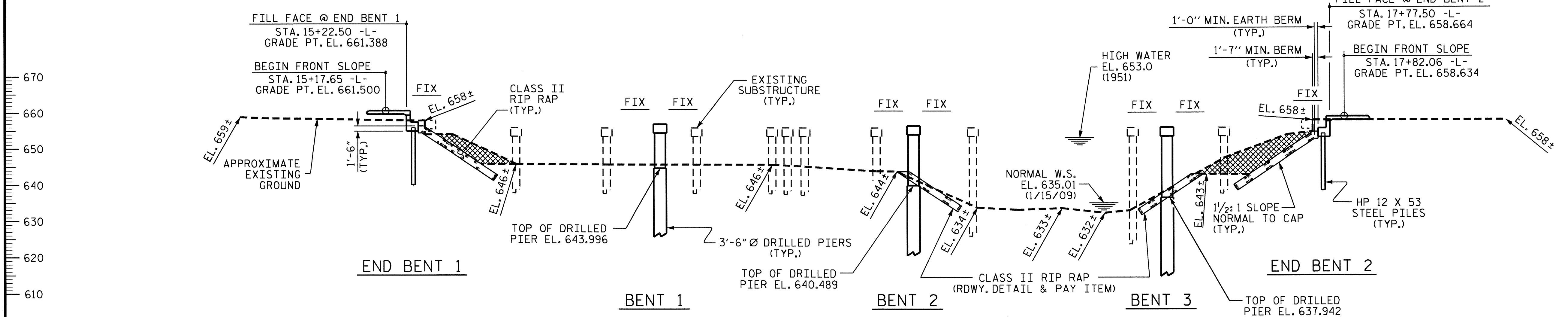


15+00 15+50 16+00 16+50 17+00 17+50 18+00

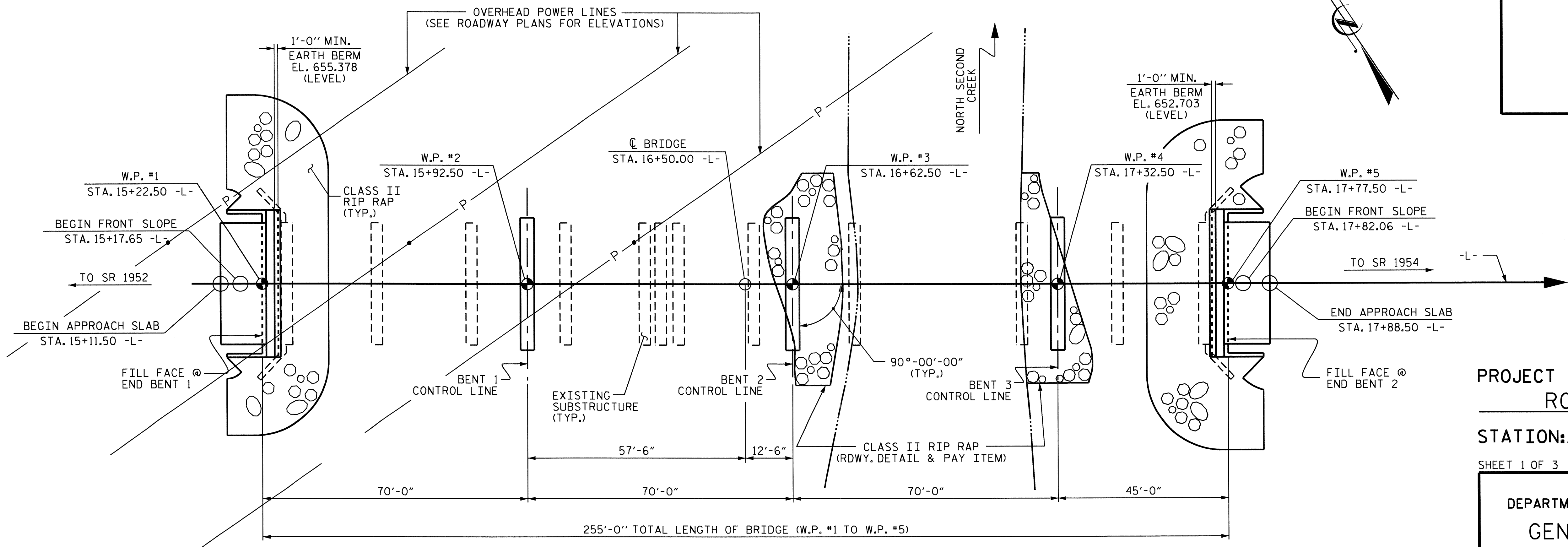
-6.3844% Δ -0.6623%
 PI STA. 14+25.00 -L-
 EL. 661.00'
 VC = 450'
GRADE DATA

-0.6623% Δ +0.3416%
 PI STA. 18+40.00 -L-
 EL. 658.25'
 VC = 100'
GRADE DATA



UNCLASSIFIED STRUCTURE EXCAVATION (SEE NOTES)

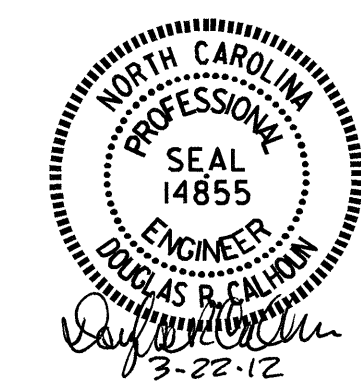
I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS



PLAN
 (FOUNDATIONS ARE NOT SHOWN IN PLAN VIEW FOR CLARITY)

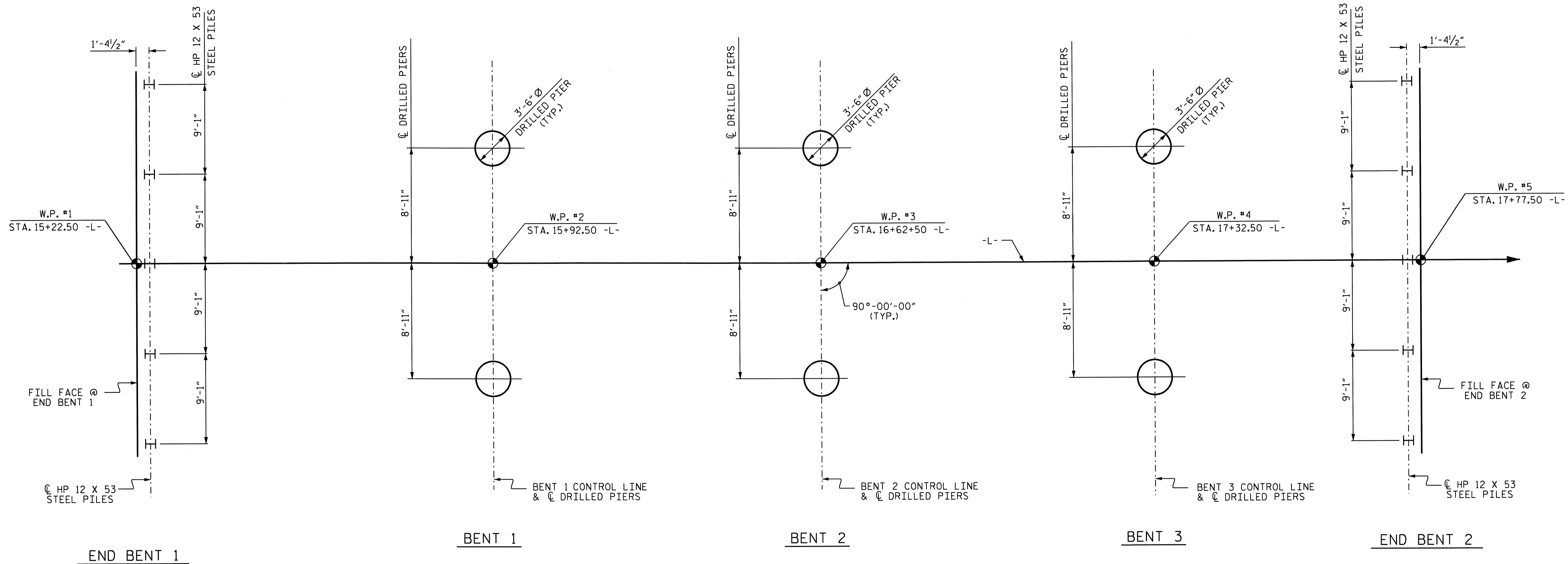
PROJECT NO. B-4629
 ROWAN COUNTY
 STATION: 16+50.00 -L-
 SHEET 1 OF 3 REPLACES BRIDGE No. 25

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER NORTH SECOND CREEK ON SR 2048 BETWEEN SR 1952 AND SR 1954



DRAWN BY: Z. H. BROWN DATE: 9/21/09
 CHECKED BY: O. T. NGUYEN DATE: 9/24/09

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



FOUNDATION LAYOUT
 DIMENSIONS LOCATING PILES AND DRILLED PIERS
 ARE SHOWN TO THE CENTERLINE OF PILES AND DRILLED PIERS.

NOTES

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

DRILLED PIERS AT BENTS 1 THROUGH 3 ARE DESIGNED FOR A FACTORED RESISTANCE OF 470 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 115 TSF.

PERMANENT STEEL CASINGS MAY BE REQUIRED FOR DRILLED PIERS AT BENT 2. IF REQUIRED, DO NOT EXTEND PERMANENT CASINGS BELOW ELEVATION 624.0 WITHOUT PRIOR APPROVAL FROM THE ENGINEER. THE ENGINEER WILL DETERMINE THE NEED FOR PERMANENT STEEL CASINGS.

INSTALL PERMANENT STEEL CASINGS AT BENT 2 BY VIBRATING, SCREWING OR DRIVING THE PERMANENT CASINGS BEFORE EXCAVATING OR DISTURBING ANY MATERIAL BELOW ELEVATION 639 FT.

PERMANENT STEEL CASINGS MAY BE REQUIRED FOR DRILLED PIERS AT BENT 3. IF REQUIRED, DO NOT EXTEND PERMANENT CASINGS BELOW ELEVATION 627.0 WITHOUT PRIOR APPROVAL FROM THE ENGINEER. THE ENGINEER WILL DETERMINE THE NEED FOR PERMANENT STEEL CASINGS.

INSTALL PERMANENT STEEL CASING AT BENT 3 BY VIBRATING, SCREWING OR DRIVING THE PERMANENT CASINGS BEFORE EXCAVATING OR DISTURBING ANY MATERIAL BELOW ELEVATION 631 FT.

INSTALL DRILLED PIERS AT BENT 1 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 598.0 FT. AND SATISFY THE REQUIRED TIP RESISTANCE.

INSTALL DRILLED PIERS AT BENT 2 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 614.0 FT. AND SATISFY THE REQUIRED TIP RESISTANCE.

INSTALL DRILLED PIERS AT BENT 3 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 612.0 FT. AND SATISFY THE REQUIRED TIP RESISTANCE.

THE SCOUR CRITICAL ELEVATION FOR BENTS 1 THROUGH 3 IS ELEVATION 625. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

SID INSPECTIONS MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS. FOR SID INSPECTIONS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

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

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

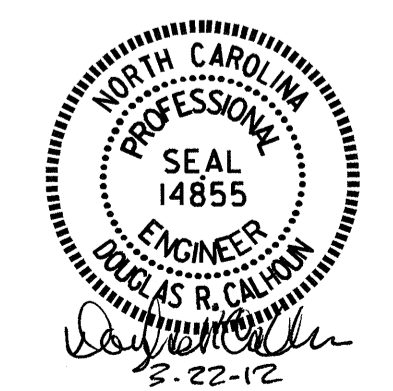
PILES AT END BENTS 1 AND 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 115 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 195 TONS PER PILE.

PROJECT NO. B-4629
ROWAN COUNTY
 STATION: 16+50.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER NORTH
 SECOND CREEK ON SR 2048
 BETWEEN SR 1952 AND SR 1954

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



DRAWN BY : HARISH SHAH DATE : 3/12/10
 CHECKED BY : T. H. FANG DATE : 3/22/10

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	3'-6" DIA. DRILLED PIERS IN SOIL	3'-6" DIA. DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 3'-6" DIA. DRILLED PIER	SID INSPECTION	CSL TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	HP 12 X 53 STEEL PILES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLABS		
	LUMP SUM	LN. FT.	LN. FT.	LN. FT.	EACH	EACH	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	LBS.	NO.	LN. FT.	LN. FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LN. FT.
SUPERSTRUCTURE									LUMP SUM				505.50				LUMP SUM	44	2776.13
END BENT 1							LUMP SUM	14.6		2168		5	225		283	315			
BENT 1		78.0	14.0					23.9		8126	2354								
BENT 2		41.0	12.0	33.0				25.4		6766	1672								
BENT 3		26.0	26.0	22.0				26.5		6896	1786								
END BENT 2							LUMP SUM	14.6		2000		5	125		281	313			
TOTAL	LUMP SUM	145.0	52.0	55.0	1	1	LUMP SUM	105.0	LUMP SUM	25956	5,812	10	350	505.50	564	628	LUMP SUM	44	2776.13

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES", 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 SPICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

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 STA. 16+50.00 -L-".

THE EXISTING STRUCTURE CONSISTING OF 9 SPANS: 1 @ 25'-6", 1 @ 25'-0", 1 @ 45'-0", 5 @ 25'-0" & 1 @ 25'-6"; 24'-0" CLEAR ROADWAY WIDTH AND RC DECK ON I-BEAMS; END & INTERIOR BENTS: 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.

THE EXISTING CONCRETE BENTS FROM A PREVIOUS STRUCTURE, SHOWN ON THE LOCATION SKETCH, SHALL BE REMOVED. THE COST SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STA. 16+50.00 -L-".

THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FT. BELOW THE GROUND LINE.

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 AT END BENT 1; 40 FT EACH SIDE AT END BENT 2 OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION, SEE SECTION 412 OF THE STANDARD SPECIFICATION.

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 CRANE SAFETY, SEE SPECIAL PROVISIONS.

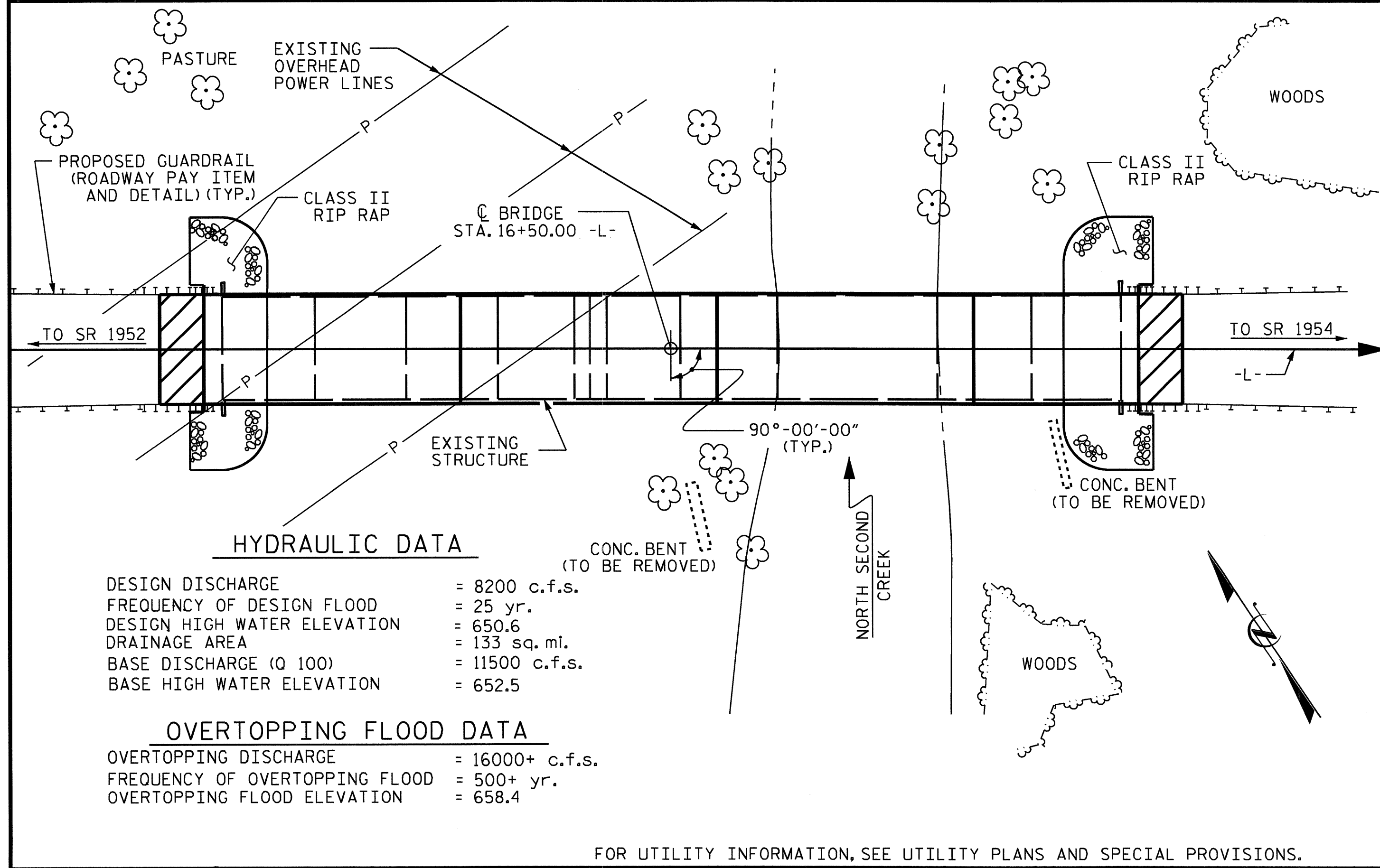
FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

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

BM*2 : RR SPIKE SET IN BASE OF 15" BIRCH TREE, -L- STA. 16+55.49, 252.55 FT. RT., ELEV. 646.68'



HYDRAULIC DATA

DESIGN DISCHARGE = 8200 c.f.s.
 FREQUENCY OF DESIGN FLOOD = 25 yr.
 DESIGN HIGH WATER ELEVATION = 650.6
 DRAINAGE AREA = 133 sq. mi.
 BASE DISCHARGE (Q 100) = 11500 c.f.s.
 BASE HIGH WATER ELEVATION = 652.5

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 16000+ c.f.s.
 FREQUENCY OF OVERTOPPING FLOOD = 500+ yr.
 OVERTOPPING FLOOD ELEVATION = 658.4

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

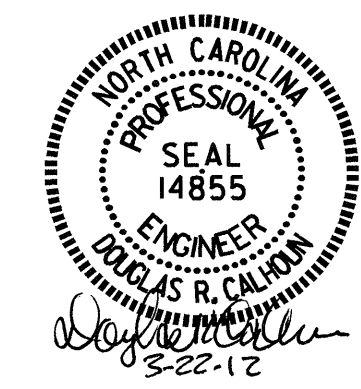
LOCATION SKETCH

POWER LINES WILL NOT BE MOVED OR DE-ENERGIZED. SEE SPECIAL PROVISIONS.

PROJECT NO. B-4629
ROWAN COUNTY
 STATION: 16+50.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR BRIDGE OVER NORTH
 SECOND CREEK ON SR 2048
 BETWEEN SR 1952 AND SR 1954



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

DRAWN BY : H. B. SHAH DATE : 3-10-10
 CHECKED BY : I. H. FANG DATE : 3-22-10

LOAD FACTORS:

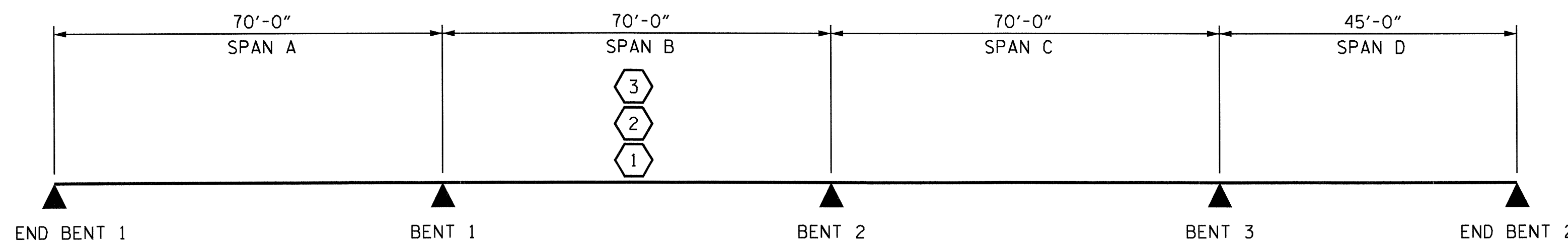
DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS																								
LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE								COMMENT NUMBER
						MOMENT					SHEAR					MOMENT								
						LIVE-LOAD FACTORS (γ_{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	LIVE-LOAD FACTORS (γ_{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)		
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	1	1.043	--	1.75	0.271	1.17	B	EL	34.438	0.545	1.16	D	EL	2.141	0.80	0.271	1.04	B	EL	34.438		
	HL-93 (OPERATING)	N/A		1.504	--	1.35	0.271	1.51	B	EL	34.438	0.545	1.5	D	EL	2.141	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	2	1.354	48.735	1.75	0.271	1.51	B	EL	34.438	0.545	1.36	D	EL	2.141	0.80	0.271	1.35	B	EL	34.438		
	HS-20 (OPERATING)	36.000		1.766	63.58	1.35	0.271	1.96	B	EL	34.438	0.545	1.77	D	EL	2.141	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		2.718	36.697	1.40	0.271	4.22	B	EL	34.438	0.545	3.74	D	EL	2.141	0.80	0.279	2.72	D	EL	21.406	
		SNGARBS2	20.000		2.208	44.168	1.40	0.271	3.17	B	EL	34.438	0.545	2.75	D	EL	2.141	0.80	0.279	2.21	D	EL	21.406	
		SNAGRIS2	22.000		2.152	47.353	1.40	0.271	3.01	B	EL	34.438	0.545	2.59	D	EL	2.141	0.80	0.271	2.15	B	EL	34.438	
		SNCOTTS3	27.250		1.358	36.994	1.40	0.271	2.1	B	EL	34.438	0.545	1.88	D	EL	2.141	0.80	0.279	1.36	D	EL	21.406	
		SNAGGRS4	34.925		1.203	42.014	1.40	0.271	1.76	B	EL	34.438	0.545	1.62	D	EL	2.141	0.80	0.279	1.20	D	EL	21.406	
		SNS5A	35.550		1.172	41.647	1.40	0.271	1.72	B	EL	34.438	0.545	1.68	D	EL	2.141	0.80	0.279	1.17	D	EL	21.406	
		SNS6A	39.950		1.106	44.179	1.40	0.271	1.59	B	EL	34.438	0.545	1.57	D	EL	2.141	0.80	0.279	1.11	D	EL	21.406	
		SNS7B	42.000		1.054	44.28	1.40	0.271	1.51	B	EL	34.438	0.545	1.58	D	EL	2.141	0.80	0.279	1.05	D	EL	21.406	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.358	44.814	1.40	0.271	1.93	B	EL	34.438	0.545	1.84	D	EL	2.141	0.80	0.279	1.36	D	EL	21.406	
		TNT4A	33.075		1.373	45.408	1.40	0.271	1.94	B	EL	34.438	0.545	1.76	D	EL	2.141	0.80	0.279	1.37	D	EL	21.406	
		TNT6A	41.600		1.14	47.412	1.40	0.271	1.59	B	EL	34.438	0.545	1.71	D	EL	2.141	0.80	0.271	1.14	B	EL	34.438	
		TNT7A	42.000		1.147	48.156	1.40	0.271	1.6	B	EL	34.438	0.545	1.58	D	EL	2.141	0.80	0.271	1.15	B	EL	34.438	
		TNT7B	42.000		1.189	49.941	1.40	0.271	1.66	B	EL	34.438	0.545	1.51	D	EL	2.141	0.80	0.271	1.19	B	EL	34.438	
		TNAGRIT4	43.000		1.129	48.547	1.40	0.271	1.58	B	EL	34.438	0.545	1.45	D	EL	2.141	0.80	0.271	1.13	B	EL	34.438	
TNAGT5A	45.000		1.064	47.858	1.40	0.271	1.49	B	EL	34.438	0.545	1.49	D	EL	2.141	0.80	0.271	1.06	B	EL	34.438			
TNAGT5B	45.000		3	1.05	47.239	1.40	0.271	1.47	B	EL	34.438	0.545	1.38	D	EL	2.141	0.80	0.271	1.05	B	EL	34.438		

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

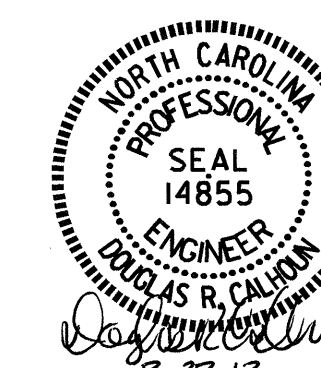
COMMENTS:
 1.
 2.
 3.
 4.

#	CONTROLLING LOAD RATING
1	DESIGN LOAD RATING (HL-93)
2	DESIGN LOAD RATING (HS-20)
3	LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE	
GIRDER LOCATION	
I - INTERIOR GIRDER EL - EXTERIOR LEFT GIRDER ER - EXTERIOR RIGHT GIRDER	



LRFR SUMMARY

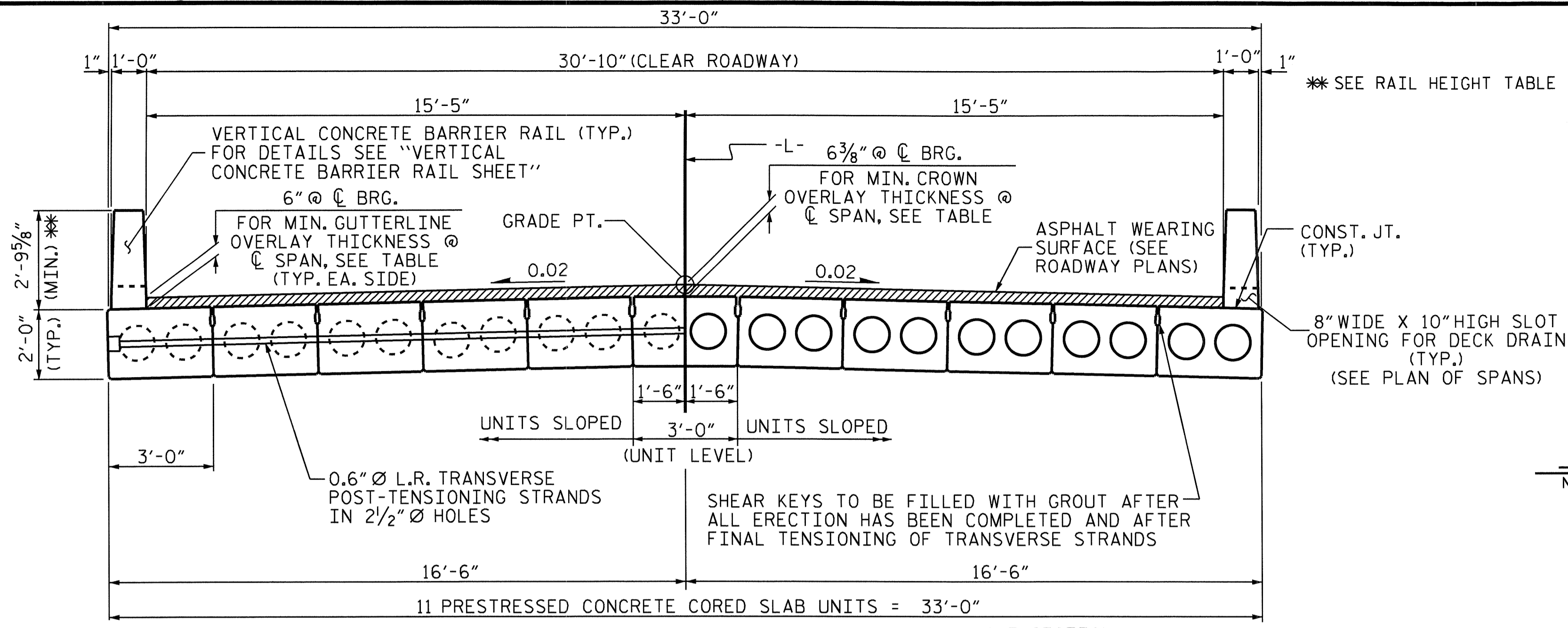
PROJECT NO. B-4629
 ROWAN COUNTY
 STATION: 16+50.00-L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 LRFR SUMMARY FOR
 PRESTRESSED
 CONCRETE GIRDERS
 (NON-INTERSTATE TRAFFIC)

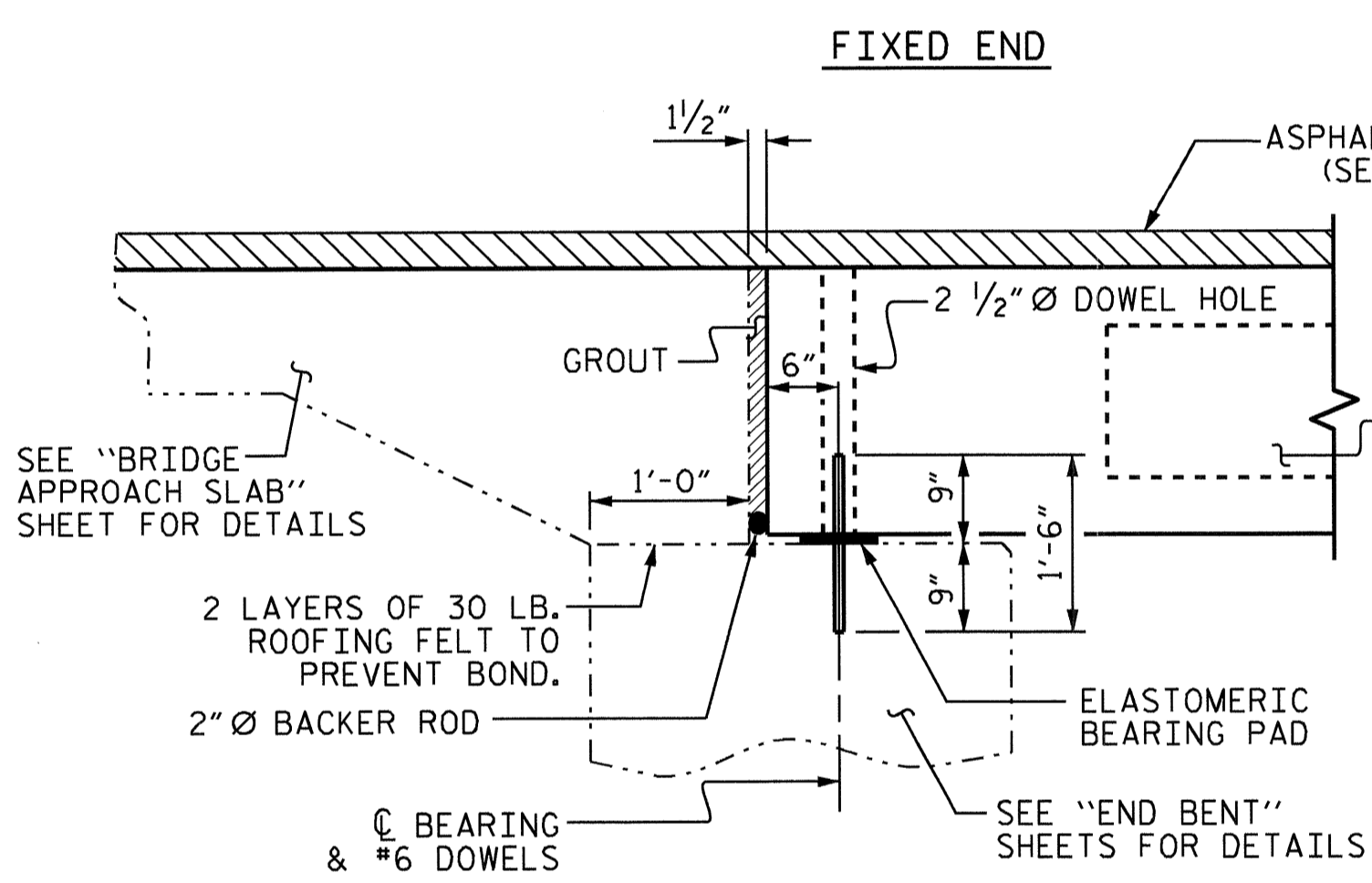
ASSEMBLED BY : RAMAN PATEL DATE :03-04-10
 CHECKED BY : E. I. OMILE DATE :04-08-10
 DRAWN BY : MAA 1/08 REV. 11/12/08RR MAA/GM
 CHECKED BY : GM/DI 2/08 REV. 10/1/11 MAA/GM

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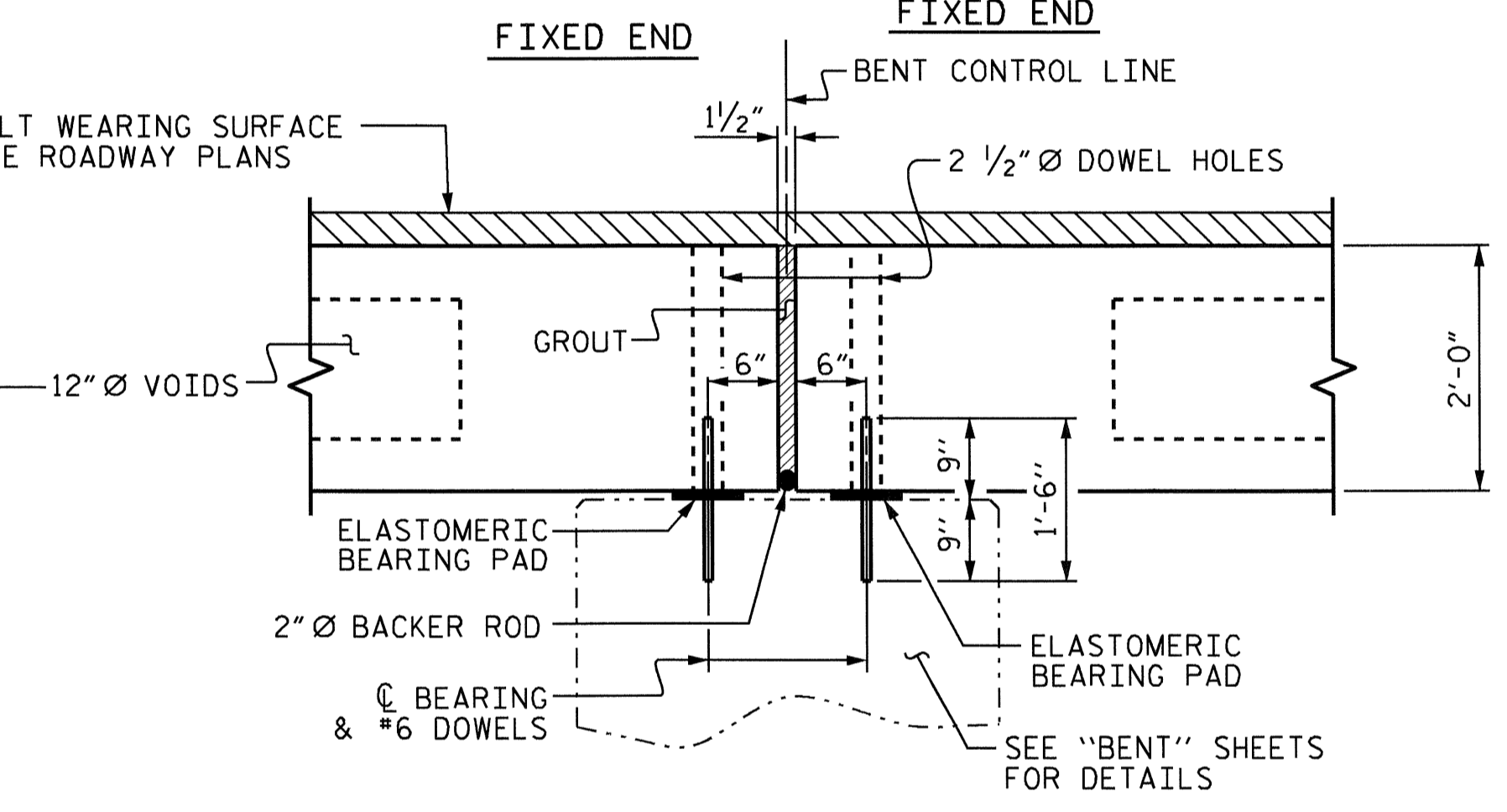


HALF SECTION AT INTERMEDIATE DIAPHRAGMS **TYPICAL SECTION** HALF SECTION THROUGH VOIDS

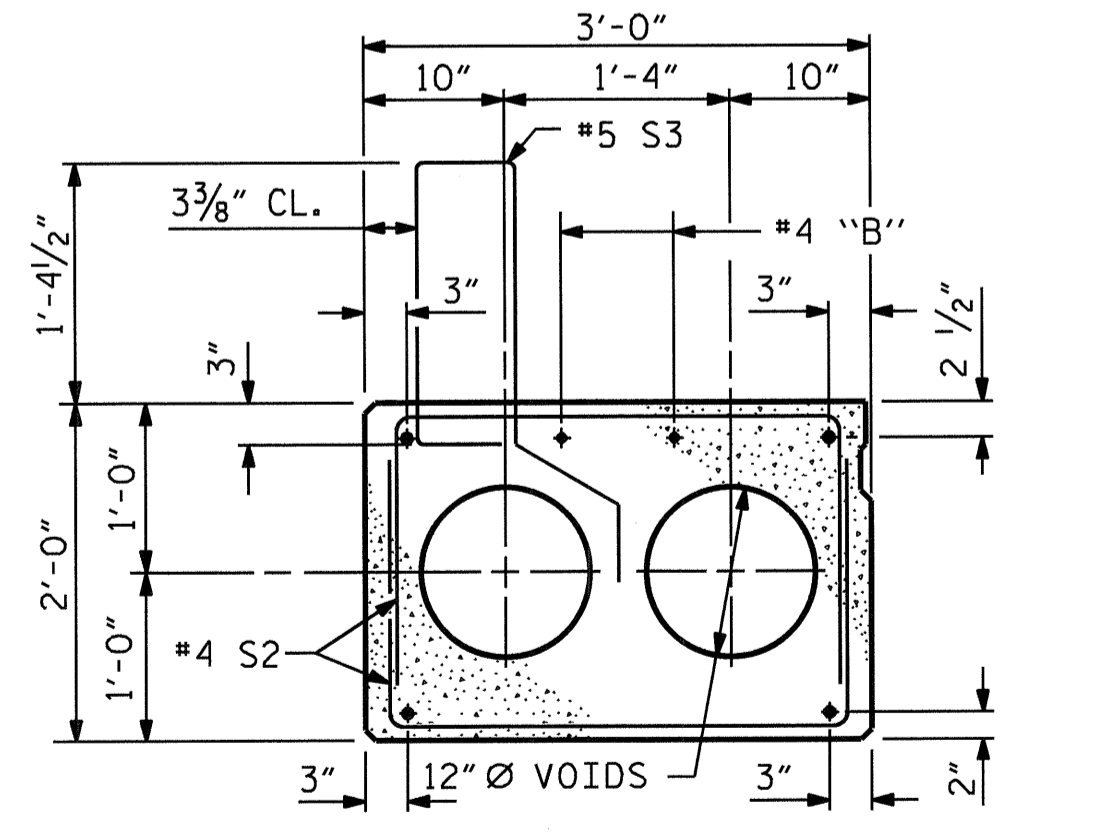
THE MINIMUM HEIGHT OF THE BARRIER RAIL IS SHOWN. THE HEIGHT OF THE BARRIER RAIL VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE.



SECTION AT END BENTS

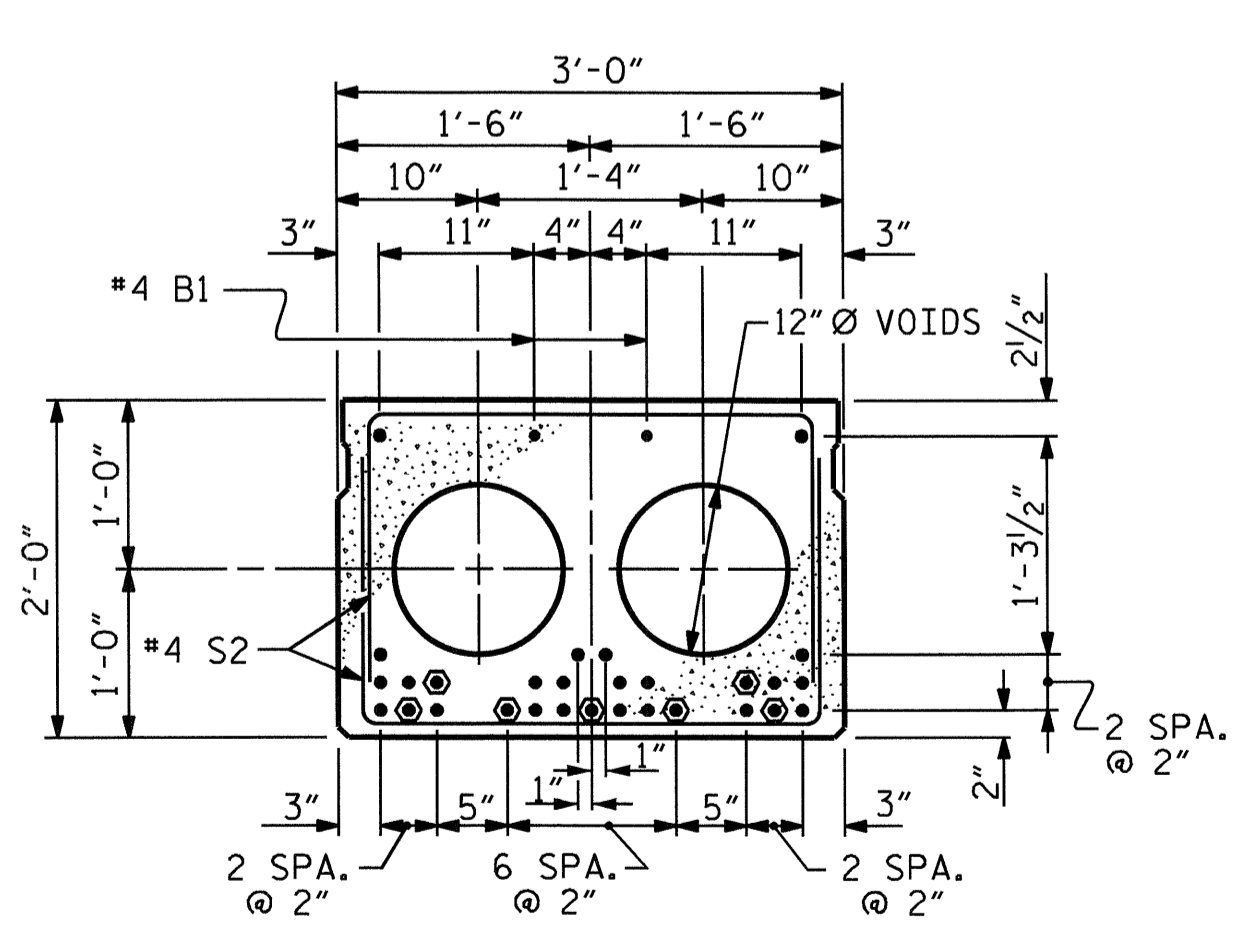


SECTION AT BENTS



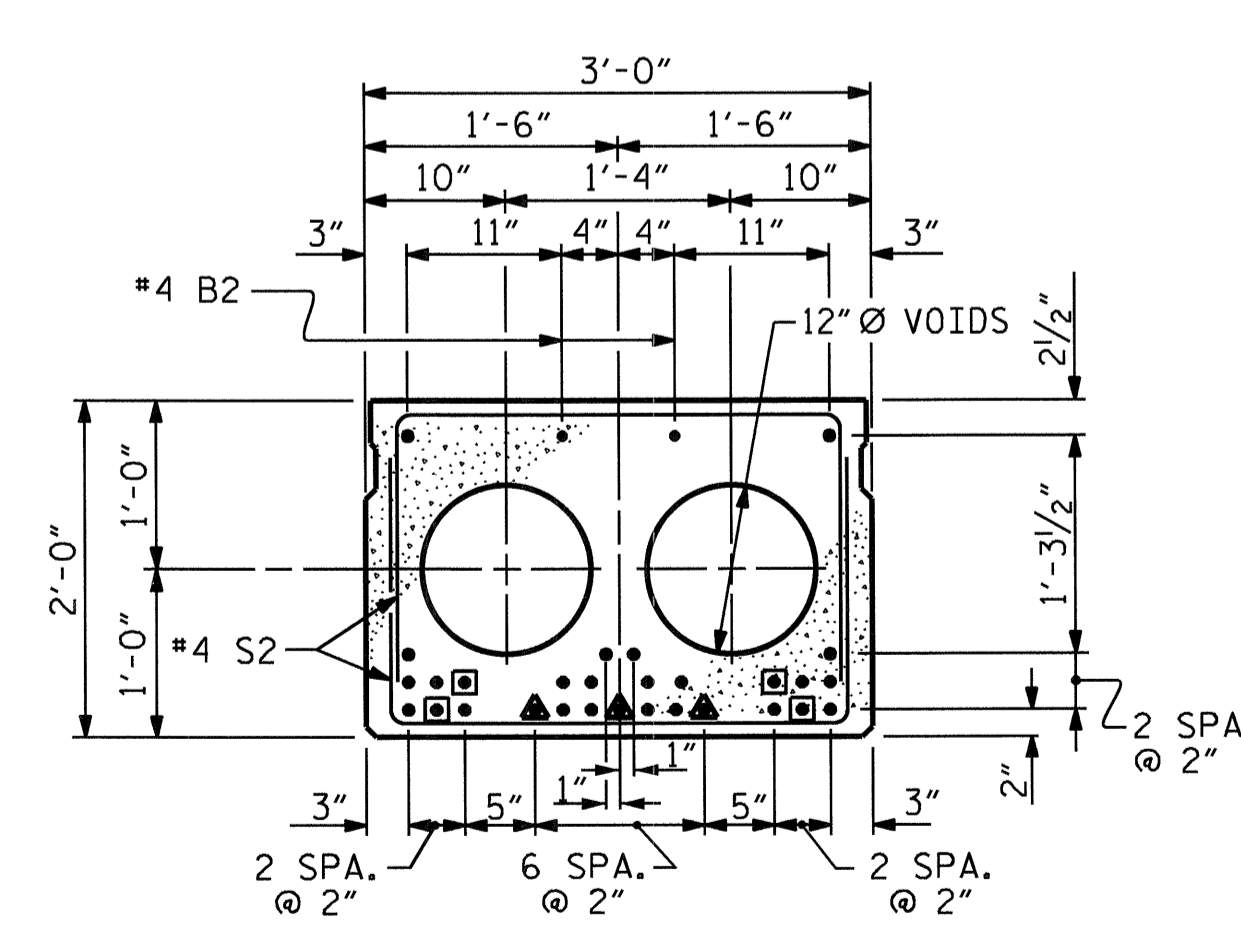
EXTERIOR SLAB SECTION

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



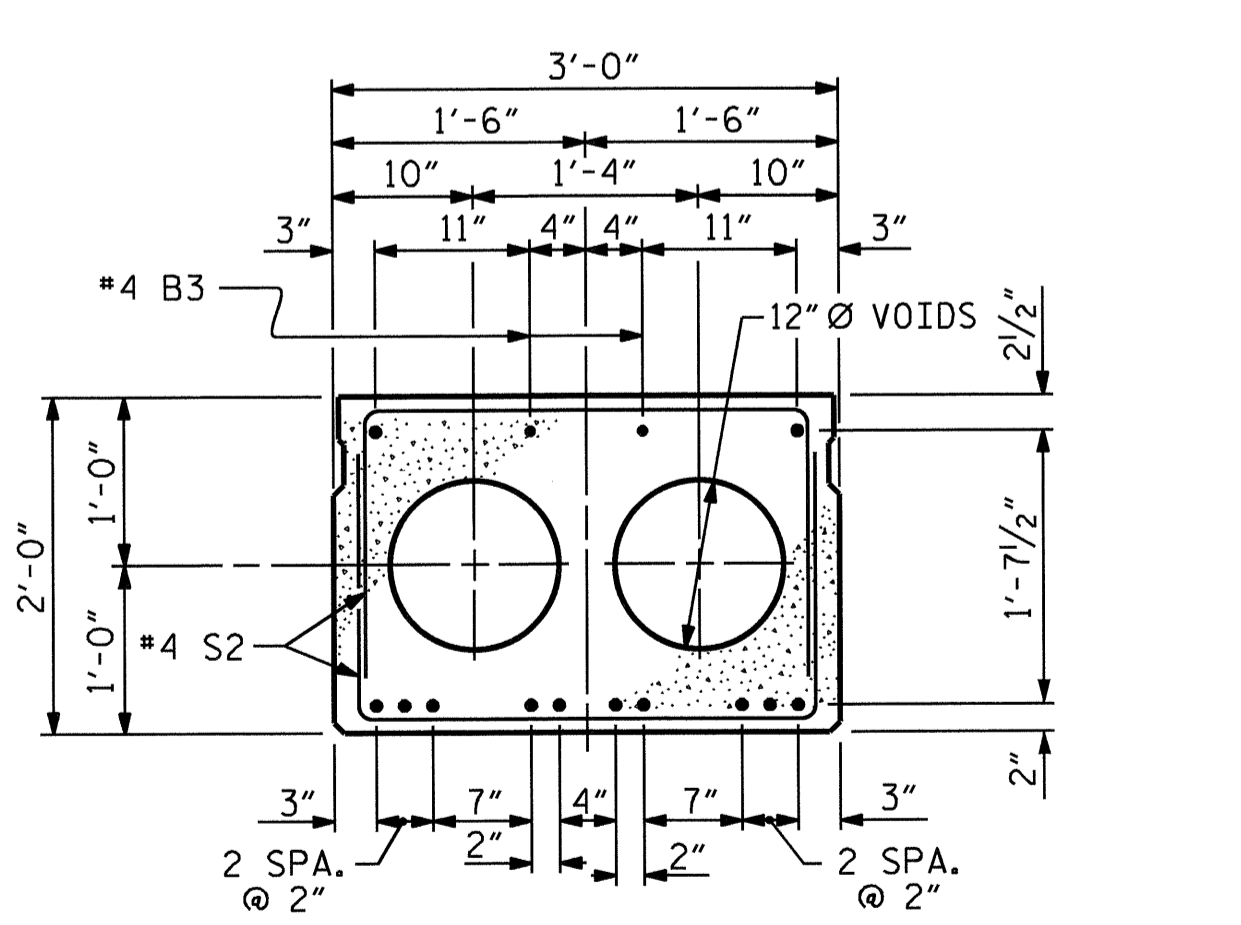
INTERIOR SLAB SECTION (SPAN A)

(29 STRANDS, 7 SHEATHED)



INTERIOR SLAB SECTION (SPANS B & C)

(29 STRANDS, 7 SHEATHED)

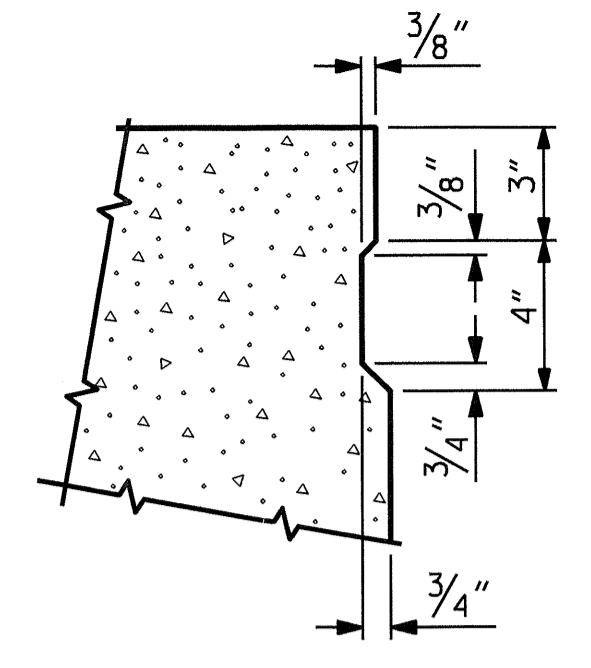


INTERIOR SLAB SECTION (SPAN D)

(12 STRANDS)

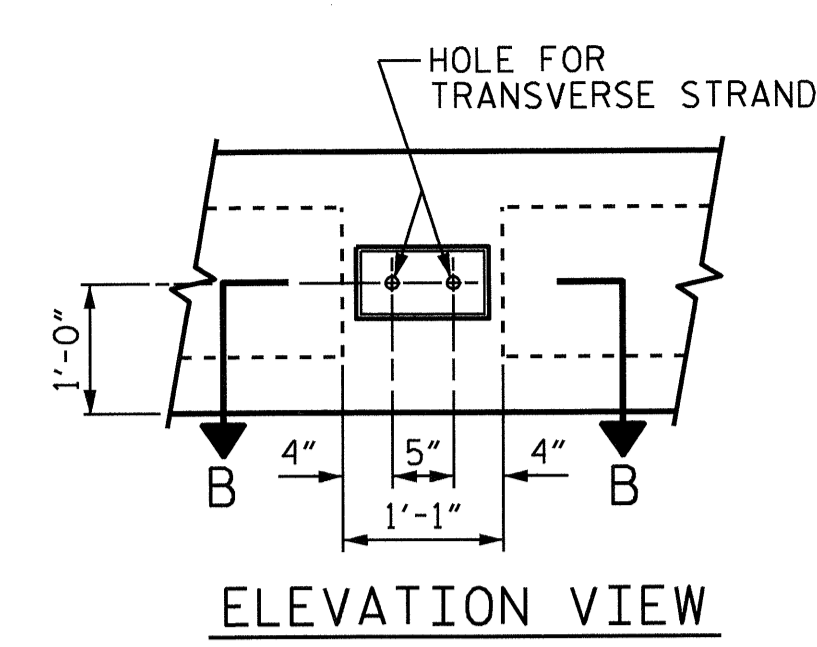
0.6" Ø LOW RELAXATION STRAND LAYOUT

□ = 6'-0" ▲ = 10'-0" ○ = 12'-0"
 BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6'-0", 10'-0", OR 12'-0" FROM END OF CORED SLAB UNIT, SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

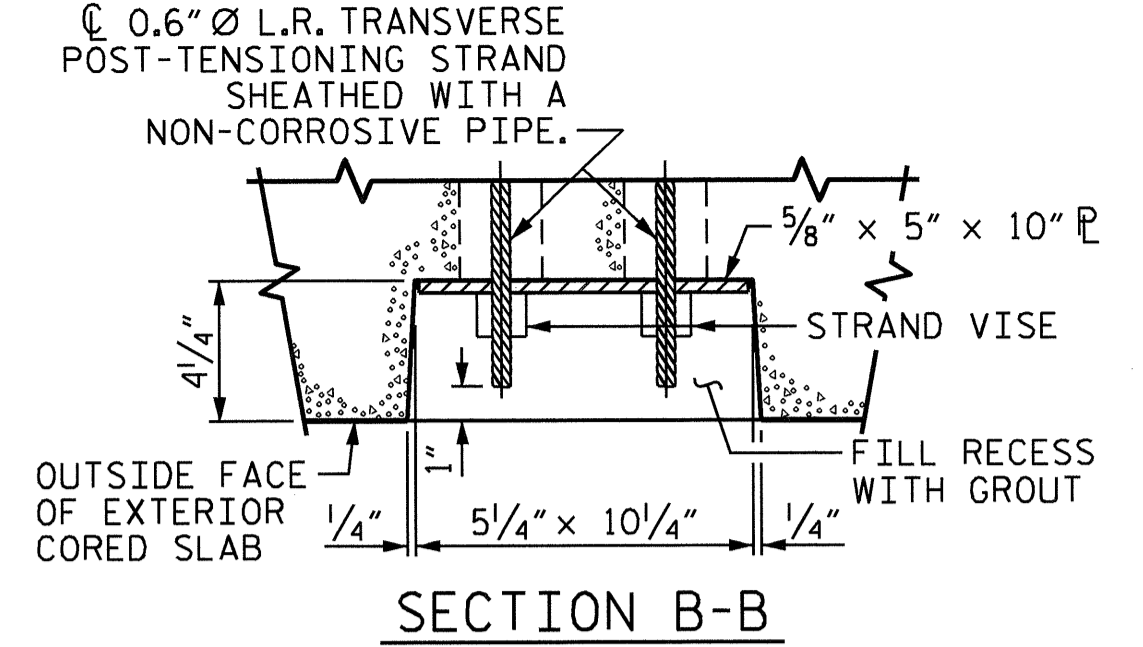


SHEAR KEY DETAIL

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



ELEVATION VIEW



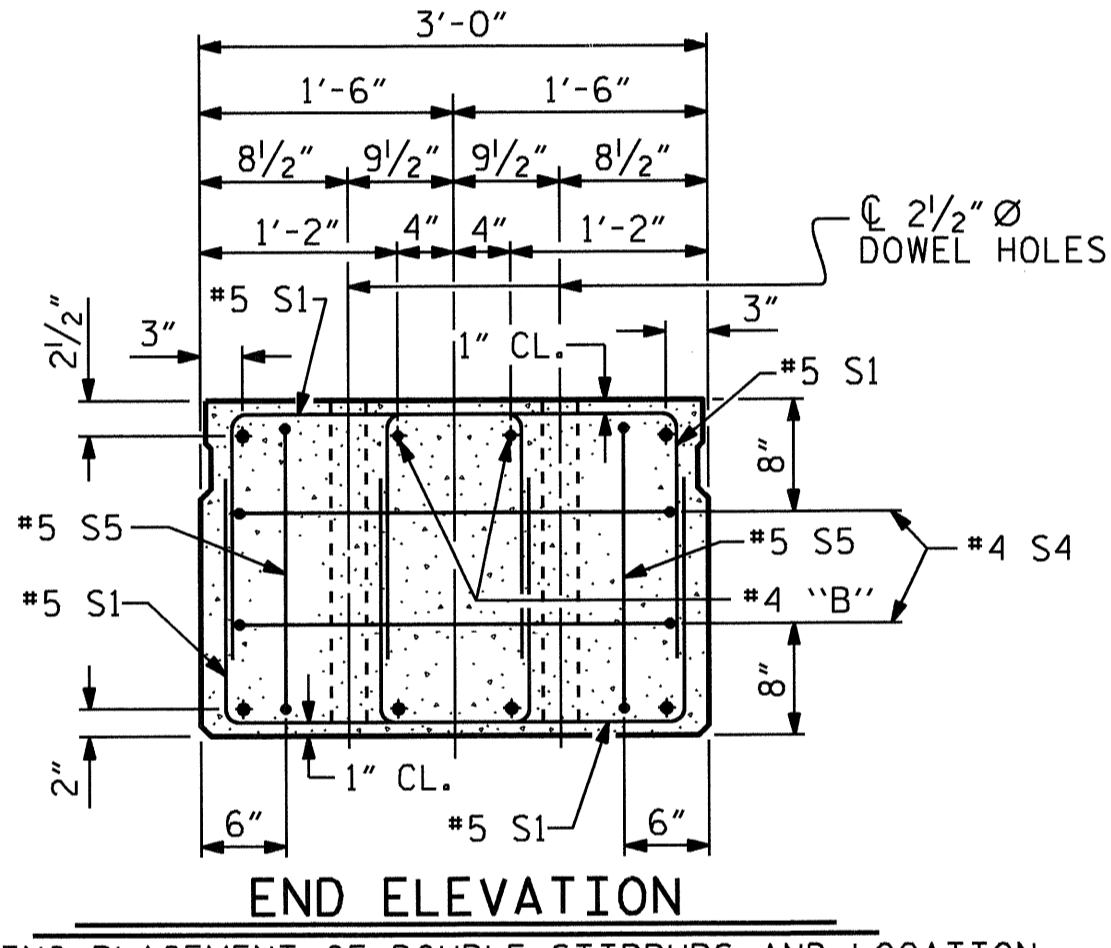
SECTION B-B

GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS

SPAN	** AT @ BEARINGS	** AT MID-SPAN
A	3'-2"	2'-9 5/8"
B	3'-2"	2'-9 5/8"
C	3'-2"	2'-10 1/2"
D	3'-2"	3'-1 3/8"

SPAN	@ GUTTERLINE	@ CROWN
A	1 5/8"	2"
B	1 5/8"	2"
C	2 1/2"	2 7/8"
D	5 3/8"	5 3/4"

NOTE: THICKNESS VARIES BETWEEN @ BEARING AND MID-SPAN FOR ALL SPANS.



END ELEVATION

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

PROJECT NO. B-4629
 ROWAN COUNTY
 STATION: 16+50.00-L-

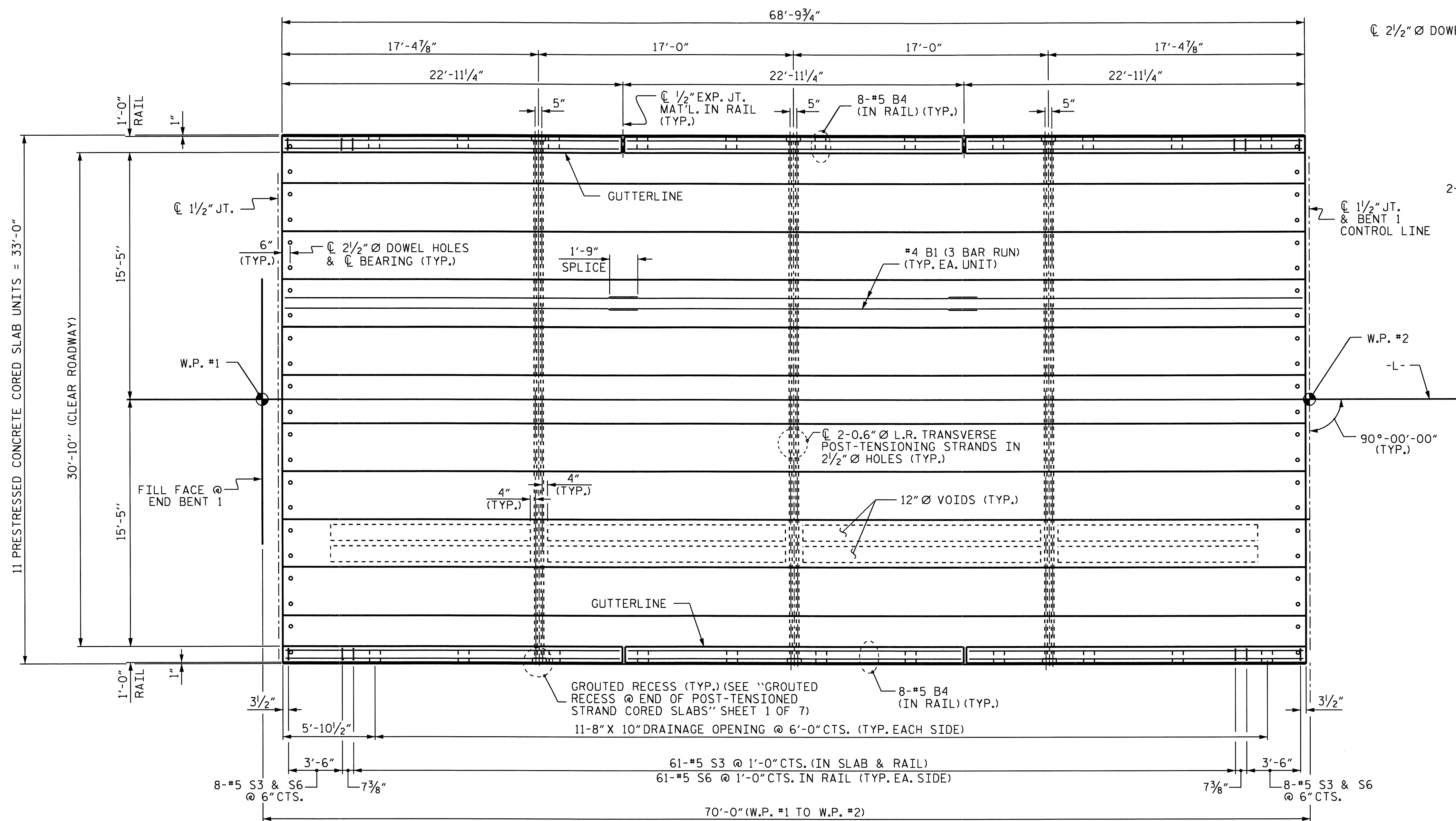
SHEET 1 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 2'-0"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT

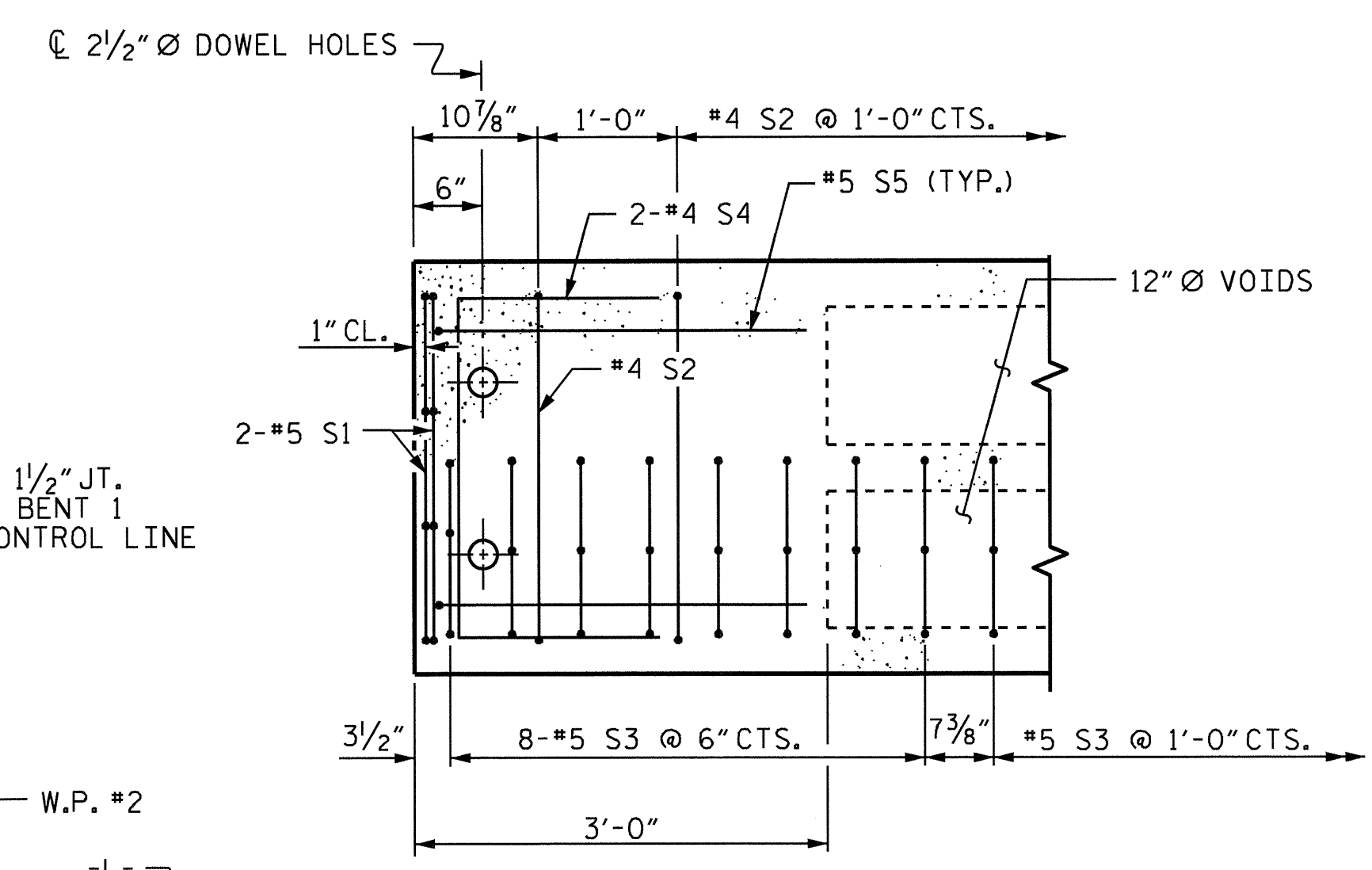


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			26

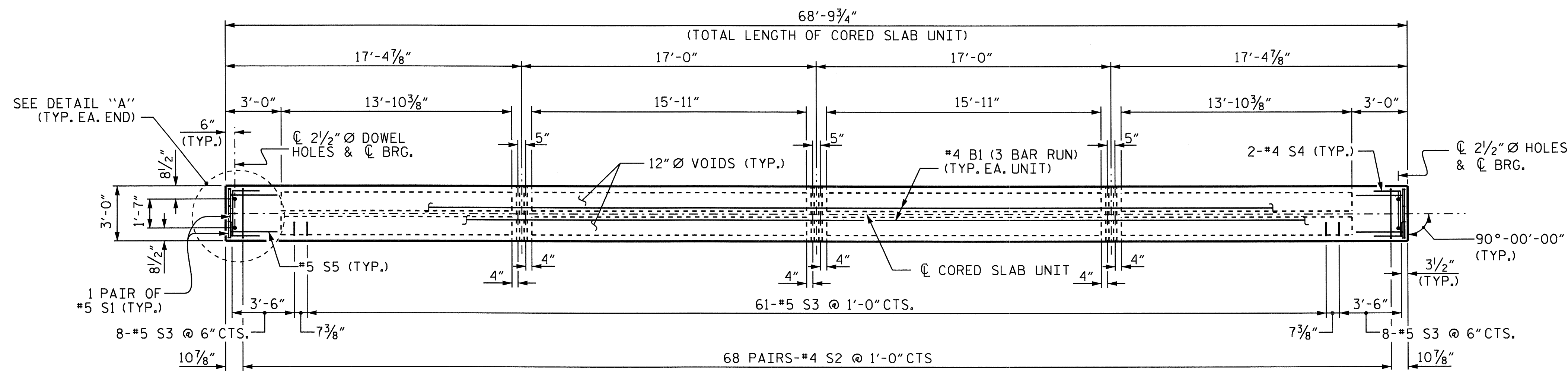
ASSEMBLED BY: RAMAN PATEL	DATE: 2/10/10
CHECKED BY: T. H. FANG	DATE: 3/22/10
DRAWN BY: MAA 5/10	ADDED 5/6/10
CHECKED BY: GMJ 5/10	REV. 10/1/11 MAA/GM



PLAN OF SPAN A



DETAIL "A"
PART PLAN-EXTERIOR SECTION
NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT S3 BARS.



PLAN OF EXTERIOR CORED SLAB UNIT
PLAN FOR INTERIOR CORED SLAB IDENTICAL EXCEPT OMIT #5 S3 BARS.

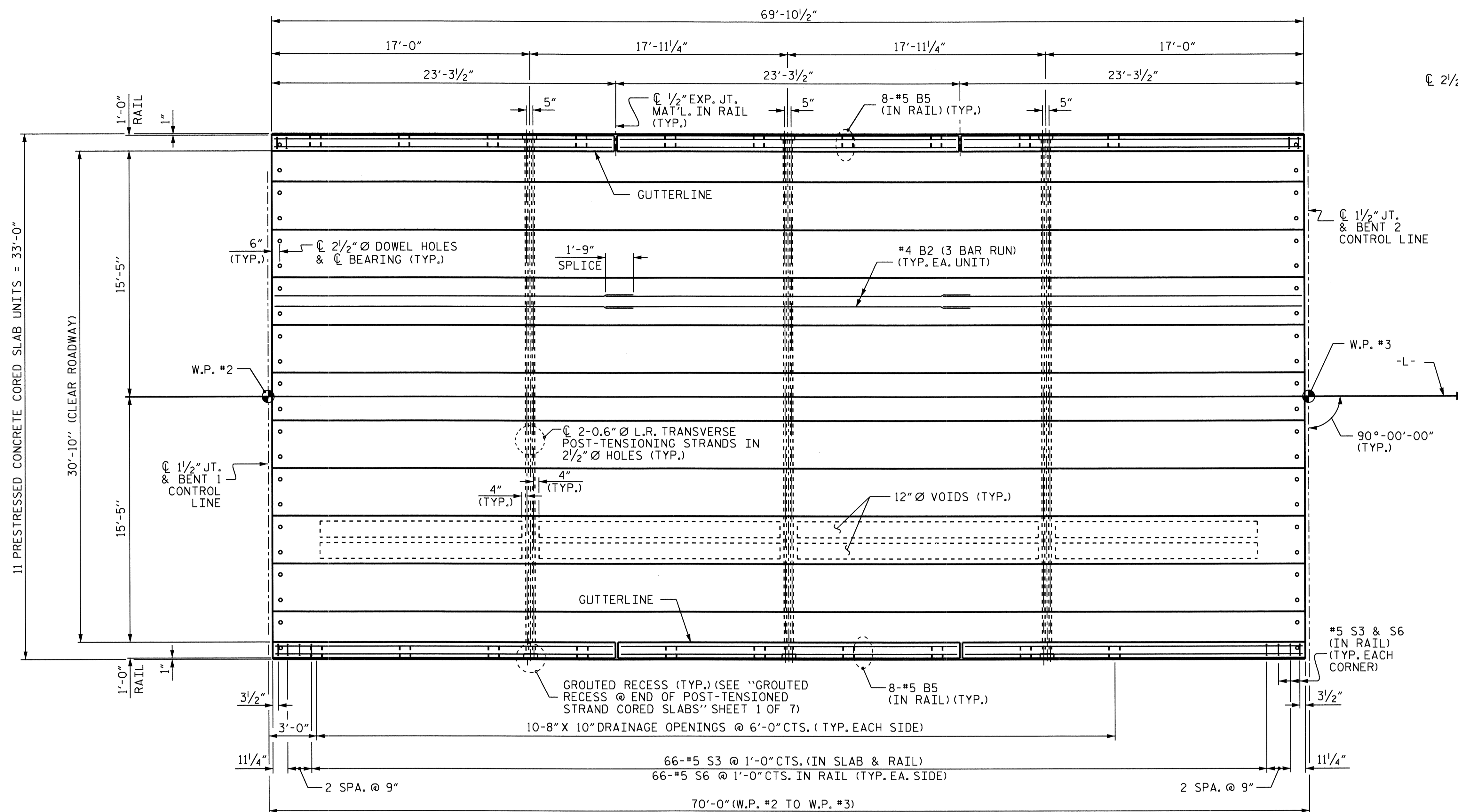
PROJECT NO. B-4629
 ROWAN COUNTY
 STATION: 16+50.00 -L-
 SHEET 2 OF 7

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

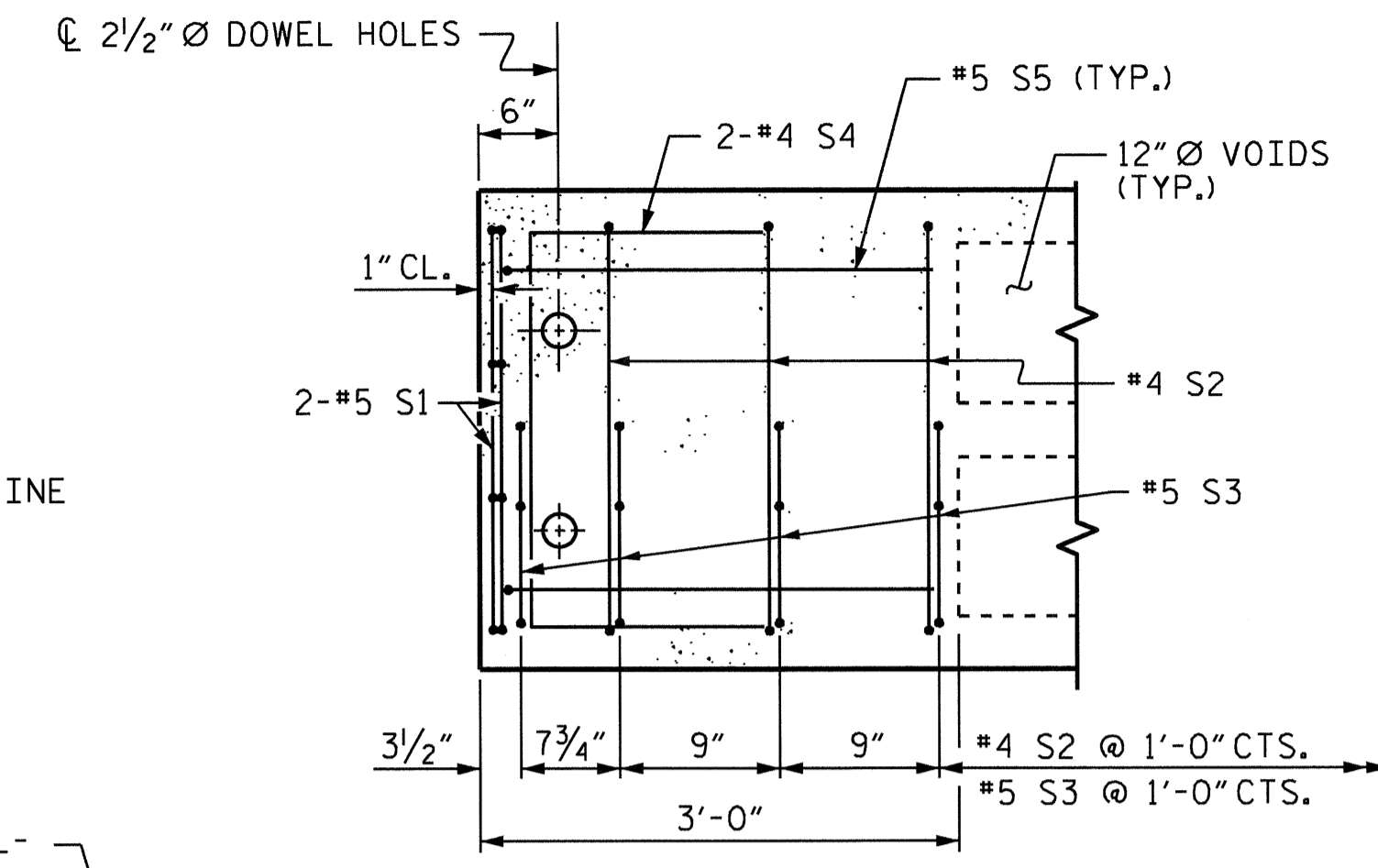


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			26

DRAWN BY: HARISH SHAH DATE: 1-15-10
 CHECKED BY: RAMAN PATEL DATE: 1-28-10



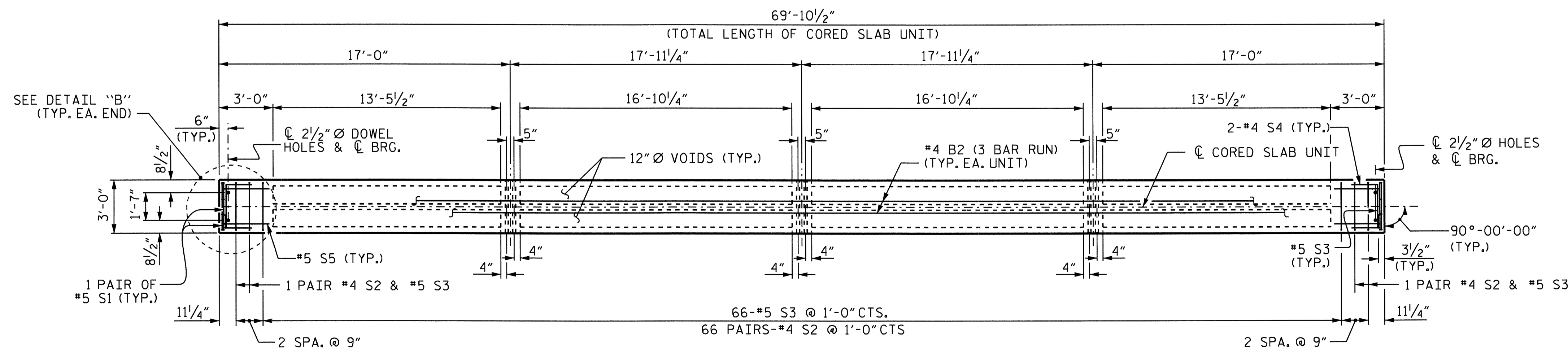
PLAN OF SPAN B



DETAIL "B"

PART PLAN-EXTERIOR SECTION

NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT S3 BARS.



PLAN OF EXTERIOR CORED SLAB UNIT

PLAN FOR INTERIOR CORED SLAB IDENTICAL EXCEPT OMIT #5 S3 BARS.

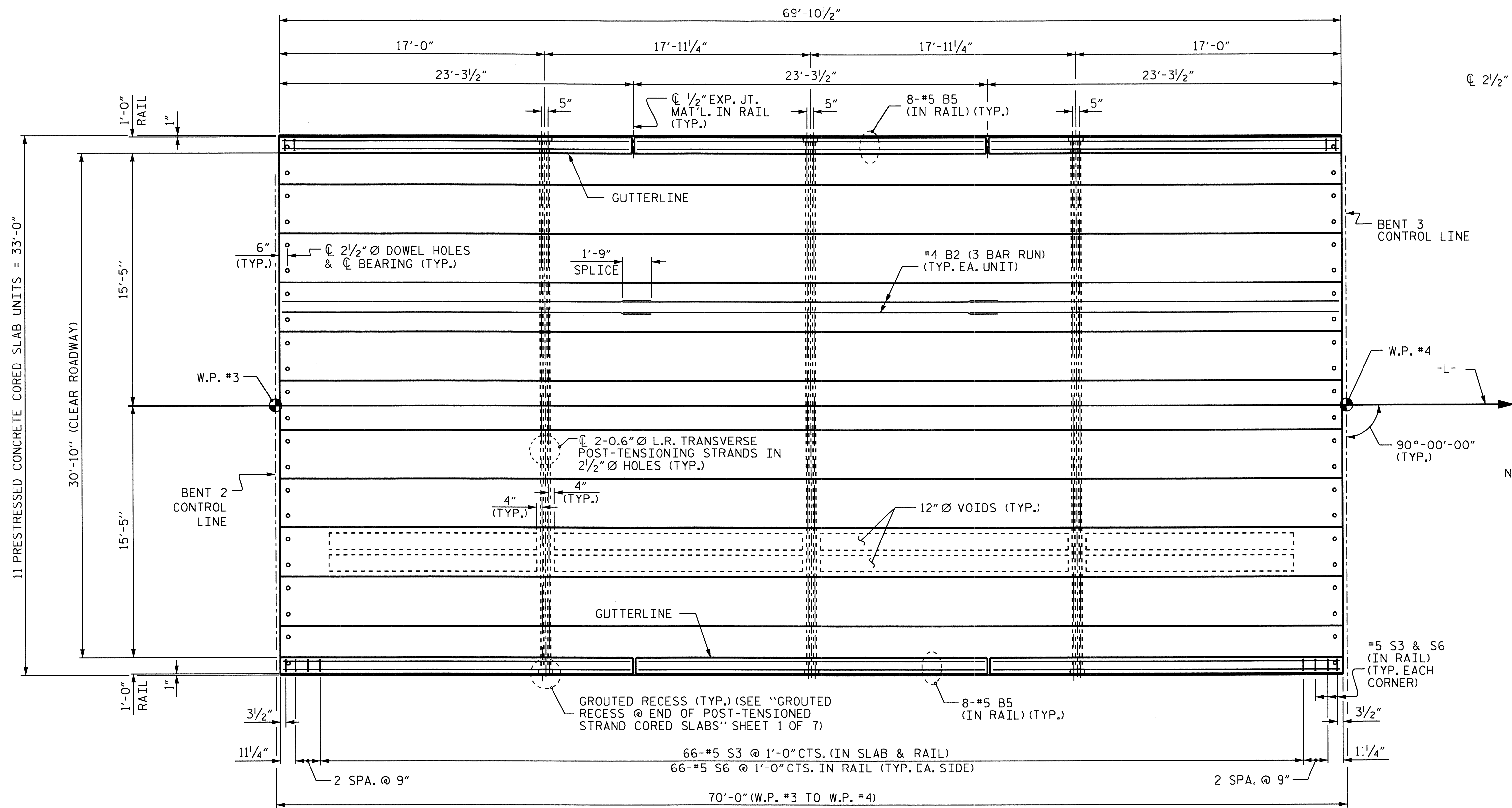
PROJECT NO. B-4629
 ROWAN COUNTY
 STATION: 16+50.00 -L-
 SHEET 3 OF 7

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

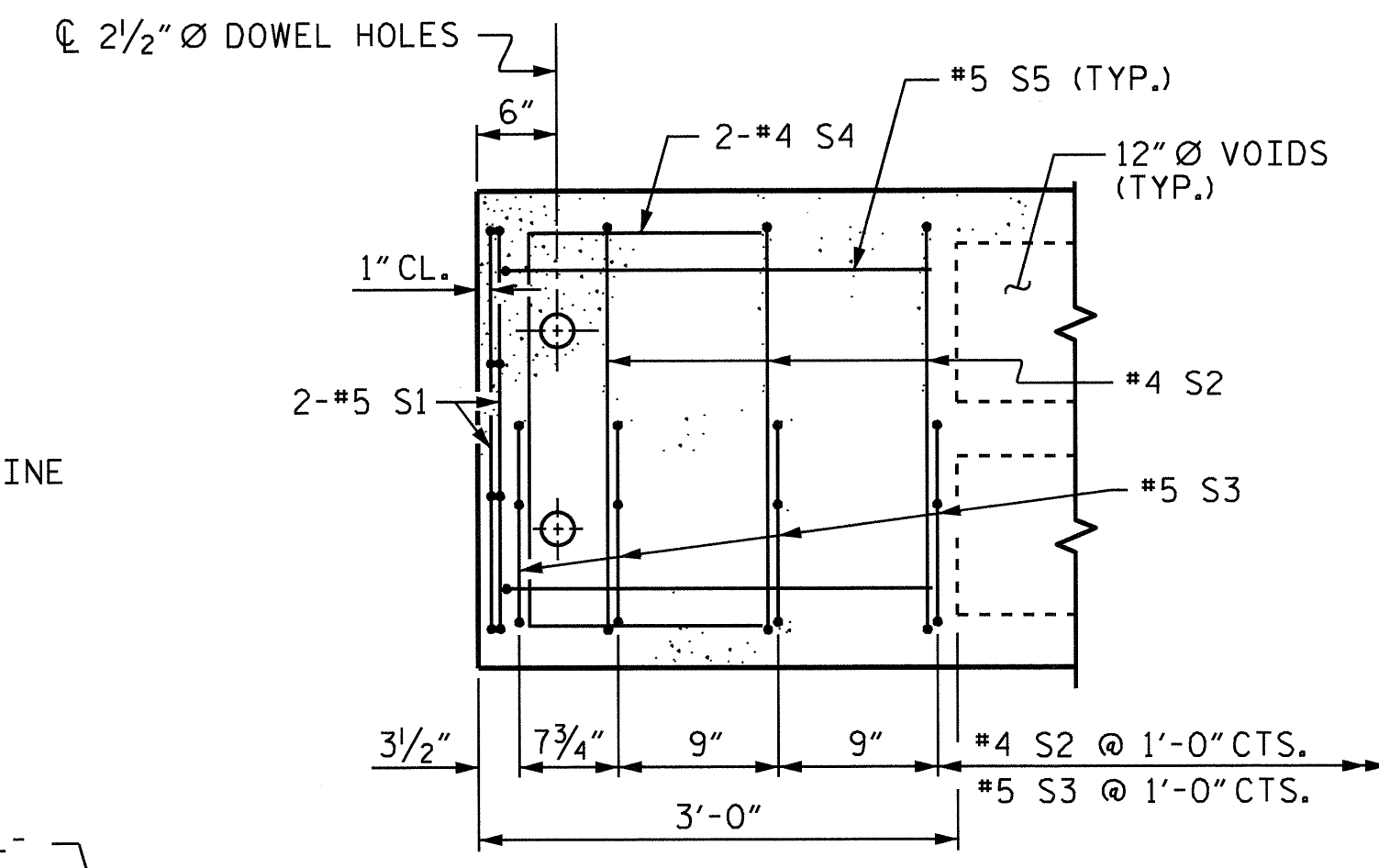


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7	
1			3			TOTAL SHEETS	
2			4			26	

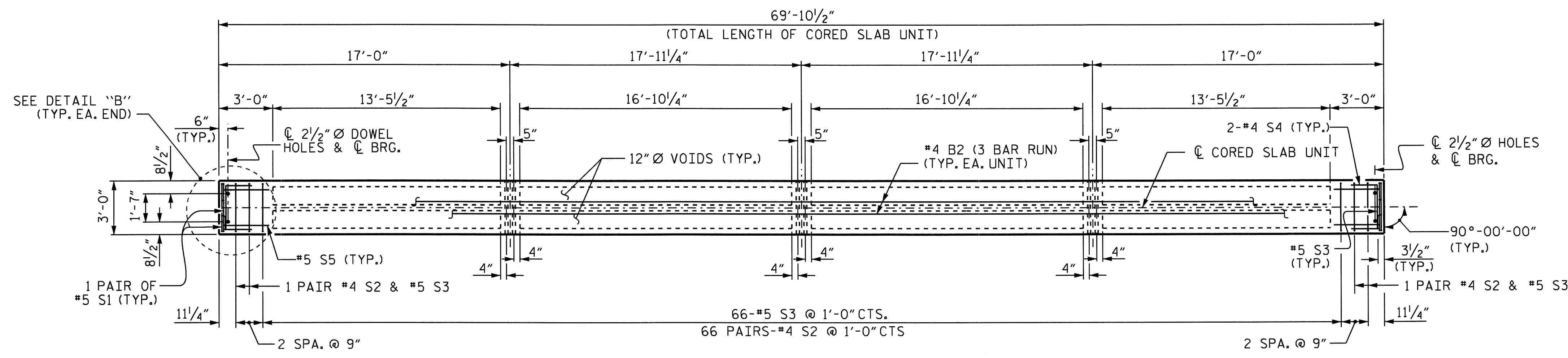
DRAWN BY: HARISH SHAH DATE: 1/15/10
 CHECKED BY: RAMAN PATEL DATE: 1/28/10



PLAN OF SPAN C



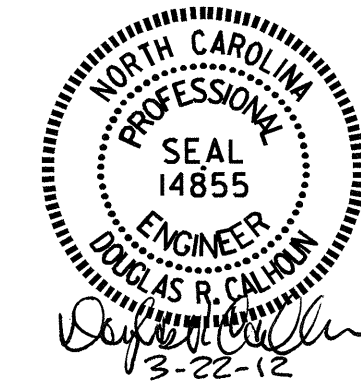
DETAIL "B"
PART PLAN-EXTERIOR SECTION
NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT S3 BARS.



PLAN OF EXTERIOR CORED SLAB UNIT
PLAN FOR INTERIOR CORED SLAB IDENTICAL EXCEPT OMIT #5 S3 BARS.

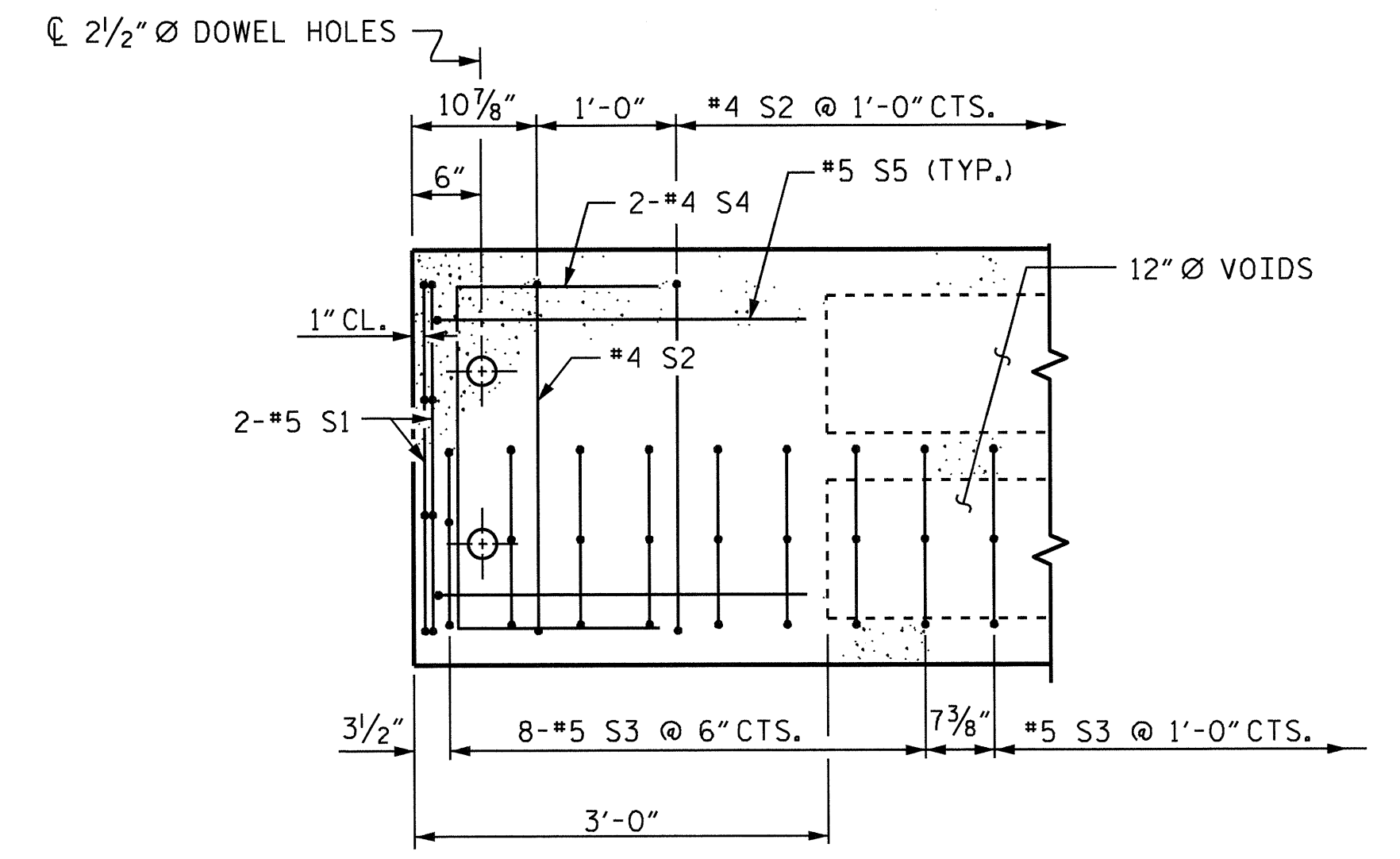
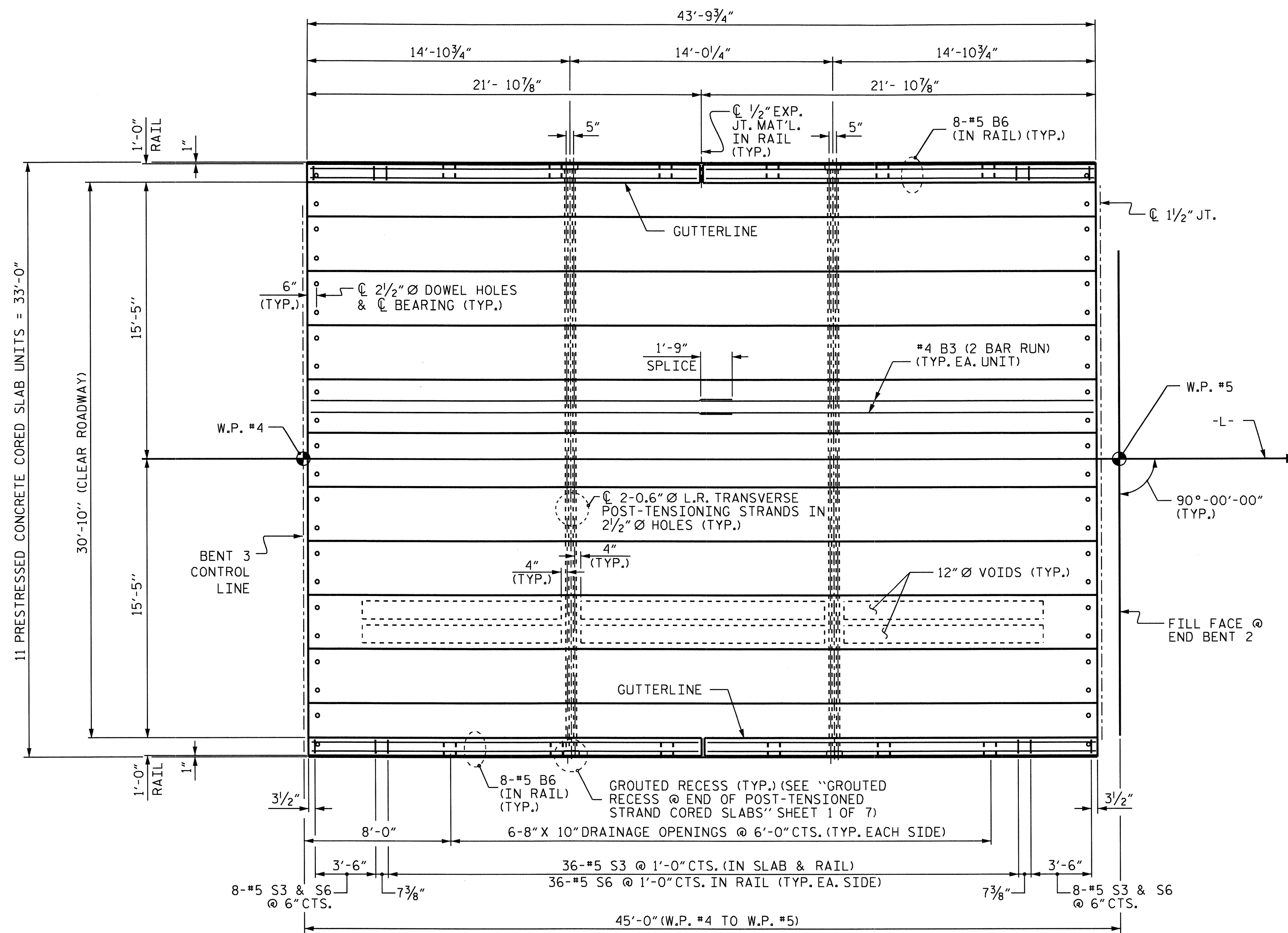
PROJECT NO. B-4629
ROWAN COUNTY
 STATION: 16+50.00 -L-
 SHEET 4 OF 7

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE					
PLAN OF SPAN SPAN C					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-8 TOTAL SHEETS 26

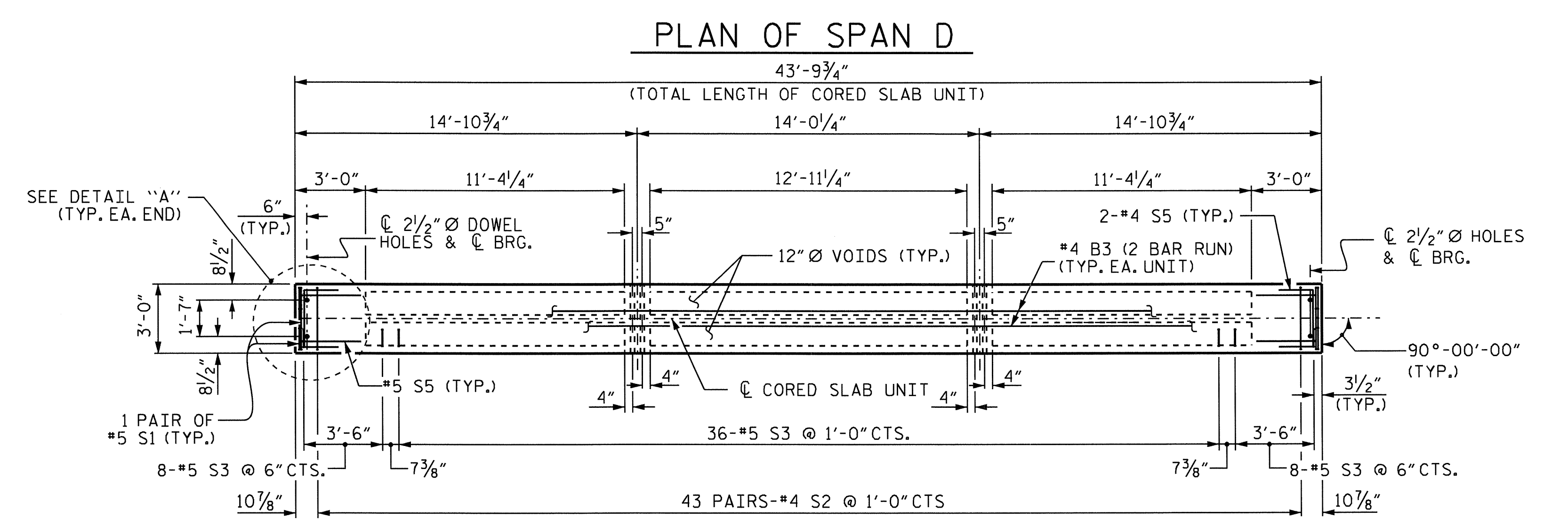


DRAWN BY: HARISH SHAH DATE: 1/15/10
 CHECKED BY: RAMAN PATEL DATE: 1/28/10

22-MAR-2012 12:08
 R:\Structures\FINAL PLANS\Revised Final Plans\B4629.ed.cs.dgn
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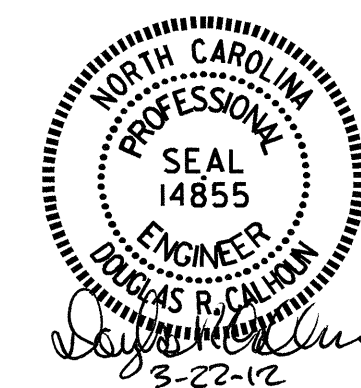
DETAIL "A"
PART PLAN-EXTERIOR SECTION
 NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT S3 BARS.



PLAN OF EXTERIOR CORED SLAB UNIT
 PLAN FOR INTERIOR CORED SLAB IDENTICAL EXCEPT OMIT #5 S3 BARS.

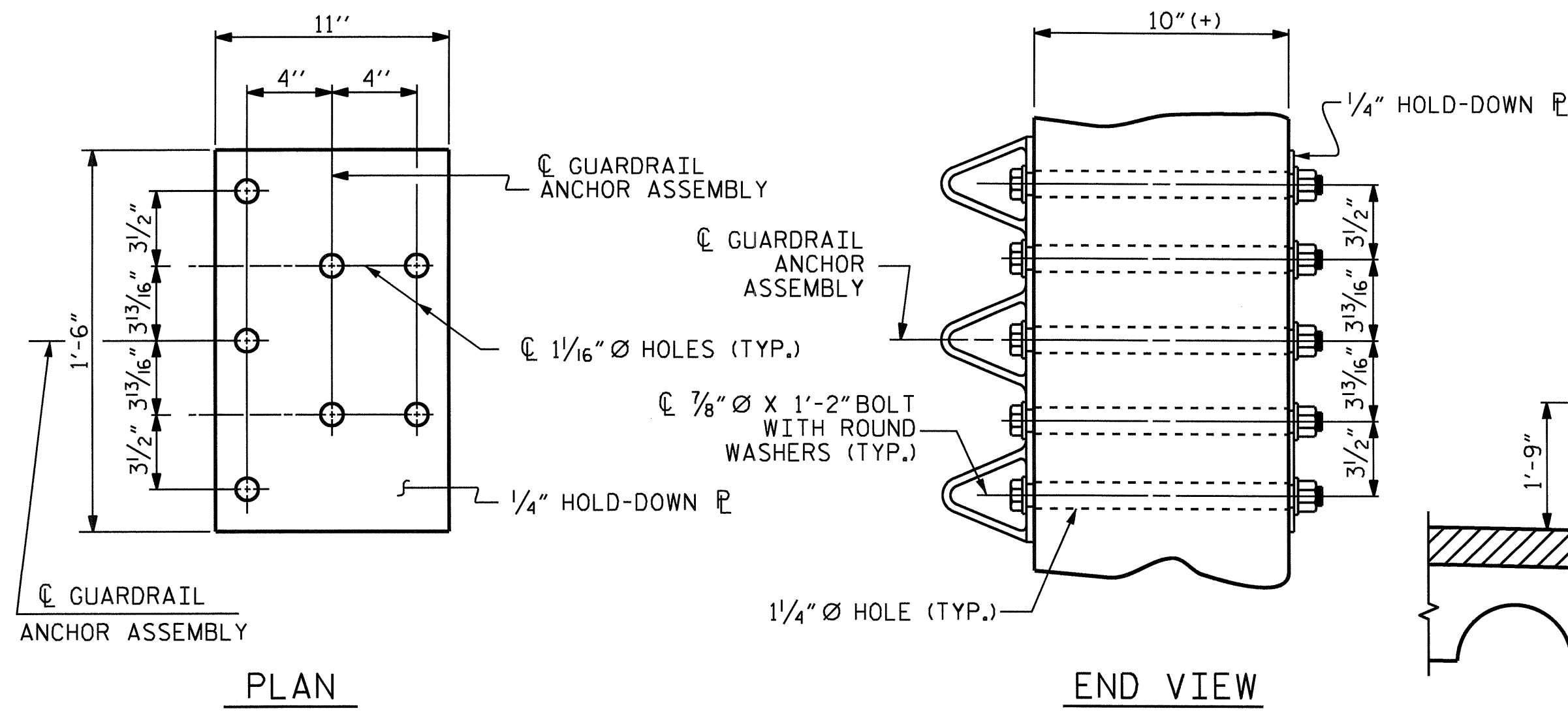
PROJECT NO. B-4629
ROWAN COUNTY
 STATION: 16+50.00 -L-
 SHEET 5 OF 7

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

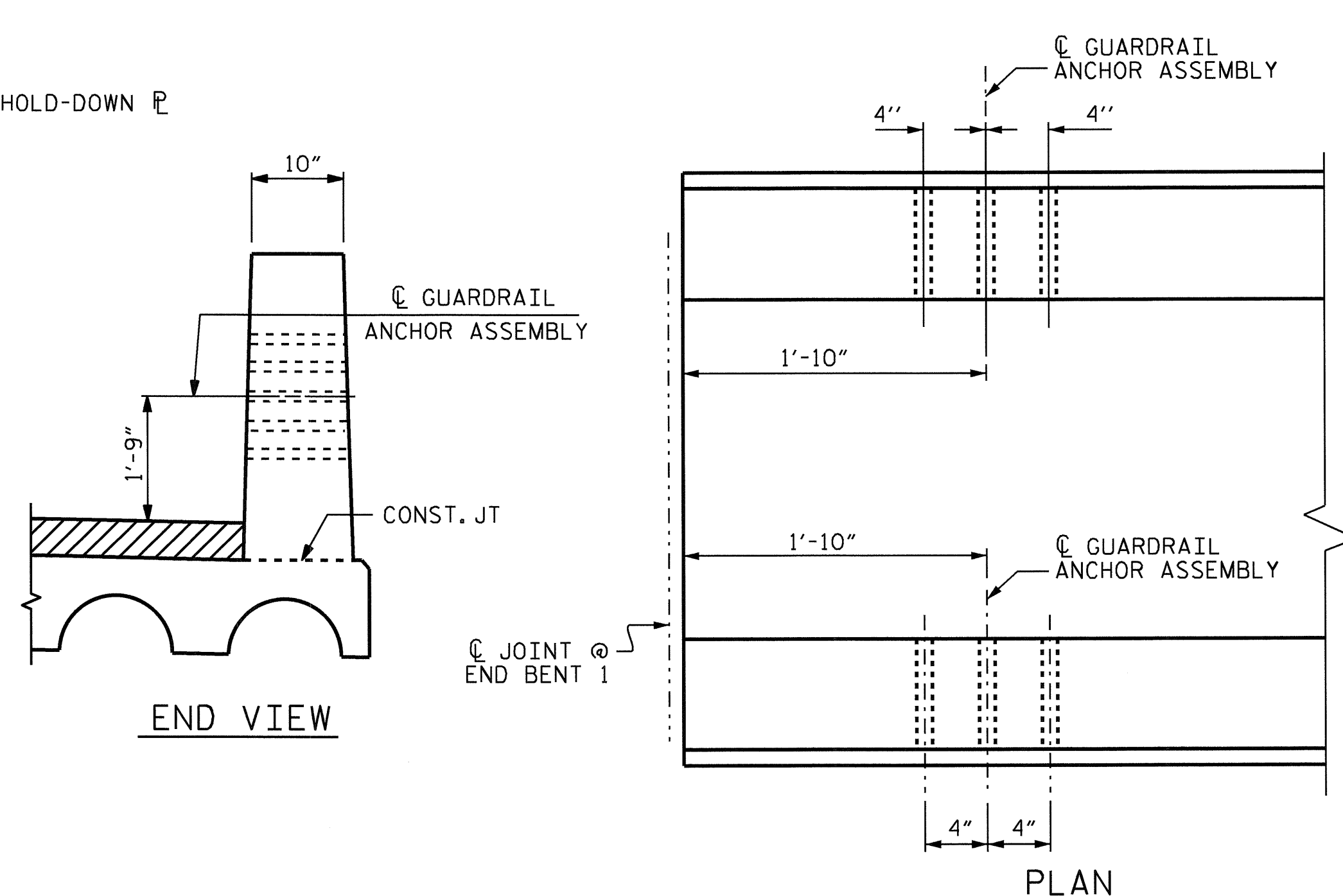


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS 26
2			4			

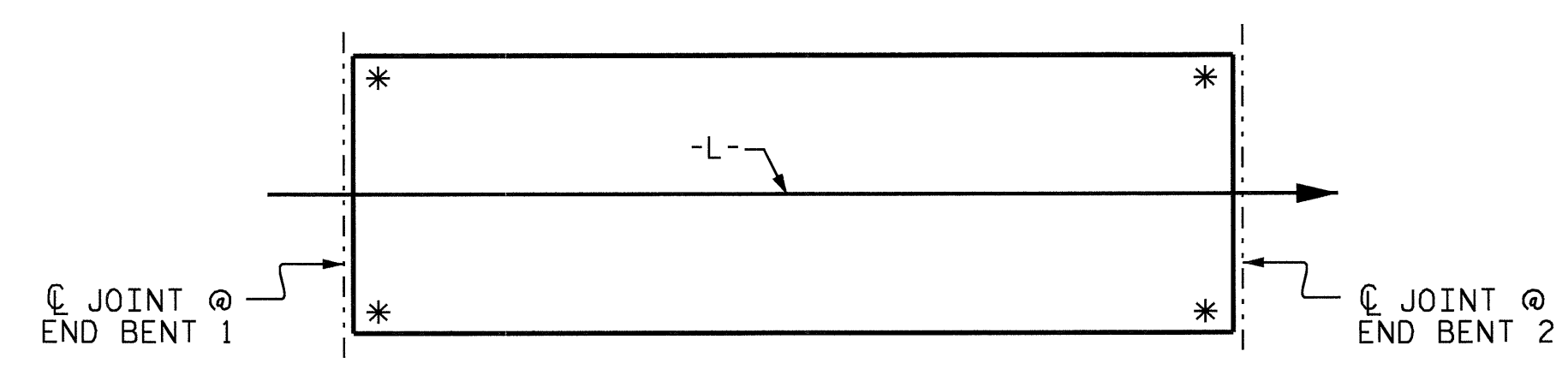
DRAWN BY: HARISH SHAH DATE: 1/15/10
 CHECKED BY: RAMAN PATEL DATE: 1/28/10



PLAN
END VIEW
GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF GUARDRAIL ANCHOR
END BENT 1 SHOWN, END BENT 2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENT
* LOCATION OF GUARDRAIL ATTACHMENT

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 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 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.)

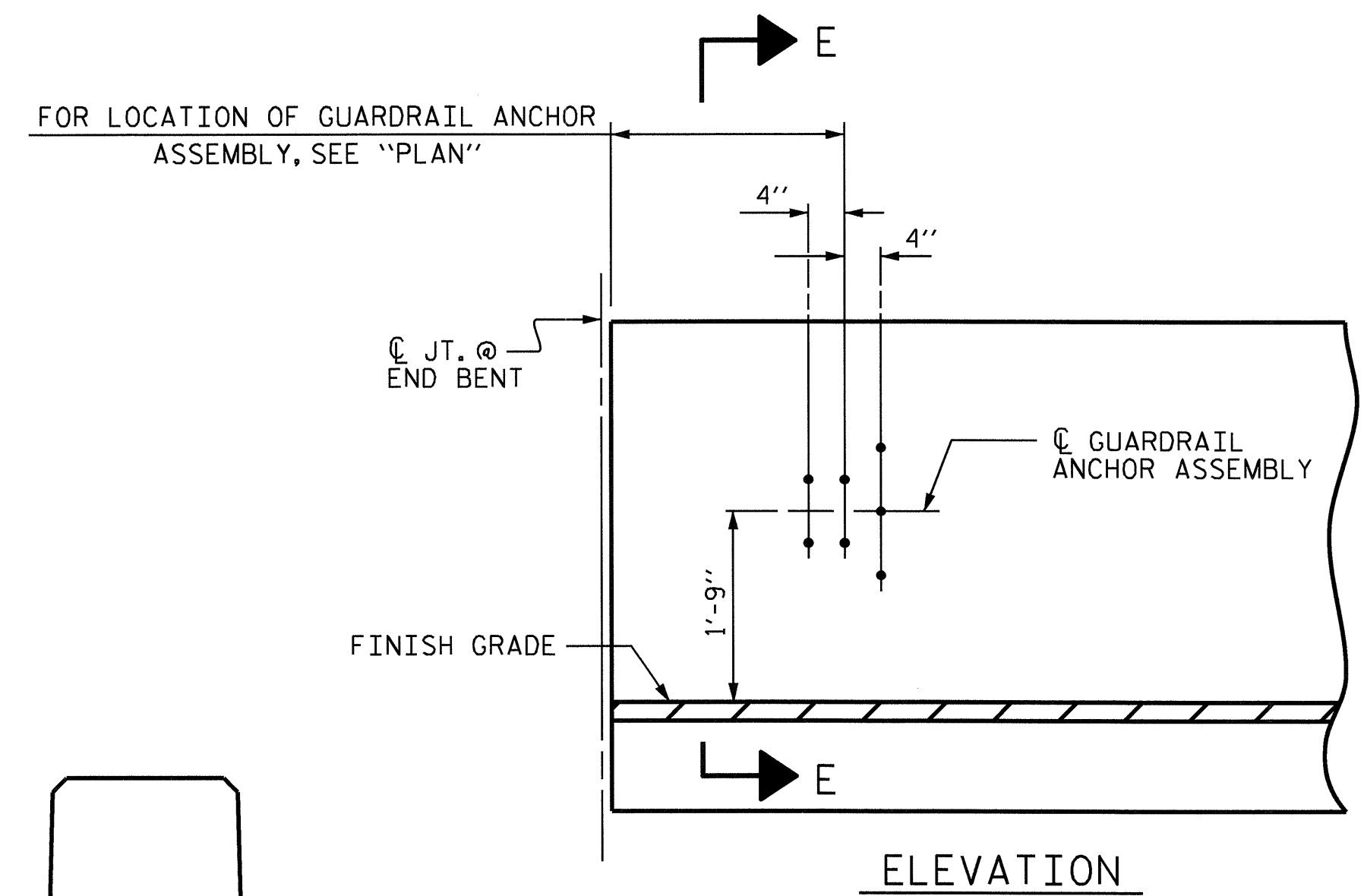
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

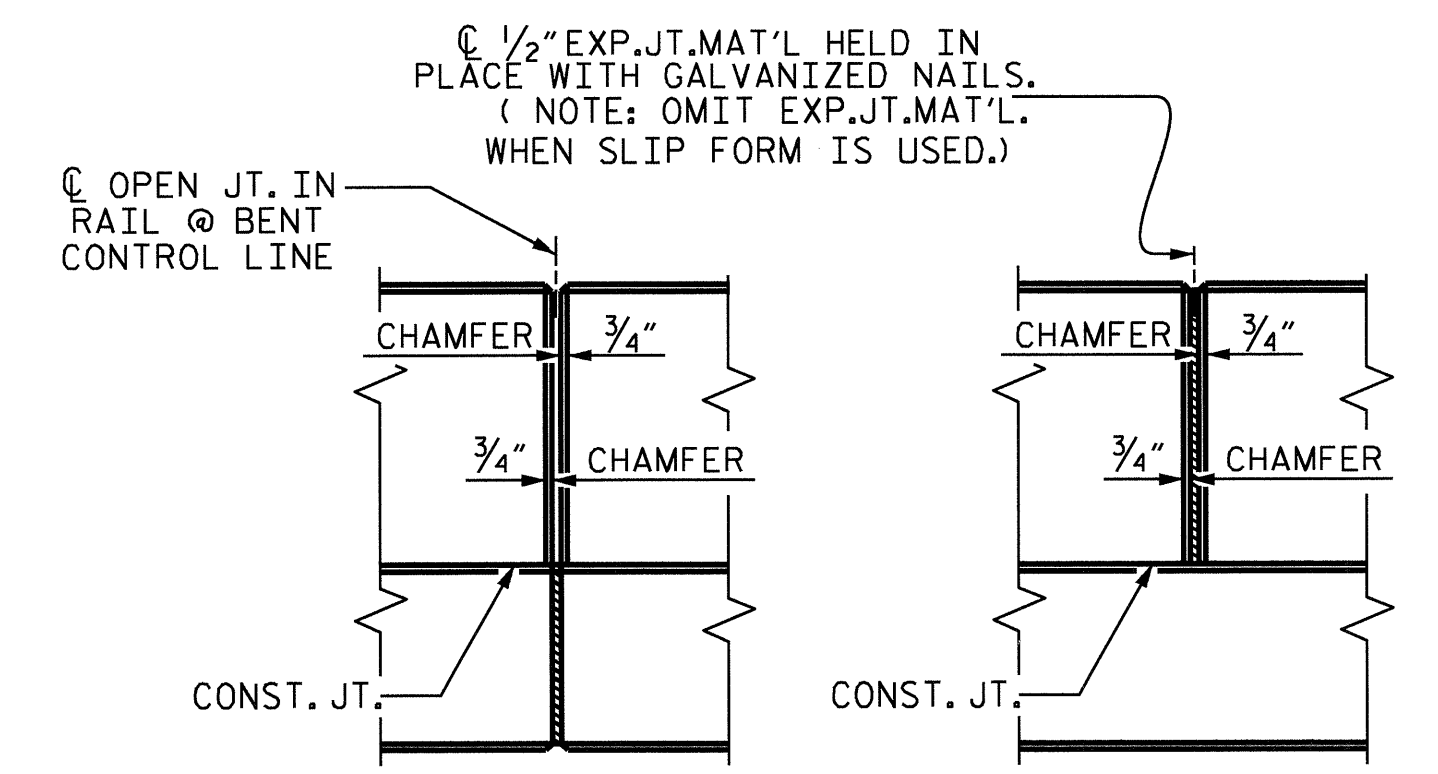
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

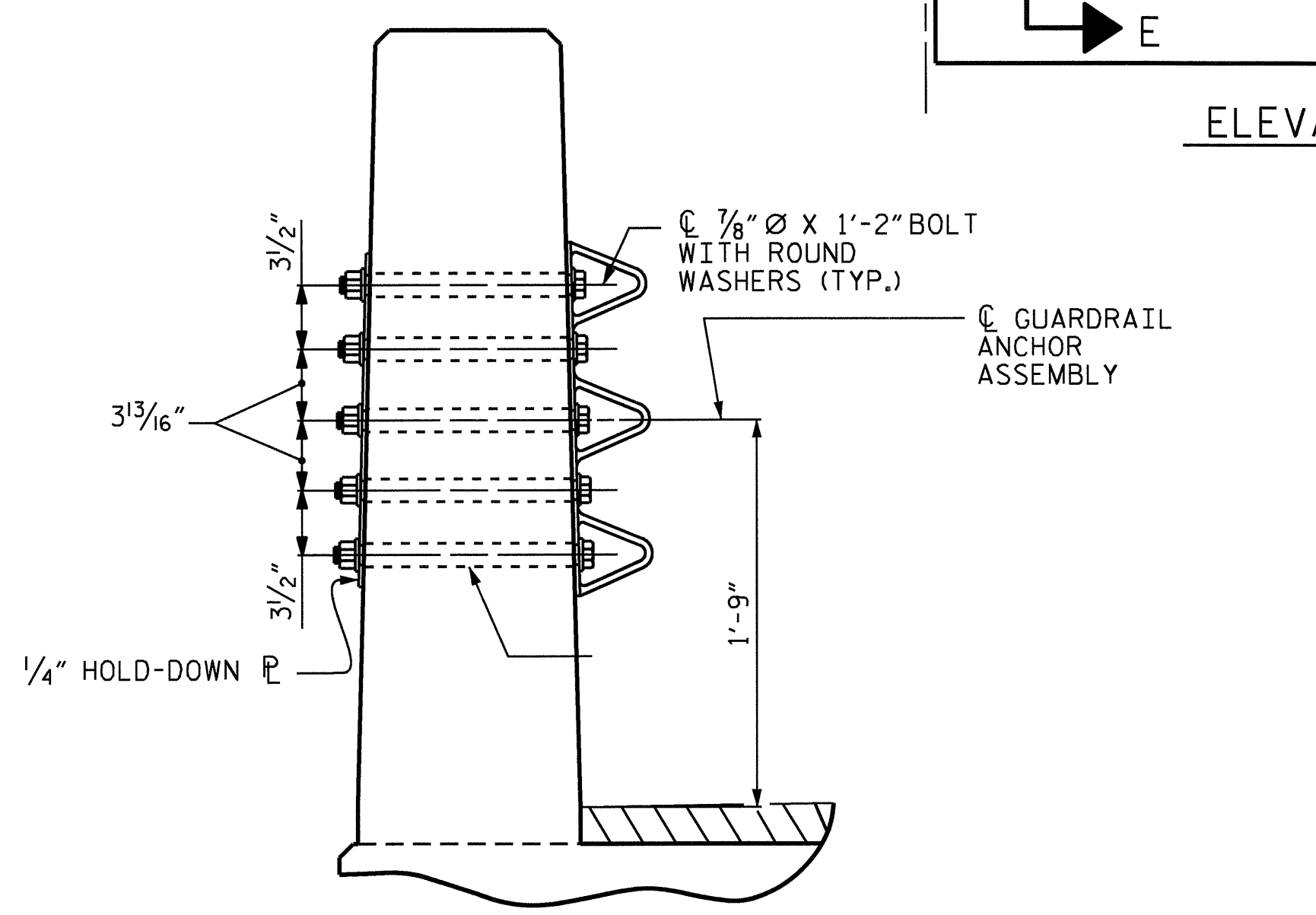
THE 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



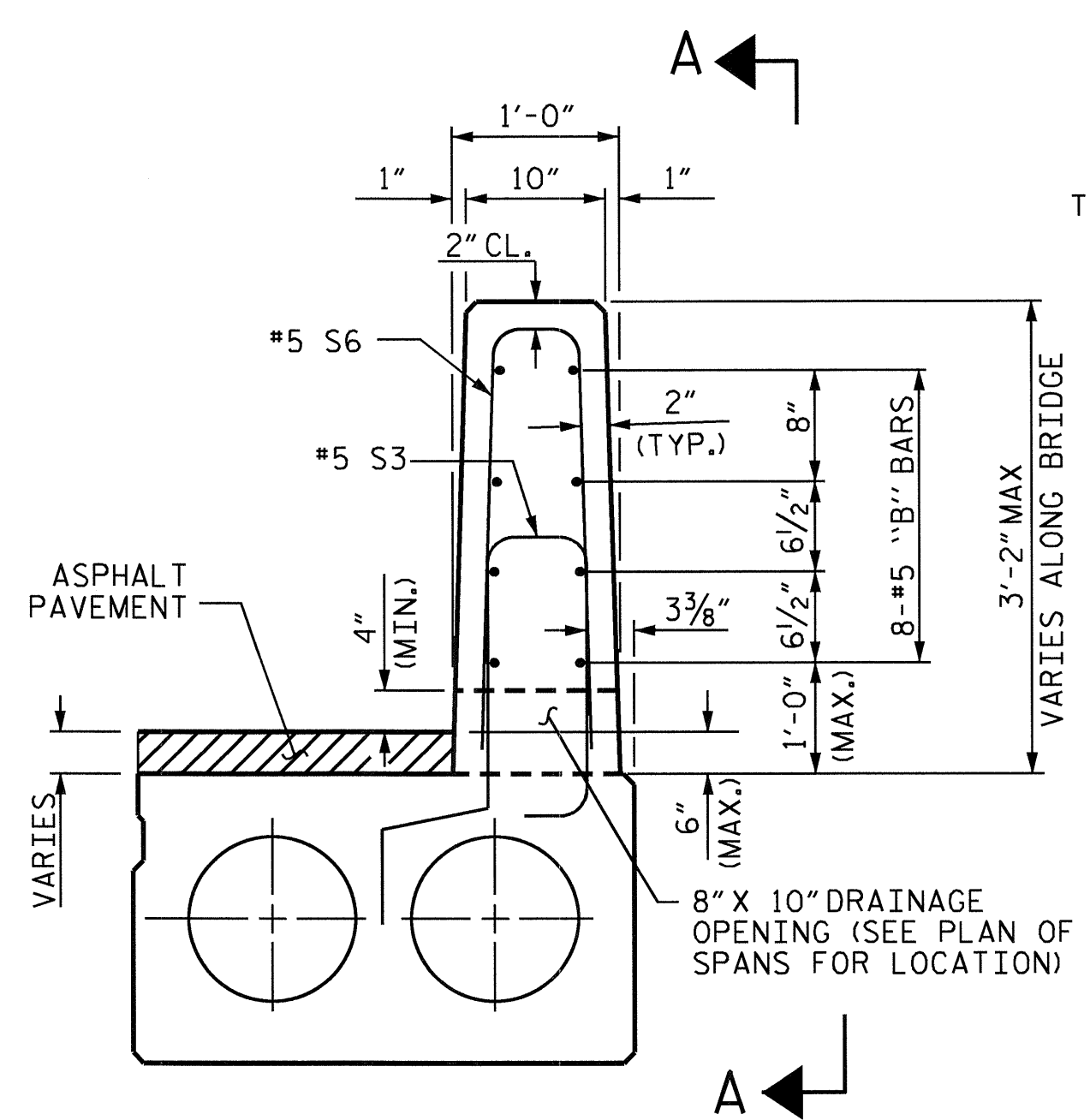
ELEVATION



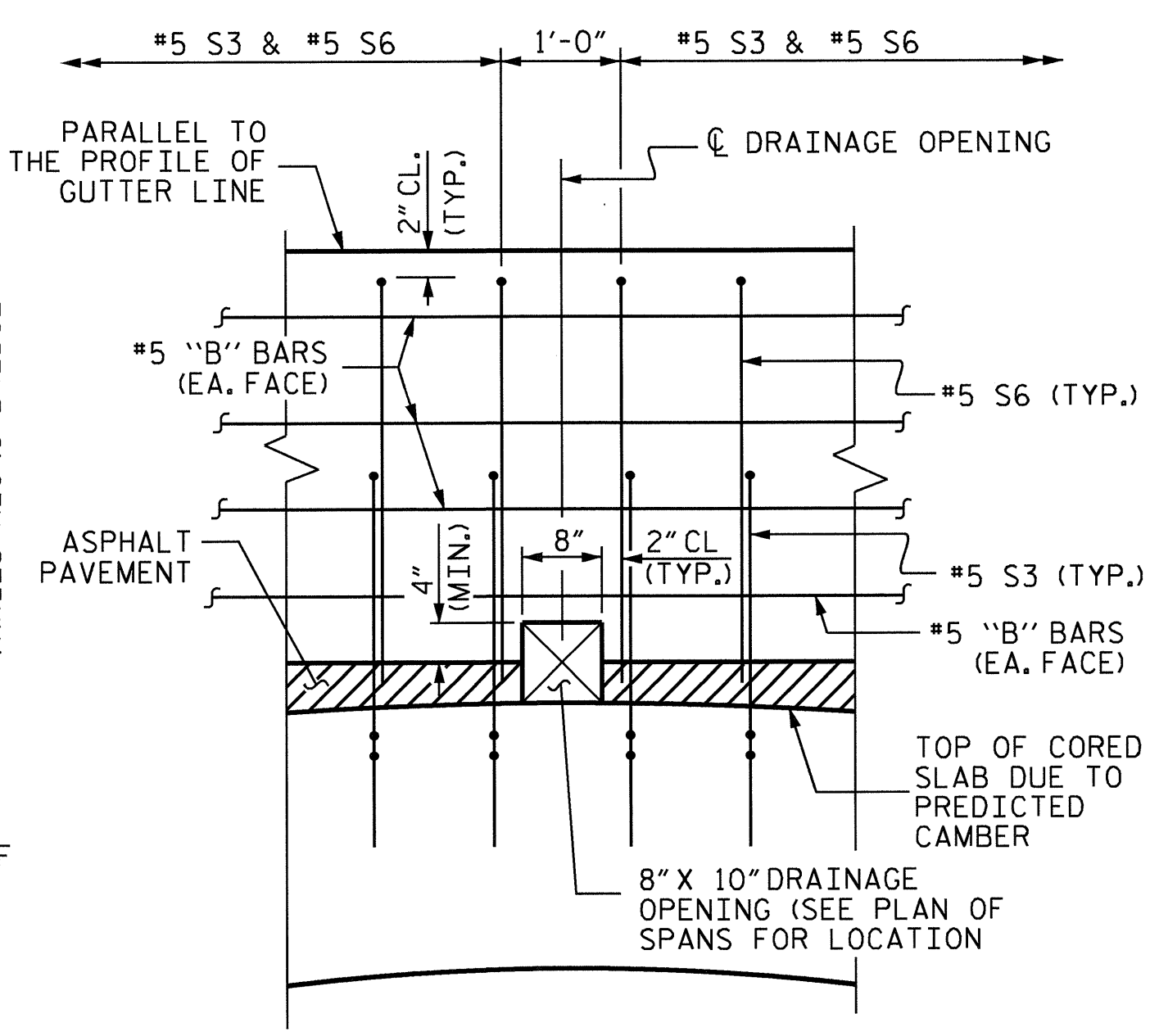
ELEVATION AT EXPANSION JOINTS



SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



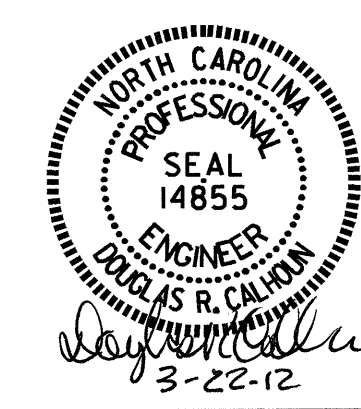
SECTION THRU RAIL
WITH DRAINAGE OPENINGS



VIEW A-A

VERTICAL CONCRETE BARRIER RAIL DETAILS
FOR PLAN VIEW OF VERTICAL CONCRETE BARRIER RAIL, SEE "PLAN OF SPAN" SHEETS.

ASSEMBLED BY : HARISH SHAH DATE: 01-19-10
CHECKED BY : RAMAN PATEL DATE: 03-15-10
DRAWN BY : MAA 5/10 ADDED 5/6/10 MAA/GM
CHECKED BY : GM 5/10 REV. 10/1/11 MAA/GM
REV. 12/5/11 MAA/GM



PROJECT NO. B-4629
ROWAN COUNTY
STATION: 16+50.00 -L-

SHEET 6 OF 7
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
VERTICAL CONCRETE BARRIER RAIL AND GUARDRAIL ANCHORAGE DETAILS

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10	
1			3			TOTAL SHEETS	
2			4			26	

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 CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2/2" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH GROUT.

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM, IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 5900 PSI FOR SPAN A, SPAN B, SPAN C AND 4000 PSI FOR SPAN D.

TRANSVERSE POST TENSIONING OF THE CORED SLAB SECTIONS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAILS SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO THE EXTERIOR FACE OF EXTERIOR CORED SLAB UNITS.

MAINTAIN A SYMMETRIC TENSION FORCE BETWEEN EACH PAIR OF TRANSVERSE POST TENSIONING STRANDS IN THE DIAPHRAGM.

THE #4 S2 STIRRUPS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO THE GROUTED RECESS.

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

THE 1/2" EXPANSION JOINT IN THE BARRIER RAIL MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MINIMUM CLEARANCE TO THE #5 S3 & #5 S6 BARS.

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.

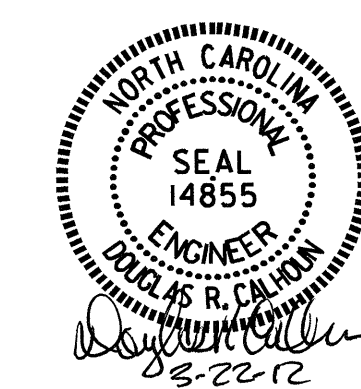
DECK DRAINS MAY BE SHIFTED SLIGHTLY TO AVOID "S" BARS.

PROJECT NO. B-4629
ROWAN COUNTY
 STATION: 16+50.00 -L-

SHEET 7 OF 7

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS 26
2			4			

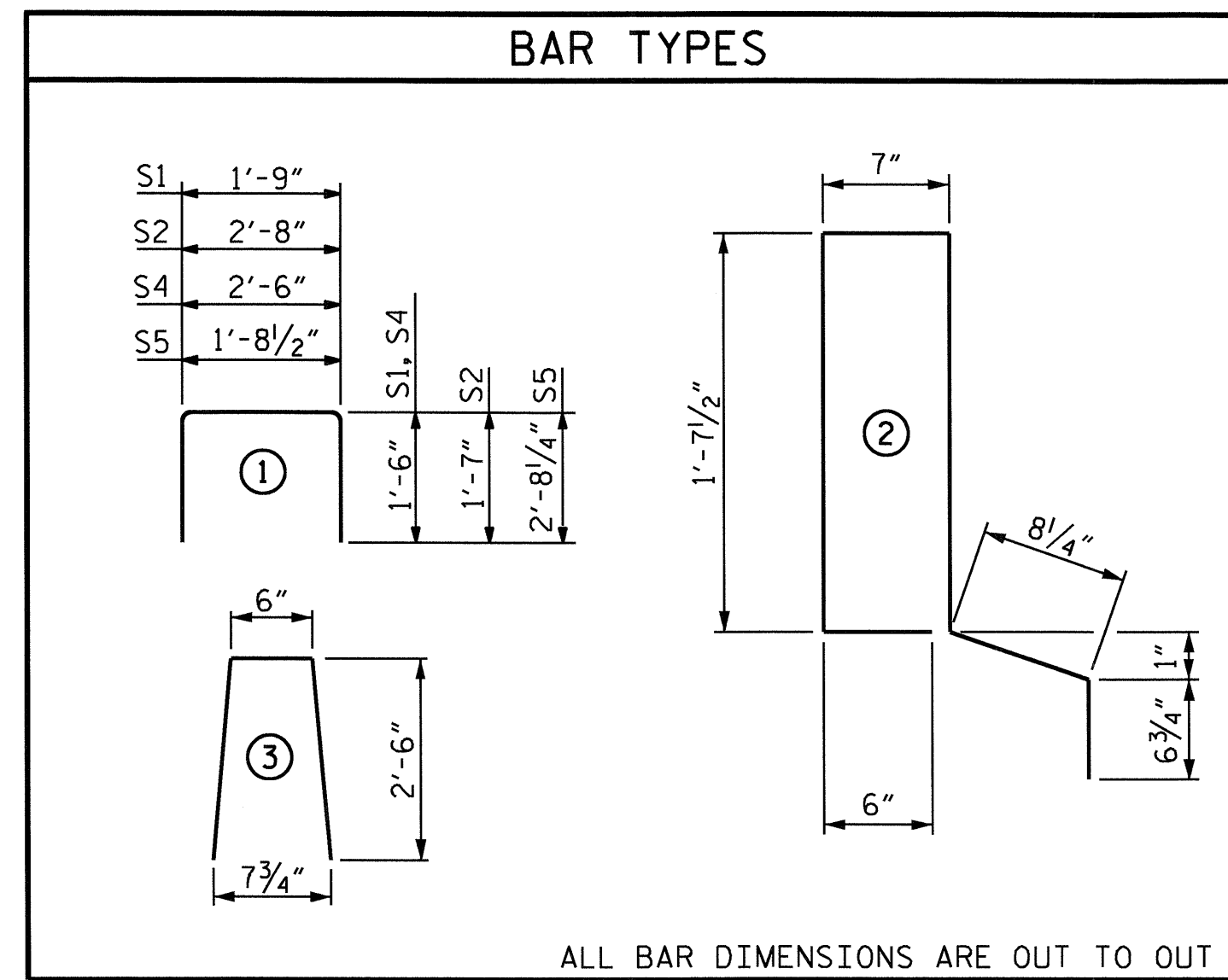


BILL OF MATERIAL FOR ONE CORED SLAB UNIT							
SPAN A							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B1	6	#4	STR	24'-0"	96	24'-0"	96
S1	8	#5	1	4'-9"	40	4'-9"	40
S2	136	#4	1	5'-10"	530	5'-10"	530
*S3	77	#5	2	5'-7"	448	—	—
S4	4	#4	1	5'-6"	15	5'-6"	15
S5	4	#5	1	7'-1"	30	7'-1"	30
REINFORCING STEEL				711 LBS.		711 LBS.	
* EPOXY COATED REINFORCING STEEL				448 LBS.		—	
7500 P.S.I. CONCRETE				11.7 CU. YDS.		11.7 CU. YDS.	
0.6" Ø L.R. STRANDS				No. 29		No. 29	
SPAN B							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B2	6	#4	STR	24'-5"	98	24'-5"	98
S1	8	#5	1	4'-9"	40	4'-9"	40
S2	140	#4	1	5'-10"	545	5'-10"	545
*S3	72	#5	2	5'-7"	419	—	—
S4	4	#4	1	5'-6"	15	5'-6"	15
S5	4	#5	1	7'-1"	30	7'-1"	30
REINFORCING STEEL				728 LBS.		728 LBS.	
* EPOXY COATED REINFORCING STEEL				419 LBS.		—	
7500 P.S.I. CONCRETE				11.9 CU. YDS.		11.9 CU. YDS.	
0.6" Ø L.R. STRANDS				No. 29		No. 29	
SPAN C							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B2	6	#4	STR	24'-5"	98	24'-5"	98
S1	8	#5	1	4'-9"	40	4'-9"	40
S2	140	#4	1	5'-10"	545	5'-10"	545
*S3	72	#5	2	5'-7"	419	—	—
S4	4	#4	1	5'-6"	15	5'-6"	15
S5	4	#5	1	7'-1"	30	7'-1"	30
REINFORCING STEEL				728 LBS.		728 LBS.	
* EPOXY COATED REINFORCING STEEL				419 LBS.		—	
7500 P.S.I. CONCRETE				11.9 CU. YDS.		11.9 CU. YDS.	
0.6" Ø L.R. STRANDS				No. 29		No. 29	
SPAN D							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B3	4	#4	STR	22'-8"	61	22'-8"	61
S1	8	#5	1	4'-9"	40	4'-9"	40
S2	86	#4	1	5'-10"	335	5'-10"	335
*S3	52	#5	2	5'-7"	303	—	—
S4	4	#4	1	5'-6"	15	5'-6"	15
S5	4	#5	1	7'-1"	30	7'-1"	30
REINFORCING STEEL				481 LBS.		481 LBS.	
* EPOXY COATED REINFORCING STEEL				303 LBS.		—	
5000 P.S.I. CONCRETE				7.6 CU. YDS.		7.6 CU. YDS.	
0.6" Ø L.R. STRANDS				No. 12		No. 12	

SPLICE CHART		
BAR	SIZE	LENGTH
B1, B2, B3	#4	1'-9"

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

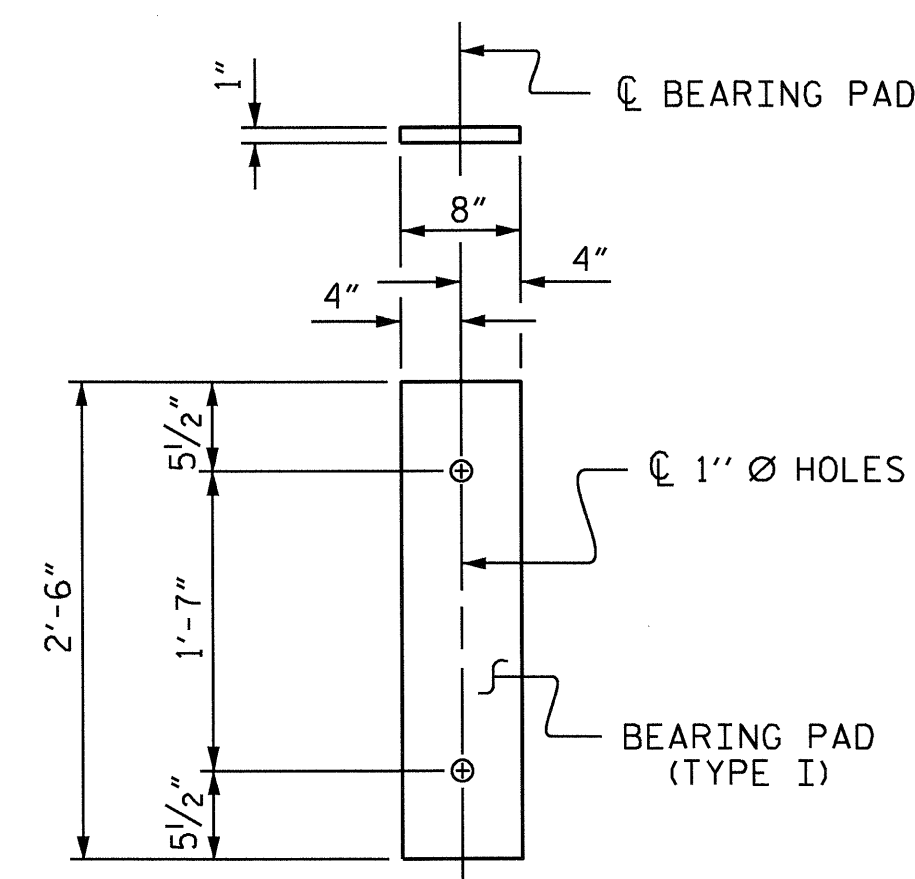
CORED SLABS REQUIRED			
SPAN A			
UNIT TYPE	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR	2	68'-9 3/4"	137'-7 1/2"
INTERIOR	9	68'-9 3/4"	619'-3 3/4"
TOTAL	11	68'-9 3/4"	756'-11 1/4"
SPAN B			
UNIT TYPE	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR	2	69'-10 1/2"	139'-9"
INTERIOR	9	69'-10 1/2"	628'-10 1/2"
TOTAL	11	69'-10 1/2"	768'-7 1/2"
SPAN C			
UNIT TYPE	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR	2	69'-10 1/2"	139'-9"
INTERIOR	9	69'-10 1/2"	628'-10 1/2"
TOTAL	11	69'-10 1/2"	768'-7 1/2"
SPAN D			
UNIT TYPE	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR	2	43'-9 3/4"	87'-7 1/2"
INTERIOR	9	43'-9 3/4"	394'-3 3/4"
TOTAL	11	43'-9 3/4"	481'-11 1/4"
TOTAL CORED SLAB UNITS NO. 44		2,776.13	LIN. FT.



BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL								
BAR	NUMBER PER SPAN				SIZE	TYPE	LENGTH	WEIGHT
	SPAN A	SPAN B	SPAN C	SPAN D				
*B4	48				#5	STR	22'-6"	1126
*B5		48	48		#5	STR	22'-11"	2295
*B6				32	#5	STR	21'-6"	718
*S6	154	144	144	104	#5	3	5'-6"	3132
* EPOXY COATED REINFORCING STEEL								7271 LBS.
CLASS AA CONCRETE								54.3 CU. YDS.
TOTAL LIN. FT. OF VERTICAL CONCRETE BARRIER RAIL								505.50 LIN. FT.

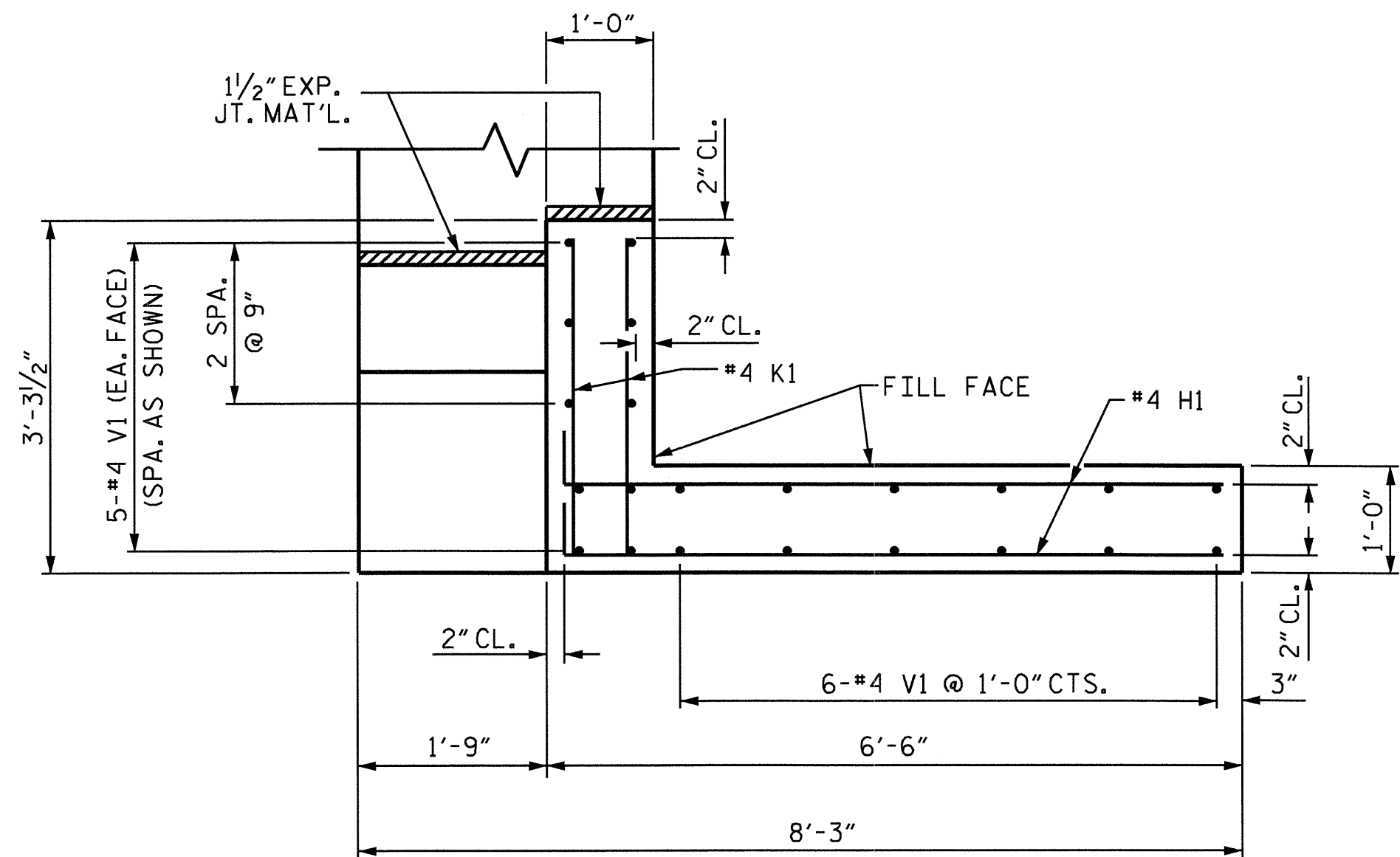
DEAD LOAD DEFLECTION AND CAMBER				
	SPAN A	SPAN B	SPAN C	SPAN D
CAMBER (SLAB ALONE IN PLACE)	4 7/16" ↑	4 7/16" ↑	4 7/16" ↑	1 3/16" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD **	7/8" ↓	1 5/16" ↓	1 5/16" ↓	3/16" ↓
FINAL CAMBER	3 3/8" ↑	3 1/2" ↑	3 1/2" ↑	5/8" ↑

** INCLUDES FUTURE WEARING SURFACE

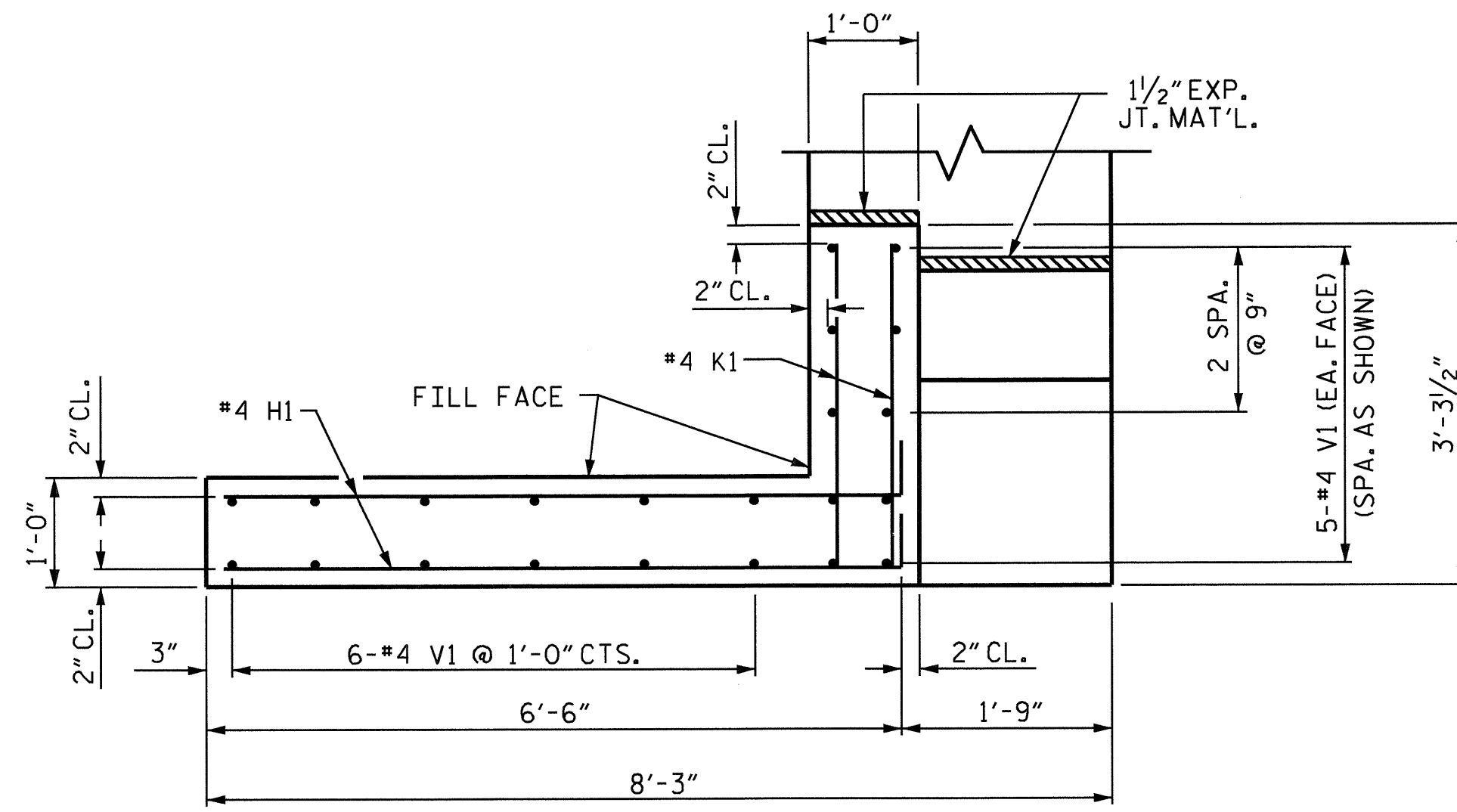


FIXED END
 (TYPE I - 88 REQ'D)
ELASTOMERIC BEARING DETAILS
 (60 DUROMETER)

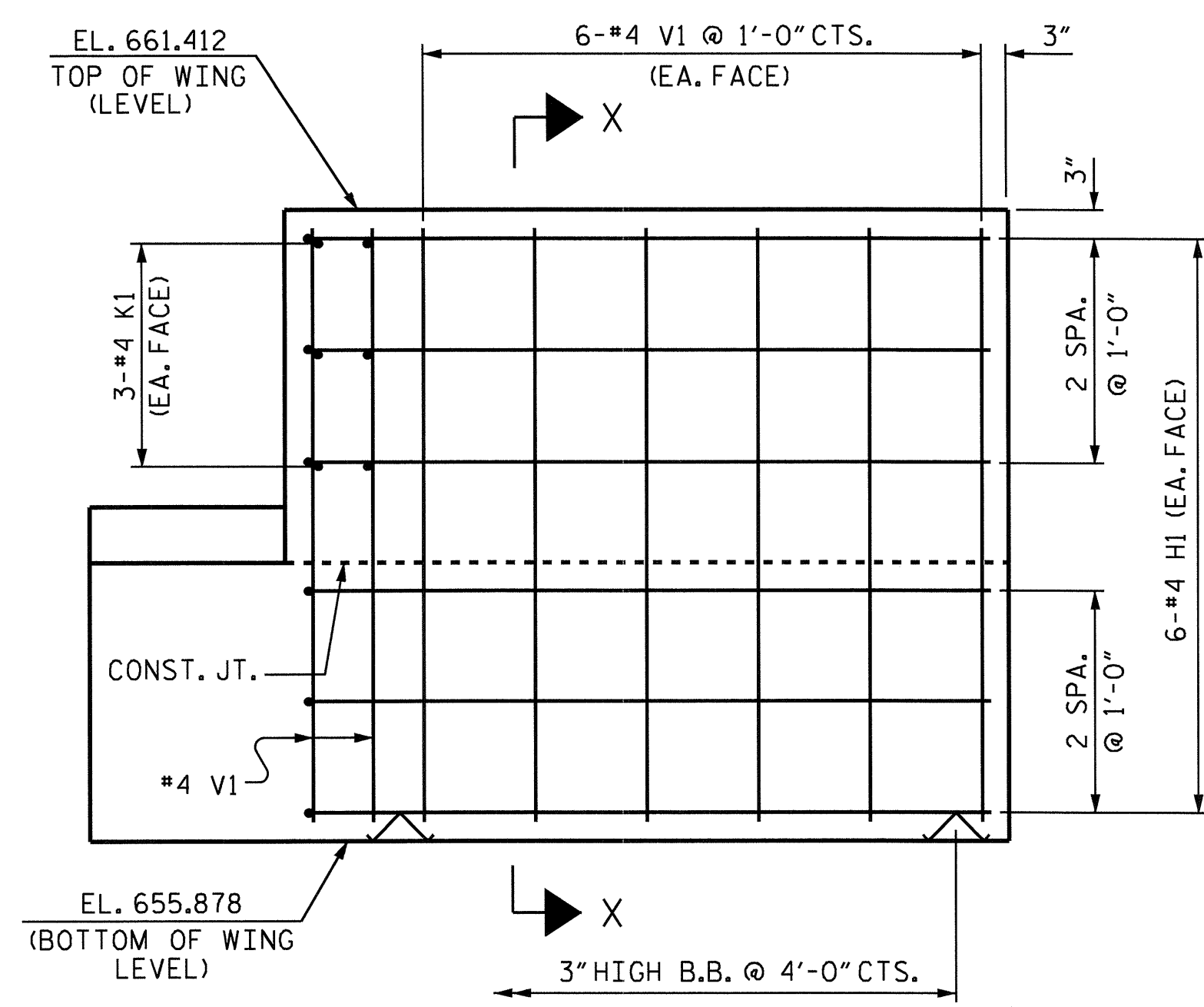
ASSEMBLED BY : HARISH SHAH DATE : 1-15-10
 CHECKED BY : RAMAN PATEL DATE : 3-10-10
 DRAWN BY : WJH 4/89 REV. 7/10/01 RWW/LES
 CHECKED BY : FCJ 5/89 REV. 5/7/03RRR RWW/JTE
 REV. 5/1/06 TLA/GM



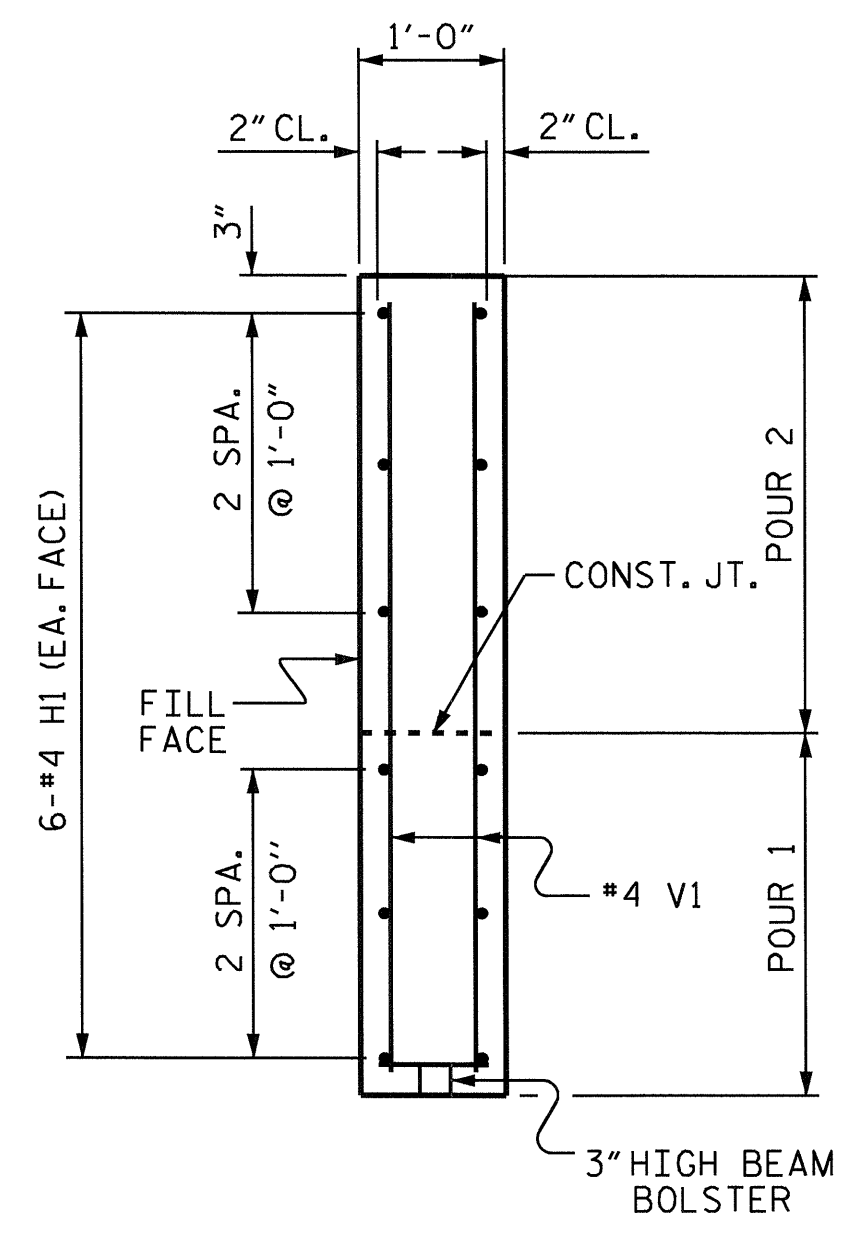
PLAN OF WING (W1)



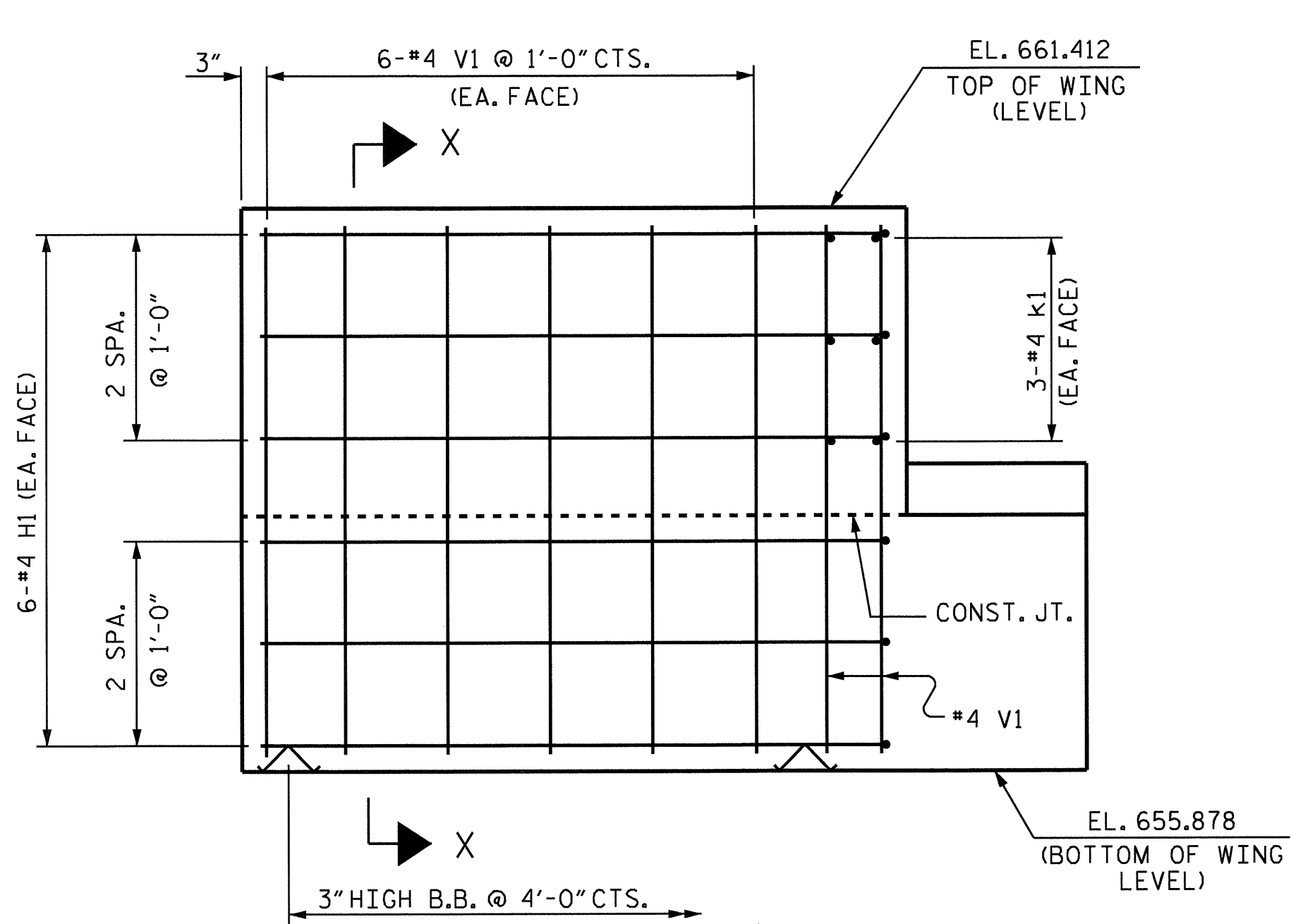
PLAN OF WING (W2)



ELEVATION OF WING (W1)



SECTION X-X



ELEVATION OF WING (W2)

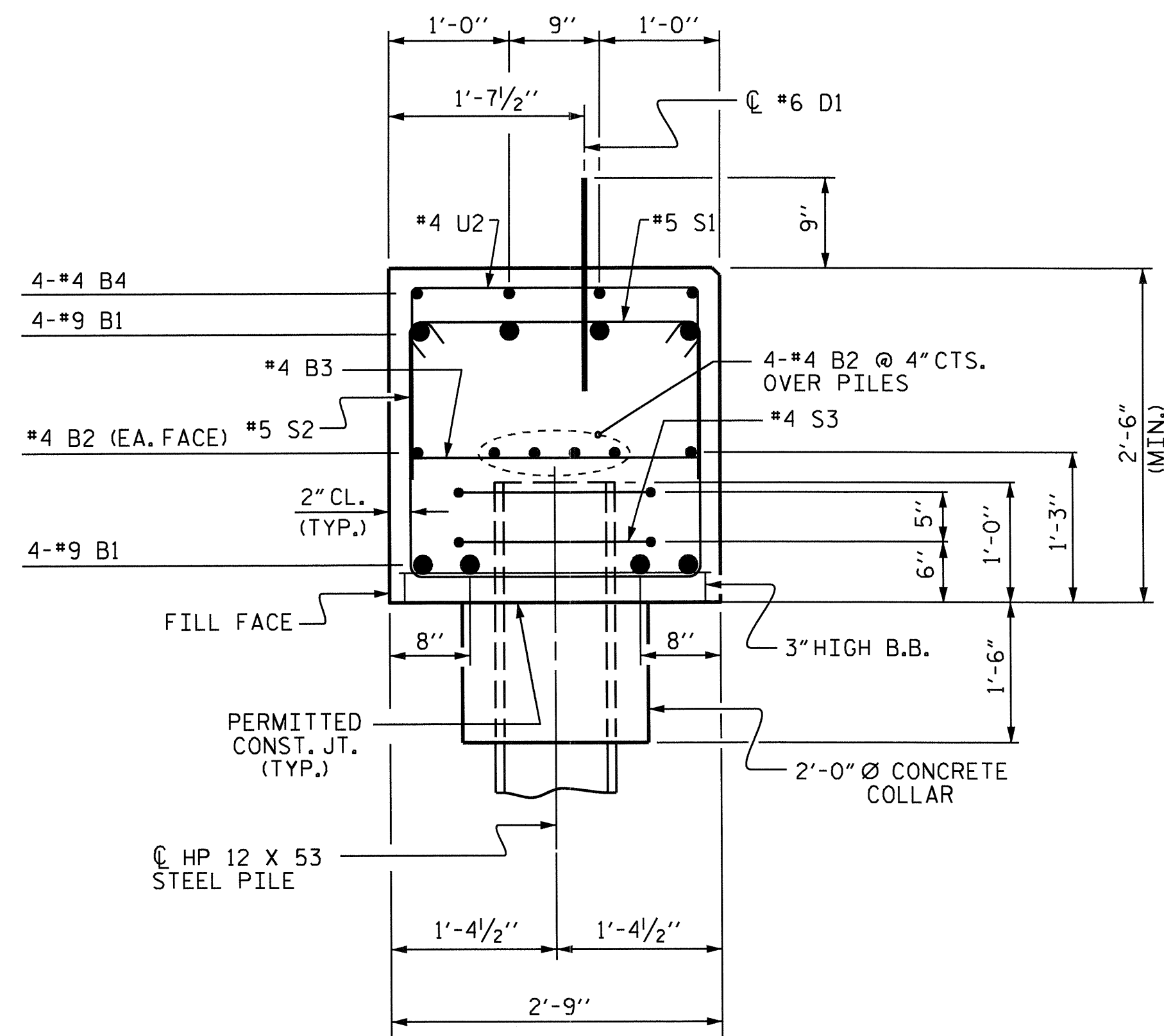
PROJECT NO. B-4629
ROWAN COUNTY
 STATION: 16+50.00 -L-
 SHEET 2 OF 3

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

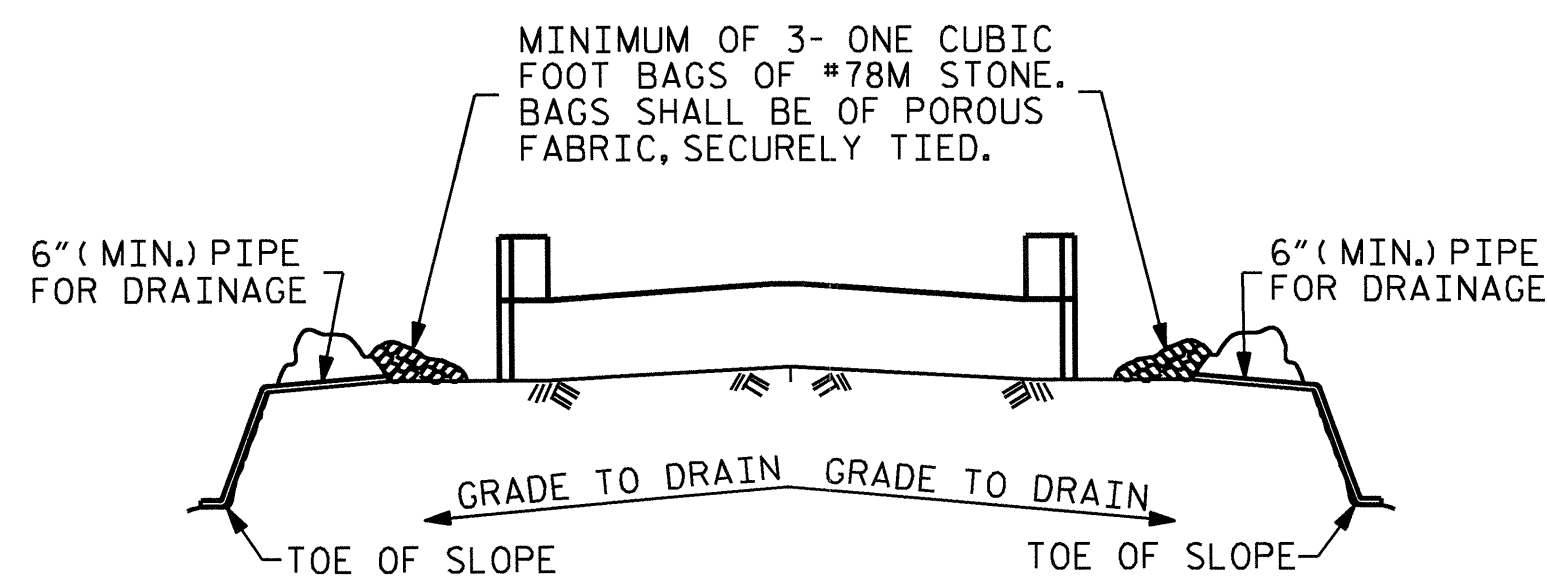


REVISIONS						SHEET NO. S-13
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 26
2			4			

DRAWN BY: HARISH SHAH DATE: 1-11-10
 CHECKED BY: RAMAN PATEL DATE: 1-20-10



SECTION A-A

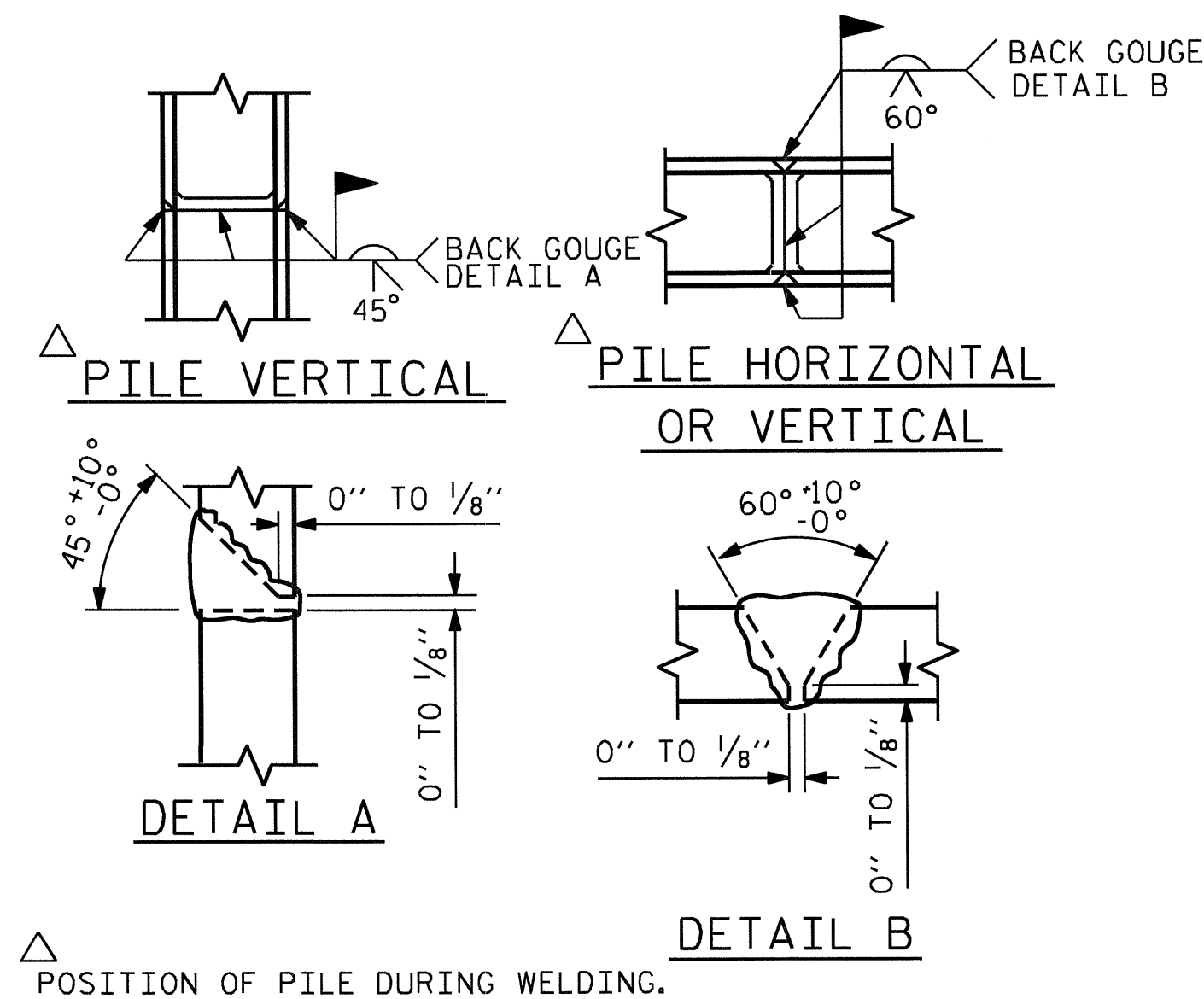


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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



POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

BAR TYPES		BILL OF MATERIAL			
END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	41'-0"	1115
B2	12	#4	STR	20'-7"	165
B3	10	#4	STR	2'-5"	16
B4	4	#4	STR	9'-0"	24
D1	22	#6	STR	1'-6"	50
H1	24	#4	2	6'-10"	110
K1	12	#4	STR	2'-11"	23
S1	38	#5	4	3'-4"	132
S2	38	#5	3	7'-7"	301
S3	10	#4	5	6'-6"	43
U1	4	#4	6	4'-5"	12
U2	7	#4	6	5'-5"	25
V1	44	#4	STR	5'-2"	152
REINFORCING STEEL					2168 LBS.
CLASS A CONCRETE BREAKDOWN:					
POUR #1 (CONCRETE COLLARS, CAP & LOWER WINGS)					12.6 C.Y.
POUR #2 (UPPER WINGS)					1.9 C.Y.
POUR #3 (LATERAL GUIDES)					0.1 C.Y.
TOTAL CLASS A CONCRETE:					14.6 C.Y.
HP 12X53 STEEL PILES:					
NO. 5					225 LIN. FT.

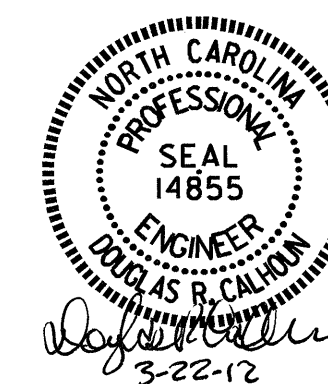
ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. B-4629
ROWAN COUNTY
 STATION: 16+50.00 -L-

SHEET 3 OF 3

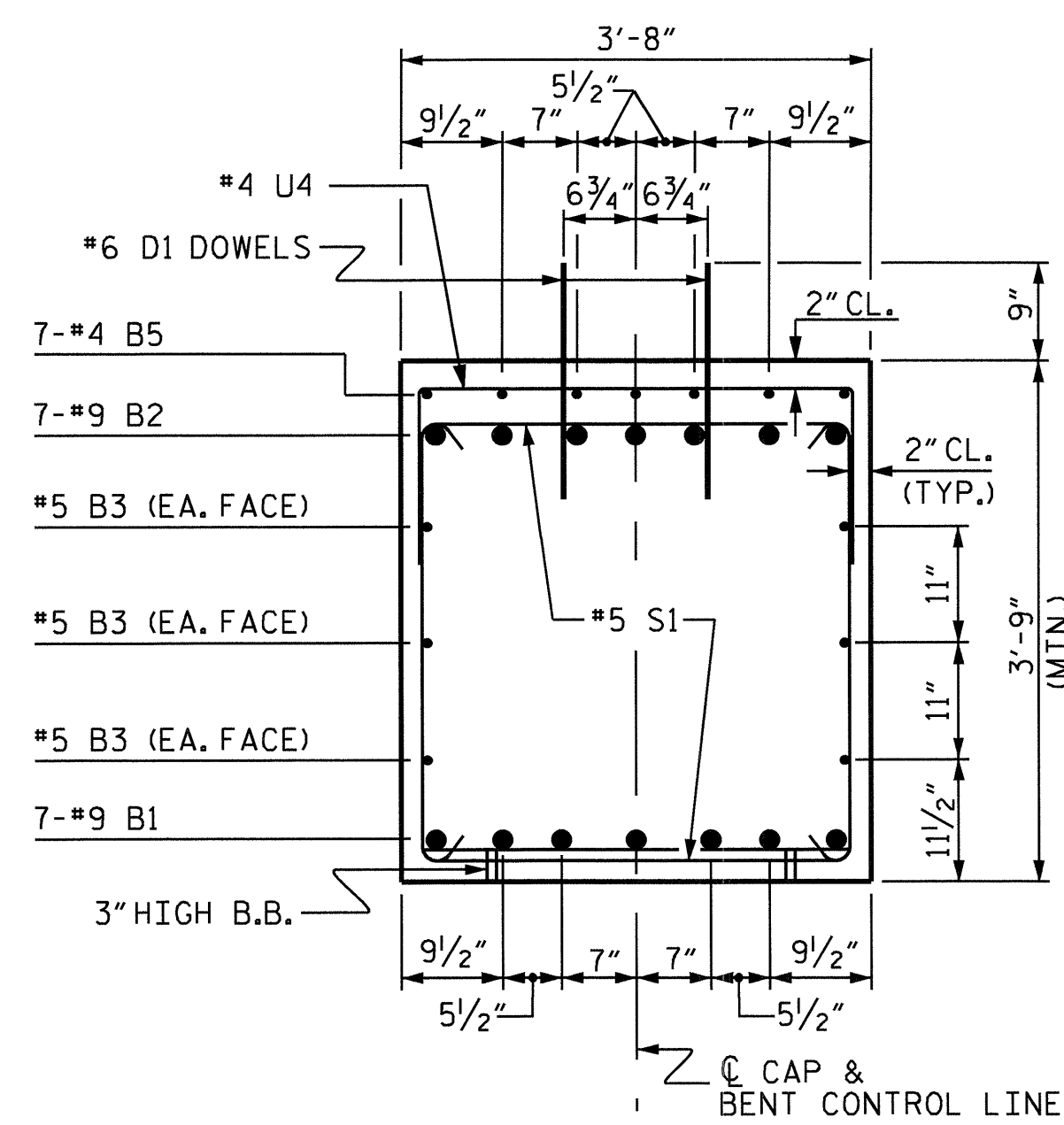
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE

END BENT 1

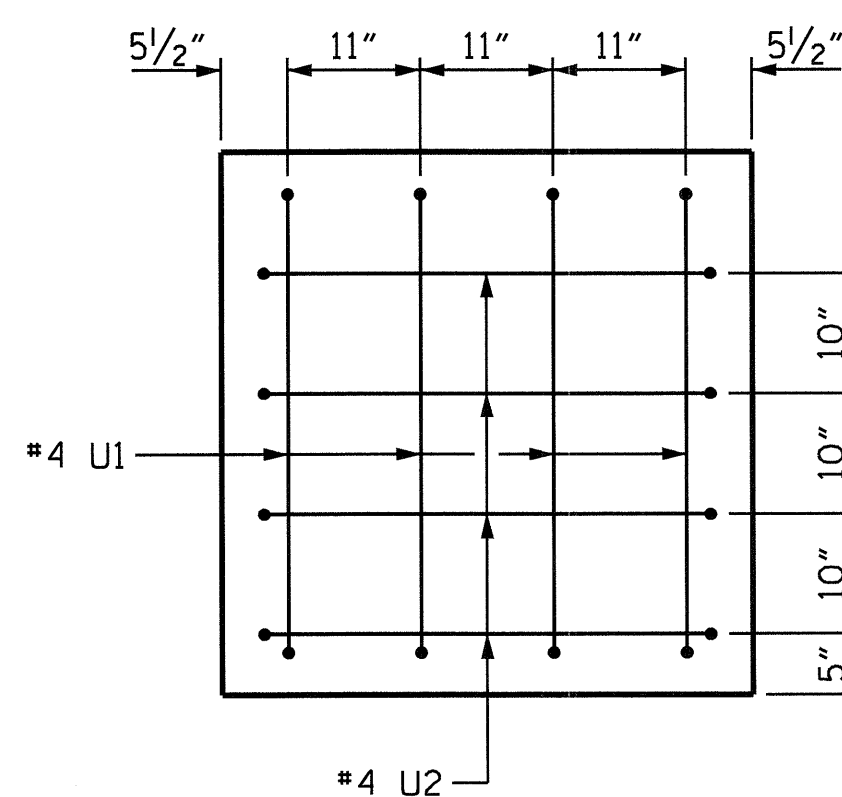


DRAWN BY: HARISH SHAH DATE: 1-11-10
 CHECKED BY: RAMAN PATEL DATE: 1-20-10

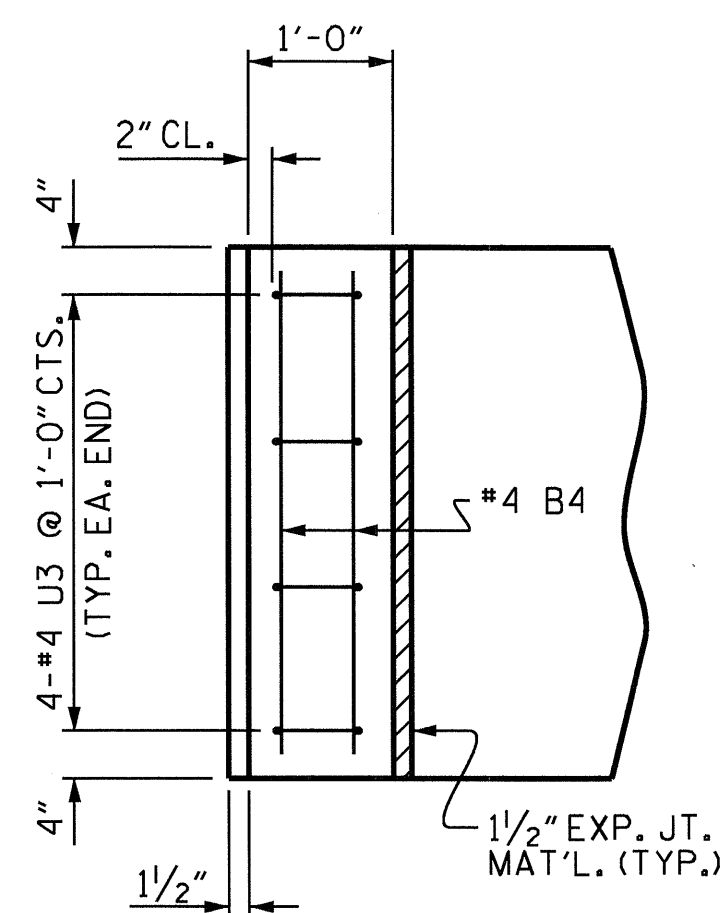
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			26



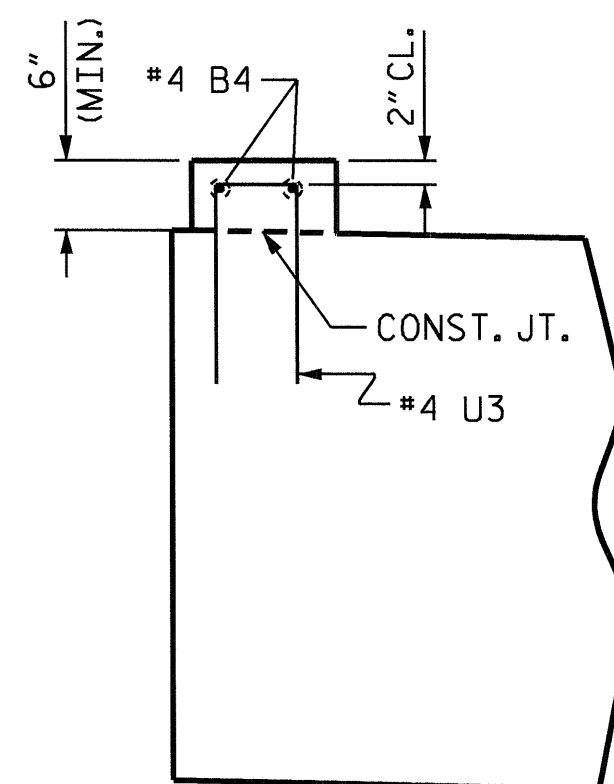
SECTION A-A



VIEW X-X

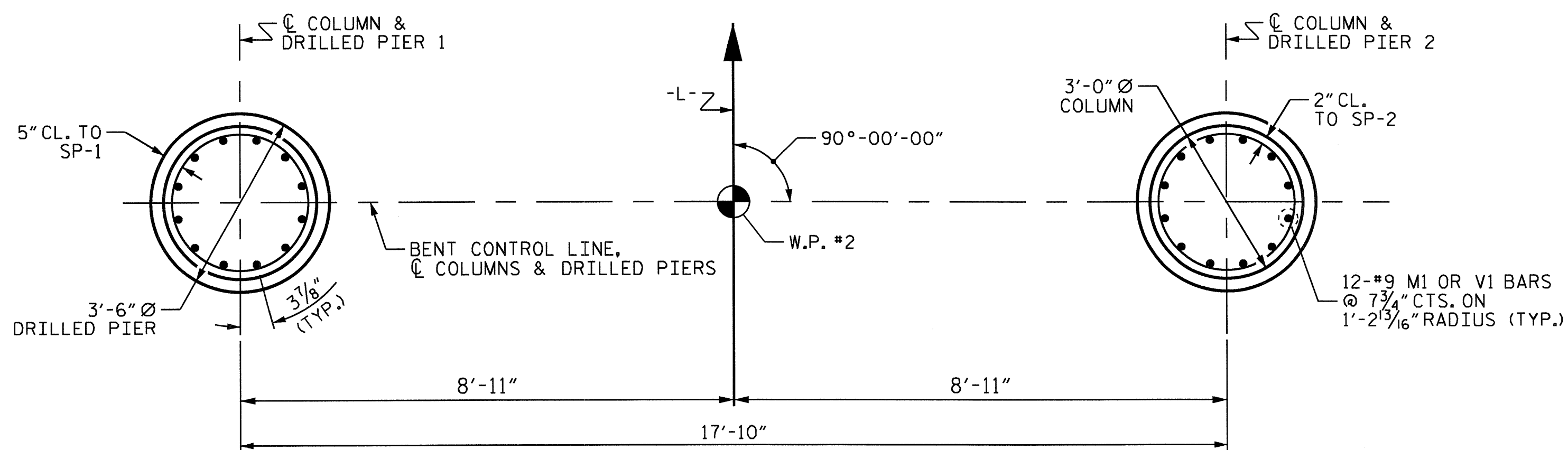


PLAN



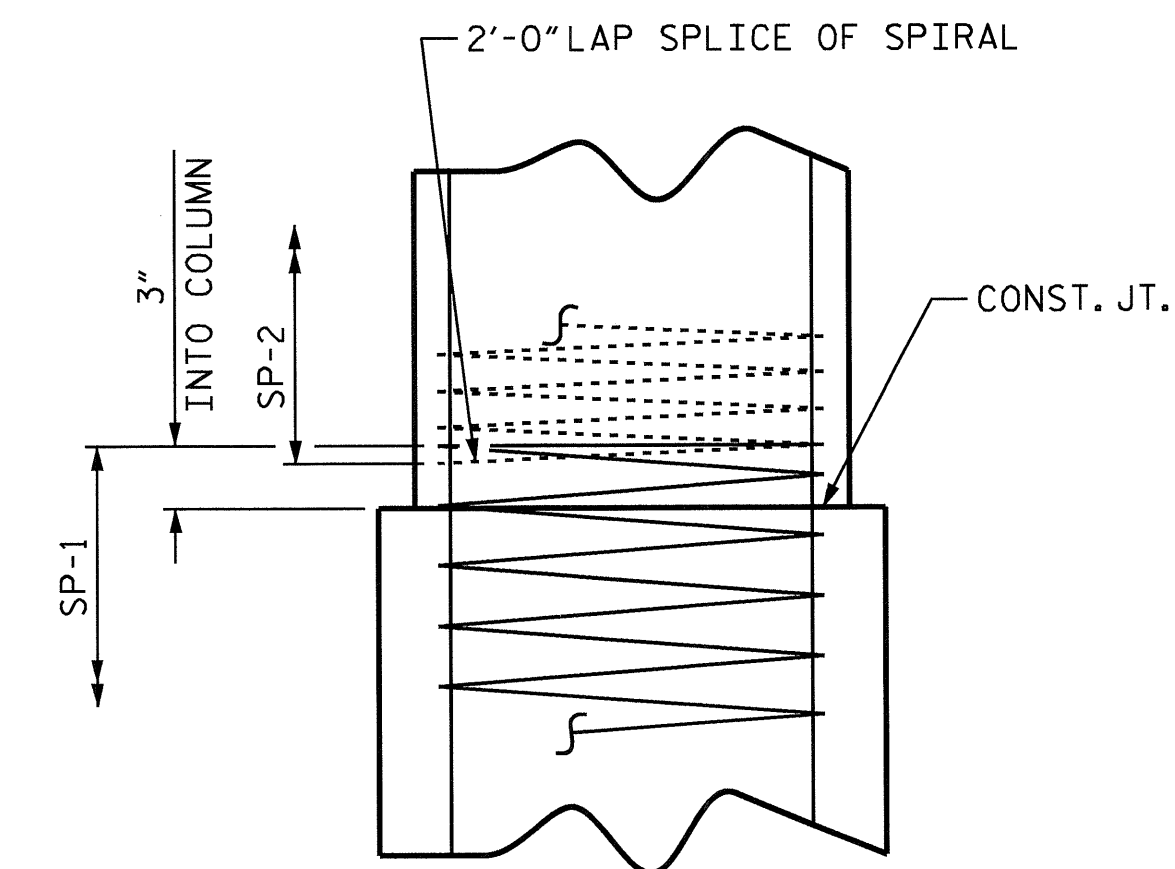
ELEVATION

LATERAL GUIDE DETAILS



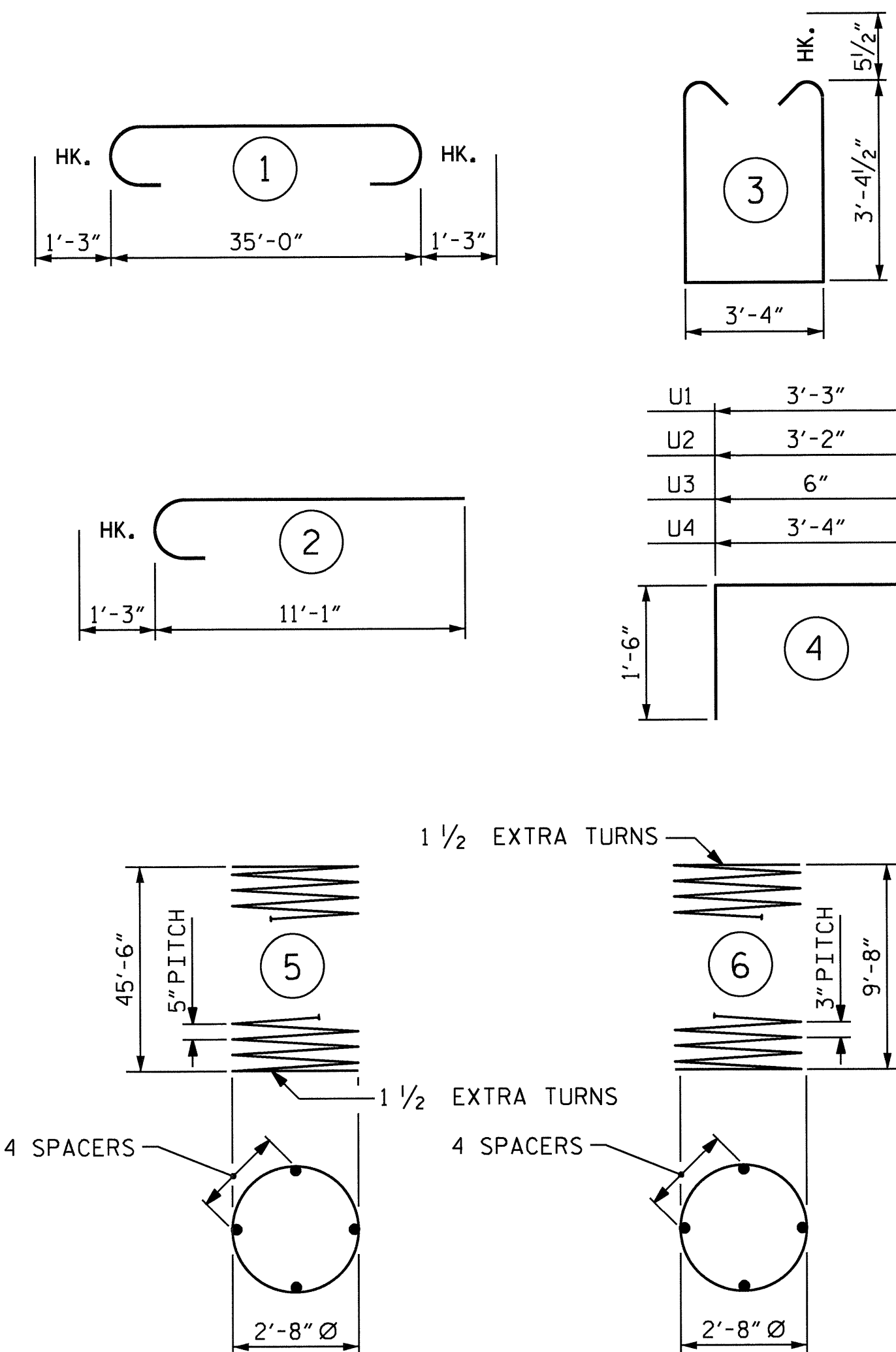
PLAN OF DRILLED PIERS

(REINFORCING STEEL AND DIMENSIONS ARE TYPICAL FOR EACH DRILLED PIER AND COLUMN)



CONSTRUCTION JOINT DETAIL

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

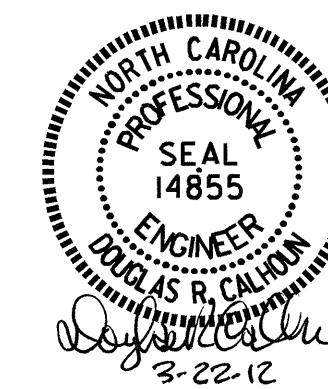
BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	7	#9	STR	35'-2"	837
B2	7	#9	1	37'-6"	893
B3	6	#5	STR	35'-2"	220
B4	4	#4	STR	3'-4"	9
B5	7	#4	STR	9'-0"	42
D1	44	#6	STR	1'-6"	99
M1	24	#9	STR	53'-6"	4366
S1	47	#5	3	11'-0"	539
U1	8	#4	4	6'-3"	33
U2	8	#4	4	6'-2"	33
U3	8	#4	4	3'-6"	19
U4	7	#4	4	6'-4"	30
V1	24	#9	2	12'-4"	1006
REINFORCING STEEL				LBS.	8126
SP-1	2	*	5	916'-4"	1911
SP-2	2	**	6	331'-6"	443
SPIRAL COLUMN REINFORCING STEEL				LBS.	2354
CLASS A CONCRETE					
POUR #2 - COLUMNS				CU. YDS.	4.9
POUR #3 - CAP				CU. YDS.	18.9
POUR #4 - LATERAL GUIDE				CU. YDS.	0.1
TOTAL				CU. YDS.	23.9
DRILLED PIER QUANTITIES:					
DRILLED PIER CONCRETE					
POUR #1 - DRILLED PIERS				CU. YDS.	32.8
3'-6" Ø DRILLED PIERS IN SOIL				LIN. FT.	78.00
3'-6" Ø DRILLED PIERS NOT IN SOIL				LIN. FT.	14.00
▲ CSL TUBES				LIN. FT.	380.00

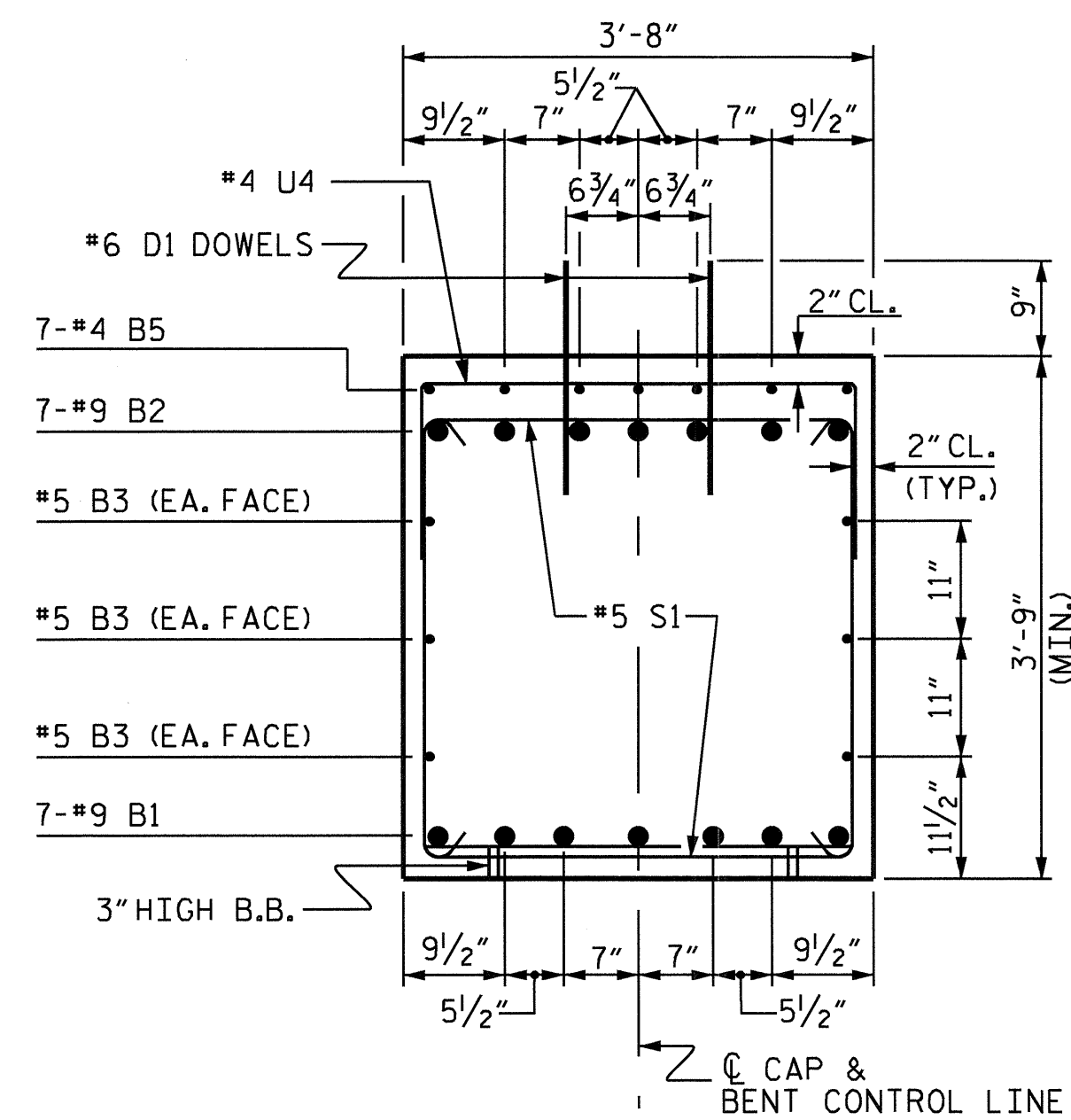
* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.
 ** THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.
 ▲ NO SEPARATE PAYMENT WILL BE MADE FOR CSL TUBES. CSL TUBES WILL BE INCLUDED IN THE UNIT BID PRICE FOR DRILLED PIERS.

PROJECT NO. B-4629
 ROWAN COUNTY
 STATION: 16+50.00 -L-
 SHEET 2 OF 2

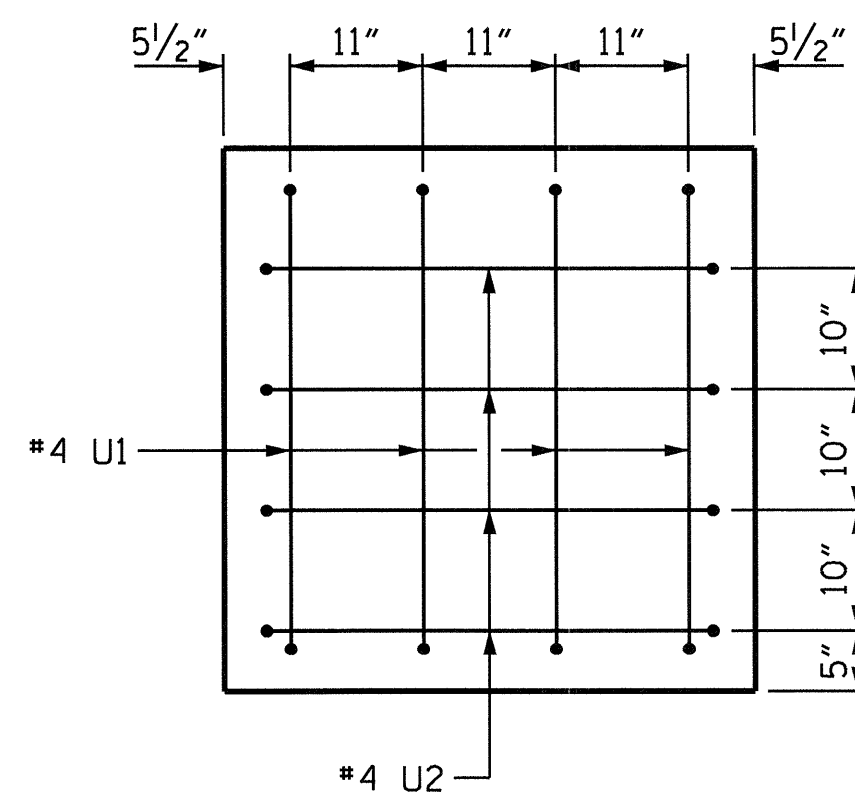
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
BENT 1					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 26



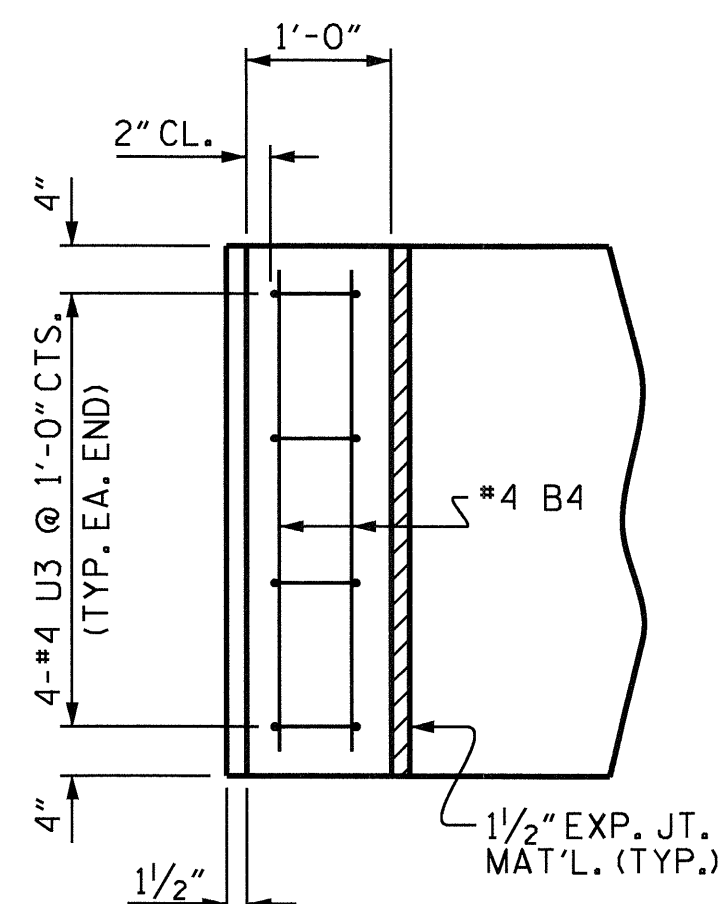
DRAWN BY : RAMAN PATEL DATE : 03-10-10
 CHECKED BY : Z. H. BROWN DATE : 04-16-10



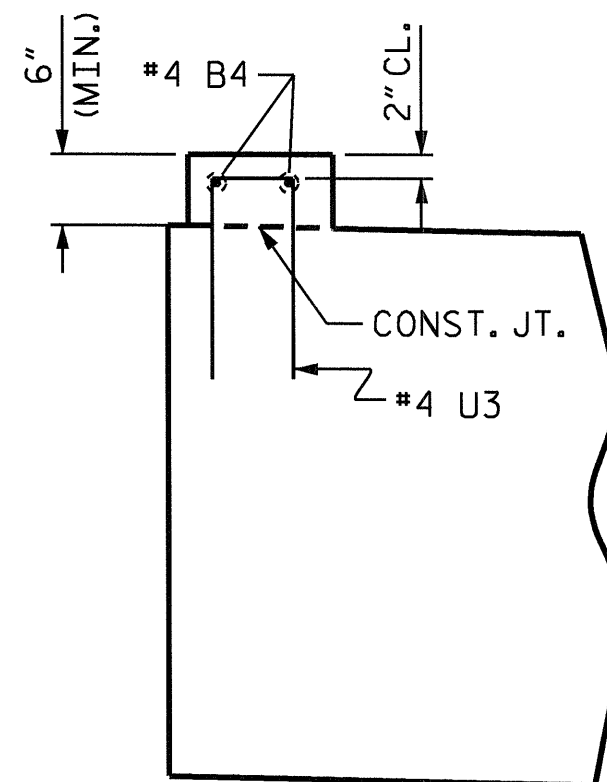
SECTION A-A



VIEW X-X

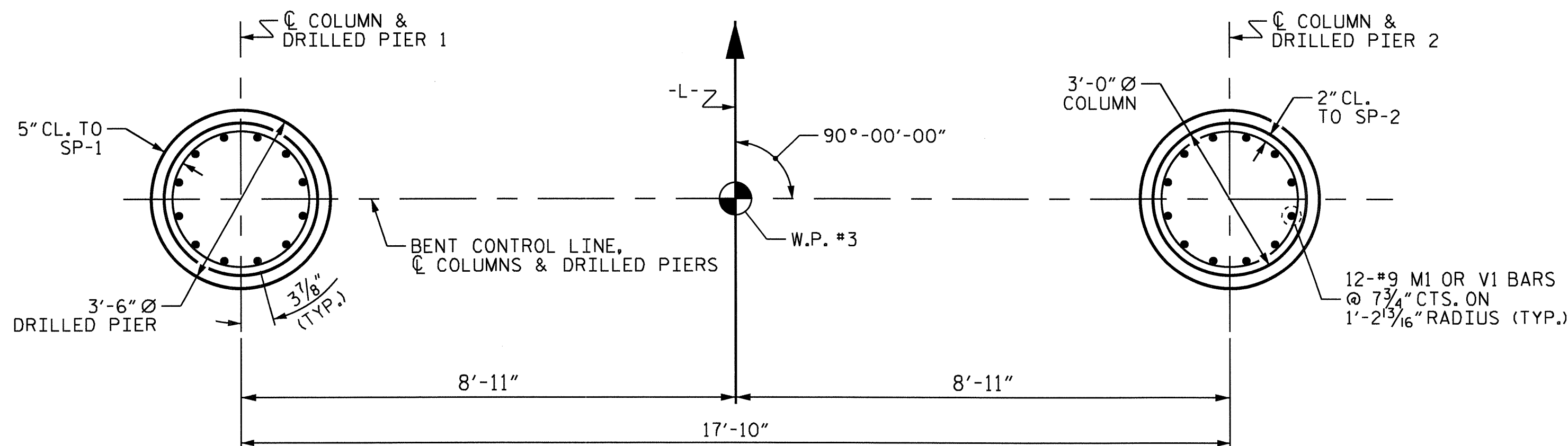


PLAN



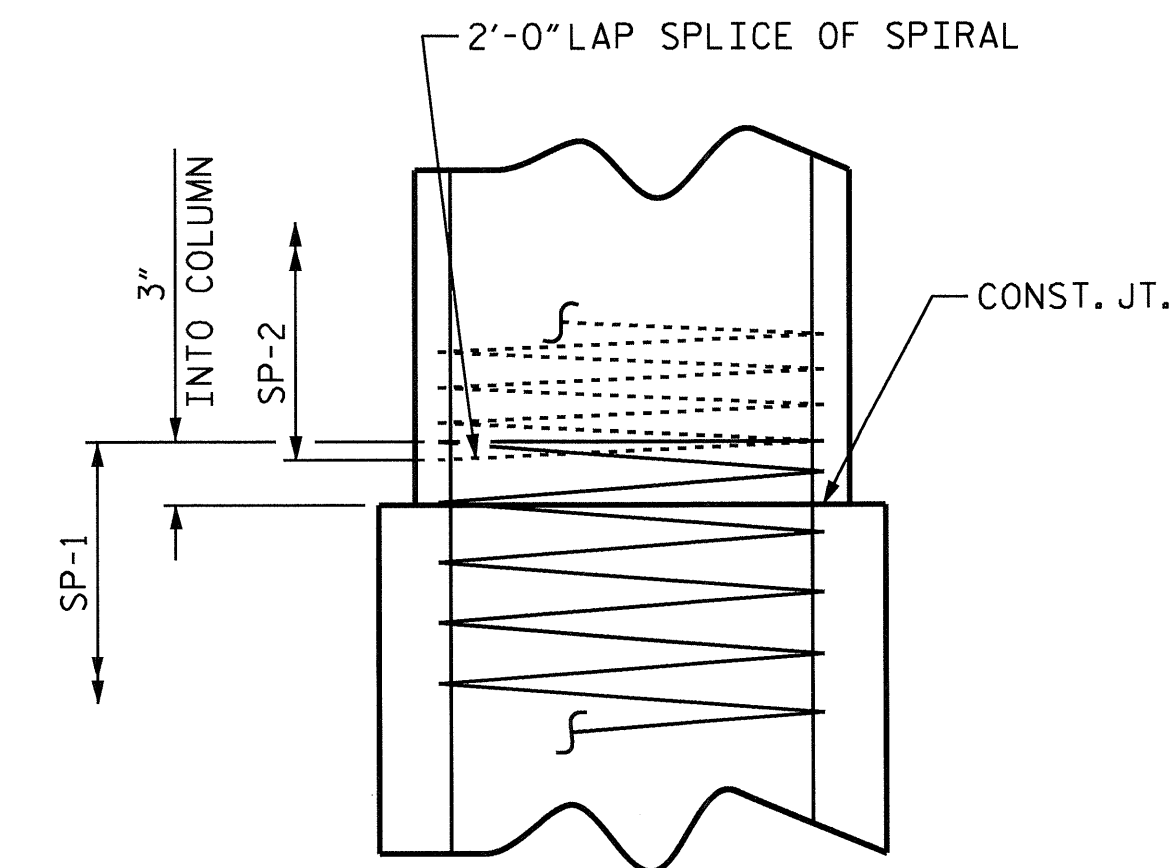
ELEVATION

LATERAL GUIDE DETAILS



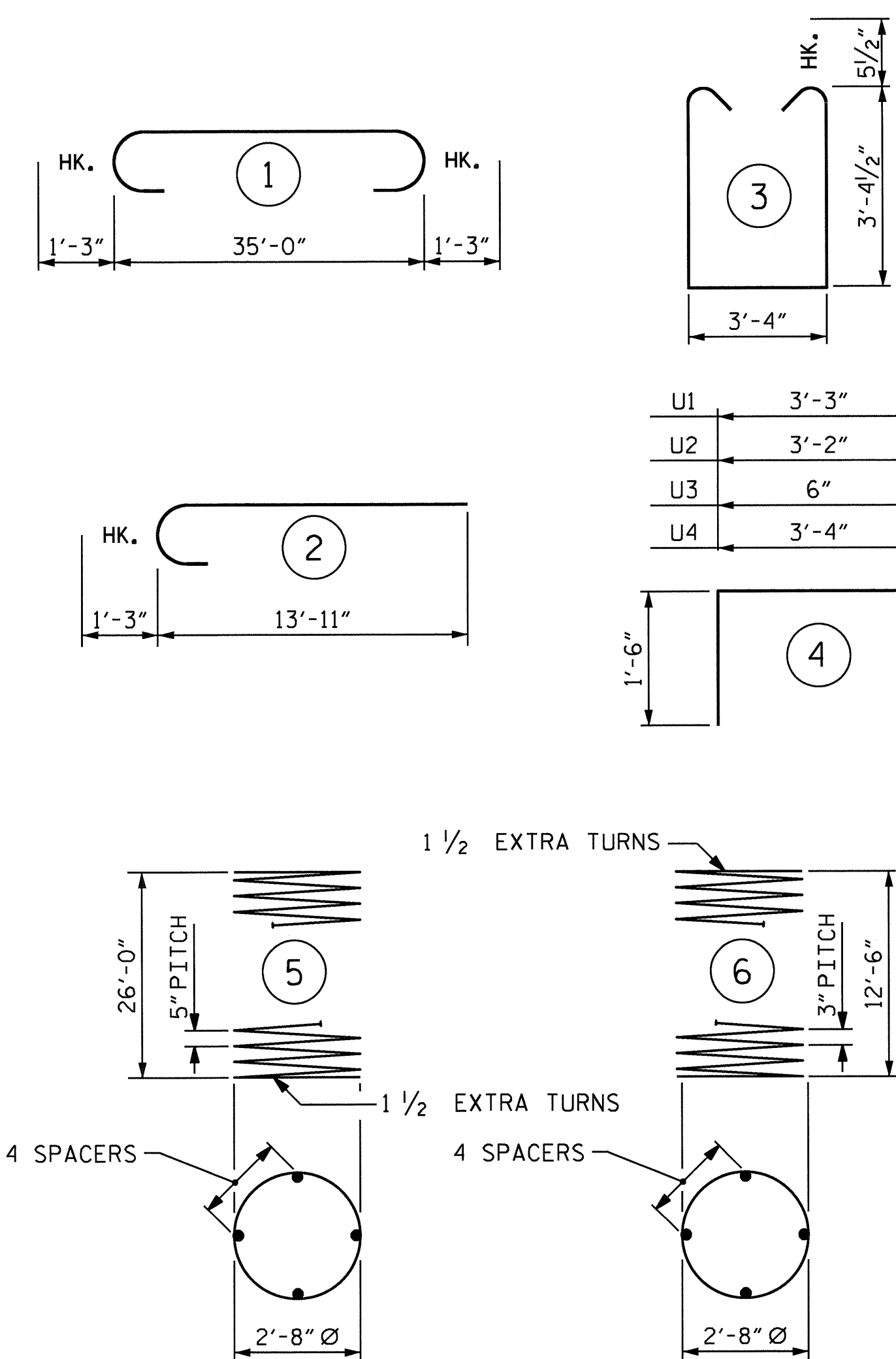
PLAN OF DRILLED PIERS

(REINFORCING STEEL AND DIMENSIONS ARE TYPICAL FOR EACH DRILLED PIER AND COLUMN)



CONSTRUCTION JOINT DETAIL

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	7	#9	STR	35'-2"	837
B2	7	#9	1	37'-6"	893
B3	6	#5	STR	35'-2"	220
B4	4	#4	STR	3'-4"	9
B5	7	#4	STR	9'-0"	42
D1	44	#6	STR	1'-6"	99
M1	24	#9	STR	34'-0"	2774
S1	47	#5	3	11'-0"	539
U1	8	#4	4	6'-3"	33
U2	8	#4	4	6'-2"	33
U3	8	#4	4	3'-6"	19
U4	7	#4	4	6'-4"	30
V1	24	#9	2	15'-2"	1238
REINFORCING STEEL				LBS.	6766
SP-1	2	*	5	529'-7"	1105
SP-2	2	**	6	424'-1"	567
SPIRAL COLUMN REINFORCING STEEL				LBS.	1672
CLASS A CONCRETE					
POUR #2 - COLUMNS				CU. YDS.	6.4
POUR #3 - CAP				CU. YDS.	18.9
POUR #4 - LATERAL GUIDE				CU. YDS.	0.1
TOTAL				CU. YDS.	25.4
DRILLED PIER QUANTITIES:					
DRILLED PIER CONCRETE					
POUR #1 - DRILLED PIERS				CU. YDS.	18.9
3'-6" Ø DRILLED PIERS IN SOIL				LIN. FT.	41.00
3'-6" Ø DRILLED PIERS NOT IN SOIL				LIN. FT.	12.00
PERMANENT STEEL CASING FOR 3'-6" Ø DRILLED PIERS				LIN. FT.	33.00
▲ CSL TUBES				LIN. FT.	224.00

* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.
 ** THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.
 ▲ NO SEPARATE PAYMENT WILL BE MADE FOR CSL TUBES. CSL TUBES WILL BE INCLUDED IN THE UNIT BID PRICE FOR DRILLED PIERS.

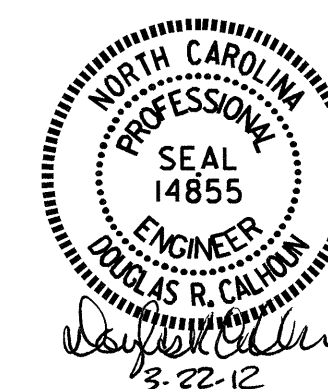
PROJECT NO. B-4629
 ROWAN COUNTY
 STATION: 16+50.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

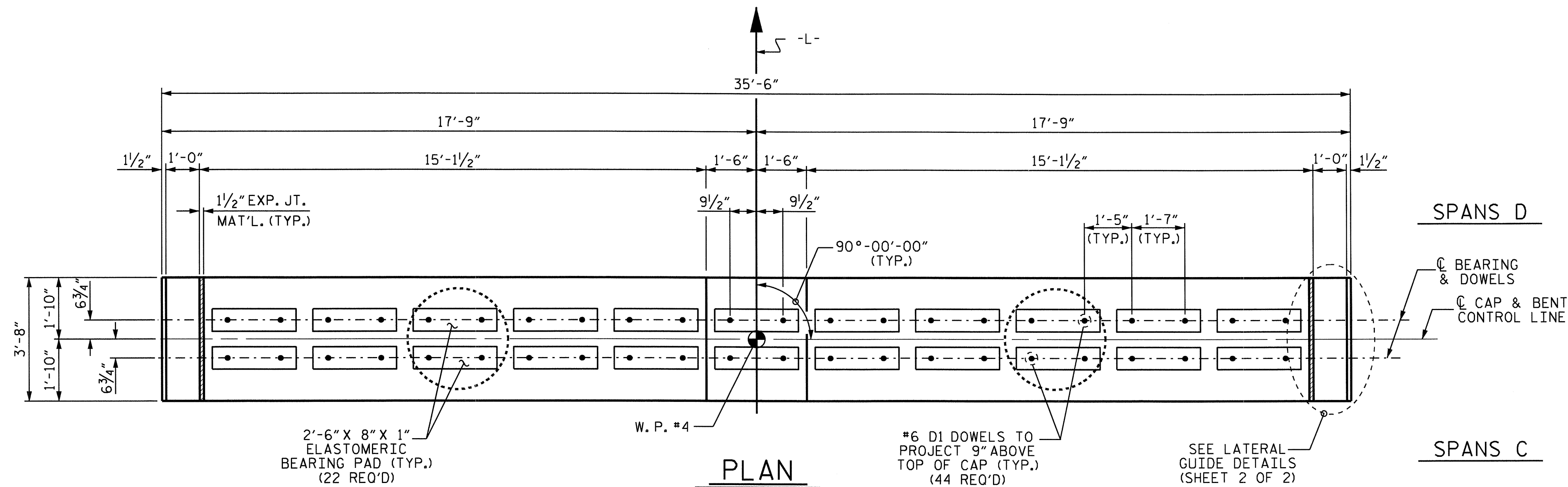
SUBSTRUCTURE

BENT 2



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS 26
2			4			

DRAWN BY : RAMAN PATEL DATE : 03-10-10
 CHECKED BY : Z. H. BROWN DATE : 04-16-10



NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #6 DOWELS.

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

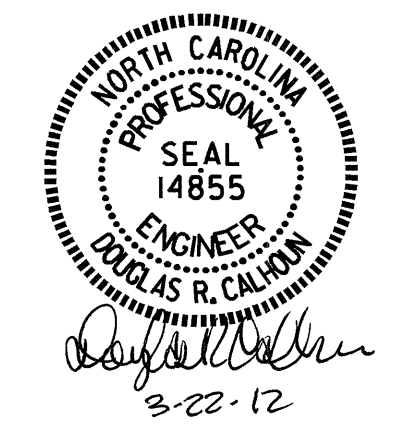
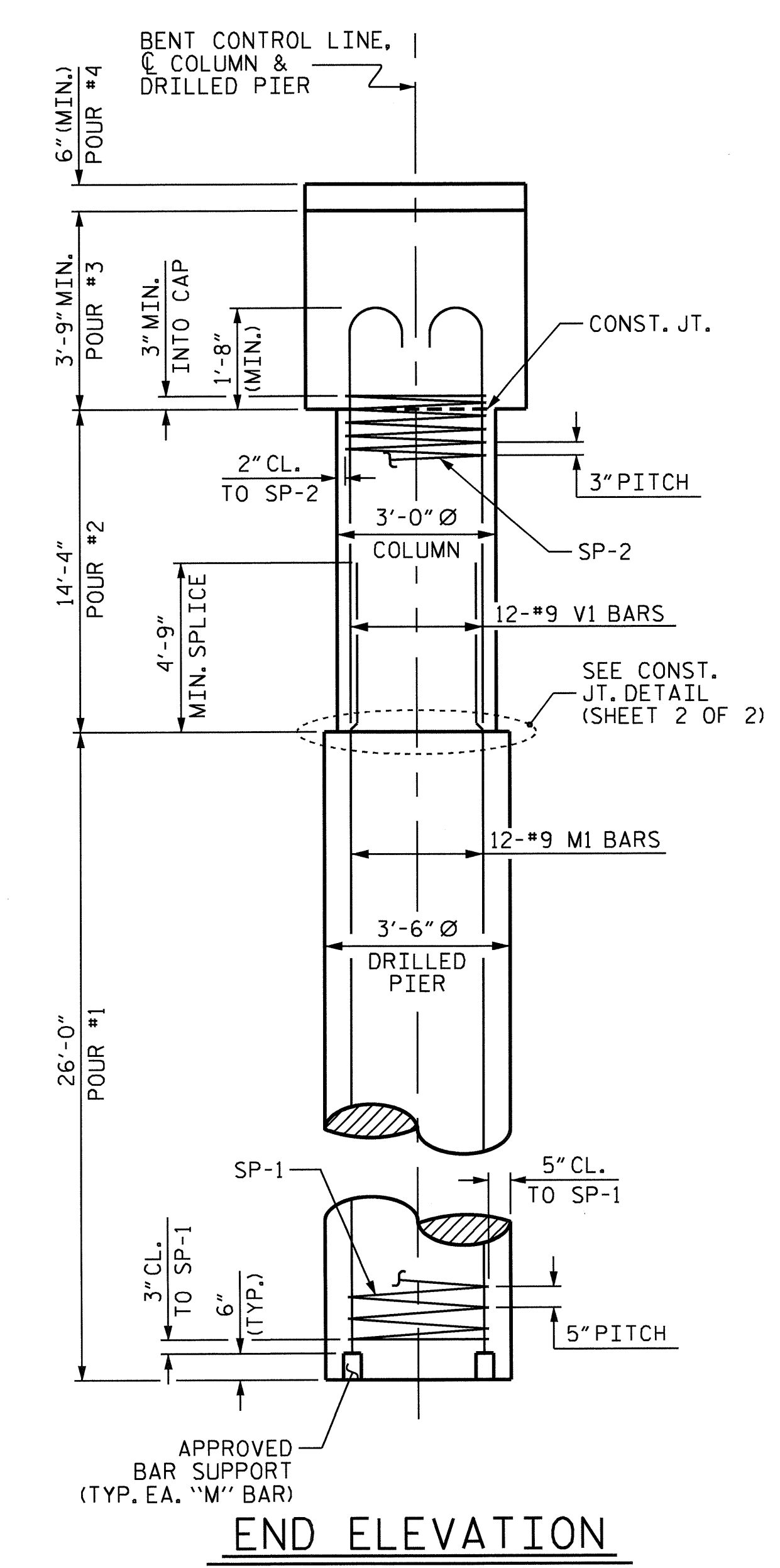
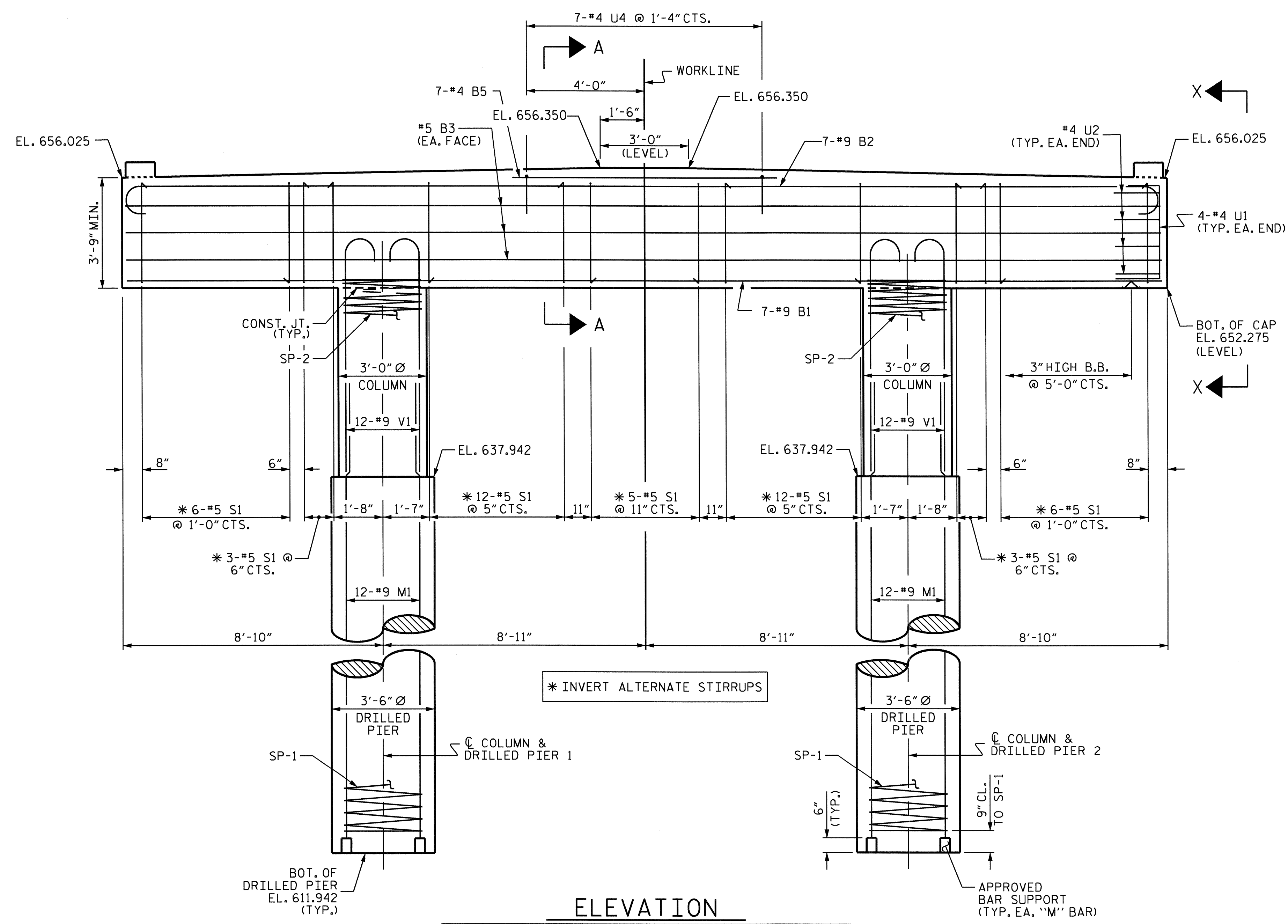
ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".

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

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

THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDE IF APPROVED BY THE ENGINEER.

THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND LINE ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FOOT BELOW THE GROUND LINE.



PROJECT NO. B-4629

ROWAN COUNTY

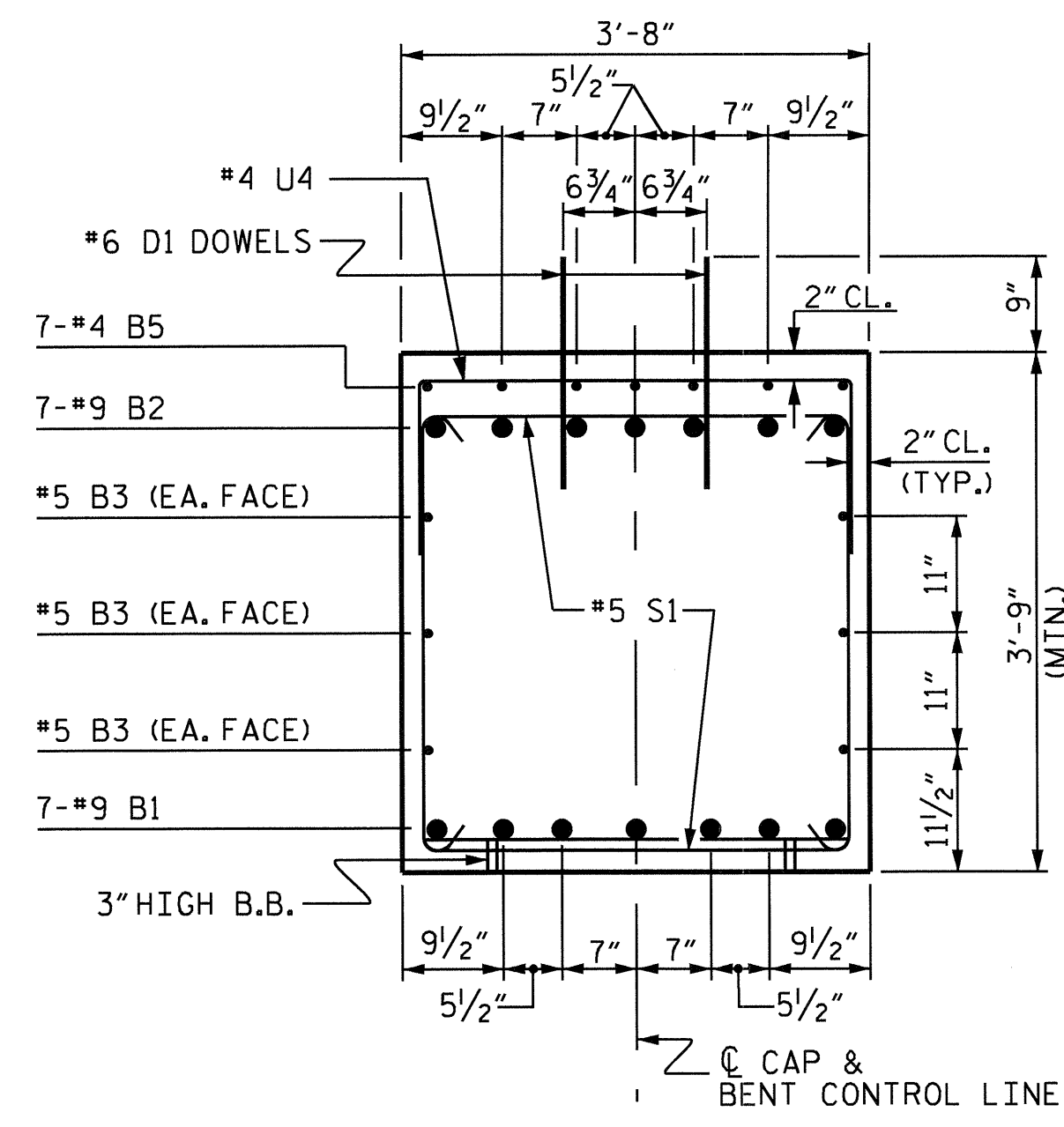
STATION: 16+50.00 -L-

SHEET 1 OF 2

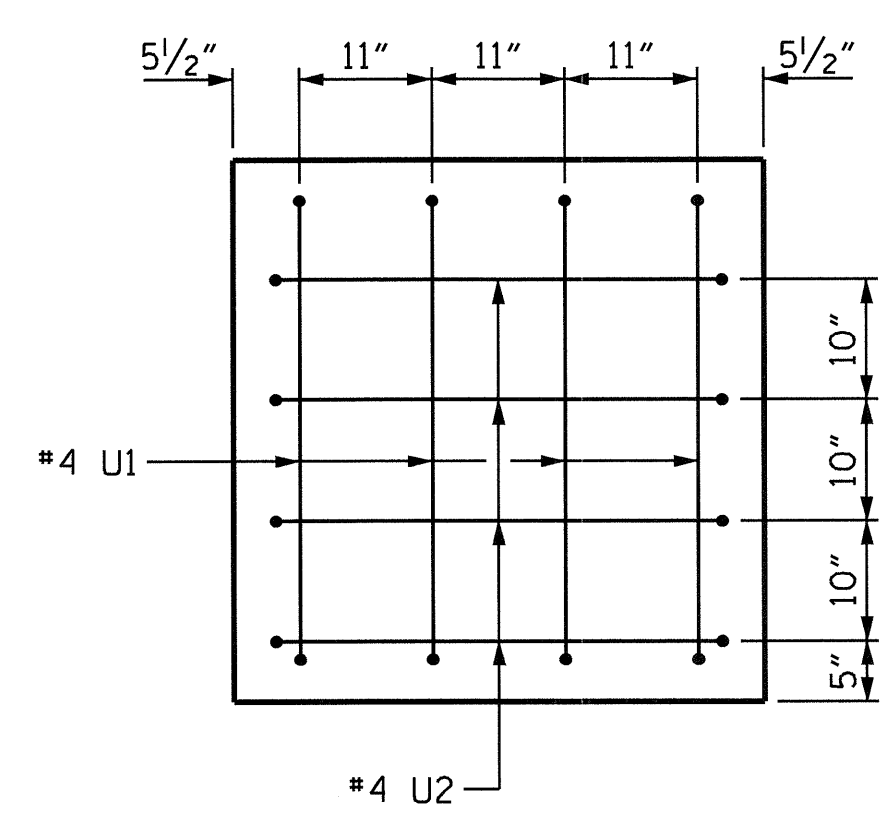
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
BENT 3					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-19 TOTAL SHEETS 26

DRAWN BY: RAMAN PATEL DATE: 03-08-10
 CHECKED BY: Z. H. BROWN DATE: 04-16-10

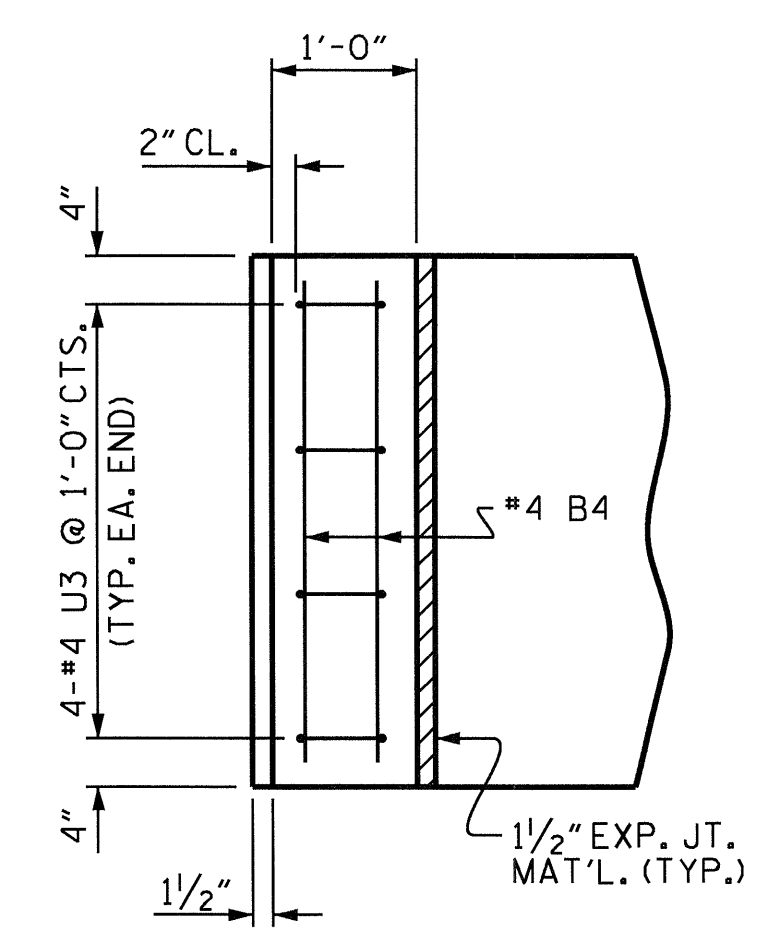
(DIMENSIONS AND REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN AND DRILLED PIER EXCEPT AS NOTED.)



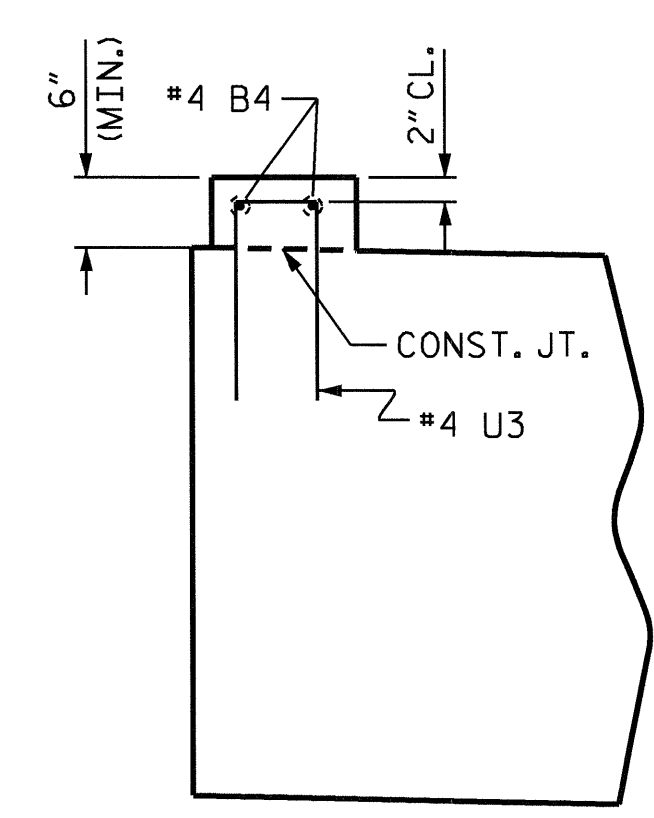
SECTION A-A



VIEW X-X

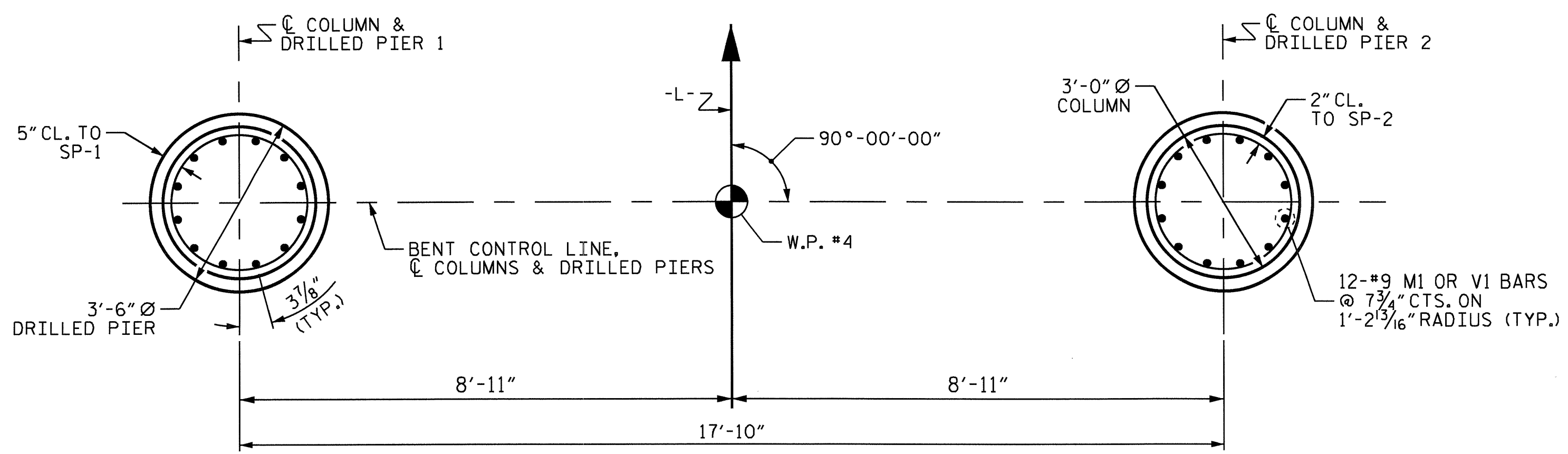


PLAN

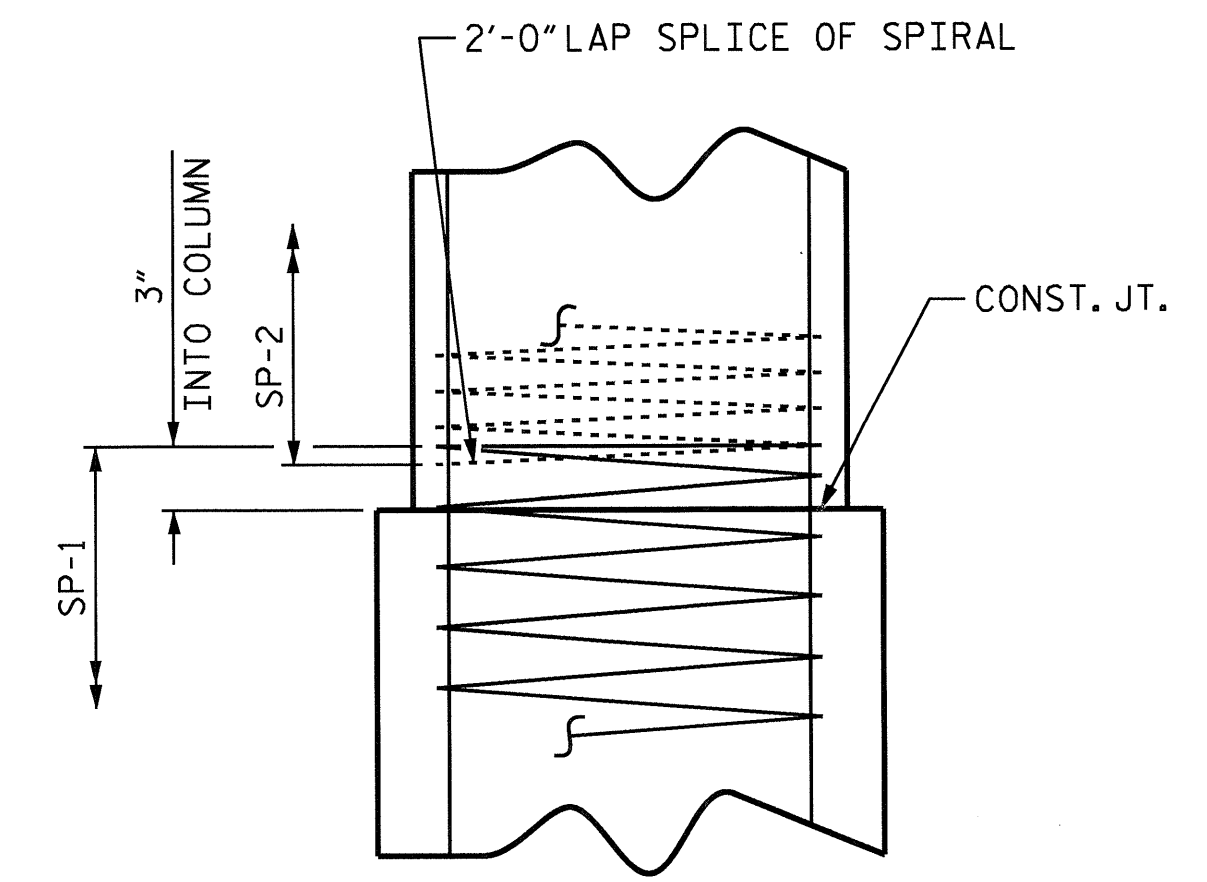


ELEVATION

LATERAL GUIDE DETAILS

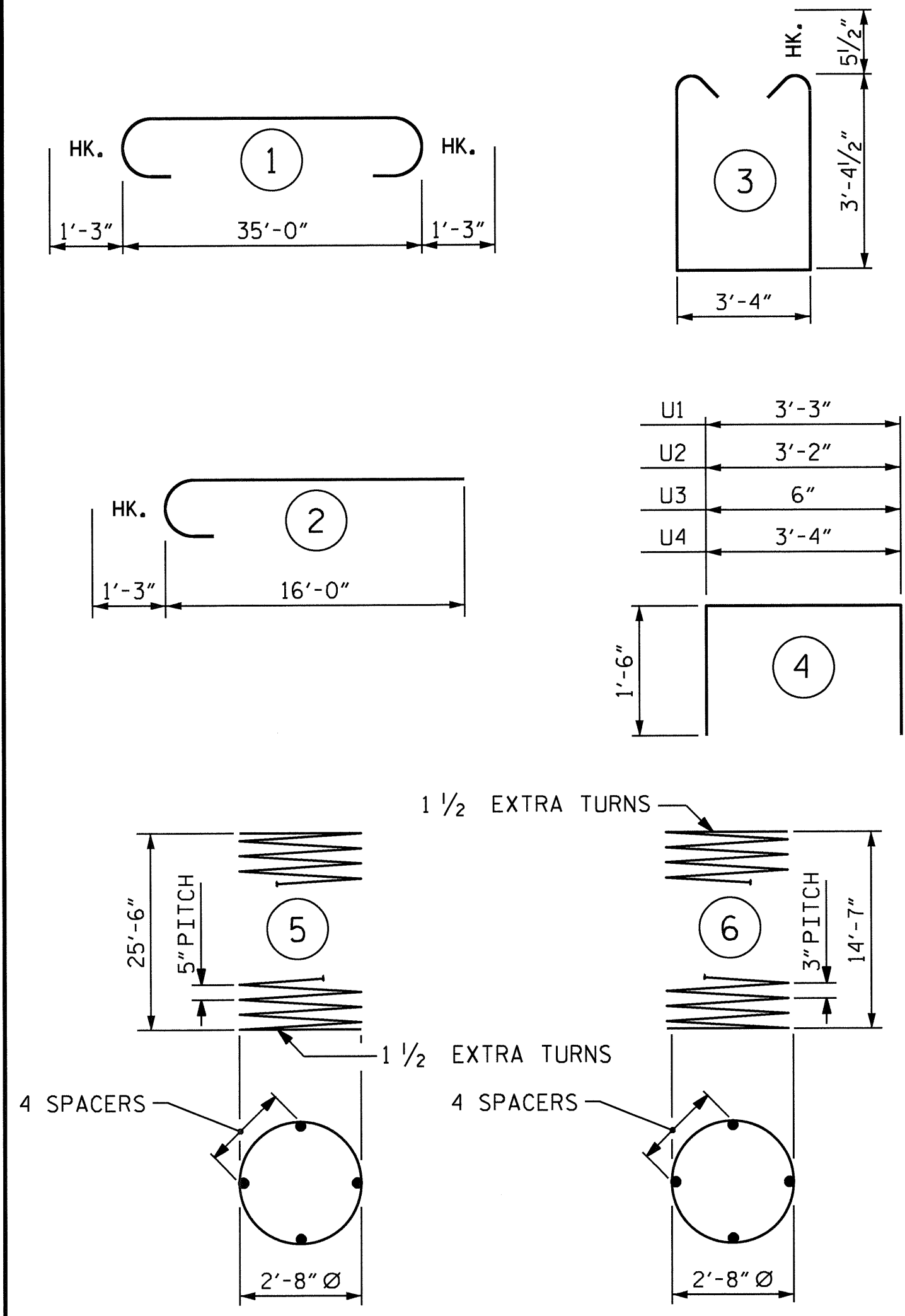


PLAN OF DRILLED PIERS
(REINFORCING STEEL AND DIMENSIONS ARE TYPICAL FOR EACH DRILLED PIER AND COLUMN)



CONSTRUCTION JOINT DETAIL

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	7	#9	STR	35'-2"	837
B2	7	#9	1	37'-6"	893
B3	6	#5	STR	35'-2"	220
B4	4	#4	STR	3'-4"	9
B5	4	#4	STR	9'-0"	42
D1	44	#6	STR	1'-6"	99
M1	24	#9	STR	33'-6"	2734
S1	47	#5	3	11'-0"	539
U1	8	#4	4	6'-3"	33
U2	8	#4	4	6'-2"	33
U3	8	#4	4	3'-6"	19
U4	7	#4	4	6'-4"	30
V1	24	#9	2	17'-3"	1408

REINFORCING STEEL				LBS.	6896
SP-1	2	*	5	539'-11"	1126
SP-2	2	**	6	494'-1"	660

SPIRAL COLUMN REINFORCING STEEL				LBS.	1786
---------------------------------	--	--	--	------	------

CLASS A CONCRETE				CU. YDS.	7.5
POUR #2 - COLUMNS				CU. YDS.	18.9
POUR #3 - CAP				CU. YDS.	0.1
POUR #4 - LATERAL GUIDE				CU. YDS.	26.5
TOTAL				CU. YDS.	

DRILLED PIER QUANTITIES:

DRILLED PIER CONCRETE			
POUR #1 - DRILLED PIERS	CU. YDS.	18.5	
3'-6" Ø DRILLED PIERS IN SOIL	LIN. FT.	26.00	
3'-6" Ø DRILLED PIERS NOT IN SOIL	LIN. FT.	26.00	
PERMANENT STEEL CASING FOR 3'-6" Ø DRILLED PIERS	LIN. FT.	22.00	
▲ CSL TUBES	LIN. FT.	220.00	

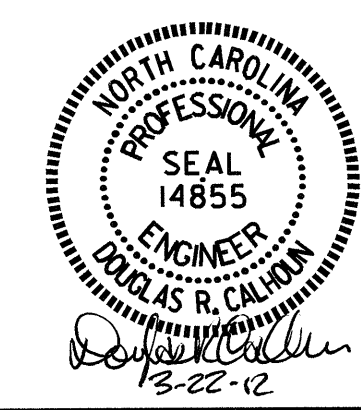
* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.
 * THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.
 ▲ NO SEPARATE PAYMENT WILL BE MADE FOR CSL TUBES, CSL TUBES WILL BE INCLUDED IN THE UNIT BID PRICE FOR DRILLED PIERS.

PROJECT NO. B-4629
 ROWAN COUNTY
 STATION: 16+50.00 -L-

SHEET 2 OF 2

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

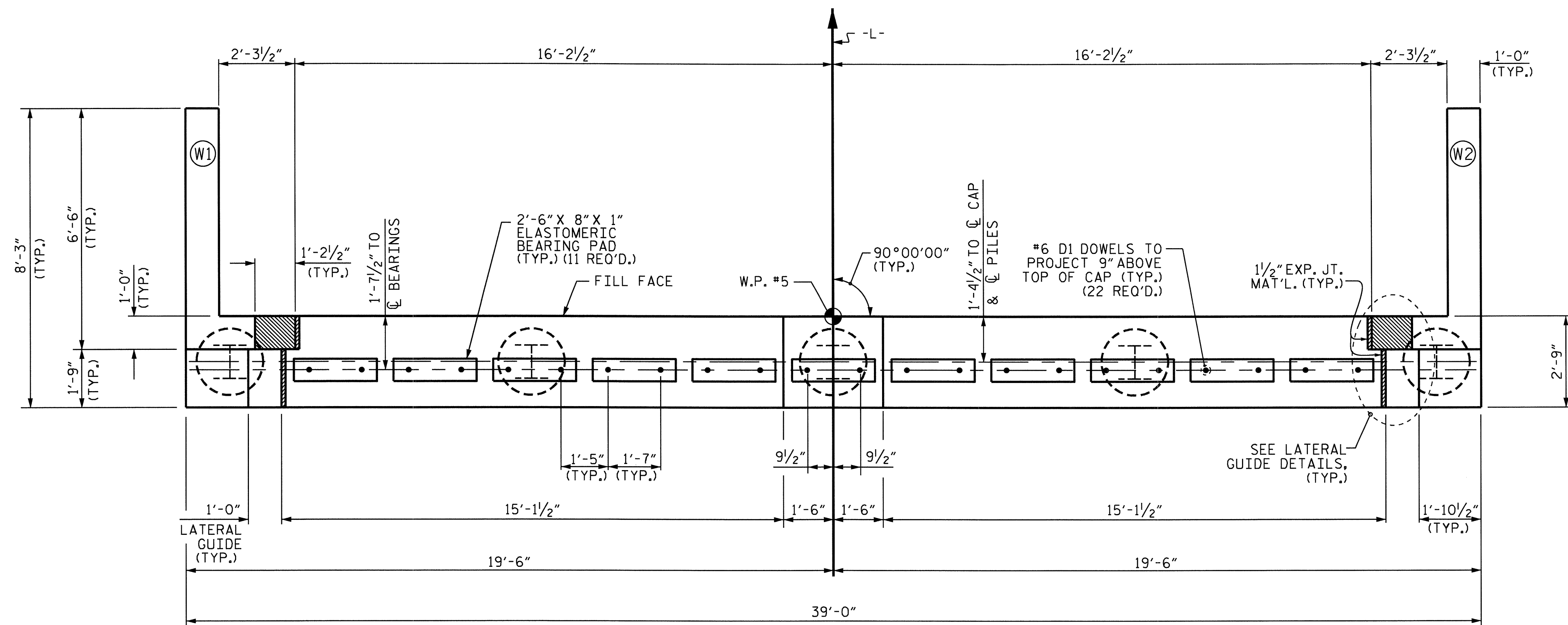
SHEET NO. S-20
TOTAL SHEETS 26



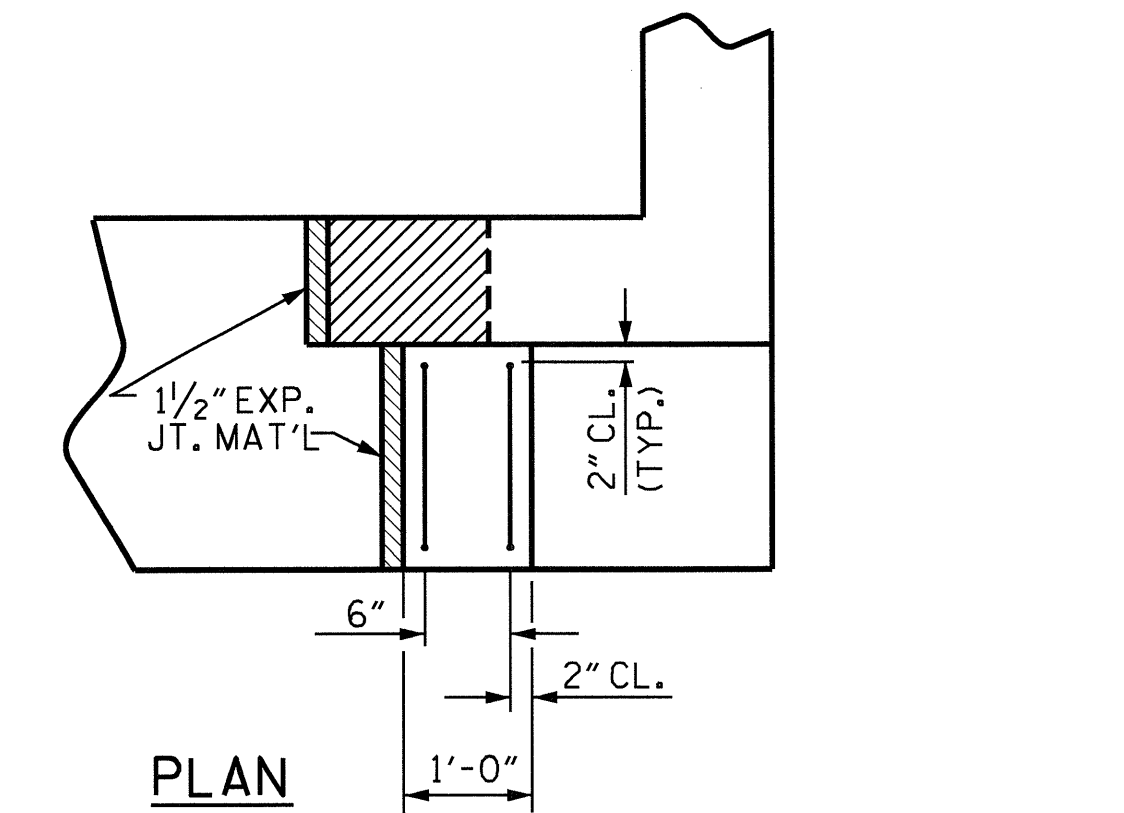
DRAWN BY: RAMAN PATEL DATE: 03-10-10
 CHECKED BY: Z. H. BROWN DATE: 04-16-10

NOTES

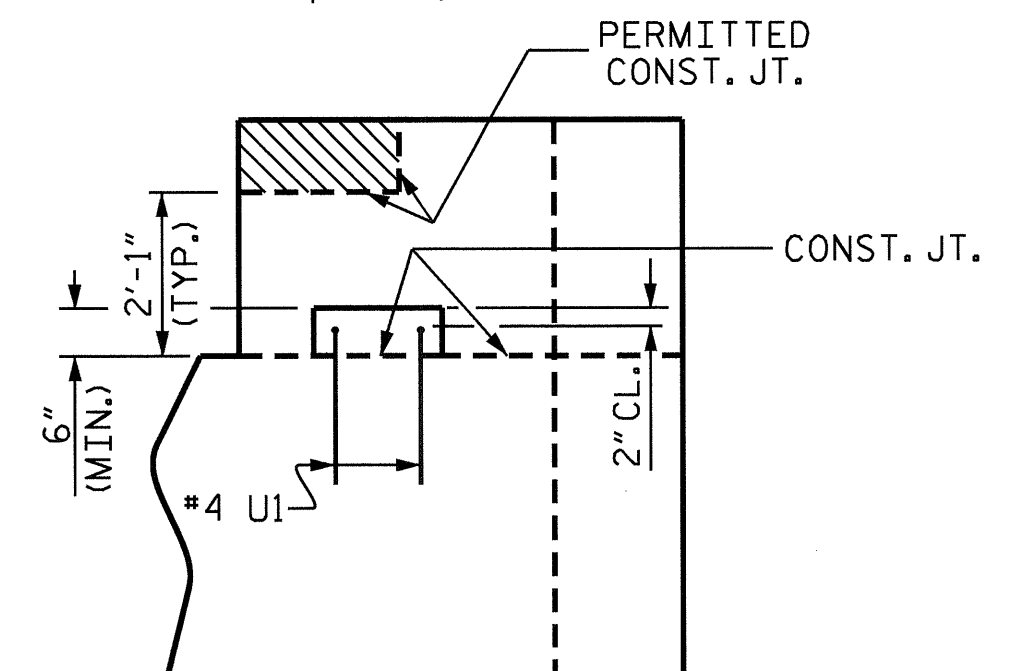
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #6 DOWELS
 THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED
 UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.
 THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED
 AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP
 FORMING IS USED.
 THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDE IF
 APPROVED BY THE ENGINEER.



PLAN



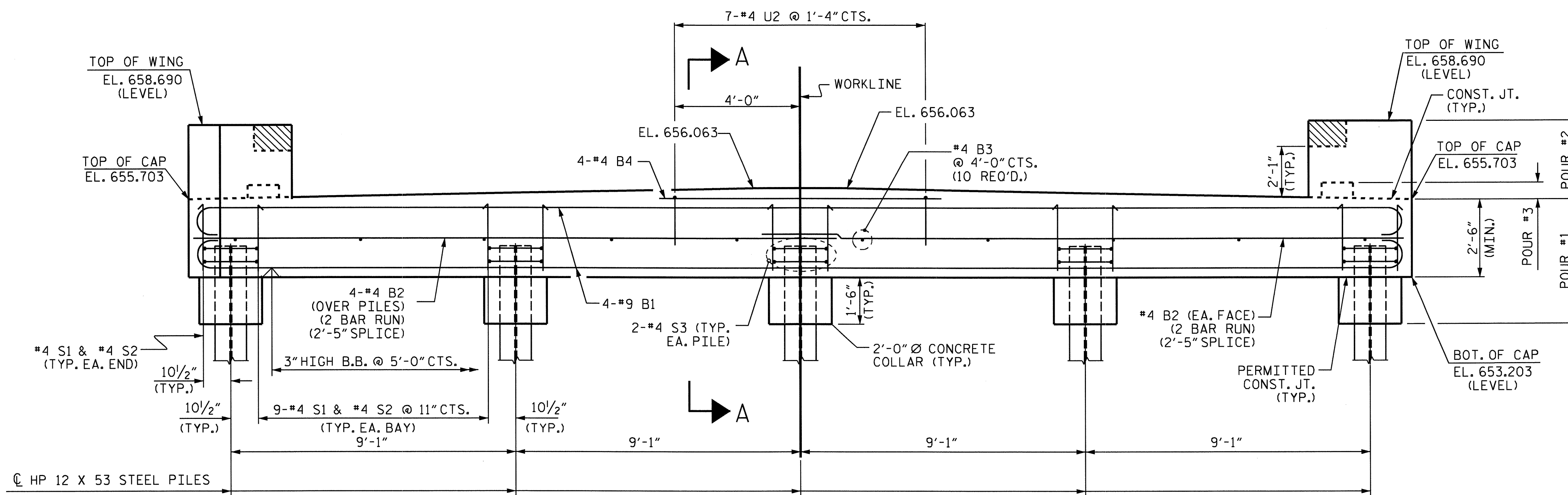
PLAN



ELEVATION

LATERAL GUIDE DETAILS

(EACH END SIMILAR)



ELEVATION

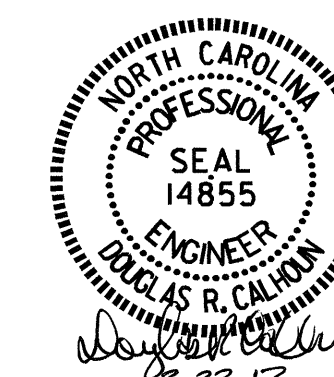
PROJECT NO. B-4629
 ROWAN COUNTY
 STATION: 16+50.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

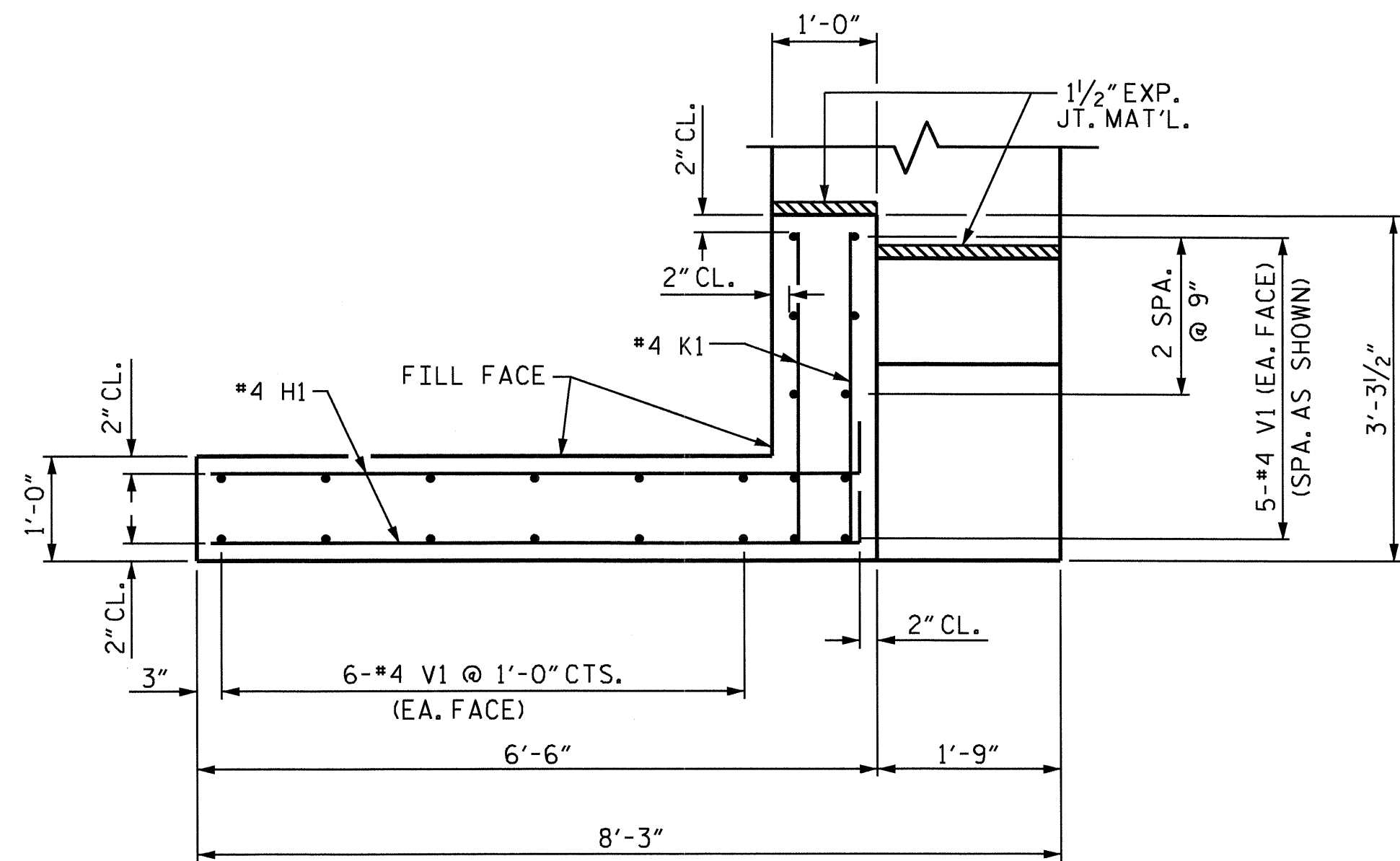
SUBSTRUCTURE

END BENT 2

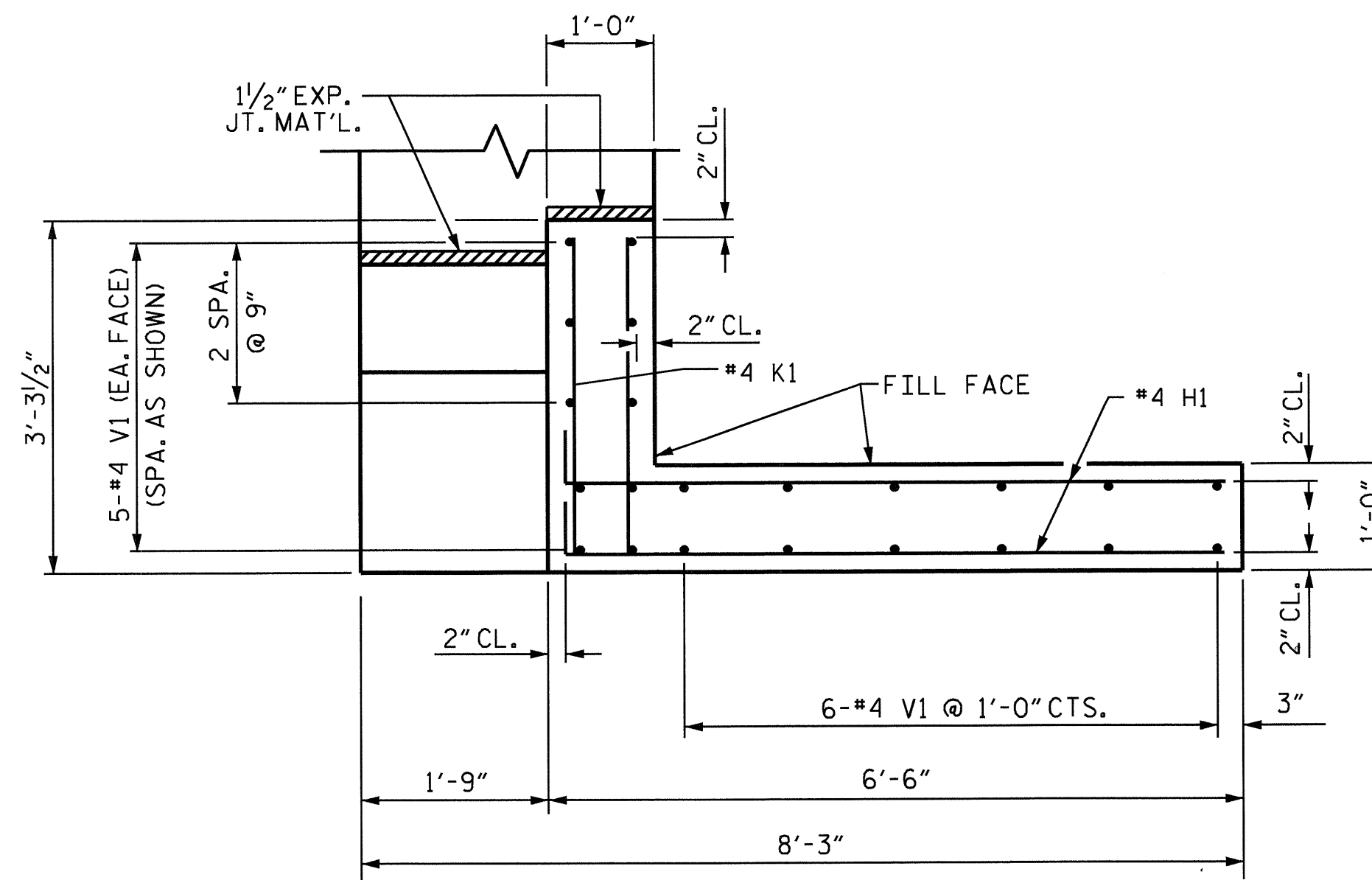


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NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS
2			4			26

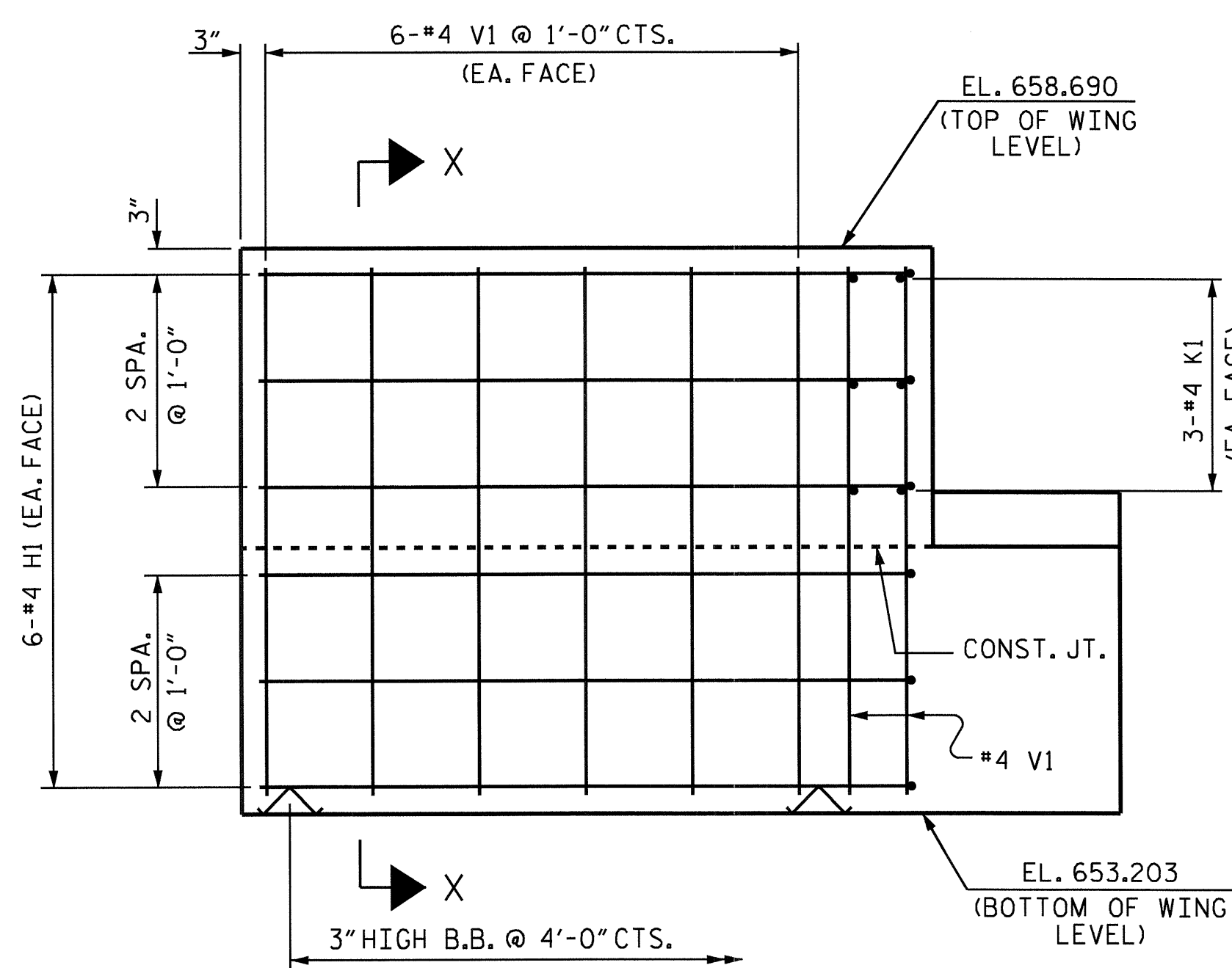
DRAWN BY: HARISH SHAH DATE: 1-11-10
 CHECKED BY: RAMAN PATEL DATE: 1-22-10



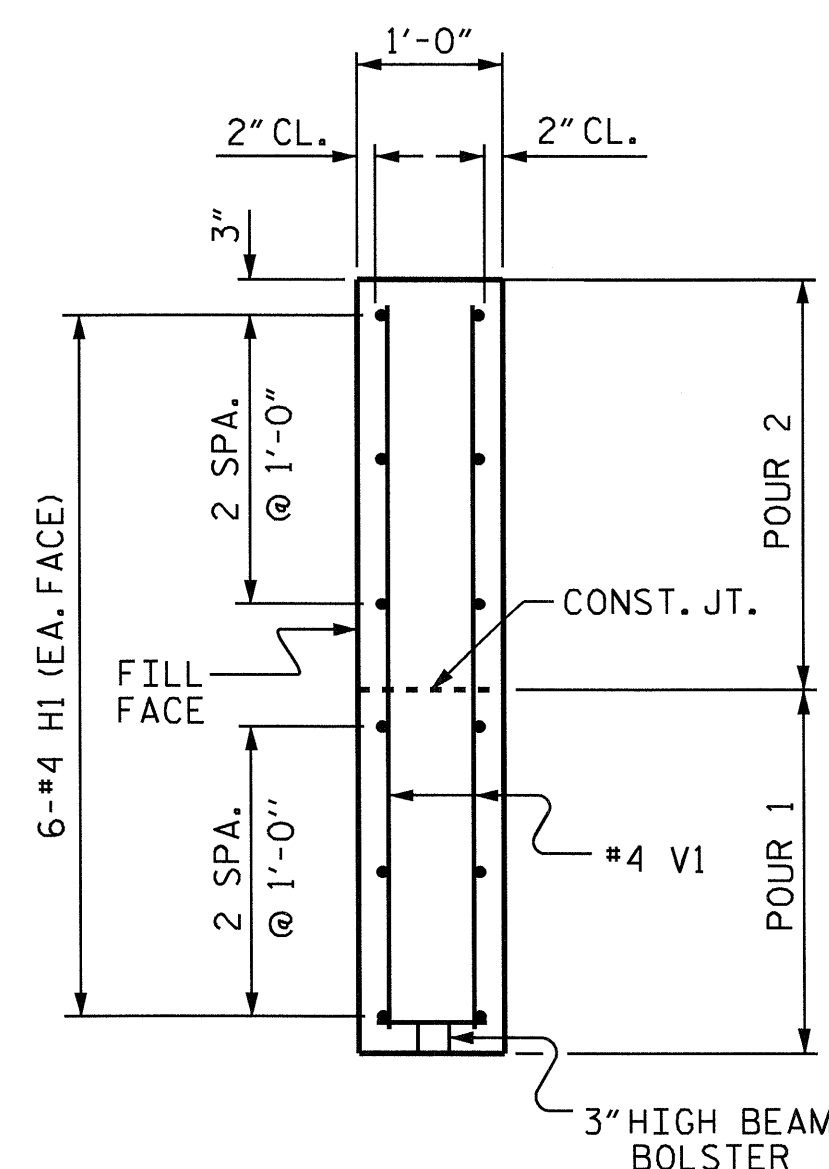
PLAN OF WING (W1)



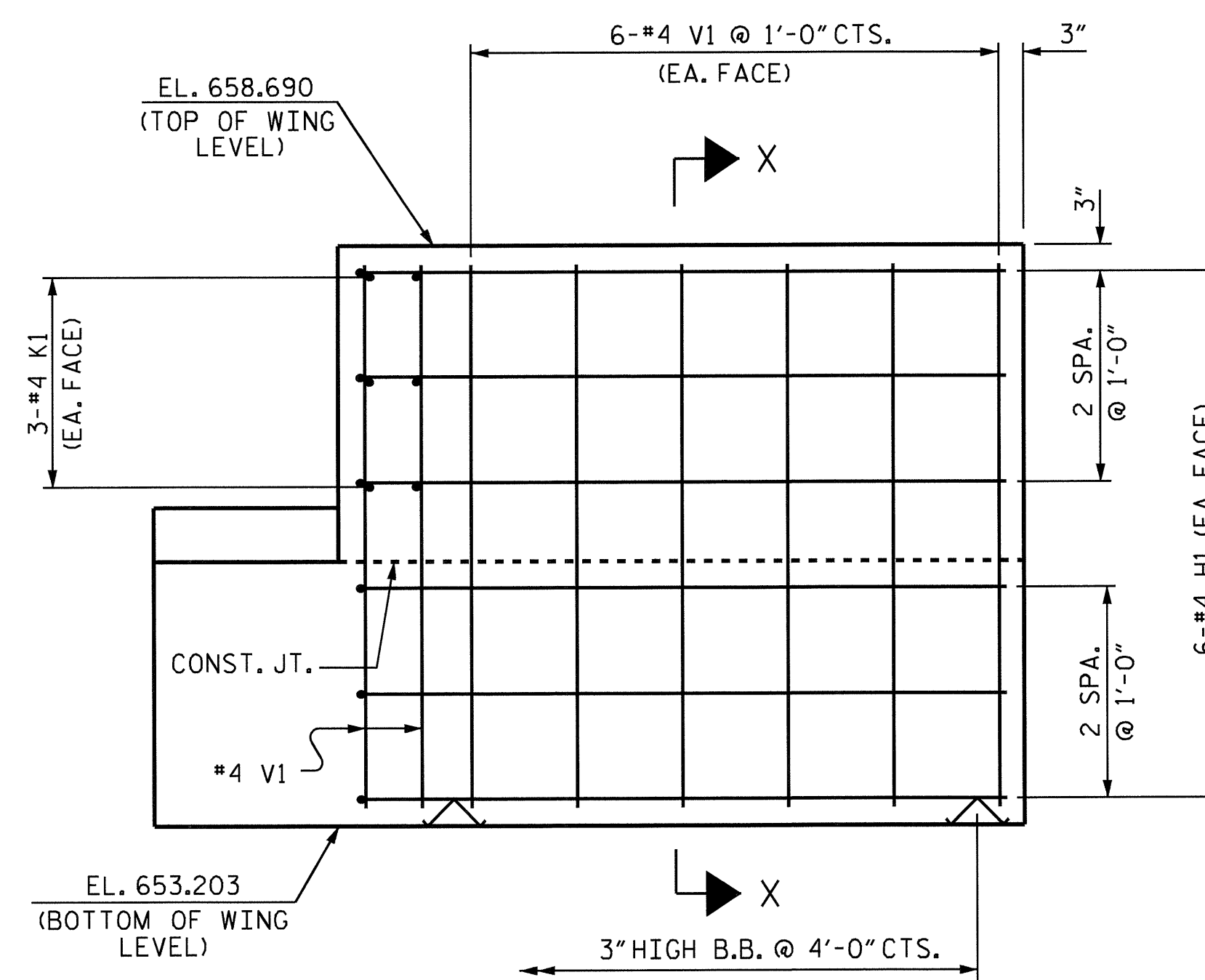
PLAN OF WING (W2)



ELEVATION OF WING (W1)



SECTION X-X



ELEVATION OF WING (W2)

PROJECT NO. B-4629
ROWAN COUNTY
 STATION: 16+50.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE

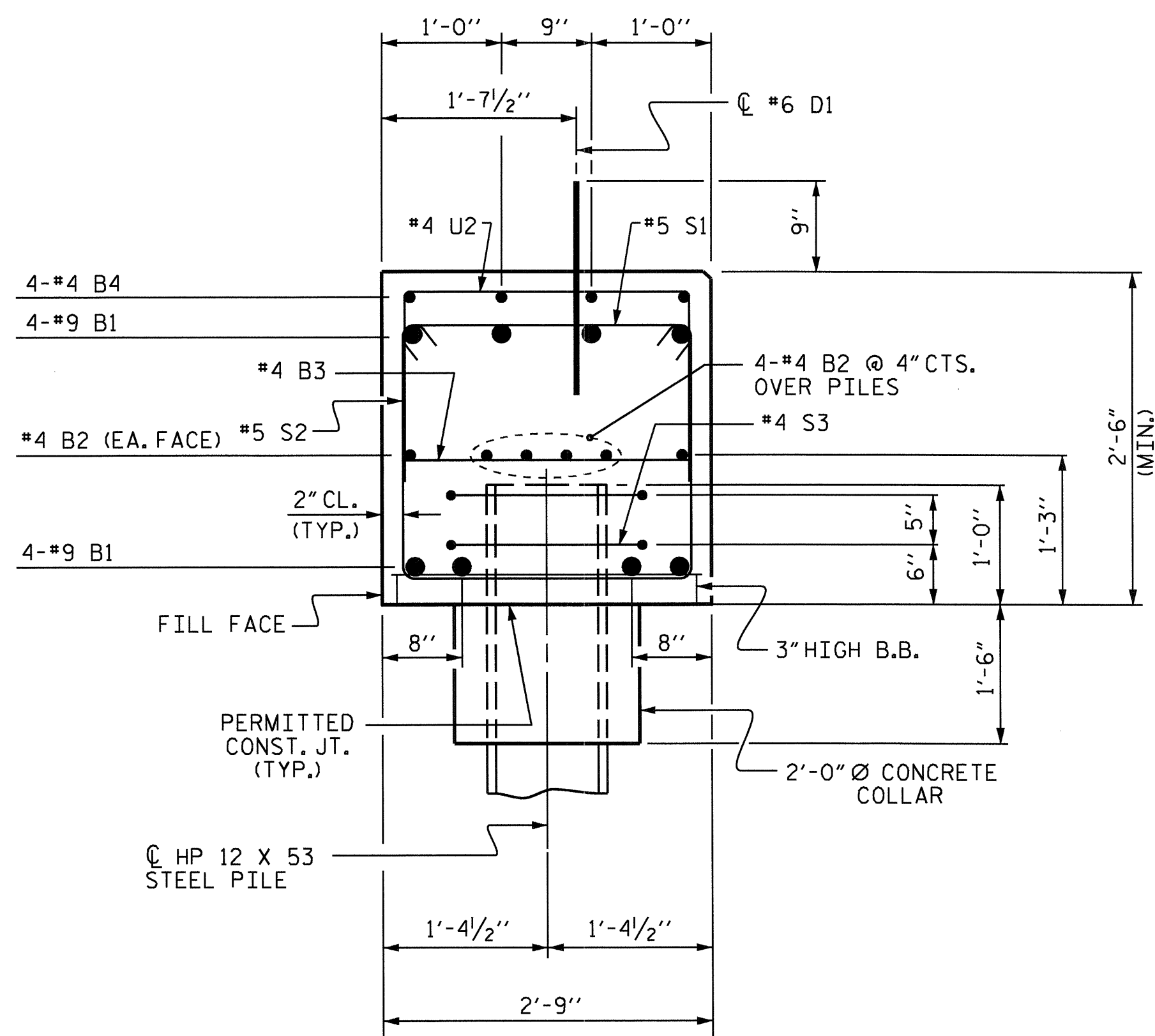
END BENT 2



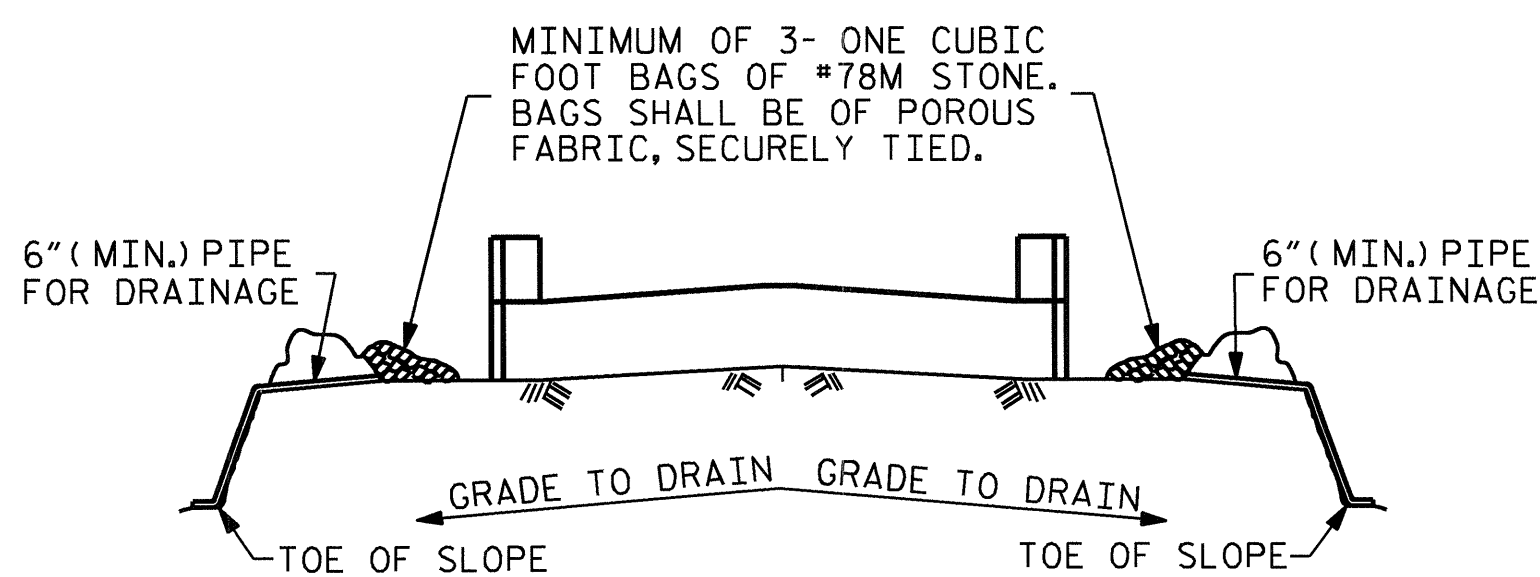
DRAWN BY : HARISH SHAH DATE : 1-11-10
 CHECKED BY : RAMAN PATEL DATE : 1-22-10

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REVISIONS						SHEET NO.	
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1			3			TOTAL SHEETS	26
2			4				



SECTION A-A

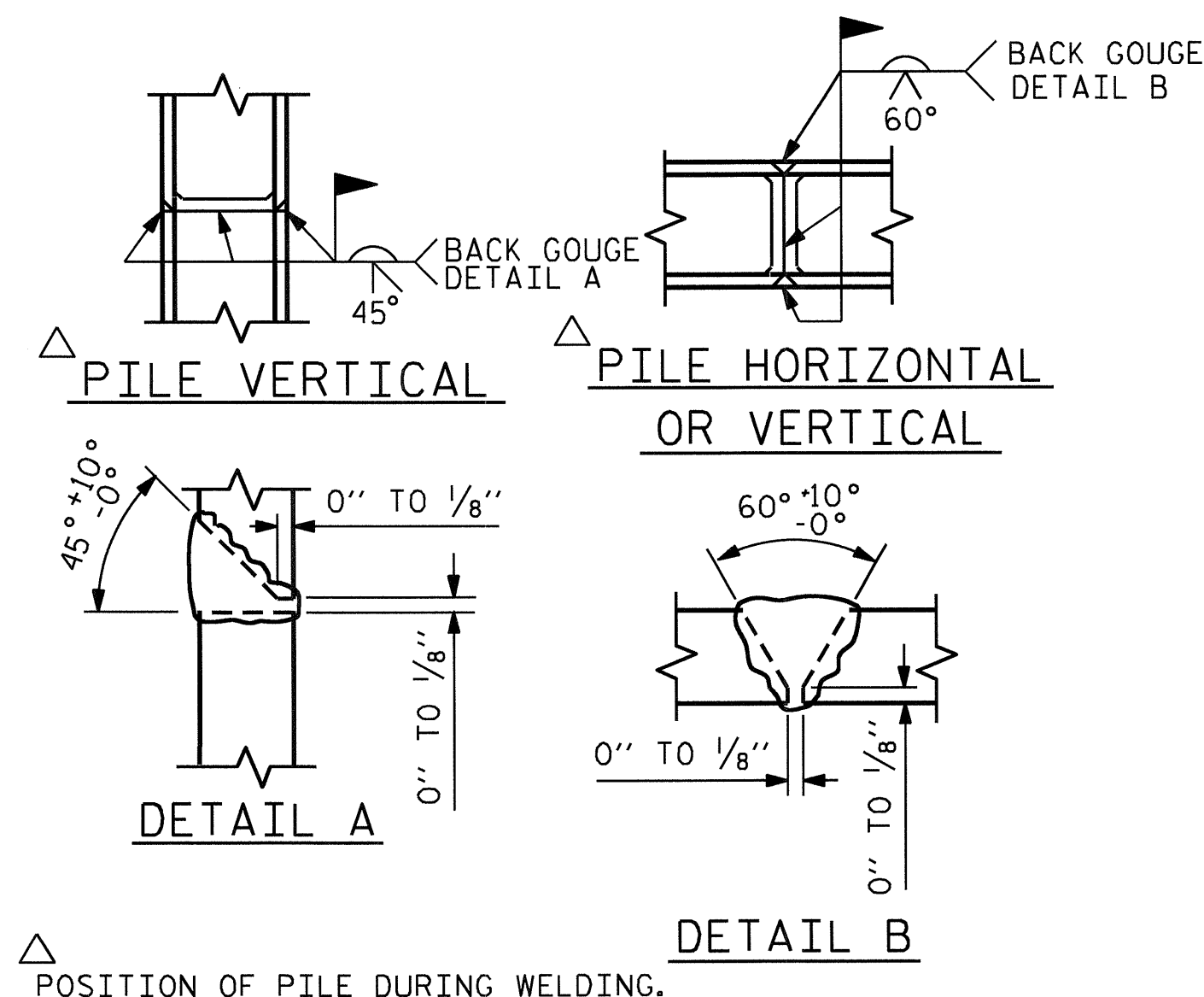


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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



PILE SPLICE DETAILS

BAR TYPES						BILL OF MATERIAL									
END BENT 2															
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT										
B1	8	#9		41'-0"	1115										
B2	12	#4	STR	20'-7"	165										
B3	10	#4	STR	2'-5"	16										
B4	4	#4	STR	9'-0"	24										
						D1	22	#6	STR	1'-6"	50				
						H1	24	#4	2	6'-10"	110				
						K1	12	#4	STR	2'-11"	23				
						S1	38	#4	4	3'-2"	80				
						S2	38	#4	3	7'-5"	188				
						S3	10	#4	5	6'-6"	43				
						U1	4	#4	6	4'-5"	12				
						U2	7	#4	6	5'-5"	25				
						V1	44	#4	STR	5'-1"	149				
						REINFORCING STEEL						2000 LBS.			
						CLASS A CONCRETE BREAKDOWN:									
						POUR #1 (CONCRETE COLLARS, CAP & LOWER WINGS)						12.6 C.Y.			
						POUR #2 (UPPER WINGS)						1.9 C.Y.			
						POUR #3 (LATERAL GUIDES)						0.1 C.Y.			
						TOTAL CLASS A CONCRETE:						14.6 C.Y.			
						HP 12X53 STEEL PILES:									
						NO. 5						125 LIN. FT.			

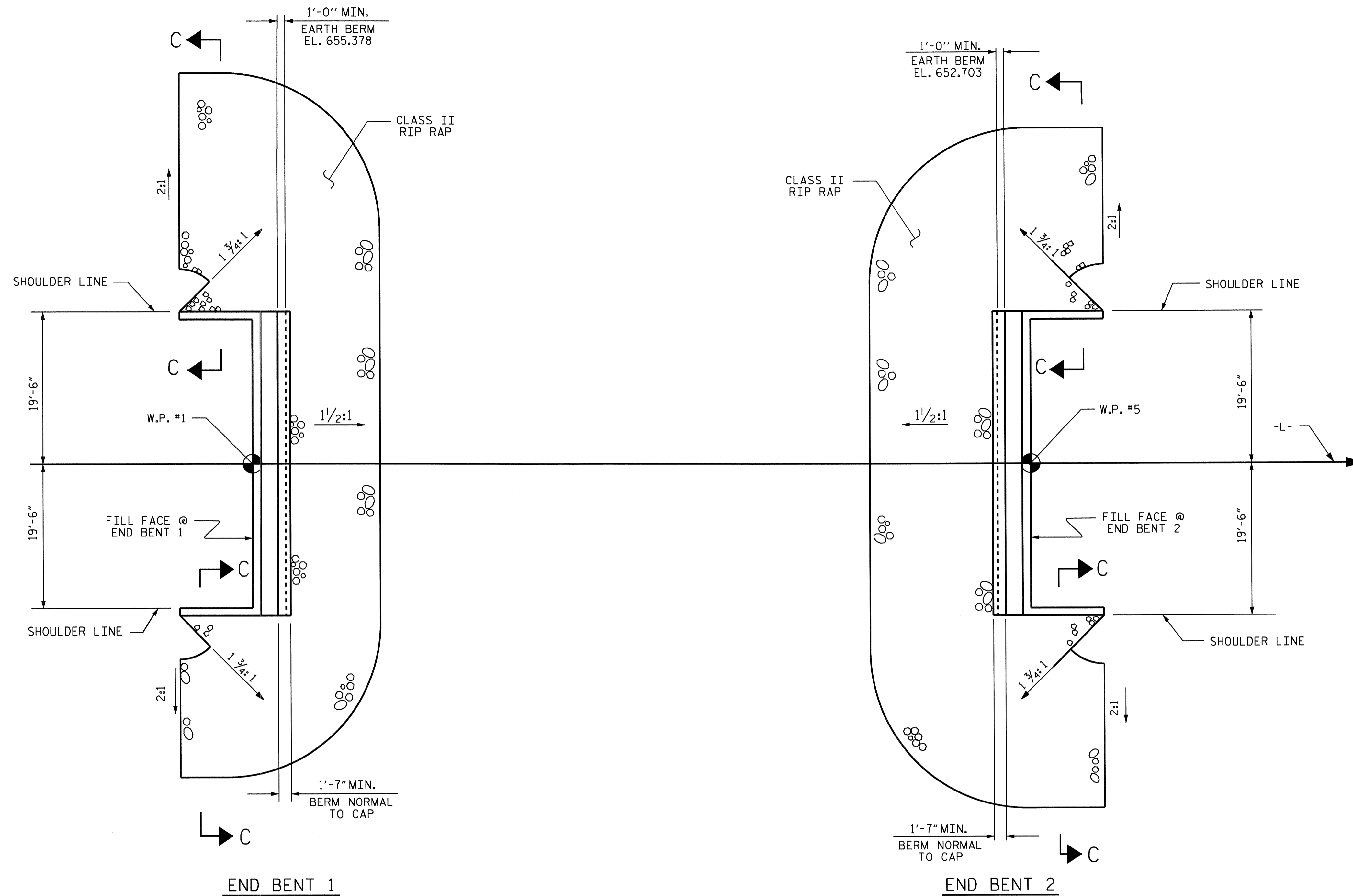
ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. B-4629
 ROWAN COUNTY
 STATION: 16+50.00 -L-
 SHEET 3 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SUBSTRUCTURE		END BENT 2	
REVISIONS						SHEET NO.			
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23			
1			3			TOTAL SHEETS			
2			4			26			

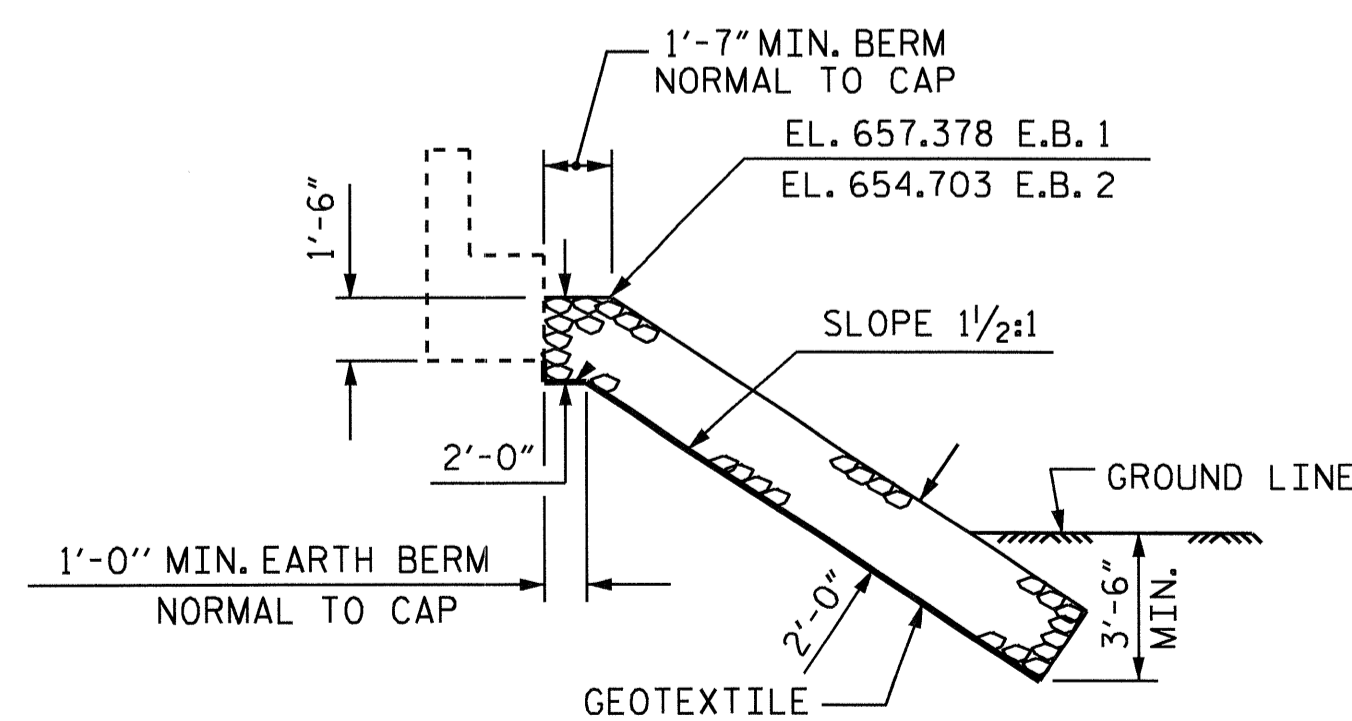


DRAWN BY : HARISH SHAH DATE : 1-12-10
 CHECKED BY : RAMAN PATEL DATE : 1-22-10



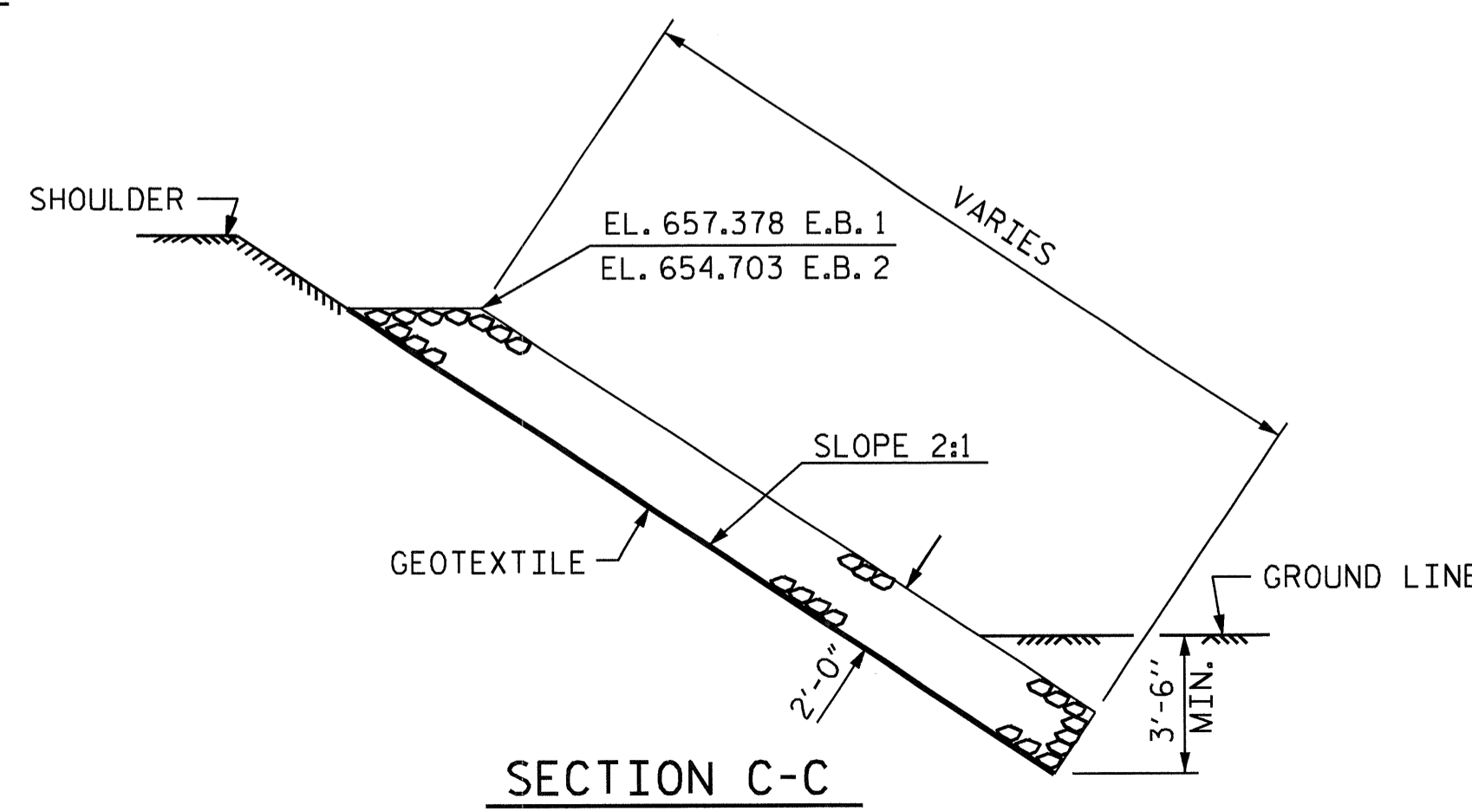
ESTIMATED QUANTITIES		
BRIDGE @ STA. 16+50.00 -L-	RIP RAP CLASS II (TONS)	GEOTEXTILE FOR DRAINAGE (SQ. YARDS)
END BENT 1	283	315
END BENT 2	281	313
TOTAL	564	628

PLAN



SECTION C-C

BERM RIP RAPPED

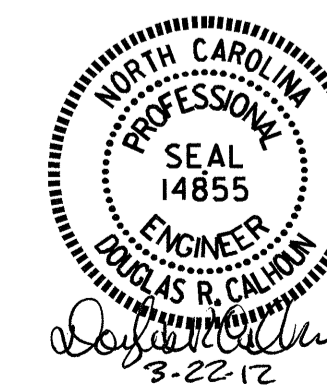


SECTION C-C

PROJECT NO. B-4629
ROWAN COUNTY
 STATION: 16+50.00 -L-

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24
1			3			TOTAL SHEETS
2			4			26

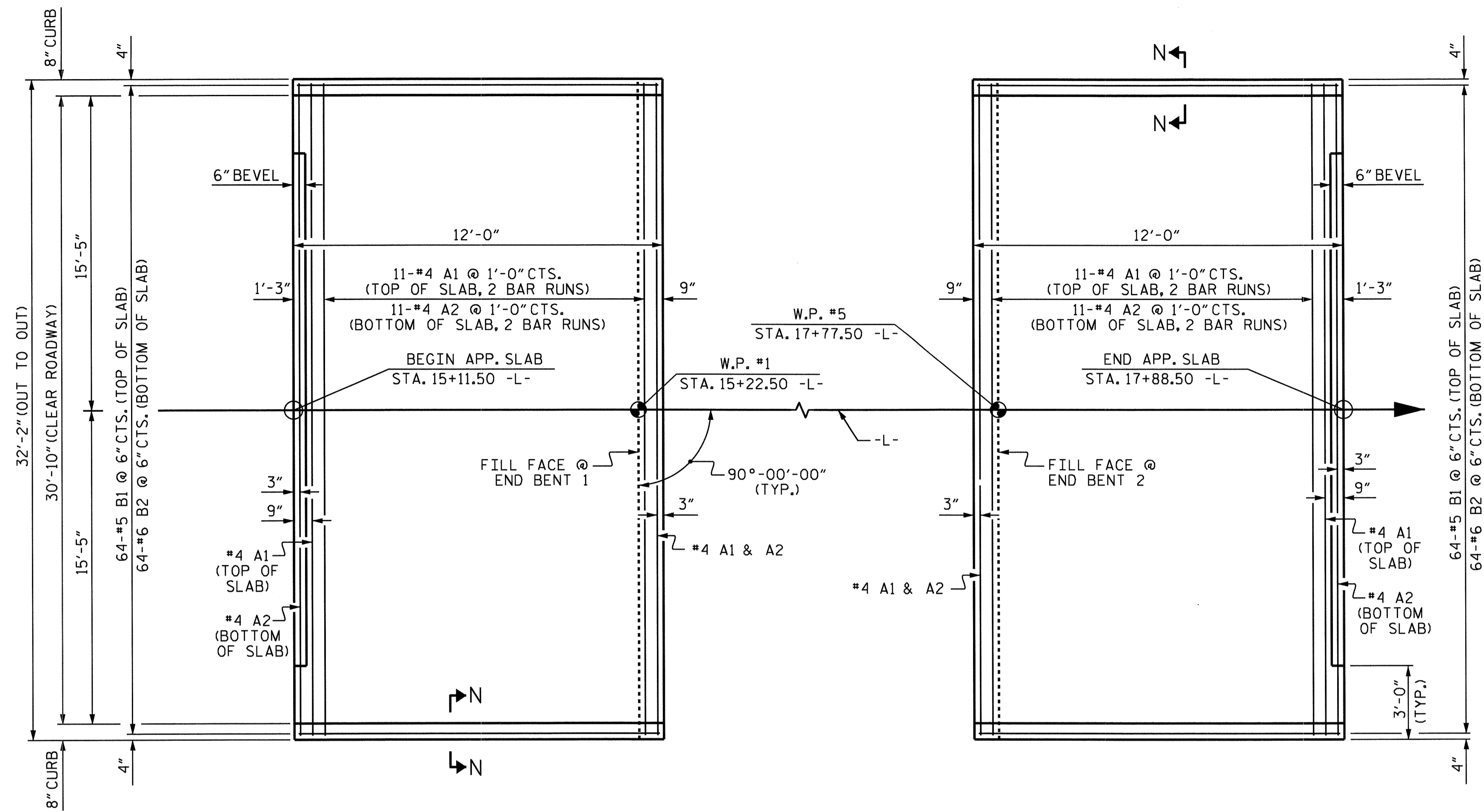


DRAWN BY: HARISH SHAH DATE: 1-6-10
 CHECKED BY: Z.H. BROWN DATE: 4-20-10

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SKEW 90°

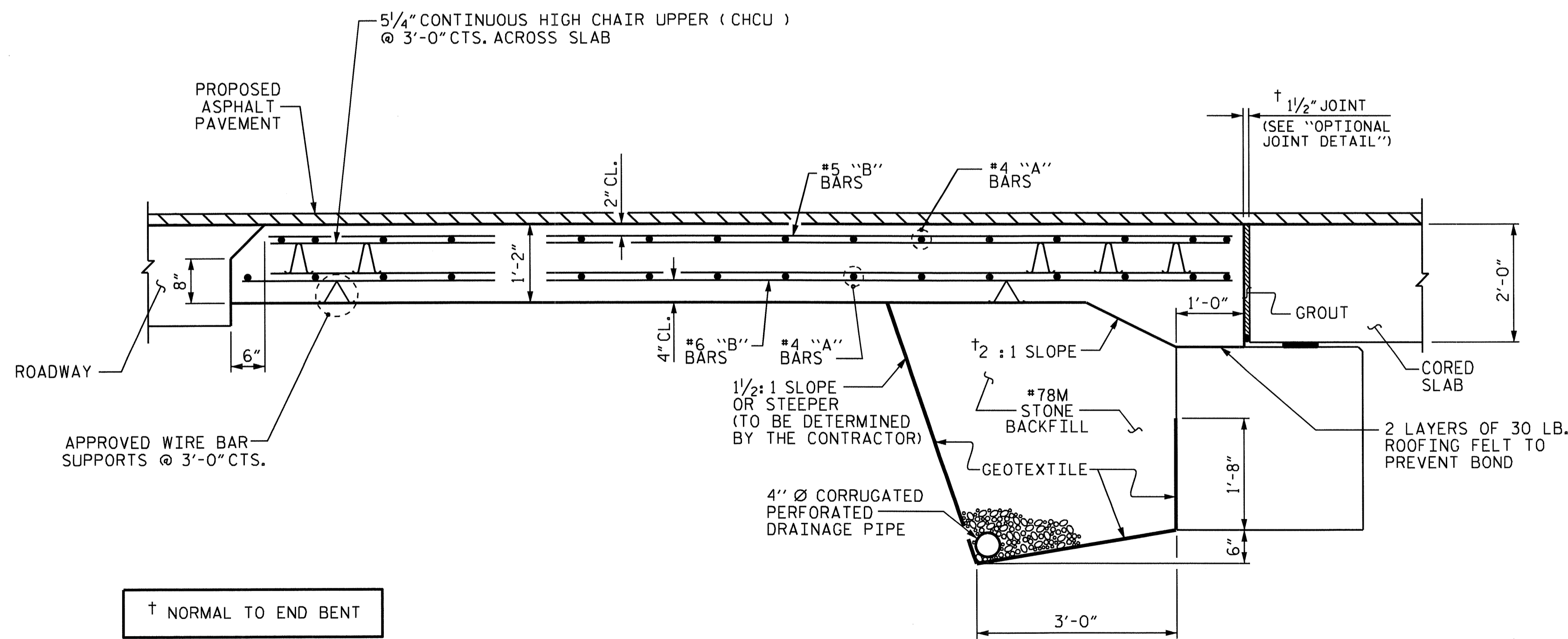
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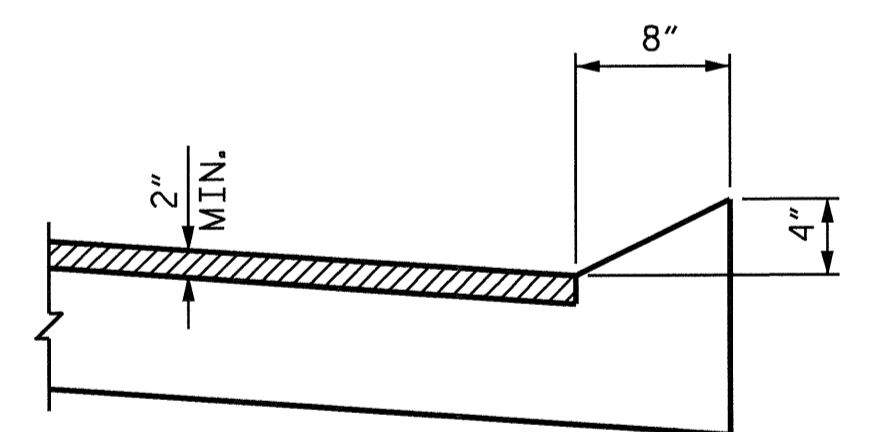
PLAN @ END BENT 1

PLAN @ END BENT 2

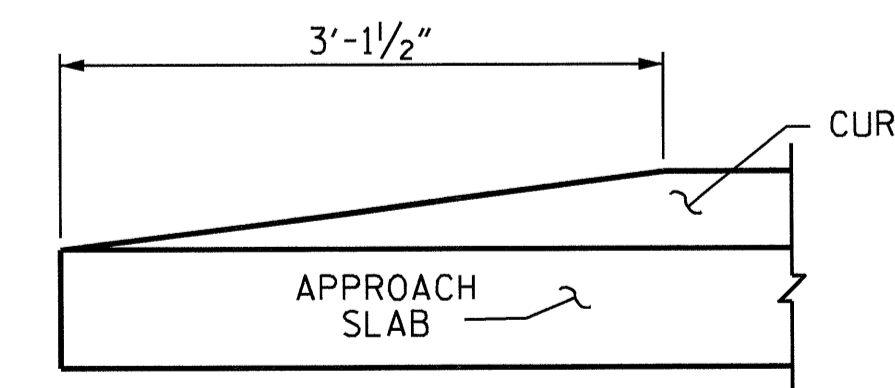
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY PLANS.

GEOTEXTILE SHALL BE TYPE 1 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

#78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

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

APPROACH SLAB GROOVING IS NOT REQUIRED.

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

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

THE CONTRACTOR HAS THE OPTION TO OMIT GROUT BETWEEN THE APPROACH SLAB AND THE CORED SLAB UNITS AND POUR THE APPROACH SLAB DIRECTLY AGAINST THE CORED SLAB UNITS. SEE "OPTIONAL JOINT DETAIL".

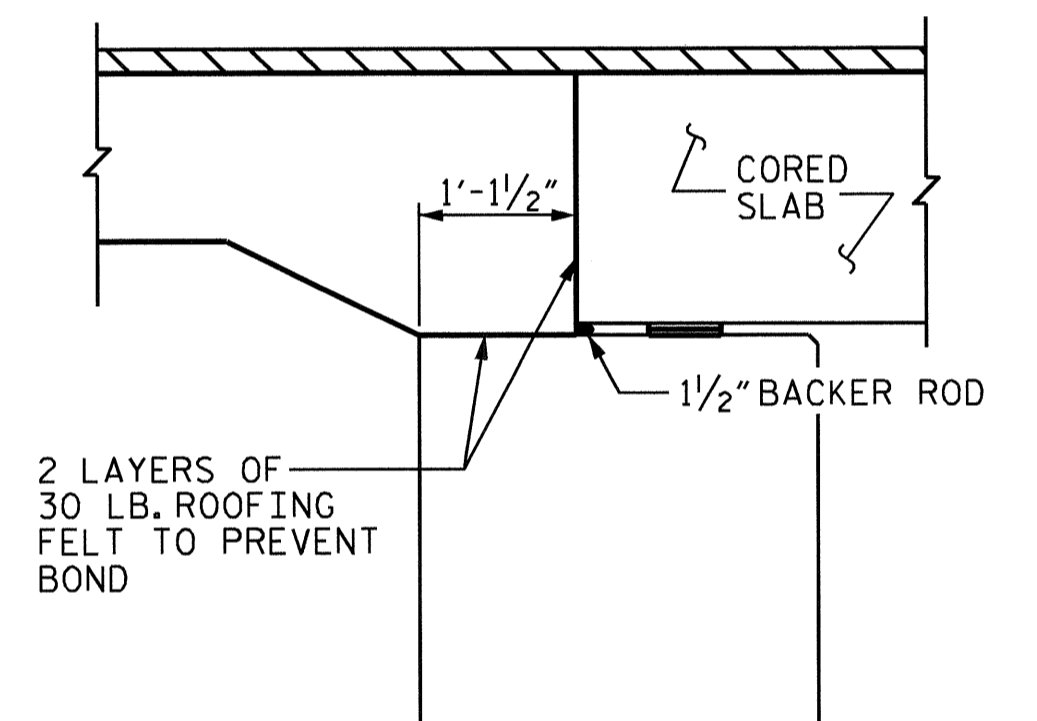
BILL OF MATERIAL

FOR ONE APPROACH SLAB (2 REQ'D)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	26	#4	STR	16'-11"	294
A2	26	#4	STR	16'-10"	292
*B1	64	#5	STR	11'-2"	745
B2	64	#6	STR	11'-8"	1121
REINFORCING STEEL				LBS.	1413
*EPOXY COATED REINFORCING STEEL				LBS.	1039
CLASS AA CONCRETE				C.Y.	18.8

SPLICE LENGTHS

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



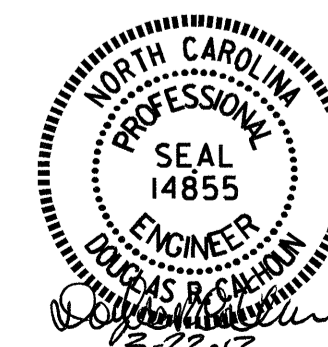
OPTIONAL JOINT DETAIL

PROJECT NO. B-4629
 ROWAN COUNTY
 STATION: 16+50.00 -L-

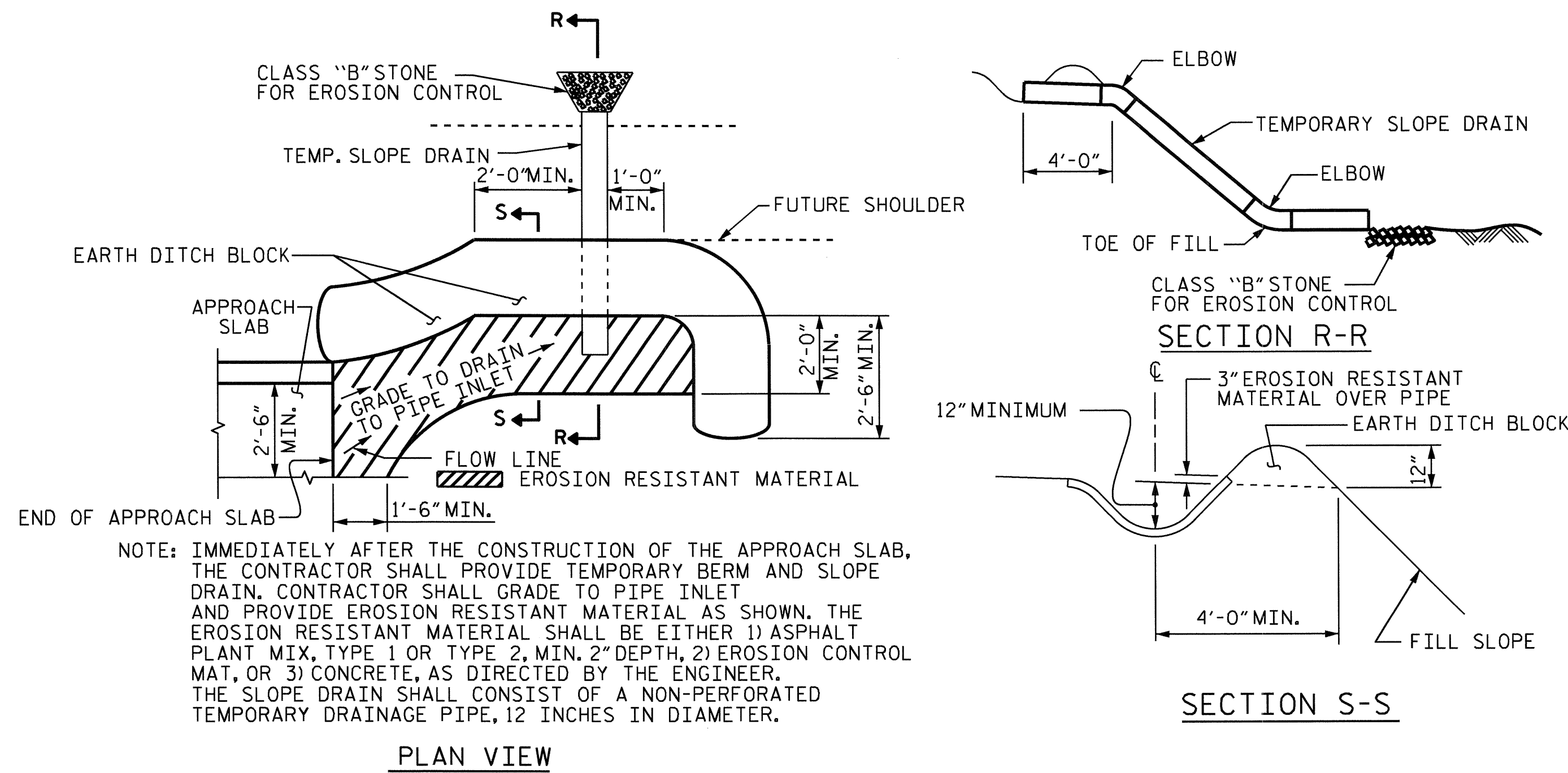
SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR PRESTRESSED CONCRETE
 CORED SLAB UNIT
 (SUB-REGIONAL TIER)

REVISIONS						SHEET NO.
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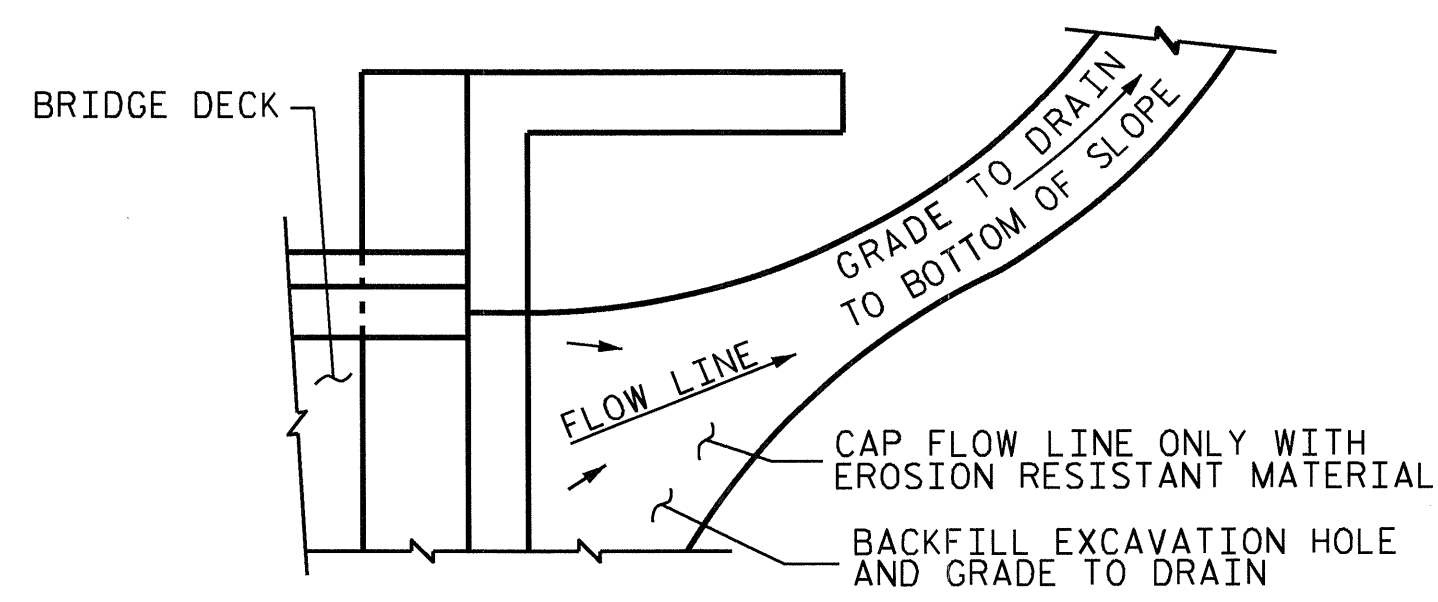
ASSEMBLED BY: HARISH SHAH DATE: 1-07-10
 CHECKED BY: Z.H. BROWN DATE: 4-21-10
 DRAWN BY: KMM 3-08 REV. 9/27/11 MAA/GM
 CHECKED BY: GM 3-08 REV. 10/1/11 MAA/GM



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.

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.

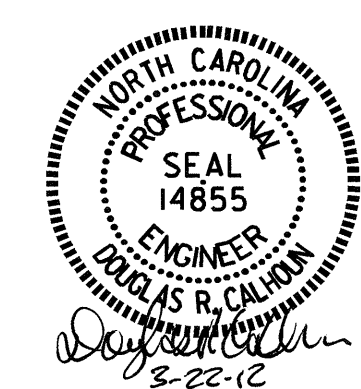
TEMPORARY DRAINAGE DETAIL

PROJECT NO. B-4629
ROWAN COUNTY
 STATION: 16+50.00 -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:	S-26
1			3			TOTAL SHEETS
2			4			26



ASSEMBLED BY : HARISH SHAH	DATE : 1-07-10
CHECKED BY : Z.H. BROWN	DATE : 4-21-10
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