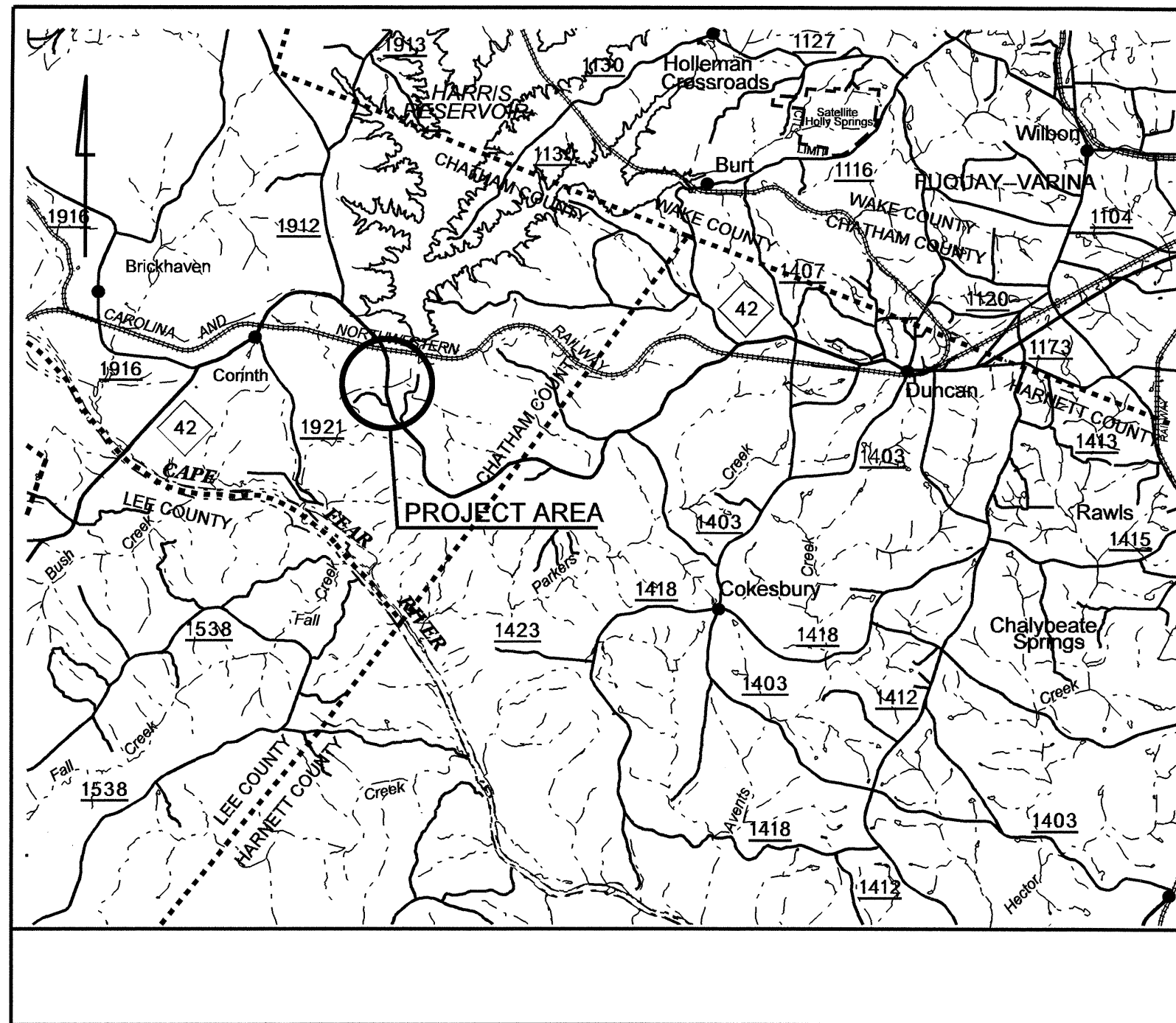


CONTRACT: C202551 TIP PROJECT: B-4459

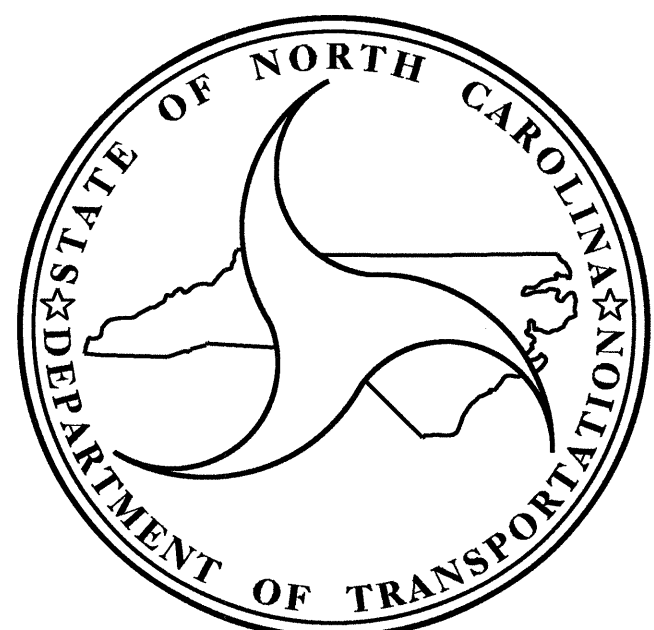
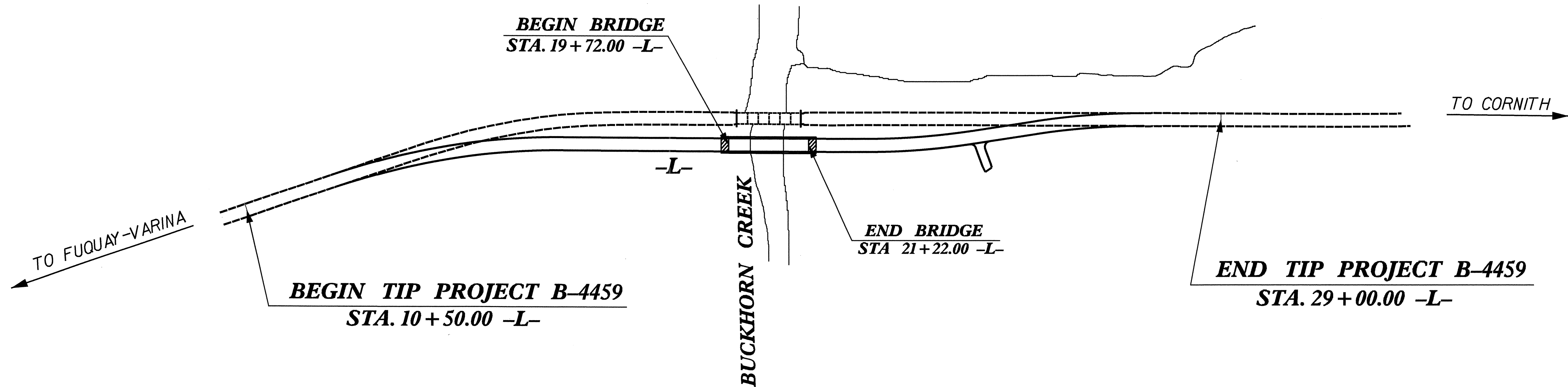
STRUCTURE



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
CHATHAM COUNTY

LOCATION: BRIDGE NO. 56 OVER BUCKHORN CREEK ON NC 42
TYPE OF WORK: GRADING, DRAINAGE, PAVING, & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4459		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33710.1.1	BRSTP-0042(12)	PE	
33710.2.1	BRSTP-0042(12)	RW	
33710.3.1	BRSTP-0042(12)	CONST.	



DESIGN DATA

ADT 2011	=	2,200
ADT 2031	=	4,515
DHV	=	10 %
D	=	60 %
T	=	6 % *
V	=	55 MPH
* TTST	2% DUAL	4%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4459	=	0.322 MI
LENGTH STRUCTURE TIP PROJECT B-4459	=	0.028 MI
TOTAL LENGTH TIP PROJECT B-4459	=	0.350 MI

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

LETTING DATE :
 JUNE 15, 2010

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

T. H. FANG, P.E.
PROJECT DESIGN ENGINEER

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

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER

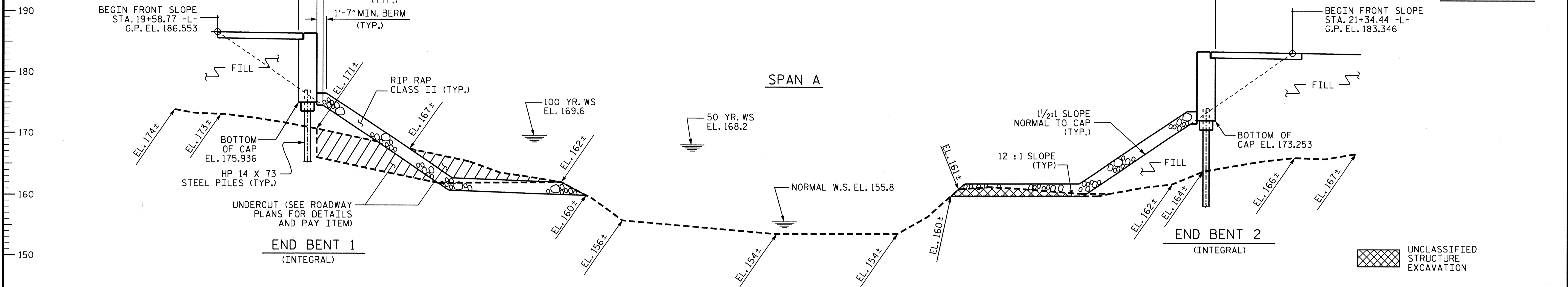
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED _____
DIVISION ADMINISTRATOR

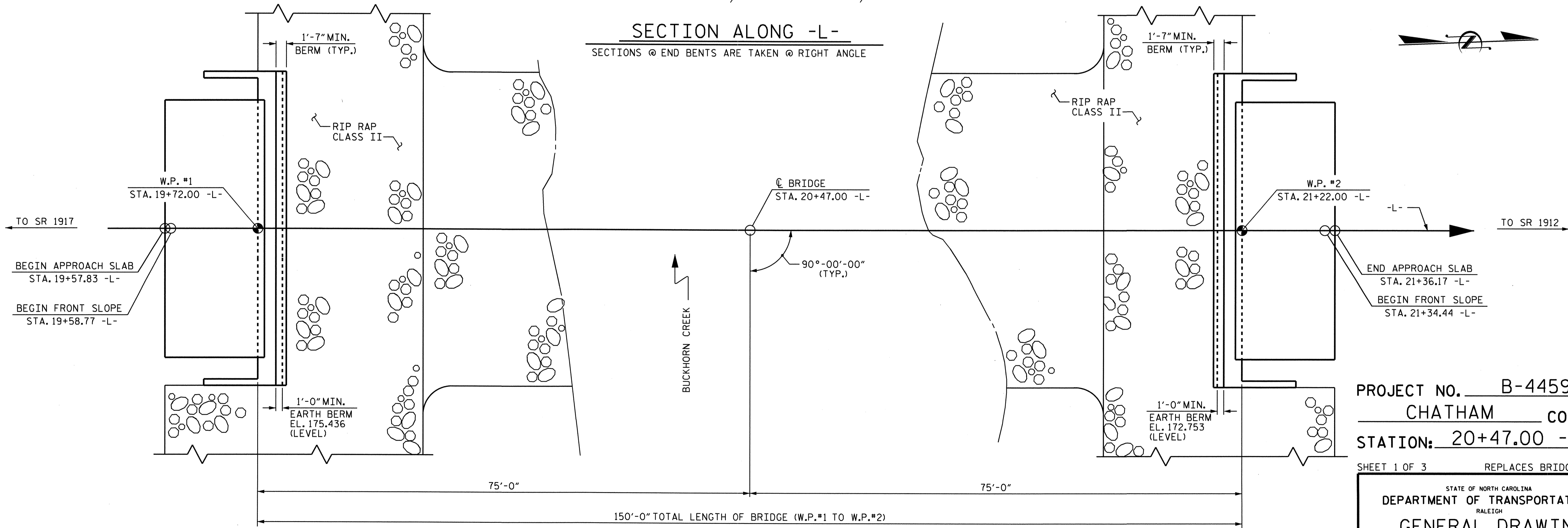
DATE

-9.6796% -1.8250%
 PI STA. 18+00.00 -L-
 EL. 189.45'
 VC = 320'
GRADE DATA

-1.8250% +8.2000%
 PI STA. 24+00.00 -L-
 EL. 178.50'
 VC = 530'
GRADE DATA



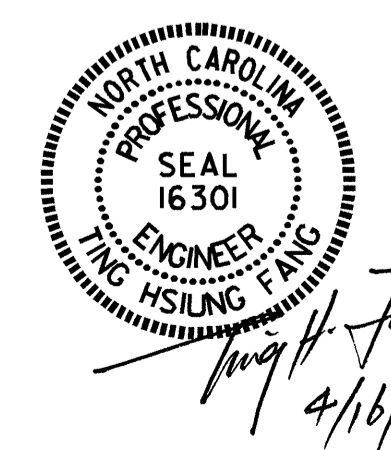
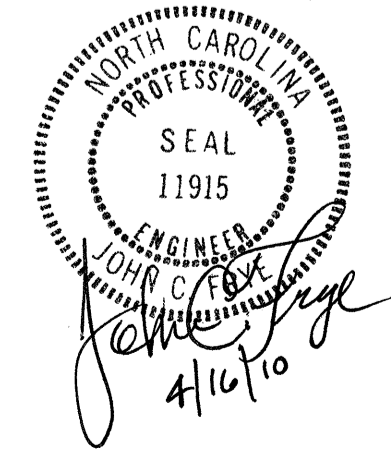
SECTION ALONG -L-
 SECTIONS @ END BENTS ARE TAKEN @ RIGHT ANGLE



PROJECT NO. B-4459
 CHATHAM COUNTY
 STATION: 20+47.00 -L-

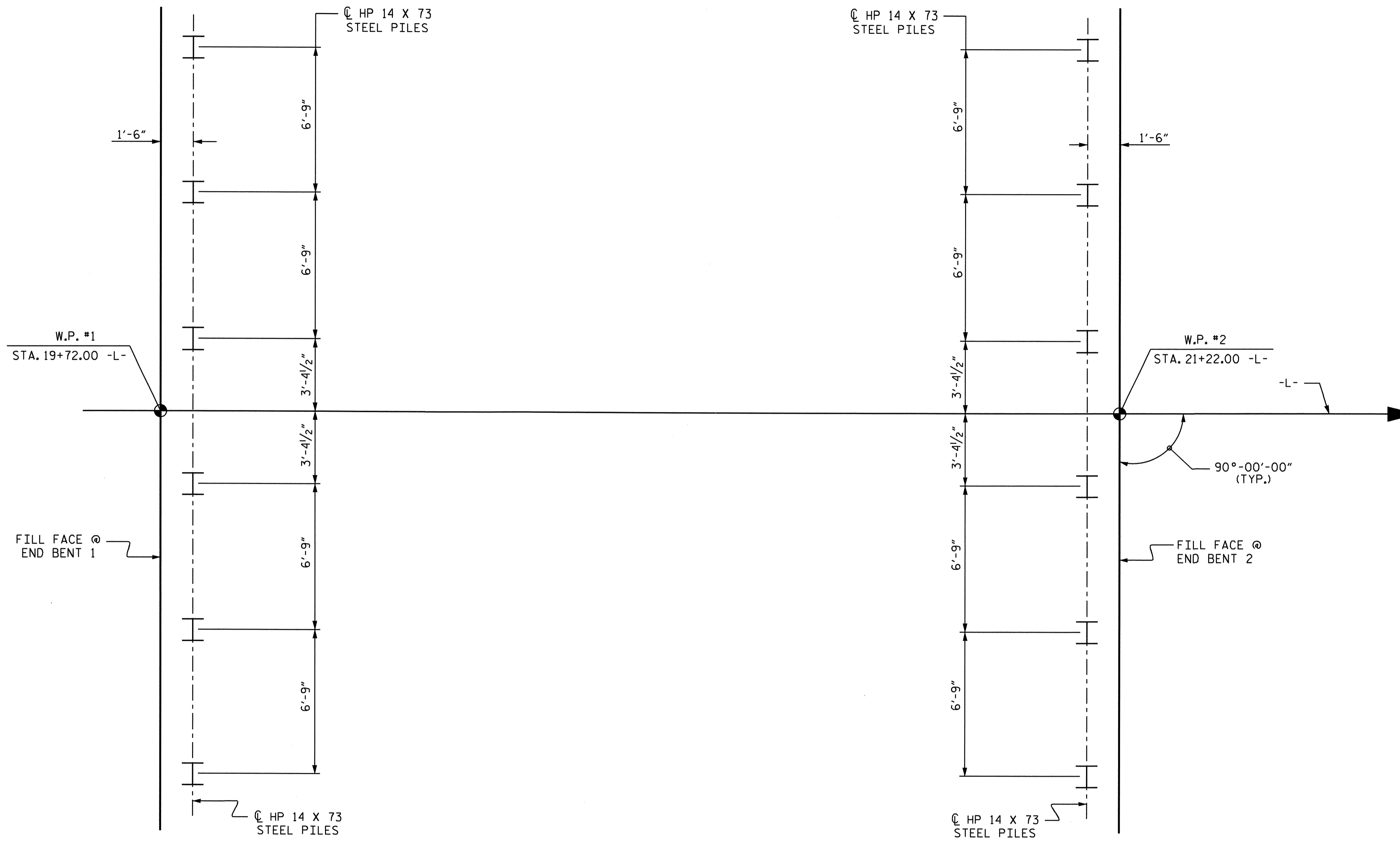
SHEET 1 OF 3 REPLACES BRIDGE No. 56

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 BRIDGE OVER BUCKHORN
 CREEK ON NC 42 BETWEEN
 SR 1912 AND SR 1917



DRAWN BY : QT NGUYEN DATE : 12-09
 CHECKED BY : T. H. FANG DATE : 2-1-10

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



END BENT 1

END BENT 2

FOUNDATION LAYOUT

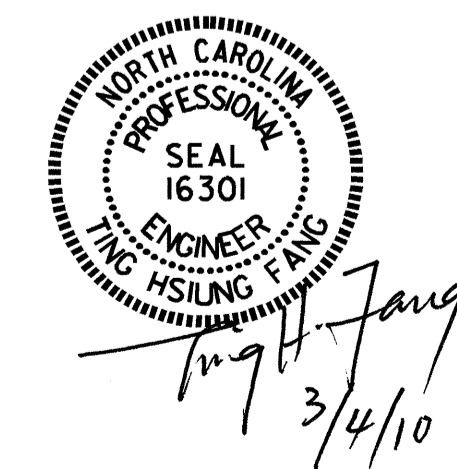
DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE.
ORIENT PILES AS SHOWN.

NOTES

FOR PILES, SEE SPECIAL PROVISIONS.
PILES AT END BENTS 1 AND 2 ARE DESIGNED FOR
A FACTORED RESISTANCE OF 130 TONS PER PILE.
DRIVE PILES TO A REQUIRED DRIVING RESISTANCE
OF 217 TONS PER PILE.

PROJECT NO. B-4459
CHATHAM COUNTY
STATION: 20+47.00 -L-

SHEET 2 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
BRIDGE OVER BUCKHORN
CREEK ON NC 42 BETWEEN
SR 1912 AND SR 1917

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

DRAWN BY : QT NGUYEN DATE : 12-09
CHECKED BY : T. H. FANG DATE : 1-22-10

TOTAL BILL OF MATERIAL

	CONST. MAINT. & REMOVAL OF TEMP. ACCESS	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	APPROX. STRUCTURAL STEEL	HP 14 X 73 STEEL PILES	CONCRETE BARRIER RAIL	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS
	LUMP SUM	LUMP SUM	LUMP SUM	SO.FT.	SO.FT.	CU.YDS.	LUMP SUM	LBS.	APPROX.LBS.	NO.	LIN.FT.	TONS	SO. YDS.	LUMP SUM	LUMP SUM
SUPERSTRUCTURE				4,988	4,668		LUMP SUM		207,000		296.67			LUMP SUM	LUMP SUM
END BENT 1						20.0		2,632		6	150	650	720		
END BENT 2						20.0		2,632		6	210	645	715		
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	4,988	4,668	40.0	LUMP SUM	5,264	207,000	12	360	1,295	1,435	LUMP SUM	LUMP SUM

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

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

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

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

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.

IN AS MUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 20+47.00 -L-".

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF 6 SPANS: 2 @ 20'-0", 2 @ 20'-3" & 2 @ 20'-3"; 21'-8" CLEAR ROADWAY WIDTH AND A REINFORCED CONCRETE DECK ON CONTINUOUS I-BEAMS; SUBSTRUCTURE CONSISTING OF ABUTMENTS, RC SPILL THROUGH, INTERIOR BENTS; RC CAPS & TIMBER PILES WITH STEEL CRUTCHES AND LOCATED ON THE DOWN STREAM OF PROPOSED STRUCTURE SITE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED 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 STANDARD SPECIFICATIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 30 FT. EACH SIDE OF CENTERLINE ROADWAY AT END BENT 2 AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

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.

FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 20+47.00 -L-, SEE SPECIAL PROVISIONS.

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W.

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

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

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.

FOR SHIPPING STEEL STRUCTURAL MEMBERS, SEE SPECIAL PROVISIONS.

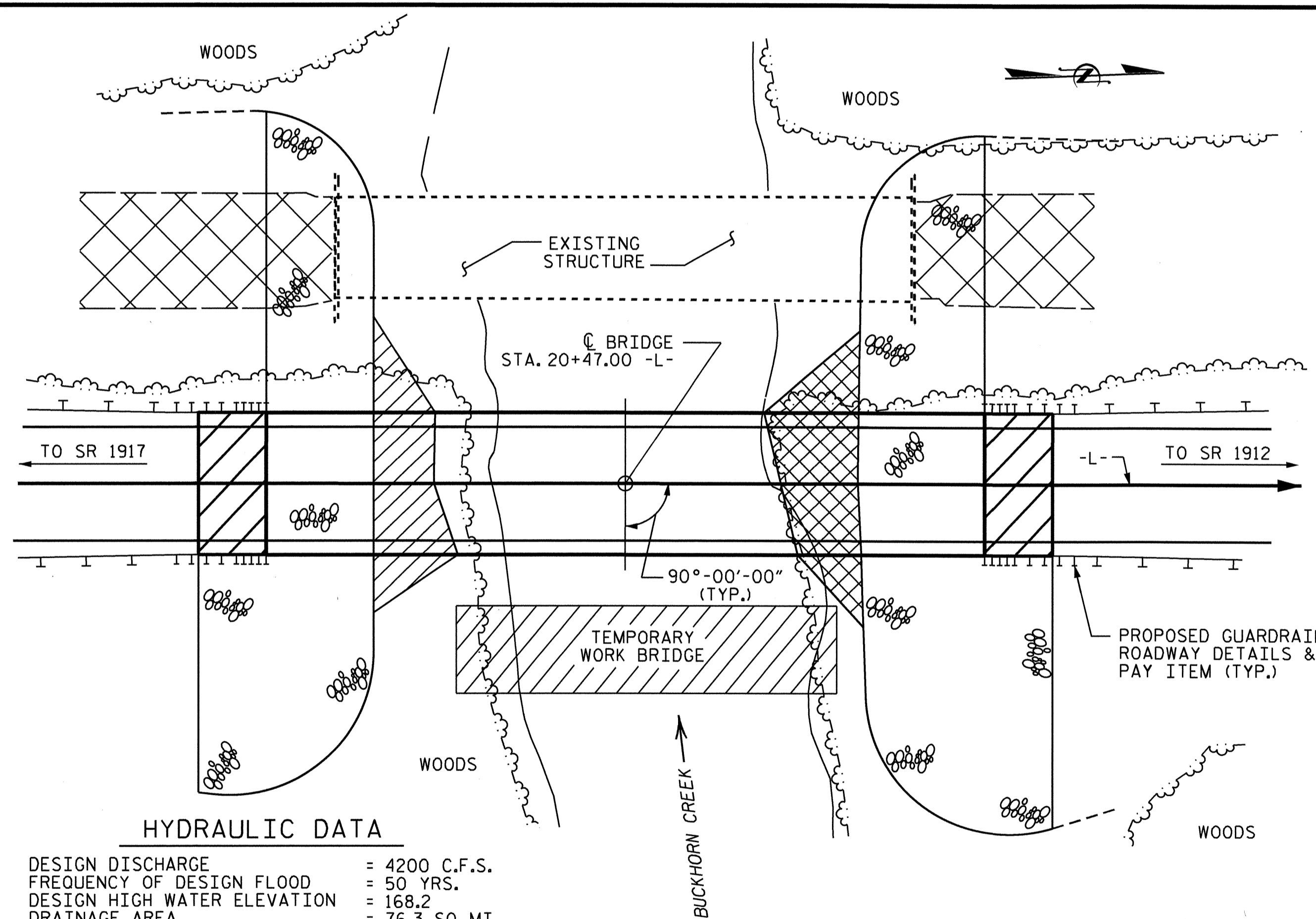
FOR HIGH STRENGTH BOLTS, SEE SPECIAL PROVISIONS.

FOR DIRECT TENSION INDICATORS, SEE SPECIAL PROVISIONS.

FOR FORMS FOR CONCRETE BRIDGE DECKS, SEE SPECIAL PROVISIONS.

FOR PLACING LOAD ON STRUCTURE MEMBERS, SEE SPECIAL PROVISIONS.

B.M. #2 : RR SPIKE IN BASE OF 30" BEECH TREE, 38.78' RIGHT OF -L- STA. 19+78.92, EL. 172.78'



HYDRAULIC DATA

DESIGN DISCHARGE = 4200 C.F.S.
 FREQUENCY OF DESIGN FLOOD = 50 YRS.
 DESIGN HIGH WATER ELEVATION = 168.2
 DRAINAGE AREA = 76.3 SQ. MI.
 BASIC DISCHARGE (Q100) = 5300 C.F.S.
 BASIC HIGH WATER ELEVATION = 169.6

OVERTOPPING DATA

OVERTOPPING DISCHARGE = 8500+ C.F.S.
 FREQUENCY OF OVERTOPPING FLOOD = 500+ YRS.
 OVERTOPPING FLOOD ELEVATION = 182.5

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

DRAWN BY : Q. I. NGUYEN DATE : 12-09
 CHECKED BY : T. H. FANG DATE : 1-20-10

16-APR-2010 12:06
 K:\TIP\Projects-B\B4459\Structures\Final Plans\B-4459_sd.gdgn
 tfang

PROJECT NO. B-4459
CHATHAM COUNTY
 STATION: 20+47.00-L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 BRIDGE OVER BUCKHORN
 CREEK ON NC 42 BETWEEN
 SR 1912 AND SR 1917



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

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{bc}	γ_{dw}
	STRENGTH I	1.25	1.50
	SERVICE II	1.00	1.00

	YEAR	ADTT
CURRENT	2011	79
FUTURE	2031	163

NOTES:

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

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR STEEL GIRDERS																							
LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE II LIMIT STATE						COMMENT NUMBER	
						MOMENT					SHEAR					MOMENT							
						LIVE-LOAD FACTORS (γ_{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (γ_{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft)
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.48	--	1.75	0.767	1.55	A	E	73.5	0.884	1.48	A	I	0	1.30	0.767	1.63	A	E	73.5	
	HL-93 (OPERATING)	N/A		1.91	--	1.35	0.767	2.01	A	E	73.5	0.884	1.91	A	I	0	1.00	0.767	2.12	A	E	73.5	
	HS-20 (INVENTORY)	36.00	②	2.25	81.036	1.75	0.767	2.41	A	E	73.5	0.884	2.25	A	I	0	1.30	0.767	2.52	A	E	73.5	
	HS-20 (OPERATING)	36.00		2.92	105.048	1.35	0.767	3.13	A	E	73.5	0.884	2.92	A	I	0	1.00	0.767	3.28	A	E	73.5	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		6.24	84.240	1.40	0.767	7.44	A	E	73.5	0.884	7.16	A	I	0	1.30	0.767	6.24	A	E	73.5
		SNGARBS2	20.000		4.41	88.200	1.40	0.767	5.26	A	E	73.5	0.884	4.94	A	I	0	1.30	0.767	4.41	A	E	73.5
		SNAGRIS2	22.000		4.08	89.760	1.40	0.767	4.87	A	E	73.5	0.884	4.53	A	I	0	1.30	0.767	4.08	A	E	73.5
		SNCOTTS3	27.250		3.10	84.475	1.40	0.767	3.70	A	E	73.5	0.884	3.55	A	I	0	1.30	0.767	3.10	A	E	73.5
		SNAGGRS4	34.925		2.49	86.963	1.40	0.767	2.97	A	E	73.5	0.884	2.85	A	I	0	1.30	0.767	2.49	A	E	73.5
		SNS5A	35.550		2.45	87.098	1.40	0.767	2.92	A	E	73.5	0.884	2.84	A	I	0	1.30	0.767	2.45	A	E	73.5
		SNS6A	39.950		2.21	88.290	1.40	0.767	2.63	A	E	73.5	0.884	2.55	A	I	0	1.30	0.767	2.21	A	E	73.5
		SNS7B	42.000		2.10	88.200	1.40	0.767	2.51	A	E	73.5	0.884	2.45	A	I	0	1.30	0.767	2.10	A	E	73.5
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		2.68	88.440	1.40	0.767	3.20	A	E	73.5	0.884	3.07	A	I	0	1.30	0.767	2.68	A	E	73.5
		TNT4A	33.075		2.68	88.641	1.40	0.767	3.20	A	E	73.5	0.884	3.02	A	I	0	1.30	0.767	2.68	A	E	73.5
		TNT6A	41.600		2.16	89.856	1.40	0.767	2.58	A	E	73.5	0.884	2.53	A	I	0	1.30	0.767	2.16	A	E	73.5
		TNT7A	42.000		2.15	90.300	1.40	0.767	2.57	A	E	73.5	0.884	2.50	A	I	0	1.30	0.767	2.15	A	E	73.5
		TNT7B	42.000		2.18	91.560	1.40	0.767	2.61	A	E	73.5	0.884	2.43	A	I	0	1.30	0.767	2.18	A	E	73.5
		TNAGRIT4	43.000		2.11	90.730	1.40	0.767	2.52	A	E	73.5	0.884	2.36	A	I	0	1.30	0.767	2.11	A	E	73.5
TNAGT5A	45.000		2.01	90.450	1.40	0.767	2.39	A	E	73.5	0.884	2.30	A	I	0	1.30	0.767	2.01	A	E	73.5		
TNAGT5B	45.000		③	1.99	89.550	1.40	0.767	2.38	A	E	73.5	0.884	2.26	A	I	0	1.30	0.767	1.99	A	E	73.5	

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93) **

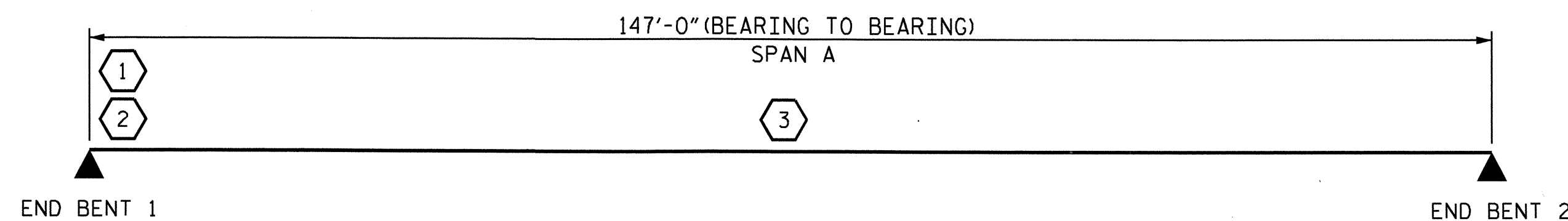
② DESIGN LOAD RATING (HS-20) **

③ LEGAL LOAD RATING **

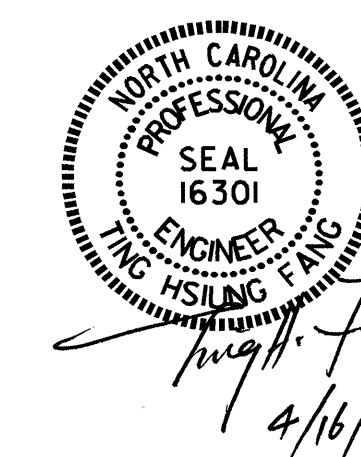
** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
E - EXTERIOR GIRDER



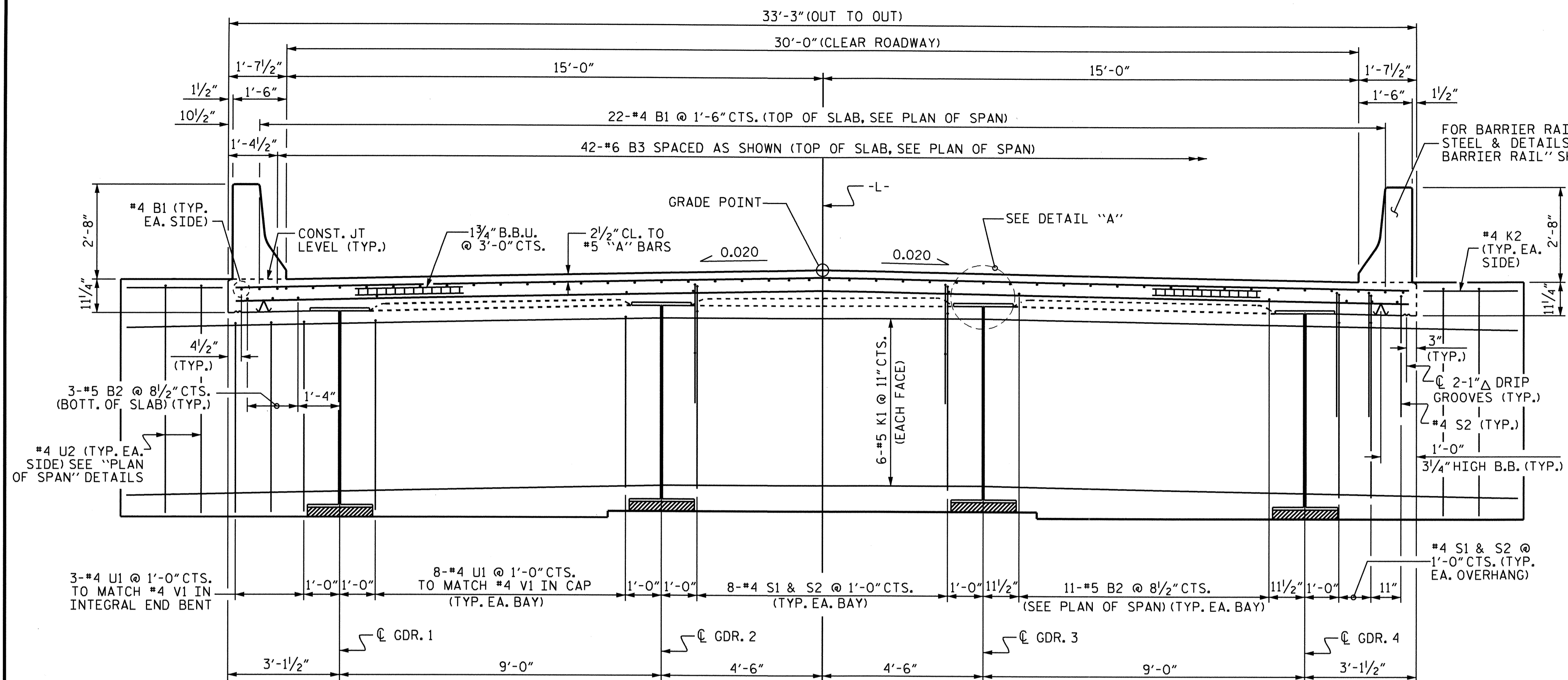
LRFR SUMMARY



PROJECT NO. B-4459
CHATHAM COUNTY
STATION: 20+47.00 -L-

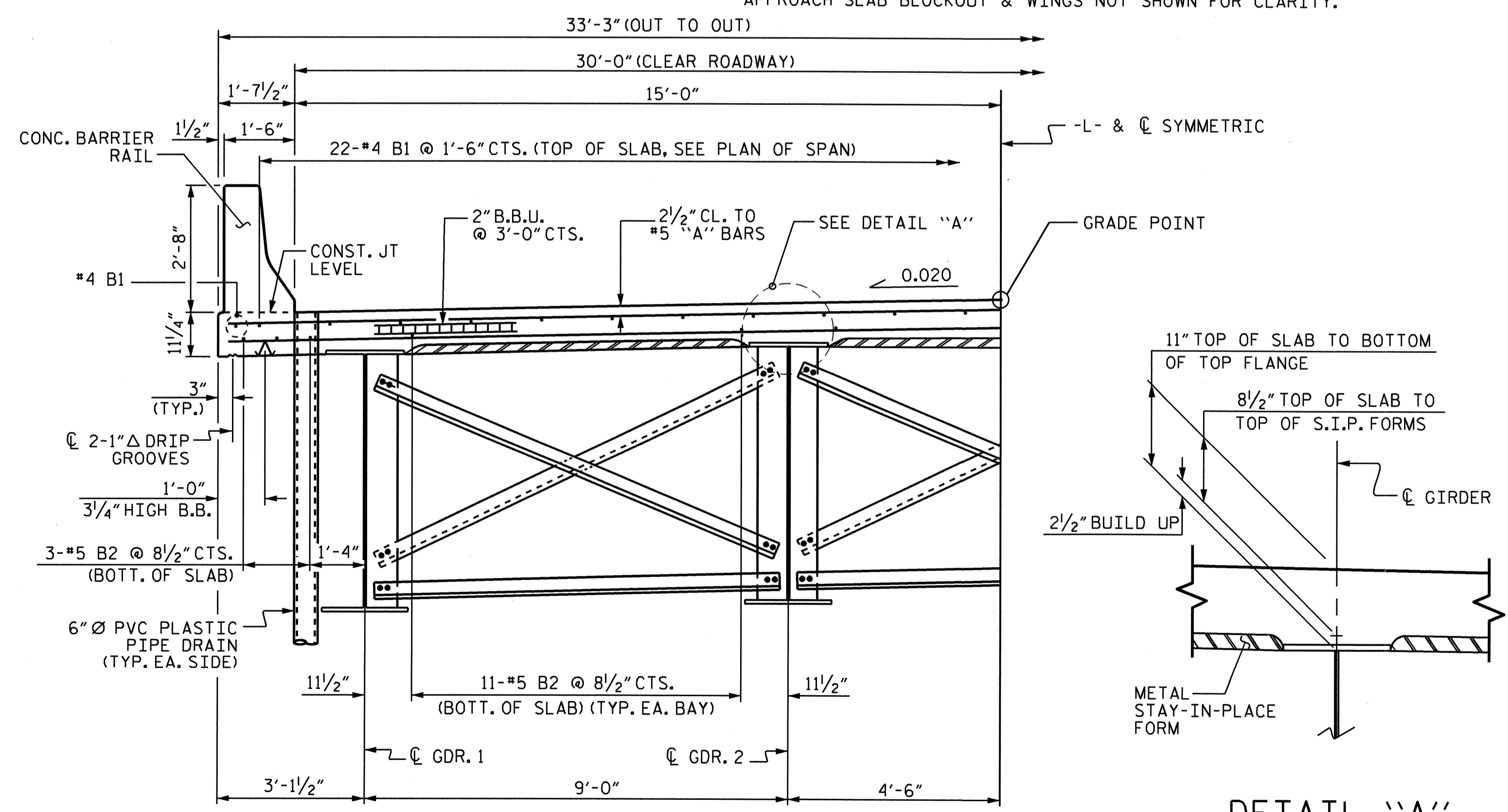
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-4
STANDARD LRFR SUMMARY FOR STEEL GIRDERS (NON-INTERSTATE TRAFFIC)						
REVISIONS						TOTAL SHEETS 24
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

ASSEMBLED BY : RAMAN PATEL DATE : 12/07/09
CHECKED BY : J. A. YANACCONO DATE : 02/17/10
DRAWN BY : MAA 1/08
CHECKED BY : GM/DI 2/08
REV. 11/2/08RR MAA/GM



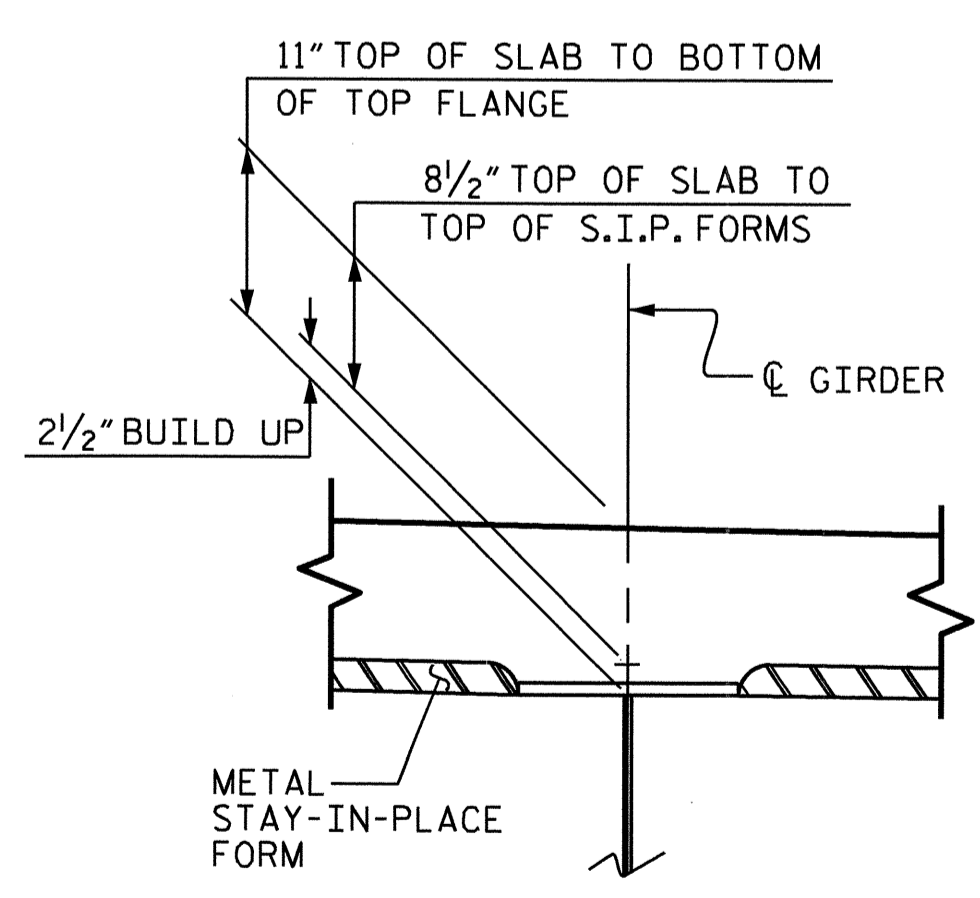
TYPICAL SECTION

SHOWING ABUTMENT WALL AT FILL FACE OF END BENTS. APPROACH SLAB BLOCKOUT & WINGS NOT SHOWN FOR CLARITY.

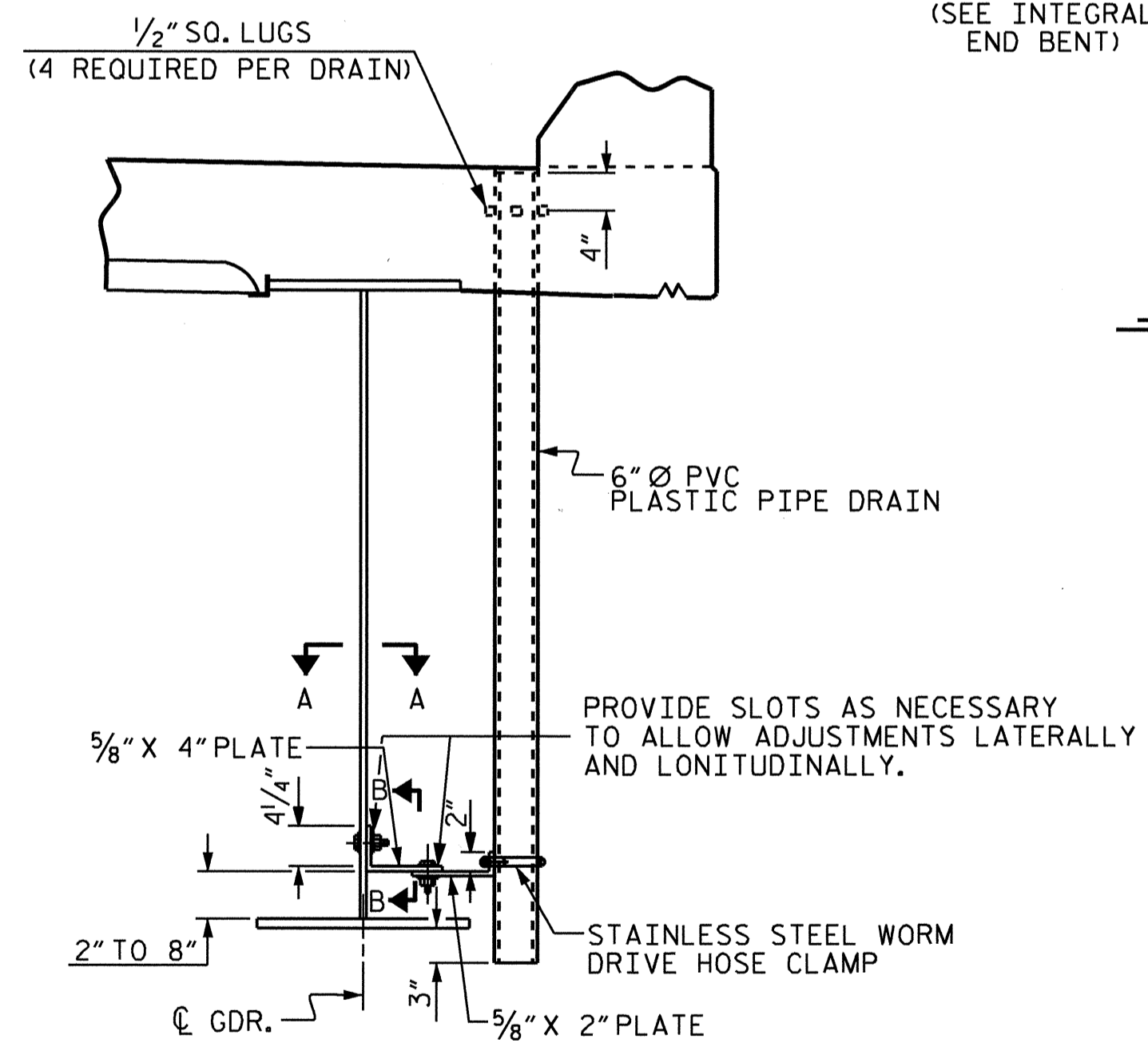


HALF TYPICAL SECTION

SHOWING INTERMEDIATE DIAPHRAGMS



DETAIL "A"



DRAIN CONNECTOR DETAIL

COUPLING IN DRAIN PIPE WILL BE PERMITTED AS APPROVED BY THE ENGINEER.

TOP OF FLOOR DRAIN TO BE SET 3/8" BELOW SURFACE OF SLAB.

4 - 1/2" SQUARE LUGS TO BE GLUED TO THE PVC PLASTIC PIPE AT EQUAL SPACES AROUND THE PIPE DRAIN APPROXIMATELY 4" FROM THE TOP OF THE PIPE.

BOLT SIZE TO BE SAME AS DIAPHRAGM AND CROSSFRAME CONNECTIONS. STAINLESS STEEL WORM DRIVE HOSE CLAMP SHALL BE COMMERCIAL QUALITY.

NOTES

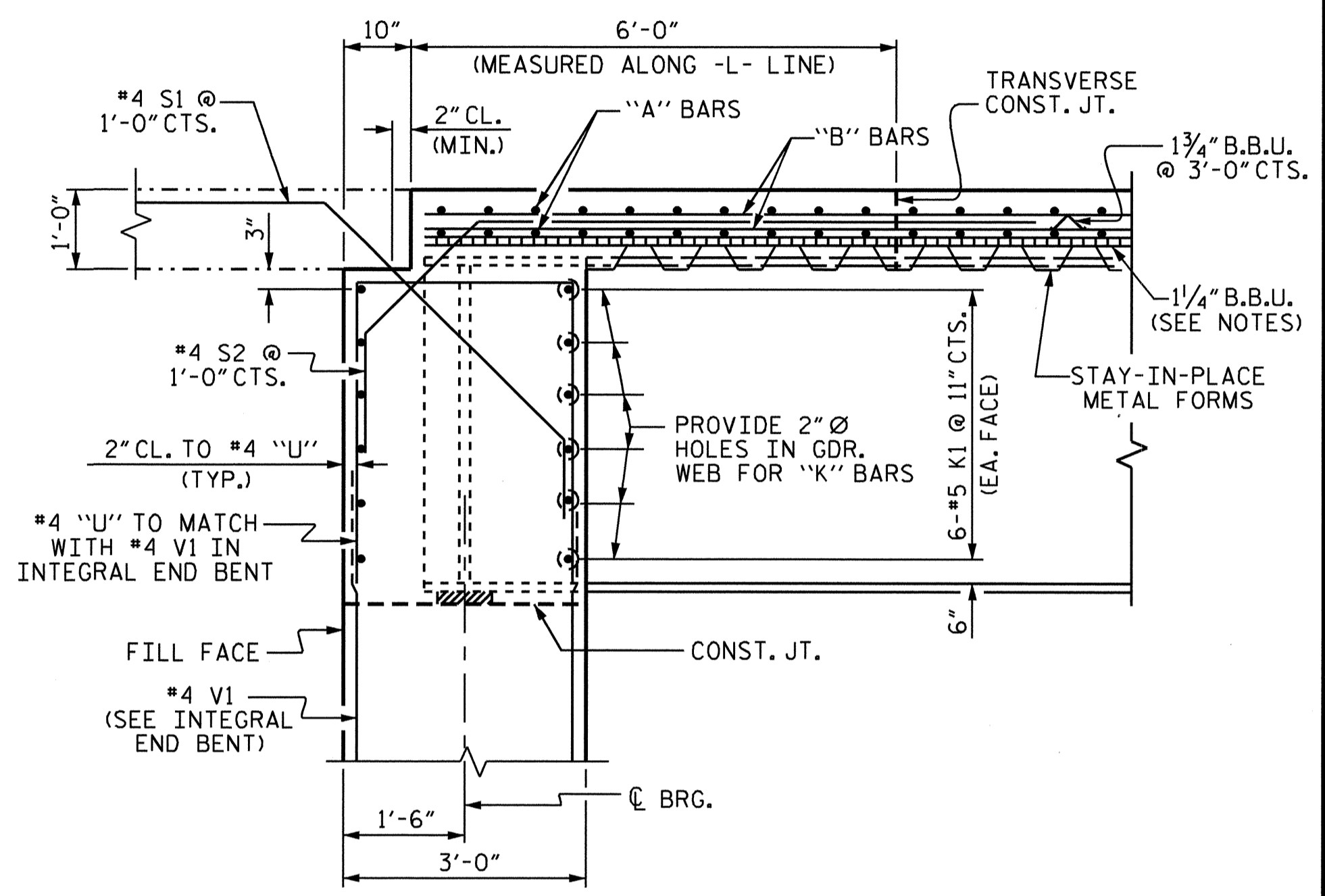
PROVIDE 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF 'A' BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF 'A' BARS A CLEAR DISTANCE OF 2 1/2" ABOVE THE TOP OF THE REMOVABLE FORM.

METAL STAY-IN-PLACE FORMS SHALL NOT BE WELDED TO BEAM OR GIRDER FLANGES IN THE ZONES REQUIRING CHARPY V-NOTCH TEST. SEE STRUCTURAL STEEL DETAIL SHEETS.

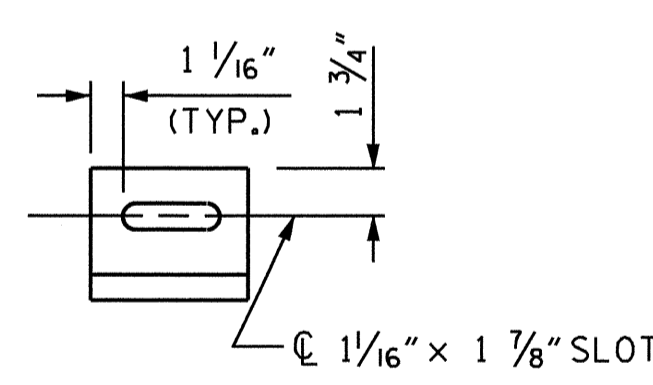
THE CONTRACTOR MAY, WHEN NECESSARY, PROPOSE A SCHEME FOR AVOIDING INTERFERENCE BETWEEN METAL STAY-IN-PLACE FORM SUPPORTS OR FORMS AND BEAM/GIRDER STIFFENERS OR CONNECTOR PLATES. THE PROPOSAL SHALL BE INDICATED, AS APPROPRIATE, ON EITHER THE STEEL WORKING DRAWINGS OR THE METAL STAY-IN-PLACE FORM WORKING DRAWINGS.

FOR WING ELEVATIONS AND DETAILS, SEE PLAN OF SPAN DETAILS SHEET.

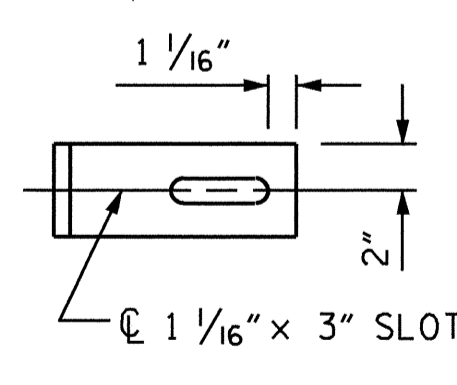
"B" BARS IN OVERHANG MAY BE SHIFTED TO AVOID DECK DRAINS.



SECTION THRU ABUTMENT END BENT



SECTION B-B



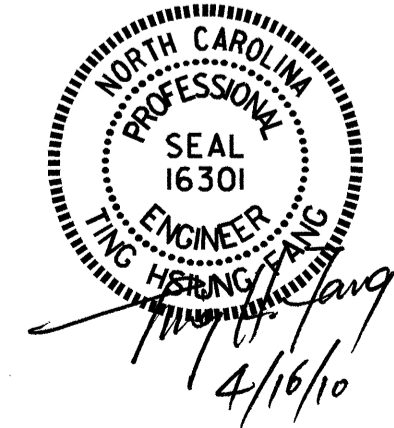
SECTION A-A

PROJECT NO. B-4459
CHATHAM COUNTY
STATION: 20+47.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

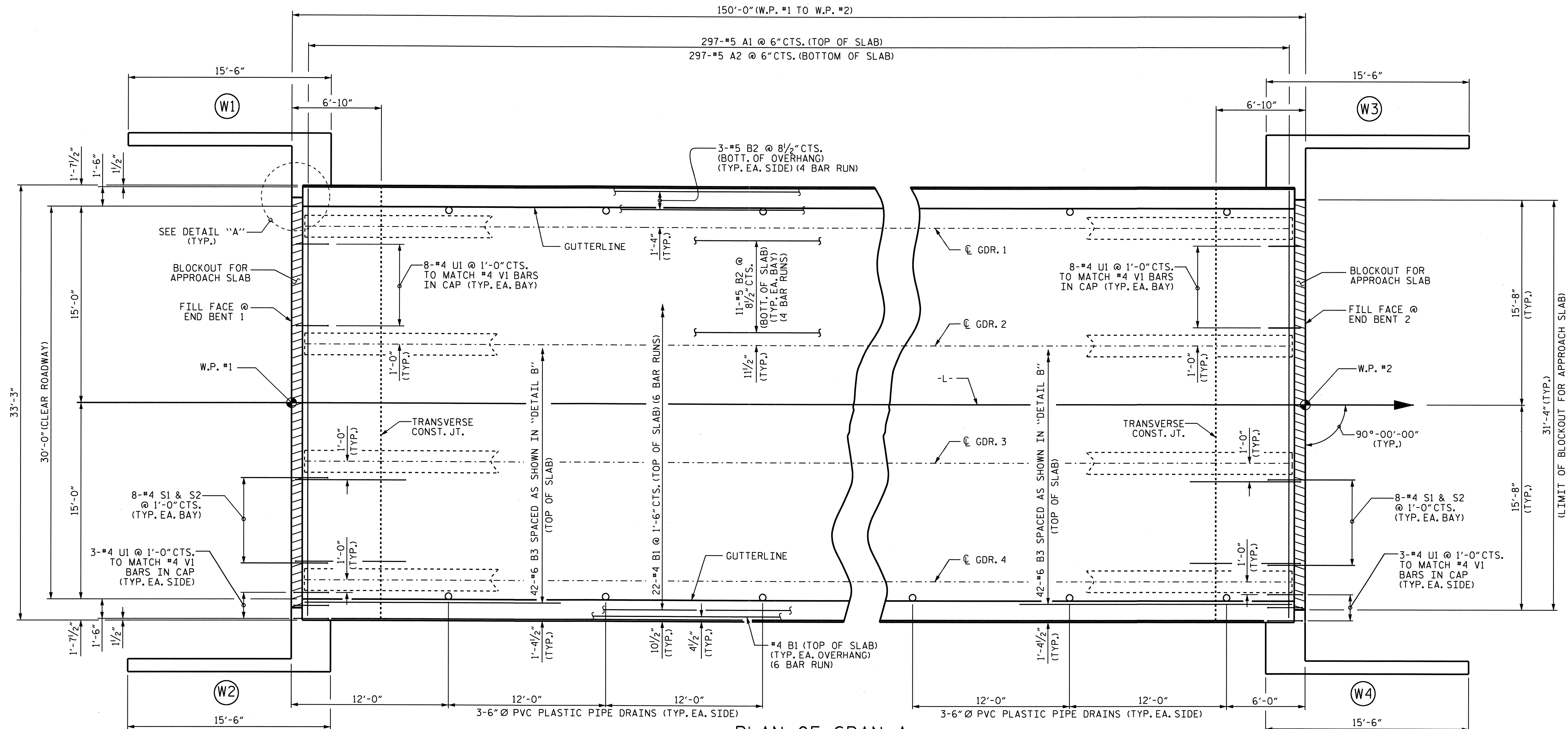
TYPICAL SECTION



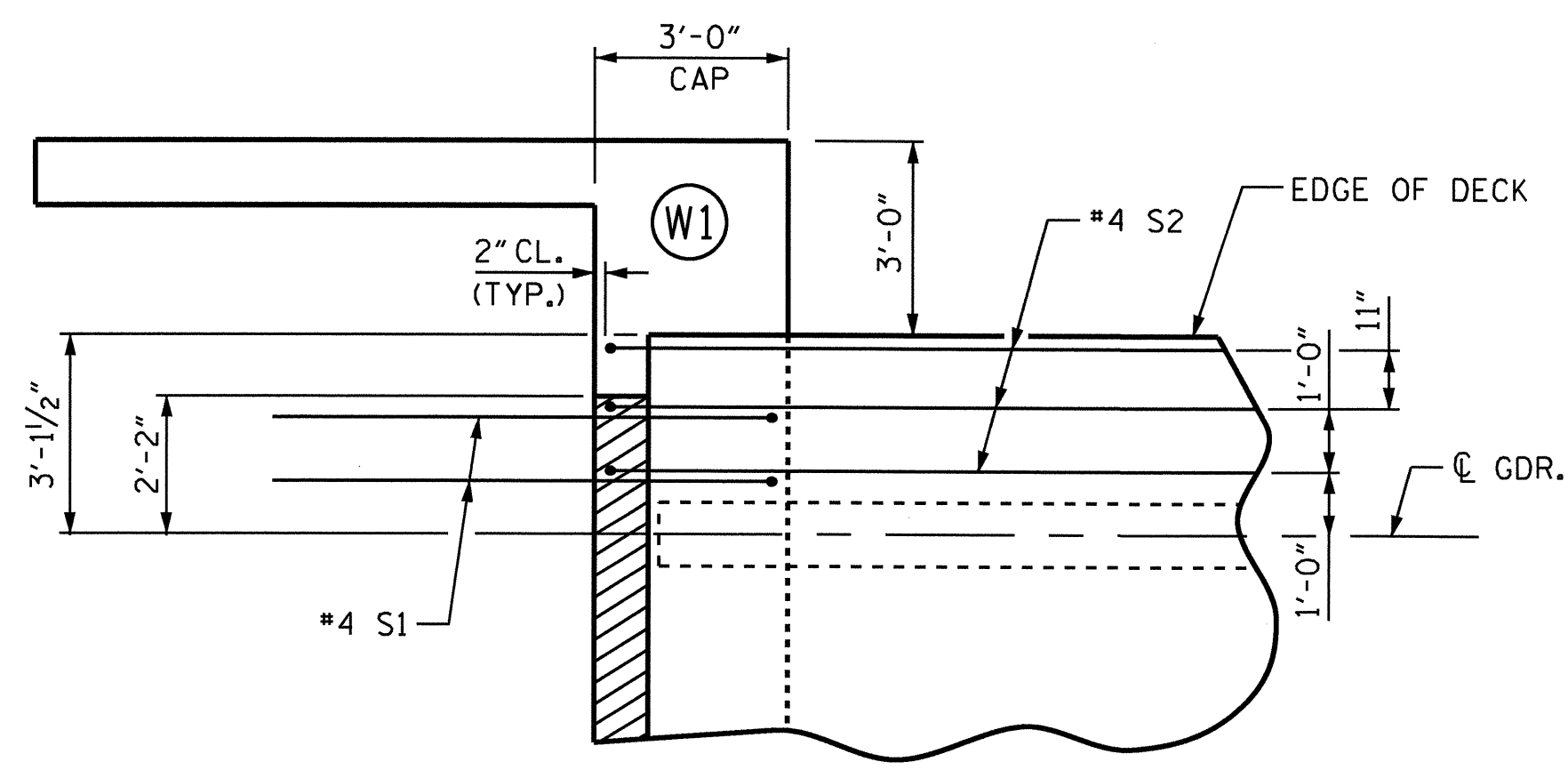
DRAWN BY: QT NGUYEN DATE: 12-09
CHECKED BY: T. H. FANG DATE: 1-28-10

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qtnguyen

REVISIONS						SHEET NO. S-5
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 24
2			4			

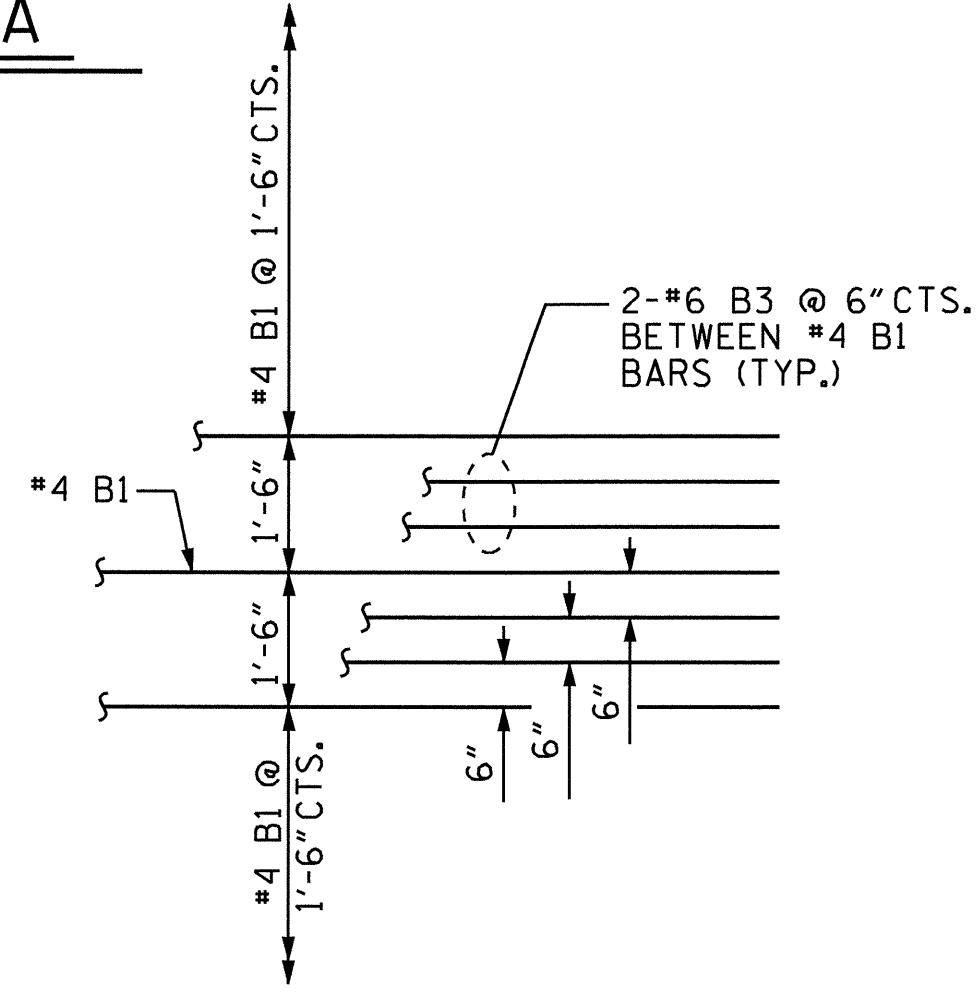


PLAN OF SPAN A



DETAIL "A"

U1 BARS NOT SHOWN FOR CLARITY.



DETAIL "B"

SHOWING PLACEMENT OF #6 B3 BETWEEN #4 B1 BARS IN TOP OF SLAB

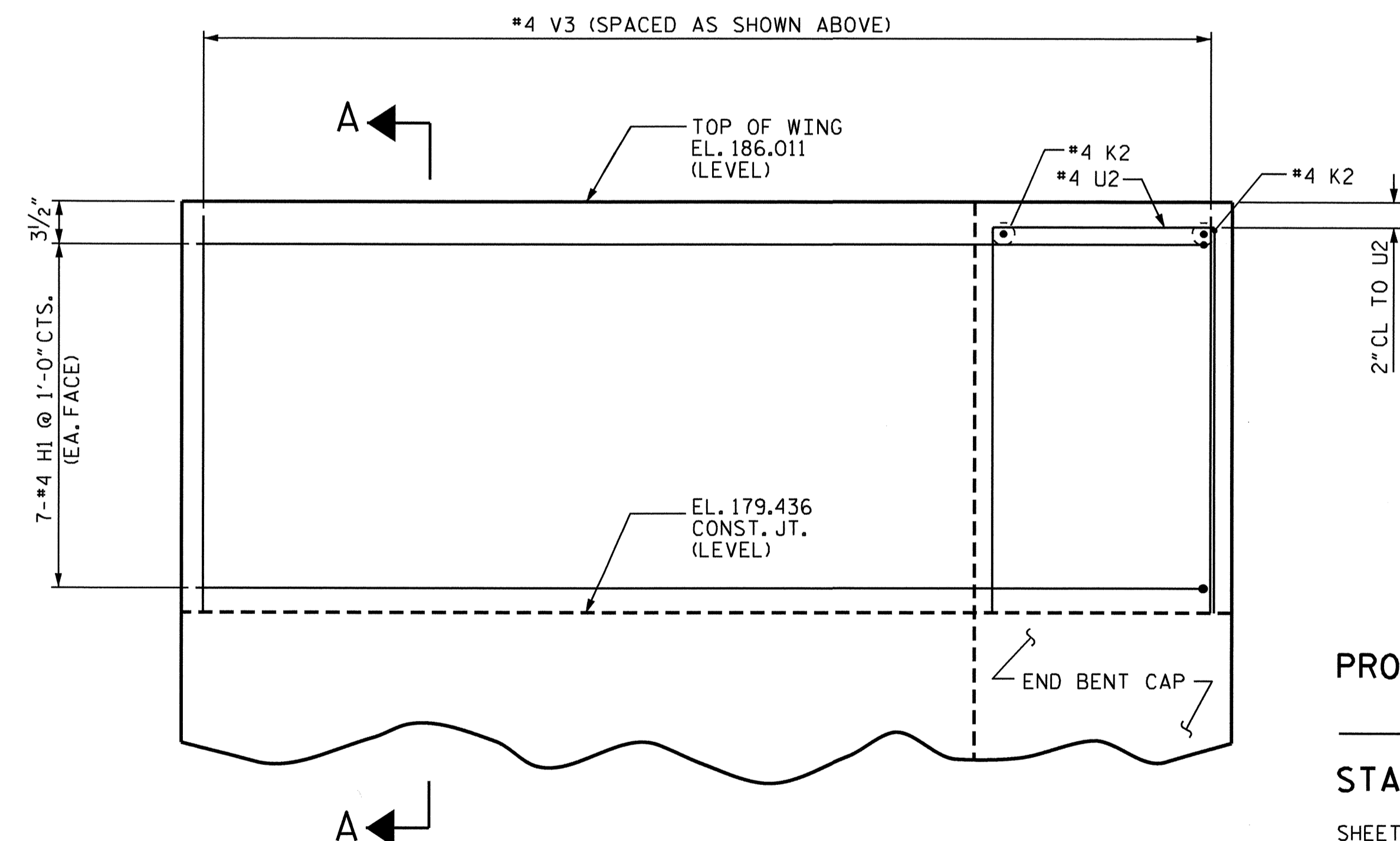
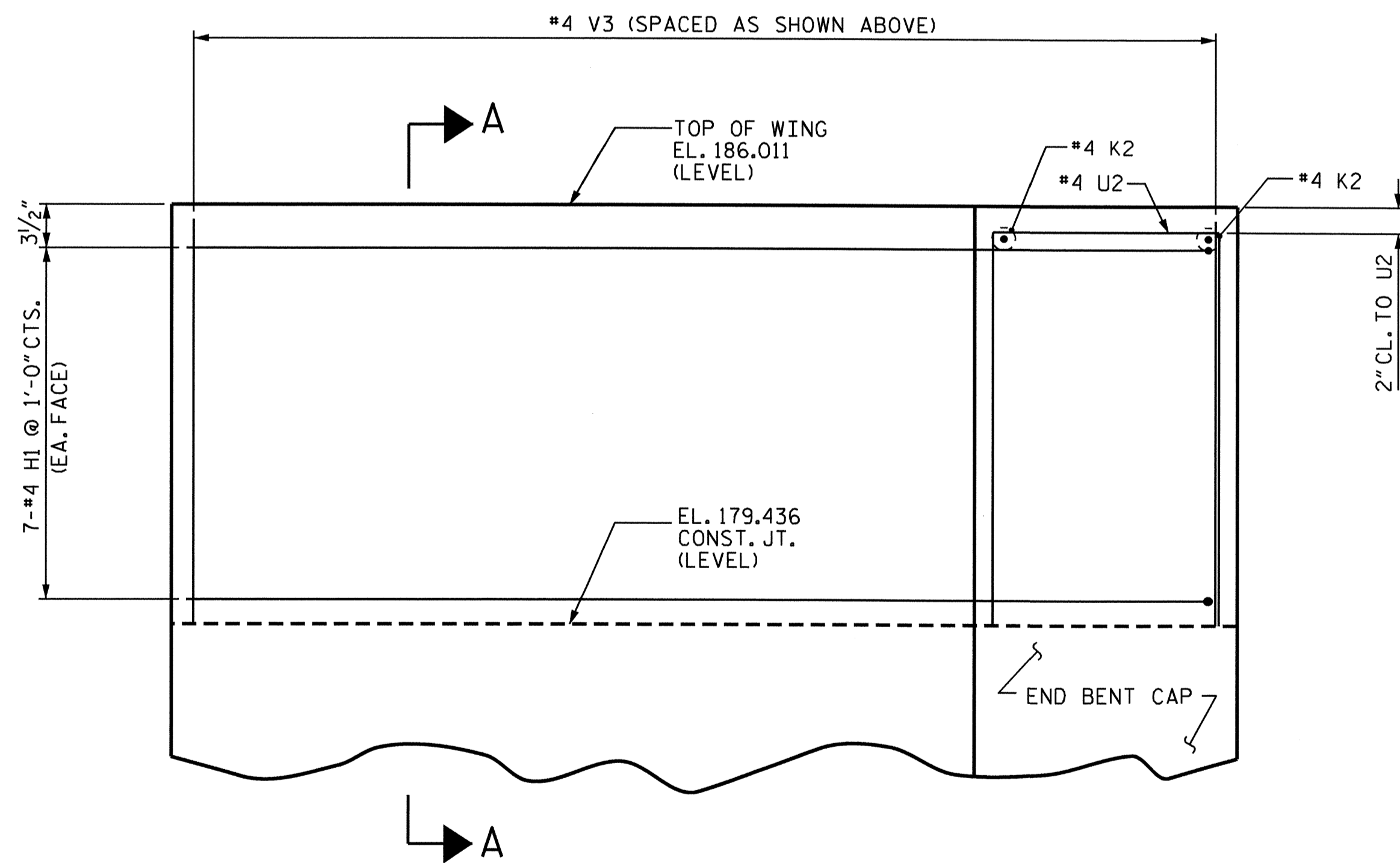
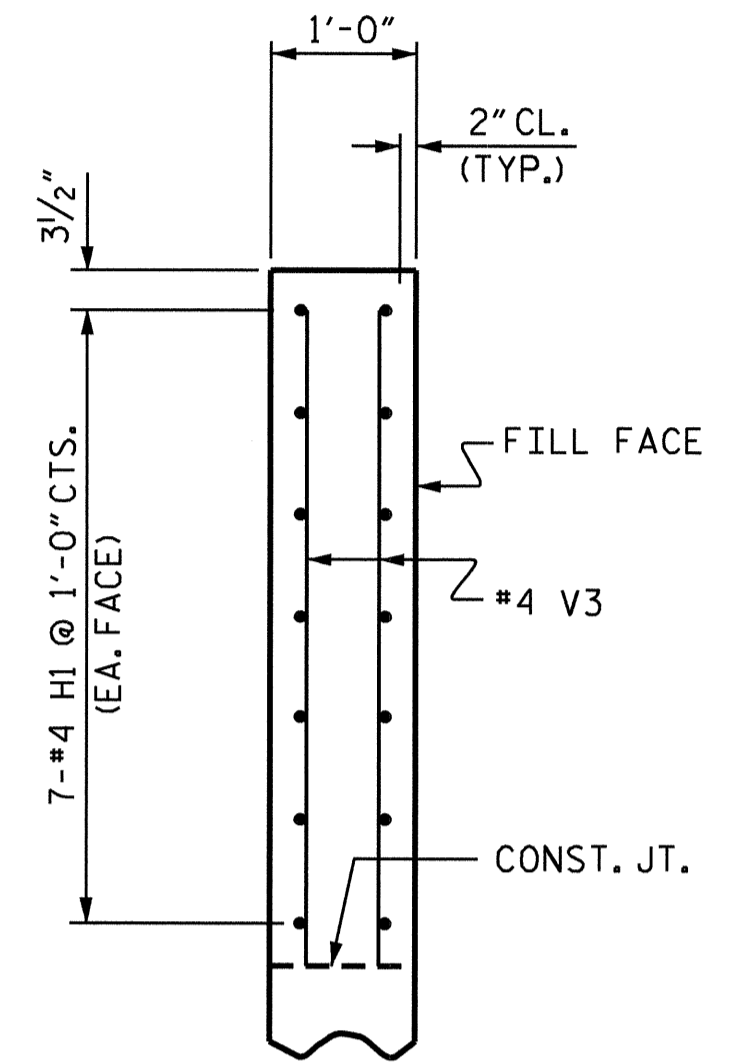
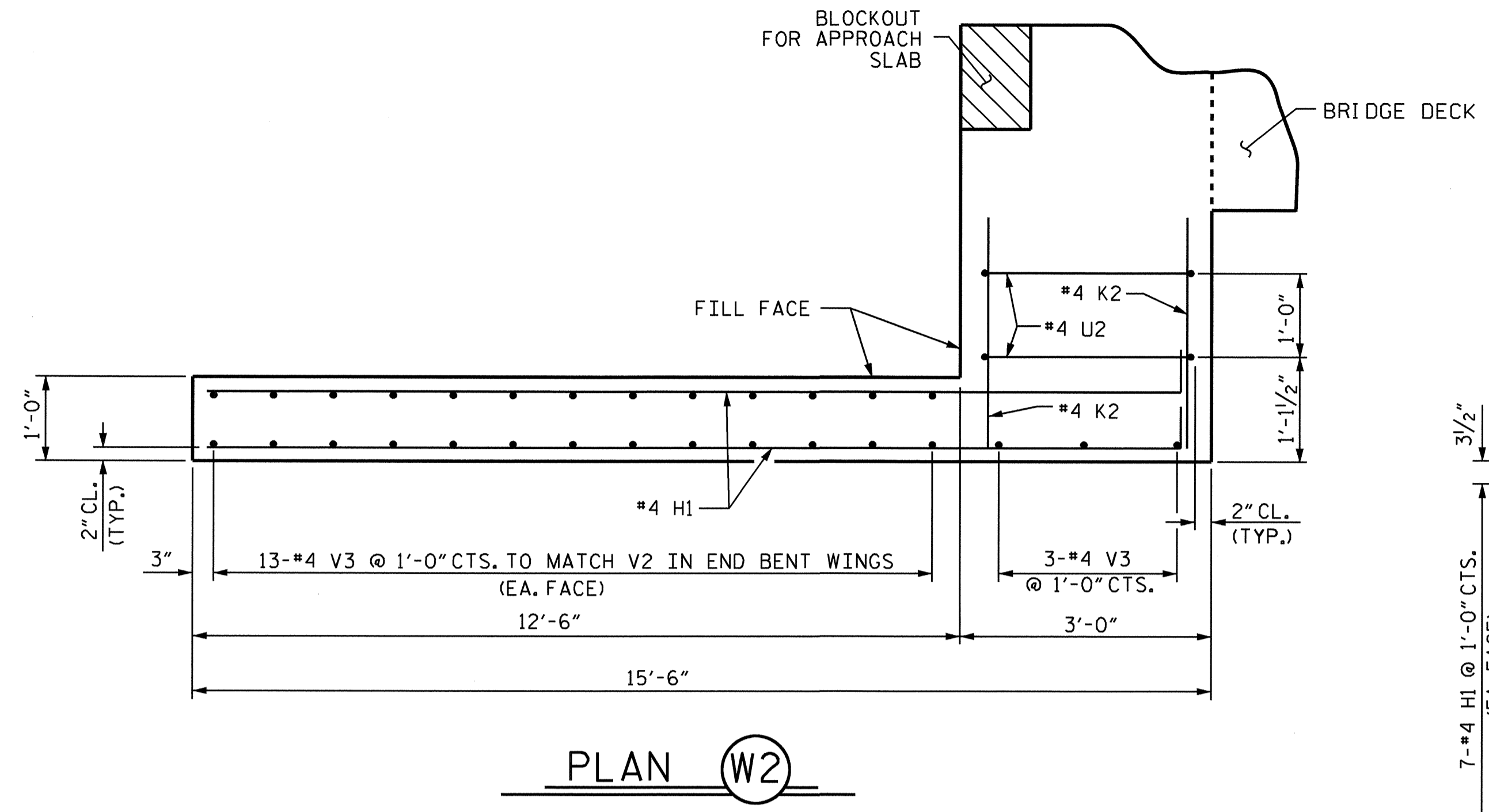
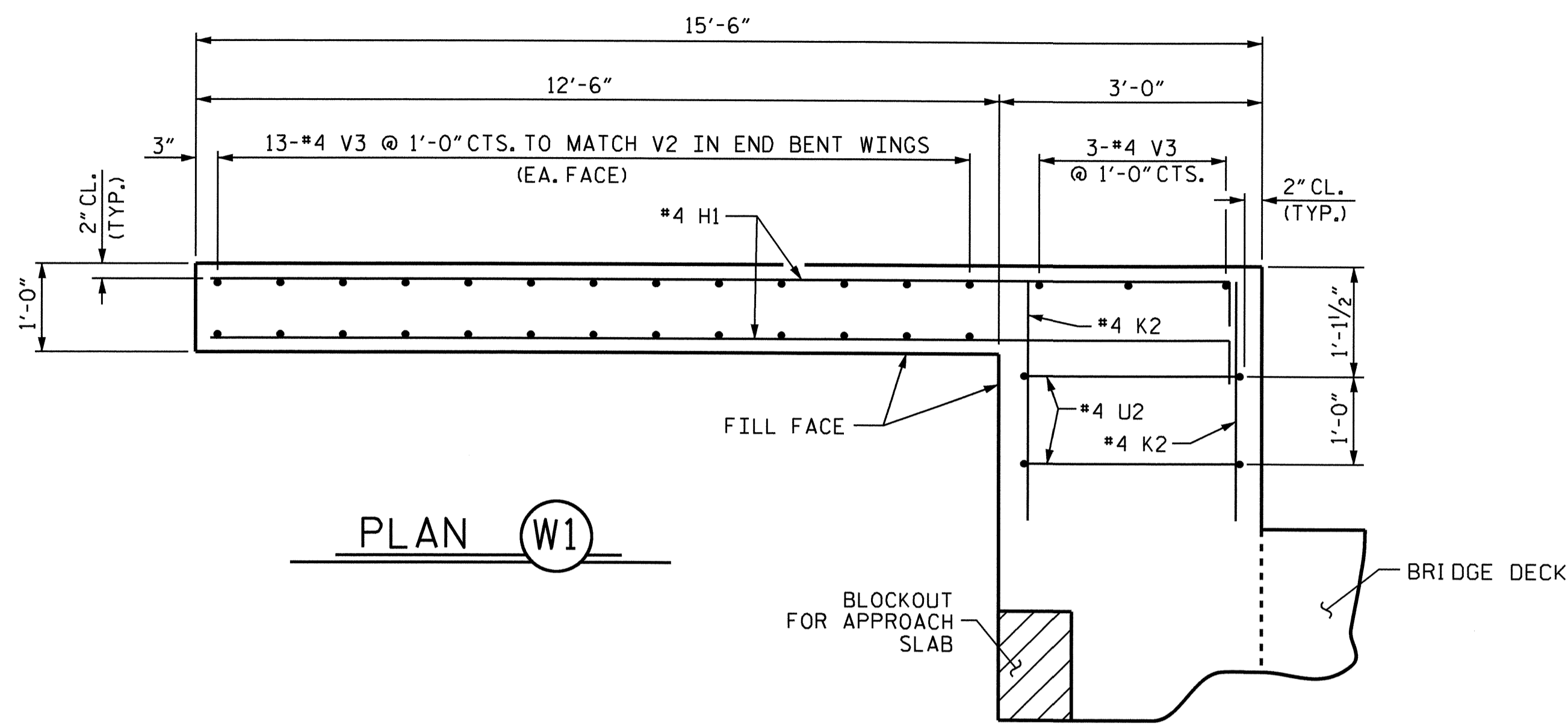


PROJECT NO. B-4459
 CHATHAM COUNTY
 STATION: 20+47.00 -L-
 SHEET 1 OF 3

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

S-6
TOTAL SHEETS
24

DRAWN BY: QT NGUYEN DATE: 12-09
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ELEVATION (W1)

ELEVATION (W2)

SECTION A-A

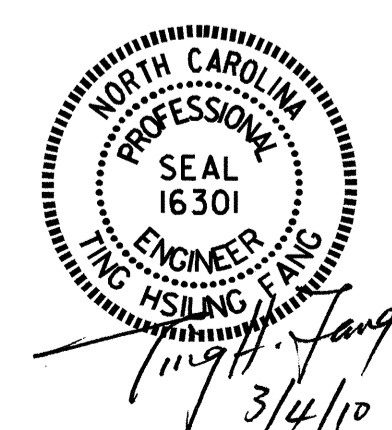
ABUTMENT WINGS AT END BENT 1
 FOR END BENT REINFORCING STEEL AND DETAILS, SEE "END BENT 1" SHEETS

PROJECT NO. B-4459
CHATHAM COUNTY
 STATION: 20+47.00-L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPAN
 DETAILS

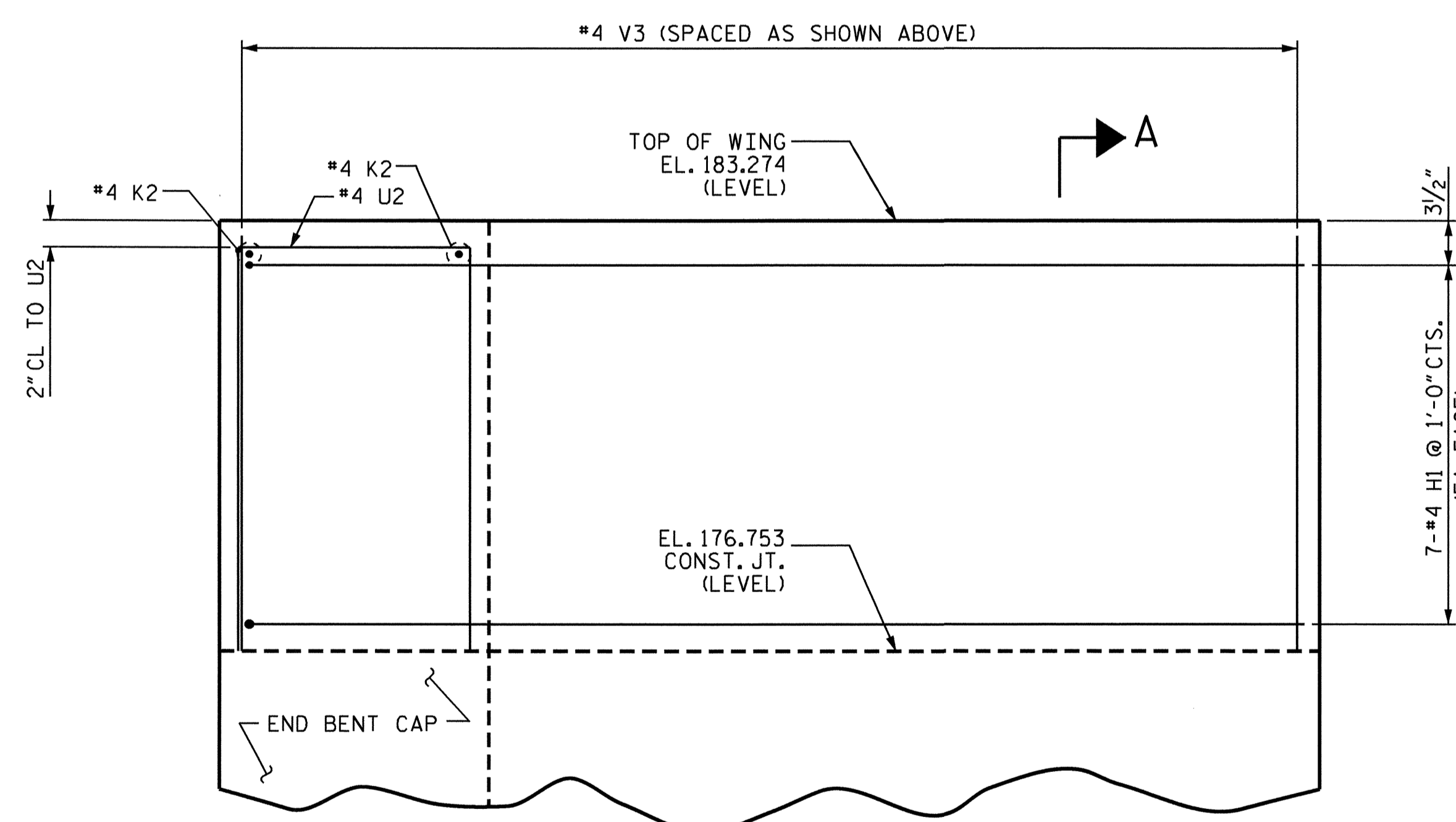
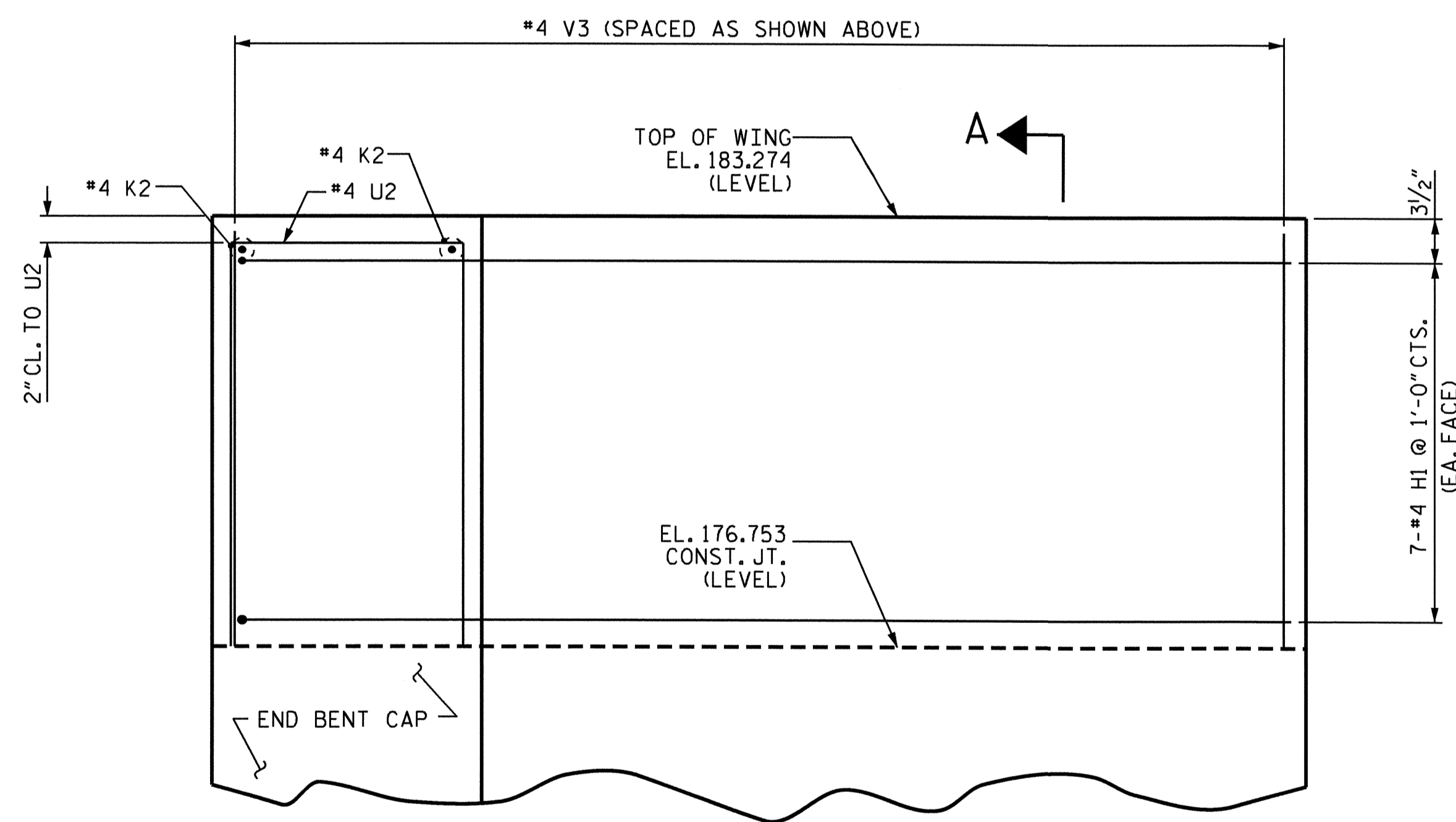
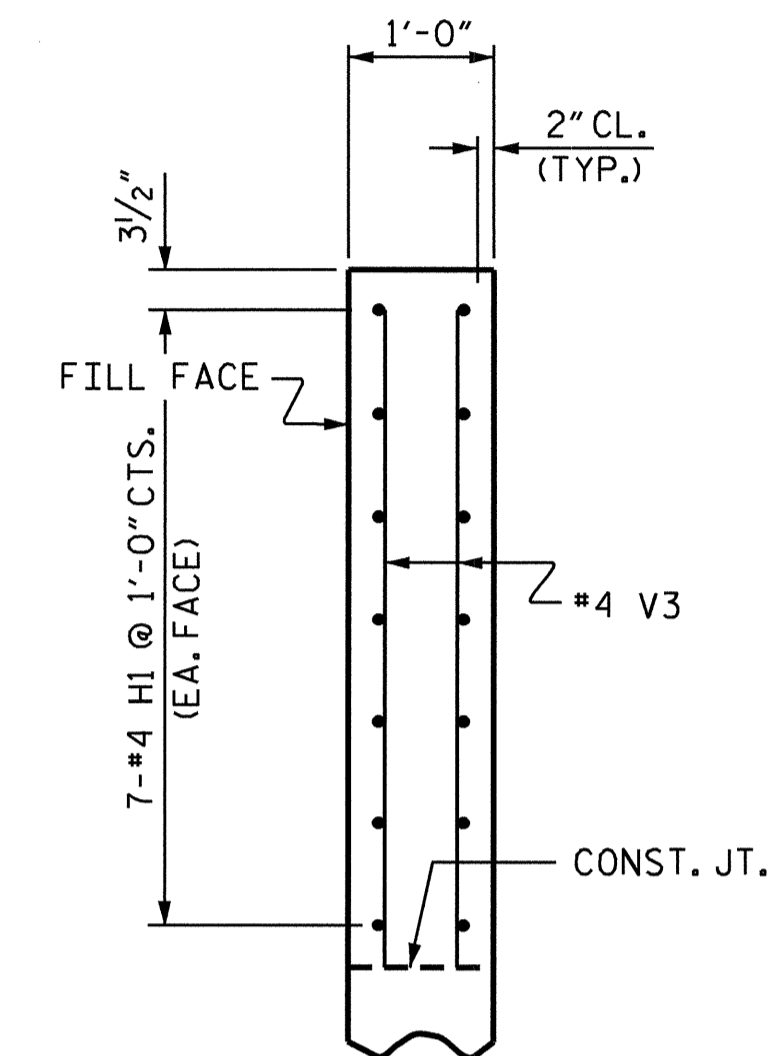
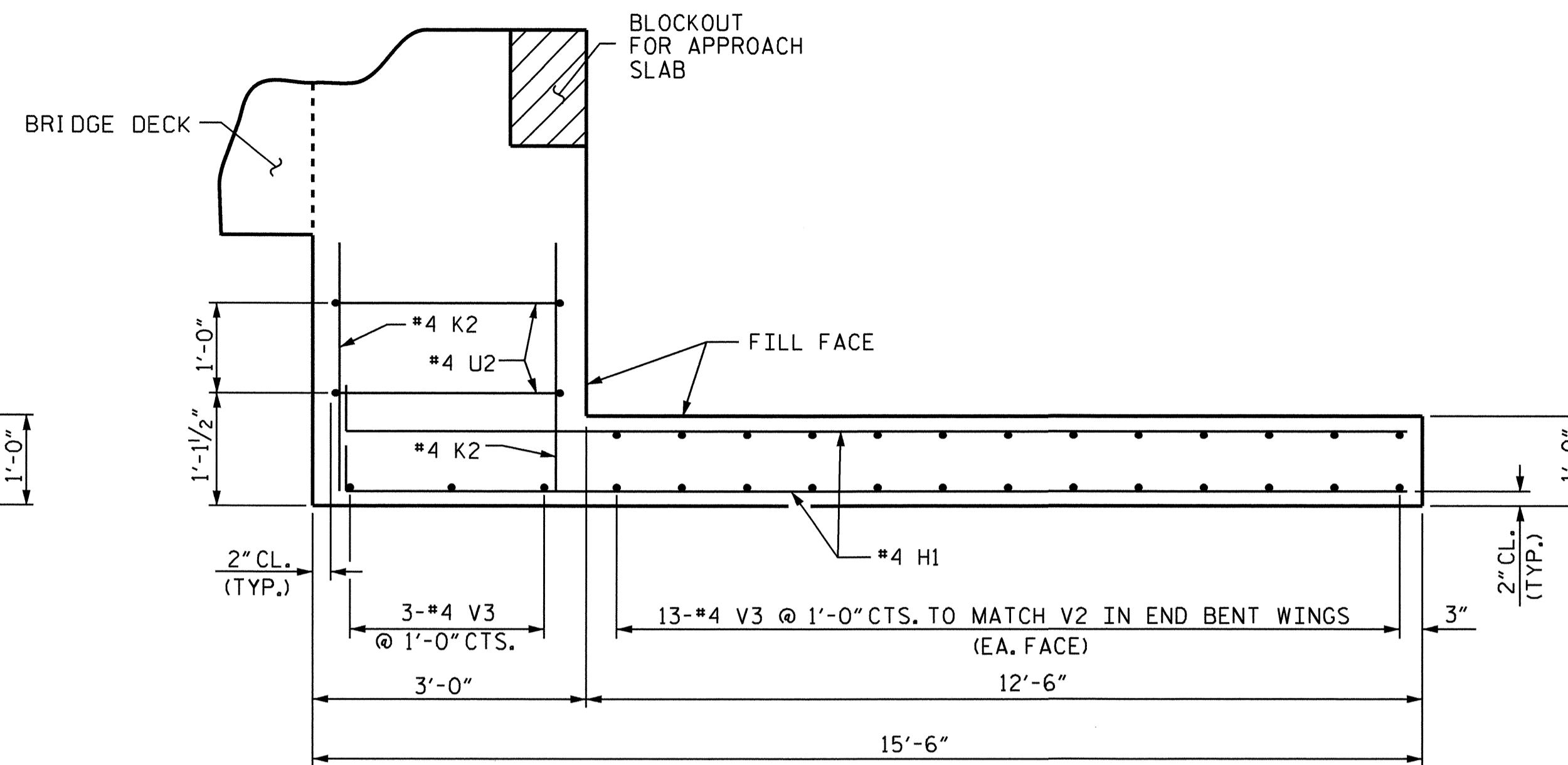
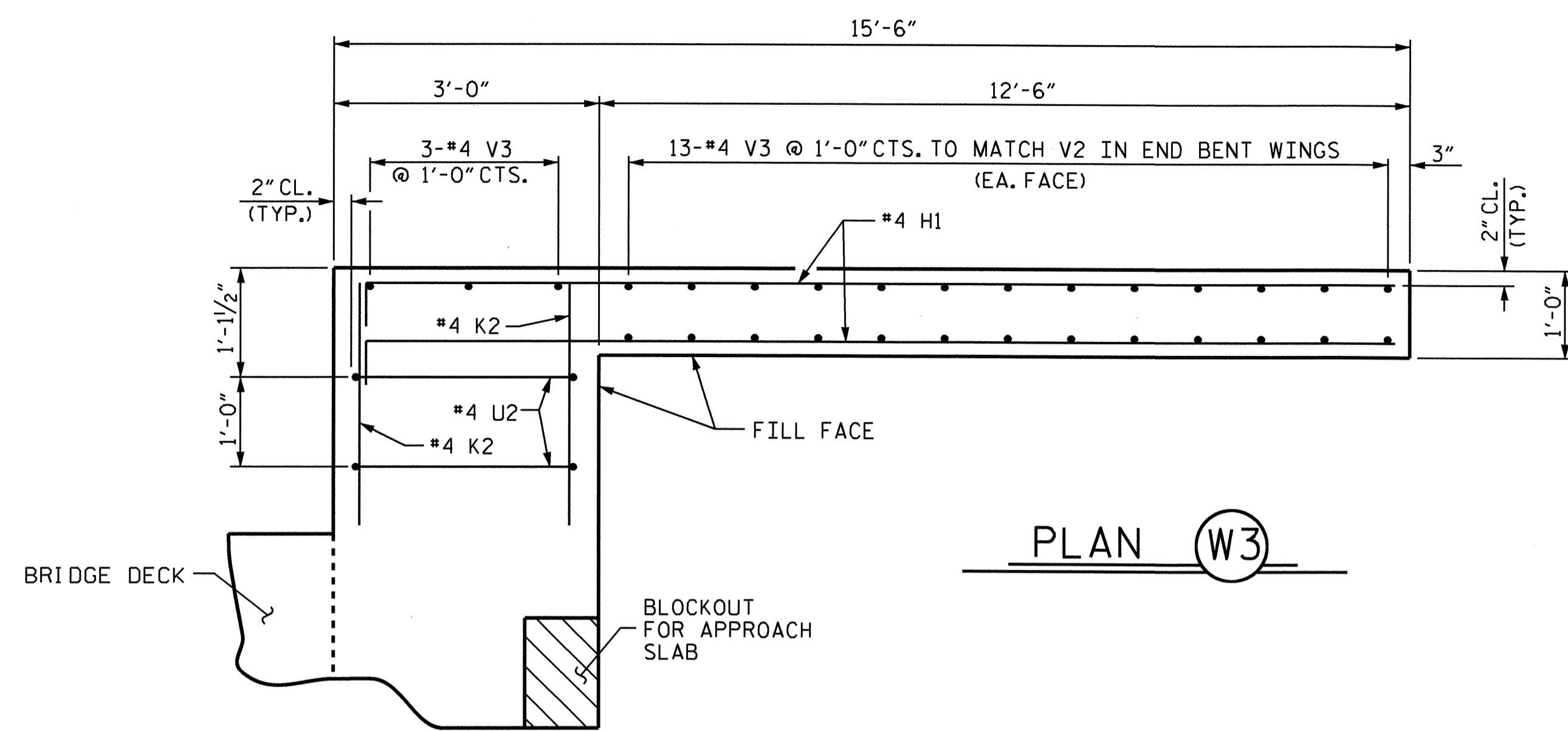


DRAWN BY: QT NGUYEN DATE: 12-09
 CHECKED BY: T. H. FANG DATE: 1-27-10

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

S-7
 TOTAL SHEETS
 24



ELEVATION W3

ELEVATION W4

SECTION A-A

ABUTMENT WINGS AT END BENT 2

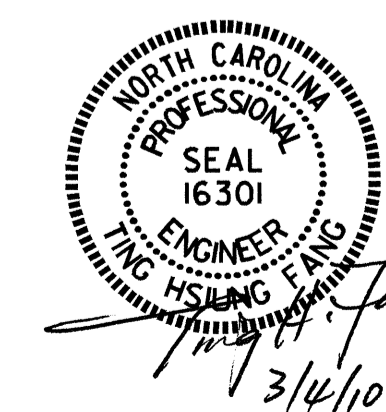
FOR END BENT REINFORCING STEEL AND DETAILS, SEE "END BENT 2" SHEETS

PROJECT NO. B-4459
 CHATHAM COUNTY
 STATION: 20+47.00-L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

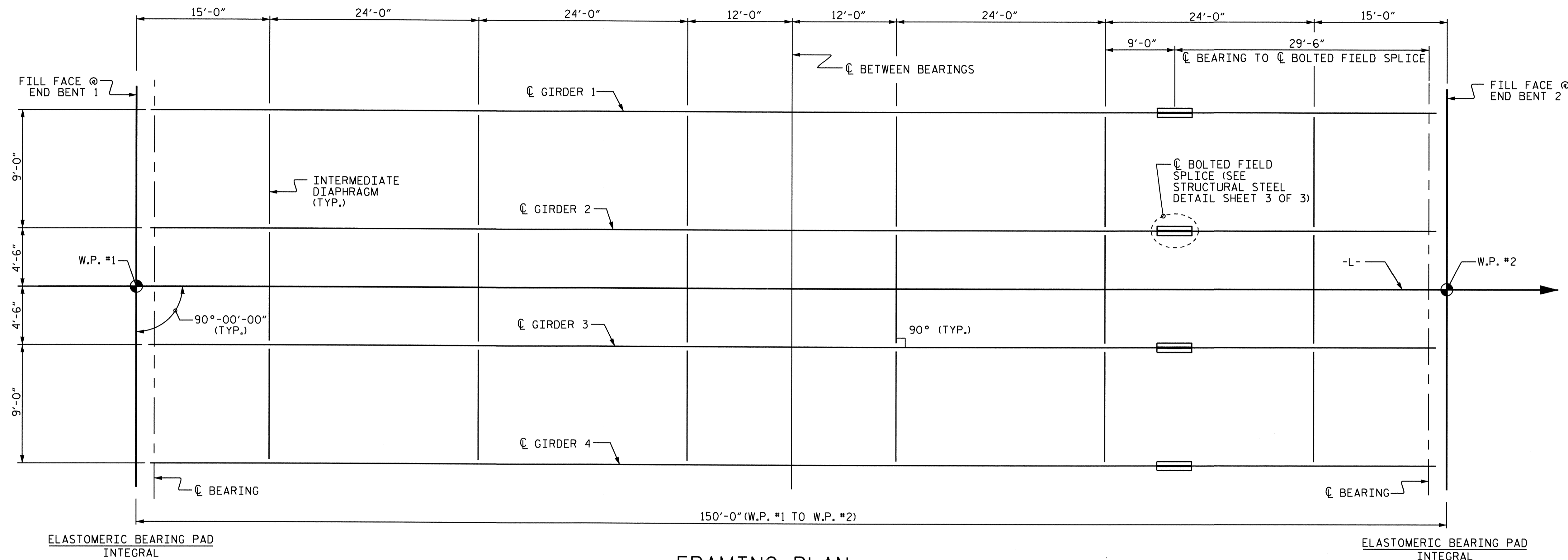
SUPERSTRUCTURE
 PLAN OF SPAN
 DETAILS



DRAWN BY: QT NGUYEN DATE: 12-09
 CHECKED BY: T. H. FANG DATE: 1-27-10

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

S-8
 TOTAL SHEETS
 24

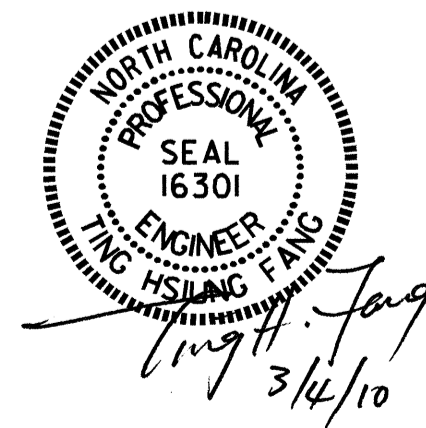


FRAMING PLAN

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
SPAN A																					
GIRDERS 1 & 4																					
TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.023	0.046	0.067	0.086	0.102	0.116	0.128	0.136	0.141	0.142	0.141	0.136	0.128	0.116	0.102	0.086	0.067	0.046	0.023	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.049	0.125	0.197	0.262	0.318	0.366	0.404	0.432	0.449	0.454	0.449	0.432	0.404	0.366	0.318	0.262	0.197	0.125	0.049	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.008	0.016	0.023	0.030	0.036	0.041	0.044	0.047	0.049	0.050	0.049	0.047	0.044	0.041	0.036	0.030	0.023	0.016	0.008	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.080	0.187	0.287	0.377	0.456	0.523	0.576	0.615	0.638	0.646	0.638	0.615	0.576	0.523	0.456	0.377	0.287	0.187	0.080	0.000
VERTICAL CURVE ORDINATE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	0	15/16"	2/4"	37/16"	4/2"	5/2"	6/4"	65/16"	73/16"	71/16"	73/4"	71/16"	73/8"	615/16"	61/4"	5/2"	4/2"	37/16"	2/4"	15/16"	0
GIRDERS 2 & 3																					
TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.023	0.046	0.067	0.086	0.102	0.116	0.128	0.136	0.141	0.142	0.141	0.136	0.128	0.116	0.102	0.086	0.067	0.046	0.023	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.050	0.127	0.200	0.265	0.322	0.370	0.409	0.437	0.454	0.460	0.454	0.437	0.409	0.370	0.322	0.265	0.200	0.127	0.050	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.008	0.015	0.022	0.029	0.034	0.039	0.042	0.045	0.047	0.047	0.047	0.045	0.042	0.039	0.034	0.029	0.022	0.015	0.008	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.081	0.188	0.289	0.379	0.458	0.525	0.579	0.618	0.641	0.649	0.641	0.618	0.579	0.525	0.458	0.379	0.289	0.188	0.081	0.000
VERTICAL CURVE ORDINATE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	0	15/16"	2/4"	37/16"	49/16"	5/2"	65/16"	615/16"	7/16"	71/16"	713/16"	71/16"	77/16"	615/16"	65/16"	5/2"	49/16"	37/16"	2/4"	15/16"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
 ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. B-4459
CHATHAM COUNTY
 STATION: 20+47.00 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
**FRAMING PLAN &
 DEAD LOAD
 DEFLECTIONS**

DRAWN BY: QT NGUYEN DATE: 12-09
 CHECKED BY: T. H. FANG DATE: 1-22-10

REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	DATE:	S-9
1			3		TOTAL SHEETS
2			4		24

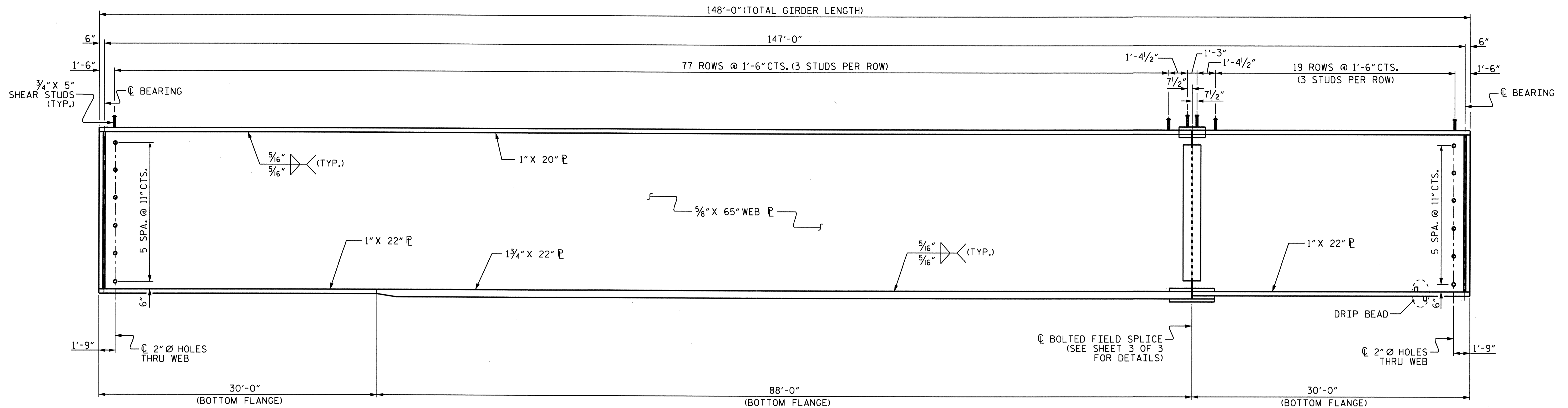
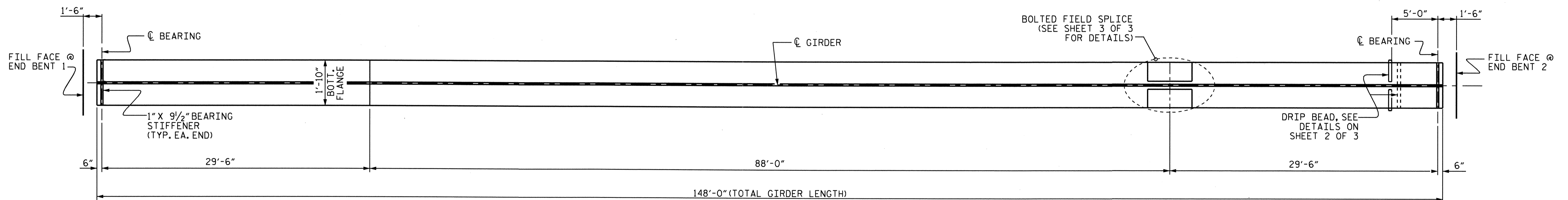
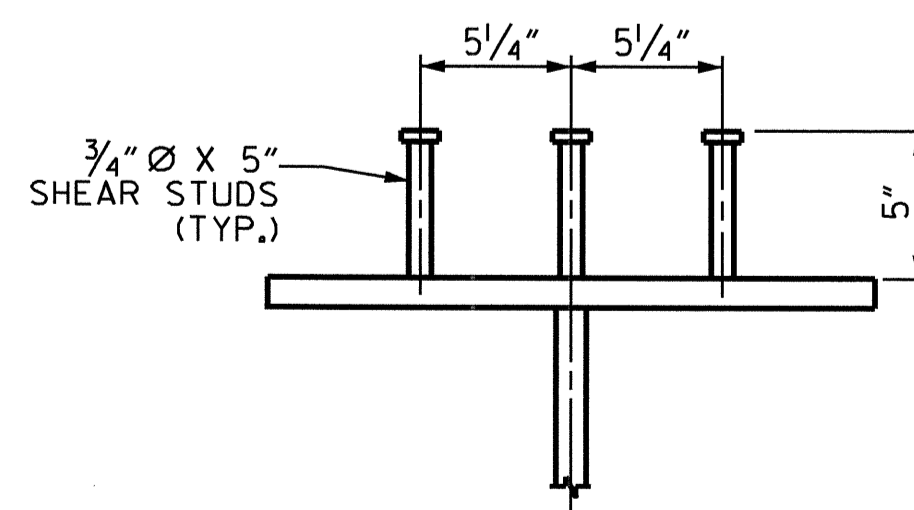


PLATE GIRDER ELEVATION

(CONNECTOR PLATES NOT SHOWN FOR CLARITY)



BOTTOM FLANGE DETAIL

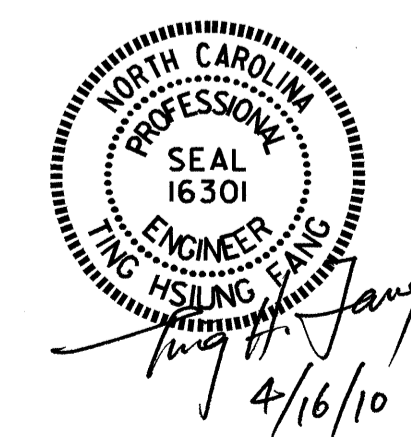


SHEAR STUD DETAIL

(TYP. EA. GIRDER)

PROJECT NO. B-4459
CHATHAM COUNTY
 STATION: 20+47.00 -L-

SHEET 1 OF 3

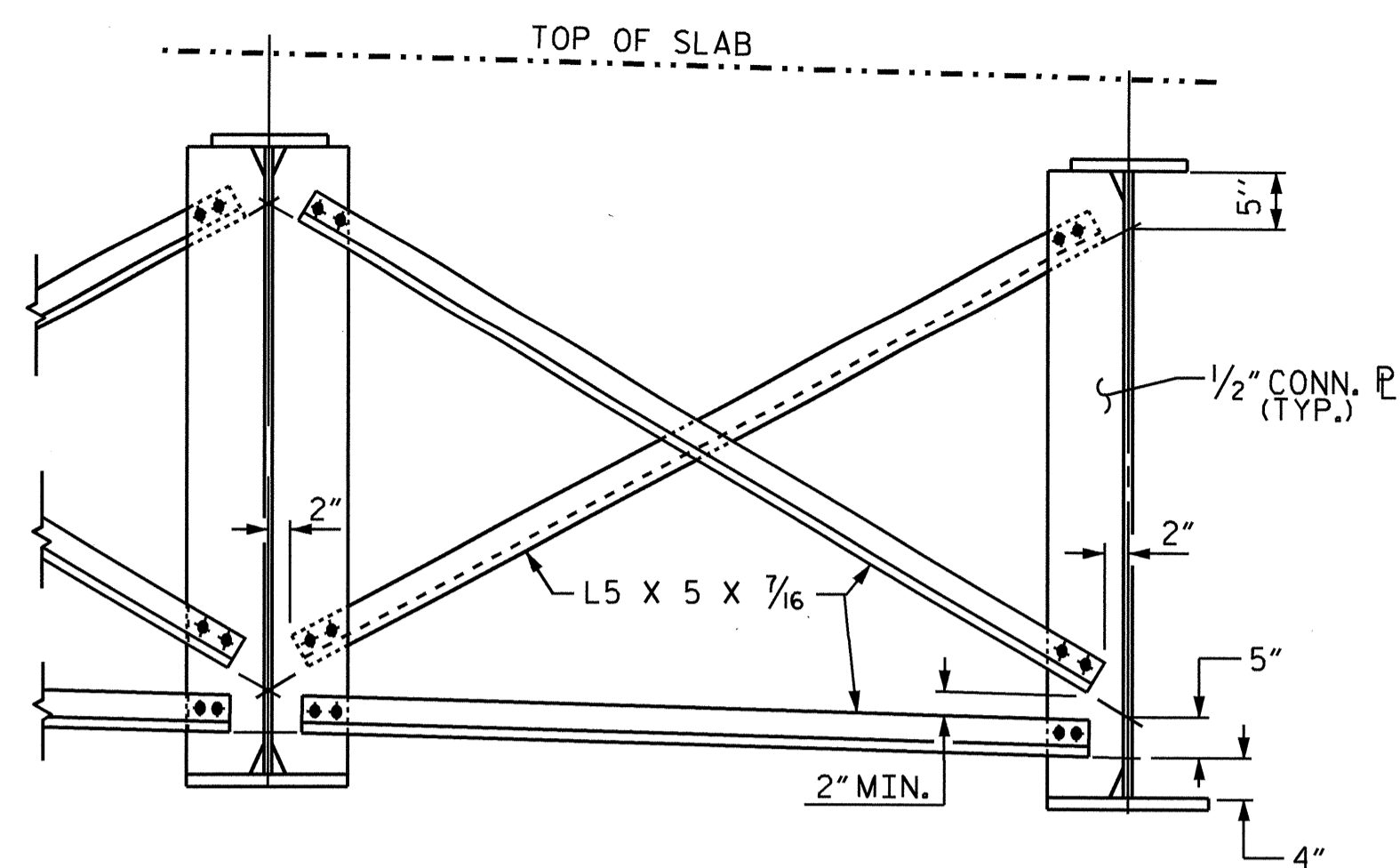


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS

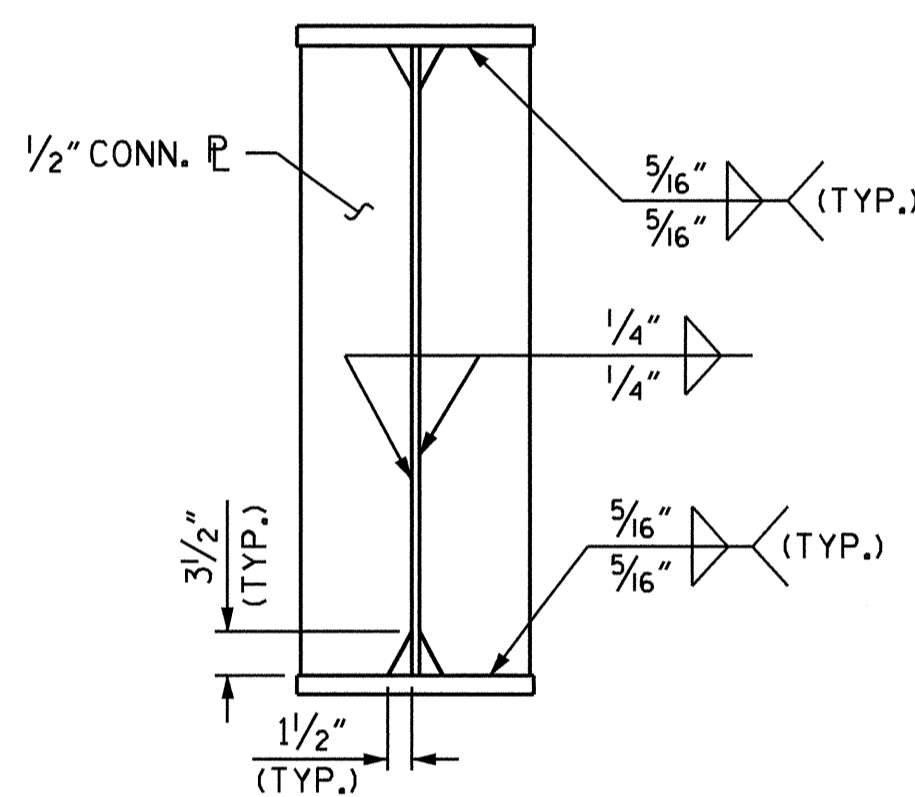
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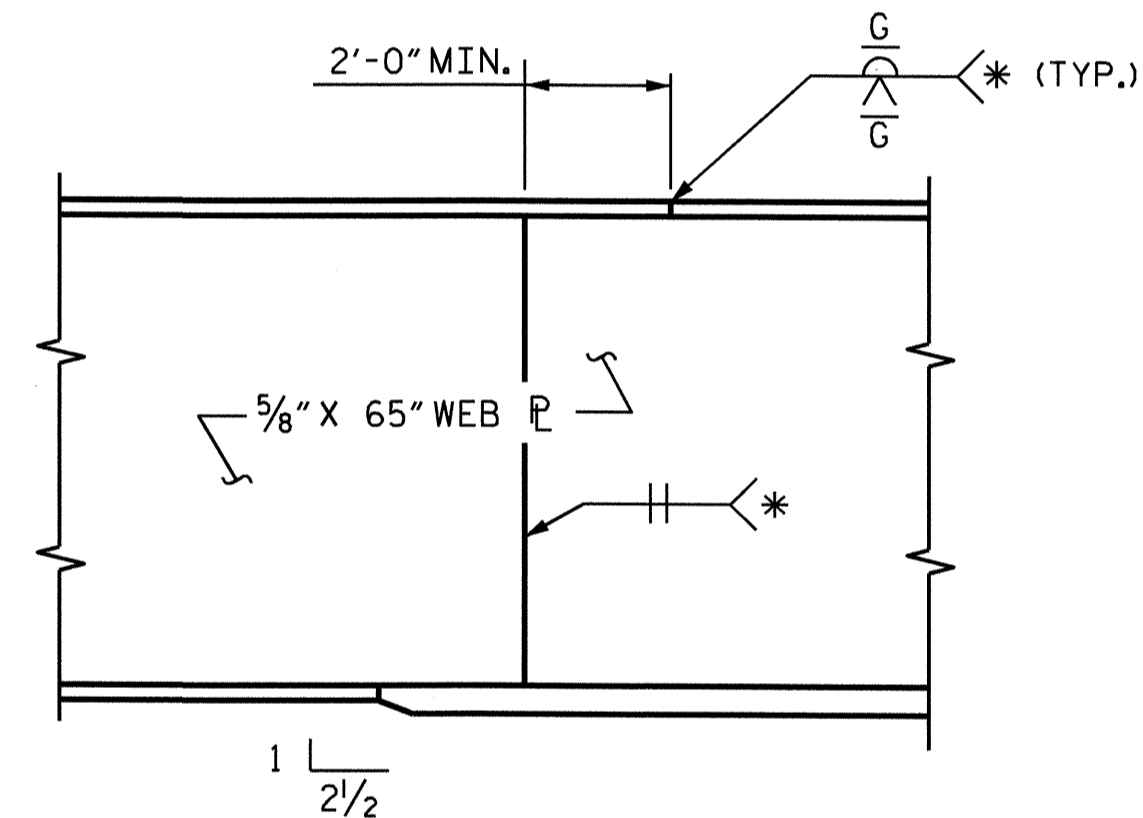
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			24



INTERMEDIATE DIAPHRAGM

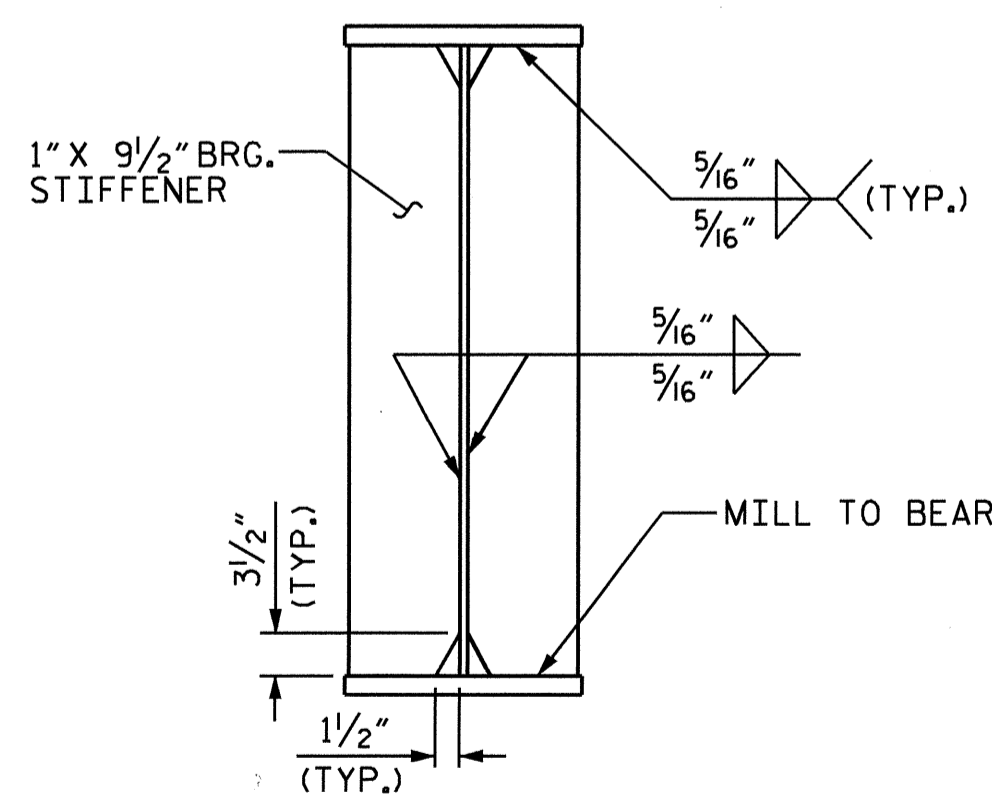


CONNECTOR PLATE



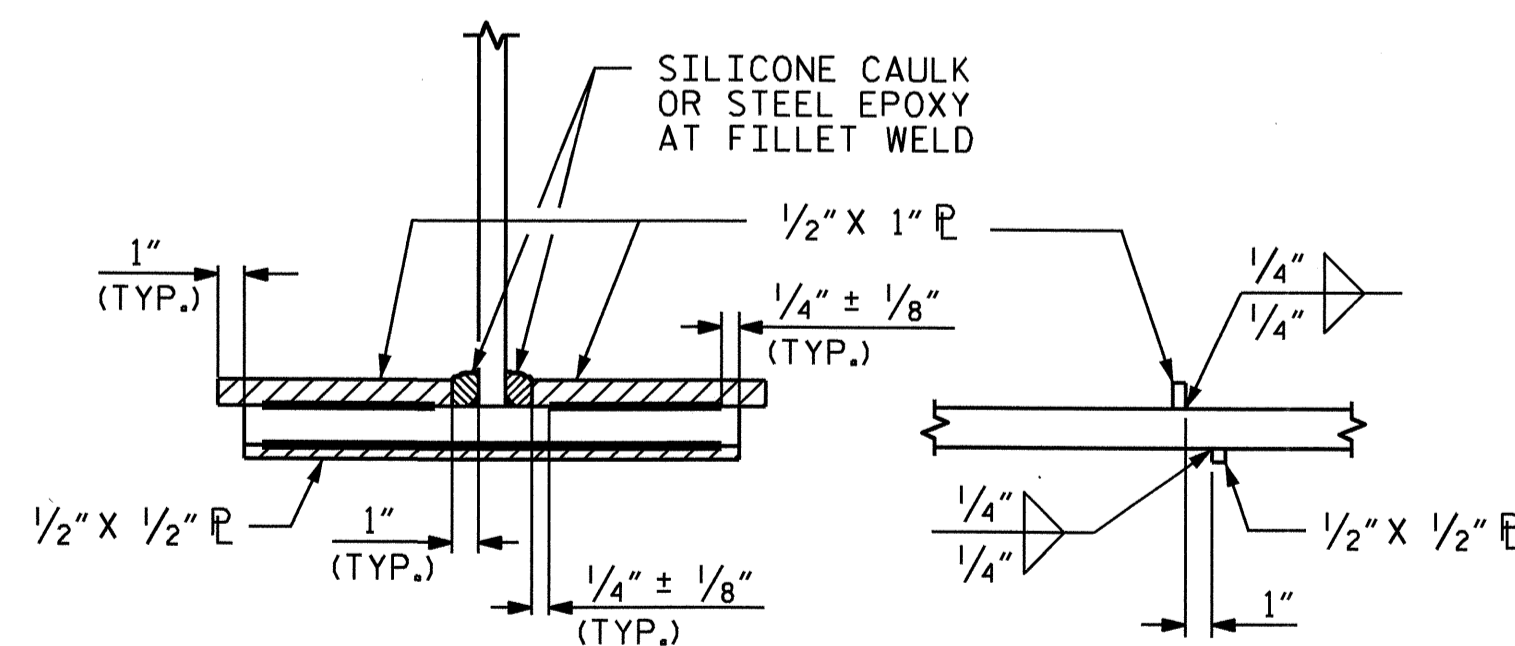
TYPICAL FLANGE AND WEB BUTT JOINT

* GRIND SMOOTH AND FLUSH ON OUTER FACE OF EXTERIOR GIRDERS



BEARING STIFFENER

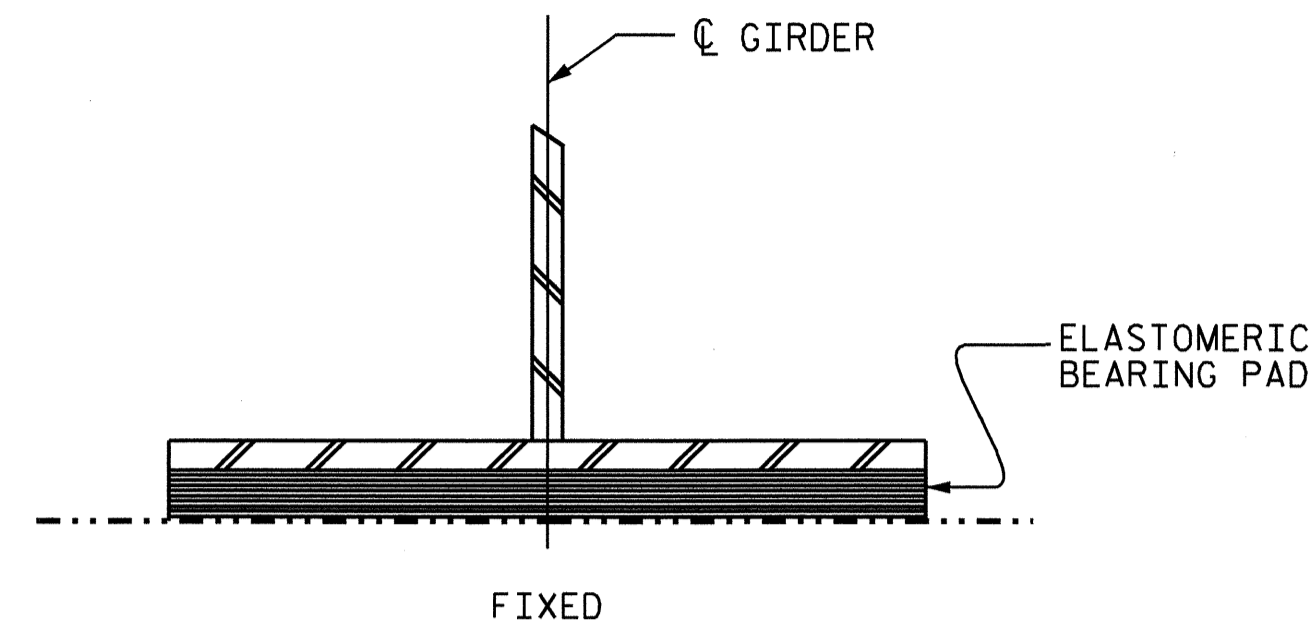
NOTE: DO NOT CLIP PLATE AT TOP OUTSIDE CORNER OF STIFFENER PLATE.



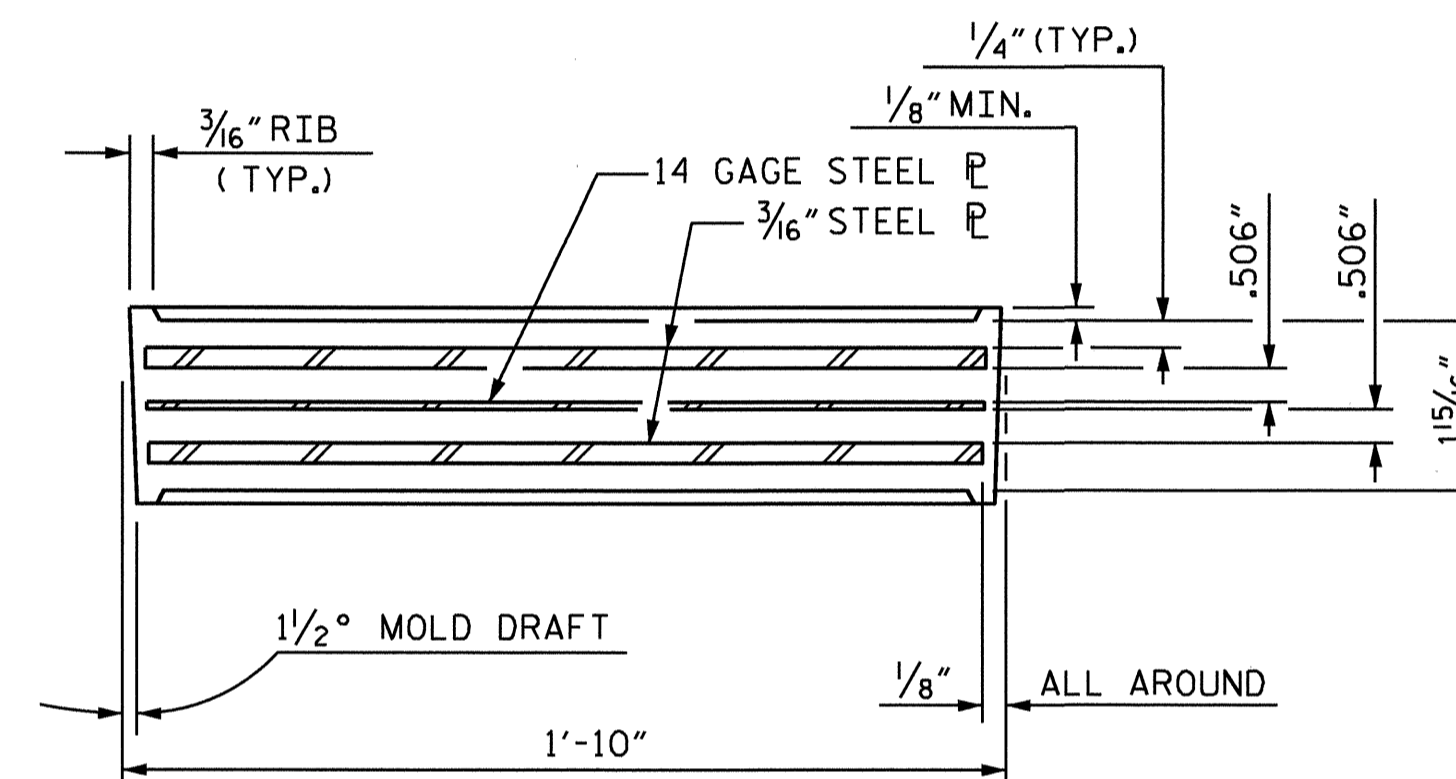
SECTION

SIDE VIEW

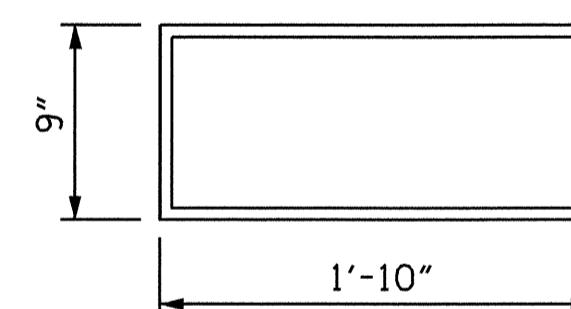
DRIP BEAD DETAILS



END VIEW



TYPICAL SECTION OF ELASTOMERIC BEARINGS



(8 REQ'D)

PLAN VIEW

ELASTOMERIC BEARING PAD

MAX. D.L.+L.L. LOAD RATINGS = 137 KIPS

NOTES:

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W.

ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.

ALL FIELD CONNECTIONS TO BE 7/8" DIA. HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED.

BEARING STIFFENERS ARE TO BE PLACED NORMAL TO THE WEB OF THE GIRDER AND SHALL BE PLUMB.

SHOP SPLICES ARE PERMITTED TO LIMIT THE MAXIMUM REQUIRED FLANGE PIECE LENGTHS TO 60 FEET AND WEB PIECE LENGTHS TO 45 FEET. PERMITTED FLANGE AND WEB SPLICES SHALL NOT BE LOCATED WITHIN 15 FEET OF MAXIMUM DEAD LOAD DEFLECTION. KEEP TWO FEET MINIMUM BETWEEN WEB AND FLANGE SHOP SPLICES. KEEP 6" MINIMUM BETWEEN CONNECTOR PLATE OR TRANSVERSE STIFFENER WELDS AND WEB OR FLANGE SHOP SPLICES.

STUDS ON GIRDERS MAY BE SHIFTED UP TO 1" IF NECESSARY TO CLEAR FLANGE SPLICE WELD.

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

A CHARPY V-NOTCH TEST IS REQUIRED FOR WEB PLATES, WEB SPLICE PLATES, BOTTOM FLANGE PLATES, BOTTOM FLANGE SPLICE PLATES, TOP FLANGE PLATES AND TOP FLANGE SPLICE PLATES LOCATED WITHIN 30'-0" OF END OF GIRDERS FOR ALL GIRDERS AND IN ACCORDANCE WITH ARTICLE 1072-9 OF THE STANDARD SPECIFICATIONS.

END OF GIRDERS SHALL BE PLUMB.

FOR HIGH STRENGTH BOLTS, SEE SPECIAL PROVISIONS.

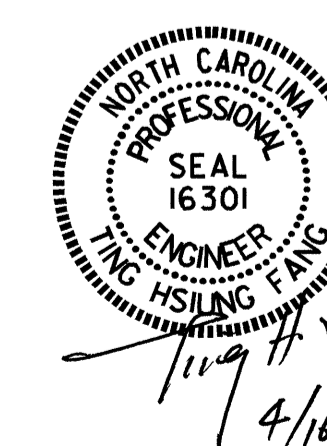
BEARING STIFFENER MAY REQUIRE COPING IF WIDER THAN BOTTOM FLANGE TO AVOID INTERFERENCE WITH THE ANCHOR BOLT.

FOR DIRECT TENSION INDICATORS, SEE SPECIAL PROVISIONS.

FOR SHIPPING STEEL STRUCTURAL MEMBERS, SEE SPECIAL PROVISIONS.

PROJECT NO. B-4459
CHATHAM COUNTY
 STATION: 20+47.00 -L-

SHEET 2 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

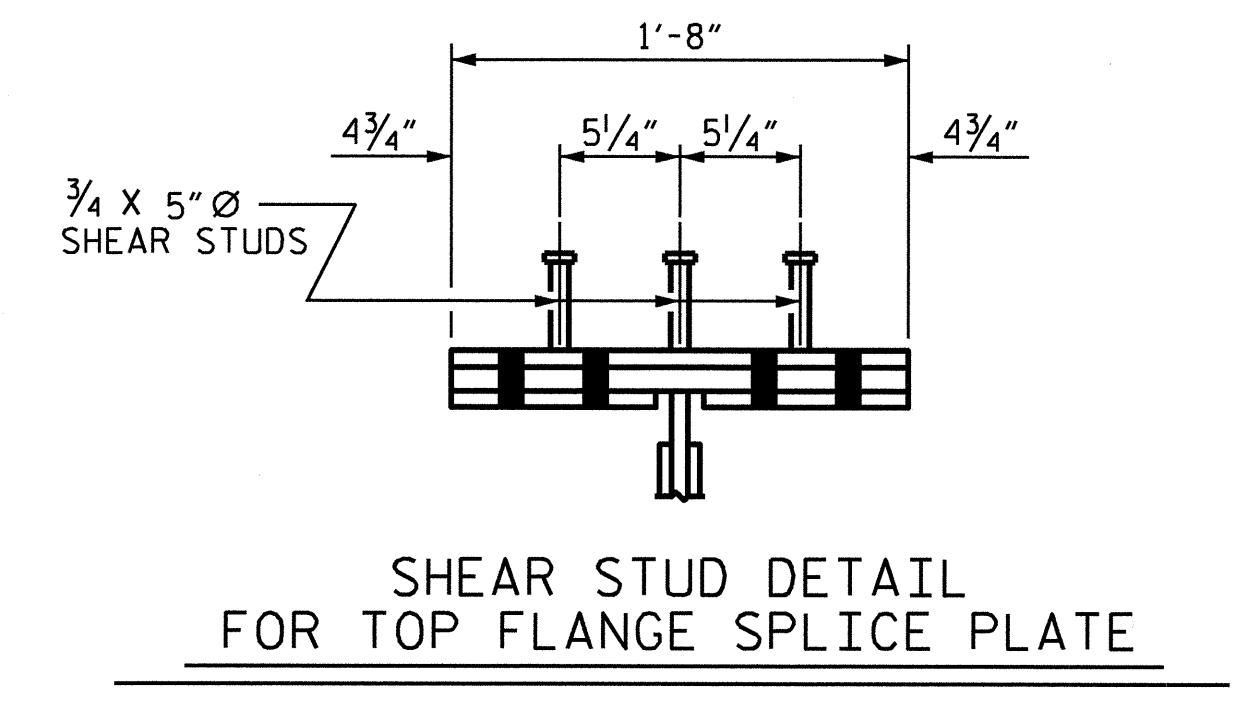
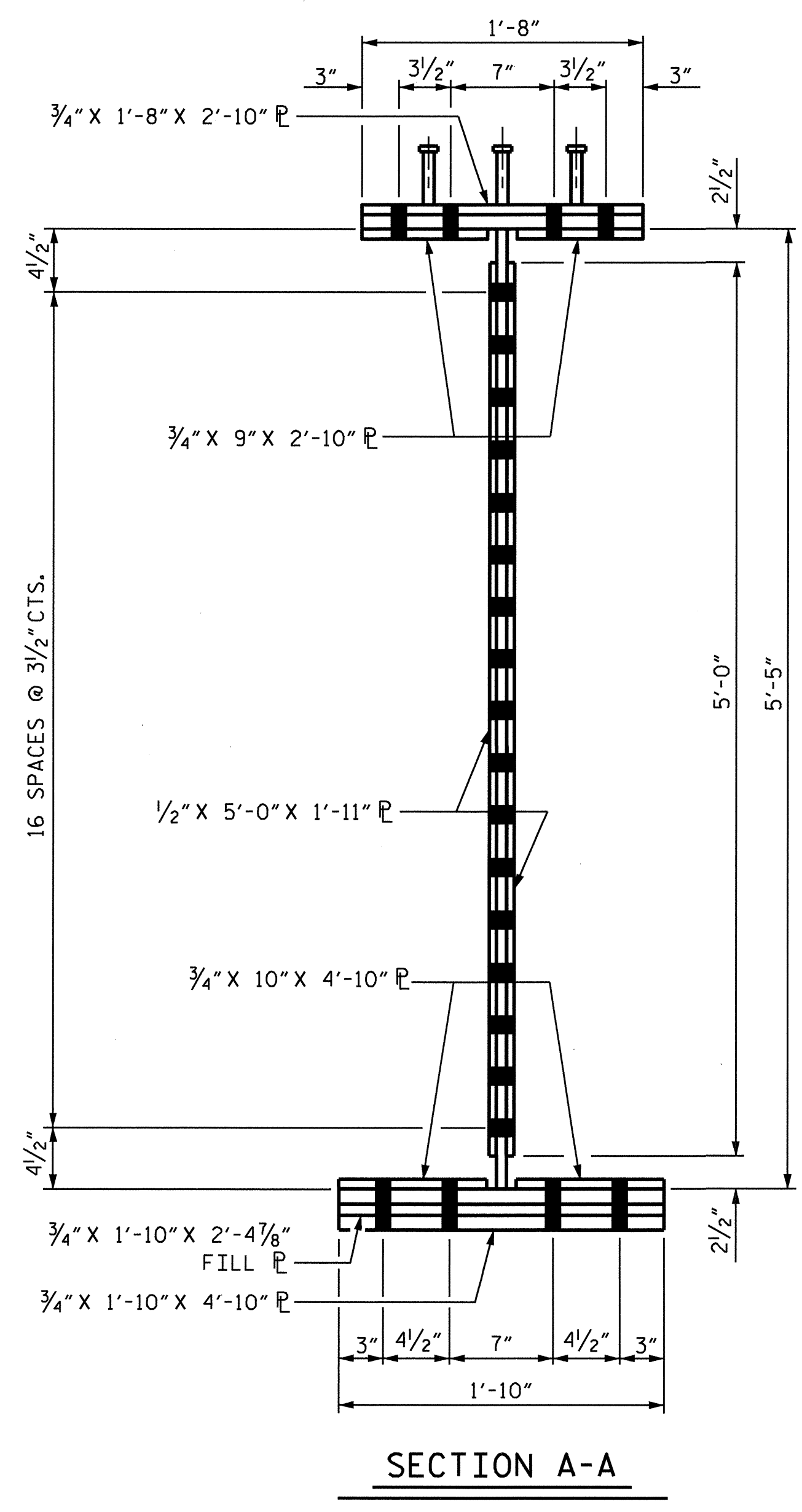
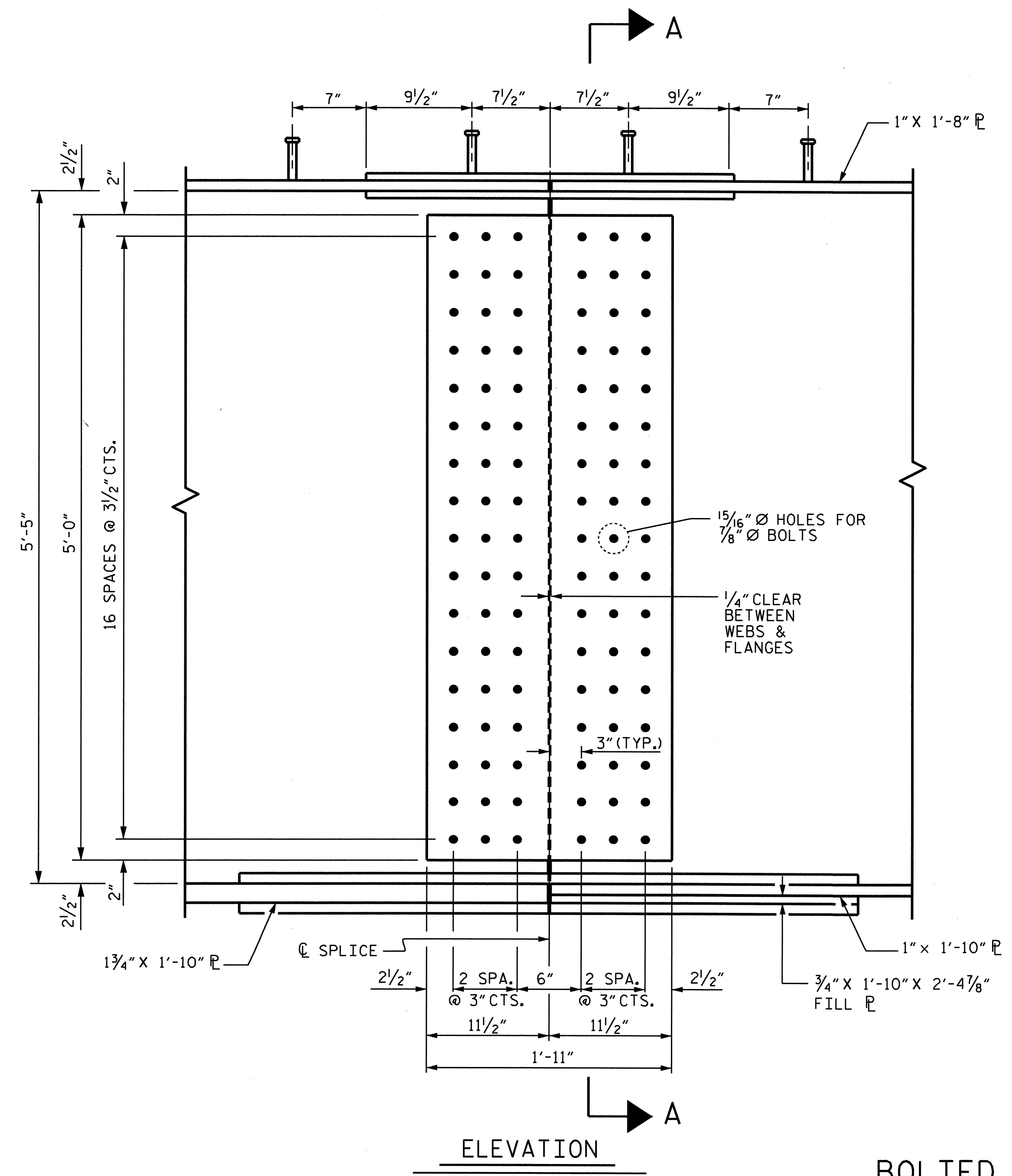
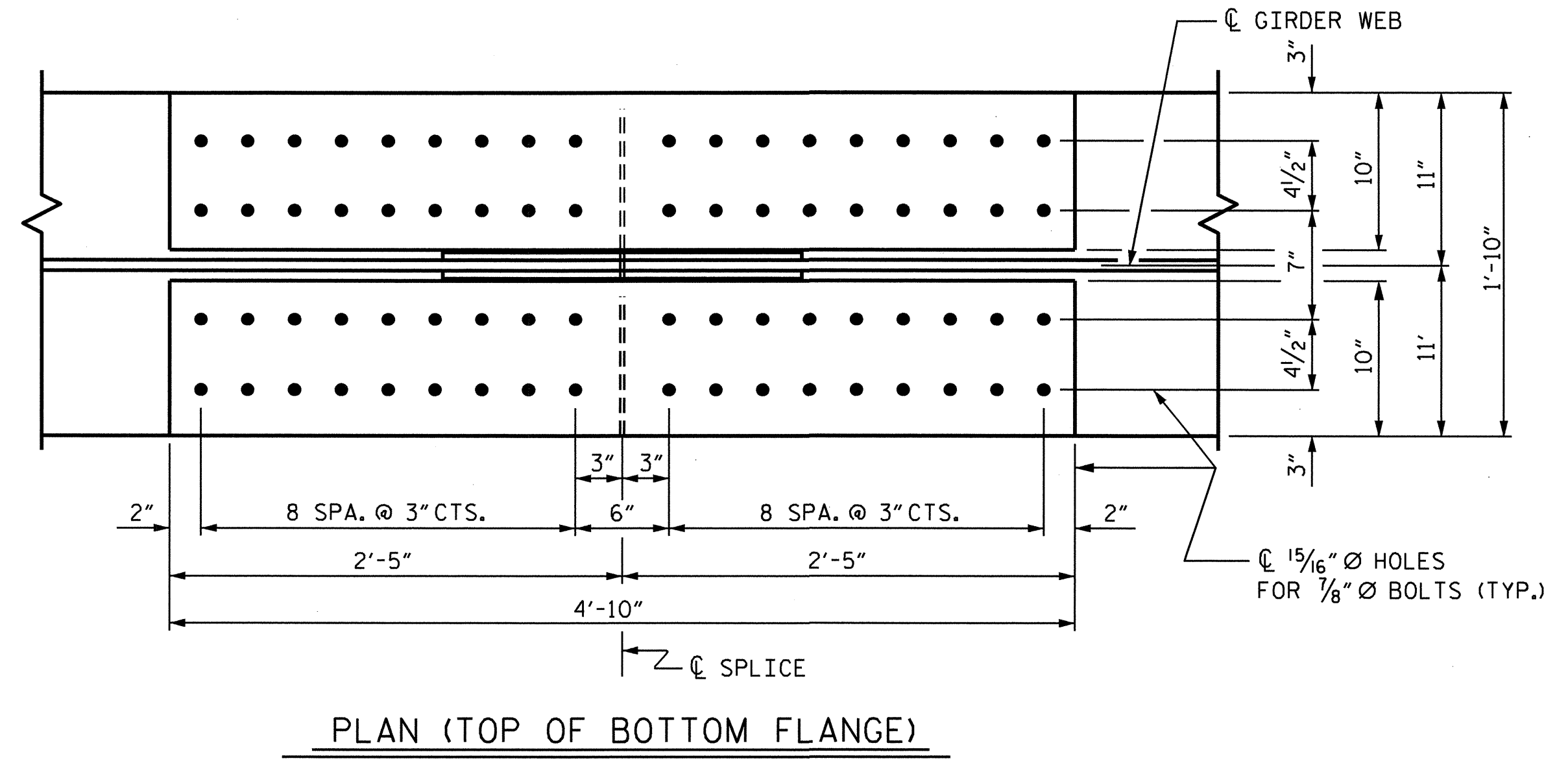
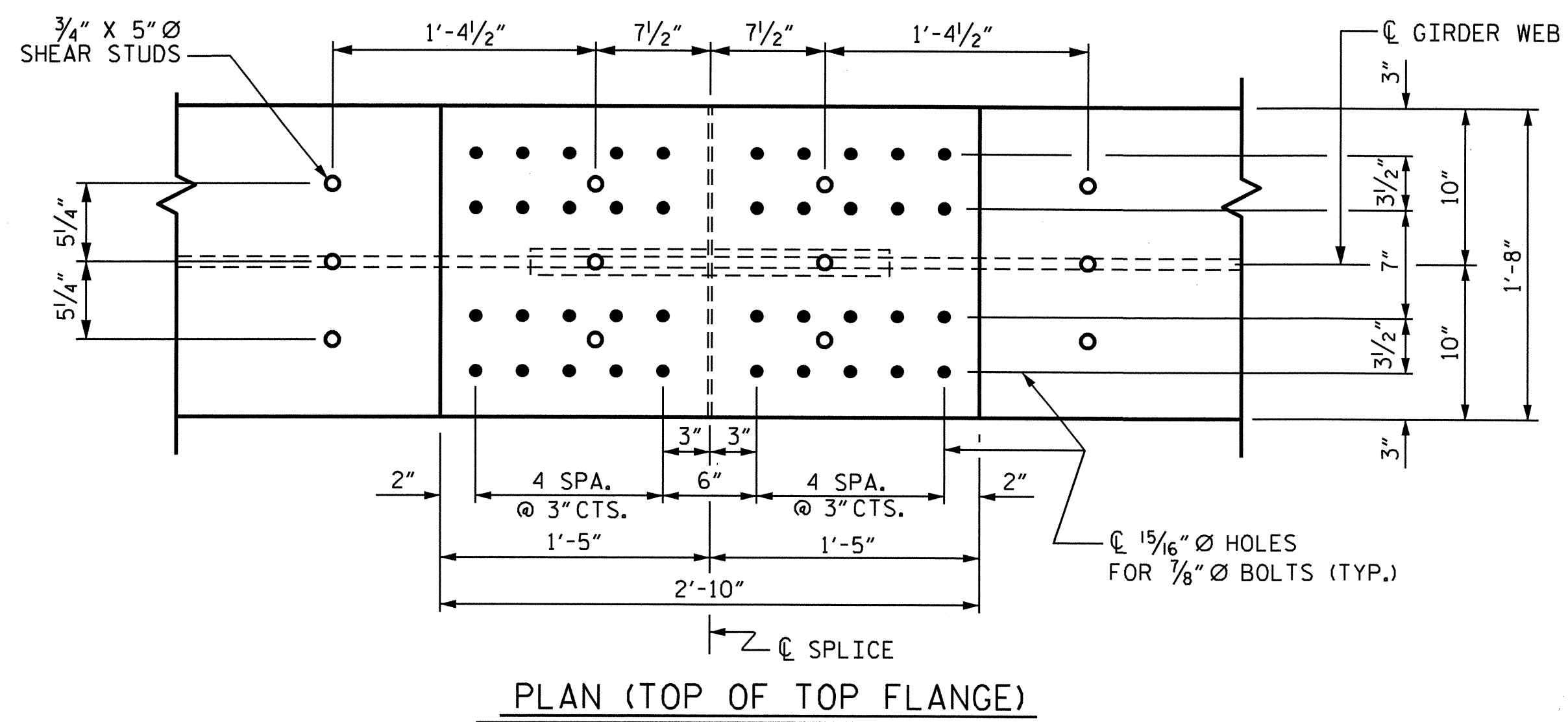
SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS AND
 BEARING DETAILS

REVISIONS

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

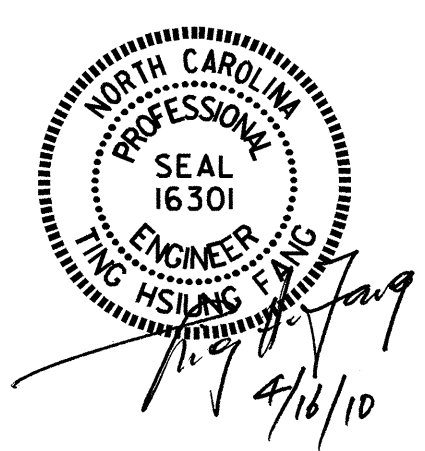
SHEET NO.
S-11
TOTAL SHEETS
24

DRAWN BY: OT NGUYEN DATE: 12-09
 CHECKED BY: T. H. FANG DATE: 1-21-10



BOLTED FIELD SPLICE DETAILS

PROJECT NO. B-4459
CHATHAM COUNTY
 STATION: 20+47.00 -L-
 SHEET 3 OF 3

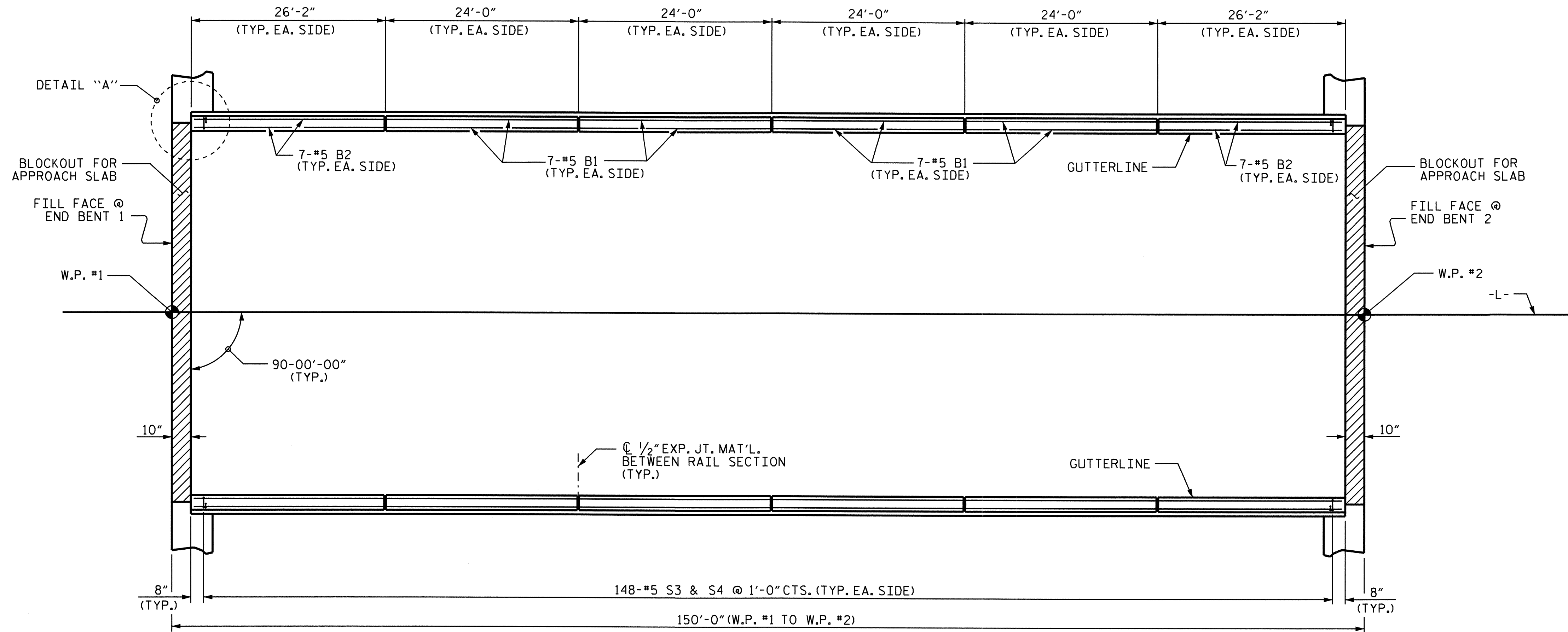


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 STRUCTURAL
 STEEL DETAILS
 BOLTED FIELD SPLICE

DRAWN BY: OT NGUYEN DATE: 12-09
 CHECKED BY: T.H. FANG DATE: 2-4-10

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			24

16-APR-2010 10:30
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 otnguyen



PLAN OF BARRIER RAIL

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL
FOR CONCRETE BARRIER RAIL ONLY

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	#5	STR	23'-8"	1382
* B2	#5	STR	25'-10"	754
* S3	#5	1	4'-10"	1492
* S4	#5	2	5'-2"	1595

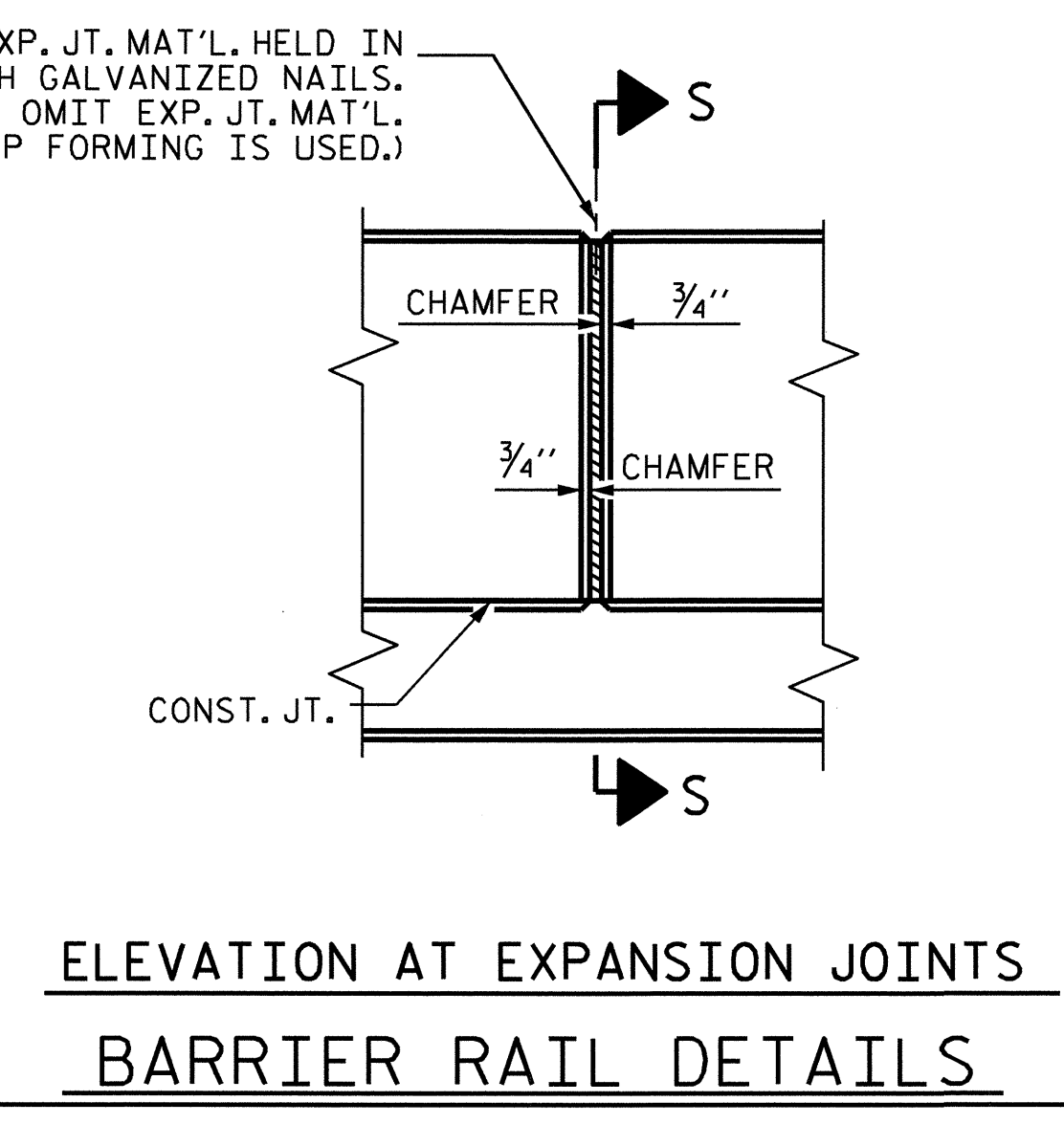
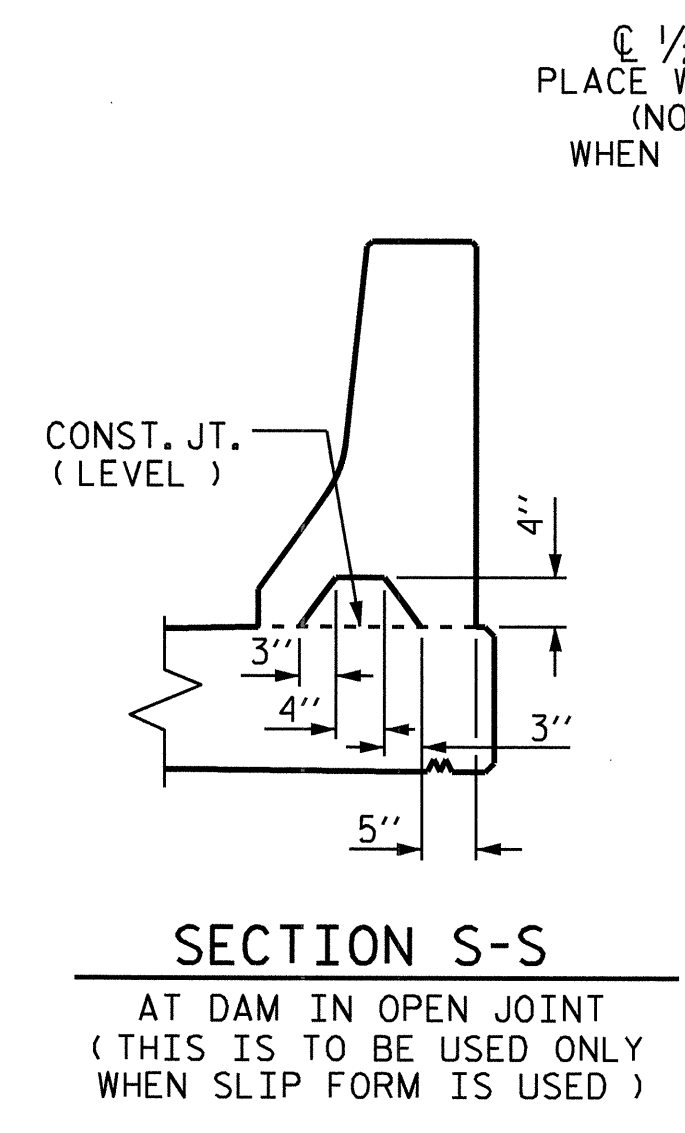
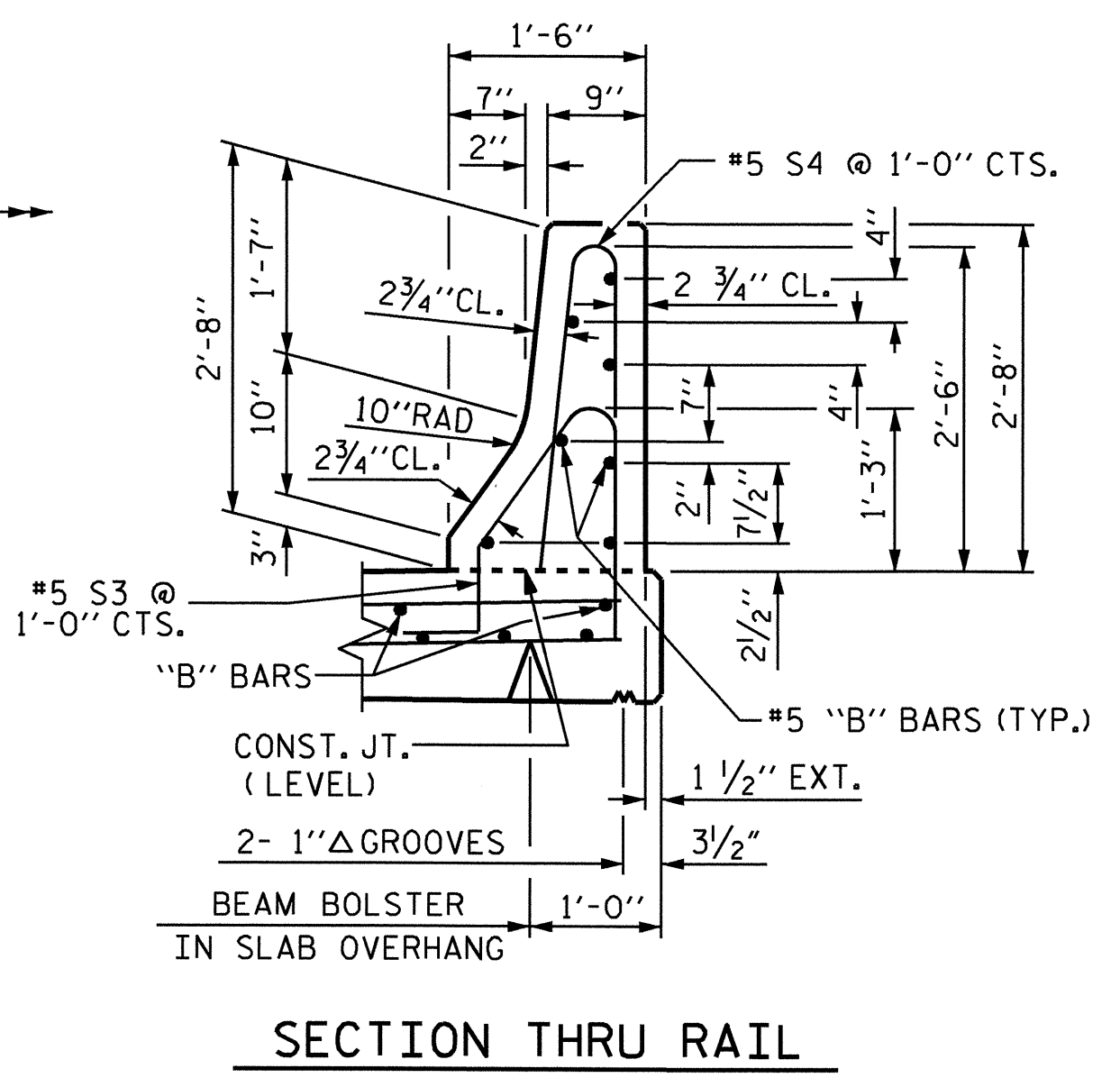
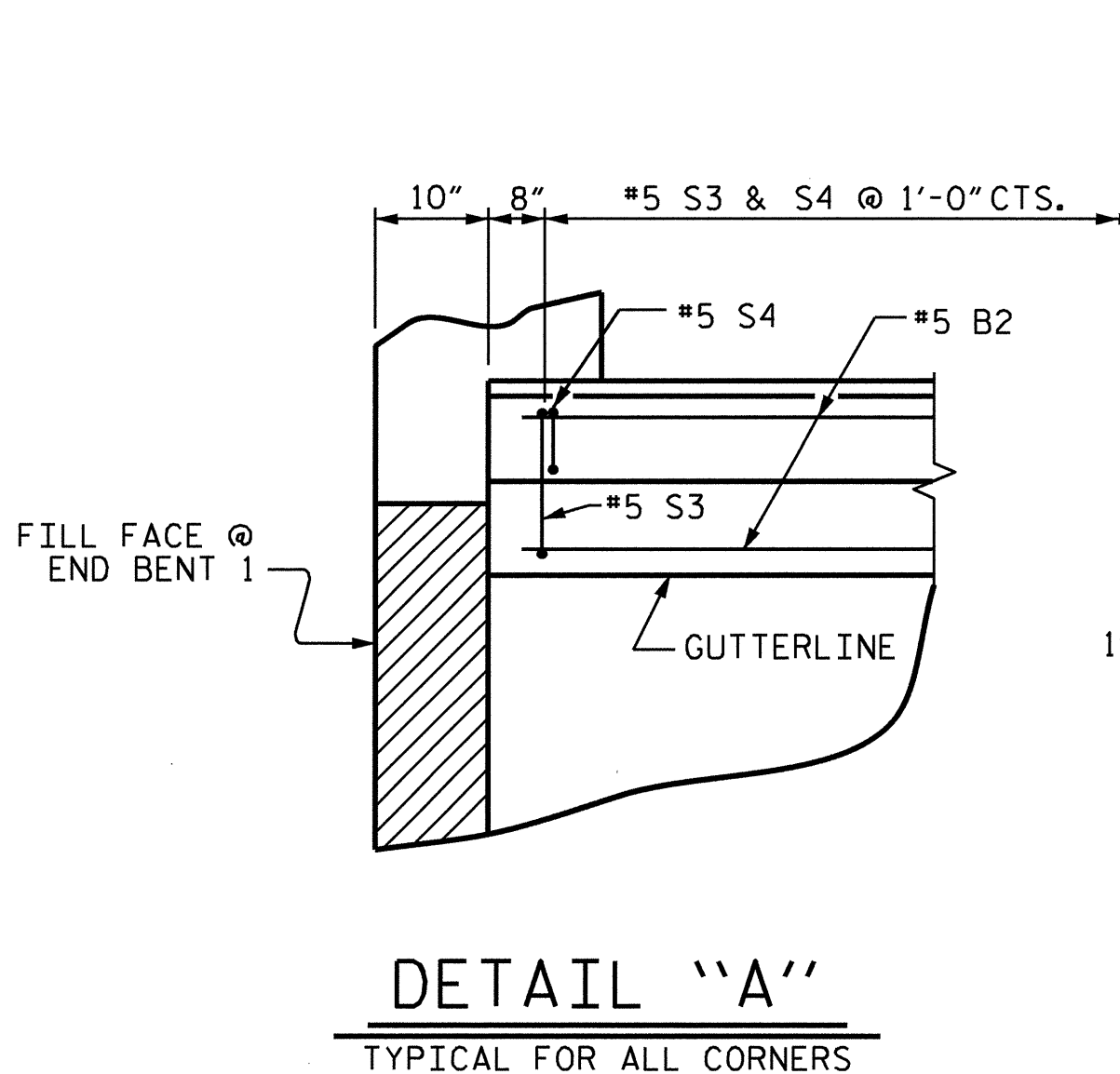
* EPOXY COATED REINFORCING STEEL 5223 LBS.
CLASS AA CONCRETE 29.7 CU. YDS.
CONCRETE BARRIER RAIL 296.67 LIN. FT.

NOTES

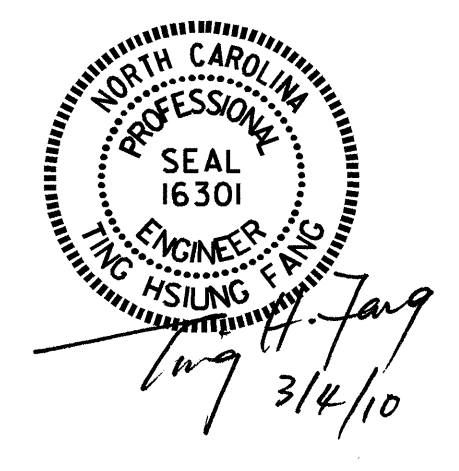
THE BARRIER RAIL IN THE SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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



PROJECT NO. B-4459
CHATHAM COUNTY
STATION: 20+47.00 -L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
CONCRETE
BARRIER RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS 24
2			4			

ASSEMBLED BY: QT NGUYEN DATE: 12-09
CHECKED BY: T.H. FANG DATE: 2-2-10
DRAWN BY: ARB 5/87 REV. 10/17/00 RWW/LES
CHECKED BY: SJD 9/87 REV. 5/7/03R RWW/JTE
REV. 5/1/06 TLA/GM

NOTES

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

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

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

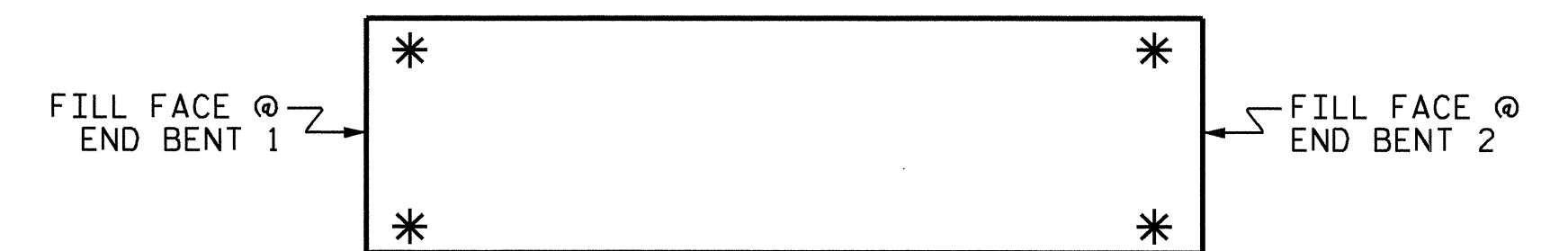
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

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

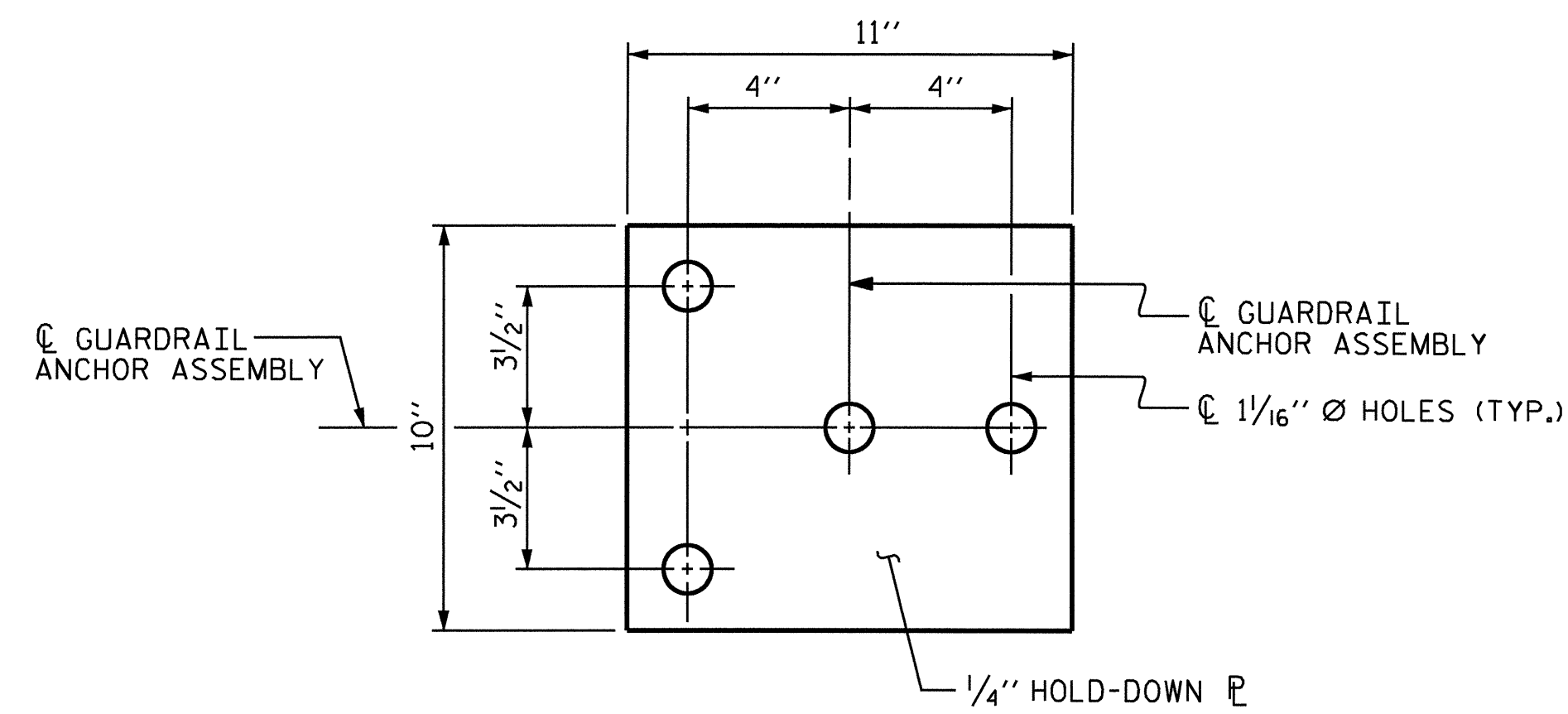
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

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

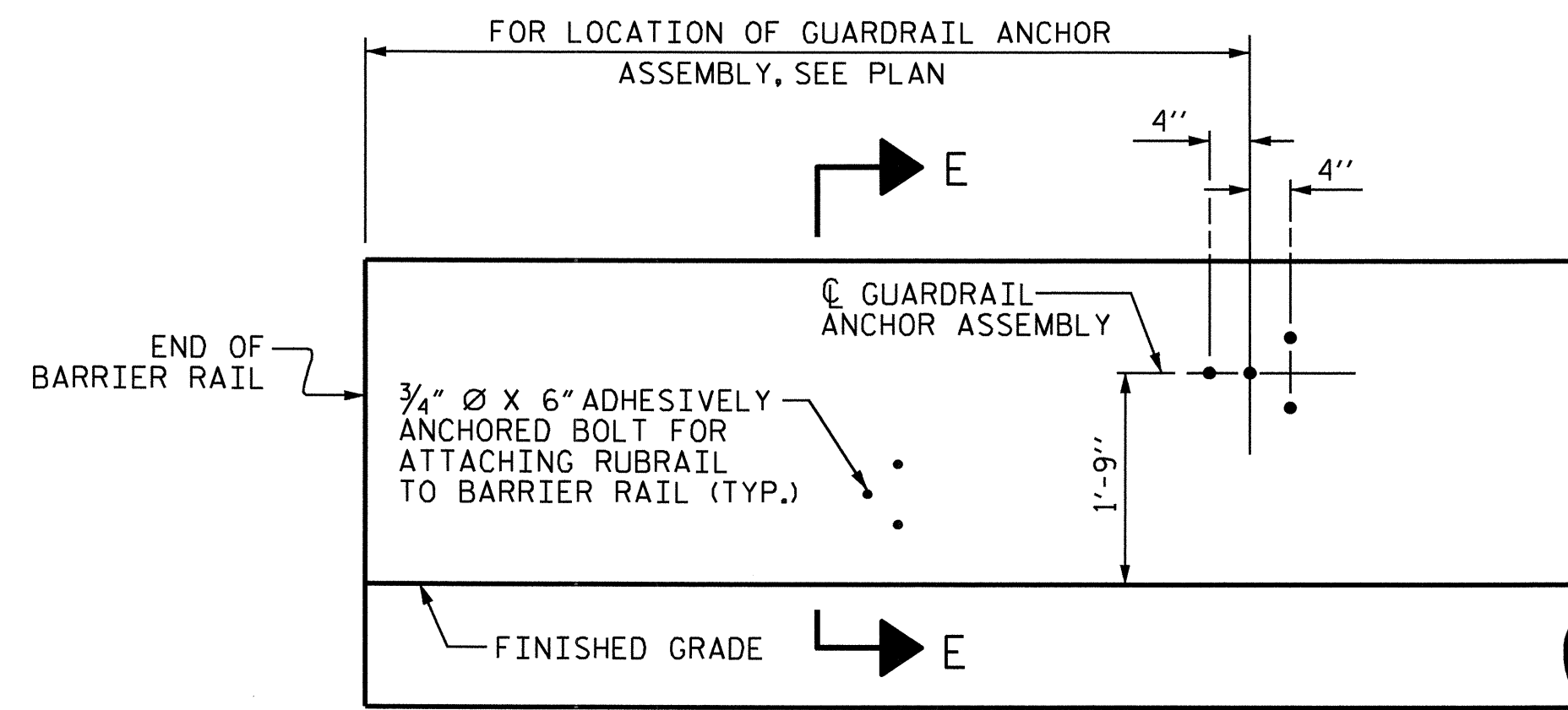


SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

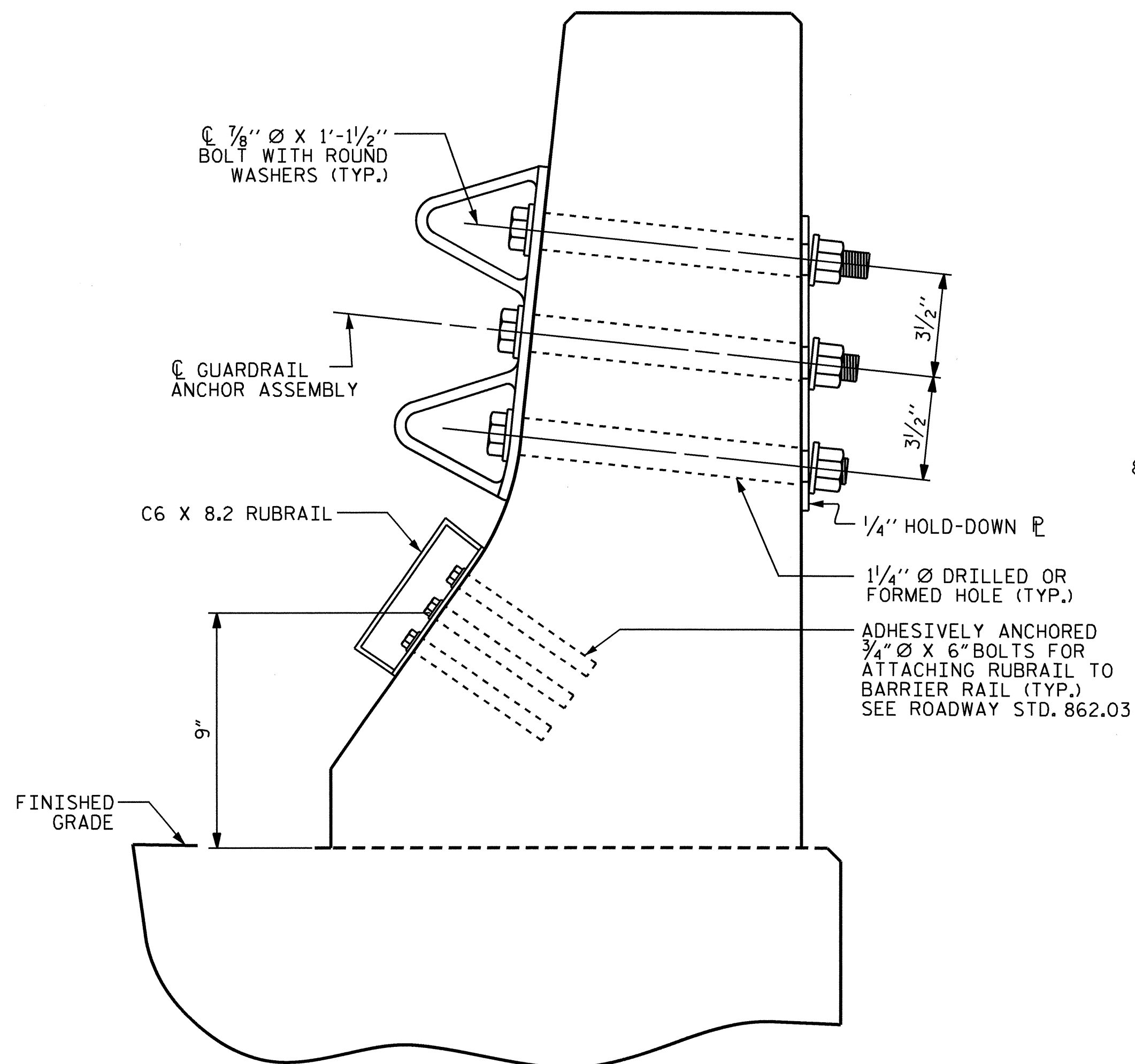


PLAN



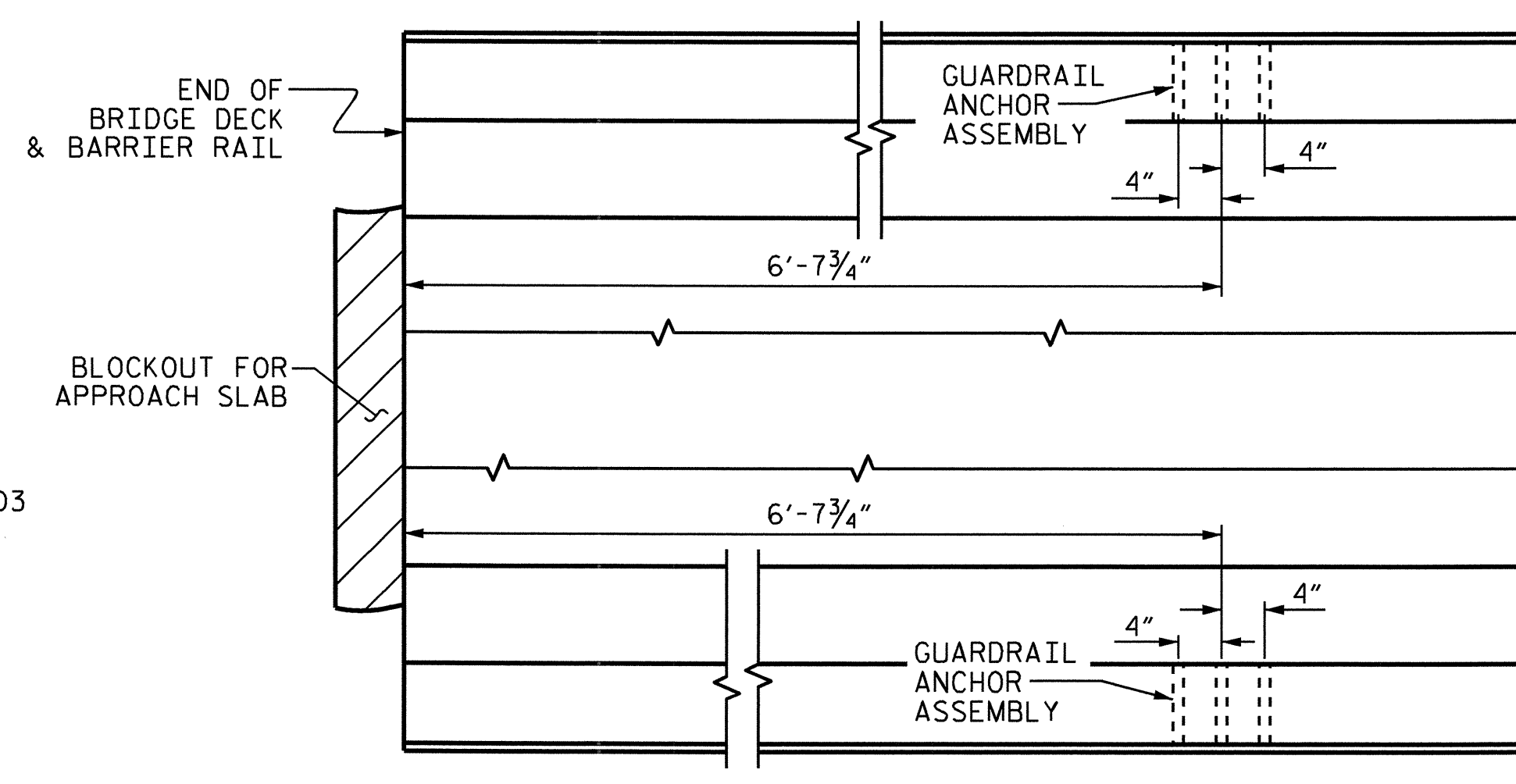
ELEVATION

FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03



SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS

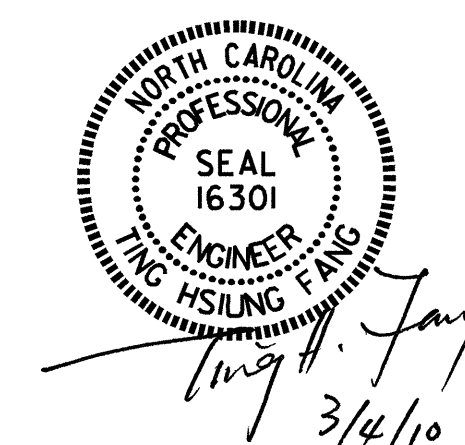


PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT 1 SHOWN, END BENT 2 SIMILAR.

PROJECT NO. B-4459
CHATHAM COUNTY
 STATION: 20+47.00 -L-



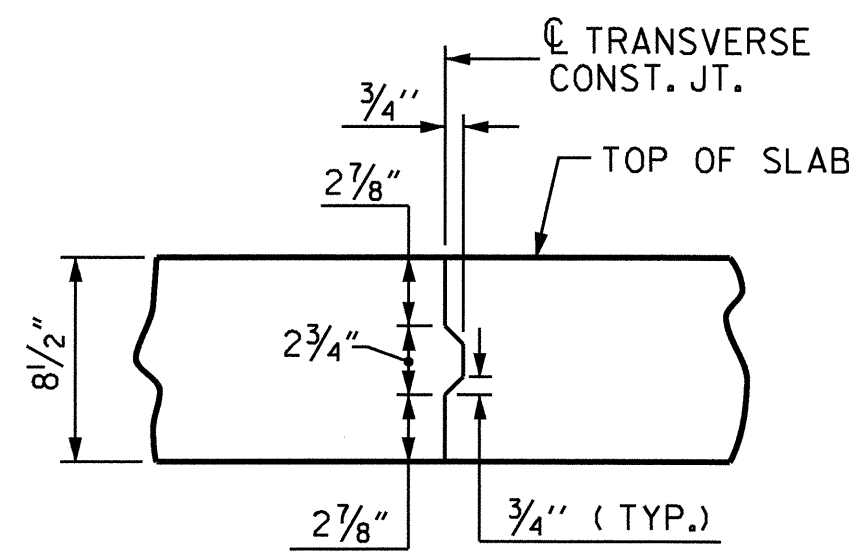
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 FOR BARRIER RAIL

ASSEMBLED BY :	OT NGUYEN	DATE :	12-09
CHECKED BY :	T. H. FANG	DATE :	2-2-10
DRAWN BY :	TLA 5/06	ADDED	5/1/06
CHECKED BY :	GM 5/06		

04-MAR-2010 14:38
 Z:\Structure\Final Plans\B4459.SD_BR.dgn
 jayannaccone

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			24

STD. NO. GRA2



TRANSVERSE CONSTRUCTION JOINT DETAIL

NOTE: REINFORCING STEEL IN SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THRU JOINT

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"			

BILL OF MATERIAL

SPAN A

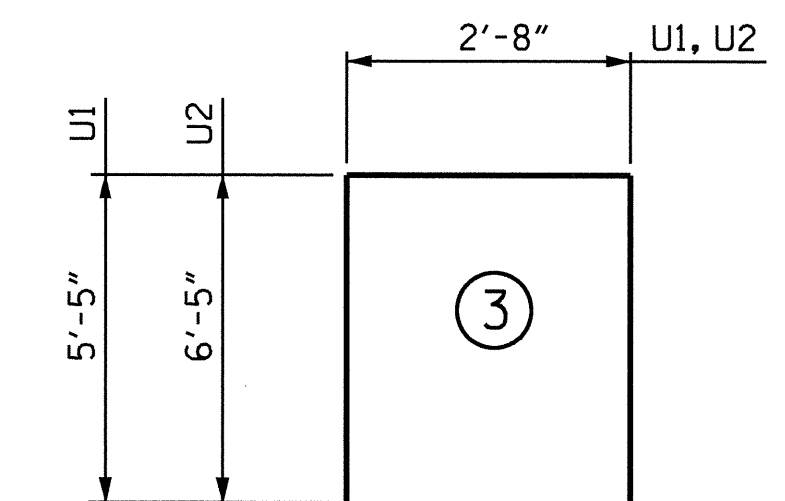
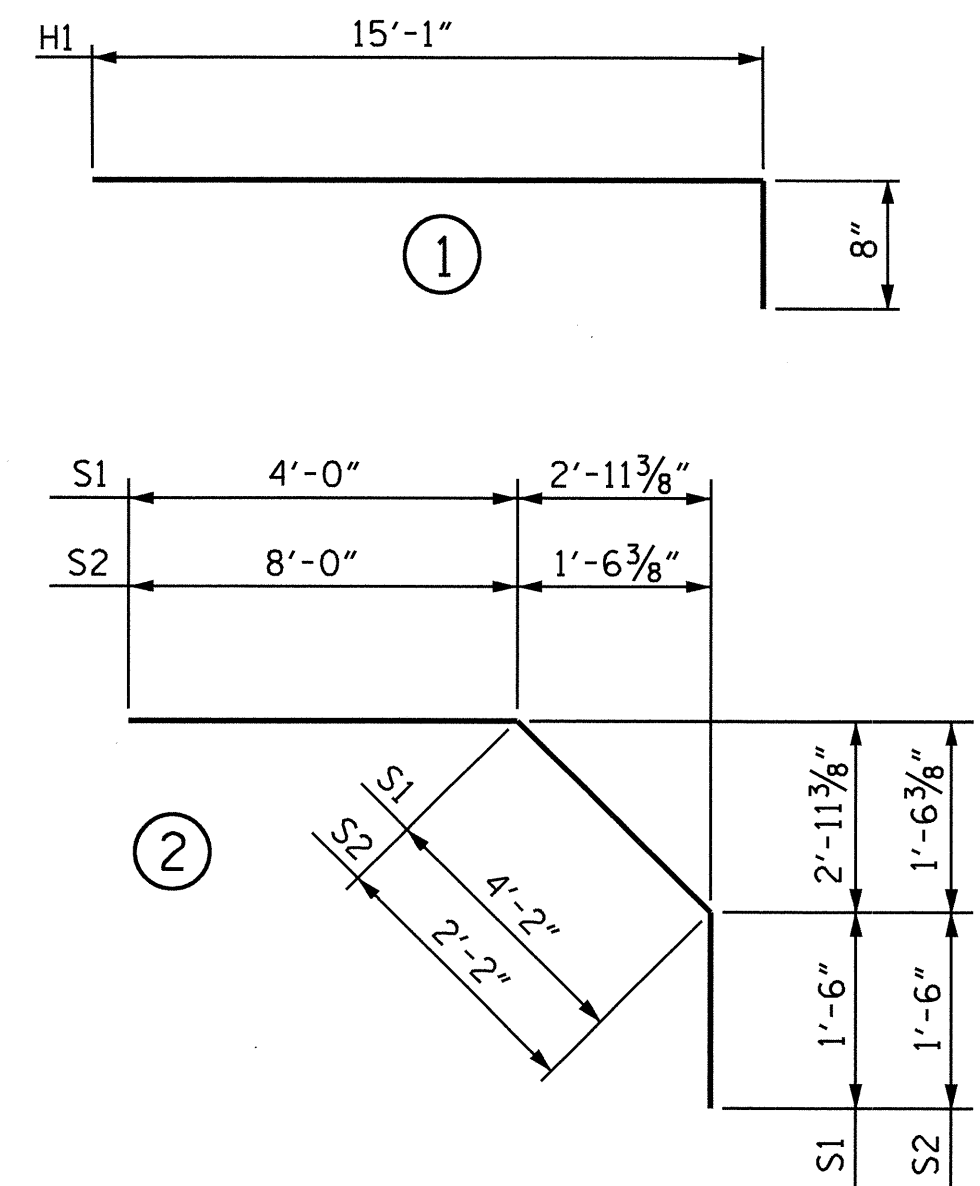
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	297	#5	STR	32'-11"	10197
A2	297	#5	STR	32'-11"	10197
* B1	144	#4	STR	26'-4"	2533
B2	156	#5	STR	38'-8"	6291
* B3	84	#6	STR	30'-0"	3785
H1	56	#4	1	15'-9"	589
K1	24	#5	STR	38'-11"	974
K2	8	#4	STR	2'-8"	14
* S1	56	#4	2	9'-8"	362
* S2	60	#4	2	11'-8"	468
U1	60	#4	3	13'-6"	541
U2	8	#4	3	15'-6"	83
V3	116	#4	STR	6'-3"	484

REINFORCING STEEL = 19,173 LBS
* EPOXY COATED REINF. STEEL = 17,345 LBS

GROOVING BRIDGE FLOORS

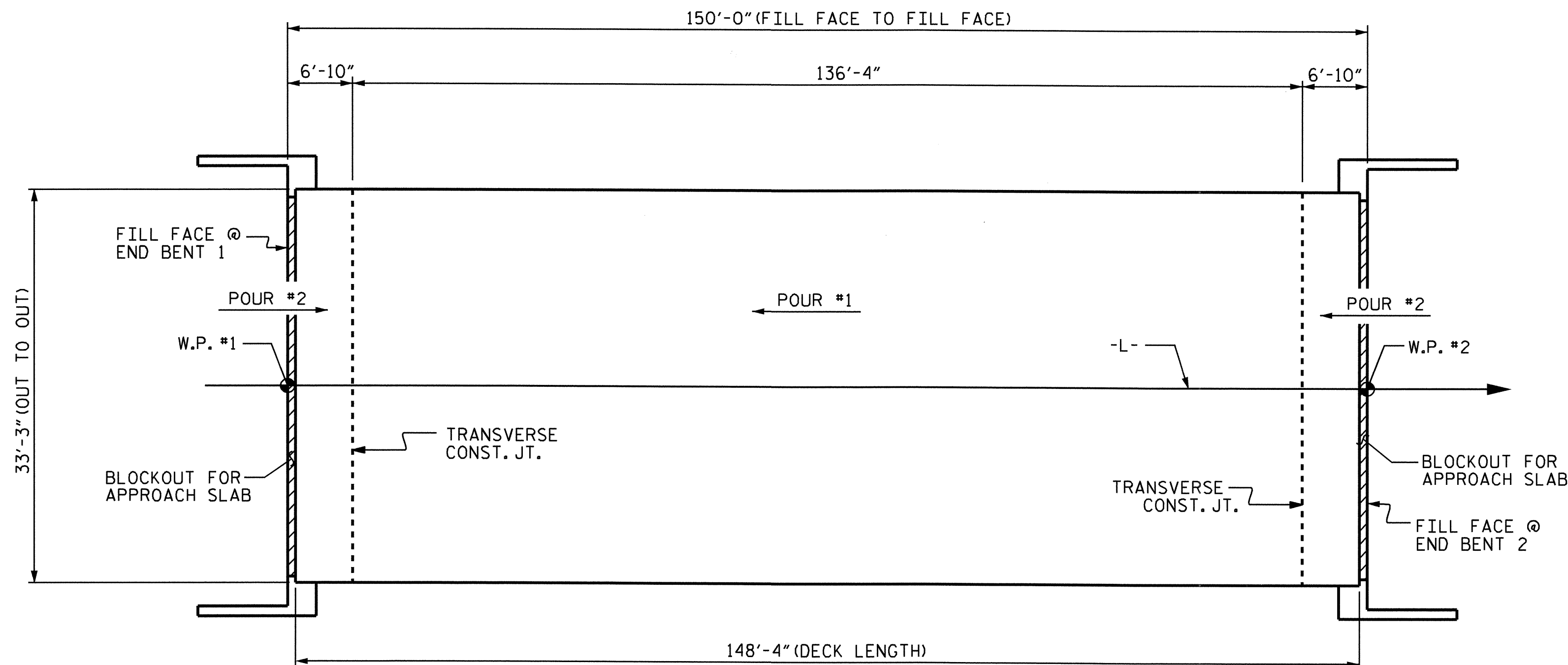
APPROACH SLABS	672	SO.FT.
BRIDGE DECK	3,996	SO.FT.
TOTAL	4,668	SO.FT.

BAR TYPES

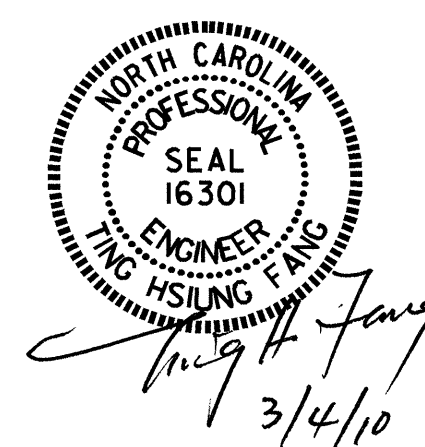


ALL BAR DIMENSIONS ARE OUT TO OUT

	CLASS AA CONCRETE (CU.YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
SPAN A		19,173	17,345
POUR #1	142.8		
POUR #2	81.8		
TOTALS	224.6	19,173	17,345



LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB (SQ. FT. = 4,988)

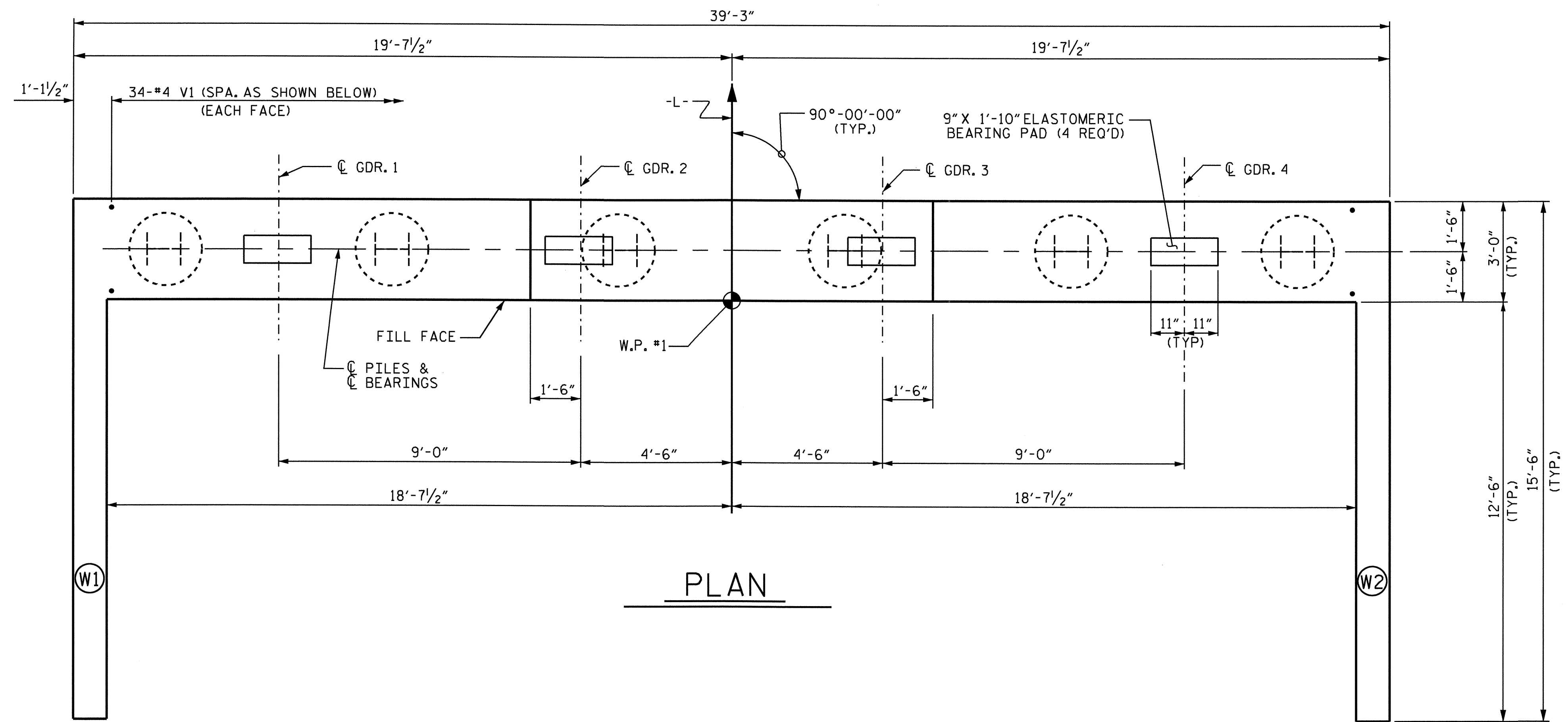


PROJECT NO. B-4459
CHATHAM COUNTY
STATION: 20+47.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
SUPERSTRUCTURE
BILL OF MATERIAL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			24

ASSEMBLED BY :	OT NGUYEN	DATE :	12-09
CHECKED BY :	T. H. FANG	DATE :	2-2-10
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



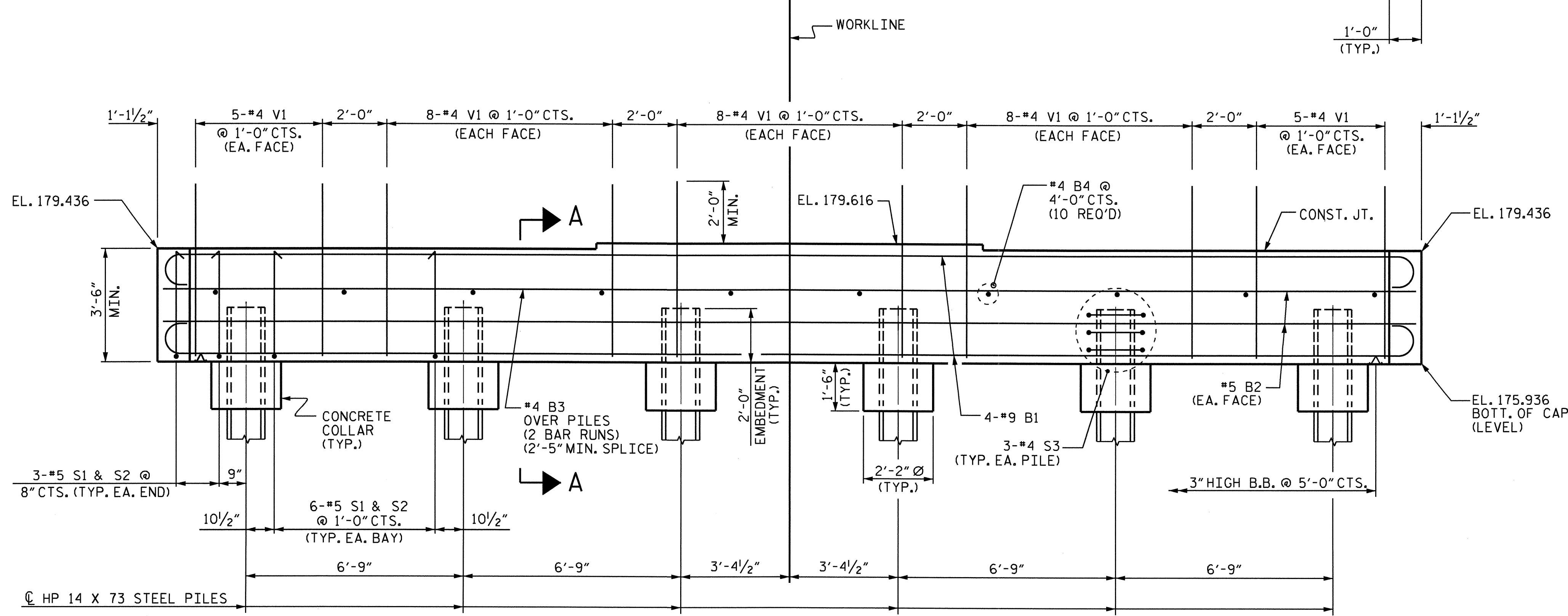
PLAN

NOTES:

THE TOP SURFACE OF THE END BENT CAP AND LOWER WINGS, EXCLUDING THE OUTSIDE 4" AND THE BEARING AREA SHALL BE RAKED TO THE DEPTH OF 1/4".

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.

SEE SUPERSTRUCTURE SHEETS FOR THE ABUTMENT DETAILS.

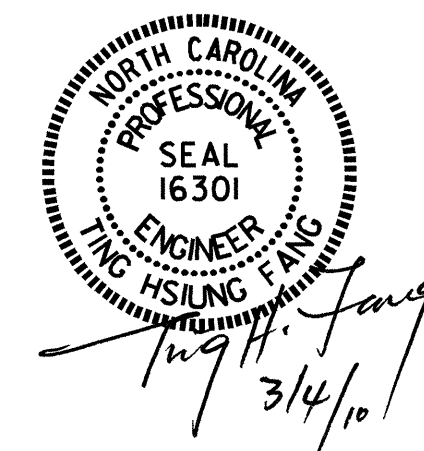


ELEVATION

PROJECT NO. B-4459
CHATHAM COUNTY
 STATION: 20+47.00 -L-

SHEET 1 OF 3

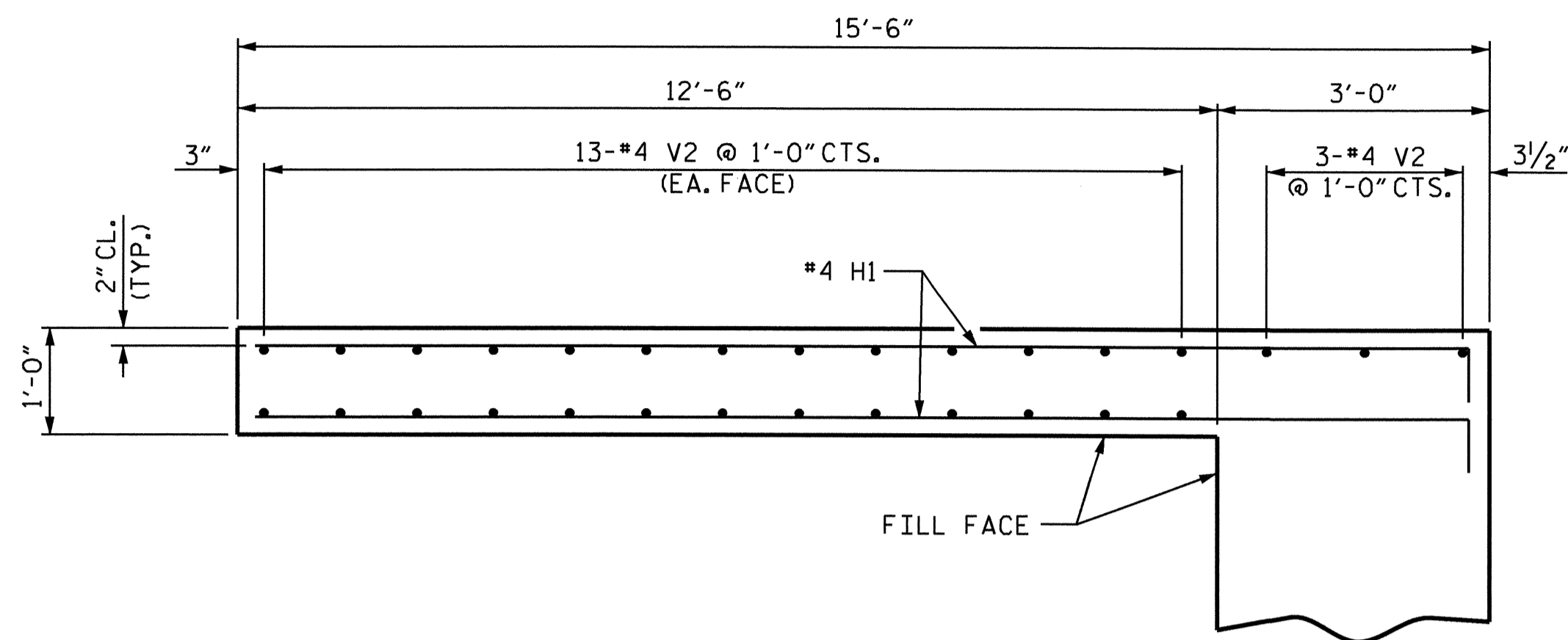
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 1
 INTEGRAL



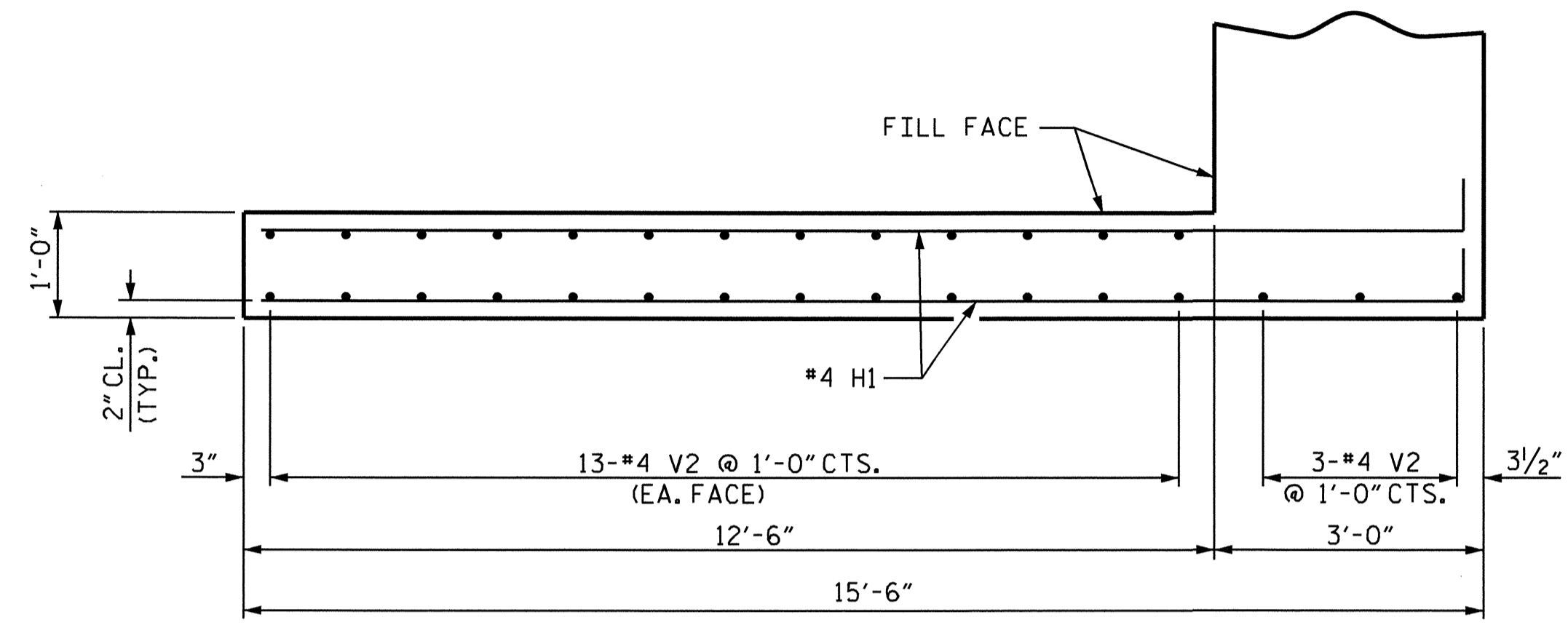
DRAWN BY: QT NGUYEN DATE: 12-09
 CHECKED BY: T. H. FANG DATE: 1-27-10

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
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2			4			24

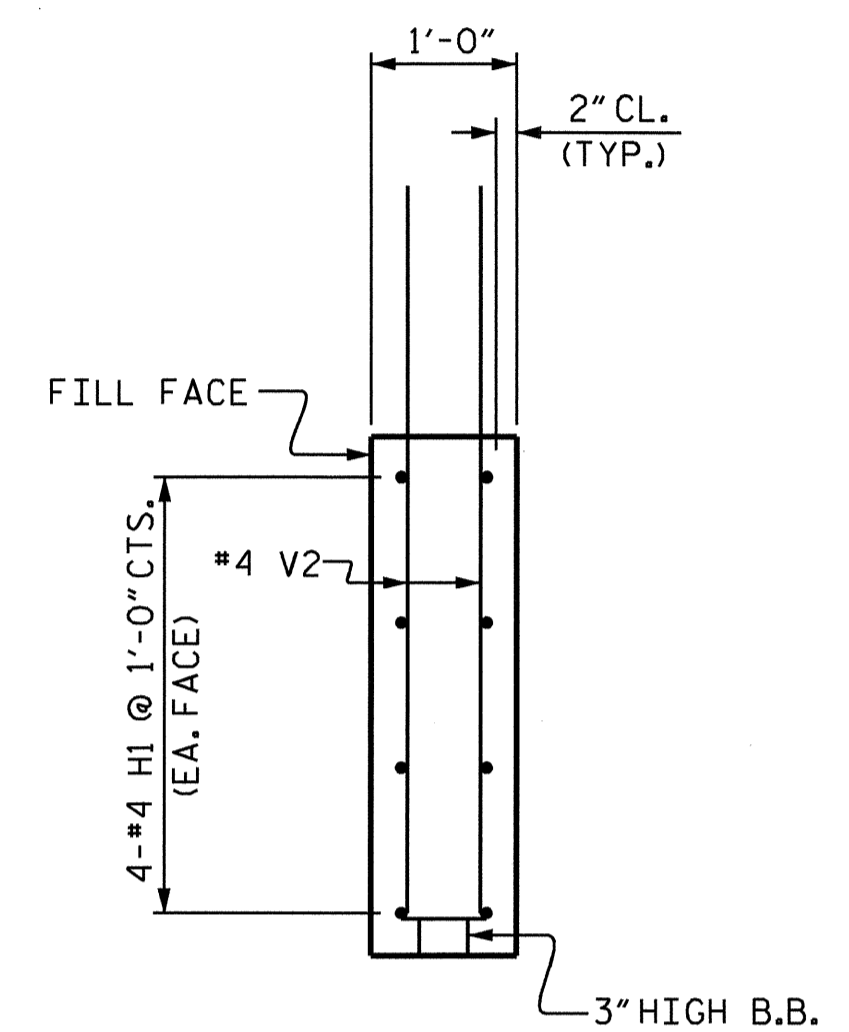
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 jayannaccone



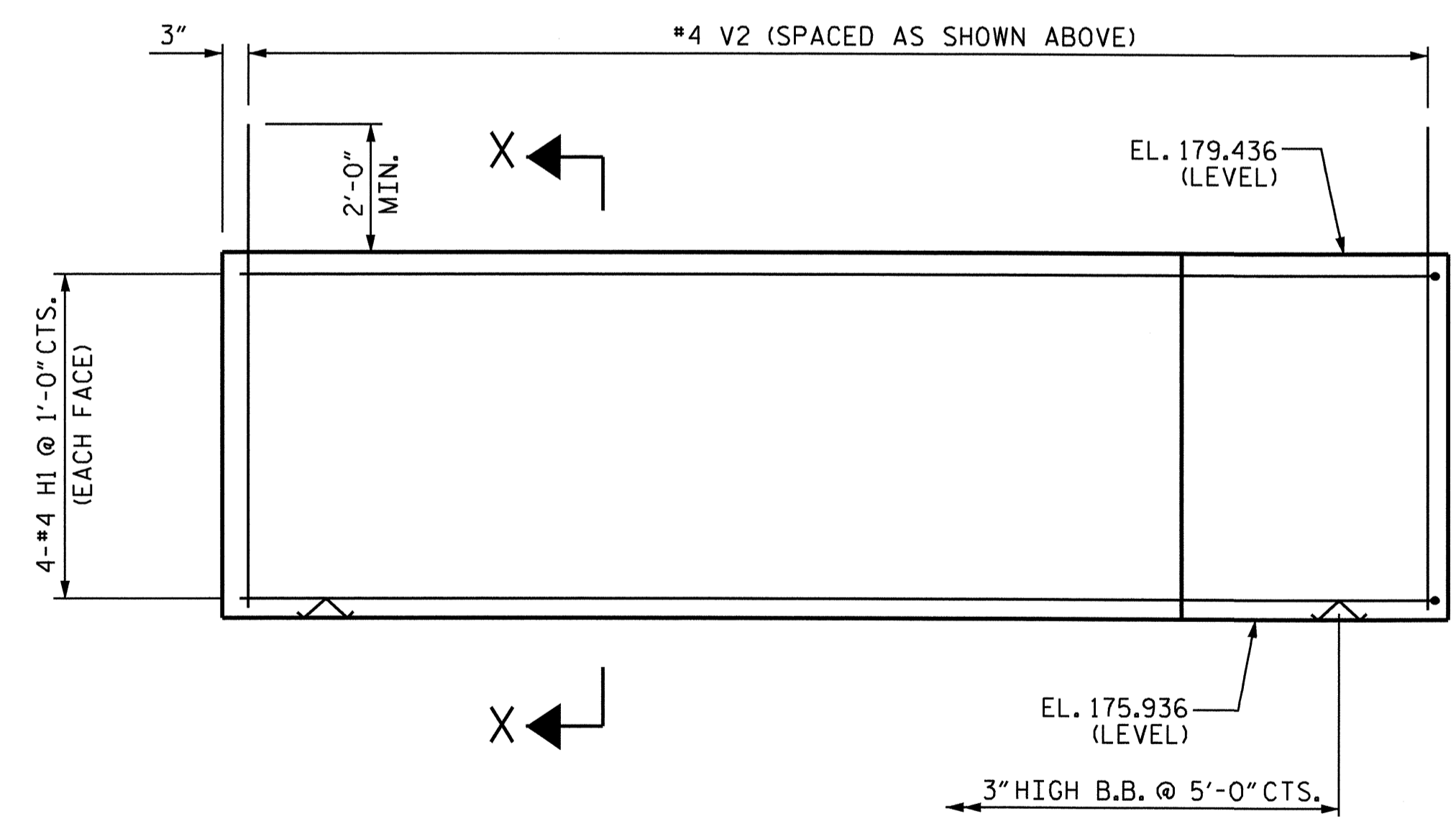
PLAN (W1)



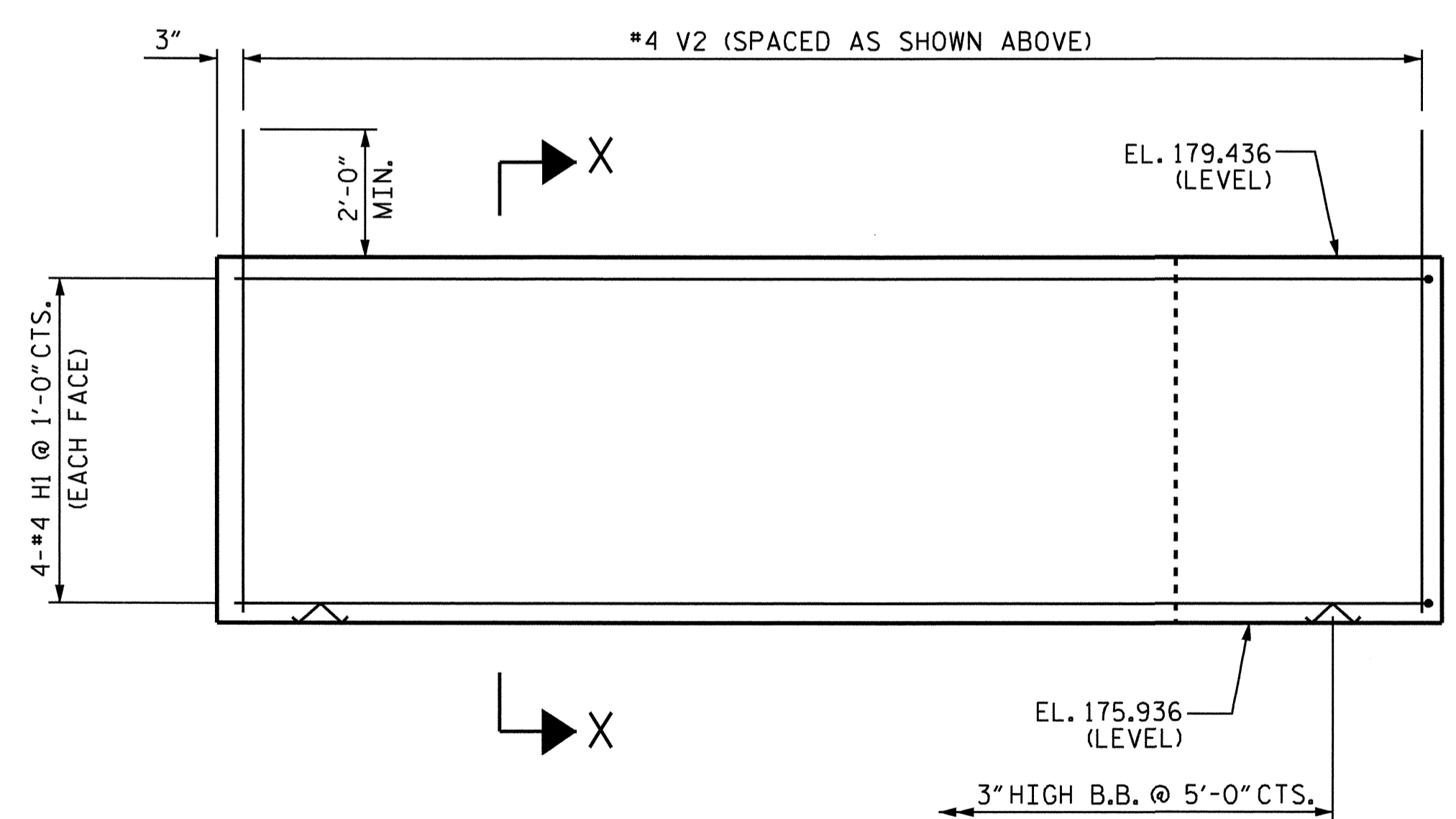
PLAN (W2)



SECTION X-X



ELEVATION (W1)



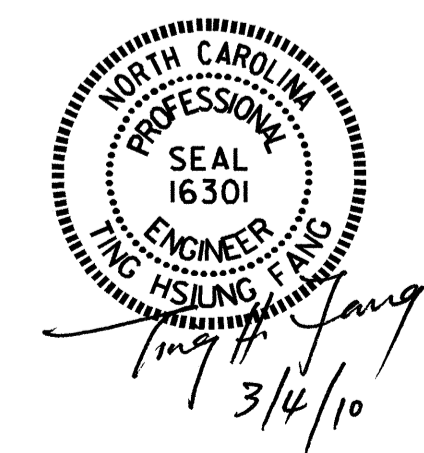
ELEVATION (W2)

ABUTMENT WINGS AT END BENT 1

PROJECT NO. B-4459
 CHATHAM COUNTY
 STATION: 20+47.00 -L-

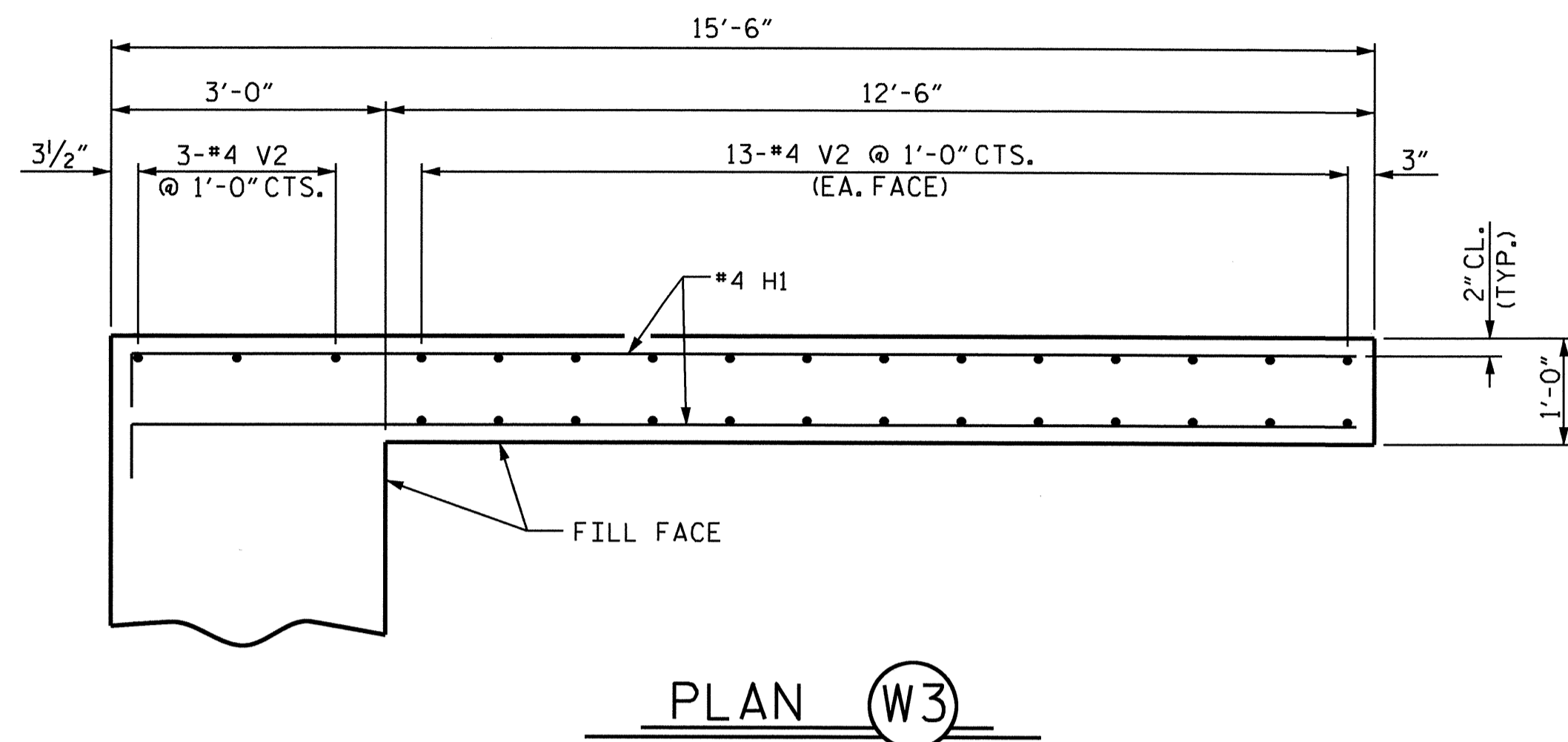
SHEET 2 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-17
SUBSTRUCTURE END BENT 1 INTEGRAL						TOTAL SHEETS 24
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

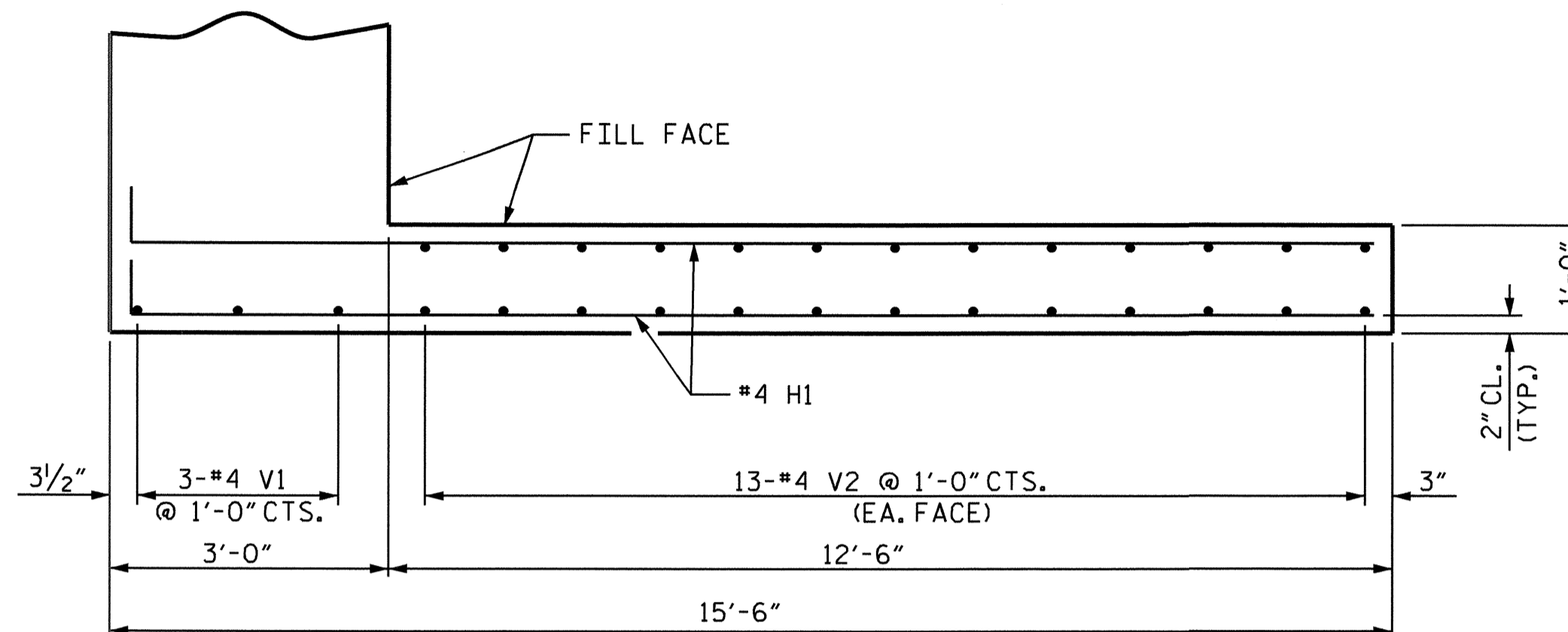


DRAWN BY : QT NGUYEN DATE : 12-09
 CHECKED BY : T. H. FANG DATE : 1-28-10

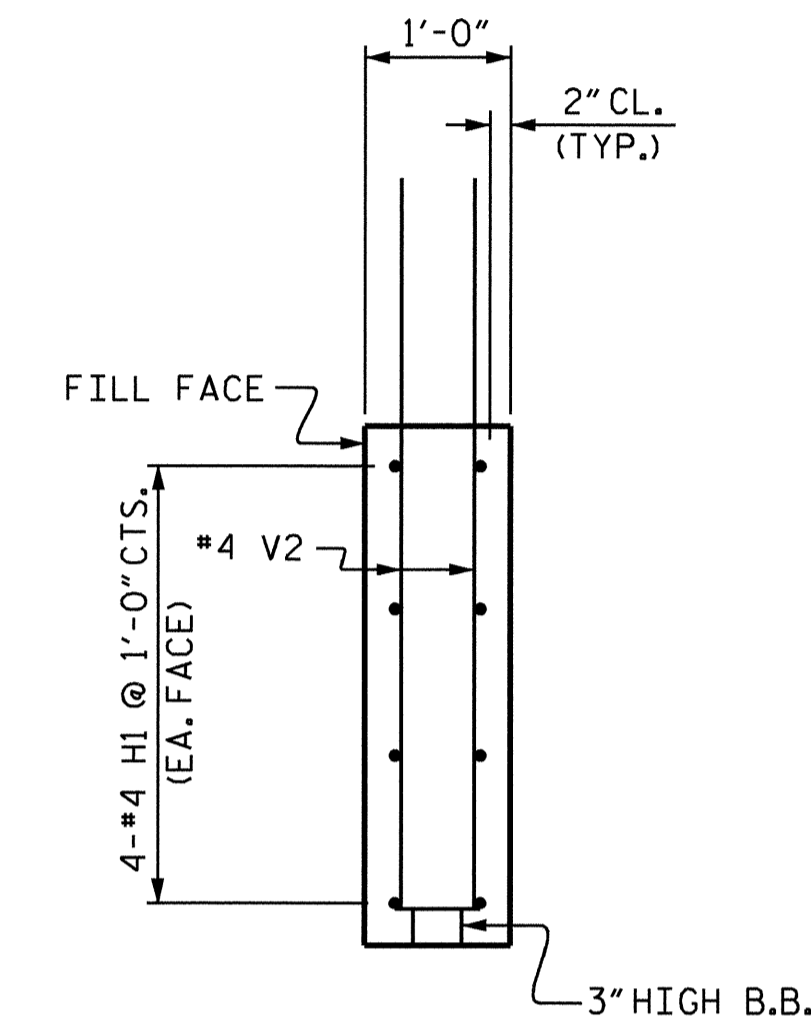
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 jayannaccone



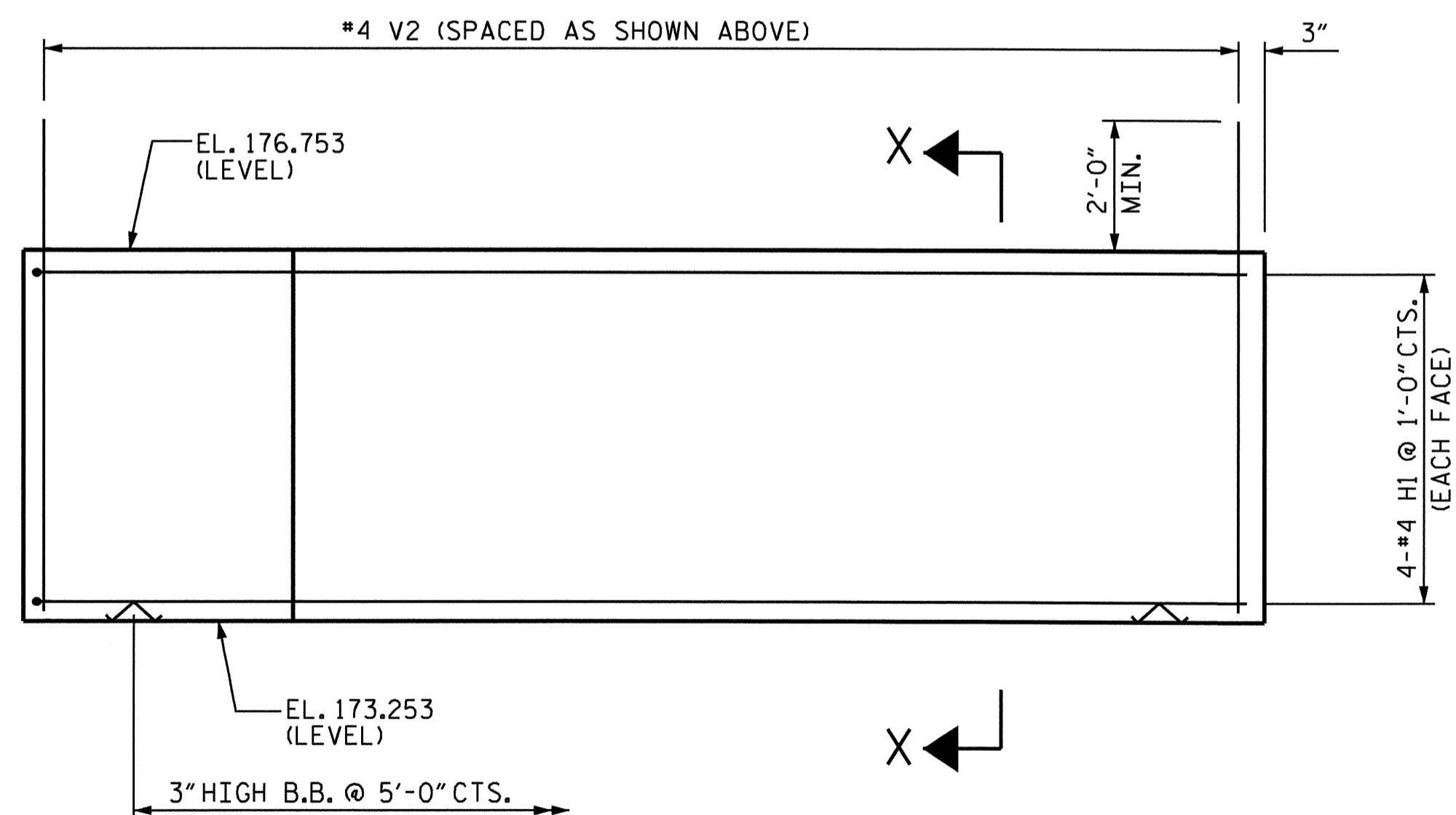
PLAN (W3)



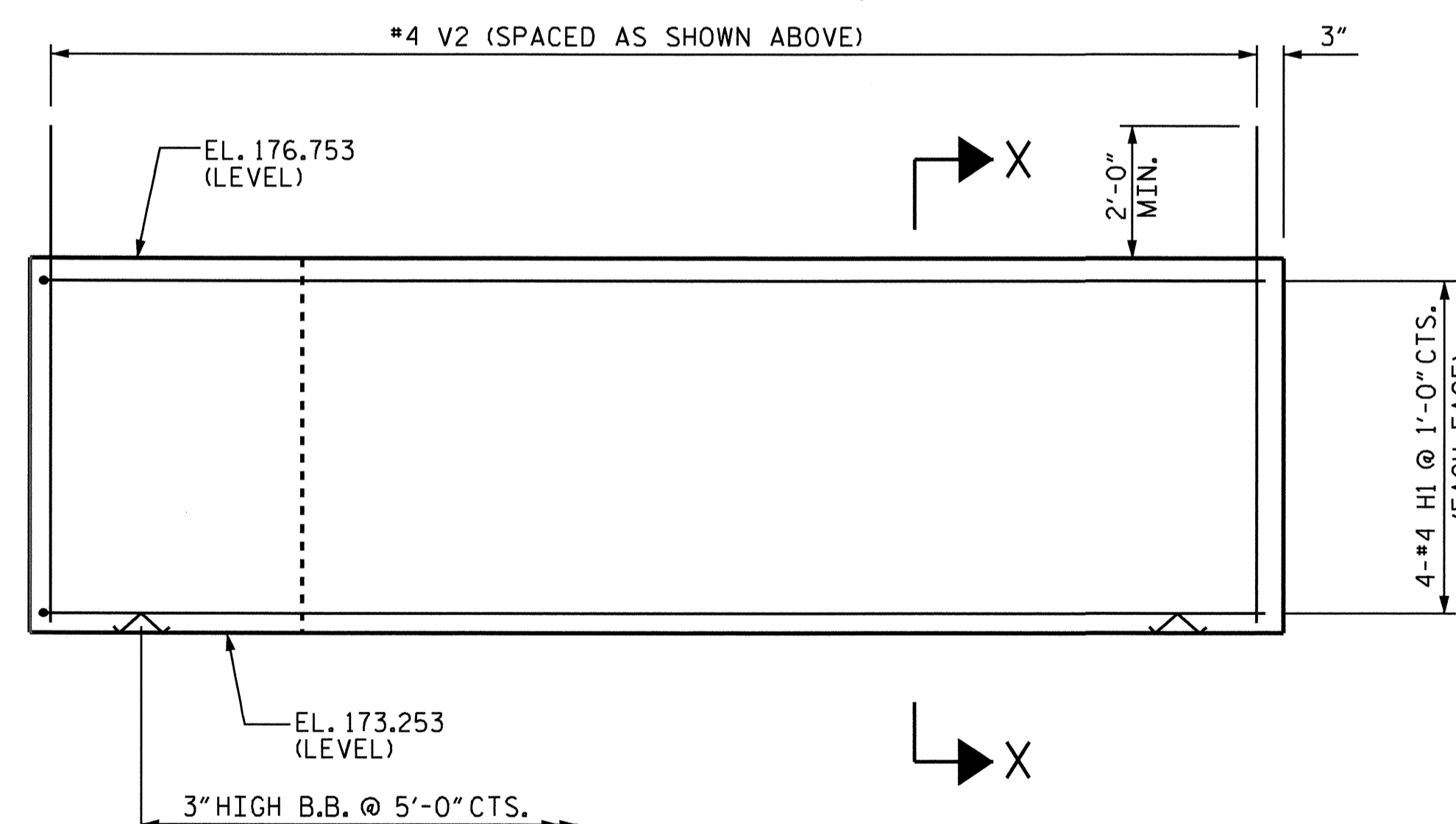
PLAN (W4)



SECTION X-X



ELEVATION (W3)



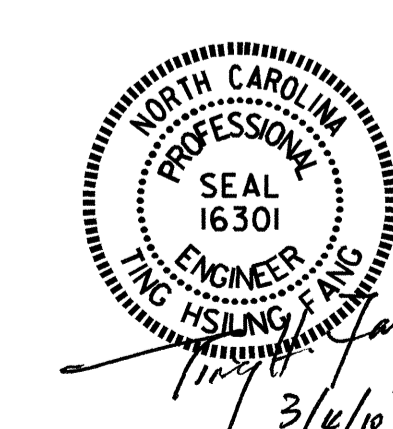
ELEVATION (W4)

ABUTMENT WINGS AT END BENT 2

PROJECT NO. B-4459
 CHATHAM COUNTY
 STATION: 20+47.00 -L-

SHEET 2 OF 3

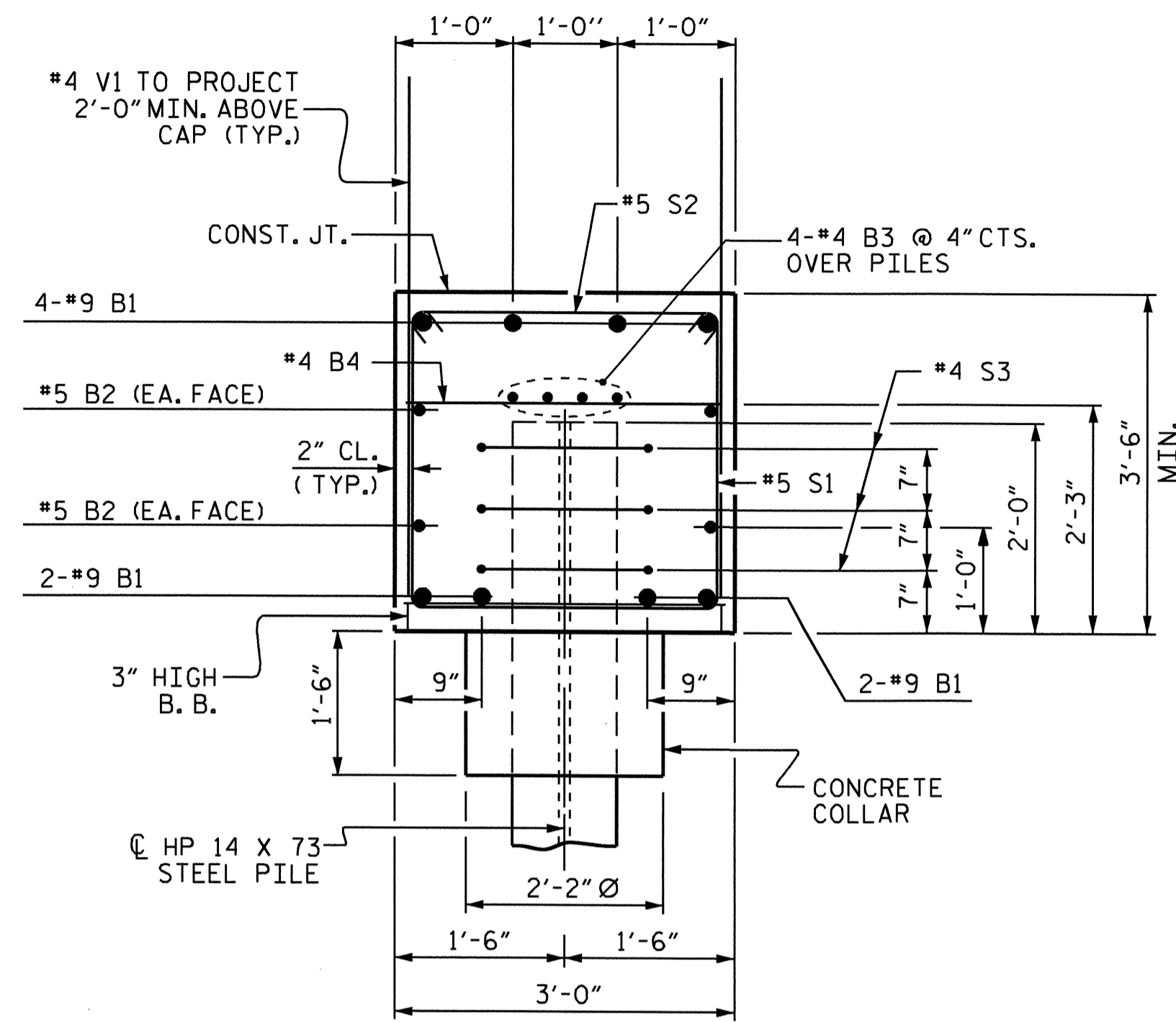
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2
 INTEGRAL



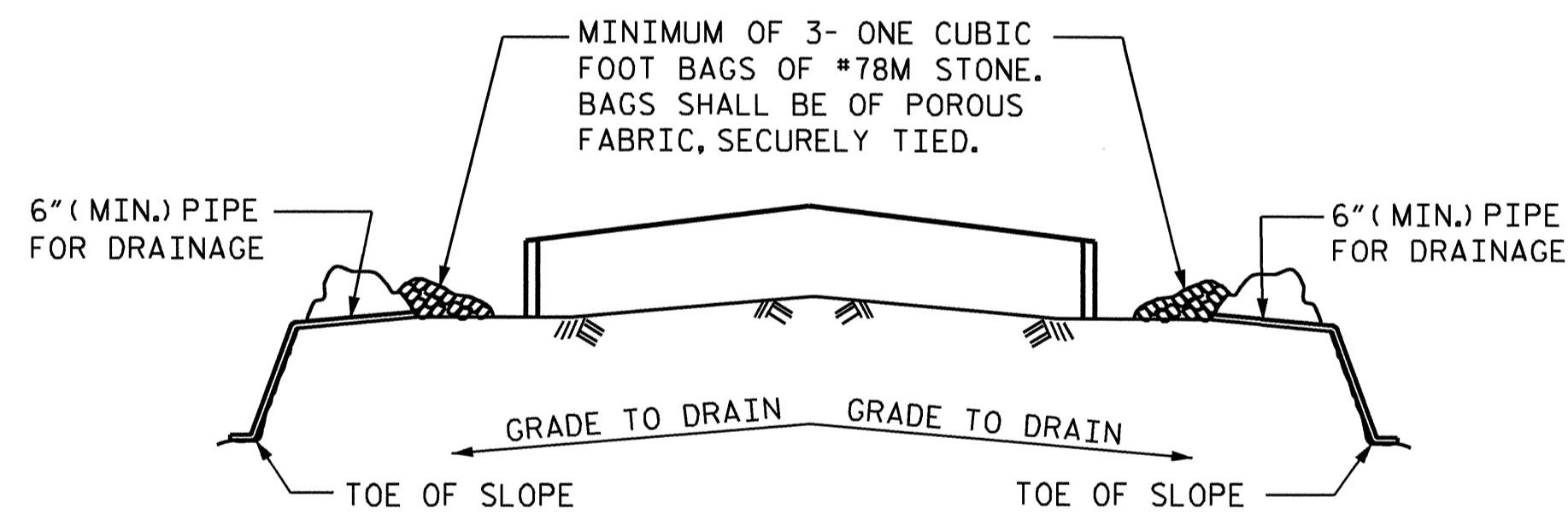
DRAWN BY: QT NGUYEN DATE: 12-09
 CHECKED BY: T. H. FANG DATE: 1-28-10

04-MAR-2010 14:38
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 joyannaccone

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			24



SECTION A-A



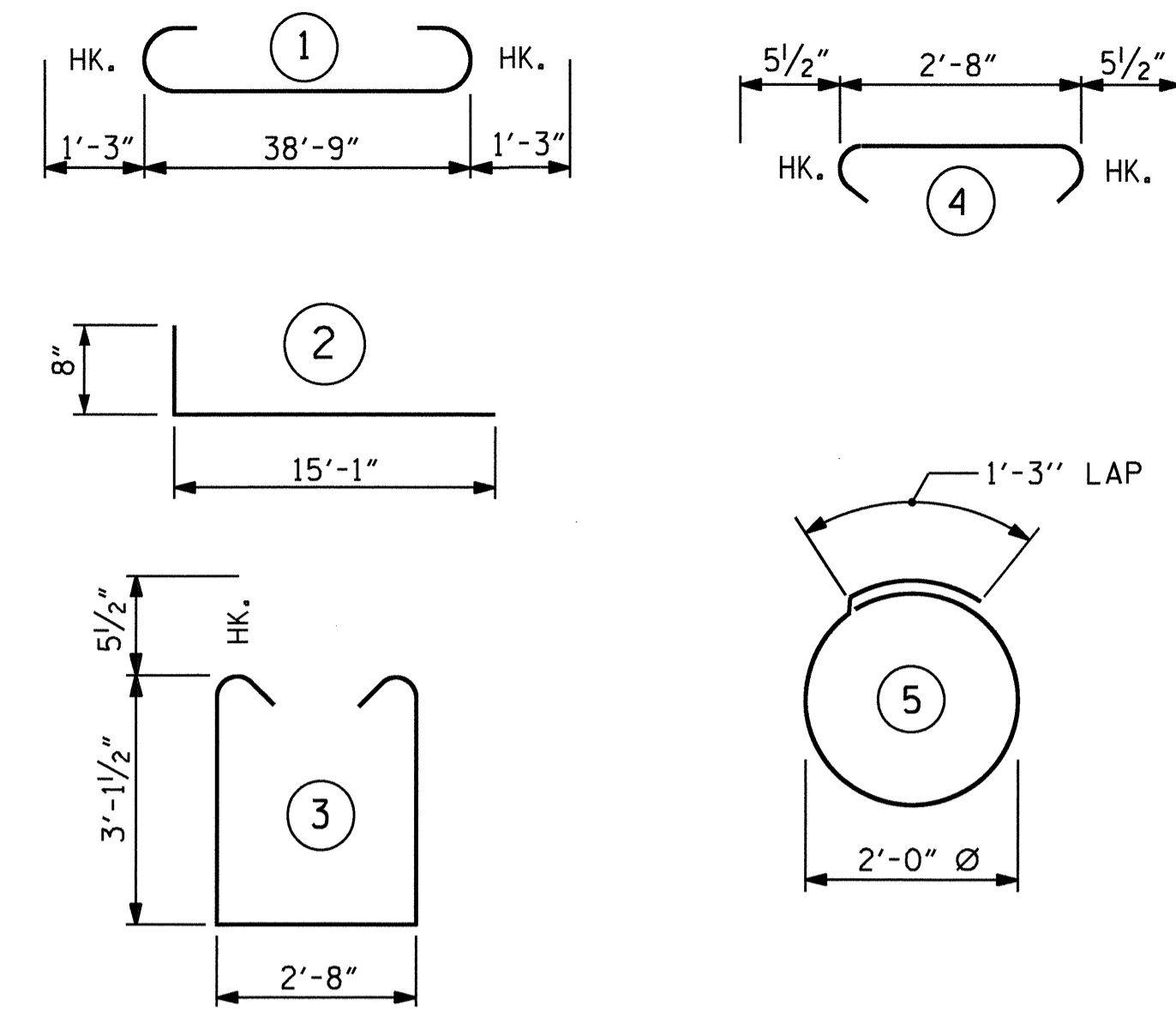
BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

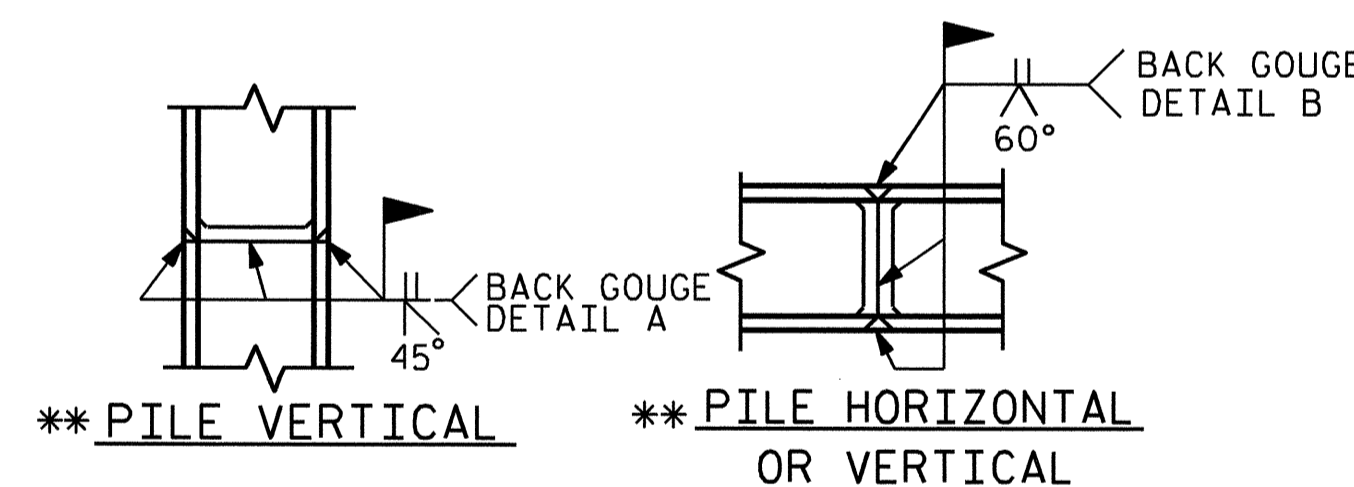
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

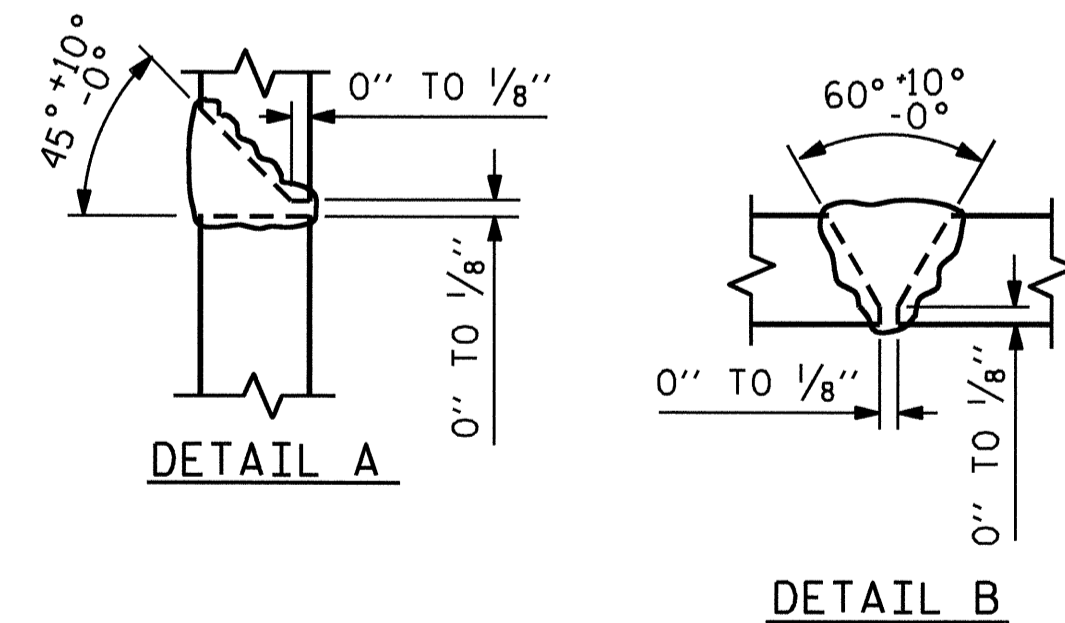
BILL OF MATERIAL					
END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	41'-3"	1122
B2	4	#5	STR	38'-11"	162
B3	8	#4	STR	20'-8"	110
B4	10	#4	STR	2'-8"	18
H1	16	#4	2	15'-9"	168
S1	36	#5	3	9'-10"	369
S2	36	#5	4	3'-7"	135
S3	18	#4	5	7'-7"	91
V1	68	#4	STR	5'-6"	250
V2	58	#4	STR	5'-4"	207
REINFORCING STEEL					= 2632 LBS
CLASS A CONCRETE:					
CAP, LOWER WINGS, & COLLARS 20.0 C.Y.					
HP 14 X 73 STEEL PILES					
NO. 6 LIN. FT. 210					



ALL BAR DIMENSIONS ARE OUT TO OUT.



** PILE VERTICAL OR VERTICAL



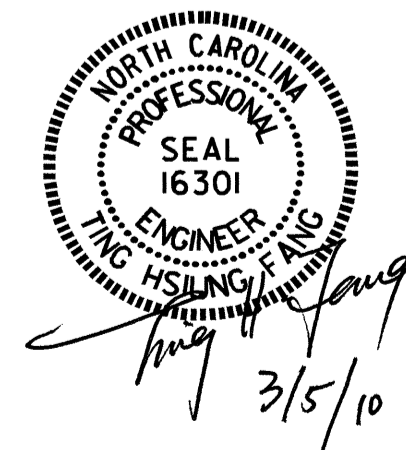
** POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

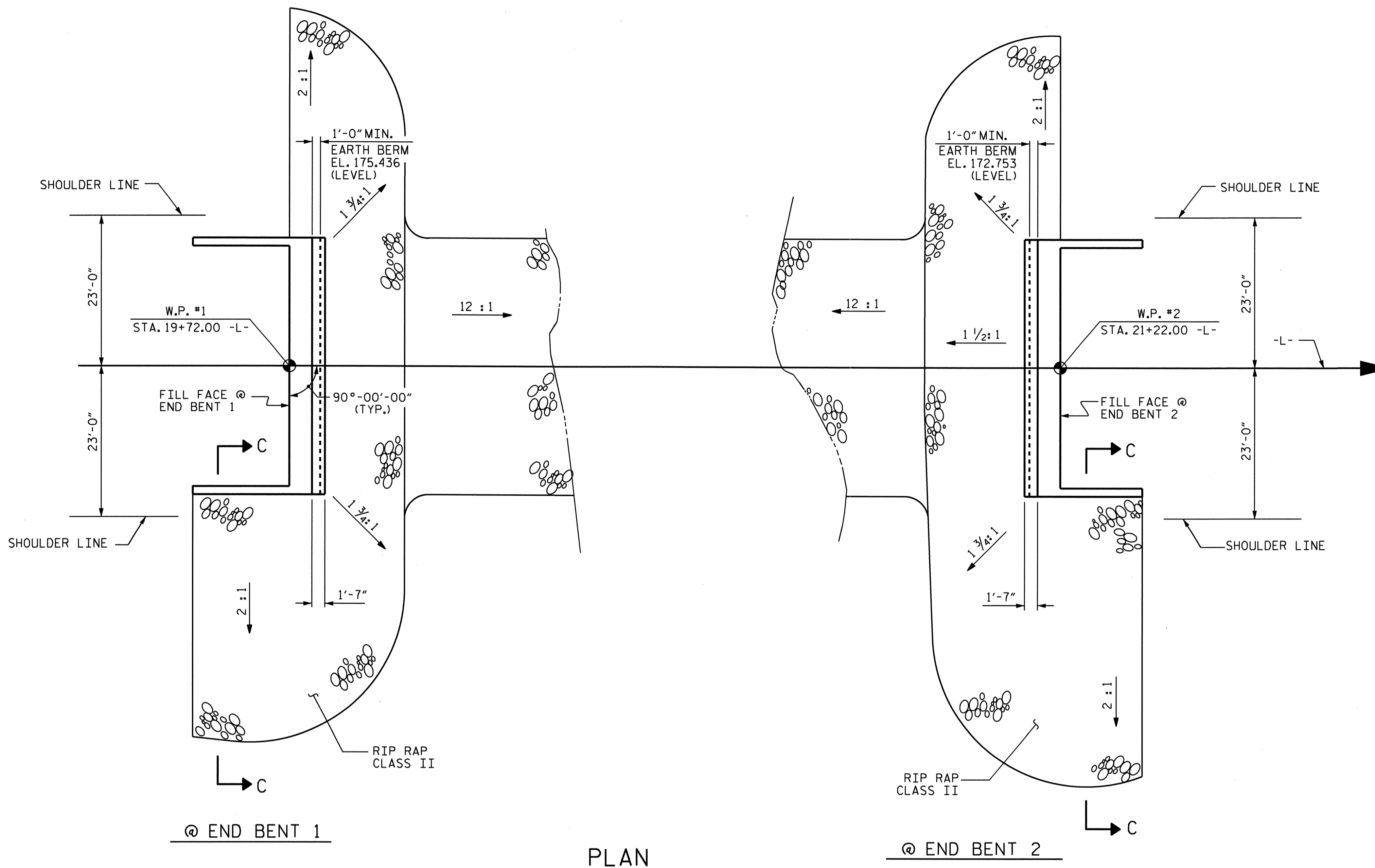
PROJECT NO. B-4459
CHATHAM COUNTY
 STATION: 20+47.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
END BENT 2					
INTEGRAL					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					24



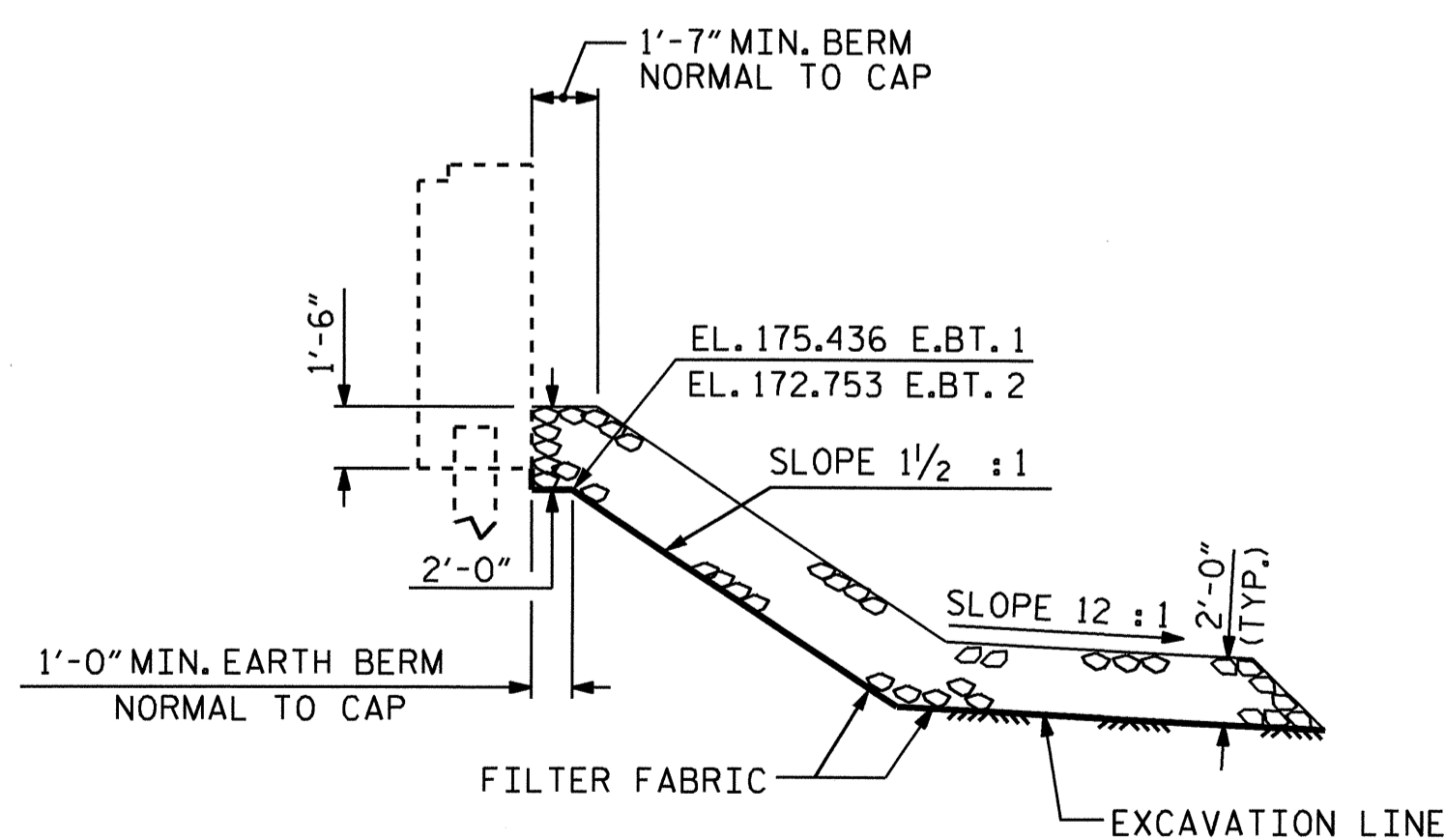
DRAWN BY : QT NGUYEN DATE : 12-09
 CHECKED BY : T. H. FANG DATE : 1-28-10



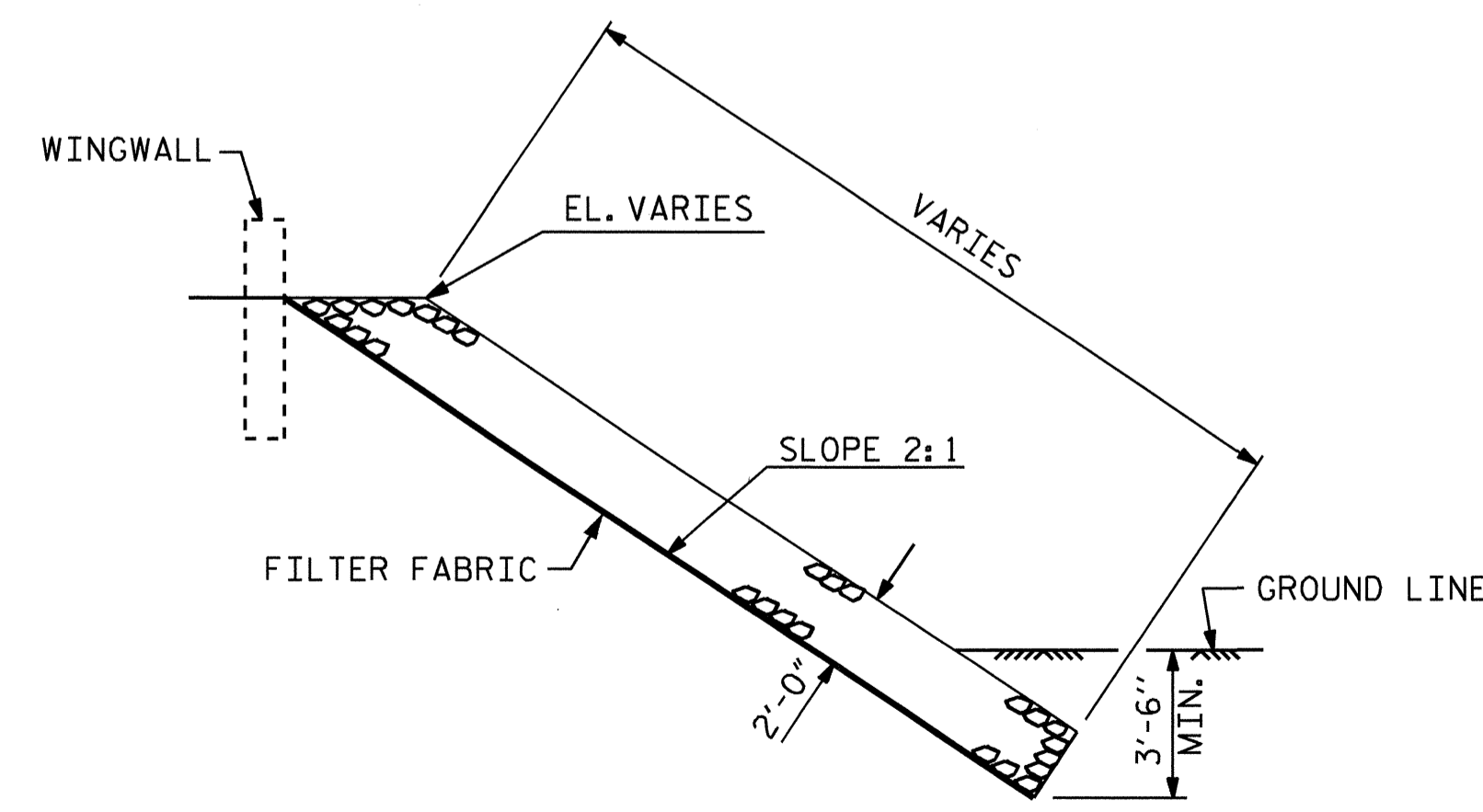
@ END BENT 1

PLAN

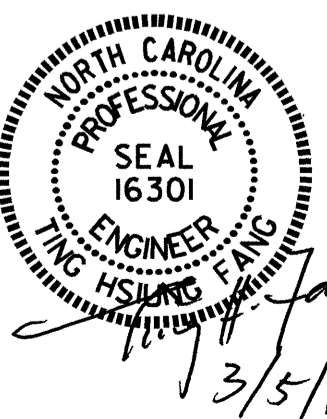
@ END BENT 2



SECTION
BERM RIP RAPPED



SECTION C-C



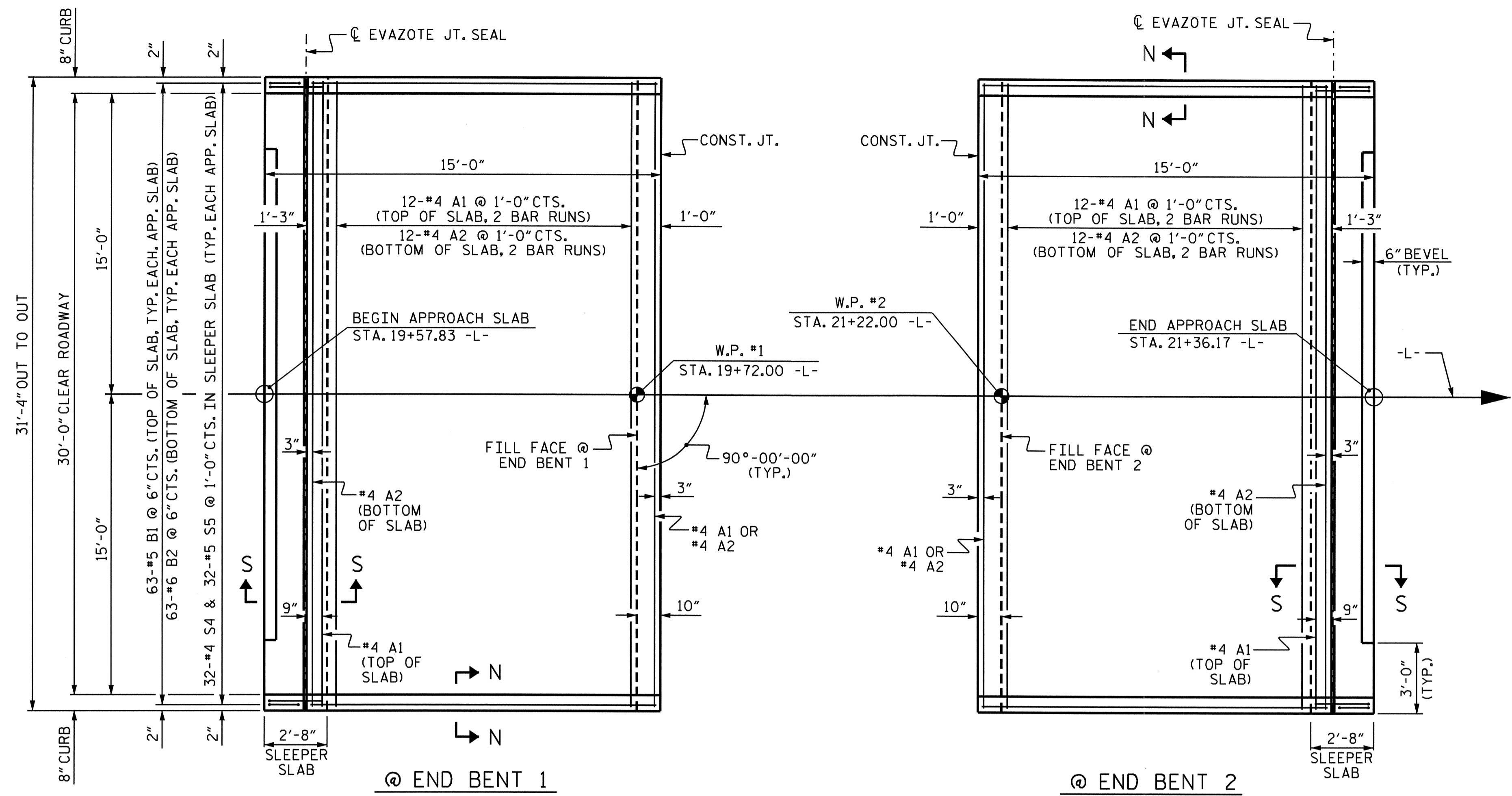
ESTIMATED QUANTITIES		
BRIDGE @ STA. 20+47.00 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	650	720
END BENT 2	645	715

PROJECT NO. B-4459
CHATHAM COUNTY
 STATION: 20+47.00 -L-

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

ASSEMBLED BY : QT NGUYEN	DATE : 12-22-09
CHECKED BY : T. H. FANG	DATE : 1-27-10
DRAWN BY : FCJ 2/88	REV. 8/16/99 RWW/LES
CHECKED BY : ARB 8/88	REV. 10/17/00 RWW/LES
	REV. 5/1/06 TLA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
2			4			24

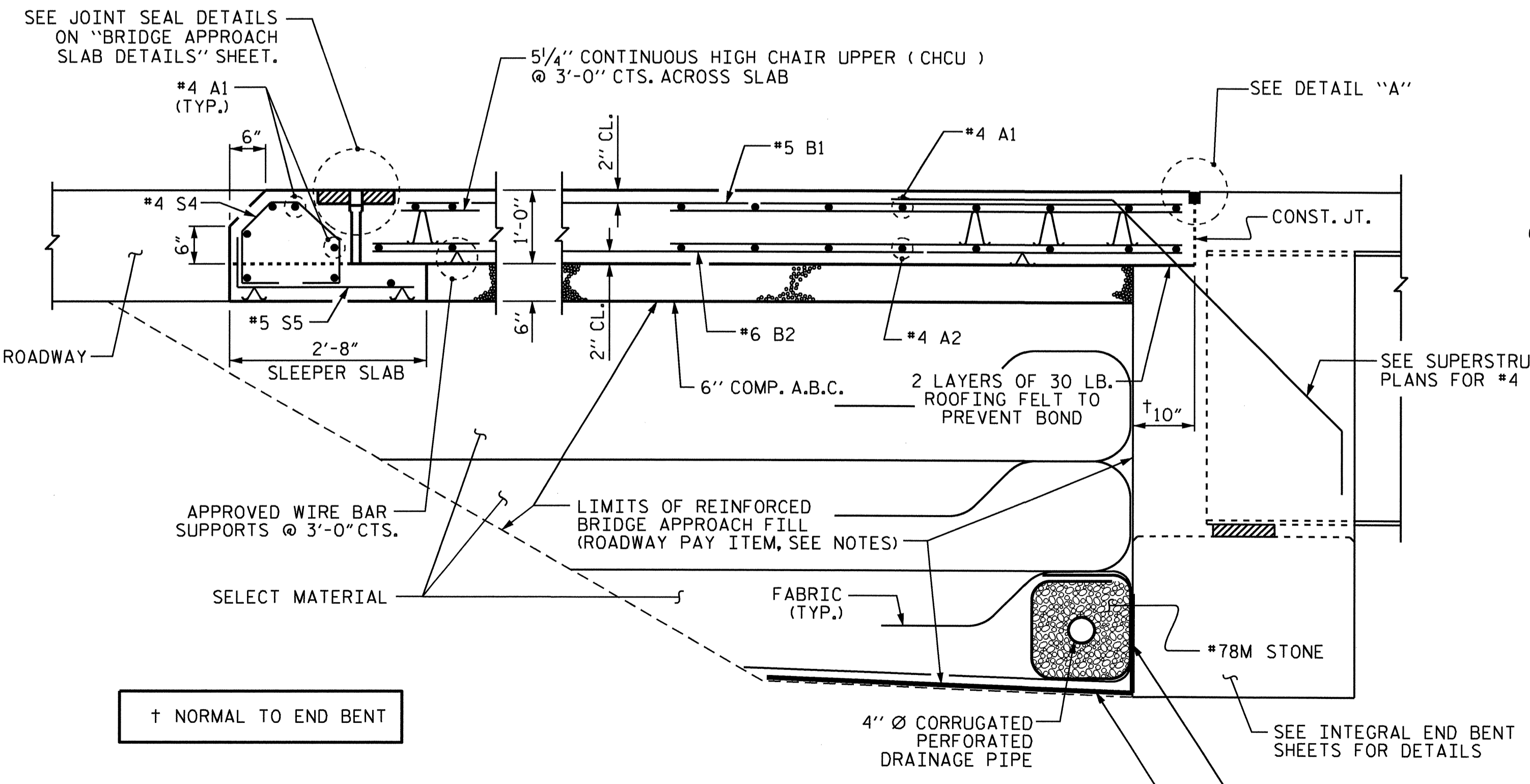


END BENT 1

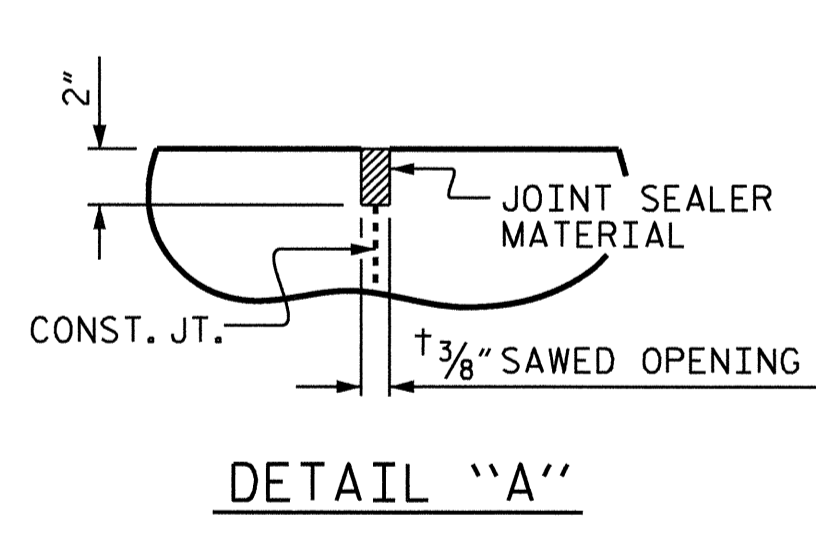
END BENT 2

PLAN OF APPROACH SLAB

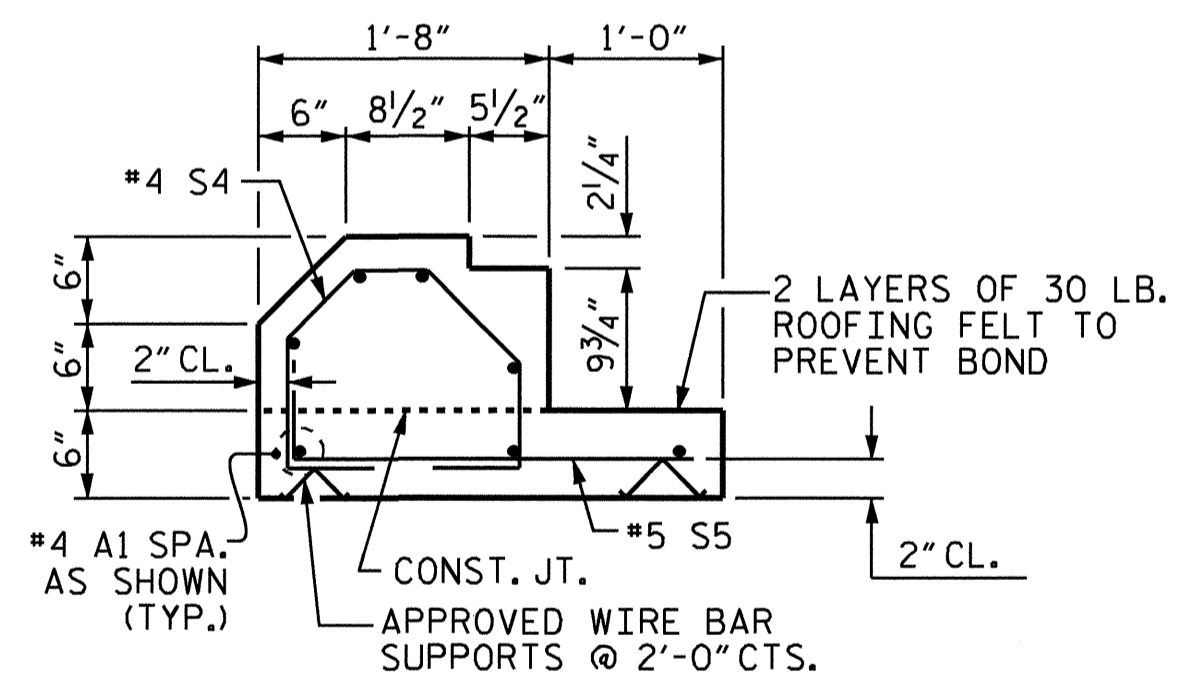
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS.
#4 A1 BARS IN SLEEPER SLAB NOT SHOWN FOR CLARITY.



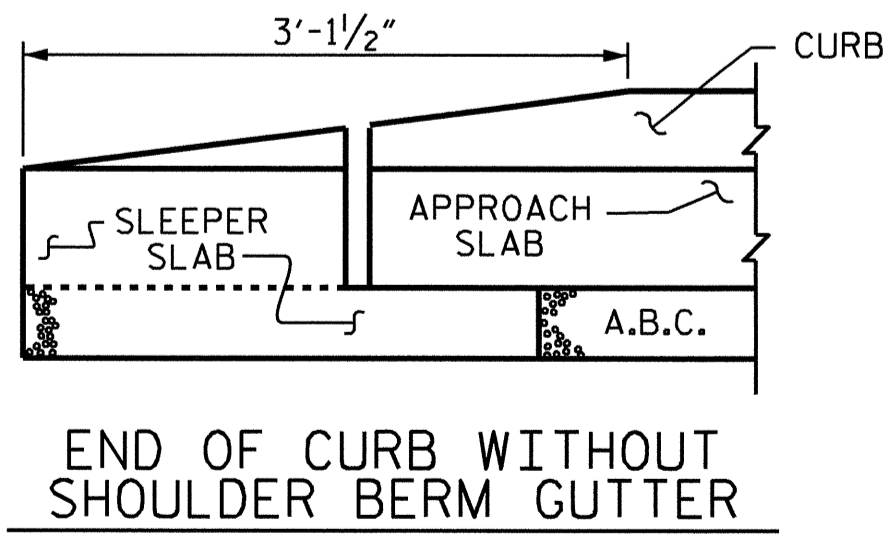
SECTION THRU SLAB



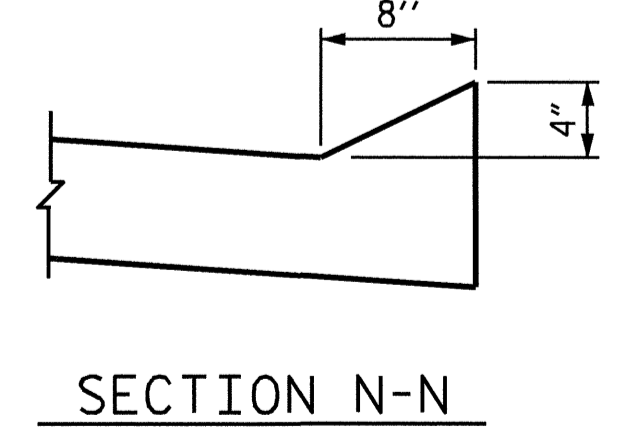
DETAIL "A"



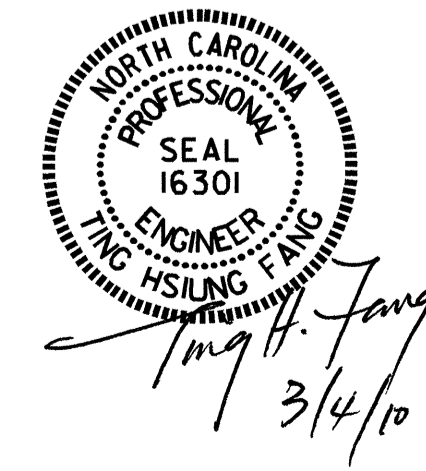
SECTION S-S
SHOWING SLEEPER SLAB



END OF CURB WITHOUT
SHOULDER BERM GUTTER



SECTION N-N



ASSEMBLED BY : QT NGUYEN DATE : 12-09
CHECKED BY : T. H. FANG DATE : 2-3-10
DRAWN BY : TLA 10/05 ADDED 5/1/06R KMM/GM
CHECKED BY : GM 5/06

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 SLEEPER SLAB AND SHALL EXTEND 1'-0" OUTSIDE OF EACH EDGE OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL BE FLUSH WITH THE SLEEPER 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 SLEEPER 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 VERTICAL JOINT ON THE RIGHT AND LEFT SIDE OF THE APPROACH SLAB AT THE ENDS OF THE EVAZOTE JOINT SHALL BE FILLED WITH SILICONE OR OTHER APPROVED MATERIAL IN ORDER TO PREVENT BACKFILL FROM ENTERING THE JOINT OPENING.

THE JOINT OPENING AT THE APPROACH SLAB/DECK INTERFACE SHALL BE SAWED NO MORE THAN 12 HOURS AFTER THE APPROACH SLAB IS CAST. THE JOINT SHALL BE CLEANED OF ALL DEBRIS BEFORE THE SEALANT IS APPLIED. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE SL LOW MODULUS SILICONE SEALANT.

WITH EVAZOTE JOINT SEAL

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 2 1/2" FOR BEGINNING AND ENDING APPROACH SLABS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL

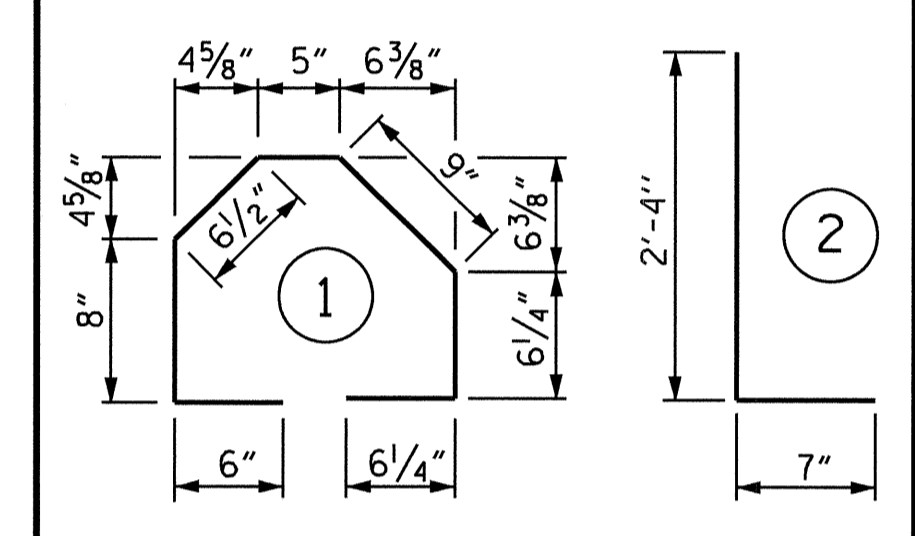
FOR ONE APPROACH SLAB
(2 REQ'D)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	42	#4	STR	16'-6"	463
A2	28	#4	STR	16'-5"	307
* B1	63	#5	STR	12'-5"	816
B2	63	#6	STR	12'-11"	1222
* S4	32	#4	1	3'-11"	84
S5	32	#5	2	2'-11"	97

REINFORCING STEEL	LBS.	1626
* EPOXY COATED REINFORCING STEEL	LBS.	1363

CLASS AA CONCRETE		
POUR #1 - SLAB & CURB	C. Y.	15.4
POUR #2 - SLEEPER SLAB	C. Y.	3.3
TOTAL	C. Y.	18.7

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

SPLICE CHART

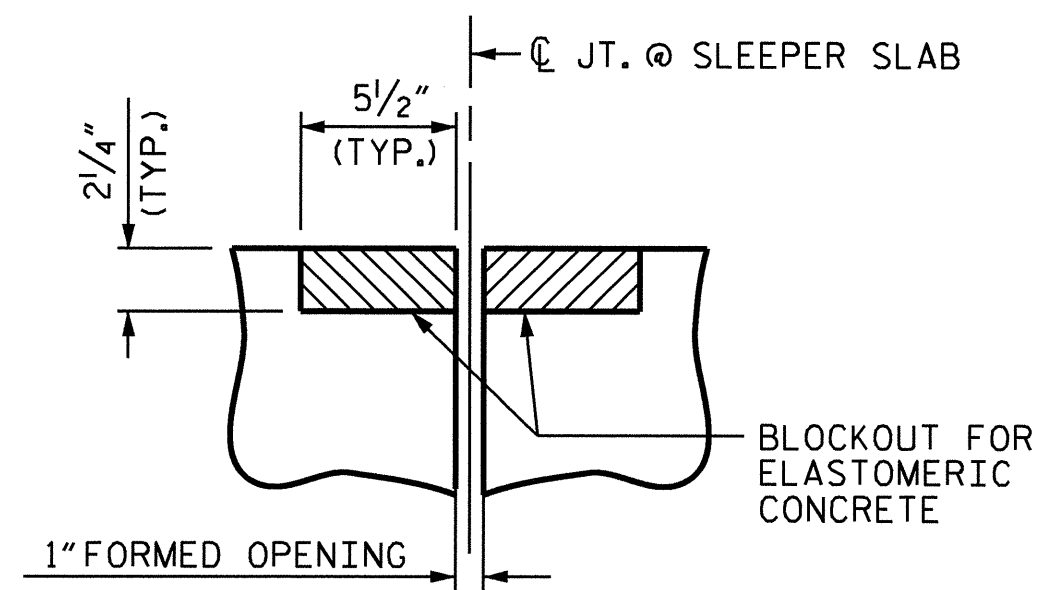
#4 A1	2'-0"
#4 A2	1'-9"

PROJECT NO. B-4459
CHATHAM COUNTY
STATION: 20+47.00 -L-

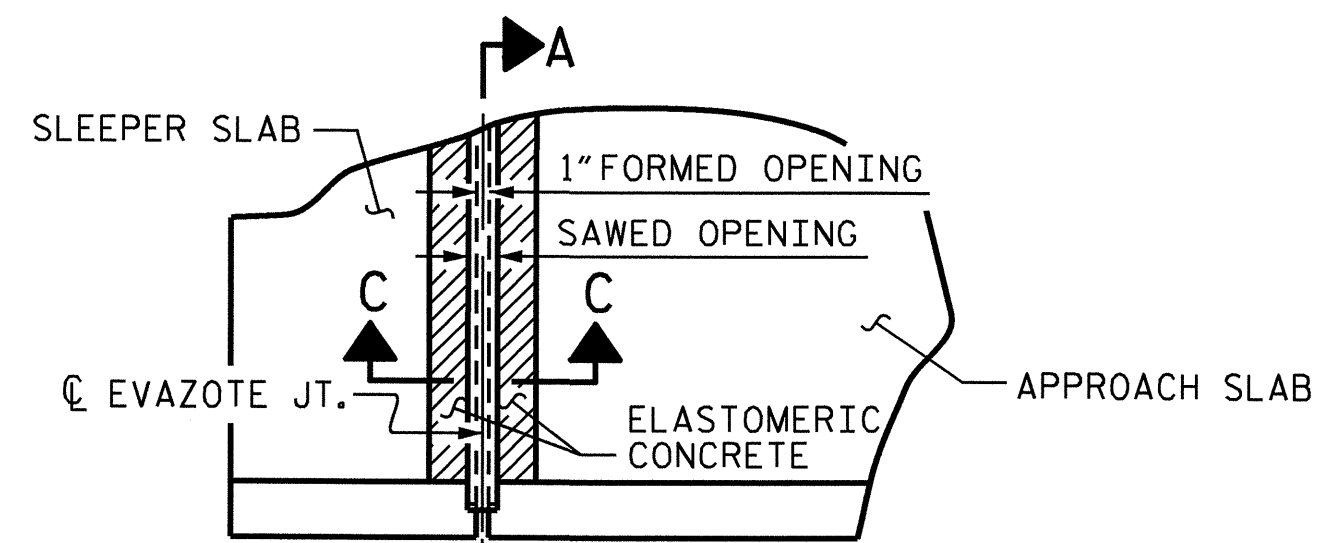
SHEET 1 OF 2

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

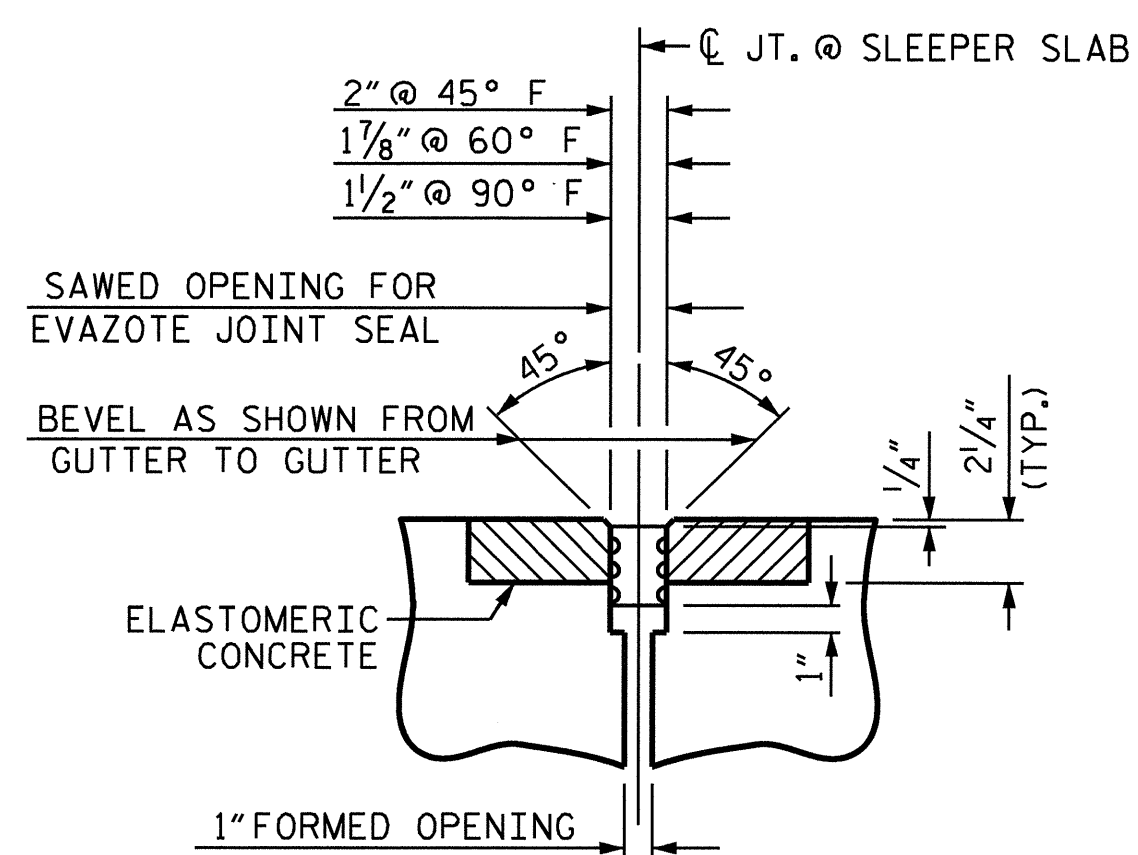
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS 24
2			4			



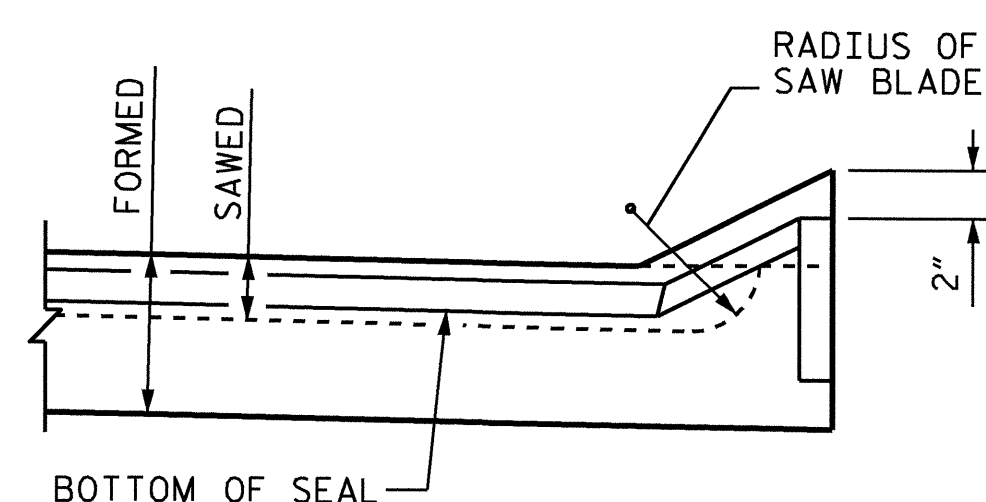
SECTION C-C
EVAZOTE JOINT SEAL
(PRE-SAWED ELASTOMERIC
CONCRETE DIMENSIONS)



PLAN



SECTION C-C
EVAZOTE JOINT SEAL
(EXPANSION)

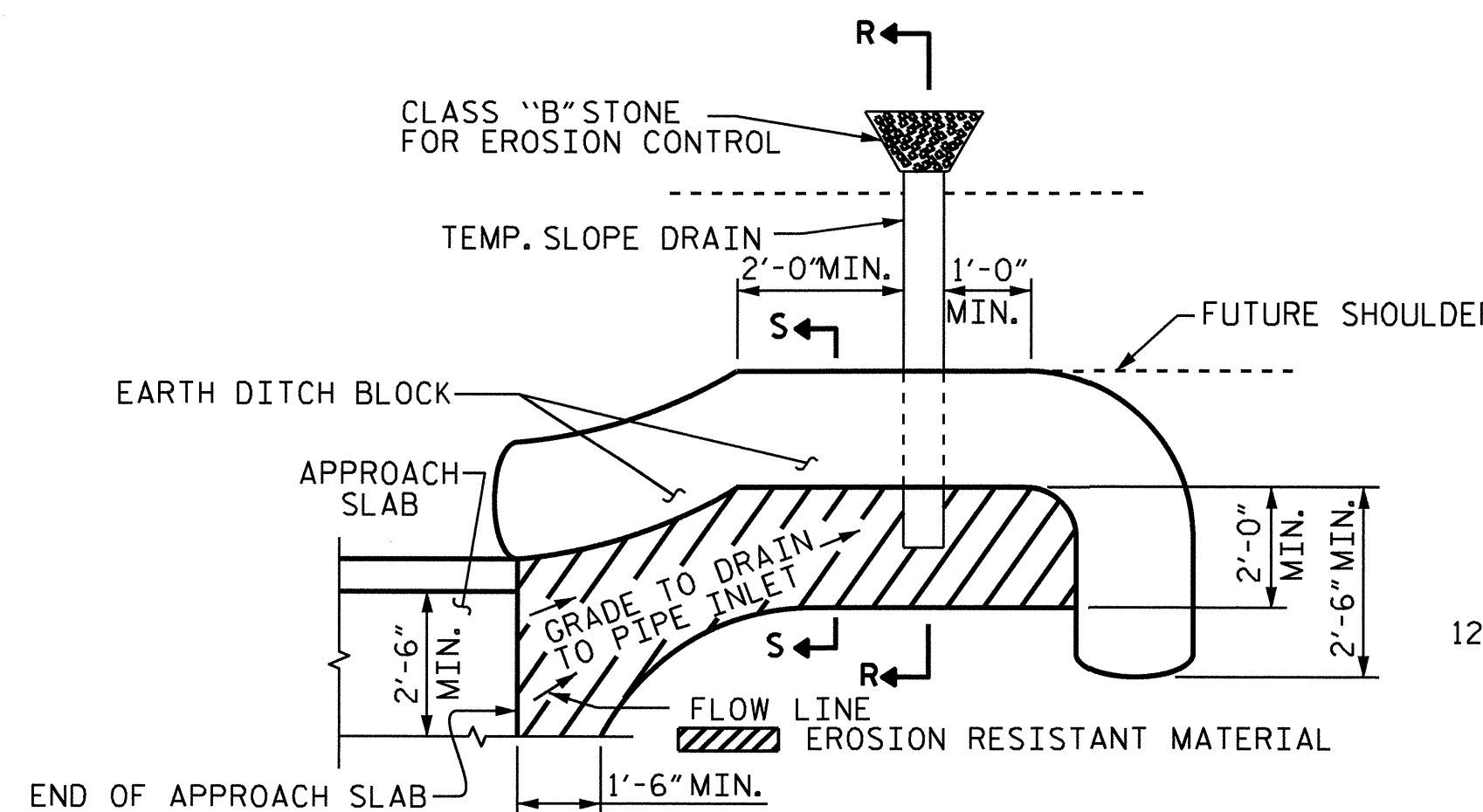


SECTION A-A

JOINT SEAL DETAILS

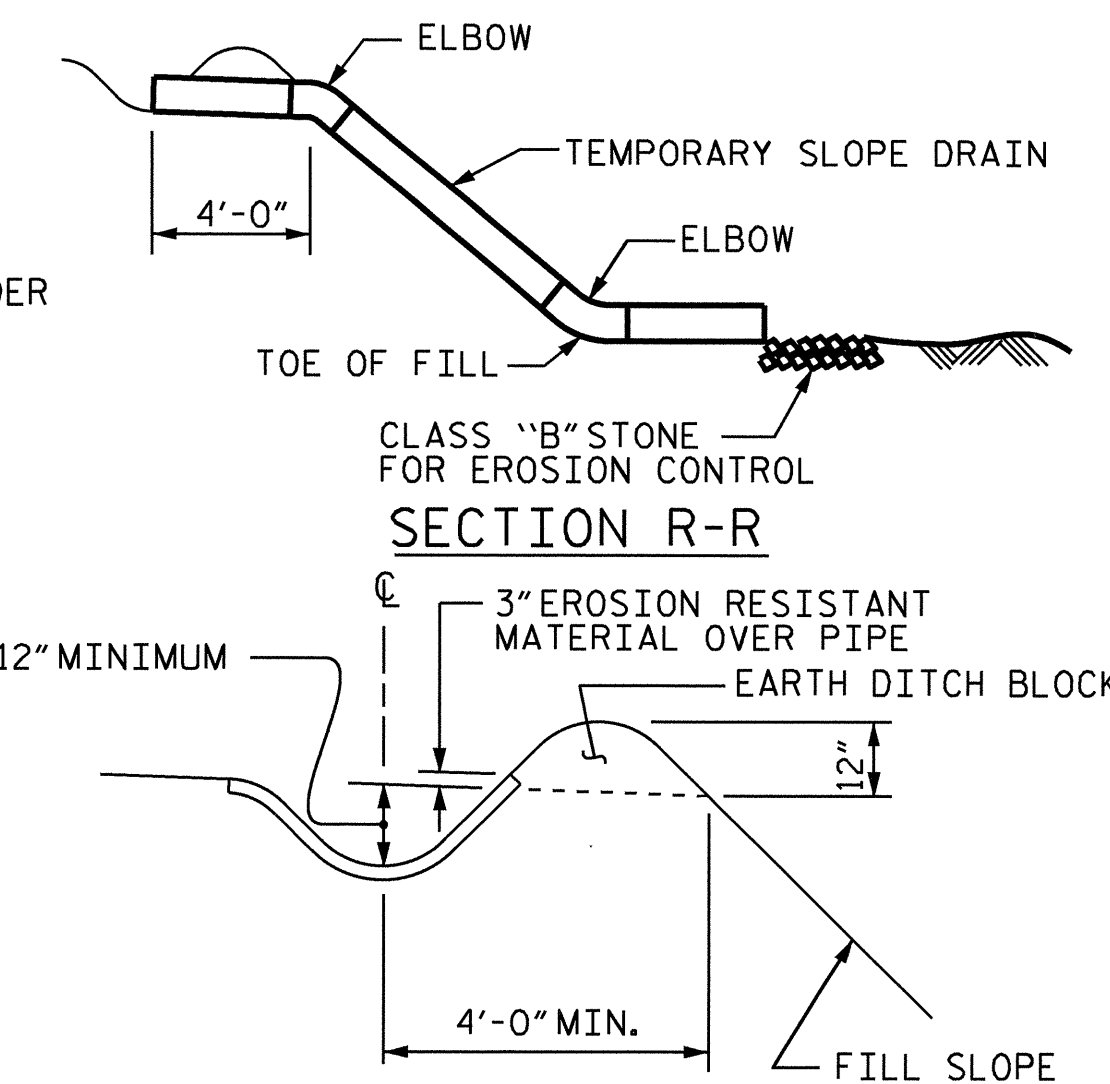
ELASTOMERIC CONCRETE	
APPROACH SLAB NO.	* ELASTOMERIC CONCRETE (CU. FT.)
1	5.2
2	5.2
TOTAL	10.4

* BASED ON THE MINIMUM BLOCKOUT SHOWN.



PLAN VIEW

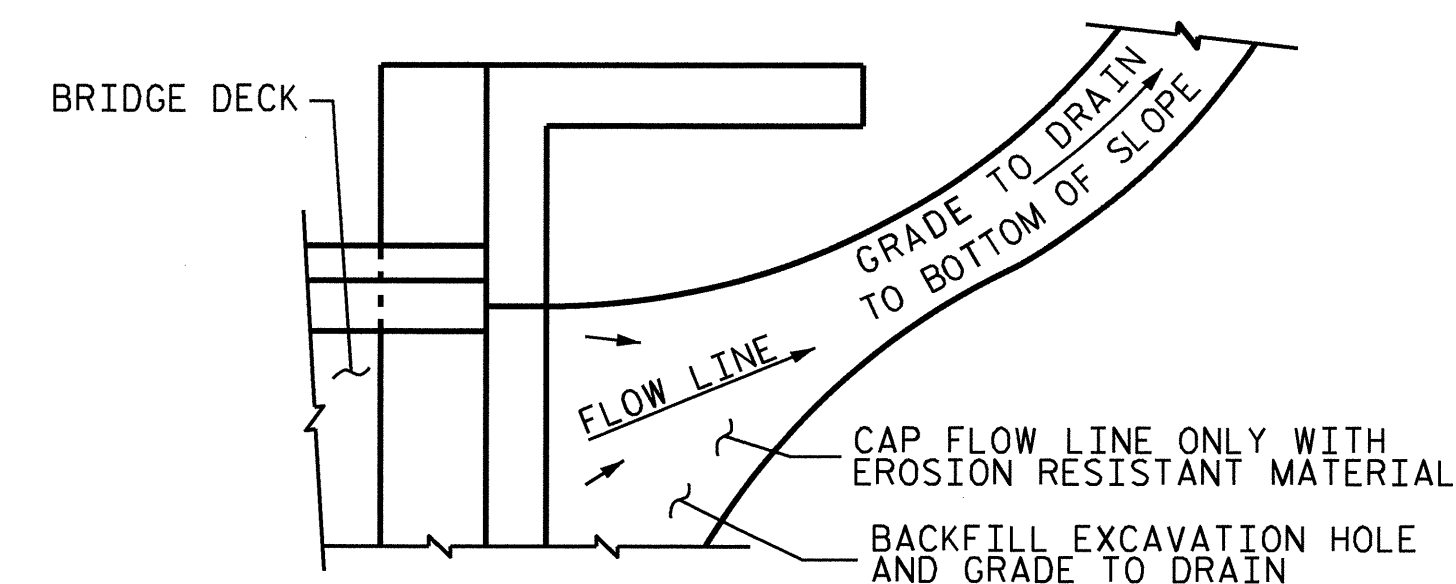
NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

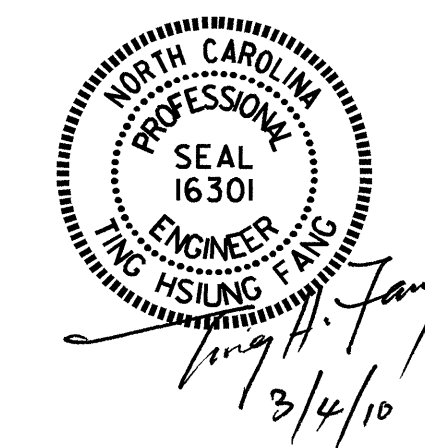


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

PROJECT NO. B-4459
CHATHAM COUNTY
STATION: 20+47.00 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD					
BRIDGE APPROACH SLAB DETAILS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 24

ASSEMBLED BY : O. T. NGUYEN DATE : 12-09
CHECKED BY : T. H. FANG DATE : 1-20-10
DRAWN BY : FCJ 11/88 REV. 10/17/00 RWW/LES
CHECKED BY : ARB 11/88 REV. 5/7/03 RWW/JTE
REV. 5/1/06R MAA/KMM

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

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

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

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

HANDRAILS AND POSTS:

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

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

STD. NO. SN