

North Carolina Professional Engineer Seal
 SEAL 10119
 NORMAN MILLER
 Max E. Miller
 MAY 11, 1982

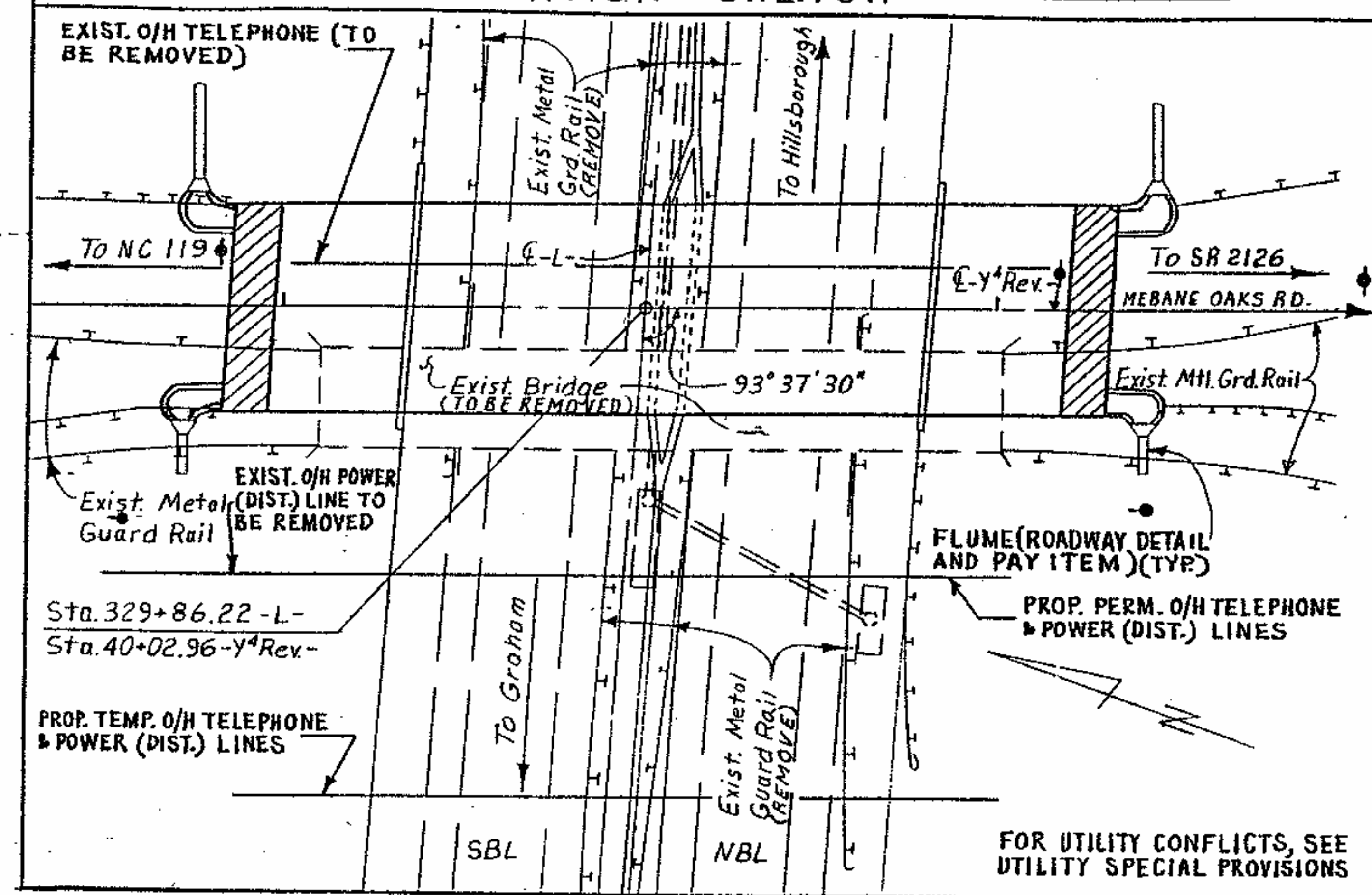
PROJECT NO. 81500310
ALAMANCE-ORANGE COUNTY
 329+86.22 -L- =
STATION: 40+02.98 -Y⁴ REV.-
SHEET 1 OF 2 REPLACES BRIDGE # 177

STATE OF NORTH CAROLINA						SHEET NO.	
DEPARTMENT OF TRANSPORTATION						5-1	
RALEIGH						TOTAL SHEETS	
GENERAL DRAWING						69	
FOR BRIDGE OVER -L- (I-85)							
ON -Y ⁴ REV.- (MEBANE OAKS RD.)							
BETWEEN SR 2126 & NC 119							
AUG. 1989							
REVISIONS							
NO.	BY	DATE	NO.	BY	DATE		
1			3				
2			4				

DRAWN BY E. ARDI DATE 11-12-91
 CHECKED BY R.D. MARTIN DATE 11-25-91

BM # 39 X IN CONCRETE D.I. 5' RT. OF STATION 349+39-L- ELEV. 618.04

LOCATION SKETCH



- ASSUMED LIVE LOAD - HS 20-44 OR ALTERNATE LOADING.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET 5-H.
- THIS BRIDGE HAS BEEN DESIGNED BY STRENGTH DESIGN METHOD AS SPECIFIED IN AASHTO SPECIFICATIONS.
- ALL STRUCTURAL STEEL FOR THIS STRUCTURE SHALL BE ASTM A588 STEEL WITH A MINIMUM YIELD STRENGTH OF 50,000 PSI UNLESS OTHERWISE NOTED ON THE PLANS.
- FOR REINFORCED CONCRETE DECK SLAB, SEE SPECIAL PROVISIONS.
- FOR FABRICATED METAL STAY-IN-PLACE FORMS, SEE SPECIAL PROVISIONS.
- FOR CURING BRIDGE DECK SLABS, SEE THE SPECIAL PROVISION "REINFORCED CONCRETE DECK SLAB".
- FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.
- FOUNDATION EXCAVATION TO BE MEASURED FROM THE GRADED ROADWAY TYPICAL SECTION.
- AFTER SERVING AS A TEMPORARY CROSSING THE EXISTING STRUCTURE CONSISTING OF 5 SPANS: 1 @ 35'-0", 1 @ 47'-6", 1 @ 16'-8", 1 @ 47'-6", 1 @ 35'-0" WITH 4 LINES OF 18" X 30" REINFORCED CONCRETE DECK GIRDERS @ 6'-9" CENTERS. CLEAR ROADWAY WIDTH OF 24' ON 6.75" RC SLAB ON A SUBSTRUCTURE OF END BENTS: RC CAP ON SPREAD FOOTING, INT. BENTS: 2 COLUMN RC POST & BEAM ON SPREAD FOOTING. SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.
- FOR SURFACE PREPARATION AND PROTECTION OF UNPAINTED STRUCTURAL STEEL, SEE SPECIAL PROVISIONS.
- THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 45 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE MEASURED AND PAID FOR AS UNCLASSIFIED STRUCTURE EXCAVATION.
- 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.
- PILES IN END BENTS 1 & 2 ARE DESIGNED FOR BEARING CAPACITY OF 50 TONS PER PILE.
- A WAITING PERIOD OF ONE MONTH FROM COMPLETION OF EMBANKMENT BEFORE CONSTRUCTION OF APPROACH SLABS.
- COMPUTED FOUNDATION LOAD FOR BENT NO. 1, NO. 2, AND NO. 3 EQUALS 3 TONS PER SQ. FT.
- FOR PAINTING WEATHERING STEEL, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	FOUNDATION EXCAVATION	REINFORCED CONCRETE DECK SLAB	CLASS A CONCRETE	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	STRUCTURAL STEEL	HP 12 X 53 STEEL PILES	CONCRETE BARRIER RAIL	BRIDGE APPROACH SLABS	ELASTOMERIC BEARINGS	4" SLOPE PROTECTION	PREFORMED COMPRESSION JOINT SEAL	GROOVING BRIDGE FLOORS	UNCLASSIFIED STRUCTURE EXCAVATION	
	LUMP SUM	CU. YDS.	SQ. FT.	CU. YDS.	LBS.	LBS.	APPROX. LBS.	NO. LIN. FT.	LIN. FT.	LUMP SUM	LUMP SUM	SQ. YDS.	LUMP SUM	SQ. FT.	C.U. YDS.	
SUPERSTRUCTURE			12,934				256,800		437.84		LUMP SUM		LUMP SUM	12,663		
END BENT NO. 1				29.8	4,786			10	250	LUMP SUM		308			1,165	
BENT NO. 1		225		70.8	11,857	2,572										
BENT NO. 2		95		94.3	15,032	1,286										
BENT NO. 3		135		65.7	11,125	2,140										
END BENT NO. 2				29.7	4,698			10	150	LUMP SUM		296			610	
TOTAL	LUMP SUM	455	12,934	290.3	47,498	5,998	256,800	20	400	437.84	LUMP SUM	LUMP SUM	604	LUMP SUM	12,663	1,775

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

PROJECT No. 8.T500310

ALAMANCE-ORANGE COUNTY

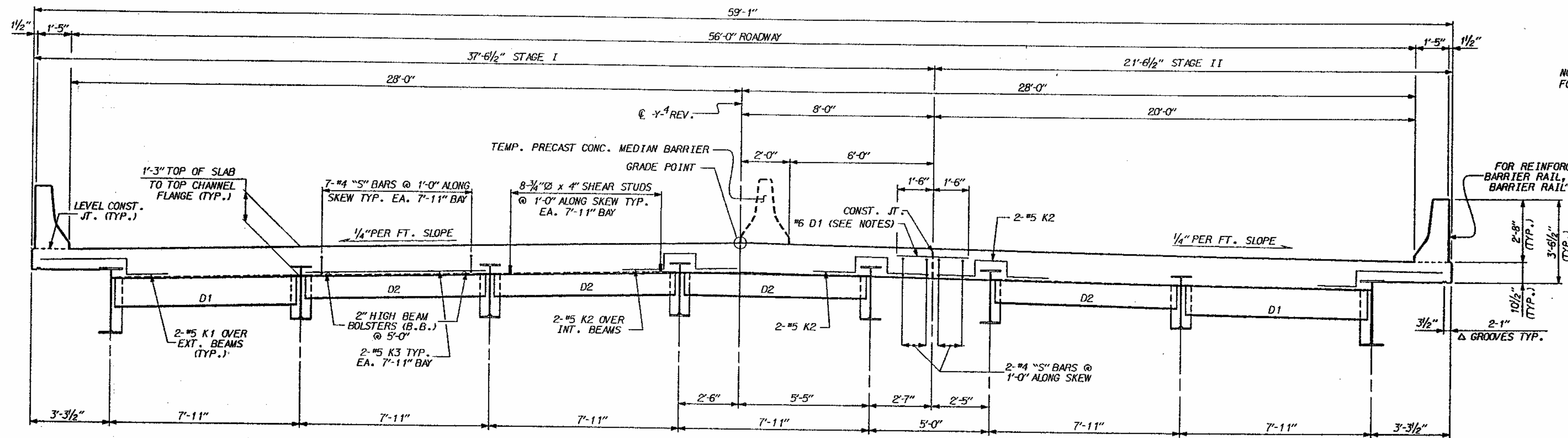
329+86.22 -L-

STATION: 40+00.98 -Y^4 REV-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR BRIDGE OVER -L- (I-85)
 ON -Y^4 REV.- (MEBANE OAKS RD.)
 BETWEEN SR 2126 & NC 119

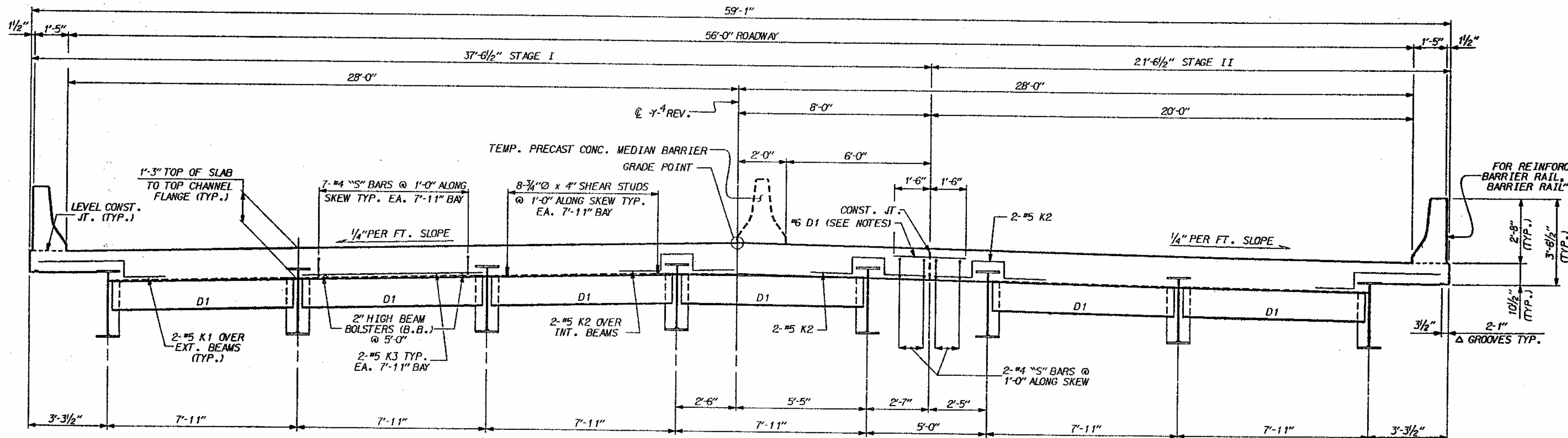
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS
2			4			69



NOTE:
FOR REINFORCING IN SLAB, SEE SHEET 2 OF 3.

FOR REINFORCING STEEL IN BARRIER RAIL, SEE "CONCRETE BARRIER RAIL" SHEET. (TYP.)

TYPICAL SECTION SHOWING END BENT AND BENT DIAPHRAGMS
(SPANS A AND D ONLY)



PROJECT NO. 8.T500310
ALAMANCE-ORANGE COUNTY
STATION: 329+86.22-L

SHEET 1 OF 3
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

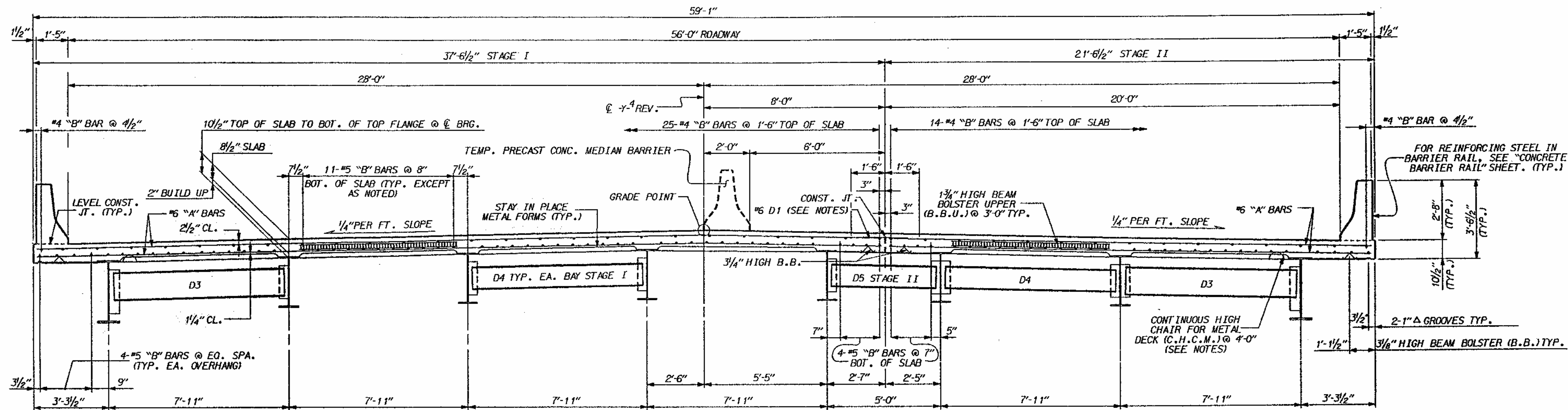
SUPERSTRUCTURE
TYPICAL SECTIONS
(STAGE I & II)

APRIL 1992

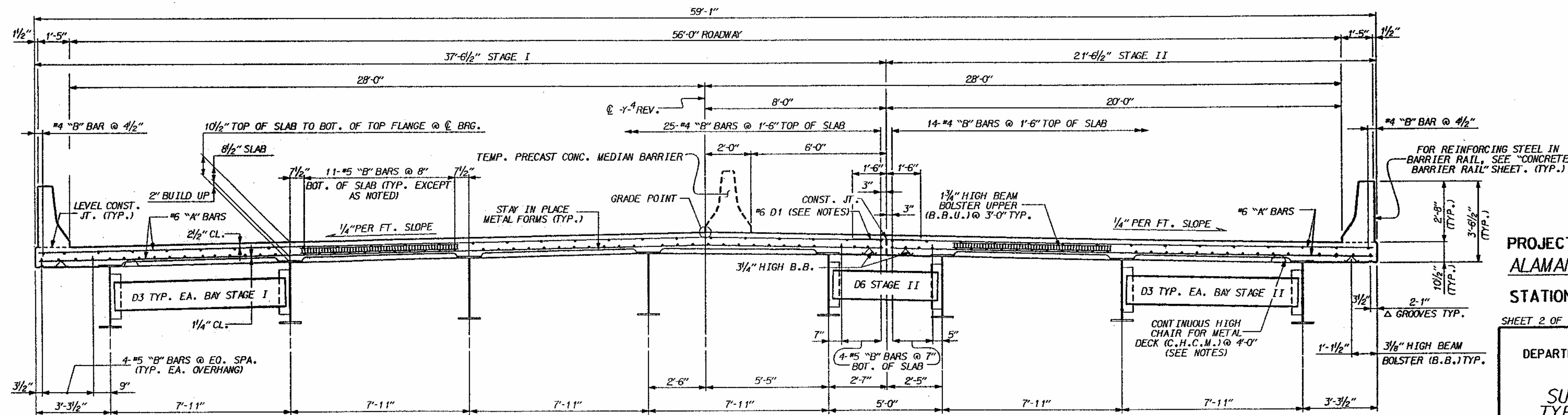
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4	
1			3			TOTAL SHEETS	69
2			4				

DRAWN BY: W.F. PARKER DATE: 4-92
CHECKED BY: R.D. MARTIN DATE: 4-92

TYPICAL SECTION SHOWING BENT DIAPHRAGMS
(SPANS B AND C ONLY)



TYPICAL SECTION SHOWING INTERMEDIATE DIAPHRAGMS
(SPANS A AND D ONLY)



TYPICAL SECTION SHOWING INTERMEDIATE DIAPHRAGMS
(SPANS B AND C ONLY)

PROJECT NO. 8.T500310
ALAMANCE-ORANGE COUNTY
STATION: 329+86.22-L

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
TYPICAL SECTIONS
(STAGE I & II)

APRIL

1992

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS	
1			3			S-5	
2			4			69	

DRAWN BY: W.F. PARKER DATE: 4-92
CHECKED BY: R.D. MARTIN DATE: 4-92

---NOTES---

PROVIDE CONTINUOUS HIGH CHAIR FOR METAL DECK (C.H.C.M.) @ 4'-0" CENTERS WITH LEG SPACING TO MATCH THE PITCH OF THE FORM AND WITH A HEIGHT TO SUPPORT THE BOTTOM LAYER OF SLAB REINFORCEMENT A CLEAR DISTANCE OF 1 1/4" ABOVE THE TOP OF THE STAY-IN-PLACE FORM.

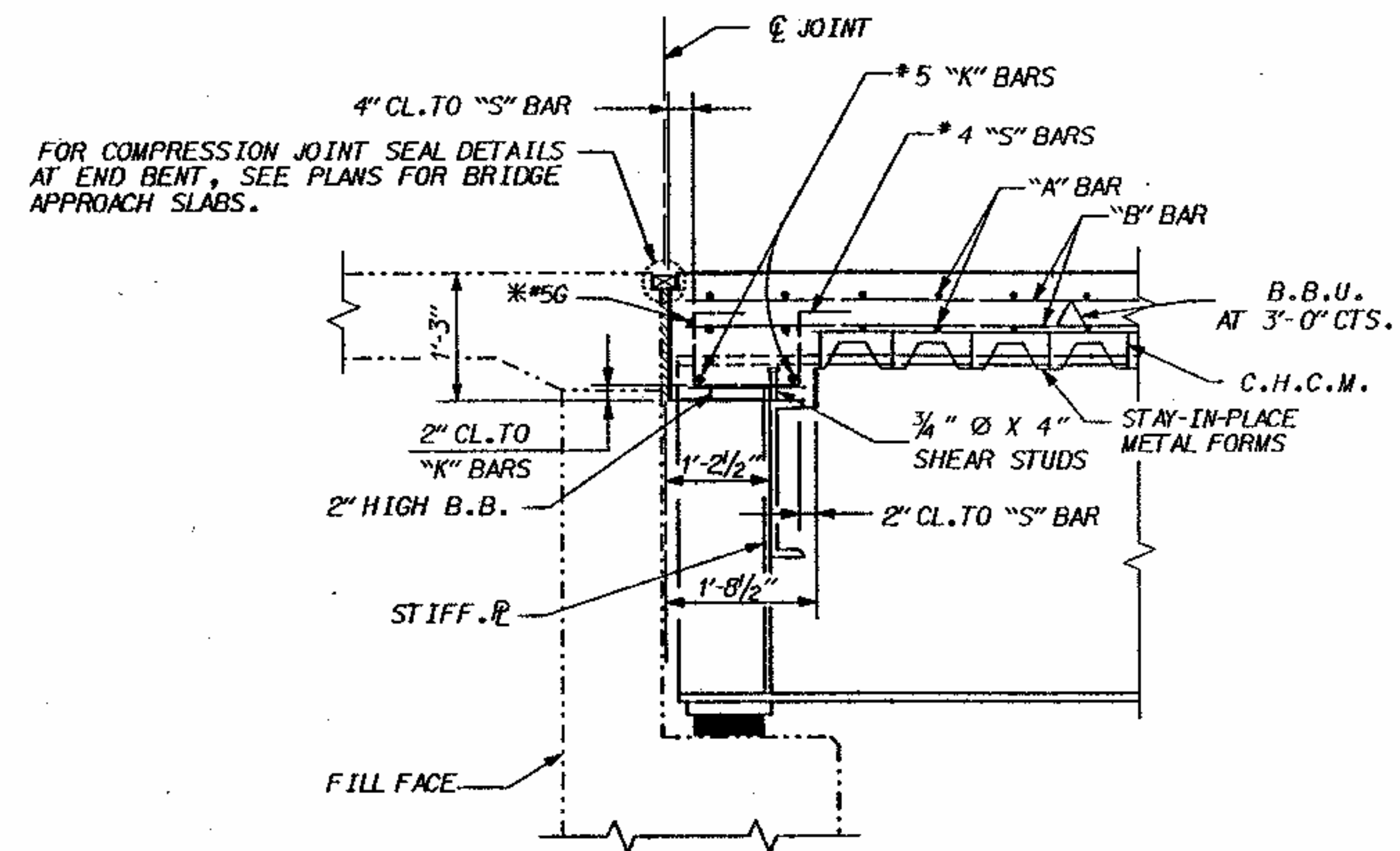
THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE JOINT IN THE DECK IS CONTINUOUS IN A STRAIGHT LINE THROUGH THE BARRIER RAIL.

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

FOR EPOXY COATED REINFORCING STEEL, SEE SPECIAL PROVISIONS.

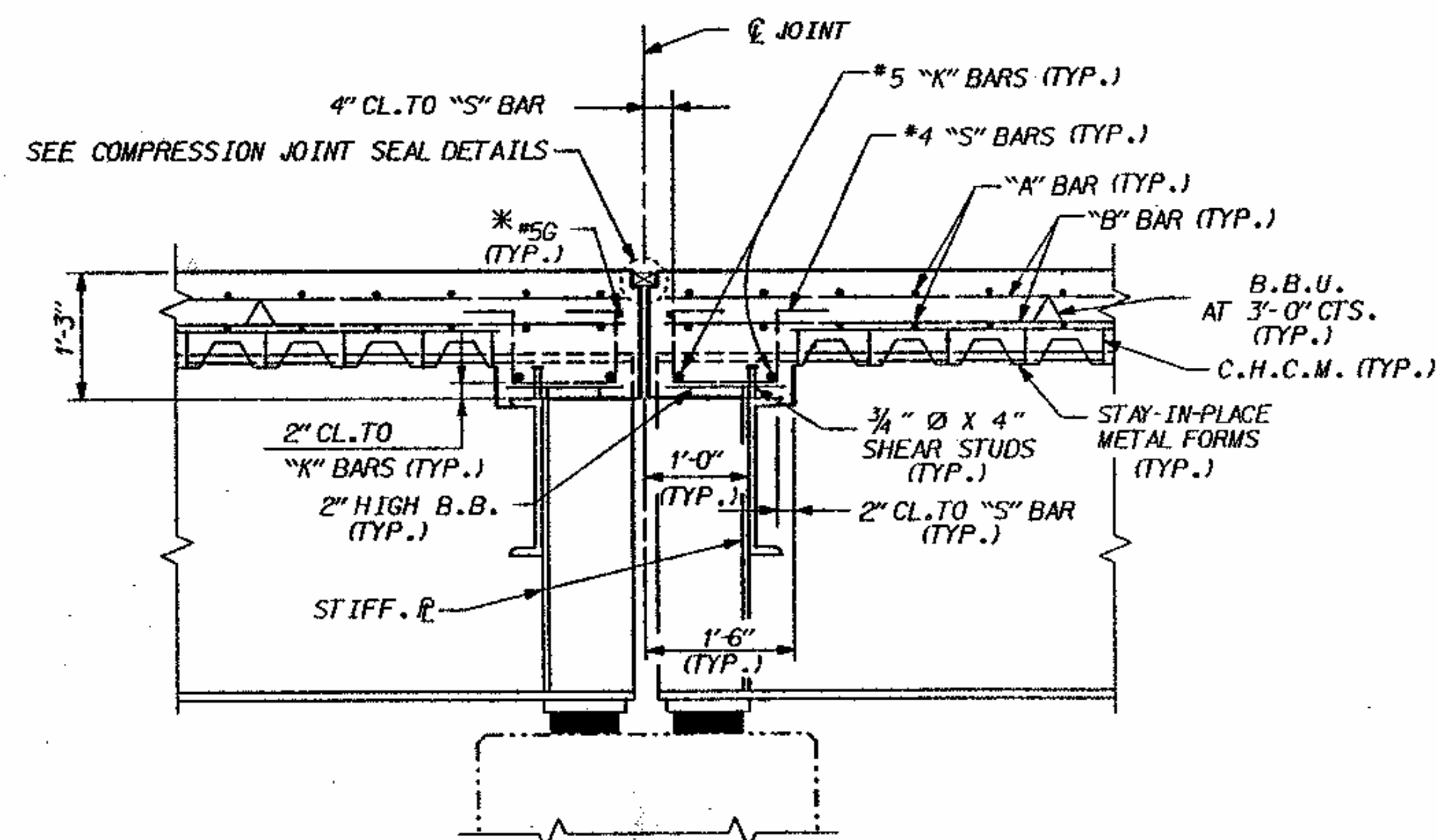
DOWELS SHALL BE PLACED IN THE SAME HORIZONTAL PLANE AS THE MAIN SLAB REINFORCING STEEL.

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



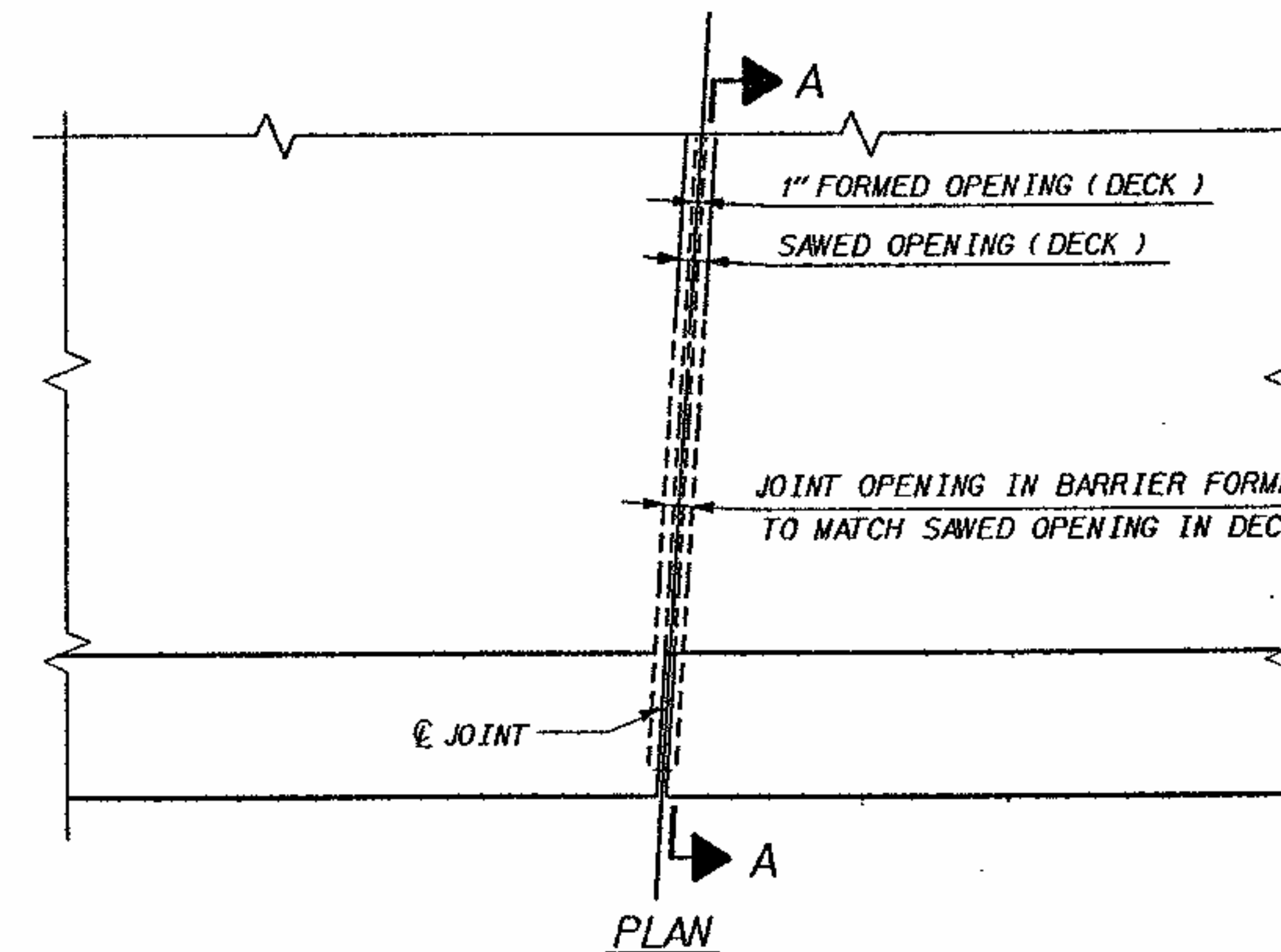
SECTION AT END BENT

* #56 BAR MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR DIAPHRAGM AND REINFORCING STEEL.

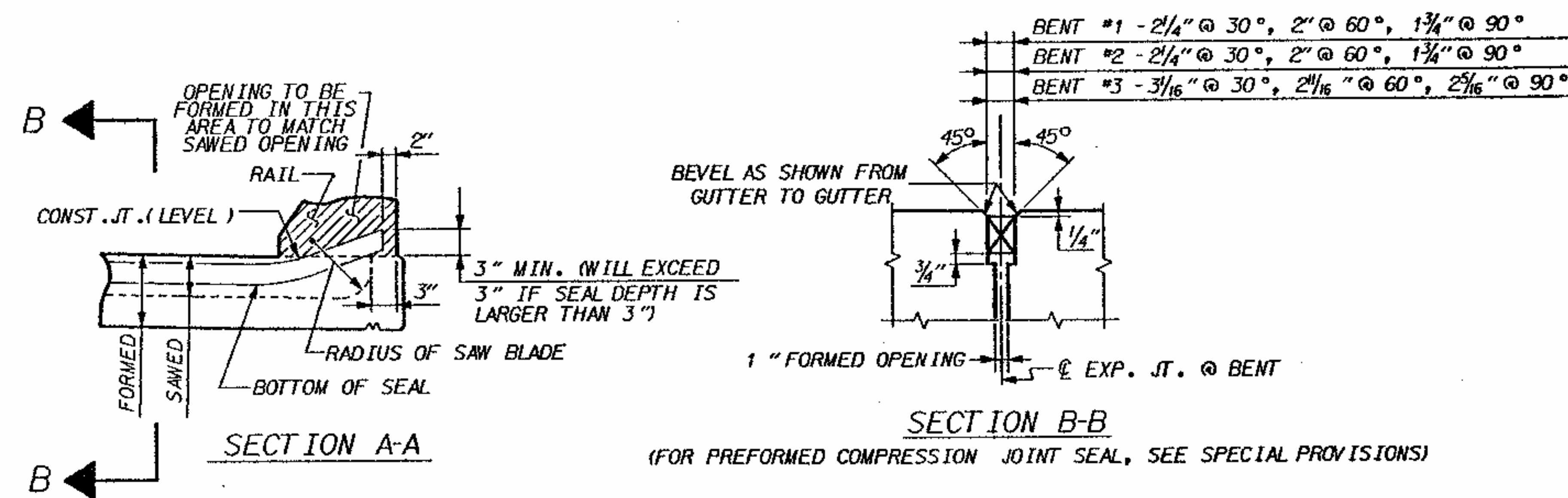


SECTION AT BENT

* #56 BAR MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR DIAPHRAGM AND REINFORCING STEEL.



PLAN



COMPRESSION JOINT SEAL DETAILS

@ BENTS

PROJECT NO. 8.T500310
ALAMANCE-ORANGE COUNTY
STATION: 329+86.22-L

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
TYPICAL SECTIONS
(STAGE I & II)

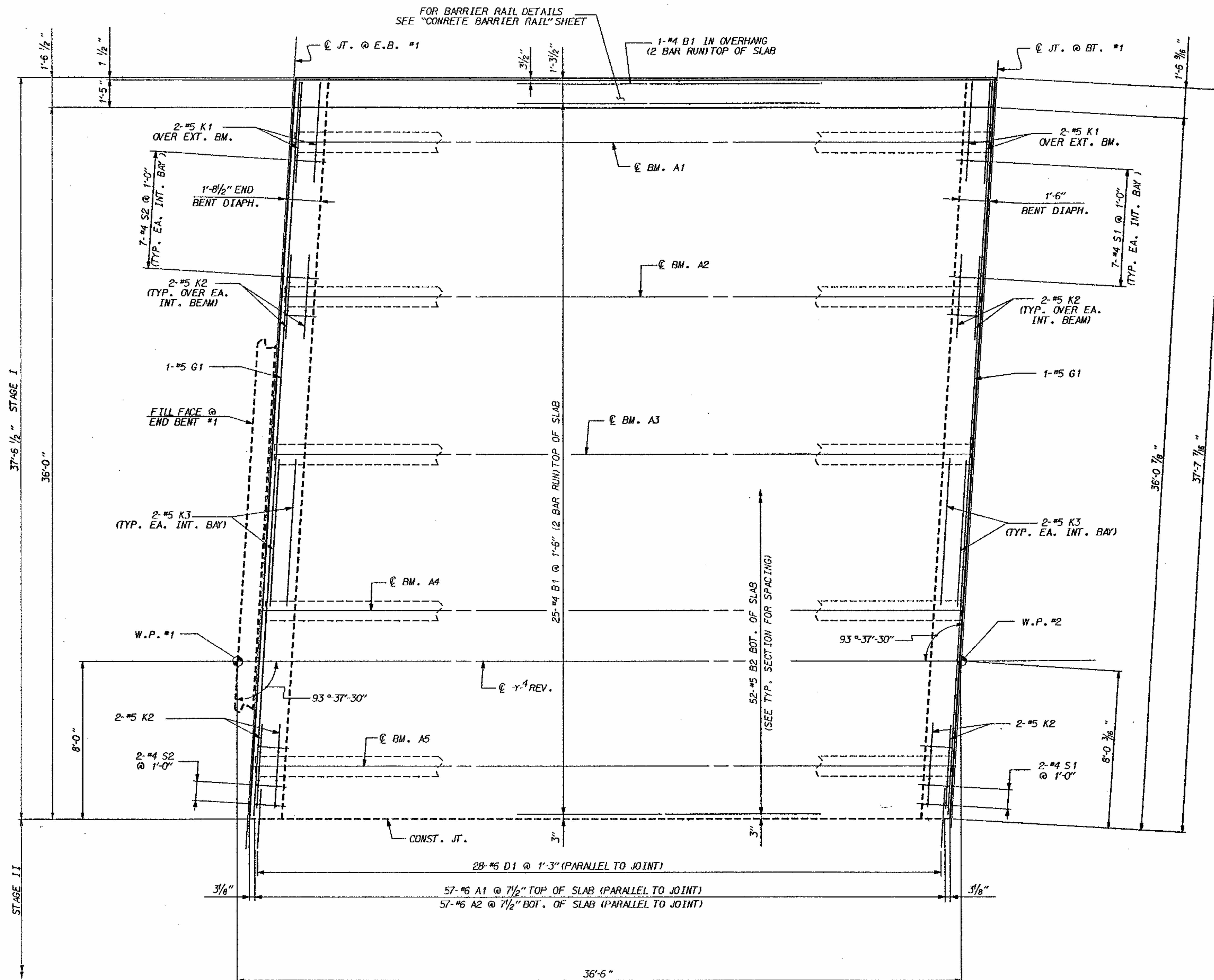
APRIL

1992

NO.		BY:		DATE:		REVISIONS		SHEET NO.	
1						3		5-6	TOTAL SHEETS
2						4		69	

DRAWN BY: W.F. PARKER DATE: 4-92
CHECKED BY: R.D. MARTIN DATE: 4-92

W.F. PARKER



FOR BARRIER RAIL DETAILS
SEE "CONCRETE BARRIER RAIL" SHEET

1-#4 B1 IN OVERHANG
(2 BAR RUN) TOP OF SLAB

1-#4 B1 @ E.B. #1

1-#4 B1 @ BT. #1

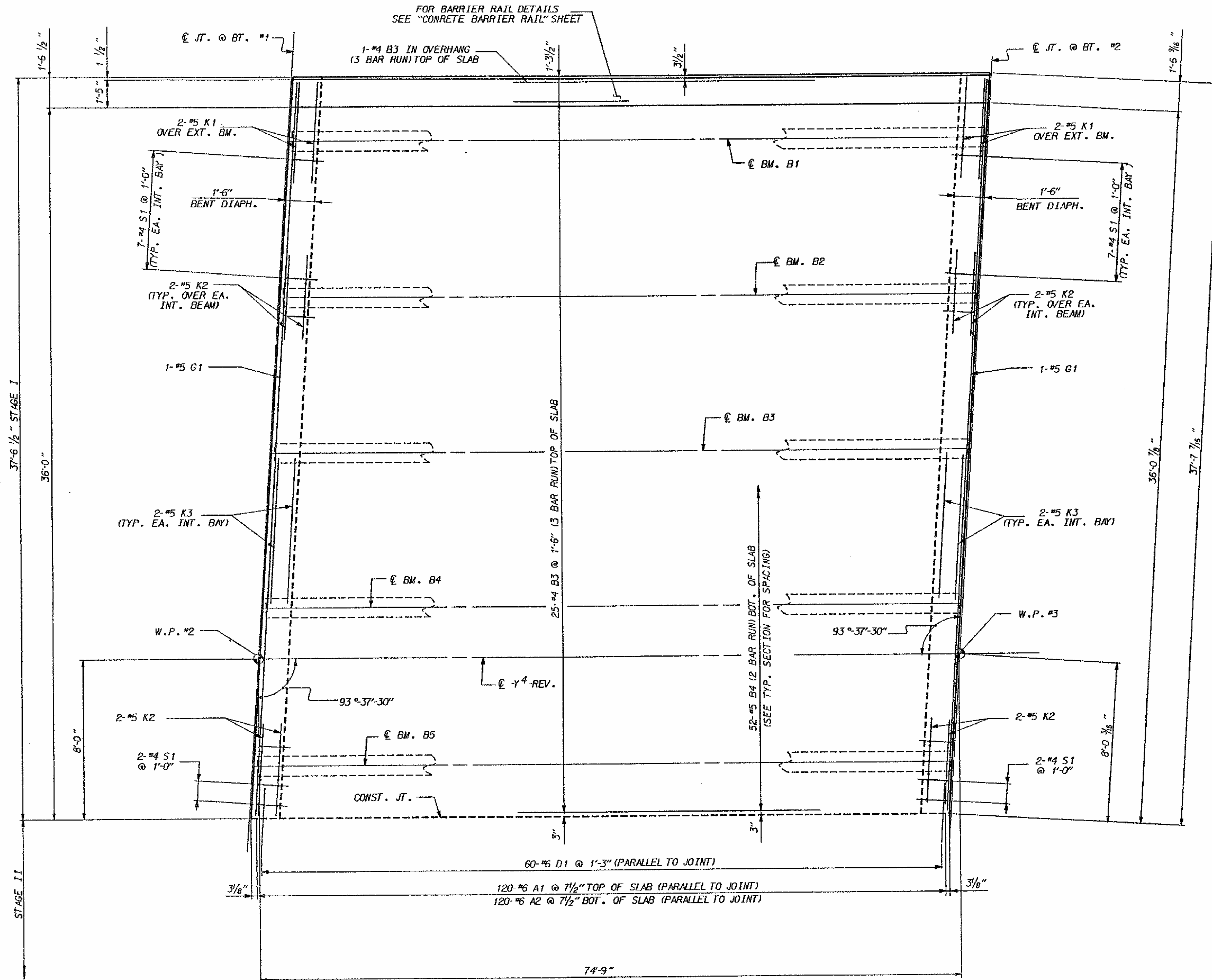
PROJECT NO. 8.T500310
ALAMANCE-ORANGE COUNTY
STATION: 329+86.22-L

STATE OF NORTH CAROLINA				DEPARTMENT OF TRANSPORTATION				SHEET NO.	
RALEIGH								5-7	
PLAN OF SPAN A									
STAGE I									
APRIL								1992	
REVISIONS									
NO.	BY:	DATE:	NO.	BY:	DATE:				
1			2						
2			4						
								TOTAL SHEETS	
								69	

DRAWN BY: W.F. PARKER DATE: 4-92
CHECKED BY: R.D. MARTIN DATE: 4-92

PLAN OF SPAN A
STAGE I

15-JUN-1992 8:30
 Z:\R203\023\2890SPB.DGN
 W.PARKER



PLAN OF SPAN B
 STAGE I

PROJECT NO. 8.T500310
 ALAMANCE-ORANGE COUNTY
 STATION: 329+86.22-L

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PLAN OF SPAN B
 STAGE I

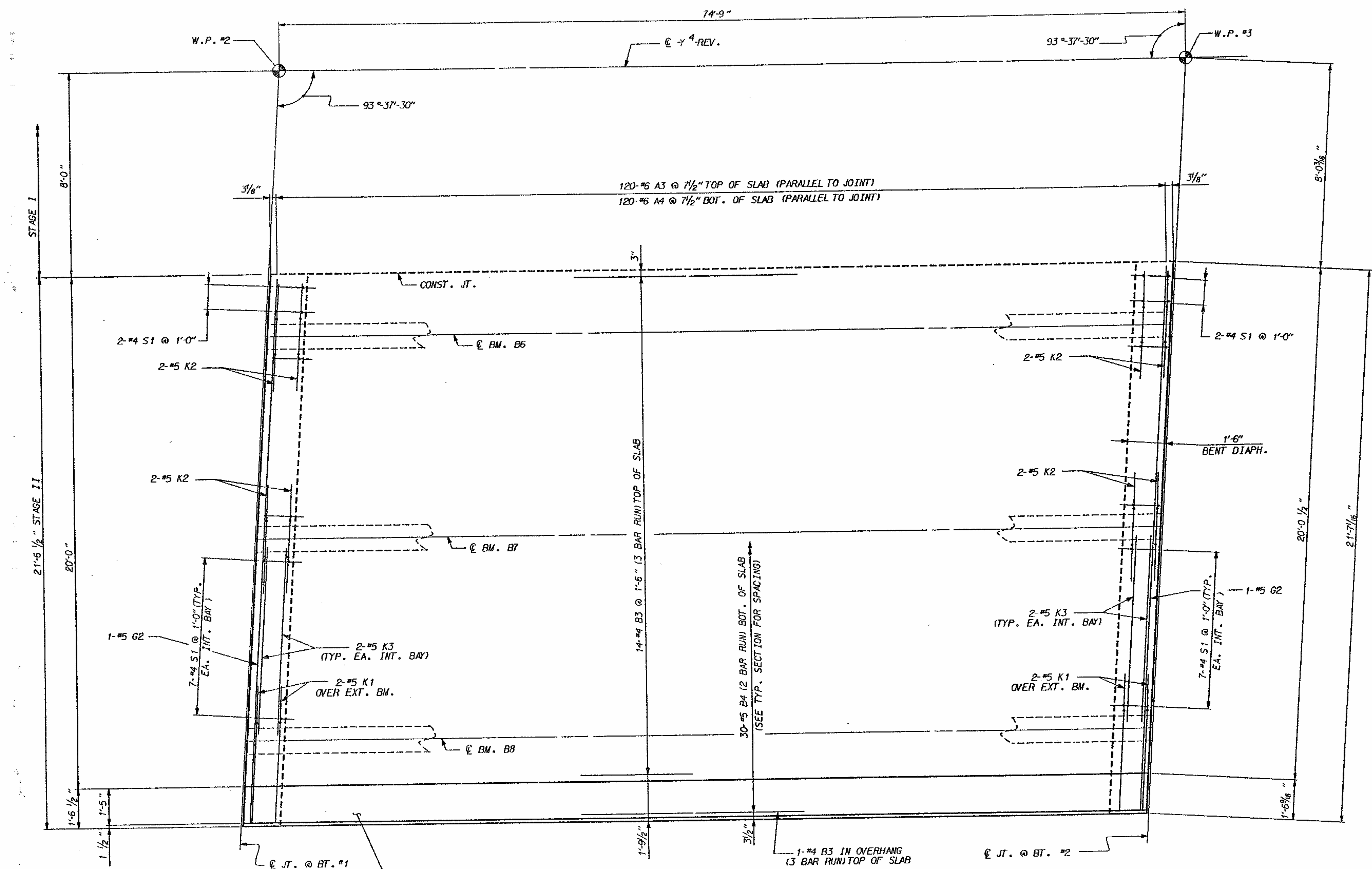
APRIL 1992

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

TOTAL SHEETS: 69

DRAWN BY: W.F. PARKER DATE: 4-92
 CHECKED BY: R.D. MARTIN DATE: 4-92

ZHR2030623/3/03/03/03/03/03
W.PARKER



FOR BARRIER RAIL DETAILS
SEE "CONCRETE BARRIER RAIL" SHEET.

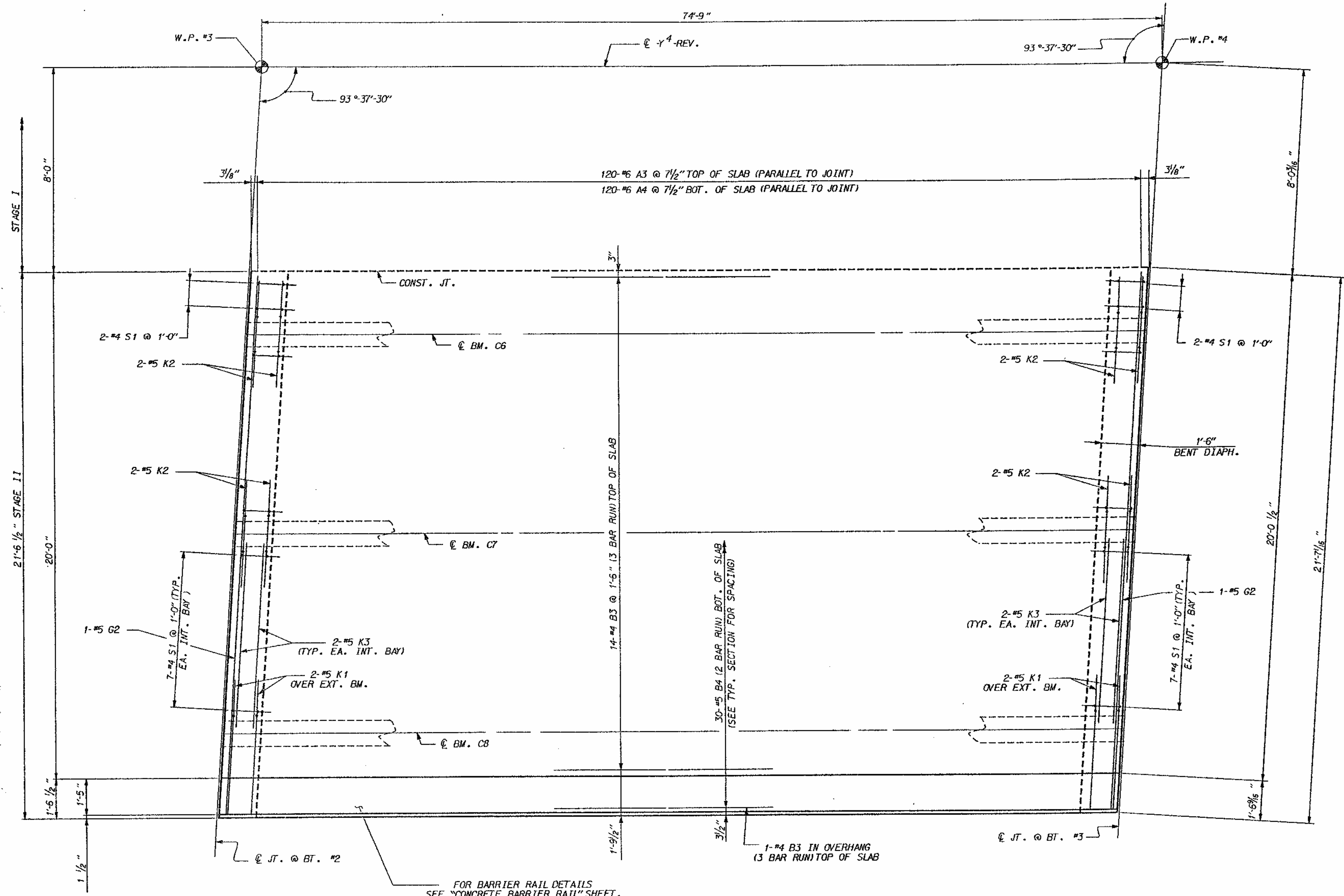
**PLAN OF SPAN B
STAGE II**

PROJECT NO. 8.T500310
ALAMANCE-ORANGE COUNTY
 STATION: 329+86.22-L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
PLAN OF SPAN B STAGE II					
APRIL 1992					
SHEET NO. S-10					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					69

DRAWN BY: W.F. PARKER DATE: 4-92
 CHECKED BY: R.D. MARTIN DATE: 4-92

7/16/92 W.F.PARKER



FOR BARRIER RAIL DETAILS
SEE "CONCRETE BARRIER RAIL" SHEET.

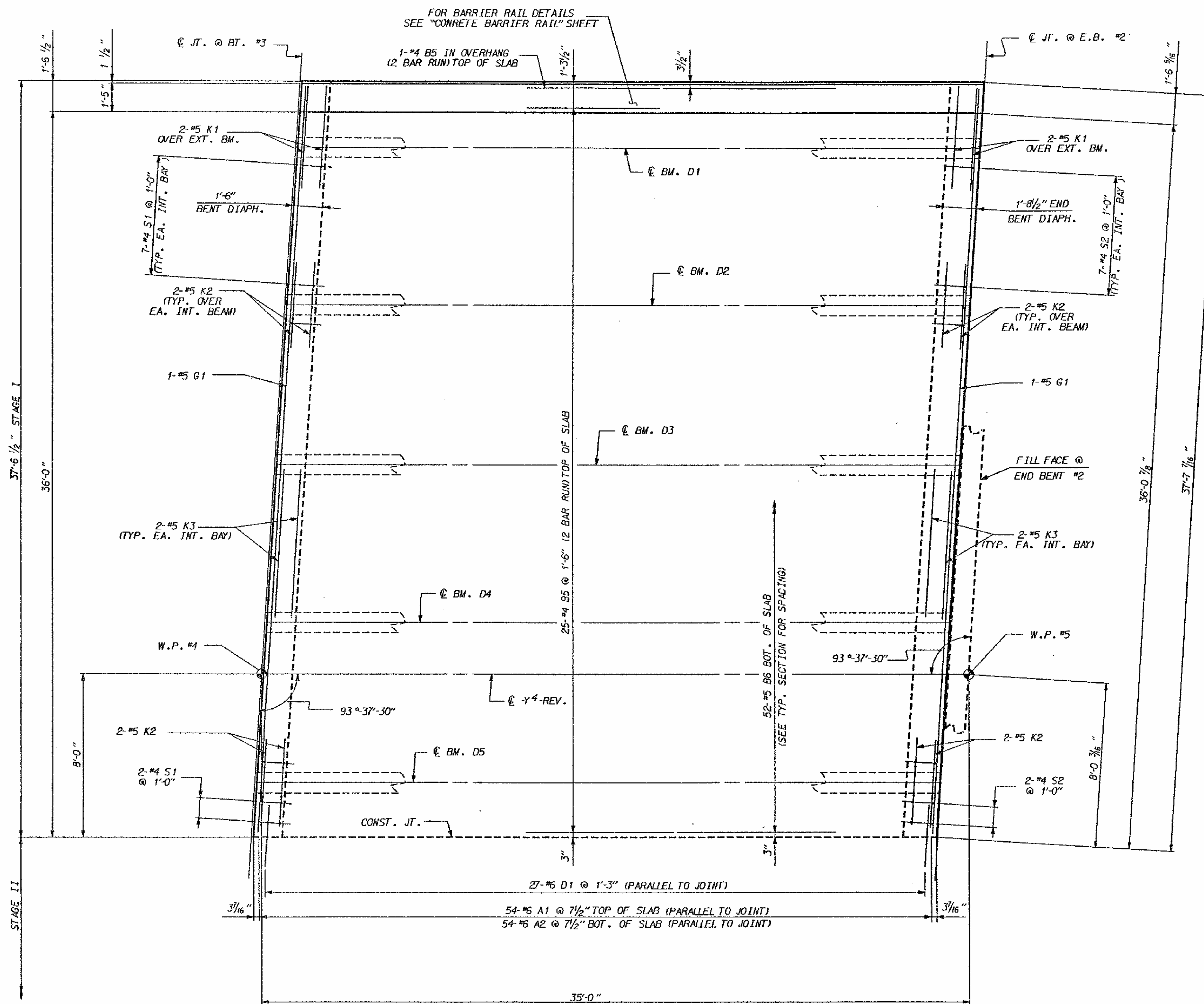
PLAN OF SPAN C
STAGE II

PROJECT NO. 8.T500310
ALAMANCE-ORANGE COUNTY
STATION: 329+86.22-L

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. 5-12
PLAN OF SPAN C STAGE II						
APRIL 1992						TOTAL SHEETS 69
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

DRAWN BY: W.F. PARKER DATE: 4-92
CHECKED BY: R.D. MARTIN DATE: 4-92

W.PARKER



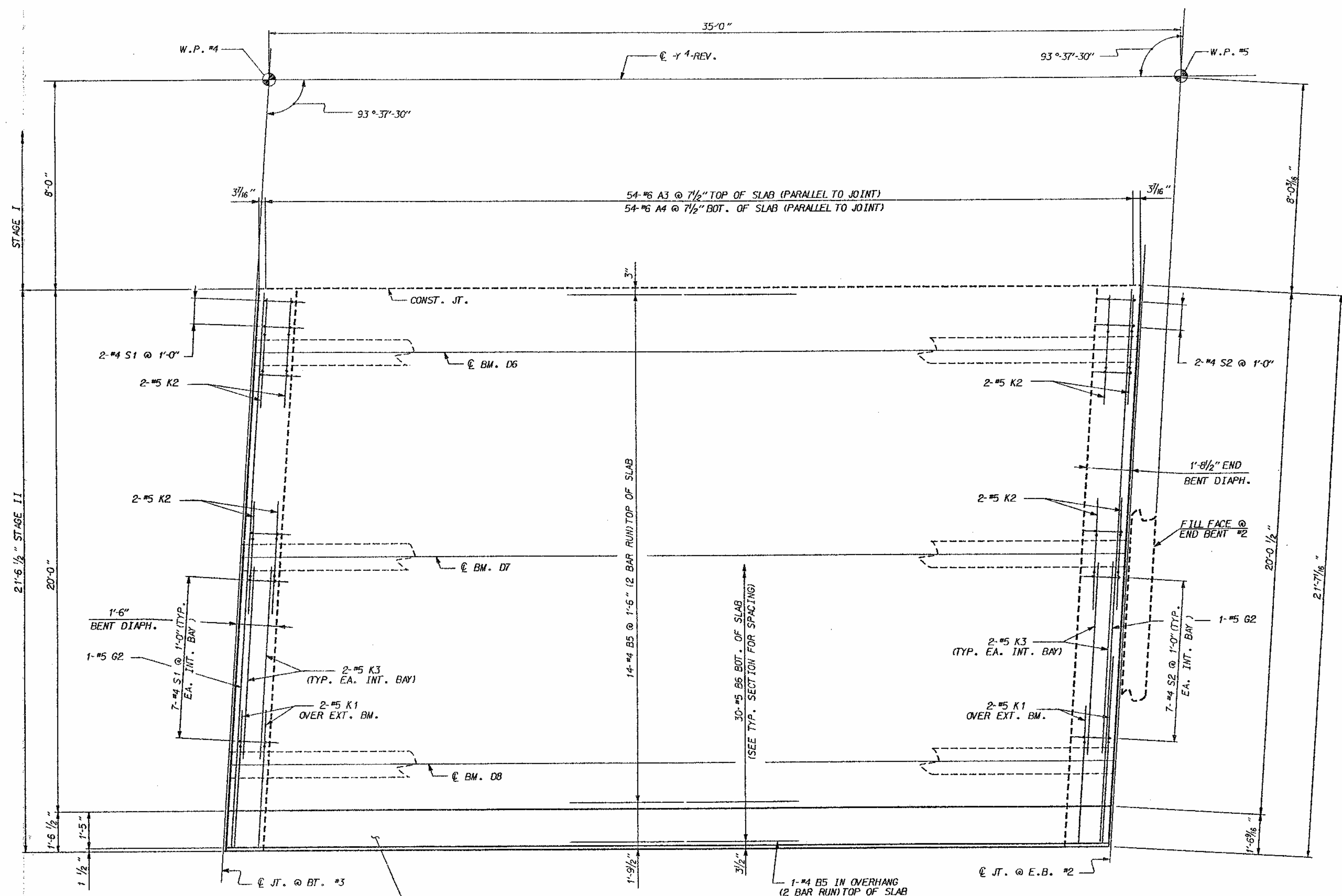
PLAN OF SPAN D
STAGE I

PROJECT NO. 8.T500310
ALAMANCE-ORANGE COUNTY
STATION: 329+86.22-L

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
PLAN OF SPAN D STAGE I					
APRIL 1992					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-13 TOTAL SHEETS 69

DRAWN BY: W.F. PARKER DATE: 4-92
CHECKED BY: R.O. MARTIN DATE: 4-92

7442030231269505700000
W.PARKER



PLAN OF SPAN D
STAGE II

PROJECT NO. 8.T500310
ALAMANCE-ORANGE COUNTY
STATION: 329+86.22-L

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

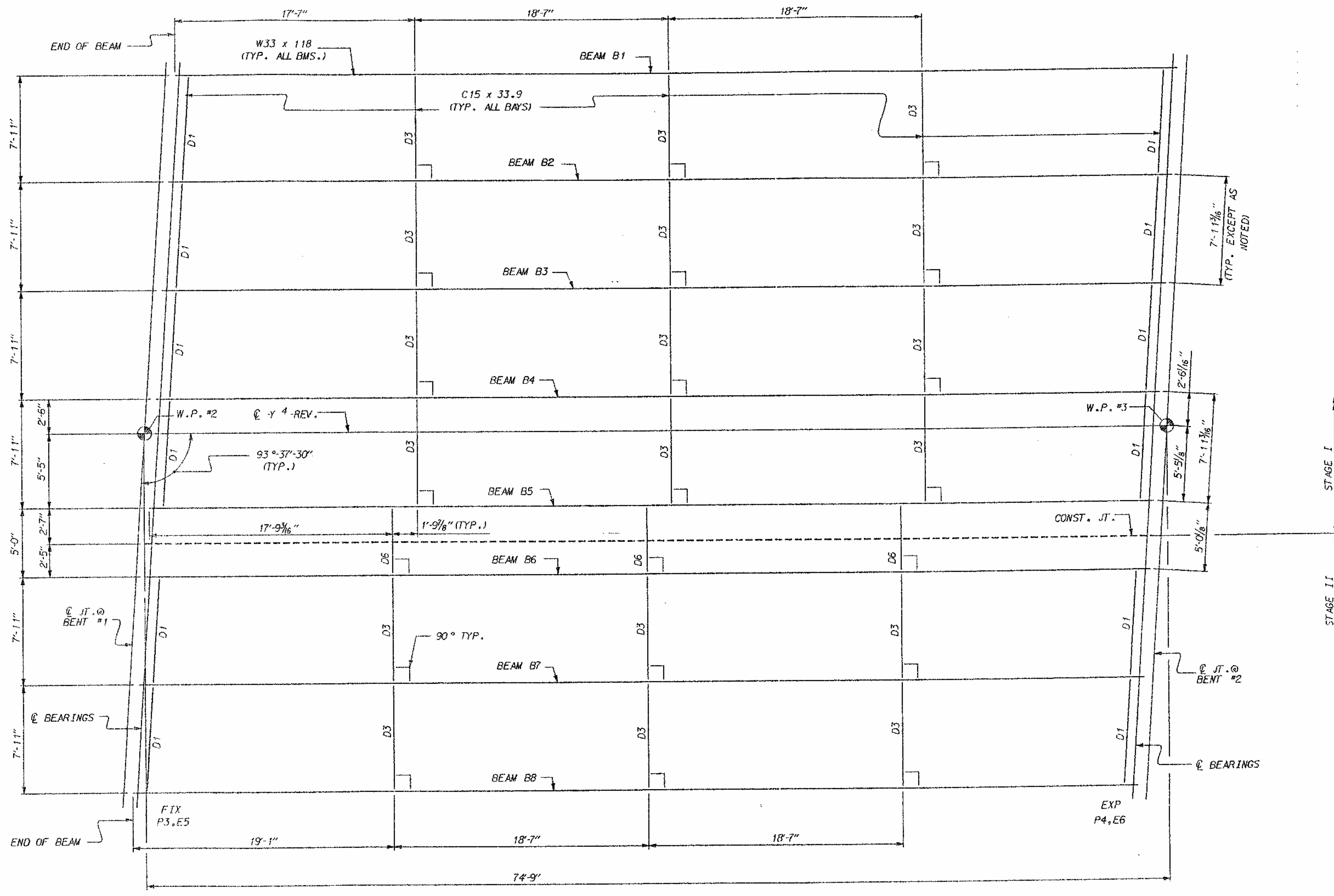
PLAN OF SPAN D
STAGE II

APRIL 1992

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-14
2			4			69

DRAWN BY: W.F. PARKER DATE: 4-92
CHECKED BY: R.D. MARTIN DATE: 4-92

W.PARKER



SPAN B
FRAMING PLAN

PROJECT NO. 8.T5003 10
ALAMANCE-ORANGE COUNTY
STATION: 329+86.22-L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

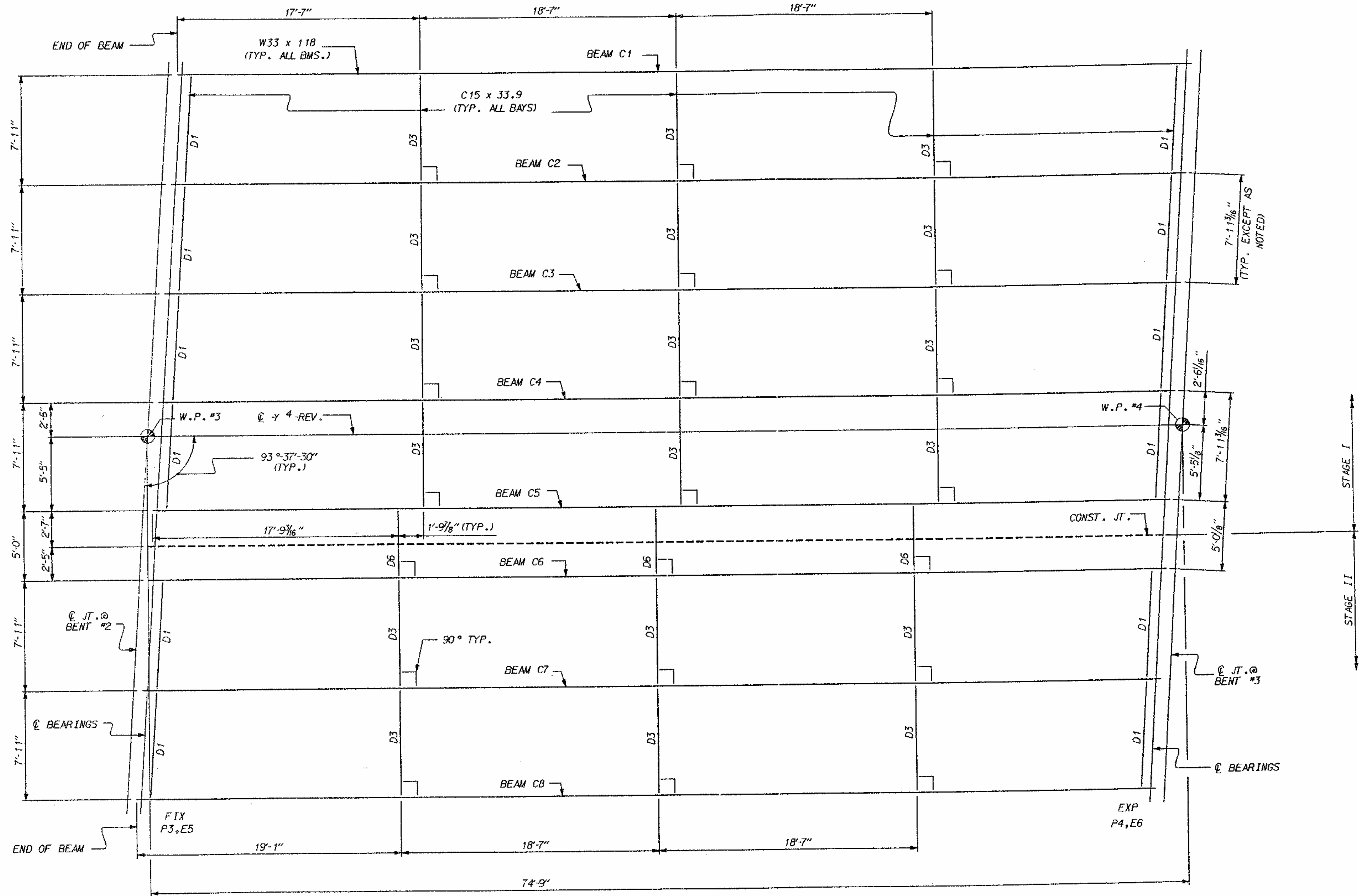
**SUPERSTRUCTURE
STRUCTURAL STEEL
FRAMING PLAN
(SPAN B)
STAGE I & II**

APRIL 1992

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-16
2			4			67

DRAWN BY: W.F. PARKER DATE: 4-92
CHECKED BY: A.D. MARTIN DATE: 4-92

714-C0102323269011-C310-01
W.PARKER

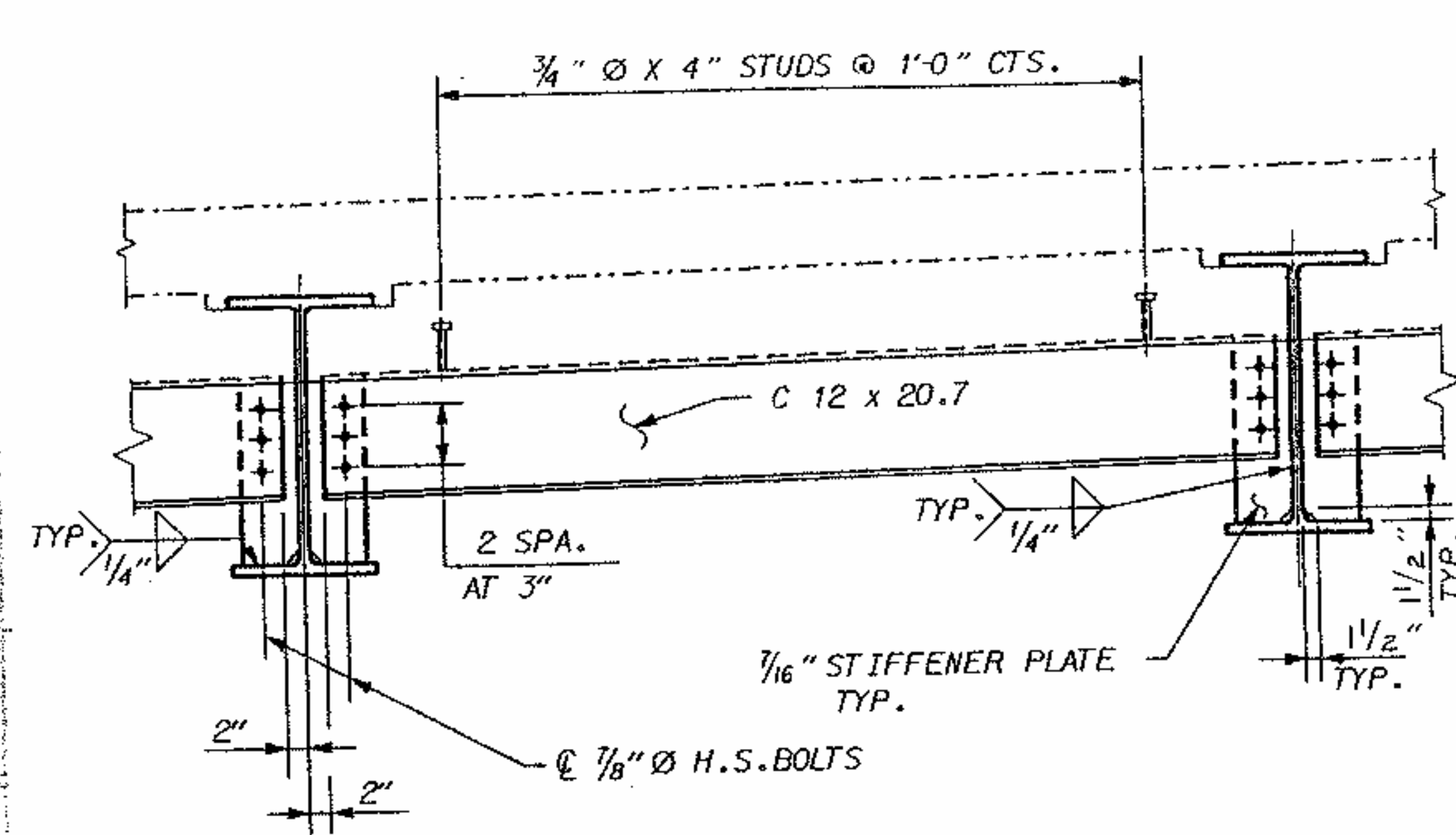


SPAN C
FRAMING PLAN

PROJECT NO. 8.T500310
ALAMANCE-ORANGE COUNTY
 STATION: 329+86.22-L

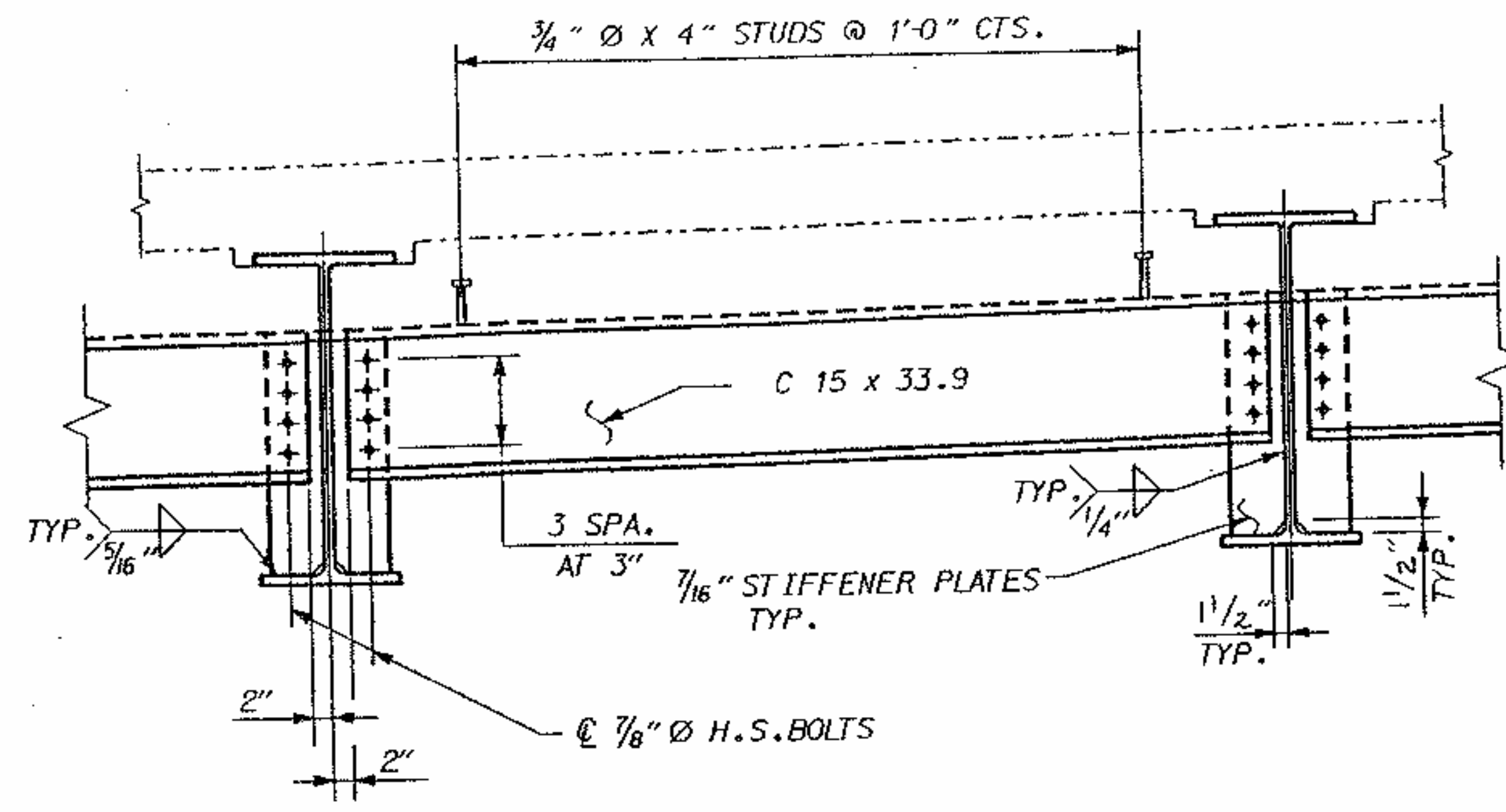
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE STRUCTURAL STEEL FRAMING PLAN (SPAN C) STAGE I & II APRIL 1992					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. 5-17 TOTAL SHEETS 69

DRAWN BY: W.F. PARKER DATE: 4-92
 CHECKED BY: R.D. MARTIN DATE: 5-92



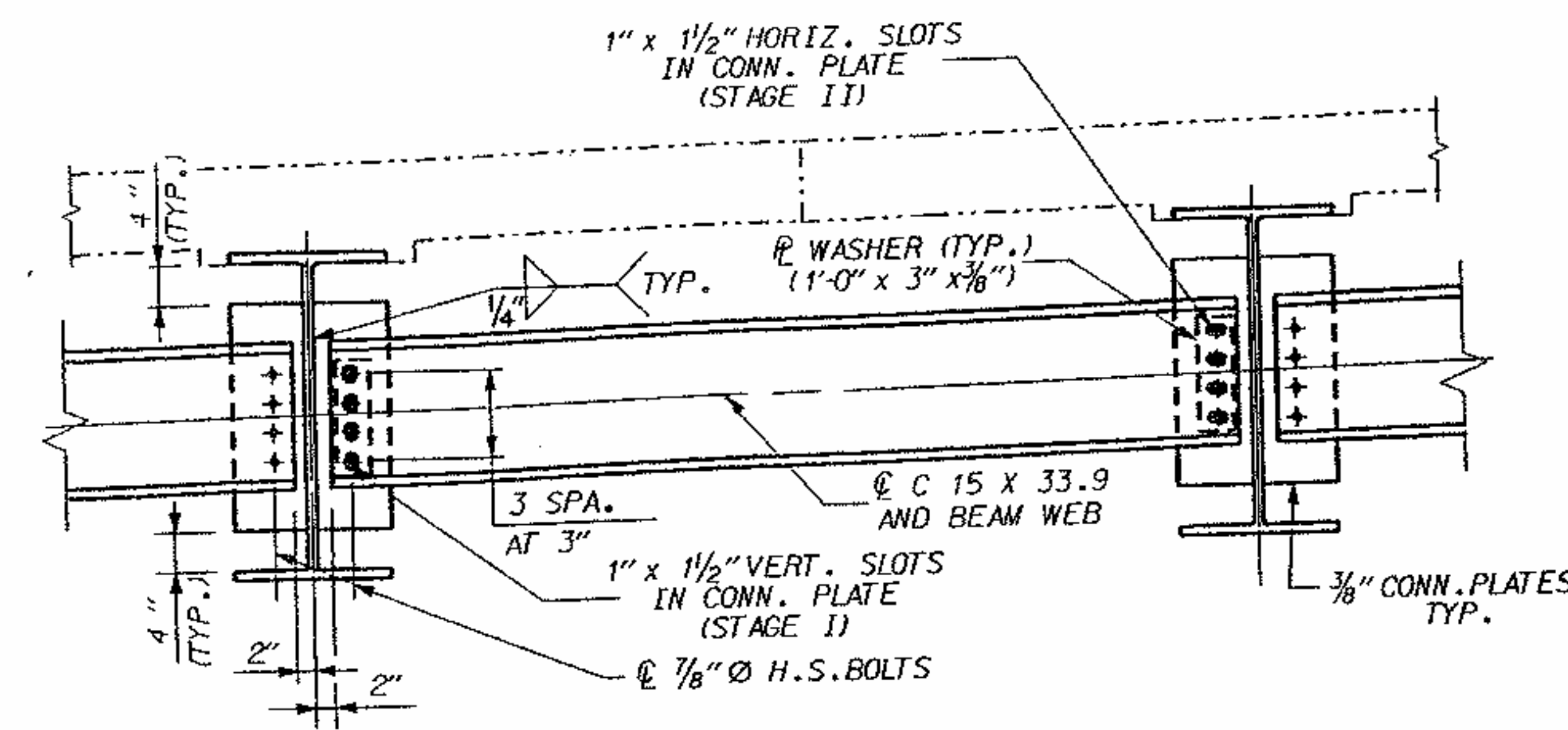
TYPICAL BENT DIAPHRAGM

(SPANS A & D, D2)



TYPICAL BENT DIAPHRAGM

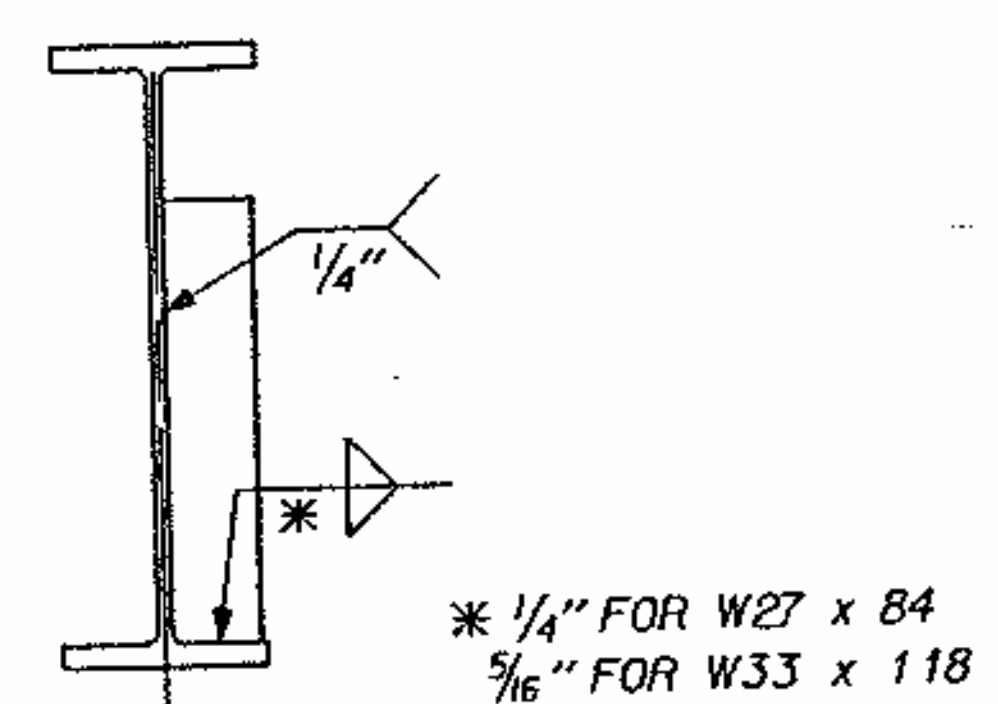
(SPANS B & C, D1)



TYPICAL INTERMEDIATE DIAPHRAGM

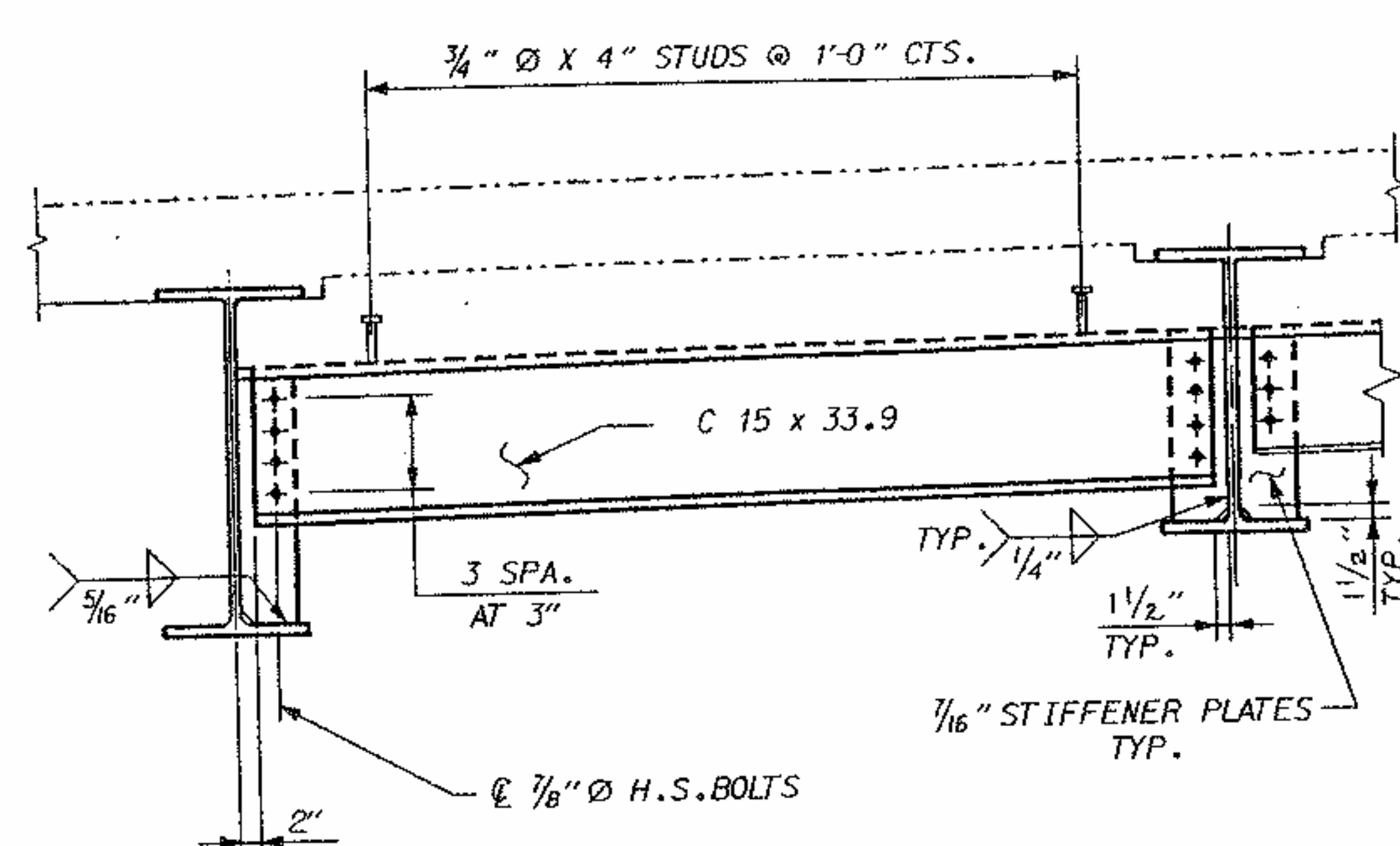
(SPANS B & C, D6)

NOTE: NUTS ON BOLTS FOR CONN. CHANNEL TO CONN. P SHALL BE LEFT LOOSE FOR PURPOSE OF ADJUSTMENT UNTIL BOTH SIDES OF SLAB HAVE BEEN POURED.



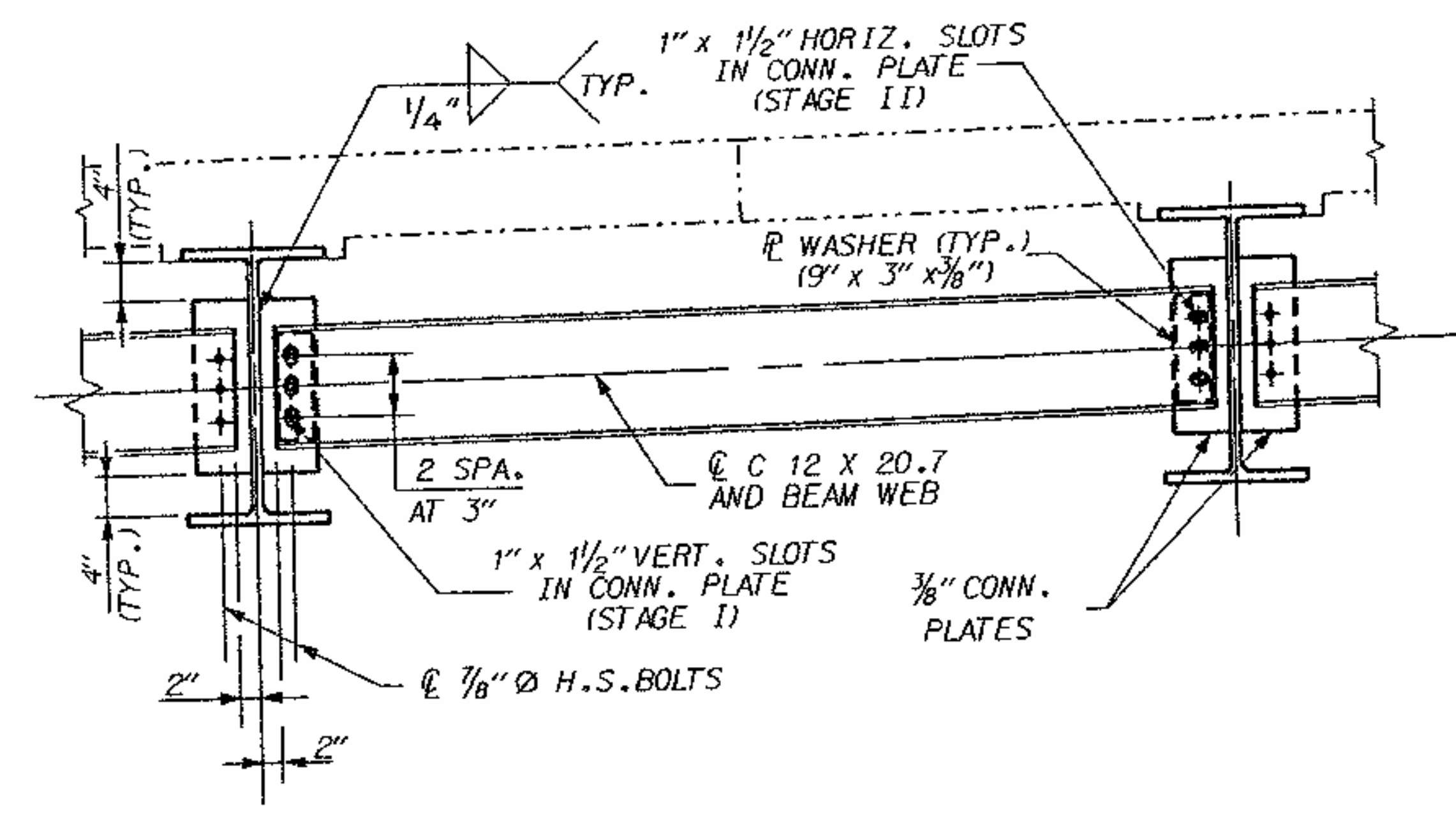
STIFFENER PLATE WELD DETAIL

* 1/4" FOR W27 x 84
3/16" FOR W33 x 118



TYPICAL BENT DIAPHRAGM

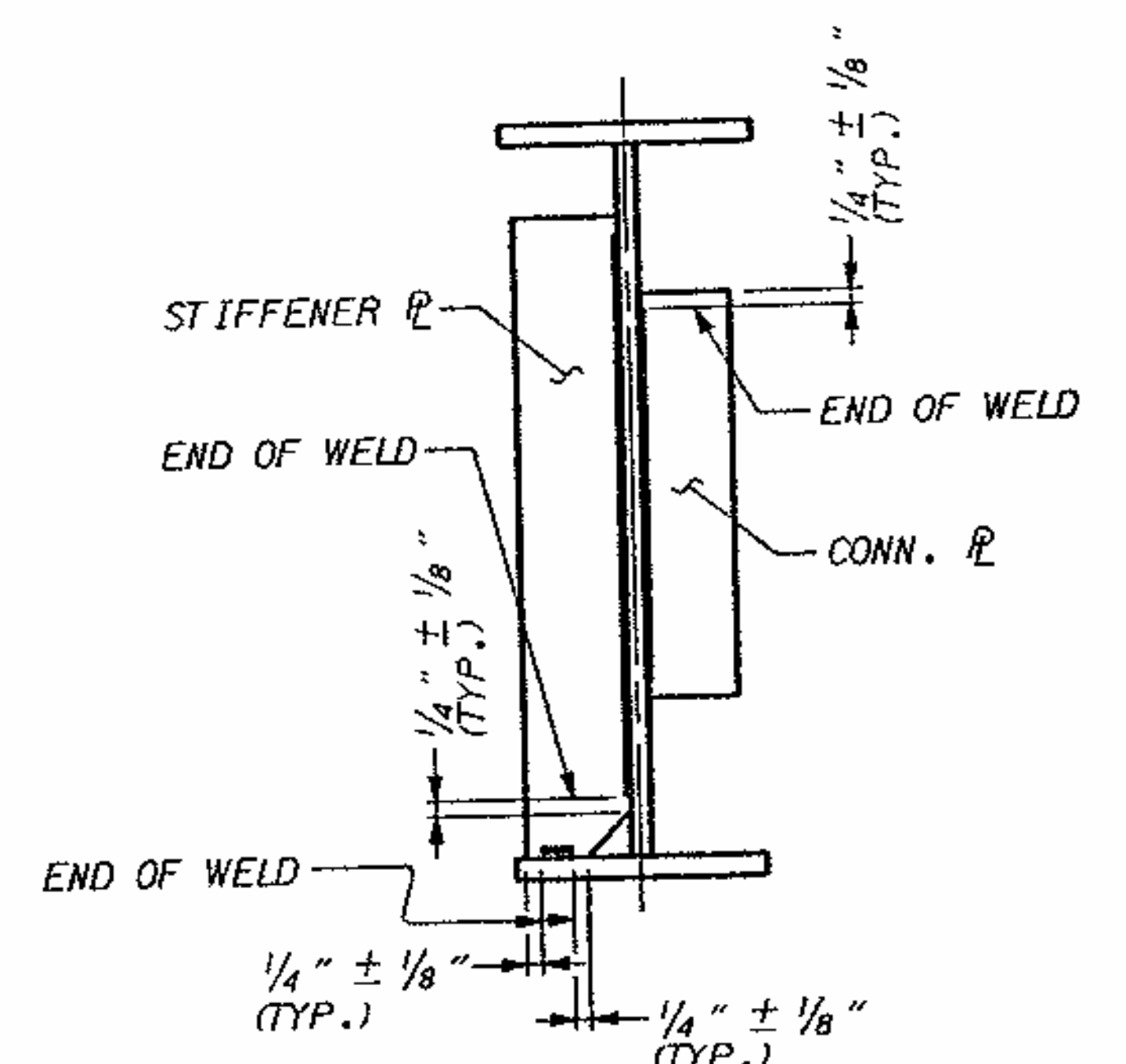
(SPANS A & D, D1)



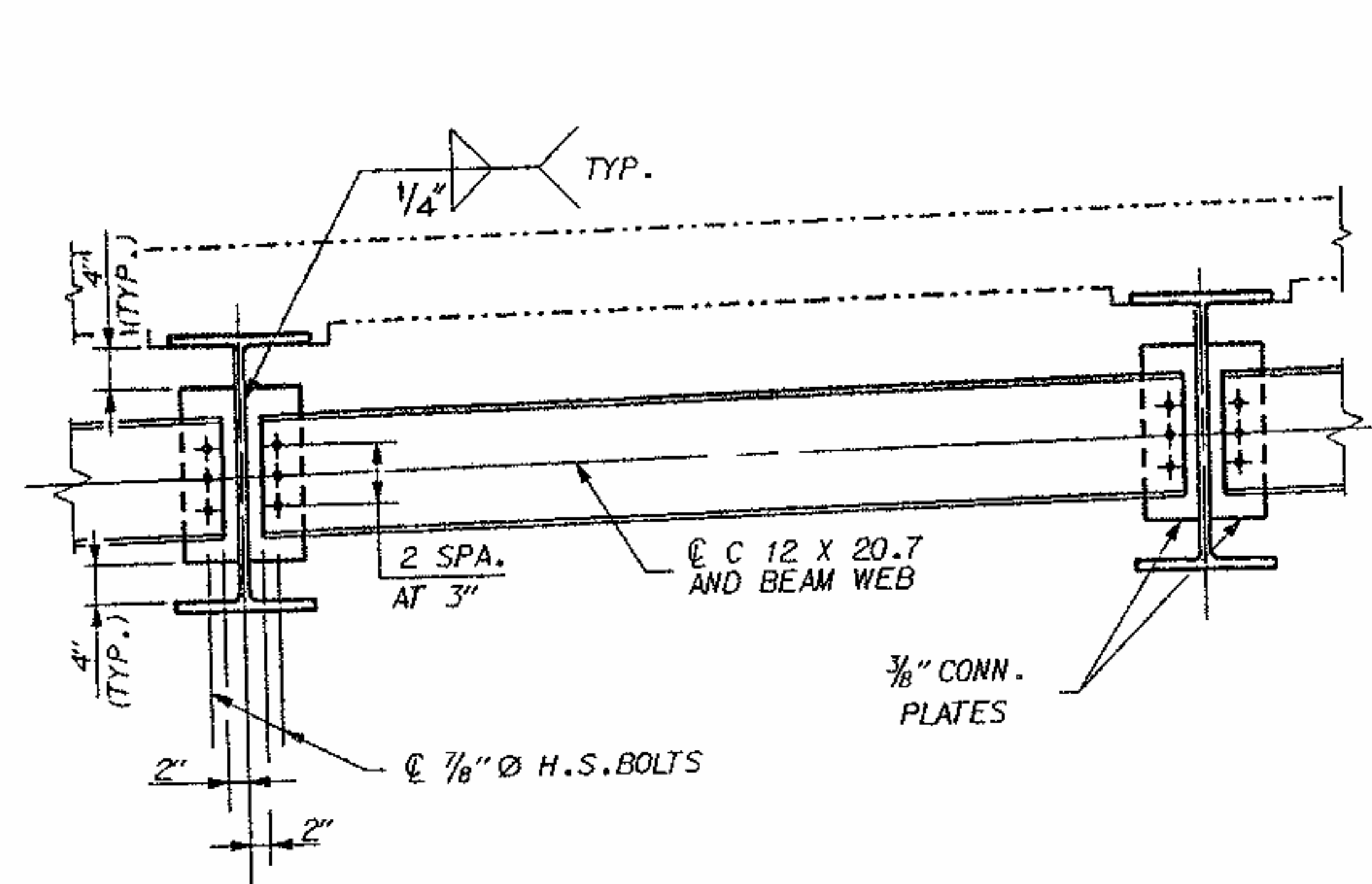
TYPICAL INTERMEDIATE DIAPHRAGM

(SPANS A & D, D5)

NOTE: NUTS ON BOLTS FOR CONN. CHANNEL TO CONN. P SHALL BE LEFT LOOSE FOR PURPOSE OF ADJUSTMENT UNTIL BOTH SIDES OF SLAB HAVE BEEN POURED.

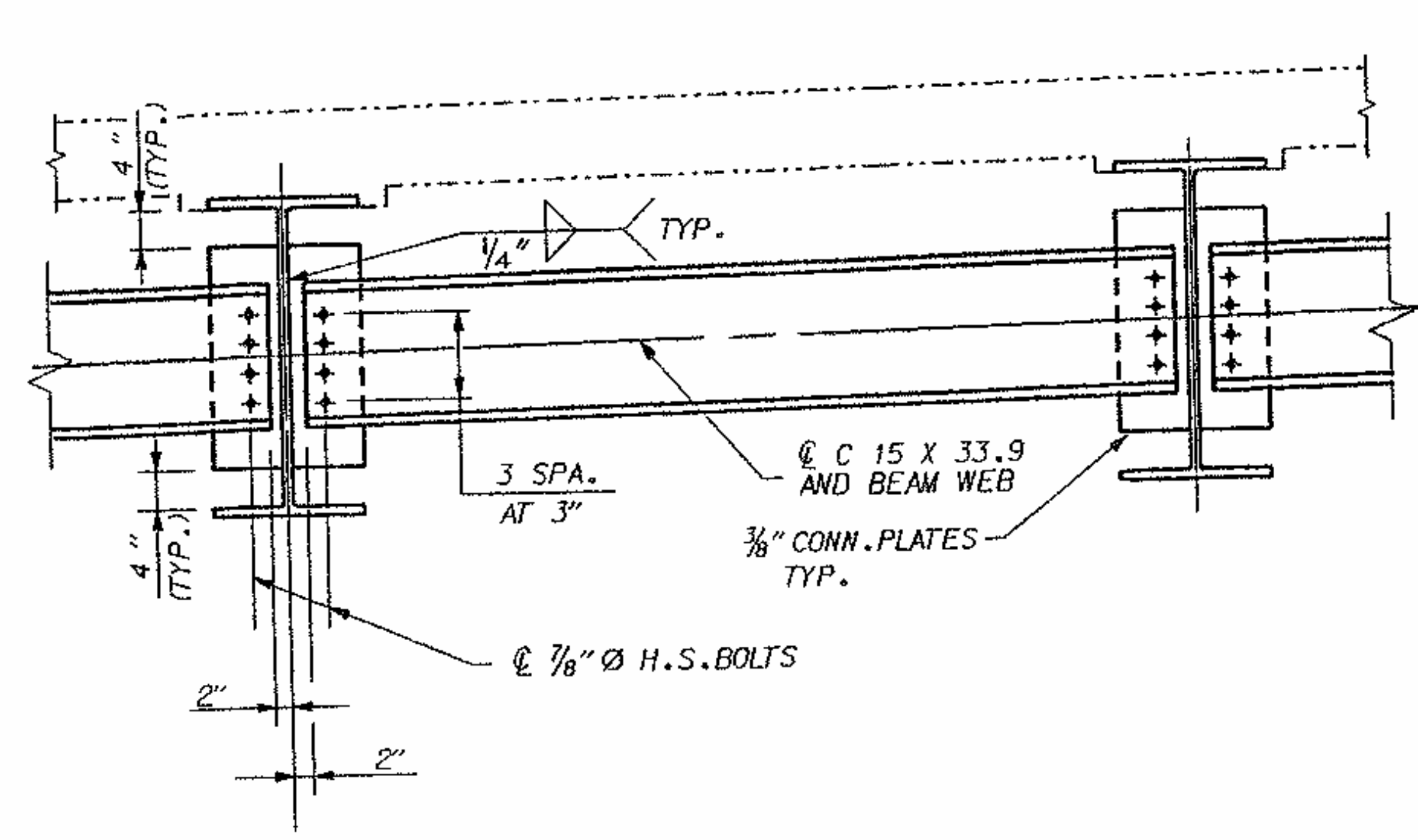


TYPICAL STIFFENER OR CONNECTOR PLATE CONNECTIONS WELD TERMINATION DETAILS



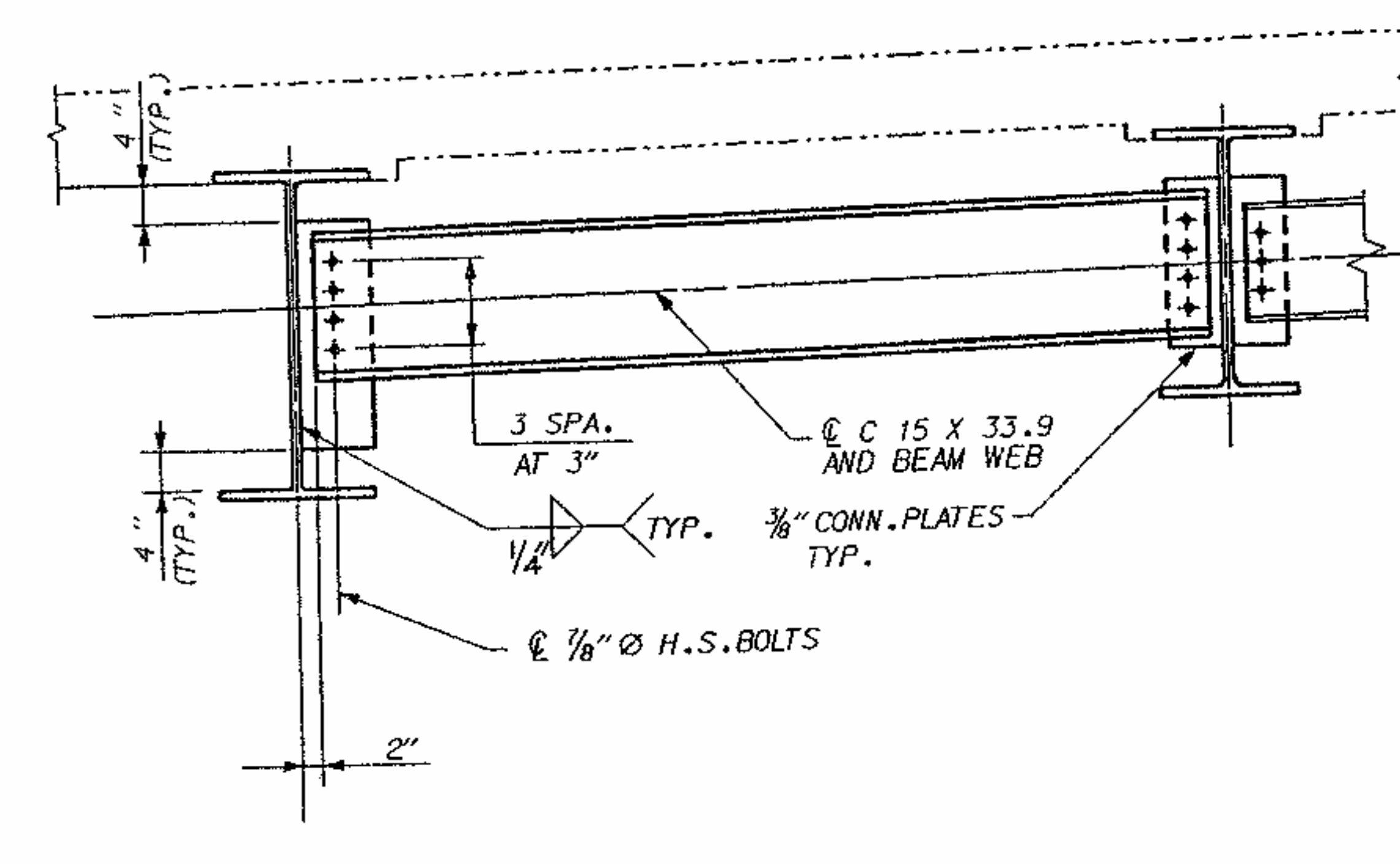
TYPICAL INTERMEDIATE DIAPHRAGM

(SPANS A & D, D4)



TYPICAL INTERMEDIATE DIAPHRAGM

(SPANS B & C, D3)



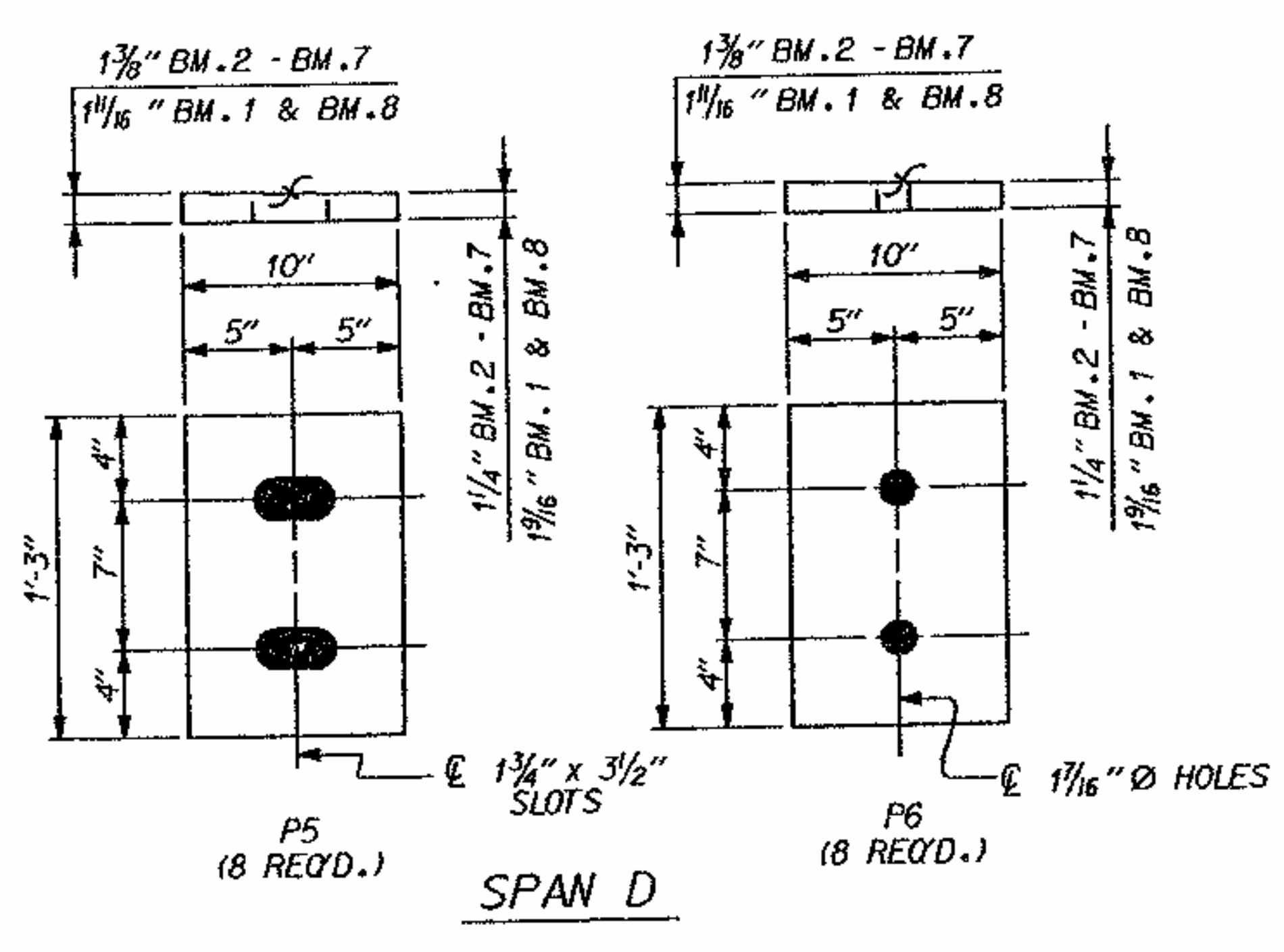
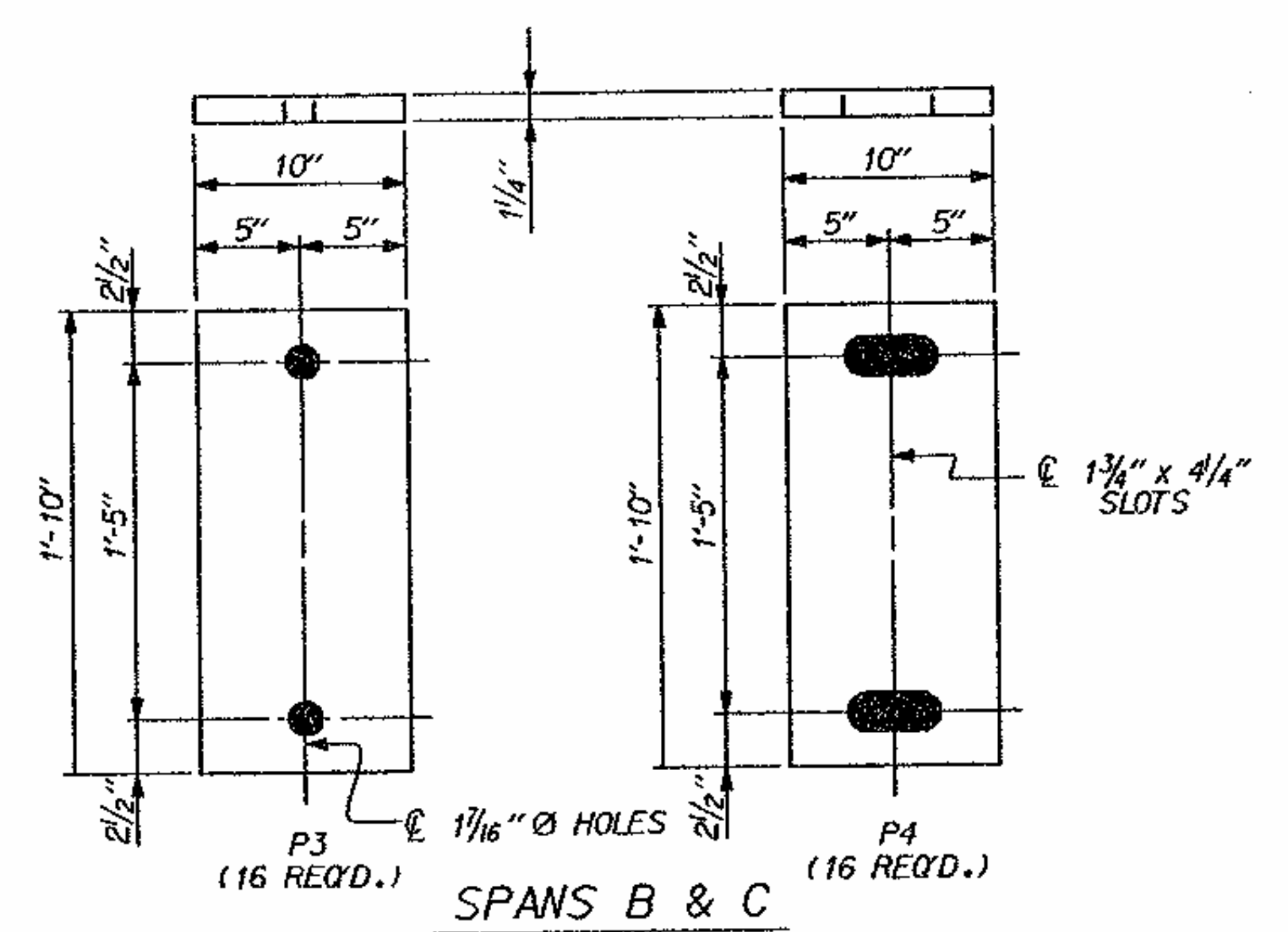
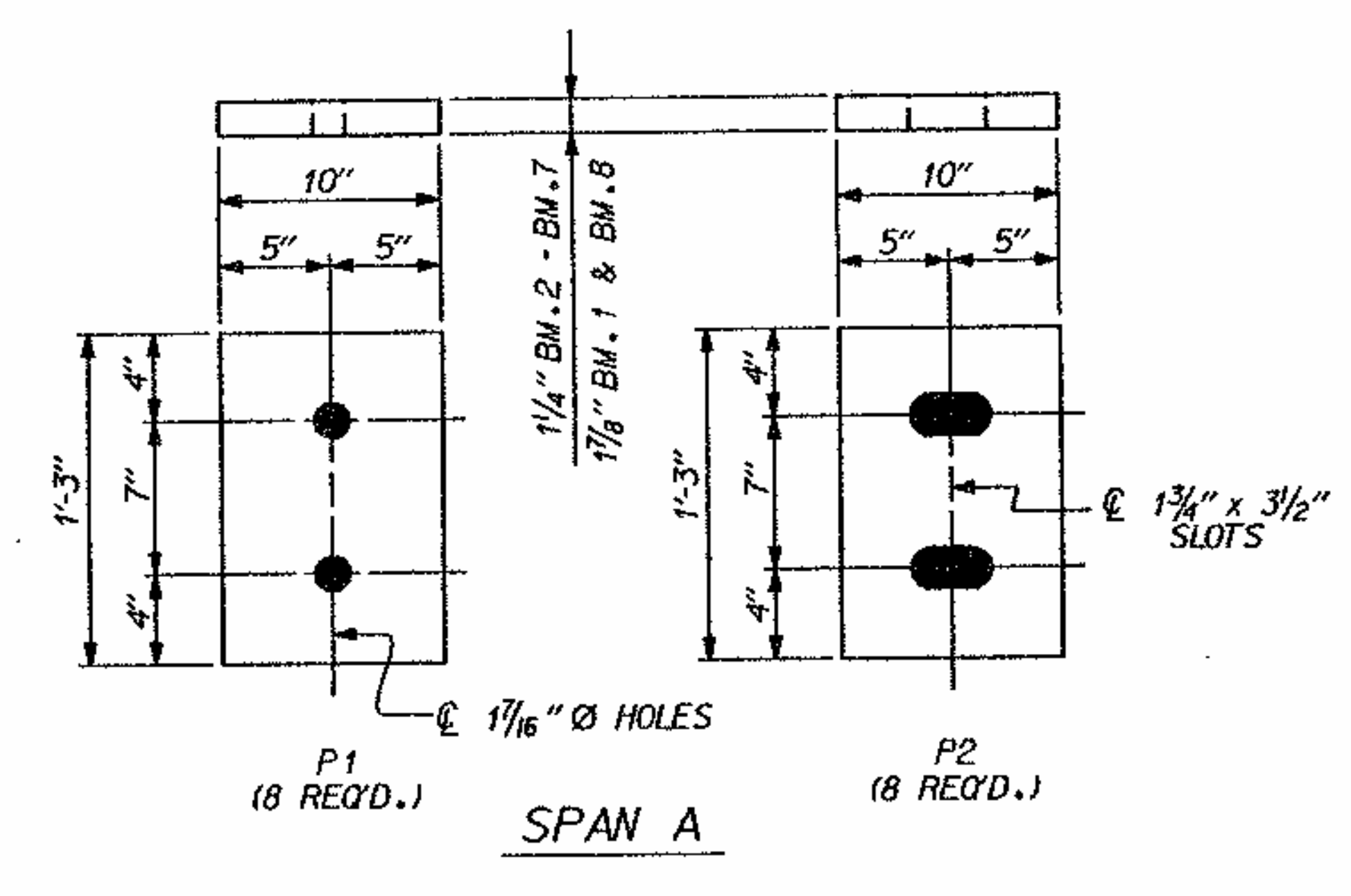
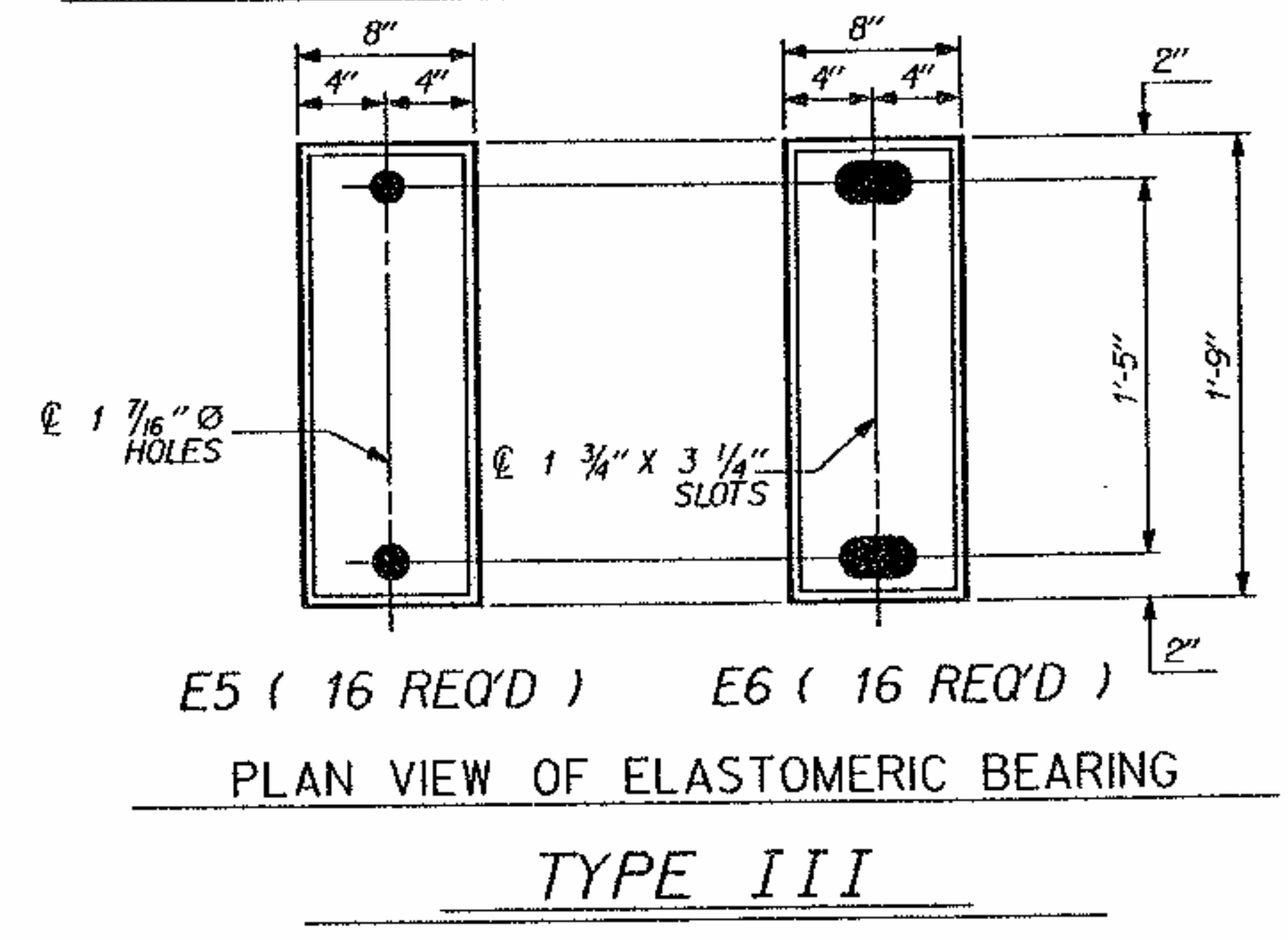
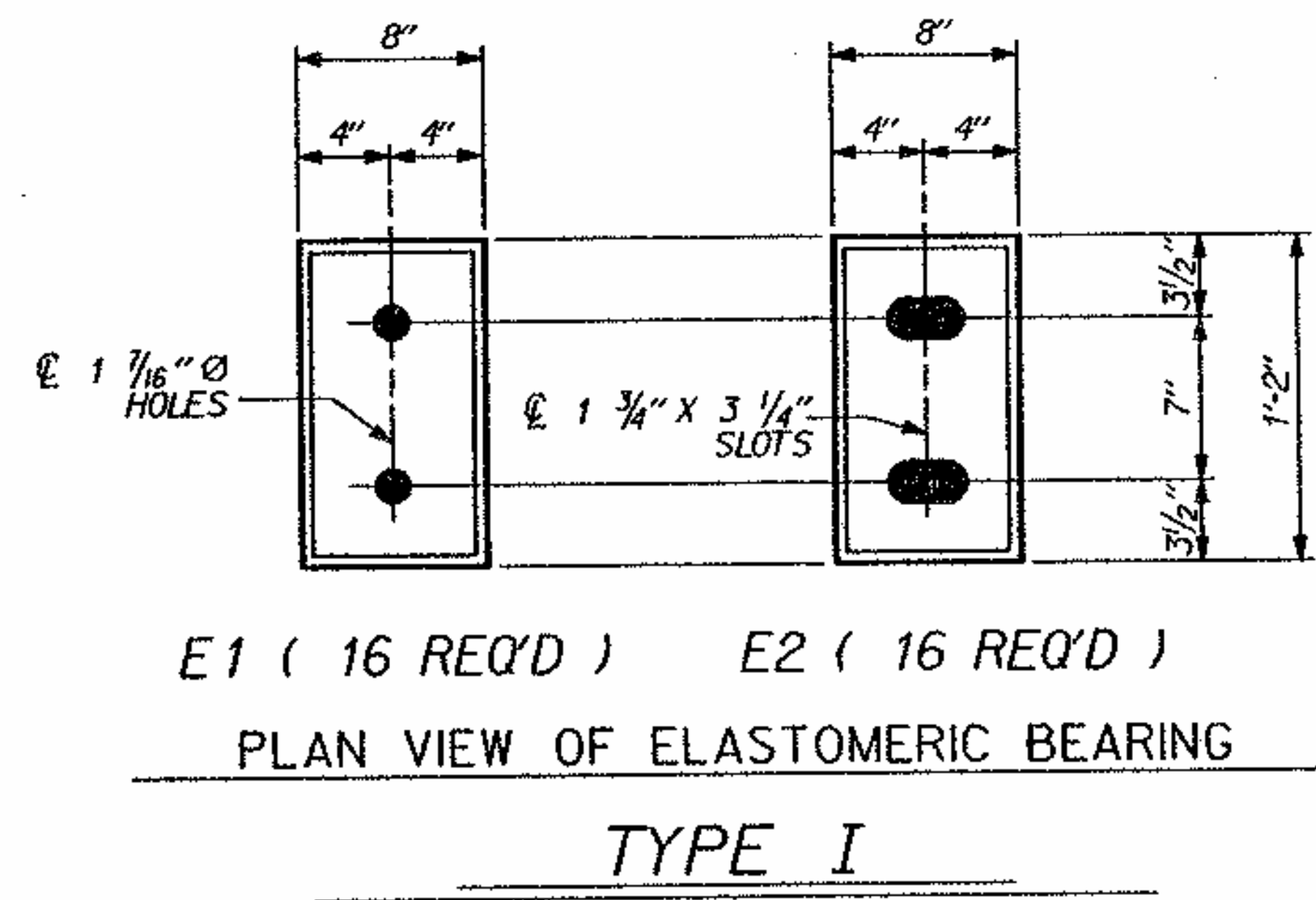
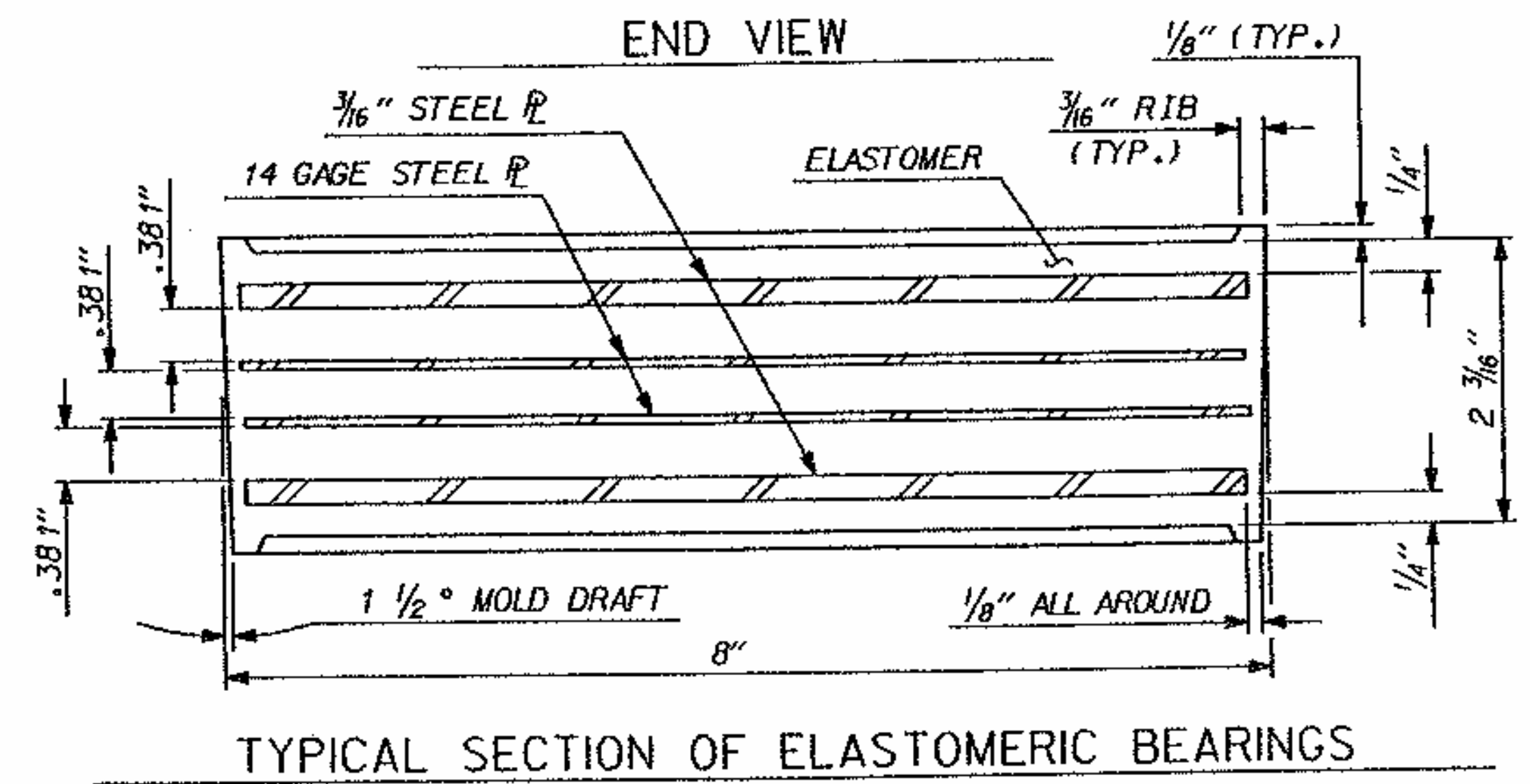
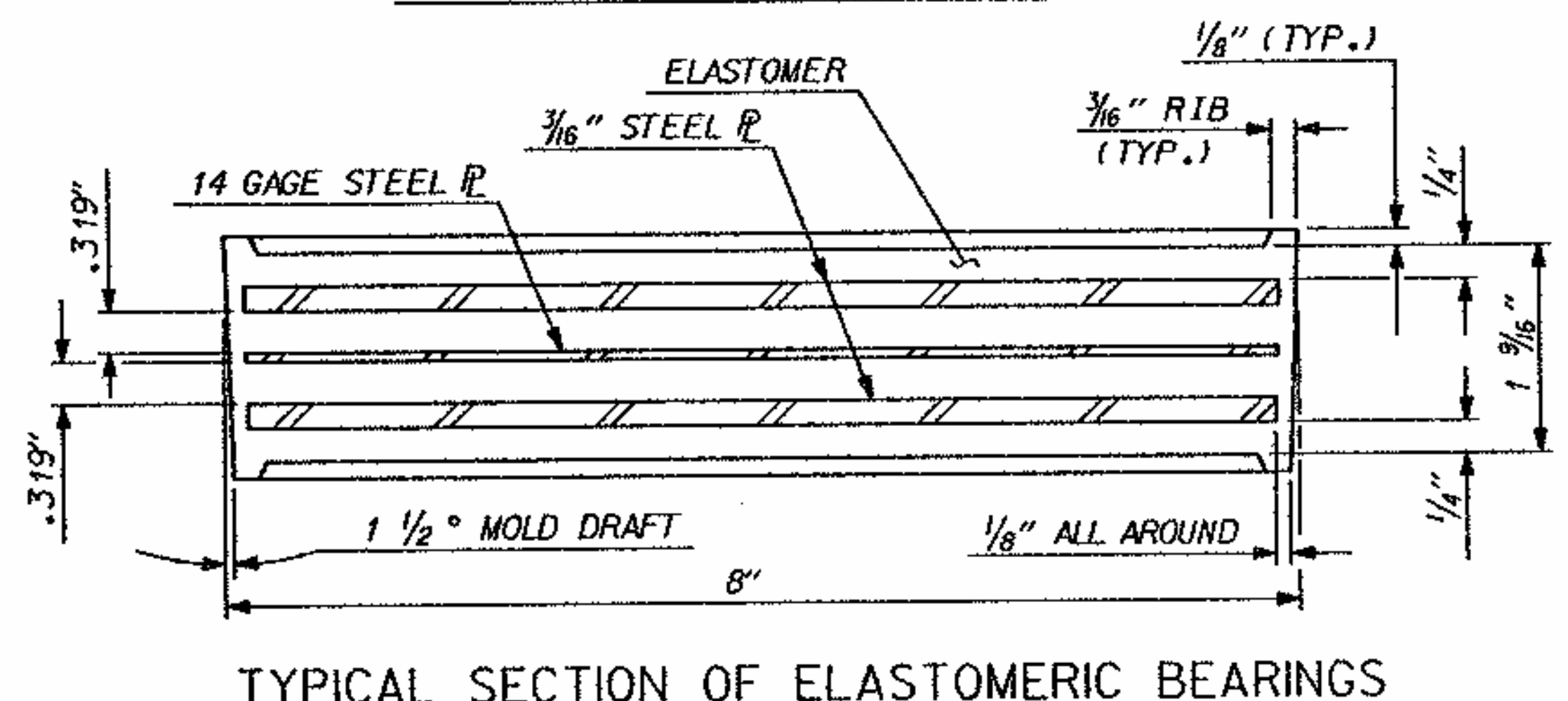
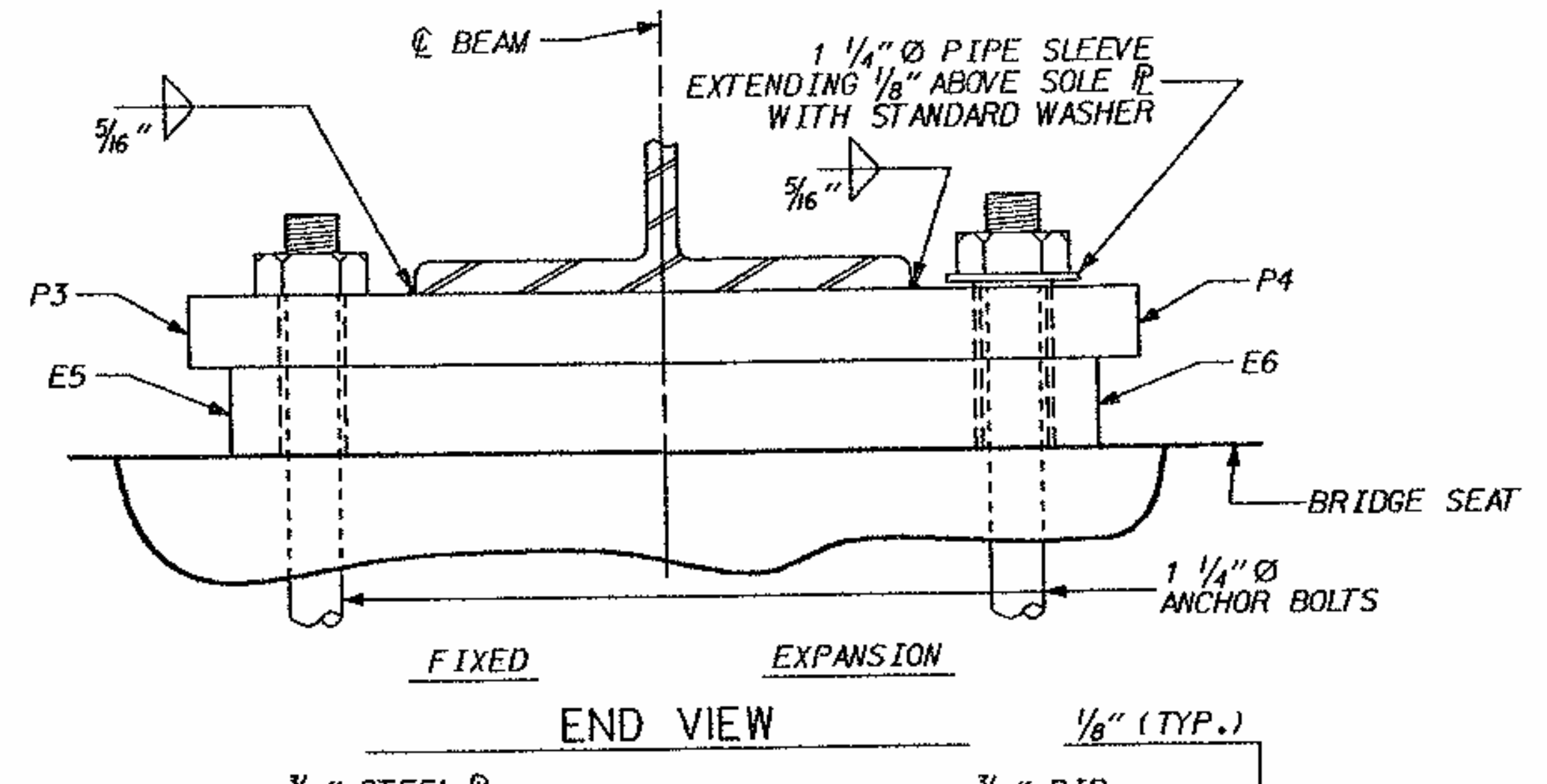
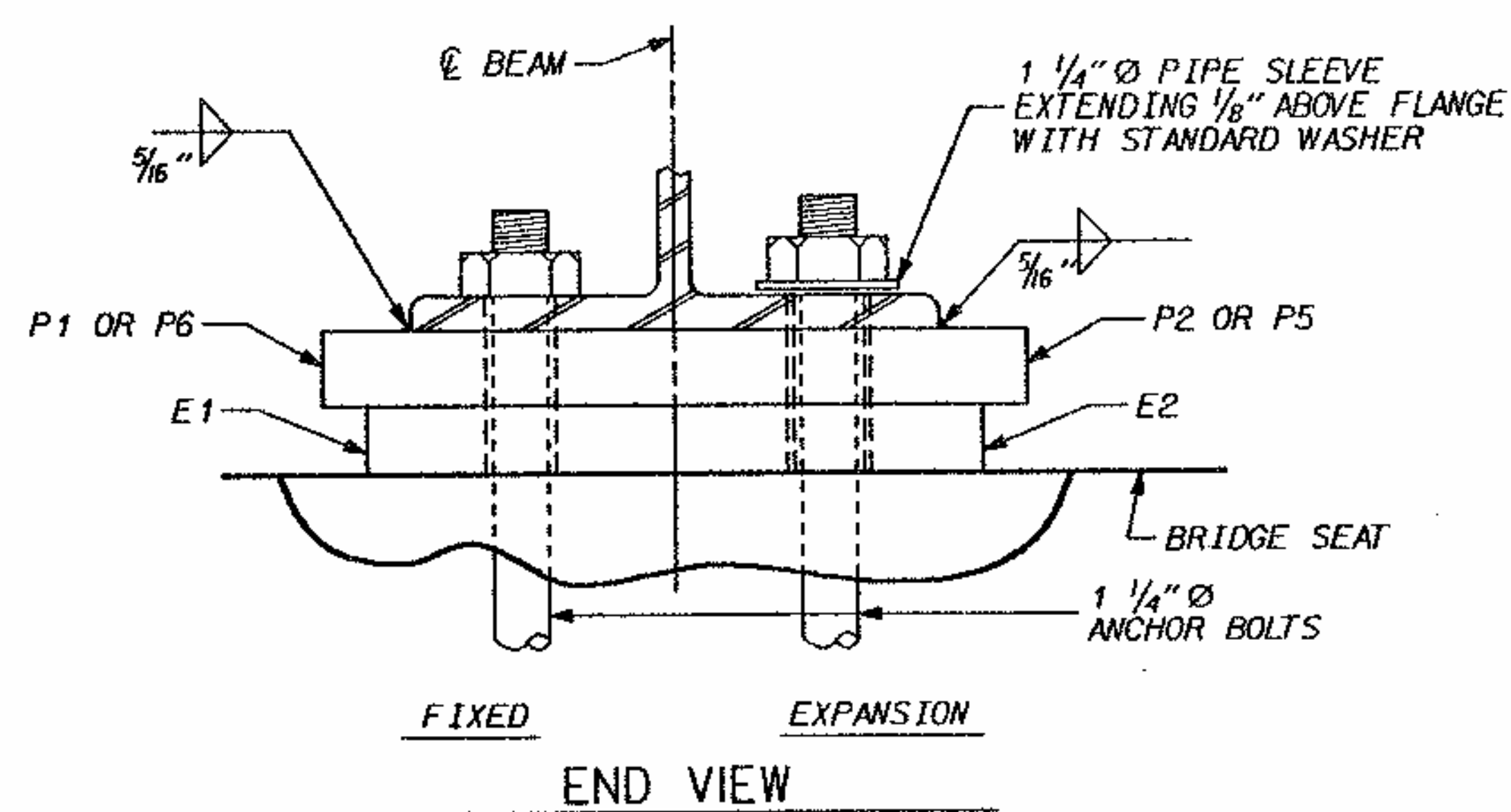
TYPICAL INTERMEDIATE DIAPHRAGM

(SPANS A & D, D3)

PROJECT NO. 8.T5003 10
ALAMANCE-ORANGE COUNTY
STATION: 329+86.22-L

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE STRUCTURAL STEEL DETAILS AND DIAPHRAGMS					
APRIL 1991					
SHEET NO. 5-19					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					67

DRAWN BY: W.F. PARKER DATE: 4-92
CHECKED BY: A.D. MARTIN DATE: 4-92



SOLE PLATE DETAILS ("P")

NOTES

FOR ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

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

THE 1 1/4" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 P.V.C. PLASTIC PIPE. THE P.V.C. PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF A.S.T.M. D1785.

THE PAYMENT FOR THE PIPE SLEEVES SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.

FOR UNPAINTED A.S.T.M. A-588 STRUCTURAL STEEL, SOLE PLATE SHALL BE A.S.T.M. A-588 AND SHALL NOT BE GALVANIZED. ANCHOR BOLTS AND NUTS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

WHITE LEAD AND TALLOW SHALL NOT BE APPLIED TO THE SURFACE OF THE SOLE PLATE IN CONTACT WITH THE ELASTOMERIC BEARING.

-LOAD RATINGS-

	MAX. D. L. +L. L.
TYPE I	64.63 K
TYPE III	105.68 K

TOTAL BEARING MATERIAL REQUIRED

TYPE PLATE	STAGE I NO.	STAGE II NO.
P1	5	3
P2	5	3
P3	10	6
P4	10	6
P5	5	3
P6	5	3
E1	10	6
E2	10	6
E5	10	6
E6	10	6
ANCHOR BOLTS	1 1/4" Ø x 18 1/2"	
	80	48

PROJECT NO. 8.T500310
ALAMANCE-ORANGE COUNTY
STATION: 329+86.22-L

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD ELASTOMERIC BEARING DETAILS
(STEEL SUPERSTRUCTURE)

APRIL 1992

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

SHEET NO. S-20
TOTAL SHEETS 69
STD.No.EB1

ASSEMBLED BY: W.F. PARKER DATE: 4-92
CHECKED BY: R.D. MARTIN DATE: 4-92

DRAWN BY: MIKE BRITT DATE: NOV. 1987
CHECKED BY: RANDY BISSETTE DATE: NOV. 1987

SPECIAL

STANDARD

DEAD LOAD DEFLECTION TABLE FOR BEAMS - SPAN A	STAGE I			STAGE II				
	A1	A2	A3	A4	A5	A6	A7	A8
DEFLECTION DUE TO WEIGHT OF BEAM	.002	.003	.003	.003	.003	.003	.003	.002
DEFLECTION DUE TO WEIGHT OF SLAB	.014	.030	.030	.030	.025	.025	.030	.014
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	.002	.003	.003	.002	.002	.003	.003	.002
TOTAL DEAD LOAD DEFLECTION	.018	.036	.036	.035	.030	.031	.036	.018
VERTICAL CURVE ORDINATE	.013	.013	.013	.013	.013	.013	.013	.013
REQUIRED BEAM CAMBER	*	*	*	*	*	*	*	*

DEAD LOAD DEFLECTION TABLE FOR BEAMS - SPAN B	STAGE I			STAGE II				
	B1	B2	B3	B4	B5	B6	B7	B8
DEFLECTION DUE TO WEIGHT OF BEAM	.038	.040	.040	.040	.040	.040	.040	.038
DEFLECTION DUE TO WEIGHT OF SLAB	.212	.227	.227	.227	.189	.189	.227	.212
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	.026	.025	.025	.013	.014	.027	.025	.026
TOTAL DEAD LOAD DEFLECTION	.276	.292	.292	.280	.243	.256	.292	.276
VERTICAL CURVE ORDINATE	.060	.060	.060	.060	.060	.060	.060	.060
REQUIRED BEAM CAMBER	4/16"	4/4"	4/4"	4/8"	3 5/8"	3 1/16"	4/4"	4/16"

DEAD LOAD DEFLECTION TABLE FOR BEAMS - SPAN C	STAGE I			STAGE II				
	C1	C2	C3	C4	C5	C6	C7	C8
DEFLECTION DUE TO WEIGHT OF BEAM	.038	.040	.040	.040	.040	.040	.040	.038
DEFLECTION DUE TO WEIGHT OF SLAB	.212	.227	.227	.227	.189	.189	.227	.212
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	.026	.025	.025	.013	.014	.027	.025	.026
TOTAL DEAD LOAD DEFLECTION	.276	.292	.292	.280	.243	.256	.292	.276
VERTICAL CURVE ORDINATE	.060	.060	.060	.060	.060	.060	.060	.060
REQUIRED BEAM CAMBER	4/16"	4/4"	4/4"	4/8"	3 5/8"	3 1/16"	4/4"	4/16"

DEAD LOAD DEFLECTION TABLE FOR BEAMS - SPAN D	STAGE I			STAGE II				
	D1	D2	D3	D4	D5	D6	D7	D8
DEFLECTION DUE TO WEIGHT OF BEAM	.002	.003	.003	.003	.003	.003	.003	.002
DEFLECTION DUE TO WEIGHT OF SLAB	.011	.025	.025	.025	.021	.021	.025	.011
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	.002	.003	.003	.001	.001	.003	.003	.002
TOTAL DEAD LOAD DEFLECTION	.015	.031	.031	.029	.025	.027	.031	.015
VERTICAL CURVE ORDINATE	.012	.012	.012	.012	.012	.012	.012	.012
REQUIRED BEAM CAMBER	*	*	*	*	*	*	*	*

* NO SHOP CAMBER REQUIRED,
TURN NATURAL MILL CAMBER UP.

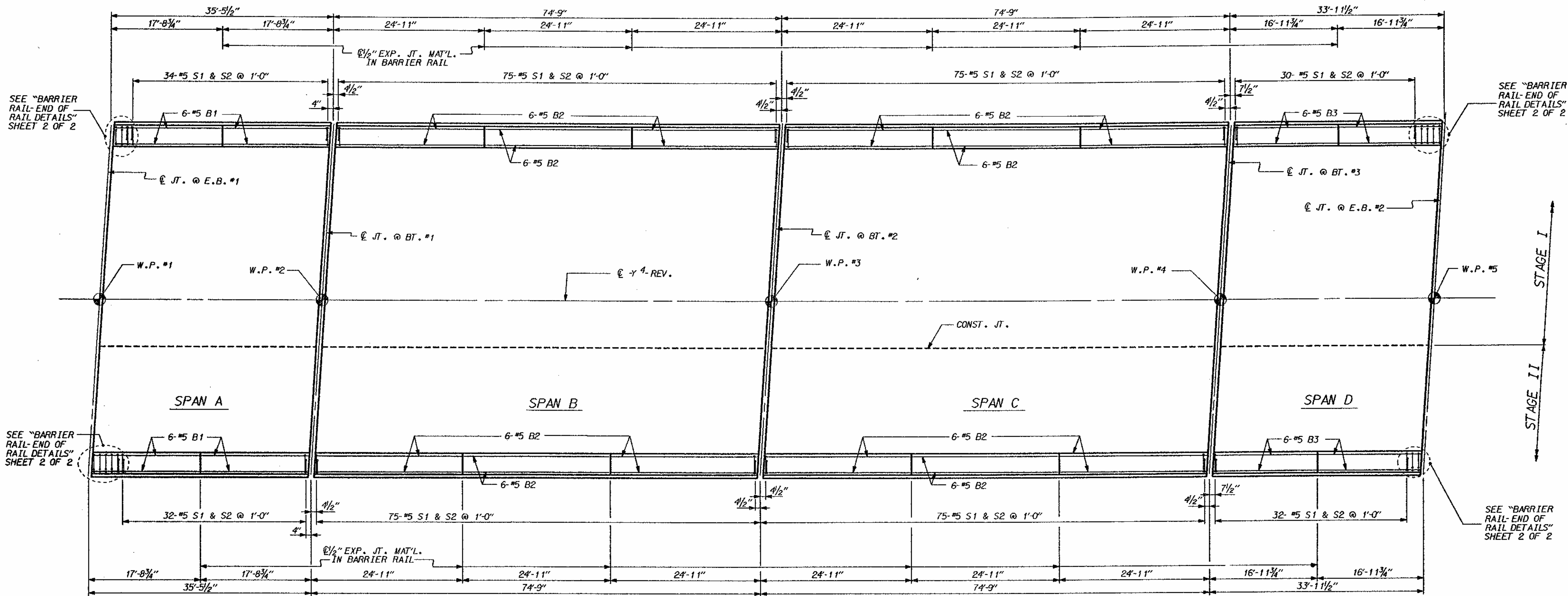
NOTES

VALUES GIVEN IN FEET (DECIMAL FORM) AT MIDPOINT
BETWEEN \odot BEARINGS, EXCEPT "REQUIRED CAMBER" WHICH
IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. 8.T500310
ALAMANCE-ORANGE COUNTY
STATION: 329+86.22-L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE STRUCTURAL STEEL DEAD LOAD DEFLECTION TABLE					
APRIL 1992					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-21					TOTAL SHEETS 69

DRAWN BY: W.F. PARKER DATE: 4-92
CHECKED BY: R.D. MARTIN DATE: 4-92



PLAN

PROJECT NO. 8.T500310
 ALAMANCE-ORANGE COUNTY
 STATION: 329+86.22-L

SHEET 1 OF 2

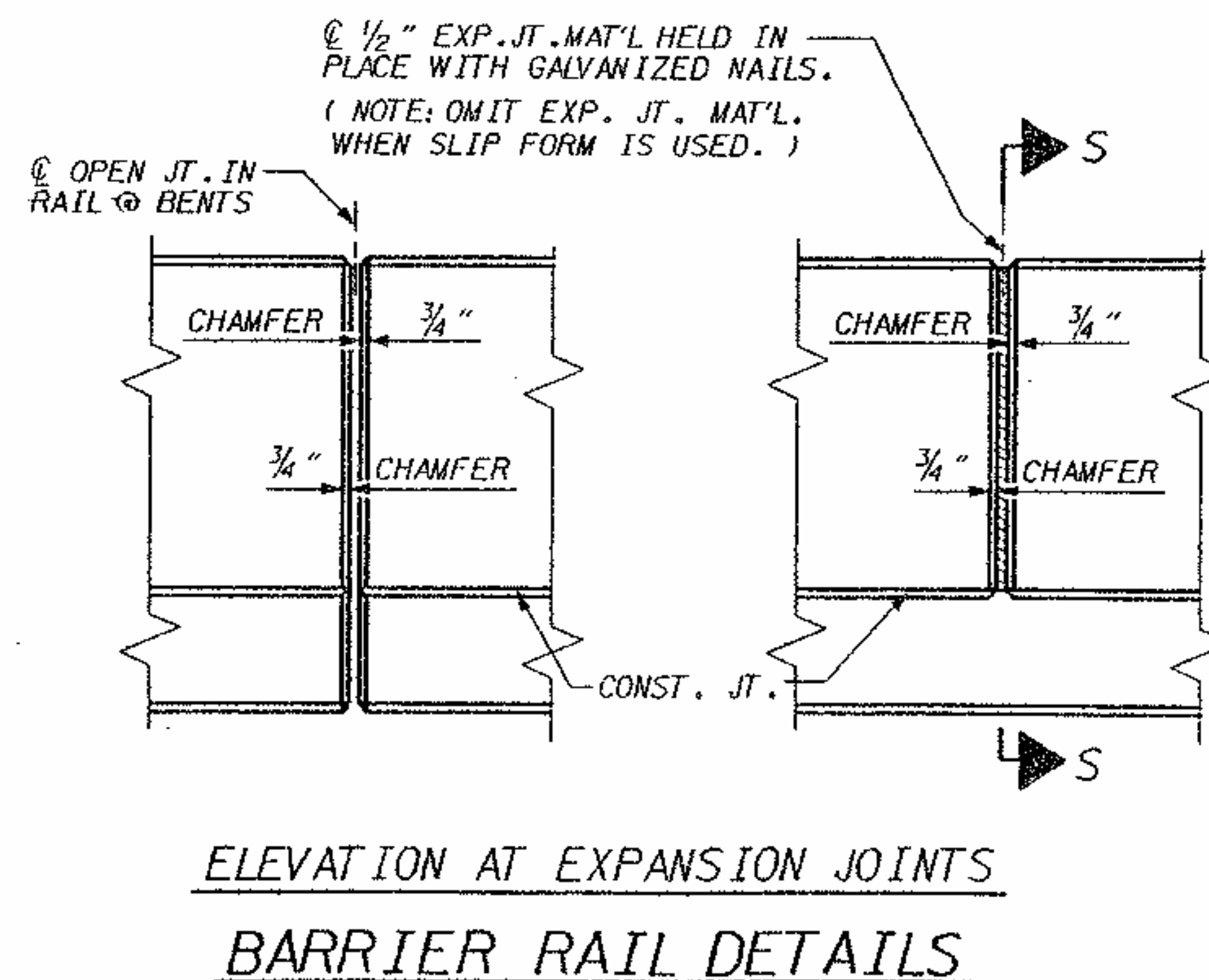
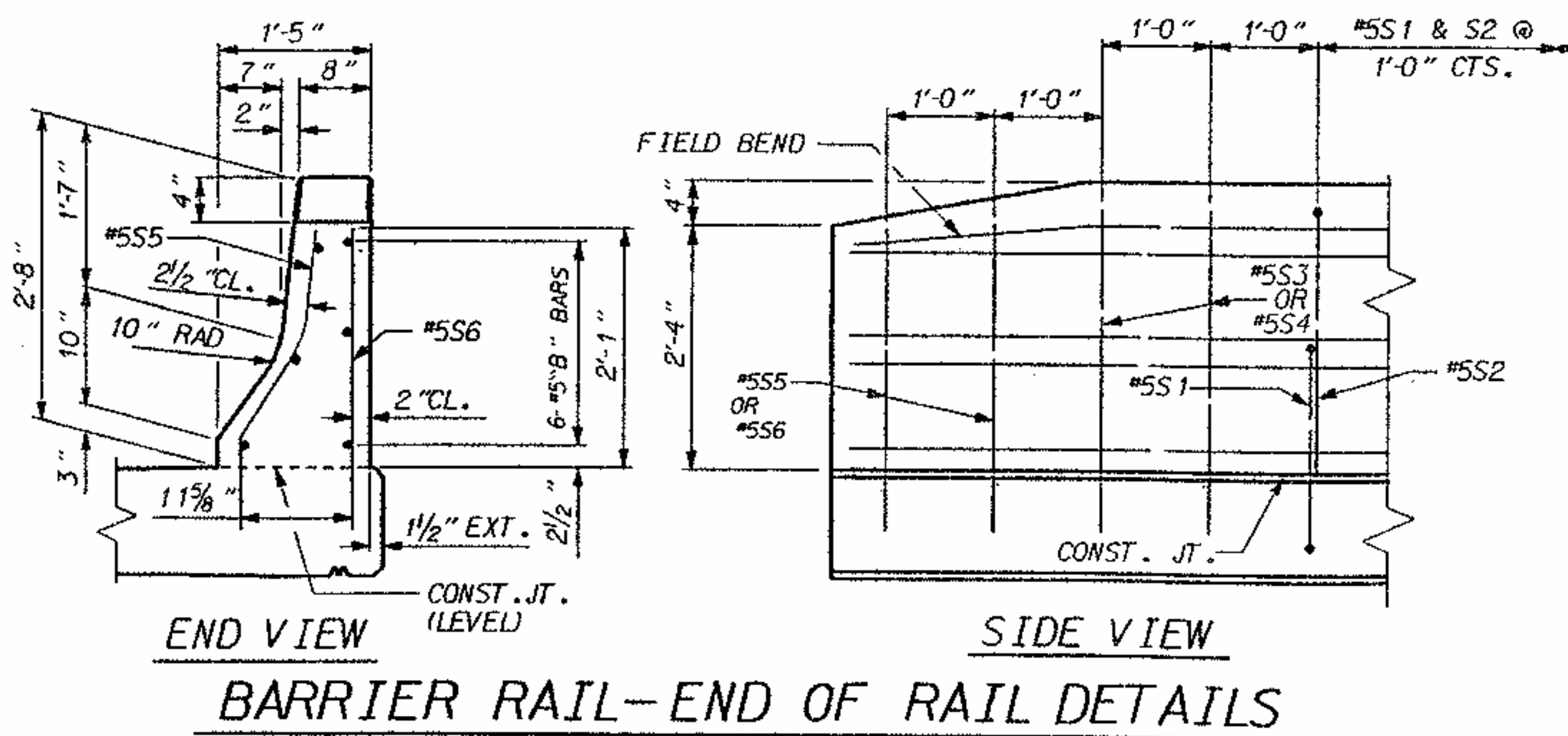
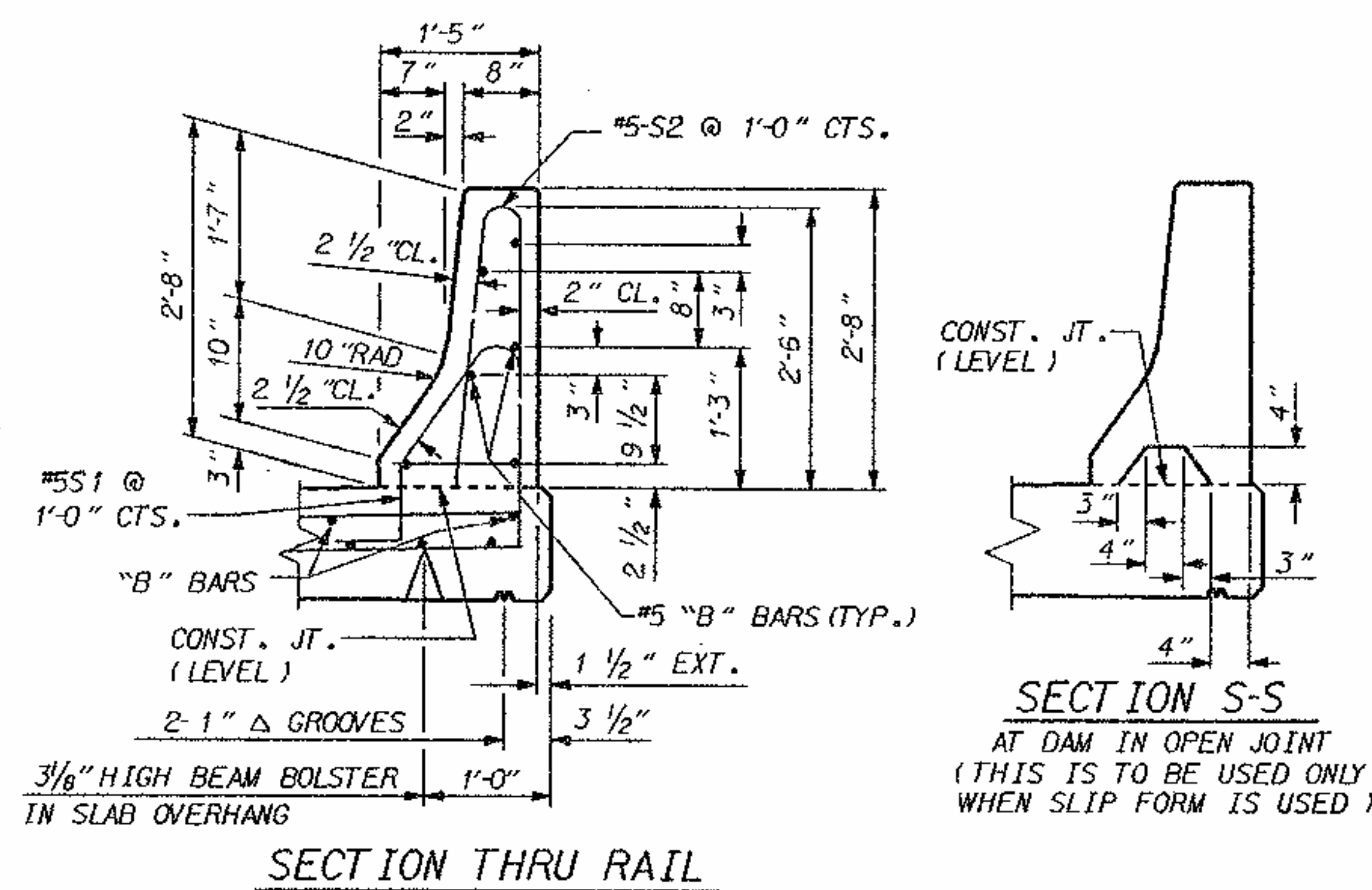
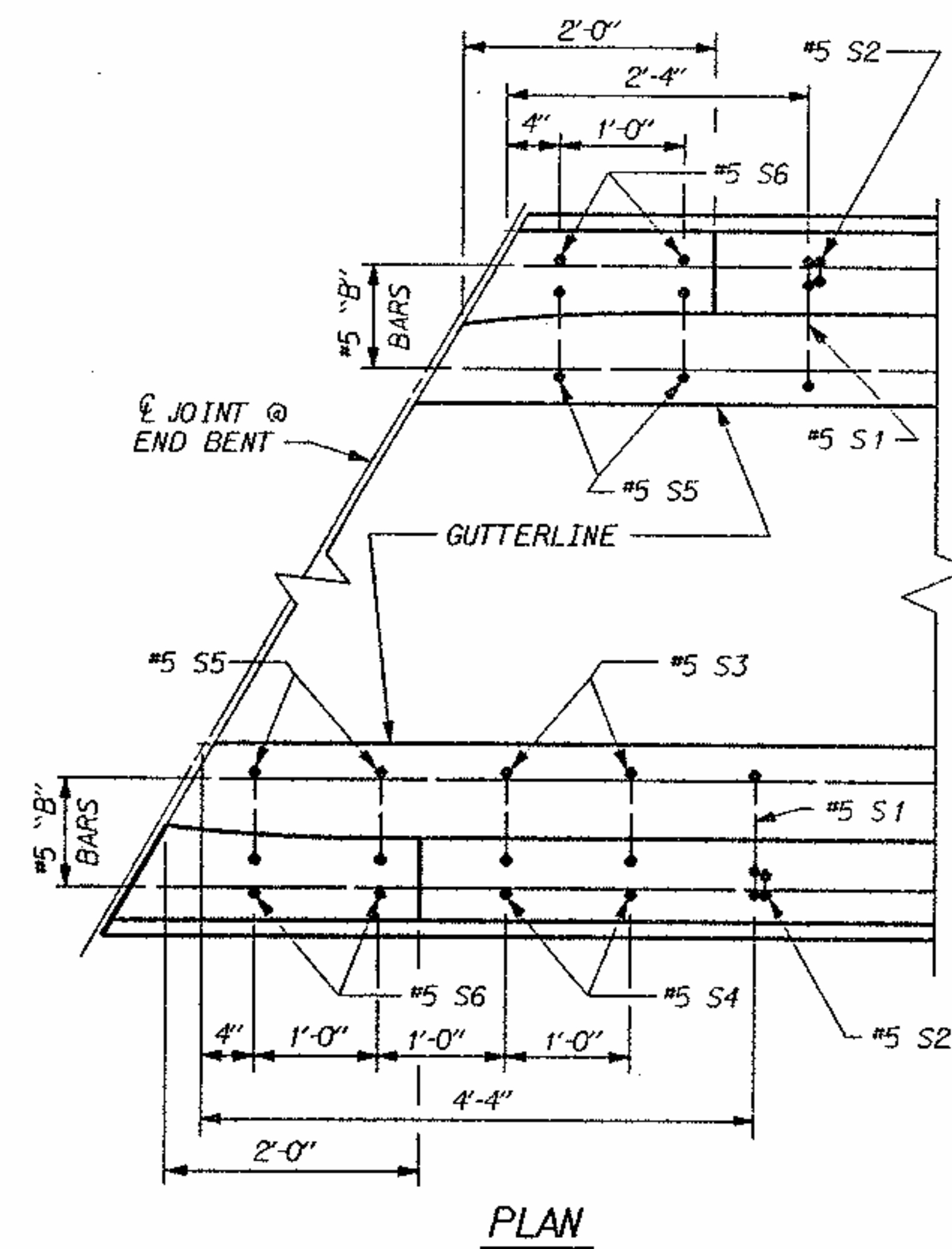
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

CONCRETE
 BARRIER RAIL

APRIL 1992

REVISIONS						SHEET NO. 5-22
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 69
2			4			

DRAWN BY: W.F. PARKER DATE: 4-92
 CHECKED BY: R.D. MARTIN DATE: 4-92



NOTES

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

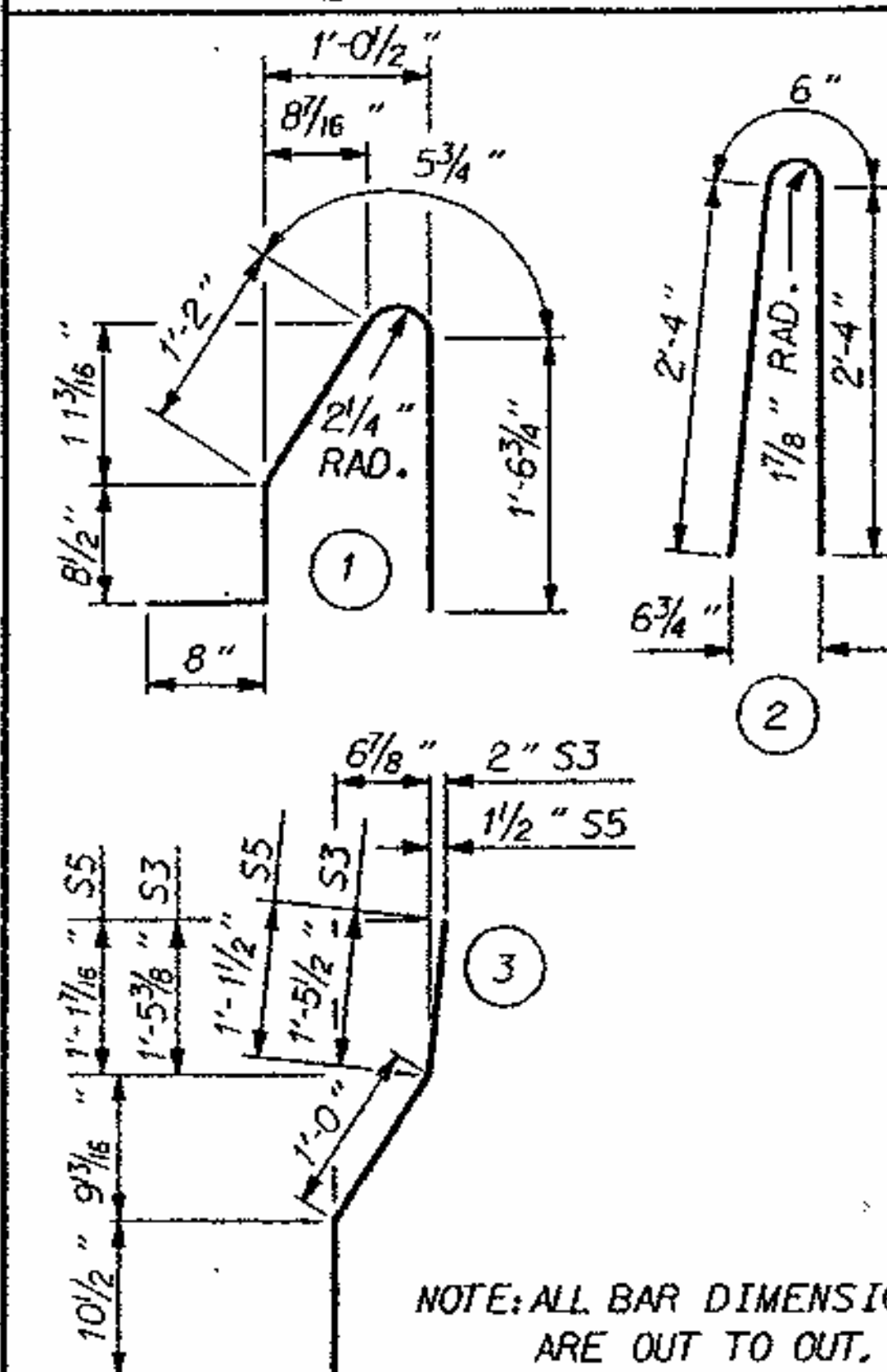
WHEN COMPRESSION JOINT SEAL IS REQUIRED, THE JOINT IN THE DECK SHALL BE SAWED PRIOR TO THE CASTING OF BARRIER RAIL.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

FOR EPOXY COATED REINFORCING STEEL, SEE SPECIAL PROVISIONS.

THE #5S3 THRU #5S6 BARS SHALL BE INSTALLED, USING AN ADHESIVE ANCHORING SYSTEM, AFTER SAWING THE JOINT. FOR ADHESIVELY ANCHORED BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

BAR TYPES



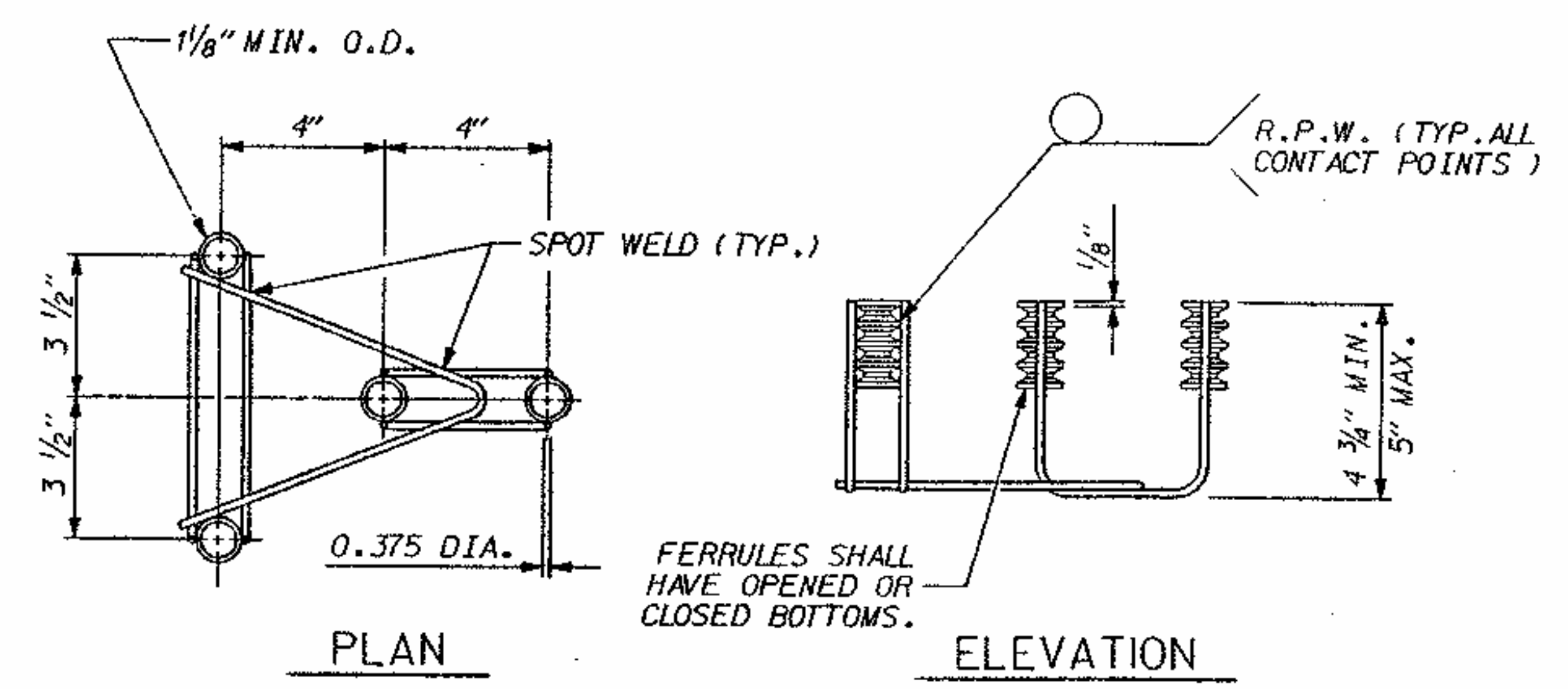
BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY (STAGE I)						FOR CONCRETE BARRIER RAIL ONLY (STAGE II)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
S1	214	#5	1	3'-11"	874	S1	214	#5	1	3'-11"	874
S2	214	#5	2	5'-2"	1153	S2	214	#5	2	5'-2"	1153
S3	2	#5	3	3'-4"	7	S3	2	#5	3	3'-4"	7
S4	2	#5	STR	3'-2"	7	S4	2	#5	STR	3'-2"	7
S5	4	#5	3	3'-0"	13	S5	4	#5	3	3'-0"	13
S6	4	#5	STR	2'-9"	11	S6	4	#5	STR	2'-9"	11
B1	12	#5	STR	17'-3"	216	B1	12	#5	STR	17'-3"	216
B2	36	#5	STR	24'-5"	917	B2	36	#5	STR	24'-5"	917
B3	12	#5	STR	16'-6"	207	B3	12	#5	STR	16'-6"	207
EPOXY COATED REINFORCING STEEL LBS. 3405						EPOXY COATED REINFORCING STEEL LBS. 3405					
CLASS A-A CONCRETE CU. YDS. 20.1						CLASS A-A CONCRETE CU. YDS. 20.1					
CONCRETE BARRIER RAIL LIN. FT. 218.92						CONCRETE BARRIER RAIL LIN. FT. 218.92					

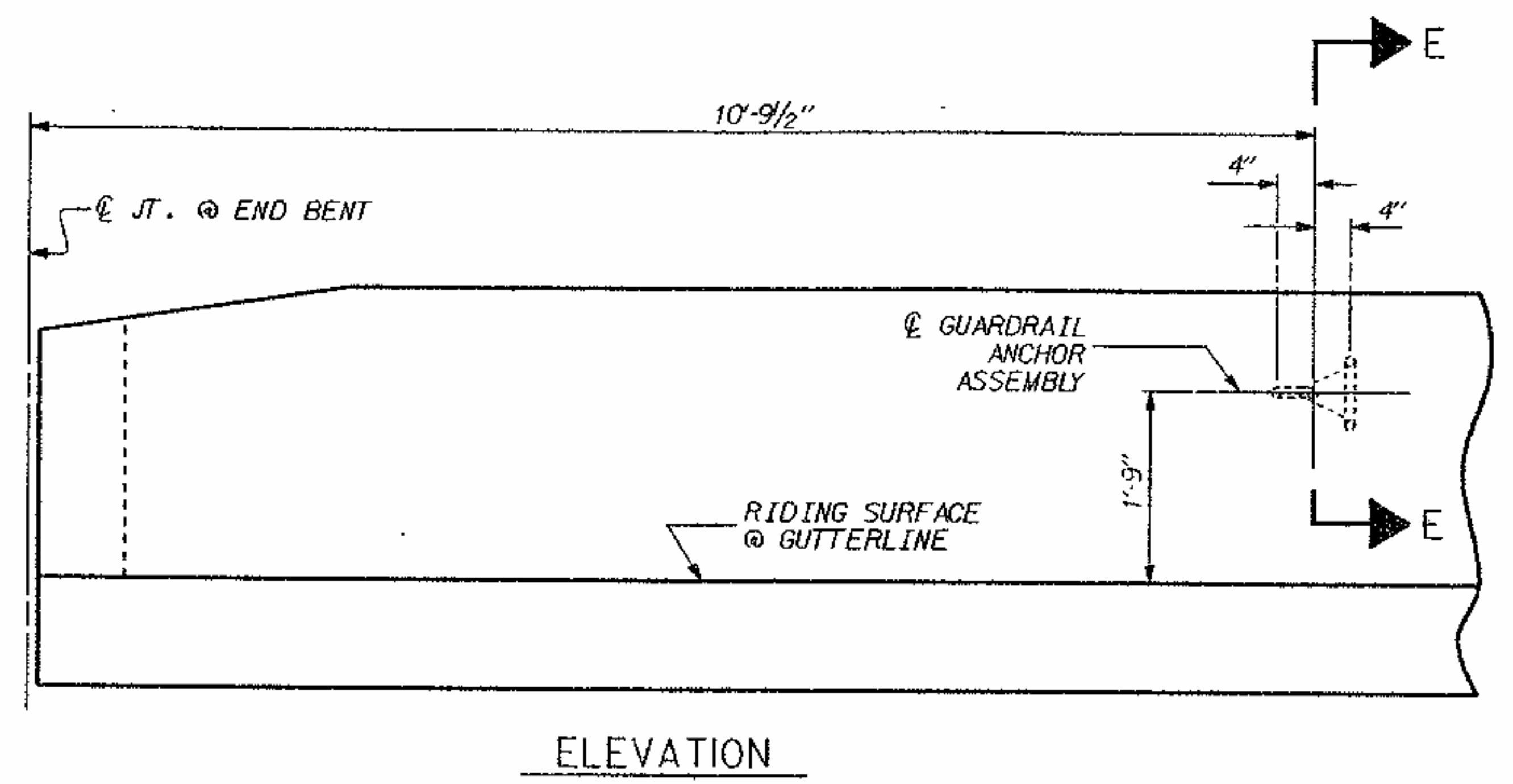
ASSEMBLED BY: W.F. PARKER	DATE: 4-92	SPECIAL
CHECKED BY: S.O. MARTIN	DATE: 4-92	
DRAWN BY: R. BISSETTE	DATE: 5/28/87	STANDARD
CHECKED BY: S.J. DAVIS	DATE: 3/3/87	

PROJECT NO. 8.T500310
 ALAMANCE-ORANGE COUNTY
 STATION: 329+86.22-L
 SHEET 2 OF 2

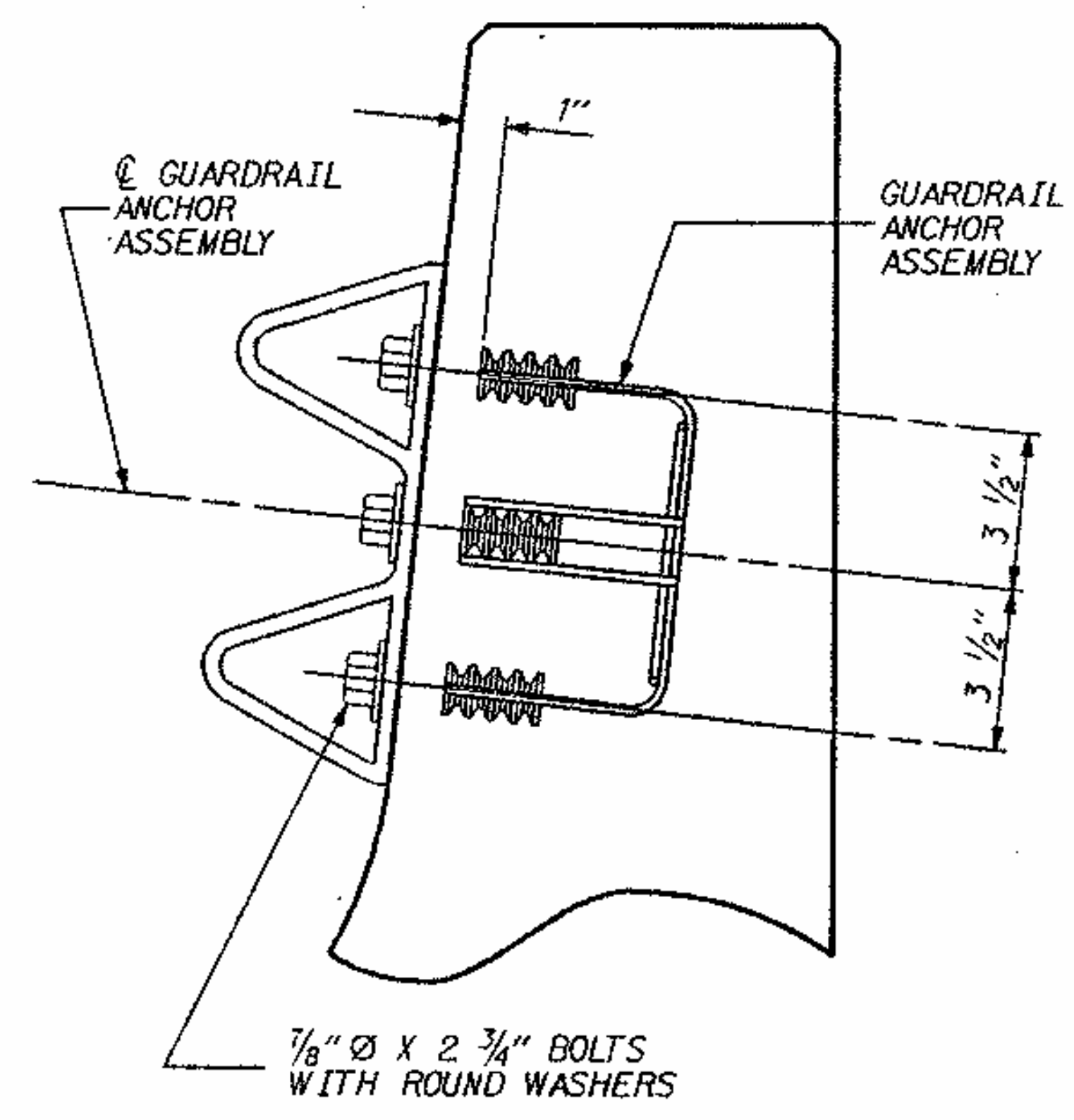
STATE OF NORTH CAROLINA						1992
DEPARTMENT OF TRANSPORTATION						
RALEXH						
STANDARD						
CONCRETE						
BARRIER RAIL						
APRIL						
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	5-23
1			3			TOTAL SHEETS
2			4			69



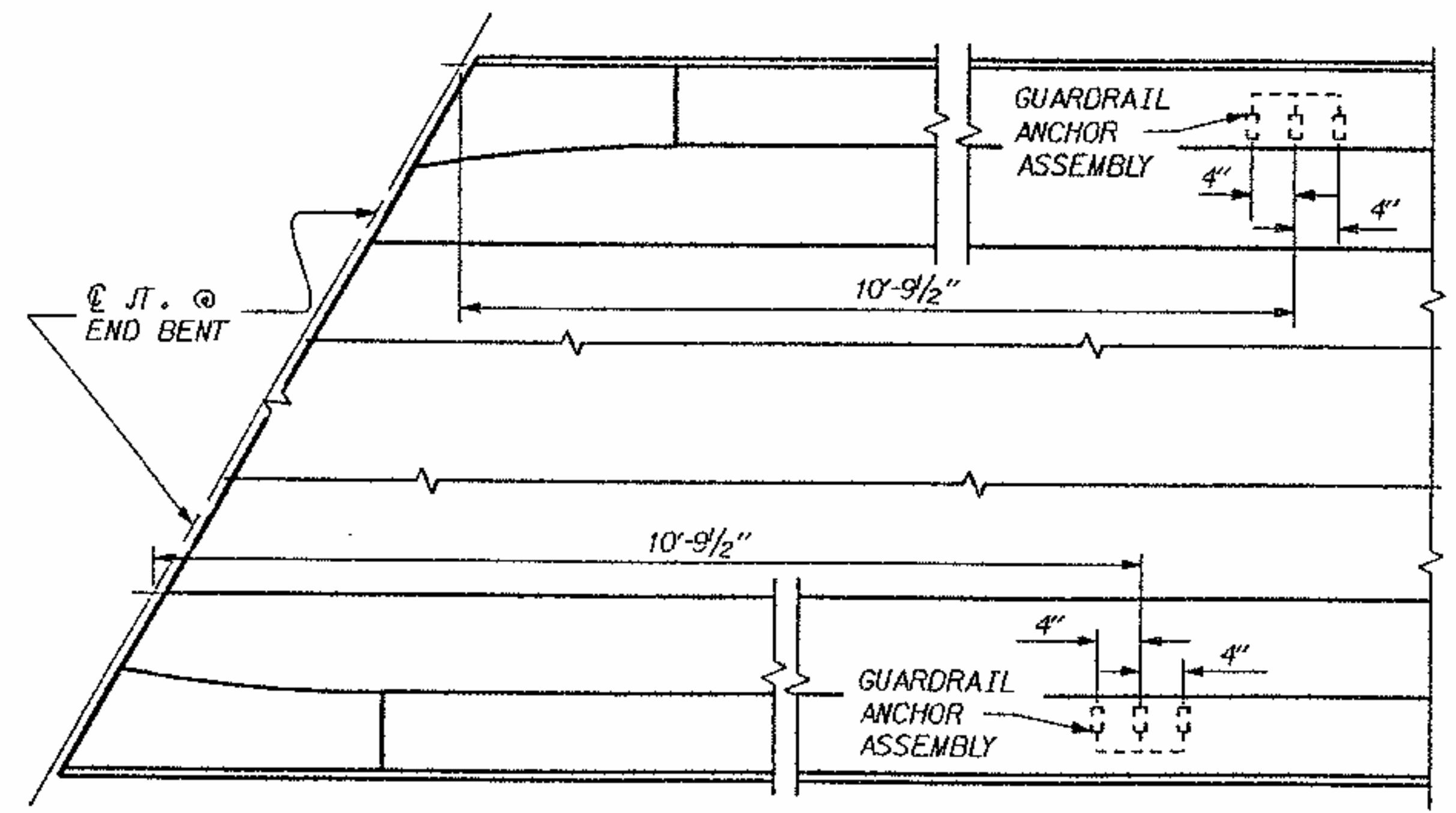
GUARDRAIL ANCHOR ASSEMBLY



ELEVATION



SECTION E-E



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL AND OFFSET BLOCK

NOTES

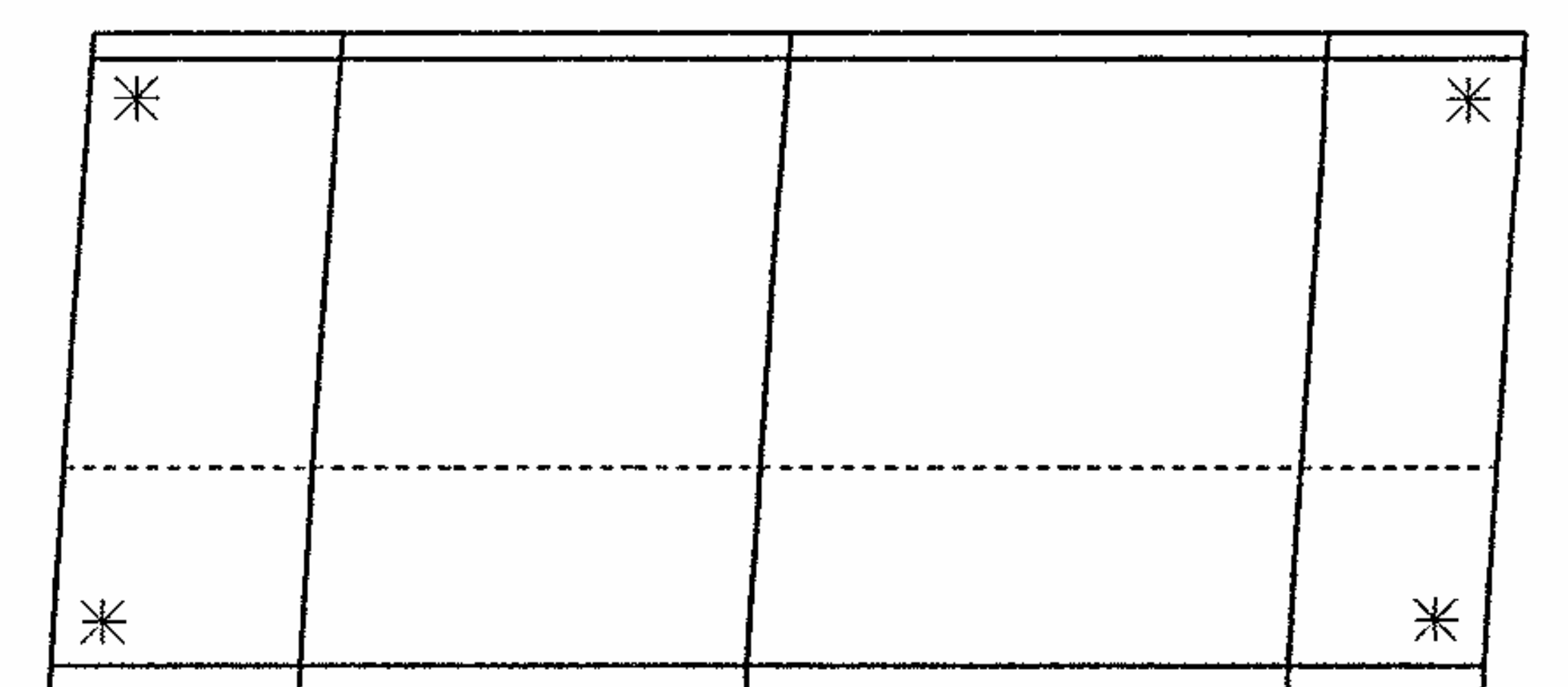
- THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS :
- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF ASTM A108, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".
 - B. 4 - 7/8" Ø X 2 3/4" BOLTS WITH WASHERS FOR GUARDRAIL ANCHOR ASSEMBLY SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS WITH WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø X 2 3/4" GALVANIZED BOLTS 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.)
 - C. WIRE STRUTS SHOWN IN THE ANCHOR ASSEMBLY ARE THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI.

THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP. BOLT THREADS MAY BE RECUT AS NECESSARY.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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

THE CONTRACTOR MAY, AT HIS OPTION, USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF GUARDRAIL ANCHOR ASSEMBLY. SEE SPECIAL PROVISIONS FOR "ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS". THE REQUIRED DESIGN LOAD OF THE 7/8" Ø BOLT IS 12 KIPS. THE ANCHOR BOLTS SHALL BE COATED WITH A DEBONDING AGENT SO THAT THE ANCHOR BOLTS CAN BE EASILY REMOVED IF NECESSARY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT THE DEBONDING AGENT DOES NOT REDUCE THE STRENGTH OF THE ANCHOR SYSTEM. TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



SKETCH SHOWING POINTS OF ATTACHMENTS

PROJECT NO. 8.T500310
ALAMANCE-ORANGE COUNTY
 STATION: 329+86.22-L

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

APRIL		1992			
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.			5-24		
TOTAL SHEETS			69		

REDESIGNED 2-28-88

ASSEMBLED BY : <u>W.F. PARKER</u>	DATE : <u>4-92</u>	SPECIAL
CHECKED BY : <u>R.D. MARTIN</u>	DATE : <u>4-92</u>	
DRAWN BY : <u>MIKE BRITT</u>	DATE : <u>DEC. 1987</u>	STANDARD
CHECKED BY : <u>RANDY BISSETTE</u>	DATE : <u>DEC. 1987</u>	

REINFORCING BAR SCHEDULE

STAGE I

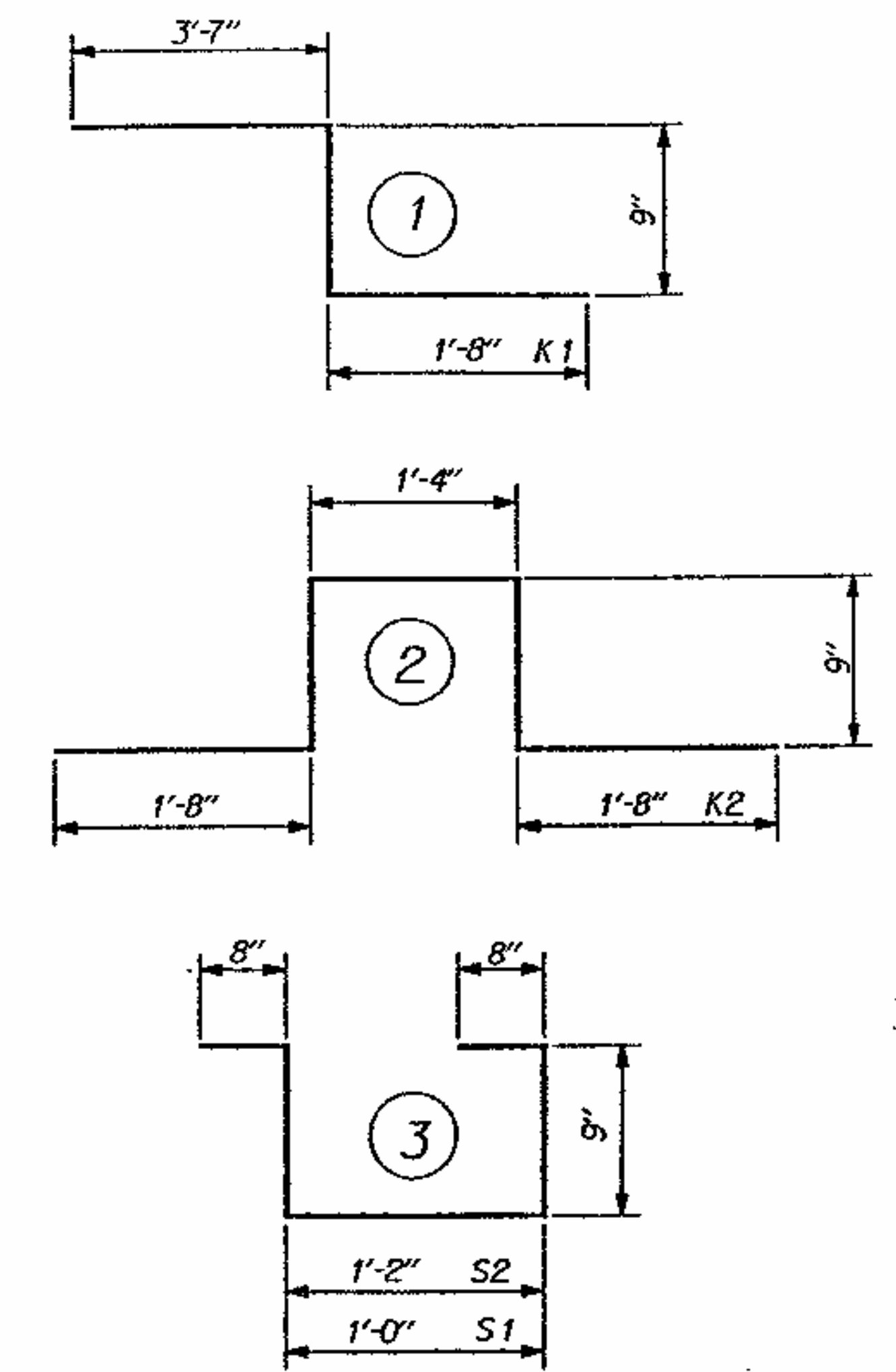
SPAN A						SPAN B						SPAN C						SPAN D							
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT		
*A1	57	6	STR.	37-3	3,189	*A1	120	6	STR.	37-3	6,714	*A1	120	6	STR.	37-3	6,714	*A1	54	6	STR.	37-3	3,021		
A2	57	6	STR.	37-3	3,189	A2	120	6	STR.	37-3	6,714	A2	120	6	STR.	37-3	6,714	A2	54	6	STR.	37-3	3,021		
*B1	52	4	STR.	18-3	634	*B3	78	4	STR.	25-9	1,342	*B3	78	4	STR.	25-9	1,342	*B5	52	4	STR.	17-6	608		
B2	52	5	STR.	35-1	1,903	B4	104	5	STR.	38-0	4,122	B4	104	5	STR.	38-0	4,122	B6	52	5	STR.	33-6	1,817		
*D1	28	6	STR.	3-0	126	*D1	60	6	STR.	3-0	270	*D1	60	6	STR.	3-0	270	*D1	27	6	STR.	3-0	122		
*G1	2	5	STR.	37-3	78	*G1	2	5	STR.	37-3	78	*G1	2	5	STR.	37-3	78	*G1	2	5	STR.	37-3	78		
*K1	4	5	1	6-0	25	*K1	4	5	1	6-0	25	*K1	4	5	1	6-0	25	*K1	4	5	1	6-0	25		
*K2	16	5	2	6-2	103	*K2	16	5	2	6-2	103	*K2	16	5	2	6-2	103	*K2	16	5	2	6-2	103		
K3	16	5	STR.	7-6	125	K3	16	5	STR.	7-6	125	K3	16	5	STR.	7-6	125	K3	16	5	STR.	7-6	125		
*S1	30	4	3	3-10	77	*S1	60	4	3	3-10	154	*S1	60	4	3	3-10	154	*S1	30	4	3	3-10	77		
S2	30	4	3	4-0	80	S2	30	4	3	4-0	80	S2	30	4	3	4-0	80	S2	30	4	3	4-0	80		
REINFORCING STEEL = 5,217 LBS.						REINFORCING STEEL = 10,961 LBS.						REINFORCING STEEL = 10,961 LBS.						REINFORCING STEEL = 4,963 LBS.							
* EPOXY COATED REINFORCING STEEL = 4,312 LBS.						* EPOXY COATED REINFORCING STEEL = 8,686 LBS.						* EPOXY COATED REINFORCING STEEL = 8,686 LBS.						* EPOXY COATED REINFORCING STEEL = 4,114 LBS.							
CLASS A CONCRETE TOTAL = 42.1 CY.						CLASS A CONCRETE TOTAL = 86.9 CY.						CLASS A CONCRETE TOTAL = 86.9 CY.						CLASS A CONCRETE TOTAL = 40.4 CY.							

STAGE II

SPAN A						SPAN B						SPAN C						SPAN D							
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT		
*A3	57	6	STR.	21-3	1,819	*A3	120	6	STR.	21-3	3,830	*A3	120	6	STR.	21-3	3,830	*A3	54	6	STR.	21-3	1,724		
A4	57	6	STR.	21-3	1,819	A4	120	6	STR.	21-3	3,830	A4	120	6	STR.	21-3	3,830	A4	54	6	STR.	21-3	1,724		
*B1	30	4	STR.	18-3	366	*B3	45	4	STR.	25-9	774	*B3	45	4	STR.	25-9	774	*B5	30	4	STR.	17-6	351		
B2	30	5	STR.	35-1	1,098	B4	60	5	STR.	38-0	2,378	B4	60	5	STR.	38-0	2,378	B6	30	5	STR.	33-6	1,048		
*G2	2	5	STR.	21-3	44	*G2	2	5	STR.	21-3	44	*G2	2	5	STR.	21-3	44	*G2	2	5	STR.	21-3	44		
*K1	4	5	1	6-0	25	*K1	4	5	1	6-0	25	*K1	4	5	1	6-0	25	*K1	4	5	1	6-0	25		
*K2	8	5	2	6-2	51	*K2	8	5	2	6-2	51	*K2	8	5	2	6-2	51	*K2	8	5	2	6-2	51		
K3	8	5	STR.	7-6	63	K3	8	5	STR.	7-6	63	K3	8	5	STR.	7-6	63	K3	8	5	STR.	7-6	63		
*S1	16	4	3	3-10	41	*S1	32	4	3	3-10	82	*S1	32	4	3	3-10	82	*S1	16	4	3	3-10	41		
S2	16	4	3	4-0	43	S2	16	4	3	4-0	43	S2	16	4	3	4-0	43	S2	16	4	3	4-0	43		
REINFORCING STEEL = 2,980 LBS.						REINFORCING STEEL = 6,271 LBS.						REINFORCING STEEL = 6,271 LBS.						REINFORCING STEEL = 2,835 LBS.							
* EPOXY COATED REINFORCING STEEL = 2,389 LBS.						* EPOXY COATED REINFORCING STEEL = 4,806 LBS.						* EPOXY COATED REINFORCING STEEL = 4,806 LBS.						* EPOXY COATED REINFORCING STEEL = 2,279 LBS.							
CLASS A CONCRETE TOTAL = 24.3 CY.						CLASS A CONCRETE TOTAL = 50.2 CY.						CLASS A CONCRETE TOTAL = 50.2 CY.						CLASS A CONCRETE TOTAL = 23.3 CY.							

BAR SIZE	SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS				PARAPET AND BARRIER RAIL
	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	1'-5"	1'-2"	1'-5"	1'-2"	1'-11"
#5	1'-8"	1'-5"	1'-8"	1'-5"	2'-4"
#6	2'-2"	1'-10"	2'-2"	1'-10"	3'-2"
#8	5'-0"	3'-4"	5'-0"	3'-4"	5'-8"

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

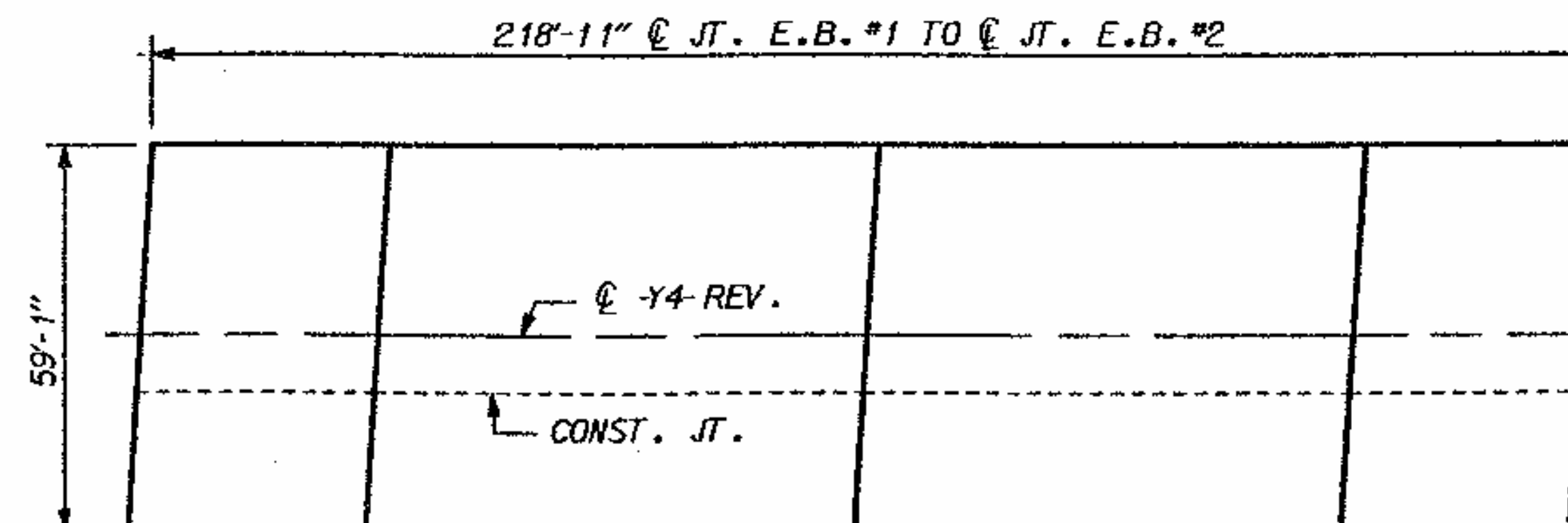
SUPERSTRUCTURE BILL OF MATERIAL

	CLASS A-A CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
SPAN "A"	66.4	8,197	6,701
SPAN "B"	137.1	17,232	13,492
SPAN "C"	137.1	17,232	13,492
SPAN "D"	63.7	7,798	6,393
TOTALS **	404.3	50,459	40,078

** QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

PROJECT NO. 8.T500310
ALAMANCE-ORANGE COUNTY
 STATION: 329+86.22-L

GROOVING BRIDGE FLOORS		
	STAGE I	STAGE II
APPROACH SLABS - SQ. FT.	737	447
BRIDGE DECK - SQ. FT.	7,147	4,332
SUBTOTAL - SQ. FT.	7,884	4,779
TOTAL - SQ. FT.	12,663	



LAYOUT FOR COMPUTING AREA
 OF REINFORCED CONCRETE DECK SLAB
 (SQ. FT. = 12,934)

DRAWN BY: W.F. PARKER DATE: 4-92
 CHECKED BY: R.D. MARTIN DATE: 4-92

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE BILL OF MATERIAL					
APRIL 1992					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					5-25
					TOTAL SHEETS 69

--- NOTES ---

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

PIPE DRAINS MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR REINFORCING STEEL AND ANCHOR BOLTS.

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

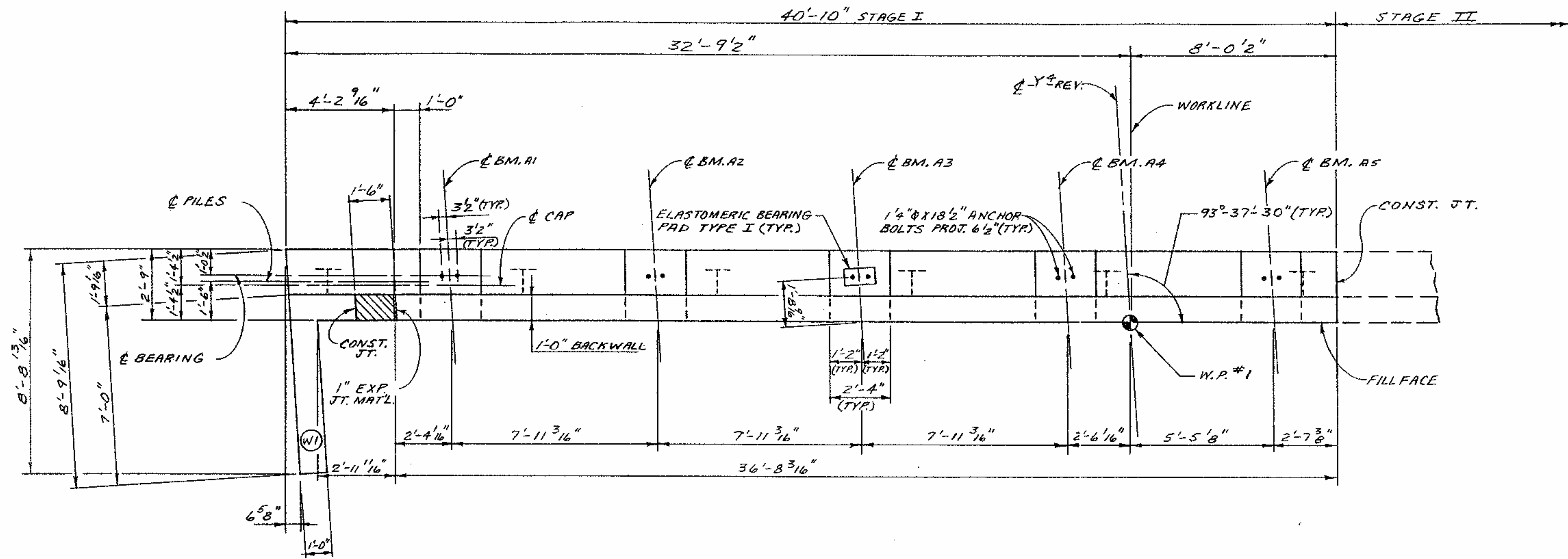
THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THAT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

THE TOP SURFACE OF THE END BENT CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 1/4" PER FOOT.

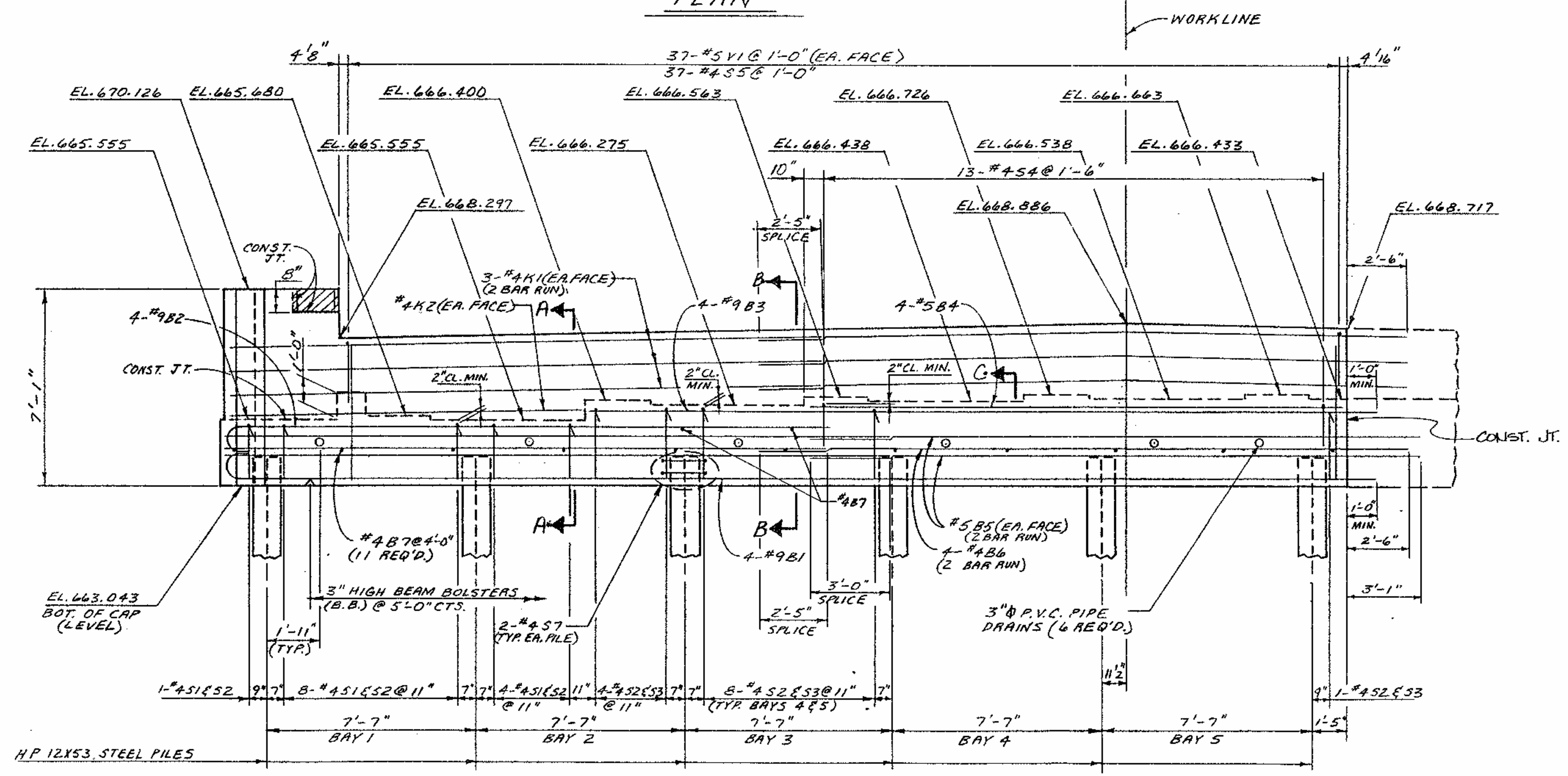
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE Poured AFTER THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

USE OF A MECHANICAL BUTT SPLICE IS REQUIRED FOR THE #9 BARS AT THE CONSTRUCTION JOINT BETWEEN STAGES. A PERFORMANCE TEST WILL BE REQUIRED. SEE SPECIAL PROVISIONS.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.



PLAN



ELEVATION

PROJECT No. B.7500310

ALAMANCE-ORANGE COUNTY

STATION: 329+86.22 -L-

SHEET 10F4

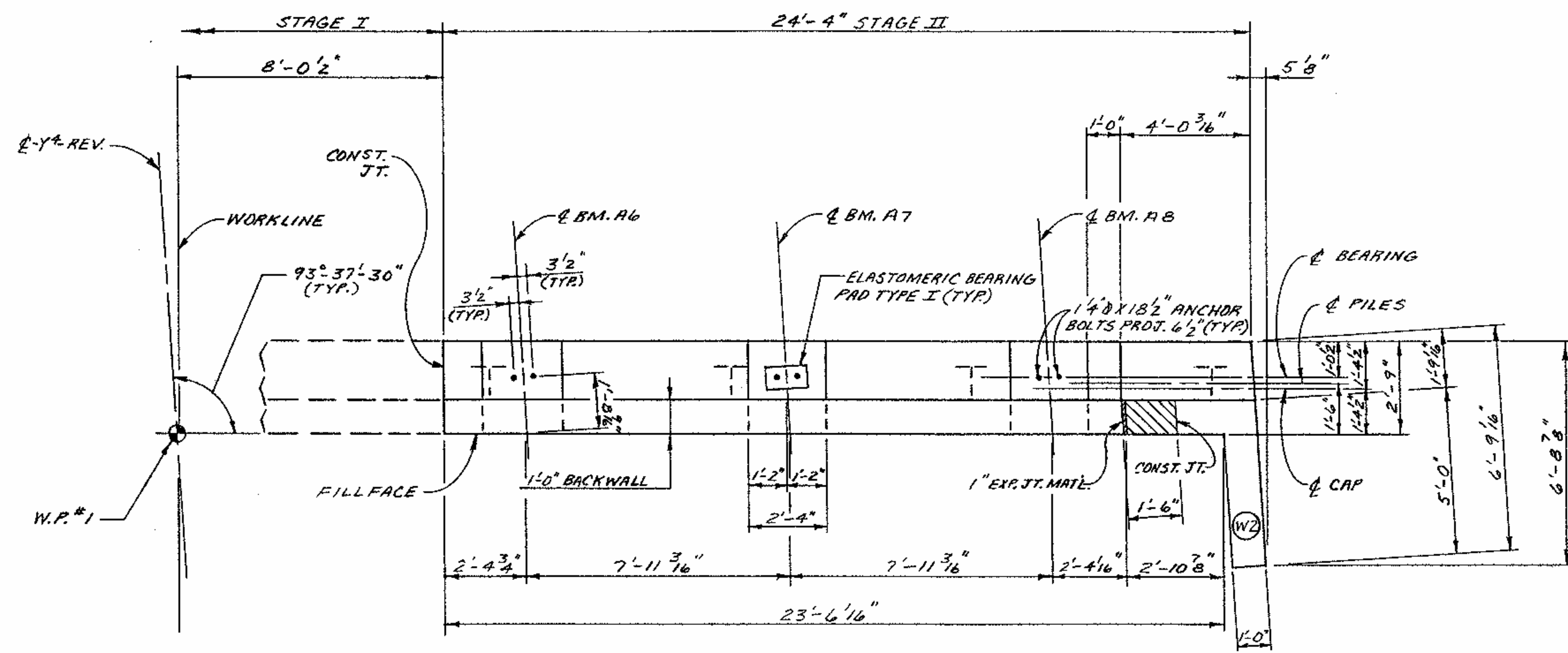
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT #1
 (STAGE I)

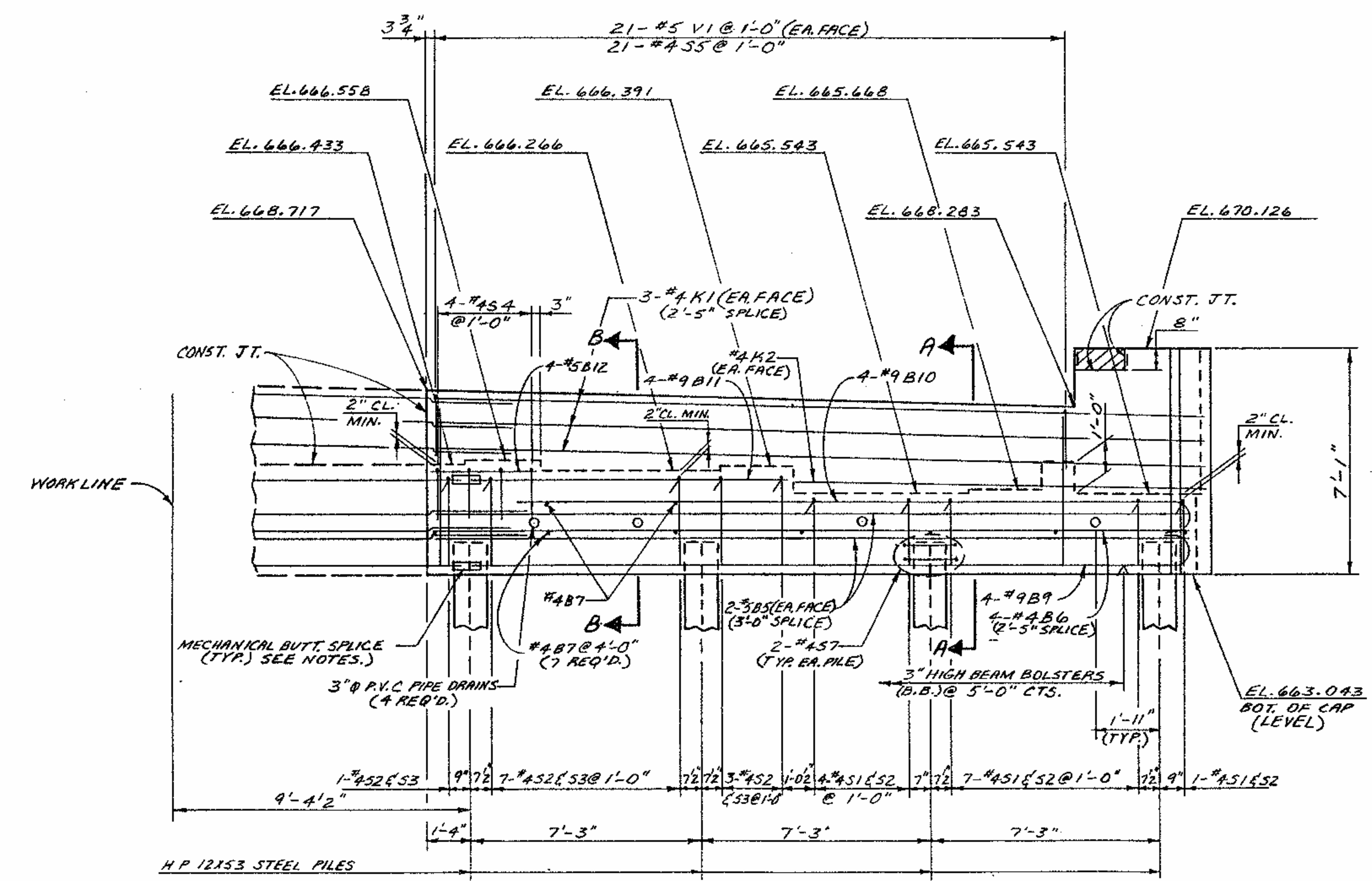
MAY 1990

REVISIONS						SHEET NO. 5-26
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 69
2			4			

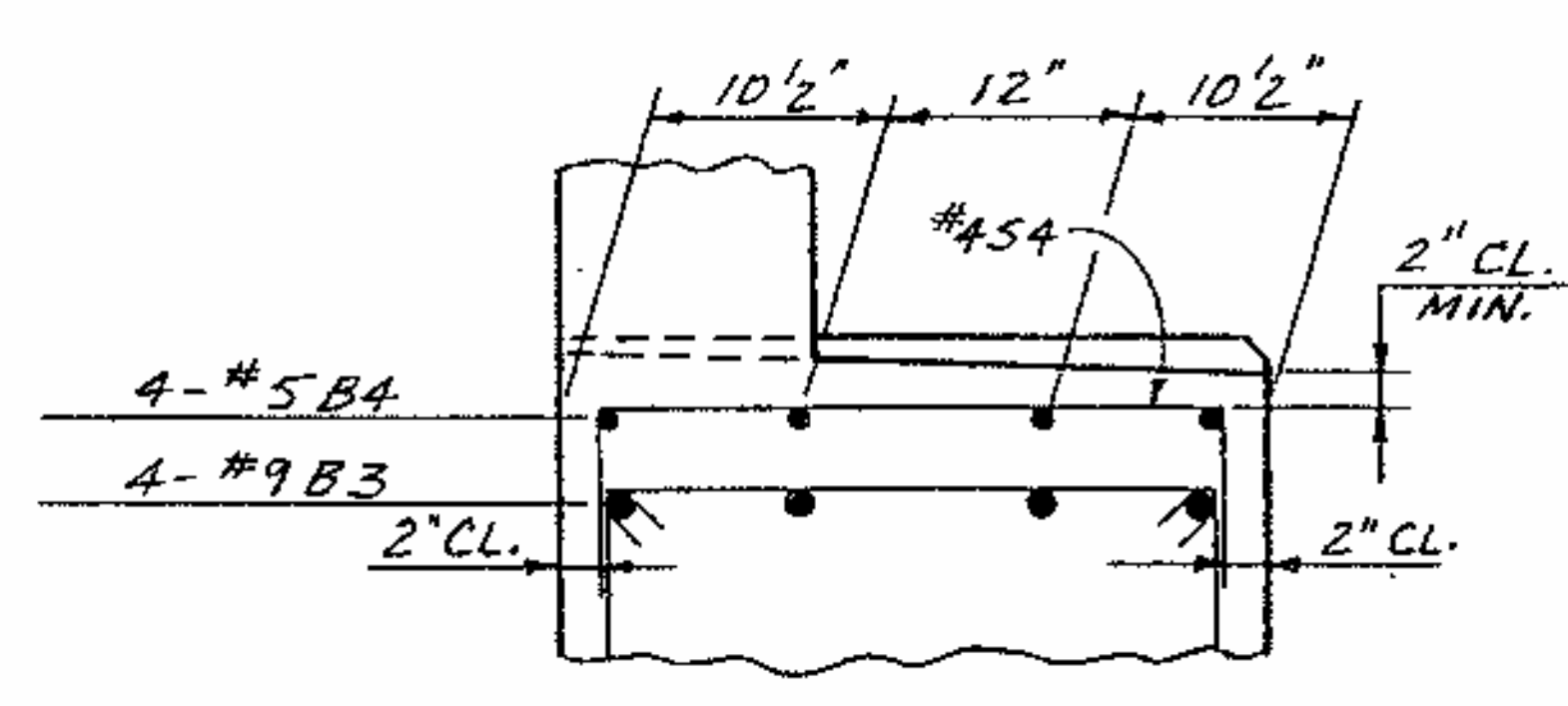
DRAWN BY KORY MARTIN DATE 5-4-90
 CHECKED BY W.F. PARKER DATE 7-6-90



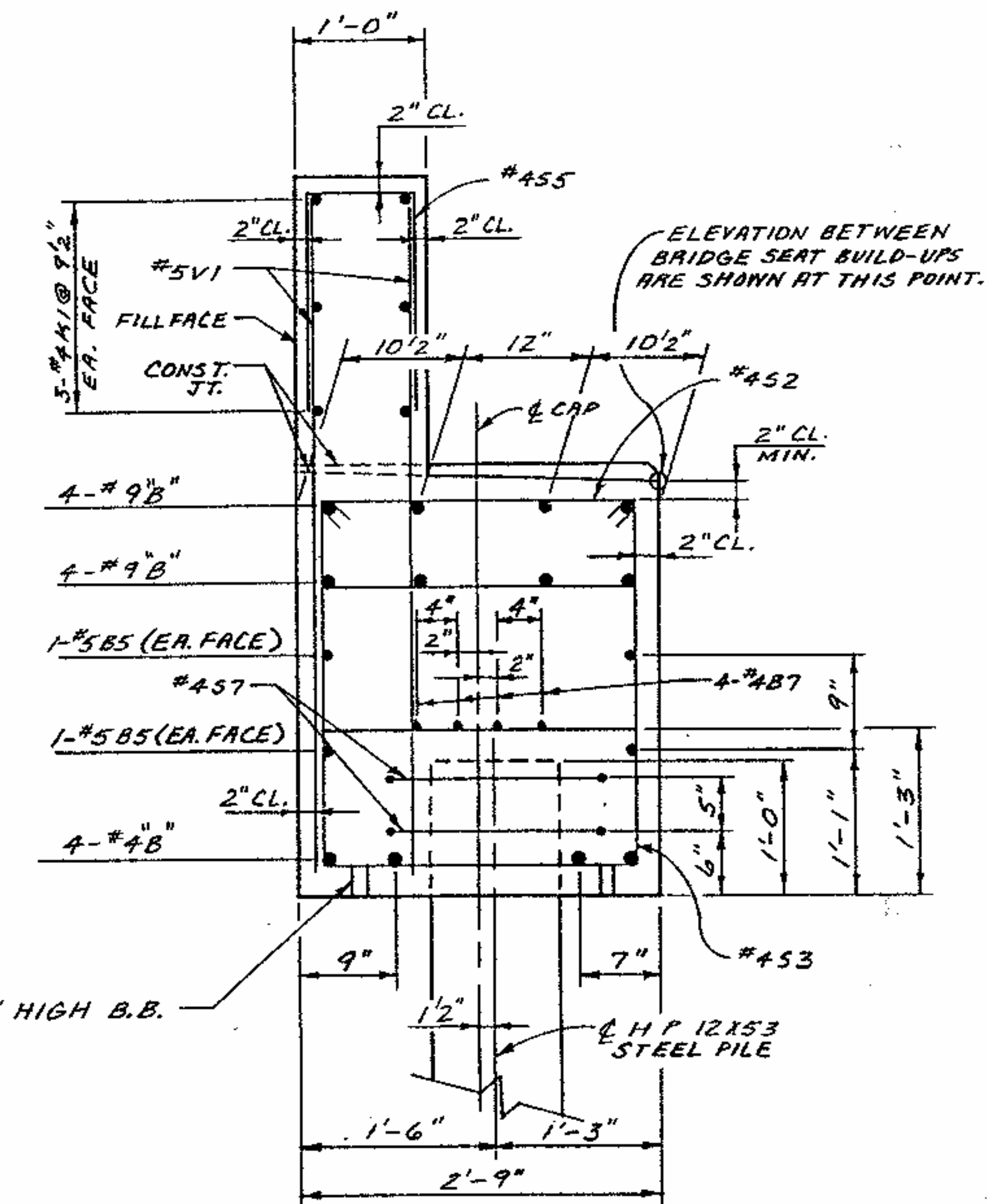
PLAN



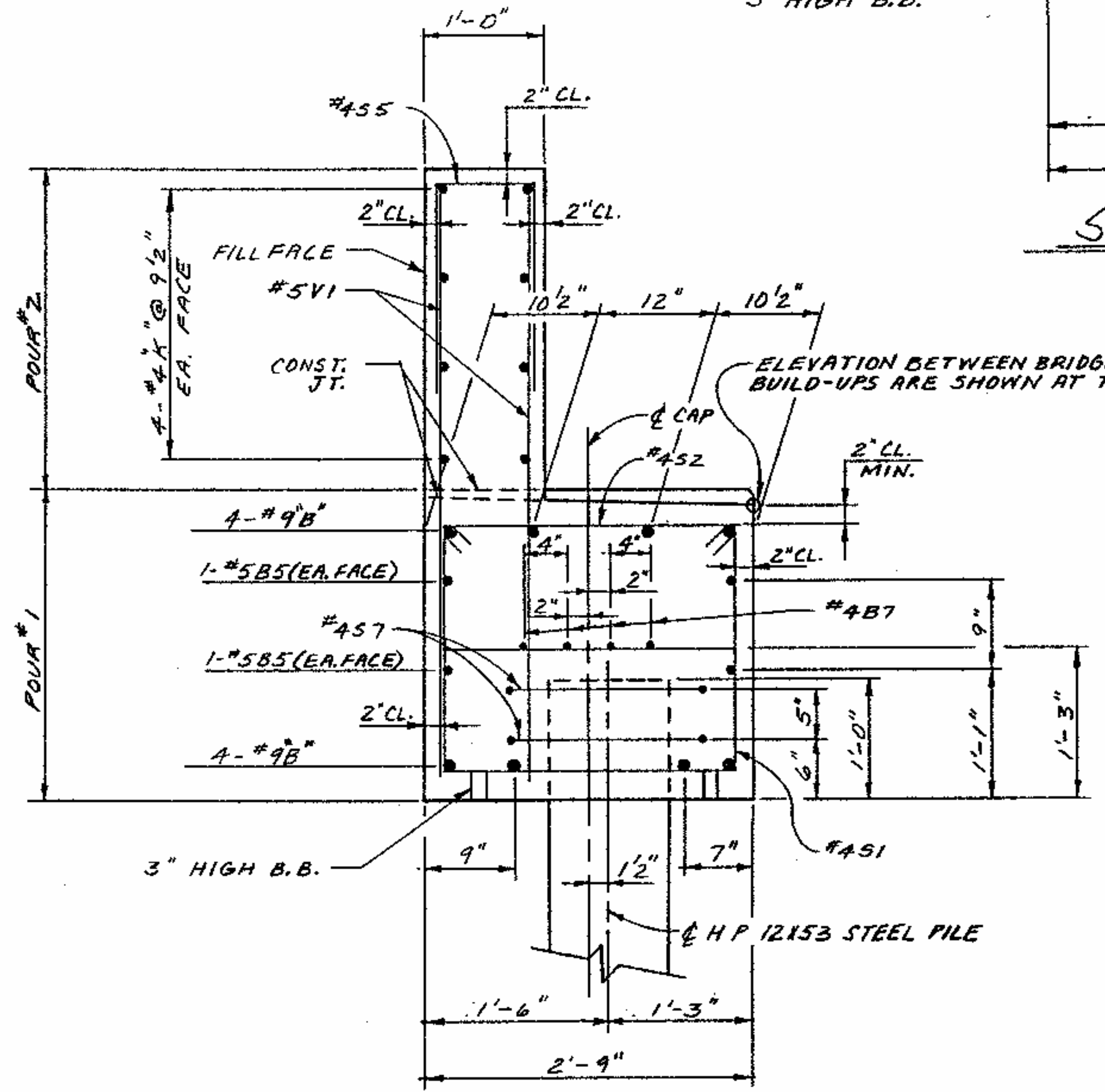
ELEVATION



PART-SECTION C-C



SECTION B-B



SECTION A-A

PROJECT No. 8.T500310

ALAMANCE-ORANGE COUNTY

STATION: 329+86.22-L-

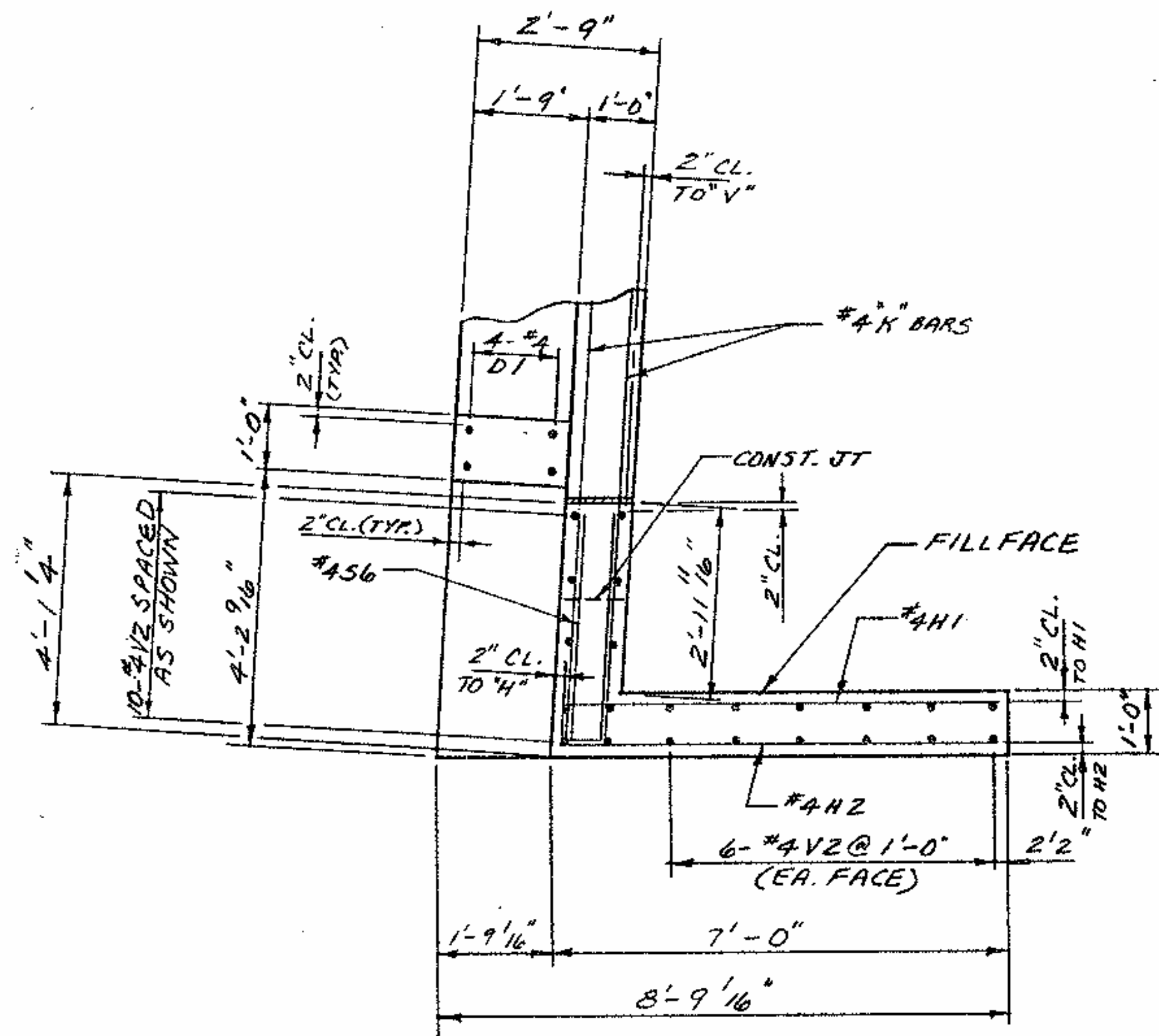
SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

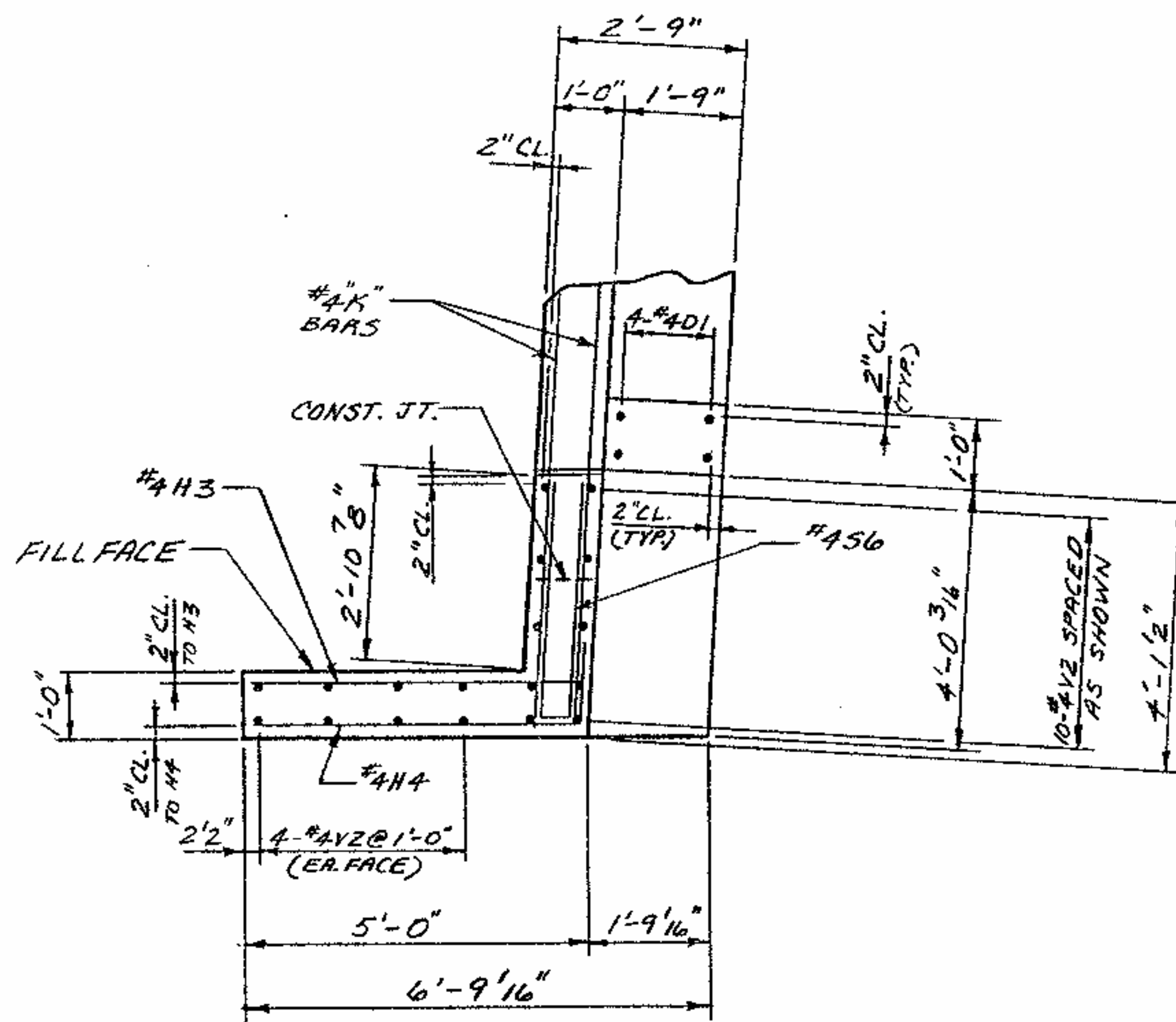
SUBSTRUCTURE
END BENT #1
MAY (STAGE II) 1990

REVISIONS						SHEET NO. 5-27
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 69
2			4			

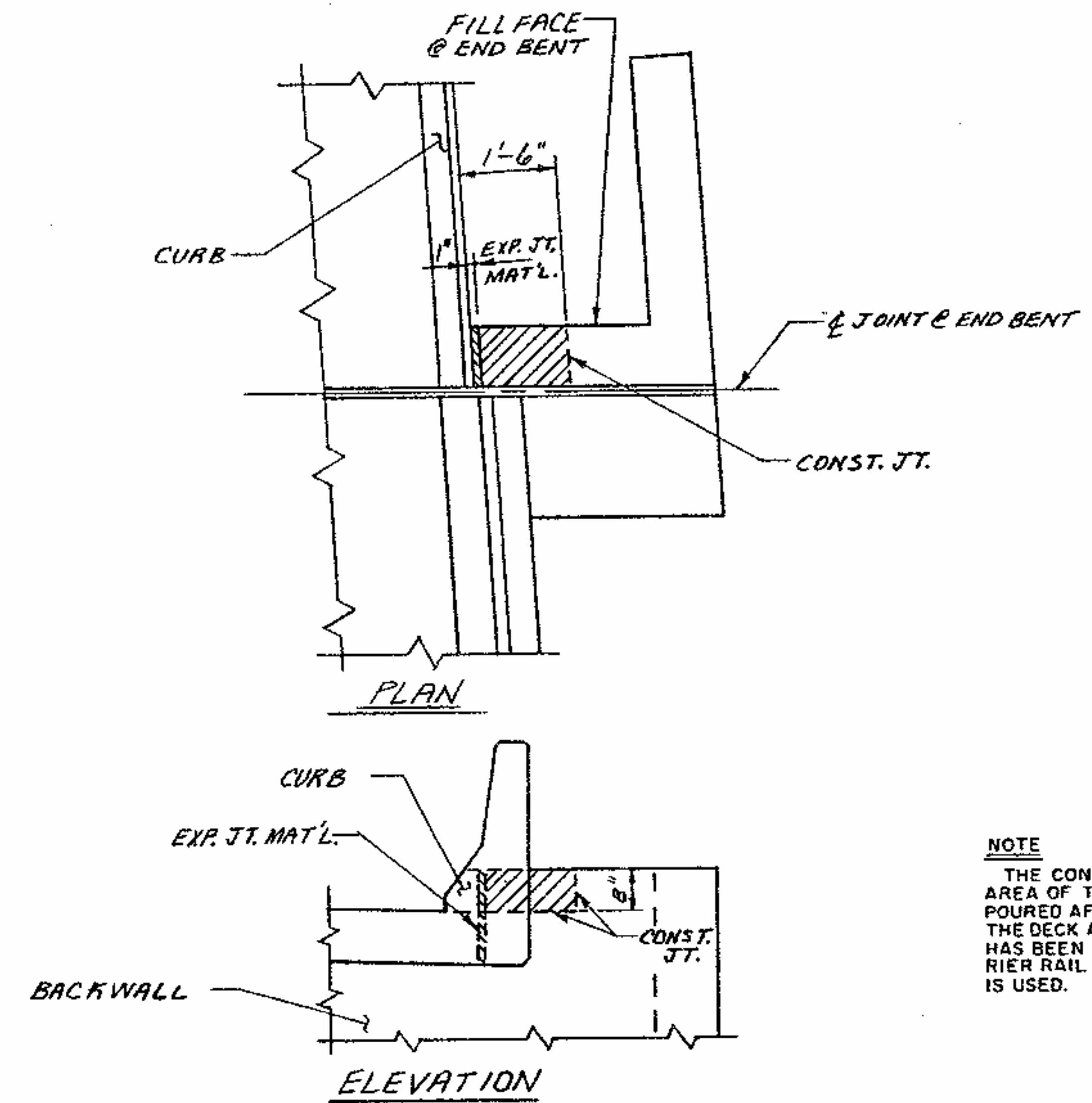
DRAWN BY: ADY MARTIN DATE: 5-4-90
CHECKED BY: W.F. PARKER DATE: 2-6-90



PLAN OF LEFT WING (W1)

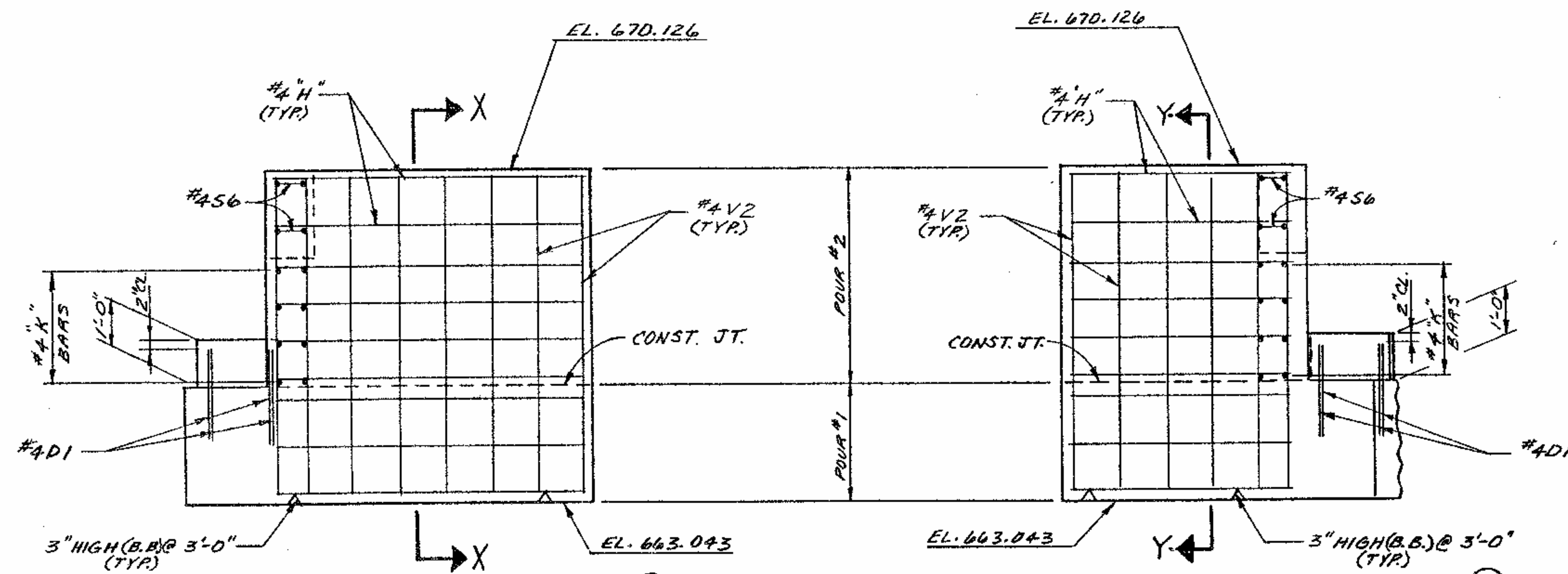


PLAN OF RIGHT WING (W2)



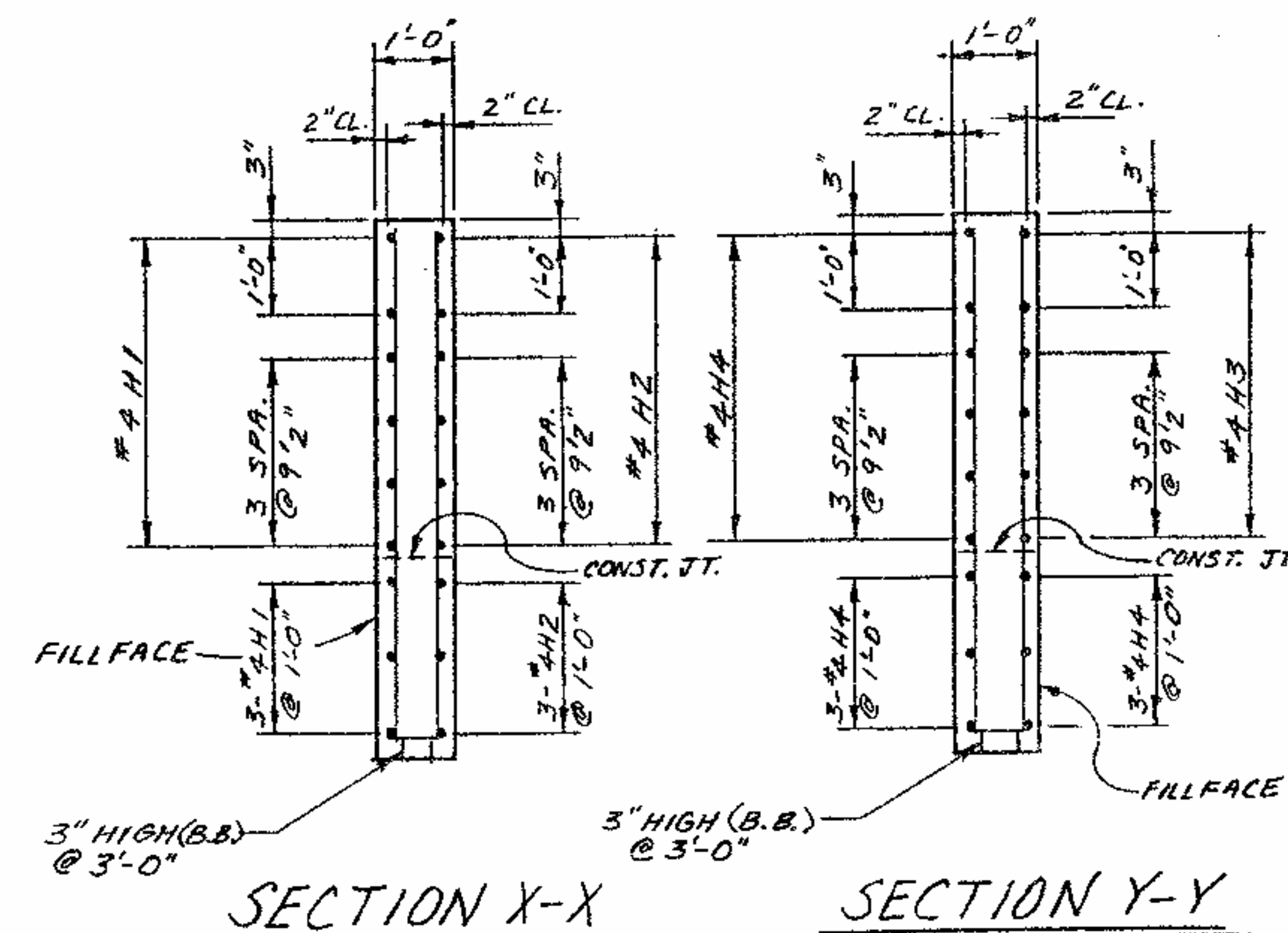
NOTE
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE DECK AND APPROACH SLAB HAS BEEN SAWS AND THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

BLOCKOUT IN WING WALL FOR FITTING COMPRESSION JOINT SEAL



ELEVATION OF LEFT WING (W1)

ELEVATION OF RIGHT WING (W2)



SECTION X-X

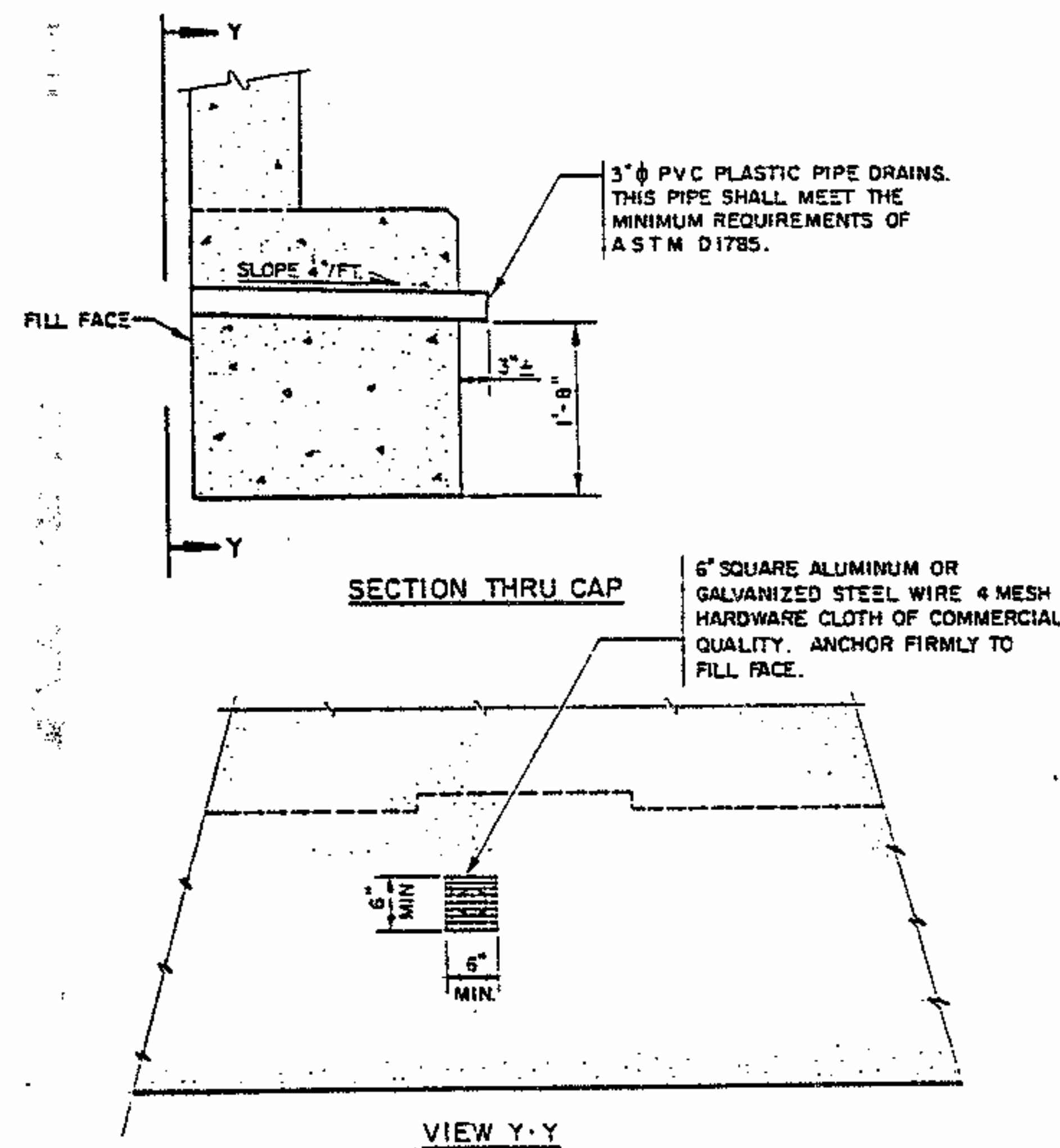
SECTION Y-Y

PROJECT No. B.7500310
ALAMANCE-ORANGE COUNTY
STATION: 329+86.22 -L-
SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

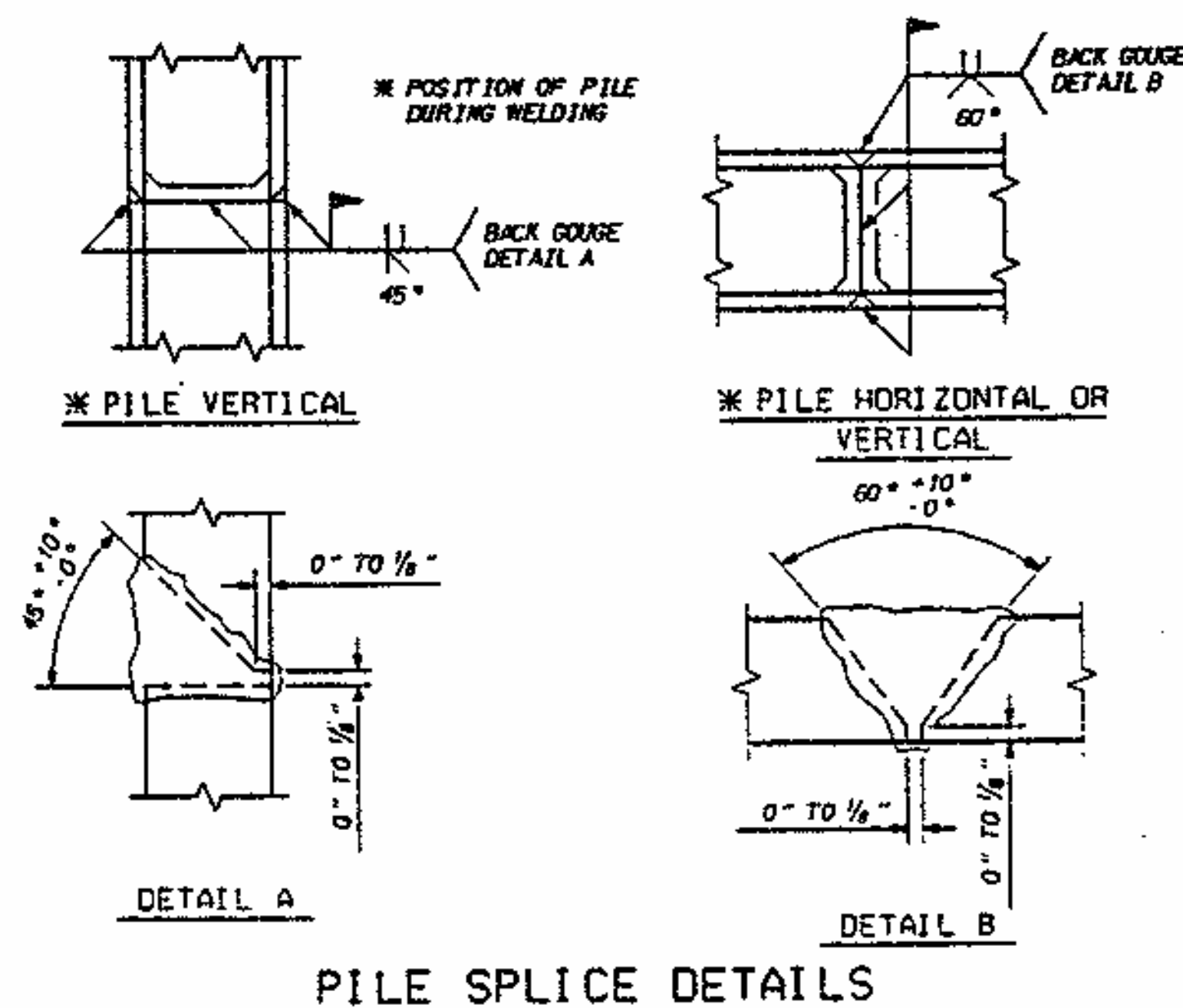
SUBSTRUCTURE
END BENT #1
(STAGES I & II)
MAY 1990

REVISIONS						SHEET NO. 5-28
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 69
2			4			

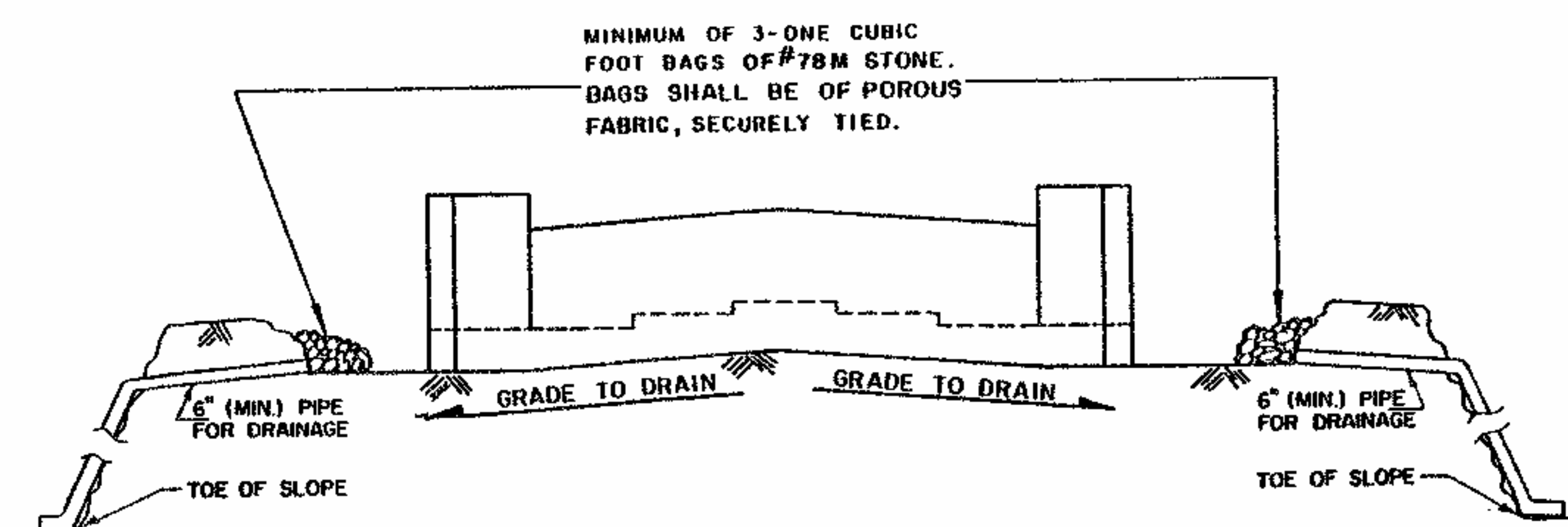


NOTE: NO SEPARATE PAYMENT WILL BE MADE FOR FURNISHING AND INSTALLING THE PVC PLASTIC PIPE DRAINS, HARDWARE CLOTH AND FASTENERS. THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

PIPE DRAIN DETAILS



PILE SPLICE DETAILS

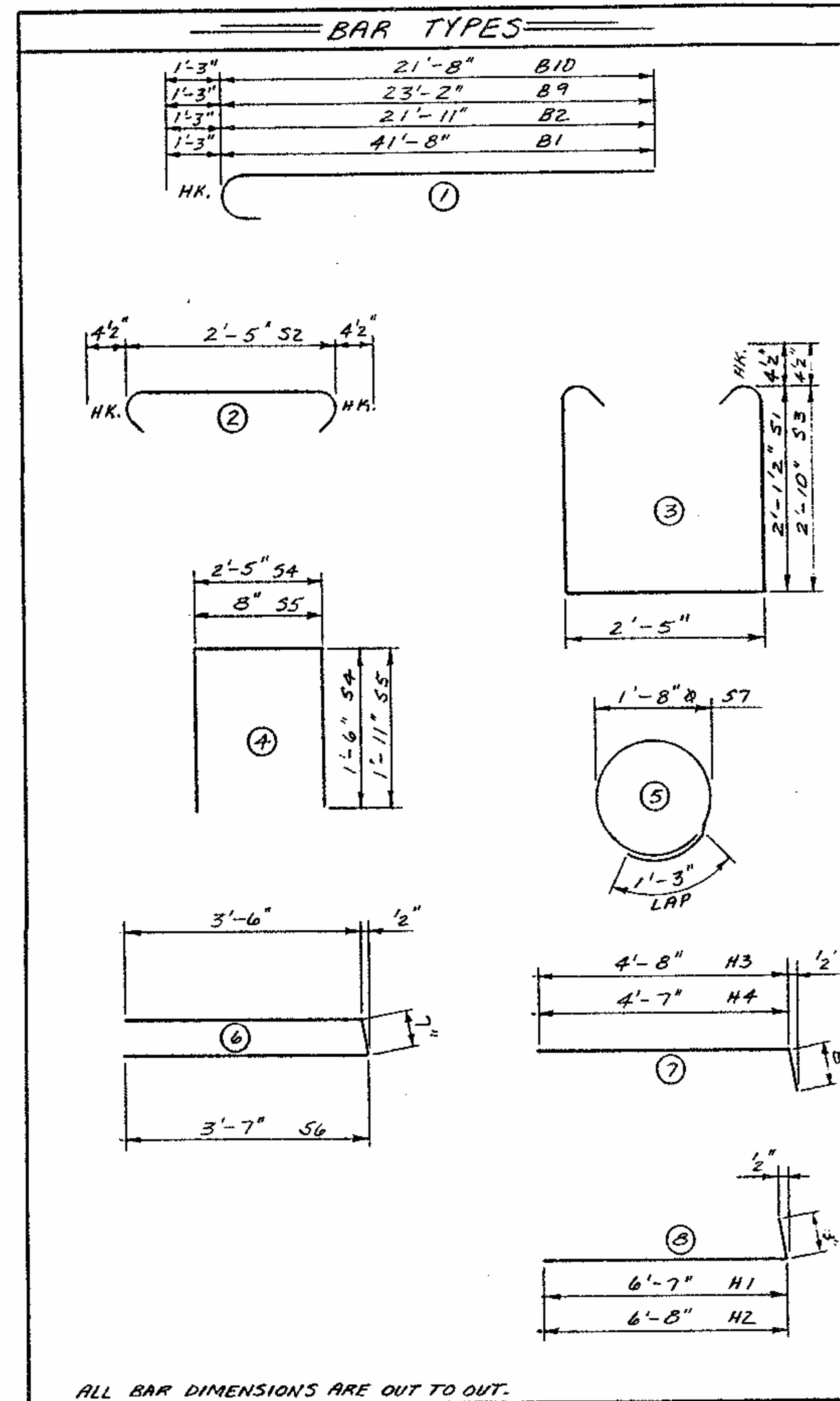


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

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

TEMPORARY DRAINAGE AT END BENT



ALL BAR DIMENSIONS ARE OUT TO OUT.

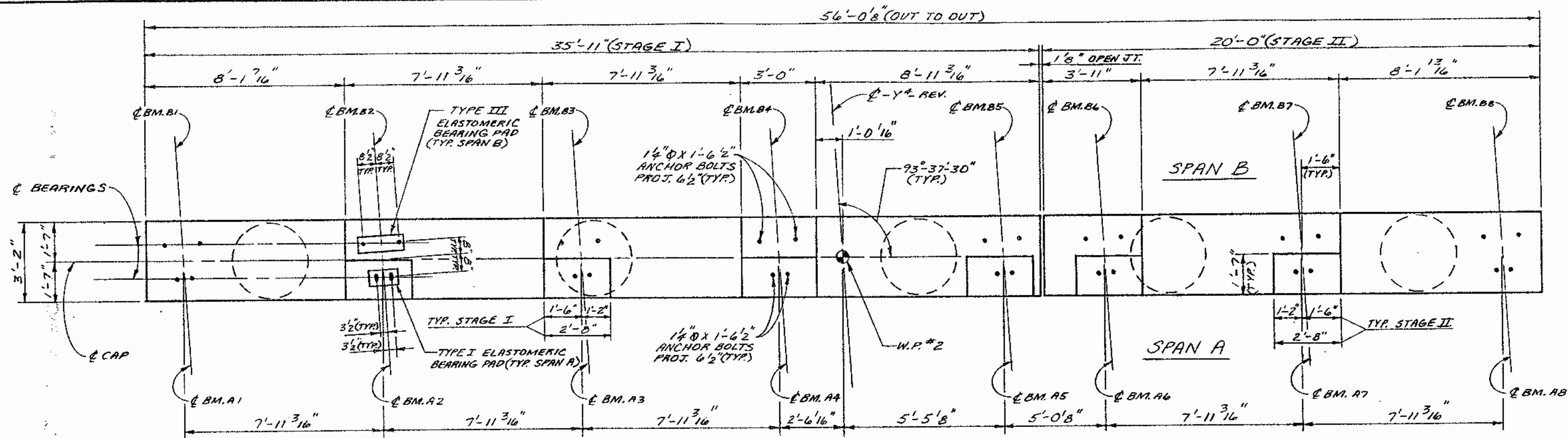
TOTAL BILL OF MATERIAL		
REINFORCING STEEL	LBS.	4,786
CLASS A CONCRETE	C.Y.	29.8
HP 12X53 STEEL PILES NO. 10	LIN. FT.	250

BILL OF MATERIAL											
END BENT #1 (STAGE I)					END BENT #1 (STAGE II)						
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#9	1	42'-11"	584	B5	4	#5	STR.	23'-7"	98
B2	4	#9	1	23'-4"	317	B6	4	#4	STR.	23'-2"	62
B3	4	#9	STR.	28'-6"	388	B7	9	#4	STR.	2'-5"	15
B4	4	#5	STR.	19'-5"	81	B9	4	#9	1	24'-5"	332
B5	8	#5	STR.	23'-7"	197	B10	4	#9	1	22'-11"	312
B6	8	#4	STR.	23'-2"	124	B11	4	#9	STR.	11'-4"	154
B7	13	#4	STR.	2'-5"	21	B12	4	#5	STR.	3'-2"	13
D1	4	#4	STR.	2'-0"	5	D1	4	#4	STR.	2'-0"	5
H1	9	#4	8	7'-3"	44	H3	9	#4	7	5'-4"	32
H2	9	#4	8	7'-4"	44	H4	9	#4	7	5'-3"	32
K1	12	#4	STR.	23'-2"	186	H1	6	#4	STR.	23'-2"	93
K2	2	#4	STR.	12'-7"	17	H2	2	#4	STR.	12'-7"	17
S1	13	#4	3	7'-5"	64	S1	12	#4	3	7'-5"	59
S2	42	#4	2	3'-2"	89	S2	23	#4	2	3'-2"	49
S3	29	#4	3	8'-10"	171	S3	11	#4	3	8'-10"	65
S4	13	#4	4	5'-5"	47	S4	4	#4	4	5'-5"	14
S5	37	#4	4	4'-6"	111	S5	21	#4	4	4'-6"	63
S6	2	#4	6	7'-8"	10	S6	2	#4	6	7'-8"	10
S7	12	#4	5	6'-6"	52	S7	8	#4	5	6'-6"	35
V1	74	#5	STR.	4'-11"	379	V1	42	#5	STR.	4'-11"	215
V2	22	#4	STR.	6'-9"	99	V2	18	#4	STR.	6'-9"	81
REINFORCING STEEL LBS. 3,030					REINFORCING STEEL LBS. 1,756						
CLASS 'A' CONCRETE BREAKDOWN					CLASS 'A' CONCRETE BREAKDOWN						
POUR #1 - CAP & WING C.Y. 13.8					POUR #1 - CAP & WING C.Y. 7.7						
POUR #2 - WING & BACKWALL C.Y. 4.9					POUR #2 - WING & BACKWALL C.Y. 3.4						
CLASS A CONCRETE TOTAL C.Y. 18.7					CLASS A CONCRETE TOTAL C.Y. 11.1						
HP 12X53 STEEL PILES NO. 6 LIN. FT. 150					HP 12X53 STEEL PILES NO. 4 LIN. FT. 100						

PROJECT NO. 87500310
 ALAMANCE-ORANGE COUNTY
 STATION: 329+86.22 -L-
 SHEET 4 OF 4

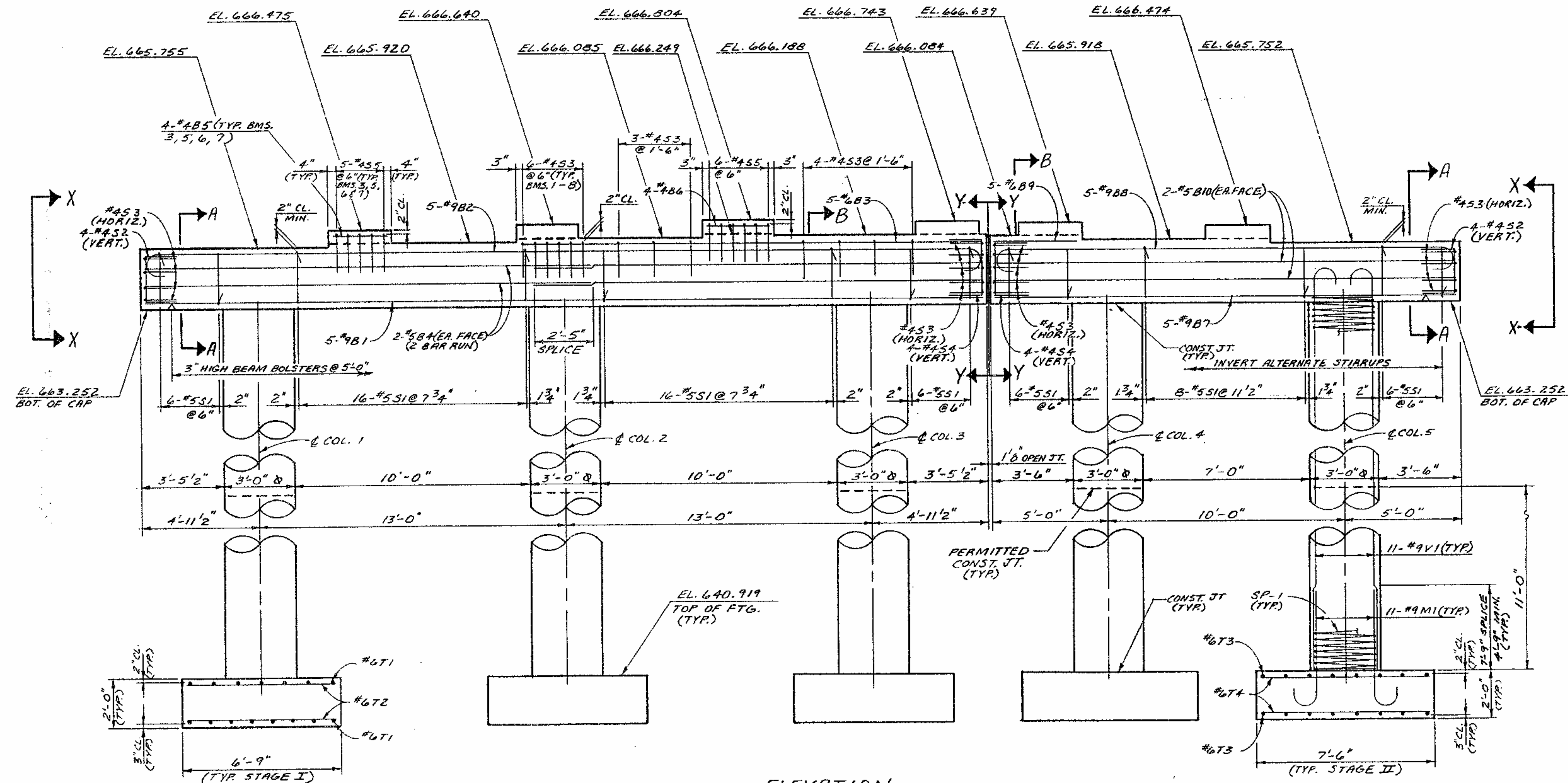
STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
SUBSTRUCTURE					
END BENT #1					
(STAGES I & II)					
MAY 1990					
REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
TOTAL SHEETS					69

DRAWN BY: ADAM MARTIN DATE: 5-9-90
 CHECKED BY: W.F. PARKER DATE: 7-6-90

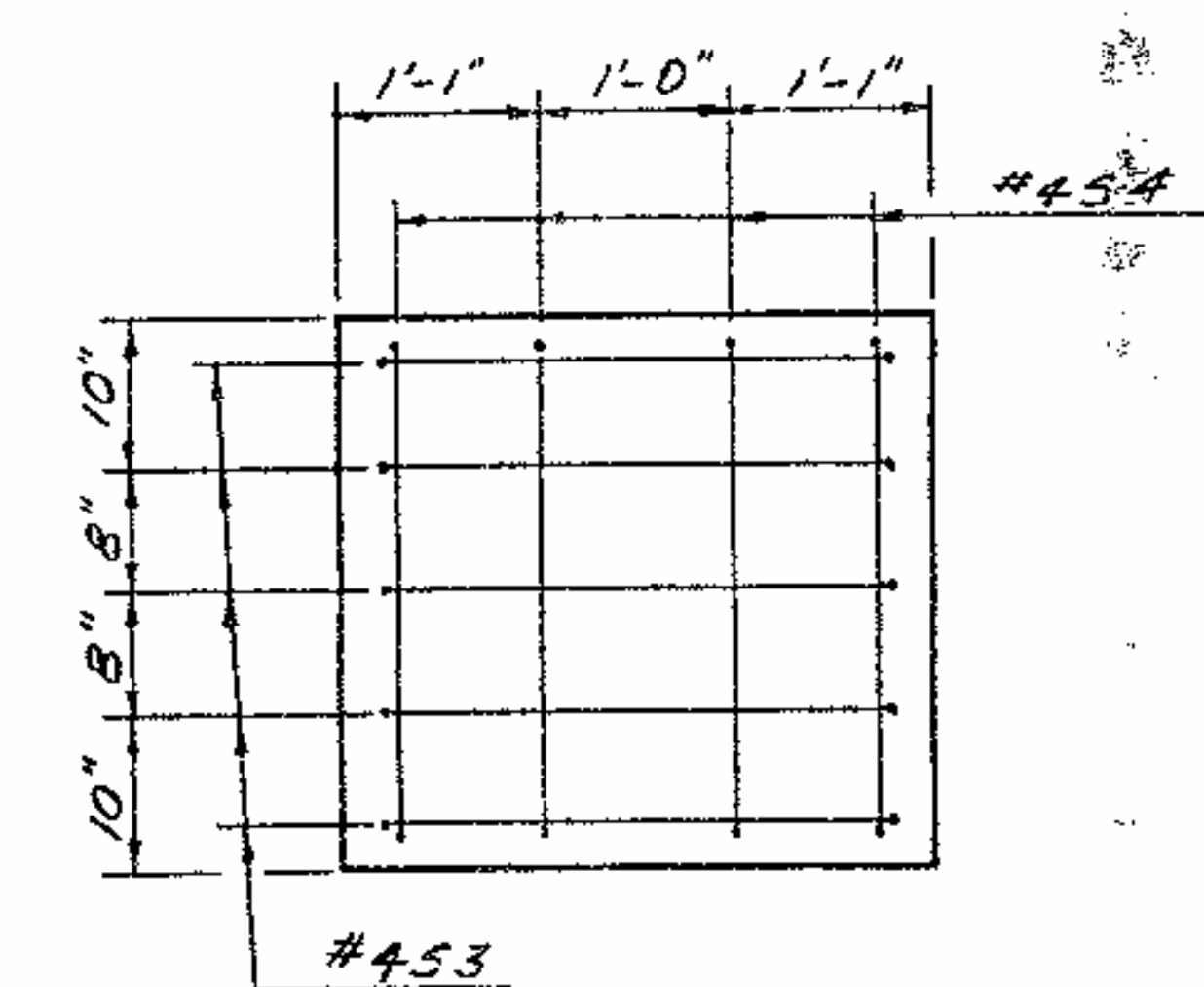


PLAN OF CAP

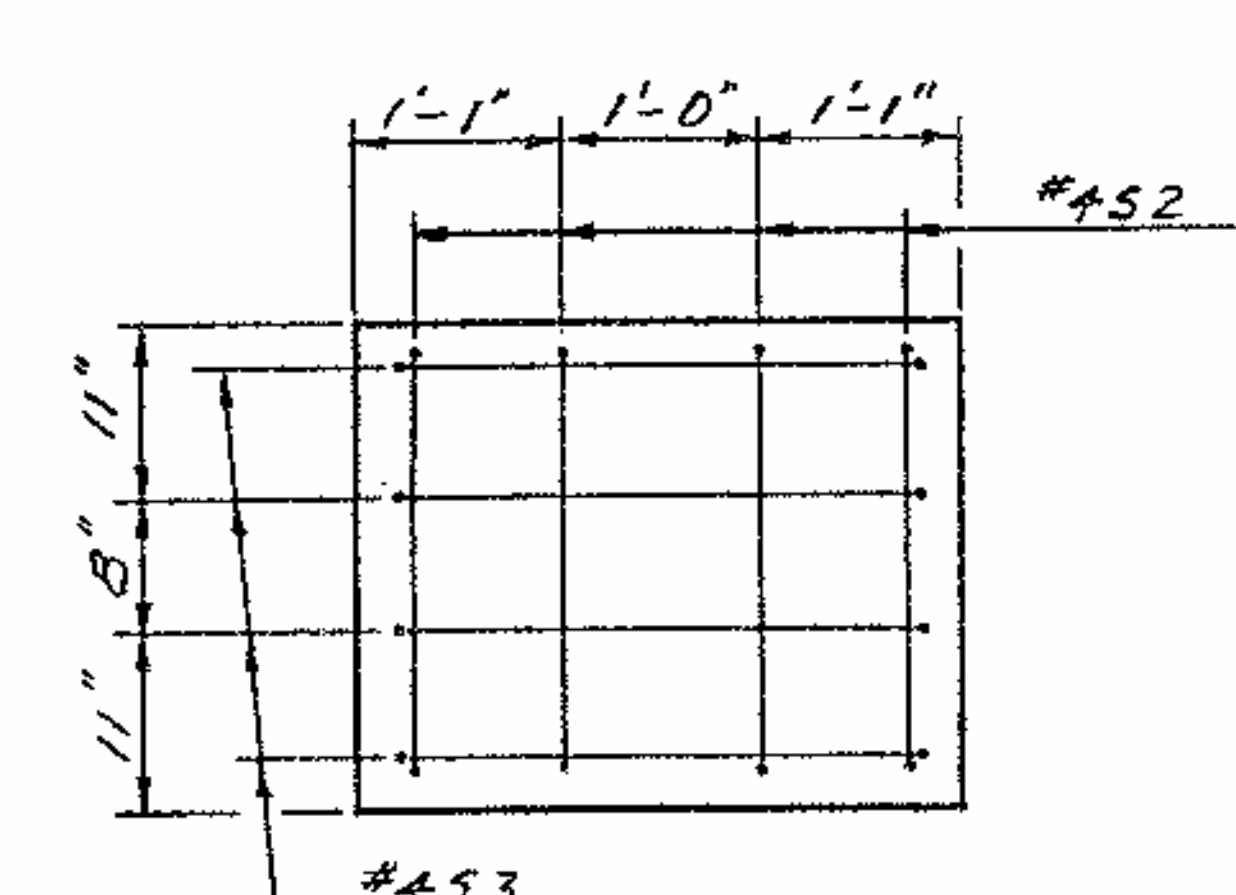
--- NOTES ---
 STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 HOOKS ON "Y" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
 FOR SPIRAL COLUMN REINFORCING STEEL, SEE SPECIAL PROVISIONS.
 FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.
 THE TOP SURFACE AREAS OF THE BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THAT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
 #4 "S" BARS AT END OF CAP MAY BE SHIFTED UP TO 2' TO CLEAR "B" BARS.
 SPREAD FOOTINGS MAY REQUIRE WORKING BELOW THE WATER TABLE. THEREFORE, FOOTINGS SHALL BE POURED AS SOON AS POSSIBLE AFTER EXCAVATION TO PREVENT DETERIORATION OF THE WEATHERED ROCK OR HARD SAPROLITE.



ELEVATION



VIEW Y-Y

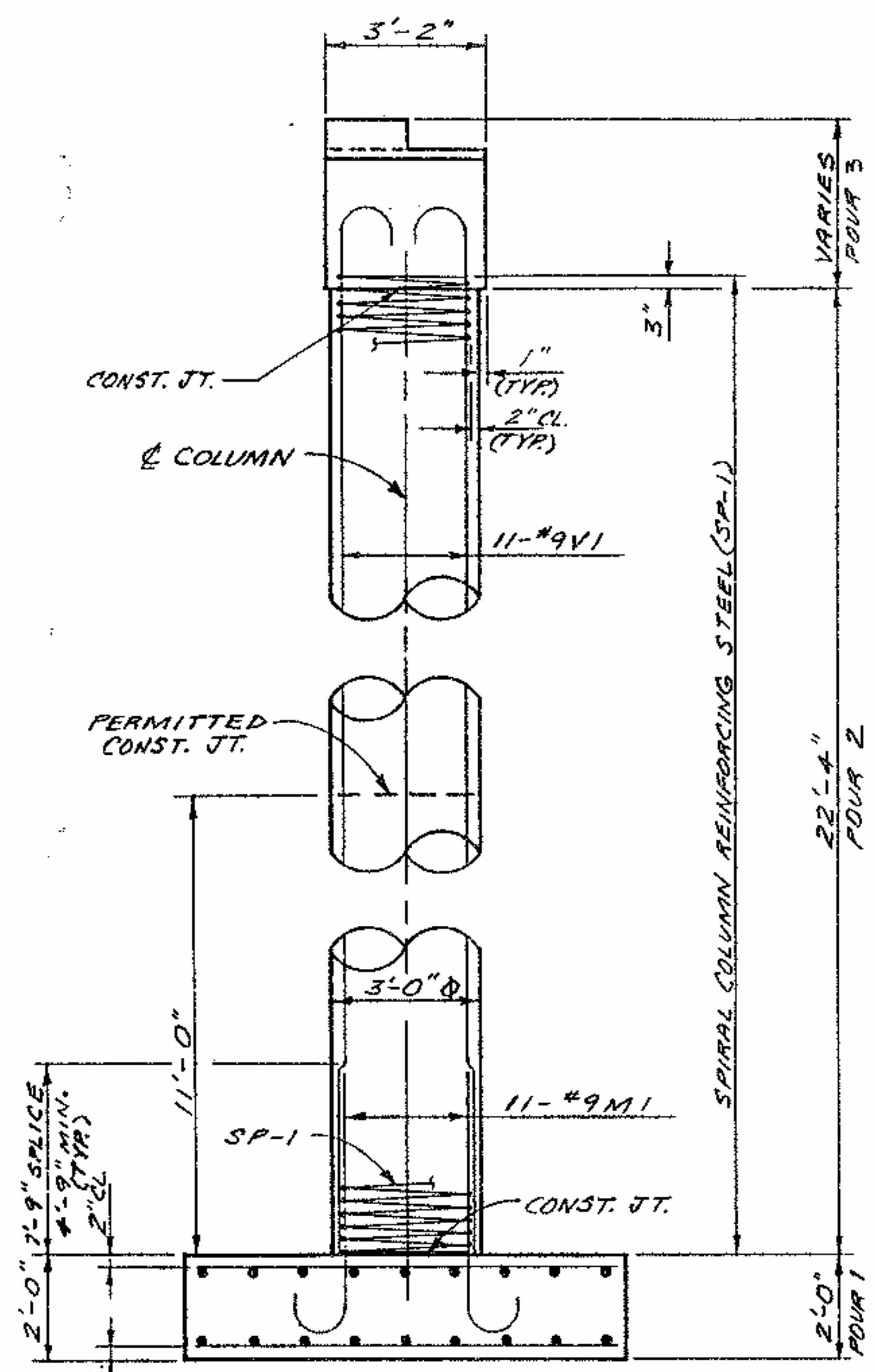


VIEW X-X

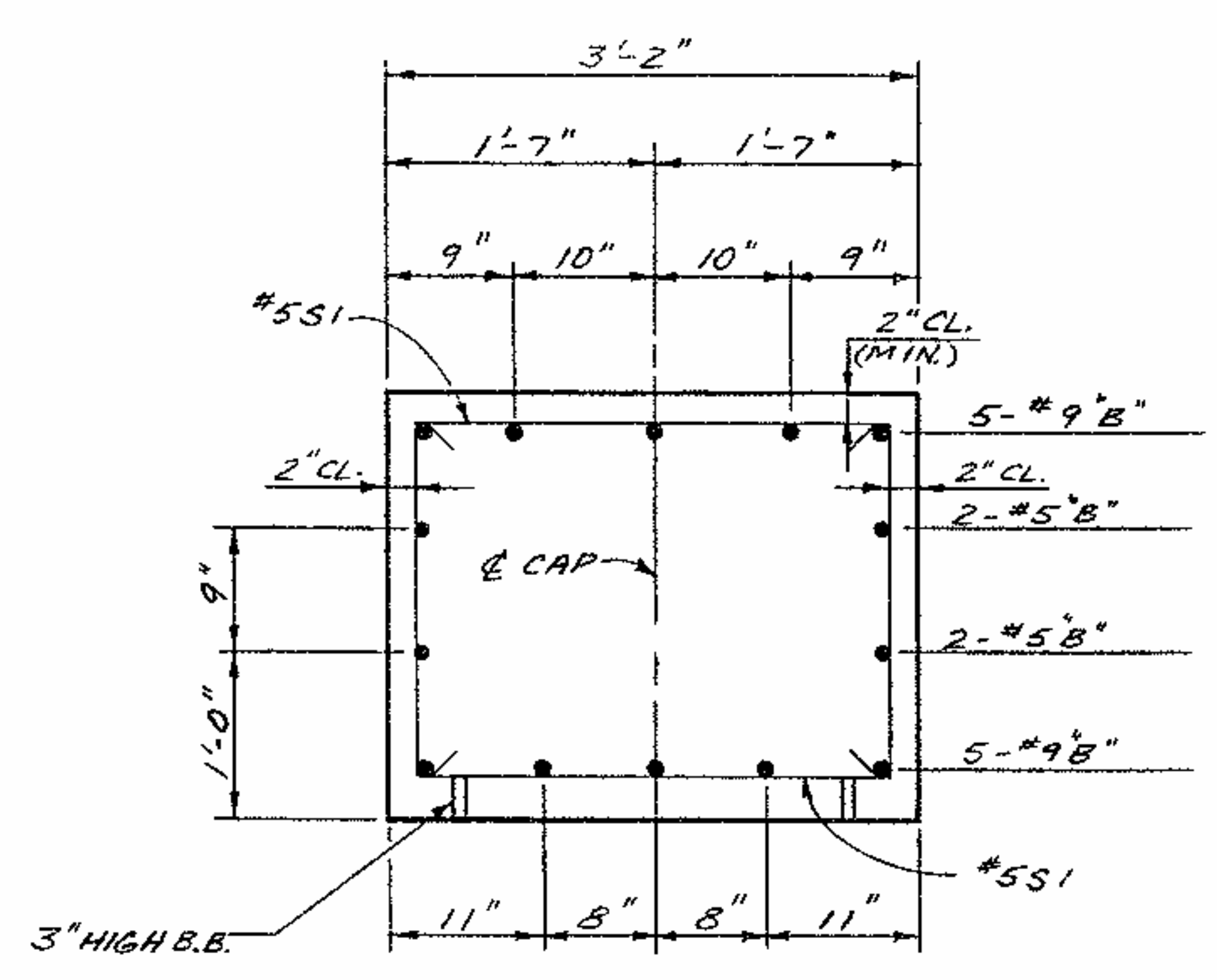
PROJECT NO. 8-T500310
 ALAMANCE-ORANGE COUNTY
 STATION: 329+86.22-L-
 SHEET 1 OF 2

STATE OF NORTH CAROLINA						1990	
DEPARTMENT OF TRANSPORTATION						SHEET NO. 5-30	
RALEIGH						TOTAL SHEETS 69	
SUBSTRUCTURE BENT #1 (STAGE I & II)							
JULY							
REVISIONS							
NO.	BY	DATE	NO.	BY	DATE		
1			3				
2			4				

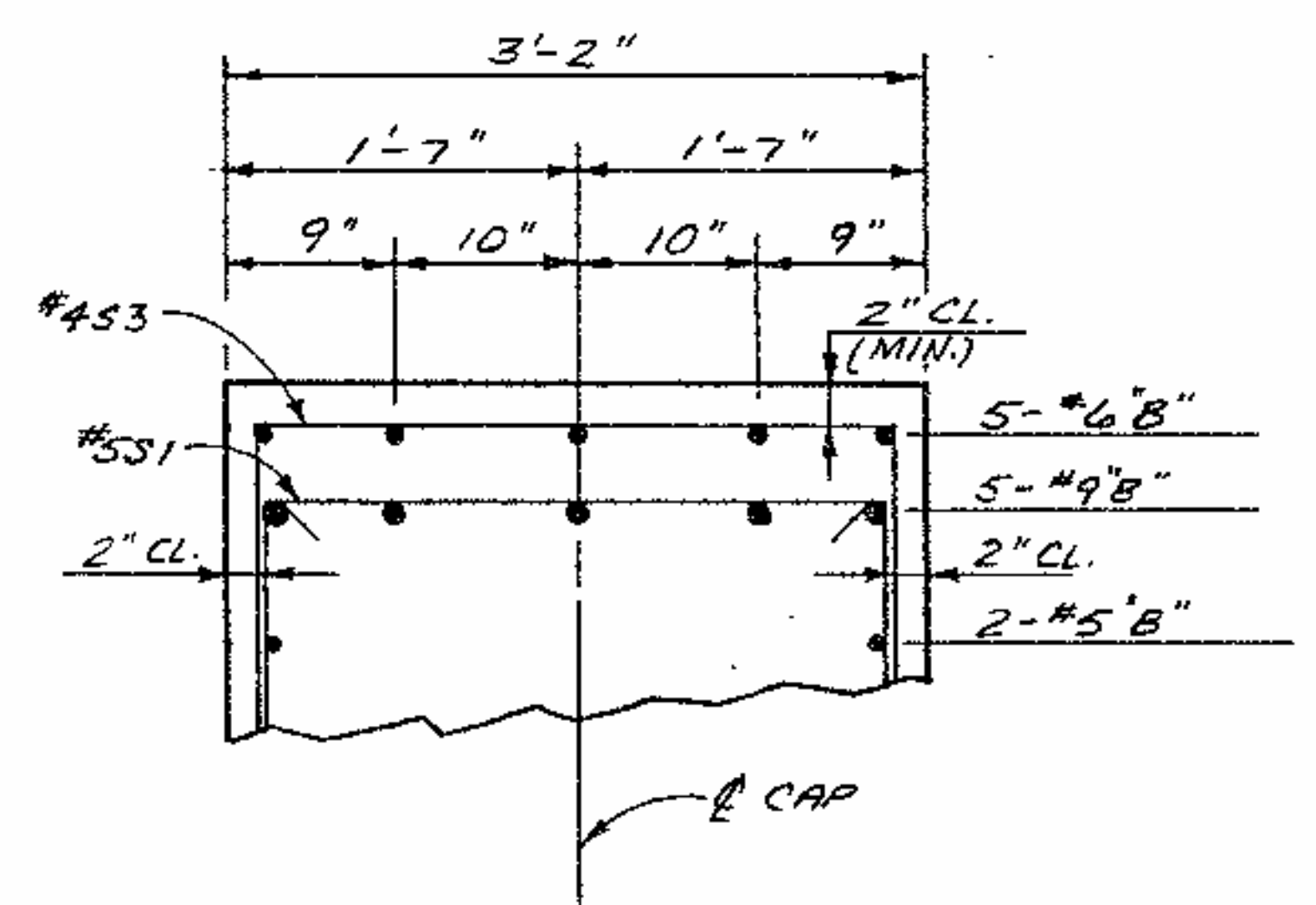
DRAWN BY: RORY MARTIN DATE: 7-10-90
 CHECKED BY: H.D. CRITCHER DATE: 9-14-90



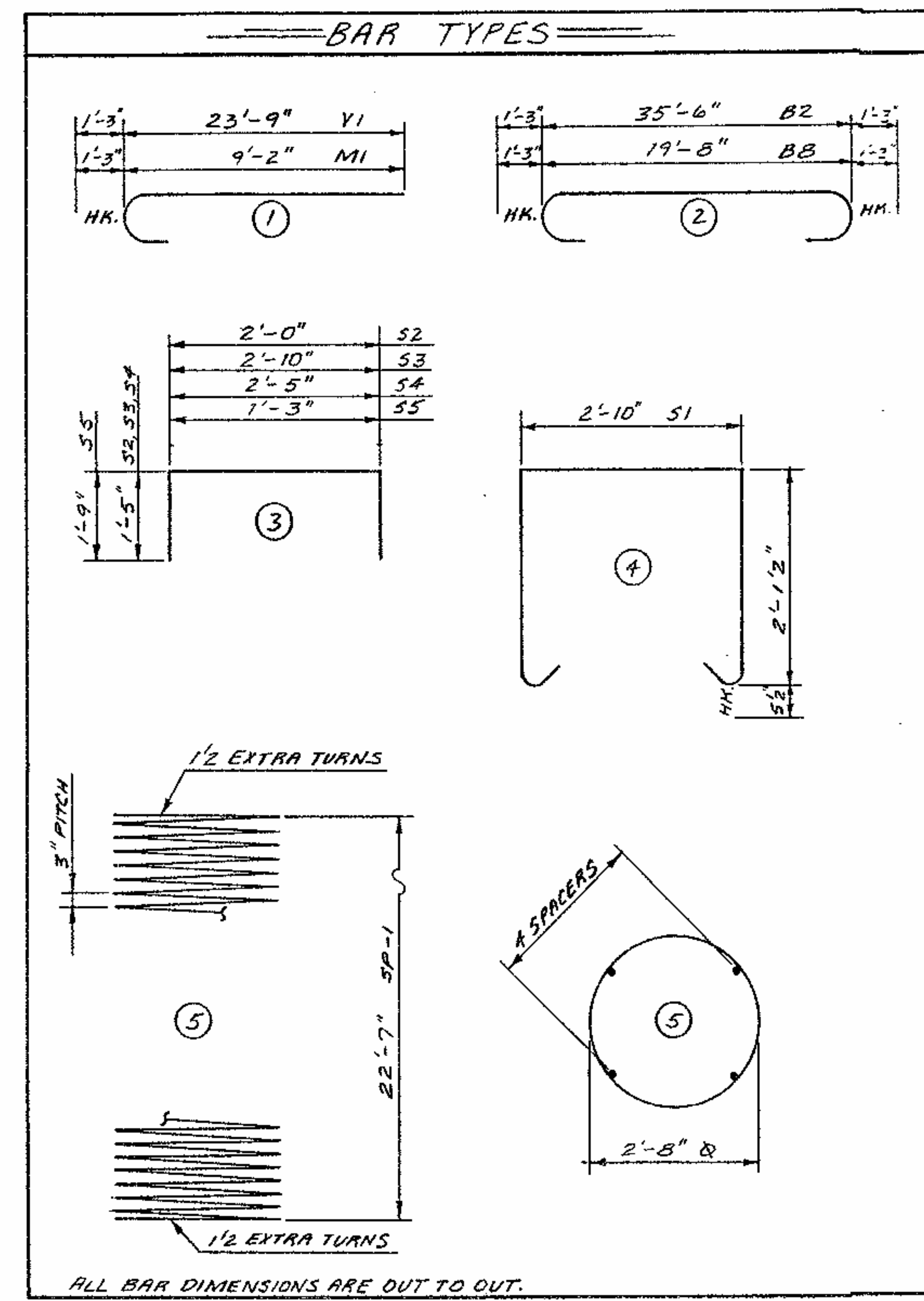
END ELEVATION



SECTION A-A

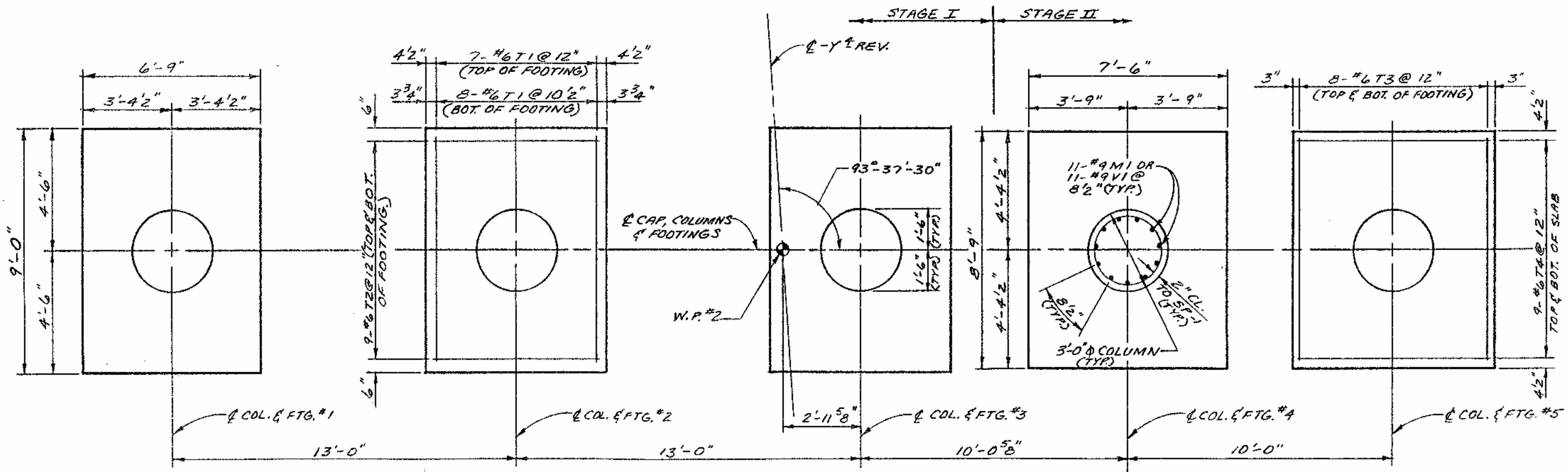


PART-SECTION B



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL											
BENT #1 (STAGE I)					BENT #1 (STAGE II)						
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	5	#9	STR.	35'-7"	605	B5	8	#4	STR.	2'-4"	12
B2	5	#9	2	38'-0"	646	B7	5	#9	STR.	19'-8"	334
B3	5	#6	STR.	19'-6"	146	B8	5	#9	2	22'-2"	377
B4	8	#5	STR.	18'-11"	158	B9	5	#6	STR.	3'-7"	27
B5	12	#4	STR.	2'-4"	19	B10	4	#5	STR.	19'-8"	82
B6	4	#4	STR.	2'-8"	7						
M1	33	#9	1	10'-5"	1165	M1	22	#9	1	10'-5"	779
S1	44	#5	4	8'-0"	367	S1	20	#5	4	8'-0"	167
S2	4	#4	3	4'-10"	13	S2	4	#4	3	4'-10"	13
S3	46	#4	3	5'-8"	174	S3	27	#4	3	5'-8"	102
S4	4	#4	3	5'-3"	14	S4	4	#4	3	5'-3"	14
S5	21	#4	3	4'-9"	67	S5	10	#4	3	4'-9"	32
						T3	32	#6	STR.	8'-3"	397
						T4	36	#6	STR.	7'-0"	379
						TZ	54	#6	STR.	6'-3"	507
						V1	22	#9	1	25'-0"	1,870
						V1	33	#9	1	25'-0"	2,805
REINFORCING STEEL LBS. 7,272					REINFORCING STEEL LBS. 4,585						
SP-1	3	5	770'-1"	1,543	SP-1	2	5	770'-1"	1,029		
SPIRAL COLUMN REINFORCING STEEL LBS. 1,543					SPIRAL COLUMN REINFORCING STEEL LBS. 1,029						
CLASS A CONCRETE BREAKDOWN					CLASS A CONCRETE BREAKDOWN						
POUR #1 - FOOTINGS C.Y. 13.5					POUR #1 - FOOTINGS C.Y. 9.7						
POUR #2 - COLUMNS C.Y. 17.5					POUR #2 - COLUMNS C.Y. 11.7						
POUR #3 - CAP C.Y. 12.0					POUR #3 - CAP C.Y. 6.4						
CLASS A CONCRETE C.Y. 43.0					CLASS A CONCRETE C.Y. 27.8						



PLAN OF FOOTINGS (STAGE I & II)

ALL FOOTINGS IN STAGE I ARE TYPICAL.
ALL FOOTINGS IN STAGE II ARE TYPICAL.

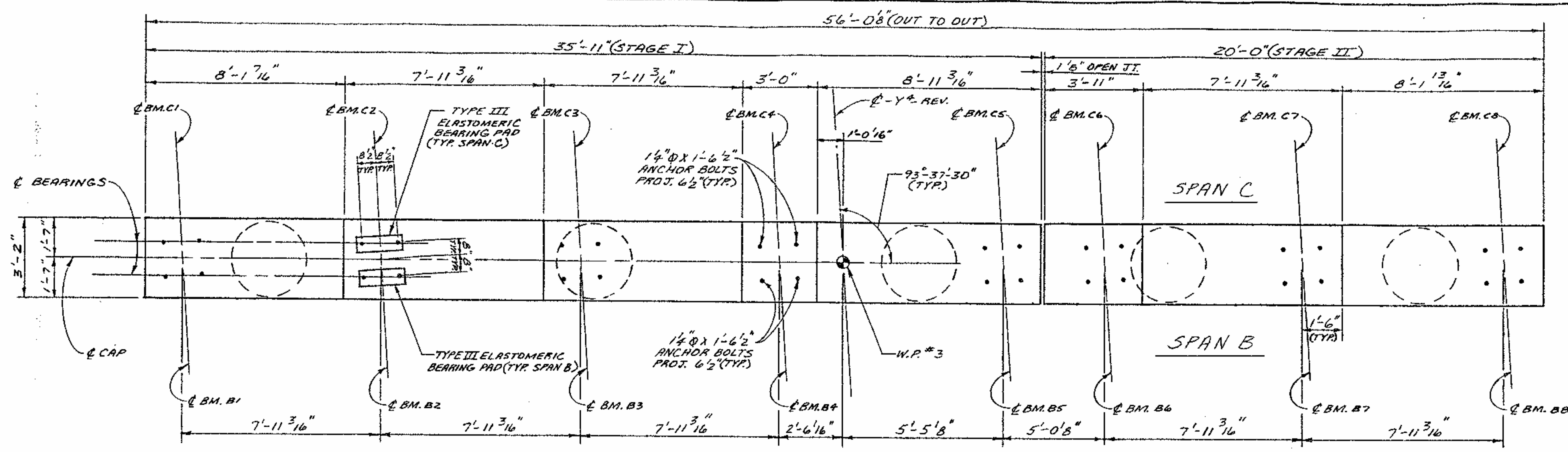
TOTAL BILL OF MATERIAL	
REINFORCING STEEL	LBS. 11,857
SPIRAL COLUMN REIN. STEEL	LBS. 2,572
CLASS A CONCRETE	CY. 70.8

PROJECT NO. 8.7500310
ALAMANCE-ORANGE COUNTY
STATION: 329+86.22-L-
SHEET 20F2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT #1 (STAGE I & II)					
JULY 1990					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

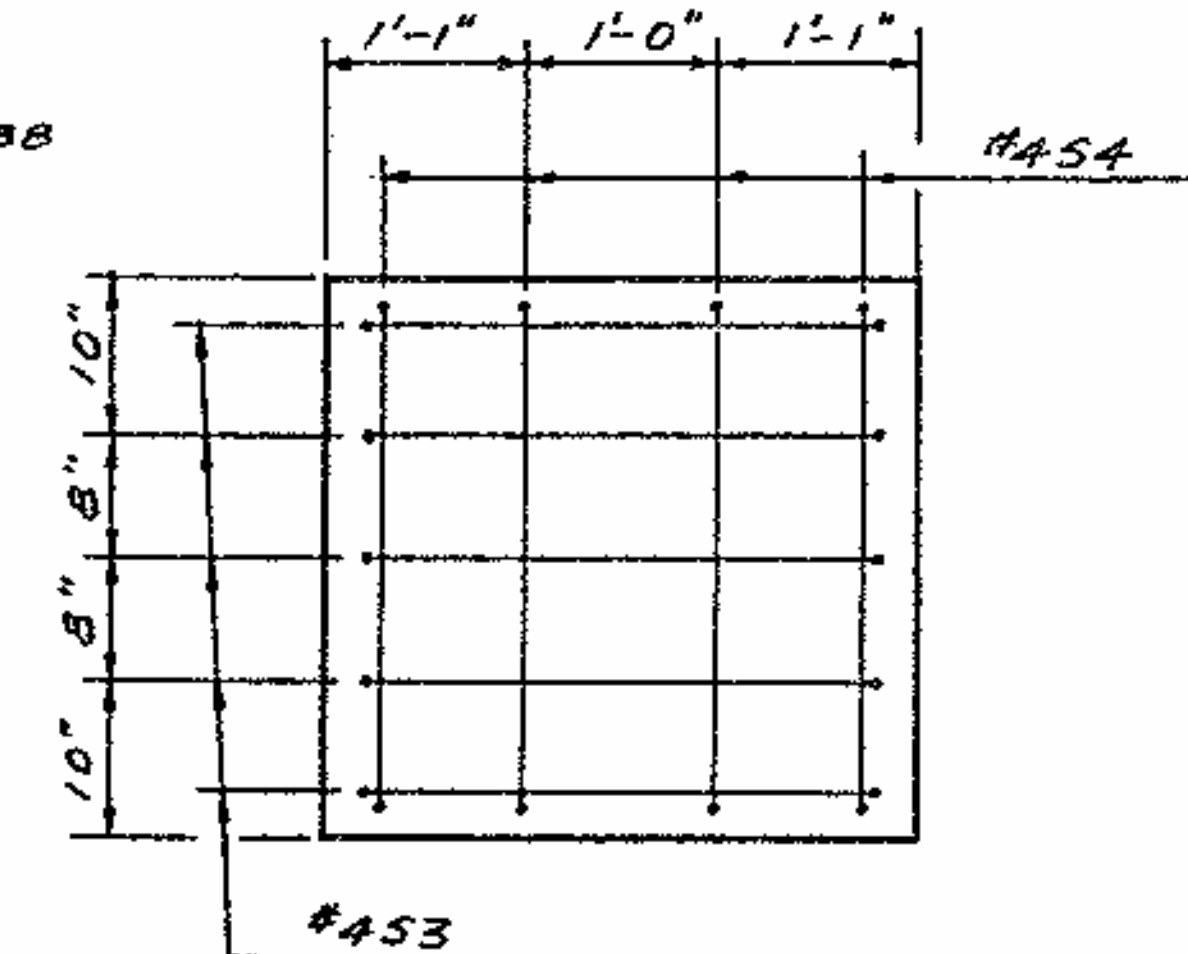
DRAWN BY: ROAY MARTIN DATE: 7-10-90
CHECKED BY: W.D. CRUTCHER DATE: 9-10-90

SHEET NO. 5-31
TOTAL SHEETS 69

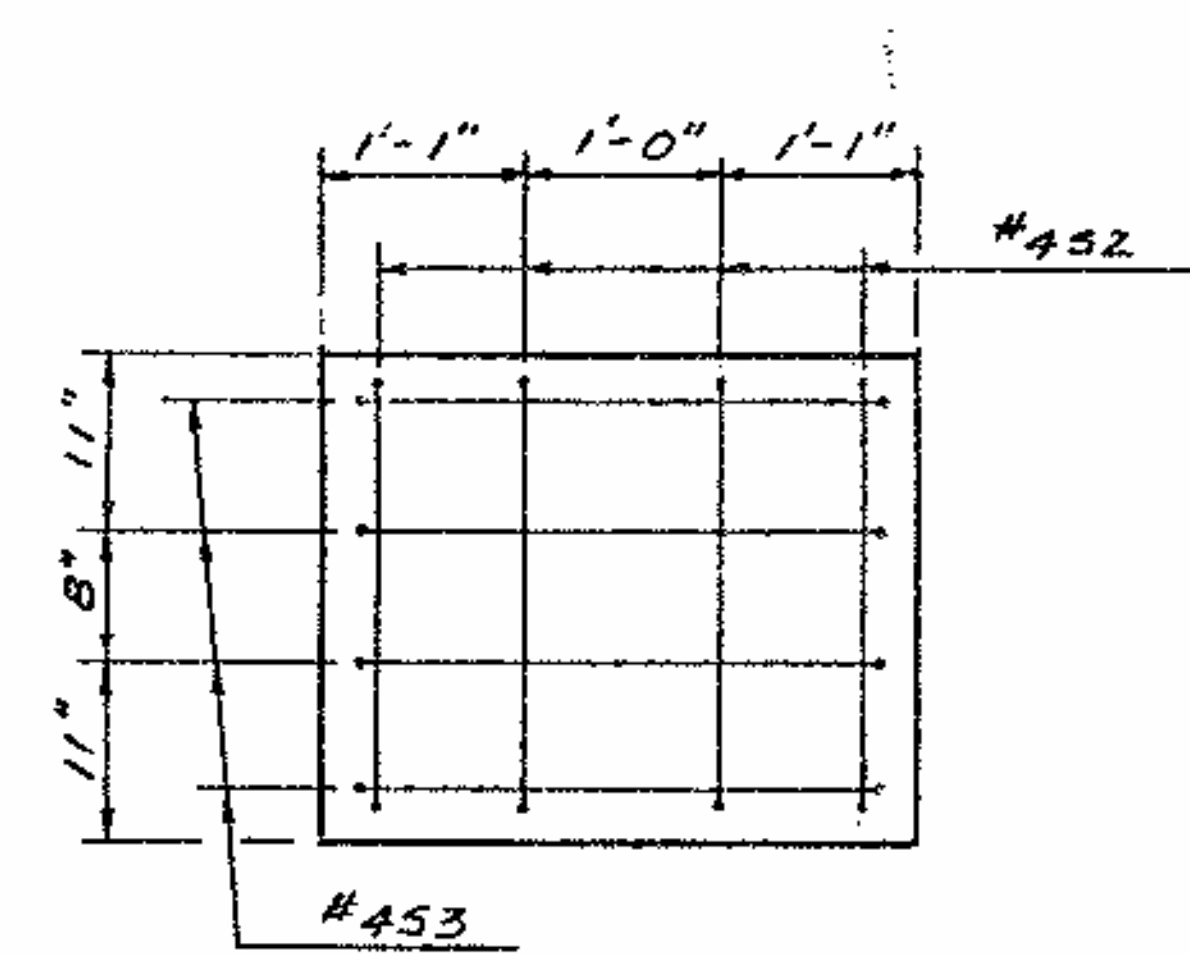


PLAN OF CAP

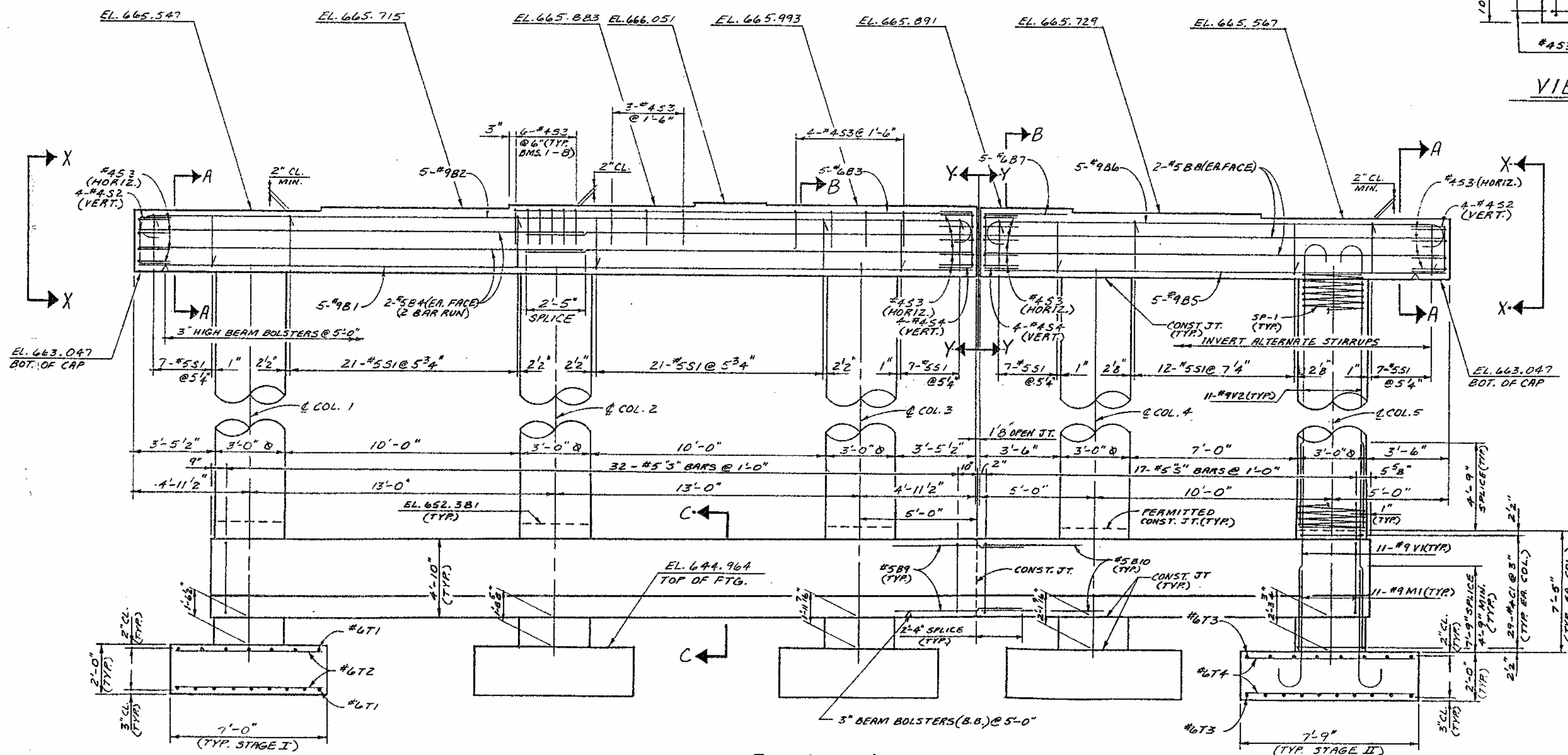
--- NOTES ---
 STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
 FOR SPIRAL COLUMN REINFORCING STEEL, SEE SPECIAL PROVISIONS.
 FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.
 THE TOP SURFACE AREAS OF THE BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THAT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
 #4 "S" BARS AT END OF CAP MAY BE SHIFTED UP TO 2" TO CLEAR "B" BARS.
 AT THE CONTRACTOR'S OPTION, THE 3'-0" COLUMNS MAY BE CONSTRUCTED 3'-0" FROM THE TOP OF FOOTINGS TO BOT. OF BARRIER. EXTRA CONCRETE REQUIRED SHALL BE PAID FOR BY THE CONTRACTOR.



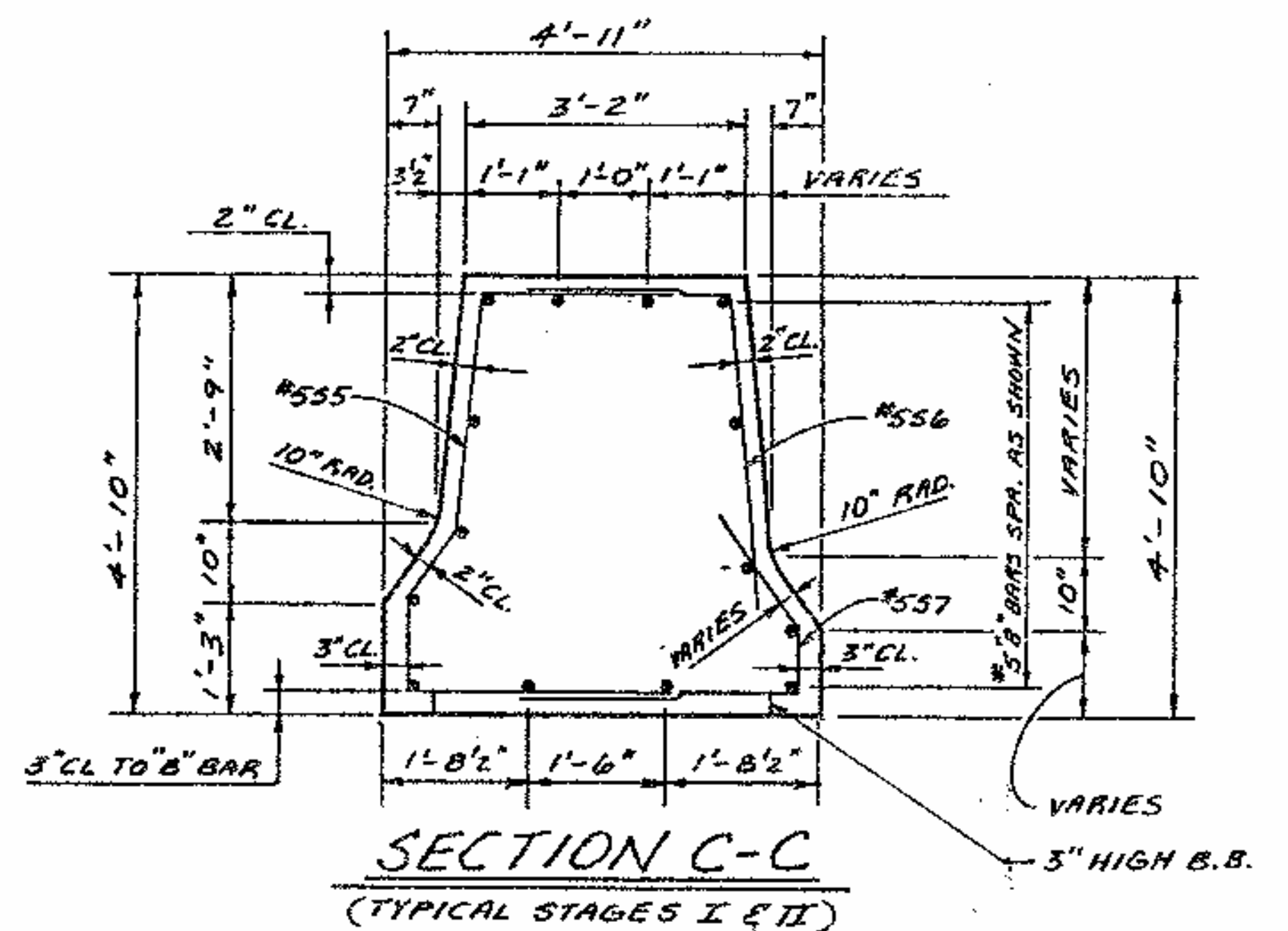
VIEW Y-Y



VIEW X-X



ELEVATION

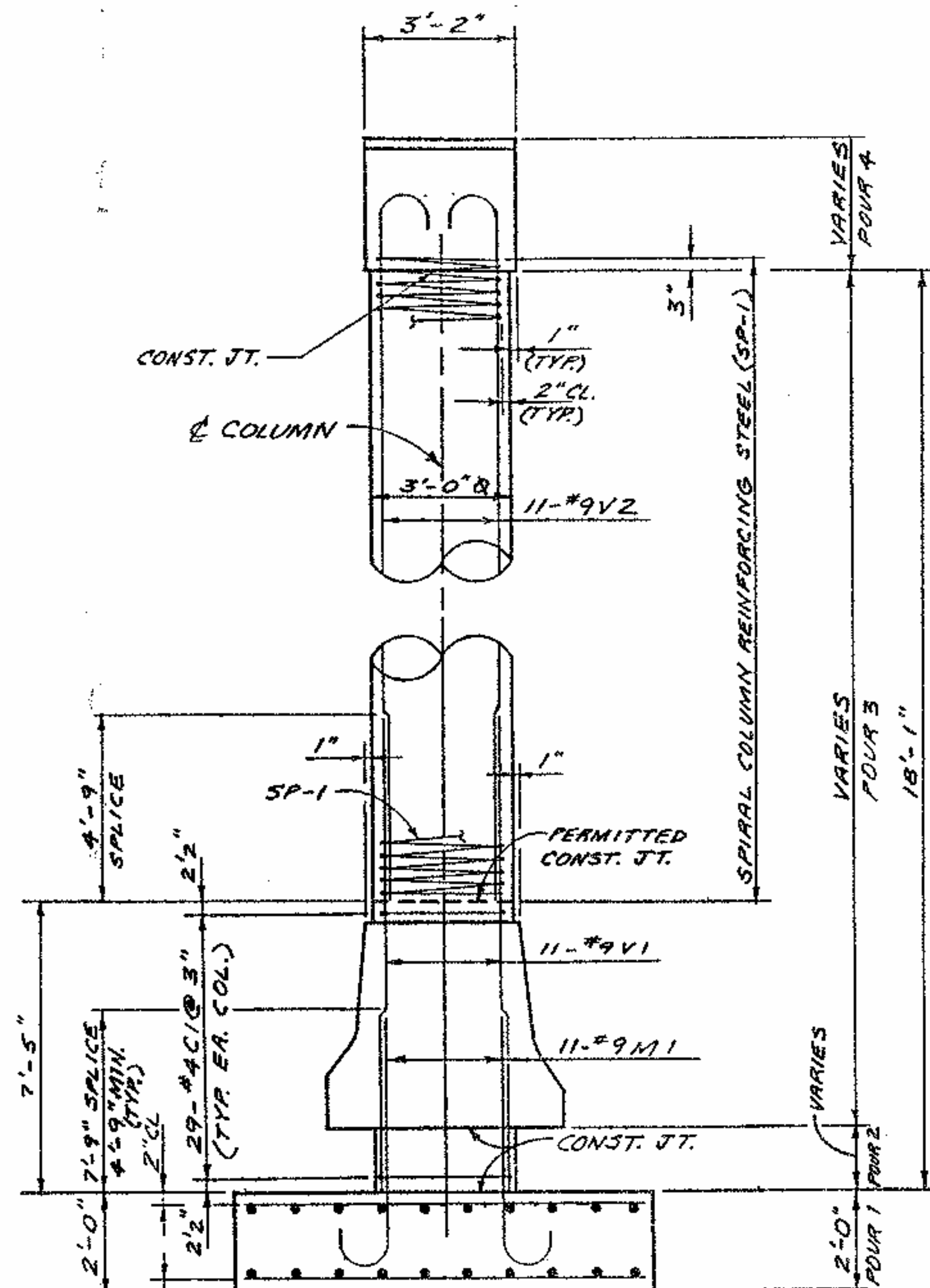


SECTION C-C
(TYPICAL STAGES I & II)

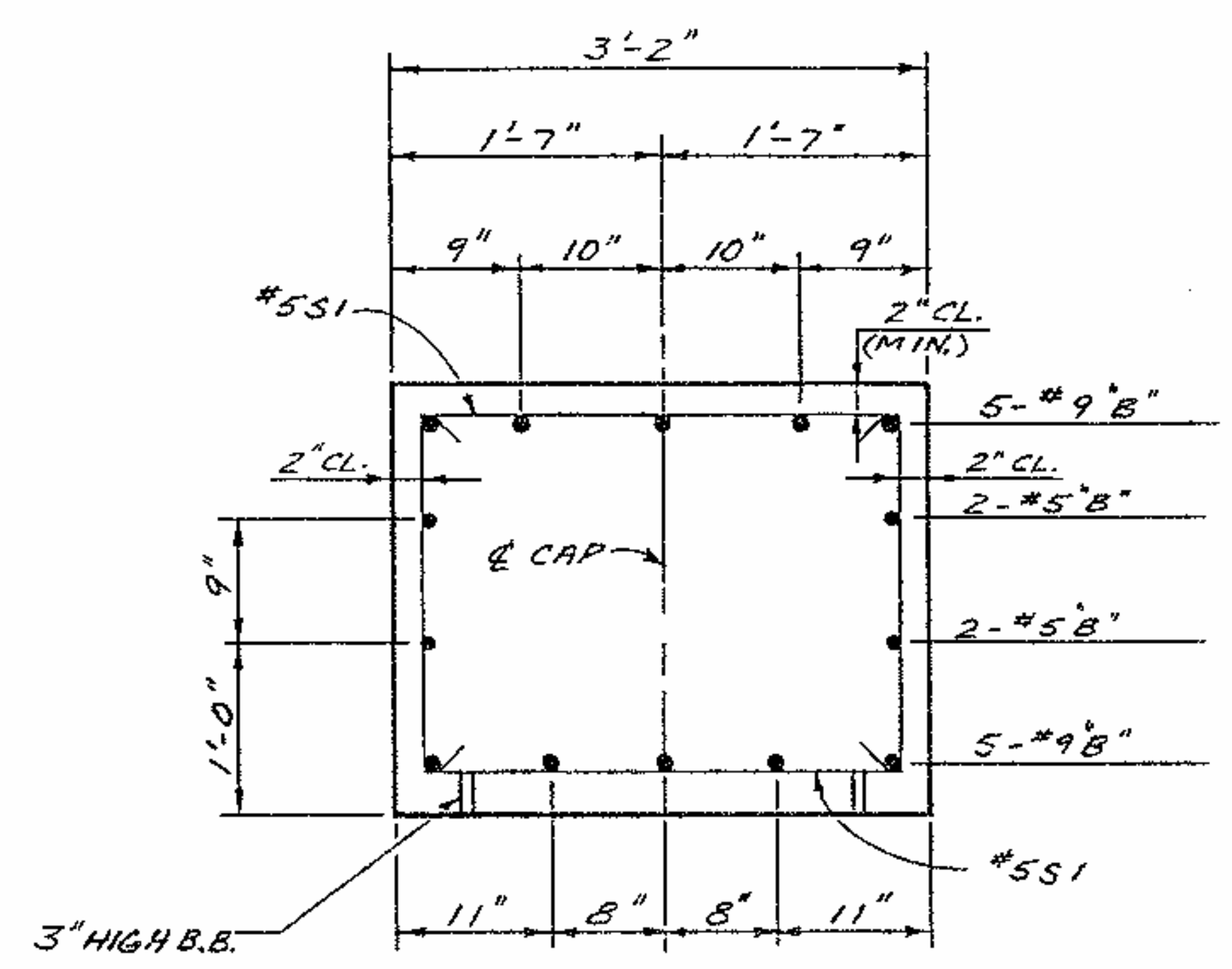
PROJECT No. 8.T500310
 ALAMANCE-ORANGE COUNTY
 STATION: 329+86.22 -L-
 SHEET 1 OF 2

STATE OF NORTH CAROLINA						SHEET NO.	
DEPARTMENT OF TRANSPORTATION						5-32	
RALEIGH						TOTAL SHEETS	
SUBSTRUCTURE						69	
BENT #2							
(STAGE I & II)							
JULY 1990							
REVISIONS							
NO.	BY	DATE	NO.	BY	DATE		
1			3				
2			4				

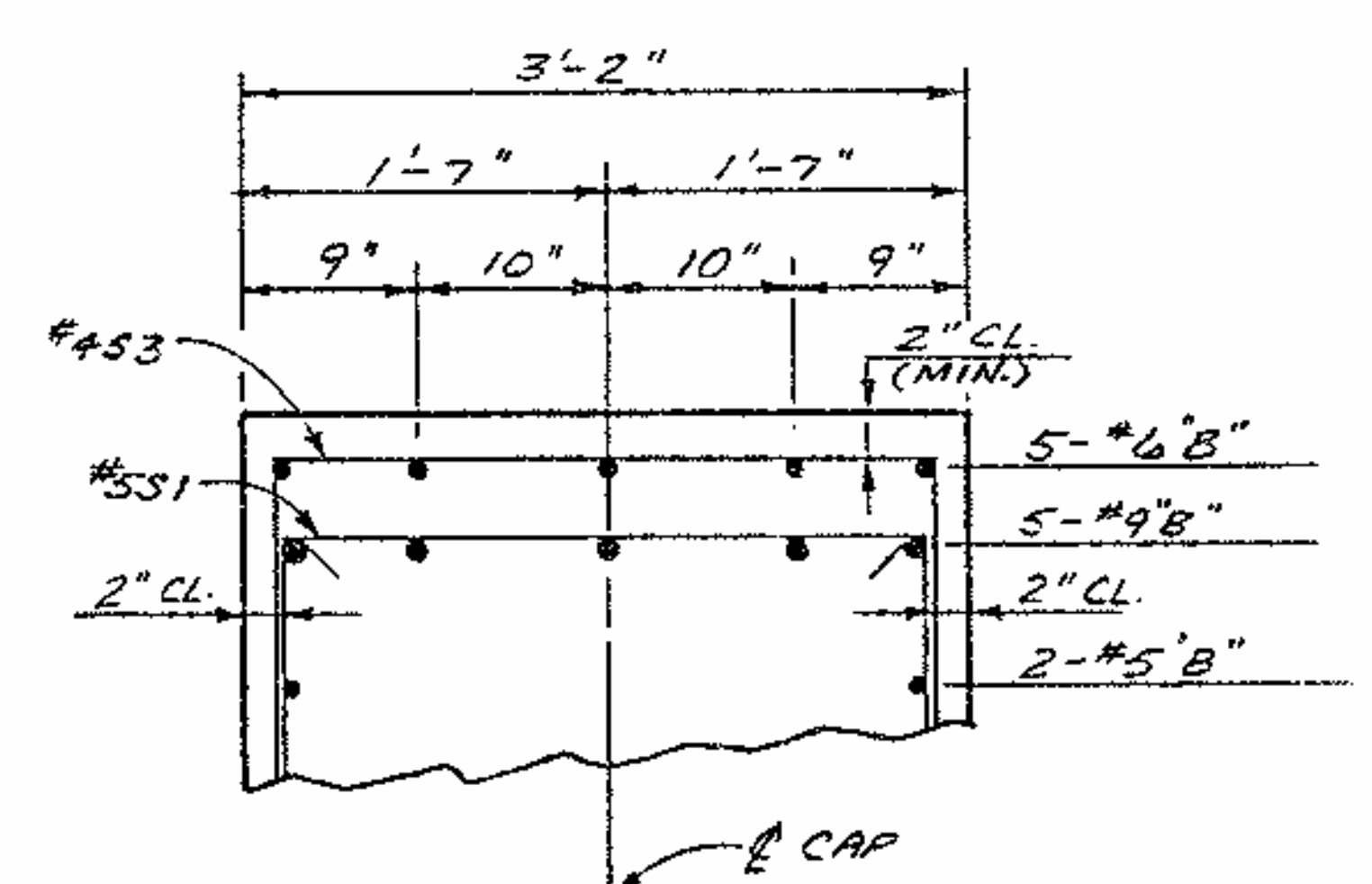
DRAWN BY ADAM MARTIN DATE 7-10-90
 CHECKED BY W.D. CRUTCHER DATE 9-14-90



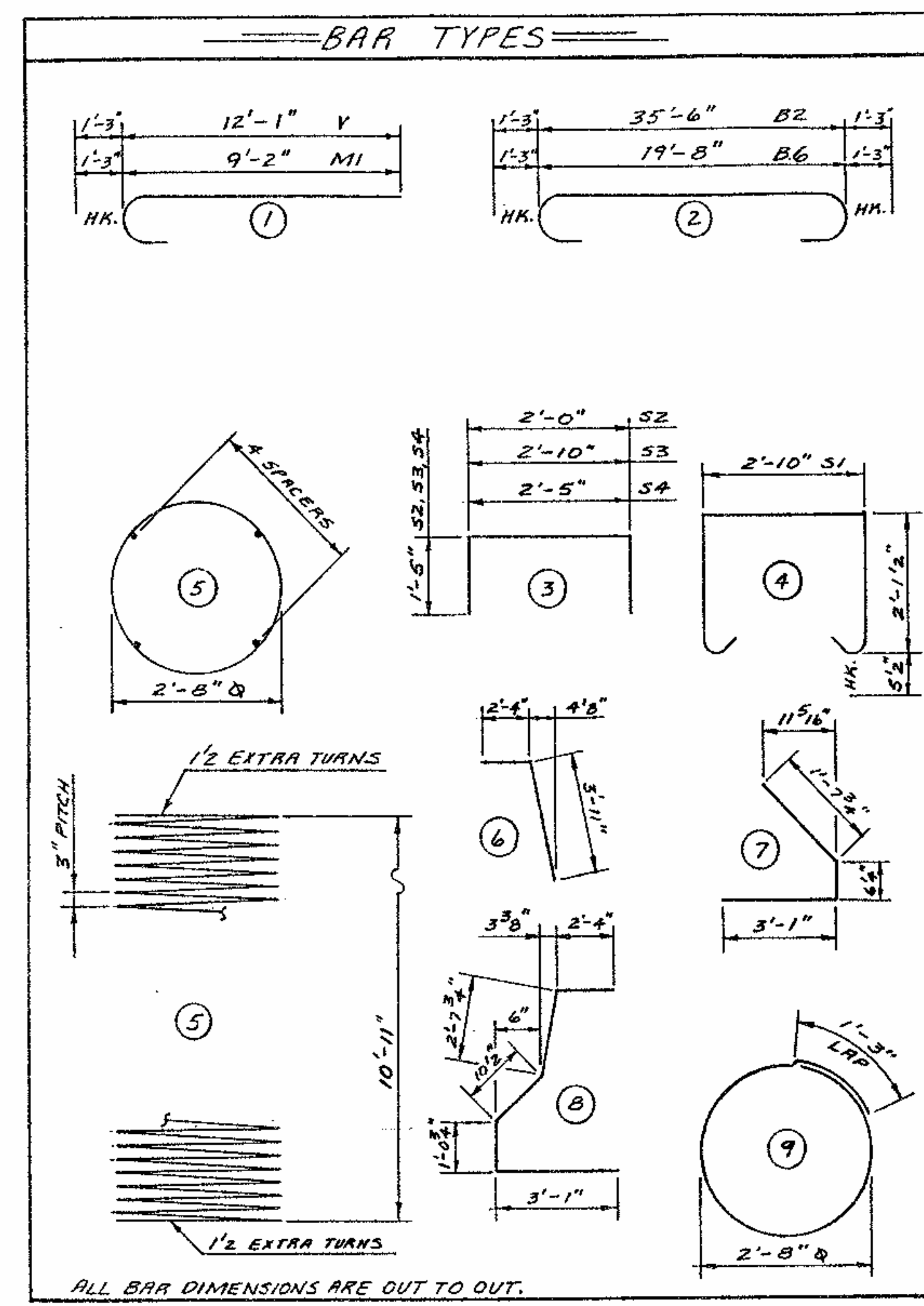
END ELEVATION



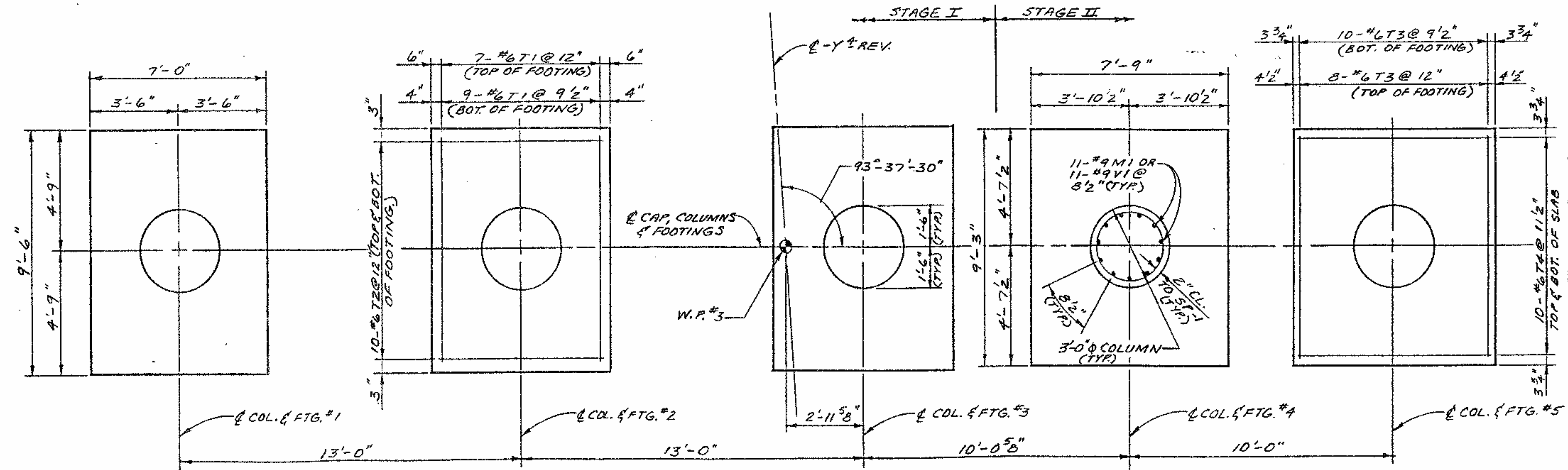
SECTION A-A



PART-SECTION B



BILL OF MATERIAL									
BENT #2 (STAGE I)					BENT #2 (STAGE II)				
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	5	#9	STA. 35'-7"	605	B5	5	#9	STA. 19'-8"	334
B2	5	#9	2 38'-0"	646	B6	5	#9	2 22'-2"	377
B3	5	#6	STA. 19'-0"	146	B7	5	#6	STA. 3'-7"	27
B4	8	#5	STA. 18'-11"	158	B8	4	#5	STA. 19'-8"	82
B9	14	#5	STA. 34'-10"	509	B10	14	#5	STA. 16'-4"	238
C1	87	#4	9 9'-8"	562	C1	58	#4	9 9'-8"	375
M1	33	#9	1 10'-5"	1169	M1	22	#9	1 10'-5"	779
S1	56	#5	4 8'-0"	467	S1	26	#5	4 8'-0"	217
S2	4	#4	3 4'-10"	13	S2	4	#4	3 4'-10"	13
S3	46	#4	3 5'-8"	174	S3	27	#4	3 5'-8"	102
S4	4	#4	3 5'-3"	14	S4	4	#4	3 5'-3"	14
S5	32	#5	8 10'-0"	334	S5	17	#5	8 10'-0"	177
S6	32	#5	6 6'-3"	209	S6	6	#5	6 6'-3"	111
S7	32	#5	7 5'-3"	175	S7	36	#6	STA. 8'-9"	473
T1	45	#6	STA. 9'-0"	649	T4	40	#6	STA. 7'-3"	436
T2	60	#6	STA. 6'-6"	586	V1	22	#9	STA. 12'-2"	910
V1	33	#9	STA. 12'-2"	1,365	V2	22	#9	1 13'-4"	997
V2	33	#9	1 13'-4"	1,496					
REINFORCING STEEL LBS. 9,277					REINFORCING STEEL LBS. 5,755				
SP-1	3	5	385'-0"	772	SP-1	2	5	385'-0"	514
SPIRAL COLUMN REINFORCING STEEL LBS. 772					SPIRAL COLUMN REINFORCING STEEL LBS. 514				
CLASS A CONCRETE BREAKDOWN					CLASS A CONCRETE BREAKDOWN				
FOUR #1 - FOOTINGS C.Y. 14.8					FOUR #1 - FOOTINGS C.Y. 10.6				
FOUR #2 - COLUMNS C.Y. 1.4					FOUR #2 - COLUMNS C.Y. 1.2				
FOUR #3 - COLUMNS C.Y. 31.6					FOUR #3 - COLUMNS C.Y. 17.0				
FOUR #4 - CAP C.Y. 11.5					FOUR #4 - CAP C.Y. 6.2				
CLASS A CONCRETE C.Y. 59.3					CLASS A CONCRETE C.Y. 35.0				



PLAN OF FOOTINGS (STAGE I & II)

ALL FOOTINGS IN STAGE I ARE TYPICAL.
ALL FOOTINGS IN STAGE II ARE TYPICAL.

TOTAL BILL OF MATERIAL	
REINFORCING STEEL	LBS. 15,032
SPIRAL COLUMN REINFORCING STEEL	LBS. 1,286
CLASS A CONCRETE	C.Y. 94.3

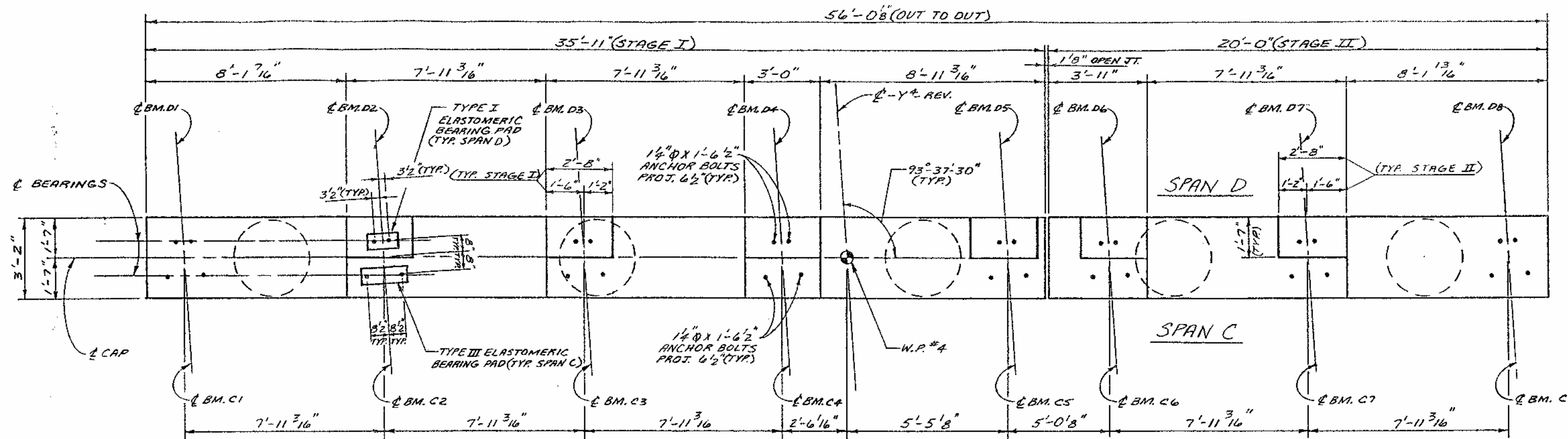
PROJECT NO. 8.7500310
ALAMANCE-ORANGE COUNTY
STATION: 329+86.22-L-
SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
BENT #2
(STAGE I & II)

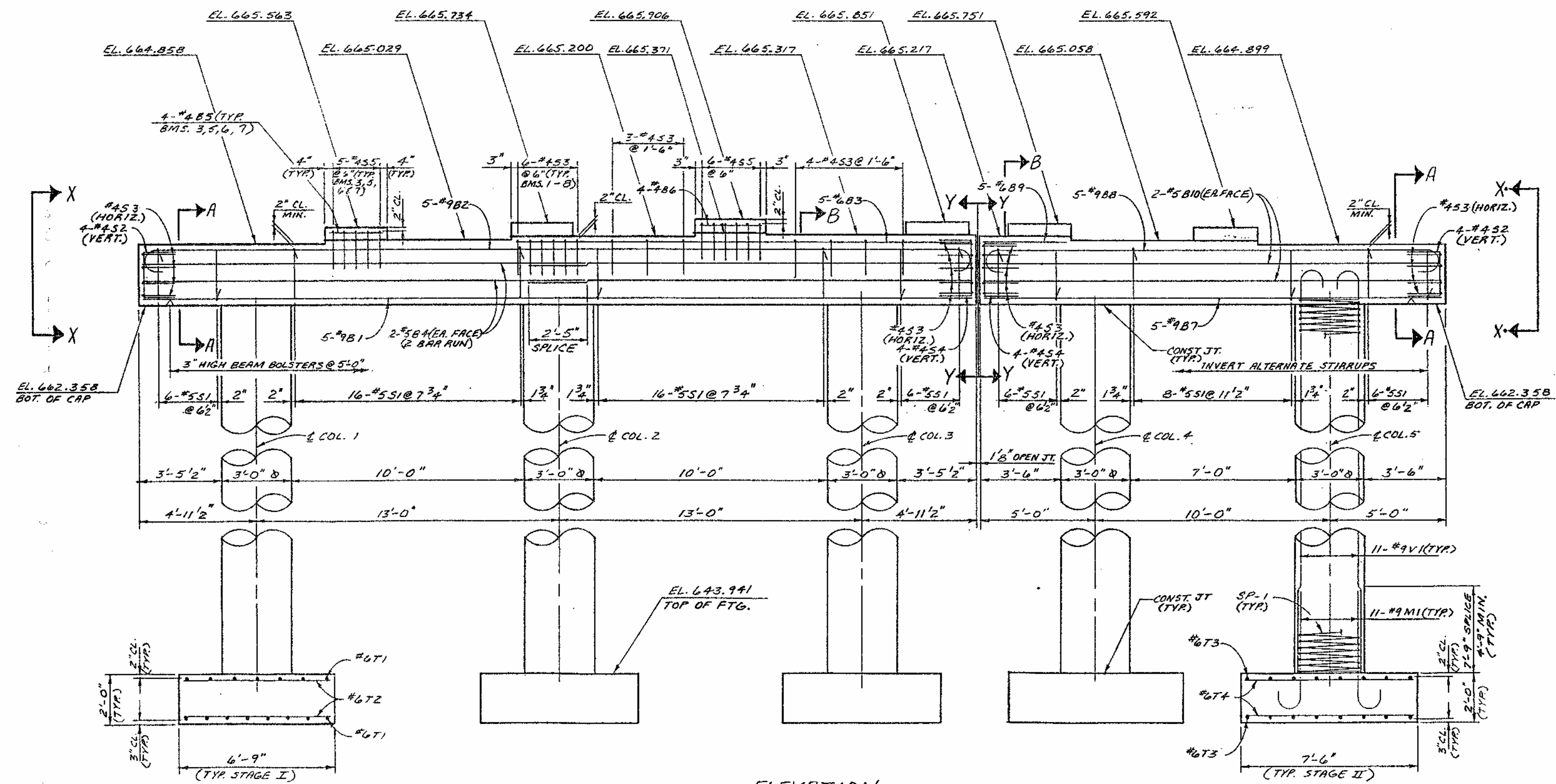
JULY 1990

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

SHEET NO. 5-33
TOTAL SHEETS 69

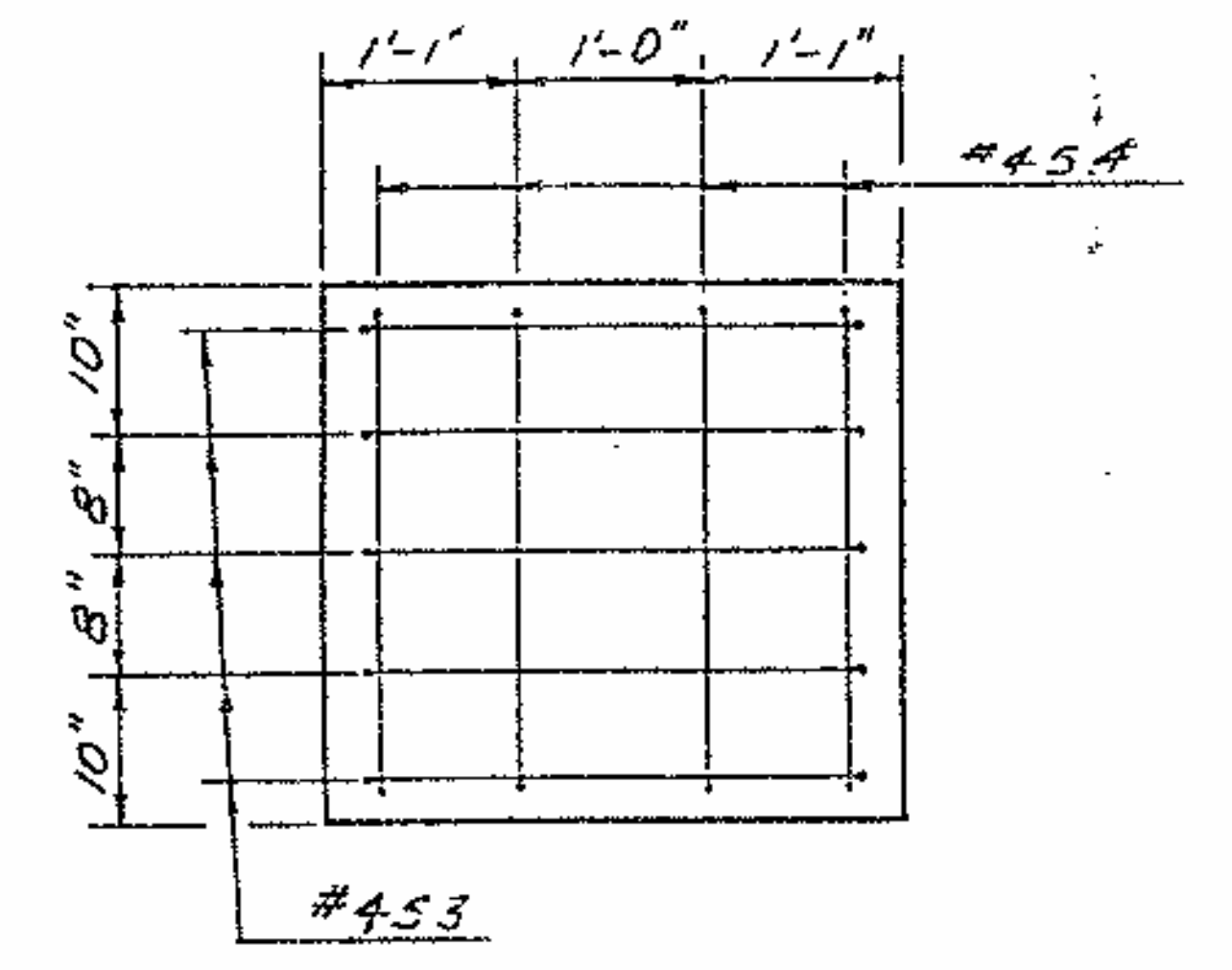


PLAN OF CAP

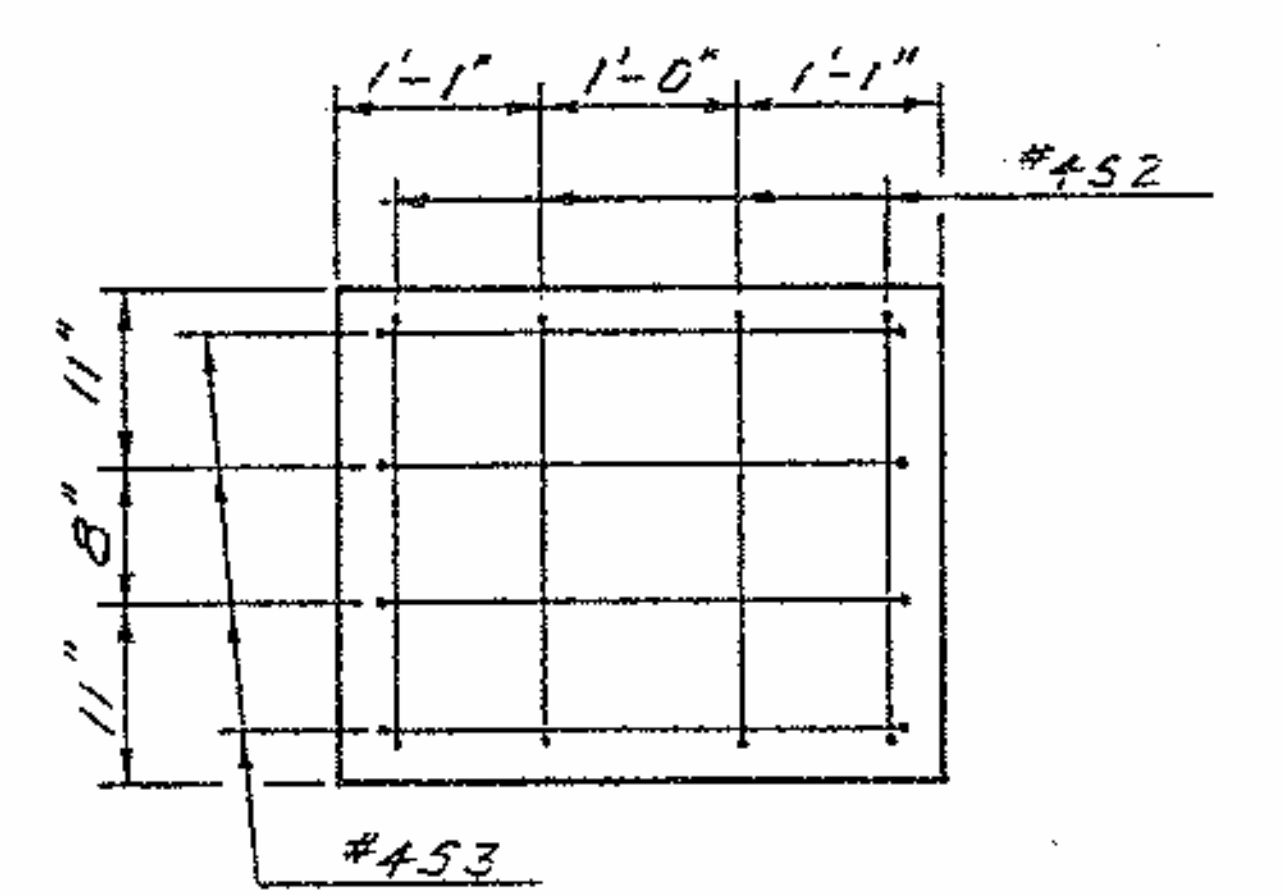


ELEVATION

NOTES ---
 STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 HOOKS ON 'V' BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
 FOR SPIRAL COLUMN REINFORCING STEEL, SEE SPECIAL PROVISIONS.
 FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.
 THE TOP SURFACE AREAS OF THE BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THAT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
 #4 'S' BARS AT END OF CAP MAY BE SHIFTED UP TO 2' TO CLEAR 'B' BARS.



VIEW Y-Y

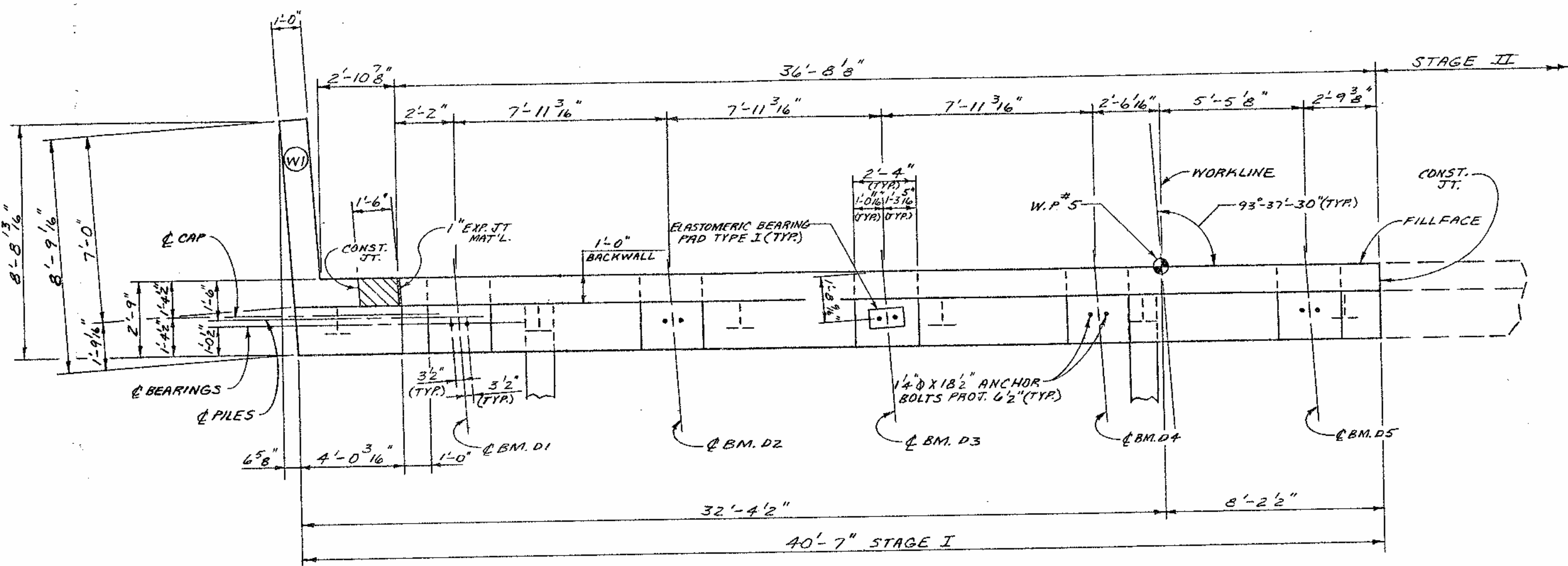


VIEW X-X

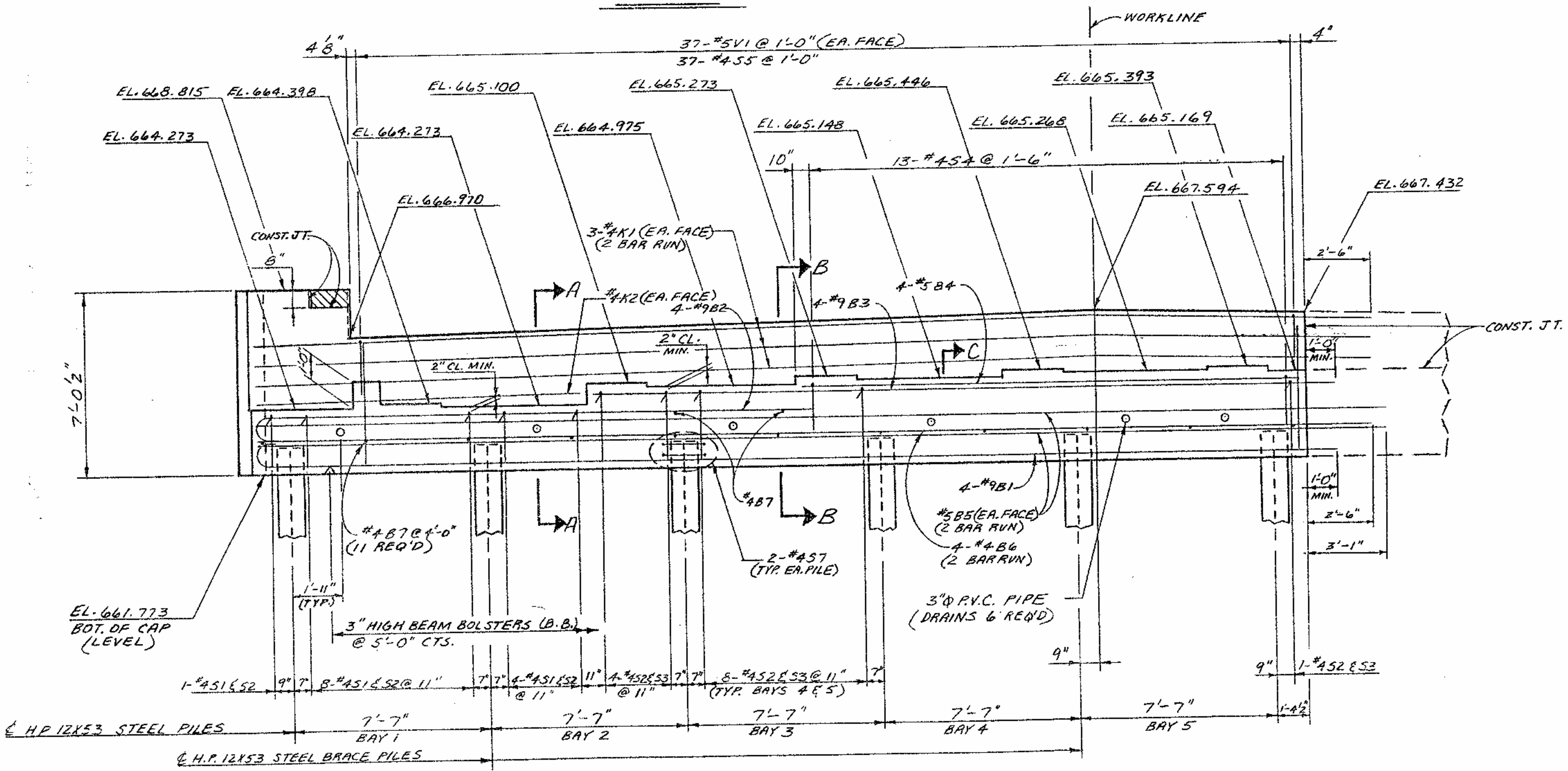
PROJECT No. 87500310
 ALAMANCE-ORANGE COUNTY
 STATION: 329+86.22-L-
 SHEET 1 OF 2

STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
SUBSTRUCTURE					
BENT #3					
(STAGE I & II)					
JULY 1990					
REVISIONS		NO.		BY	
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
TOTAL SHEETS					69
SHEET NO.					5-34

DRAWN BY ADRY MARTIN DATE 7-10-90
 CHECKED BY W.P. CRUNCHER DATE 7-14-90



PLAN



ELEVATION

--- NOTES ---

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

PIPE DRAINS MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR REINFORCING STEEL AND ANCHOR BOLTS.

FOR PIPE DRAIN DETAILS, SEE END BENT #1.

FOR PILE SPLICE DETAILS, SEE END BENT #1.

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

THE TOP SURFACE OF THE END BENT CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 1/4" PER FOOT.

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

USE OF A MECHANICAL BUTT SPLICE IS REQUIRED FOR THE #5 BARS AT THE CONSTRUCTION JOINT BETWEEN STAGES. A PERFORMANCE TEST WILL BE REQUIRED. SEE SPECIAL PROVISIONS.

FOR TEMPORARY DRAINAGE DETAILS AT END BENT, SEE END BENT #1.

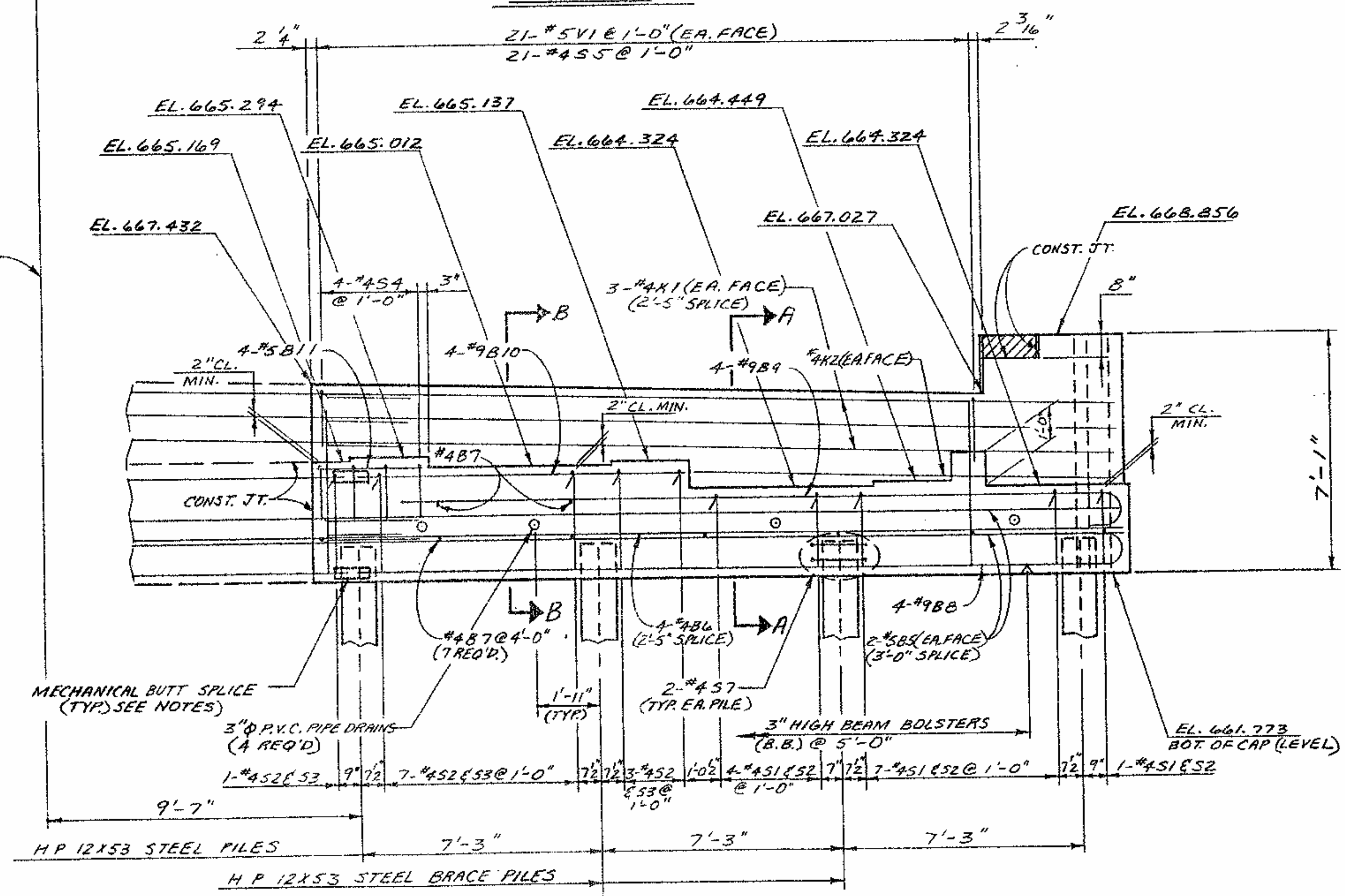
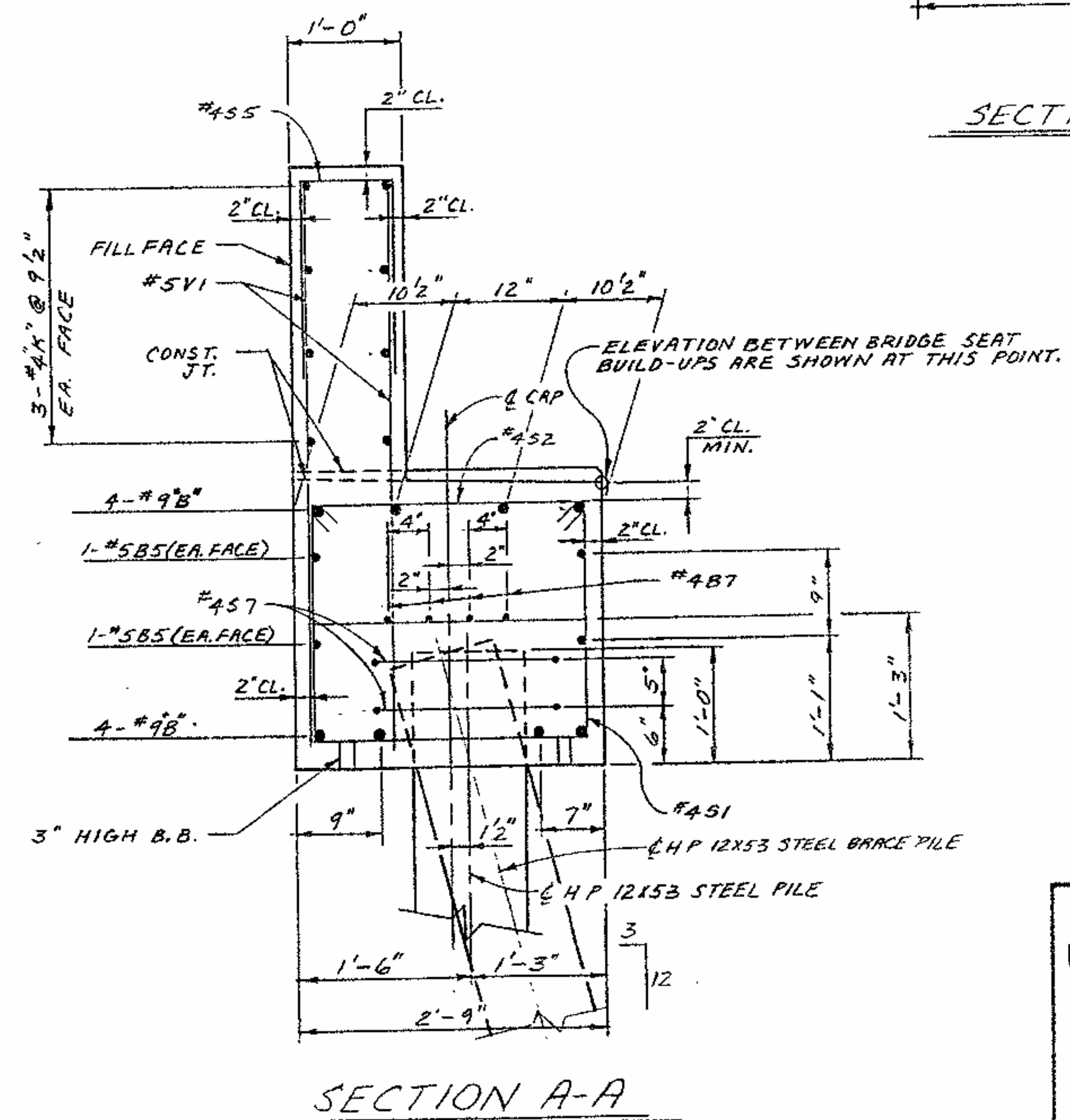
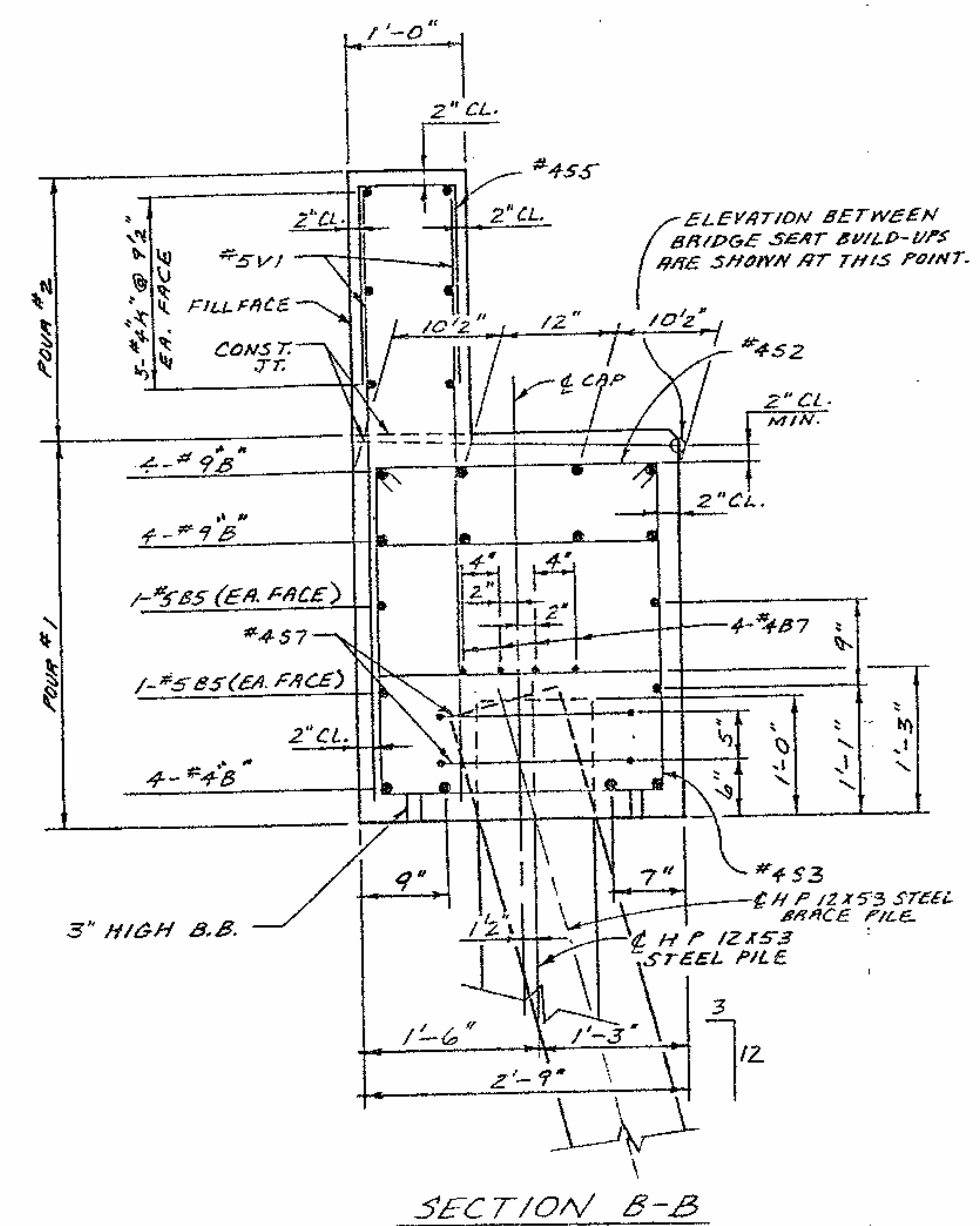
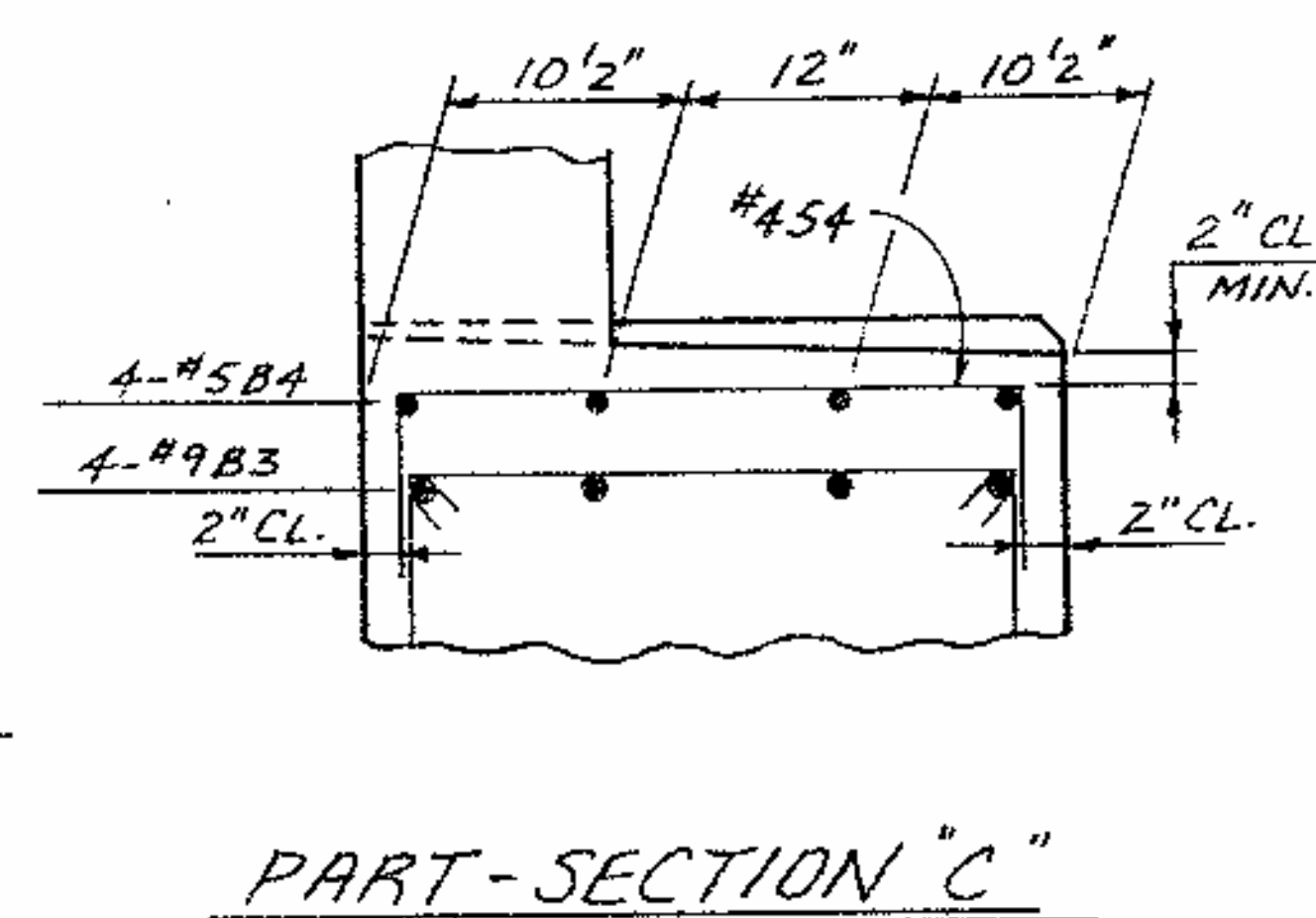
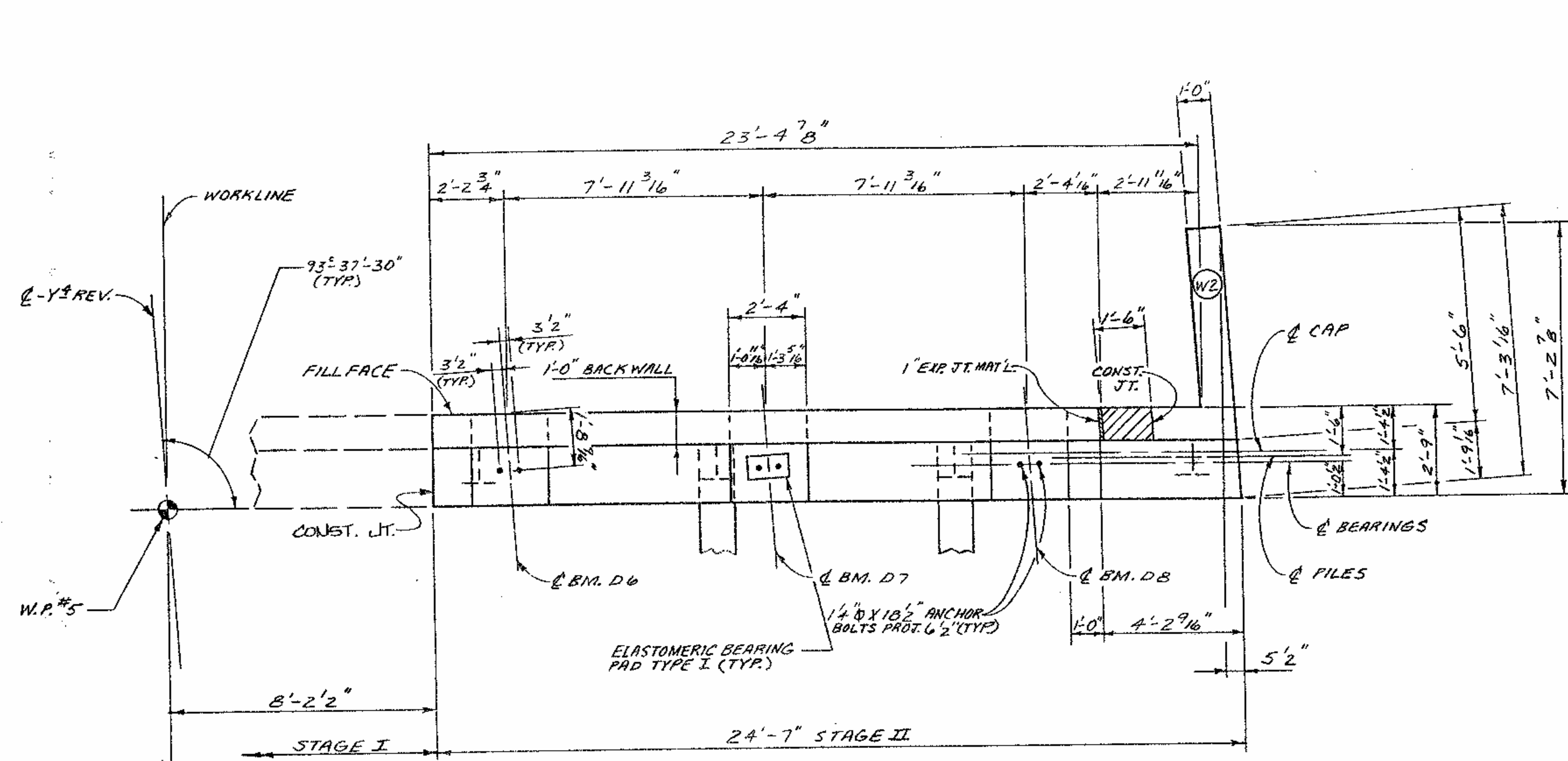
FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

PROJECT NO. B. T500310
 ALAMANCE-ORANGE COUNTY
 STATION: 329+86.22-L-
 SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT #2
 (STAGE I)

MAY		REVISIONS				1990	
NO.	BY	DATE	NO.	BY	DATE	SHEET NO.	TOTAL SHEETS
1			3			5-36	
2			4				69

DRAWN BY ADRY MARTIN DATE 5/22/90
 CHECKED BY WF. PARKER DATE 7-23-90



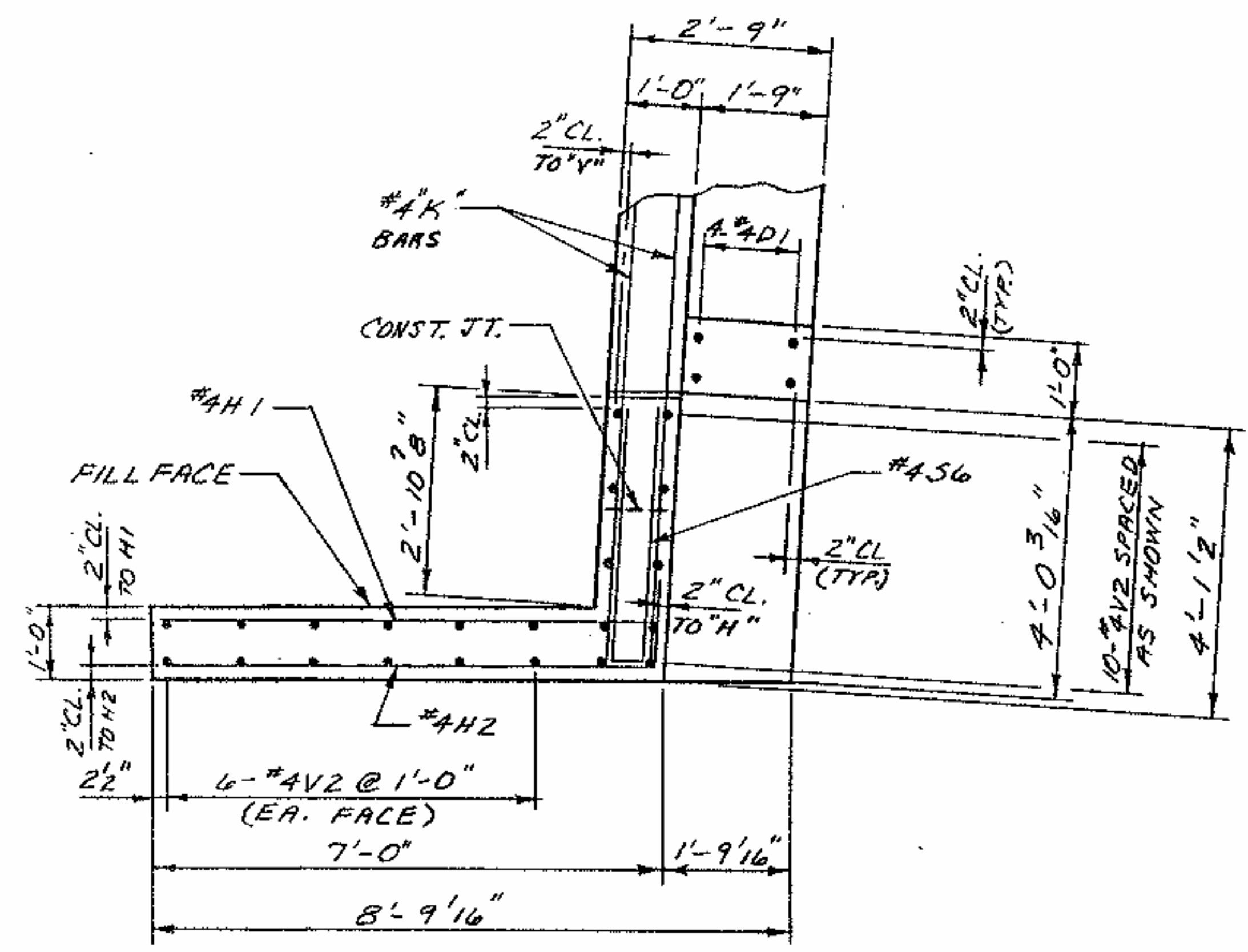
PROJECT No. B.T500310
 ALAMANCE-ORANGE COUNTY
 STATION: 329+86.22-L-
 SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

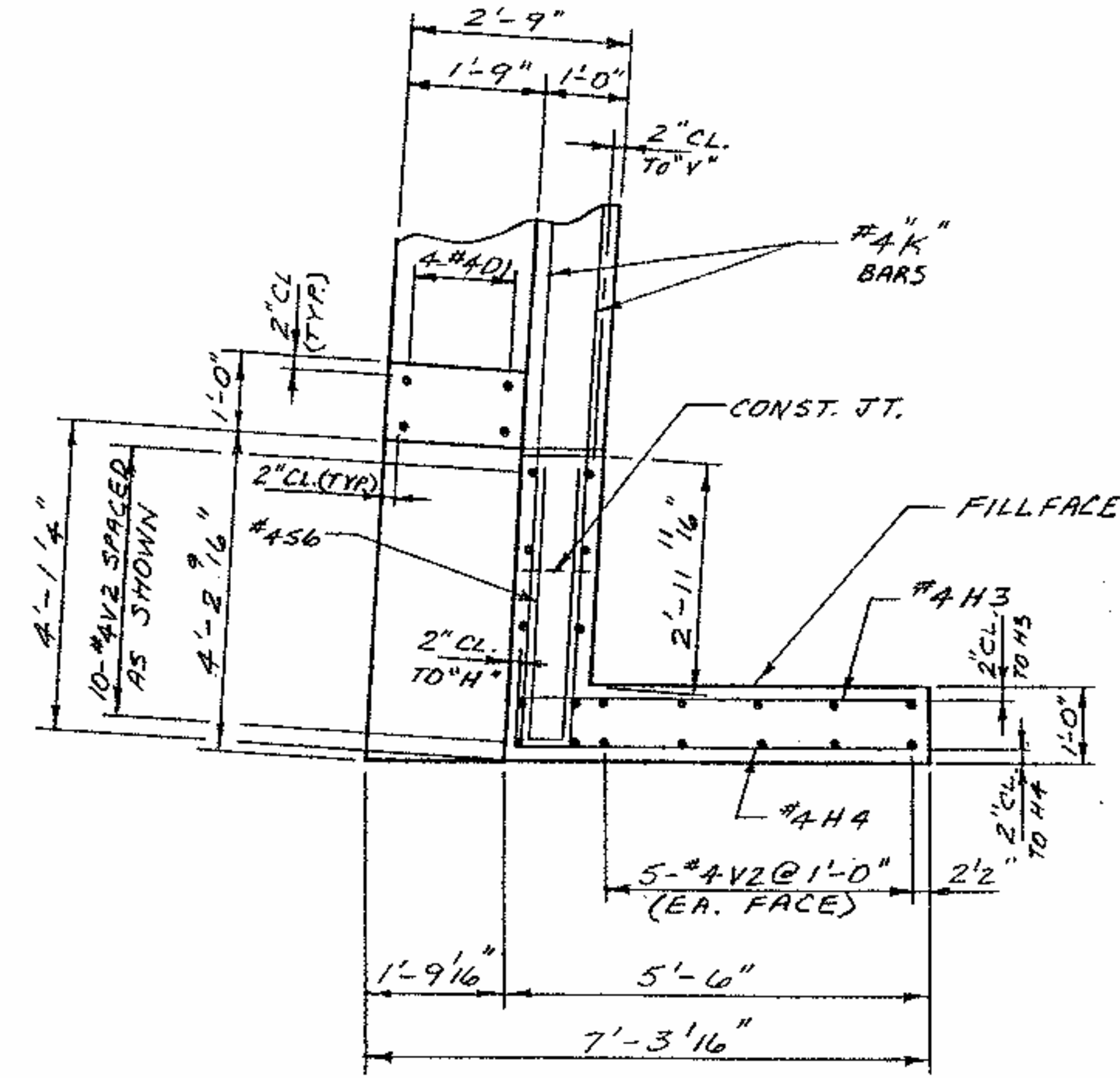
SUBSTRUCTURE
 END BENT #2
 (STAGE II)

REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	5-37	
1			3			TOTAL SHEETS	
2			4			69	

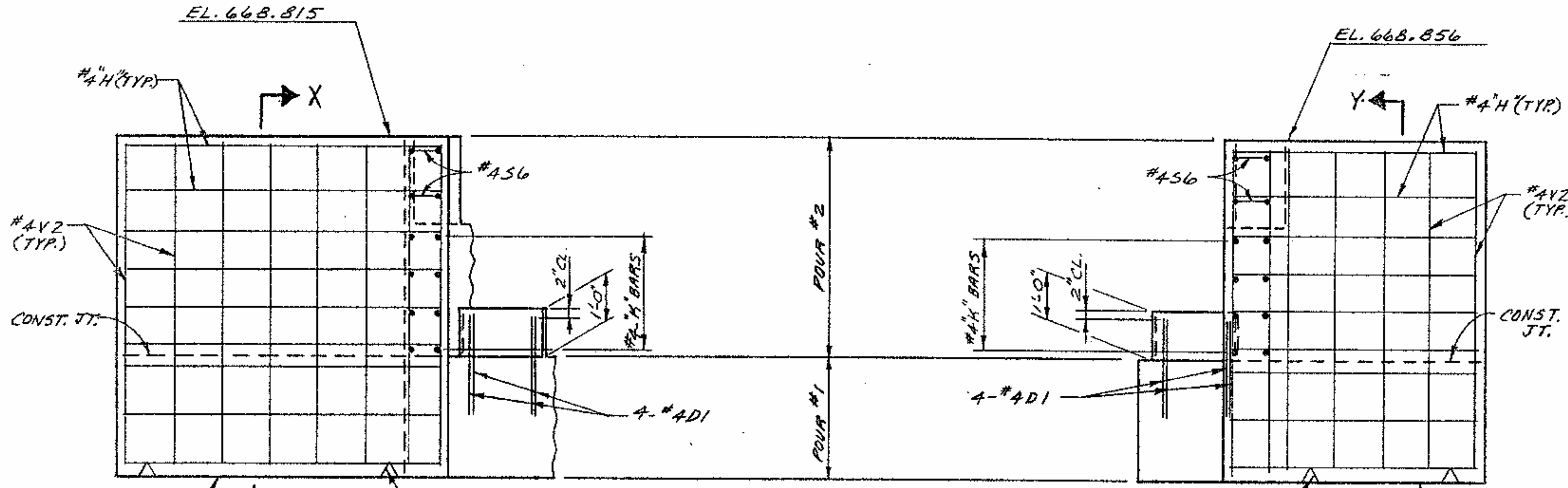
DRAWN BY **ROY MARTIN** DATE 5-22-90
 CHECKED BY **W.F. PARKER** DATE 7-25-90



PLAN OF LEFT WING (W1)

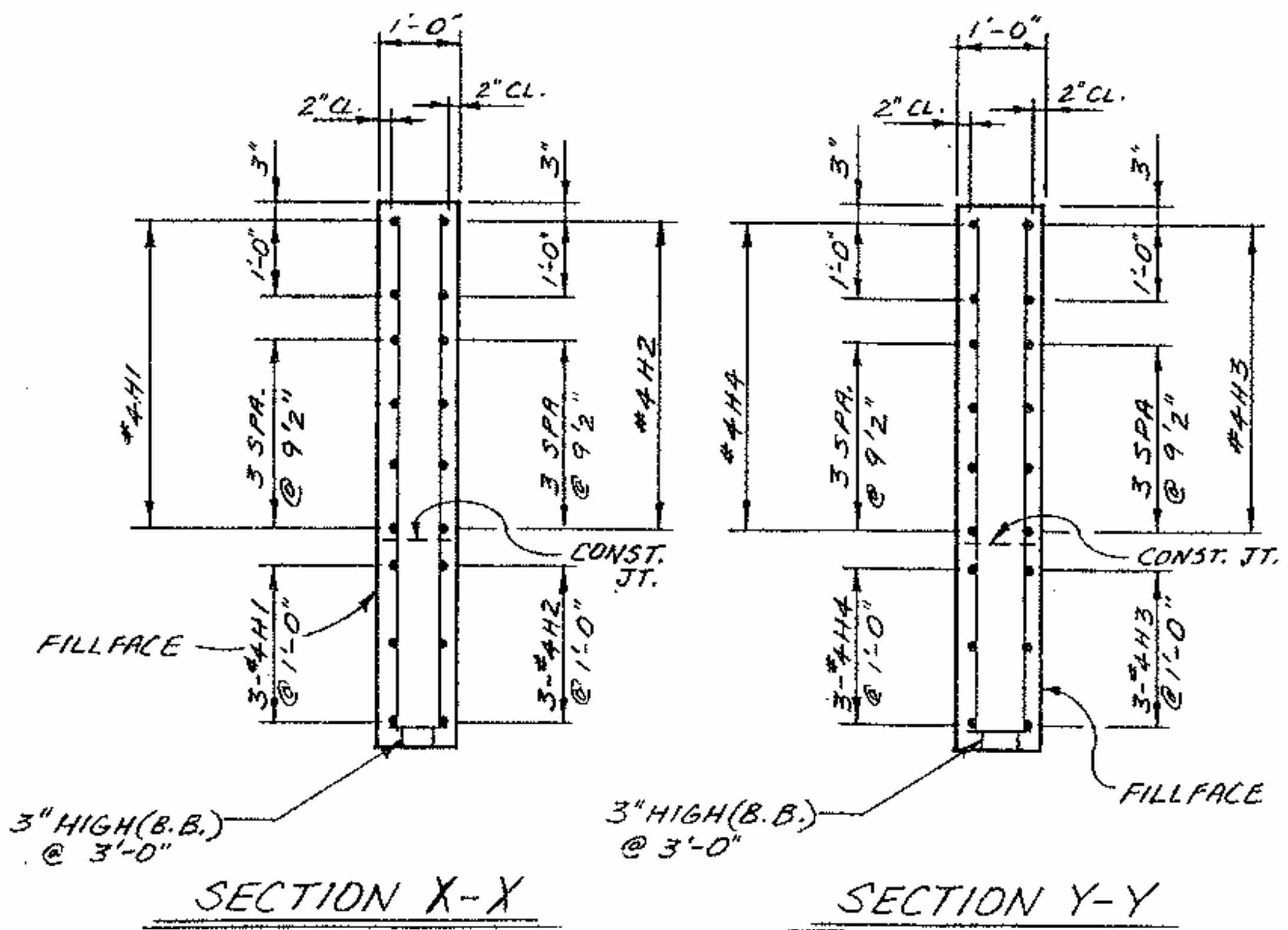


PLAN OF RIGHT WING (W2)



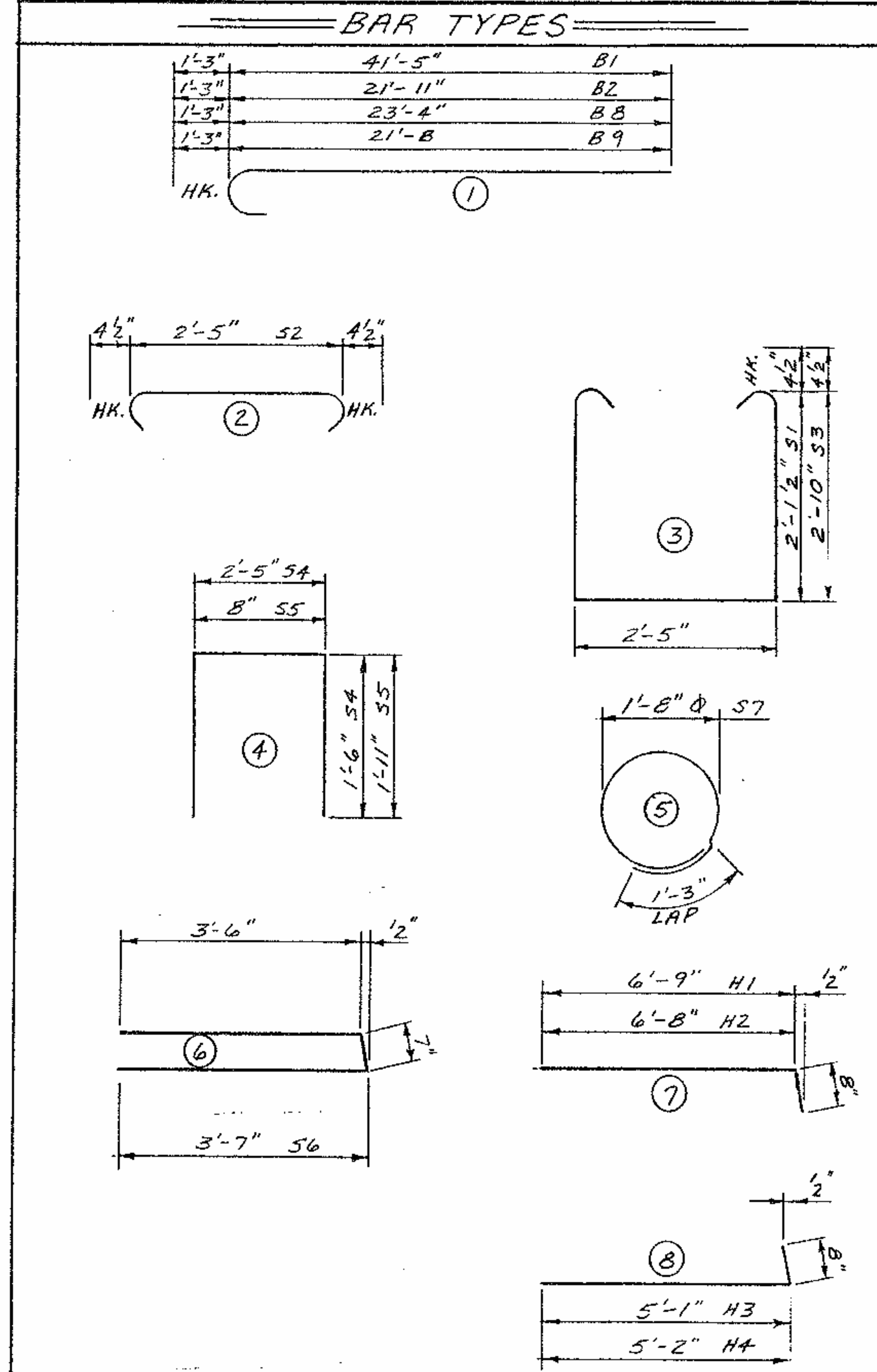
ELEVATION OF LEFT WING (W1)

ELEVATION OF RIGHT WING (W2)



SECTION X-X

SECTION Y-Y



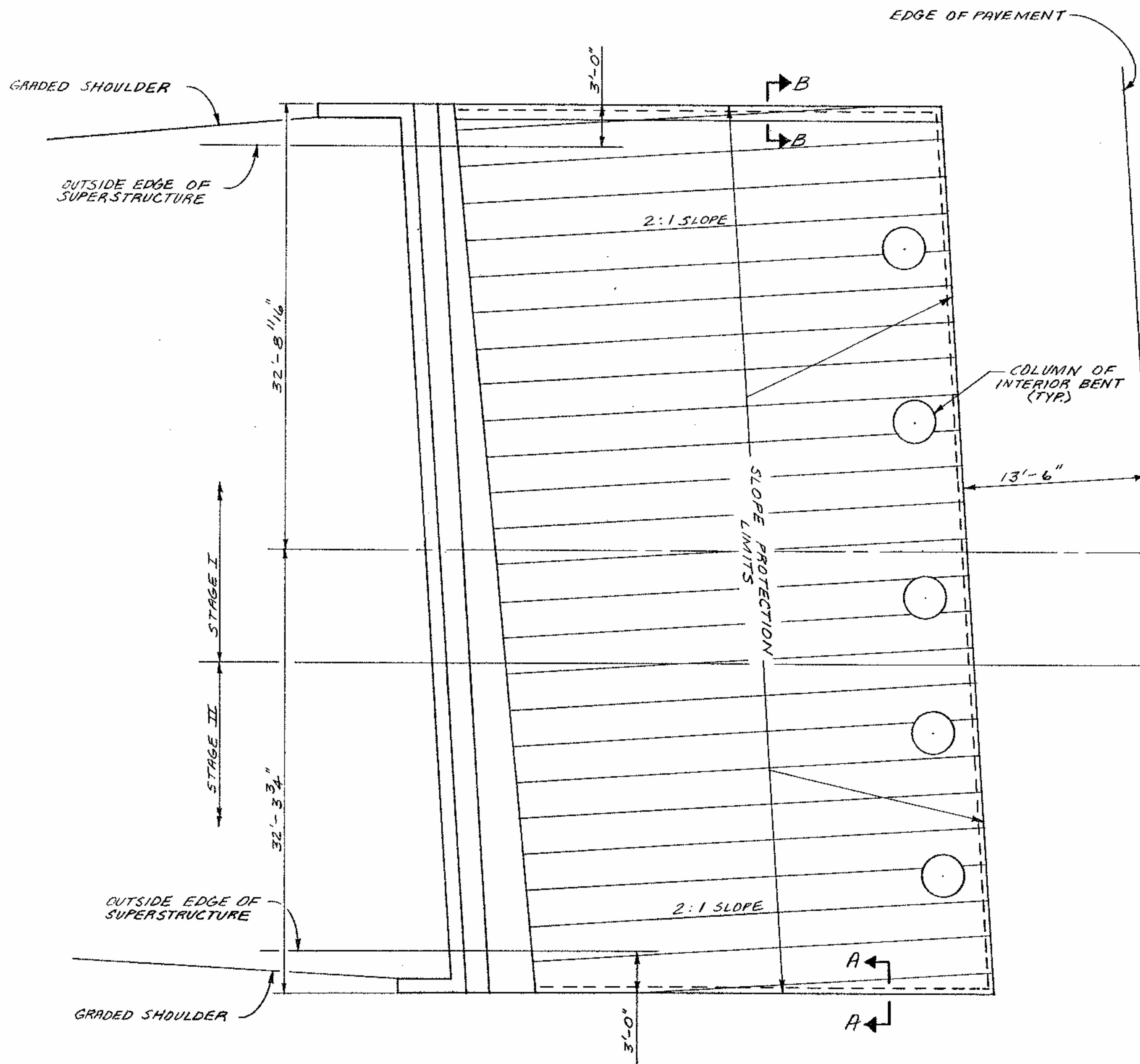
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL											
END BENT #2 (STAGE I)					END BENT #2 (STAGE II)						
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#9	1	42'-9"	581	B5	4	#5	STR.	23'-7"	98
B2	4	#9	1	23'-2"	315	B6	4	#4	STR.	23'-2"	62
B3	4	#9	STR.	28'-3"	384	B7	9	#4	STR.	2'-5"	15
B4	4	#5	STR.	19'-4"	81	B8	4	#9	1	24'-7"	334
B5	8	#4	STR.	23'-7"	126	B9	4	#9	1	22'-11"	312
B6	8	#4	STR.	23'-2"	124	B10	4	#9	STR.	10'-3"	139
B7	13	#4	STR.	2'-5"	21	B11	4	#5	STR.	3'-2"	13
D1	4	#4	STR.	2'-0"	5	H3	9	#4	8	5'-9"	35
H1	9	#4	7	7'-5"	45	H4	9	#4	8	5'-10"	35
H2	9	#4	7	7'-4"	44	K1	6	#4	STR.	23'-2"	93
K1	12	#4	STR.	23'-2"	186	K2	2	#4	STR.	12'-8"	17
K2	2	#4	STR.	12'-8"	17	S1	12	#4	3	7'-5"	59
S1	13	#4	3	7'-5"	64	S2	23	#4	2	3'-2"	49
S2	42	#4	2	3'-2"	89	S3	11	#4	3	8'-10"	65
S3	29	#4	3	8'-10"	171	S4	4	#4	4	5'-5"	14
S4	13	#4	4	5'-5"	47	S5	21	#4	4	4'-6"	63
S5	37	#4	4	4'-6"	111	S6	2	#4	6	7'-8"	10
S6	2	#4	6	7'-8"	10	S7	8	#4	5	6'-6"	35
S7	12	#4	5	6'-6"	52	V1	42	#5	STR.	4'-10"	212
V1	74	#5	STR.	4'-10"	373	V2	20	#4	STR.	6'-8"	89
V2	22	#4	STR.	6'-8"	98						
REINFORCING STEEL LBS. 2,944					REINFORCING STEEL LBS. 1,754						
CLASS A CONCRETE BREAKDOWN					CLASS A CONCRETE BREAKDOWN						
POUR #1 - CAP & WING C.Y. 13.6					POUR #1 - CAP & WING C.Y. 7.8						
POUR #2 - WING & BACKWALL C.Y. 5.0					POUR #2 - WING & BACKWALL C.Y. 3.3						
CLASS A CONCRETE TOTAL C.Y. 18.6					CLASS A CONCRETE TOTAL C.Y. 11.1						
H.P. 12X53 STEEL PILES					H.P. 12X53 STEEL PILES						
NO. 6 LIN. FT. 90					NO. 4 LIN. FT. 60						

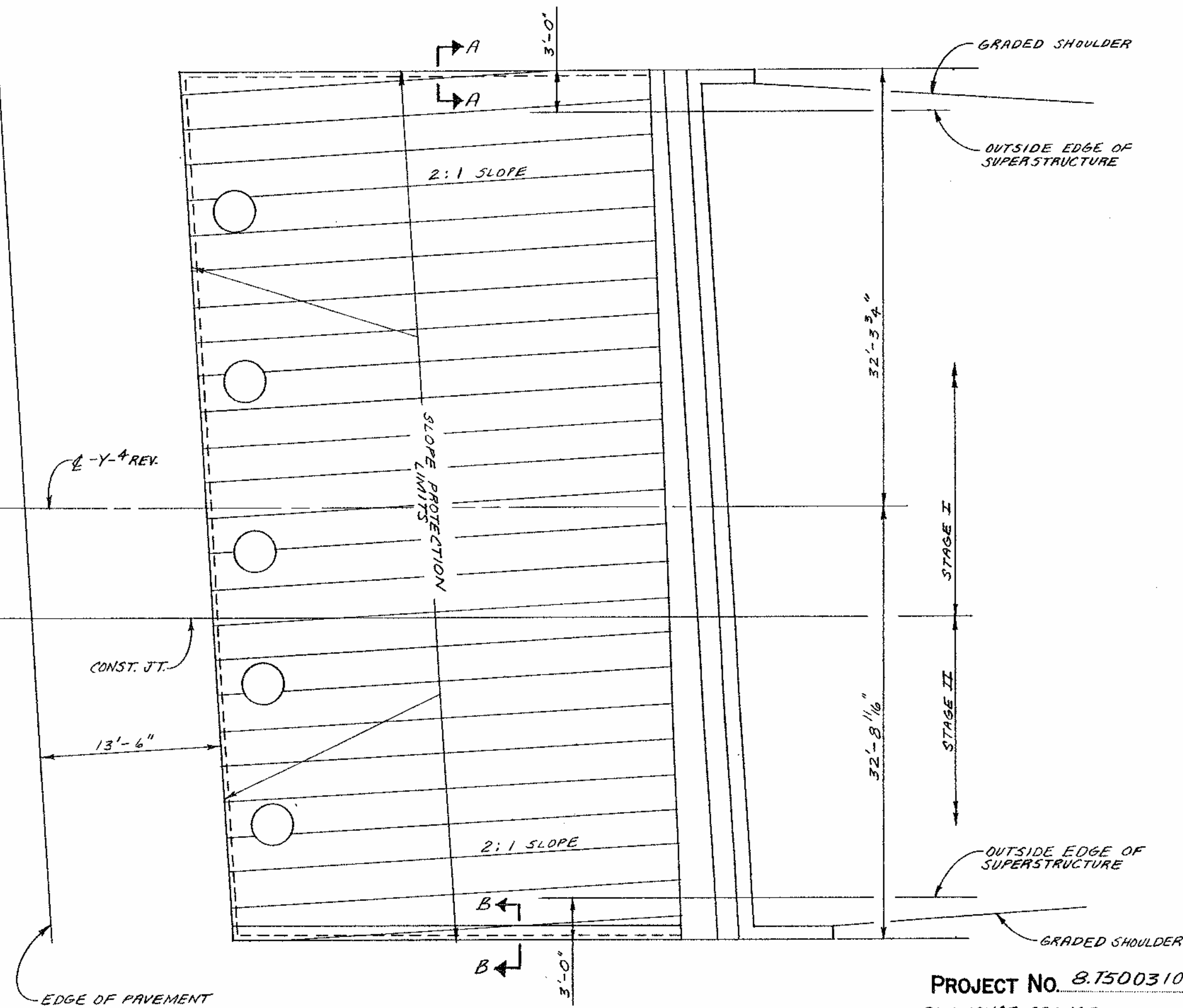
TOTAL BILL OF MATERIAL	
REINFORCING STEEL	LBS. 4,698
CLASS A CONCRETE	C.Y. 29.7
HP 12X53 STEEL PILES NO. 10	LIN. FT. 150

PROJECT No. 8.7500310
 ALAMANCE-ORANGE COUNTY
 STATION: 329+86.22-L-
 SHEET 3 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT #2 (STAGES I & II)					
MAY 1996					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		



PLAN @ END BENT #1



PLAN @ END BENT #2

NOTE: FOR BERM WIDTHS, SEE "GENERAL DRAWING."

PROJECT No. 8.T500310
 ALAMANCE-ORANGE COUNTY
 STATION: 329+86.22-L-

SHEET 1 OF 2

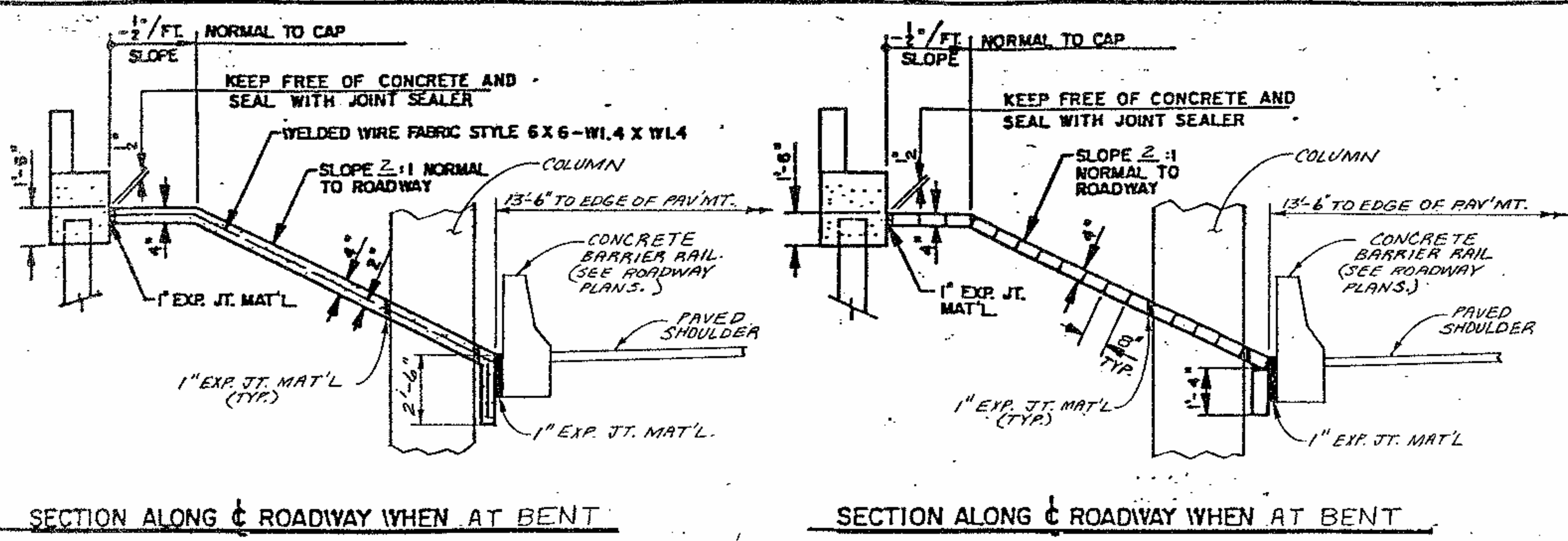
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SLOPE PROTECTION
 DETAILS

APR. 1990

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	5-39
1			3			TOTAL SHEETS
2			4			69

DRAWN BY: RORY MARTIN DATE: 4-10-90
 CHECKED BY: W.D. CRUTCHER DATE: 9-14-90



GENERAL NOTES

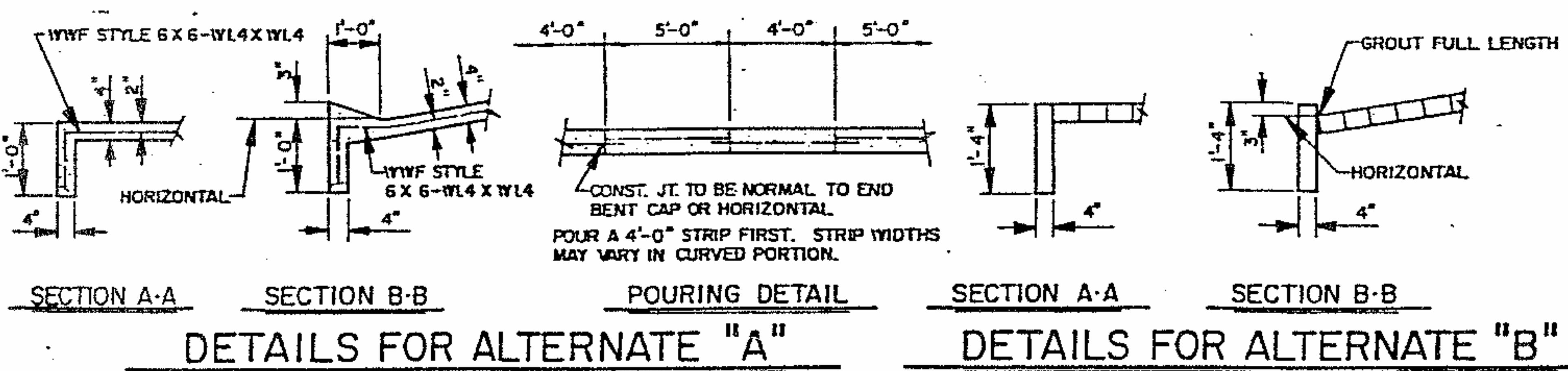
4 INCH SLOPE PROTECTION SHALL BE PLACED UNDER THE ENDS OF THE BRIDGE. LIMITS OF THE PROTECTION SHALL BE AS SHOWN IN THE DETAILS. THE CONTRACTOR, AT HIS OPTION, MAY PLACE EITHER TYPE, ALTERNATES "A" OR "B", AS DESCRIBED BELOW. STRAIGHT EDGING WILL NOT BE REQUIRED UNLESS, IN THE OPINION OF THE ENGINEER, VISUAL INSPECTION INDICATES A NEED FOR IT. METHOD OF MEASUREMENT AND BASIS OF PAYMENT SHALL BE AS PRESCRIBED IN SECTION 442 OF THE STANDARD SPECIFICATIONS. THE SAME TYPE OF SLOPE PROTECTION SHALL BE USED UNDER BOTH ENDS OF ANY ONE BRIDGE. FOR BERM WIDTH, SEE GENERAL DRAWING.

ALTERNATE "A"

ALTERNATE "A" SHALL CONSIST OF FOUR INCH 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. ALTERNATE "A" WELDED WIRE FABRIC REINFORCING SHALL BE STYLE 6 X 6-W1.4 X W1.4, 60 INCHES WIDE. ADJACENT RUNS OF WELDED WIRE FABRIC SHALL LAP AT LEAST SIX INCHES. SLOPE PROTECTION SHALL BE POURED IN ALTERNATE FOUR FT. AND FIVE FT. STRIPS AS SHOWN IN POURING DETAIL. THE COST OF THE WELDED WIRE FABRIC SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER SQUARE YARD FOR 4 INCH SLOPE PROTECTION.

ALTERNATE "B"

ALTERNATE "B" SHALL CONSIST OF SOLID CONCRETE BLOCKS 4" X 8" X 16" LAID IN HORIZONTAL COURSES SUCH THAT THOSE IN SUCCESSIVE COURSES WILL BREAK JOINTS WITH UNITS IN THE PRECEDING ONE. BLOCKS SHALL BE LAID WITH THEIR LONG AXIS PARALLEL TO THE END BENT CAP WITH GROUTED JOINTS PREFERABLY 1/4" BUT NOT LESS THAN 1/8" NOR MORE THAN 1/4" WIDE BETWEEN SUCCESSIVE COURSES AND ENDS OF BLOCKS. JOINTS SHALL BE GROUTED BY POURING A MIXTURE OF ONE PART PORTLAND CEMENT TO THREE PARTS SAND MIXED WITH SUFFICIENT WATER TO ENABLE THE MIXTURE TO BE POURED THROUGH A SPOUT. THE CONCRETE BLOCKS SHALL BE CAST TO ACCURATE DIMENSIONS, SHALL HAVE UNIFORM SURFACE COLOR AND TEXTURE AND SHALL BE MANUFACTURED OF MATERIALS TO PRODUCE A COMPRESSIVE STRENGTH OF NOT LESS THAN 3,000 PSI AT AGE OF 28 DAYS. NO BROKEN BLOCKS SHALL BE USED EXCEPT IN CONSTRUCTING A STRAIGHT LINE ALONG EACH SIDE OF THE PAVING DOWN THE SLOPE. CARE SHALL BE TAKEN TO BREAK THE BLOCKS SO AS TO GIVE A UNIFORM WORKMANLIKE JOINT AND SURFACE.



DETAILS FOR ALTERNATE "A"

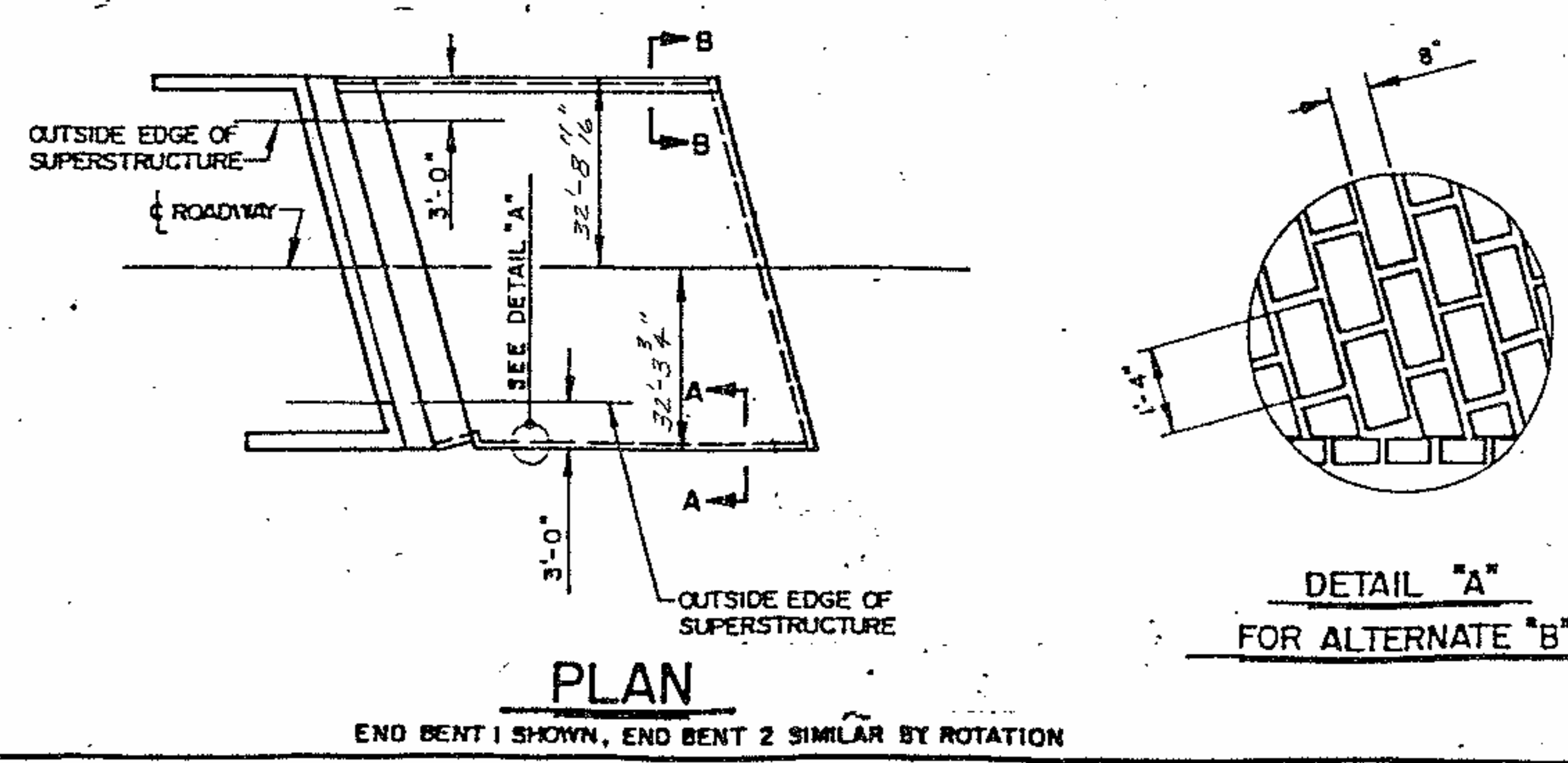
DETAILS FOR ALTERNATE "B"

	SLOPE PROTECTION		WELDED WIRE FABRIC, 60" WIDE APPROX. L.F.
	SQUARE YARDS		
	END BENT 1	END BENT 2	
BRIDGE @ STA. 329+86.22-L			
STAGE 1	192	185	377
STAGE 2	116	111	227
TOTAL	308	296	534

PROJECT No. 8-T500310
ALAMANCE-ORANGE COUNTY
STATION. 329+86.22-L

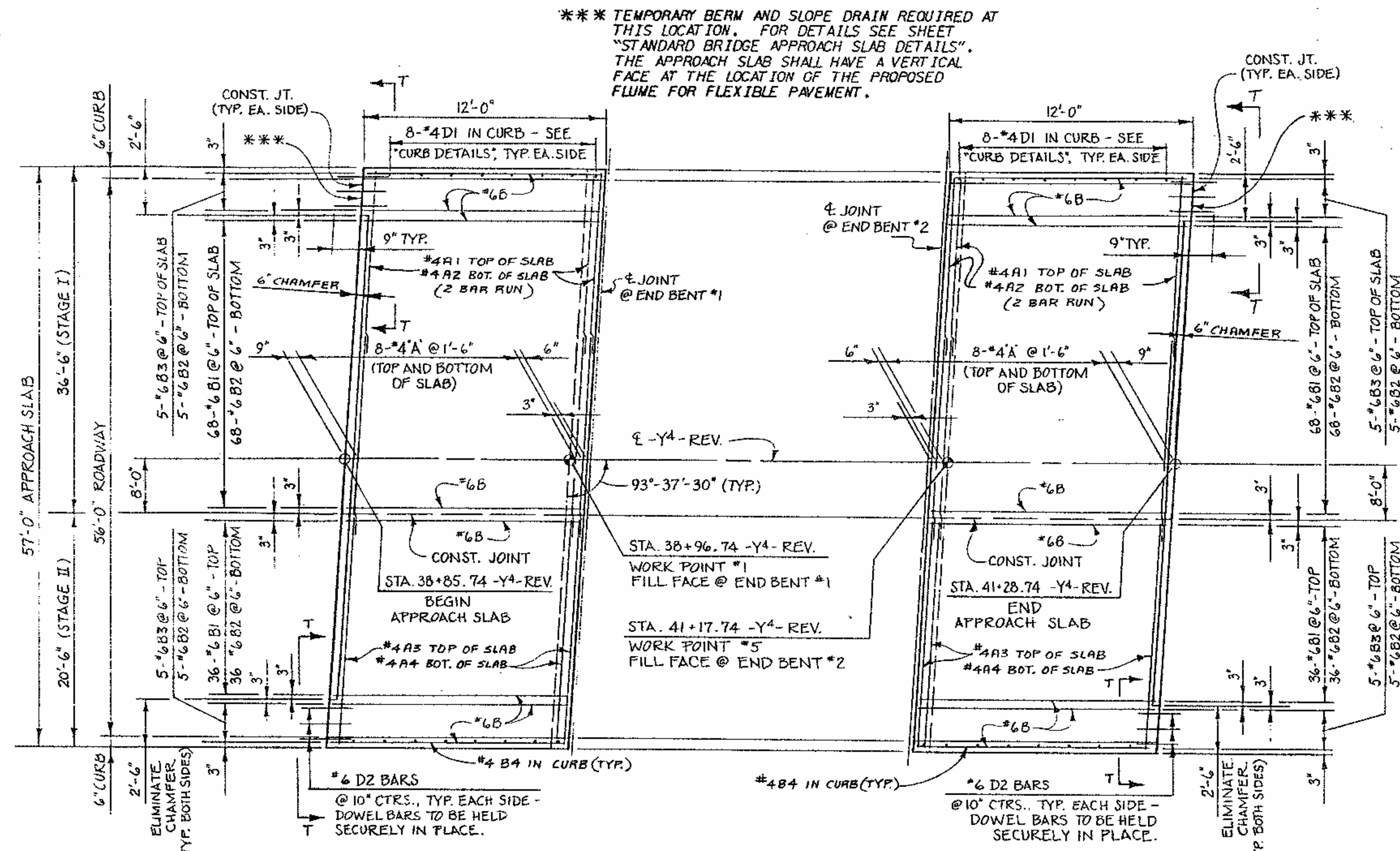
SHEET 2 OF 2

STATE OF NORTH CAROLINA				DATE
DEPARTMENT OF TRANSPORTATION				5-90
RALEIGH				
STANDARD SLOPE PROTECTION DETAILS				
FEBRUARY				1979
REVISIONS				
NO.	BY	DATE	NO.	DATE
1			2	
3			4	
TOTAL SHEETS				69



PLAN
 END BENT 1 SHOWN, END BENT 2 SIMILAR BY ROTATION

REVISED 7-11-88 BY: JMS
 REVISED 3-1-84 BY: JMB
 REVISED 8-18-82 BY: ERL
 REVISED 3-23-84 BY: JMS
 REVISED 2/9/82 BY: E.R.L.
 REVISION AND ADOPTED APRIL 1, 1979
 BY: E.R.L.
 ASSEMBLED BY: ROY MARTIN DATE: 7-12-90
 CHECKED BY: W.D. CRITCHER DATE: 9-18-90
 DRAWN BY: C.C. MITCHELL DATE: FEB. 1979
 APPROVED BY: [Signature] DATE: Feb. 21, 79

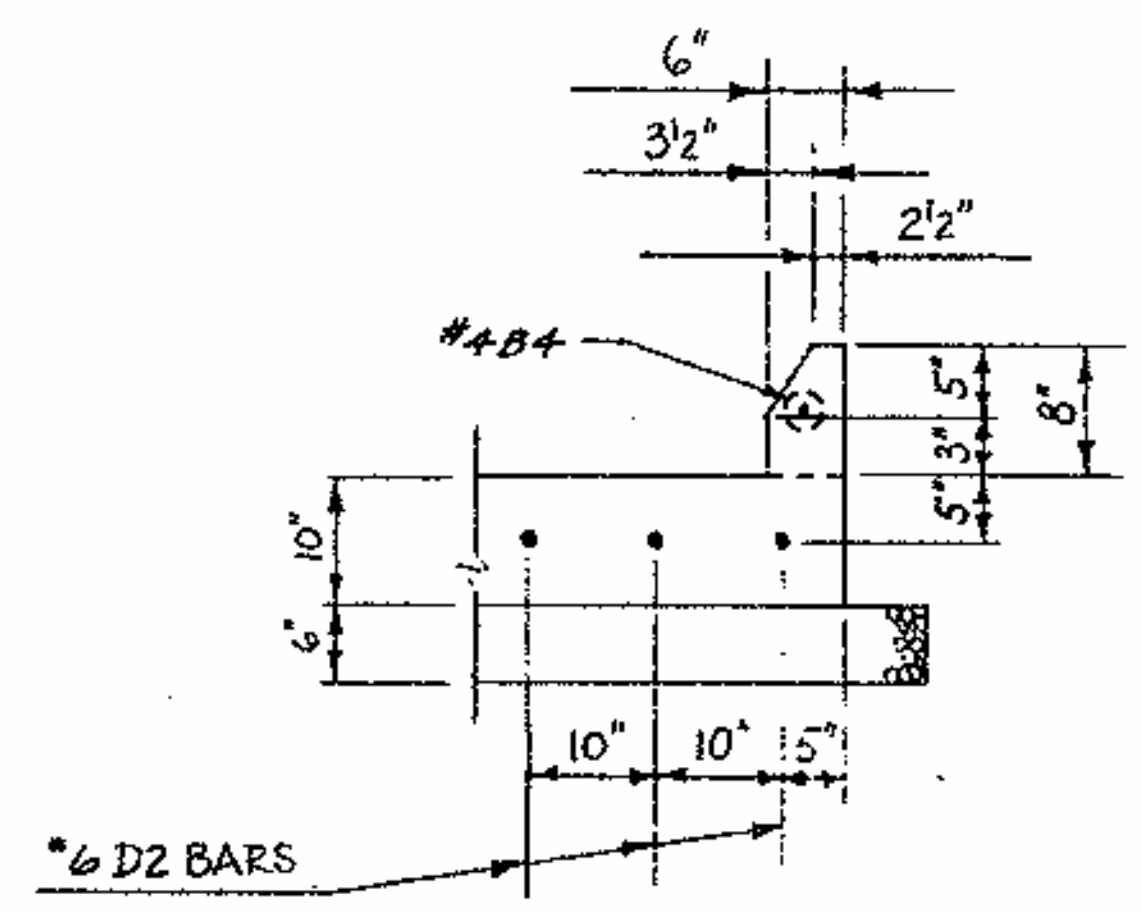


PLAN OF APPROACH SLAB @ END BENT #1

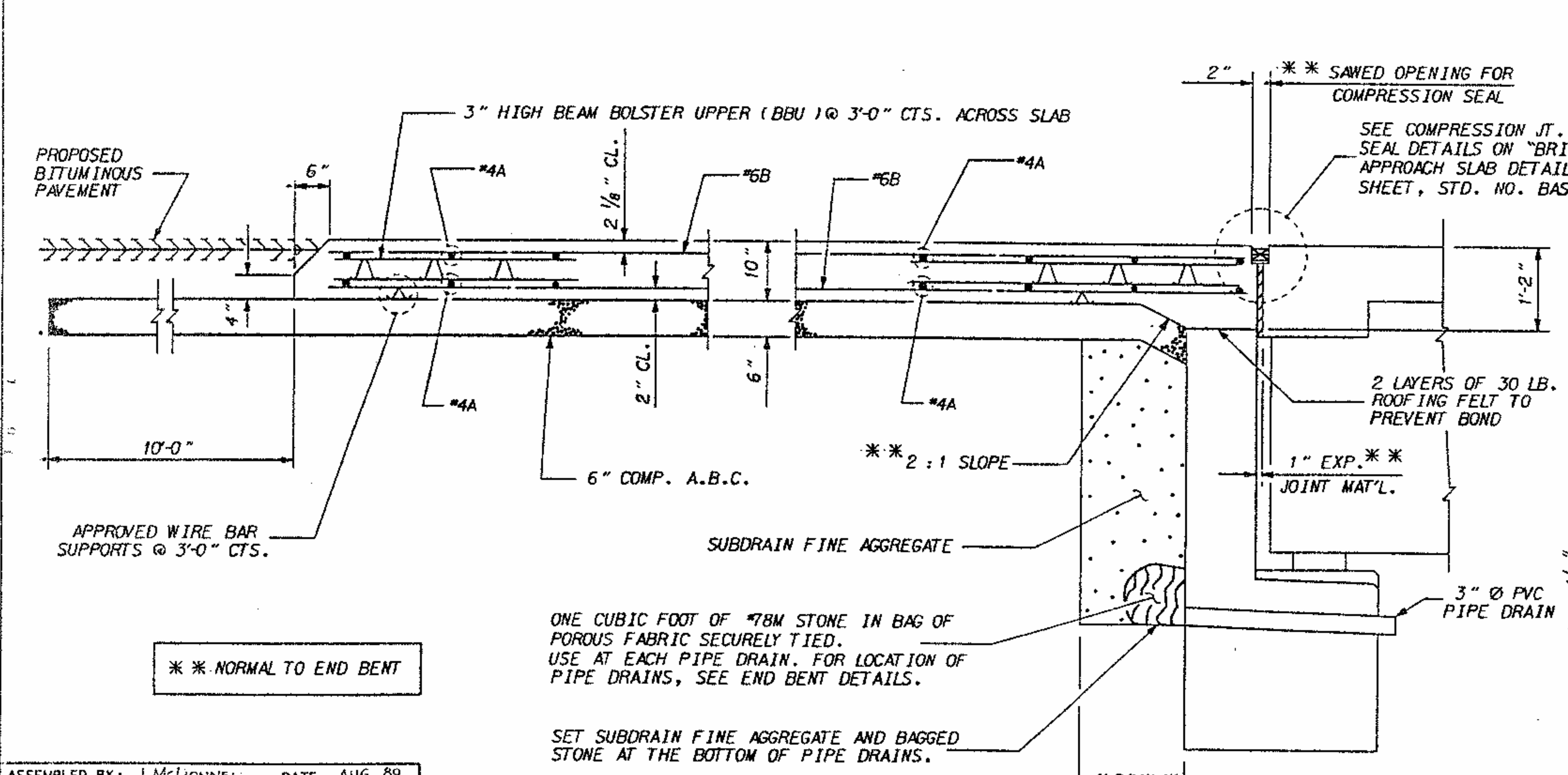
PLAN OF APPROACH SLAB @ END BENT #2

SPLICE LENGTH CHART

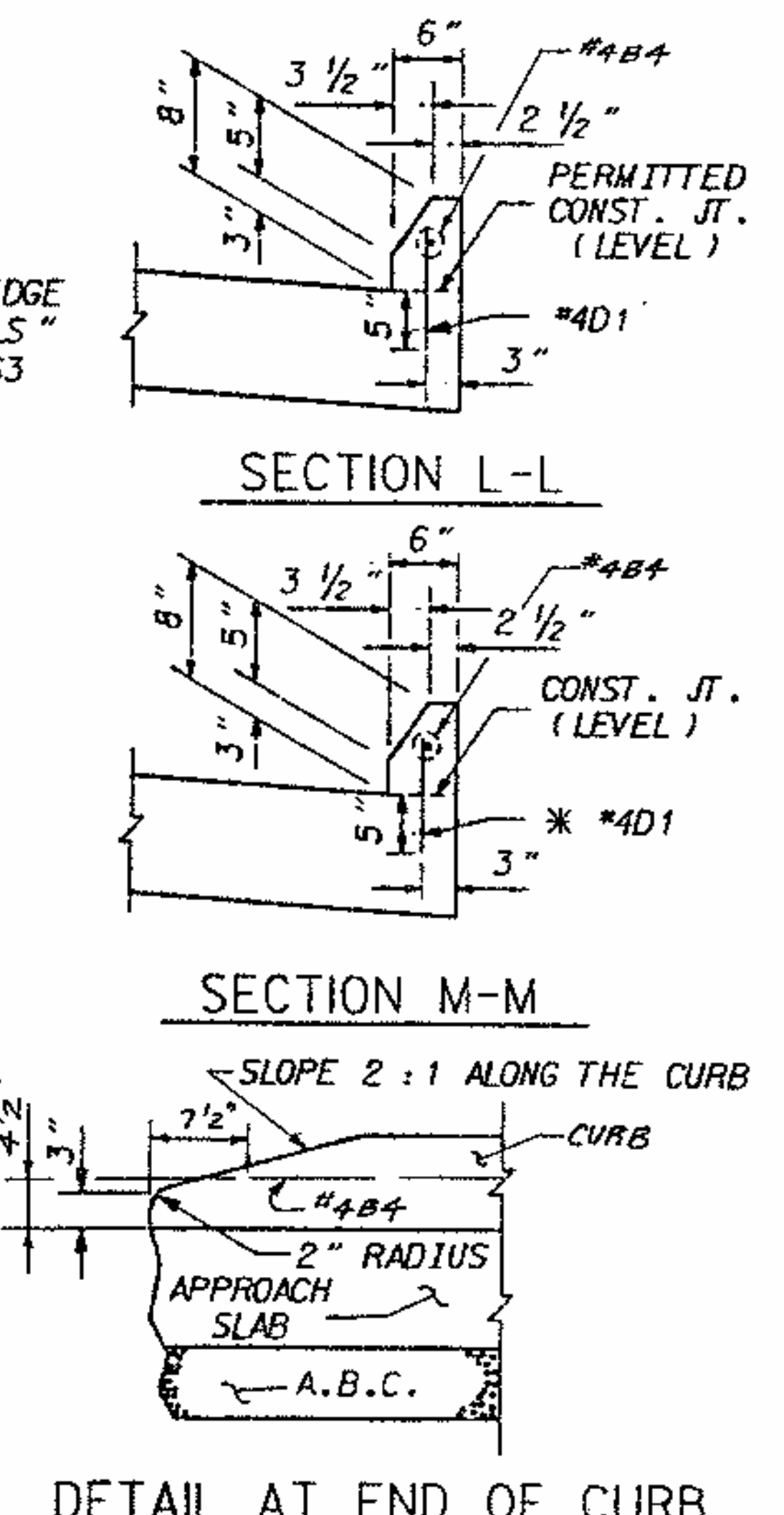
#4A1	1'-5"
#4A2	1'-2"



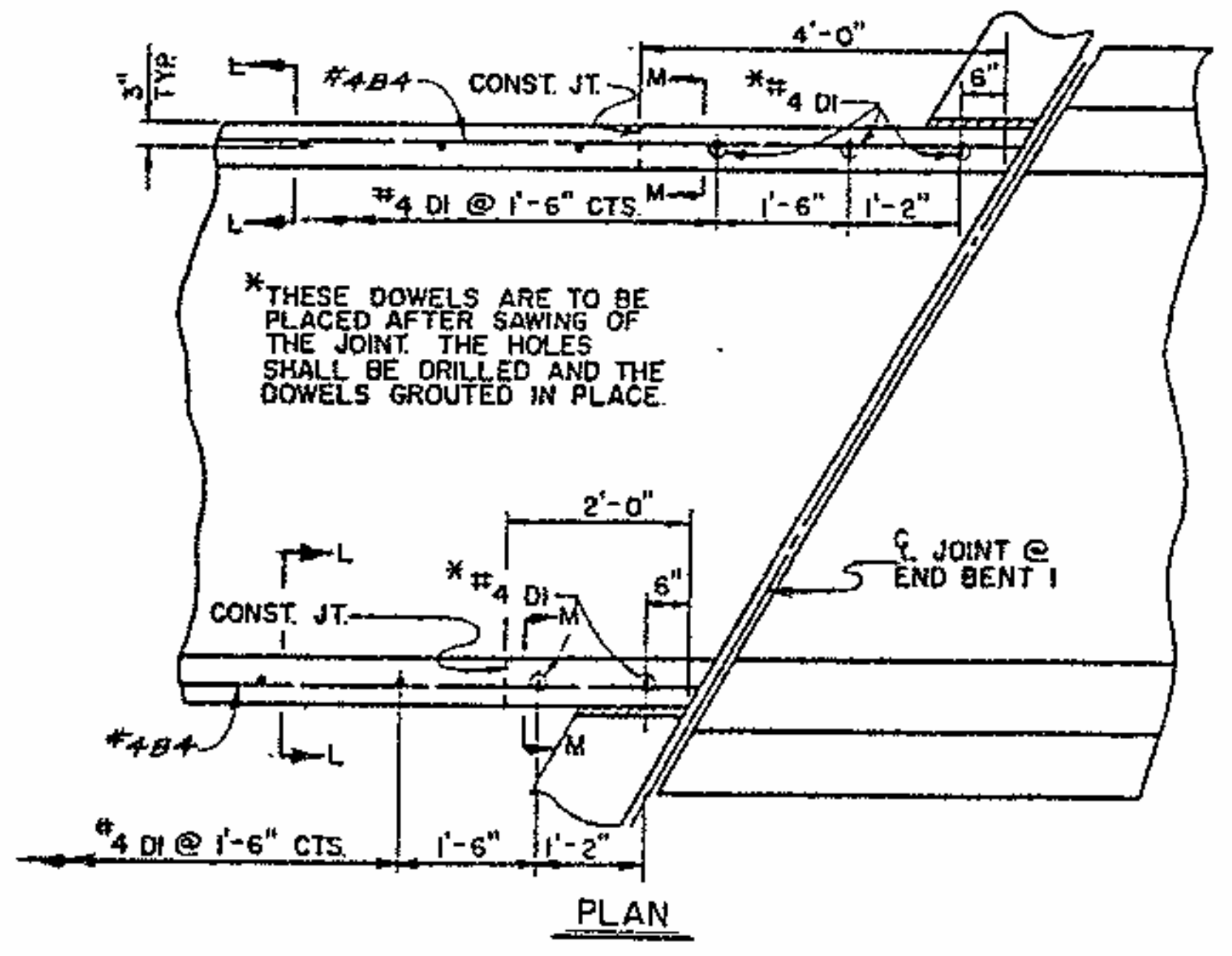
SECTION T-T



SECTION THRU SLAB



DETAIL AT END OF CURB



CURB DETAILS

NOTES

FOR PREFORMED COMPRESSION JOINT SEAL, SEE SPECIAL PROVISIONS. THE PREFORMED COMPRESSION SEAL SHALL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE BID. SEE GENERAL DRAWING.

THE OPENING SHOWN IS BASED ON A NOMINAL UNCOMPRESSED SEAL WIDTH OF 3".

THE JOINT SHALL BE SAWS PRIOR TO THE CASTING OF THE CONCRETE CURB TO THE CONSTRUCTION JOINT AND THE BARRIER RAIL. FOR LOCATION OF CONSTRUCTION JOINT SEE CURB DETAILS.

THE 6" COMP. A.B.C. IS TO EXTEND 10'-0" BEYOND THE SLAB AS SHOWN AND 1'-0" OUTSIDE OF EACH EDGE OF SLAB.

SUBDRAIN FINE AGGREGATE IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL AND END BENT FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

THE CONTRACTOR, AT HIS OPTION, MAY USE 4" BITUMINOUS CONCRETE BASE COURSE, TYPE HB IN LIEU OF 6" A.B.C.. ANY ADDITIONAL COST DUE TO THE USE OF THIS OPTION WILL BE PAID FOR BY THE CONTRACTOR.

THE 1" EXPANSION JOINT MATERIAL IS TO BE HELD IN PLACE WITH GALVANIZED NAILS.

DOWELS MAY BE PUSHED INTO GREEN CONCRETE AFTER THE SLAB HAS BEEN SCREEDED AND FLOAT FINISHED EXCEPT AS NOTED ON THE PLANS.

TEMPORARY DRAINAGE AND TEMPORARY BERM AND SLOPE DRAINS WILL BE PAID FOR UNDER THE LUMP SUM PRICE FOR BRIDGE APPROACH SLAB.

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

FOR EPOXY COATED REINFORCING STEEL, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL

FOR 1 APPR. SLAB - STAGE I (2 REQ'D)					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	1B	#4	STR. 19'-8"	236	
A2	1B	#4	STR. 19'-5"	233	
*B1	6B	#6	STR. 11'-2"	1,141	
B2	7B	#6	STR. 11'-8"	1,279	
*B3	5	#6	STR. 11'-8"	88	
*B4	1	#4	STR. 11'-2"	7	
*D1	8	#4	STR. 0'-10"	4	
D2	3	#6	STR. 1'-6"	7	
REINFORCING STEEL (LBS.)					1,519
EPOXY COATED REINFORCING STEEL (LBS.)					1,476
CLASS AA CONCRETE (C.Y.) 14.0					
FOR 1 APPR. SLAB - STAGE II (2 REQ'D)					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A3	9	#4	STR. 20'-2"	121	
A4	9	#4	STR. 20'-2"	121	
*B1	36	#6	STR. 11'-2"	604	
B2	41	#6	STR. 11'-8"	718	
*B3	5	#6	STR. 11'-8"	88	
*B4	1	#4	STR. 11'-2"	7	
*D1	8	#4	STR. 0'-10"	4	
D2	3	#6	STR. 1'-6"	7	
REINFORCING STEEL (LBS.)					846
EPOXY COATED REINFORCING STEEL (LBS.)					824
CLASS AA CONCRETE (C.Y.) 7.8					

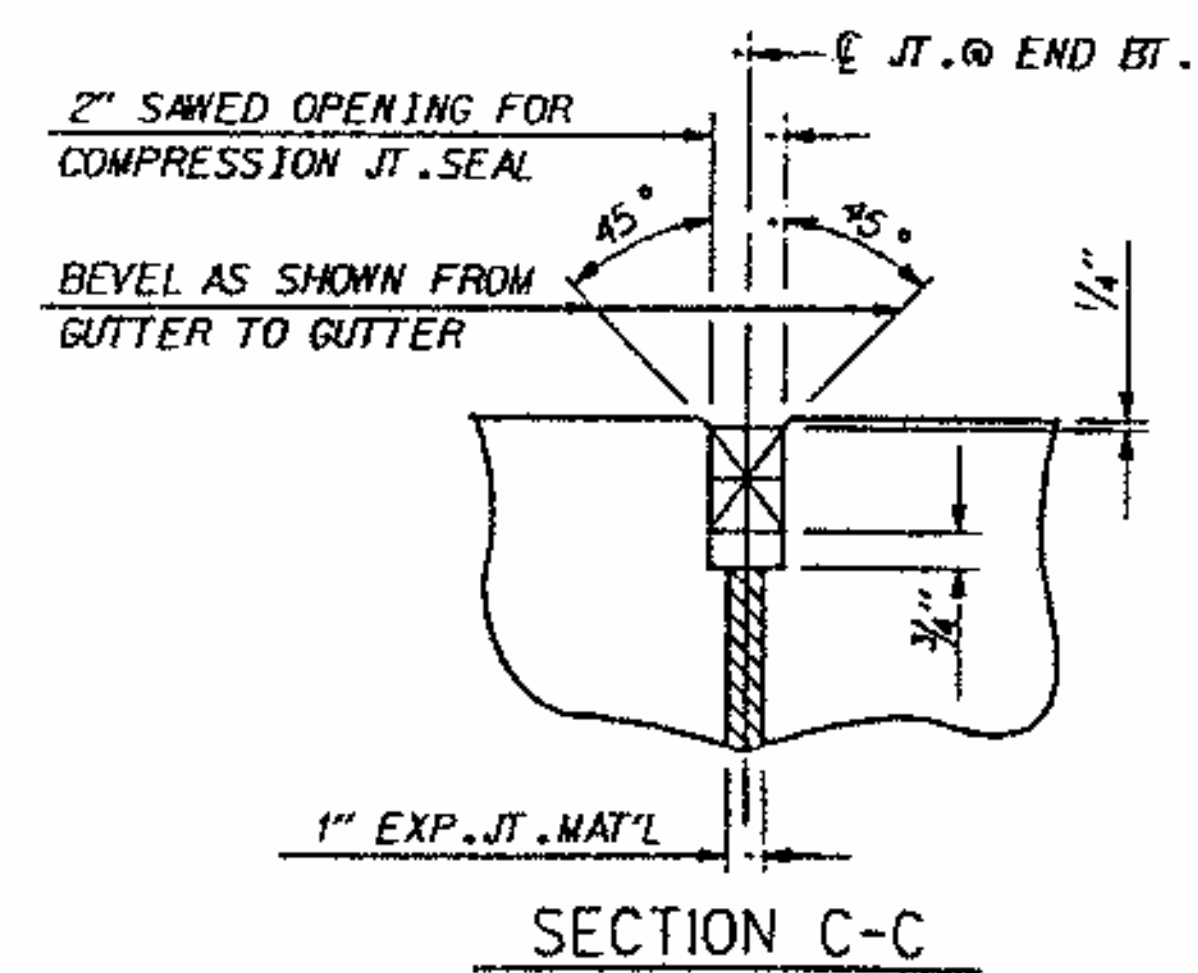
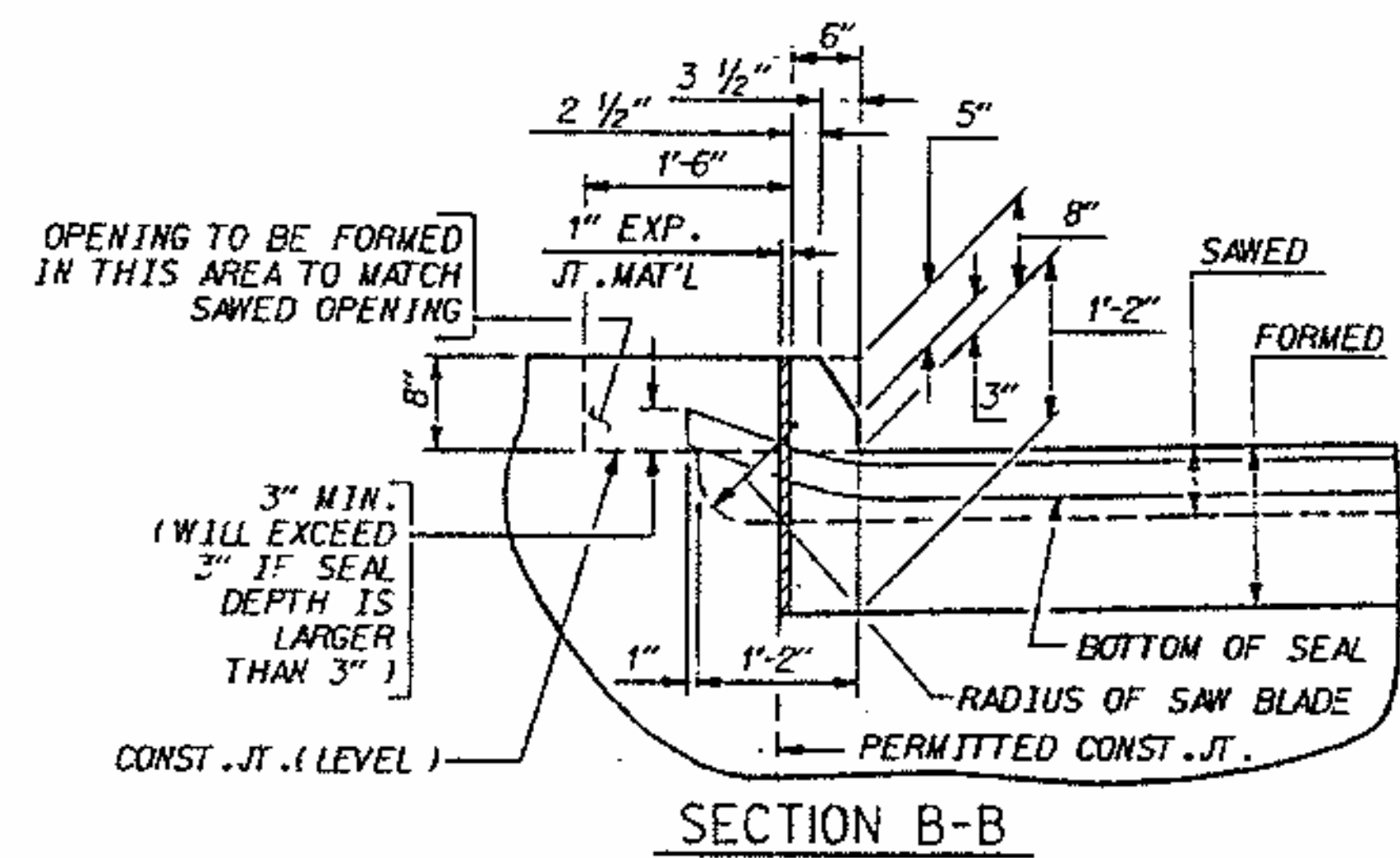
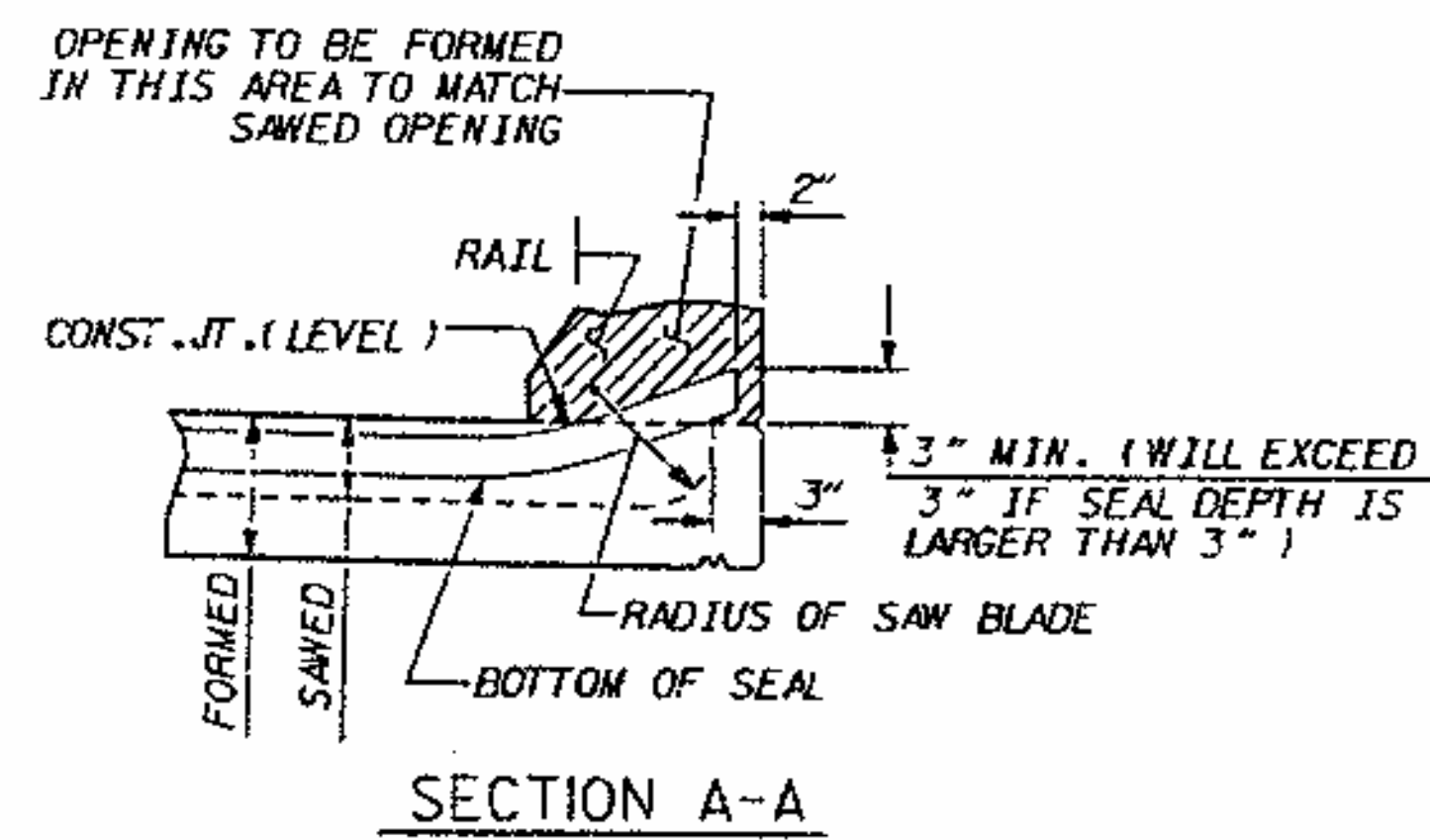
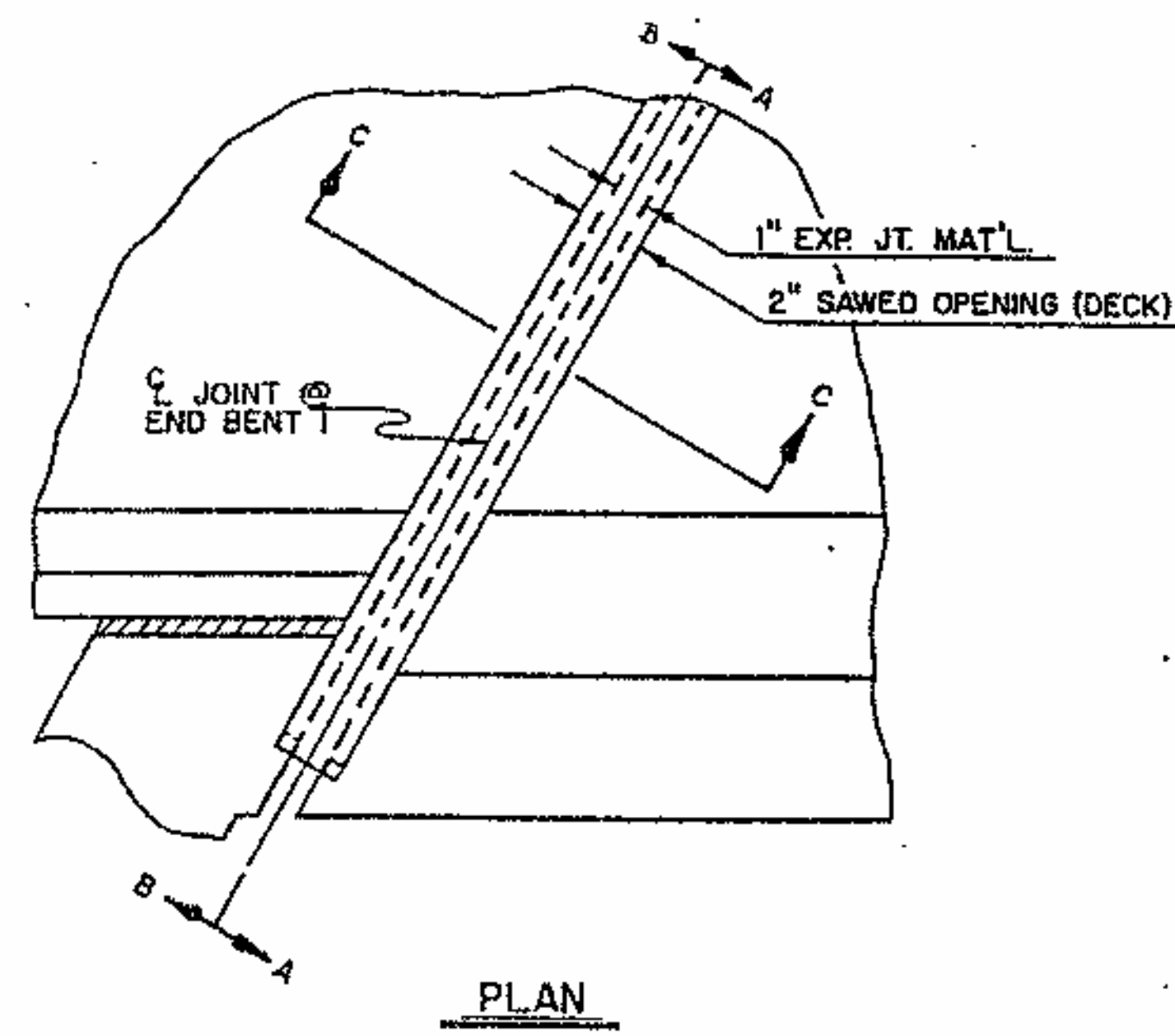
ASSEMBLED BY: J. McDONNELL DATE: AUG. 89
 CHECKED BY: S. A. OULKA DATE: 10-2-89
 STD. DRAWN BY: F. C. JONES DATE: 6/10/87
 STD. CHECKED BY: E. G. ALLEN DATE: 6/25/87

PROJECT NO. 8.T500310
 ALAMANCE / ORANGE COUNTY
 STATION: 329+86.22-L
 SHEET 1 OF 2

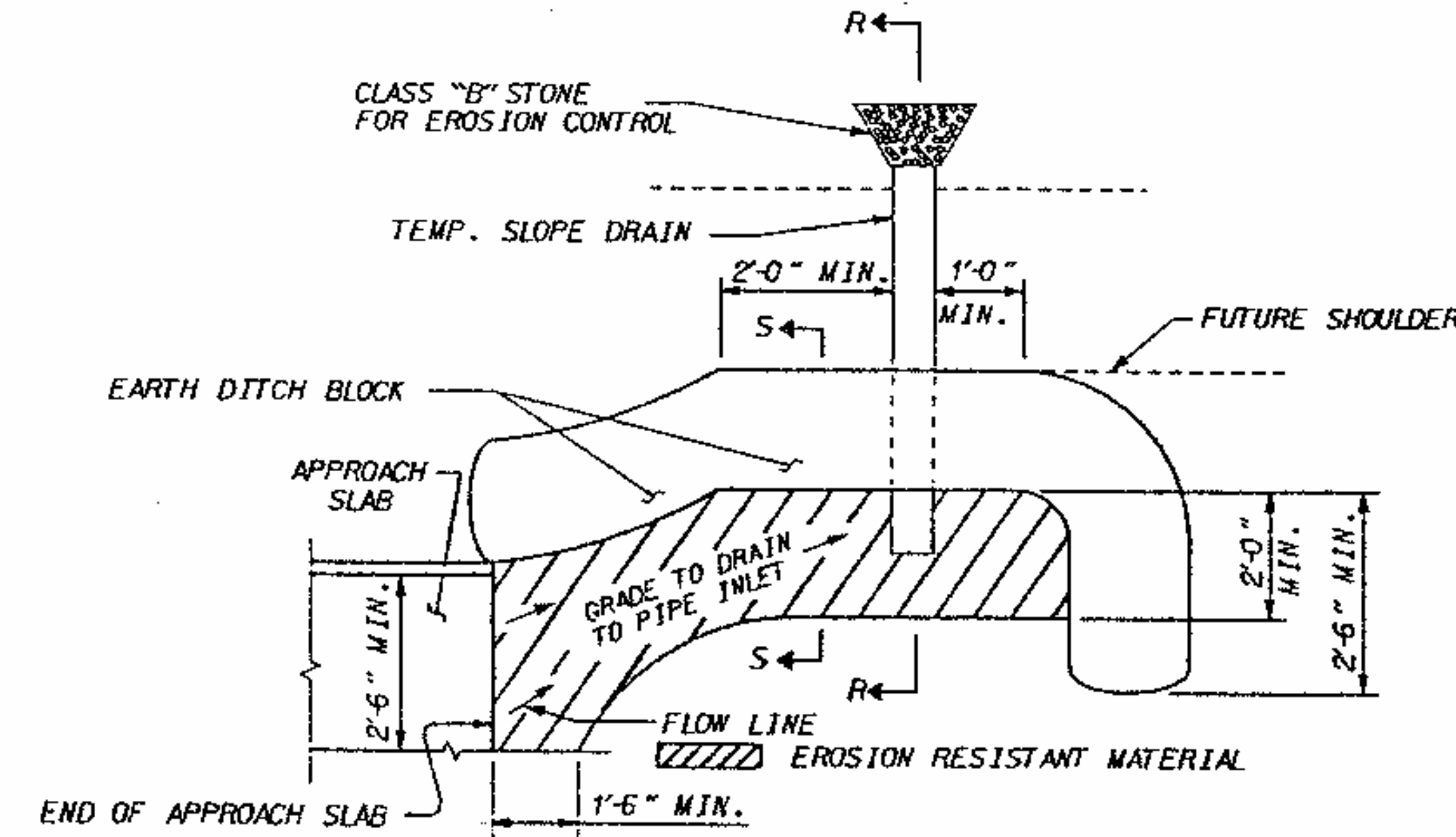
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR FLEXIBLE PAVEMENT

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

1988
 TOTAL SHEETS: 69
 STD. NO. BAS2

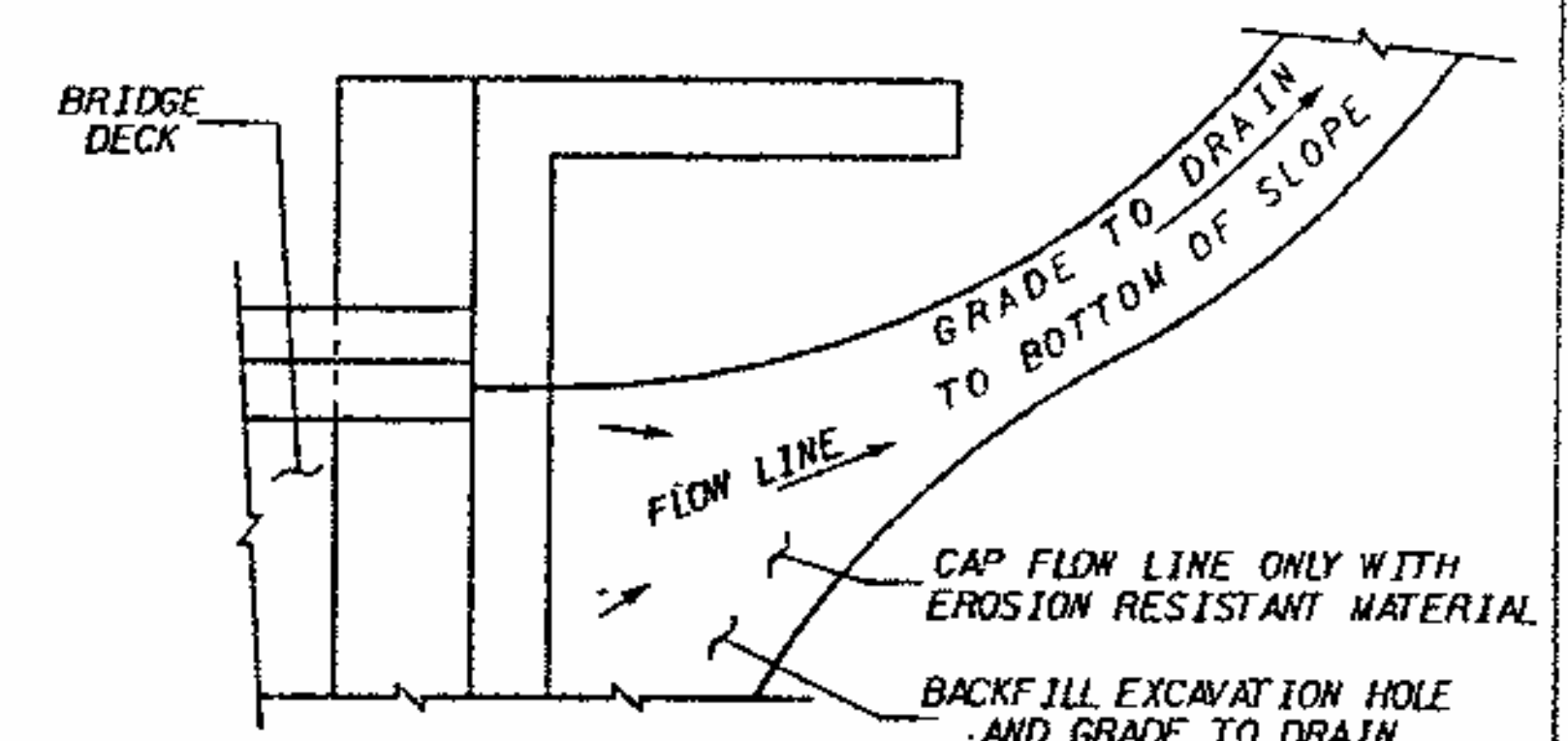
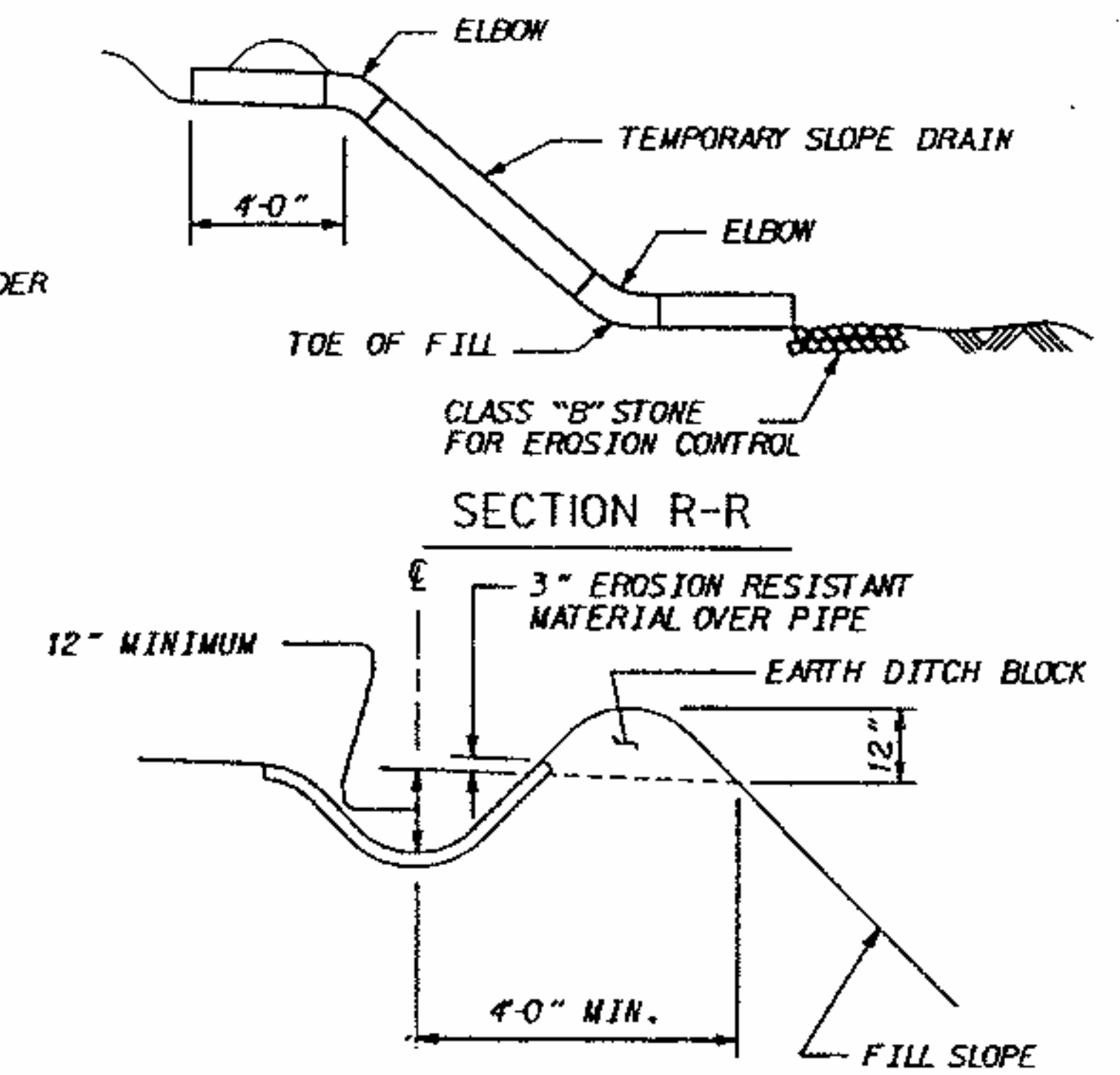


COMPRESSION JOINT SEAL DETAILS @ END BENT



NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) BITUMINOUS PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT., OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER.

TEMPORARY BERM AND SLOPE DRAIN DETAILS



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 ROWING 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.

PROJECT NO. 8.T500310
 ALAMANCE/ORANGE COUNTY
 STATION: 329+86.22 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						1988
STANDARD BRIDGE APPROACH SLAB DETAILS						
DECEMBER						
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-42
1			3			TOTAL SHEETS
2			4			69

ASSEMBLED BY: J. McDONNELL DATE: AUG. 89
 CHECKED BY: B. A. DUKE DATE: 4-28-92 SPECIAL
 DRAWN BY: F. C. JONES DATE: 11/28/88 STANDARD
 CHECKED BY: A. R. BISSETTE DATE: 11/28/88