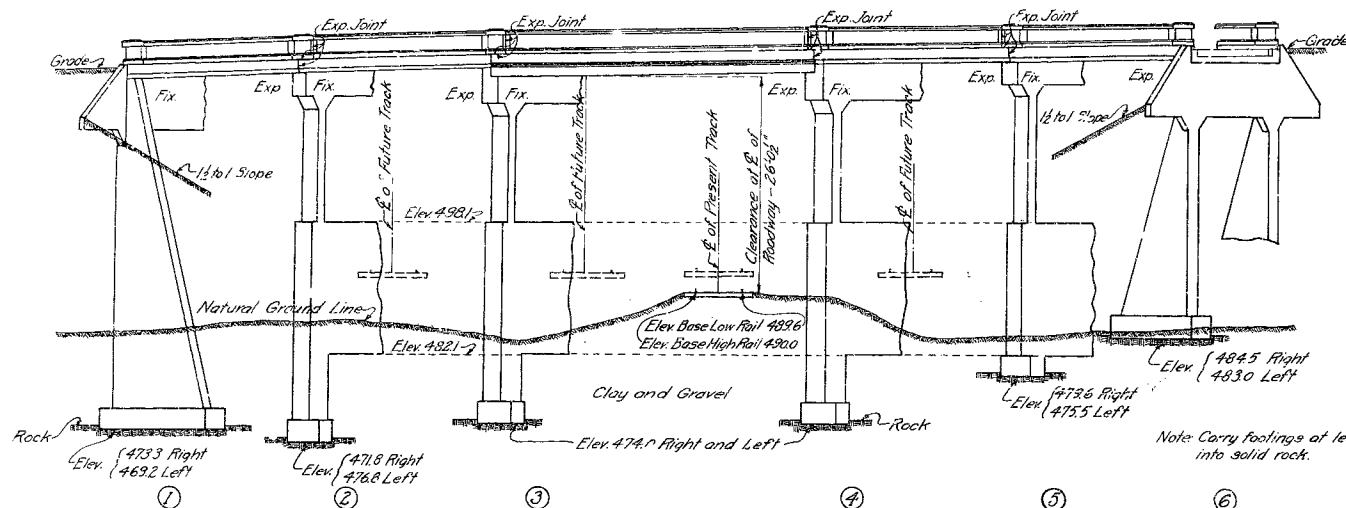


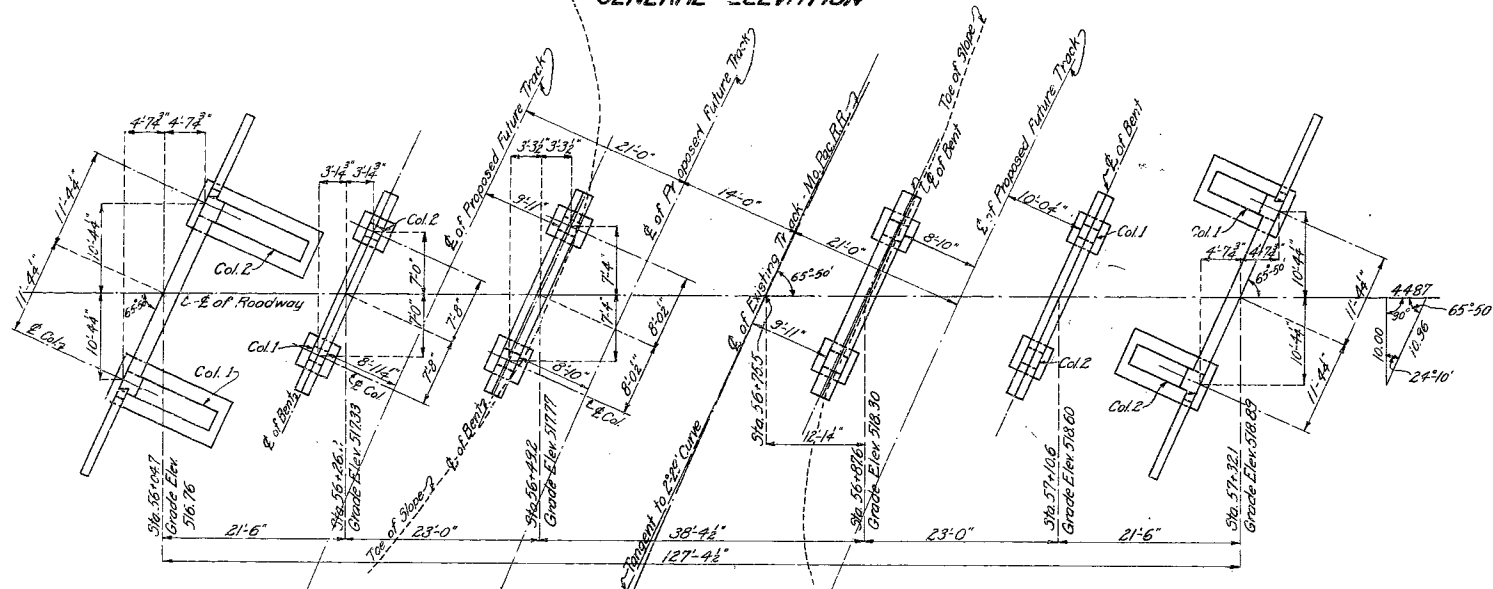
# MISSOURI STATE HIGHWAY DEPARTMENT

Fed. Road Dist. No.	State	Fed. Aid Proj. No.	Fiscal Year	Sheet No.	Total Sheets
5	MO.	A49-37	192		

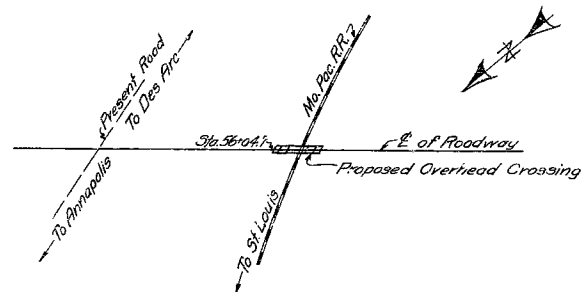
1-Std Superstr. C-5320 Modified as Shown    1-Spec. of 22'-10 1/2" Concrete Slab  
 1-Special 36'-8" Concrete Deck Girder    1-Special 22'-10 1/2" Concrete Slab  
 1-Std Superstr. C-5320 Modified as Shown



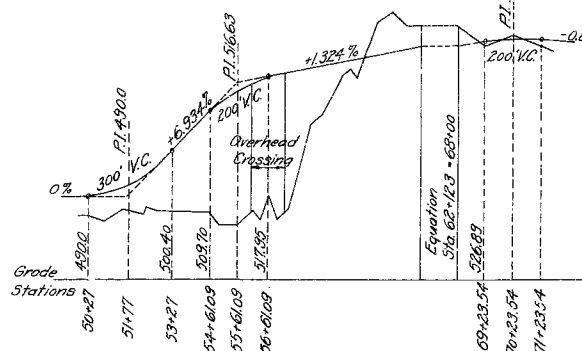
**GENERAL ELEVATION**



**PLAN**



**LOCATION SKETCH**



**SKETCH SHOWING GRADE ELEVATIONS**

COMPLETE BILL OF REINFORCING STEEL											
No.	Size	Length	Mark	Bending Sketches and Cutting Diagrams				No.	Size	Length	Mark
<b>Substructure</b>											
64	3/4"	6'-3"	D					<b>Substructure</b>			
16	3/4"	9'-0"	F <sub>1</sub>					8 3/4" 43.3' V <sub>4</sub>			
32	3/4"	8'-9"	F <sub>2</sub>					8 3/4" 41.5' V <sub>5</sub>			
32	3/4"	8'-9"	F <sub>3</sub>					8 3/4" 30.3' V <sub>6</sub>			
4	1/2"	25'-9"	G <sub>1</sub>								
4	1/2"	25'-9"	G <sub>2</sub>								
12	3/4"	17'-3"	H <sub>1</sub>								
4	1/2"	17'-0"	H <sub>2</sub>								
12	3/4"	27'-6"	H <sub>3</sub>								
12	3/4"	24'-9"	H <sub>4</sub>								
6	3/4"	24'-9"	H <sub>5</sub>								
12	3/4"	24'-9"	H <sub>6</sub>								
32	3/4"	20'-0"	K <sub>1</sub>								
10	3/4"	20'-0"	K <sub>2</sub>								
32	3/4"	21'-0"	K <sub>3</sub>								
10	3/4"	2'-0"	K <sub>4</sub>								
<b>Superstructure</b>											
100	1/2"	12"	P <sub>1</sub>								
56	1/2"	7'-9"	P <sub>2</sub>								
45	1/2"	9'-0"	P <sub>3</sub>								
1000	1/2"	18"	P <sub>4</sub>								
10	1/2"	2'-0"	P <sub>5</sub>								
32	1/2"	22'-6"	P <sub>6</sub>								
16	1/2"	2'-3"	P <sub>7</sub>								
32	1/2"	22'-6"	P <sub>8</sub>								
16	1/2"	19'-0"	P <sub>9</sub>								
8	1/2"	21'-0"	C <sub>1</sub>								
8	1/2"	22'-6"	C <sub>2</sub>								
8	1/2"	20'-3"	C <sub>3</sub>								
108	3/8"	20'-9"	S <sub>1</sub>								
34	3/8"	22'-6"	S <sub>2</sub>								
20	3/8"	25'-9"	S <sub>3</sub>								
8	3/8"	24'-3"	S <sub>4</sub>								
12	3/8"	28'-0"	S <sub>5</sub>								
12	3/8"	26'-0"	S <sub>6</sub>								
19	3/8"	22'-9"	S <sub>7</sub>								
19	3/8"	22'-9"	S <sub>8</sub>								
6	1/2"	7'-0"	S <sub>9</sub>								
12	1/2"	5'-6"	S <sub>10</sub>								
6	1/2"	21'-6"	S <sub>11</sub>								
12	1/2"	20'-9"	S <sub>12</sub>								
19	3/8"	25'-3"	S <sub>13</sub>								
120	3/8"	22'-6"	S <sub>14</sub>								
188	1/2"	6'-9"	B <sub>1</sub>								
16	1/2"	20'-3"	B <sub>2</sub>								
16	1/2"	40'-9"	B <sub>3</sub>								
8	1/2"	42'-0"	B <sub>4</sub>								
8	1/2"	42'-0"	B <sub>5</sub>								
12	1/2"	9'-0"	V <sub>1</sub>								
4	1/2"	7'-6"	V <sub>2</sub>								
8	1/2"	39'-3"	V <sub>3</sub>								
<b>W-W</b>											
12	1/2"	26'-6"	T <sub>1</sub>								
40	1/2"	14'-9"	U <sub>1</sub>								
72	1/2"	8'-6"	U <sub>2</sub>								
72	1/2"	10'-0"	U <sub>3</sub>								

ESTIMATED QUANTITIES			
Item	Substr.	Superstr.	Total
Excavation	Cu. Yds. 300		300
Concrete 1:2:3 mix	Cu. Yds. 13.4		13.4
Concrete 1:2:3 1/2 mix	Cu. Yds. 150.1		150.1
Concrete 1:2:4 mix	Cu. Yds. 318.0		318.0
Reinforcing Steel	lbs. 16610	23870	40480

**GENERAL NOTES**  
 Concrete in handrail to be 1:2:3 mix; concrete in slabs, curbs, and girders to be 1:2:3 1/2 mix; all other concrete to be 1:2:4 mix.  
 Exposed edges to be beveled 4" where no other level is noted.  
 Weight of reinforcing steel includes weight of bearing plates and bolts.

**BRIDGE OVER MISSOURI PACIFIC R.R. TRACKS**  
 STATE ROAD FROM ANNAPOLIS TO DES ARC  
 ABOUT 2 MILES SOUTH OF ANNAPOLIS  
 PROJECT NO. A49-37    STA 56+04.7

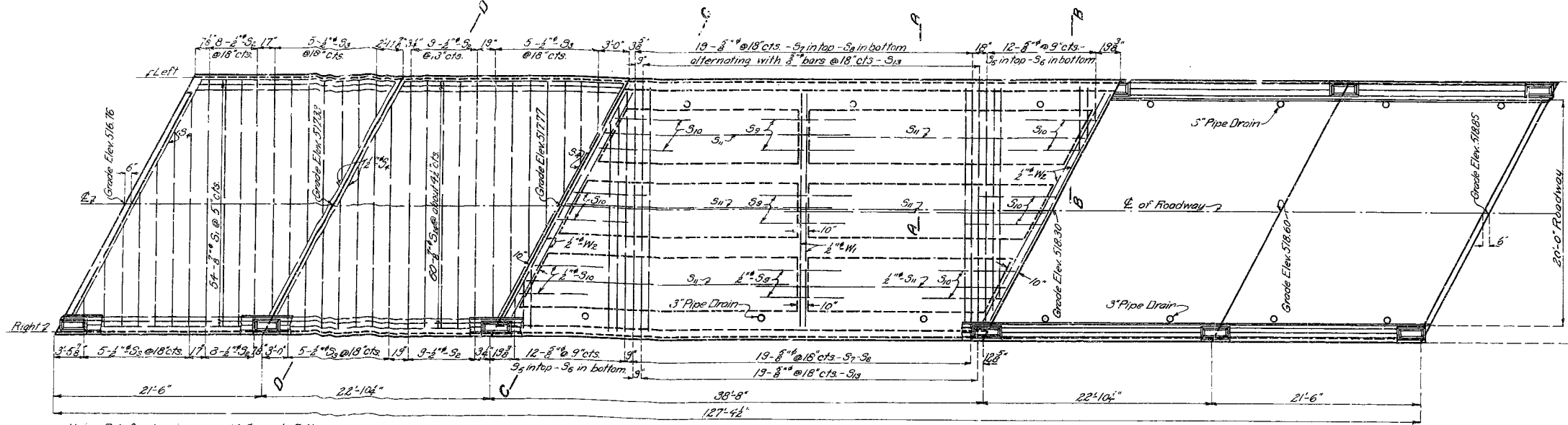
**IRON COUNTY**  
 SUBMITTED BY: *J. P. Sauer*    DATE: 11/25/25  
 APPROVED BY: \_\_\_\_\_    DATE: \_\_\_\_\_  
 CHIEF ENGINEER

**Spec C-5320**  
**G-878**

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MISSOURI STATE HIGHWAY DEPARTMENT

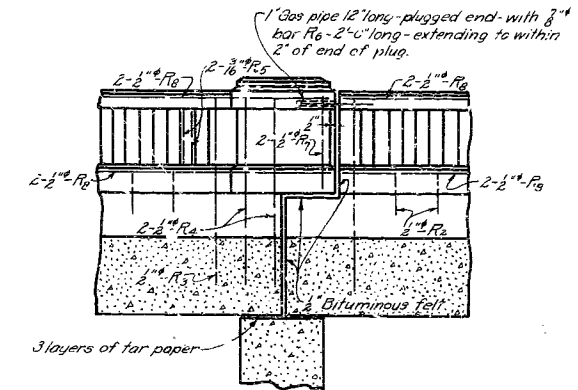
Dist. No.	State	Fed. Aid Proj. No.	Fiscal Year	Sheet No.	Total Sheets
5	MO.	A49-37	192		



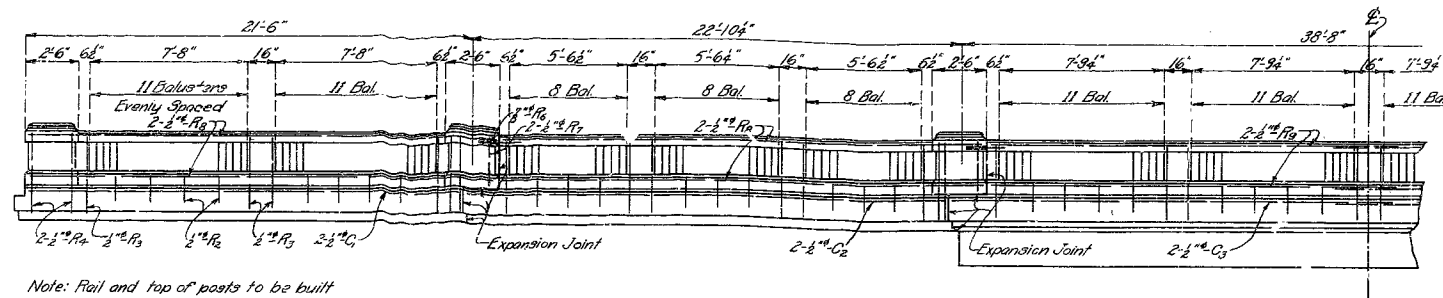
Note: Reinforcing in spans (4-5) and (5-6) is same as in spans (2-3) and (1-2) respectively. All longitudinal bars shown in deck girder are in top of slab.

FLOOR PLAN SHOWING REINFORCING

Note: For details of sections A-A, B-B, C-C, and D-D see sheet #3.

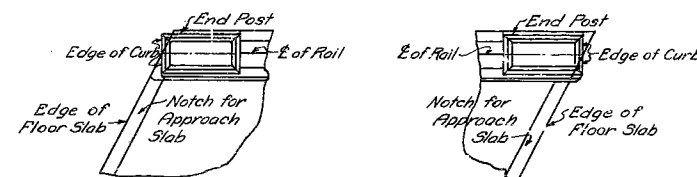


DETAILS OF EXPANSION JOINT AT BENTS NOS. 2 & 5

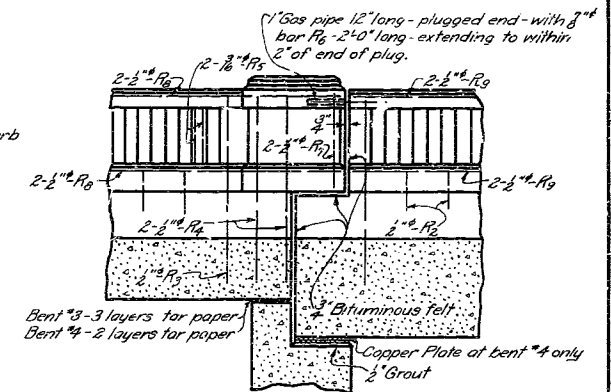


Note: Rail and top of posts to be built parallel to grade. Posts, subposts, and balusters to be built vertical.

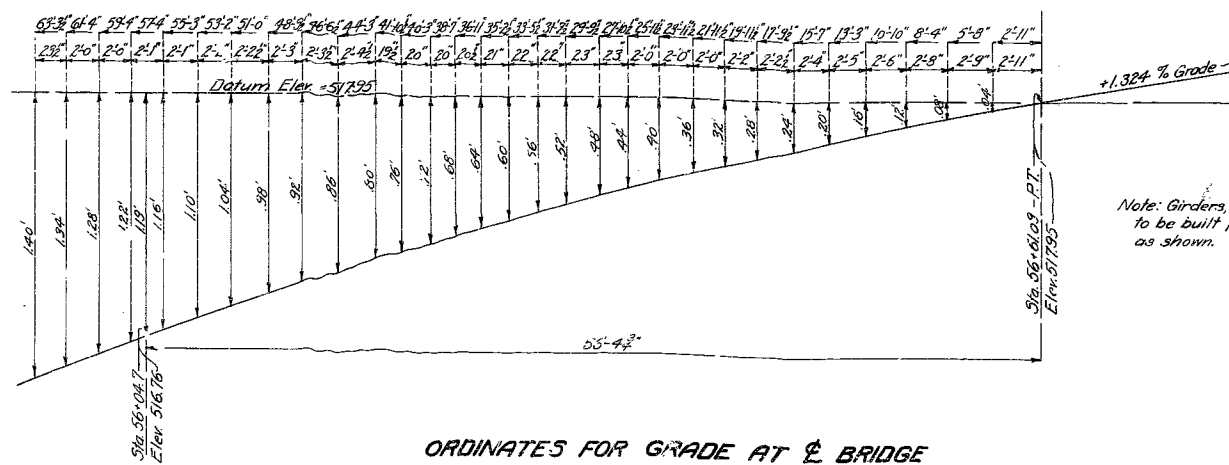
HALF SIDE ELEVATION OF HANDRAIL



SKETCHES SHOWING LOCATION OF END POSTS OF HANDRAIL



DETAILS OF EXPANSION JOINT AT BENTS NOS. 3 & 4



Note: Girders, slabs, and rail to be built parallel to grade as shown.

ORDINATES FOR GRADE AT BRIDGE

BRIDGE OVER MISSOURI PACIFIC R.R. TRACKS

STATE ROAD FROM ANNAPOLIS TO DES ARC  
ABOUT 2 MILES SOUTH OF ANNAPOLIS  
PROJECT NO. A49-37 STA. 56+04.7

IRON COUNTY

SUBMITTED BY *J. J. J.* DATE 11/18/25  
APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_  
CH. ENGINEER

Sta. 5320  
G-878

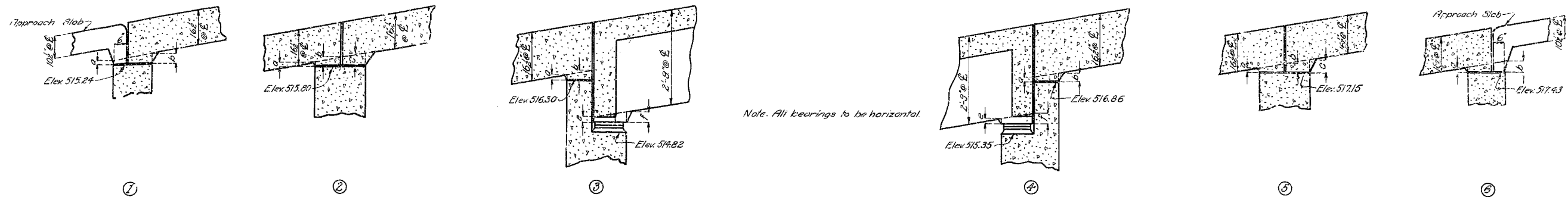
Drawn Oct. 1925 by A.J.D.  
Checked Nov. 1925 by J.J.

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47-10

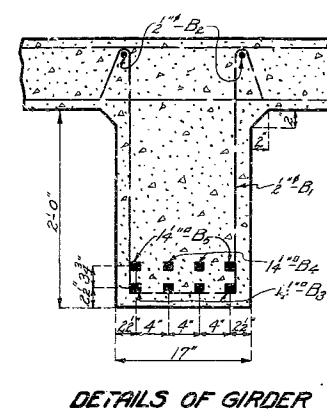
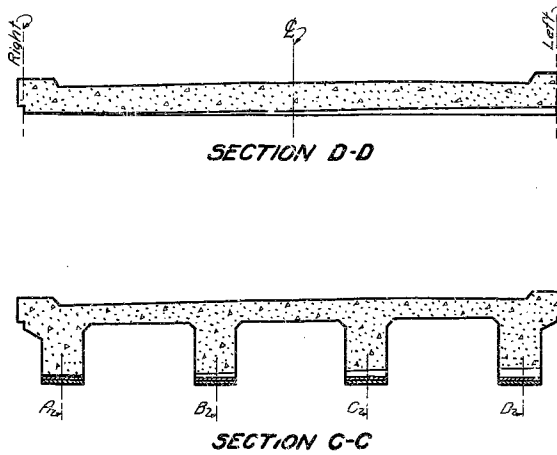
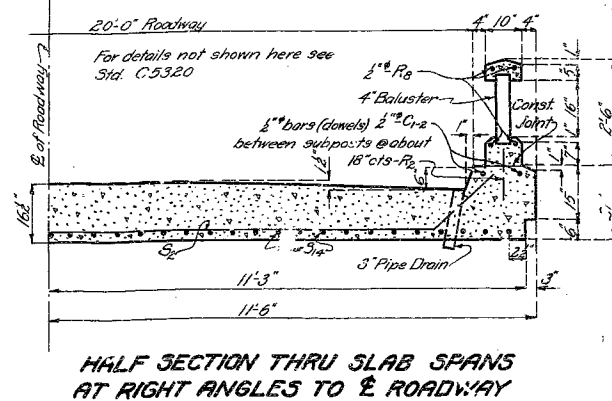
# MISSOURI STATE HIGHWAY DEPARTMENT

Fed. Road Dist. No.	State	Fed. Aid Proj. No.	Fiscal Year	Sh. of Total	Total Sheets
5	MO.	R49-57	192		

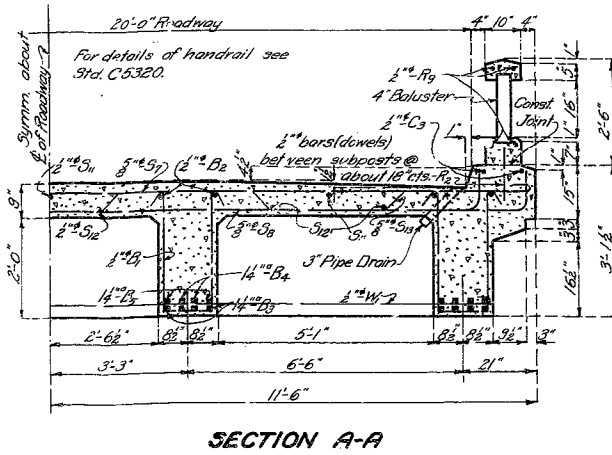


Note: All bearings to be horizontal.

**DETAILS OF BEARINGS SHOWING HAUNCHES**

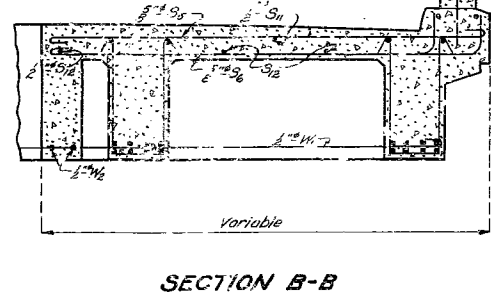
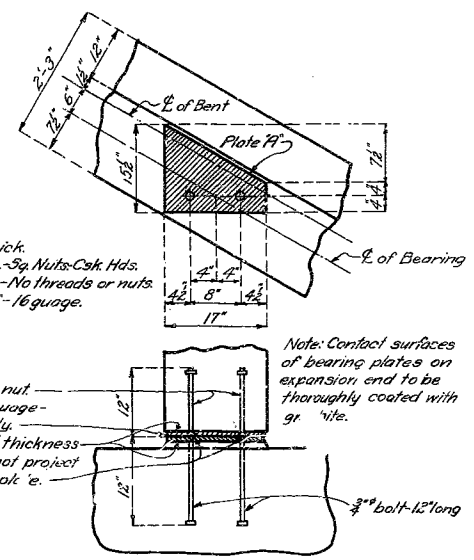


DIMENSIONS FOR HAUNCHES													
Bent	Section	a	b	c	Bent	Section	a	b	c	Bent	Section	e	f
*1	Right	0"	7 1/2"		*4	Right	0"	7 1/2"		*3	A	0"	7 1/2"
	E	17 1/2"	2 1/2"			E	7 1/2"	1"			B	8"	8"
	Left	3 1/2"	4 1/2"			Left	18"	1 1/2"			C	1 1/2"	12"
*2	Right	0"	7 1/2"	8"	*5	Right	0"	7 1/2"	8"		D	1 1/2"	2"
	E	12"	1 1/2"	2 1/2"		E	7 1/2"	1"	1 1/2"				
	Left	2 1/2"	3 1/2"	3 1/2"		Left	13"	1 1/2"	2"	*4	A	0"	7 1/2"
*3	Right	0"	4"		*6	Right	0"	4"			B	2"	16"
	E	1 1/2"	1 1/2"			E	7 1/2"	1 1/2"			C	1 1/2"	16"
	Left	2 1/2"	2 1/2"			Left	13"	1 1/2"			D	1 1/2"	17 1/2"

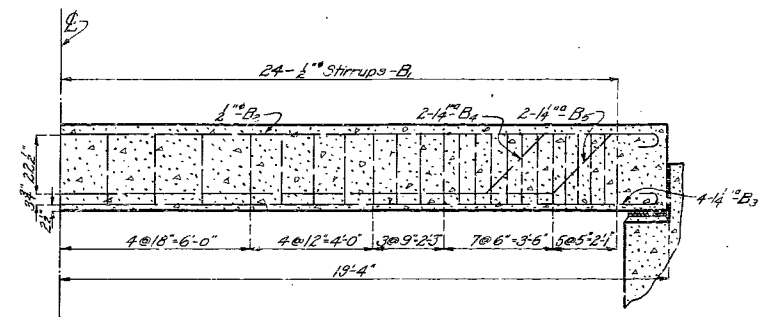


Note: The above section shows reinforcing in square part of deck girder span.

- Required:
- 16 - Plates P1 - 1/2" thick.
  - 16 - 3/8" Bolts 12" long. - Sq. Nuts - Csk. Hds.
  - 16 - 3/8" Bolts 12" long. - No threads or nuts.
  - 4 - Copper plates P1 - 16 gauge.



Note: The above section shows reinforcing in skewed part of deck girder span.



Note: Construction joints in deck girder slab permitted only longitudinally midway between girders - Provide keys.

**BRIDGE OVER MISSOURI PACIFIC R.R. TRACKS**

STATE ROAD FROM ANNAPOLIS TO DES ARC  
ABOUT 2 MILES SOUTH OF ANNAPOLIS  
PROJECT NO R49-57 STA. 56+04.7

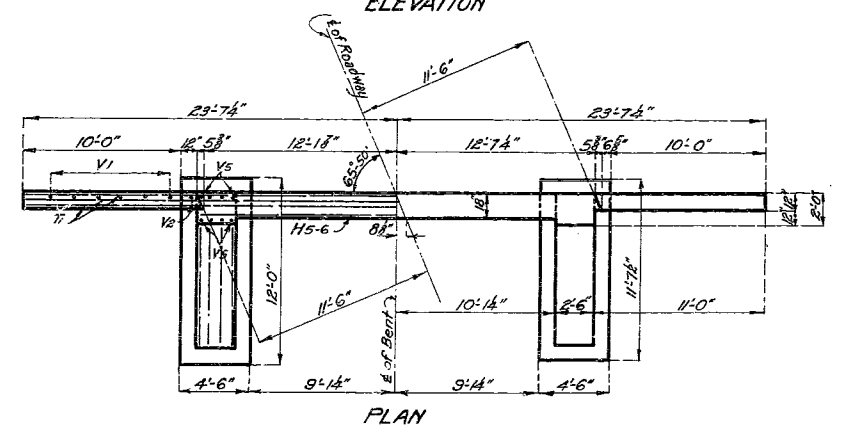
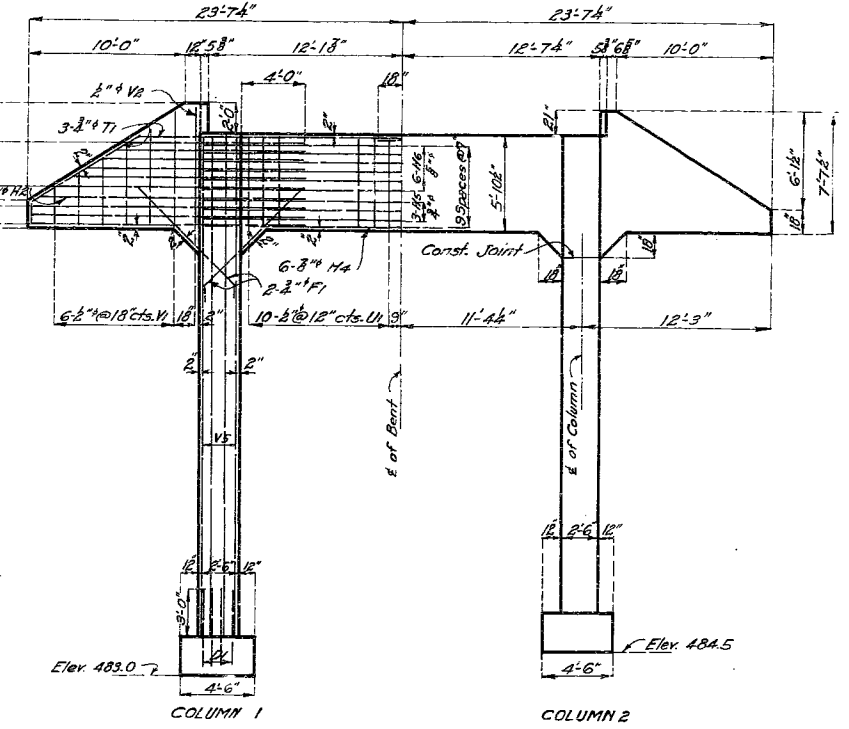
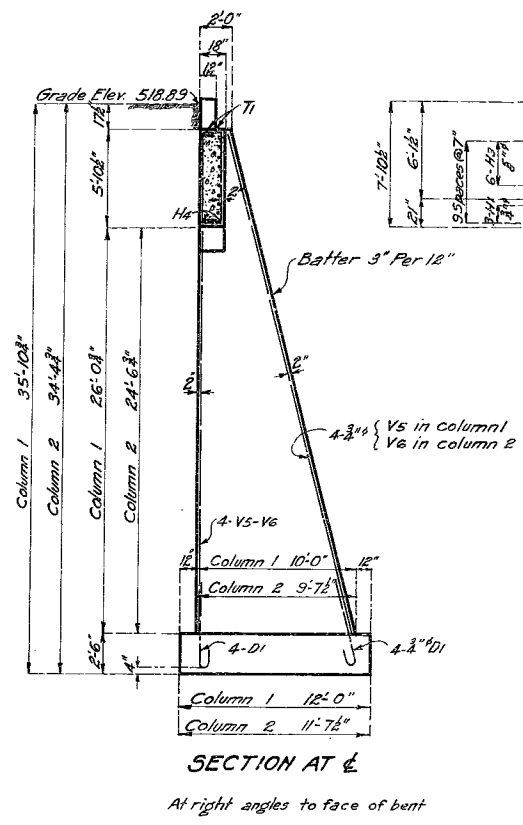
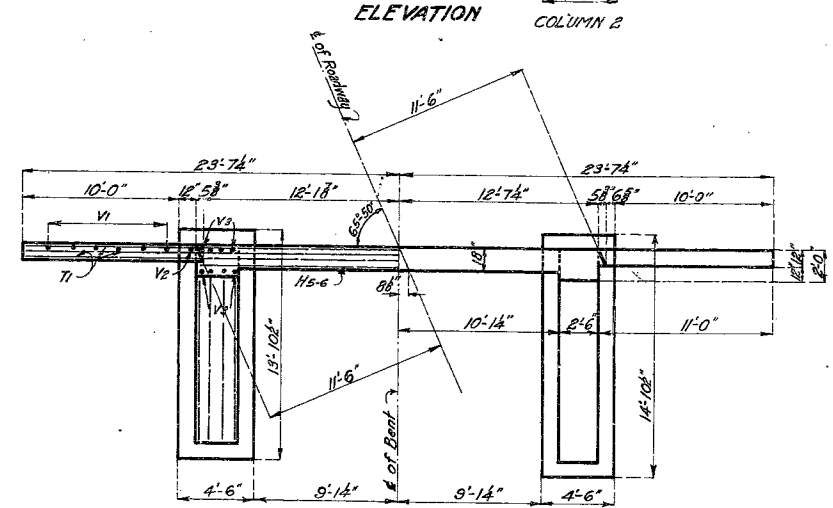
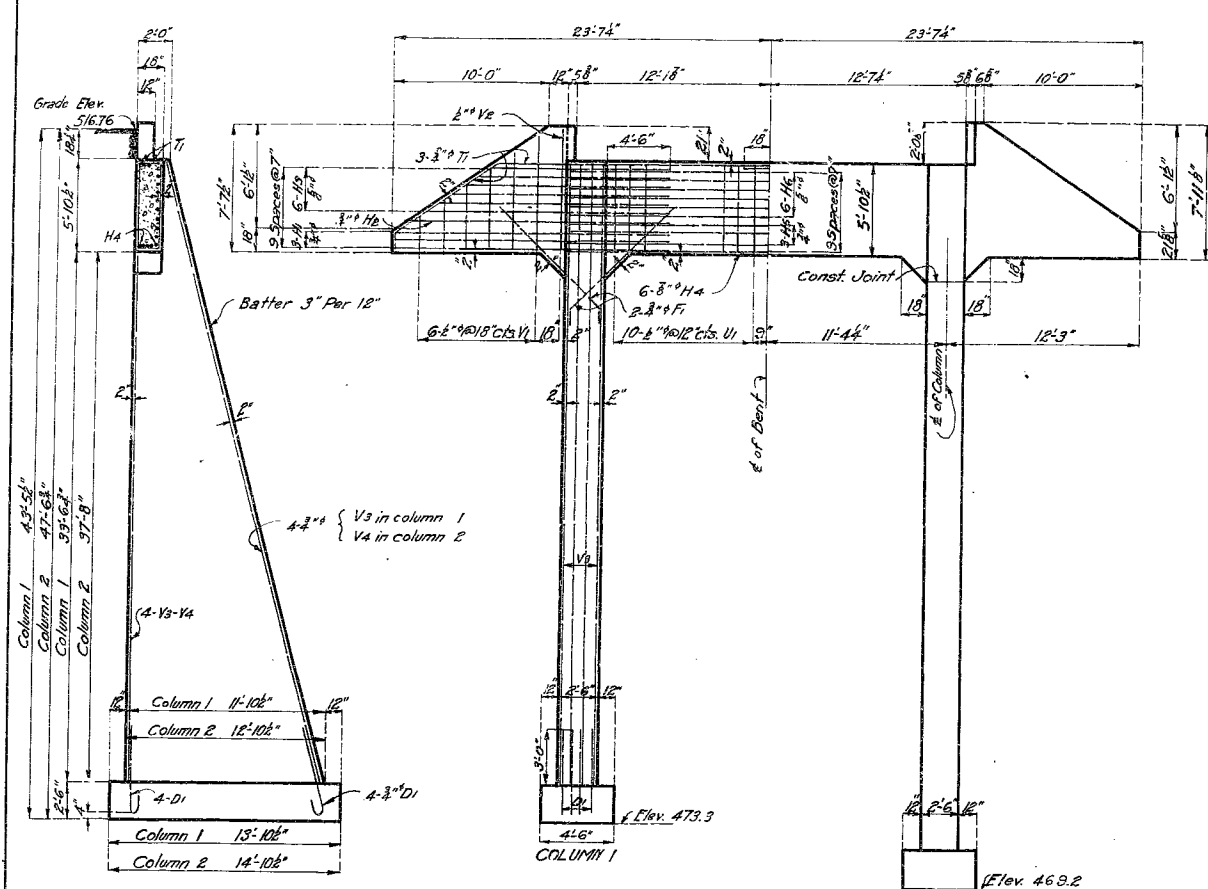
IRON COUNTY  
BRIDGE ENGINEER  
DATE 11/8/20  
CHIEF ENGINEER

StdC-5320  
G-878

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MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	R49-57	192		



BRIDGE OVER MISSOURI PACIFIC RAILROAD TRACKS  
STATE ROAD FROM ANNAPOLIS TO DES ARC  
ABOUT 2 MILES SOUTH OF ANNAPOLIS  
PROJECT NO. R49-57 STA 56+04.7

IRON COUNTY  
SUBMITTED BY *J. J. Sheardrup* DATE *11/25/25*  
APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_  
BRIDGE ENGINEER  
CHIEF ENGINEER

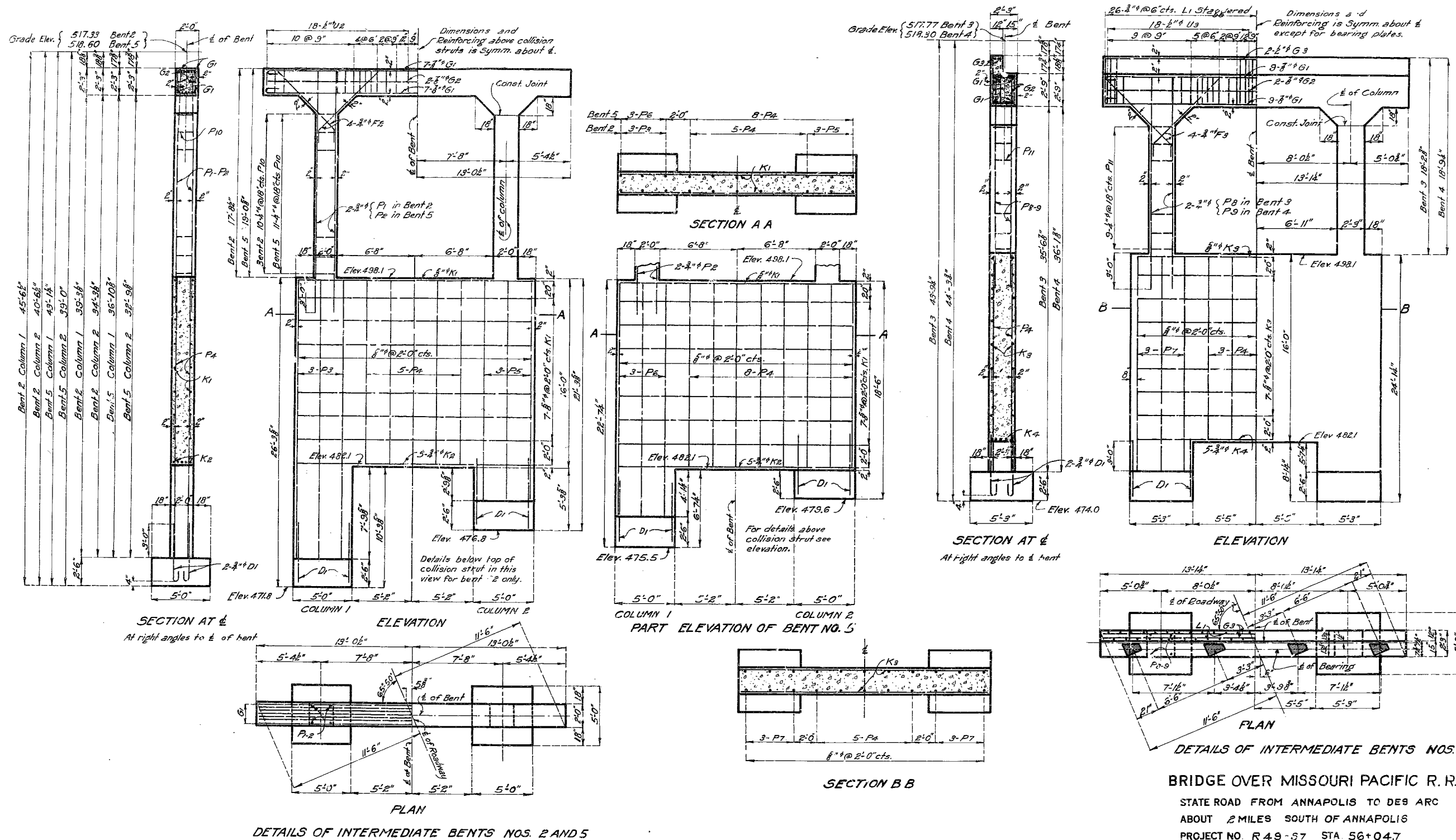
Drawn Oct. 1925 By A.F.K.  
Checked Nov. 1925 By J.I.

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47-72

# MISSOURI STATE HIGHWAY DEPARTMENT

REQ. FROM	DATE	BY	REV.	NO.	TOTAL SHEETS
5	10	R49-57	132		



287

Drawn Oct. 1925 By A.F.K.  
 Checked Nov. 1925 By J.I.

**BRIDGE OVER MISSOURI PACIFIC R.R. TRACKS**  
 STATE ROAD FROM ANNAPOLIS TO DES ARC  
 ABOUT 2 MILES SOUTH OF ANNAPOLIS  
 PROJECT NO. R 49-57 STA. 56+04.7

**IRON COUNTY**  
 SUBMITTED BY *J. Warding* DATE *10/25/25*  
 APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_  
 BRIDGE ENGINEER CHIEF ENGINEER

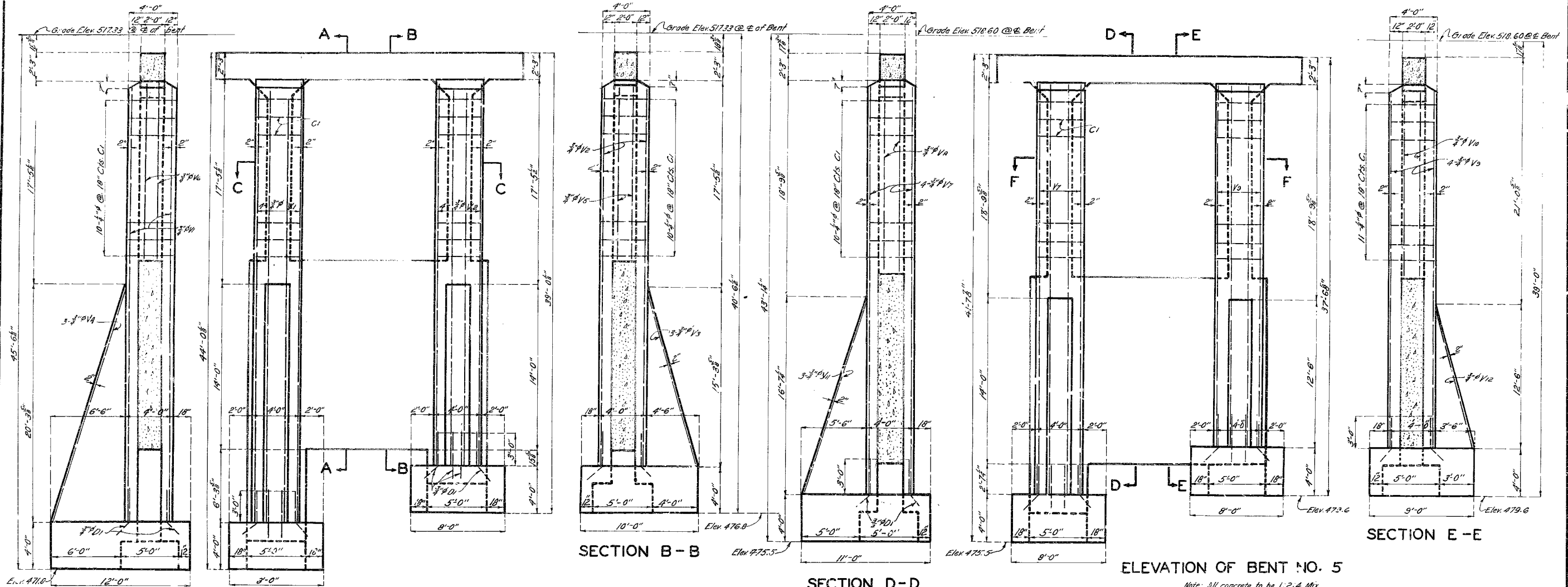
STD. C. 5320  
 G 878

Sheet #5 of 5

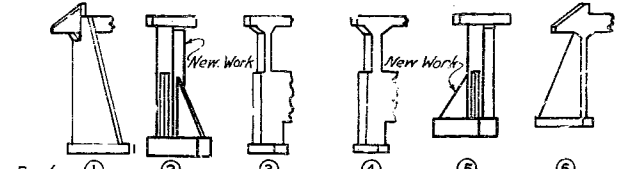
47-13

# MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	R49-S7A			



Note: All concrete to be 1:2:4 Mix.  
Exposed edges to be beveled  $\frac{3}{8}$ " where no other bevel is noted.  
Light lines indicate old work.  
Heavy lines indicate new work.



BILL OF REINFORCING STEEL					
NO.	SIZE	LENGTH	MARK	LOCATION	BENDING SKETCHES
32	$\frac{3}{8}$ "	6'-0"	D1	Footings	
8	$\frac{3}{8}$ "	37'-0"	V1	Column	
8	$\frac{3}{8}$ "	32'-0"	V2	"	
3	$\frac{3}{8}$ "	16'-6"	V3	"	
3	$\frac{3}{8}$ "	21'-0"	V4	"	
4	$\frac{3}{8}$ "	17'-6"	V5	"	
4	$\frac{3}{8}$ "	17'-6"	V6	"	
8	$\frac{3}{8}$ "	34'-6"	V7	"	
4	$\frac{3}{8}$ "	18'-9"	V8	"	
8	$\frac{3}{8}$ "	30'-6"	V9	"	
4	$\frac{3}{8}$ "	18'-9"	V10	"	
3	$\frac{3}{8}$ "	17'-6"	V11	"	
3	$\frac{3}{8}$ "	13'-6"	V12	"	
42	$\frac{3}{8}$ "	16'-0"	C1	"	

ESTIMATED QUANTITIES		
Concrete 1:2:4 Mix.	Cu. Yds.	102.6
Reinforcing Steel	Lbs.	2770
Excavation	Cu. Yds.	400

**BRIDGE MO. PAC. R.R. TRACKS**  
STATE ROAD FROM ANNAPOLIS TO DES ARC  
ABOUT 2 MILES SOUTH OF ANNAPOLIS  
PROJECT NO. R49-S7A STA. 56+3.47

**IRON COUNTY**  
SUBMITTED BY *V. W. Enlow* DATE *Dec 20 1927*  
ACTING BRIDGE ENGINEER  
PASSED BY *[Signature]* DATE *12 20 27*  
ASSISTANT TO CHIEF ENGINEER  
APPROVED BY *[Signature]* DATE *12 20 27*  
CHIEF ENGINEER

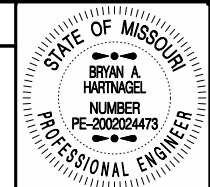
**G-878-A**

288

Drawn Sept. 1927 By AFK.  
Traced Sept. 1927 By L.W.V.  
Checked Sept. 1927 By J.L.P.

U.I.P. AND REHAB. EXISTING (20', 22.8') CONC. SLAB SPANS, (38.7') CONC. DECK GIRDER, (22.8', 20') CONC. SLAB SPANS

SEC/SUR 25 TWP 31N RGE 3E



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 9/2/2015

ROUTE 49 STATE MO

DISTRICT BR SHEET NO. 1

COUNTY IRON

JOB NO. J9P3116

CONTRACT ID.

PROJECT NO.

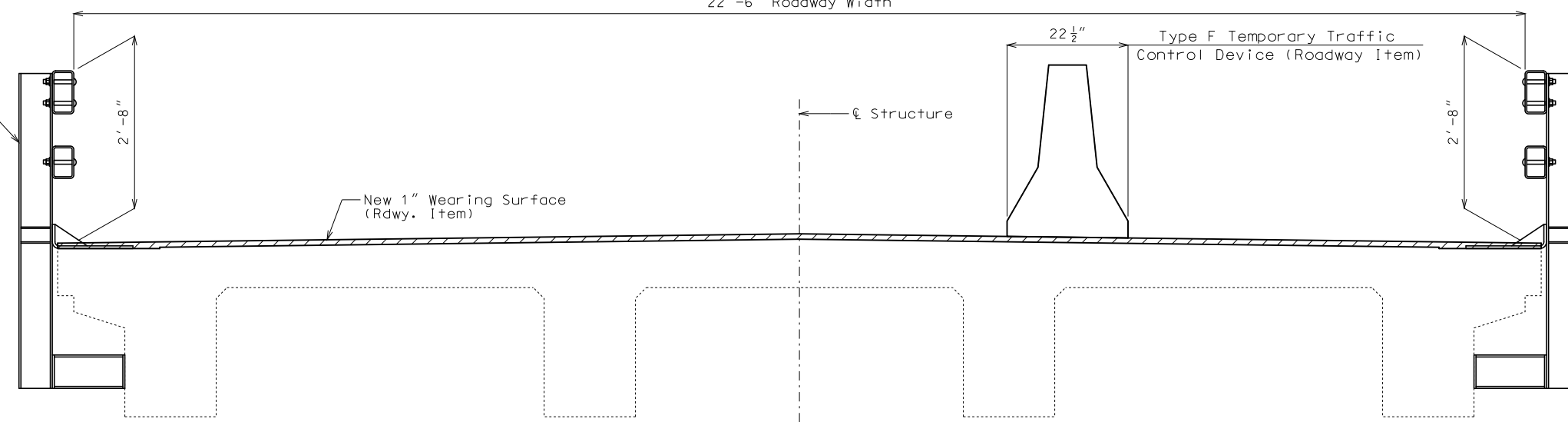
BRIDGE NO. G08781

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION  
 105 WEST CAPITOL JEFFERSON CITY, MO 65102  
 1-888-ASK-MODOT (1-888-275-6636)

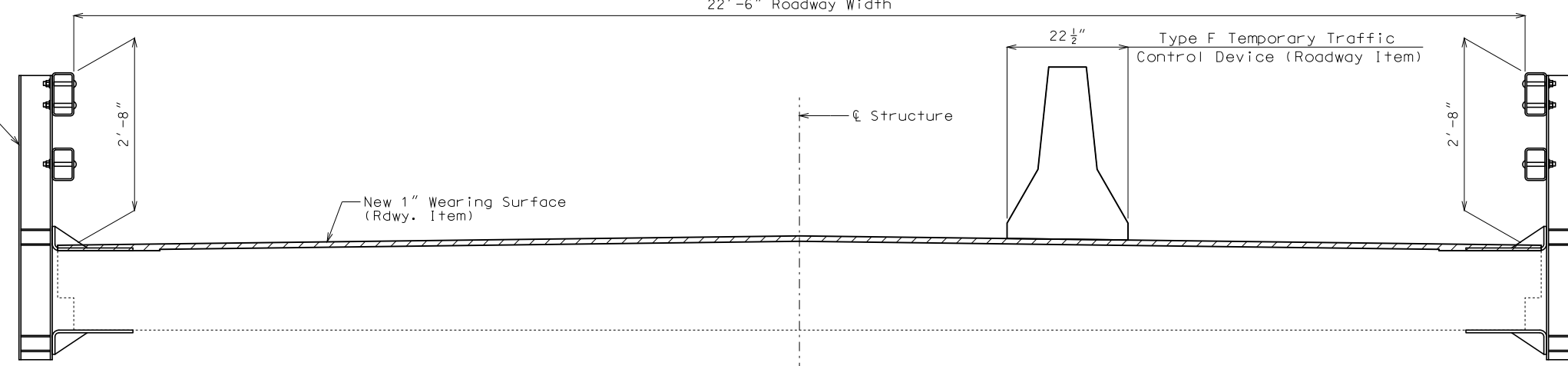
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

22'-6" Roadway Width

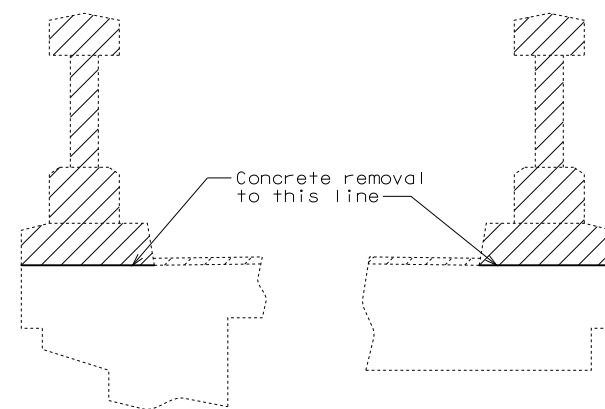


SECTION THRU DECK GIRDER SPAN

22'-6" Roadway Width



SECTION THRU SLAB SPANS



TYPICAL PART SECTION THRU SLAB AND DECK GIRDER SPANS SHOWING LIMITS OF CONCRETE REMOVAL

For details of post, see Sheet No. 5.

For details of post, see Sheet No. 5.

For details of post, see Sheet No. 4.

For details of post, see Sheet No. 4.

**GENERAL NOTES:**

**Design Specifications:**  
2002 AASHTO LFD (17th Ed.) Standard Specifications

**Traffic Control:**  
One lane of traffic shall remain open during construction. See Roadway Plans for traffic control.

**Miscellaneous:**  
Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

Contractor shall verify all dimensions in field before ordering new material.

Temporary barrier shall not be attached to the bridge.

Existing vertical and horizontal clearances of structure over railroad will not be reduced with new construction.

Estimated Quantities		
Item		Total
* Curb Removal	linear foot	255
Bridge Rail (Two Tube Structural Steel)	linear foot	253

\* Includes curb, baluster rail and end post.

**REPAIRS TO BRIDGE: ROUTE 49 OVER U.P.R.R.**

ROUTE 49 FROM RTE. F TO RTE. BB  
 ABOUT 0.4 MILE S.W. OF RTE. F  
 STA. 56+04.70± (Match Existing)

STD. 606.00
STD. 606.23
STD. 617.20









THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED  
9/2/2015

ROUTE 49 STATE MO

DISTRICT BR SHEET NO. 3

COUNTY IRON

JOB NO. J9P3116

CONTRACT ID.

PROJECT NO.

BRIDGE NO. G08781

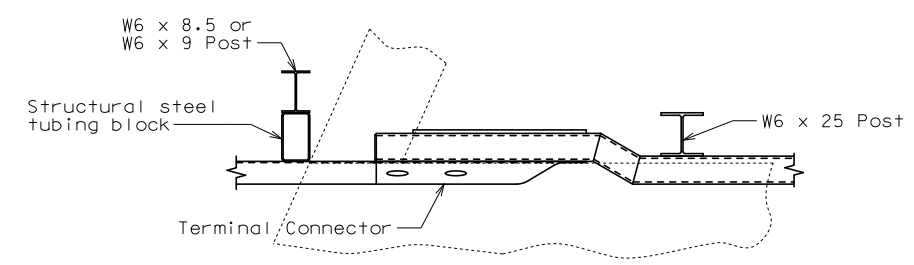
DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

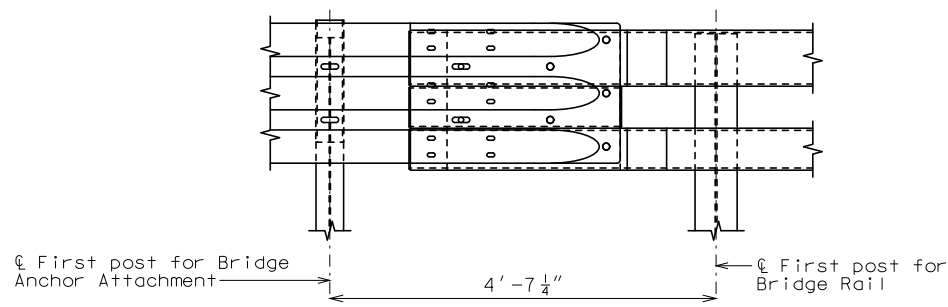
105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-275-6636)



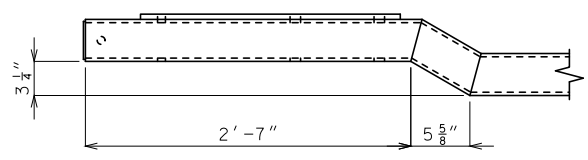
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



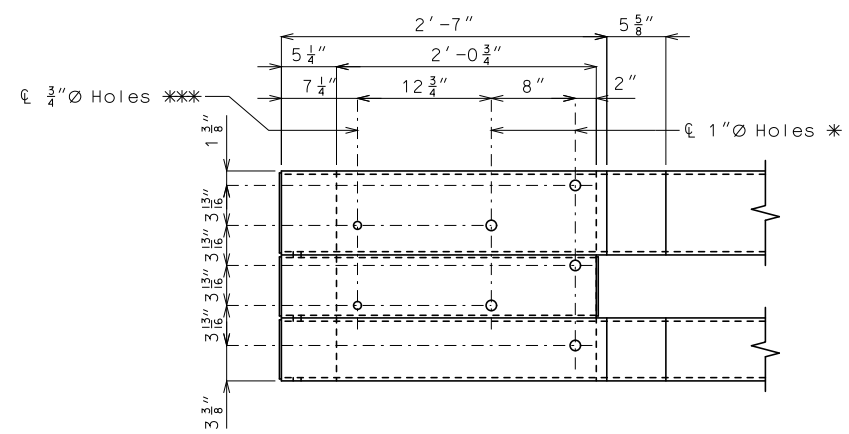
PLAN



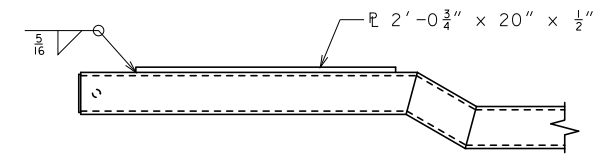
DETAIL "A"  
(Part elevation of Bridge Anchor Attachment)



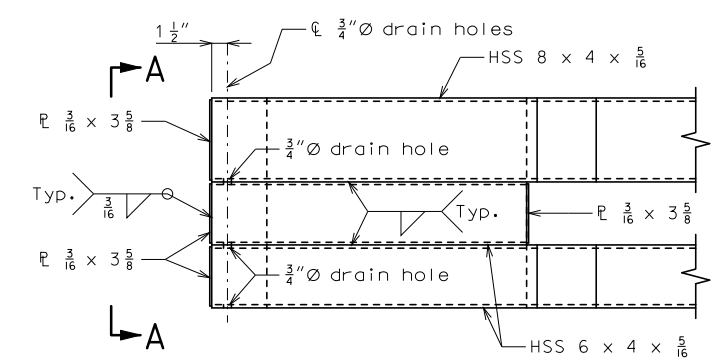
PLAN



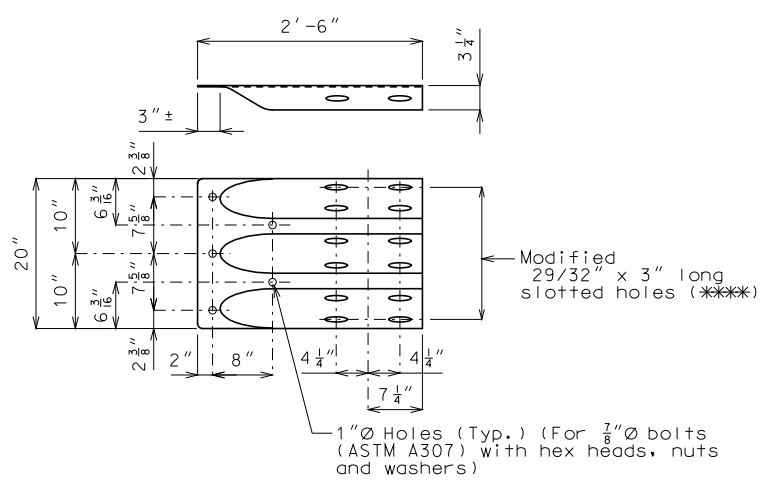
END OF RAIL SHOWING  
BOLT HOLE LAYOUT FOR  
GUARDRAIL ATTACHMENT



PLAN

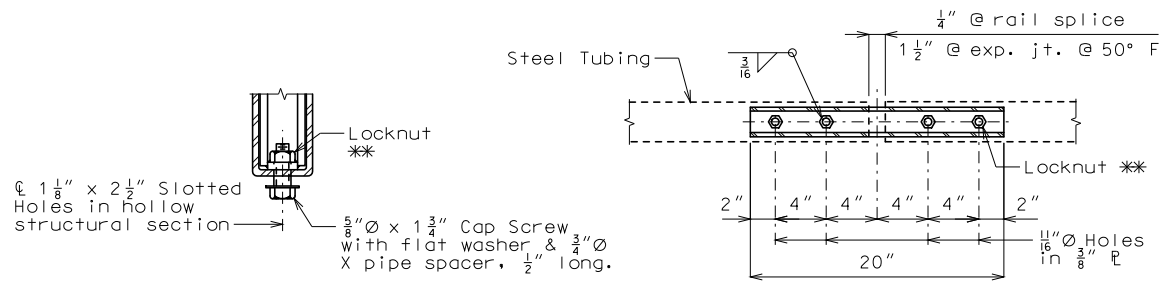


END OF RAIL DETAILS

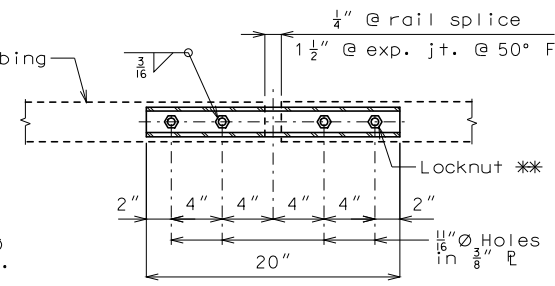


MODIFIED TERMINAL CONNECTION  
AT ABUTMENTS (ROADWAY ITEM)

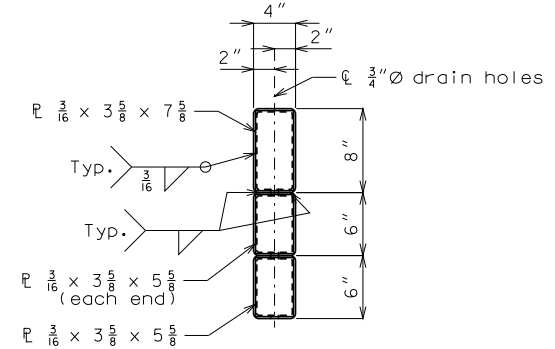
\*\*\* Tighten bolts, back off 1/2 turn and burr threads. Allow for sliding between Modified Bridge Anchor Section (Thrie Beam) and Bridge Rail (Two Tube Structural Steel).



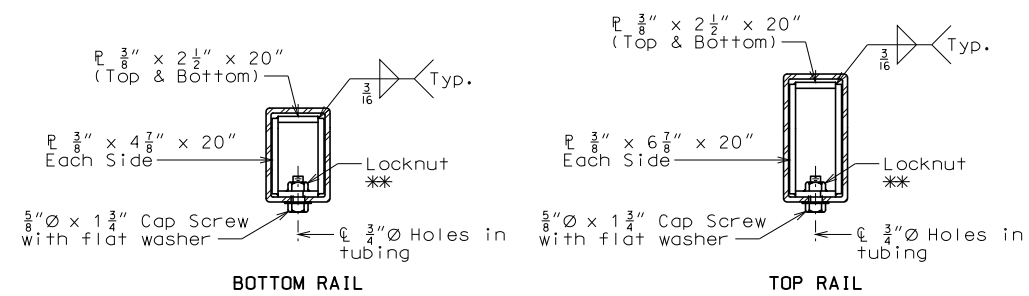
RAIL SPLICE CONNECTION  
AT EXPANSION JOINT



PLAN-BOTTOM SPLICE &  
TYPICAL



SECTION A-A



BOTTOM RAIL

TOP RAIL

SECTIONS AT RAIL SPLICE

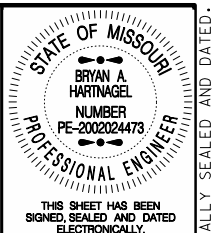
\* For 7/8" bolts (ASTM A307) with hex heads, nuts and washers

\*\* Tack weld nut to plate

\*\*\* For 5/8" button-head oval shoulder bolts with hex nuts

Work this sheet with Sheets No. 2, 4 & 5.





DATE PREPARED 9/2/2015	
ROUTE 49	STATE MO
DISTRICT BR	SHEET NO. 5
COUNTY IRON	
JOB NO. J9P3116	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. G08781	

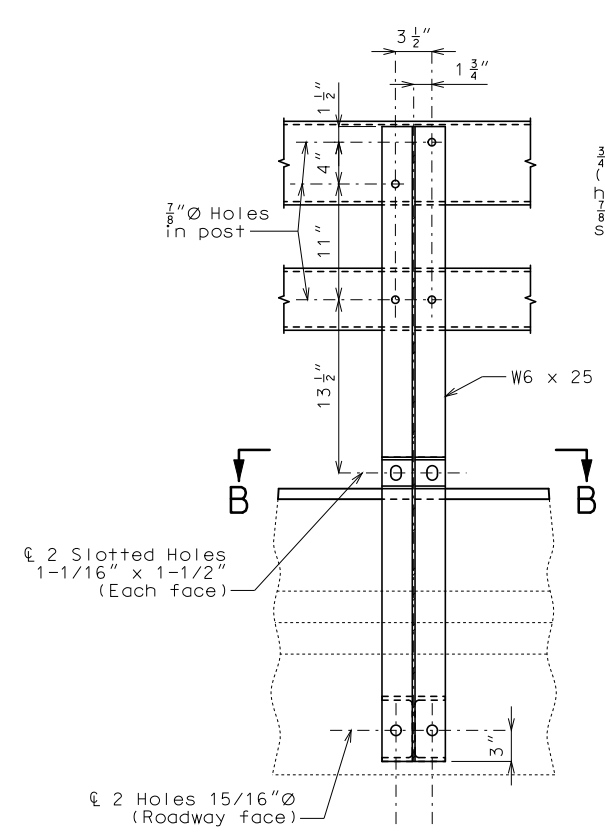
DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

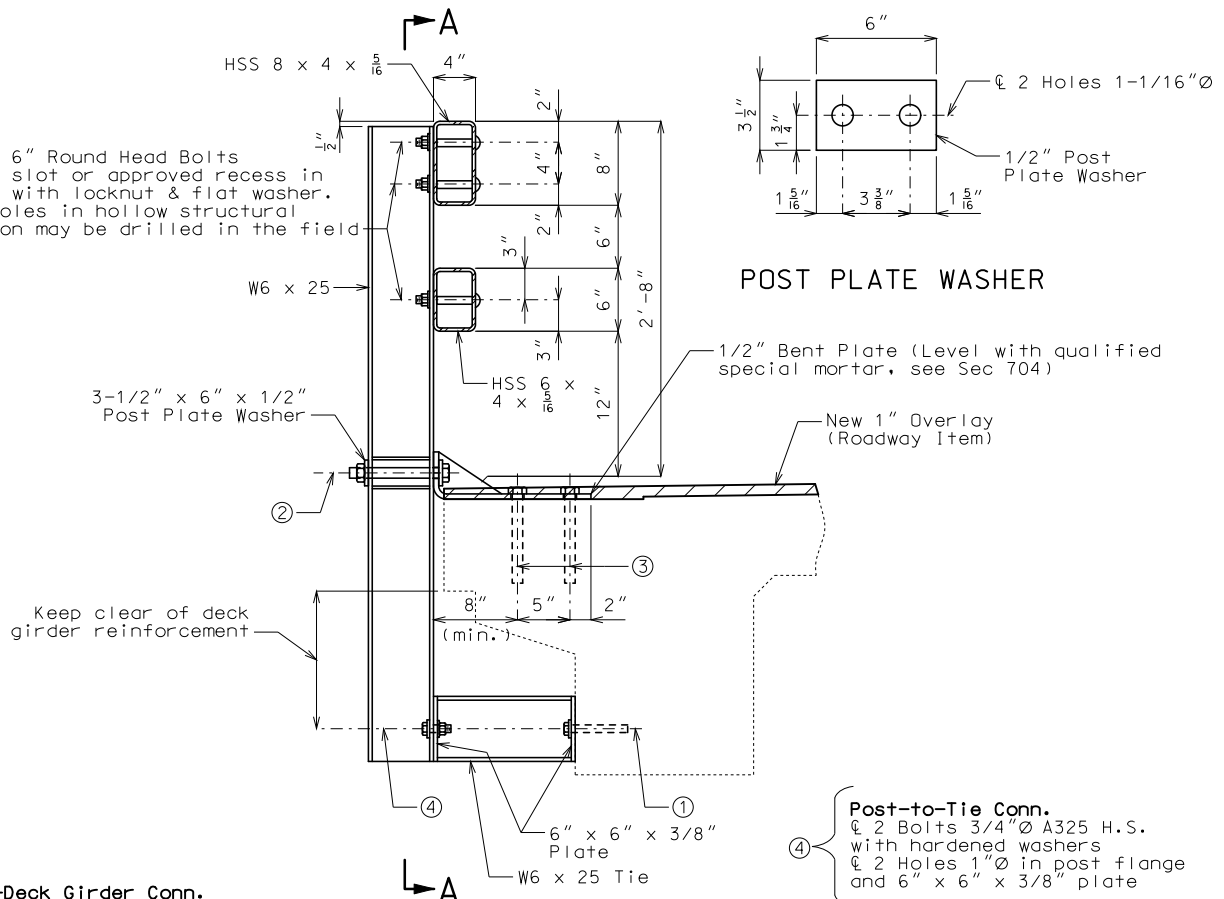
105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



SECTION A-A

**Tie-to-Deck Girder Conn.**  
 ① 2 Resin Anchor Systems to include:  
 2 Drilled holes 7/8" (min.) or as recommended by manufacturer in girder  
 2 Holes 1" in plates and post flange  
 2 Threaded rod 3/4" A449 H.S., snug tight, 5" embedment in girder  
 2 Hardened locking washers

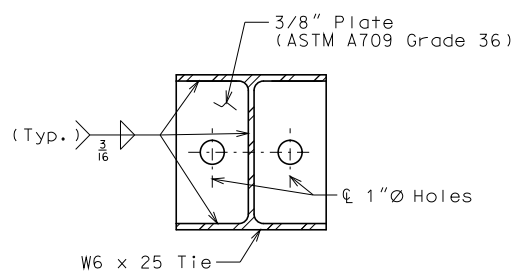


POST PLATE WASHER

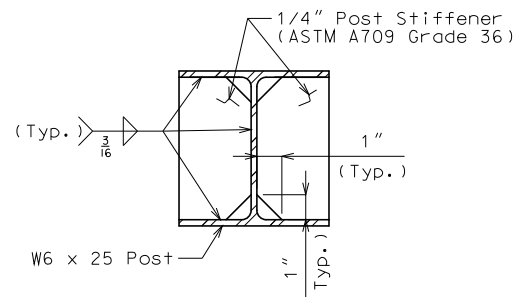
**Post-to-Bent Plate Conn.**  
 ② 2 Bolts 1" A325 H.S. with hardened washers  
 2 Vertical slotted holes 1-1/16" x 1-1/2" in post flanges  
 2 Holes 1-1/16" in bent plate and post plate washer

**Bent Plate-to-Deck Conn.**  
 ③ 3 Resin Anchor Systems to include:  
 3 Drilled holes 1-1/8" (min.) in slab or as recommended by manufacturer  
 3 Holes 1-1/4" in bent plate  
 3 Threaded rod 1" A449 H.S., snug tight, 8" (min.) embedment in slab.  
 3 Hardened locking washers

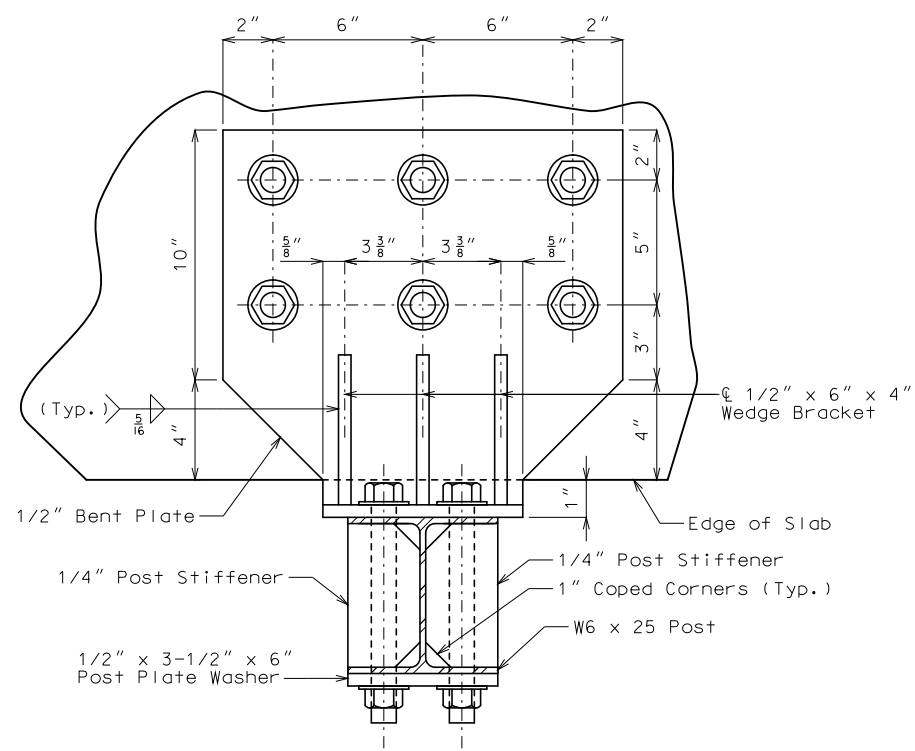
**Post-to-Tie Conn.**  
 ④ 2 Bolts 3/4" A325 H.S. with hardened washers  
 2 Holes 1" in post flange and 6" x 6" x 3/8" plate



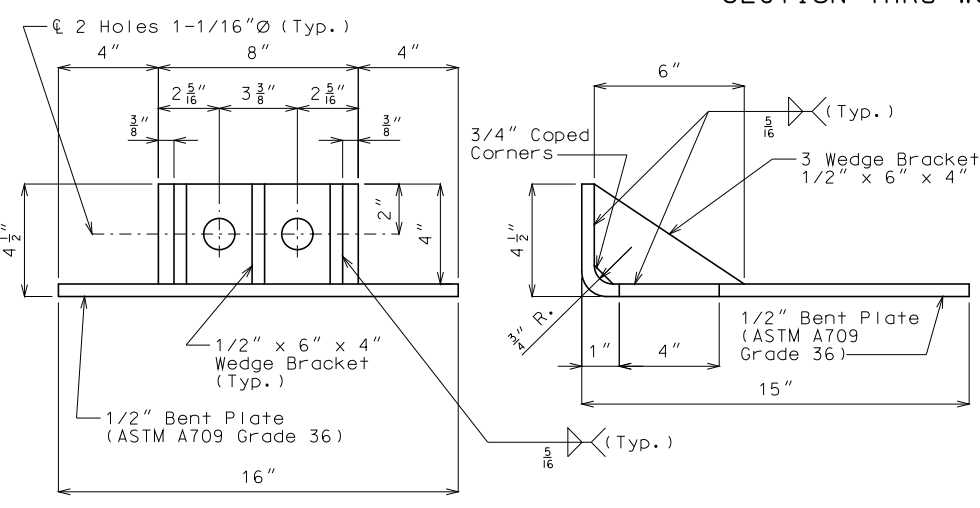
SECTION THRU W6 X 25 TIE



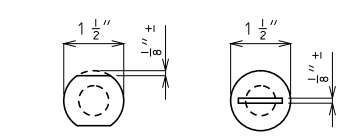
POST STIFFENER



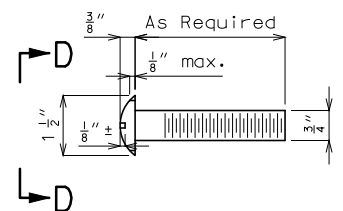
SECTION B-B



DETAILS OF 1/2" BENT PLATE  
 DETAILS OF POST CONNECTION "B"



VIEW D-D



DETAIL OF 3/4" ROUND HEAD BOLT

Notes:

Fabrication of structural steel shall be in accordance with Sec 712 and 1080.  
 Hollow structural sections shall be in accordance with ASTM designation A 500 Grade B Structural Steel Tubing and shall meet the longitudinal CVN requirements of 15 ft-lbs at 0° F, see Sec 1080 for reporting.

All other steel shapes and plates shall be in accordance with AASHTO M 270 Grade 36.  
 Bolts, cap screws, and nuts shall be in accordance with ASTM designation A 307 except for high strength bolts, nuts and washers noted which shall be in accordance with AASHTO M 164.

All bolts, nuts, cap screws, washers and lock washers shall be galvanized in accordance with AASHTO M 232.  
 All posts, railing, rail splices, bent plates and ties shall be galvanized after shop fabrication in accordance with AASHTO M 111 and ASTM A 385. Galvanized rail shall not be painted.

Railing shall be in accordance with Sec 713, except as noted.  
 All field drilled holes shall be coated with an approved zinc rich paint before erection.

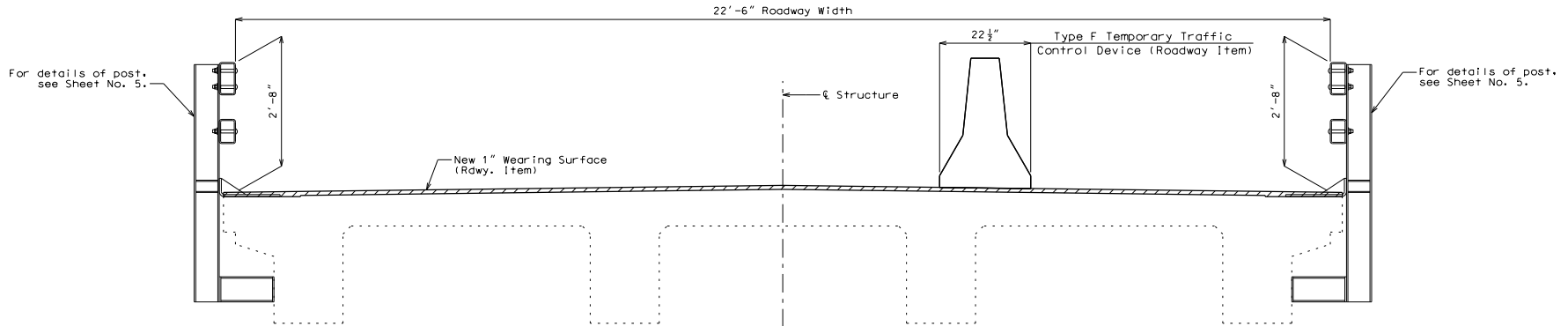
For details of Bridge Rail post spacing, see Sheet No. 2.  
 Payment for furnishing all materials, equipment and labor necessary to install Bridge Rail, complete-in-place, shall be considered completely covered by the contract unit price per linear foot for Bridge Rail (Two Tube Structural Steel).

Delineators shall be placed on top of the W6x25 post as shown on Missouri Standard Plans 606.00 and in accordance with Sec 606. Delineators on bridges with two-lane, two-way traffic shall have retroreflective sheeting on both sides. Delineators will be considered completely covered by the contract unit price for Bridge Rail (Two Tube Structural Steel).

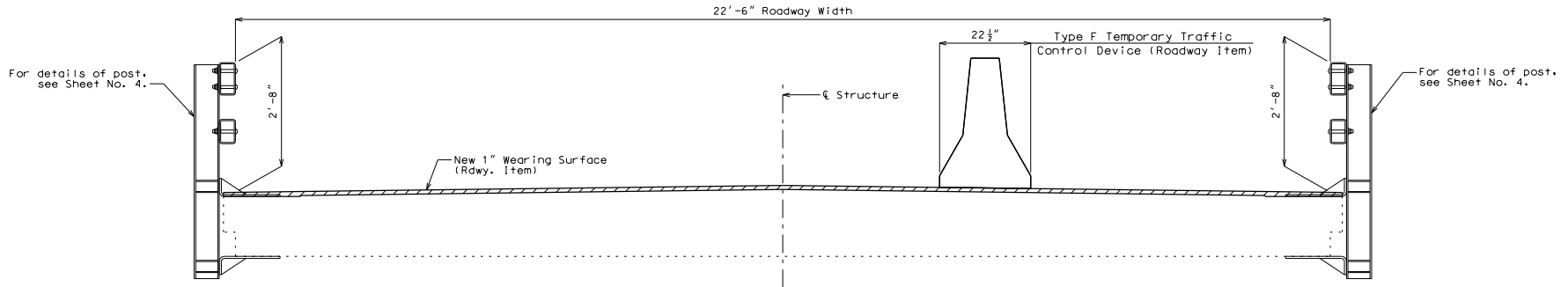
HSS = Hollow structural sections  
 XXS = Double extra strong  
 Work this sheet with Sheets No. 2 & 3.

U.I.P. AND REHAB. EXISTING (20', 22.8') CONG. SLAB SPANS, (38.7') CONG. DECK GIRDER,  
(22.8', 20') CONG. SLAB SPANS

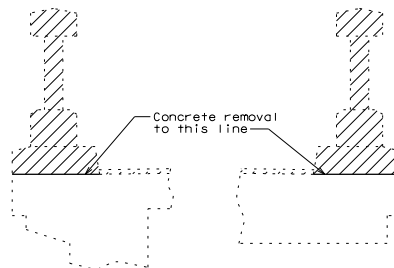
SEC/SUR 25 TWP 31N RGE 3E



SECTION THRU DECK GIRDER SPAN



SECTION THRU SLAB SPANS



TYPICAL PART SECTION THRU  
SLAB AND DECK GIRDER SPANS  
SHOWING LIMITS OF CONCRETE REMOVAL

THESE PLANS ACCURATELY DEPICT THE CONFIGURATION AND LOCATION  
OF THE ROADWAY AND ALL APPURTENANCE FEATURES INCLUDING MODIFICATIONS  
DESIGNATED OR AUTHORIZED BY THE ENGINEER OF RECORD.

SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

GENERAL NOTES:

Design Specifications:  
2002 AASHTO LFD (17th Ed.) Standard Specifications

Traffic Control:  
One lane of traffic shall remain open during construction.  
See Roadway Plans for traffic control.

Miscellaneous:  
Outline of old work is indicated by light dashed lines. Heavy lines indicate  
new work.

Contractor shall verify all dimensions in field before ordering new material.

Temporary barrier shall not be attached to the bridge.

Existing vertical and horizontal clearances of structure over railroad will not  
be reduced with new construction.

Final Quantities		
Item	linear foot	Total
* Curb Removal	255	255 ✓
Bridge Rail (Two Tube Structural Steel)	253	253 ✓

\* Includes curb, baluster rail and end post.

REPAIRS TO BRIDGE: ROUTE 49 OVER U.P.R.R.

ROUTE 49 FROM RTE. F TO RTE. BB	STD. 606.00
ABOUT 0.4 MILE S.W. OF RTE. F	STD. 606.23
STA. 56+04.70± (Match Existing)	STD. 617.20

DATE PREPARED 11/23/2016  
ROUTE 49 STATE MO  
DISTRICT SE SHEET NO. 1  
COUNTY IRON  
JOB NO. J9P3116  
CONTRACT ID. 151023-H04  
PROJECT NO. FAF 49-1(112)  
BRIDGE NO. G08781

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

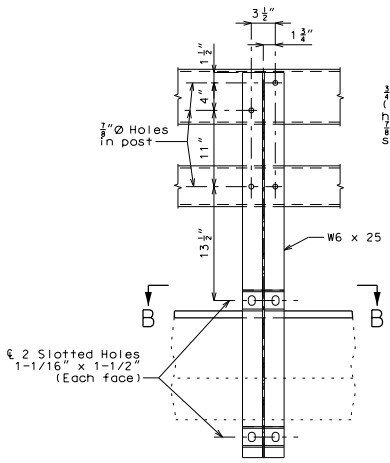
105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



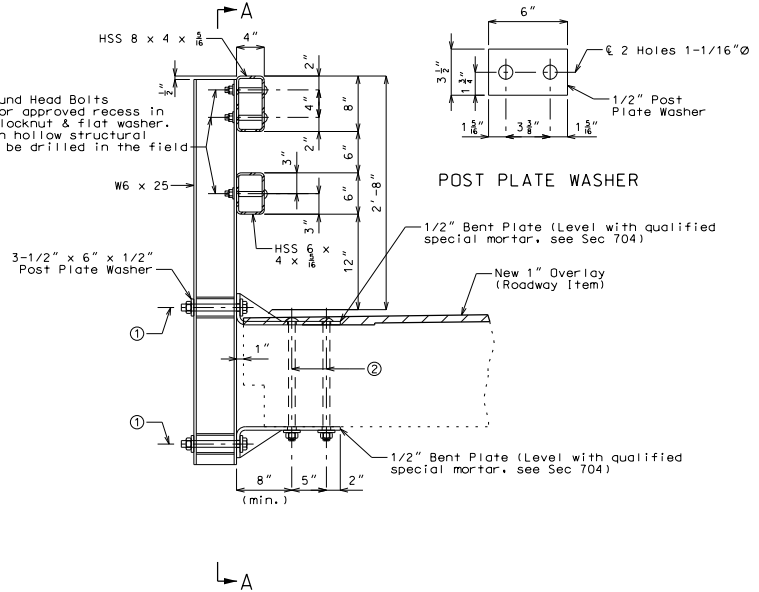






SECTION A-A

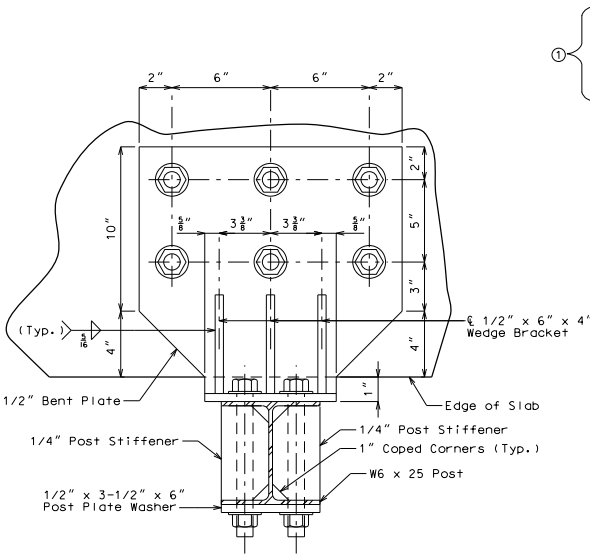
1/2"  $\varnothing$  x 6" Round Head Bolts (with slot or approved recess in head) with locknut & flat washer. 3/8"  $\varnothing$  Holes in hollow structural section may be drilled in the field



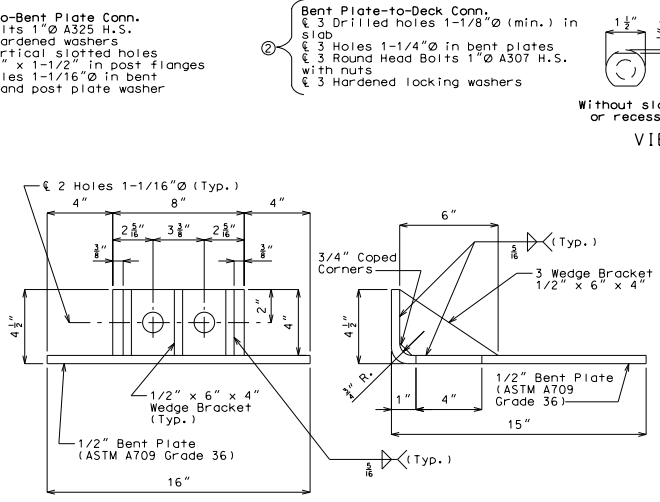
POST PLATE WASHER

Notes:  
 Fabrication of structural steel shall be in accordance with Sec 712 and 1080.  
 Hollow structural sections shall be in accordance with ASTM designation A 500 Grade B Structural Steel Tubing and shall meet the longitudinal CVN requirements of 15 ft-lbs at 0° F, see Sec 1080 for reporting.  
 All other steel shapes and plates shall be in accordance with AASHTO M 270 Grade 36.  
 Bolts, cap screws, and nuts shall be in accordance with ASTM designation A 307 except for high strength bolts, nuts and washers noted which shall be in accordance with AASHTO M 164.  
 All bolts, nuts, cap screws, washers and lock washers shall be galvanized in accordance with AASHTO M 322.  
 All posts, railing, rail splices and bent plates shall be galvanized after shop fabrication in accordance with AASHTO M 111 and ASTM A 385. Galvanized rail shall not be painted.  
 Railing shall be in accordance with Sec 713, except as noted.  
 All field drilled holes shall be coated with an approved zinc rich paint before erection.  
 For details of Bridge Rail post spacing, see Sheet No. 2.

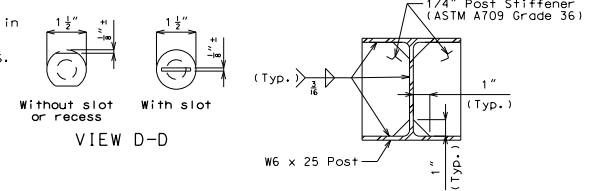
Payment for furnishing all materials, equipment and labor necessary to install Bridge Rail, complete-in-place, shall be considered completely covered by the contract unit price per linear foot for Bridge Rail (Two Tube Structural Steel).  
 Delimiters shall be placed on top of the W6x25 post as shown on Missouri Standard Plans 606.00 and in accordance with Sec 606. Delimiters on bridges with two-lane, two-way traffic shall have retroreflective sheeting on both sides. Delimiters will be considered completely covered by the contract unit price for Bridge Rail (Two Tube Structural Steel).  
 HSS = Hollow structural sections  
 XXS = Double extra strong  
 Work this sheet with Sheets No. 2 & 3.



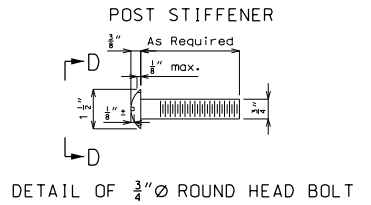
SECTION B-B



DETAILS OF POST CONNECTION "A"



VIEW D-D



DETAIL OF 3/4"  $\varnothing$  ROUND HEAD BOLT

THESE PLANS ACCURATELY DEPICT THE CONFIGURATION AND LOCATION OF THE ROADWAY AND ALL APPURTENANCE FEATURES, INCLUDING MODIFICATIONS DESIGNATED OR AUTHORIZED BY THE ENGINEER OF RECORD.

SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

Detailed Aug. 2015  
 Checked Aug. 2015

Note: This drawing is not to scale. Follow dimensions. Sheet No. 4 of 5

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

DATE PREPARED: 11/23/2016  
 ROUTE: 49 MO  
 DISTRICT: SE SHEET NO.: 4  
 COUNTY: IRON  
 JOB NO.: J9P3116  
 CONTRACT ID: 151023-H04  
 PROJECT NO.: FAF 49-1(12)  
 BRIDGE NO.: G08781

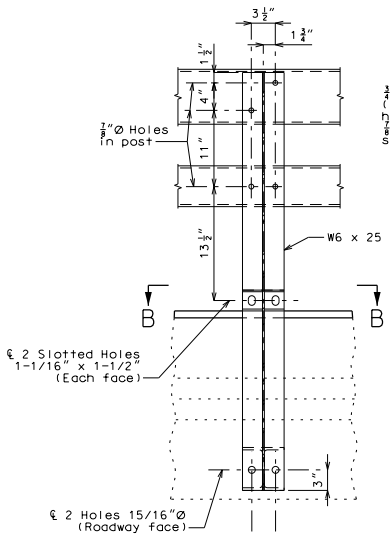
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636)

MODOT

FINAL PLANS





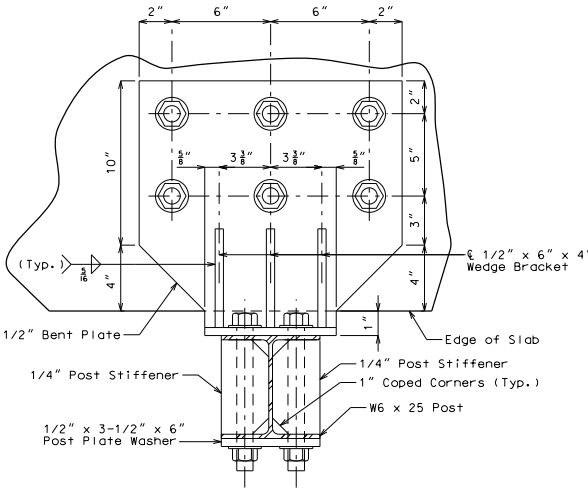
SECTION A-A

1/2"  $\phi$  x 6" Round Head Bolts (with slot or approved recess in head) with locknut & flat washer. 3/8"  $\phi$  Holes in hollow structural section may be drilled in the field

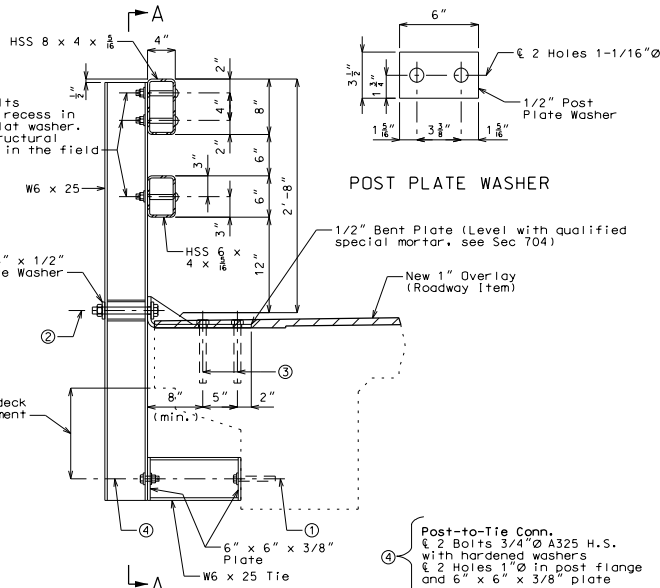
2 Holes 15/16"  $\phi$  (Roadway face)

Keep clear of deck girder reinforcement

- 1 Tie-to-Deck Girder Conn.  
 2 Resin Anchor Systems to include:  
 2 Drilled holes 7/8"  $\phi$  (min.) or as recommended by manufacturer in girder  
 2 Holes 1"  $\phi$  in plates and post flange  
 2 Threaded rod 3/4"  $\phi$  A449 H.S., snug tight, 5" embedment in girder  
 2 Hardened locking washers



SECTION B-B

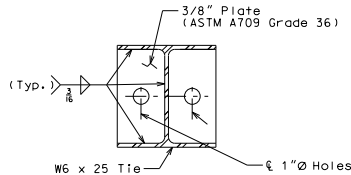


POST PLATE WASHER

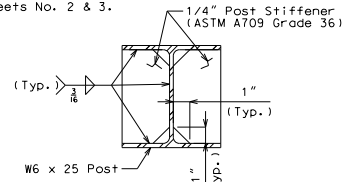
- 2 Post-to-Bent Plate Conn.  
 2 Bolts 3/4"  $\phi$  A325 H.S. with hardened washers  
 2 Vertical slotted holes 1-1/16" x 1-1/2" in post flanges  
 2 Holes 1-1/16"  $\phi$  in bent plate and post plate washer

- 3 Bent Plate-to-Deck Conn.  
 3 Resin Anchor Systems to include:  
 3 Drilled holes 1-1/8"  $\phi$  (min.) in slab or as recommended by manufacturer  
 3 Holes 1-1/4"  $\phi$  in bent plate  
 3 Threaded rod 1"  $\phi$  A449 H.S., snug tight, 8" (min.) embedment in slab.  
 3 Hardened locking washers

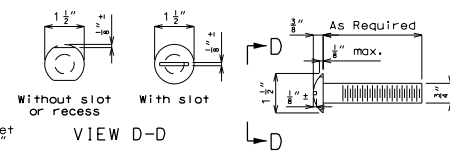
- 4 Post-to-Tie Conn.  
 2 Bolts 3/4"  $\phi$  A325 H.S. with hardened washers  
 2 Holes 1"  $\phi$  in post flange and 6" x 6" x 3/8" plate



SECTION THRU W6 X 25 TIE

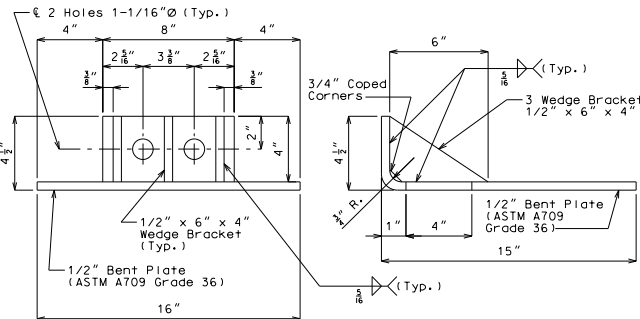


POST STIFFENER



VIEW D-D

DETAIL OF 3/4"  $\phi$  ROUND HEAD BOLT



DETAILS OF 1/2" BENT PLATE

DETAILS OF POST CONNECTION "B"

Notes:  
 Fabrication of structural steel shall be in accordance with Sec 712 and 1080.  
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 All other steel shapes and plates shall be in accordance with AASHTO M 270 Grade 36.  
 Bolts, cap screws, and nuts shall be in accordance with ASTM designation A 307 except for high strength bolts, nuts and washers noted which shall be in accordance with AASHTO M 164.  
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 All posts, railing, rail splices, bent plates and ties shall be galvanized after shop fabrication in accordance with AASHTO M 111 and ASTM A 385. Galvanized rail shall not be painted.  
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 HSS = Hollow structural sections  
 XXS = Double extra strong  
 Work this sheet with Sheets No. 2 & 3.

THESE PLANS ACCURATELY DEPICT THE CONFIGURATION AND LOCATION OF THE ROADWAY AND ALL APPURTENANCE FEATURES, INCLUDING MODIFICATIONS DESIGNATED OR AUTHORIZED BY THE ENGINEER OF RECORD.

SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

DATE PREPARED	11/23/2016
ROUTE	49 MO
DISTRICT	SE
SHEET NO.	5
COUNTY	IRON
JOB NO.	J9P3116
CONTRACT ID.	151023-H04
PROJECT NO.	FAF 49-1(12)
BRIDGE NO.	G08781
DESCRIPTION	
DATE	
COMMISSION	
FINAL PLANS	