



Bridge #05861 (Routine)
US 278 - 04 - 1.33 over SH 27 & UPRR
Location: .5 MI E OF NASHVILLE

Team Lead: John King Inspection Date: August 04, 2020



Latitude:33.93164, Longitude:-93.83459

Route:278 Section:04 Log:1.33

Arnold Road ID:31x278x4xA, Arnold Log mile:1.282

District 03, Howard County

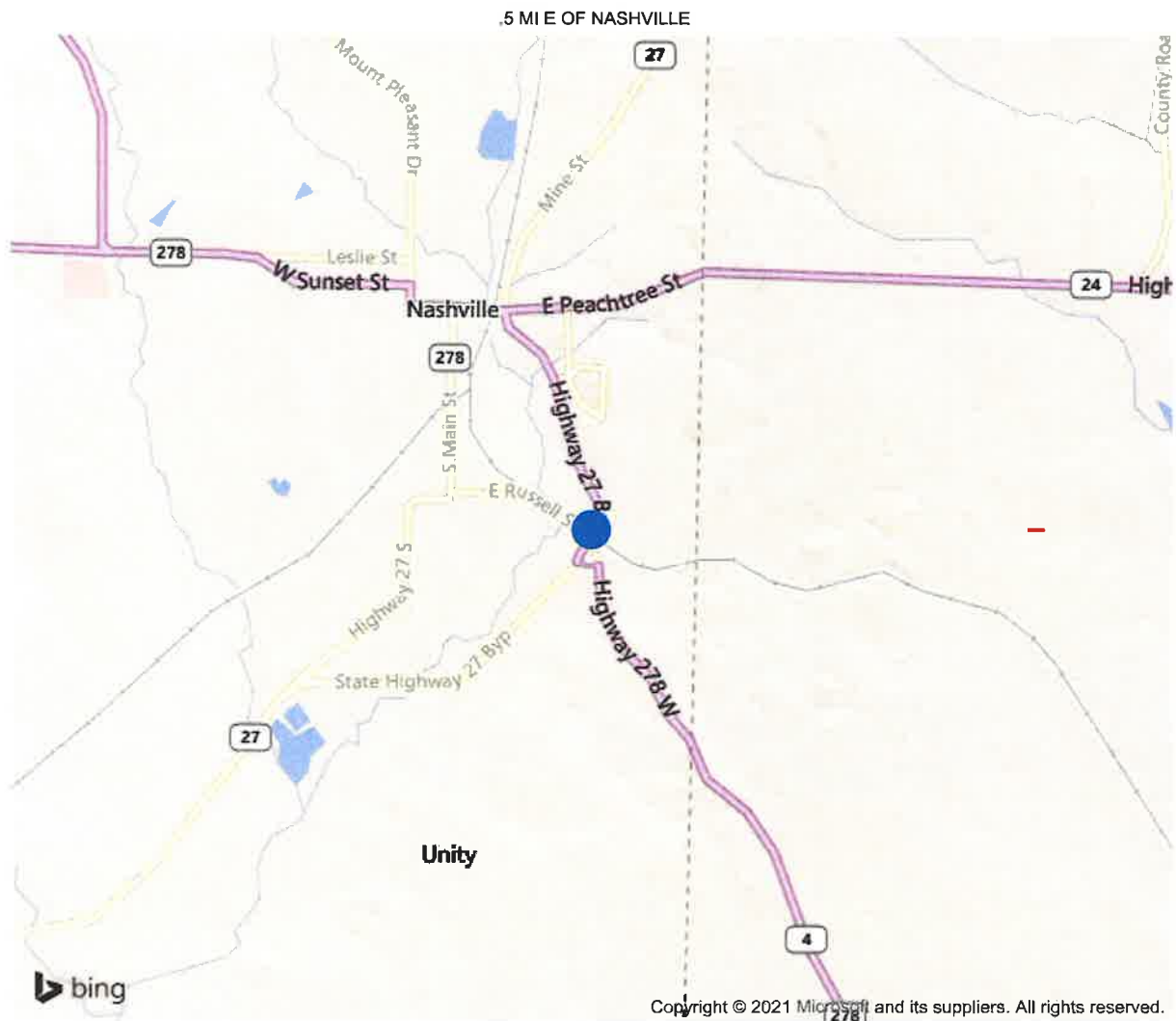
Owner: 1-State Highway Agency

Built on Job # 03797
Drawing # 23362



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33.93164, -93.83459



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IDENTIFICATION	
(1) State Names	Arkansas
(8) Structure Number	05861
(5) Inventory Route	278
(2) Highway Agency District	03
(3) County Code	61-Howard County, Arkansas
(4) Place Code	0
(6) Features Intersected	SH 27 & UPRR
(7) Facility Carried	US 278 - 04 - 1.33
(9) Location	.5 MI E OF NASHVILLE
(11) Mile Point	1.33 mi
(12) Base Highway Network	No
(13) LRS Inventory Rte & Subrte	0000000000
(16) Latitude	33.931641
(17) Longitude	-93.834587
(98) Border Bridge State Code	
(99) Border Bridge Structure No.	
STRUCTURE TYPE AND MATERIAL	
(43) Main Structure Type	42
Material	4-Steel continuous
Type	2-Stringer/Multi-beam or girder
(44) Approach Structure Type	32
Material	3-Steel
Type	2-Stringer/Multi-beam or girder
(45) No. of Spans in Main Unit	2
(46) No. of Approach Spans	2
(107) Deck Structure Type	1-Concrete Cast-in-Place
(108) Wearing Surface/Protective System	
Type of Wearing Surface	1-Monolithic Concrete (concurrently placed
Type of Membrane	0-None
Type of Deck Protection	0-None
AGE AND SERVICE	
(27) Year Built	1980
(106) Year Reconstructed	0
(42) Type of Service	14
On	1-Highway
Under	4-Highway-railroad
(28) Lane	
On	2
Under	2
(29) Average Daily Traffic	4600
(30) Year of ADT	2014
(109) Truck ADT	1 %
(19) Bypass, Detour Length	3 mi
GEOMETRIC DATA	
(48) Length of Maximum Span	90 ft
(49) Structure Length	261 ft
(50) Curb or Sidewalk Width	
Left	0 ft
Right	0 ft
(51) Bridge Roadway Width Curb to Curb	44 ft
(52) Deck Width Out to Out	47.1 ft
(32) Approach Roadway Width (W/Shoulders)	44.9 ft
(33) Bridge Median	0-No median
(34) Skew	0 Deg
(35) Structure Flared	No flare
(10) Inventory Route Min Vert Clear	99.99 ft
(47) Inventory Route Total Horiz Clear	45.3 ft
(53) Min Vert Clear Over Bridge Rdwy	99.99 ft
(54) Min Vert Underclear	19.08 ft
Ref:	
(55) Min Lat Underclear RT	32.8 ft
Ref:	
(56) Min Lat Underclear LT	23.4 ft
NAVIGATION DATA	
(38) Navigation Control	N-Not applicable, no waterway.
(111) Pier Protection	5-None present but re-evaluation
(39) Navigation Vertical Clearance	0 ft
(116) Vert-Lift Bridge Nav Min Vert Clear	0 ft
(40) Navigation Horizontal Clearance	0 ft

CLASSIFICATION	
(112) NBIS Bridge Length	Y
(104) Highway System	0
(26) Functional Class	6-Rural Minor Arterial
(100) Defense Highway	0-The inventory route is not a S
(101) Parallel Structure	N-No parallel structure exists.
(102) Direction of Traffic	2 - way traffic
(103) Temporary Structure	
(105) Federal Lands Highways	0-N/A
(110) Designated National Network	0-The inventory route is not part of
(20) Toll	3-On free road. The structure is toll-
(21) Maintain	1-State Highway Agency
(22) Owner	1-State Highway Agency
(37) Historical Significance	5-Bridge is not eligible for the NRHP
CONDITION	
(58) Deck	7
(59) Superstructure	7
(60) Substructure	7
(61) Channel & Channel Protection	N
(62) Culverts	N
LOAD RATING AND POSTING	
(31) Design Load	5-MS 18 / HS 20
(63) Operating Rating Method	1
(64) Operating Rating	
Type	1-Load Factor(LF)
Rating	51
(65) Inventory Rating Method	1-Load Factor(LF)
(66) Inventory Rating	
Type	2
Rating	31
(70) Bridge Posting	5-Equal to or above legal loads
(41) Structure Open/Posted/Closed	A-Open, no restriction
APPRAISAL	
(67) Structural Evaluation	7
(68) Deck Geometry	7
(69) Clearances, Vertical/Horizontal	9
(71) Waterway Adequacy	N
(72) Approach Roadway Alignment	7
(36A) Bridge Railings	1-Inspected feature meets currently a
(36B) Transitions	1-Inspected feature meets currently a
(36C) Approach Guardrail	1-Inspected feature meets currently a
(36D) Approach Guardrail Ends	1-Inspected feature meets currently a
(113) Scour Critical Bridges	N-Bridge not over waterway.
PROPOSED IMPROVEMENTS	
(75) Type of Work	
(76) Length of Structure Improvement	0 ft
(94) Bridge Improvement Cost	\$ 0
(95) Roadway Improvement Cost	\$ 0
(96) Total Project Cost	\$ 0
(97) Year of Improvement Cost Estimate	0
(114) Future ADT	5307
(115) Year of Future ADT	2027
INSPECTIONS	
(90) Inspection Date	08/2020
(91) Frequency	24 Months
(92) Critical Feature Inspection	Done Freq. (Mon) Date
A: Fracture Critical Detail	No
B: Underwater Inspection	No
C: Other Special Inspection	No



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ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
12	Reinforced Concrete Deck	SF	12173	11948	225	0	0
1080	Delamination/Spall/Patched Area	SF	25	0	25	0	0
1130	Cracking (RC and Other)	SF	200	0	200	0	0
107	Steel Open Girder/Beam	LF	1566	1566	0	0	0
515	Steel Protective Coating	SF	17331	17167	0	164	0
3420	Peeling/Bubbling/Cracking	SF	164	0	0	164	0
205	Reinforced Concrete Column	EA	6	5	1	0	0
1090	Exposed Rebar	EA	1	0	1	0	0
234	Reinforced Concrete Pier Cap	LF	176	175	1	0	0
1010	Cracking	LF	1	0	1	0	0
301	Pourable Joint Seal	LF	176	173	0	3	0
2330	Seal Damage	LF	3	0	0	3	0
310	Elastomeric Bearing	EA	18	18	0	0	0
313	Fixed Bearing	EA	24	24	0	0	0
321	Reinforced Concrete Approach Slab	SF	2820	2790	30	0	0
1130	Cracking (RC and Other)	SF	30	0	30	0	0
331	Reinforced Concrete Bridge Railing	LF	518	518	0	0	0



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Bent 4 small crack in cap and some patch work done...



Joint 2 small hole in material....



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Alignment



Alignment



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Deck Shot



Side Shot



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Underside of deck typical all spans



Beams sand blasted per 8/4/2020 inspection. Not painted....



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Deck typical all spans



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Maintenance Needs

Date Reported: 08/06/2020
Priority: G - General/ Preventive maintenance
Type of Work: Clean
Status: Open
Component: 515 - 107 - Steel Open Girder/Beam

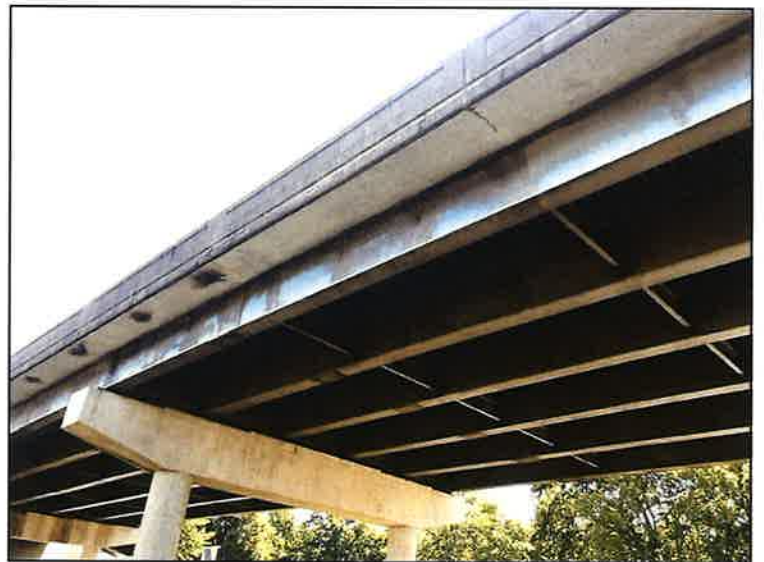
Deficiency Description

Paint not sticking to out side beams right and left side of bridge...
-BEAMS AND BEARINGS WERE PAINTED 04/2013 BY HEAVY BRIDGE MAINTENANCE

Remarks



Paint on out side beams....



Paint not sticking to out side beams right and left side of bridge...



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Inspection Comments

08/04/2020 AL, SS, PHOTO TAKEN LITTLE TO NO CHANGE... CHANGE ELEMENTS FROM APPROACH AND MAIN TO ALL MAIN SPAN, DUE TO ALL STEEL BEAMS UNDER BRIDGE....

Deck Notes

BRIDGE DECK HAS WHAT APPEARS TO BE FOOT PRINTS THAT WERE PATCHED AND

NOW ARE SPALLING OUT.---

NEW JOINT SEALS @ BENTS #2 & #4 ON CONTRACT JOB IN 2004.----

SEAL HAS A SMALL HOLE AT BENT 2 JUST RIGHT OF CENTER LINE 8/2016

LARGE LONGITUDINAL CRACK IN SLAB AT END BENT #5.---

DECK PANS IN SPAN 3 OR BENT OR DEFORMED FROM WHERE CONCRETE WAS POURED...BRIDGE BUILT ON JOB # 03797 DRAWING # 23362...8/8/2018...AL, SS, Deck photos taken. Little or no change in condition. No change in clearances...

Superstructure Notes

2 SPAN PLATE GIRDER & 2 SPAN STEEL MULTI. BEAM.---BEAMS AND BEARINGS WERE PAINTED 04/2013 BY HEAVY BRIDGE MAINTENANCE....PAINT ON BOTTOM FLANGE OUT SIDE BEAMS STARTING TO FLAKE OFF PER 8/2016 INSPECTION SEE PHOTO IN 2016 INSP.

Substructure Notes

PER PLANS BENTS 1 & 5 HAVE PILES... BENTS 2-4 HAVE FOOTINGS WITH PILES UNDER FOOTINGS. SEE DRAWINGS #23362.....SMALL SPALL ON COL #1 AT BT 2 W/REBAR EXPOSED ---BENT 4 CAP SOME CRACKING ON BOTTOM OF CAP AT COLUMN 2(LEFT SIDE CAP)....

GENERAL NOTES

BENCH MARK: N.I.S., 10" BIRCH 15' RT. CENTERLINE STA. 50+86, ELEV. 329.16.

ALL CONCRETE SHALL BE POURED IN THE DRY.

ALL PILING SHALL BE HPIX 42 AND SHALL BE DRIVEN WITH AN APPROVED AIR, STEAM, OR DIESEL HAMMER TO A MINIMUM BEARING CAPACITY OF 55 TONS PER PILE AND TO A MINIMUM PENETRATION OF 12 FT. BELOW THE GROUND LINE. LENGTHS OF PILING SHOWN ARE ASSUMED FOR ESTIMATING QUANTITIES ONLY. ACTUAL LENGTHS TO BE DETERMINED IN THE FIELD. DRIVE ONE 35 FT. TEST PILE IN BENTS 4 AND 7, AND ONE 28 FT. TEST PILE IN BENT 2.

FOR DETAILS OF BENTS, SEE DWG. NO. 23359

FOR DETAILS OF 35' R.C. SLAB SPANS, SEE DWG. NO. 23360

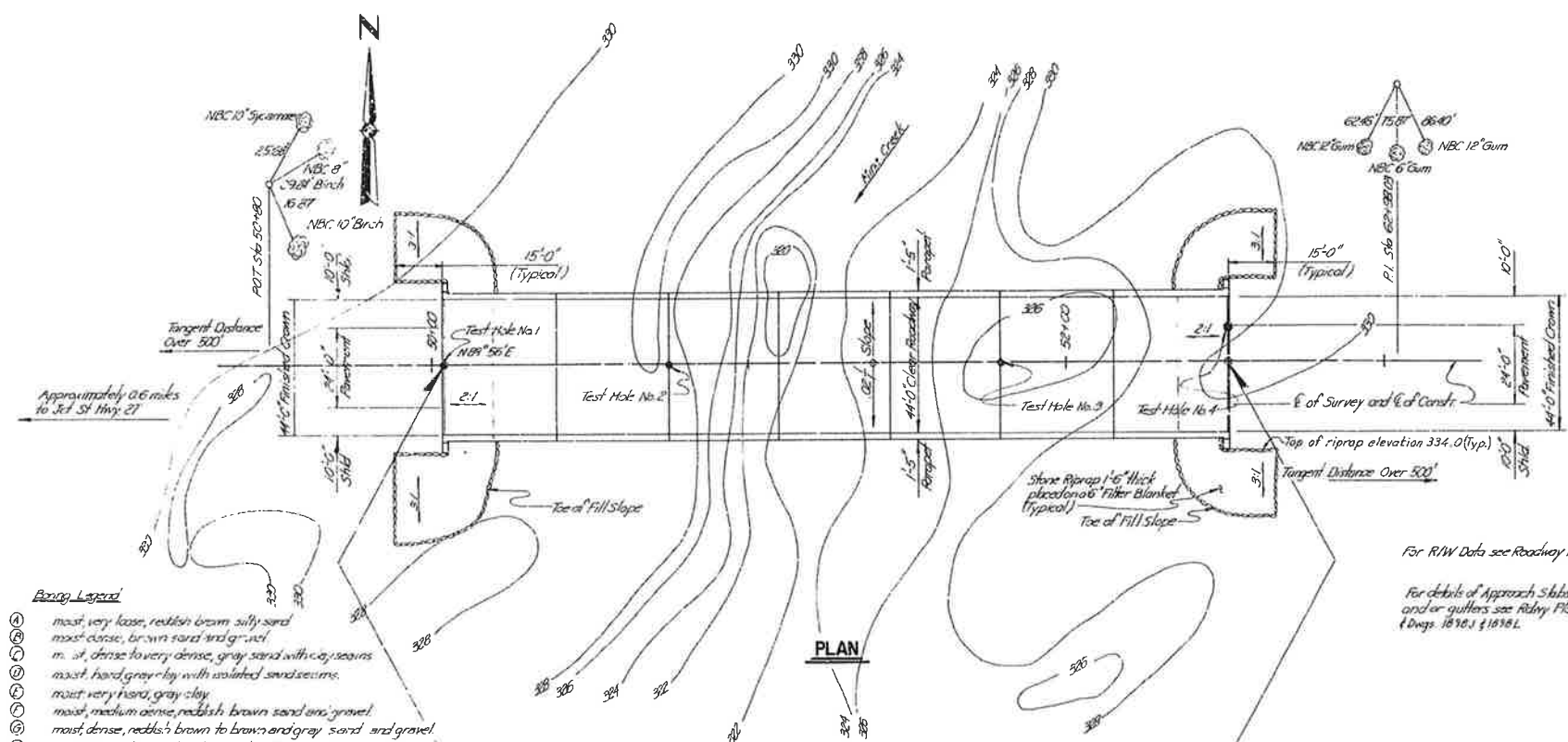
SPECIFICATIONS: ARKANSAS STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 1978, AND APPLICABLE SPECIAL PROVISIONS.

DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 1977 EDITION WITH 1978 INTERIM.

LIVE LOADING: HS20

METHOD OF DESIGN: LOAD FACTOR

UNIT STRESSES: P_c = COMPRESSIVE STRENGTH OF CLASS "S" OR "SAE" CONCRETE = 3500 PSI. CONGR. ETE. USED IN SUPERSTRUCTURE SHALL BE CLASS "SAE". CONCRETE USED IN SUBSTRUCTURE SHALL BE CLASS "S". f_y = YIELD STRENGTH OF REINFORCING STEEL = 60,000 PSI.



- Bridge Layers**
- ① most, very loose, reddish brown, silty sand
 - ② most, dense, brown sand and gravel
 - ③ m. st. dense to very dense, gray sand with clay seams
 - ④ moist, hard gray clay with isolated sand seams
 - ⑤ moist, very hard, gray clay
 - ⑥ moist, medium dense, reddish brown sand and gravel
 - ⑦ moist, dense, reddish brown to brown and gray sand and gravel
 - ⑧ moist, hard to very hard, gray clay with sand seams
 - ⑨ moist, hard, gray clay with some sand seams and lignite
 - ⑩ wet, loose, brown silty sand
 - ⑪ wet, medium dense, brown sand and gravel
 - ⑫ wet, very loose to loose brown sandy gravel
 - ⑬ wet, loose brown gravel
 - ⑭ wet, dense, gray, silty sand
 - ⑮ moist, hard, gray clay with some gravel
 - ⑯ moist, hard, gray clay with some sand seams
 - ⑰ moist, very loose, brown sand

- ① wet, medium dense, brown and gray sand and gravel
- ② moist, dense, gray, silty sand
- ③ moist to wet, stiff, gray sandy clay

* Encountered isolated sand cementation in the clay from 25' to 40.5' test hole no. 3 and from 27' to 40.5' test hole no. 4

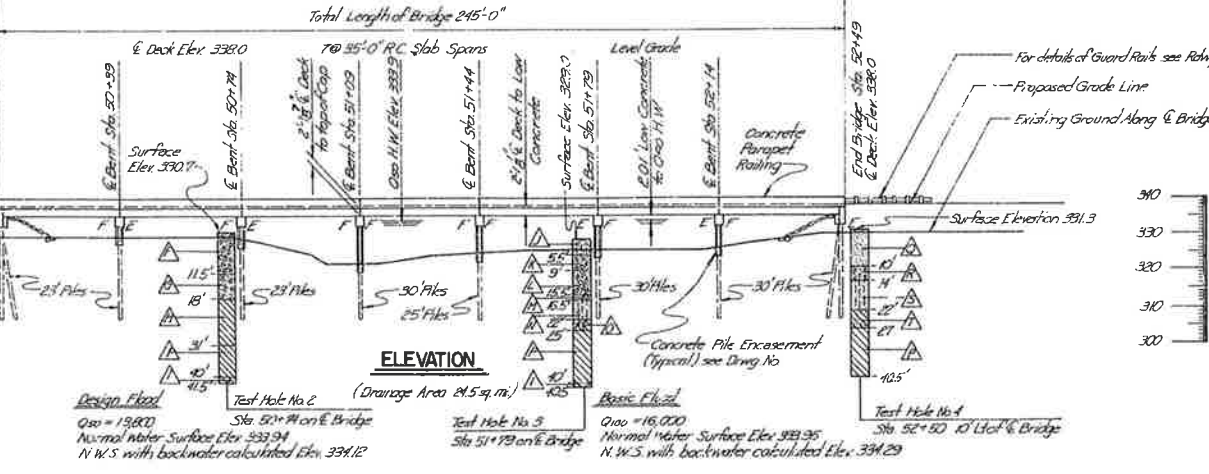
* Encountered a cemented sand seam from 14' to 14.2' test hole no. 4

Test Hole No. 1
5'-6.5' N=2
11'-11.5' N=33
15'-15.5' N=51
20'-21.5' N=33
35'-35.5' N=150

Test Hole No. 2
5.5'-7' N=16
10'-11.5' N=21
15'-16.5' N=20
25'-26.5' N=32

Test Hole No. 3
4'-5.5' N=16
9'-10.5' N=4
14'-15.5' N=10
19'-20.5' N=32

Test Hole No. 4
4'-5.5' N=16
9'-10.5' N=16
14.5'-16' N=38
19'-20.5' N=34



△ Revised vertical Bridge dimensions on Elevation view, by J.P.S. date 12-22-80 checked by D.V. date 12-22-80.

LAYOUT OF BRIDGE OVER MINE CREEK HWY. 4 & 27 RELOCATION (NASHVILLE) HOWARD COUNTY

ROUTE 4827 SEC. 482
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DESIGNED BY: *W.H.D.* DATE: 4-23-79
CHECKED BY: *B.R.D.* DATE: 6-22-79
SCALE: 1" = 20' - 0"

BRIDGE NO. 5859 DRAWING NO. 23358

↑
B.C.#

METHOD OF DESIGN: LOAD FACTOR

700' Vertical Curve
Transition: Transition deck crown slope thru 300' beginning at sta. 115+63.1 and ending at sta. 118+63.1. Start crown of 0.02% down to the left and right of $\frac{1}{2}$ and end crown at 0.074% up to the right of left edge of 12' lane. See dwg. ST-1 for graphic description and method of rotation.

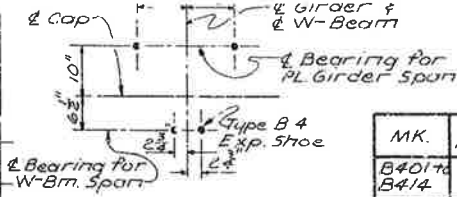
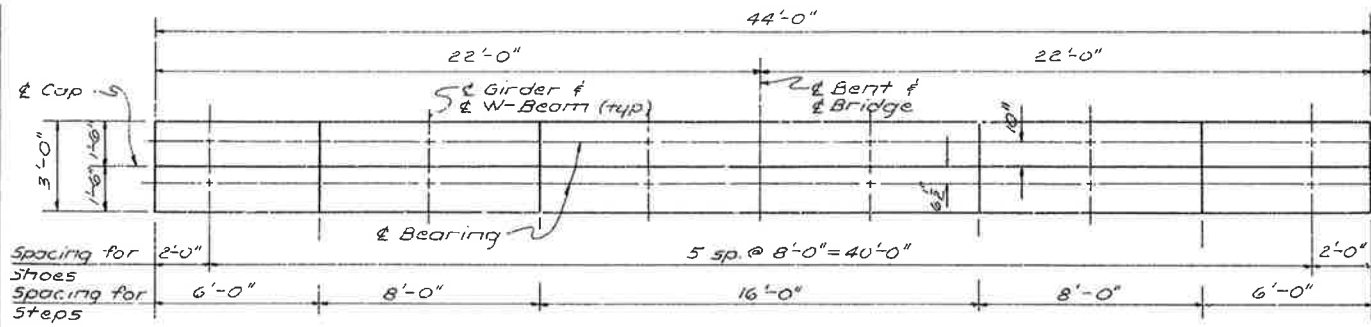
$P.I. = 123 + 57.4$
 $\Delta = 81^{\circ} 36' \text{ Lt.}$
 $D = 6^{\circ} 00'$

Test Table No. 1

2-3.5 N = 42	15-15.5 N = 60+
4-5.5 N = 60+	20-21.5 N = 60+
6-7.5 N = 31	25-25.5 N = 60+
8-9.5 N = 29	30-31 N = 60+
11.5-13 N = 22	35-36 N = 60+








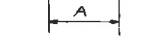

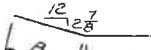




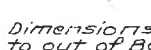
20-21.5 N = 6

ROUTE 4827 SEC. 4 & 2
ARKANSAS STATE HIGHWAY COMMISSION



ANCHOR BOLT LAYOUT

Scale: $\frac{3}{4}'' = 1'-0''$
 Note: Shoe Details for PL
 Girder Splice see dwg. no. 23375.
 For Type B4 Exp. Shoz.
 Details see dwg. no. 14990F.

BAR LIS'						Bending Diagrams	
MK.	No Req'd.	Length	A	B	Pin Dia.		
B401 to B414	2 ea	10'-2" to 13'-3"	2'-8"	1'-11 3/4" to 3'-6 3/4"	2"		
B415	32	13'-6"	2'-8"	3'-8"	2"		
B416	32	6'-10"	1'-2"	2'-10 3/4"	2"		
B417	2	3'-8"			5 tr.		
B418	8	22'-8"			5 tr.		
B419	2	37'-5"			5 tr.		
B420	6	9'-10"	2'-8"	3'-8"	2"		
B801	8	43'-8"			5 tr.		
B802	4	29'-6"			5 tr.		
B803	5	44'-0"	29'-5 1/2"	7'-3 3/4"	6"		
C401	54	9'-10"	2'-7"	1'-8"	circle		
C801	20	26'-10"			5 tr.		
C802	20	6'-10"	5'-9"	1'-4"	6"		
F601	34	5'-6"			5 tr.		
F801	22	8'-6"			5 tr.		

GENERAL NOTES

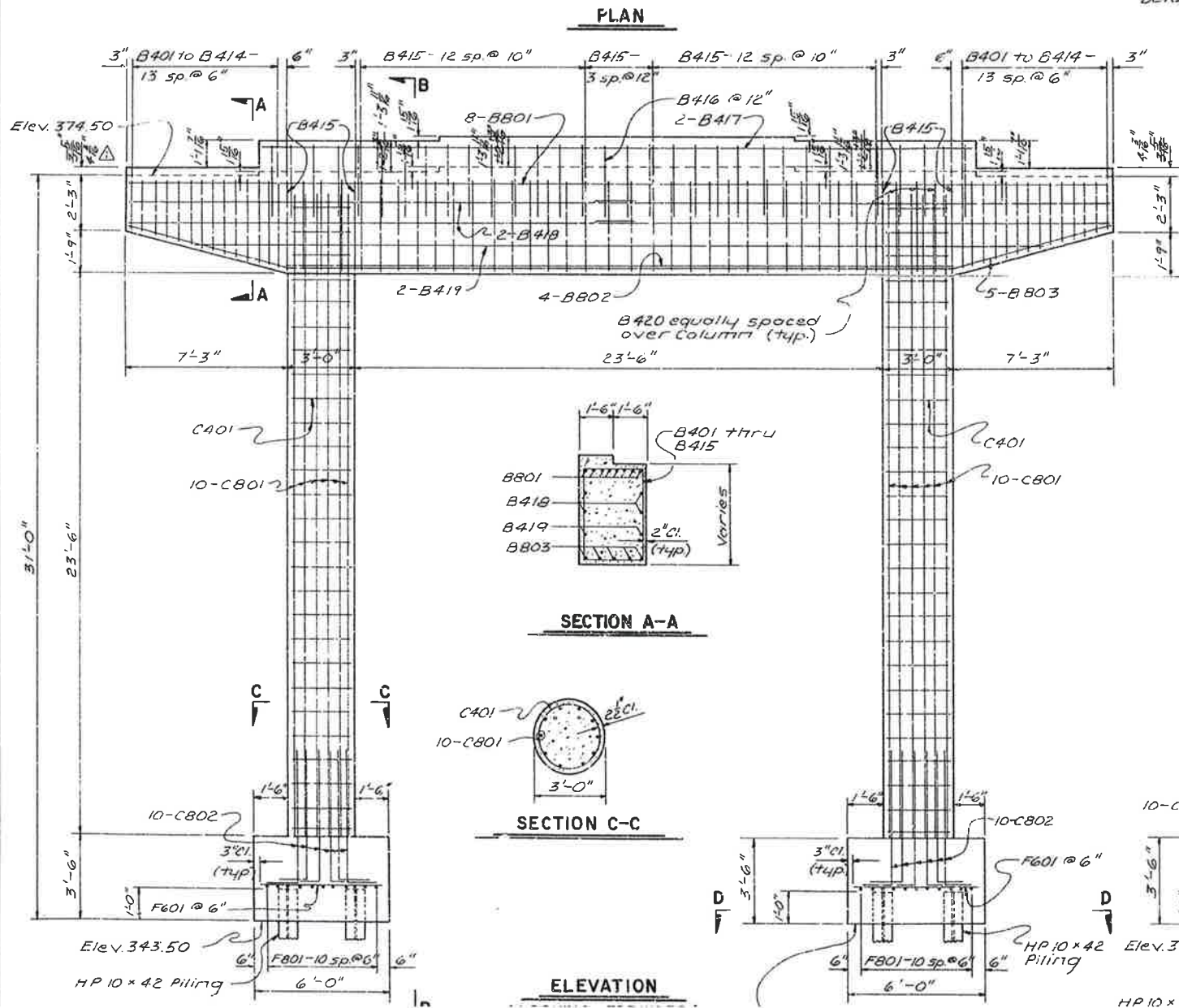
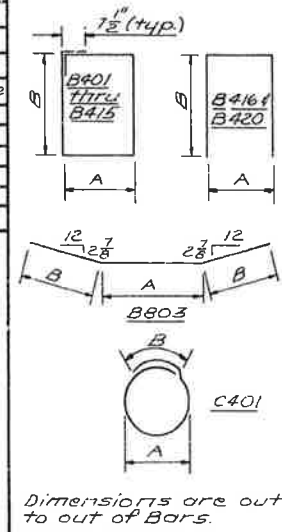
ALL CONCRETE SHALL BE CLASS S AND SHALL BE POURED IN THE DRY. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4" UNLESS OTHERWISE NOTED.

REINFORCING STEEL SHALL BE ASTM A615 OR A617, GRADE 60.

FOR ADDITIONAL NOTES, SEE LAYOUT.

PILING SHALL BE HP 10 X 42.

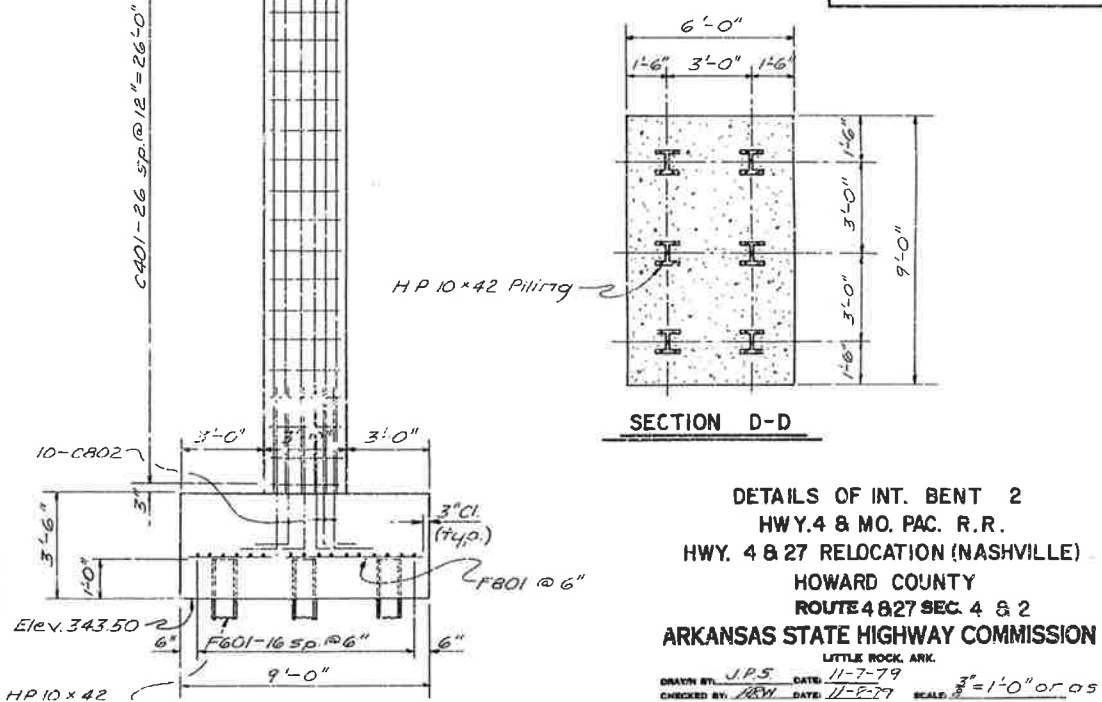
⚠ Revised vertical dimensions
on Cap; by J.P.S.; 1-16-81



SECTION A-A

SECTION C-C

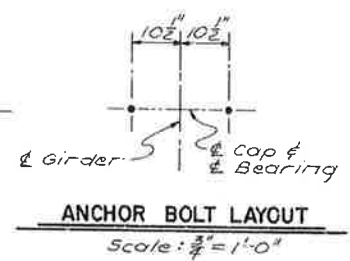
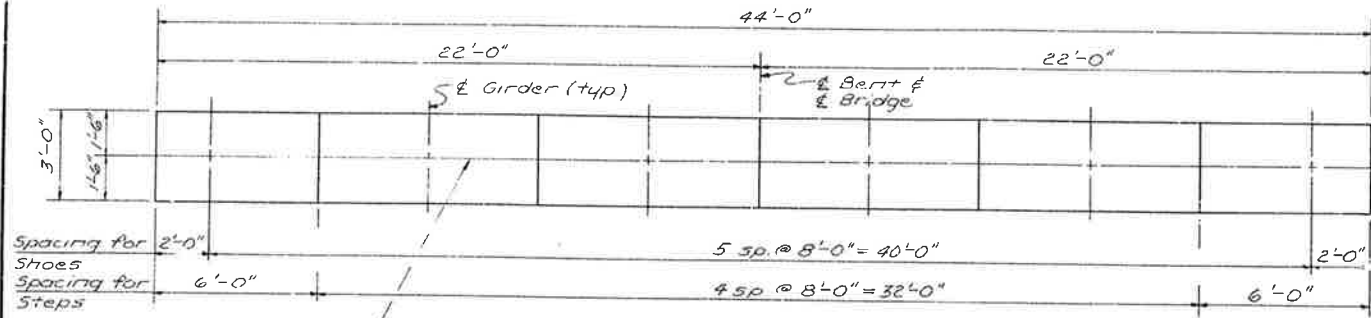
ELEVATION



SECTION D-D

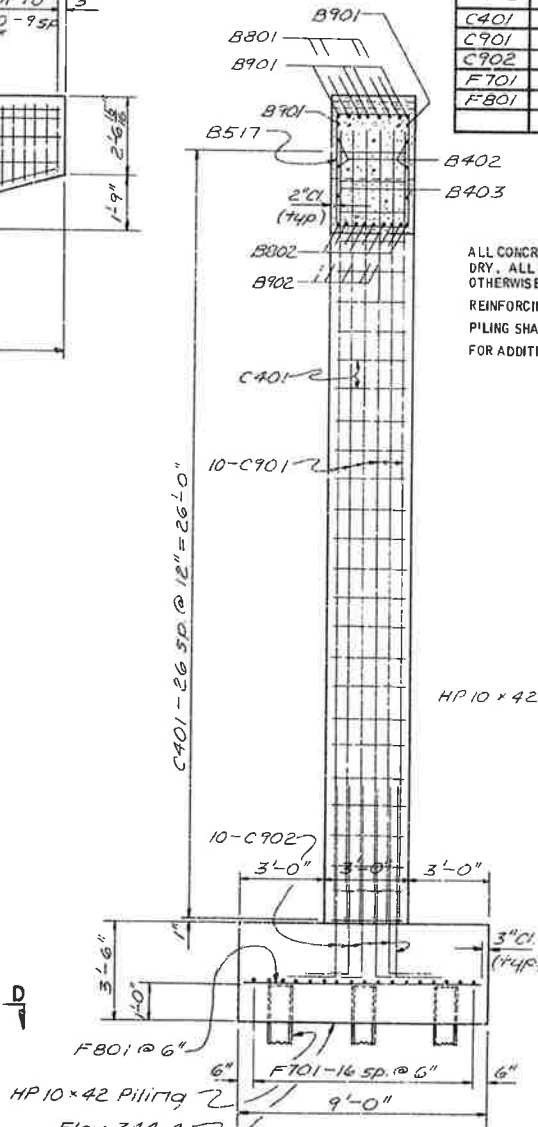
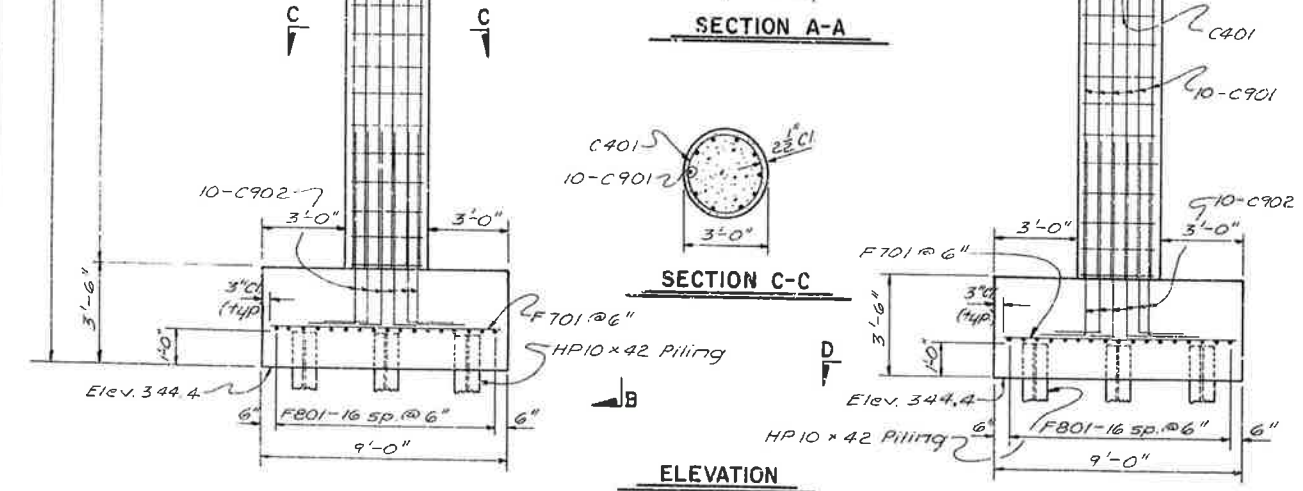
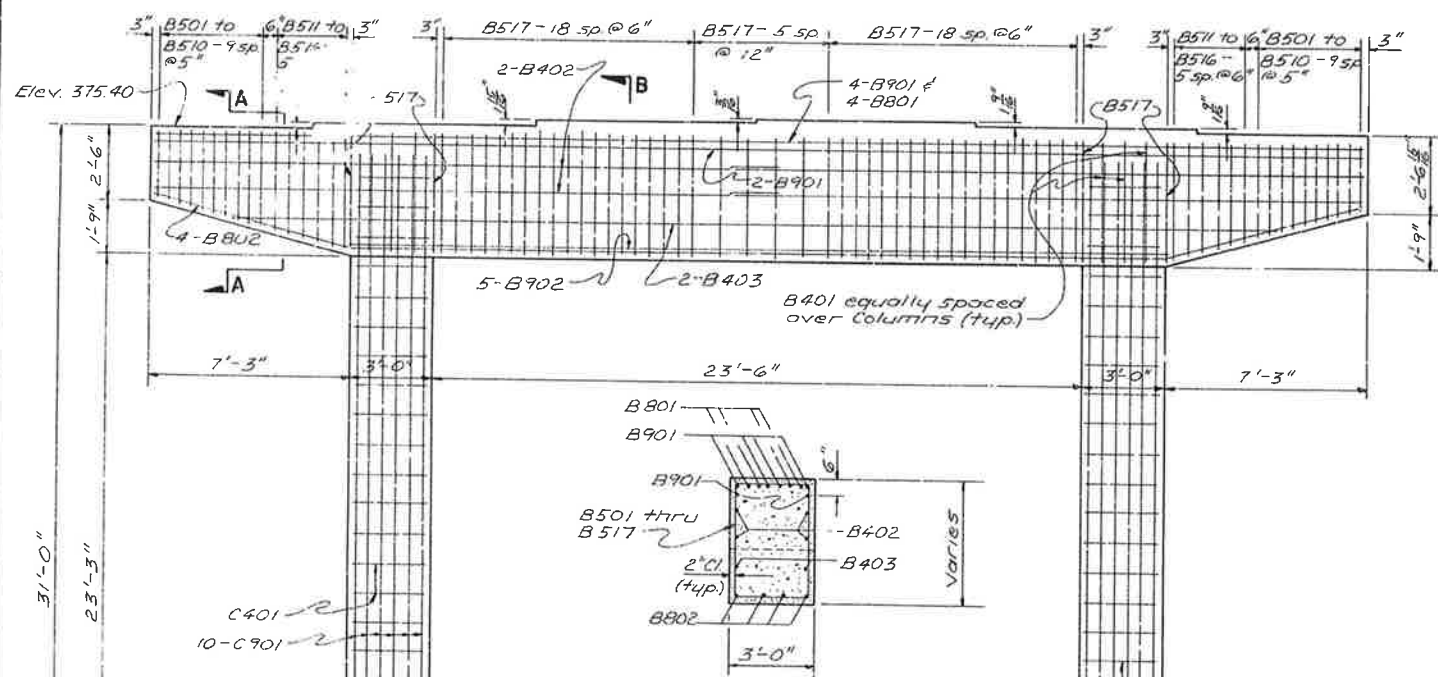
DETAILS OF INT. BENT 2
HWY.4 & MO. PAC. R.R.
HWY. 4 & 27 RELOCATION (NASHVILLE)
HOWARD COUNTY
ROUTE 4 & 27 SEC. 4 & 2
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.
DRAWN BY: J.P.S. DATE: 11-7-79
CHECKED BY: J.W. DATE: 11-8-79 SCALE: 3" = 1'-0" or as



Note: For Shoe Details - see dwg. no. 23373

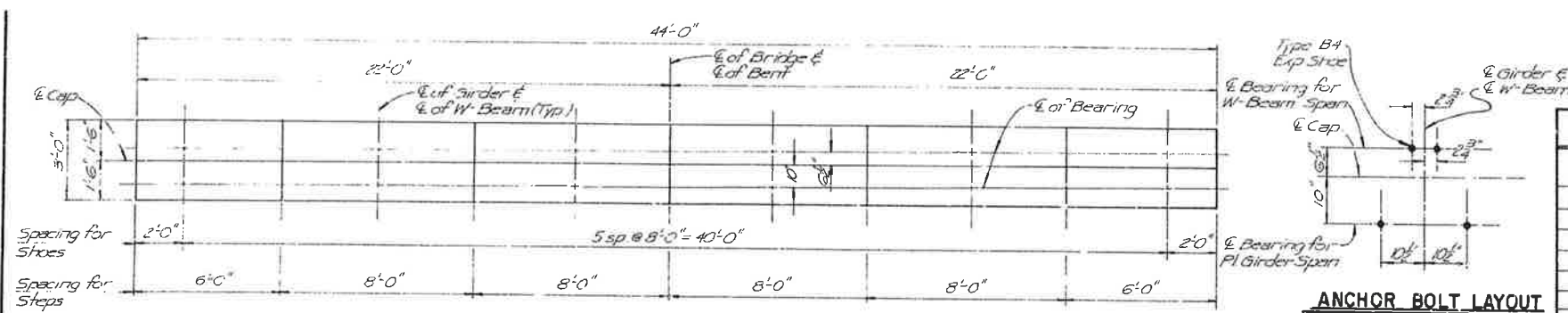
BAR LIST					
MK.	No Req'd	Length	A	B	Pier Dia.
B401	6	10'-4"	2'-8"	3'-11"	2"
B402	8	22'-8"			5tr
B403	2	35'-7"			5tr
B501 to B510	2 ea	10'-10" to 12'-7"	2'-8"	2'-2 3/4" to 3'-1 1/2"	2 1/2"
B511 to B516	2 ea	12'-10" to 14'-1"	2'-8"	3'-5" to 3'-10 1/4"	2 1/2"
B517	46	14'-2"	2'-8"	3'-11"	2 1/2"
B801	4	43'-8"			5tr
B802	4	44'-0"	2'-5 1/2"	7'-3 3/4"	6"
B901	6	43'-8"			5tr
B902	5	29'-6"			5tr
C401	54	9'-10"	2'-7"	1'-8"	circle
C901	20	27'-0"			5tr
C902	20	8'-2"	6'-9"	1'-8"	7"
F701	34	8'-6"			5tr
F801	34	8'-6"			5tr



ALL CONCRETE SHALL BE CLASS S AND SHALL BE POURED IN THE DRY. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4" UNLESS OTHERWISE NOTED.
REINFORCING STEEL SHALL BE ASTM A615 OR A617, GRADE 60.
PILING SHALL BE HP10X42.
FOR ADDITIONAL NOTES, SEE LAYOUT.

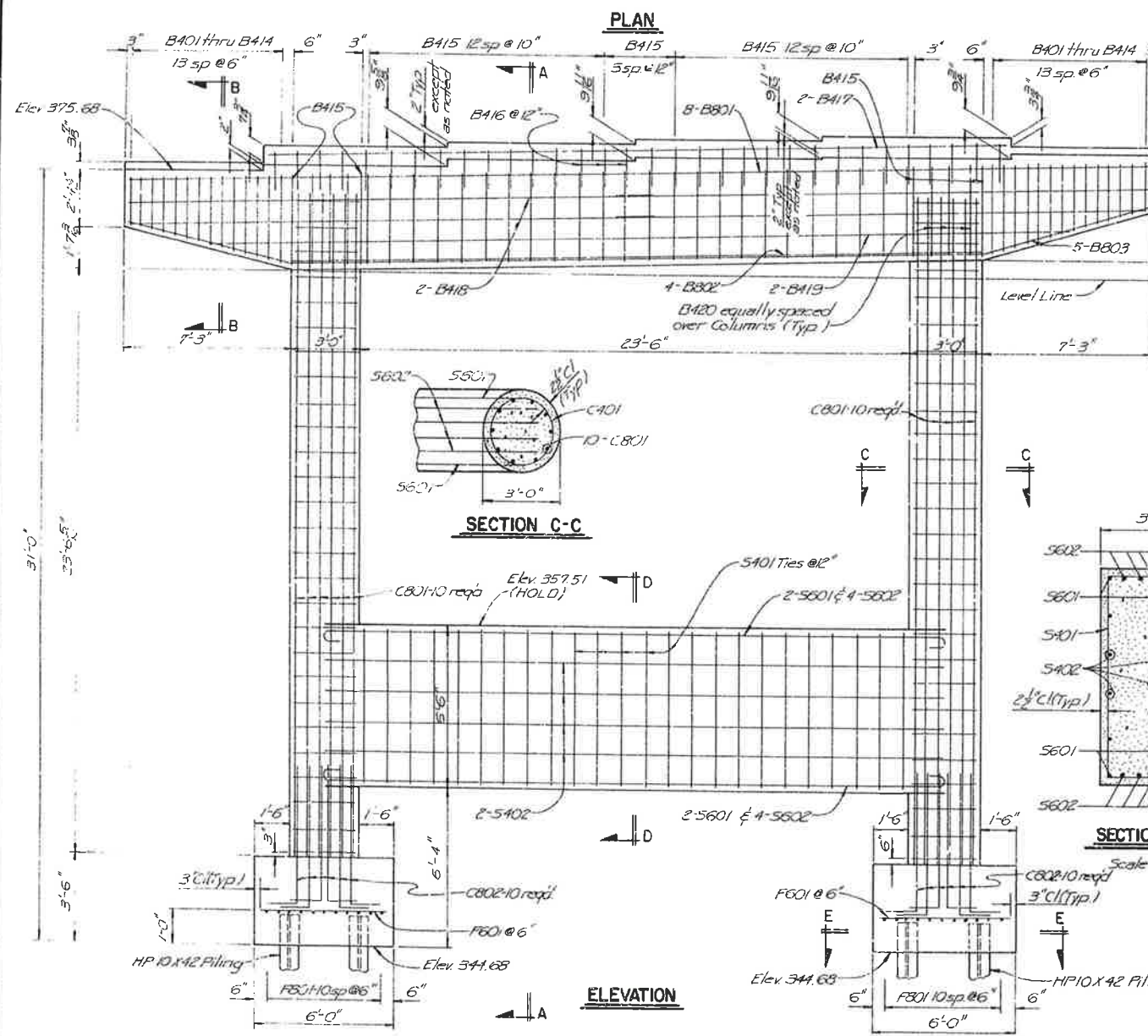
Dimensions are out to out of Bars.

DETAILS OF INT. BENT 3
HWY. 4 & MO. PAC. R.R.
HWY. 4 & 27 RELOCATION (NASHVILLE)
HOWARD COUNTY
ROUTE 4 827 SEC. 4 & 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY J.P.S. DATE 11-1-79



ANCHOR BOLT LAYOUT

Scale $\frac{3}{4}'' = 1'-0''$



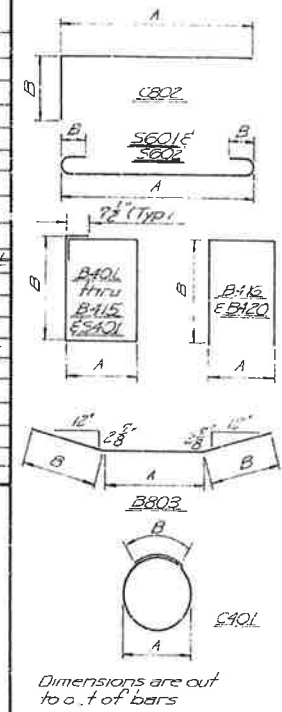
NOTE: Shoe details for Plate
Girder Spans see Drwg. No. 23375
For Type B4 Expansion Shoe
details see Drwg. No. 14990 F

BAR LIST						BENTING DIAGRAMS	
MARK	NO. REQD.	LENGTH	A	B	PINDIA.		
B401/14	203	10'-2" ¹¹ / ₁₆ 13'-3" ¹⁰ / ₁₆	2'-8"	1'-11" ³ / ₁₆ to 3'-6" ¹ / ₁₆	2"		
B415	32	15'-6"	2'-8"	3'-8"	2"		
B416	32	6'-10"	1'-2"	2'-10" ³ / ₁₆	2"		
B417	2	31'-8"	—	—	5/16"		
B418	8	22'-8"	—	—	5/16"		
B419	2	57'-5"	—	—	5/16"		
B420	16	3'-10"	2'-8"	3'-8"	2"		
B801	8	43'-8"	—	—	5/16"		
B802	4	29'-6"	—	—	5/16"		
B803	5	44'-0"	29'-5" ¹¹ / ₁₆	7'-3" ³ / ₁₆	6"		
C401	54	9'-10"	2'-7"	1'-8"	circle		
C801	20	27'-0"	—	—	5/16"		
C802	20	5'-10"	5'-9"	1'-4"	6"		
F601	34	5'-6"	—	—	5/16"		
F801	22	8'-6"	—	—	5/16"		
S401	24	18'-2"	2'-7"	6'-1"	2"		
S402	8	26'-6"	—	—	5/16"		
S601	4	27'-10"	26'-6"	6"	4 1/2"		
S602	8	29'-10"	23'-6"	6"	4 1/2"		

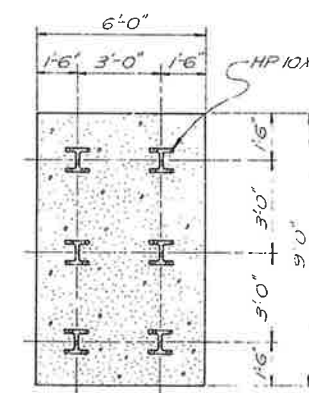
GENERAL NOTES

ALL CONCRETE SHALL BE CLASS 5 AND SHALL BE POURED IN THE DRY. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4" UNLESS OTHERWISE NOTED.

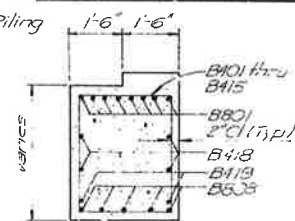
REINFORCING STEEL SHALL BE ASTM A615 OR A617, GRADE 60.
FOR ADDITIONAL NOTES, SEE LAYOUT.
PILING SHALL BE HP10X42.



Dimensions are out to o.t of bars

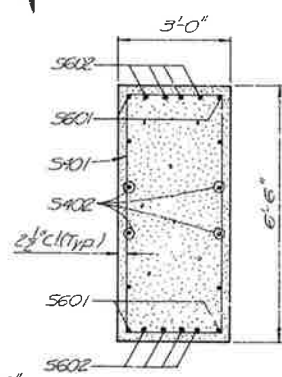


SECTION E-E



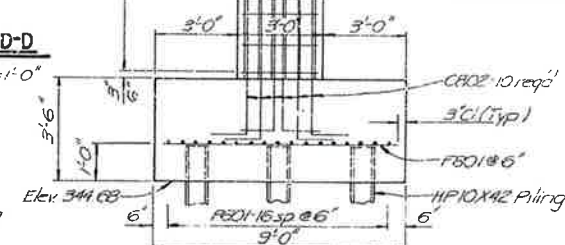
SECTION B-B

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



SECTION D-D

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

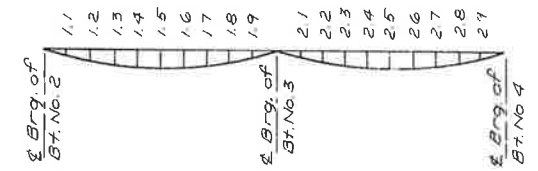


SECTION A-A

DETAILS OF INT. BENT 4
HWY. 4 & MO. PAC. R.R.
HWY. 4 & 27 RELOCATION (NASHVILLE)
HOWARD COUNTY
ROUTE 4 & 27 SEC. 4 & 2
ARKANSAS STATE HIGHWAY COMMISSION

TABLE OF DEFLECTION (IN.)

Point of Deflec.	Interior Girder			Exterior Girder		
	Wt of Girder	Wt of Girder & Slab	Wt of Girder, Slab & Parapet	Wt of Girder	Wt of Girder & Slab	Wt of Girder, Slab & Parapet
1.1	0.133	0.731	0.773	0.127	0.698	0.783
1.2	0.247	1.353	1.431	0.235	1.291	1.448
1.3	0.328	1.787	1.891	0.312	1.706	1.915
1.4	0.366	1.989	2.106	0.346	1.876	2.130
1.5	0.361	1.947	2.062	0.343	1.857	2.088
1.6	0.315	1.684	1.785	0.300	1.607	1.809
1.7	0.239	1.256	1.332	0.227	1.198	1.352
1.8	0.147	0.754	0.800	0.140	0.720	0.813
1.9	0.060	0.292	0.309	0.057	0.279	0.314
2.1	-0.014	-0.031	-0.030	-0.013	-0.029	-0.028
2.2	-0.004	0.086	0.077	-0.004	0.081	0.103
2.3	0.020	0.281	0.307	0.021	0.269	0.320
2.4	0.053	0.498	0.538	0.050	0.475	0.556
2.5	0.079	0.669	0.719	0.074	0.637	0.738
2.6	0.094	0.750	0.804	0.089	0.716	0.825
2.7	0.092	0.716	0.767	0.087	0.683	0.784
2.8	0.073	0.564	0.603	0.069	0.537	0.616
2.9	0.042	0.312	0.333	0.040	0.299	0.342



DEAD LOAD DEFLECTION

GENERAL NOTES

ALL CONCRETE TO BE CLASS 50(A). ALL EXPOSED CORNERS TO BE CHAMFERED 3/4" UNLESS OTHERWISE NOTED.

FIELD CONNECTIONS TO BE BOLTED WITH HIGH STRENGTH BOLTS. BOLTS: 3/4" Ø OPEN HOLES 13/16" Ø EXCEPT WHERE NOTED OTHERWISE. BOLT SPACING SHALL BE 2-1/2" UNLESS OTHERWISE NOTED. MINIMUM EDGE DISTANCE SHALL BE 1-1/4" UNLESS NOTED OTHERWISE. BOLTS SHALL BE PLACED WITH HEADS ON THE OUTSIDE FACE OF THE EXTERIOR GIRDERS AND ON BOTTOM OF GIRDER FLANGES.

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

SHOP PAINT: ALL STRUCTURAL STEEL EXCEPT GALVANIZED MEMBERS, CONTACT SURFACES OF BOLTED CONNECTIONS, AND SURFACES WITHIN 3" OF HOLES AND FIELD WELDS, AND SURFACES IN CONTACT WITH CONCRETE SHALL BE GIVEN ONE PRIME COAT AS SPECIFIED IN SECTION 807.59 OF THE STANDARD SPECIFICATIONS.

FIELD PAINT: IN ADDITION TO THE PRIME COAT ALL STRUCTURAL STEEL EXCEPT GALVANIZED MEMBERS AND SURFACES IN CONTACT WITH CONCRETE SHALL RECEIVE TWO COATS OF FIELD PAINT. FIRST COAT - IN ACCORDANCE WITH SPECIAL PROVISION 807.10 "PAINTING OF STEEL STRUCTURES." SECOND COAT - BLUE: SEE SECTION 807.59 OF THE STANDARD SPECIFICATIONS.

REINFORCING STEEL TO BE ASTM A615 OR A617, GRADE 60. THE REINFORCING STEEL IS TO 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 THE CONSTRUCTION. THE WIRE SUPPORTS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED SUBSIDIARY TO THE ITEM OF "REINFORCING STEEL."

ALL WELDING THAT IS TO BE DONE DURING FABRICATION OF STRUCTURAL STEEL, INCLUDING TEMPORARY WELDS SHALL BE DETAILED ON THE SHOP DRAWINGS AND SUBMITTED FOR APPROVAL. IF THE CONTRACTOR OR ERECTOR SHOULD WANT TO MAKE ADDITIONAL WELDS, WHETHER TEMPORARY OR PERMANENT, HE SHALL SUBMIT DETAILED DRAWINGS WITH A FORMAL REQUEST TO THE BRIDGE DESIGN DIVISION OF THE ARKANSAS STATE HIGHWAY DEPARTMENT FOR APPROVAL. ALL WELDING SHALL CONFORM TO SP 807-5.

THE CONTRACTOR, AT HIS OPTION, MAY POUR BRIDGE SLAB CONTINUOUS OVER THE ENTIRE UNIT USING A RETARDING AGENT TO RETARD SET. A MINIMUM OF 72 HOURS SHALL ELAPSE BETWEEN POURING OF SLAB AND PARAPET SECTION.

ALL CONCRETE SHALL BE POURED AND SCREEDED OFF PRIOR TO INITIAL SET. THE CONCRETE DECK SHALL BE FINISHED IN ACCORDANCE WITH SECTION 802.23 OF THE STANDARD SPECIFICATIONS. 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 POUR. SUFFICIENT CONCRETE MUST BE PLACED AHEAD OF THE STRIKE-OFF TO FULLY LOAD THE BEAM. IF A LONGITUDINAL STRIKE-OFF IS USED, A VERTICAL CAMBER ADJUSTMENT MUST BE MADE IN THE STRIKE-OFF TO ACCOUNT FOR THE FUTURE DEAD LOAD DEFLECTION OF THE RAILING.

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

PLATES NOTED ON DRAWING 2.337.3 AS HIGH STRENGTH LOW ALLOY COLUMBIUM VANADIUM STEEL, ASTM DESIGNATION A572 GRADE 50 SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER POUND BID FOR "STRUCTURAL STEEL IN PLATE GIRDER SPANS A572, GRADE 50."

ALL OTHER STRUCTURAL STEEL SHALL BE ASTM DESIGNATION A36 AND SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER POUND BID FOR "STRUCTURAL STEEL IN PLATE GIRDER SPANS A36."

SPECIFICATIONS: ARKANSAS STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 1978 AND APPLICABLE SPECIAL PROVISIONS.

HOLES FOR 3/4" Ø HIGH STRENGTH BOLTS IN DIAPHRAGMS AND EXPANSION DEVICES MAY BE 15/16" Ø IF A WASHER IS SUPPLIED FOR USE UNDER BOTH THE NUT AND THE HEAD OF THE BOLT.

STEEL PLATES FOR MAIN MEMBERS AND SPLICE PLATES FOR FLANGES OF MAIN TENSION MEMBERS, NOT SECONDARY 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.

ALL GIRDERS SHALL BE BLOCKED IN THEIR TRUE POSITION, WITH WEB PLATES HORIZONTAL IN THE SHOP TO FORM EACH COMPLETE UNIT AS SPECIFIED IN SECTION 807.16(b). THE CAMBER, LENGTH OF SECTIONS, DISTANCE BETWEEN BEARINGS AND OPENING OF JOINTS SHALL BE MEASURED WITH THE BEAMS IN THIS POSITION AND THIS INFORMATION SHALL BECOME A PART OF THE PERMANENT RECORDS OF THIS JOB. THE COMPONENT PARTS SHALL BE "WATCH" 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 ± 1/4" IS ALLOWED FOR CAMBER.

DIAPHRAGMS SHALL BE INSTALLED AS GIRDERS ARE ERECTED. ALL DIAPHRAGMS SHALL BE INSTALLED AND COMPLETELY BOLTED PRIOR TO POURING OF FLOOR SLABS.

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

UNIT STRESSES: CLASS 50(A) CONCRETE f'c = 3,500 PSI
REINFORCING STEEL (GRADE 60) fy = 60,000 PSI
STRUCTURAL STEEL (A36) fy = 36,000 PSI
STRUCTURAL STEEL (A572, GRADE 50) fy = 50,000 PSI

DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 1977 EDITION WITH INTERIM SPECIFICATIONS.

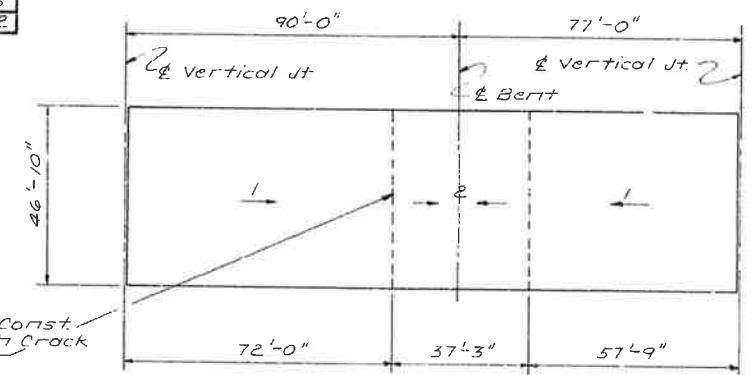
LIVE LOAD: HS20
METHOD OF DESIGN: LOAD FACTOR

LOAD DISTRIBUTION:

	DEAD LOAD TO GIRDER	DEAD LOAD TO COMP. GIRDER (INCLUDES 240/FT. FOR WEIGHT OF FUTURE SURFACE)	LIVE LOAD TO COMP. GIRDER
EXT. GIRDER	719 PLF + GIRDER	371 PLF	1,333 WHEELS + IMPACT
INT. GIRDER	753 PLF + GIRDER	273 PLF	1,455 WHEELS + IMPACT

NOTE: ALL FLANGE AND WEB PLATES ARE CONSIDERED FULLY STRESSING MEMBERS. THE FULLY STRESSING MEMBER REQUIREMENTS ARE AS FOLLOWS:

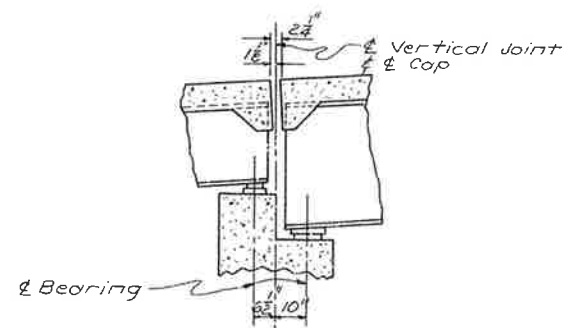
CAMBER FOR DEAD LOAD DEFLECTION PLUS VERTICAL CURVE +1/4" TOLERANCE. DEFLECTIONS SHOWN ARE FROM A CHORD FROM CENTERLINE BEARING TO CENTERLINE BEARING. VERTICAL CURVE CORRECTIONS NOT INCLUDED. NEGATIVE SIGN (-) INDICATES POINT ABOVE CHORD.



POURING SEQUENCE

Scale: 1" = 20'-0"

NOTE: THE CONTRACTOR MAY POUR THE UNIT IN ONE CONTINUOUS POUR USING RETARDANT TO DELAY THE SET OF THE CONCRETE UNTIL THE ENTIRE UNIT IS COMPLETE. IF THE CONTRACTOR ELECTS TO USE THE POURING SEQUENCE SHOWN, 48 HOURS SHALL ELAPSE BETWEEN POURS WITH THE SAME NUMBERS (OR THEY MAY BE POURED SIMULTANEOUSLY). 72 HOURS SHALL ELAPSE BETWEEN POURS WITH DIFFERENT NUMBERS.

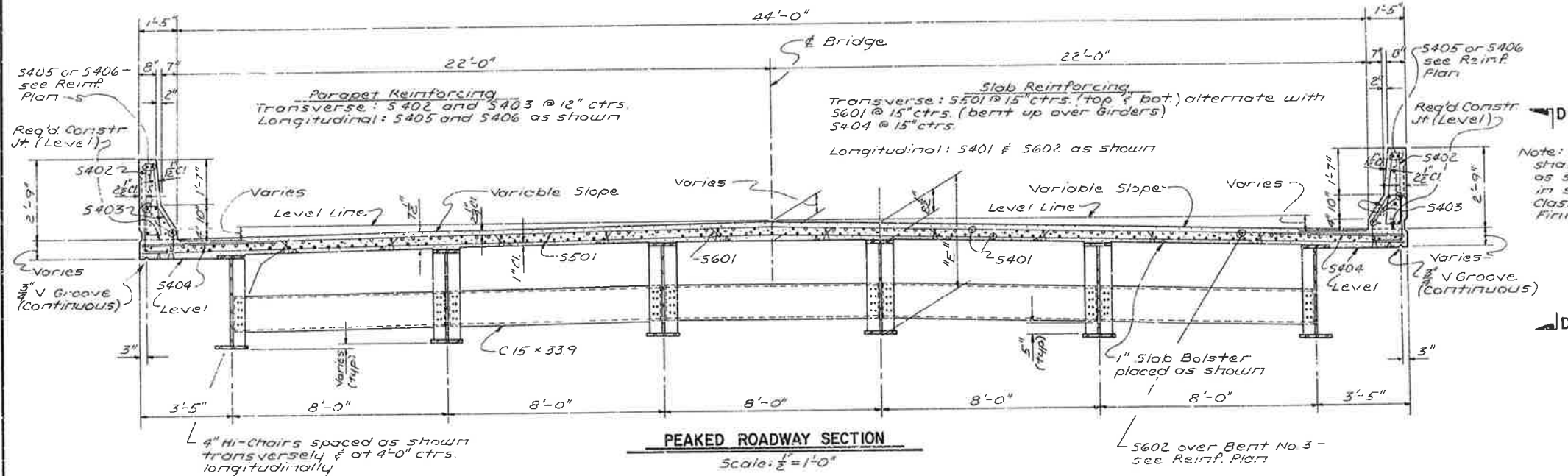


JT. AT INT. BT. FOR W-BM. & PL. GIRDER SPANS

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

$$E'' = 3' - 8_2^{1''} + \text{Bottom Flange Thickness}$$

REVENUE	FILED	REVISED	FILED	NO.	ARK.	F-041-1(2)	49	110
2-2-B	586-22-81			6		F-RRS-041-1(4)		
				JOB NO.		3797		
				①	5861 PL GIRDER DTL'S 23376			

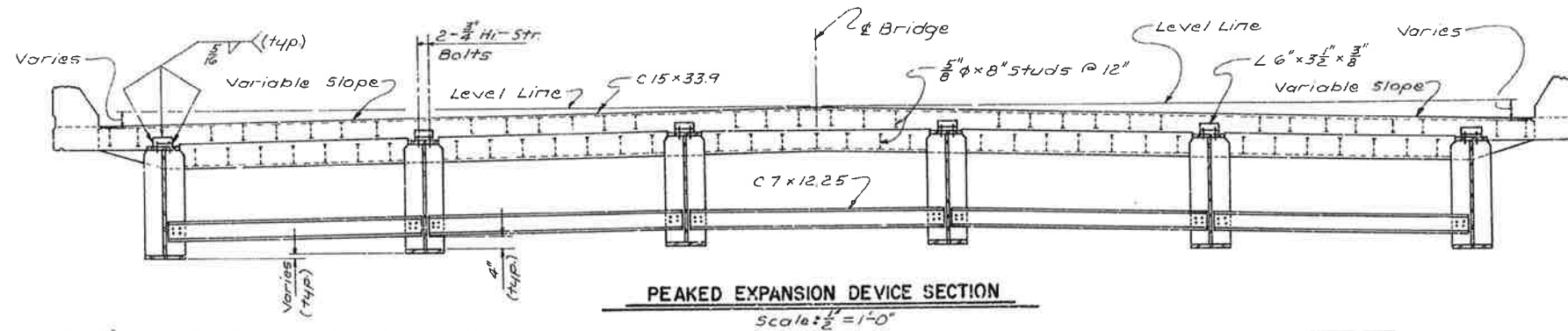


Note: The concrete bridge deck shall be given a fine finish as specified for final finishing in subsection 802.23 for Class 6, Roadway Surface Finish.

Expansion Device: Roadway C15 x 33.9 x 44[±]0"
Concr. 2' x 6" x 32¹/₈" x 0'-8"¹/₈" Preformed Joint
Saler, 1" bars, Detail Device
8" high & provide 2" shims using 2-1" x 1-1/8" PL's.
8" x 8" studs @ 12" ctrs. (top & bottom)

⚠ Note: Diaphragm and End Struts placed Level Between Girders.

Note:
Dimensions, reinforcing steel, and structural
steel shown in Peaked Roadway Section and
Peaked Expansion Device Section are typical
for Roadway Sections A, B & C.

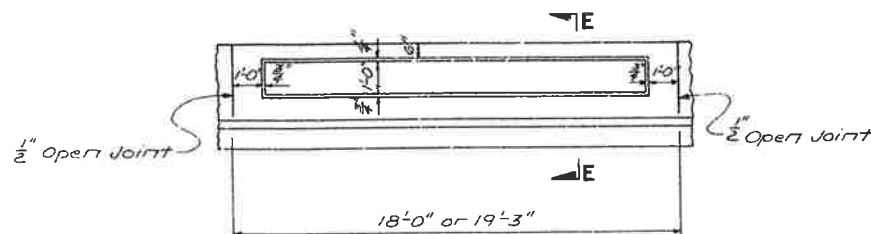


CRACK CONTROL JOINT
No Scale

Note: $\frac{1}{4} \times 1$ " poured asphalt joint in Slab, to be paid for as Class S (AE) concrete. For joint location see Reinf. Plan, dwg. no. 23372.

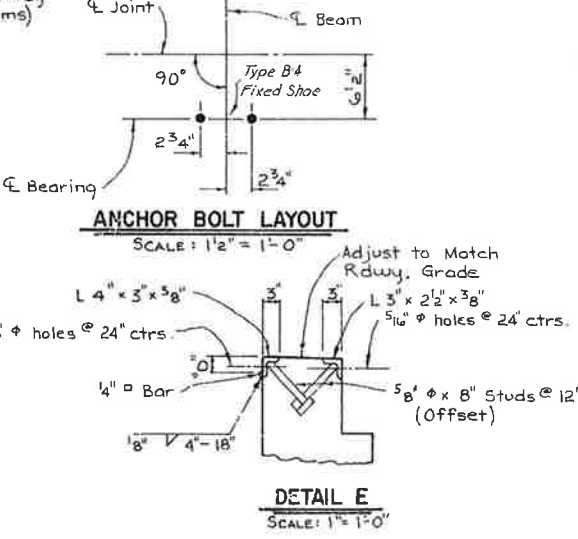
⚠ Added Note for End Struts and Diaphragms;
By TEB; 2-2-8;

Note: Holes for $\frac{3}{8}$ " High Strength Bolts for Expansion Device, Diaphragms & End Struts may be $\frac{15}{16}$ " ϕ . Holes if a washer is supplied for use under both the nut & the head of the Bolt.



SECTION E - E

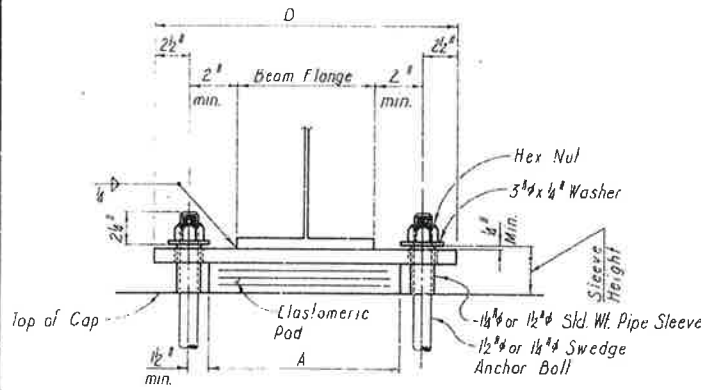
SHEET 1 OF 5
DETAILS OF 167'-0" CONTINUOUS
PLATE GIRDER UNIT
HWY. 4 & MO. PAC. R. R.
HWY. 4 & 27 RELOCATION (NASHVILLE)
HOWARD COUNTY
ROUTE 4 & 27 SEC. 4 & 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
10/1/33



TES
ALL BE POURED IN THE DRY. ALL EXPOSED
OTHERWISE NOTED.
A617, GRADE 60.
36 AND SHALL BE MEASURED AND PAID FOR AS
0."
THE BEAMS HAVE BEEN PLACED ON THE BENT CAP
TO A MINIMUM BEARING CAPACITY OF 55 TONS
, TOP MAIN REINFORCING BARS SHALL BE

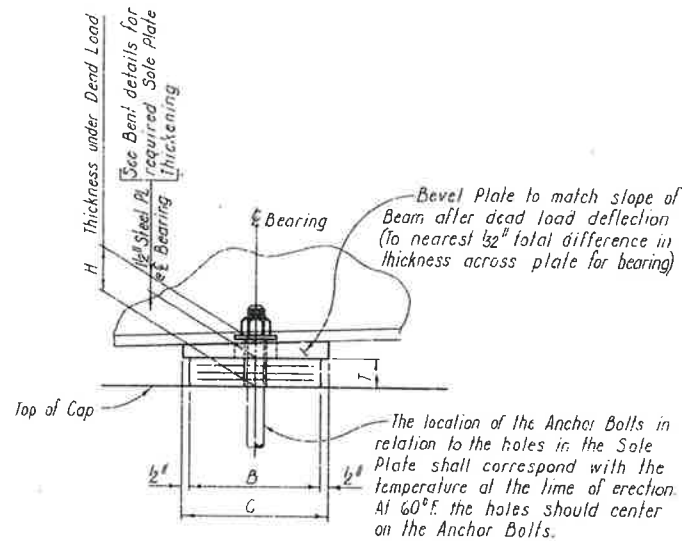
DETAILS OF END BENT NO. 5
HWY. 4 & MO. PAC. R.R.
HWY. 4 & 27 RELOCATION (NASHVILLE)
HOWARD COUNTY
ROUTE 4&27 SEC. 4 & 2
ARKANSAS STATE HIGHWAY COMMISSION

DATE	FILED	REVISED	FILED	NO.	STATE	F.Y. AND PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.	F-04-1(12) F-RS-04-1(4)	54	110
				JOB NO.		3797		
				①	5861 SHOE DTLS. 23375			

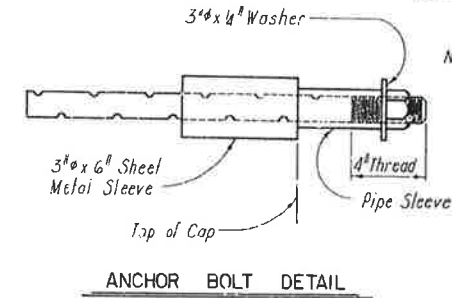


NOTE: Pipe Sleeves shall be ASTM A53, Grade B, and shall be galvanized to conform to ASTM A153. Sleeves shall be paid for at the unit price bid for "Structural Steel in Plate Girder Spans (A36)".

END VIEW



SIDE VIEW



NOTE: Anchor Bolts may be cast in place or drilled and grouted into place. If Anchor Bolts are to be drilled and grouted into place, the 3/4"x6" Galvanized Steel Metal Sleeve shall be cast in place as shown. It shall be dry packed with Styrofoam or Urethane Foam or approved equal prior to pouring 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. The Bolts shall then be set and fixed with Portland Cement grout or an approved non-shrink grout, completely filling the holes.

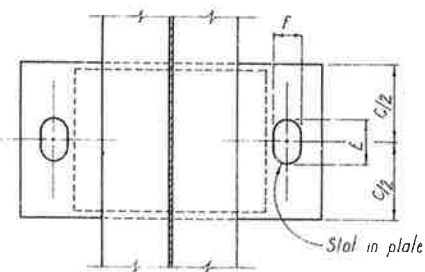
If Anchor Bolts are to be cast in place, the 3/4"x6" Galvanized Steel Metal Sleeve will not be required. Galvanized Steel Metal Sleeves to be considered subsidiary to the item Structural Steel in Plate Girder Spans (A2.2).

GENERAL NOTES

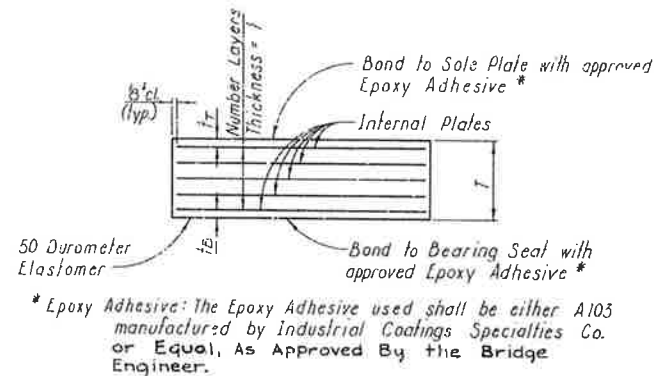
Anchor Bolts, Nuts and Washers shall be ASTM A36 Steel galvanized to conform to ASTM A153 and shall be paid for at the unit price bid for "Structural Steel in Plate Girder Spans A36."

Sale Plates shall be ASTM A36 Steel and shall be paid for at the unit price bid for ¹/₂ Structural Steel in Plate Girder Spans (A36).

Pads shall be paid for in accordance with Section 800 of the Standard Specifications.



PLAN VIEW



ELASTOMERIC PAD

TABLE OF VARIABLES

[illegible]

DETAILS OF ELASTOMERIC FIXED AND EXPANSION BEARINGS

HWY. 4 & MO. PAC. R.R.

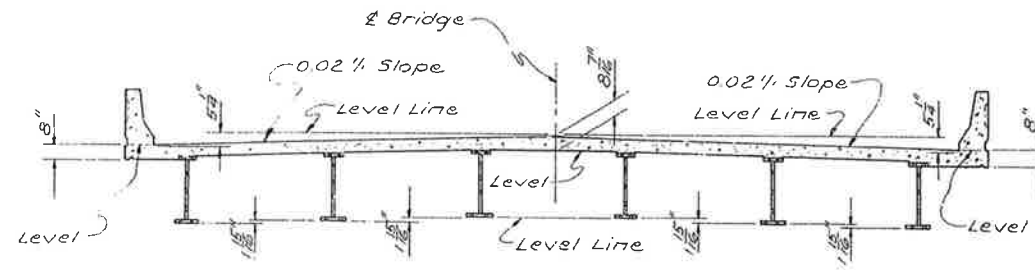
HWY. 4 & 27 RELOCATION (NASHVILLE)

HOWARD COUNTY

ROUTE 4827 SEC. 4 & 2

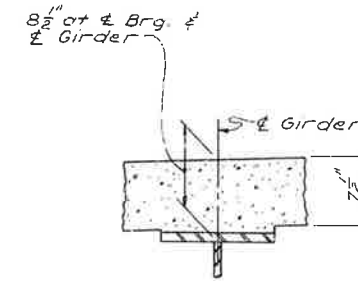
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.



ROADWAY SECTION A

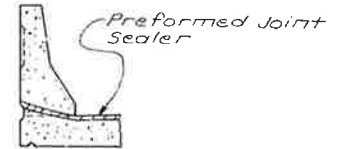
Joint at Int. Bent No. 2



GIRDER HAUNCH

DETAIL

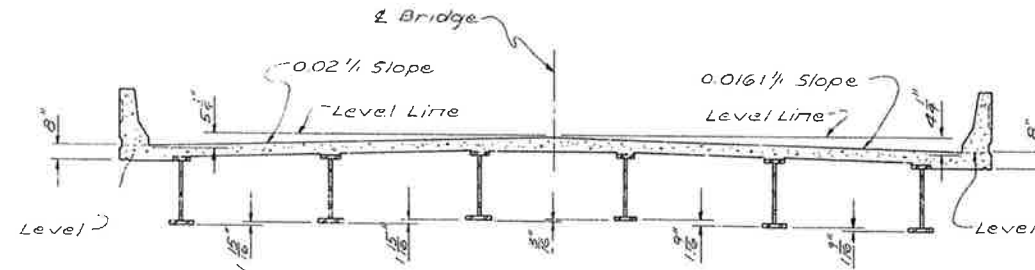
Scale: 1/2" = 1'-0"



SEAL PLACEMENT IN

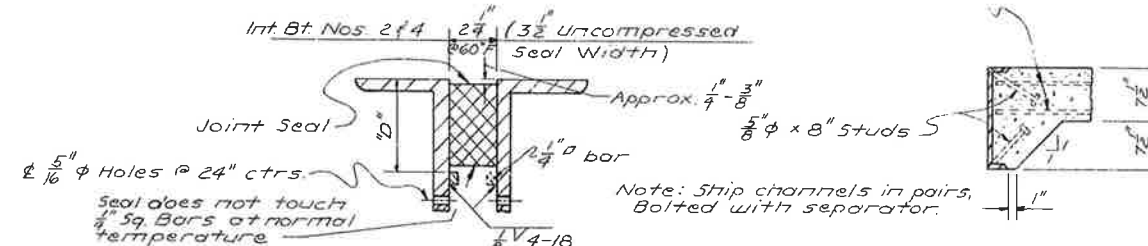
PARAPET

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



ROADWAY SECTION B

Bearing at Int. Bent No. 3

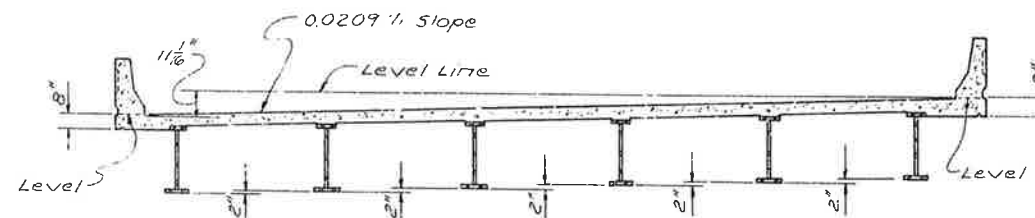


JOINT SEAL SUPPORT

No Scale

ANCHOR DETAIL

Scale: 1" = 1'-0"



ROADWAY SECTION C

Joint at Int. Bent No. 4

NOTE: THE DIMENSION "D" SHALL CONFORM TO THE RECOMMENDATION OF THE SEAL MANUFACTURER AS APPROVED BY THE BRIDGE ENGINEER. THE DEPTH OF THE SEAL SHALL BE APPROXIMATELY EQUAL TO THE UNCOMPRESSED WIDTH OF THE SEAL.

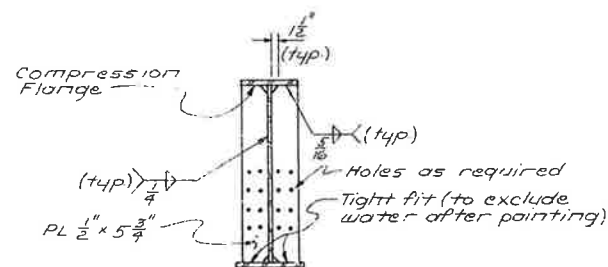
SHEET 2 OF 5
DETAILS OF 167'-0" CONTINUOUS
PLATE GIRDER UNIT
HWY. 4 & MO. PAC. R.R.
HWY. 4 & 27 RELOCATION (NASHVILLE)
HOWARD COUNTY
ROUTE 4 & 27 SEC. 4 & 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: U.P.S. DATE: 10-5-79 1/2" = 1'-0"

CONTINUOUS PLATE GIRDER ELEVATION

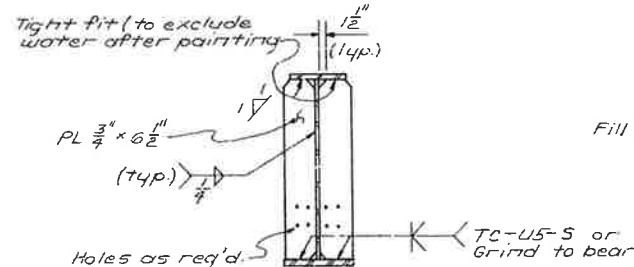
(TYPICAL)

Scale: $\frac{3''}{16} = 1'-0''$



DIAPHRAGM CONNECTION

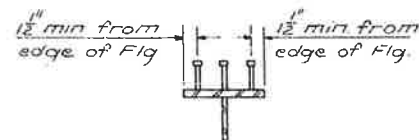
Scale: $\frac{3}{4}'' = 1'-0''$



BEARING STIFFENER

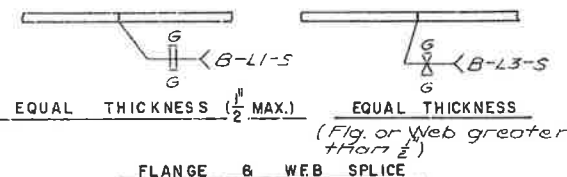
Scale: $\frac{3}{4}" = 1'-0"$

Note: PL $\frac{1}{2} \times 5 \frac{3}{4}$ Diaphragm Connection shall be welded to the Web of Compression Flg. For location of Compression Flg. see Continuous Plate Girder Elevation.



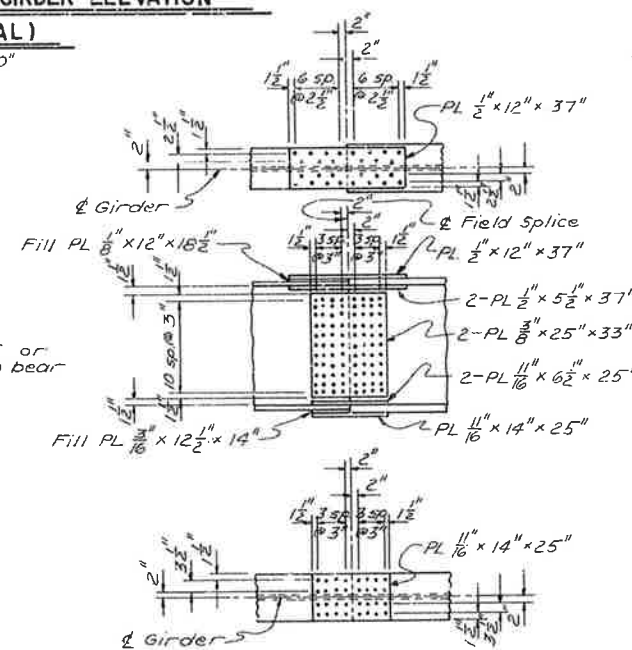
SHEAR CONNECTOR DETAIL

No Scale



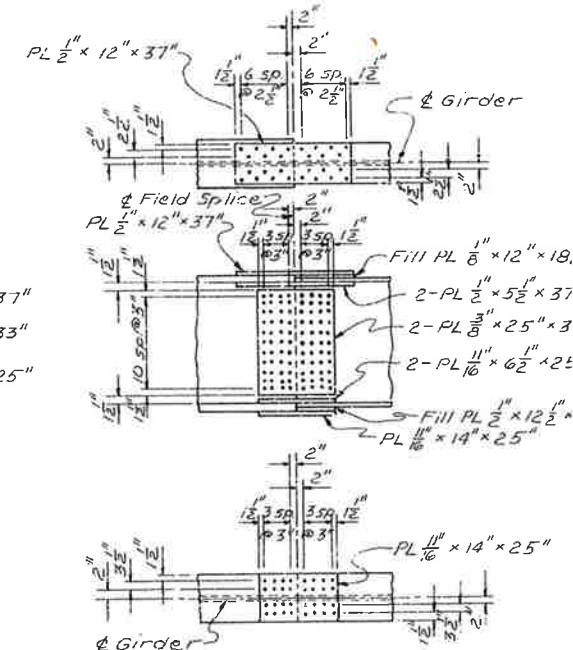
BUTT WELD DETAILS

No Scale



FIELD SPLICE A

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



FIELD SPLICE B

Scale: $\frac{1''}{3} = 1-0'$

STUD SHEAR CONNECTORS SHOWN SHALL BE 4" LONG, GRANULAR FLUX FILLED, SOLID FLUXED OR EQUAL, AND AUTOMATICALLY END WELDED TO BEAM FLANGES IN ACCORDANCE WITH RECOMMENDATIONS OF THE MANUFACTURER. 7/8" DIAMETER STUD MAY BE SUBSTITUTED FOR THE 3/4" DIAMETER STUD SHOWN AT THE RATIO OF 0.73 - 7/8" STUDS IN PLACE OF ONE 3/4" STUD. THE 3/4" STUDS SHALL BE USED AS THE BASIS OF PAYMENT OF 61.5 LBS. PER ONE HUNDRED STUDS.

Δ Revised Shear Conn.
Spacing, by J.P.S.; 1-16-81

97th
SHEET 4 OF 5
DETAILS OF 167'-0" CONTINUOUS
PLATE GIRDER UNIT
HWY. 4 & MO. PAC. R.R.
81 HWY. 4 & 27 RELOCATION (NASHVILLE
HOWARD COUNTY
ROUTE 4 & 27 SEC. 4 & 2
ARKANSAS STATE HIGHWAY COMMISSION

Holes for $\frac{3}{4}$ " Hi-St. Bolts
1" ϕ in angle; $\frac{13}{16}$ " ϕ in
flange; 1 Washer on top
of angle

CHANNEL CONNECTION-TYP.