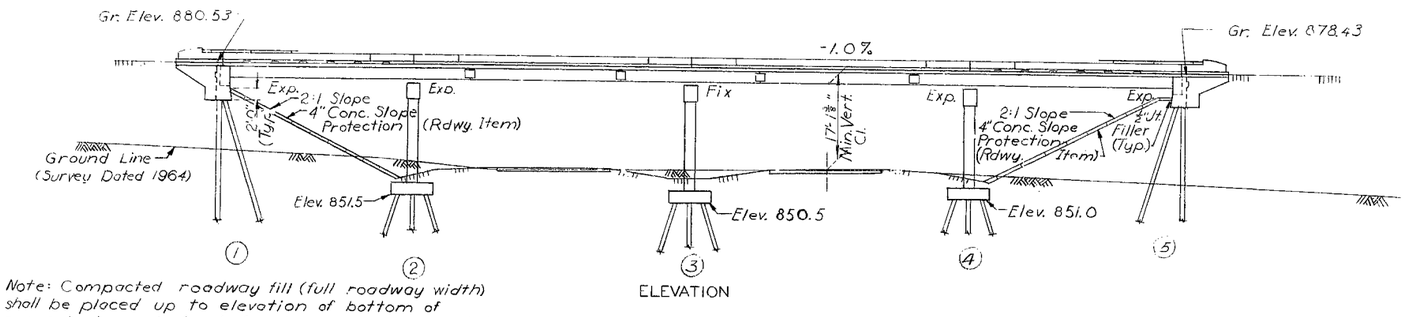
MISSOURI STATE HIGHWAY DEPARTMENT

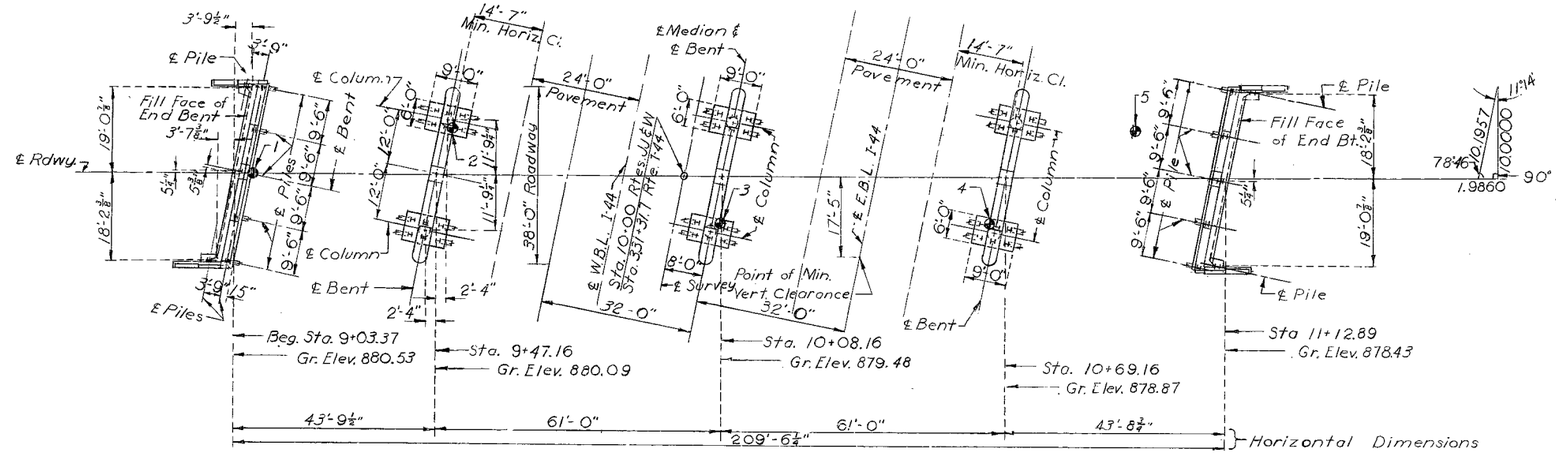
FED. ROAD INST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	133	

(42'-61'-61'-42') Cont. Composite WF Beam Spans



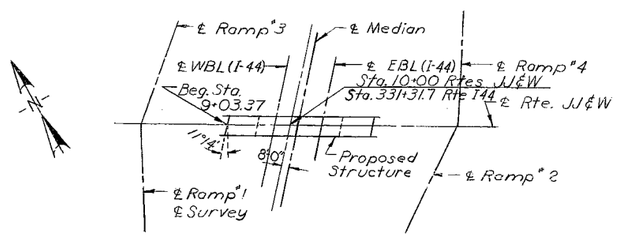
ELEVATION

Note: Compacted roadway fill (full roadway width) shall be placed up to elevation of bottom of concrete beam in front of and not less than 25'-0" in back of End Bents No. 1 & 5 before piles are driven.



PLAN

Note: See Sheet No. 2 of 9 for Boring Data
● Indicates Location of Borings.



LOCATION SKETCH

PILE DATA				
BENT NO.		1 & 5	2 & 4	3
Kind		10BP42	10BP42	10BP42
Number		14	24	12
Approximate Length	Ft.	47.0	25.0	25.0
Design Bearing	Tons	30	28	30
Min. Tip penetration	Elev.	840.0	840.0	840.0
Hammer Energy req'd.	Ft. Lbs.	7000	7000	7000

Minimum energy requirement of hammer based on plan length of piles.
All pile shall be driven to the minimum penetrations and to not less than the design bearings noted.

GENERAL NOTES:

Design Specifications: A.A.S.H.O. - 1969

Design Loading:
H 20-44 15#/sq. ft. Future Wearing Surface
Earth 120# Equivalent Fluid Pressure 30#

Fatigue - Case I

Design Unit Stresses:
Class B Concrete (substructure) f_c = 1,200 psi
Class B1 Concrete (superstructure) f_c = 1,600 psi
Reinforcing Steel f_s = 20,000 psi
Structural Steel f_s = 20,000 psi
Steel Pile f_b 6,000 psi

Surface Seal:
Superstructure deck to be surface sealed.

Fabricated Steel:
Field connections, High Strength Bolts ¾"ϕ, holes 13/16"ϕ except as noted.

Construction Clearance:
A minimum vertical clearance of 14'-0" from crown of existing lanes and a minimum lateral clearance of 28'-0" centered on existing lanes shall be maintained during construction.

Paint:
Shop, one coat red lead, in accordance with Std. Spec. 712.12 and 1045.4 or 1045.5; Surfaces of shear connectors or girder flange plates in contact with concrete shall not be painted.
Field, two coats by contactor, first coat brown, second coat aluminum in accordance with Std. Spec. 712.12.

ESTIMATED QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
Class 1 Excavation	Cu. Yd.	130		130
Structural Steel Piles (10")	Lin. Ft.	1558		1558
Class B Concrete	Cu. Yd.	148.5		148.5
Class B1 Concrete	Cu. Yd.		242.6	242.6
Reinforcing Steel	Lb.	24260	74560	98820
Painting (2 Coats)	Ton		73.1	73.1
Fabricated Structural Carbon Steel	Lb.		145030	145030
Bridge Rail (One Tube)	Lin. Ft.		432	432

Note: All concrete and reinforcement in end posts, parapets, and curbs is included with superstructure quantites.

Payweight for fabricated steel will be based on welded shop splices for the end spans regardless of type used.
B.M. Elev. 856.85 ▫ On S.E. Cor. Conc. Hdwll. 85' Rt. Sta. 330+88 (℄ Med. I-44) U.S.G.S. Datum.

BRIDGE: ROUTES JJ & W UNDERPASS

STATE ROAD FROM SULLIVAN NORTHEAST TO ROUTE WW

ABOUT 0.2 MILE S.W OF STANTON

PROJECT NO. I-44-3(21) (RTE. I-44) **STA.** 331+31.7 (℄ SURVEY)

FRANKLIN **COUNTY**

SUBMITTED BY Li B Conley BRIDGE ENGINEER DATE 10-12-71

APPROVED BY Robert N. Hunter CHIEF ENGINEER DATE 10-12-71

STD 611.60
STD. 706.30A
A-2049

DESIGNED July 1968 BY Hicks
DETAILED July 1968 BY Eichholz
CHECKED Oct 1968 BY Stutte

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

Sheet No. 1 of 9.

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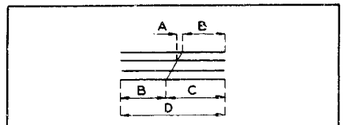
MISSOURI STATE HIGHWAY DEPARTMENT

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
5	MO		19	184	

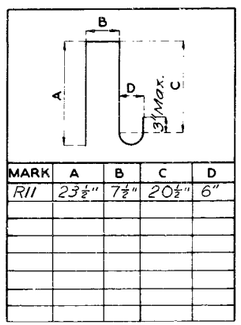
COMPLETE BILL OF REINFORCING STEEL

NO.	SIZE	LENGTH	MARK	LOCATION
End Bts. 1 & 5				
6	#6	6'-3"	F1	Wings
6	#6	7'-0"	F2	Wings
4	#6	14'-6"	H8	Wings Bt. 5
6	#6	14'-3"	H9	Wings Bt. 1
8	#6	9'-9"	H10	Wings
4	#6	39'-9"	H11	Beam
4	#6	41'-0"	H12	Backwall
16	#4	21'-3"	H13	"
16	#6	42'-0"	H14	Beam
4	#6	7'-9"	T1	Wings
4	#6	9'-6"	T2	Wings Bt. 1
4	#6	7'-6"	T3	Wings
4	#6	9'-6"	T4	Wings Bt. 5
20	#2	19'-3"	W1	A.B. Wells
76	#4	12'-3"	U1	Beam
26	#4	3'-9"	U2	"
10	#7	12'-0"	U3	"
10	#7	12'-0"	U4	"
6	#4	6'-6"	U5	Wings
6	#4	5'-0"	U6	"
156	#5	5'-6"	V4	Backwall
32	#4	7'-0"	V5	Wings
8	#4	4'-0"	V6	Wings
8	6	2'-9"	V7	"
12	#4	6'-0"	V8	Wings Bt. 1
12	#4	6'-0"	V9	Wings Bt. 5
Int. Bts. 2, 3 & 4				
24	#7	9'-0"	H1	Beam
6	#6	35'-6"	H2	"
12	#11	39'-0"	H3	"
22	#11	17'-9"	H4	"
26	#11	35'-6"	H5	"
4	#10	35'-6"	H6	Beam Bts. 2 & 4
4	#10	17'-9"	H7	Beam Bt. 3
54	#8	4'-0"	D1	Columns
24	#8	5'-9"	D2	Footings
24	#8	8'-9"	D3	"
12	#8	15'-0"	D4	"
108	#3	8'-0"	P1	Columns
92	#6	13'-3"	U7	Bm. Bts. 2 & 4
4	#6	12'-3"	U8	Beam
38	#5	13'-3"	U9	Bm. Bt. 3
40	#5	11'-9"	U10	"
7	#4	3'-9"	U11	Beam
2	#5	12'-3"	U12	Bm. Bt. 3
18	#8	19'-3"	V1	Col. Bt. 4
18	#8	20'-0"	V2	Col. Bt. 2
18	8	20'-9"	V3	Col. Bt. 3
30	#2	19'-9"	W1	A.B. Wells
Superstructure				
8	#5	4'-9"	R1	End Post
4	#5	6'-0"	R2	"
4	#5	6'-6"	R3	"
4	#5	6'-9"	R4	"
4	#5	7'-0"	R5	"
8	#5	7'-3"	R6	"
12	#5	7'-6"	R7	"
24	#5	4'-3"	R8	Parapet
16	#5	5'-9"	R9	"
16	#5	10'-0"	R10	End Post
428	#5	5'-3"	R11	Parapet
16	#5	32'-9"	R12	"
32	#5	21'-6"	R13	"
48	#5	9'-3"	R14	"
736	#6	40'-6"	S1	Slab
287	#4	30'-6"	S2	Slab
252	#6	35'-9"	S3	Slab
120	#4	16'-0"	S4	Slab
26	#6	41'-9"	S5	Slab

BENDING SKETCHES & CUTTING DIAGRAMS



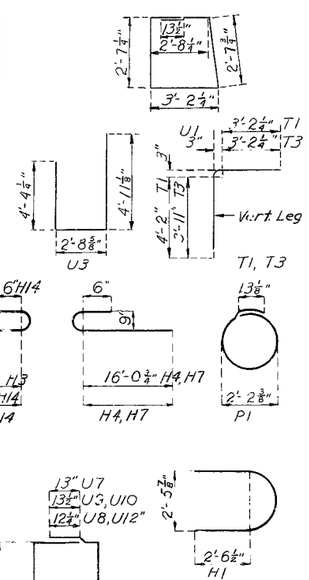
REMARKS	A	B	C	D
13-S5 Cut 26	2'-8⅜"	4'-6"	37'-3"	41'-9"
2-H8 Cut 4	2'-6"	6'-0"	8'-6"	14'-6"
3-H9 Cut 6	2'-4¼"	4'-9½"	9'-3¾"	14'-3"
6-V8 Cut 12	5⅝"	23¾"	4'-0⅜"	6'-0"
6-V9 Cut 12	4¾"	2'-0⅛"	3'-11⅝"	6'-0"



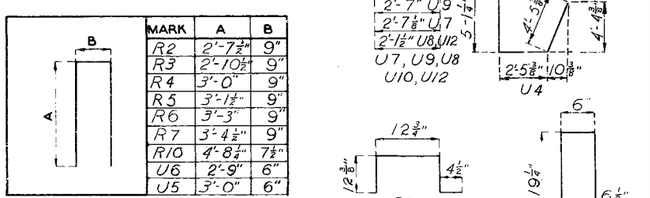
MARK	A	B	C	D
R11	23½"	7½"	20¼"	6"

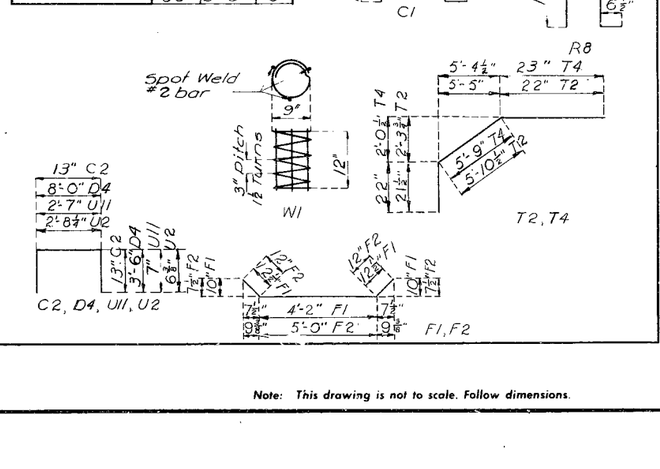
MARK	A	B
R2	2'-7¾"	9"
R3	2'-10¾"	9"
R4	3'-0"	9"
R5	3'-1½"	9"
R6	3'-3"	9"
R7	3'-4½"	9"
R10	4'-8¼"	7½"
U6	2'-9"	6"
U5	3'-0"	6"

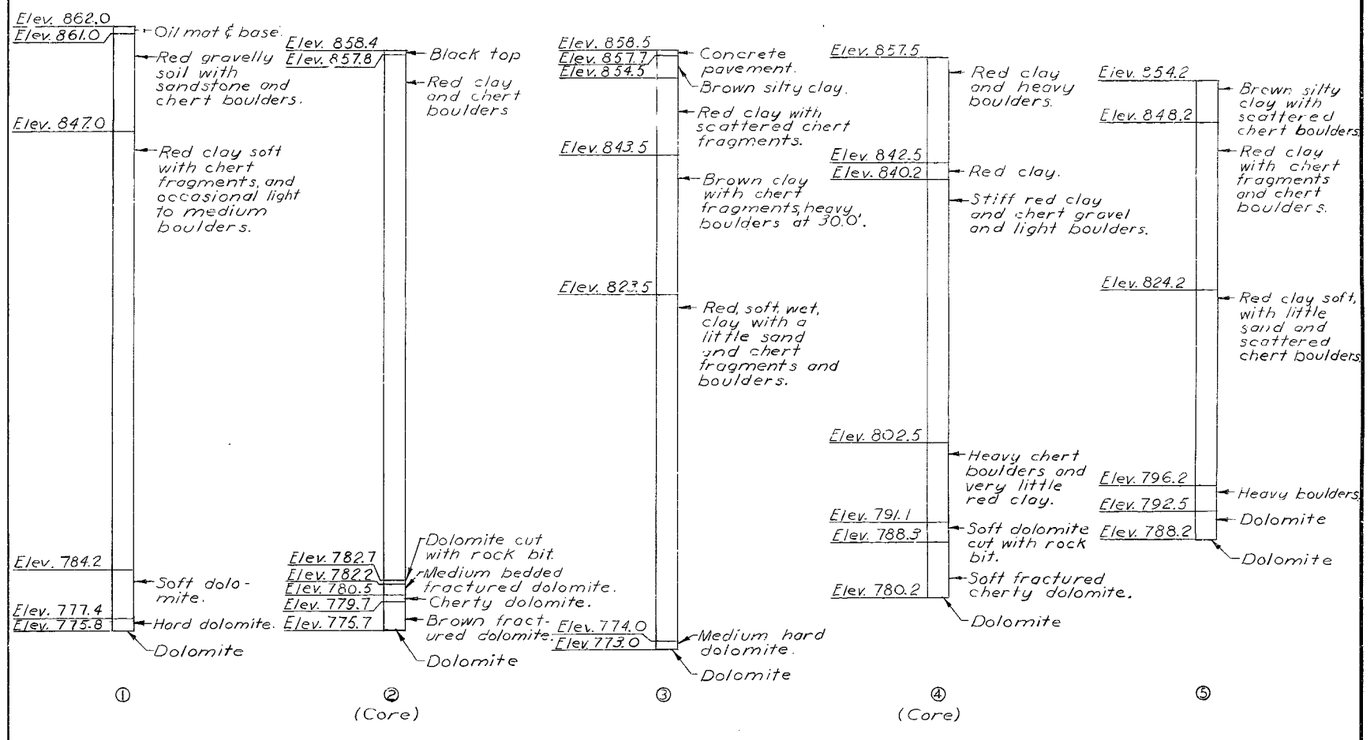
NO.	SIZE	LENGTH	MARK	LOCATION
Superstructure (continued)				
408	#5	3'-6"	C1	Curb
40	#5	3'-3"	C2	End Post
16	#5	31'-0"	C3	Curb
8	#6	42'-3"	C4	"
8	#6	9'-9"	C5	End Post



MARK	A	B	C	D
R11	23½"	7½"	20¼"	6"







BORING DATA

Note: See sheet 1 of 9 for location of borings.

FRANKLIN **COUNTY**

DETAILED July 1968 BY Eichholz
CHECKED Oct. 1968 BY Stutte

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

Sheet No. 2 of 9.

A-2049

STD 90.2 | JUNE 1961 | REVISED NOV 1967

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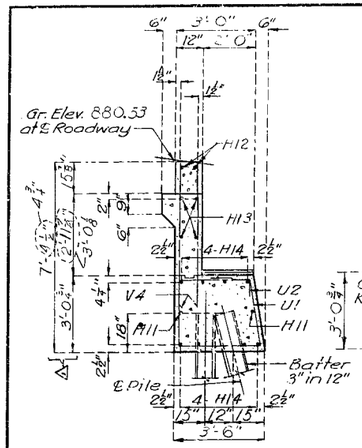
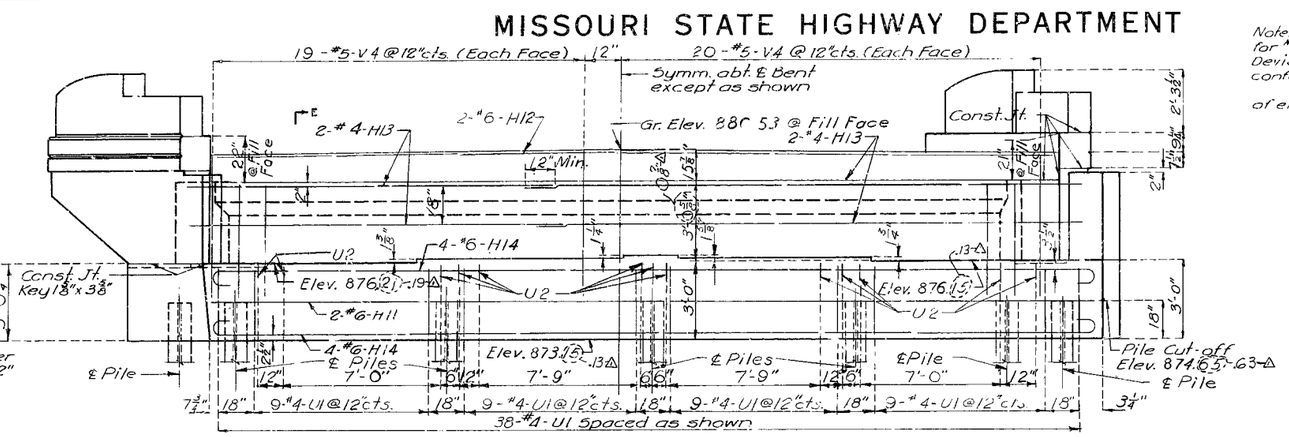
MISSOURI STATE HIGHWAY DEPARTMENT

I-, ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
5	MO		19	135	

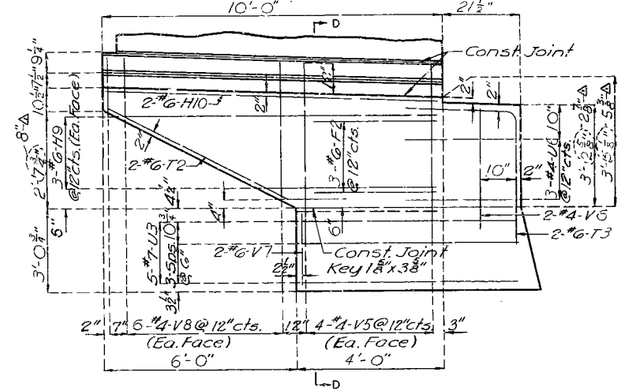
Note: Field bending shall be required of wings for #6-H12 bars in backwalls with Expansion Device and for F bars when necessary to conform to slope of wing.
See handrail sheet for reinforcement of end posts, parapets and curbs.



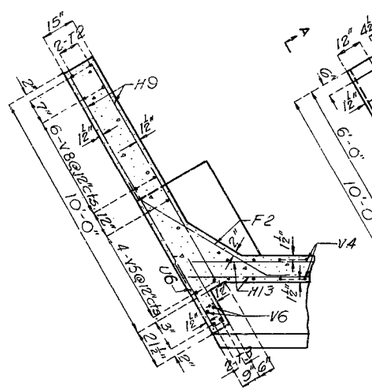
SECTION E-E



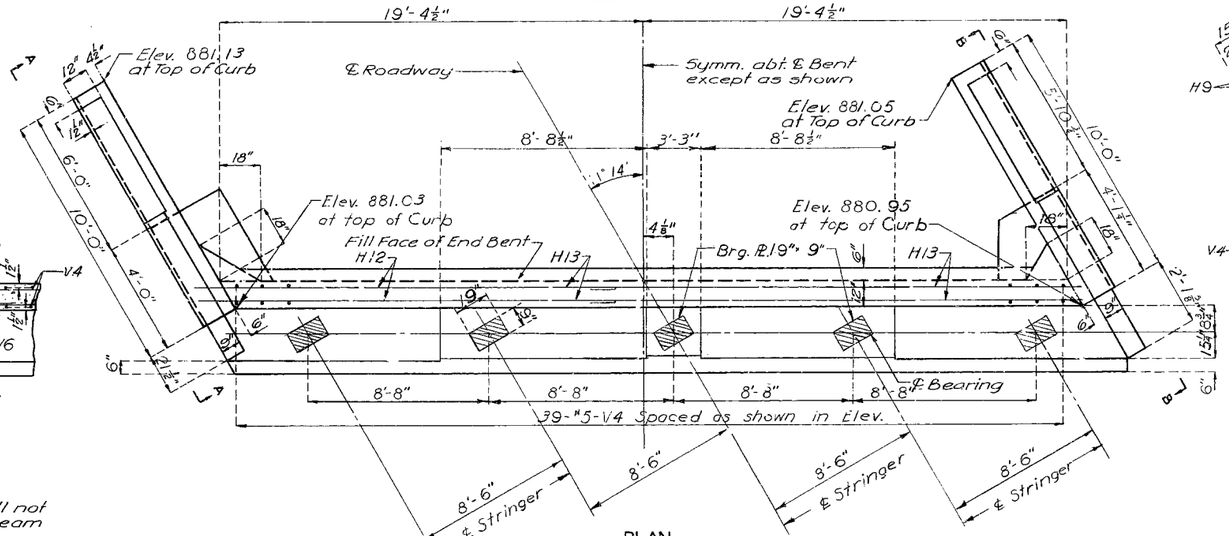
ELEVATION



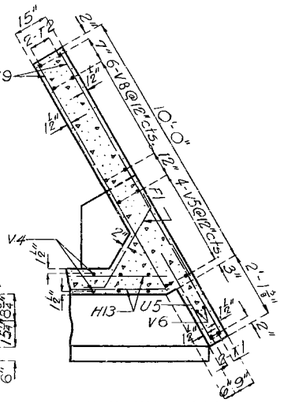
ELEVATION A-A



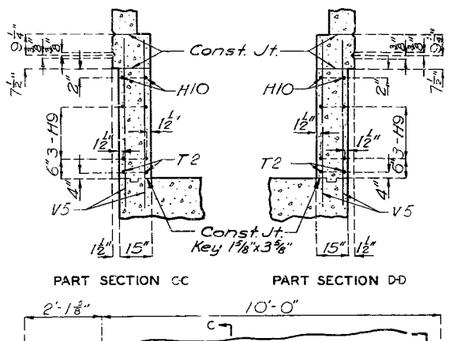
SECTION THRU WING



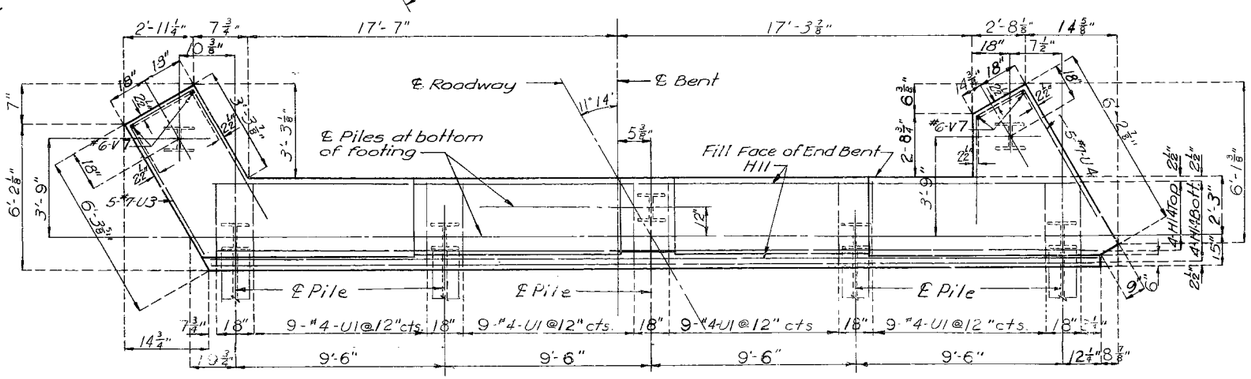
PLAN



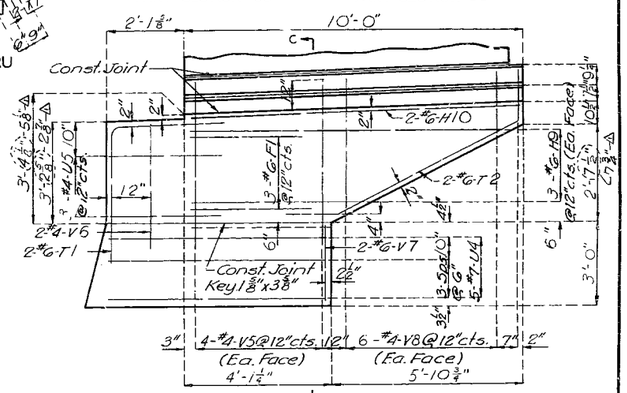
SECTION THRU WING



PART SECTION C-C PART SECTION D-D



PLAN OF BEAM



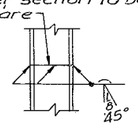
ELEVATION B-B

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

Note: Fill at end bent No. 1 shall not be carried above bottom of beam and wings until adjacent superstructure span is in place.

Top of backwall and expansion device for end bent No. 1 to conform to crown of roadway slab.
Backwall above upper construction joint shall not be poured until the structural steel of the expansion device has been installed and slab has been poured in adjacent span.

Butt splice (if required) top of lower section to be cut square



STEEL PILE SPLICE

Note: All reinforcing bars in tops of substructure beams or caps shall be spaced to clear anchor bolts for bearings by at least ½"

FRANKLIN COUNTY

DETAILED Aug. 1968 BY Eichholz
CHECKED Oct. 1968 BY Stutte

DETAILS OF END BENT NO. 1

Sheet No. 3 of 9. △-Revised 2-23-72

A-2049

STD. 12.3	REVISED
APRIL 1965	JAN. 1968

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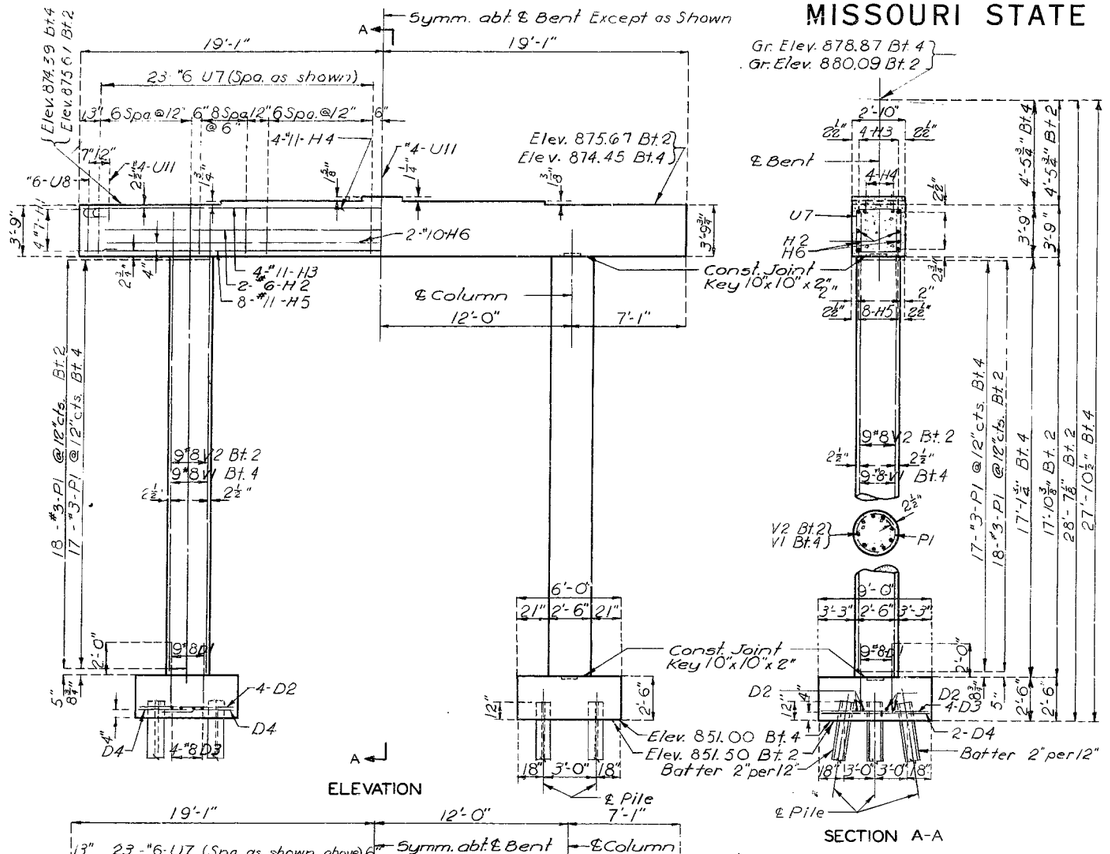
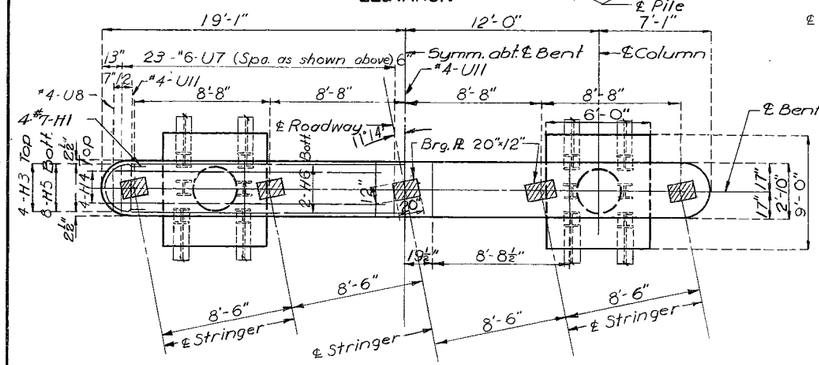
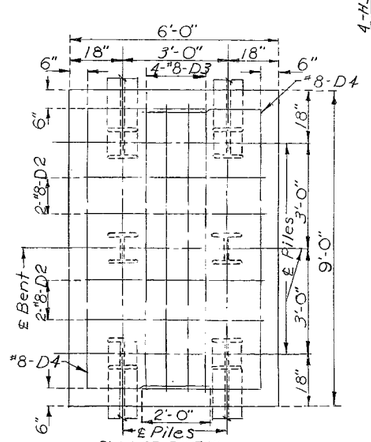
MISSOURI STATE HIGHWAY DEPARTMENT

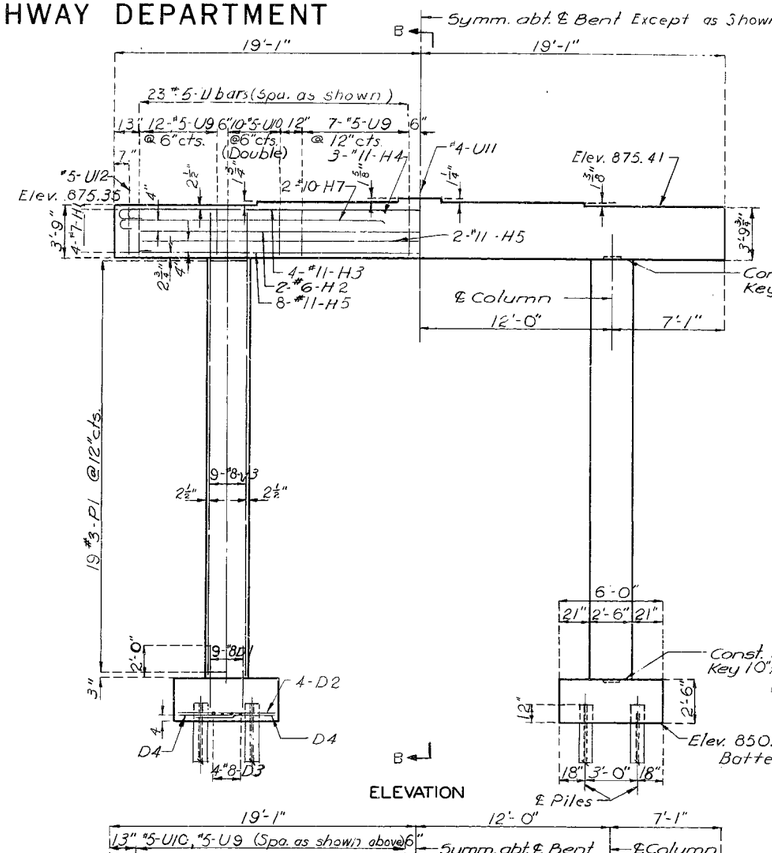
FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO		19	136	

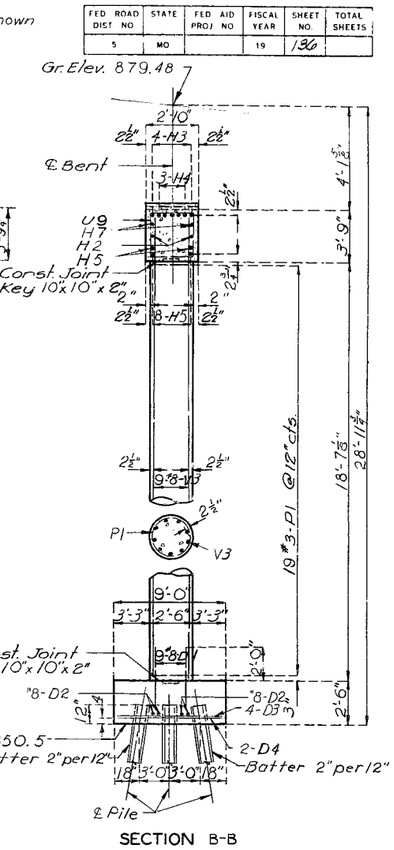


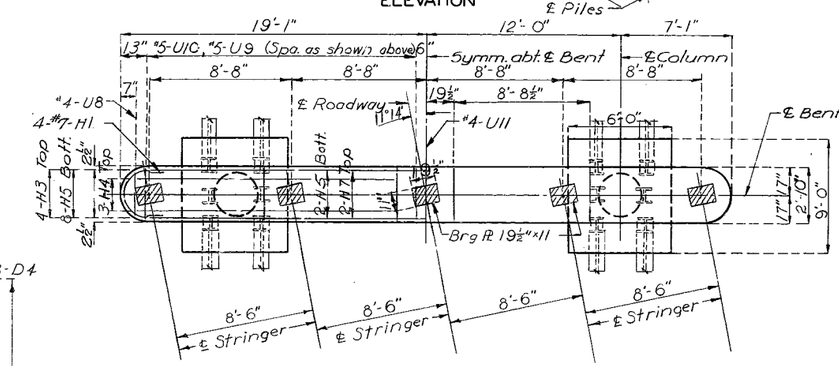


DETAILS OF INTERMEDIATE BENTS NO. 2 & 4









DETAILS OF INTERMEDIATE BENT NO. 3

Note: All reinforcing bars in top of substructure beams or caps shall be so placed to clear anchor bolts for bearings by at least ½".

FRANKLIN COUNTY

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No.	Date	Revised
192	Mar. 1964	Jan. 1965

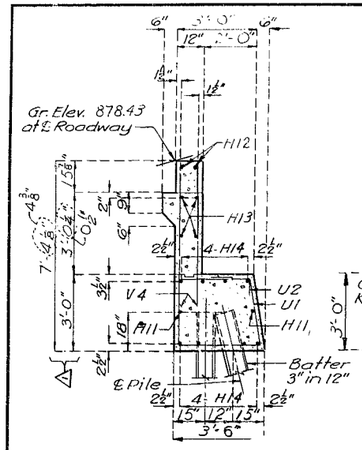
DETAILED July 1968 BY Eichholz
CHECKED Oct. 1968 BY Stutte

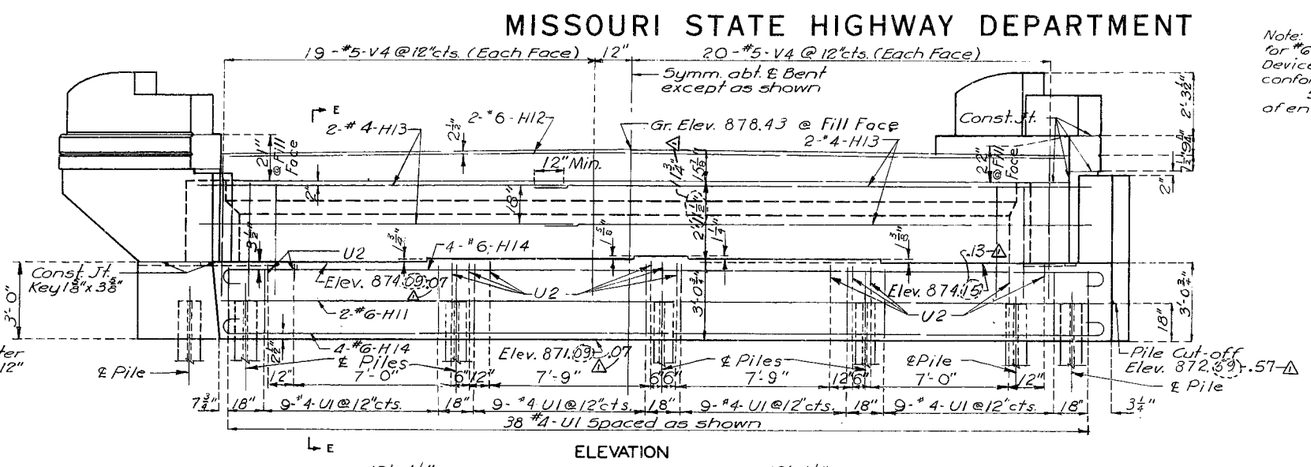
Note: This drawing is not to scale. Follow dimensions.

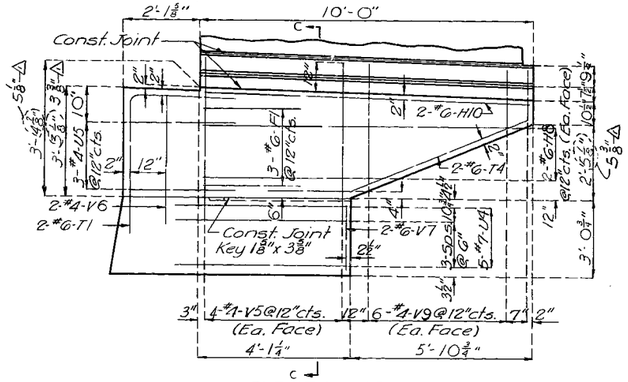
MISSOURI STATE HIGHWAY DEPARTMENT

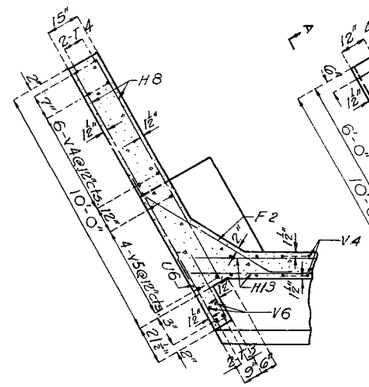
FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
5	MO.		19	137	

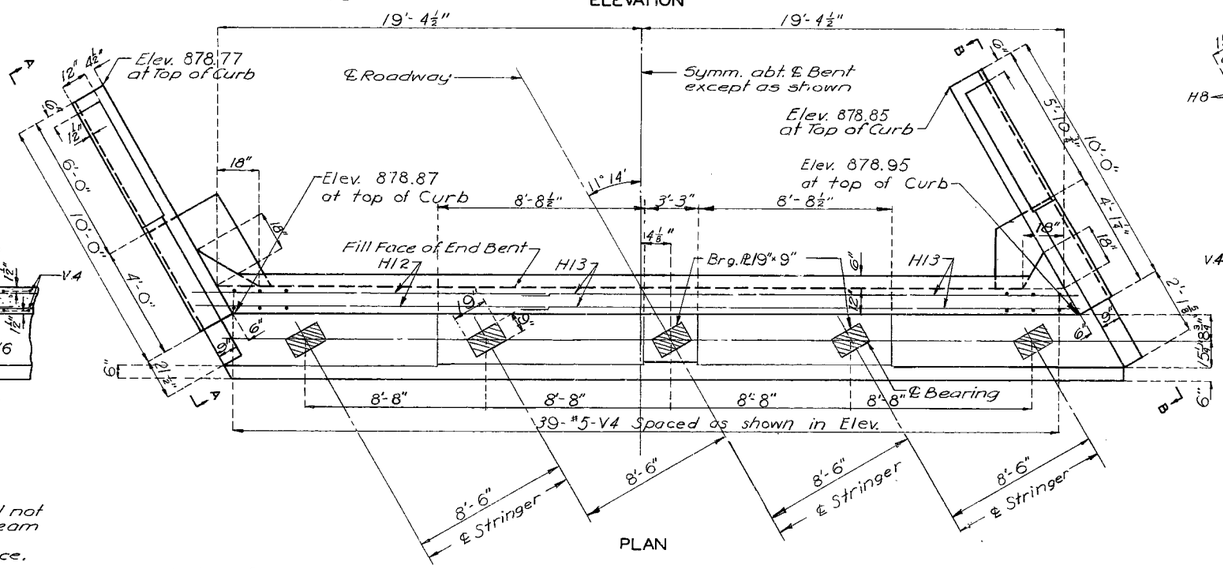
Note: Field bending shall be required of wings for #6 H12 bars in backwalls with Expansion Device and for F12 bars when necessary to conform to slope of wing.
See handrail sheet for reinforcement of end posts, parapets and curbs.

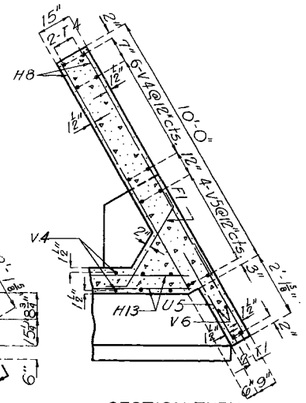


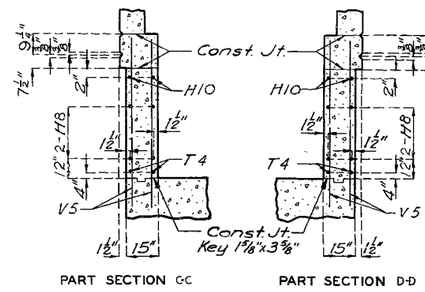


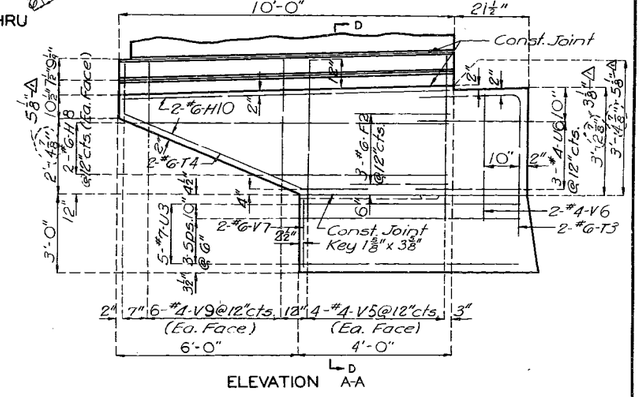








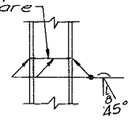




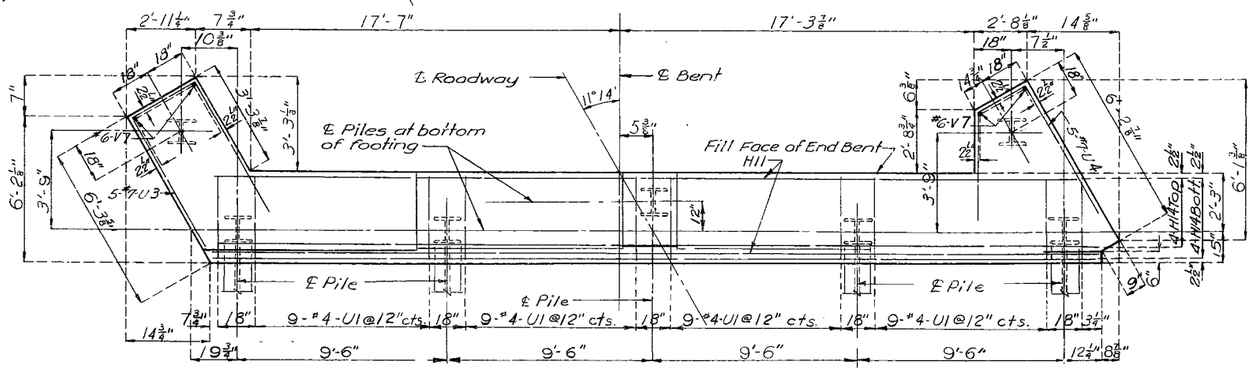
Note: Fill at end bent No. 5 shall not be carried above bottom of beam and wings until adjacent superstructure span is in place.

Top of backwall and expansion device for end bent No. 5 to conform to crown of roadway slab.
Backwall above upper construction joint shall not be poured until the structural steel of the expansion device has been installed and slab has been poured in adjacent span.

Butt splice (if required) Top of lower section to be cut square



STEEL PILE SPLICE



Note: All reinforcing bars in tops of substructure beams or caps shall be spaced to clear anchor bolts for bearings by at least ½".

DETAILS OF END BENT NO. 5

FRANKLIN COUNTY

STD. 12.3	REVISED
APRIL 1965	JAN. 1968

DETAILED Aug. 1968 BY Eichholz
CHECKED Oct. 1968 BY Stutte

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

Sheet No. 5 of 9. ⚠ Revised 2-23-72

A-2049

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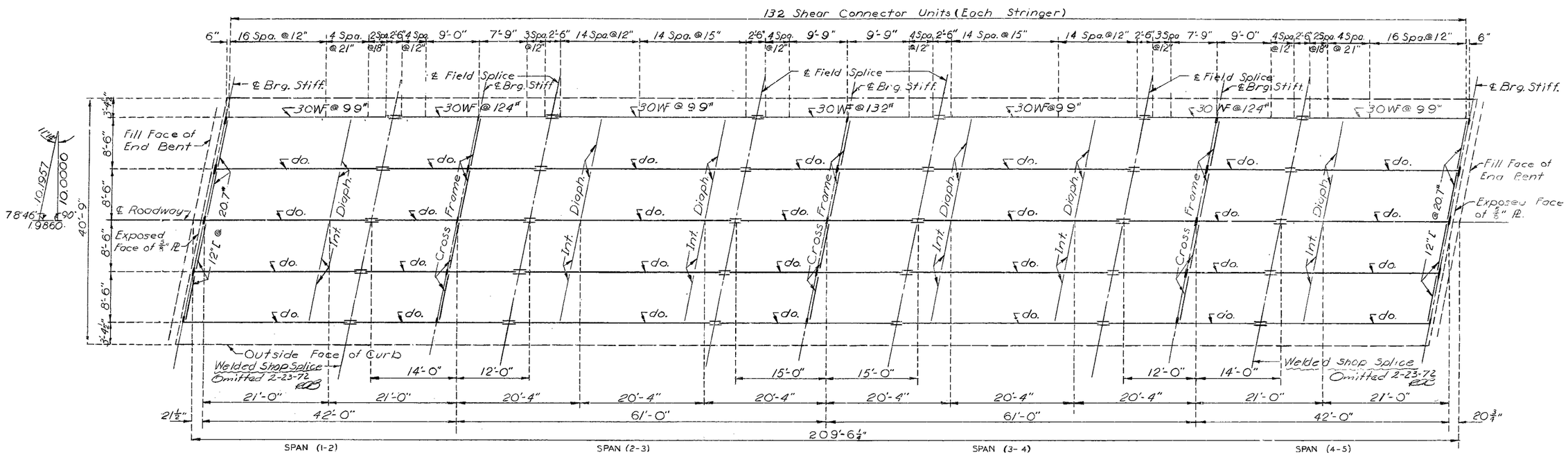
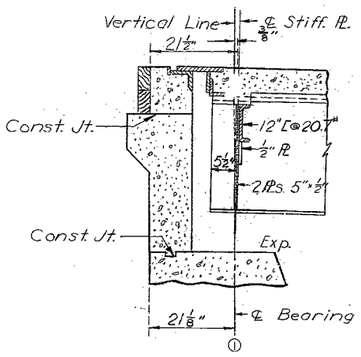
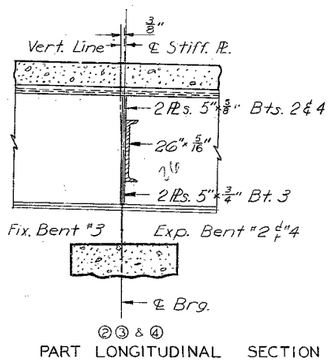
MISSOURI STATE HIGHWAY DEPARTMENT

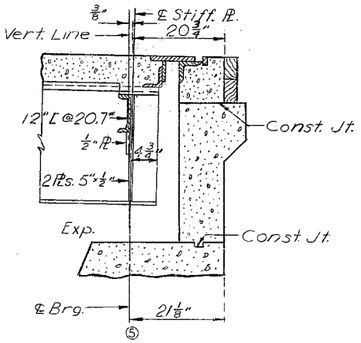
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	138	

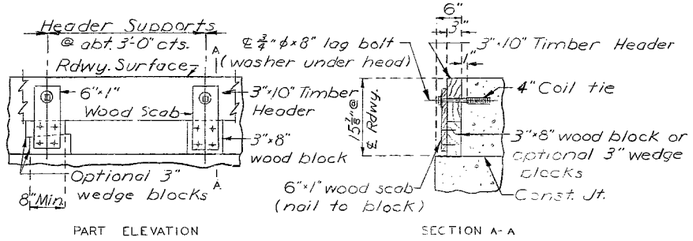




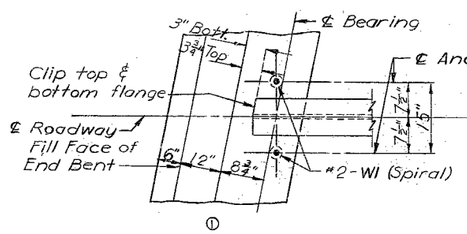


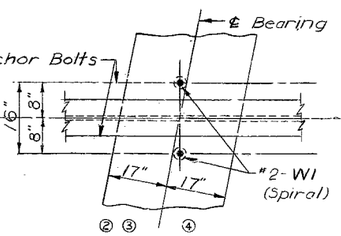
PART LONGITUDINAL SECTION



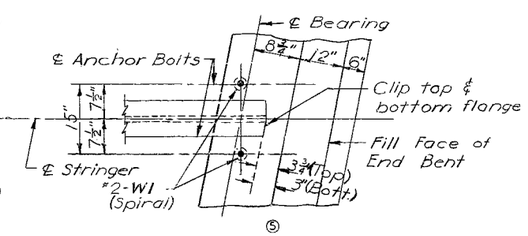


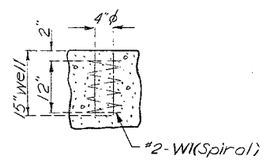
Note: Cost of timber headers complete in place to be included in price bid for concrete





PART ANCHOR BOLT PLAN





DETAIL OF ANCHOR BOLT WELL

265

DETAILED July 1968 BY Eichholz
CHECKED Oct. 1968 BY Stutte

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

Sheet No. 6 of 9 .

FRANKLIN COUNTY

A-2049

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	139	

NOTES: TYPE "D" BEARINGS

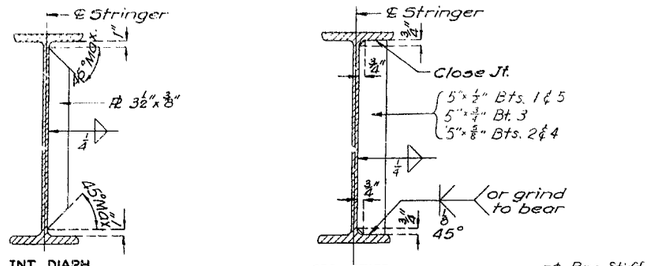
Lead plates under bearings shall be approximately $\frac{1}{8}$" thickness and weigh 8# / sq. ft. Cost of lead plates shall be included in price bid for other items.

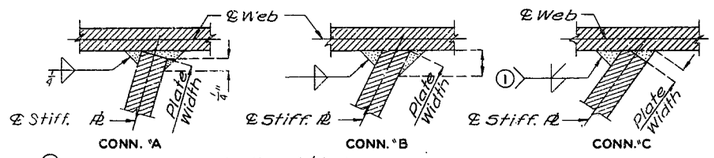
"Estimated weight" does not include weight of anchor bolts.

Rockers and pedestals shall be machined after welding.

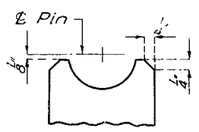
Where flat surface is indicated, tolerance shall be .003 in/in in any direction.

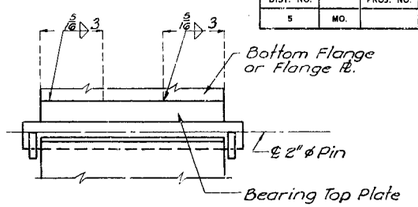
Anchor Bolts for Type "D" Bearings shall be 1¼"ø swedged bolts and shall extend 12" into concrete, with hexagon nuts and plain washers for Fixed Bearings, no nuts for Expansion Bearings.



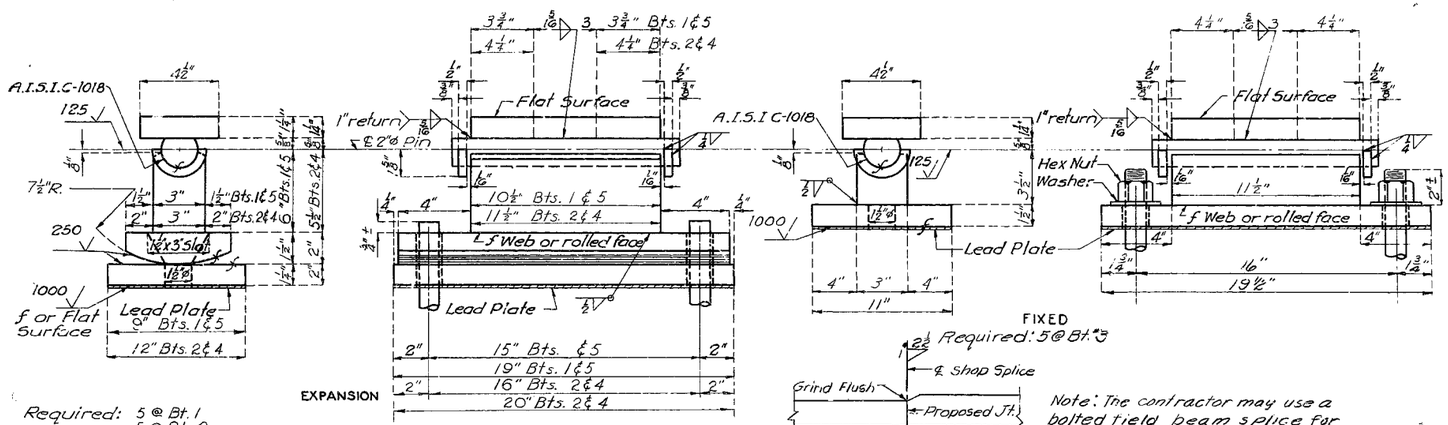


WELDING DETAILS



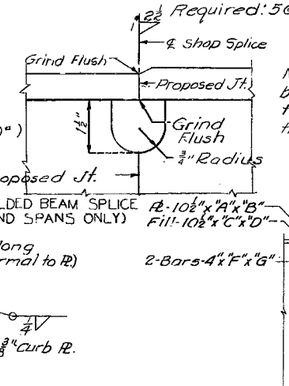


WELDING DETAILS

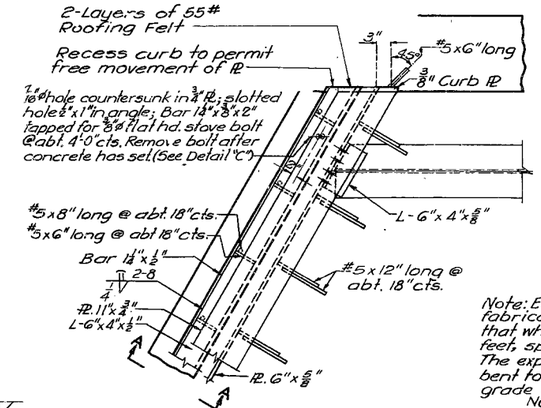


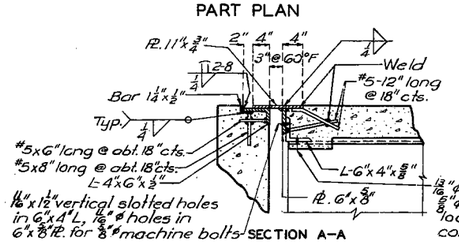
Required: 5 @ Bt. 1, 5 @ Bt. 2, 5 @ Bt. 4, 5 @ Bt. 5

TYPE "D" BEARINGS
(Estimated Weight 5190#)

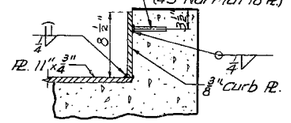


Note: The contractor may use a bolted field beam splice for the end spans in lieu of the shop welded beam splice.





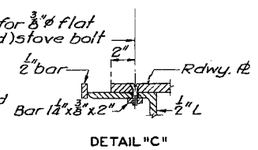
EXPANSION DEVICE AT END BENT NO.

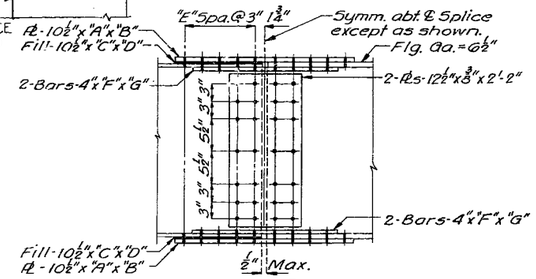


Note: Expansion Device shall be fabricated in one section except that when the length is over 50 feet, splicing is permissible. The expansion device shall be bent to conform to crown and grade of roadway.

No. 5 bars for expansion device shall be structural grade. Approved stud welded anchors or deformed bar anchors (A.S.T.M. A496) may be used in lieu of #5 bars shown.

Use 2 layers of 55# roofing felt between the sliding contact surface of curb plate and concrete curb.

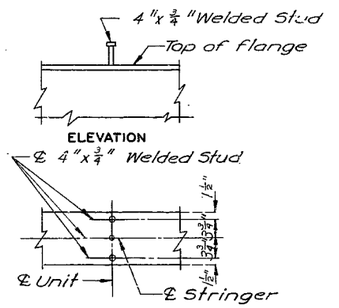




Note: 15/16" reamed holes for ⅞" high strength bolts.

SIZE OF BEAM	"A"	"B"	"C"	"D"	"E"	"F"	"G"
30"WF 99 to 124	7/16"	2'-0⅝"	¼"	12"	3	½"	18½"
30"WF 99 to 132	7/16"	2'-0½"	3/16"	12"	3	½"	18½"

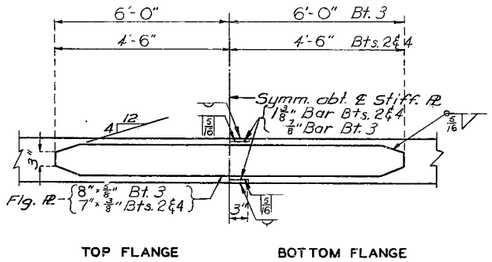
DETAIL OF 30" WF BEAM SPLICE



PLAN OF STUD CONN

DETAILS OF SHEAR CONNECTORS

Note: Weight of 1220 lbs. of shear connectors is included in weight of Fabricated Structural Carbon Steel.



INT. BENT NO.

DETAILS OF FLANGE PLATES

DETAILED Aug. 1968 BY Eichholz

CHECKED Oct 1968 BY Stutte

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

Sheet No. 7 of 9.

FRANKLIN COUNTY

A-2049

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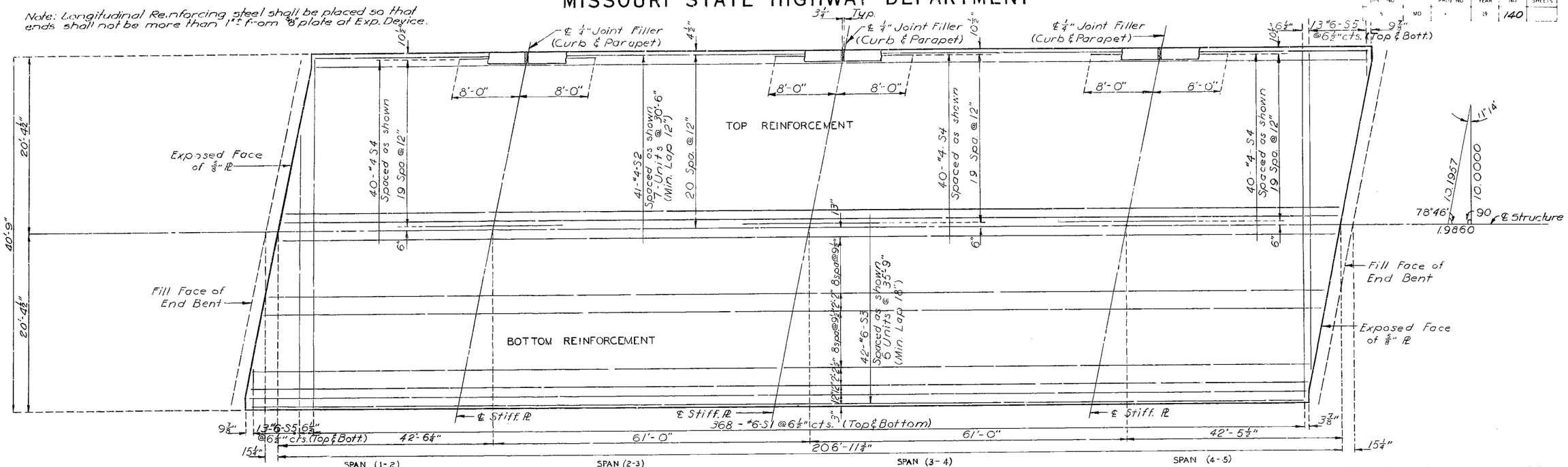
FOR INFORMATION ONLY **A2049, Sht. 8**

MISSOURI STATE HIGHWAY DEPARTMENT

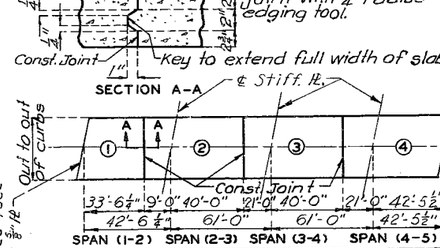
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO	-	19	140	

Note: Longitudinal Reinforcing steel shall be placed so that ends shall not be more than 1" from 3/8" plate at Exp. Device.



PLAN OF SLAB SHOWING REINFORCEMENT

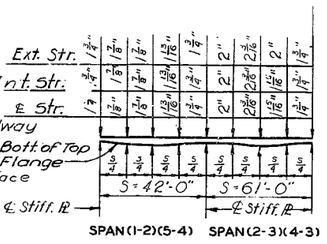
Note: Longitudinal dimensions shown are taken parallel to grade of crown of roadway.



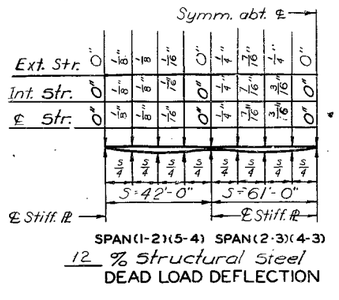
	Sequence of Pours			
Direction	1	2	3	4
Basic Sequence	End to 2	1 to 3	2 to 4	3 to End
Alternate "A" Pours	1+2	End to 3	2 to 4	3 to End
Alternate "B" Pours	1+2	End to 3	3+4	2 to End
Alternate "C" Pours	1+2+3+4	End to End		

Note: The contractor shall pour and satisfactorily finish the slab pours of a rate of not less than 29 cubic yards per hour unless he elects to use an approved retarder to retard the set of the concrete to 2.5 hours in which case he may reduce his pouring and finishing rate to not less than 25 cubic yards per hour

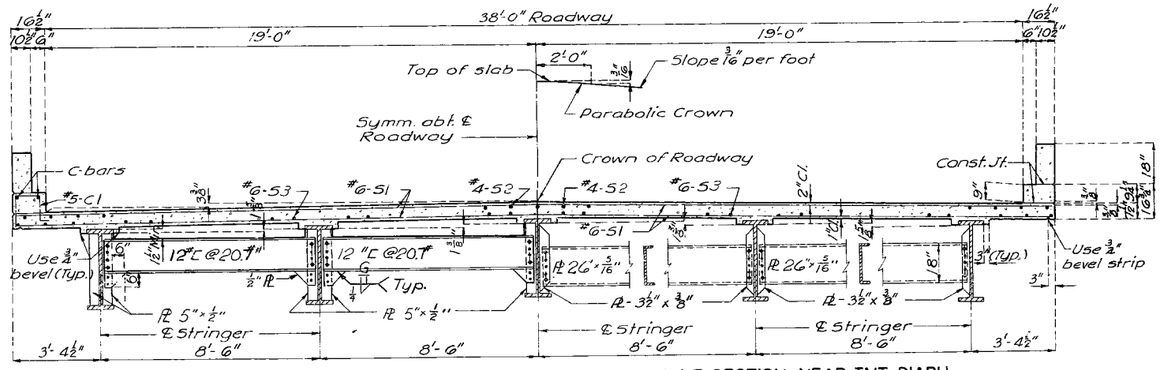
SLAB POURING SEQUENCE



THEORETICAL SLAB HAUNCHING DIAGRAM



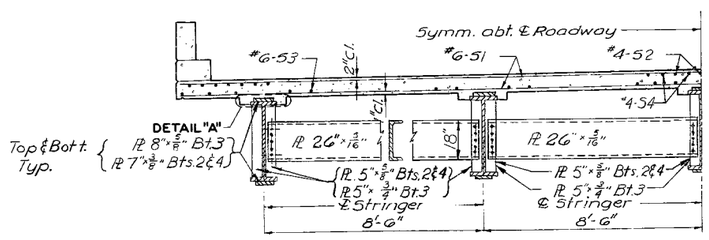
12 % Structural Steel DEAD LOAD DEFLECTION



HALF SECTION NEAR END DIAPH.

HALF SECTION NEAR INT. DIAPH.

Note: For details and reinforcement of curb and parapet not shown see sheet No. 9 of 9.



HALF SECTION AT INT. BENTS

FRANKLIN **COUNTY**

A-2049

Sheet No. 8 of 9 .

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

DETAILED July 1968 BY Eichholz
CHECKED Oct. 1968 BY Stutte

STD. 41.38.5	REVISED
AUG. 1967	JUNE 1968

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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.		19	14	

GENERAL BRIDGE RAIL NOTES:

All bridge rail posts shall be set normal to grade.

Aluminum tube bridge rail shall be bent to conform to vertical and horizontal alignment of parapet.

Aluminum washer shims between top of parapet and post base may be used for adjusting bridge rail alignment. Maximum thickness of shims to be ⅜". Where more tilting of post is required for proper alignment, concrete bearing areas shall be ground down.

All parts of bridge rail, except anchor bolts, nuts, washers, and set screws are to be of aluminum material.

All fillets ¼" except as noted.

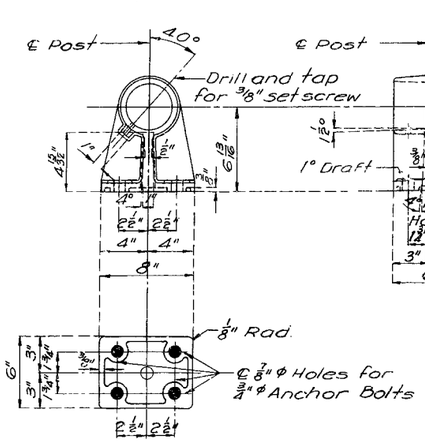
All drafts 3° except as noted.

Omit set screw in side of rail posts adjacent to filled joints in curb and parapet at rail expansion points. Omit set screw in each side of rail post on end bents except where a gap is shown in rail over an expansion device.

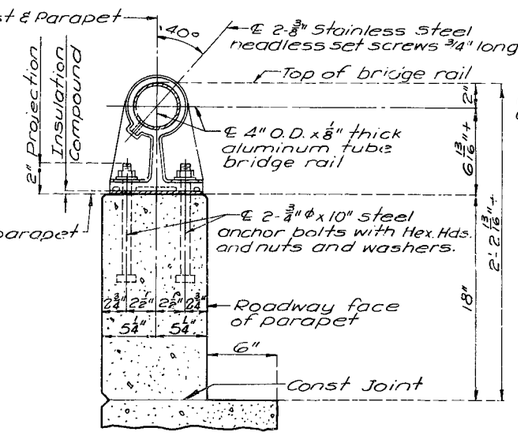
Top of curbs and parapet to be built parallel to grade with curb and parapet joints (except at end bents) normal to grade.

Concrete end posts to be vertical.

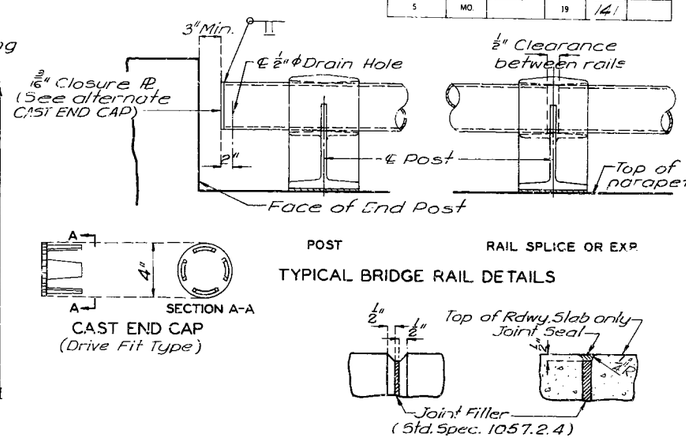
All exposed edges of end posts shall have ½" bevel. All exposed edges of curbs and parapets shall have ½ radius or ⅜ bevel unless otherwise noted.



POST DETAILS



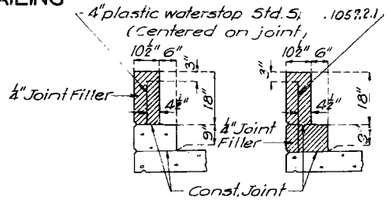
SECTION THRU BRIDGE RAIL



TYPICAL BRIDGE RAIL DETAILS

ONE TUBE ALUMINUM RAILING

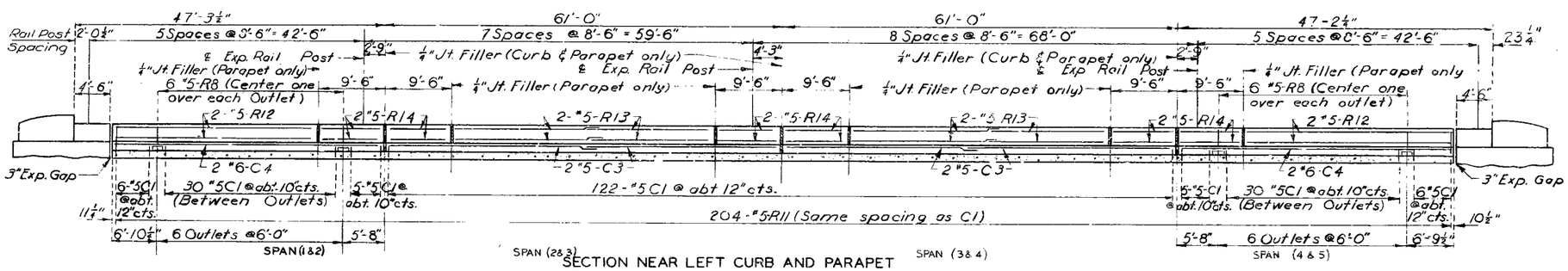
FILLED JOINT DETAILS



Note: Plastic waterstop shall be placed in all parapet and curb filled joints except at end bents.

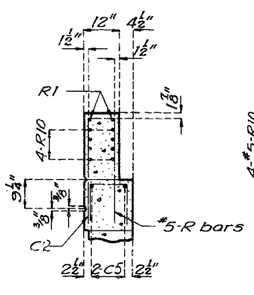
Cost of plastic waterstop complete in place to be included in unit price bid for concrete.

DETAILS OF PLASTIC WATERSTOP

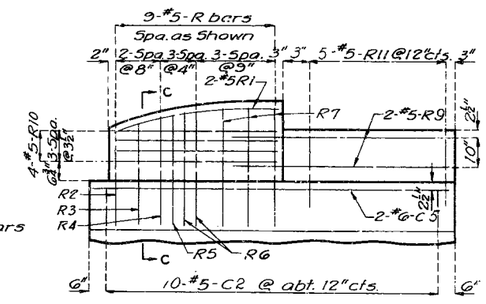


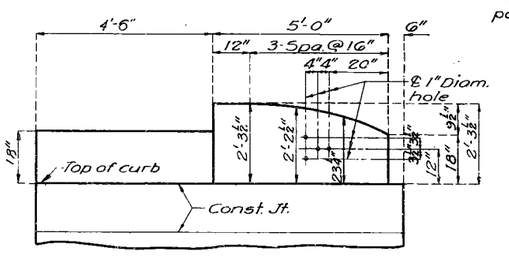
SECTION NEAR LEFT CURB AND PARAPET

Note: Longitudinal dimensions are taken parallel to grade at top of parapet.

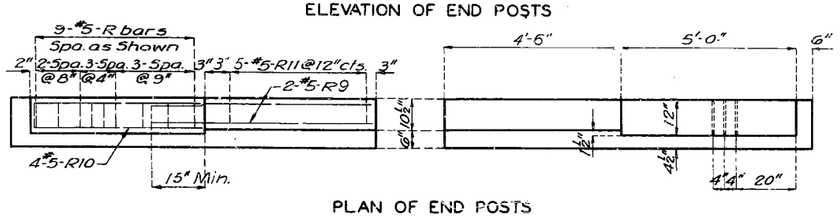


SECTION C-C

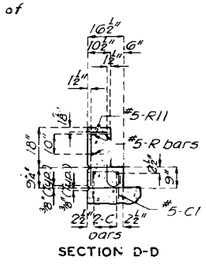




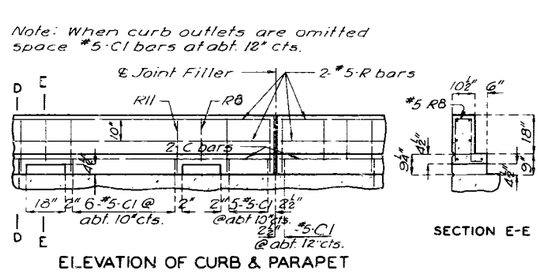
ELEVATION OF END POSTS



PLAN OF END POSTS



Note: When curb outlets are omitted space #5-C1 bars at abt. 12" cts.



ELEVATION OF CURB & PARAPET

Note: For horizontal curb and parapet bars use a minimum lap of 15" for #5 and 18" for #6

STD. 1.5.2	REVISED
MAR. 1964	OCT. 1968

DETAILED July 1968 BY Eichholz

CHECKED Oct. 1968 BY Stutte

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

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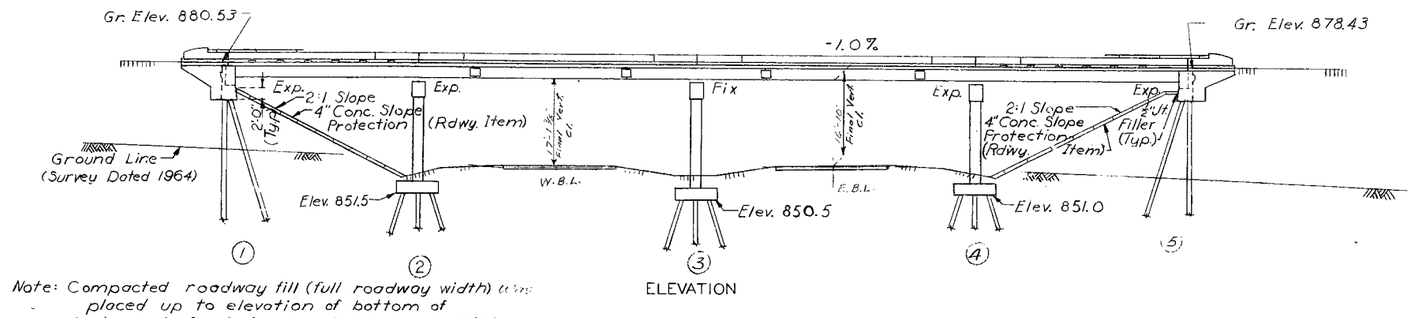
MISSOURI STATE HIGHWAY DEPARTMENT

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

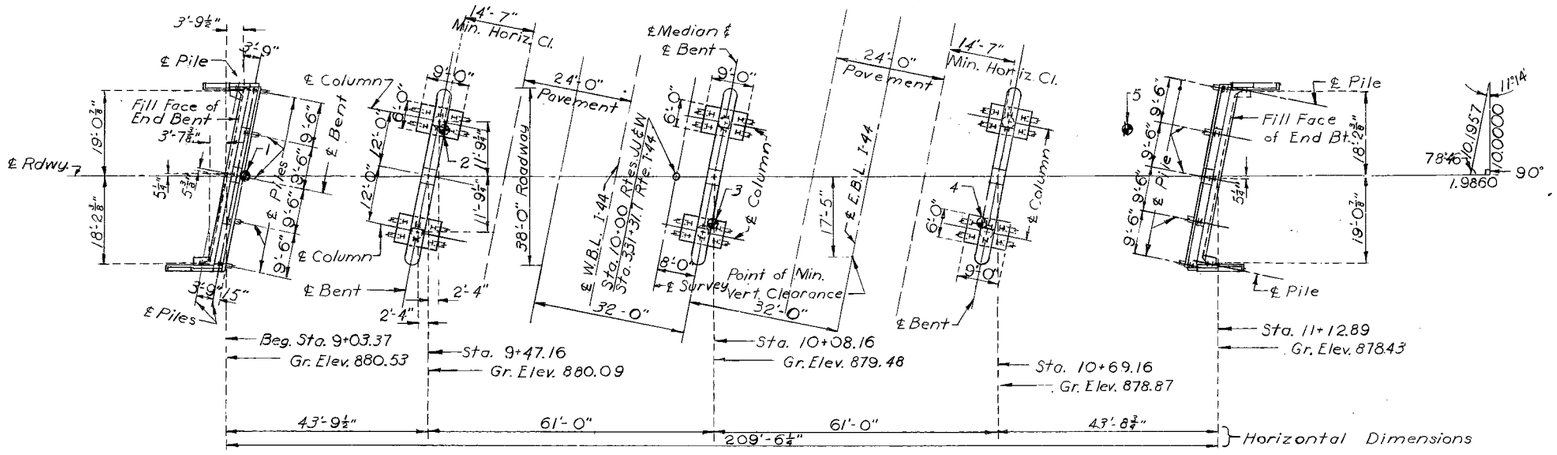
FINAL PLANS

(42'-6 1/2"-61'-6 1/2"-42') Cont. Composite WF Beam Spans



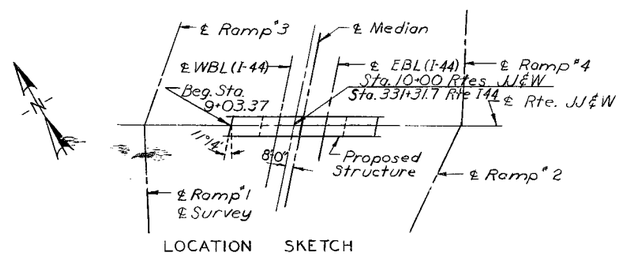
ELEVATION

Note: Compacted roadway fill (full roadway width) will be placed up to elevation of bottom of concrete beam in front of and not less than 25'-0" in back of End Bents No. 1 & 5 before piles driven.



PLAN

Note: See Sheet No. 2 of 9 for Boring Data
● Indicates Location of Borings.



LOCATION SKETCH

PILE DATA				
BENT NO.		1 & 5	2 & 4	3
Kind		10BP42	10BP42	10BP42
Number		14	24	12
Final Length (Ranges)		72-142 ~ 51-100	26-115 ~ 20-42	13-30
Design Bearing	Tons	30	28	30
Min. Tip penetration	Elev.	840.0	840.0	840.0
Hammer Energy req'd.	Ft.Lbs.	7000	7000	7000

Minimum energy requirement of hammer based on plan length of piles.
All pile will be driven to the minimum penetrations and to not less than the design bearings noted.

GENERAL NOTES:

Design Specifications: A.A.S.H.O. - 1969

Design Loading:
H 20-44 15#/sq. ft. Future Wearing Surface
Earth 120# Equivalent Fluid Pressure 30#

Fatigue - Case 1

Design Unit Stresses:
Class B Concrete (substructure) f_c = 1,200 psi
Class B1 Concrete (superstructure) f_c = 1,600 psi
Reinforcing Steel f_s = 20,000 psi
Structural Steel f_s = 20,000 psi
Steel Pile f_b 6,000 psi

Surface Seal:
Superstructure deck was surface sealed.

Fabricated Steel:
Field connections, High Strength Bolts 3/4" ϕ, holes 13/16" ϕ except as noted.

Construction Clearance:
A minimum vertical clearance of 14'-0" from crown of existing lanes and a minimum lateral clearance of 28'-0" centered on existing lanes was maintained during construction.

Paint:
Shop, one coat red lead in accordance with Std. Spec. 712.12 and 1045.4 or 1045.5; Surfaces of shear connectors or girder flange plates in contact with concrete were not painted.
Field, two coats by contactor, first coat brown, second coat aluminum in accordance with Std. Spec. 712.12.

FINAL QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
Class 1 Excavation	Cu.Yd.	133.0		133.0
Structural Steel Piles (10")	Lin. Ft.	1714		1714
Class B Concrete	Cu. Yd.	148.5		148.5
Class B1 Concrete	Cu. Yd.		242.6	242.6
Reinforcing Steel	Lb.	24260	74560	98820
Painting (2 Coats)	Ton		72.3	72.3
Fabricated Structural Carbon Steel	Lb.		145820	145820
Bridge Rail (One Tube)	Lin. Ft.		432	432
Structural Steel Piles (10") @ 90% Bid Price L.F.		727		727

Note: All concrete and reinforcement in end posts, parapets, and curbs is included with superstructure quantites.

*Payweight for fabricated steel was based on welded shop splices for the end spans regardless of type used.

B.M. 280 "T" on S.E. cor. @ end of wing, 20' Rt. ℄ Rte. W. Bt. 5, Sta. 11+22 Elev. 878.85

BRIDGE: ROUTES JJ & W UNDERPASS

STATE ROAD FROM SULLIVAN NORTHEAST TO ROUTE WW

ABOUT 0.2 MILE S.W OF STANTON

PROJECT NO. I-44-3(21) (RTE. I-44) **STA.** 331+31.7 (℄ SURVEY)

FRANKLIN **COUNTY**

FINAL PLANS

SUBMITTED BY W. A. Conley BRIDGE ENGINEER DATE 10-12-71

APPROVED BY Robert N. Hunter CHIEF ENGINEER DATE 10-12-71

STD 611.60
STD. 706.30A
A-2049

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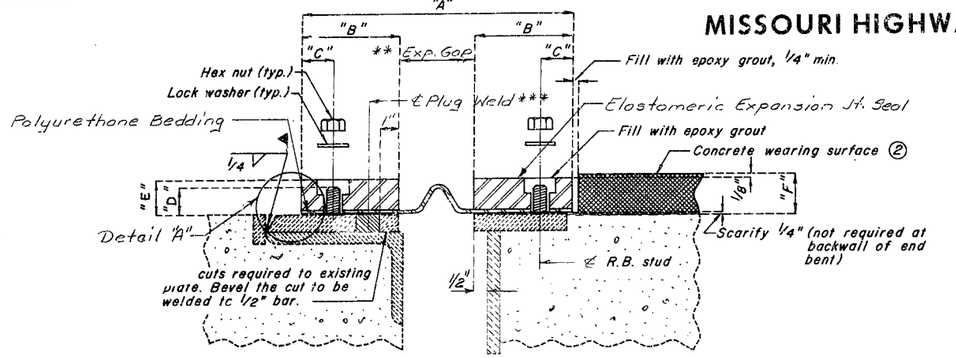
DESIGNED July 1968 BY Hicks
DETAILED July 1968 BY Eichholz
CHECKED Oct 1968 BY Stutte

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

Sheet No. 14 of 19.

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	Mo.		19	30	



PART SECTION THRU EXPANSION DEVICE

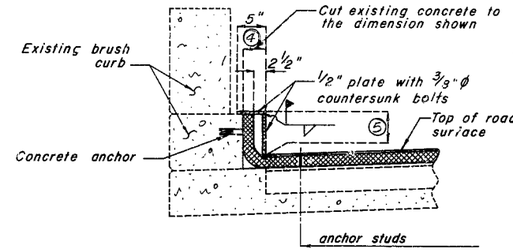
Note: Part sections shown are at end bents. Int. bents similar except wearing surface shall be placed on both sides of expansion device.

Use R.B. studs (welded) to anchor new expansion device to steel plate of existing expansion device.

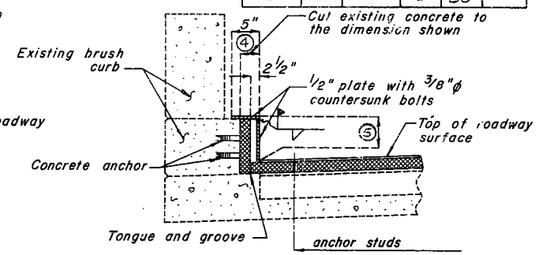
*** Use 1 1/16" plug weld @ 12" cts. spaced between studs.

TABLE OF DIMENSIONS

LOCATION	ACCEPTABLE ALTERNATE TYPES	EXP. GAP AT 60°	"A"	"B"	"C"	"D"	"E"	"F"	ANCHOR STUDS SIZE	ANCHOR STUDS "G"
Bts. #1 & 5	ACME TROJAN TR 300	2"	10"	4"	1 5/8"	1 1/8"	1 5/8"	2"	1/2"	40
	GEN-STRIP CCL 2"	2 1/4"	9 3/4"	3 3/4"	1 1/2"	1 1/8"	1 5/8"	2"	5/8"	65
	WABO BENDOFLEX 250	2"	10"	4"	1 3/8"	1 1/4"	1 3/4"	2 1/8"	1/2"	50



TYPE "E" CURB



TYPE "G" CURB

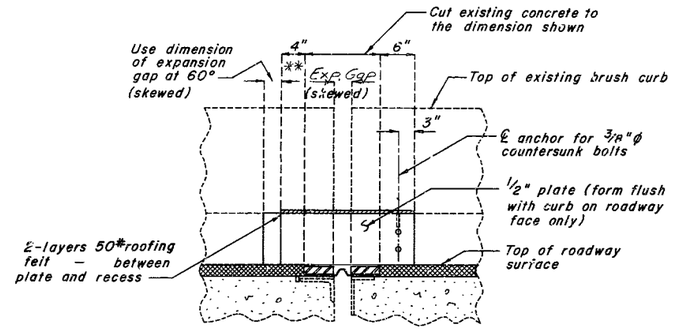
ALTERNATE CURB TREATMENTS

(2) Slope 1/8" in 10'-0" to 1 1/2 min. thickness for latex concrete wearing surface and 2" min. thickness for low slump concrete wearing surface.

(4) 4" for latex wearing surface and 4 1/2" for low slump wearing surface

(5) 7 1/2" for latex wearing surface and 7" for low slump wearing surface.

Curb plate (A.S.T.M. A36 shall be galvanized in accordance with A.S.T.M. A123 and A.S.T.M. A153



PART ELEVATION OF BARRIER CURB

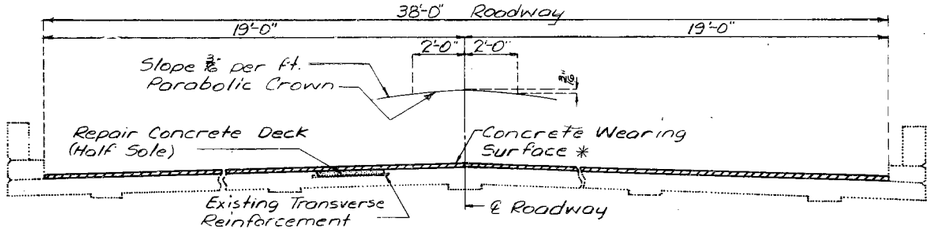
Notes: All dimensions are at right angles.

Expansion gap and dimension "A" shall be increased 1/8" for each 10° fall in temperature and decreased 1/8" for each 10° rise in temperature.

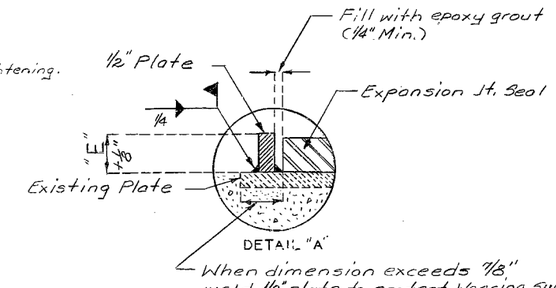
The certified nuts for the anchor studs shall be tightened to foot pounds ("G") specified in the table of dimensions. Retighten to ("G") foot pounds a minimum of 30 minutes after initial tightening.

The welded anchor studs shall be reduced base (R.B.) Type.

** If existing expansion device has closed to less than expansion gap given in table, the expansion gap of the new device shall be adjusted accordingly and installed in the same manner.



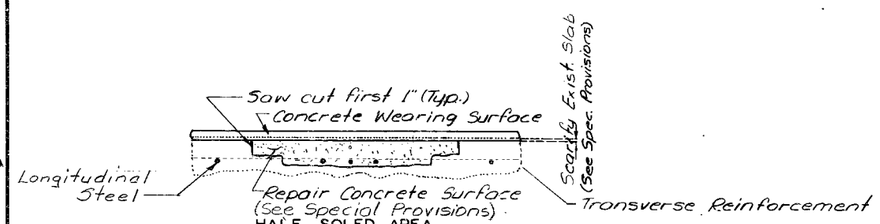
PART SECTION THRU SLAB



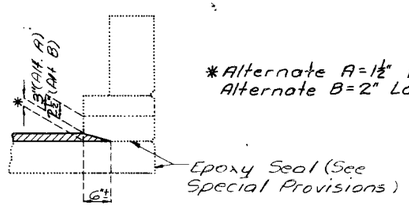
ESTIMATED QUANTITIES		
ITEM		TOTAL
Concrete Wearing Surface *	Sq. Yd.	874
Repairing Concrete Deck (Half Soling)	Sq. Ft.	157
Elastomeric Expansion Jt. Seal (2.0 In)	Lin. Ft.	79

See Job Special Provisions for alternate use of Concrete Wearing Surface.

Note: Outline of old work is indicated by light dotted lines. Heavy lines indicate new work.



HALF SOLED AREA



TYPICAL SECTION AT CURB SHOWING OUTLETS

*Alternate A = 1/2" Latex Modified Concrete, Alternate B = 2" Low Slump Concrete.

REPAIRS TO

BRIDGE ROUTES JJ & W UNDERPASS

STATE ROAD FROM SULLIVAN NORTHEAST TO ROUTE WW

ABOUT 0.2 MILE S.W. OF STANTON

PROJECT NO. IR-44-3(51) **STA.** 331+31.7 ℄ SURVEY

JOB NO. 6-1044-178C **RTE.** JJ & W

FRANKLIN **COUNTY**

DATE 4/11/84

STD.
STD.
A-2049 R

DESIGNED Jun 1980
DETAILED Jun 1980
CHECKED Jun 1980

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

Sheet No. 1 of 1.

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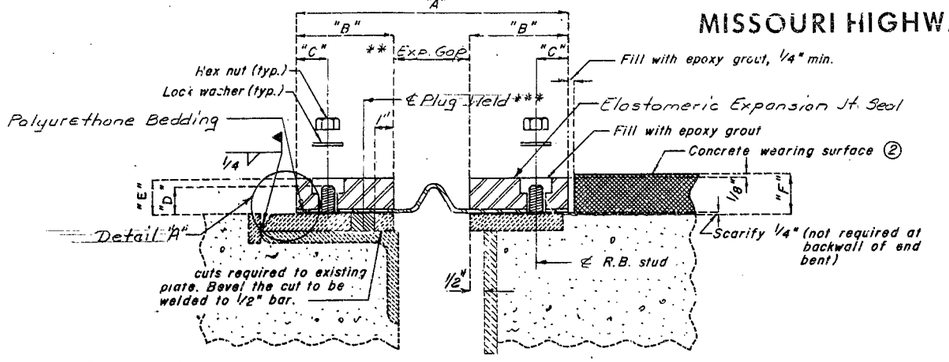
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	14	



Note: Part sections shown are at end bents. Int. bents similar except wearing surface shall be placed on both sides of expansion device.

Use R.B. studs (welded) to anchor new expansion device to steel plate of existing expansion device.

PART SECTION THRU EXPANSION DEVICE

*** Use 1 1/16" plug weld @ 12" c.t.s. spaced between studs.

TABLE OF DIMENSIONS

LOCATION	ACCEPTABLE ALTERNATE TYPES	EXP. GAP AT 60°	"A"	"B"	"C"	"D"	"E"	"F"	ANCHOR STUDS SIZE	ANCHOR STUDS "G"
Bts. 4/45	~~ACME HAUSER FR 300~~	2"	10"	4"	1 5/8"	1 1/8"	1 5/8"	2"	1/2"	40
	GEN-STRIP CCL 2"	2 1/4"	9 3/4"	3 3/4"	1 1/2"	1 1/8"	1 5/8"	2"	5/8"	65
	~~WABO HP 100/EL 250~~	2"	10"	4"	1 3/8"	1 1/4"	1 3/4"	2 1/8"	1/2"	50

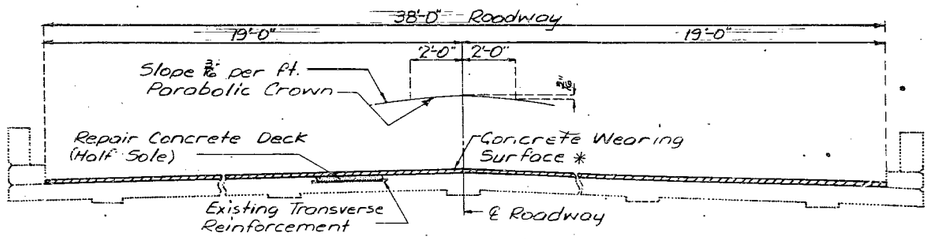
Notes: All dimensions are at right angles.

Expansion gap and dimension "A" shall be increased 1/8" for each 10° fall in temperature and decreased 1/8" for each 10° rise in temperature.

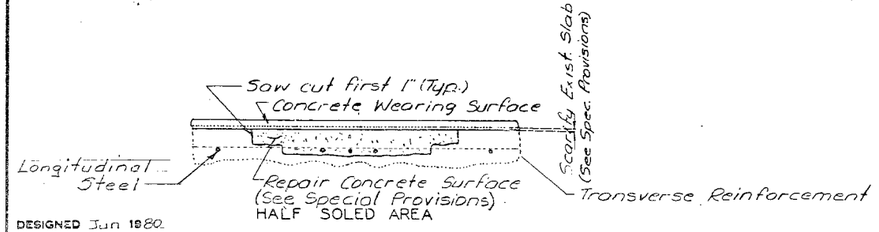
The certified nuts for the anchor studs shall be tightened to foot pounds ("G") specified in the table of dimensions. Retighten to ("G") foot pounds a minimum of 30 minutes after initial tightening.

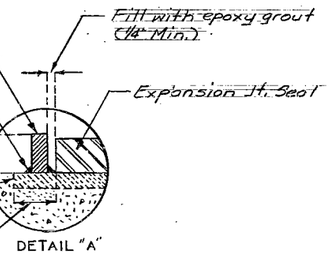
The welded anchor studs shall be reduced base (R.B.) Type.

** If existing expansion device has closed to less than expansion gap given in table, the expansion gap of the new device shall be adjusted accordingly and installed in the same manner.



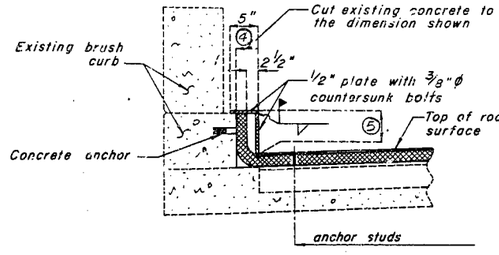
PART SECTION THRU SLAB



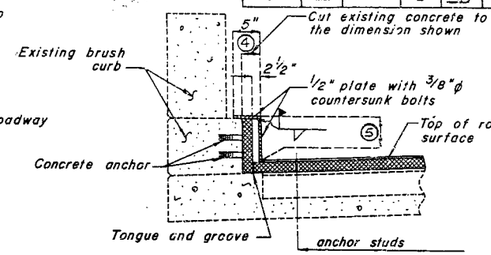


DETAIL "A"

When dimension exceeds 7/8" weld 1/2" plate to protect wearing surf. overlay, and when dimension exceeds 2" tack weld additional 1" bar chair.



TYPE "E" CURB



TYPE "G" CURB

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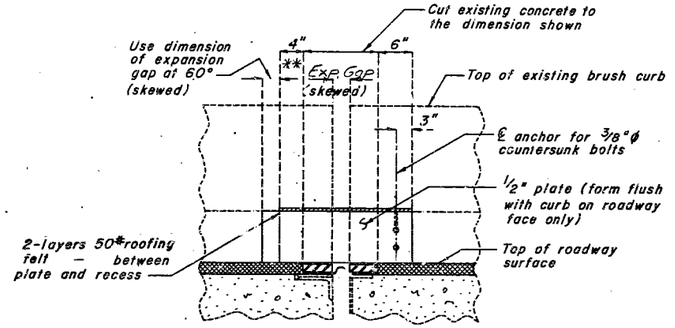
Curb plate (A.S.T.M. A36 shall be galvanized in accordance with A.S.T.M. A123 and A.S.T.M. A153

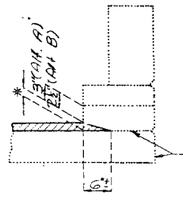


PART ELEVATION OF BARRIER CURB

ESTIMATED QUANTITIES		
ITEM		TOTAL
Concrete Wearing Surface *	Sq. Yd.	874
Repairing Concrete Deck (Half Soling)	Sq. Ft.	143
Elastomeric Expansion Jt. Seal (2.0 In.)	Lin. Ft.	77

~~See Job Special Provisions for alternate use of~~ Concrete Wearing Surface. (Alternate B) Low Slump

Note: Outline of old work is indicated by light dotted lines, Heavy lines indicate new work.



Alternate A = 1 1/2" Latex Modified Concrete, Alternate B = 2" Low Slump Concrete.

Epoxy Seal (See Special Provisions)

TYPICAL SECTION AT CURB SHOWING OUTLETS

REPAIRS TO

BRIDGE ROUTES JJ & W UNDERPASS

STATE ROAD FROM SULLIVAN NORTHEAST TO ROUTE WW

ABOUT 0.2 MILE S.W. OF STANTON

PROJECT NO. IR-44-3(51) **STA.** 331+31.7 ℄ SURVEY

JOB NO. 6-I044-178C **RTE.** JJ&W

FRANKLIN **COUNTY**

DATE 4/11/84

STD.
STD.
A-2049 R

DESIGNED Jun 1980
DETAILED Jun 1980
CHECKED Jun 1980

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

Sheet No. 1A of 1 .

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8-3-87 Geo. Adams