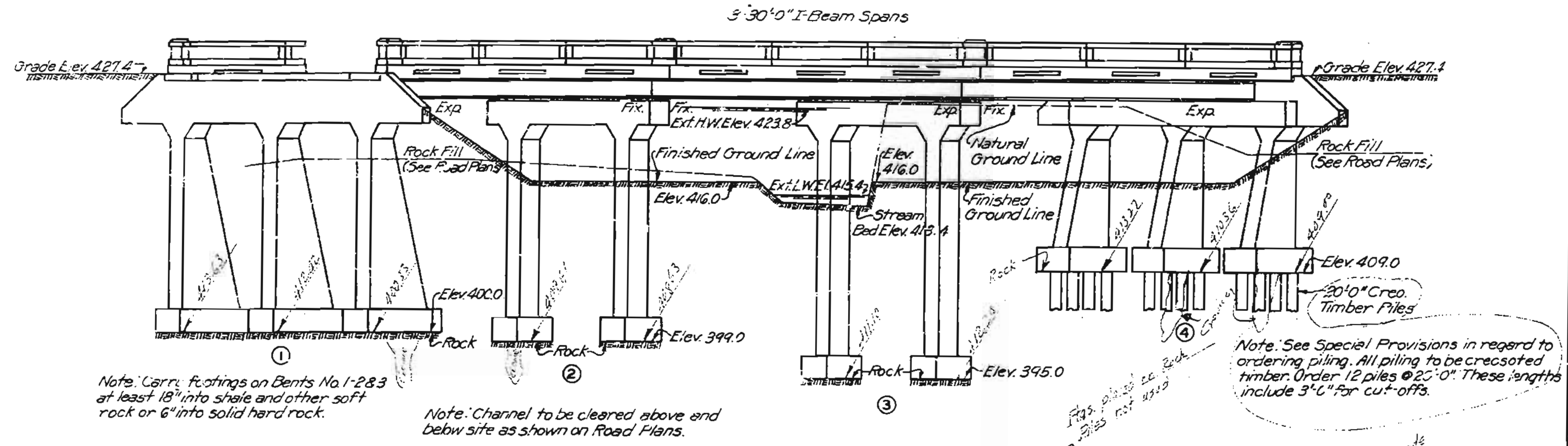
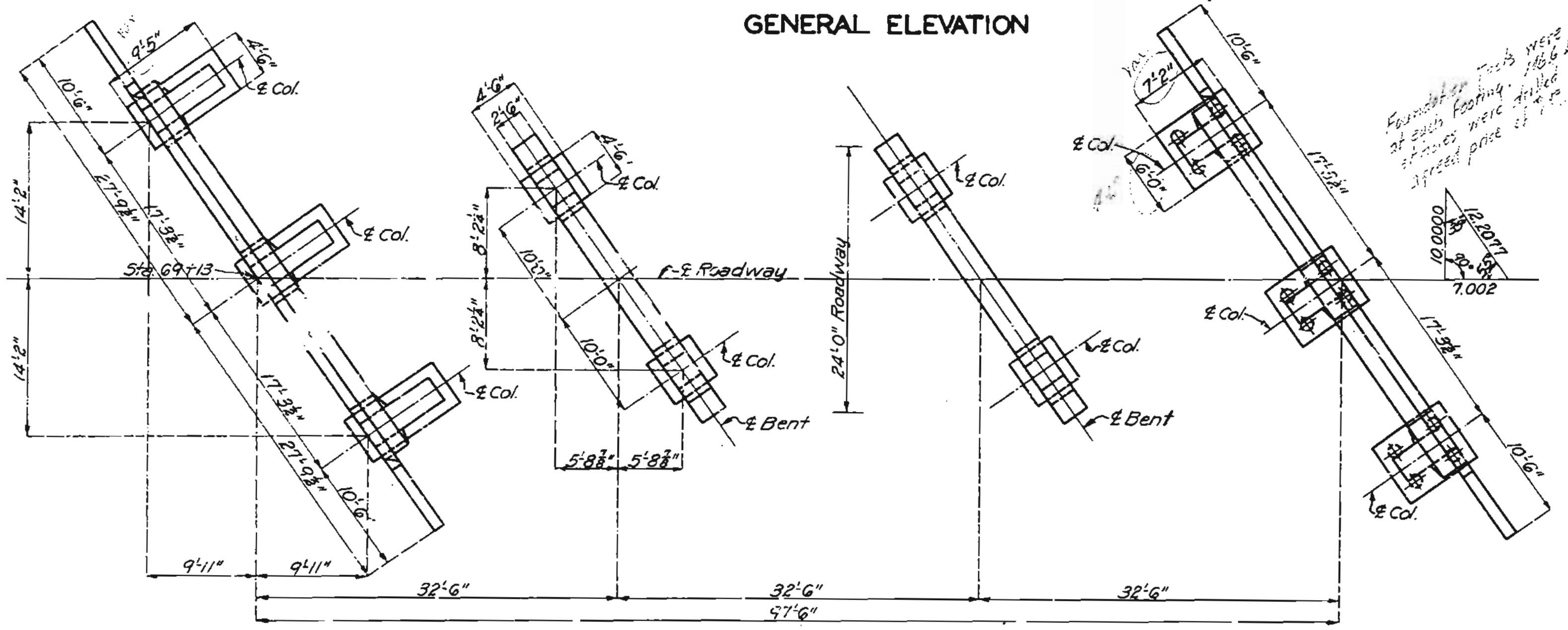
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	E561A (R34)	19		

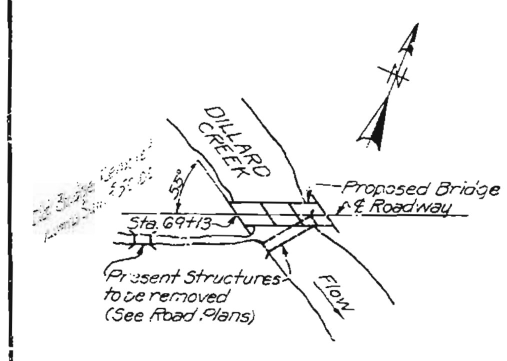
35



GENERAL ELEVATION



PLAN



LOCATION SKETCH

See other table for additional final quantities

ESTIMATED QUANTITIES Item		Superstr.	Substr.	Total	FINAL QUAN
Excavation Class I	Cu. Yds.		55	55	61.5
Excavation Class II	Cu. Yds.		420	420	205.5
Concrete 1:2:3 mix Class "A"	Cu. Yds.	10.0		10.0	10.0
Concrete 1:2:3½ mix Class "X"	Cu. Yds.	68.9		68.9	68.4
Concrete 1:2:4 mix Class "B"	Cu. Yds.		136.1	136.1	112.4
Fabricated Structural Steel	Lbs.	37900		37900	37,560
Reinforcing Steel	Lbs.	20920	10650	31570	31,570
Creo. Timber Piles	Lin. Ft.		252	252	0
Creo. Timber Pile Cut offs	Lin. Ft.		36	36	0
Removal Old Bridge	Lump S.			1	1

Note: Bridge excavation above Elev. 417.0 will be paid for as Class I Bridge Excavation. Bridge excavation below Elev. 417.0 will be paid for as Class II Bridge Excavation. Estimated quantities for creo. timber piles include four linear feet per pile as allowance for metal shoes in accordance with specifications.

GENERAL NOTES:

Concrete in handrail to be 1:2:3 mix. Class "A". Concrete in slab and curbs to be 1:2:3½ mix. Class "X". All other concrete to be 1:2:4 mix. Class "B".

Exposed edges to be beveled ¾" where no other bevel is noted.

Where rubber compound is specified on plans for use in expansion or partition joints, the premoulded joint shall be securely stitched to one face of concrete with copper wire.

Two nameplates type "A" as shown on Std. S-918 to be furnished and placed by the contractor. Cost of name plates to be included in pr[illegible] for other items.

Detail shop drawings for the structural steel shall be submitted to the Missouri State Highway Department in duplicate and shall be approved before steel is fabricated.

Rivets ¾"φ, Holes 13/16"φ except as noted. Field connections riveted unless otherwise noted.

Paint: Shop – None; Field: – Surfaces inaccessible after erection three coats of red lead. No other paint to be applied by contractor. All paint required will be furnished by the Missouri State Highway Department.

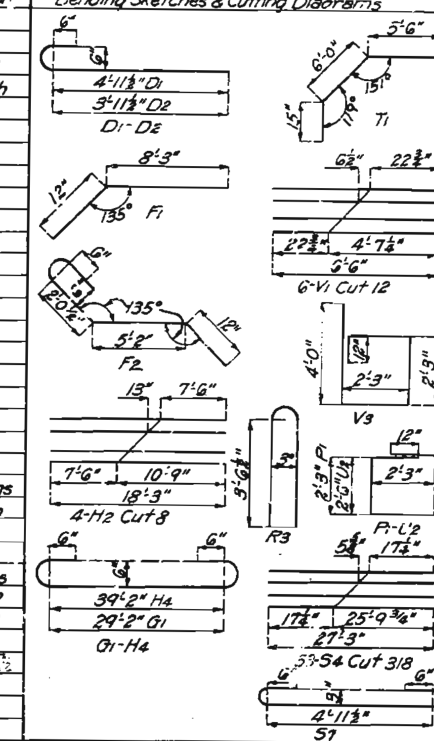
Bridge excavation in accordance with Section I of Standard Specifications issued April 1, 1930, except that quantities paid for will be computed from extreme low water Elev. 415.4 where existing ground line is below this elevation.

Piles to be driven to full penetration or to rock.

COMPLETE BILL OF REINFORCING STEEL

No.	Size	Length	Mark	Location
Bents No. 1&4				
18	¾"φ	6'3"	D1	Ftg. #1
18	¾"φ	5'3"	D2	Ftg. #4
32	¾"φ	9'3"	F1	Haunch
16	¾"φ	9'6"	F2	"
12	¾"φ	11'9"	H1	Wing
8	¾"φ	18'3"	H2	"
2	⅜"φ	40'0"	H3	Wall
24	1"φ	41'9"	H4	Beam
4	¾"φ	39'9"	H5	"
8	⅜"φ	12'9"	T1	Wing
4	¾"φ	40'0"	T2	Wall
12	½"φ	6'6"	V1	Wing
4	½"φ	4'9"	V2	"
80	½"φ	11'9"	V3	Beam
18	¾"φ	21'9"	V4	Col. #1
18	¾"φ	12'9"	V5	Col. #4
Bents No. 2&3				
16	¾"φ	6'3"	D1	Footings
32	¾"φ	9'3"	F1	Haunch
26	1"φ	31'9"	G1	Beam
4	¾"φ	29'9"	G2	"
58	¼"φ	10'0"	P1	Columns
8	¾"φ	22'6"	P2	Cols. #2
8	¾"φ	26'6"	P3	Cols. #3
84	½"φ	10'6"	U2	Beam
14	¾"φ	15'-9"		Special Ftg. Bent No. 2

Bending Sketches & Cutting Diagrams



No.	Size	Length	Mark	Location
Superstructure				
12	½"φ	11'3"	R301R	Rail
12	½"φ	12'6"	R302	"
90	½"φ	9"	R2	"
60	½"φ	7'6"	R3	Subpost
32	½"	3'9"	R4	Post
888	⅜"φ	18"	R5	Balusters
12	½"φ	3'9"	R306	Rail
12	½"φ	10'0"	R306	"
8	½"φ	2'3"	R7	Post
8	½"φ	12'0"	R308	Rail
16	½"φ	9'6"	R309	"
6	¾"φ	34'6"	C1	Curb
72	⅜"φ	12"	C2	"
6	¾"φ	32'3"	C3	"
6	¾"φ	30'6"	C4	"
194	⅝"φ	26'9"	S1	Slab
74	⅝"φ	31'9"	S2	"
12	½"φ	32'6"	S3	"
318	⅝"φ	27'3"	S4	"
37	⅝"φ	32'3"	S5	"
52	⅝"φ	8'0"	S6	"
8	⅝"φ	6'9"	S7	"

Note: Reinforcing bars ¾" or over in diameter, which are bent to an angle greater than 90° shall be of structural grade. Dimensions of bars are given along centerline and are for computed lengths.

ADDITIONAL FINAL QUANTITIES

Class II Exc. Below Plan Grade	Cu Yd	5.5
Moving Pile Driver – Cutting Steel	F.A.	471.16
Drilling Test Holes (A.P. of I.S.)	Lin Ft	116.8
Hauling Unused Sand (A.P. of I.S.)	Cu Yd	11
Unused Piling taken over	Lin Ft	240
" Piling Shoes taken over	Each	12
" Gravel " "	Cu Yd	20
Heating Concrete (Substructure)	Cu Yd	112.4
Hand Placed Rock Fill (Seeding)	Cu Yd	255

B.M. Elev. 420.80 - Nail in root of 24" Walnut 1' Rt. Sta. 68+80

BRIDGE OVER DILLARD CREEK

STATE ROAD FROM GRAVEL HILL TO JACKSON

ABOUT 13 MILES WEST OF JACKSON

PROJECT NO. E361A (R.34) STA. 69+13

CAPE GIRARDEAU COUNTY

SUBMITTED BY N. R. Sack, BRIDGE ENGINEER, DATE 9/7/32

APPROVED BY T. H. Cutler, CHIEF ENGINEER, DATE 9/7/32

STD. C-6501 R1

STD. S-918

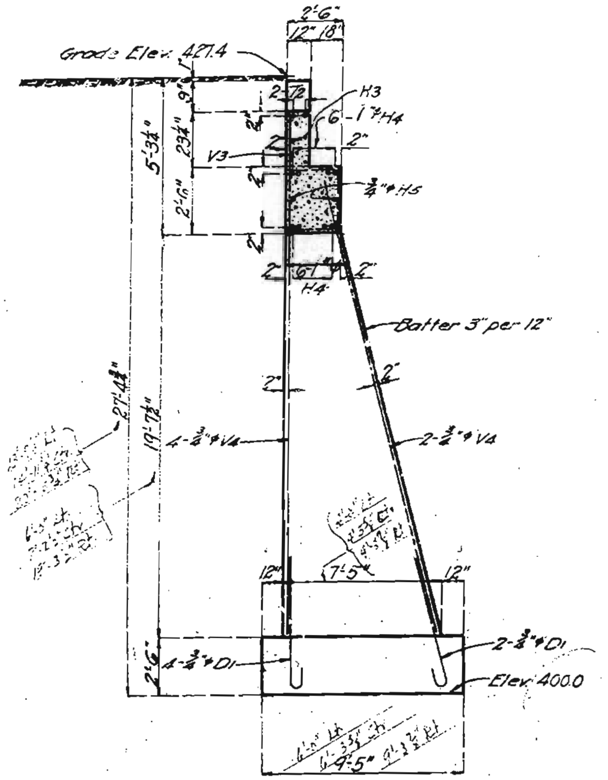
J-883

Drawn Sept. 1932 By P.H.S.
Traced Sept. 1932 By H.W.H.
Checked Sept. 1932 By I.B.

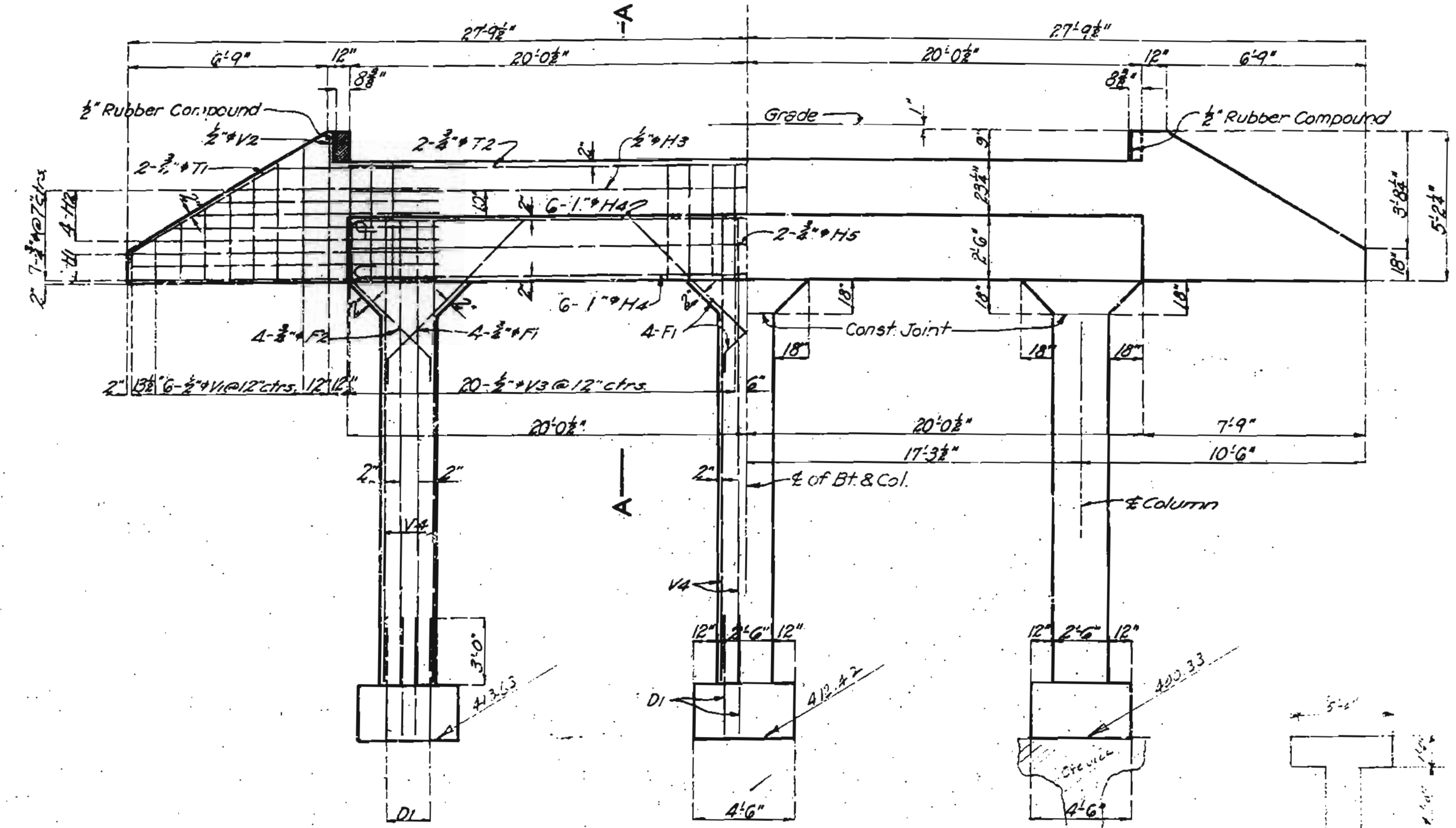
F.A.

MISSOURI STATE HIGHWAY DEPARTMENT

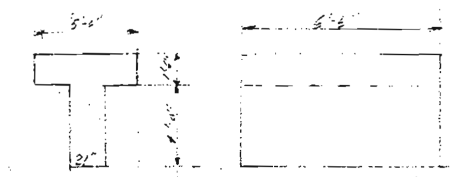
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	E361A (R34)	19		

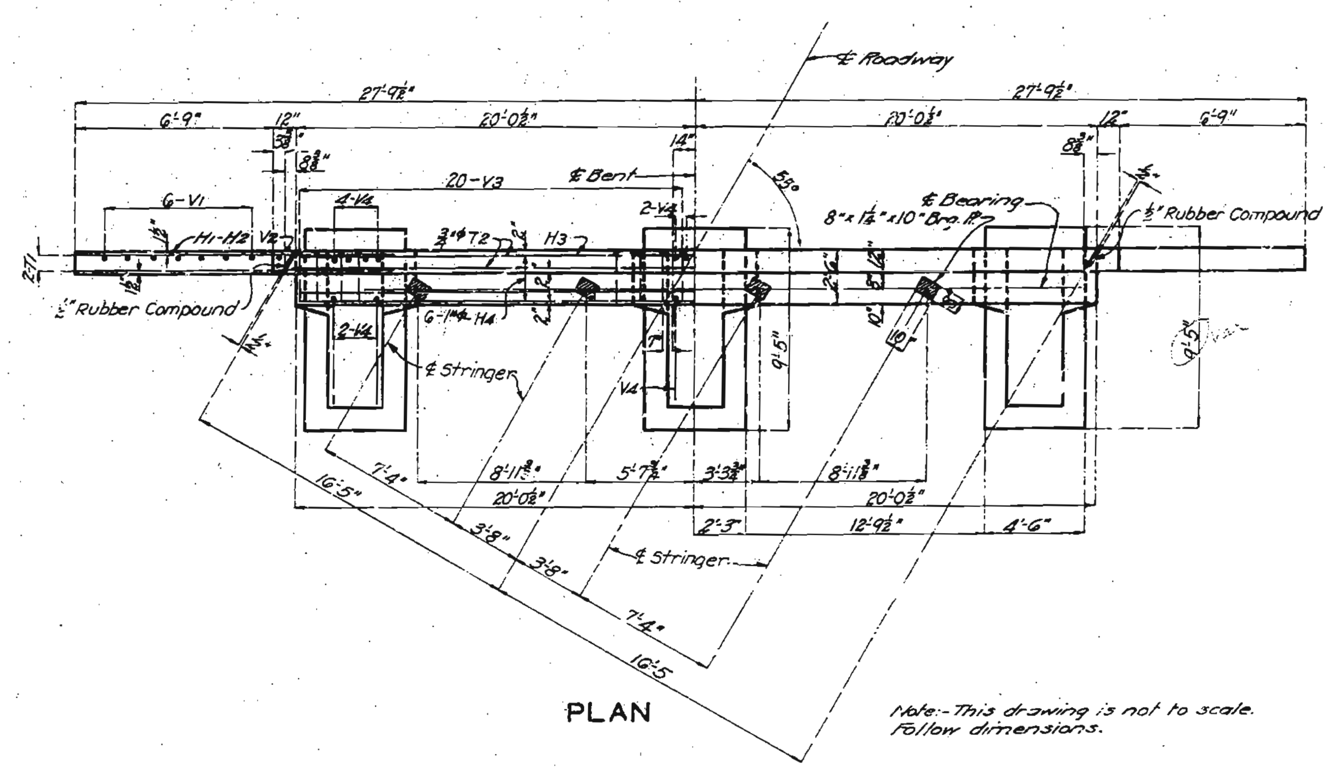


SECTION A-A



ELEVATION





PLAN

Note:- This drawing is not to scale. Follow dimensions.

DETAILS OF END BENT NO. 1

BRIDGE OVER DILLARD CREEK

STATE ROAD FROM GRAVEL HILL TO JACKSON

ABOUT 13 MILES WEST OF JACKSON

PROJECT NO. E 361A (R.34) STA. 69+13

CAPE GIRARDEAU COUNTY

FINISHED

36

Assembled Sept. 1932 by P.H.S.-H.W.H.
Checked Sept. 1932 by I.B.
Drawn June 1932 by H.D.
Checked July 1932 by P.H.S.

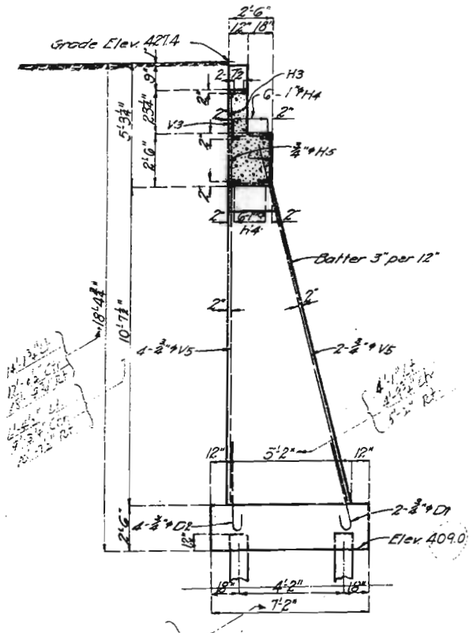
Sheet No. 2 of 6

F.A.

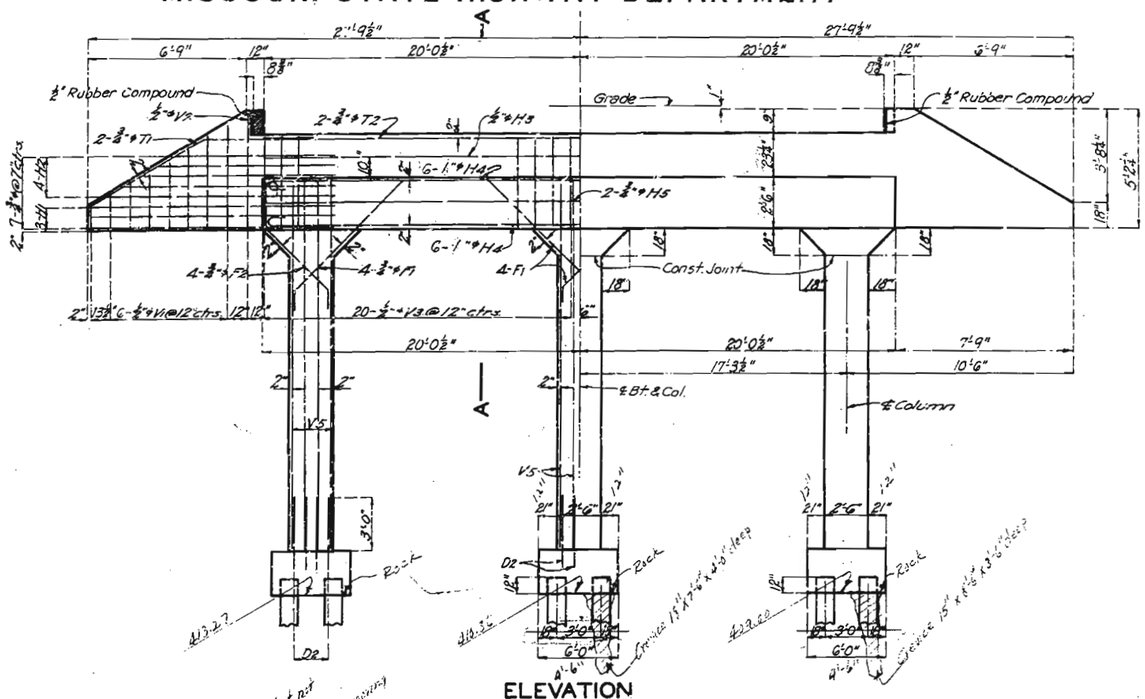
J-683

MISSOURI STATE HIGHWAY DEPARTMENT

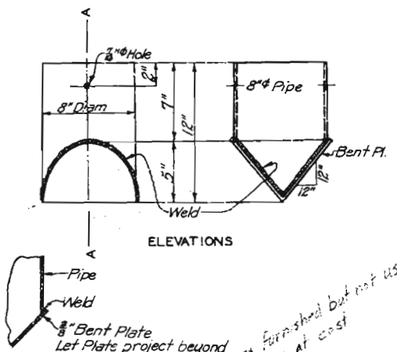
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	S-331A (3)	19		



SECTION A-A



ELEVATION



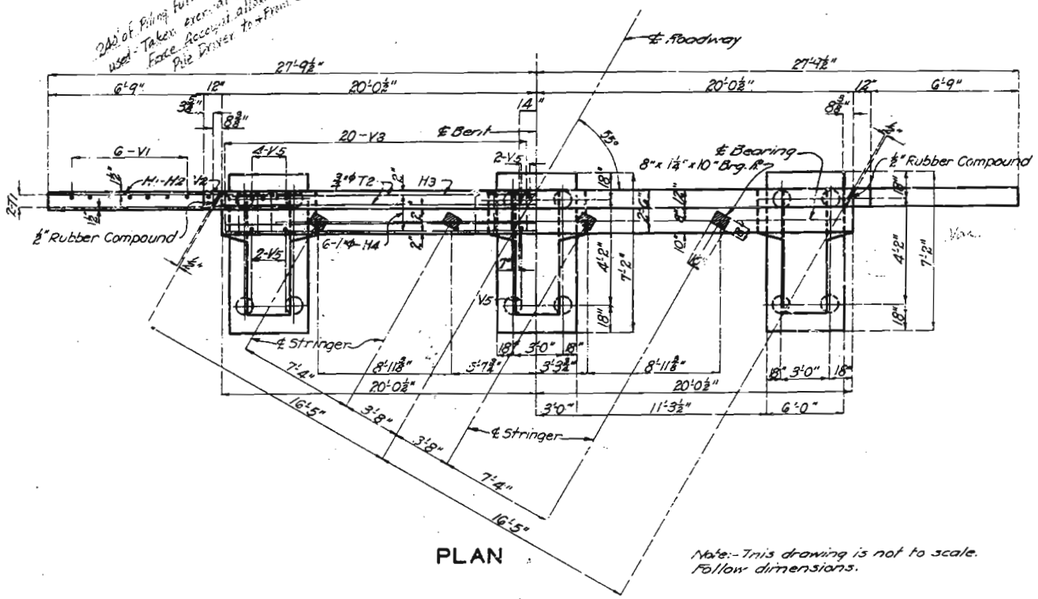
ELEVATIONS

SECTION A-A

12 shoes furnished but not used Taken over at cost

DETAILS OF PILING SHOE
12 Required

240' of Piling furnished but not used - Taken over at cost Force Account allowed for moving Pile Driver to + From Bridge Site



PLAN

Note:- This drawing is not to scale. Follow dimensions.

DETAILS OF END BENT NO. 4

BRIDGE OVER DILLARD CREEK

STATE ROAD FROM GRAVEL HILL TO JACKSON

ABOUT 13 MILES WEST OF JACKSON FINISHED

PROJECT NO. E 331A (R.34) STA. 69+13

CAPE GIRARDEAU COUNTY FINISHED

Assembled Sept/1932 by P.H.S.-H.W.H.
Checked Sept/1932 by I.B.
Drawn June 1932 by H.D
Checked July 1932 by P.H.S.

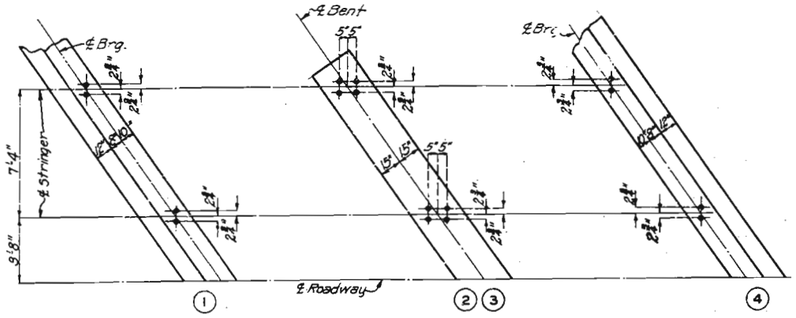
Sheet No. 3 of 6 Sheets.

F.A.

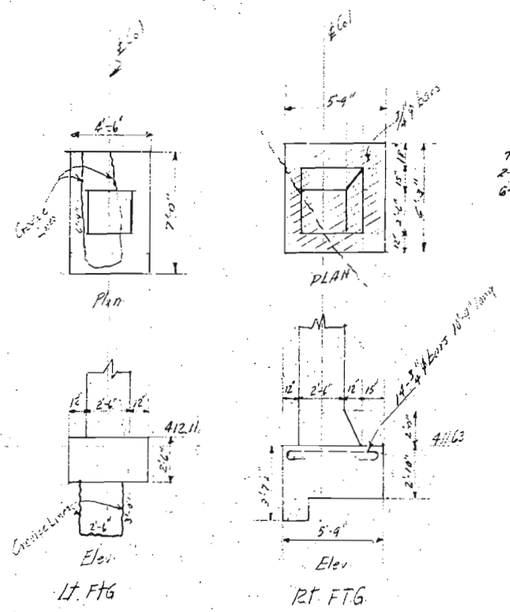
J-883

MISSOURI STATE HIGHWAY DEPARTMENT

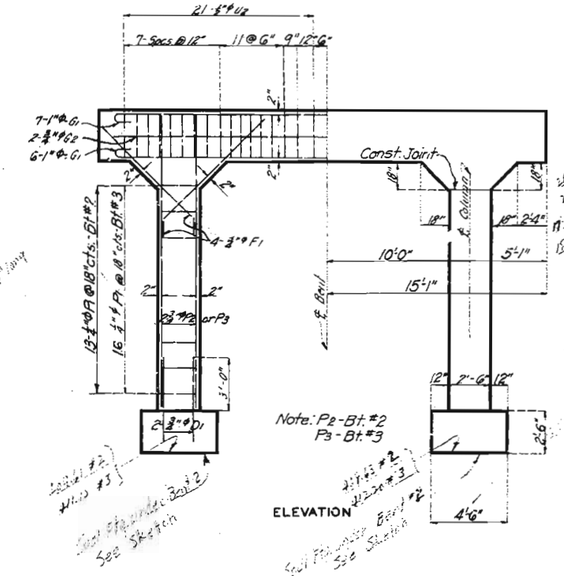
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	E361(R34)	192		

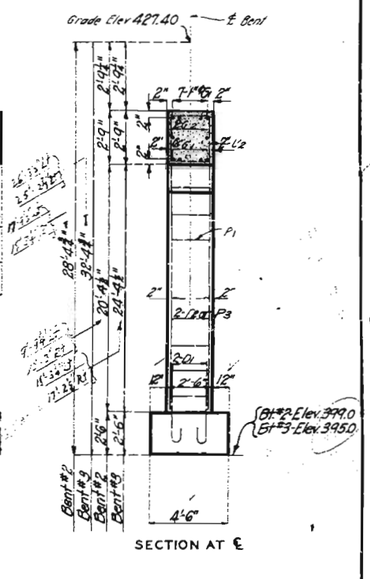


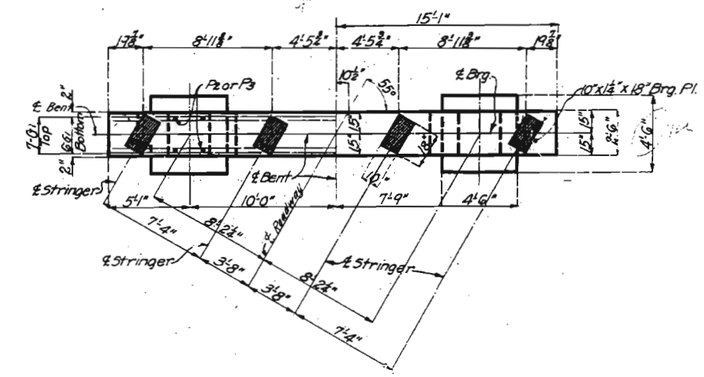
HALF ANCHOR BOLT PLAN.



BENT NO. 2







DETAILS OF INTERMEDIATE BENTS NO. 2 & 3

BRIDGE OVER DILLARD CREEK

STATE ROAD FROM GRAVEL HILL TO JACKSON

ABOUT 13 MILES WEST OF JACKSON FINISHED

PROJECT NO. E361A (R34) STA. 69+13

CAPE GIRARDEAU COUNTY

FINISHED

Note:- This drawing is not to scale. Follow dimensions.

Assembled Sept. 1932 By P.H.S.-H.W.H.
Checked Sept. 1932 By I.B.
Drawn July 1928 By H.E.C.
Checked Feb. 1929 By E.B.

Sheet No. 4 of 6

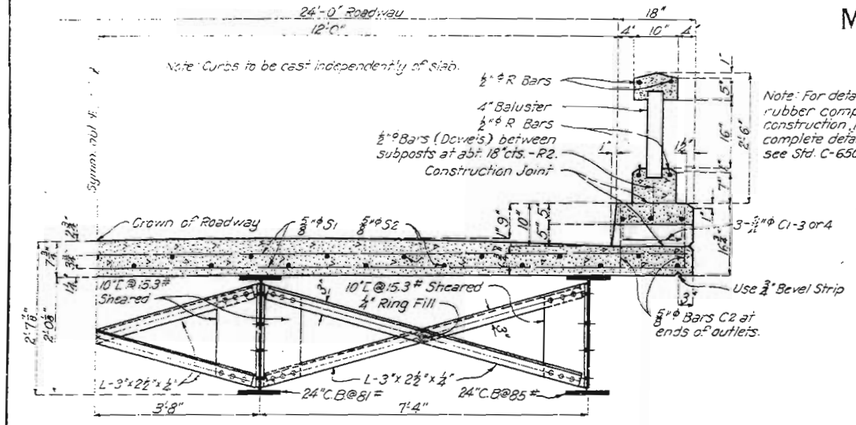
J-883

F.A.

39

MISSOURI STATE HIGHWAY DEPARTMENT

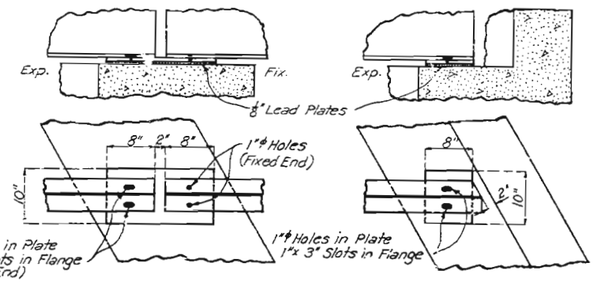
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	[illegible]	19		



HALF SECTION THRU SPAN

Note: For details of bevel for rubber compound joints, bevel for construction joint at curb and complete details of handrail see Std. C-6501 R1.

Note: Anchor bolts to be ⅞"ϕ, no heads, Hex. nuts, and to extend 8" into concrete.

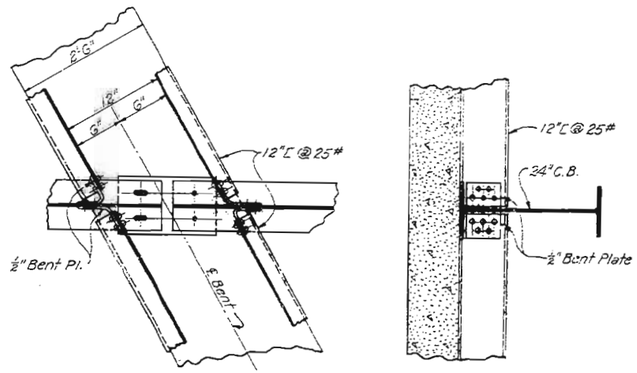


DETAILS OF BEARINGS ON BENTS NO. 2 & 3

DETAILS OF BEARINGS ON BENTS NO. 1 & 4

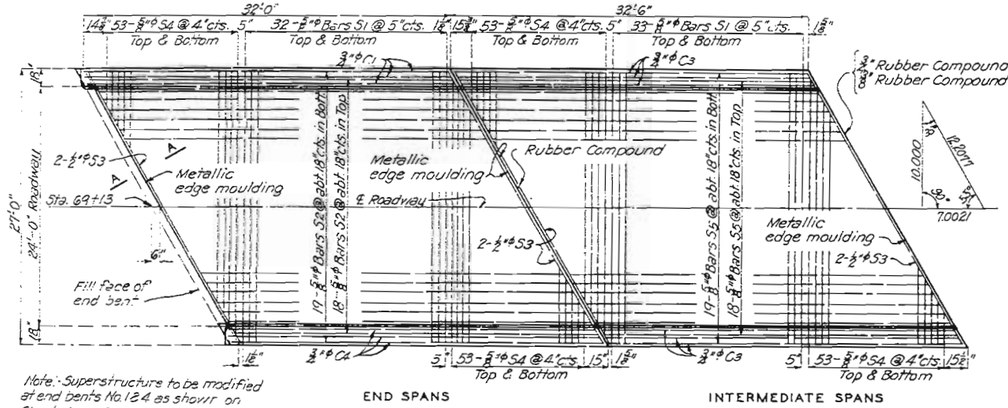
Note: All stringers fixed on Bent #2

Note: Tops of bents to be finished as nearly as possible to within ⅛" of final elevation of bottom of plates. Plates to be seated to proper elevation by inserting Soft lead plates between top of bent and bottom of plate. Concrete seat under lead plates to be dressed to a uniform level bearing with carborundum brick. Cost of lead plates to be included in price bid for other items.



Note: Tops of channel separators at ends of span to be flush with bottom of slab.

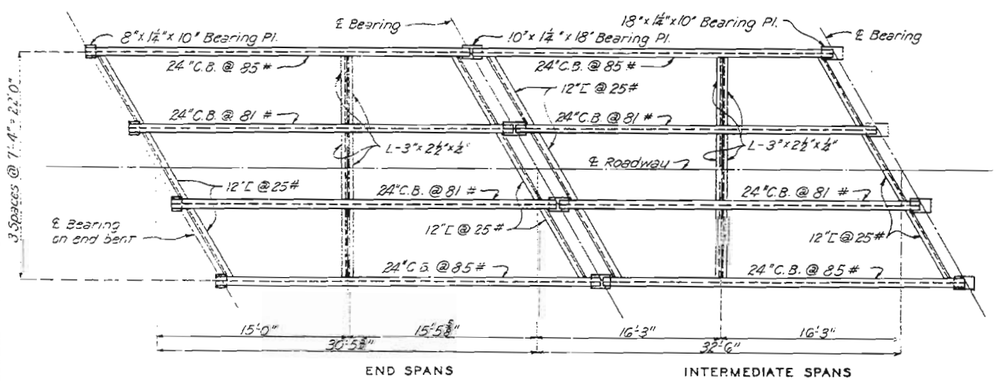
DETAILS OF END CHANNEL SEPARATORS



Note: Superstructure to be modified at end bents No. 1 & 4 as shown on Sheet No. 6 of 6.

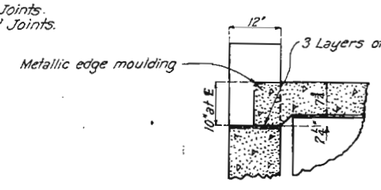
END SPANS INTERMEDIATE SPANS

PLAN OF SLAB SHOWING REINFORCEMENT

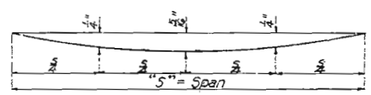


END SPANS INTERMEDIATE SPANS

PLAN OF STRINGERS

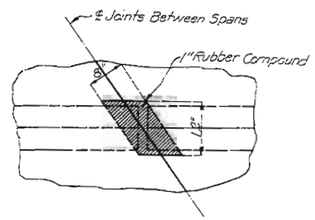


SECTION A-A SHOWING SLAB AT END BENT

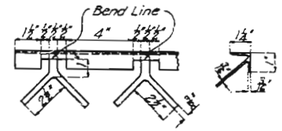


Note: Floor slab to be brought to grade and dead load deflection taken care of by increasing slab thickness. Depth of slab at outside face of curb to be kept uniform and bottom surface of slab warped between curb and outside beam to obtain required thickness at beam. Payment will be allowed for additional concrete required for thickening slab. Additional concrete is included in Estimated Quantities.

DEFLECTION DIAGRAM



DETAIL OF RUBBER COMPOUND OVER ENDS OF STRINGERS



METALLIC EDGE MOULDING

Note: Cost of metallic edge moulding will be included in unit bid price for concrete.

PERMISSIBLE BEAM SUBSTITUTIONS:
Inside Stringer 24"Beth. B @ 81 #-24"Std. I @ 95 #
Outside Stringer 24"Beth. B @ 85 #-24"Std. I @ 100 #
Note: See Special Provisions in regard to permissible substitutions and basis of payment.

BRIDGE OVER DILLARD CREEK

STATE ROAD FROM GRAVEL HILL TO JACKSON

ABOUT 13 MILES WEST OF JACKSON

PROJECT NO. E361A (R34) STA. 69+13

CAPE GIRARDEAU COUNTY

Note: This drawing is not to scale. Follow dimensions.

Drawn Dec. 1931 By R.J.G.
Traced Dec. 1931 By R.J.G.
Checked Sept. 1932 By I.B.
Assembled Sept. 1932 By P.H.J. H.W.H.
Checked Sept. 1932 By I.B.

Sheet No. 5 of 6

J-883

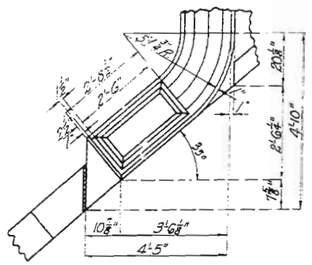
F.A.

3-57-32

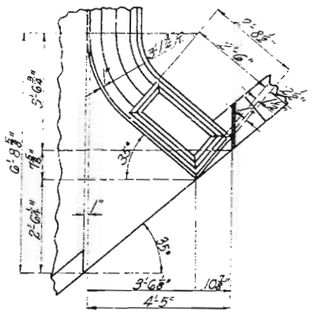
39

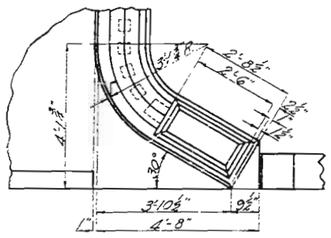
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	MO	E361A	19		

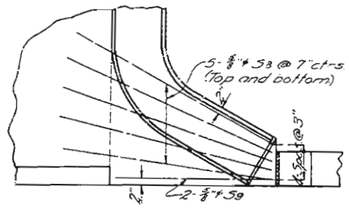


PLAN SHOWING DIMENSIONS



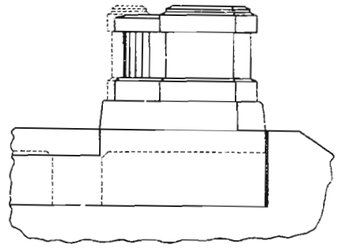


PLAN SHOWING DIMENSIONS

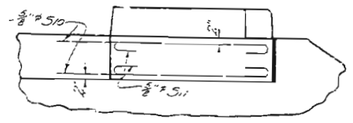


PLAN SHOWING REINFORCING

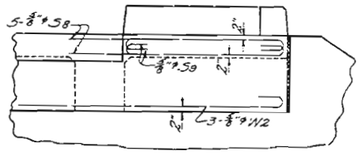
SQUARE END BENT



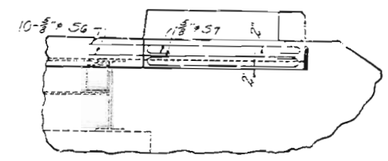
DECK GIRDER SPAN SHOWING POST



SLAB SPAN SHOWING REINFORCING

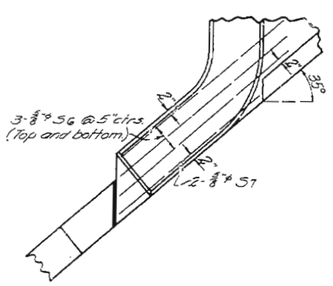


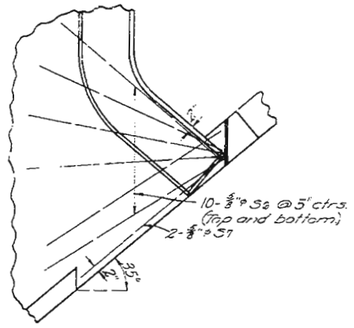
DECK GIRDER SPAN SHOWING REINFORCING



I-BEAM SPAN SHOWING REINFORCING

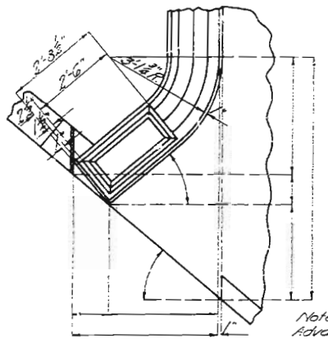
TYPICAL END ELEVATIONS

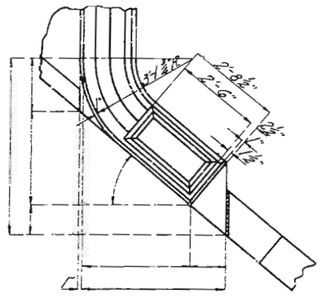




PLAN SHOWING REINFORCING

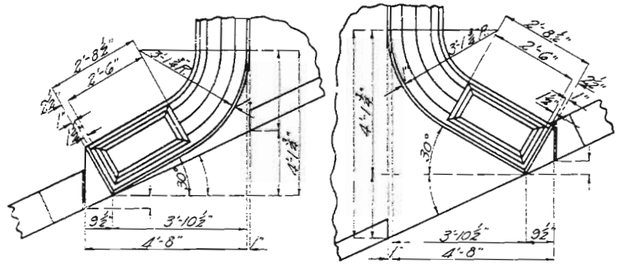
RIGHT ADVANCE SKEW 30° AND OVER



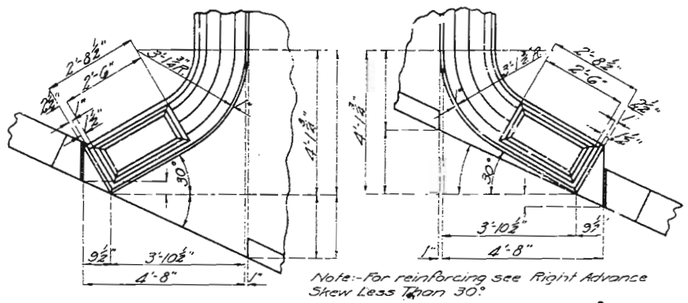


Note:- For reinforcing see Right Advance Skew 30° And Over.

LEFT ADVANCE SKEW 30° AND OVER

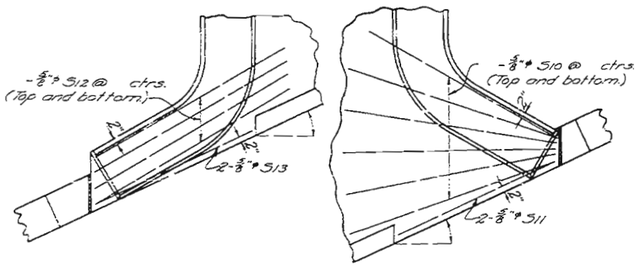


PLAN SHOWING DIMENSIONS



Note:- For reinforcing see Right Advance Skew Less Than 30°.

LEFT ADVANCE SKEW LESS THAN 30°



PLAN SHOWING REINFORCING

RIGHT ADVANCE SKEW LESS THAN 30°

GENERAL NOTES:-

Reinforcing steel shown on this sheet will be used in addition to that required for straight curb and rail.

For details of handrail see 30°A", 30°B" and 30°C" on Standard C-G501(R). Handrail, curb, and slab to be modified at end bents as shown on this sheet.

Length of panels between subposts on right hand rail on 30°A" and left hand rail on 30°C" to be 7'-10⅜" instead of 8'-4". Use 11 balusters in each panel. Add the letter R to bar mark for all longitudinal rail bars in these panels.

Length of panels between subposts on left handrail on 30°A" and right handrail on 30°C" to be 9'-2⅜" instead of 8'-4". Use 13 balusters in each panel. Add the letter L to bar mark for all longitudinal rail bars in these panels.

Outlets to be centered between subposts.

BRIDGE OVER DILLARD CREEK

STATE ROAD FROM GRAVEL HILL TO JACKSON

ABOUT 13 MILES WEST OF JACKSON

PROJECT NO. E361A (6) 54) STA. 69+13

CAPE GIRARDEAU COUNTY

Assembled Sept. 1932 by P.H.S-H.W.H.
Checked Sept. 1932 by I.B.
Drawn April 1932 by C.A.F.
Checked Sept. 1932 by I.B.

Note:- This drawing is not to scale. Follow dimensions.

TYPICAL DETAILS OF CONCRETE RAIL AT END BENT

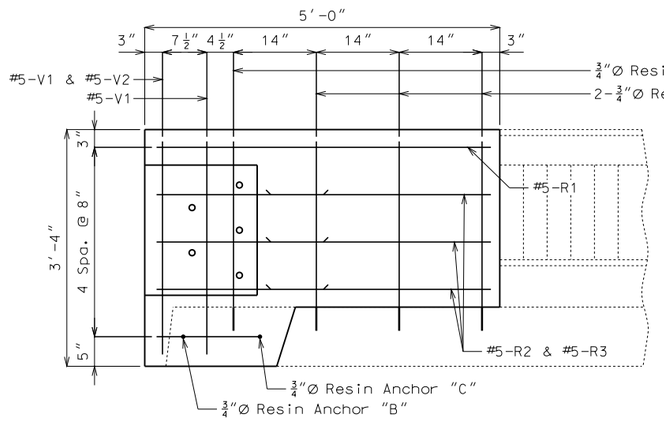
Sheet No. 6 of 6 Sheets.

J-883

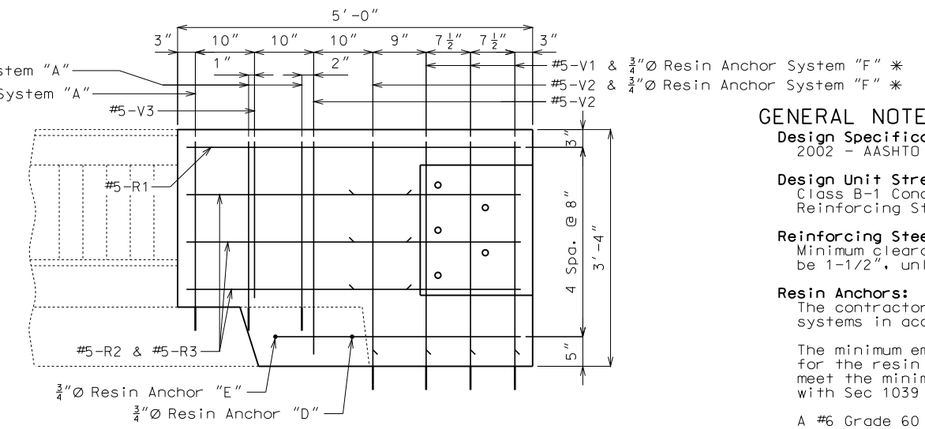
SEC/SUR 16 TWP 31N RGE 11E

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

U.I.P & REHAB. (3 @ 30'-0") I-BEAM SPANS



PART ELEVATION



PART ELEVATION

GENERAL NOTES:

Design Specifications:
2002 - AASHTO 17th Edition

Design Unit Stresses:
Class B-1 Concrete f'c = 4,000 psi
Reinforcing Steel (Grade 60) fy = 60,000 psi

Reinforcing Steel:
Minimum clearance to reinforcing steel shall be 1-1/2", unless otherwise shown.

Resin Anchors:
The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

The minimum embedment depth in concrete with f'c = 4,000 psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5".

A #6 Grade 60 reinforcing bar shall be substituted for the ¾" Ø threaded rod.

Cost of furnishing and installing the resin anchor system complete-in-place will be considered completely covered by the contract unit price for End Post Modification.

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

All exposed edges of end post shall have either a 1/2" radius or a 3/8" bevel unless otherwise shown.

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

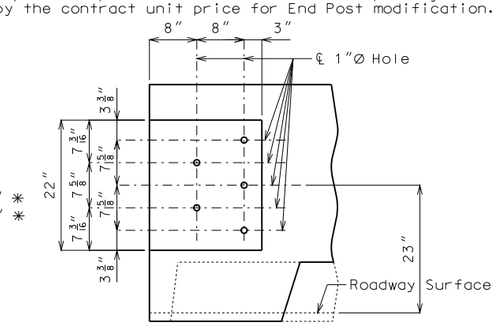
Contractor shall verify all dimensions in field before ordering new material.

Cost of concrete removal, Class B1 Concrete and reinforcing steel, complete in place, will be considered completely covered by the contract unit price for End Post modification.

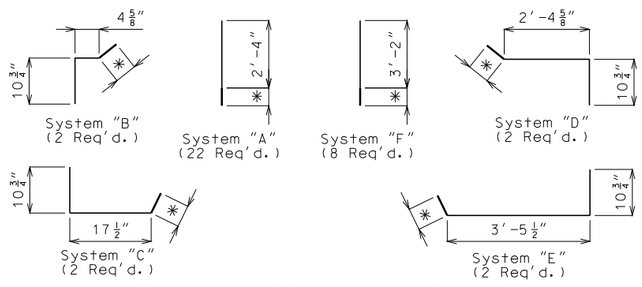
PART PLAN

PART PLAN

✱ V1 and V2 bars are in roadway face of curb and Resin Anchor Systems are in outside face of curb.

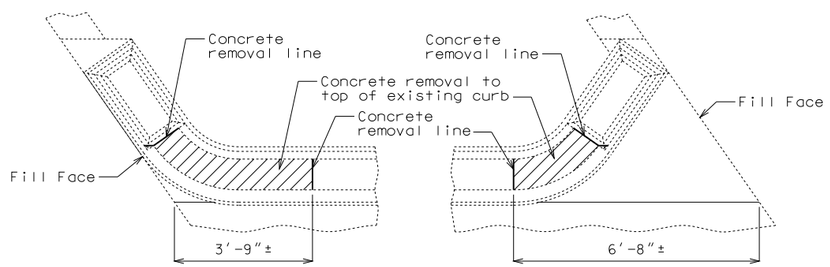


PART ELEVATION SHOWING BRIDGE ANCHOR SECTION ATTACHMENT



DETAILS OF RESIN ANCHOR SYSTEMS

✱ Manufacturer's recommended embedment length (5" min.)



PART PLAN OF END POST SHOWING CONCRETE REMOVAL

(Left curb and rail shown; right side similar)

Estimated Quantities		
Item		Total
End Post Modification	each	4

REPAIRS TO BRIDGE OVER DILLARD CREEK

STATE ROAD FROM GRAVEL HILL TO JACKSON

ABOUT 13 MILES WEST OF JACKSON

STA. 69+13.00± (Match Existing)

STD. 606.22

Detailed Nov. 2013
Checked Nov. 2013

Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/15/2013
ROUTE 34 | STATE MO
DISTRICT BR | SHEET NO. 1
COUNTY CAPE GIRARDEAU
JOB NO. J0P2196
CONTRACT ID.
PROJECT NO.
BRIDGE NO. J08831

DESCRIPTION | DATE

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

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

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			END POSTS																									
4	5	R1	END POSTS		10	S						4	8.500	11.000										10	4	10	2	42
12	5	R2	END POSTS		11	S						2	6.000	8.000		4	8.500							7	11	7	8	96
12	5	R3	END POSTS		20					3	2.000													3	2	3	2	40
10	5	V1	END POSTS		10	S					2.500		3.000	2	2.250		8.500							3	7	3	2	33
6	5	V2	END POSTS		20					3	0.000													3	0	3	0	19
2	5	V3	END POSTS		20					2	2.000													2	2	2	2	5
			TOTALS																									
	5																											235
			TOTAL																									235
			TOTAL	E																								0

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.

SHAPE 6 SHAPE 7 SHAPE 8

SHAPE 9 SHAPE 10 SHAPE 11

SHAPE 12 SHAPE 13

SHAPE 14 SHAPE 15

SHAPE 16 SHAPE 17 SHAPE 18 SHAPE 20 SHAPE 19

SHAPE 21

SPOT WELD AASHTO M32 SIZE W5 WIRE (TYP.)

SHAPE 23 SHAPE 22

SHAPE 24 SHAPE 25

SHAPE 26 SHAPE 27

SHAPE 28 SHAPE 29

SHAPE 30 SHAPE 31 SHAPE 32

SHAPE 33 SHAPE 34 SHAPE 35 SHAPE 36

BENDING DIAGRAMS

6d FOR #4 AND #5.
12d FOR #6

90° STIRRUP 135° STIRRUP

STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK A OR G	135° HOOK A OR G	135° HOOK APPROX. H
#4	2"	4 1/2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	3 3/4"
#6	4 1/2"	12"	8"	4 1/2"

NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.

DETAILING DIMENSION

90°

180°

4d OR 2 1/2" MIN.

END HOOK DIMENSIONS				
		ALL GRADES		
BAR SIZE	D (IN.)	180° HOOKS A OR G	180° HOOKS J	90° HOOKS A OR G
#3	2 1/4"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3 3/4"	7"	5"	10"
#6	4 1/2"	8"	6"	12"
#7	5 1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9 1/2"	15"	11 3/4"	19"
#10	10 3/4"	17"	13 1/4"	22"
#11	12"	19"	14 3/4"	2'-0"
#14	18 1/4"	2'-3"	21 3/4"	2'-7"

NOTE:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD HOOKS.
HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.
E = EPOXY COATED REINFORCEMENT.
S = STIRRUP.
X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.
NO. EA. = NUMBER OF BARS OF EACH LENGTH.
NOMINAL LENGTHS ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)
ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.
PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS.
FOUR ANGLE OR CHANNEL SPACERS ARE REQUIRED FOR EACH COLUMN SPIRAL. SPACERS ARE TO BE PLACED ON INSIDE OF SPIRALS. LENGTH AND WEIGHT OF COLUMN SPIRALS DO NOT INCLUDE SPLICES OR SPACERS.
REINFORCING STEEL (GRADE 60) FY = 60,000 PSI.

Detailed Nov. 2013
Checked Nov. 2013

Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI
ANOUSONE AROUNPRADITH
NUMBER PE-29317
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/15/2013
ROUTE 34 STATE MO
DISTRICT BR SHEET NO. 2
COUNTY CAPE GIRARDEAU
JOB NO. J0P2196
CONTRACT ID.
PROJECT NO.
BRIDGE NO. J08831

DESCRIPTION | DATE

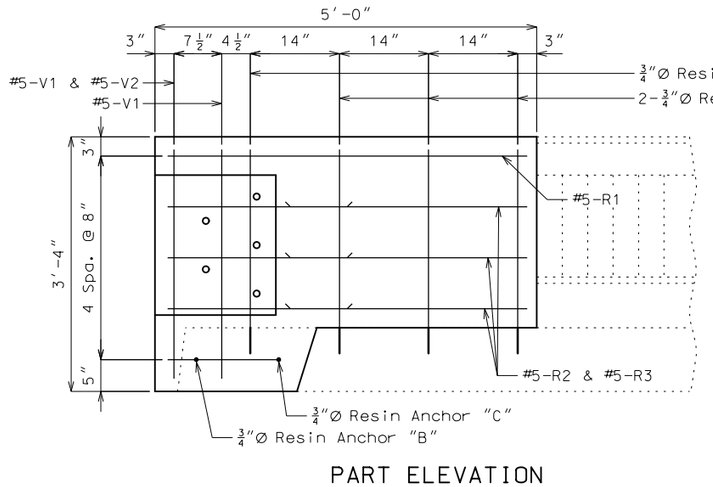
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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

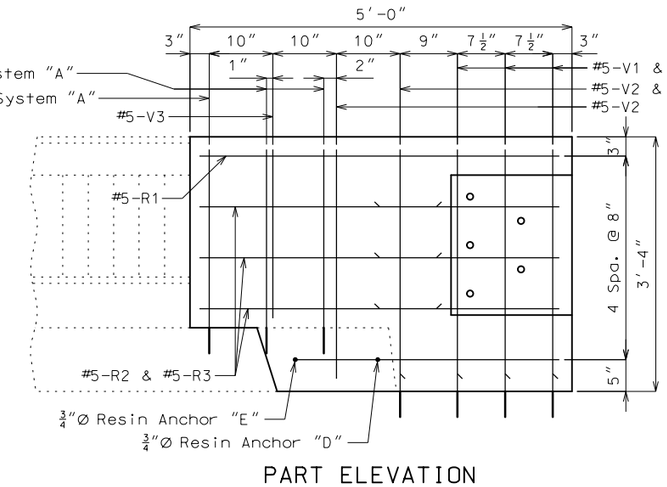
SEC/SUR 16 TWP 31N RGE 11E

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

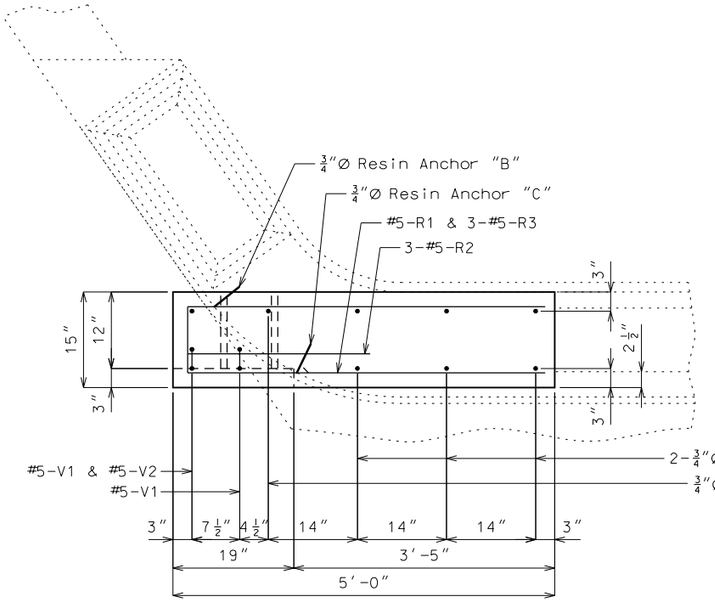
U.I.P & REHAB. (3 @ 30'-0") I-BEAM SPANS



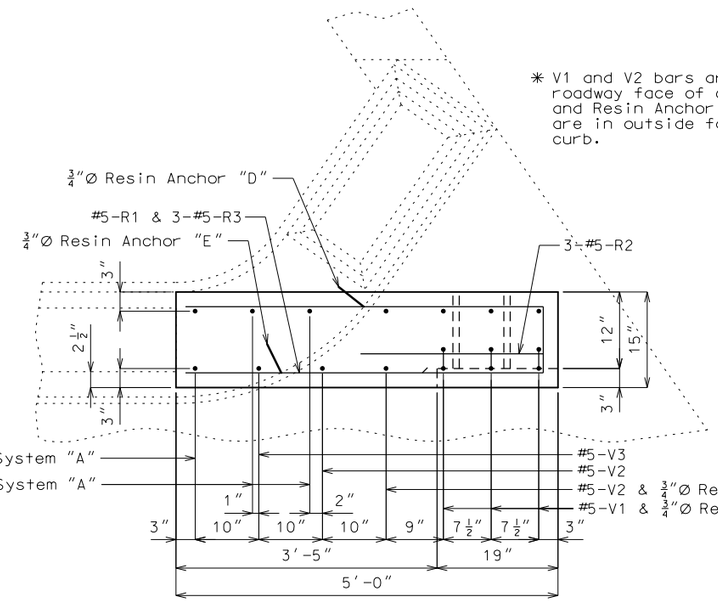
PART ELEVATION



PART ELEVATION

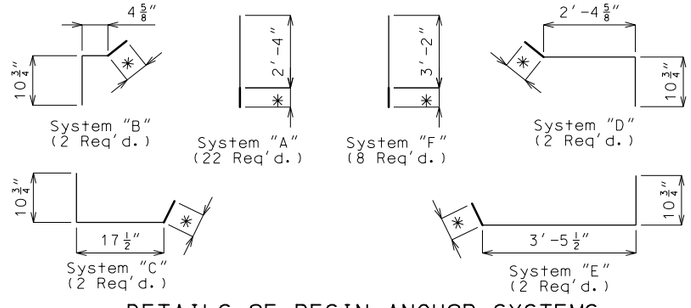


PART PLAN



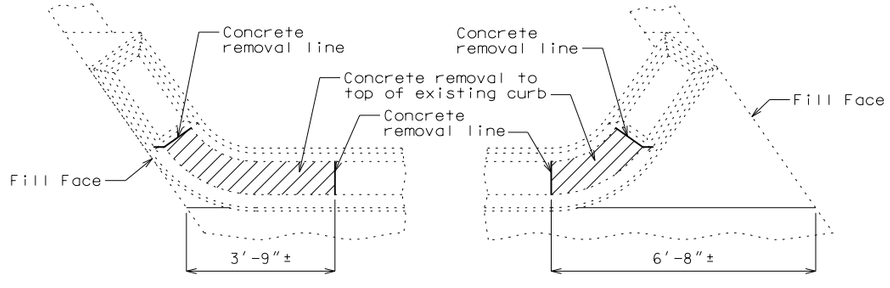
PART PLAN

* V1 and V2 bars are in roadway face of curb and Resin Anchor Systems are in outside face of curb.



DETAILS OF RESIN ANCHOR SYSTEMS

* Manufacturer's recommended embedment length (5" min.)



PART PLAN OF END POST SHOWING CONCRETE REMOVAL

(Left curb and rail shown; right side similar)

GENERAL NOTES:

Design Specifications:
2002 - AASHTO 17th Edition

Design Unit Stresses:
Class B-1 Concrete f'c = 4,000 psi
Reinforcing Steel (Grade 60) fy = 60,000 psi

Reinforcing Steel:
Minimum clearance to reinforcing steel shall be 1-1/2", unless otherwise shown.

Resin Anchors:
The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

The minimum embedment depth in concrete with f'c = 4,000 psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5".

A #6 Grade 60 reinforcing bar shall be substituted for the ¾" Ø threaded rod.

Cost of furnishing and installing the resin anchor system complete-in-place will be considered completely covered by the contract unit price for End Post Modification.

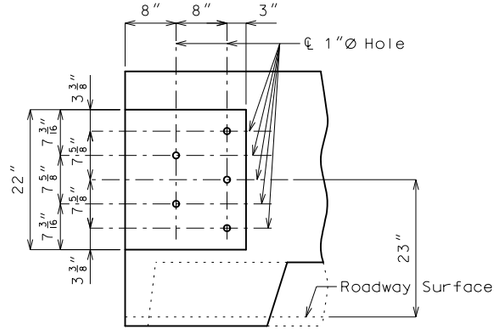
Miscellaneous:
One lane of traffic shall remain open during construction. See Roadway Plans for traffic control.

All exposed edges of end post shall have either a 1/2" radius or a 3/8" bevel unless otherwise shown.

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.

Cost of concrete removal, Class B1 Concrete and reinforcing steel, complete in place, will be considered completely covered by the contract unit price for End Post modification.



PART ELEVATION SHOWING BRIDGE ANCHOR SECTION ATTACHMENT

Estimated Quantities

Item		Total
End Post Modification	each	4

REPAIRS TO BRIDGE OVER DILLARD CREEK

STATE ROAD FROM GRAVEL HILL TO JACKSON
ABOUT 13 MILES WEST OF JACKSON
STA. 69+13.00± (Match Existing)

STD. 606.22

Detailed Nov. 2013
Checked Nov. 2013

Note: This drawing is not to scale. Follow dimensions.

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 5/4/2017
ROUTE 34 | STATE MO
DISTRICT BR | SHEET NO. 1
COUNTY CAPE GIRARDEAU
JOB NO. J0P2196
CONTRACT ID. 140124-H02
PROJECT NO. FAF-34-1(42)
BRIDGE NO. J08831

DESCRIPTION | DATE

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.

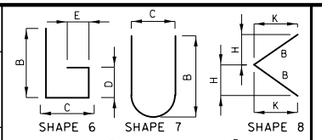
FINAL PLANS

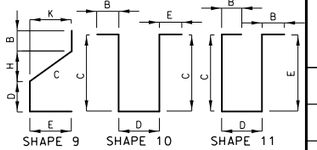
BILL OF REINFORCING STEEL

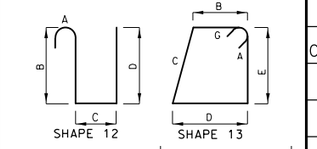
NO. REQ'D.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			END POSTS																									
4	5	R1	END POSTS		10	S						4	8.500	11.000										10	4	10	2	42
12	5	R2	END POSTS		11	S						2	6.000	8.000	4	8.500								7	11	7	8	96
12	5	R3	END POSTS		20					3	2.000													3	2	3	2	40
10	5	V1	END POSTS		10	S					2.500		3.000	2	2.250		8.500							3	7	3	2	33
6	5	V2	END POSTS		20					3	0.000													3	0	3	0	19
2	5	V3	END POSTS		20					2	2.000													2	2	2	2	5
			TOTALS																									
	5																											235
			TOTAL																									235
			TOTAL	E																								0

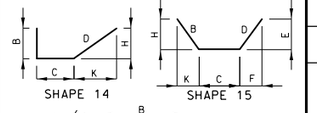
BILL OF REINFORCING STEEL

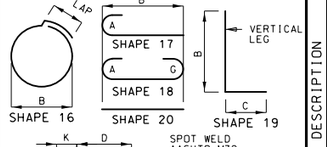
NO. REQ'D.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.

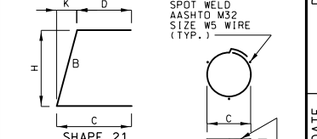


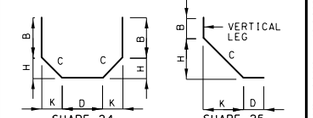


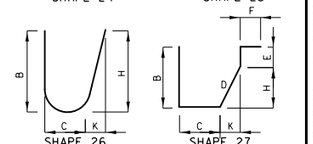


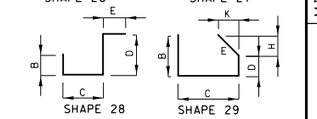


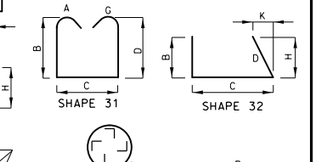


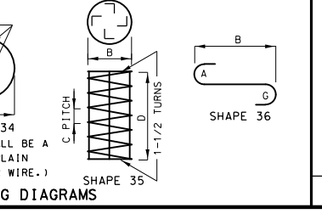




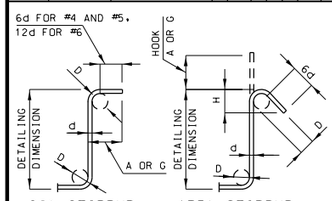






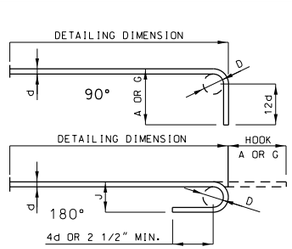


BENDING DIAGRAMS



STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK HOOK A OR G	135° HOOK HOOK A OR G	135° HOOK APPROX. H
#4	2"	4 1/2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	3 3/4"
#6	4 1/2"	12"	8"	4 1/2"

NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



END HOOK DIMENSIONS				
BAR SIZE	D (IN.)	ALL GRADES 180° HOOKS A OR G	180° HOOKS J	90° HOOKS A OR G
#3	2 1/4"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3 3/4"	7"	5"	10"
#6	4 1/2"	8"	6"	12"
#7	5 1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9 1/2"	15"	11 3/4"	19"
#10	10 3/4"	17"	13 1/4"	22"
#11	12"	19"	14 3/4"	2'-0"
#14	18 1/4"	2'-3"	21 3/4"	2'-7"

NOTE:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD HOOKS.
HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.
E = EPOXY COATED REINFORCEMENT.
S = STIRRUP.
X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.
NO. EA. = NUMBER OF BARS OF EACH LENGTH.
NOMINAL LENGTHS ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)
ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.
PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS.
FOUR ANGLE OR CHANNEL SPACERS ARE REQUIRED FOR EACH COLUMN SPIRAL. SPACERS ARE TO BE PLACED ON INSIDE OF SPIRALS. LENGTH AND WEIGHT OF COLUMN SPIRALS DO NOT INCLUDE SPLICES OR SPACERS.
REINFORCING STEEL (GRADE 60) FY = 60.000 PSI.

Detailed Nov. 2013
Checked Nov. 2013

Note: This drawing is not to scale. Follow dimensions.

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 5/4/2017
ROUTE 34 | STATE MO
DISTRICT BR | SHEET NO. 2
COUNTY CAPE GIRARDEAU
JOB NO. J0P2196
CONTRACT ID. 140124-H02
PROJECT NO. FAF-34-1(42)
BRIDGE NO. J08831

DESCRIPTION | DATE

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

FINAL PLANS

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