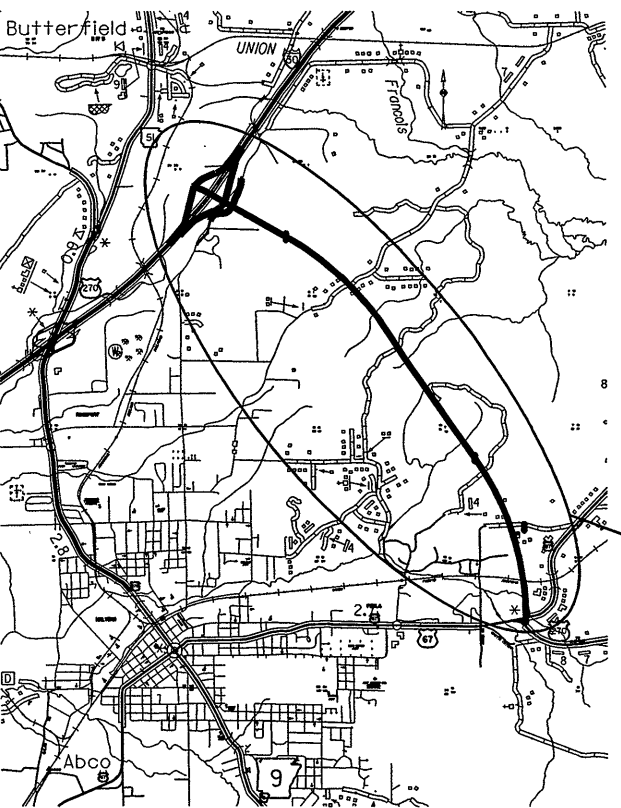


"THIS IS A PARTIALLY CONTROLLED ACCESS FACILITY"  
ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT  
CONSTRUCTION PLANS FOR STATE HIGHWAY

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		060900	1	380
				HWY. 67-I-30 (MALVERN BYPASS) (S)				



VICINITY MAP

HWY. 67-I-30 (MALVERN BYPASS) (S)

HOT SPRING COUNTY

ROUTE 270 SECTION 7

F.A.P. STP-9272 (2)

JOB 060900

NOT TO SCALE

PROJECT  
LOCATION

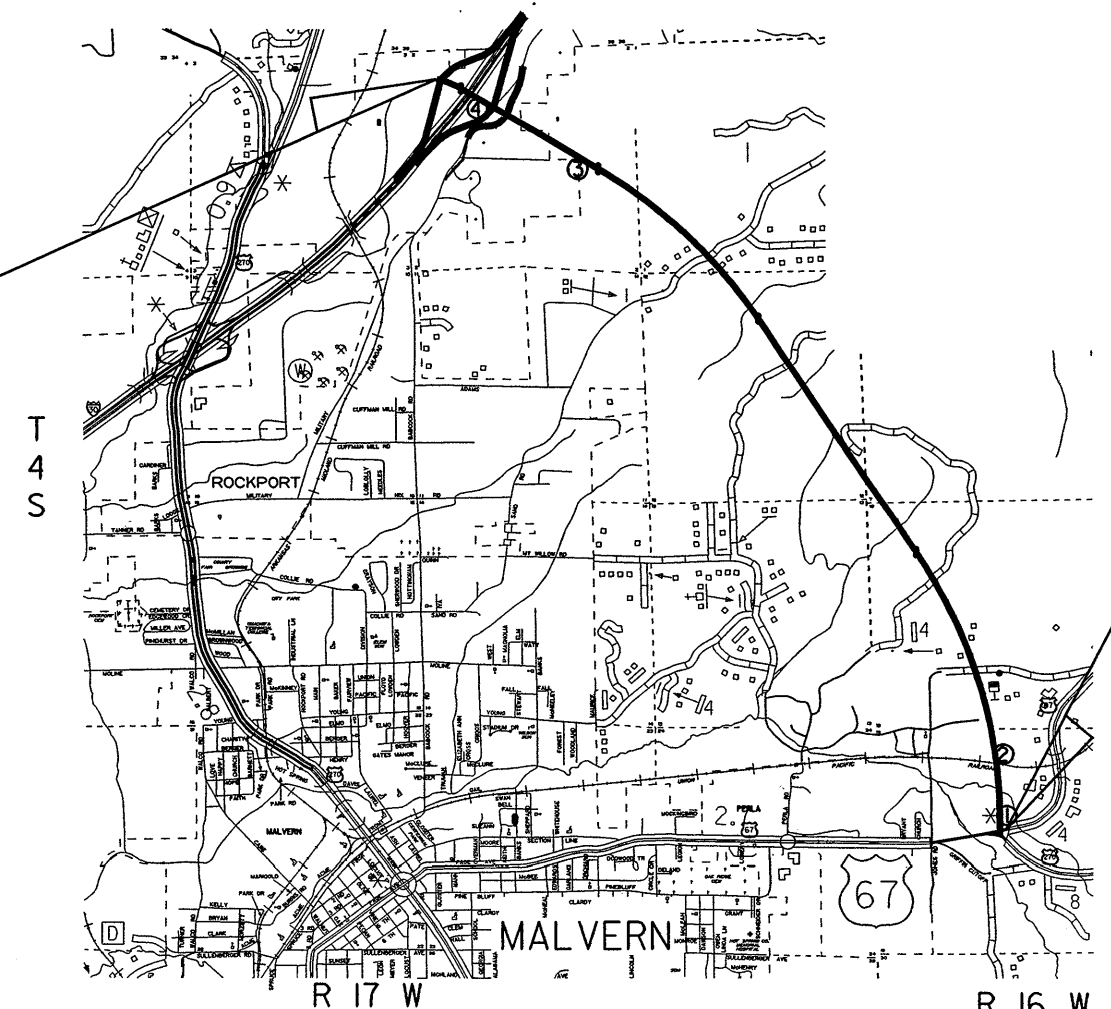
STA. 282+00 END  
JOB 060900

STRUCTURES OVER 20'-0" SPAN

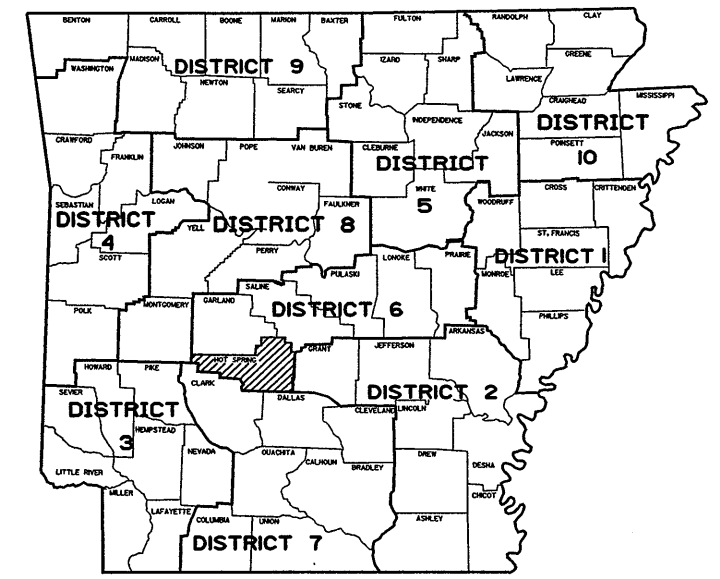
STATION	DESCRIPTION	SPAN
① HWY. 67 23+90	EXTEND 6' X 4' X 67'-25' LT. DBL. 7' X 4' X 92' PRECAST R.C. BOX CULV'T.	22'-8"
③ 226+90	CONST. TRIPLE 8' X 5' X 115' R.C. BOX CULV'T. ON 45° RT. FWD. SKEW	37'-8 1/2"

BRIDGES CONST. UNDER JOB 060900

LOCATION	BRIDGE ENDS		BRIDGE LENGTH	CLEAR ROADWAY WIDTH	BRIDGE NUMBER
	STATION	STATION			
②	64+79.90	66+64.10	184' -2-1/2'	40' -0"	06981
④	268+92.29	272+03.50	311' -2-1/4'	52' -0"	06982



STA. 50+00.00 BEGIN  
JOB 060900



ARKANSAS HIGHWAY DISTRICT 6

DESIGN TRAFFIC DATA

DESIGN YEAR	-----2023
2003 ADT	-----2300
2023 ADT	-----3375
2023 DHV	-----371
DIRECTIONAL DISTRIBUTION	-----60%
TRUCKS	-----30%
DESIGN SPEED	-----60 MPH

NOTE: JOB LENGTH CALCULATED ALONG MAIN LANE CONST CENTERLINE  
GROSS LENGTH OF PROJECT 23200.00 FEET OR 4.394 MILES  
NET LENGTH OF ROADWAY 22666.88 FEET OR 4.293 MILES  
NET LENGTH OF BRIDGES 533.10 FEET OR 0.101 MILES  
NET LENGTH OF PROJECT 23200.00 FEET OR 4.394 MILES

P.E. JOB 060900  
NON-PART.

APPROVED

STATE OF ARKANSAS  
REGISTERED PROFESSIONAL ENGINEER  
No. 4034  
ROBERT L. WALTERS

10-1-2003  
CHIEF ENGINEER

MIDPOINT OF JOB 060900  
LAT N 34°23'22"  
LONG W 92°46'33"

r060900.ttt

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		060900	48	380
① 06981, 06982 QUANTITIES								46161

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 060900

BRIDGE NO.	CODE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	619	801	802	802	803	804	804	805	805	807	807	SP & 807	SP & 808	809	812	816	SP JOB 060900
				ITEM	7'-0" STEEL CHAIN LINK FENCE	UNCLASSIFIED EXCAVATION FOR STRUCTURES- BRIDGE	CLASS S CONCRETE- BRIDGE	CLASS S(AE) CONCRETE- BRIDGE	CLASS 1 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL - BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	CONCRETE PILING (18' SQ.)	TEST PILE (18' SQ.)	STRUCTURAL STEEL IN BEAM SPANS (M 270, GRADE 50)	STRUCTURAL STEEL IN BEAM SPANS (M 270, GRADE 50W)	PAINTING STRUCTURAL STEEL ①	ELASTOMERIC BEARINGS	PREFORMED JOINT SEAL	BRIDGE NAME PLATE (TYPE D)	CONCRETE RIPRAP	ARMORED JOINT WITH NEOPRENE STRIP SEAL
				UNIT	LIN. FT.	CU. YD.	CU. YD.	CU. YD.	GAL.	LB.	LB.	LIN. FT.	LIN. FT.	LB.	LB.	TON	CU. IN.	LIN. FT.	EACH	CU. YD.	LIN. FT.
06981	X171	UNION - PACIFIC RAILROAD																			
			BENT NOS.1 & 4			61.46		0.5	5,860		520	55	1,430						108		
			BENT NOS.2 & 3		215	130.34			16,820		400	25									
			182'-0" CONTINUOUS COMPOSITE W-BEAM UNIT	208			219.00	19.1		50,125				177,420		17,856	90	1			
TOTALS FOR BRIDGE NO. 06981				208	215	191.80	219.00	19.6	22,680	50,125	920	80		178,850		17,856	90	1	108		
06982	X771	I-30 OVERPASS																			
			BENT NOS.1 & 5		148	75.86		0.6	7,450		350	40	1,800						152		
			BENT NOS.2,3 & 4		549	308.14			33,310		2,655	50									
			309'-0" CONTINUOUS COMPOSITE W-BEAM UNIT				468.30	40.6		104,715			470,330		235.2	37,506		1		111	
TOTALS FOR BRIDGE NO. 06982					697	384.00	468.30	41.2	40,760	104,715	3,005	90	472,130		235.2	37,506		1	152	111	
TOTALS FOR JOB NO. 060900				208	912	575.80	687.30	60.8	63,440	154,840	3,925	170	472,130	178,850	235.2	55,362	90	2	260	111	

① THE COLOR OF PAINT SHALL CONFORM TO FEDERAL STANDARD 595A, COLOR CHIP NO. 14109, GREEN.

AILEEN SCHUBEL  
DESIGN SECTION SUPERVISOR

SCHEDULE OF BRIDGE QUANTITIES  
HWY. 67 - I-30 (MALVERN BYPASS) (S)  
HOT SPRING COUNTY

ROUTE 270 SEC. 7  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: KMG DATE: 17 JUL 03 FILENAME: b060900.q1  
CHECKED BY: JAC DATE: 9-3-03 SCALE: NONE  
DESIGNED BY: - DATE: -  
BRIDGE NO. 06981, 06982 DRAWING NO. 46161



BRIDGE ENGINEER

FOR R/W DATA, SEE RDWY. PLANS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		060900	118	380
				06981		LAYOUT		46162

# GENERAL NOTES

BENCH MARK: Cotton Picker Spindle in 12" Oak, 188.27 feet left of Centerline Construction Sta. 66+84.71, Elevation 335.516.

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2003 edition), with applicable supplemental specifications and special provisions. Unless otherwise noted on the plans, Section and Subsection refer to the Standard Construction Specifications.

DESIGN SPECIFICATIONS: AASHTO Standard Specifications for Highway Bridges (2002 edition), with current interim specifications.

LIVE LOADING: HS20 METHOD OF DESIGN: Load Factor  
SEISMIC PERFORMANCE CATEGORY: A

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

BRIDGE DECK: The concrete bridge deck shall be given a fine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish.

BORING LOGS: Boring logs may be obtained from the Programs and Contracts Division.

CONCRETE PILING: Piling for Bents 1 through 4 shall be 18" Square precast concrete and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 60 tons per pile. Drive piles to a minimum penetration of 10' below natural ground at end bents and 10' below bottom of footing at intermediate bents. Lengths of piling shown are assumed for estimating quantities only. Actual lengths to be determined in the field. Piles in end bents to be driven after embankment to bottom of cap is in place. Drive one 25' test pile in Bent 2 and one 55' test pile in Bent 4.

Preboring as approved by the Engineer may be required to achieve the minimum penetration. Any cost for preboring shall be included in the items "Concrete Piling (18" SQ.)" and "Test Pile (18" SQ.)."

FOOTINGS: The top of the footings at bents 2 and 3 shall be set a minimum of 2' below natural ground. Foundations for footings shall be prepared in accordance with Subsection 801.04.

DETAIL DRAWINGS:  
End Bents 46165, 46166, 46168, 46169  
Intermediate Bents 46167  
182'-0" Cont. Comp. W-Beam Unit 46170 thru 46174  
Elastomeric Bearings 46175  
Precast Concrete Piles 2383  
Type C Approach Gutters 2016C  
Concrete Riprap 14995A

DRAWING NO.  
46165, 46166, 46168, 46169  
46167  
46170 thru 46174  
46175  
2383  
2016C  
14995A

## HORIZONTAL CURVE DATA

P.C. STA. = 52+56.289  
P.L. STA. = 87+42.098  
P.T. STA. = 120+24.073  
Delta = 33°50'20.11" Left  
T = 0°30'00.00"  
L = 11459.156'  
E = 6767.784'  
M = 3485.809'

① See "ALIGNMENT SKETCH"

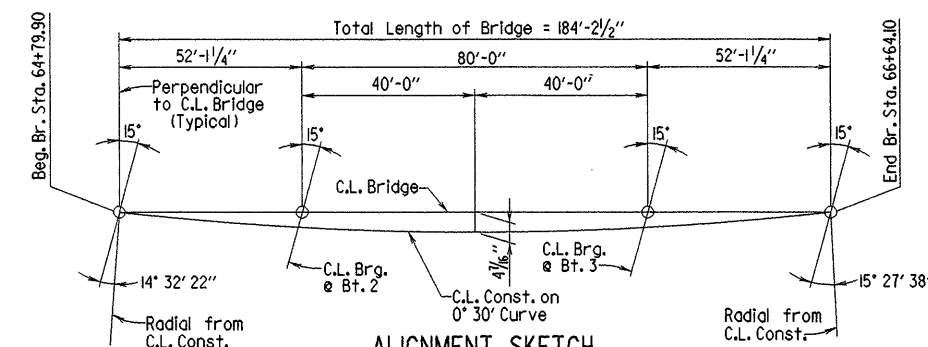
② Typ. both sides of bridge. For details of fence, see drwg. no. 46174.

③ Stations shown for Bents 2 & 3 are along C.L. Construction and are radial projections of actual C.L. Bents, which are located along C.L. Bridge. See "ALIGNMENT SKETCH."

④ Measured from Working Point at C.L. Bridge. See "Rounding Detail" on Drwg. No. 46170.

## VERTICAL CURVE DATA (Profile Grade located along C.L. Construction)

C.L. Bridge is the Profile Grade between Sta. 64+79.90 and Sta. 66+64.10



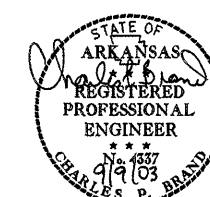
Note: C.L. Bridge is located along the chord of a 0°30' curve which extends from Beginning of Bridge to End of Bridge. All longitudinal lines of the bridge are parallel to this chord. Bridge length and span lengths are measured along C.L. Bridge.

## SHEET 1 OF 2 LAYOUT OF

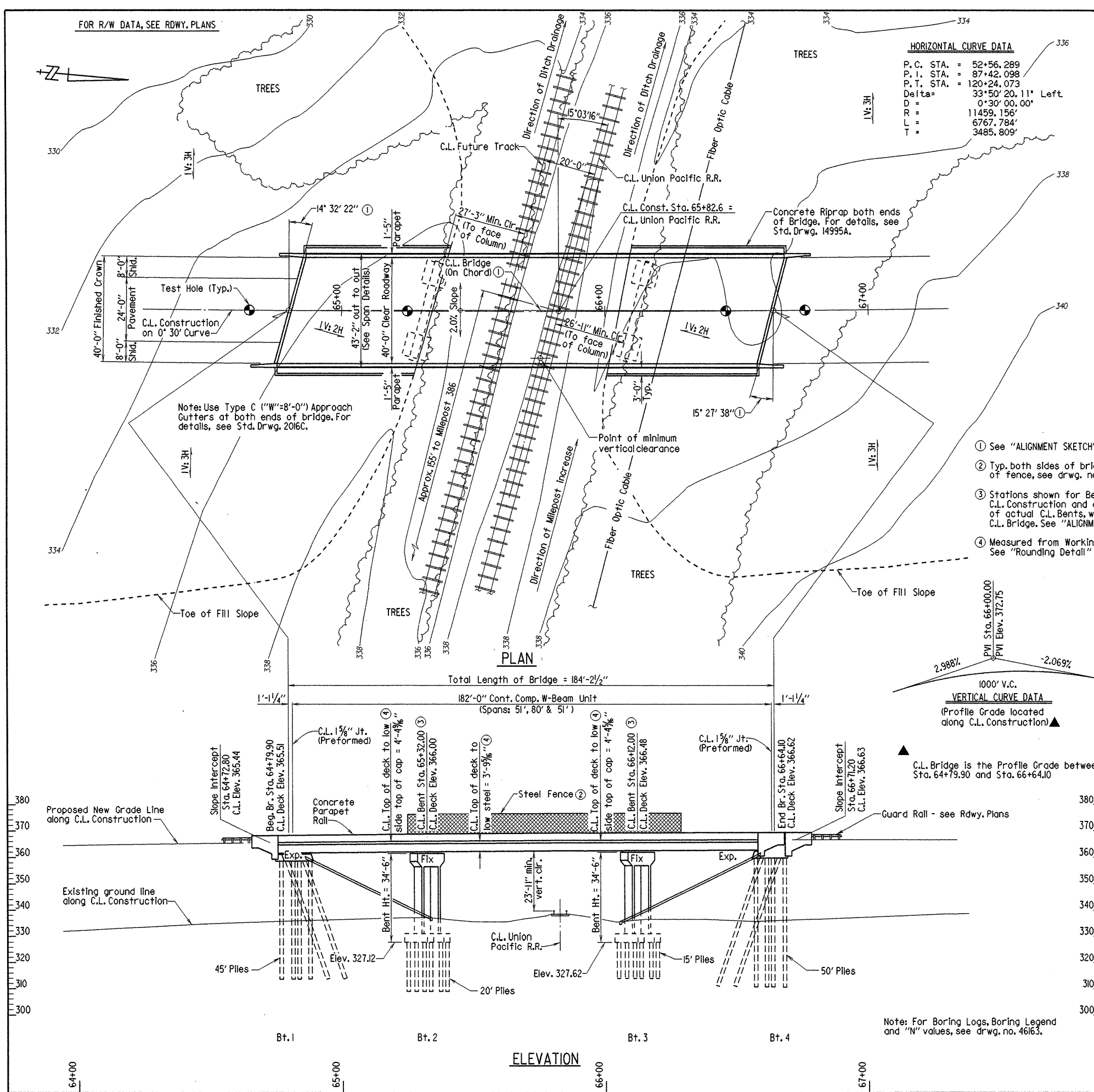
UNION PACIFIC R.R. OVERPASS  
HWY. 67 - I-30 (MALVERN BYPASS) (S)

HOT SPRING COUNTY  
ROUTE 270 SEC. 7  
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.



DRAWN BY: KMG DATE: 9 OCT 02 FILENAME: b060900.111  
CHECKED BY: JMS DATE: 9/19/03 SCALE: 1" = 20'  
DESIGNED BY: JMS DATE: 9/02  
BRIDGE NO. 06981 DRAWING NO. 46162



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		060900	119	380
				06981		LAYOUT		46163

## BORING LEGEND

A1-Moist, Medium Dense, Brown Sand  
 B1-Moist, Medium Dense, Brown Sand with Clay Seams  
 C1-Moist, Medium Dense, Brown and Gray Clayey Sand  
 D1-Moist, Hard, Gray Sandy Clay with Traces of Organic Matter  
 E1-Moist, Hard, Gray Sandy Clay with some Organic Matter  
 F1-Moist, Hard, Gray Sandy Clay  
 G1-Moist, Hard, Brown Sandy Clay  
 H1-Moist, Hard, Reddish Brown and Gray Clay with Sand Seams  
 J1-Moist, Very Dense, Brown and Gray Sand with Clay Seams  
 K1-Wet, Very Dense, Brown to Gray and Brown Sand  
 L1-Wet, Very Dense, Gray Sand with some Clay Seams  
 M1-Moist, Loose, Brown Sand with Traces of Gravel  
 N1-Moist, Very Stiff, Brown Sandy Clay with Traces of Gravel  
 P1-Moist, Medium Dense, Brown Clayey Sand  
 Q1-Moist, Medium Dense, Gray and Brown Clayey Sand  
 R1-Moist, Hard, Gray Clay with some Sand Seams  
 S1-Moist, Hard, Gray Clay  
 T1-Moist, Hard, Gray Clay with some Lignite  
 U1-Moist, Very Hard, Gray to Brown Sandy Clay with some Organic Matter  
 V1-Moist, Hard, Brown Silty Clay with some Cemented Sand  
 W1-Moist, Very Dense, Reddish Brown Sand  
 X1-Wet, Very Dense, Gray and Brown Sand  
 Y1-Wet, Very Dense, Gray Sand  
 Z1-Moist, Loose, Brown and Gray Sand with Traces of Gravel  
 A2-Moist, Very Stiff, Brown and Gray Clay with some Gravel  
 B2-Moist, Very Stiff, Brown to Gray Silty Clay  
 C2-Moist, Very Stiff, Brown and Gray Clay with some Organic Matter  
 D2-Moist, Dense, Light Brown to Gray Sand with some Clay Seams  
 E2-Moist, Medium Dense, Gray Sand with Clay Seams  
 F2-Moist, Very Dense, Gray and Brown Sand with Traces of Clay  
 G2-Moist, Very Dense, Gray Sand  
 H2-Moist, Dense, Gray Sand with Traces of Clay  
 J2-Moist, Medium Dense, Gray and Brown Sand with Traces of Gravel  
 K2-Wet, Very Soft, Brown Sandy, Silty Clay with Traces of Cemented Sand  
 L2-Moist, Stiff to Very Stiff, Dark Brown Sandy Clay  
 M2-Wet, Very Dense, Dark Brown Sand with Clay Seams  
 N2-Moist, Dense, Dark Brown Sandy Silt with Clay Seams  
 P2-Moist, Very Hard, Dark Brown Clay with Sand Seams and Traces of Lignite  
 Q2-Moist, Very Dense, Brown Sand with Clay Seams and Traces of Lignite  
 R2-Moist, Loose, Brown Silty Sand  
 S2-Moist, Medium Dense, Brown Silty Sand  
 T2-Moist, Very Stiff, Gray Silty Clay  
 U2-Moist, Hard, Brown Clay  
 V2-Moist, Dense, Brown Silty Sand with Traces of Clay  
 W2-Moist, Dense to Very Dense, Brown Sand with Traces of Clay  
 X2-Moist, Medium Dense, Reddish Brown to Brown and Gray Sand with Traces of Clay  
 Y2-Moist, Dense, Reddish Brown and Gray Sand  
 Z2-Moist, Loose, Reddish Brown and Gray Sand with Traces of Clay  
 A3-Moist, Loose, Brown Sand  
 B3-Moist, Very Soft, Reddish Brown Sandy Clay  
 C3-Moist, Very Stiff, Brown and Gray Clay with Silt and Sand Lenses and some Organic Matter  
 D3-Wet, Medium Dense, Dark Brown Sand with Clay Seams and some Organic Matter  
 E3-Wet, Hard, Dark Brown Sandy Clay  
 F3-Wet, Hard, Dark Brown Sandy Clay with Traces of Gravel

## "N" VALUES

### Sta. 64+65 - Center Line of Construction

5.5- 6.5, N=21  
 12.5- 13.5, N=27  
 17.5- 18.5, N=25  
 22.5- 23.5, N=31  
 25.5- 26.5, N=35  
 30.5- 31.5, N=34  
 35.5- 36.5, N=34  
 40.5- 41.5, N=35  
 45.5- 46.5, N=32  
 50.5- 51.5, N=92  
 55.0- 55.4, N=60(0.4')  
 60.5- 61.5, N=75

### Sta. 65+25 - Center Line of Construction

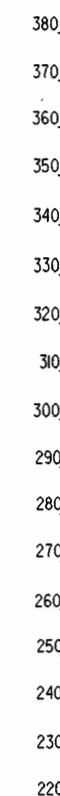
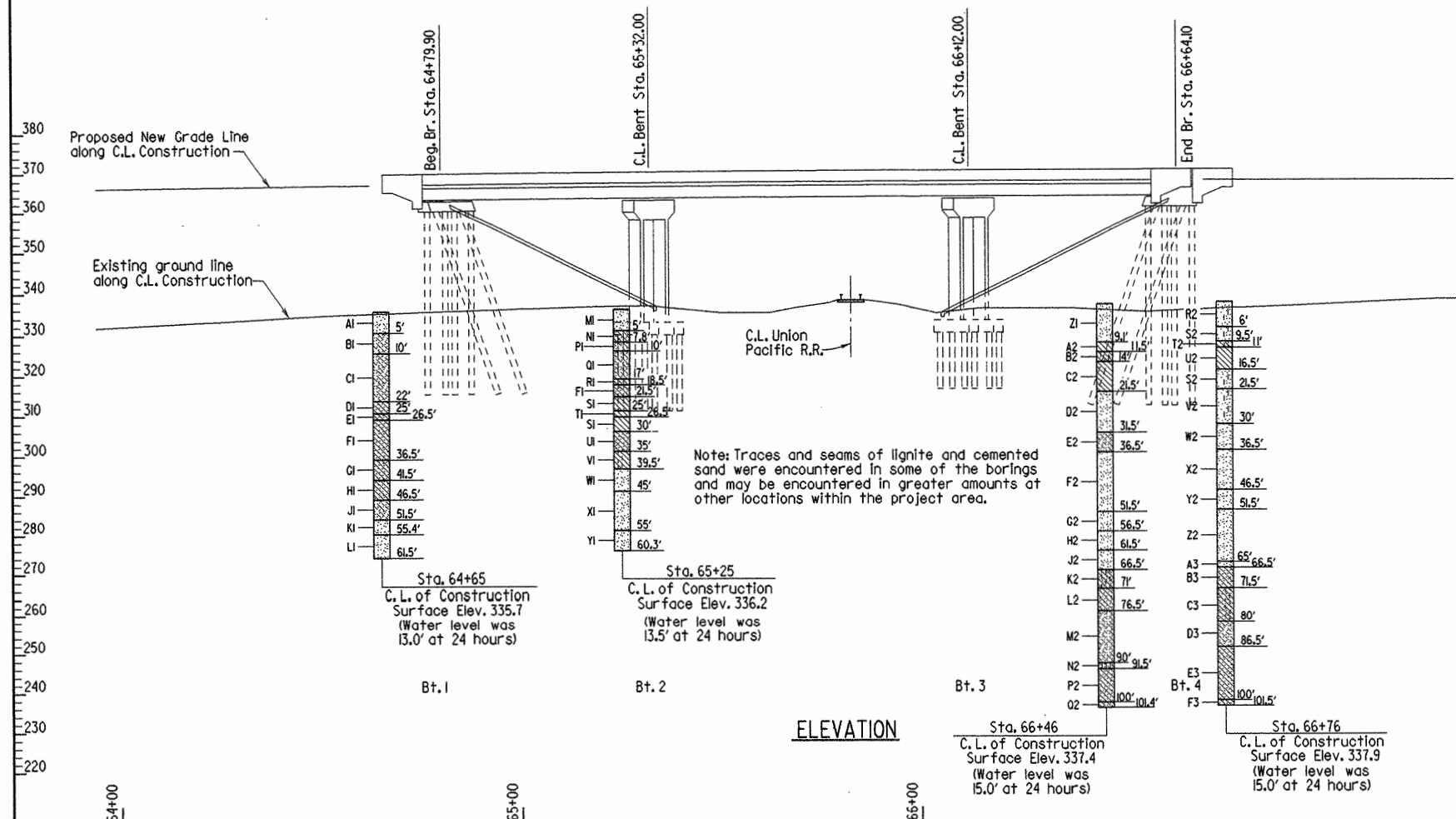
5.5- 6.5, N=19  
 12.5- 13.5, N=24  
 17.5- 18.5, N=38  
 20.5- 21.5, N=55  
 25.5- 26.5, N=47  
 30.5- 31.5, N=93  
 35.5- 36.5, N=48  
 40.0- 40.5, N=60(0.5')  
 45.0- 45.5, N=60(0.5')  
 50.0- 50.5, N=60(0.5')  
 55.0- 55.4, N=60(0.4')  
 60.0- 60.3, N=60(0.3')

### Sta. 66+46 - Center Line of Construction

5.5- 6.5, N=7  
 10.5- 11.5, N=24  
 14.5- 15.5, N=26  
 20.5- 21.5, N=22  
 25.5- 26.5, N=47  
 30.5- 31.5, N=36  
 35.5- 36.5, N=14  
 40.5- 41.5, N=53  
 45.5- 46.5, N=19  
 50.5- 51.5, N=26  
 55.5- 56.5, N=77  
 60.5- 61.5, N=37  
 65.5- 66.5, N=23  
 70.5- 71.5, N=9  
 75.5- 76.5, N=26  
 80.5- 81.5, N=53  
 85.5- 86.5, N=51  
 90.5- 91.5, N=42  
 95.5- 96.3, N=99(0.8')  
 100.5- 101.4, N=79(0.9')

### Sta. 66+76 - Center Line of Construction

5.0- 6.0, N=6  
 10.0- 11.0, N=20  
 15.5- 16.5, N=40  
 20.5- 21.5, N=28  
 25.5- 26.5, N=34  
 30.5- 31.5, N=39  
 35.5- 36.5, N=60  
 40.5- 41.5, N=20  
 45.5- 46.5, N=29  
 50.5- 51.5, N=35  
 55.5- 56.5, N=9  
 60.5- 61.5, N=8  
 65.5- 66.5, N=10  
 70.5- 71.5, N=0  
 75.5- 76.5, N=21  
 80.5- 81.5, N=23  
 85.5- 86.5, N=25  
 90.5- 91.5, N=31  
 100.5- 101.5, N=40



SHEET 2 OF 2  
 LAYOUT OF  
 UNION PACIFIC R.R. OVERPASS  
 HWY. 67 - I-30 (MALVERN BYPASS) (S)  
 HOT SPRING COUNTY

ROUTE 270 SEC. 7  
 ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARK.  
 DRAWN BY: KMG DATE: 9 OCT 02 FILENAME: b060900.112  
 CHECKED BY: JHM DATE: 8/19/03 SCALE: 1" = 20'  
 DESIGNED BY: AMS DATE: 9/02  
 BRIDGE NO. 06981 DRAWING NO. 46163



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		060900	120	380
				06981		LAYOUT		46164

# TOP OF RAIL ELEVATIONS

(Looking in direction of Milepost increase.  
Stations increase with Milepost increase)

Main Line			
Align: Left Rail		Align: Right Rail	
Station	Elevation	Station	Elevation
0+00	345.71	0+00	345.33
1+00	345.01	1+00	344.66
2+00	344.30	2+00	343.99
3+00	343.60	3+00	343.31
4+00	342.89	4+00	342.64
5+00	342.18	5+00	341.97
6+00	341.38	6+00	341.34
7+00	340.64	7+00	340.64
8+00	339.86	8+00	339.87
9+00	339.16	9+00	339.16
10+00**	338.41	10+00**	338.42
11+00	337.62	11+00	337.63
12+00	333.90	12+00	336.90
13+00	336.25	13+00	336.25
14+00	335.59	14+00	335.60
15+00	334.89	15+00	334.93
16+00	334.23	16+00	334.30
17+00	333.72	17+00	333.88
18+00	333.01	18+00	333.21
19+00	332.31	19+00	332.53
20+00	331.60	20+00	331.86

The elevations of the existing top-of-rail profile shall be verified by the Contractor prior to beginning construction.

"The State shall not plow ice, snow, or sleet over the sides of the structure. In consideration of this practice, the Carrier waives its request for the State to attach splash boards to sides of the structure."

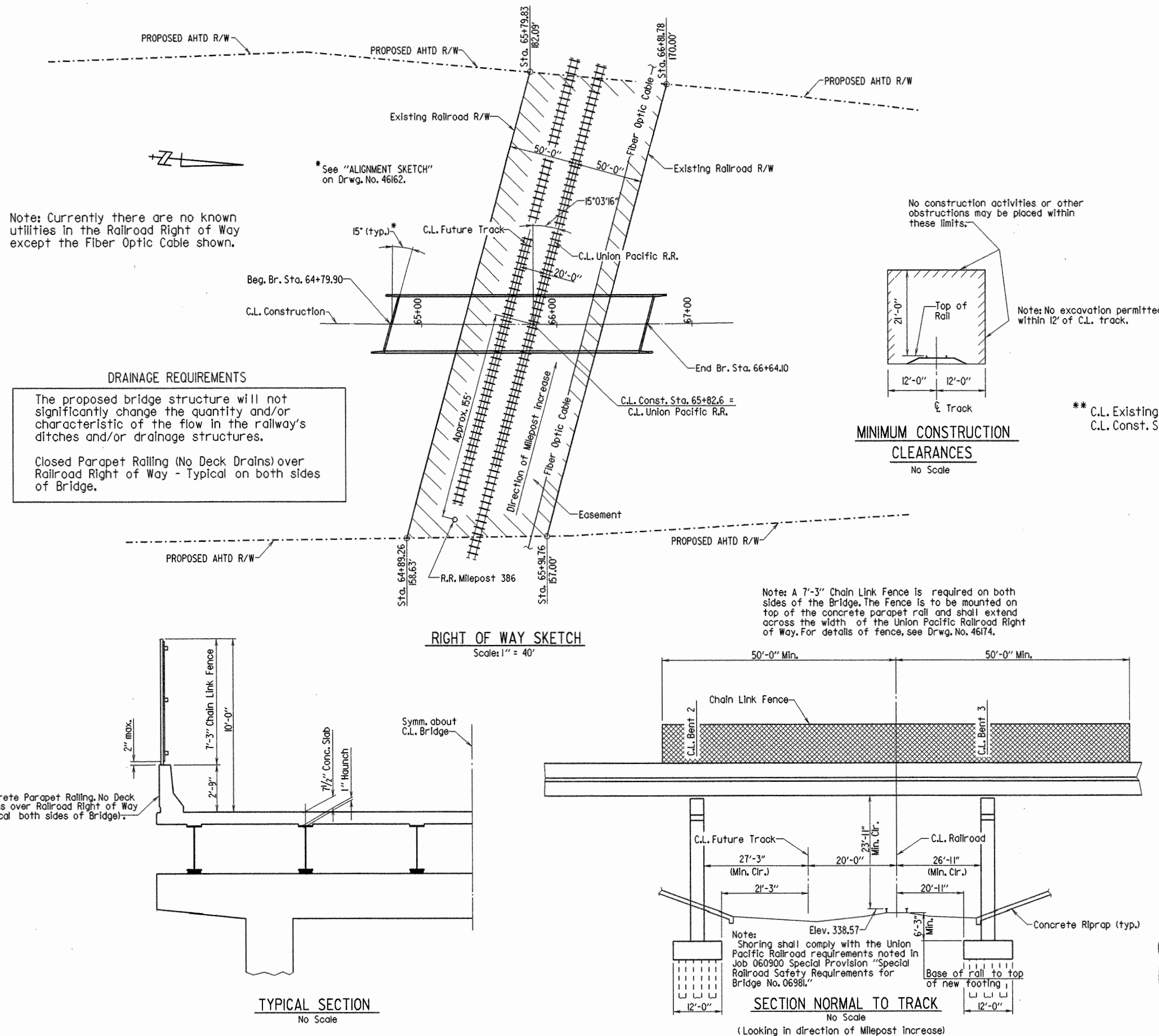
## EXHIBIT A LAYOUT OF UNION PACIFIC R.R. OVERPASS HWY. 67 - I-30 (MALVERN BYPASS) (S) HOT SPRING COUNTY

ROUTE 270 SEC. 7  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: KMG DATE: 9 OCT 02 FILENAME: b060900.113  
CHECKED BY: JHM DATE: 8/19/03 SCALE: AS SHOWN  
DESIGNED BY: JHS DATE: 7/02  
BRIDGE NO. 06981 DRAWING NO. 46164



BRIDGE ENGINEER



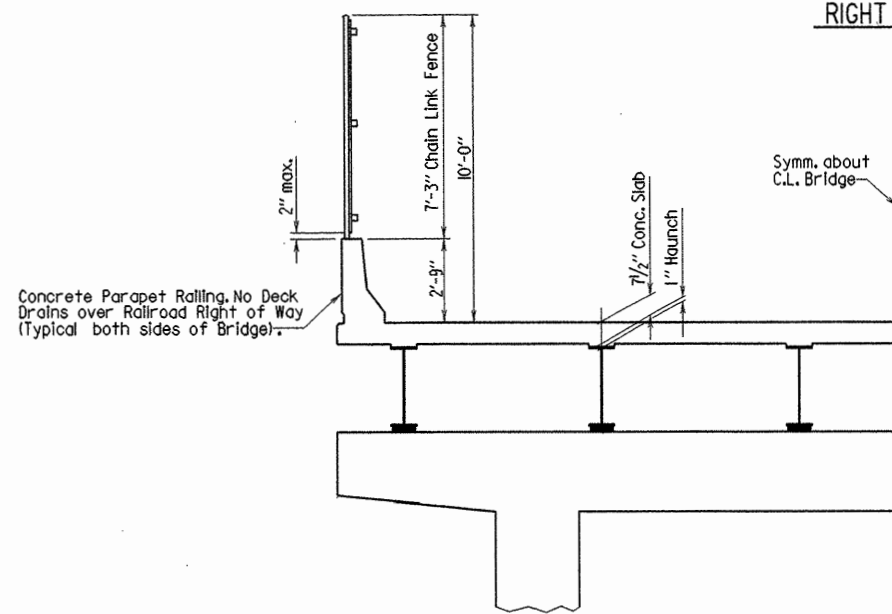
### DRAINAGE REQUIREMENTS

The proposed bridge structure will not significantly change the quantity and/or characteristic of the flow in the railway's ditches and/or drainage structures.

Closed Parapet Railing (No Deck Drains) over Railroad Right of Way - Typical on both sides of Bridge.

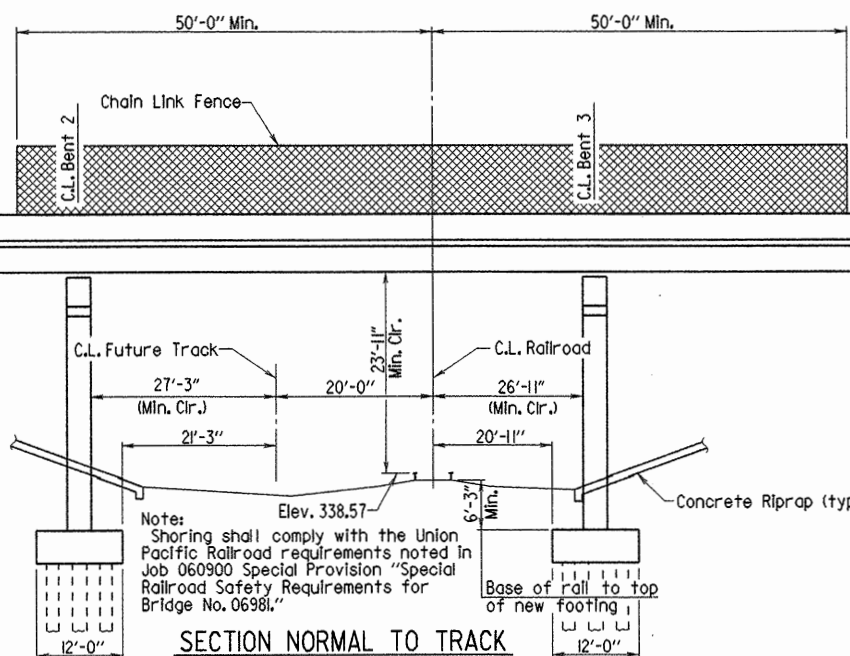
### RIGHT OF WAY SKETCH

Scale: 1" = 40'



### TYPICAL SECTION

No Scale

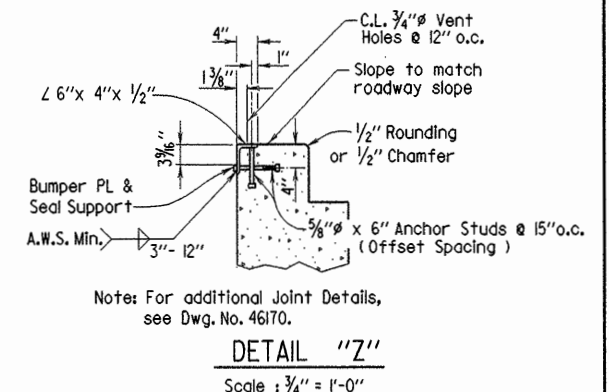
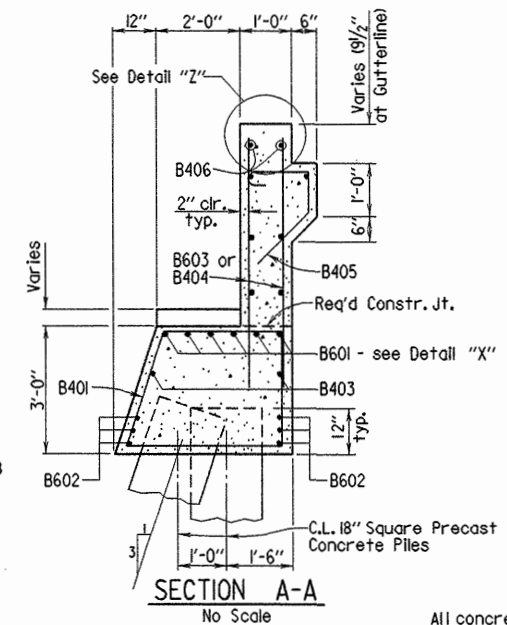
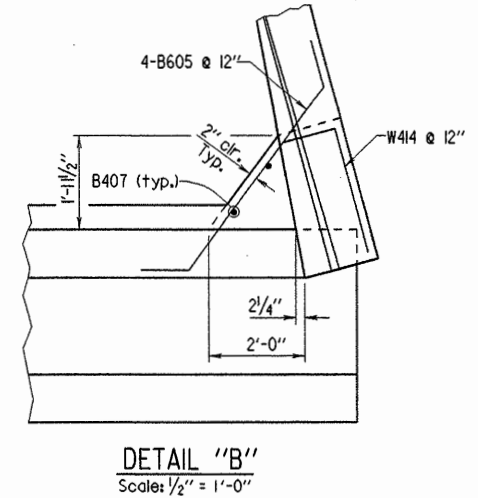
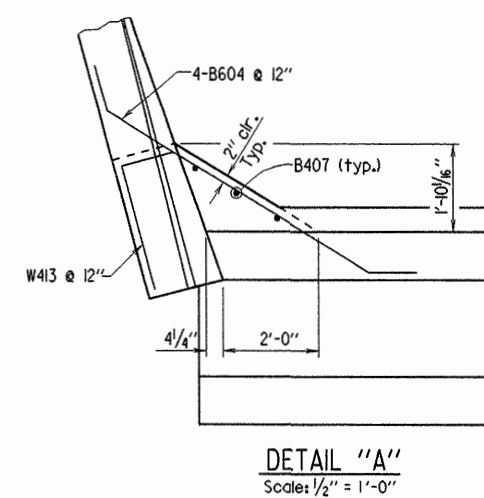
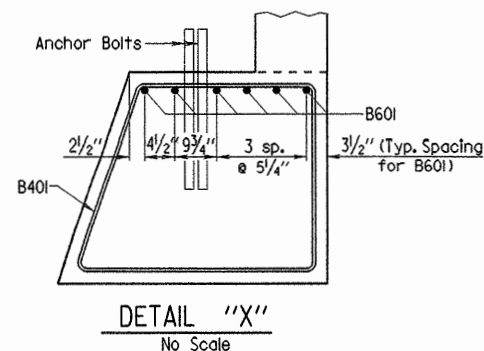
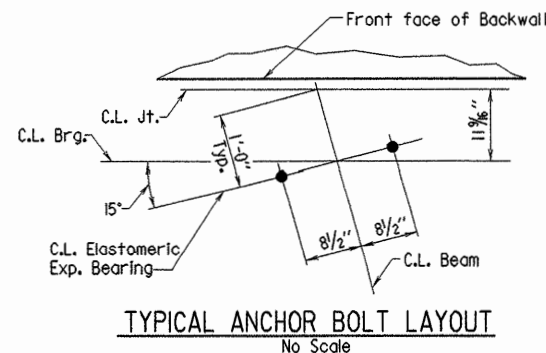
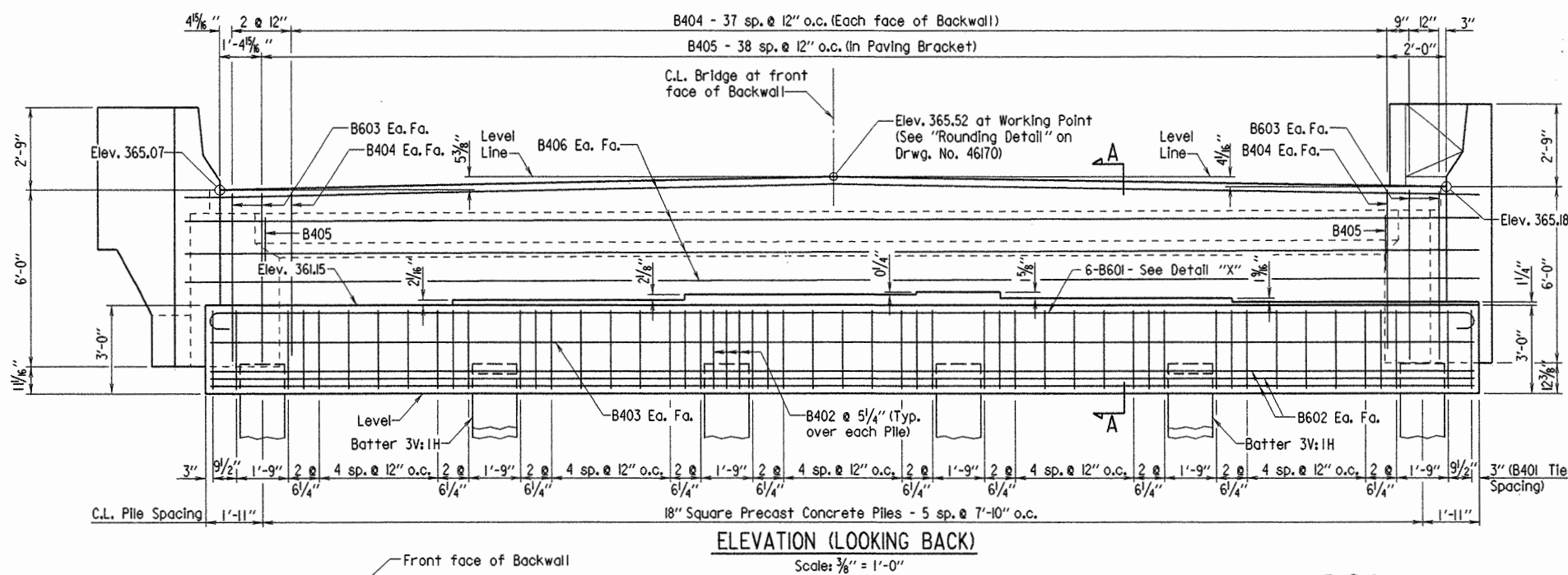
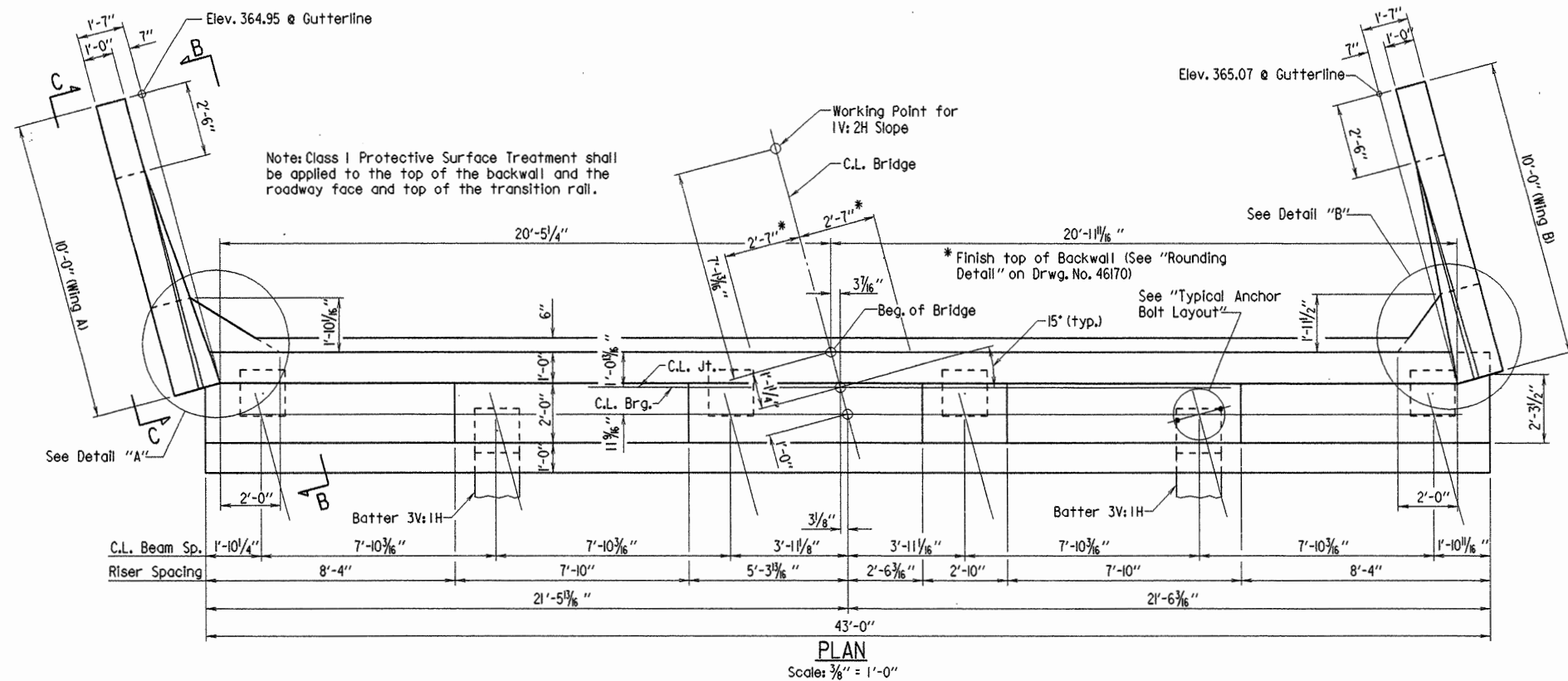


### SECTION NORMAL TO TRACK

No Scale  
(Looking in direction of Milepost increase)



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		060900	121	380
				① 06981		BENT DTLS.		46165



GENERAL NOTES

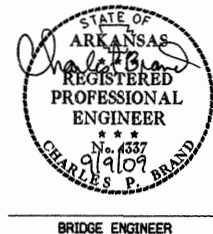
All concrete shall be Class "S" with a minimum 28 day compressive strength  $f'_c = 3500$  psi. All concrete shall be poured in the dry. All exposed corners shall be chamfered  $\frac{3}{4}''$  unless otherwise noted.

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

The end bent backwall above the required construction joint shall not be poured until the deck slab has been poured.

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

For additional information, see Layout.



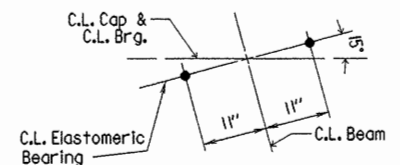
SHEET 1 OF 2  
DETAILS OF BENT NO. 1  
UNION PACIFIC R.R. OVERPASS  
HOT SPRING COUNTY

ROUTE 270 SEC. 7  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: KMG DATE: 10 JUN 03 FILENAME: b060900.b11  
CHECKED BY: CAB DATE: 9-03 SCALE: As Shown  
DESIGNED BY: J2m DATE: 10/02  
BRIDGE NO. 06981 DRAWING NO. 46165

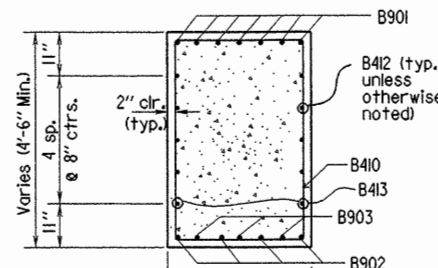


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		060900	123	380
				06981		BENT DTLS.		46167



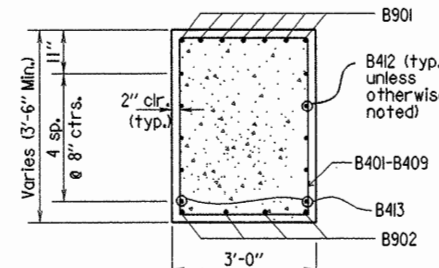
TYPICAL ANCHOR BOLT LAYOUT

No Scale  
Note: For details of Elastomeric Bearings, see dwg. no. 46175.



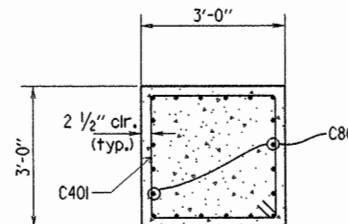
SECTION B-B

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



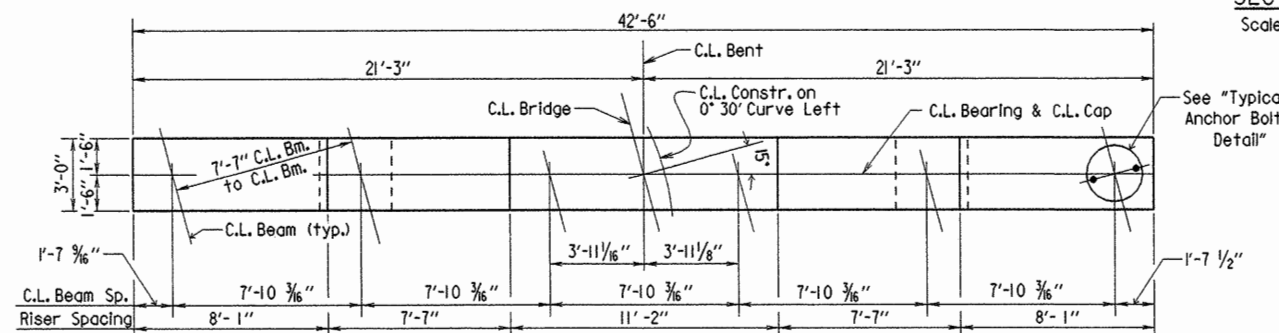
SECTION E-E

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



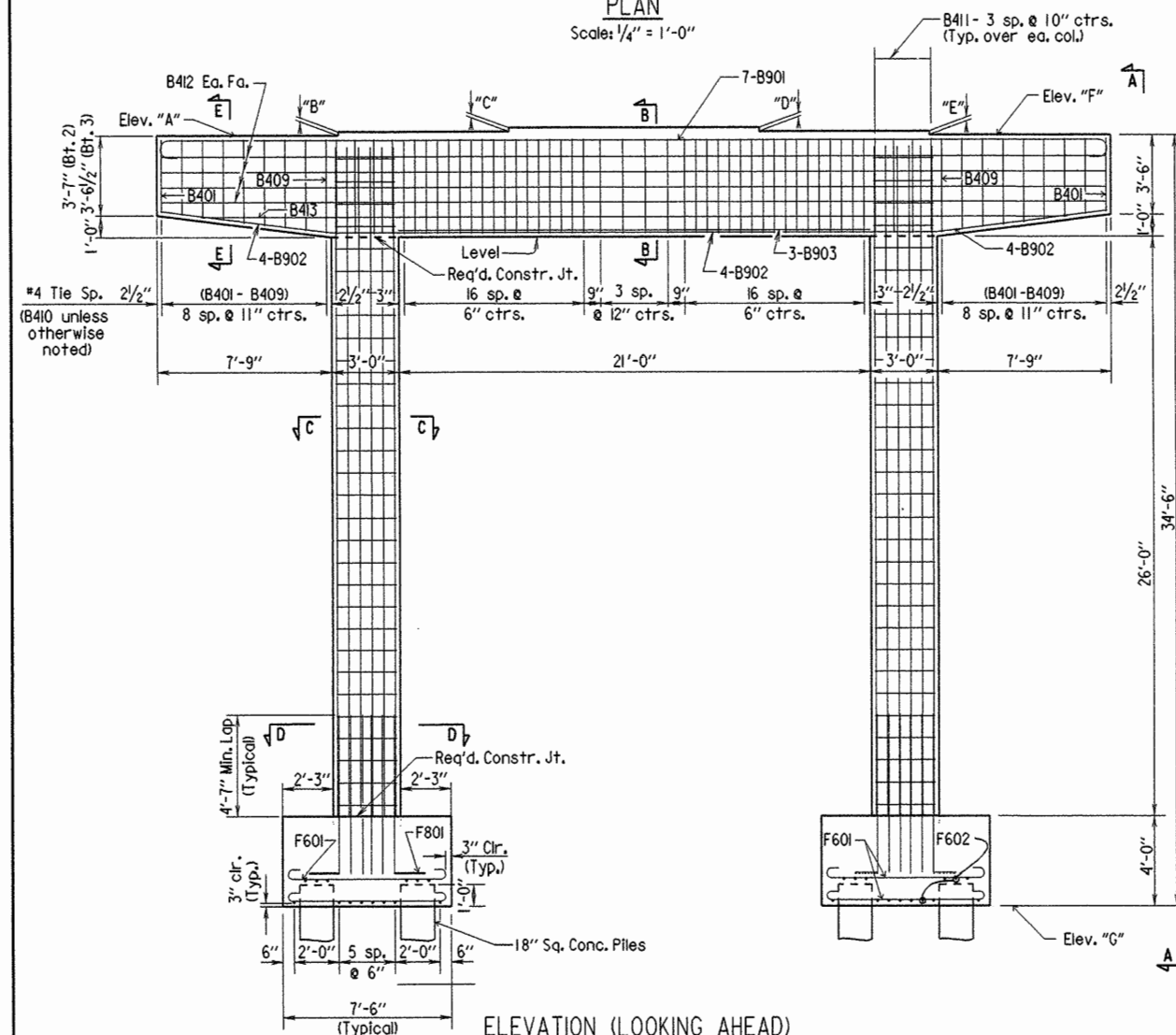
SECTION C-C

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



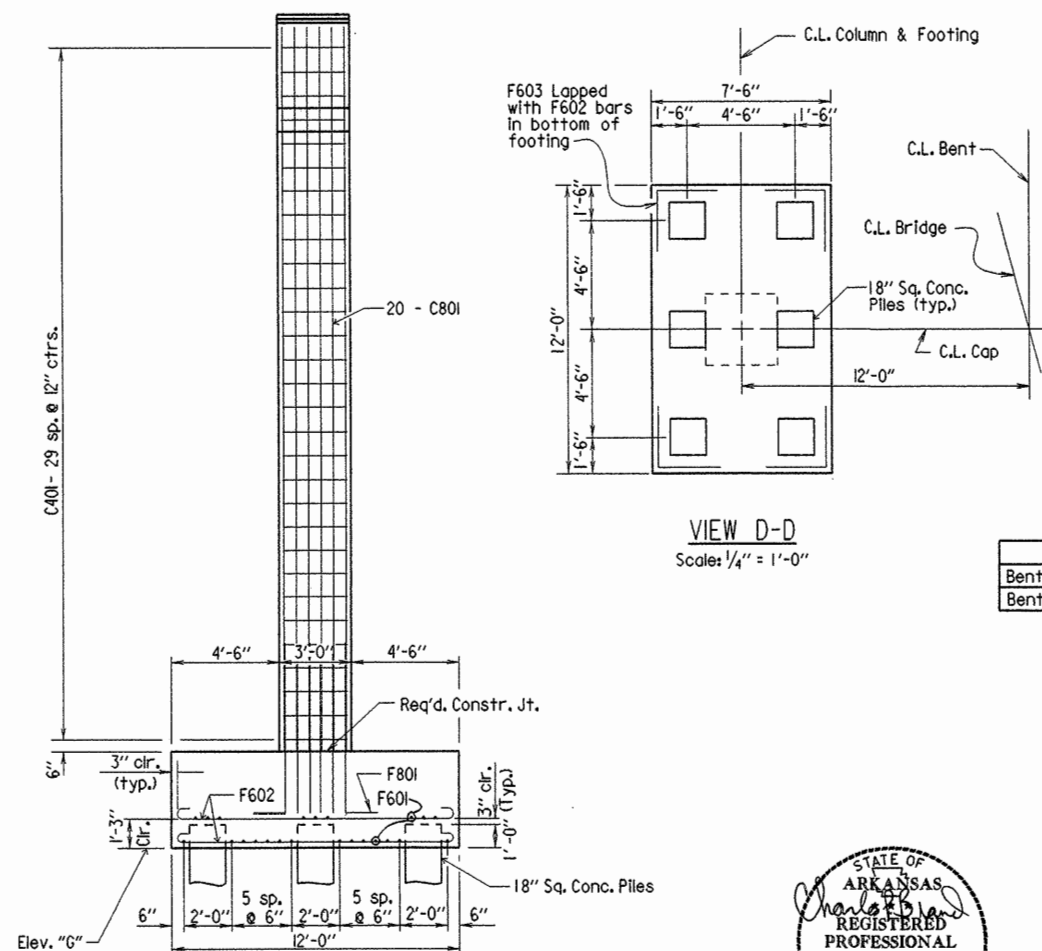
PLAN

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



ELEVATION (LOOKING AHEAD)

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



VIEW D-D

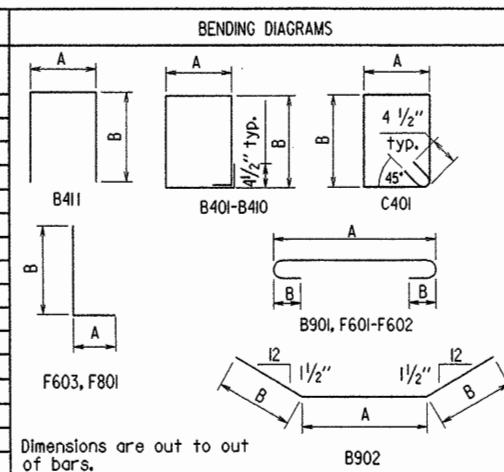
Scale: 1/4" = 1'-0"

VIEW A-A

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

BAR LIST (EACH BENT)

MARK	NO. REQ'D	LENGTH	'A'	'B'	P.D.
B401 - B409	2 ea.	Var. 12' - 0" to 14' - 0"	2' - 8"	Var. 3' - 2" to 4' - 1 1/4"	2"
B410	38	14' - 0"	2' - 8"	4' - 2"	2"
B411	8	10' - 10"	2' - 8"	4' - 2"	2"
B412	8	42' - 2"	—	—	Str.
B413	2	38' - 8"	—	—	Str.
B901	7	44' - 8"	42' - 2"	10"	9"
B902	4	42' - 6"	26' - 11"	7' - 9 1/2"	9"
B903	3	21' - 0"	—	—	Str.
C401	60	10' - 10"	2' - 7"	2' - 7"	2"
C801	40	30' - 0"	—	—	Str.
F601	46	8' - 4"	7' - 0"	6"	4 1/2"
F602	28	12' - 10"	11' - 6"	6"	4 1/2"
F603	8	4' - 10"	2' - 6"	2' - 6"	4 1/2"
F801	40	8' - 5"	1' - 4"	7' - 3"	6"



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 1/4" unless otherwise noted.

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

All piles shall be 18" square concrete and driven to a safe minimum bearing capacity of 60 tons per pile.

Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information, see Layout.

#### TABLE OF VALUES

	CAP SEAT ELEVATION & RISER HEIGHTS						
	Elev. "A"	"B"	"C"	"D"	"E"	Elev. "F"	Elev. "G"
Bent #2	361.70	1 5/8"	1 1/8"	2"	2 1/8"	361.62	327.12
Bent #3	362.16	1 3/4"	1 5/8"	1 5/8"	1 5/8"	362.12	327.62

#### DETAILS OF BENTS NO. 2 & 3 UNION PACIFIC R.R. OVERPASS HOT SPRING COUNTY

ROUTE 270 SEC. 7  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: JC DATE: 6-16-03 FILENAME: b060900.b21

CHECKED BY: CMB DATE: 9-03 SCALE: AS SHOWN

DESIGNED BY: SPM DATE: 10/02

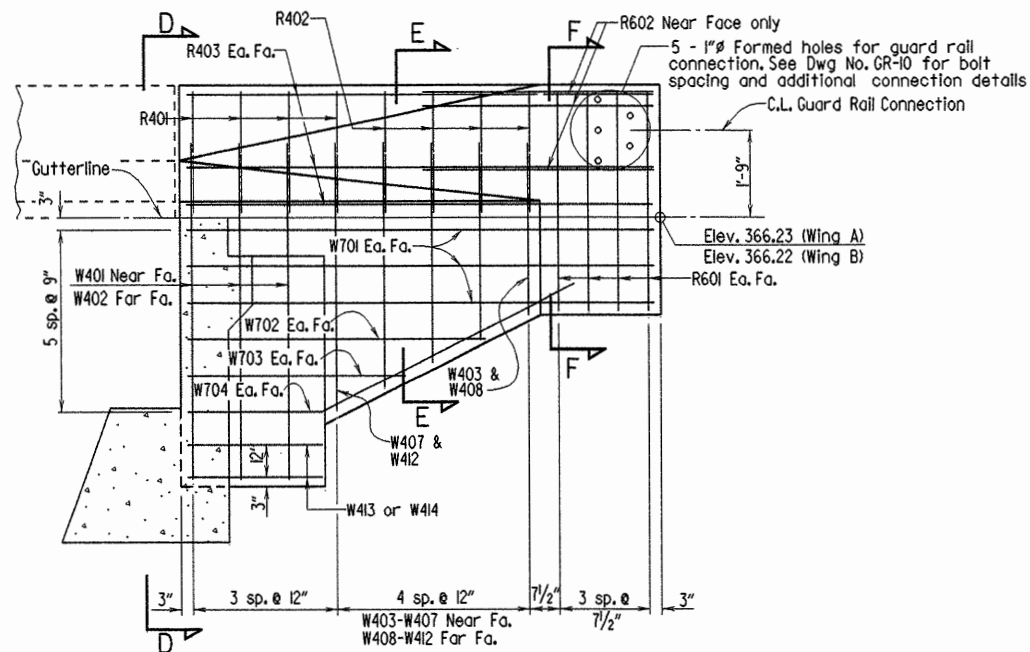
BRIDGE NO. 06981 DRAWING NO. 46167



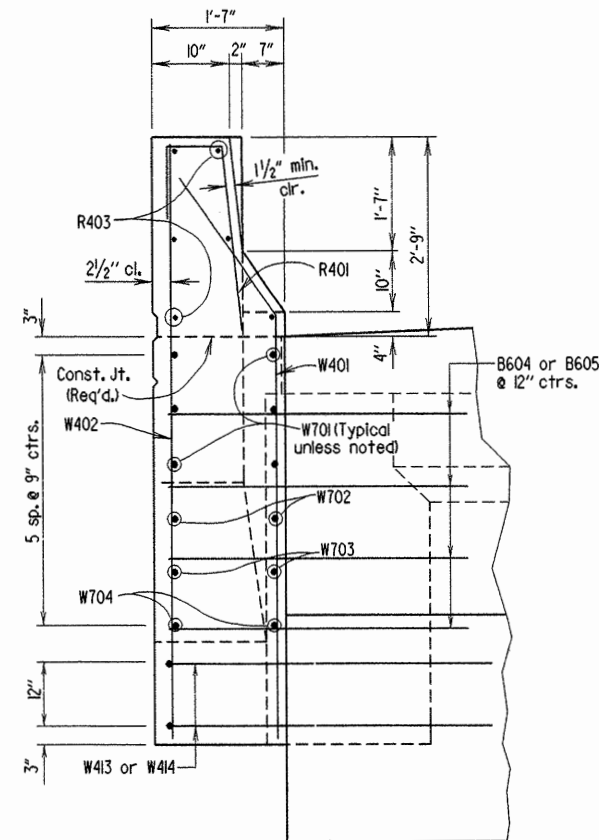




DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		060900	125	380
				① 06981		BENT DTLS.		46169



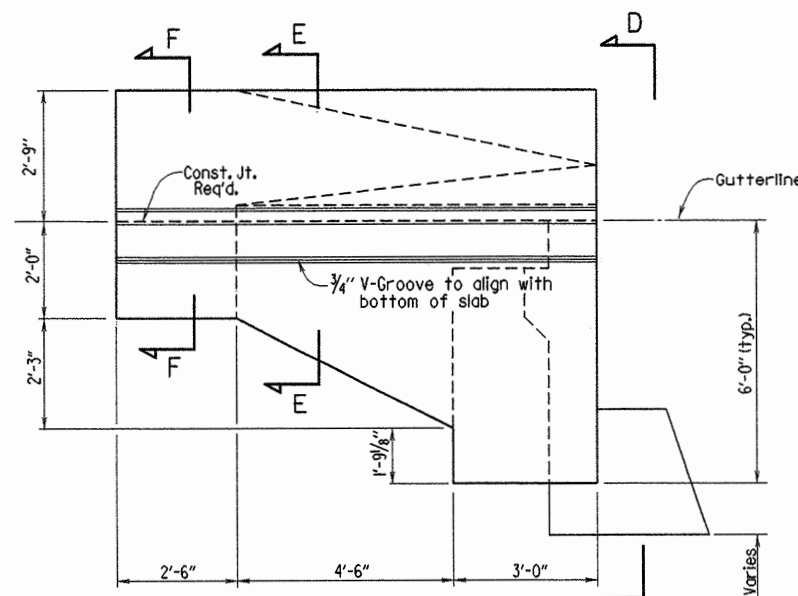
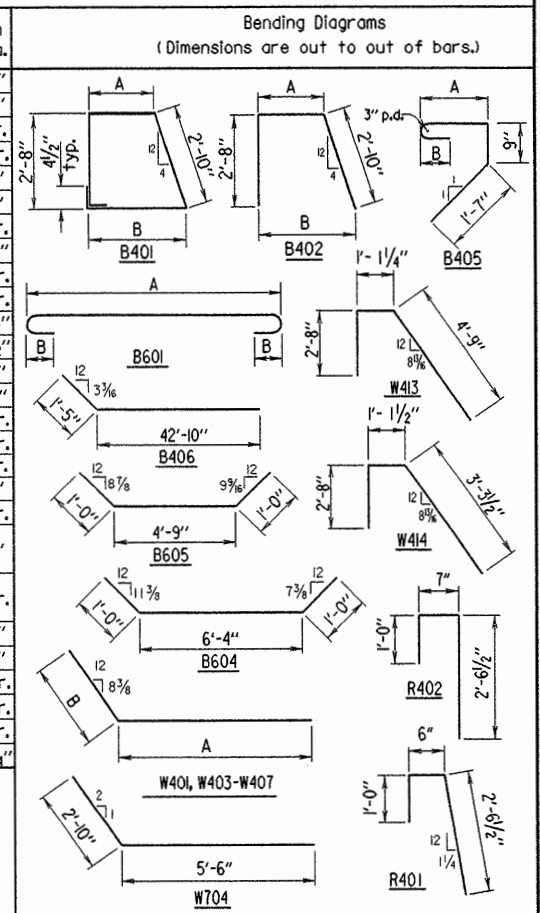
VIEW B-B  
Scale: 1/2" = 1'-0"



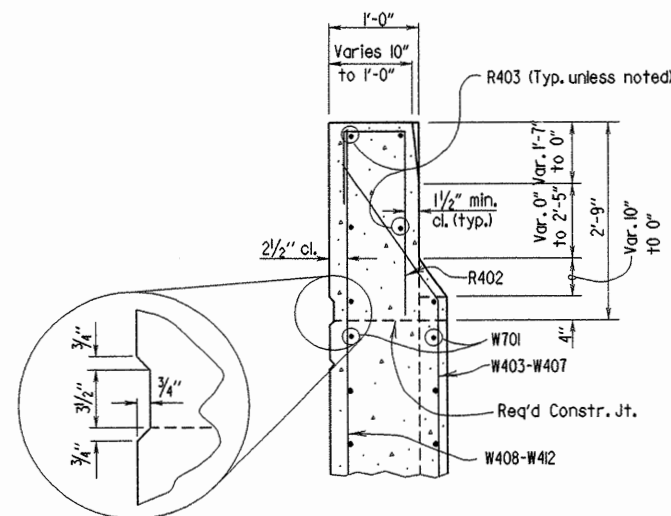
VIEW D-D  
Scale: 3/4" = 1'-0"

# BAR LIST - PER BENT

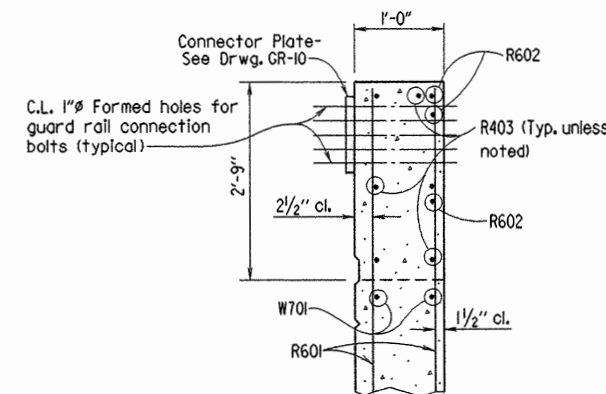
Mark	No. Req'd.	Length	A	B	Pin Dia.
B401	49	12'-2"	2'-8 1/2"	3'-7 1/4"	2"
B402	18	8'-1"	2'-8 1/2"	3'-7 1/4"	2"
B403	2	42'-8"			Str.
B404	76	5'-5"			Str.
B405	39	3'-11"	1'-2"	4 1/2"	2"
B406	8	44'-3"			3"
B407	5	3'-2"			Str.
B601	6	44'-0"	42'-8"	6"	4 1/2"
B602	6	42'-8"			Str.
B603	8	5'-10"			Str.
B604	4	8'-4"			4 1/2"
B605	4	6'-9"			4 1/2"
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	7'-3"	6'-1"	1'-2"	2"
W402	6	8'-5"			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	2	8'-5"			2"
W414	2	7'-0"			2"
W701	12	9'-8"			Str.
W702	4	6'-0"			Str.
W703	4	4'-6"			Str.
W704	4	8'-4"			5 1/4"



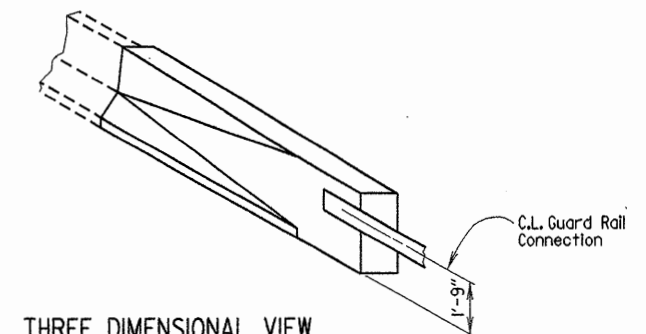
VIEW C-C  
Scale: 1/2" = 1'-0"



SECTION E-E  
Scale: 3/4" = 1'-0"



SECTION F-F  
Scale: 3/4" = 1'-0"



THREE DIMENSIONAL VIEW  
OF RAIL  
No Scale

Note: For details of guard rail connections, see Drwg. No. GR-10.

SHEET 2 OF 2  
DETAILS OF BENT NO. 4  
UNION PACIFIC R.R. OVERPASS  
HOT SPRING COUNTY

ROUTE 270 SECTION 7  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.



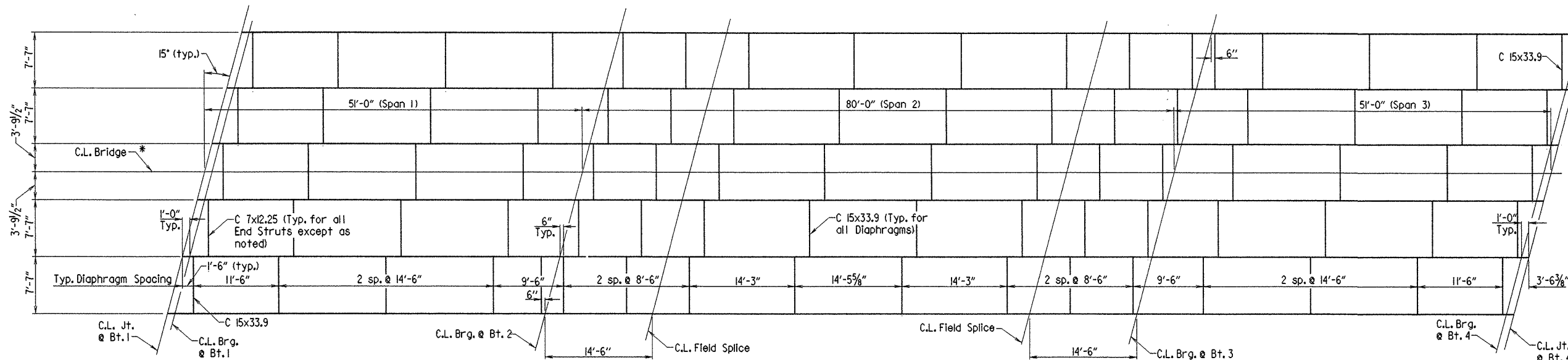
BRIDGE ENGINEER

DRAWN BY: KMG DATE: 12 Dec 00 FILENAME: b060900.b42  
CHECKED BY: CAB DATE: 9-03 SCALE: As Shown  
DESIGNED BY: STM DATE: 10/02  
BRIDGE NO. 06981 DRAWING NO. 46169



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		060900	127	380
				06981		SPAN DTLS.	46171	

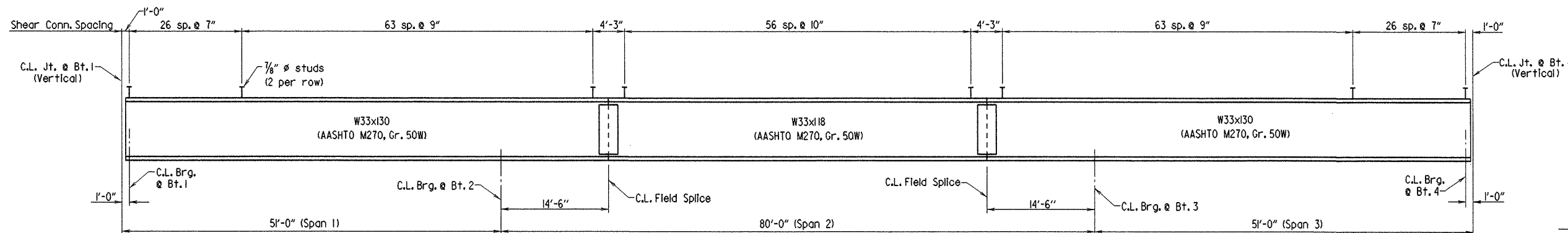
\* C.L. Bridge is a chord set off the 0° 30' horizontal curve. Beam spacings are measured perpendicular from this chord.



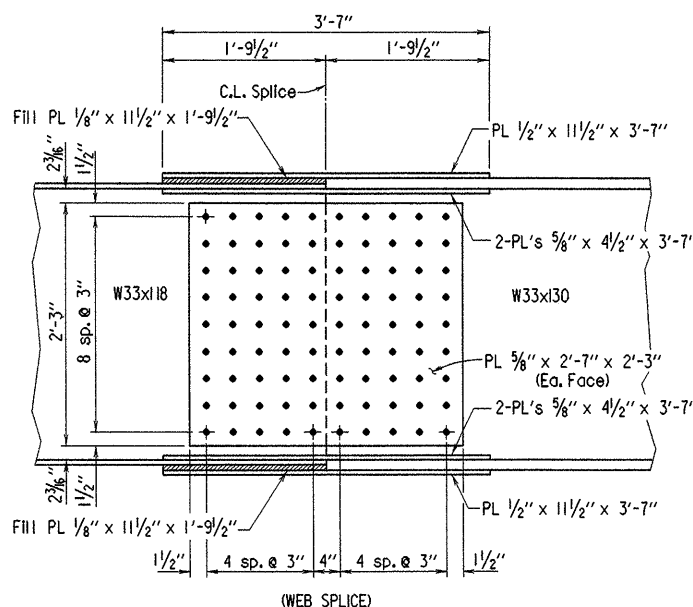
FRAMING PLAN  
No Scale

TABLE FOR WELD		
Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To 3/4" inclusive	1/4"	
Over 3/4"	5/16"	

NOTE: When a fillet weld size, as shown on the plans, is larger than the minimum, the first pass shall be that specified for minimum size of fillet weld.

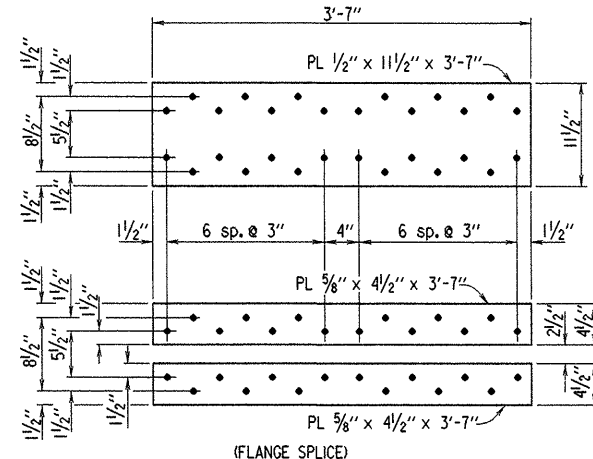


TYPICAL BEAM ELEVATION  
No Scale

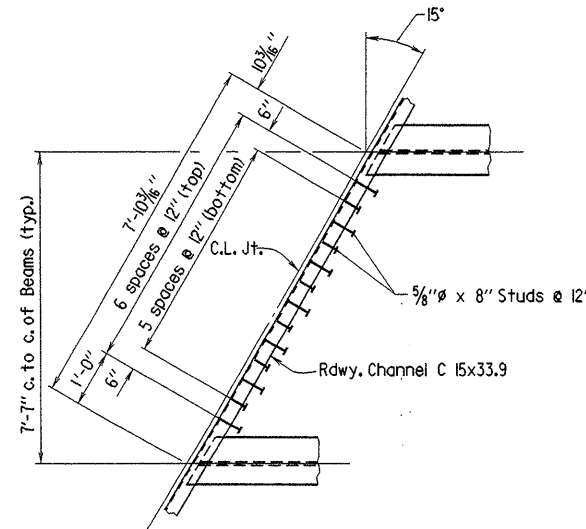


TYPICAL FIELD SPICE DETAILS  
No Scale

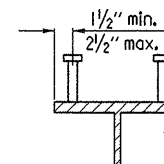
- Notes: 1. All Field Splice Bolts to be 7/8" H.S. Bolts.  
2. All Field Splice plates to be AASHTO M270, Gr. 50W steel.  
3. All holes for splice bolts to be 15/16" Ø.



(FLANGE SPICE)



ANCHOR SPACING DETAIL  
No Scale



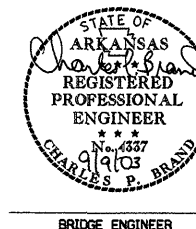
SHEAR CONNECTOR DETAIL  
Not To Scale

Stud Shear Connectors shown shall be 3/8" Ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer. 3/4" Ø studs may be used in place of the 3/8" Ø studs shown, at the ratio of 1.361 - 3/4" Ø studs in place of one 3/8" Ø stud. 1/2" Ø studs will be used as the basis for measurement of structural steel in shear connectors. Maximum stud spacing = 24".

SHEET 2 OF 5  
DETAILS OF 182'-0" CONTINUOUS  
COMPOSITE W-BEAM UNIT  
UNION PACIFIC R.R. OVERPASS  
HOT SPRING COUNTY

ROUTE 270 SEC. 7  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: KMG DATE: 12 FEB 03 FILENAME: b060900.s12  
CHECKED BY: JAC DATE: 8-21-03 SCALE: As Shown  
DESIGNED BY: JAC DATE: 10/02  
BRIDGE NO. 06981 DRAWING NO. 46171



BRIDGE ENGINEER



# TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Camber for Dead Load Deflection and Vertical Curve =  $\pm 1/4$ " tolerance. Vertical Curve corrections not included. Deflections shown are from a chord from C.L. Bearing to C.L. Bearing. Estimated weight of permanent deck forming is included. A negative sign (-) indicates an upward deflection.

Span	Point of Deflection	Structural Steel		Structural Steel (+) Slab		Structural Steel (+) Slab (+) Parapet	
		Interior	Exterior	Interior	Exterior	Interior	Exterior
SPAN 1	1.0	0.000	0.000	0.000	0.000	0.000	0.000
	1.1	0.009	0.009	0.049	0.041	0.053	0.045
	1.2	0.016	0.016	0.085	0.071	0.092	0.079
	1.3	0.020	0.019	0.100	0.083	0.109	0.092
	1.4	0.019	0.018	0.090	0.075	0.099	0.084
	1.5	0.014	0.014	0.058	0.049	0.065	0.056
	1.6	0.007	0.007	0.010	0.010	0.014	0.014
	1.7	-0.002	-0.001	-0.040	-0.032	-0.040	-0.032
	1.8	-0.008	-0.008	-0.074	-0.061	-0.077	-0.064
	1.9	-0.009	-0.009	-0.071	-0.058	-0.075	-0.062
SPAN 2	2.0	0.000	0.000	0.000	0.000	0.000	0.000
	2.1	0.041	0.039	0.285	0.235	0.310	0.261
	2.2	0.099	0.094	0.678	0.558	0.734	0.617
	2.3	0.155	0.147	1.054	0.868	1.139	0.957
	2.4	0.194	0.184	1.318	1.086	1.423	1.196
	2.5	0.208	0.197	1.413	1.164	1.525	1.282
	2.6	0.194	0.184	1.318	1.086	1.423	1.196
	2.7	0.155	0.147	1.054	0.868	1.139	0.957
	2.8	0.099	0.094	0.678	0.558	0.734	0.617
	2.9	0.041	0.039	0.285	0.235	0.310	0.261
SPAN 3	3.0	0.000	0.000	0.000	0.000	0.000	0.000
	3.1	-0.009	-0.009	-0.070	-0.058	-0.075	-0.062
	3.2	-0.008	-0.008	-0.074	-0.061	-0.077	-0.064
	3.3	-0.002	-0.001	-0.040	-0.032	-0.040	-0.032
	3.4	0.007	0.007	0.010	0.010	0.014	0.014
	3.5	0.014	0.014	0.058	0.049	0.065	0.056
	3.6	0.019	0.018	0.098	0.075	0.099	0.084
	3.7	0.020	0.019	0.100	0.083	0.109	0.092
	3.8	0.016	0.016	0.085	0.071	0.092	0.079
	3.9	0.009	0.009	0.049	0.041	0.053	0.045
	4.0	0.000	0.000	0.000	0.000	0.000	0.000

## SUPERSTRUCTURE GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2003 edition) with applicable supplemental specifications and special provisions.

DESIGN SPECIFICATIONS: AASHTO Standard Specifications for Highway Bridges (2002 edition) with current interim specifications.

LIVE LOADING: HS20

METHOD OF DESIGN: Load Factor

MATERIALS AND STRENGTHS:

Concrete: All concrete shall be Class (SAE) with minimum 28 day compressive strength  $f'_c = 4000$  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.) or AASHTO M270, Gr. 36 ( $F_y = 36,000$  psi.)

STRUCTURAL STEEL:

All structural steel shall be AASHTO M270, Gr. 50W unless otherwise noted and shall be paid for as Structural Steel in Beam Spans (M270, Gr. 50W). M270, Gr. 50W steel shall not be painted. All exposed surfaces to be cleaned in accordance with Subsection 807.84(e). Structural steel completely embedded in concrete may be AASHTO M270, Gr. 36.

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.

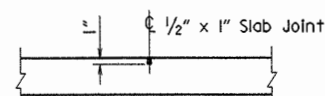
Longitudinal beams and web and flange field splice plates are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Subsection 807.05. This work and material will not be paid for directly, but will be considered included in the unit price bid for "Structural Steel in Beam Spans (M270-Grade 50W)."

Flange field splice plates shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses.

All beams shall be blocked in their true position in the shop with the webs horizontal. The camber, length of sections, distance between bearings and openings of joints shall be measured with the beams in their true position and this information shall become part of the permanent records for this job. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram. All beam dimensions are based on a temperature of 60 degrees F. A tolerance of  $1/4$ " +/- is allowed for camber.

Anchor bolts shall be galvanized according to Subsection 807.07 and shall be Grade 55.

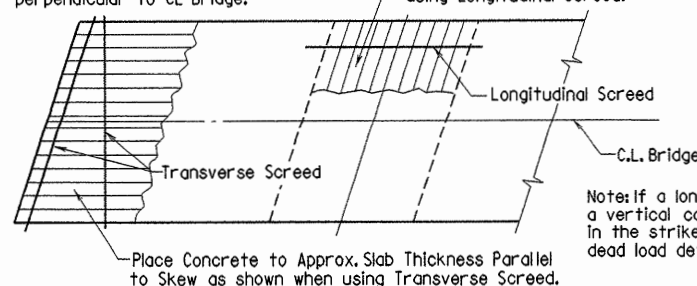
Field connections shall be bolted with high-strength bolts and shall be  $3/4$ "  $\phi$  bolts unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam webs and on the bottom of the beam flanges. Holes for  $3/4$ "  $\phi$  high-strength bolts may be  $1/8$ "  $\phi$  diameter if a washer is supplied for use under both the nut and head of the bolt.



Use Type 6 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Joint Sealer shall be measured and paid for as Class (SAE) Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab. Slab joints shall be installed before the parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations.

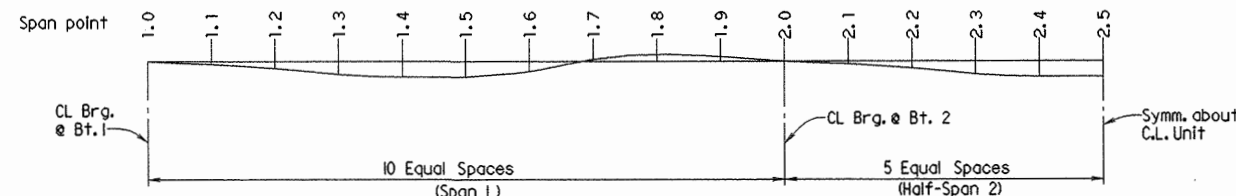
## SLAB JOINT DETAIL N.T.S.

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



## CONCRETE PLACEMENT PROCEDURE

No Scale



## DEAD LOAD DEFLECTION DIAGRAM

No Scale

SHEET 3 OF 5  
DETAILS OF 182'-0" CONTINUOUS  
COMPOSITE W-BEAM UNIT  
UNION PACIFIC R.R. OVERPASS  
HOT SPRING COUNTY

ROUTE 270 SEC. 7  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: KMG DATE: 01 MAY 03 FILENAME: b060900.s13  
CHECKED BY: JAC DATE: 8-21-03 SCALE: As Shown  
DESIGNED BY: [Signature] DATE: 10/02  
BRIDGE NO. 06981 DRAWING NO. 46172



BRIDGE ENGINEER

Diaphragms shall be installed as beams are erected. All bolts in diaphragms and field splices 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 Engineer for approval. All welding shall conform to Subsection 807.26.

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.

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 shall be poured in the dry and all exposed corners to be chamfered  $3/4$ " unless otherwise noted. All concrete shall be Class (SAE) with a minimum 28 day compressive strength  $f'_c = 4,000$  psi.

The superstructure details shown are for use with permanent steel deck forms. See Standard Drawing No. 14991 for allowable modifications and for tolerances. Measurement of Class (SAE) Concrete shall be based on removable deck forming.

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 deck shall be given a fine finish in accordance with Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Movement of the finishing machine across 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 beam. 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 due to the railing. A minimum of 72 hours shall elapse between completion of the slab and the pouring of the parapet railing.

LOAD DISTRIBUTION:	Int. Beam	Ext. Beam
Dead Load:		
To W-Beam	787 PLF + 1.3 (wt./ft. of W-Bm.)	627 PLF + 1.3 (wt./ft. of W-Bm.)
To Composite Beam	291 *	291 *

\*Includes 160 PLF Future Wearing Surface

Live Load:

To each Composite Beam Int. Bm. = 1,379 wheels (+) Impact  
Ext. Bm. = 1,286 wheels (+) Impact



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		060900	129	380
				06981		SPAN DETAILS	46173	

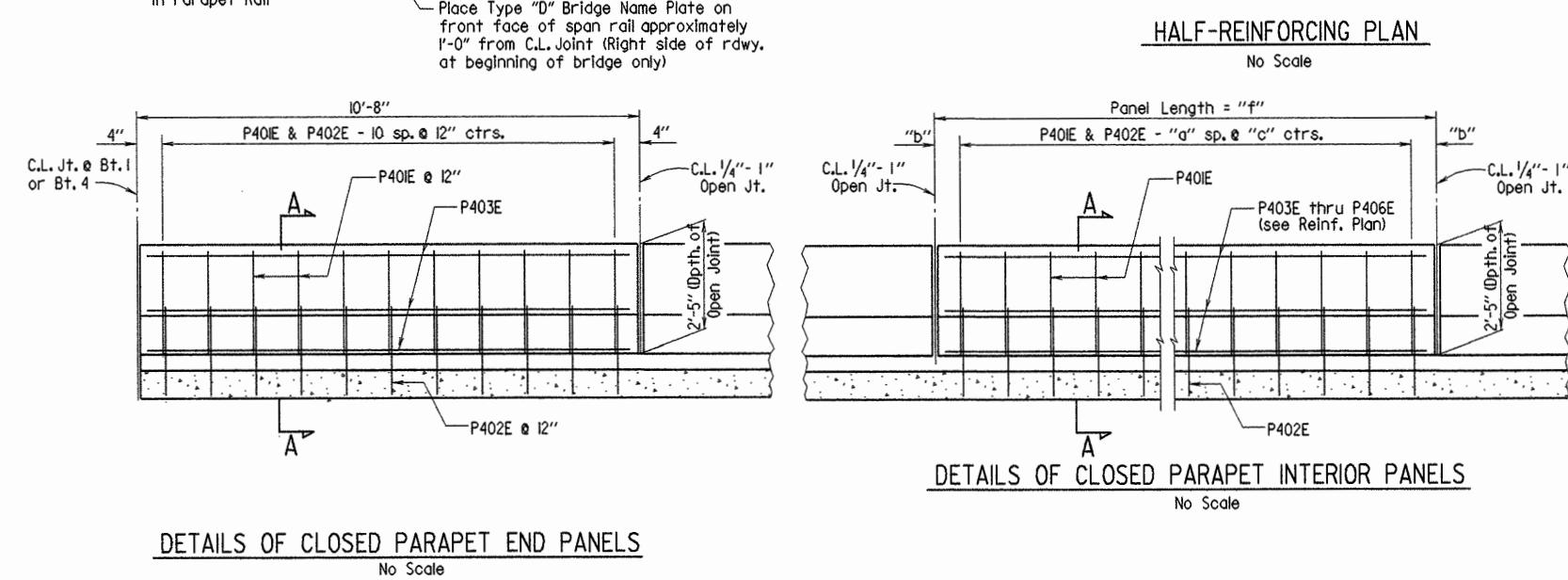
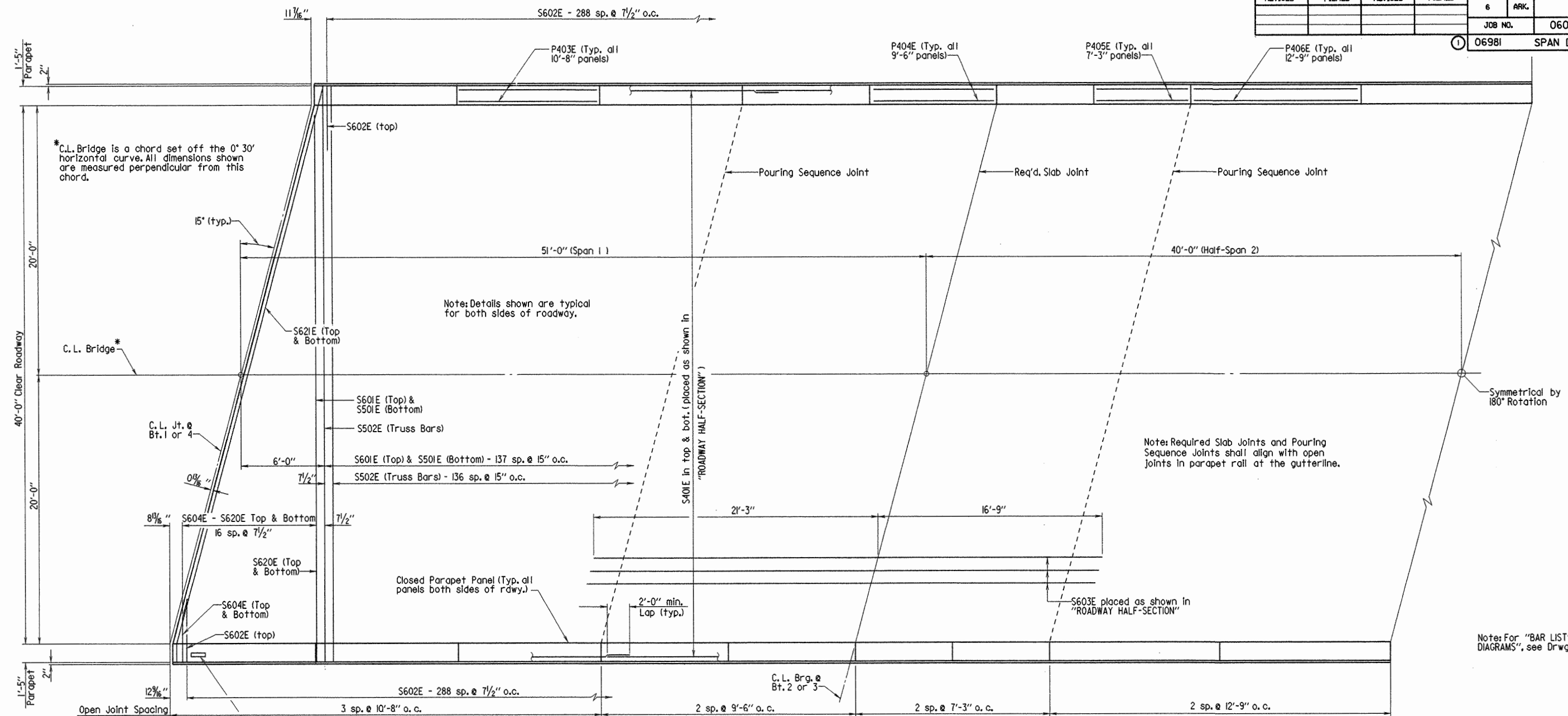


TABLE OF PARAPET VARIABLES

Panel Length "f"	"a"	"b"	"c"
10'-8"	10	4"	12"
9'-6"	9	3"	12"
7'-3"	7	3 1/4"	11 1/2"
12'-9"	12	4 1/2"	12"

SHEET 4 OF 5

DETAILS OF 182'-0" CONTINUOUS COMPOSITE W-BEAM UNIT

UNION PACIFIC R.R. OVERPASS

HOT SPRING COUNTY

ROUTE 270 SEC. 7

ARKANSAS STATE HIGHWAY COMMISSION

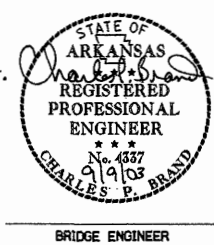
LITTLE ROCK, ARK.

DRAWN BY: KMG DATE: 05 MAY 03 FILENAME: b060900.s14

CHECKED BY: JAC DATE: 8-21-03 SCALE: As Shown

DESIGNED BY: JAC DATE: 10/02

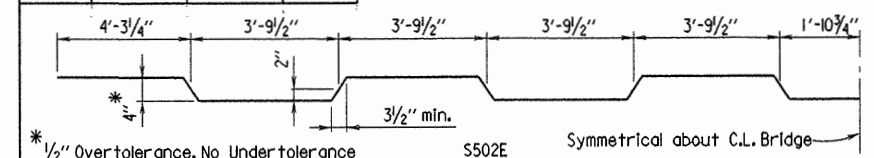
BRIDGE NO. 06981 DRAWING NO. 46173



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				8	ARK.			
				JOB NO.		060900	130	386
				06981		SPAN DTLS.		46174

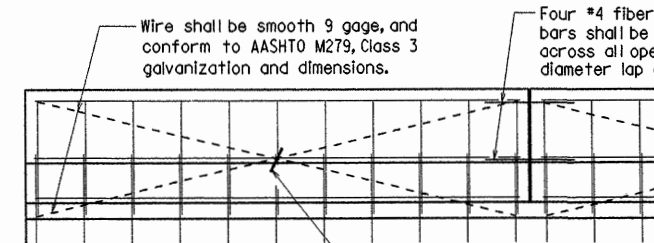
### BAR LIST (UNIT TOTAL)

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
S401E	440	37'-11"	Str.	
S501E	138	42'-10"	Str.	
S502E	137	43'-9"	3"	
S601E	138	42'-10"	Str.	
S602E	578	4'-9"	Str.	
S603E	116	38'-0"	Str.	
S604E	4	4'-10"	4 1/2"	
S605E	4 of each	Var. 5'-8" to 40'-8"	Str.	
S620E				
S621E	4	44'-3"	4 1/2"	
P401E	380	6'-4"	2"	
P402E	380	5'-6"	2"	
P403E	72	10'-4"	Str.	
P404E	48	9'-2"	Str.	
P405E	48	6'-11"	Str.	
P406E	48	12'-5"	Str.	



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

Note: Reinforcing details shown are general. For actual reinforcing details, see parapet rail details on Drwg. No. 46173.

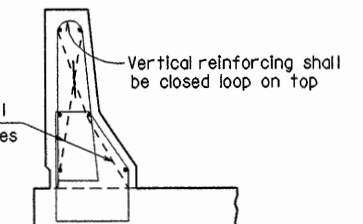


Note: The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Exposed surfaces may be given a light brush finish or a Class 3, Textured Coating Finish, in place of Class 2, Rubbed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

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 grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

All smooth wire bracing shall be placed on the inside faces of the reinforcing



### DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

No Scale

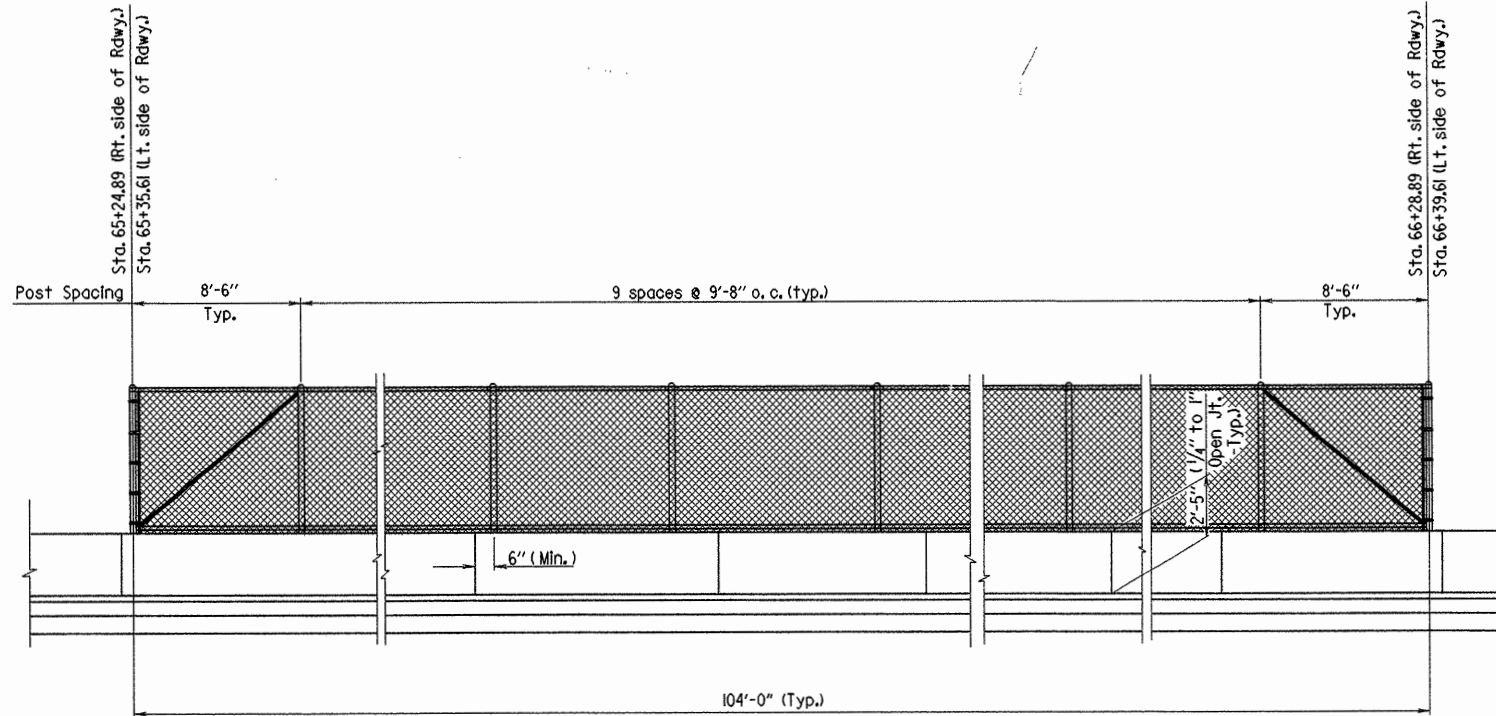
### SHEET 5 OF 5 DETAILS OF 182'-0" CONTINUOUS COMPOSITE W-BEAM UNIT UNION PACIFIC R.R. OVERPASS HOT SPRING COUNTY

ROUTE 270 SEC. 7  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

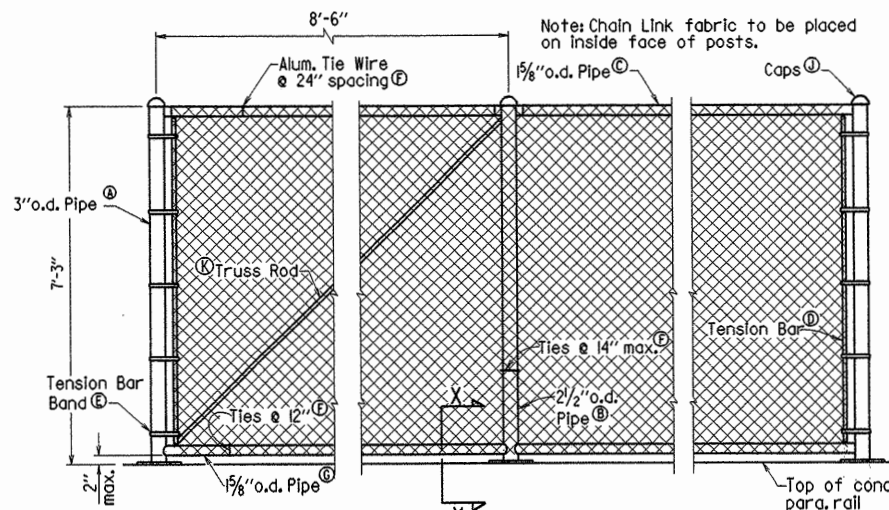
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BRIDGE NO. 06981 DRAWING NO. 46174



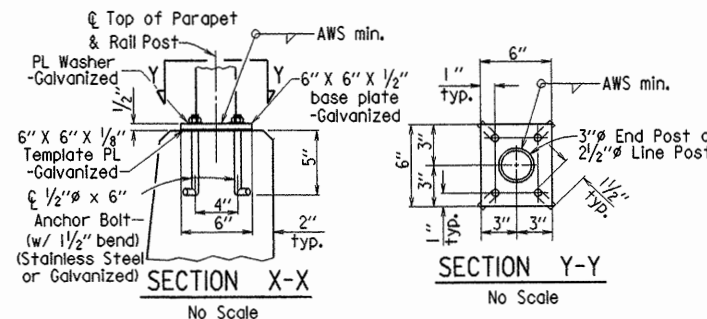
BRIDGE ENGINEER



LONGITUDINAL VIEW OF CHAIN LINK FENCE  
No Scale



DETAIL OF CHAIN LINK FENCE  
No Scale



SECTION X-X  
No Scale

SECTION Y-Y  
No Scale

Note: Chain Link Fence attached to Bridge shall be paid for as "7" Steel Chain Link Fence". For additional details of Chain Link Fence see Standard Drawing WF-3.

### General Notes For Fence

Anchor Bolts shall be of stainless steel or High Strength Steel. Stainless steel anchor bolts shall conform to ASTM A193 or A320-Grade B8 with a minimum yield strength 80,000 psi. High Strength Steel Anchor Bolts shall conform to AASHTO M164 or ASTM A354-Grade BC Galvanized in accordance with AASHTO M232.

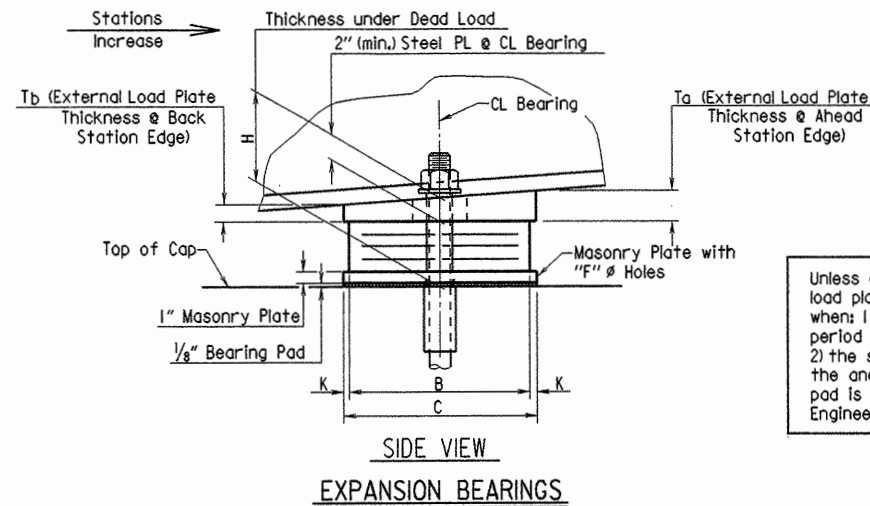
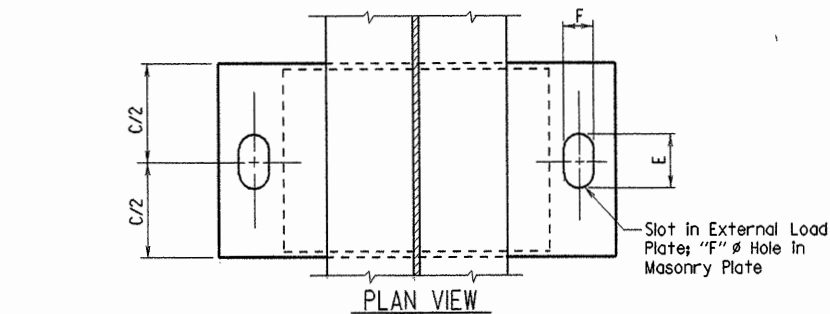
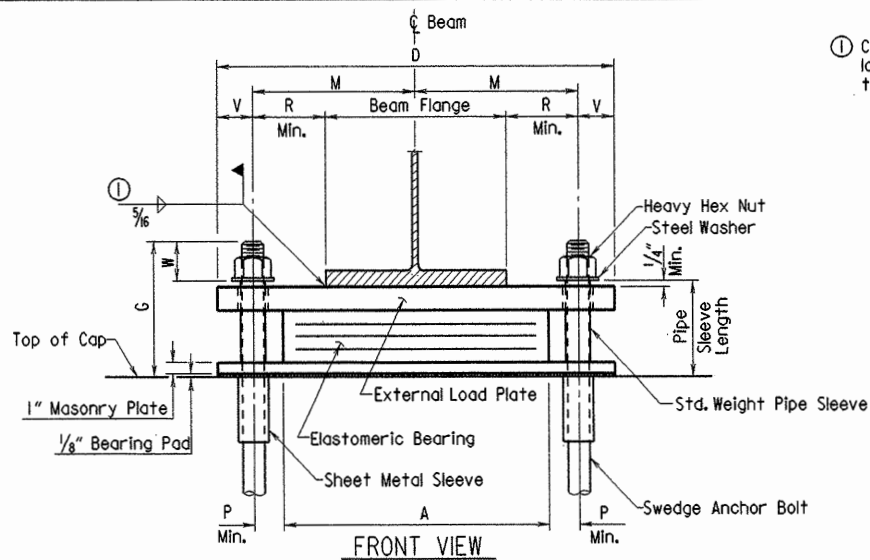
Nuts: Nuts shall conform to ASTM A194-Gr. 8 (Stainless Steel) or AASHTO M164 Galvanized in accordance with AASHTO M232.

Threads: Threads on bolts, screws, and nuts shall conform to American Standard Course Series, Class 2 Fit, ASA Specification B11.

Washers shall be of High-Strength Steel conforming to AASHTO M270, GR. 36 Galvanized in accordance with AASHTO M232 or of Stainless Steel conforming to ASTM A276 or A167-Type 302.

- ① END POST: 3" O.D.
- ② LINE POST: 2 1/2" O.D.
- ③ TOP RAIL: 1 5/8" O.D.
- ④ TENSION BAR: 3/8" x 3/4" Bar
- ⑤ TENSION BAR BAND: 3/4" x .074 w/ 5/16" x 1 1/4" Bolt (1 Band Top & Bottom w/ 15" max. spaces)
- ⑥ TIE WIRE: 9 Ga. Aluminum
- ⑦ BOTTOM RAIL: 1 5/8" O.D.
- ⑧ FABRIC: 9 Ga. 2" Mesh w/ Knocklug or Twisting Selvage
- ⑨ CAPS: All Posts shall be Capped & Shall Conform to ASTM F626-84
- ⑩ TRUSS ROD: Min. of 5/8" Round with Tighteners and Fittings

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		060900	131	380
				06981		ELASTO. BRGS.		46175



Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the beam will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40° F and 80° F; and 2) the slots in the external load plate are positioned to center on the anchor bolts; and 3) no horizontal deformation of the elastomeric pad is evident. If welding at other temperatures is required, the Engineer will provide adjustment data.

#### ELASTOMERIC BEARING

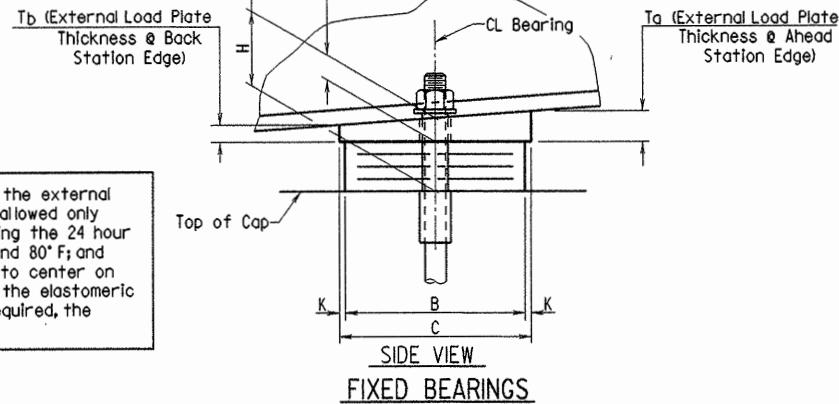
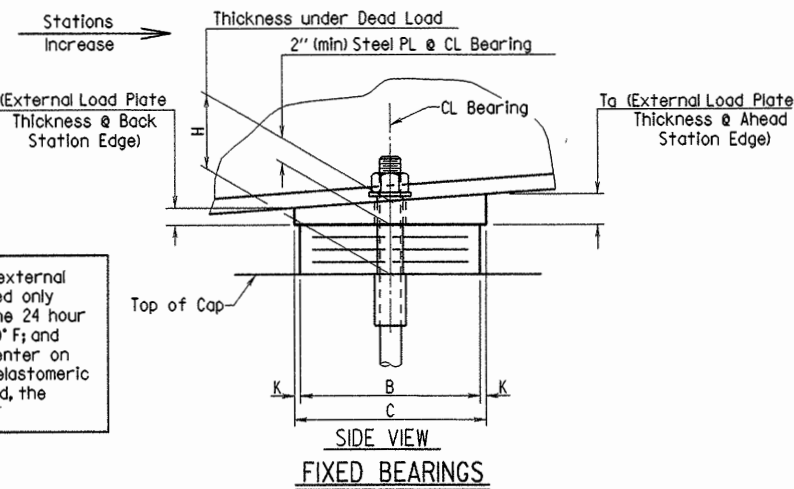
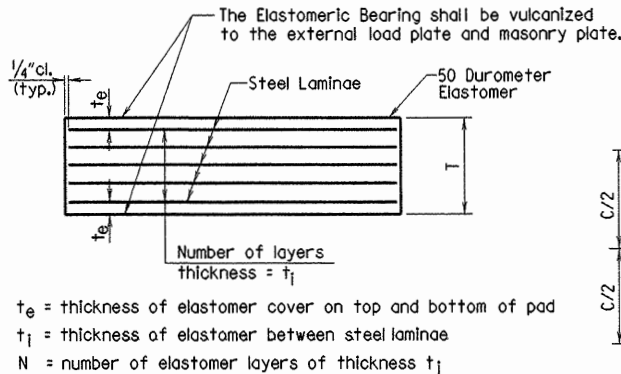


TABLE OF FABRICATOR VARIABLES

							ELASTOMERIC PAD							EXTERNAL LOAD PLATE										ANCHOR BOLT					
LOCATION	BEAM OR GIRDER NO.	BEARING TYPE	NO. of BEARINGS EACH BENT	*MAXIMUM DESIGN LOAD (KIPS)	G	H	A	B	N	t <sub>l</sub>	t <sub>e</sub>	NO. & THICKNESS OF STEEL LAMINAE	T	C	D	E	F	K	M	T <sub>a</sub>	T <sub>b</sub>	ANCHOR BOLT		PIPE SLEEVE SIZE (ø x L)	SHEET METAL SLEEVE SIZE (ø x L)	STEEL WASHER SIZE (O.D.)			
																						(ø x L)	GRADE						
Bt. Nos.1 & 4	ALL	Expansion	6	64	9¼"	6⅝"	13"	9½"	5	½"	¼"	6 @ 12 Ga.	3⅝"	10½"	22"	3½"	2"	½"	8½"	(See Table)			1¼"ø x 25"	55	1¼"ø x 7"	3"ø x 12"	2½"ø		
Bt. Nos.2 & 3	ALL	Fixed	6	149	10½"	6¾"	16"	13½"	7	½"	¼"	8 @ 12 Ga.	4⅞"	14½"	29"	3¾"	3¾"	½"	11"	(See Table)			2½"ø x 39"	55	3"ø x 7"	4"ø x 12"	4½"ø		

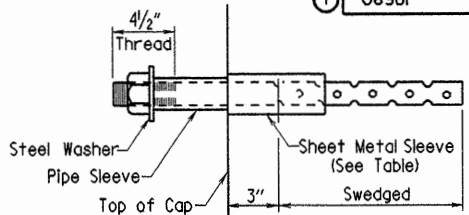
\* Maximum Design Load = Service Load

TABLE OF EXTERNAL LOAD PLATE THICKNESS VARIABLES

	T <sub>a</sub>	T <sub>b</sub>
Bt. 1	2.06"	1.94"
Bt. 2	2.06"	1.94"
Bt. 3	2.03"	1.97"
Bt. 4	2.00"	2.00"

TABLE OF DESIGN VARIABLES

ANCHOR BOLT DIAMETER	PIPE SLEEVE NOMINAL DIAMETER	SHEET METAL SLEEVE DIA.	STANDARD WASHER SIZE (O.D.)	MINIMUM EMBEDMENT LENGTH	SLOT WIDTH "F"	P Min.	R Min.	V	W
1 1/4"	1 1/4"	3"	2 1/2"	12"	2"ø	2"	2 1/4"	2 1/2"	2 1/4"
2 1/2"	3"	4"	4 1/2"	25"	3 3/4"ø	3"	3 1/4"	3 1/2"	3 1/2"



#### ANCHOR BOLT DETAIL

NOTE: Anchor Bolts may be cast in place or drilled and grouted into place. If Anchor Bolts are to be cast in place, the Galvanized Sheet Metal Sleeves will not be required.

If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the masonry. Bolts placed in drilled holes shall be accurately set and fixed using a QPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the item "Structural Steel in Beam Spans, (M 270, Gr. 50W)"

#### GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 and SP Job 060900 "Elastomeric Bearings" and shall be paid for at the unit price bid for "Elastomeric Bearings". Long-duration testing of random lot samples specified in Subsection 808.05 is not required.

External load plates and masonry plates shall conform to AASHTO M 270, Grade 50W. Pipe sleeves shall be ASTM A53, Grade B, and shall be galvanized to conform to AASHTO M232, Class C or AASHTO M 298, Class 50.

External load plates and masonry plates shall be completely fabricated (including bevel and bolt holes) and shall be cleaned before vulcanizing to the elastomeric bearing. The surfaces in contact with the elastomeric bearing shall be cleaned in accordance with Subsection 808.03. Other surfaces shall be blast cleaned in accordance with Subsection 807.84(e) for unpainted weathering steel.

Anchor Bolts, Washers and Nuts shall conform to Subsection 807.07. The anchor bolt grade of steel shall be as specified in the "Table of Fabricator Variables". Indentations shall be circular with rounded bottoms and staggered as shown in the details.

Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr. 50W)."

External load plates, masonry plates, and bearing pads will not be paid for separately but will be included in the unit price bid for "Elastomeric Bearings."

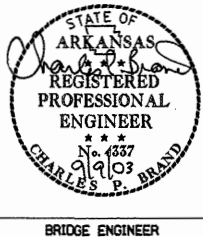
Bearings with masonry plates and 1/8" bearing pads shall be firmly seated in accordance with Subsection 807.66. This work will not be paid for directly but shall be considered subsidiary to the item "Elastomeric Bearings".

Bearings without masonry plates shall be firmly seated in accordance with Subsection 808.08. This work will not be paid for directly but will be considered included in the unit price bid for "Elastomeric Bearings."

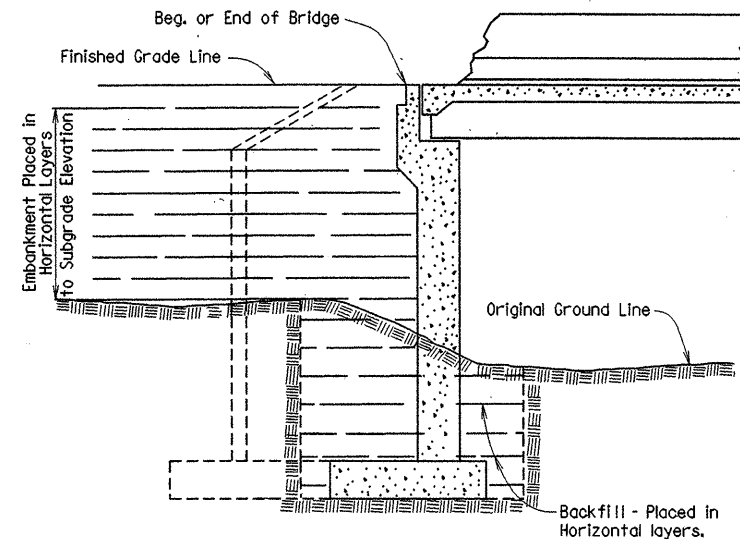
#### DETAILS OF ELASTOMERIC FIXED AND EXPANSION BEARINGS UNION PACIFIC R.R. OVERPASS HOT SPRING COUNTY

ROUTE 270 SEC. 7  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

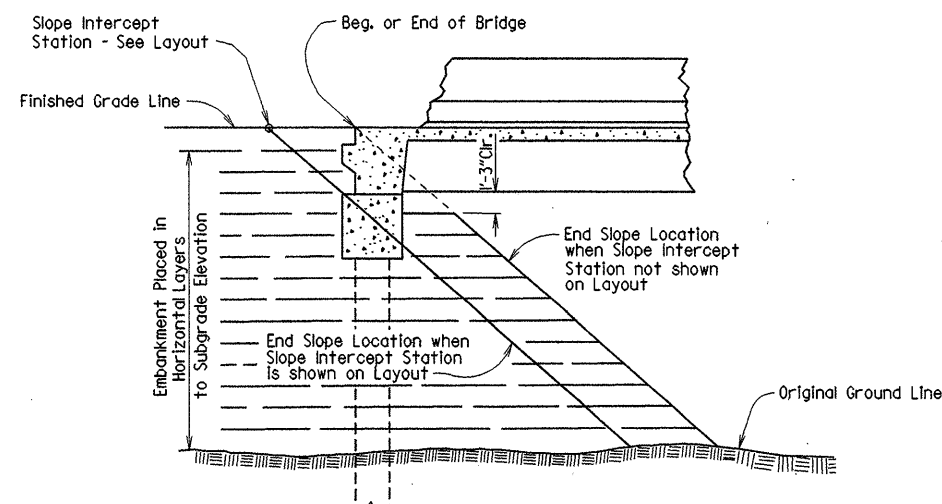
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BRIDGE NO. 06981 DRAWING NO. 46175



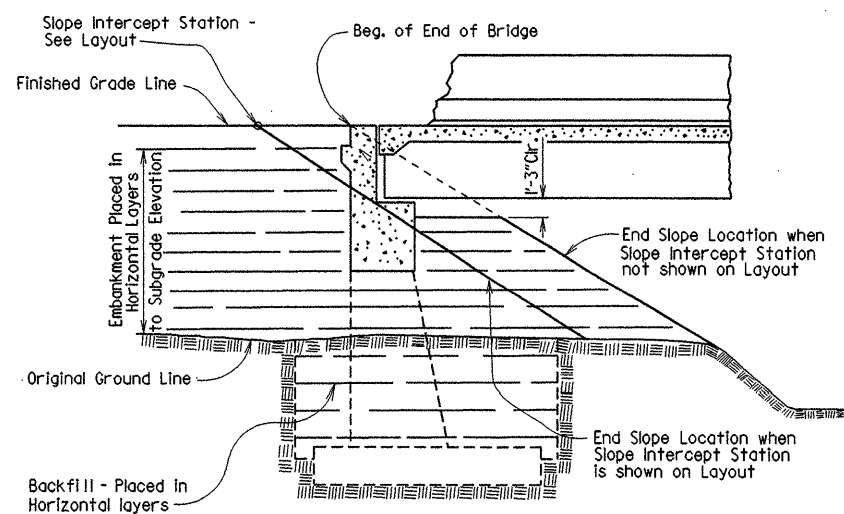
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				JOB NO.				
				EMBANKMENT & BACKFILL 1888A				



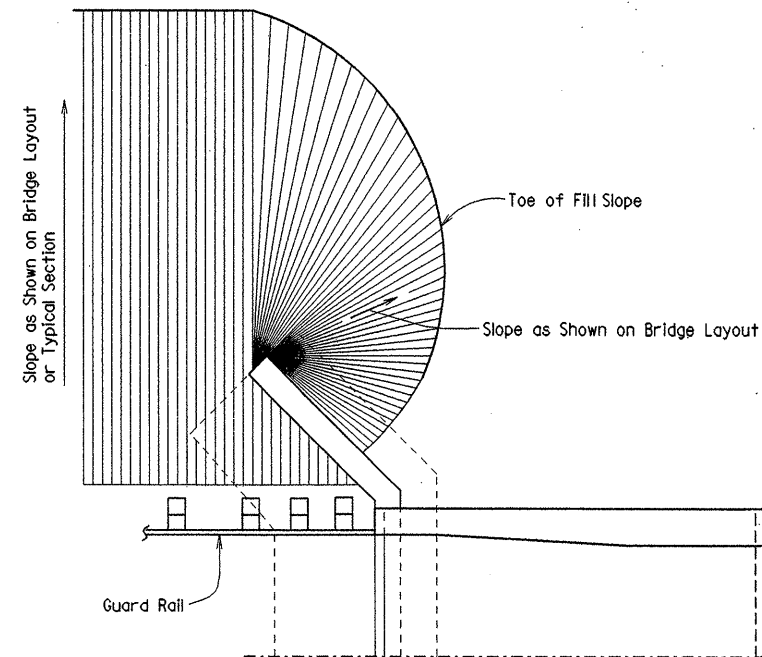
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



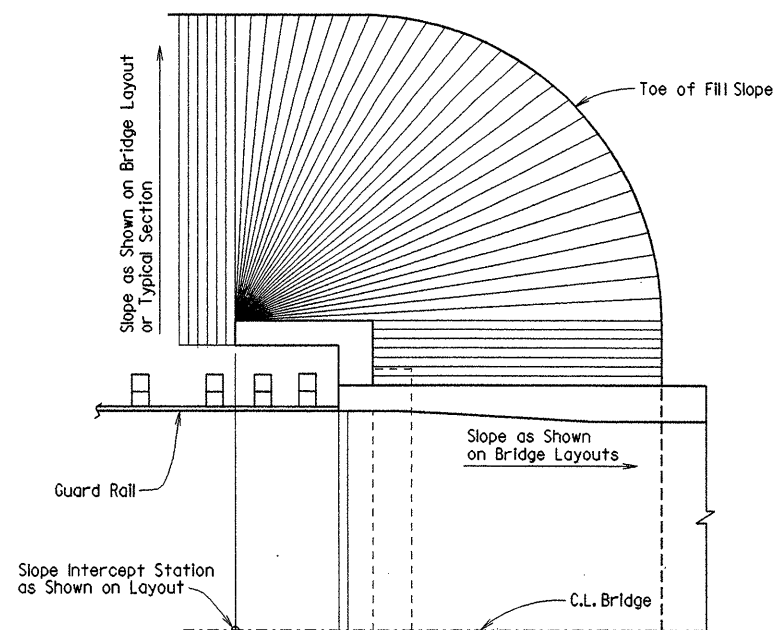
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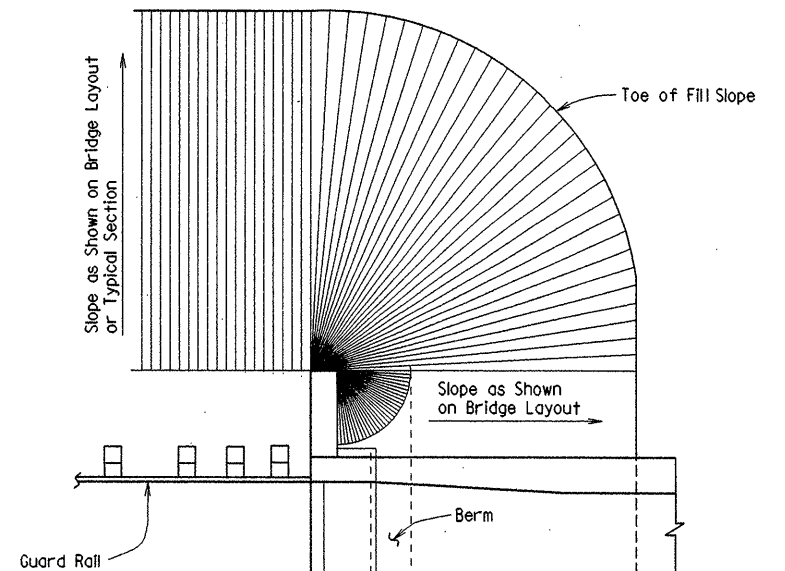
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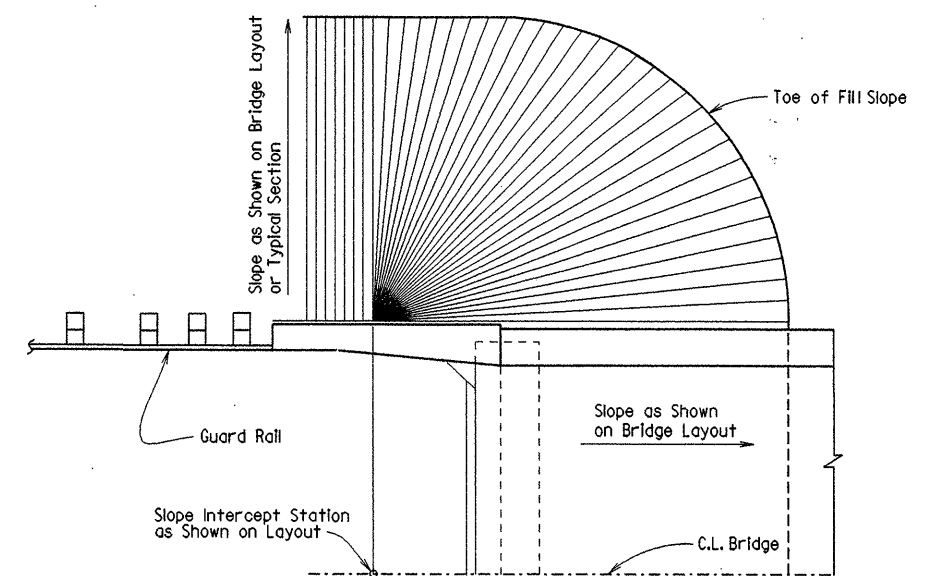
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TRANSITION WING

# METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

## GENERAL NOTES

The Bridge End Embankment shall be defined as a section of embankment, not less than 20 feet long adjacent to the bridge end, together with the side slopes and slopes under the bridge end including around the end of wingwalls. Embankment adjacent to structures shall be constructed in 4 inch horizontal layers (loose measure) and compacted by the use of mechanical equipment to the satisfaction of the Engineer. Refer to subsections 210.09, 210.10 and 801.08 of the Specifications for construction requirements.

Revised and redrawn MJT 04-10-2003  
Chk'd By: CJP 04-10-2003



BRIDGE ENGINEER

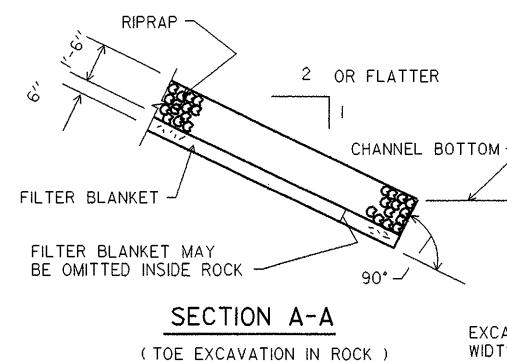
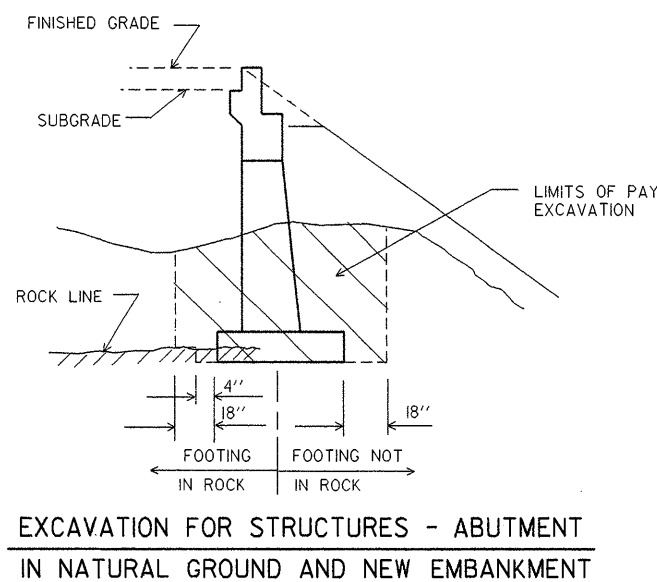
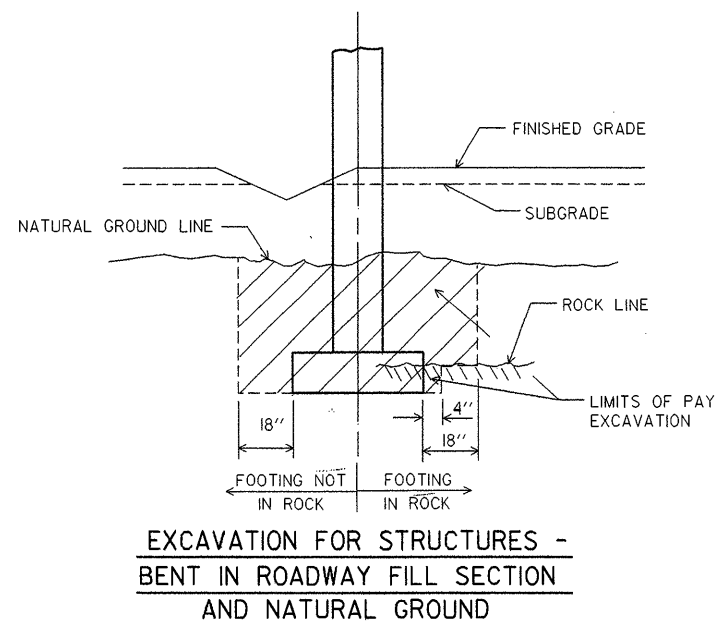
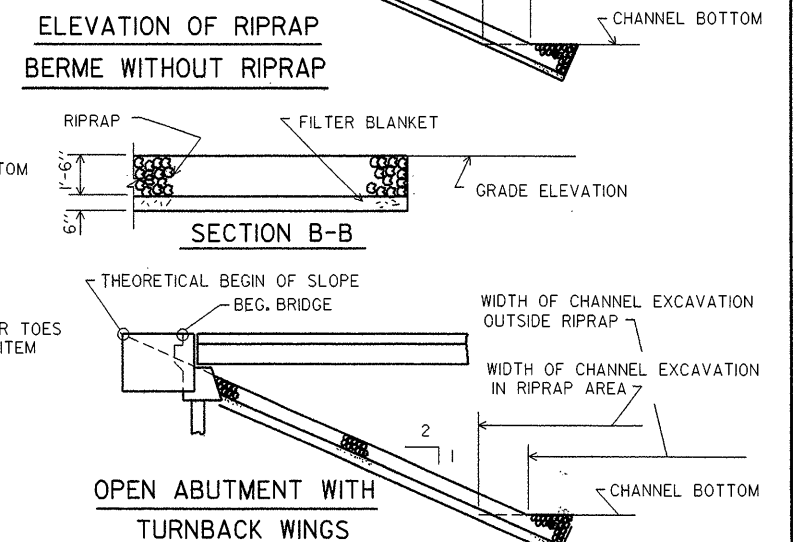
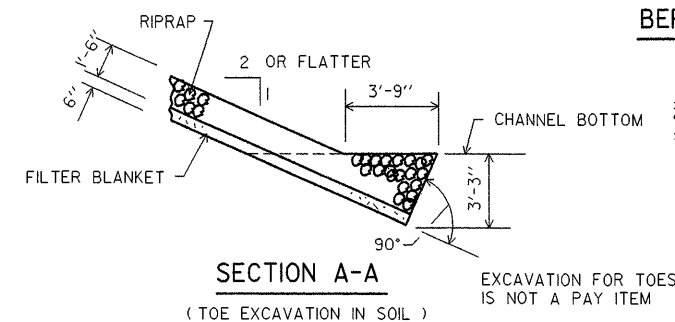
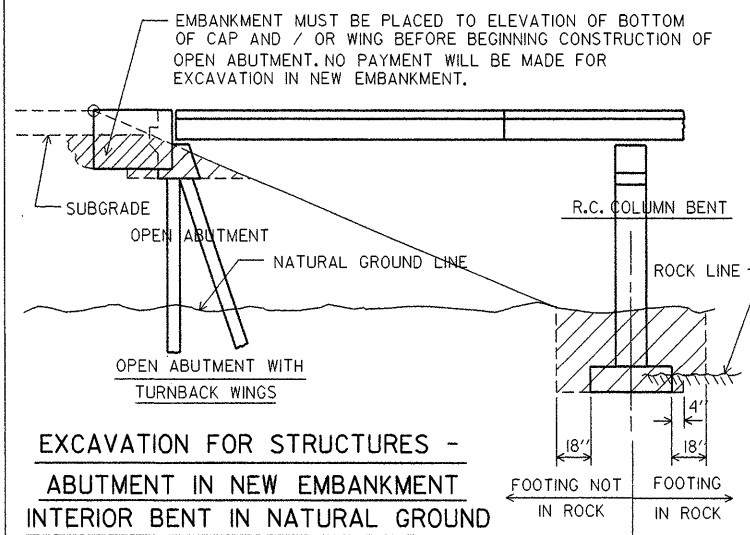
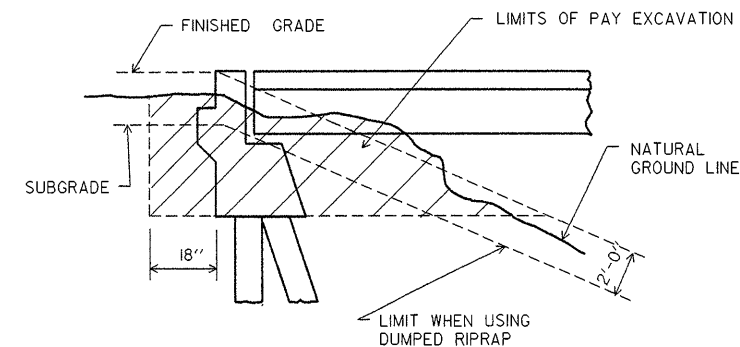
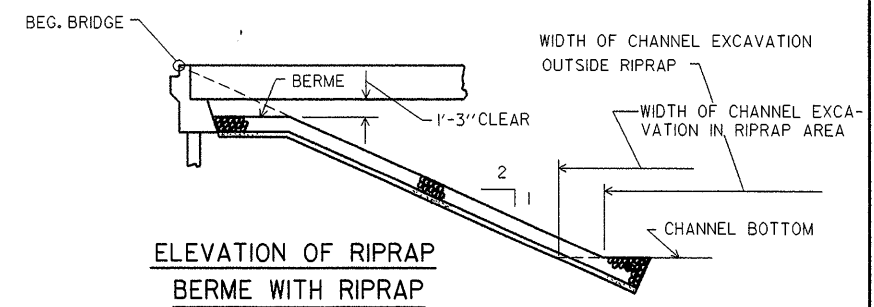
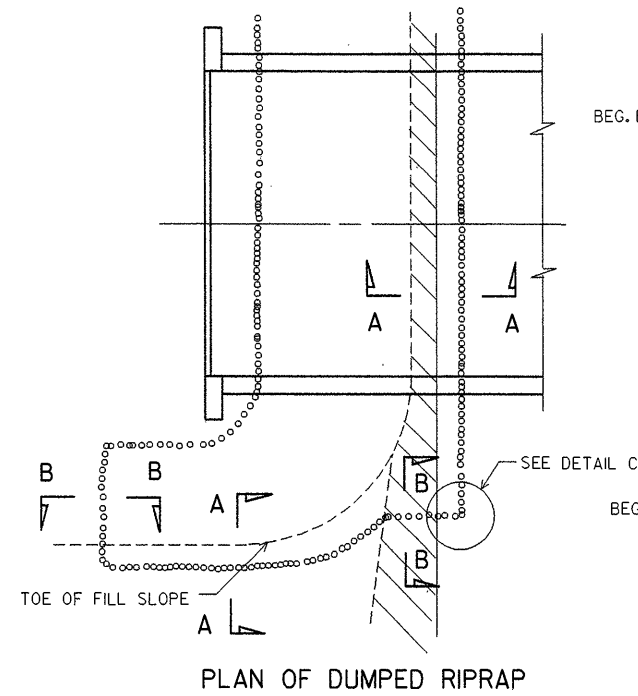
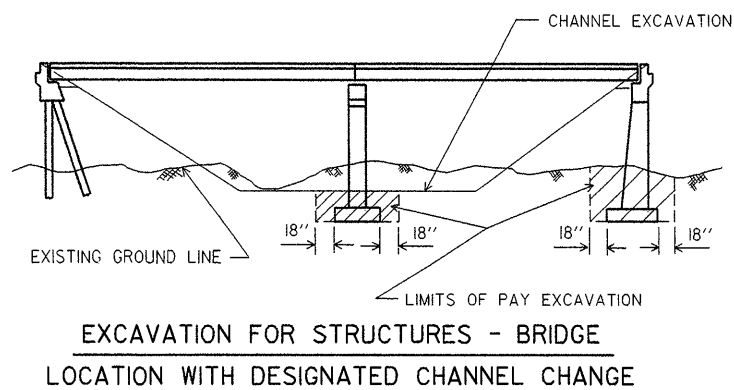
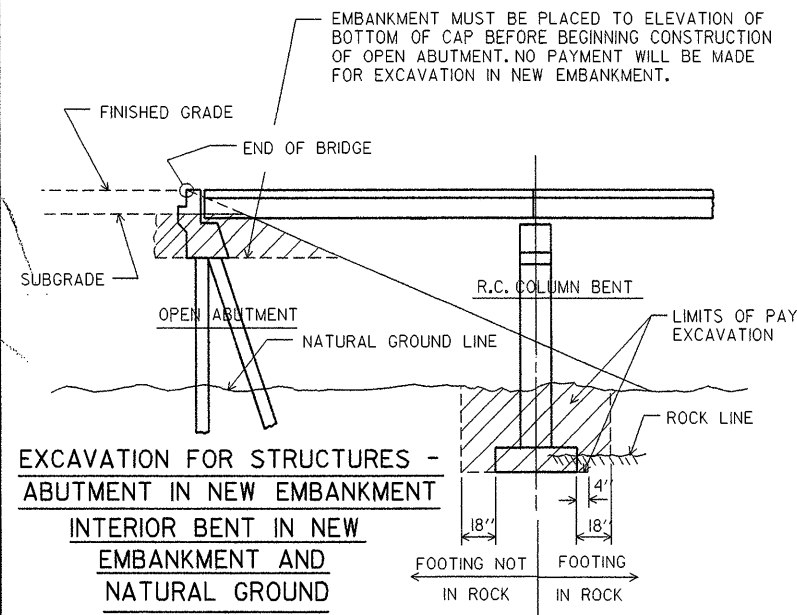
## EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

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CHECKED BY: CJP DATE: 04-10-2003 SCALE: NO SCALE  
DESIGNED BY: STD DATE:   
BRIDGE NO. DRAWING NO. 1888A



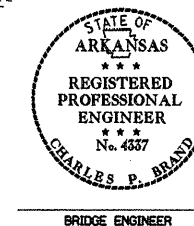
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04-10-2003				6	ARK.		151	
				JOB NO.			189IF	



NOTE: USE THIS TYPE OF TOE WHEN ROCK IS ENCOUNTERED WHICH IS IN A STABLE CONDITION.

NOTE: IN LIEU OF AN AGGREGATE FILTER BLANKET, A SYNTHETIC FIBER GEOTEXTILE FABRIC COMPLYING WITH THE REQUIREMENTS OF SUBSECTION 816.02(e) MAY BE USED.

NOTE: DETAILS FOR COMPUTING EXCAVATION FOR STRUCTURES ARE INCLUDED FOR INFORMATION AS TO HOW PLAN QUANTITIES WERE CALCULATED AND FOR USE WHEN ADJUSTING QUANTITIES WHEN CHANGING FOOTING ELEVATION.



**DETAIL C**

Revised and redrawn MJT 04-10-2003  
Chk'd. By: C.J.F. 04-10-2003

**DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND DETAILS FOR COMPUTING EXCAVATION FOR STRUCTURES**

ROUTE SEC.  
**ARKANSAS STATE HIGHWAY COMMISSION**  
LITTLE ROCK, ARK.

DRAWN BY: MJT DATE: 04-10-2003 FILENAME: B189IF.STD  
CHECKED BY: C.J.F. DATE: 04-10-2003 SCALE: NO SCALE  
DESIGNED BY: STD. DATE: BRIDGE NO. DRAWING NO. 189IF