

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

**HORIZONTAL CURVE DATA**  
P.C. STA. = 52+56.289  
P.I. STA. = 87+42.098  
P.T. STA. = 120+24.073  
Delta = 33°50'20.11" Left  
D = 0°30'00.00"  
R = 11459.156'  
L = 6767.784'  
T = 3485.809'

**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  
SEISMIC PERFORMANCE CATEGORY: A  
METHOD OF DESIGN: Load Factor  
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) fy = 60,000 psi  
Structural Steel (AASHTO M270, Gr. 50W) Fy = 50,000 psi  
Structural Steel (AASHTO M270, Gr. 36) Fy = 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.

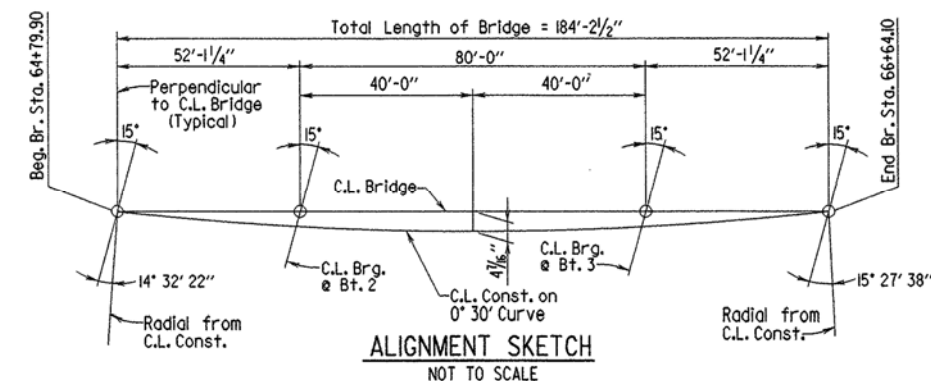
Preboring as approved by the Engineer may be required to achieve the minimum penetration. Any cost for preboring shall be included in the Items "Concrete Piling (18" SQ.)" and "Test Pile (18" SQ.)."

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

- See "ALIGNMENT SKETCH"
- Typ. both sides of bridge. For details of fence, see drwg. no. 46174.
- 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."
- Measured from Working Point at C.L. Bridge. See "Rounding Detail" on Drwg. No. 46170.

**VERTICAL CURVE DATA**  
1000' V.C.  
(Profile Grade located along C.L. Construction)▲  
PVI Sta. 66+00.00  
PVI Elev. 372.75  
2.988%  
-2.069%  
C.L. Bridge is the Profile Grade between Sta. 64+79.90 and Sta. 66+64.10

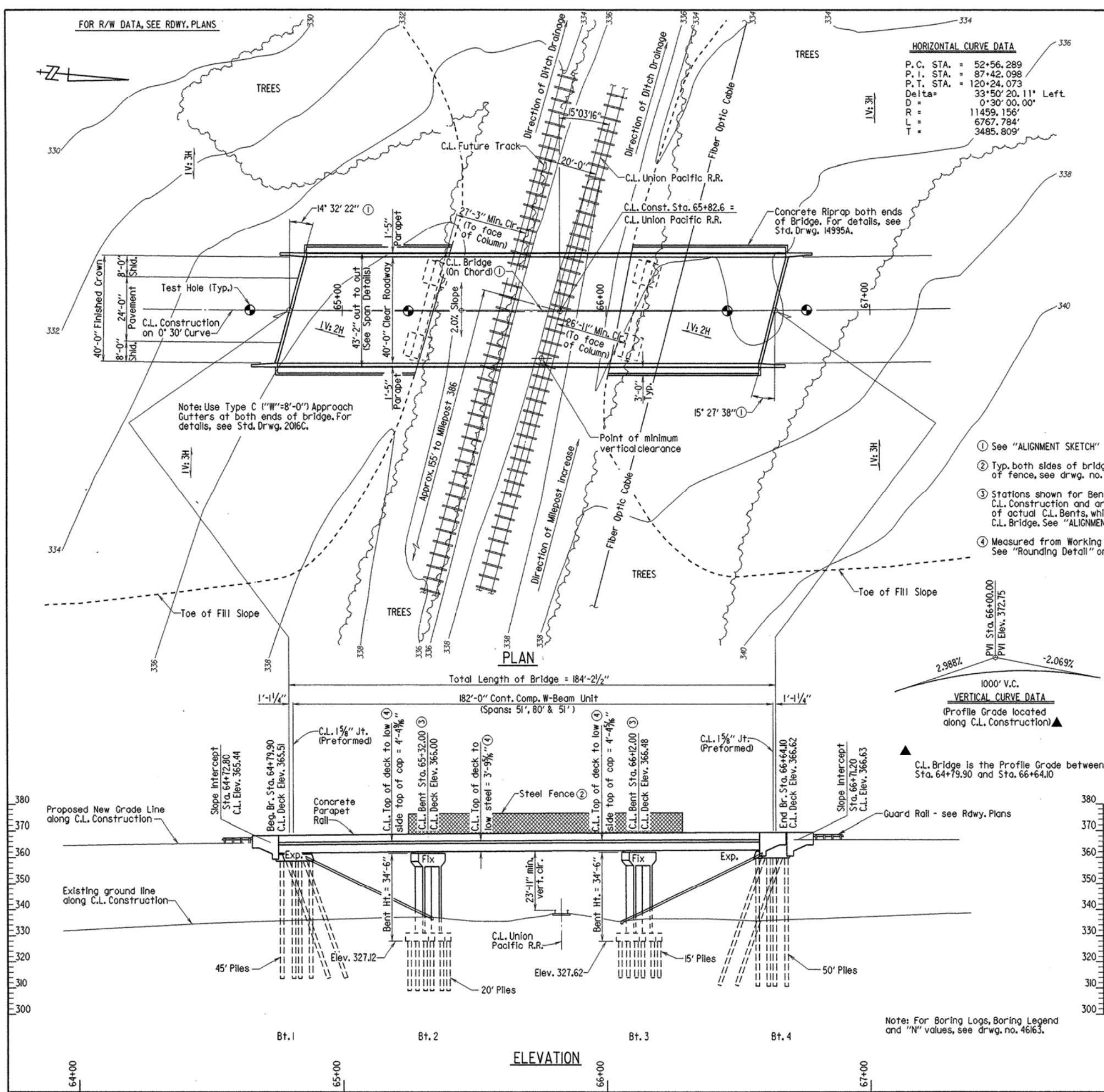


Note: C.L. Bridge is located along the chord of a 0°30' curve which extends from Beginning of Bridge to End of Bridge. All longitudinal lines of the bridge are parallel to this chord. Bridge length and span lengths are measured along C.L. Bridge.

**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.**

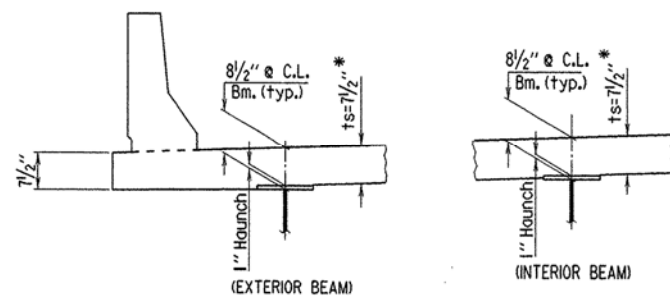


DRAWN BY: KMG DATE: 9 OCT 02 FILENAME: b060900.111  
CHECKED BY: JTB DATE: 8/19/03 SCALE: 1" = 20'  
DESIGNED BY: HNS DATE: 9/02  
BRIDGE NO. 06981 DRAWING NO. 46162



Note: For Boring Logs, Boring Legend and "N" values, see drwg. no. 46163.

Note: One #5 straight bar top and bottom may be substituted for bar S502E (#5 bars to be epoxy coated). Payment for reinforcing will be based on the weight of bar S502E. All bars designated with an "E" suffix are to be epoxy coated.



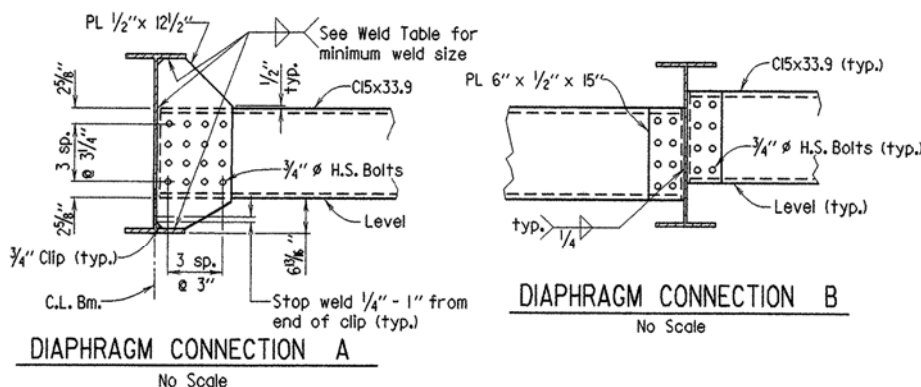
\* Tolerance when removable deck forming is used is  $+ \frac{1}{2}"$ ,  $- \frac{1}{4}"$ . Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

NOTES:

Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance: Minimum - Occurs when top flange contacts bottom reinforcing steel; Maximum - Top flange thickness plus  $1\frac{3}{4}$ ". No increase in concrete and structural steel quantities will be made to maintain tolerances.

See Std. Dwg. No. 14991 for tolerances for permanent steel deck forms.  
Payment for concrete shall be based on removable deck forming.

DETAIL "A"  
No Scale

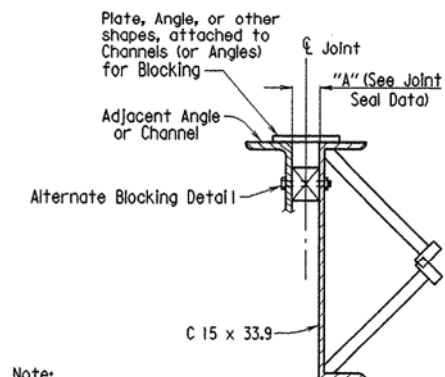


DIAPHRAGM CONNECTION B

Diagram illustrating a sag vertical curve. The curve is defined by a 2% slope and a level line. The horizontal distance from the start of the slope to the working point is 2'-7". The horizontal distance from the working point to the end of the slope is 2'-7". The vertical distance from the top of the roadway surface to the level line is 5/8".

NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL  
No Scale



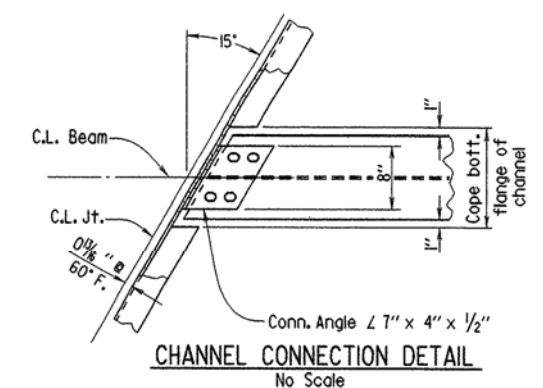
**Note:**

Each Expansion Joint device shall be blocked in the shop by the Fabricator to the dimension shown for 60°F. 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

EXPANSION DEVICE INSTALLATION AT END BENTS:

The concrete span pour adjacent to joint shall be placed before the end bent backwall concrete is placed. After beams 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 backwall concrete, the blocking shall be removed, the opening adjusted for temperature and grade, and the backwall constructed.



Note: For General Notes, see drwg. no. 46172.

SHEET 1 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

DRAWN BY: KMG DATE: 30 APR 03 FILENAME: b060900.s11  
 CHECKED BY: JAC DATE: 8-21-03 SCALE: As Shown  
 DESIGNED BY: SM DATE: 10/02  
 BRIDGE NO. 06981 DRAWING NO. 46170

STATE OF  
ARKANSAS  
REGISTERED  
PROFESSIONAL  
ENGINEER  
No. 4337  
9/9/03  
CHARLES P. BRAND

BRIDGE ENGINEER

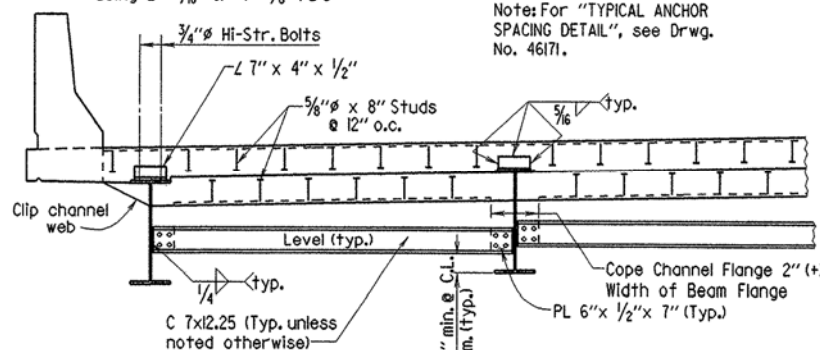
BRIDGE ENGINEER

Expansion Device:

Rdwy. C 15 x 33.9  
Conn. L's 7" x 4" x 1/2"  
5/8"Ø x 8" Studs @ 12" o.c.(Top & Bottom)  
Preformed Joint Sealer supported by 1" Plate

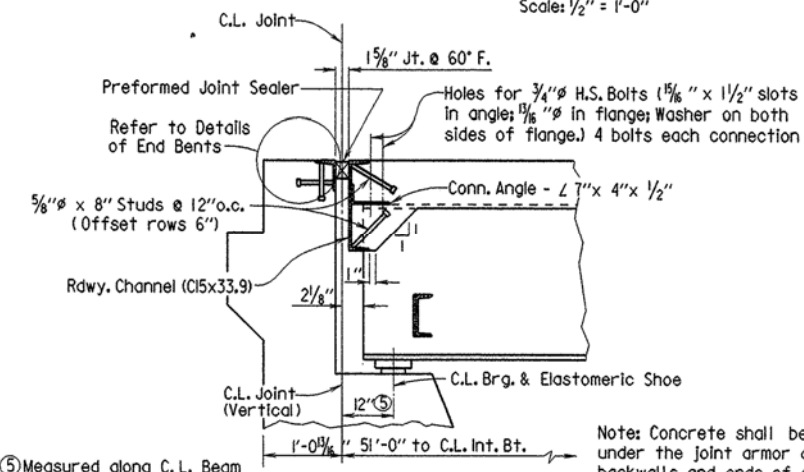
Note: Detail device  $\frac{1}{8}$ " high & provide  $\frac{1}{4}$ " Shims  
using 2 -  $\frac{1}{16}$ " & 1 -  $\frac{1}{8}$ " PL's

Note: For "TYPICAL ANCHOR  
SPACING DETAIL", see Drwg.  
No. 46171.



PART RDWY. SECTION AT END OF UNIT

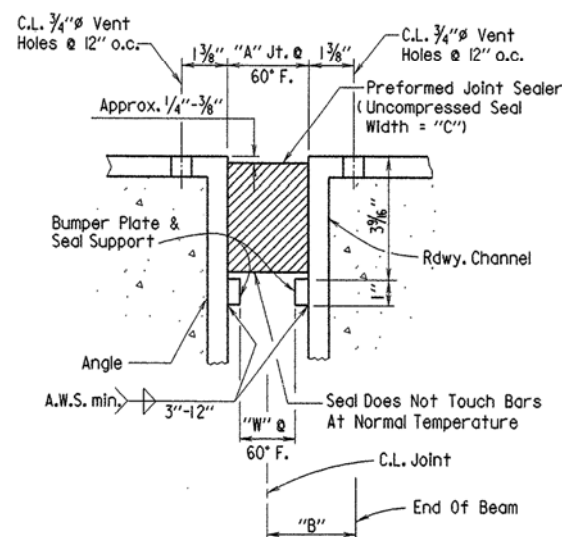
Scale:  $\frac{1}{2}'' = 1'-0''$



SECTION THRU JOINT AT END BENTS 1 &amp; 4

No Scale

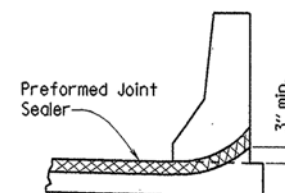
Note: Section is taken perpendicular to joint.



### DETAIL OF JOINT SEAL & SUPPORT

No Scale

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



### JOINT SEAL PLACEMENT AT CURB

No Scale

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				① 06981	LAYOUT			46163

## "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

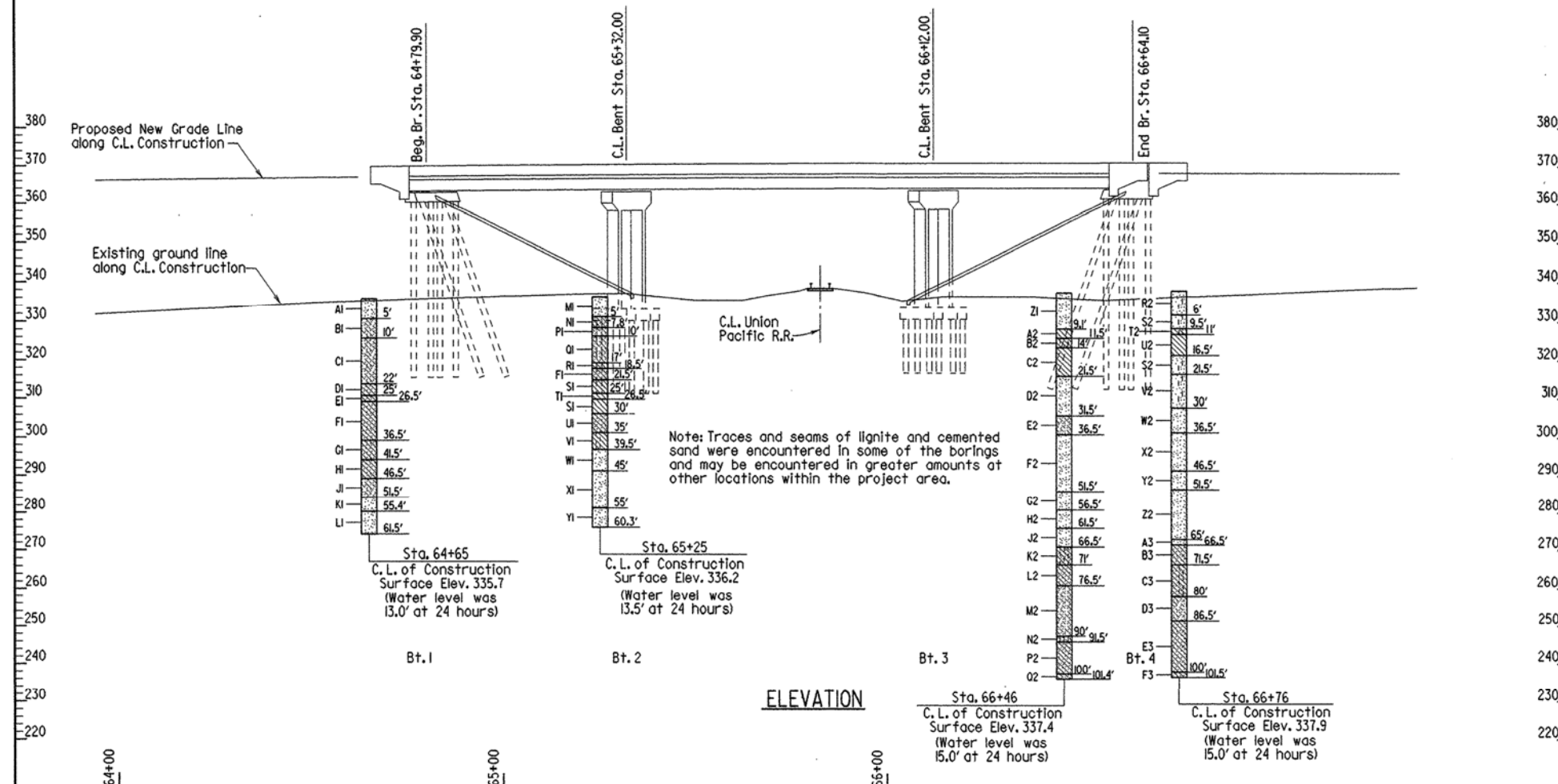
5.5- 6.5, N=7  
10.5- 11.5, N=24  
14.5- 15.5, N=26  
20.5- 21.5, N=22  
25.5- 26.5, N=47  
30.5- 31.5, N=36  
35.5- 36.5, N=14  
40.5- 41.5, N=53  
45.5- 46.5, N=19  
50.5- 51.5, N=26  
55.5- 56.5, N=77  
60.5- 61.5, N=37  
65.5- 66.5, N=23  
70.5- 71.5, N=9  
75.5- 76.5, N=26  
80.5- 81.5, N=53  
85.5- 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

## BORING LEGEND

AI-Moist, Medium Dense, Brown Sand  
BI-Moist, Medium Dense, Brown Sand with Clay Seams  
CI-Moist, Medium Dense, Brown and Gray Clayey Sand  
DI-Moist, Hard, Gray Sandy Clay with Traces of Organic Matter  
EI-Moist, Hard, Gray Sandy Clay with some Organic Matter  
FI-Moist, Hard, Gray Sandy Clay  
GI-Moist, Hard, Brown Sandy Clay  
HI-Moist, Hard, Reddish Brown and Gray Clay with Sand Seams  
JI-Moist, Very Dense, Brown and Gray Sand with Clay Seams  
KI-Wet, Very Dense, Brown to Gray and Brown Sand  
LI-Wet, Very Dense, Gray Sand with some Clay Seams  
MI-Moist, Loose, Brown Sand with Traces of Gravel  
NI-Moist, Very Stiff, Brown Sandy Clay with Traces of Gravel  
PI-Moist, Medium Dense, Brown Clayey Sand  
OI-Moist, Medium Dense, Gray and Brown Clayey Sand  
RI-Moist, Hard, Gray Clay with some Sand Seams  
SI-Moist, Hard, Gray Clay  
TI-Moist, Hard, Gray Clay with some Lignite  
UI-Moist, Very Hard, Gray to Brown Sandy Clay with some Organic Matter  
VI-Moist, Hard, Brown Silty Clay with some Cemented Sand  
WI-Moist, Very Dense, Reddish Brown Sand  
XI-Wet, Very Dense, Gray and Brown Sand  
YI-Wet, Very Dense, Gray Sand  
ZI-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



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  
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