

"A FULLY CONTROLLED ACCESS FACILITY"  
ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT  
CONSTRUCTION PLANS FOR STATE HIGHWAY

L'ANGUILLE RIVER  
STRS. & APPRS. (F)

ST. FRANCIS COUNTY

ROUTE 40 SECTION 5I

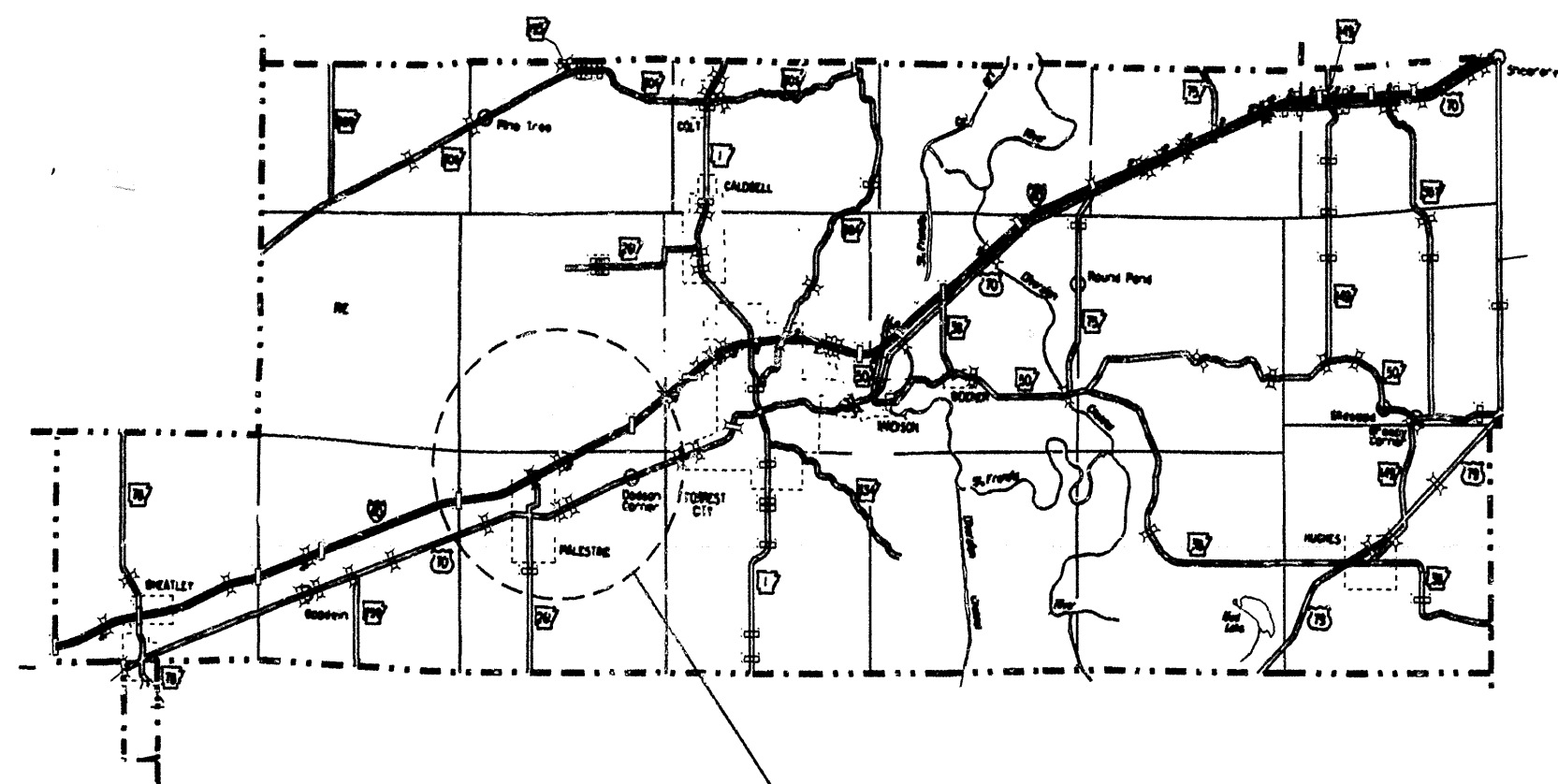
FEDERAL AID PROJECT BRN-40-5(I29)234

JOB R10089

SCALE: 1" = 2000'

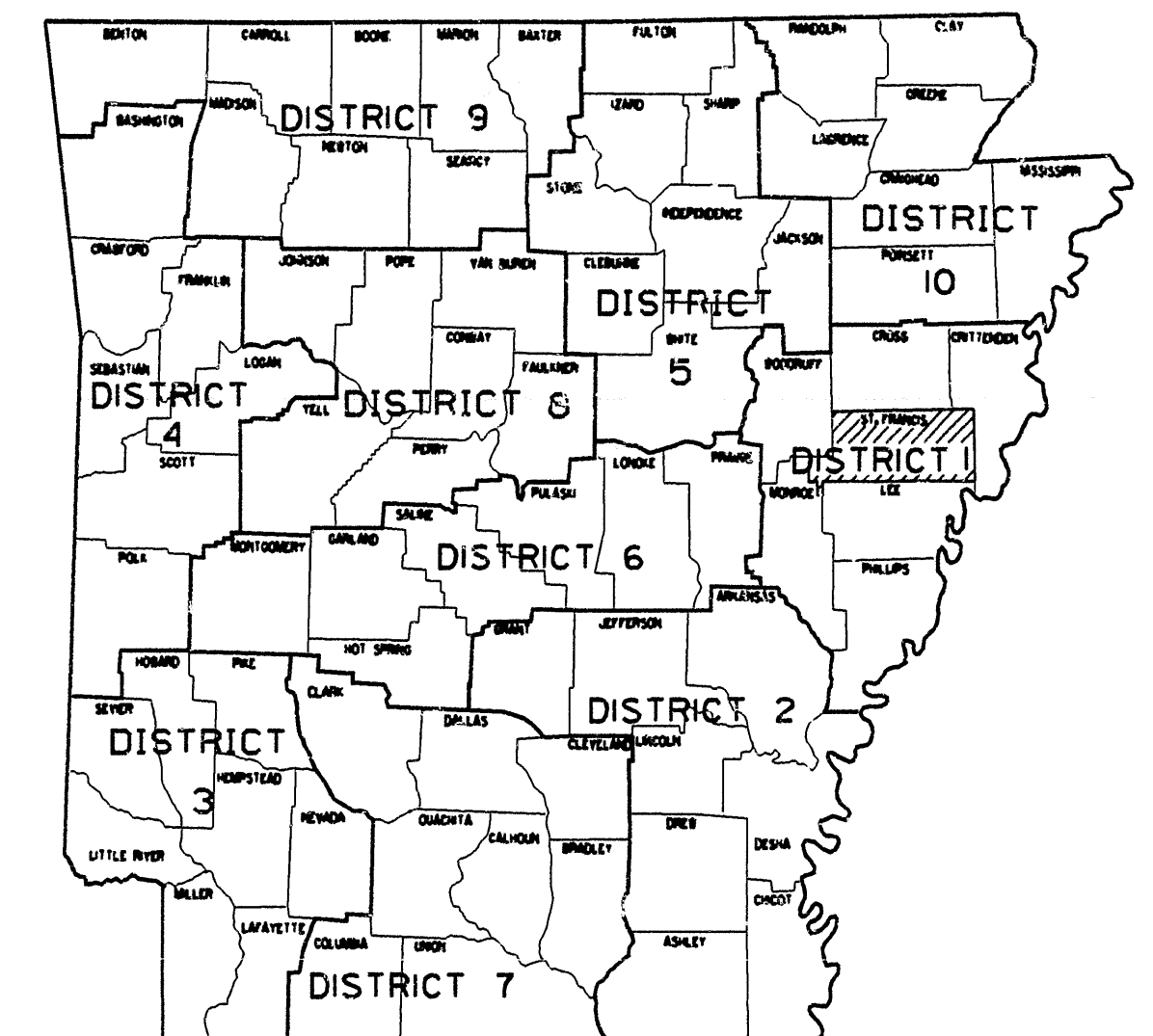
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
9-11-96				6	ARK.			
				JOB NO.		R10089	I	87

② L'ANGUILLE RIVER STRS. & APPRS.



PROJECT LOCATION

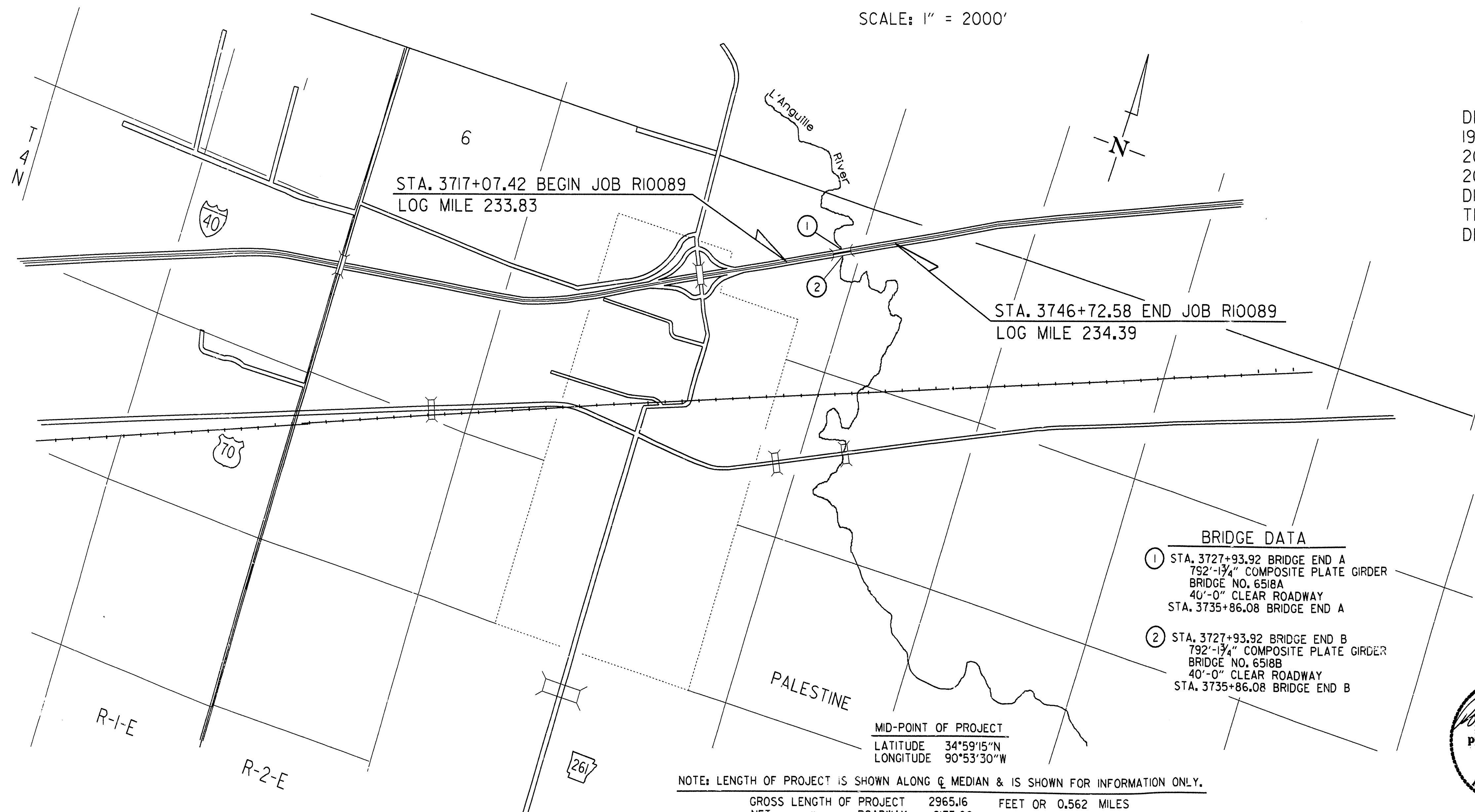
ST. FRANCIS COUNTY



ARK. HWY. DIST. NO. 1

DESIGN TRAFFIC DATA

DESIGN YEAR ----- 2016  
1996 ADT ----- 26400  
2016 ADT ----- 34350  
2016 DHV ----- 3779  
DIRECTIONAL DISTRIBUTION ----- 0.60  
TRUCKS ----- 48%  
DESIGN SPEED ----- 70 MPH



BRIDGE DATA

- ① STA. 3727+93.92 BRIDGE END A  
792'-1 3/4" COMPOSITE PLATE GIRDER  
BRIDGE NO. 6518A  
40'-0" CLEAR ROADWAY  
STA. 3735+86.08 BRIDGE END A
- ② STA. 3727+93.92 BRIDGE END B  
792'-1 3/4" COMPOSITE PLATE GIRDER  
BRIDGE NO. 6518B  
40'-0" CLEAR ROADWAY  
STA. 3735+86.08 BRIDGE END B

MID-POINT OF PROJECT  
LATITUDE 34°59'15"N  
LONGITUDE 90°53'30"W

NOTE: LENGTH OF PROJECT IS SHOWN ALONG Q. MEDIAN & IS SHOWN FOR INFORMATION ONLY.

GROSS LENGTH OF PROJECT	2965.16	FEET OR	0.562	MILES
NET " " ROADWAY	2173.00	" "	0.412	"
NET " " BRIDGES	792.16	" "	0.150	"
NET " " PROJECT	2965.16	" "	0.562	"

P.E. JOB 001726  
NON-PART.

RECOMMENDED FOR APPROVAL

BRIDGE DESIGN ENGINEER

ROADWAY DESIGN ENGINEER

DISTRICT ENGINEER

APPROVED

CHIEF ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
RECOMMENDED FOR APPROVAL

DATE

APPROVED

DIVISION ENGINEER

DATE



DEC 03 1996

11- 7-96 R10089.COI











DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				1	ARK.			
						R10089	29	87
① 6518 A & B GENERAL NOTES 34350A								

GENERAL NOTES:

SEE LAYOUT FOR BENCHMARKS.

△ CONSTRUCTION SPECIFICATIONS: ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 1996 EDITION WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

△ DESIGN SPECIFICATION: AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 1996 WITH CURRENT INTERIM SPECIFICATIONS.

LIVE LOADING: HS 20 AND SPECIAL INTERSTATE LOADING OF TWO 24,000 LB. AXLES SPACED 4'-0" ON CENTER  
METHOD OF DESIGN: LOAD FACTOR  
SEISMIC PERFORMANCE CATEGORY: B

△ MATERIALS AND STRENGTHS:  
CLASS S (AE) CONCRETE (SUPERSTRUCTURE)  $f'_c$  = 4,000 PSI  
CLASS S CONCRETE (SUBSTRUCTURE)  $f'_c$  = 3,500 PSI  
REINFORCING STEEL(AASHTO M31 or M53, GR 60)  $F_y$  = 60,000 PSI  
STRUCTURAL STEEL(AASHTO M270, GR.50W)  $F_y$  = 50,000 PSI  
STRUCTURAL STEEL (AASHTO M270, GR.36)  $F_y$  = 36,000 PSI

BORING LOGS: BORING LOGS MAY BE OBTAINED FROM THE PROGRAMS AND CONTRACTS DIVISION.

PILING: ALL PILING FOR BENTS SHALL BE CONCRETE FILLED 16" DIA. STEEL SHELL PILES AND SHALL BE DRIVEN WITH AN APPROVED AIR STEAM, OR DIESEL HAMMER TO A MINIMUM SAFE BEARING CAPACITY OF 60 TONS PER PILE.  
PILING IN END BENTS SHALL BE DRIVEN AFTER EMBANKMENT TO BOTTOM OF CAP IS IN PLACE.

△ PILING IN END BENT 1 SHALL BE DRIVEN TO A TIP ELEVATION OF 177 OR LOWER.  
△ PILING IN END BENT 8 SHALL BE DRIVEN TO A TIP ELEVATION OF 177 OR LOWER.  
PILING IN BENTS 2, 3, 6 & 7 SHALL BE DRIVEN TO A TIP ELEVATION OF 169 OR LOWER.  
PILING IN BENTS 4 & 5 SHALL BE DRIVEN TO A TIP ELEVATION OF 152 OR LOWER.  
LENGTHS OF PILING SHOWN ARE ASSUMED FOR ESTIMATING QUANTITIES ONLY.  
ACTUAL LENGTHS TO BE DETERMINED IN THE FIELD. ALL PILE LENGTHS, INCLUDING TEST PILES WILL BE MEASURED AND PAID FOR BY ACTUAL ACCEPTED LENGTH OF PILES LEFT IN PLACE.  
THERE WILL BE NO PAYMENT FOR THE CUT-OFF OR BUILD-UP OF THE PILES, INCLUDING TEST PILES. FOR TEST PILE LENGTHS AND LOCATIONS SEE DETAILS OF INTERMEDIATE BENTS 2 AND 7 ON BRIDGE A.

AT BENTS 4 & 5, BRIDGES A & B, 3 PILES IN EACH BENT DESIGNATED AS LONG PILES IN THE STANDARD SPECIFICATIONS SHALL BE DRIVEN WITHOUT FOLLOWER AND SHALL SERVE AS TEST PILES TO DETERMINE THE ESTABLISHED TIP ELEVATION. ALL PILING SHALL BE DRIVEN TO THE ESTABLISHED TIP ELEVATION.

FOOTINGS: TOP OF FOOTINGS SHALL BE SET A MINIMUM OF 2'-0" BELOW FINISHED GRADE. FOUNDATIONS FOR FOOTINGS SHALL BE PREPARED IN ACCORDANCE WITH SECTION 801.04 OF THE STANDARD SPECIFICATIONS.

△ BRIDGE DECK: THE CONCRETE BRIDGE DECK SHALL BE GIVEN A TINE FINISH AS SPECIFIED FOR FINAL FINISHING IN SUBSECTION 802.19 FOR CLASS 5 TINED BRIDGE ROADWAY SURFACE FINISH.

△ BOILED LINSEED OIL: CLASS I PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE ROADWAY SURFACE AND INSIDE FACE AND TOP OF PARAPET RAIL.

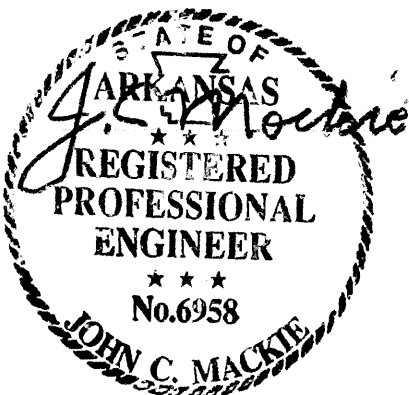
EXISTING BRIDGE: THIS TWIN STRUCTURE (BRIDGE NO. 3775A & 3775B) HAS 8 SIMPLY SUPPORTED COMPOSITE I-BEAM SPANS 45' LONG ON EACH SIDE OF A LOW WATER RIVER CHANNEL. THE CHANNEL SPAN IS 60' LONG AND OF THE SAME TYPE. I-BEAMS HAVE PARTIAL LENGTH COVER PLATE ON BOTTOM FLANGES. TOTAL LENGTH OF EACH TWIN STRUCTURE IS 782'-2". ROADWAY WIDTH IS 28'.

△ REMOVAL AND SALVAGE: THE EXISTING BRIDGE (NO. 3775A & 3775B) SHALL BE REMOVED IN ACCORDANCE WITH SECTION 205 OF THE STANDARD SPECIFICATIONS. ALL MATERIAL FROM THE EXISTING BRIDGE SHALL BECOME THE PROPERTY OF THE CONTRACTOR. ~~EXCEPT THE GUARD RAIL, POSTS AND SPACER BLOCKS, WHICH SHALL REMAIN THE PROPERTY OF THE STATE.~~

△ Revised Removal and Salvage Note, Job No. & title. L.M., 10-26-95

△ Revised Min. Penetration Note for Bents 1 & 8. CJF; 11-30-95

△ Revised for 1996 Specs KDH 8 Aug 96



GENERAL NOTES  
L' ANGUILE RIVER  
ST. FRANCIS COUNTY  
ROUTE 40 SEC. 51  
ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT  
LITTLE ROCK, ARK.

DRAWN BY: M.D. DATE: 5-24-93  
CHECKED BY: L.S. DATE: 5-28-93 SCALE: None  
DESIGNED BY: V.P. DATE: 5-18-93

BRIDGE NO. 6518 A&B DRAWING NO. 34350A



[illegible][illegible]

See Detail "Z"

1'-0" 1'-9" 1'-0" 6" 4" C.I. D601E 12 1/2"

B404 B403 B405 B406 (Typ.) B601 Reg'd. Const. Joint B403 B401

3'-0" (Typ.) 4 12 4 12

B602

1'-6" 9" 2'-0"

⌀ Piles

Note: Field weld rebars to piling as shown on Dwg. No. 34382.

①

6518 A BENT DETAILS 34351

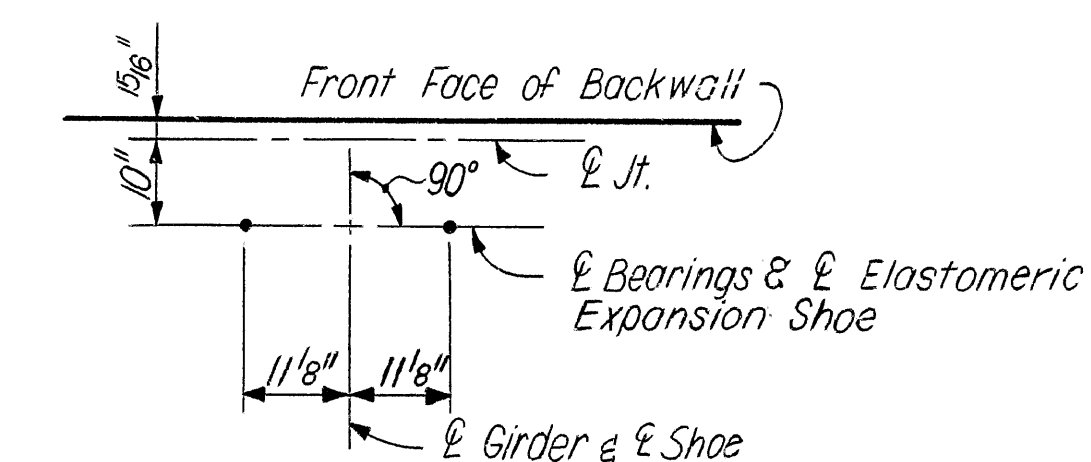
4" 1" 2" 4" 1/2" Rounding or 1/2" Chamfer

⌀ 5/8" ⌀ Vent Holes @ 15" o.c.

5/8" ⌀ x 6" Anchor Studs @ 15" o.c. (Offset Spacing)

NOTE: For Joint Support Details see Dwg. No. 34370.

Scale:  $3/4" = 1' - 0"$



N. T. S.

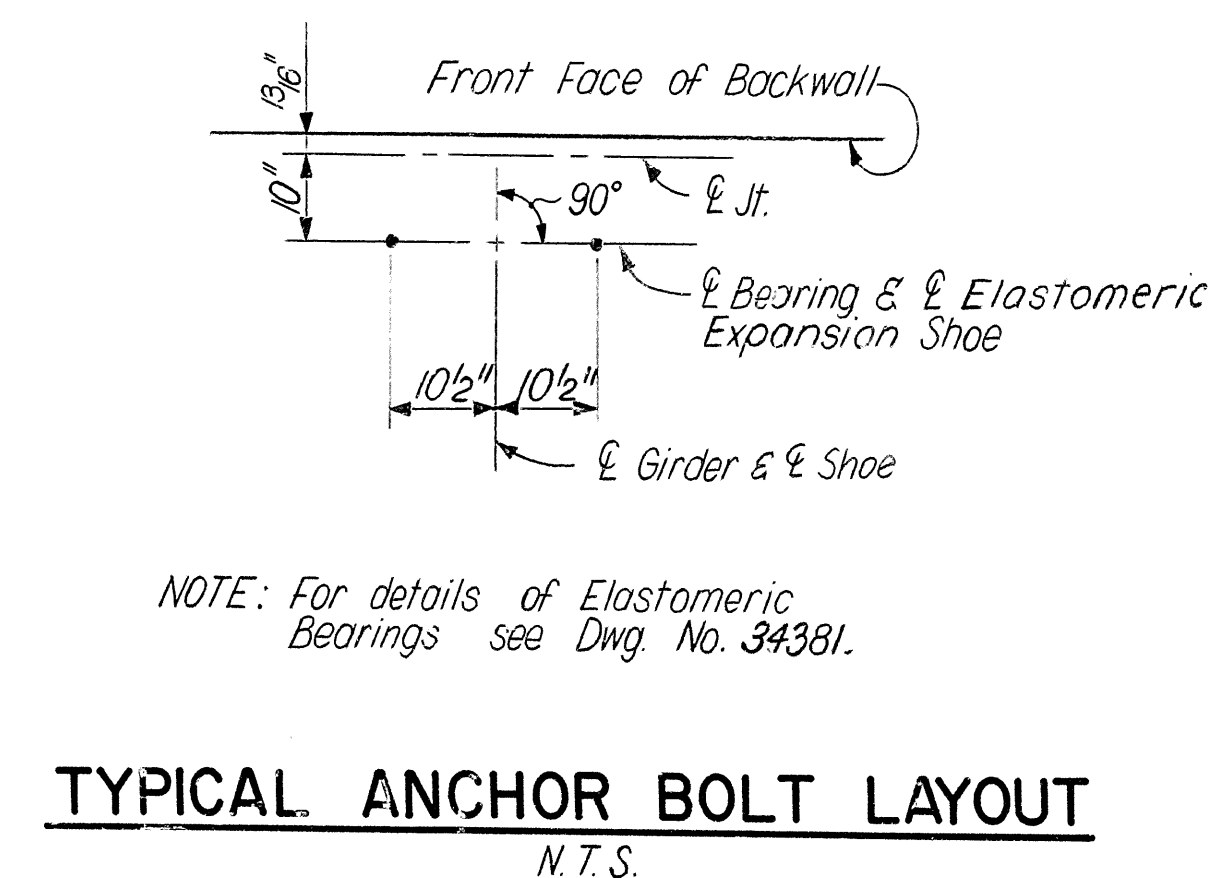
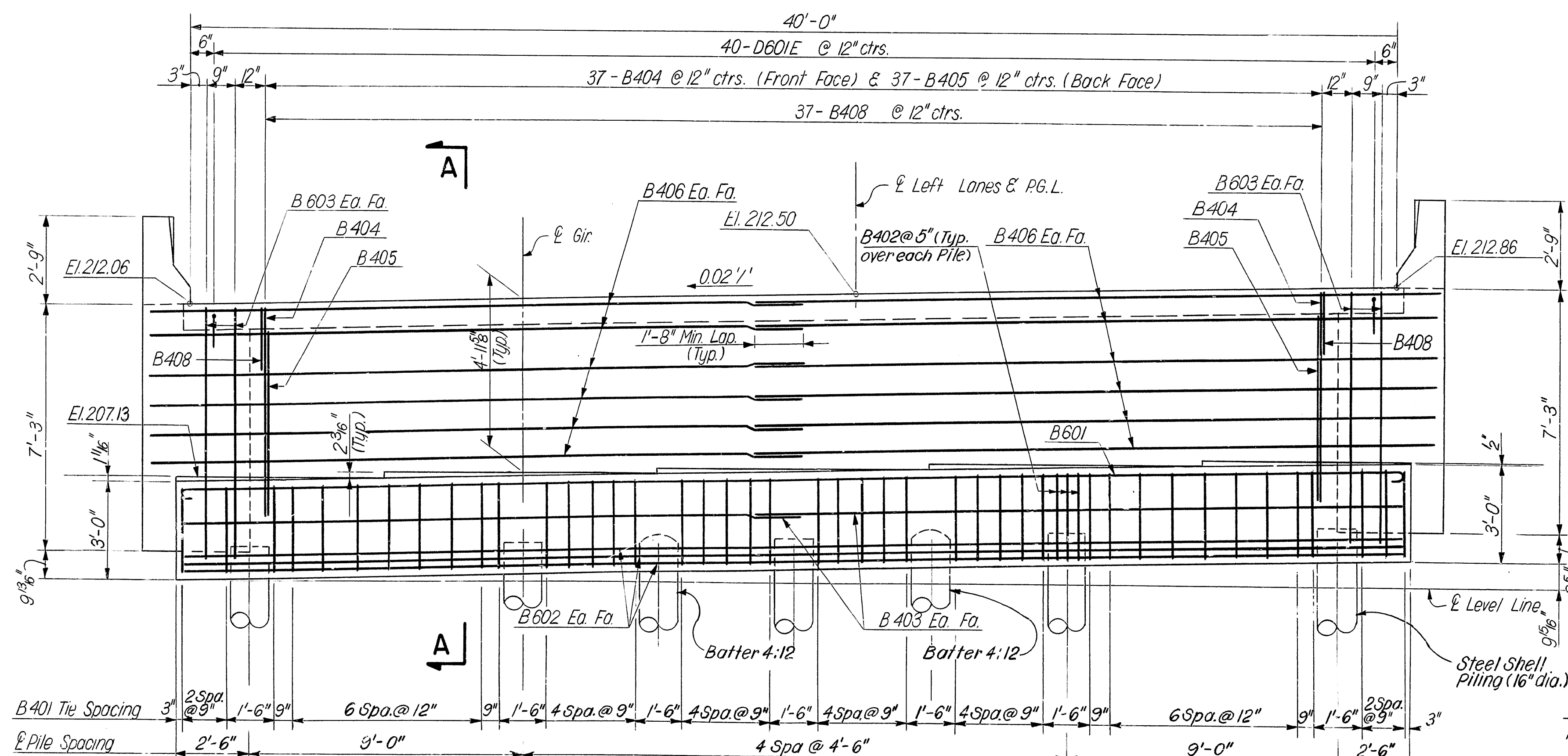
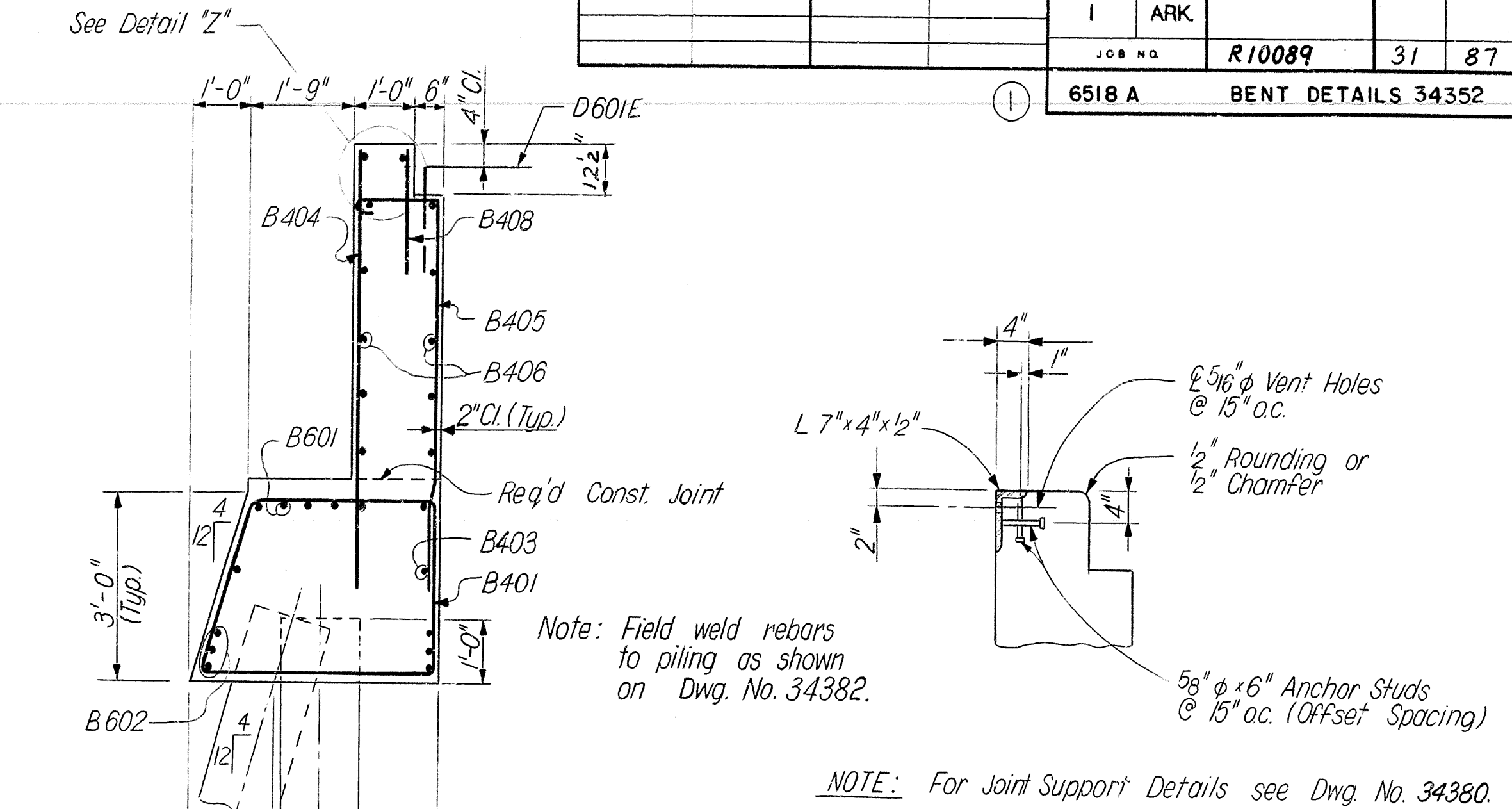
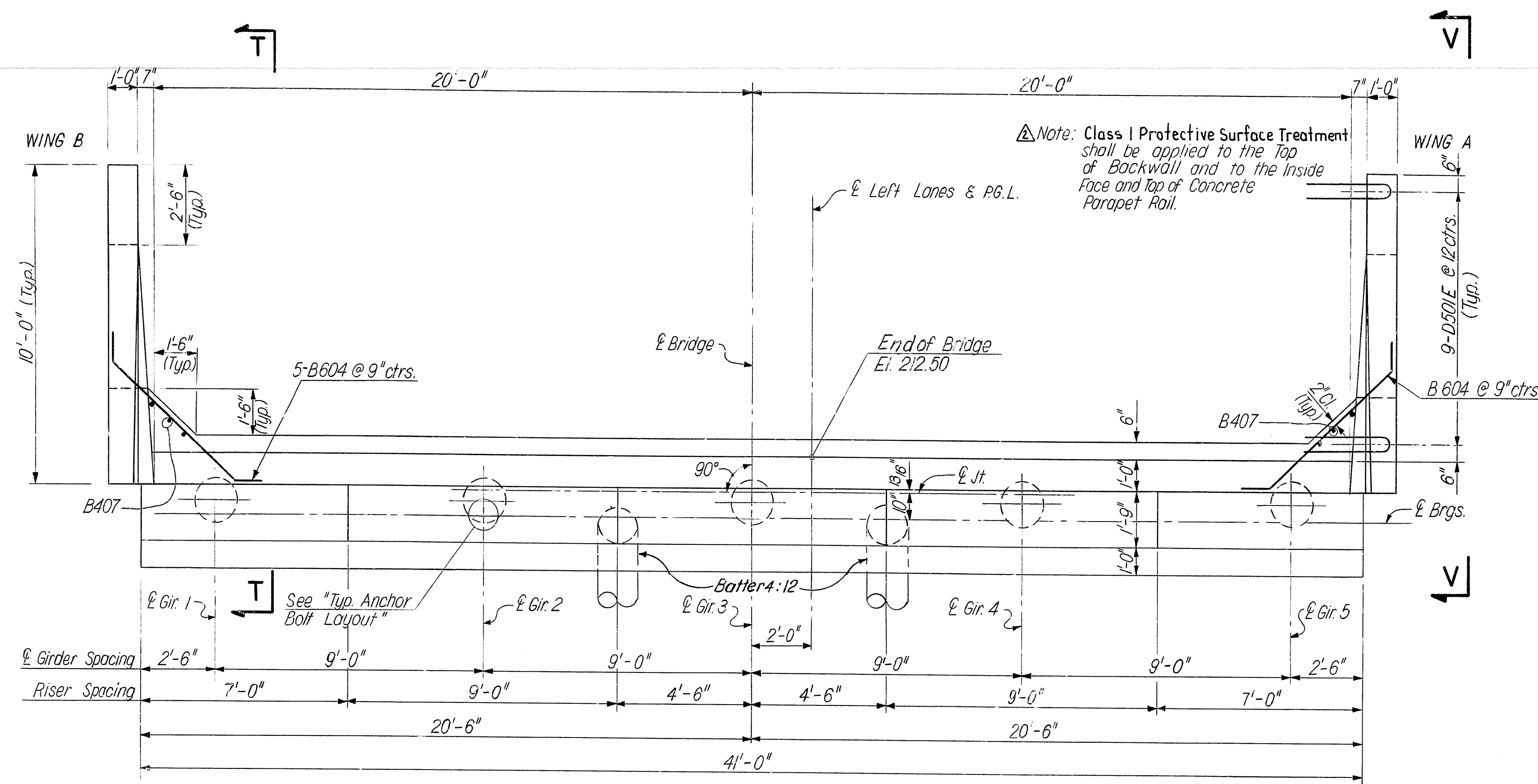
A circular professional engineer seal for the State of Arkansas. The seal features the text "STATE OF ARKANSAS" at the top, "REGISTERED PROFESSIONAL ENGINEER" in the center, and "No. 6938" below it. The name "JOHN C. MACKIE" is written along the bottom curve. A signature, "J.C. Mackie", is written across the seal.

DRAWN BY: W.P. DATE: 5-10-93  
 TRACED BY: M.M. DATE: 5-18-93 SCALE: AS SHOWN  
 CHECKED BY: L.S. DATE: 5-28-93

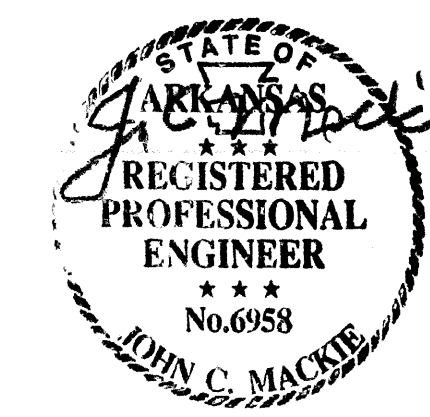
BRIDGE NO. 6518 A      DRAWING NO. 34351



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				I	ARK.			
				JOB NO.	R10089		31	87
				6518 A	BENT DETAILS 34352			



Revised Job no., L.M., 10-26-95  
Revised for 1996 Specs. KDH 8 Aug 96



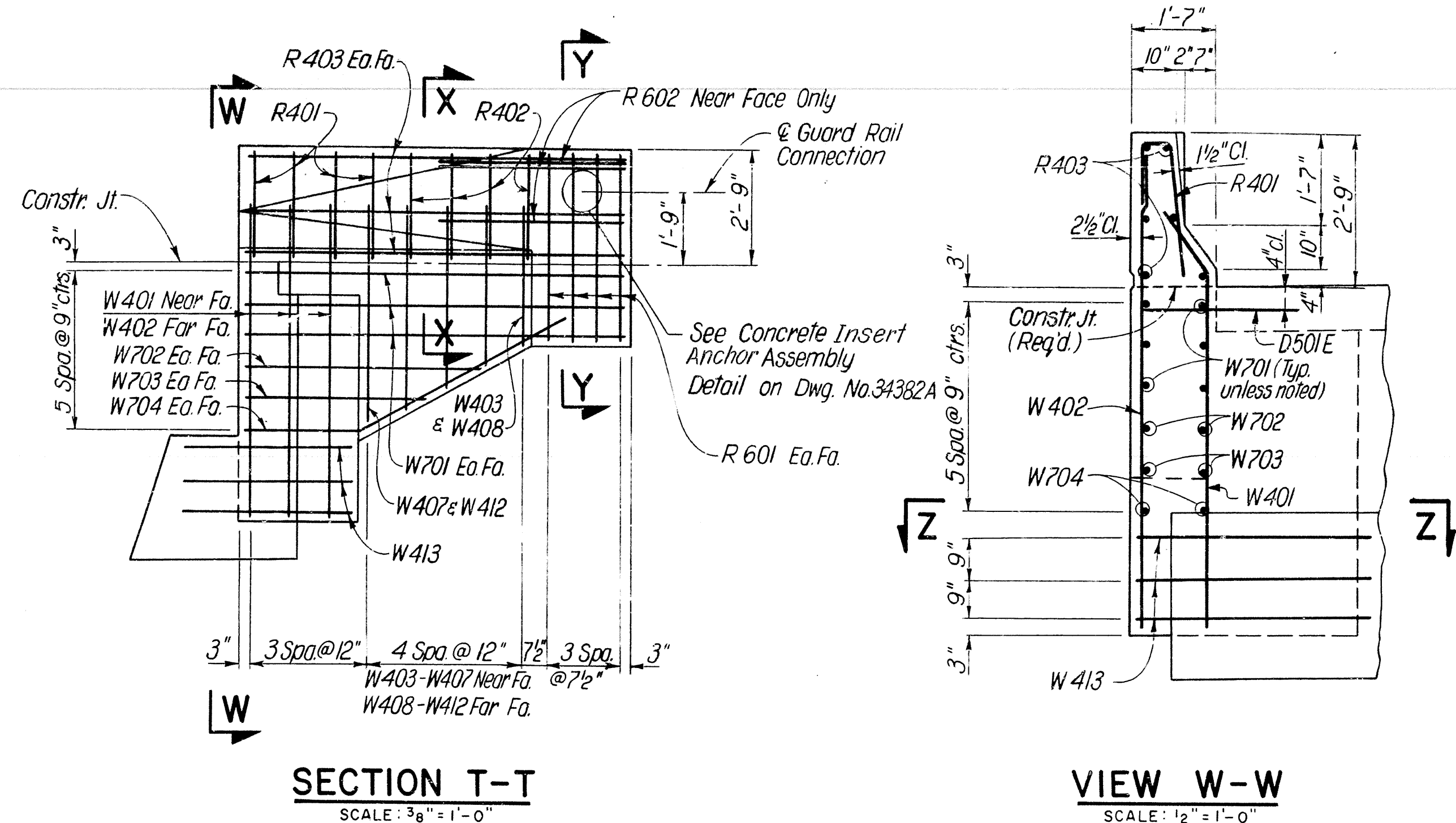
SHEET 2 OF 3  
DETAILS OF  
END BENT NO. 8 (BR. A)

ROUTE 40 SEC. 51  
ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT  
LITTLE ROCK, ARK.

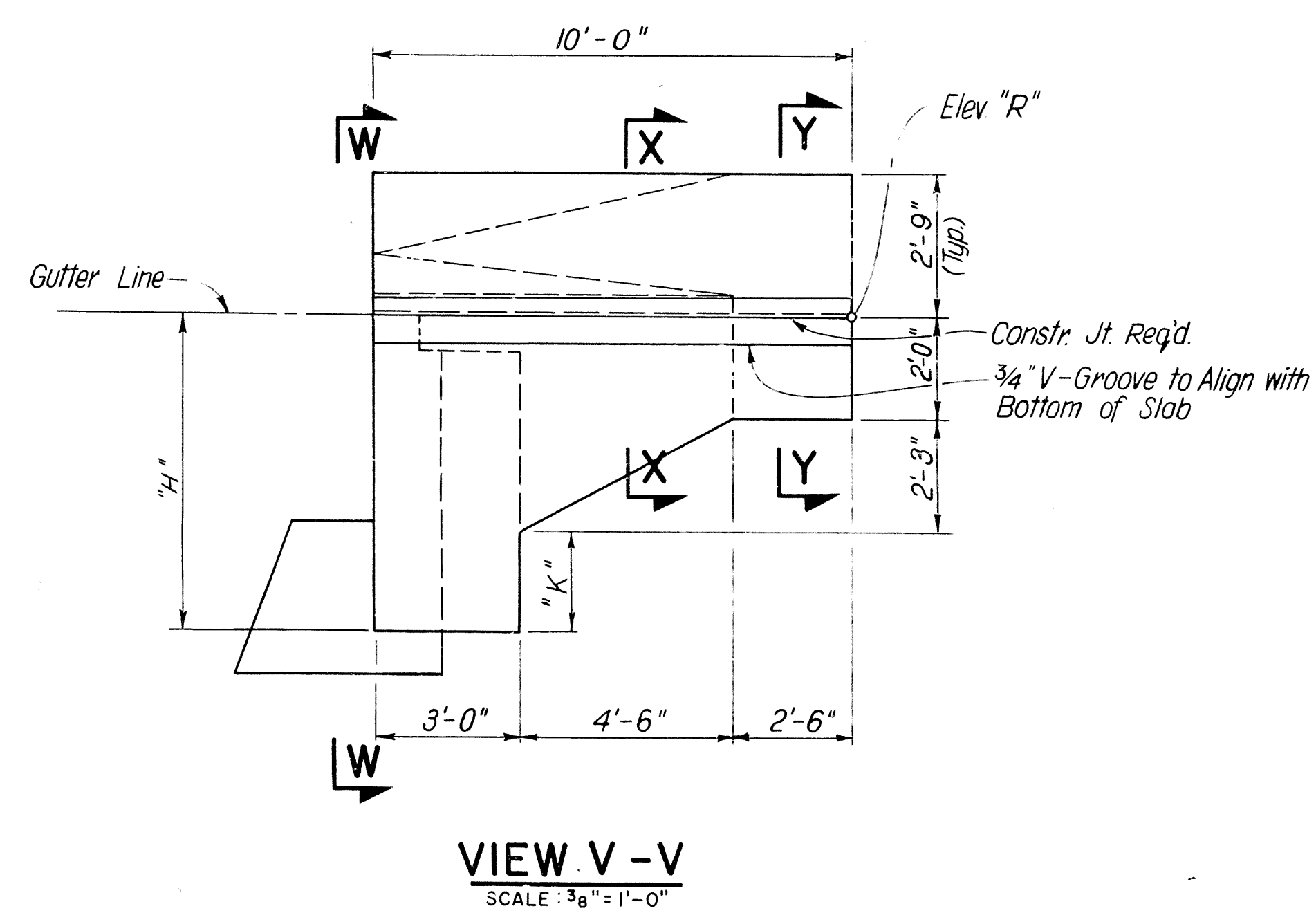
DRAWN BY: W.P. DATE: 5-10-93  
TRACED BY: M.M. DATE: 5-18-93  
CHECKED BY: I.S. DATE: 5-28-93

BRIDGE NO. 6518 A DRAWING NO. 34352





NOTE: Reinforcing Steel is same for opposite wing except as noted.



### TABLE OF VARIABLES

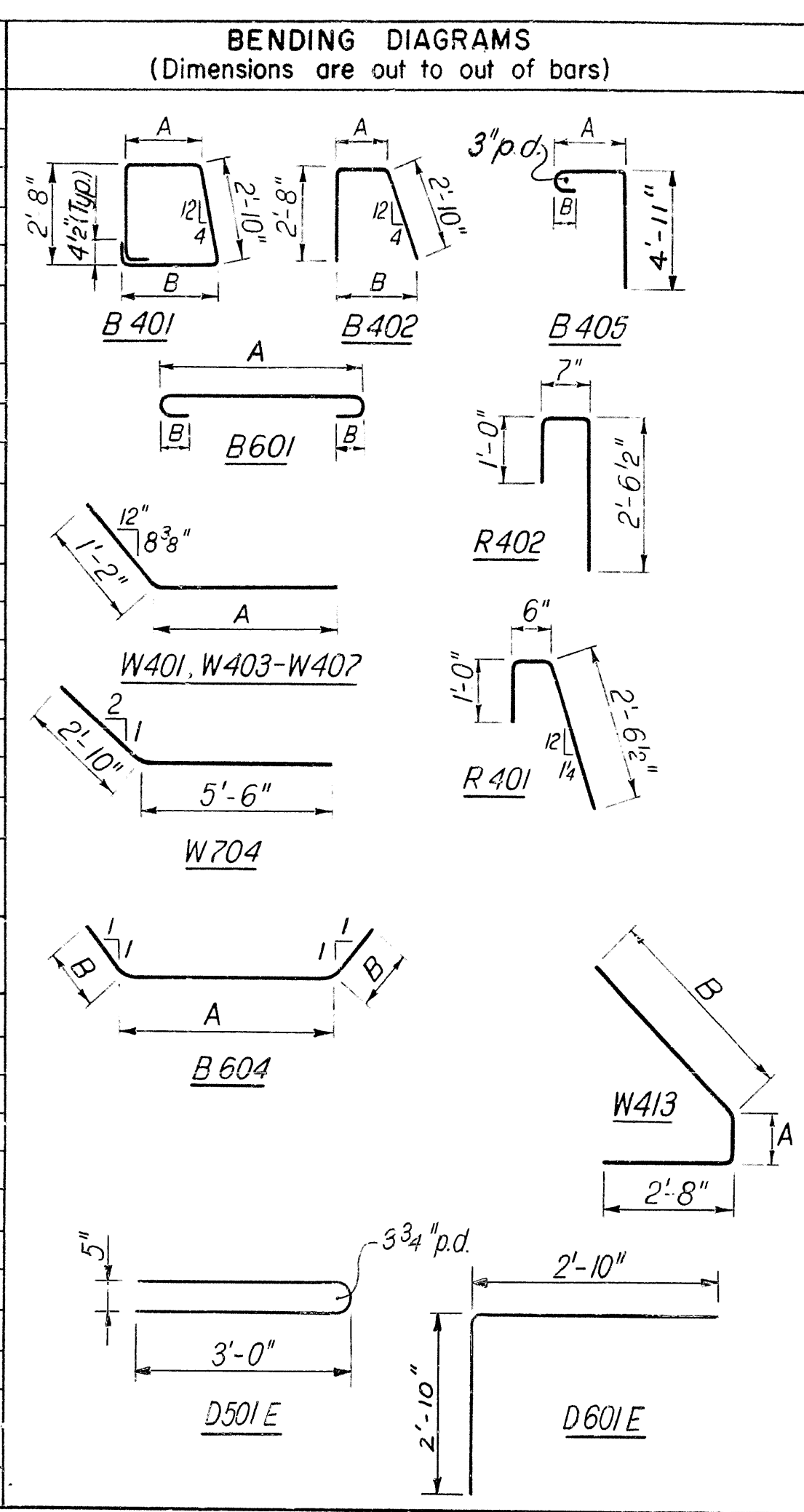
BRIDGE A & B		Elev. "R"	"H"	"K"	"T"
Bent No. 1	Wing A	212.86	7'-3"	3'-0"	3'-6"
	Wing B	212.06	7'-3"	3'-0"	3'-6"
Bent No. 8	Wing A	212.86	7'-3"	3'-0"	3'-6"
	Wing B	212.06	7'-3"	3'-0"	3'-6"
Tabular Data By: K. R.		Date: 5-18-93			
Checked By: I. S.		Date: 5-28-93			

NOTE: For Plan and Elevation of End Bents see Dwg. No. 34351, 34352, 34353 & 34360

### BAR LIST (ONE END BENT)

MARK	NO. REQ'D.	LENGTH	A	B	PIN DIA.
B401	44	12'-7"	2'-11"	3'-10"	2"
B402	21	8'-3"	2'-11"	3'-10"	2"
B403	4	2'-1"			Str.
B404	37	6'-6"			Str.
B405	37	6'-6"	1'-2"	4'-2"	2"
B406	24	22'-4"			Str.
B407	6	6'-2"			Str.
B601	6	42'-0"	40'-8"	6"	4 1/2"
B602	6	40'-8"			Str.
B603	8	7'-4"			Str.
B604	20	7'-8"	5'-8"	1'-0"	4 1/2"
B408	37	2'-0"			Str.
R401	8	3'-11"			2"
R402	8	4'-0"			2"
R403	12	9'-8"			Str.
R601	16	4'-5"			Str.
R602	6	5'-0"			Str.
W401	6	8'-6"	7'-4"		2"
W402	6	9'-8"			Str.
W403-W407	2 Ea.	Var. 3'-5" to 5'-5"	Var. 2'-3" to 4'-3"	1'-2"	2"
W408-W412	2 Ea.	Var. 4'-6" to 6'-6"			Str.
W413	6	8'-8"	1'-1"	5'-0"	2"
W701	12	9'-8"			Str.
W702	4	6'-0"			Str.
W703	4	4'-6"			Str.
W704	4	8'-4"			5 1/4"
D501E	18	6'-3"			3 3/4"
D601E	40	5'-6"			4 1/2"

Note: Bars marked with an "E" suffix shall be epoxy coated.



### GENERAL NOTES

All concrete shall be Class "S" and shall be poured in the dry. All exposed corners shall be chamfered 3/4" unless otherwise noted.

All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60.

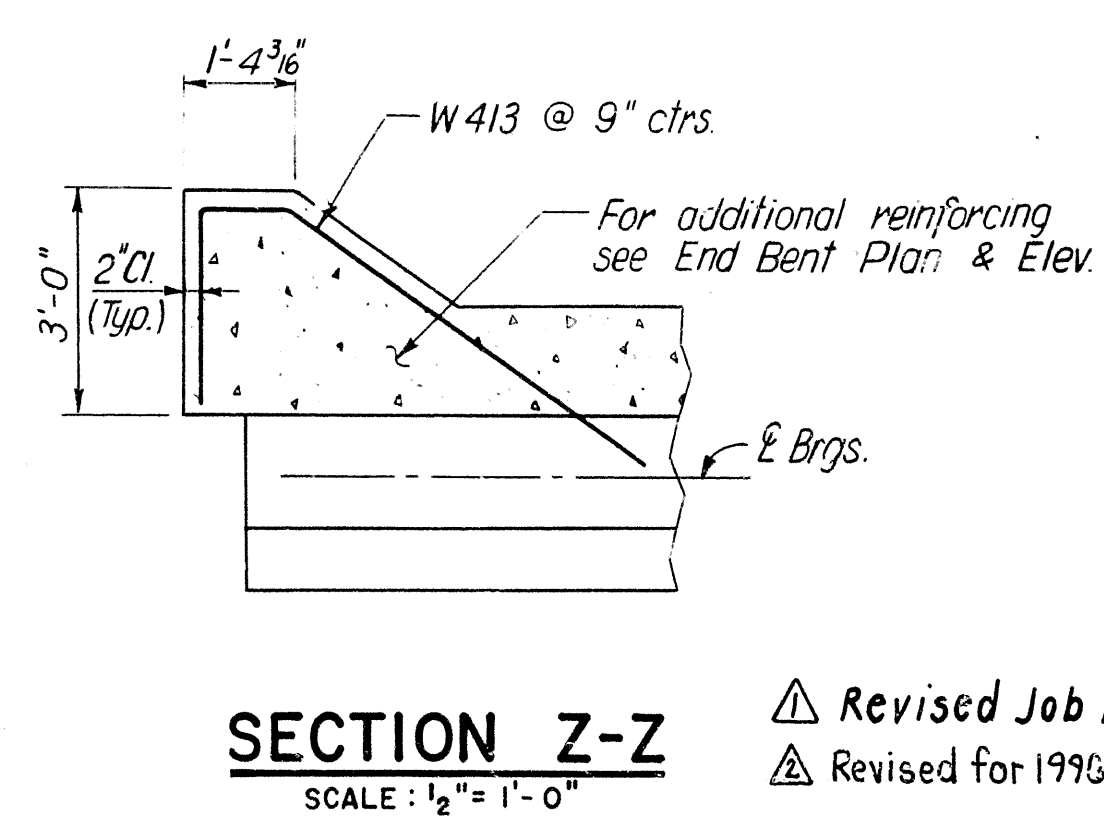
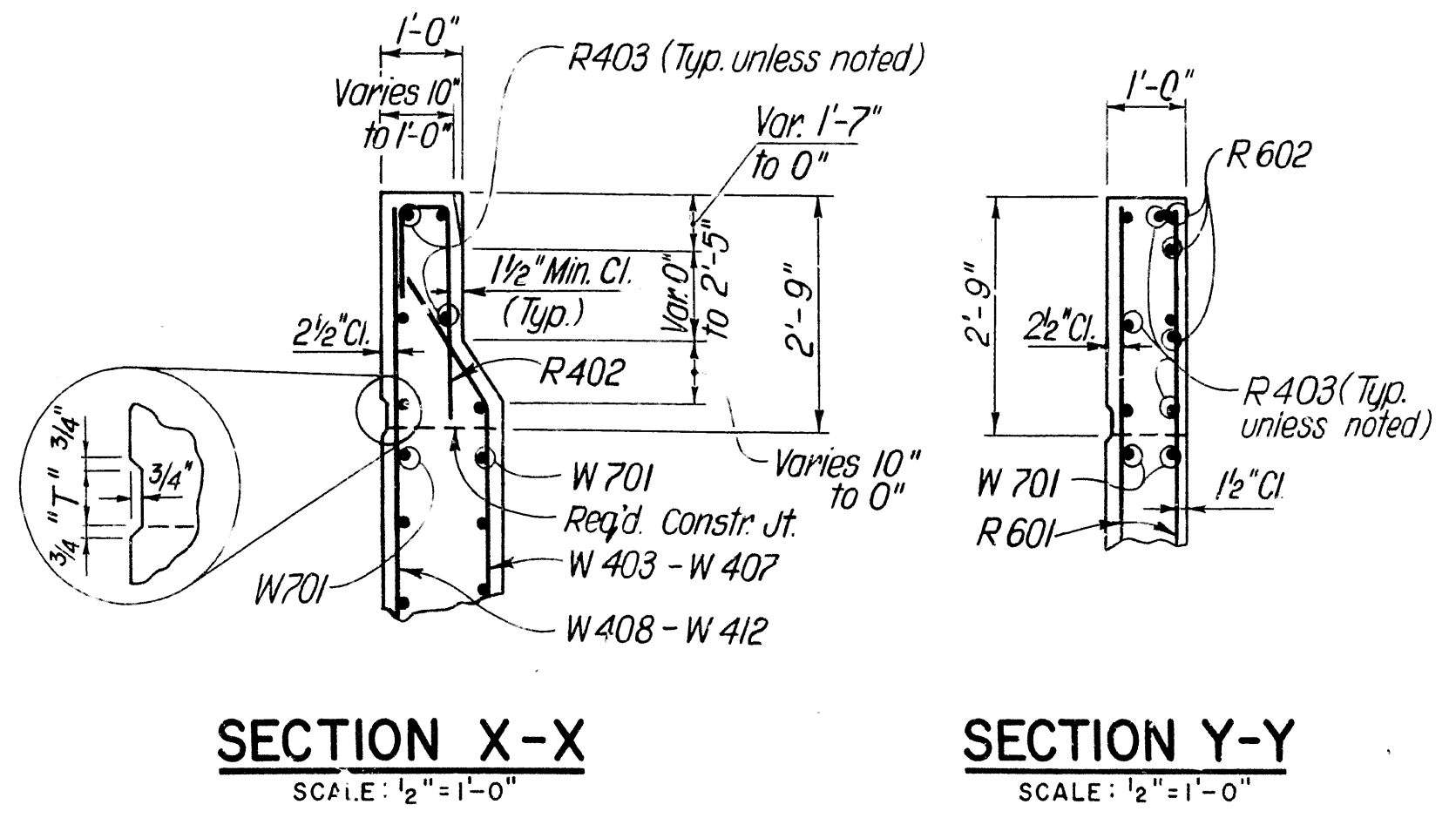
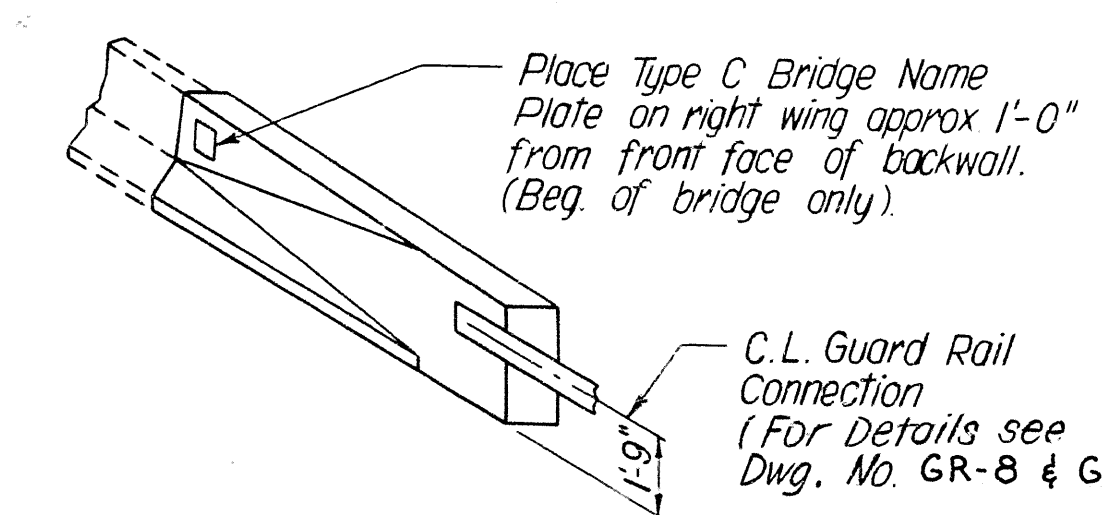
End Bent backwall shall not be poured before girders are in place.

Structural Steel in end bents shall be AASHTO M270, Gr. 50W and shall be paid for as "Structural Steel in Plate Girder Spans (M270, Gr. 50W)".

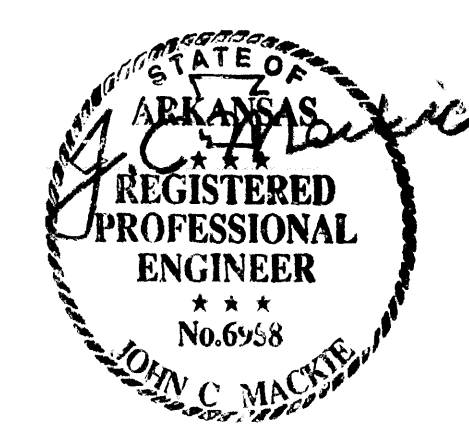
If anchor bolts are drilled into cap, top reinforcing bars shall be properly spaced to avoid damage.

For additional information see Layouts and Dwg. No. 34350A.

### THREE DIMENSIONAL VIEW OF RAIL



Revised Job no., LM., 10-26-95  
Revised for 1995 Specs KDH 8Aug96



SHEET 3 OF 3  
DETAILS OF END BENTS NO. 1 & NO. 8  
BRIDGE A & B

ROUTE 40 SEC. 51  
ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT  
LITTLE ROCK, ARK.

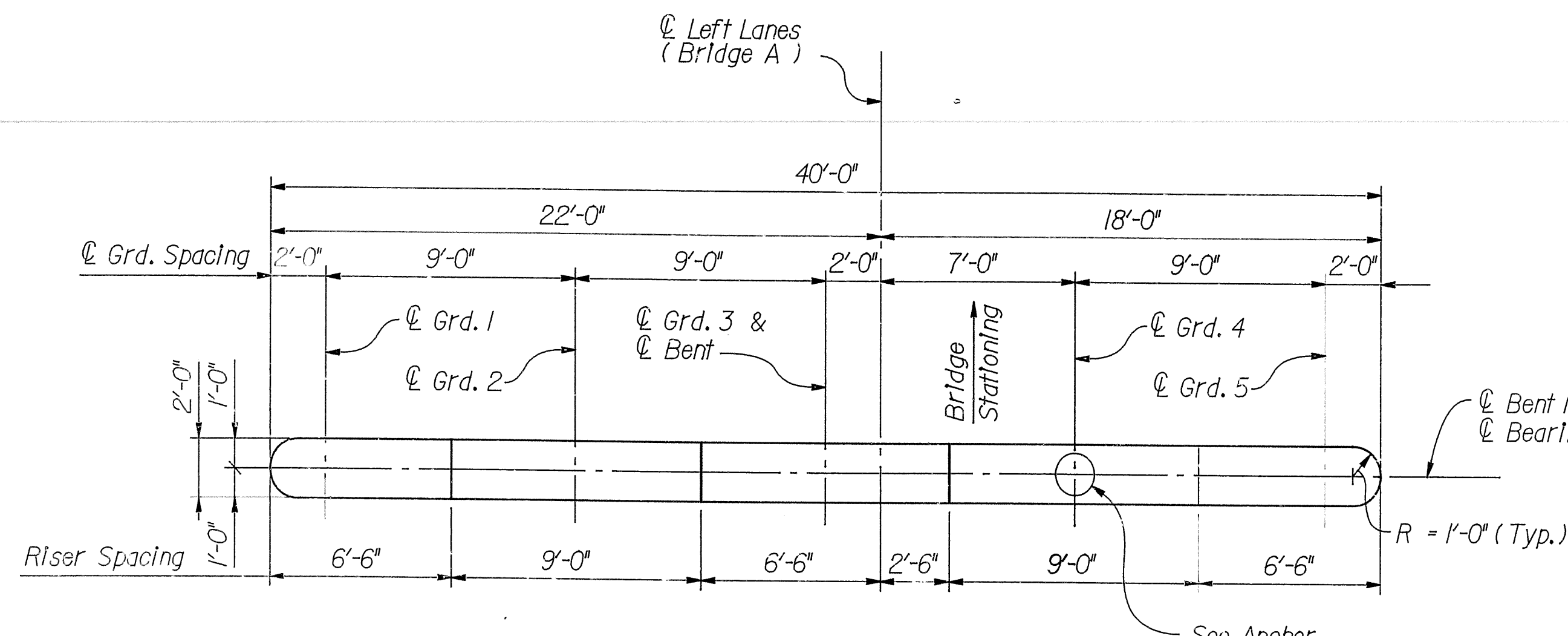
DRAWN BY: M.C. DATE: 5-10-93  
TRACED BY: CH.S. DATE: 5-18-93 SCALE: AS SHOWN  
CHECKED BY: I.S. DATE: 5-28-93

BRIDGE NO. 6518 A&B DRAWING NO. 34353



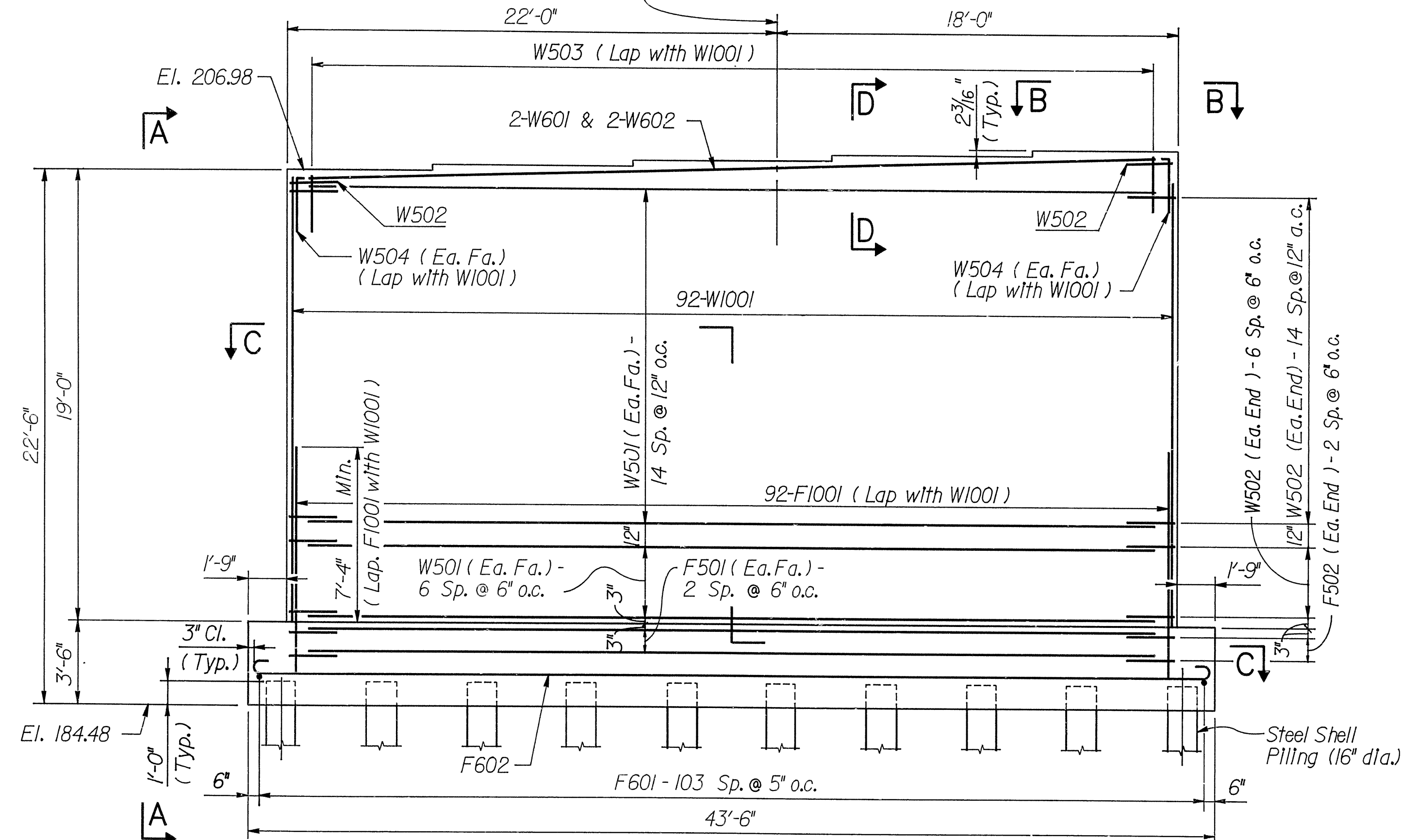
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				1	ARK.			
				JOB. NO.		R10284	33	87

6518 A INTERMEDIATE BENT 2 34354



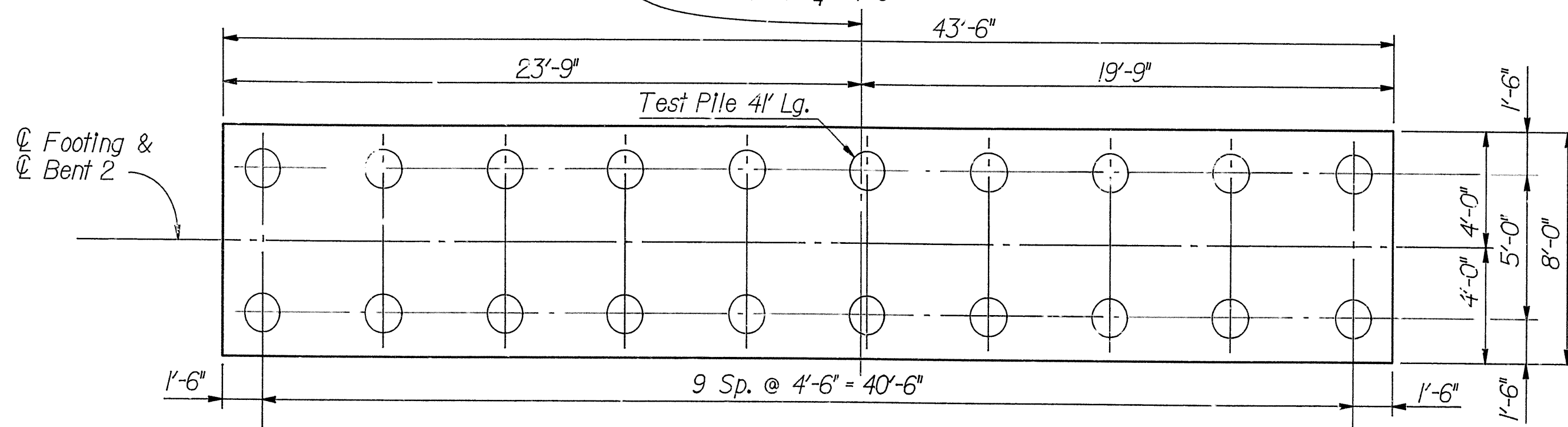
PLAN

Scale: 1/4" = 1'-0"



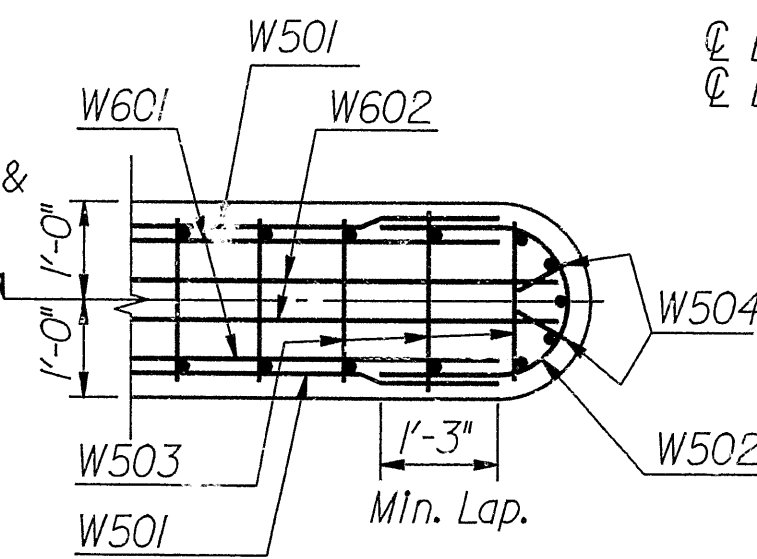
ELEVATION (LOOKING AHEAD)

Scale: 1/4" = 1'-0"



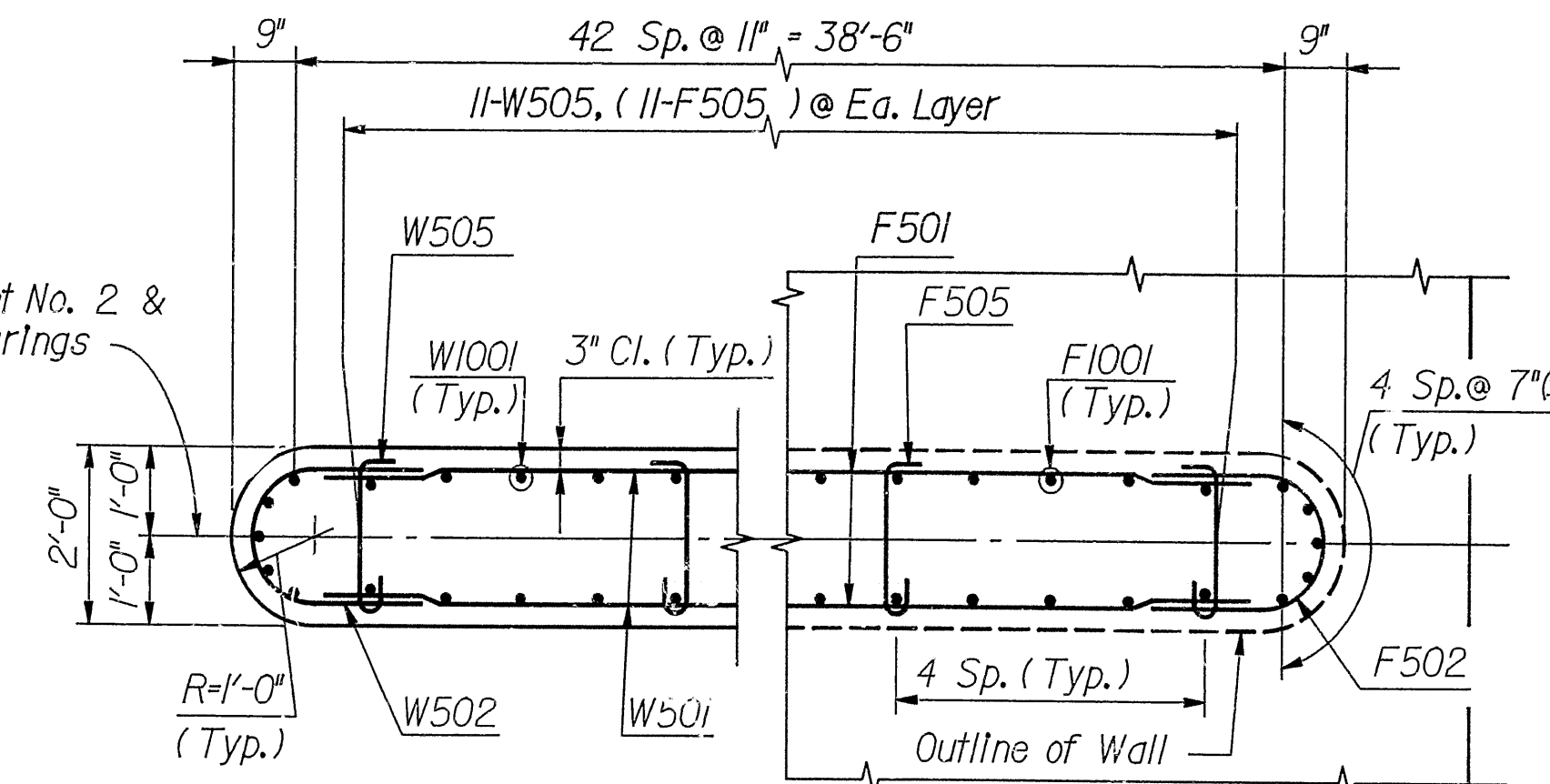
PILING PLAN

Scale: 1/4" = 1'-0"



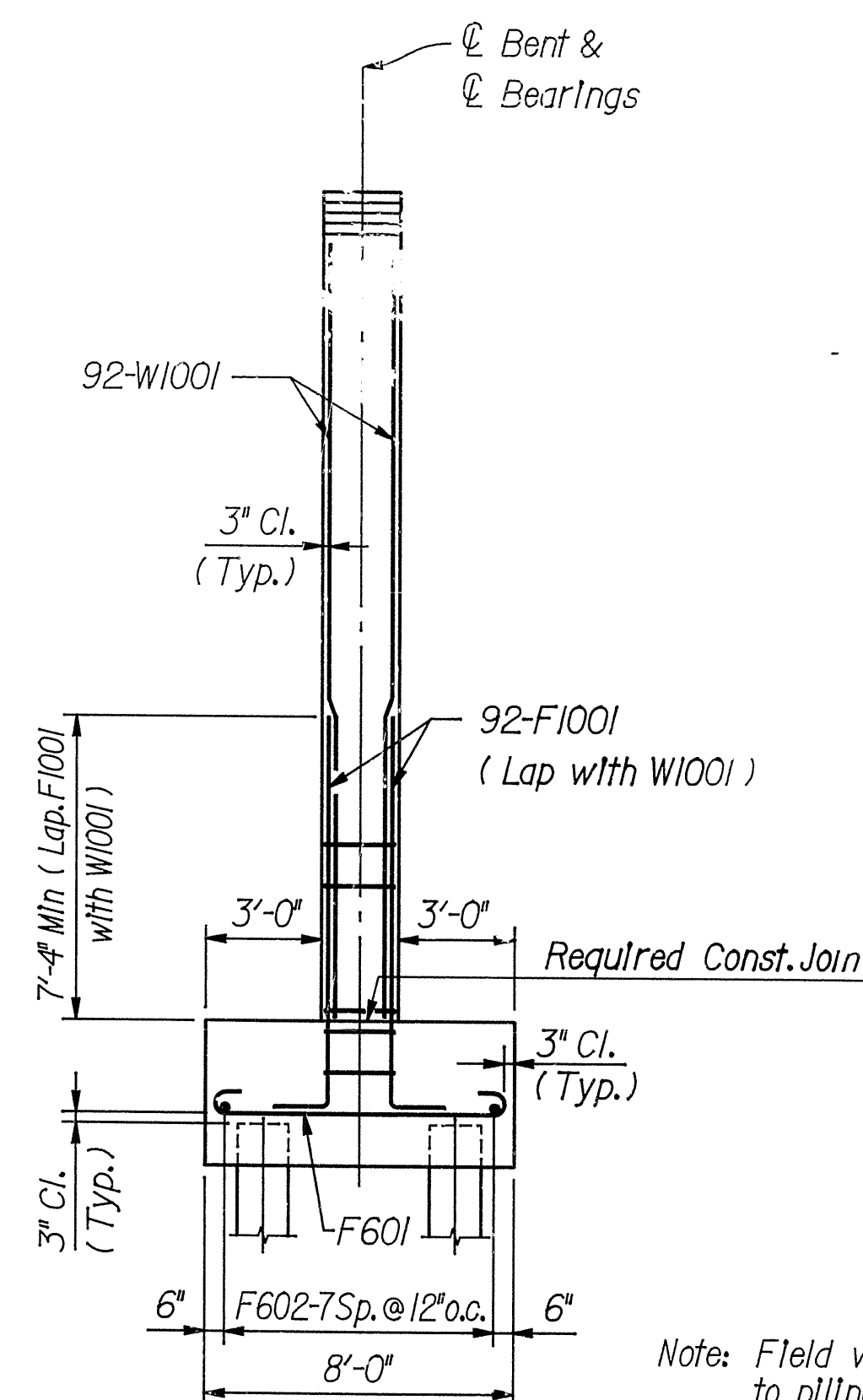
VIEW B-B

Scale: 1/2" = 1'-0"



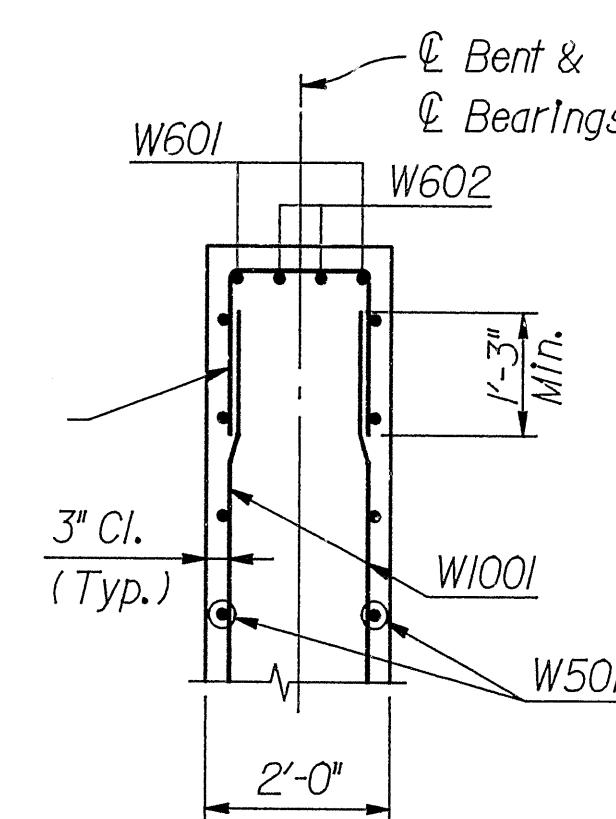
SECTION C-C

Scale: 1/2" = 1'-0"



VIEW A-A

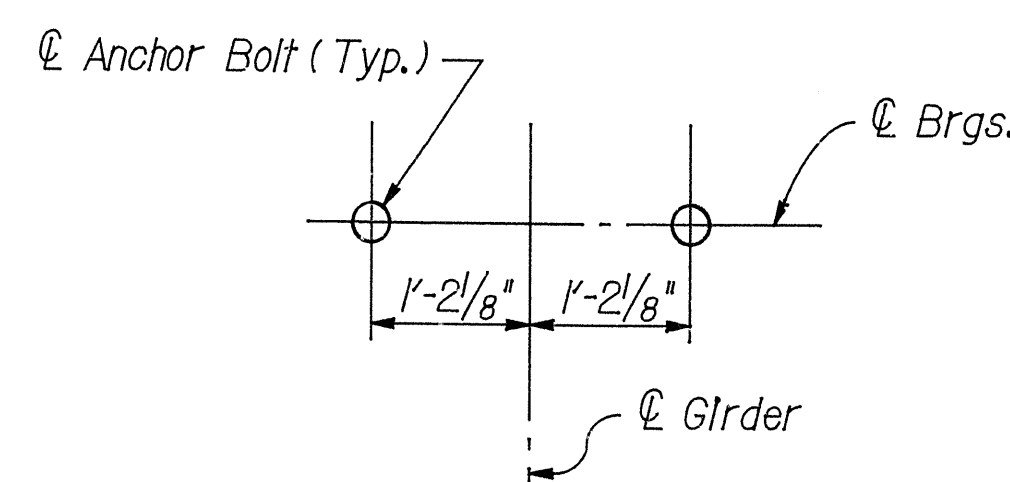
Scale: 1/4" = 1'-0"



SECTION D-D

Scale: 1/2" = 1'-0"

Note: Field weld rebar to piling as shown on Dwg. No. 34382.



ANCHOR BOLT LAYOUT

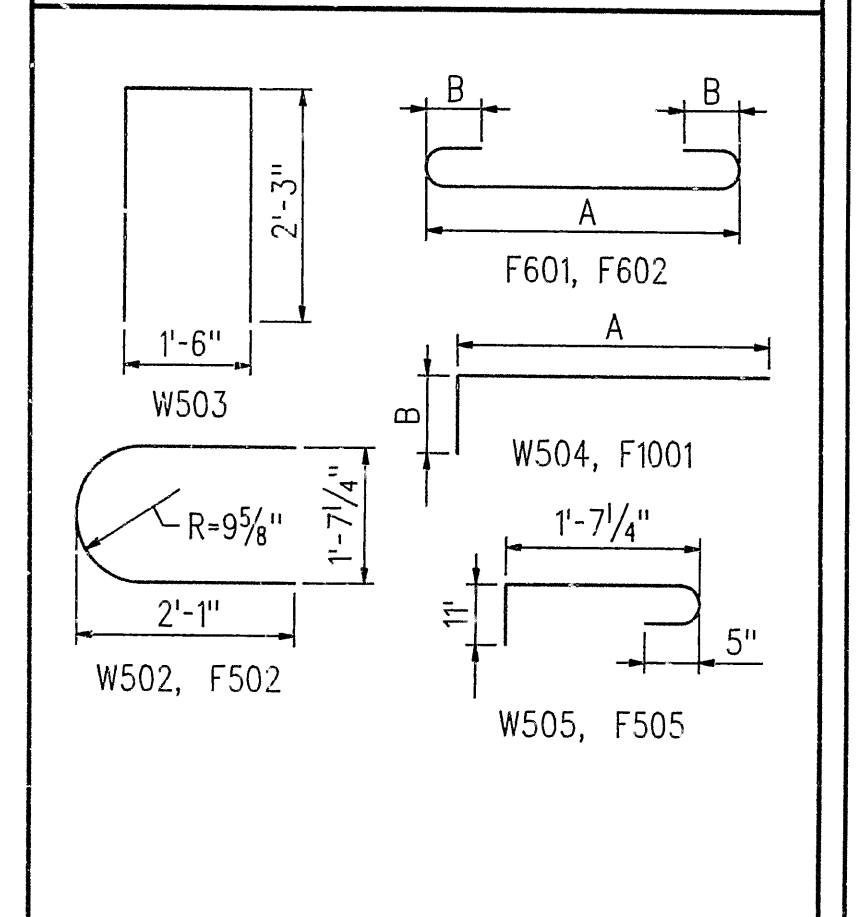
N.T.S.

BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	"A"	"B"	P. D.
W501	44	38'-0"			Str.
W502	46	5'-0"			18"
W503	43	5'-10"			2 1/2"
W504	4	2'-9"	2'-3"	7"	2 1/2"
W505	242	3'-0"			2 1/2"
W601	2	38'-0"			Str.
W602	2	39'-6"			Str.
W1001	92	18'-10"			Str.
F501	6	38'-0"			Str.
F502	6	5'-0"			18"
F505	33	3'-0"			2 1/2"
F601	104	8'-10"	7'-6"	6"	4 1/2"
F602	8	44'-4"	43'-0"	6"	4 1/2"
F1001	92	11'-1"	9'-6"	1'-10"	10"

BENDING DIAGRAMS

Dimensions are out to out of bars.



GENERAL NOTES

All concrete shall be Class 'S' with a minimum 28 day compressive strength,  $f'_c = 3,500$  psi. Concrete shall be poured in the dry and all exposed corners to be chamfered  $3/4"$  unless otherwise noted.  
 All reinforcing steel shall conform to AASHTO M31 or M53 Grade 60 (yield strength = 60,000 psi).  
 If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.  
 For additional information see Layouts & Dwg. No. 34350A.  
 For Elastomeric Bearings see Dwg. No. 34381.

DETAILS OF INTERMEDIATE BENT 2 BRIDGE A

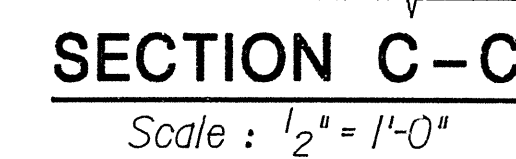
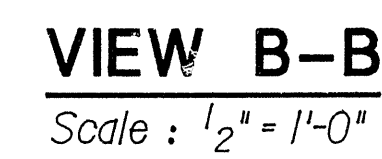
ROUTE 40 SEC. 51  
 ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT  
 LITTLE ROCK, ARK.

DRAWN BY: M.D. DATE: 4-24-93  
 CHECKED BY: J.S. DATE: 4-23-93 SCALE: AS SHOWN  
 DESIGNED BY: V.P. DATE: 4-16-93

BRIDGE NO. 6518 A DRAWING NO. 34354



BAR LIST - PER BENT



## BENDING DIAGRAMS

Dimensions are out to out of bars.



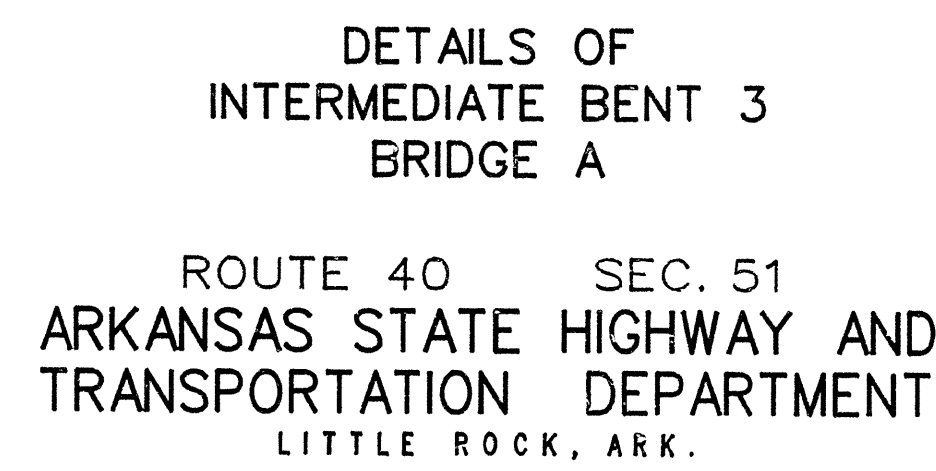
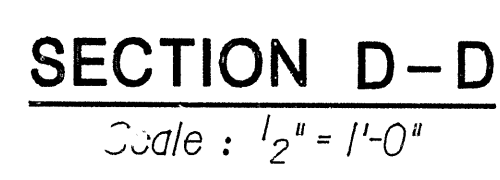
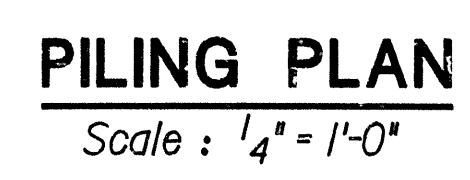
All concrete shall be Class 'S' with a minimum 28 day compressive strength, f'c = 3,500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered 3/4" unless otherwise noted.

▲ All reinforcing steel shall conform to **AASHTO M31 or M53** Grade 60 (yield strength = 60,000 psi).

If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.

For additional information see Layouts & Dwg. No. 34350 A.

For Elastomeric Bearings see Dwg. No. 34381.

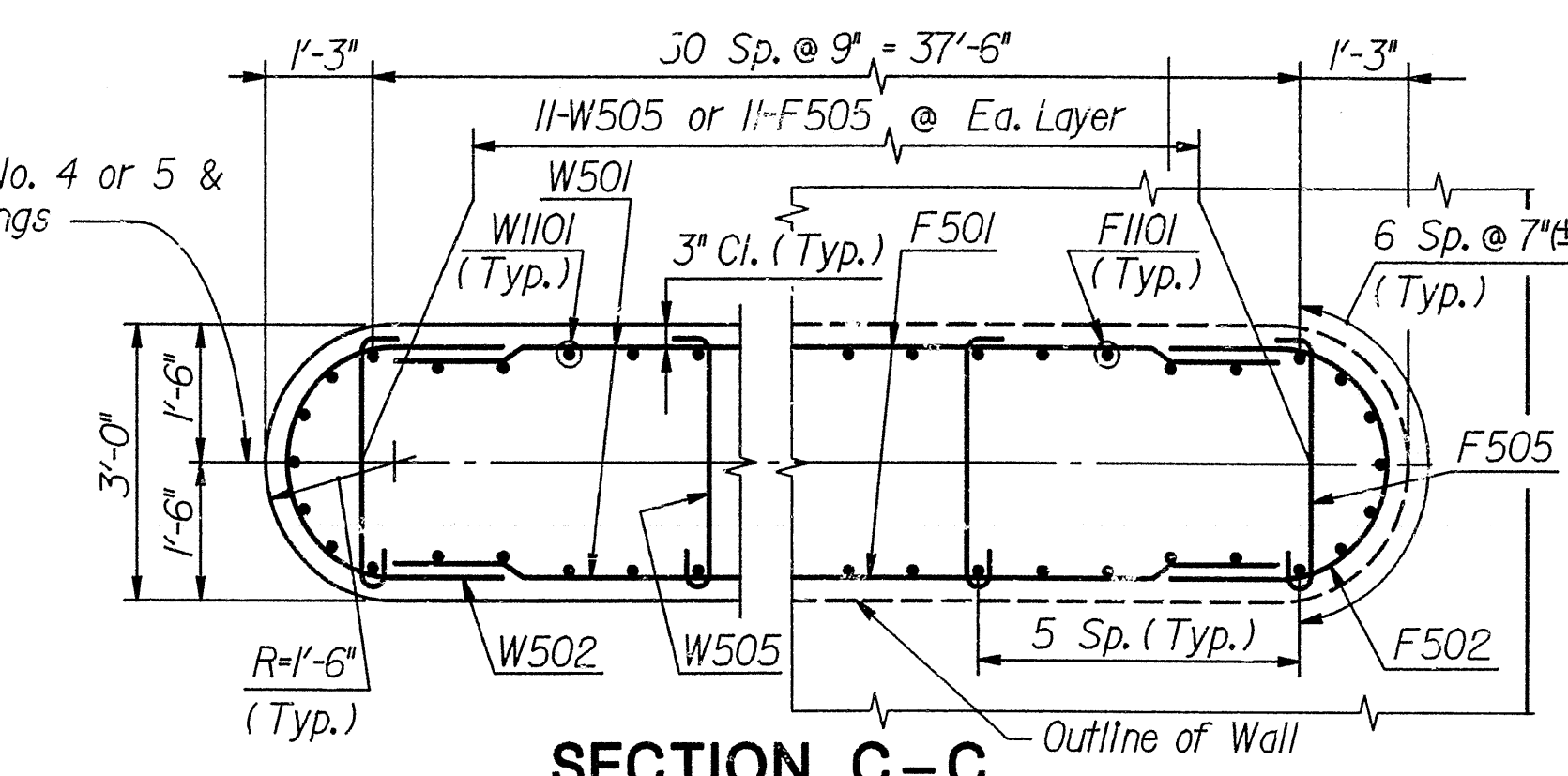
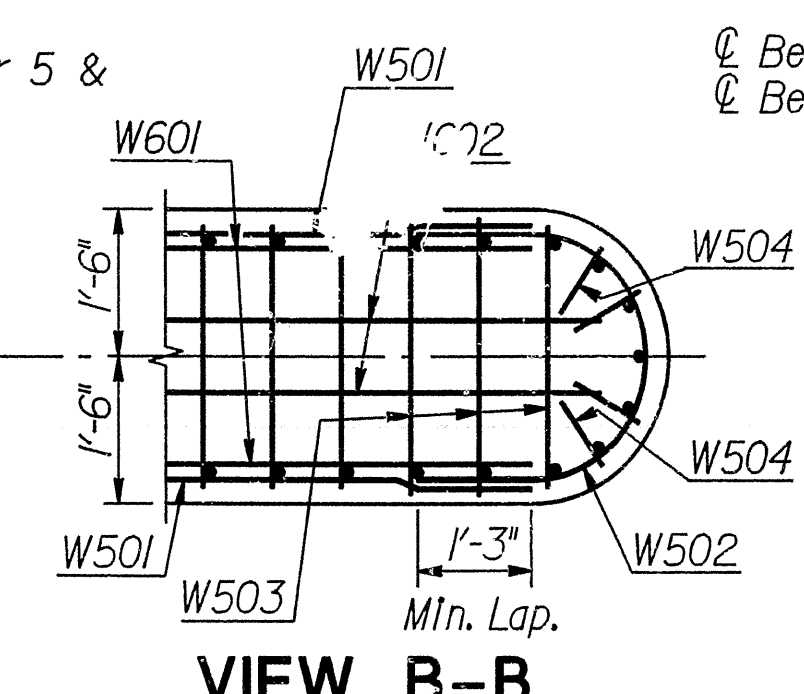
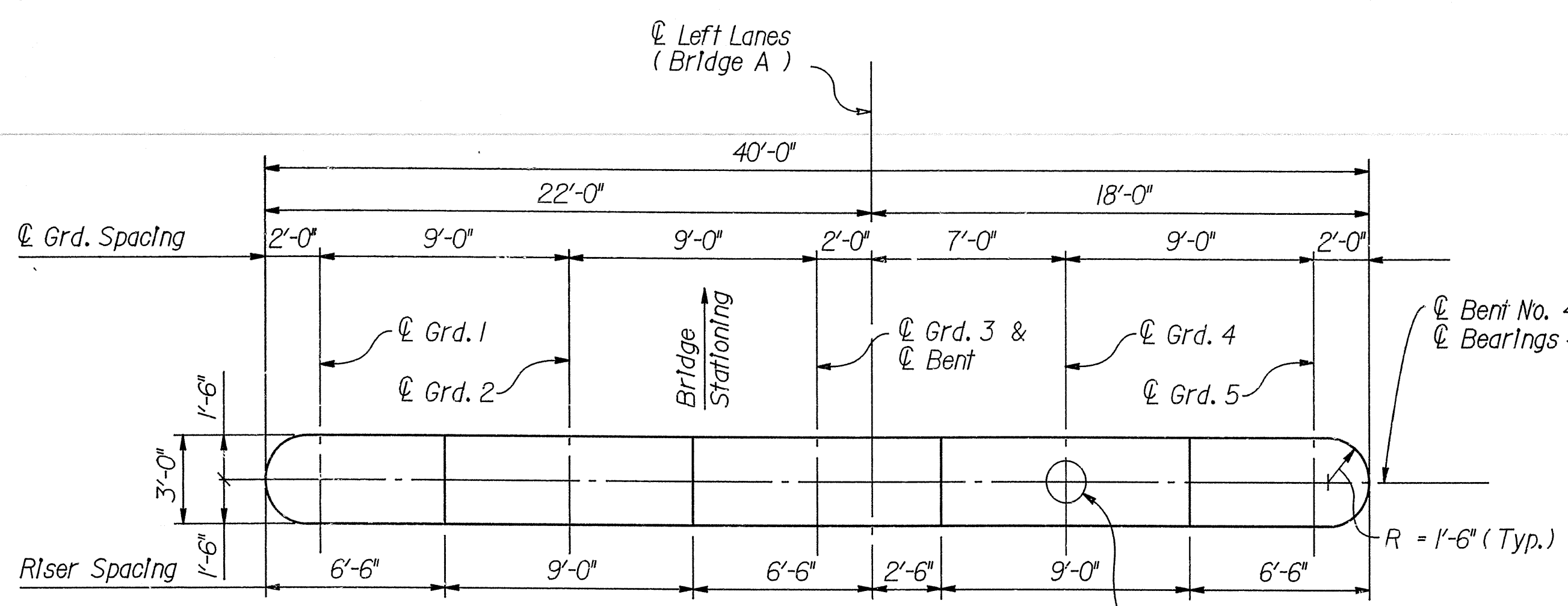


DRAWN BY: M.D. DATE: 4-21-93  
CHECKED BY: I.S. DATE: 4-23-93 SCALE: AS SHOWN  
DESIGNED BY: M.C. DATE: 4-19-93

BRIDGE NO. 6518 A      DRAWING NO. 34355

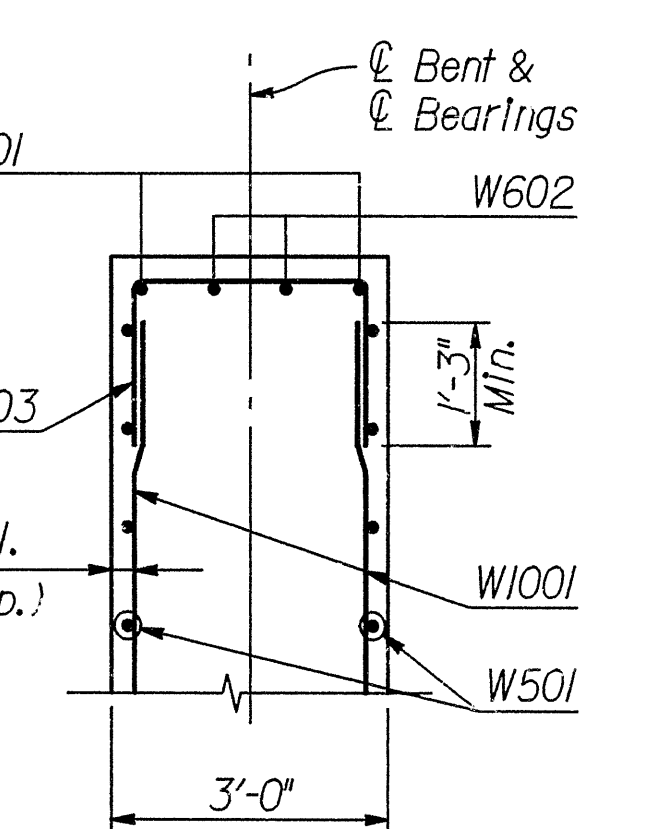
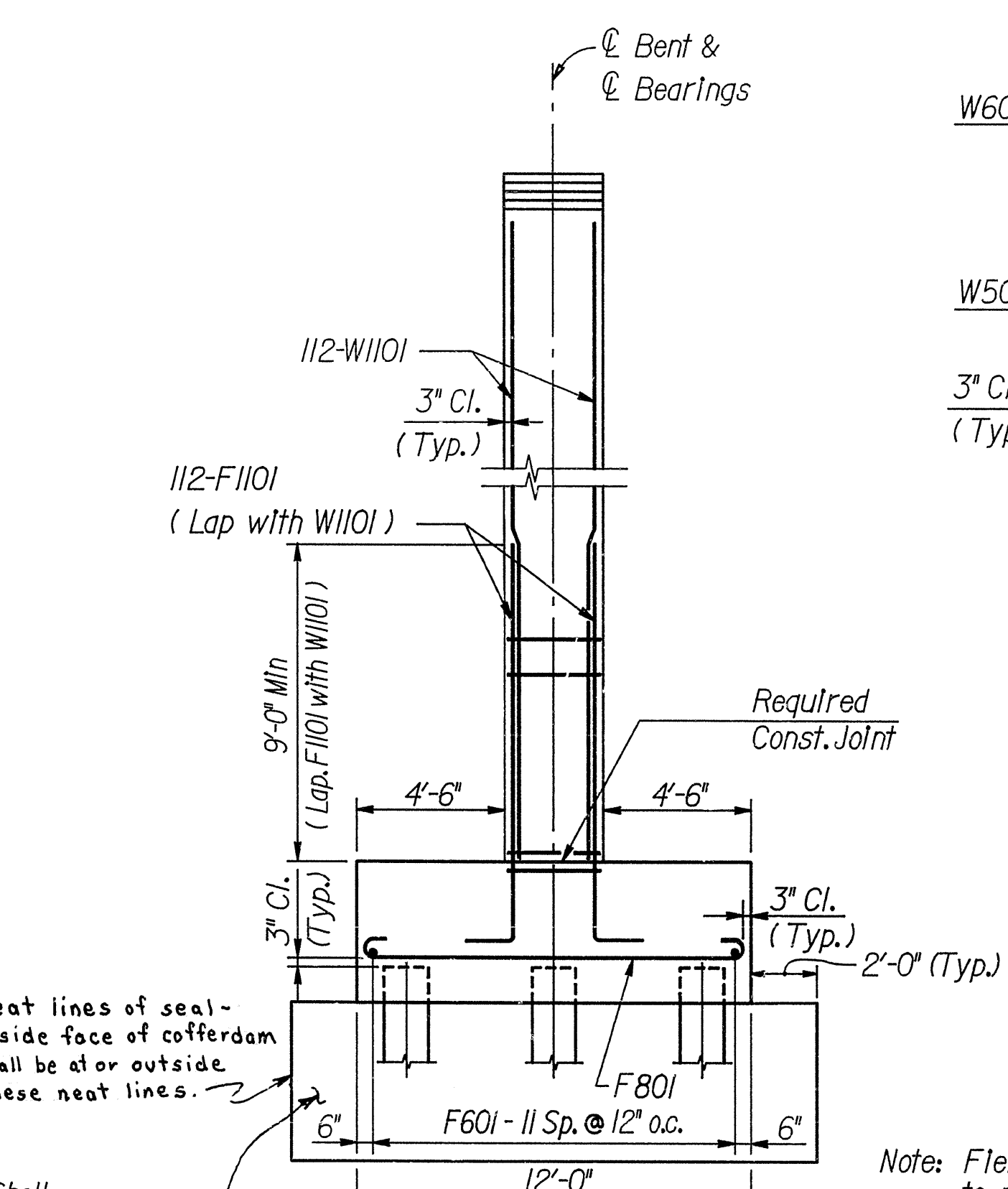
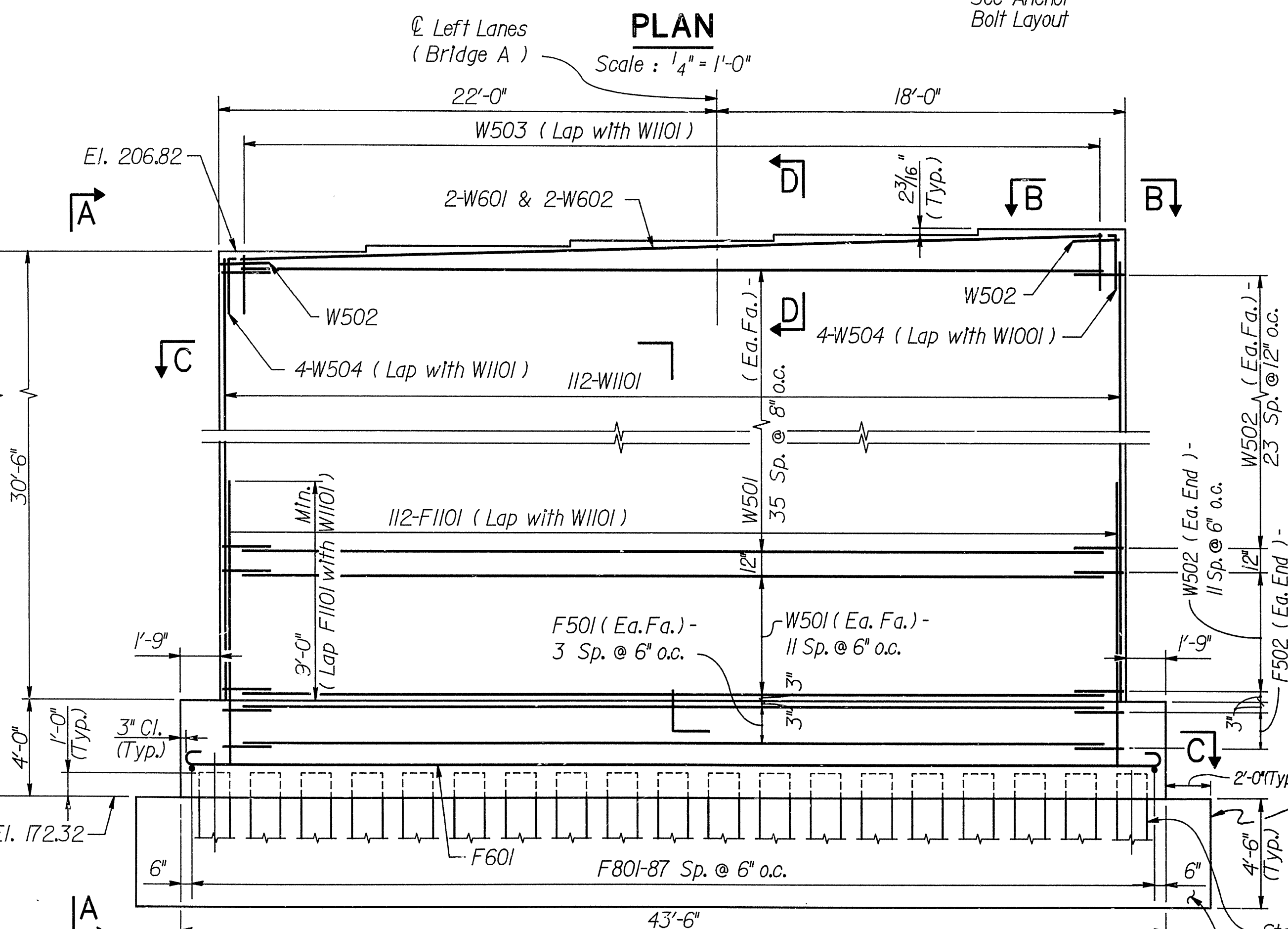
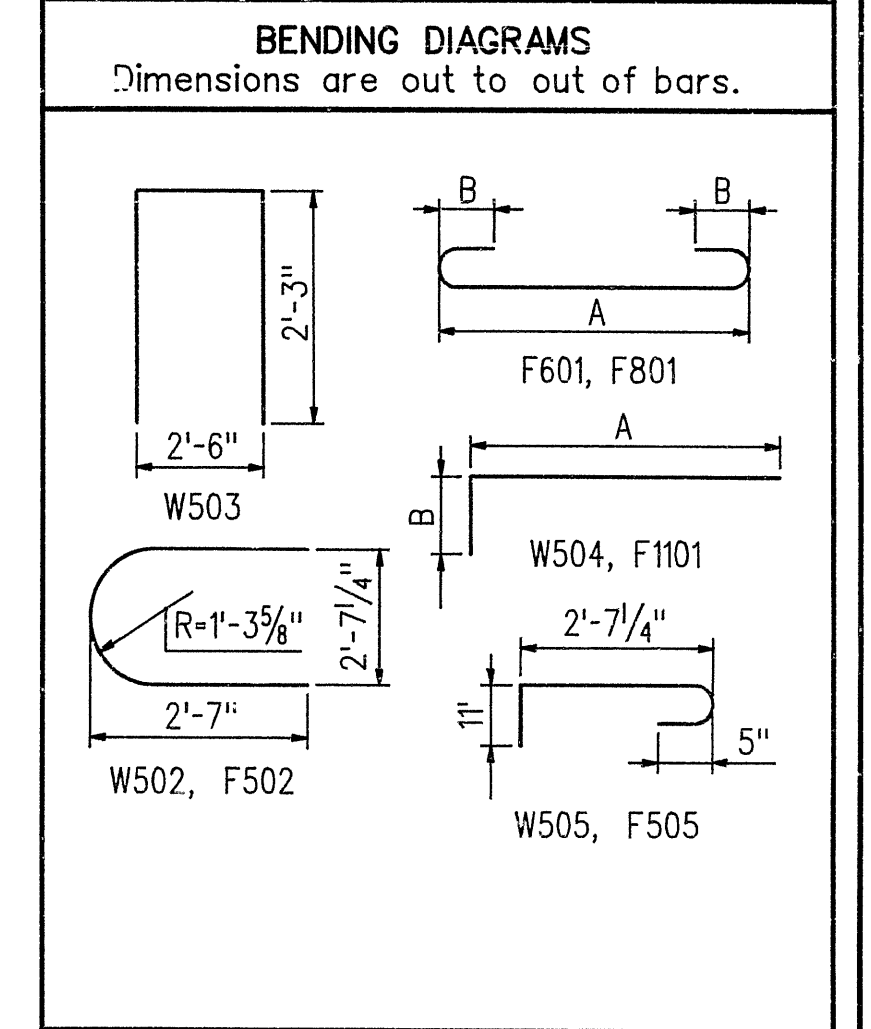


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				1	ARK.			
						R10084	35	87
JOB. NO. INTERMEDIATE BENTS 4 & 5 34356								



# BAR LIST - PER BENT

MARK	NO. REQ'D	LENGTH	"A"	"B"	P. D.
W501	96	37'-0"			Str.
W502	98	6'-6"			2'-7 1/4"
W503	51	6'-10"			2 1/2"
W504	8	3'-3"	2'-3"	1'-1"	2 1/2"
W505	396	3'-11"			2 1/2"
W601	2	37'-0"			Str.
W602	2	39'-0"			Str.
W1101	112	30'-3"			Str.
F501	8	37'-0"			Str.
F502	8	6'-6"			2'-7 1/4"
F505	44	3'-11"			2 1/2"
F601	12	44'-4"	43'-0"	6"	4 1/2"
F801	88	12'-10"	11'-6"	6"	4 1/2"
F1101	112	13'-6"	11'-7"	2'-0"	11"



## GENERAL NOTES

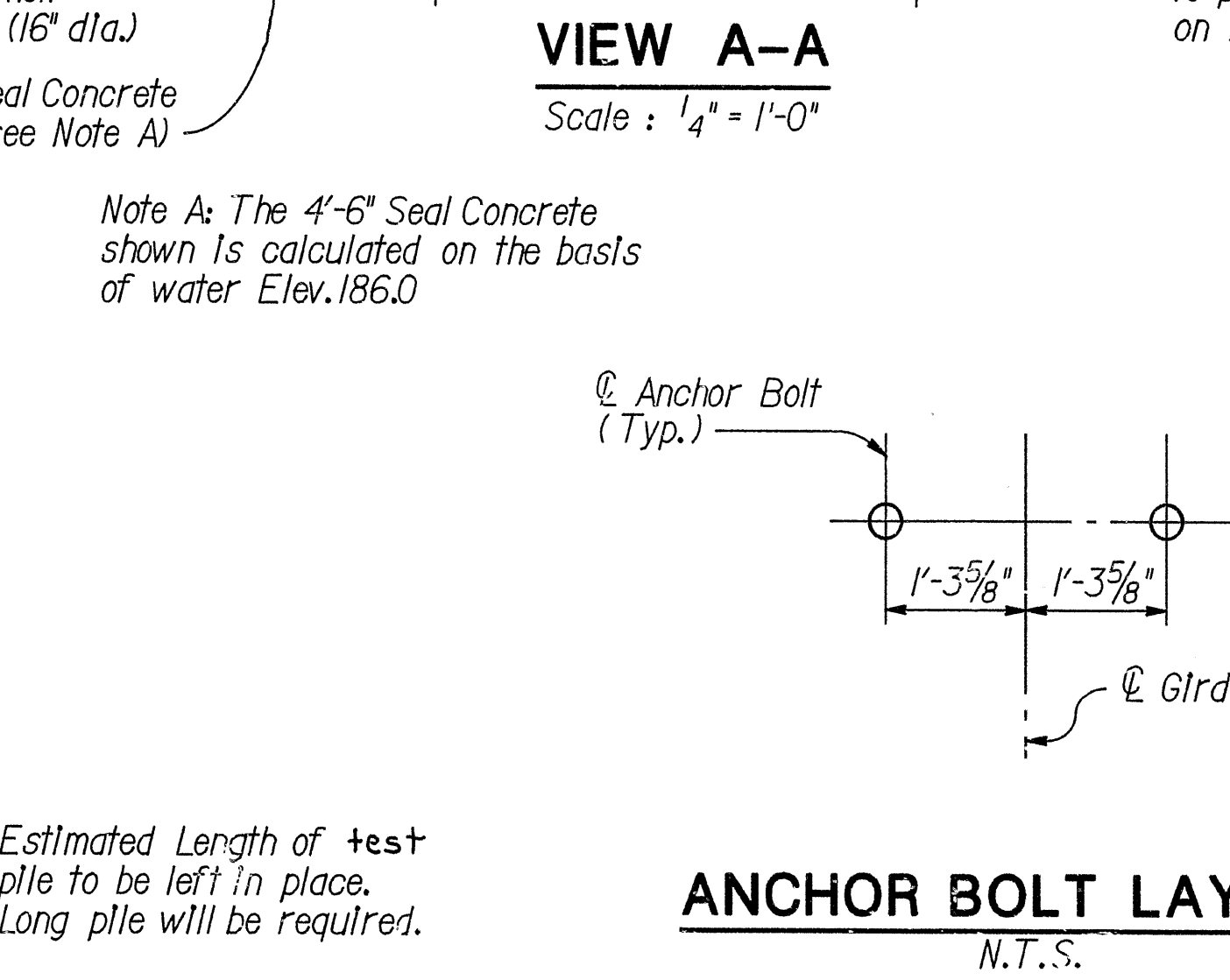
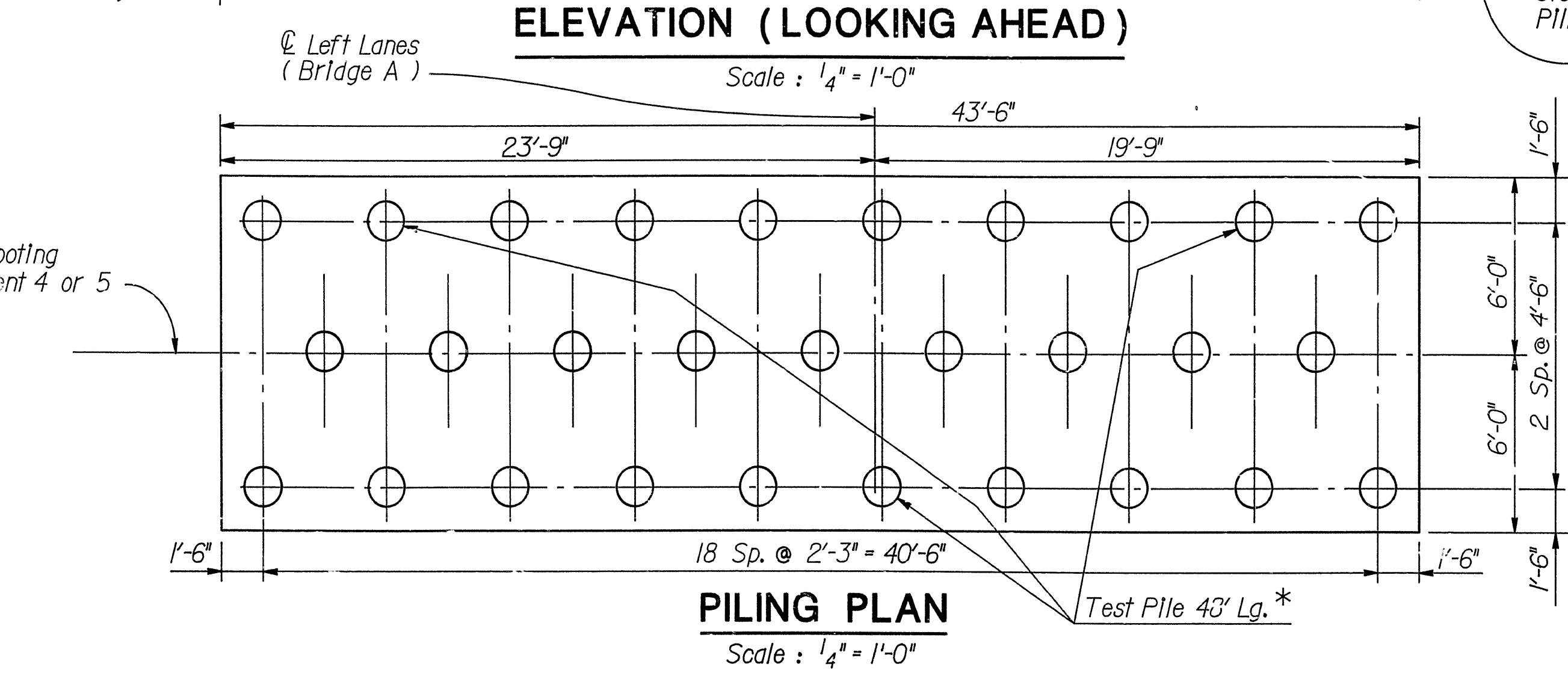
All concrete shall be Class 'S' with a minimum 28 day compressive strength,  $f'_c = 3,500$  psi. Concrete shall be poured in the dry and all exposed corners to be chamfered  $3/4"$  unless otherwise noted.

△ All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60 (yield strength = 60,000 psi).

If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.

For additional information see Layouts & Dwg. No. 34350A. For Elastomeric Bearings see Dwg. No. 34381.

Seal Concrete shall be with a minimum 28 days compressive strength,  $f'_c = 2100$  psi.



△ Revised Job no., L.M., 10-26-95  
 △ Revised for 1996 Specs KDH 8Aug96

DETAILS OF  
 INTERMEDIATE BENT 4 & 5  
 BRIDGE A

ROUTE 40 SEC. 51  
 ARKANSAS STATE HIGHWAY AND  
 TRANSPORTATION DEPARTMENT  
 LITTLE ROCK, ARK.

DRAWN BY: M.D. DATE: 4-21-93  
 CHECKED BY: J.S. DATE: 4-24-93 SCALE: AS SHOWN  
 DESIGNED BY: M.C. DATE: 4-19-93

BRIDGE NO. 6518 A DRAWING NO. 34356

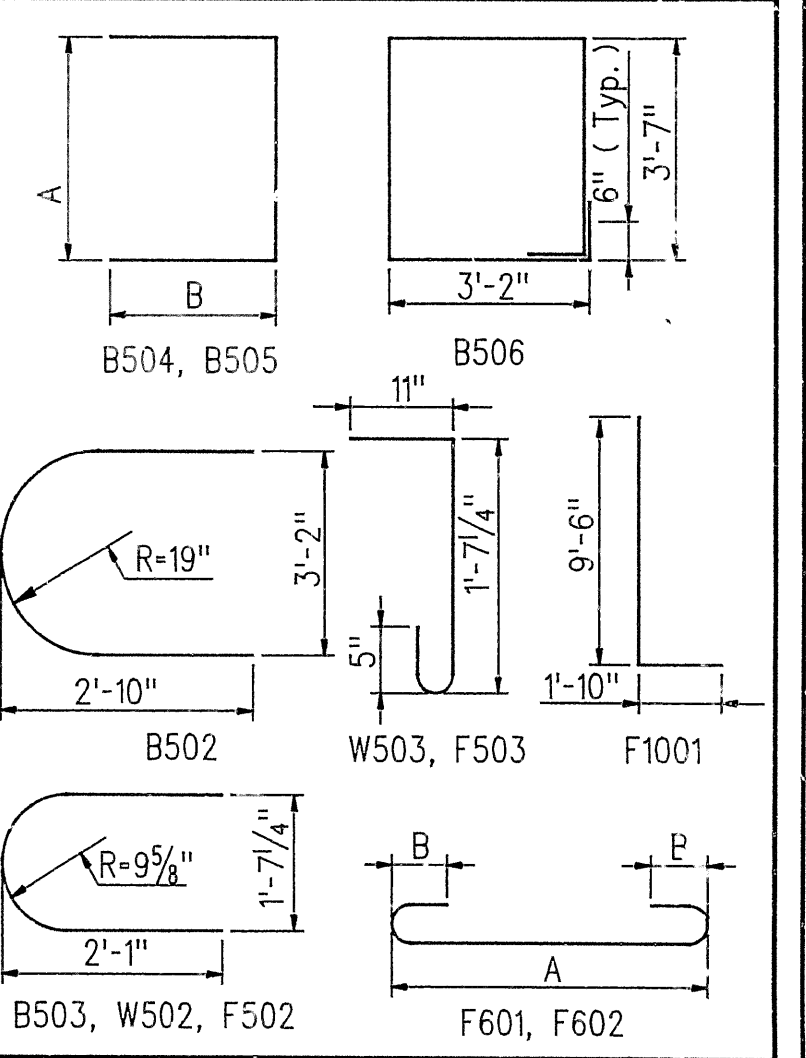




BAR LIST - PER BENT

## BENDING DIAGRAMS

Dimensions are out to out of bars.



## GENERAL NOTES

All concrete shall be Class 'S' with a minimum 28 day compressive strength,  $f'_c = 3,500$  psi. Concrete shall be poured in the dry and all exposed corners to be chamfered  $3/4"$  unless otherwise noted.

△ All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60 (yield strength = 60,000 psi).

If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.

For additional information see Layouts & Dwg. No. 34350 A.  
For Elastomeric Bearings see Dwg. No. 34381.

- ① Revised Job no., L.M., 10-26-95  
② Revised for 1996 Specs KDH 8 Aug 96  
③ Revised dimension, J.C.B., 17 July 97

DETAILS OF  
INTERMEDIATE BENT 6  
BRIDGE A

ROUTE 40 SEC. 51  
ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT  
LITTLE ROCK, ARK.

DRAWN BY: M.D. DATE: 4-21-93  
CHECKED BY: L.S. DATE: 4-24-93 SCALE: AS SHOWN  
DESIGNED BY: M.C. DATE: 4-15-93

BRIDGE NO. 6518 A DRAWING NO. 34357



Scale :  $1_4'' = 1'-0''$



Scale :  $1/2'' = 1'-0''$



Scale :  $1/2'' = 1'-0''$



Scale :  $1/4'' = 1'-0''$



Scale :  $1'' = 1'-0''$



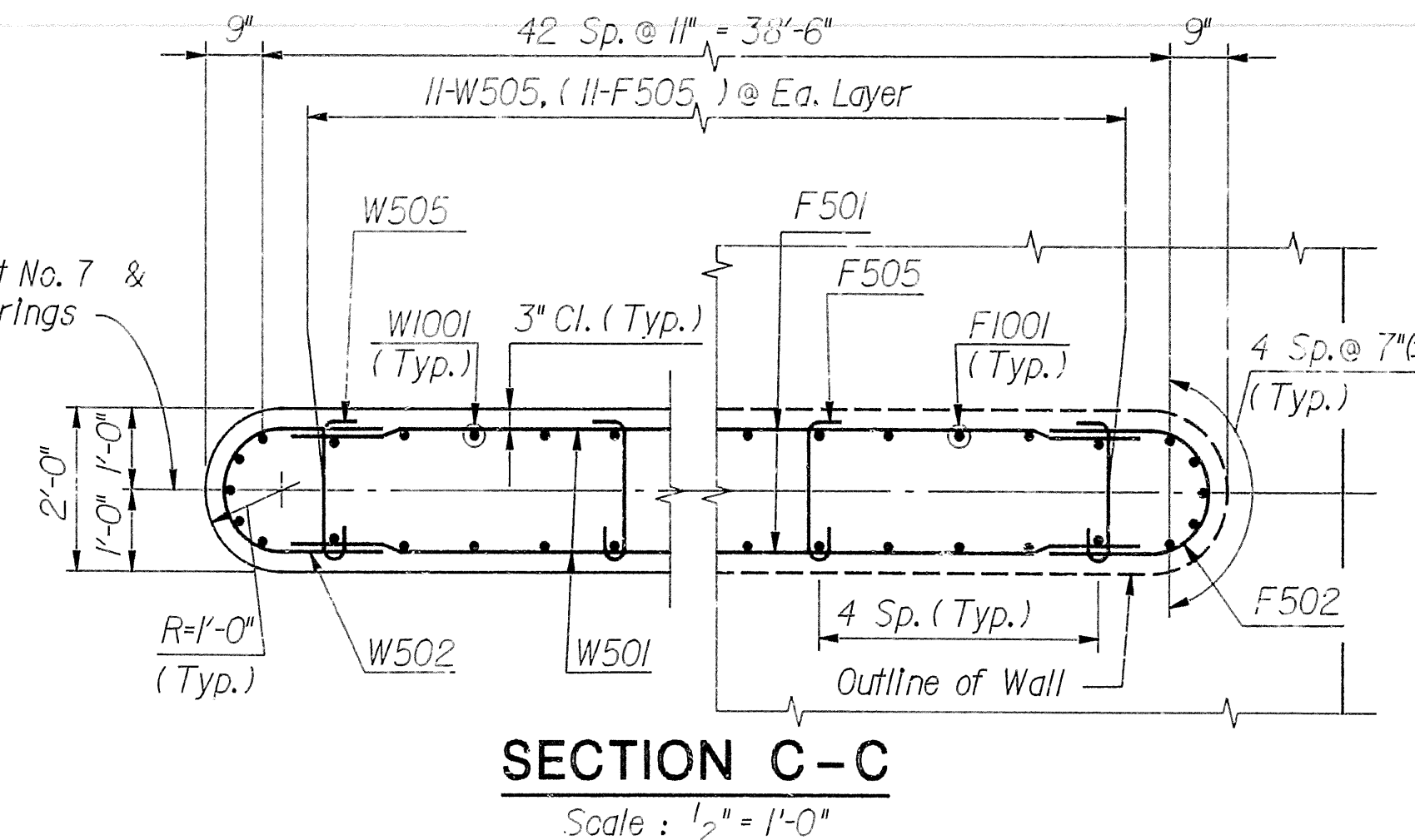
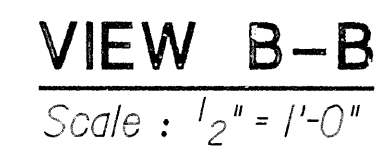
Scale :  $1/2'' = 1'-0''$



N.T.S.

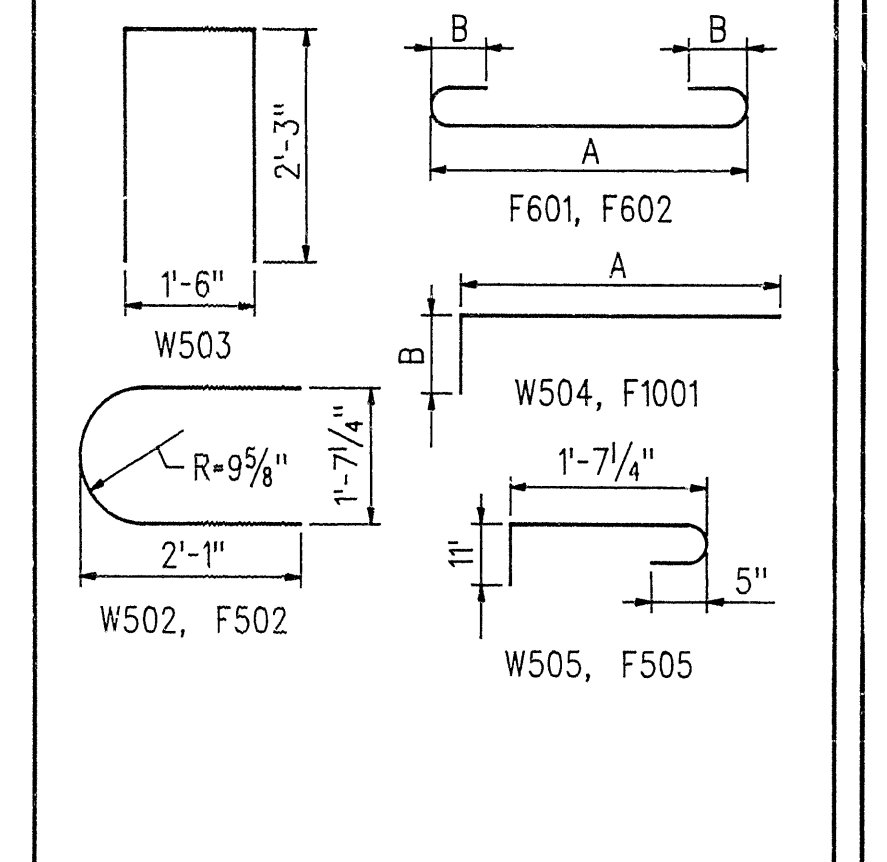


Scale :  $1/4'' = 1'-0''$

BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	"A"	"B"	P. D.
W501	44	38'-0"			Str.
W502	46	5'-0"			18"
W503	43	5'-10"			2½"
W504	4	2'-9"	2'-3"	7"	2½"
W505	242	3'-0"			2½"
W601	2	38'-0"			Str.
W602	2	39'-6"			Str.
W1001	92	18'-10"			Str.
F501	6	38'-0"			Str.
F502	6	5'-0"			18"
F505	33	3'-0"			2½"
F601	103	8'-10"	7'-6"	6"	4½"
F602	8	43'-10"	42'-6"	6"	4½"
F1001	92	11'-1"	9'-6"	1'-10"	10"

**BENDING DIAGRAMS**  
Dimensions are out to out of bars.



## GENERAL NOTES

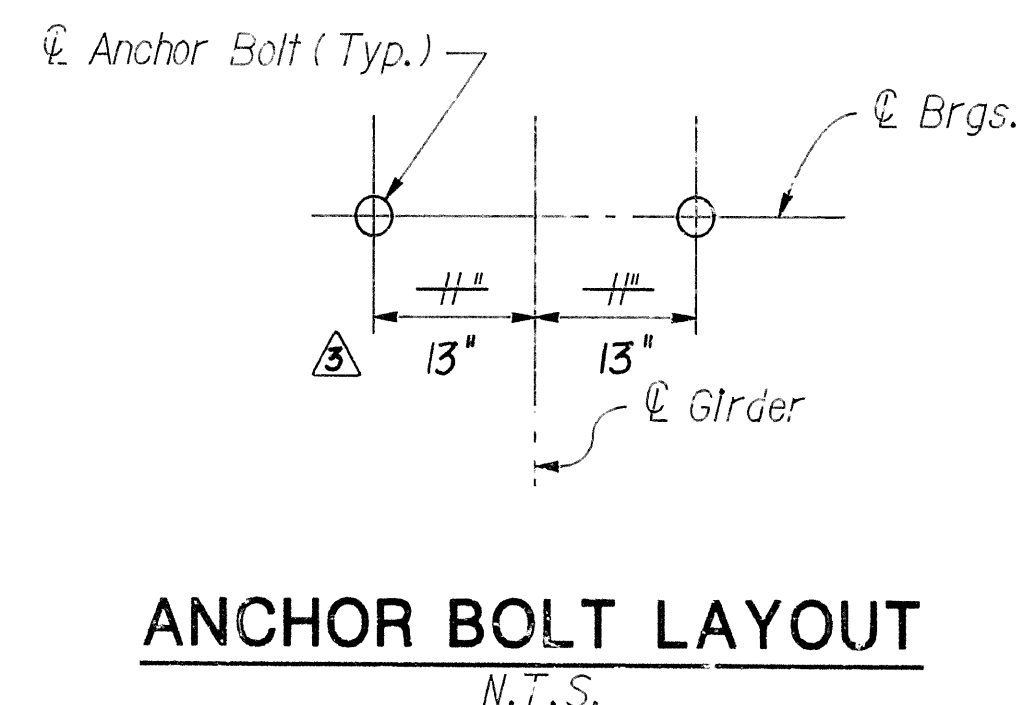
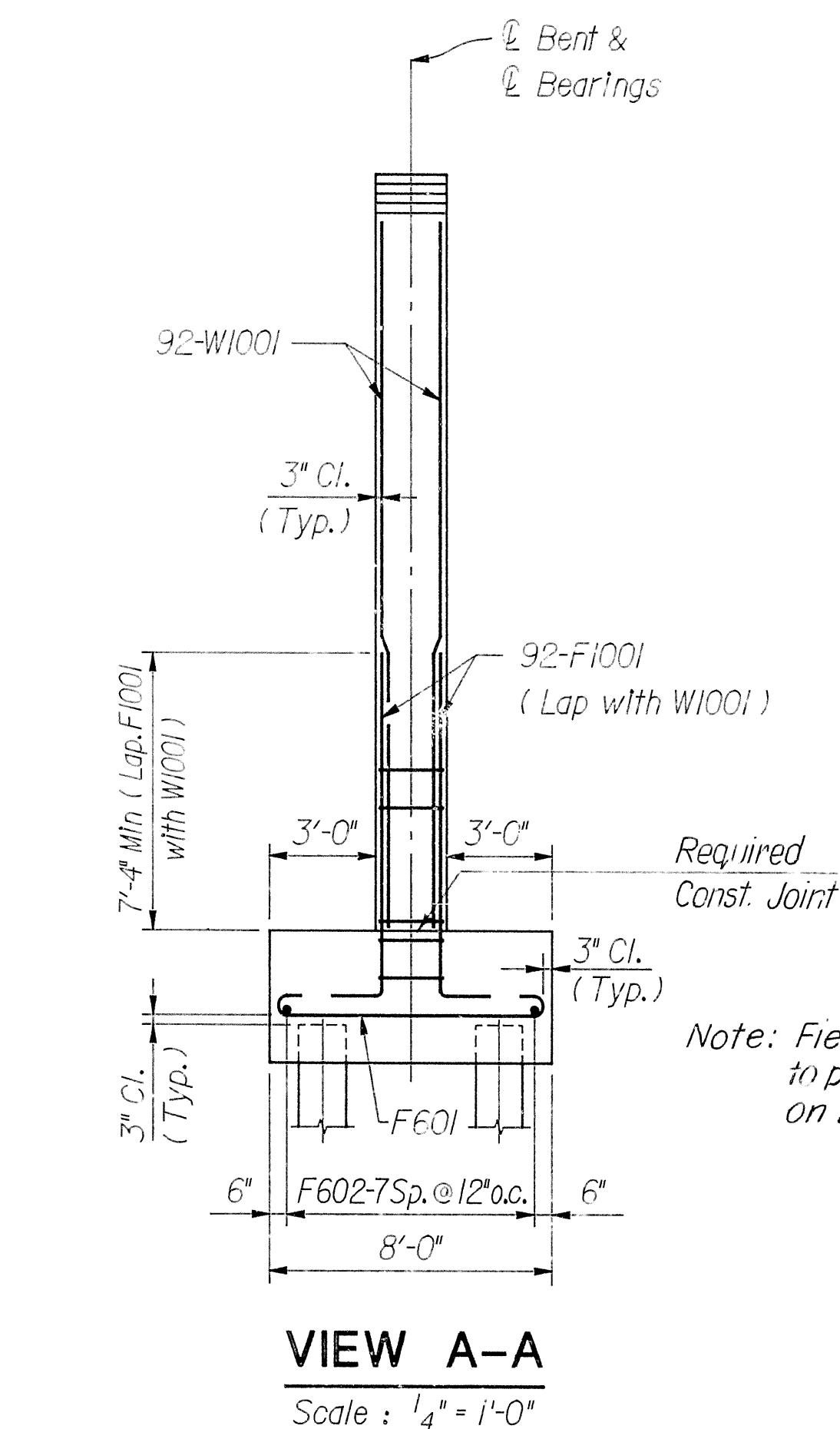
All concrete shall be Class 'S' with a minimum 28 day compressive strength,  $f'_c = 3,500$  psi. Concrete shall be poured in the dry and all exposed corners to be chamfered  $3/4"$  unless otherwise noted.

△ All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60 (yield strength = 60,000 psi).

If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.

For additional information see Layouts & Dwg. No. 34350A.

For Elastomeric Bearings see Dwg. No. 34381.



① Revised Job no., L.M. 10-26-95  
 ② Revised for 1996 Specs KDH 8Aug96  
 ③ Revised dimension, J.C.B., 17 July 97

July 97 DETAILS OF  
INTERMEDIATE BENT 7  
BRIDGE A

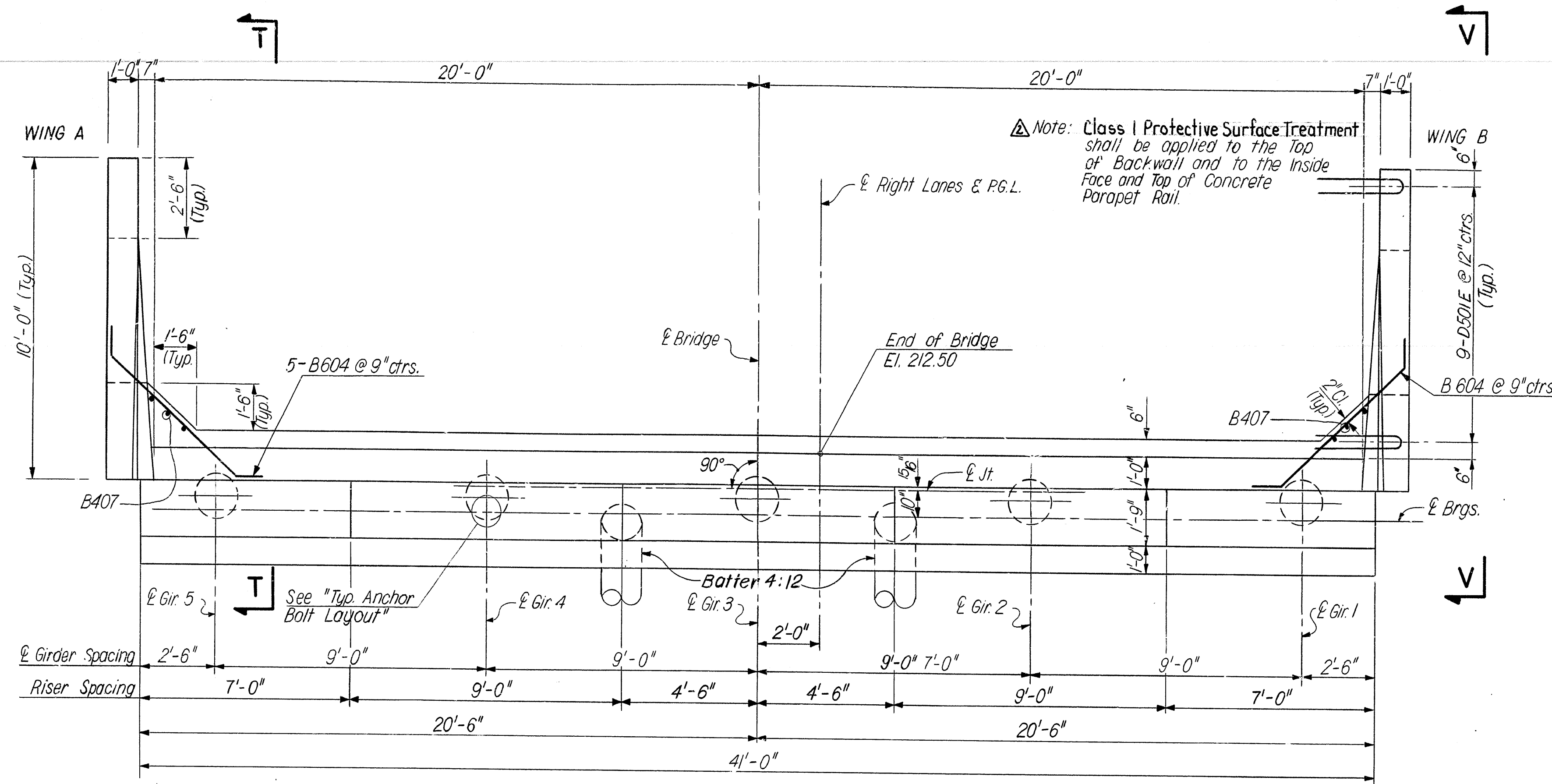
ROUTE 40 SEC. 51  
ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT  
LITTLE ROCK, ARK.

DRAWN BY: M.D. DATE: 4-21-93  
CHECKED BY: L.S. DATE: 4-24-93 SCALE: AS SHOWN  
DESIGNED BY: M.C. DATE: 4-19-93

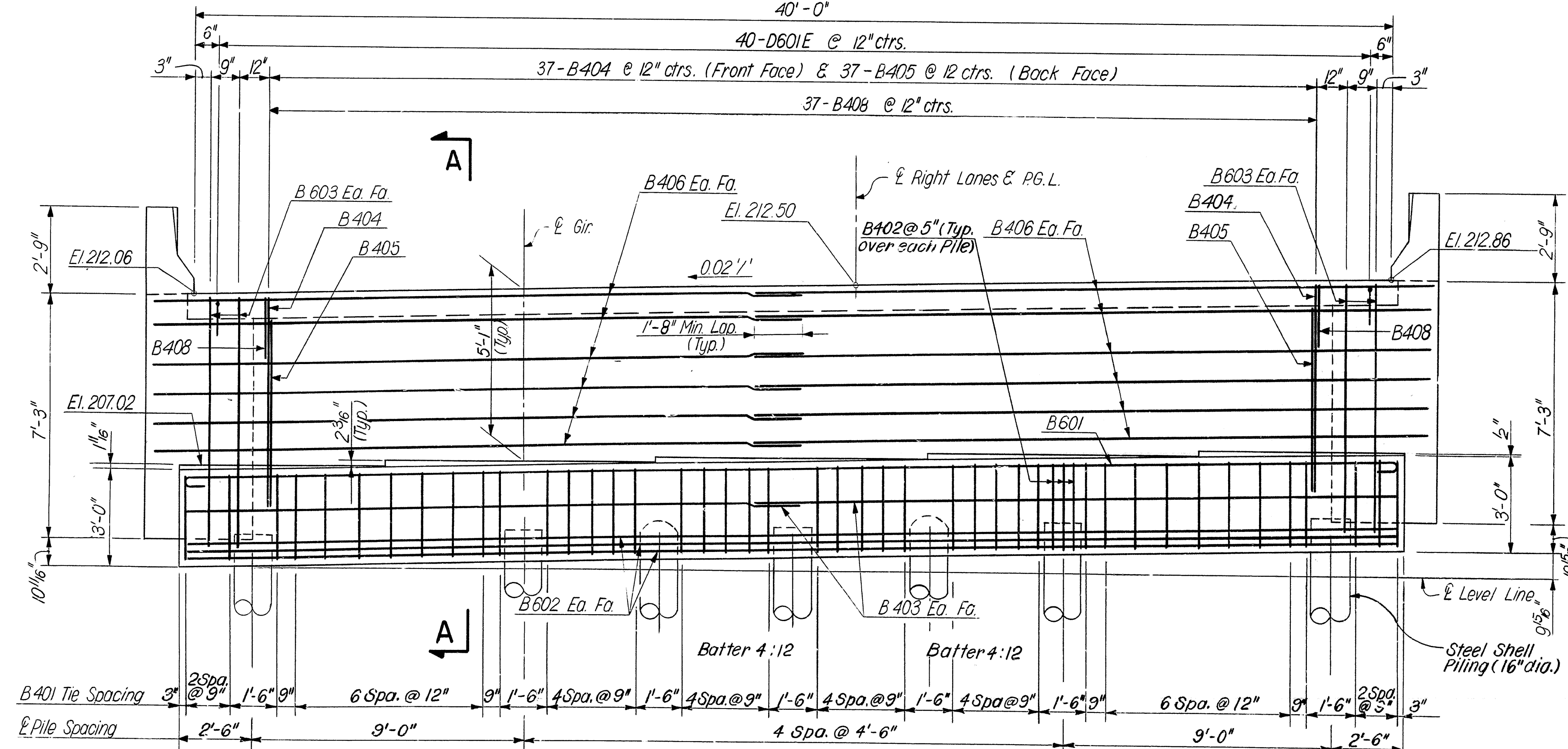
BRIDGE NO. 6518 A      DRAWING NO. 34358



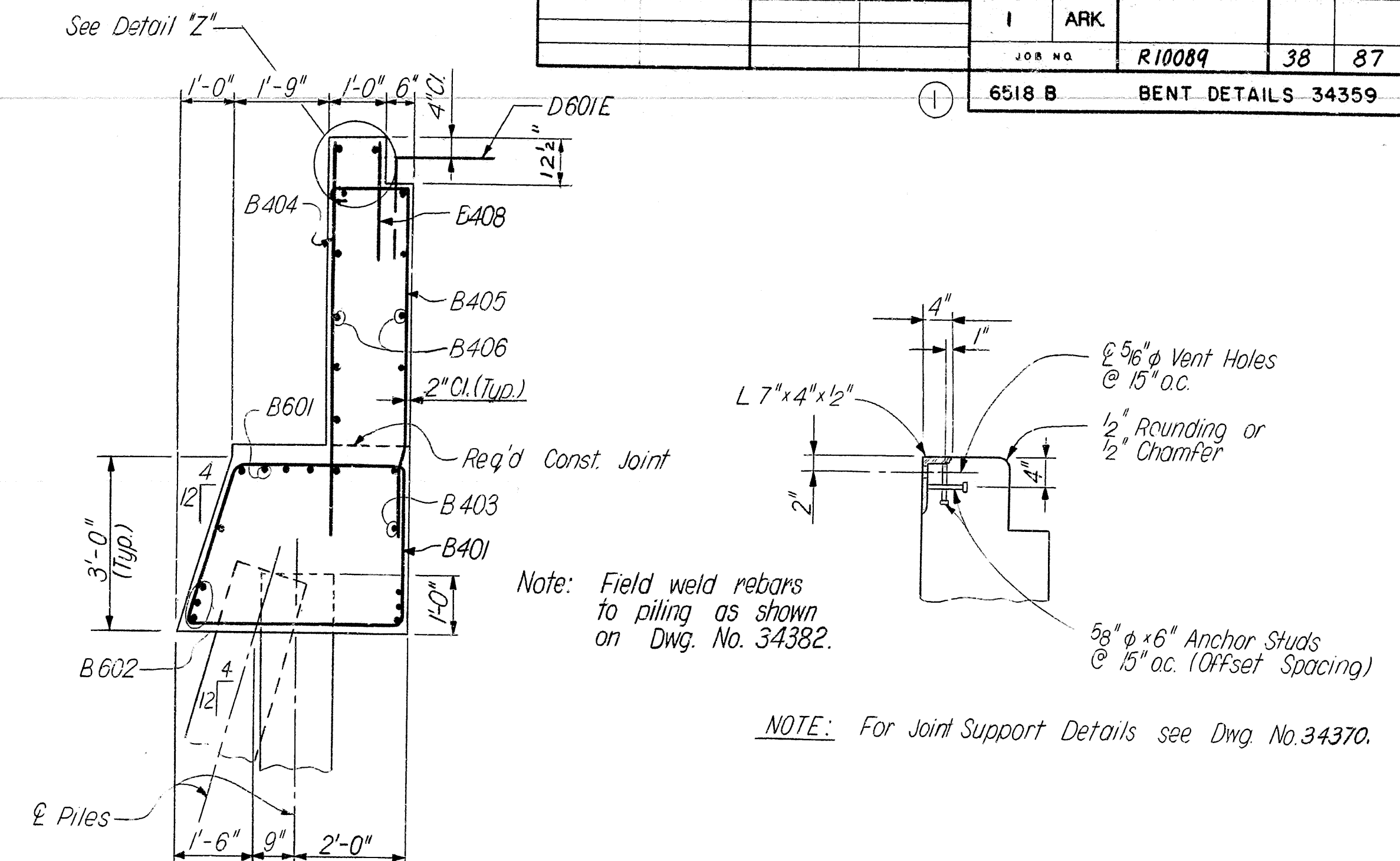
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. REG. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				I	ARK			
				JOB NO.		R10089	38	87
				6518 B		BENT DETAILS	34359	



**PLAN**  
Scale:  $38'' = 1' - 0''$   
 $40' - 0''$

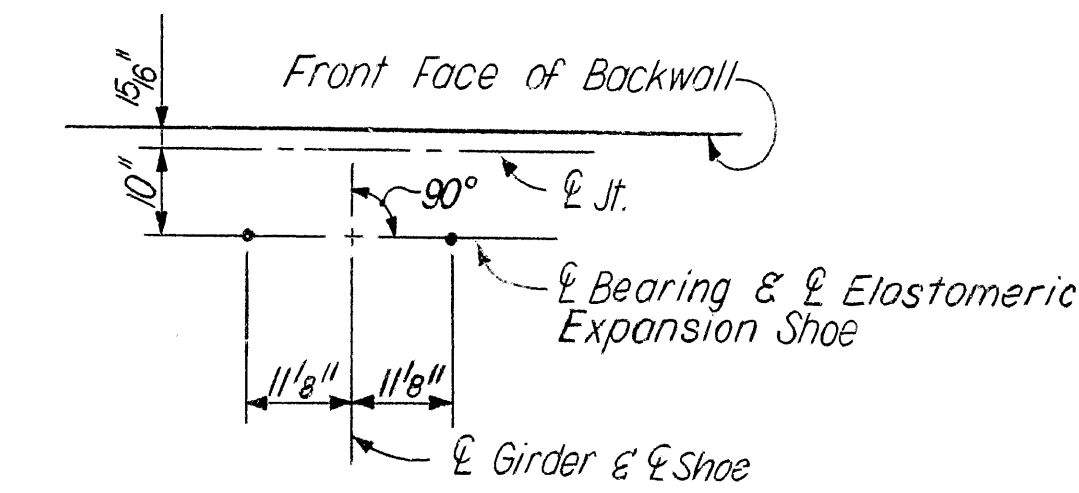


**ELEVATION**  
Scale:  $3/8" = 1'-0"$



**SECTION A-A**  
Scale:  $\frac{1}{2}'' = 1'-0''$

**DETAIL "Z"**  
*Scale: 3/4" = 1'-0"*



TYPICAL ANCHOR BOLT LAYOUT  
N. T. S.

NOTE:  
For Sections see Dwg. No. 34353.

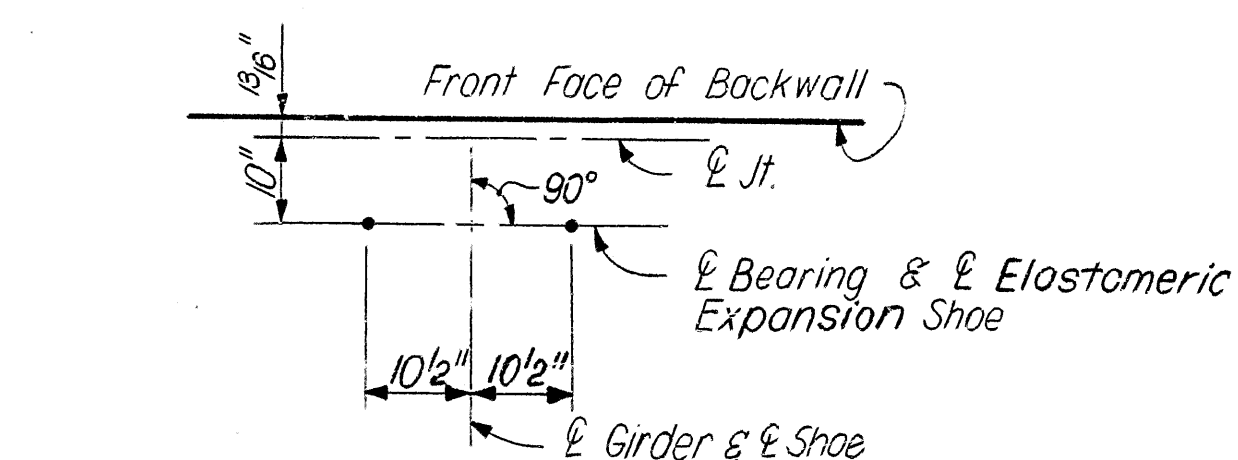
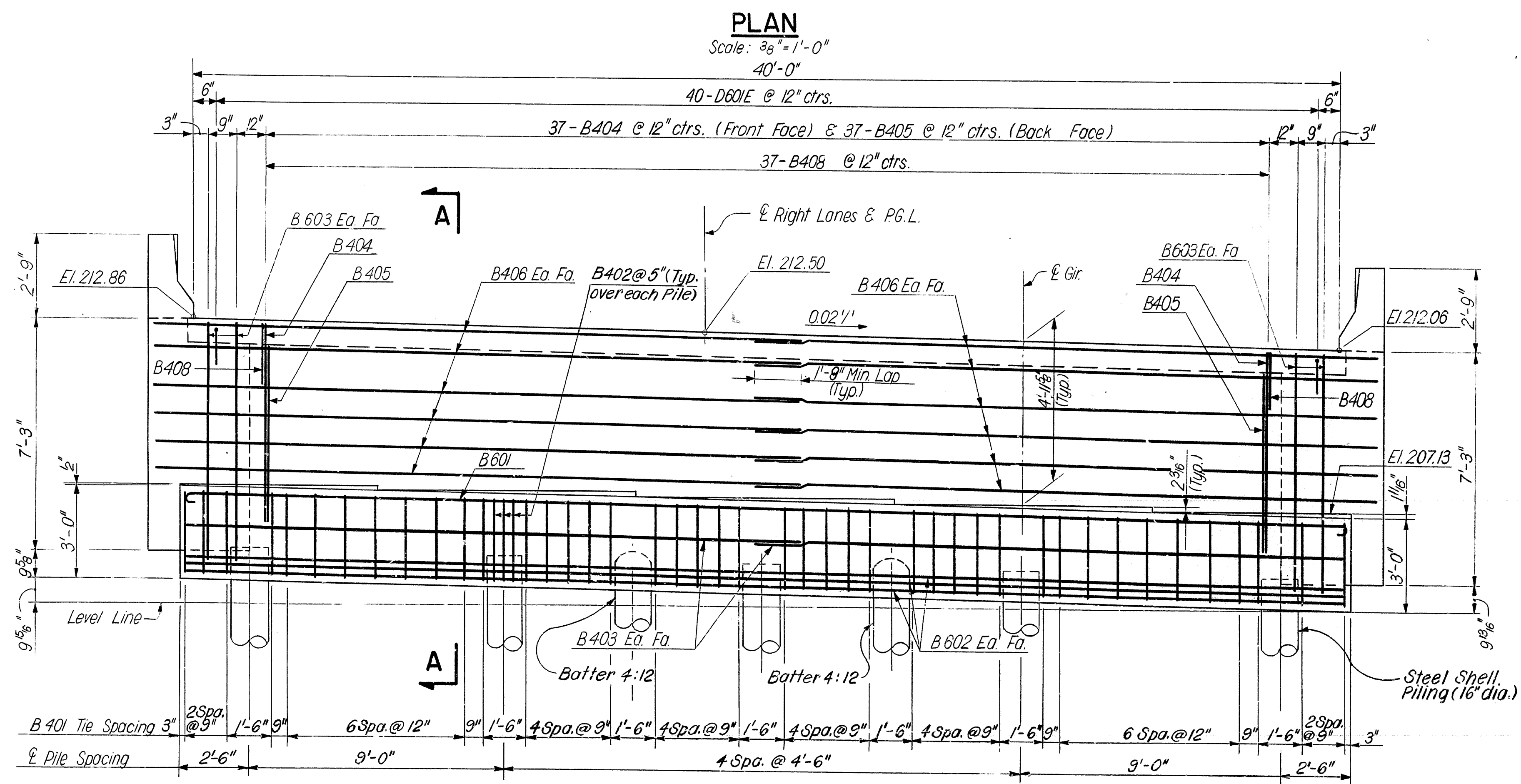
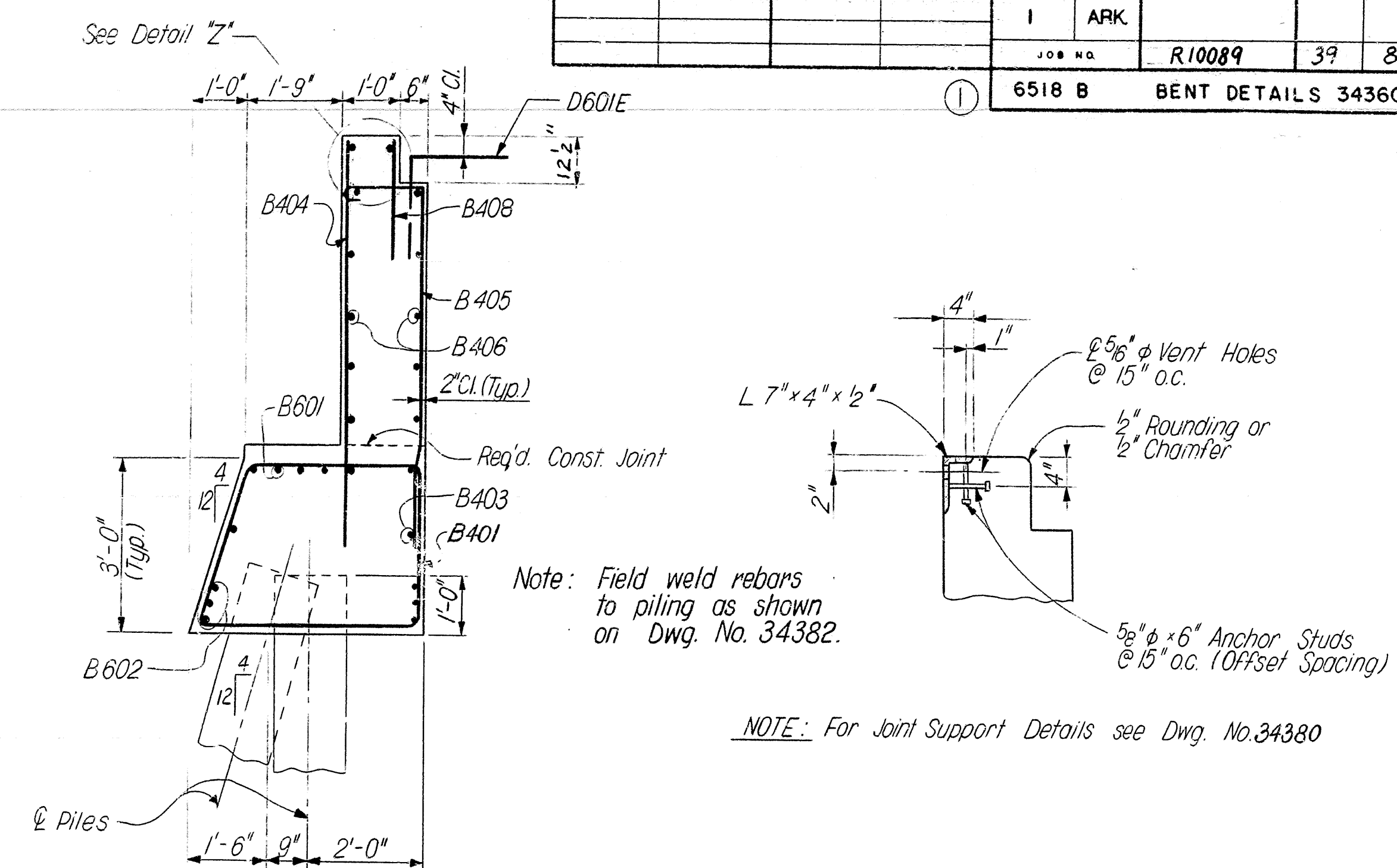
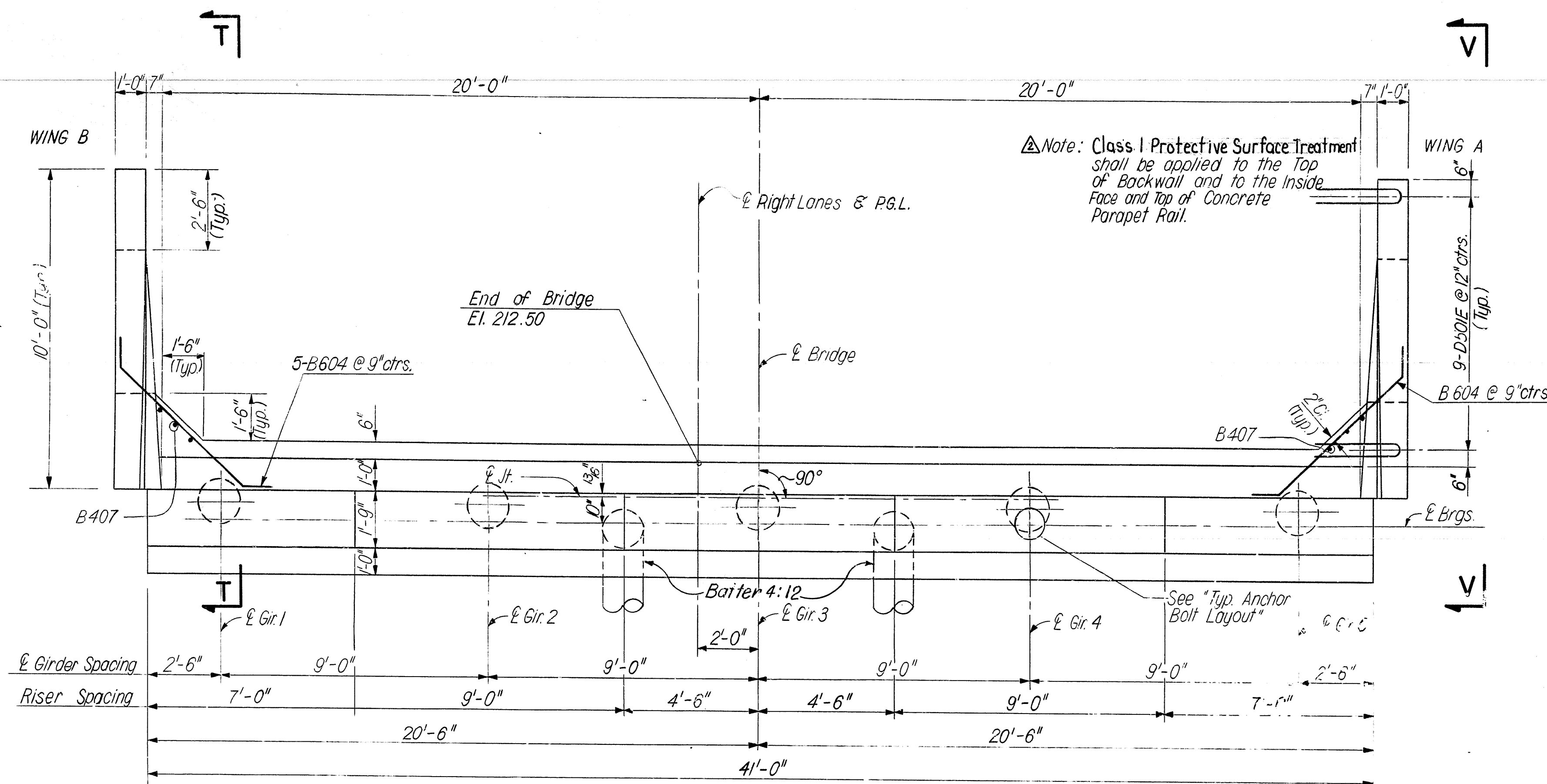
① Revised Job no., L.M. 10-26'95  
② Revised for 1996 Specs KDH 8Aug96

SHEET 1 OF 2  
DETAILS OF  
END BENT NO.1 (BR. B)  
  
ROUTE 40 SEC. 51  
ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT  
LITTLE ROCK, ARK.

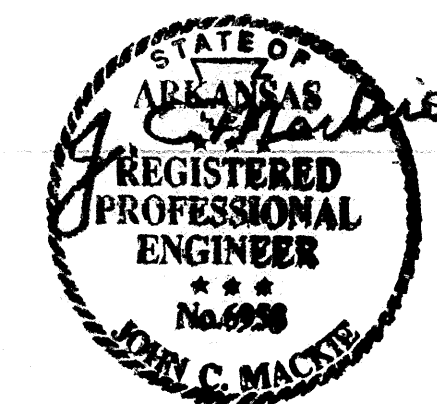
DRAWN BY: W.L. DATE: 5-14-93  
 TRACED BY: M.M. DATE: 5-20-93 SCALE: AS SHOWN  
 CHECKED BY: L.S. DATE: 5-26-93

BRIDGE NO. 6518 B DRAWING NO. 34359

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	REV. NO. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				I	ARK.			
				JOB NO.	R10089		39	87
				6518 B	BENT DETAILS	34360		



Revised Job no., L.M. 10-26-95  
Revised for 1996 Specs KDH BAUG 96



**SHEET 2 OF 2**  
**DETAILS OF**  
**END BENT NO. 8 (BR. B)**

**ROUTE 40 SEC. 51**  
**ARKANSAS STATE HIGHWAY AND**  
**TRANSPORTATION DEPARTMENT**  
**LITTLE ROCK, ARK.**

**BRIDGE NO. 6518 B** **DRAWING NO. 34360**

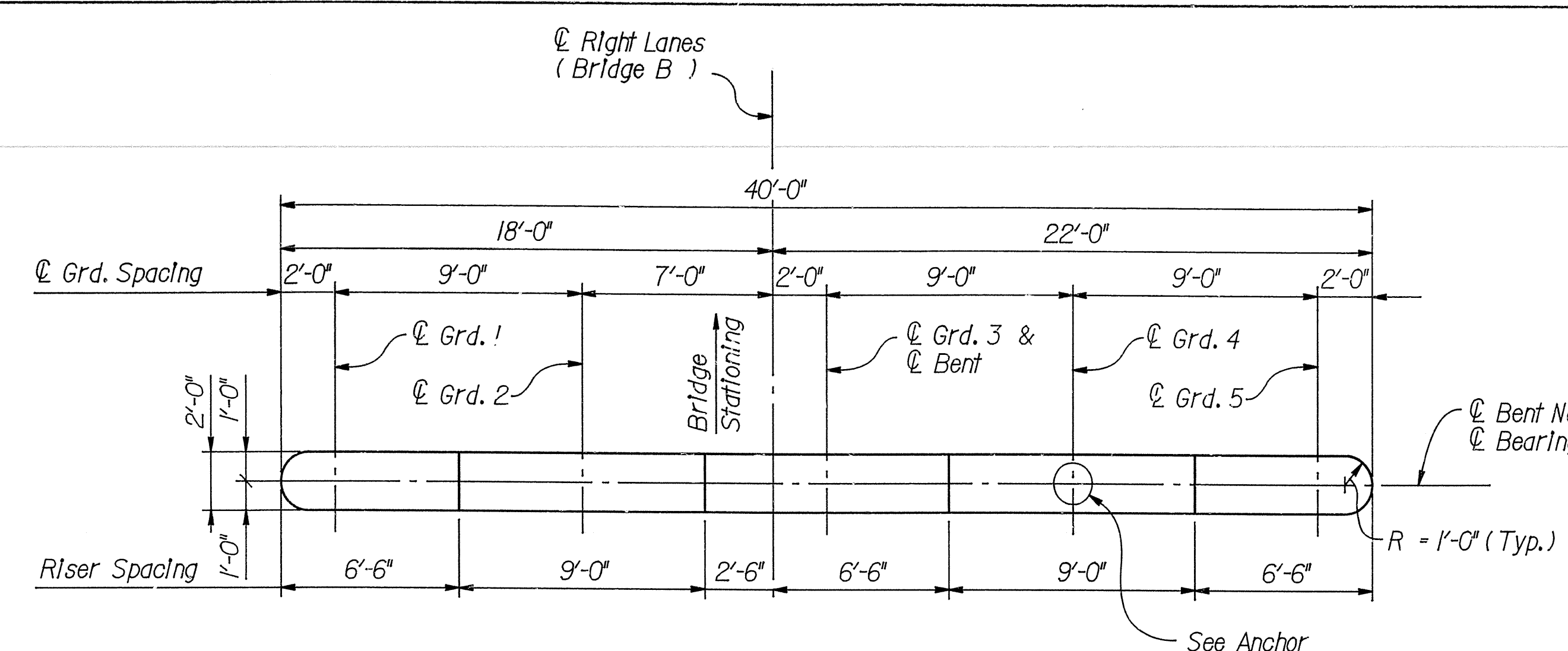
DATE: 5-14-93  
DATE: 5-20-93  
DATE: 5-26-93

SCALE: AS SHOWN



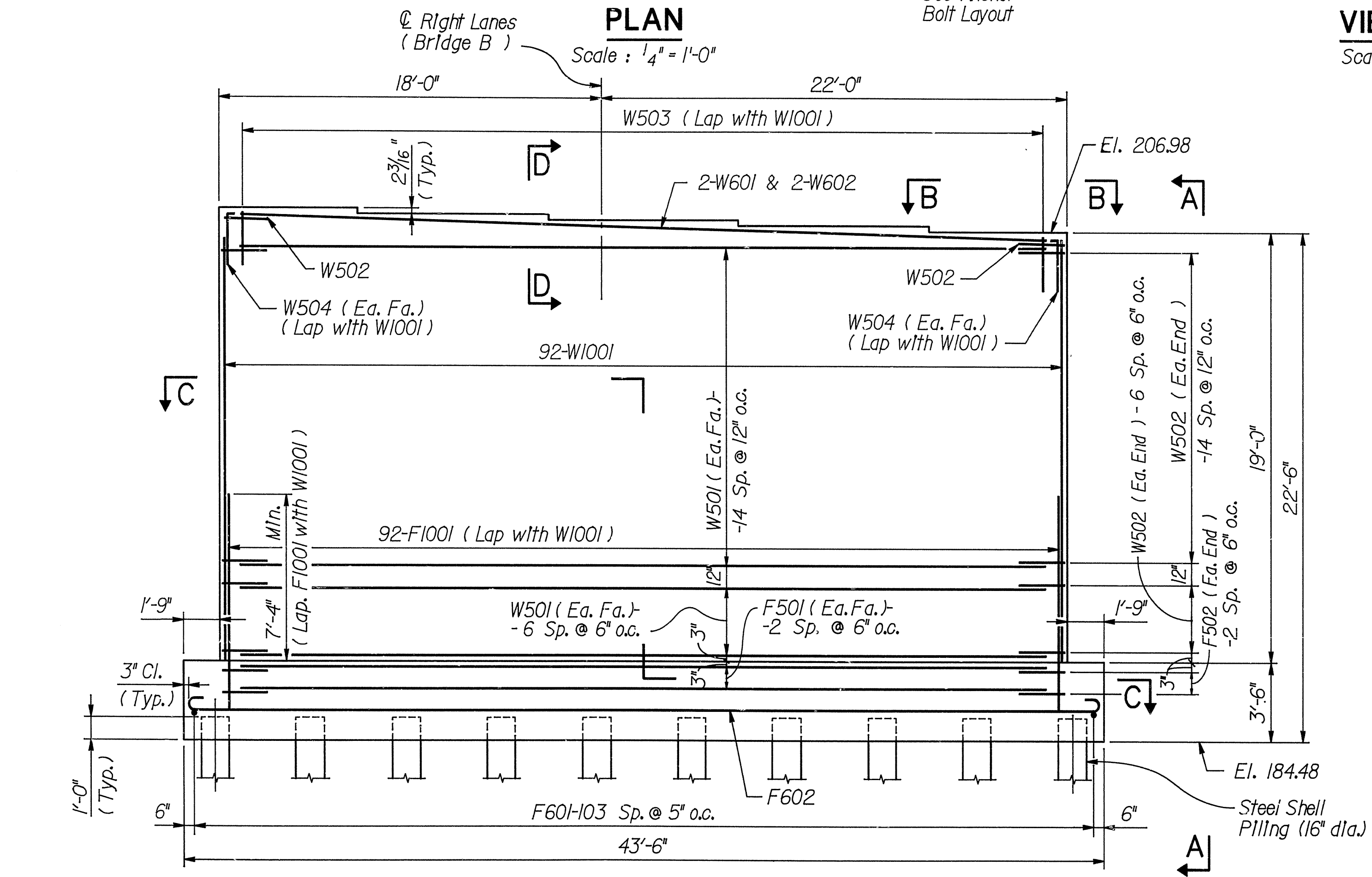
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. RD. PROJ. NO.	SHEET NO.	TOTAL SHEETS
				1	ARK.			
						JOB. NO.		
						R10089	40	87

① 6518 B INTERMEDIATE BENT 2 34361



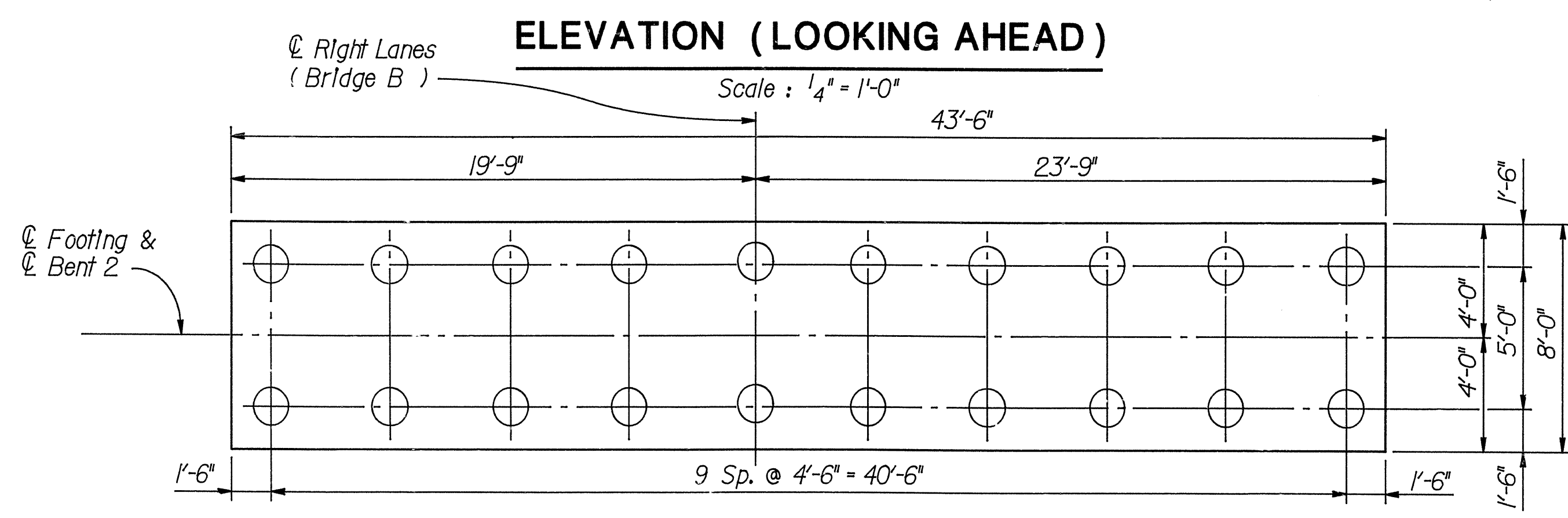
**PLAN**

Scale : 1/4" = 1'-0"



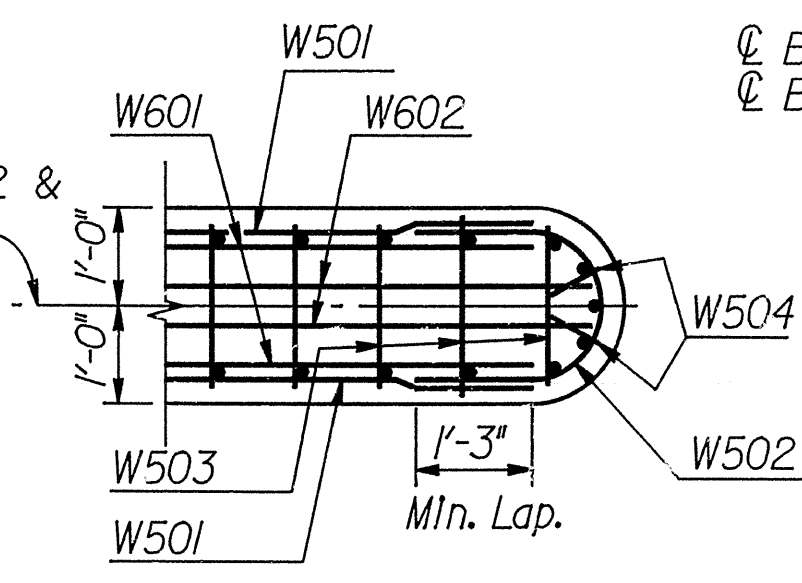
**ELEVATION (LOOKING AHEAD)**

Scale : 1/4" = 1'-0"



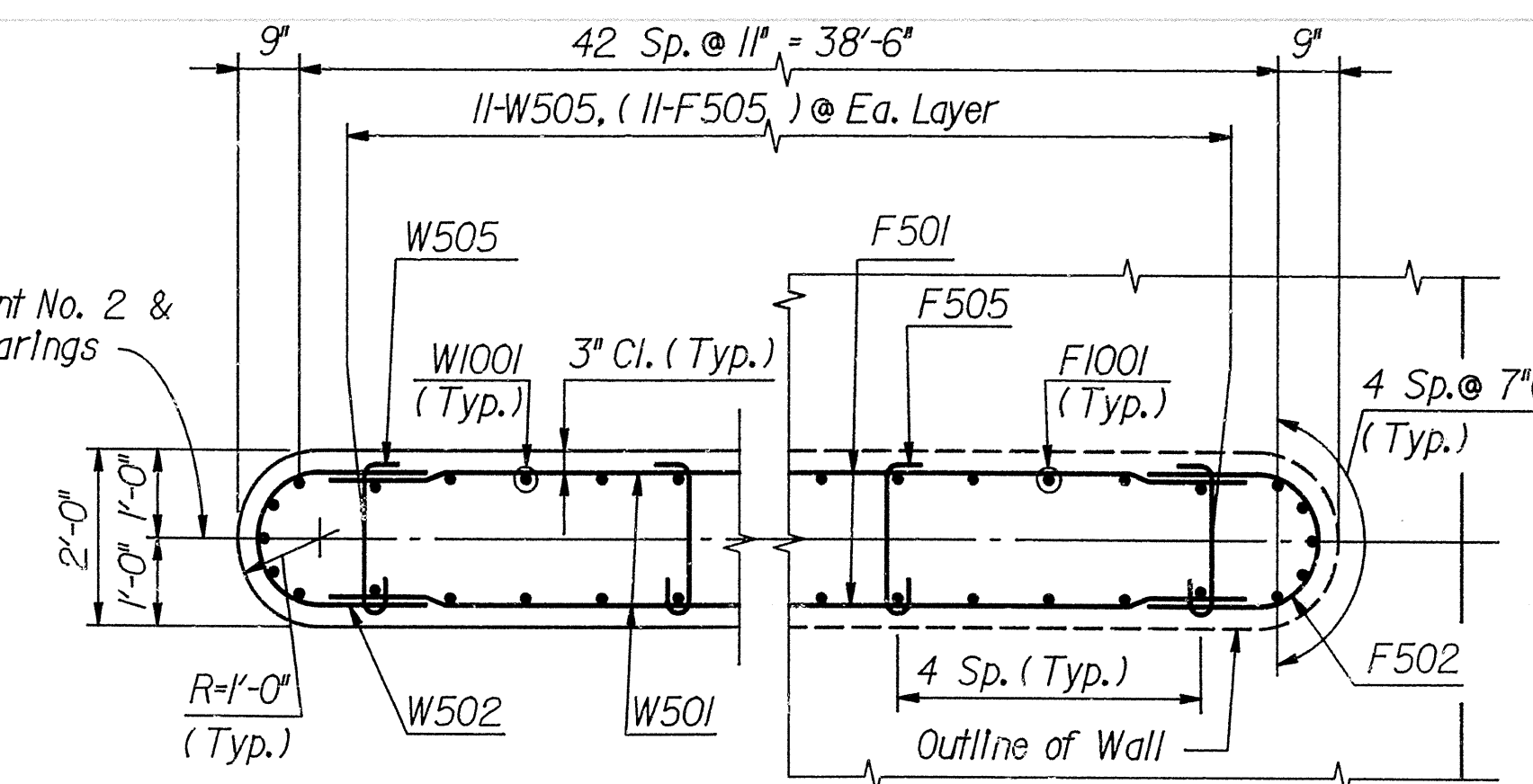
**PILING PLAN**

Scale : 1/4" = 1'-0"



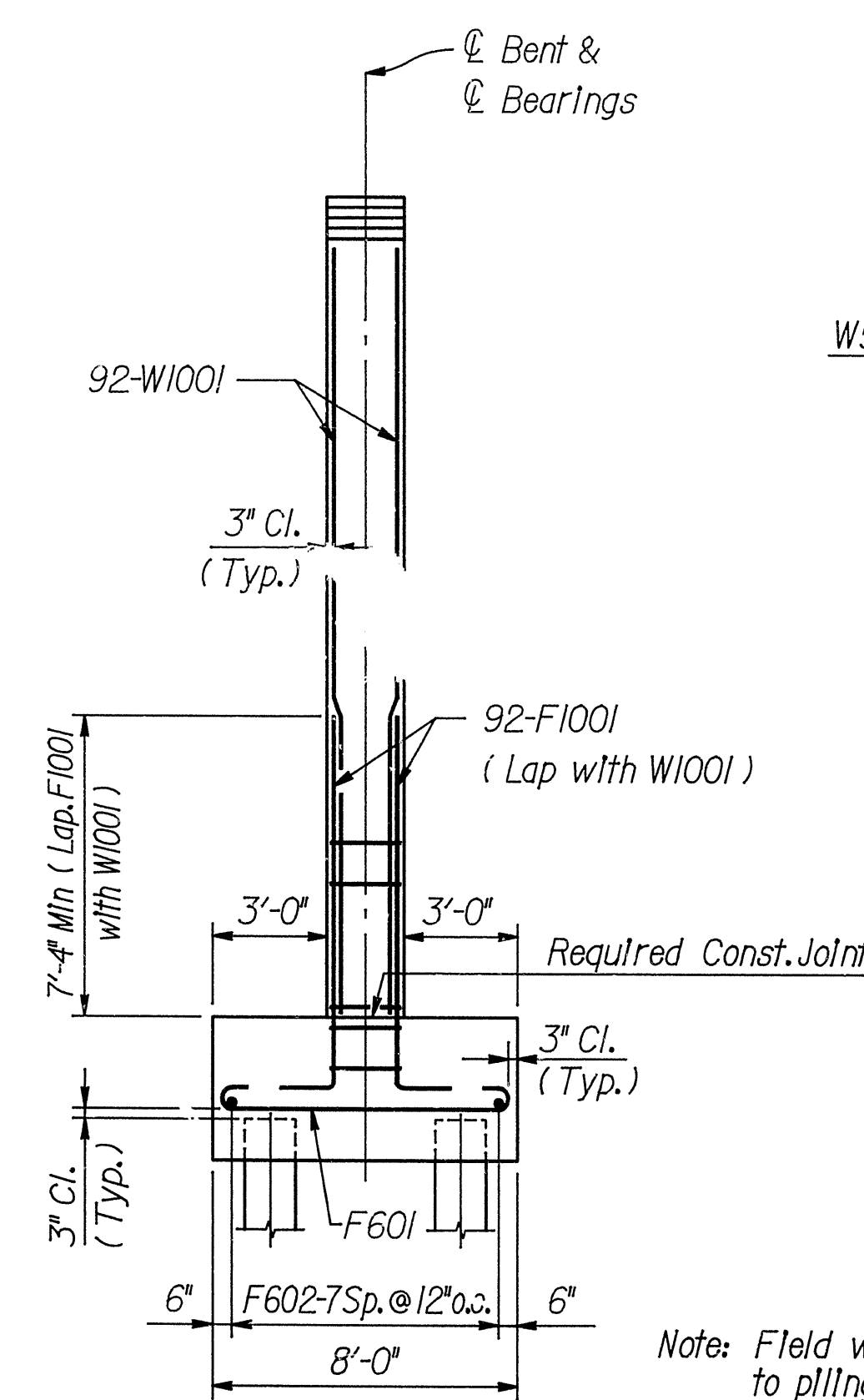
**VIEW B-B**

Scale : 1/2" = 1'-0"



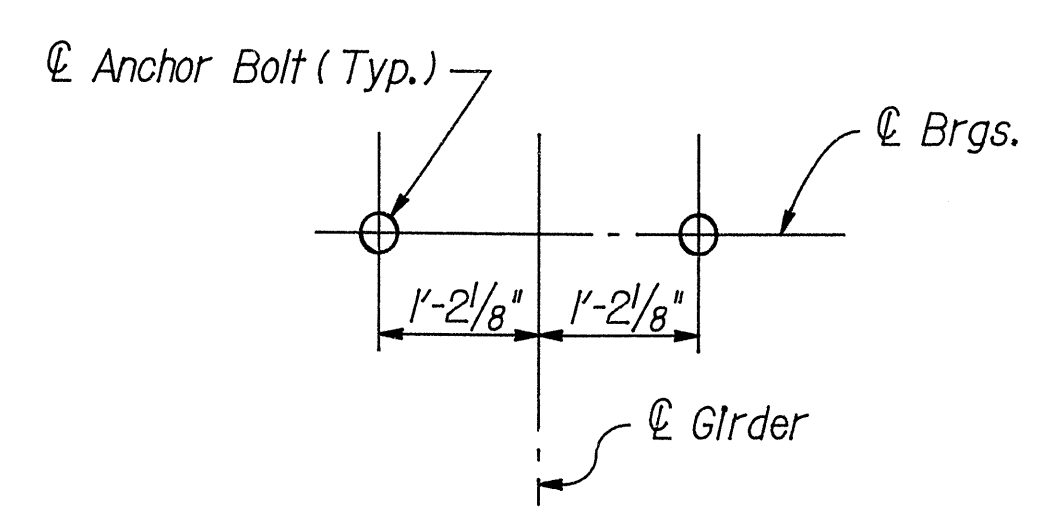
**SECTION C-C**

Scale : 1/2" = 1'-0"



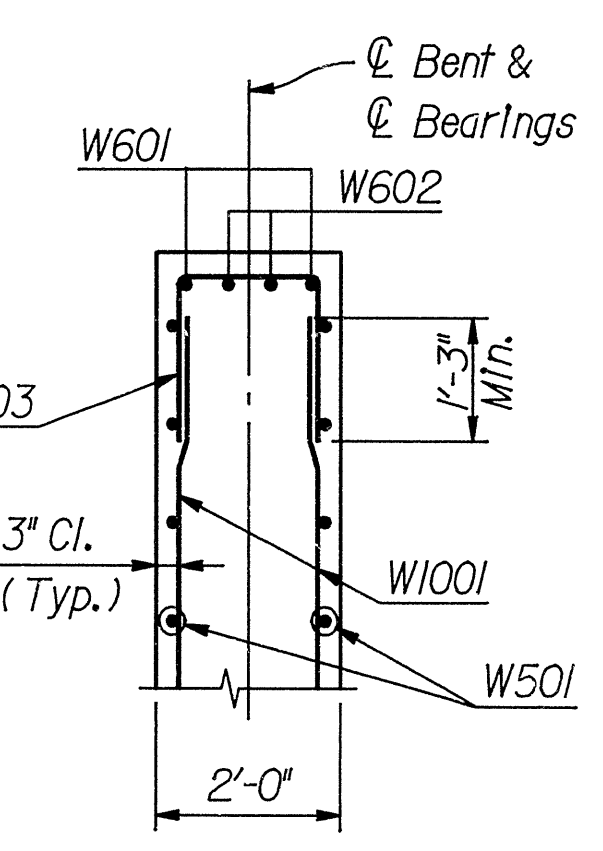
**VIEW A-A**

Scale : 1/4" = 1'-0"



**ANCHOR BOLT LAYOUT**

N.T.S.



**SECTION D-D**

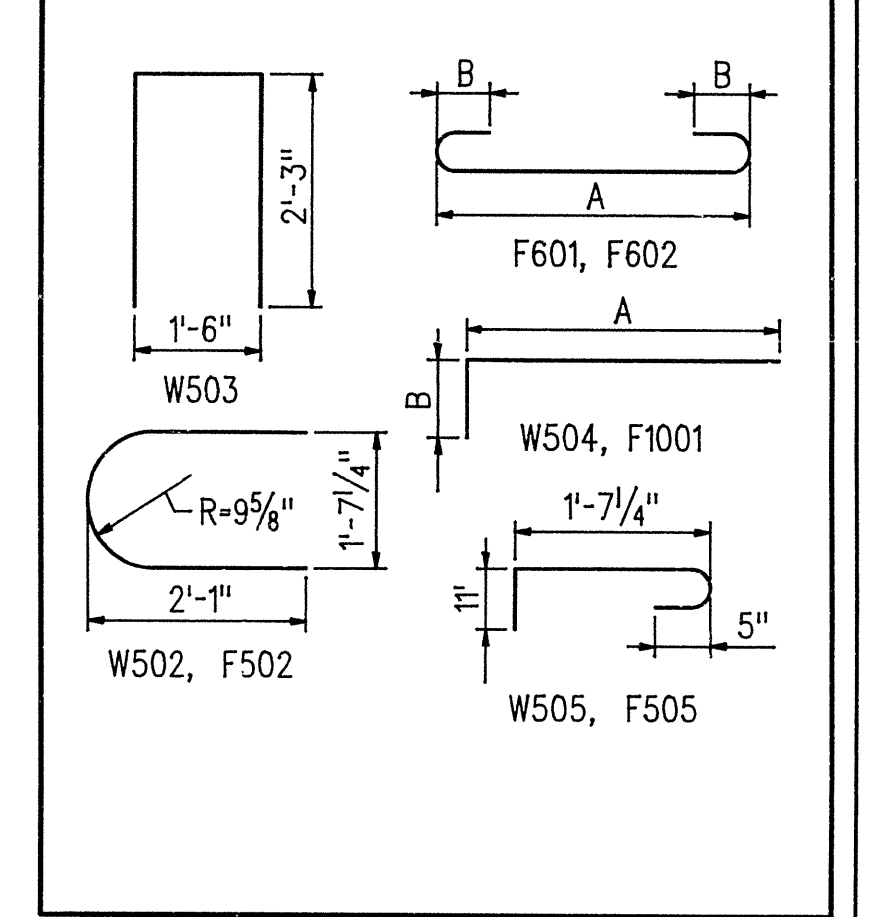
Scale : 1/2" = 1'-0"

**BAR LIST - PER BENT**

MARK	NO. REQ'D.	LENGTH	"A"	"B"	P. D.
W501	44	38'-0"			Str.
W502	46	5'-0"			18"
W503	43	5'-10"			2 1/2"
W504	4	2'-9"	2'-3"	7"	2 1/2"
W505	242	3'-0"			2 1/2"
W601	2	38'-0"			Str.
W602	2	39'-6"			Str.
W1001	92	18'-10"			Str.
F501	6	38'-0"			Str.
F502	6	5'-0"			18"
F505	33	3'-0"			2 1/2"
F601	104	8'-10"	7'-6"	6"	4 1/2"
F602	8	44'-4"	43'-0"	6"	4 1/2"
F1001	92	11'-1"	9'-6"	1'-10"	10"

**BENDING DIAGRAMS**

Dimensions are out to out of bars.

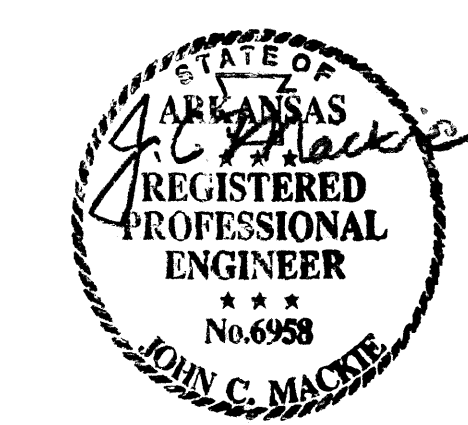


**GENERAL NOTES**

All concrete shall be Class 'S' with a minimum 28 day compressive strength,  $f'_c = 3,500$  psi. Concrete shall be poured in the dry and all exposed corners to be chamfered 3/4" unless otherwise noted.  
 All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60 (yield strength = 60,000 psi).  
 If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.  
 For additional information see Layouts & Dwg. No. 34350A.  
 For Elastomeric Bearings see Dwg. No. 34381.

**DETAILS OF INTERMEDIATE BENT 2 BRIDGE B**

ROUTE 40 SEC. 51  
 ARKANSAS STATE HIGHWAY AND  
 TRANSPORTATION DEPARTMENT  
 LITTLE ROCK, ARK.



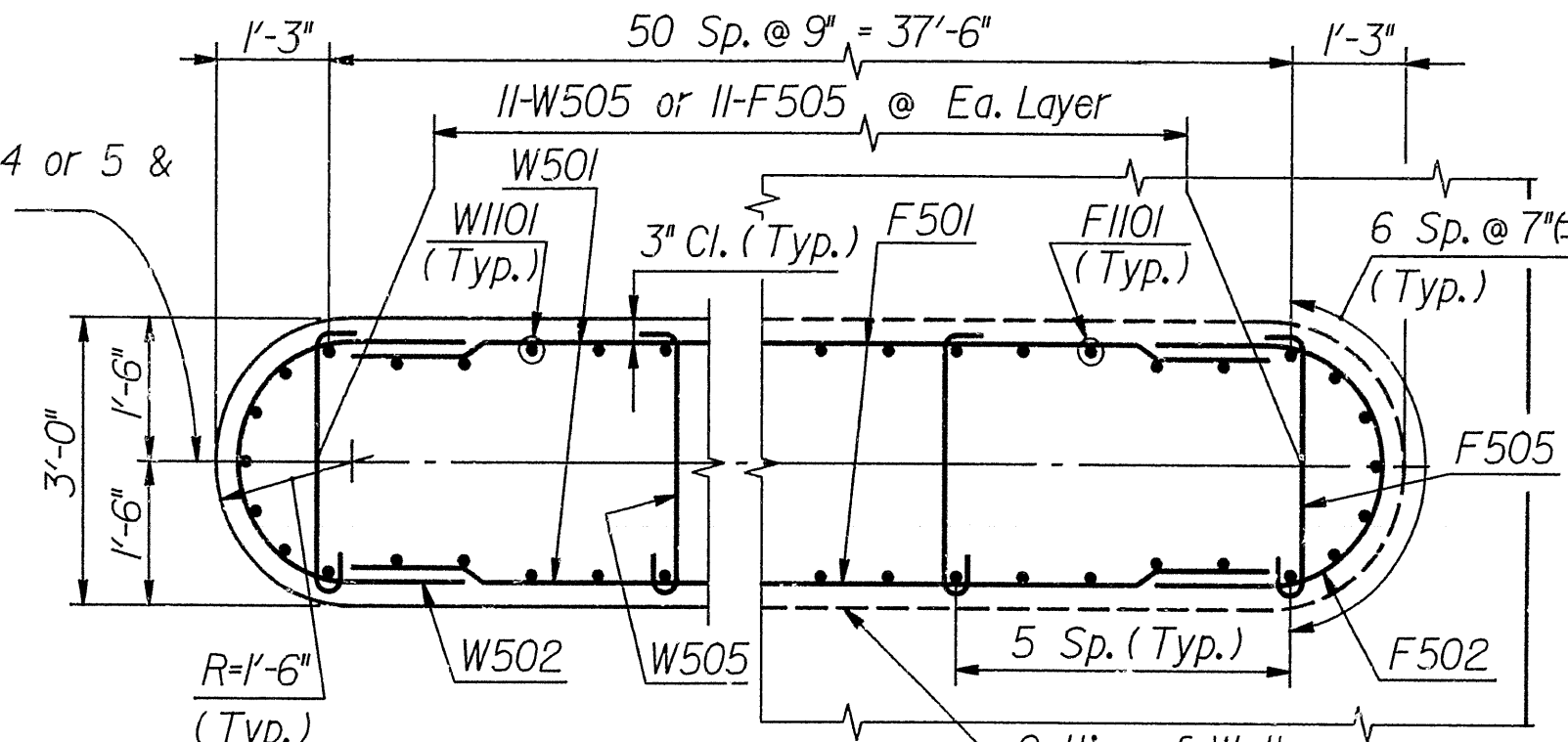
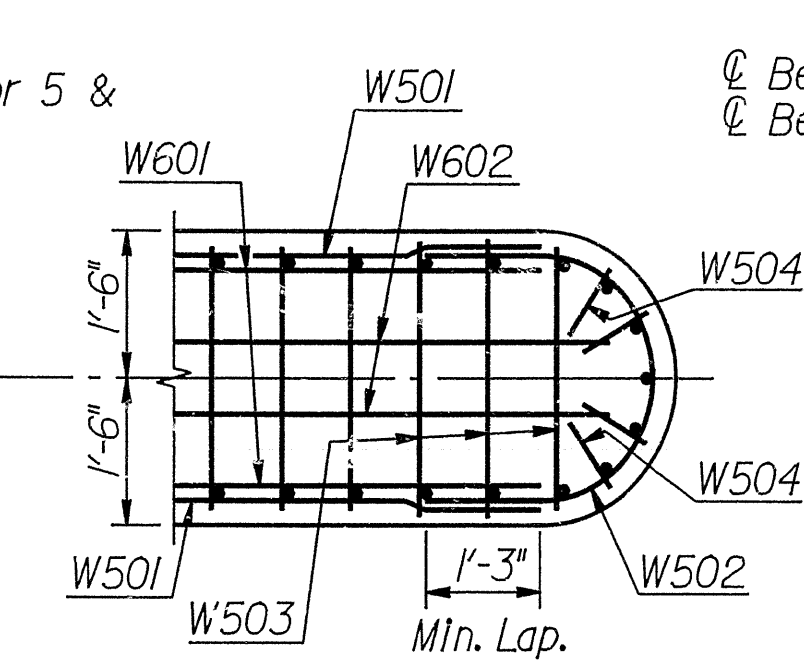
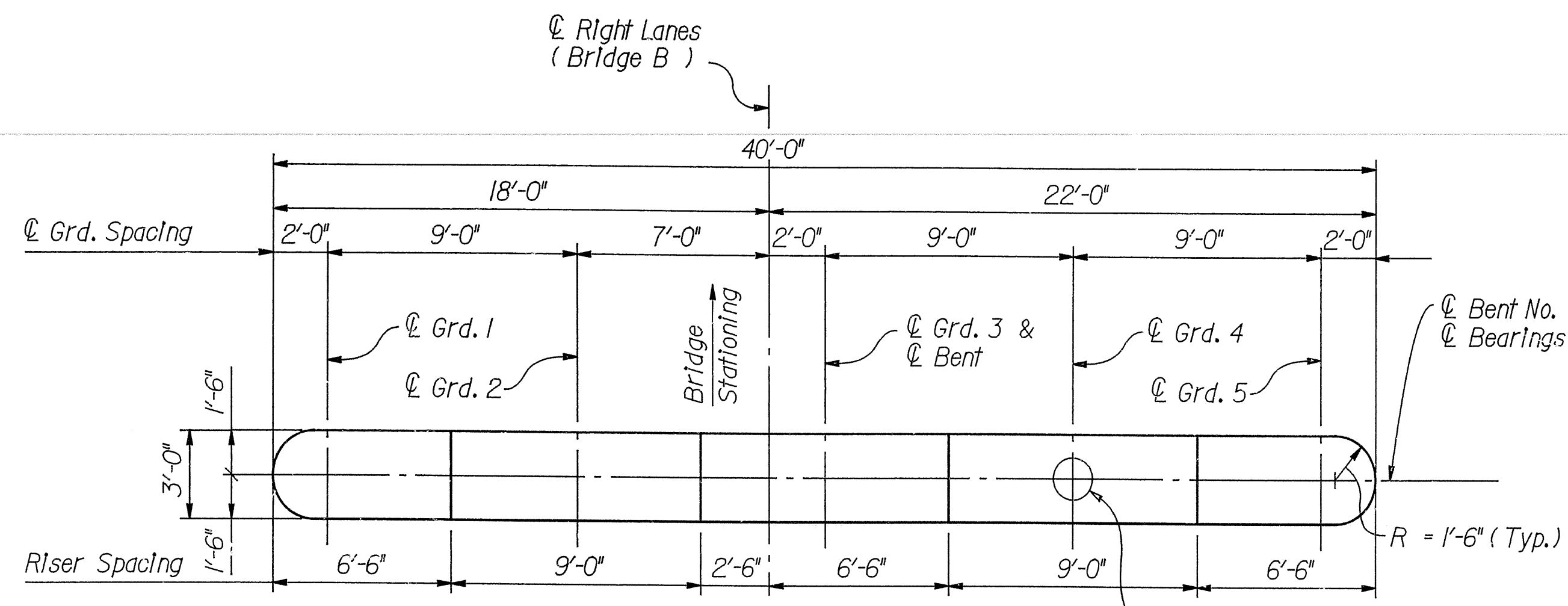
DRAWN BY: M.D. DATE: 4-21-93  
 CHECKED BY: L.S. DATE: 4-23-93  
 DESIGNED BY: V.P. DATE: 4-16-93

BRIDGE NO. 6518 B DRAWING NO. 34361

Revised Job no., L.M. 10-26-95  
 Revised for 1996 Specs KDH 8Aug96

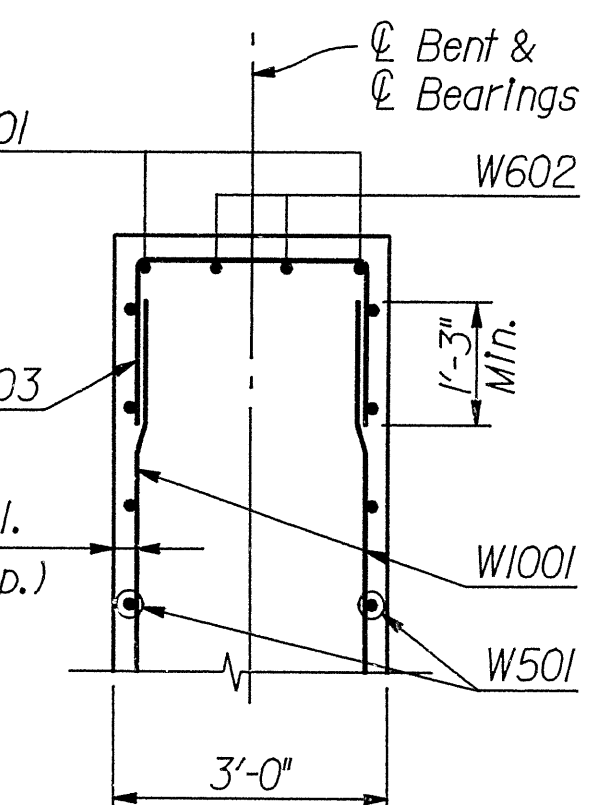
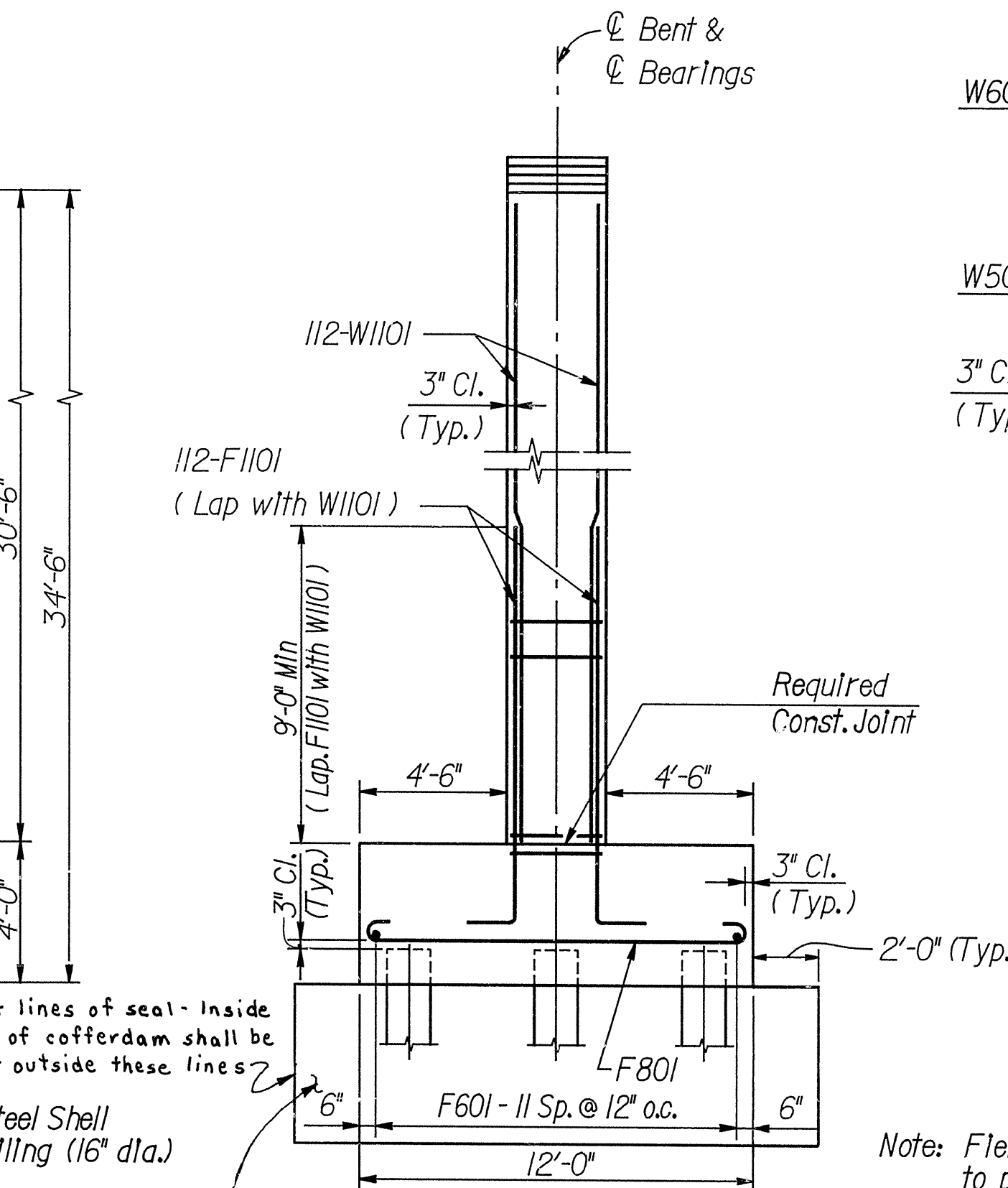
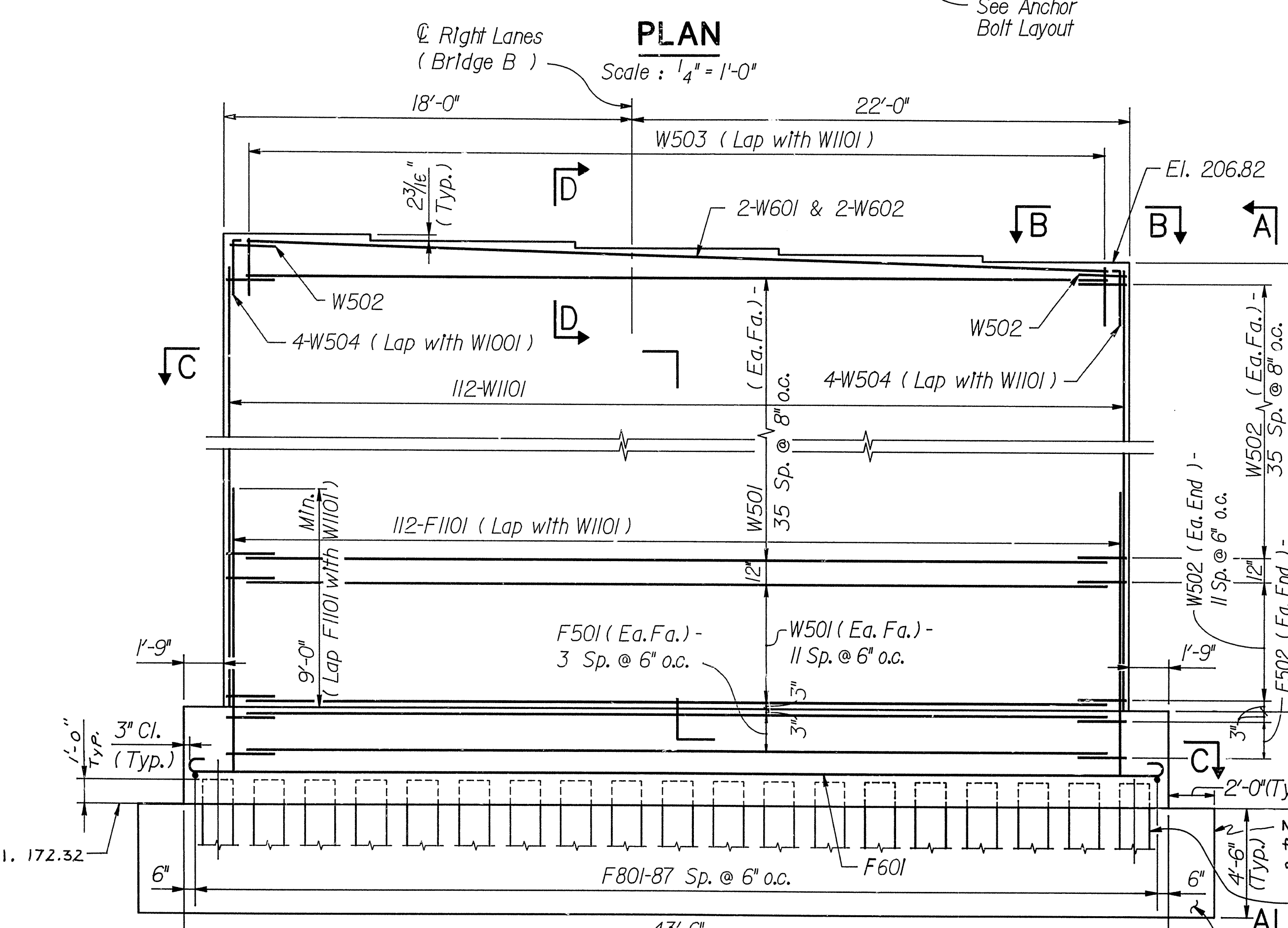
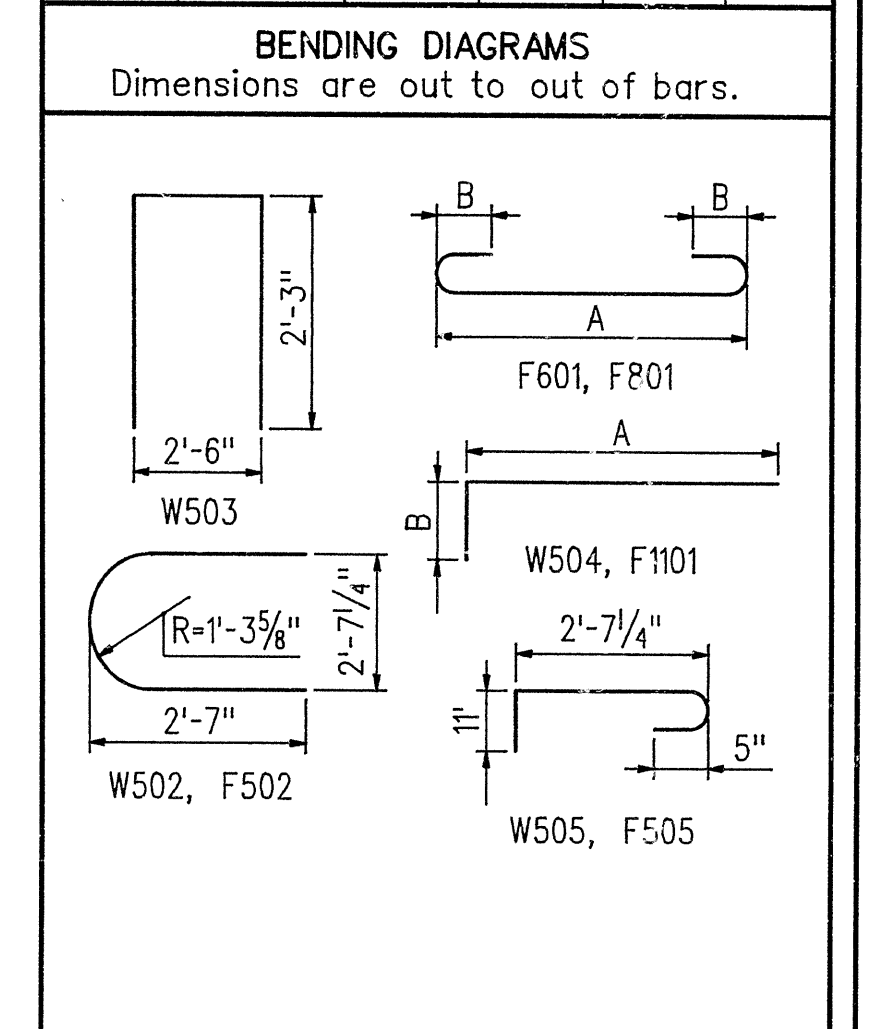






**BAR LIST - PER BENT**

MARK	NO.	REQ'D.	LENGTH	"A"	"B"	P. D.
W501	96		37'-0"			Str.
W502	98		6'-6"			2'-7 1/4"
W503	51		6'-10"			2 1/2"
W504	8		3'-3"	2'-3"	1'-1"	2 1/2"
W505	396		3'-11"			2 1/2"
W601	2		37'-0"			Str.
W602	2		39'-0"			Str.
W1101	112		30'-3"			Str.
F501	8		37'-0"			Str.
F502	8		6'-6"			2'-7 1/4"
F505	44		3'-11"			2 1/2"
F601	12		44'-4"	43'-0"	6"	4 1/2"
F801	88		12'-10"	11'-6"	6"	4 1/2"
F1101	112		13'-6"	11'-7"	2'-0"	11"



**GENERAL NOTES**

All concrete shall be Class 'S' with a minimum 28 day compressive strength,  $f'_c = 3,500$  psi. Concrete shall be poured in the dry and all exposed corners to be chamfered  $3/4"$  unless otherwise noted.

All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60 (yield strength = 60,000 psi).

If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.

For additional information see Layouts & Dwg. No. 34350A.

For Elastomeric Bearings see Dwg. No. 34381.

Seal Concrete shall be with a minimum 28 days compressive strength,  $f'_c = 2100$  psi.

Revised Job no., L.M., 10-26-95  
Revised for 1996 Specs KDH 8Aug96

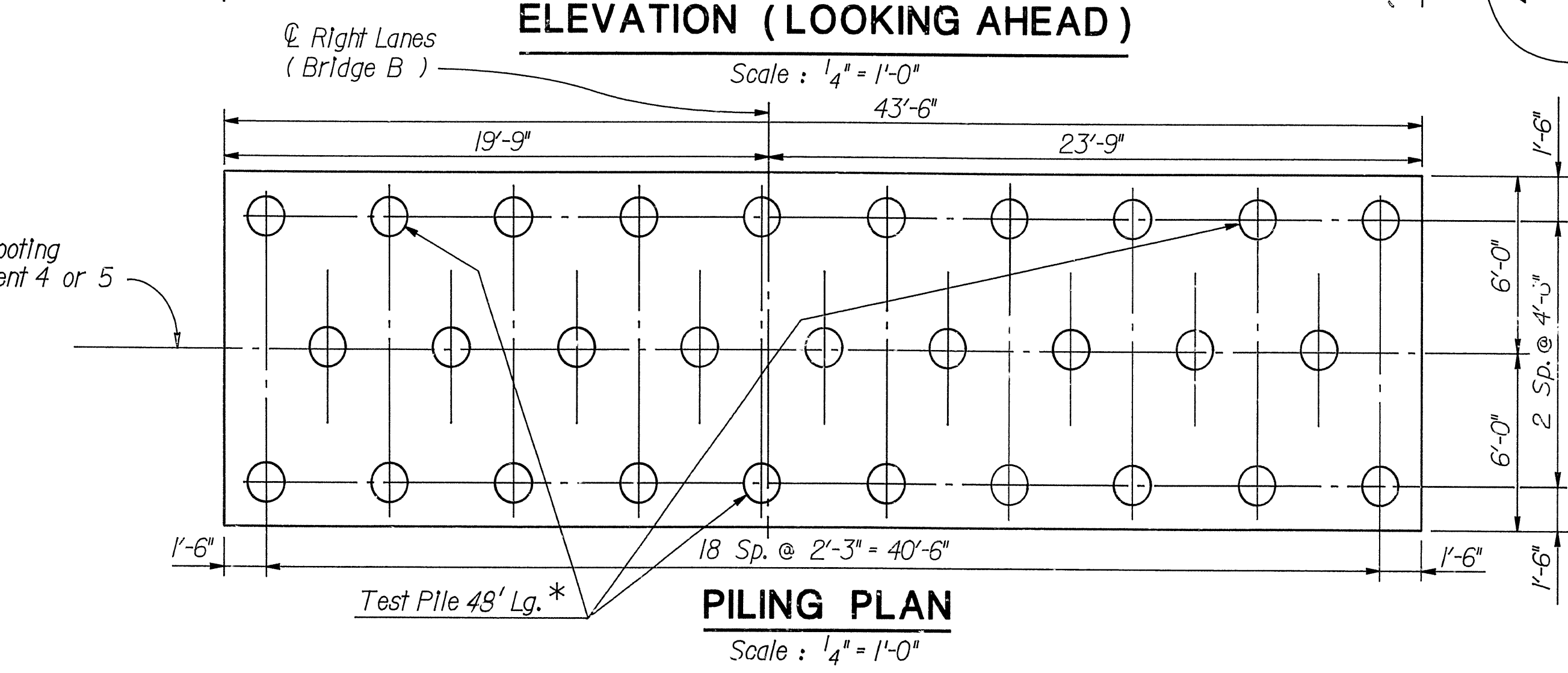


**DETAILS OF INTERMEDIATE BENTS 4 & 5 BRIDGE B**

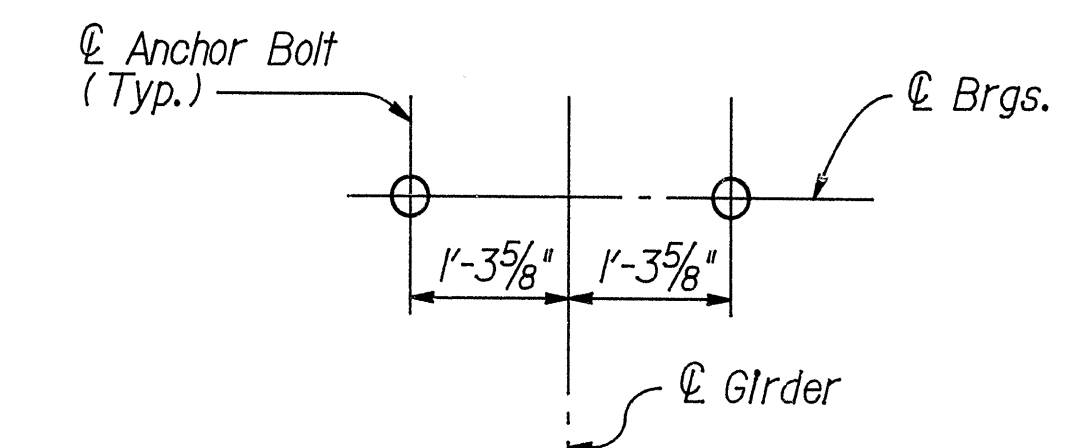
ROUTE 40 SEC. 51  
ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT  
LITTLE ROCK, ARK.

DRAWN BY: M.D. DATE: 4-21-93  
CHECKED BY: I.S. DATE: 4-24-93  
DESIGNED BY: M.C. DATE: 4-19-93

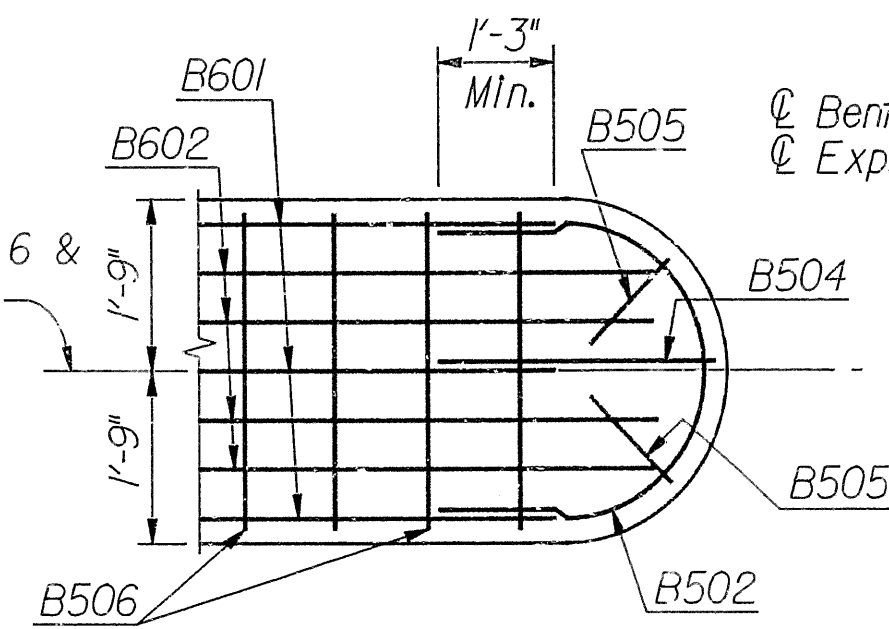
BRIDGE NO. 6518 B DRAWING NO. 34363



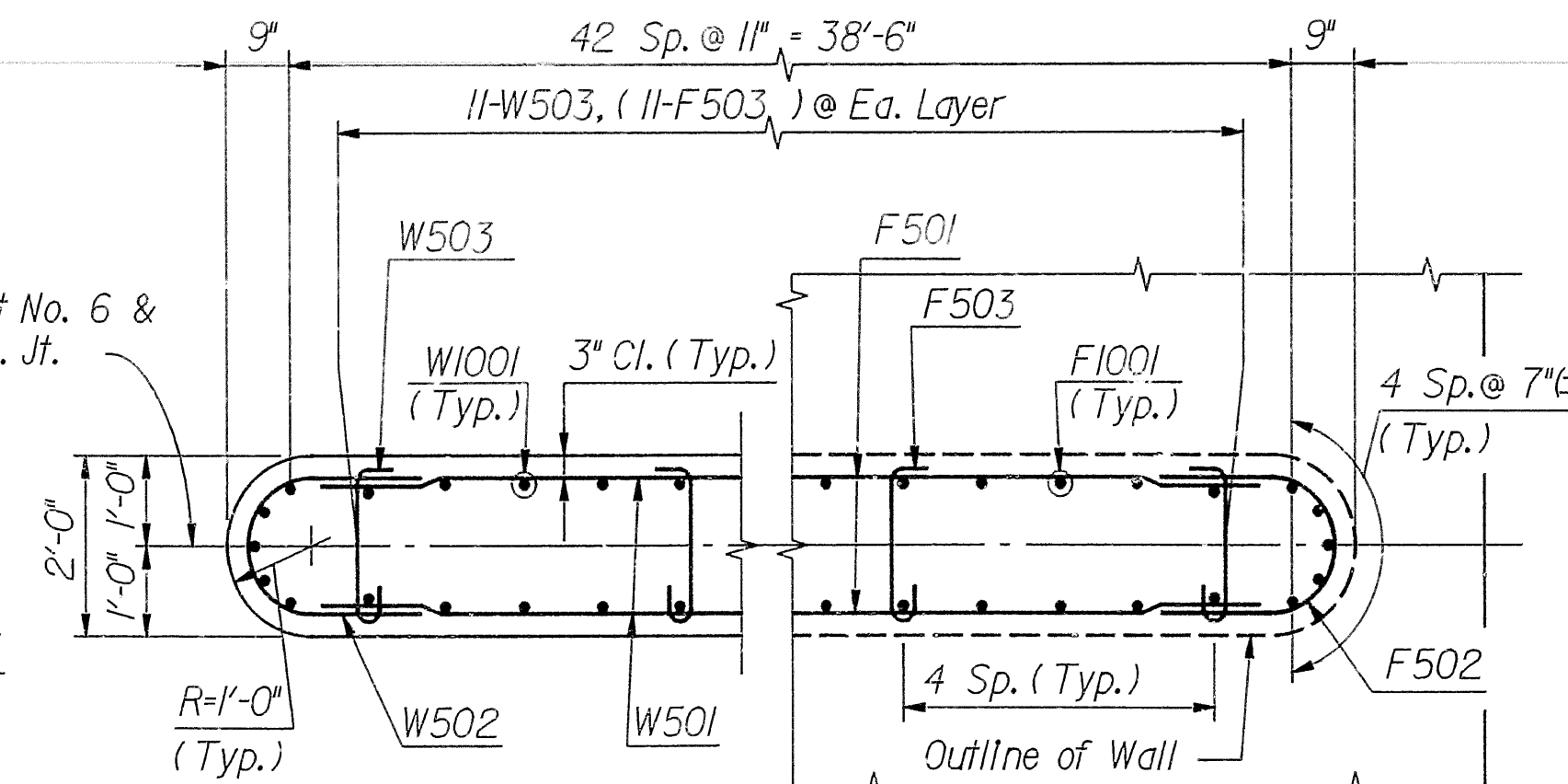
\* Estimated Length of test pile to be left in place. Long pile will be required.



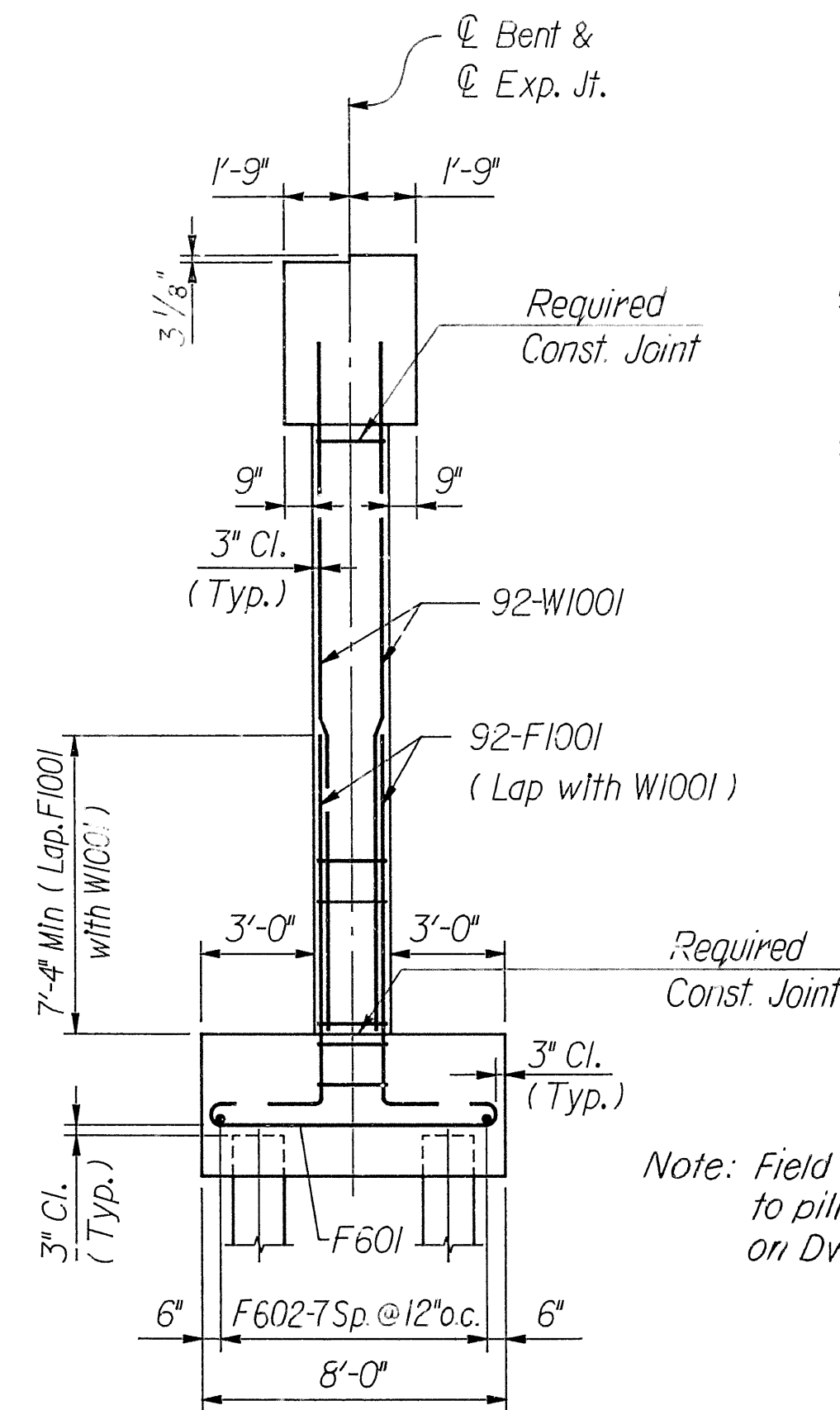
BAR LIST - PER BENT



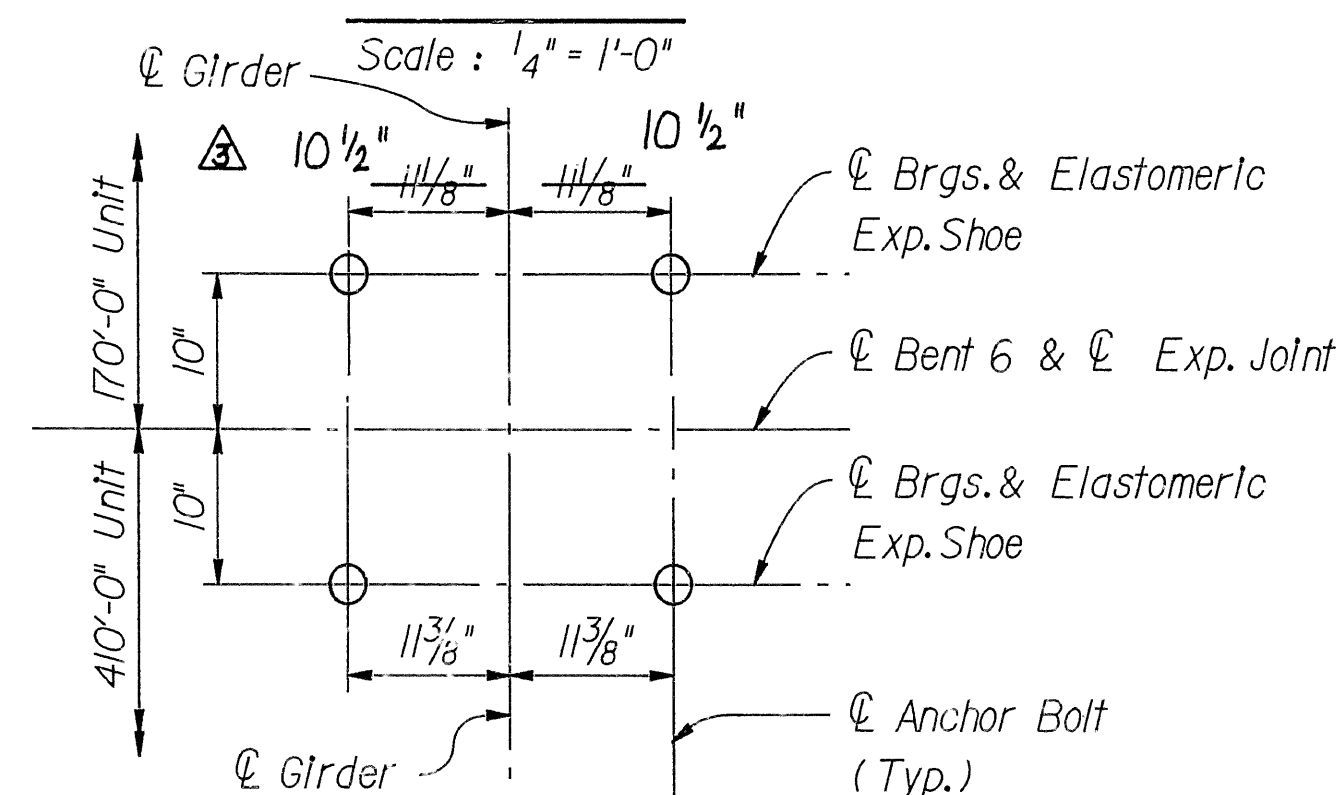
Scale : 1/2" = 1'-0"



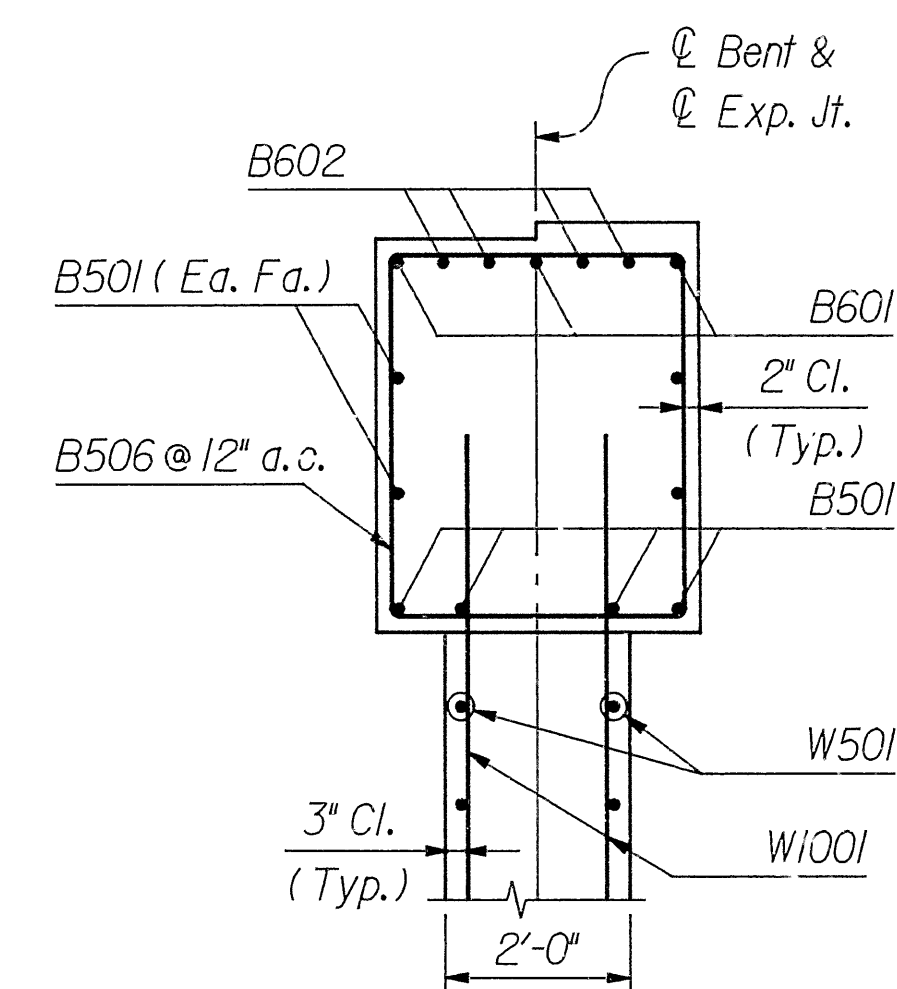
Scale :  $1/2'' = 1'-0''$



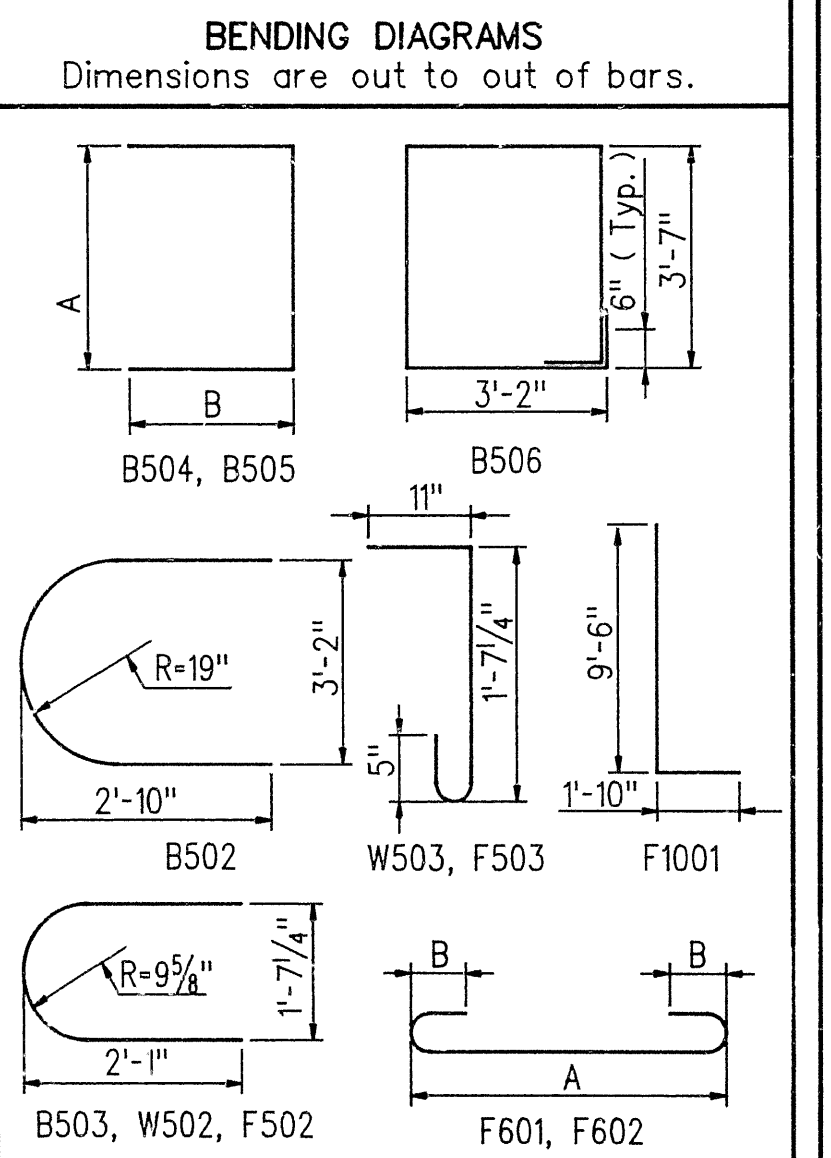
Scale : 1/4" = 1'-0"



N.T.S.



Scale :  $1/2'' = 1'-0''$



All concrete shall be Class 'S' with a minimum 28 day compressive strength, f'c = 3,500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered 3/4" unless otherwise noted.

△ All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60 (yield strength = 60,000 psi).

If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.

For additional information see Layouts & Dwg. No. 34350 A.

For Elastomeric Bearings see Dwg. No. 34381.

ROUTE 40 SEC. 51  
ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT  
LITTLE ROCK, ARK.

DRAWN BY: M.D. DATE: 4-21-93  
CHECKED BY: I.S. DATE: 4-24-93 SCALE: AS SHOWN  
DESIGNED BY: M.C. DATE: 4-19-93

BRIDGE NO. 6518 B      DRAWING NO. 34364

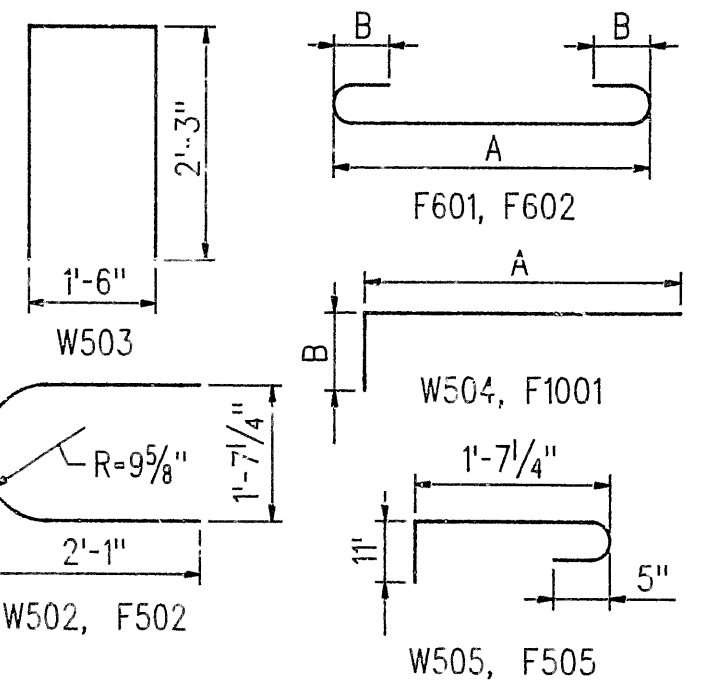
① Revised Job no., L.M. 10-26-95  
 ② Revised for 1996 Specs KDH 8Aug96  
 ③ Revised dimension, J.C.B., 17 July 97



BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	"A"	"B"	P. D.
W501	44	38'-0"			Str.
W502	46	5'-0"			18"
W503	43	5'-10"			2 1/2"
W504	4	2'-9"	2'-3"	7"	2 1/2"
W505	242	3'-0"			2 1/2"
W601	2	38'-0"			Str.
W602	2	39'-6"			Str.
W1001	92	18'-10"			Str.
F501	6	38'-0"			Str.
F502	6	5'-0"			18"
F505	33	3'-0"			2 1/2"
F601	103	8'-10"	7'-6"	6"	4 1/2"
F602	8	43'-10"	42'-6"	6"	4 1/2"
F1001	92	11'-1"	9'-6"	1'-10"	10"

**BENDING DIAGRAMS**  
Dimensions are out to out of bars.



## GENERAL NOTES

All concrete shall be Class 'S' with a minimum 28 day compressive strength,  $f'_c = 3,500$  psi. Concrete shall be poured in the dry and all exposed corners to be chamfered  $3/4"$  unless otherwise noted.

△ All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60 (yield strength = 60,000 psi).

If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.

For additional information see Layouts & Dwg. No. 34350 A.

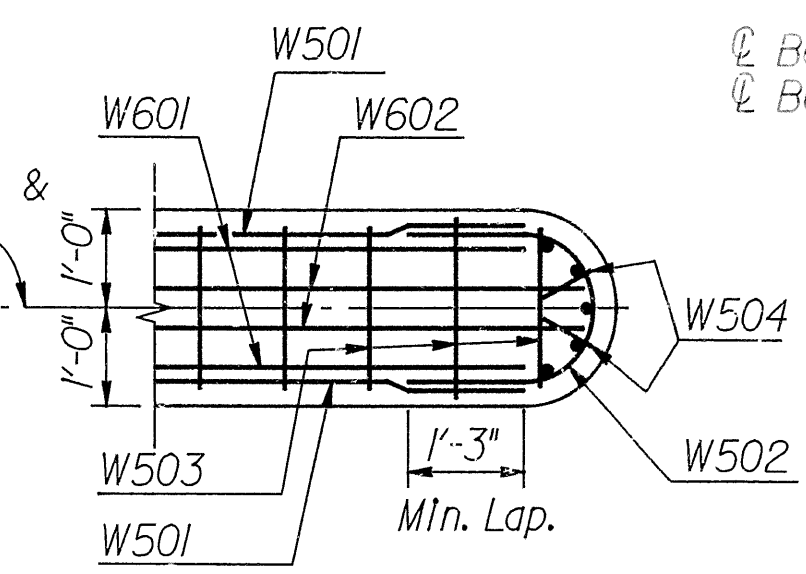
For Elastomeric Bearings see Dwg. No. 34381.

DETAILS OF  
INTERMEDIATE BENT 7  
BRIDGE B

ROUTE 40 SEC. 51  
ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT  
LITTLE ROCK, ARK.

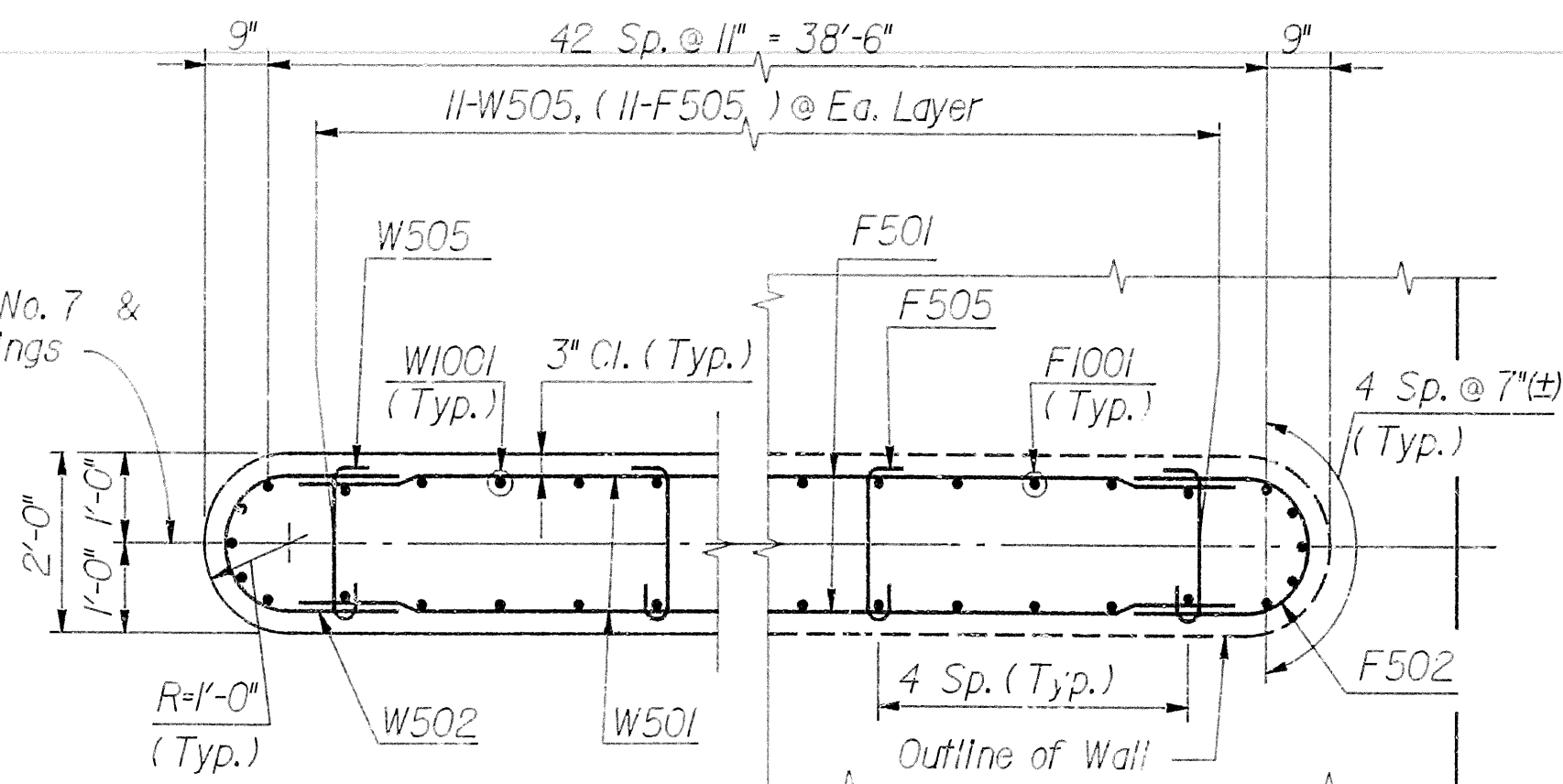
DRAWN BY: M.D. DATE: 4-21-93  
 CHECKED BY: I.S. DATE: 4-24-93 SCALE: AS SHOWN  
 DESIGNED BY: M.C. DATE: 4-19-93

BRIDGE NO. 6518 B DRAWING NO. 34365



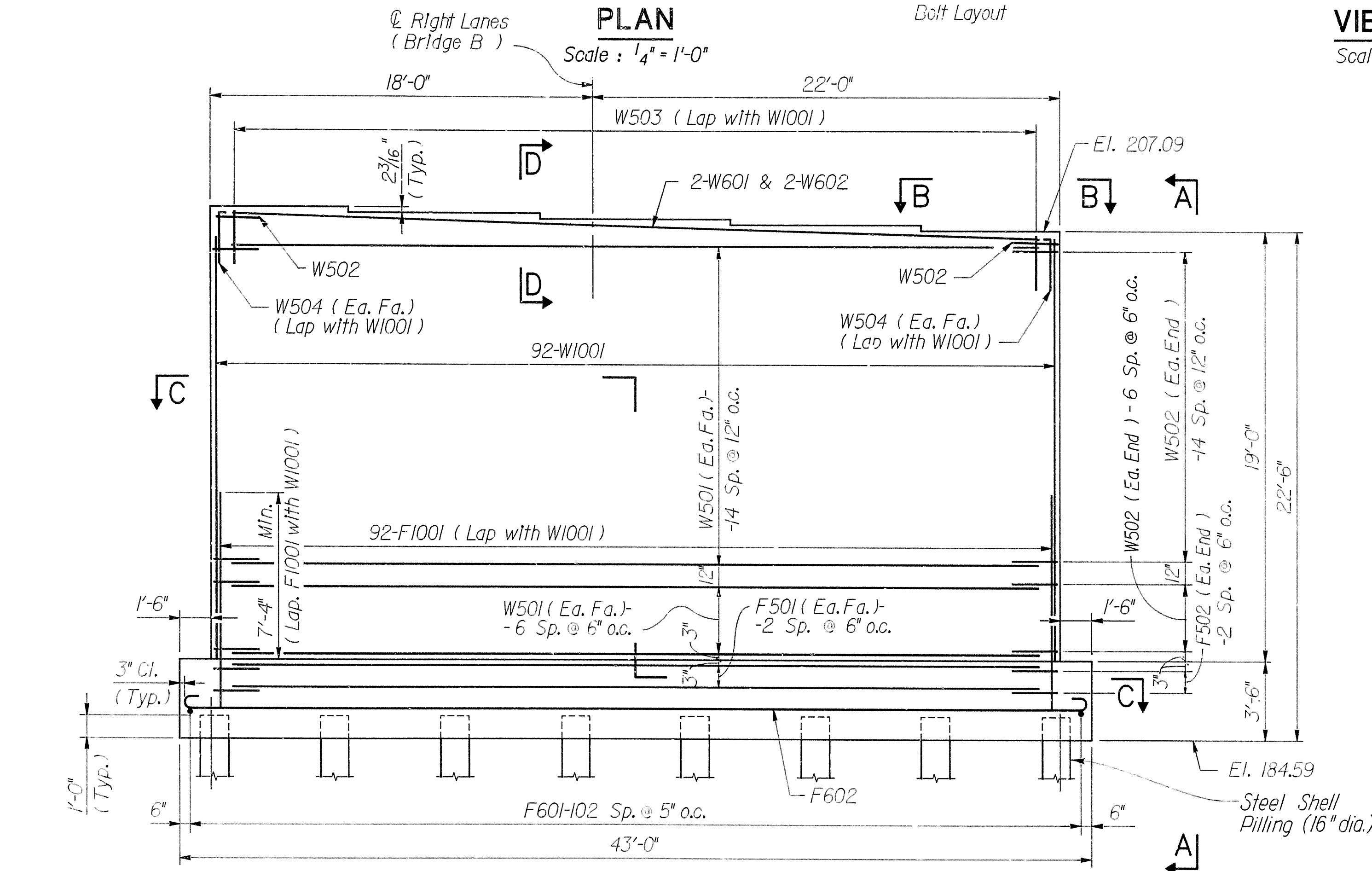
**VIEW B-B**

Scale :  $1/2'' = 1'-0''$



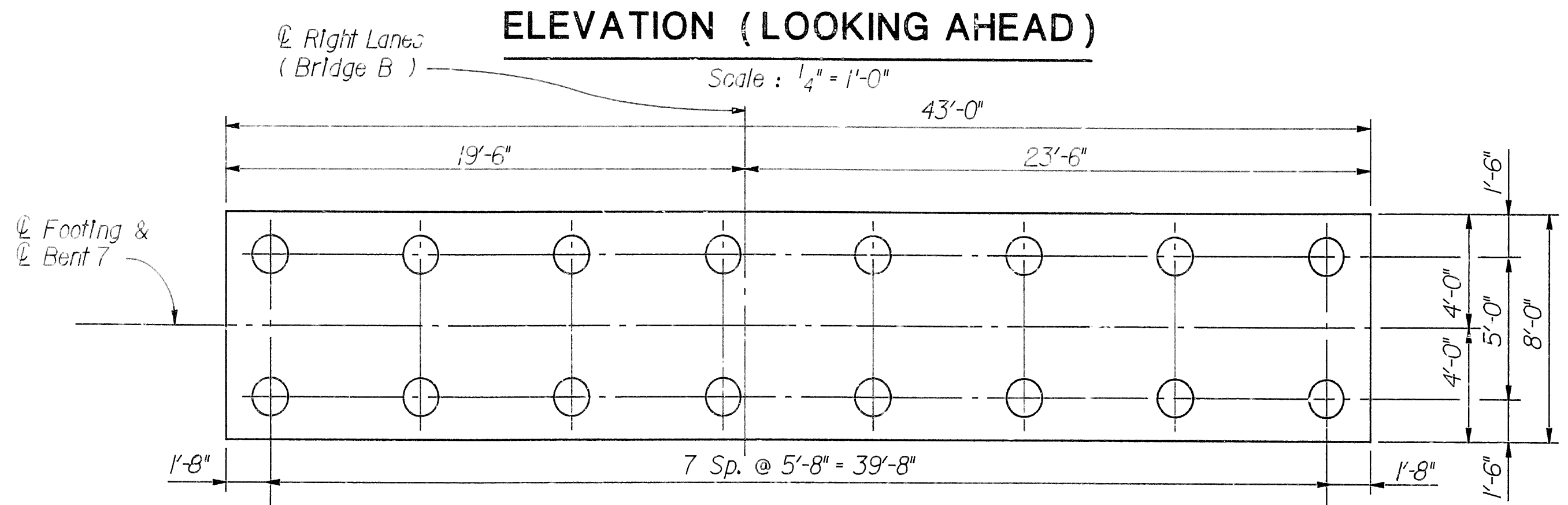
SECTION C-C

Scale :  $1/2'' = 1'-0''$



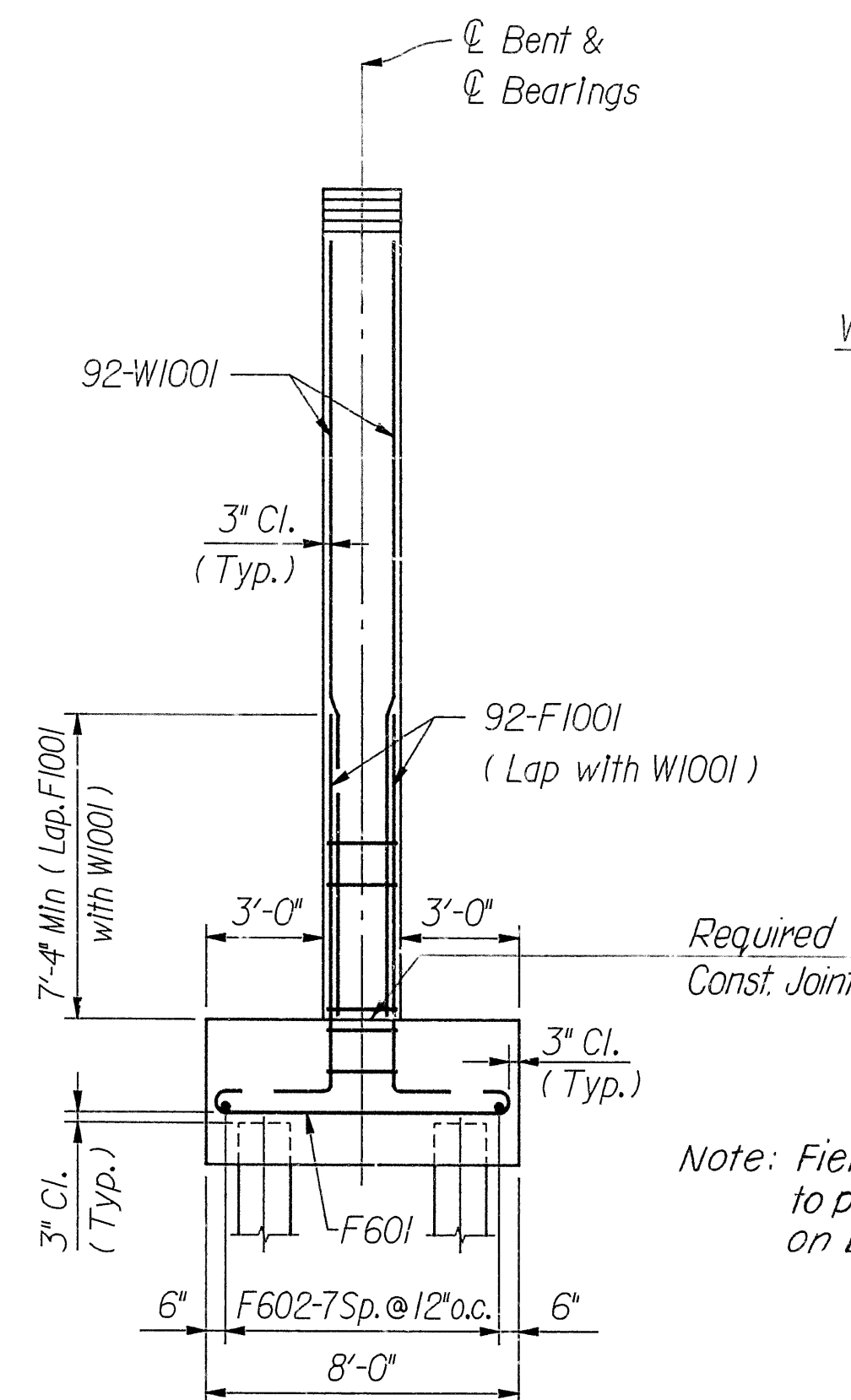
### ELEVATION (LOOKING AHEAD)

Scale :  $1/4'' = 1'-0''$



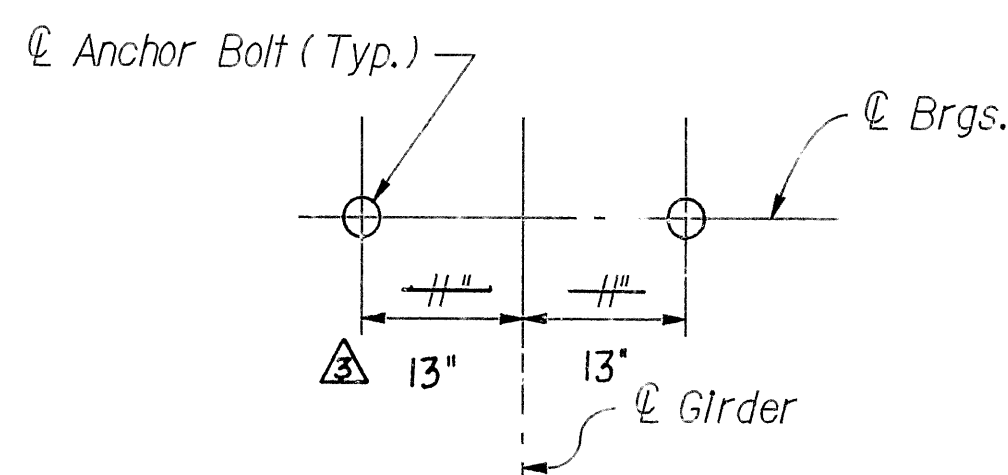
## PILING PLAN

Scale :  $1'' = 1'-0''$



VIEW A-A

Scale :  $1/4'' = 1'-0''$



## ANCHOR BOLT LAYOUT

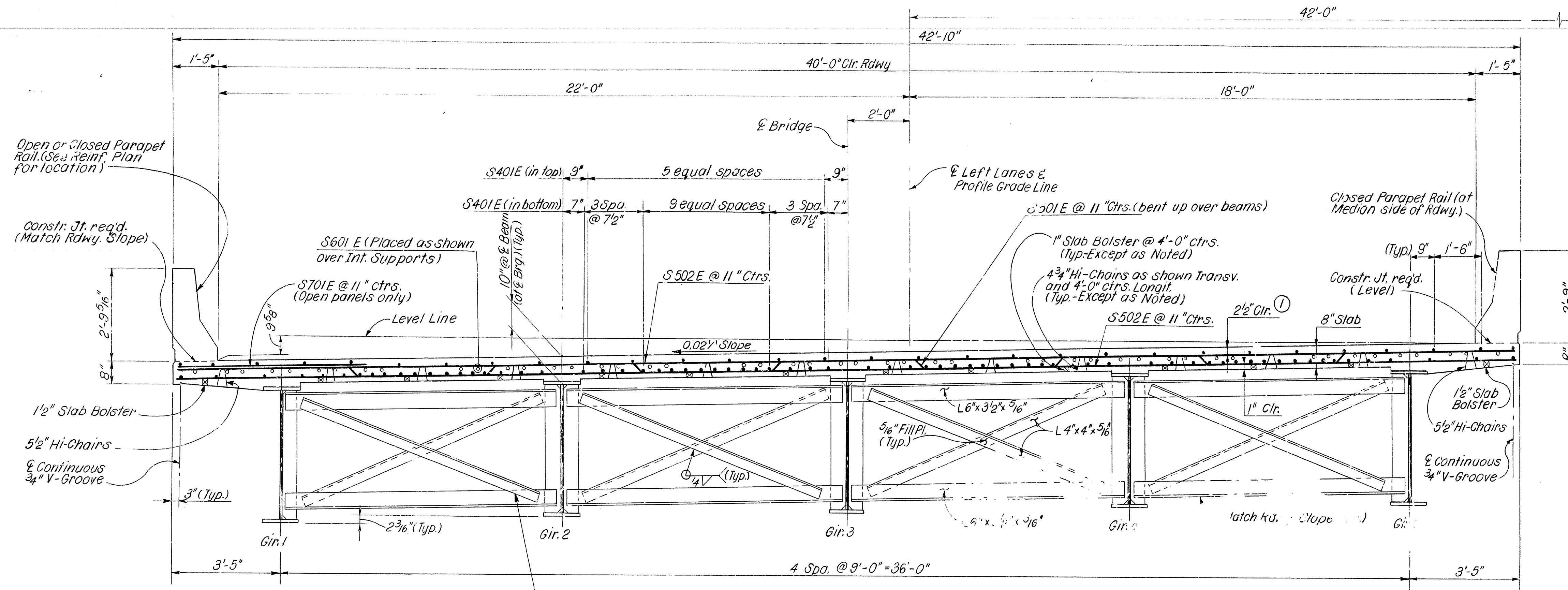
N.T.S.

① Revised Job no., L.M., 10-26-95  
 ② Revised for 1996 Specs KDH 8 Aug 96  
 ③ Revised dimension, J.C.B., 17 July 97



△ Note: Class I Protective Surface Treatment shall be applied to the Roadway Surface and the Face and Top of Concrete Parapet Rail.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				1	ARK.			
				JOB NO.		R10084	45	87
				6518 A & B	TYP. SECTION	34366		

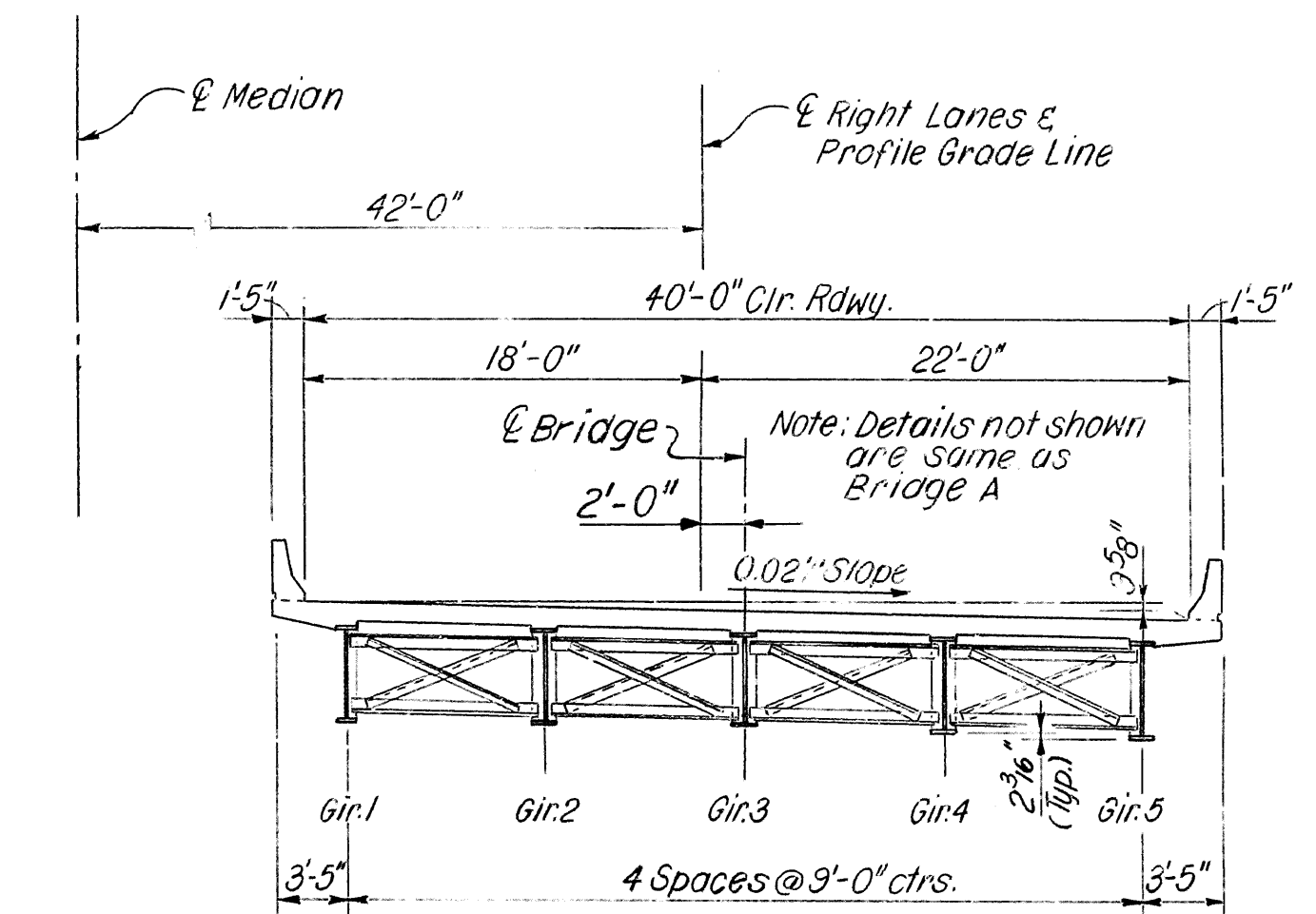


① Tolerance: Minus =  $\frac{1}{4}$ " Plus: Equal to amount of slab thickening used to meet slab thickness tolerance - see "Adjustment for slab thickness Tolerance".

### TYPICAL ROADWAY SECTION (BRIDGE A ONLY)

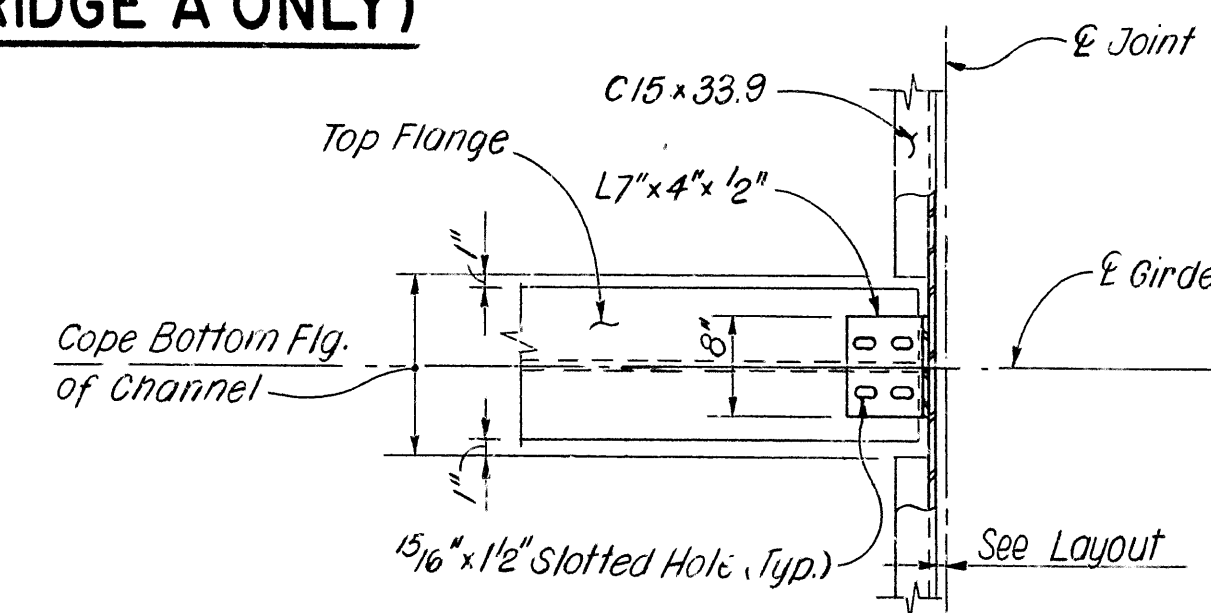
(LOOKING AHEAD)  
Scale:  $\frac{1}{2}$ " = 1'-0"

Note: At Contractor's Option in lieu of providing bar S501E two Epoxy Coated #5 straight bars may be substituted. Payment for Reinforcing will be based on the weight of bars S501E.



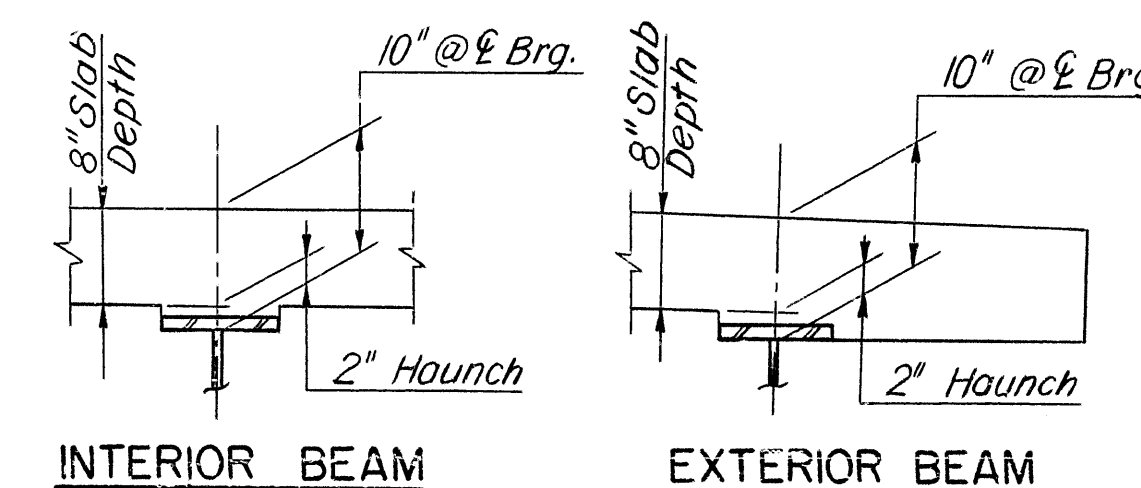
### TYPICAL RDWY. SECTION (BRIDGE B ONLY)

(LOOKING AHEAD)  
N.T.S.

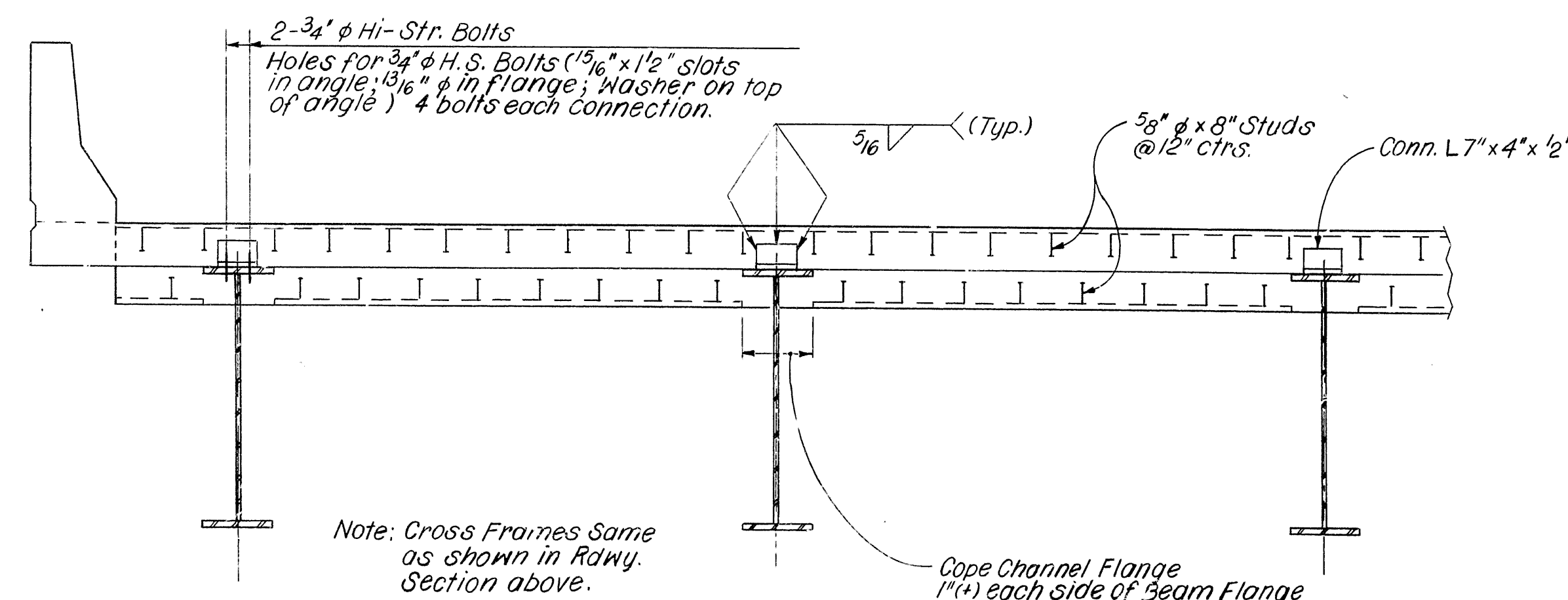


### CHANNEL CONNECTION DETAIL

N.T.S.



Note: Haunch is required. Slab thickness or haunch may be variable to achieve the plan grade. Tolerance for slab thickness is minus  $\frac{1}{4}$ " and plus 1". Interior and exterior beam haunches may be increased to 1" greater than the dimension shown. No adjustment for increase in quantities will be made for thickening slab or deepening haunch.



Note: Cross Frames Same as shown in Rdwy. Section above.

Cope Channel Flange 1" (+) each side of Beam Flange

EXPANSION DEVICE  
Roadway Channel C15 x 33.9  
Connection Angle 7" x 4" x 1/2"  
5/8" x 8" Stud @ 12" ctrs.

Note: Detail Device 1'8" high and provide 1/4" shims using 1-1/2" Pl and 2-1/2" Pl's.

### PART RDWY. SECTION AT END OF UNIT

N.T.S.

### ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

N.T.S.

SHEET 1 OF 5  
DETAILS OF  
210'-0" CONT. COMP. PL. GIRDER UNITS  
BRIDGE A & B

ROUTE 40 SEC. 51  
ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT  
LITTLE ROCK, ARK.

DRAWN BY: M.C. DATE: 4-16-93  
TRACED BY: K.D. DATE: 4-23-93  
CHECKED BY: L.S. DATE: 4-28-93

BRIDGE NO. 6518 A & B DRAWING NO. 34366

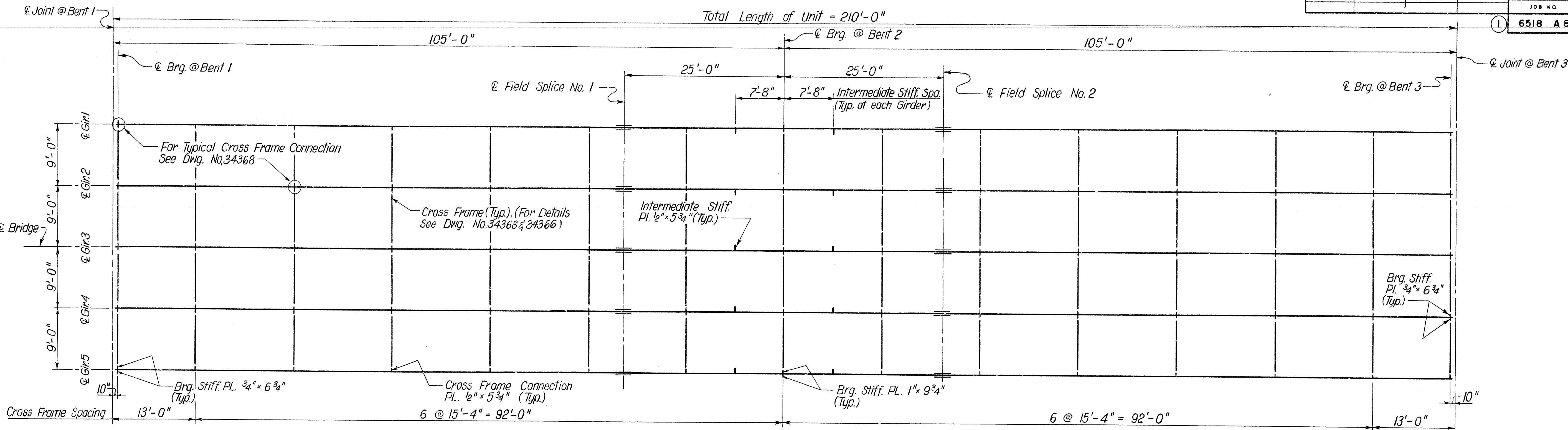
△ Revised Job no., L.M. 10-26-95

△ Revised for 1996 Specs KDH 8Aug96



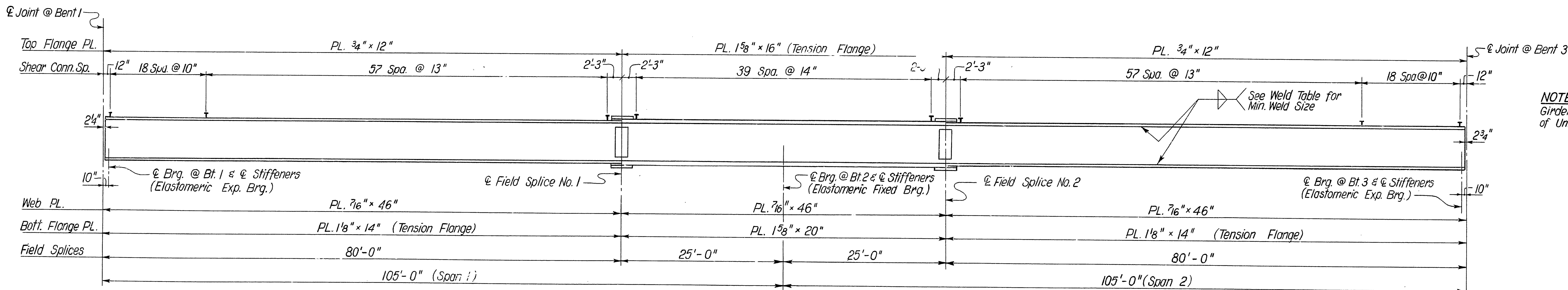


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				1	ARK.			
				JOB NO.	R10089	46	87	



### FRAMING PLAN

SCALE: 1/8" = 1'-0"



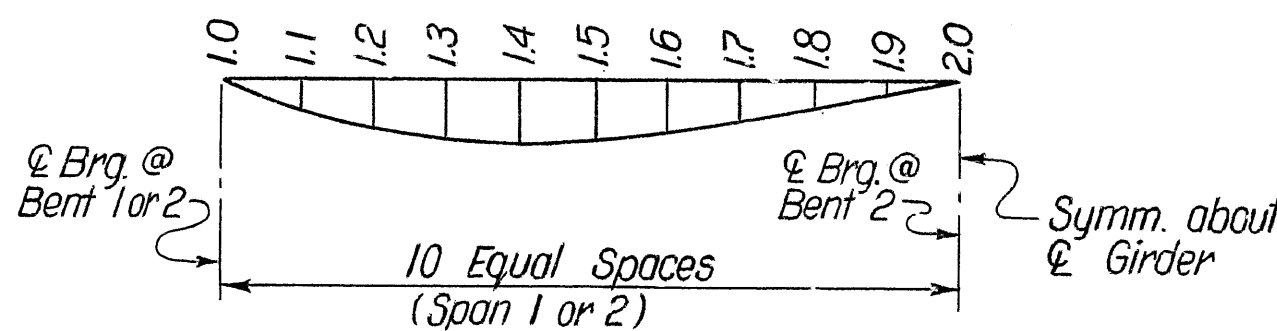
### GIRDER ELEVATION

N.T.S.

### DEAD LOAD DEFLECTION (INCHES)

**NOTE:** Camber for Dead Load Deflection plus Vertical Curve;  $\pm 1/4$  tolerance. Deflections shown area from a chord from  $\bar{C}$  Brg. to  $\bar{C}$  Brg. Vertical Curve Corrections not included.

SPAN POINT	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
INTERIOR GIRDER											
STRUCTURAL STEEL	0	0.13	0.23	0.30	0.32	0.30	0.24	0.17	0.09	0.03	0
STRUCT. STEEL & SLAB	0	0.77	1.40	1.81	1.93	1.80	1.44	0.8	0.51	0.15	0
STRUCT. STEEL SLAB & PARAPET	0	0.82	1.50	1.93	2.07	1.93	1.54	1.04	0.54	0.16	0
EXTERIOR GIRDER											
STRUCTURAL STEEL	0	0.12	0.21	0.28	0.30	0.28	0.22	0.15	0.08	0.02	0
STRUCT. STEEL & SLAB	0	0.72	1.31	1.70	1.82	1.69	1.35	0.91	0.47	0.13	0
STRUCT. STEEL SLAB & PARAPET	0	0.77	1.42	1.82	1.96	1.82	1.46	0.99	0.51	0.15	0



### DEAD LOAD DEFLECTION DIAGRAM

N.T.S.

Note: Bolted field splices shown may be eliminated or shop welded splices may be substituted with approval of the Bridge Engineer. Payment will be made on the basis of plan quantities.

### NOTES:

- All Structural Steel in Girders shall be AASHTO M270, Gr.50W
- For Shear Connectors Details See Dwg. No.34368
- For Weld Table See Dwg. No.34368
- For Elastomeric Bearings Details See Dwg. No.34381
- For Superstructure General Notes See Dwg. No.34381 A



Revised Job No., L.M., 10-26-95  
Revised for 1996 Specs KDH 8 Aug 96

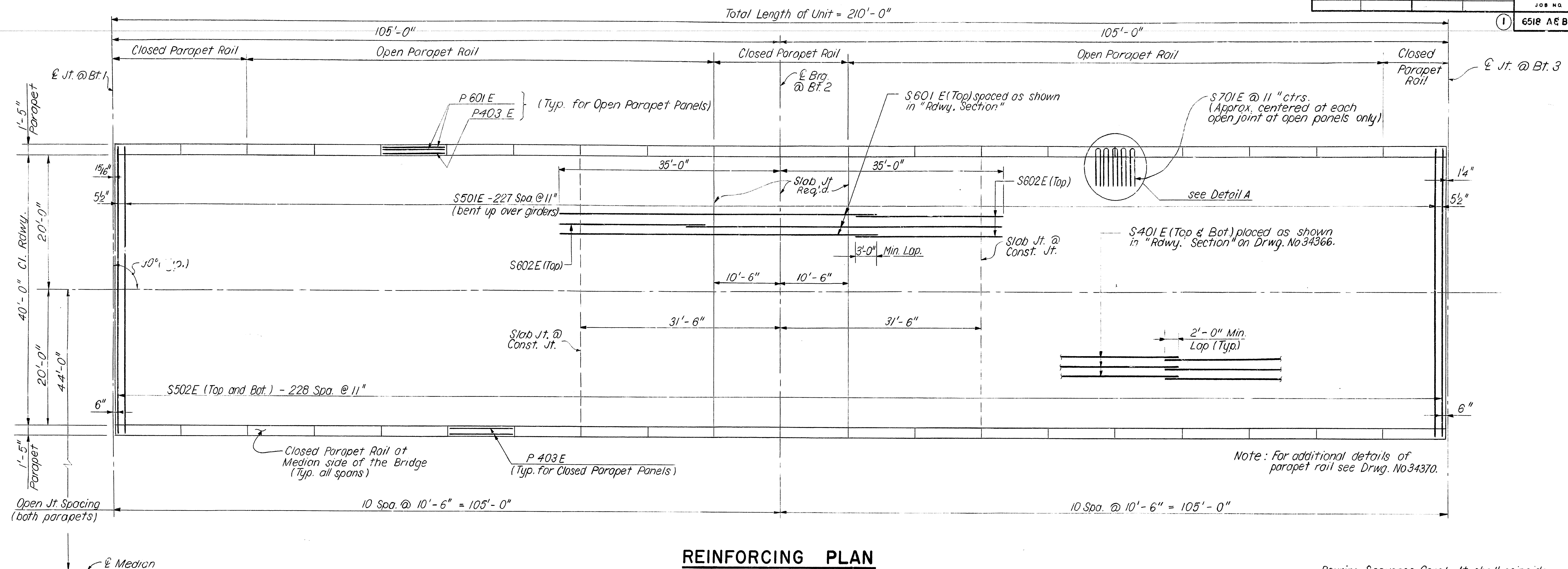
SHEET 2 OF 5  
DETAILS OF  
210'-0" CONT. COMP. PL.GIRDER UNITS  
BRIDGE A & B  
ROUTE 40 SEC.51  
ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT  
LITTLE ROCK, ARK.

DRAWN BY: M.C. DATE: 4-16-93  
TRACED BY: Ch.S. DATE: 4-22-93  
CHECKED BY: I.S. DATE: 4-28-93  
SCALE: As Shown  
BRIDGE NO. 6518 A & B DRAWING NO. 34367





DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				1	ARK.			
				JOB NO.		R10089	48	87

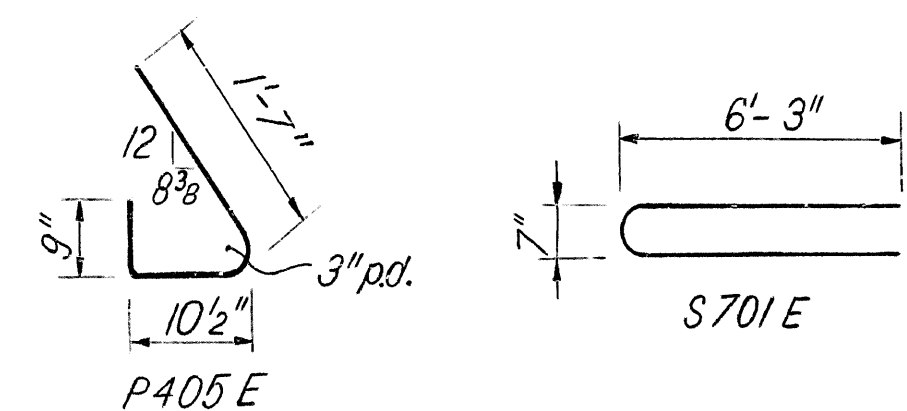


# **REINFORCING PLAN** (BRIDGE A SHOWN, BRIDGE B SIMILAR) SCALE 1/8" = 1' - 0"

## **BAR LIST - PER UNIT**

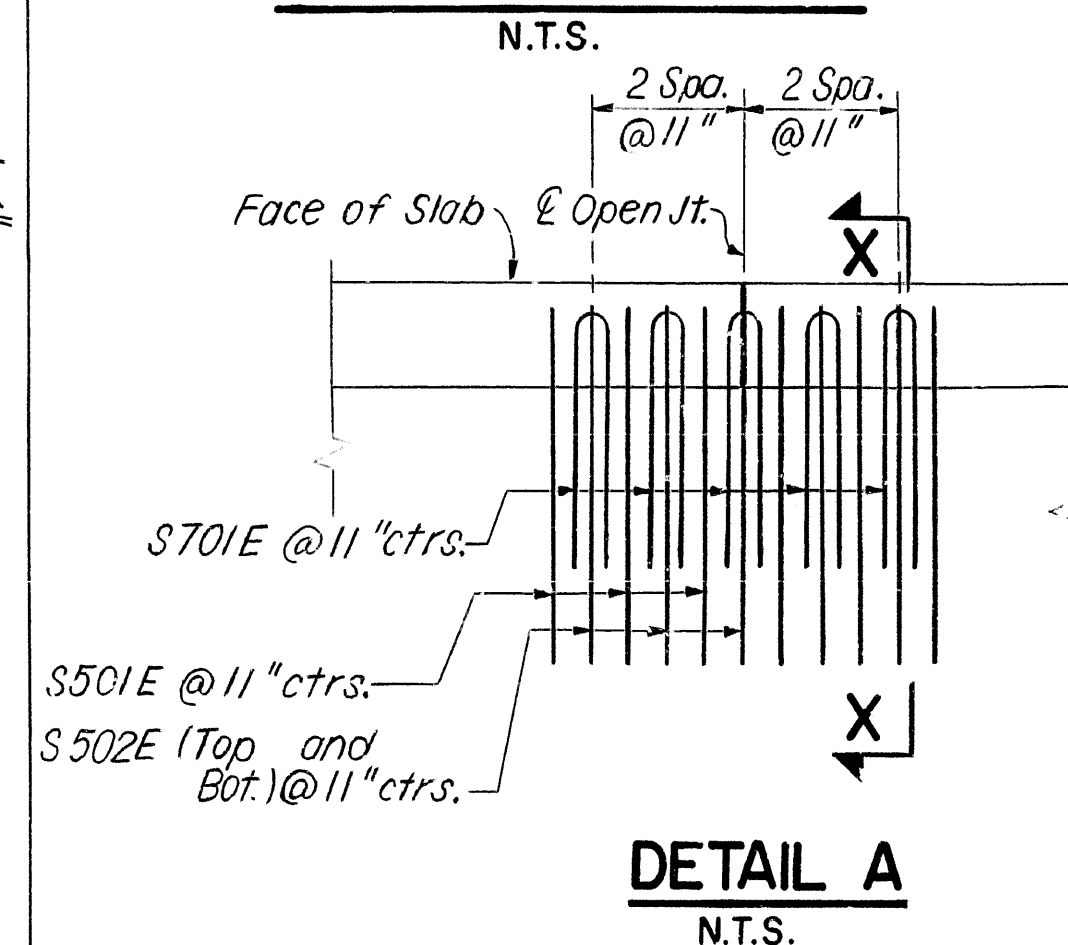
MARK	NO. REQ'D	LENGTH	P.D.	BENDING DIAGRAMS
S401E	576	36'-7"	Str.	
S501E	228	43'-4"	3"	
S502E	458	42'-6"	Str.	
S601E	48	50'-0"	Str.	
S602E	48	23'-0"	Str.	
S701E	85	12'-9"	5/4"	
P401E	425	6'-4"	2"	
P402E	425	5'-6"	2"	
P403E	210	10'-1"	Str.	
P404E	90	5'-10"	2"	
P405E	90	3'-2"	2"	
P601E	75	10'-1"	Str.	

Note: All bars designated with an "E" suffix are to be Epoxy coated.



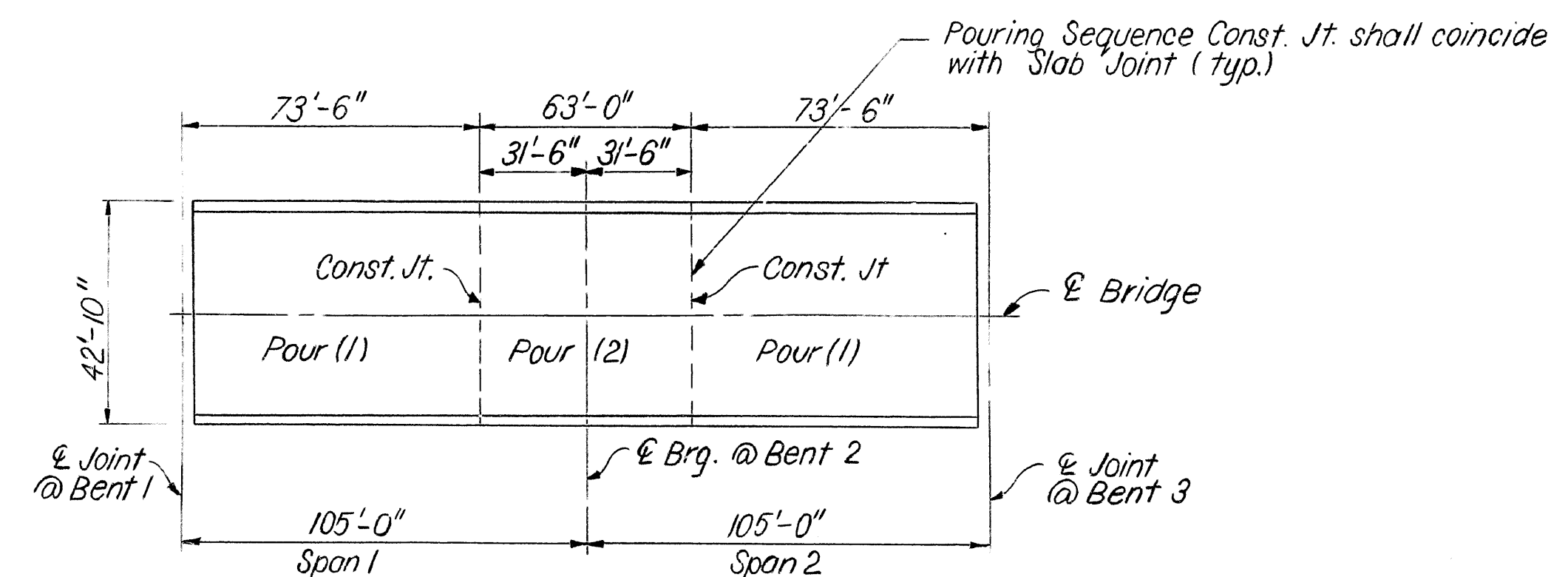
Dimension are out to out bars

## **SLAB JOINT DETAIL**



## **DETAIL A** N.T.S.

## **SECTION X-X** N.T.S.



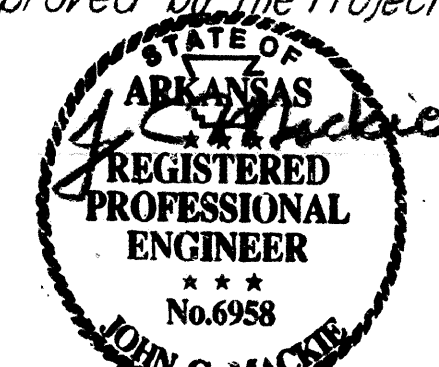
## **POURING SEQUENCE**

N.T.S.

Note: Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. Forty eight (48) hours shall elapse between the end of a pour and the start of the next pour. Seventy two (72) hours shall elapse between the end of a pour and the start of an adjacent pour.

Any railing pours made before the entire slab unit has been placed must be approved by the Project Engineer.

The contractor must obtain approval from the Bridge Engineer for any deviations from the pouring sequence shown.



Revised Job no., L. M., 10-26-95  
Added "E" suffix, C.J.F. 3-1-96  
Revised for 1996 Specs KDH 8Aug96

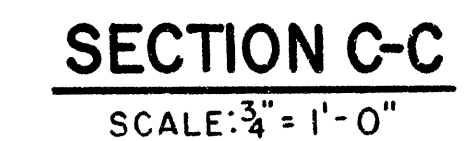
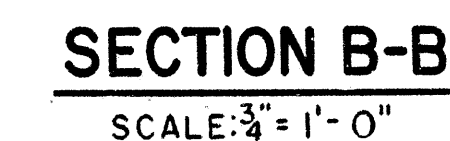
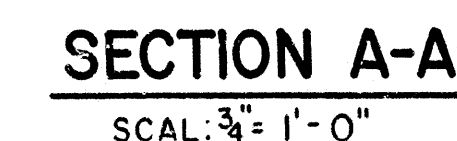
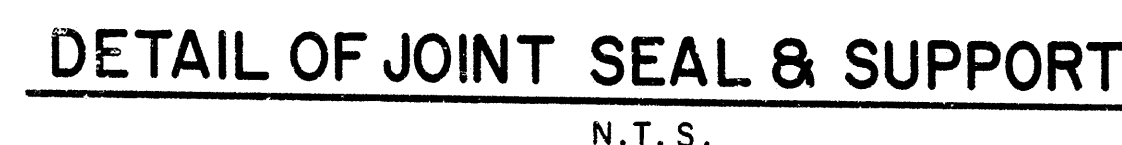
SHEET 4 OF 5  
DETAILS OF  
210'-0" CONT. COMP. PLATE GIRDER UNIT  
BRIDGE A & B

ROUTE 40 SEC. 50  
ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT  
LITTLE ROCK, ARK.

DRAWN BY: W.P. DATE: 4-14-93  
TRACED BY: K.P. DATE: 4-20-93  
CHECKED BY: J.S. DATE: 4-28-93

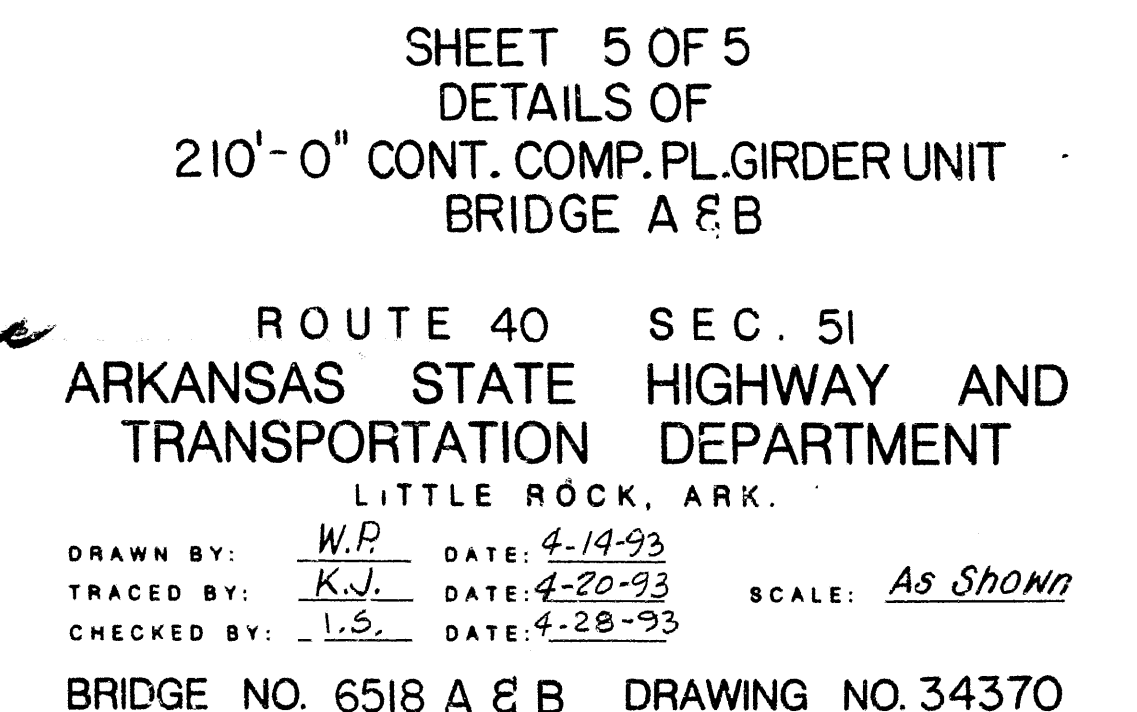
BRIDGE NO. 6518 A & B DRAWING NO. 34369

*Note: One of two different blocking systems is required depending on the type of span finishing machine that is used.*



Note:  
Painting will not be paid for directly but will be included in the Item of  
△ Structural Steel in Plate Girder Spans (M270, Gr. 50W)  
Only one coat is required and shall be applied in the Fabricator Shop.

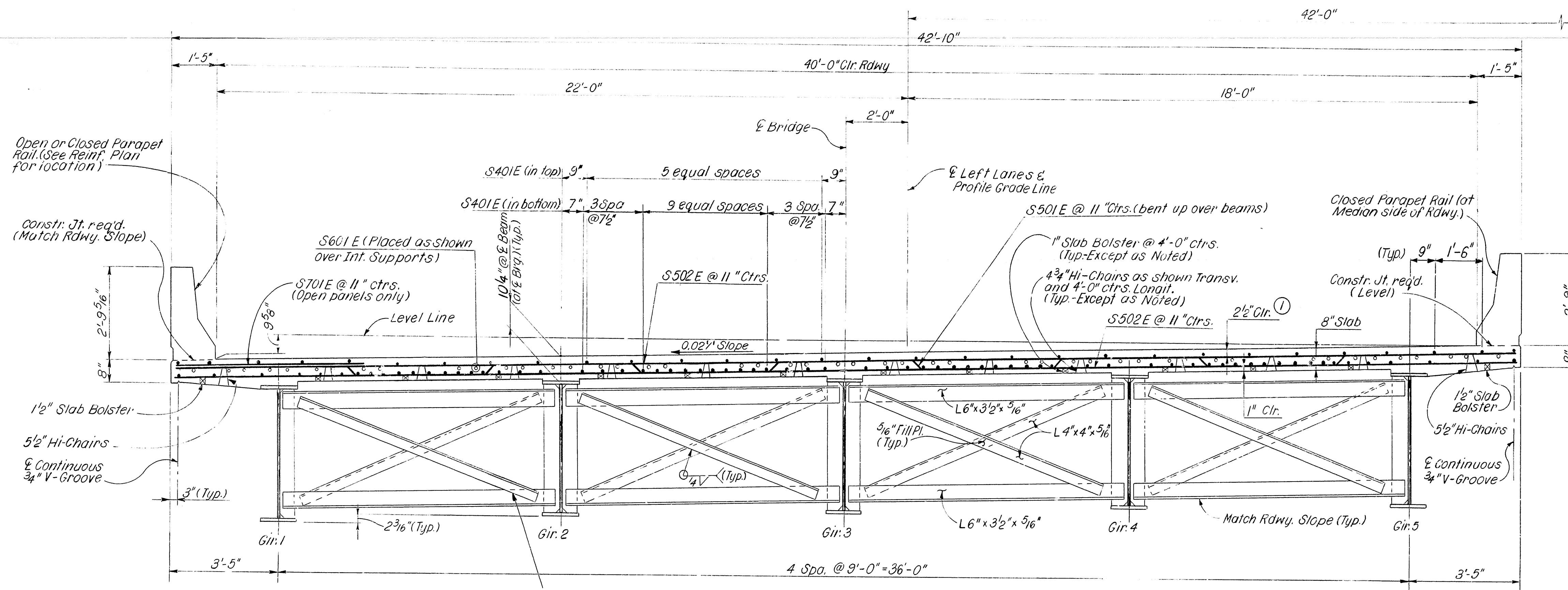
① Revised Job no., L.M., 10-26-95  
② Revised for 1996 Specs KDH 8Aug96





△ Note: Class I Protective Surface Treatment shall be applied to the Roadway Surface and the Face and Top of Concrete Parapet Rail.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				1	ARK.			
				JOB NO.	R10089		50	87
				6518 A & B	TYP. SECTION 34371			

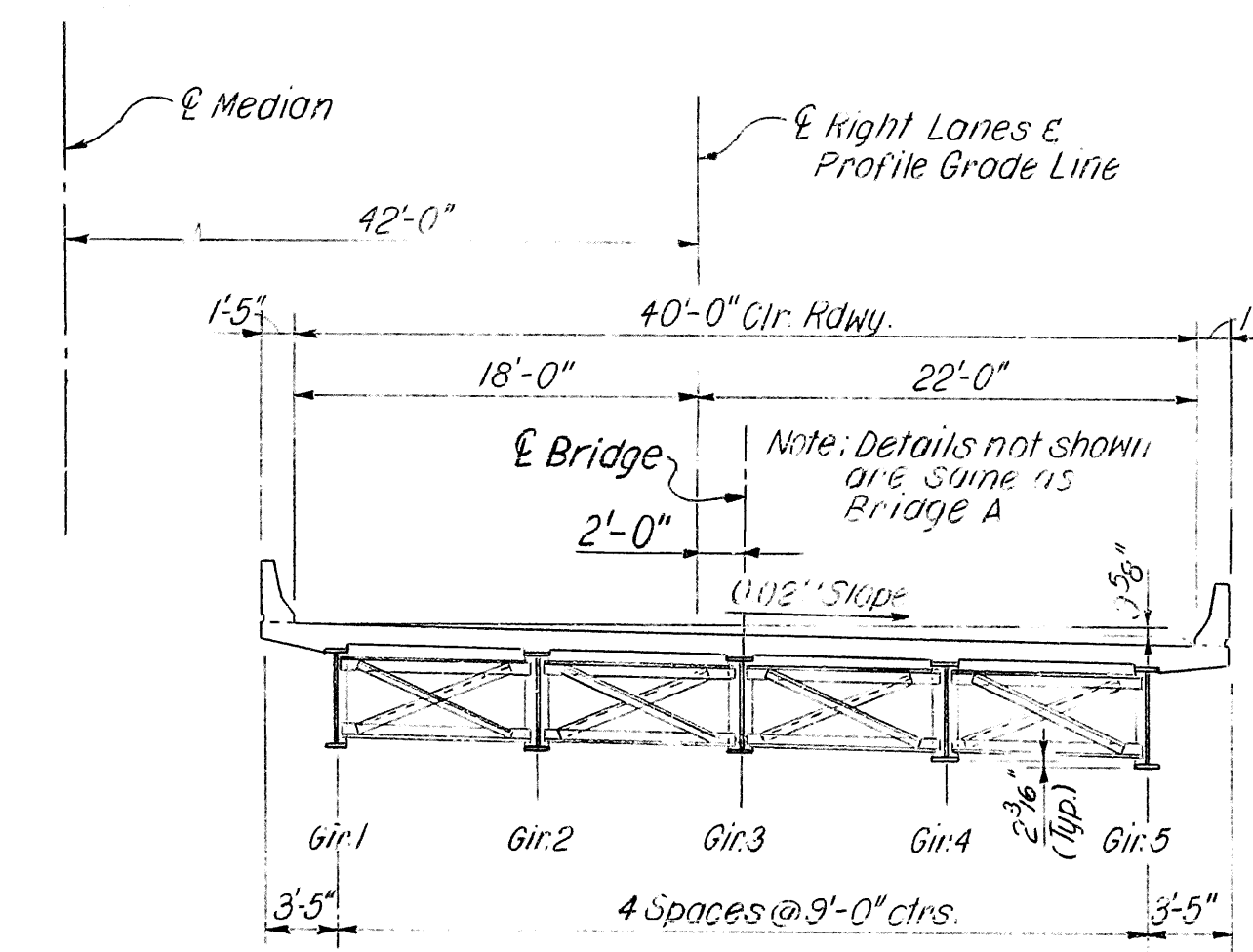


① Tolerance: Minus = 1/4"  
Plus: Equal to amount of slab thickening used to meet slab thickness tolerance - See "Adjustment for slab thickness Tolerance"

### TYPICAL ROADWAY SECTION (BRIDGE A ONLY)

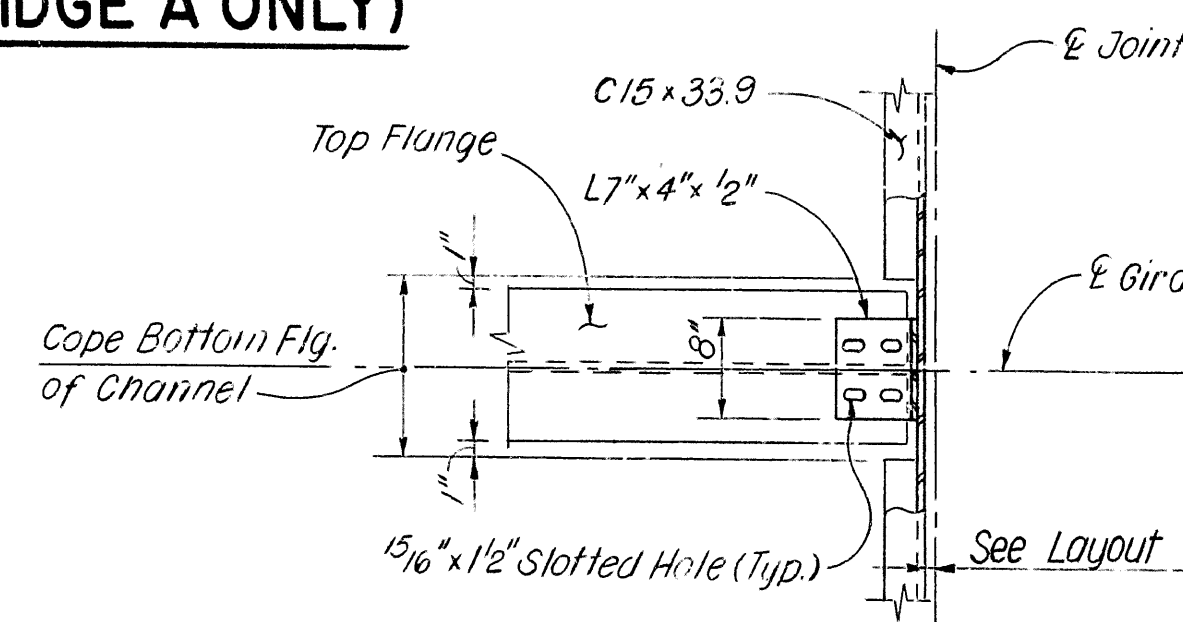
(LOOKING AHEAD)  
Scale: 1/2" = 1'-0"

Note: At Contractor's Option in lieu of providing bar S501E two Epoxy Coated #5 straight bars may be substituted. Payment for Reinforcing will be based on the height of bars S501E.



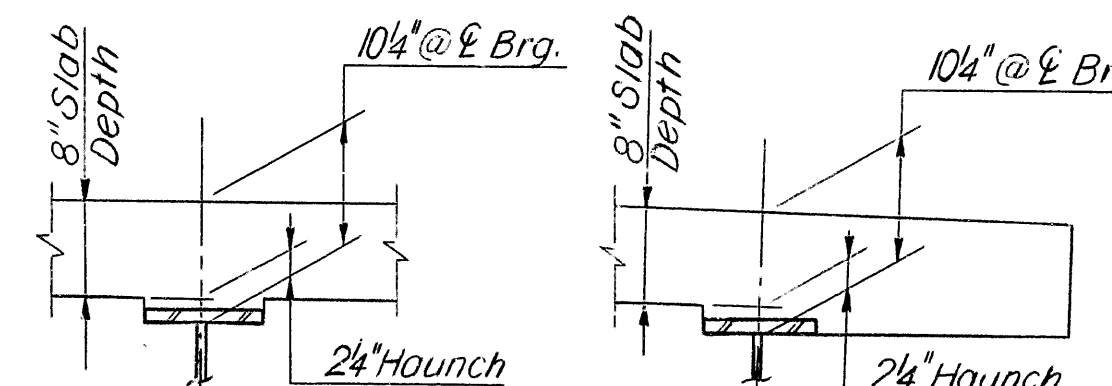
### TYPICAL RDWY. SECTION (BRIDGE B ONLY)

(LOOKING AHEAD)  
N.T.S.



### CHANNEL CONNECTION DETAIL

N.T.S.



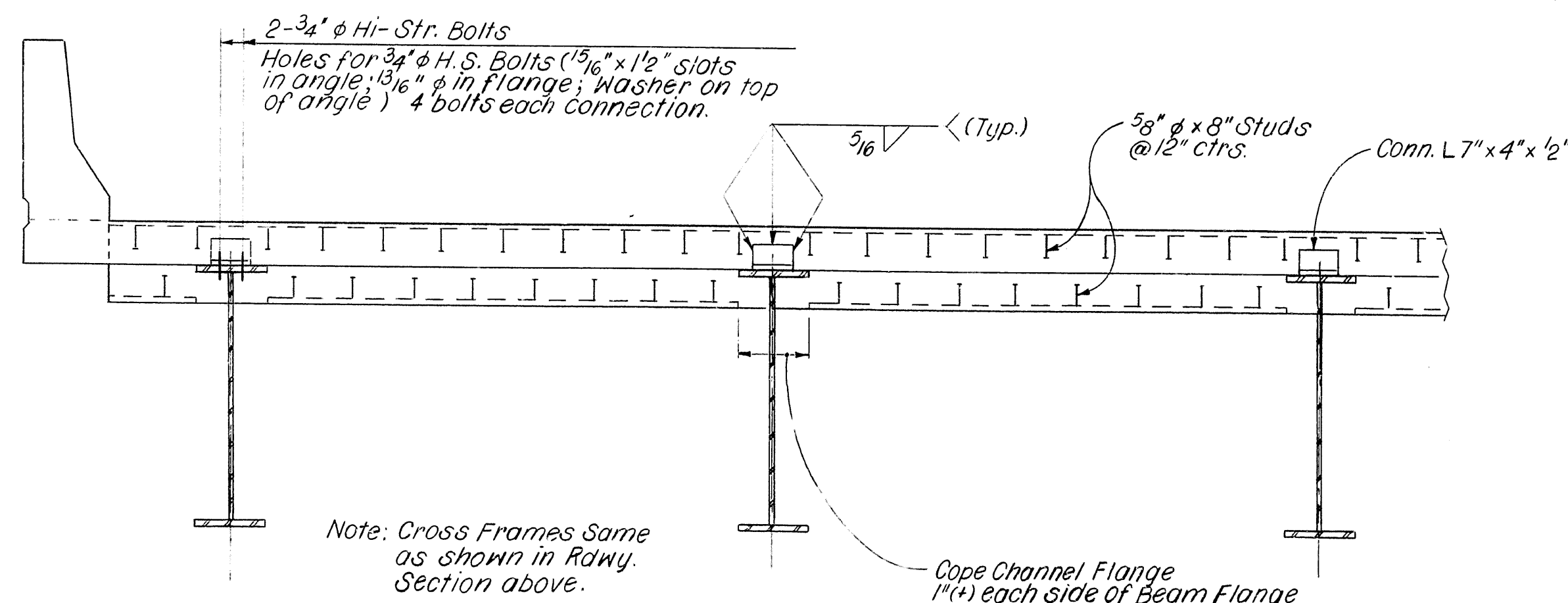
### INTERIOR BEAM

### EXTERIOR BEAM

Note: Haunch is required. Slab thickness or haunch may be variable to achieve the plan grade. Tolerance for slab thickness is minus 1/4" and plus 1". Interior and exterior beam haunches may be increased to 1" greater than the dimension shown. No adjustment for increase in quantities will be made for thickening slab or deepening haunch.

### ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

N.T.S.



Note: Cross Frames Same as shown in Rdwy. Section above.

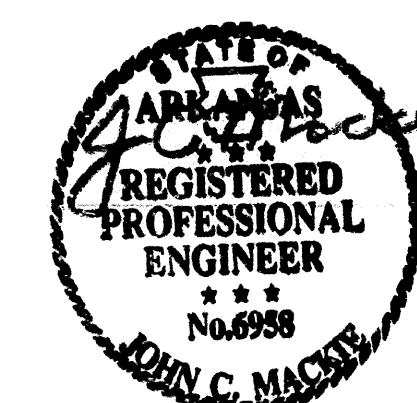
### EXPANSION DEVICE

Roadway Channel C15 x 33.9  
Connection Angle 7" x 4" x 1/2"  
5/8" x 8" Studs @ 12" ctrs.

Note: Detail Device 1/8" high and provide 1/4" shims using 1-1/8" Pl. and 2-1/8" Pl's.

### PART RDWY. SECTION AT END OF UNIT

N.T.S.



SHEET 1 OF 5  
DETAILS OF  
410'-0" CONT. COMP. PL. GIRDER UNITS  
BRIDGE A & B

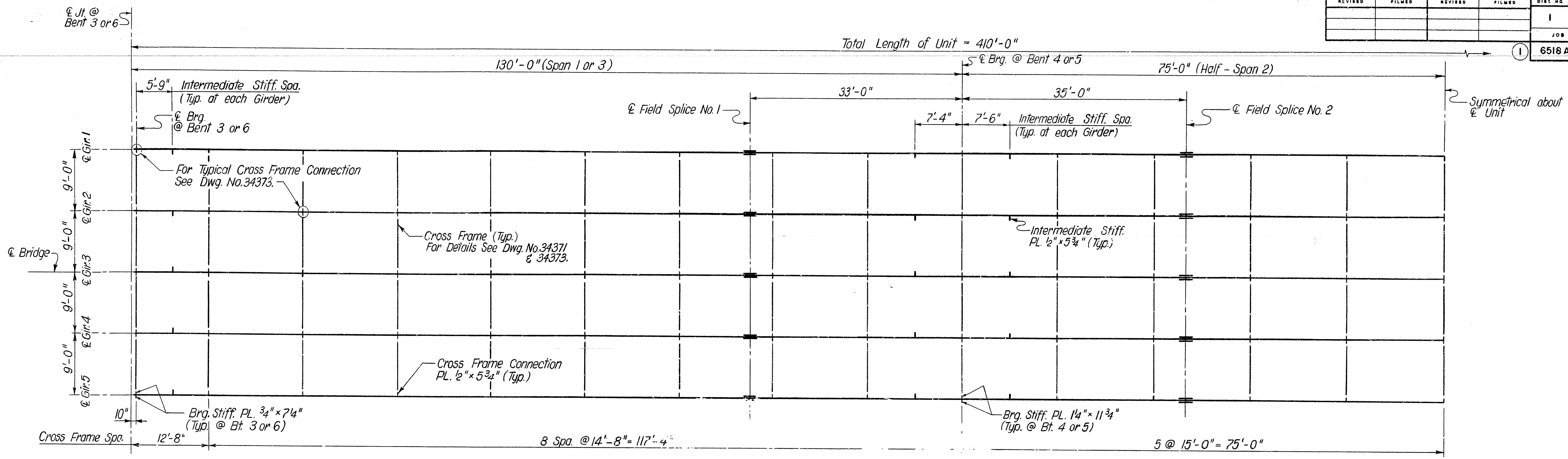
ROUTE 40 SEC. 51  
ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT  
LITTLE ROCK, ARK.

DRAWN BY: M.C. DATE: 4-24-93  
TRACED BY: M.J. DATE: 5-12-93 SCALE: As Shown  
CHECKED BY: L.S. DATE: 5-14-93

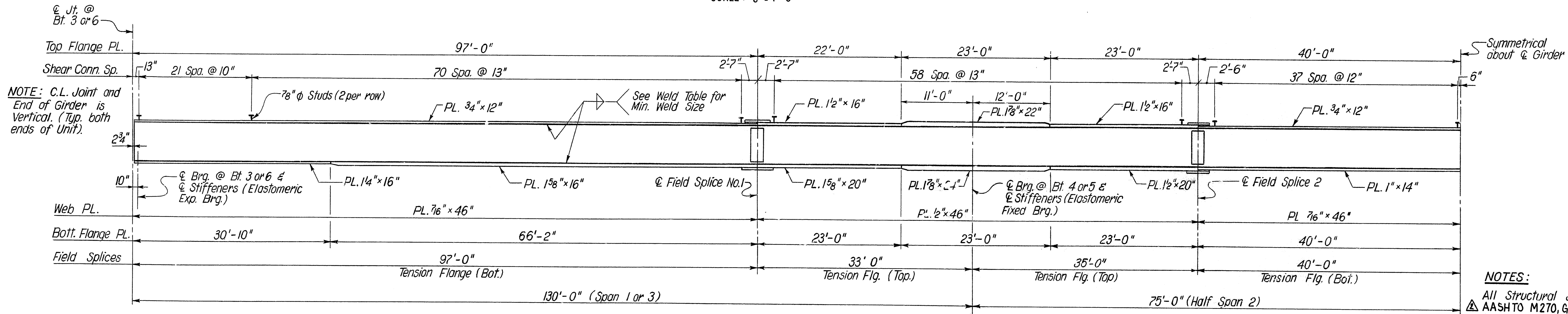
BRIDGE NO. 6518 A & B DRAWING NO. 34371

△ Revised Job no., L.M., 10-26-95

△ Revised for 1976 Specs KDH 8Aug 96



**HALF FRAMING PLAN**  
SCALE: 1/8" = 1'-0"

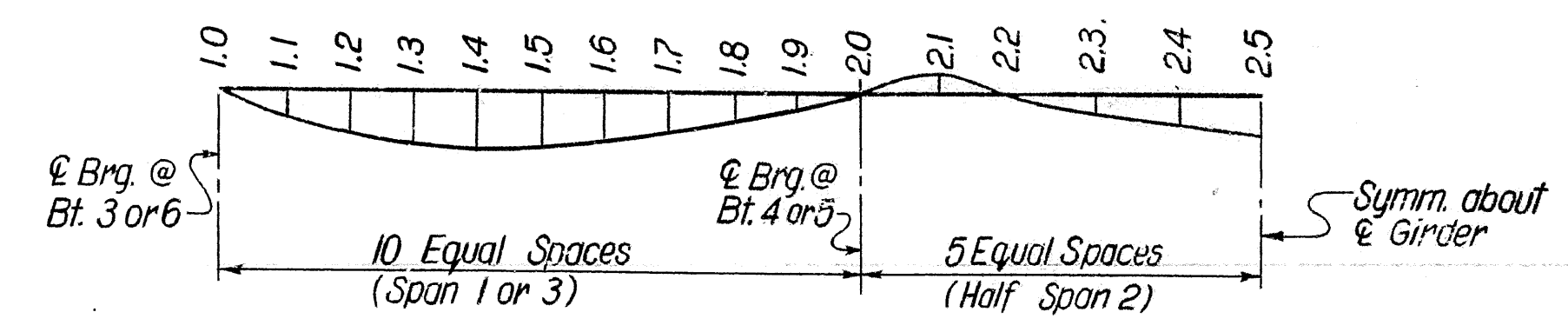


**HALF GIRDER ELEVATION**  
N.T.S.

**DEAD LOAD DEFLECTION (INCHES)**

**NOTE:**  
Camber for Dead Load Deflection plus Vertical Curve;  $\pm 1/4$  tolerance.  
Deflections shown area from a chord from  $\phi$  Brg. to  $\phi$  Brg.  
Vertical Curve corrections not included.  
Negative sign (-) indicates point above chord.

SPAN POINT	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5
INTERIOR GIRDER																
STRUCTURAL STEEL	0.0	0.37	0.68	0.90	0.99	0.96	0.83	0.61	0.38	0.16	0.0	-0.08	-0.07	-0.01	0.05	0.09
STRUCT. STEEL & SLAB	0.0	1.84	3.38	4.39	4.80	4.60	3.87	2.79	1.65	0.65	0.0	-0.21	0.09	0.64	1.16	1.41
STRUCT. STEEL SLAB & PARAPET	0.0	1.95	3.58	4.65	5.09	4.88	4.11	2.96	1.74	0.68	0.0	-0.20	0.14	0.76	1.33	1.59
EXTERIOR GIRDER																
STRUCTURAL STEEL	0.0	0.35	0.64	0.84	0.93	0.90	0.78	0.58	0.36	0.15	0.0	-0.08	-0.08	-0.02	0.03	0.06
STRUCT. STEEL & SLAB	0.0	1.72	3.16	4.10	4.48	4.29	3.62	2.62	1.55	0.60	0.0	-0.20	0.07	0.59	1.07	1.29
STRUCT. STEEL SLAB & PARAPET	0.0	1.84	3.37	4.37	4.78	4.59	3.86	2.79	1.64	0.64	0.0	-0.19	0.13	0.70	1.24	1.49



**DEAD LOAD DEFLECTION DIAGRAM**  
N.T.S.

**NOTES:**  
All Structural Steel in Girders shall be  
AASHTO M270, Gr. 50W.  
For Shear Connectors Details see Dwg. No. 34373.  
For Weld Table see Dwg. No. 34373.  
For Elastomeric Bearings Details see Dwg. No. 34381.  
For Superstructure General Notes see Dwg. No. 34381 A.  
For Intermediate Stiffener Details at Exterior Girder See Dwg. No. 34368.



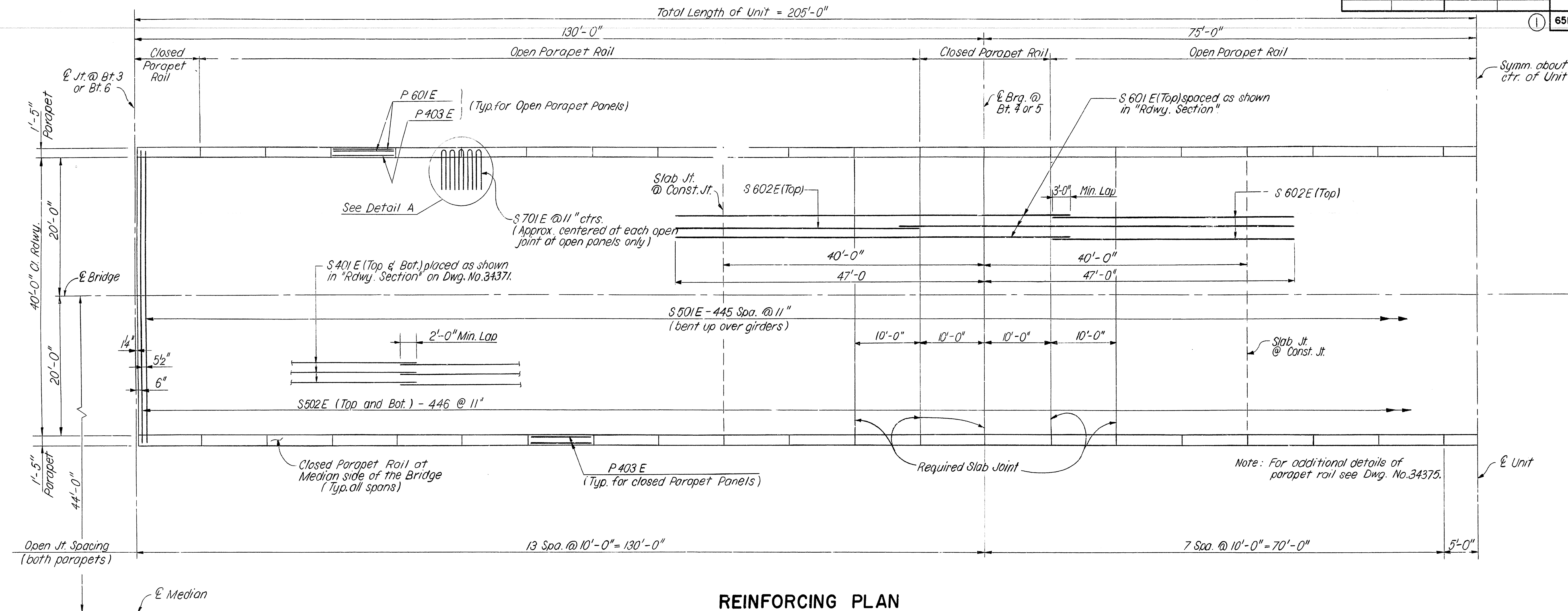
SHEET 2 OF 5  
DETAILS OF  
410'-0" CONT. COMP. PL. GIRDER UNITS  
BRIDGE A & B  
ROUTE 40 SEC. 51  
ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT  
LITTLE ROCK, ARK.  
DRAWN BY: M.C. DATE: 4-26-93  
TRACED BY: Ch.S. DATE: 5-10-93 SCALE: As Shown  
CHECKED BY: I.S. DATE: 5-14-93  
BRIDGE NO. 6518 A & B DRAWING NO. 34372

Revised Job No., L.M., 10-26-95  
Revised for 1996 Specs KDH 8Aug96





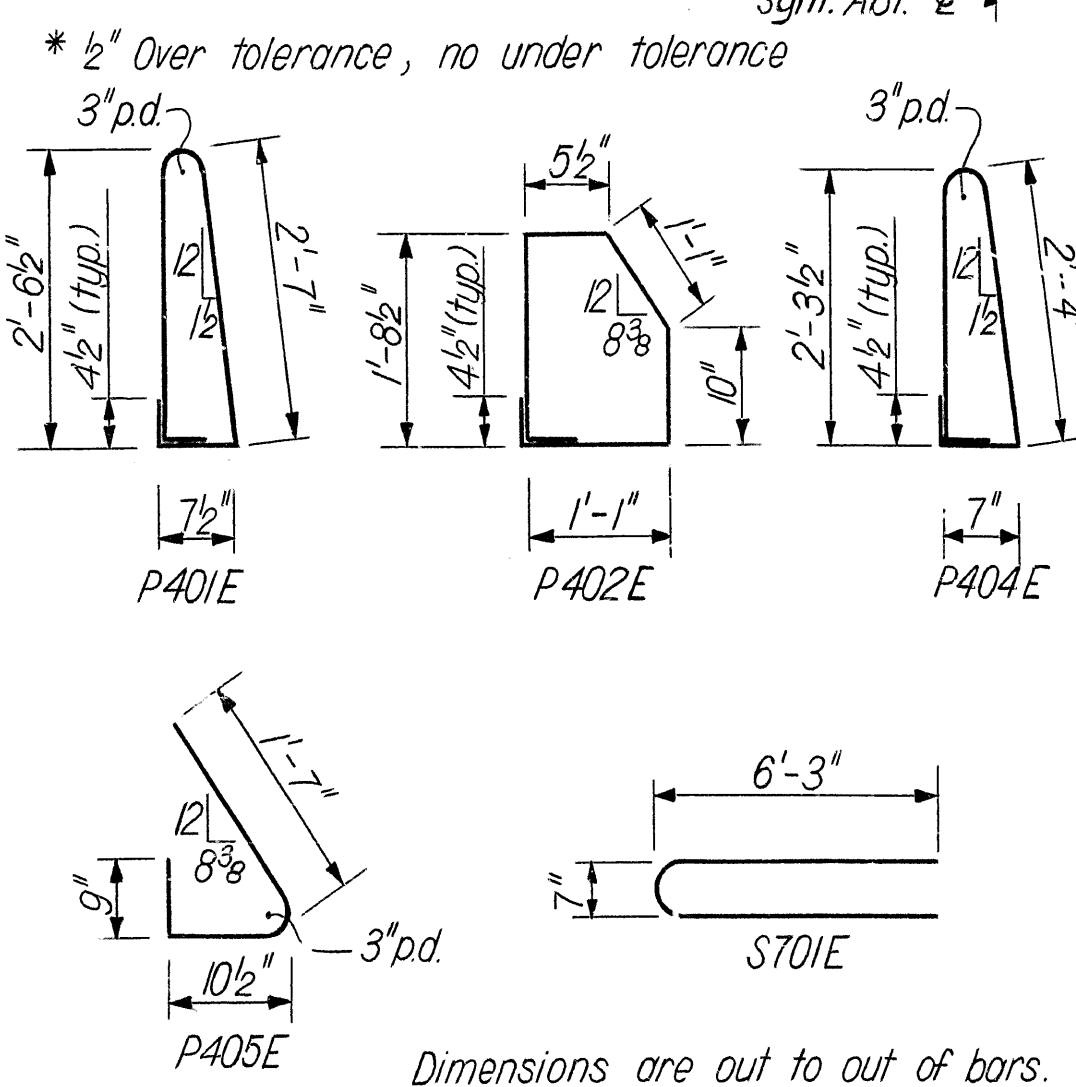
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				1	ARK			
				JOB NO.		R10089	53	87
				6518 A & B		SPAN DETAILS	34374	



**REINFORCING PLAN**  
(BRIDGE A SHOWN, BRIDGE B SIMILAR)  
SCALE 1/8" = 1' - 0"

**BAR LIST - PER UNIT**

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
S401E	1056	39'-1"	Str.	
S501E	446	43'-4"	3"	
S602E	894	42'-6"	Str.	
S601E	96	60'-0"	Str.	
S602E	96	37'-0"	Str.	
S701E	190	12'-9"	5 1/4"	
P401E	820	6'-4"	2"	
P402E	820	5'-6"	2"	
P403E	422	9'-7"	Str.	
P404E	210	5'-10"	2"	
P405E	210	3'-2"	2"	
P601E	175	9'-7"	Str.	

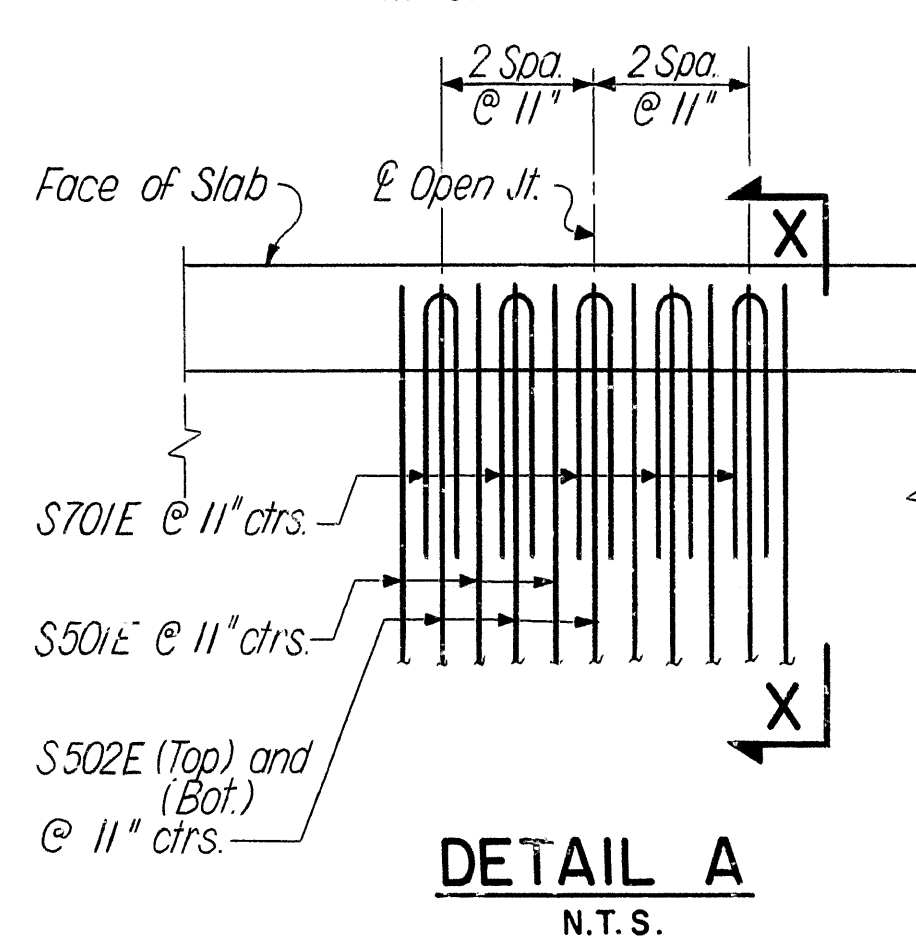


NOTE:  
All bars designated with an "E" suffix are to be Epoxy coated.

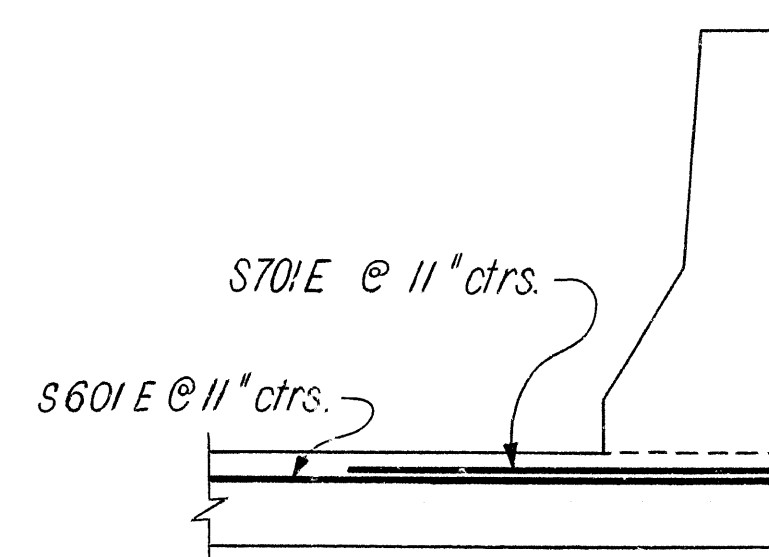
Dimensions are out to out of bars.

CL. 1/2" x 1" Type 6 Poured Synthetic Polymer Joint in slab (To be paid for as Class S(AE) Concrete). If Slab Joints are to be sawed, they shall be sawed before any vehicular traffic is allowed on the unit. See subsection 501.02(h) and 501.05(i) for material and construction specifications. Slab Joint shall extend to outside edge of Deck Slab. Slab Joint shall be installed before Parapet Railing is poured. See "Reinforcing Plan" for location of Joints.

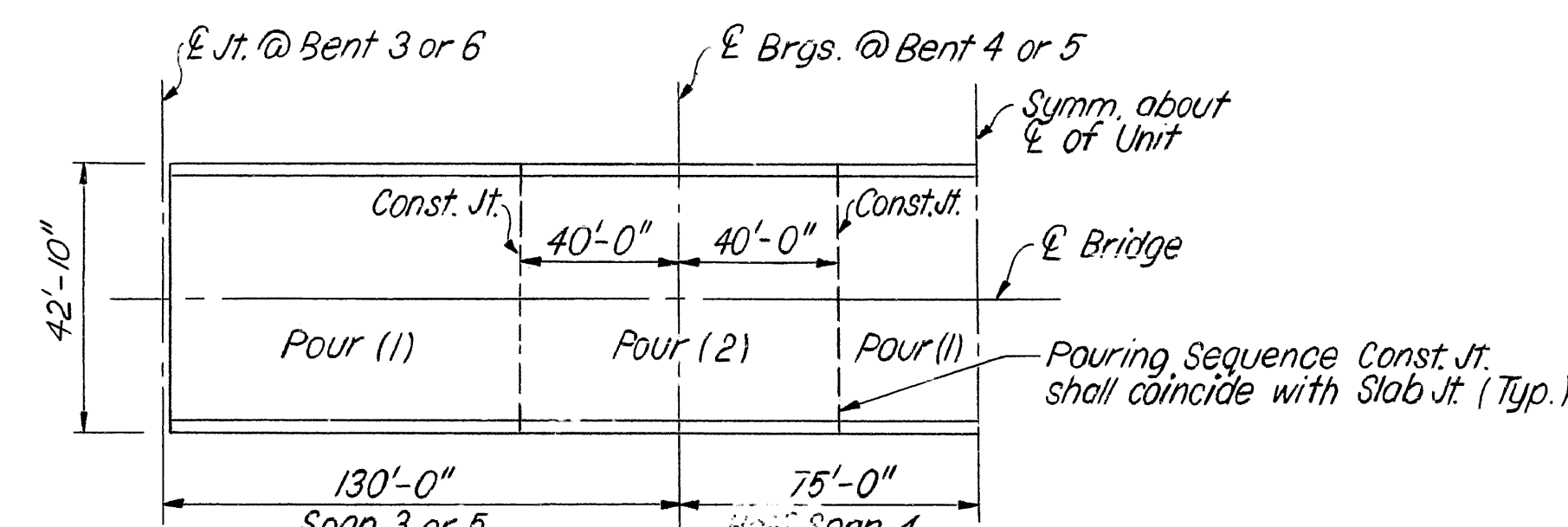
**SLAB JOINT DETAIL**  
N.T.S.



**DETAIL A**  
N.T.S.



**SECTION X-X**  
N.T.S.

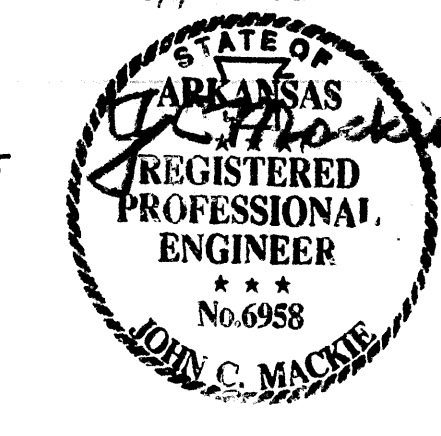


**POURING SEQUENCE**  
N.T.S.

NOTE:  
Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. Forty eight (48) hours shall elapse between the end of a pour and the start of the next pour. Seventy two (72) hours shall elapse between the end of a pour and start of an adjacent pour.

Any railing pours made before the entire slab unit has been placed must be approved by the Project Engineer.

The contractor must obtain approval from the Bridge Engineer for any deviations from the pouring sequence shown.



Revised Job.no., L.M., 10-26-95  
Revised Dwg. Title, C.J.F., 11-1-95  
Revised for 1996 Specs KDH 8Aug96

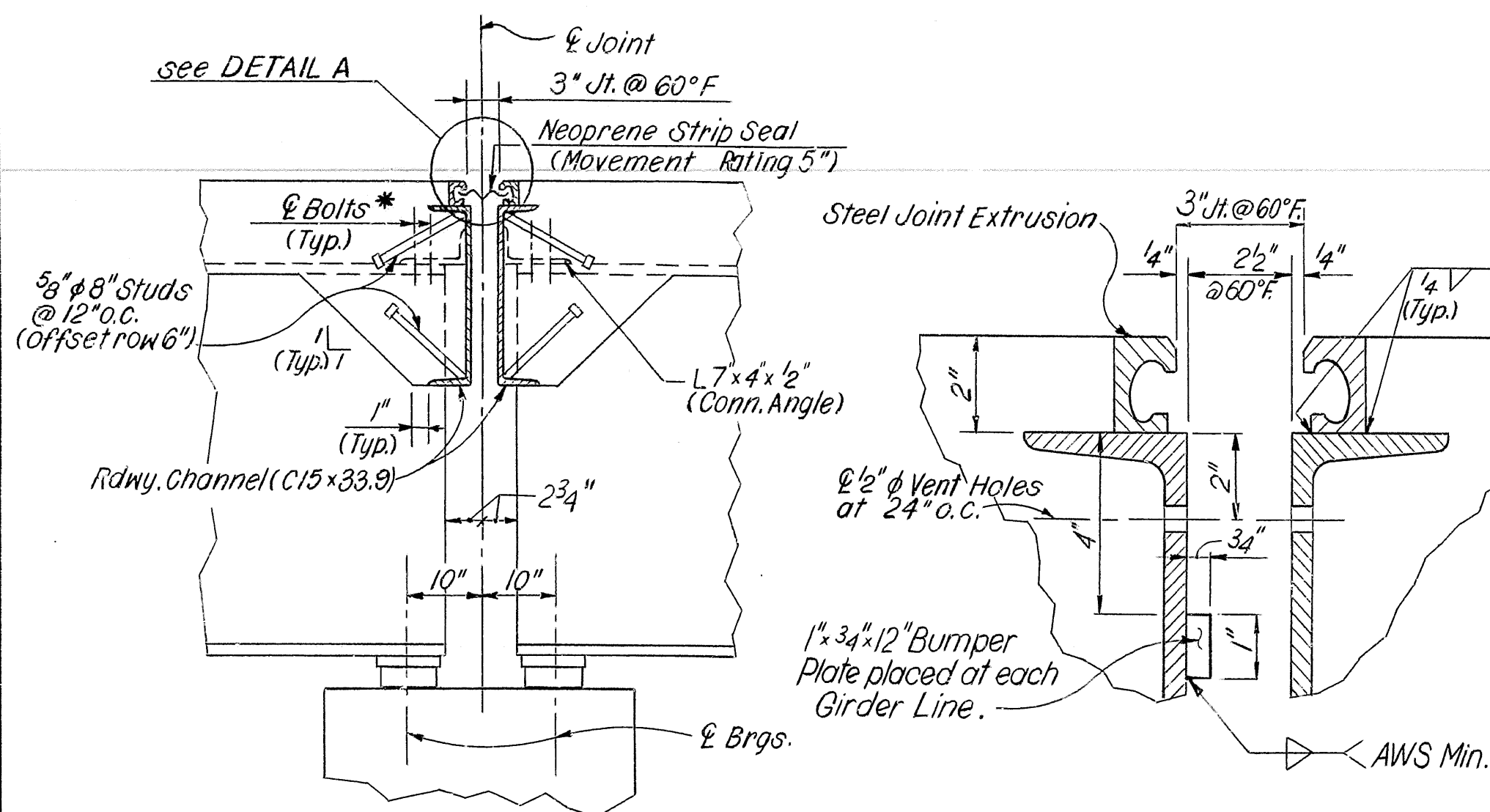
SHEET 4 OF 5  
DETAILS OF  
410'-0" CONT. COMP. PL. GIRDER UNIT  
BRIDGE A & B

ROUTE 40 SEC. 51  
ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT  
LITTLE ROCK, ARK.

DRAWN BY: W.P. DATE: 4-16-93  
TRACED BY: M.M. DATE: 4-20-93  
CHECKED BY: L.S. DATE: 5-14-93  
BRIDGE NO. 6518A&B DRAWING NO. 34374



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				I	ARK			
						R10089	54	87
						6518 A & B	DECK DETAILS 34375	

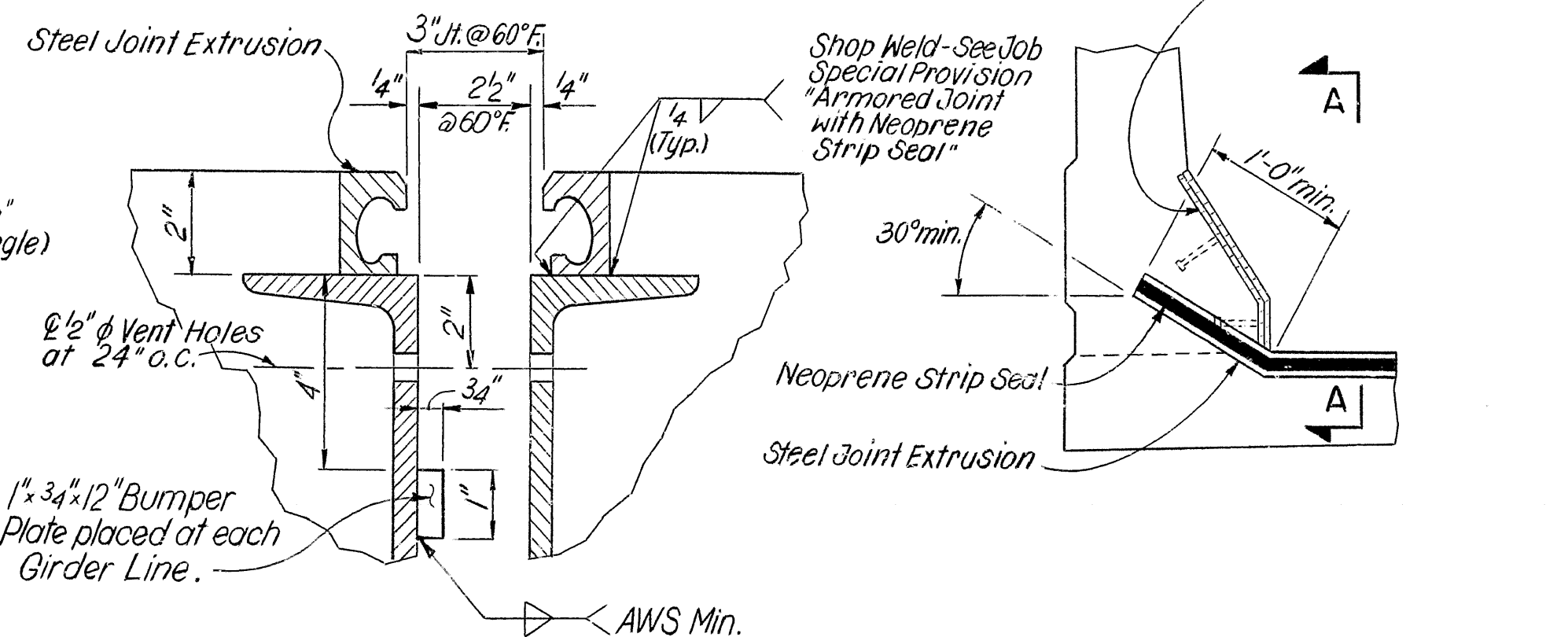


DETAIL A

## DETAIL OF JOINT AT INTERMEDIATE BENTS 3 & 6

N.T.S.

\* Drill Holes for 3/4"  $\phi$  H.S. Bolts (1 1/2" x 1/2" Slots in angle 1/16"  $\phi$  holes in flange, washer on top of angle).  
4 Bolts each connection.

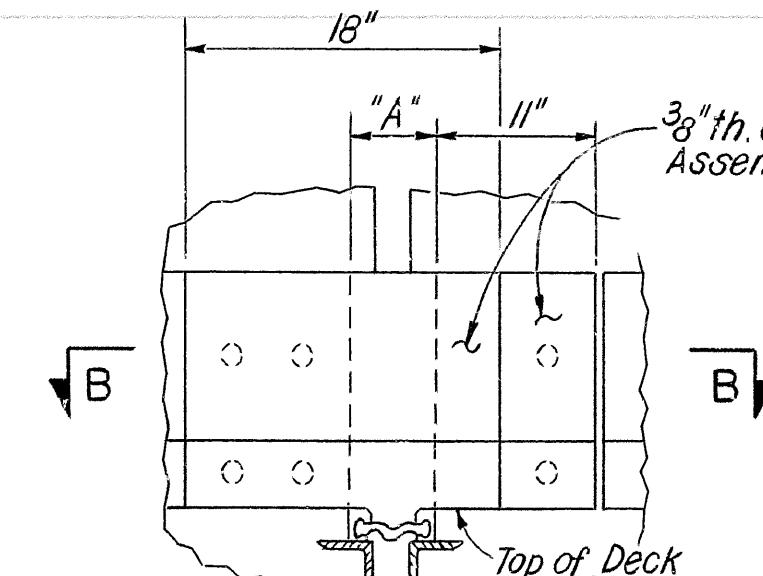


DETAIL OF NEOPRENE SEAL AT CURB

## DETAILS OF ARMORED JOINT WITH NEOPRENE STRIP SEAL

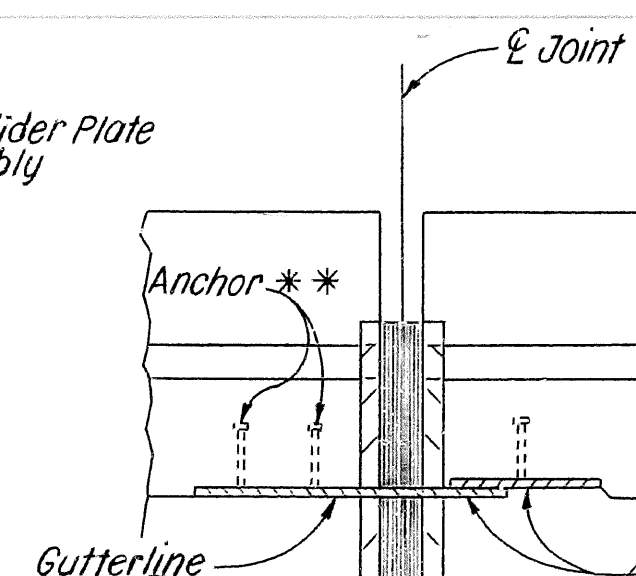
N.T.S. \*\*\* Slider plates shall be A588

\* The method of attachment of the slider plate assembly must be such that it may be removed in order to provide for future replacement of the neoprene seal.



Note: Dimension "A" equals the width of opening in parapet at curb to allow for removal or repair of joint.

SECTION A-A



Note: Details of joint turn-up in curb and parapet are general and show basic design controls only. See SP Job R10089 Armored Joint with Neoprene Strip Seal.

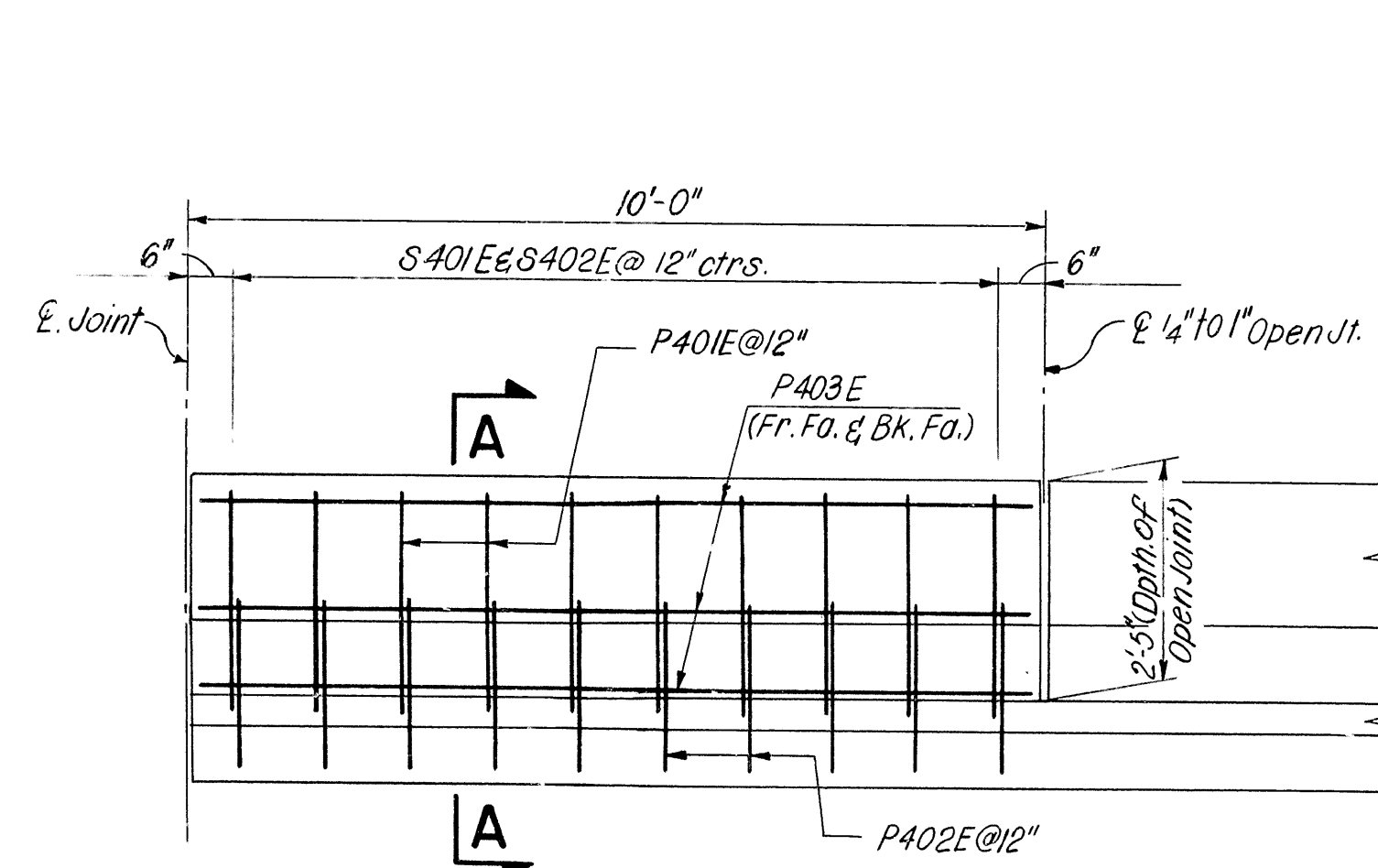
SECTION B-B

## DETAILS FOR BLOCKING EXPANSION JOINT DEVICE AND DETAILS OF ALTERNATE ANCHORS

N.T.S.

Note: Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension shown. The blocking details shall be shown on the Shop Drawings. The blocking shall not be removed until the slab on one side is complete. Blocking shall be placed within 2 feet of each end of the device and with a maximum spacing of 8 feet. Removal shall be just before or after pouring the second side of the joint, as directed by the Engineer.

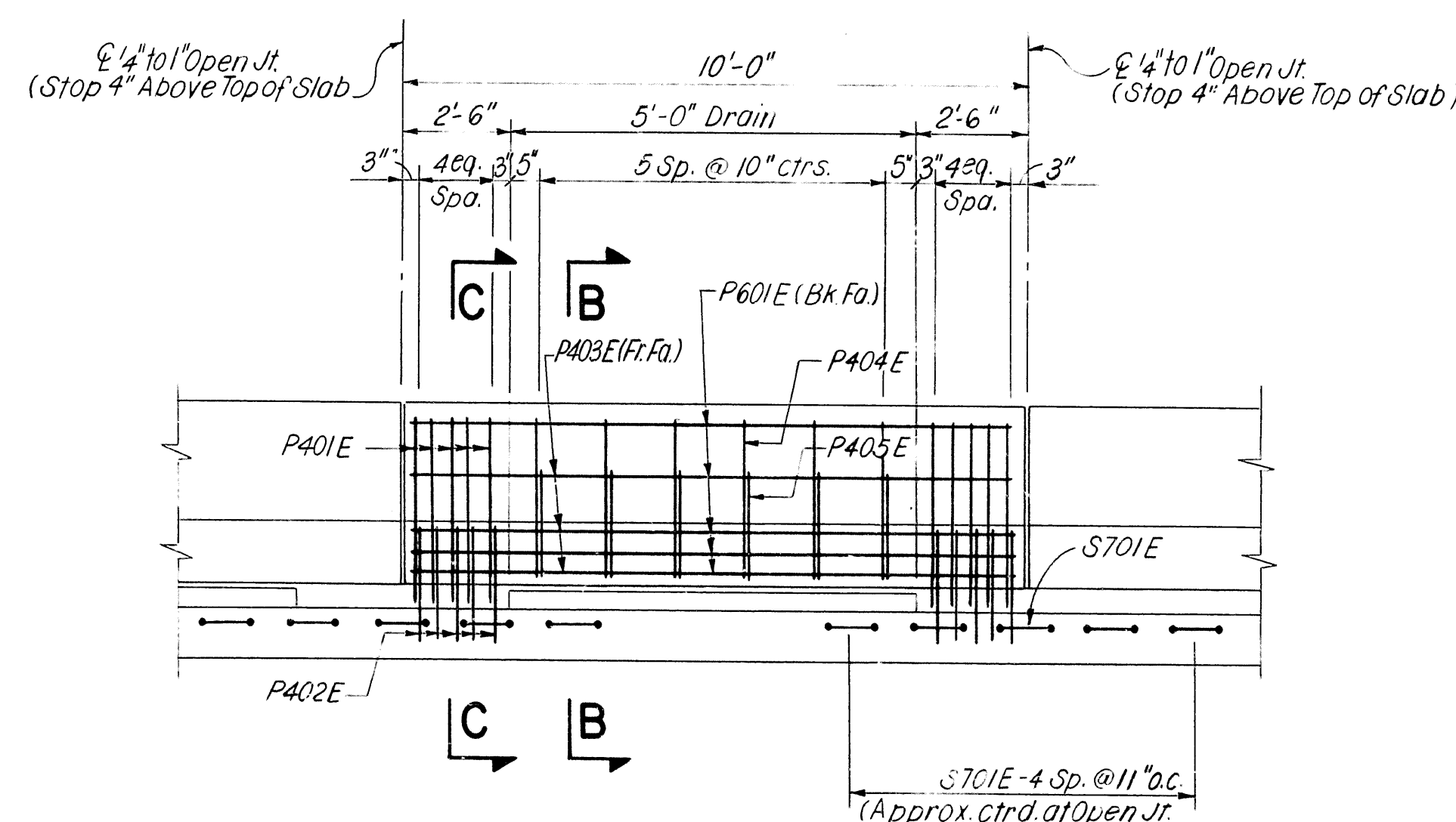
Note 2: As an alternate to 5/8"  $\phi$  studs, 1/2"  $\phi$  x 8" studs spaced as shown may be used. Use weight of 5/8" stud as basis of measurement of structural steel in anchors.



## LONGITUDINAL SECTION AT CURB FOR CLOSED PARAPET RAIL

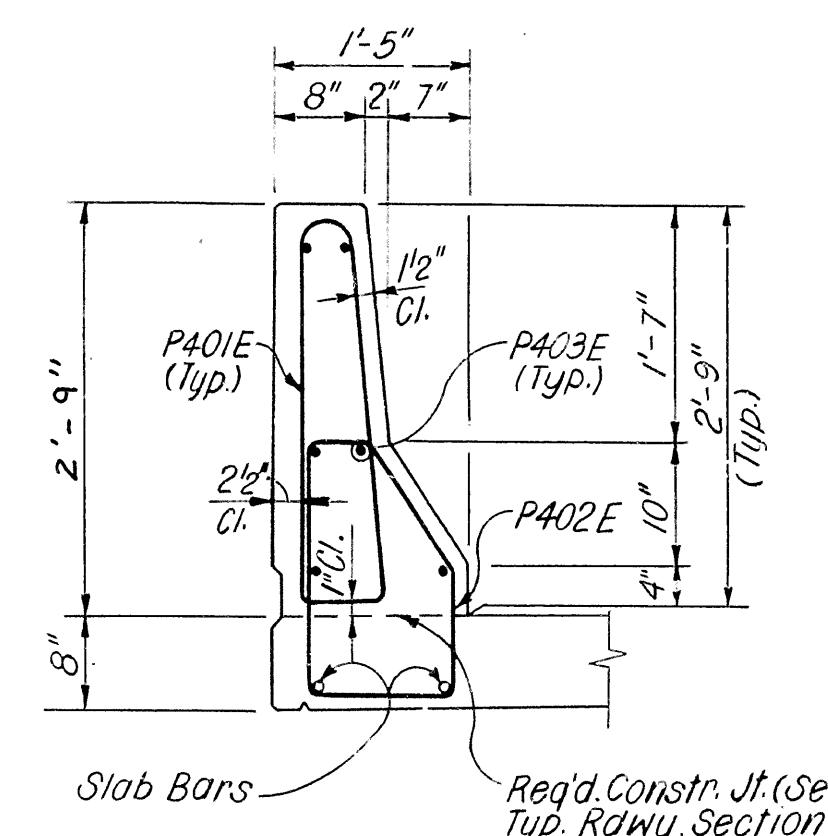
N.T.S.

Note: See Dwg. No. 34381A for optional slip forming details.



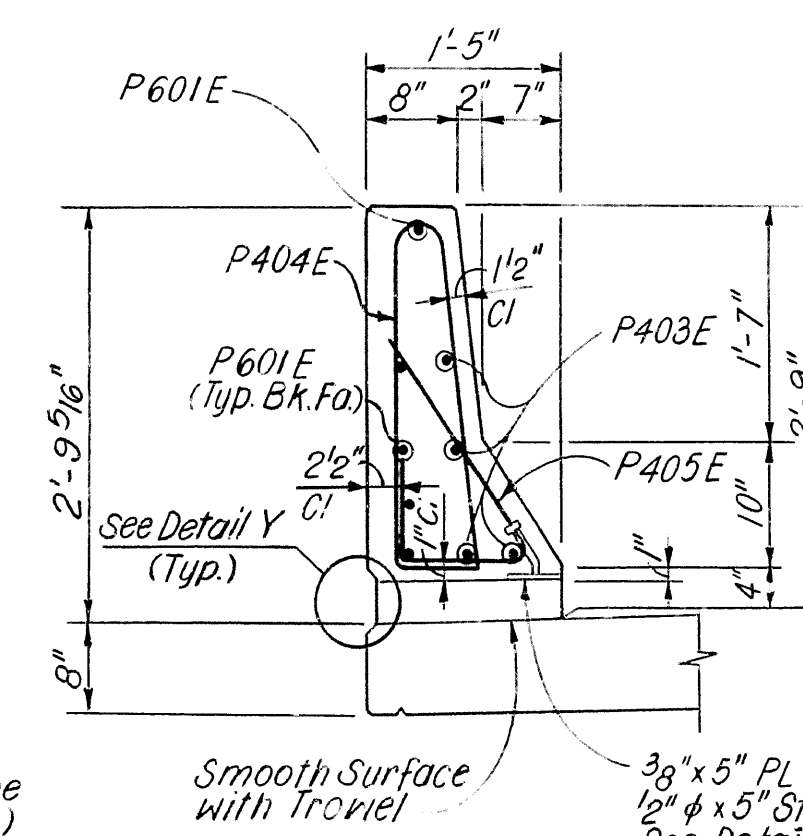
## LONGITUDINAL SECTION AT CURB FOR OPEN PARAPET RAIL

N.T.S.



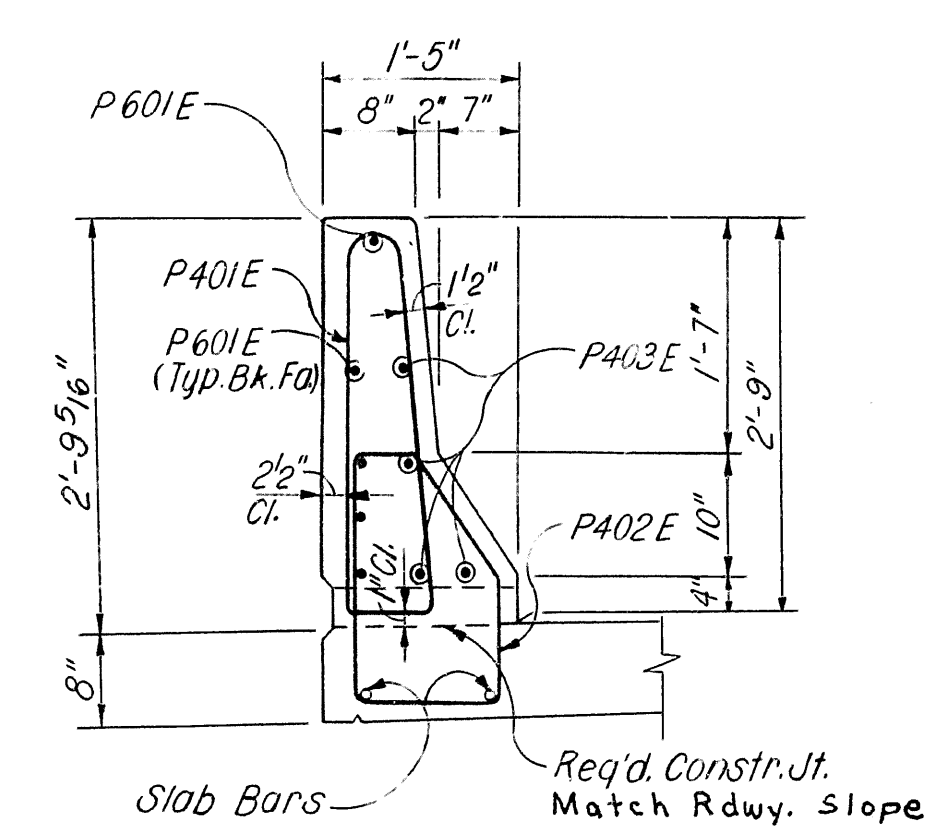
## SECTION A-A

SCALE: 3/4" = 1'-0"



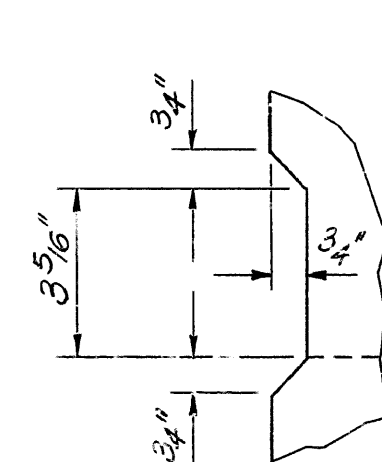
## SECTION B-B

SCALE: 3/4" = 1'-0"



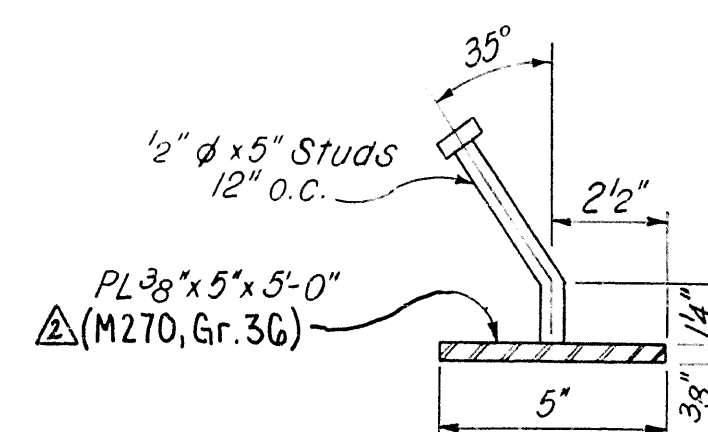
## SECTION C-C

SCALE: 3/4" = 1'-0"



## DETAIL Y

N.T.S.



## DETAIL Z

N.T.S.

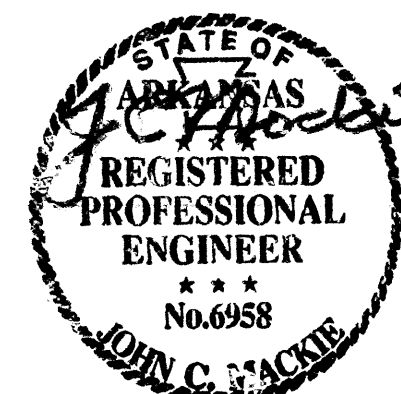
Note:

Parapet Studs shall be 5" long, granular flux filled, solid fluxed, or equal, and automatically end welded to the plate. Studs and plate shall meet the requirements of Section 807. Studs and plate shall be measured and paid for as  $\Delta$  "Structural Steel in Plate Girder Spans (M270, Gr. 50W)". The surfaces of the 5" plates which will not be in contact with concrete shall be painted in accordance with Section 638.

Note:

Painting will not be paid for directly but will be included in the item of  $\Delta$  "Structural Steel in Plate Girder Spans (M270, Gr. 50W)". Only one coat is required and shall be applied in the fabricator shop.

$\Delta$  Revised Job no., L.M., 10-26-95  
 $\Delta$  Revised for 1996 Specs KDH 8AUG96

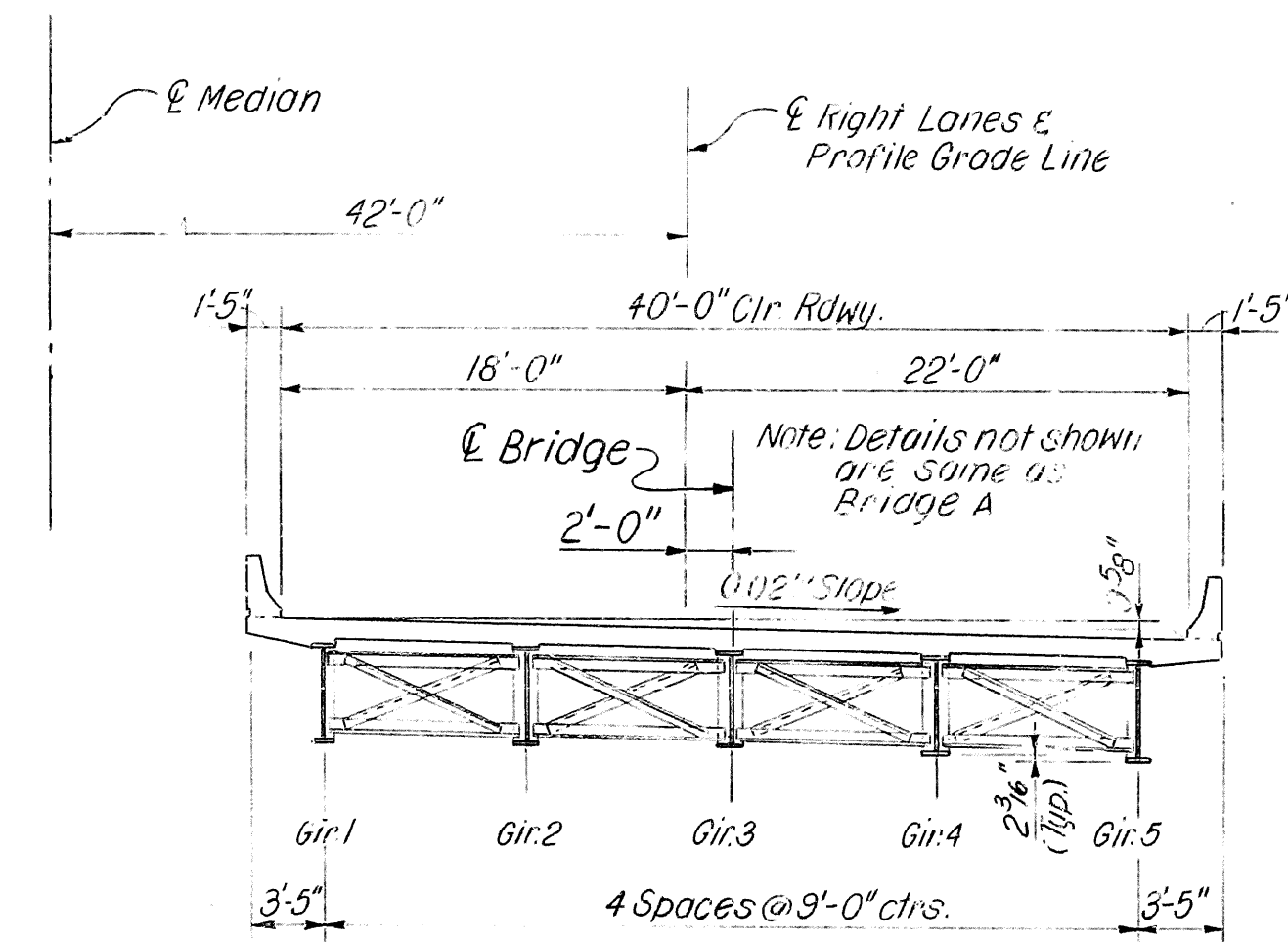
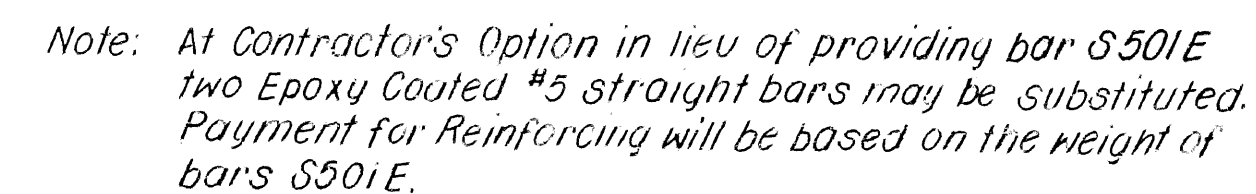


SHEET 5 OF 5  
DETAILS OF  
410'-0" CONT. COMP. PL. GIRDER UNIT  
BRIDGE A & B

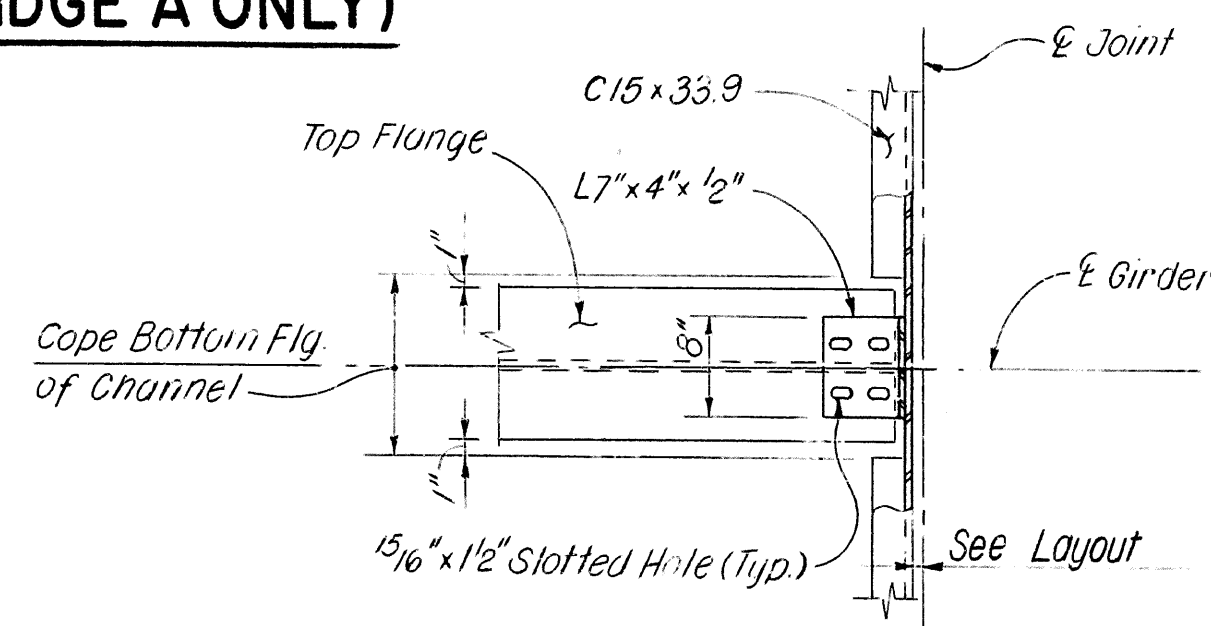
ROUTE 40 SEC. 51  
ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT  
LITTLE ROCK, ARK.

DRAWN BY: W.P. DATE: 4-16-93  
TRACED BY: K.J. DATE: 4-20-93  
CHECKED BY: L.S. DATE: 5-14-93  
BRIDGE NO. 6518 A & B DRAWING NO. 34375

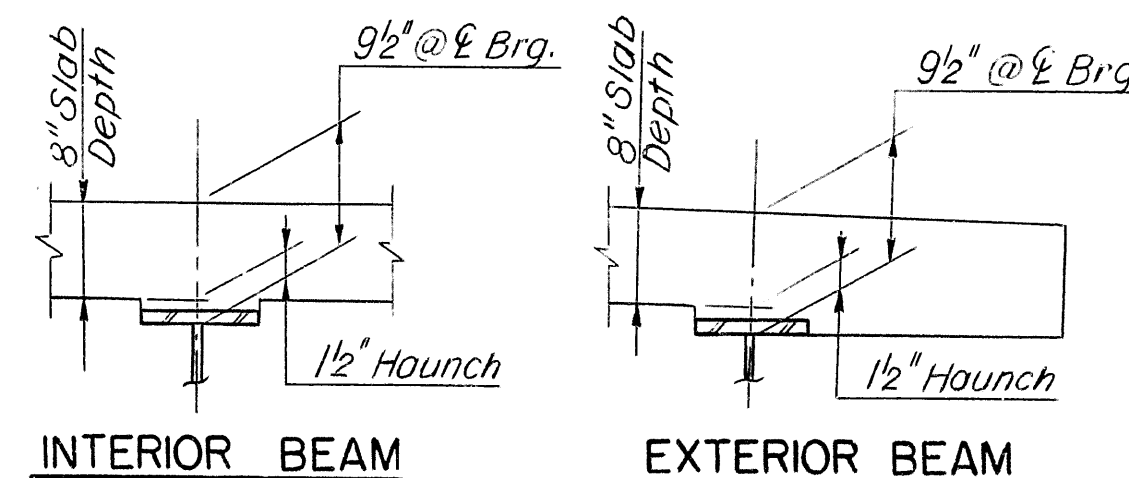
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. NO. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				1	ARK.			
				JOB NO.		R10089	55	87
			(1)	6518 A E B	TYP. SECTION	34376		



(LOOKING AHEAD)  
Scale:  $\frac{1}{2}'' = 1'-0''$

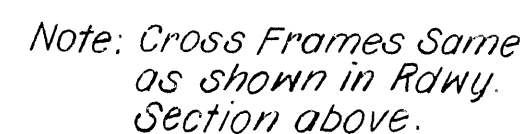


N.T.S.



*Note: Haunch is required. Slab thickness or haunch may be variable to achieve the plan grade. Tolerance for slab thickness is minus 1/4" and plus 1". Interior and exterior beam haunches may be increased to 1" greater than the dimension shown. No adjustment for increase in quantities will be made for thickening slab or deepening haunch.*

N.T. S.



Roadway Channel C15 x 33.9  
Connection Angle 7" x 4" x 1/2"  
5/8"  $\phi$  x 8" Studs @ 12" ctrs.

Note: Detail Device '8" high and provide '4" shims using 1-'8" Pl. and 2-'16" Pl's.

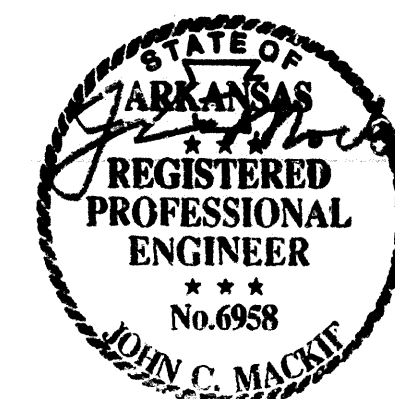
N.T.S.

SHEET 1 OF 5  
DETAILS OF  
170'- 0" CONT. COMP. PL. GIRDER UNITS  
BRIDGE A & B

ROUTE 40 SEC. 51  
ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT  
LITTLE ROCK, ARK.

DRAWN BY: M.C. DATE: 4-30-93  
TRACED BY: K.J. DATE: 5-4-93 SCALE: As Shown  
CHECKED BY: L.S. DATE: 5-20-93

BRIDGE NO. 6518 A &amp; B DRAWING NO. 34376

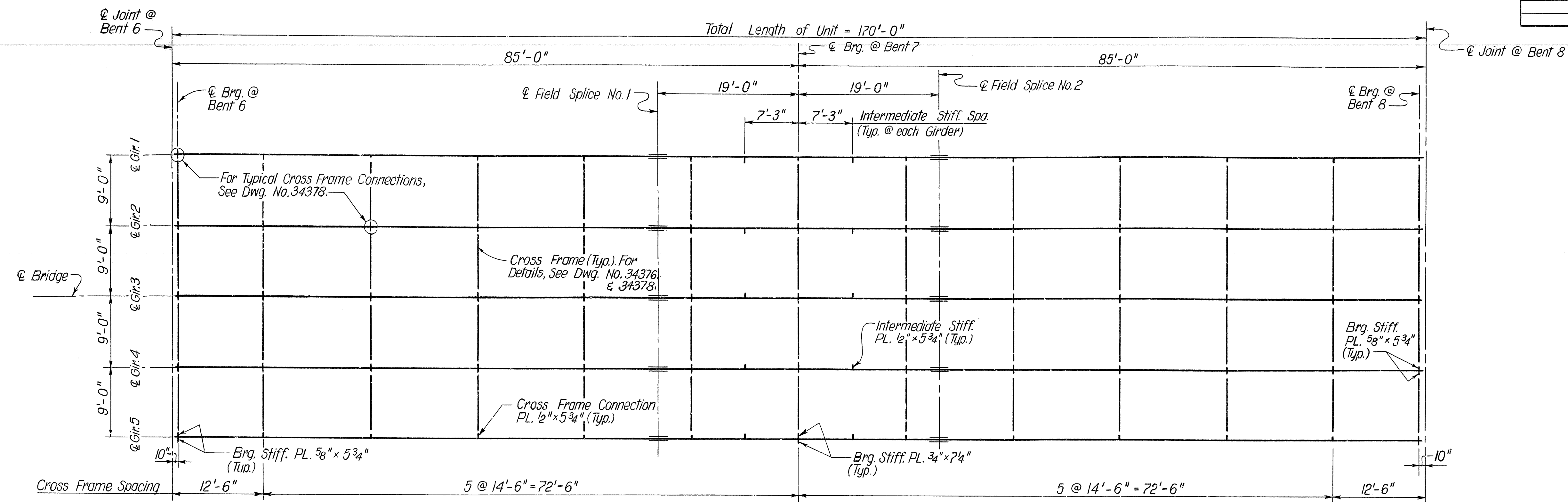


⚠ Revised Job no., L.M., 10-26-95

△ Revised for 1996 Specs KDH 8Aug96

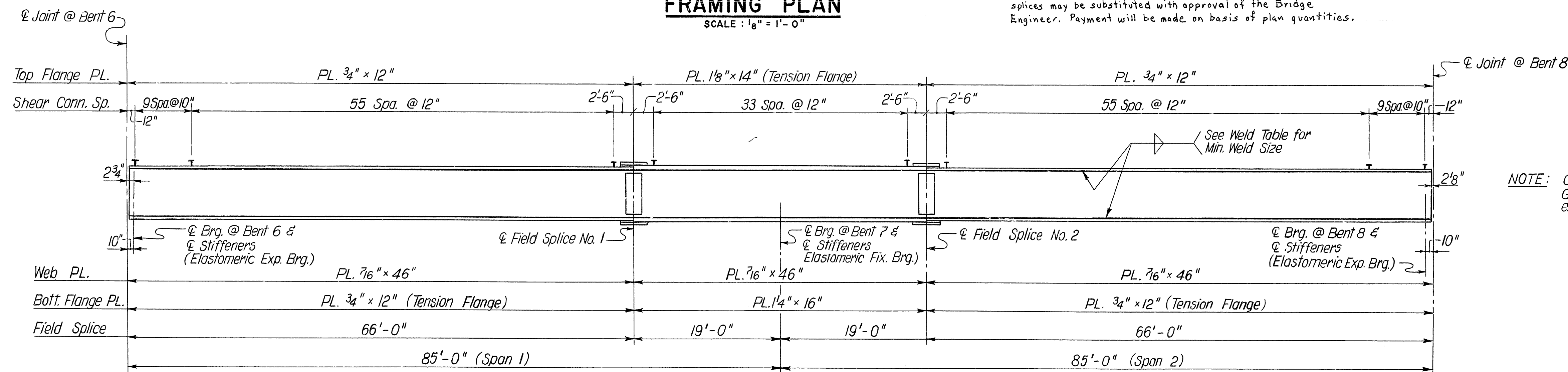


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				I	ARK.			
				JOB NO.	R10089		56	87
					6518 A & B	SPAN DETAILS 34377		



**FRAMING PLAN**  
SCALE: 1/8" = 1'-0"

Note: Bolted field splices may be eliminated or shop weld splices may be substituted with approval of the Bridge Engineer. Payment will be made on basis of plan quantities.



NOTE: C.L. Joint and End of Girder is Vertical (Typ. both ends of Unit).

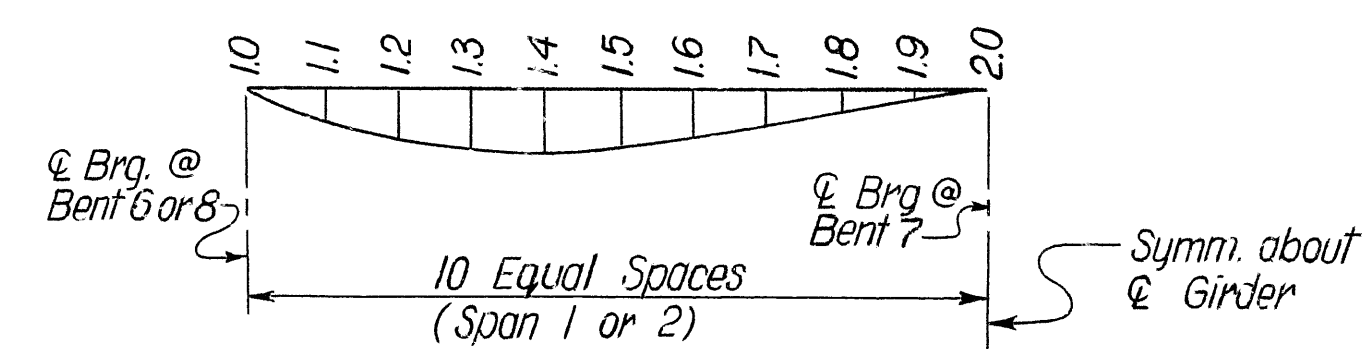
NOTES:  
All Structural Steel in Girder Shall be AASHTO M270, Gr. 50W.  
For Shear Connectors Details see Dwg. No. 34378.  
For Weld Table see Dwg. No. 34378.  
For Elastomeric Bearings Details see Dwg. 34381.  
For Superstructure General Notes See Dwg. 34381 A

**DEAD LOAD DEFLECTION (INCHES)**

NOTE: Camber for Dead Deflection plus Vertical Curve;  $\pm 1/4$  tolerance.  
Deflections shown area from a chord from  $\phi$  Brg. to  $\phi$  Brg.  
Vertical Curve corrections not included.

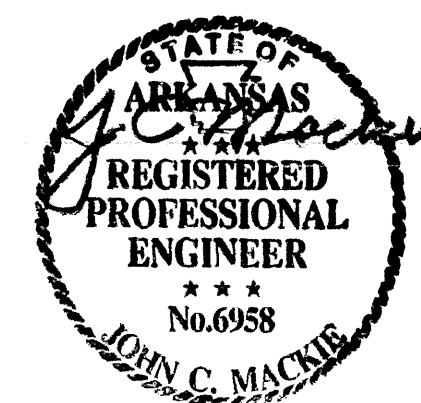
SPAN POINT	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
INTERIOR GIRDER											
STRUCTURAL STEEL	0.0	0.06	0.12	0.15	0.16	0.15	0.13	0.09	0.05	0.01	0.0
STRUCT. STEEL & SLAB	0.0	0.42	0.78	1.01	1.09	1.03	0.84	0.58	0.31	0.08	0.0
STRUCT. STEEL SLAB & PARAPET	0.0	0.45	0.83	1.08	1.17	1.10	0.89	0.62	0.32	0.09	0.0
EXTERIOR GIRDER											
STRUCTURAL STEEL	0.0	0.06	0.10	0.14	0.15	0.14	0.11	0.08	0.04	0.01	0.0
STRUCT. STEEL & SLAB	0.0	0.40	0.72	0.94	1.02	0.96	0.77	0.53	0.28	0.08	0.0
STRUCT. STEEL SLAB & PARAPET	0.0	0.43	0.78	1.01	1.10	1.03	0.84	0.53	0.30	0.09	0.0

**GIRDER ELEVATION**  
N.T.S.



**DEAD LOAD DEFLECTION DIAGRAM**  
N.T.S.

Revised Job no., L.M., 10-26-95  
Revised for 1996 Specs KDH 8Aug 96

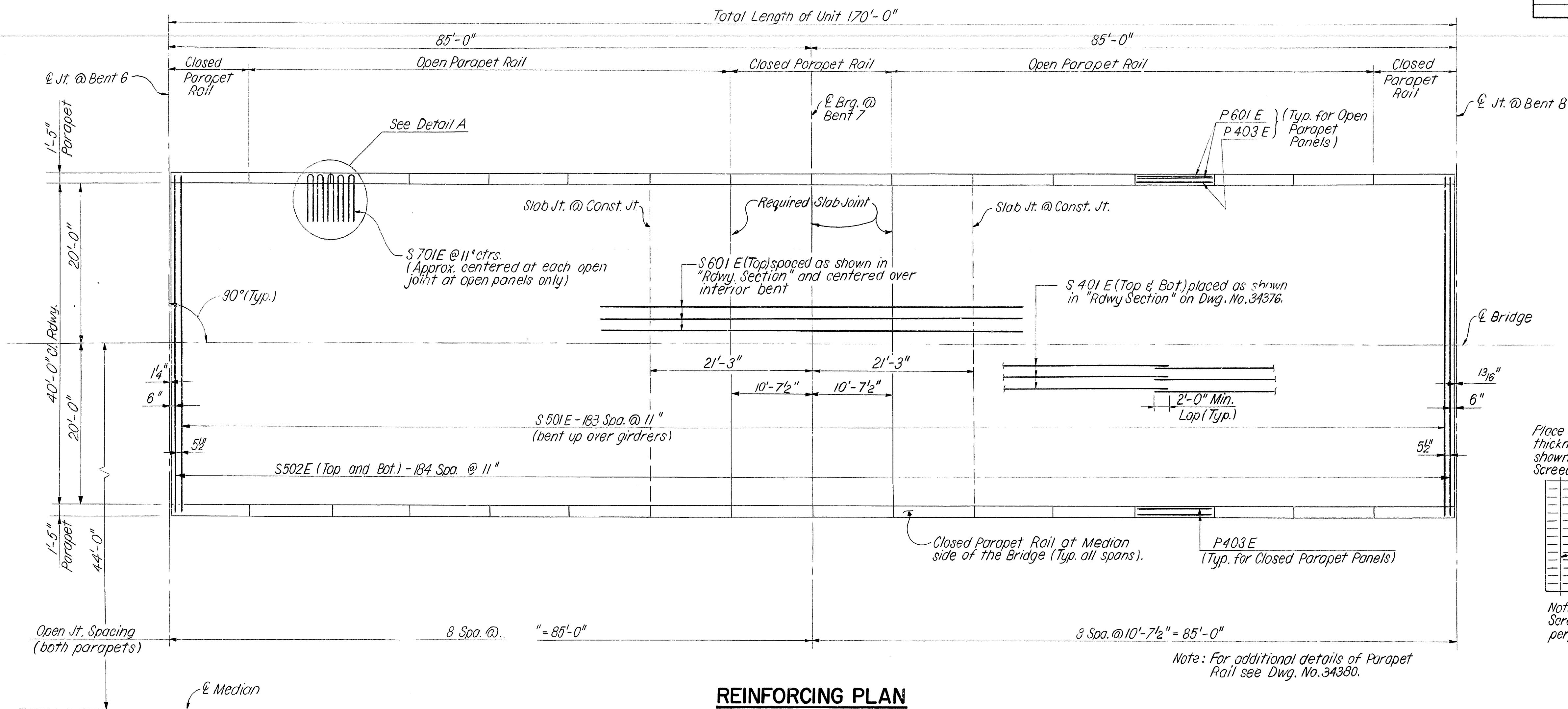


SHEET 2 OF 5  
DETAILS OF  
170'-0" CONT. COMP. PL. GIRDER UNITS  
BRIDGE A & B  
ROUTE 40 SEC. 51  
ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT  
LITTLE ROCK, ARK.  
DRAWN BY: M.C. DATE: 4-30-93  
TRACED BY: C.H.S. DATE: 5-5-93 SCALE: As Shown  
CHECKED BY: L.S. DATE: 5-20-93  
BRIDGE NO. 6518 A & B DRAWING NO. 34377



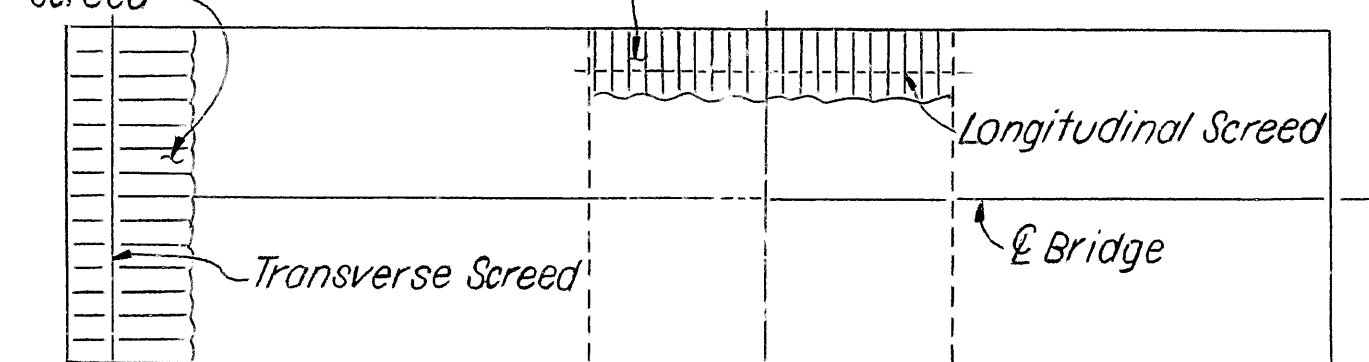


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				1	ARK.			
				JOB NO.		R10089	58	87
				6518 A & B		SPAN DETAILS	34379	



Place concrete to approx. slab thickness parallel to skew as shown when using Transverse Screenshot

Place Concrete to Approx. Slab Thickness for Full Length of Pour as shown when using Longitudinal Screenshot



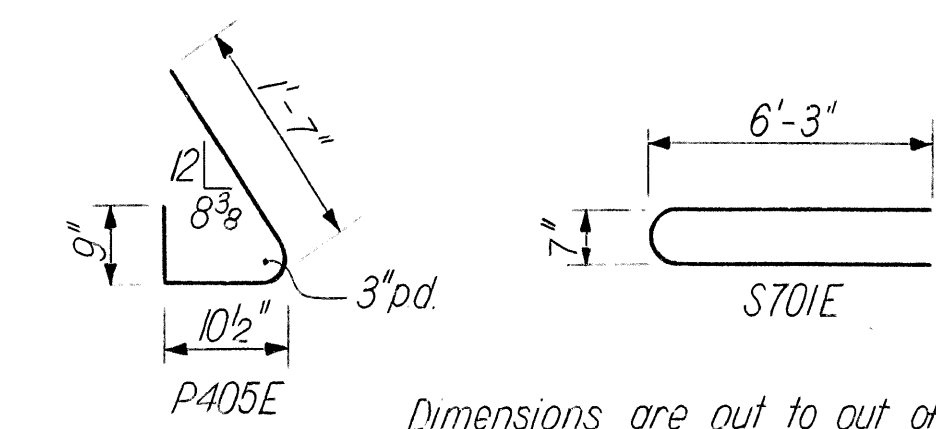
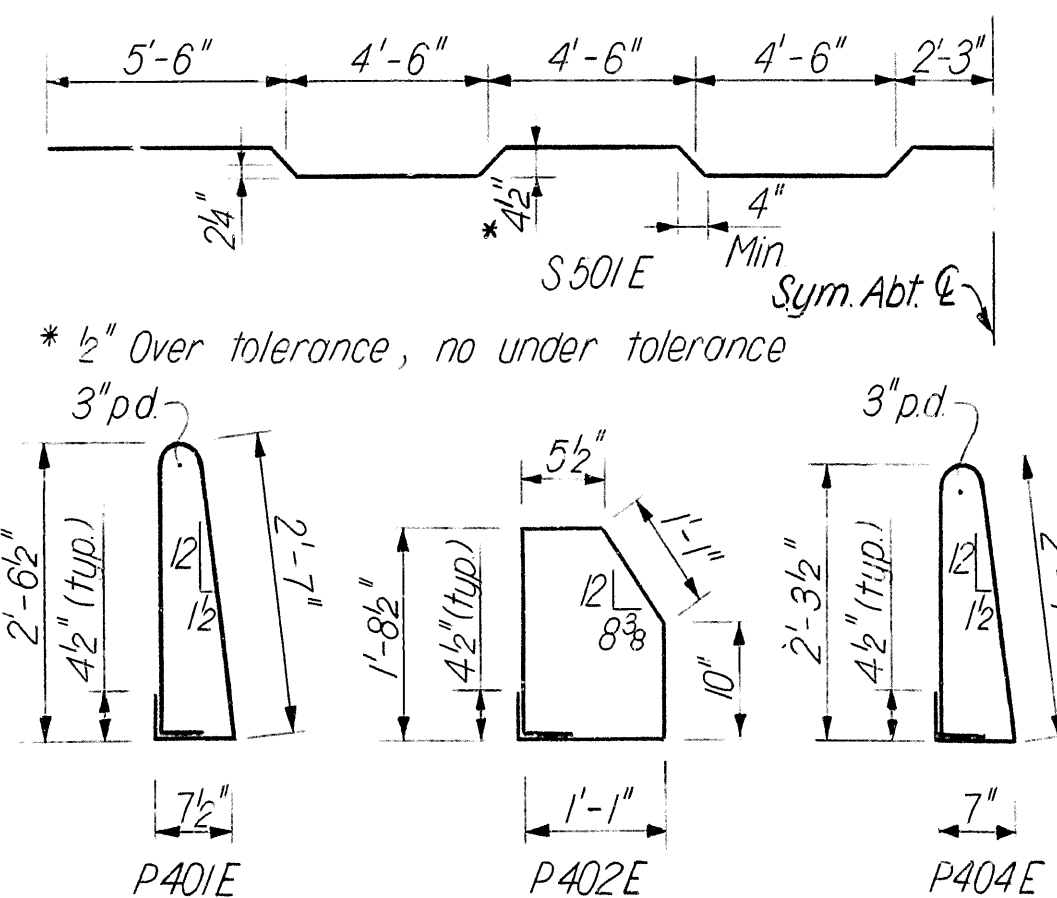
Note: At the Contractor's Option, the Transverse Screenshot may be placed parallel to the skew or perpendicular to Bridge

### REINFORCING PLAN (BRIDGE A SHOWN, BRIDGE B SIMILAR) SCALE 1/8" = 1' - 0"

### CONCRETE PLACEMENT PROCEDURE (TYP. ALL UNITS) N.T.S.

### BAR LIST - PER UNIT

MARK	NO. REQ'D	LENGTH	P.D.	BENDING DIAGRAMS
S401E	480	35'-6"	Str.	
S501E	184	43'-4"	3"	
S502E	370	42'-6"	Str.	
S601E	48	56'-0"	Str.	
S701E	70	12'-9"	5 1/4"	
P401E	320	6'-4"	2"	
P402E	320	5'-6"	2"	
P403E	168	10'-2"	Str.	
P404E	72	5'-10"	2"	
P405E	72	3'-2"	2"	
P601E	70	10'-2"	Str.	

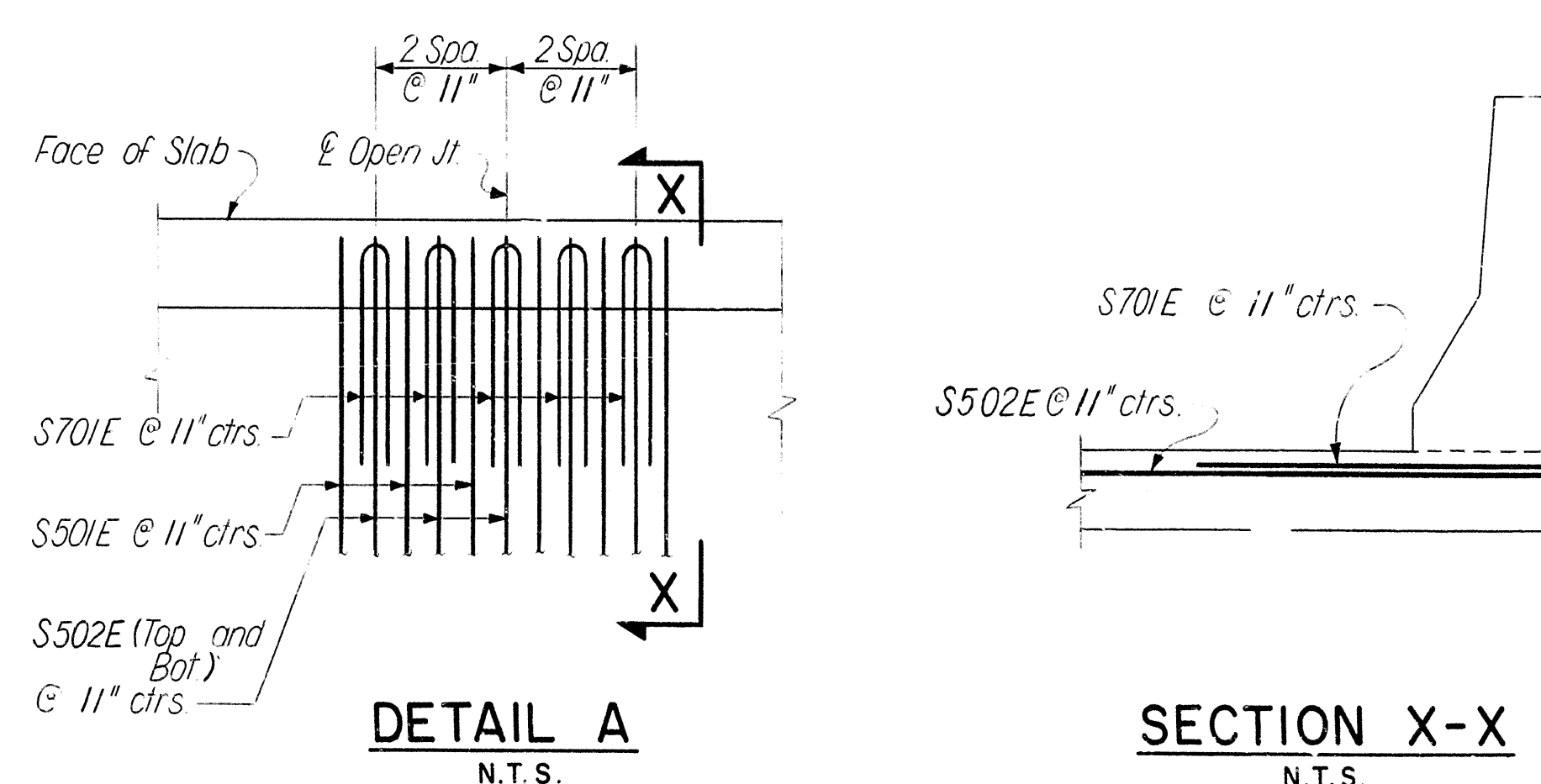


NOTE:  
All bars designated with an "E" suffix are to be Epoxy coated

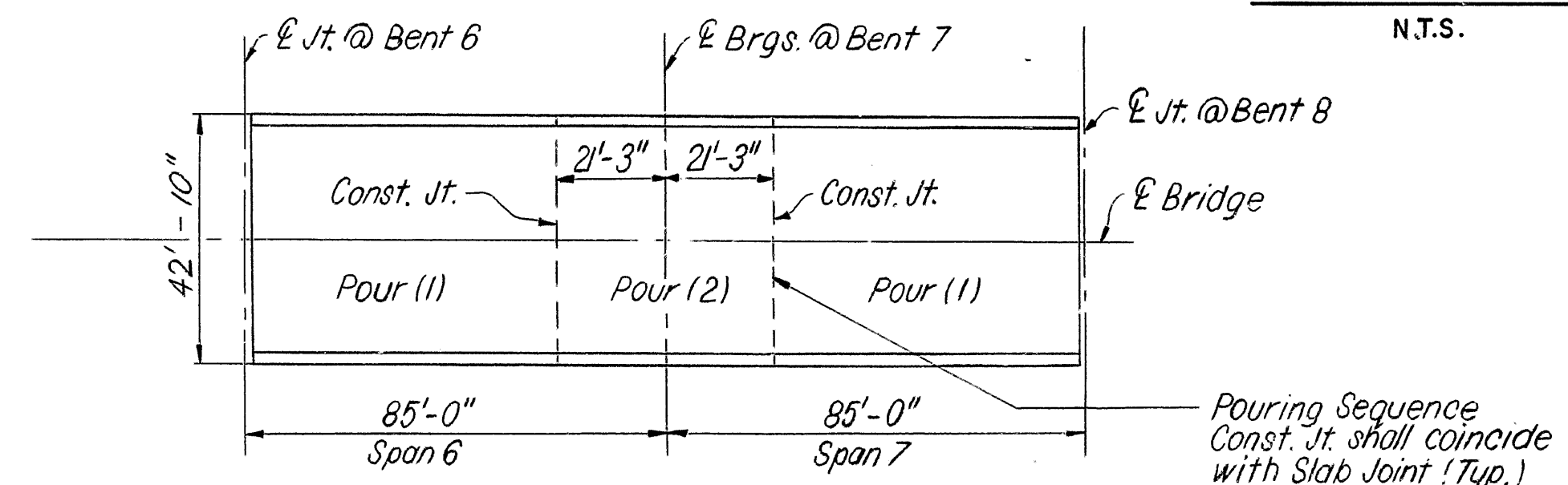
Dimensions are out to out of bars.

CL. 1/2" x 1" Type 6 Poured Synthetic Polymer Joint in slab (to be paid for as Class S(AE) Concrete). If Slab Joints are to be sawed, they shall be sawed before any vehicular traffic is allowed on the unit. See subsection 501.02(h) and 501.05(j) for material and construction specifications. Slab Joint shall extend to outside edge of Deck Slab. Slab Joint shall be installed before Parapet Railing is poured. See "Reinforcing Plan" for location of Joints.

### SLAB JOINT DETAIL N.T.S.



### SECTION X-X N.T.S.

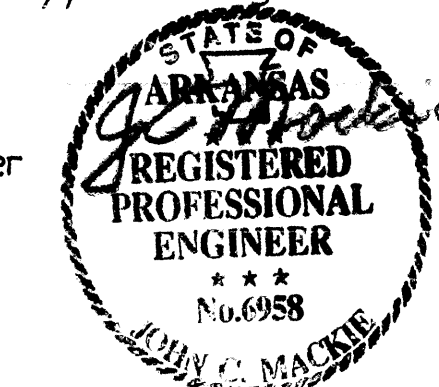


### POURING SEQUENCE N.T.S.

NOTE:  
Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. Forty eight (48) hours shall elapse between the end of a pour and the start of the next pour. Seventy two (72) hours shall elapse between the end of a pour and the start of an adjacent pour.

Any railing pours made before the entire slab unit has been placed must be approved by the Project Engineer.

The contractor must obtain approval from the Bridge Engineer for any deviations from the pouring sequence shown.



Revised Job no., L.M., 10-26-95  
Revised for 1996 Specs KDH 8Aug96

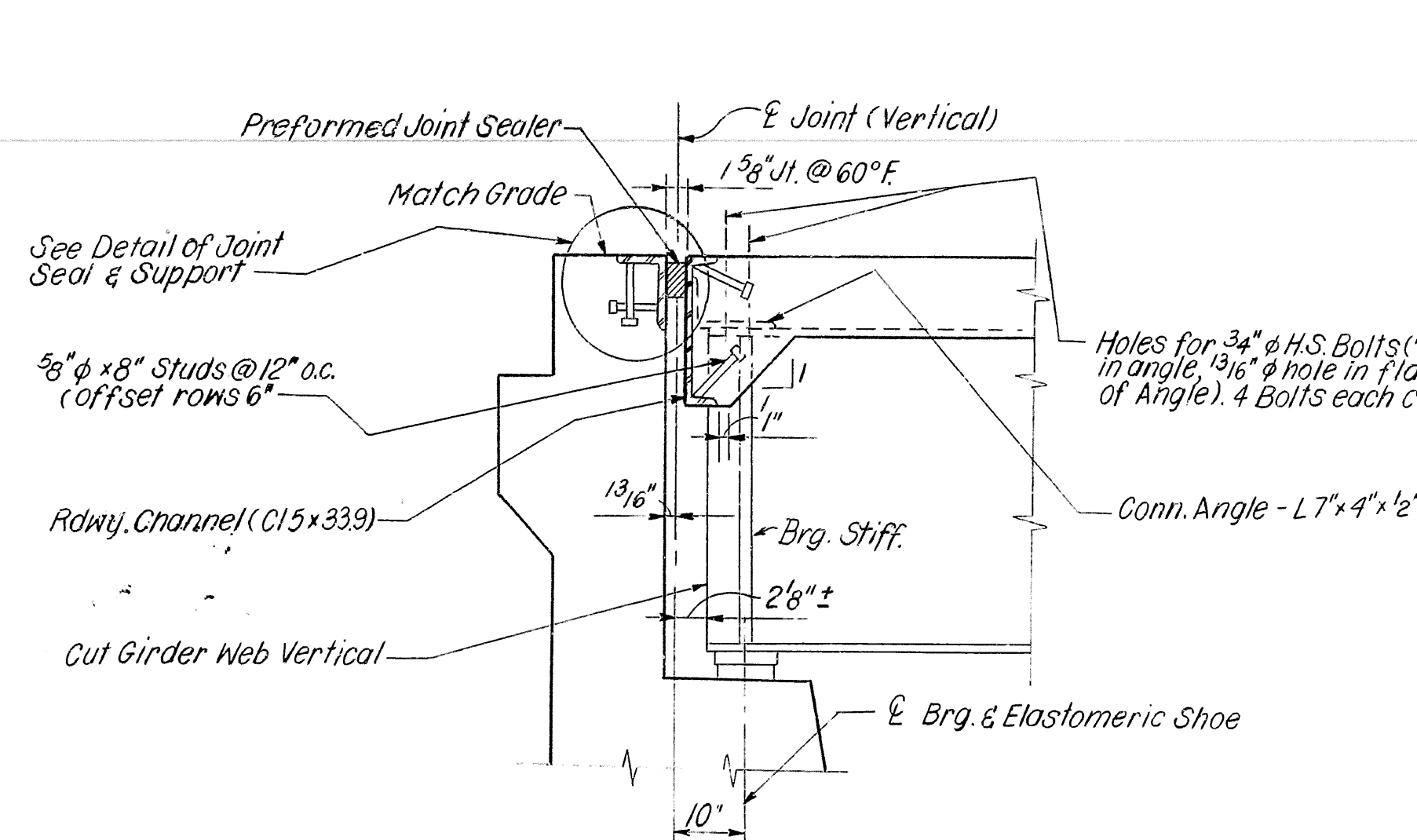
SHEET 4 OF 5  
DETAILS OF  
170'-0" CONT COMP. PLATE GIRDER UNIT  
BRIDGE A & B

ROUTE 40 SEC. 51  
ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT  
LITTLE ROCK, ARK.

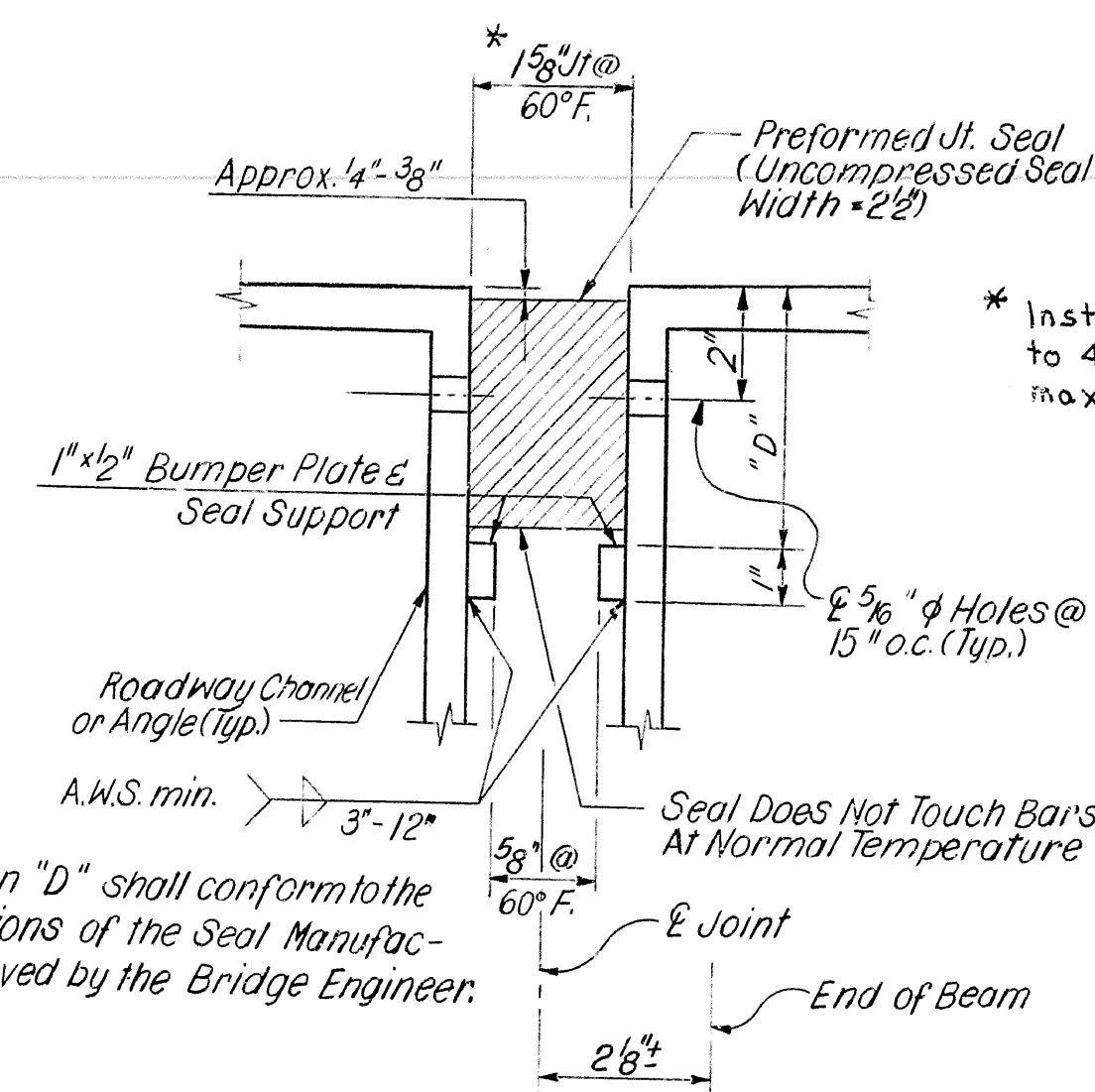
DRAWN BY: W.P. DATE: 4-28-93  
TRACED BY: K.P. DATE: 5-12-93 SCALE: AS SHOWN  
CHECKED BY: L.S. DATE: 5-20-93

BRIDGE NO. 6518 A & B DRAWING NO. 34379

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. NO. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				I	ARK.	R10089	59	87
				6518 A & B DECK DETAILS 34380				

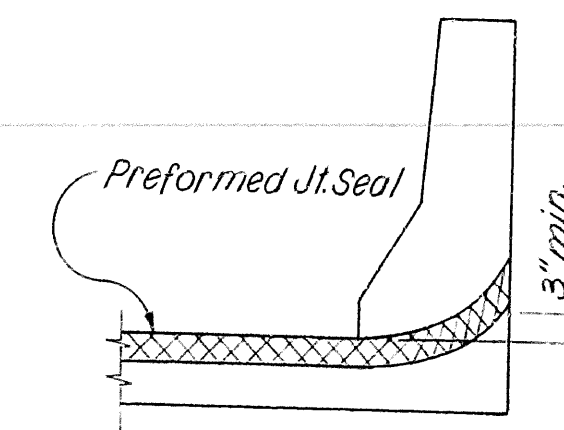


**JOINT AT END BENT 8**  
N.T.S.

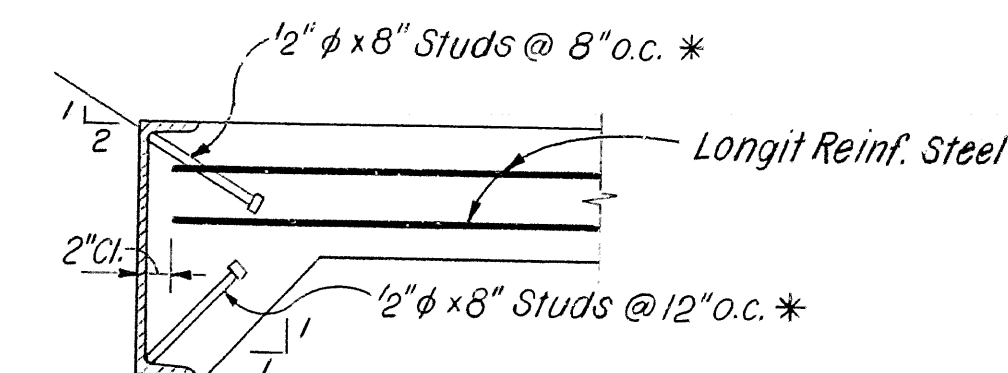


**DETAIL OF JOINT SEAL & SUPPORT**  
N.T.S.

Note: The Seal shall be in one piece (without splices) for the full length of the joint, except that lengths 55 feet and longer may have a factory made splice. Splices, when required, shall be shown on the Shop Drawings and shall be placed near the high ends of the Roadway. Separation of the Splice during installation shall be cause for rejection of the Seal.



**JOINT SEAL PLACEMENT AT CURB**  
N.T.S.



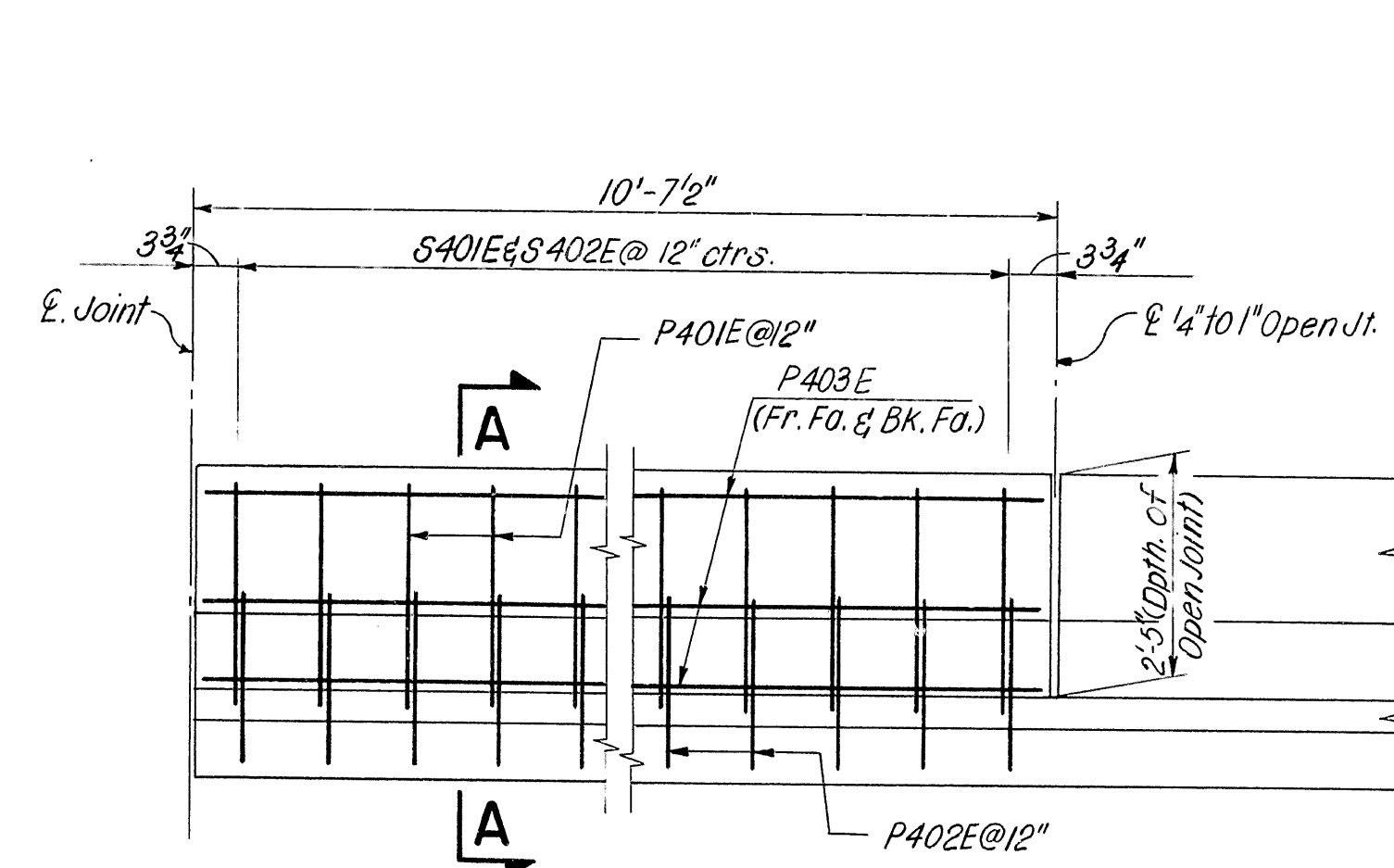
**DETAILS OF ALTERNATE ANCHORS**  
N.T.S.

Note: As an alternate to 5/8"  $\phi$  studs, 1/2"  $\phi$  x 8" studs spaced as shown may be used. Use weight of 5/8"  $\phi$  stud as basis of measurement of structural steel in anchors.

\* Automatically End Welded, Granular Flux Filled, Solid Fluxed or Equal.

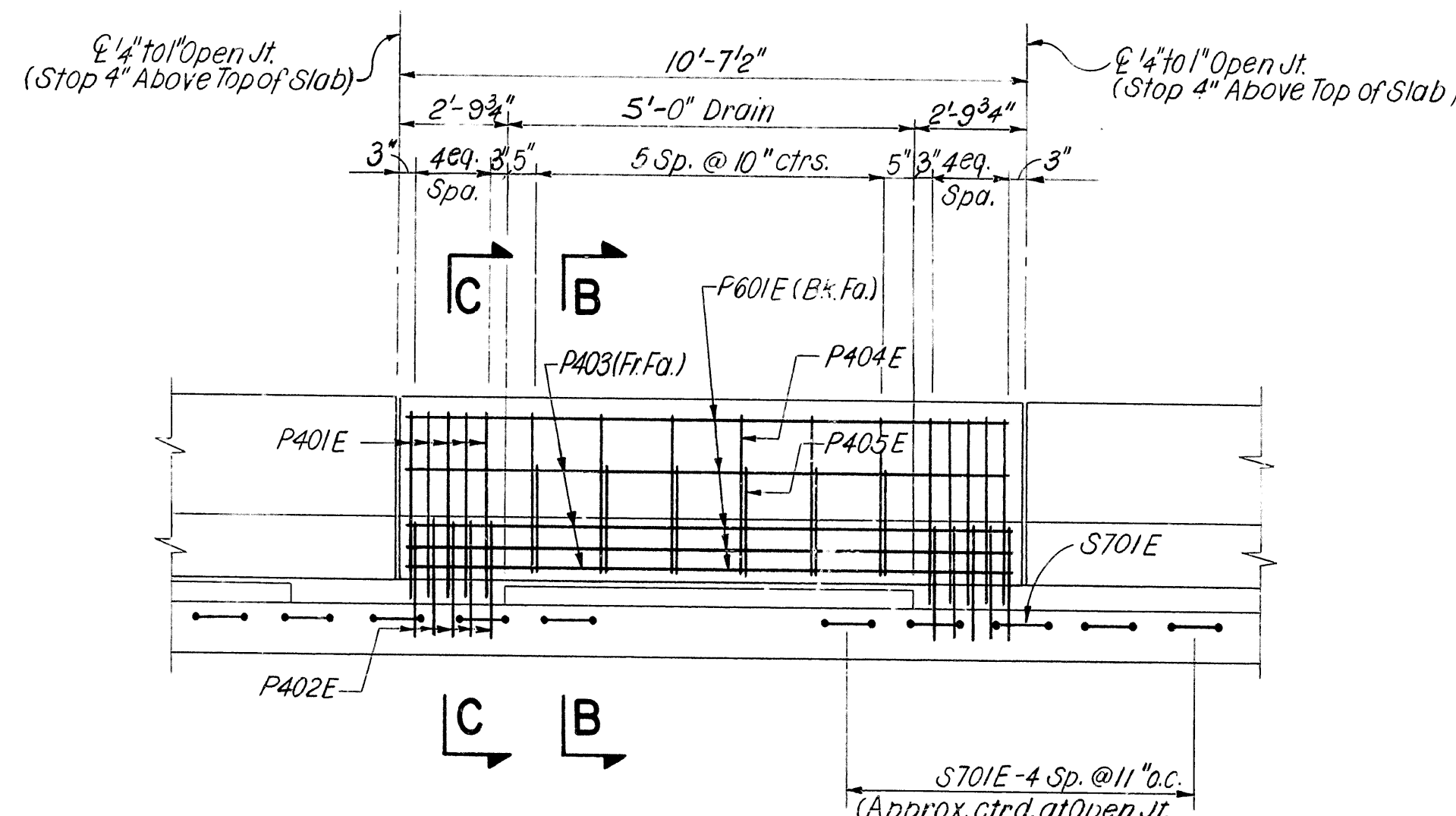
**DETAILS FOR BLOCKING EXPANSION JOINT DEVICE**  
N.T.S.

Note: Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension shown. The blocking details shall be shown on the Shop Drawings. The blocking shall not be removed until the Slab on one side is complete. Blocking shall be placed within 2 feet of each end of the device and with a maximum spacing of 8 feet. Removal shall be just before or after pouring the second side of the joint, as directed by the Engineer.

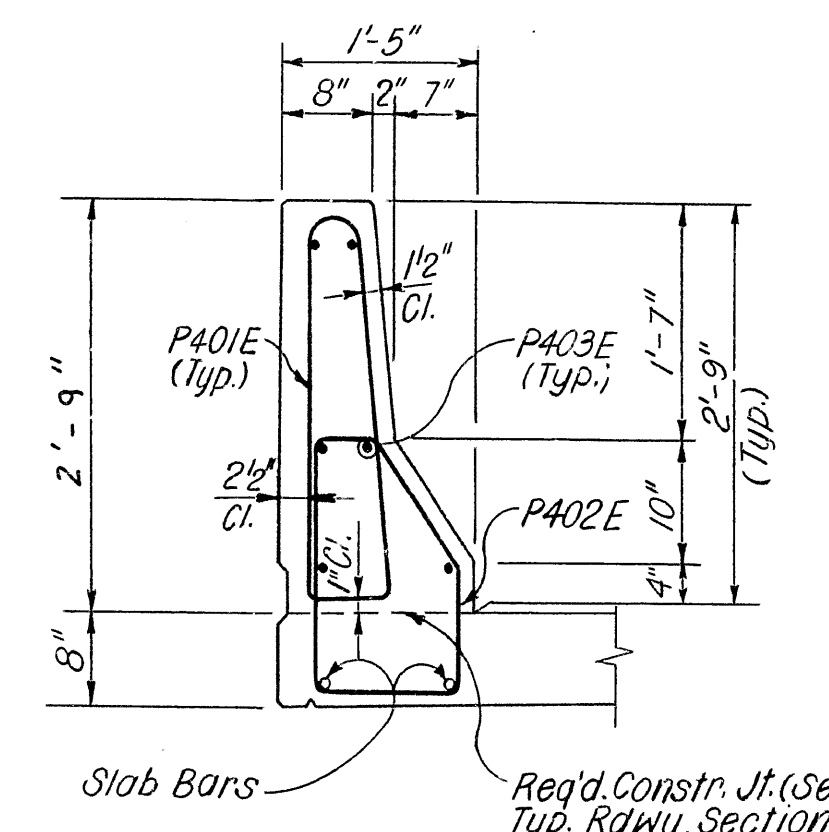


**LONGITUDINAL SECTION AT CURB FOR CLOSED PARAPET RAIL**  
N.T.S.

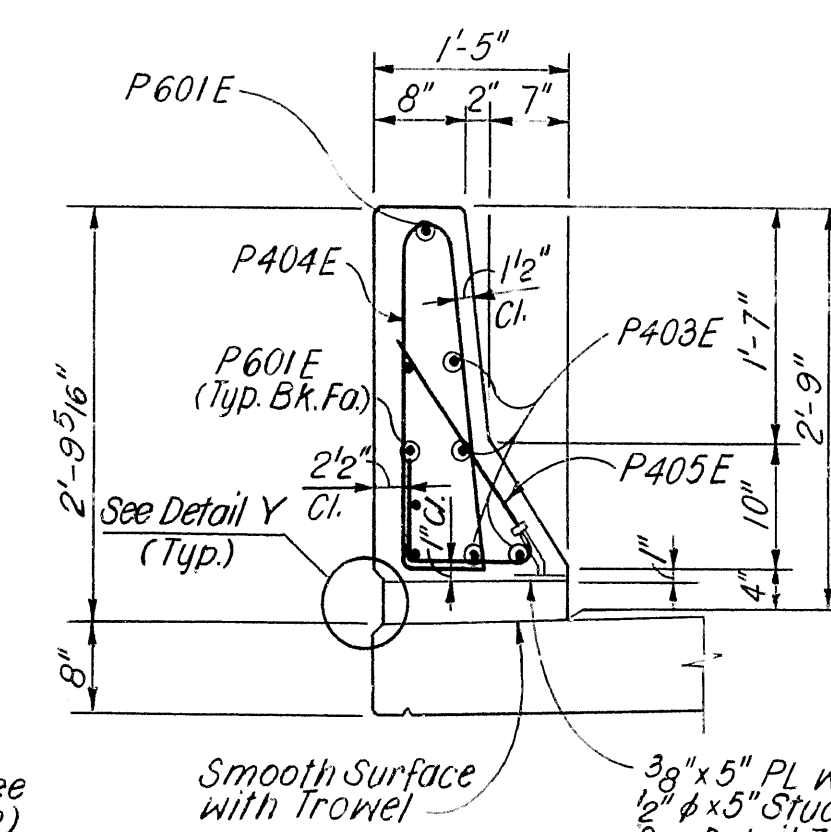
Note: See Dwg. No. 34381A for optional slip forming details.



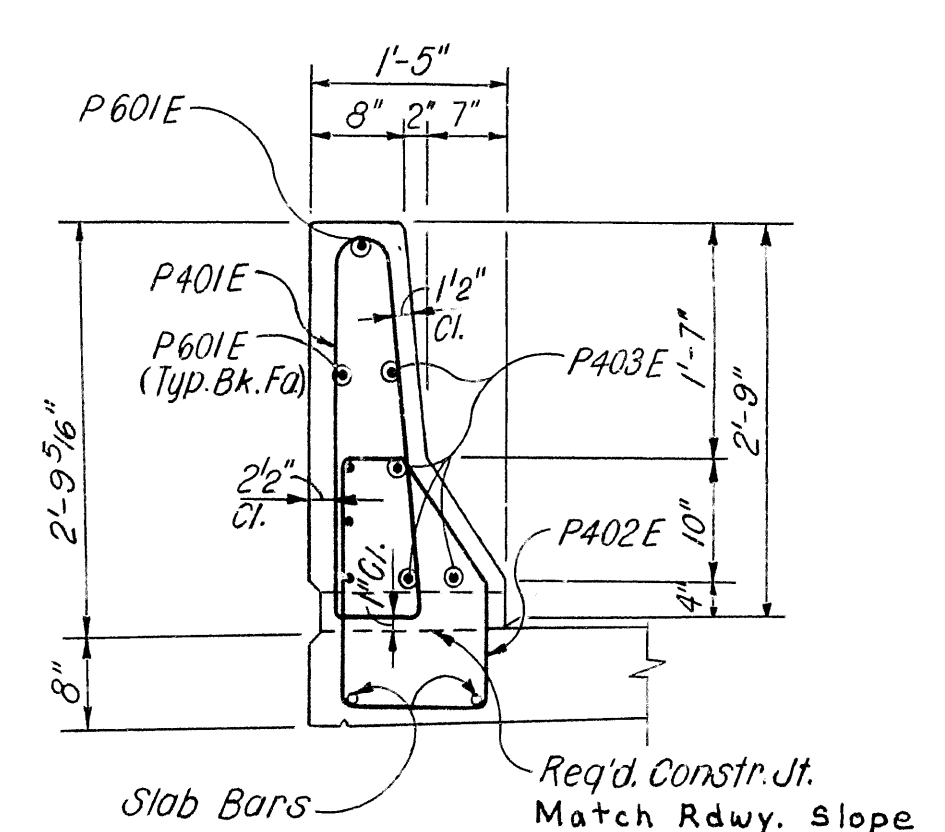
**LONGITUDINAL SECTION AT CURB FOR OPEN PARAPET RAIL**  
N.T.S.



**SECTION A-A**  
SCALE: 3/4" = 1' - 0"

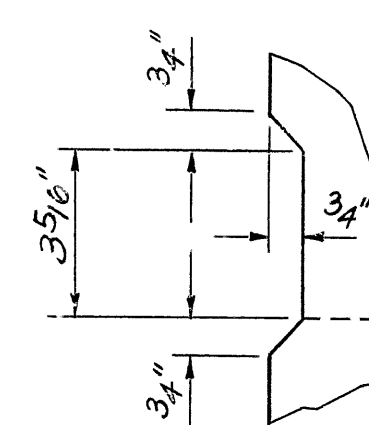


**SECTION B-B**  
SCALE: 3/4" = 1' - 0"

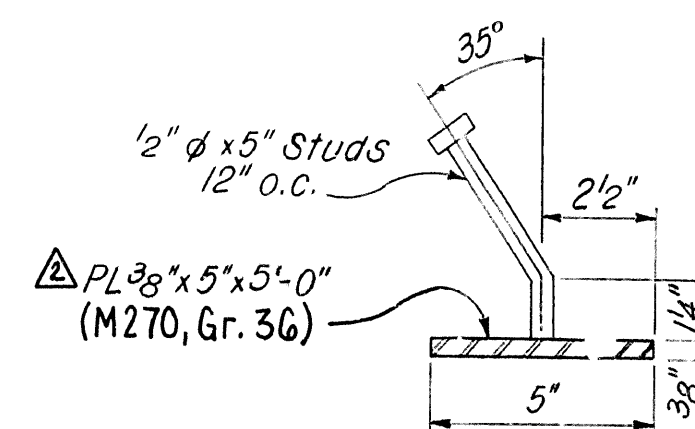


**SECTION C-C**  
SCALE: 3/4" = 1' - 0"

Note: For Joint Details at Bent 6 see Dwg. No. 34375.



**DETAIL Y**  
N.T.S.



**DETAIL Z**  
N.T.S.

Note: Parapet Studs shall be 5" long, granular flux filled, solid fluxed, or equal, and automatically end welded to the plate. Studs and plate shall meet the requirements of Section 807. Studs and plate shall be measured and paid for as "Structural Steel in Plate Girder Spans (M270, Gr. 50W)". The surfaces of the 3/8" Plates which will not be in contact with concrete shall be painted in accordance with Section 638.

Note: Painting will not be paid for directly but will be included in the Item of "Structural Steel in Plate Girder Spans (M270, Gr. 50W)". Only one coat is required and shall be applied in the fabricator shop.

Revised Job no., L.M., 10-26-95  
Revised for 1996 Specs KDH 8Aug 96



SHEET 5 OF 5  
DETAILS OF  
170' - 0" CONT. COMP. PL. GIRDER UNIT  
BRIDGE A & B

ROUTE 40 SEC. 51  
ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT  
LITTLE ROCK, ARK.  
DRAWN BY: W.P. DATE: 4-28-93  
TRACED BY: K.J. DATE: 5-14-93 SCALE: As Shown  
CHECKED BY: J.S. DATE: 5-20-93  
BRIDGE NO. 6518 A & B DRAWING NO. 34380



Technical drawing illustrating the connection of a girder flange to a column cap using anchor bolts and washers.

**Dimensions and Labels:**

- D:** Total width of the girder flange.
- V:** Distance from the edge of the girder flange to the center of the anchor bolt.
- R:** Radius of the girder flange.
- Min.:** Minimum dimensions for hole placement and sleeve height.
- Max.:** Maximum dimensions for hole placement and sleeve height.
- W:** Thickness of the girder flange.
- J:** Thickness of the cap.
- P:** Embedment of the anchor bolt into the column.
- A:** Spacing between the anchor bolts.
- 5/16":** Hole diameter in the cap.
- 1/4" Min.:** Minimum sleeve height.
- 1/2":** Hole diameter in the column.

**Components and Callouts:**

- Girder Flange
- Heavy Hex Nut
- Standard Washer (See Table)
- Std. Weight Pipe Sleeve (See Table)
- Swedge Anchor Bolt (See Table)
- Elastomeric Pad
- Cap of Cap
- Sleeve Height

Thickness under Dead Load

2" Steel PL @ CL Bearing

H

CL Bearing

Bevel Plate to match slope of beam after dead load deflection (to nearest  $\frac{1}{32}$ " total difference in thickness across plate for bearing ).

Top of Cap

B

$\frac{3}{4}"$

C

$\frac{3}{4}"$

The location of the Anchor Bolts in relation to the holes in the Sole Plate shall correspond with the temperature at the time of erection. At 60° F the holes should center on the Anchor Bolts.

The diagram illustrates a shear block connection between a column and a beam. Key dimensions and components are labeled:

- Vertical Dimensions:**
  - $C/2$ : Half the column depth, shown on both the left and right sides.
  - $E$ : Embedment length of the shear block into the column.
  - $\delta$ : Vertical distance from the center of the shear block to the top and bottom reinforcement lines.
- Horizontal Dimensions:**
  - $2'' F$ : Two times the development length of the top reinforcement bars.
  - $2''$ : Two times the diameter of the reinforcement bars.
  - $1''$ : One times the diameter of the reinforcement bars.
  - $1'' \text{ Min.}$ : Minimum horizontal distance from the edge of the column to the center of the shear block.
- Components:**
  - Shear Block:** The central rectangular component used to transfer shear.
  - Slot In Plate & Shear Block:** The rectangular opening in the column's reinforcement plate that accommodates the shear block.

The diagram illustrates a cross-section of a sole plate assembly. It consists of multiple horizontal layers. The top layer is labeled "The Elastomeric Pad must be vulcanized to the sole plate." with a triangle symbol. Below it are several thin layers labeled "Internal Plates". The bottom-most layer is labeled "50 Durometer Elastomer". Dimensions shown include:
 

- $\frac{1}{8}"$  cl. (typ.) for the thickness of the top elastomeric pad.
- $tT$  for the total thickness of the assembly.
- $tB$  for the thickness of the bottom elastomeric layer.
- $t$  for the thickness of individual internal plates.
- A note at the bottom right states: "Number of layers with thickness =  $t$ ".

[illegible]

Standard Washer  
Pipe Sleeve  
3" Ø x 6" Sheet Metal Sleeve  
4" Thread  
Top of cap

[illegible]

A circular professional engineer seal for the State of Arkansas. The seal features a rope-like border. Inside the border, the text "STATE OF ARKANSAS" is at the top, "REGISTERED PROFESSIONAL ENGINEER" is in the center, and "No. 6958" is below it. The name "JOHN C. MACKIE" is written along the bottom curve. A signature is scrawled across the seal.

DRAWN BY: M.D. DATE: 7-29-93  
CHECKED BY: I.S. DATE: 7-30-93 SCALE: NONE  
DESIGNED BY: V.P. DATE: 7-26-93

BRIDGE NO. 6518 A &amp; B DRAWING NO. 34381



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				1	ARK.			
				JOB. NO.		R10089	61	87
① 6518 A & B SUPERSTR. GEN. NOTES 34381A								

SUPERSTRUCTURE GENERAL NOTES:

SEE LAYOUT FOR BENCHMARK.

DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 1996 EDITION WITH CURRENT INTERIMS.

CONSTRUCTION SPECIFICATIONS: ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPT. STANDARD SPECIFICATION FOR HIGHWAY CONSTRUCTION, 1996 EDITION WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

LIVE LOADING: HS 20-44 AND SPECIAL INTERSTATE LOADING OF TWO 24,000 Lb. AXLES SPACED 4'-0" ON CENTER

METHOD OF DESIGN: LOAD FACTOR

CONCRETE: ALL CONCRETE SHALL BE CLASS S(AE) WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH  $f'_c=4,000$  psi.

REINFORCING STEEL: REINFORCING STEEL SHALL CONFORM TO AASHTO M31 OR M53, GRADE 60 (YIELD STRENGTH = 60,000 psi).

STRUCTURAL STEEL: STRUCTURAL STEEL SHALL CONFORM TO AASHTO M270 GR. 50W ( $F_y=50,000$  psi.) AND AASHTO M270, GR. 36 ( $F_y=36,000$  psi.).

ELASTOMERIC BEARINGS: FOR ELASTOMERIC BEARINGS, SEE DRWG. No. 34381.

STRUCTURAL STEEL:

ALL STRUCTURAL STEEL SHALL BE AASHTO M270, GR. 50W UNLESS OTHERWISE NOTED AND SHALL BE PAID FOR AT THE UNIT PRICE PER POUND BID FOR "STRUCTURAL STEEL IN PLATE GIRDER SPANS (M270, GR. 50W)". M270, GR. 50W STEEL SHALL NOT BE PAINTED. ALL EXPOSED SURFACES TO BE CLEANED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. STRUCTURAL STEEL COMPLETELY EMBEDDED IN CONCRETE MAY BE AASHTO M270, GR. 36 SHALL BE PAID FOR UNDER THE CONTRACT UNIT PRICE PER POUND BID FOR "STRUCTURAL STEEL IN PLATE GIRDER SPANS (M270, GR. 50W)".

STRUCTURAL SHAPES OF EQUAL OR GREATER STRENGTH MAY BE SUBSTITUTED FOR SHAPES SHOWN IF APPROVAL IS OBTAINED FROM THE BRIDGE ENGINEER. PAYMENT WILL BE MADE ON THE BASIS OF SHAPES SHOWN.

WEB AND FLANGE PLATES ARE CONSIDERED MAIN LOAD CARRYING MEMBERS AND SHALL MEET THE LONGITUDINAL CHARPY V-NOTCH TEST SPECIFIED IN SECTION 807.05 OF THE STANDARD SPECIFICATIONS. THIS WORK AND MATERIAL ARE TO BE CONSIDERED AS SUBSIDIARY TO THE "STRUCTURAL STEEL IN PLATE GIRDER SPANS (M270, GR. 50W)" AND WILL NOT BE PAID FOR DIRECTLY.

STEEL PLATES FOR MAIN MEMBERS AND FLANGE FIELD SPlice PLATES FOR FLANGE AND MAIN TENSION MEMBERS, NOT SECONDARY MEMBERS, SHALL BE CUT AND FABRICATED SO THAT THE PRIMARY DIRECTION OF ROLLING IS PARALLEL TO THE DIRECTION OF MAIN TENSILE AND/OR COMPRESSIVE STRESSES.

ALL GIRDERS SHALL BE BLOCKED IN THEIR TRUE POSITION IN THE SHOP, IN GROUPS OF A MINIMUM OF THREE SECTIONS. GIRDERS SHALL BE BLOCKED WITH WEBS HORIZONTAL. SEE SECTION 807.54(b)(2) OF THE STANDARD SPECIFICATIONS. THE CAMBER, LENGTH OF SECTIONS, DISTANCE BETWEEN BEARINGS, AND OPENINGS OF JOINTS SHALL BE MEASURED WITH THE GIRDERS IN THEIR TRUE POSITION AND THIS INFORMATION SHALL BECOME A PART OF THE PERMANENT RECORDS OF THIS JOB. THE COMPONENT PARTS SHALL BE MATCH MARKED IN THIS ASSEMBLY AND THESE MARKS SHALL BE SHOWN ON THE ERECTION DIAGRAM. ALL GIRDER DIMENSIONS ARE BASED ON A TEMPERATURE OF 60° F. A TOLERANCE OF  $\pm 1/4"$  IS ALLOWED FOR CAMBER.

ANCHOR BOLTS SHALL CONFORM TO SECTION 807.07 OF THE STANDARD SPECIFICATIONS.

GIRDER WEBS MAY BE MADE BY SHOP SPlicing WITH MINIMUM LENGTH OF 25'-0" FOR SECTIONS. FLANGE PLATES LONGER THAN 50 FT. MAY BE MADE BY SHOP SPlicing WITH MINIMUM LENGTH OF 25'-0" FOR SECTIONS. NO ADDITIONAL PAYMENT FOR THESE WELDS WILL BE MADE.

FIELD CONNECTIONS TO BE BOLTED WITH HIGH-STRENGTH BOLTS. FOR  $3/4"$  BOLTS: OPEN HOLES =  $15/16"$  UNLESS OTHERWISE NOTED. BOLT SPACING =  $2 1/2"$  UNLESS OTHERWISE NOTED. MINIMUM EDGE DISTANCE =  $1 1/4"$  UNLESS OTHERWISE NOTED. FOR  $1/2"$  BOLTS: OPEN HOLES =  $5/8"$  UNLESS OTHERWISE NOTED. BOLT SPACING = 3" UNLESS OTHERWISE NOTED. MINIMUM EDGE DISTANCE =  $1 1/2"$  UNLESS OTHERWISE NOTED. BOLTS SHALL BE PLACED WITH HEADS ON THE OUTSIDE FACE OF THE EXTERIOR GIRDER WEBS AND ON THE BOTTOM OF THE GIRDER FLANGES.

HOLES FOR  $3/4"$  HIGH STRENGTH BOLTS IN CROSS-FRAMES MAY BE  $15/16"$  IF A WASHER IS SUPPLIED FOR USE UNDER BOTH THE NUT AND THE HEAD OF THE BOLT.

CROSS FRAMES SHALL BE INSTALLED AS GIRDERS ARE ERECTED. ALL BOLTS IN CROSS FRAMES AND FIELD SPICES SHALL BE INSTALLED AND TIGHTENED IN ACCORDANCE WITH SUBSECTION 807.71 PRIOR TO POURING OF CONCRETE DECK.

ALL WELDING THAT IS TO BE DONE DURING FABRICATION OF STRUCTURAL STEEL, INCLUDING TEMPORARY WELDS SHALL BE DETAILED ON THE SHOP DRAWINGS AND SUBMITTED FOR APPROVAL. IF THE CONTRACTOR OR ERECTOR SHOULD WANT TO MAKE ADDITIONAL WELDS, WHETHER TEMPORARY OR PERMANENT, HE SHALL SUBMIT DETAILED DRAWINGS WITH A FORMAL REQUEST TO THE BRIDGE DESIGN ENGINEER OF THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT FOR APPROVAL. ALL WELDING SHALL CONFORM TO SUBSECTION 807.2c OF THE STANDARD SPECIFICATIONS.

GROOVE WELDS IN WEB PLATES AND FLANGE PLATES SHALL BE QUALITY CONTROL (Q.C.) TESTED BY NONDESTRUCTIVE TESTING AS REQUIRED BY THE STANDARD SPECIFICATIONS.

FILLET WELDS AT FLANGE TO WEB PLATE CONNECTIONS SHALL BE Q.C. TESTED BY THE MAGNETIC PARTICLE METHOD.

ALL QUALITY CONTROL (Q.C.) TESTING IS AT THE CONTRACTORS EXPENSE.

ELASTOMERIC BEARINGS SHALL BE FIRMLY SEATED IN ACCORDANCE WITH SUBSECTION 808.08 OF THE STANDARD SPECIFICATIONS. THIS WORK AND MATERIAL TO BE CONSIDERED AS SUBSIDIARY TO THE ITEM "ELASTOMERIC BEARINGS" AND WILL NOT BE PAID FOR DIRECTLY.

DRAWINGS SHOW GENERAL FEATURES OF DESIGN ONLY. SHOP DRAWINGS SHALL BE MADE IN ACCORDANCE WITH THE SPECIFICATIONS, SUBMITTED, AND APPROVAL SECURED BEFORE FABRICATION IS BEGUN.

LOAD DISTRIBUTION TO GIRDERS:

DEAD LOAD

(a) TO GIRDER ONLY  
(b) TO COMPOSITE GIRDER

TO INTERIOR GIRDER

938 plf + 1.3 (WT. OF BEAM)  
\* 367 plf - OPEN PARAPET  
\* 376 plf - CLOSED PARAPET

TO EXTERIOR GIRDER

830 plf + 1.3 (WT. OF BEAM)  
\* 307 plf - OPEN PARAPET  
\* 316 plf - CLOSED PARAPET

\* INCLUDES FOR FUTURE WEARING SURFACE 216 plf

156 plf

LIVE LOAD TO COMPOSITE BEAM

1.636 WHEELS + IMPACT

1.44 WHEELS + IMPACT

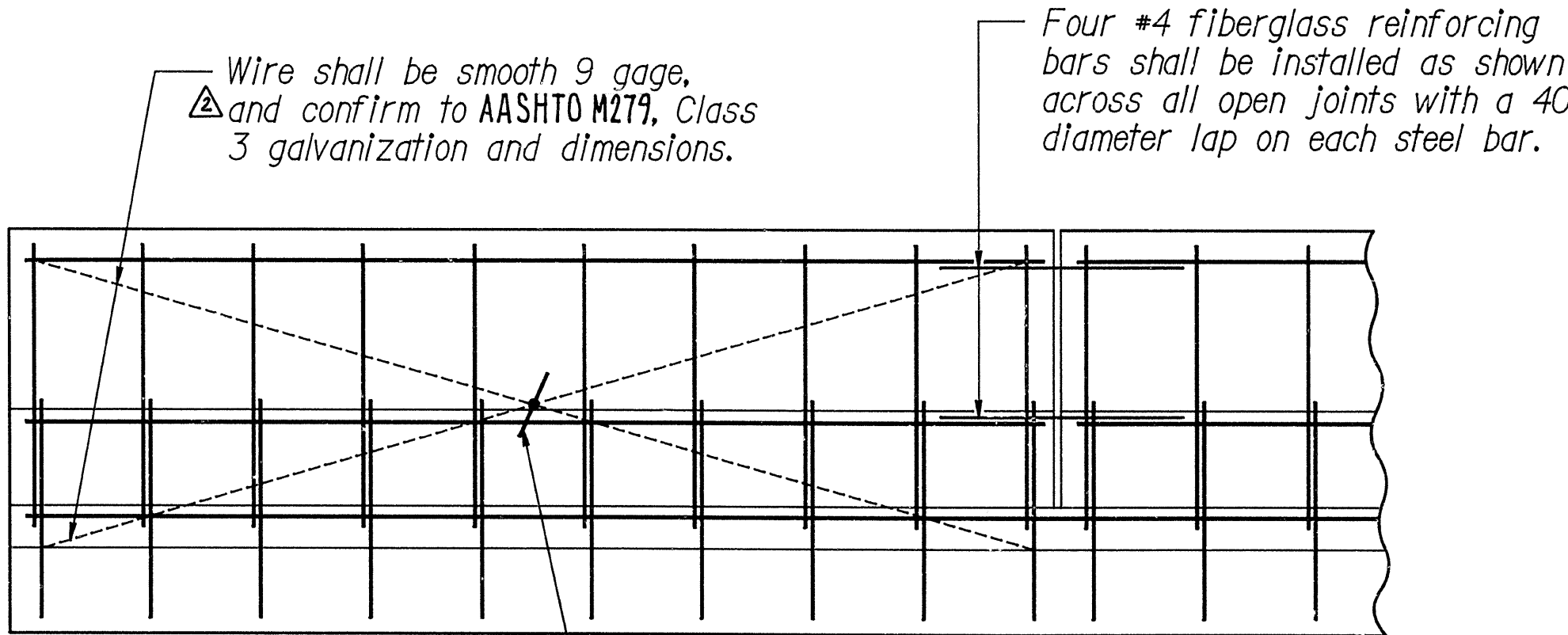
REINFORCING STEEL:

THE REINFORCING STEEL SHALL BE ACCURATELY LOCATED IN THE FORMS AND FIRMLY HELD IN PLACE BY STEEL WIRE SUPPORTS SUFFICIENT IN SIZE AND NUMBER TO PREVENT DISPLACEMENT DURING THE COURSE OF CONSTRUCTION. THE WIRE SUPPORTS WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE CONSIDERED SUBSIDIARY TO THE ITEM OF "EPOXY COATED REINFORCING STEEL (GRADE 60)".

CONCRETE:

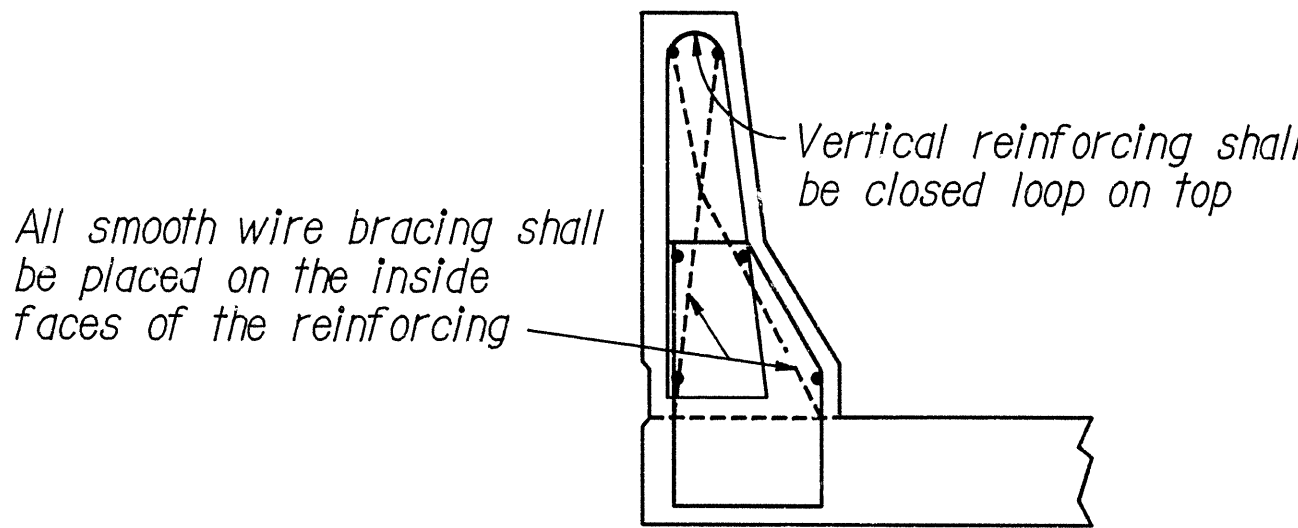
CONCRETE IN BRIDGE SUPERSTRUCTURE SHALL BE PLACED, CONSOLIDATED AND SCREEDED OFF FOR THE ENTIRE POUR BEFORE ANY CONCRETE HAS TAKEN ITS INITIAL SET. THIS MAY REQUIRE THE USE OF A RETARDING AGENT. THE CONCRETE BRIDGE DECK SHALL BE GIVEN A TINE FINISH AS SPECIFIED FOR FINAL FINISHING IN SUBSECTION 802.19 OF STANDARD SPECIFICATIONS FOR A CLASS 5 TINED BRIDGE ROADWAY SURFACE FINISH. MOVEMENT OF THE FINISHING MACHINE ACROSS THE NEW CONCRETE SHALL BE ON PLANKS PLACED ON THE SURFACE AND SHALL BE PROHIBITED FOR 72 HOURS AFTER FINISHING THE POUR. SUFFICIENT CONCRETE MUST BE PLACED AHEAD OF THE STRIKE-OFF TO FULLY LOAD THE GIRDER. IF A LONGITUDINAL STRIKE-OFF IS USED, A VERTICAL CAMBER ADJUSTMENT MUST BE MADE IN THE STRIKE-OFF TO ACCOUNT FOR THE FUTURE DEAD LOAD DEFLECTION OF THE RAILING. MINIMUM OF 72 HOURS SHALL ELAPSE BETWEEN CASTING OF THE SLAB AND THE POURING OF PARAPET RAILING.

CONCRETE SHALL BE POURED IN THE DRY AND ALL EXPOSED CORNERS TO BE CHAMFERED  $3/4"$  UNLESS OTHERWISE NOTED.



Bar to tighten smooth wire shall be epoxy coated or fiberglass

All panels shall be braced as shown to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of  $1/4"$ . To control cracking before sawing all joints must be controlled so it will follow the grooved joint.



The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Exposed surface may be given a light brush finish or a Class 3 Textured Coating Finish, in place of Class 2, Rubbed Finish.

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL (OPEN OR CLOSED)

N. T. S.

SUPERSTRUCTURE GENERAL NOTES AND MISCELLANEOUS DETAILS

ROUTE 40 SEC. 51  
ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT  
LITTLE ROCK, ARK.



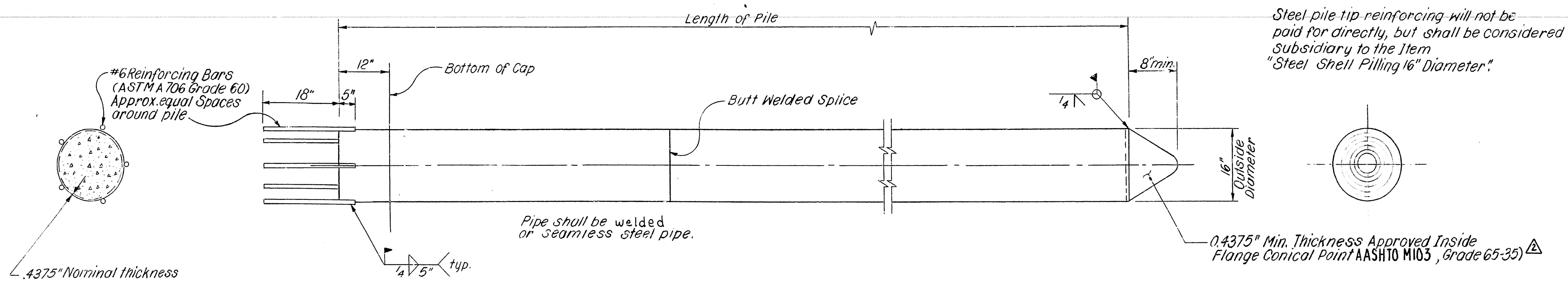
Revised Job no., L. M., 10-26-95  
Revised for 1996 Specs KDH 8 Aug 96

DRAWN BY: M.D. DATE: 5-12-93  
CHECKED BY: L.S. DATE: 5-20-93 SCALE: N.T.S.  
DESIGNED BY: K.R. DATE: 5-4-93

BRIDGE NO. 6518 A&B DRAWING NO. 34381A



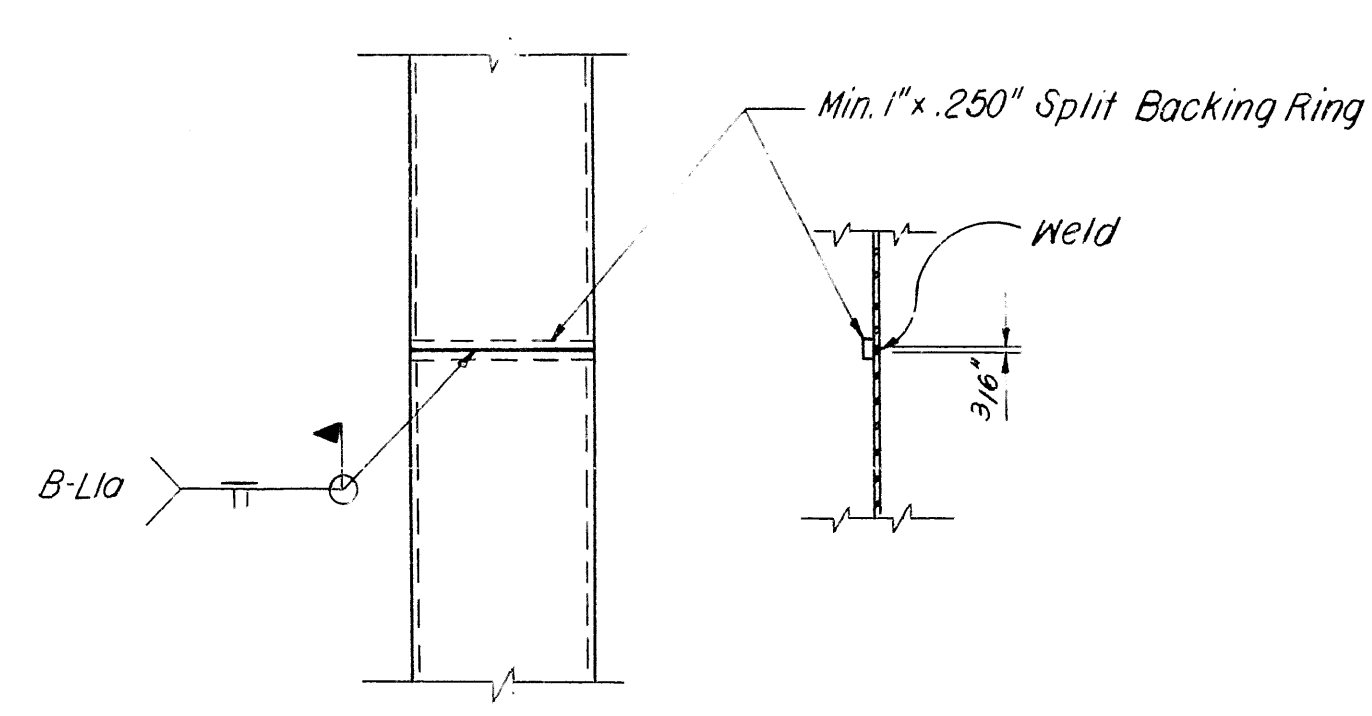
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				1	ARK.			
				JOB NO.	R10089		62	87
6518 A & B PILE DETAILS 34382								



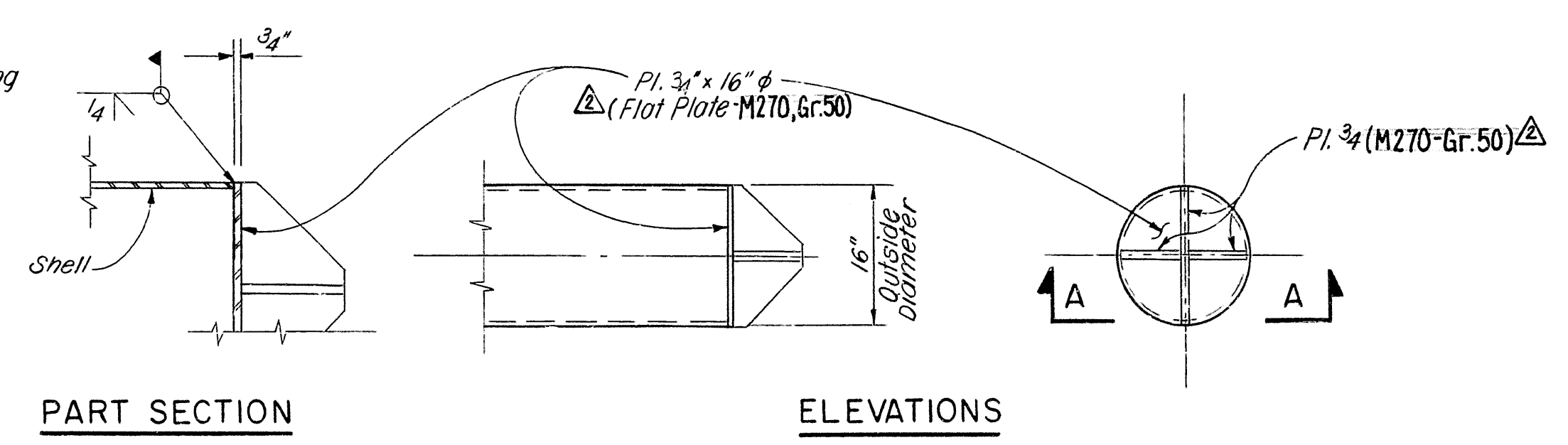
## CONCRETE FILLED STEEL SHELL PILES

### GENERAL NOTES FOR CONCRETE FILLED STEEL SHELL PILES

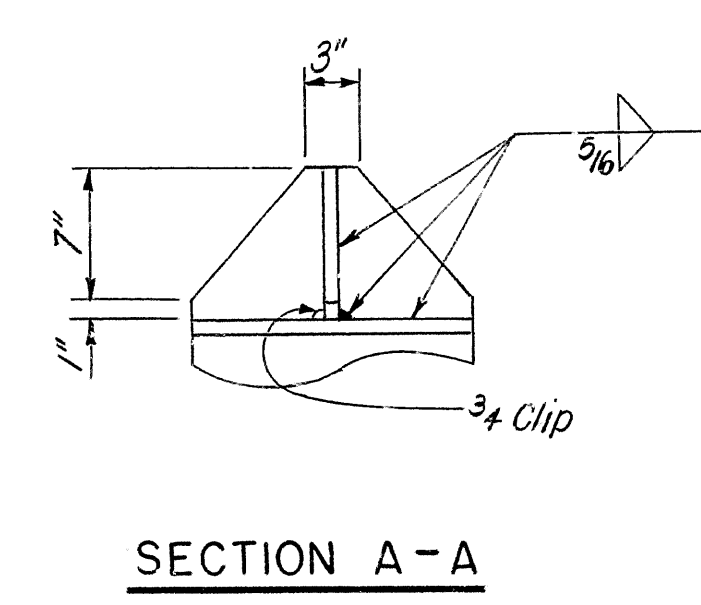
Steel shell shall conform to ASTM A252 Grade 3 (Fy = 45000 psi).  
 Concrete used for filling of steel shell shall be Class S with a minimum 28 day compressive strength, f'c = 3500 psi and shall be poured in the dry.  
 For Size of Shell piles and for additional driving information see Dwg. No. 34350 A.  
 Concrete and Structural Steel or Reinforcing Steel, including welding will not be paid for directly, but shall be considered as part of the item "Steel Shell Piling (16" Diameter)".



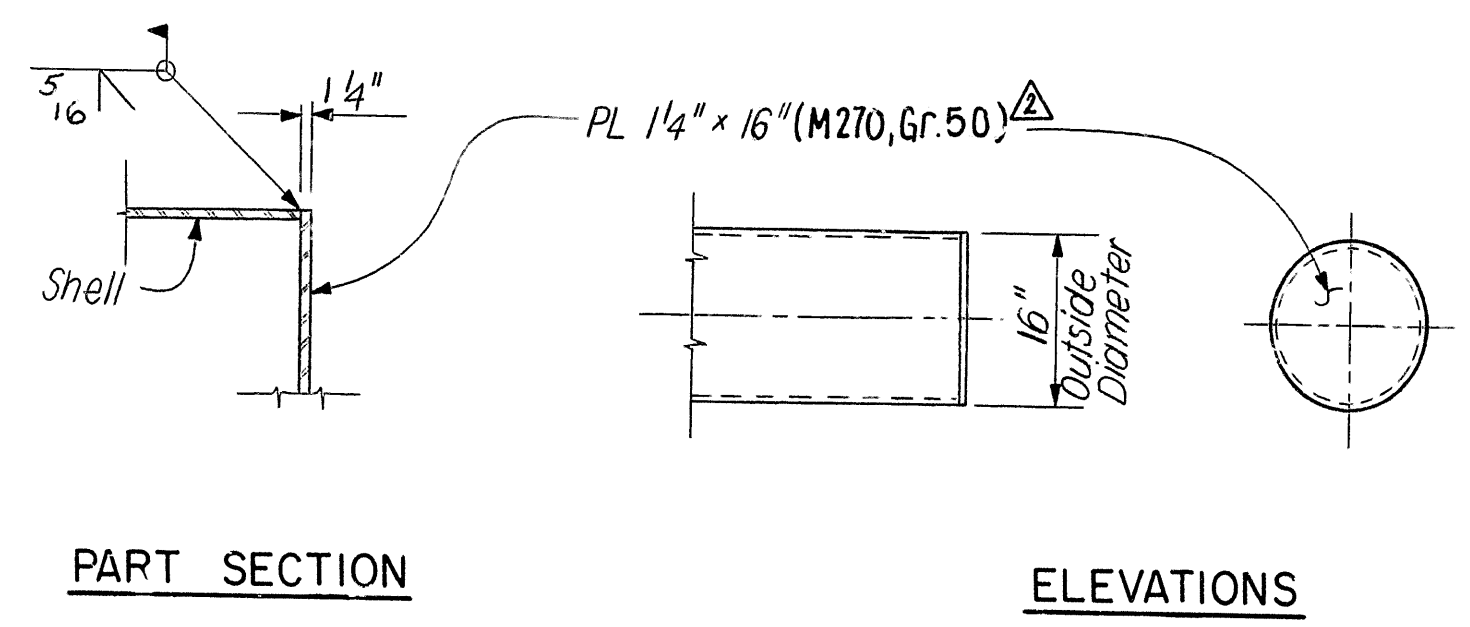
### SPLICE DETAILS



### ALTERNATE VANED TIP DETAIL



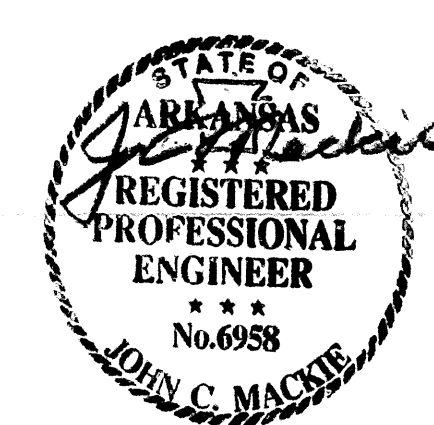
### SECTION A-A



### ALTERNATE FLAT TIP DETAIL

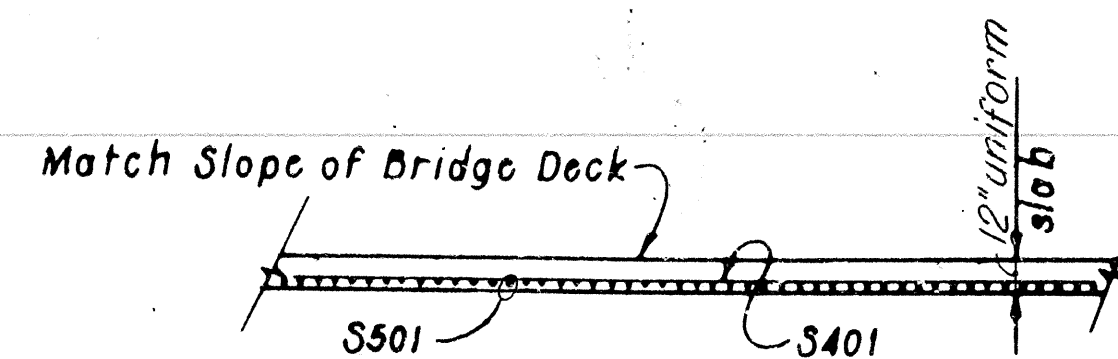
### DETAILS OF CONCRETE FILLED STEEL SHELL PILES

ROUTE 40 SEC. 51  
 ARKANSAS STATE HIGHWAY AND  
 TRANSPORTATION DEPARTMENT  
 LITTLE ROCK, ARK.

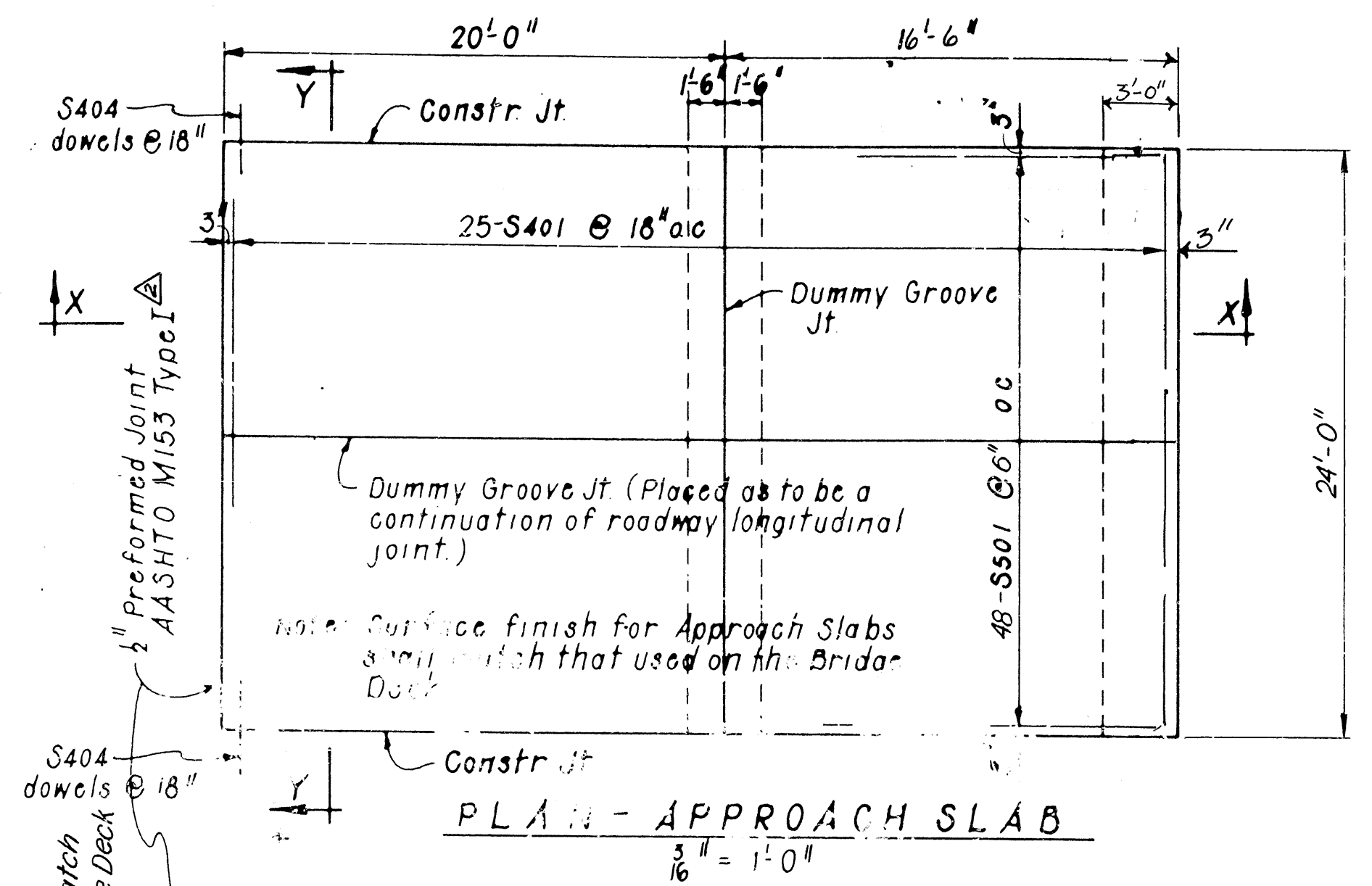


Revised Job no., L.M. 10-26-95  
 Revised for 1996 Specs KDH 8 Aug 96

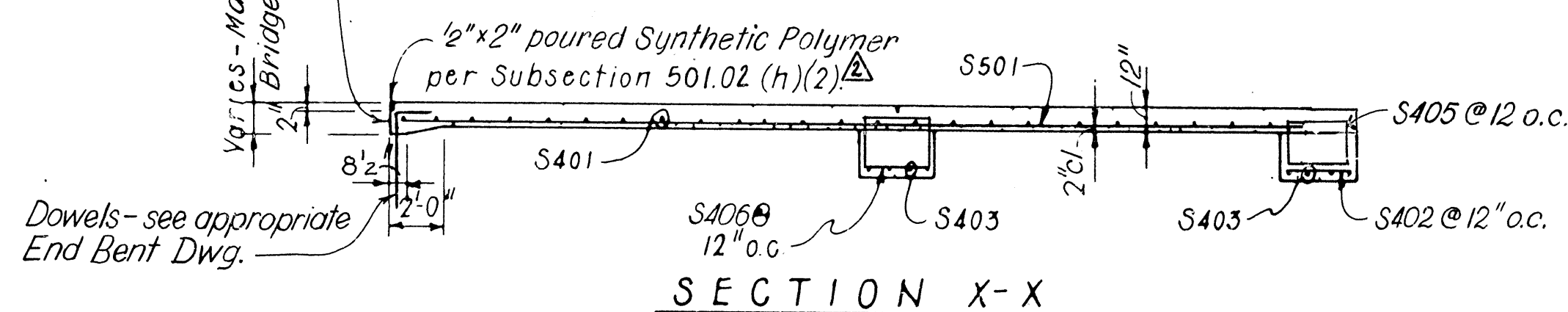
DRAWN BY: W.P. DATE: 4-14-93  
 TRACED BY: K.U. DATE: 4-16-93  
 CHECKED BY: I.S. DATE: 4-20-93  
 BRIDGE NO. 6518 A & B DRAWING NO. 34382



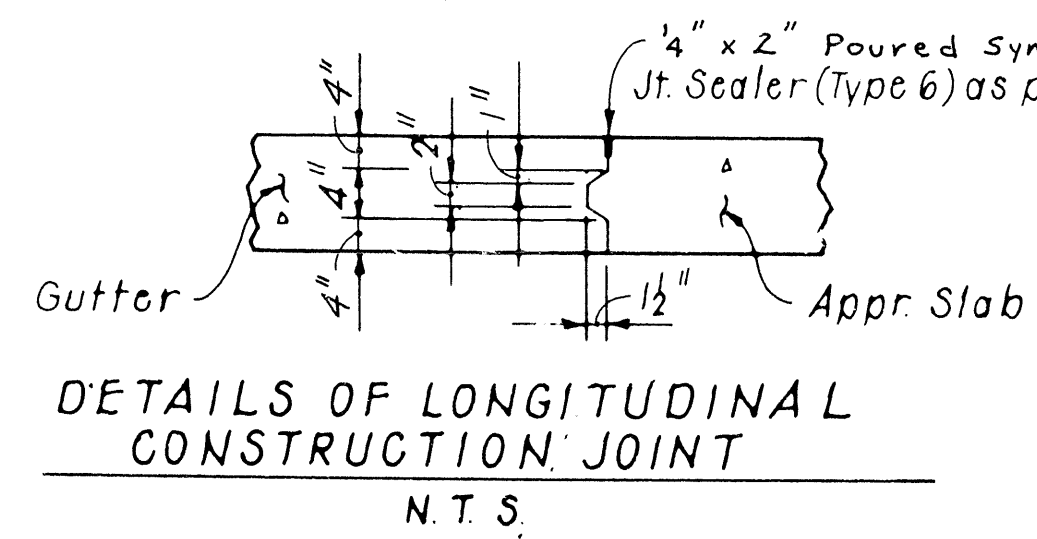
SECTION Y-Y



PLAN - APPROACH SLAB

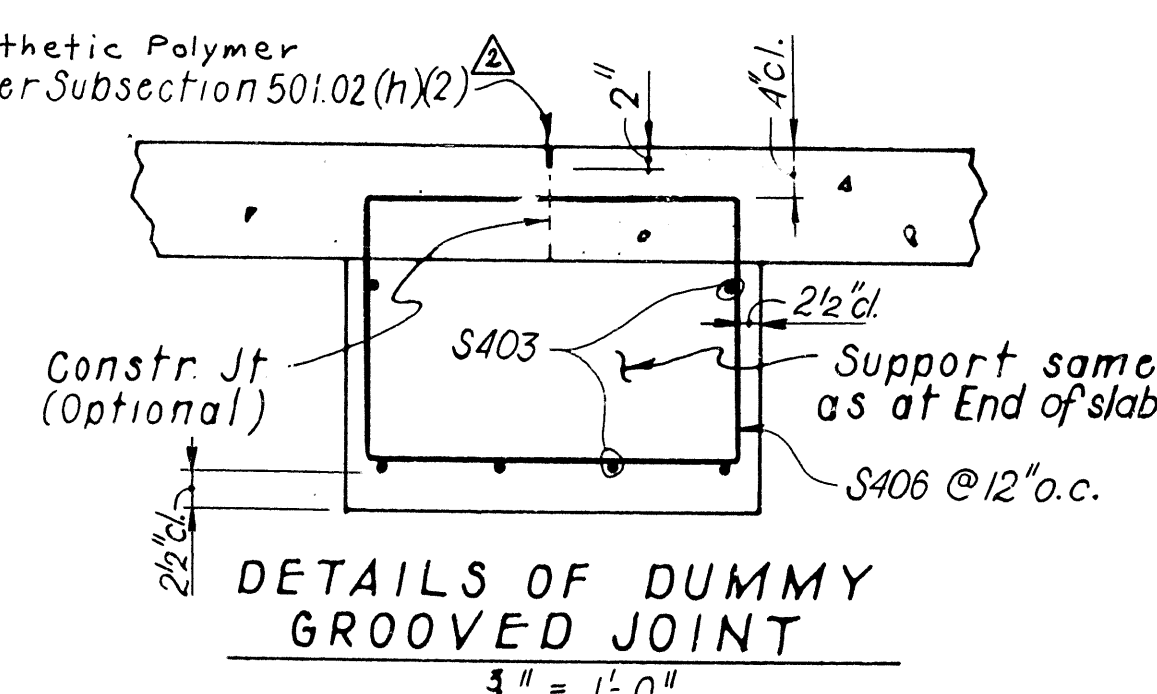


SECTION X-X



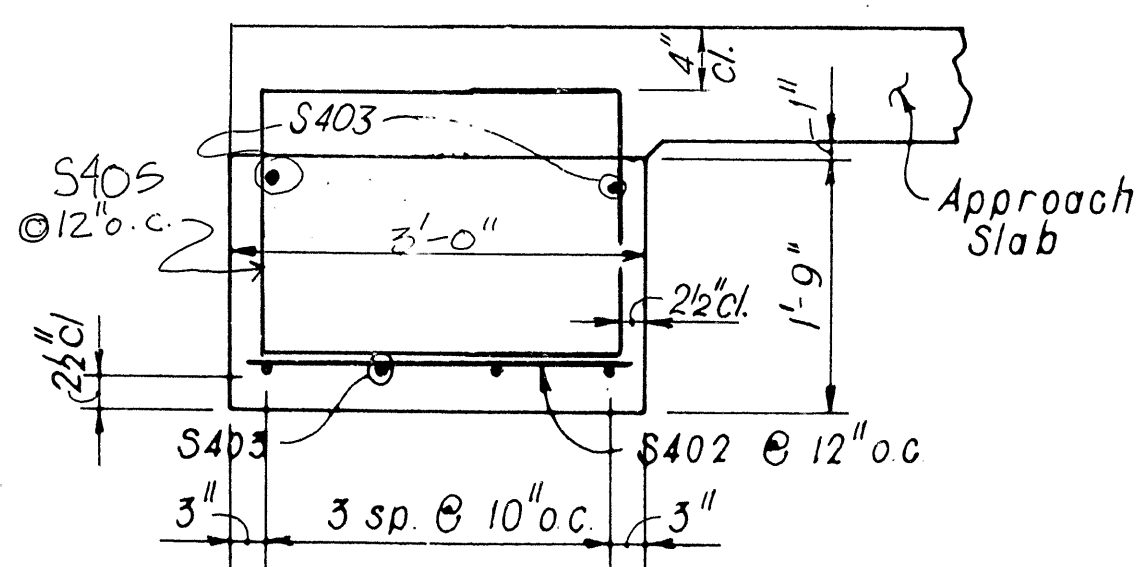
DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

N.T.S.



DETAILS OF DUMMY GROOVED JOINT

Note: Omit Support at longitudinal dummy grooved joint.



DETAILS OF SUPPORT AT END OF SLAB

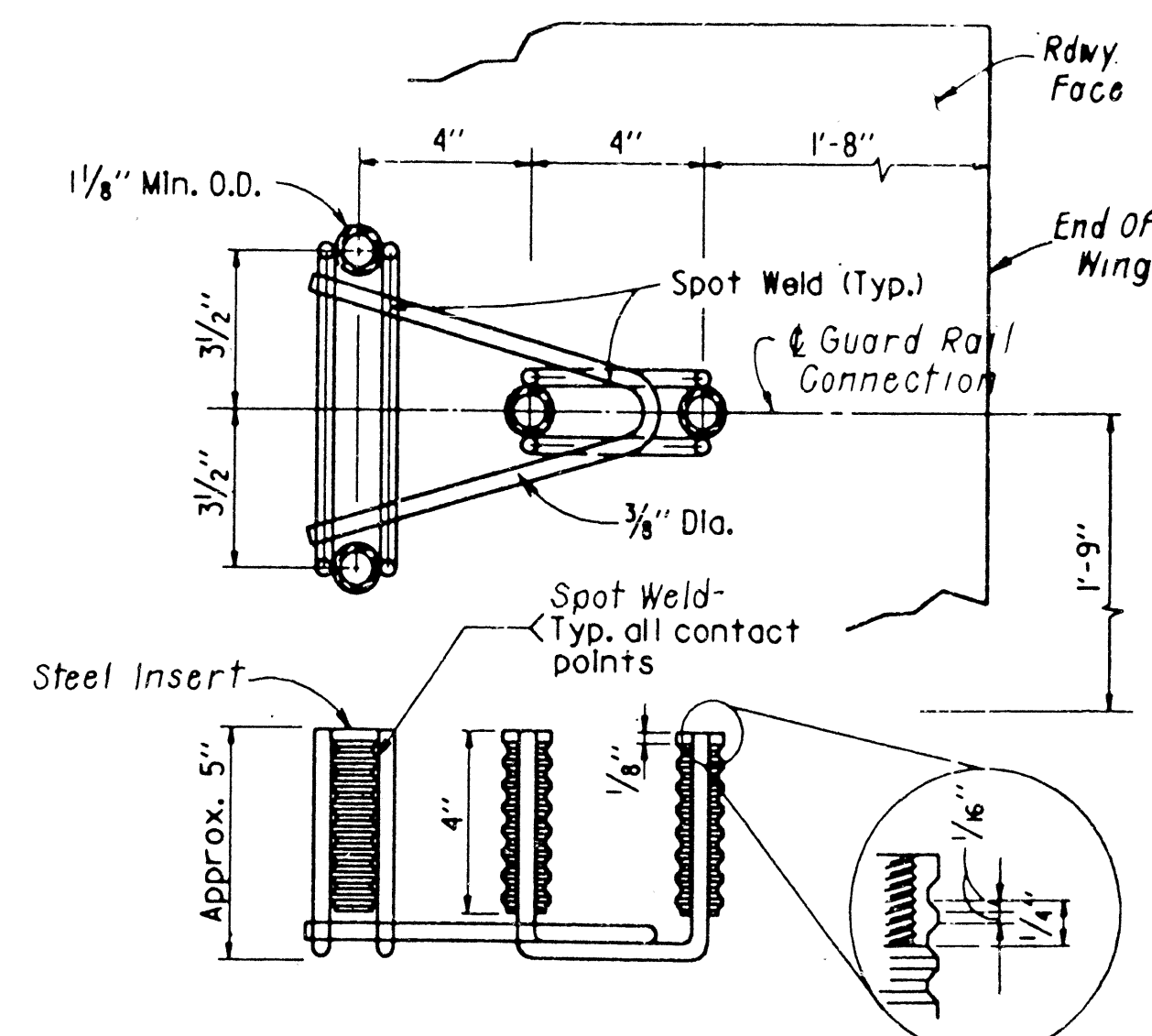
3" = 1'-0"

GENERAL NOTES

CONCRETE SHALL BE CLASS S OR CLASS S(AE) OR MIXTURE USED FOR PORTLAND CEMENT CONCRETE PAVEMENT.

REINFORCEMENT STEEL SHALL CONFORM TO AASHTO M31 OR M53, Grade 60 (fy = 60,000 psi).

Approach Slabs and Approach Gutters will be measured and paid for in accordance with Section 504 of the Standard Specifications.



MINIMUM CAPACITY OF GUARD RAIL ATTACHMENT BY CONCRETE INSERT ANCHOR ASSEMBLY OR OTHER MEANS SHALL BE 12,000 LBS. ULTIMATE SHEAR CAPACITY PER BOLT AND INSERT (48,000 LBS. PER ASSEMBLY). THERE SHALL BE A MINIMUM OF FOUR BOLTS PER ATTACHMENT LOCATED AS SHOWN. THE CONTRACTOR MAY USE THE INSERT ANCHOR ASSEMBLY SHOWN, OR ONE SIMILAR WHICH PROVIDES THE SAME FERRULE DEPTH AND THREAD LENGTH. THE CAPACITY OF THE INSERT ANCHOR ASSEMBLY SHALL BE CERTIFIED TO THE ENGINEER.

GUARD RAIL ATTACHMENT USING OTHER TYPES OF CONCRETE INSERTS WILL BE ALLOWED, PROVIDED IT MEETS THE MINIMUM CAPACITY SPECIFIED, THE CAPACITY IS CERTIFIED, AND APPROVAL IS OBTAINED FROM THE ENGINEER BEFORE USE.

THREADED STEEL INSERT WITH SOLID BOTTOM TAPPED TO A MINIMUM THREADED DEPTH OF 2 1/2" FOR USE WITH 3/8" X 2 1/2" HIGH STRENGTH HEX BOLTS AND ONE HARDENED STEEL WASHER. SEE SECTION 807 OF THE STANDARD SPECIFICATIONS.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M164 AND SHALL BE THREADED FULL LENGTH. BOLTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M252.

BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH SUBSECTION 807.71 (d) OF THE STANDARD SPECIFICATIONS.

CONCRETE INSERT ANCHOR ASSEMBLY

3" = 1'-0"

BAR - LIST

MARK	NO.	REQ'D	LENGTH	P.D.	BENDING DIAGRAMS
S401	25	23'-8"	Str.		
S402	24	2'-8"	Str.		
S403	12	23'-8"	Str.		
S404	50	3'-0"	Str.		
S405	24	10'-0"	2"		
S406	24	9'-10"	2"		
S501	48	36'-2"	Str.		

Dimensions are out to out of bars

TABLE OF QUANTITIES FOR ONE SQUARE APPROACH SLAB

Slab Width	Concrete	Reinforcing Steel
24'-0"	42.63 C.Y.	2856 lb.

Revised Job no., L.M., 10-26-95  
Revised for 1996 Specs KDH 8Aug96.

Note: This Drawing to be used with Dwg. 2016C.



DETAILS OF APPROACH SLAB  
ROUTE 40 SEC. 51  
ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT  
LITTLE ROCK, ARK.  
DRAWN BY: W.P. DATE: 9-16-93  
TRACED BY: P.L. DATE: 9-17-93  
CHECKED BY: T.S. DATE: 9-20-93  
BRIDGE NO. 6518 A & B DRAWING NO. 34382A