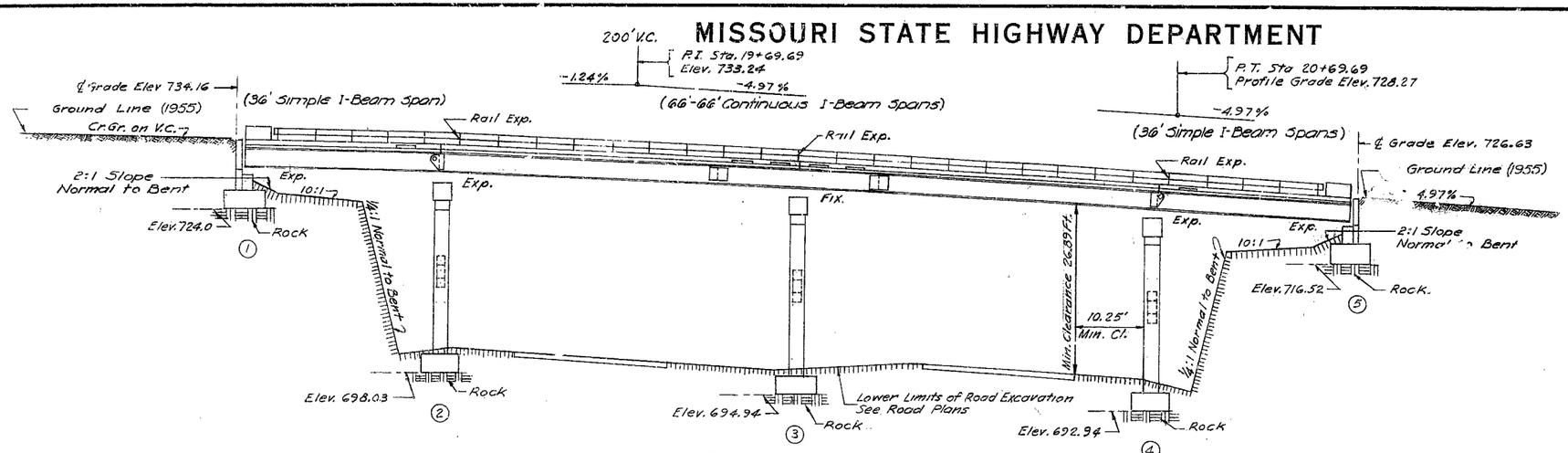
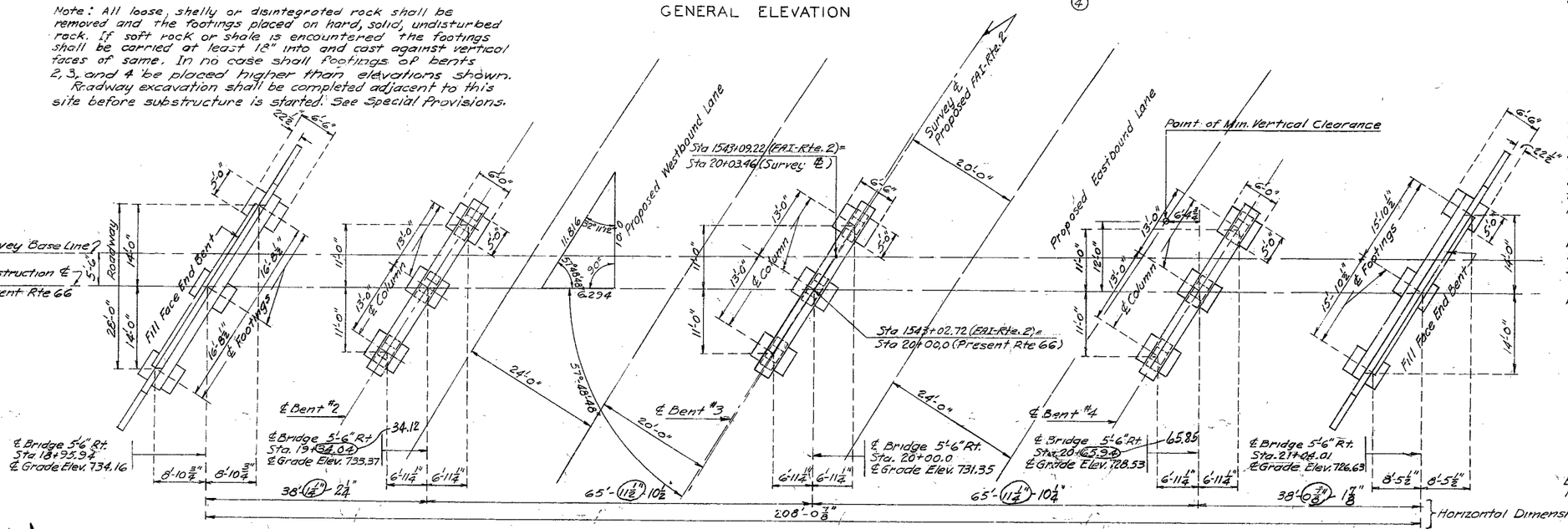
MISSOURI STATE HIGHWAY DEPARTMENT

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

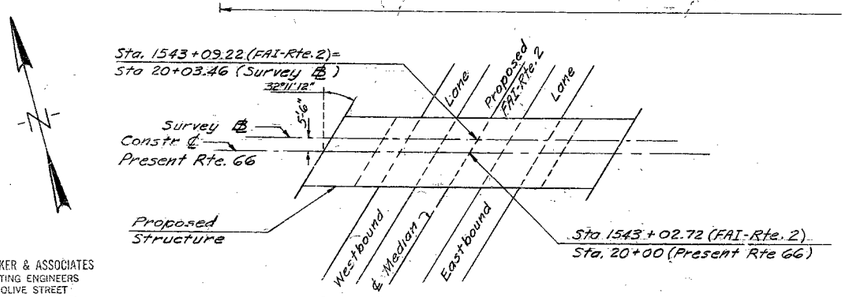


GENERAL ELEVATION

Note: All loose, shelly or disintegrated rock shall be removed and the footings placed on hard, solid, undisturbed rock. If soft rock or shale is encountered the footings shall be carried at least 18" into and cast against vertical faces of same. In no case shall footings of bents 2, 3, and 4 be placed higher than elevations shown. Roadway excavation shall be completed adjacent to this site before substructure is started. See Special Provisions.



PLAN



LOCATION SKETCH

GENERAL NOTES

Design Specifications A.A.S.H.O. 1953
Loading H20-44 (Future Wear. Surf. 15#/□')
Structural Steel Stress 18,000 P.S.I.
Reinforcing Steel Stress 20,000 P.S.I.
Concrete Stress 1200 P.S.I.

Concrete for Superstructure shall be class B-1 air-entrained (See Special Provisions).

Concrete for substructure shall be Class B air-entrained. If the contractor desires he may use Class B-1 in lieu of Class B concrete in substructure with payment made on basis of Class B Concrete.

A rubbed surface finish will be required on all exposed surfaces of concrete end posts above top of curbs.

Rivets ¾"; Holes 13/16" except where otherwise noted.

Field connections shall be riveted except as noted in handrail details, or if the contractor desires he may use high tensile steel bolts with carburized washers in place of rivets.

If high tensile steel bolts are used they shall be placed in such a manner that the nuts will always be in the least exposed position.

Paint: Shop; none; Field, contact surfaces of bolted field connections, except where high tensile bolts are used, one coat of red lead and surfaces inaccessible after erection three coats of red lead. No other paint to be applied by the contractor. Red lead required shall be furnished by contractor. Payment for cleaning and painting such surfaces will be included in unit price bid for Fabricated Structural Steel.

Where joint filler is specified on the plans it shall conform with the requirements for Gray Rubber Compound joints as given in section 59-22B of the Standard Specifications.

Qualification of welding operators will be required.

STATE OF MISSOURI — CLARENCE C. PALMER — NUMBER E-5777 — REGISTERED PROFESSIONAL ENGINEER

SUBMITTED BY Clarence C. Palmer
REGISTERED PROFESSIONAL ENGR.
MISSOURI NO. E-5777

B.M. #23-C Nail in Power Pole 112 ft. Right Sta. 1543+25 Elev. 727.77

ESTIMATED QUANTITIES

	Item		Substr.	Superstr.	Total
	Class I Excavation for Structures	Cu. Yds.	230		230
	Class B Concrete	Cu. Yds.	191.8		191.8
	Reinforcing Steel	Lbs.	23,570	44,040	67,610
*	Fabricated Structural Steel	Lbs.		166,880	166,880
	Gray Iron Alloy Castings	Lbs.		920	920
	Steel Castings	Lbs.		3,880	3,880
	Class B-1 Concrete	Cu. Yds.		156.3	156.3

Note: All excavation for bridge will be paid for as Class I Excavation for Structures. Estimated quantities of Class I Excavation for Structures includes only amount of excavation below Roadway Excavation (See Special Provisions).
Concrete in end posts is included in Estimated Quantities of Class B Concrete for Superstructure.
* Final pay weight for Fabricated Structural Steel will be based on using field rivets, except for bolted connections specified for handrail.

BRIDGE: PRESENT ROUTE 66 UNDERPASS
STATE ROAD FROM ST. CLAIR TO PACIFIC
ABOUT 1.75 MILES S.W. OF GRAY SUMMIT
PROJECT NO. I-258(10)(FAI-RTE.2) **STA.** 1543+02.72
FRANKLIN **COUNTY**

SUBMITTED BY J. A. Williams BRIDGE ENGINEER DATE 1-7-1958
APPROVED BY Rex M. Whitton CHIEF ENGINEER DATE 1-7-1958

Rev 7-31-58

Std. R-1
Sht. 1 of 8
L-896

R. W. BOOKER & ASSOCIATES
CONSULTING ENGINEERS
1722 OLIVE STREET
ST. LOUIS 3, MISSOURI

Drawn April 1957 by H.O.W.
Checked April 1957 by J.M.L.

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

Sheet No. 1 of 8

450

SEE FINAL PLANS BROWN-LINES

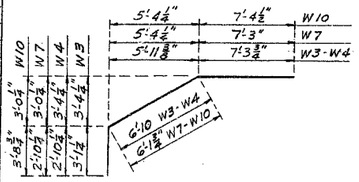
MISSOURI STATE HIGHWAY DEPARTMENT

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

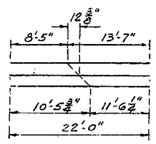
COMPLETE BILL OF REINFORCING STEEL

No	Size	Length	Mark	Location
		End Bent No 1		
30	#6	4'-3"	D1	Footings
6	#7	38'-6	AB4	Beam
2	#6	38'-6"	AB5	"
6	#6	13'-0"	AB6	"
8	#7	16'-3"	AB7	"
11	#4	11'-6"	AB8	"
17	#4	12'-0"	AB9	"
11	#4	10'-3"	AB10	"
12	#4	3'-6"	U1	"
8	#2	19'-9"	P1	A.B. Wells
67	#4	5'-3"	AB1	Backwall
4	#4	34'-9"	AB2	"
2	#6	34'-9"	AB3	"
10	#6	13'-6"	W1	Wing Walls
3	#6	22'-0"	W2	Rt. Wing Wall
2	#6	17'-3"	W3	" " "
2	#6	17'-0"	W4	Lt. Wing Wall
3	#6	21'-0"	W5	" " "
4	#4	11'-0"	V1	Rt. Wing Wall
7	#4	7'-3"	V2	" " "
6	#4	7'-0"	V3	Lt. Wing Wall
4	#4	10'-3"	V4	" " "
		Int. Bent No. 2		
24	#7	4'-3"	D2	Footings
69	#3	9'-9"	PC1	Columns
24	#7	26'-9"	PC2	"
48	#6	8'-0"	F1	Haunches
8	#6	8'-6"	F2	"
20	#4	8'-0"	T1	Tie Beams
8	#8	28'-0"	T2	" "
10	#4	10'-6"	PB1	Beam
24	#4	11'-3"	PB2	"
9	#7	14'-3"	PB3	"
9	#7	24'-9"	PB4	"
2	#6	34'-0"	PB5	"
9	#7	34'-0"	PB6	"
12	#4	3'-9"	U2	"
8	#2	19'-9"	P1	A.B. Wells

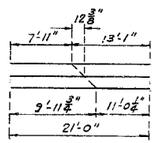
Bending Sketches & Cutting Diagrams



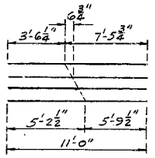
W3-W4-W7-W10



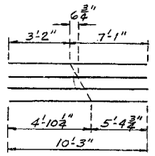
3 W2 CUT 3



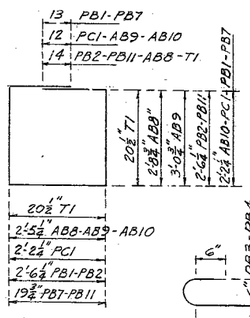
3 W5 CUT 3



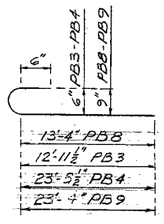
4 V1 CUT 4



4 V4 CUT 4



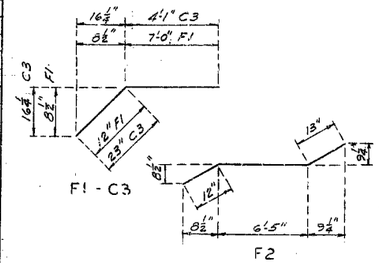
PB1-PB2-PB7-PB11
PC1-AB8-AB9-AB10-
T1



PB3-PB4-PB8-PB9

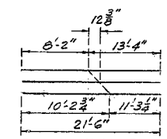
No.	Size	Length	Mark	Location
		Int. Bent No. 3		
24	#11	5'-3"	D3	Footings
72	#3	9'-9"	PC1	Columns
24	#11	27'-9"	PC3	"
48	#6	8'-0"	F1	Haunches
8	#6	8'-6"	F2	"
20	#4	8'-0"	T1	Tie Beams
8	#8	28'-0"	T2	" "
7	#4	10'-6"	PB1	Beam
37	#4	11'-3	PB2	"
2	#6	34'-0"	PB5	"
14	#4	8'-9"	PB7	"
9	#9	15'-0"	PB8	"
9	#9	25'-0"	PB9	"
8	#9	34'-0"	PB10	"
14	#4	9'-6"	PB11	"
8	#2	19'-9"	P1	A.B. Wells
		Int. Bent No. 4		
24	#7	4'-3"	D2	Footings
72	#3	9'-9"	PC1	Columns
24	#7	26'-9"	PC2	"
48	#6	8'-0"	F1	Haunches
8	#6	8'-6"	F2	"
20	#4	8'-0"	T1	Tie Beams
8	#8	28'-0"	T2	" "
10	#4	10'-6"	PB1	Beam
24	#4	11'-3"	PB2	"
9	#7	14'-3"	PB3	"
9	#7	25'-3"	PB4	"
2	#6	34'-0"	PB5	"
9	#7	34'-0"	PB6	"
12	#4	3'-9"	U2	"
8	#2	19'-9"	P1	A.B. Wells

Bending Sketches & Cutting Diagrams

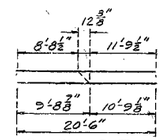


F1 - C3

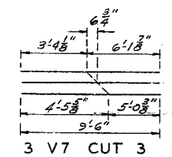
F2



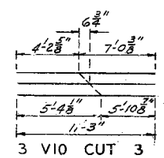
3 W9 CUT 3



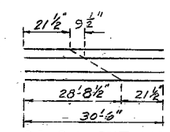
2 W11 CUT 2



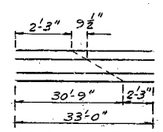
3 V7 CUT 3



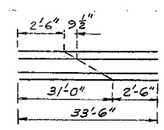
3 V10 CUT 3



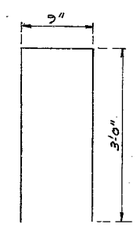
35 S4 CUT 140



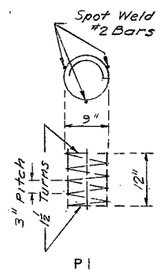
37 S7 CUT 37



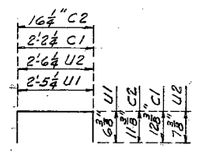
37 S8 CUT 37



R2



P1



U1-U2-C1-C2

No.	Size	Length	Mark	Location
		End Bent No. 5		
30	#6	4'-3"	D1	Footings
8	#7	16'-3"	AB7	Beam
6	#6	12'-0"	AB11	"
6	#7	37'-0"	AB12	"
2	#6	37'-0"	AB13	"
10	#4	11'-6	AB8	"
17	#4	12'-0"	AB9	"
10	#4	10'-3"	AB10	"
12	#4	3'-6"	U1	"
8	#2	19'-9"	P1	A.B. Wells
4	#4	34'-9"	AB2	Backwall
2	#6	34'-9"	AB3	"
67	#4	5'-0"	AB14	"
11	#6	12'-6"	W8	Wing Walls
2	#6	16'-3"	W7	Lt. Wing Walls
3	#6	21'-6	W9	" " "
2	#6	17'-3"	W10	Rt. Wing Walls
2	#6	20'-6"	W11	" " "
3	#4	9'-6"	V7	Lt. Wing Walls
7	#4	6'-6"	V8	" " "
6	#4	7'-6"	V9	Rt. Wing Walls
3	#4	11'-3"	V10	" " "
		Superstructure		
240	#5	34'-6"	S1	Slab
46	#5	16'-0"	S2	"
600	#5	31'-3"	S3	"
140	#5	30'-6"	S4	"
40	#5	1'-9"	S5	"
240	#5	19'-3"	S6	"
37	#5	33'-0"	S7	"
37	#5	33'-6"	S8	"
18	#5	4'-3"	C1	Curb
360	#5	3'-3"	C2	"
4	#5	6'-0"	C3	"
24	#6	34'-0"	C4	"
6	#6	35'-0"	C5	"
6	#6	35'-9"	C6	"
24	#4	3'-9"	R1	End Posts
20	#5	6'-9"	R2	" "

BRIDGE PRESENT ROUTE 66 UNDERPASS

STATE ROAD FROM ST. CLAIR TO PACIFIC

ABOUT 1.75 MILES S.W. OF GRAY SUMMIT

PROJECT NO. I-258(10)(FAI-RTE.2) **STA.** 1543+02.72

FRANKLIN **COUNTY**

Drawn APR. 1957 by H.O.W
Checked APR. 1957 by J.M.L.

R. W. BOOKER & ASSOCIATES
CONSULTING ENGINEERS
1722 OLIVE STREET
ST. LOUIS 3, MISSOURI

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

Sheet No. 2 of 8

FINISHED

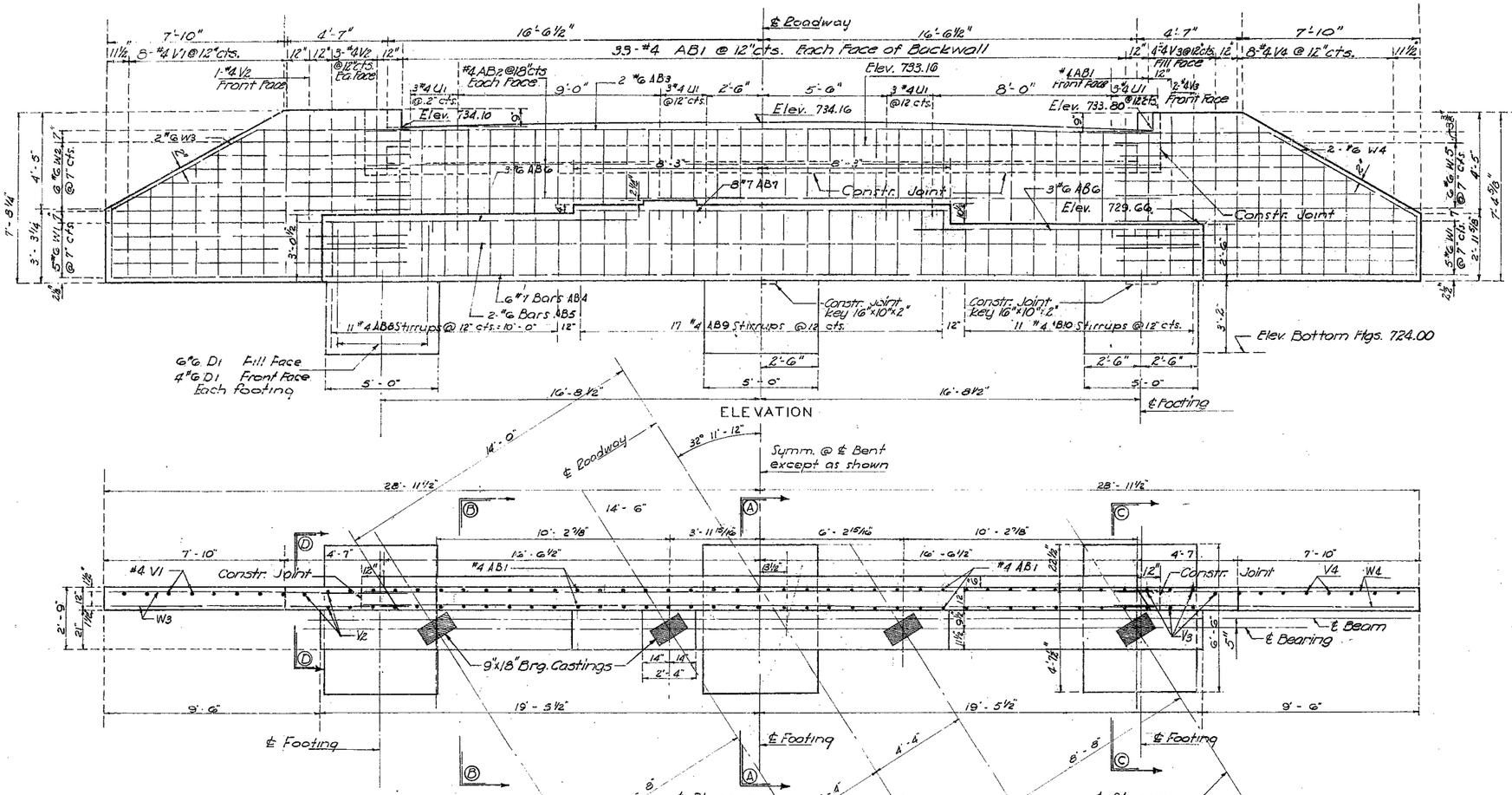
L-896

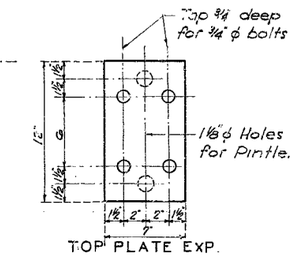
NO CONSTRUCTION CHANGES

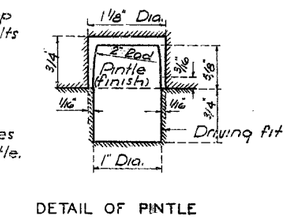
451

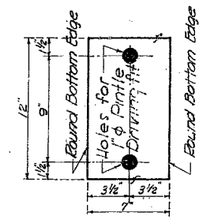
MISSOURI STATE HIGHWAY DEPARTMENT

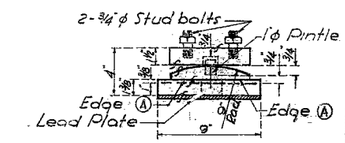
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19		

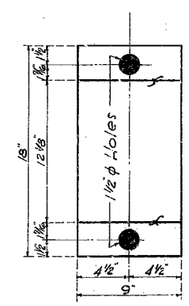






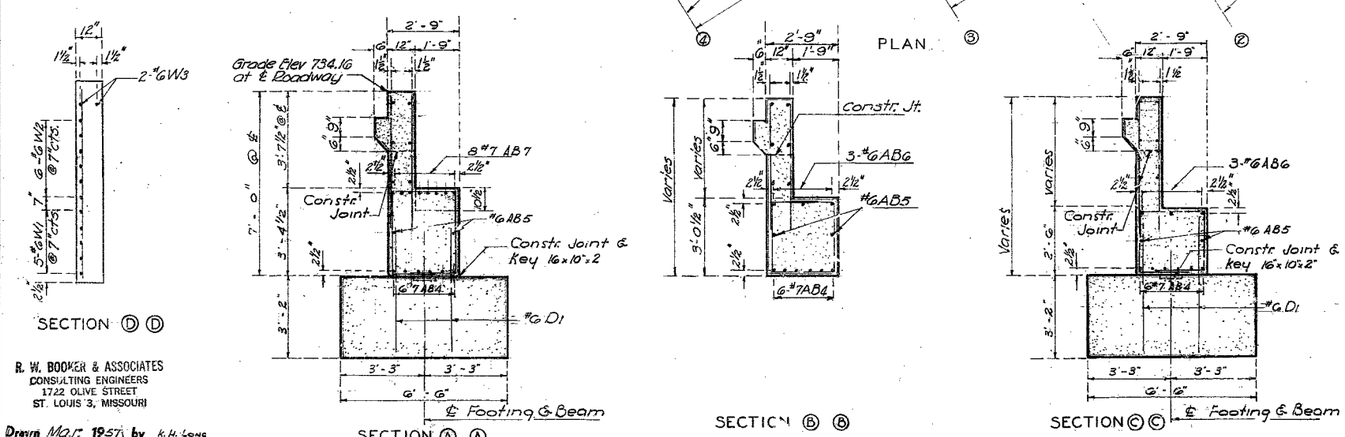






Note:
Material for bearing castings shall be either gray iron alloy or cast steel but payment will be made as Gray Iron Alloy.
All pins, bolts, nuts, pipe sleeves, rolled steel and pintles shall be paid for as structural steel.
Anchor bolts for bearing castings shall be 1½" ϕ swedged bolt with Hex. nuts and shall extend 12" into concrete.
Lead Plate under bearings shall be approximately ⅛" thickness and weigh 8#/sq ft. Cost of lead plates shall be included in price bid for other it-ms.
Edge Ⓐ to be rounded.
Finish all surfaces marked f.

DETAILS OF BEARING CASTINGS
8 Req'd. Bents ① & ⑤



GENERAL NOTES:
Top of backwall and expansion device for End Bent No. 1 and 5 to conform to crown of roadway slab. Hole for all 1¼" ϕ anchor bolts shall be formed in substructure by placing and setting with template 4" ϕ wells of depth as shown in Notes For Bearing Devices.
Grout for anchor bolt wells shall contain Iron Oxide. (Embeco or an approved equivalent).
Backwall above construction joint and wingwalls shall not be poured until the structural steel of the expansion device has been installed and slab has been poured in adjacent span.
Fill at end bents No. 1 & 5 shall not be carried above the bottom of beam and wings until superstructure spans (1-2) & (4-5) are in place.

DETAILS OF END BENT NO. 1

Sheet No. 3 of 8

BRIDGE PRESENT RTE. 66 UNDERPASS
STATE ROAD FROM ST. CLAIR TO PACIFIC
ABOUT 1.75 MILES S.W. OF GRAY SUMMIT
PROJECT NO. I-258(10)(FAI-RTE 2) STA. 1543 + 02.72
FRANKLIN COUNTY

R. W. BOOKER & ASSOCIATES
CONSULTING ENGINEERS
1722 OLIVE STREET
ST. LOUIS 3, MISSOURI

Drawn Mar. 1957 by K.H. Long
Checked Apr. 1957 by J.M.L.

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

FINISHED

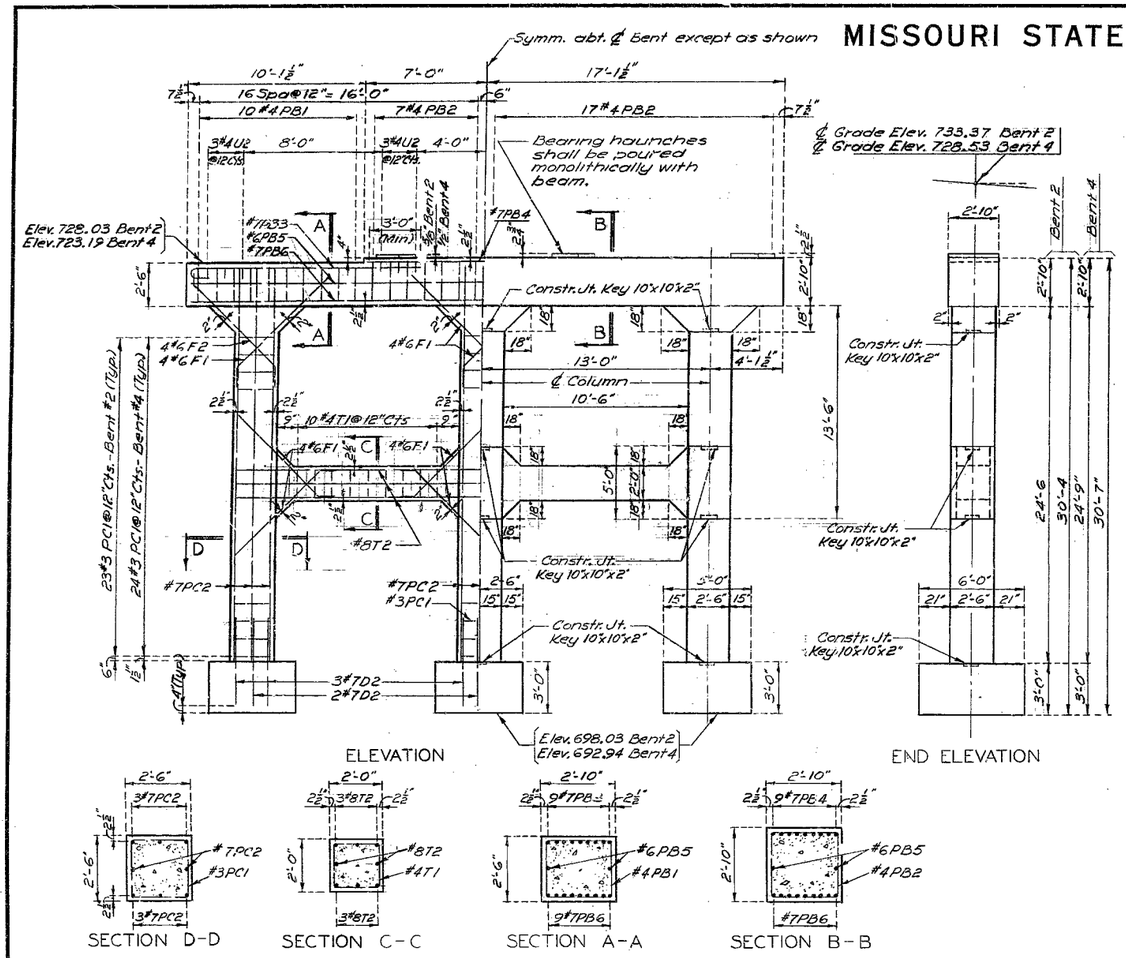
L-896

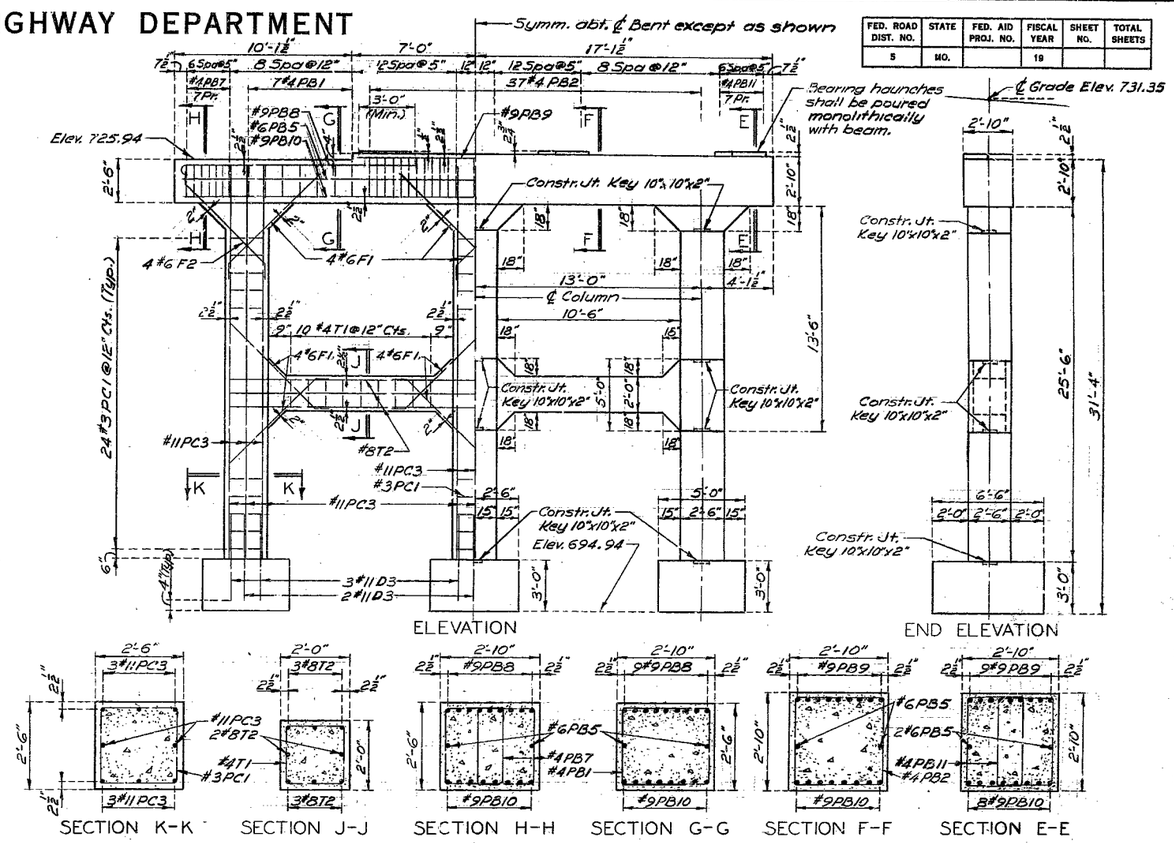
452

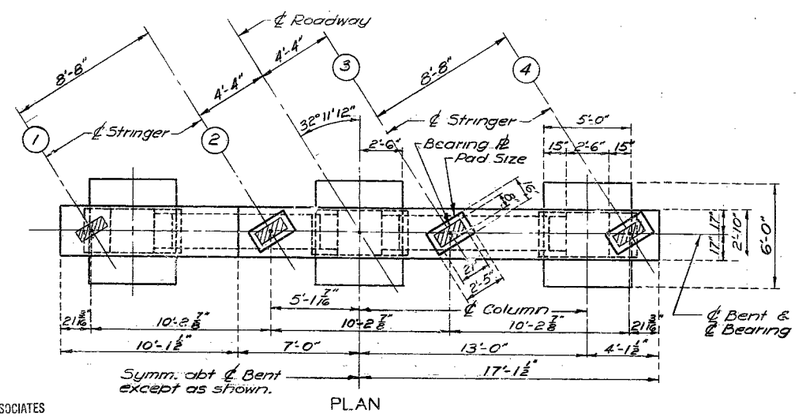
SEE FINAL PLANS BROWN-LINES

MISSOURI STATE HIGHWAY DEPARTMENT

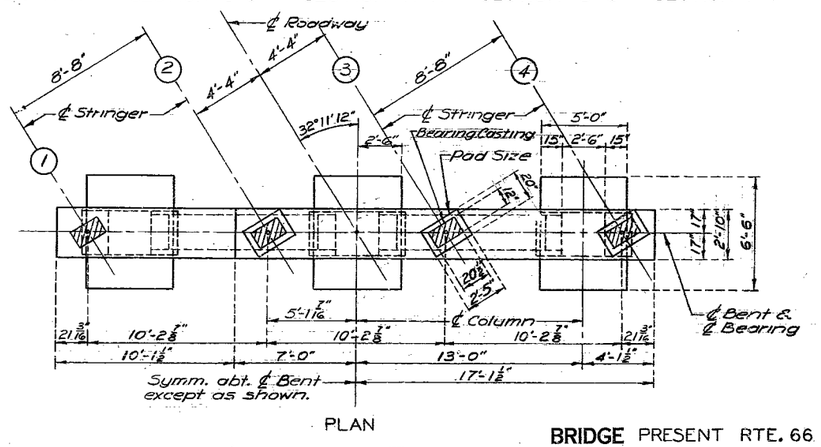
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19		







DETAILS OF INTERMEDIATE BENTS NOS. 2 & 4



DETAILS OF INTERMEDIATE BENT NO. 3

BRIDGE PRESENT RTE. 66 UNDERPASS

STATE ROAD FROM ST. CLAIR TO PACIFIC

ABOUT 1.75 MILES S.W. OF GRAY SUMMIT

PROJECT NO. I-258(10)(FAI-RTE.2) **STA.** 1543+02.72

FRANKLIN **COUNTY**

R. W. BOOKER & ASSOCIATES
CONSULTING ENGINEERS
1722 OLIVE STREET
ST. LOUIS 3, MISSOURI

Drawn Mar. 1957 by W.J.H.
Checked Apr. 1957 by J.M.L.

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

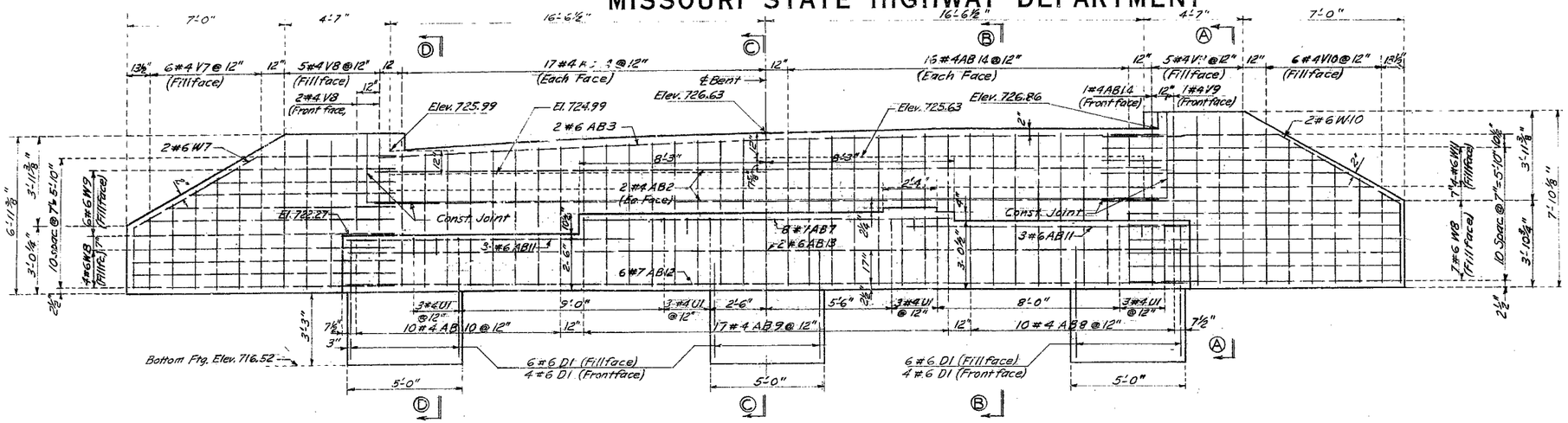
Sheet No. 4 of 8

L-896

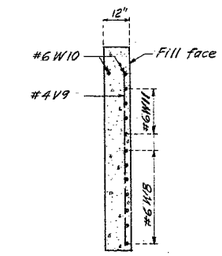
453

MISSOURI STATE HIGHWAY DEPARTMENT

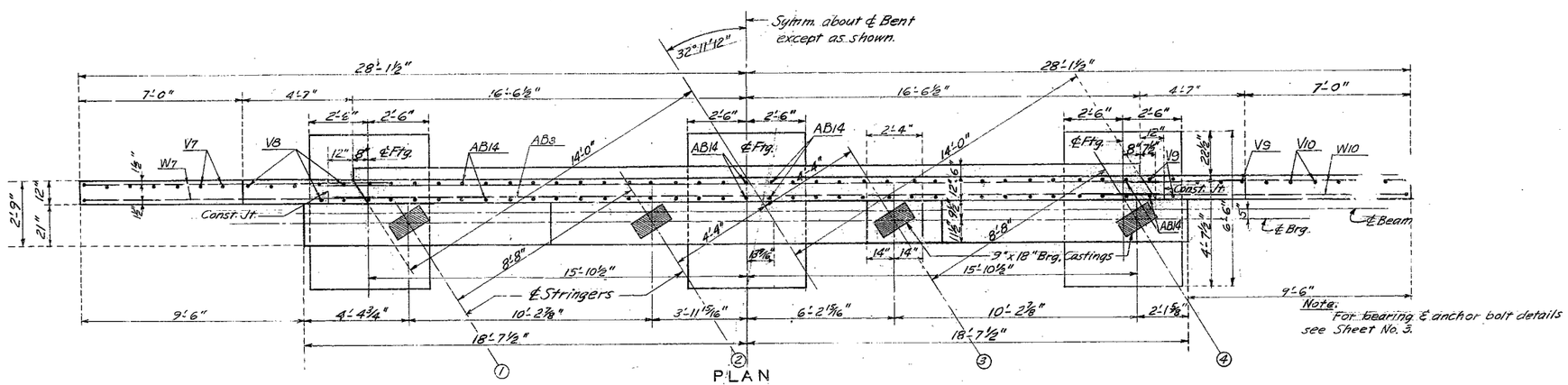
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19		



ELEVATION

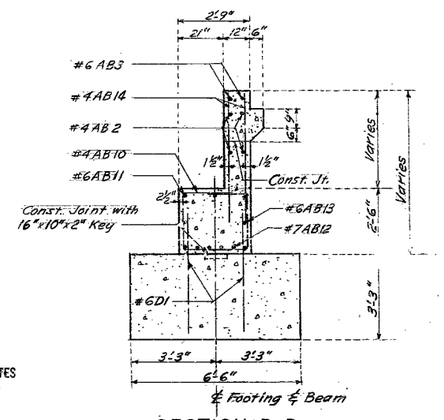


SECTION A-A

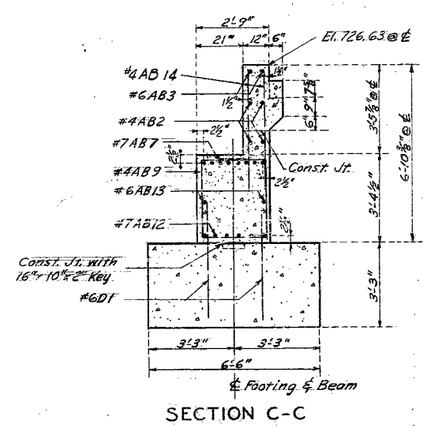


PLAN

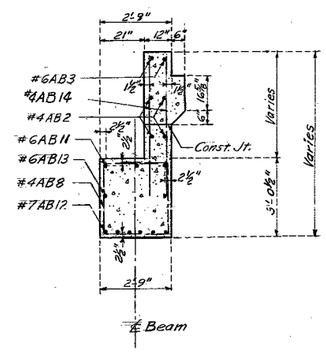
END BENT NO. 5



SECTION D-D



SECTION C-C



SECTION B-B

For General Notes see Sheet No. 3.

BRIDGE PRESENT RT. 66 UNDERPASS

STATE ROAD FROM ST. CLAIR TO PACIFIC

ABOUT 1.75 MILES S.W. OF GRAY SUMMIT

PROJECT NO. I-258(10)(FAI-RTE.2) STA. 1543+02.72

FRANKLIN COUNTY

FINISHED

R. W. BOOKER & ASSOCIATES
CONSULTING ENGINEERS
1722 OLIVE STREET
ST. LOUIS 3, MISSOURI

Drawn Apr. 1957 by K.F.R.
Checked Apr. 1957 by J.M.L.

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

DETAILS OF END BENT NO. 5

Sheet No. 5 of 8

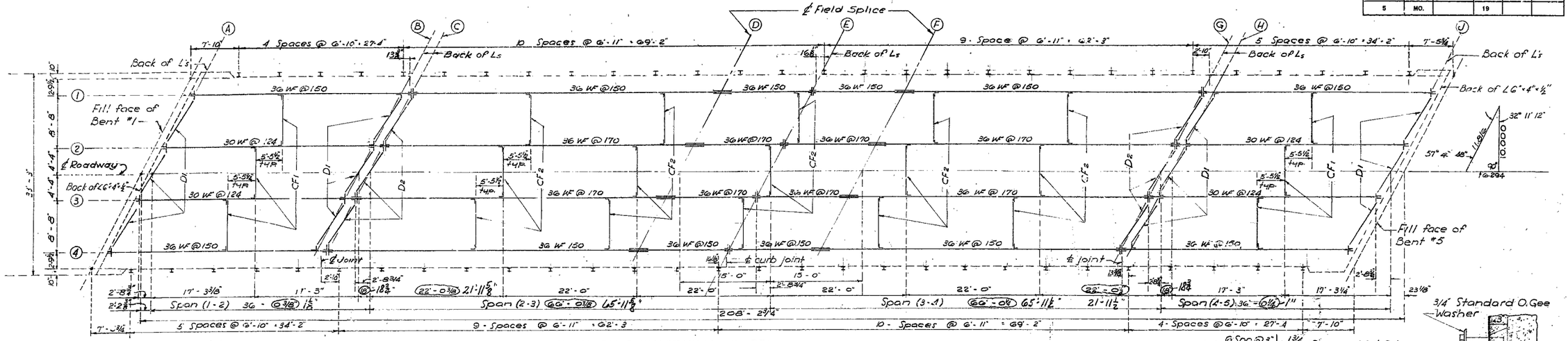
L-896

454

SEE FINAL PLANS BROWN-LINES

MISSOURI STATE HIGHWAY DEPARTMENT

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

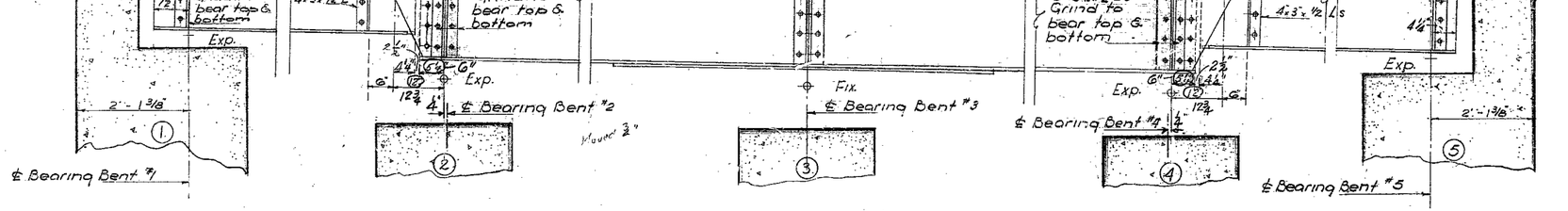


PLAN OF STRUCTURAL STEEL

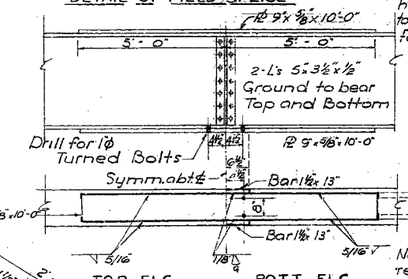
DETAIL OF FIELD SPLICE

DETAIL OF TIMBER HEADER

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



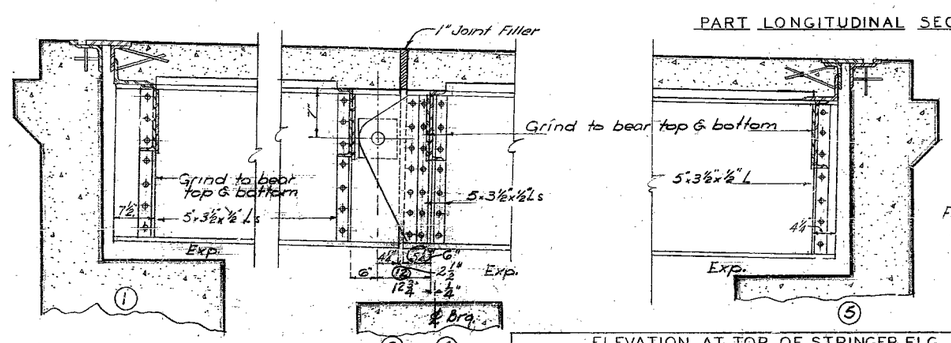
PART LONGITUDINAL SECTION - INTERIOR STRINGERS



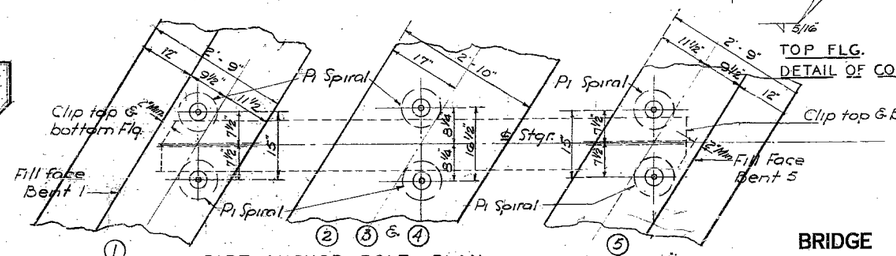
TOP FLG. BOTT. FLG.

DETAIL OF COVER PLATE

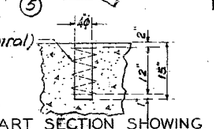
Note: Preheating will be required in accordance with the American Welding Society. Specs. This will apply to the welding of Pls to the top and bottom of the 36" WF Beams @ 170#



PART LONGITUDINAL SECTION EXTERIOR STRINGER



PART ANCHOR BOLT PLAN



PART SECTION SHOWING ANCHOR BOLT WELL

ELEVATION AT TOP OF STRINGER FLG.									
Str.	A	B	C	D	E	F	G	H	J
1	732.99	732.27	732.23	730.74	730.19	729.64	727.38	727.32	725.60
2	733.39	732.68	732.63	731.15	730.60	730.05	727.79	727.72	726.01
3	733.58	732.86	732.82	731.33	730.78	730.23	727.97	727.91	726.19
4	733.53	732.82	732.77	731.29	730.74	730.19	727.93	727.86	726.14

Note:
Holes for all anchor bolts shall be formed in substructure by placing and setting with template 4ϕ wells of depth shown.
Grout for anchor bolts to contain Iron Oxide (Embeco or an approved equivalent)

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

BRIDGE PRESENT ROUTE 66 UNDERPASS

STATE ROAD FROM ST. CLAIR TO PACIFIC

ABOUT 1.75 MILES S.W. OF GRAY SUMMIT

PROJECT NO. I-258(10)(FAI-RTE.2) **STA.** 1543+02,72

FRANKLIN **COUNTY**

R. W. BOOKER & ASSOCIATES
CONSULTING ENGINEERS
1722 OLIVE STREET
ST. LOUIS 3, MISSOURI

Drawn MARCH 1957 by K.H. Long
Checked MARCH 1957 by JML.

Sheet No. 6 of 8

Rev. 7-31-58

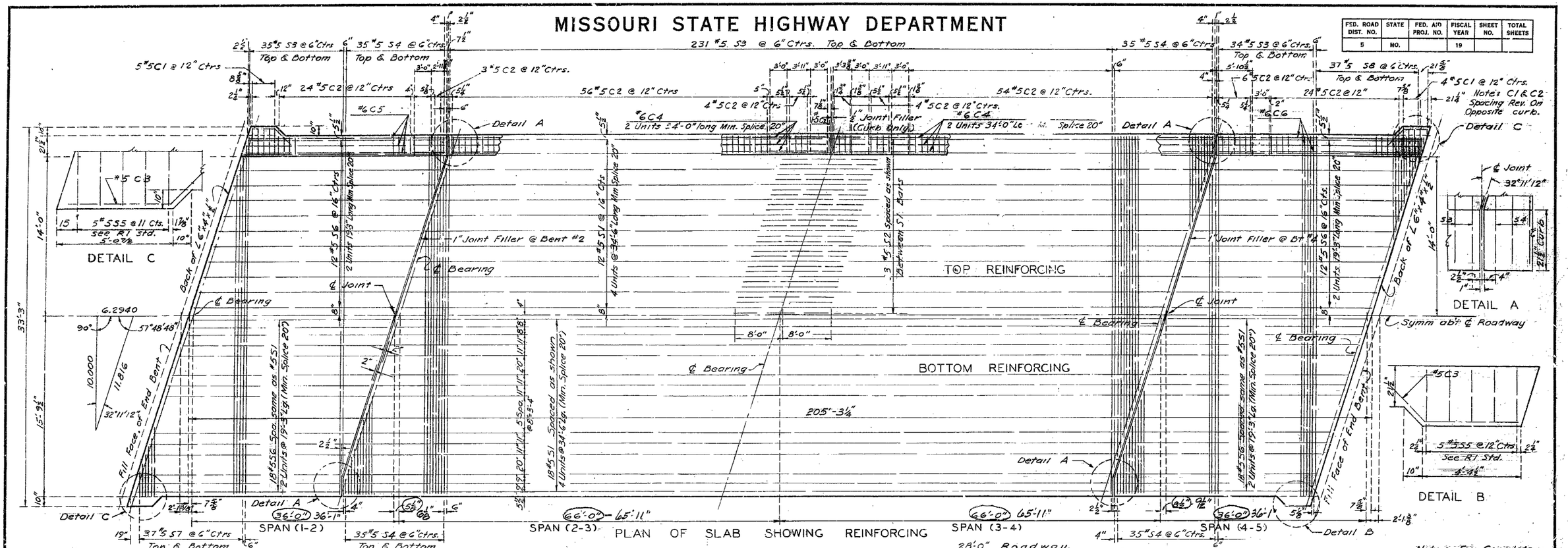
L-896

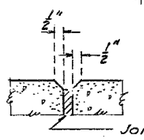
NO CONSTRUCTION CHANGES

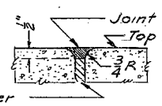
455

MISSOURI STATE HIGHWAY DEPARTMENT

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

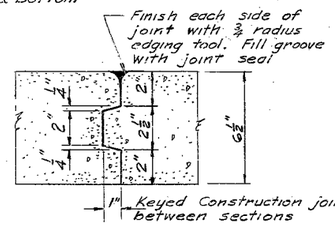




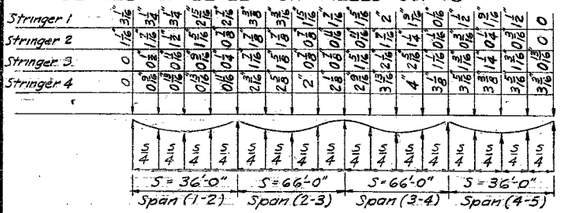


Note: Use bevel as shown for exposed faces of all filled joints except at top surface of roadway slab. Use edging tool with 3/4" radius at top surface of roadway slab each side of joint and fill flush with joint seal as shown.

DETAILS OF BEVEL FOR FILLED JOINTS

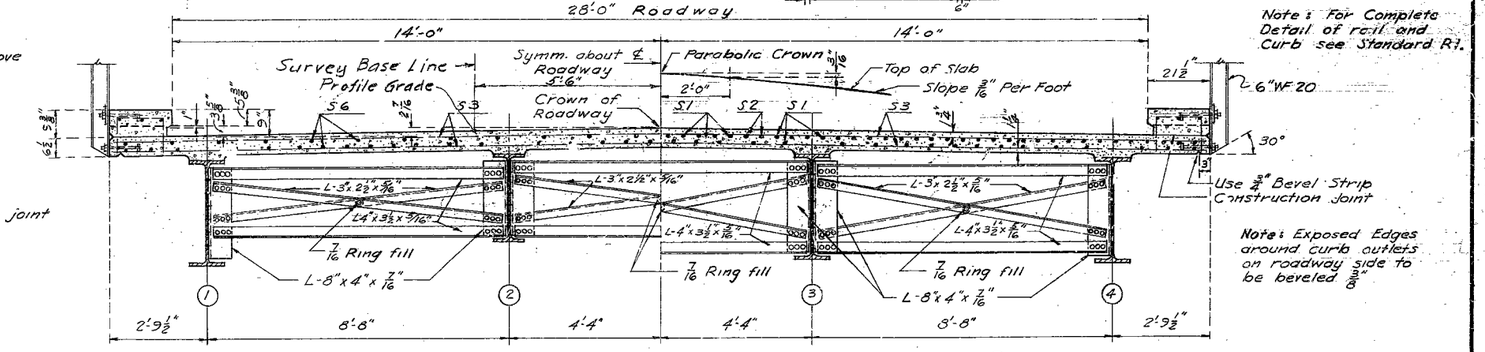


DETAIL OF SLAB CONSTRUCTION JOINT



Note: Slab shall be built parallel to grade and to a uniform thickness of 6 1/2". Dead load deflection and crown shall be taken care of by haunching to Stringer by the amounts shown above. This additional concrete is included in Estimated Quantities.

SLAB HAUNCHING DIAGRAM

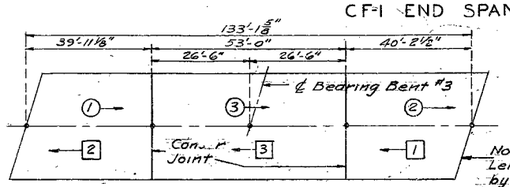


Note: For Complete Detail of rail and Curb see Standard R1.

Note: Exposed Edges around curb outlets on roadway side to be beveled 3/8".

HALF SECTION NEAR CROSS FRAME CF-1 END SPAN

HALF SECTION NEAR BENT 3 CROSS FRAME CF-2



SLAB POURING SEQUENCE FOR CONT. SPANS

Note: This slab shall be poured in sections of the lengths shown and in the sequence indicated by the numbers: 1 2 3; or as an alternate by the numbers: 1 2 3. The separate pours shall progress in the direction indicated by the arrows. Longitudinal construction joints shall not be permitted.

Note: Curb to be cast independently of slab. Slab to be constructed to a uniform depth of not less than 6 1/2" or if desired the bottom of the slab may be built of chords between tops of haunches at stringers.

BRIDGE PRESENT ROUTE 66 UNDERPASS

STATE ROAD FROM ST CLAIR TO PACIFIC

ABOUT 1.75 MILES S.W. OF GRAY SUMMIT

PROJECT NO. I-258(10)(FAI-RTE.2) **STA.** 1543+02.72

FRANKLIN **COUNTY**

R. W. BOOKER & ASSOCIATES
CONSULTING ENGINEERS
1722 OLIVE STREET
ST. LOUIS 3, MISSOURI

Drawn MAR. 1957 by H.O.W.
Checked APR. 1957 by J.M.L.

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

Sheet No. 7 of 8

Rev. 8-6-58

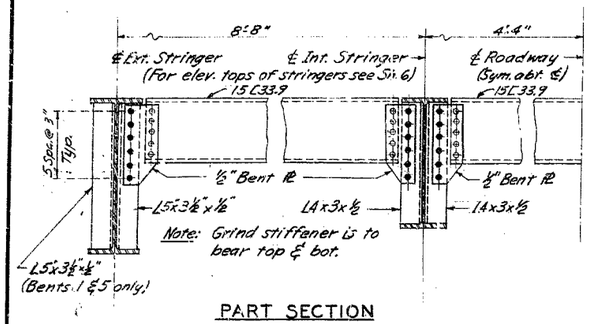
L-896

456

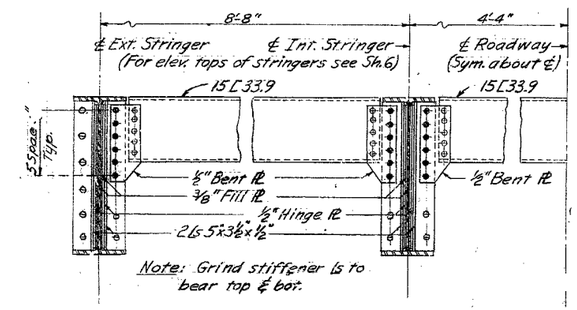
NO CONSTRUCTION CHANGES

MISSOURI STATE HIGHWAY DEPARTMENT

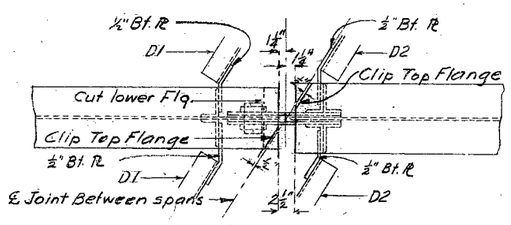
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19		



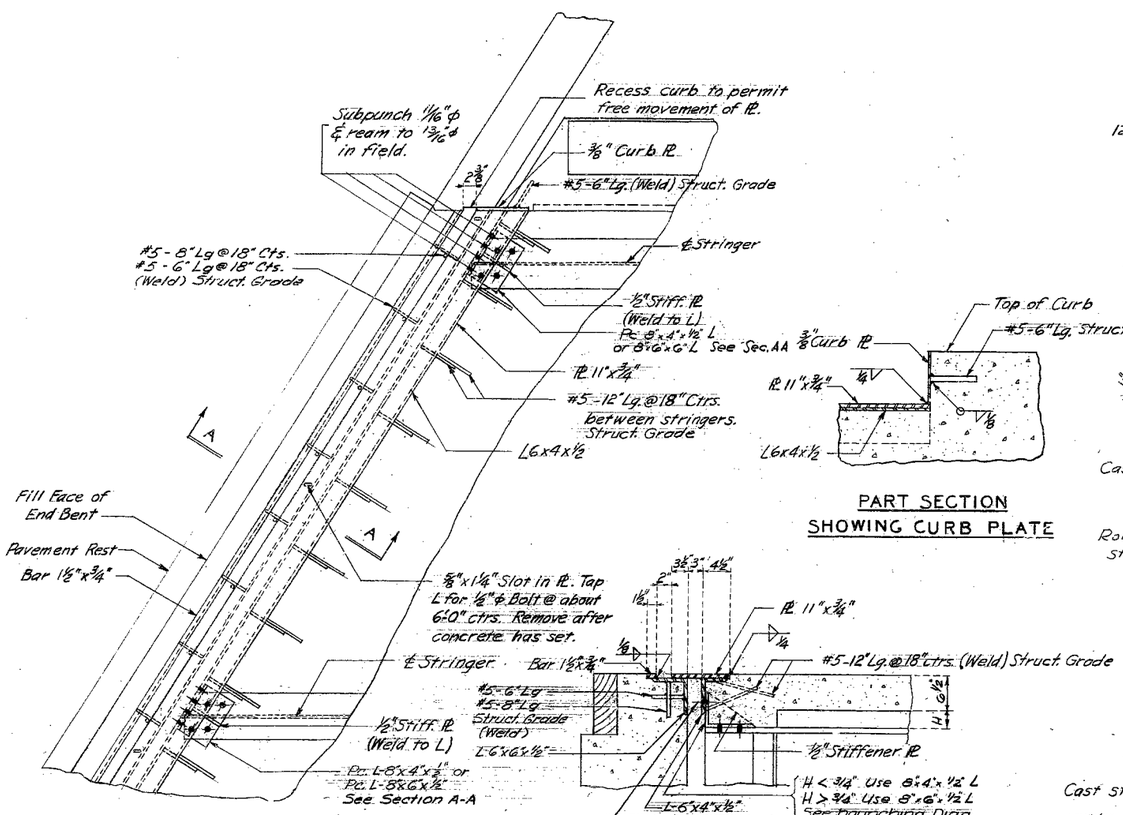
PART SECTION
SHOWING DIAPHRAM D-1



PART SECTION
SHOWING DIAPHRAM D-2



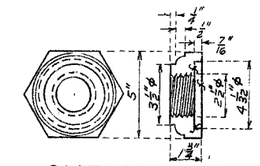
PLAN



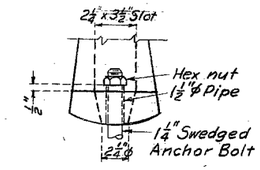
PART PLAN OF EXPANSION DEVICE
BENTS 1 & 5

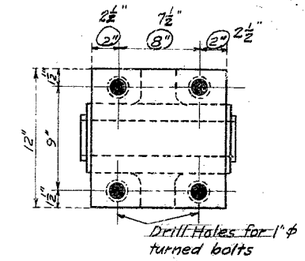
SECTION A-A

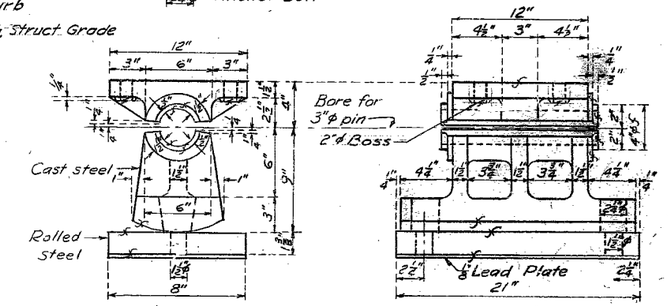
PART SECTION
SHOWING CURB PLATE



CAST STEEL NUTS
24 Required
12-3" ϕ Rolled steel pins required

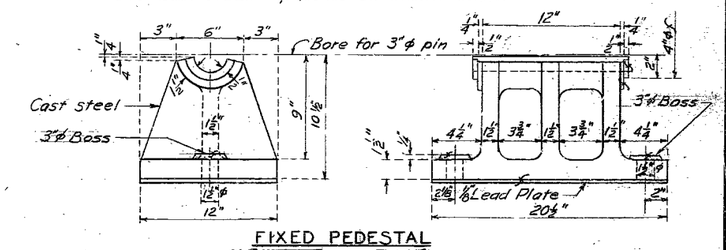






EXPANSION ROCKER
8 Required Bents 2 & 4

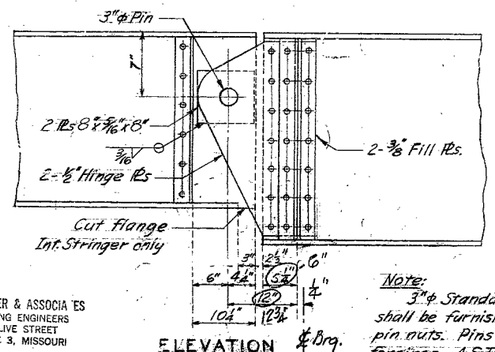
Note: Cast steel cap same as shown above.



FIXED PEDESTAL
4 Required Bent 3

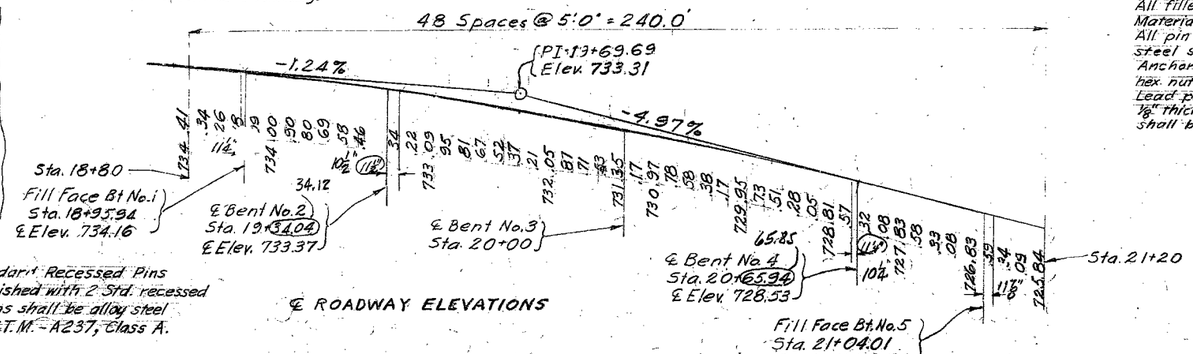
Finish all surfaces marked ⌿.
All fillets shall have ¾" radius.
Material shall be cast steel except as noted.
All pin bolts, nuts, pipe sleeves and rolled steel shall be paid for as structural steel.
Anchor bolts shall be 1¼" ϕ swedged bolts with hex nuts and shall extend 12" into concrete.
Lead plates under bearings shall be approximately ⅛" thickness and weigh 8#/sq. ft. Cost of lead plates shall be included in price bid for other items.

Note:
Expansion device to be fabricated in one section and shall be bent to conform to crown of roadway.



ELEVATION
HINGE DETAILS

Note:
3" ϕ Standard Recessed Pins shall be furnished with 2 Std. recessed pin nuts. Pins shall be alloy steel forgings, A.S.T.M.-A237, Class A.



℄ ROADWAY ELEVATIONS

BRIDGE PRESENT ROUTE 66 UNDERPASS
STATE ROAD FROM ST. CLAIR TO PACIFIC
ABOUT 1.75 MILES S.W. OF GRAY SUMMIT
PROJECT NO. I-258(10)(FAI-RT E.2) STA. 1543+02.72
FRANKLIN COUNTY

R. W. BOOKER & ASSOCIATES
CONSULTING ENGINEERS
1722 OLIVE STREET
ST. LOUIS 3, MISSOURI

Drawn Mar. 1957 by K.E.R.
Checked Apr. 1957 by J.M.L.

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

Sheet No. 8 of 8

Rev. 7-21-58

L-896

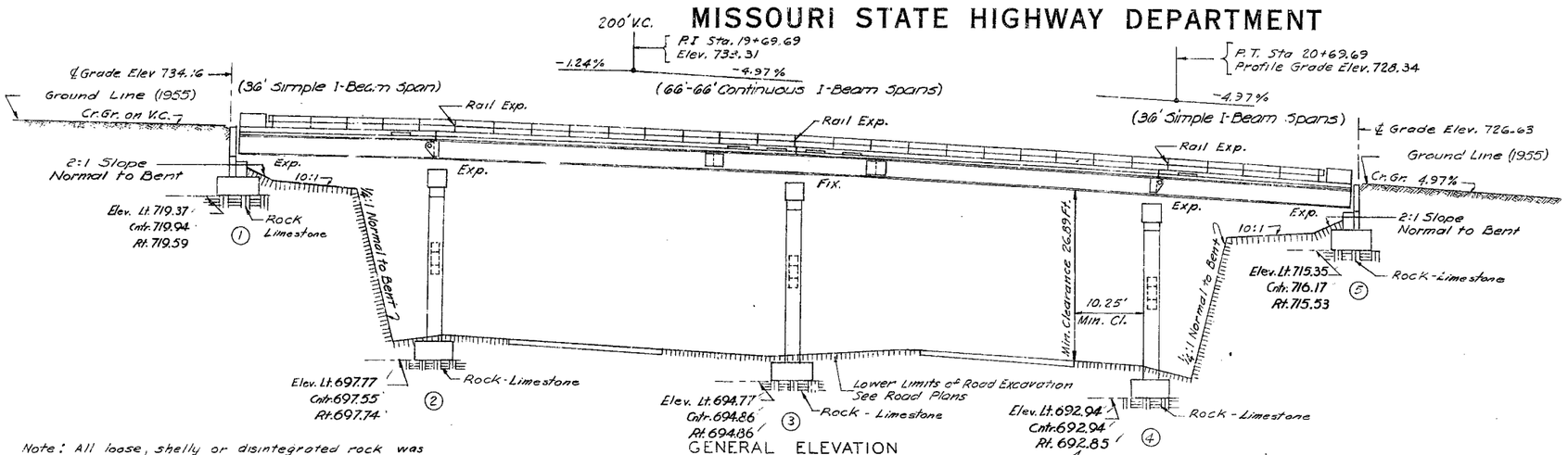
NO CONSTRUCTION CHANGES

457

MISSOURI STATE HIGHWAY DEPARTMENT

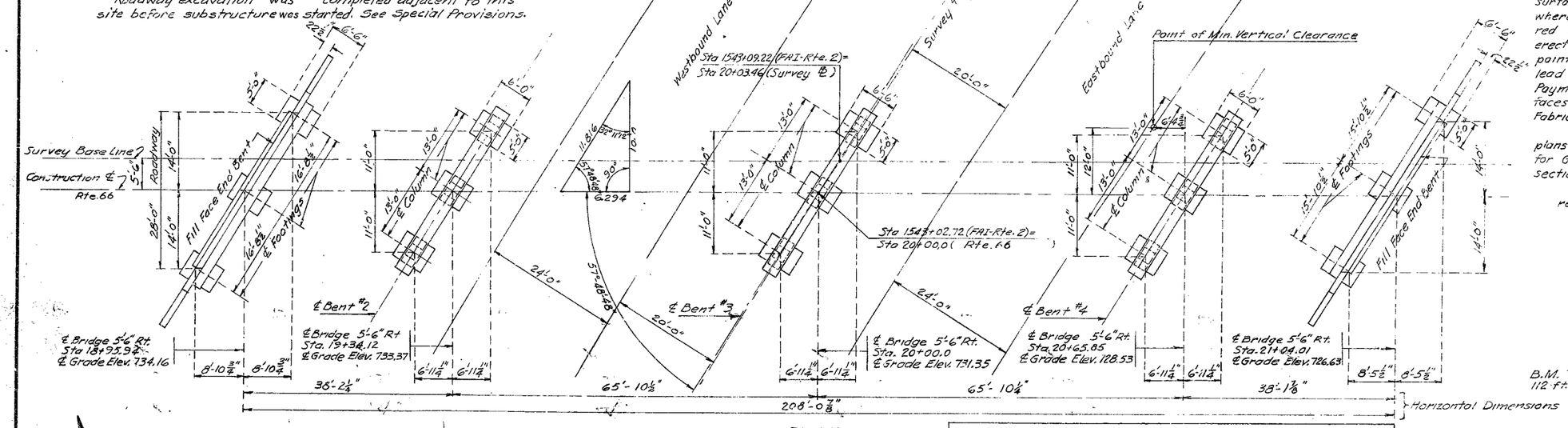
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19		

FINAL PLANS

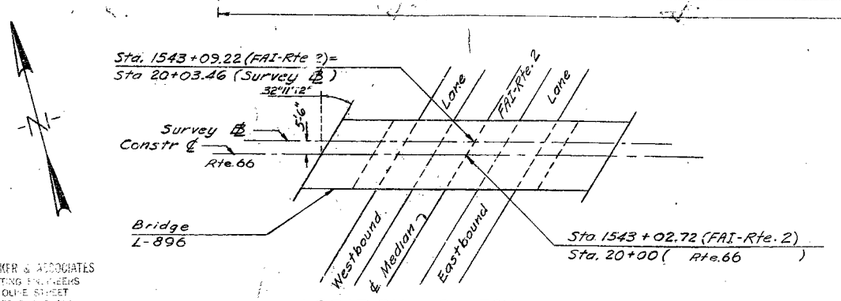


GENERAL ELEVATION

Note: All loose, shelly or disintegrated rock was removed and the footings placed on hard, solid, undisturbed rock. If soft rock or shale was encountered the footings were carried at least 18" into and cast against vertical faces of same. In no case were footings of bents 2, 3, and 4 placed higher than elevations shown. Roadway excavation was completed adjacent to this site before substructure was started. See Special Provisions.



PLAN



LOCATION SKETCH

GENERAL NOTES

Design Specifications A.A.S.H.O. 1953
Loading H20-44 (Future Wear. Surf. 15#/□')
Structural Steel Stress 18,000 P.S.I.
Reinforcing Steel Stress 20,000 P.S.I.
Concrete Stress 1200 P.S.I.
Concrete for Superstructure was class B-1 air-entrained (See Special Provisions).
Concrete for substructure was Class B air-entrained.

A rubbed surface finish was required on all exposed surfaces of concrete end posts above top of curbs.

Rivets 3/4"; Holes 13/16" except where otherwise noted.

Field connections were not riveted except as noted in handrail details. As the Contractor desired he used high tensile steel bolts with carburized washers in place of rivets.

As high tensile steel bolts were used they were placed in such a manner that the nuts were always in the least exposed position.

Paint: Shop, none; Field, contact surfaces of bolted field connections, except where high tensile bolts are used, one coat of red lead and surfaces inaccessible after erection three coats of red lead. No other paint was applied by the contractor. Red lead required was furnished by contractor. Payment for cleaning and painting such surfaces was included in unit price bid for Fabricated Structural Steel.

Where joint filler is specified on the plans it did conform with the requirements for Gray Rubber Compound joints as given in section 59-22B of the Standard Specifications.

Qualification of welding operators was required.

SUBMITTED BY
REGISTERED PROFESSIONAL ENGR.
MISSOURI NO. E-5777

B.M. #23-C Nail in Power Pole 112 Ft. Right Sta 1543+25 Elev. 727.77

QUANTITIES				
Item		Substr.	Superstr.	Total
Class I Excavation for Structures	Cu. Yds.	201.5		201.5
Class B Concrete	Cu. Yds.	211.4		211.4
Reinforcing Steel	Lbs.	23,570	44,040	67,610
* Fabricated Structural Steel	Lbs.		166,660	166,660
Gray Iron Alloy Castings	Lbs.		920	920
Steel Castings	Lbs.		3,920	3,920
Class B-1 Concrete	Cu. Yds.		156.3	156.3
Test Holes	Lin. Ft.	20		20
Class I + 25% Excavation	Cu. Yds.	22.5		22.5

Note: All excavation for bridge was paid for as Class I Excavation for Structures. Quantities of Class I Excavation for Structures includes only amount of excavation below Roadway Excavation (See Special Provisions). Concrete in end posts is included in Quantities of Class 'B' Concrete for Superstructure.
* Final pay weight for Fabricated Structural Steel was based on using field rivets, except for bolted connections specified for handrail.

BRIDGE: PRESENT ROUTE 66 UNDERPASS
STATE ROAD FROM ST. CLAIR TO PACIFIC
ABOUT 1.75 MILES S.W. OF GRAY SUMMIT
PROJECT NO. I 256(10)(FAI-RTE.2) **STA.** 1543+02.72
FRANKLIN **COUNTY**

SUBMITTED BY J. A. Williams BRIDGE ENGINEER DATE 1-2-1958
APPROVED BY Rex M. Whitton CHIEF ENGINEER DATE 1-2-1958

FINAL PLANS

Std. P-1
Std. C-110R5
L-896

R. W. BOOKER & ASSOCIATES
CONSULTING ENGINEERS
1722 OLIVE STREET
ST. LOUIS 3, MISSOURI

Drawn April 1957 by H.O.W.
Checked April 1957 by J.M.L.

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

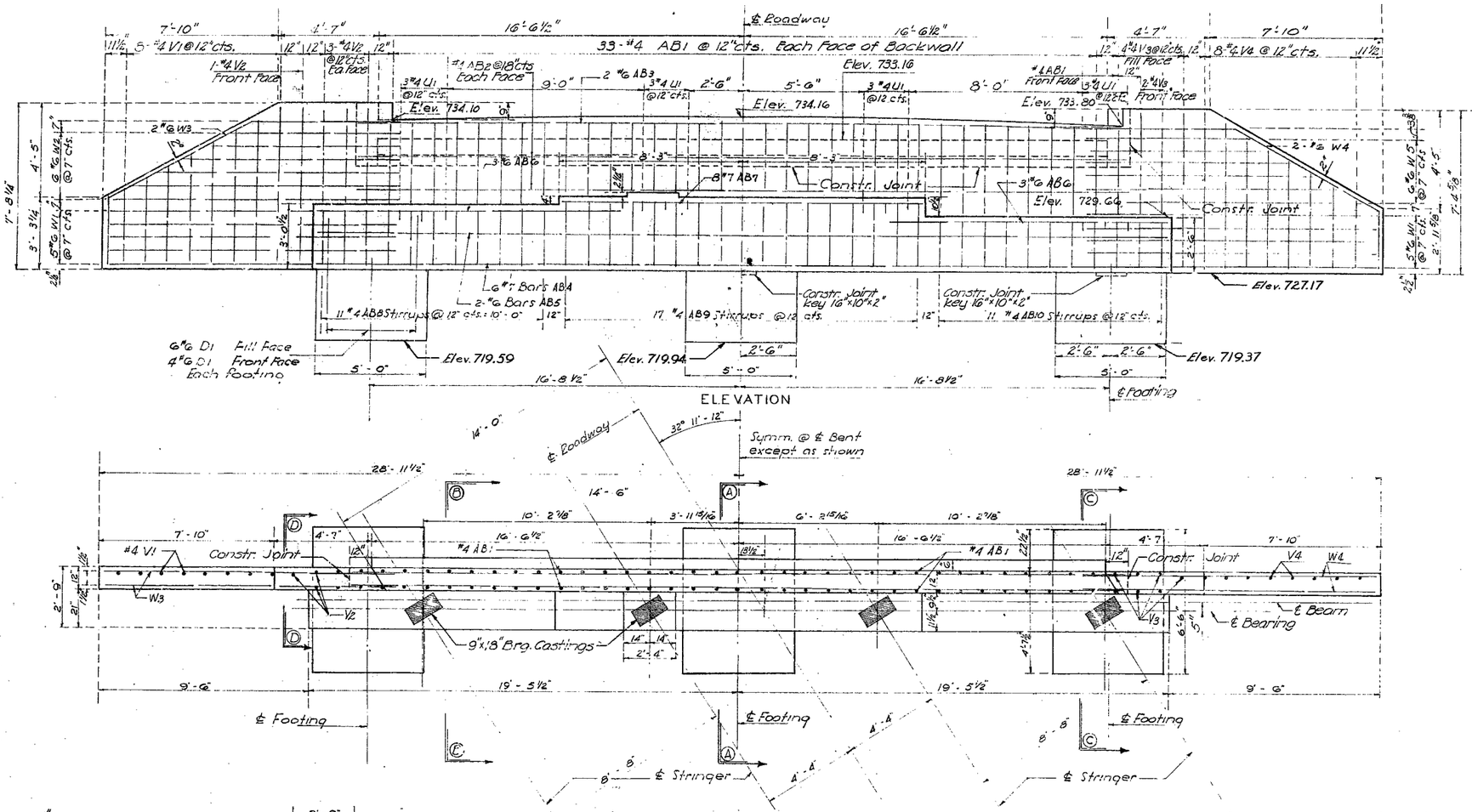
Sheet No. 1A of 4

458

MISSOURI STATE HIGHWAY DEPARTMENT

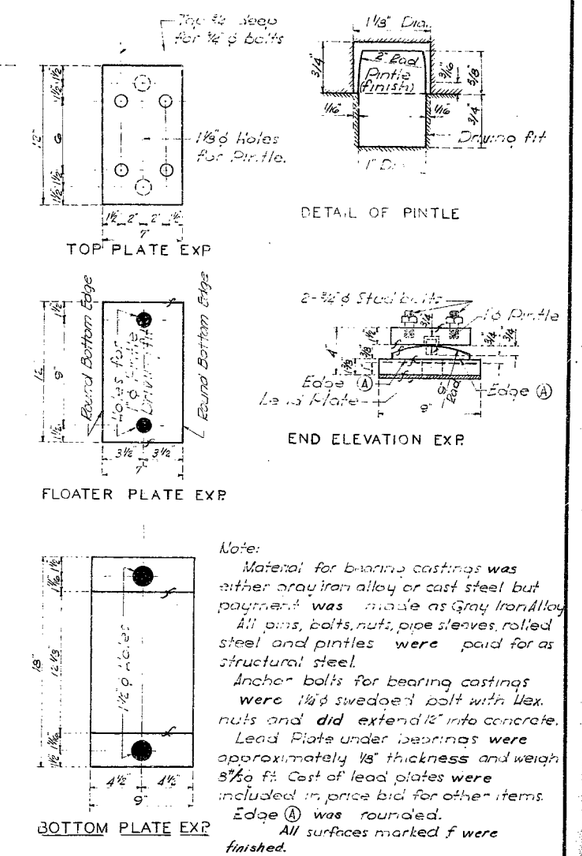
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19		

FINAL PLANS



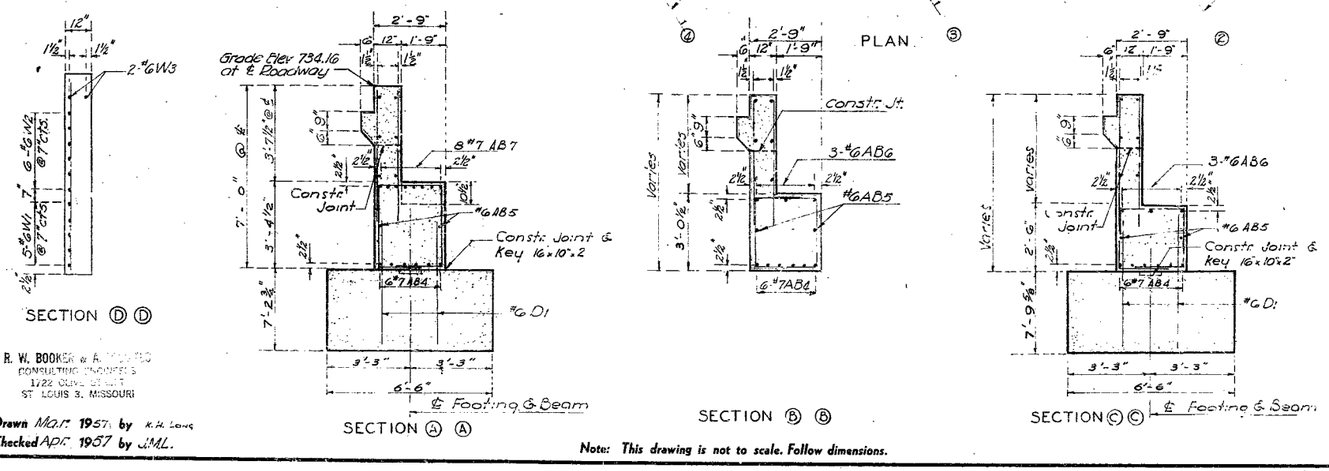
ELEVATION

PLAN



Note:
Material for bearing castings was either gray iron alloy or cast steel but payment was made as Gray Iron Alloy.
All pins, bolts, nuts, pipe sleeves, rolled steel and pintles were paid for as structural steel.
Anchor bolts for bearing castings were 1¼"ϕ swedged bolt with Hex. nuts and did extend 12" into concrete.
Lead Plate under bearings were approximately 1/8" thickness and weigh 8#/sq ft. Cost of lead plates were included in price bid for other items.
Edge Ⓐ was rounded.
All surfaces marked f were finished.

DETAILS OF BEARING CASTINGS
8 Reqd. Bents ① & ⑤



SECTION Ⓓ Ⓓ

SECTION Ⓐ Ⓐ

SECTION Ⓑ Ⓑ

SECTION Ⓒ Ⓒ

GENERAL NOTES:
Top of backwall and expansion device for End Bent No 1 and 5 did conform to crown of roadway slab. Holes for all 1¼"ϕ anchor bolts were formed in substructure by placing and setting with template 4ϕ wells of depth as shown in Notes For Bearing Devices.
Grout for anchor bolt wells did contain Iron Oxide. (Embeco)
Backwall above construction joint and wingwalls was not poured until the structural steel of the expansion device had been installed and slab had been poured in adjacent span.
Fill at end bents No. 1 & 5 was not carried above the bottom of beam and wings until superstructure spans (1-2) & (4-5) were in place.

DETAILS OF END BENT NO. 1

Sheet No. 3A of 4

R. W. BOOKER & ASSOCIATES
CONSULTING ENGINEERS
1722 OLIVE STREET
ST. LOUIS 3, MISSOURI

Drawn Mar. 1957 by K.H. Long
Checked Apr. 1957 by J.M.L.

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

BRIDGE PRESENT RTE. 66 UNDERPASS
STATE ROAD FROM ST. CLAIR TO PACIFIC
ABOUT 1.75 MILES S.W. OF GRAY SUMMIT
PROJECT NO. I-258(10)(FAI-RT-66) **STA.** 1543 + 02.72

FRANKLIN **COUNTY**

FINAL PLANS

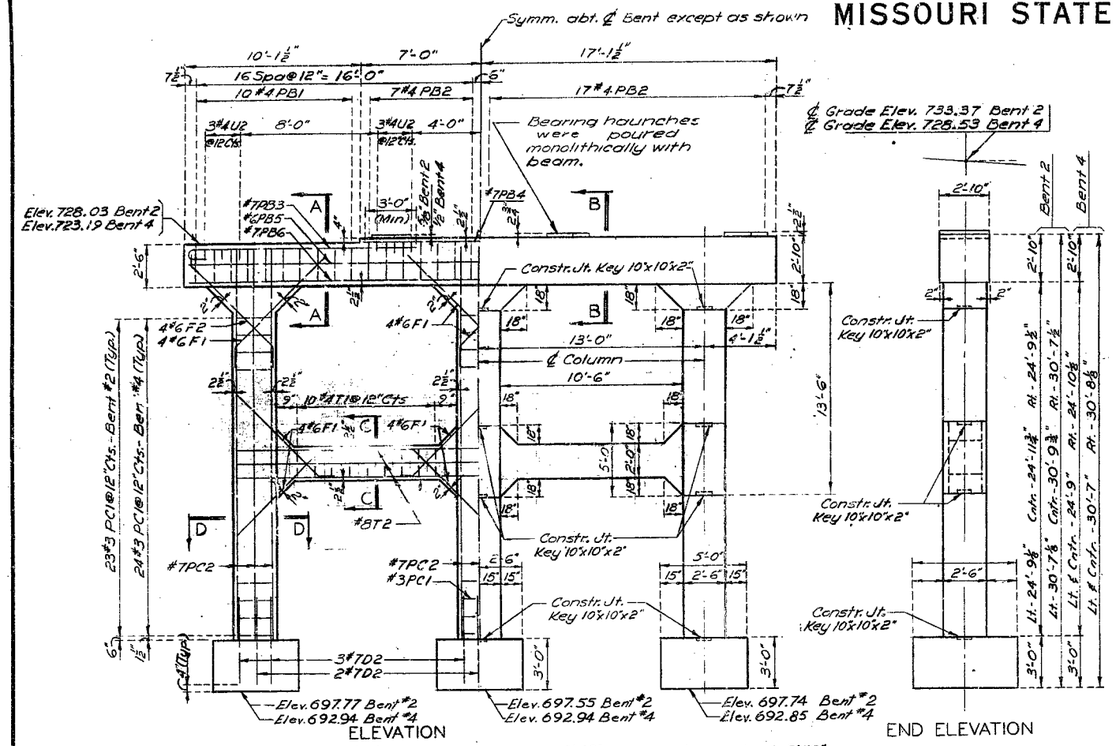
L-896

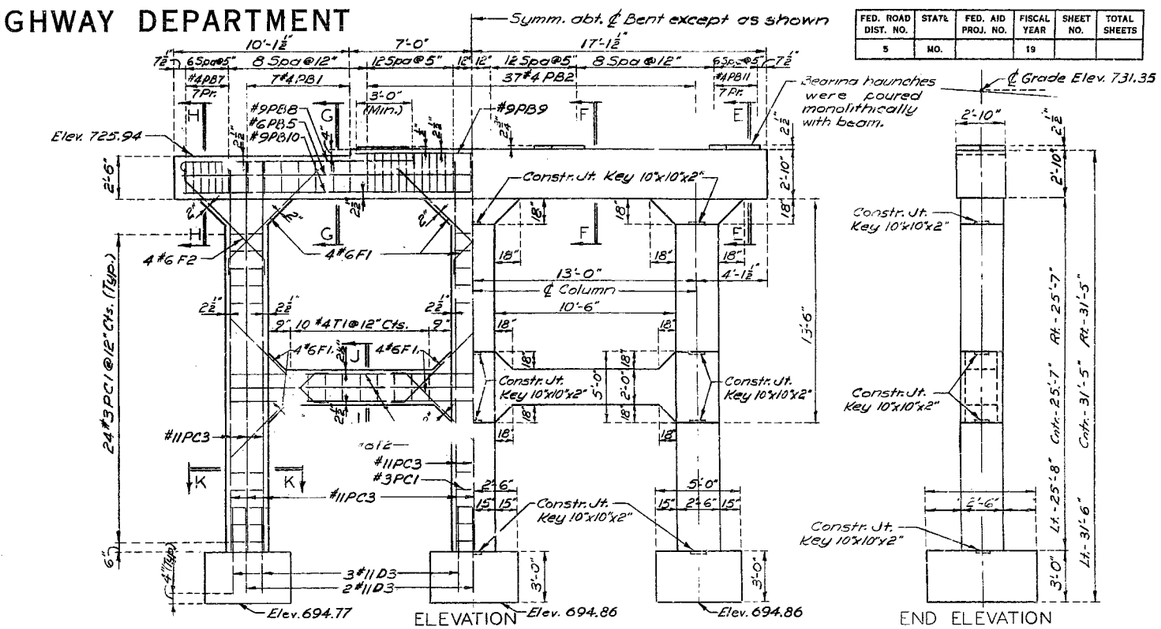
459

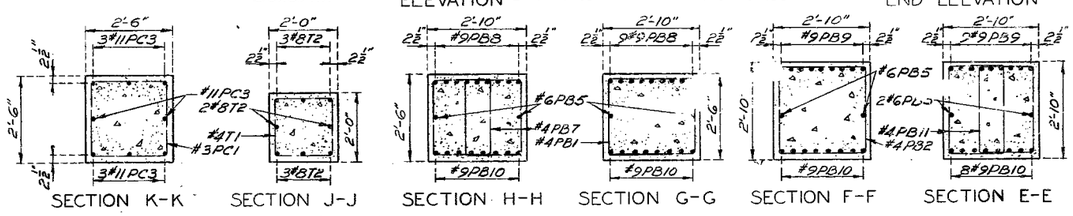
FINAL PLANS

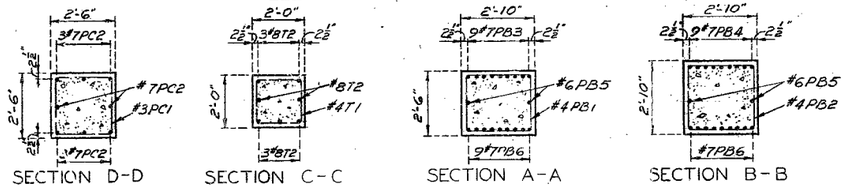
MISSOURI STATE HIGHWAY DEPARTMENT

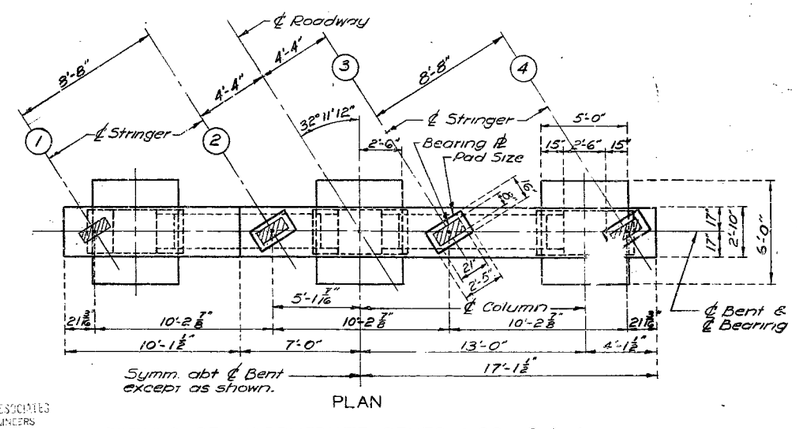
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19		





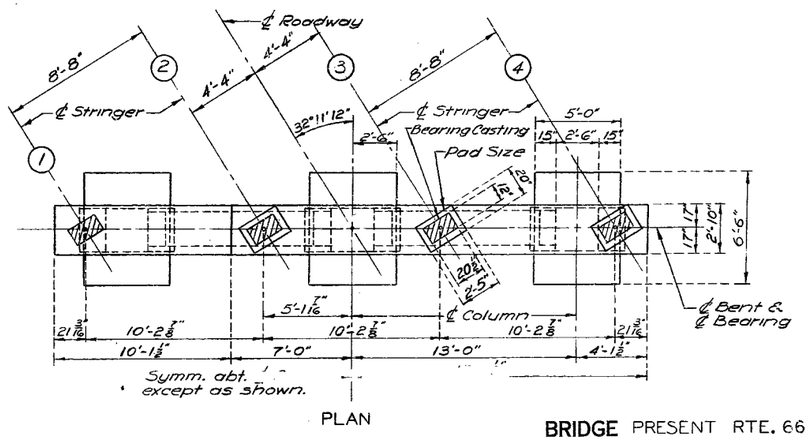






DETAILS OF INTERMEDIATE BENTS NOS. 2 & 4

Note: 1-4'-0" Test Hole Rt. Ftg. - Bent #3
1-4'-0" Test Hole Rt. Ftg. - Bent #4



DETAILS OF INTERMEDIATE BENT NO. 3

BRIDGE PRESENT RTE. 66 UNDERPASS

STATE ROAD FROM ST. CLAIR TO PACIFIC

ABOUT 1.75 MILES S.W. OF GRAY SUMMIT

PROJECT NO. I-2580(3) **STA.** 1543+02.72

FRANKLIN **COUNTY**

R. W. BOOKER & ASSOCIATES
CONSULTING ENGINEERS
1722 OLIVE STREET
ST. LOUIS 3, MISSOURI

Drawn Mar. 1957 by W.J.H.
Checked Apr 1957 by J.M.L.

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

Sheet No. 4A of 4

FINAL PLANS

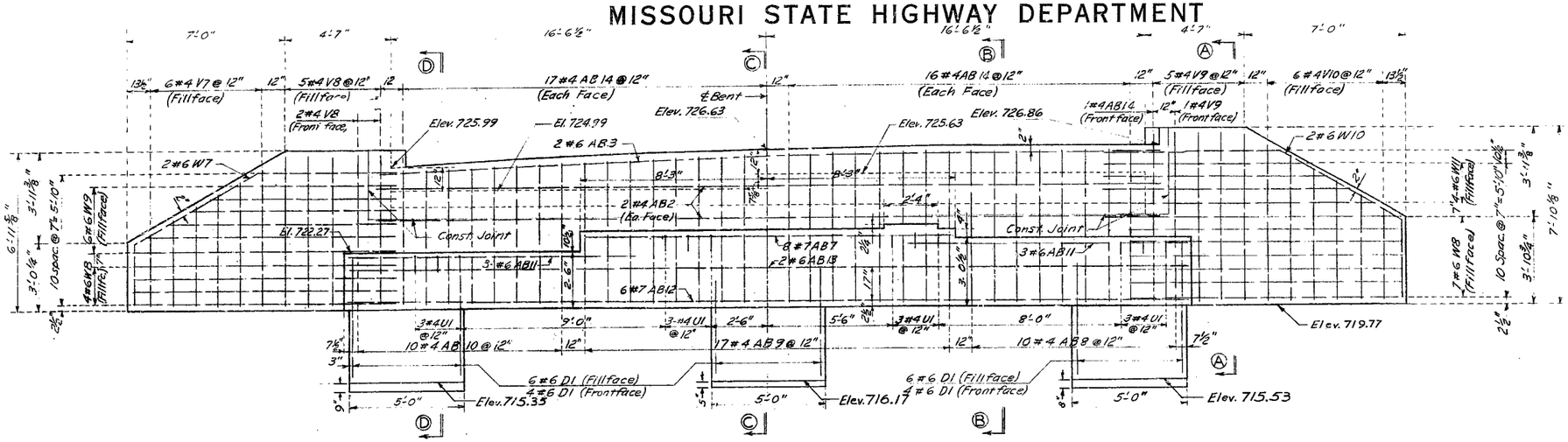
L-896

460

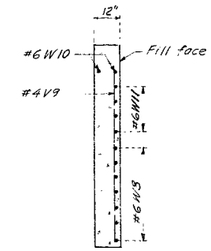
MISSOURI STATE HIGHWAY DEPARTMENT

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

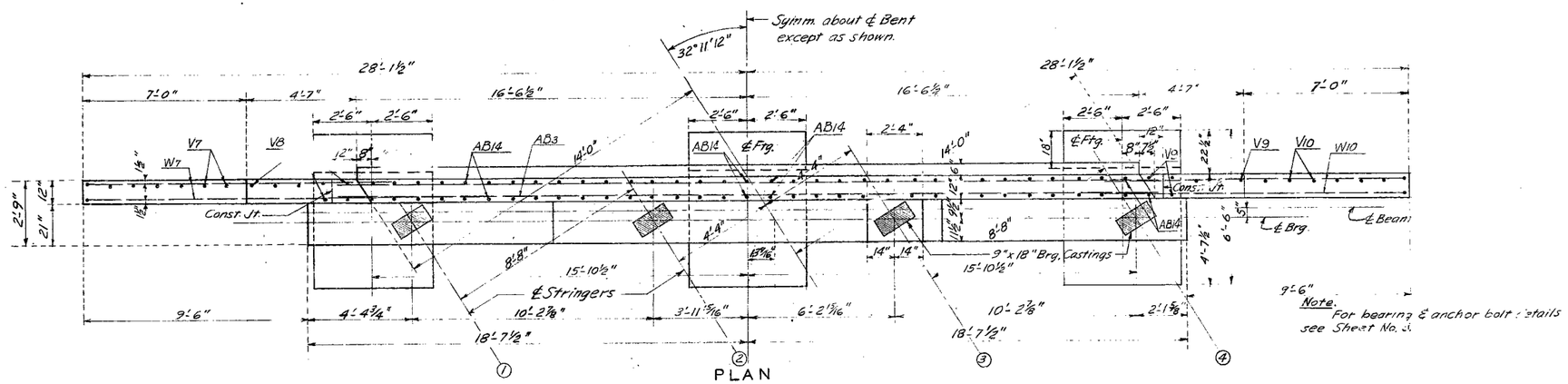
FINAL PLANS



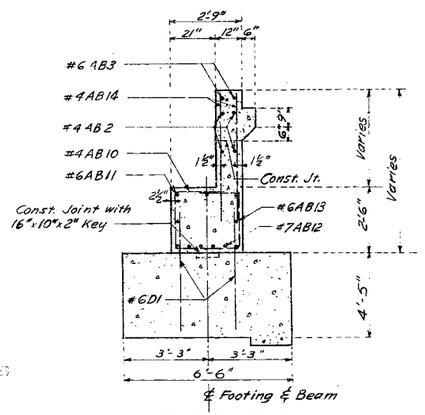
ELEVATION



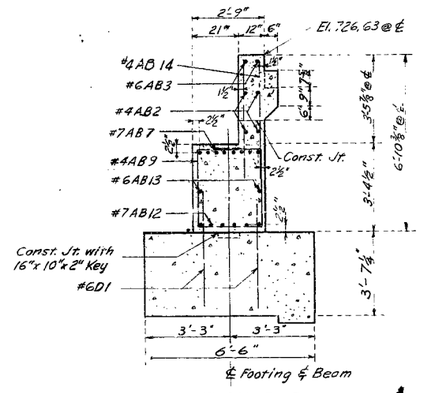
SECTION A-A



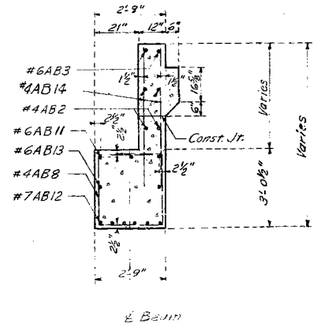
PLAN
END BENT NO. 5



SECTION D-D



SECTION C-C



SECTION B-B

For General Notes see Sheet No. 3.

Note: 1-4'-0" Test Hole each Ftg.

BRIDGE PRESENT RT. 66 UNDERPASS
STATE ROAD FROM ST. CLAIR TO PACIFIC
ABOUT 1.75 MILES S.W. OF GRAY SUMMIT
PROJECT NO. I-258(C) ... STA. 1543+02.72
FRANKLIN COUNTY

FINISHED

R. W. BO... ASSOCIATES
CONSULTING ENGINEERS
ST. LOUIS 3, MISSOURI

Drawn Apr. 1957 by K.F.R.
Checked Apr. 1957 by J.M.L.

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

DETAILS OF END BENT NO. 5

Sheet No. 5A of 4

FINAL PLANS

L-896

461