

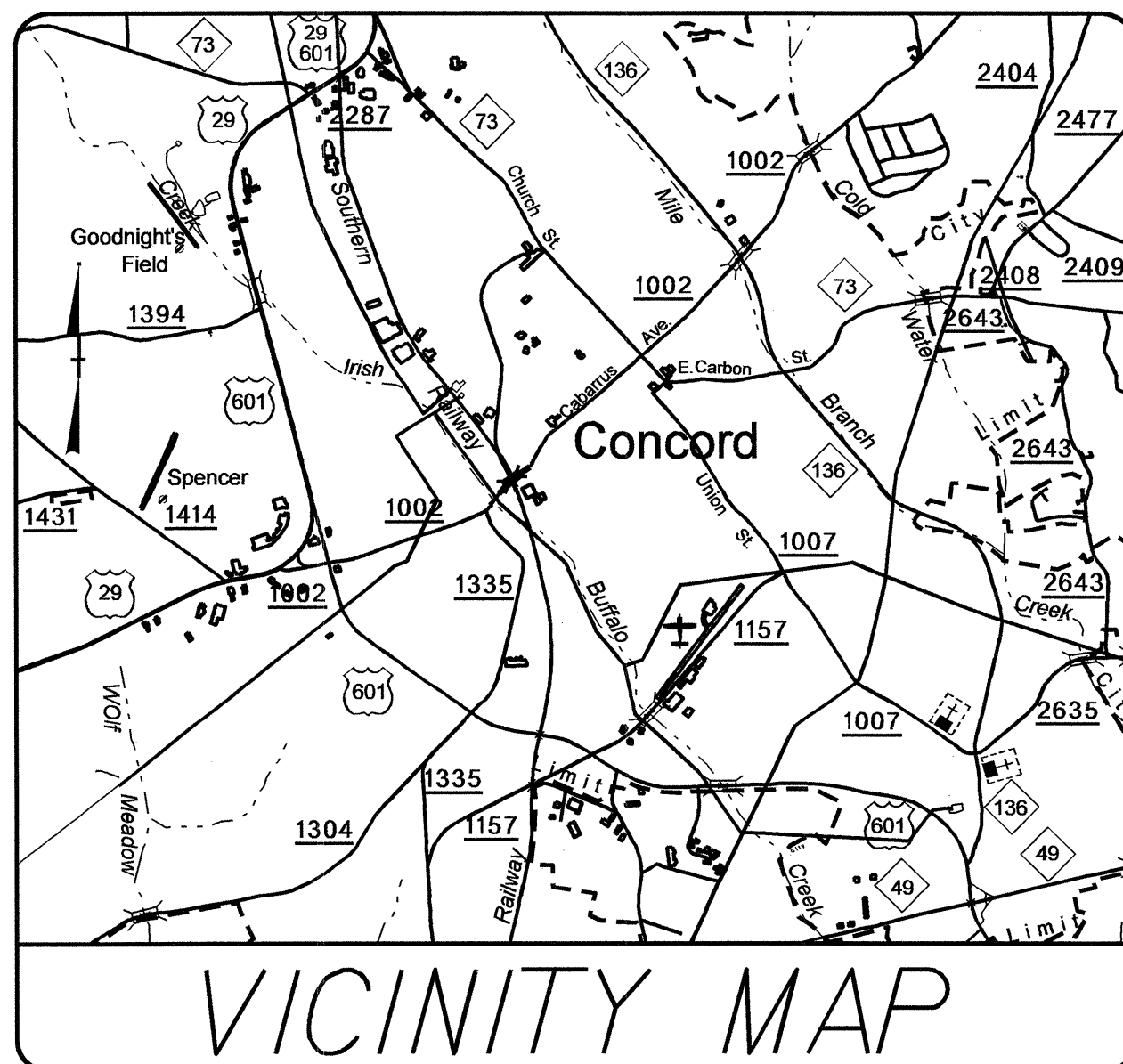
CONTRACT: C202773 **TIP PROJECT: B-3421**

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

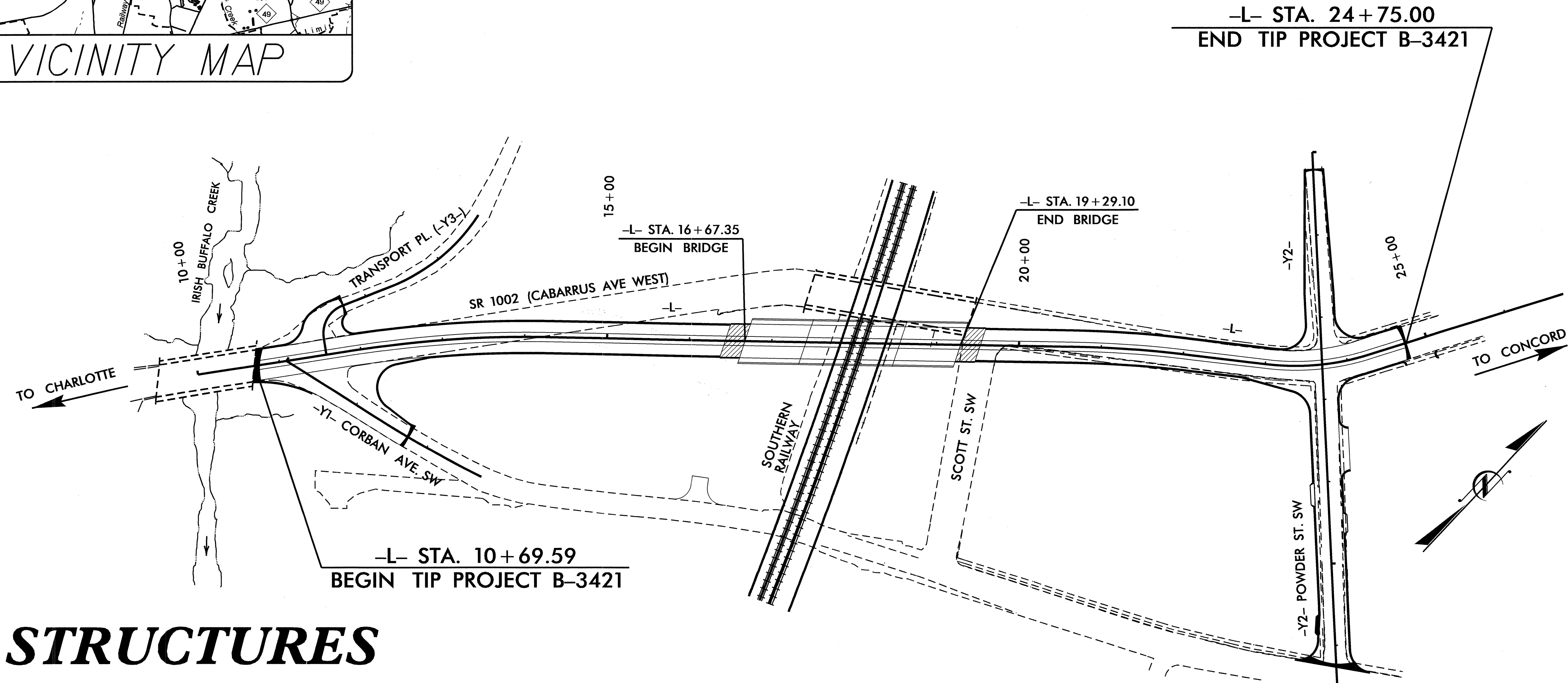
CABARRUS COUNTY

**LOCATION: BRIDGE NO. 266 OVER SOUTHERN RAILWAY ON
 SR 1002 IN CONCORD**

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

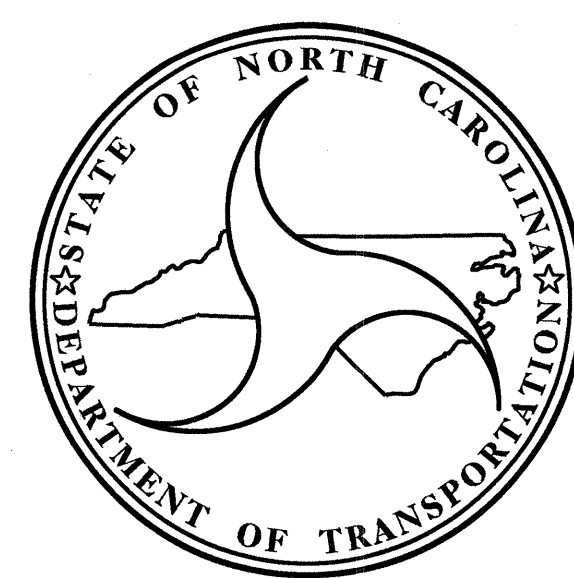


STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3421		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33048.1.1	BRSTP-1002(7)	P.E.	
33048.2.2	BRSTP-1002(29)	RW / UTIL.	
33048.3.1	BRSTP-1002(27)	CONST.	



STRUCTURES

THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF CONCORD



DESIGN DATA	
ADT 2010 =	21,723
ADT 2030 =	23,800
DHV =	10 %
D =	50 %
T =	5 % *
V =	40 MPH
* (TTST 2% + DUAL 3%)	
FUNC. CLASS = URBAN	
MINOR ARTERIAL	
DESIGN EXCEPTION REQ'D FOR VERTICAL ALIGNMENT & VERTICAL SSD	

PROJECT LENGTH	
TOTAL LENGTH ROADWAY TIP PROJECT	= 0.216 MILES
TOTAL LENGTH STRUCTURE TIP PROJECT	= 0.050 MILES
TOTAL LENGTH TIP PROJECT B-3421	= 0.266 MILES

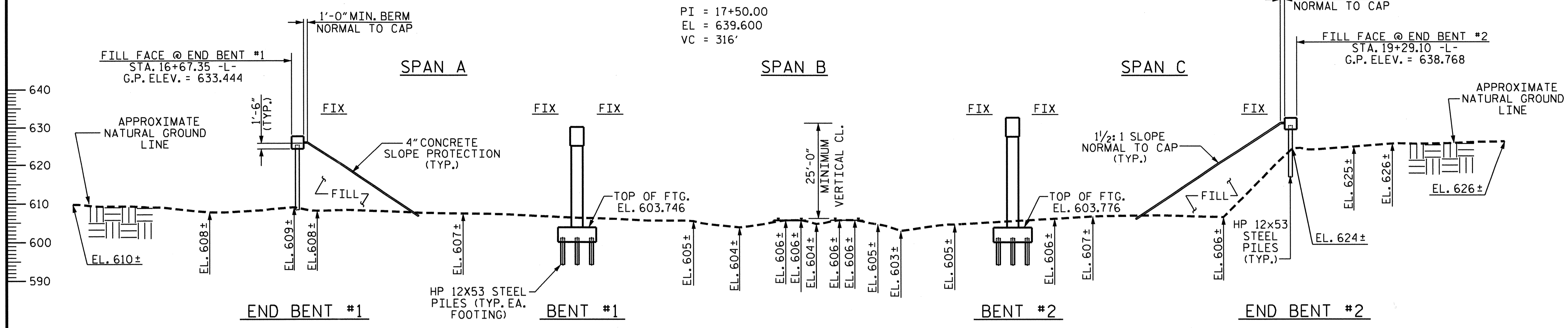
PLANS PREPARED IN THE OFFICE OF:	
DIVISION OF HIGHWAYS	
2012 STANDARD SPECIFICATIONS	
LETTING DATE: FEBRUARY 21, 2012	B. C. HUNT, P.E. <small>PROJECT ENGINEER</small> V. A. PATEL, P.E. <small>PROJECT DESIGN ENGINEER</small>

STRUCTURES MANAGEMENT UNIT
1000 Birch Ridge Dr. Raleigh, NC 27610

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

GRADE DATA -L-

PI = 17+50.00
 EL = 639.600
 VC = 316'

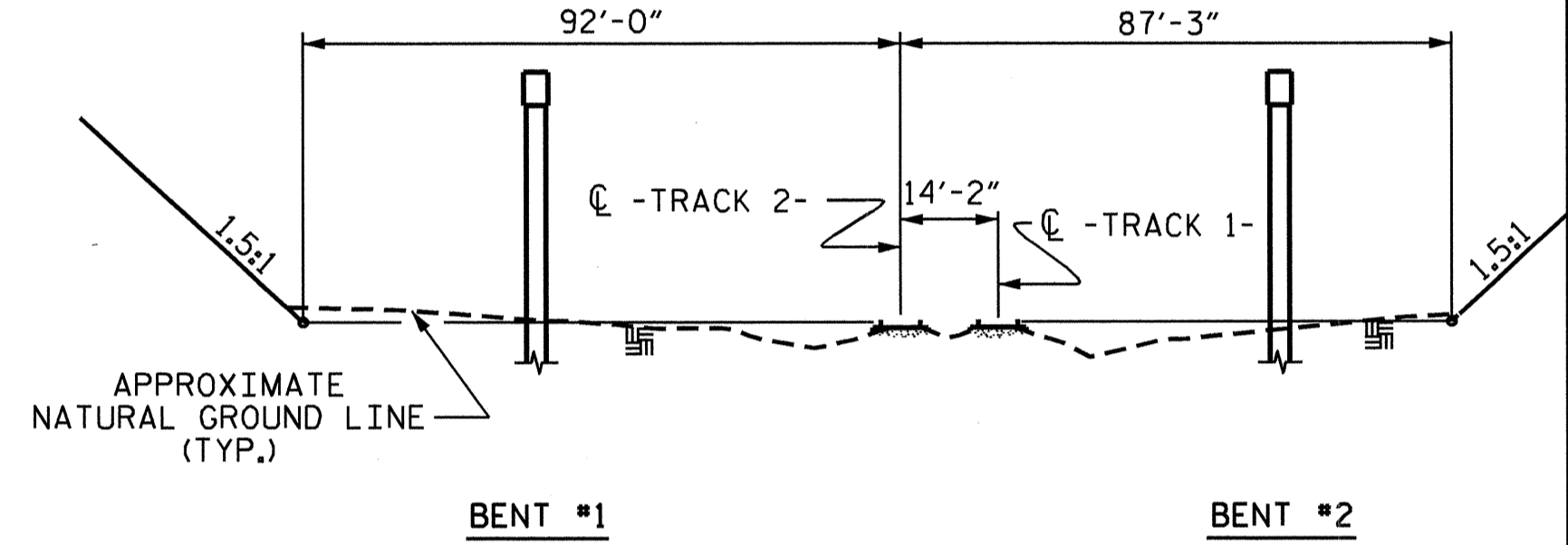


TOP OF RAIL ELEVATIONS	
-TRACK 1- STA.	EXISTING ELEV.
10024+00.00	605.520
10024+50.00	605.565
10025+00.00	605.610
10025+50.00	605.860
10026+00.00	606.110

TOP OF RAIL ELEVATIONS	
-TRACK 2- STA.	EXISTING ELEV.
10024+00.00	605.470
10024+50.00	605.535
10025+00.00	605.600
10025+50.00	605.750
10026+00.00	605.900

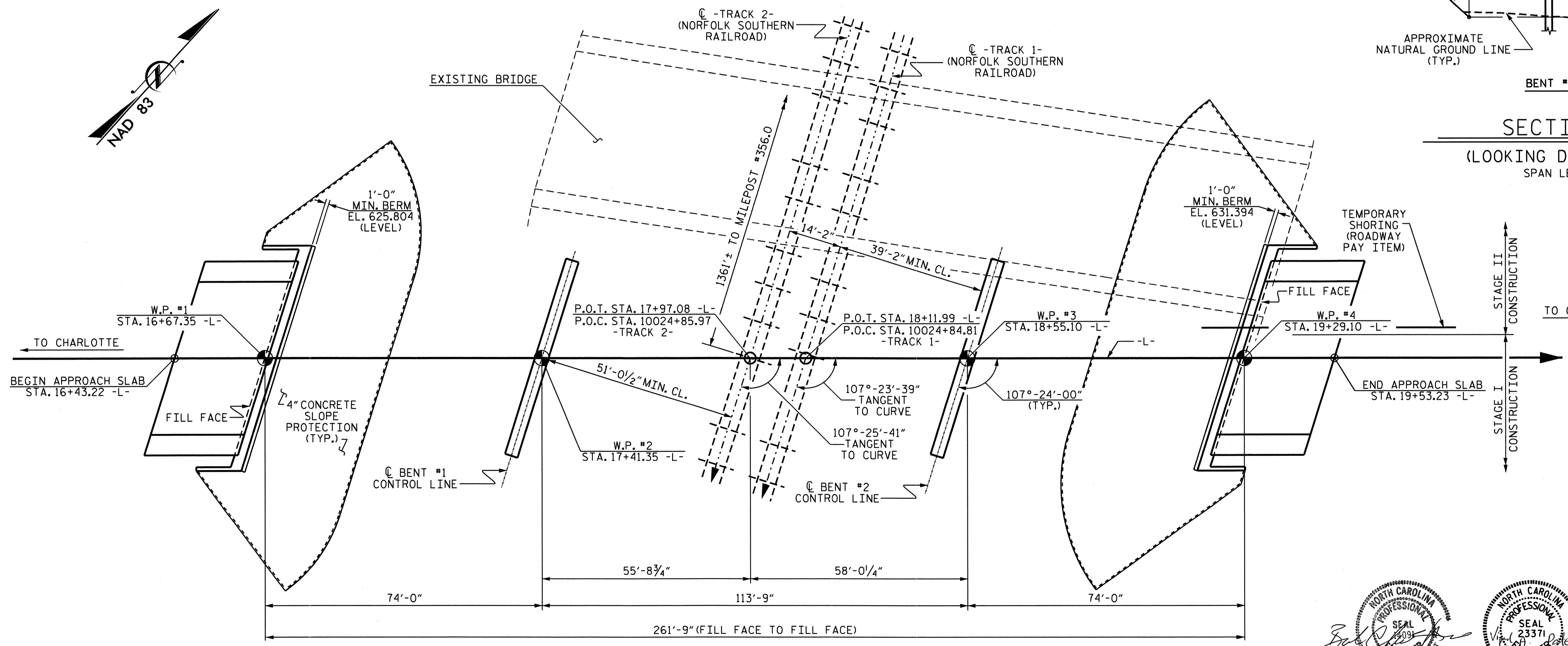
SECTION ALONG -L- LINE

(SECTIONS @ BENTS AND END BENTS ARE @ RIGHT ANGLES)



SECTION THRU RAILROAD

(LOOKING DOWNSTATION ALONG -TRACK 2-)
 SPAN LENGTHS ARE BASED ON THIS SECTION



PLAN

FOOTINGS AT BENTS NOT SHOWN FOR CLARITY

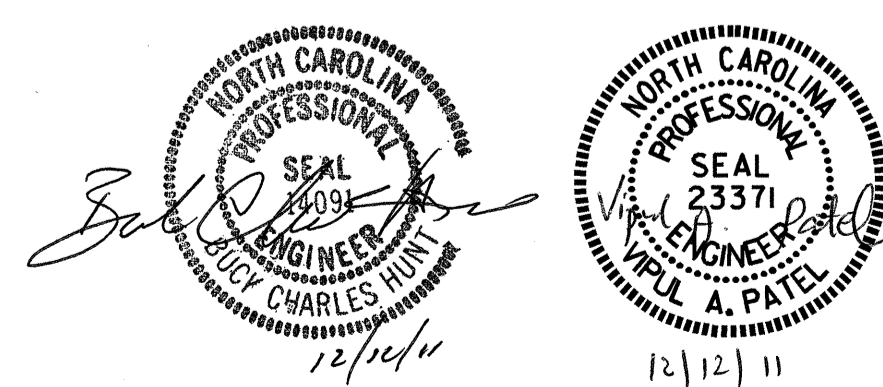
PROJECT NO. B-3421
 CABARRUS COUNTY
 STATION: 17+97.08 -L-
 MILE POST #356.258
 REPLACES BRIDGE #266

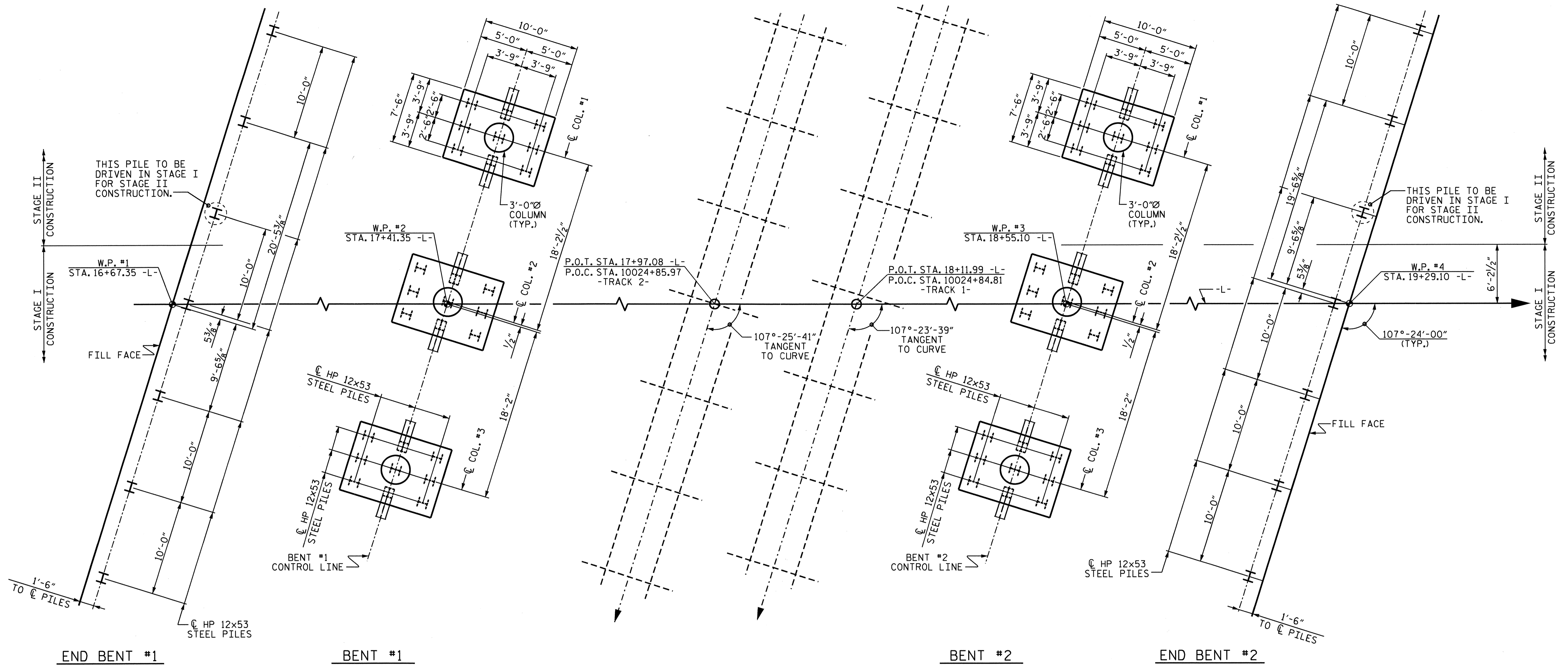
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER
 NORFOLK SOUTHERN RAILROAD
 ON SR 1002 (CABARRUS AVENUE)
 BETWEEN CORBAN AVENUE AND
 POWDER STREET

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

DRAWN BY : KEITH D. LAYNE DATE : 6-29-11
 CHECKED BY : J. P. ADAMS DATE : 7-11-11

12-DEC-2011 12:02
 R:\Structures\B3421\Plans\B3421.sd.GD.dgn
 vpatel





FOUNDATION LAYOUT

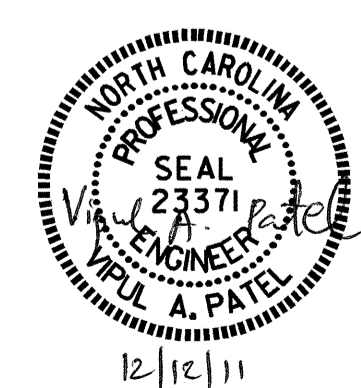
DIMENSIONS LOCATING PILES ARE SHOWN TO THE PILE CENTERLINE.
 HP 12x53 STEEL PILES AT BENTS ARE BATTERED 1/2 TO 12.
 NO STAGED CONSTRUCTION REQUIRED FOR BENT #1.

FOUNDATION NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
 PILES AT END BENT NO.1 AND END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 105 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 175 TONS PER PILE.
 PILES AT BENT NO.1 AND BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 100 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 167 TONS PER PILE.

PROJECT NO. B-3421
CABARRUS COUNTY
 STATION: 17+97.08 -L-

SHEET 2 OF 3



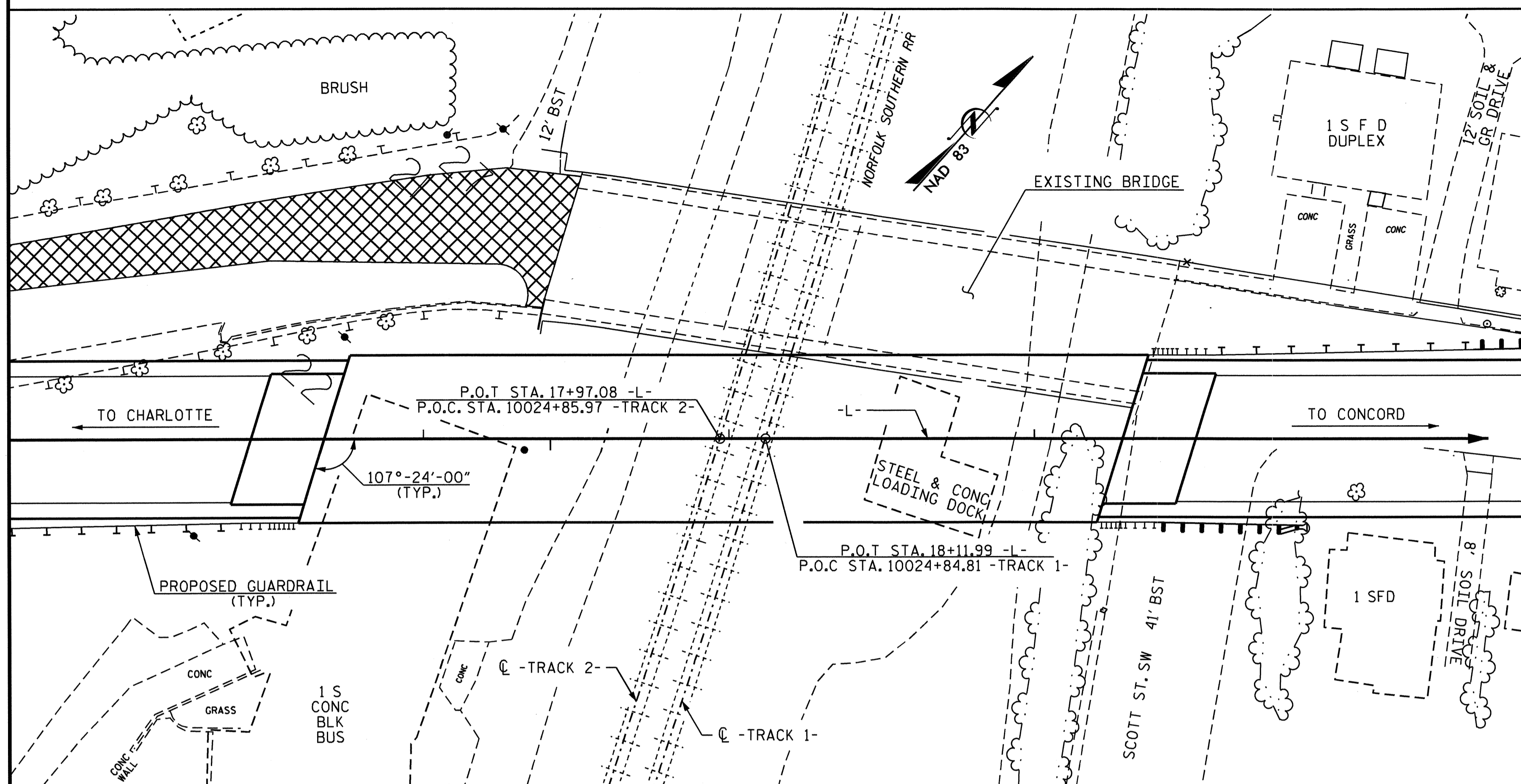
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER
 NORFOLK SOUTHERN RAILROAD
 ON SR 1002 (CABARRUS AVENUE)
 BETWEEN CORBAN AVENUE AND
 POWDER STREET

DRAWN BY: KEITH D. LAYNE DATE: 6-29-11
 CHECKED BY: J. P. ADAMS DATE: 7-11-11

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

BENCHMARK #2 IS A R.R. SPIKE SET 1' UP FROM BASE OF POWER POLE 303.4' RIGHT OF -BL- STA. 12+33.80 ELEV. 603.7 NAVD 88

NOTES



LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.

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

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

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.

AFTER SERVING AS A TEMPORARY STRUCTURE THE EXISTING STRUCTURE CONSISTING OF 7 SPANS (1 @ 28'-0", 1 @ 30'-10", 1 @ 34'-0", 1 @ 30'-10", 1 @ 30'-6", 1 @ 27'-10", & 1 @ 12'-8") WITH A REINFORCED CONCRETE DECK ON 5 LINES OF REINFORCED CONCRETE GIRDERS AND A CLEAR ROADWAY WIDTH OF 38.0' ON REINFORCED CONCRETE POST & WEB AT BENTS AND REINFORCED CONCRETE ABUTMENTS FULL HEIGHT AT END BENTS AND LOCATED AT THE PROPOSED STRUCTURE SITE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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 SPICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

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

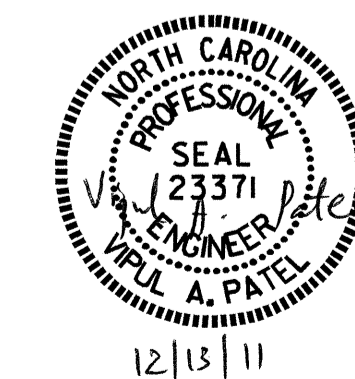
- NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- THE RAILROAD TRACK TOP OF RAIL ELEVATIONS SHOWN ON THE PLANS ARE FROM THE BEST INFORMATION AVAILABLE. PRIOR TO BEGINNING BRIDGE CONSTRUCTION, VERIFY THE TOP OF RAIL ELEVATIONS AND REPORT ANY VARIATIONS TO THE ENGINEER. ANY PLAN REVISIONS NECESSARY TO ACHIEVE THE REQUIRED MINIMUM VERTICAL CLEARANCE WILL BE PROVIDED BY THE DEPARTMENT.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS, FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.
- FOR ELECTRICAL CONDUIT SYSTEM, SEE SPECIAL PROVISIONS.
- FOR ELECTRICAL CONDUIT SYSTEM FOR SIGNALS, SEE SPECIAL PROVISIONS.
- THE RAILROAD MAY REQUIRE FENCING ATTACHED TO THE BACKSIDE OF THE RAIL IN THE FUTURE. WHEN THE FENCE IS REQUIRED, ATTACHMENT DETAILS WILL BE DEVELOPED AT THAT TIME.
- 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.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	FOUNDATION EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	STRUCTURAL STEEL (APPROX.)	HP12x53 STEEL PILES	4" SLOPE PROTECTION	ELASTOMERIC BEARINGS	CLASSIC CONCRETE BRIDGE RAIL	ELECTRICAL CONDUIT SYSTEM	ELECTRICAL CONDUIT SYSTEM FOR SIGNALS	
	LUMP SUM	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	LBS.	LBS.	NO.	LIN. FT.	NO. YDS.	LUMP SUM	LIN. FT.	LUMP SUM	LUMP SUM
SUPERSTRUCTURE	LUMP SUM		14222	11742		LUMP SUM			531720				LUMP SUM	520.00	LUMP SUM	LUMP SUM
END BENT #1					26.6		4897			7	405	445				
BENT #1		LUMP SUM			86.0		12917	1480		27	720					
BENT #2		LUMP SUM			87.3		14623	1645		27	540					
END BENT #2					25.0		4473			7	245	805				
TOTAL	LUMP SUM	LUMP SUM	14222	11742	224.9	LUMP SUM	36910	3125	531720	68	1910	1250	LUMP SUM	520.00	LUMP SUM	LUMP SUM

PROJECT NO. B-3421
CABARRUS COUNTY
 STATION: 17+97.08 -L-

SHEET 3 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR BRIDGE OVER
 NORFOLK SOUTHERN RAILROAD
 ON SR 1002 (CABARRUS AVENUE)
 BETWEEN CORBAN AVENUE AND
 POWDER STREET

DRAWN BY: KEITH D. LAYNE DATE: 6-29-11
 CHECKED BY: J. P. ADAMS DATE: 7-11-11

13-DEC-2011 14:46
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REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS	
1			3			S-3	
2			4			51	

LOAD FACTORS:

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

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	1.54	--	1.75	0.87	1.54	C	EL	3.62	0.98	1.72	B	I	108.06	1.30	0.87	1.95	C	EL	3.62		
	HL-93 (OPERATING)	N/A		2.00	--	1.35	0.87	2.00	C	EL	3.62	0.98	2.23	B	I	108.06	1.00	0.87	2.54	C	EL	3.62		
	HS-20 (INVENTORY)	36.00	②	2.32	83.52	1.75	0.87	2.32	C	EL	14.49	0.98	2.42	B	I	5.69	1.30	0.86	3.36	B	EL	56.87		
	HS-20 (OPERATING)	36.00		3.01	108.36	1.35	0.87	3.01	C	EL	14.49	0.98	3.14	B	I	5.69	1.00	0.86	4.37	B	EL	56.87		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13,500		7.47	100.85	1.40	0.87	7.47	C	EL	14.49	0.98	7.63	B	I	5.69	1.30	0.86	7.70	B	EL	56.87	
		SNGARBS2	20,000		5.17	103.40	1.40	0.87	5.17	C	EL	14.49	0.98	5.27	B	I	108.06	1.30	0.86	5.71	B	EL	56.87	
		SNAGRIS2	22,000		4.74	104.28	1.40	0.87	4.74	C	EL	14.49	0.98	4.83	B	I	108.06	1.30	0.86	5.37	B	EL	56.87	
		SNCOTTS3	27,250		3.65	99.46	1.40	0.87	3.65	C	EL	14.49	0.98	3.79	B	I	108.06	1.30	0.86	3.84	B	EL	56.87	
		SNAGGRS4	34,925		2.86	99.89	1.40	0.87	2.86	C	EL	14.49	0.98	3.04	B	I	5.69	1.30	0.86	3.20	B	EL	56.87	
		SNS5A	35,550		2.81	99.90	1.40	0.87	2.81	C	EL	14.49	0.98	3.02	B	I	108.06	1.30	0.86	3.13	B	EL	56.87	
		SNS6A	39,950		2.52	100.67	1.40	0.87	2.52	C	EL	14.49	0.98	2.73	B	I	108.06	1.30	0.86	2.86	B	EL	56.87	
		SNS7B	42,000		2.39	100.38	1.40	0.87	2.39	C	EL	14.49	0.98	2.63	B	I	108.06	1.30	0.86	2.73	B	EL	56.87	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33,000		3.06	100.98	1.40	0.87	3.06	C	EL	14.49	0.98	3.28	B	I	5.69	1.30	0.86	3.51	B	EL	56.87	
		TNT4A	33,075		3.06	101.21	1.40	0.87	3.06	C	EL	14.49	0.98	3.24	B	I	5.69	1.30	0.86	3.50	B	EL	56.87	
		TNT6A	41,600		2.45	101.92	1.40	0.87	2.45	C	EL	14.49	0.98	2.73	B	I	108.06	1.30	0.86	2.85	B	EL	56.87	
		TNT7A	42,000		2.43	102.06	1.40	0.87	2.43	C	EL	14.49	0.98	2.70	B	I	108.06	1.30	0.86	2.87	B	EL	56.87	
		TNT7B	42,000		2.44	102.48	1.40	0.87	2.44	C	EL	14.49	0.98	2.62	B	I	5.69	1.30	0.86	2.94	B	EL	56.87	
		TNAGRIT4	43,000		2.36	101.48	1.40	0.87	2.36	C	EL	14.49	0.98	2.54	B	I	108.06	1.30	0.86	2.82	B	EL	56.87	
	TNAGT5A	45,000		2.27	102.15	1.40	0.87	2.27	C	EL	14.49	0.98	2.47	B	I	108.06	1.30	0.86	2.67	B	EL	56.87		
	TNAGT5B	45,000	③	2.25	101.25	1.40	0.87	2.25	C	EL	14.49	0.98	2.42	B	I	5.69	1.30	0.86	2.63	B	EL	56.87		
FATIGUE	HL-93 (INVENTORY)	$\gamma_{LL}=0.75$																						

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.

① CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93) **

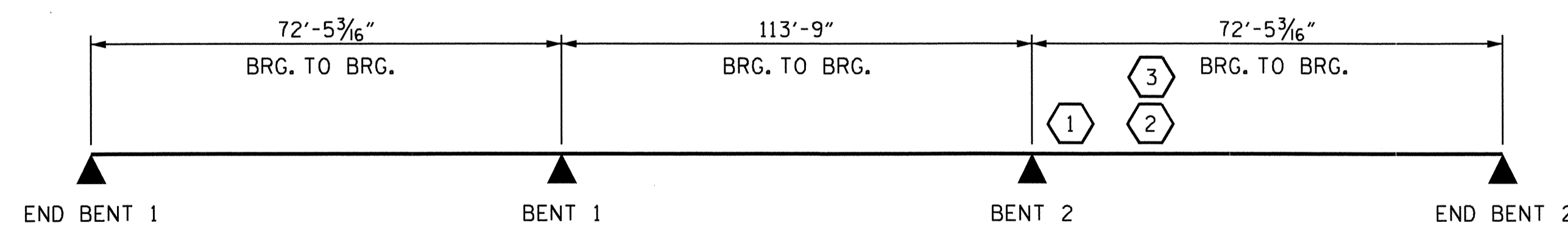
② DESIGN LOAD RATING (HS-20) **

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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

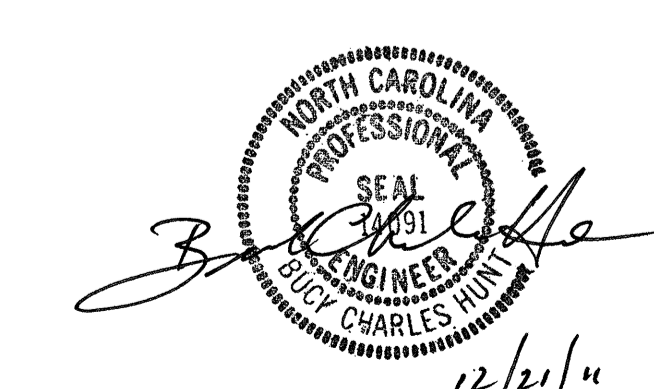


LRFR SUMMARY

PROJECT NO. B-3421
CABARRUS COUNTY
STATION: 17+97.08 -L-

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-3A TOTAL SHEETS 51
1			3			
2			4			

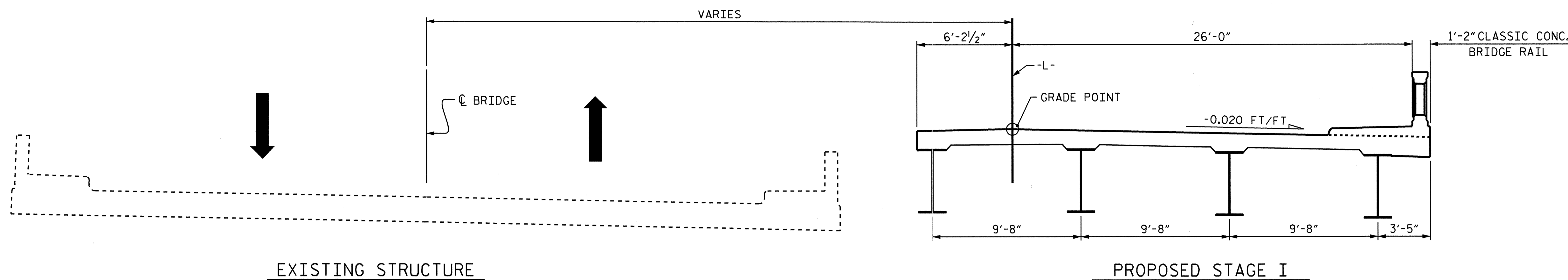


ASSEMBLED BY : H.A. LOCKLEAR DATE : 12-11
CHECKED BY : H.T. DIEU DATE : 12-11
DRAWN BY : MAA 1/08 REV. 11/12/08RR MAA/GM
CHECKED BY : GM/DI 2/08

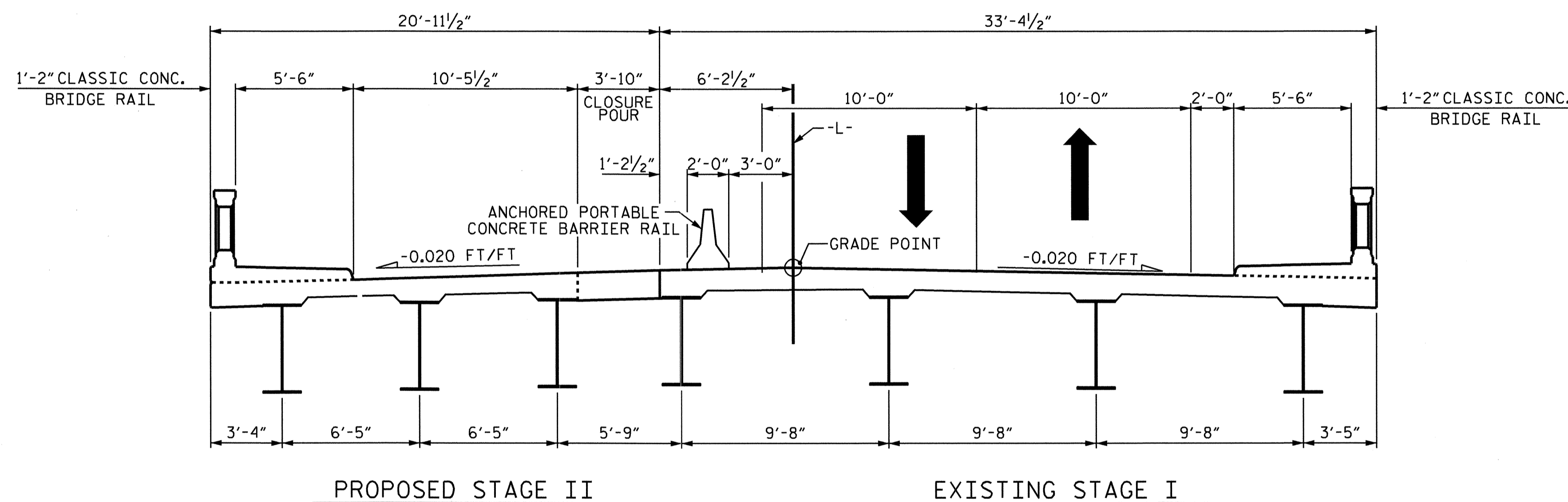
NOTES

FOR PHASING AND MAINTENANCE OF TRAFFIC, SEE TRAFFIC MANAGEMENT PLAN.

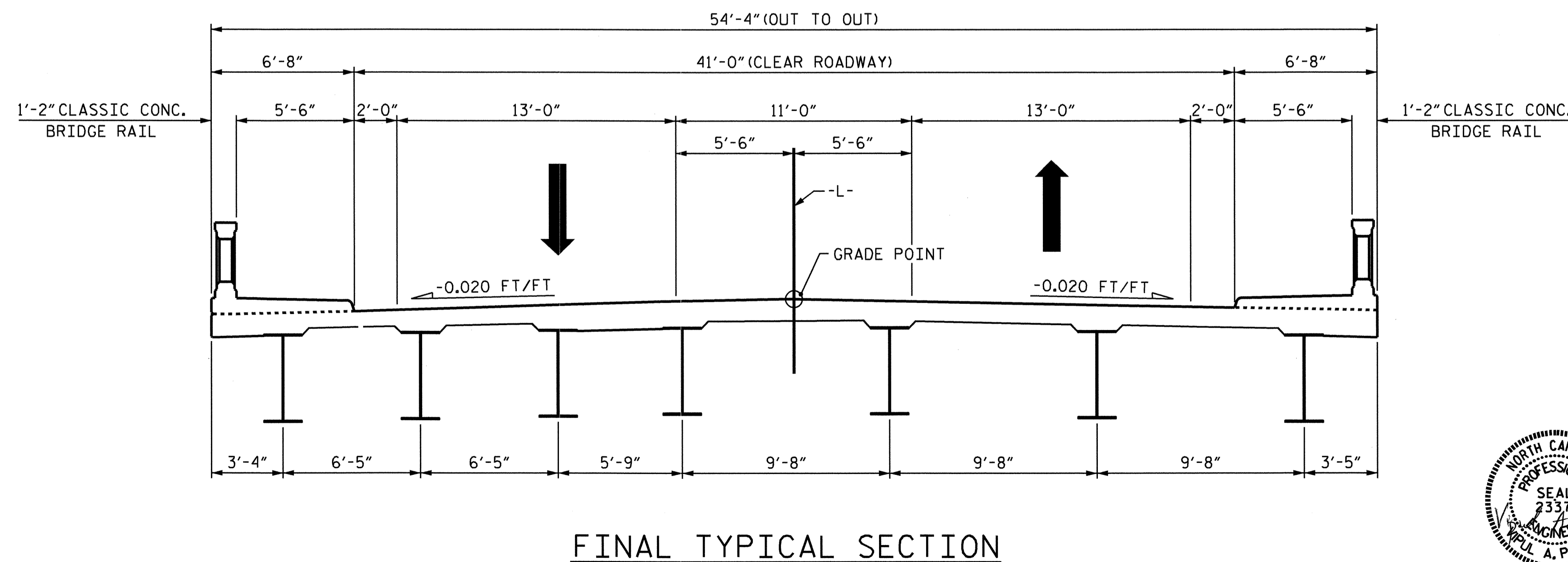
SEE TRAFFIC MANAGEMENT PLAN FOR LOCATION AND PAY LIMITS OF THE ANCHORED PORTABLE CONCRETE BARRIER RAIL.



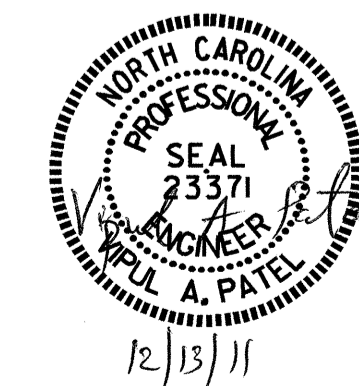
STAGE I



STAGE II



FINAL TYPICAL SECTION



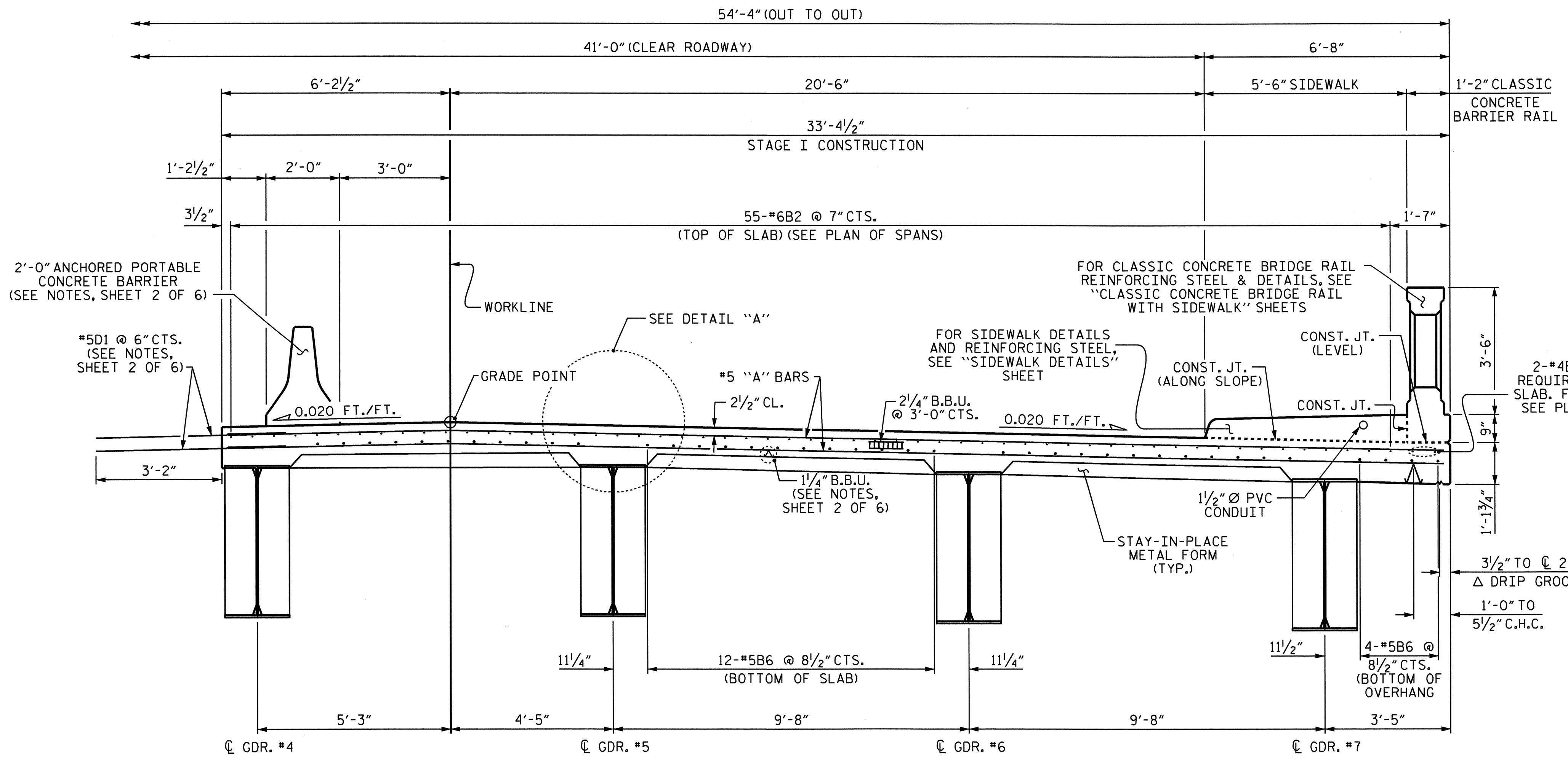
PROJECT NO. B-3421
CABARRUS COUNTY
 STATION: 17+97.08 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

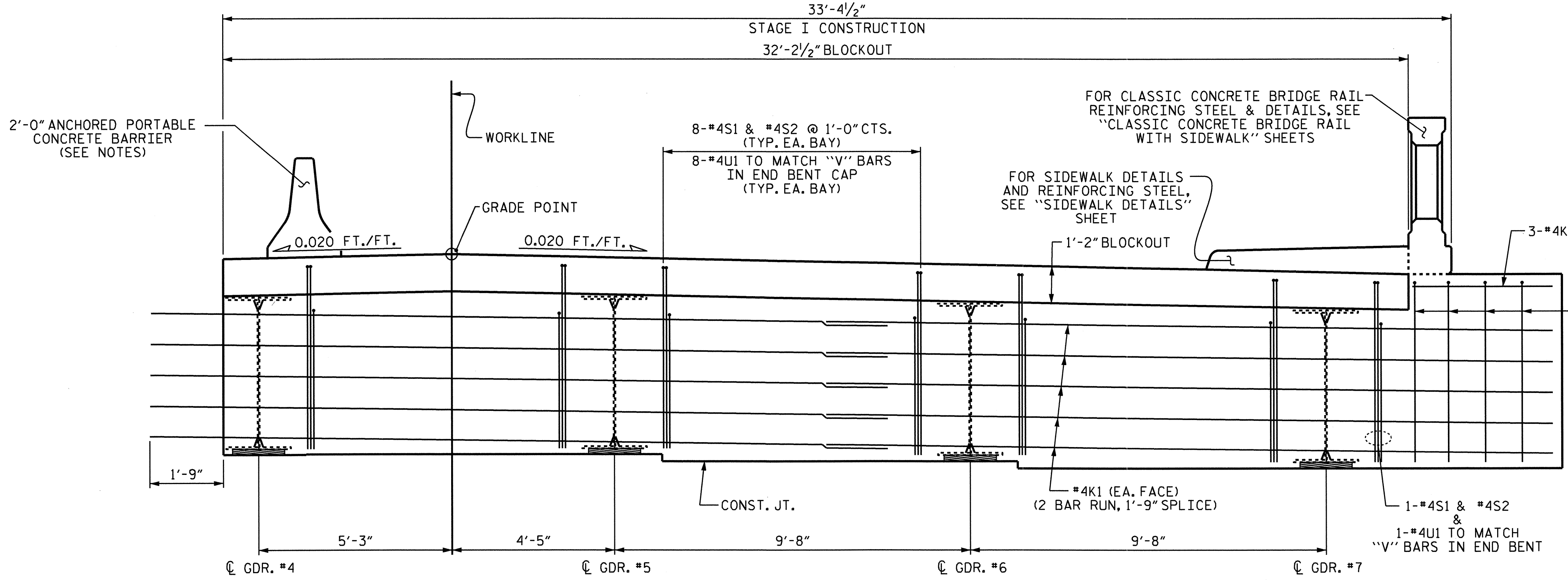
CONSTRUCTION SEQUENCE

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

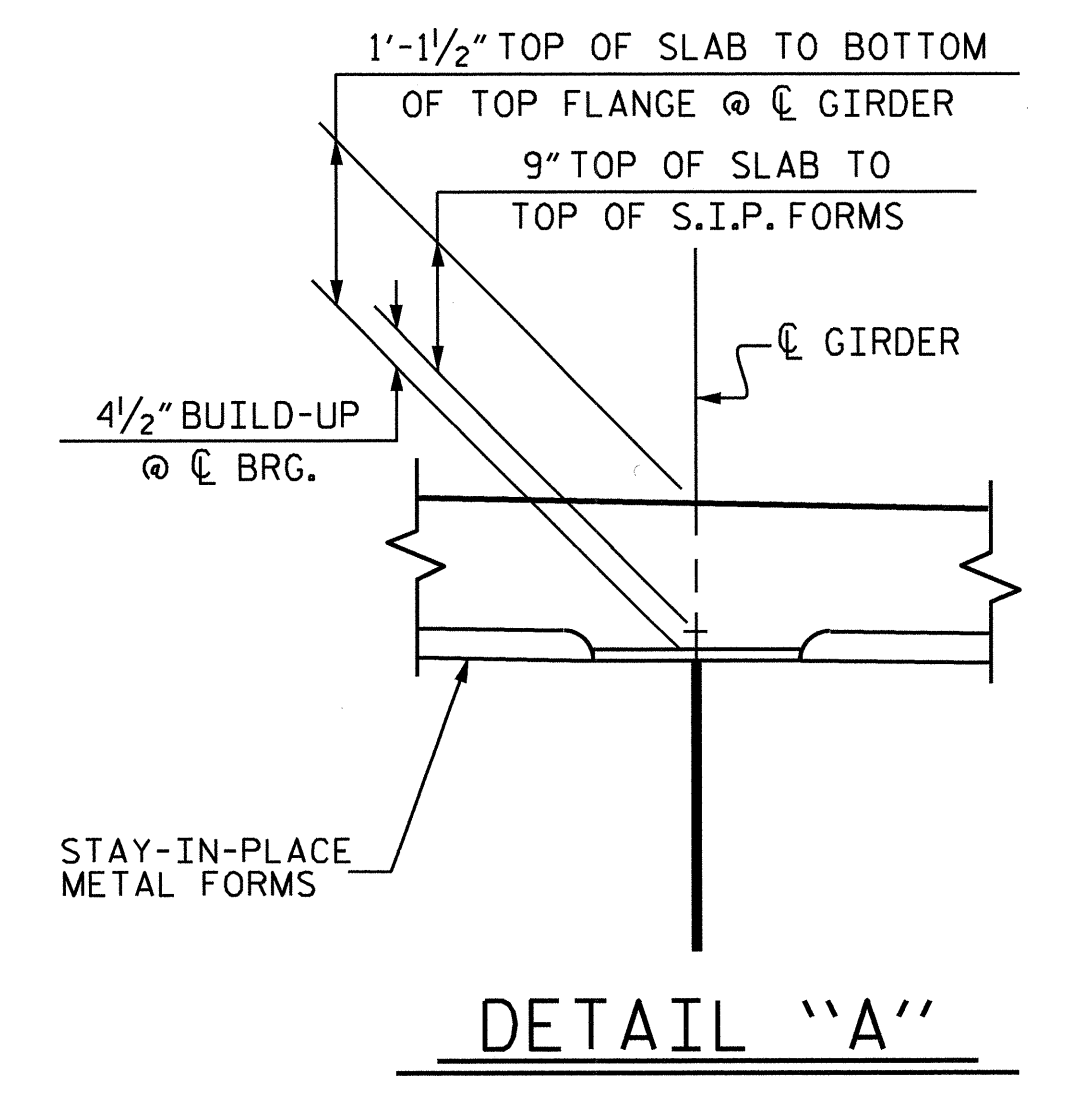
DRAWN BY : J.P. ADAMS DATE : 4/6/11
 CHECKED BY : K.D. LAYNE DATE : 6/11



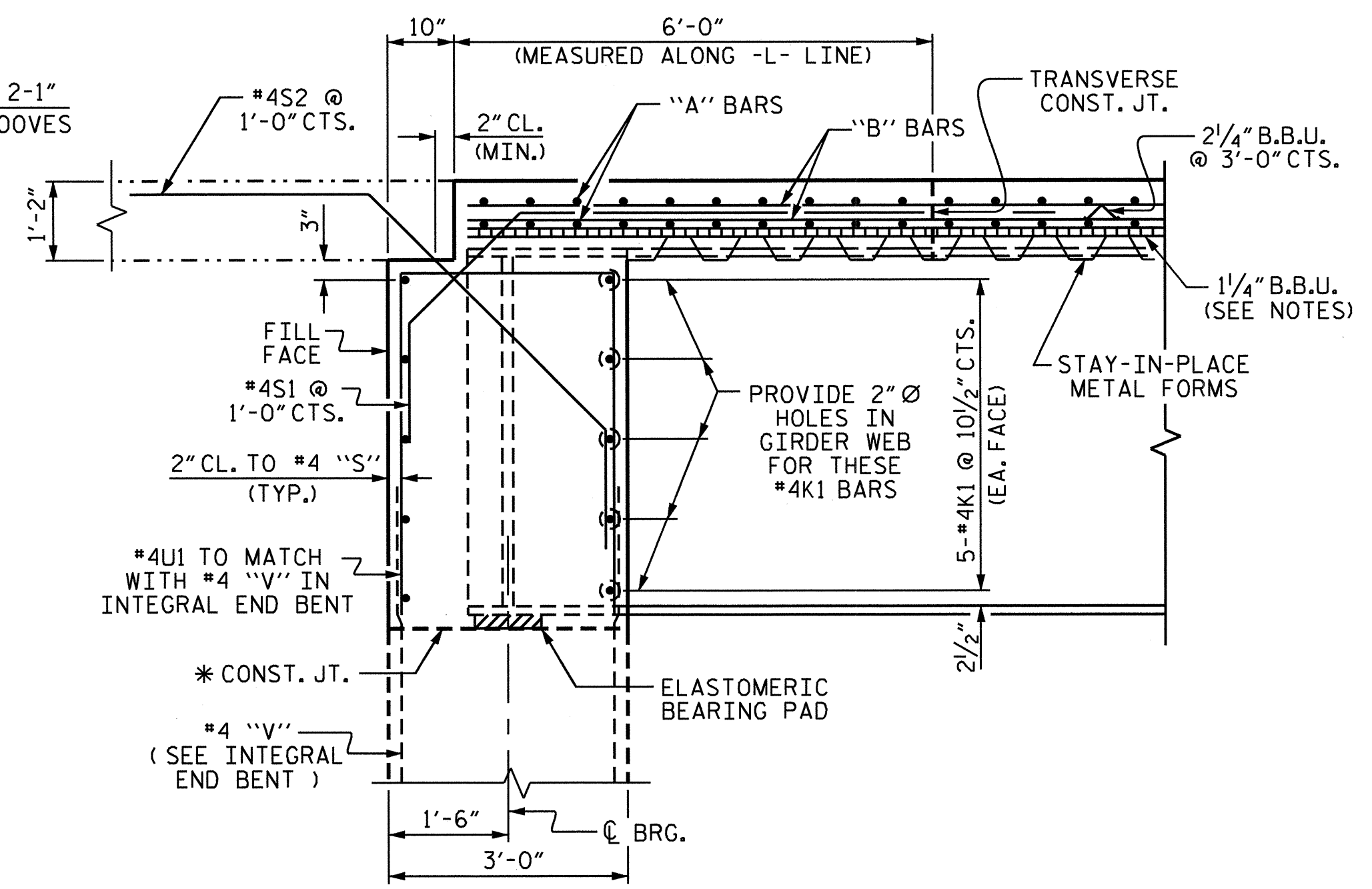
TYPICAL SECTION @ INTEGRAL END BENT - STAGE I
 (SHOWING DECK REINFORCEMENT, REINFORCEMENT IN ABUTMENT NOT SHOWN FOR CLARITY)



TYPICAL SECTION @ INTEGRAL END BENT - STAGE I
 (DECK REINFORCEMENT NOT SHOWN FOR CLARITY)



DETAIL "A"

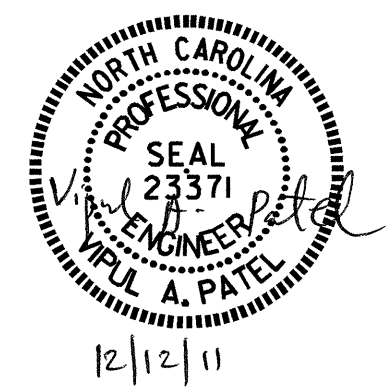


SECTION THRU INTEGRAL END BENT

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

PROJECT NO. B-3421
CABARRUS COUNTY
 STATION: 17+97.08 -L-
 SHEET 1 OF 6

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE					
TYPICAL SECTION STAGE I					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-5
					TOTAL SHEETS 51



12/12/11

DRAWN BY: J.P. ADAMS DATE: 2/8/11
 CHECKED BY: K.D. LAYNE DATE: 6/11

12-DEC-2011 09h12
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 jpadams

NOTES

PROVIDE 1 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.

DOWELS SHALL BE PLACED IN THE SAME HORIZONTAL PLANE AS THE TOP AND BOTTOM SLAB REINFORCING STEEL.

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.

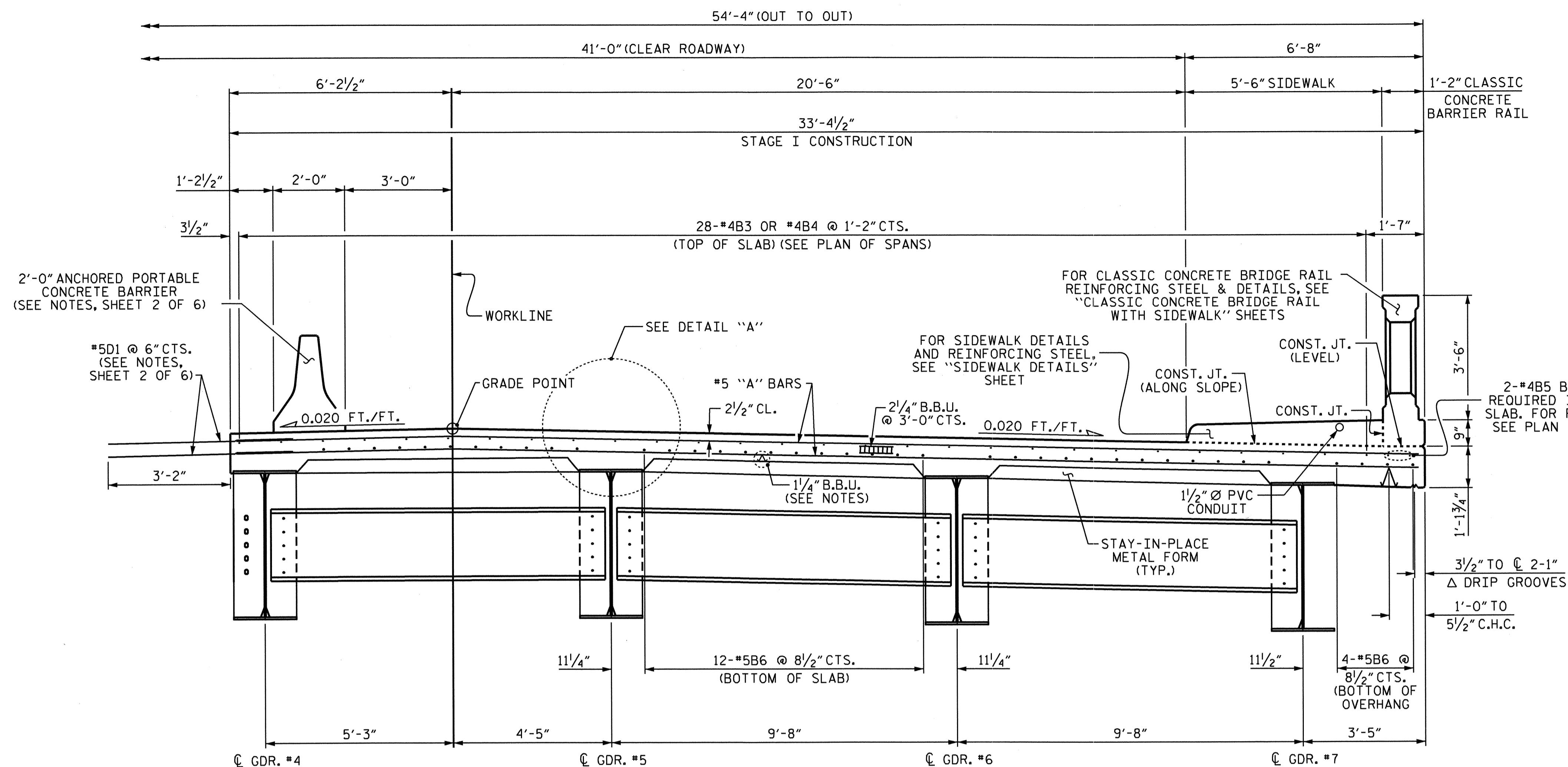
FOR EACH STAGE, PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.

FOR EACH STAGE, CLASSIC CONCRETE BARRIER RAIL AND SIDEWALK IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

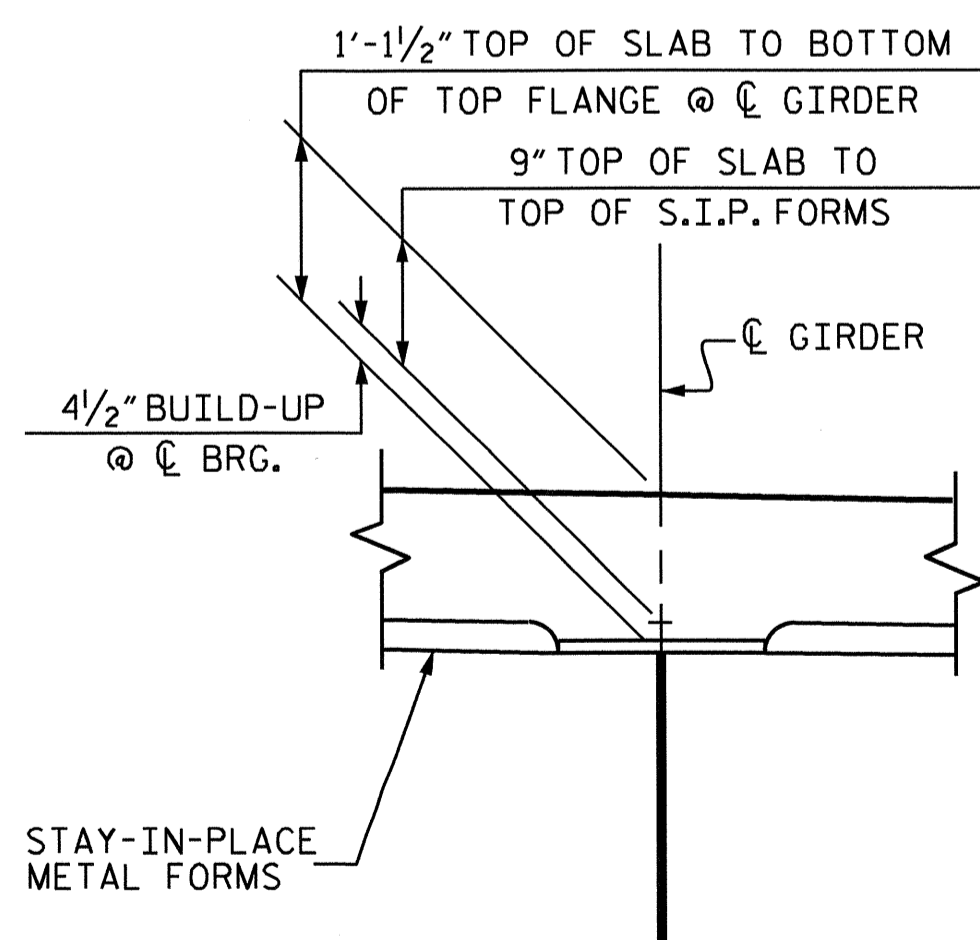
STRUCTURAL STEEL ERECTION IN A CONTINUOUS UNIT SHALL BE COMPLETE BEFORE FALSEWORK OR FORMS ARE PLACED ON THE UNIT.

SEE TRAFFIC CONTROL PLANS FOR LOCATION AND PAY LIMITS OF THE ANCHORED PORTABLE CONCRETE BARRIER.

THE CONTRACTOR MAY, WHEN NECESSARY, PROPOSE A SCHEME FOR AVOIDING INTERFERENCE BETWEEN METAL STAY-IN-PLACE FORM SUPPORTS OR FORMS AND 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.



TYPICAL SECTION @ INTERMEDIATE DIAPHRAGM - STAGE I



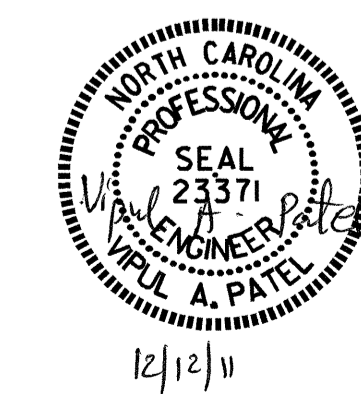
DETAIL "A"

PROJECT NO. B-3421
CABARRUS COUNTY
 STATION: 17+97.08 -L-

SHEET 2 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

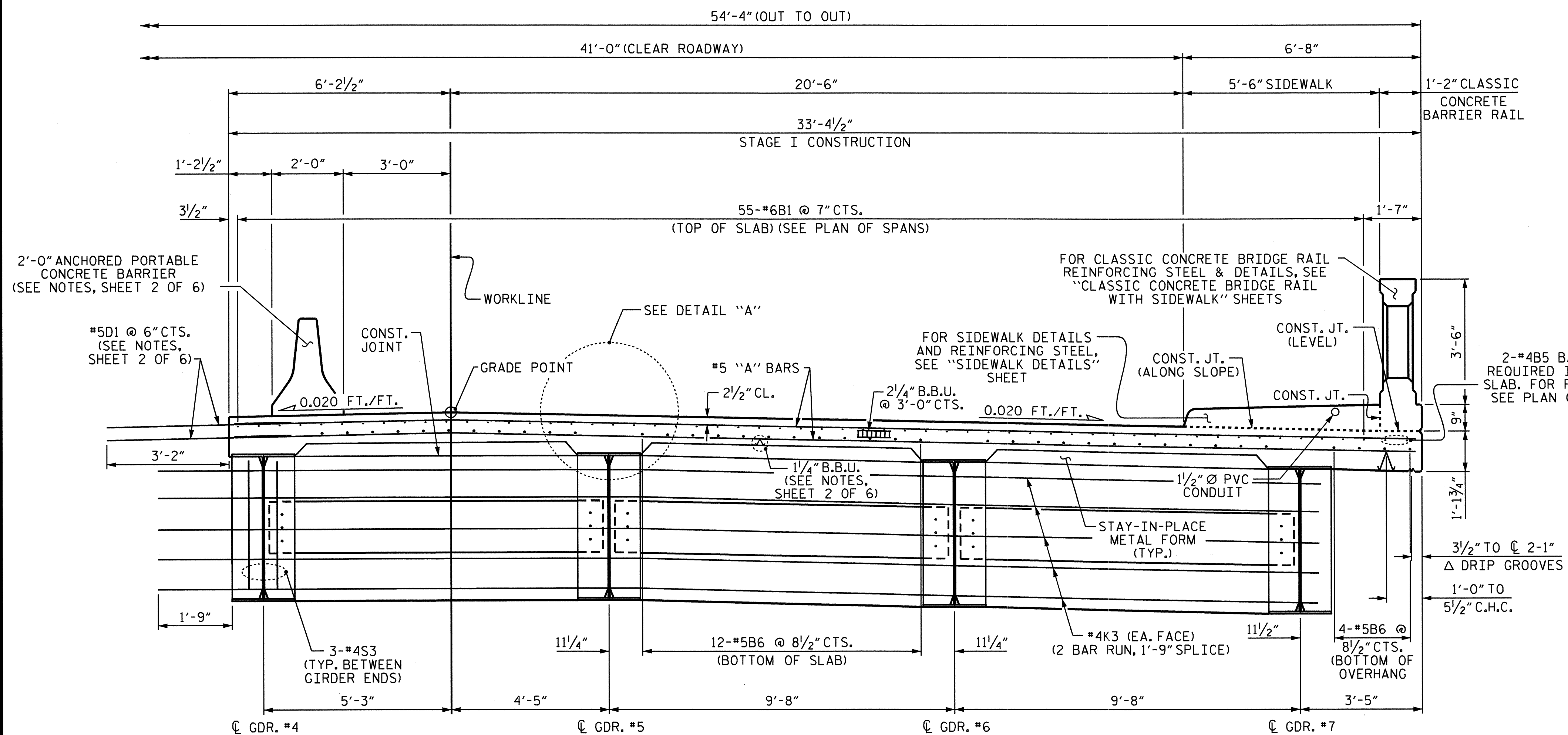
SUPERSTRUCTURE
 TYPICAL SECTION
 STAGE I



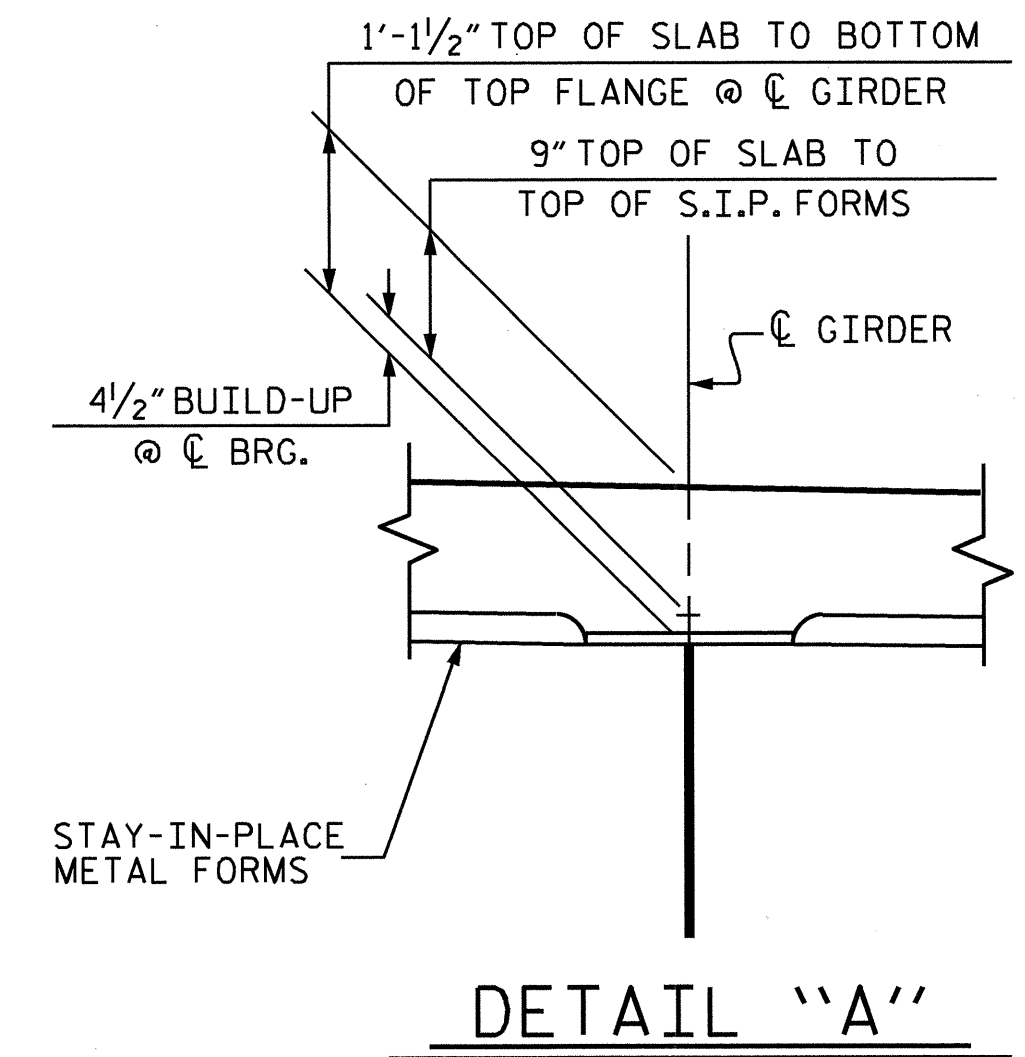
DRAWN BY: J.P. ADAMS DATE: 2/8/11
 CHECKED BY: K.D. LAYNE DATE: 6/11

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 jpodams

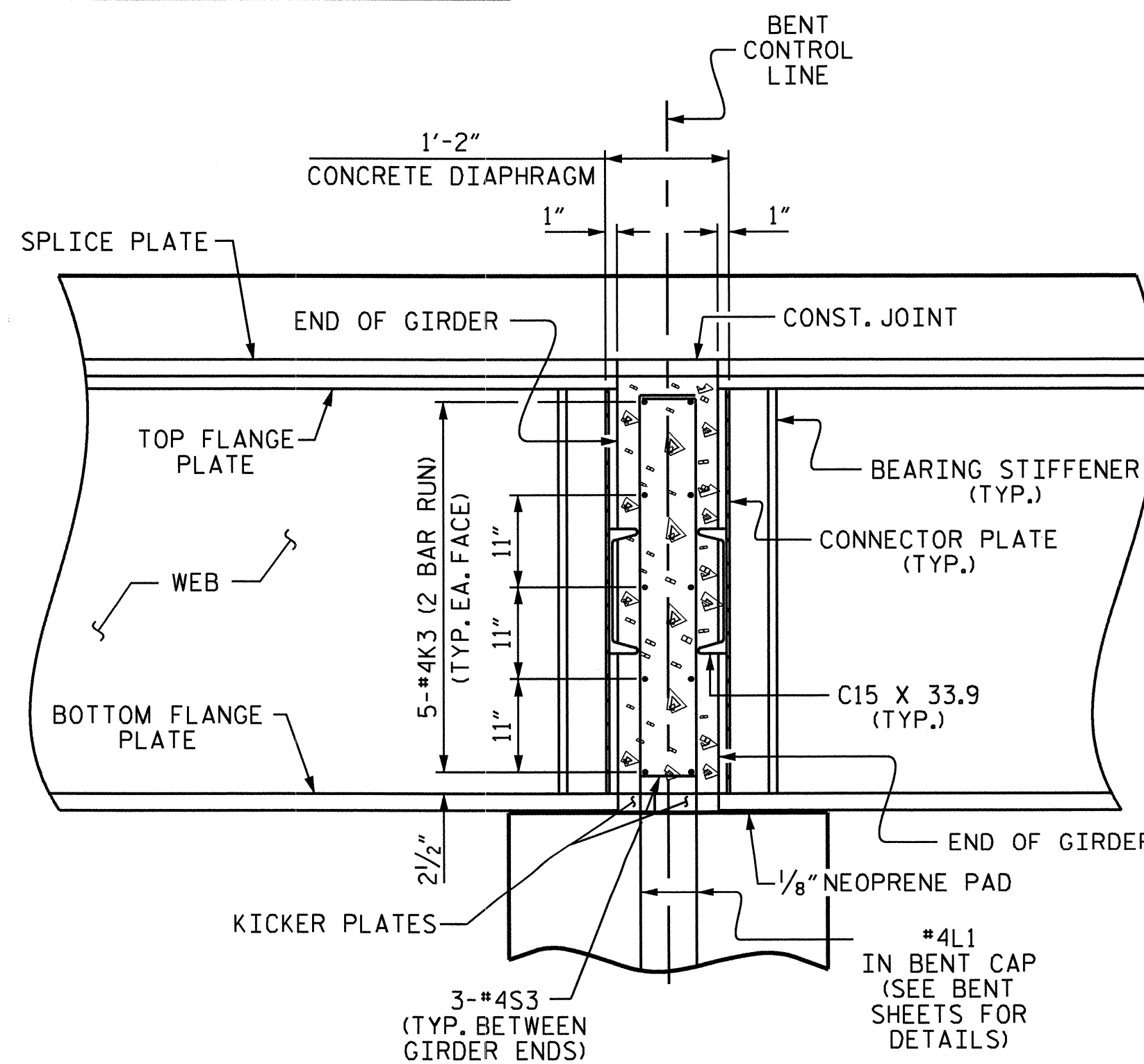
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			51
2			4			



TYPICAL SECTION @ BENT - STAGE I



DETAIL "A"



SECTION THRU BENT DIAPHRAGM

FOR ADDITIONAL DETAILS, SEE STRUCTURAL STEEL SHEETS

NOTE: CONCRETE DIAPHRAGMS SHALL BE POURED AFTER THE WEDGE KICKER PLATES ARE WELDED IN PLACE AND PRIOR TO ANY DECK CONCRETE BEING PLACED.

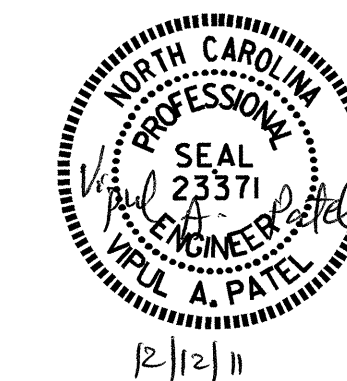
PROJECT NO. B-3421
CABARRUS COUNTY
 STATION: 17+97.08 -L-

SHEET 3 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

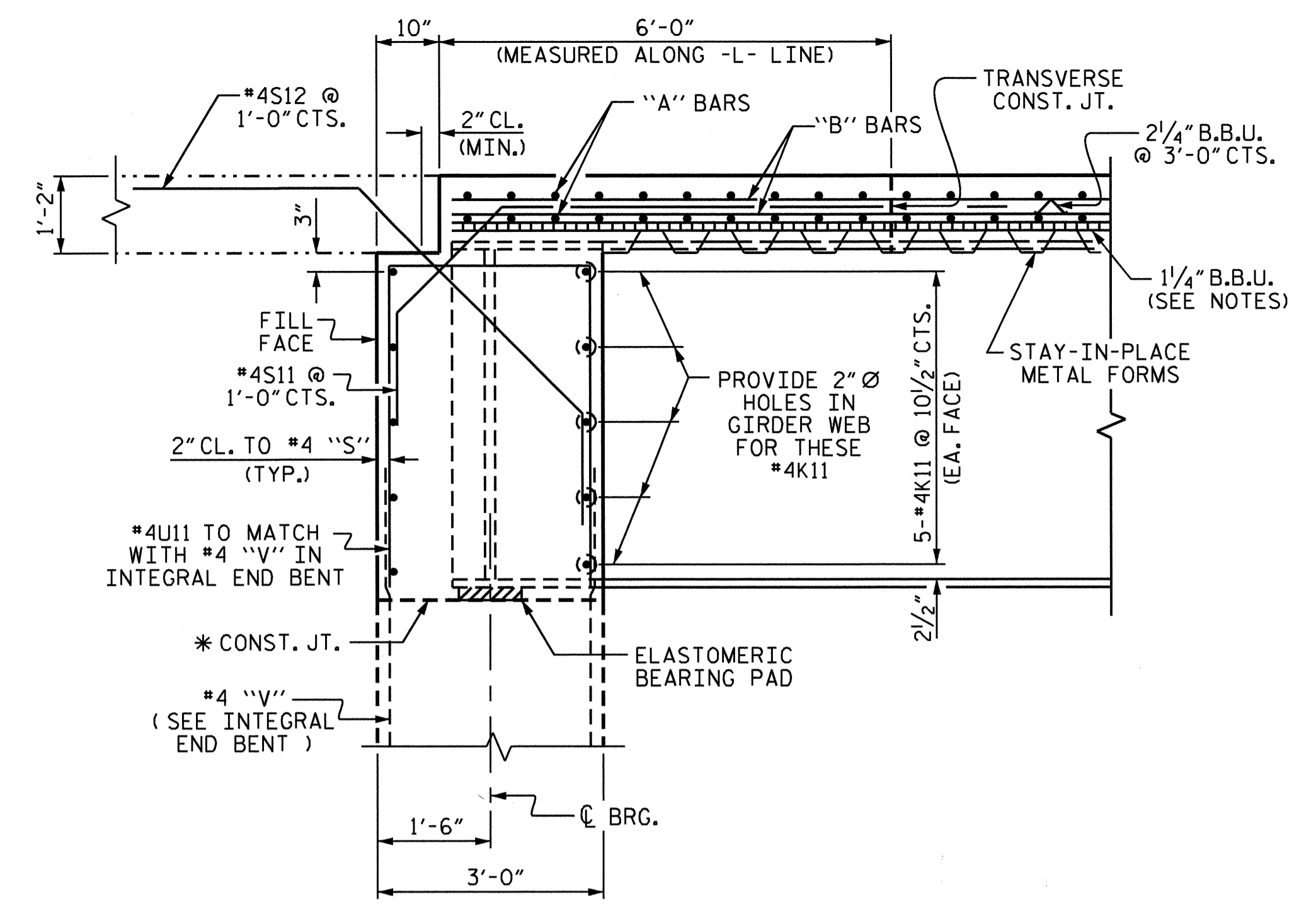
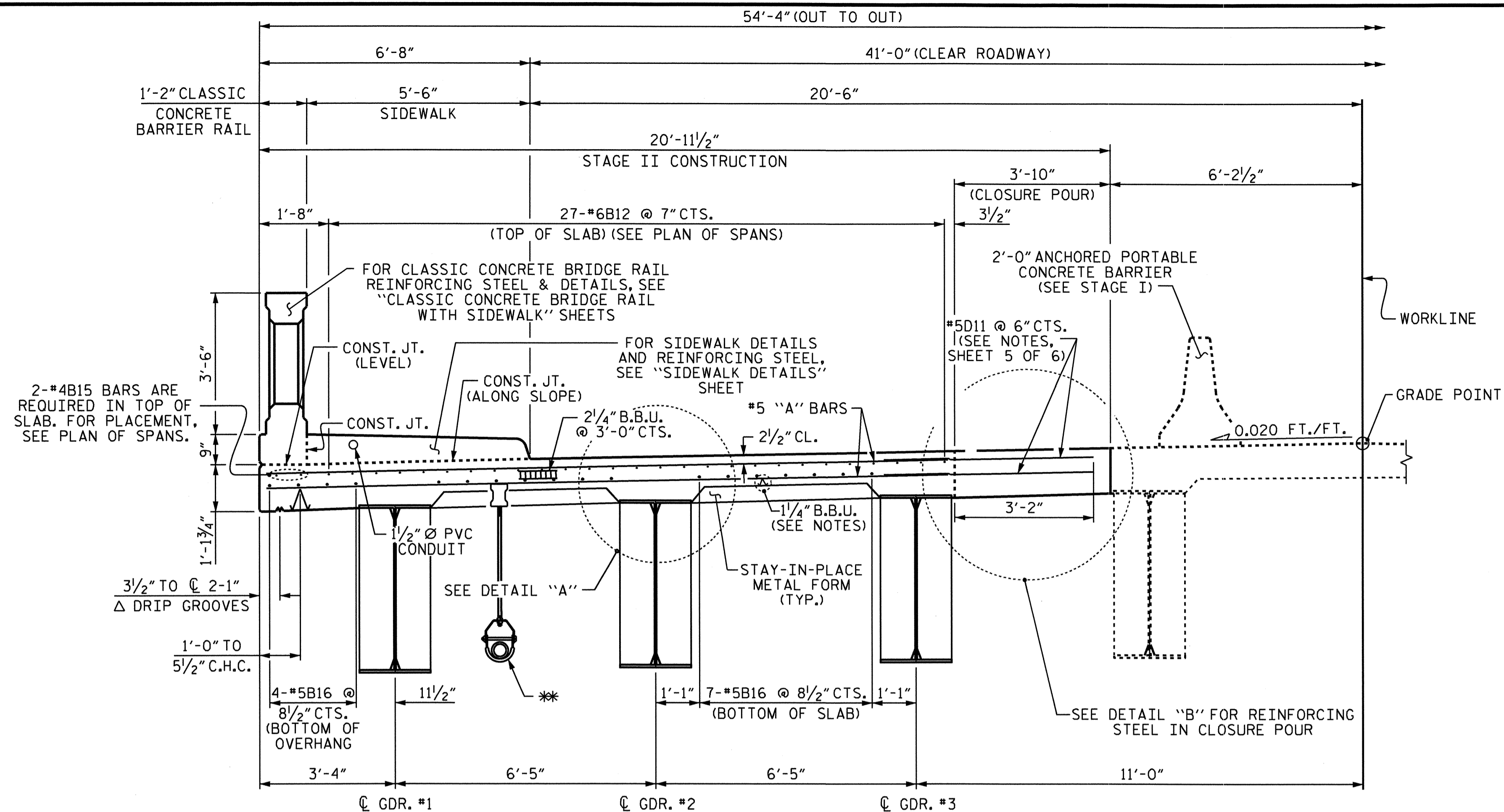
SUPERSTRUCTURE
 TYPICAL SECTION
 STAGE I

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7	
1			3			TOTAL SHEETS	
2			4			51	



DRAWN BY: J.P. ADAMS DATE: 2/8/11
 CHECKED BY: K.D. LAYNE DATE: 6/11

12-DEC-2011 09:12
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 jpadams

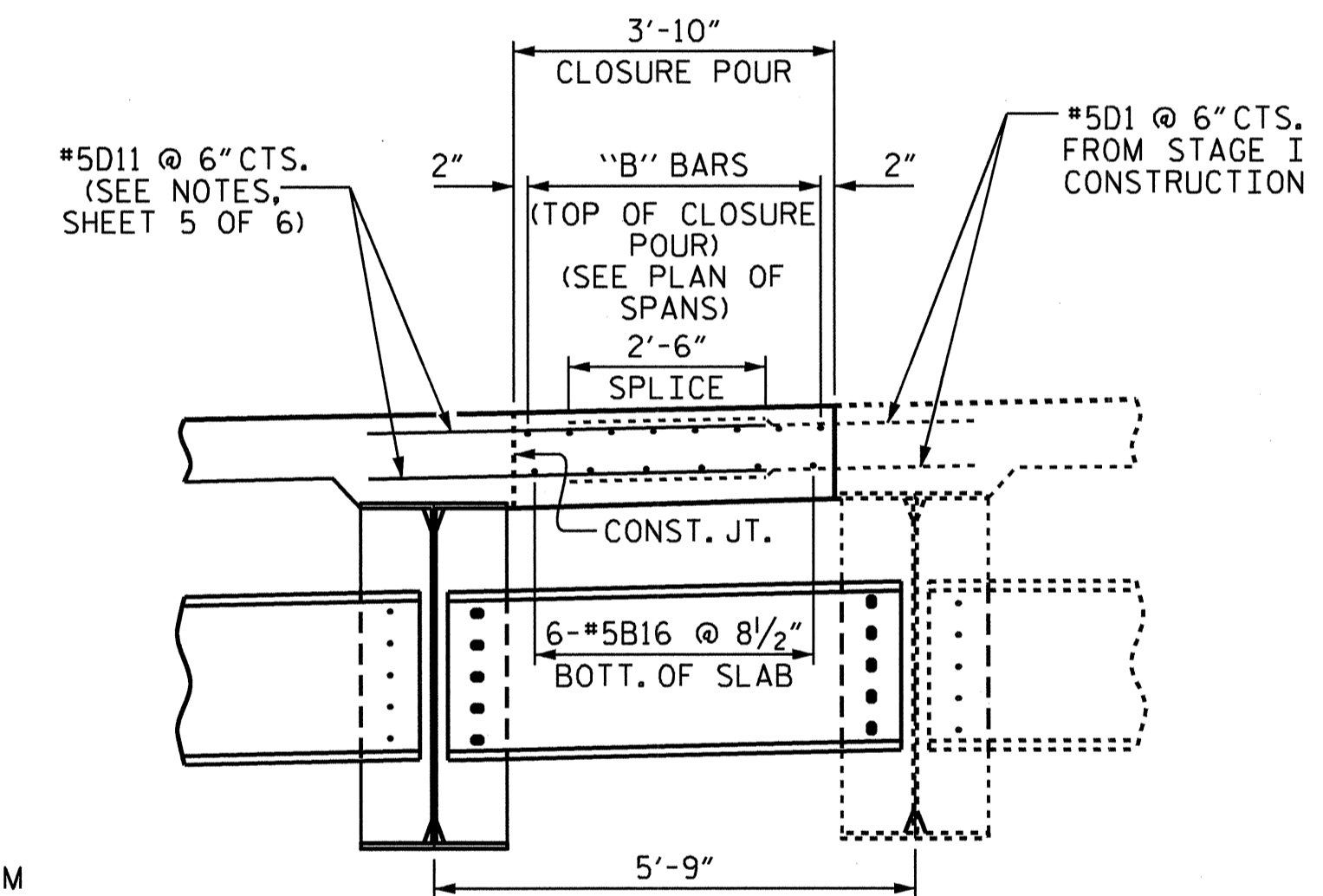


SECTION THRU INTEGRAL END BENT

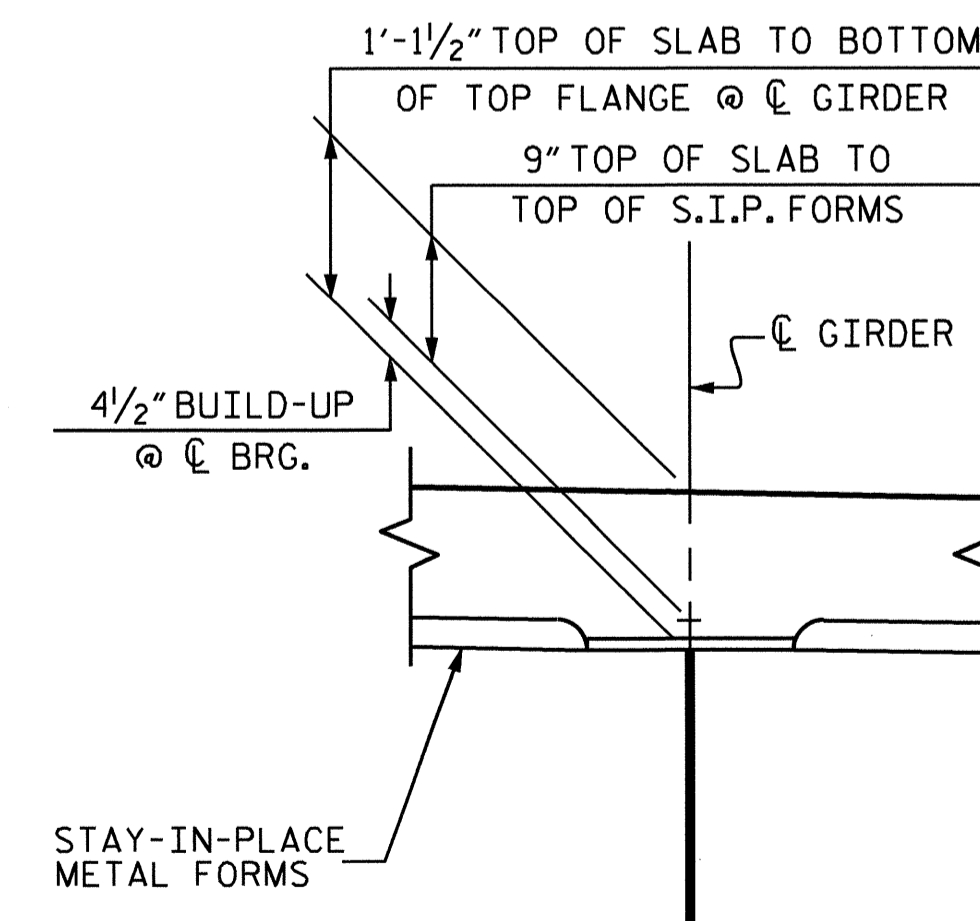
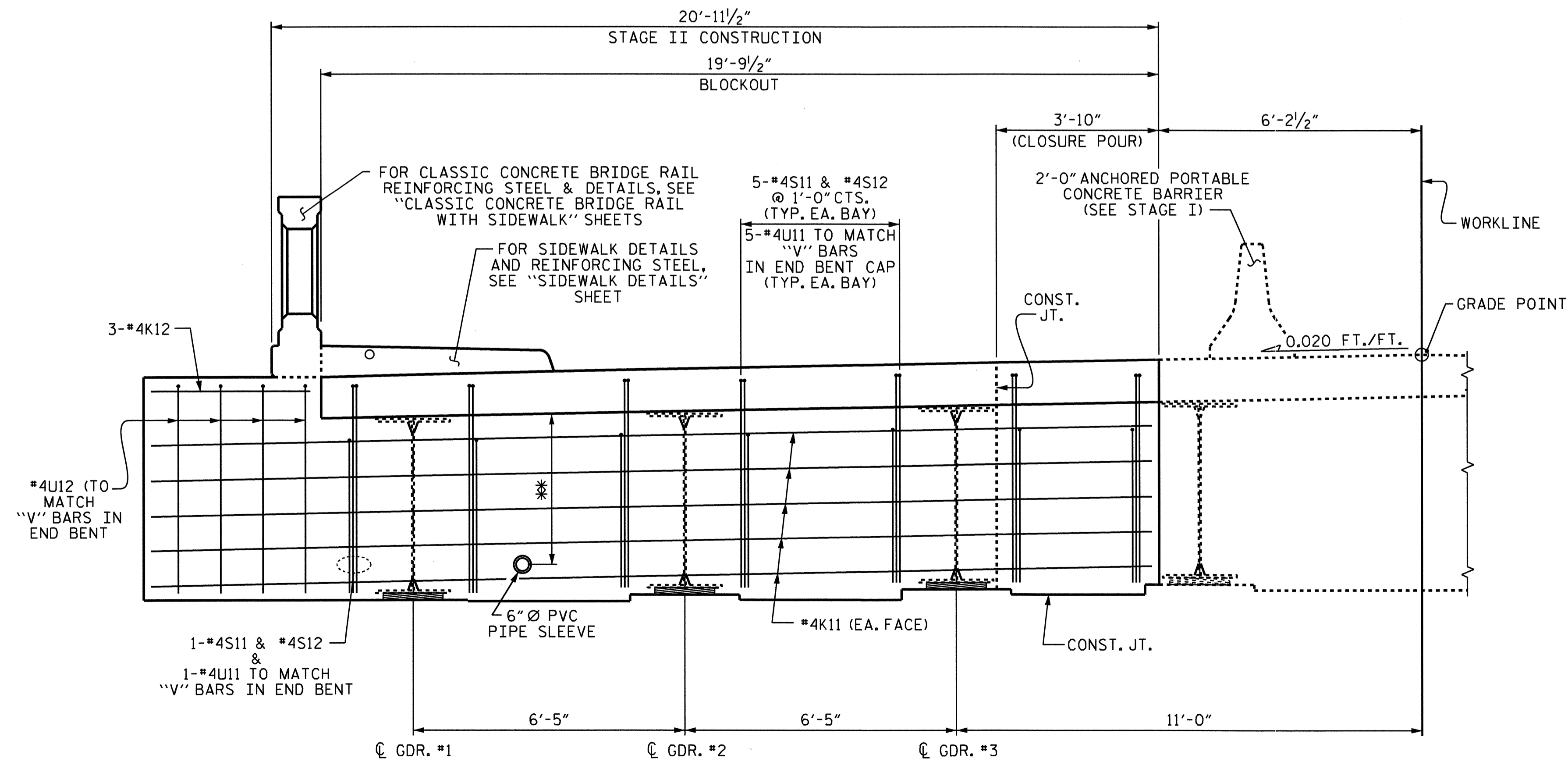
* THE TOP SURFACE OF THE END BENT CAP AND WINGS, EXCLUDING THE BEARING AREA, SHALL BE RAKED TO A DEPTH OF 1/4".

** FOR ELECTRICAL CONDUIT SYSTEM FOR SIGNALS, SEE ELECTRICAL CONDUIT SYSTEM FOR SIGNALS SHEET.

TYPICAL SECTION @ INTEGRAL END BENT - STAGE II
(SHOWING DECK REINFORCEMENT, REINFORCEMENT IN ABUTMENT NOT SHOWN FOR CLARITY)



DETAIL "B"
AT END BENTS

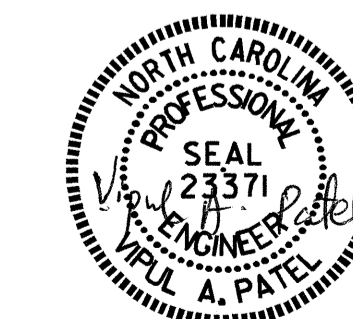


DETAIL "A"

TYPICAL SECTION @ INTEGRAL END BENT - STAGE II
(DECK REINFORCEMENT NOT SHOWN FOR CLARITY)

PROJECT NO. B-3421
CABARRUS COUNTY
STATION: 17+97.08 -L-

SHEET 4 OF 6



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE TYPICAL SECTION STAGE II					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-8
					TOTAL SHEETS 51

DRAWN BY: J.P. ADAMS DATE: 2/8/11
CHECKED BY: K.D. LAYNE DATE: 6/11

NOTES

PROVIDE 1 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.

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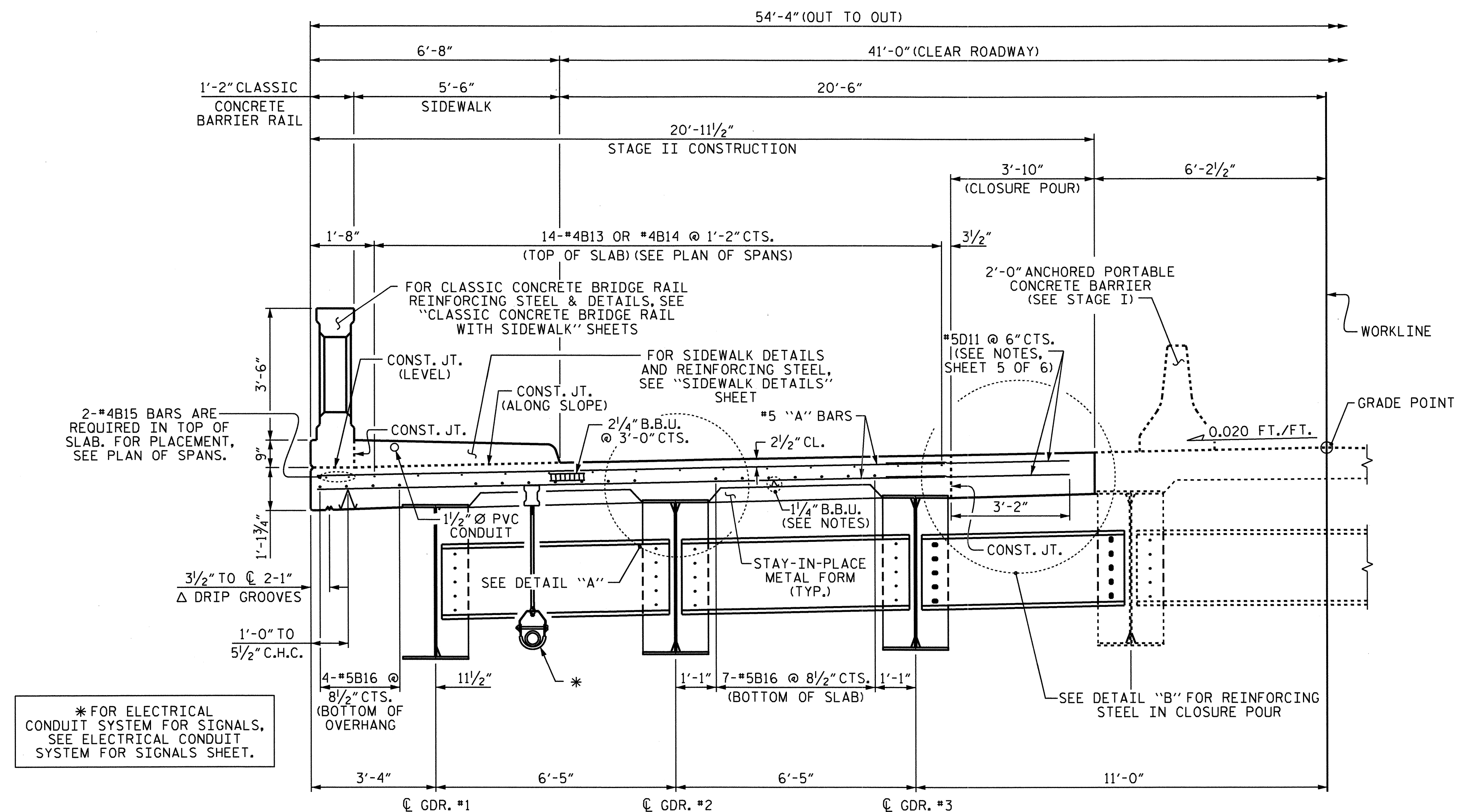
FOR EACH STAGE, PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.

FOR EACH STAGE, CLASSIC CONCRETE BARRIER RAIL AND SIDEWALK IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

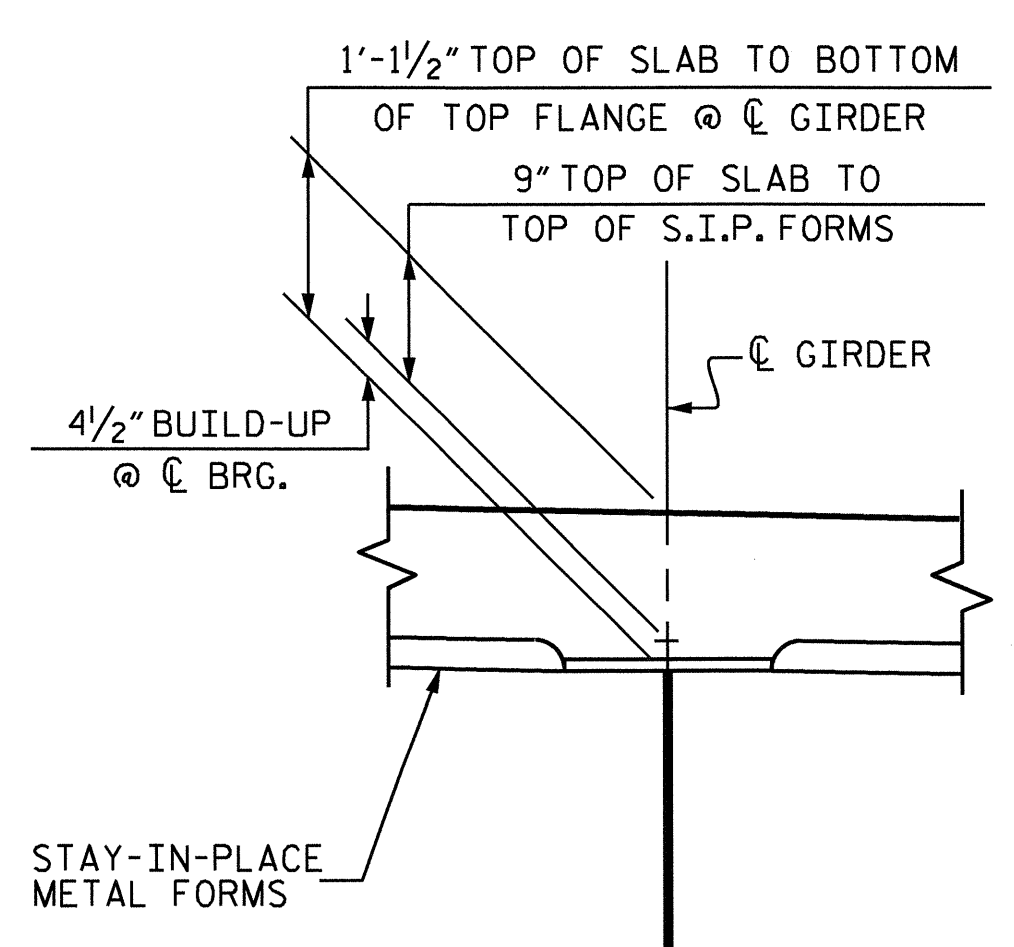
STRUCTURAL STEEL ERECTION IN A CONTINUOUS UNIT SHALL BE COMPLETE BEFORE FALSEWORK OR FORMS ARE PLACED ON THE UNIT.

SEE TRAFFIC CONTROL PLANS FOR LOCATION AND PAY LIMITS OF THE ANCHORED PORTABLE CONCRETE BARRIER.

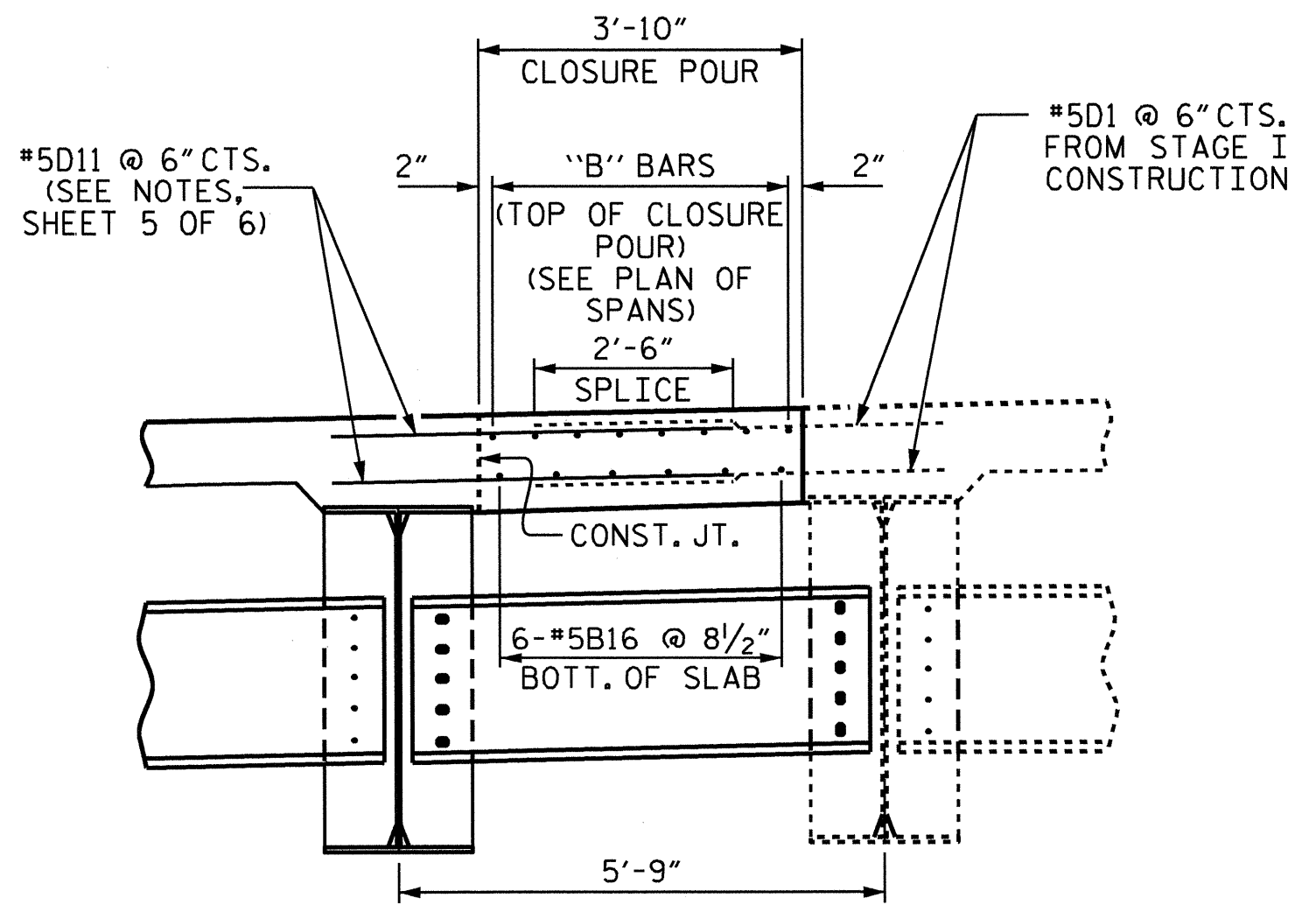
THE CONTRACTOR MAY, WHEN NECESSARY, PROPOSE A SCHEME FOR AVOIDING INTERFERENCE BETWEEN METAL STAY-IN-PLACE FORM SUPPORTS OR FORMS AND GIRDER STIFFENERS OR CONNECTOR PLATES. THE PROPOSAL SHALL BE INDICATED, AS APPROPRIATE, ON EITHER THE STEEL WORKING DRAWINGS OR THE METAL STAY-IN-PLACE FORM WORKING DRAWINGS.



TYPICAL SECTION @ INTERMEDIATE DIAPHRAGM - STAGE II



DETAIL "A"



DETAIL "B"

* FOR ELECTRICAL CONDUIT SYSTEM FOR SIGNALS. SEE ELECTRICAL CONDUIT SYSTEM FOR SIGNALS SHEET.

DRAWN BY: J.P. ADAMS DATE: 2/8/11
 CHECKED BY: K.D. LAYNE DATE: 6/11

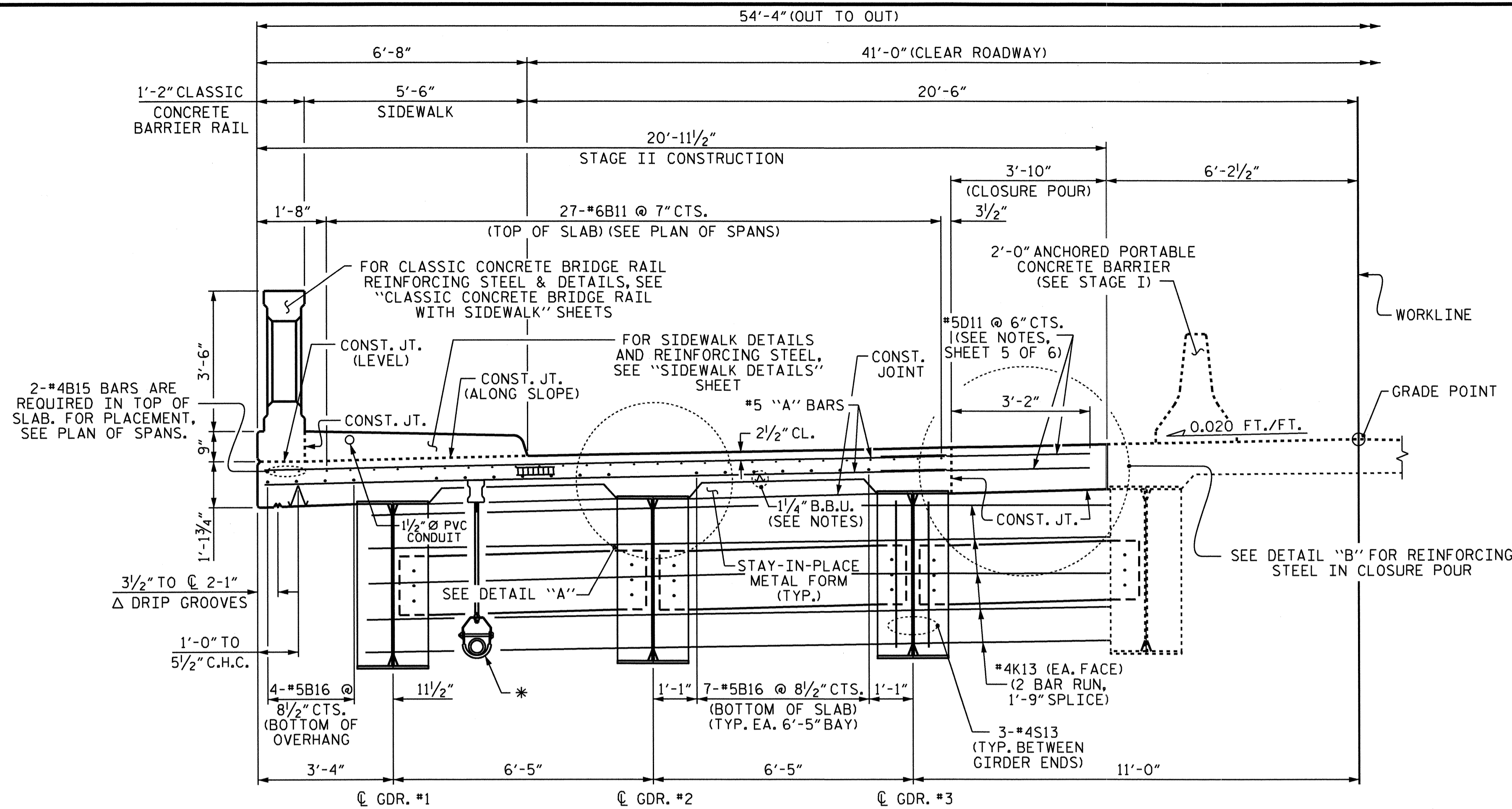
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 jpadams



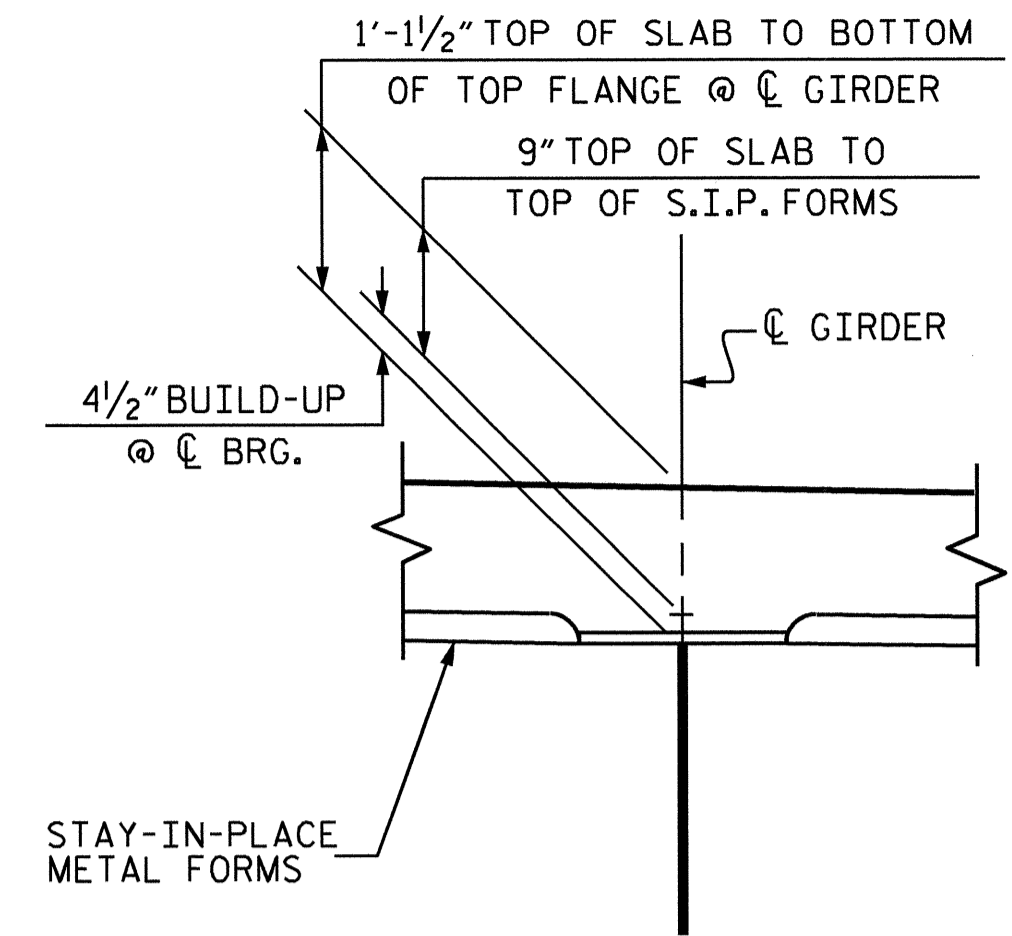
PROJECT NO. B-3421
 CABARRUS COUNTY
 STATION: 17+97.08 -L-

SHEET 5 OF 6

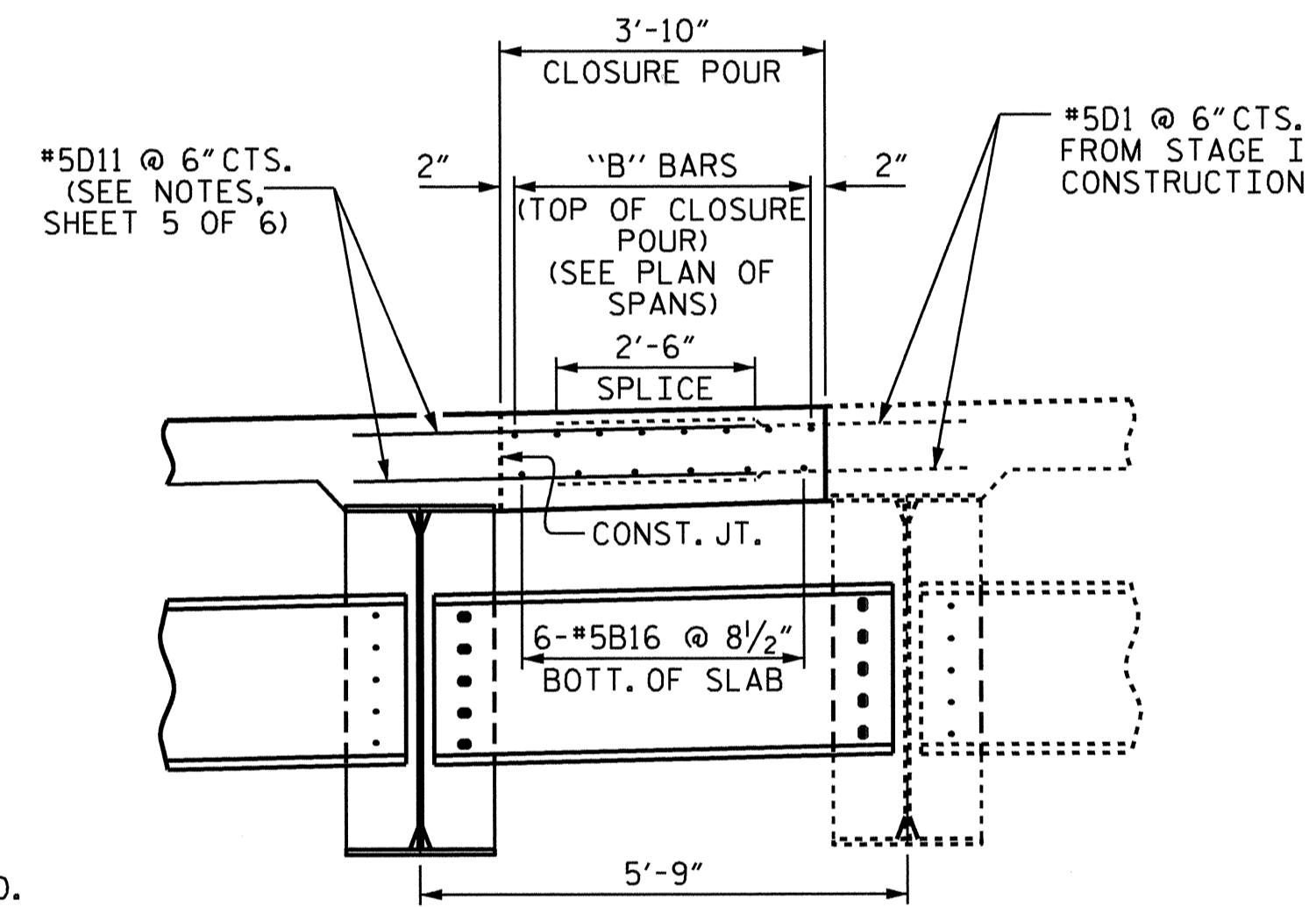
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE TYPICAL SECTION STAGE II					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-9
TOTAL SHEETS					51



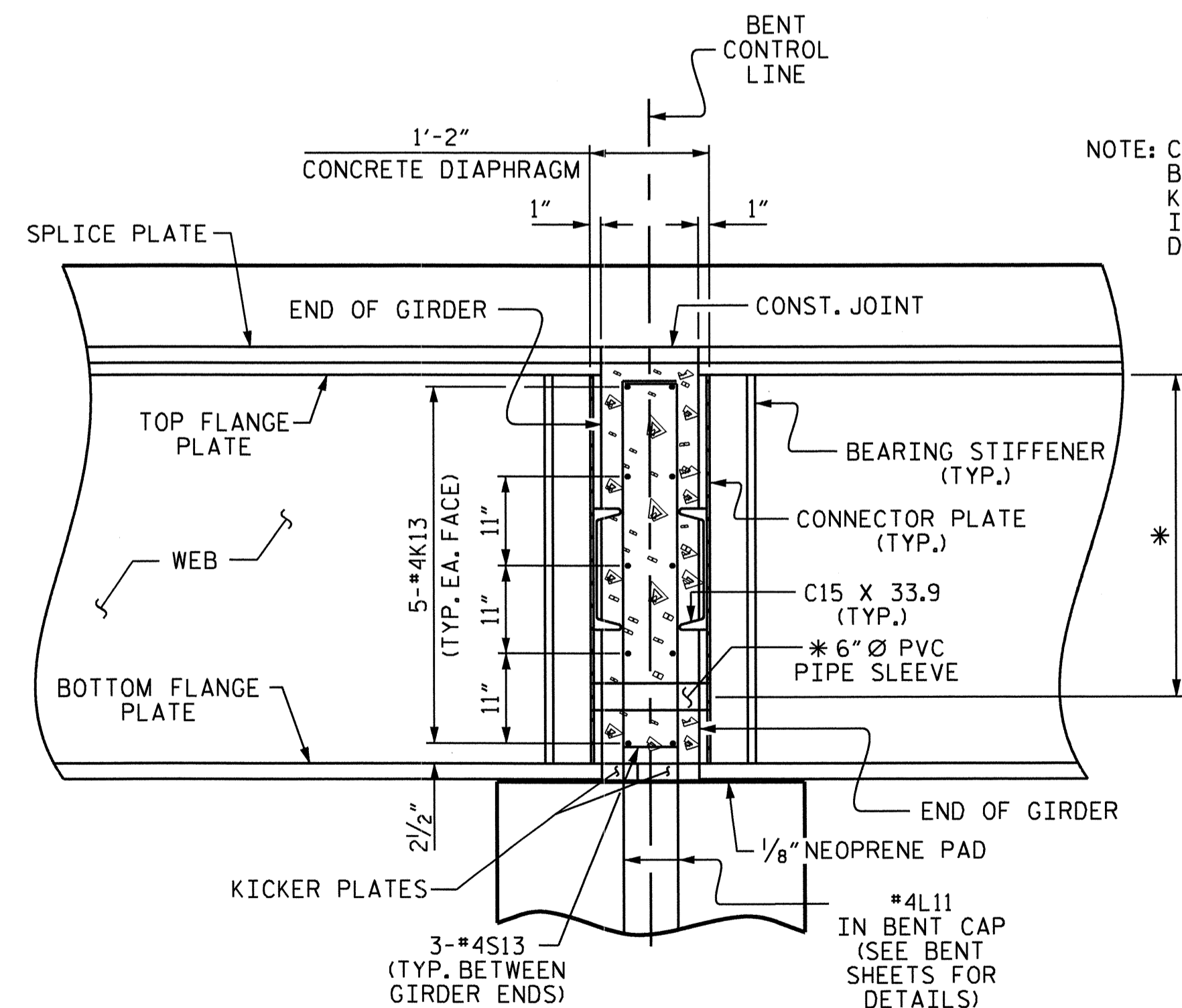
TYPICAL SECTION @ BENT - STAGE II



DETAIL "A"



DETAIL "B" AT BENTS



SECTION THRU BENT DIAPHRAGM

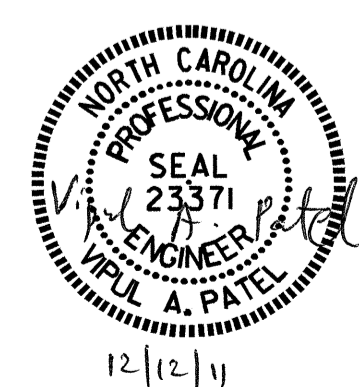
FOR ADDITIONAL DETAILS, SEE STRUCTURAL STEEL SHEETS

NOTE: CONCRETE DIAPHRAGMS SHALL BE POURED AFTER THE WEDGE KICKER PLATES ARE WELDED IN PLACE AND PRIOR TO ANY DECK CONCRETE BEING PLACED.

* FOR ELECTRICAL CONDUIT SYSTEM FOR SIGNALS, SEE ELECTRICAL CONDUIT SYSTEM FOR SIGNALS SHEET.

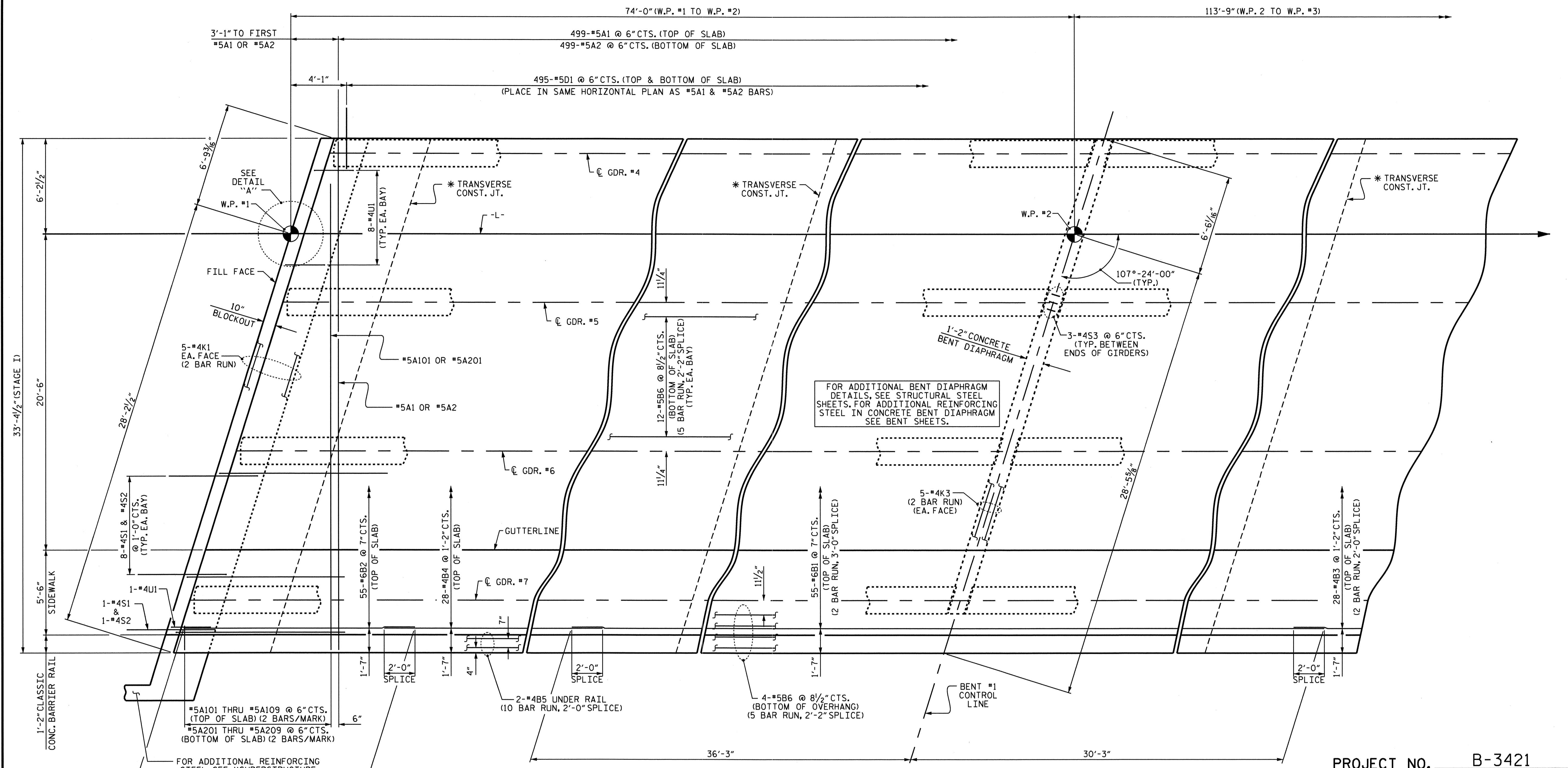
PROJECT NO. B-3421
 CABARRUS COUNTY
 STATION: 17+97.08 -L-

SHEET 6 OF 6



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE					
TYPICAL SECTION STAGE II					
REVISIONS					
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2			4		
					SHEET NO. S-10
					TOTAL SHEETS 51

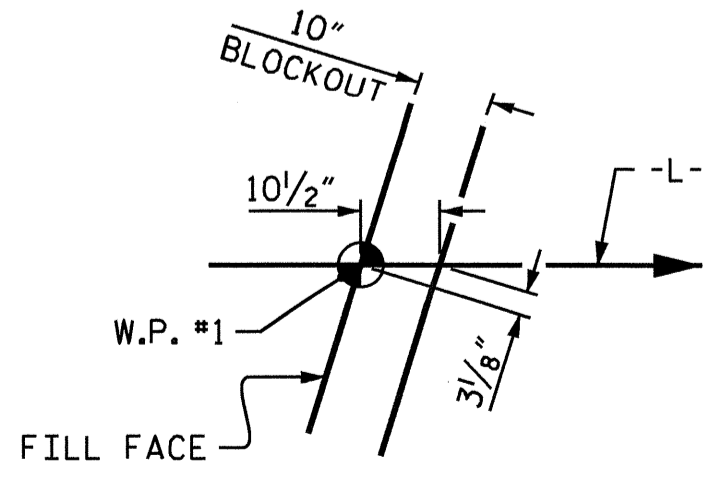
DRAWN BY: J.P. ADAMS DATE: 2/8/11
 CHECKED BY: K.D. LAYNE DATE: 6/11



SPAN A - B (STAGE I)

* FOR TRANSVERSE CONST. JOINT LOCATIONS AND DETAILS, SEE "SUPERSTRUCTURE BILL OF MATERIAL"

FOR BARS IN DECK AND CLASSIC RAIL, SEE CLASSIC CONCRETE BRIDGE RAIL DETAILS.



DETAIL "A"

PROJECT NO. B-3421
CABARRUS COUNTY
 STATION: 17+97.08 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

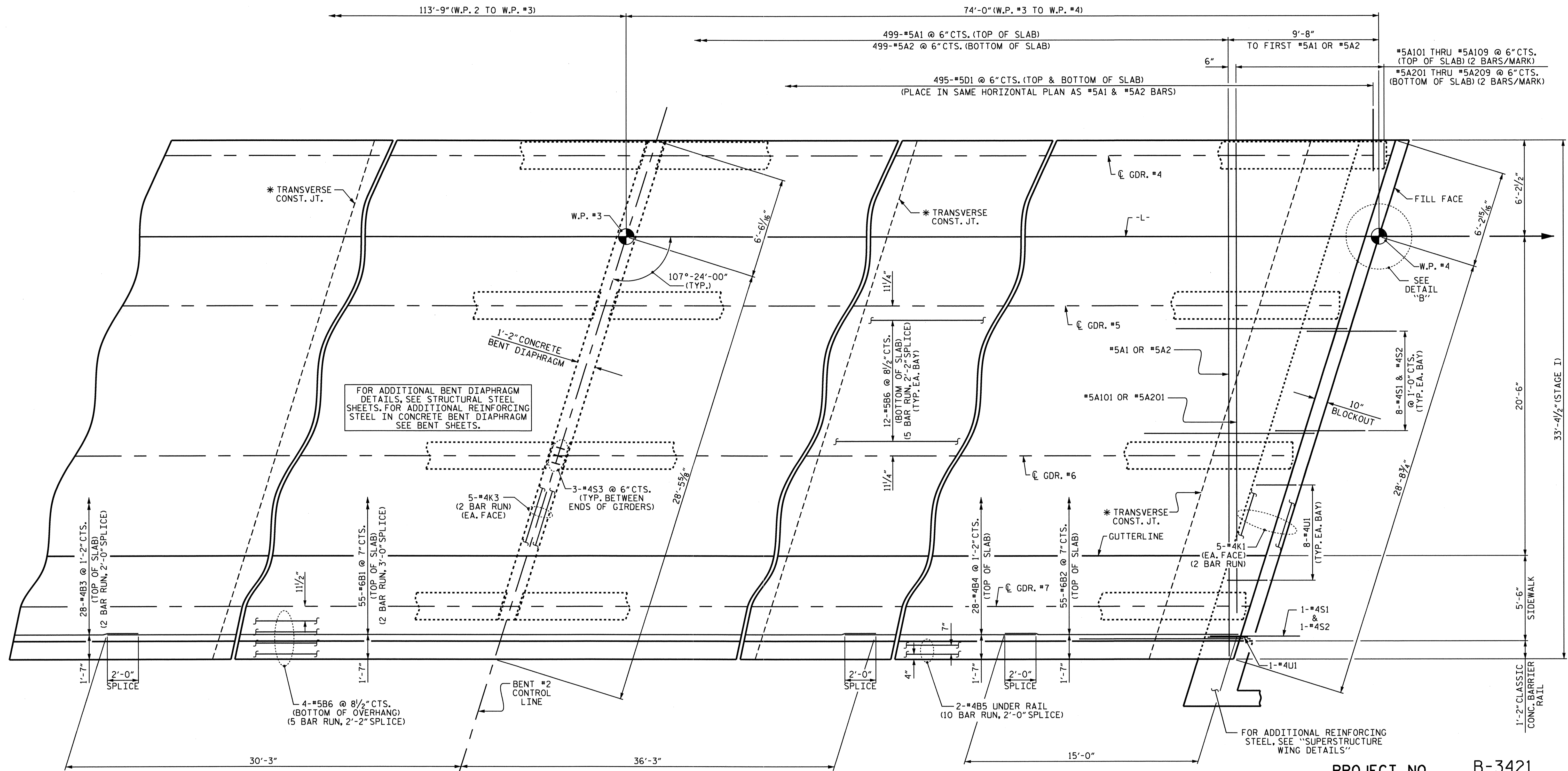
SUPERSTRUCTURE
 PLAN OF SPAN
 STAGE I

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			51



12/12/11

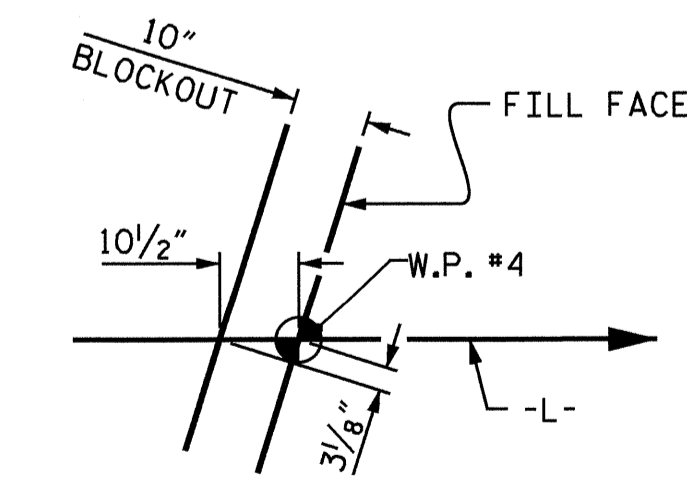
DRAWN BY : J.P. ADAMS DATE : 3/1/11
 CHECKED BY : K.D. LAYNE DATE : 6/11



SPAN B - C (STAGE I)

* FOR TRANSVERSE CONST. JOINT LOCATIONS AND DETAILS, SEE "SUPERSTRUCTURE BILL OF MATERIAL"

FOR BARS IN DECK AND CLASSIC RAIL, SEE CLASSIC CONCRETE BRIDGE RAIL DETAILS.



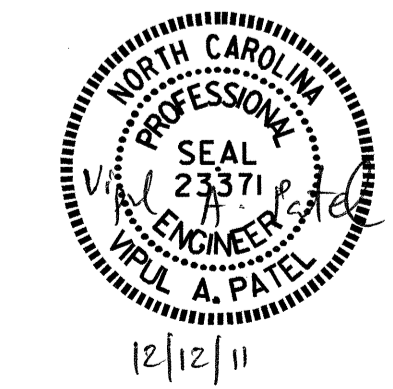
DETAIL "B"

PROJECT NO. B-3421
CABARRUS COUNTY
 STATION: 17+97.08 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

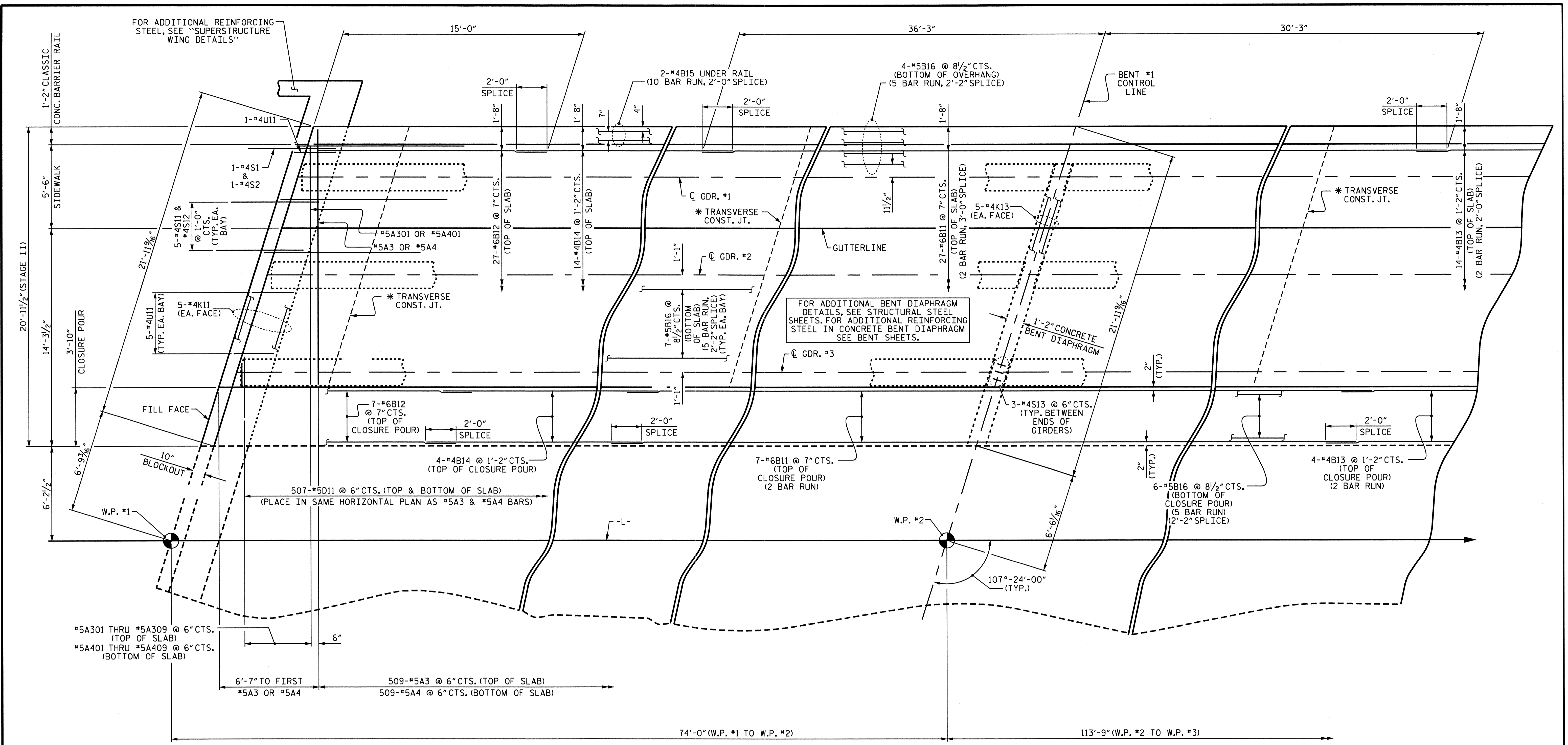
**SUPERSTRUCTURE
 PLAN OF SPAN
 STAGE I**



DRAWN BY : J.P. ADAMS DATE : 3/11/11
 CHECKED BY : K.D. LAYNE DATE : 6/11

25-OCT-2011 14:21
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REVISIONS						SHEET NO. S-12
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 51
2			4			



PROJECT NO. B-3421
 CABARRUS COUNTY
 STATION: 17+97.08 -L-
 SHEET 3 OF 4

SPAN A - B (STAGE II)

* FOR TRANSVERSE CONST. JOINT LOCATIONS AND DETAILS, SEE "SUPERSTRUCTURE BILL OF MATERIAL"

FOR BARS IN DECK AND CLASSIC RAIL, SEE CLASSIC CONCRETE BRIDGE RAIL DETAILS.



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPAN
 STAGE II

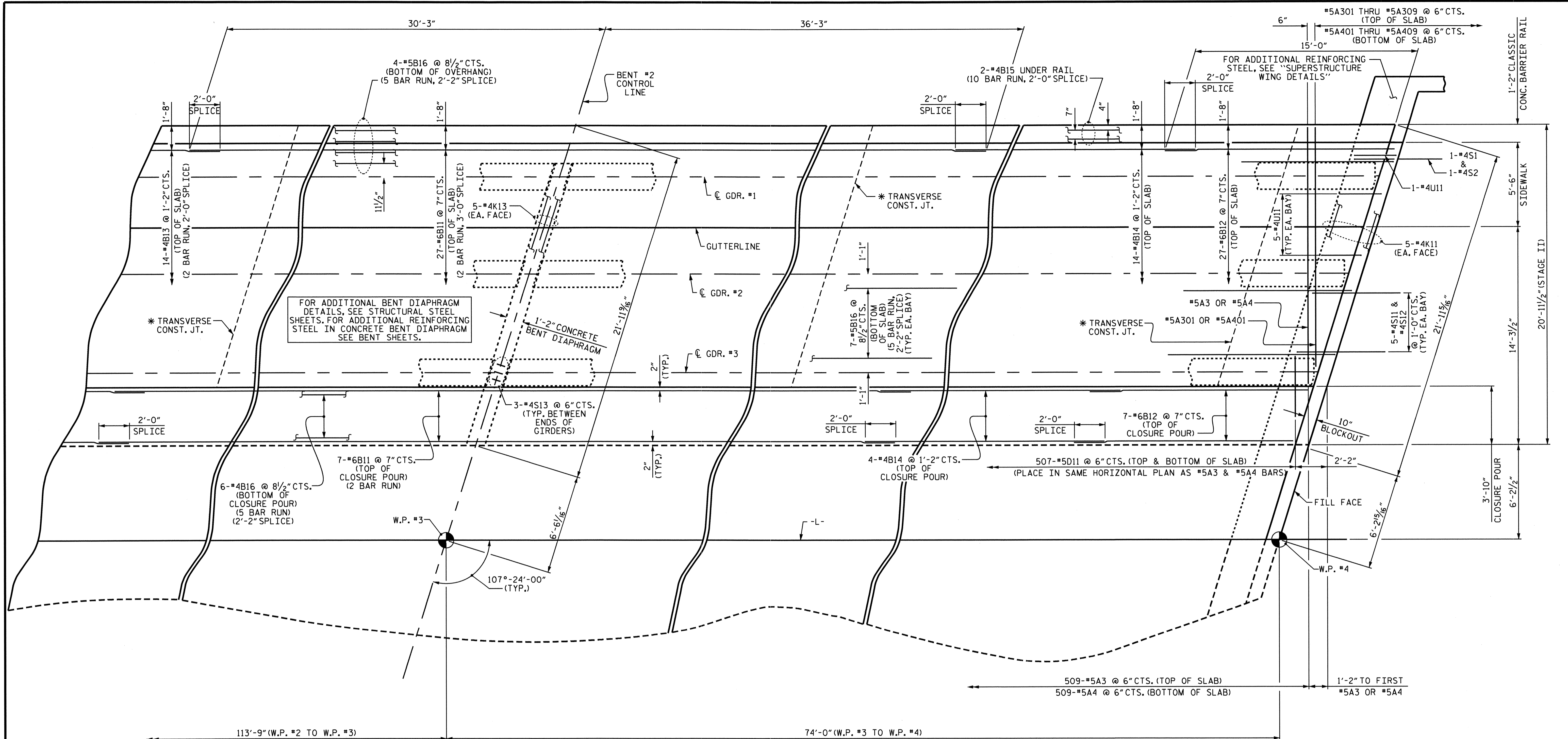
REVISIONS

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

SHEET NO. S-13
 TOTAL SHEETS 51

12/12/11

DRAWN BY: J.P. ADAMS DATE: 3/1/11
 CHECKED BY: K.D. LAYNE DATE: 6/11



SPAN B - C (STAGE II)

* FOR TRANSVERSE CONST. JOINT LOCATIONS AND DETAILS, SEE "SUPERSTRUCTURE BILL OF MATERIAL"

FOR BARS IN DECK AND CLASSIC RAIL, SEE CLASSIC CONCRETE BRIDGE RAIL DETAILS.



PROJECT NO. B-3421
CABARRUS COUNTY
 STATION: 17+97.08 -L-

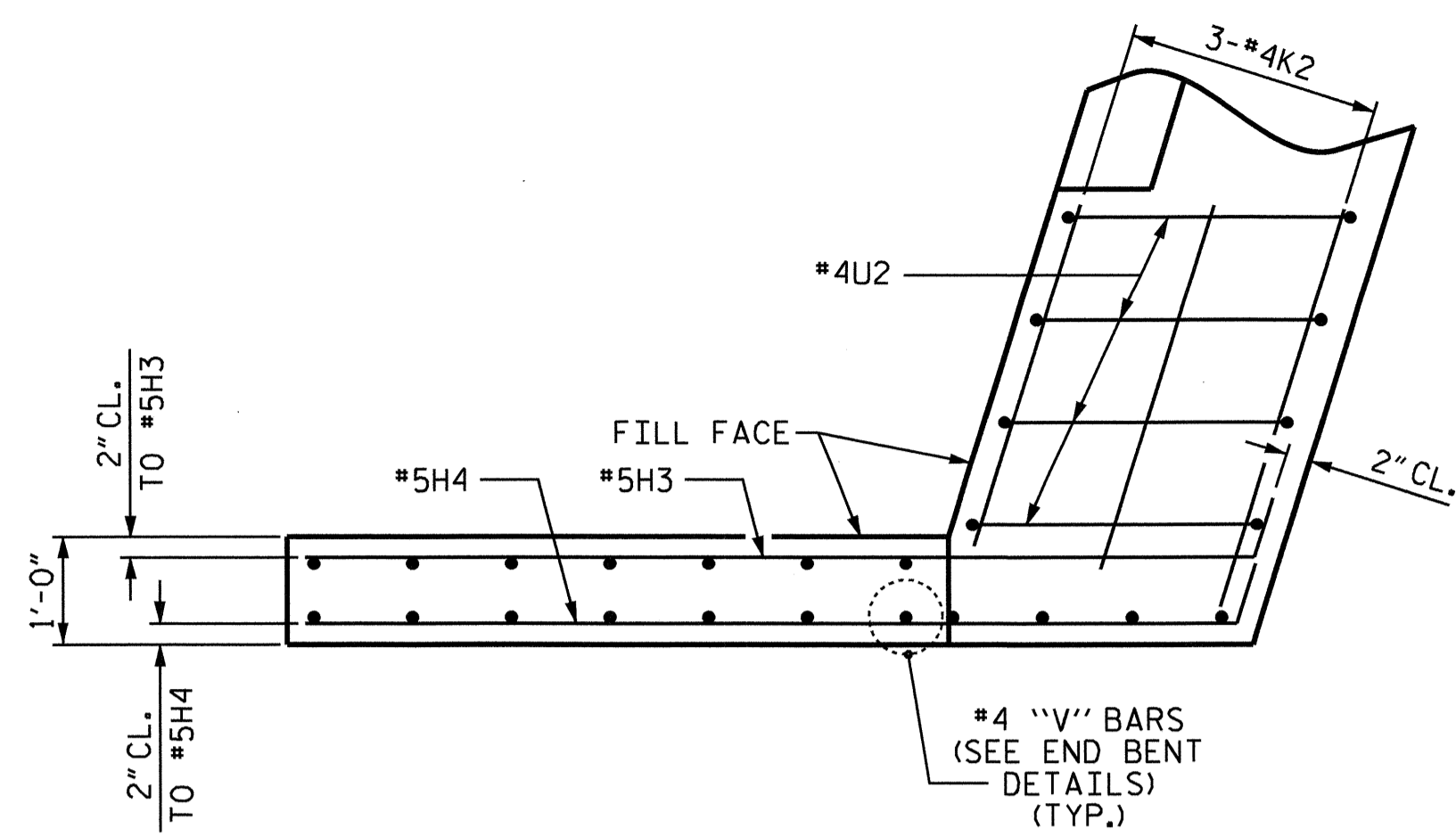
SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

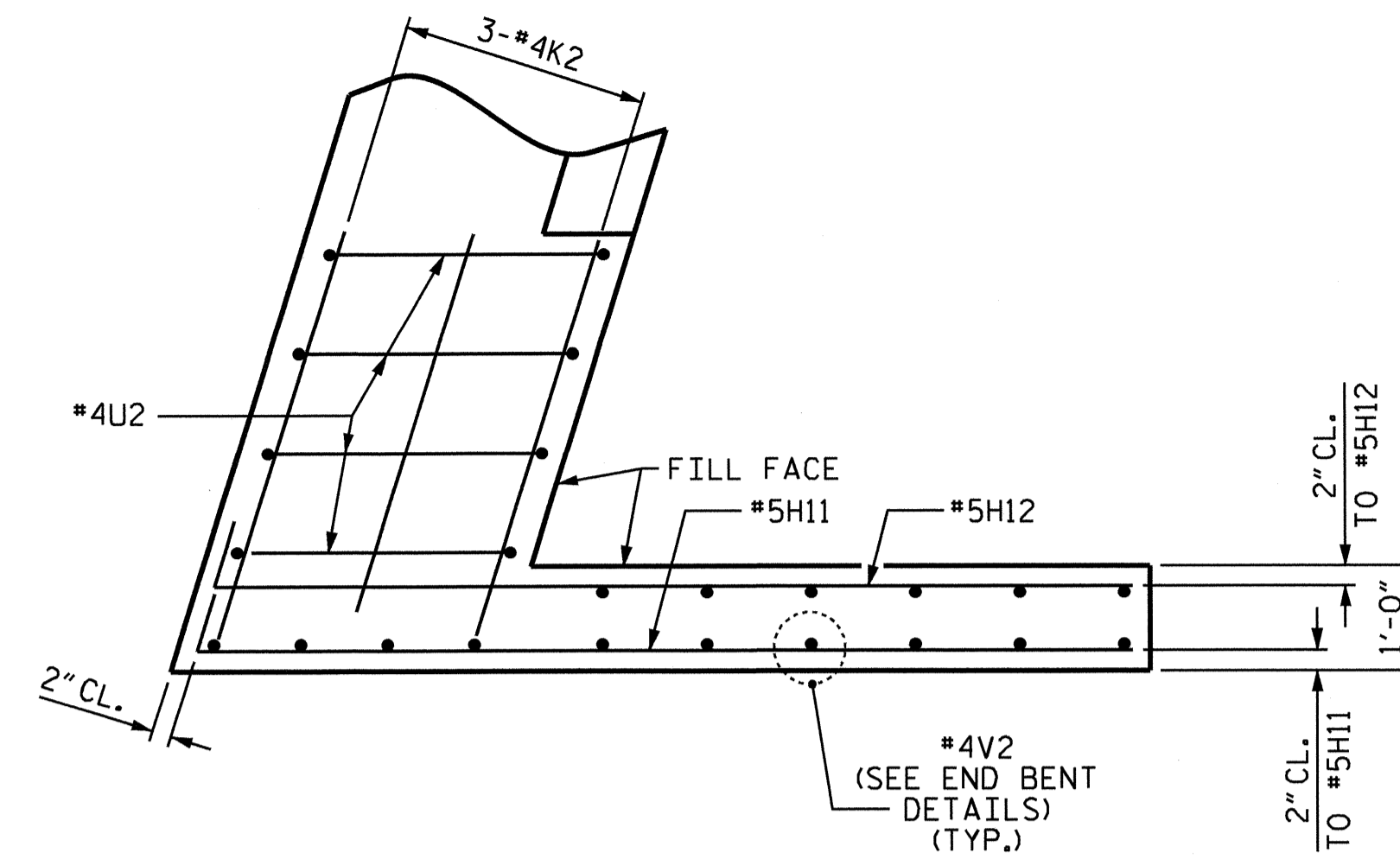
SUPERSTRUCTURE
 PLAN OF SPAN
 STAGE II

REVISIONS						SHEET NO. S-14
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2			4			

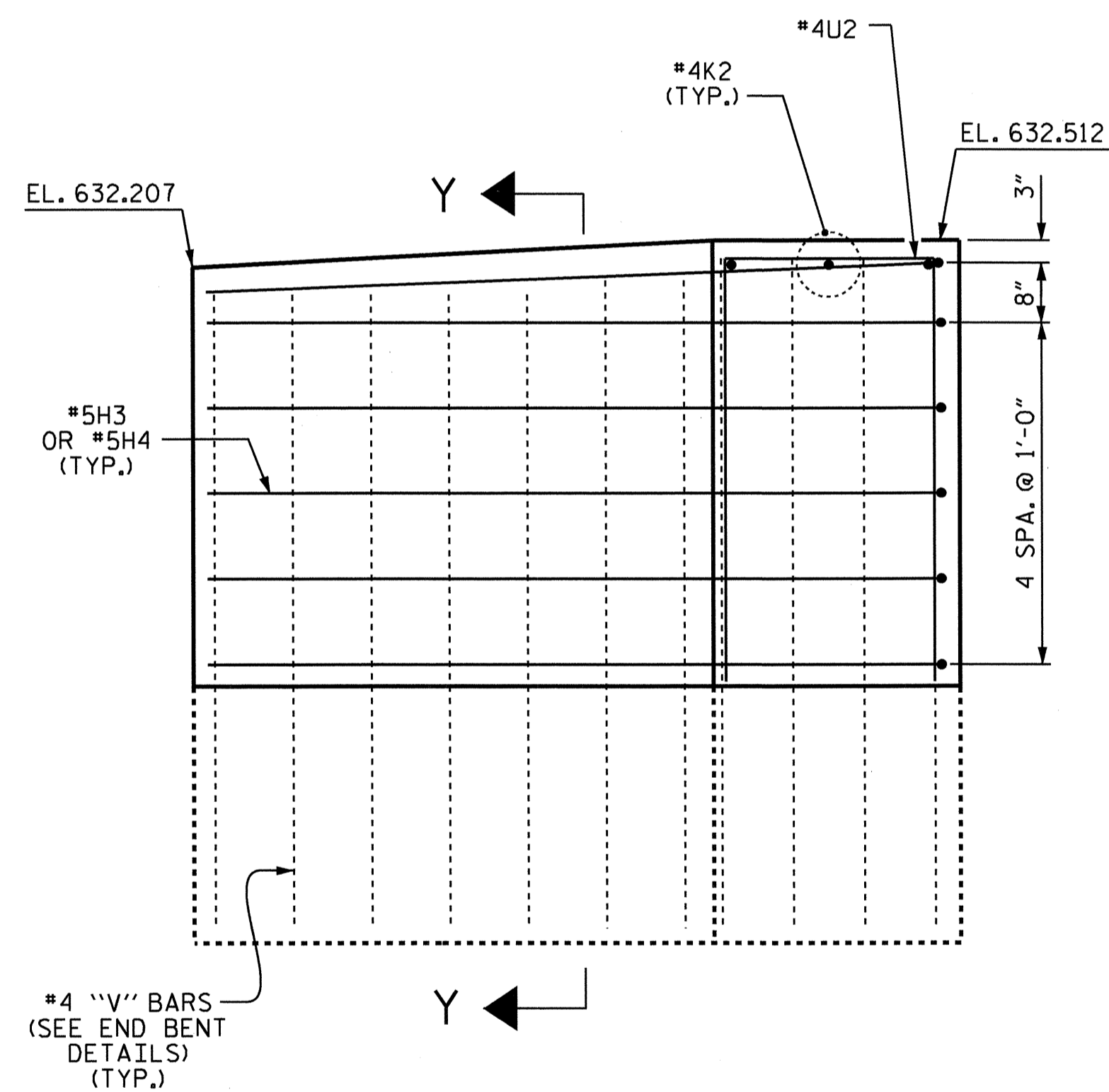
DRAWN BY : J.P. ADAMS DATE : 3/1/11
 CHECKED BY : K.D. LAYNE DATE : 6/11



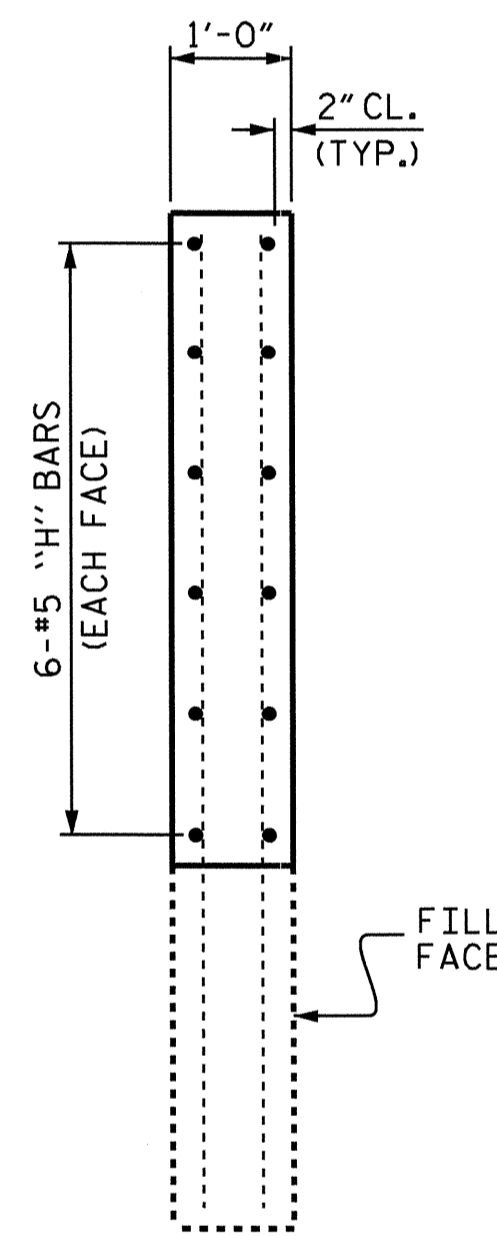
PLAN OF WING (W1) @ END BENT #1
(STAGE I)



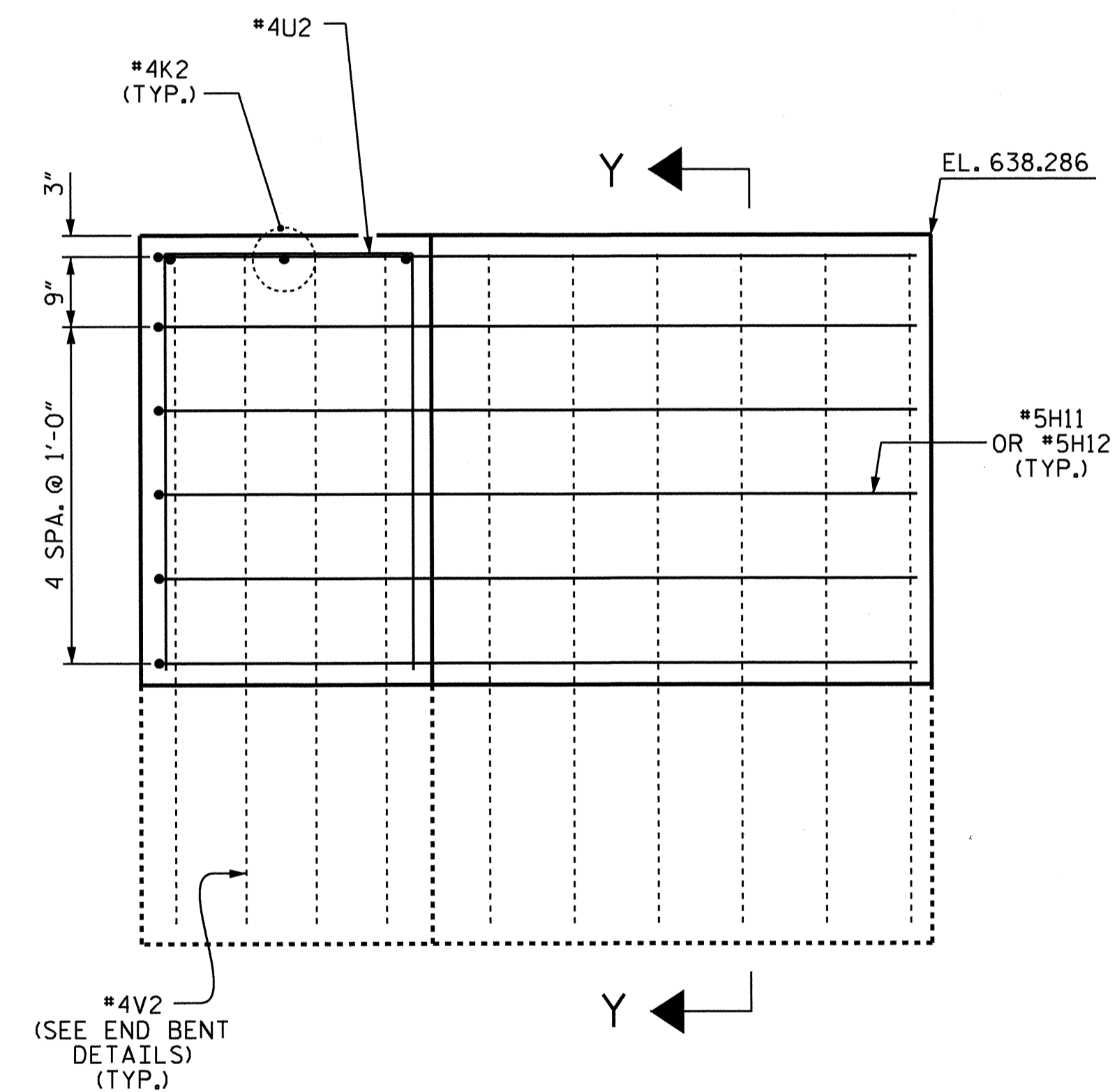
PLAN OF WING (W3) @ END BENT #2
(STAGE I)



ELEVATION OF WING (W1) @ END BENT #1
(STAGE I)



SECTION Y-Y

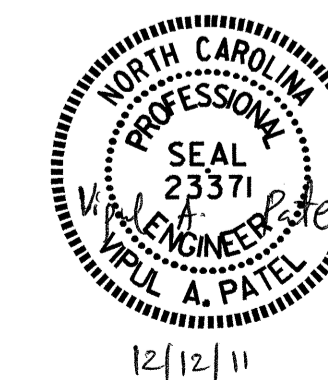


ELEVATION OF WING (W3) @ END BENT #2
(STAGE I)

PROJECT NO. B-3421
CABARRUS COUNTY
 STATION: 17+97.08 -L-

SHEET 1 OF 2

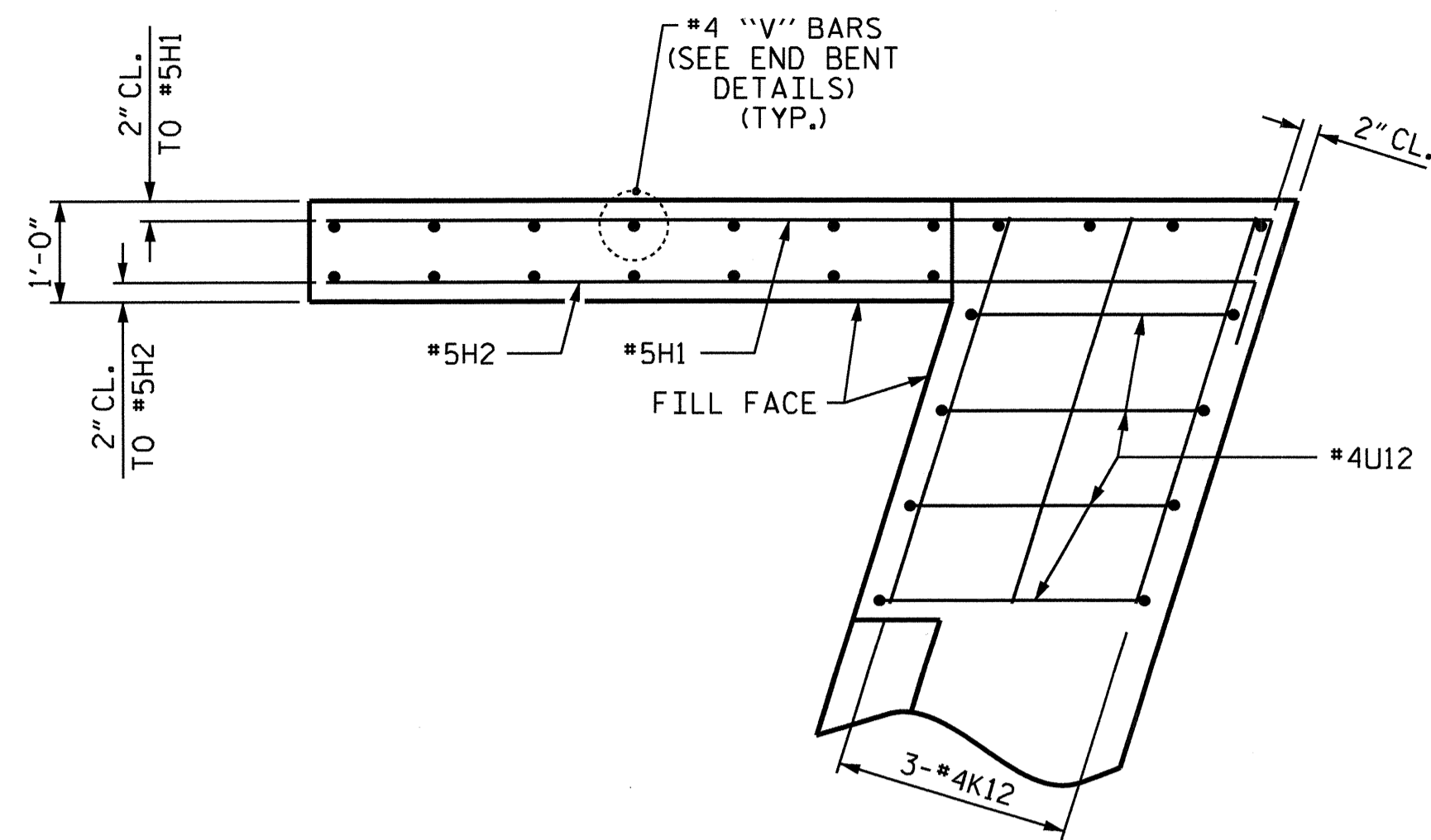
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 WING DETAILS
 (STAGE I)



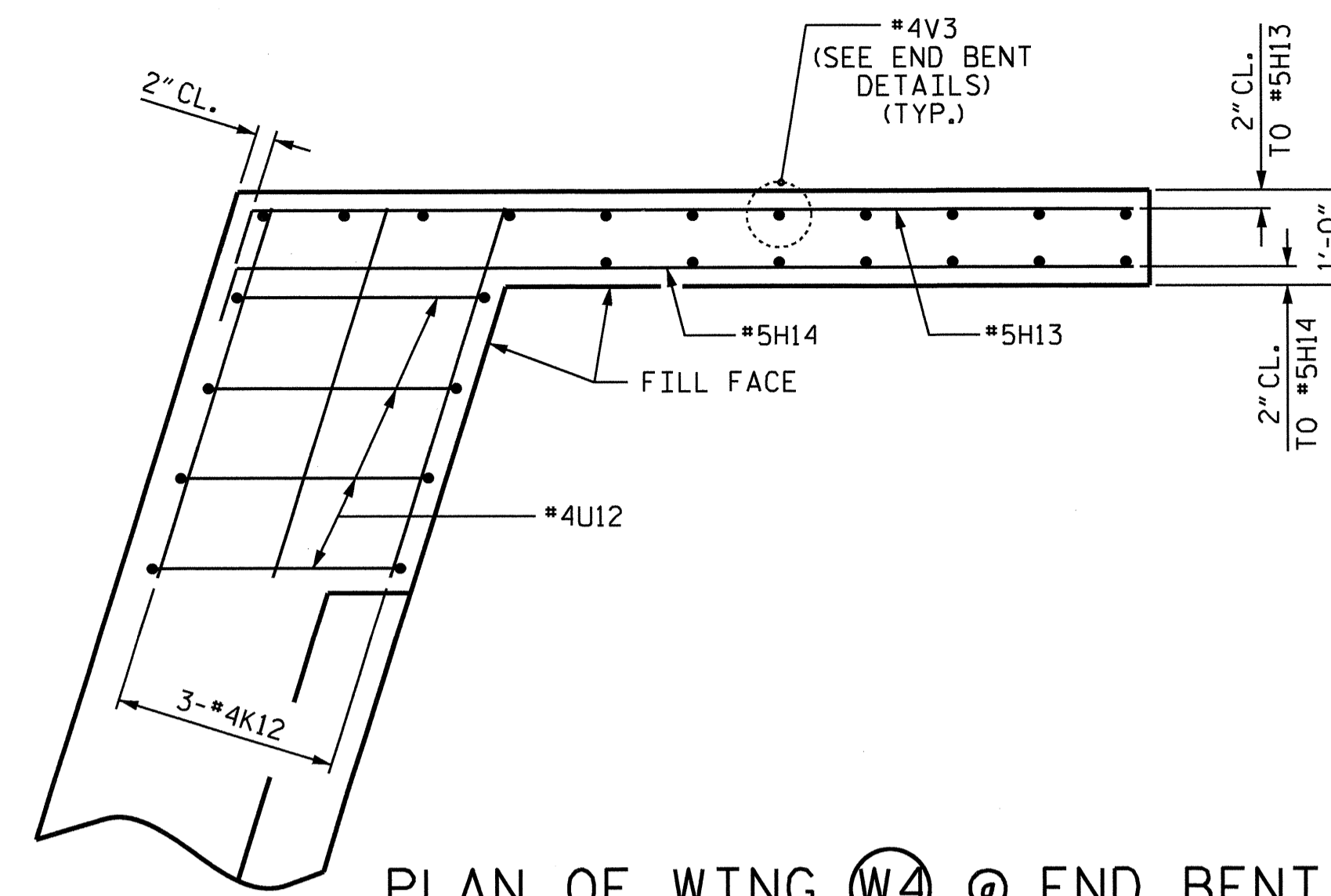
DRAWN BY : J.P. ADAMS DATE : 3/7/11
 CHECKED BY : K.D. LAYNE DATE : 6/11

25-OCT-2011 14:21
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 jpodams

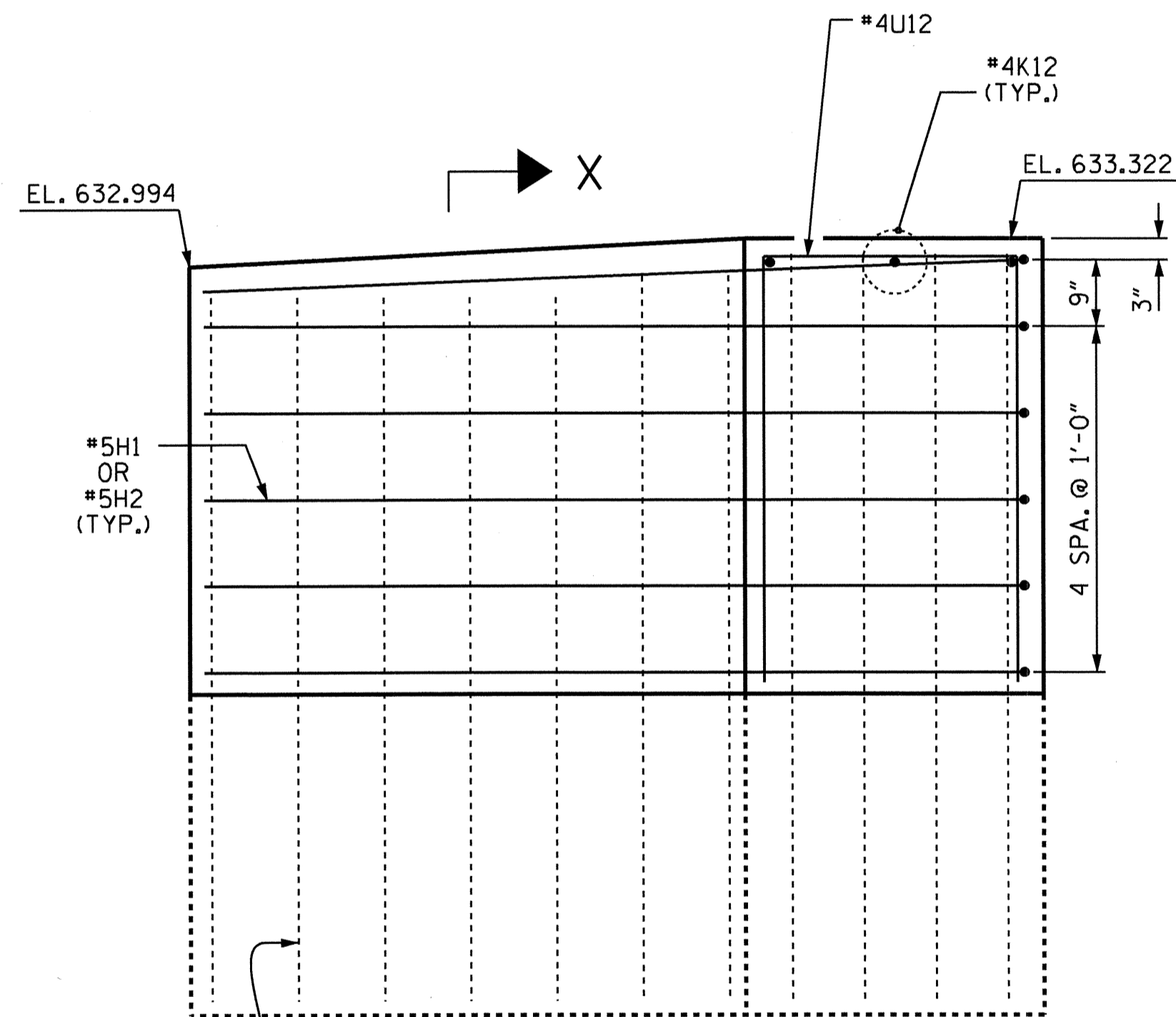
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			51



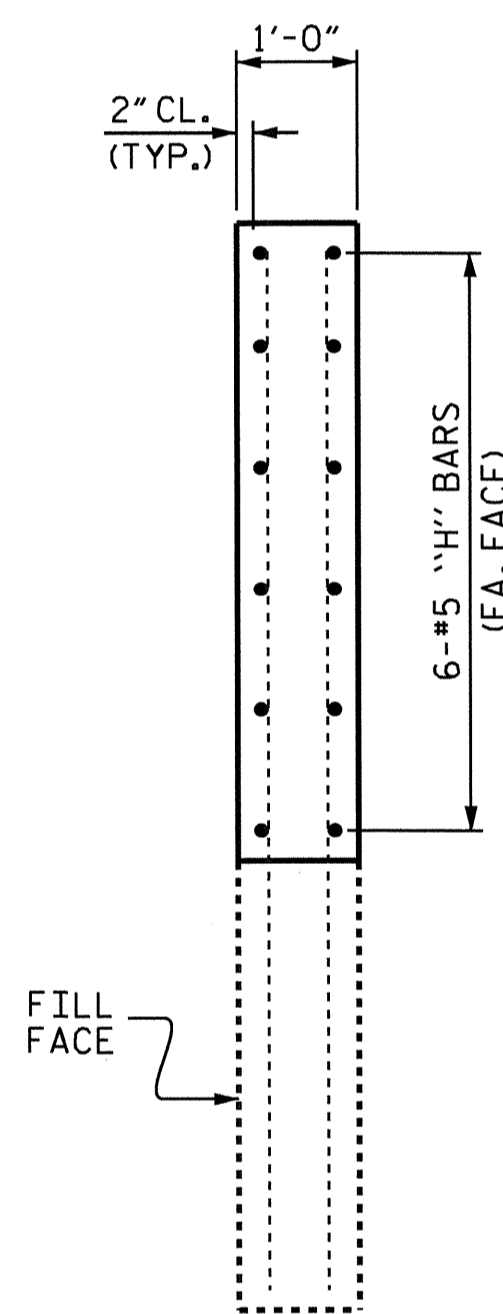
PLAN OF WING (W2) @ END BENT #1
(STAGE II)



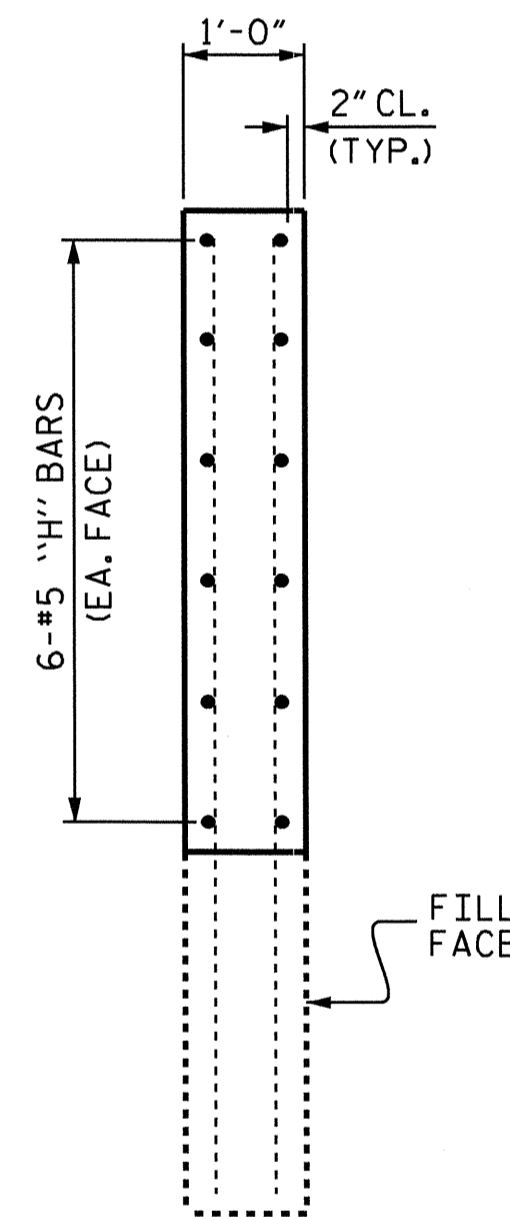
PLAN OF WING (W4) @ END BENT #2
(STAGE II)



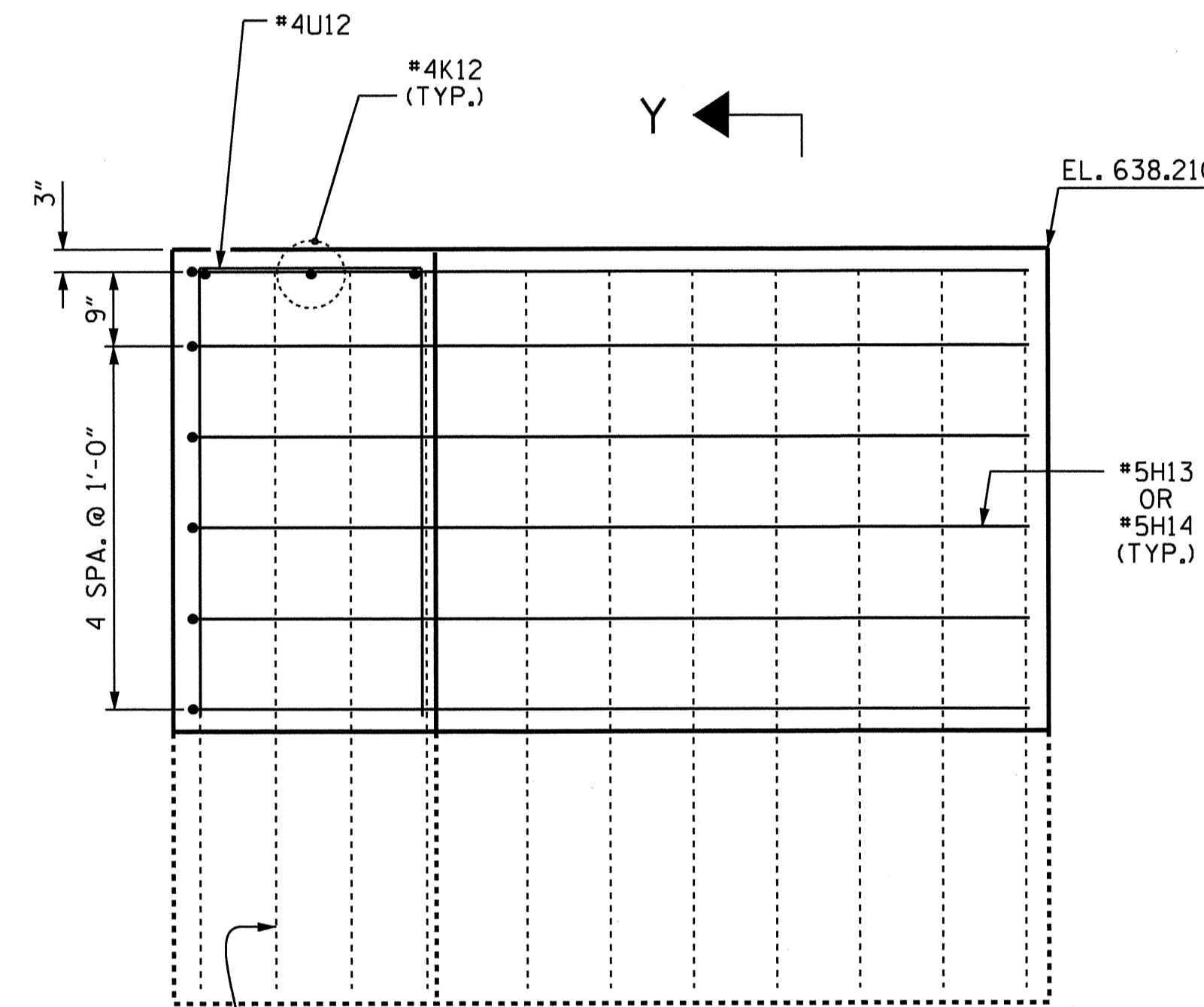
ELEVATION OF WING (W2) @ END BENT #1
(STAGE II)



SECTION X-X



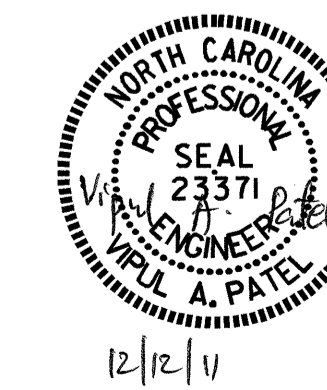
SECTION Y-Y



ELEVATION OF WING (W4) @ END BENT #2
(STAGE II)

PROJECT NO. B-3421
CABARRUS COUNTY
 STATION: 17+97.08 -L-

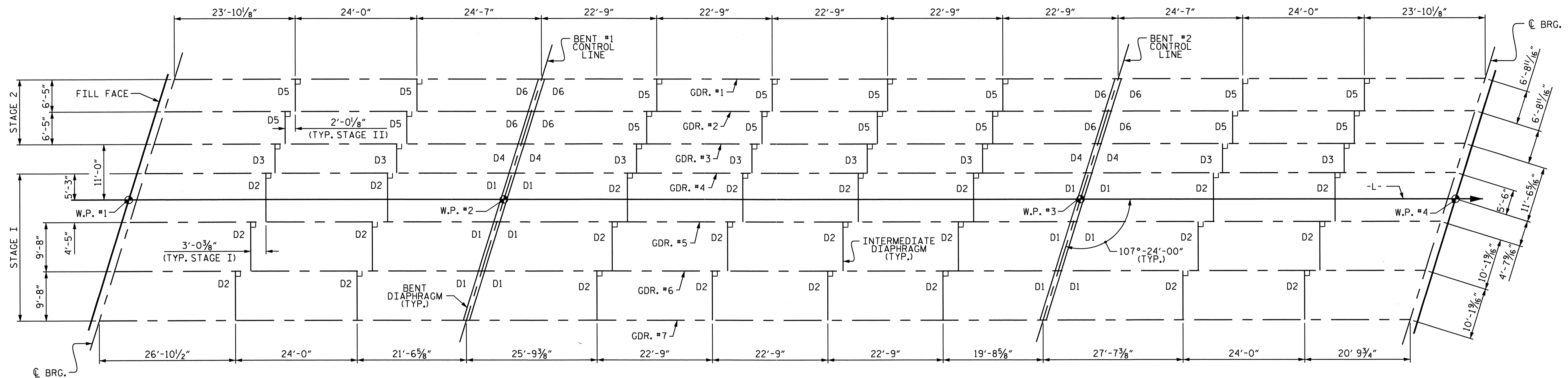
SHEET 2 OF 2



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			51

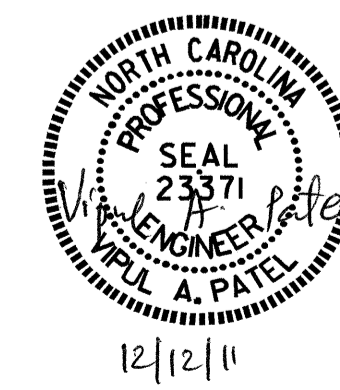
DRAWN BY: J.P. ADAMS DATE: 3/7/11
 CHECKED BY: K.D. LAYNE DATE: 6/11

25-OCT-2011 14:21
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FRAMING PLAN

PROJECT NO. B-3421
CABARRUS COUNTY
 STATION: 17+97.08 -L-

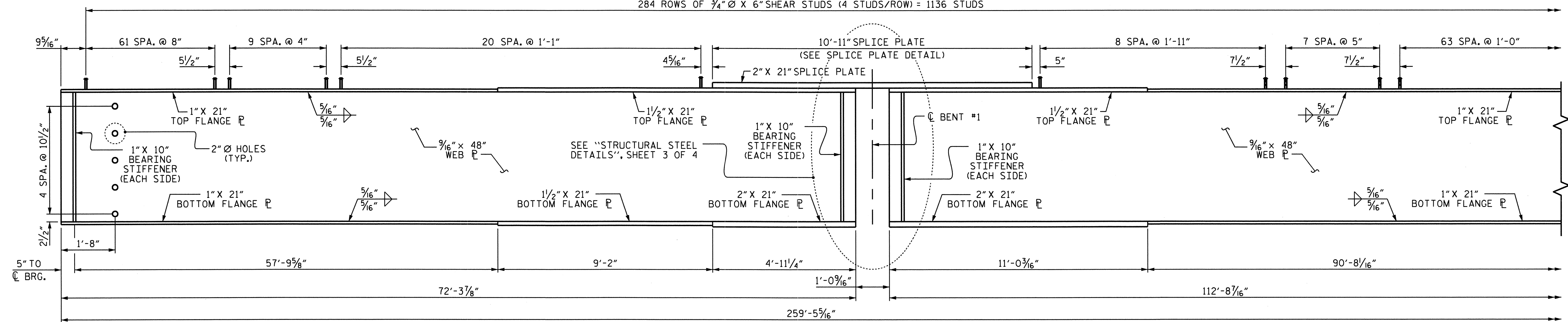


STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
SUPERSTRUCTURE					
FRAMING PLAN					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO.
					S-17
					TOTAL SHEETS
					51

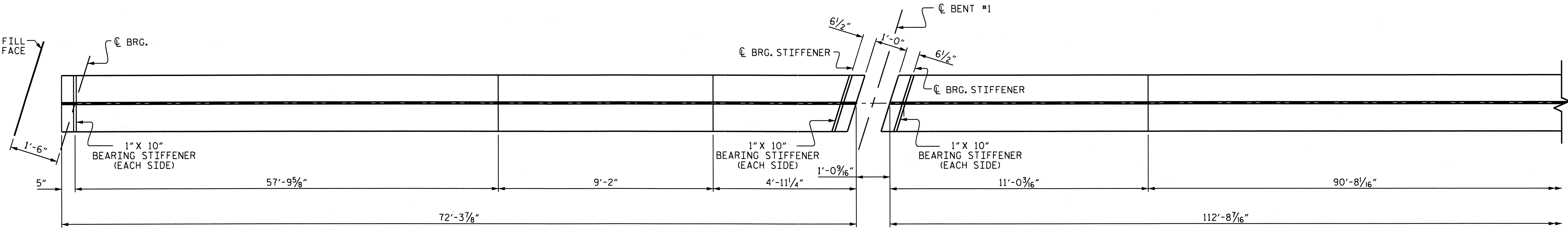
DRAWN BY : J.P. ADAMS DATE : 3/7/11
 CHECKED BY : K.D. LAYNE DATE : 6/11

25-OCT-2011 14:21
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 jpodams

284 ROWS OF 3/4" Ø X 6" SHEAR STUDS (4 STUDS/ROW) = 1136 STUDS



GIRDER ELEVATION



BOTTOM FLANGE DETAILS

GIRDER INSTALLATION PROCEDURES

1. PLACE A GIRDER LINE IN ALL 3 SPANS.
2. INSTALL TOP SPLICE PLATE AND ALL BOLTS.
3. DRIVE WEDGE KICKER PLATE TO A TIGHT FIT.
4. WELD WEDGE KICKER PLATES.
5. AFTER ALL GIRDERS ARE INSTALLED IN A STAGE, POUR CONCRETE DIAPHRAGM AT BENTS 1 & 2.

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.

END OF BEAMS AND GIRDERS SHALL BE PLUMB.

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

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

PERMITTED FLANGE AND WEB SHOP SPLICES SHALL NOT BE LOCATED WITHIN 15 FEET OF MAXIMUM DEAD LOAD DEFLECTION (NOR WITHIN 15 FEET OF INTERMEDIATE BEARINGS OF CONTINUOUS UNITS). KEEP 2 FEET MINIMUM BETWEEN WEB AND FLANGE SHOP SPLICES. KEEP 6" MINIMUM BETWEEN CONNECTOR PLATE OR TRANSVERSE STIFFENER WELDS AND WEB OR FLANGE SHOP SPLICES.

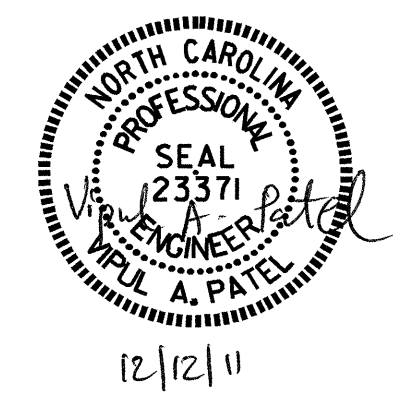
FABRICATORS SHALL DETAIL DIAPHRAGM MEMBERS AND CONNECTIONS FOR FULL DEAD LOAD FIT UP. GIRDERS SHALL BE PLUMB AFTER THE FULL AMOUNT OF DEAD LOAD IS APPLIED.

PROJECT NO. B-3421
CABARRUS COUNTY
 STATION: 17+97.08 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

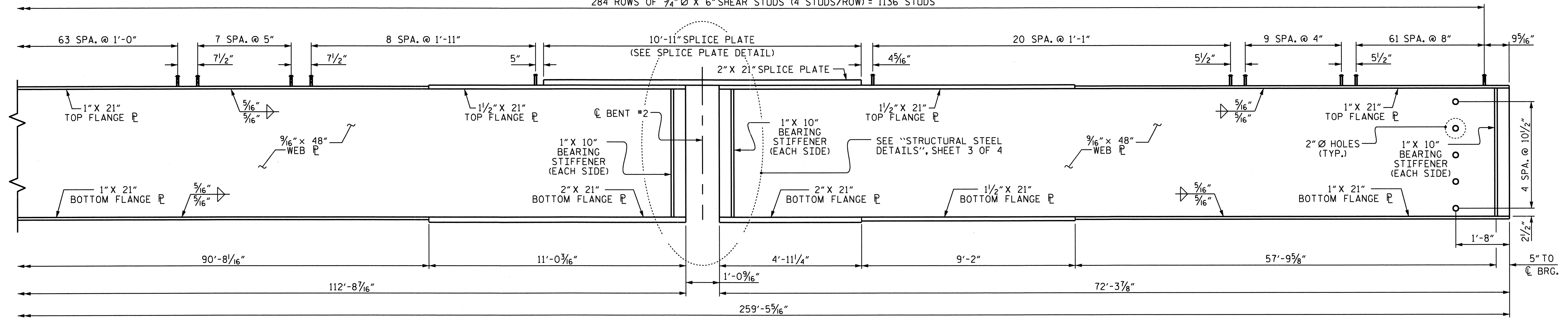
**SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS**



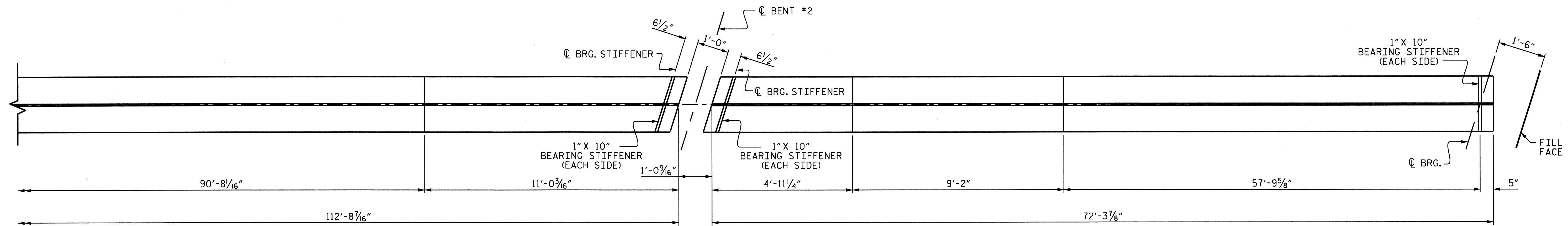
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			51

DRAWN BY : J.P. ADAMS DATE : 3/10/11
 CHECKED BY : K.D. LAYNE DATE : 6/11

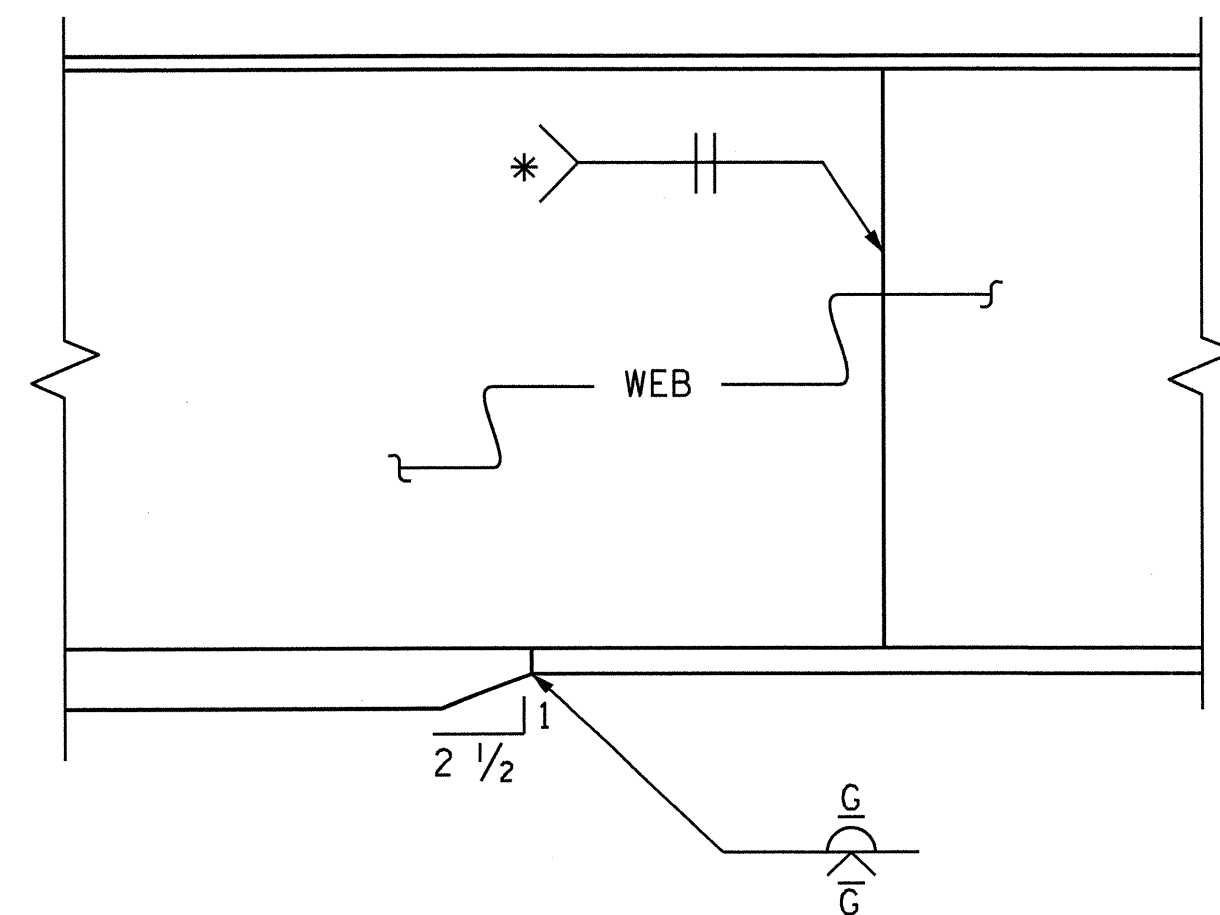
284 ROWS OF 3/4" Ø X 6" SHEAR STUDS (4 STUDS/ROW) = 1136 STUDS



GIRDER ELEVATION

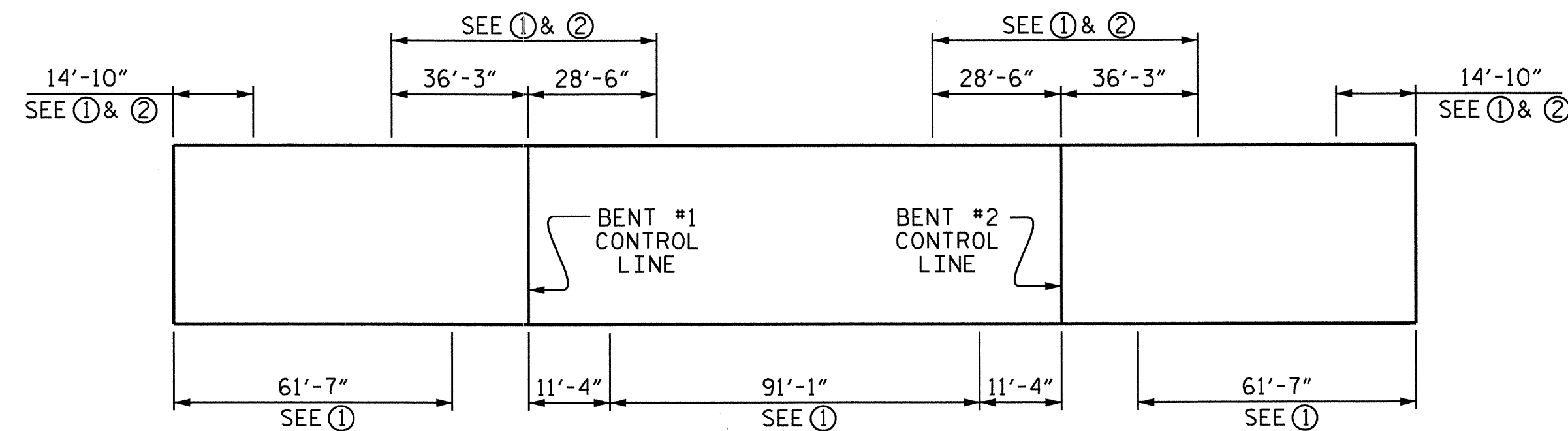


BOTTOM FLANGE DETAILS



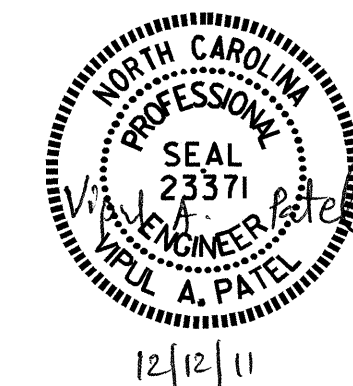
TYPICAL FLANGE AND WEB BUTT JOINT

* GRIND SMOOTH AND FLUSH ON OUTER FACE OF EXTERIOR GIRDERS



CHARPY V-NOTCH TEST FOR CONTINUOUS PLATE GIRDERS

- ① CHARPY V-NOTCH TESTS ARE REQUIRED FOR ALL TOP OR BOTTOM FLANGE PLATES WHICH FALL WITHIN THESE LIMITS, ALL WEB PLATES, AND ALL SPLICE PLATES. IF A PERMITTED SHOP FLANGE SPLICE IS NOT USED, CHARPY V-NOTCH TESTS WILL BE REQUIRED FOR THE ENTIRE TOP FLANGE PLATE. FOR CHARPY V-NOTCH TESTS, SEE ARTICLE 1072-7 OF THE STANDARD SPECIFICATIONS.
- ② NO WELDING OF FORMS OR FALSEWORK TO THE TOP FLANGE WILL BE PERMITTED IN THIS REGION.



PROJECT NO. B-3421
CABARRUS COUNTY
 STATION: 17+97.08 -L-

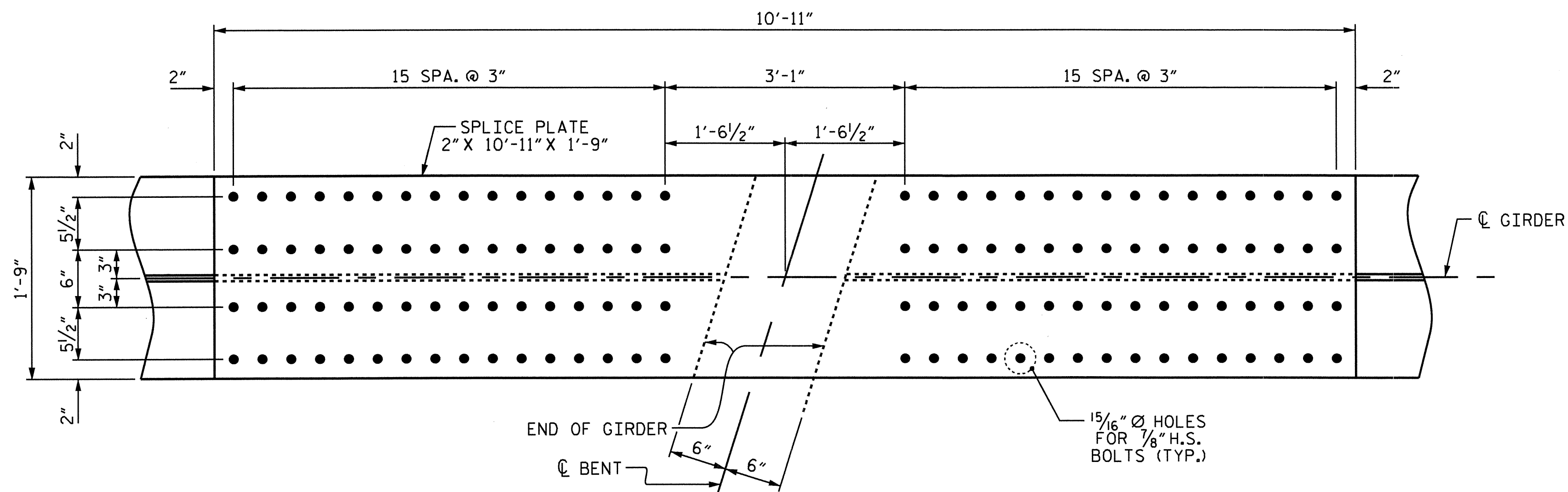
SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

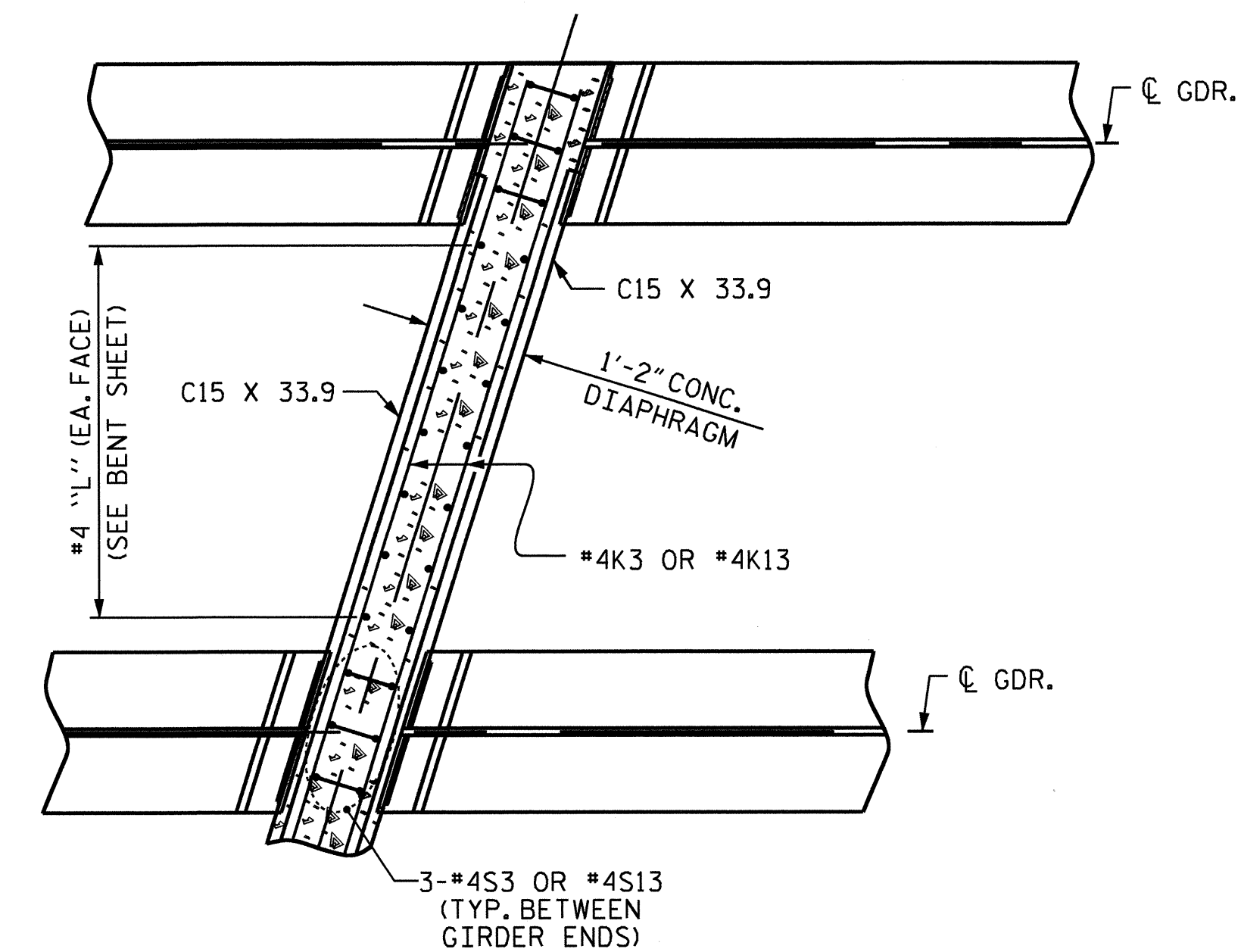
SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19	
1			3			TOTAL SHEETS	
2			4			51	

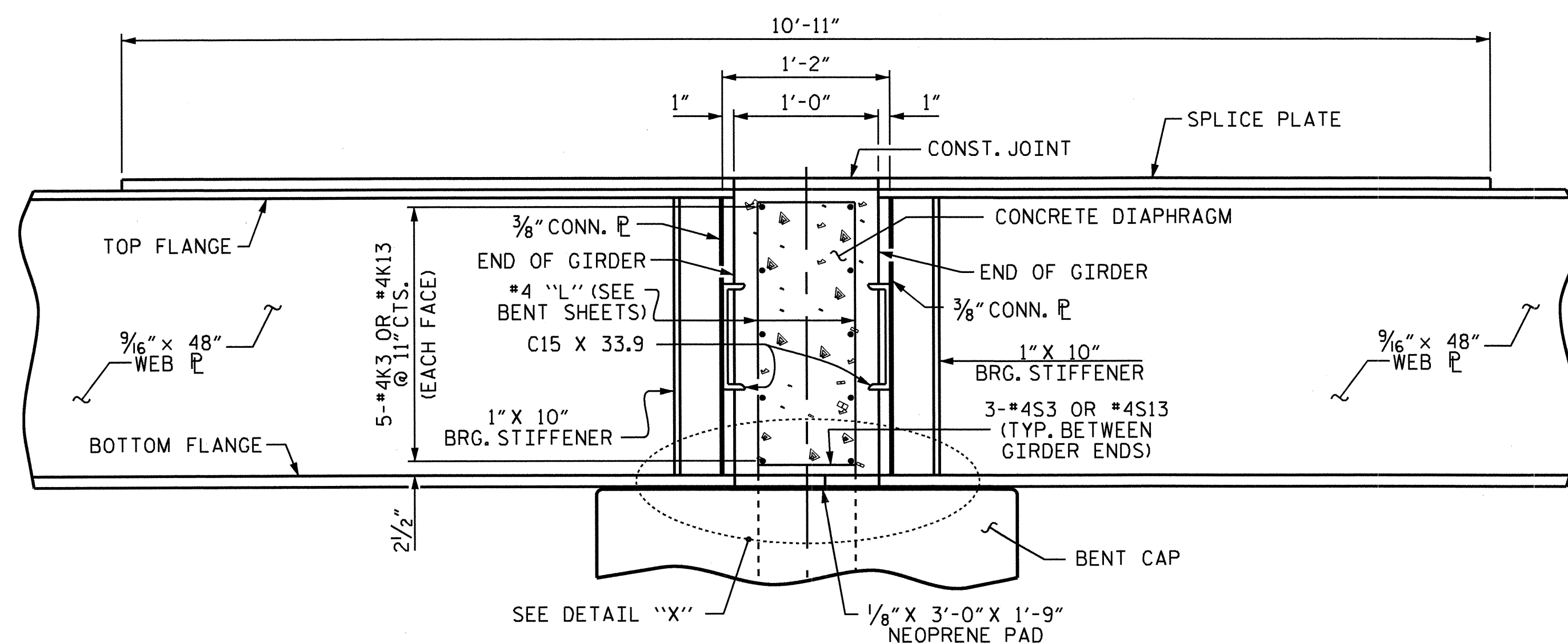
DRAWN BY : J.P. ADAMS DATE : 3/10/11
 CHECKED BY : K.D. LAYNE DATE : 6/11



SPLICE PLATE DETAIL

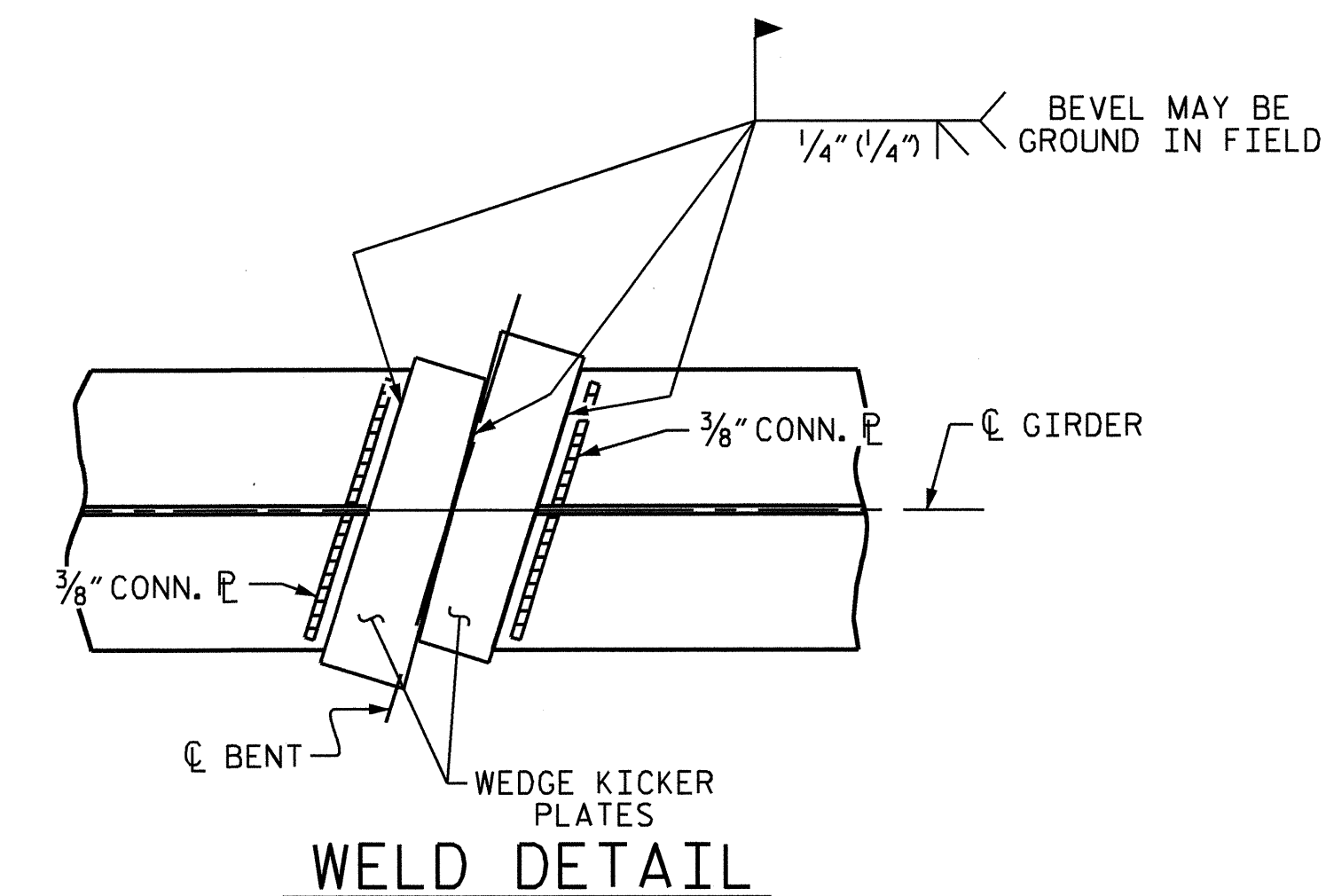


PLAN OF CONCRETE BENT DIAPHRAGM

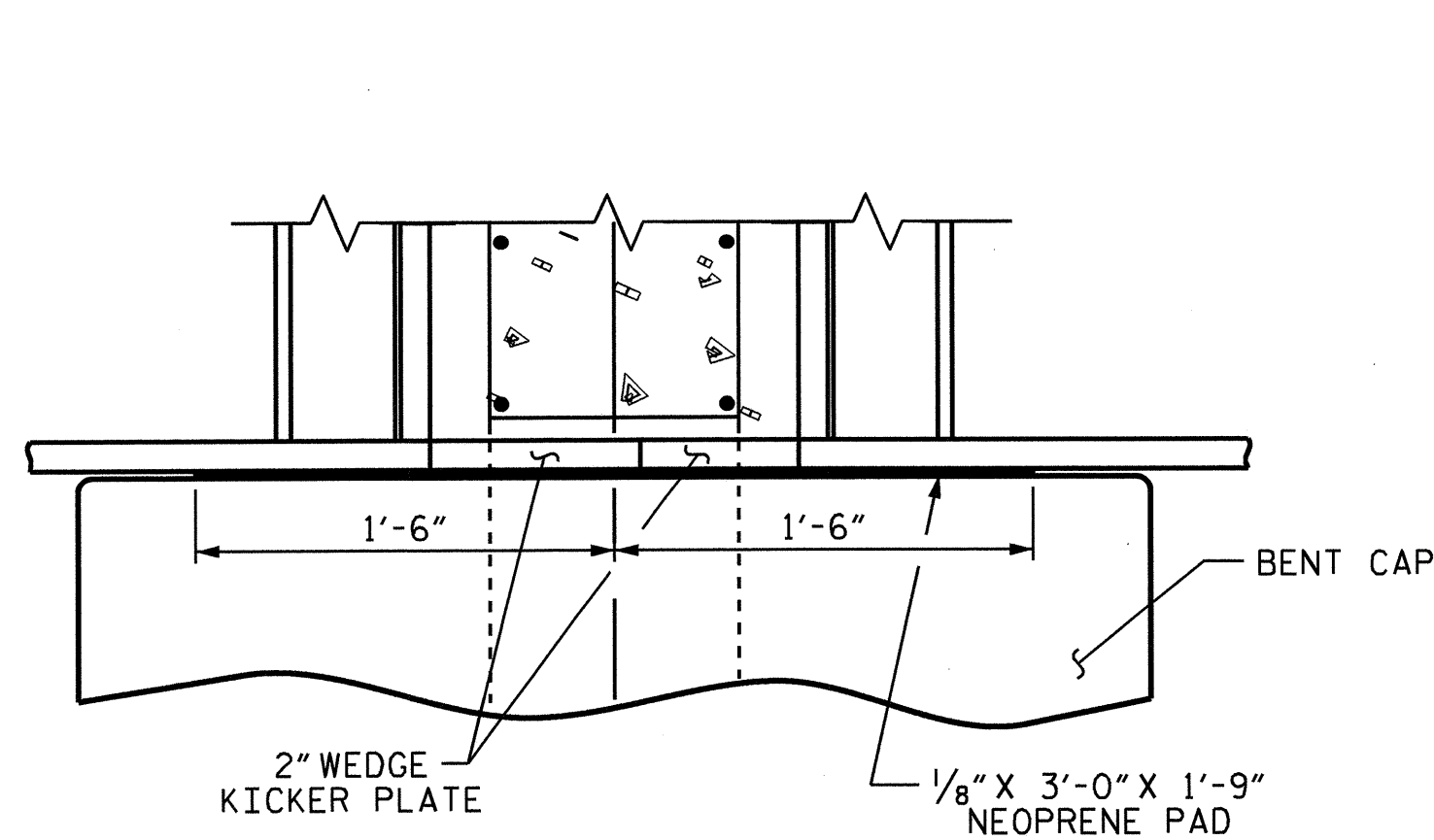


GIRDER ELEVATION @ BENT

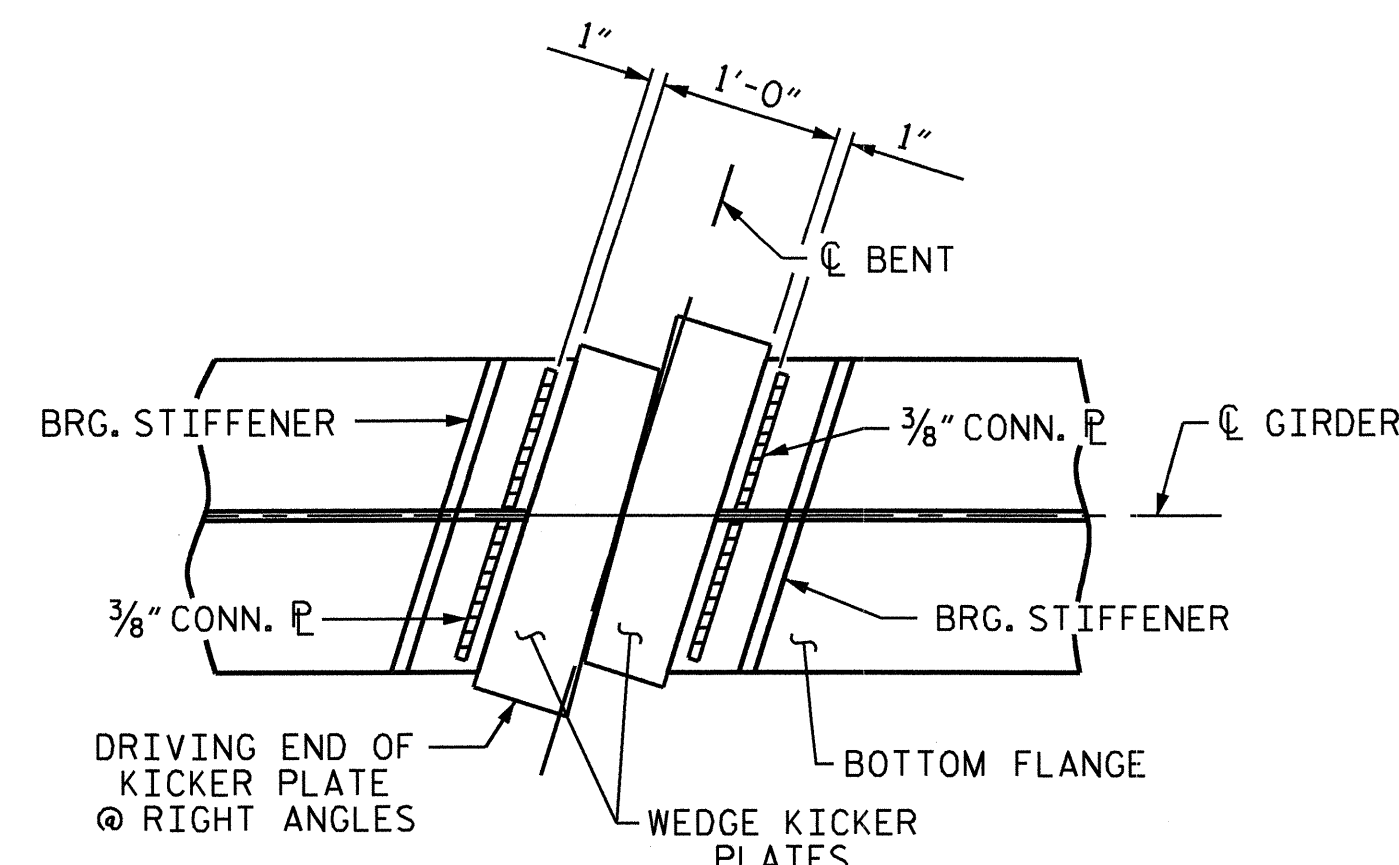
THE COST OF THE NEOPRENE PAD SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.



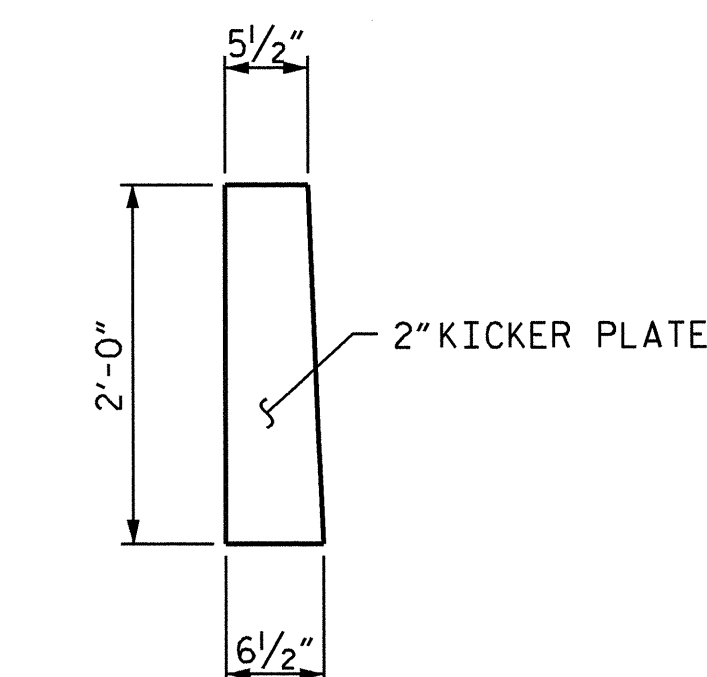
WELD DETAIL



DETAIL "X"



PLAN OF WEDGE KICKER PLATE



WEDGE KICKER PLATE DETAIL

(28 REQUIRED)

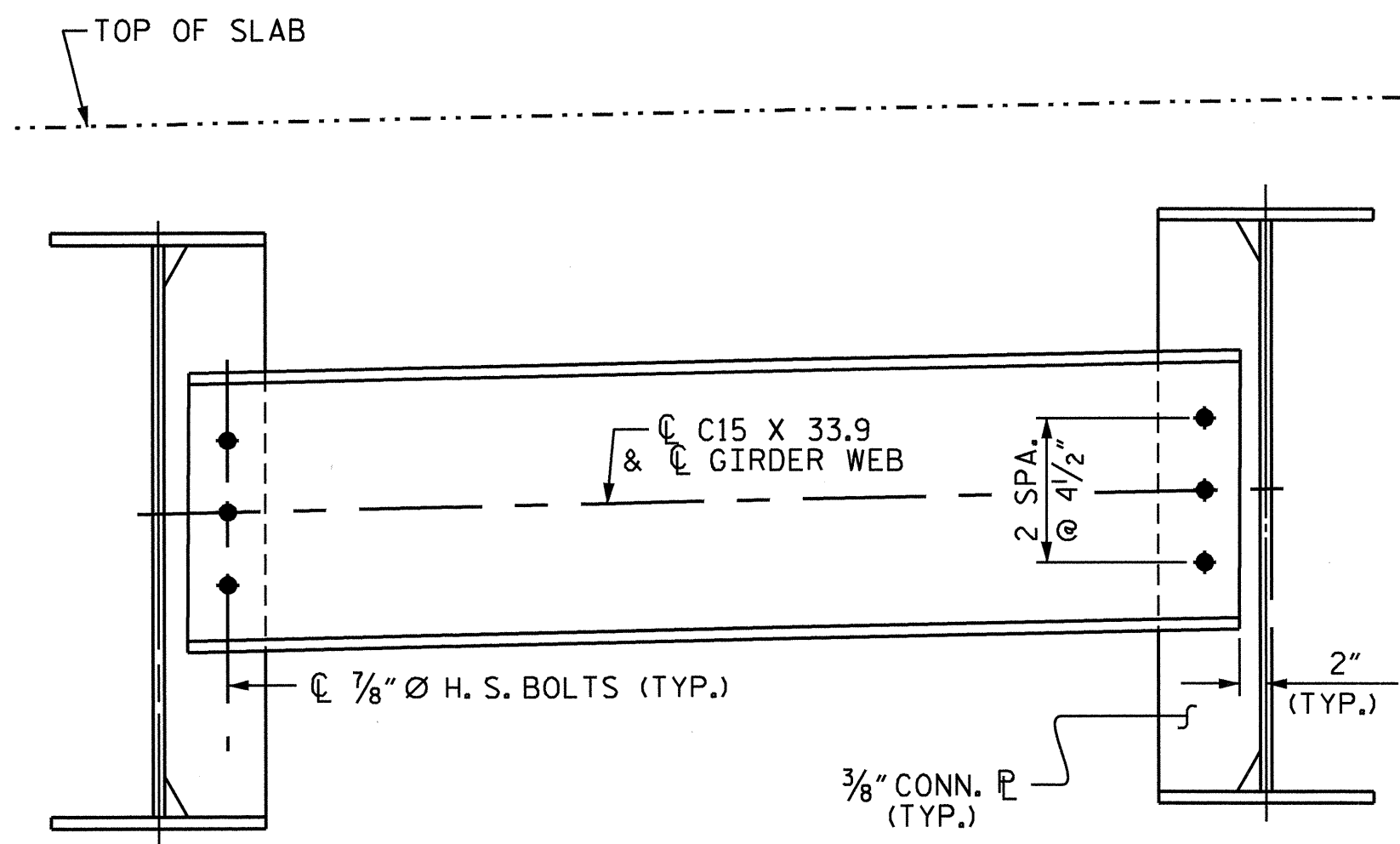


PROJECT NO. B-3421
CABARRUS COUNTY
 STATION: 17+97.08 -L-
 SHEET 3 OF 4

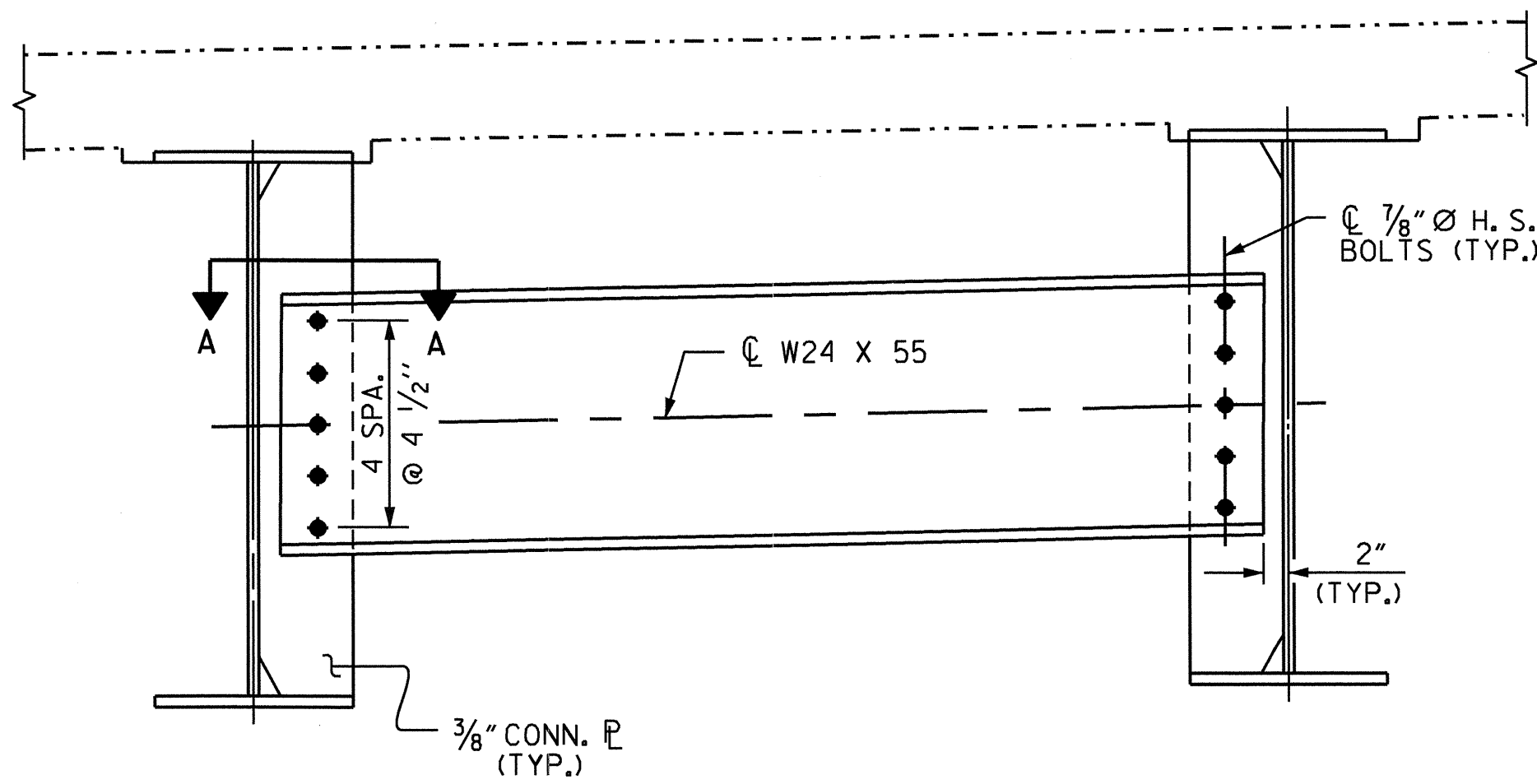
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE STRUCTURAL STEEL DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-20
TOTAL SHEETS					51

DRAWN BY: J.P. ADAMS DATE: 3/10/11
 CHECKED BY: K.D. LAYNE DATE: 6/11

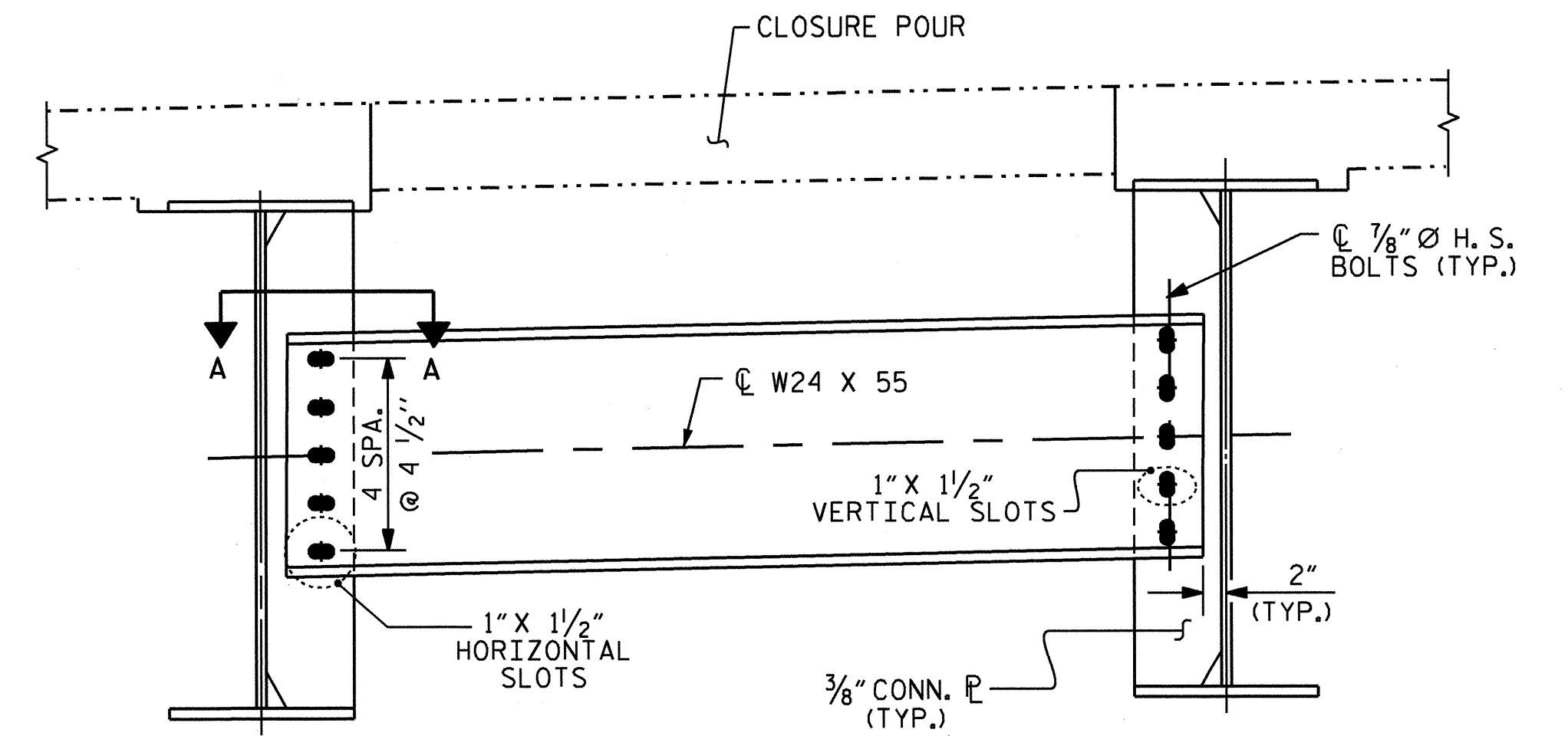
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BENT DIAPHRAGM (D1), (D4), AND (D6)

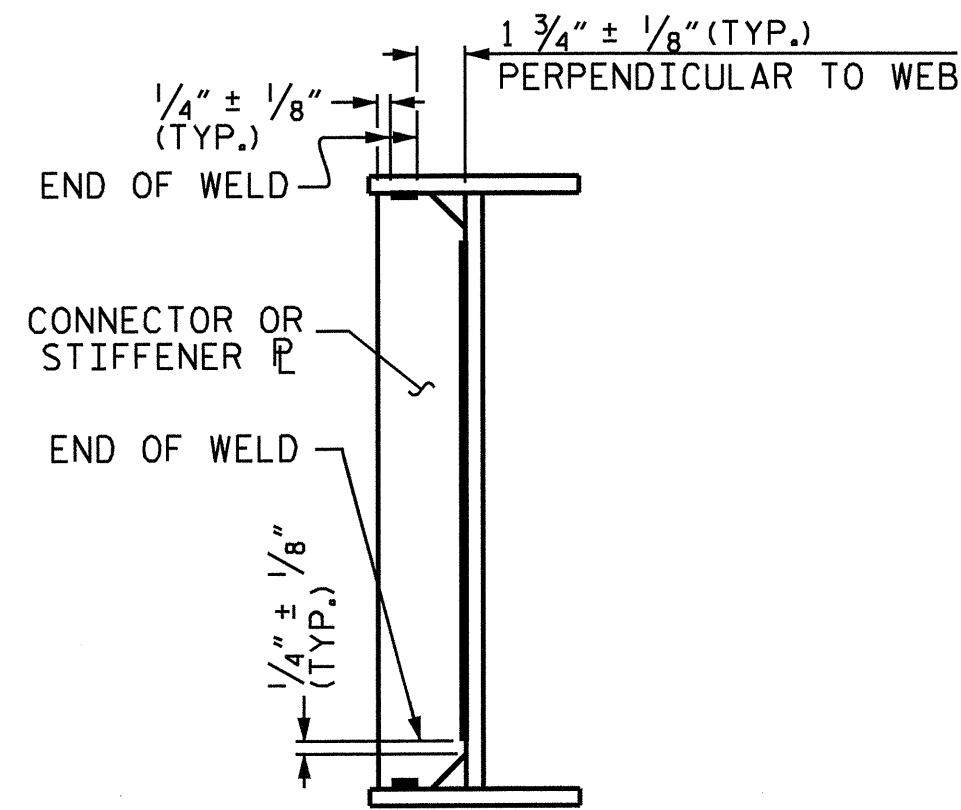


INTERMEDIATE DIAPHRAGM (D2) AND (D5)



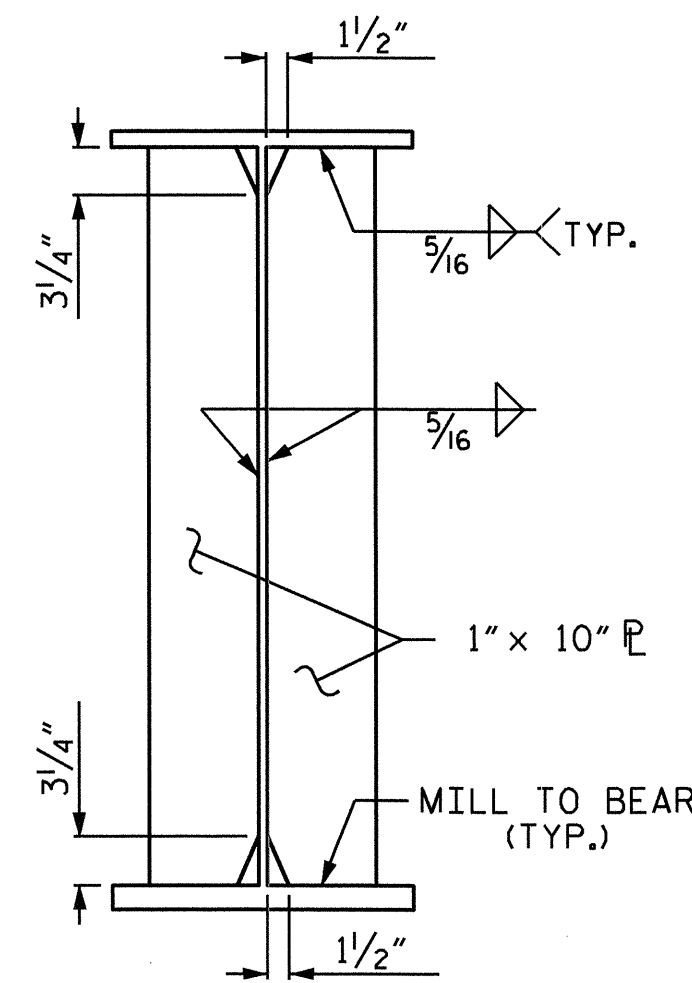
INTERMEDIATE DIAPHRAGM (D3)

NUTS ON BOLTS FOR CONNECTING DIAPHRAGM TO CONNECTOR PLATE SHALL BE LEFT LOOSE FOR PURPOSE OF ADJUSTMENT UNTIL BOTH SIDES OF SLAB HAVE BEEN POURED.



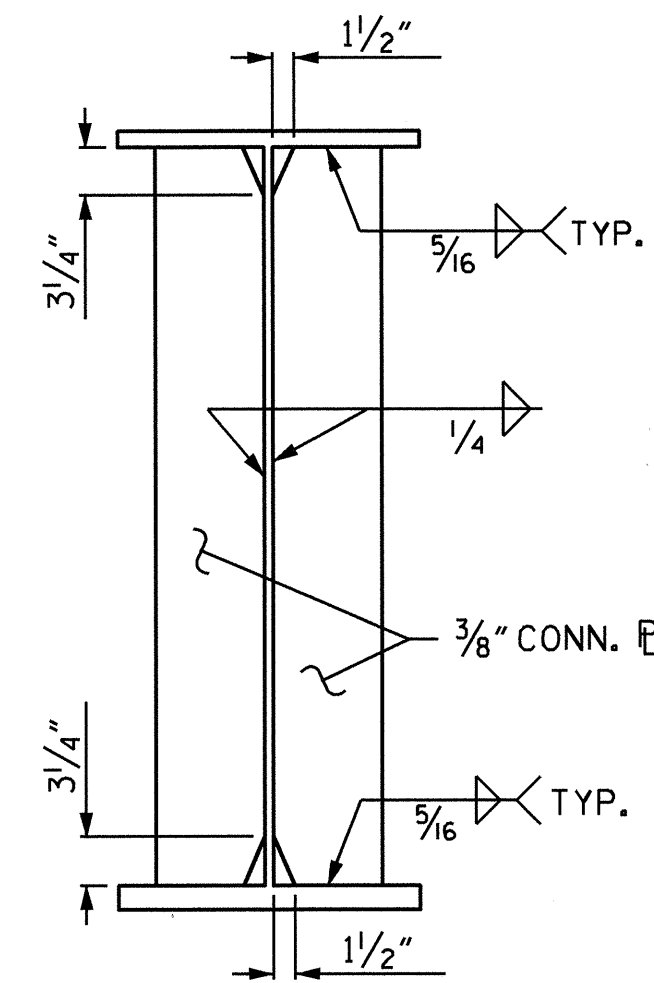
TYPICAL STIFFENER OR CONNECTOR PLATE CONNECTION

WELD TERMINATION DETAILS

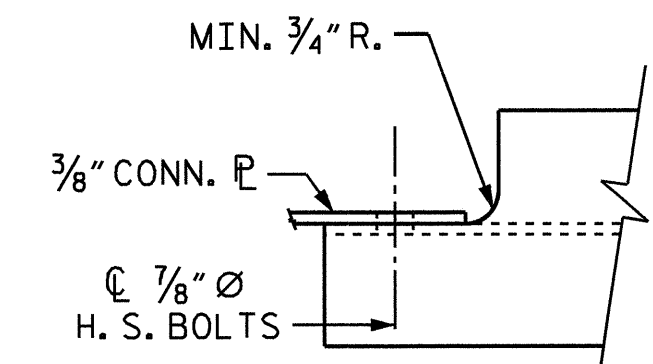


BEARING STIFFENER PLATE DETAIL

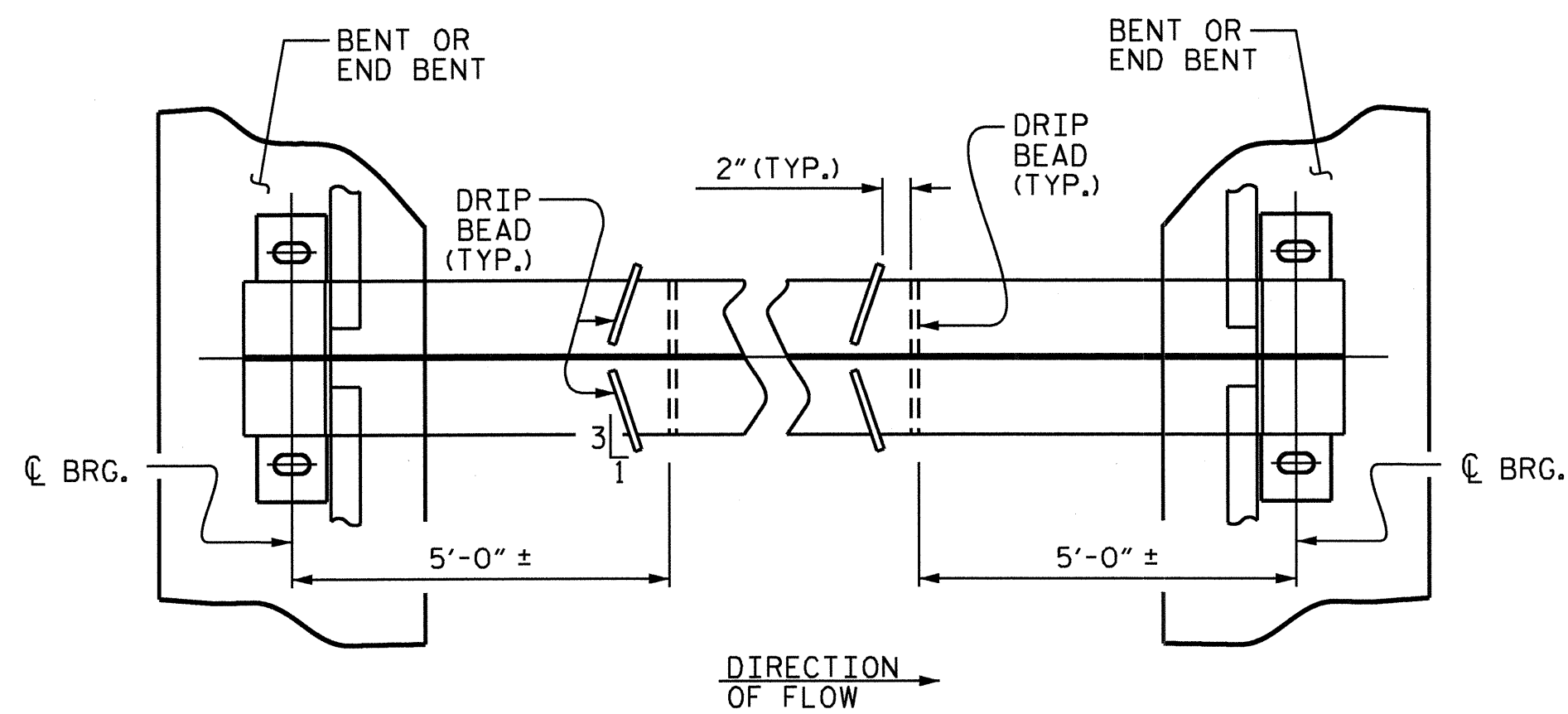
② END BENTS & BENTS



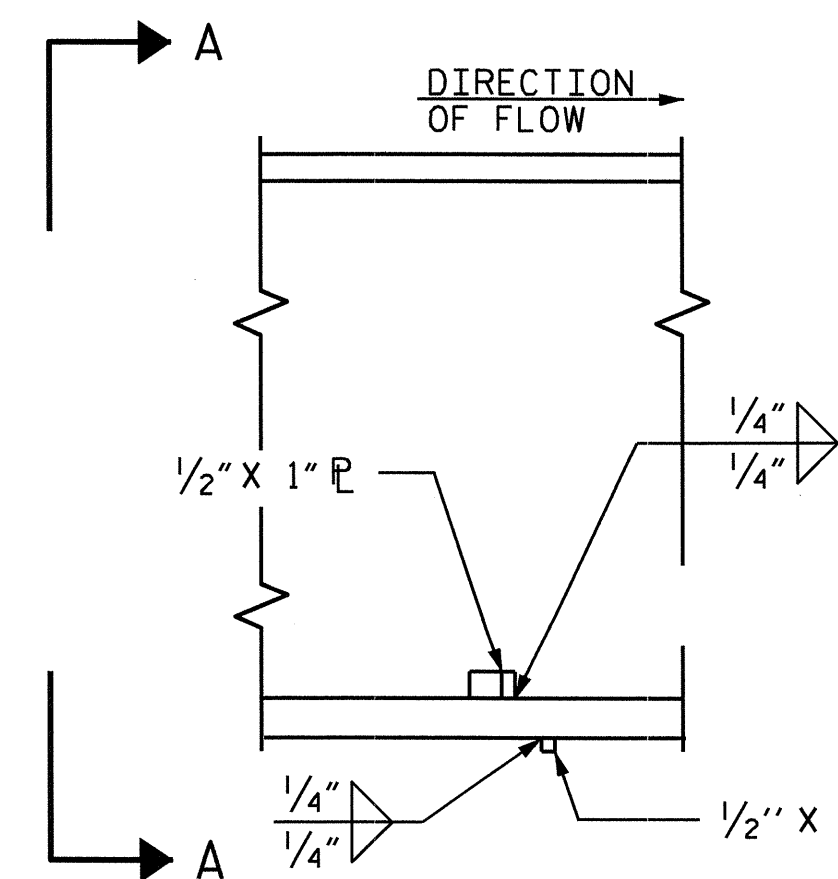
CONNECTOR PLATE DETAIL



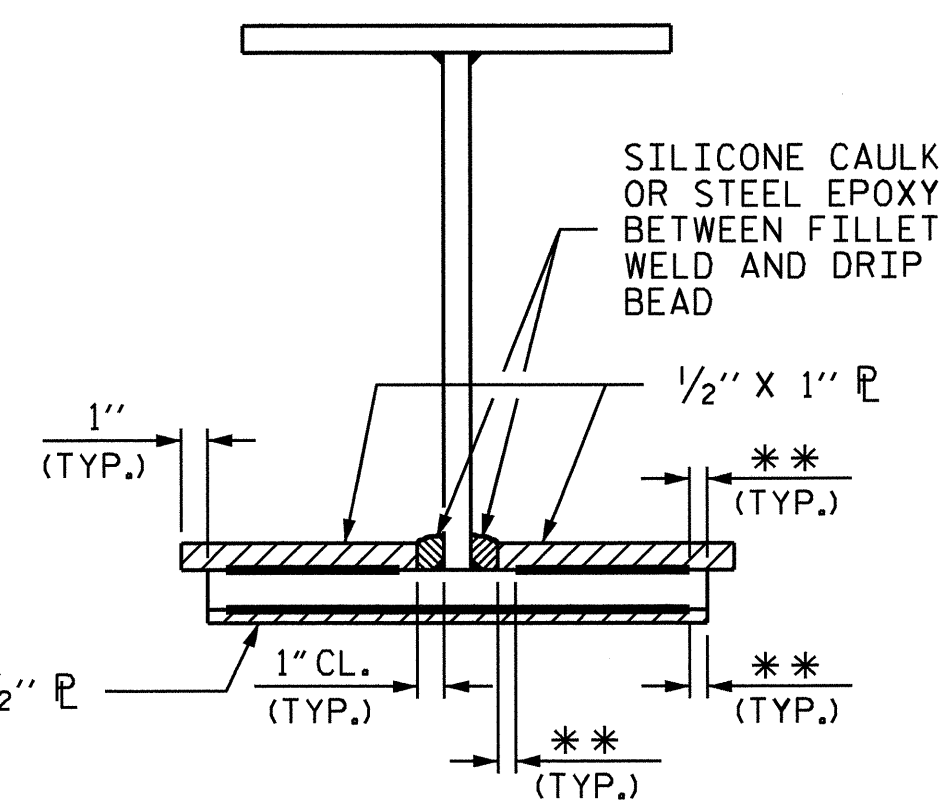
SECTION A-A



PART PLAN - BOTTOM FLANGE



SECTION



VIEW A-A

** SEE FIGURE 6-113 "WELD TERMINATION DETAILS"

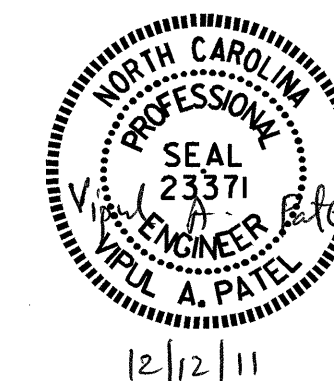
DRIP BEAD DETAILS

PROJECT NO. B-3421
CABARRUS COUNTY
 STATION: 17+97.08 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS



DRAWN BY: J.P. ADAMS DATE: 3/10/11
 CHECKED BY: K.D. LAYNE DATE: 6/11

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REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21	
1			3			TOTAL SHEETS	51
2			4				

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
SPAN A																					
GIRDER #1 THRU GIRDER #7																					
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	-0.003	-0.005	-0.008	-0.010	-0.012	-0.014	-0.015	-0.016	-0.017	-0.017	-0.017	-0.016	-0.015	-0.014	-0.012	-0.010	-0.008	-0.005	-0.003	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	-0.002	-0.003	-0.004	-0.005	-0.006	-0.006	-0.006	-0.006	-0.005	-0.003	-0.002	-0.001	0.001	0.003	0.004	0.005	0.005	0.004	0.002	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.000	-0.001	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.001	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	-0.005	-0.009	-0.014	-0.017	-0.020	-0.022	-0.023	-0.024	-0.024	-0.022	0.020	-0.017	-0.014	-0.010	-0.007	-0.004	-0.002	0.000	0.000	0.000
VERTICAL CURVE ORDINATE	0.000	0.028	0.053	0.076	0.095	0.111	0.124	0.135	0.142	0.147	0.148	0.147	0.142	0.135	0.124	0.111	0.095	0.076	0.053	0.028	0.000
REQUIRED CAMBER	0	3/8"	3/4"	1/16"	1 3/8"	1 9/16"	1 3/4"	1 7/8"	2"	2 1/16"	2 1/16"	2"	1 5/16"	1 13/16"	1 5/8"	1 7/16"	1 3/16"	1 5/16"	5/8"	3/16"	0

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																																										
SPAN B																SPAN B																										
GIRDER #1 THRU GIRDER #4																GIRDER #5 THRU GIRDER #7																										
TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0	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	-0.016	-0.031	-0.046	-0.059	-0.071	-0.081	-0.089	-0.095	-0.098	-0.100	-0.098	-0.095	-0.089	-0.081	-0.071	-0.059	-0.046	-0.031	-0.016	0.000	0.000	-0.017	-0.034	-0.050	-0.064	-0.077	-0.088	-0.097	-0.103	-0.107	-0.109	-0.107	-0.103	-0.097	-0.088	-0.077	-0.064	-0.050	-0.034	-0.017	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	-0.007	-0.015	-0.026	-0.038	-0.050	-0.062	-0.071	-0.078	-0.083	-0.085	-0.083	-0.078	-0.071	-0.062	-0.050	-0.038	-0.026	-0.015	-0.007	0.000	0.000	-0.009	-0.020	-0.034	-0.049	-0.065	-0.080	-0.092	-0.102	-0.108	-0.110	-0.108	-0.102	-0.092	-0.080	-0.065	-0.049	-0.034	-0.020	-0.009	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	-0.001	-0.004	-0.006	-0.009	-0.011	-0.014	-0.016	-0.017	-0.018	-0.019	-0.018	-0.017	-0.016	-0.014	-0.011	-0.009	-0.006	-0.004	-0.001	0.000	0.000	-0.001	-0.002	-0.003	-0.005	-0.006	-0.007	-0.008	-0.009	-0.010	-0.010	-0.010	-0.009	-0.008	-0.007	-0.006	-0.005	-0.003	-0.002	-0.001	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	-0.024	-0.050	-0.078	-0.106	-0.132	-0.157	-0.176	-0.190	-0.199	-0.204	-0.199	-0.190	-0.176	-0.157	-0.132	-0.106	-0.078	-0.050	-0.024	0.000	0.000	-0.027	-0.056	-0.087	-0.118	-0.148	-0.175	-0.197	-0.214	-0.225	-0.229	-0.225	-0.214	-0.197	-0.175	-0.148	-0.118	-0.087	-0.056	-0.027	0.000
VERTICAL CURVE ORDINATE	0.000	0.069	0.132	0.186	0.234	0.274	0.307	0.332	0.351	0.362	0.365	0.362	0.351	0.332	0.307	0.274	0.234	0.186	0.132	0.069	0.000	0.000	0.069	0.132	0.186	0.234	0.274	0.307	0.332	0.351	0.362	0.365	0.362	0.351	0.332	0.307	0.274	0.234	0.186	0.132	0.069	0.000
REQUIRED CAMBER	0	1/8"	2 3/16"	3 3/16"	4 1/16"	4 7/8"	5 9/16"	6 1/8"	6 1/2"	6 3/4"	6 13/16"	6 3/4"	6 1/2"	6 1/8"	5 9/16"	4 7/8"	4 1/16"	3 3/16"	2 3/16"	1 1/8"	0	0	1/8"	2 1/4"	3 1/4"	4 1/4"	5 1/16"	5 13/16"	6 3/8"	6 3/4"	7 1/16"	7 1/8"	7 1/16"	6 3/4"	6 3/8"	5 13/16"	5 1/16"	4 1/4"	3 1/4"	2 1/4"	1 1/8"	0

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																																										
SPAN C																SPAN C																										
GIRDER #1 THRU GIRDER #4																GIRDER #5 THRU GIRDER #7																										
TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0	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	-0.003	-0.005	-0.008	-0.010	-0.012	-0.014	-0.015	-0.016	-0.017	-0.017	-0.016	-0.015	-0.014	-0.012	-0.010	-0.008	-0.005	-0.003	0.000	0.000	-0.003	-0.005	-0.008	-0.010	-0.012	-0.014	-0.015	-0.016	-0.017	-0.017	-0.016	-0.015	-0.014	-0.012	-0.010	-0.008	-0.005	-0.003	0.000		
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.003	0.004	0.005	0.005	0.004	0.003	0.001	0.000	-0.002	-0.004	-0.005	-0.006	-0.007	-0.007	-0.007	-0.006	-0.005	-0.004	-0.002	0.000	0.000	0.004	0.006	0.007	0.007	0.006	0.005	0.002	-0.001	-0.003	-0.006	-0.008	-0.009	-0.010	-0.010	-0.010	-0.009	-0.007	-0.005	-0.003	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	-0.001	-0.001	-0.001	-0.002	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.000	0.000	-0.001	-0.001	-0.001	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	0.000			
TOTAL DEAD LOAD DEFLECTION	0.000	0.001	0.000	-0.002	-0.004	-0.007	-0.010	-0.014	-0.016	-0.020	-0.022	-0.023	-0.024	-0.024	-0.023	-0.021	-0.018	-0.014	-0.010	-0.005	0.000	0.000	0.002	0.002	0.000	-0.002	-.005	-0.009	-0.013	-0.017	-0.021	-0.024	-0.026	-0.027	-0.027	-0.026	-0.024	-0.020	-0.016	-0.011	-0.006	0.000
VERTICAL CURVE ORDINATE	0.000	0.025	0.046	0.065	0.081	0.093	0.103	0.110	0.114	0.115	0.113	0.108	0.100	0.089	0.076	0.064	0.051	0.038	0.025	0.013	0.000	0.000	0.027	0.051	0.072	0.090	0.105	0.117	0.126	0.132	0.135	0.132	0.127	0.118	0.106	0.092	0.074	0.056	0.037	0.019	0.000	
REQUIRED CAMBER	0	5/16"	3/16"	1 3/16"	1"	1 3/16"	1 3/8"	1 1/2"	1 9/16"	1 5/8"	1 3/16"	1 1/2"	1 3/8"	1 3/16"	1"	1 3/16"	5/8"	7/16"	3/16"	0	0	5/16"	3/16"	7/8"	1 1/8"	1 1/16"	1 1/2"	1 11/16"	1 13/16"	1 7/8"	1 5/16"	1 7/8"	1 1/8"	1 3/4"	1 9/16"	1 3/8"	1 1/8"	7/8"	3/16"	5/16"	0	

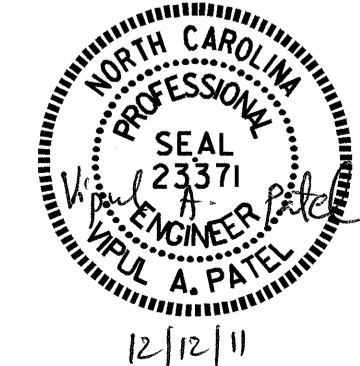
* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "REQUIRED CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).
SIGN CONVENTION FOR DEAD LOAD DEFLECTION TABLES

PROJECT NO. B-3421
CABARRUS COUNTY
STATION: 17+97.08 -L-



SCHEMATIC CAMBER ORDINATES

DRAWN BY: J.P. ADAMS DATE: 9/28/11
CHECKED BY: H.A. LOCKLEAR DATE: 9/11

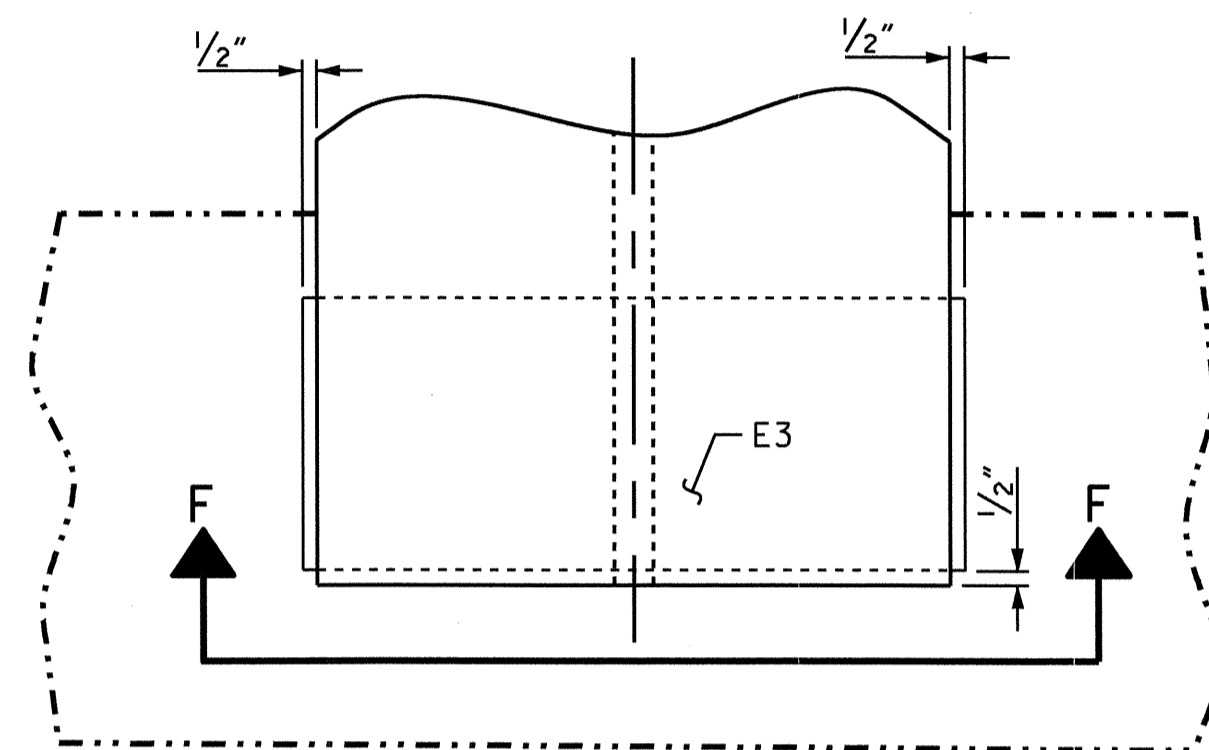


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

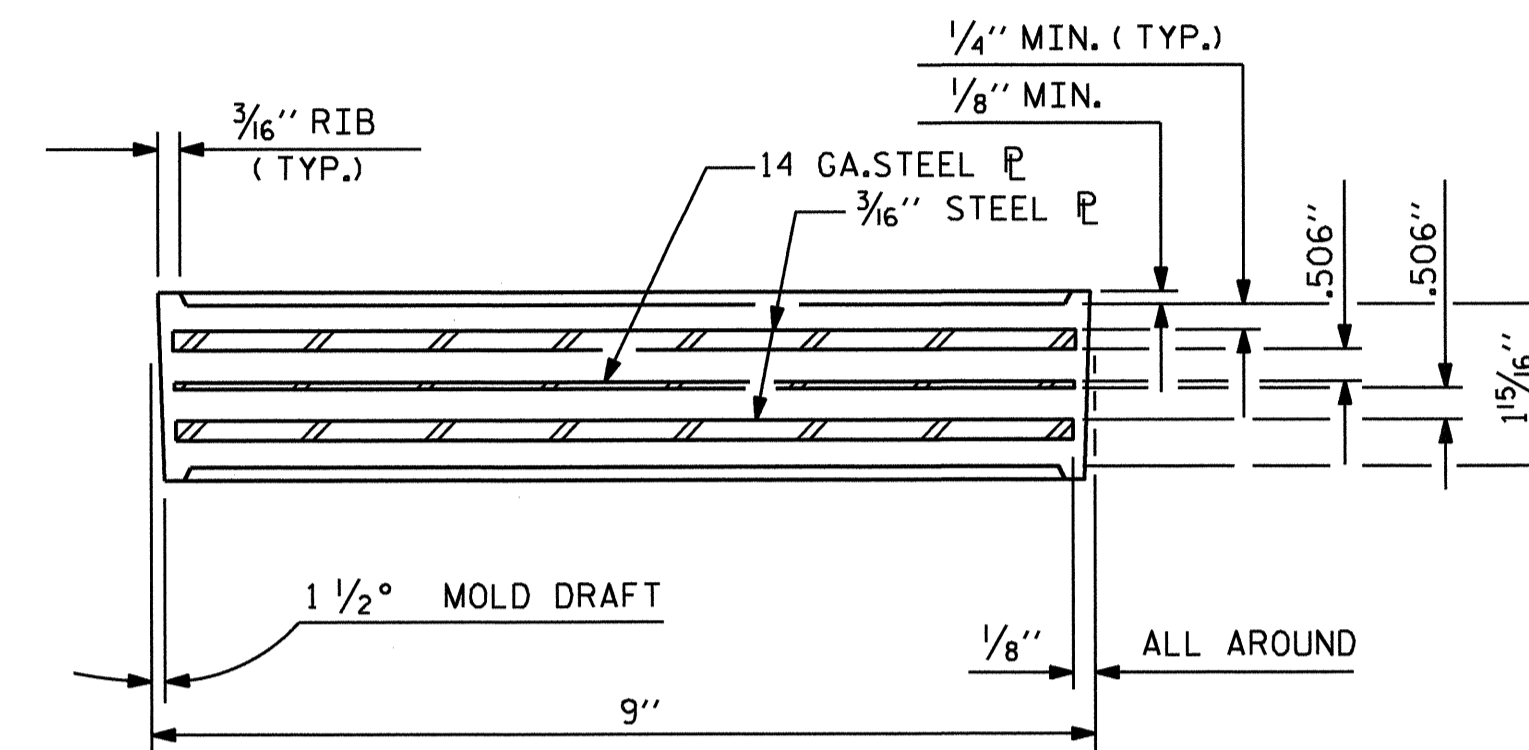
SUPERSTRUCTURE
DEAD LOAD DEFLECTIONS

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22	
1			3			TOTAL SHEETS 51	
2			4				

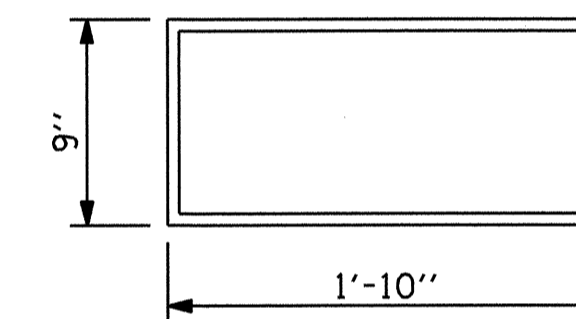
12/12/11



TYPICAL PLAN @ END BENT



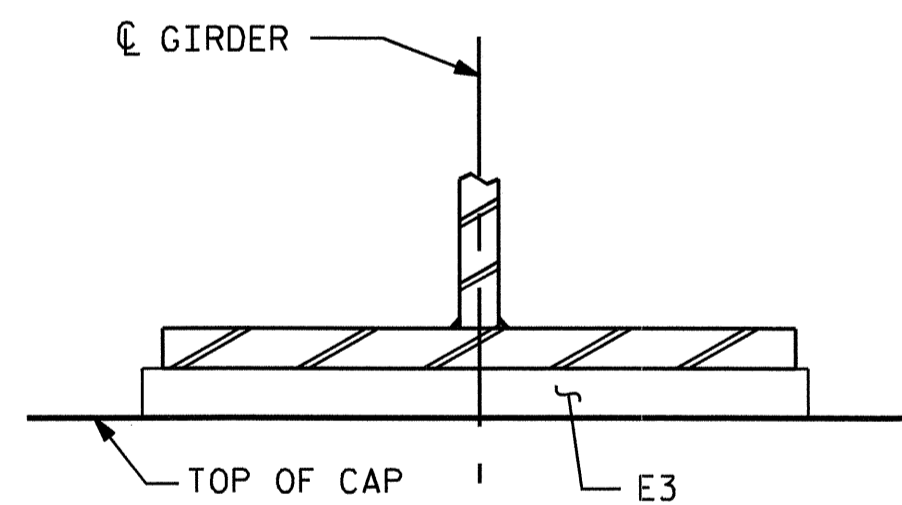
TYPICAL SECTION OF ELASTOMERIC BEARINGS



E3 (14 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING

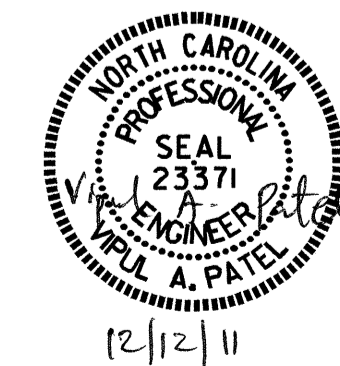
TYPE IV



SECTION F-F

— LOAD RATING —	
	MAX.D.L.+L.L.
TYPE IV	198 K

PROJECT NO. B-3421
CABARRUS COUNTY
 STATION: 17+97.08 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
ELASTOMERIC BEARING
DETAILS

ASSEMBLED BY : J.P. ADAMS	DATE : 3/7/11
CHECKED BY : K.D. LAYNE	DATE : 6/11
DRAWN BY : WJH 8/89	REV. 10/17/00 RWW/LES
CHECKED BY : CRK 8/89	REV. 7/10/01 RWW/LES
	REV. 5/1/06 TLA/GM

25-OCT-2011 14:21
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 jpadams

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS
2			4			51

NOTES

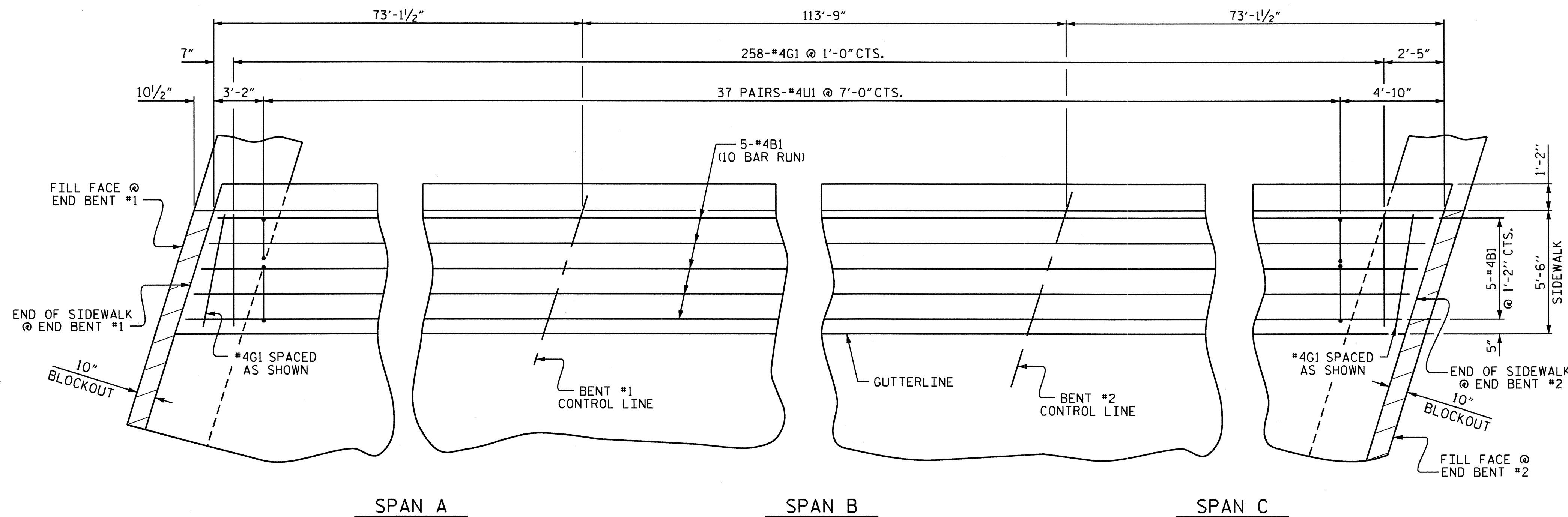
SIDEWALK IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

GROOVED CONTRACTION JOINT, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE SIDEWALK IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINT SHALL BE LOCATED AT A SPACING OF 8 FT. TO 10 FT. BETWEEN EXPANSION JOINTS. NO CONTRACTION JOINTS WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FT. IN LENGTH.

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

ALL REINFORCING STEEL IN THE SIDEWALK SHALL BE EPOXY COATED.

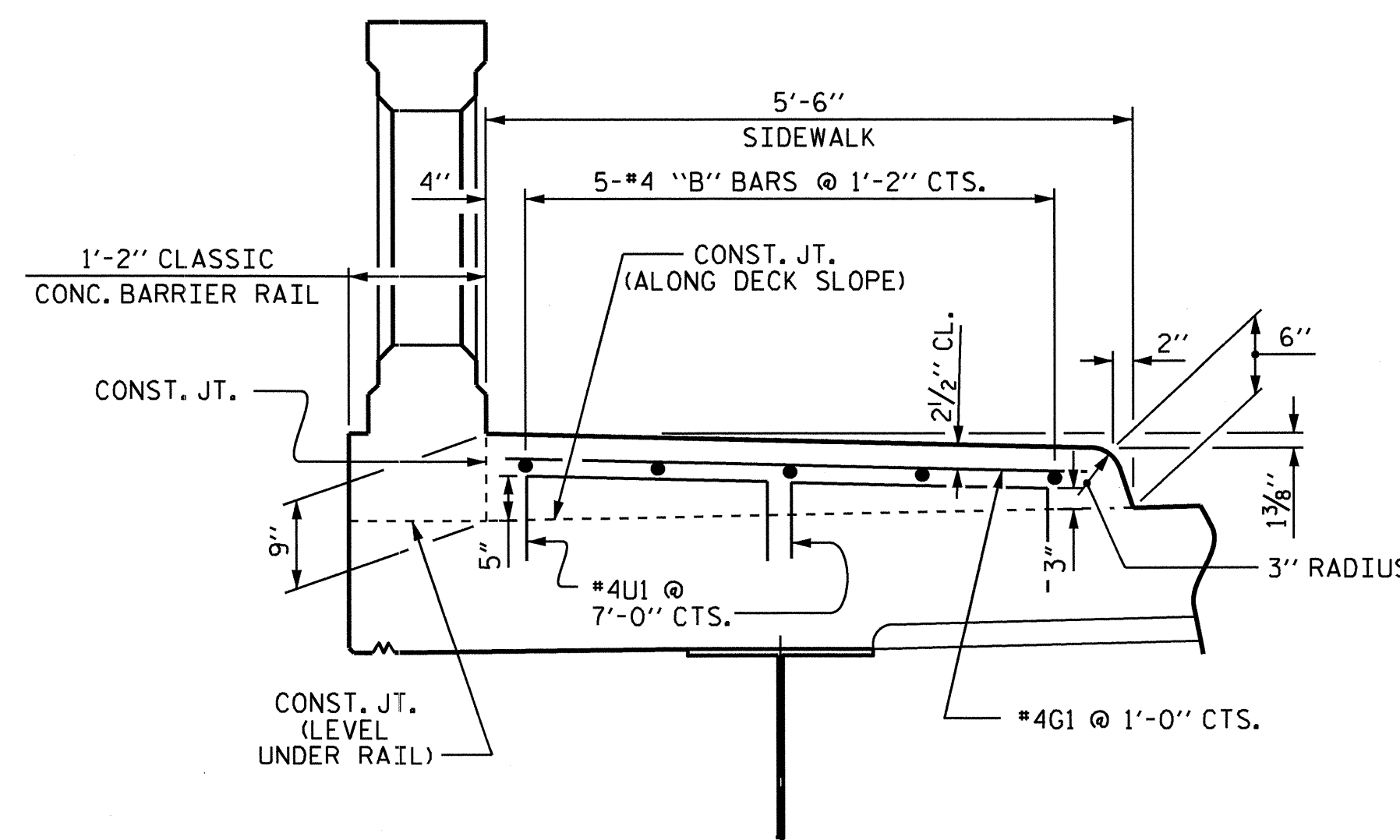
THE #4U1 BARS MAY BE PUSHED INTO GREEN CONCRETE AFTER THE DECK HAS BEEN FINISHED.



PLAN OF SIDEWALK

STAGE II SHOWN, STAGE I SIMILAR

FOR SIDEWALK ON APPROACH SLABS
SEE APPROACH SLAB DETAILS.



SECTION THRU SIDEWALK

**BILL OF MATERIAL
SIDEWALK (STAGE I)**

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	50	#4	STR	27'-10"	930
* G1	260	#4	STR	5'-0"	868
* U1	74	#4	1	3'-8"	181

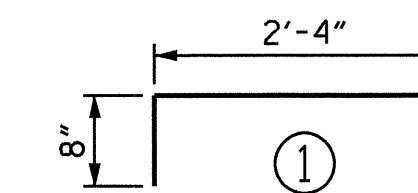
EPOXY COATED REINF. STEEL = 1979 LBS
CLASS AA CONCRETE = 33.2 C.Y.

**BILL OF MATERIAL
SIDEWALK (STAGE II)**

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	50	#4	STR	27'-10"	930
* G1	260	#4	STR	5'-0"	868
* U1	74	#4	1	3'-8"	181

EPOXY COATED REINF. STEEL = 1979 LBS
CLASS AA CONCRETE = 33.2 C.Y.

BAR TYPE

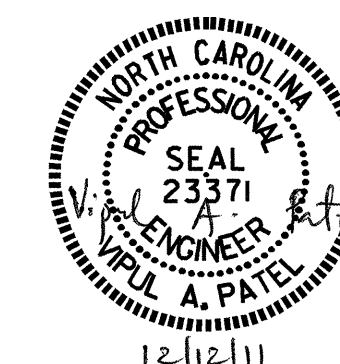


BAR DIMENSIONS ARE OUT TO OUT

PROJECT NO. B-3421
CABARRUS COUNTY
STATION: 17+97.08 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

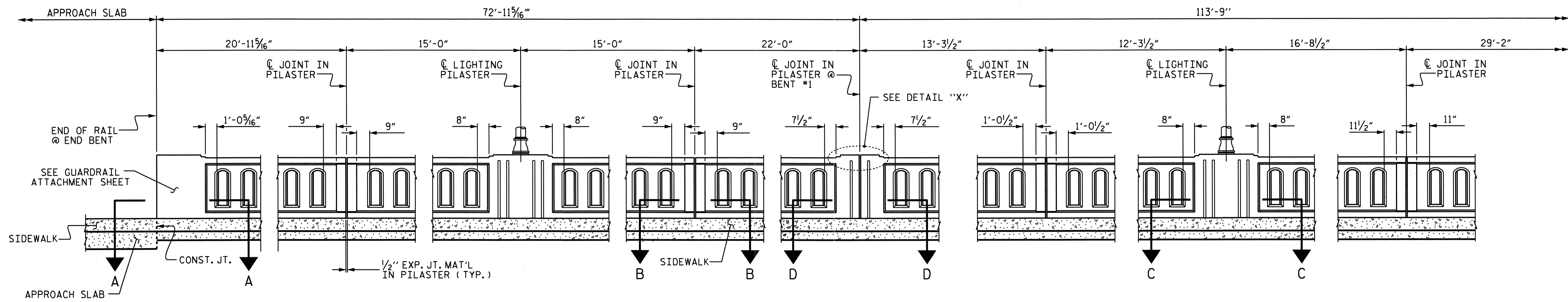
**SUPERSTRUCTURE
SIDEWALK DETAILS**



DRAWN BY : J.P. ADAMS DATE : 3/31/10
CHECKED BY : K.D. LAYNE DATE : 6/11

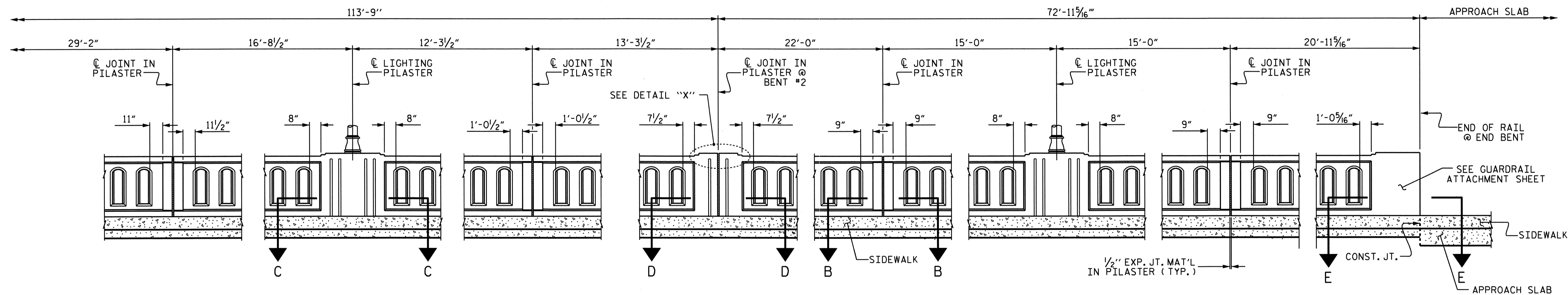
25-OCT-2011 14:21
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jpadams

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24
1			3			TOTAL SHEETS
2			4			51



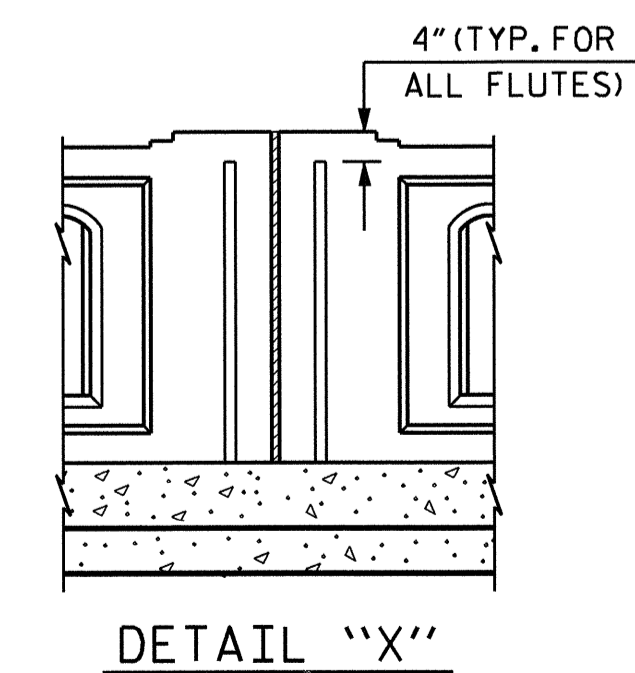
ROADWAY ELEVATION OF RAIL

(SPAN A-B)



ROADWAY ELEVATION OF RAIL

(SPAN B-C)



STAGE II SHOWN, STAGE I SIMILAR BY ROTATION.
 FOR SECTIONS, SEE SHEET 2 OF 6.
 FOR ELECTRICAL CONDUIT SYSTEM IN RAIL AND SIDEWALK, SEE SHEET S-5.



PROJECT NO. B-3421
 CABARRUS COUNTY
 STATION: 17+97.08 -L-

SHEET 1 OF 6

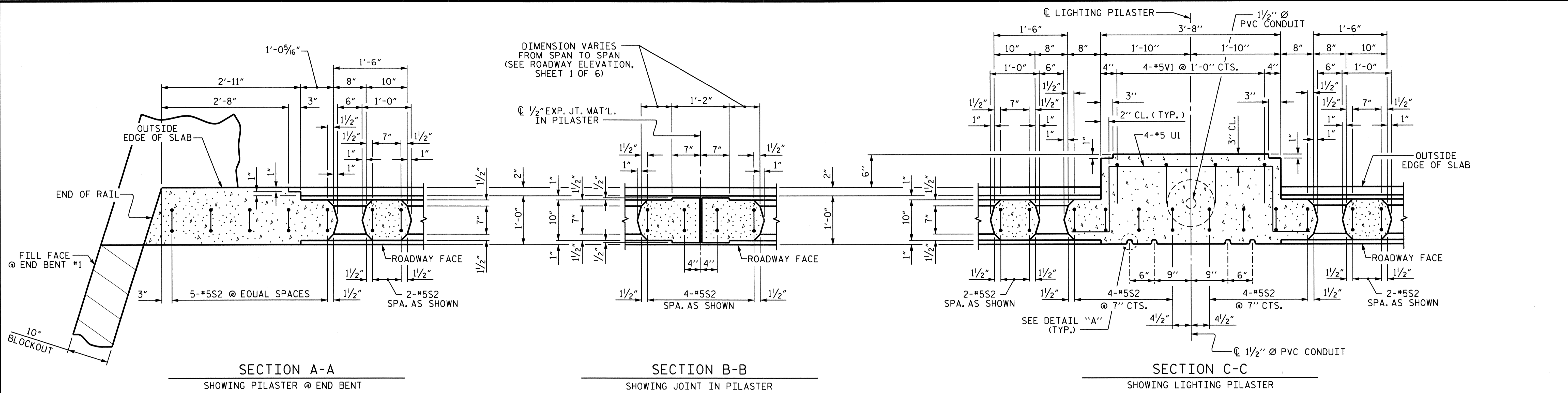
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 CLASSIC CONCRETE
 BRIDGE RAIL WITH
 SIDEWALK

DRAWN BY: J.P. ADAMS DATE: 3/23/11
 CHECKED BY: K.D. LAYNE DATE: 6/11

12-DEC-2011 10:59
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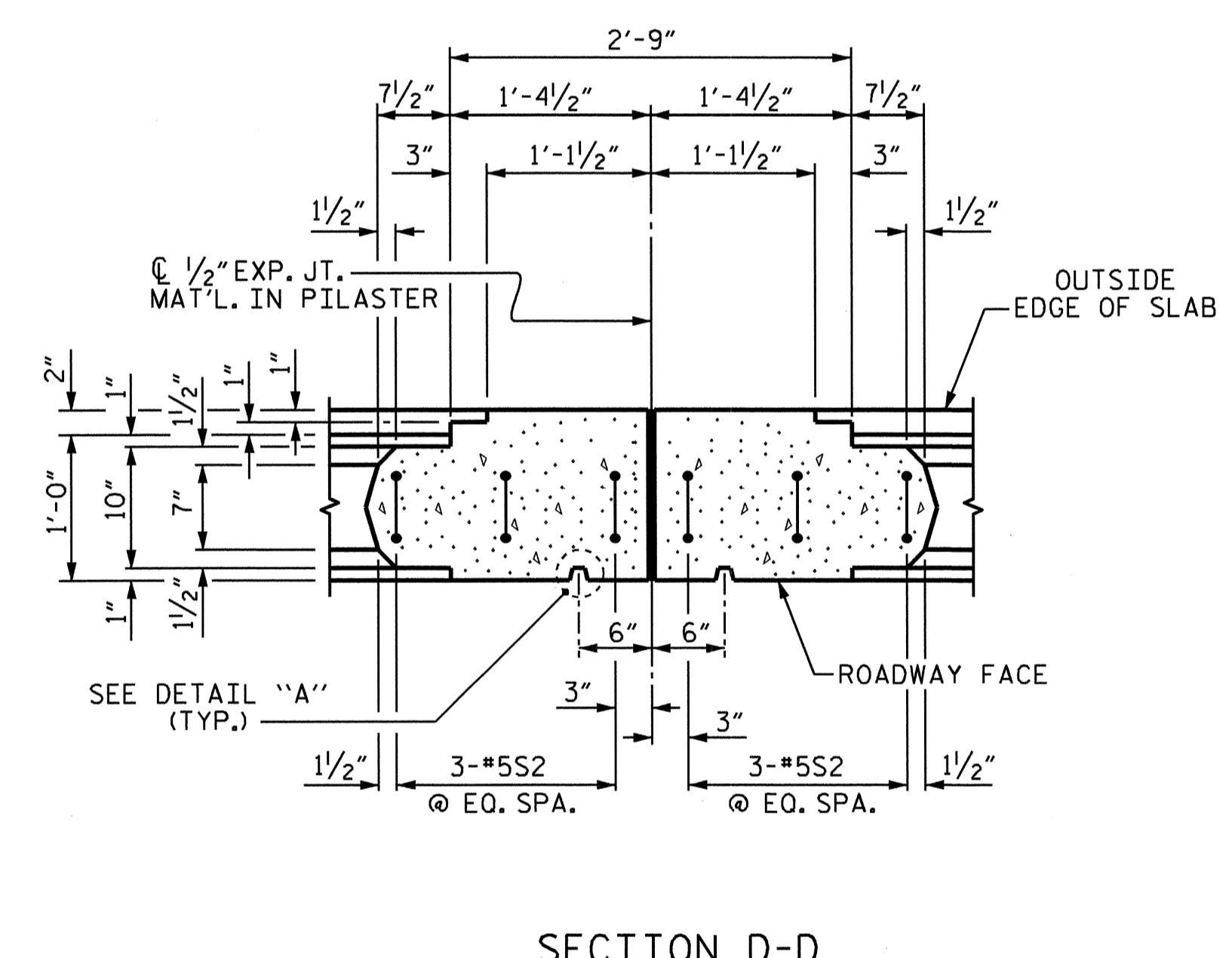
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25
1			3			TOTAL SHEETS
2			4			51



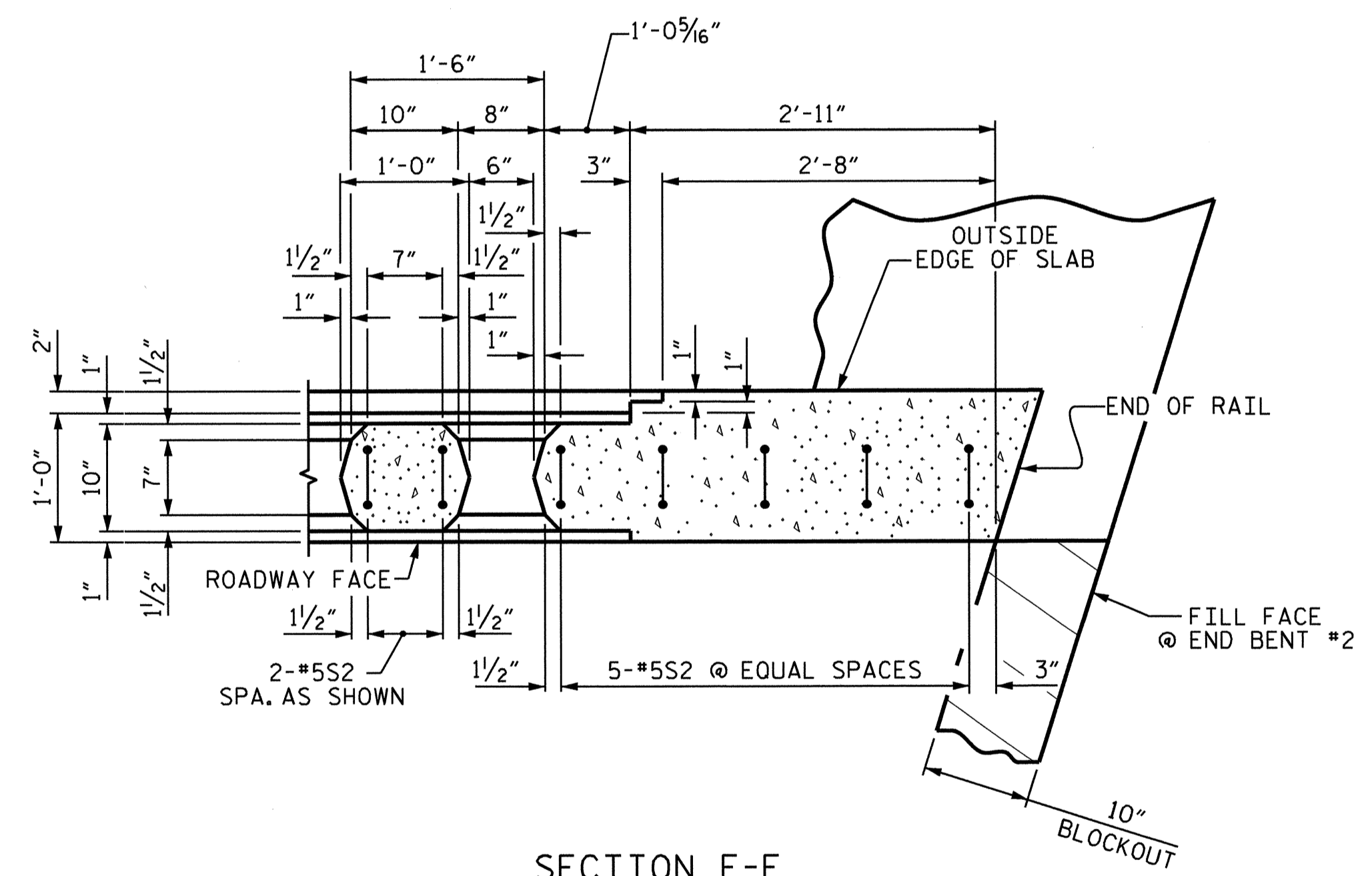
SECTION A-A
SHOWING PILASTER @ END BENT

SECTION B-B
SHOWING JOINT IN PILASTER

SECTION C-C
SHOWING LIGHTING PILASTER



SECTION D-D
SHOWING JOINT IN PILASTER @ BENT



SECTION E-E
SHOWING PILASTER @ END BENT

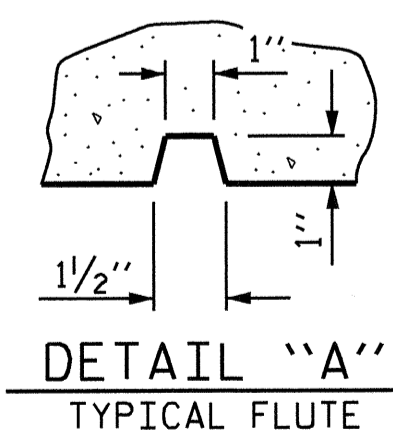
NOTES

THE LIGHT POSTS AND ANCHORAGE TO BE PROVIDED BY OTHERS.

ANCHOR BOLTS IN THE LIGHT PEDESTAL SHALL NOT BE SET UNTIL AFTER BOLTS AND ANCHOR BOLT TEMPLATE IS SUPPLIED BY THE LIGHT POLE MANUFACTURER. INSTALLATION OF THE ANCHOR BOLTS SHALL BE INCIDENTAL TO THE PAY ITEM "CLASSIC CONCRETE BRIDGE RAIL".

PARTIAL PLAN

STAGE II SHOWN, STAGE I SIMILAR BY ROTATION.
FOR SECTIONS, SEE SHEET 1 OF 6.

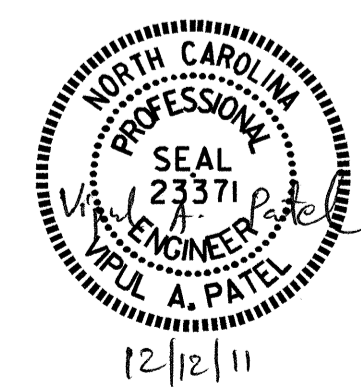


PROJECT NO. B-3421
CABARRUS COUNTY
STATION: 17+97.08 -L-

SHEET 2 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

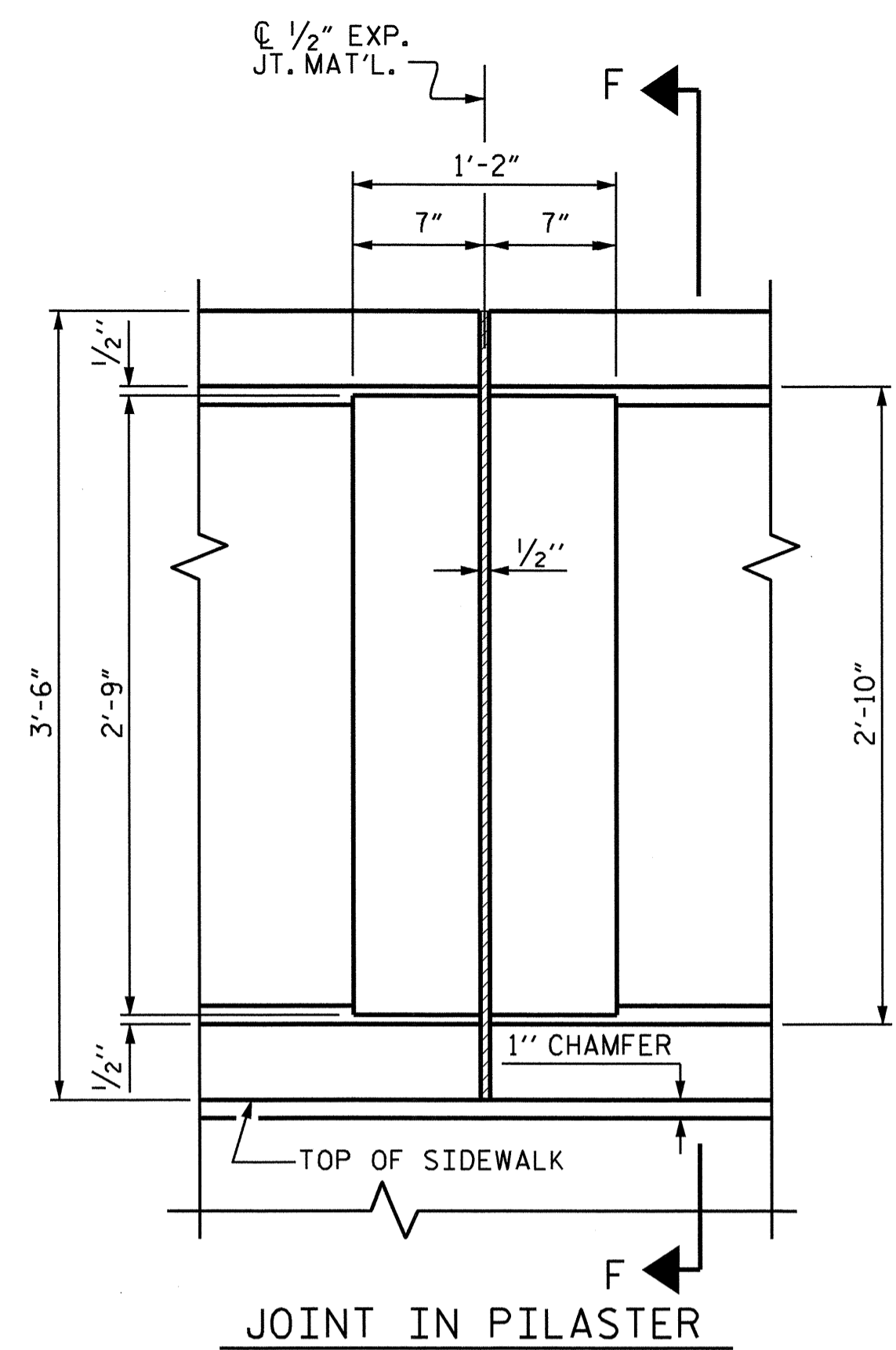
SUPERSTRUCTURE
**CLASSIC CONCRETE
BRIDGE RAIL WITH
SIDEWALK**



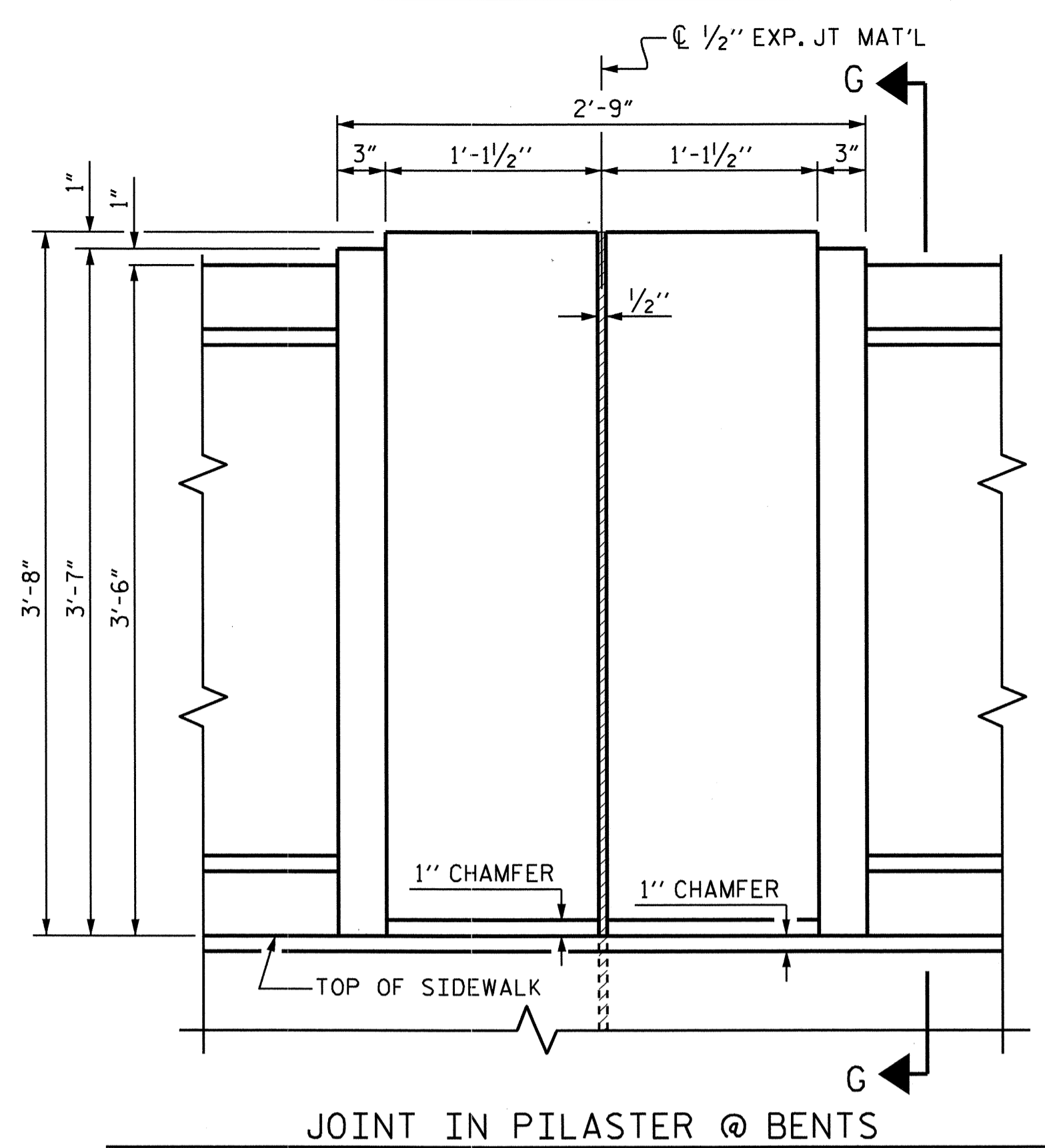
REVISIONS						SHEET NO. S-26
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 51
2			4			

DRAWN BY : J.P. ADAMS DATE : 3/22/11
CHECKED BY : K.D. LAYNE DATE : 6/11

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jpodams

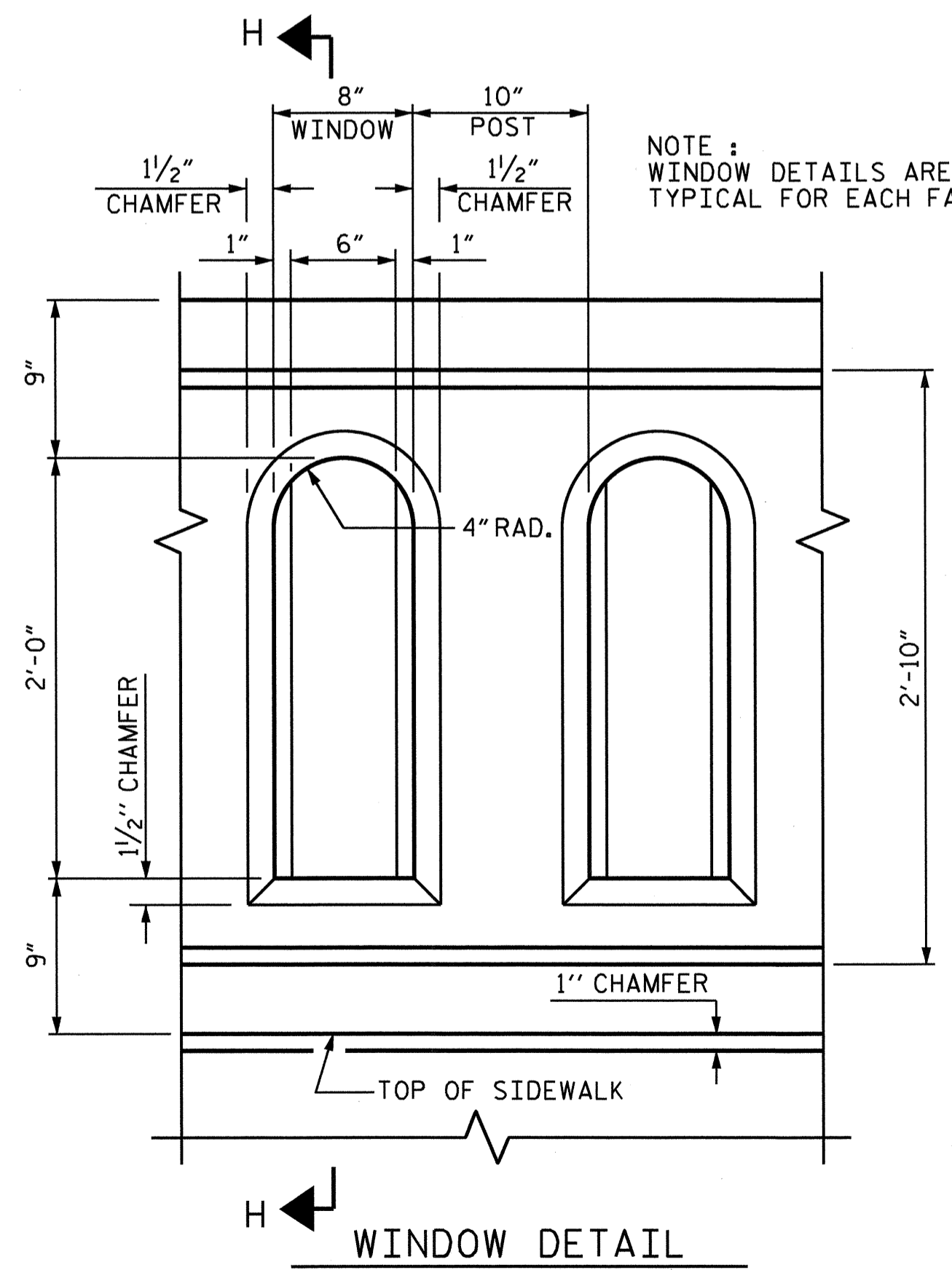


JOINT IN PILASTER



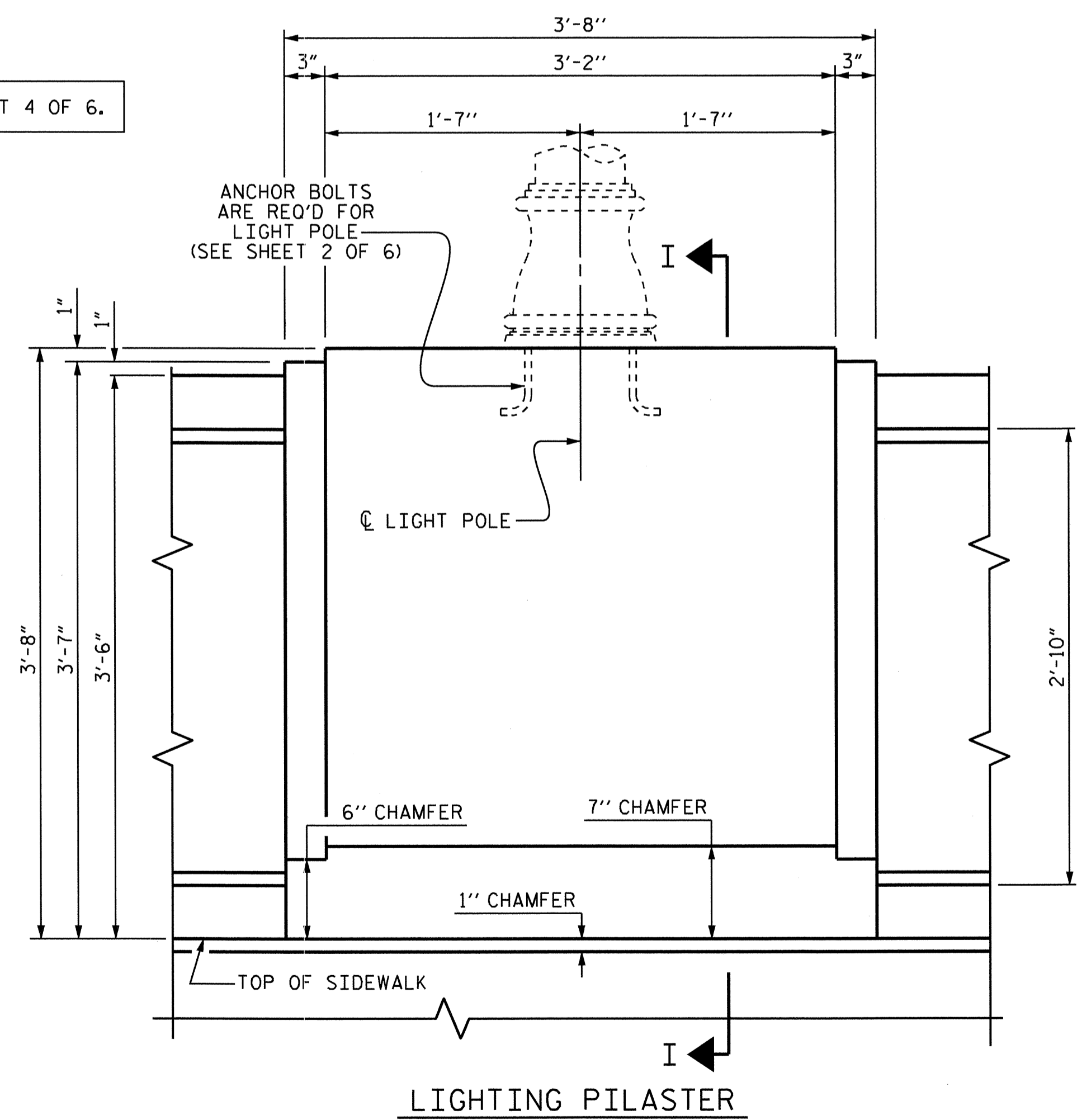
JOINT IN PILASTER @ BENTS

FOR SECTIONS, SEE SHEET 4 OF 6.



WINDOW DETAIL

NOTE: WINDOW DETAILS ARE TYPICAL FOR EACH FACE.

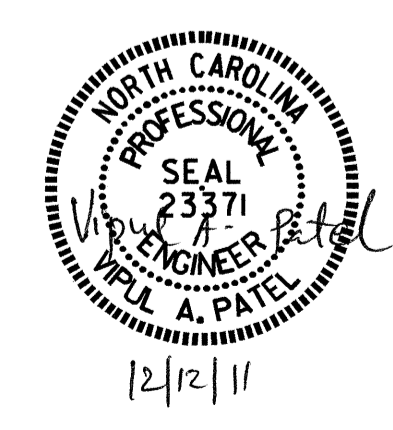


LIGHTING PILASTER

ANCHOR BOLTS ARE REQ'D FOR LIGHT POLE (SEE SHEET 2 OF 6)

EXTERIOR PILASTER ELEVATIONS

PROJECT NO. B-3421
CABARRUS COUNTY
 STATION: 17+97.08 -L-
 SHEET 3 OF 6

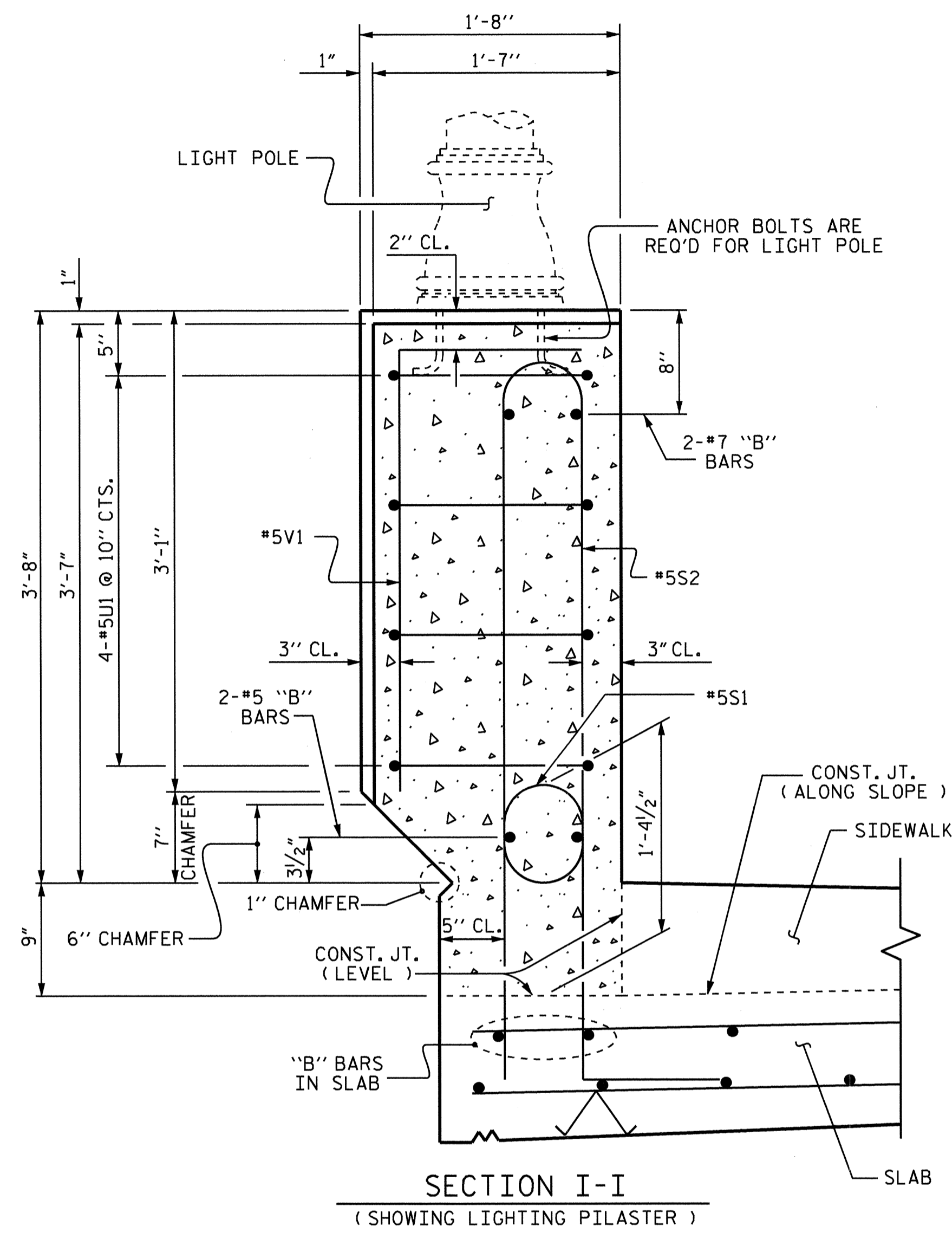
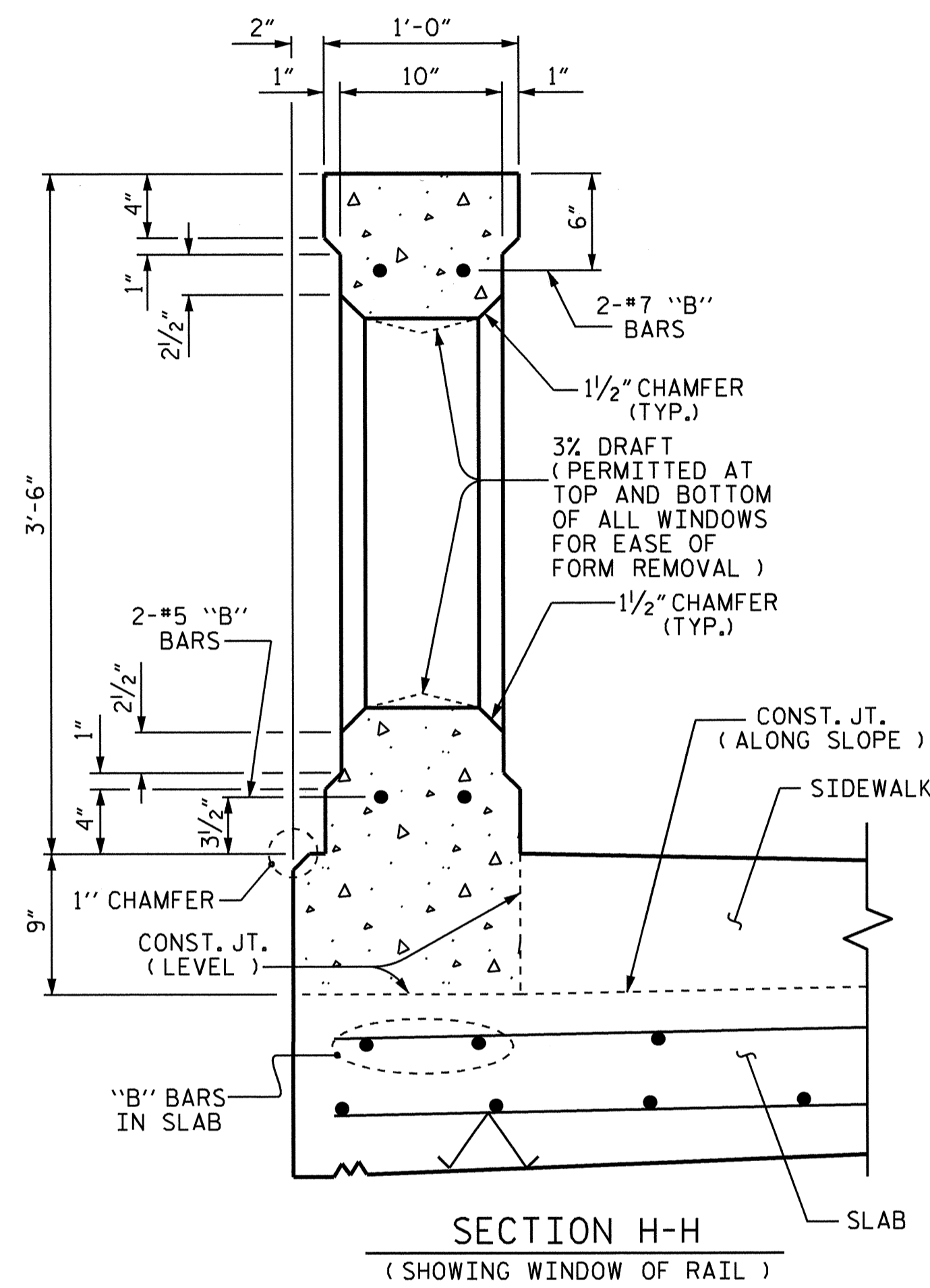
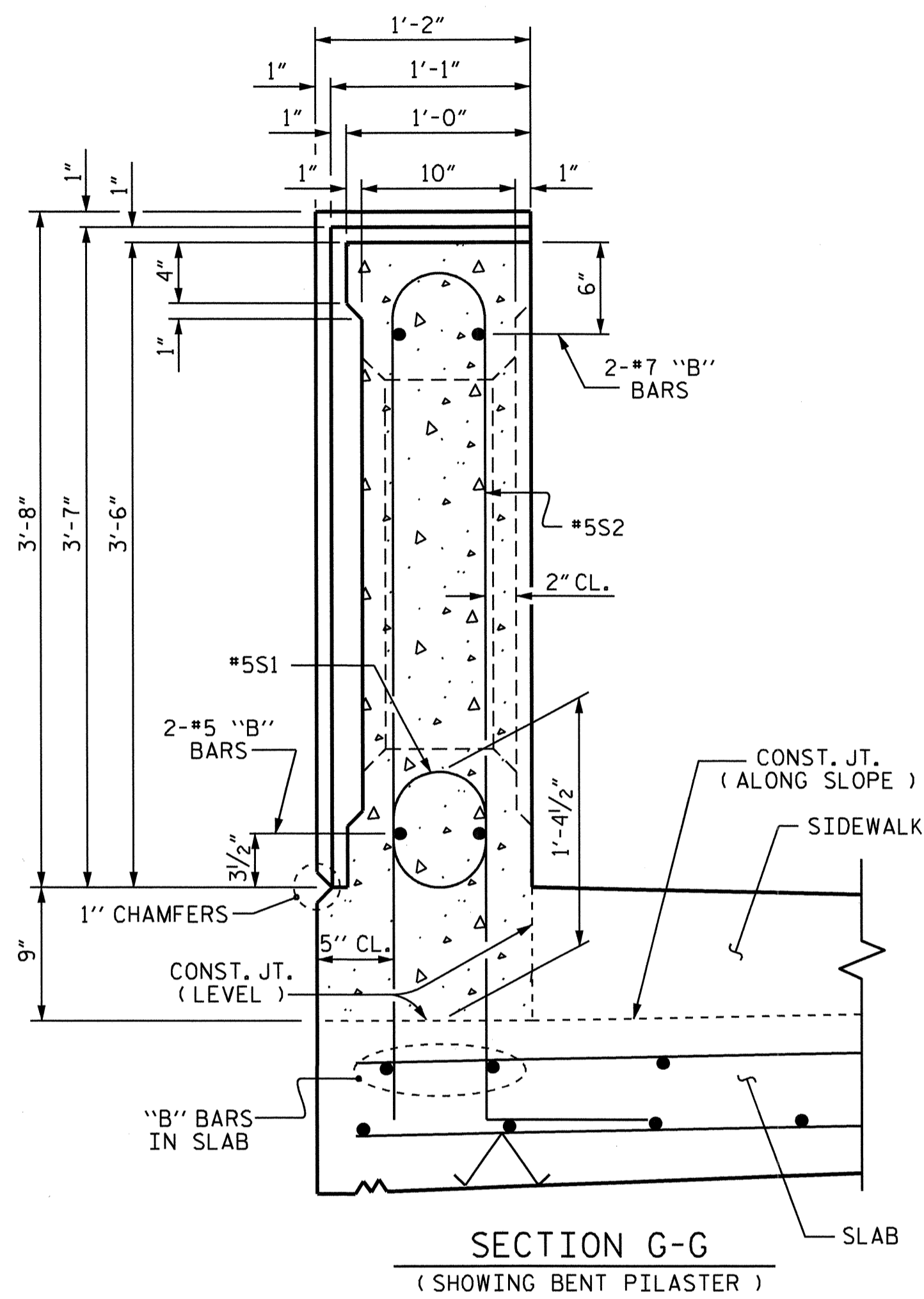
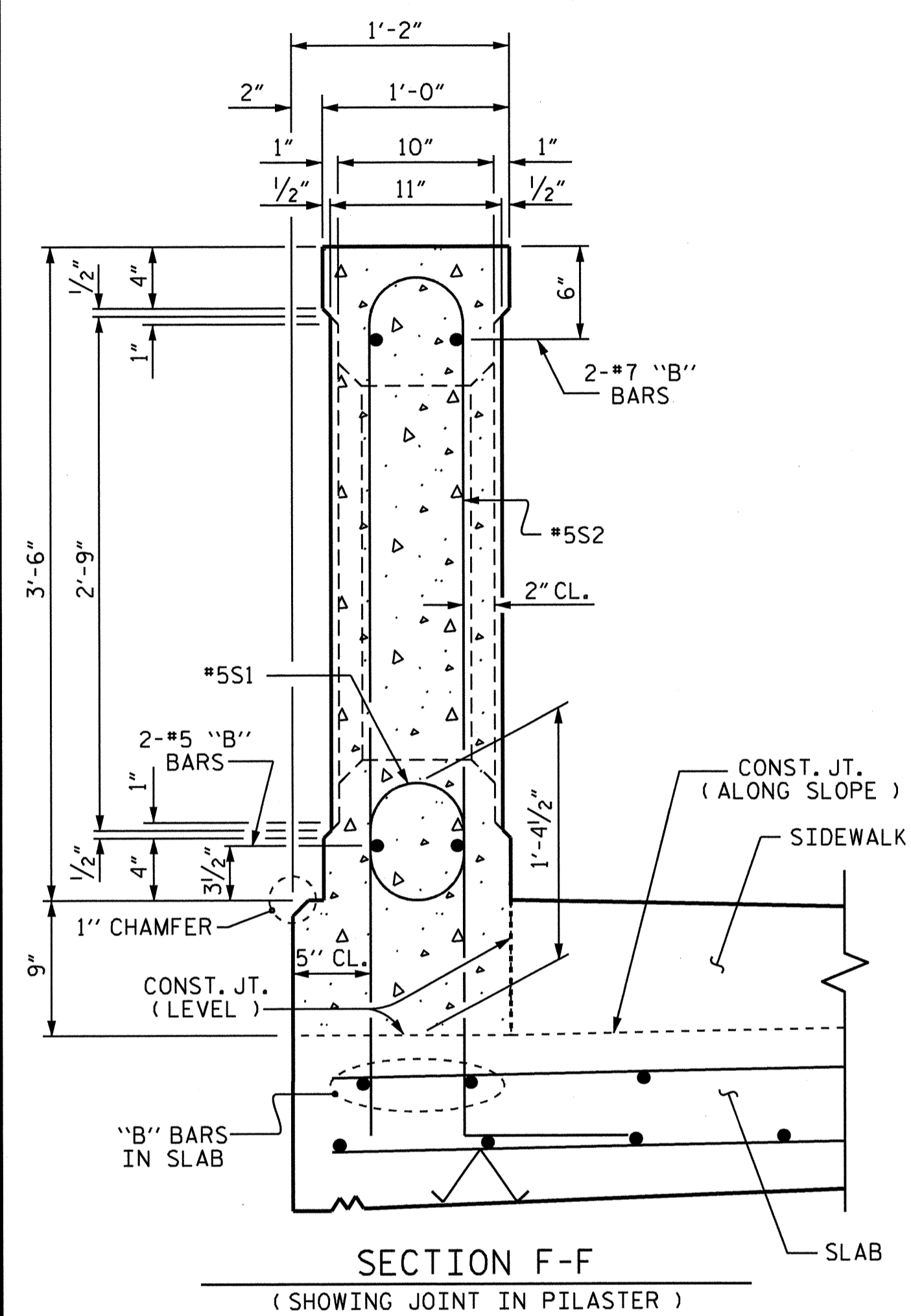


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 CLASSIC CONCRETE
 BRIDGE RAIL WITH
 SIDEWALK

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-27	
1			3			TOTAL SHEETS	
2			4			51	

DRAWN BY: J.P. ADAMS DATE: 3/22/11
 CHECKED BY: K.D. LAYNE DATE: 6/11

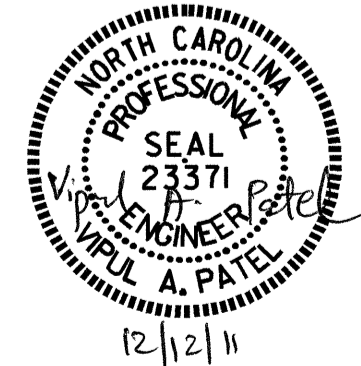
25-OCT-2011 14:21
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 jpodams



FOR ELEVATIONS, SEE SHEET 3 OF 6.

PROJECT NO. B-3421
CABARRUS COUNTY
 STATION: 17+97.08 -L-

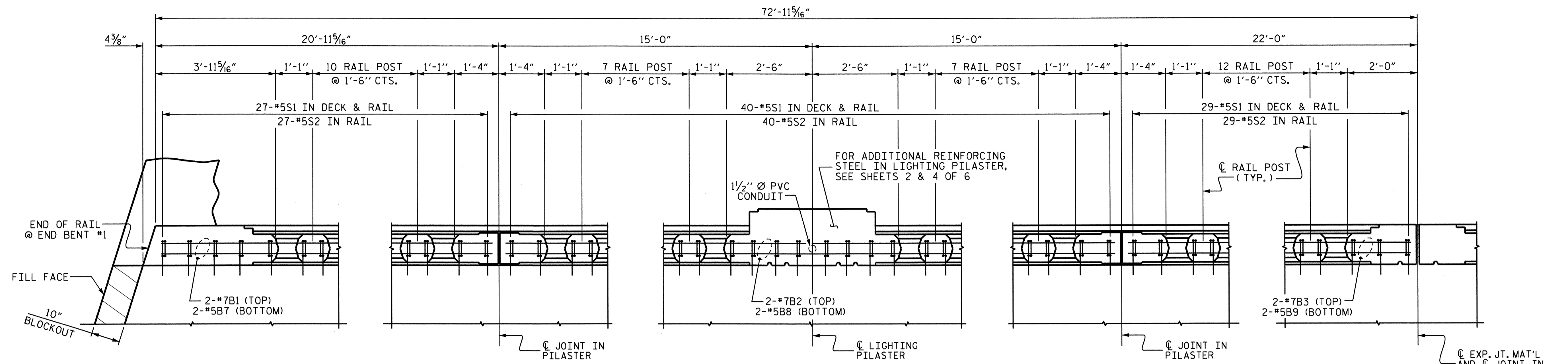
SHEET 4 OF 6



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

DRAWN BY: J.P. ADAMS DATE: 3/22/10
 CHECKED BY: K.D. LAYNE DATE: 6/11

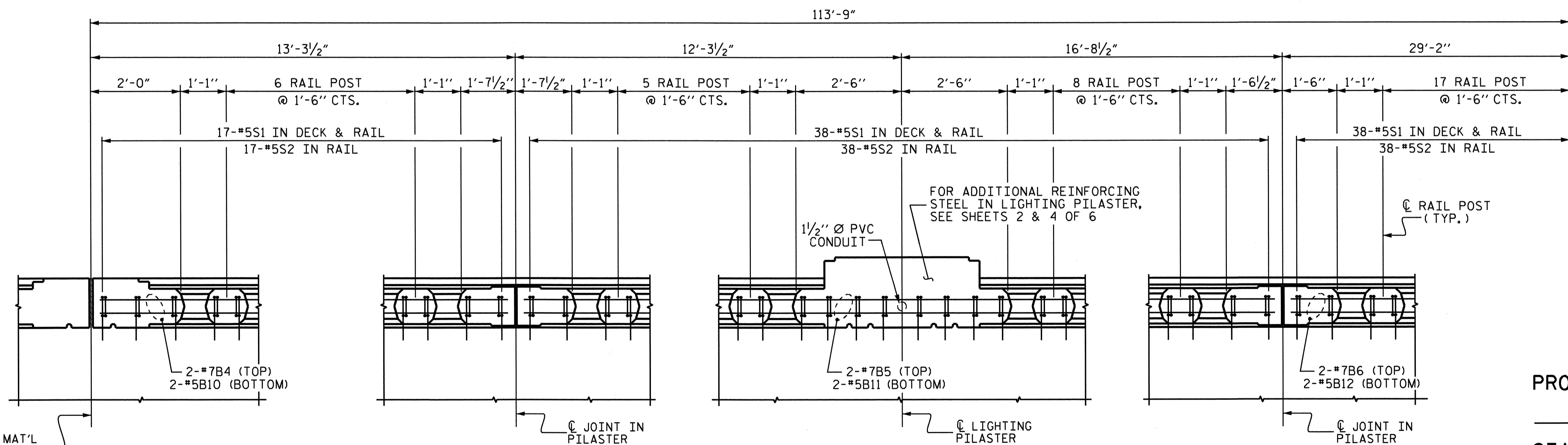
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-28	
1			3			TOTAL SHEETS	
2			4			51	



PLAN OF SPAN A

(FOR EXACT PLACEMENT OF S1 BARS IN DECK & RAIL, SEE SHEET 2 OF 6)

STAGE II SHOWN,
STAGE I SIMILAR.

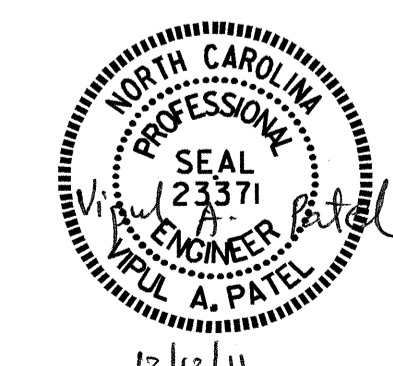


PART PLAN OF SPAN B

(FOR EXACT PLACEMENT OF S1 BARS IN DECK & RAIL, SEE SHEET 2 OF 6)

PROJECT NO. B-3421
CABARRUS COUNTY
 STATION: 17+97.08 -L-

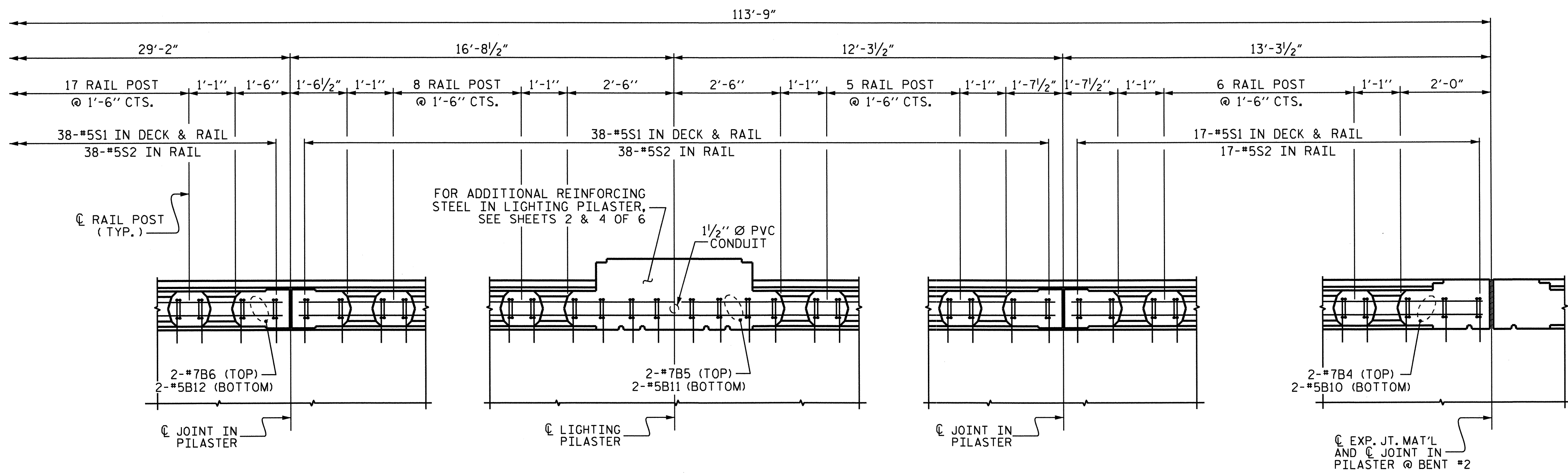
SHEET 5 OF 6



STATE OF NORTH CAROLINA						SHEET NO. S-29
DEPARTMENT OF TRANSPORTATION RALEIGH						
SUPERSTRUCTURE						
CLASSIC CONCRETE BRIDGE RAIL WITH SIDEWALK						
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			
TOTAL SHEETS 51						

DRAWN BY : J.P. ADAMS DATE : 3/28/11
 CHECKED BY : K.D. LAYNE DATE : 6/11

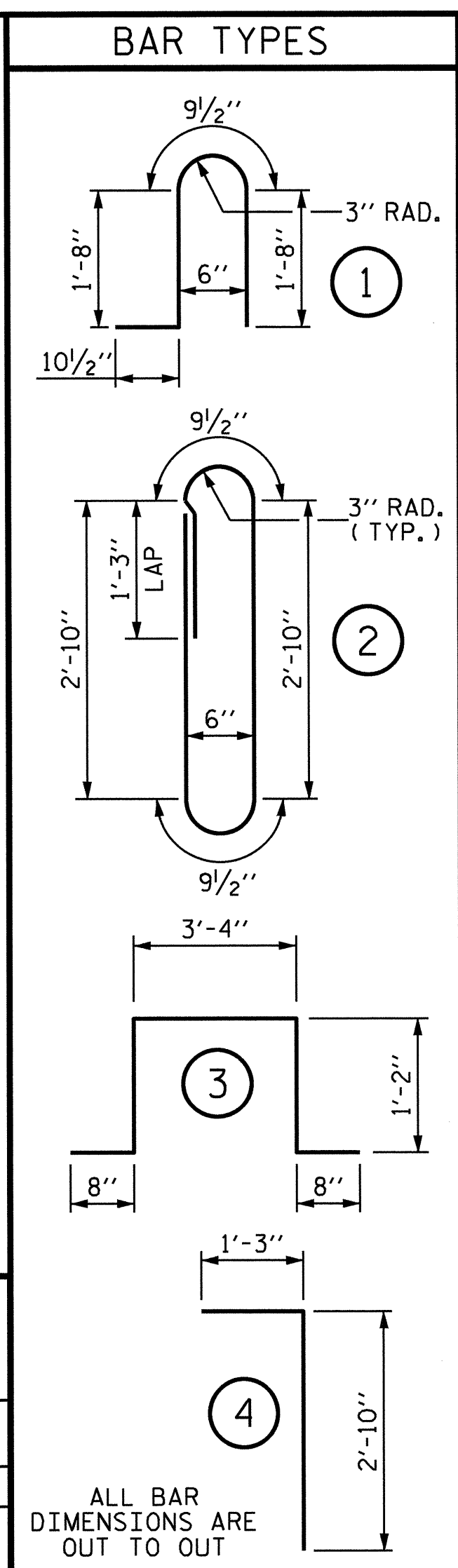
25-OCT-2011 14:21
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 jpodams



PART PLAN OF SPAN B
(FOR EXACT PLACEMENT OF SI BARS IN DECK & RAIL, SEE SHEET 2 OF 6)

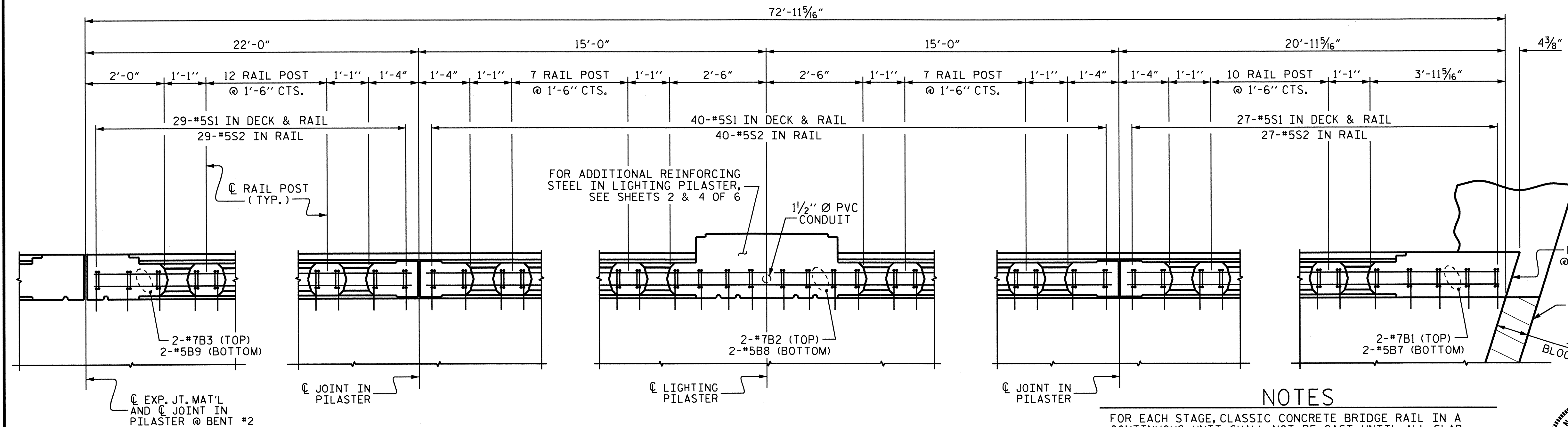
STAGE II SHOWN,
STAGE I SIMILAR.

TOTAL BILL OF MATERIAL CLASSIC RAIL	
* EPOXY COATED REINFORCING STEEL =	13100 LBS
CLASS AA CONCRETE	72.2 C.Y.
CLASSIC CONCRETE BRIDGE RAIL	520.00 LIN. FT.



BILL OF MATERIAL CLASSIC RAIL (STAGE I)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	4	#7	STR	20'-9"	170
* B2	4	#7	STR	29'-7"	242
* B3	4	#7	STR	21'-7"	176
* B4	4	#7	STR	12'-10"	105
* B5	4	#7	STR	28'-7"	234
* B6	2	#7	STR	28'-9"	118
* B7	4	#5	STR	20'-9"	87
* B8	4	#5	STR	29'-7"	123
* B9	4	#5	STR	21'-7"	90
* B10	4	#5	STR	12'-10"	54
* B11	4	#5	STR	28'-7"	119
* B12	2	#5	STR	28'-9"	60
* S1	340	#5	1	5'-0"	1773
* S2	340	#5	2	8'-6"	3014
* U1	16	#5	3	7'-0"	117
* V1	16	#5	4	4'-1"	68
* EPOXY COATED REINFORCING STEEL =				6550 LBS	
CLASS AA CONCRETE				36.1 C.Y.	
CLASSIC CONCRETE BRIDGE RAIL				260.00 LIN. FT.	

BILL OF MATERIAL CLASSIC RAIL (STAGE II)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	4	#7	STR	20'-9"	170
* B2	4	#7	STR	29'-7"	242
* B3	4	#7	STR	21'-7"	176
* B4	4	#7	STR	12'-10"	105
* B5	4	#7	STR	28'-7"	234
* B6	2	#7	STR	28'-9"	118
* B7	4	#5	STR	20'-9"	87
* B8	4	#5	STR	29'-7"	123
* B9	4	#5	STR	21'-7"	90
* B10	4	#5	STR	12'-10"	54
* B11	4	#5	STR	28'-7"	119
* B12	2	#5	STR	28'-9"	60
* S1	340	#5	1	5'-0"	1773
* S2	340	#5	2	8'-6"	3014
* U1	16	#5	3	7'-0"	117
* V1	16	#5	4	4'-1"	68
* EPOXY COATED REINFORCING STEEL =				6550 LBS	
CLASS AA CONCRETE				36.1 C.Y.	
CLASSIC CONCRETE BRIDGE RAIL				260.00 LIN. FT.	



PLAN OF SPAN C
(FOR EXACT PLACEMENT OF SI BARS IN DECK & RAIL, SEE SHEET 2 OF 6)

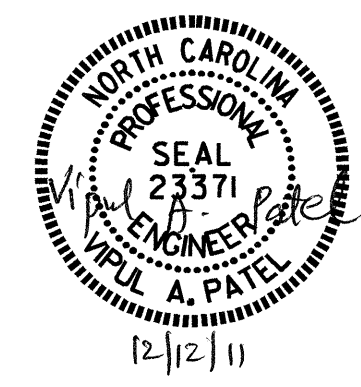
NOTES

FOR EACH STAGE, CLASSIC CONCRETE BRIDGE RAIL IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

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

SIDEWALK QUANTITIES ARE INCLUDED IN THE SUPERSTRUCTURE BILL OF MATERIAL.

FOR CLASSIC CONCRETE BRIDGE RAIL, SEE SPECIAL PROVISIONS.



PROJECT NO. B-3421
CABARRUS COUNTY
 STATION: 17+97.08 -L-
 SHEET 6 OF 6

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-30
1			3			TOTAL SHEETS
2			4			51

DRAWN BY: J.P. ADAMS DATE: 3/28/11
 CHECKED BY: K.D. LAYNE DATE: 6/11

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.

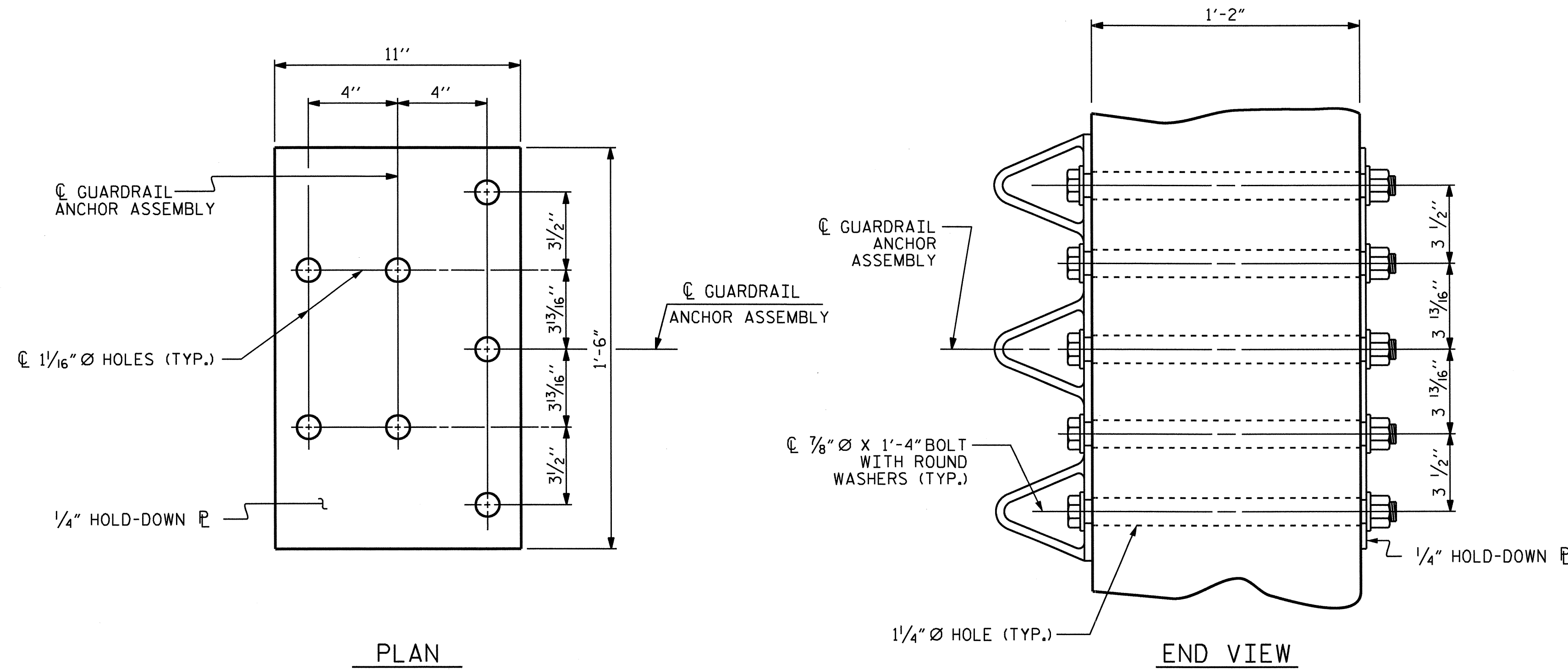
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF THE RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

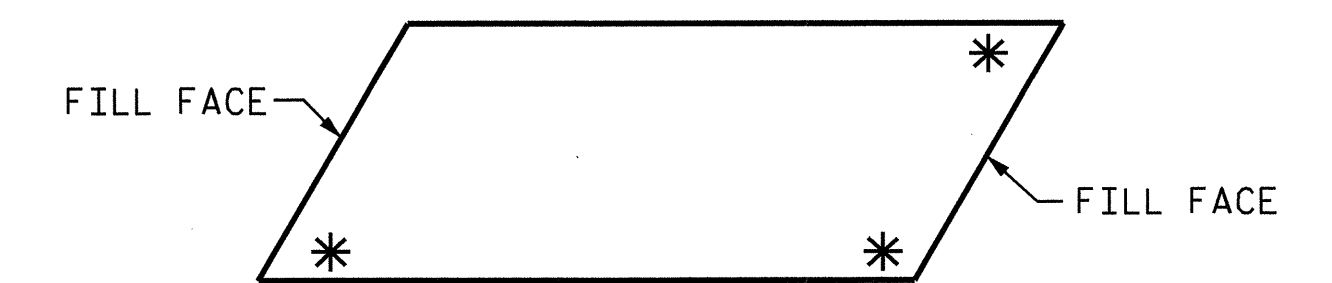
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

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

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

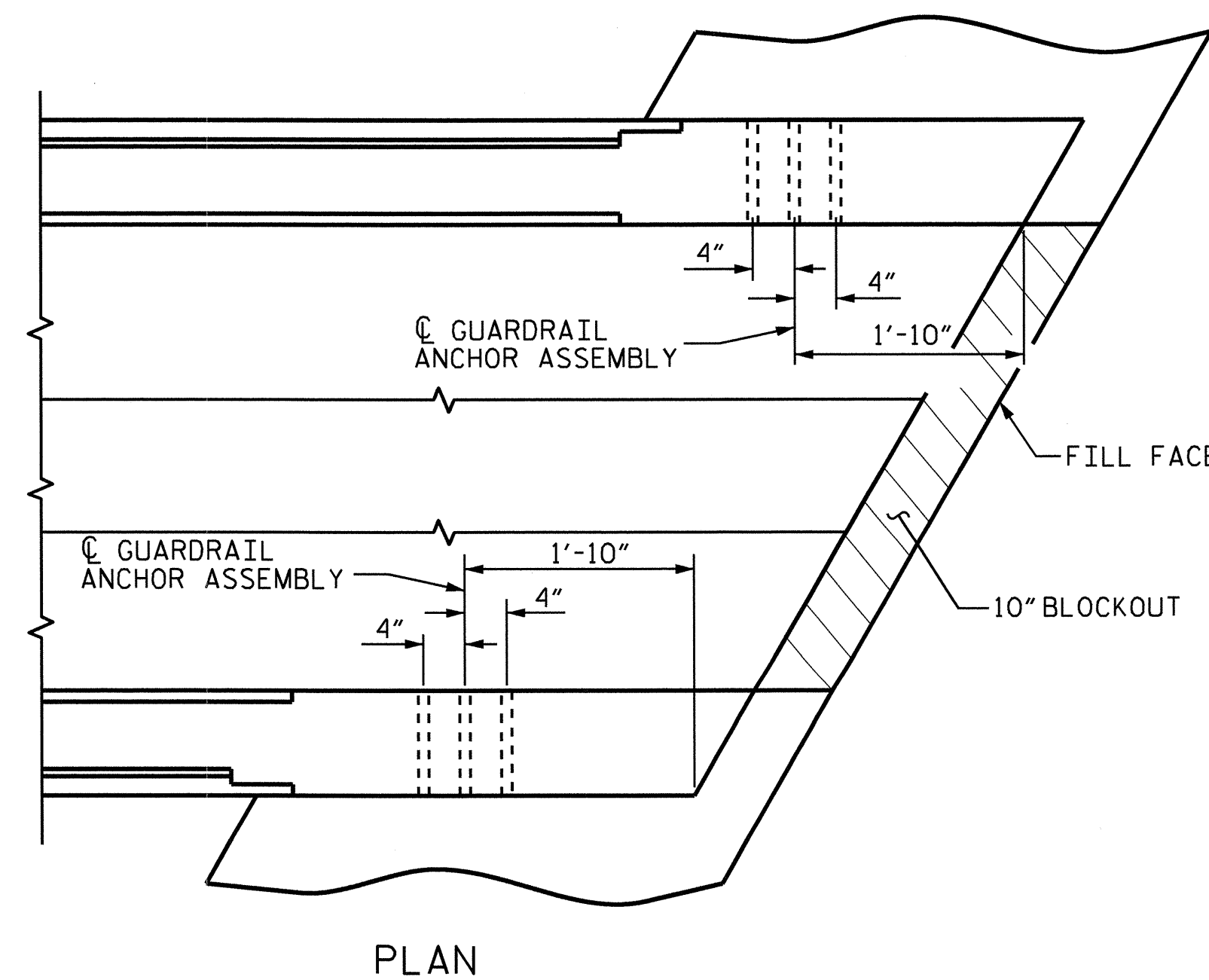
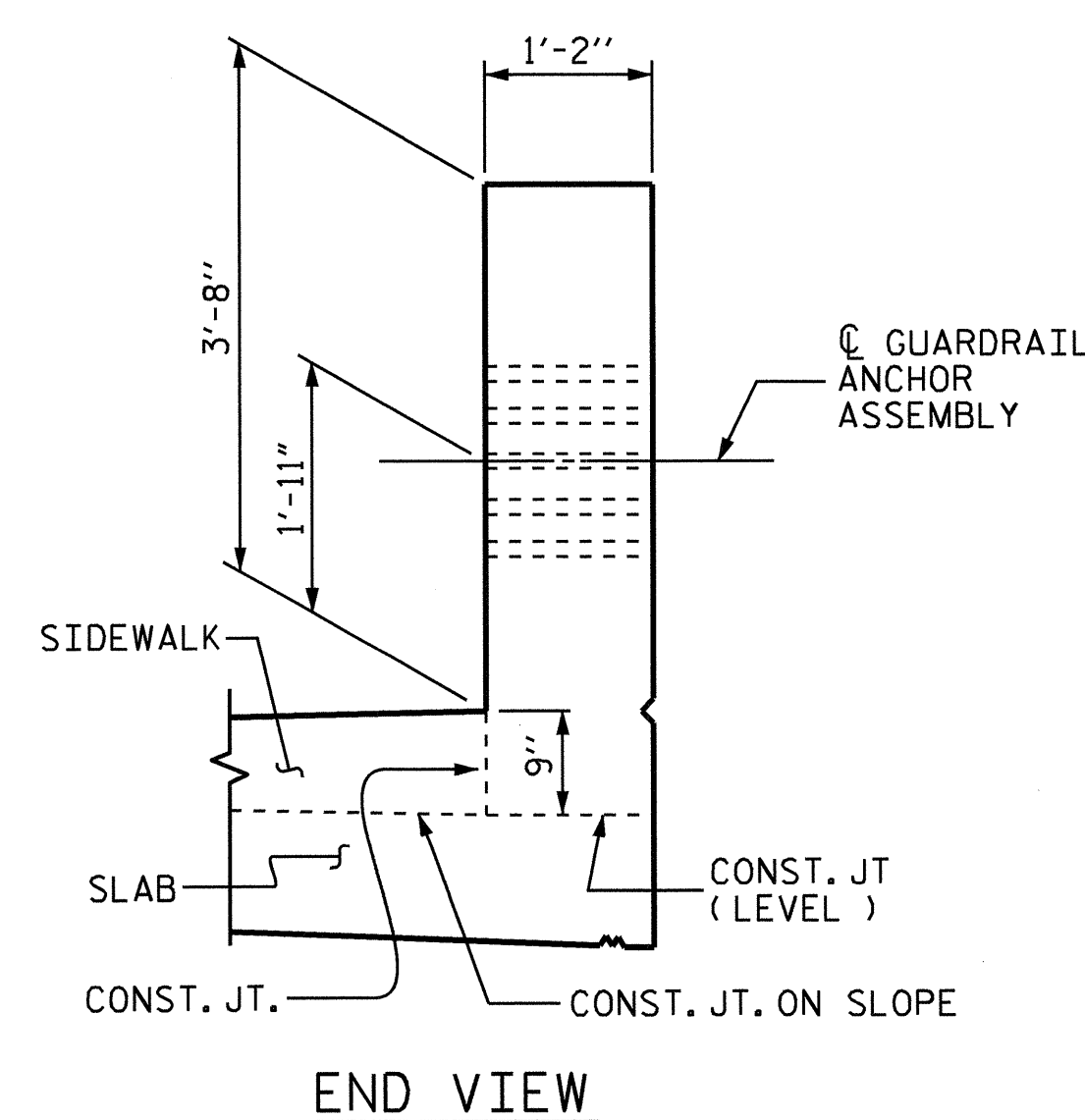


GUARDRAIL ANCHOR ASSEMBLY DETAILS



SKETCH SHOWING POINTS OF ATTACHMENT

* LOCATION OF GUARDRAIL ATTACHMENT

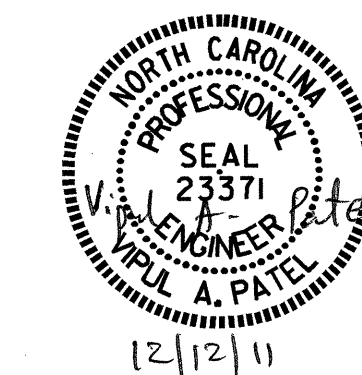


LOCATION OF GUARDRAIL ANCHOR AT END POST

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

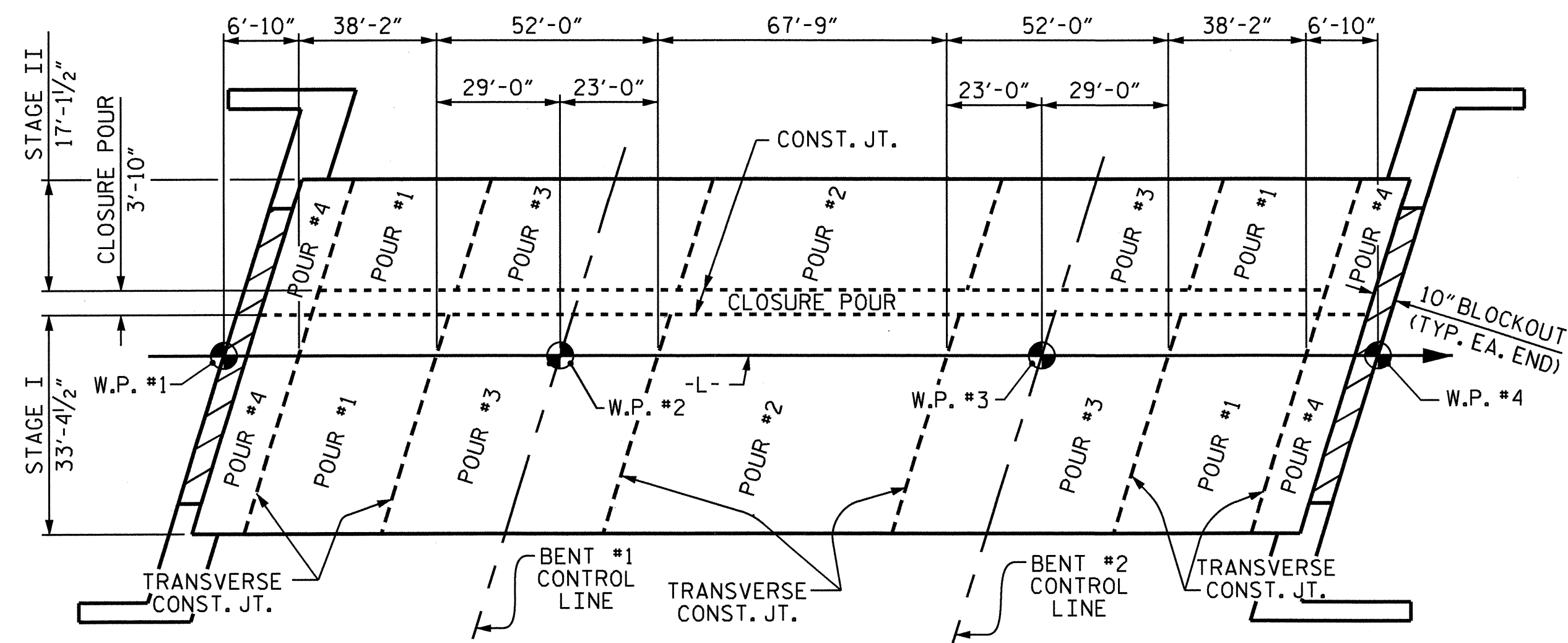
ASSEMBLED BY : J.P. ADAMS	DATE : 3/29/11
CHECKED BY : K.D. LAYNE	DATE : 6/11
DRAWN BY : MAA 5/10	ADDED 5/6/10
CHECKED BY : GM 5/10	

25-OCT-2011 14:21
R:\Structures\B3421\Plans\B-3421.SD.BR.dgn
jpodoms

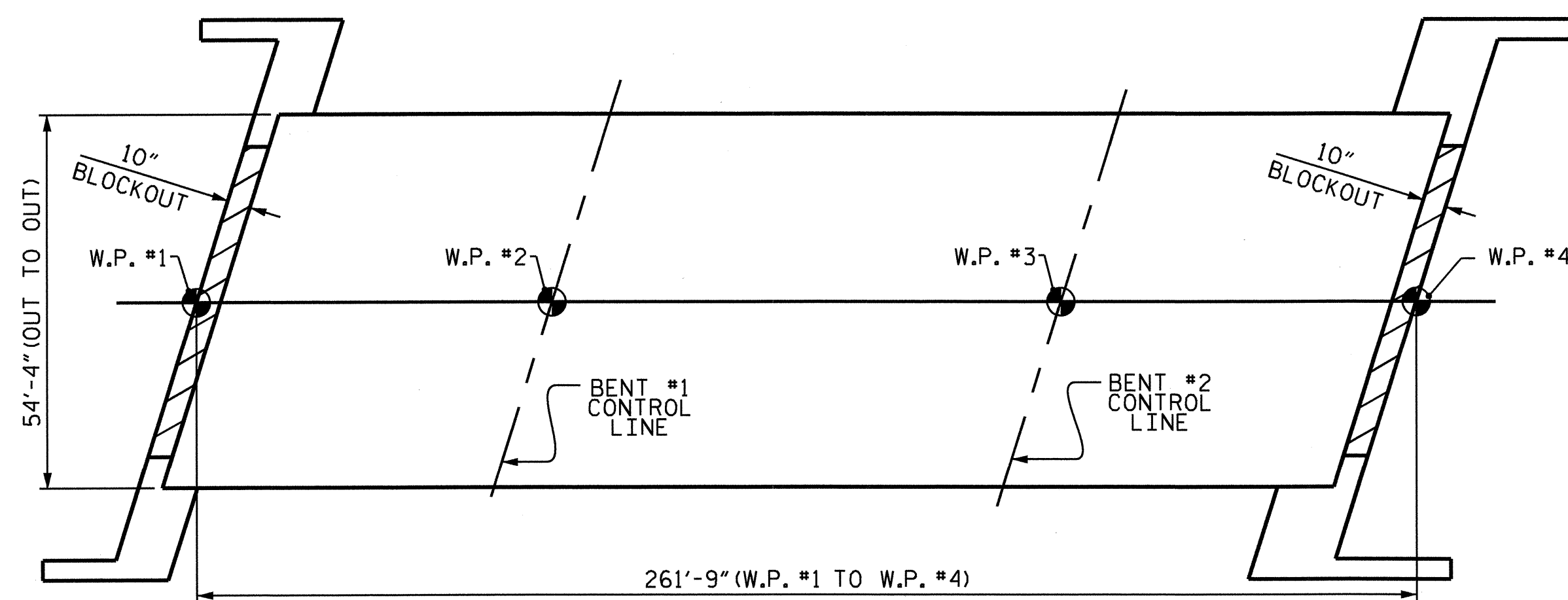


PROJECT NO. B-3421
CABARRUS COUNTY
STATION: 17+97.08 -L-

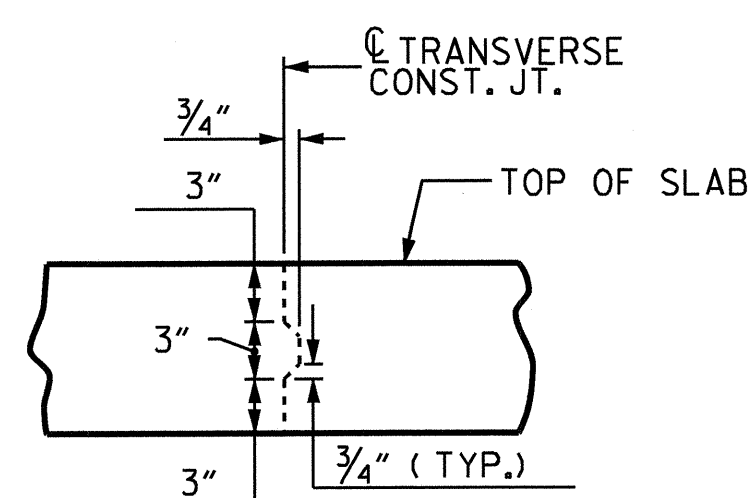
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE GUARDRAIL ANCHORAGE DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-31					TOTAL SHEETS 51



POURING SEQUENCE



LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB (SQ. FT. = 14,222)



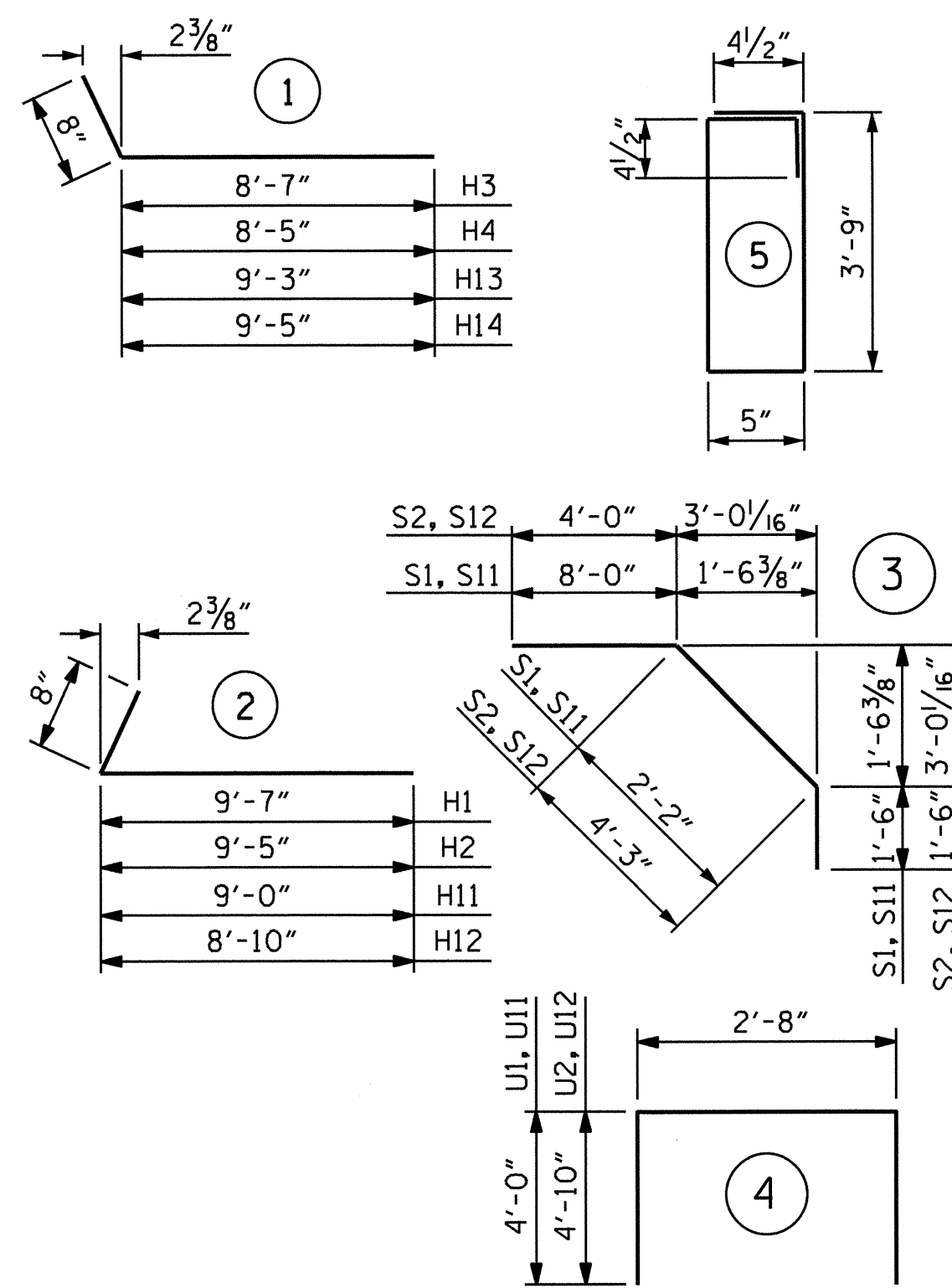
TRANSVERSE CONST. JOINT DETAIL

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"			

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

REINFORCING STEEL QUANTITIES

	STAGE I	STAGE II	TOTAL
REINFORCING STEEL	30921 LBS	17022 LBS	47943 LBS

EPOXY COATED REINFORCING STEEL QUANTITIES

	STAGE I	STAGE II	TOTAL
EPOXY COATED REINFORCING STEEL	40983 LBS	26030 LBS	67013 LBS
SIDEWALK	1979 LBS	1979 LBS	3958 LBS
TOTAL			70971

CONCRETE QUANTITIES WITH POUR SEQUENCE BREAKDOWN

	STAGE I	STAGE II
CONCRETE DIAPHRAGMS	11.0	7.0
POUR #1	86.1	46.4
POUR #2	76.4	41.2
POUR #3	118.7	63.3
POUR #4	48.3	28.6
CLOSURE POUR	---	43.3
SIDEWALK	33.2	33.2
TOTAL CLASS AA CONCRETE		636.7 C.Y.

GROOVING BRIDGE FLOORS

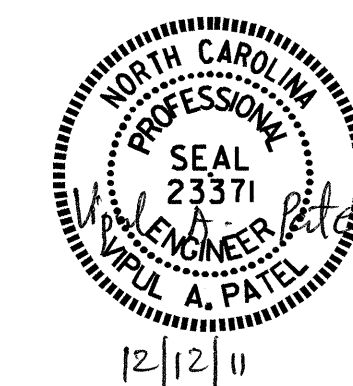
BRIDGE DECK	9867	SO.FT.
APPROACH SLABS	1875	SO.FT.
TOTAL	11742	SO.FT.

REINFORCING BAR SCHEDULE SPANS A-C

STAGE I						STAGE II					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT		BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	499	#5	STR	33'-0"	17175	*A3	509	#5	STR	16'-9"	8892
A2	499	#5	STR	33'-0"	17175	A4	509	#5	STR	16'-9"	8892
*A101	4	#5	STR	30'-3"	126	*A301	2	#5	STR	15'-8"	33
*A102	4	#5	STR	27'-1"	113	*A302	2	#5	STR	14'-1"	29
*A103	4	#5	STR	23'-11"	100	*A303	2	#5	STR	12'-6"	26
*A104	4	#5	STR	20'-8"	86	*A304	2	#5	STR	10'-10"	23
*A105	4	#5	STR	17'-6"	73	*A305	2	#5	STR	9'-3"	19
*A106	4	#5	STR	14'-4"	60	*A306	2	#5	STR	7'-8"	16
*A107	4	#5	STR	11'-1"	46	*A307	2	#5	STR	6'-1"	13
*A108	4	#5	STR	7'-11"	33	*A308	2	#5	STR	4'-6"	9
*A109	4	#5	STR	4'-9"	20	*A309	2	#5	STR	2'-11"	6
A201	4	#5	STR	30'-3"	126	A401	2	#5	STR	15'-8"	33
A202	4	#5	STR	27'-1"	113	A402	2	#5	STR	14'-1"	29
A203	4	#5	STR	23'-11"	100	A403	2	#5	STR	12'-6"	26
A204	4	#5	STR	20'-8"	86	A404	2	#5	STR	10'-10"	23
A205	4	#5	STR	17'-6"	73	A405	2	#5	STR	9'-3"	19
A206	4	#5	STR	14'-4"	60	A406	2	#5	STR	7'-8"	16
A207	4	#5	STR	11'-1"	46	A407	2	#5	STR	6'-1"	13
A208	4	#5	STR	7'-11"	33	A408	2	#5	STR	4'-6"	9
A209	4	#5	STR	4'-9"	20	A409	2	#5	STR	2'-11"	6
*B1	220	#6	STR	34'-9"	11483	*B11	136	#6	STR	34'-9"	7098
*B2	110	#6	STR	15'-0"	2478	*B12	68	#6	STR	15'-0"	1532
*B3	56	#4	STR	29'-8"	1110	*B13	36	#4	STR	29'-8"	713
*B4	56	#4	STR	25'-11"	969	*B14	36	#4	STR	25'-11"	623
*B5	20	#4	STR	27'-10"	372	*B15	20	#4	STR	27'-10"	372
B6	200	#5	STR	53'-9"	11212	B16	120	#5	STR	53'-9"	6727
*D1	990	#5	STR	5'-10"	6023	*D11	1014	#5	STR	5'-10"	6169
H3	6	#5	1	9'-3"	58	H1	6	#5	2	10'-3"	64
H4	6	#5	1	9'-1"	57	H2	6	#5	2	10'-1"	63
H11	6	#5	2	9'-8"	60	H13	6	#5	1	9'-11"	62
H12	6	#5	2	9'-6"	59	H14	6	#5	1	10'-1"	63
K1	40	#4	STR	21'-10"	583	K11	20	#4	STR	22'-6"	301
K2	6	#4	STR	3'-10"	15	K12	6	#4	STR	3'-10"	15
K3	40	#4	STR	17'-10"	477	K13	20	#4	STR	19'-4"	258
*S1	50	#4	3	11'-8"	390	*S11	32	#4	3	11'-8"	249
*S2	50	#4	3	9'-9"	326	*S12	32	#4	3	9'-9"	208
S3	24	#4	5	9'-1"	146	S13	18	#4	5	9'-1"	109
U1	50	#4	4	10'-8"	356	U11	32	#4	4	10'-8"	228
U2	8	#4	4	12'-4"	66	U12	8	#4	4	12'-4"	66
REINFORCING STEEL				30921 LBS		REINFORCING STEEL				17022 LBS	
*EPOXY COATED REINFORCING STEEL				40983 LBS		*EPOXY COATED REINFORCING STEEL				26030 LBS	

FOR BARS IN DECK AND CLASSIC RAIL, SEE CLASSIC CONCRETE BRIDGE RAIL DETAILS.

PROJECT NO. B-3421
CABARRUS COUNTY
STATION: 17+97.08 -L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
BILL OF MATERIAL

REVISIONS

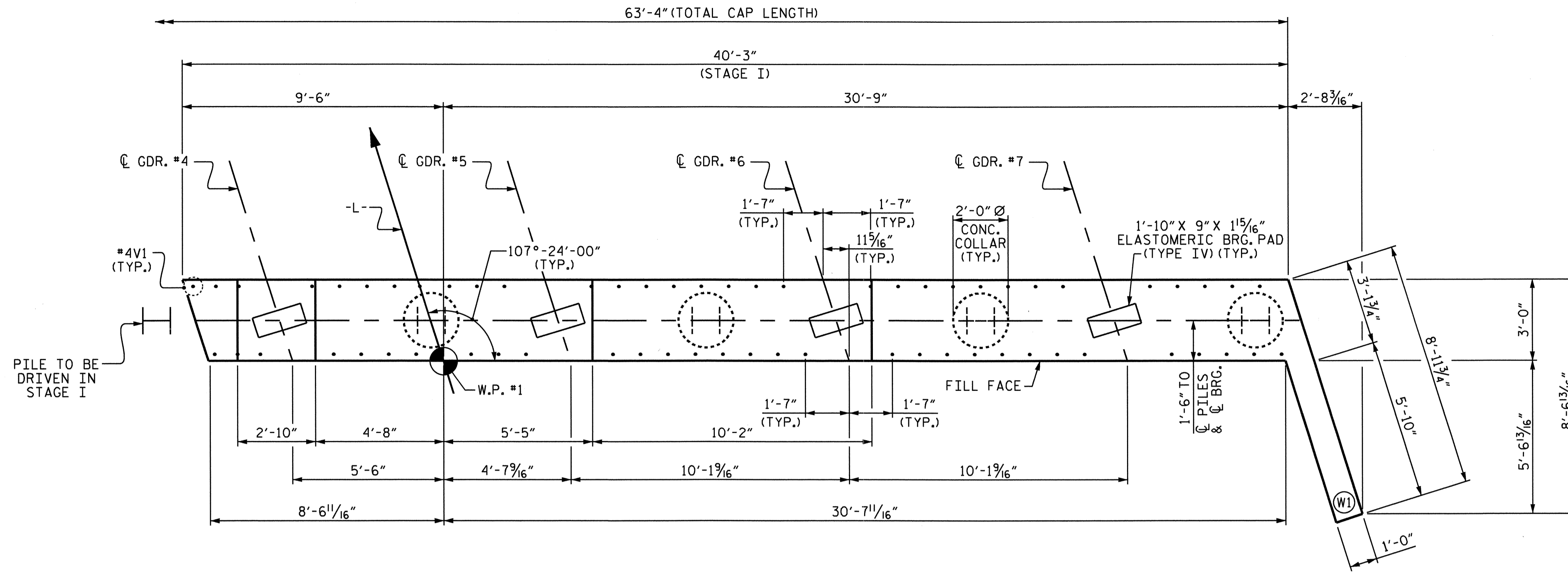
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
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2			4			TOTAL SHEETS 51

DRAWN BY: J.P. ADAMS DATE: 2/16/11
CHECKED BY: K.D. LAYNE DATE: 6/11

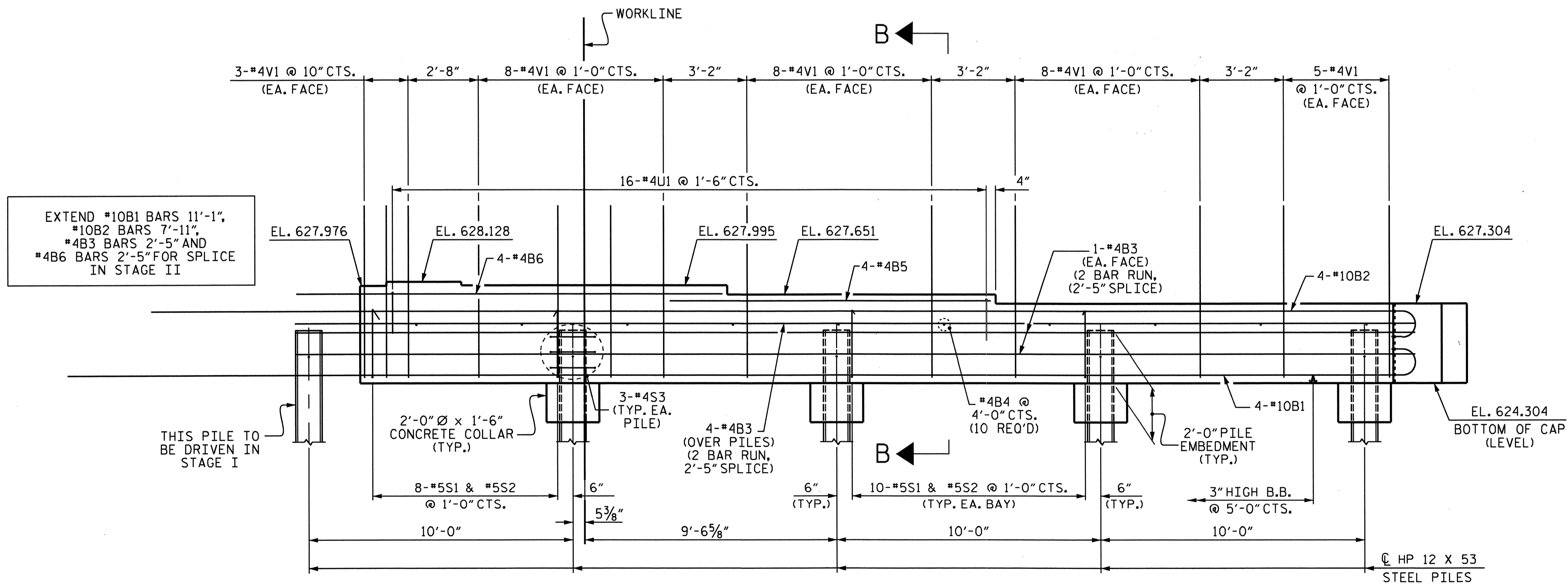
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jpodams

NOTES

SEE SUPERSTRUCTURE SHEETS FOR UPPER PART OF INTEGRAL END BENT DETAILS.



PLAN

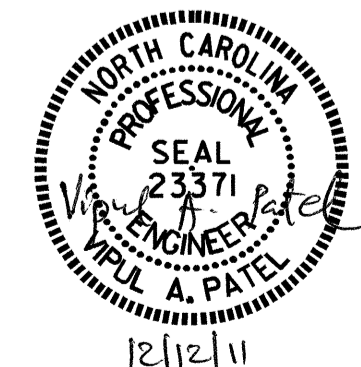


ELEVATION

PROJECT NO. B-3421
 CABARRUS COUNTY
 STATION: 17+97.08 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE INTEGRAL END BENT #1 (STAGE I)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
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					TOTAL SHEETS 51

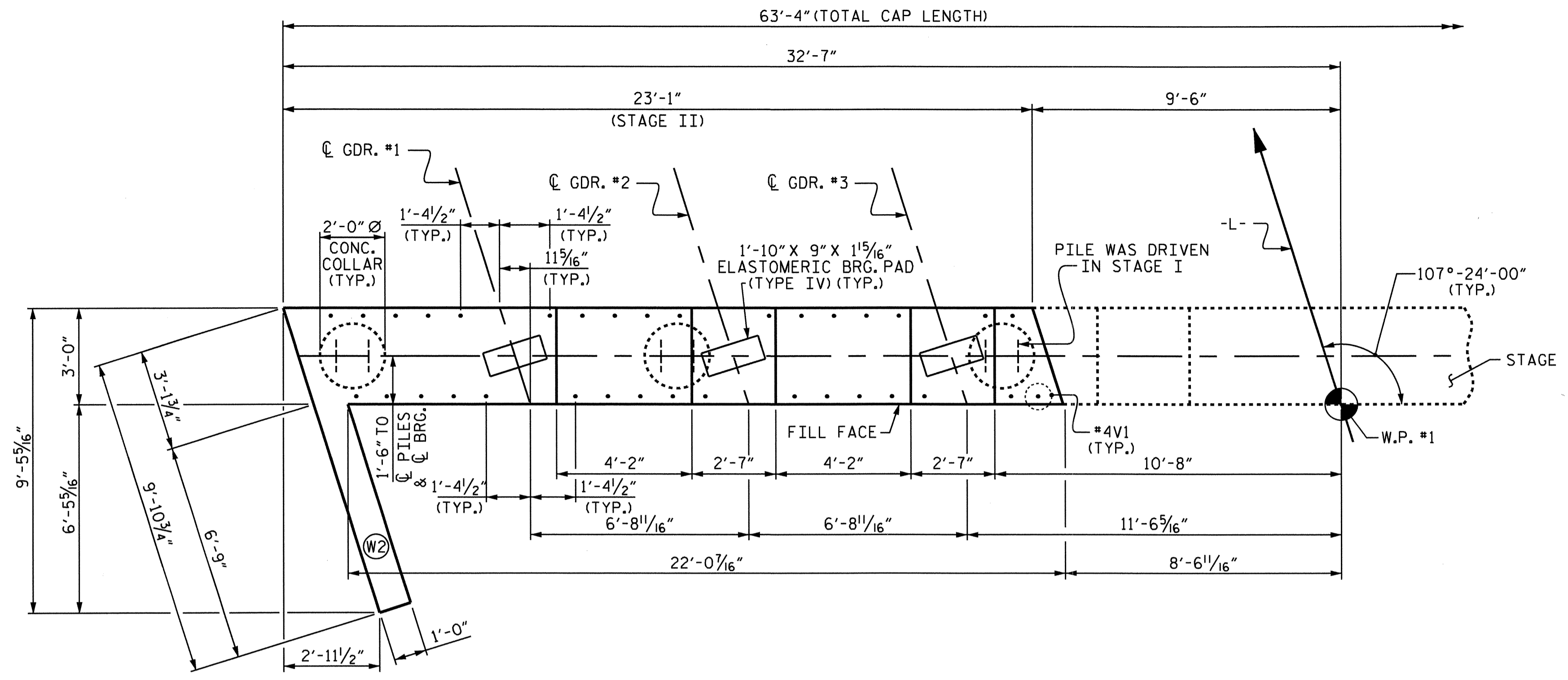


DRAWN BY: J.P. ADAMS DATE: 4/11/11
 CHECKED BY: K.D. LAYNE DATE: 6/11

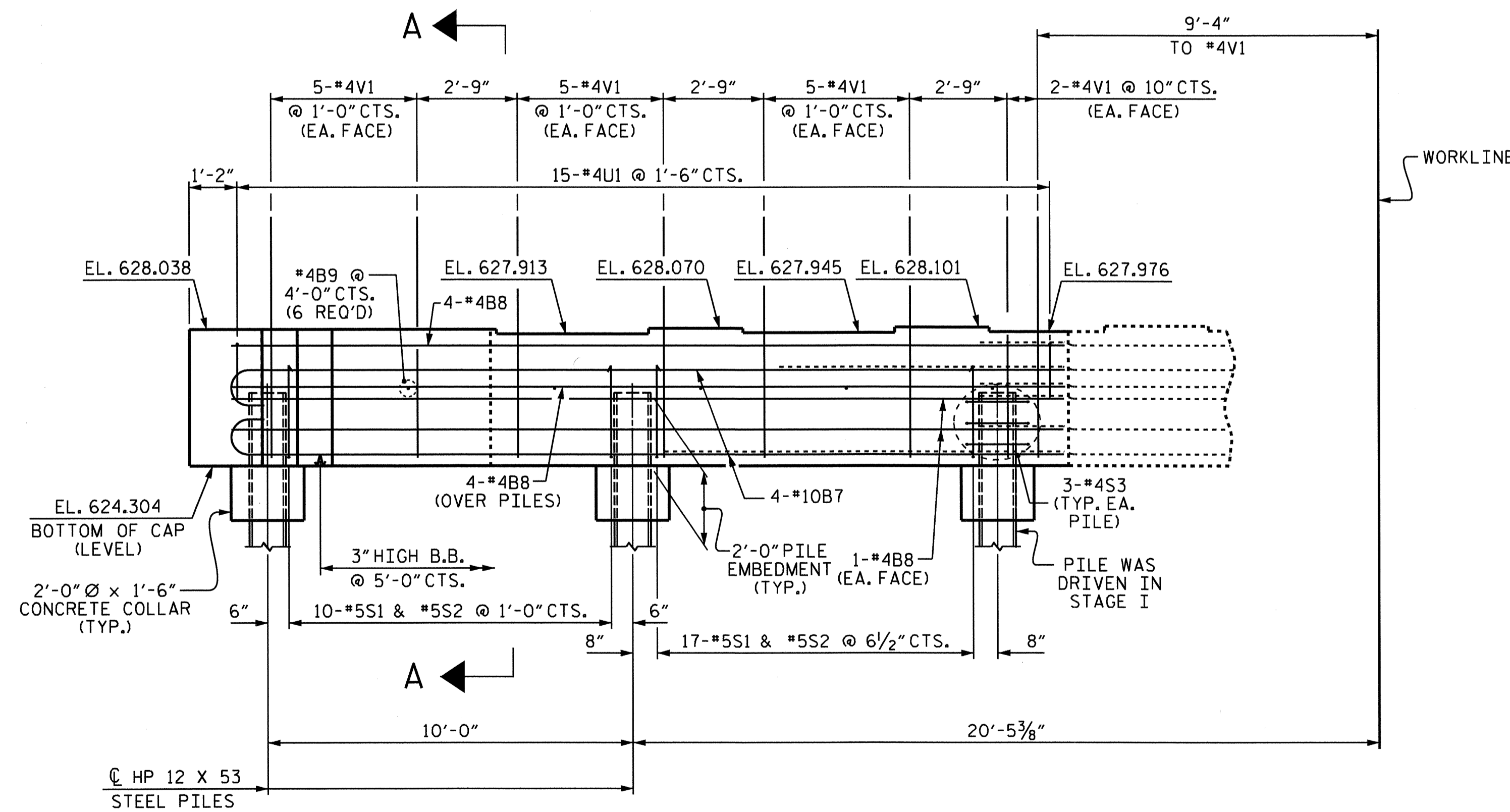
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 Jpodoms

NOTES

SEE SUPERSTRUCTURE SHEETS FOR UPPER PART OF INTEGRAL END BENT DETAILS.



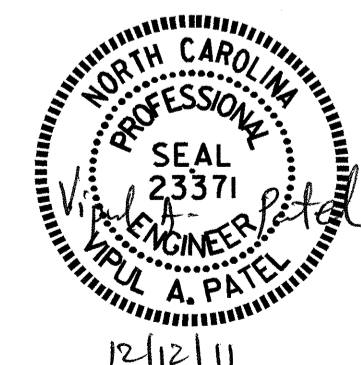
PLAN



ELEVATION

PROJECT NO. B-3421
 CABARRUS COUNTY
 STATION: 17+97.08 -L-

SHEET 2 OF 4

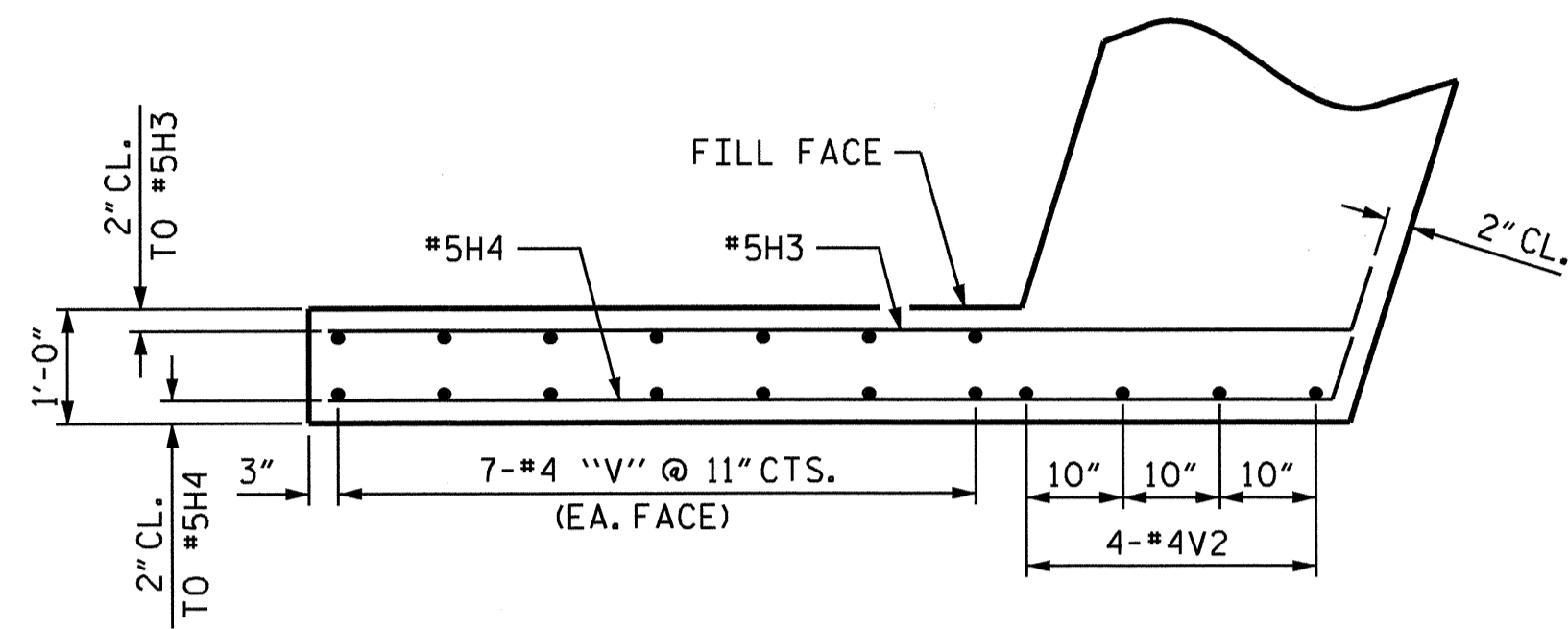


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 INTEGRAL
 END BENT #1
 (STAGE II)

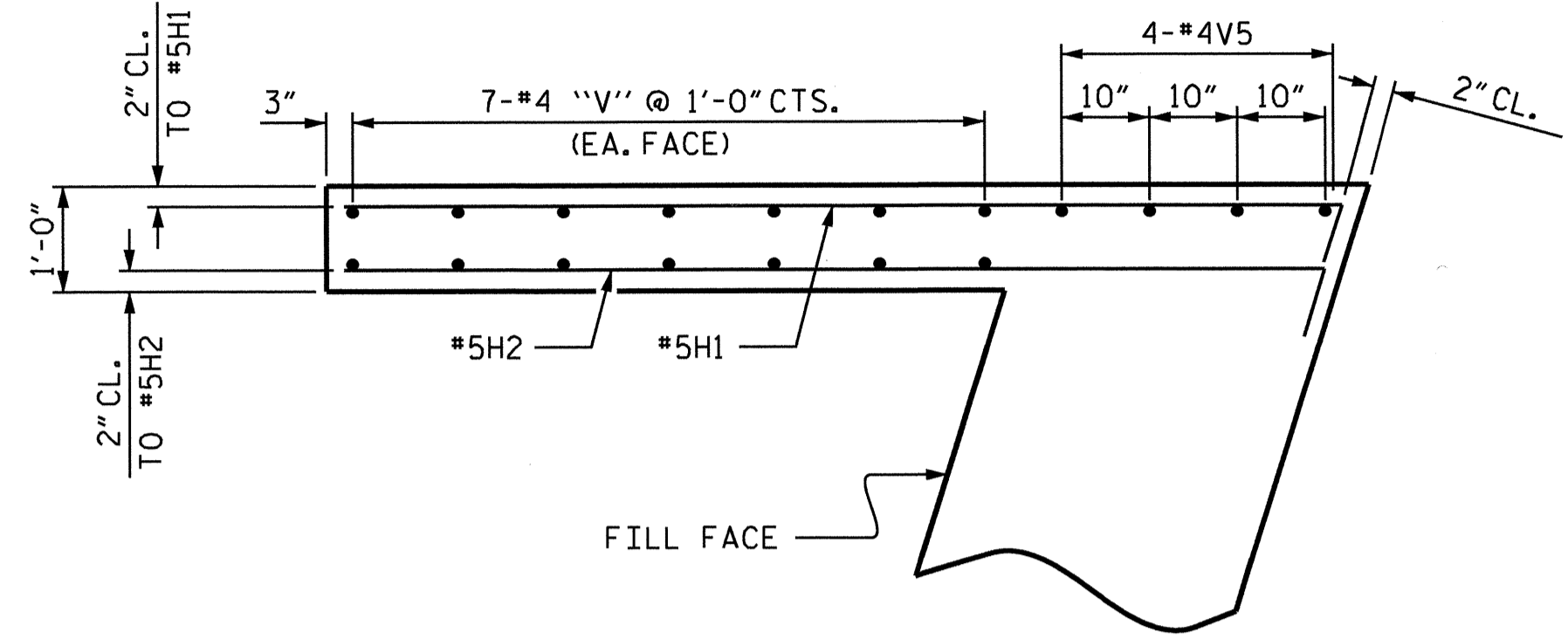
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-34	
1			3			TOTAL SHEETS	
2			4			51	

DRAWN BY: J.P. ADAMS DATE: 4/11/11
 CHECKED BY: K.D. LAYNE DATE: 6/11

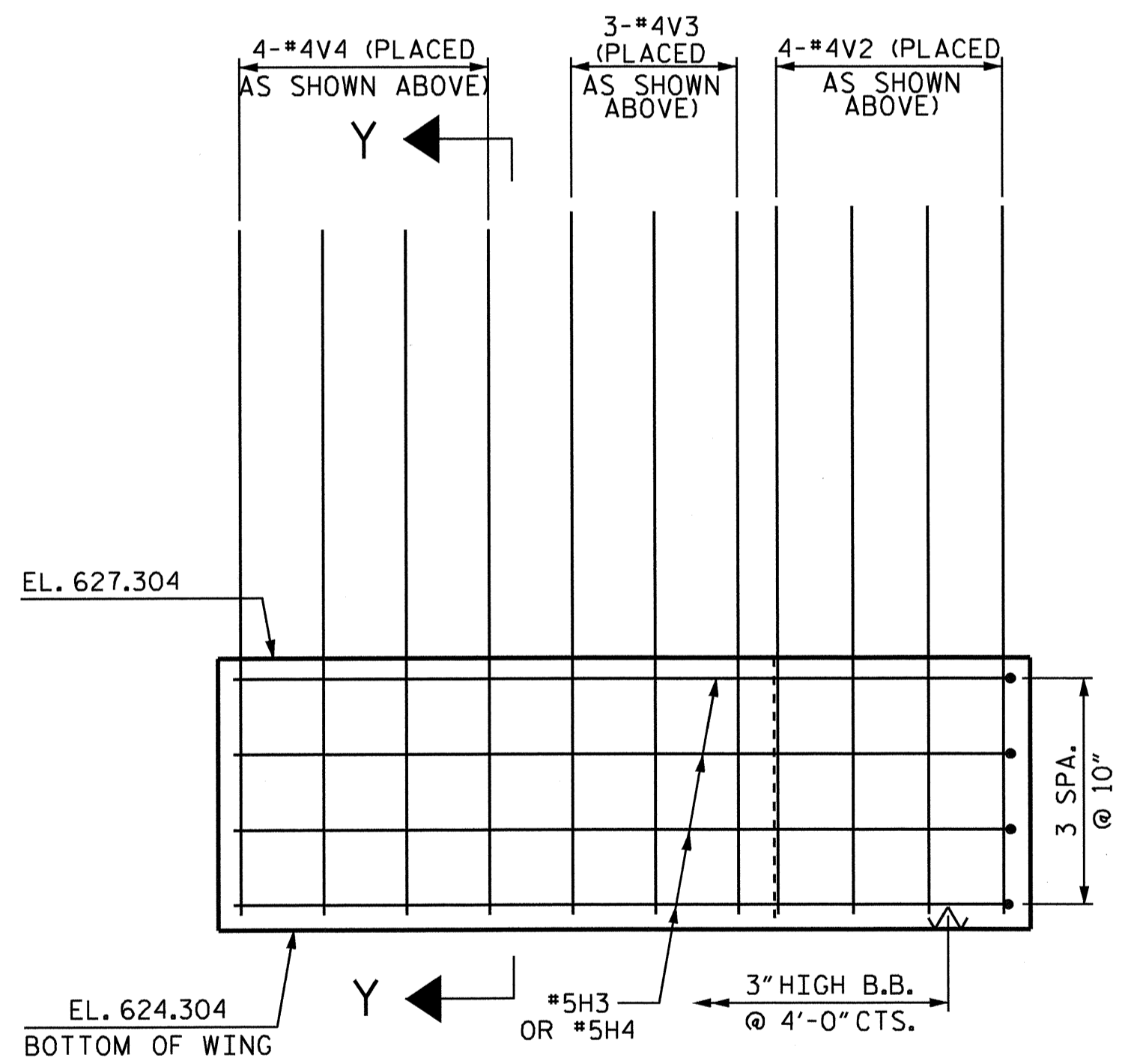
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 jpadams



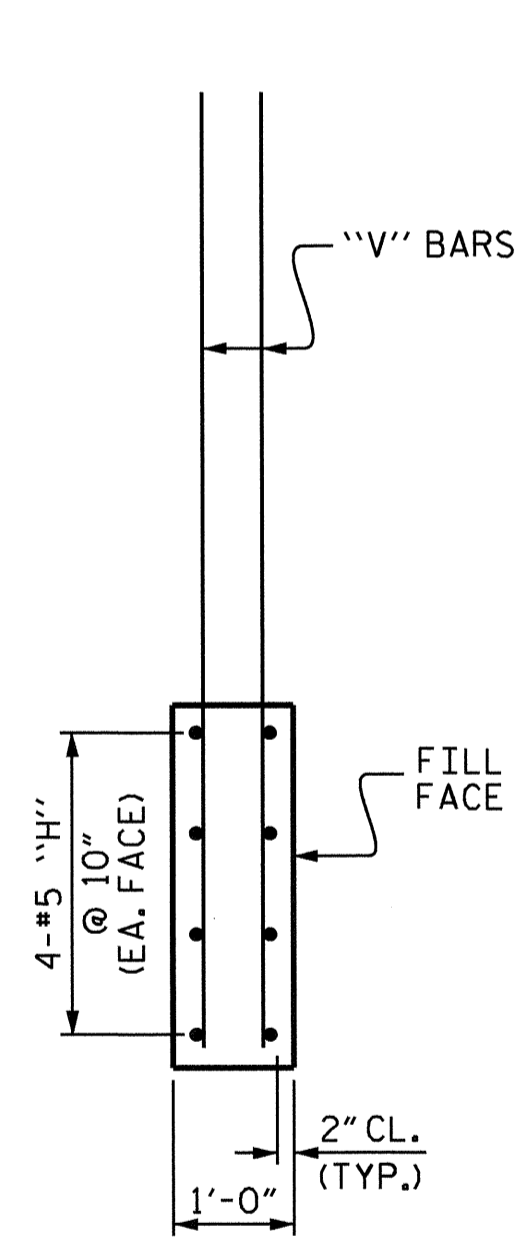
PLAN OF WING (W1)
(STAGE I)



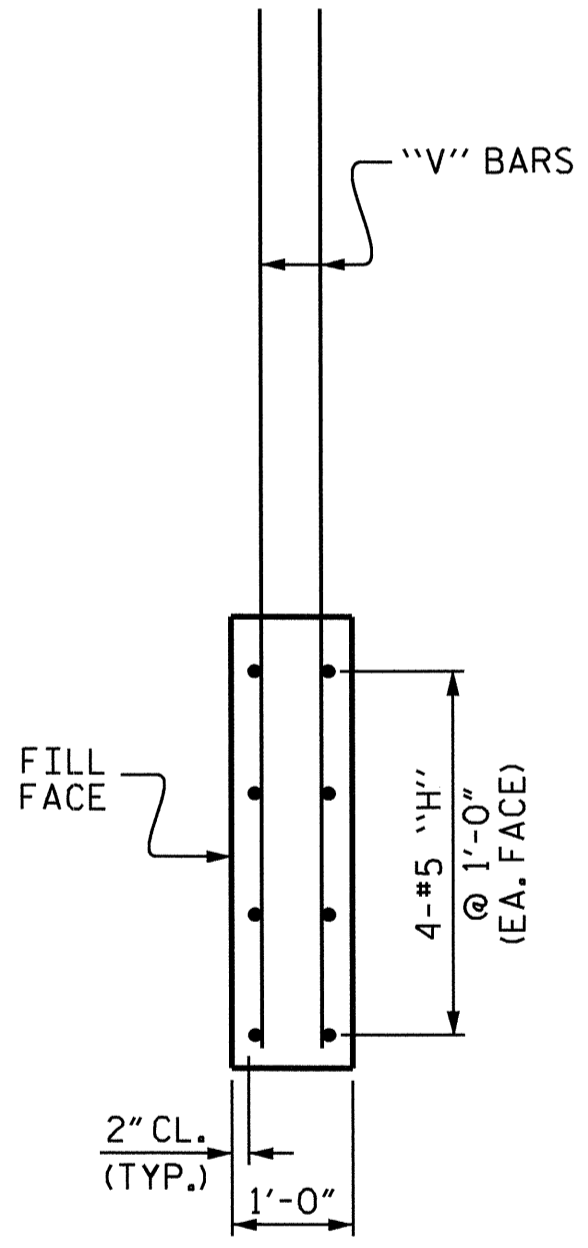
PLAN OF WING (W2)
(STAGE II)



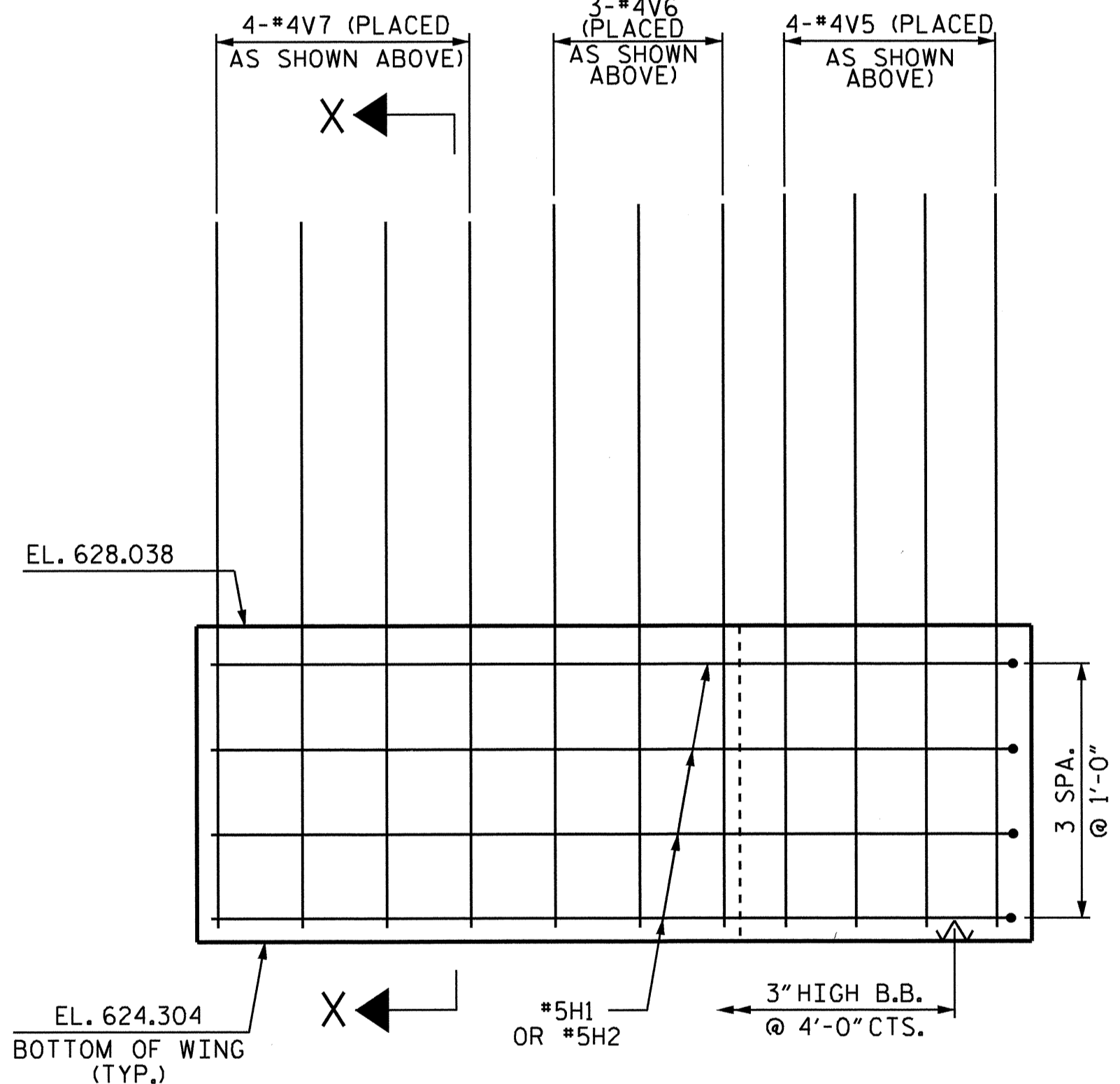
ELEVATION OF WING (W1)
(STAGE I)



SECTION Y-Y



SECTION X-X



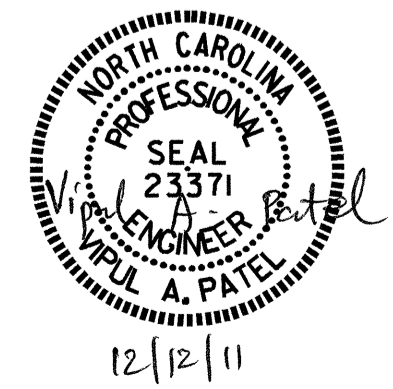
ELEVATION OF WING (W2)
(STAGE II)

NOTE: THE UPPER PORTION OF THE WINGS SHALL BE POURED WITH THE SUPERSTRUCTURE. FOR DETAILS AND REINFORCING STEEL, SEE SUPERSTRUCTURE DETAILS.

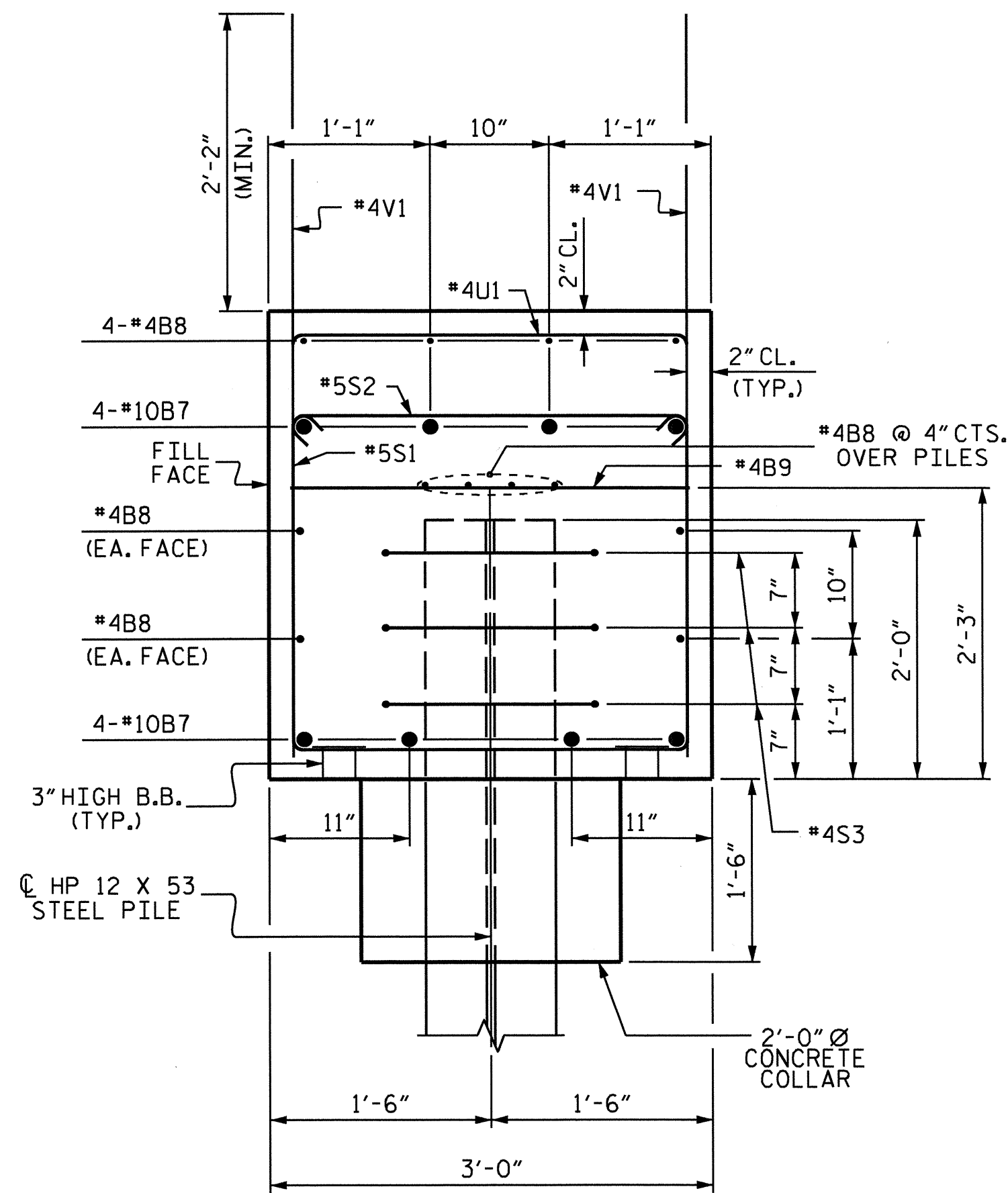
PROJECT NO. B-3421
CABARRUS COUNTY
STATION: 17+97.08 -L-

SHEET 3 OF 4

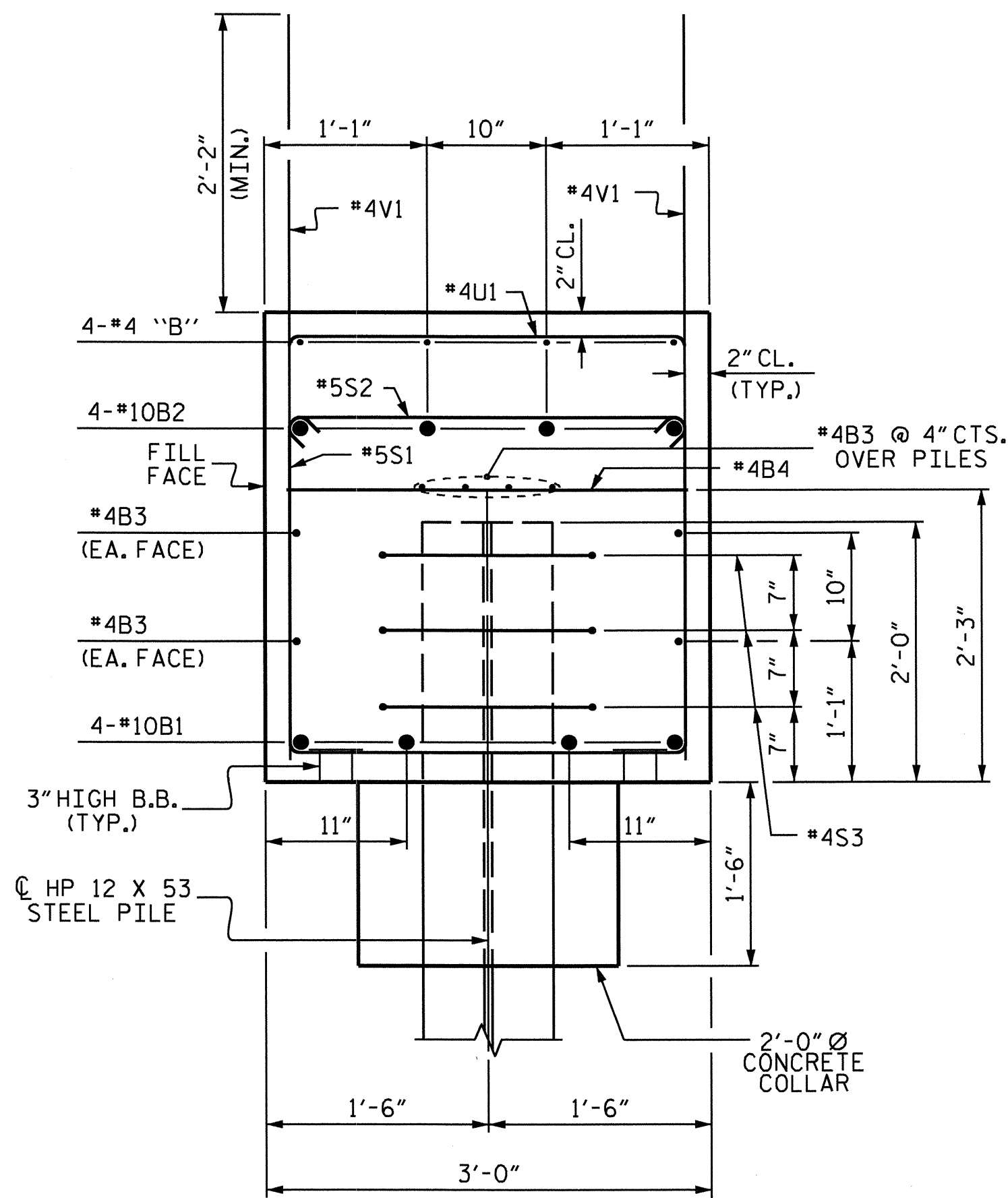
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE INTEGRAL END BENT #1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-35					TOTAL SHEETS 51



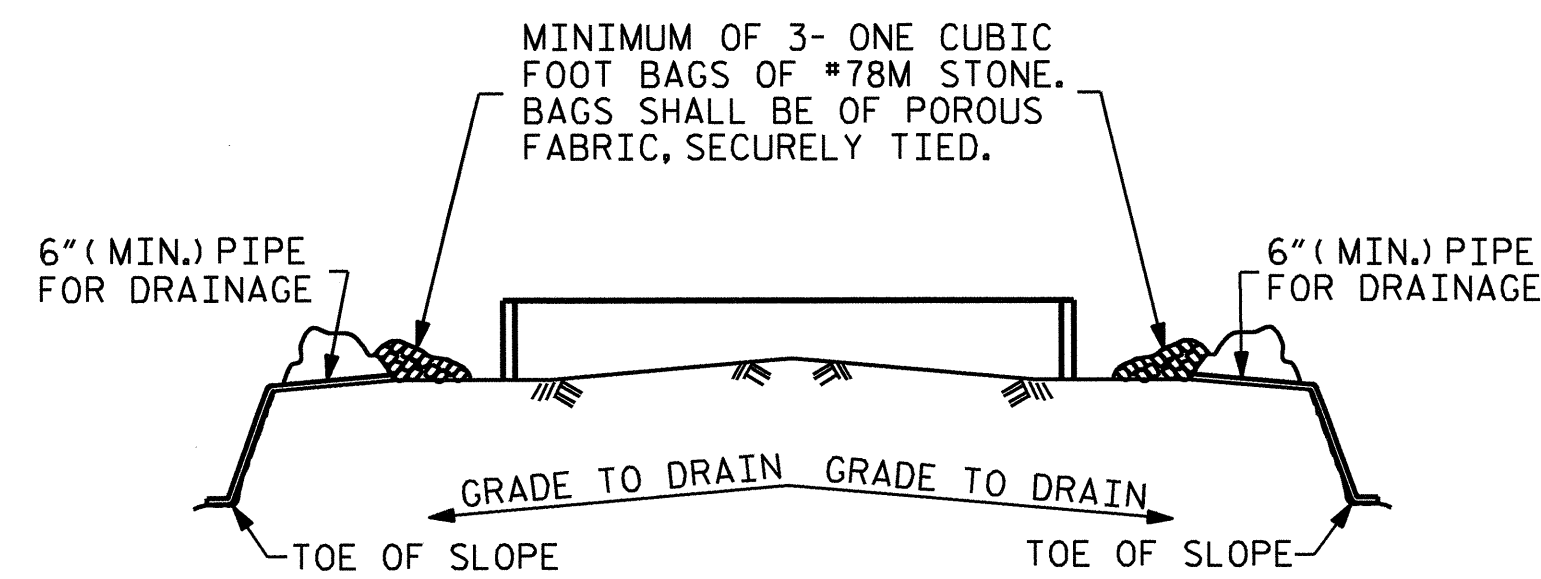
DRAWN BY: J.P. ADAMS DATE: 4/20/11
CHECKED BY: K.D. LAYNE DATE: 6/11



SECTION A-A



SECTION B-B



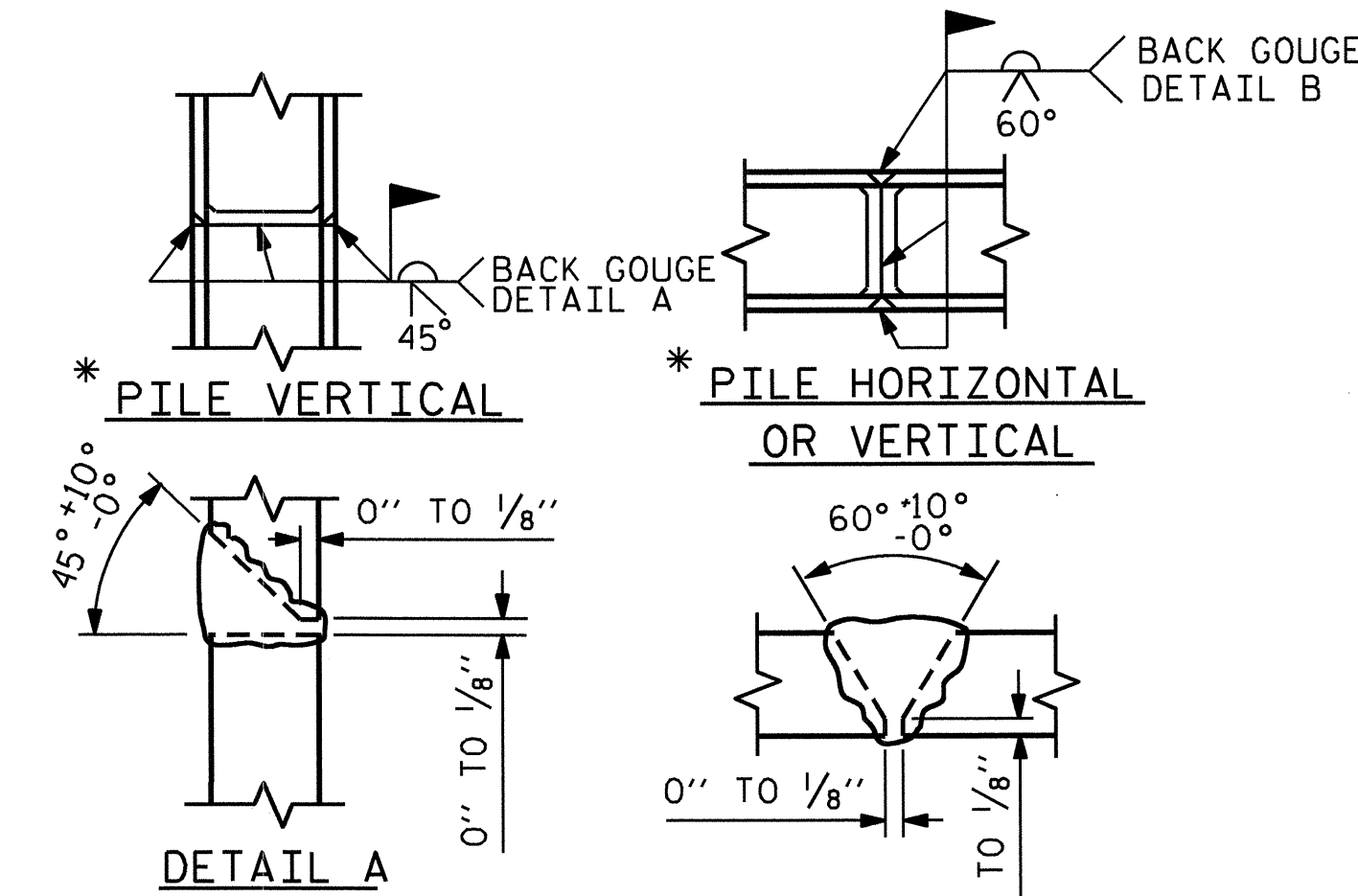
MINIMUM OF 3- ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

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

BILL OF MATERIAL
INTEGRAL END BENT #1

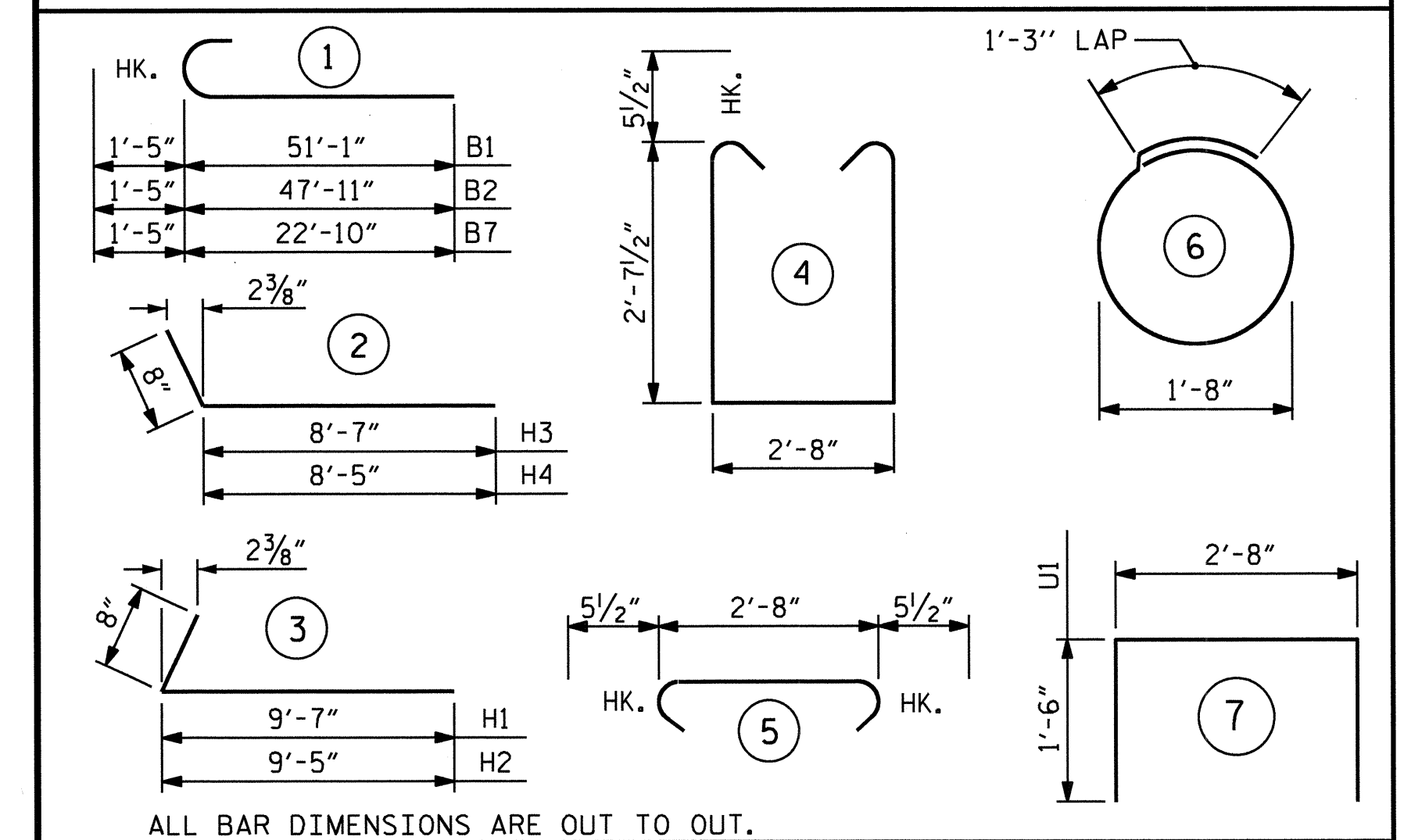
STAGE I						STAGE II					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	1	52'-6"	904	B7	8	#10	1	24'-3"	835
B2	4	#10	1	49'-4"	849	B8	12	#4	STR	22'-11"	184
B3	16	#4	STR	22'-7"	241	B9	6	#4	STR	2'-8"	11
B4	10	#4	STR	2'-8"	18						
B5	4	#4	STR	12'-2"	33						
B6	4	#4	STR	16'-2"	43						
						H1	4	#5	3	10'-3"	43
						H2	4	#5	3	10'-1"	42
						S1	27	#5	4	8'-10"	249
S1	38	#5	4	8'-10"	350	S2	27	#5	5	3'-7"	101
S2	38	#5	5	3'-7"	142	S3	9	#4	6	6'-6"	39
S3	12	#4	6	6'-6"	52						
						U1	15	#4	7	5'-8"	57
						U1	16	#4	7	5'-8"	61
						V1	34	#4	STR	5'-8"	129
						V5	4	#4	STR	8'-8"	23
						V2	4	#4	STR	7'-10"	21
						V6	6	#4	STR	8'-6"	34
						V3	6	#4	STR	7'-9"	31
						V7	8	#4	STR	8'-4"	45
						V4	8	#4	STR	7'-7"	41

REINFORCING STEEL	LBS	3105	REINFORCING STEEL	LBS	1792
CLASS A CONCRETE	15.8 C.Y.		CLASS A CONCRETE	10.8 C.Y.	
HP 12X53 STEEL PILES NO. 5	285 LIN.FT.		HP 12X53 STEEL PILES NO. 2	120 LIN.FT.	

TOTAL BILL OF MATERIAL

REINFORCING STEEL	4897 LBS	HP 12X53 STEEL PILES NO. 7	405 LIN.FT.
CLASS 'A' CONCRETE	26.6 C.Y.		

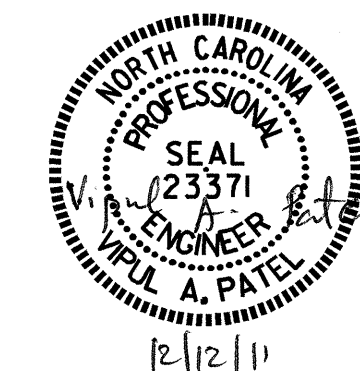
BAR TYPES



PROJECT NO. B-3421
CABARRUS COUNTY
STATION: 17+97.08 -L-

SHEET 4 OF 4

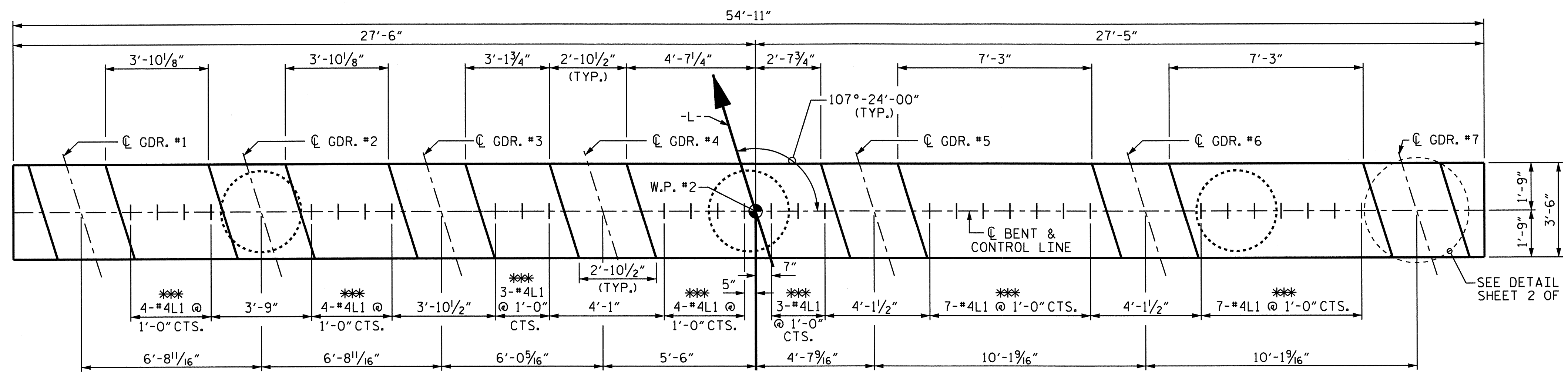
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE INTEGRAL END BENT #1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-36					TOTAL SHEETS 51



DRAWN BY: J.P. ADAMS DATE: 4/20/11
CHECKED BY: K.D. LAYNE DATE: 6/11

NOTES

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

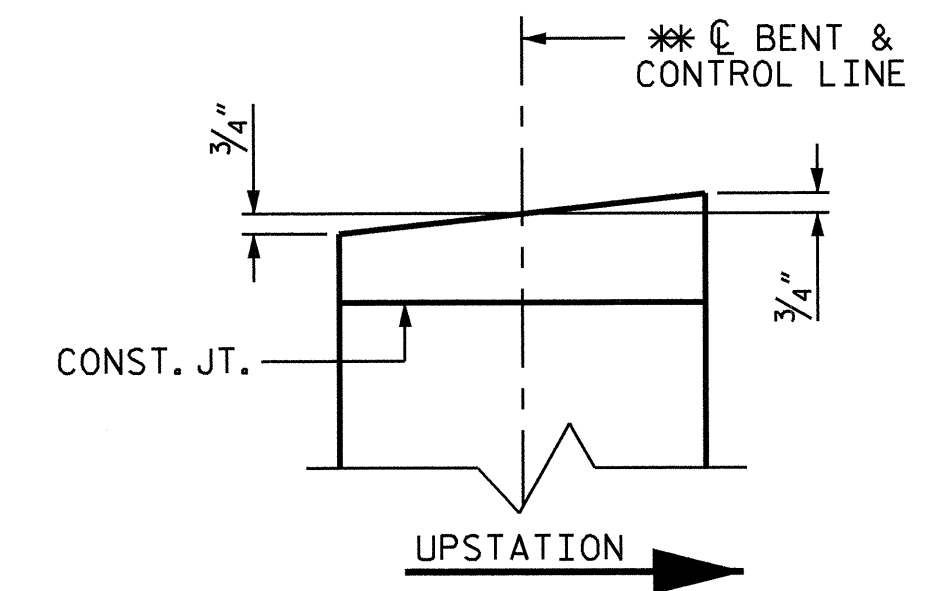


PLAN

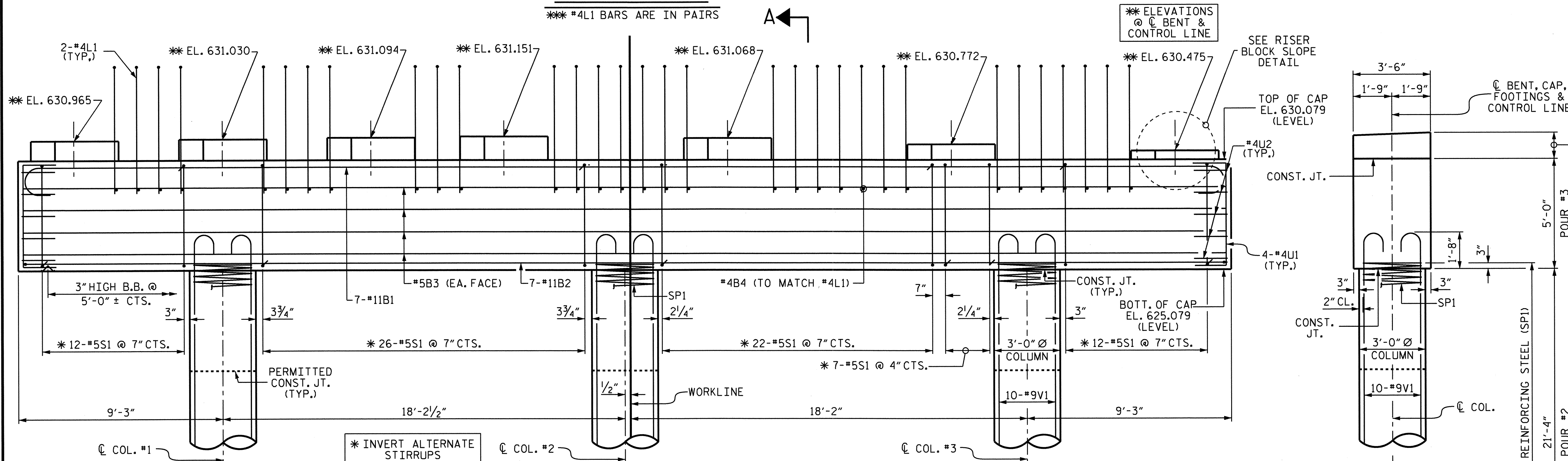
*** #4L1 BARS ARE IN PAIRS

SPAN B

SPAN A

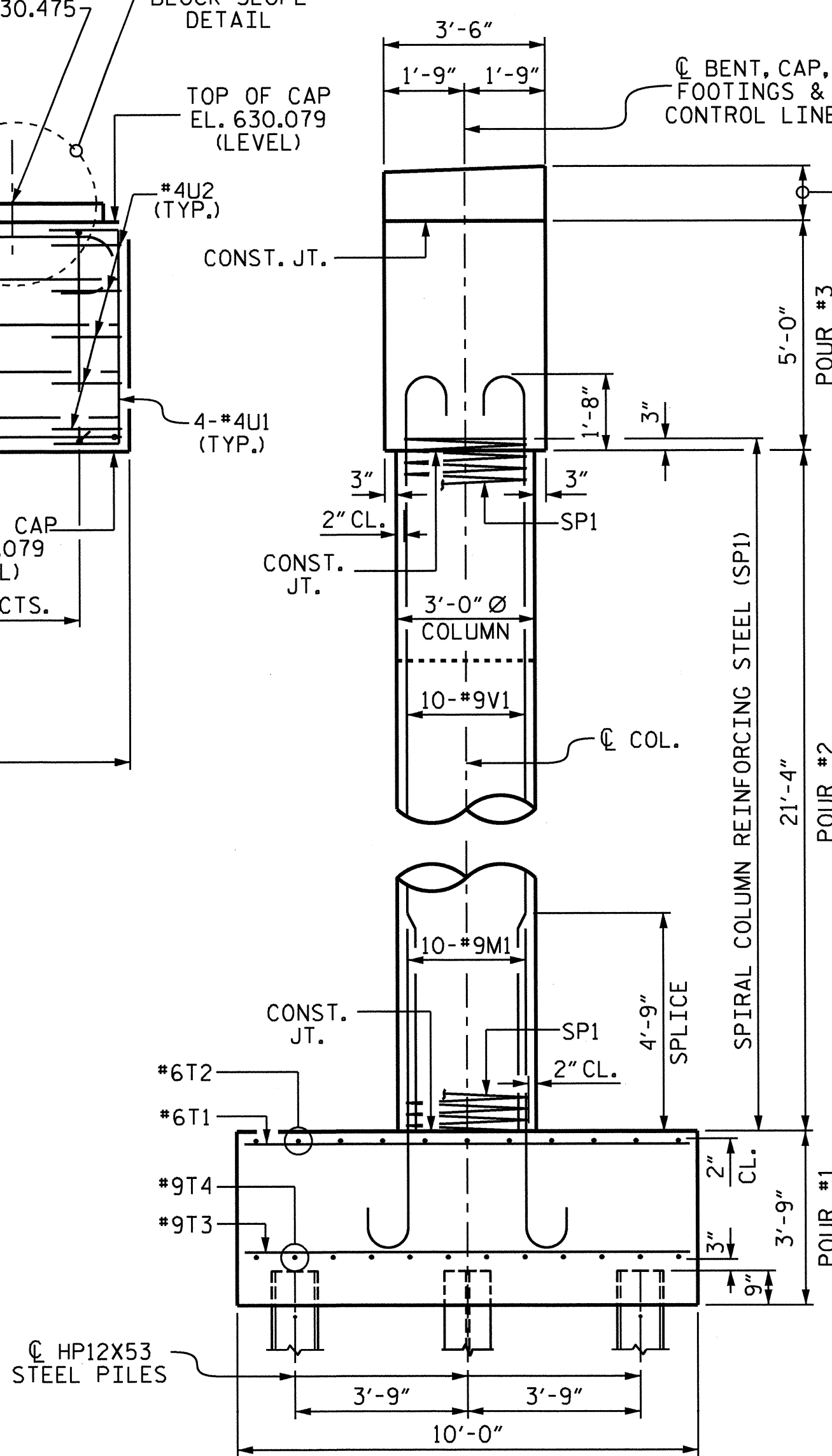


RISER BLOCK SLOPE DETAIL



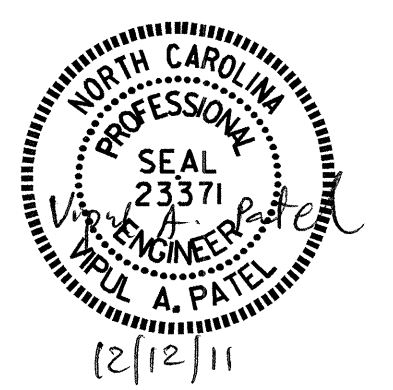
ELEVATION

REINFORCING STEEL, DIMENSIONS AND DETAILS ARE TYPICAL FOR EACH COLUMN AND FOOTING UNLESS OTHERWISE NOTED.



END VIEW

REINFORCING STEEL, DIMENSIONS AND DETAILS ARE TYPICAL FOR EACH COLUMN AND FOOTING UNLESS OTHERWISE NOTED.

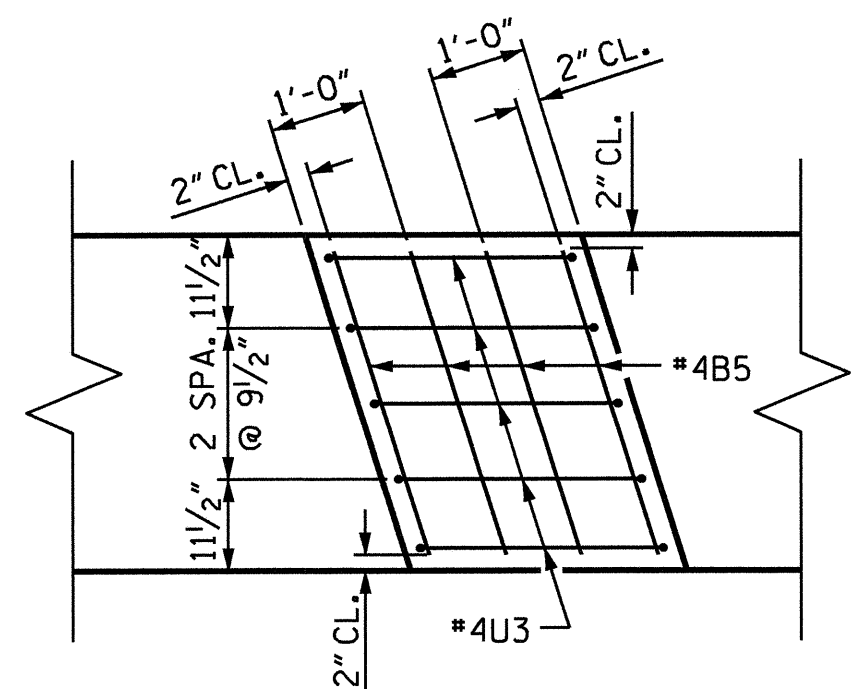


PROJECT NO. B-3421
 CABARRUS COUNTY
 STATION: 17+97.08 -L-

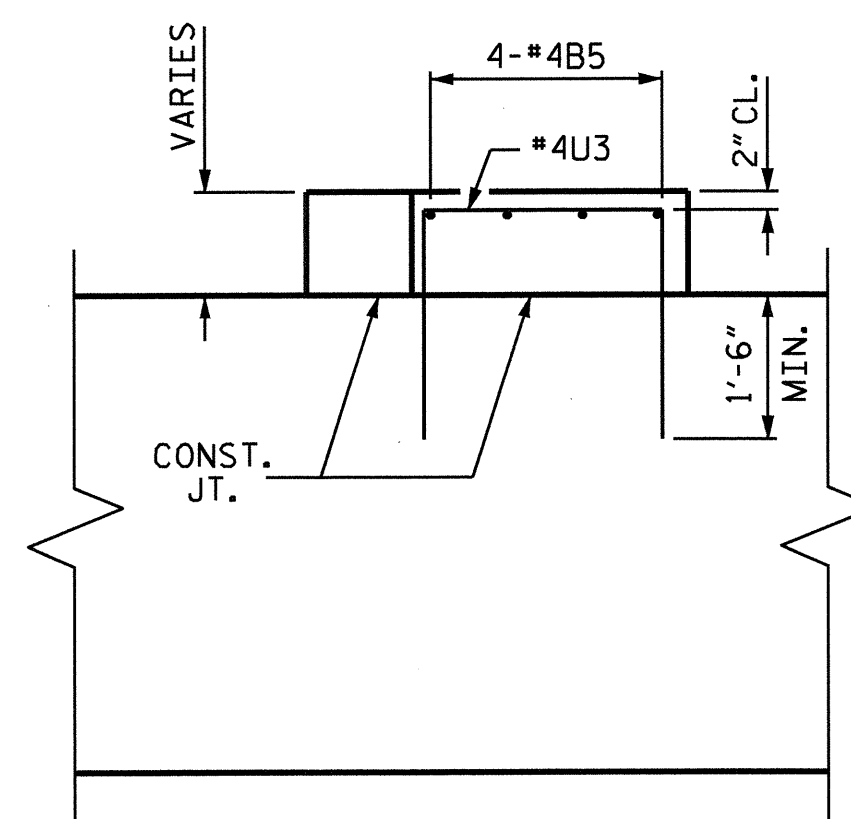
SHEET 1 OF 2
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT #1

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-37	
1			3			TOTAL SHEETS	
2			4			51	

DRAWN BY : H.T. DIEU DATE : 1/20/11
 CHECKED BY : K. LAYNE DATE : 2/15/11

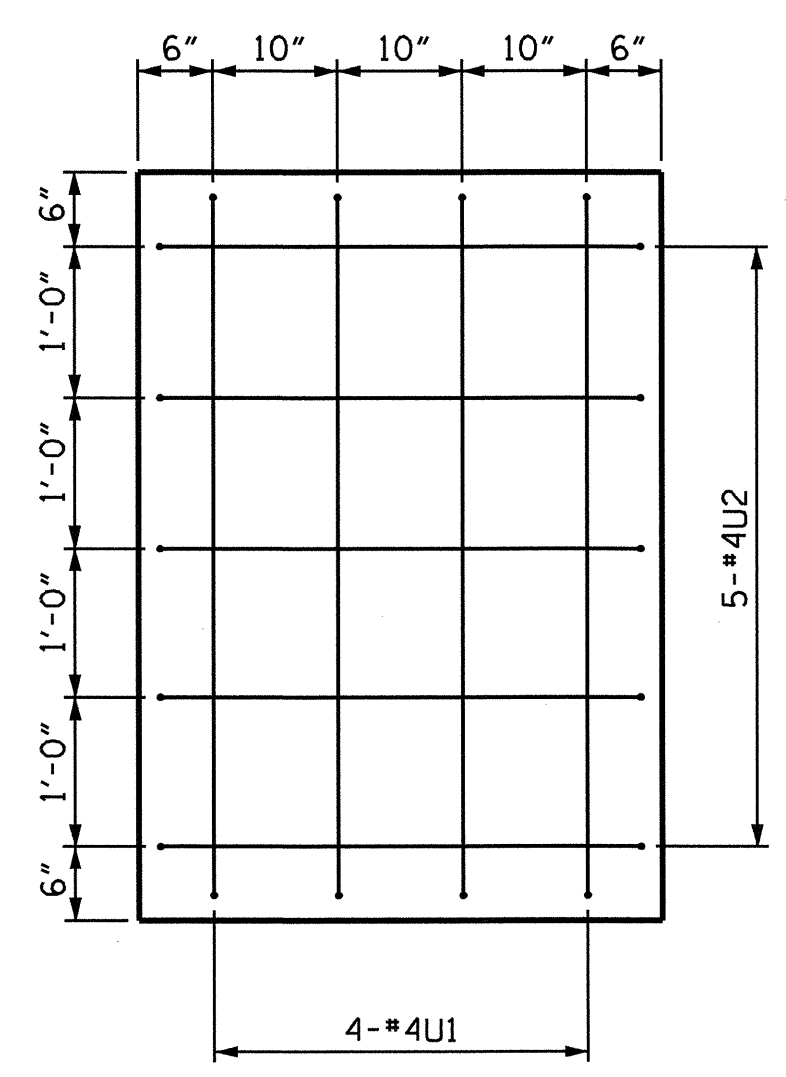


PLAN

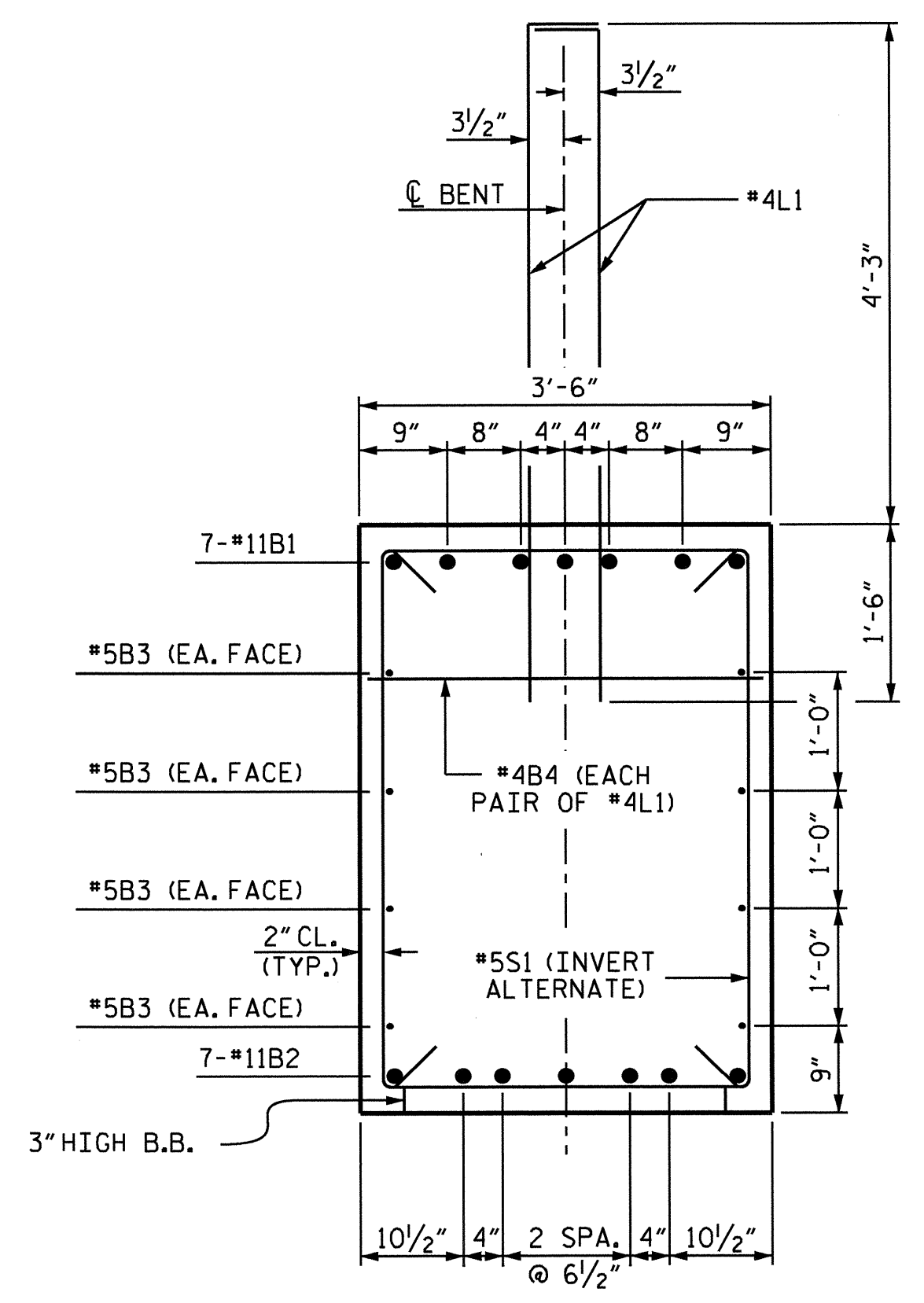


ELEVATION

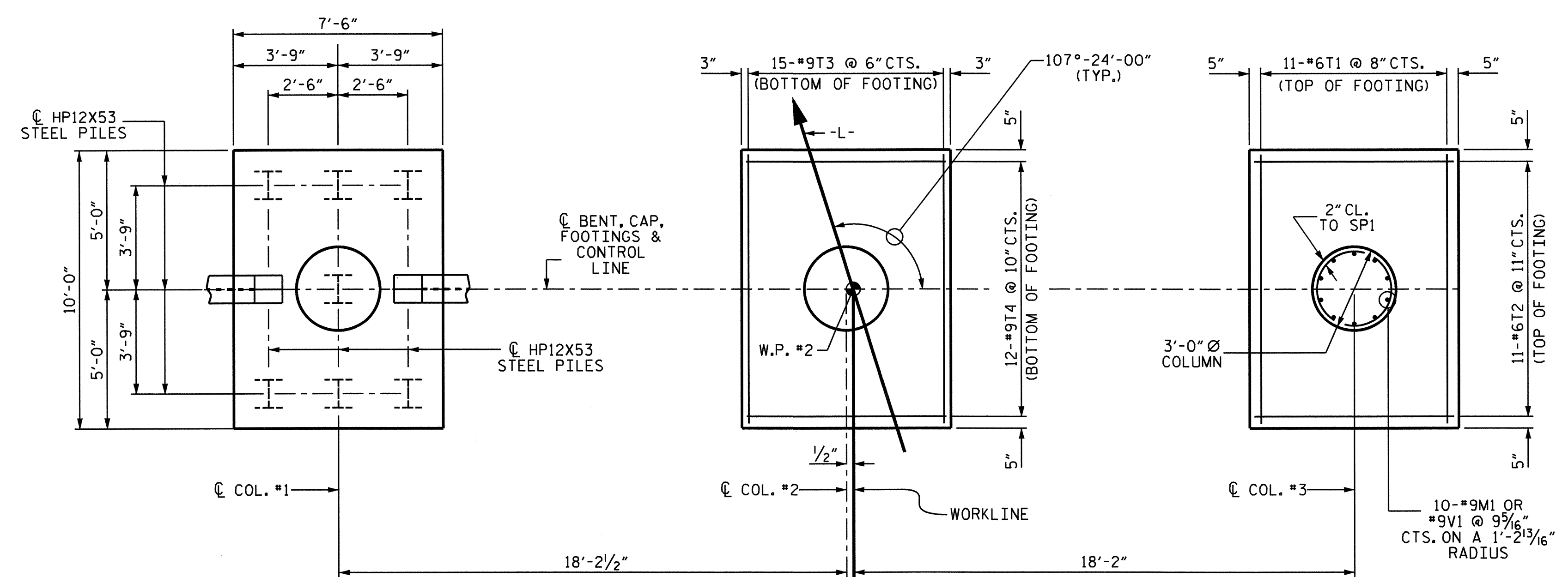
DETAIL A



END VIEW

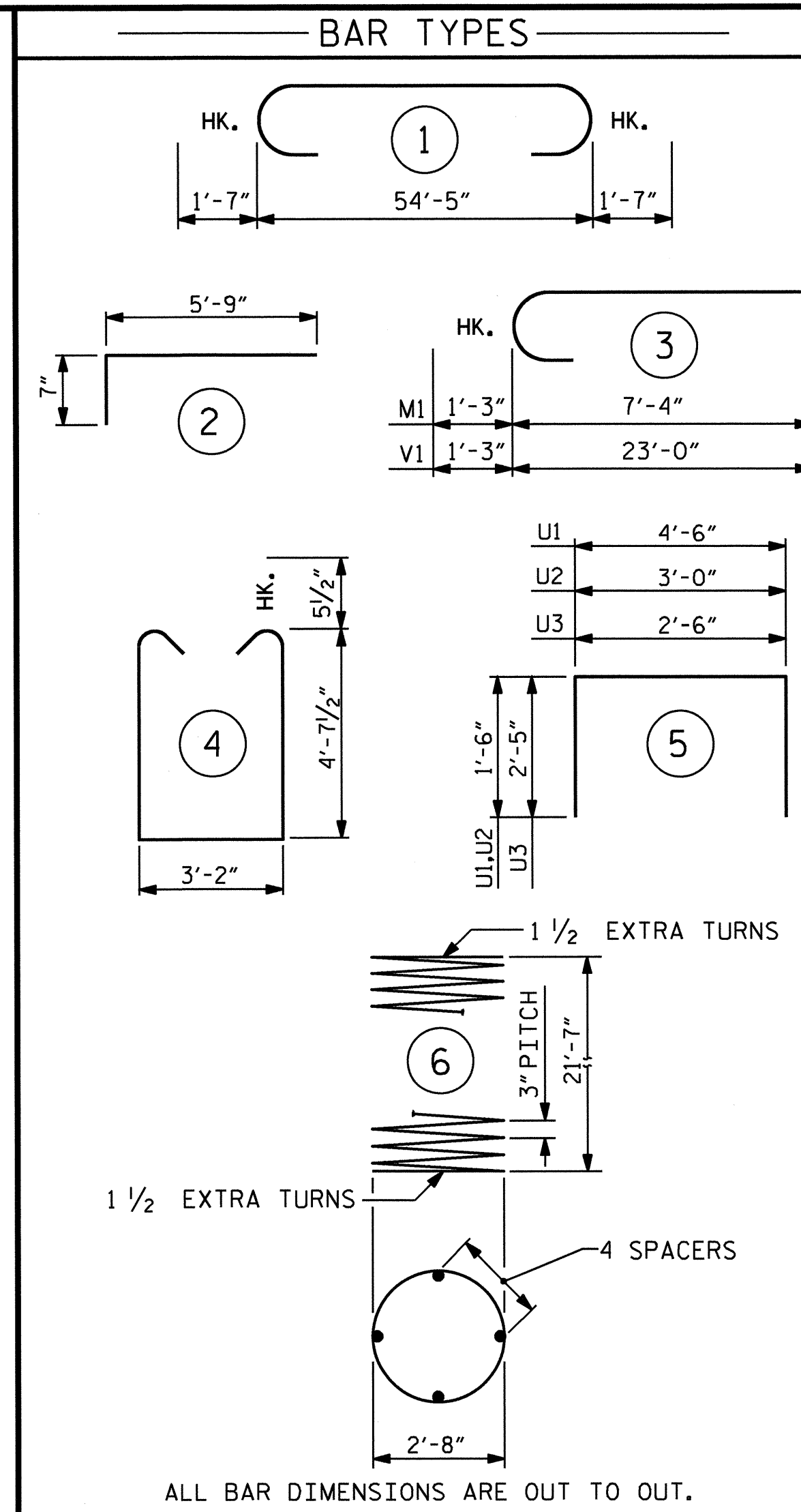


SECTION A-A



PLAN ON FOOTINGS & COLUMNS

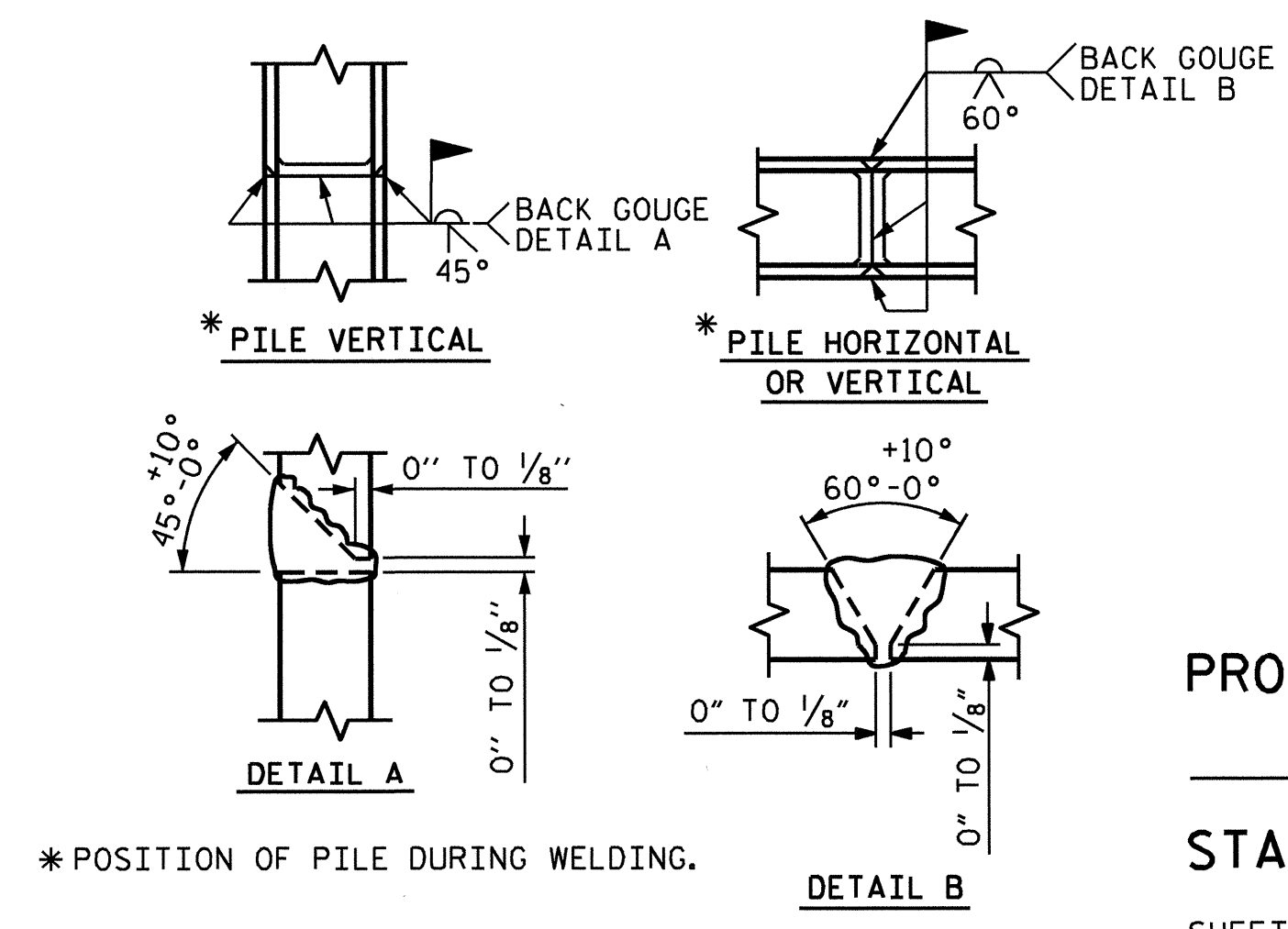
REINFORCING STEEL, DIMENSIONS AND DETAILS ARE TYPICAL FOR EACH COLUMN AND FOOTING UNLESS OTHERWISE NOTED



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
BENT #1					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	#11	1	57'-7"	2142	
B2	#11	STR	54'-7"	2030	
B3	#5	STR	54'-7"	455	
B4	#4	STR	3'-2"	68	
B5	#4	STR	3'-3"	61	
L1	#4	2	6'-4"	271	
M1	#9	3	8'-7"	876	
S1	#5	4	13'-4"	1099	
T1	#6	STR	9'-8"	479	
T2	#6	STR	7'-2"	355	
T3	#9	STR	9'-8"	1479	
T4	#9	STR	7'-2"	877	
U1	#4	5	7'-6"	40	
U2	#4	5	6'-0"	40	
U3	#4	5	7'-4"	171	
V1	#9	3	24'-3"	2474	
REINFORCING STEEL			12917 LBS.		
SP1	3	**	6	738'-6"	1480
SPIRAL COLUMN REINFORCING STEEL (SP1)			= 1480 LBS		
CLASS A CONCRETE BREAKDOWN:					
POUR #1 (FOOTINGS)			31.3 C.Y.		
POUR #2 (COLUMNS)			16.8 C.Y.		
POUR #3 (CAP)			35.6 C.Y.		
POUR #4 (RISERS)			2.3 C.Y.		
TOTAL CLASS A CONCRETE			86.0 C.Y.		
HP12X53 STEEL PILES			LIN. FT. 720		
No. 27					
FOUNDATION EXCAVATION			LUMP SUM		

** THE SPIRAL REINFORCING STEEL SHALL BE W-20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

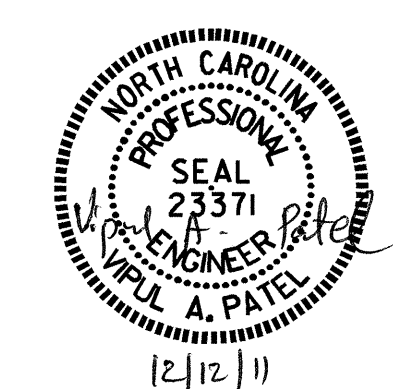


PILE SPLICE DETAILS

PROJECT NO. B-3421
 CABARRUS COUNTY
 STATION: 17+97.08 -L-

SHEET 2 OF 2

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

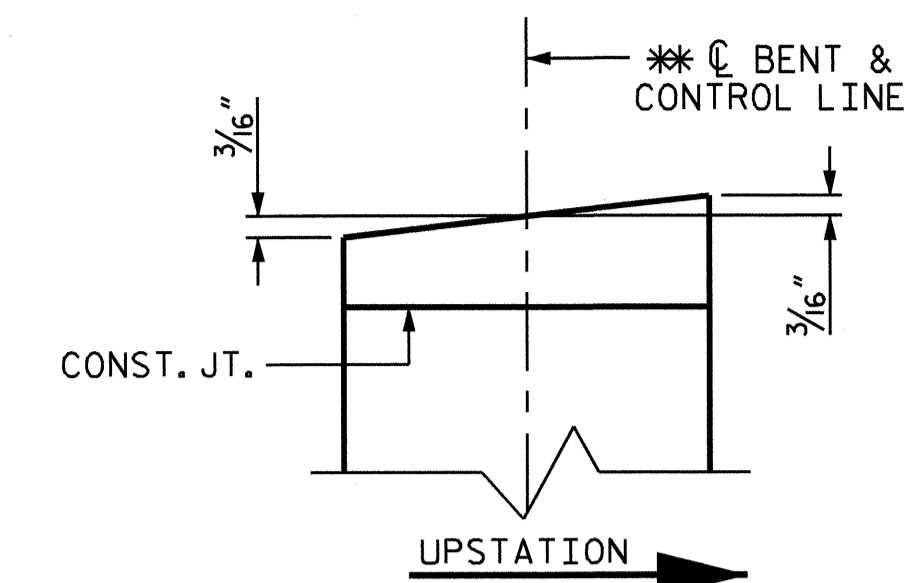


DRAWN BY: H.T. DIEU DATE: 1/20/11
 CHECKED BY: K. LAYNE DATE: 2/15/11

NOTES

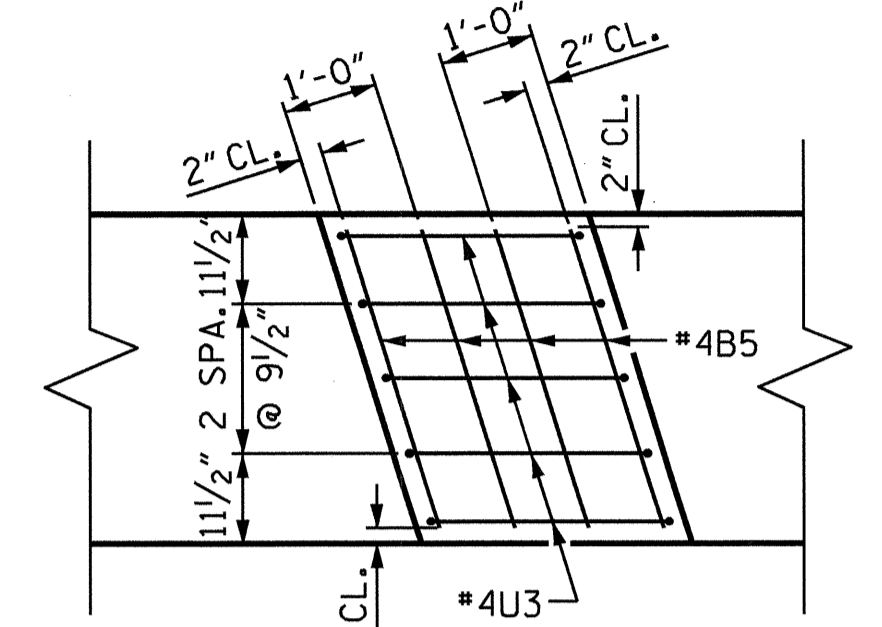
HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

SPAN C

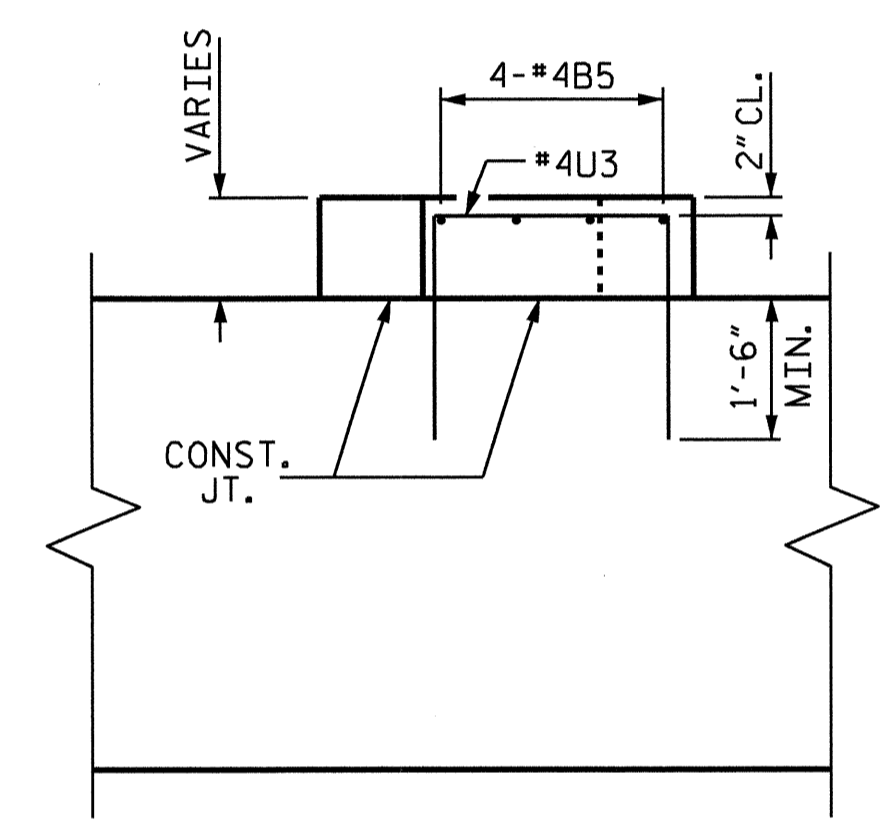


SPAN B

RISER BLOCK SLOPE DETAIL

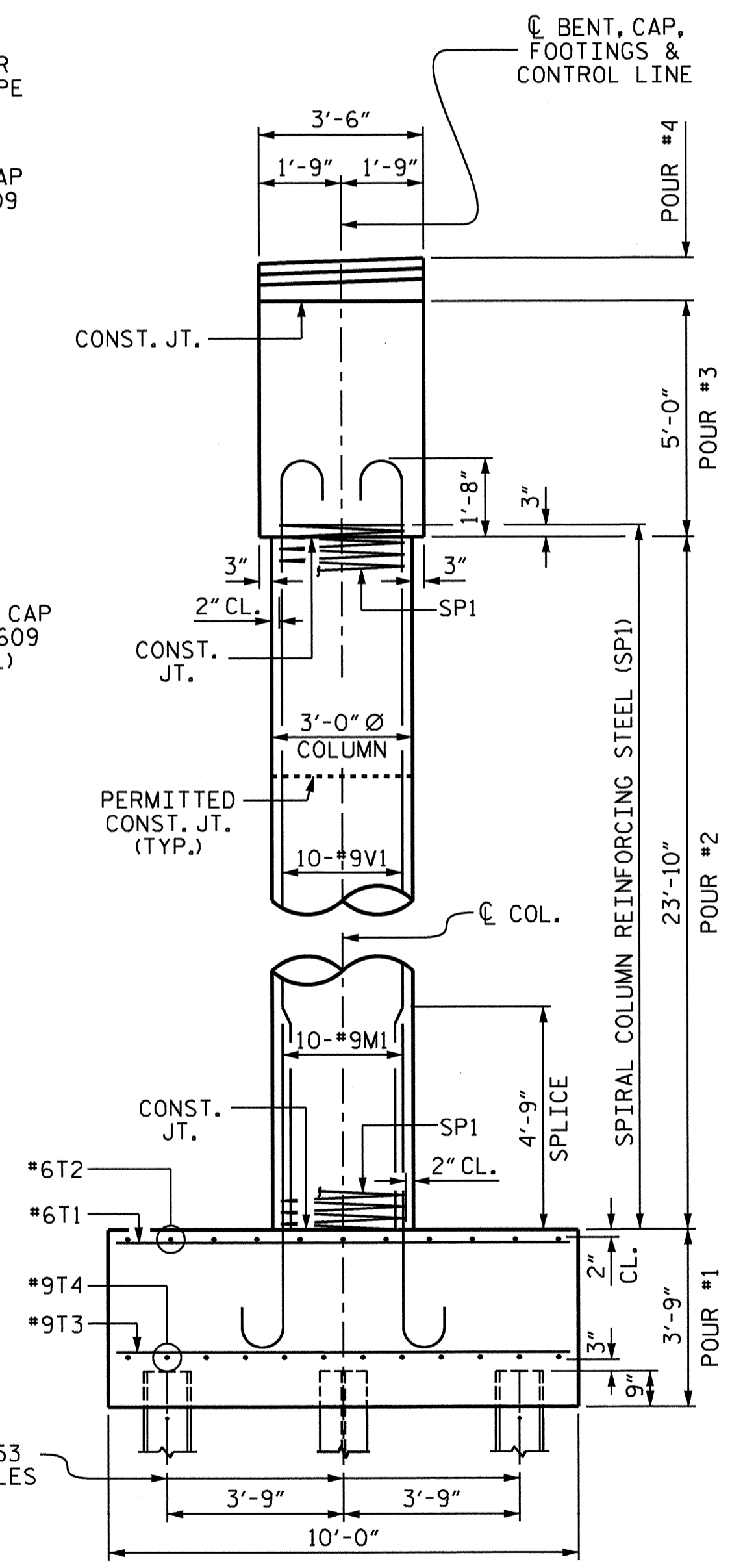


PLAN



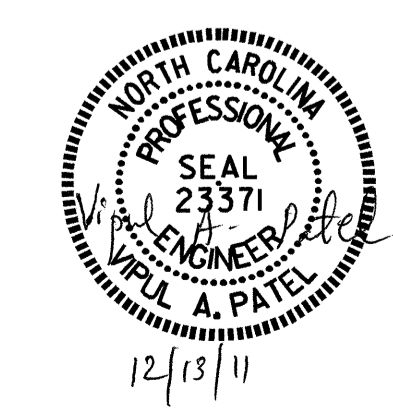
ELEVATION

DETAIL A



END VIEW

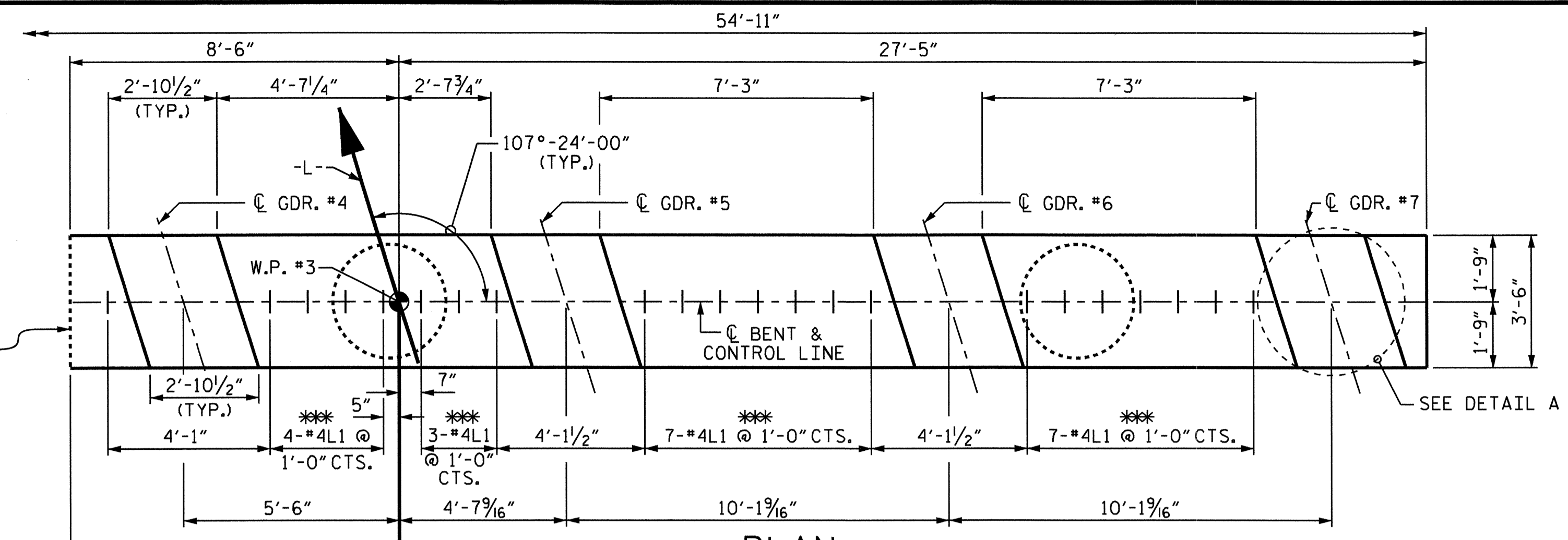
REINFORCING STEEL, DIMENSIONS AND DETAILS ARE TYPICAL FOR EACH COLUMN AND FOOTING UNLESS OTHERWISE NOTED.



PROJECT NO. B-3421
CABARRUS COUNTY
 STATION: 17+97.08 -L-
 SHEET 1 OF 3

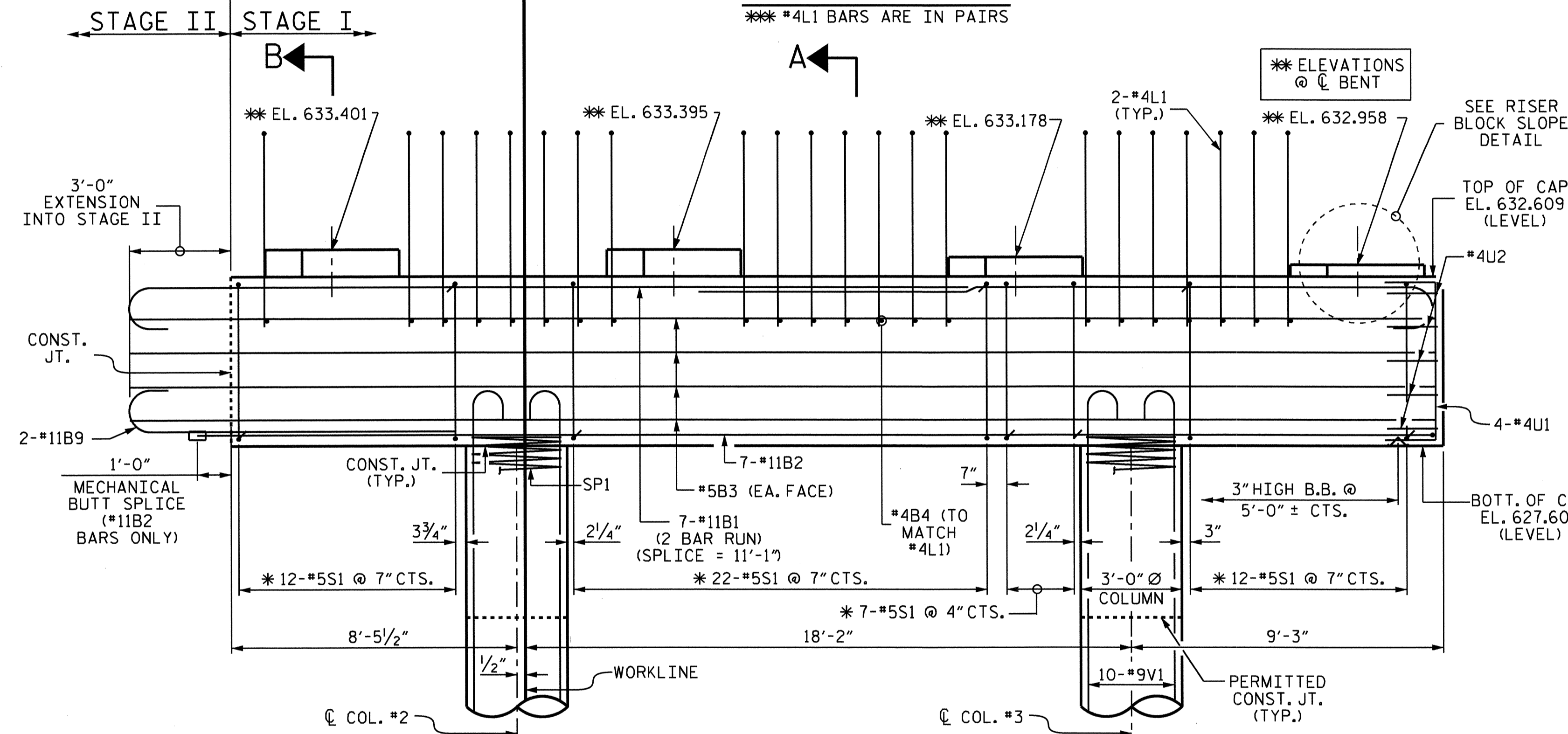
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
BENT #2 (STAGE I)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.
S-39
TOTAL SHEETS
51



PLAN

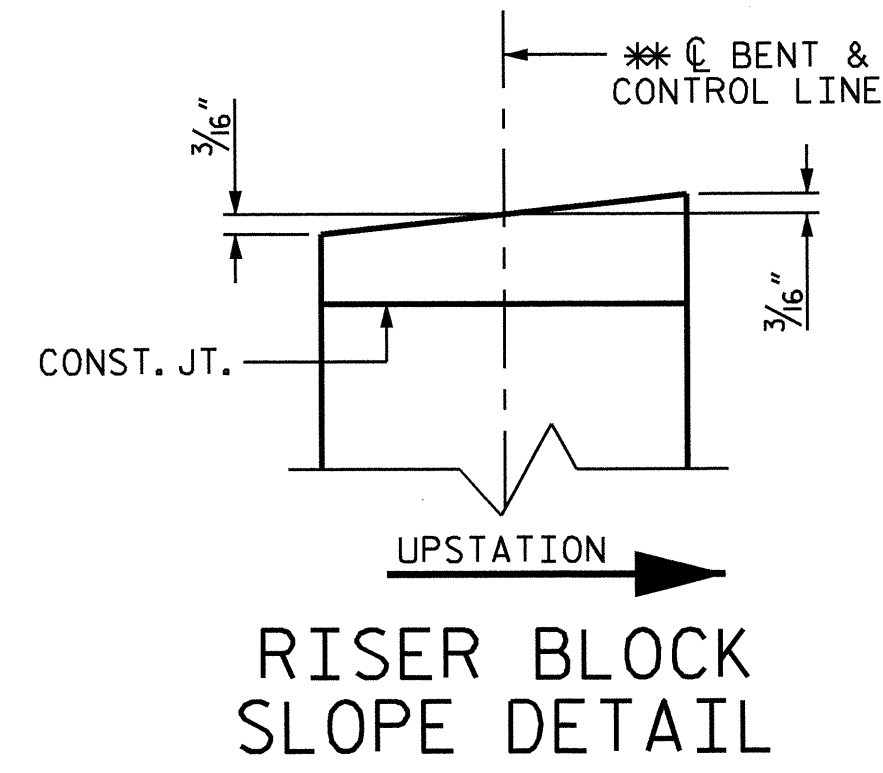
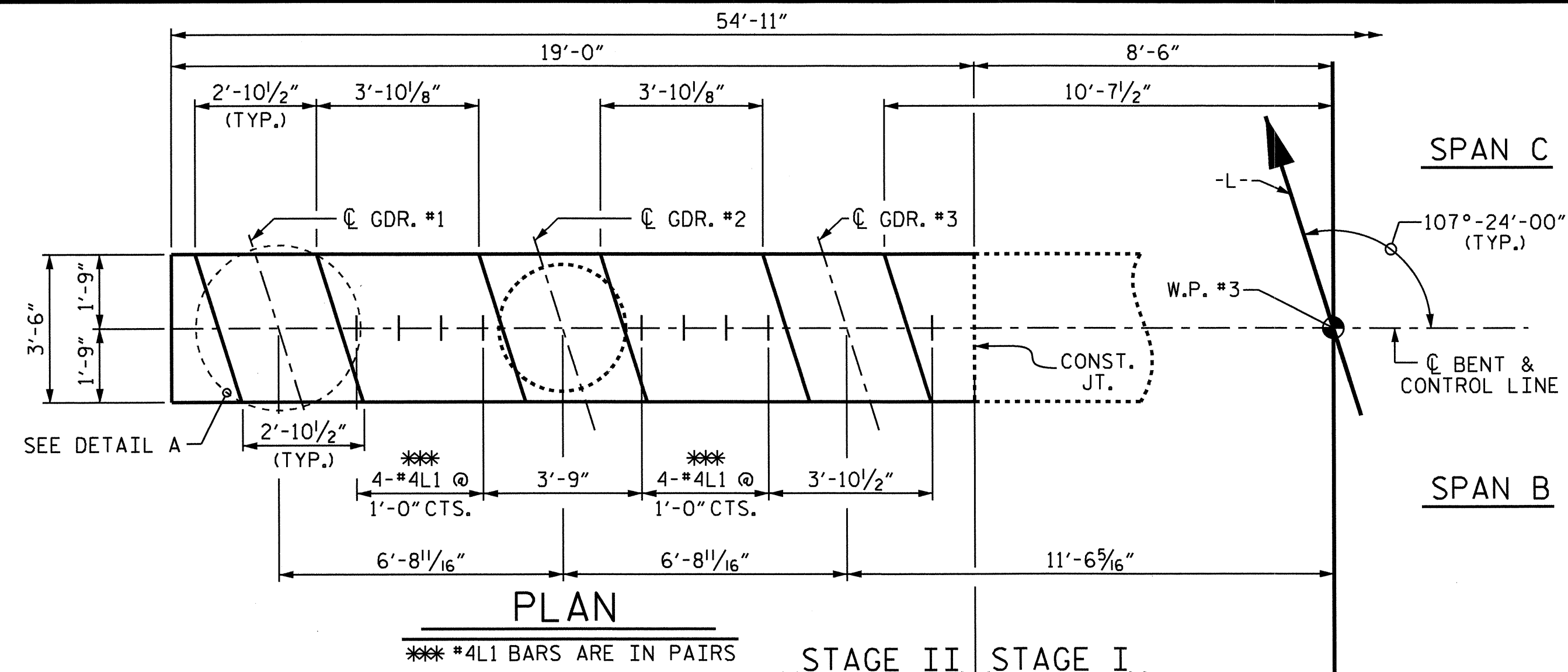
*** #4L1 BARS ARE IN PAIRS



ELEVATION

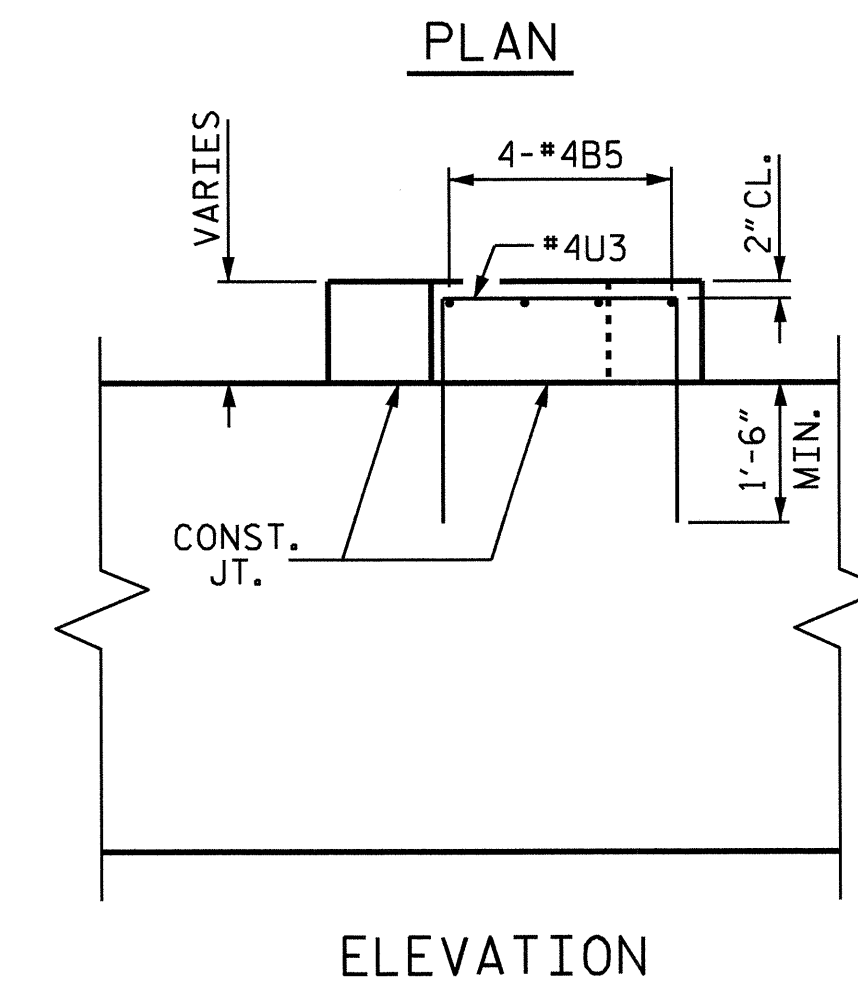
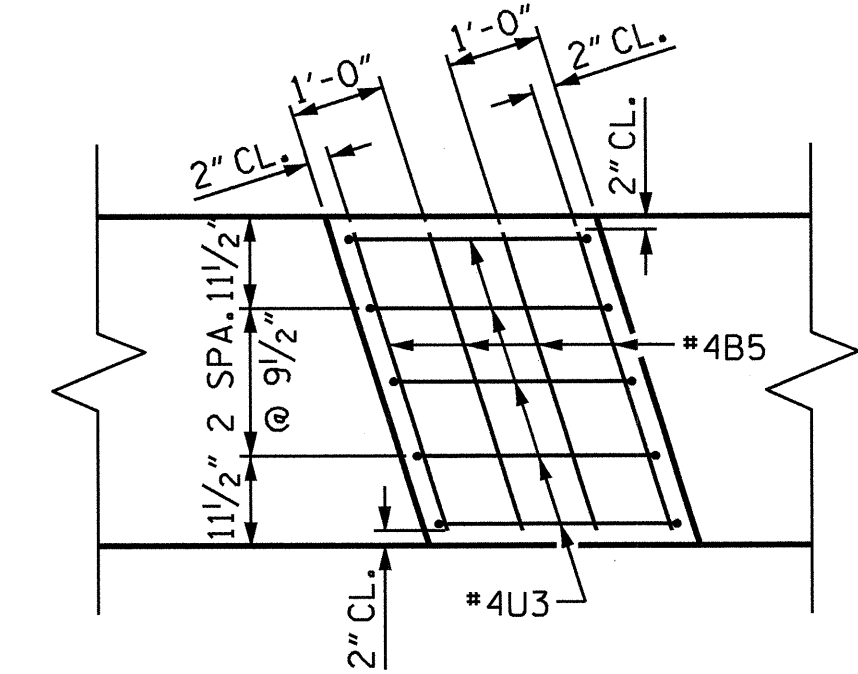
REINFORCING STEEL, DIMENSIONS AND DETAILS ARE TYPICAL FOR EACH COLUMN AND FOOTING UNLESS OTHERWISE NOTED.

DRAWN BY : H.T. DIEU DATE : 1/20/11
 CHECKED BY : K. LAYNE DATE : 2/15/11



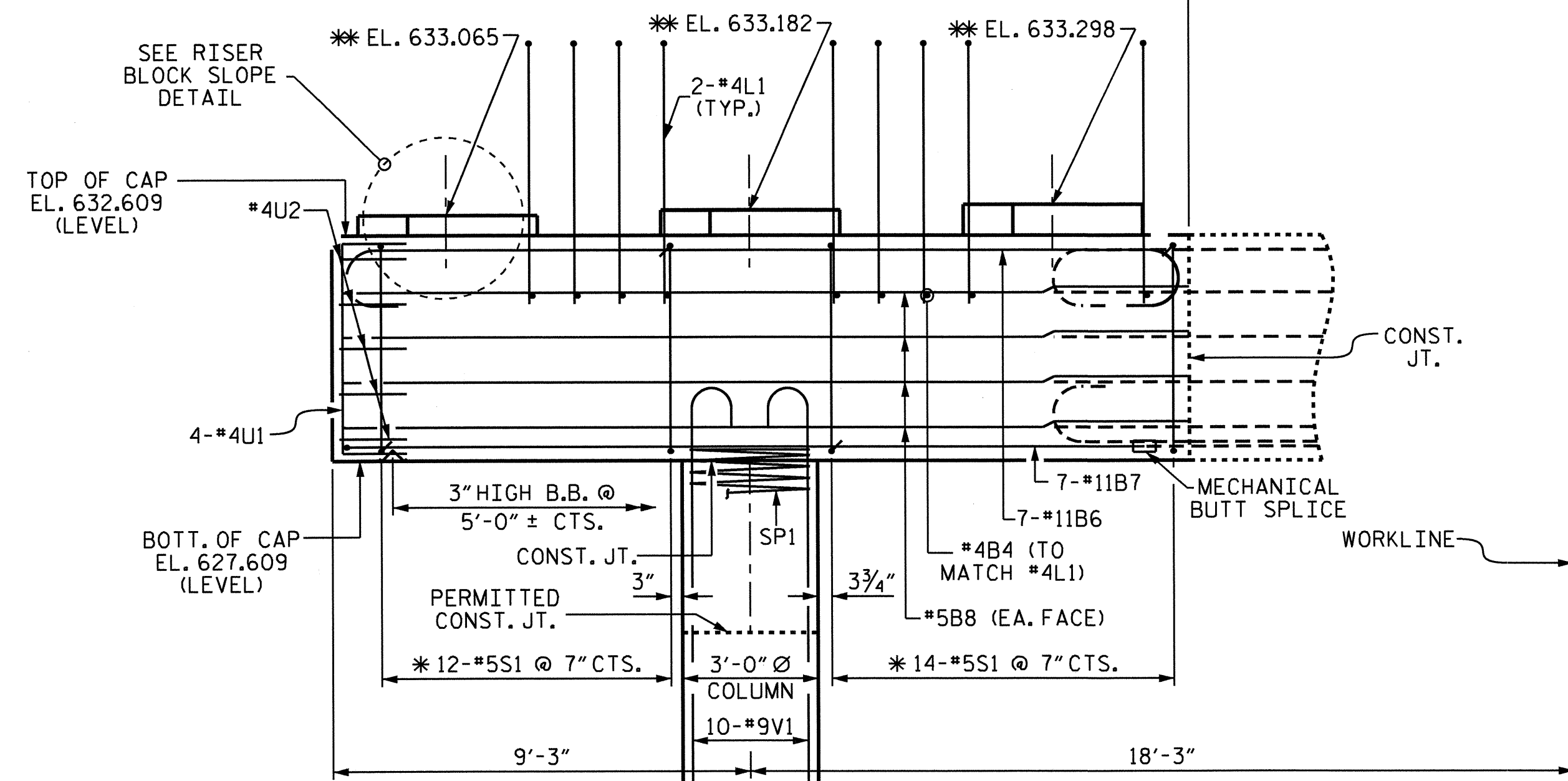
NOTES

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

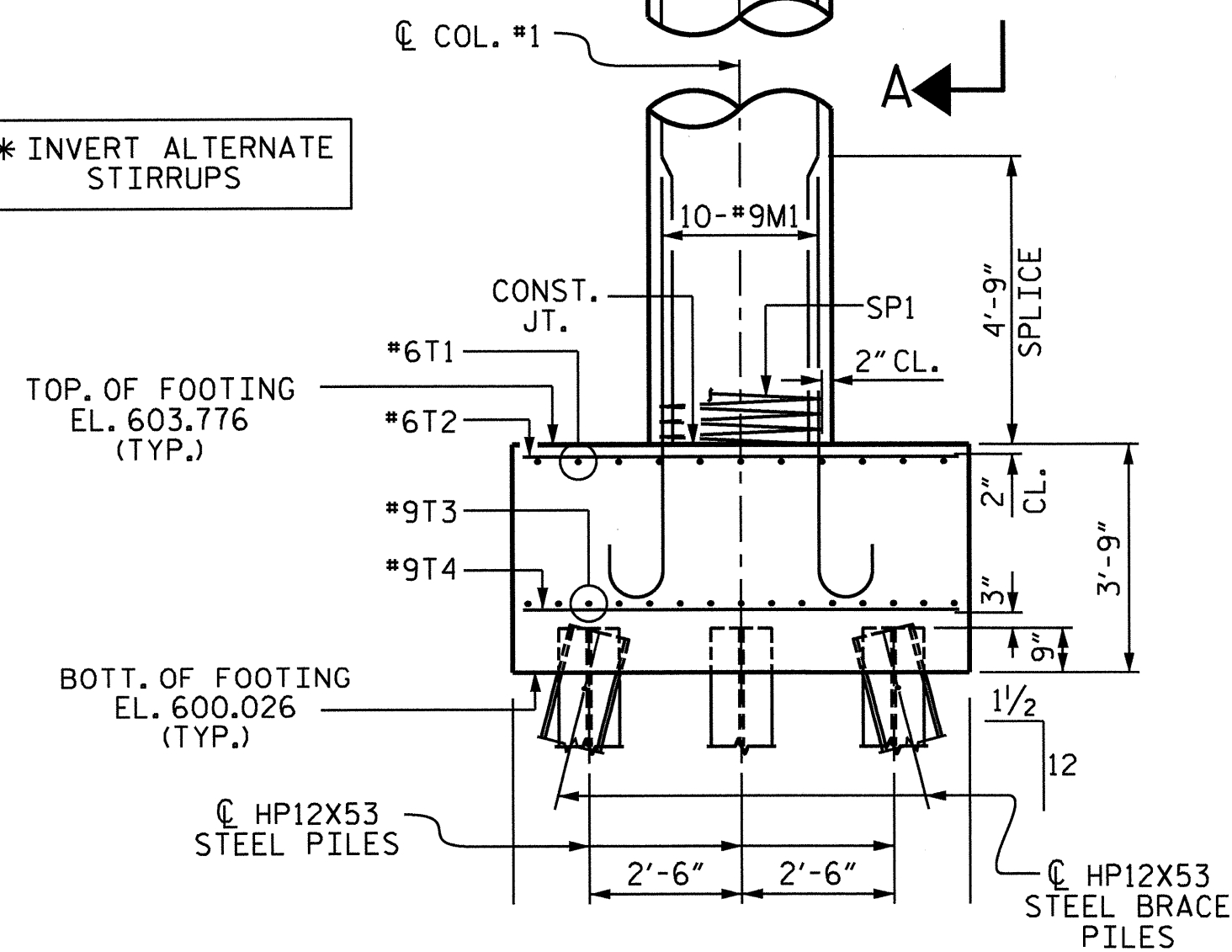


DETAIL A

** ELEVATIONS @ CL BENT

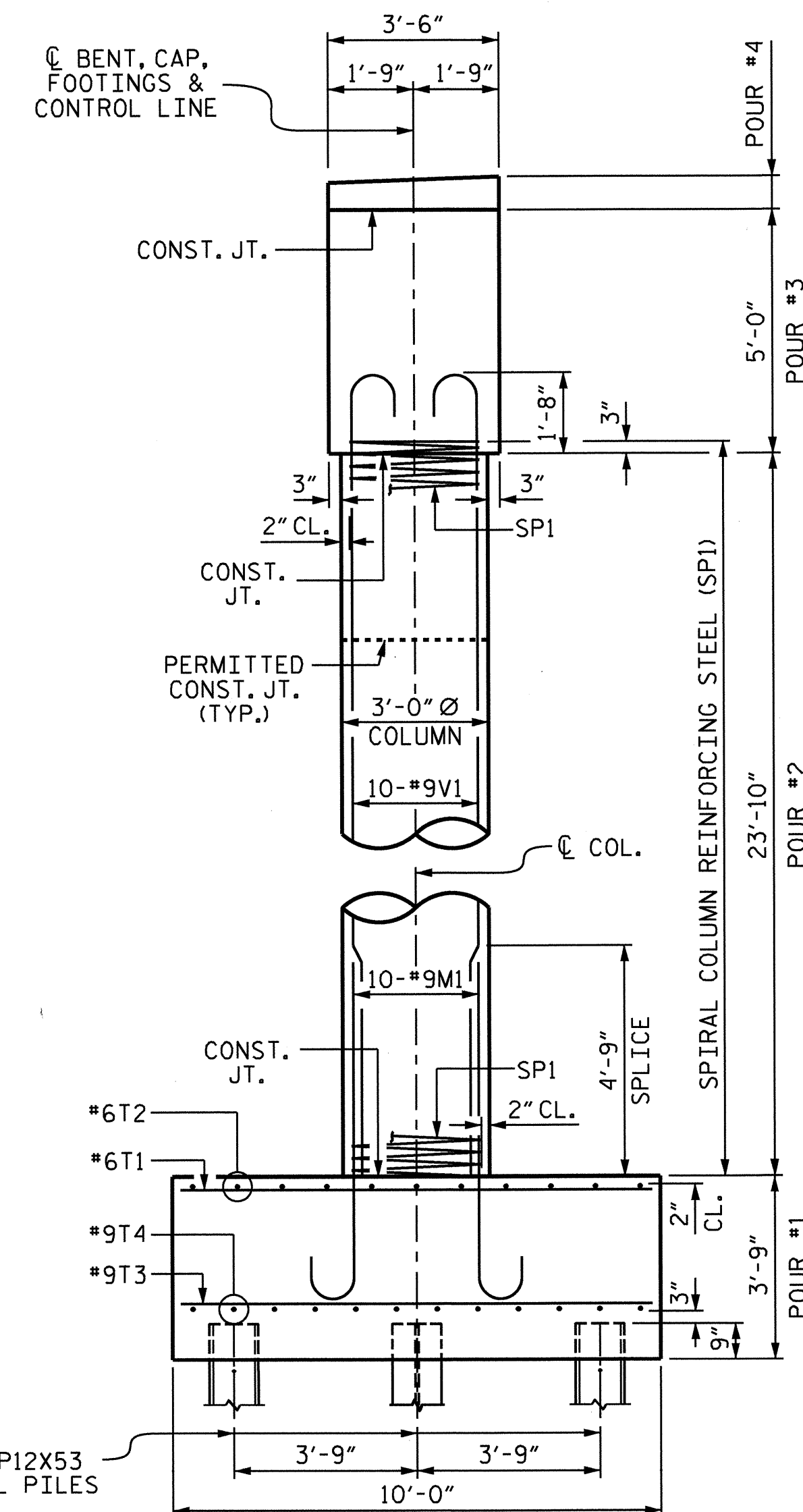


* INVERT ALTERNATE STIRRUPS



ELEVATION

REINFORCING STEEL, DIMENSIONS AND DETAILS ARE TYPICAL FOR EACH COLUMN AND FOOTING UNLESS OTHERWISE NOTED.



END VIEW

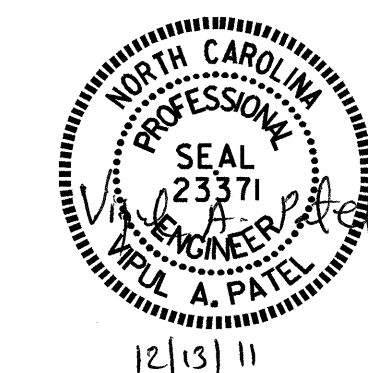
REINFORCING STEEL, DIMENSIONS AND DETAILS ARE TYPICAL FOR EACH COLUMN AND FOOTING UNLESS OTHERWISE NOTED.

PROJECT NO. B-3421
CABARRUS COUNTY
 STATION: 17+97.08 -L-

SHEET 2 OF 3

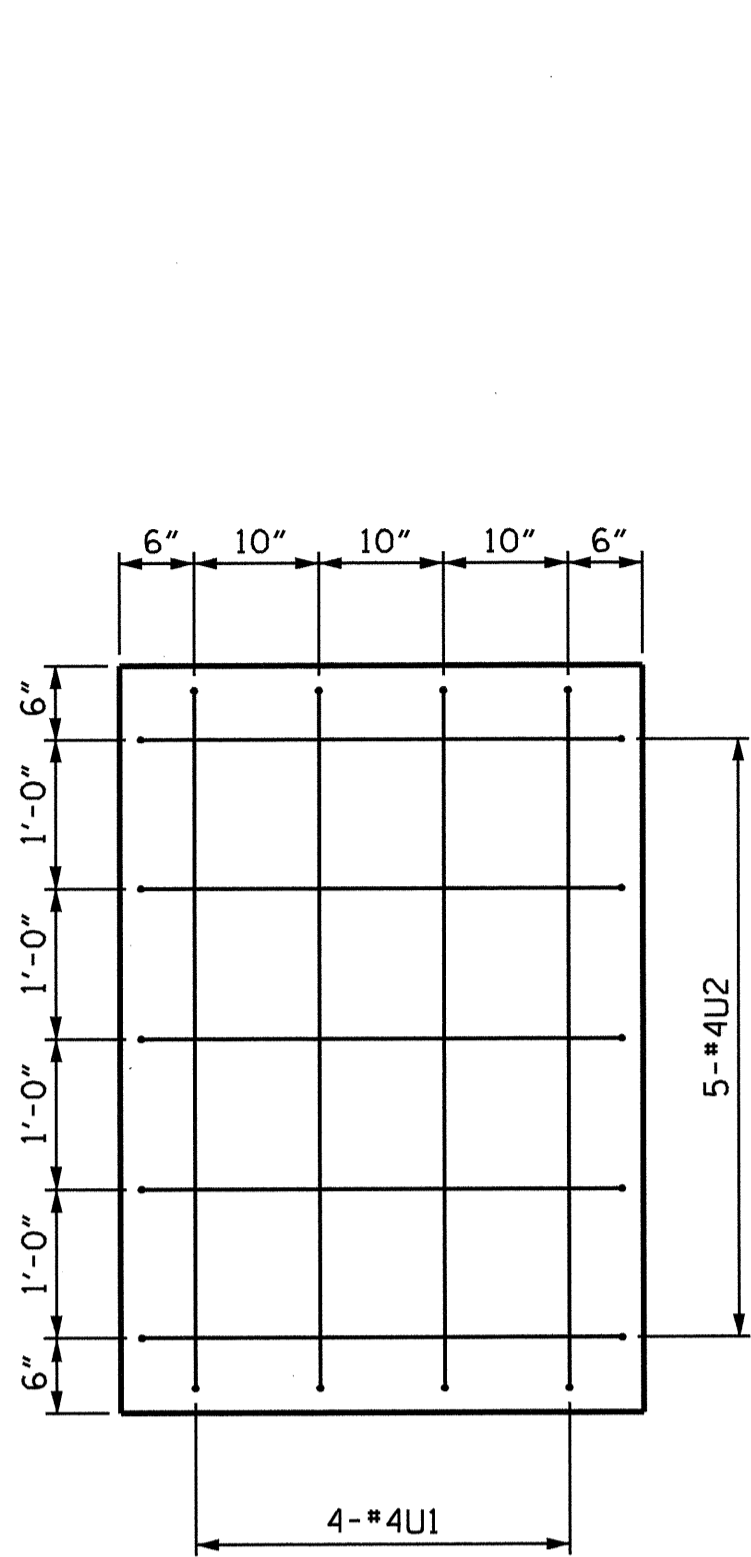
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT #2
 (STAGE II)

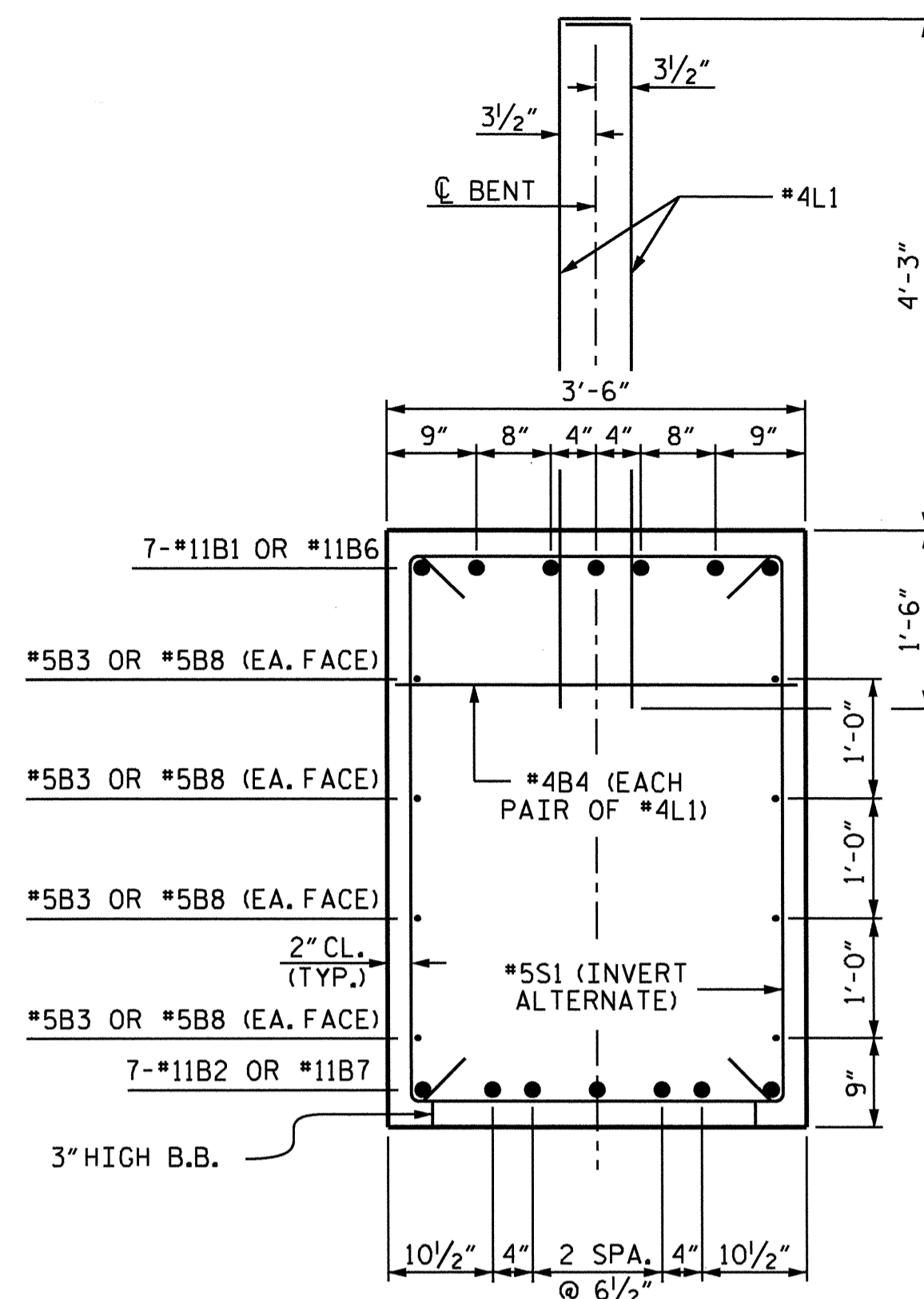


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			51
2			4			

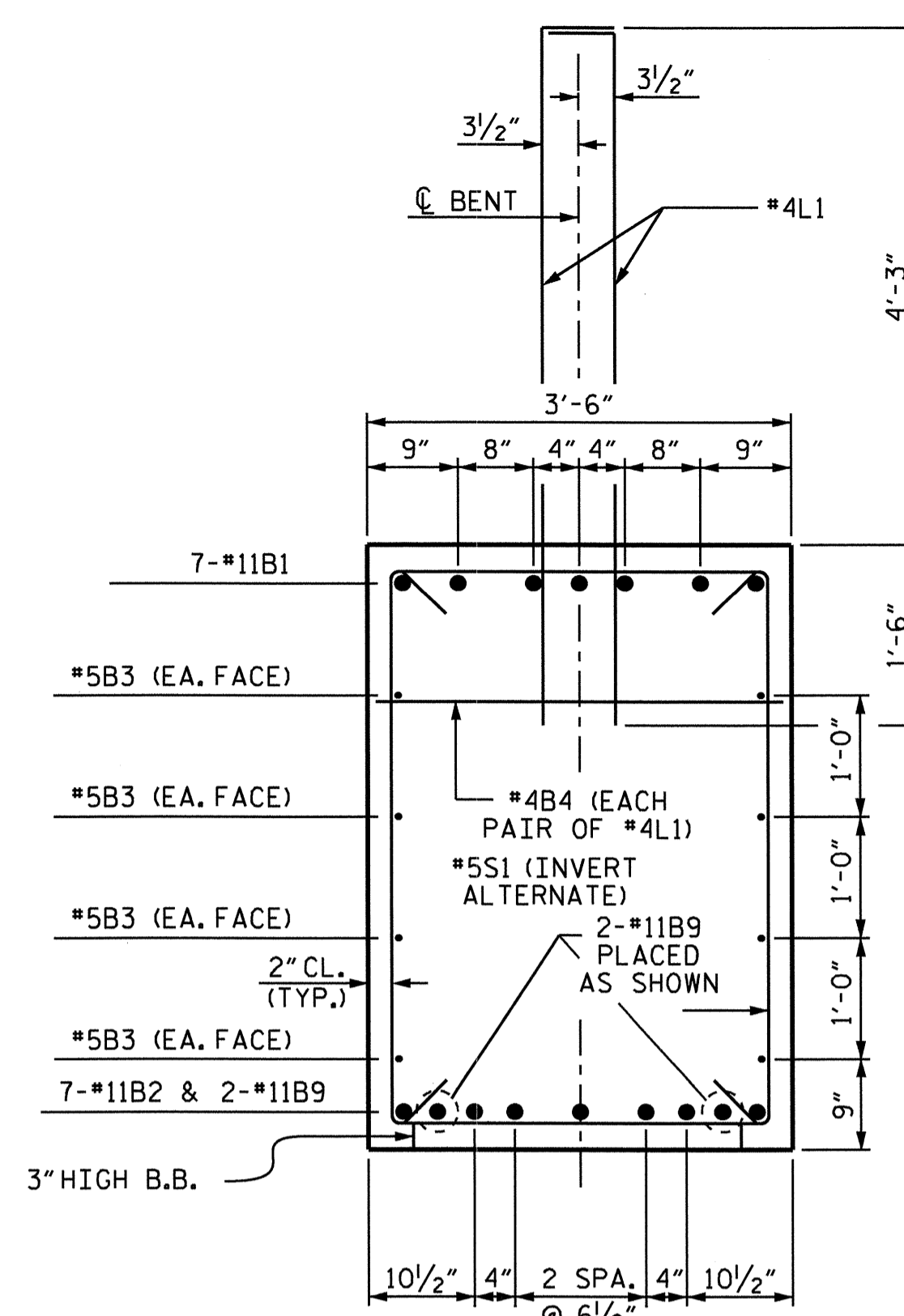
DRAWN BY: H.T. DIEU DATE: 1/20/11
 CHECKED BY: K. LAYNE DATE: 2/15/11



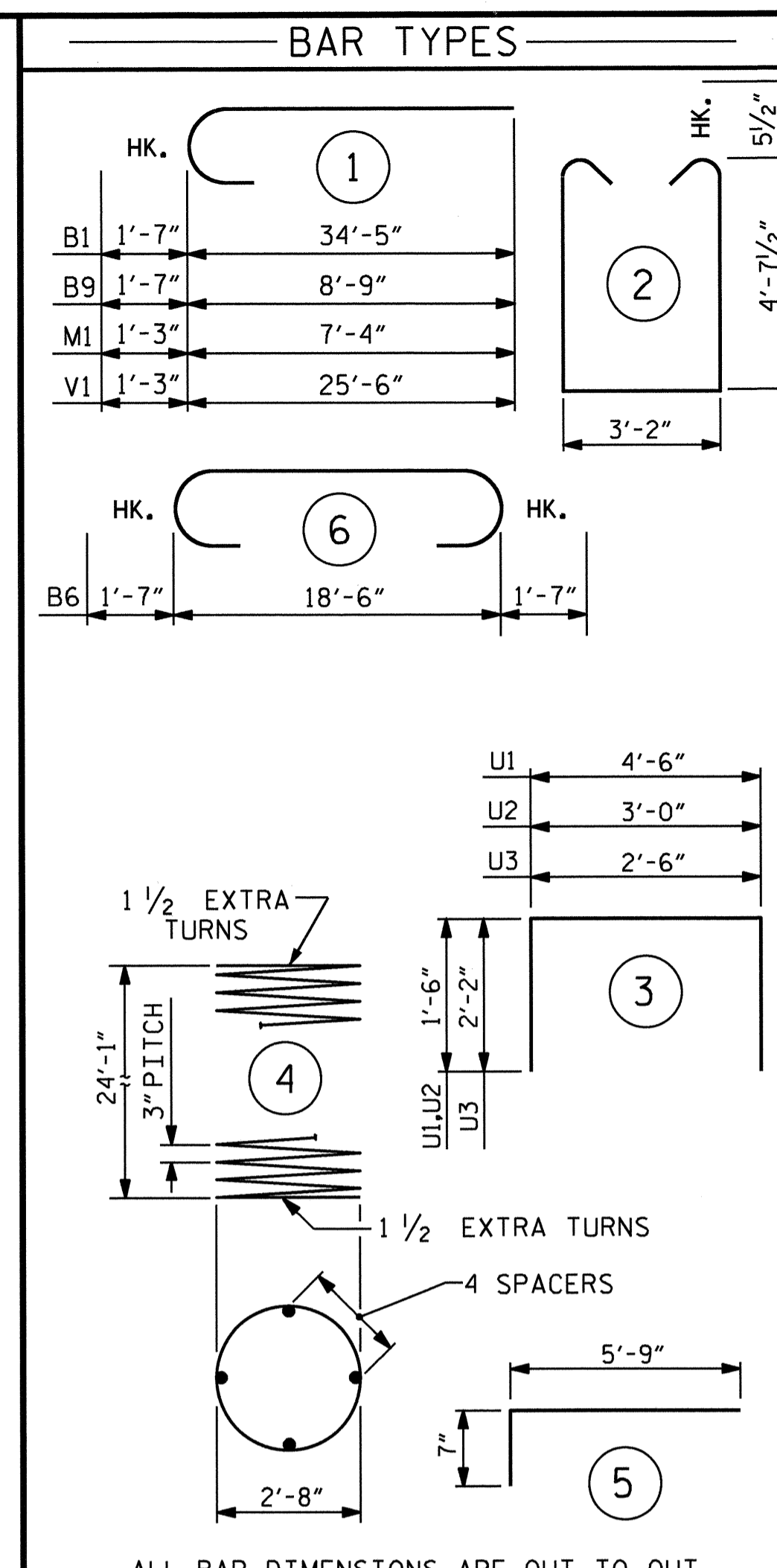
END VIEW



SECTION A-A



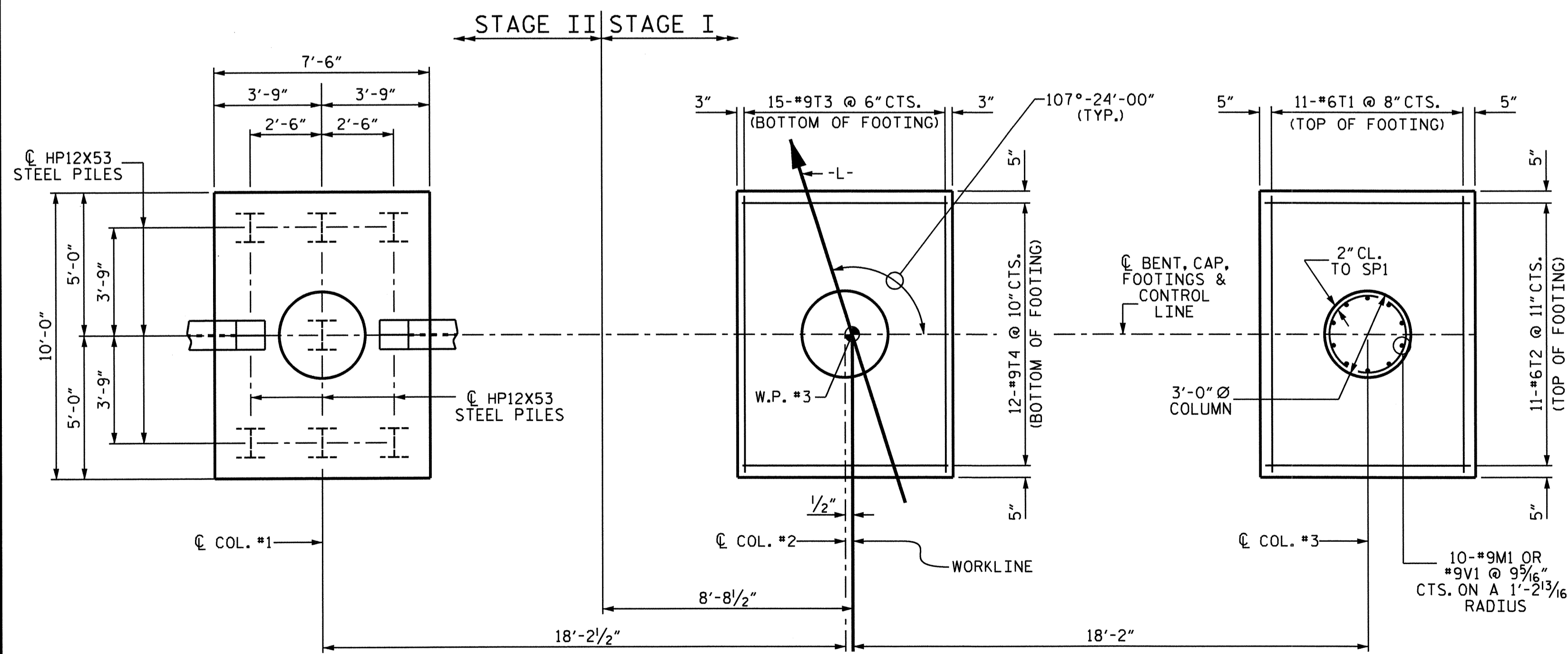
SECTION B-B



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL											
STAGE II					STAGE I						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B4	9	#4	STR	3'-2"	19	B1	14	#11	1	36'-0"	2678
B5	12	#4	STR	3'-3"	26	B2	7	#11	STR	36'-9"	1367
B6	7	#11	6	21'-8"	806	B3	8	#5	STR	38'-9"	323
B7	7	#11	STR	17'-9"	660	B4	22	#4	STR	3'-2"	47
B8	8	#5	STR	18'-10"	157	B5	16	#4	STR	3'-3"	35
						B9	2	#11	1	10'-4"	110
L1	18	#4	5	6'-4"	76						
M1	10	#9	1	8'-7"	292	L1	44	#4	5	6'-4"	186
S1	26	#5	2	13'-4"	362	M1	20	#9	1	8'-7"	584
						S1	53	#5	2	13'-4"	737
T1	11	#6	STR	9'-8"	160						
T2	11	#6	STR	7'-2"	118	T1	22	#6	STR	9'-8"	319
T3	15	#9	STR	9'-8"	493	T2	22	#6	STR	7'-2"	237
T4	12	#9	STR	7'-2"	292	T3	30	#9	STR	9'-8"	986
						T4	24	#9	STR	7'-2"	585
U1	4	#4	3	7'-6"	20						
U2	5	#4	3	6'-0"	20	U1	4	#4	3	7'-6"	20
U3	15	#4	3	6'-10"	68	U2	5	#4	3	6'-0"	20
						U3	20	#4	3	6'-10"	91
V1	10	#9	1	26'-9"	910						
						V1	20	#9	1	26'-9"	1819
REINFORCING STEEL					4479 LBS.	REINFORCING STEEL					10144 LBS.
SP1	1	**	4	821'-0"	548	SP1	2	**	4	821'-0"	1097
SPIRAL COLUMN REINFORCING STEEL (SP1)					= 548 LBS	SPIRAL COLUMN REINFORCING STEEL (SP1)					= 1097 LBS
CLASS A CONCRETE BREAKDOWN:						CLASS A CONCRETE BREAKDOWN:					
POUR #1 (FOOTINGS)					10.4 C.Y.	POUR #1 (FOOTINGS)					20.8 C.Y.
POUR #2 (COLUMNS)					6.3 C.Y.	POUR #2 (COLUMNS)					12.5 C.Y.
POUR #3 (CAP)					12.3 C.Y.	POUR #3 (CAP)					23.3 C.Y.
POUR #4 (RISERS)					0.7 C.Y.	POUR #4 (RISERS)					1.0 C.Y.
TOTAL CLASS A CONCRETE					29.7 C.Y.	TOTAL CLASS A CONCRETE					57.6 C.Y.
HP12X53 STEEL PILES						HP12X53 STEEL PILES					
No. 9					LIN. FT. 180	No. 18					LIN. FT. 360
FOUNDATION EXCAVATION					LUMP SUM	FOUNDATION EXCAVATION					LUMP SUM

TOTAL BILL OF MATERIAL			
REINFORCING STEEL	14623 LBS	HP 12X53 STEEL PILES	540 LIN.FT.
CLASS A CONCRETE	87.3 C.Y.		
SPIRAL COLUMN REINFORCING STEEL (SP1)	1645 LBS		



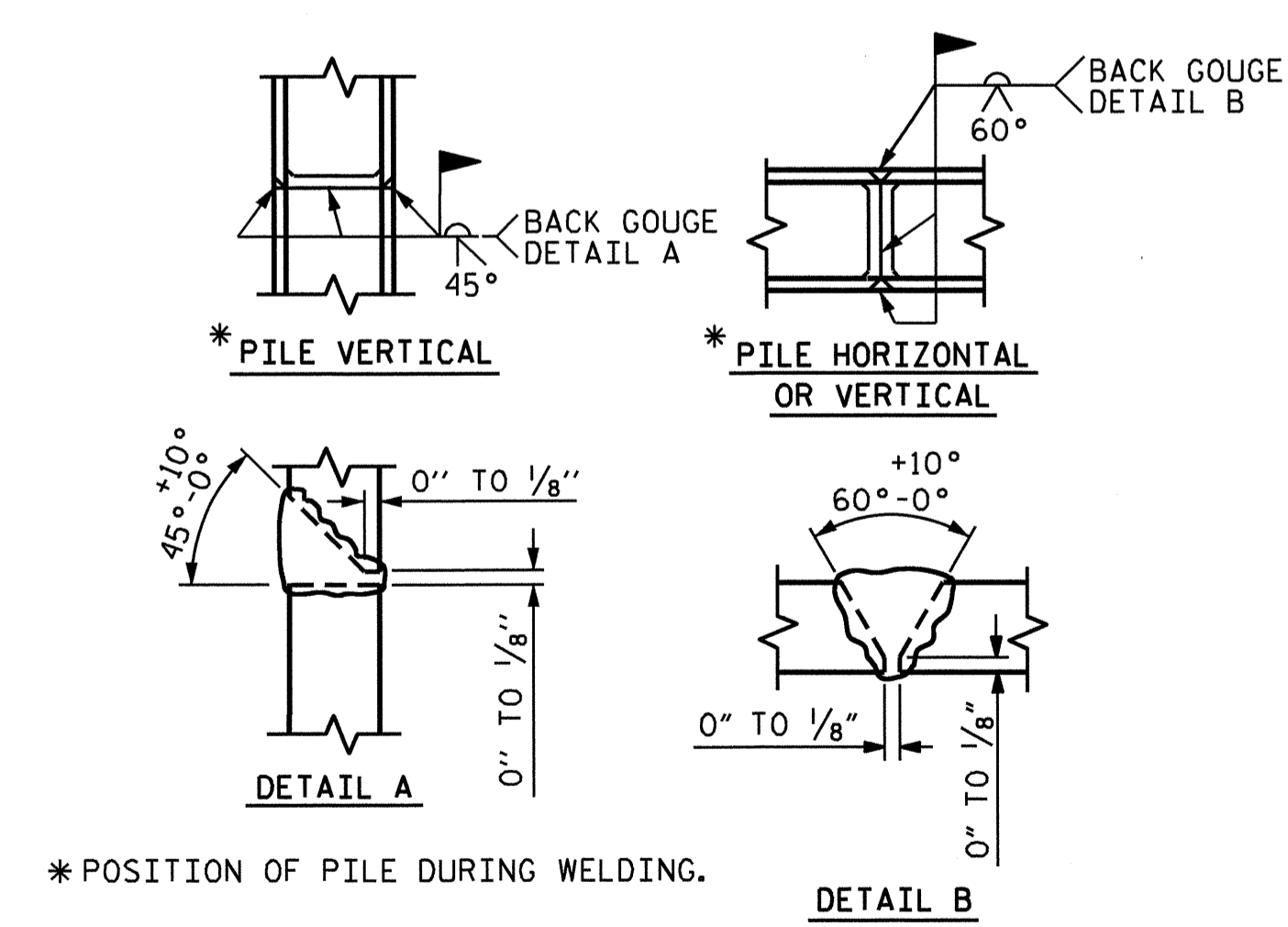
PLAN ON FOOTINGS & COLUMNS

REINFORCING STEEL, DIMENSIONS AND DETAILS ARE TYPICAL FOR EACH COLUMN AND FOOTING UNLESS OTHERWISE NOTED

DRAWN BY : H.T. DIEU DATE : 1/20/11
 CHECKED BY : K. LAYNE DATE : 2/15/11

13-DEC-2011 14:44
 R:\Structures\B3421\Plans\B3421.SD.B*.dgn
 chunt

** THE SP1 SPIRAL REINFORCING STEEL SHALL BE W-20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

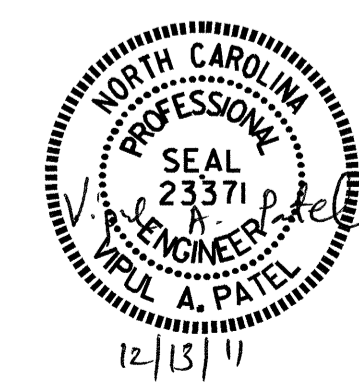


PILE SPLICE DETAILS

PROJECT NO. B-3421
 CABARRUS COUNTY
 STATION: 17+97.08 -L-
 SHEET 3 OF 3

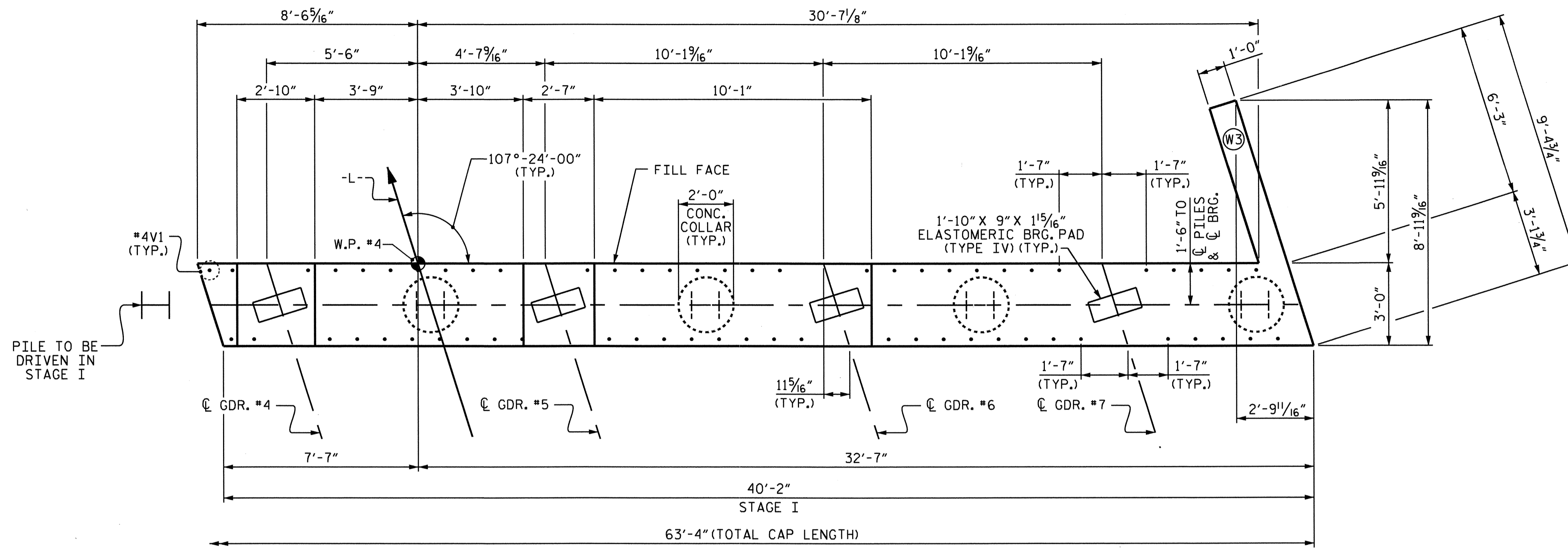
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT #2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-41
TOTAL SHEETS 51



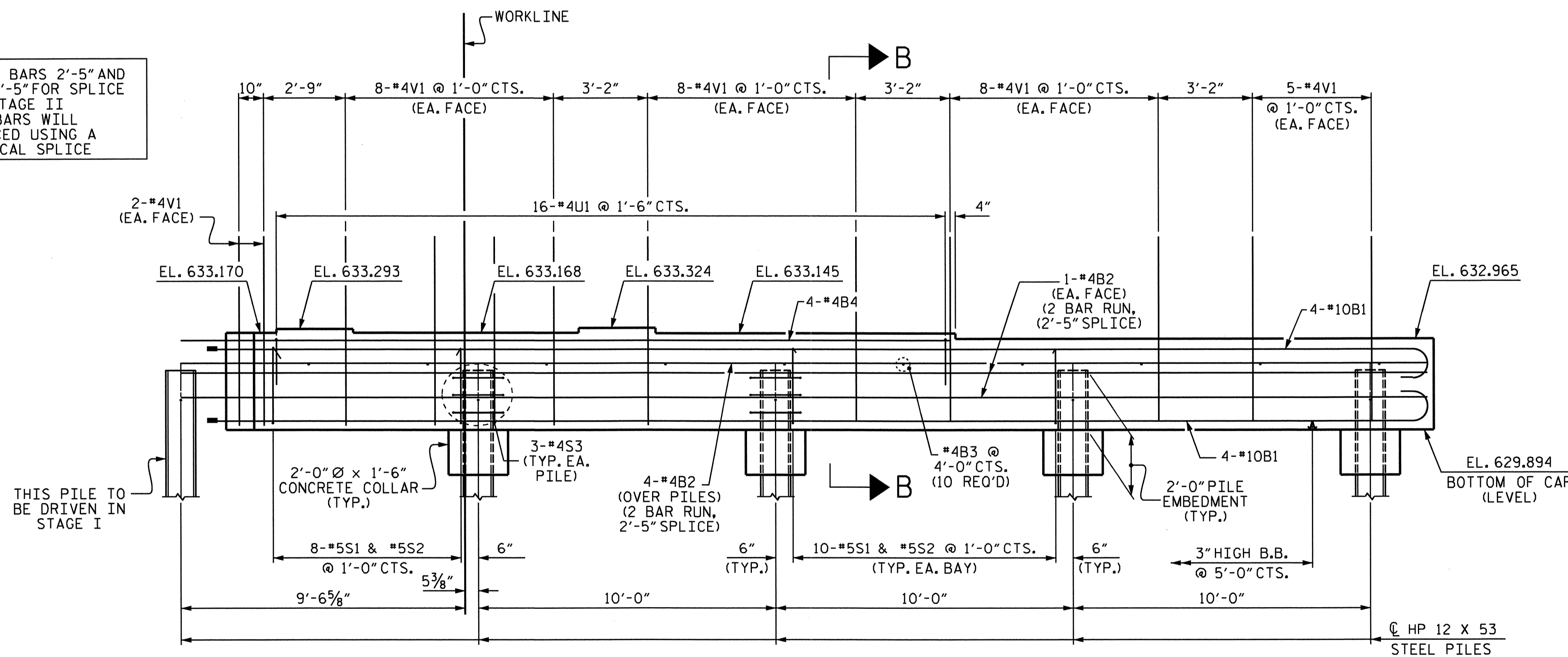
NOTES

SEE SUPERSTRUCTURE SHEETS FOR UPPER PART OF INTEGRAL END BENT DETAILS.



PLAN

EXTEND #4B2 BARS 2'-5" AND #4B4 BARS 2'-5" FOR SPLICE IN STAGE II
#10B1 BARS WILL BE SPLICED USING A MECHANICAL SPLICE



ELEVATION

PROJECT NO. B-3421
CABARRUS COUNTY
STATION: 17+97.08 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
INTEGRAL
END BENT #2
(STAGE I)



12/12/11

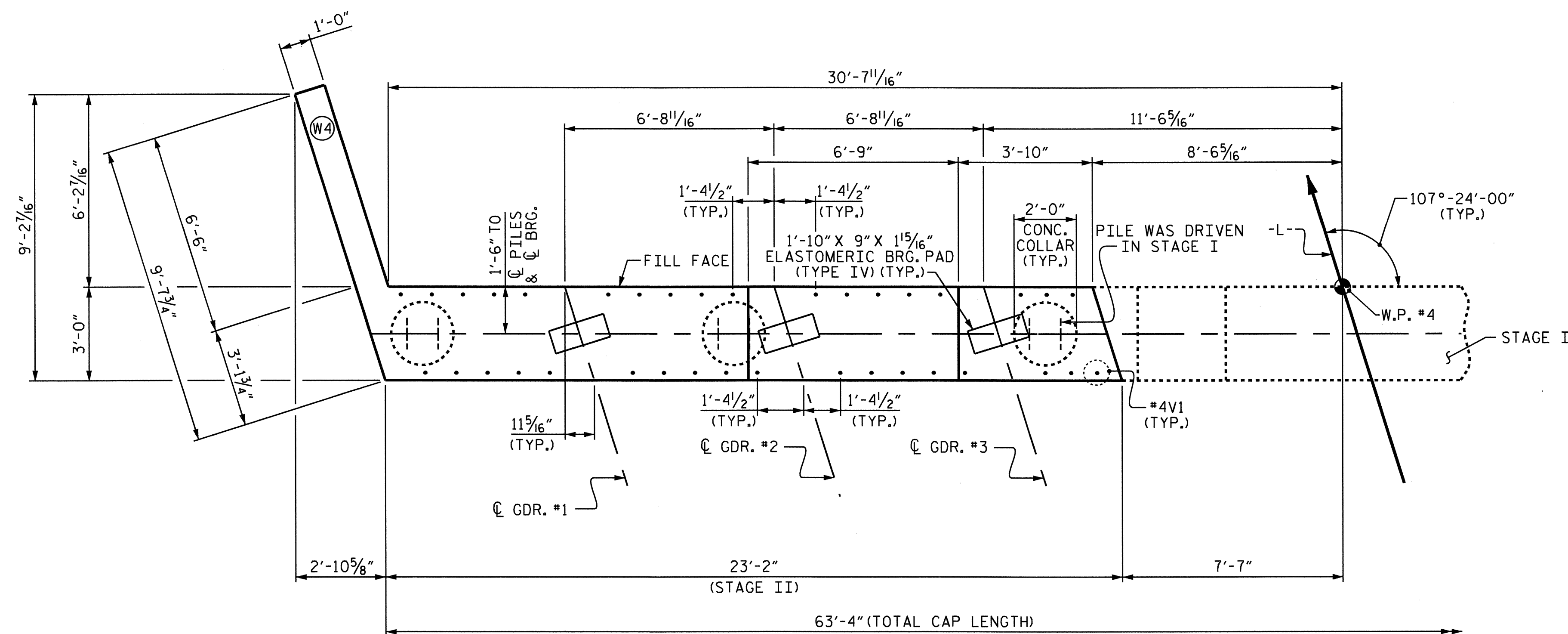
DRAWN BY: J.P. ADAMS DATE: 4/11/11
CHECKED BY: K.D. LAYNE DATE: 6/11

25-OCT-2011 14:21
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lpodoms

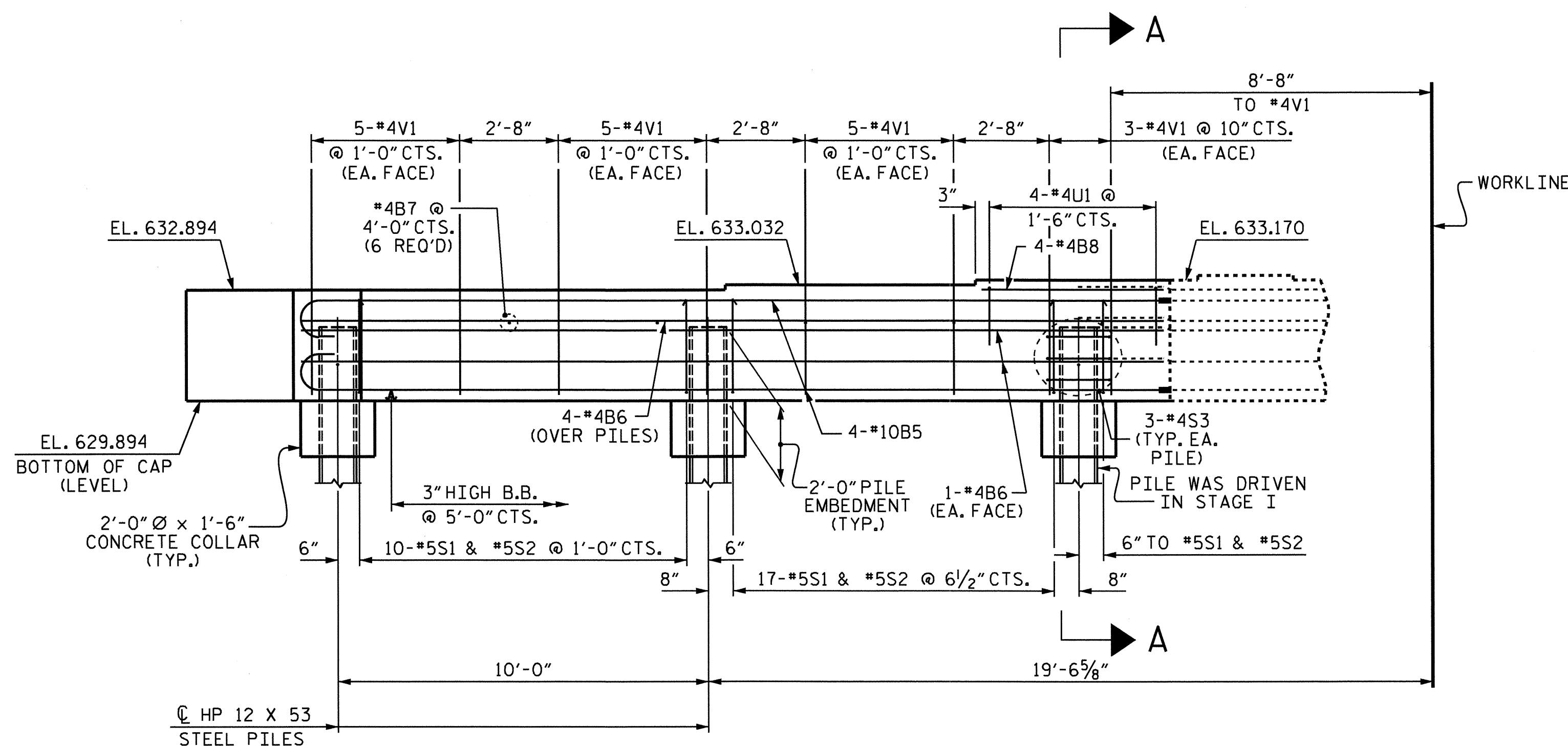
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-42
1			3			TOTAL SHEETS
2			4			51

NOTES

SEE SUPERSTRUCTURE SHEETS FOR UPPER PART OF INTEGRAL END BENT DETAILS.



PLAN



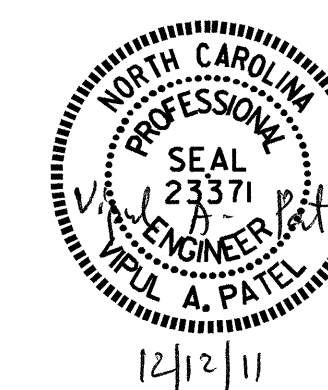
ELEVATION

PROJECT NO. B-3421
CABARRUS COUNTY
 STATION: 17+97.08 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

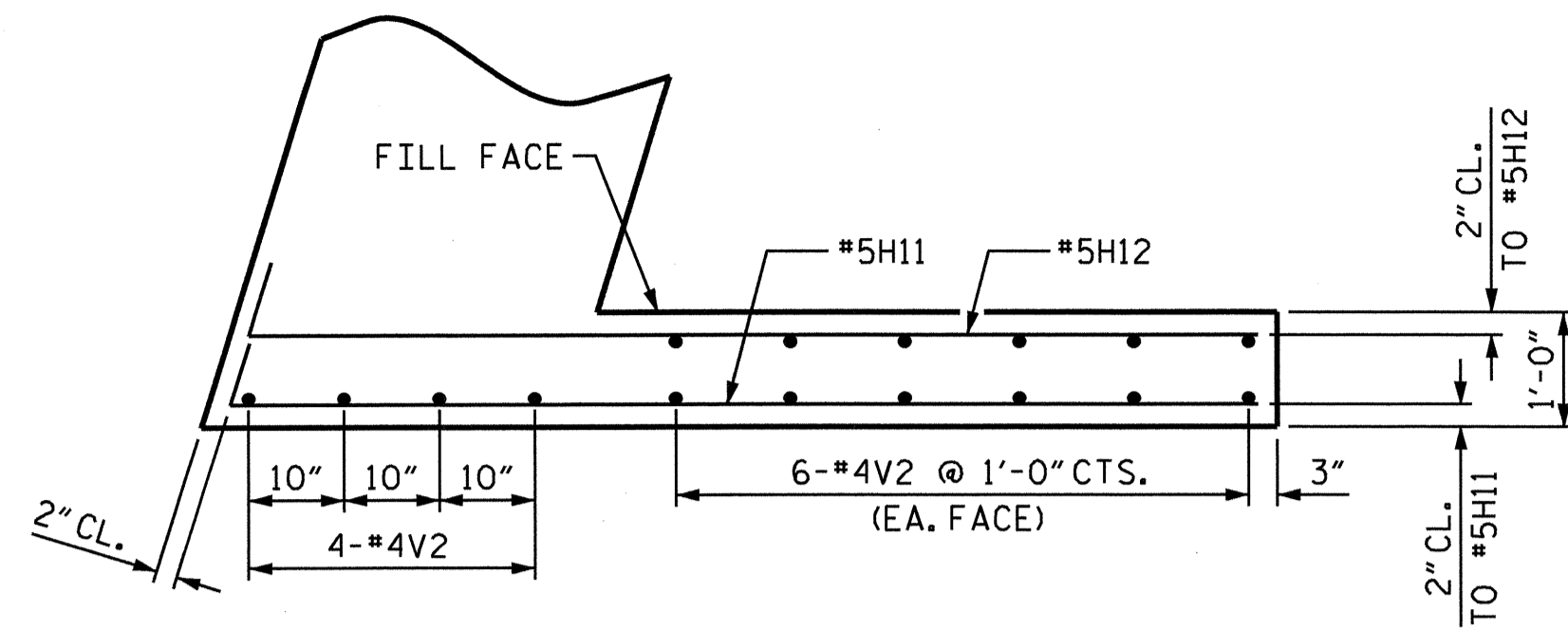
SUBSTRUCTURE
 INTEGRAL
 END BENT #2
 (STAGE II)



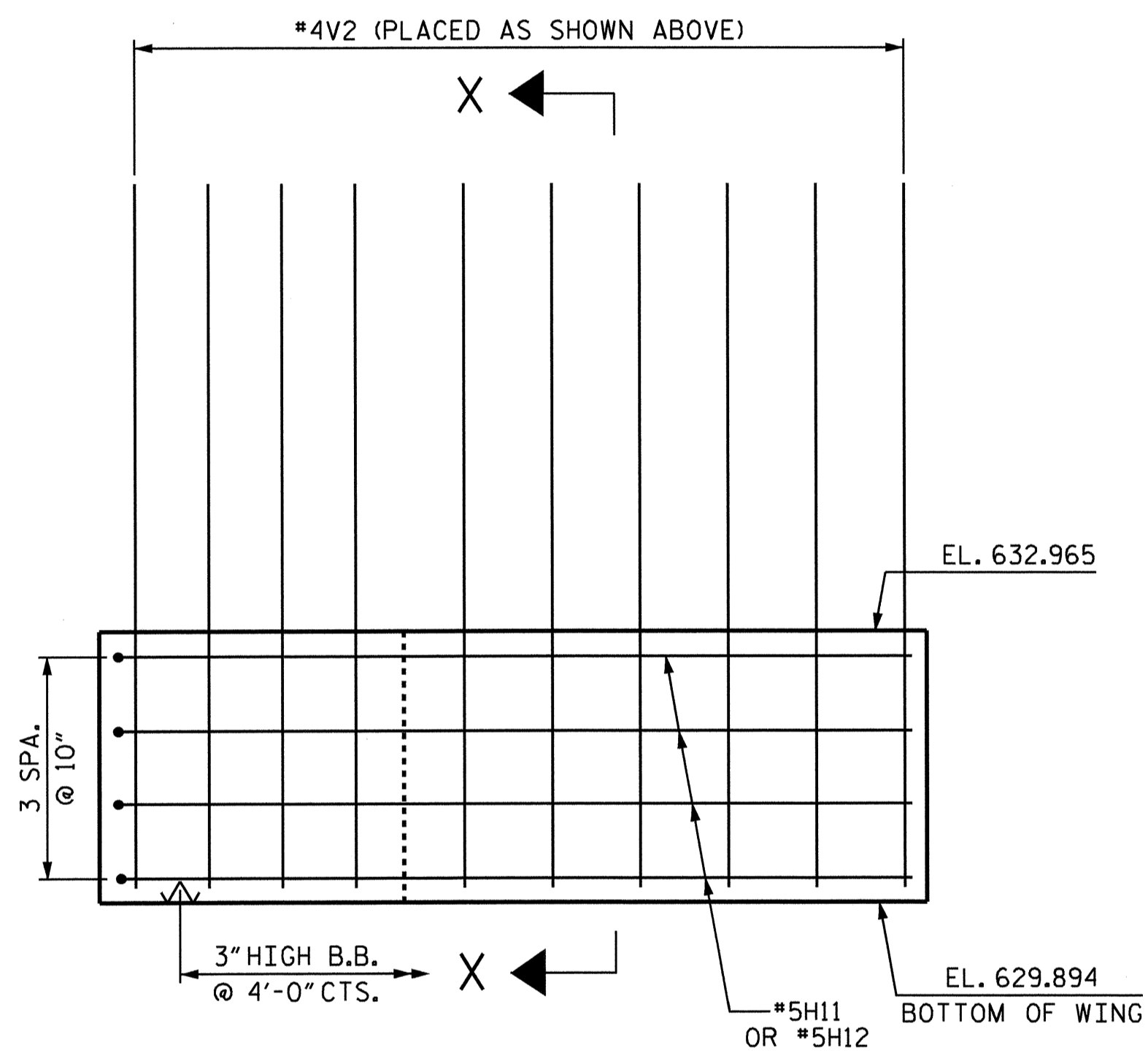
DRAWN BY: J.P. ADAMS DATE: 4/11/11
 CHECKED BY: K.D. LAYNE DATE: 6/11

12-DEC-2011 09:53
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 vdpot

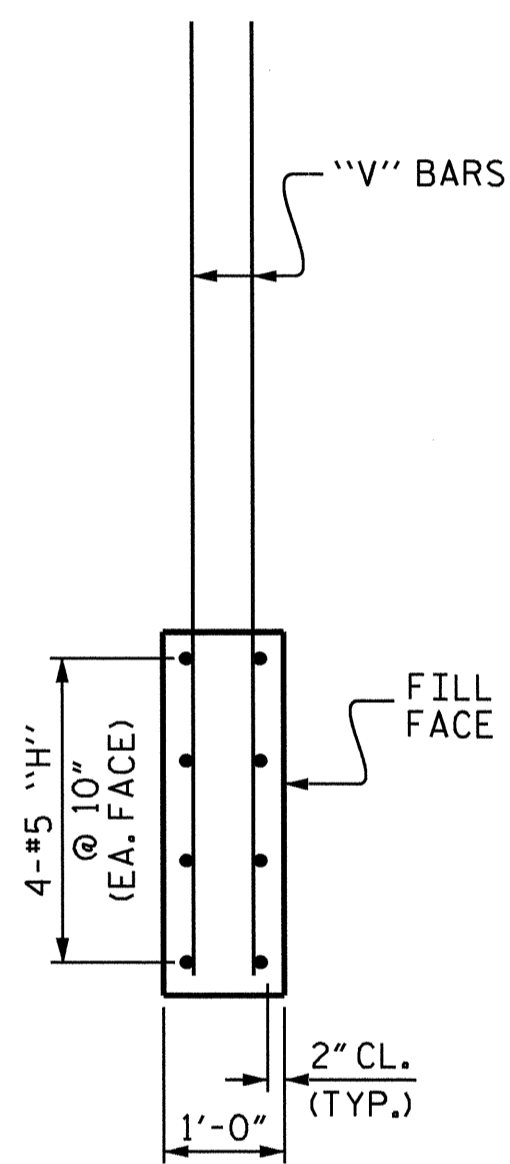
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-43	
1			3			TOTAL SHEETS	
2			4			51	



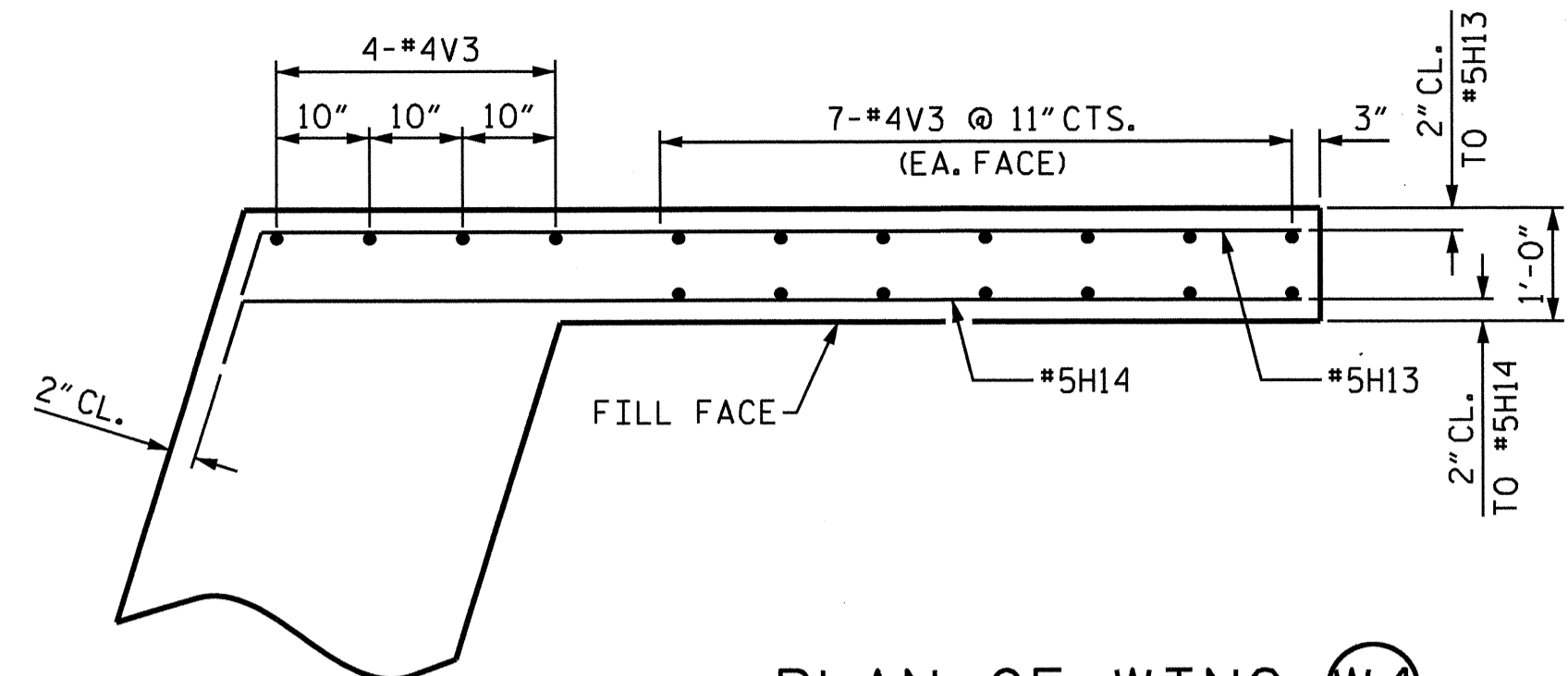
PLAN OF WING (W3)
(STAGE I)



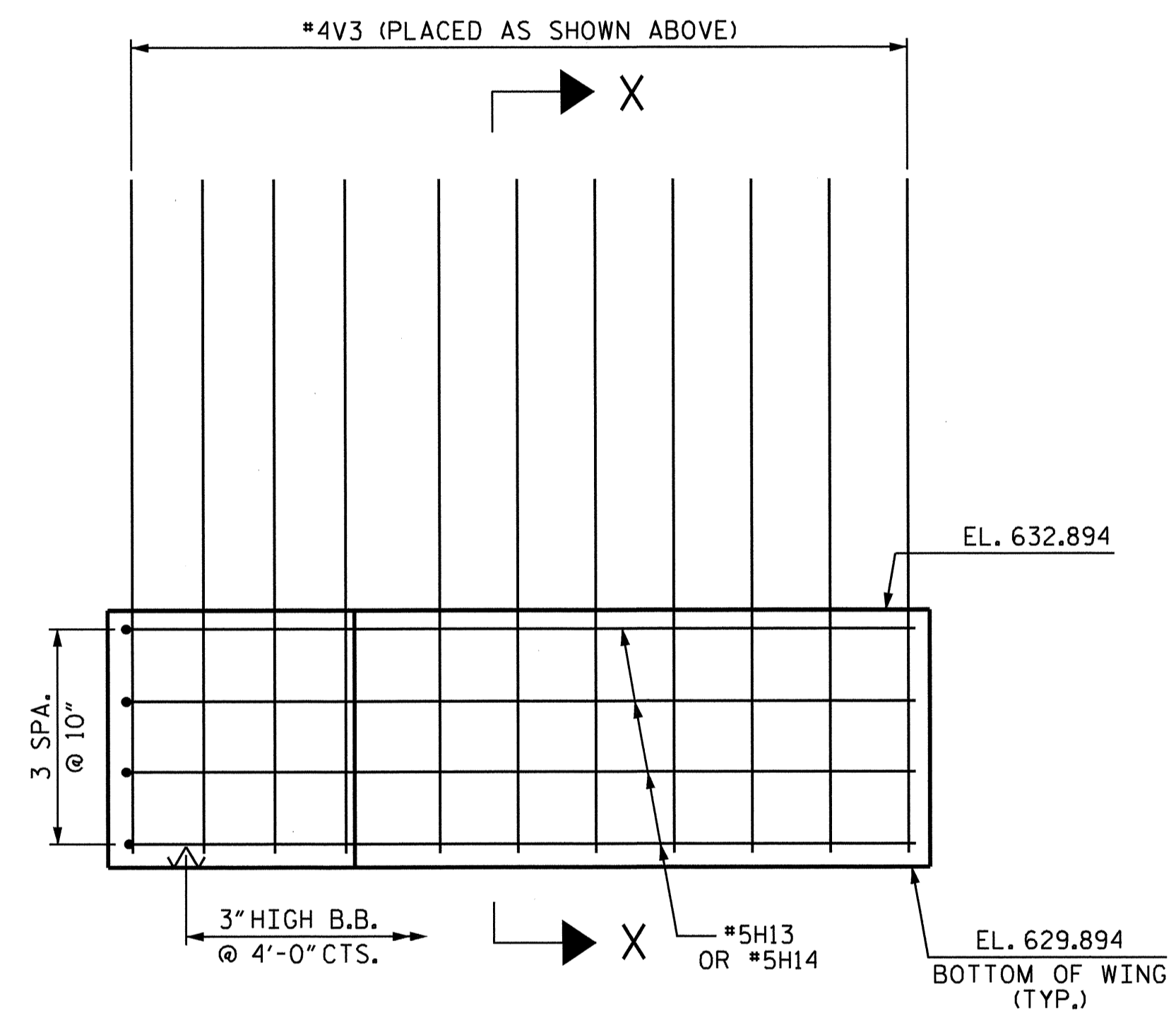
ELEVATION OF WING (W3)
(STAGE I)



SECTION X-X



PLAN OF WING (W4)
(STAGE II)

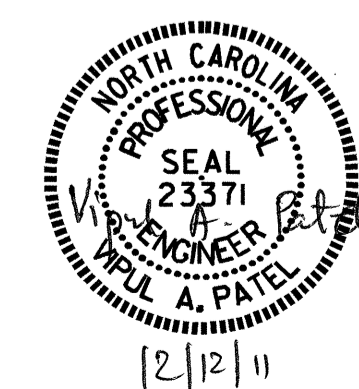


ELEVATION OF WING (W4)
(STAGE II)

NOTE: THE UPPER PORTION OF THE WINGS SHALL BE POURED WITH THE SUPERSTRUCTURE. FOR DETAILS AND REINFORCING STEEL, SEE SUPERSTRUCTURE DETAILS.

PROJECT NO. B-3421
CABARRUS COUNTY
STATION: 17+97.08 -L-

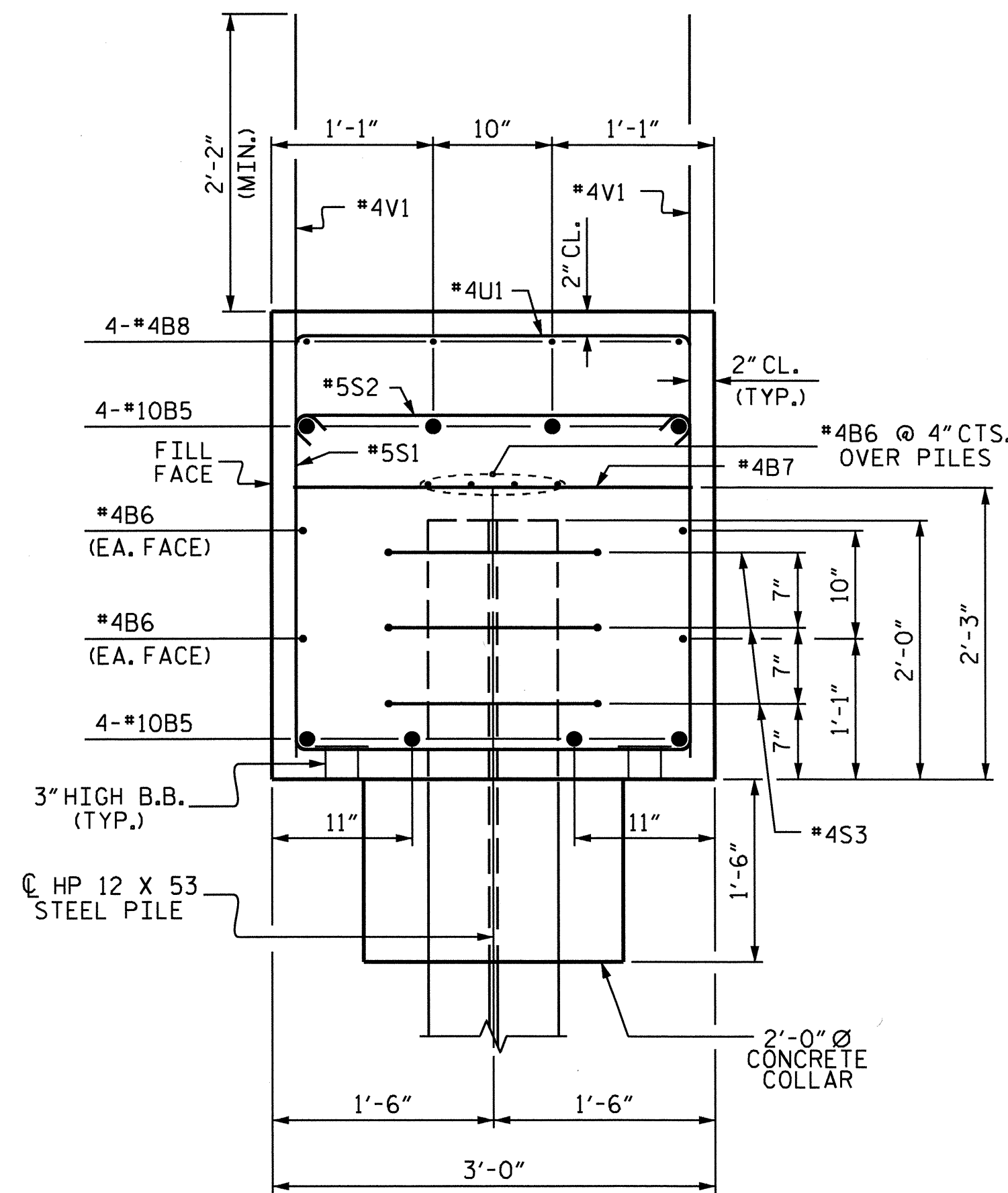
SHEET 3 OF 4



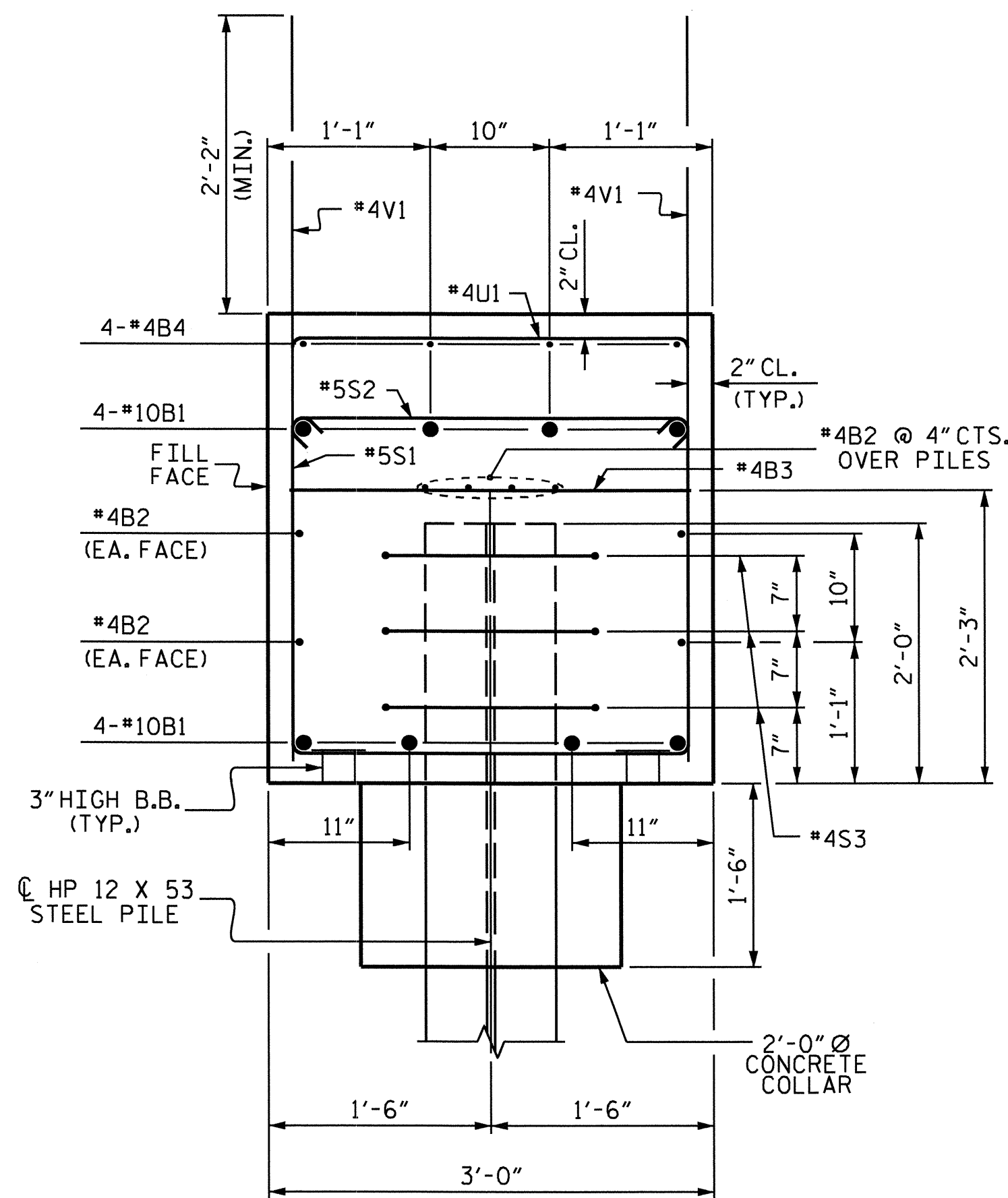
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE INTEGRAL END BENT #2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-44
					TOTAL SHEETS 51

DRAWN BY: J.P. ADAMS DATE: 4/20/11
CHECKED BY: K.D. LAYNE DATE: 6/11

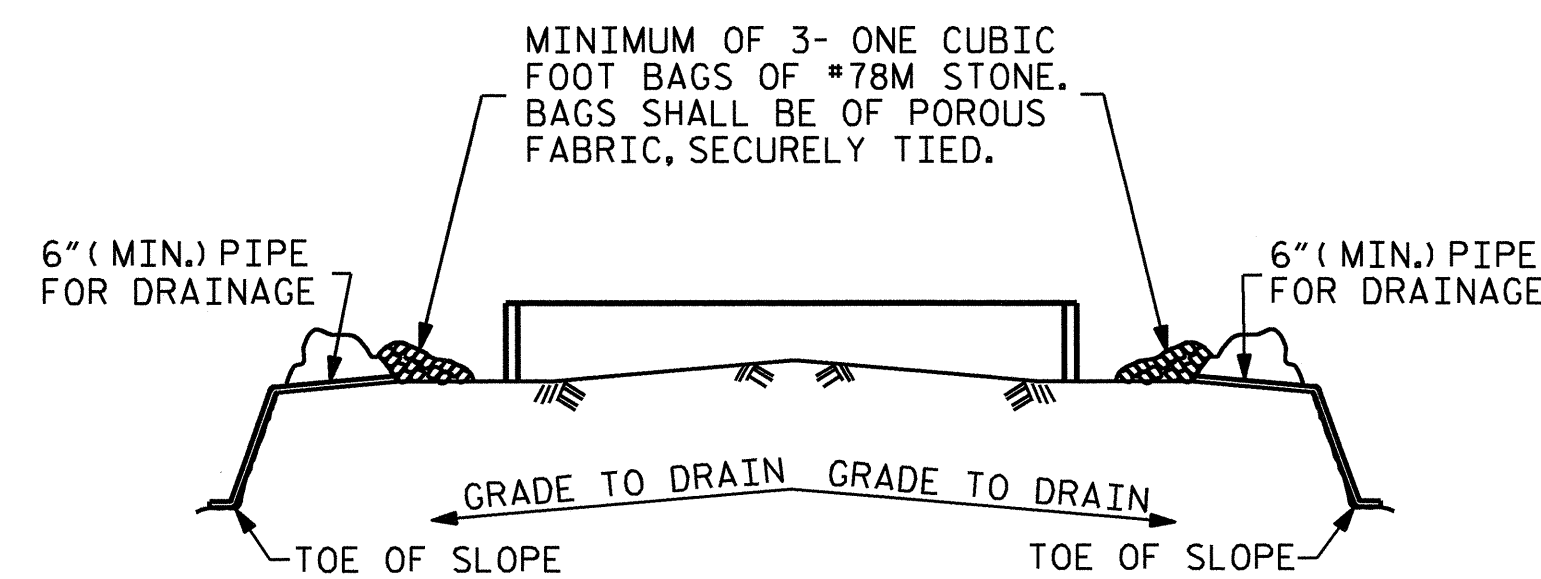
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jpodams



SECTION A-A



SECTION B-B

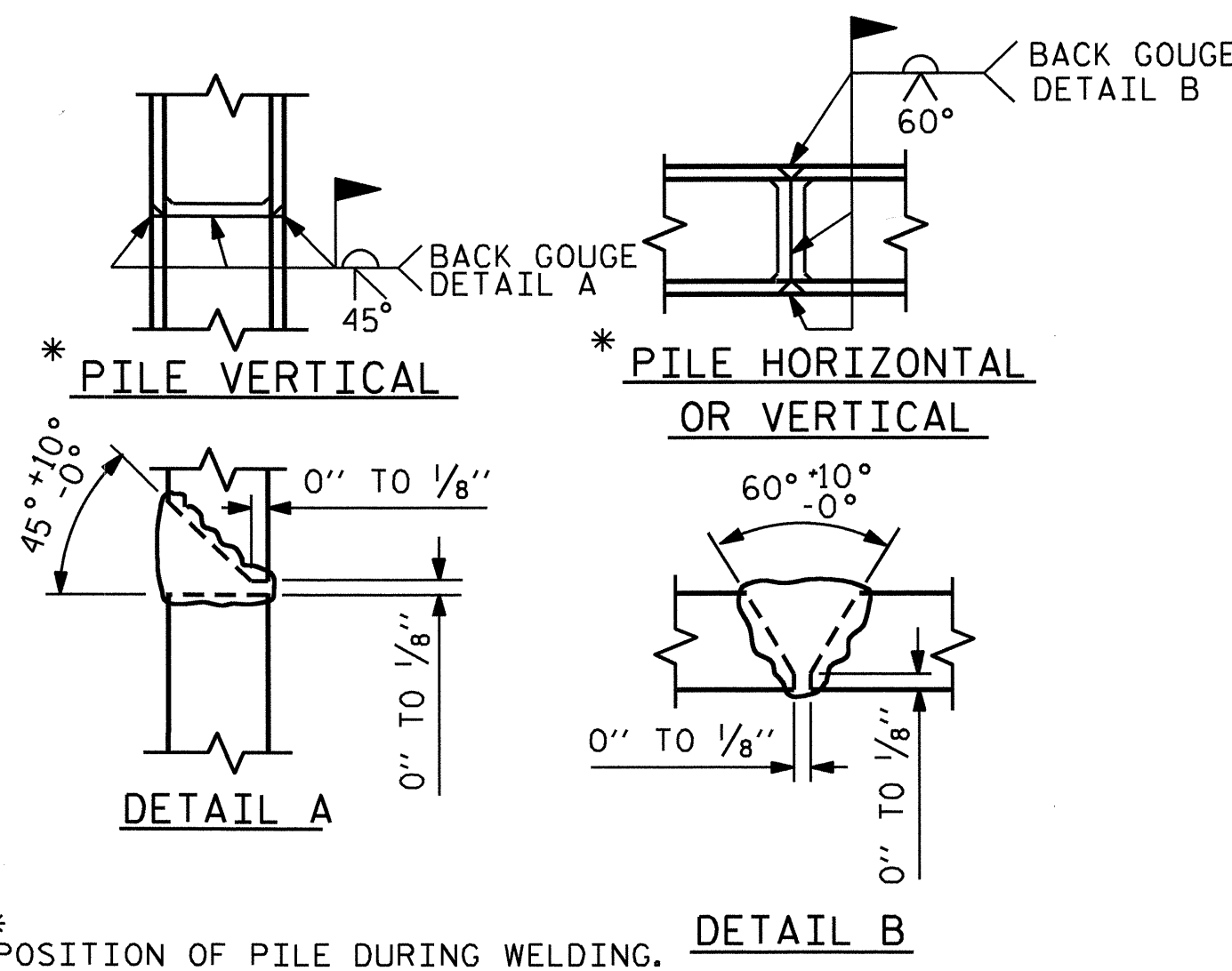


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

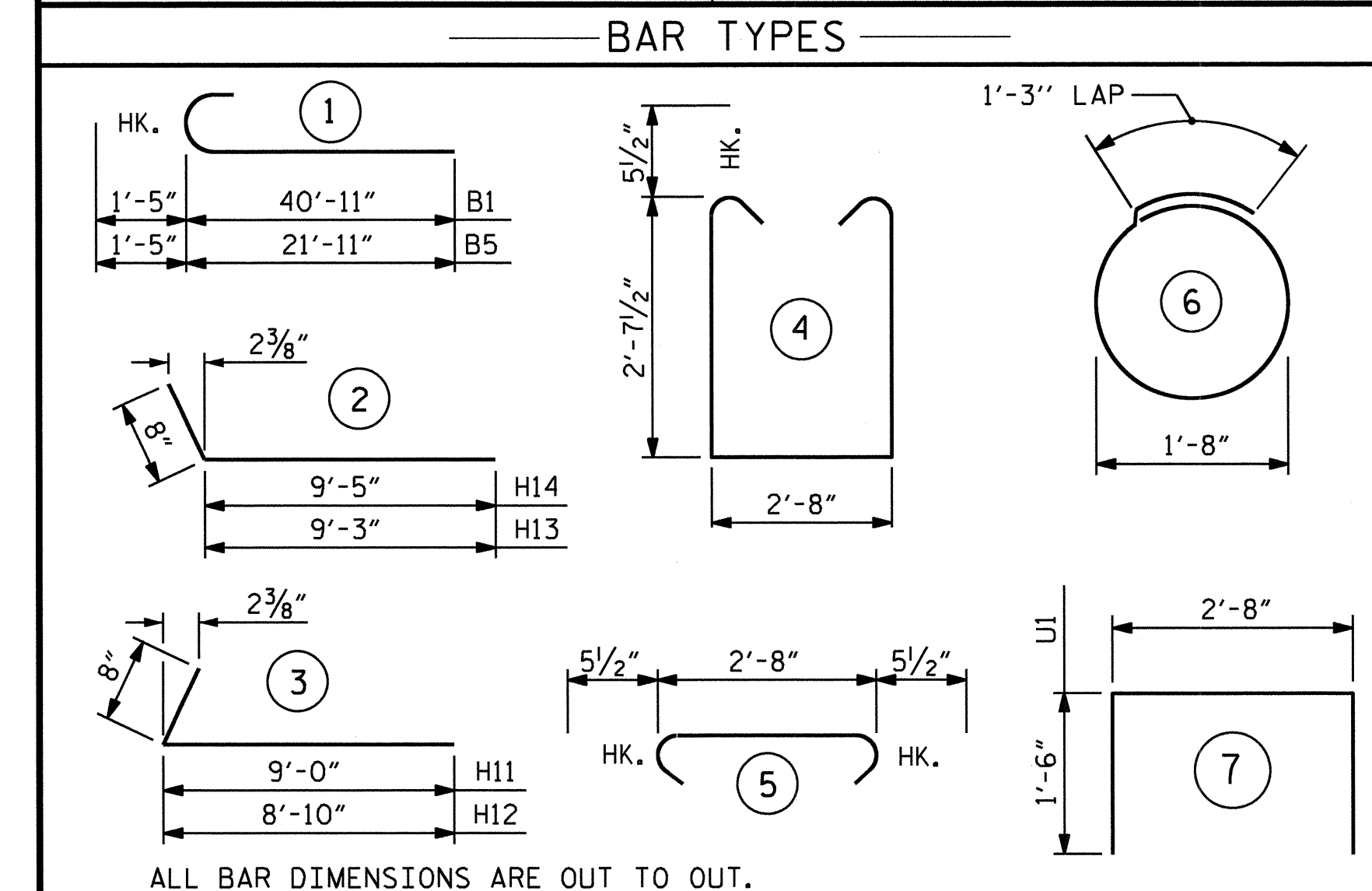
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



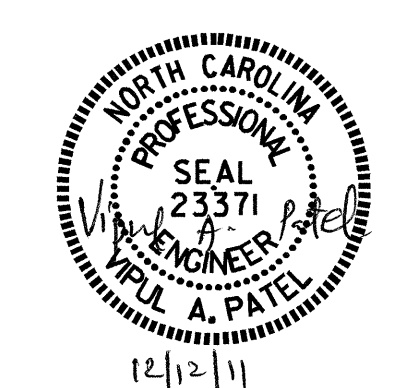
PILE SPLICE DETAILS

BILL OF MATERIAL													
INTEGRAL END BENT #2													
STAGE I					STAGE II								
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT		
B1	8	#10	1	42'-4"	1,457	B5	8	#10	1	23'-4"	803		
B2	16	#4	STR	22'-5"	240	B6	8	#4	STR	23'-0"	123		
B3	10	#4	STR	2'-8"	18	B7	6	#4	STR	2'-8"	11		
B4	4	#4	STR	27'-3"	73	B8	4	#4	STR	3'-7"	10		
H11	4	#5	3	9'-8"	40	H13	4	#5	2	9'-11"	41		
H12	4	#5	3	9'-6"	40	H14	4	#5	2	10'-1"	42		
S1	38	#5	4	8'-10"	350	S1	28	#5	4	8'-10"	258		
S2	38	#5	5	3'-7"	142	S2	28	#5	5	3'-7"	105		
S3	12	#4	6	6'-6"	52	S3	9	#4	6	6'-6"	39		
U1	16	#4	7	5'-8"	61	U1	4	#4	7	5'-8"	15		
V1	62	#4	STR	5'-8"	235	V1	36	#4	STR	5'-8"	136		
V2	16	#4	STR	8'-0"	86	V3	18	#4	STR	8'-0"	96		
REINFORCING STEEL					LBS	2794	REINFORCING STEEL					LBS	1679
CLASS 'A' CONCRETE					15.7	C.Y.	CLASS 'A' CONCRETE					9.3	C.Y.
HP 12X53 STEEL PILES					175	LIN.FT.	HP 12X53 STEEL PILES					70	LIN.FT.
NO. 5						NO. 2							



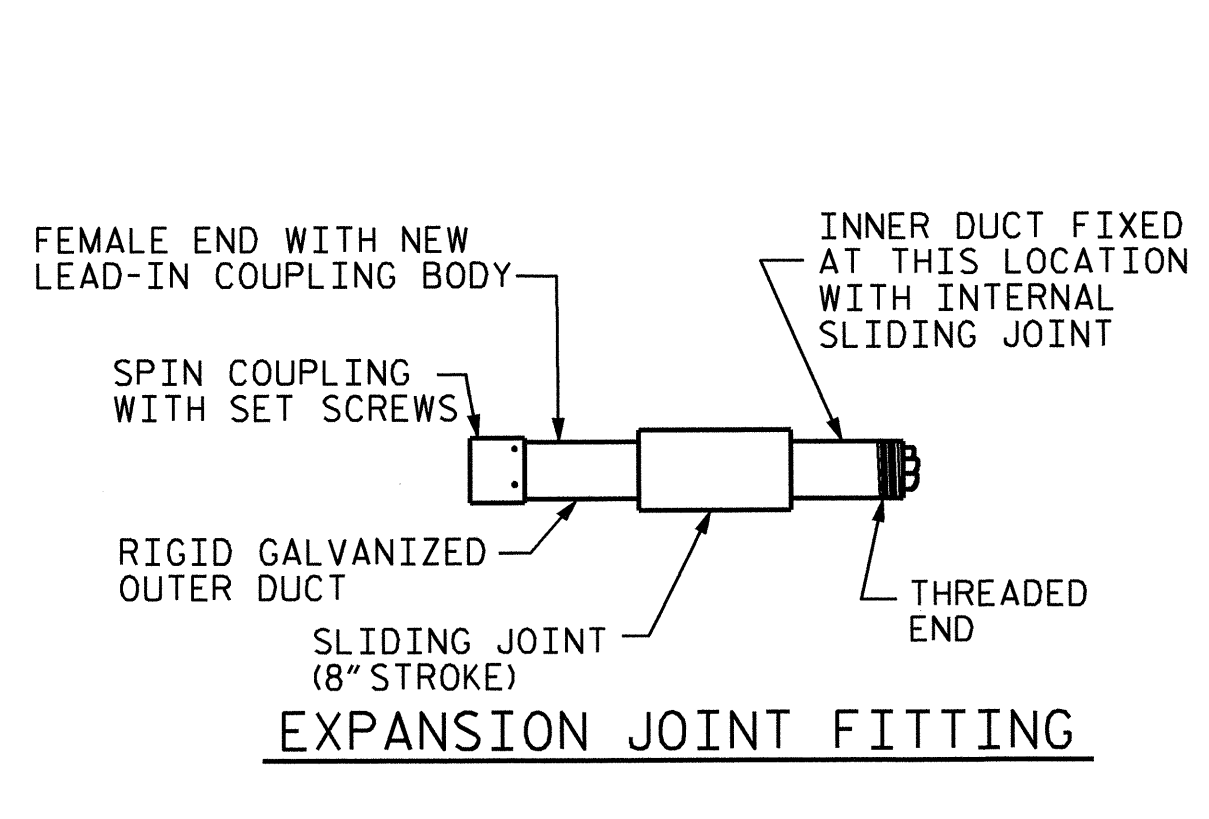
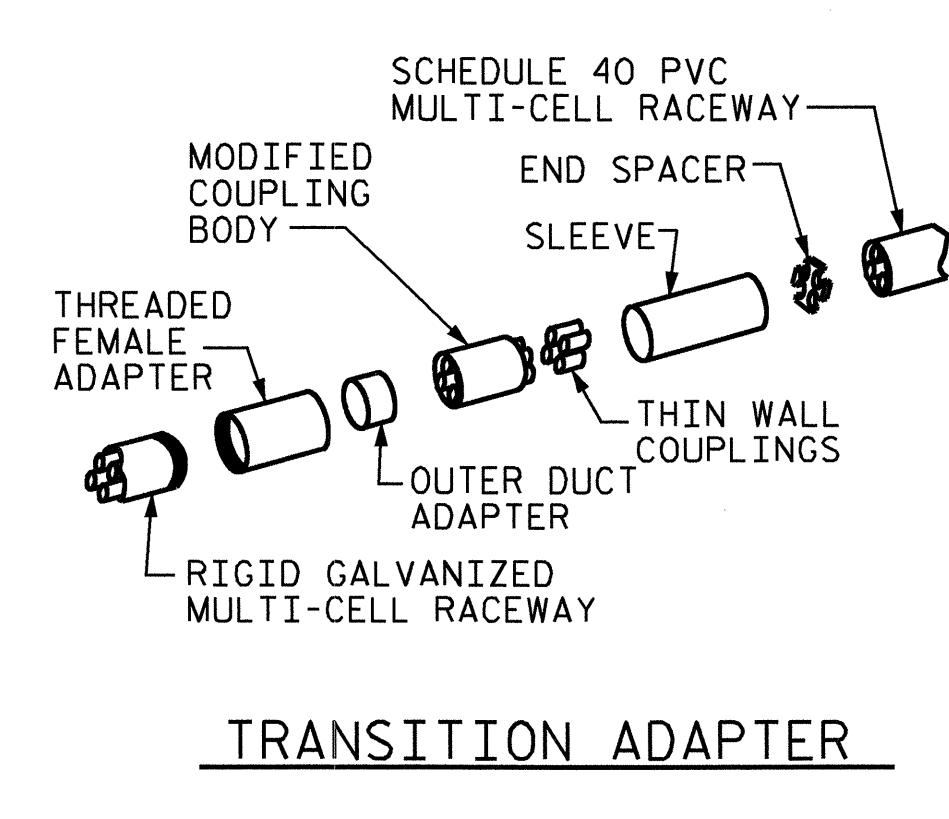
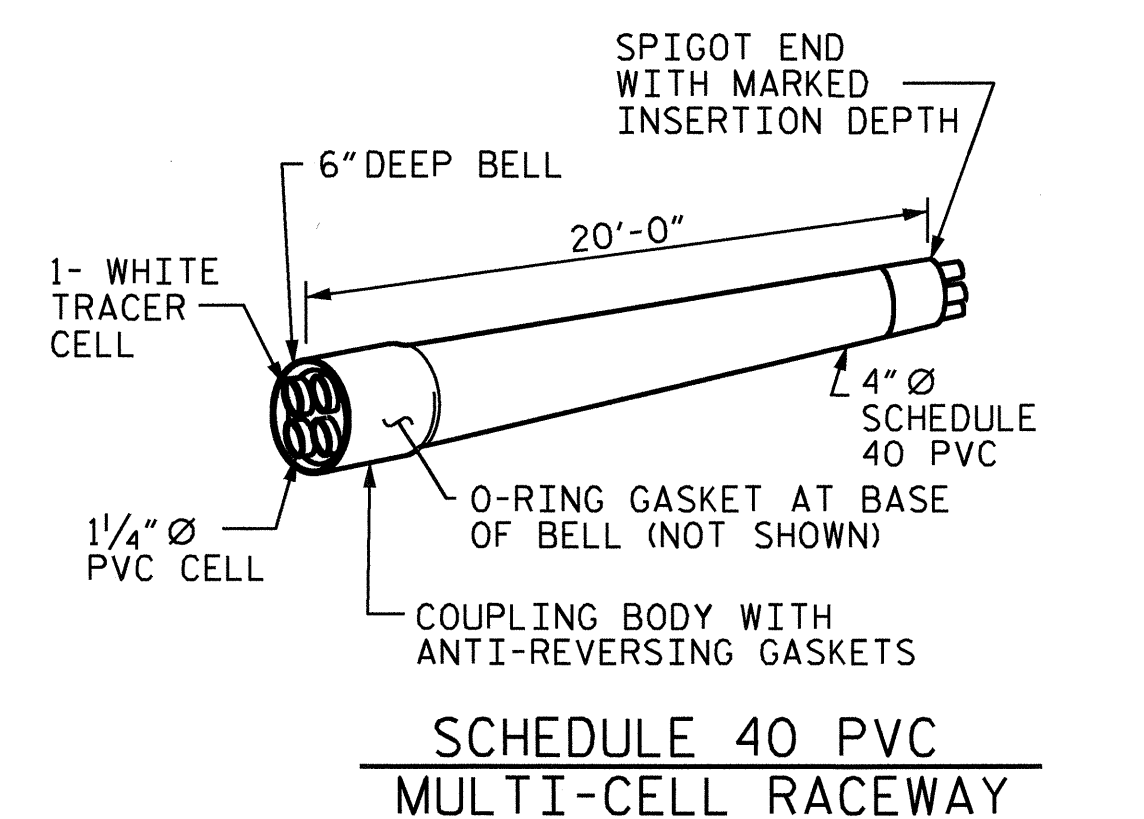
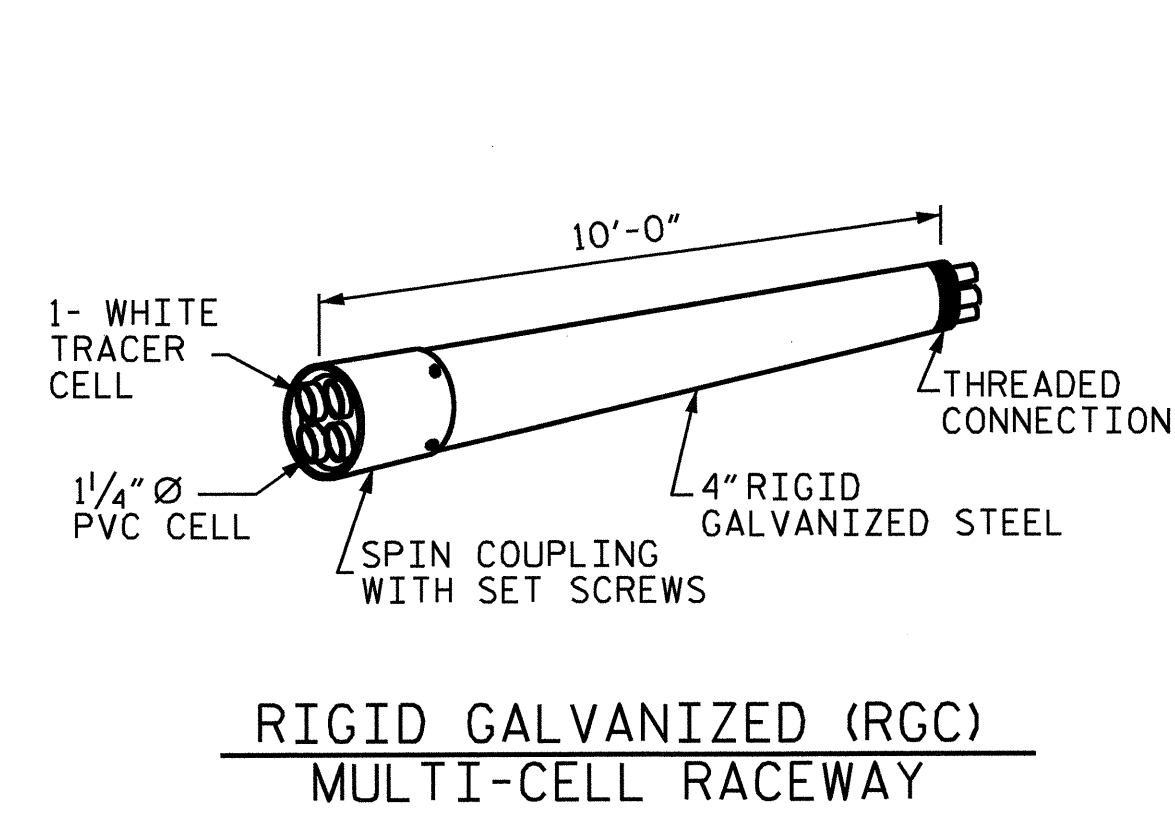
PROJECT NO. B-3421
 CABARRUS COUNTY
 STATION: 17+97.08 -L-

SHEET 4 OF 4
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 INTEGRAL END BENT #2



DRAWN BY: J.P. ADAMS DATE: 4/20/11
 CHECKED BY: K.D. LAYNE DATE: 6/11

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-45
1			3			TOTAL SHEETS
2			4			51



NOTES

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

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

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

SEE DETAIL "C" FOR HANGER ASSEMBLY INSTALLATION.

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

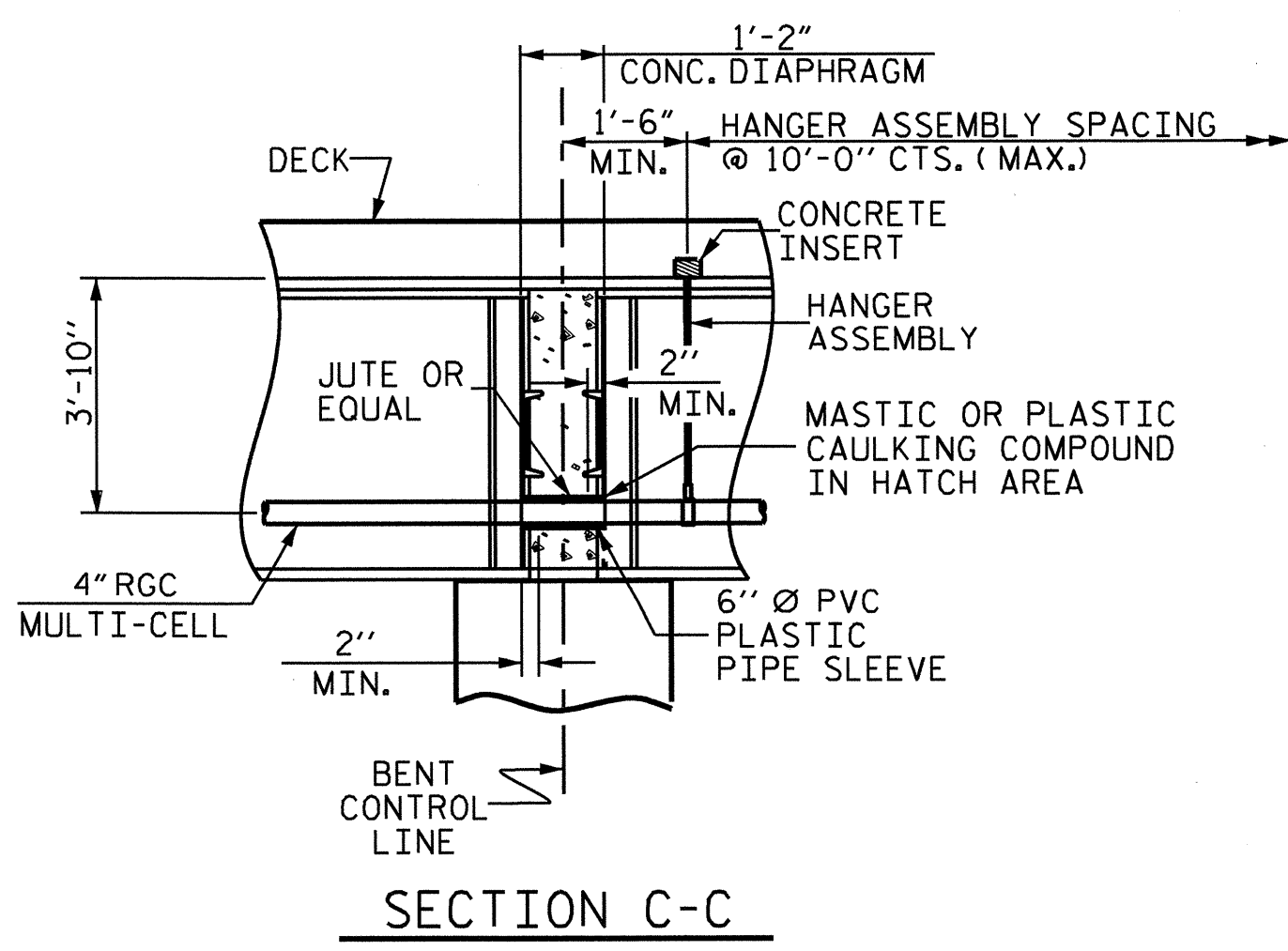
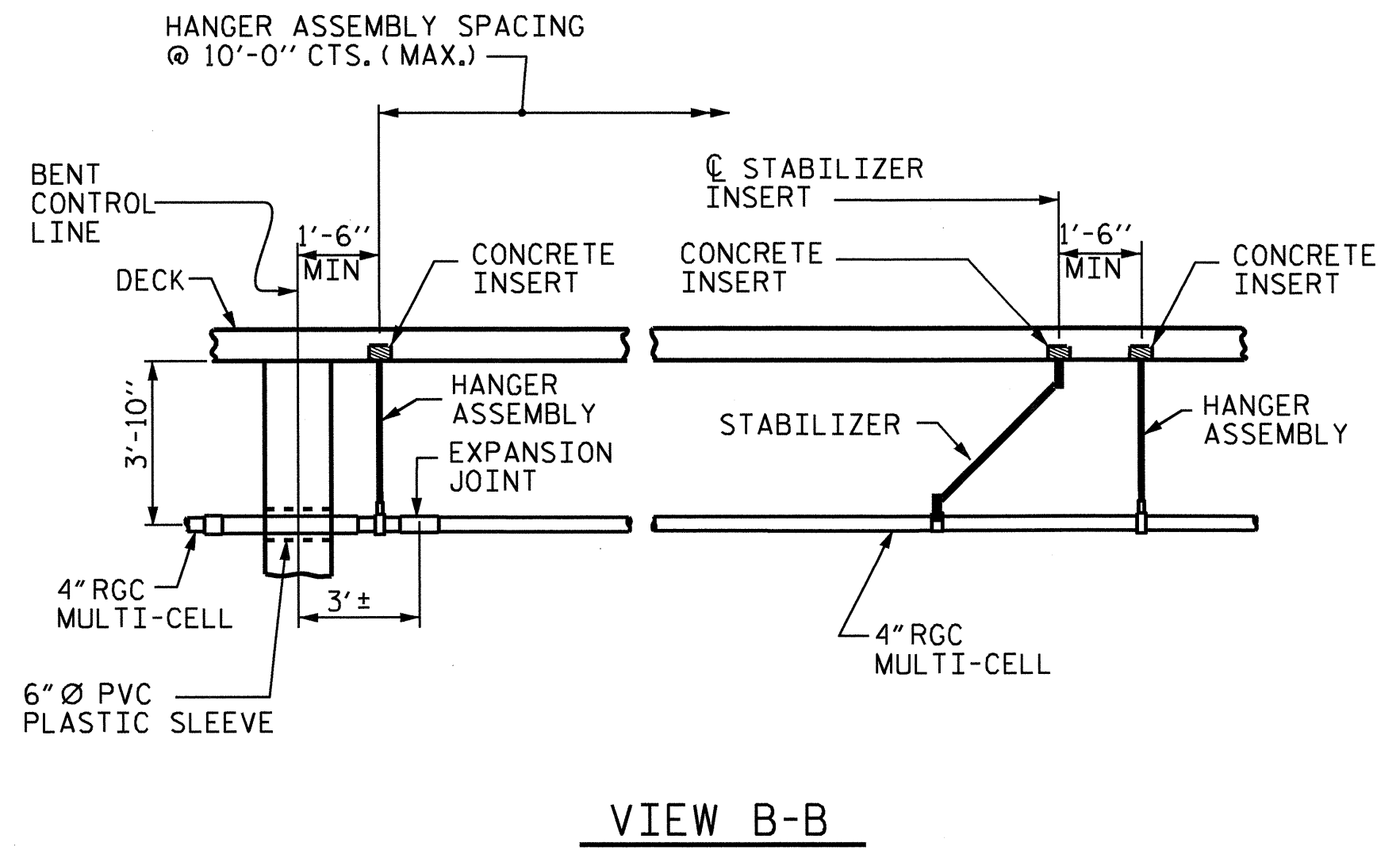
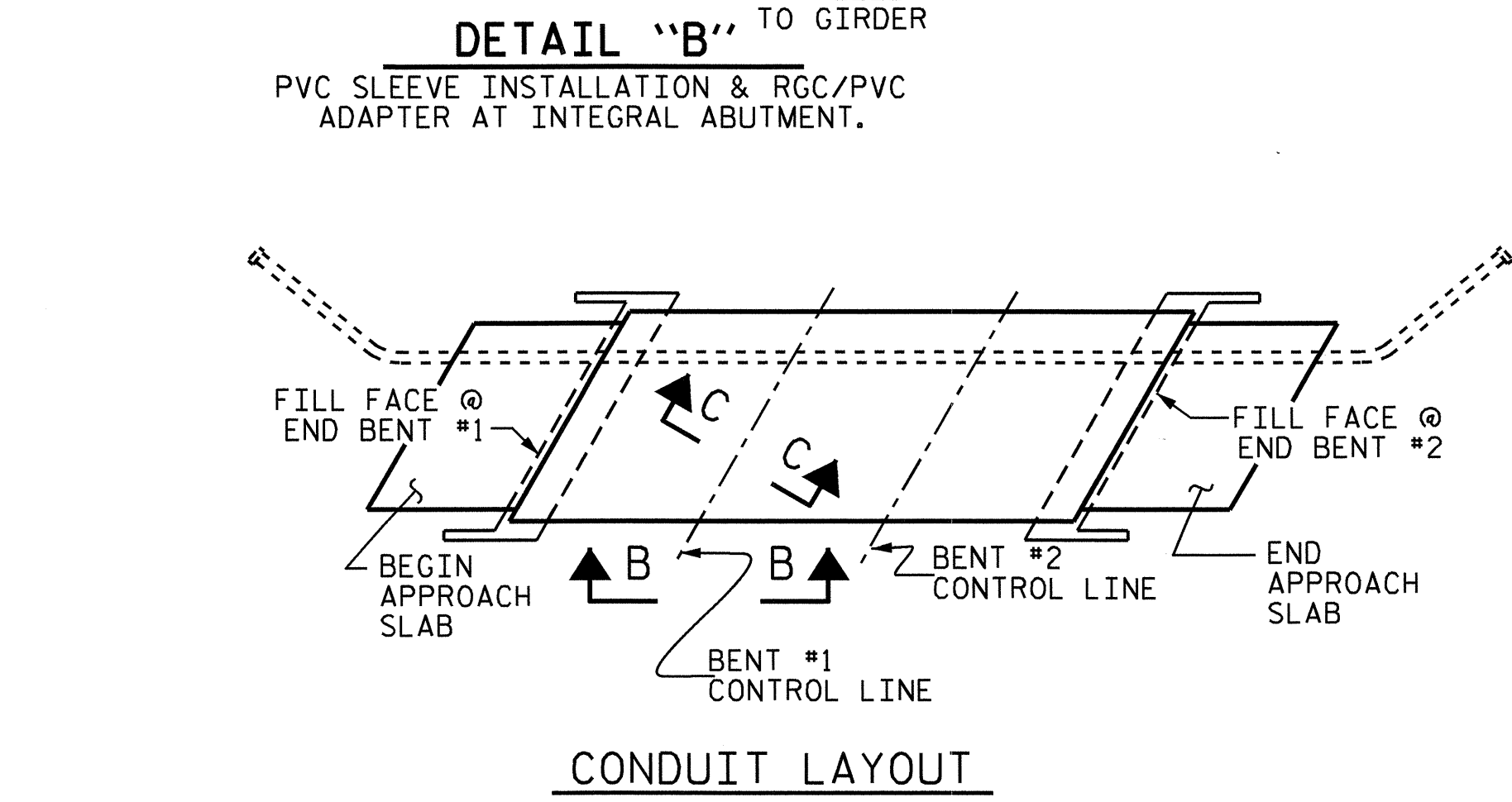
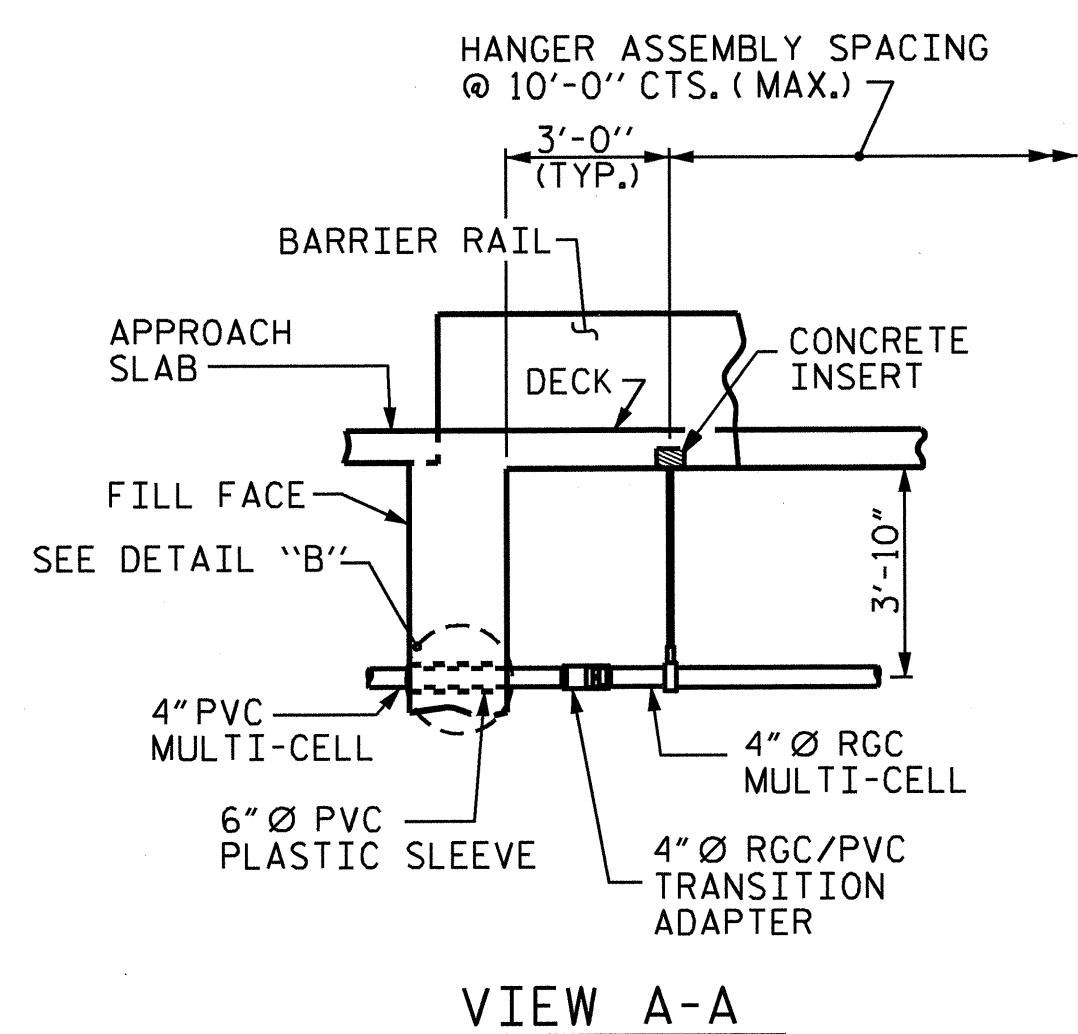
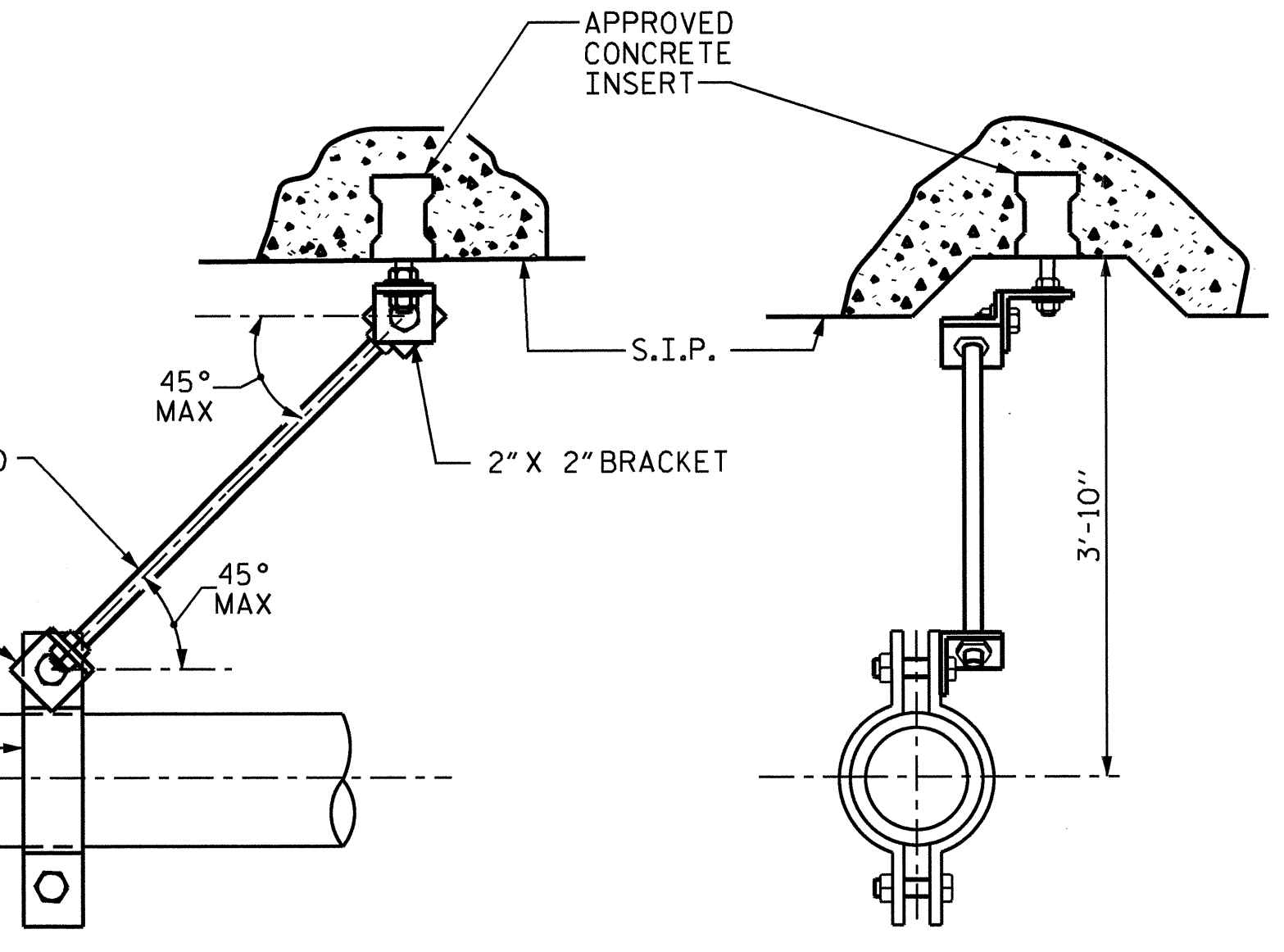
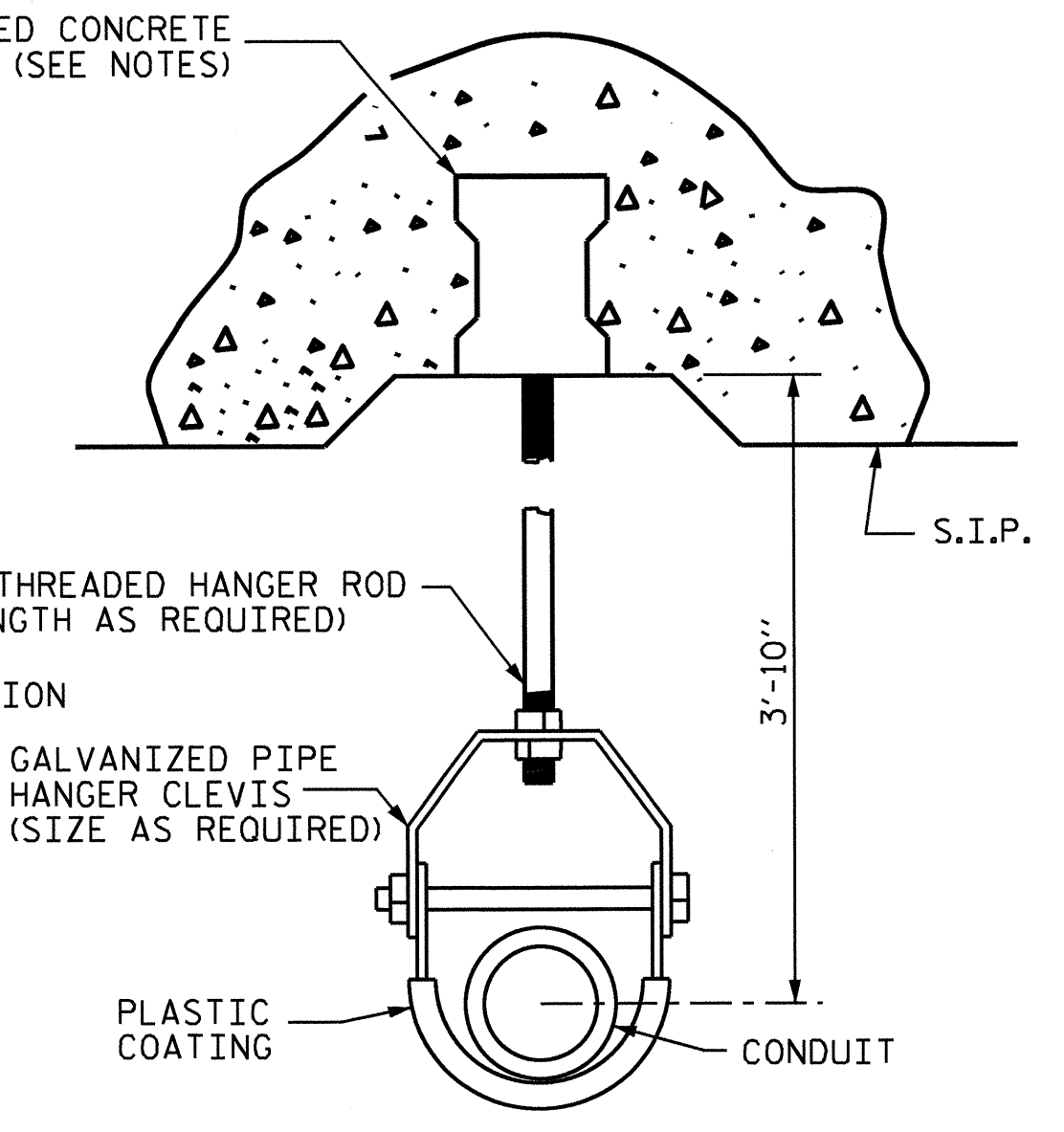
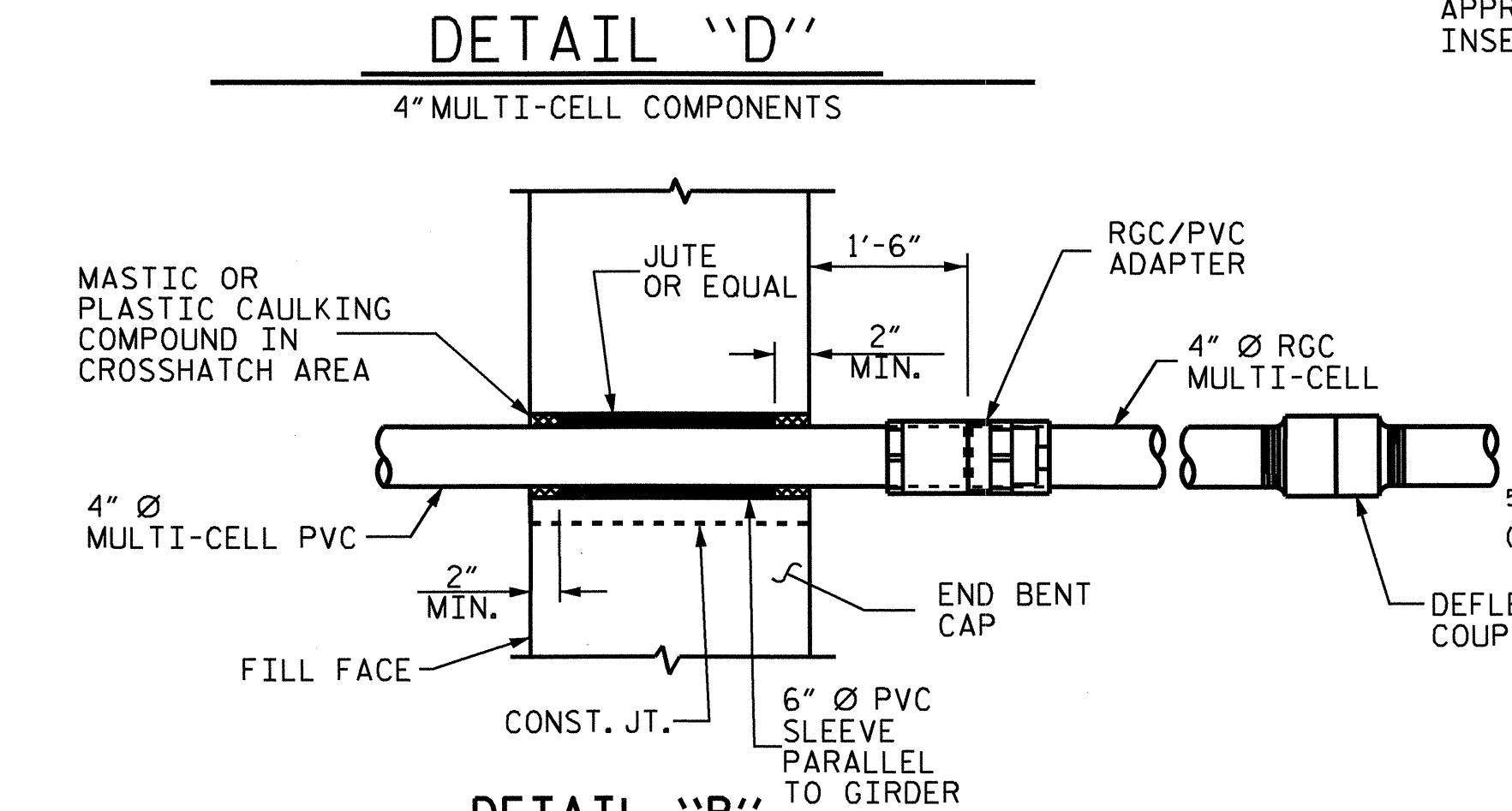
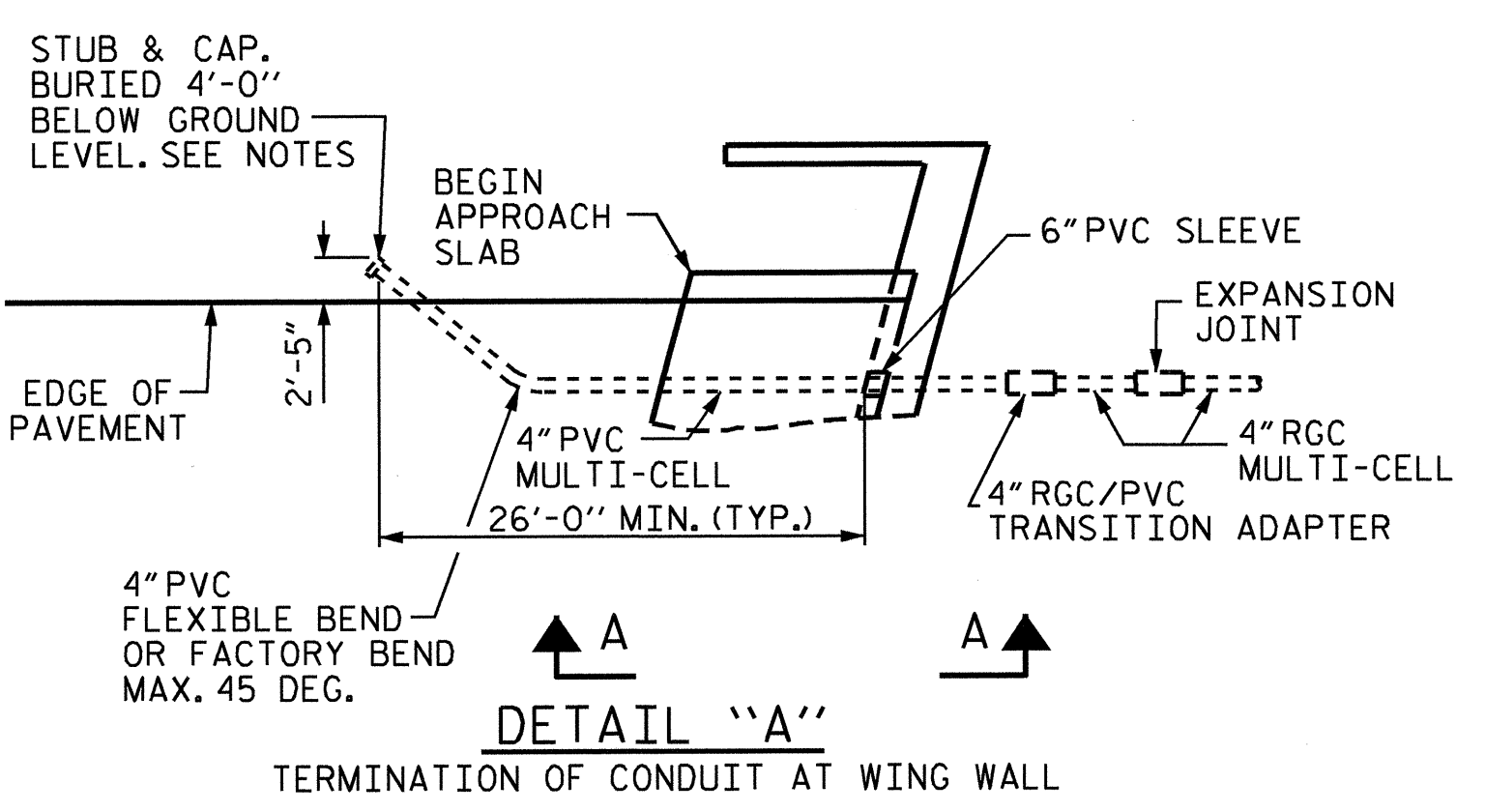
PROVIDE TRANSITION ADAPTER AND EXPANSION JOINT FOR CONDUIT AT END BENT #1 AND END BENT #2.

INSTALL STABILIZER'S AT OR NEAR MIDSPAN OF SPANS A, B AND C. STABILIZER CAN NOT BE USED INSTEAD OF A HANGER ASSEMBLY.

INSTALL EXPANSION JOINTS AT BENT #1 AND BENT #2.

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

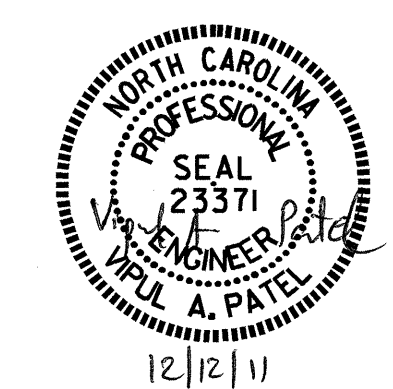
FOR ELECTRICAL CONDUIT SYSTEM, SEE SPECIAL PROVISIONS.



ELECTRIC CONDUIT DETAILS

PROJECT NO. B-3421
CABARRUS COUNTY
 STATION: 17+97.08 -L-

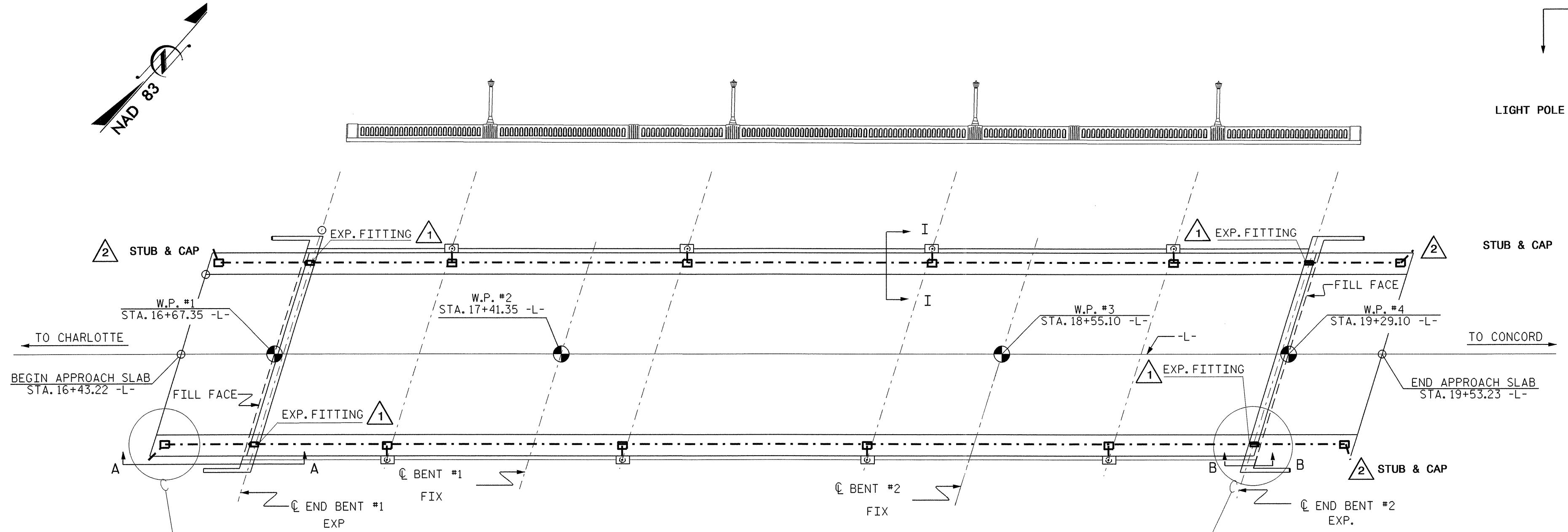
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD ELECTRICAL CONDUIT SYSTEM FOR SIGNALS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. <u>S-46</u>					TOTAL SHEETS <u>51</u>



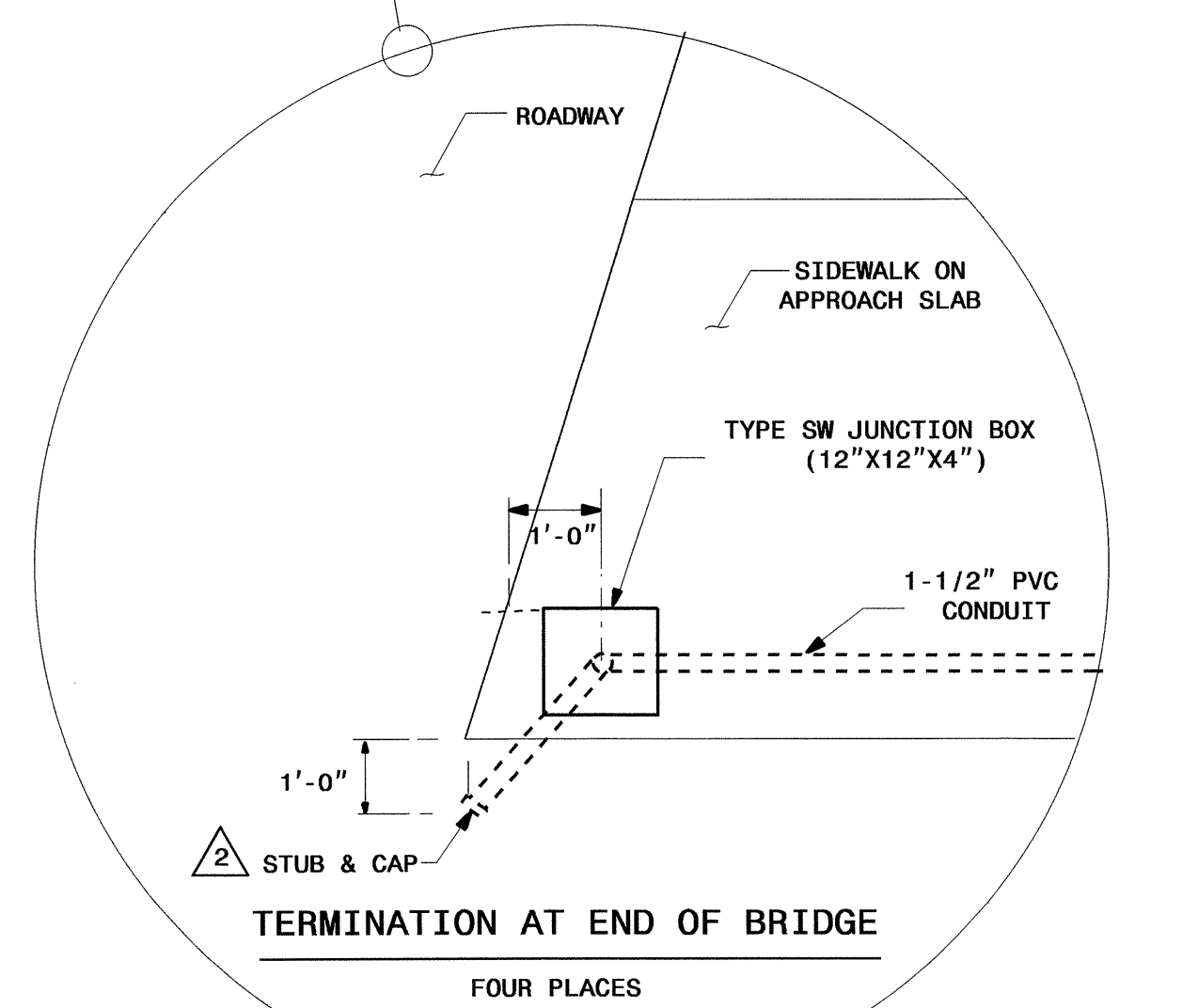
ASSEMBLED BY : V.A. PATEL DATE : 6/28/11
 CHECKED BY : K.D. LAYNE DATE : 7/05/11
 DRAWN BY : RWW 2-4-03 REV. 5/1/06 TLA/GM
 CHECKED BY : DBM 2-4-03

02/03/98 02/03/98 06-SEP-2011 11:52 R:\Lighting\electrical\ECS\Plansheet\B3421-ECS.dgn \$\$\$USERNAME\$\$\$

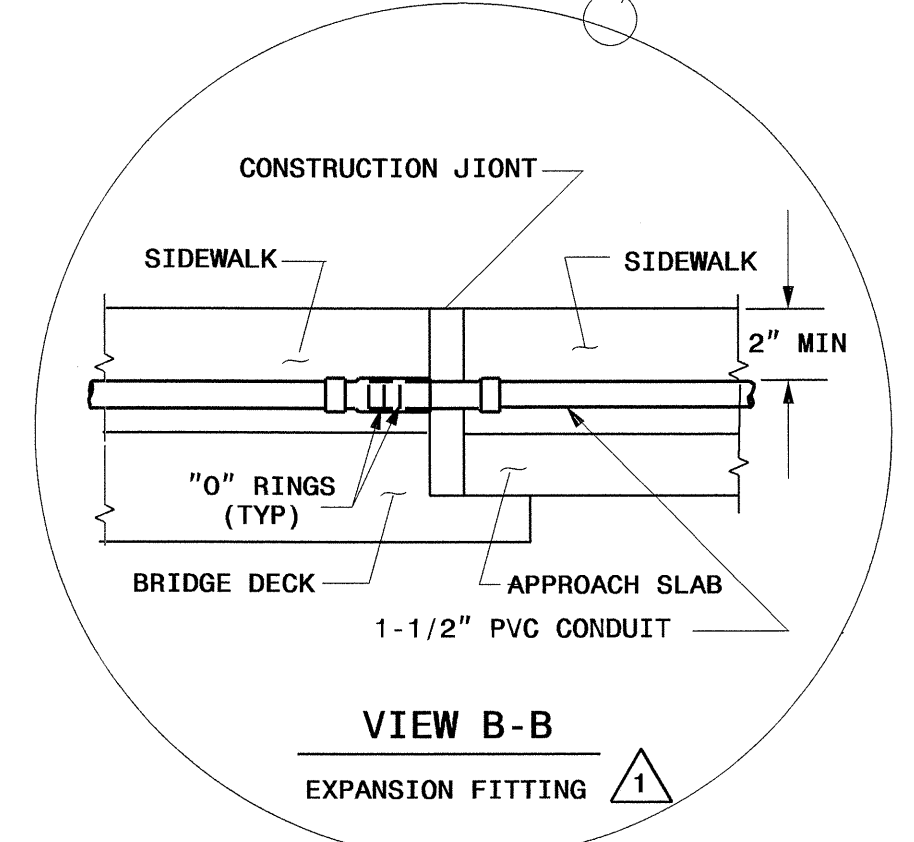
USE FOR LIGHTING CONSTRUCTION ONLY



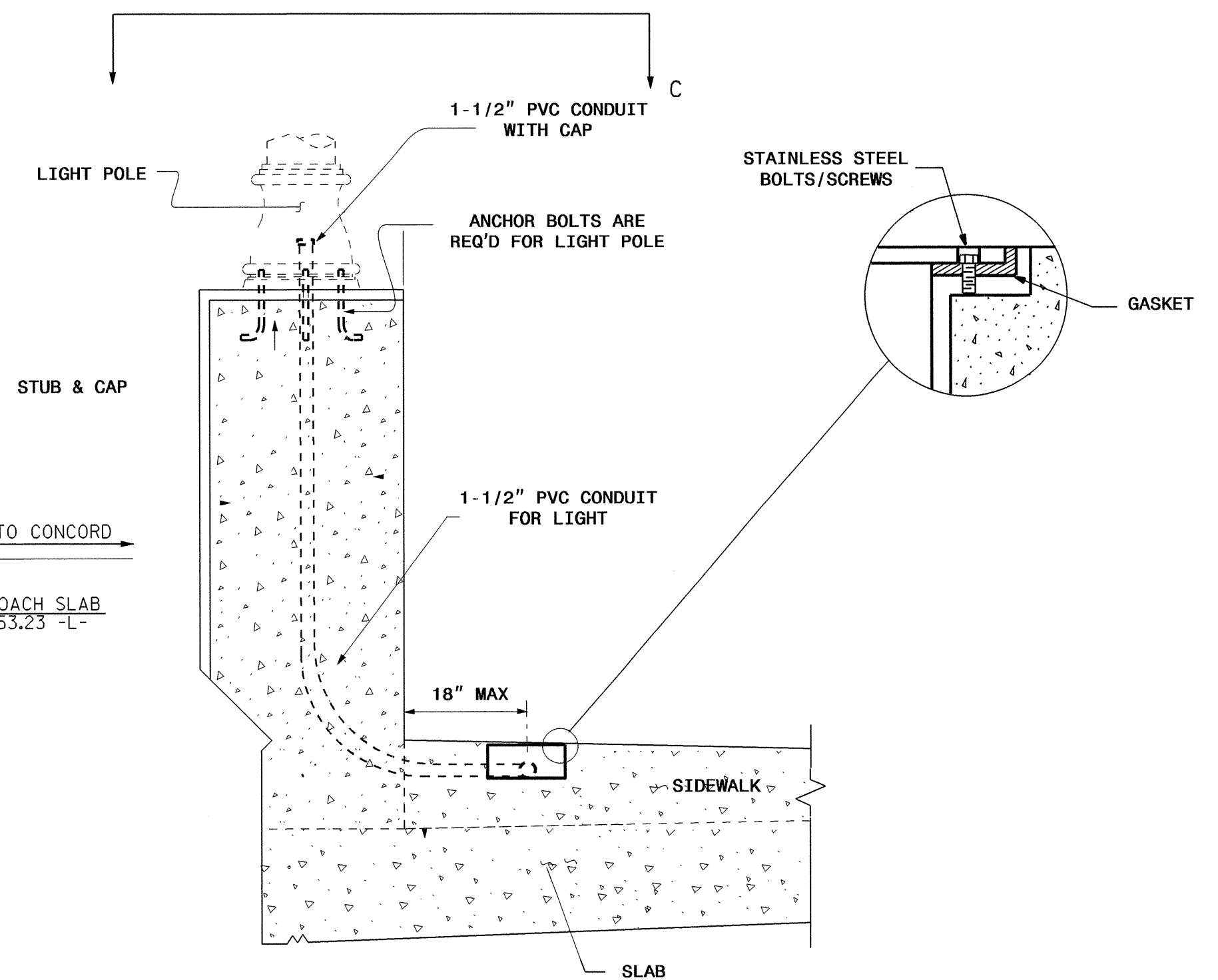
CONDUIT SYSTEM LAYOUT



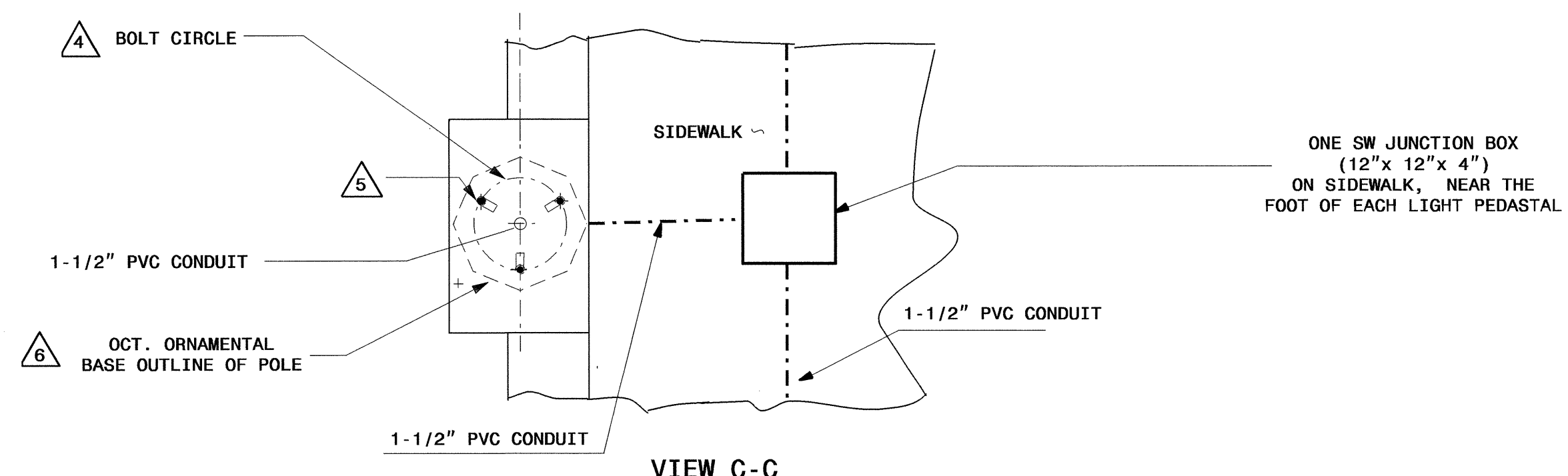
TERMINATION AT END OF BRIDGE
FOUR PLACES



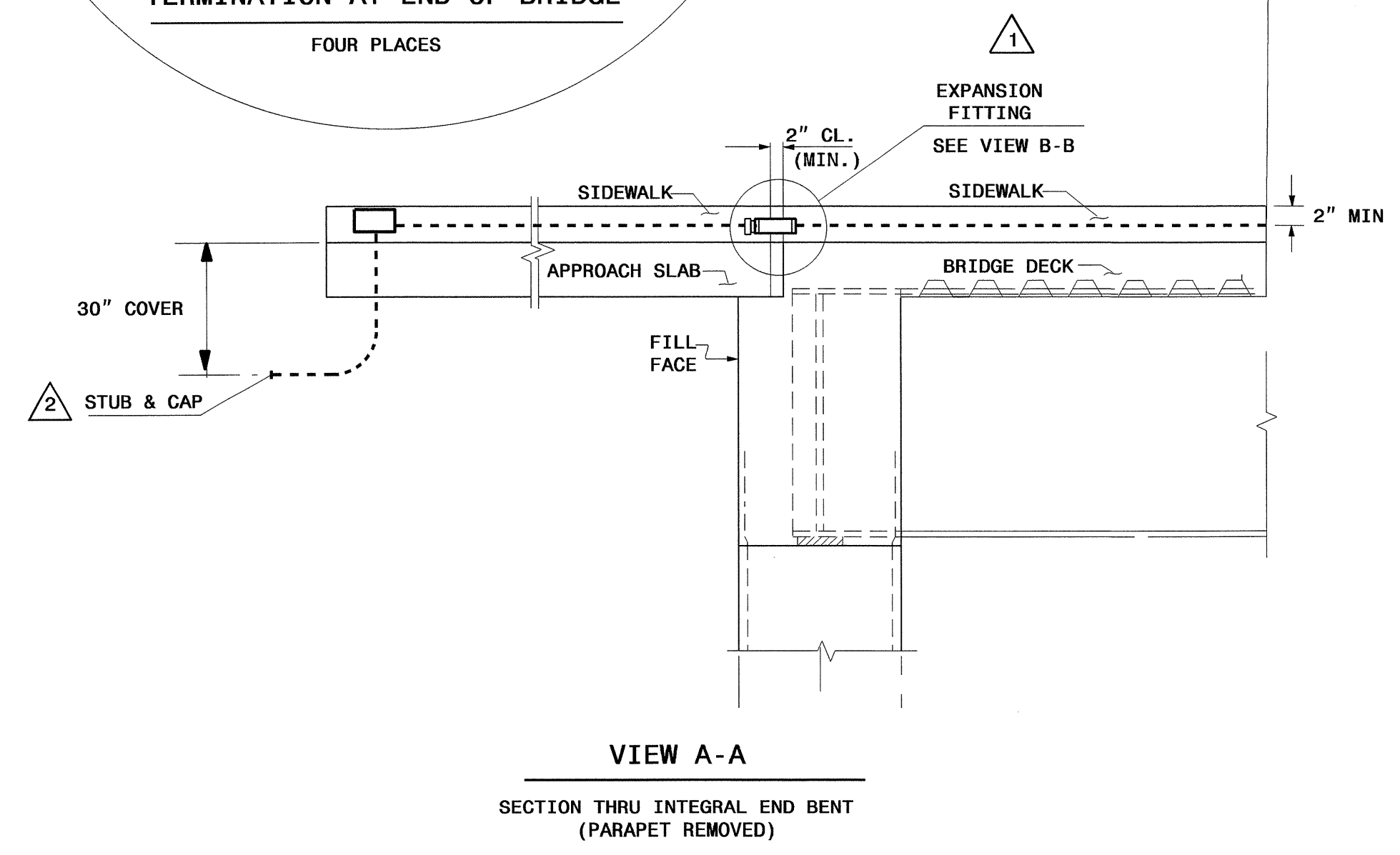
VIEW B-B
EXPANSION FITTING



VIEW I-I
LIGHT POLE, PEDESTAL AND JUNCTION BOX



VIEW C-C
PEDESTAL AND JUNCTION BOX



VIEW A-A
SECTION THRU INTEGRAL END BENT
(PARAPET REMOVED)

- NOTES**
- 1 PROVIDE EXPANSION FITTINGS AT ALL SIDEWALK EXPANSION JOINTS.
 - 2 COORDINATE CONNECTION OF CONDUIT WITH OTHERS.
 - 3 SEE STRUCTURE PLANS FOR LOCATION OF LIGHT PEDESTALS.
 - 4 INSTALL ANCHOR BOLTS ACCORDING TO MANUFACTURER'S RECOMMENDATION.
 - 5 ANCHOR BOLTS SHALL BE SUPPLIED BY THE POLE MANUFACTURER.
 - 6 SURFACE WITHIN ORNAMENTAL BASE OUTLINE MUST BE LEVEL.

ESTIMATED BILL OF MATERIAL LIGHTING CONDUIT SYSTEM		
UNIT	ITEMS	LIGHTING QTY
EA.	TYPE SW JN. BOX (12" X 12" X 4")	12
EA.	1-1/2" PVC 90° BEND	12
FT.	1-1/2" PVC CONDUIT	800
EA.	1-1/2" PVC EXPANSION JOINT	4
FT.	POLYETHYLENE PULL LINE	1000

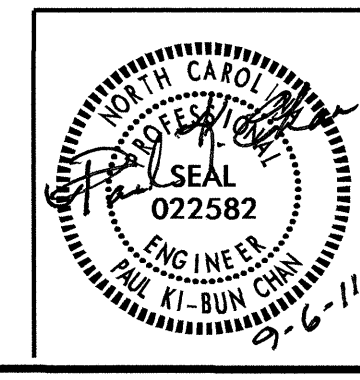
PROJECT NO. B-3421
CABARRUS COUNTY
 STATION: 17+97.08 -L-

SHEET 1 OF 1

Rev.	Date	Description	Approved
2			
1			

NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 ROADWAY DESIGN LIGHTING/ELECTRICAL SECTION

ELECTRICAL CONDUIT SYSTEM
 BRIDGE OVER
 NORFOLK SOUTHERN RAILROAD ON
 SR 1002 (CABARRUS AVE.) BETWEEN
 CORBAN AVE. & POWDER ST.



SEE PROJECT SPECIAL PROVISIONS TITLED
 "ELECTRICAL CONDUIT SYSTEM" FOR MATERIALS
 CONSTRUCTION METHODS AND PAYMENT.

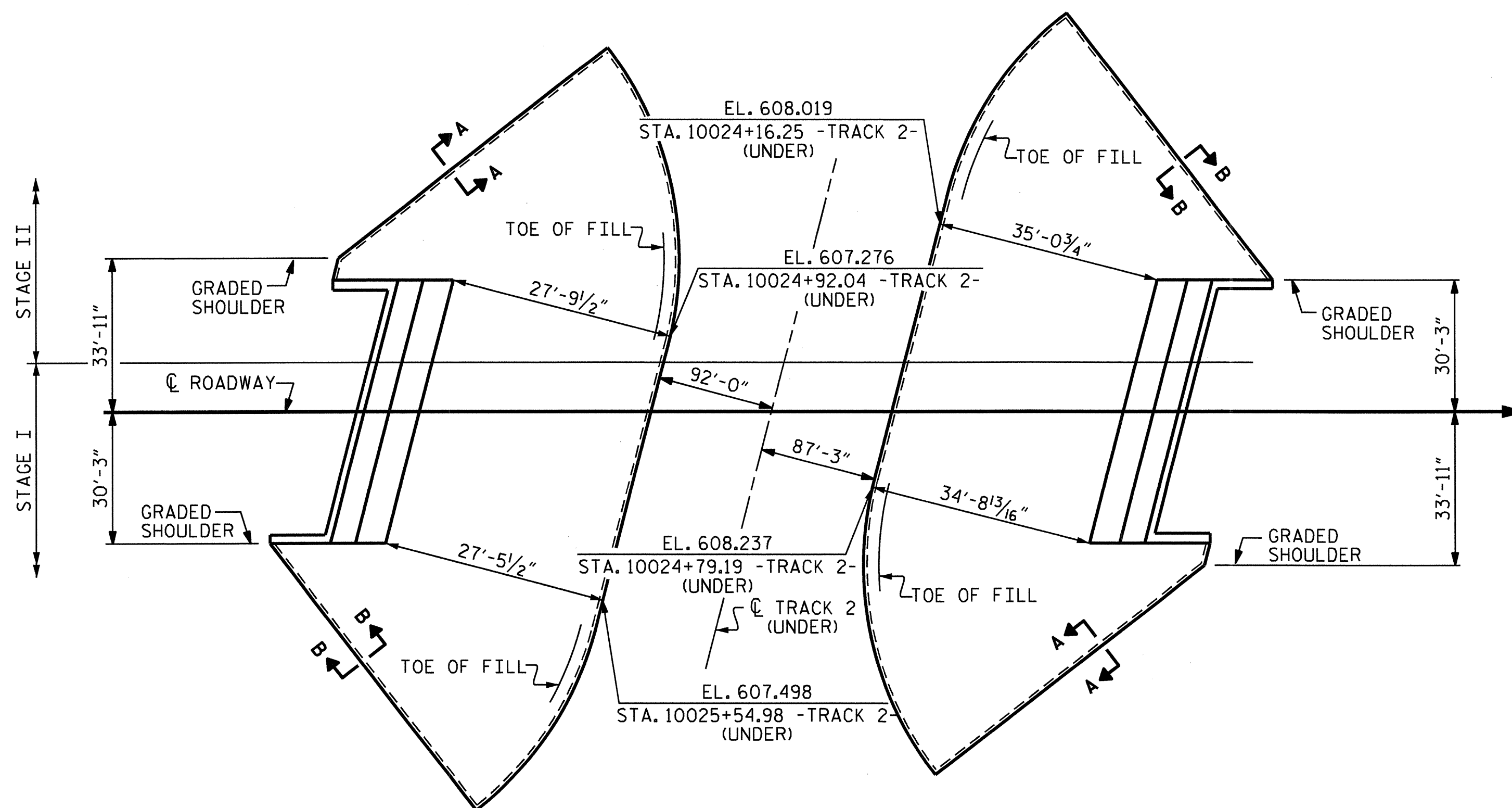
Drawn By	Approved By	Dwg No.	Sheet
SAS	PAC	9-6-11	47 of 51

DRAWN BY: S.K. SAHA DATE: 9/2/11
 CHECKED BY: P.K. CHAN DATE: 9-6-11

NOTES

SLOPE PROTECTION SHALL BE PLACED UNDER THE ENDS OF THE BRIDGE AS SHOWN IN THE DETAILS, MEASUREMENT AND PAYMENT SHALL BE AS PRESCRIBED IN SECTION 462 OF THE STANDARD SPECIFICATIONS. FOR BERM WIDTH, SEE GENERAL DRAWING.

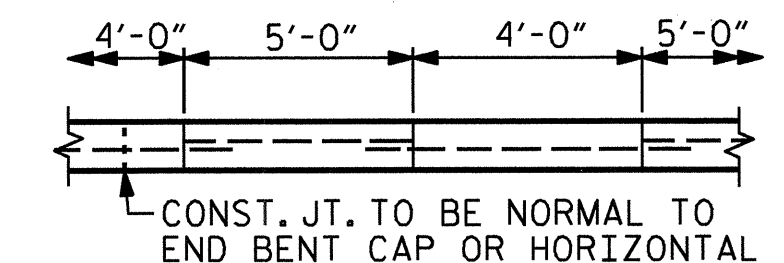
SLOPE PROTECTION SHALL CONSIST OF 4" POURED-IN-PLACE CONCRETE PAVING AS SHOWN IN THE DETAILS ON THIS SHEET. CONCRETE SHALL BE CLASS "B". THE CONCRETE SURFACE SHALL BE FLOATED WITH A WOODEN FLOAT AND FINISHED. WELDED WIRE FABRIC REINFORCING SHALL BE 6 X 6 - W1.4 X W1.4, 60" WIDE. SLOPE PROTECTION SHALL BE POURED IN 5' STRIPS AS SHOWN IN THE "POURING DETAIL" WITH 2'-0" LONG #4 BARS PLACED ALONG THE SLOPE BETWEEN STRIPS AT 1'-6" MAXIMUM SPACING. SLOPE PROTECTION MAY BE POURED IN ALTERNATE 4' AND 5' STRIPS AS SHOWN IN THE "OPTIONAL POURING DETAIL" WITH ADJACENT RUNS OF WELDED WIRE FABRIC LAPPING AT LEAST 6". THE COST OF THE WELDED WIRE FABRIC AND #4 BARS, IF USED, SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER SQUARE YARD FOR SLOPE PROTECTION.



PLAN

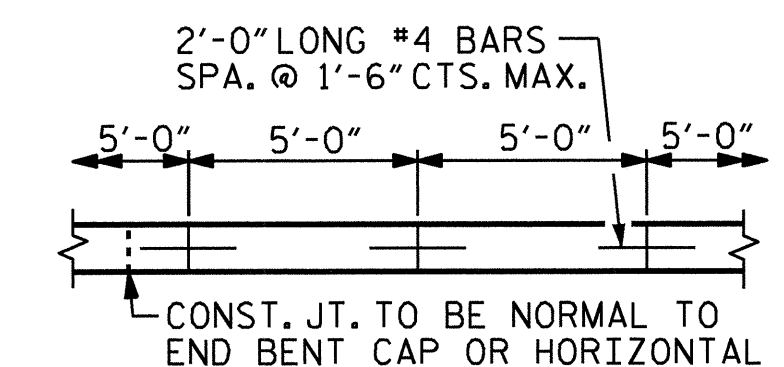
BRIDGE @ STA. 17+97.08 -L-	4" INCH SLOPE PROTECTION	* WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT #1 (STAGE I)	265	340
END BENT #1 (STAGE II)	180	230
END BENT #1 (TOTAL)	445	570
END BENT #2 (STAGE I)	485	620
END BENT #2 (STAGE II)	320	410
END BENT #2 (TOTAL)	805	1030

* QUANTITY SHOWN IS BASED ON 5' POURS.



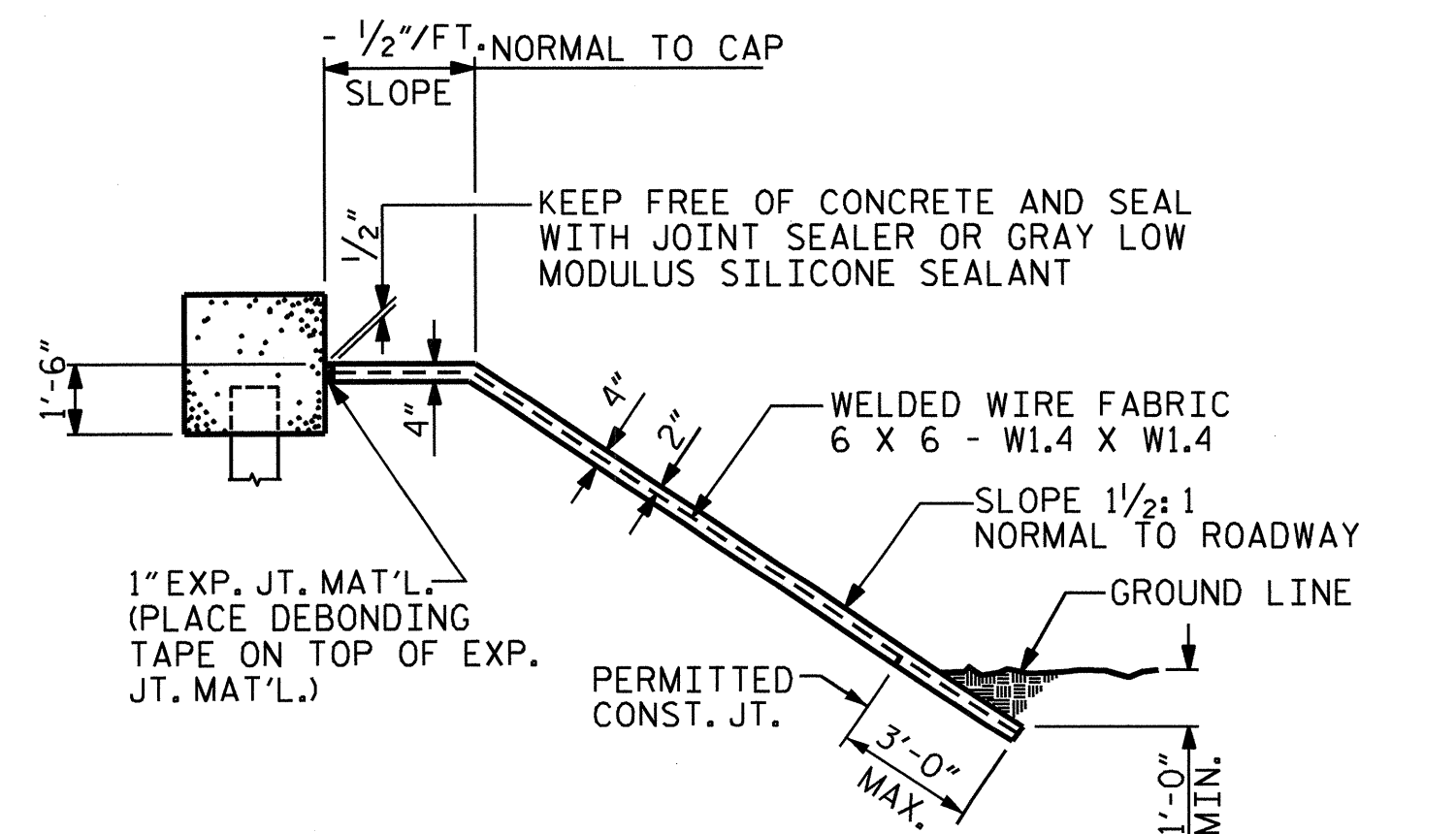
POUR A 4'-0" STRIP FIRST, STRIP WIDTHS MAY VARY IN CURVED PORTION.

OPTIONAL POURING DETAIL

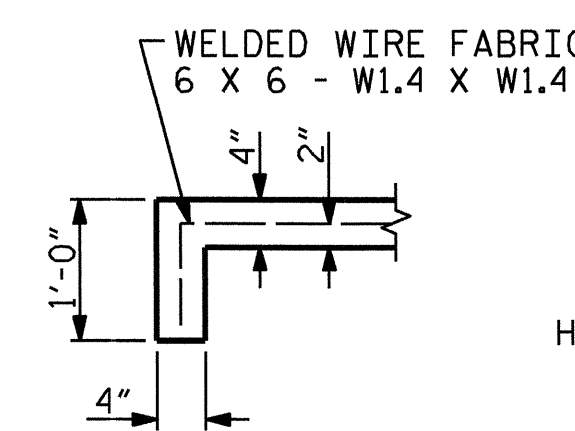


STRIP WIDTHS MAY VARY IN CURVED PORTION.

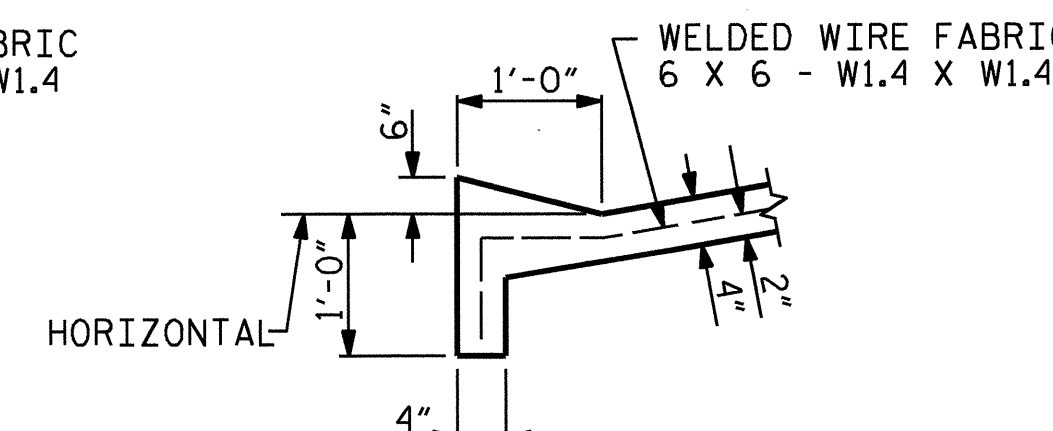
POURING DETAIL



SECTION ALONG ROADWAY WHEN DITCH IS NOT PROVIDED



SECTION A-A



SECTION B-B

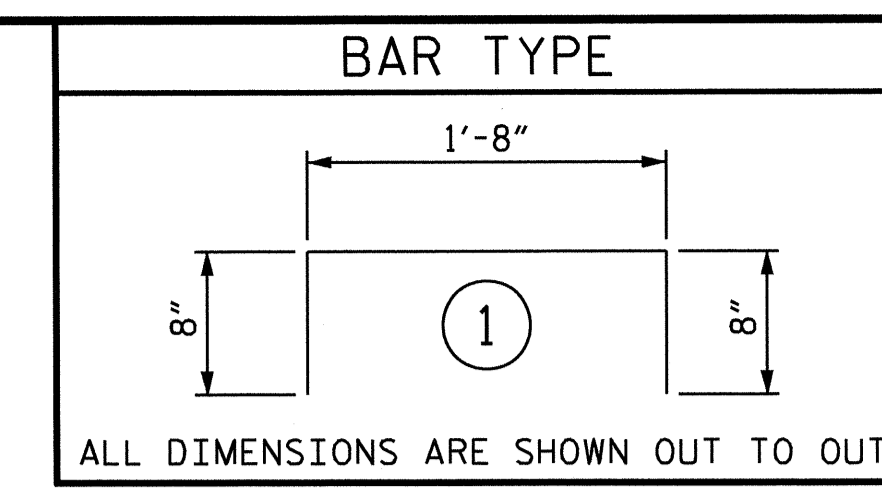
PROJECT NO. B-3421
CABARRUS COUNTY
 STATION: 17+97.08 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 SLOPE PROTECTION
 DETAILS



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-48	
1			3			TOTAL SHEETS	
2			4			51	

ASSEMBLED BY : J.P. ADAMS	DATE : 7/12/11
CHECKED BY : H.A. LOCKLEAR	DATE : 9/19/11
DRAWN BY : ELR 5/92	REV. 7/10/01 LES/RDR
CHECKED BY : GRP 6/92	REV. 5/7/03 RWW/JTE
	REV. 5/1/06 TLA/GM



BILL OF MATERIAL

STAGE I
FOR ONE APPROACH SLAB
(2 REQ'D)

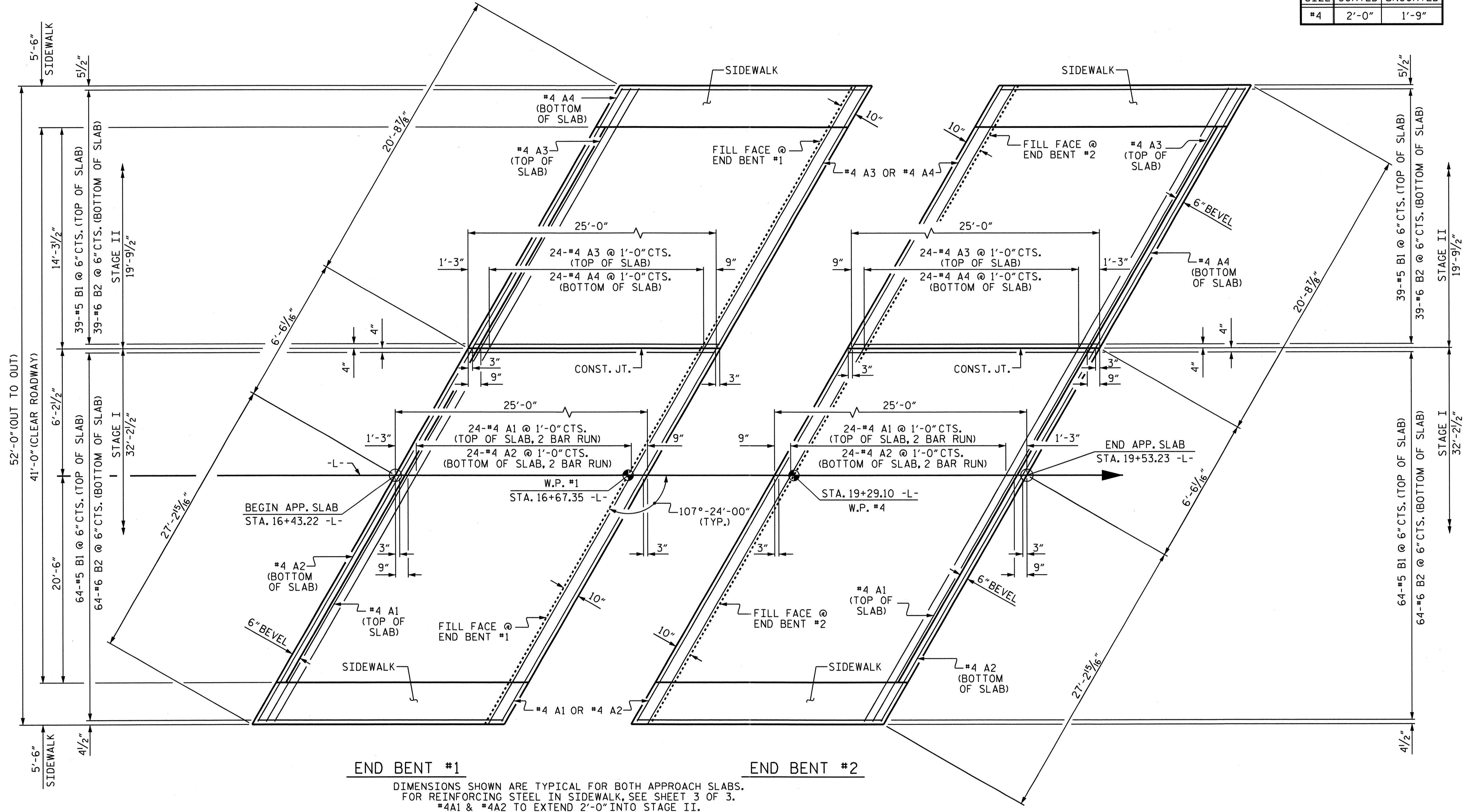
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	52	#4	STR	18'-10"	654
A2	52	#4	STR	18'-7"	646
*B1	64	#5	STR	24'-2"	1613
B2	64	#6	STR	24'-8"	2371
*B3	4	#4	STR	24'-8"	66
*G1	25	#4	STR	5'-3"	88
*U1	8	#4	1	3'-0"	16
REINFORCING STEEL				LBS.	3017
*EPOXY COATED REINFORCING STEEL				LBS.	2437
CLASS AA CONCRETE				C. Y.	38.9

SPLICE CHART

BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"

STAGE II
FOR ONE APPROACH SLAB
(2 REQ'D)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A3	26	#4	STR	20'-6"	356
A4	26	#4	STR	20'-6"	356
*B1	39	#5	STR	24'-2"	983
B2	39	#6	STR	24'-8"	1445
*B3	4	#4	STR	24'-8"	66
*G1	25	#4	STR	5'-3"	88
*U1	8	#4	1	3'-0"	16
REINFORCING STEEL				LBS.	1801
*EPOXY COATED REINFORCING STEEL				LBS.	1509
CLASS AA CONCRETE				C. Y.	25.0



PLAN OF APPROACH SLAB

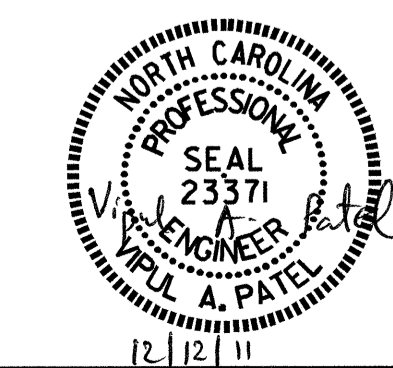
PROJECT NO. B-3421
 CABARRUS COUNTY
 STATION: 17+97.08 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH SLAB
 FOR FLEXIBLE PAVEMENT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-49
2			4			51



ASSEMBLED BY: H.T. DIEU DATE: 8/31/11
 CHECKED BY: J.P. ADAMS DATE: 9/6/11

25-OCT-2011 14:20
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 jpadams

STD. NO. BAS4

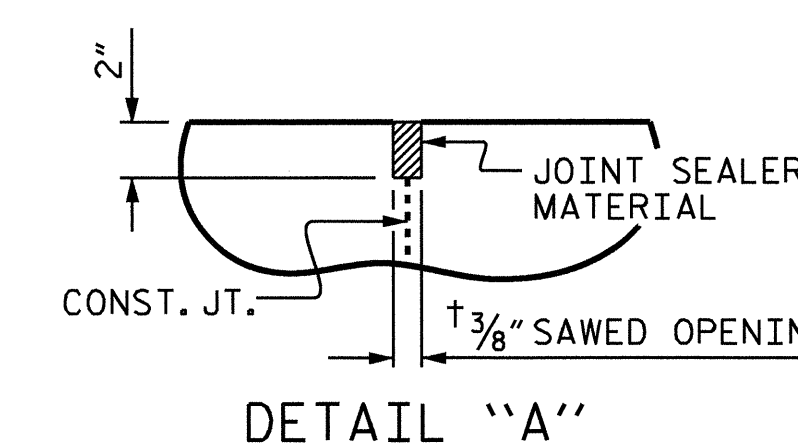
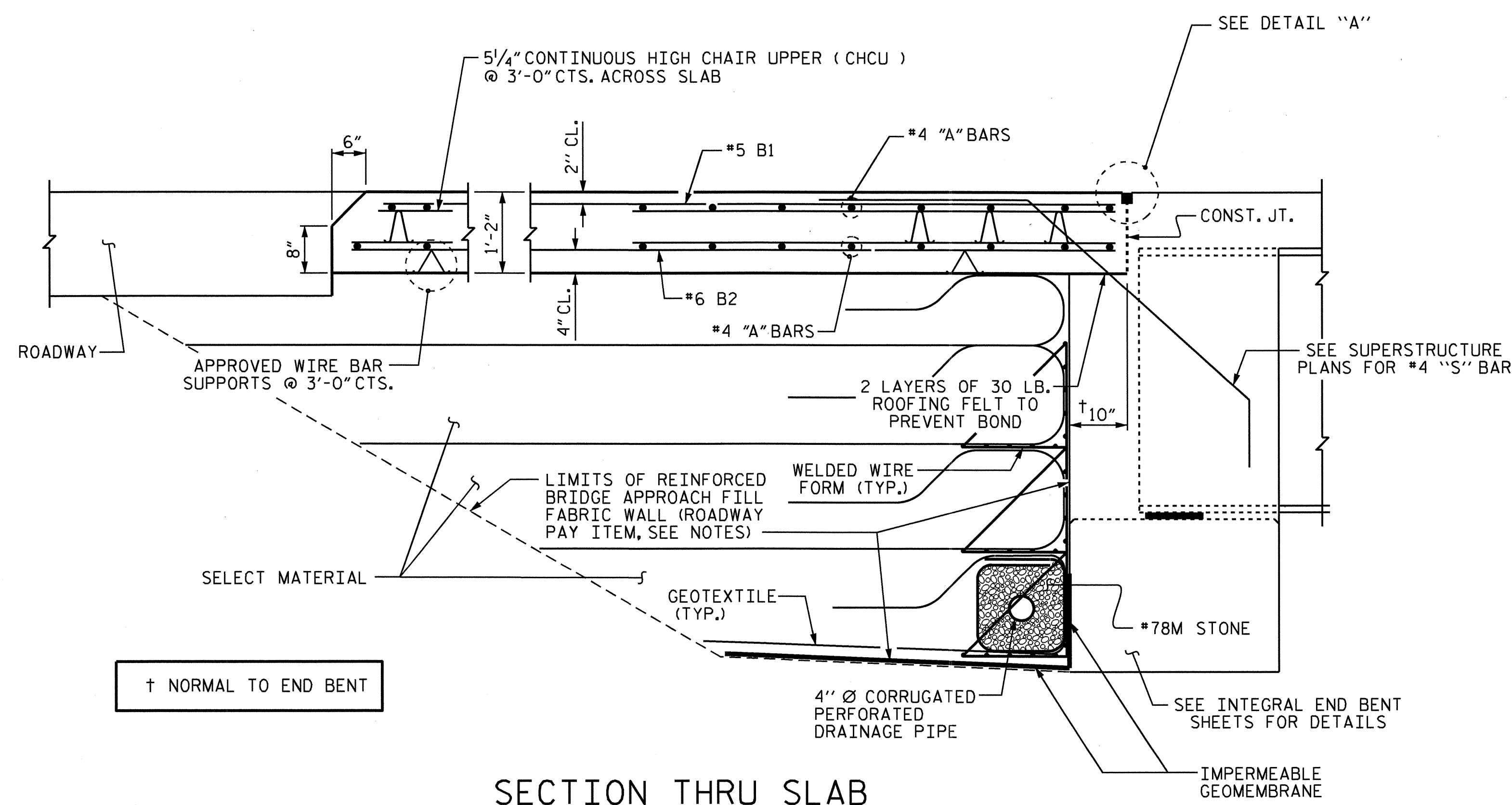
NOTES

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

FOR REINFORCED BRIDGE APPROACH FILL FABRIC WALL INCLUDING GEOTEXTILE, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, WELDED WIRE FORM, 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.

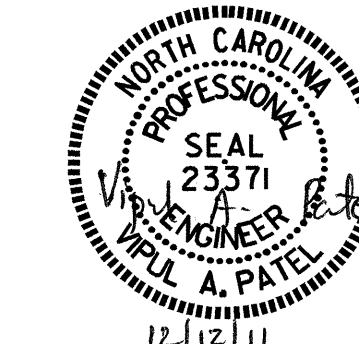
THE JOINT OPENING AT THE APPROACH SLAB/DECK INTERFACE SHALL BE SAWS NO MORE THAN 12 HOURS AFTER THE APPROACH SLAB IS CAST. THE JOINT SHALL BE CLEANED OF ALL DEBRIS BEFORE THE SEALANT IS APPLIED. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1028-3 OF THE STANDARD SPECIFICATIONS.



PROJECT NO. B-3421
CABARRUS COUNTY
 STATION: 17+97.08 -L-

SHEET 2 OF 3

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

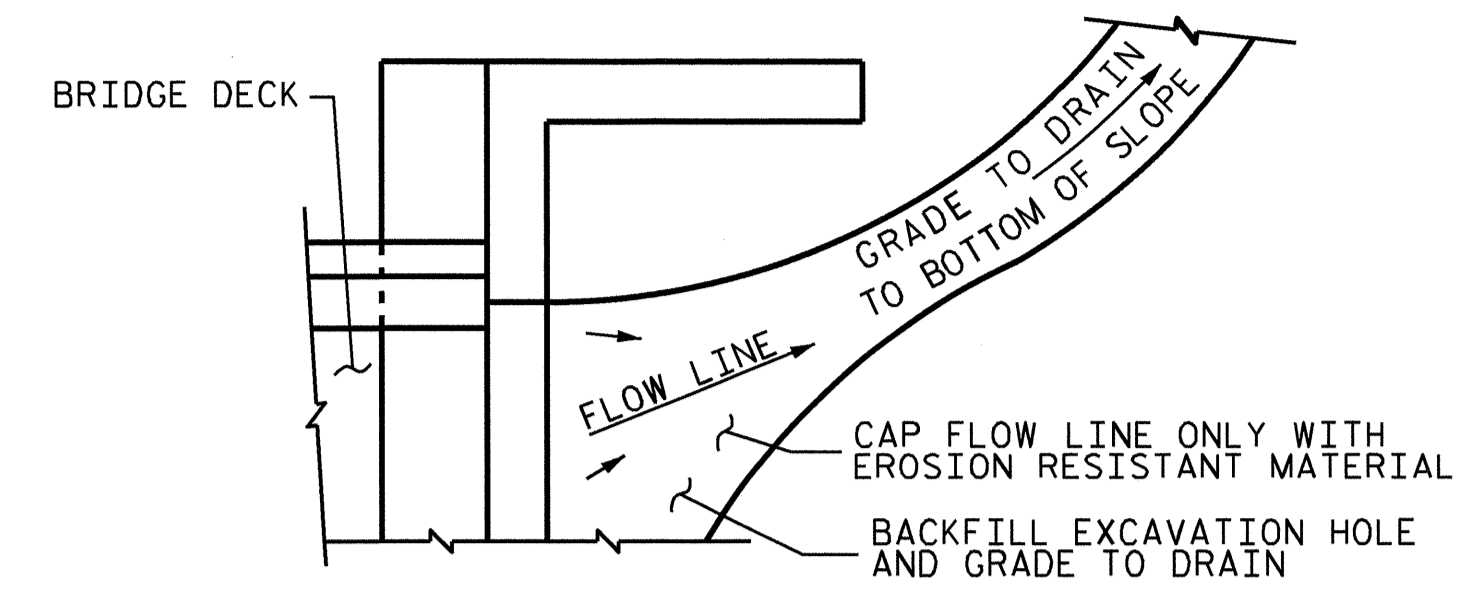
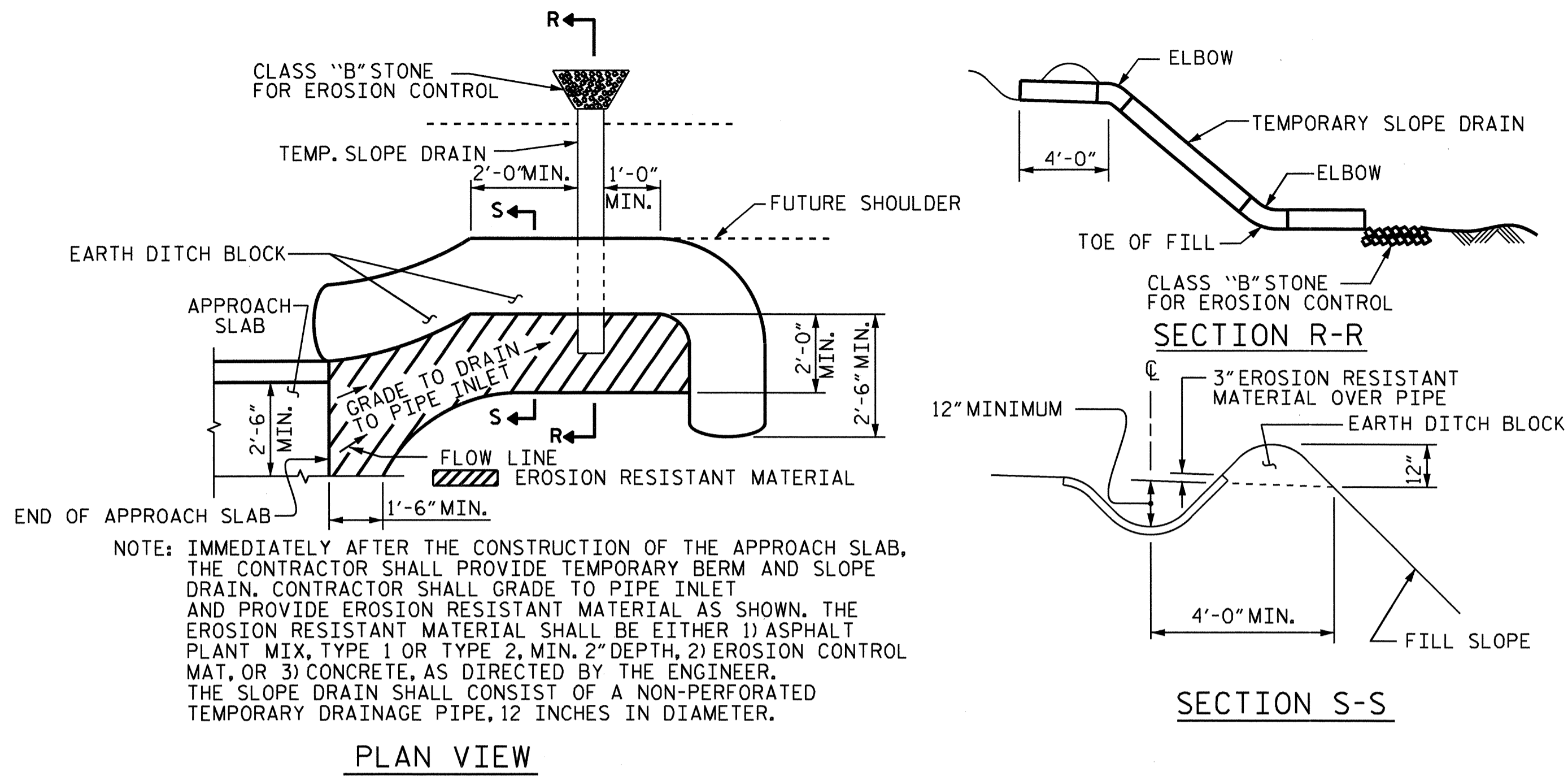


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-50
1			3			TOTAL SHEETS
2			4			51

ASSEMBLED BY : H.T. DIEU DATE : 8/31/11
 CHECKED BY : J.P. ADAMS DATE : 9/26/11

25-OCT-2011 14:20
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 jpadams

STD. NO. BAS11 (SHT 4b)

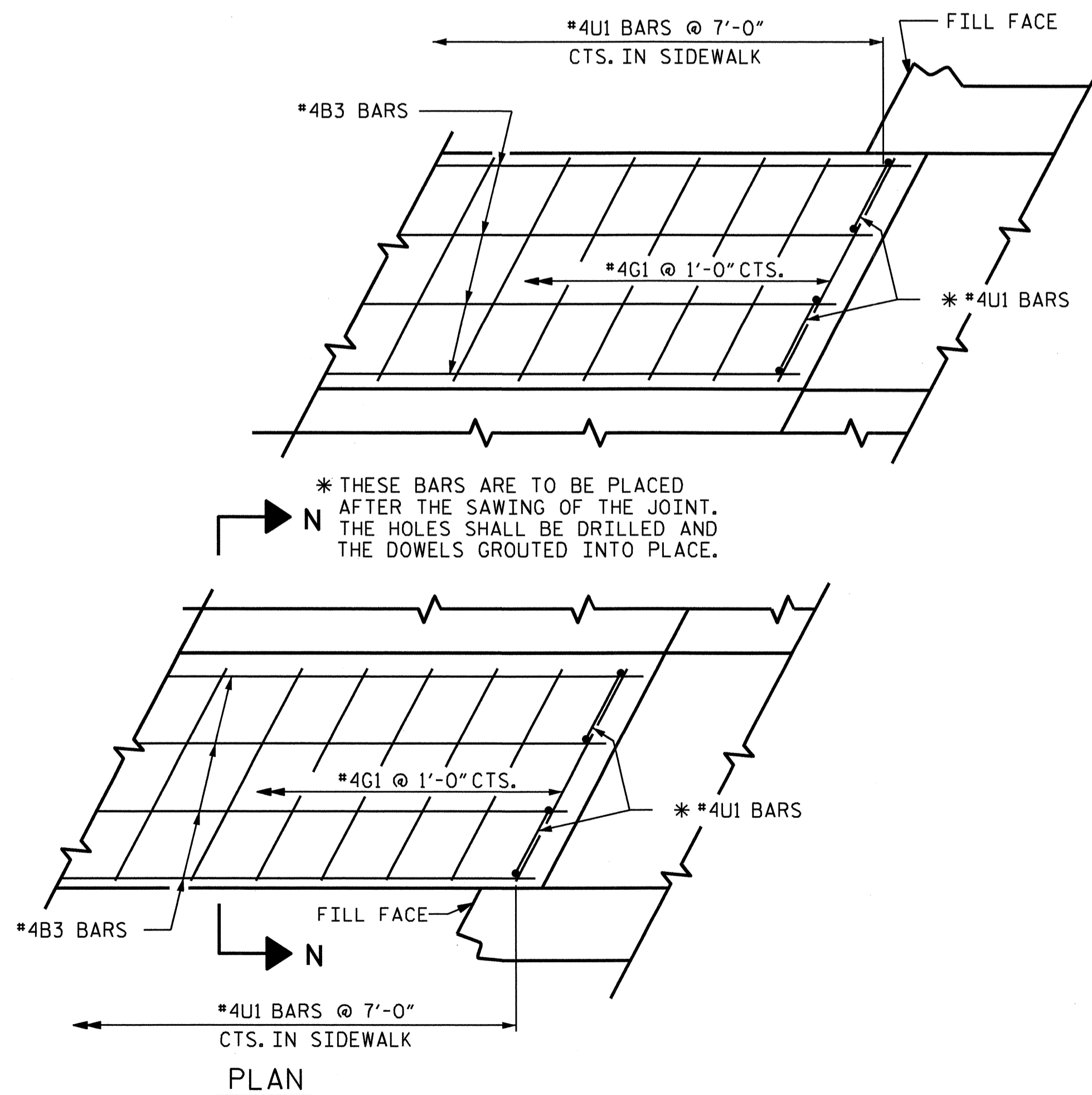


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

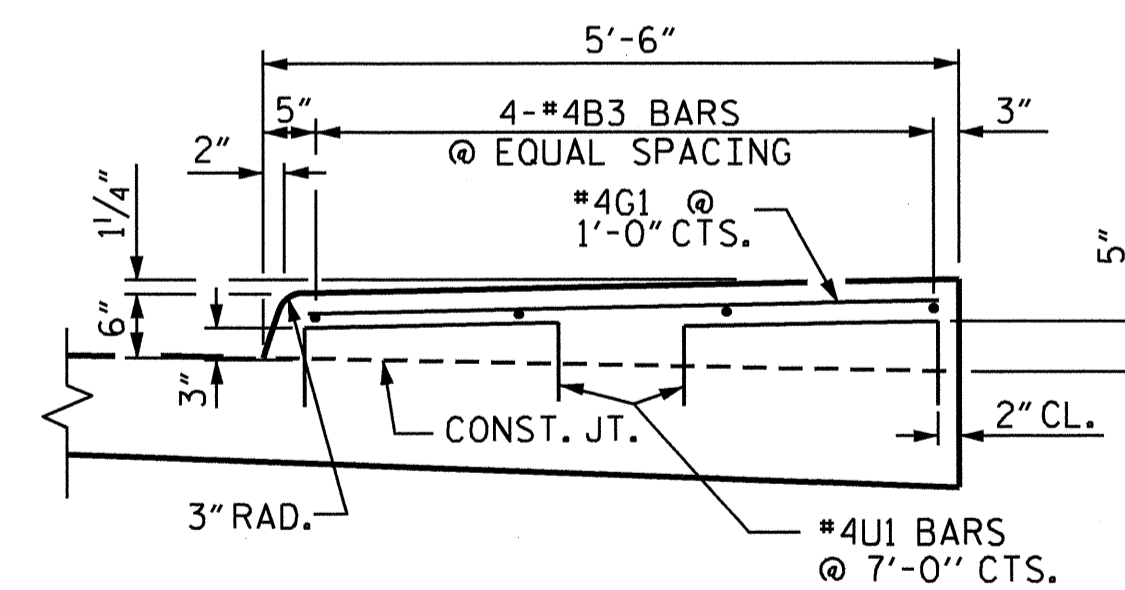
TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



DETAILS OF SIDEWALK ON APPROACH SLAB

BEGIN APP. SLAB SHOWN. END APP. SLAB SIMILAR

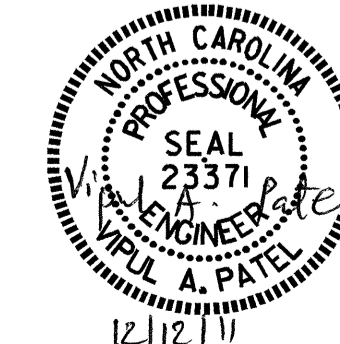


**SECTION N-N
 SIDEWALK DETAILS**

PROJECT NO. B-3421
CABARRUS COUNTY
 STATION: 17+97.08 -L-

SHEET 3 OF 3

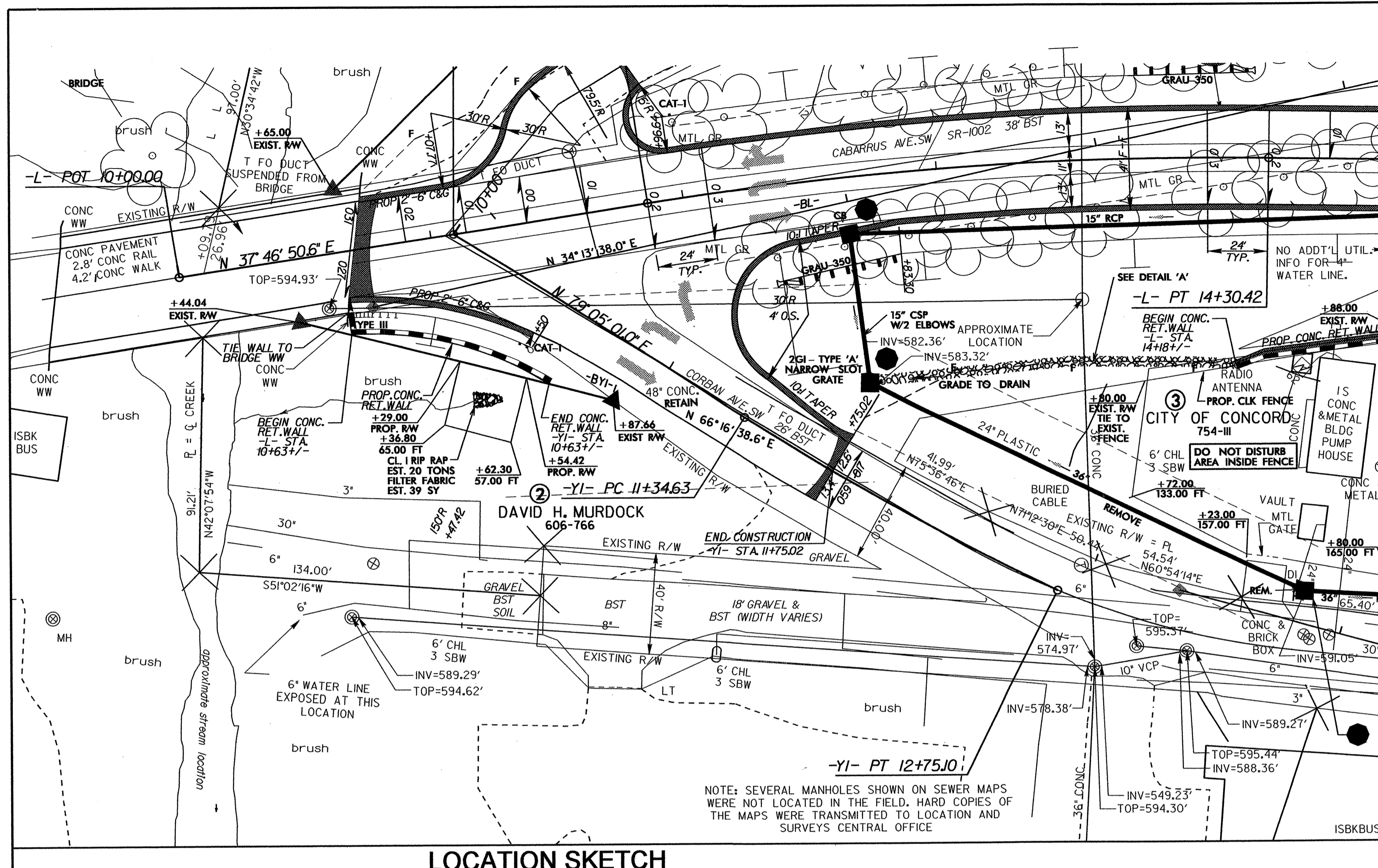
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH
 SLAB DETAILS



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

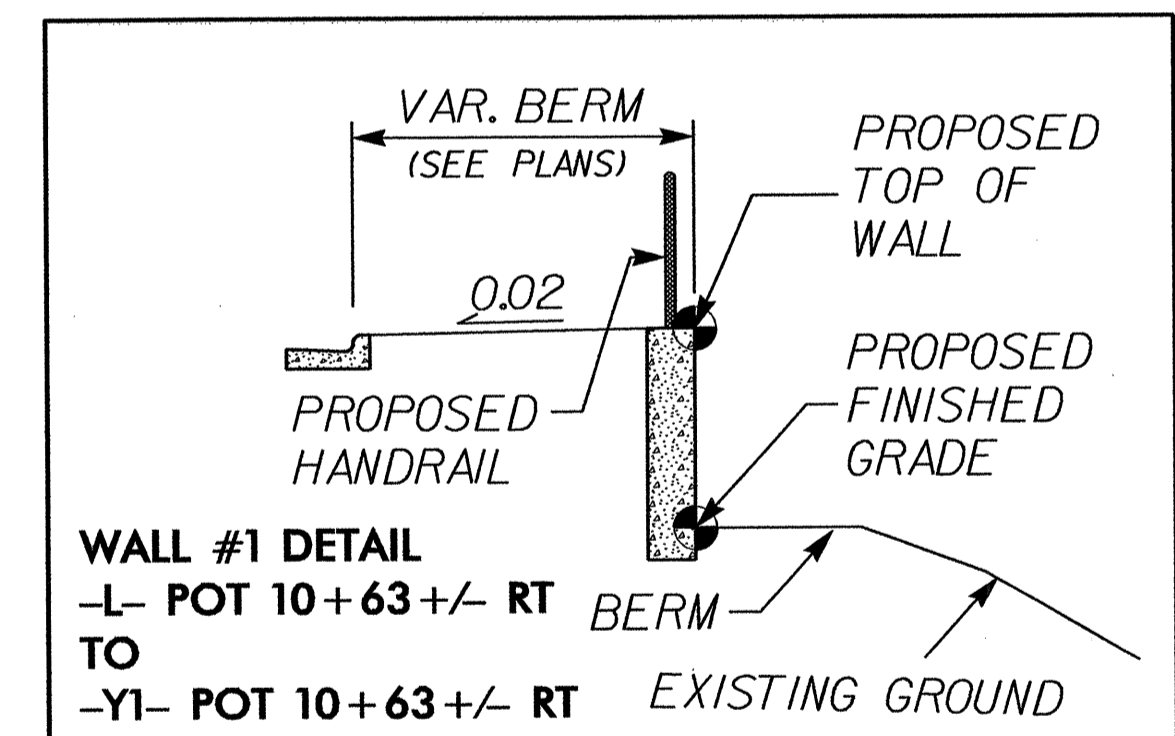
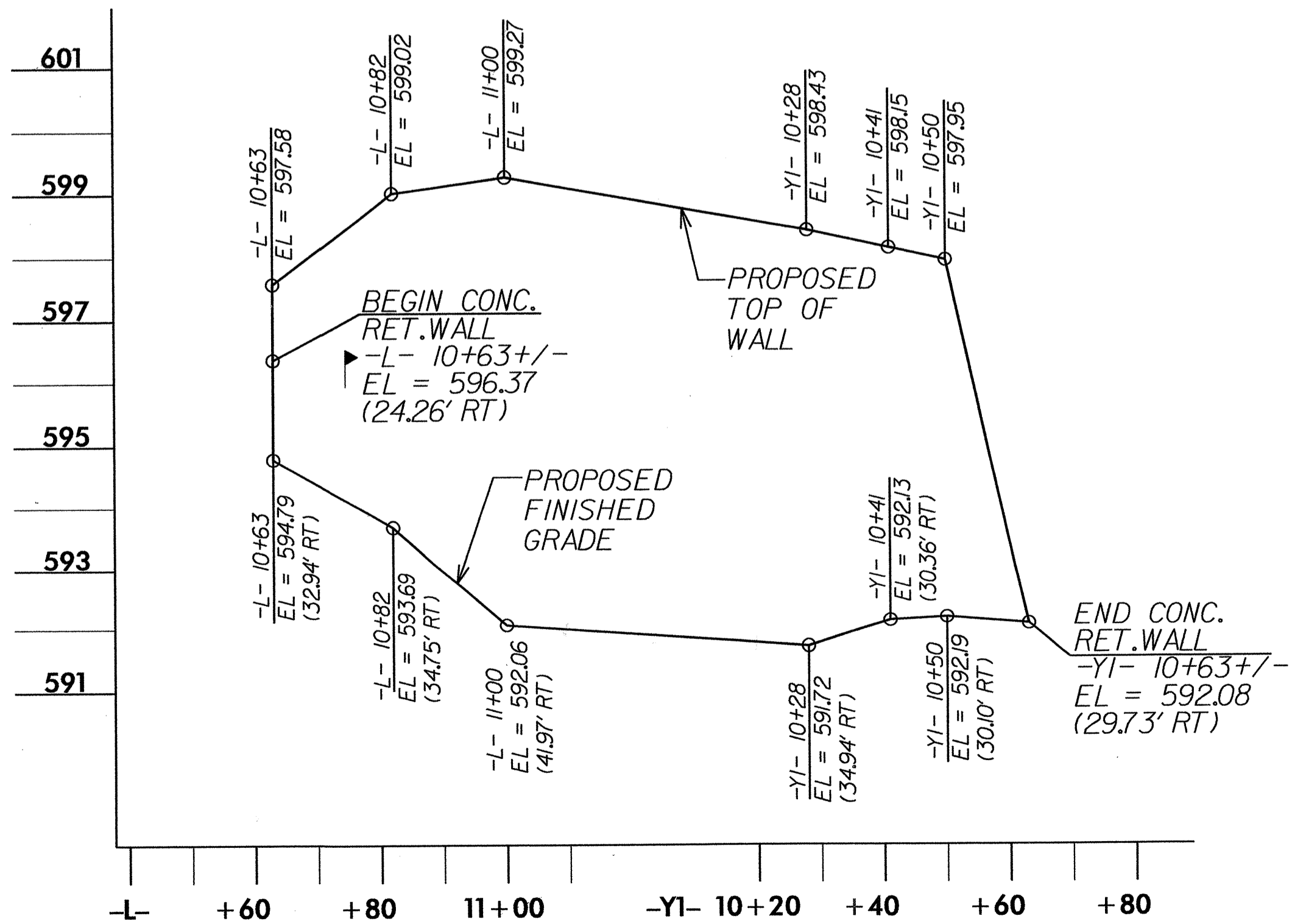
ASSEMBLED BY : H.T. DIEU DATE : 8/31/11
 CHECKED BY : J.P. ADAMS DATE : 9/6/11

25-OCT-2011 14:20
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 jpadams



TOTAL BILL OF MATERIAL	
MSE RETAINING WALL AT STA. 10+63.00 -L- (RT.) TO STA. 10+63.00 -Y1- (RT.)	691 SQ. FT.

-WALL #1-



PROJECT NO.: B-3421
 CABARRUS COUNTY
 STATION: 10+63.00 -L- TO 10+63.00 -Y1-
 SHEET 1 OF 3

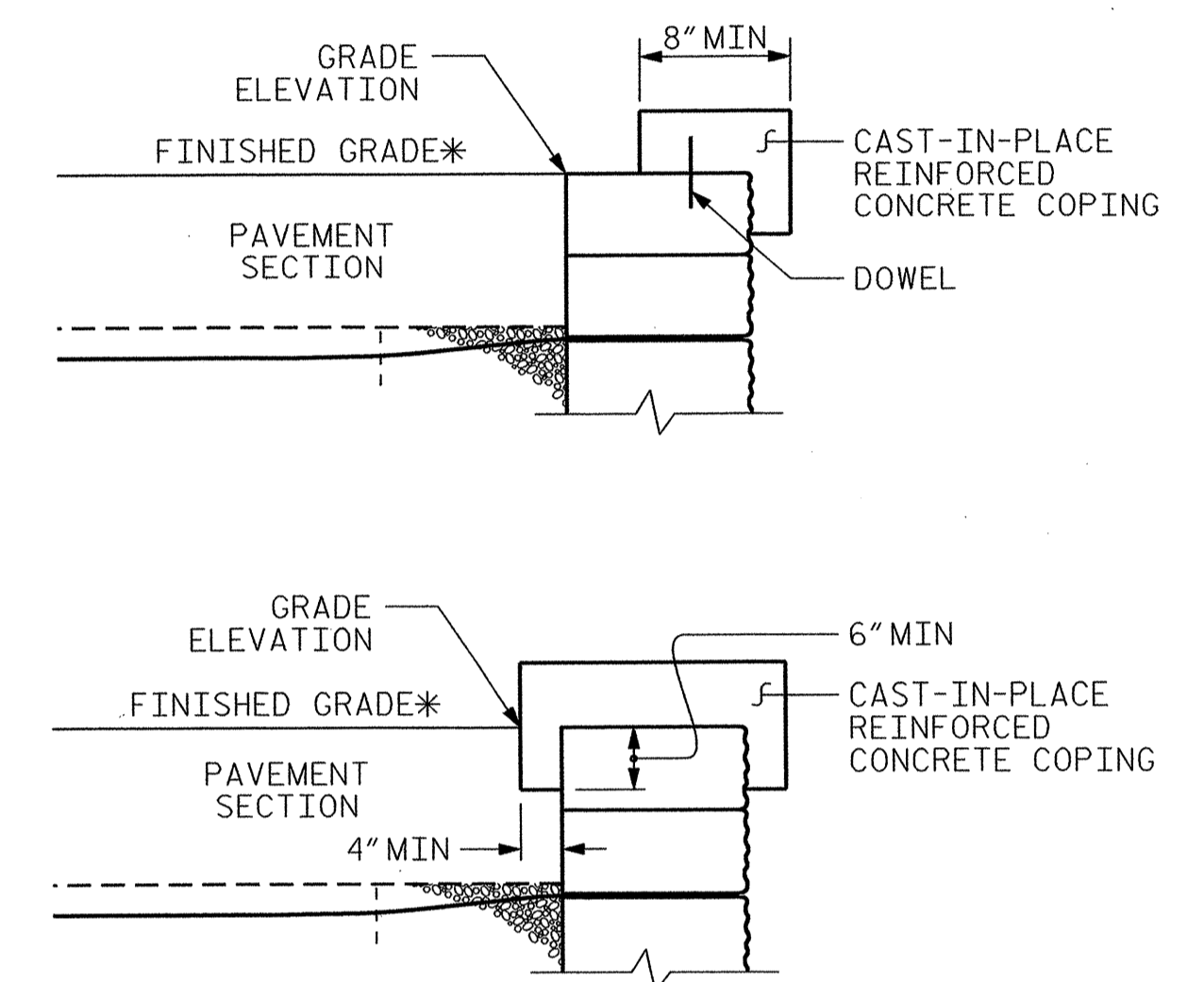
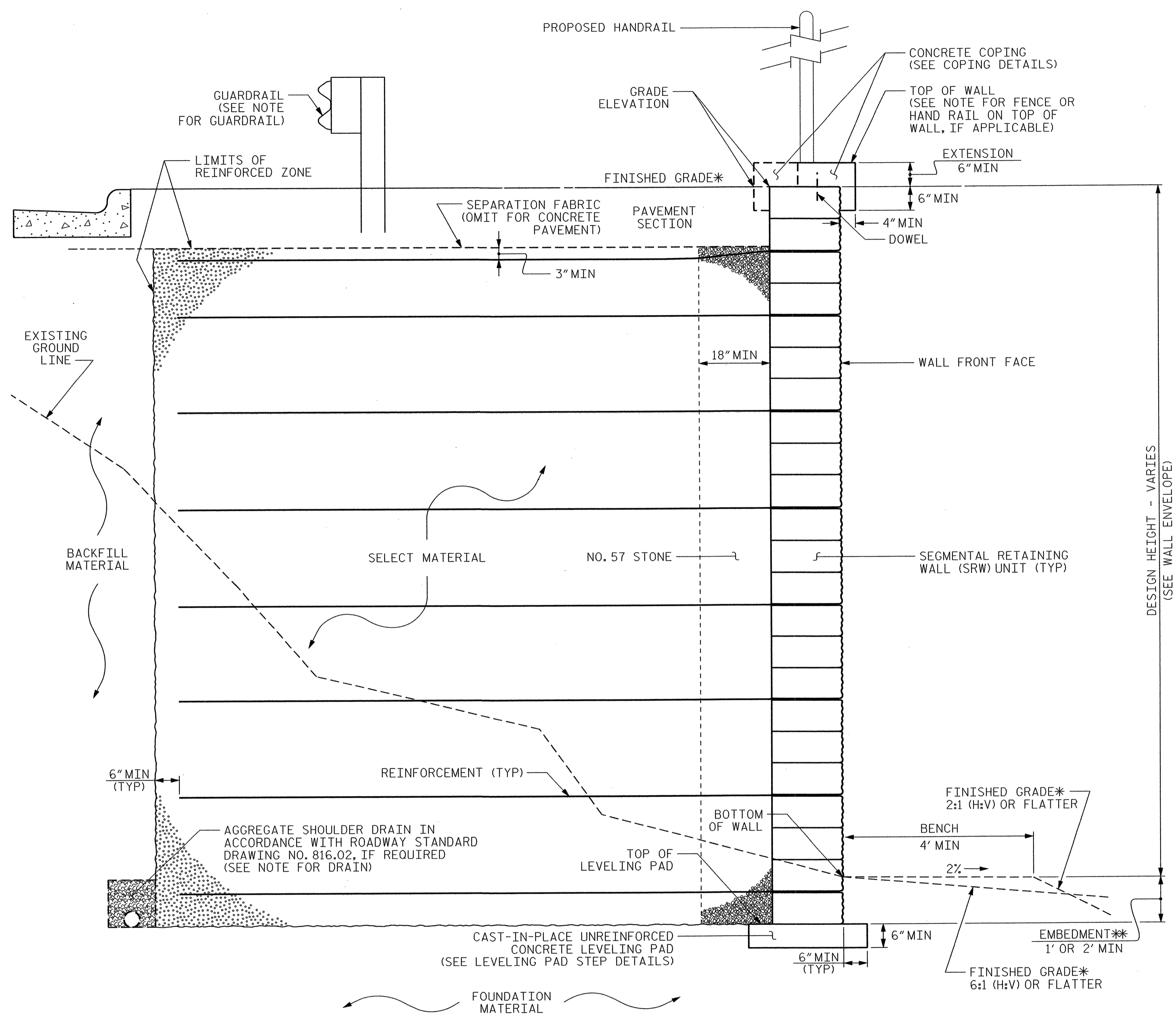
GEOTECHNICAL ENGINEERING UNIT

EASTERN REGIONAL OFFICE
 WESTERN REGIONAL OFFICE
 CONTRACTS

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**RETAINING WALL NO. 1
 MECHANICALLY STABILIZED
 EARTH WALL**

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



COPING DETAILS

AT THE CONTRACTOR'S OPTION, CONNECT COPING TO SRW UNITS WITH DOWELS OR EXTEND COPING DOWN BACK OF SRW UNITS.
*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

MSE WALL WITH SRW UNITS TYPICAL SECTION

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.
**SEE MSE RETAINING WALLS PROVISION FOR EMBEDMENT REQUIREMENTS.

PROJECT NO.: **B-3421**
CABARRUS COUNTY
STATION: **10+63.00 -L- TO 10+63.00 -Y1-**
SHEET 2 OF 3

PREPARED BY: EJS DATE: 3/10
REVIEWED BY: SCC DATE: 8/10

GEOTECHNICAL ENGINEERING UNIT

EASTERN REGIONAL OFFICE
 WESTERN REGIONAL OFFICE
 CONTRACTS

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

RETAINING WALL NO. 1
MSE RETAINING WALL DETAILS

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

GEOTECHNICAL ENGINEER

ENGINEER

Signature: *E. J. S.* Date: 8/30/10

NOTES

FOR MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALLS, SEE MECHANICALLY STABILIZED EARTH RETAINING WALLS PROVISION.

FOR GUARDRAIL, SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS.

A FENCE OR HAND RAIL IS REQUIRED ON TOP OF RETAINING WALL NO.1. SEE ROADWAY PLANS FOR FENCE OR HAND RAIL ATTACHMENT DETAILS.

USE AN MSE WALL SYSTEM WITH SEGMENTAL RETAINING WALL UNITS FOR RETAINING WALL NO.1.

WHEN USING AN MSE WALL SYSTEM WITH SEGMENTAL RETAINING WALL UNITS FOR RETAINING WALL, FREEZE-THAW DURABLE SRW UNITS ARE REQUIRED IN ACCORDANCE WITH THE MSE RETAINING WALLS PROVISION.

CAST-IN-PLACE REINFORCED CONCRETE COPING IS REQUIRED FOR RETAINING WALL NO.1.

USE SEGMENTAL RETAINING WALL UNITS WITH A TUMBLER OR WEATHERED FACE FOR RETAINING WALL NO.1.

USE SEGMENTAL RETAINING WALL UNITS WITH A TAN COLOR FOR RETAINING WALL NO.1.

A DRAIN IS NOT REQUIRED FOR RETAINING WALL NO.1.

BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALL, SURVEY EXISTING GROUND ELEVATIONS SHOWN ON THE WALL PROFILE VIEW (WALL ENVELOPE) AND SUBMIT A REVISED WALL ENVELOPE FOR REVIEW. DO NOT START WALL DESIGN OR CONSTRUCTION UNTIL THIS ENVELOPE IS ACCEPTED.

DESIGN RETAINING WALL FOR WALL HEIGHTS EQUAL TO THE DESIGN HEIGHT (DIFFERENCE BETWEEN GRADE ELEVATION AND BOTTOM OF WALL ELEVATION) PLUS EMBEDMENT (DIFFERENCE BETWEEN BOTTOM OF WALL ELEVATION AND TOP OF LEVELING PAD ELEVATION).

DESIGN RETAINING WALL NO. 1 FOR THE FOLLOWING:

- 1) MINIMUM SERVICE LIFE = 75 YEARS
- 2) ALLOWABLE BEARING CAPACITY = 2000 PSF
- 3) SELECT MATERIAL PARAMETERS:

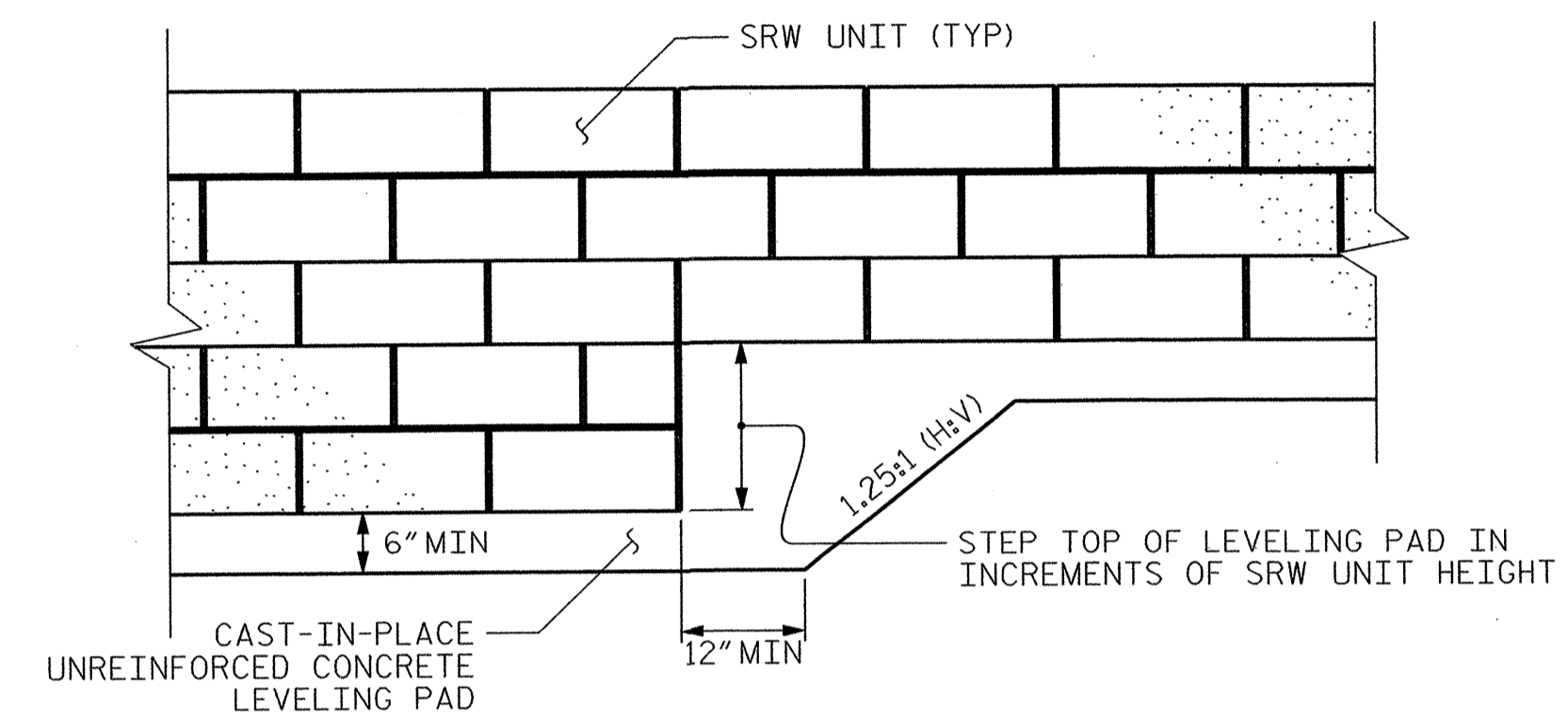
MATERIAL STANDARD SIZE NO. (IN ACCORDANCE WITH SECTIONS 1005 AND 1014 OF THE STANDARD SPECIFICATIONS)	UNIT WEIGHT (gamma) PCF	FRICTION ANGLE (phi) DEGREES	COHESION (c) PSF
2S AND 2MS	125	34	0
57, 67 AND 78M	110	38	0

6) IN-SITU ASSUMED MATERIAL PARAMETERS:

MATERIAL TYPE	UNIT WEIGHT (gamma) PCF	FRICTION ANGLE (phi) DEGREES	COHESION (c) PSF
BACKFILL	110	30	0
FOUNDATION	110	30	0

DESIGN RETAINING WALL NO.1 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NO.1. CONSULT UTILITY PLANS AND REVIEW SITE CONDITIONS PRIOR TO DESIGNING WALL.



PROJECT NO.: B-3421
 CABARRUS COUNTY
 STATION: 10+63.00 -L- TO 10+63.00 -Y1-
 SHEET 3 OF 3

GEOTECHNICAL ENGINEERING UNIT

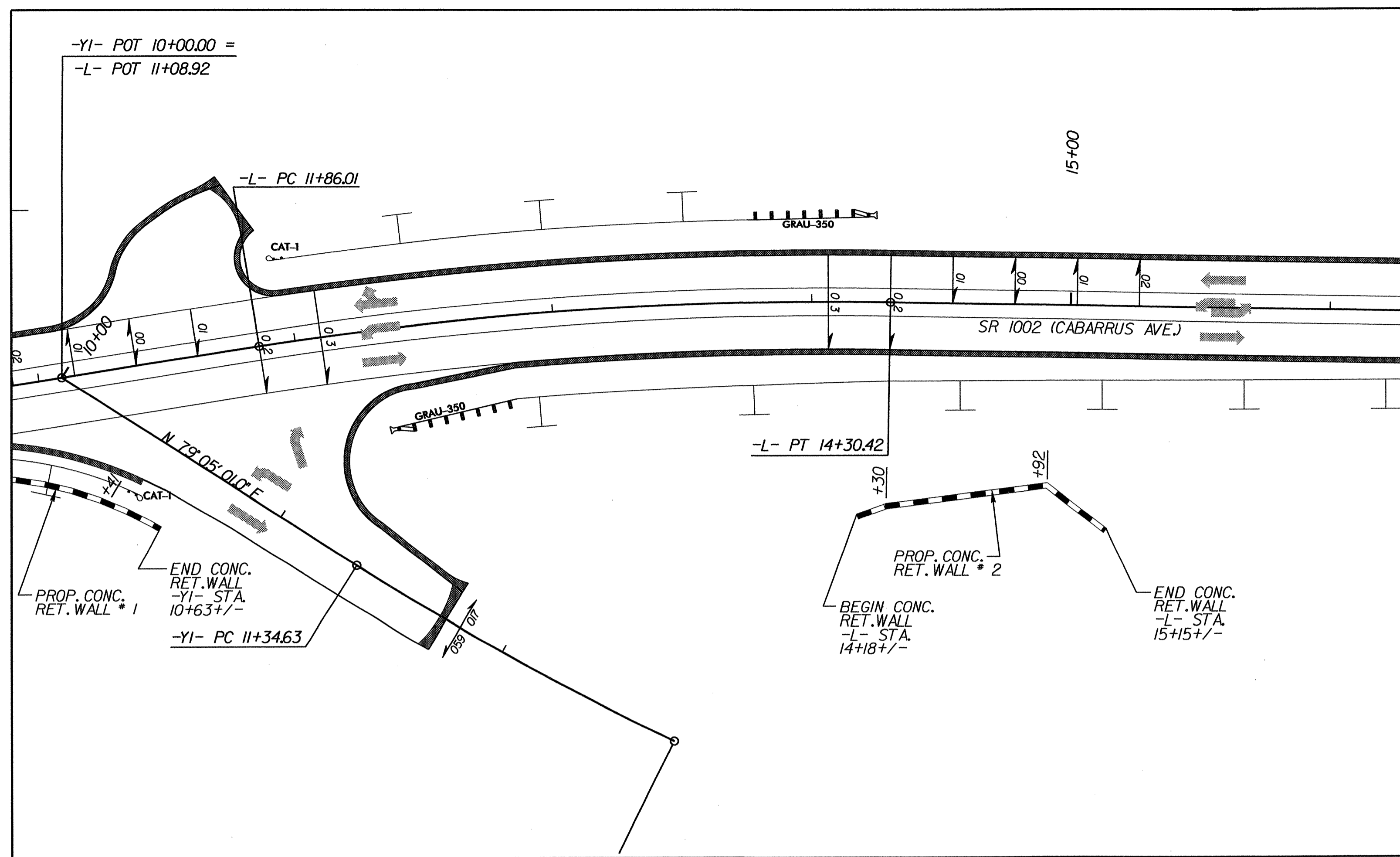
EASTERN REGIONAL OFFICE
 WESTERN REGIONAL OFFICE
 CONTRACTS

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**RETAINING WALL NO. 1
 MSE RETAINING
 WALL DETAILS**

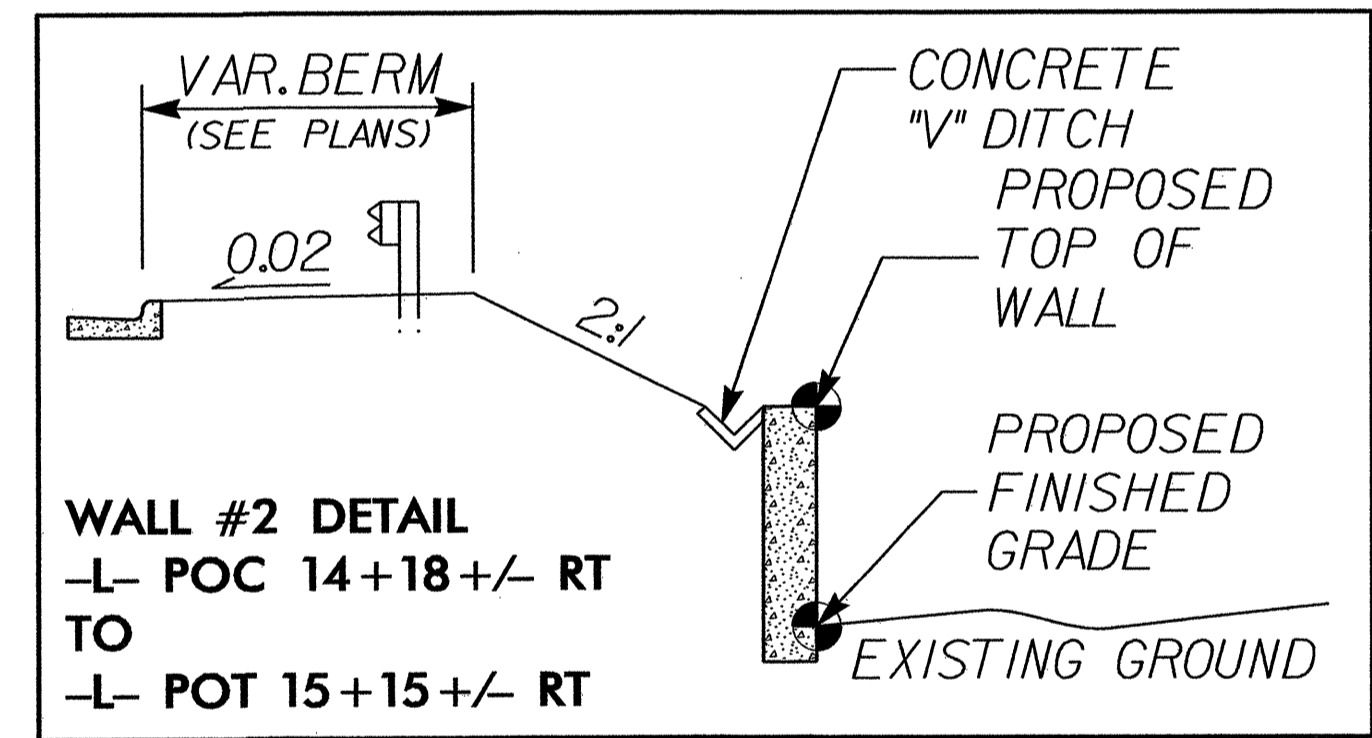
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			4-3
2			4			6

PREPARED BY: EJS	DATE: 3/10
REVIEWED BY: SCC	DATE: 8/10

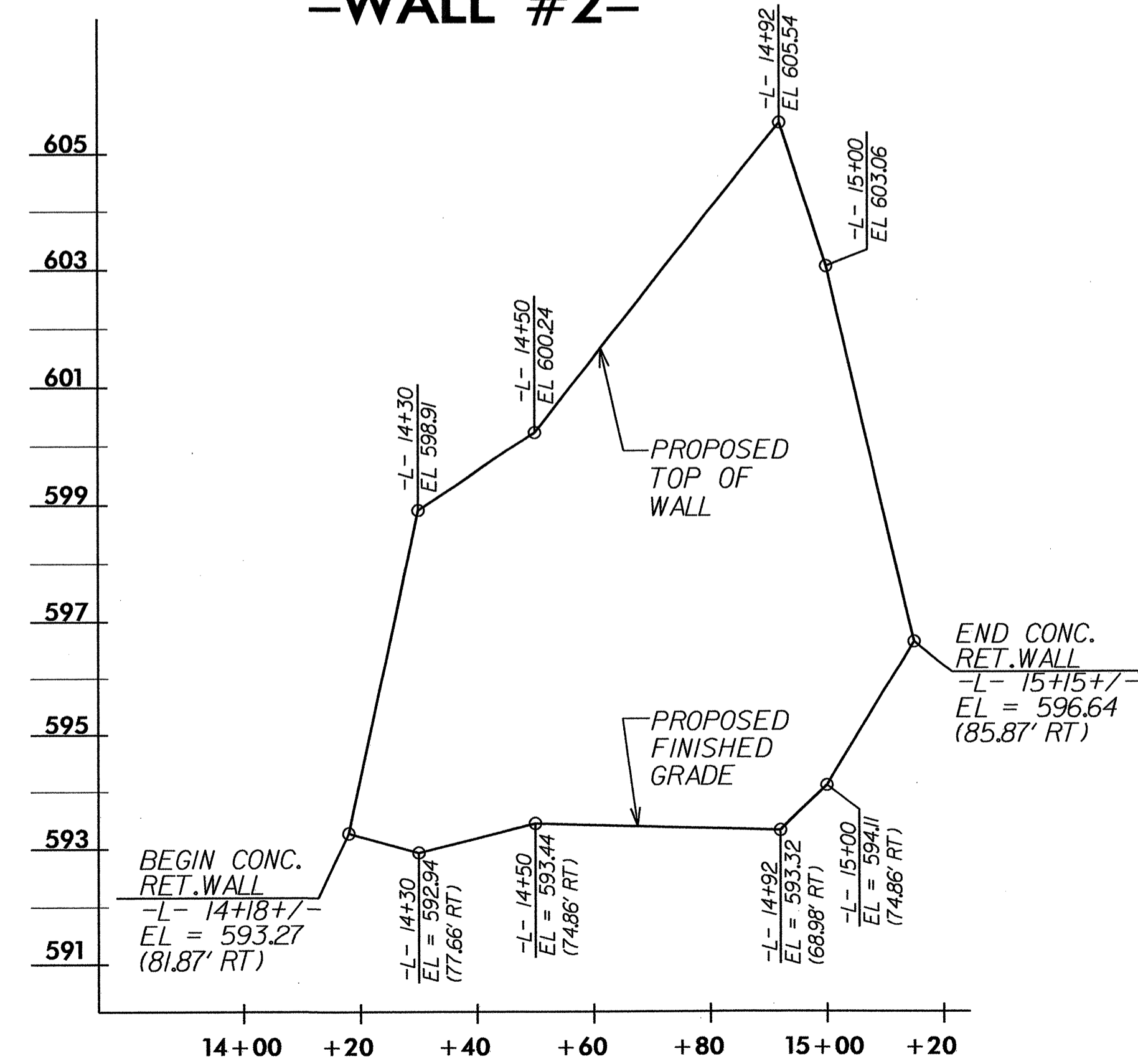


LOCATION SKETCH

TOTAL BILL OF MATERIAL	
MSE RETAINING WALL AT STA. 14+18.00 -L- (RT.) TO STA. 15+15.00 -L- (RT.)	715 SQ. FT.



-WALL #2-



PROJECT NO.: B-3421
 CABARRUS COUNTY
 STATION: 14+18.00 -L- TO 15+15.00 -L-
 SHEET 1 OF 3

**RETAINING WALL NO. 2
 MECHANICALLY STABILIZED
 EARTH WALL**

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

PREPARED BY: E.J.S.	DATE: 3/10
REVIEWED BY: S.C.C.	DATE: 8/10

GEOTECHNICAL ENGINEERING UNIT

EASTERN REGIONAL OFFICE
 WESTERN REGIONAL OFFICE
 CONTRACTS

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

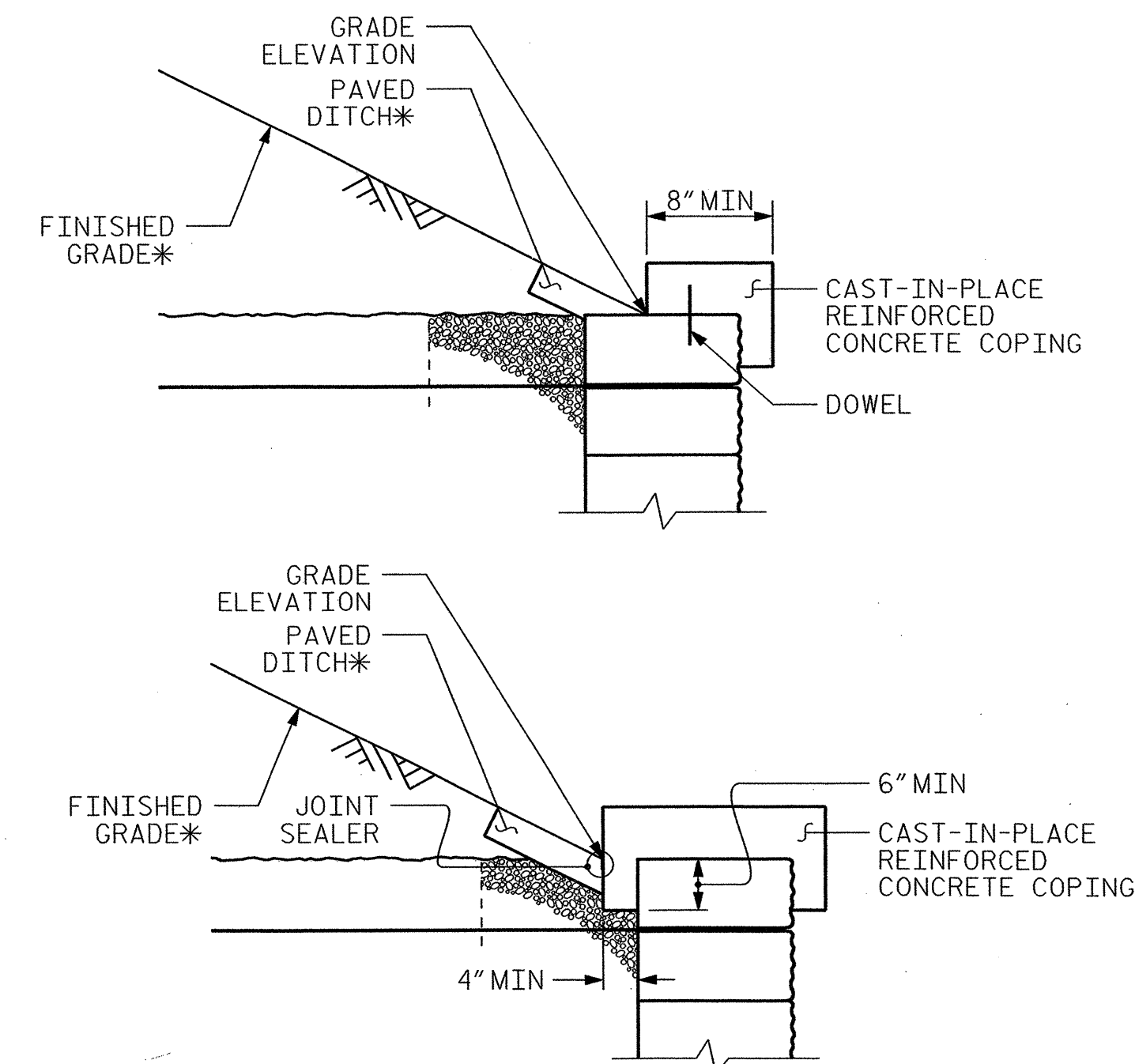
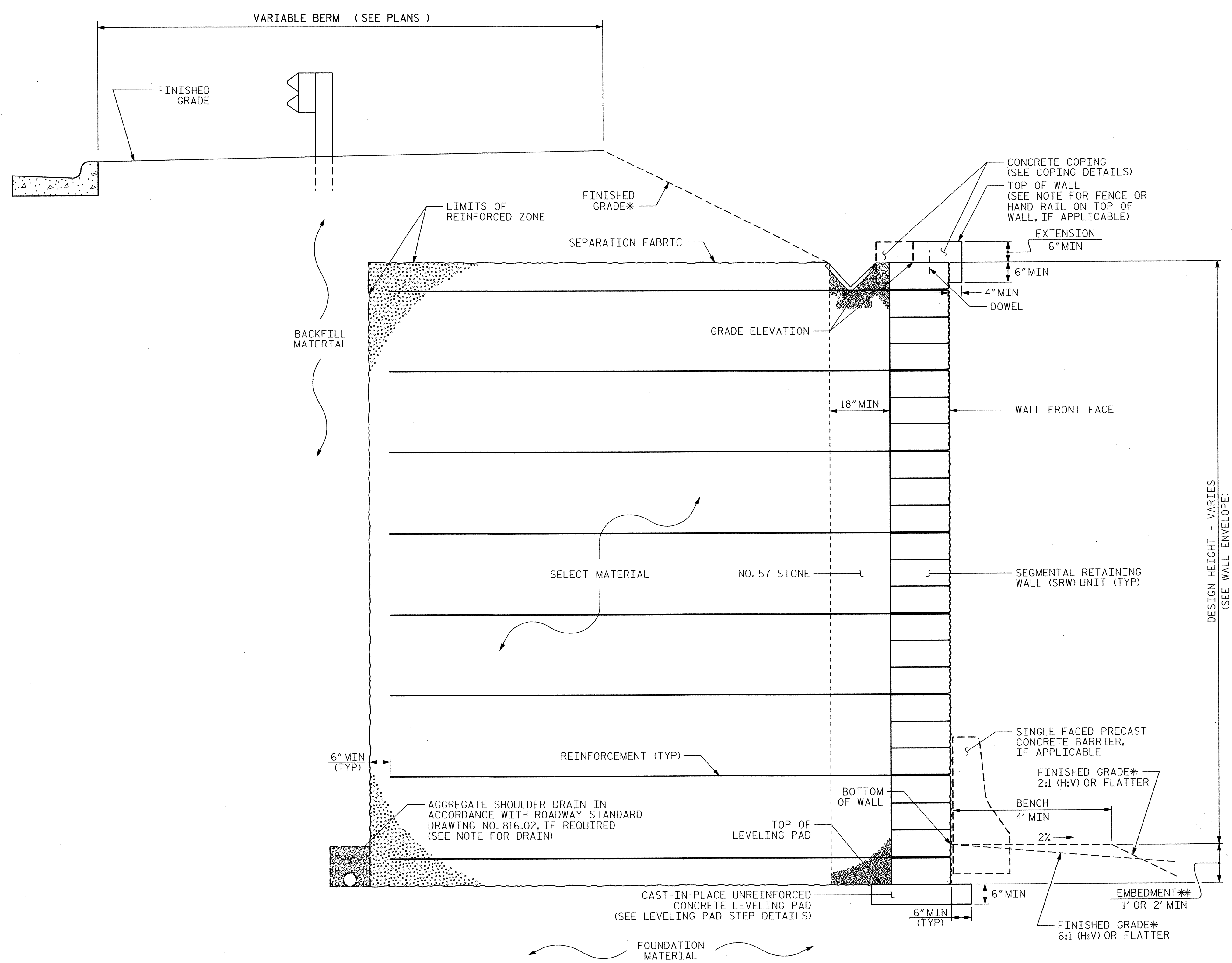
GEOTECHNICAL ENGINEER

ENGINEER



Signature: Shane C. Clark, Date: 8/20/10

Signature: _____, Date: _____



COPING DETAILS

AT THE CONTRACTOR'S OPTION, CONNECT COPING TO SRW UNITS WITH DOWELS OR EXTEND COPING DOWN BACK OF SRW UNITS.
 *SEE ROADWAY PLANS FOR FINISHED GRADE AND/OR DITCH DETAILS.

MSE WALL WITH SRW UNITS TYPICAL SECTION

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.
 *SEE MSE RETAINING WALLS PROVISION FOR EMBEDMENT REQUIREMENTS.

PROJECT NO.: **B-3421**
CABARRUS COUNTY
 STATION: **14+18.00 -L- TO 15+15.00 -L-**
 SHEET 2 OF 3

GEOTECHNICAL ENGINEERING UNIT

EASTERN REGIONAL OFFICE
 WESTERN REGIONAL OFFICE
 CONTRACTS

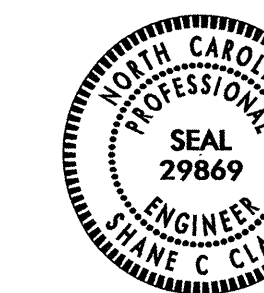
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

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

PREPARED BY: EJS	DATE: 3/10
REVIEWED BY: SCC	DATE: 8/10

GEOTECHNICAL
ENGINEER

ENGINEER



Signature: *Shane C. Clark* Date: 6/30/10

Signature: _____ Date: _____

NOTES

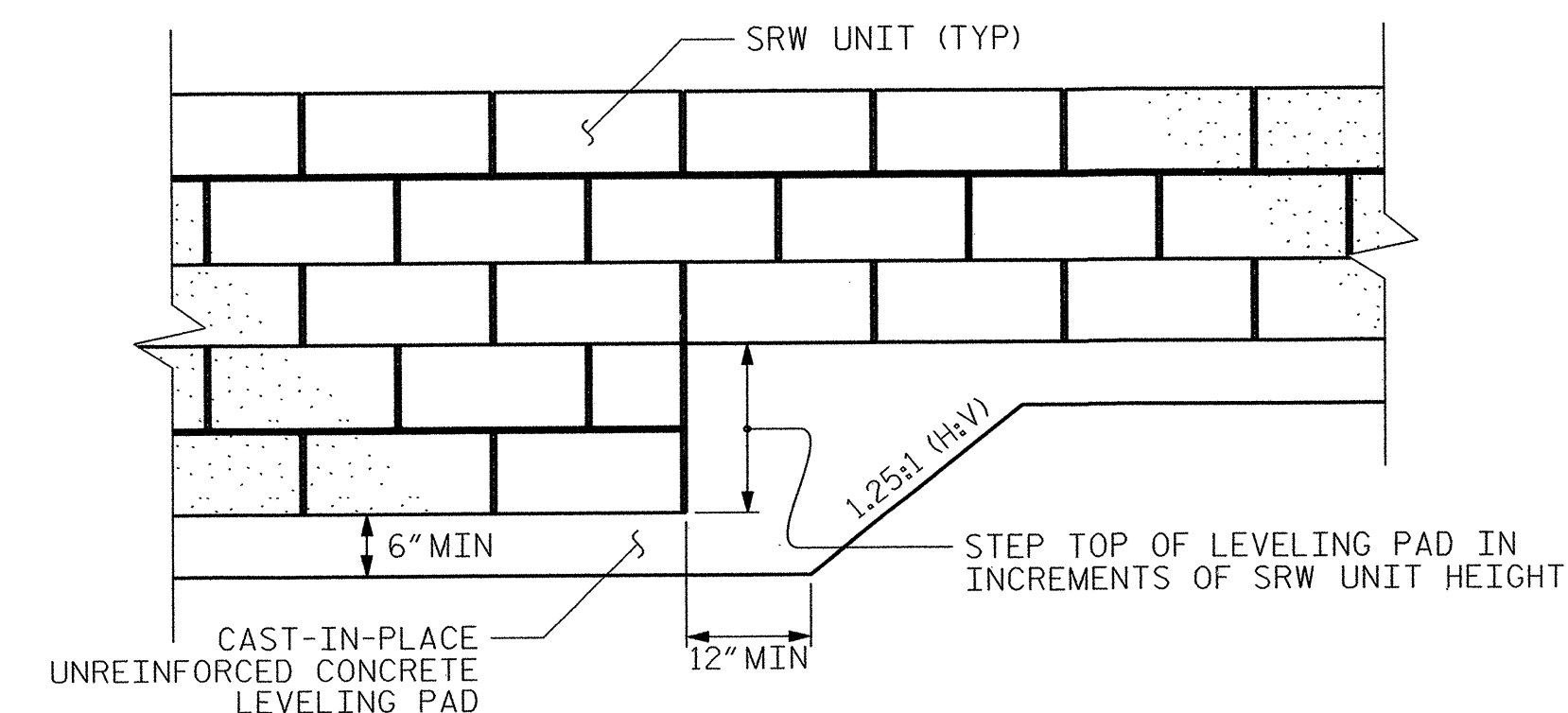
- FOR MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALLS, SEE MECHANICALLY STABILIZED EARTH RETAINING WALLS PROVISION.
- FOR GUARDRAIL, SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS.
- USE AN MSE WALL SYSTEM WITH SEGMENTAL RETAINING WALL UNITS FOR RETAINING WALL NO. 2.
- WHEN USING AN MSE WALL SYSTEM WITH SEGMENTAL RETAINING WALL UNITS FOR RETAINING WALL, FREEZE-THAW DURABLE SRW UNITS ARE REQUIRED IN ACCORDANCE WITH THE MSE RETAINING WALLS PROVISION.
- CAST-IN-PLACE REINFORCED CONCRETE COPING IS REQUIRED FOR RETAINING WALL NO. 2.
- USE SEGMENTAL RETAINING WALL UNITS WITH A TUMBLED OR WEATHERED FACE FOR RETAINING WALL NO. 2.
- USE SEGMENTAL RETAINING WALL UNITS WITH A TAN COLOR FOR RETAINING WALL NO. 2.
- A DRAIN IS REQUIRED FOR RETAINING WALL NO. 2.
- BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALL, SURVEY EXISTING GROUND ELEVATIONS SHOWN ON THE WALL PROFILE VIEW (WALL ENVELOPE) AND SUBMIT A REVISED WALL ENVELOPE FOR REVIEW. DO NOT START WALL DESIGN OR CONSTRUCTION UNTIL THIS ENVELOPE IS ACCEPTED.
- DESIGN RETAINING WALL FOR WALL HEIGHTS EQUAL TO THE DESIGN HEIGHT (DIFFERENCE BETWEEN GRADE ELEVATION AND BOTTOM OF WALL ELEVATION) PLUS EMBEDMENT (DIFFERENCE BETWEEN BOTTOM OF WALL ELEVATION AND TOP OF LEVELING PAD ELEVATION).
- DESIGN RETAINING WALL NO. 2 FOR THE FOLLOWING:
 - 1) MINIMUM SERVICE LIFE = 75 YEARS
 - 2) ALLOWABLE BEARING CAPACITY = 2000 PSF
 - 3) SELECT MATERIAL PARAMETERS:

MATERIAL STANDARD SIZE NO. (IN ACCORDANCE WITH SECTIONS 1005 AND 1014 OF THE STANDARD SPECIFICATIONS)	UNIT WEIGHT (gamma) PCF	FRICTION ANGLE (phi) DEGREES	COHESION (c) PSF
2S AND 2MS	125	34	0
57, 67 AND 78M	110	38	0

6) IN-SITU ASSUMED MATERIAL PARAMETERS:

MATERIAL TYPE	UNIT WEIGHT (gamma) PCF	FRICTION ANGLE (phi) DEGREES	COHESION (c) PSF
BACKFILL	110	30	0
FOUNDATION	110	30	0

DESIGN RETAINING WALL NO. 1 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.
EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NO. 1. CONSULT UTILITY PLANS AND REVIEW SITE CONDITIONS PRIOR TO DESIGNING WALL.



PROJECT NO.: B-3421
 CABARRUS COUNTY
 STATION: 14+18.00 -L- TO 15+15.00 -L-
 SHEET 3 OF 3

GEOTECHNICAL ENGINEERING UNIT

EASTERN REGIONAL OFFICE
 WESTERN REGIONAL OFFICE
 CONTRACTS

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**RETAINING WALL NO. 2
MSE RETAINING
WALL DETAILS**

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			4-6
2			4			6

TOTAL SHEETS: 6

PREPARED BY: EJS	DATE: 3/10
REVIEWED BY: SCC	DATE: 8/10

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