

"A FULLY 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.	110131		1	133
				② I-40 OVERPASS (BRINKLEY)(F)				

I-40 OVERPASS (BRINKLEY) (F)

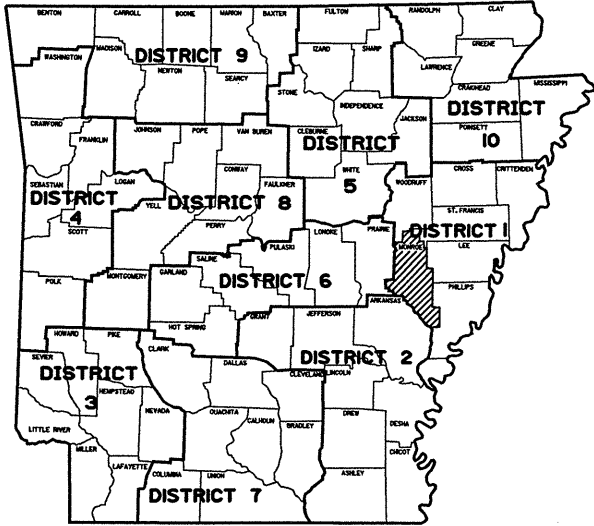
MONROE COUNTY

ROUTE 49 SECTION 8

FEDERAL AID PROJECT BRN-IBRC-40-5(144)216

JOB 110131

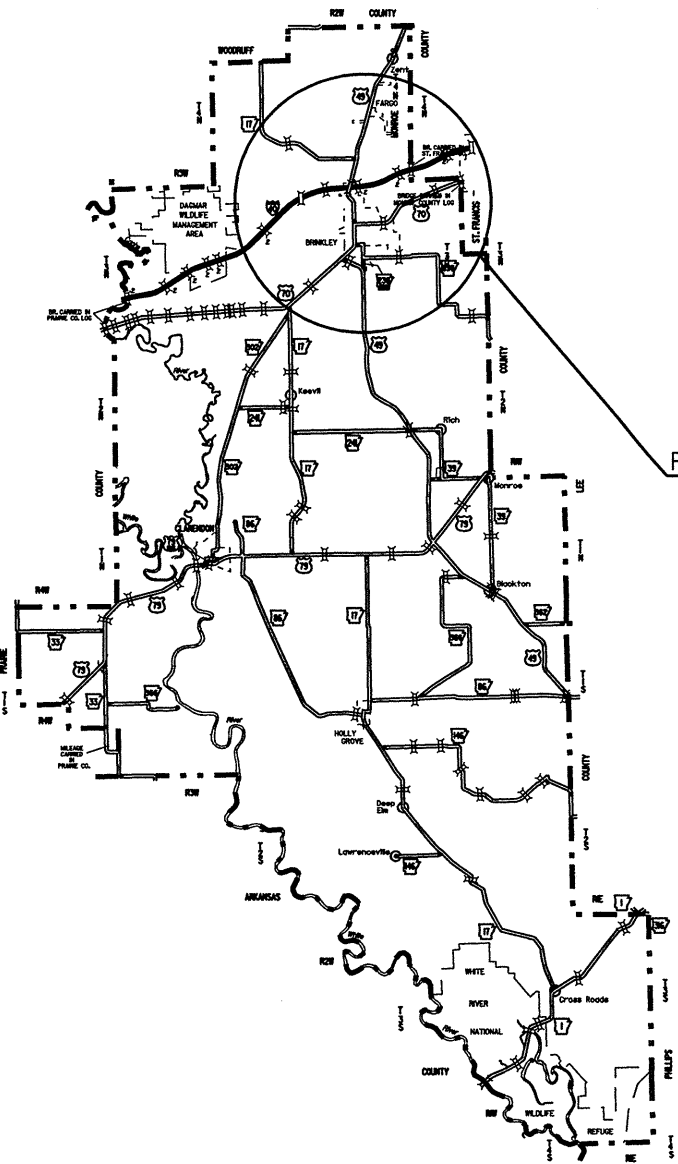
NOT TO SCALE



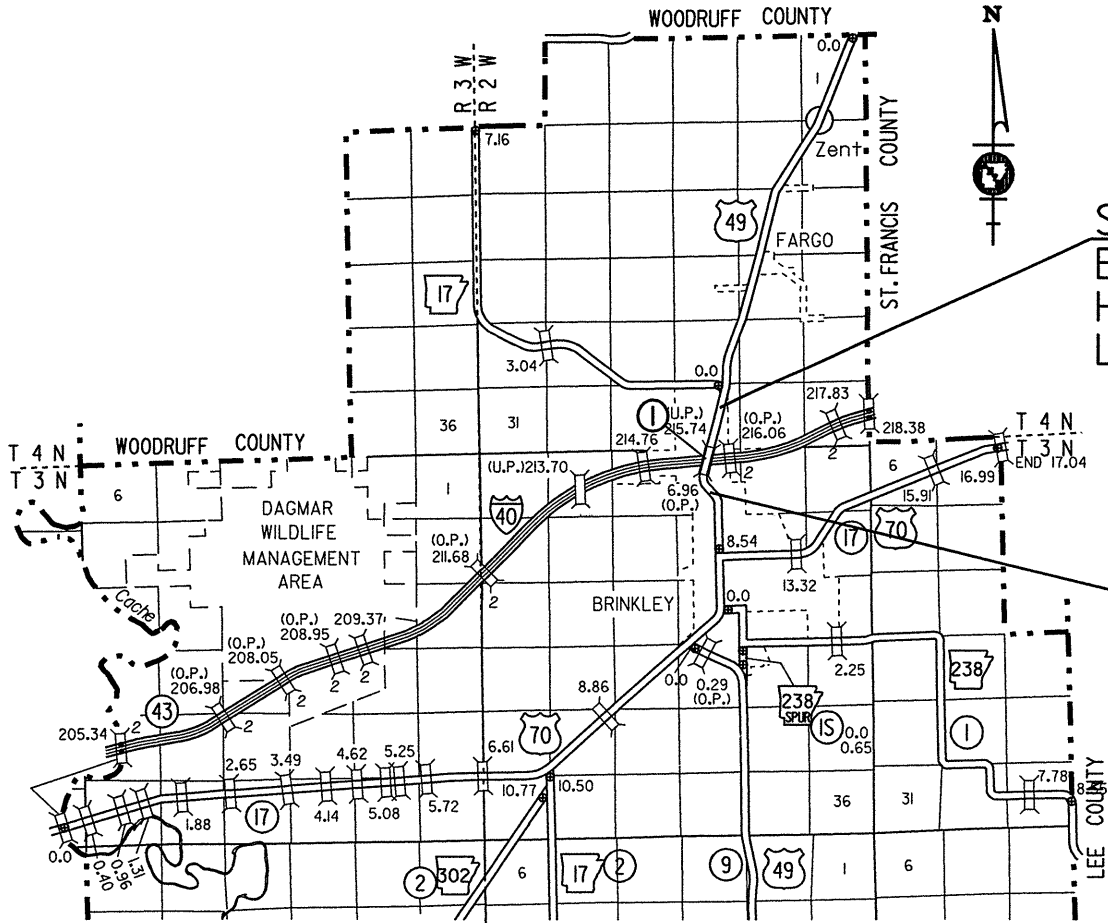
ARK. HWY. DIST. NO. 1

DESIGN TRAFFIC DATA FOR HWY. 49

DESIGN YEAR ————— 2027  
2007 ADT ————— 11,780  
2027 ADT ————— 17,790  
2027 DHV ————— 1,957  
DIRECTIONAL DISTRIBUTION ——— 60%  
TRUCKS ————— 14%  
DESIGN SPEED ————— 40 MPH



VICINITY MAP



STA. 9+00.00  
BEGIN JOB 110131  
HWY. 49  
LOG MILE = 6.68

STA. 36+66.41  
END JOB 110131  
HWY. 49  
LOG MILE = 7.20

BRIDGE DATA

- ① STA. 23+58.85 BRIDGE END  
282'-3 1/2" CONT. COMP. PLATE GIRDER UNIT  
BRIDGE NO. 07069  
50'-0" CLEAR ROADWAY  
STA. 26+41.15 BRIDGE END

MID POINT OF PROJECT

LATITUDE: N 34°54'39"  
LONGITUDE: W 91°11'45"

LENGTH COMPUTED ALONG C.L. HWY. 49

GROSS LENGTH OF PROJECT	2766.41	FEET OR	0.524	MILES
NET " " ROADWAY	2484.11	" "	0.471	"
NET " " BRIDGES	282.30	" "	0.053	"
NET " " PROJECT	2766.41	" "	0.524	"

APPROVED

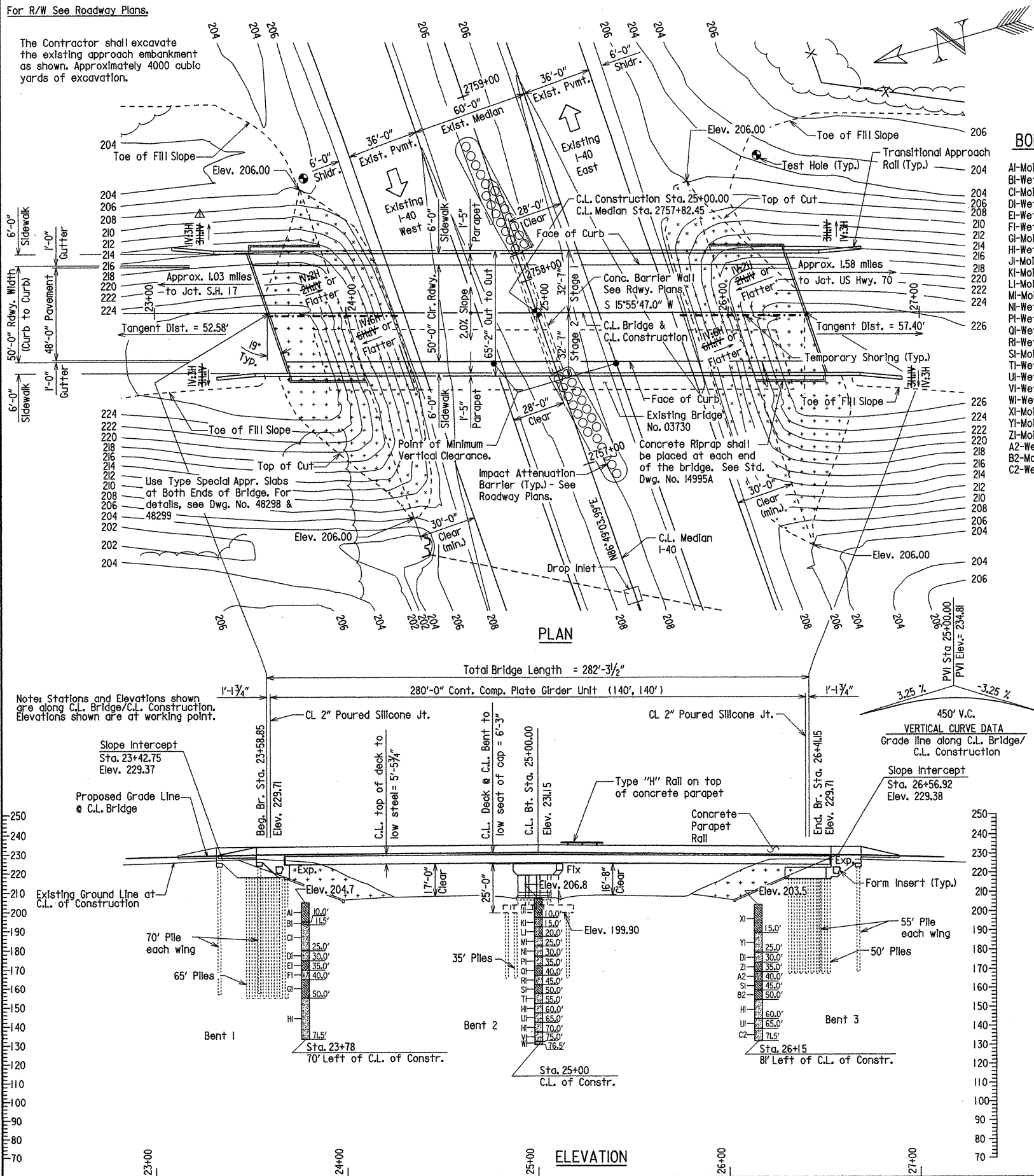


9/26/07  
DEPUTY DIRECTOR  
AND CHIEF ENGINEER

P.E. 001726  
NON-PART.

For R/W See Roadway Plans.

The Contractor shall excavate the existing approach embankment as shown. Approximately 4000 cubic yards of excavation.



Note: The proposed bridge is positioned to avoid interference with the existing piling. The Contractor shall verify the location of the existing piling before driving any new piling. Any adjustments necessary to fit the proposed bridge to the existing bridge location shall be submitted to the Engineer for approval.

### BORING LEGEND

Al-Moist, Stiff, Brown Sandy Clay  
Bl-Wet, Stiff, Brown Sandy Clay  
Cl-Moist, Medium Dense, Brown Sand  
Dl-Wet, Medium Dense, Brown Sand  
El-Wet, Medium Stiff, Reddish Brown Sandy Clay  
Fl-Wet, Loose, Reddish Brown Silty Sand  
Gl-Moist, Medium Stiff, Gray Sandy Clay  
Hl-Wet, Very Dense, Gray Sand  
Jl-Moist, Stiff, Brown and Gray Sandy Clay  
Kl-Moist, Medium Dense, Brown Clayey Sand  
Ll-Moist, Medium Dense, Reddish Brown Sand with Clay Seams  
Ml-Moist, Medium Dense, Reddish Brown Sand  
Nl-Wet, Medium Dense, Reddish Brown Sand  
Pl-Wet, Medium Dense, Reddish Brown Sand with Traces of Gravel  
Ql-Wet, Very Stiff, Reddish Brown Sandy Clay  
Rl-Wet, Very Dense, Reddish Brown to Brown Silty Sand  
Sl-Moist, Stiff, Gray Sandy Clay  
Tl-Wet, Medium Dense, Gray Sand with some Clay  
Ul-Wet, Dense, Gray Sand  
Vl-Wet, Very Dense, Gray Sand with Traces of Gravel  
Wl-Wet, Dense, Gray Sand with Clay Seams  
Xl-Moist, Hard, Brown Sandy Clay  
Yl-Moist, Dense, Reddish Brown Sand  
Zl-Moist, Stiff, Gray and Brown Sandy Clay  
A2-Wet, Medium Dense, Brown Sand with Clay Seams  
B2-Moist, Very Stiff, Gray Sandy Clay  
C2-Wet, Dense to Very Dense, Gray Sand with some Gravel

### "N" VALUES

#### Sta. 23+78 - 70' Left of C.L. of Constr.

10.5- 11.5, N=15  
15.5- 16.5, N=12  
20.5- 21.5, N=27  
25.5- 26.5, N=8  
30.5- 31.5, N=5  
35.5- 36.5, N=9  
40.5- 41.5, N=5  
45.5- 46.5, N=8  
50.5- 51.5, N=98  
55.5- 56.5, N=79  
60.5- 61.5, N=104  
65.5- 66.5, N=606")  
70.5- 71.5, N=69

#### Sta. 25+00 - C.L. of Constr.

5.5- 6.5, N=15  
10.5- 11.5, N=20  
15.5- 16.5, N=9  
20.5- 21.5, N=7  
25.5- 26.5, N=29  
30.5- 31.5, N=26  
35.5- 36.5, N=18  
40.5- 41.5, N=65  
45.5- 46.5, N=14  
50.5- 51.5, N=27  
55.0- 55.4, N=605")  
60.5- 61.5, N=40  
65.5- 66.5, N=64  
70.5- 71.5, N=73  
75.5- 76.5, N=38

#### Sta. 26+15 - 8' Left of C.L. of Constr.

5.5- 6.5, N=45  
10.5- 11.5, N=57  
15.5- 16.5, N=50  
20.5- 21.5, N=43  
25.5- 26.5, N=30  
30.5- 31.5, N=13  
35.5- 36.5, N=22  
40.5- 41.5, N=9  
45.5- 46.5, N=7  
50.5- 51.5, N=80  
55.5- 56.5, N=56  
60.5- 61.5, N=39  
65.5- 66.5, N=34  
70.5- 71.5, N=66

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
11/09/07				6	ARK.		60	133
				JOB NO.		110131		
						LAYOUT		48279

### GENERAL NOTES

BENCH MARK: Chiseled Square SE Corner of Bridge, 10.69' Rt. Sta. 26+25.98, Elev. 228.54.

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 LRFD Bridge Design Specifications (2004 edition with 2005 Interims).

LIVE LOADING: HL-93

SEISMIC PERFORMANCE ZONE: 2

### 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. 50)  $f_y = 50,000$  psi  
Structural Steel (AASHTO M270, Gr. HPS 70W)  $f_y = 70,000$  psi

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

PILING: All piling shall be 18" diameter concrete filled steel shell piling and shall be driven to a minimum safe bearing capacity of 60 tons per pile. All piling shall be driven with an approved air, steam, or diesel hammer. Piling in Bents 1 and 3 shall be driven after embankment to the bottom of the cap and the bottom of the wing footings is in place. Piling in Bents 1 thru 3 shall be driven to a minimum tip elevation of 173.5 or lower.

The lengths of piling shown are for estimating quantities only. Actual lengths to be determined in the field. Test piles are not required, but may be driven for the Contractor's information in accordance with subsection 805.08(g). There will be no additional payment for cut-off or build-up of the piles.

Water jetting, pre boring, or other methods as approved by the Engineer may be needed to achieve the minimum tip elevation. Any cost associated with achieving the minimum tip elevation shall be included in the item "Steel Shell Piling 18" dia."

FOOTINGS: Top of footings shall be set a minimum of 2'-0" below finished ground. Foundations for footings shall be prepared in accordance with subsection 801.04 and backfilled according to subsection 801.08.

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. The 6'-0" Sidewalk shall receive a broomed finish as specified for final finishing in subsection 802.19 for Class 6, Broomed Finish.

TEMPORARY SHORING: Temporary shoring may be required to complete excavation while maintaining traffic on the existing bridge. Payments for these items shall be considered subsidiary to the item "Unclassified Excavation - Bridge".

PAINTING: All Structural Steel except galvanized members and surfaces in contact with concrete shall be painted as specified in Section 807. Color of paint shall be Gray and shall match Fed. Std. 595B, Color Chip 36270.

TEXTURED COATING FINISH: Class 3 Textured Coating Finish shall be applied to bridge surfaces as specified in SP Job 110131 "Textured Coating Finish" and in accordance with subsection 802.19(3). Textured Coating Finish shall not be applied on surfaces where Class 1 Protective Surface Treatment is applied.

FORM INSERT: State of Arkansas Form Inserts shall be placed at wingwalls on both sides of bridge in accordance with Dwg. No. 48284.

DETAIL DRAWINGS:	DRAWING NO.
End Bents	48281-48283, 48288
Intermediate Bent	48286-48287
280'-0" Plate Girder Unit	48289-48294
Elastomeric Bearings	48296
Steel Shell Piling	48285
Stage Construction	48280
Approach Slabs	48298-48299

EXISTING BRIDGES: The existing Bridge No. 03730 (Log Mile 6.96) is 33'-6" wide and 244'-4" long and consists of steel multi-beam spans with concrete deck, supported by concrete pile end bents and reinforced concrete intermediate bents with concrete foundation piles.

REMOVAL AND SALVAGE: After Stage 1 Construction is complete and opened to traffic, the Contractor shall remove the existing bridge (03730) in accordance with Section 205. All material from the existing bridge shall become the property of the contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

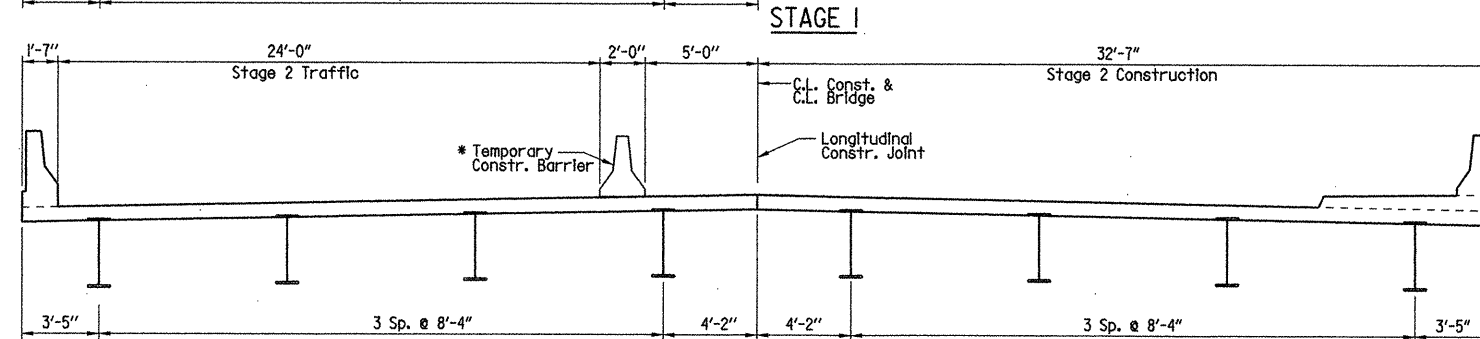
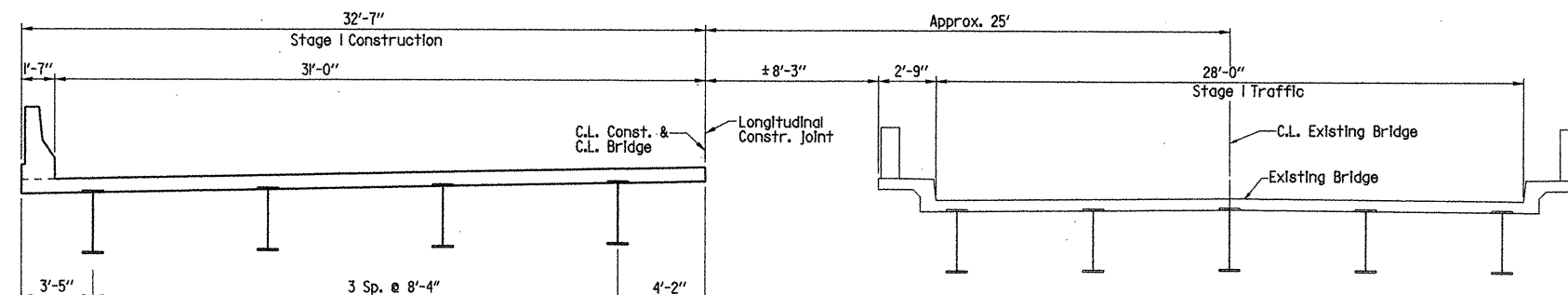
Added Painting note, changed slope nomenclature and changed Structural Steel Gr. 50W to Gr. 50.  
11/09/07 MRE Ckd. By: DHP



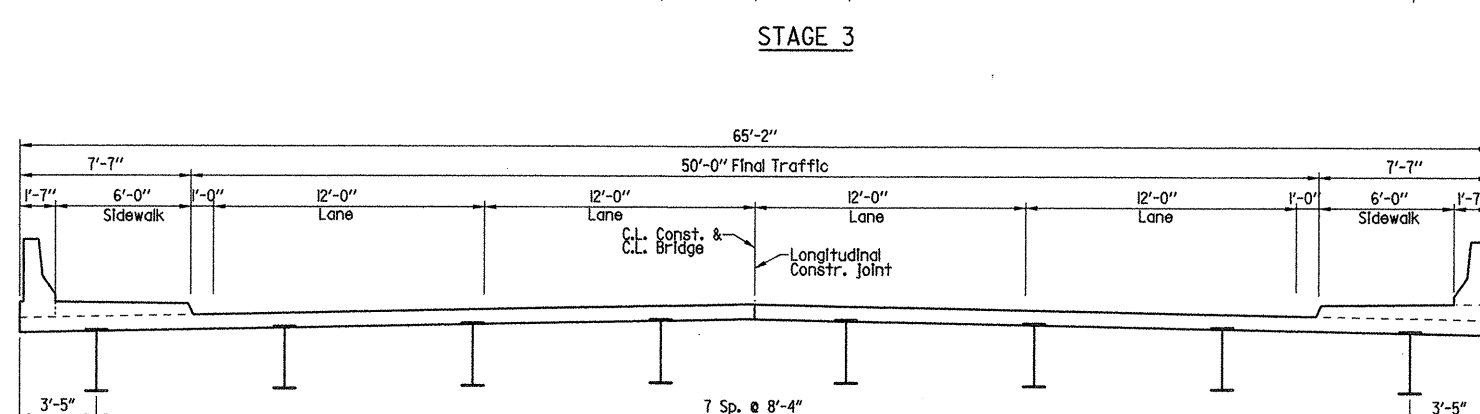
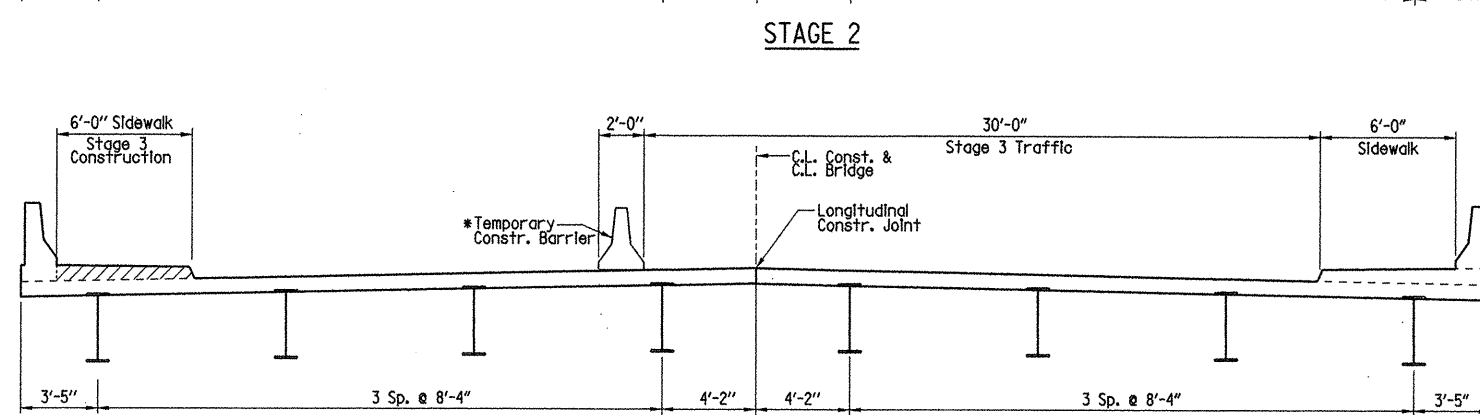
LAYOUT OF OVERPASS  
U.S. HWY. 49 OVER I-40  
I-40 OVERPASS (BRINKLEY) (F)  
MONROE COUNTY  
ROUTE 40 SEC. 43  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: JLB DATE: 5/18/05 FILENAME: bil0131.dgn  
CHECKED BY: CRE DATE: 6-16-05 SCALE: 1"=30'-0"  
DESIGNED BY: CRE DATE: 5-05  
BRIDGE NO. 07069 DRAWING NO. 48279

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.		110131	61	133
				07069	STAGE CONSTRUCTION			48280



\*Connect temporary barrier to new deck. See Std. Dwg. No. TC-4 and TC-5.



#### Notes:

Details which relate to Maintenance of Traffic are shown on bridge plans for information only. See Roadway plans for Maintenance of Traffic.

For Details of temporary barrier, see dwg. no. TC-4 and TC-5

Note: Sections showing Stage Construction are taken looking ahead.



BRIDGE ENGINEER

DETAILS OF STAGE CONSTRUCTION  
U.S. HWY. 49 OVER I-40  
I-40 OVERPASS (BRINKLEY) (F)  
MONROE COUNTY

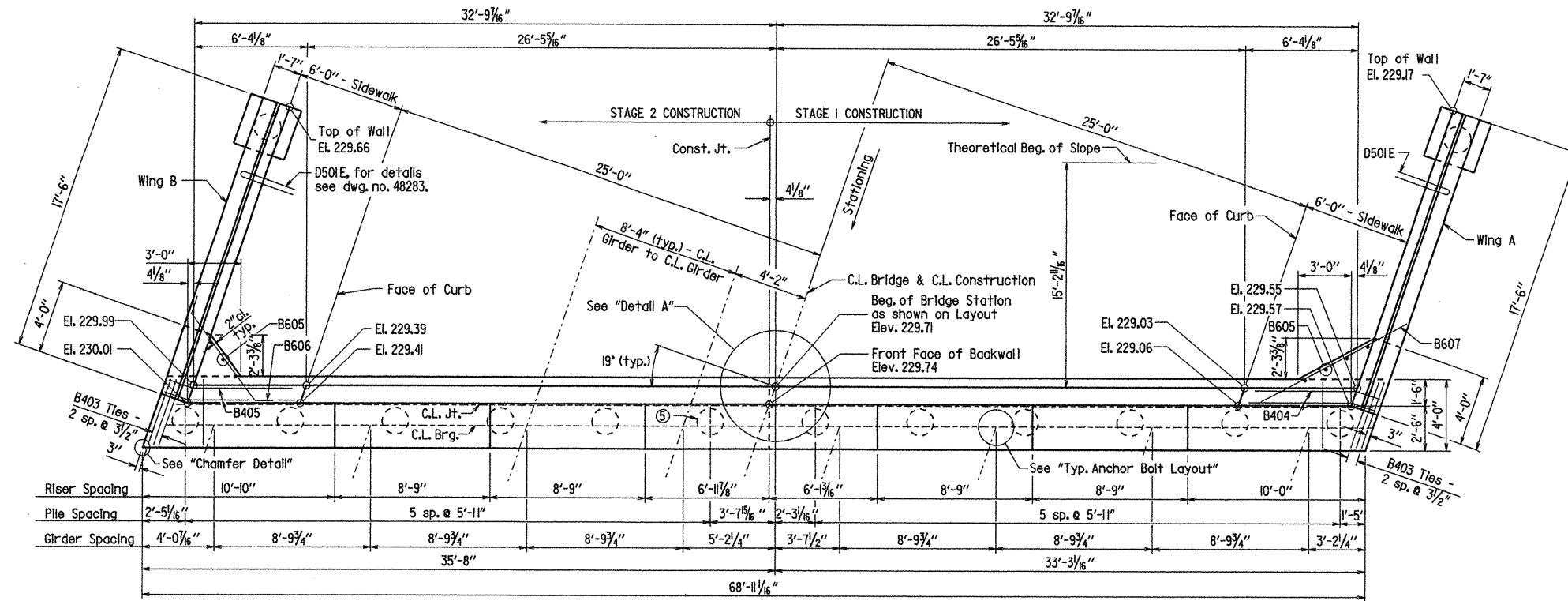
ROUTE 49 SEC. 08  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: JLB DATE: 06/17/05 FILENAME: b10131.sc.dgn  
CHECKED BY: CSL DATE: Jan 31, 06 SCALE: 1/4" = 1'-0"  
DESIGNED BY: CSL DATE: Jan 2005  
BRIDGE NO. 07069 DRAWING NO. 48280

NOTE: For details of wing & rail, see dwg. no. 48283. For additional details and General Notes, see dwg. no. 48282.

NOTE: Class I Protective Surface Treatment shall be applied to the top of the backwall.

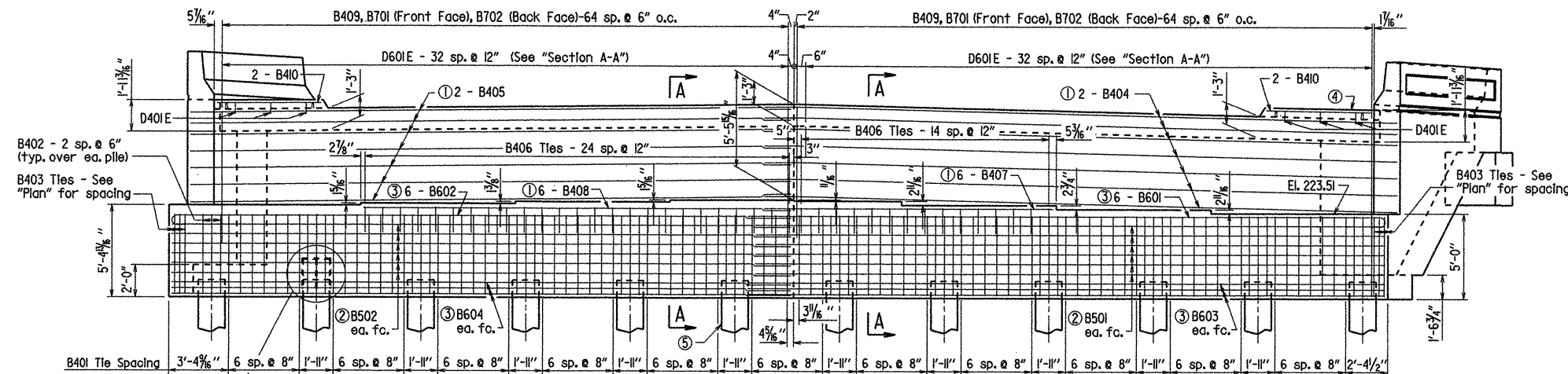
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110131	62	133
				07069	BENT 1			48281



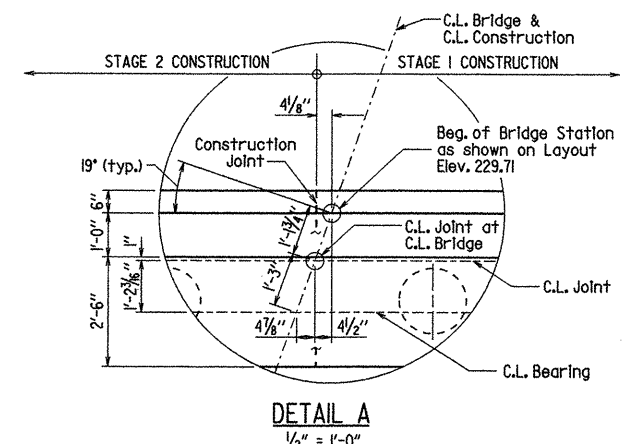
PLAN  
Looking Back  
Scale: 1/4" = 1'-0"

Mark	No.	Req'd.	Length	Pin Dia.	Bending Diagram
B401	77	17'-0"	2"		
B402	36	12'-10"	2"		
B403	6	17'-6"	2"		
B404	14	36'-4"	2"		
B405	14	33'-10"	2"		
B406	40	6'-6"	2"		
B407	6	16'-7"	Str.		
B408	6	24'-3"	Str.		
B409	131	5'-0"	2"		
B410	4	5'-11"	Str.		
B501	12	37'-0"	Str.		
B502	12	33'-9"	Str.		
B601	6	38'-1"	4 1/2"		
B602	6	34'-5"	4 1/2"		
B603	6	37'-5"	Str.		
B604	6	33'-9"	Str.		
B605	7	7'-4"	Str.		
B606	4	7'-9"	4 1/2"		
B607	4	9'-2"	Str.		
B701	131	7'-6"	Str.		
B702	131	6'-3"	Str.		
D401E	6	8"	Str.		
D501E	26	6'-2"	3 3/4"		
D601E	66	5'-10"	4 1/2"		

NOTE: Bars designated with an "E" suffix shall be epoxy coated.

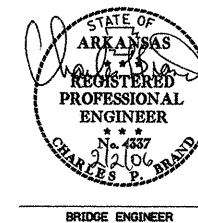
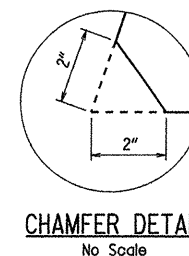


ELEVATION  
Looking Back  
Scale: 1/4" = 1'-0"



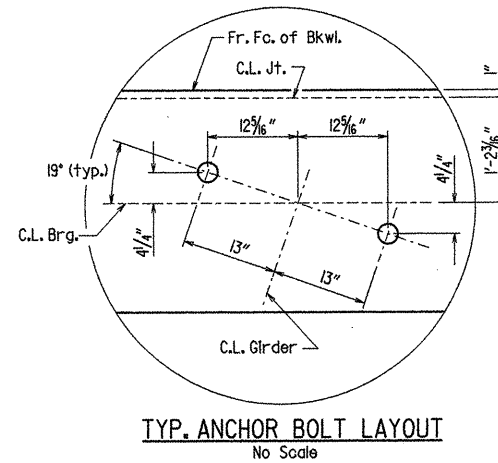
DETAIL A  
1/2" = 1'-0"

- ① Lap #4 Bars 1'-9" (min.)
- ② Lap #5 Bars 2'-2" (min.)
- ③ Lap #6 Bars 2'-7" (min.)
- ④ This sidewalk to be constructed under Stage 3 Construction, see dwg. no. 48282.
- ⑤ This pile may need to be driven during Stage 1 Construction.



DETAILS OF BENT NO. 1  
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.  
DRAWN BY: JWD DATE: 11-28-05  
CHECKED BY: CRE DATE: 12-8-05  
DESIGNED BY: CRE DATE: 11-05  
BRIDGE NO. 07069 DRAWING NO. 48281

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
11/09/07				6	ARK.			
				JOB NO.		110131	63	133
				07069		BENTS 1 & 3		48282



#### GENERAL NOTES

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

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

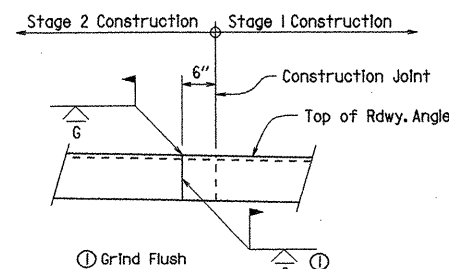
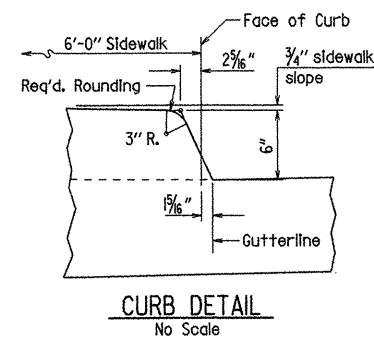
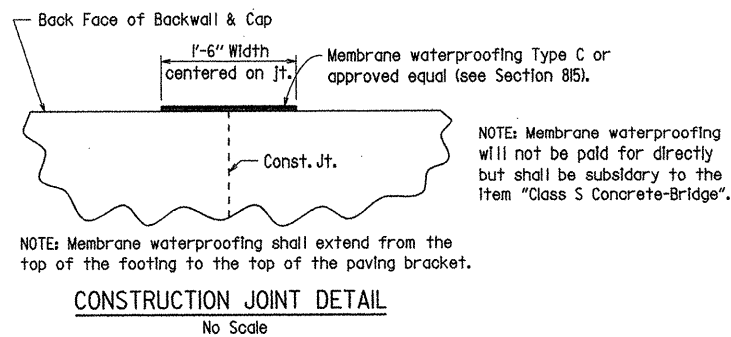
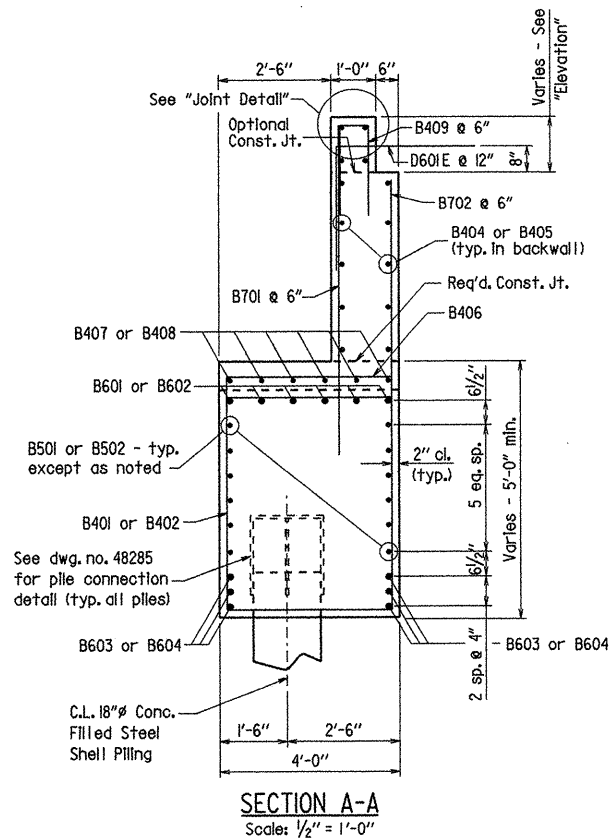
Structural steel in end bents shall be M270, Gr. 50W and shall be paid for as "Structural Steel in Plate Girder Spans (M270, Gr. 50W)".

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

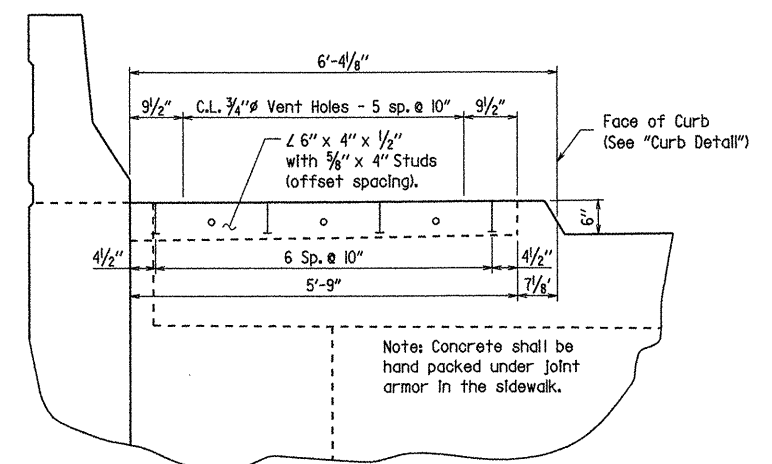
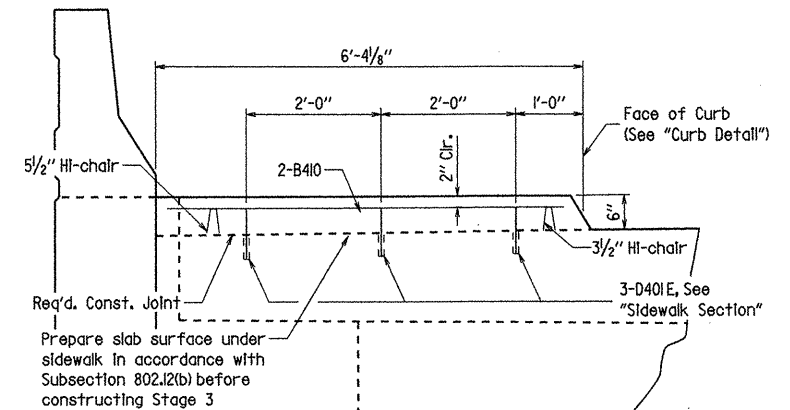
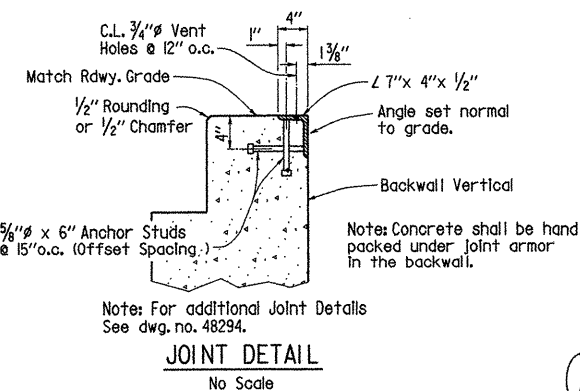
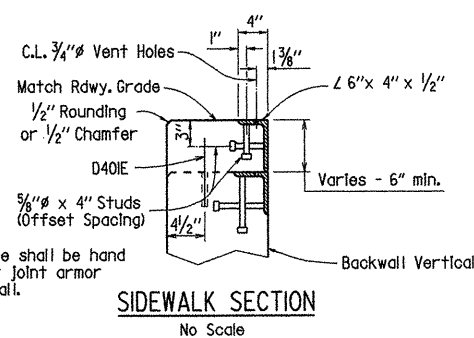
No portion of the backwall shall be poured before girders are in place. The portion of the backwall above the Optional Const. Joint shall not be placed until the adjacent deck pour has been made.

Special care shall be taken to properly and thoroughly consolidate the concrete in the vicinity of the expansion joint device in the backwall. See section 802.09 (a)(3).

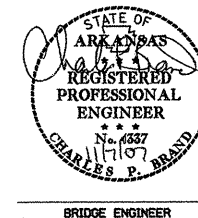
For additional information, see layout.



Dowel D401E bars 4" into backwall using a polyester/Epoxy Resin System listed on the OPL. The diameter of the drilled holes and the installation procedures shall be as recommended by the Epoxy Resin System manufacturer. Epoxy Resin System selected shall develop the yield strength of the dowel bar.



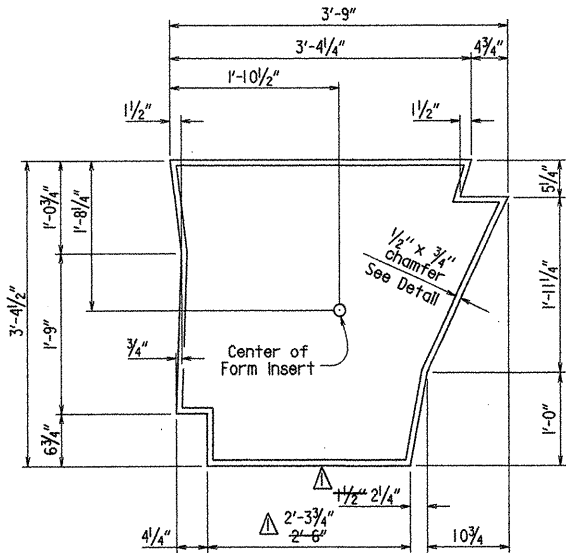
Δ Change Structural Steel Gr. 50W to Gr. 36 and change Structural Steel Gr. 50W to Gr. 50 as shown. 11/09/07 MRE Ckd. by: DHP



**COMMON DETAILS OF BENTS 1 & 3**  
ROUTE SEC.  
**ARKANSAS STATE HIGHWAY COMMISSION**  
LITTLE ROCK, ARK.  
DRAWN BY: JWD DATE: 11-28-05 FILENAME: b110131.b12.dgn  
CHECKED BY: CRE DATE: 12-08-05 SCALE: As Shown  
DESIGNED BY: CRE DATE: 11-05  
BRIDGE NO. 07069 DRAWING NO. 48282



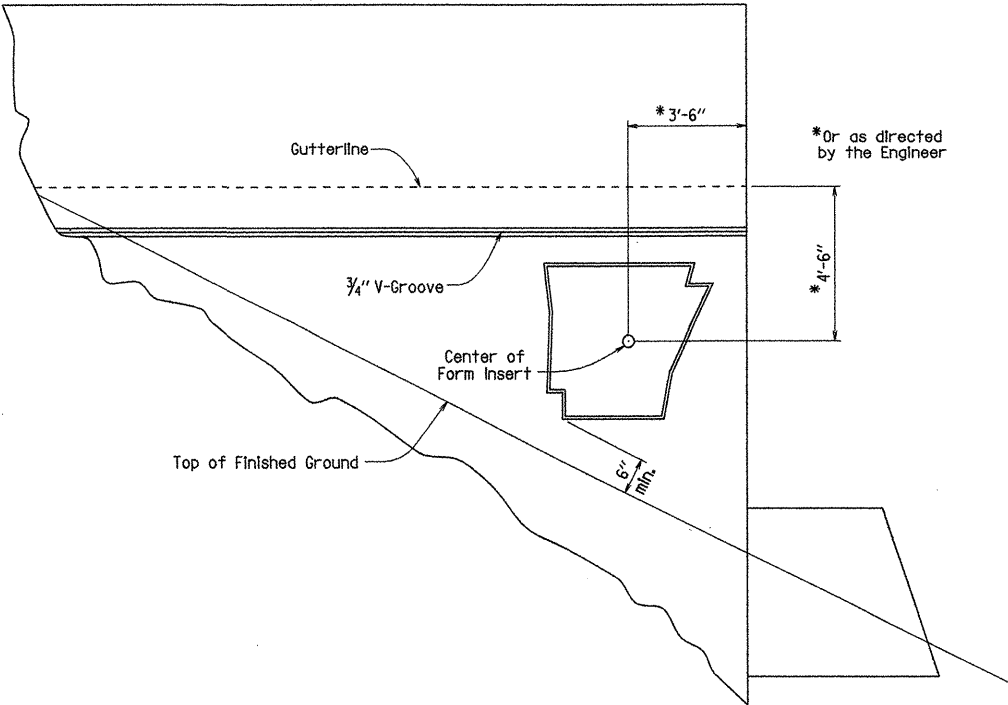
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11/09/07				6	ARK.			
				JOB NO.		110131	65	133
① 07069 - ARK. FORM INSERT - 48284								



Note: Use form Insert on designated End Bent as noted on layout or as shown on detail drawings.

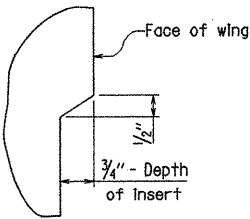
**FORM INSERT DETAILS AT END BENT**

Scale: 1" = 1'-0"



**PLACEMENT AT WINGS**

Not To Scale



**CHAMFER DETAILS**

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

**GENERAL NOTES**

Fabricate form Insert as a one piece unit, without the use of splices, joints or glue.

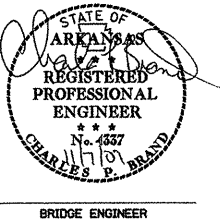
Wash and clean multi-use form Inserts before each use.

All work and materials for form Inserts shall be included in the unit price bid for Class S Concrete Bridge.

Damaged or worn form Inserts shall be replaced at the contractor's expense.

The form Inserts shall be approved by the Engineer before its use.

△ Revised Dimensions 11/09/07 CSL Ckd. By DHP



**DETAILS OF STANDARD STATE OF ARKANSAS FORM INSERT**

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

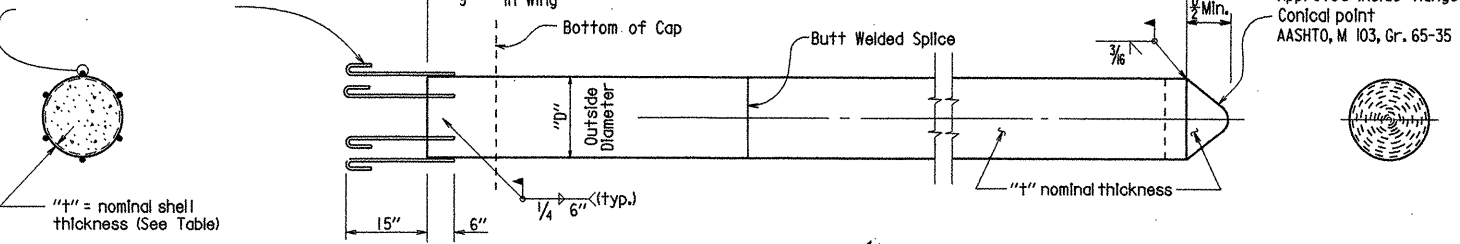
DRAWN BY: KDH DATE: 1-7-05  
 CHECKED BY: ESL DATE: Jan 30, 06  
 DESIGNED BY: S70 DATE: -

BRIDGE NO. 07069 DRAWING NO. 48284

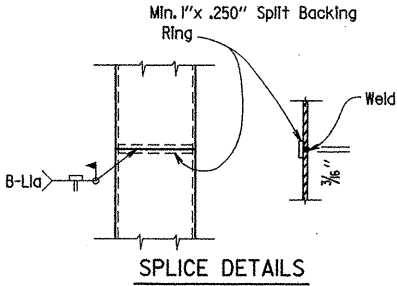
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 SCALE: AS NOTED

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.		110131	66	133
① 07069 - PILE DETAILS - 48285								

\* 6- #6 Reinforcing bars at equal spaces around 18"Ø piles. Reinforcing bars shall be ASTM A706, Grade 60.



Note: Steel pile tip will not be paid for directly, but shall be subsidiary to the item "Steel Shell Piling"



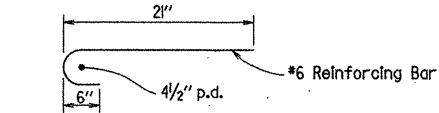
GENERAL NOTES FOR CONCRETE FILLED STEEL SHELL PILES

Steel shells shall conform ASTM A252, Grade 3, (Fy = 45,000 psi).

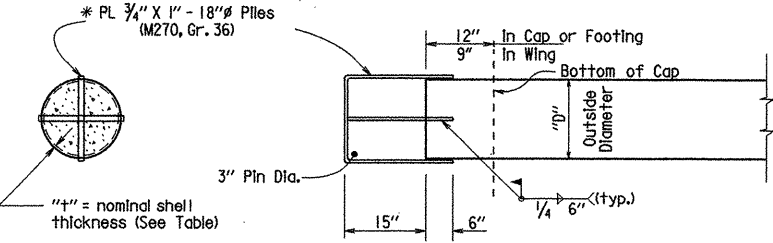
Concrete used for filling of steel shell shall be Class S with a minimum 28 day compressive strength, f'c = 3,500 psi. and shall be poured in the dry.

See bridge layout for size and length of shell piles and for additional driving information.

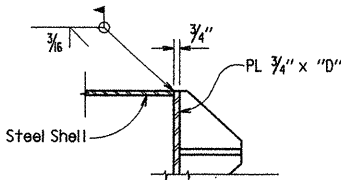
Concrete and structural steel or reinforcing steel, including welding, will not be paid for directly, but will be considered as part of the corresponding item "Steel Shell Piling (18" dia.)".



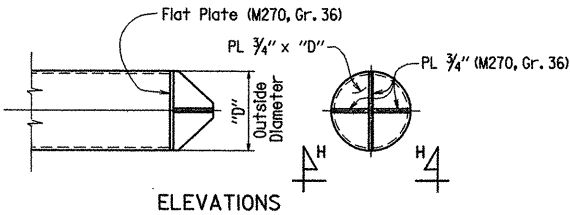
TYP. HOOKED BAR DETAIL



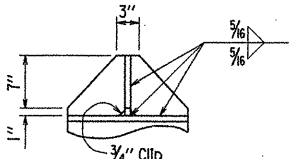
ALTERNATE CONNECTION DETAIL



PART SECTION



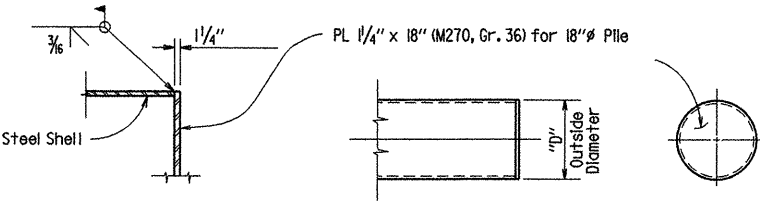
ELEVATIONS



SECTION H-H

TABLE FOR SHELL PILES

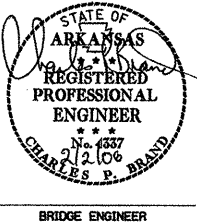
OUTSIDE DIAMETER D	"t"-NOMINAL SHELL THICKNESS	
18"	0.50"	



PART SECTION

ELEVATIONS

ALTERNATE FLAT TIP DETAIL



DETAILS OF CONCRETE FILLED STEEL SHELL PILES

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CSL DATE: 11/21/05 FILENAME: b110131 ssp.dgn

CHECKED BY: CRE DATE: 11-22-05 SCALE: NONE

DESIGNED BY: STD. DATE:

BRIDGE NO. 07069 DRAWING NO. 48285

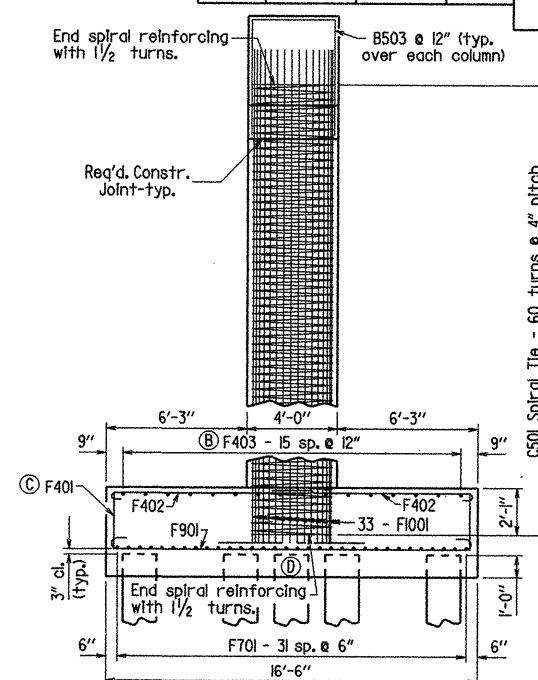
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD CONST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110131	67	133

BAR 1151

① 07069 - BENT 2 - 48286

## BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS			
B401	5	8'-5"	Str.	Dimensions are out to out of bars.			
B402	5	6'-6"	Str.				
B403	14	6'-6"	2"				
F401	240	3'-5"	3"				
F402	96	9'-5"	3"				
F403	128	7'-2"	3"				
B501	100	15'-10"	2 1/2"				
B502	10	18'-2"	2 1/2"				
B503	16	13'-9"	2 1/2"				
B504-B512	4 ea.	Var. 12'-10" to 15'-6"	2 1/2"				
B513	12	35'-1"	Str.				
B514	12	32'-9"	Str.				
B515	2	34'-5"	Str.				
B516	2	32'-1"	Str.				
B517	2	32'-9"	Str.				
B518	2	30'-5"	Str.				
C501	4	70'-4"	Spiral				
F701	128	13'-2"	5 1/4"				
B801	9	38'-5"	6"				
B802	9	33'-8"	6"				
B803	8	29'-2"	Str.				
B804	8	24'-5"	Str.				
B805	16	13'-2"	6"				
F901	92	18'-6"	9"				
F1001	132	24'-0"	10"				

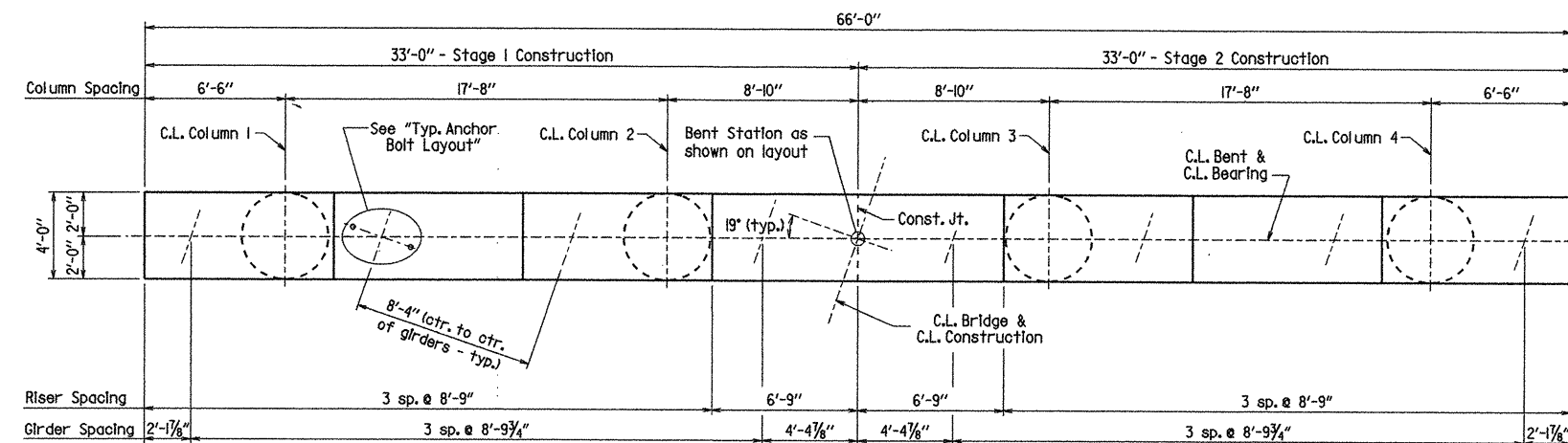


END VIEW

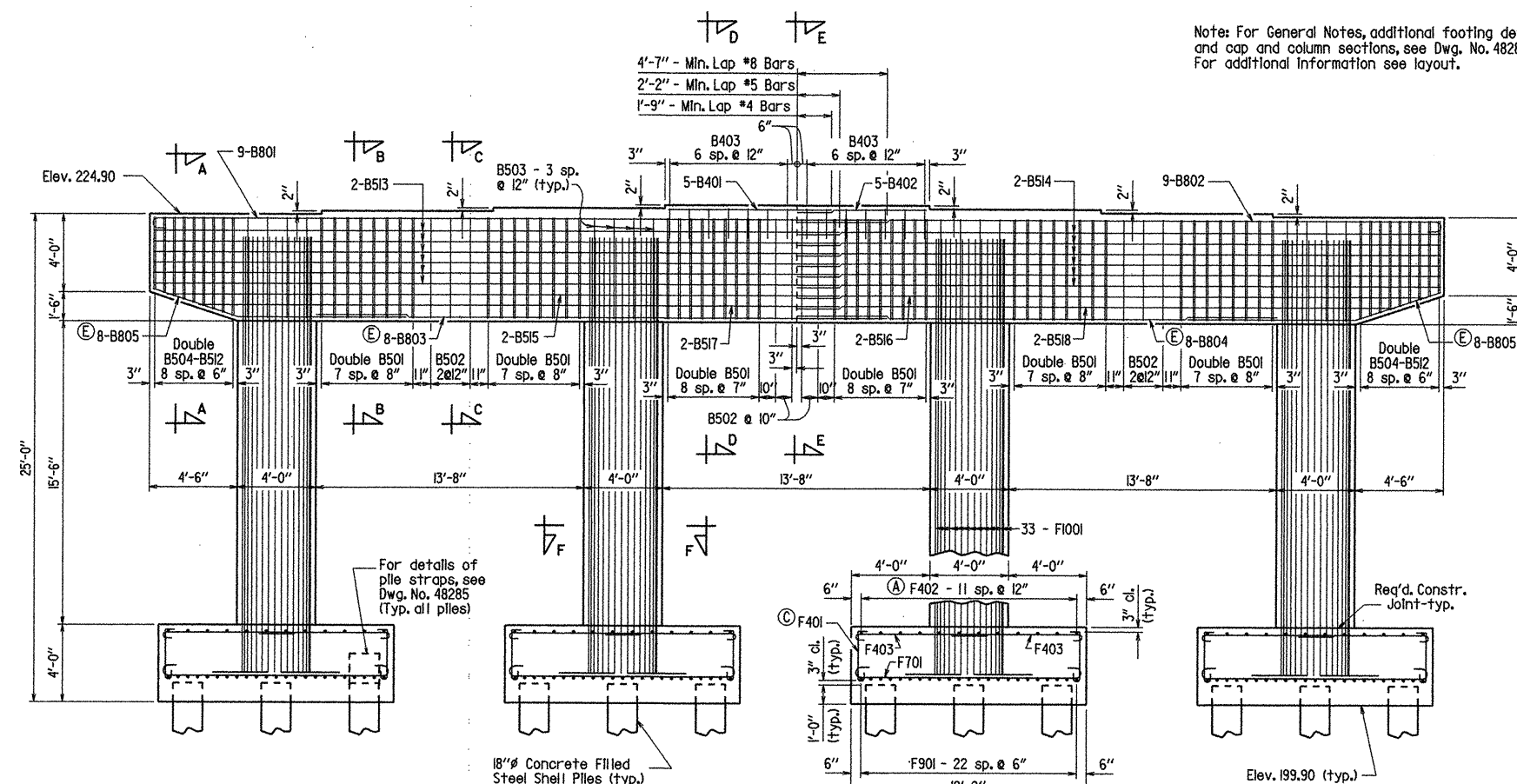
SHEET 1 OF 2  
DETAILS OF BENT NO. 2

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

DRAWN BY: CRE DATE: 11/8/05 FILENAME: b110131\_b21.dgn  
 CHECKED BY: DHP DATE: 12/8/05 SCALE: 1/4" = 1'-0"  
 DESIGNED BY: CRE DATE: 11/05 or As Noted  
 BRIDGE NO. 07069 DRAWING NO. 48286

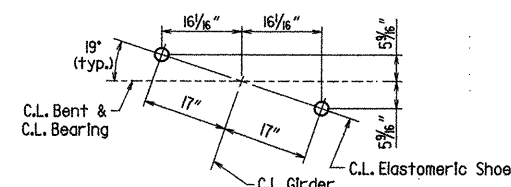


## PLAN



## ELEVATION

## Looking Forward

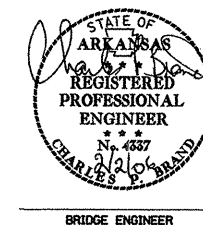


TYP. ANCHOR BOLT LAYOUT

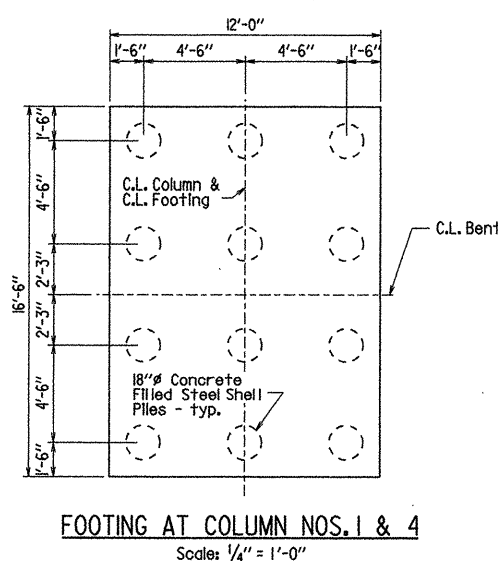
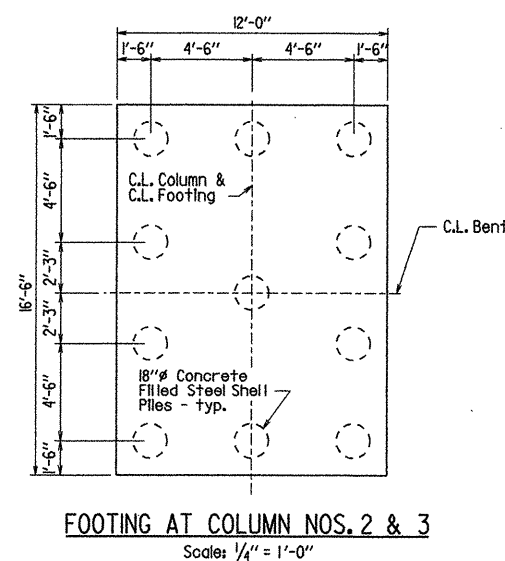
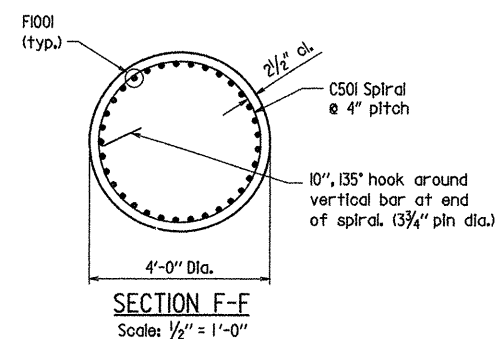
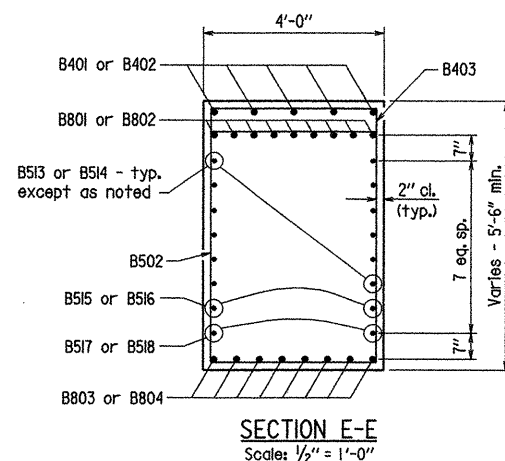
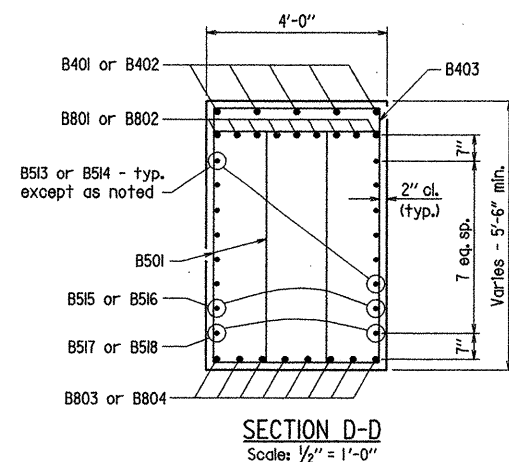
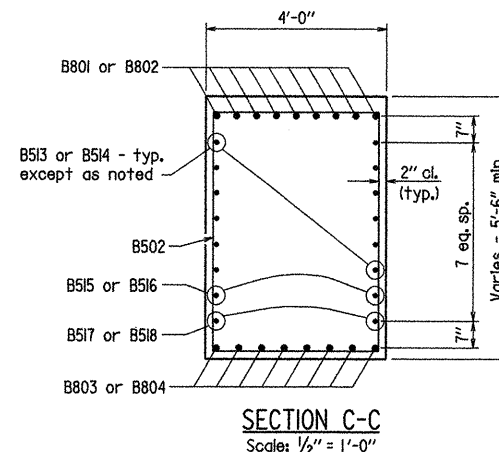
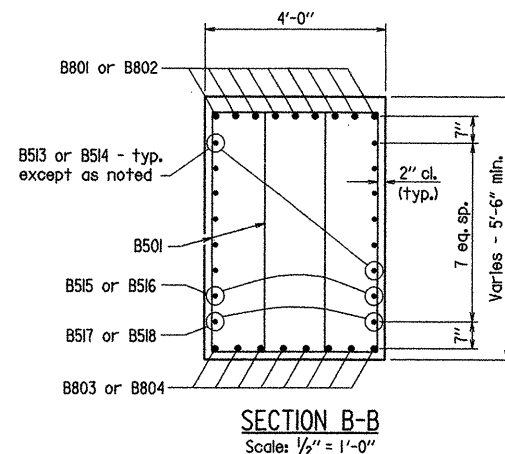
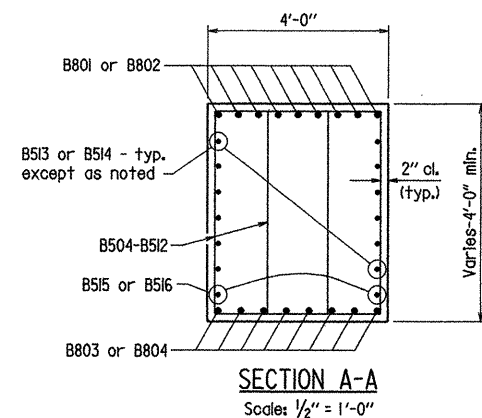
No Scale

Note: Reinforcing shown is typical for each Footing and Column.

- (A) Lap 1'-9" with additional F402
- (B) Lap 1'-9" with additional F403
- (C) Place F401 Bars as shown at 24" max. spacing in both directions. F401 bars not required in area of spiral reinforcing. Alternate hook between top and bottom mat.
- (D) This pile in Footing at Column Nos. 2 & 3 only. See Dwg. No. 48287 for additional Footing Details.
- (E) Lap 4'-7" min. with additional #8 bars.



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.		110131	68	133
						07069 - BENT 2 -	48287	



#### GENERAL NOTES

Concrete shall be Class 'S' with a minimum 28 day compressive strength of  $f'_c = 3,500$  p.s.i. Concrete shall be poured in the dry. All exposed corners shall be chamfered 1/4" unless otherwise noted.

Reinforcing steel shall conform to AASHTO M 31 or M53, Grade 60 (yield strength = 60,000 p.s.i.)

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

For Details of Elastomeric Bearings see Dwg. No. 48296.

For additional information see Layout.

#### NOTES FOR SPIRAL REINFORCING

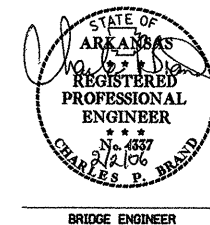
Spiral reinforcing shall be plain round or deformed steel bars meeting the requirements of AASHTO M31 or M53 (Grade 60) or shall be cold drawn wire meeting the requirements of AASHTO M32 or M225 (Grade 70) with a minimum diameter of 0.625".

Spiral reinforcement shall be paid for at the contract unit price bid per pound for "Reinforcing Steel-Bridge (Grade 60)". No additional payment shall be made for spacers, additional splices, or bracing needed for assembly, shipping, handling, or erecting.

Contractor may elect to use a different number of spiral lapped splices per column. (Maximum = 2). In no case shall a spiral be lapped within the top or bottom 1/4th of the column height.

Splices in spiral reinforcement shall be lapped a minimum of 48 bar diameters.

Spiral reinforcement at lapped splices shall be terminated by a 135° hook with a 10" tall around a vertical bar. Ends of spirals not lapped shall be terminated with 11/2 turns and a 135° hook with a 10" tall around a vertical bar.



SHEET 2 OF 2  
DETAILS OF BENT NO. 2  
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.  
DRAWN BY: CRE DATE: 11/8/05 FILENAME: b10131.b22.dgn  
CHECKED BY: DHP DATE: 12/8/05 SCALE: As Noted  
DESIGNED BY: CRE DATE: 11/05  
BRIDGE NO. 07069 DRAWING NO. 48287

NOTE: Class I Protective Surface Treatment shall be applied to the top of the backwall.

BAR LIST

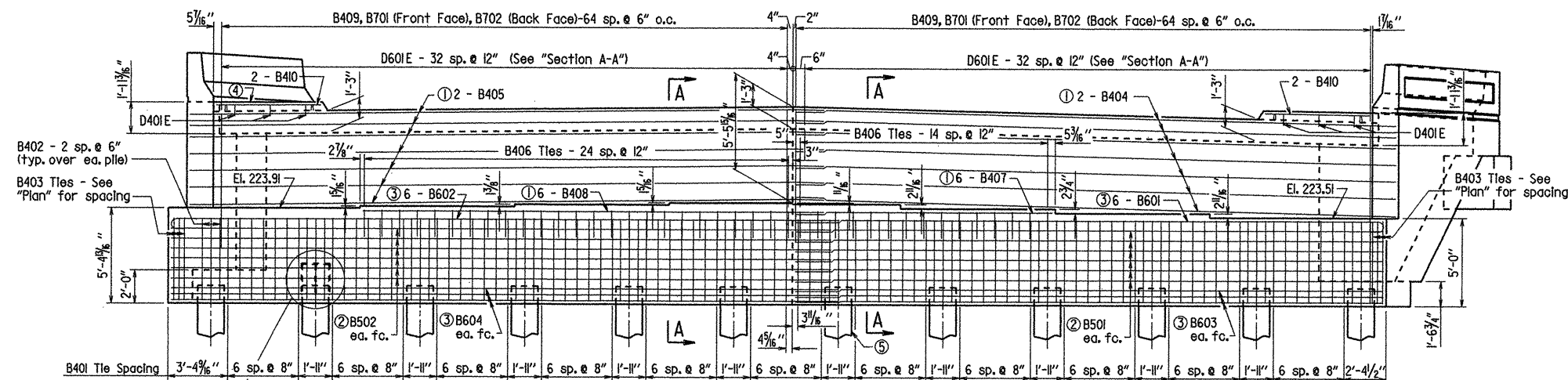
Mark	No. Req'd.	Length	Pin Dia.
B401	77	17'-0"	2"
B402	36	12'-10"	2"
B403	6	17'-6"	2"
B404	14	34'-2"	2"
B405	14	36'-0"	2"
B406	40	6'-6"	2"
B407	6	14'-7"	Str.
B408	6	26'-2"	Str.
B409	131	5'-0"	2"
B410	4	5'-11"	Str.
B501	12	33'-5"	Str.
B502	12	37'-4"	Str.
B601	6	34'-1"	4 1/2"
B602	6	38'-5"	4 1/2"
B603	6	33'-5"	Str.
B604	6	37'-9"	Str.
B605	7	7'-4"	Str.
B606	4	7'-9"	4 1/2"
B607	4	9'-2"	Str.
B701	131	7'-6"	Str.
B702	131	6'-3"	Str.
D401E	6	8"	Str.
D501E	26	6'-2"	3 1/4"
D601E	66	5'-10"	4 1/2"

### Bending Diagram

Dimensions are out to out of bars.

[illegible]

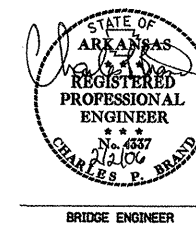
PLAN  
Looking Ahead  
Scale:  $\frac{1}{4}" = 1'-0"$



**ELEVATION**  
Looking Ahead  
Scale:  $\frac{1}{4}'' = 1'-0''$

- 

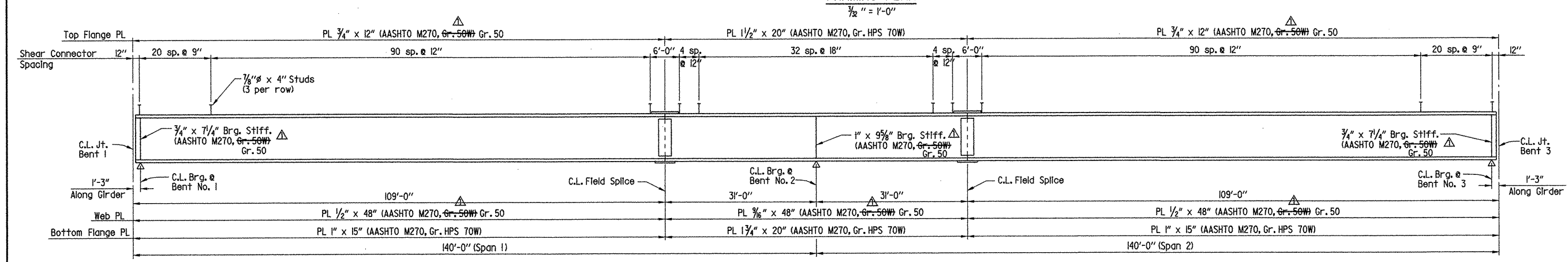
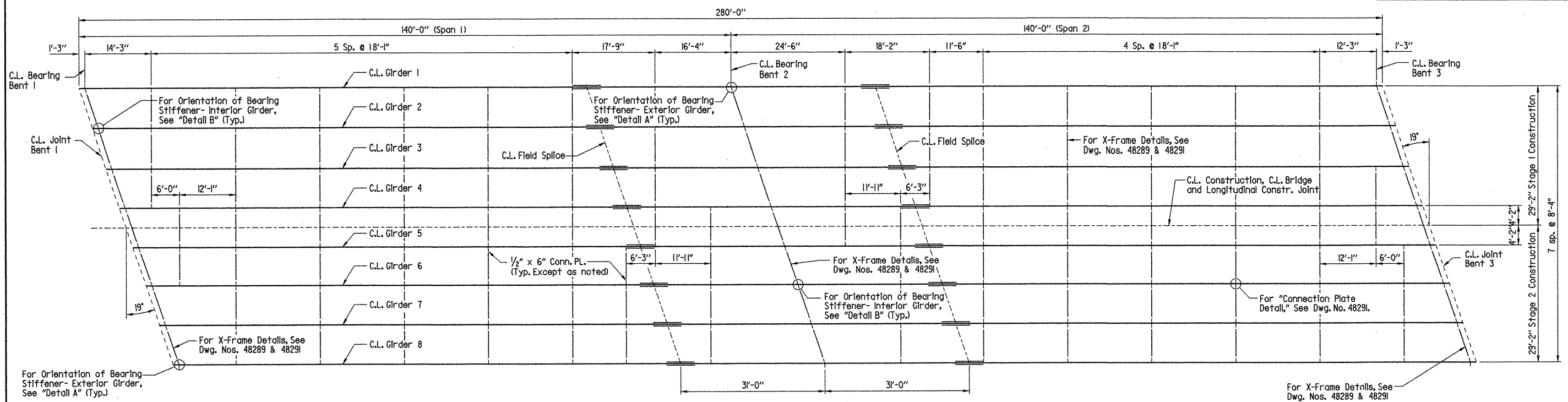
CHAMFER DETAIL  
No Scale



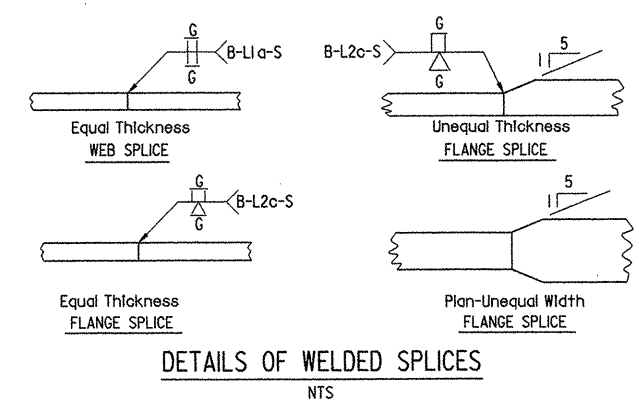
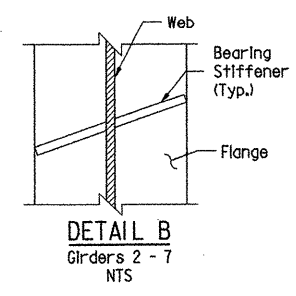
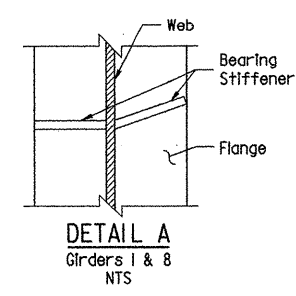
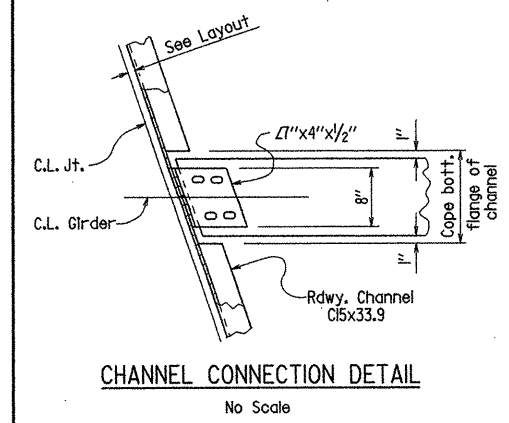
DETAILS OF BENT NO. 3			
ROUTE		SEC.	
ARKANSAS STATE HIGHWAY COMMISSION			
LITTLE ROCK, ARK.			
DRAWN BY:	JWD	DATE:	12-05-05
CHECKED BY:	CRE	DATE:	12-8-05
DESIGNED BY:	CRE	DATE:	11-05
BRIDGE NO. 07069		DRAWING NO. 48268	
FILENAME:		b10131.b3.dgn	
SCALE:		As Shown	

BRIDGE ENGINEER

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
11/09/07				6	ARK.			
				JOB NO.		110131	71	133
				07069		280' UNIT		48290



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 the Plan Quantities.



**FIELD SPICE AT UNEQUAL FLANGE WIDTHS**  
 NTS

Change Structural Steel Gr. 50W to Gr. 50  
 11/09/07 MRE Ckd. by: DHP

**SHEET 2 OF 6**  
**DETAILS OF CONTINUOUS COMPOSITE**  
**280' PLATE GIRDER UNIT**

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

BRIDGE ENGINEER  
 STATE OF ARKANSAS  
 REGISTERED PROFESSIONAL ENGINEER  
 No. 4837  
 11/17/07  
 CHARLES P. BRAND

DRAWN BY: JLB DATE: 10/6/05  
 CHECKED BY: DHP DATE: 12/12/05  
 DESIGNED BY: CRE DATE: 9-05

BRIDGE NO. 07069 DRAWING NO. 48290

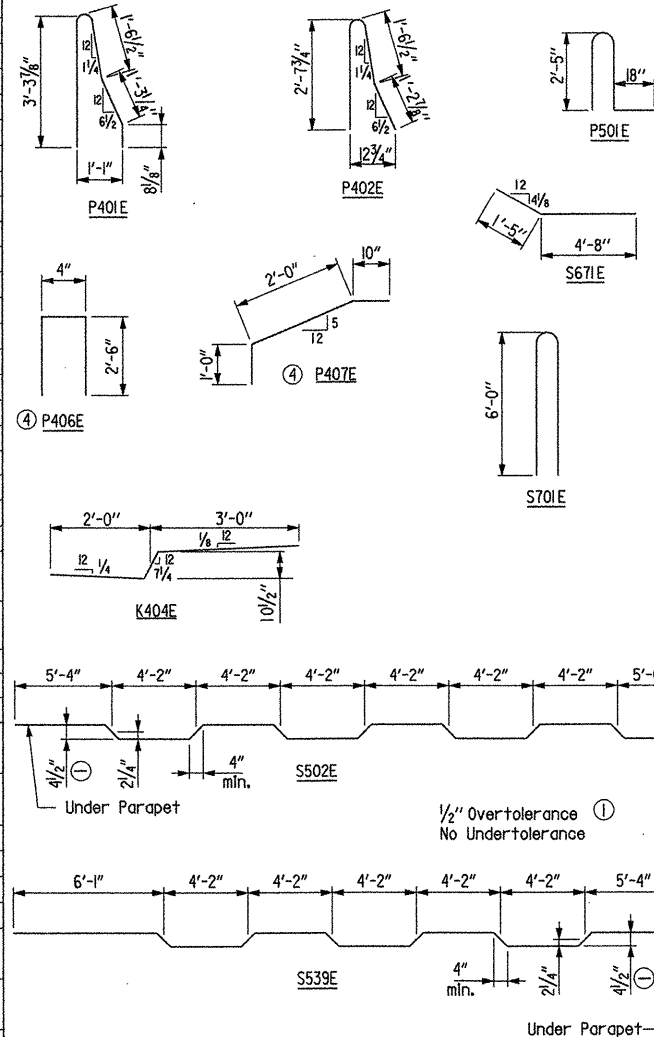
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
11/09/07				6	ARK.		72	133
				JOB NO.		110131	72	133
						280' UNIT	48291	

## BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
K401E	112	37'-3"	Str.
K402E	222	5'-8"	Str.
K403E	222	7'-1"	Str.
K404E	222	5'-6"	2"
K405E	224	8"	Str.
K406E	4	5'-11"	Str.
K407E	4	7'-6"	Str.
P401E	480	6'-11"	3"
P402E	480	5'-6"	3"
P403E	48	37'-2"	Str.
P404E	136	13'-6"	Str.
P405E	24	38'-11"	Str.
P406E	12	5'-2"	2"
P407E	8	3'-10"	2"
P501E	960	6'-5"	3 3/4"
S401E	1376	37'-3"	Str.
S501E	206	35'-10"	Str.
S502E	207	36'-7"	3"
S503E	16	35'-10"	Str.
S504E-S520E	1 each	33'-5" to 4'-5"	Str.
S521E-S537E	1 each	33'-6" to 4'-5"	Str.
S538E	206	32'-3"	Str.
S539E	207	32'-11"	3"
S540E	17	32'-3"	Str.
S541E-S556E	1 each	29'-11" to 2'-8"	Str.
S557E-S572E	1 each	31'-7" to 4'-5"	Str.
S573E	224	53'-8"	Str.
S601E	206	36'-4"	Str.
S602E	16	36'-4"	Str.
S603E-S619E	1 each	33'-4" to 4'-4"	Str.
S620E-S636E	1 each	34'-1" to 5'-0"	Str.
S637E	206	32'-2"	Str.
S638E	17	32'-2"	Str.
S639E-S654E	1 each	29'-11" to 2'-8"	Str.
S655E-S670E	1 each	31'-6" to 4'-4"	Str.
S671E	6	6'-1"	4 1/2"
S701E	444	12'-5"	6 1/2"

## BENDING DIAGRAMS

Dimensions are out to out of bars.



At the contractor's option, two straight #5 bars may be substituted for the bars S502E & S539E with the top and bottom bars epoxy coated. Payment for reinforcing will be based on the weight of S502E & S539E.

Bars designated with an "E" suffix are epoxy coated.

Change Structural Steel Gr. 50W to Gr. 50  
11/09/07 MRE Ckd. by: DHP

## SHEET 3 OF 6 DETAILS OF CONTINUOUS COMPOSITE 280' PLATE GIRDER UNIT

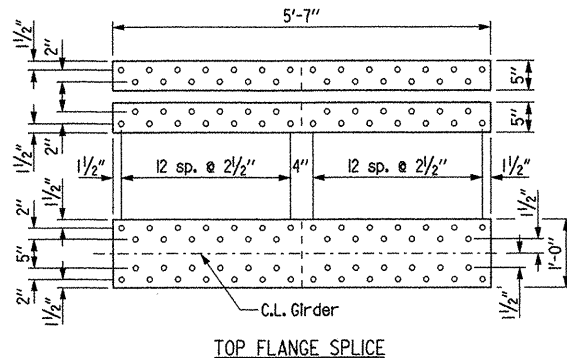
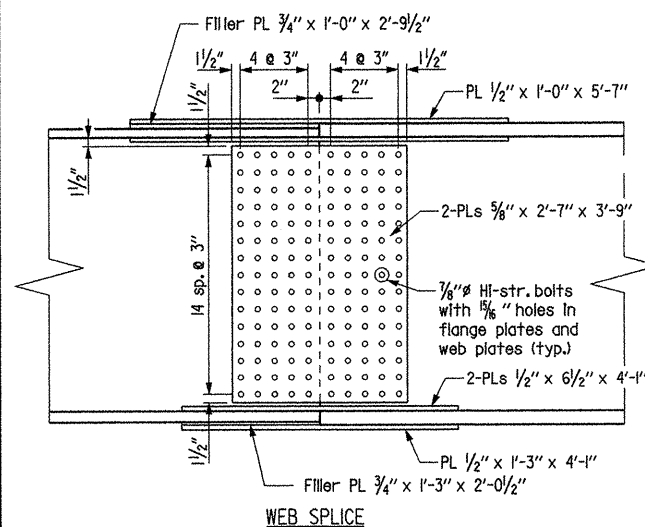
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: JLB DATE: 09/08/05 FILENAME: b110131.s3.dgn  
CHECKED BY: DHP DATE: 12/12/05 SCALE: 1/4" = 1'-0" or  
DESIGNED BY: CRE DATE: 9-05 as noted  
BRIDGE NO. 07069 DRAWING NO. 48291

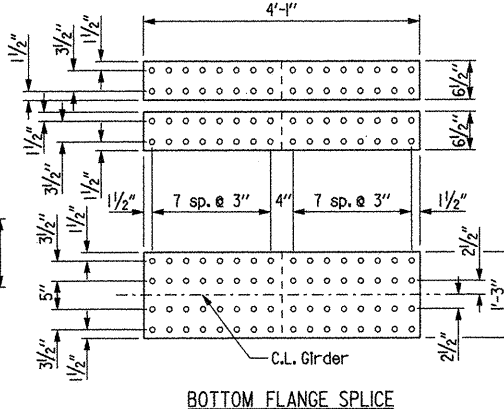


BRIDGE ENGINEER



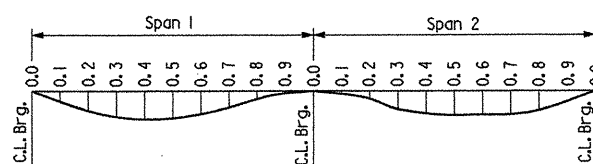
## DETAILS OF FIELD SPLICE

NOTE: All splice plates shall be AASHTO M270 Gr. 50W steel.



## TABLE OF DEAD LOAD DEFLECTIONS-INCHES

Span	Point of Deflection	Structural Steel	Structural Steel+Slab	Str. Steel +Slab+Parapet
1	0	0	0	0
	0.1	0.379	1.959	2.226
	0.2	0.701	3.576	4.065
	0.3	0.919	4.613	5.248
	0.4	1.008	4.954	5.642
	0.5	0.965	4.607	5.254
	0.6	0.808	3.702	4.230
	0.7	0.579	2.493	2.854
	0.8	0.335	1.327	1.518
	0.9	0.125	0.413	0.469
2	0	0	0	0
	0.1	0.125	0.413	0.469
	0.2	0.335	1.327	1.518
	0.3	0.579	2.493	2.854
	0.4	0.808	3.702	4.230
	0.5	0.965	4.607	5.254
	0.6	1.008	4.954	5.642
	0.7	0.919	4.613	5.248
	0.8	0.701	3.576	4.065
	0.9	0.379	1.959	2.226



## DEAD LOAD DEFLECTION DIAGRAM

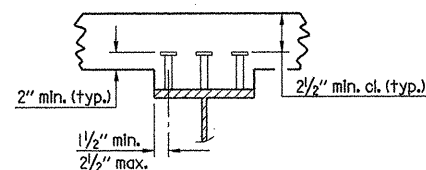
No Scale

Note: Camber for Dead Load Deflection plus Vertical curve  $\pm 1/4"$  tolerance. Deflections shown are along C.L. Girder from a chord from C.L. Bearing to C.L. Bearing. Vertical curve corrections not included.

## 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"	

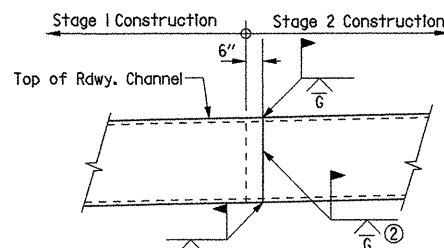
NOTE: When a fillet weld size, as shown on the plans, is larger than the minimum, the first pass shall be that specified for minimum size of fillet weld.



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

## SHEAR CONNECTOR DETAIL

NTS

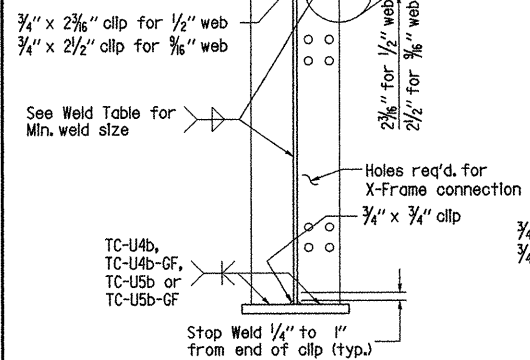
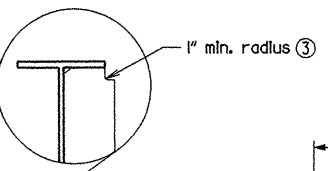
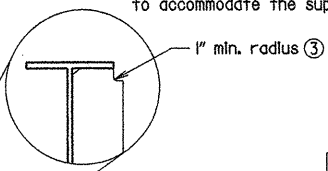


② Grind flush 3" from top of Rdwy. Channel.

## DETAIL OF WELD LOCATION FOR EXPANSION DEVICE

Looking Ahead  
No Scale

③ If permanent deck forms are used, the fabricator shall clip the plate as necessary to accommodate the support angle.

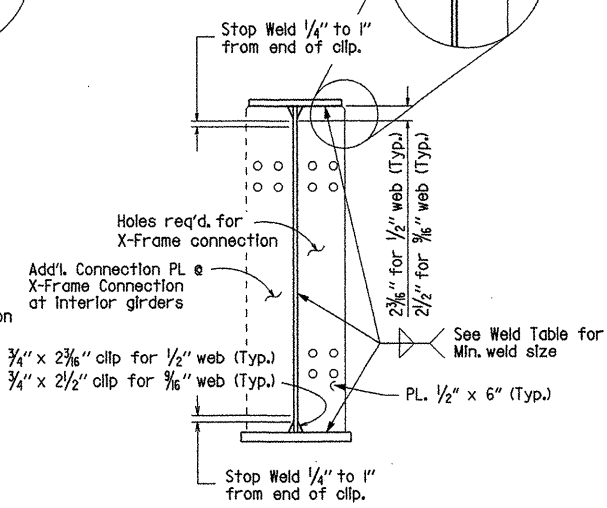


## BEARING STIFFENER DETAIL

NTS

Note: Bearing stiffeners to be fabricated so as to be vertical in their final position.

Note: Bolts in X-Frame connections shall be properly installed and tightened in accordance with subsection 807.71 except as noted.



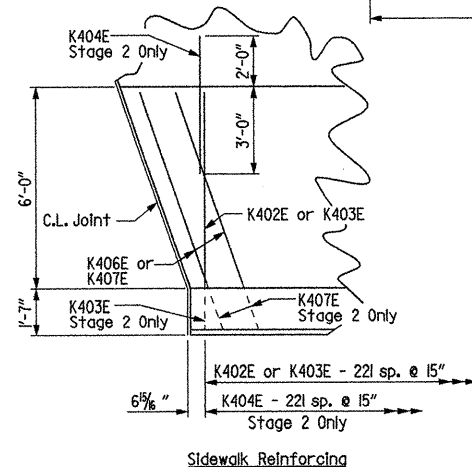
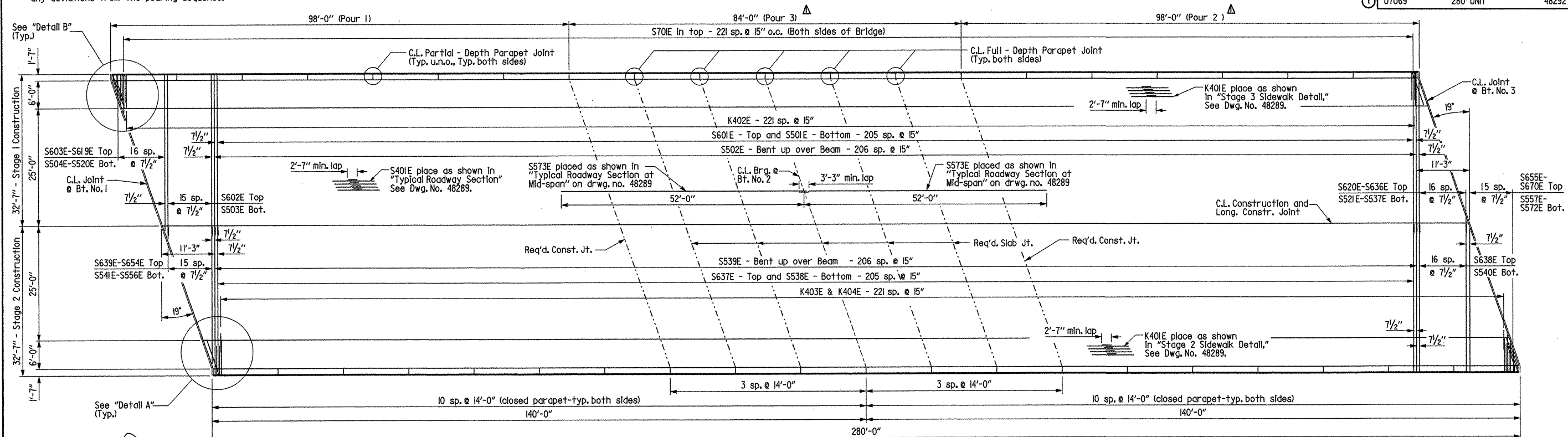
## CONNECTION PLATE DETAIL

NTS

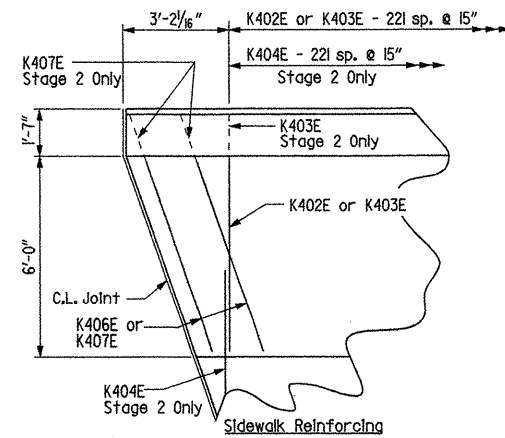
▲ Note: Pour (1) must be placed before Pour (2) can be placed. 48 hours shall elapse between the end of pour (1) and the start of pour (2) and Pour (1) shall achieve a minimum compressive strength of 2750 psi. 72 hours shall elapse between the end of a pour (2) and the start of pour (3). Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence.

Note: For "Slab Joint Detail" and "Longitudinal Construction Joint Detail," See Dwg. No. 48294.

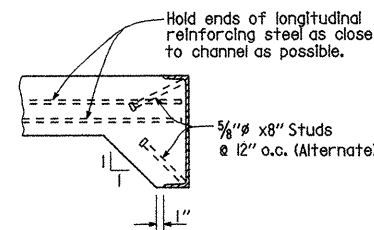
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
11/09/07				6	ARK.			
				JOB NO.	110131	73	133	
				07069	280' UNIT		48292	



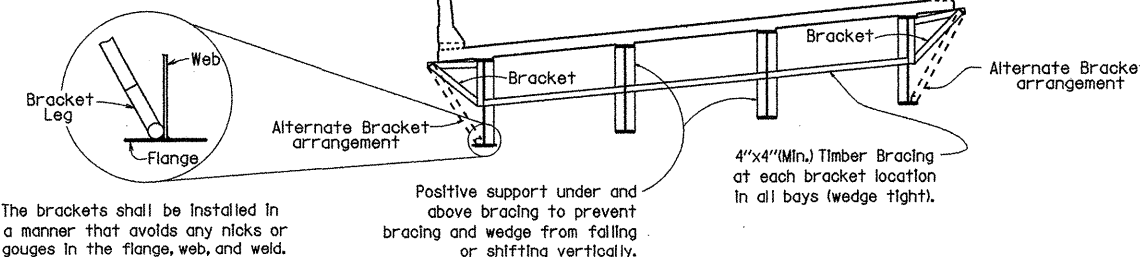
Sidewalk Reinforcing



Sidewalk Reinforcing



ANCHOR DETAILS  
No Scale



Note: The rail for the transverse screed shall be supported directly over the exterior girders, or as an alternate, the rail may be supported by the overhang brackets if the above strutting system is used. The strutting system may be omitted if 1/2" x 6" web stiffeners are welded to the insides of the exterior girders at the location of each bracket or if the alternate bracket arrangement shown above is used. The alternate bracket arrangement shall extend down to the junction of the web and bottom flange. The stiffener shall conform to the details for intermediate connection plates shown on Drawing No. 48291. No direct payment will be made for brackets, timber bracing, supports, or welded stiffeners. Payment shall be subsidiary to "Structural Steel in Plate Girder Spans (M270, Gr. 50)." ▲

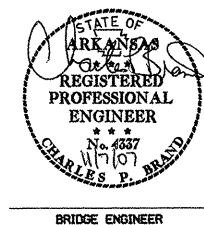
SCREED RAIL SUPPORT  
No Scale

▲ Changed structural steel grade Gr. 50W to Gr. 50. Replaced pour note and changed pour numbers 11/09/07 CSL Ckd. By DHP

# SHEET 4 OF 6 DETAILS OF CONTINUOUS COMPOSITE 280' PLATE GIRDER UNIT

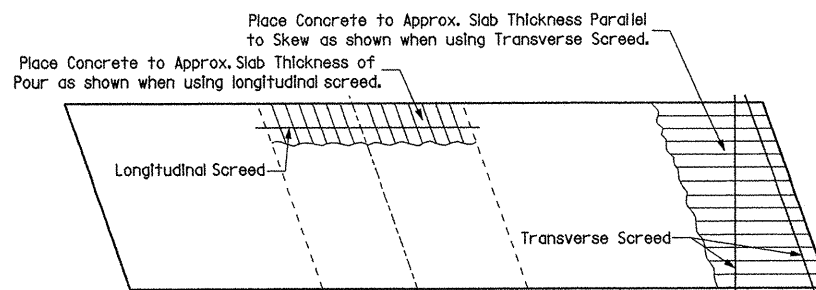
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: JLB DATE: 11/14/05 FILENAME: b110131.s4.dgn  
CHECKED BY: DHP DATE: 12/12/05 SCALE: 3/8" = 1'-0" or as noted  
DESIGNED BY: CRE DATE: 9-05  
BRIDGE NO. 07069 DRAWING NO. 48292



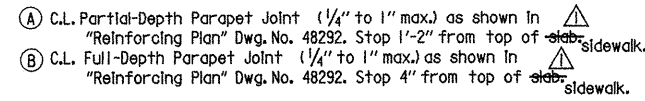
Note: At the Contractor's Option, the Transverse Screed may be placed parallel to the skew or perpendicular to C.L. Bridge

CONCRETE PLACEMENT PROCEDURE  
N.T.S.

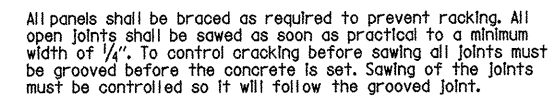
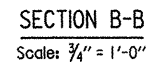
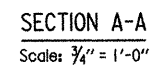
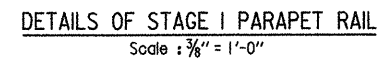


**DETAIL Y**

No Scale



© Details not shown are similar to details of 14'-0" Rail shown.



No Scale

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.

△ Change "slab" to "sidewalk" 11/09/07 MRE Ckd. by: DHP

ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: DDD DATE: 11-22-05 FILENAME: bl10131.s5.dgn  
CHECKED BY: DHP DATE: 12/12/05 SCALE: As Shown  
DESIGNED BY: CRE DATE: 9-05

BRIDGE NO. 07069 DRAWING NO. 48293

## 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 LRFD Bridge Design Specifications (2004 edition with 2005 Interims).

LIVE LOADING: HL-93

MATERIALS AND STRENGTHS:

Concrete: All concrete shall be Class S(AE) with a minimum 28 day 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 (Fy = 50,000 psi.), AASHTO M270, Gr. HPS 70W (Fy = 70,000 psi.), or AASHTO M270 Gr. 36 (Fy = 36,000 psi.)

STRUCTURAL STEEL: Gr. 50

Flange plates noted on Girder Elevation as AASHTO M270, Gr. HPS 70W shall be paid for as "Structural Steel In Plate Girder Spans (M270, Gr. HPS 70W)." All other structural steel shall be AASHTO M270, Gr. 50W, unless otherwise noted and shall be paid for as "Structural Steel In Plate Girder Spans (M270, Gr. 50W)". Structural Steel completely embedded in concrete may be AASHTO M270, Gr. 36. All exposed surfaces shall be cleaned in accordance with subsection 807.04(e) unless noted otherwise. Gr. 50

Structural steel shapes of equal or greater strength may be substituted for shapes shown if prior approval is obtained from the Engineer. Payment will be made on the basis of shapes shown.

Longitudinal girders and all 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 subsidiary to the item "Structural Steel In Plate Girder Spans (M270, Gr. 50W)" or "Structural Steel In Plate Girder Spans (M270, Gr. HPS 70W)". Gr. 50

Steel plates for main members 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.

Drawings show general features of design only. Shop drawings shall be made in accordance with subsection 807.04, submitted and approval secured before fabrication is begun. Girder webs may be made by shop splicing with minimum lengths of 25'-0" for sections. Flange plates longer than 50'-0" may be made by shop splicing with minimum lengths of 25'-0" for sections. Material specifications and location of shop-welded splices, if any, shall be shown on the shop drawings. No additional payment for welds for these splices will be made.

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 the webs horizontal and in accordance to subsection 807.54(b)(2). The camber, length of sections, distance between bearings and openings of joints shall be measured with the girder in their true position. This information shall become 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  $\frac{1}{4}$ " +/- is allowed for camber.

Field connections shall be bolted with high-strength bolts. Bolts shall be  $\frac{3}{4}$ " diameter, except as noted, and open holes shall be  $\frac{1}{8}$ ", unless noted otherwise. Holes for  $\frac{3}{4}$ " diameter bolts may be  $\frac{1}{8}$ " diameter if a washer is supplied for use under both the nut and head of the bolt. Bolt spacing shall be  $2\frac{1}{2}$ " for  $\frac{3}{4}$ " diameter bolts unless otherwise noted. For field splices, bolts shall be  $\frac{1}{2}$ " diameter bolts unless otherwise noted. Open holes shall be  $\frac{1}{8}$ " unless noted otherwise. Bolt spacing shall be 3" for  $\frac{1}{2}$ " diameter bolts unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior girder web and on the bottom of the girder flanges.

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 Engineer for approval. All welding shall conform to subsection 807.26 and Special Provision Job 110131 "Steel Structures."

Groove welds in main plate girder members 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 contractor's expense.

All stud shear connectors shall be granular flux filled, solid fluxed, or equal and shall be automatically end welded in accordance with recommendations of the manufacturer.

Bearings shall be seated in accordance with subsection 807.66. This work and material will not be paid for directly but will be considered subsidiary to the item "Structural Steel In Plate Girder Spans (M270, Gr. 50W)". Gr. 50

Cross-Frames shall be installed as girders are erected. All bolts in Cross-Frames and field splices shall be installed and tightened in accordance with subsection 807.71, except as noted, prior to pouring of the concrete deck.

REINFORCING STEEL:

All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60. The reinforcing steel shall be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size 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:

All concrete shall be Class S(AE) with a minimum 28 day compressive strength  $f'_c = 4000$  psi. Concrete shall be poured in the dry and all exposed corners to be chamfered  $\frac{3}{4}$ " unless otherwise noted.

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.

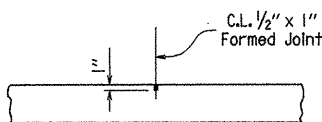
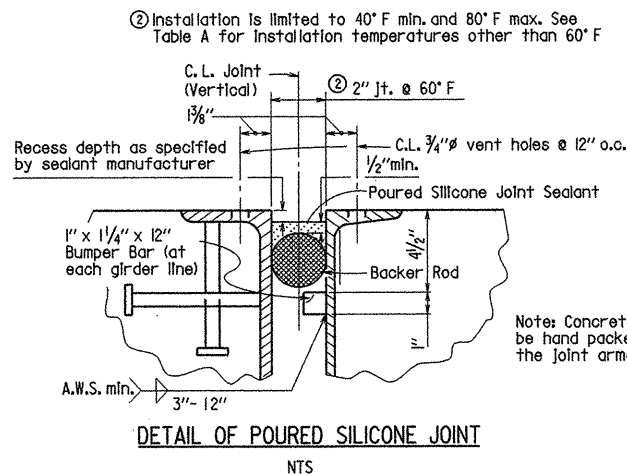
The concrete deck shall be given a Tine Finish in accordance with subsection 802.19 for Class 5, Tined Bridge Roadway Surface Finish. The sidewalk shall receive a Broomed Finish as specified for final finishing in subsection 802.19 for Class 6, Broomed Finish. Movement of the finishing machine across 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 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 due to the sidewalk and parapet railing.

For Stage 1 Construction, a minimum of 72 hours shall elapse between completion of the bridge deck slab and the pouring of the parapet railing. For Stage 2 Construction, a minimum of 72 hours shall elapse between completion of the bridge deck slab and the pouring of the sidewalk and a minimum of 72 hours shall elapse between completion of the sidewalk and the pouring of the parapet railing. Any railing pours made before the entire slab has been placed and cured must be approved by the Engineer.

LOAD DISTRIBUTION:  
DEAD LOAD

	INTERIOR BEAM	EXTERIOR BEAM
To Beam:	833 plf + wt. of beam + wt. of diaphragm	758 plf + wt. of beam + wt. of diaphragm
To Composite Beam:	① 424 plf	① 424 plf

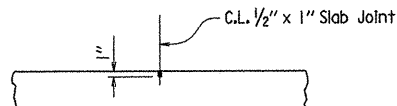
① Includes 150 plf future wearing surface and 175 plf sidewalk load.



Use  $\frac{1}{2}$ " x 1" Type 3, 4, or 6 Joint Sealer. See subsections 501.02 (h) and 501.05 (j). Backer Rod filler will not be required. Joint sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab joints shall be installed before the sidewalk and parapet railing are 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. No joint sealer shall be placed on the deck slab under the sidewalk area. The joint sealer shall extend across the deck slab (gutterline to gutterline) and across the top of the sidewalk. Slab joints shall align with parapet open joints.

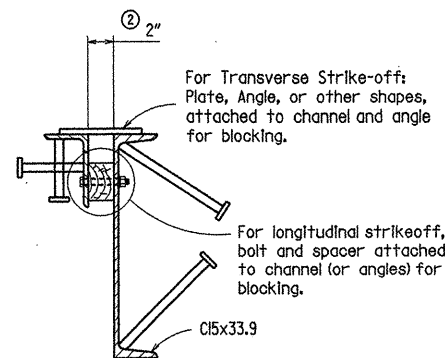
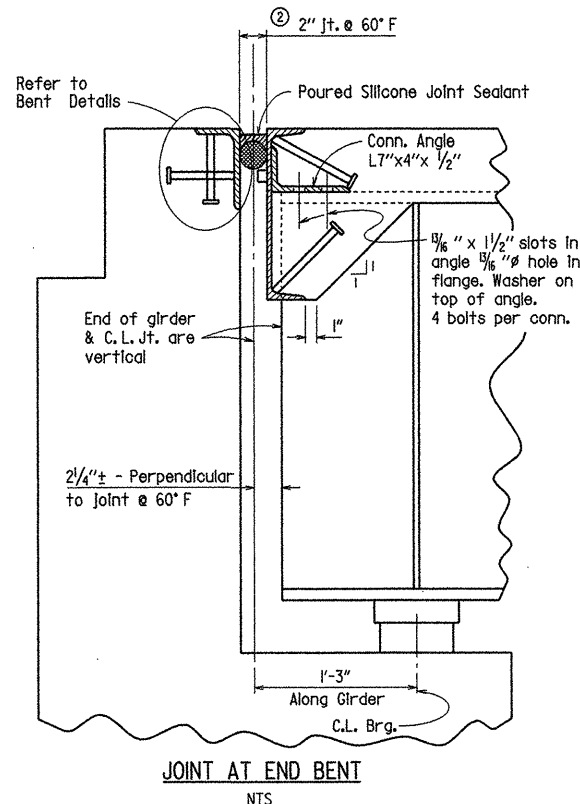
LONGITUDINAL CONSTRUCTION JOINT DETAIL

No Scale



SLAB JOINT DETAIL

No Scale



Note: Each expansion joint device shall be blocked in the Shop by the Fabricator to 2", and the blocking details shall be shown on the Shop Drawings. Blocking shall be placed within 2 feet of each end of the device and with a maximum spacing of 8 feet.

DETAILS FOR BLOCKING  
EXPANSION JOINT DEVICE  
NTS

TABLE A

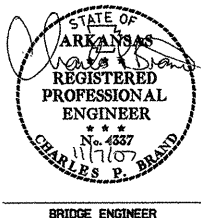
② Width perpendicular to joint at 24 hour average temperature of:		
40°F	60°F	80°F
2 3/8"	2"	1 9/16"

## EXPANSION DEVICE INSTALLATION

The Contractor may elect to install the expansion device using one of the following two alternatives:

- The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the girders erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the backwall concrete, the blocking shall be removed, the opening adjusted for temperature, and the backwall constructed.
- The backwall shall be poured to the optional construction joint after girders are erected. The blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the remainder of the backwall concrete, the blocking shall be removed and the opening adjusted for temperature.

△ Change Structural Steel Gr. 50W to Gr. 50 and change subsection 807.84(e) to 807.84 11/09/07 MRE Ckd. by: DHP

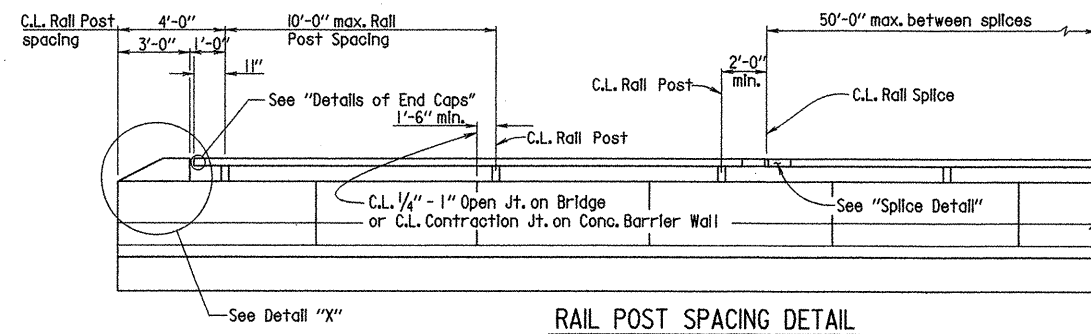


SHEET 6 OF 6  
DETAILS OF CONTINUOUS COMPOSITE  
280' PLATE GIRDER UNIT

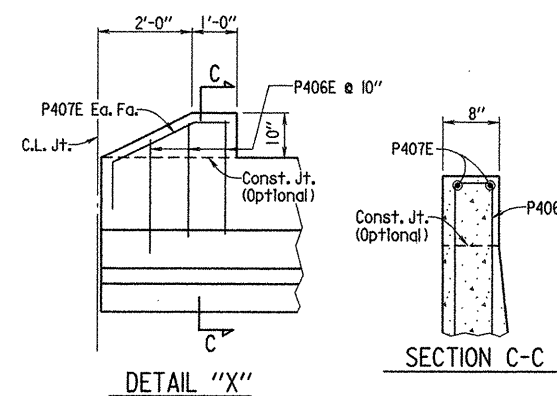
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

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CHECKED BY: DHP DATE: 12/12/05 SCALE: No Scale  
DESIGNED BY: CRE DATE: 7-05  
BRIDGE NO. 07069 DRAWING NO. 48294

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.		110131	76	133
① 07069 - SUPERSTRUCTURE DETAILS - 48295								



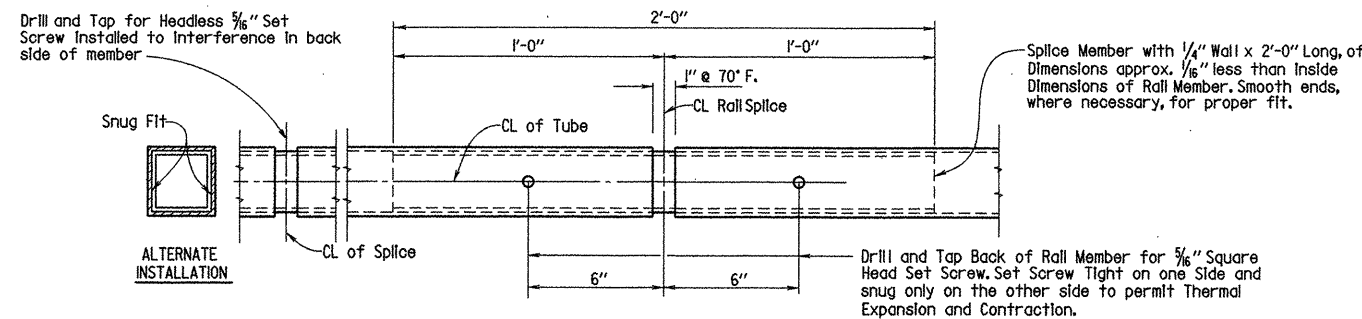
RAIL POST SPACING DETAIL



DETAIL "X"

SECTION C-C

Note: For reinforcing and rail details see Dwg. Nos. 48291 and 48293.



SPLICE DETAIL

#### NOTES FOR BRIDGE RAILING:

Rail layout shall conform to vertical and horizontal alignment of bridge.

Maximum post spacing = 10'-0"

Minimum distance from centerline post to centerline open or contraction joints in parapet = 1'-6".

Rail splices shall be at 50' maximum spacing. Centerline splices shall be located at a maximum of 2 feet from centerline of post. Rail sections shall be fabricated to attach to at least three posts.

Base plates shall not be placed upon areas that are improperly finished, deformed or irregular.

Bridge railing, including posts, fasteners, template plates, and neoprene pad shall be paid for at the contract unit price bid per linear foot for "Metal Bridge Railing (Type H)".

Shop drawings showing details of railing shall be submitted and approval secured before fabrication is begun.

#### MATERIALS:

Tubing, Posts, and Accessories: AASHTO M270, Gr. 36 or ASTM A500-Grade B.

Railing End Caps: AASHTO M270, Grade 36, galvanized.

Steel Rail Members shall be galvanized in accordance with AASHTO M111 after fabrication.

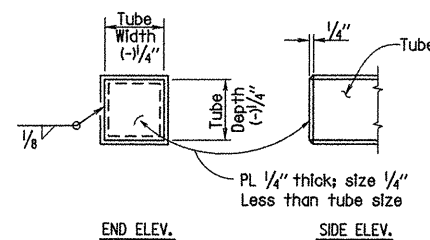
Cast in place anchor bolts shall be of stainless steel or high strength steel. Stainless steel anchor bolts shall conform to ASTM A193 or A320-Grade B8 with a minimum yield strength of 80,000 psi. High strength steel anchor bolts shall conform to AASHTO M164 or A354-Grade BC galvanized in accordance with AASHTO M232 or M298, Class 40 or 50.

Splice Set Screws: Stainless steel, ASTM Specifications A193 or A320-Grade B8, or AASHTO M270, Grade 36, galvanized.

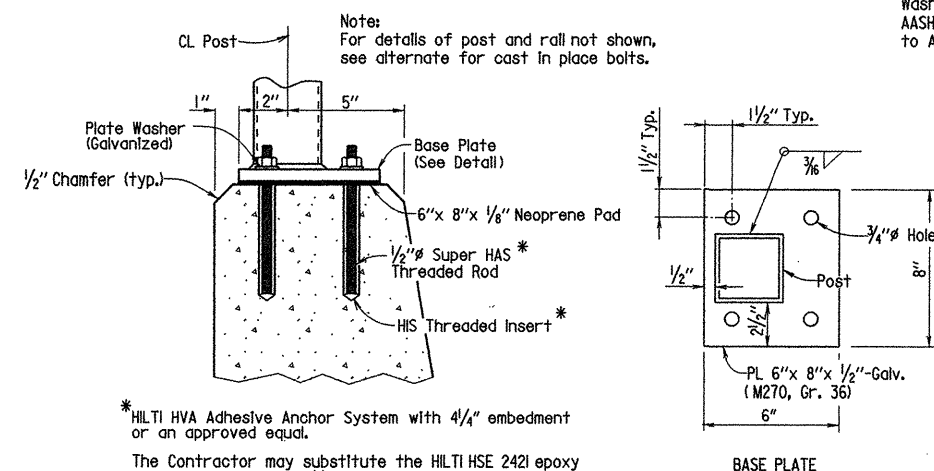
Nuts: Nuts shall conform to AASHTO M292, Gr. 8 (Stainless steel) or galvanized in accordance with AASHTO M232 or M298, Class 40 or 50.

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

Washers shall conform to AASHTO M293, galvanized in accordance with AASHTO M232 or M298, Class 40 or 50, or of stainless steel conforming to ASTM A276 or A167-Type 302.

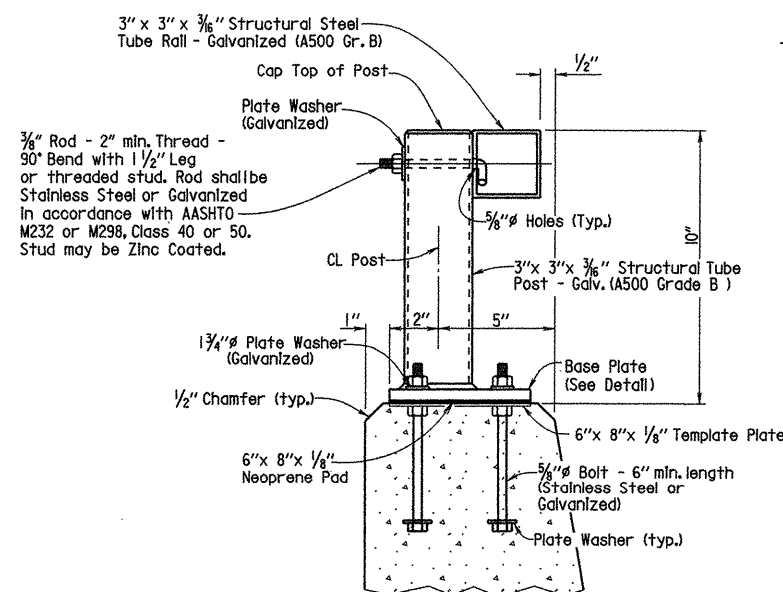


DETAILS OF END CAPS



DETAILS OF TYPE H RAIL  
(ALTERNATE POST ANCHOR SYSTEM)

DETAILS OF TYPE H RAIL



DETAILS OF TYPE H RAIL  
(CAST IN PLACE BOLTS)

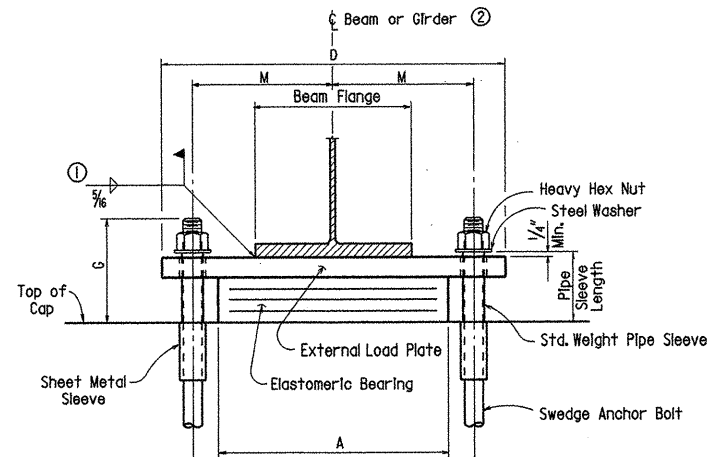


BRIDGE ENGINEER

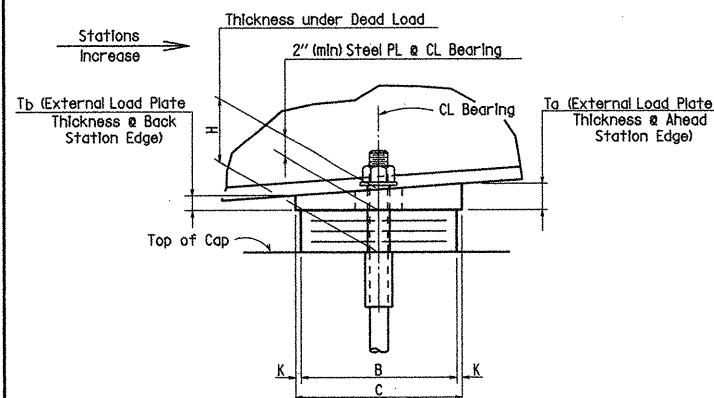
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

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CHECKED BY: DHP DATE: 12/12/05 SCALE: No Scale  
DESIGNED BY: STD DATE:   
BRIDGE NO. 07069 DRAWING NO. 48295

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
11/09/07				6	ARK.			
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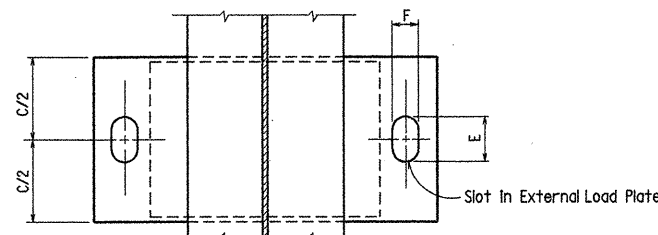
FRONT VIEW - AT BENT NOS. 1 & 3



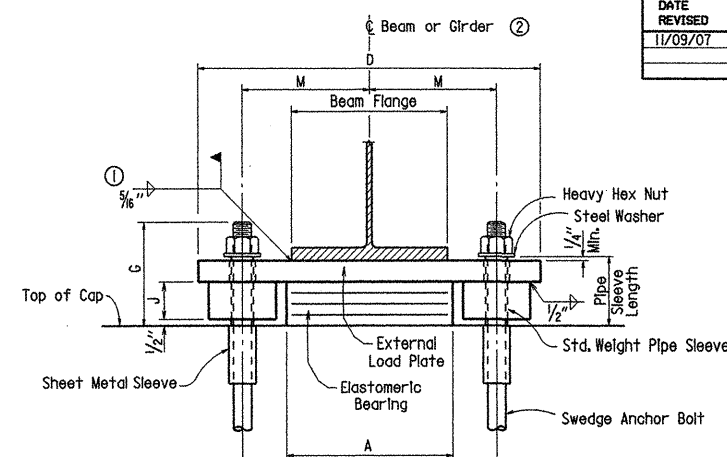
SIDE VIEW - AT BENT NOS. 1 & 3

- ① Care shall be taken to ensure that the external load plate is in full and complete contact with the beam or girder flange before welding begins.
- ② Centerline Beam or Girder shall align with centerline bearing.

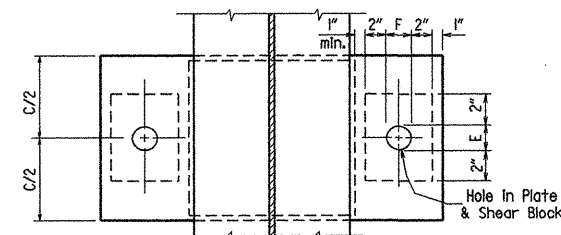
Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the girder will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40° F and 80° F; and 2) the slots in the external 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.



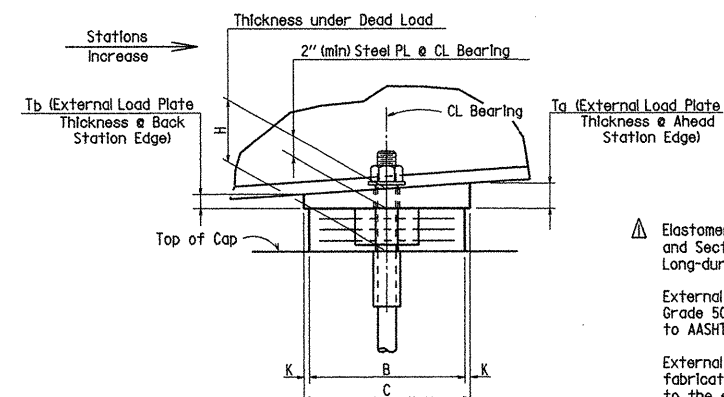
PLAN VIEW - AT BENT NOS. 1 & 3



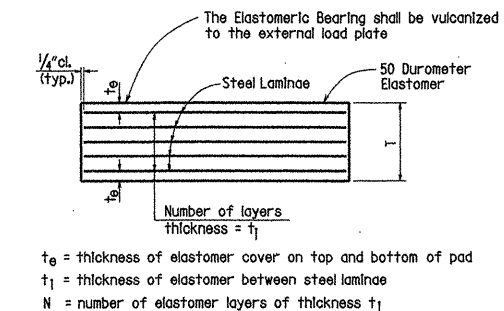
FRONT VIEW - AT BENT NO. 2



PLAN VIEW - AT BENT NO. 2

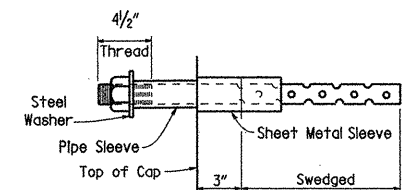


SIDE VIEW - AT BENT NO. 2



$t_0$  = thickness of elastomer cover on top and bottom of pad  
 $t_1$  = thickness of elastomer between steel laminas  
 $N$  = number of elastomer layers of thickness  $t_1$

#### ELASTOMERIC BEARING



#### 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 Plate Girder Spans (M 270, Gr. 50)." Gr. 50.

#### GENERAL NOTES

△ Elastomeric Bearings shall conform to Special Provision Job 110131 "Elastomeric Bearings" and Section 808 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 shear blocks shall conform to AASHTO M 270, Grade 50. Pipe sleeves shall be ASTM A53, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or AASHTO M 298, Class 50.

External load plates and external load plates with shear blocks shall be completely fabricated (including bevel and bolt holes) and shall be cleaned before vulcanizing to the elastomeric bearing. 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(b) and painted according to subsection 807.75. Painting will not be paid for directly but will be considered subsidiary to "Elastomeric Bearings".

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 Plate Girder Spans (M270, Gr. 50)". External load plates and shear blocks will not be measured or paid for separately but will be considered included in the unit bid price for "Elastomeric Bearings".

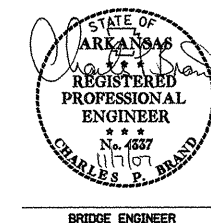
△ Replaced General Notes for Painted Structural Steel 11/09/07 JWD Ckd. By DHP

Tabular Data by: CRE Date: 10/20/05  
Checked by: DHP Date: 12/12/05  
Designed by: CRE Date: 10/05

#### TABLE OF FABRICATOR VARIABLES

ELASTOMERIC PAD										EXTERNAL LOAD PLATE										ANCHOR BOLT									
BRIDGE NO.	LOCATION			BEARING TYPE	NO. of BEARINGS EACH BENT	*MAXIMUM DESIGN LOAD (KIPS)	G	H	A	B	N	t <sub>1</sub>	t <sub>e</sub>	NO. & THICKNESS OF STEEL LAMINAE	T	C	D	E	F	J	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 (ø)
	BENT NO(S).	UNIT	GIRD. NO.																						(ø x L)	GRADE			
07069	1	280'	All	Exp.	8	170	11"	6 3/4"	20"	12"	7	1/2"	1/4"	8 @ 12 Ga.	4 13/16"	13"	33"	3 3/4"	6"	--	1/2"	13"	2.13"	1.87"	2 3/4"ø x 41"	55	3"ø x 7"	5"ø x 8"	5"
	2	280'	All	Fix.	8	482	12 1/4"	8 1/2"	24"	18.5"	10	1/2"	1/4"	11 @ 12 Ga.	6 5/8"	19 1/2"	44"	3 3/4"	3 3/4"	6"	1/2"	17"	2.00"	2.00"	2 1/2"ø x 40"	55	3"ø x 8 3/4"	4"ø x 8"	4 1/2"
	3	280'	All	Exp.	8	170	11"	6 3/4"	20"	12"	7	1/2"	1/4"	8 @ 12 Ga.	4 13/16"	13"	33"	3 3/4"	6"	--	1/2"	13"	1.87"	2.13"	2 3/4"ø x 41"	55	3"ø x 7"	5"ø x 8"	5"

\* Maximum Design Load = Service I Limit State

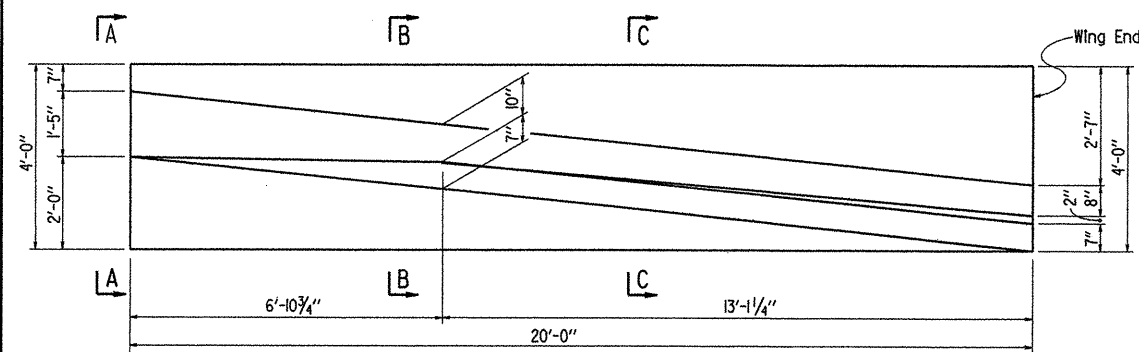


#### DETAILS OF ELASTOMERIC BEARINGS

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

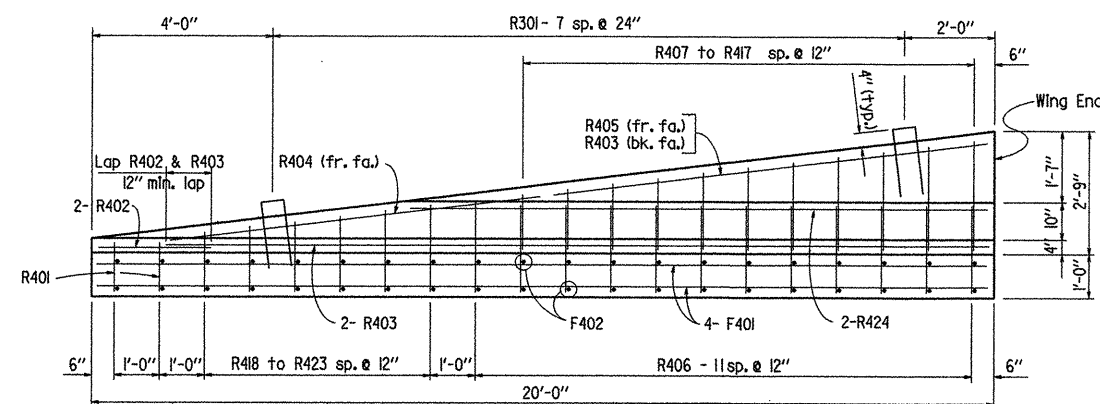
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CHECKED BY: CSL DATE: 2-11-05 SCALE: No Scale  
DESIGNED BY: Std. DATE: BRIDGE NO. 07069 DRAWING NO. 48296

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.		110131	78	123
				07069	TRANS. RAIL		48297	

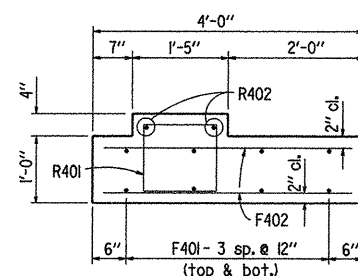


PLAN OF TRANSITIONAL APPROACH RAILING

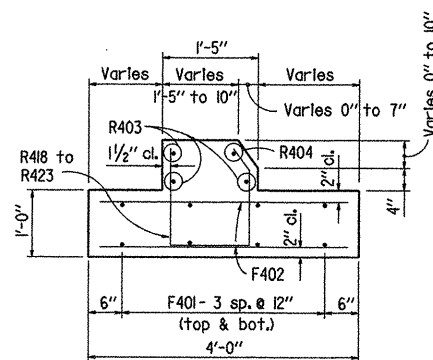
NOTE: RAILINGS ON EACH SIDE OF ROADWAY ARE OPPOSITE HAND TO EACH OTHER.



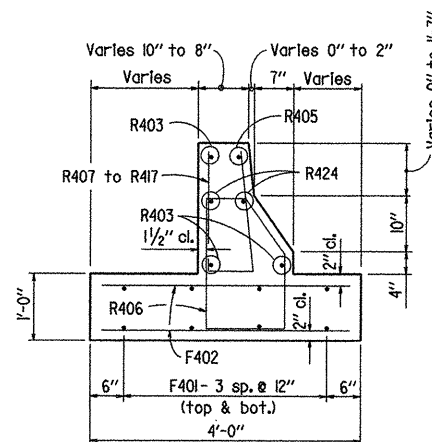
ELEVATION OF TRANSITIONAL APPROACH RAILING



VIEW A - A  
3/4\" = 1'-0"



SECTION B - B  
3/4\" = 1'-0"



SECTION C - C  
3/4\" = 1'-0"

**General Notes**

Transitional Approach Railing shall be placed at ends of turnback wings at locations shown on the layout.

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

All Reinforcing Steel shall conform to AASHTO M31 or M53, Grade 60. Reinforcing steel designated as galvanized shall be galvanized in accordance with ASTM A767. Use coating Class I with galvanization after fabrication.

Class 3 Textured Coating Finish shall be applied to the inside, and outside Face, and top of Rail. This work and material will not be paid for directly, but shall be considered subsidiary to the item for "Transitional Approach Railing".

Transitional Approach Railing shall be paid for at the contract unit price bid per each for "Transitional Approach Railing." See SP Job No. 110131 "Transitional Approach Railing."

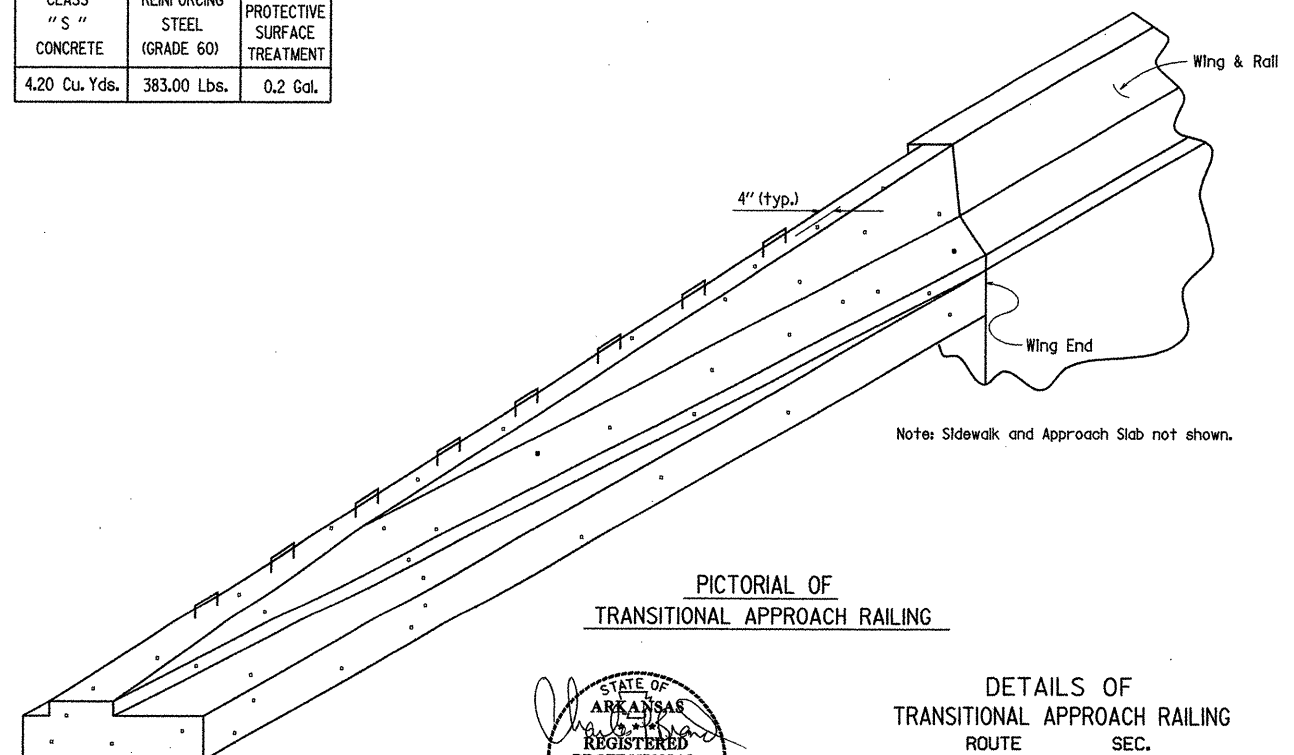
FOR INFORMATION ONLY  
SCHEDULE OF QUANTITIES PER RAIL UNIT

CLASS "S" CONCRETE	REINFORCING STEEL (GRADE 60)	CLASS I PROTECTIVE SURFACE TREATMENT
4.20 Cu. Yds.	383.00 Lbs.	0.2 Gal.

BAR LIST - ONE TRANSITIONAL RAIL

Mark	No. Req'd.	Length	A	B	Pin Dia.	Bending Diagram
F401	8	19'-8"			str.	
F402	40	3'-8"			str.	
* R301	8	3'-5"	6"	1'-6"	1 1/2"	
R401	2	4'-10"	1'-2"	1'-1"	2"	
R402	2	3'-0"			str.	
R403	3	17'-9"			str.	
R404	1	5'-0"			str.	
R405	1	12'-9"			str.	
R406	12	6'-3"			2"	
R407 to R417	1 ea.	3'-0" to 5'-5"	1'-3" to 2'-5 1/2"	1'-3" to 2'-5 1/2"	2"	
R418 to R423	1 ea.	3'-9" to 5'-1"	1'-4" to 1'-11 1/4"	1'-1 1/2"	2"	
R424	2	10'-9"			str.	

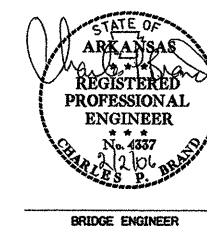
\* R301 reinforcing steel shall be galvanized.



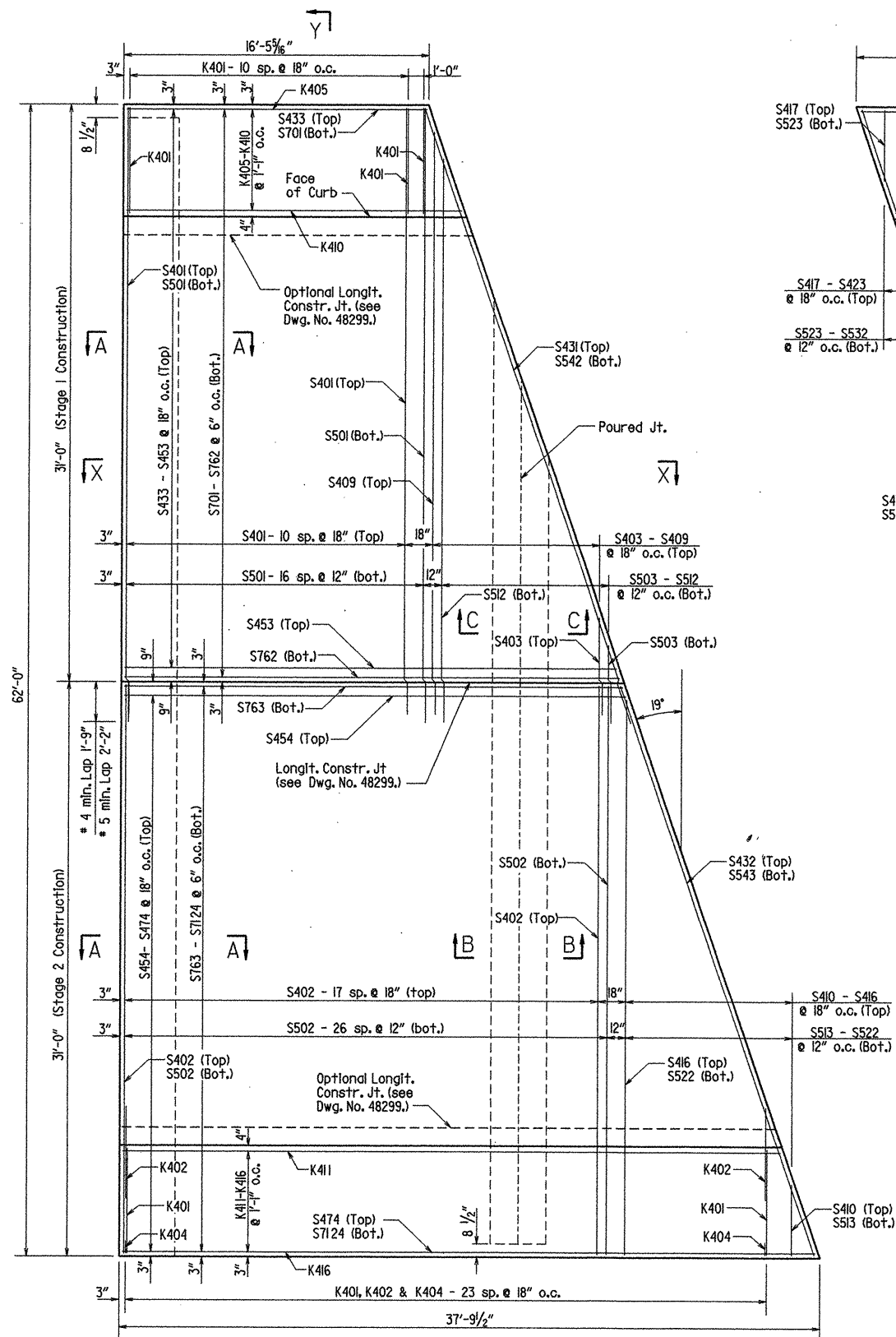
PICTORIAL OF  
TRANSITIONAL APPROACH RAILING

DETAILS OF  
TRANSITIONAL APPROACH RAILING  
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

DRAWN BY: CSL DATE: 11/21/2005 FILENAME: b110131.tr.dgn  
CHECKED BY: DHP DATE: 12/12/05 SCALE: 1/2" = 1'-0" or as noted  
DESIGNED BY: Std. DATE:   
BRIDGE NO. 07069 DRAWING NO. 48297

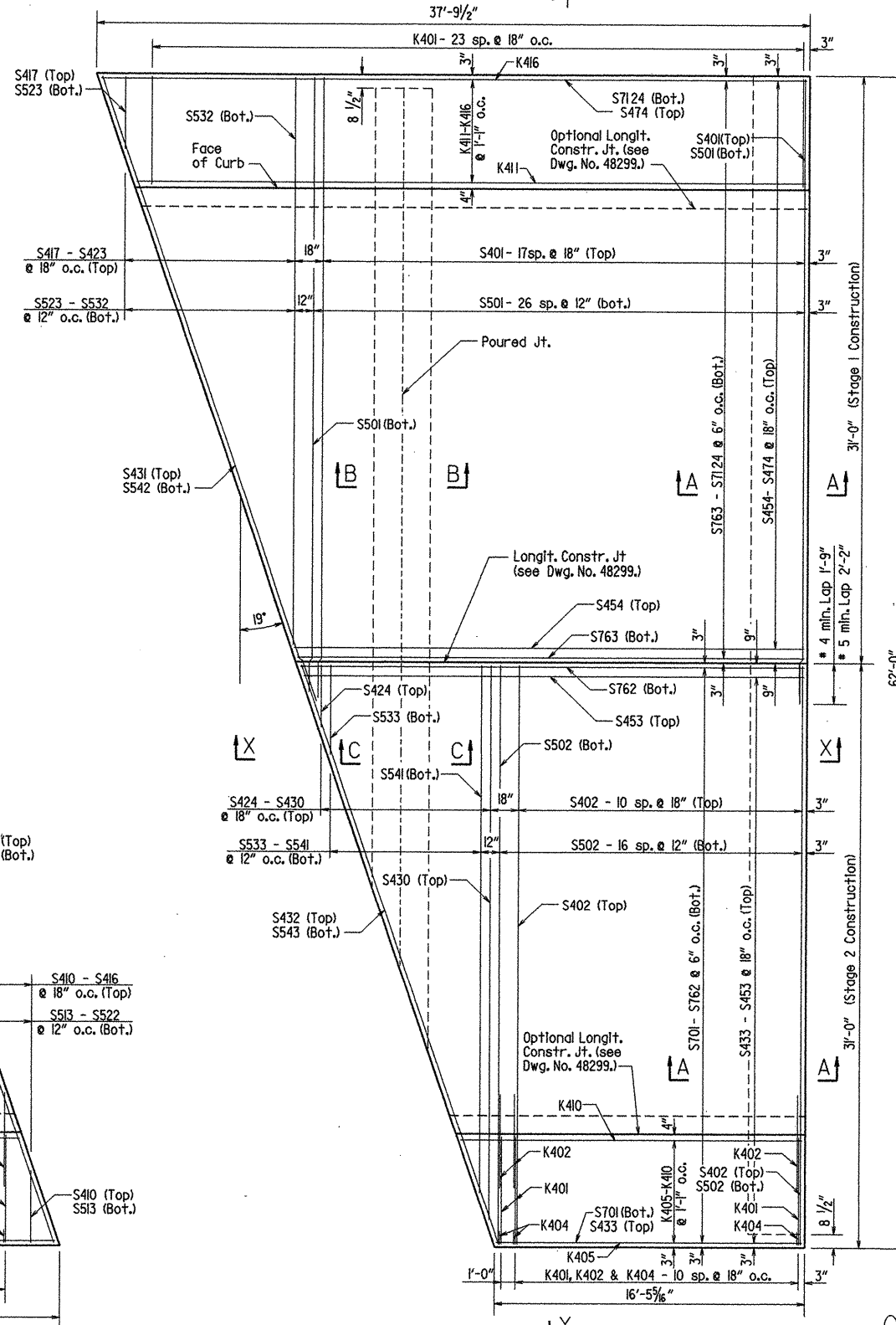


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110131	79	133
						07069 Approach Slab	48298	

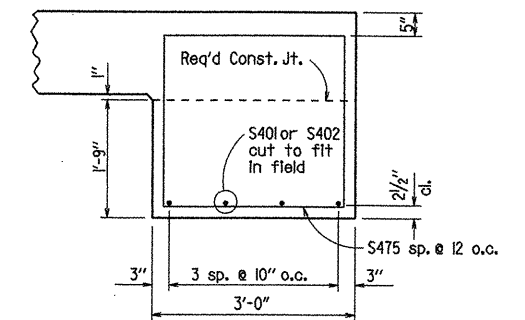


PLAN - (BEG. BR.)  
Scale: 1/4" = 1'-0"

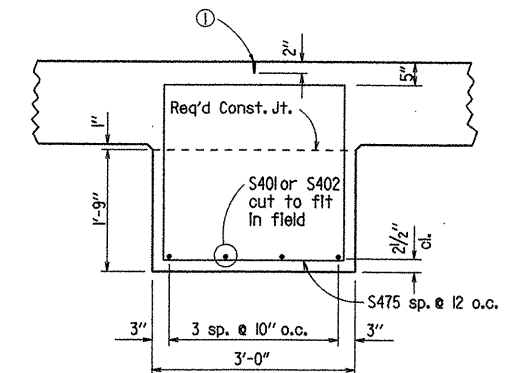
For Additional Details see Dwg. No. 48299.



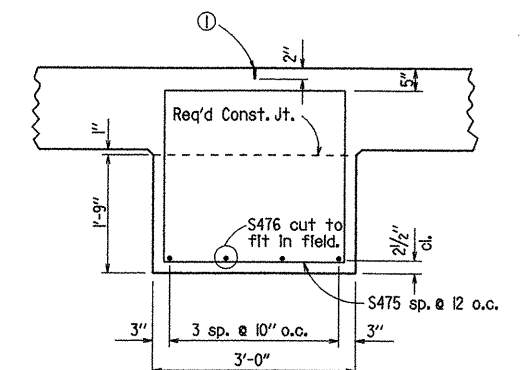
PLAN - (END BR.)  
Scale: 1/4" = 1'-0"



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



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



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

① 1/4" x 2" Poured Jt. Sealer (Type 3, 4 or 6) as per subsection 501.02 (h) (2) and 501.05 (J). Backer rod filler will not be required.

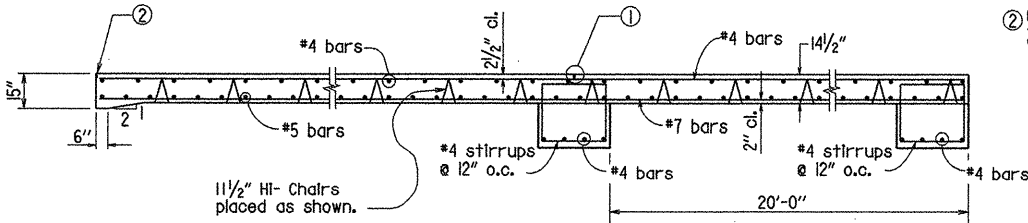


BRIDGE ENGINEER

SHEET 1 OF 2  
DETAILS OF TYPE SPECIAL  
APPROACH SLAB  
ROUTE SEC.  
ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARK.

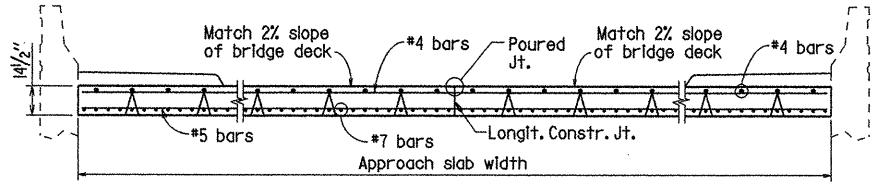
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CHECKED BY: DHP DATE: 12/13/05 SCALE: 1/4" = 1'-0"  
DESIGNED BY: Std. DATE: BRIDGE NO. 07069 DRAWING NO. 48298

Note: Top of approach slab shall be given a fine finish as specified for final finishing in subsection 802.19 for class 5 Tined Bridge Roadway Surface Finish.



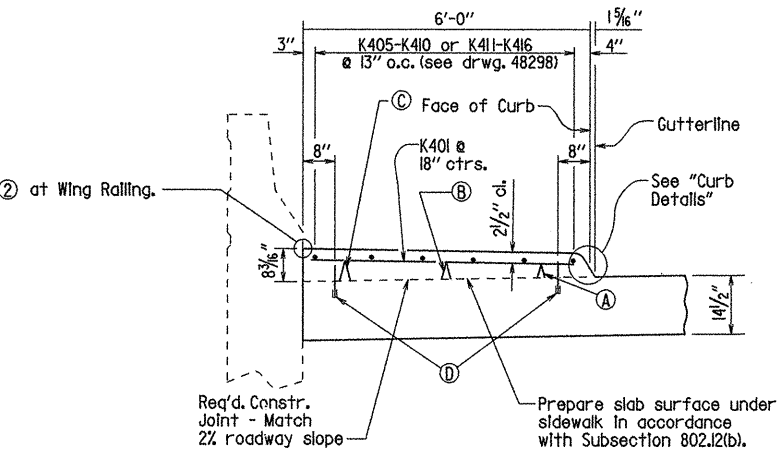
SECTION X-X

No Scale



SECTION Y-Y

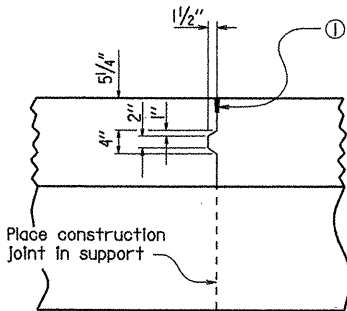
No Scale



STAGE 3 SIDEWALK DETAIL

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

- ① 3/4" HI-chairs at 3'-9" ctrs. long.  
② 4/4" HI-chairs at 3'-9" ctrs. long.  
③ 5/4" HI-chairs at 3'-9" ctrs. long.



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

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

① 1/4" x 2" Poured Jt. Sealer (Type 3, 4 or 6) as per subsection 501.02 (h) (2) and 501.05 (j). Backer rod filler will not be required.

② 1/2" x 2" Poured Jt. Sealer (Type 3, 4 or 6) as per subsection 501.02 (h) (2) and 501.05 (j). Backer rod filler will not be required.

GENERAL NOTES

Concrete shall be Class S (AE) (fc' = 4,000 psi).

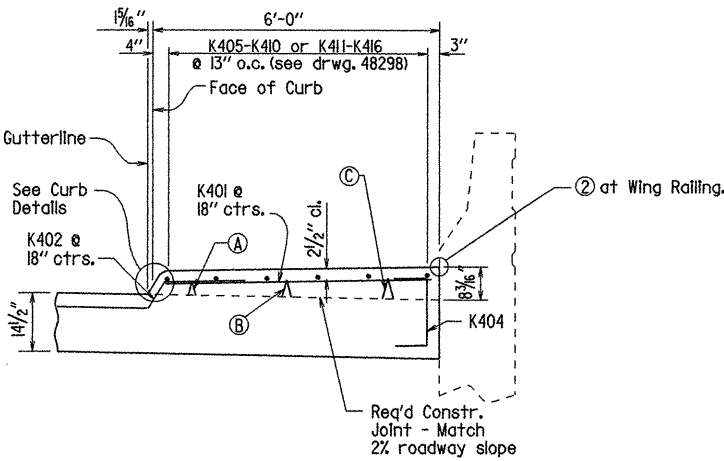
Reinforcement Steel shall conform to AASHTO M31 or M53, Grade 60 (fy = 60,000 psi).

Approach Slabs will be measured and paid for in accordance with Section 504.

Joint sealer Included in the pay item "Approach Slab".

For Approach Slab location see Layout.

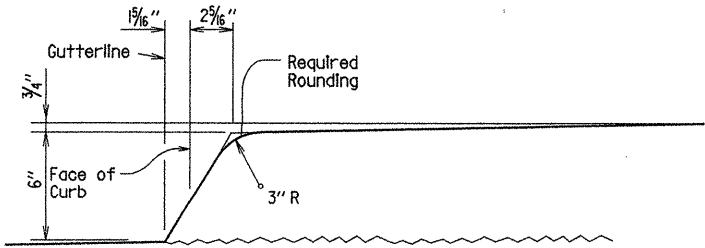
For additional details see Dwg. No. 48298.



STAGE 2 SIDEWALK DETAIL

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

- ① Dowel K403 bars 4" into slab at 2'-6" max. long. spacing using a polyester/epoxy resin system listed on the OPL. The diameter of the holes and the installation procedures shall be as recommended by the epoxy resin system manufacturer. The epoxy resin system selected shall develop the yield strength of the dowel bar. At the contractors option K402 & K404 bars may be deleted in stage 2 sidewalk and K403 bars doweled in as shown in stage 3 sidewalk detail. Payment will be based on K402 & K404 bars.



CURB DETAIL

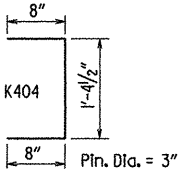
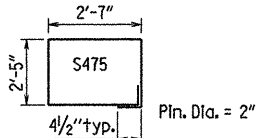
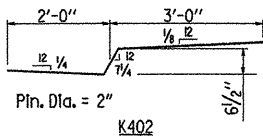
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110131	80	133

07069 Approach Slab 48299

BAR LIST

Mark	No. Req'd.	Length	BENDING DIAGRAMS
Beg. Br.	End Br.		
S401	15	26	32'-9"
S402	26	15	30'-8"
S403 -	1 EACH	----	5'-4" to
S409	1 EACH	----	3'-6"
S410 -	1 EACH	----	3'-9" to
S416	1 EACH	----	29'-11"
S417 -	1 EACH	----	3'-9" to
S423	1 EACH	----	29'-11"
S424 -	1 EACH	----	3'-3" to
S430	1 EACH	----	29'-5"
S431	1	1	34'-6"
S432	1	1	32'-5"
S433 -	1 EACH	1 EACH	16'-2" to
S453	1 EACH	1 EACH	26'-6"
S454 -	1 EACH	1 EACH	27'-0" to
S474	1 EACH	1 EACH	37'-4"
S475	103	103	10'-4"
S476	4	4	21'-3"
S501	17	27	33'-2"
S502	27	17	30'-8"
S503 -	1 EACH	----	4'-4" to
S512	1 EACH	----	30'-5"
S513 -	1 EACH	----	3'-9" to
S522	1 EACH	----	29'-11"
S523 -	1 EACH	----	3'-9" to
S532	1 EACH	----	29'-11"
S533 -	1 EACH	----	4'-9" to
S541	1 EACH	1 EACH	27'-11"
S542	1	1	34'-11"
S543	1	1	32'-5"
S701 -	1 EACH	1 EACH	16'-2" to
S762	1 EACH	1 EACH	26'-8"
S763 -	1 EACH	1 EACH	26'-10" to
S7124	1 EACH	1 EACH	37'-4"
K401	35	35	5'-8"
K402	24	11	5'-4"
K403	16	32	8"
K404	24	11	2'-6"
K405 -	1 EACH	1 EACH	16'-2" to
K410	1 EACH	1 EACH	18'-1"
K411 -	1 EACH	1 EACH	35'-5" to
K416	1 EACH	1 EACH	37'-4"



Dimensions are out to out of bar.

TABLE OF QUANTITIES FOR ONE APPROACH SLAB

Slab Width	Reinforcing Steel	Concrete (Cu. Yds.)
62 ft.	11730 lbs.	91.20

SHEET 2 OF 2  
DETAILS OF TYPE SPECIAL  
APPROACH SLAB

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

DRAWN BY: DDD DATE: 11-30-05 FILENAME: bl10131.os2.dgn  
CHECKED BY: DHP DATE: 12/13/05 SCALE: 1/4" = 1'-0"  
DESIGNED BY: STD. DATE:   
BRIDGE NO. 07069 DRAWING NO. 48299

