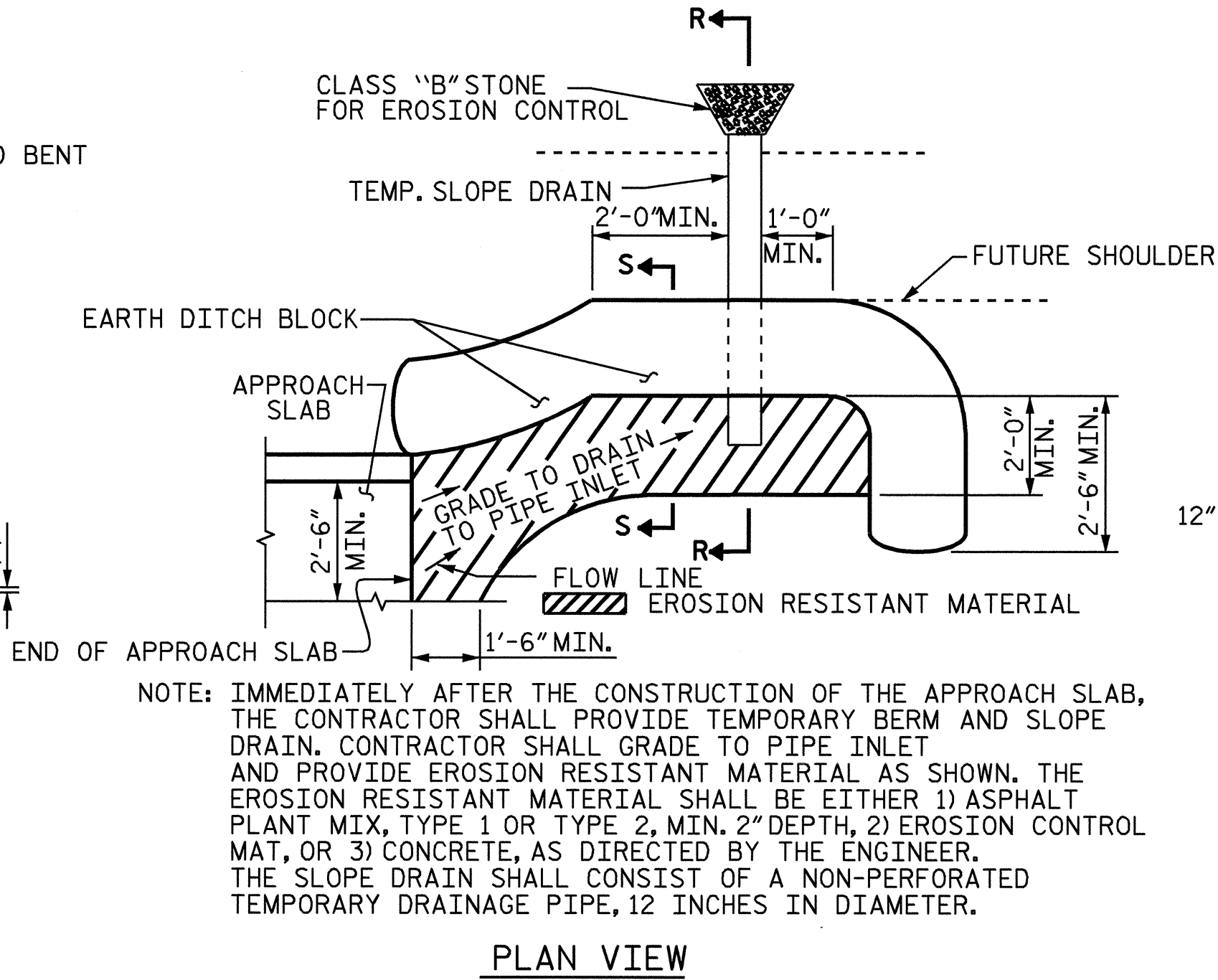
DETAIL 'A'



SECTION N-N SIDEWALK DETAILS

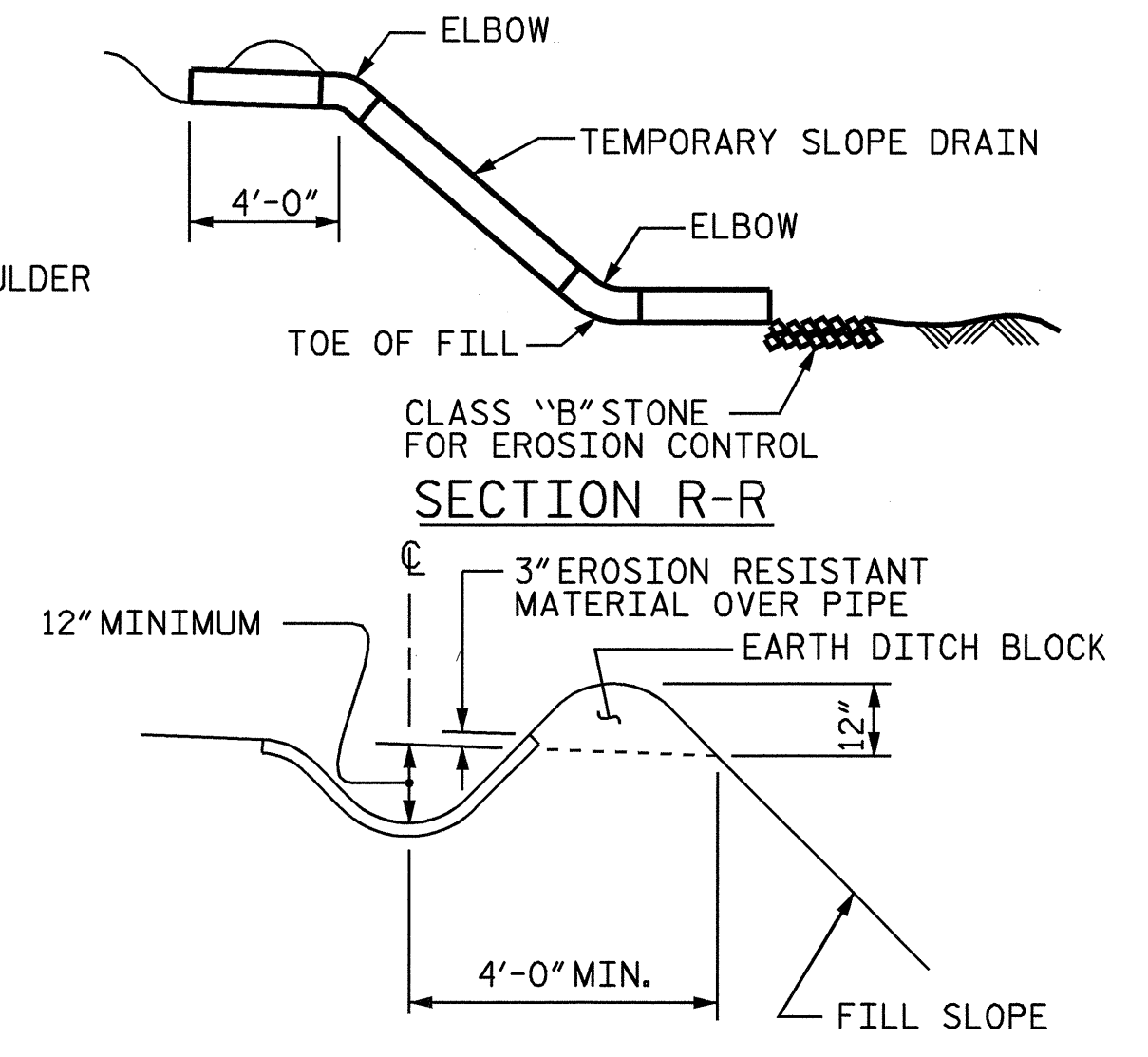


DETAILS OF SIDEWALK ON APPROACH SLAB



PLAN VIEW

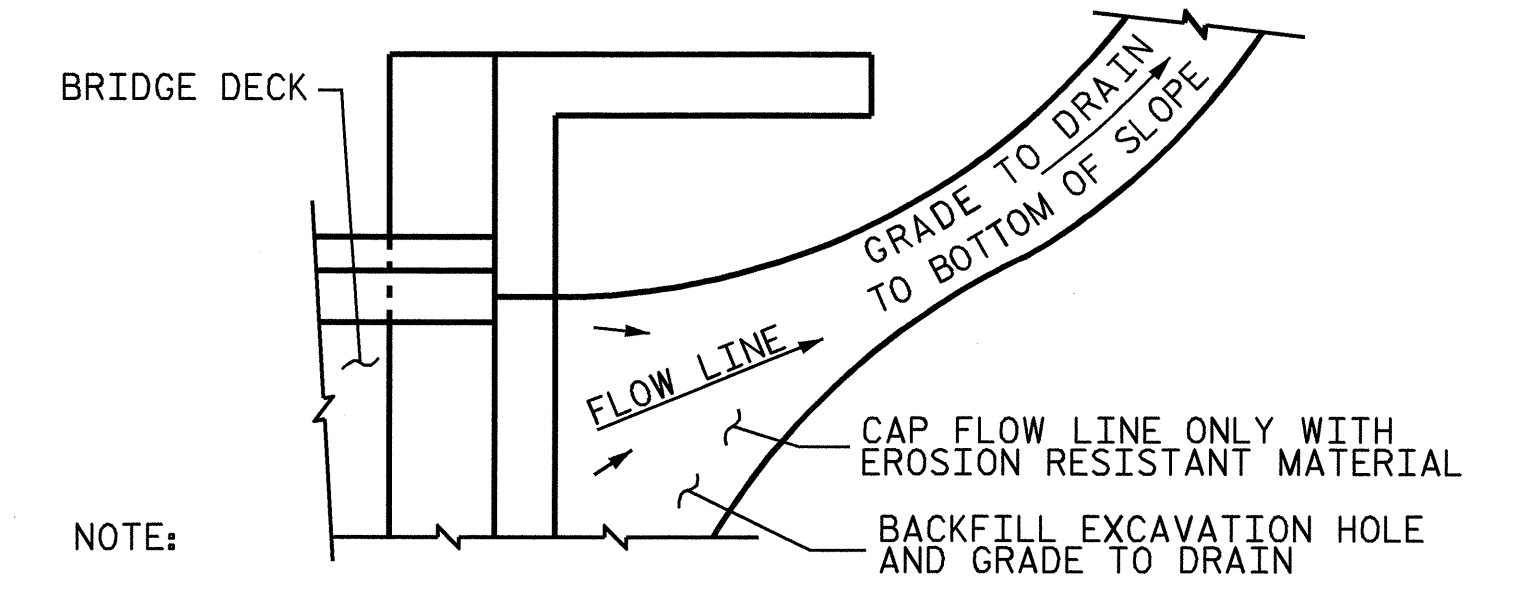
NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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



SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



NOTE:

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

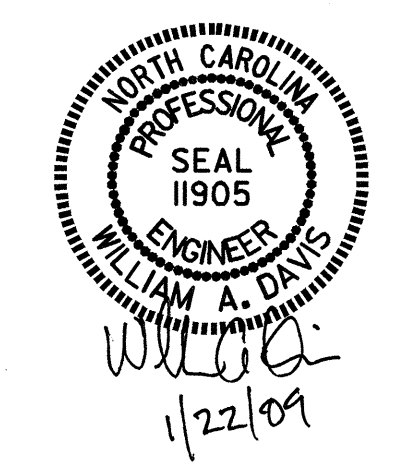
TEMPORARY DRAINAGE DETAIL

THE STEEL PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 OR APPROVED EQUAL. AFTER FABRICATION, THE PLATES SHALL BE COMMERCIALY BLAST CLEANED AND COATED WITH A MINIMUM THICKNESS OF 4 MILS (DRY) OF ZINC RICH PAINT IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. AT THE CONTRACTORS OPTION, THESE SURFACES MAY BE METALLIZED TO A MINIMUM THICKNESS OF 6 MILS; SEE SPECIAL PROVISIONS FOR THERMAL SPRAYED COATINGS (METALLIZATION).

THE 3/4" DIAMETER HEX HEAD BOLTS SHALL CONFORM TO ASTM F593 ALLOY 304 STAINLESS STEEL.

NO SEPARATE PAYMENT WILL BE MADE FOR FURNISHING AND INSTALLING THE COVER PLATE. THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE LUMP SUM PRICE FOR "EVAZOTE JOINT SEALS".

ASSEMBLED BY :	D. G. ELY	DATE :	10/06
CHECKED BY :	A. R. CHESSON	DATE :	5/07
DRAWN BY :	FCJ	11/88	REV. 10/17/00 RWW/LES
CHECKED BY :	ARB	11/88	REV. 5/7/03 RWW/JTE
			REV. 5/1/06 TLA/GM



PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BRIDGE APPROACH SLAB DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

OVERHANG BRACKET CALCULATION INSTRUCTIONS

AASHTO SHAPES - TYPES III, IV, V, AND VI

- RECORD KNOWN INFORMATION ON "BRIDGE OVERHANG BRACKET SUMMARY" ON SHEET 2
- CALCULATE THE MAXIMUM SCREED LOAD PER BRACKET (SLPB) WITH AN ESTIMATED $R = 1.5$. $SLPB = R \times W$. ROUND VALUE UP TO NEAREST SLPB VALUE INDICATED ON APPROPRIATE TABLE 1-1, 1-2, 1-3, OR 1-4.
- WITH THE ESTIMATED SLPB, OVERHANG SLAB THICKNESS, "K" VALUE, AND 45° HANGER SAFE WORKING LOAD (SWL), ENTER THE APPROPRIATE TABLE 1-1, 1-2, 1-3, OR 1-4 (BASED ON OVERHANG DIMENSION) AND DETERMINE THE BRACKET SPACING, S.
- CALCULATE S/D1 AND S/D2, ROUNDING UP TO NEAREST VALUE IN TABLE 2. ENTER TABLE 2 AND DETERMINE R VALUE.
- CALCULATE REVISED SLPB. ROUND VALUE UP TO NEAREST SLPB VALUE INDICATED ON APPROPRIATE TABLE 1-1, 1-2, 1-3, OR 1-4.
- WITH THE REVISED SLPB, OVERHANG SLAB THICKNESS, "K" VALUE AND 45° HANGER SAFE WORKING LOAD (SWL), ENTER THE APPROPRIATE TABLE 1-1, 1-2, 1-3 OR 1-4 (BASED ON OVERHANG DIMENSION) AND DETERMINE REVISED BRACKET SPACING, S.
- CONTINUE ITERATIONS OF STEPS 4-6 UNTIL THE REVISED BRACKET SPACING, S, IS THE SAME AS THE PREVIOUS S VALUE.
- CHECK LUMBER JOIST SPACING: WITH BRACKET SPACING VALUE, S, ROUND THIS VALUE UP TO THE NEAREST VALUE OF ALLOWABLE SPAN LENGTH OF JOIST OF TABLE 3. USING THIS VALUE, ALONG WITH THE AVERAGE OVERHANG SLAB THICKNESS AND THE LUMBER JOIST SIZE, DETERMINE JOIST SPACING FROM TABLE 3. IF NECESSARY, ADJUST LUMBER JOIST SIZE AND/OR JOIST SPACING TO MEET ALLOWABLE SPAN LENGTH OF JOIST.
- CONVERSELY, IF THE DESIRED JOIST SPACING IS KNOWN, USE THIS ALONG WITH THE AVERAGE OVERHANG SLAB THICKNESS AND THE LUMBER JOIST SIZE TO DETERMINE IF ALLOWABLE SPAN LENGTH OF JOIST IS GREATER THAN THE BRACKET SPACING, S. IF NECESSARY, ADJUST LUMBER JOIST SIZE TO MEET REQUIREMENTS OF ALLOWABLE SPAN LENGTH OF JOIST AND JOIST SPACING.
- RECORD REMAINING INFORMATION ON "BRIDGE OVERHANG BRACKET SUMMARY" FORM.
- SUBMIT FORM AND CALCULATIONS FOR REVIEW AND APPROVAL.

TABLE 1-1 (FOR USE ON UP TO 2'-0" OVERHANG (L) & 54" HORIZONTAL LEG LENGTH OF THE OVERHANG BRACKET)

AVG. SLAB THICKNESS (in)	BRACKET DIMENSION (in)	SCREED LOAD PER BRACKET									45° HANGER SWL (lbs)
		2500 lbs.	2250 lbs.	2000 lbs.	1750 lbs.	1500 lbs.	1250 lbs.	1000 lbs.	750 lbs.	0 lbs.	
10	30	3'-6"	4'-0"	4'-5"	2'-1"	2'-7"	3'-2"	3'-8"	4'-2"	5'-9"	4000
	40	3'-6"	4'-0"	4'-5"	2'-1"	2'-7"	3'-2"	3'-8"	4'-2"	5'-9"	6000
	50	3'-6"	4'-0"	4'-5"	2'-1"	2'-7"	3'-2"	3'-8"	4'-2"	5'-9"	6000
12	30	3'-2"	3'-7"	4'-1"	2'-4"	2'-10"	3'-4"	3'-9"	5'-2"	6000	
	40	3'-2"	3'-7"	4'-1"	2'-4"	2'-10"	3'-4"	3'-9"	5'-2"	6000	
	50	3'-2"	3'-7"	4'-1"	2'-4"	2'-10"	3'-4"	3'-9"	5'-2"	6000	
14	30	2'-10"	3'-4"	3'-9"	2'-2"	2'-7"	3'-0"	3'-5"	4'-9"	4000	
	40	2'-10"	3'-4"	3'-9"	2'-2"	2'-7"	3'-0"	3'-5"	4'-9"	6000	
	50	2'-10"	3'-4"	3'-9"	2'-2"	2'-7"	3'-0"	3'-5"	4'-9"	6000	
16	30	2'-8"	3'-0"	3'-5"	2'-0"	2'-4"	2'-9"	3'-2"	4'-4"	4000	
	40	2'-8"	3'-0"	3'-5"	2'-0"	2'-4"	2'-9"	3'-2"	4'-4"	6000	
	50	2'-8"	3'-0"	3'-5"	2'-0"	2'-4"	2'-9"	3'-2"	4'-4"	6000	

TABLE 1-2 (FOR USE ON OVER 2'-0" TO 2'-6" OVERHANG (L) & 54" HORIZONTAL LEG LENGTH OF THE OVERHANG BRACKET)

AVG. SLAB THICKNESS (in)	BRACKET DIMENSION (in)	SCREED LOAD PER BRACKET									45° HANGER SWL (lbs)
		2500 lbs.	2250 lbs.	2000 lbs.	1750 lbs.	1500 lbs.	1250 lbs.	1000 lbs.	750 lbs.	0 lbs.	
10	30	3'-1"	3'-6"	4'-0"	2'-4"	2'-9"	3'-3"	3'-8"	5'-1"	4000	
	40	3'-1"	3'-6"	4'-0"	2'-4"	2'-9"	3'-3"	3'-8"	5'-1"	6000	
	50	3'-1"	3'-6"	4'-0"	2'-4"	2'-9"	3'-3"	3'-8"	5'-1"	6000	
12	30	2'-9"	3'-2"	3'-7"	2'-1"	2'-6"	2'-11"	3'-4"	4'-6"	4000	
	40	2'-9"	3'-2"	3'-7"	2'-1"	2'-6"	2'-11"	3'-4"	4'-6"	6000	
	50	2'-9"	3'-2"	3'-7"	2'-1"	2'-6"	2'-11"	3'-4"	4'-6"	6000	
14	30	2'-6"	2'-10"	3'-3"	2'-3"	2'-7"	3'-0"	4'-1"	4000		
	40	2'-6"	2'-10"	3'-3"	2'-3"	2'-7"	3'-0"	4'-1"	6000		
	50	2'-6"	2'-10"	3'-3"	2'-3"	2'-7"	3'-0"	4'-1"	6000		
16	30	2'-3"	2'-7"	2'-11"	2'-1"	2'-5"	2'-9"	3'-9"	4000		
	40	2'-3"	2'-7"	2'-11"	2'-1"	2'-5"	2'-9"	3'-9"	6000		
	50	2'-3"	2'-7"	2'-11"	2'-1"	2'-5"	2'-9"	3'-9"	6000		

TABLE 1-3 (FOR USE ON OVER 2'-6" TO 3'-0" OVERHANG (L) & 54" HORIZONTAL LEG LENGTH OF THE OVERHANG BRACKET)

AVG. SLAB THICKNESS (in)	BRACKET DIMENSION (in)	SCREED LOAD PER BRACKET									45° HANGER SWL (lbs)
		2500 lbs.	2250 lbs.	2000 lbs.	1750 lbs.	1500 lbs.	1250 lbs.	1000 lbs.	750 lbs.	0 lbs.	
10	30				2'-1"	2'-6"	2'-11"	3'-4"	4'-6"	4000	
	40				2'-1"	2'-6"	2'-11"	3'-4"	4'-6"	6000	
	50	2'-9"	3'-2"	3'-7"	4'-0"	4'-5"	4'-10"	5'-3"	5'-7"	6000	
12	30				2'-2"	2'-7"	2'-11"	4'-0"	4000		
	40				2'-2"	2'-7"	2'-11"	4'-0"	6000		
	50	2'-9"	3'-2"	3'-7"	4'-0"	4'-5"	4'-10"	5'-3"	5'-7"	6000	
14	30				3'-11"	4'-3"	4'-8"	5'-0"	6'-1"	4000	
	40				3'-11"	4'-3"	4'-8"	5'-0"	6'-1"	6000	
	50	2'-9"	3'-2"	3'-7"	4'-0"	4'-5"	4'-10"	5'-3"	5'-7"	6000	
16	30				2'-0"	2'-4"	2'-8"	3'-8"	4000		
	40				2'-0"	2'-4"	2'-8"	3'-8"	6000		
	50	2'-9"	3'-2"	3'-7"	4'-0"	4'-5"	4'-10"	5'-3"	5'-7"	6000	

TABLE 1-4 (FOR USE ON OVER 3'-0" TO 3'-6" OVERHANG (L) & 54" HORIZONTAL LEG LENGTH OF THE OVERHANG BRACKET)

AVG. SLAB THICKNESS (in)	BRACKET DIMENSION (in)	SCREED LOAD PER BRACKET									45° HANGER SWL (lbs)
		2500 lbs.	2250 lbs.	2000 lbs.	1750 lbs.	1500 lbs.	1250 lbs.	1000 lbs.	750 lbs.	0 lbs.	
10	30				2'-3"	2'-11"	3'-7"	4'-3"	5'-9"	4000	
	40				2'-3"	2'-11"	3'-7"	4'-3"	5'-9"	6000	
	50	2'-4"	2'-8"	3'-0"	3'-4"	3'-8"	4'-1"	4'-5"	4'-9"	6000	
12	30				2'-1"	2'-8"	3'-4"	3'-11"	5'-2"	4000	
	40				2'-1"	2'-8"	3'-4"	3'-11"	5'-2"	6000	
	50	2'-1"	2'-4"	2'-8"	3'-0"	3'-4"	3'-7"	3'-11"	4'-3"	6000	
14	30				2'-0"	2'-6"	3'-1"	3'-8"	4'-8"	4000	
	40				2'-0"	2'-6"	3'-1"	3'-8"	4'-8"	6000	
	50	2'-2"	2'-5"	2'-8"	3'-0"	3'-4"	3'-7"	3'-11"	4'-3"	6000	
16	30				2'-4"	2'-10"	3'-5"	4'-3"	4000		
	40				2'-4"	2'-10"	3'-5"	4'-3"	6000		
	50	2'-2"	2'-5"	2'-8"	3'-0"	3'-4"	3'-7"	3'-11"	4'-3"	6000	

DEFINITIONS

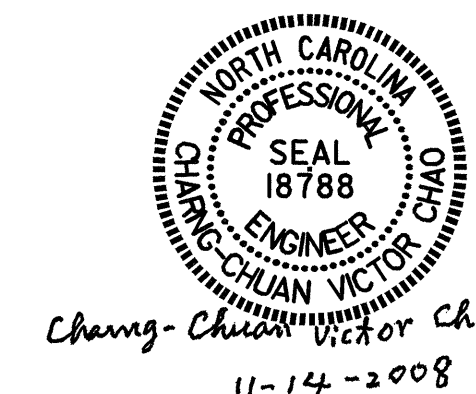
- SLPB = SCREED LOAD PER BRACKET (R x W)
- R = SCREED LOAD FACTOR, OBTAINED FROM TABLE 2
- W = WHEEL LOAD
- S = BRACKET SPACING
- T = AVERAGE SLAB THICKNESS
- SWL = SAFE WORKING LOAD
- K = DIMENSION DEFINED ON "BRIDGE OVERHANG BRACKET SUMMARY" ON SHEET 2
- L = OVERHANG MEASURED FROM EDGE OF TOP FLANGE TO EDGE OF SUPERSTRUCTURE

PROJECT NO. B-4019
 BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD OVERHANG FALSEWORK
 AASHTO TYPES
 III, IV, V, AND VI



ASSEMBLED BY:	DATE:
CHECKED BY:	DATE:
DRAWN BY: R. WRIGHT 06/04	REV.
CHECKED BY: C. V. CHAO 06/04	

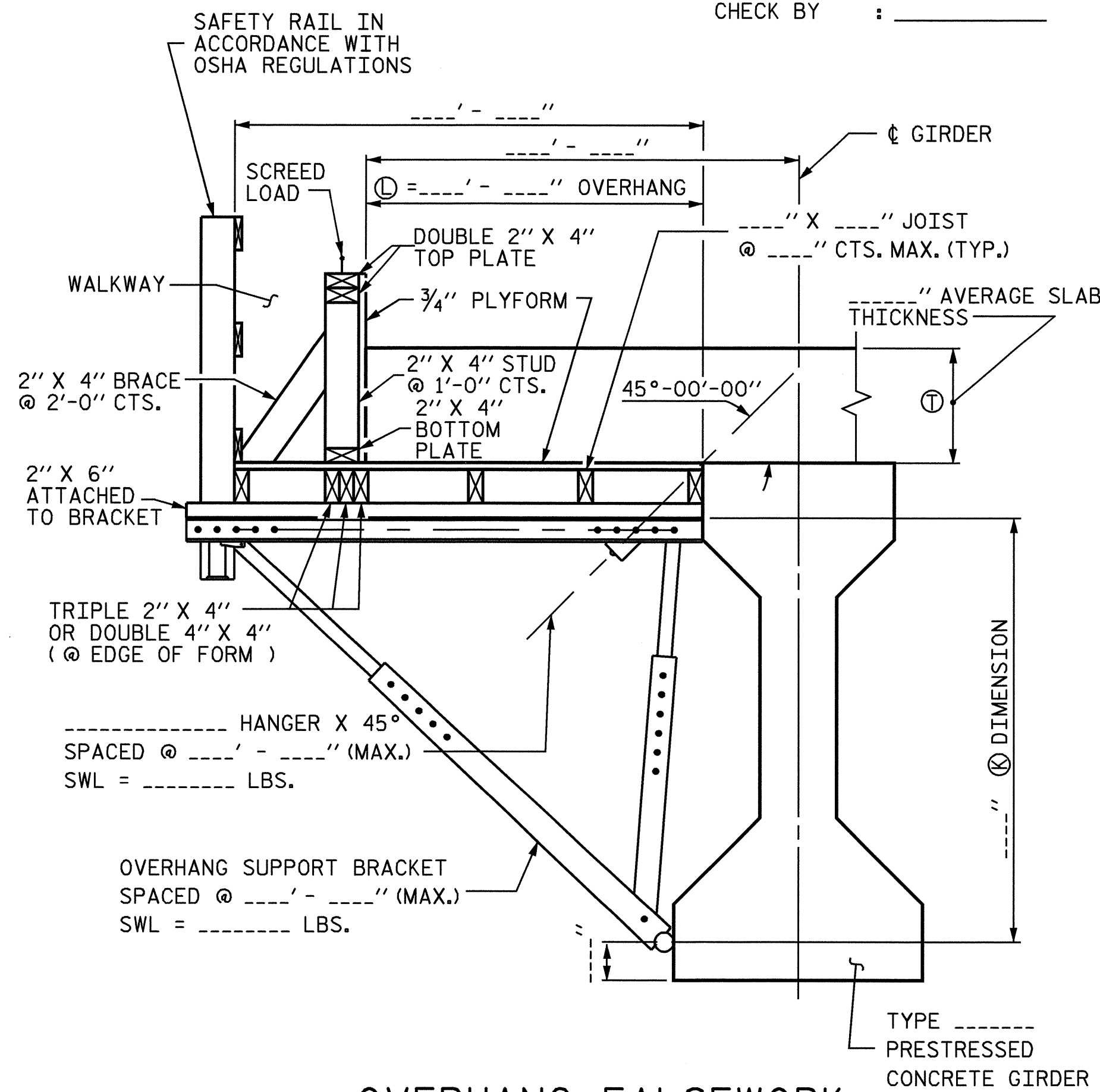
REVISIONS						SHEET NO. 5-53
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 55
2			4			

BRIDGE OVERHANG BRACKET SUMMARY

TOTAL SCREED WEIGHT = _____ LBS.
 NUMBER OF SCREED WHEELS = _____
 SCREED WHEEL LOAD (W) = _____ LBS.
 SCREED LOAD PER BRACKET = _____ LBS.

PROJECT No. : _____
 COUNTY : _____
 STATION : _____
 DESCRIPTION : _____

DATE : _____
 DESIGN BY : _____
 CHECK BY : _____



OVERHANG FALSEWORK

NOTES

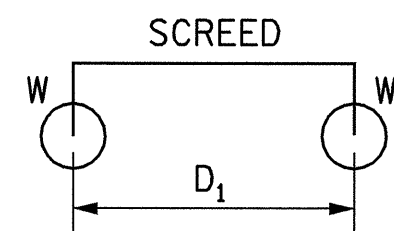
DESIGN INCLUDES CONSTRUCTION LIVE LOAD 20 PSF ON THE AREA SUPPORTED AND 75 PLF AT THE OUTSIDE DECK OF OVERHANGS.

REQUIRED MINIMUM DIAGONAL LEG CAPACITY: 3600 LB WORKING LOAD

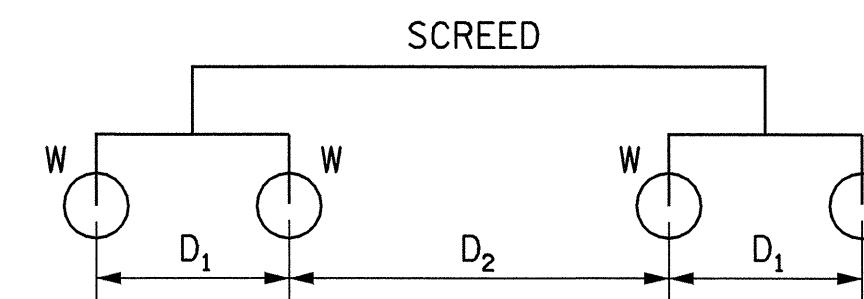
THE CONTRACTOR HAS THE OPTION OF SUBMITTING HIS OWN DESIGN FOR OVERHANG FALSEWORK IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

SUBMITTALS UTILIZING THE INSTRUCTIONS AND PROCEDURES DESCRIBED ON SHEET 1 OF 3 SHALL BE IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE SPECIFICATIONS AND SPECIAL PROVISIONS, EXCEPT THAT CALCULATIONS FOR OVERHANG FALSEWORK NEED NOT BE SEALED BY A REGISTERED ENGINEER.

FOR OVERHANG FALSEWORK BRACING DESIGN, SEE SHEET 3 OF 3.



4-WHEEL MACHINE



8-WHEEL MACHINE

TABLE 2: SCREED LOAD FACTOR "R"

4 WHEEL MACHINE	
S/D1	R
<= 1.0	1.00
1.1	1.09
1.2	1.17
1.3	1.23
1.4	1.29
1.5	1.33
1.6	1.38
1.7	1.41
1.8	1.44
1.9	1.47
2.0	1.50
2.2	1.55
2.4	1.58
2.6	1.62
2.8	1.64
3.0	1.67
3.5	1.71
4.0	1.75

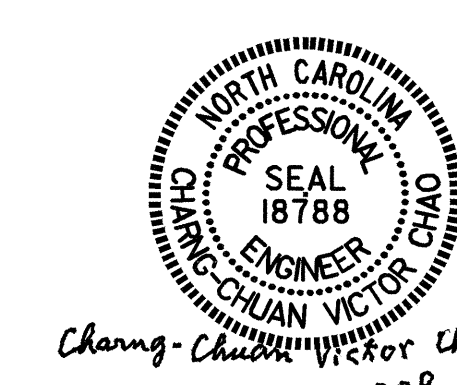
		THE SCREED LOAD FACTOR R (FOR 8 WHEEL MACHINE)																	
		S/D ₂																	
S/D ₁		<= 1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.2	2.4	2.6	2.8	3.0	3.5	4.0
		<= 1.0	<= 1.0	1.00	1.09	1.17	1.23	1.29	1.33	1.38	1.41	1.44	1.47	1.50	1.55	1.58	1.62	1.64	1.67
1.1	1.1	1.09	1.18	1.26	1.32	1.38	1.42	1.47	1.50	1.54	1.56	1.59	1.64	1.67	1.71	1.73	1.76	1.81	1.84
1.2	1.2	1.17	1.26	1.33	1.40	1.45	1.50	1.54	1.58	1.61	1.64	1.67	1.71	1.75	1.78	1.81	1.83	1.88	1.92
1.3	1.3	1.23	1.32	1.40	1.46	1.52	1.56	1.61	1.64	1.68	1.70	1.73	1.78	1.81	1.85	1.87	1.90	1.95	1.98
1.4	1.4	1.29	1.38	1.45	1.52	1.57	1.62	1.66	1.70	1.73	1.76	1.79	1.83	1.87	1.90	1.93	1.95	2.00	2.07
1.5	1.5	1.33	1.42	1.50	1.56	1.62	1.67	1.71	1.75	1.78	1.81	1.83	1.88	1.92	1.95	1.98	2.00	2.10	2.17
1.6	1.6	1.38	1.47	1.54	1.61	1.66	1.71	1.75	1.79	1.82	1.85	1.88	1.92	1.96	1.99	2.04	2.08	2.18	2.25
1.7	1.7	1.41	1.50	1.58	1.64	1.70	1.75	1.79	1.82	1.86	1.89	1.91	1.96	2.00	2.05	2.11	2.16	2.25	2.32
1.8	1.8	1.44	1.54	1.61	1.68	1.73	1.78	1.82	1.86	1.89	1.92	1.94	1.99	2.06	2.12	2.17	2.22	2.32	2.39
1.9	1.9	1.47	1.56	1.64	1.70	1.76	1.81	1.85	1.89	1.92	1.95	1.97	2.04	2.11	2.18	2.23	2.28	2.38	2.45
2.0	2.0	1.50	1.59	1.67	1.73	1.79	1.83	1.88	1.91	1.94	1.97	2.00	2.09	2.17	2.23	2.29	2.33	2.43	2.50
2.2	2.2	1.55	1.64	1.71	1.78	1.83	1.88	1.92	1.96	1.99	2.04	2.09	2.18	2.26	2.32	2.38	2.42	2.52	2.59
2.4	2.4	1.58	1.67	1.75	1.81	1.87	1.92	1.96	2.00	2.06	2.11	2.17	2.26	2.33	2.40	2.45	2.50	2.60	2.67
2.6	2.6	1.62	1.71	1.78	1.85	1.90	1.95	1.99	2.05	2.12	2.18	2.23	2.32	2.40	2.46	2.52	2.56	2.66	2.73
2.8	2.8	1.64	1.73	1.81	1.87	1.93	1.98	2.04	2.11	2.17	2.23	2.29	2.38	2.45	2.52	2.57	2.62	2.71	2.79
3.0	3.0	1.67	1.76	1.83	1.90	1.95	2.00	2.08	2.16	2.22	2.28	2.33	2.42	2.50	2.56	2.62	2.67	2.76	2.83
3.5	3.5	1.71	1.81	1.88	1.95	2.00	2.10	2.18	2.25	2.32	2.38	2.43	2.52	2.60	2.66	2.71	2.76	2.86	2.93
4.0	4.0	1.75	1.84	1.92	1.98	2.07	2.17	2.25	2.32	2.39	2.45	2.50	2.59	2.67	2.73	2.79	2.83	2.93	3.00

TABLE 3: ALLOWABLE SPAN LENGTH OF JOISTS AND JOIST SPACINGS

AVG. SLAB THICKNESS (IN)	LUMBER JOIST SIZE (IN X IN)	JOIST SPACINGS			
		15 IN	12 IN	10 IN	8 IN
10	2 X 4	—	4' - 6"	4' - 9"	5' - 0"
	4 X 4	5' - 9"	6' - 3"	6' - 6"	6' - 7"
12	2 X 4	—	4' - 3"	4' - 9"	5' - 0"
	4 X 4	5' - 3"	6' - 0"	6' - 3"	6' - 5"
14	2 X 4	—	4' - 0"	4' - 6"	5' - 0"
	4 X 4	—	5' - 6"	6' - 0"	6' - 4"
16	2 X 4	—	4' - 0"	4' - 3"	4' - 9"
	4 X 4	—	5' - 3"	5' - 9"	6' - 3"

ASSEMBLED BY:	DATE:
CHECKED BY:	DATE:
DRAWN BY: R. WRIGHT 06/04	REV.
CHECKED BY: C. V. CHAO 06/04	

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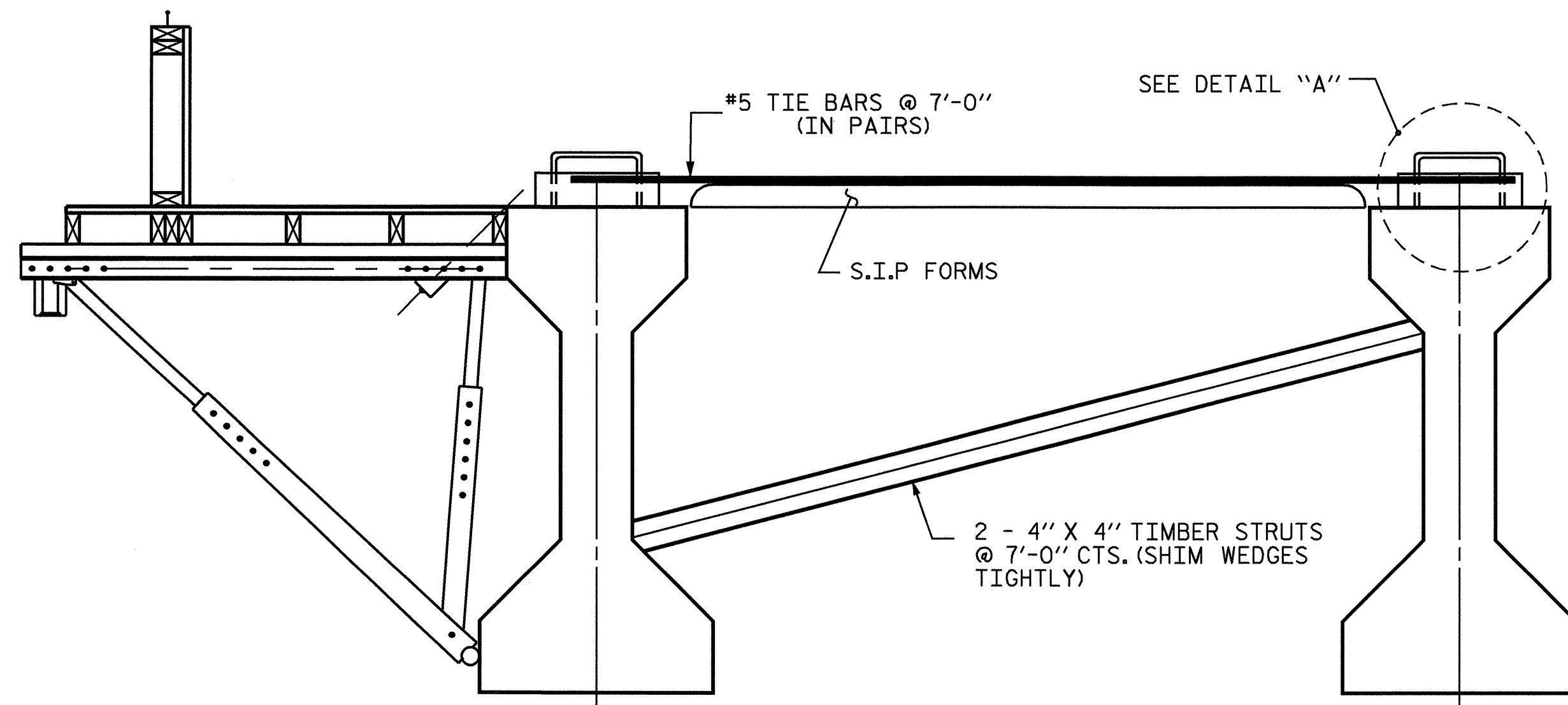
PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD OVERHANG FALSEWORK
 AASHTO TYPES
 III, IV, V, AND VI

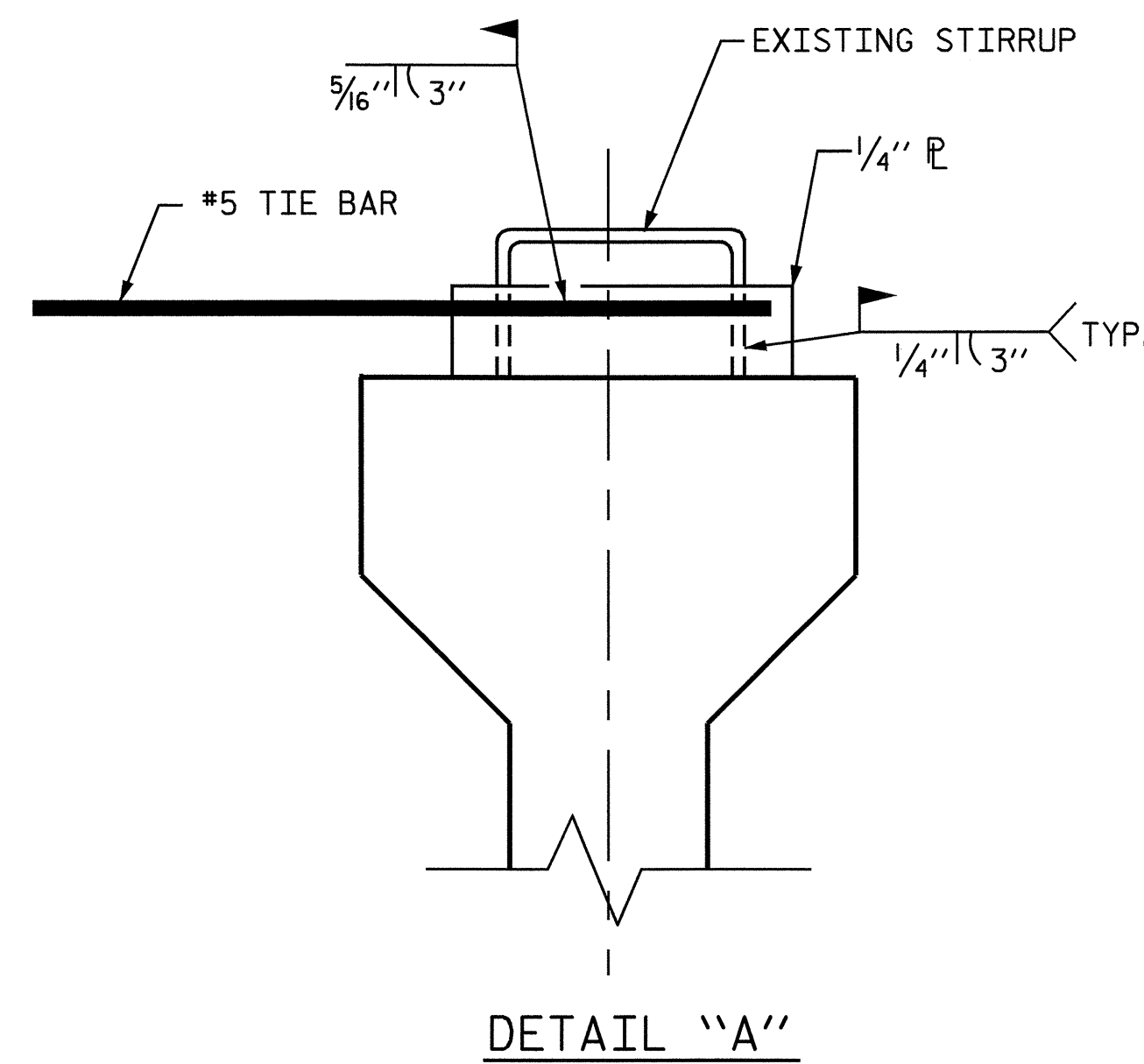
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-54
1			3			TOTAL SHEETS
2			4			55



EXTERIOR GIRDER

INTERIOR GIRDER

DETAIL OF REQUIRED OVERHANG FALSEWORK BRACING SYSTEM



NOTES:

EACH #5 TIE BAR SHALL BE WELDED TO ONE STIRRUP LOOP AS SHOWN IN DETAIL "A". #5 TIE BARS SHALL BE WELDED TO TWO ADJACENT STIRRUPS OF THE EXTERIOR GIRDER AND THE ADJACENT INTERIOR GIRDER BETWEEN PERMANENT DIAPHRAGMS. WELD STEEL PLATES IN BETWEEN THE TIE BARS AND THE STIRRUP LOOP. WELDING TWO TIE BARS TO THE SAME STIRRUP LOOP SHALL NOT BE PERMITTED.

MAXIMUM SPACING BETWEEN THE BRACING (TIE BARS-TIMBER STRUT) IS 7'-0" CTS. #5 TIE BARS SHALL BE LOCATED OVER A TIMBER STRUT.

INSTALL TIE BARS AND TIMBER STRUTS PRIOR TO PLACEMENT OF CONCRETE OR SCREED WEIGHT ONTO THE OVERHANG FALSEWORK.

PROJECT NO. B-4019
BEAUFORT COUNTY
 STATION: 19+52.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD OVERHANG FALSEWORK
 AASHTO TYPES
 III, IV, V, AND VI

Chang-Chuan Victor Chao
 11-14-2008
 NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 18788

DRAWN BY: R. WRIGHT 06/04 DATE : _____
 CHECKED BY: C. V. CHAO 06/04 DATE : _____

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTALS
1			3			5-55
2			4			55

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2006 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.
ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.
IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.
DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.
WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".
EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.
WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16" INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.
METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990