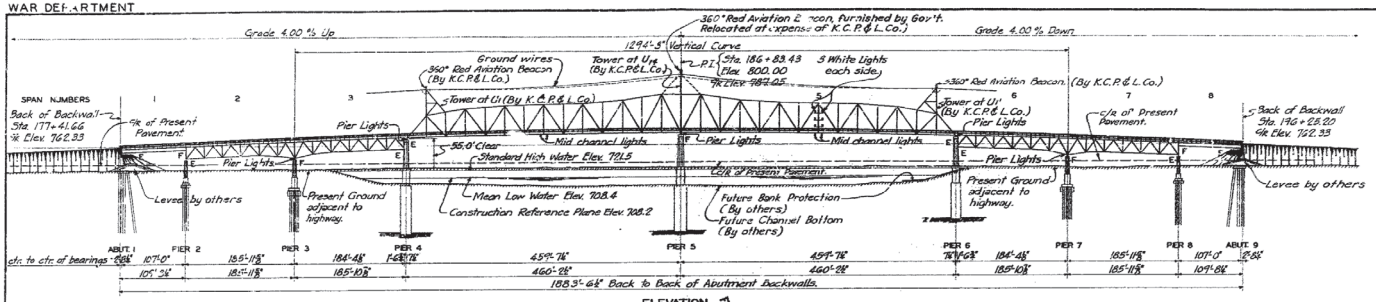
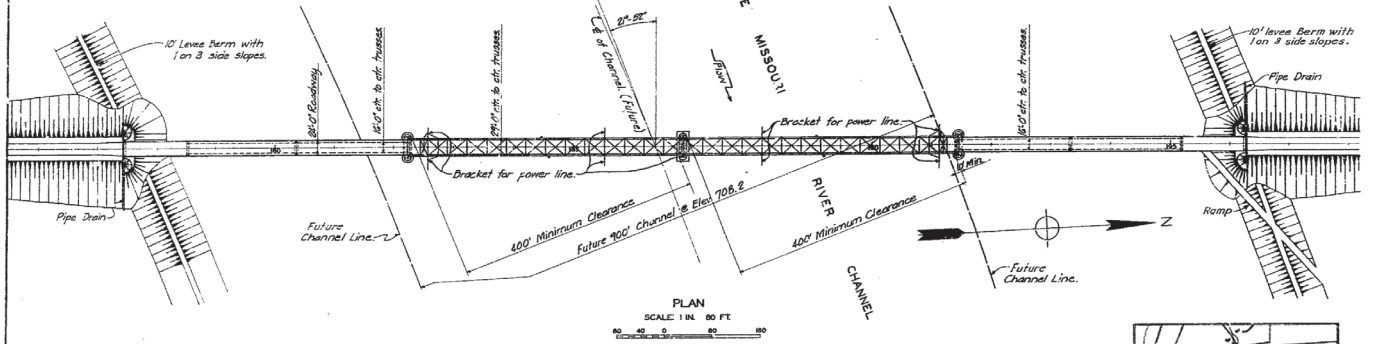
WAR DEPARTMENT

CORPS OF ENGINEERS, U.S.A.



ELEVATION

SCALE 1 IN. 80 FT.



PLAN

SCALE 1 IN. 80 FT.

80 40 0 80 160

GENERAL NOTES

DESIGN SPECIFICATIONS ---- A.A.S.H.O. 1944 Edition.

DESIGN LOADS ---- Live Load; H20-44 as specified in the A.A.S.H.O. Specifications, 1944 edition.

Dead Loads; An allowance of 15 lbs. per sq. ft. has been made for a future wearing surface on portions of the structure having a concrete slab or a filled grating floor. A ½" monolithic wearing surface is included in the thickness of the concrete slabs only.

Wind Loads; In accordance with the A.A.S.H.O. Specifications with the additional provision that the substructure units to which the superstructure is fixed are designed for a 30# lo^ngitudinal wind on the unloaded structure. On the tributary superstructure this force is applied to one half (½) the area specified in Art. 3.2. 1A of the A.A.S.H.O. Specifications. Longitudinal wind force is not combined with lateral wind forces.

DESIGN LOADS FOR PILES---- For 12" BP ℄ 53 lb. steel piles.

Under vertical loads only	45 Tons
Under vertical loads plus either longitudinal or lateral loads	56 Tons
Under vertical loads plus longitudinal plus lateral loads	60 Tons

CONCRETE ---- The concrete mixes are to be designed to produce a concrete having an ultimate strength of 3,500 lbs. per sq. in. at 28 days. (See Specifications).

REINFORCEMENT ---- All dimensions to reinforcing steel as shown on the details are to the ℄ of bar.

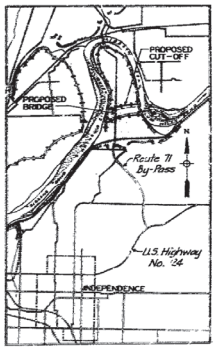
BEVELED EDGES ---- All exposed edges of concrete shall be beveled ¾" except where otherwise noted.

BEARING AREAS ---- Bearing areas to receive the superstructure shall be finished perfectly smooth and level at the elevations shown on the plans. (See Specifications).

UTILITIES ---- Provision has been made in the design of the structure to carry a 3 wire 33,000 volt line, a 4 wire 12,540 volt line and a future 3 wire 132,000 volt line, all belonging to the Kansas City Power and Light Co. Provisions have been made to support the Panhandle Eastern Pipe Line and the Standard Oil Company's pipe lines on the bridge structure. Pipes, wires, insulators, etc. belonging to the various utilities are to be relocated as required for the construction of the bridge and the approaches and placed in the final position on the completed bridge and approaches by their respective owners.

APPROACHES ---- Revised approaches and the detour are to be constructed as part of the bridge contract. Material for the embankments is to be obtained from the areas shown on the plans.

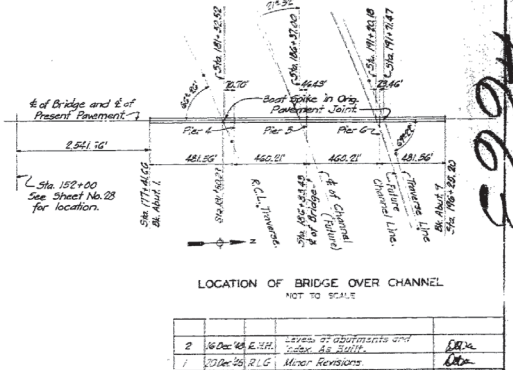
CONSTRUCTION JOINTS ---- Construction joints shall be placed only at the locations shown on the plans, except as otherwise directed by the Contracting Officer.



VICINITY MAP

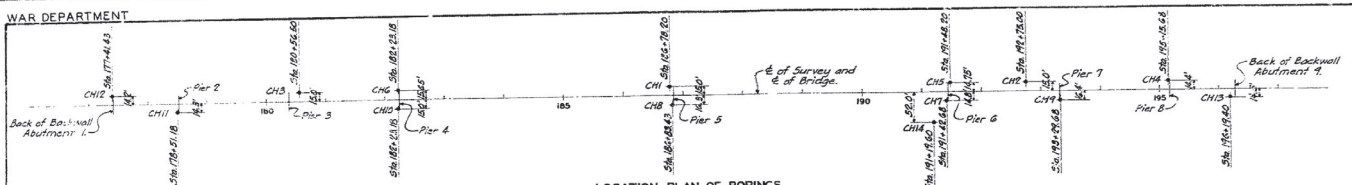
4000 0 4000 12000 20000

SCALE 81 FEET


℄ of Bridge and ℄ of Present Pavement
Boot Spike in Exp. Pavement Joint
Pier 4
Pier 5
Pier 6
2,541.76'
481.55'
460.01'
460.21'
481.86'
Sta. 152+00 See Sheet No. 28 for location.
Sta. 177+41.66 Bk. Abut. 1
Sta. 196+58.20 Bk. Abut. 9
Sta. 186+83.43 ℄ of Bridge
Sta. 186+57.10
Sta. 191+83.18
Sta. 191+71.47
Sta. 191+72.46
Sta. 186+57.10
Sta. 186+83.43
Sta. 191+83.18
Sta. 191+72.46
Sta. 191+71.47
Sta. 196+58.20
Sta. 196+22.20
Joint
Joint
Joint

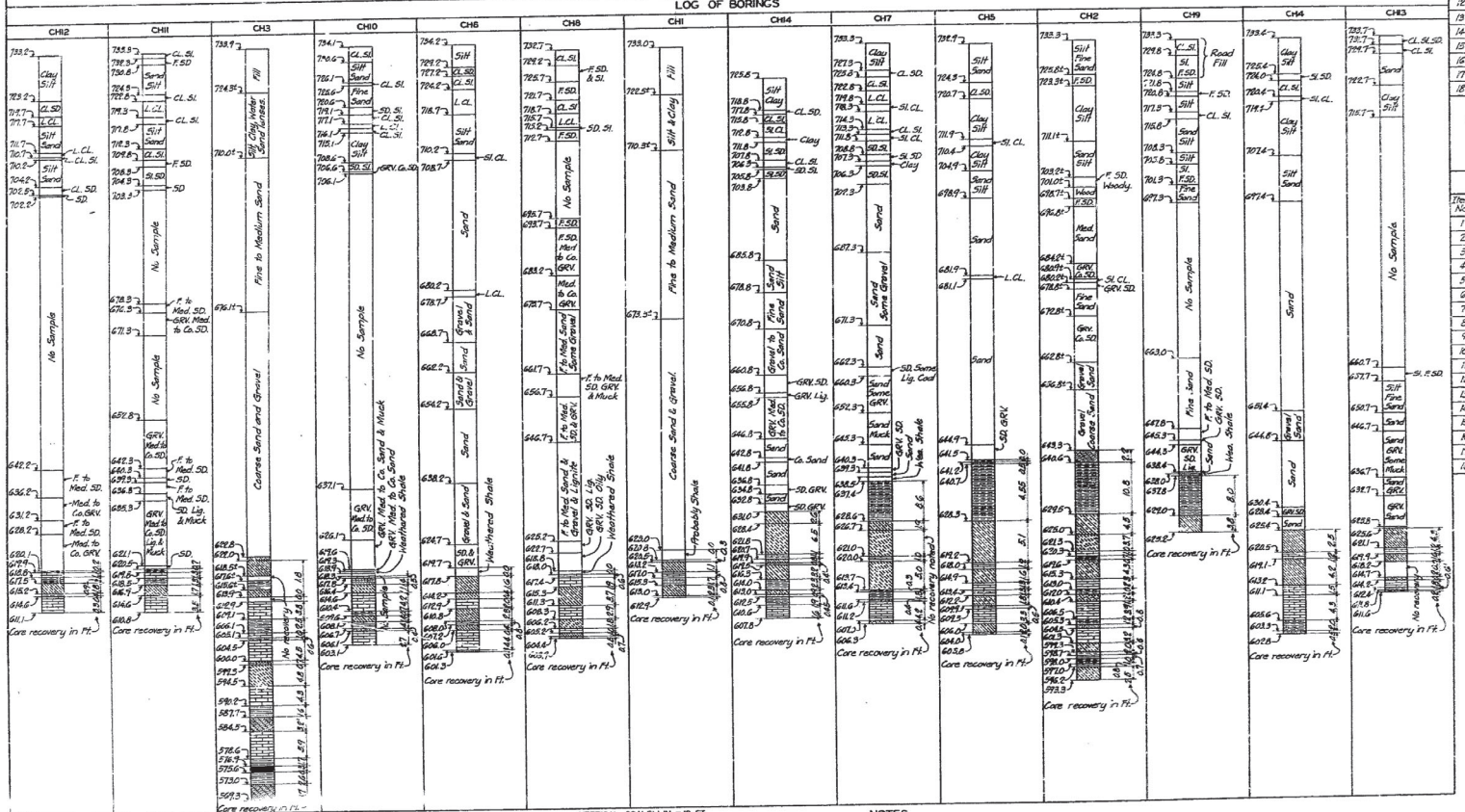
CORPS OF ENGINEERS, U.S. ARMY

WAR DEPARTMENT



LOCATION PLAN OF BORINGS
SCALE: 1 IN. = 80 FT.

LOG OF BORINGS



VERTICAL SCALE: 1 IN. = 10 FT.

LEGEND

- Sandstone - Firm Cross Bedded
- Sandy or Limy Shale, Firm
- Sandy or Limy Shale, Subfirm
- Clay Shale Subfirm
- Clay Shale Soft
- Shaly Shale Firm
- Coal
- Shaly Limestone
- Limestone

CL. Clay
Sl. Silt
SD. Sand
L. Lean
F. Fine
Med. Medium
Co. Coarse
Grv. Gravel
Lig. Lignite
Wse. Weathered

NOTES

See Sheet No. 1 for General Notes.
All holes were cored 2⅝" except CH14 which was cored 6".

APPROVED:
MISSOURI STATE HIGHWAY DEPT.
BY /s/ C. W. Brown DATE 10-21-48
TITLE Chief Engineer

TABLE OF ESTIMATED QUANTITIES

Item No.	Description of Item	Unit	Substructure	Superstructure	Total
1	Clearing of Site	Lump Sum			1
2	Class 1 Excavation	Cu. Yd.	7,000		8,000
3	Class 2 Excavation	Cu. Yd.	8,000		8,000
4	Volume in Base of Pier 4	Cu. Yd.	330		1,550
5	Volume in Base of Pier 5	Cu. Yd.	2,900		2,900
6	Volume in Base of Pier 6	Cu. Yd.	1,130		1,130
7	Furnishing Steel Piles	Lin. Ft.	6,240		12,640
8	Driving Steel Piles	Lin. Ft.	12,340		12,840
9	Concrete in Seal Courses	Cu. Yd.	690		690
10	Other Substructure Concrete	Cu. Yd.	3,900		3,900
11	Concrete in Slabs and Curbs	Cu. Yd.		650	650
12	Portland Cement	Bbl.	4,070	1,930	18,300
13	Steel, Reinforcement	Lb.	390,800	146,900	537,000
14	Fabricated Structural Steel	Lb.		4,050,000	4,050,000
15	Cast Steel	Lb.		50,200	50,200
16	Filled Roadway Grating	Sq. Ft.		22,700	22,700
17	Electrical Work	Lump Sum			1
18	Painting Clearance Gauges	Lump Sum			1

The quantities listed in the above table are for the bridge work. For the quantities for the road work, see Sheet Nos. 28 & 29.

TABLE OF FINAL QUANTITIES

Item No.	Description of Item	Unit	Substructure	Superstructure	Total
1	Clearing of Site	Lump Sum			1
2	Class 1 Excavation	Cu. Yd.	3,000.85		3,000.85
3	Class 2 Excavation	Cu. Yd.	8,648.81		8,648.81
4	Volume in Base of Pier 4	Cu. Yd.	1,515.60		1,515.60
5	Volume in Base of Pier 5	Cu. Yd.	2,928.30		2,928.30
6	Volume in Base of Pier 6	Cu. Yd.	1,119.86		1,119.86
7	Furnishing Steel Piles	Lin. Ft.	19,043		19,043
8	Driving Steel Piles	Lin. Ft.	12,761		12,761
9	Concrete in Seal Courses	Cu. Yd.	703.65		703.65
10	Other Substructure Concrete	Cu. Yd.	3,892.97		3,892.97
11	Concrete in Slabs and Curbs	Cu. Yd.		638.44	638.44
12	Portland Cement	Bbl.	14,332.8	1,756.2	16,089
13	Steel, Reinforcement	Lb.	390,497.5	146,060.6	536,3579
14	Fabricated Structural Steel	Lb.		4,054,353	4,054,353
15	Cast Steel	Lb.		49,885	49,885
16	Filled Roadway Grating	Sq. Ft.		22,6793	22,6793
17	Electrical Work	Lump Sum			1
18	Painting Clearance Gauges	Lump Sum			1

The quantities listed in the above table are for the bridge work. For the quantities for the road work, see Sheet Nos. 28 & 29.

RECORD DRAWING
JAN. 1949

NO.	DATE	BY	REVISION	APP'D.
2	27 Dec. '48	R.H.H.	Final Quantities (As Built)	D.S.M.
1	7 Sept. '48	L.N.R.	Revised Quantities	D.S.M.

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE
(MISSOURI)

LOG OF BORINGS & LIST OF QUANTITIES

JACKSON COUNTY

L-568

In 4 Sheets — Sheet No. 2 — Scale As Shown

OFFICE, DISTRICT ENGINEER, KANSAS CITY DISTRICT, KANSAS CITY, MO. MAY, 1948

Submitted by: /s/ W. A. Hurt — Recommended: Lieut. Colonel, Corps of Engineers, District Engineer — (Approved: /s/ W. M. Grove, Colonel, Corps of Engineers, Division Engineer)

SVERDRUP AND PARCEL, CONSULTING ENGRS. ST. LOUIS, MO. — Road Engineers — To Accompany Specifications — File No.

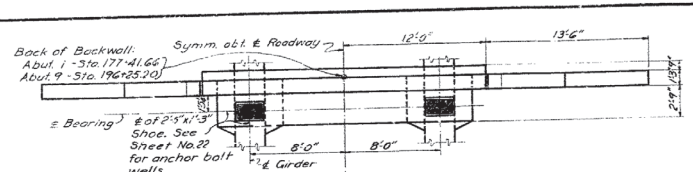
Drawn: J.M.W. — Traced: J.M.W. — Checked: D.A.J. — Dated: JANUARY 1948

A-10-1502

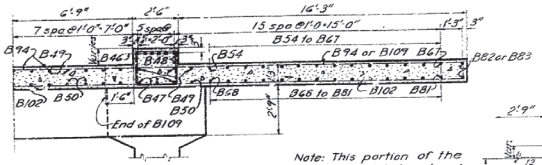
(2)

WAR DEPARTMENT

CORPS OF ENGINEERS, U.S. ARMY

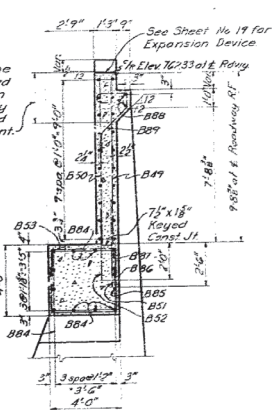


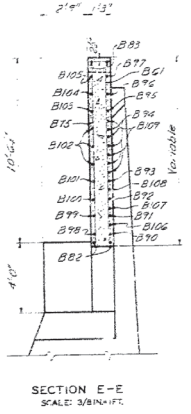
TOP VIEW - ABUTMENTS 1 & 9
SCALE: 1/4 IN. = 1 FT.



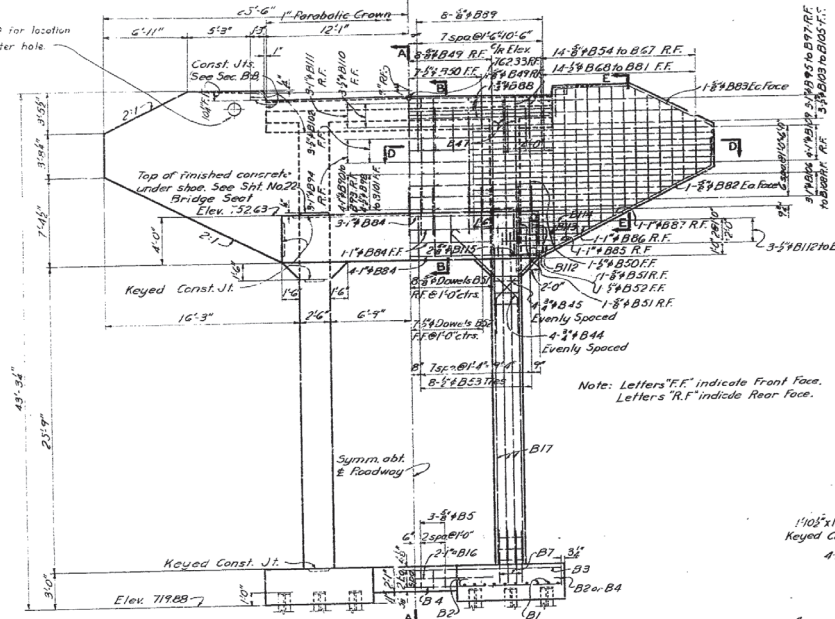
SECTION D-D
SCALE: 3/8 IN. = 1 FT.

Note: This portion of the backwall is to be placed after the expansion device is completely assembled and held in correct alignment.

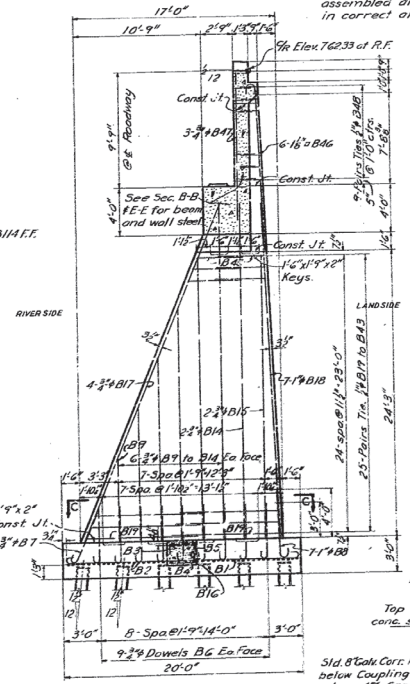




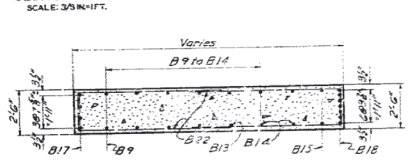
SECTION E-E
SCALE: 3/8 IN. = 1 FT.



RIVERWARD ELEVATION - ABUTMENTS 1 & 9
SCALE: 1/4 IN. = 1 FT.

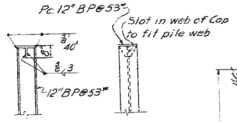


SECTION A-A - ABUTMENTS 1 & 9
SCALE: 1/4 IN. = 1 FT.

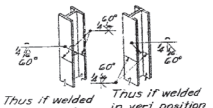


SECTION C-C
SCALE: 3/8 IN. = 1 FT.

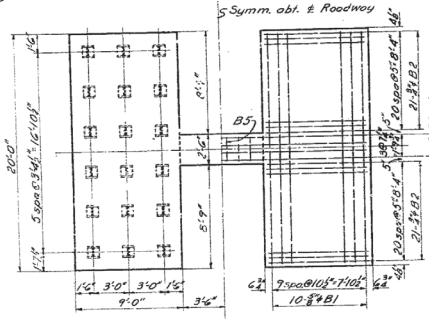
Abut. 1, 36 Piles 12" L.P. @ 53"
Abut. 9, 36 Piles 12" B.P. @ 53"
For pile Elev. see sheet No. 38



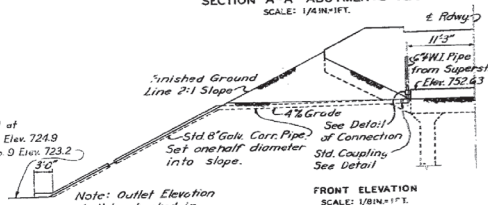
DETAIL OF PILE CAP



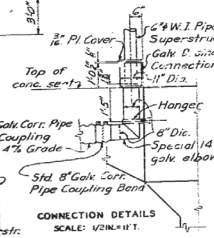
BUTT SPLICE - STEEL PILE



FOOTING PLAN - ABUTMENTS 1 & 9
SCALE: 1/4 IN. = 1 FT.

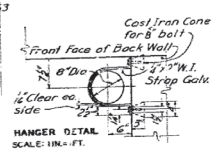


SUBSTRUCTURE DRAINAGE DETAILS
Shown for Abut. 1 - Abut. 9 similar.



CONNECTION DETAILS
SCALE: 1/2 IN. = 1 FT.

FRONT ELEVATION
SCALE: 1/8 IN. = 1 FT.



HANGER DETAIL
SCALE: 1 IN. = 1 FT.

APPROVED:
MISSOURI STATE HIGHWAY DEPT.
BY (S) C. H. Scott DATE 10-21-46
TITLE Chief Engineer

NOTES

See Sheet No. 1 for General Notes.
See Sheet No. 22 for location of anchor bolt wells and for finishing concrete at bearing area under shoes.
See Sheet No. 24 for reinforcing bar list and details.

RECORD DRAWING
JUNE 1948

NO.	DATE	BY	REVISION	APP'D.
1	15 Dec. 48	R.H.	Abutment piles, Sheet No. 3	
2	15 Dec. 48	R.H.	Pile to 2 major axis (Sh. 3)	

KANSAS CITY FLOOD CONTROL PROJECT
(MISSOURI RIVER)

LIBERTY BEND BRIDGE

DETAILS OF ABUTMENTS 1 AND 9

JACKSON COUNTY

L-563

In 41 Sheets | Sheet No. 3 | Scale: As Shown

OFFICE, DISTRICT ENGINEER
KANSAS CITY DISTRICT
KANSAS CITY, MO.
MAY 1948

Submitted by: J. K. Sullivan
Recommended: Wm. Ahlvin, Jr.
Approved: [illegible]

SVERDRUP AND PARCEL
CONSULTING ENGINEERS, ST. LOUIS, MO.

Design Engineer | Checked | Chief of Design | Chief of Engineering

To Accompany Specifications | File No.

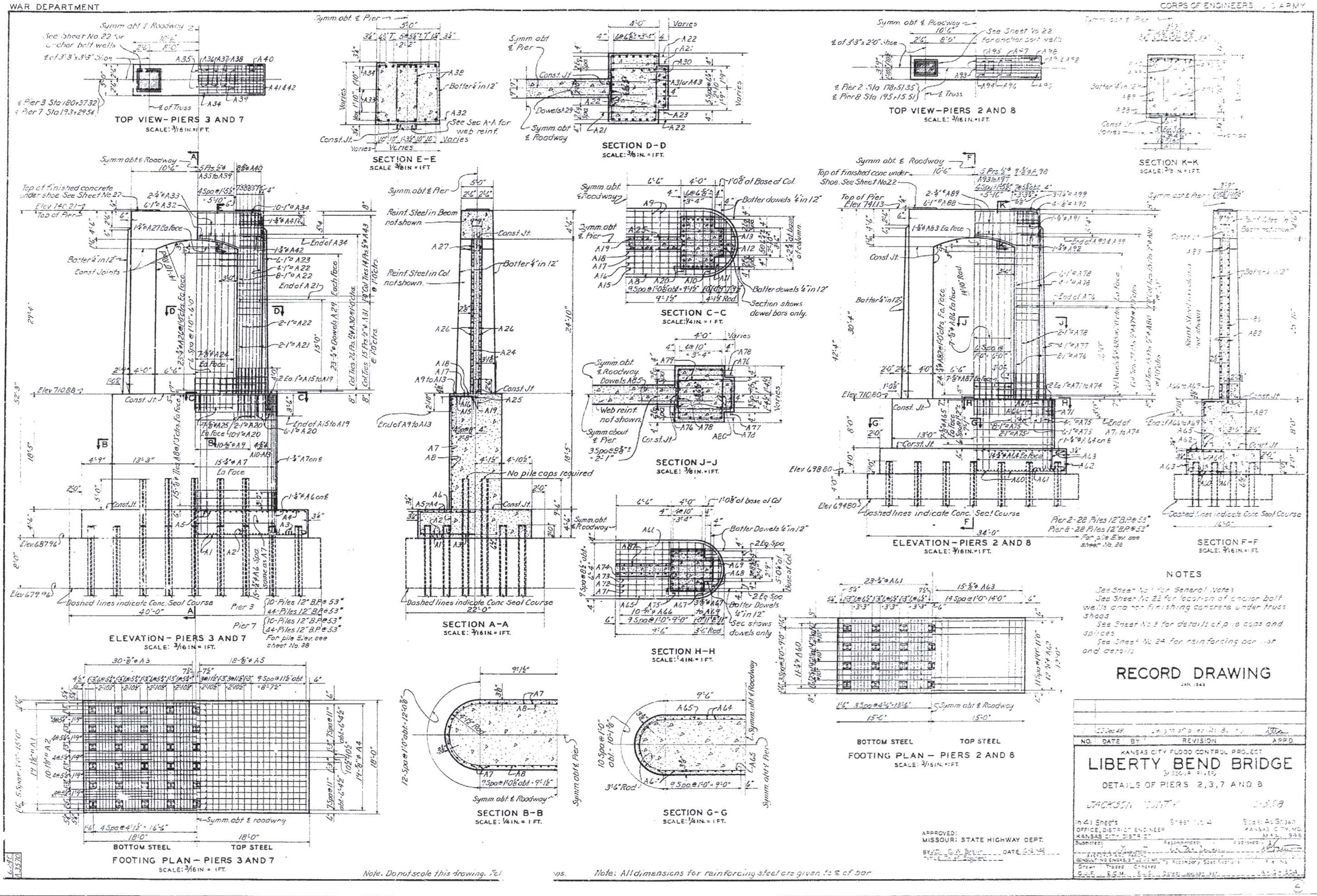
Drawn: G.J.F. | Traced: D.H.V. | Checked: E.J.S. | Dated: JANUARY 1947

A-10-1503

(3)

Note: All dimensions for reinforcing steel are given to ℄ of bar. Note: Do not scale this Drawing. Follow dimensions.

22246
A 9581



NOTES

See Sheet No. 1 for General Notes

See Sheet No. 22 for location of anchor bolt wells and for finishing concrete under truss shoes

See Sheet No. 3 for details of pile caps and splices

See Sheet No. 24 for reinforcing bar list and details

RECORD DRAWING

JAN. 1948

NO.	DATE	BY	REVISION	APP'D.
	22 Dec 48			

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE

(MISSOURI RIVER)

DETAILS OF PIERS 2, 3, 7 AND 8

In 41 Sheets — Sheet No. 4 — Scale: As Shown

OFFICE, DISTRICT ENGINEER, KANSAS CITY DISTRICT — KANSAS CITY, MO. MAR. 1948

Submitted: — Recommended: — Approved:

SVERDRUP AND PARCEL, CONSULTING ENGRS. ST. LOUIS MO.

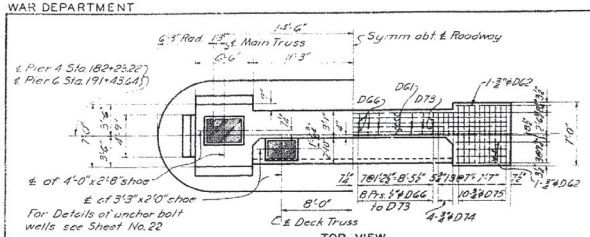
To Accompany Specifications

Drawn G.J.F. — Traced E.C.M. — Checked E.L.S. — Dated January 1947

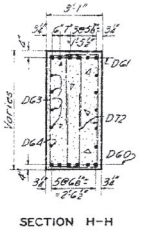
APPROVED:
MISSOURI STATE HIGHWAY DEPT.
BY: C. W. Brown DATE 2-2-48
TITLE: Chief Engineer

WAR DEPARTMENT

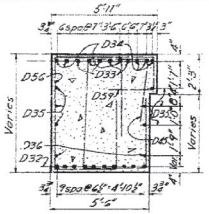
CORPS OF ENGINEERS, U.S. ARMY



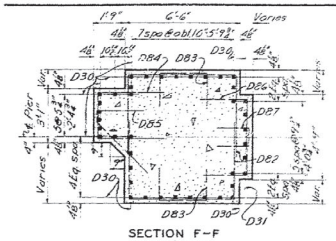
TOP VIEW
SCALE: 3/16 IN. = 1 FT.



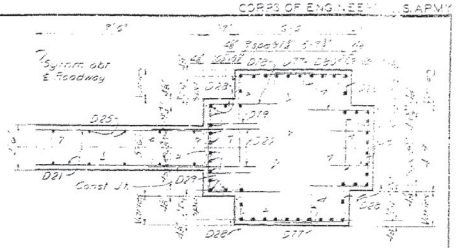
SECTION H-H
SCALE: 3/8 IN. = 1 FT.



SECTION G-G
SCALE: 3/8 IN. = 1 FT.



SECTION F-F
SCALE: 3/8 IN. = 1 FT.



SECTION E-E
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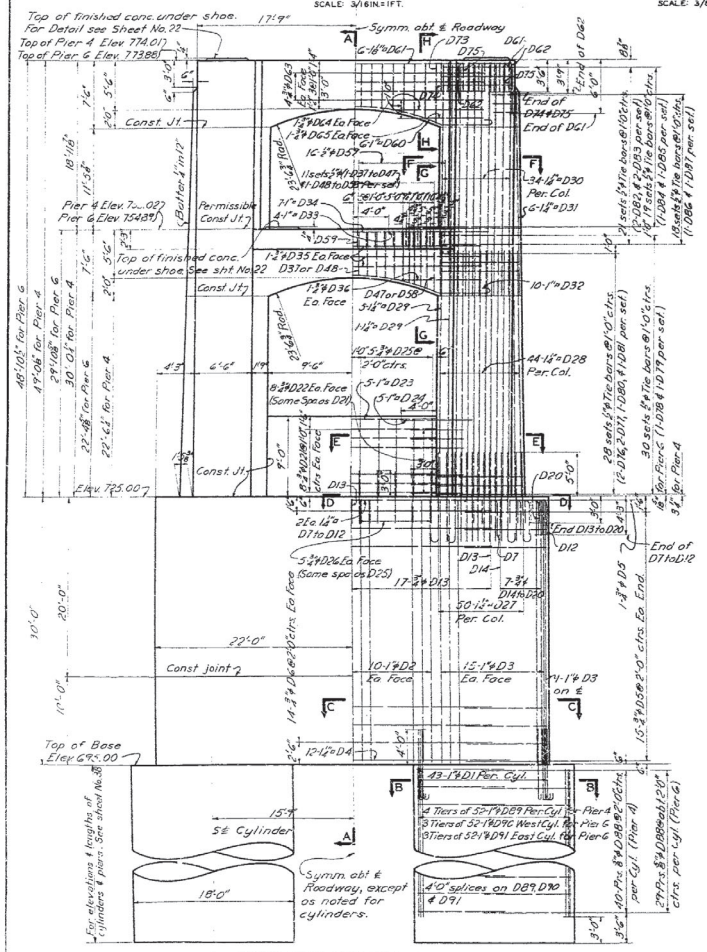
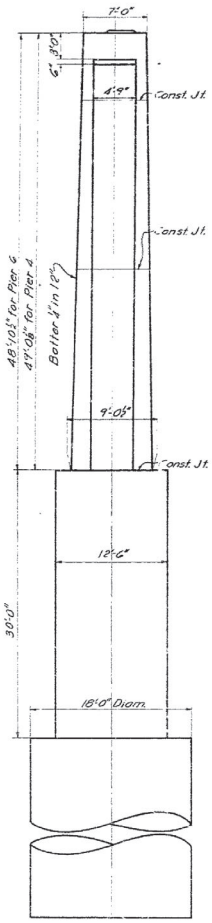
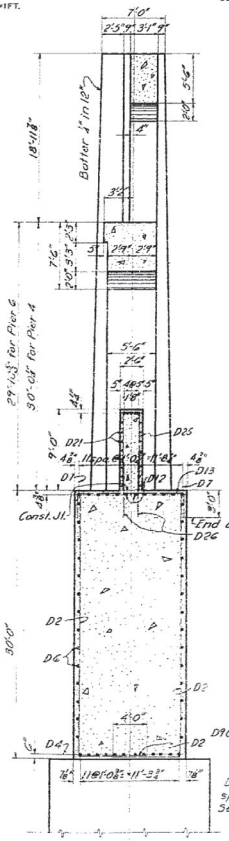


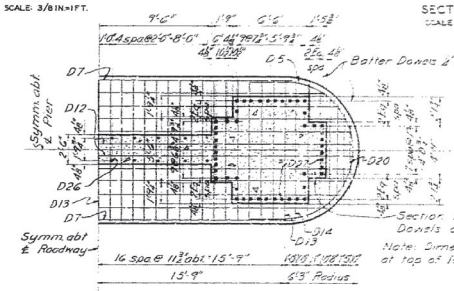
SOUTH ELEVATION PIER 4
NORTH ELEVATION PIER 6
SCALE: 3/16 IN. = 1 FT.



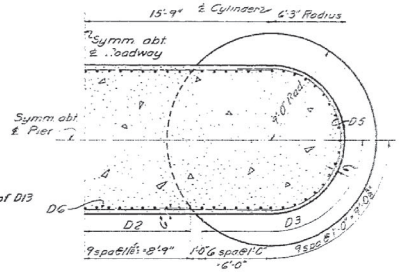
END ELEVATION
SCALE: 3/16 IN. = 1 FT.



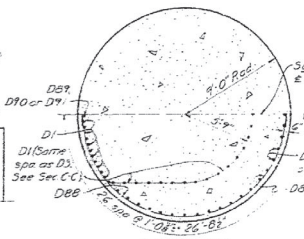
SECTION A-A
SCALE: 3/16 IN. = 1 FT.



SECTION D-D
SCALE: 1/4 IN. = 1 FT.



SECTION C-C
SCALE: 1/4 IN. = 1 FT.



SECTION B-B
SCALE: 1/2 IN. = 1 FT.

NOTES

See Sheet No. 1 for General Notes.
See Sheet No. 22 for location of anchor bolt wells and for finishing concrete under truss shoes.
See Sheet No. 24 for reinforcing bar list and details.
See Specifications concerning reinforcing bars shown in cylinders.
See Sheet No. 38 for ℄ of ℄ of Bars as Built & Final Location of Piers 4 and 5.

APPROVED:
MISSOURI STATE HIGHWAY DEPT.
BY C. H. Spencer DATE Oct. 26, 1948
TITLE Chief Engineer

RECORD DRAWING
JAN 1949

NO.	DATE	BY	REVISION	APP'D
2	22 Dec 48		Elevation of Footings As Built	
1	17 Dec 48		Final - Addition To Notes	

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE
(MISSOURI RIVER)

DETAILS OF PIERS 4 AND 6

JACKSON COUNTY L-508

In 41 Sheets | Sheet No. 5 | Scale As Shown

OFFICE, DISTRICT ENGINEER, KANSAS CITY DISTRICT, KANSAS CITY, MO., MAY 1948

SUBMITTED | RECOMMENDED | APPROVED

DESIGNED | DRAWN | TRACED | CHECKED | QUANTITIES | CHECKED

CONSULTING ENGINEERS | STRUCTURES | FOUNDATIONS | ARCHITECTURE

Drawn Traced Checked Dates JANUARY 1947 A.F.O. P. 535

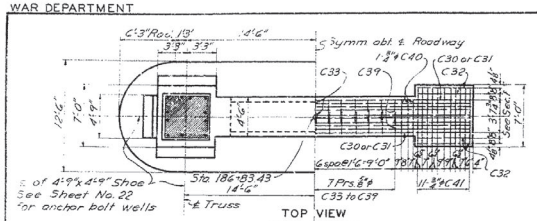
5

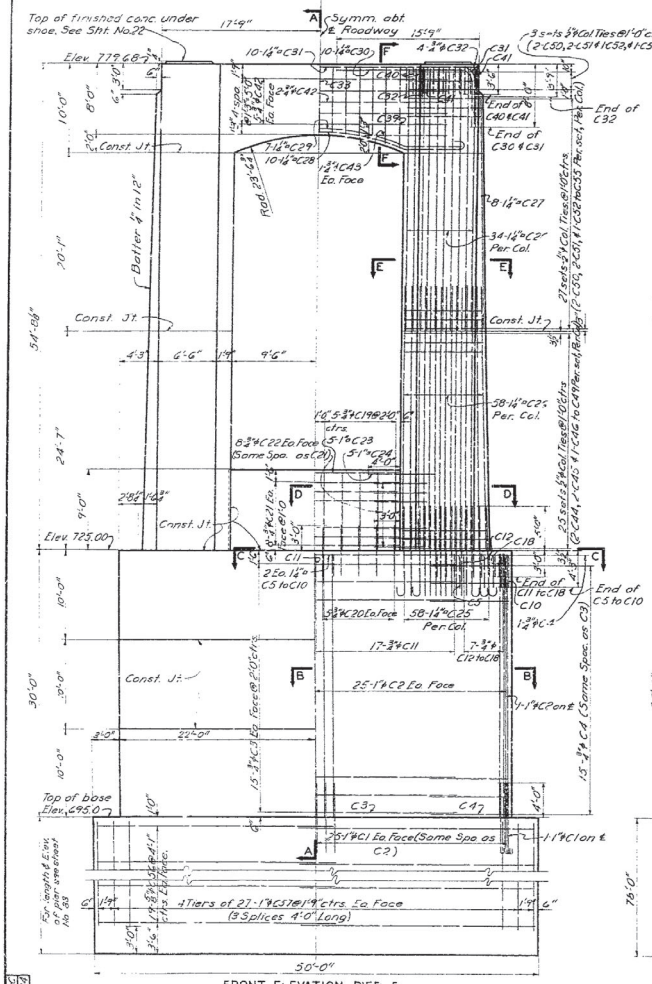
G.P.O. 16-3555

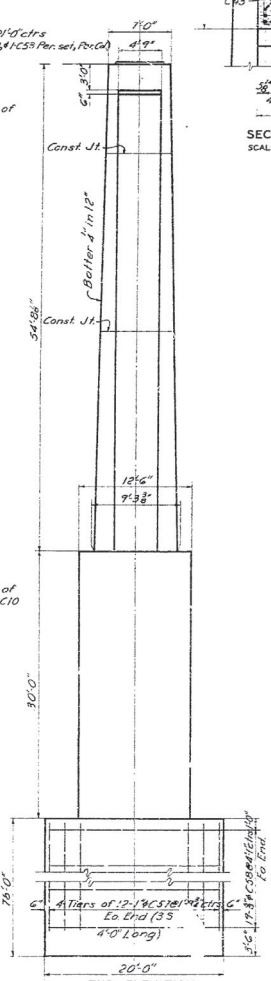
Note: All dimensions for reinforcing steel are given to ℄ of bar. Note: Do not scale this Drawing. Follow dimensions.

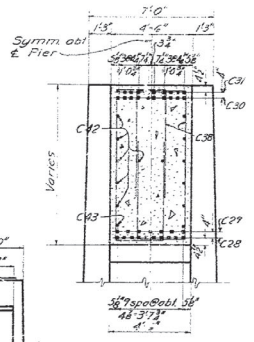
WAR DEPARTMENT

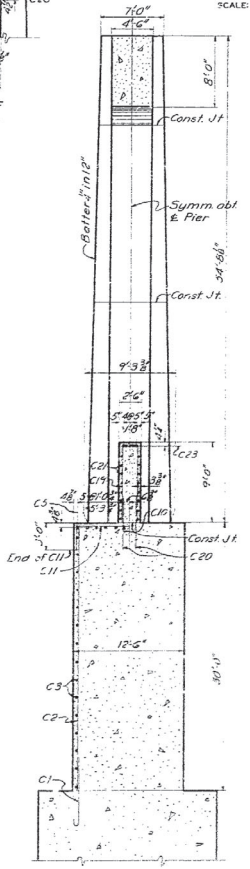
CORPS OF ENGINEERS, U.S. ARMY

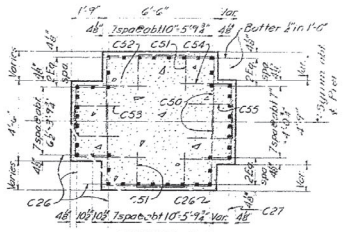


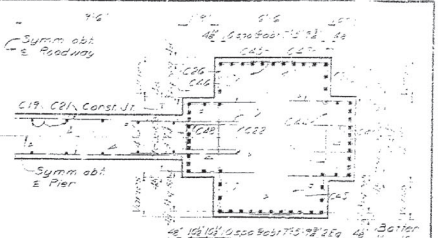


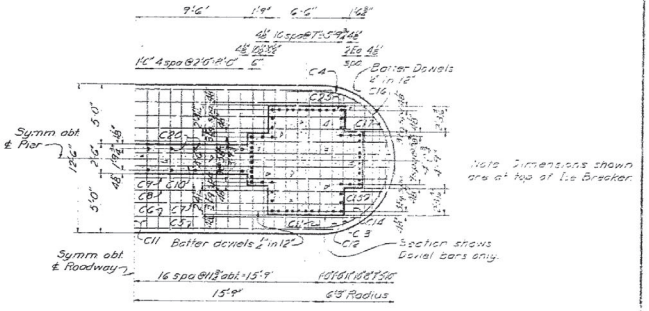


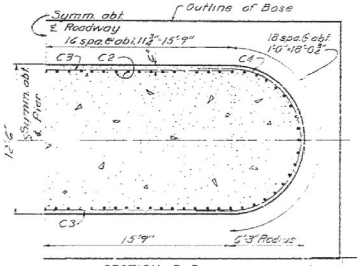












Note: All dimensions for reinforcing steel are given to ℄ of bar. Note: Do not scale this Drawing. Follow dimensions.

APPROVED:
MISSOURI STATE HIGHWAY DEPT.
BY (C. D. Brown) DATE 12-31-45
TITLE Chief Engineer

NOTES

See Sheet No. 1 for General Notes.
See Sheet No. 22 for location of anchor bolt wells and for finishing concrete under truss shoes.
See Sheet No. 24 for reinforcing bar list and details.
See Specifications concerning reinforcing bars shown in base.
See Sheet No. 21 for electrical grounding requirements.
*See Sheet No. 38-Rev. 6, 5 and 3-As Built for final location of Pier 5

RECORD DRAWING
JAN. 1943

NO.	DATE	BY	REVISION	APP'D
2	12 Dec 45		As Built	RSH
1	12 Dec 45	C.H.J.	Addition to Notes	MRA

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE
(MISSOURI RIVER)

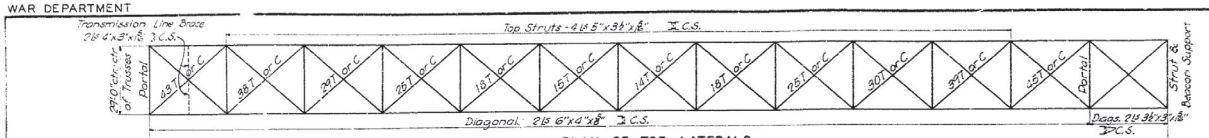
DETAILS OF PIER 5

JACKSON COUNTY, MISSOURI

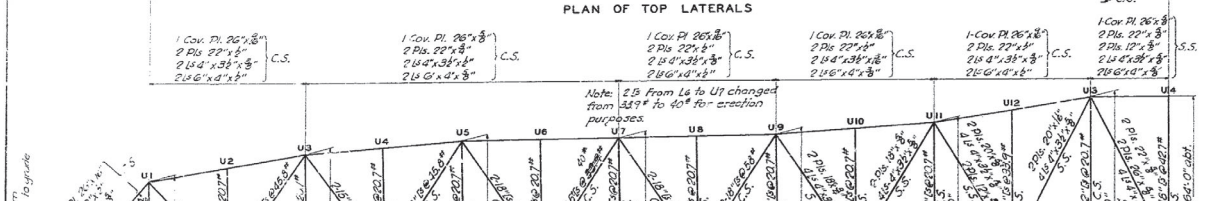
141 Sheets | Sheet No. 6 | Scale 3/16" = 1 Foot
OFFICE, DISTRICT ENGINEER, KANSAS CITY, MO.
KANSAS CITY, MISSOURI
Submitted: [illegible] Recommended: [illegible] Approved: [illegible]
DIVISION ENGINEER
CONSULTING ENGINEERS
Drawn: D.J.F. | Traced: D.M.Y. | Checked: [illegible] | Approved: [illegible]

6226
A3596

WAR DEPARTMENT — CORPS OF ENGINEERS, U.S. ARMY



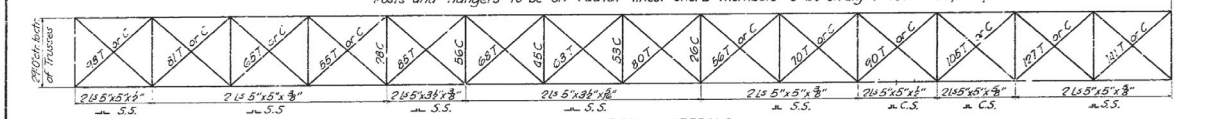
PLAN OF TOP LATERALS



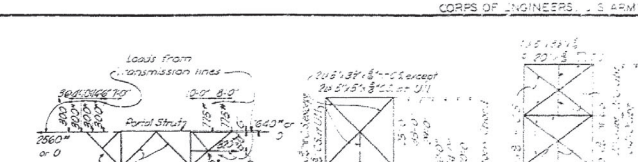
CONTINUOUS TRUSS

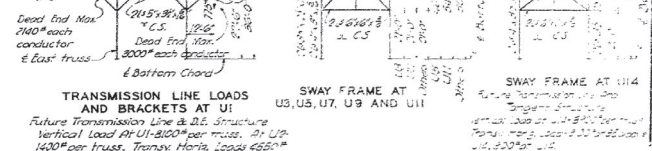
Shape of truss shown is final shape after calculated deflection has occured.
Posts and hangers to be on radial lines. Chord members to be straight between splice points.

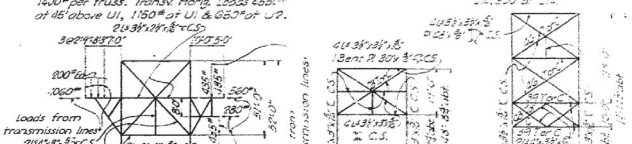
NOTE: Panel Points of Span from Pier 5 to Pier 6 designated L0', L1', L2' etc. Symmetrical about ℄



PLAN OF BOTTOM LATERALS







Note: Lengths of members to be computed for final shape of truss and the corrections indicated are to be applied to these lengths. + indicates lengthening, - indicates shortening.

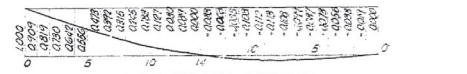


TABLE OF STRESSES

Member	50# Wind	Dead Load	Unit. Live Load	Conc. Live Load	Impact	30# Wind	DL + LL+I	DL+LL +1.30#W. or DL + .50#W.	Member	50# Wind	Dead Load	Unit. Live Load	Conc. Live Load	Impact	30# Wind	DL + LL+I	DL+LL +1.30#W. or DL+ .50#W.
Lo Li	140C	39?T	22C	9C	2C	111C			U1 L2		98T	45C	16C	5C		200T	
	140T		22C	9C	2C	111T	479T	590T				4C	5C				
Li L2	269T	322T	12IT	24T	12T	227T	479T	706T	L2 U3		98T	45C	16C	5C		200T	
	269C		22C	8C	2C	227C						4C	5C				
L2 L3	465C	588T	29?T	32T	28T	349?T	870T	1267T	U3 L4		98T	40C	16C	5C		200T	
	465T		5?C	5C	5C	349?C						4C	5C				
L3 L4	536C		78C	8C	7C	473C			L4 U5		138T	40C	16C	5C		243T	
	538T	642T	27?T	38T	27T	461?T	988T	1444T				4C	5C				
L4 L5	539C		110C	11C	10C	460?C		56C	U5 L6		238C	100C	26C	11C		368C	
	628T	542T	27?T	37T	27T	458?T	888T	1341T				9?T	11T	9T			
L5 L6	489C		141C	13C	13C	349C		930C				19C	9C	5C			
L6 L10	469T	299T	21?T	30T	21T	341?T	504T	845T	L6 U7		322T	190T	28T	13T		483T	
	779C	349C	154C	16C	15C	334C	439C	673C			615C	137C	31C	14C		577C	
L10 L9	279T		82T	17T	9T	249?T		98T				8T	4T	1T			
	278C	775C	245C	26C	23C	209C	1068C	1318C	U7 L8			4C	3C	1C			
L9 L8	618T		7T	5T	1T	249?T					501T	159T	33T	16T		708T	
	462C	775C	245C	20C	23C	476C	1068C	1845C			504C	154C	22C	16C		706C	
L8 L7	462T		7T	5T	1T	456T						1T	—	—			
	104C	478C	174C	36C	19C	70C	719C	789C	L8 U9		579T	175T	33T	18T		806T	
L7 U7	104T		59T	5T	3T	70T											
	76C	504C	195C	27C	19C	66C	745C	741C	U9 L10	144C	146C	229C	36C	23C	87C	1064C	1151C
U1 U3	78T		89T	6T	4T	66T				144T					87T		
	156C	641C	204C	36C	26C	95C	961C	1062C	U3 L2		57T	24T	30T	16T		127T	
U3 U5	156T		65T	6T	6T	95T			U2 L2		15C					15C	
	208C	618C	284C	38C	28C	120C	962C	1092C	U3 L4		57T	24T	30T	16T		127T	
U5 U7	203T		94T	9T	9T	124T			U4 L4		16C					16C	
	201C	416C	253C	34C	25C	135C	708C	868C	U4 L6		58T	24T	30T	16T		128T	
U7 U9	201T		125T	12T	12T	135T			U6 L6		16C					16C	
	195C	11C	158C	24C	18C	119C	*284C	327C	U5 L5		57T	24T	30T	16T		127T	
U9 U11	195T		151T	15T	14T	119T	*258T	291T	U6 L6		14C					14C	
	109C		24C	11C	3C	62C			U4 L4		54T	24T	30T	16T		124T	
U11 U3	103T	51GT	189T	20T	18T	62T	743T	805T	U6 L6		17C					17C	
									U5 L5		58T	24T	30T	16T		128T	
U13 U14		112?T	84?T	84T	92T		159?T		U8 L8		17C					17C	
			90C	11C	3C				U7 L8		57T	24T	30T	16T		124T	
U1 L2		261T	113T	25T	19T		411T		U8 L8	251C	30C				14?C	30C	35C
L2 U3		146C	84C	20C	9C		259C		Do**	±110	±388	±144	±26	±30	-3	±65-2	±78	±577	±650
			39T	17T					Dia**	±347	±1500	+491	±30	±40		±215	±2001	±2216

* Includes reversal
** At ℄ of Lower Chord
All stresses shown are in kips.

ALLOWABLE STRESSES

D.L. + L.L. + I = 100% of normal.
D.L + L.L. + I - 30#W. or D.L. + 50#W = 125% of normal.

DESIGN: — In accordance with the A.A.S.H.O. Standard Specifications for Highway Bridges, 1944 edition.

LOADING: — A.A.S.H.O. H20-44.

NORMAL UNIT STRESSES: — Tension: Carbon Steel 18,000#/□"; Silicon Steel 24,000#/□". Compression: Carbon Steel 18,000 - 45(l/r)²; Silicon Steel 20,000 - 45(l/r)². Bearing: Carbon Steel 27,000#/□"; Silicon Steel 36,000#/□". Shear in girder webs, gross section, Carbon Steel 11,000#/□". Shop and field rivets: Shear 13,500#/□", Bearing 27,000#/□". Pins, Carbon Steel; Shear 13,500#/□", Bearing 24,000#/□". bearing on pins subject to rotation 12,000#/□". Cast Steel: - For Cast Steel, the allowable unit stresses in compression and bearing are the same as those for carbon steel. Other allowable unit stresses are three-fourths of those for carbon steel. Bearing on expansion rockers, pounds per lineal inch: Diameters up to 25 inches - 600d. Diameters from 25 to 125 inches 3,000 √d.

MATERIALS: — All Carbon Steel, Silicon Steel, Cast Steel, forgings, etc. shall conform to the requirements of section 7 of the Specifications.

PUNCHING & REAMING: — Fabrication shall be in accordance with Section 7 of the Specifications for "Punched Work", except that all shop and field connections of main truss members and the field connections of floorbeams shall be fabricated in accordance with Section 7 of the Specifications for "Reamed Work". Truss connections shall be reamed with the truss assembled as specified in Section 7.

RIVETS: — Rivets shall be ⅞ except as otherwise noted on the detail drawings. Shop and field rivets may be interchanged

PAINT: — Structural steel and castings shall receive one shop coat and two field coats of paint as called for in section 10 of the Specifications.

GUSSETS: — All gusset plates at splice points shall be cut back not more than ¼" from the chord section.

ERECTION: — Before ordering material the contractor shall submit to the Contracting Officer for approval, complete plans showing the method of erection he proposes to use, and showing erection stresses in all members. No payment will be made for any extra material required due to erection conditions. Erection stresses shall not exceed normal unit stresses by more than 25%.

TRANSVERSE WIND LOADS: — In accordance with A.A.S.H.O. Specifications with the additional provision that fixed shoes are designed for a 30#/□' longitudinal wind on the unloaded structure. On the tributary superstructure this force is applied to one-half (½) the area specified in Art. 3-2-14 of the A.A.S.H.O. Specifications. Longitudinal wind force is not combined with lateral wind forces.

WELDING: — See Section 7 of the Specifications

CAMBER: — Trusses are cambered for the design dead load only. Corrections in lengths of members have been calculated to produce the camber shown and are indicated to the nearest thousandth of an inch.

ADJUSTING REACTIONS: — See Section 7 of the Specifications.

TRANSMISSION LINES: — In addition to loads from transmission lines shown on this sheet, arrangements for future towers have been provided on Pins. Pins U1 and U3 are provisions made for a attachment at U14.

APPROVED:
MISSOURI STATE HIGHWAY DEPT.
BY /S/ C. N. Bragg DATE 12-2-46
TITLE Chief Engineer

RECORD DRAWING
JAN. 1949

NO.	DATE	BY	REVISION	APP'D
1	12-24-46	JSK	Transmission Line Brackets Add'd	KL

KANSAS CITY FLOOD CONTROL PROJECT
LIBERTY BEND BRIDGE
(MISSOURI RIVER)
THRU TRUSS SPANS — STRESS SHEET

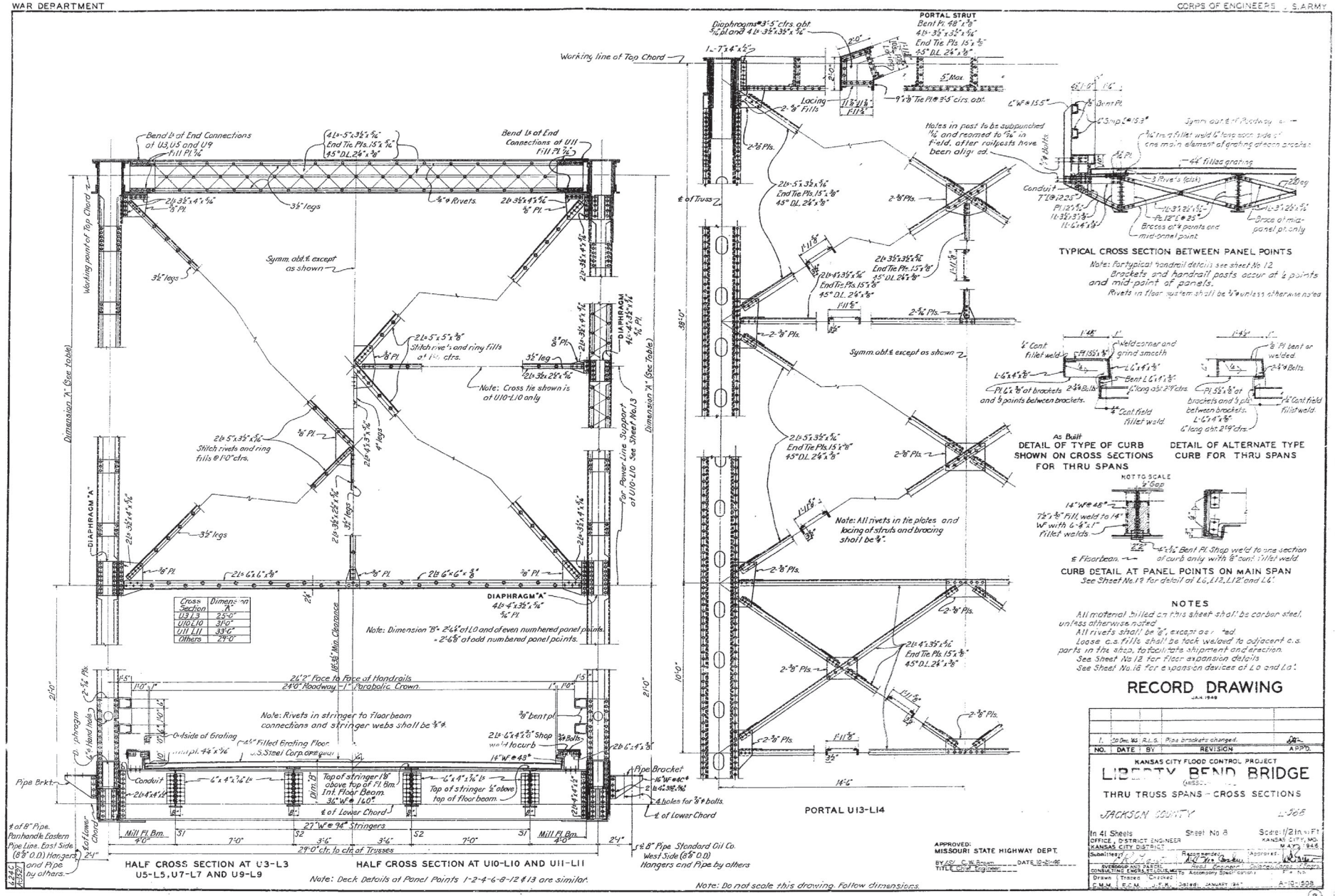
JACKSON COUNTY 1-5619

In 41 Sheets Sheet No. 7 Scale 1/8" to 1'-0"
OFFICE, DISTRICT ENGINEER KANSAS CITY, MO.
KANSAS CITY DISTRICT JAN. 1946

Submitted: Recommended: Approved:
SVERDRUP AND PARCEL CONSULTING ENGRS. ST. LOUIS, MO. To Accompany Special Contract File No.
Drawn C.M.M. Traced C.W. Checked Dates: January, 1947

WAR DEPARTMENT

CORPS OF ENGINEERS, U.S. ARMY



RECORD DRAWING

U.S.A. 1948

APPROVED:
MISSOURI STATE HIGHWAY DEPT.
BY (S) C. W. Brown DATE 10-21-46
TITLE Chief Engineer

NO.	DATE	BY	REVISION	APP'D.
1.	12 Dec 46	R.L.S.	Pipe brackets changed.	

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE

(MISSOURI)

THRU TRUSS SPANS - CROSS SECTIONS

JACKSON COUNTY L-365

In 41 Sheets Sheet No. 8 Scale: 1/2 In. = 1 Ft.

OFFICE, DISTRICT ENGINEER KANSAS CITY, MO.
KANSAS CITY DISTRICT MARCH 1946

Submitted by ... Recommended ... Approved ...

SVERDRUP AND PARCEL CONSULTING ENGRS., ST. LOUIS, MO. Field Engineer ... Contract Item ... F. A. No. ...

Drawn E.M.M. Traced E.C.M. Checked J.F.K. Dated JANUARY '46

A-10-508

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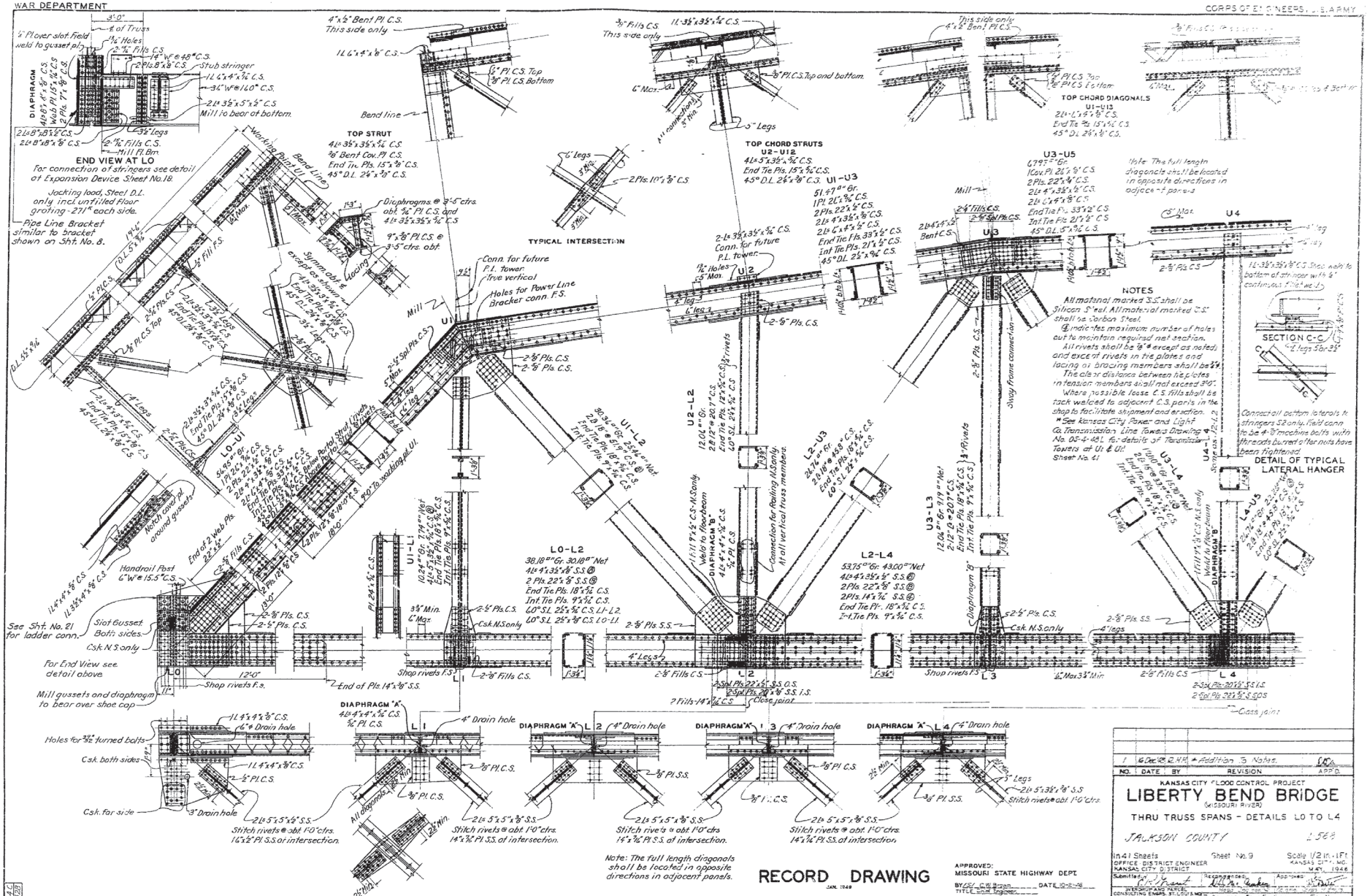
6224C
A-352

WAR DEPARTMENT

CORPS OF ENGINEERS, U.S. ARMY



NOTES

All material marked S.S. shall be Silicon Steel. All material marked C.S. shall be Carbon Steel.

℄ indicates maximum number of holes cut to maintain required net section.

All rivets shall be ⅞" ℄ except as noted, and except rivets in the plates and lacing or bracing members shall be ¾" ℄.

The clear distance between tie plates in tension members shall not exceed 9'-0".

Where possible loose C.S. fills shall be tack welded to adjacent C.S. parts in the shop to facilitate shipment and erection.

* See Kansas City Power and Light Co. Transmission Line Towers Drawing No. 05-4-48L for details of Termination Towers at U1 & U1' Sheet No. 41

SECTION C-C

DETAIL OF TYPICAL LATERAL HANGER

RECORD DRAWING

JAN. 1949

APPROVED: MISSOURI STATE HIGHWAY DEPT.

BY C.W. Brown DATE 10-18-48

TITLE Chief Engineer

NO.	DATE	BY	REVISION	APP'D.
1	6 Dec 48	R.H.R.	Addition to Notes.	

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE

(MISSOURI RIVER)

THRU TRUSS SPANS - DETAILS L0 TO L4

JACKSON COUNTY 2568

In 41 Sheets Sheet No. 9 Scale 1/2 In. = 1 Ft.

OFFICE DISTRICT ENGINEER KANSAS CITY, MO.

KANSAS CITY DISTRICT MAY 1948

Submitted: Recommended: Approved:

WORKSHOP AND PARTS CONSULTING ENGR'S. ST. LOUIS, MO. To Accompany Specifications File No.

Drawn	Traced	Checked
M.M.	E.C.M.	J.P.K.

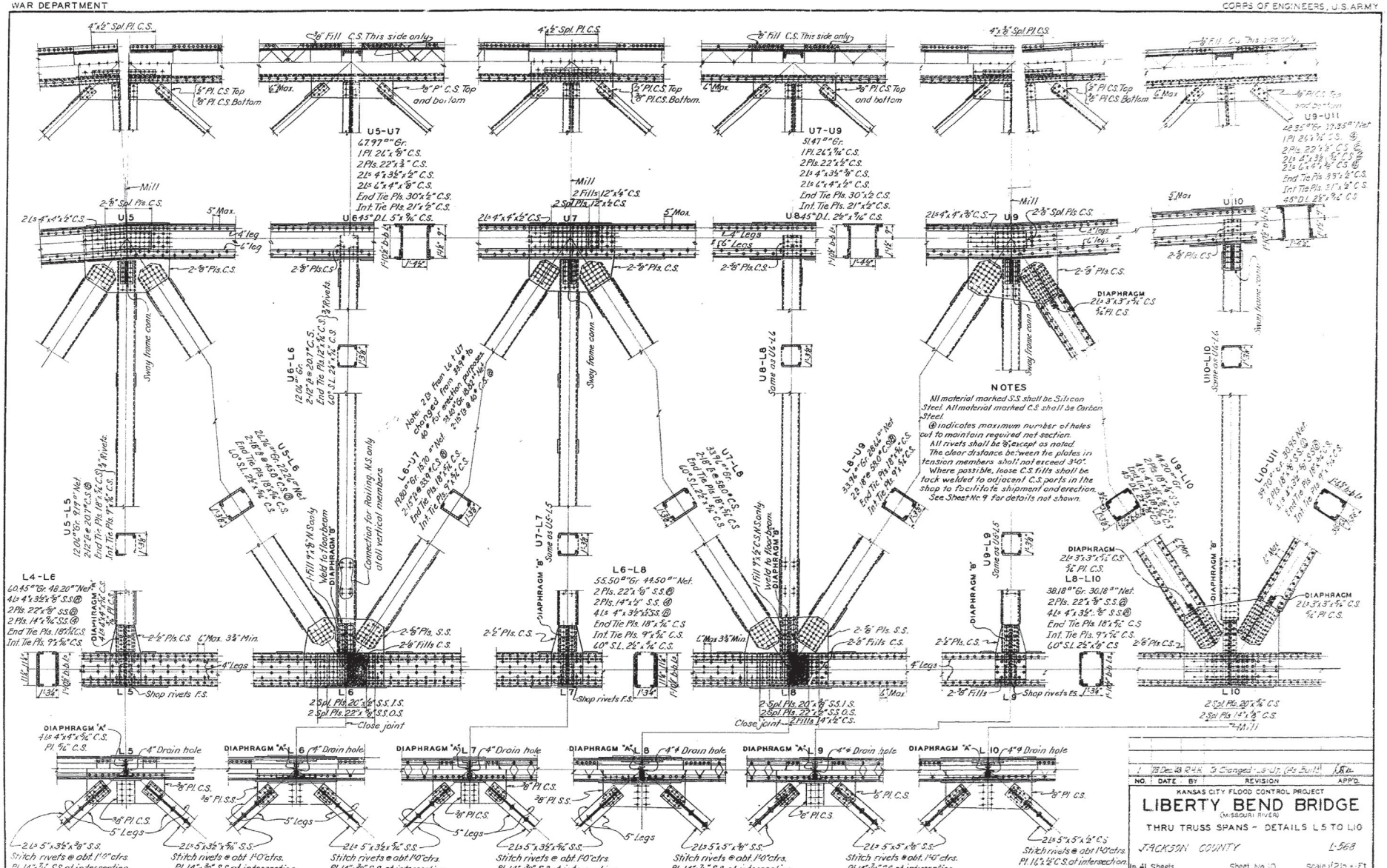
Date: JANUARY 1947 A-10-1609

9

663

WAR DEPARTMENT

CORPS OF ENGINEERS, U.S. ARMY



NO.	DATE	BY	REVISION	APP'D.
1	28 Dec 48	R.H.	Changed L8-U9 (Pls 5 of 11)	

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE
(MISSOURI RIVER)

THRU TRUSS SPANS - DETAILS L5 TO L10

JACKSON COUNTY L-568

In 41 Sheets Sheet No. 10 Scale 1/2 in. = 1 Ft

OFFICE, DISTRICT ENGINEER, KANSAS CITY DISTRICT, KANSAS CITY, MO. MAY 10, 1948

Submitted: Recommended: Approved:

ENGINEERS, CONSULTING ENGR., LOUISVILLE, KY. Bridge Engineer

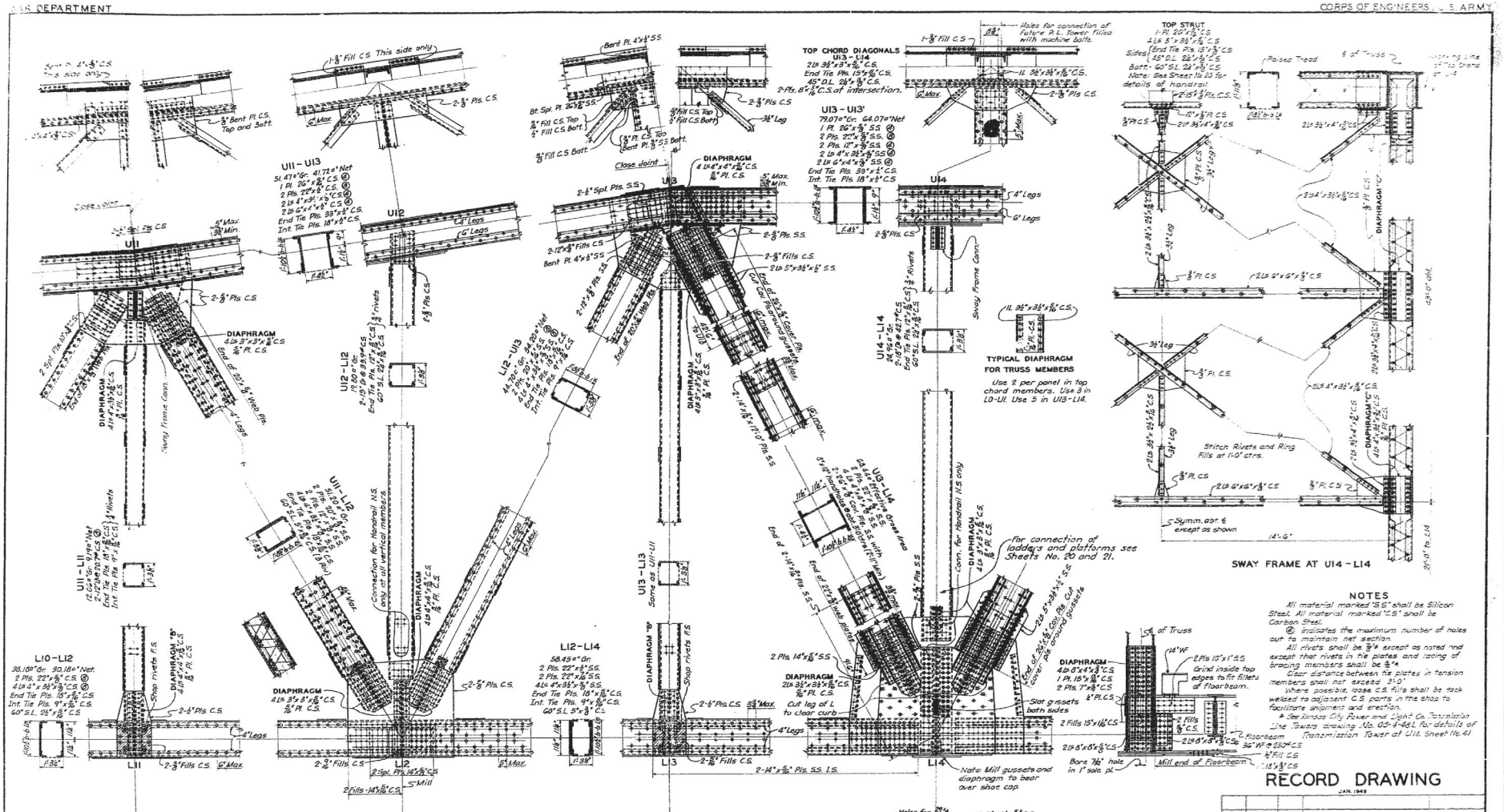
Drawn: Traced: Checked: To Accompany Specifications File No.

C.M.M. E.C.M. J.F.K. Dated: JANUARY 1948 A-192-1510

APPROVED:
MISSOURI STATE HIGHWAY DEPT.
By C. H. Brown DATE 10-2-48
TITLE Chief Engineer

10

WAR DEPARTMENT — CORPS OF ENGINEERS, U. S. ARMY



NOTES

All material marked "S.S." shall be Silicon Steel. All material marked "C.S." shall be Carbon Steel.

Ⓜ Indicates the maximum number of holes out to maintain net section.

All rivets shall be 7/8"ø except as noted and except that rivets in tie plates and lacing of bracing members shall be 3/4"ø.

Clear distance between tie plates in tension members shall not exceed 3'-0".

Where possible, loose C.S. fills shall be tack welded to adjacent C.S. parts in the shop to facilitate shipment and erection.

* See Kansas City Power and Light Co. Transmission Line Towers drawing No. 05-4-46L for details of Transmission Tower at U14. Sheet No. 41

RECORD DRAWING
JAN. 1949

NO.	DATE	BY	REVISION	APP'D
2	18 Dec 48	R.H.A.	* Addition To Notes.	
1	20 Dec 46	J.L.S.	Minor corrections at U13 & U14.	

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE
(MISSOURI RIVER)

THRU TRUSS SPANS – DETAILS L11 TO L14

JACKSON COUNTY L-56F

In 41 Sheets Sheet No. 11 Scale: 1/2 In. = 1 Ft.

OFFICE, DISTRICT ENGINEER, KANSAS CITY DISTRICT, KANSAS CITY, MO. MAY 1948

Submitted: Recommended: Approved:

STATE OF KANSAS PROJECT: CONSULTING ENGINEERS, TOPEKA, KANSAS

Drawn: C.M.M. Traced: L.R.B. Checked: J.F.S. Date: JANUARY 1947

Head Engineering Colonel, Corps of Engrs. File No. A-1210-1511

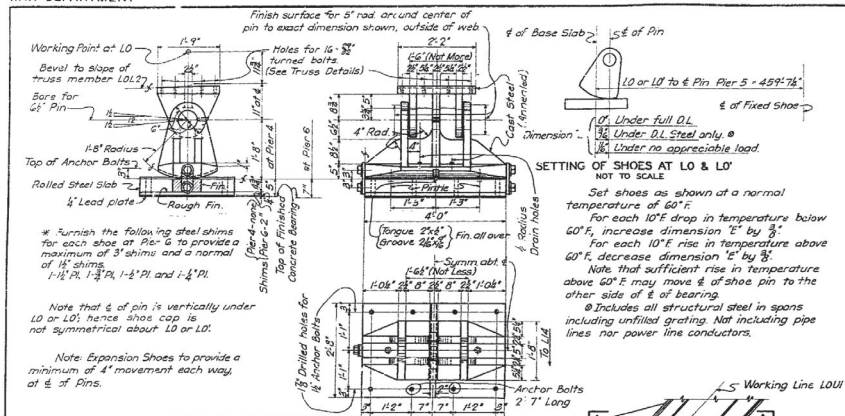
APPROVED: MISSOURI STATE HIGHWAY DEPT.
BY E. C. A. Brown DATE 10-3-1946
TITLE Chief Engineer

6244 A-8550

11

WAR DEPARTMENT

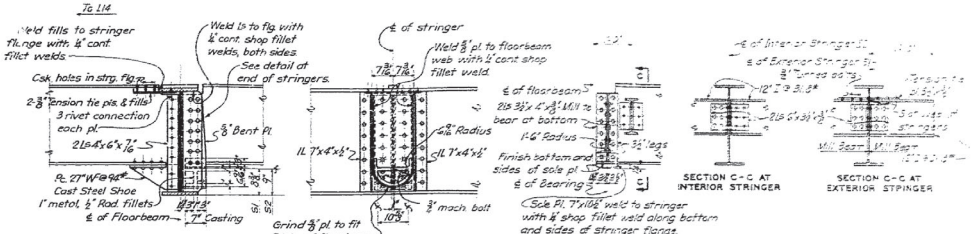
CORPS OF ENGINEERS - U.S. ARMY



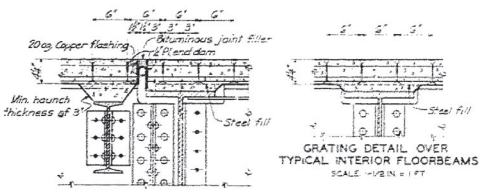
DETAIL OF EXPANSION SHOES AT L0 & L0'
SCALE: 3/4 IN. = 1 FT.

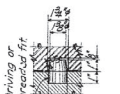
SETTING OF SHOES AT L0 & L0'
NOT TO SCALE

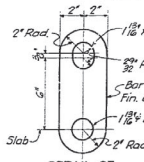
Set shoes as shown at a normal temperature of 60° F.
For each 10° F drop in temperature below 60° F, increase dimension "E" by 3/8".
For each 10° F rise in temperature above 60° F, decrease dimension "E" by 3/8".
Note that sufficient rise in temperature above 60° F may move ℄ of shoe pin to the other side of ℄ of bearing.
⊗ Includes all structural steel in spans including unfilled grating. Not including pipe lines nor power line conductors.

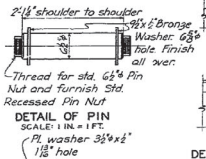


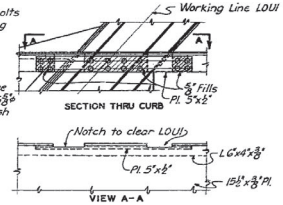
DETAILS OF STRINGER EXPANSION DEVICE AT L6, L12, L12' AND L6'
SCALE: 3/4 IN. = 1 FT.

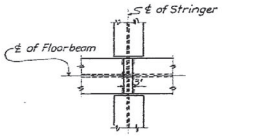


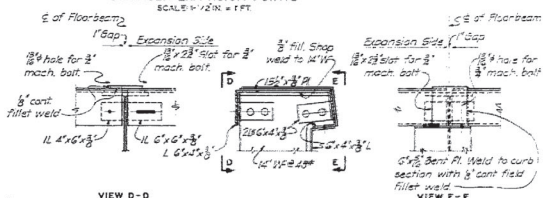


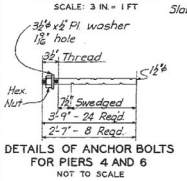


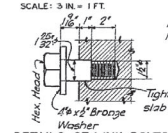


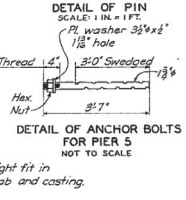


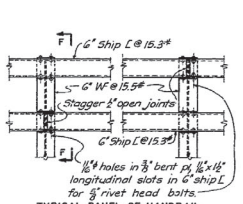


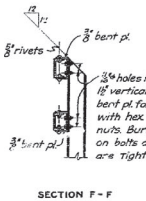


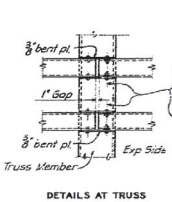


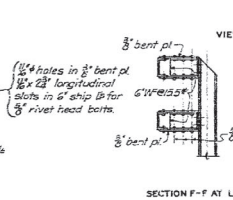




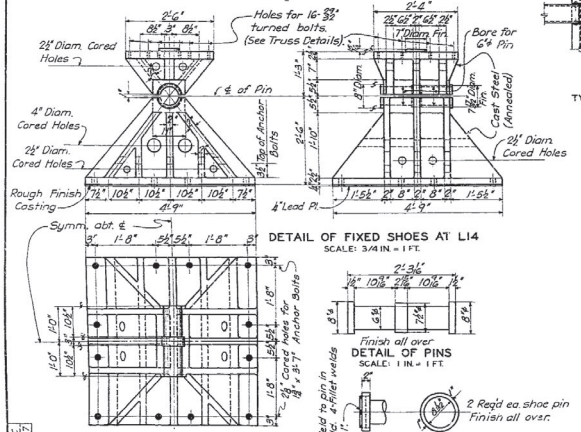


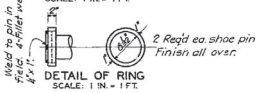






DETAILS OF HANDRAIL
SCALE: 3/4 IN. = 1 FT.





CURB DETAIL AT L6, L12, L12' AND L6'
SCALE: 1-1/2 IN. = 1 FT.

NOTES

All material billed on this sheet shall be carbon steel, unless otherwise noted.

For details of expansion devices at L0 and L0' see sheet no. 18.

Rivets in floor system shall be 3/4" except as noted.

Metal forming strips for floor grating shall be omitted at ℄ flanges of floorbeams and cross beams at expansion joints as shown on details.

All pilot and driving nuts required shall be furnished by the Contractor at his own expense.

Fillets on shoe castings shall have 3/4" radius unless otherwise shown.

RECORD DRAWING
JAN. 1948

APPROVED
MISSOURI STATE HIGHWAY DEPT.
BY (S) C. H. Brown DATE 10-8-48
TITLE Dist. Engineer

Note: Do not scale this drawing. Follow dimensions.

NO.	DATE	BY	REVISION	APP'D
1	22 Dec 48	RH	Omits stiffeners (As Built)	

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE
(MISSOURI RIVER)

THRU TRUSS SPANS - SHOE & MISCELLANEOUS DETAILS

JACKSON COUNTY

In 41 Sheets	Sheet No. 12	Scale As Shown	KANSAS CITY, MO.
OFFICE, DISTRICT ENGINEER KANSAS CITY DISTRICT			MAR. 1948

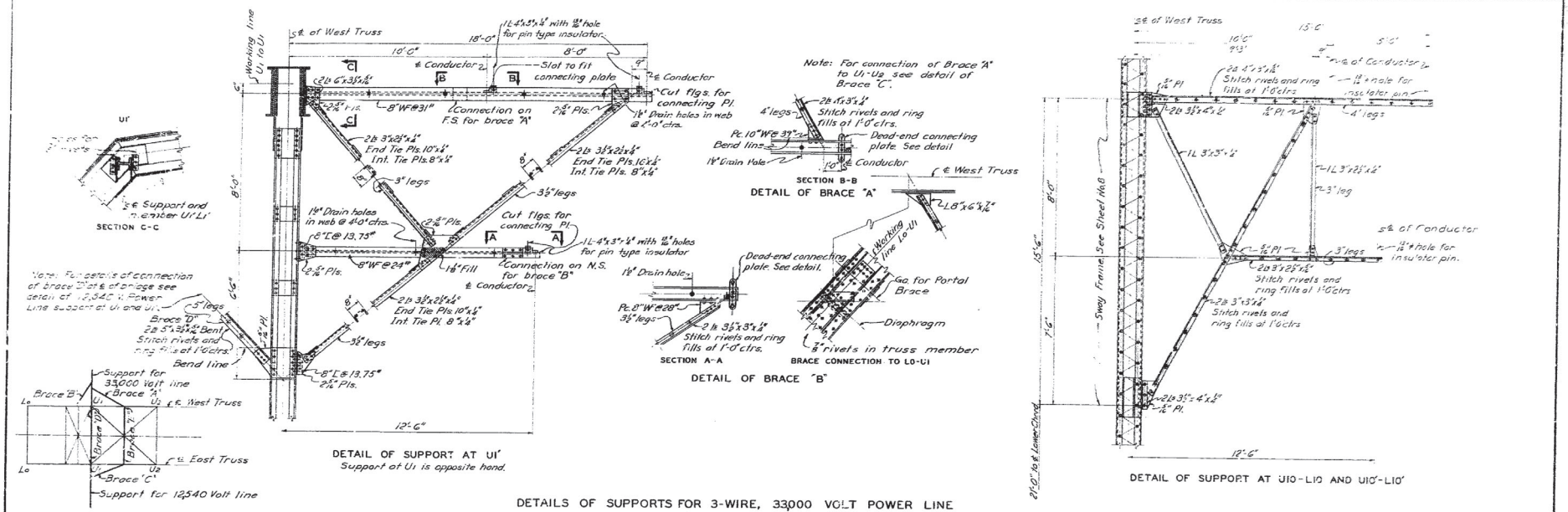
Submitted	Recommended	Approved
Chief, Eng. Div.	Asst. Div. Engineer	Division Engineer
EVERDING AND PARCEL CONSULTING ENGRS. ST. LOUIS, MO.	Asst. Dist. Engineer	Corps of Engrs.
	To Accompany Specification No.	

Drawn	Traced	Checked
C.M.M.	E.B.	J.E.A.

Dates: JANUARY 1947

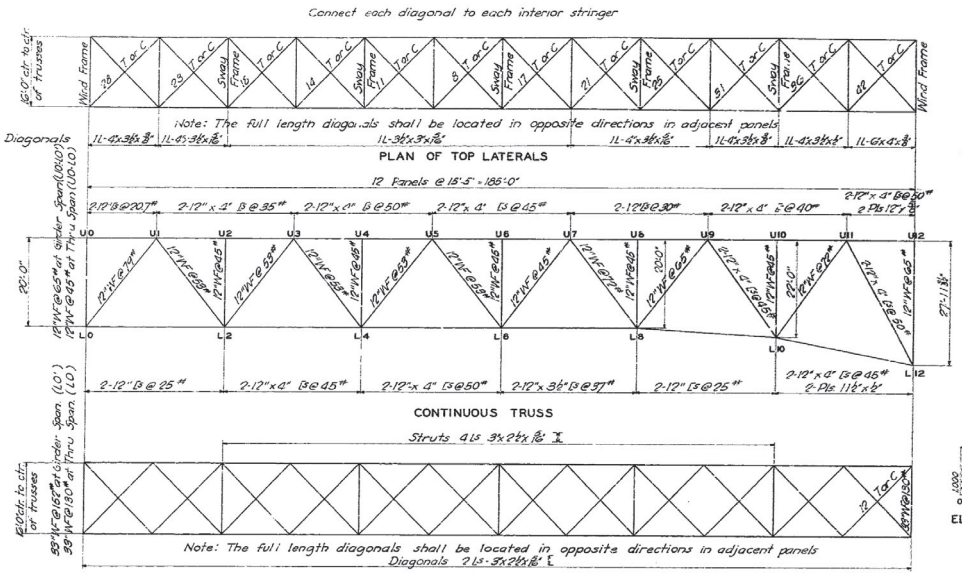
A-1-0-1-2

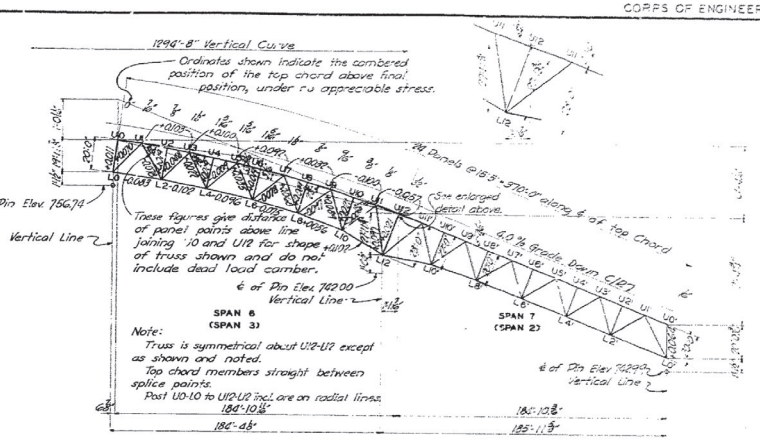
12


DETAIL OF SUPPORT AT U1'
Support at U1 is opposite hand.
SECTION C-C
SECTION B-B
DETAIL OF BRACE "A"
SECTION A-A
DETAIL OF BRACE "B"
BRACE CONNECTION TO LO-U1
DETAIL OF SUPPORT AT U10-L10 AND U10'-L10'
DIAGRAM OF BRACES AT U1
Braces same at U1'
Support for 33,000 Volt line
Support for 12,540 Volt line
Brace 'A'
Brace 'B'
Brace 'C'
Brace 'D'
Brace 'E'
Brace 'F'
Brace 'G'
Brace 'H'
℄ West Truss
℄ East Truss
Working line U1 to U1'
Working line U1 to U2
Working line U1-U2
Working line U10 to U10'
Sway Frame, See Sheet No 8
Top Chord Diagonals
Diaphragm
Gu. for Portal Brace
Dead-end connecting plate. See detail.
Dead-end connecting plate See detail
Stitch rivets and ring fills at 1'0 ctrs.
Stitch rivets and ring fills at 1'0 ctrs
Stitch rivets and ring fills as shown.
Connection on N.S. for brace "B"
Connection on F.S. for brace "A"
Conn. on F.S. for Brace "C"
Cut flgs. for connecting Pl.
Slot to fit connecting plate
Drain holes in web @ 4'-0" ctrs.
Bend line
Tack weld Fills
Stitch rivets at U10-L10
Center of panel U1-U2
Brace 'C' conn.
Brace 'E' conn.
Brace 'F' conn.
Brace 'G' conn.
Brace 'H' conn.
Lo
U1
U2
U10
L10
L10'
Note: For connection of Brace "A" to U1-U2 see detail of Brace "C".
Note: Full details of connection of brace 'D' at ℄ of bridge see detail of 12,540 V. Power Line support at U1 and U1'.
DETAILS OF SUPPORTS FOR 3-WIRE, 33,000 VOLT POWER LINE
SCALE: 1/2 IN. = 1 FT.
DETAIL OF SUPPORT AT U1
Support at U1' is opposite hand
SECTION D-D
BRACE CONNECTION AT U1-U2
DETAIL OF BRACE "C"
DETAIL OF PLATE FOR DEAD END CONNECTIONS AT U1 AND U1'
NOT TO SCALE
DETAIL OF SUPPORT AT U10-L10
Support at U10'-L10' is same except as noted.
DETAILS OF SUPPORTS FOR 4-WIRE, 12,540 VOLT POWER LINE
SCALE: 1/2 IN. = 1 FT.
Note: Do not scale this drawing. Follow dimensions.
NOTES
All rivets shall be 3/4" except as noted
All structural materic billed on this sheet shall be carbon steel, except as noted.
℄ of West Truss
℄ of East Truss
℄ of Conductor
℄ of conductor-Bridge feeder line at U10-L10 only
℄ between Trusses
℄ of Conductor 12,540 Volt line
Slot to fit connecting plate
Cut flgs. for Connecting plate
Slot to fit connecting plates.
Drain holes in web @ 4'0" ctrs.
Stitch rivets and ring fills at 1'0" ctrs.
Stitch rivets and ring fills at 1'0 ctrs
Stitch rivets and ring fills as shown.
Stitch rivets and ring fills at 1'0" ctrs.
Bend line
Round to 1/8" Radius
Symm. abt ℄
Pl. 3 1/2" x 2"
1 1/8" Radius
1 3/4" Radius
1 1/2" Radius
1'-2"
3" legs
4" legs
3 1/2" legs
5" legs
Brace 'D' 2 ℓ s 5" x 3 1/2" x 7/16" Bent
Stitch rivets and ring fills at 1'0" ctrs.
Bend line
Diaphragm 4 ℓ s 3 1/2" x 3 1/2" x 1/4" Pl.
Top Chord Diagonals
Stitch rivets and ring fills at 1'0" ctrs.
Tack weld Fills
Stitch rivets at U10-L10
Sway Frame, See Sheet No 8
Galv. Steel Strand Guy wire to Panel Pt. U9. Cost of guy and attachments to be included in the contract lump sum price for "Electrical Work"
Top of Lower Chord
21'-0" to ℄ Lower Chord
RECORD DRAWING
JAN 1949
1 | 10 Oct 48 | J.F.K. | Revision of Details
NO. | DATE | BY | REVISION | APP'D.
KANSAS CITY FLOOD CONTROL PROJECT
LIBERTY BEND BRIDGE
(MISSOURI RIVER)
THRU TRUSS SPANS - POWER LINE SUPPORTS
JACKSON COUNTY
L-568
In 41 Sheets
Sheet No 13
State - As Shown
OFFICE, DISTRICT ENGINEER
KANSAS CITY, MO.
KANSAS CITY DISTRICT
MAY 1948
Submitted:
Recommended:
Approved:
SUPERSTRUCTURE AND PARCEL
CONSULTING ENGINEERS
Drawn | Traced | Checked
C.M.M. | D.H.Y. | J.F.K.
Dwg. No. to Accompany Specifications
File No.
DWG. JANUARY 1947
A-10-1513
APPROVED:
MISSOURI STATE HIGHWAY DEPT.
By /s/ C.W. Brown
DATE 12-21-48
TITLE Chief Engineer
42-D
43590
13

WAR DEPARTMENT

CORPS OF ENGINEERS, U.S.ARMY

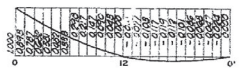




CAMBER DIAGRAM FOR TRUSS SPANS 6 & 7

Camber diagram for Truss Spans 2 & 3 is the same.

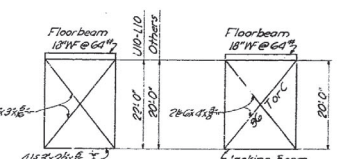
Shape of truss shown is the final shape after calculated deflection has occured. Lengths of members to be computed for the final shape of truss, and the corrections indicated are to be applied to these lengths. + indicates lengthening - indicates shortening.

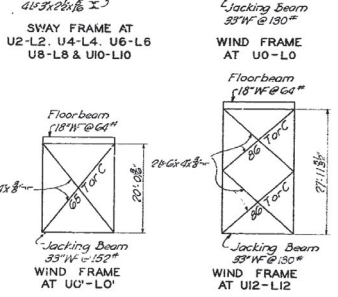


ELASTIC CURVE FOR END REACTION

TABLE OF STRESSES

Member	50# Wind	Dead Load	Uniform Live Load	Concentrated live load	Impact	50# Wind	Design Stress DL+LL+I	Design Stress DL+Wind or DL+LL+I+Wind	Member	50# Wind	Dead Load	Uniform Live Load	Concentrated live load	Impact	50# Wind	Design Stress DL+LL+I	Design Stress DL+Wind or DL+LL+I+Wind
L0-L2	15T	98T	44T	22T	11T	15T	115T	190T	U6-L6			18T	16T	GT		#3T	
	15C		8C	3C	2C	15C					54C	39C	26C	10C		#190C	
L2-L4	28T	216T	103T	36T	22T	27T	377T	404T	L6-U7		102T	48T	30T	12T		192T	
	28C		26C	6C	5C	27C						13C	12C	4C			
L4-L6	31T	228T	124T	42T	27T	30T	421T	451T	U7-L8			7T	9T	3T			
	31C		49C	10C	8C	30C					148C	59C	33C	15C		289C	
L6-L8	30T	192T	107T	36T	29T	29T	398T	427T	L8-L9		193T	67T	37T	17T		300T	
	30C		60C	14C	12C	29C		23C				3C	3C	1C			
L8-L10	20T		50T	22T	11T	19T	+5GT	15T	U9-L10			11T	2T	1T			
	20C	66C	78C	18C	14C	19C	+190C	209C			216C	79C	39C	19C		353C	
L10-L12	34T		12T##	8T	8T	32T			U10-U11		197T	78T	36T	18T		394T	
	34C	309C	113C	29C	29C	32C	474C	506C				4C	2C	1C			
U0-U1	20Tarc	—	—	—	—	19Tarc	—	20Tarc	U11-U12			4T	1T	1T			
	8LT		17T	4T	3T	18T					209C	89C	38C	19C		363C	
U1-U3	81C	111C	18C	27C	17C	78C	243C	371C	U0-L0	21Tarc	18C		45C##	18C	29Tarc	76C	105C
	110T		34T	8T	7T	106T			U2-L2	11Tarc	31C	12C	33C	13C	21Tarc	89C	91C
U3-U5	110C	287C	118C	40C	26C	106C	421C	527C	U4-L4	11Tarc	31C	12C	33C	13C	21Tarc	89C	91C
	112T		51T	12T	10T	108T		45T	U6-L6	11Tarc	31C	12C	33C	13C	21Tarc	89C	91C
U5-U7	112C	195C	82C	41C	28C	108C	388C	490C	U8-L8	11Tarc	31C	12C	33C	13C	21Tarc	89C	91C
	92T		68T	16T	14T	89T	+99T	188T	U10-U0	11Tarc	31C	12C	33C	13C	21Tarc	89C	91C
U7-U9	92C	46C	84C	30C	14C	89C	+112C	301C	U12-U12	127Tarc	35C	12C	33C	13C	165Tarc	98C	288-72T
	62T	190T	86T	22T	11T	62T	314T	376T	U0-L0'	81Tarc	163C	99C	33C	16C	139Tarc	251'C	304C
U9-U11			17C	4C	2C	62C				10	164	110	68	28	15	448	761	389
U11-U12	174T	41T	16T	3T	2T	114T	62T	162T		-2.60	068	17C	03	02	-1.4	8T	10-13
	174C		0	0	0	114C			20'	+109	286	106	38	17	+108	442	550
L0-U1			14T	3T	3T		78GC										
U1-L2		160C	72C	37C	17C		224T										
		120T	58T	32T	14T		#38C										
L2-U3			16C	9C	4C												
			19T	14T	6T												
U3-L4		78C	45C	28C	12C		159C										
		34T	28T	24T	9T		#15T										
L4-U5			28C	18C	7C		#38C										
		14T	31T	22T	8T		#39T										
			26C	20C	7C		#64C										





Note:
Stresses are given in Kips.
Allowable Stresses
DL+LL+I=100% Normal Unit Stresses.
DL+50# Wind=125% Normal Unit Stresses.
DL+LL+I+30# Wind=125% Normal Unit Stresses.
Stresses are symmetrical about Member U12-L12 except as otherwise shown.
Includes reversal. ## Truck Wheel Loading.
Reactions given are at ℄ of Joint at lower Chord.

DESIGN DATA

DESIGN: — In accordance with the A.R.S.H.O. Standard Specifications for Highway Bridges, 1944 edition

LOADING: — A.A.S.H.O. H20-44.

NORMAL UNIT STRESSES: (CARBON STEEL) — Tension, 18,000#/in²; Compression 15,000-½(l/r)²; Shear in girder webs, gross section 11,000 #/in². Shop and field rivets: Shear: 13,500#/in²; Bearing 27,000#/in². Pins: Shear 13,500#/in²; Bearing 24,000#/in². Bearing on pins subject to rotation 19,000#/in².

Cast Steel:- For cast steel, the allowable unit stresses in compression and bearing are three-fourths as those for carbon steel. Other allowable unit stresses are three-fourth of those for carbon steel. Bearing on expansion rollers and rockers, pounds per lineal inch:
Diameters up to 25 inches — 600d.
Diameters from 25 to 125 inches — 3,000√d.

MATERIALS: — All carbon steel, cast steel, forgings etc. shall conform to the requirements of Section 1 of the Specifications.

PUNCHING & REAMING: — Fabrication shall be in accordance with Section 7 of the Specifications for "Punched Work"; except that all shop and field connections of main truss members and the field connections of floorbeams shall be fabricated in accordance with Section 7 of the Specifications for "Reamed Work". Truss connections shall be reamed with the truss assembled as specified in Section 7.

RIVETS: — Rivets shall be ⅞" except as otherwise noted on the detail drawings. Shop and field rivets may be interchanged.

PAINT: — Structural steel and castings shall receive one shop coat and two field coats of paint as called for in Section 10 of the Specifications.

GUSSETS: — All gusset plates at splice points shall be cut back not more than ½" from the chord section.

ERECTION: — Before ordering material the contractor shall submit to the Contracting Officer for approval, complete plans showing the method of erection he proposes to use, and showing erection stresses in all members. No payment will be made for any extra material required due to erection conditions. Erection stresses shall not exceed normal unit stresses by more than 25%.

TRANSVERSE WIND LOADS: — In accordance with A.A.S.H.O. specifications with the additional provision that fixed shoes are designed for a 30% longitudinal wind on the unloaded structure. On the tributary superstructure this force is applied to one-half (½) the area specified in Art. 3-2-14 of the A.A.S.H.O. Specifications. Longitudinal wind force is not combined with lateral wind forces.

WELDING: — See Section 7 of the Specifications.

CAMBER. — Trusses are cambered for the design dead load only. Corrections in lengths of members have been calculated to produce the camber shown and are indicated to the nearest thousandth of an inch.

ADJUSTING REACTIONS: — See Section 7 of the Specifications.

APPROVED:
MISSOURI STATE HIGHWAY DEPT.
BY W. C. B. Brown DATE 9-11-45
TITLE Chief Engineer

RECORD DRAWING
JAN. 1949

NO.	DATE	BY	REVISION	APP'D.

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE
(MISSOURI RIVER)

TRUSS SPANS - STORES SHEET

JACKSON COUNTY

In 41 Sheets Sheet No. 14 Scale: Not to scale

OFFICE, DISTRICT ENGINEER, KANSAS CITY DISTRICT — Kansas City, Mo. Mar. 1945

Submitted: A. C. Welch — Recommended: Asst. Dist. Engr. — Approved: M. C. Tyler, Major, Corps of Engrs., District Engineer

DESIGNED AND PLACED UNDER THE SUPERVISION OF: CONSULTING ENGINEERS, ST. LOUIS, MO. — Chief Engr. — Dept. of Engrs. — In Accordance Specifications — File No.

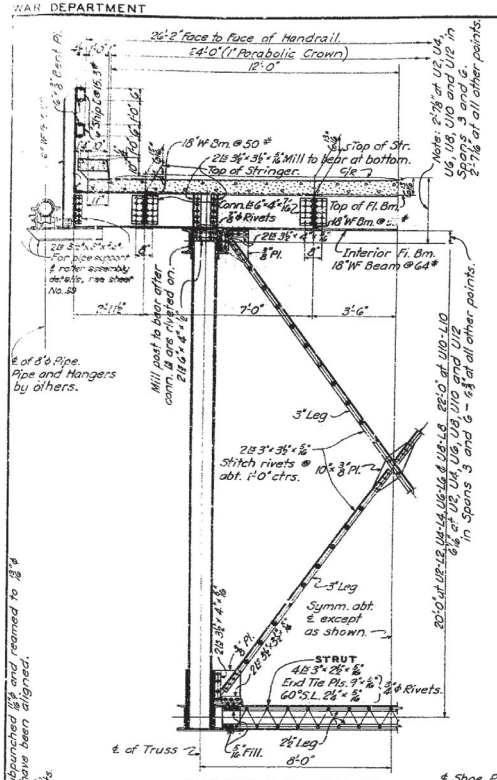
Drawn J.M.B. | Traced C.M. | Checked E.F.A. | Dated: January 1945 | A-1-2-5414

Note: Do not scale this drawing. Follow dimensions.

14

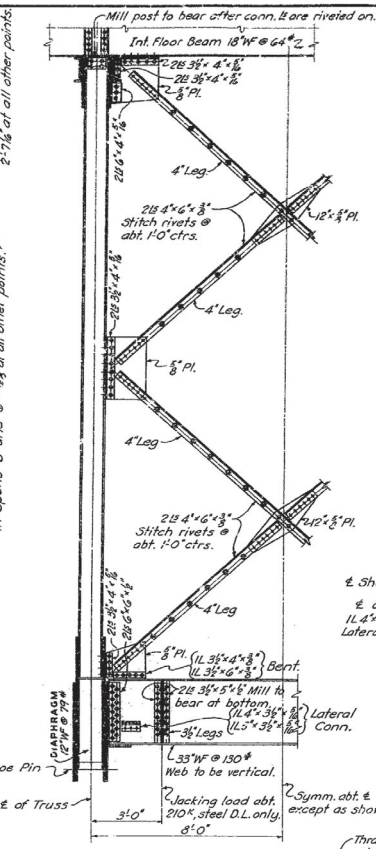
WAR DEPARTMENT

CORPS OF ENGINEERS, U.S. ARMY



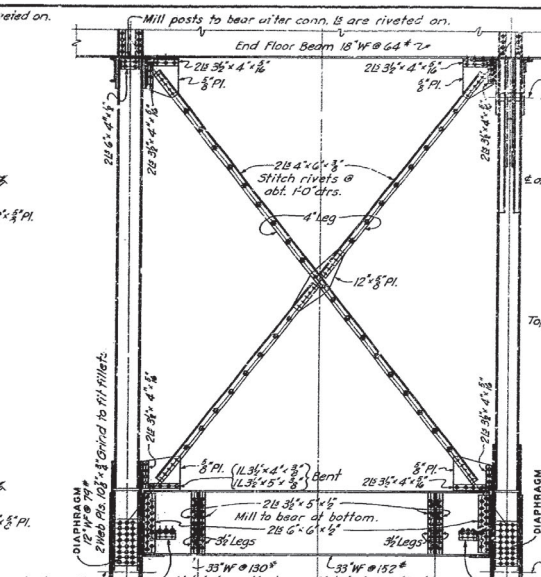
HALF CROSS SECTION AT U2-L2, U4-L4, U6-L6, U8-L8 AND U10-L10

SCALE: 1/2 IN. = 1 FT.



WIND FRAME AT U12-L12

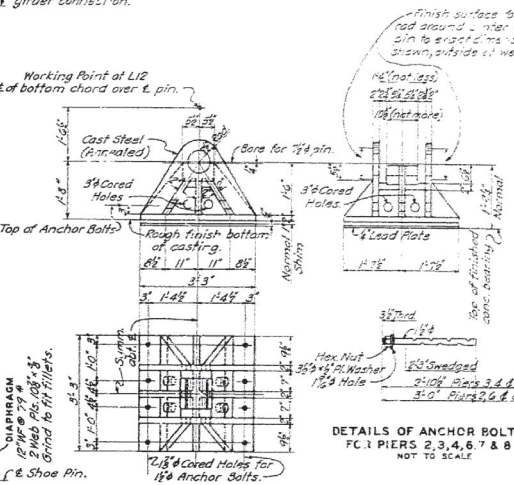
SCALE: 1/2 IN. = 1 FT.



WIND FRAME AT U0'-L0' NEAR GIRDER SPAN

WIND FRAME AT U0-L0 NEAR THRU SPAN

SCALE: 1/2 IN. = 1 FT.



DETAILS OF ANCHOR BOLTS FOR PIERS 2, 3, 4, 6, 7 & 8

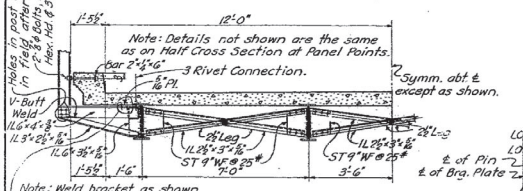
NOT TO SCALE

DETAILS OF FIXED SHOES AT L12 - PIERS 3 & 7

(4 Required)

Furnish the following steel shims ea. shoe, 1-1"Pl., 1-½"Pl., & 2-¼"Pls: Pier 7, 1-1"Pl.-Pier 3

SCALE: 3/4 IN. = 1 FT.



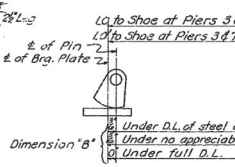
HALF CROSS SECTION MIDWAY BETWEEN PANEL POINTS

SCALE: 1/2 IN. = 1 FT.

Note: Rivets in floor system to be ⅞"ø unless noted.

Note: Weld bracket as shown with cont. shop welds. Fillet welds ¼"

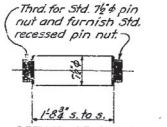
Note: Angle and plate welded together instead of riveted.



SETTING OF SHOES AT L0 AND L0'

Set shoes as shown for normal temperature of 60°F. For each 10°F. drop in temperature, increase Dim. "B" by ½". For each 10°F. rise in temperature decrease Dim. "B" by ½". Note that a rise in temp. may move the ℄ of pin to the other side of the ℄ of bearing plate.

NOT TO SCALE

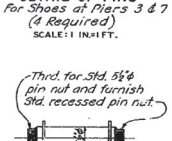


DETAIL OF PINS

For Shoes at Piers 3 & 7

(4 Required)

SCALE: 1 IN. = 1 FT.

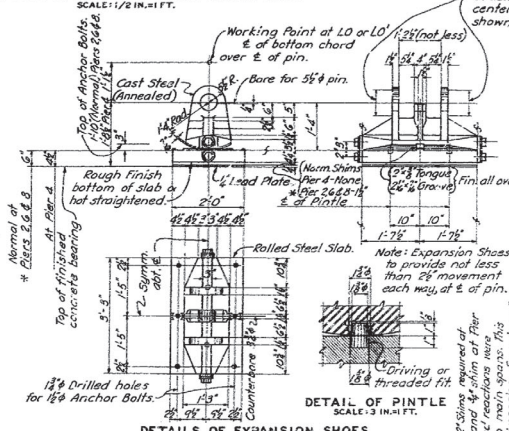


DETAIL OF PINS

For Shoes at Piers 2, 4, 6 & 8

(8 Required)

SCALE: 1 IN. = 1 FT.



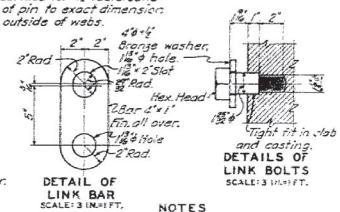
DETAILS OF EXPANSION SHOES AT L0 & L0'- PIERS 2, 4, 5 & 8

(8 Required)

SCALE: 3/4 IN. = 1 FT.

DETAIL OF PINTLE

SCALE: 3 IN. = 1 FT.



DETAIL OF LINK BAR

SCALE: 3 IN. = 1 FT.

DETAILS OF LINK BOLTS

SCALE: 3 IN. = 1 FT.

NOTES

Rivets shall be ⅞"ø except as otherwise noted. All fillets on castings shall be ¼" unless otherwise shown.

Spot finish shoe casting 3½" diameter at anchor bolt holes.

Pilot and driving nuts shall be furnished by the Contractor at his own expense.

See Sheet No. 16 17 and 18 for truss details.

Note: Do not scale this drawing. Follow dimensions.

NO.	DATE	BY	REVISION	APP'D
3	23 Dec '46	R.H.H.	* See Note Shims @ Piers 2&6 & Shoe Pl.	
2	16 Dec '46	R.H.H.	Pipe Support Changed (At End) Related Connection may be removed	Date
1	20 Dec '46	R.L.G.	Holes for pipe hangers added	

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE

(MISSOURI RIVER)

DECK TRUSS SPANS - CROSS SECTIONS

JACKSON COUNTY MO.

RECORD DRAWING

JAN. 1949

APPROVED: MISSOURI STATE HIGHWAY DEPT.

BY Hal Gus Brown DATE 10-31-46

TITLE Chief Engineer

* Note: 2 Shims required at Piers 2 & 6 and 4 shim at Pier 3 after end reactions here weighed on main spans. This changes dimension from top of shoe to bottom of rolled steel slab accordingly.

In 41 Sheets Sheet No. 15 Scale: As Shown

OFFICE, DISTRICT ENGINEER KANSAS CITY, MO.

KANSAS CITY DISTRICT MAR. 1948

Submitted	Recommended	Approved

SUPERVISOR AND PORTER COMPUTING ENGRS., ST. LOUIS, MO.

Corps Engineers, U.S. Army, Division Engr. or Dist. Engr.

To Accompany Specifications File No.

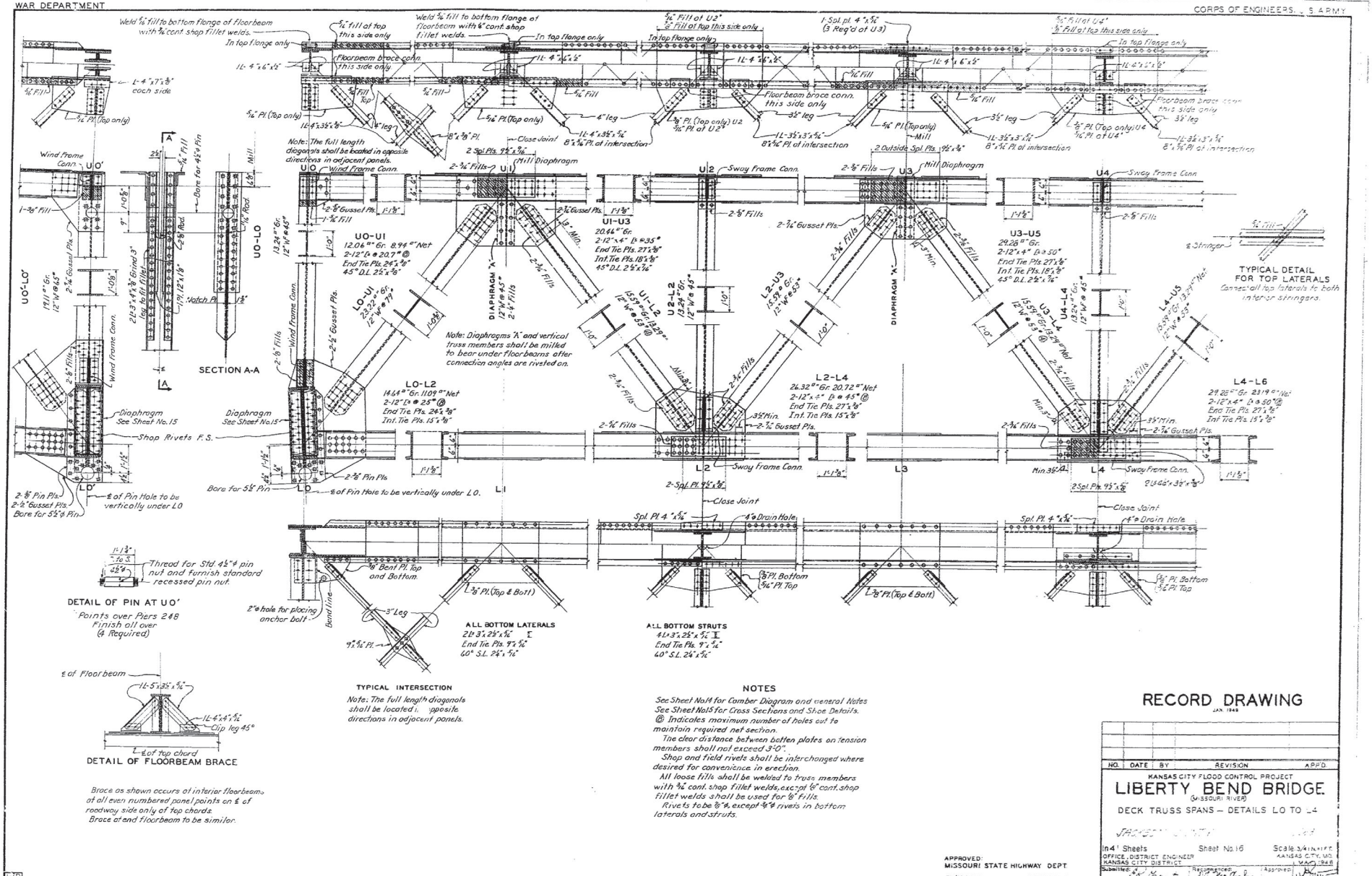
Drawn	Traced	Checked
J.M.B.	B.G.C.	J.F.P.

Date: January 1947 A-10-1515

15

WAR DEPARTMENT

CORPS OF ENGINEERS, U.S. ARMY



Brace as shown occurs at interior floorbeams at all even numbered panel points on ℄ of roadway side only of top chords. Brace at end floorbeam to be similar.

NOTES

See Sheet No14 for Camber Diagram and General Notes
See Sheet No15 for Cross Sections and Shoe Details.
Ⓒ Indicates maximum number of holes cut to maintain required net section.
The clear distance between batten plates on tension members shall not exceed 3'-0".
Shop and field rivets shall be interchanged where desired for convenience in erection.
All loose fills shall be welded to truss members with ⅜" cont. shop fillet welds, except ½" cont. shop fillet welds shall be used for ½" fills.
Rivets to be ⅞", except 1" ⌀ rivets in bottom laterals and struts.

APPROVED:
MISSOURI STATE HIGHWAY DEPT.
BY W. N. Brown DATE 12-21-48
TITLE Chief Engineer

RECORD DRAWING
JAN. 1949

NO.	DATE	BY	REVISION	APP'D.

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE
(MISSOURI RIVER)

DECK TRUSS SPANS — DETAILS LO TO L4

In 41 Sheets Sheet No. 16 Scale 3/4" = 1'-0"

OFFICE, DISTRICT ENGINEER KANSAS CITY, MO.
KANSAS CITY DISTRICT MAY 1948

Submitted: Recommended: Approved:

SVERDRUP AND PARCEL, CONSULTING ENGINEERS, ST. LOUIS, MO.

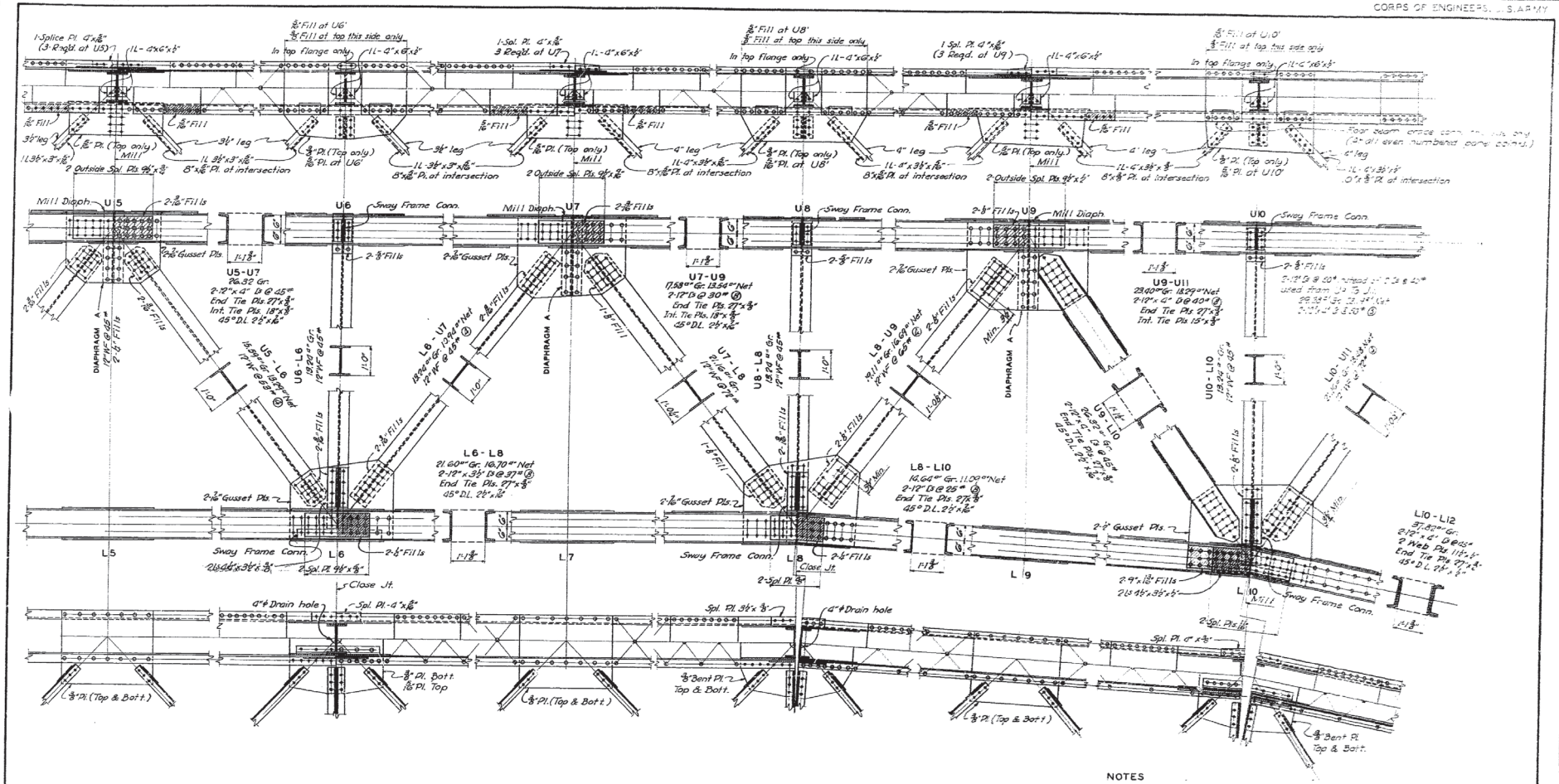
Drawn J.M.B. Traced E.C.M. Checked J.F.O. Dated JANUARY 1947

As Accompany Specifications File No. A-10-1516

(16)

WAR DEPARTMENT

CORPS OF ENGINEERS, U.S. ARMY



NOTES

See Sheet No. 16 for notes and details not shown.

See Sheet No. 15 for cross sections.

*Milling was excessive in fabrication. All splice ends at L10 and L10' lack about ½" in abutting

RECORD DRAWING

JAN. 1949

NO.	DATE	BY	REVISION	APP'D.
2	13 Dec 48		2-3" Fill at U5-U7 Changed as Built	
1	13 Dec 48		Addition to Notes as Built	

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE

(MISSOURI RIVER)

DECK TRUSS SPANS - DETAILS L5 TO L10

JACKSON COUNTY, MO.

In 21 Sheets | Sheet No. 17 | Scale 3/4" = 1'-0"

OFFICE, DISTRICT ENGINEER, KANSAS CITY DISTRICT, KANSAS CITY, MO. MAY 1948

Submitted: [illegible] | Recommended: [illegible] | Approved: [illegible]

BRIDGE AND ROADS CONSULTING ENGRS., ST. LOUIS, MO. | To Accompany Specifications

Drawn: J.M.B. | Traced: C.W. | Checked: J.F.K. | Dated: JANUARY 1947 | A-70-517

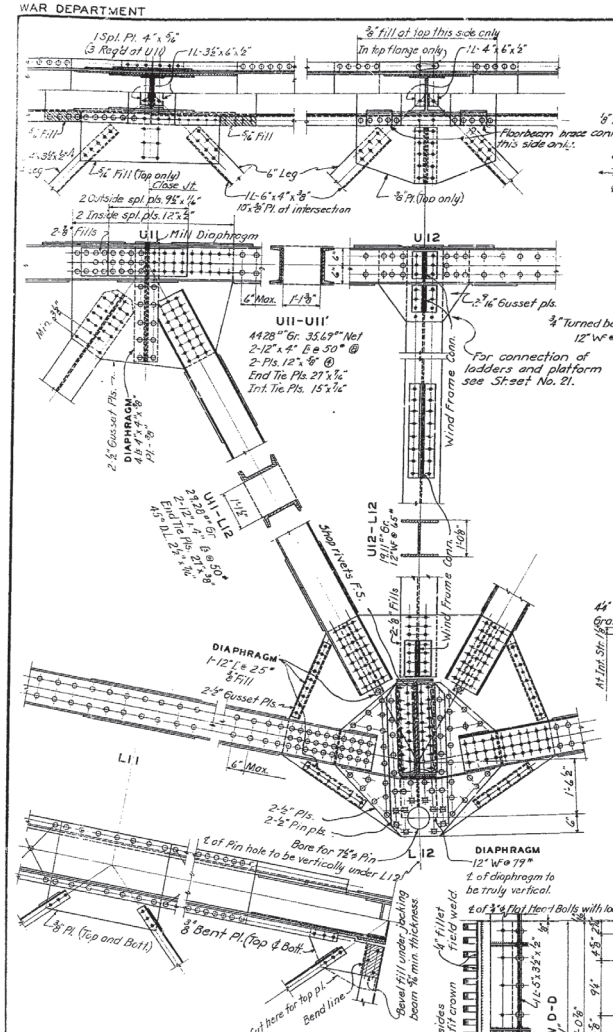
APPROVED:
MISSOURI STATE HIGHWAY DEPT.
BY (S) C.W. Brown DATE 12-21-48
TITLE Chief Engineer

Note: Do not scale this drawing. Follow dimensions.

17

WAR DEPARTMENT

CORPS OF ENGINEERS, U.S. ARMY

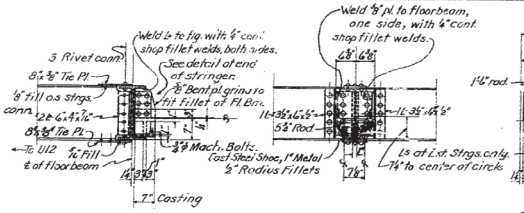


TRUSS DETAILS L11 & L12

SCALE: 3/4 IN. = 1 FT.

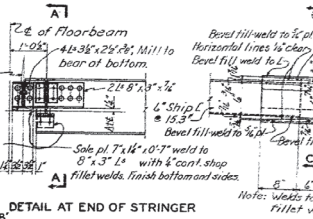
NOTES

See Sheet No.14 for Camber Diagram and General Notes.
See Sheet No.14 for notes and details not shown.
See Sheet No. 13 for Cross Sections and Shoe details.

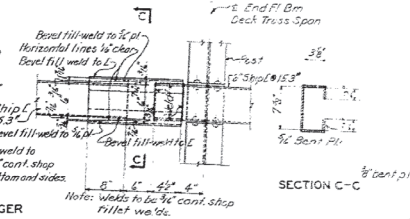


DETAIL OF STRINGER EXPANSION DEVICE AT U8 & U8'

SCALE: 3/4 IN. = 1 FT.



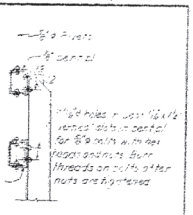
DETAIL AT END OF STRINGER



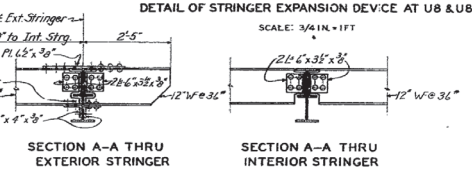
RAIL EXPANSION DEVICE AT PIERS 4 AND 6

SCALE: 1 ½ IN. = 1 FT.

SECTION C-C



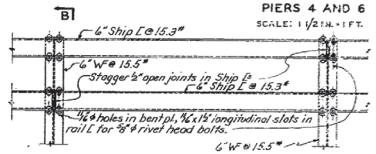
SECTION B-B



SECTION A-A THRU EXTERIOR STRINGER

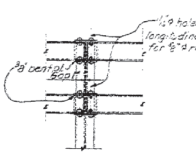
SECTION A-A THRU INTERIOR STRINGER

SCALE: 3/4 IN. = 1 FT.

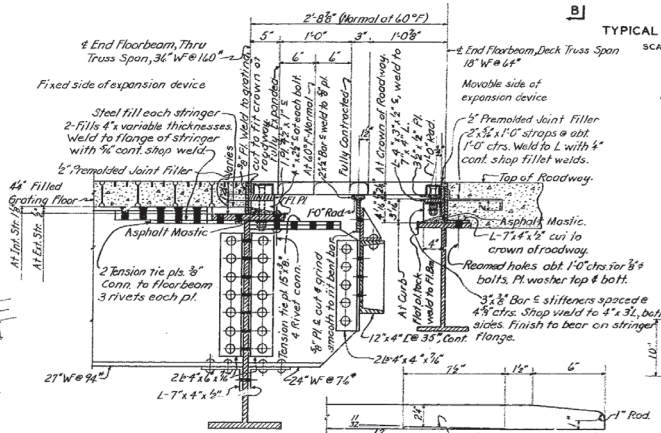


TYPICAL PANEL OF HANDRAIL

SCALE: 3/4 IN. = 1 FT.



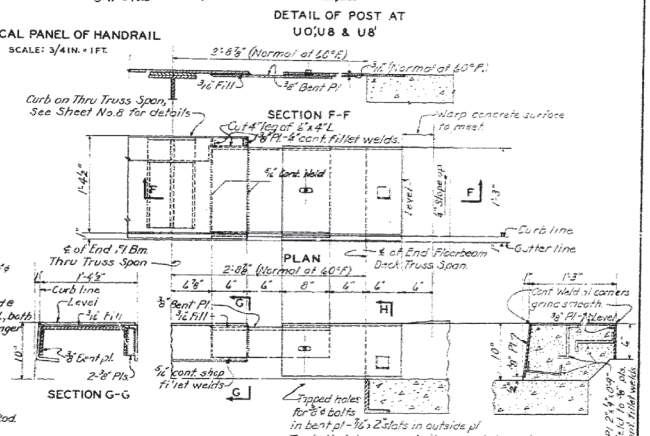
DETAIL OF POST AT U0, U8 & U8'



SECTION THRU ROADWAY DEVICE OVER PIERS 4 AND 6

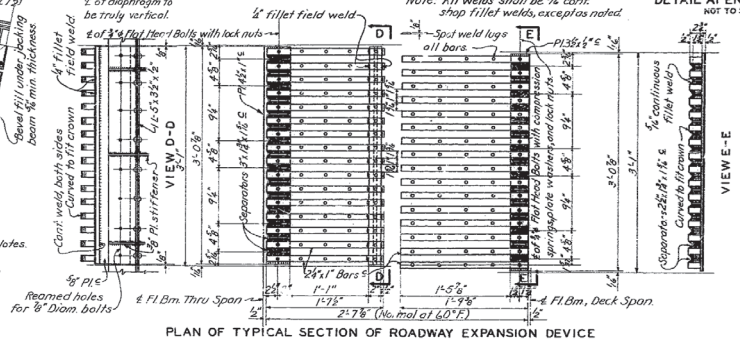
DETAIL AT END OF FINGERS

NOT TO SCALE



DETAILS OF SAFETY CURB EXPANSION DEVICE AT PIERS 4 AND 6

SCALE: 1 ½ IN. = 1 FT.



PLAN OF TYPICAL SECTION OF ROADWAY EXPANSION DEVICE

DETAILS OF ROADWAY EXPANSION DEVICE AT PIERS 4 AND 6

SCALE: 1 ½ IN. = 1 FT.

NOTES

Copper bearing steel shall be used in material designated ℄ Flat Head Bolts, nuts, springs and washers shall be galvanized.
Roadway Expansion Device shall be made up in sections about 3'0" long.
Rivets ⅞" diameter, except ¾" diameter in floor system, and except as noted.
Exposed underside surfaces and inside vertical surfaces of plate expansion devices shall be given two shop coats of red lead paint. Other surfaces shall be given one shop coat of red lead paint. Field paint same as for structural steel.
Cost of asphalt mastic and ½" Premolded joint filler is included in contract unit price for "Fabricated Structural Steel."

RECORD DRAWING

JAN. 1949

NO.	DATE	BY	REVISION	APP'D.

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE

(MISSOURI RIVER)

DECK TRUSS SPANS - DETAILS L11 AND L12 & MISCELLANEOUS DETAILS

"As Built"

141 Sheets	Sheet No. 18	Scale: As Shown
OFFICE, DISTRICT ENGINEER KANSAS CITY DISTRICT		KANSAS CITY, MO. MAY 1948

Submitted: [signature] Recommended: [signature] Approved: [signature]

SVERDRUP AND PARCEL CONSULTING ENGRS. ST. LOUIS, MO. | For Chief Engineer | Principal Plans of Work To Accompany Specifications | File No.

Drawn: J.M.B. | Traced | Checked: E.C.M. | J.K.G. | Dated: JANUARY 1948

APPROVED: MISSOURI STATE HIGHWAY DEPT.

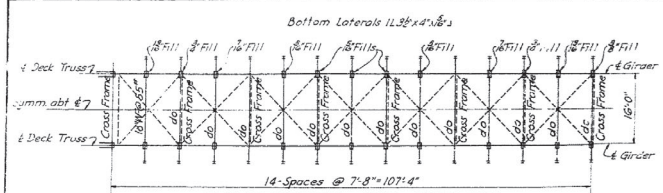
BY W. C. W. Branch DATE 10-21-48

TITLE Chief Engineer

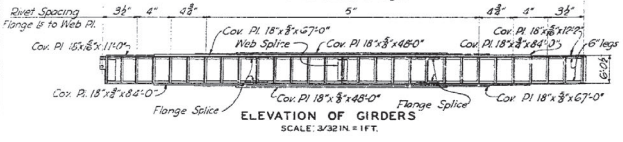
18

WAR DEPARTMENT

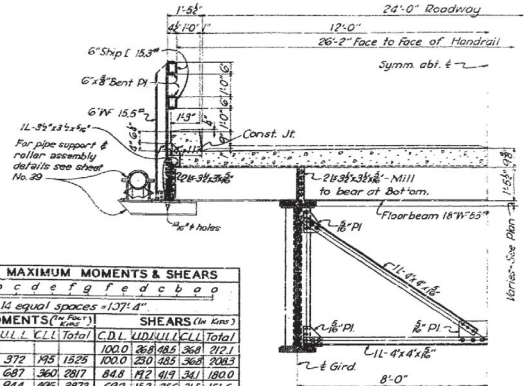
CORPS OF ENGINEERS, U.S. ARMY



PLAN OF STRUCTURAL STEEL GIRDER SPAN
BETWEEN PIER 8 AND ABUTMENT 9
SPAN BETWEEN ABUTMENT 1 AND PIER 2 THE SAME



ELEVATION OF GIRDERS
SCALE: 3/32 IN. = 1 FT.



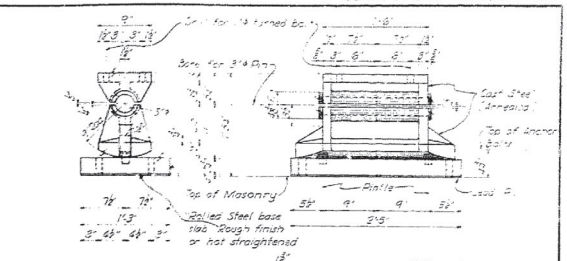
HALF CROSS SECTION
SCALE: 1/2 IN. = 1 FT.

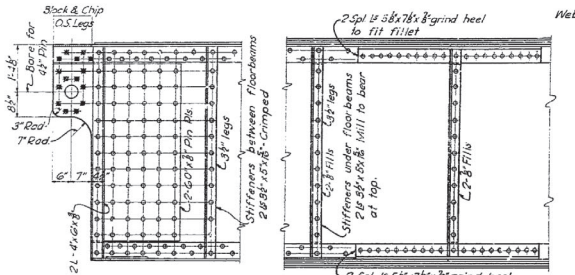
TABLE OF MAXIMUM MOMENTS & SHEARS

Point o a b c d e f g f e d c b a o

14 equal spaces = 137'-4"

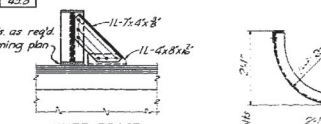
Point	MOMENTS (1st Floor Kips)					SHEARS (1st Kips)				
	C.D.L.	V.D.L.	U.L.L.	C.L.L.	Total	C.D.L.	V.D.L.	U.L.L.	C.L.L.	Total
o						100.0	26.8	48.5	36.8	212.1
a	167	191	372	195	1525	100.0	23.0	38.5	36.8	208.3
b	1417	353	687	360	2817	84.8	19.2	41.9	34.1	180.0
c	1948	485	944	496	3873	69.2	16.3	36.6	31.5	151.6
d	2362	588	1144	600	4694	54.0	11.5	29.9	28.8	124.2
e	2657	661	1287	677	5282	38.8	7.6	24.6	26.1	96.7
f	2836	705	1373	720	5633	23.7	3.8	19.9	23.7	70.1
g	2893	720	1402	735	5750	7.6	0.0	15.6	20.6	43.8



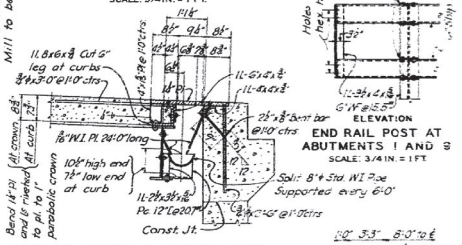


PIN END | FLANGE SPLICE | WEB SPLICE | SHOE END

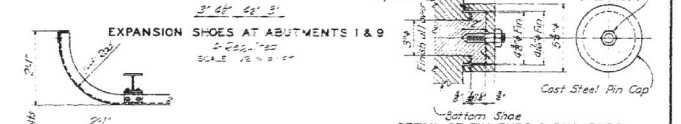
TYPICAL GIRDER DETAILS
SCALE: 3/4 IN. = 1 FT.

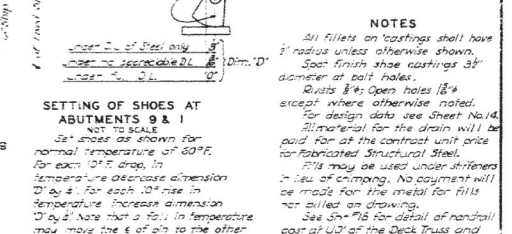


KNEE BRACE
TO FLOOR BEAM
One knee brace on each floor beam at each girder.
SCALE: 3/4 IN. = 1 FT.



PART LONGITUDINAL SECTION THRU
ABUTMENT 9. ABUTMENT 1 THE SAME
SCALE: 3/4 IN. = 1 FT.





NOTES

All fillets on castings shall have ½" radius unless otherwise shown.

Spot finish shoe castings 3½" diameter at bolt holes.

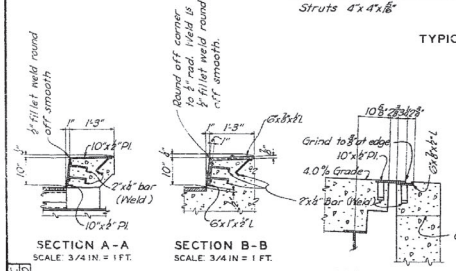
Rivets ⅞"ø; Open holes 1⅛"ø except where otherwise noted.

For design data see Sheet No. 14.

Allowance for the drain will be paid for at the contract unit price for Fabricated Structural Steel.

Fills may be used under stiffeners in lieu of crimping. No payment will be made for the metal for fills not billed on drawing.

See Sht. 18 for detail of handrail cast at U0 of the Deck Truss and for "Typical Panel of Handrail".

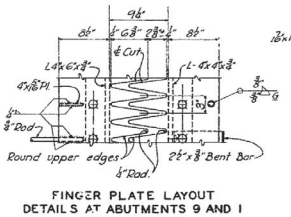


SECTION A-A
SCALE: 3/4 IN. = 1 FT.

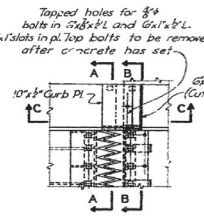
SECTION B-B
SCALE: 3/4 IN. = 1 FT.

SECTION C-C
SCALE: 3/4 IN. = 1 FT.

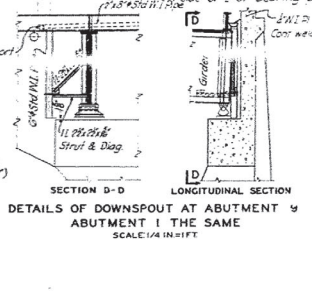
Note:
Finger plate shall be cut with gas torch from one plate 24"x1⅛". The surface of cut shall be perpendicular to the surface of the plate. The cut shall not exceed ⅛" in width. The center line of the cut shall not deviate more than ⅛" from the position of ℄ cut shown in "Finger Plate Layout".



FINGER PLATE LAYOUT
DETAILS AT ABUTMENTS 9 AND 1
SCALE: 1 1/2 IN. = 1 FT.



PART PLAN OF EXPANSION DEVICE
ABUTMENTS 9 AND 1
SCALE: 3/4 IN. = 1 FT.



DETAILS OF DOWNSPOUT AT ABUTMENT 9
ABUTMENT 1 THE SAME
SCALE: 1/4 IN. = 1 FT.

Note: Do not scale this drawing. Follow dimensions.

APPROVED:
MISSOURI STATE HIGHWAY DEPT.
BY W. C. N. Brown DATE 10-21-46
TITLE Chief Engineer

RECORD DRAWING
JAN. 1948

NO.	DATE	BY	REVISION	APP'D.
2	11 Dec 48	P.H.U.	Pipe Support Changed (At Point)	Apd
1	20 Dec 46	P.L.S.	Holes for pipe hangers added	Apd

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE
(MISSOURI RIVER)

DETAILS OF DECK GIRDER SPANS

JACKSON COUNTY

L-568

In 41 Sheets | Sheet No. 19 | Scale: As shown | KANSAS CITY, MO. | MAY 1946

OFFICE, DISTRICT ENGINEER, KANSAS CITY DISTRICT

Submitted: [signature] Recommended: [signature] Approved: [signature]

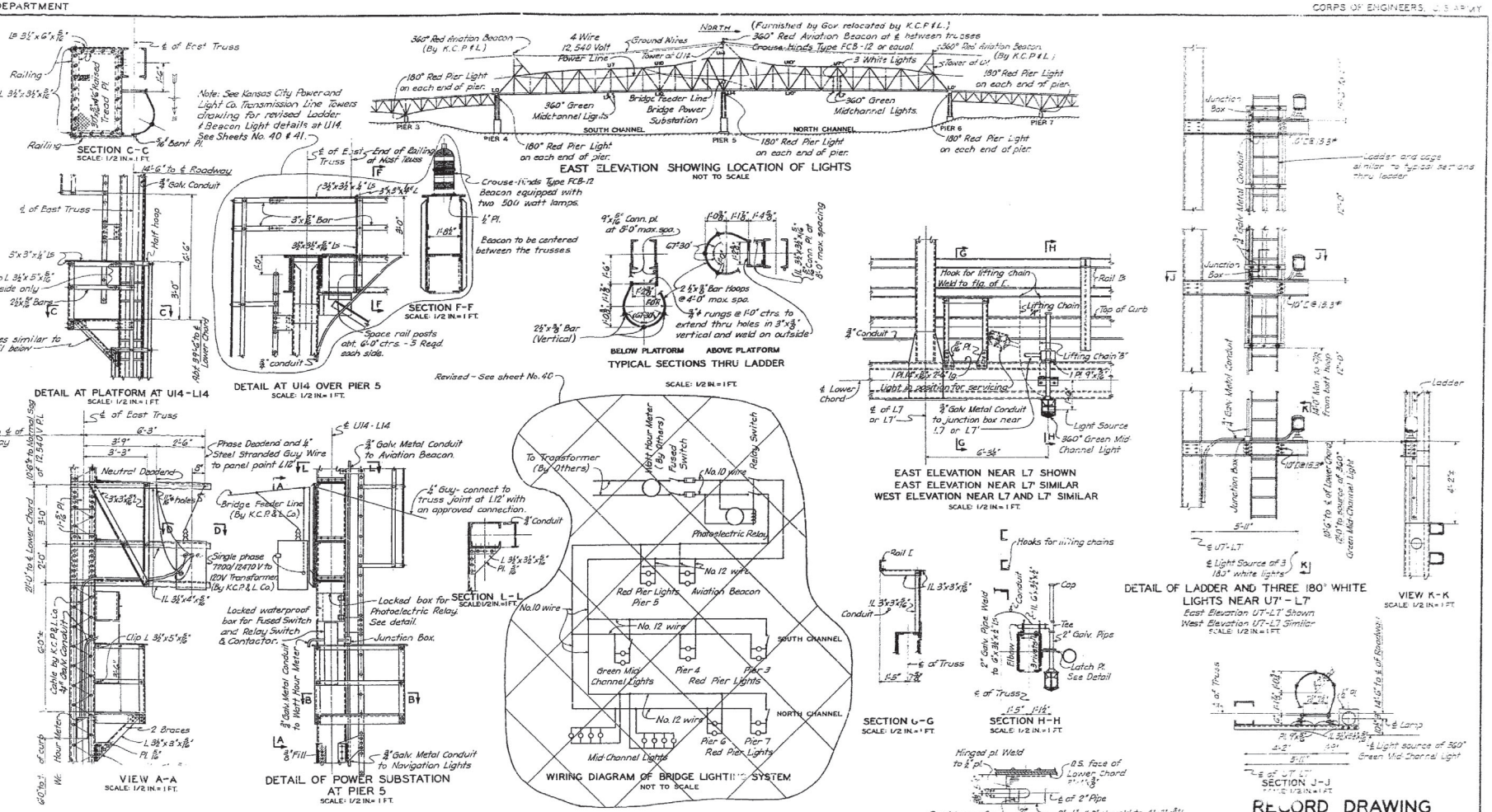
OVERSHOP AND PARCEL CONRATING ENGR. ST. LOUIS, MO. | Chief Engineer, Corps of Engrs. | To Accompany Specifications | File No.

Drawn J.M.B. | Traced C.W. | Checked J.A. | Dated: JANUARY 1947 | A-10-1519

9

WAR DEPARTMENT

CORPS OF ENGINEERS, U.S. ARMY



NOTES

See Sheet No. 21 for additional details and notes.

Lifting chains 'A' and 'B' shall be steel wire chains having a minimum wire diameter of 0.135" and shall conform to the Federal Specification RR-C-271 - Class 2A.

APPROVED
MISSOURI STATE HIGHWAY DEPT.
BY W. G. H. Brown DATE July 1949
TITLE Chief Engineer

Note:- Do not scale this drawing. Follow dimensions.

RECORD DRAWING
JAN. 1949

NO.	DATE	BY	REVISION	APP'D
1	12 Dec 49	E.H.	As 3 Lift Ladder Changed at U1	Dem

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE
(MISSOURI RIVER)

DETAILS OF NAVIGATION LIGHTING

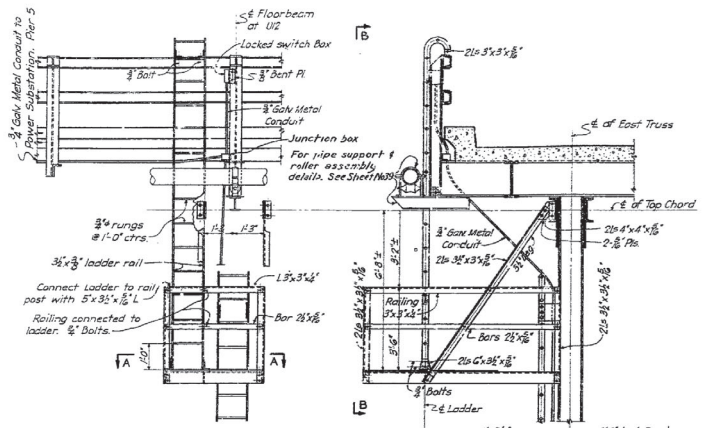
JACKSON COUNTY L-566

In 41 Sheets	Sheet No. 20	Scale As Shown	KANSAS CITY, MO. MAY 1949
OFFICE DISTRICT ENGINEER KANSAS CITY DISTRICT			
Submitted: [illegible]	Recommended: [illegible]	Approved: [illegible]	
DIVISION AND PARCEL CONSULTING ENGRS. ST. LOUIS, MO.		Chief, Engineering Division	
Drawn: C.M.M.	Traced: I.R.B.	Checked: J.E.R.	To Accompany Specifications: Dated: JANUARY 1941	File No. A-10-1535

20

WAR DEPARTMENT

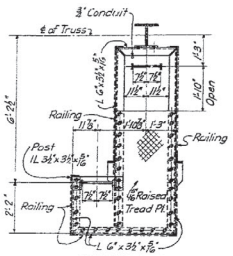
CORPS OF ENGINEERS, U.S. ARMY



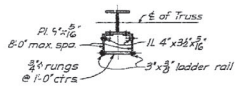
VIEW B-B
SCALE: 1/2 IN. = 1 FT.

Note:- Platform and ladders required on each side of bridge. Ladder rungs to extend thru holes in bars or plate and welded.

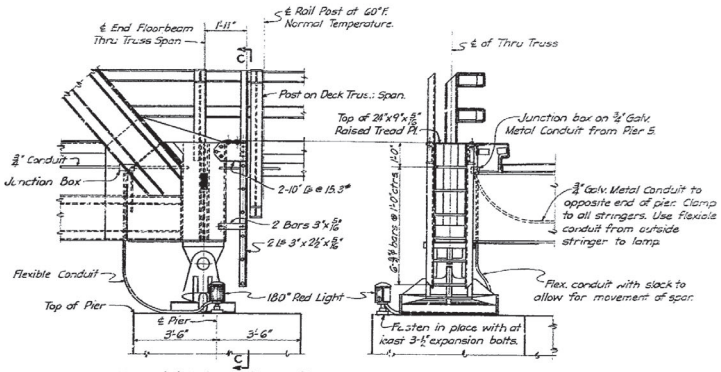
DETAILS OF LADDER, PLATFORM AND 180° RED LIGHTS AT PIERS 3 AND 7
SCALE: 1/2 IN. = 1 FT.



SECTION A-A
SCALE: 1/2 IN. = 1 FT.



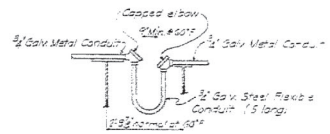
DETAIL OF TYPICAL LADDER CONNECTION TO MEMBER U12 - L12
SCALE: 1/2 IN. = 1 FT.



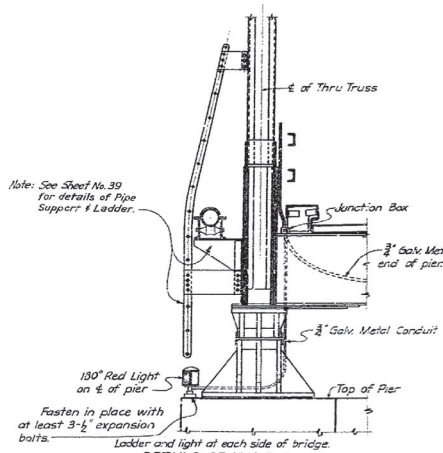
Ladder and light at each side of bridge.

DETAILS OF LADDER AND 180° RED LIGHTS AT PIERS 4 AND 6
SCALE: 1/2 IN. = 1 FT.

SECTION C-C
SCALE: 1/2 IN. = 1 FT.



DETAIL OF EXPANSION DEVICE IN CONDUIT AT PIERS 4 AND 6
NOT TO SCALE



DETAILS OF 180° RED LIGHT AT PIER 5
SCALE: 1/2 IN. = 1 FT.

NOTES

See Sheet No. 20 for other details of navigation lighting.

All structural steel for navigation lighting shall be carbon steel.

Rivets shall be ¾" unless otherwise noted.

Holes shall be drilled or punched by the shop fabricator for bolts used in clamping the conduit to the bridge at intervals not to exceed 10 feet. Holes shall be of such size and in such location as not to impair the strength of the section.

Drain holes shall be provided in the bottom of the conduits and junction boxes at all low points.

Conduits shall be securely fastened to the junction boxes by an approved method.

All structural steel required for navigation lighting shall be paid for at the unit price bid for "Fabricated Structural Steel."

All navigation lighting equipment shall be painted in accordance with the specifications for Fabricated Structural Steel, except that a manufacturer's standard paint will be accepted as a substitute for the prescribed shop coat.

The superstructure shall be securely grounded by connecting one anchor bolt in each shoe on pier 5 with a large size vertical reinforcing bar, and at other elevations where the large size vertical reinforcing bars do not come in contact with each other, they shall be connected. The connection shall be made with #1/0 copper wire securely clamped to the anchor bolts or reinforcing bars. The cost of these grounds shall be included in the price bid for other items.

APPROVED:
MISSOURI STATE HIGHWAY DEPT.
BY (E. G. Brand) DATE 12-21-46
TITLE CHIEF ENGINEER

Note:- Do not scale this drawing. Follow dimensions.

RECORD DRAWING
JAN. 1943

NO	DATE	BY	REVISION	APP'D
1	11-22-46	C.H.H.	Pier Support & Ladder Changed, As Built	

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE
(MISSOURI RIVER)

DETAILS OF NAVIGATION LIGHTING

JACKSON COUNTY L-568

In 41 Sheets Sheet No. 21 Scale As Shown

OFFICE, DISTRICT ENGINEER, KANSAS CITY DISTRICT, KANSAS CITY, MO. MAY 1946

Submitted: (C. H. Howard) Recommended: (Geo. Jos. Hundley) Approved: (Lewis A. Pick)

CONSULTING ENGRS. OF RECORD: Howard, Needles, Tammen & Bergendoff

U.S. Alternate Bridge Location

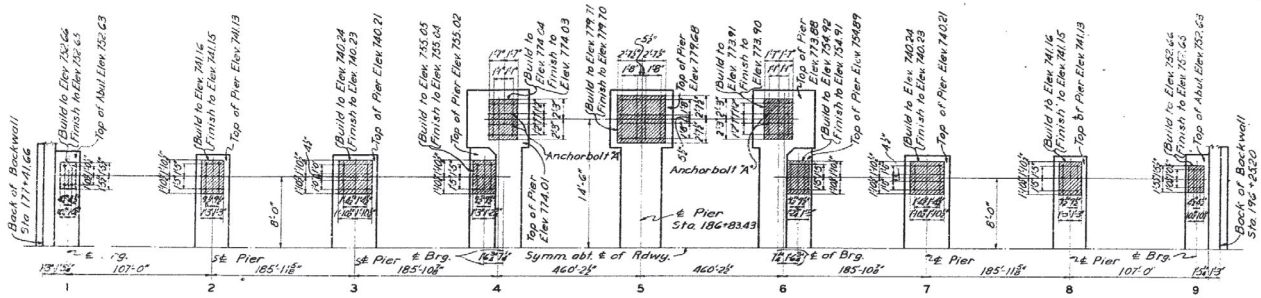
Drawn	Traced	Checked
C.M.M.	L.R.B.	E.F.K.

Dates: January 1941 - 12-21-46

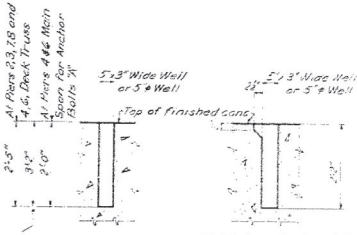
21

WAR DEPARTMENT

CORPS OF ENGINEERS, U.S. ARMY



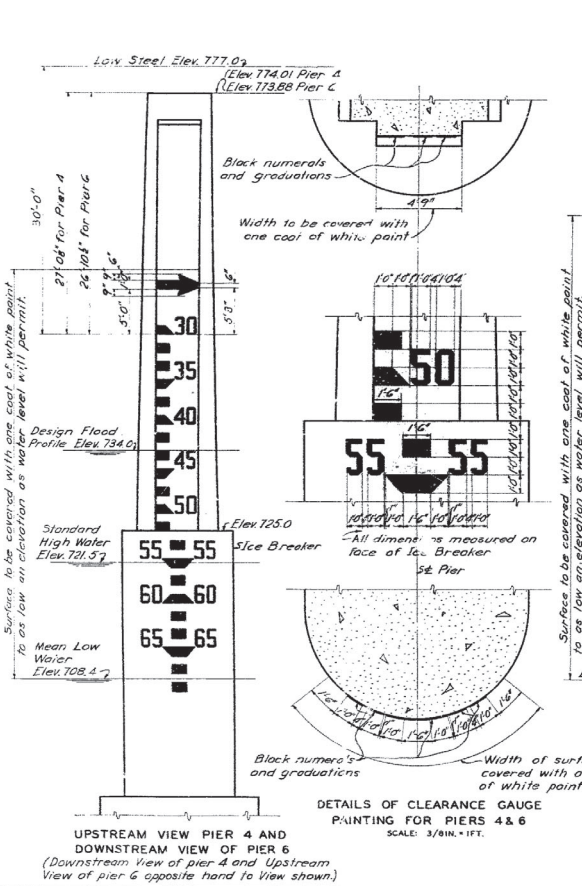
HALF ANCHOR BOLT PLAN
NOT TO SCALE



DETAILS OF ANCHOR BOLT WELLS

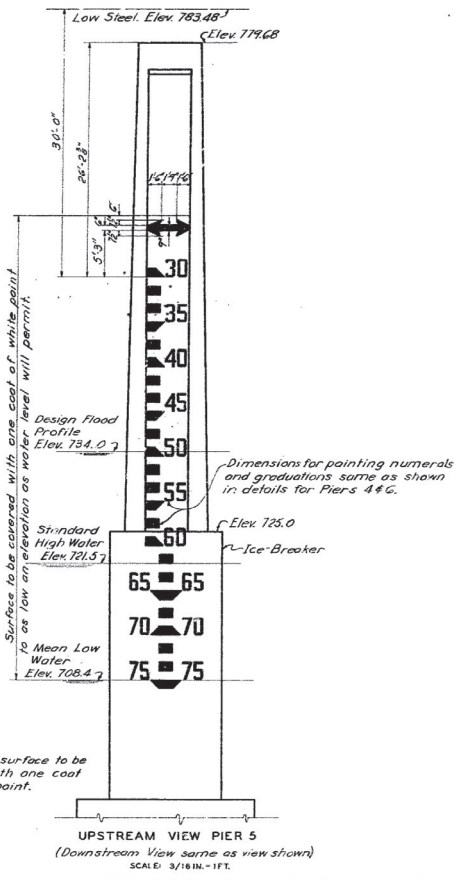
Wells may be tapered from the top dimensions given, if desired to facilitate removal of forms. 5'-0" well dimension is longitudinal to the bridge.

Note: Anchorbolts at abutments 1 and 9 to be in place before Superstructure is erected.



DETAILS OF CLEARANCE GAUGE PAINTING FOR PIERS 4 & 6
SCALE: 3/8IN. = 1FT.

UPSTREAM VIEW PIER 4 AND DOWNSTREAM VIEW OF PIER 6
(Downstream View of pier 4 and Upstream View of pier 6 opposite hand to View shown.)



UPSTREAM VIEW PIER 5
(Downstream View same as view shown)
SCALE: 3/16IN. = 1FT.

Note: Do not scale this drawing. Follow dimensions.

NOTES

Gauges shall be painted on both sides of the pier as shown so as to present a clear and legible appearance. Graduations and numerals shall be one coat of black paint applied over a background of one coat of white paint. The white background shall be applied on the area shown.

Gauges shall extend at least to top of ice breaker and as far down ice breaker as water conditions will permit.

RECORD DRAWING
JAN. 1949

APPROVED:
MISSOURI STATE HIGHWAY DEPT.
BY [illegible] DATE 8-11-48
TITLE Chief Engineer

NO.	DATE	BY	REVISION	APP'D.

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE
(MISSOURI RIVER)

ANCHOR BOLT PLAN AND CLEARANCE GAUGES

JACKSON COUNTY L-598

In 41 Sheets Sheet No. 22 Scale As Shown

C. FICE, DISTRICT ENGINEER KANSAS CITY, MO.
KANSAS CITY DISTRICT 3 MAY 1948

Submitted: Recommended: Approved:

RECORD OF CHANGES (For Use of Designating Officer) Initial of Person
CONSULTING ENGINEERS (If Such Is Not) To Accompany Sheet Corrections

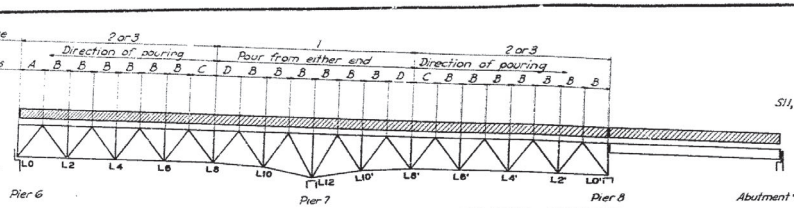
Drawn	Traced	Checked	Dated	A-10-1532
LMB-CJP	DHV	LA	January, 1948	

22

WAR DEPARTMENT

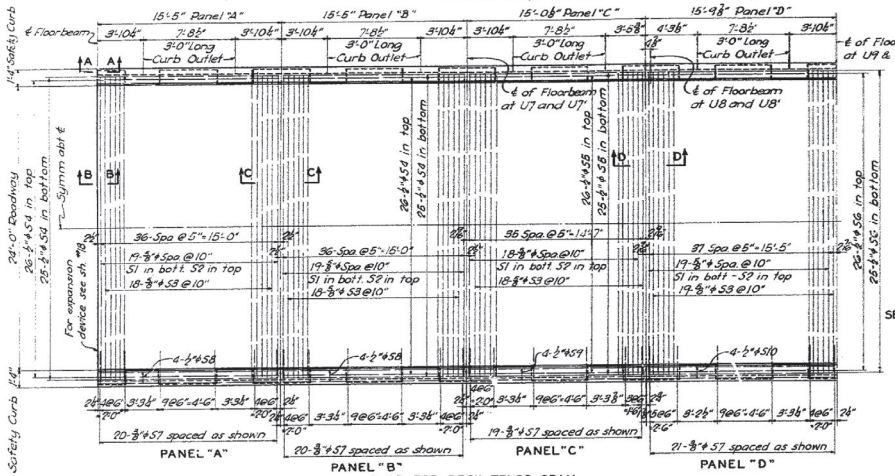
CORPS OF ENGINEERS, U.S. ARMY

Slab on deck truss span shall be constructed as indicated in the pouring sequence.
Section marked 1 shall be poured completely before sections marked 2 or 3 are started. Either section marked 2 or 3 may be completed before another section similarly marked is started.

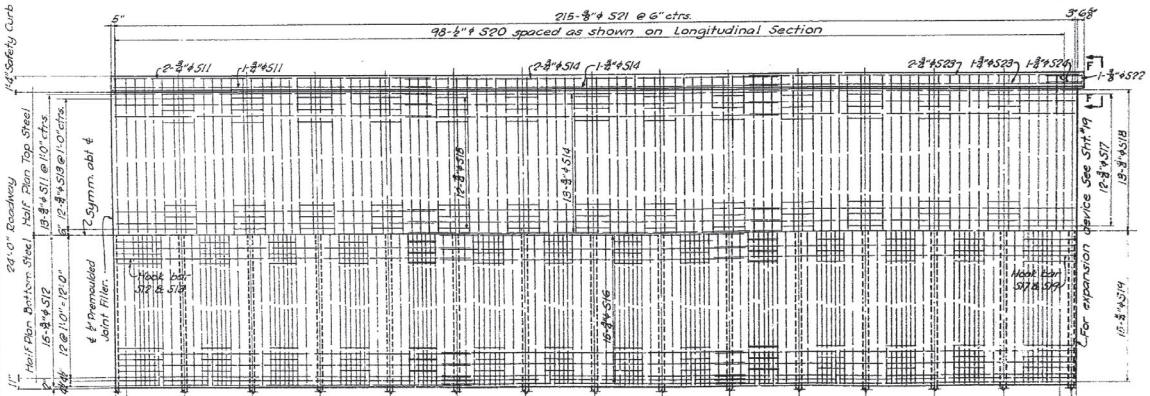


SEQUENCE OF POURING SLAB AND PANEL NUMBERING
NOT TO SCALE:

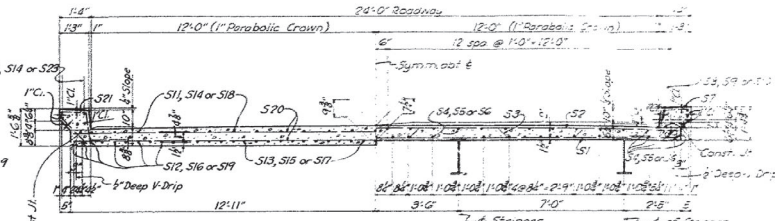
Deck Girder and Deck Truss Spans from abut. 1 to Pier 4 same as shown except opposite hand and opposite grade.



SLAB FOR DECK TRUSS SPAN
SCALE: 1/4 IN. = 1 FT.

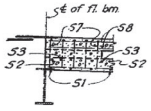


SLAB FOR DECK GIRDER SPAN
SCALE: 1/4 IN. = 1 FT.

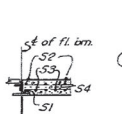


TYPICAL HALF CROSS SECTION THRU DECK GIRDER SPANS

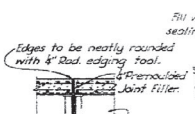
TYPICAL HALF CROSS SECTION THRU DECK TRUSS SPANS
SCALE: 1/2 IN. = 1 FT.



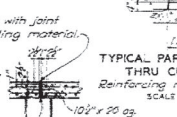
SECTION A-A THRU CURB
SCALE: 1/2 IN. = 1 FT.



SECTION B-B THRU RDWY.
SCALE: 1/2 IN. = 1 FT.

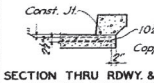


SECTION C-C AT FLOORBEAM NO STRINGER EXPANSION
SCALE: 1/2 IN. = 1 FT.



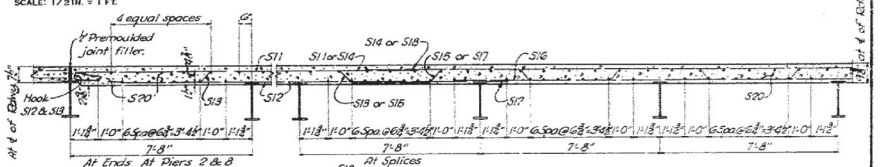
SECTION D-D AT FLOORBEAM WITH STRINGER EXPANSION
SCALE: 1/2 IN. = 1 FT.

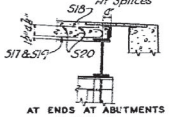
TYPICAL PART CROSS SECTION THRU CURB OUTLET
Reinforcing not shown in Rdwy. Slab
SCALE 1/2 IN. = 1 FT.



SECTION THRU RDWY. & SAFETY CURB SHOWING LIMIT OF FLASHING
SCALE: 1/2 IN. = 1 FT.

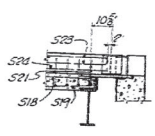
Joints in copper flashing shall be soldered. 2½" wings of flashing extending into concrete shall have 1"x2" slotted holes spaced about 1'-0" ctrs.



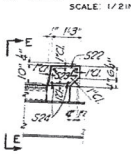


AT ENDS AT ABUTMENTS 1 AND 8

PART LONGITUDINAL SECTION OF SLAB FOR DECK GIRDER SPAN
SCALE: 1/2 IN. = 1 FT.



PART SECTION E-E



PART VIEW F-F

SCALE: 1/2 IN. = 1 FT.

APPROVED:
MISSOURI STATE HIGHWAY DEPT.
BY (S) C.V.L. Brown DATE 10-21-46
TITLE Chief Engineer

RECORD DRAWING
JAN. 1948

NO.	DATE	BY	REVISION	APP'D.

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE
(MISSOURI RIVER)

SLAB DETAILS

JACKSON COUNTY L-569

141 Sheets | Sheet No. 23 | Scale As Shown | KANSAS CITY, MO. | 1948

OFFICE, DISTRICT ENGINEER KANSAS CITY DISTRICT

Submitted: Recommended: Approved:

SPECIFICATIONS FOR: Road Engineering Grade of Curve

CONSULTING ENGRS. ST. LOUIS, MO. To Accompany Specifications File No.

Drawn	Traced	Checked	Dated: JANUARY 1947	A-10-1523
J.M.B.	C.W.	J.A.J.		

23

Note: Do not scale this drawing. Follow dimensions.

WAR DEPARTMENT

CORPS OF ENGINEERS, U.S. ARMY

ABUTMENTS 1 & 9

Mark	No Reqd	Size	Length	Shape	Location
A1	40	5/8ϕ	21'-2"	Bent	Footing
A2	1089	5/8ϕ	10'-2"	do	do
A3	6	1"ϕ	24'-6"	Straight	do
A4	5	do	20'-8"	Bent	do
A5	12	5/8ϕ	8'-10"	do	do
A6	12	5/8ϕ	5'-7"	do	do
A7	16	do	5'-9"	do	do
A8	28	1"ϕ	24'-10"	do	do
A9	8	5/8ϕ	6'-10"	Straight	Column
A10	8	do	11'-0"	do	do
A11	8	do	18'-5"	do	do
A12	8	do	19'-5"	do	do
A13	4	do	5'-9"	do	do
A14	4	do	5'-11"	do	do
A15	2	1"ϕ	18'-0"	do	Footing
A16	4	5/8ϕ	5'-0"	Bent	do
A17	18	5/8ϕ	30'-9"	do	Column
A18	28	1"ϕ	28'-5"	do	do
A19	8	1"ϕ	20'-2"	Bent	do
A20	8	do	19'-0"	do	do
A21	8	do	19'-5"	do	do
A22	8	do	19'-0"	do	do
A23	8	do	18'-7"	do	do
A24	8	do	18'-3"	do	do
A25	8	do	17'-5"	do	do
A26	8	do	17'-0"	do	do
A27	8	do	16'-10"	do	do
A28	8	do	15'-5"	do	do
A29	8	do	15'-1"	do	do
A30	8	do	14'-7"	do	do
A31	8	do	14'-3"	do	do
A32	8	do	13'-11"	do	do
A33	8	do	13'-7"	do	do
A34	8	do	13'-3"	do	do
A35	8	do	12'-11"	do	do
A36	8	do	12'-7"	do	do
A37	8	do	12'-3"	do	do
A38	8	do	11'-11"	do	do
A39	8	do	11'-7"	do	do
A40	8	do	11'-3"	do	do
A41	8	do	10'-11"	do	do
A42	8	do	10'-7"	do	do
A43	8	do	10'-3"	do	do
A44	8	do	9'-11"	do	do
A45	8	do	9'-7"	do	do
A46	8	do	9'-3"	do	do
A47	8	do	8'-11"	do	do
A48	8	do	8'-7"	do	do
A49	8	do	8'-3"	do	do
A50	8	do	7'-11"	do	do
A51	8	do	7'-7"	do	do
A52	8	do	7'-3"	do	do
A53	8	do	6'-11"	do	do
A54	4	5/8ϕ	13'-1"	Straight	Backwall
A55	4	do	12'-7"	do	do
A56	4	do	13'-0"	do	do
A57	4	do	12'-6"	do	do
A58	4	do	12'-2"	do	do
A59	4	do	11'-10"	do	do
A60	4	do	11'-6"	do	do
A61	4	do	11'-2"	do	do
A62	4	do	10'-10"	do	do
A63	4	do	10'-6"	do	do
A64	4	do	10'-2"	do	do
A65	4	do	9'-10"	do	do
A66	4	do	9'-6"	do	do
A67	4	do	9'-2"	do	do
A68	4	do	8'-10"	do	do
A69	4	do	8'-6"	do	do
A70	4	do	8'-2"	do	do
A71	4	do	7'-10"	do	do
A72	4	do	7'-6"	do	do
A73	4	do	7'-2"	do	do
A74	No	Bar			
A75	4	do	6'-10"	do	do
A76	4	do	6'-6"	do	do
A77	4	do	6'-2"	do	do
A78	4	do	5'-10"	do	do
A79	4	do	5'-6"	do	do
A80	4	do	5'-2"	do	do
A81	4	do	4'-10"	do	do
A82	4	do	4'-6"	do	do
A83	4	do	4'-2"	do	do
A84	No	Bar			
A85	4	do	3'-10"	do	do
A86	4	do	3'-6"	do	do
A87	4	do	3'-2"	do	do
A88	4	do	2'-10"	do	do
A89	4	do	2'-6"	do	do
A90	4	do	2'-2"	do	do
A91	4	do	1'-10"	do	do
A92	4	do	1'-6"	do	do
A93	4	do	1'-2"	do	do
A94	4	do	10"	do	do
A95	4	do	6"	do	do
A96	4	do	2"	do	do
A97	4	do	1'-2"	do	do
A98	4	do	1'-6"	do	do
A99	4	do	1'-10"	do	do
A100	4	do	2'-2"	do	do
A101	4	do	2'-6"	do	do
A102	12	do	2'-10"	do	do
A103	4	do	3'-2"	do	do
A104	4	do	3'-6"	do	do
A105	4	do	3'-10"	do	do
A106	4	do	4'-2"	do	do
A107	4	do	4'-6"	do	do
A108	4	do	4'-10"	do	do
A109	16	do	20'-0"	do	do
A110	3	1/8ϕ	28'-5"	do	do
A111	8	1"ϕ	28'-9"	do	Beam
A112	4	5/8ϕ	5'-8"	do	do
A113	4	do	5'-8"	Bent	do
A114	4	do	7'-8"	do	do
A115	8	5/8ϕ	5'-0"	Bent	do

ABUTMENTS 1 & 9

Mark	No Reqd	Size	Length	Shape	Location
A100	4	1"ϕ	24'-10"	Straight	backwall
A101	4	do	25'-0"	do	do
A102	12	do	26'-8"	do	do
A103	4	do	11'-6"	do	do
A104	4	do	16'-9"	do	do
A105	4	do	10'-0"	do	do
A106	4	do	16'-7"	do	do
A107	4	do	16'-7"	do	do
A108	4	do	15'-7"	do	do
A109	16	do	20'-0"	do	do
A110	3	1/8ϕ	28'-5"	do	do
A111	8	1"ϕ	28'-9"	do	Beam
A113	4	do	5'-8"	do	do
A114	4	do	7'-8"	do	do
A115	8	5/8ϕ	5'-0"	Bent	do

PIERS 2 & 8

Mark	No	Size	Length	Shape	Location
A60	44	5/8ϕ	17'-2"	Bent	Footing
A61	92	do	18'-2"	do	do
A62	28	5/8ϕ	17'-5"	do	do
A63	60	do	17'-9"	do	do
A64	16	5/8ϕ	12'-1"	do	Ice-Breaker
A65	28	5/8ϕ	5'-6"	do	do
A66	20	do	11'-5"	do	do
A67	4	do	11'-1"	do	do
A68	4	do	10'-8"	do	do
A69	4	do	8'-2"	do	do
A70	No	Bar			
A71	4	1"ϕ	28'-3"	Bent	Ice-Breaker
A72	4	do	28'-11"	do	do
A73	4	do	30'-7"	do	do
A74	2	do	30'-1"	do	do
A75	4	do	9'-8"	do	do
A76	16	do	16'-0"	Straight	Column
A77	16	do	27'-2"	do	do
A78	64	do	30'-1"	do	do
A79	16	1"ϕ	8'-9"	Bent	do
A80	120	do	9'-1"	do	do
A81	20	do	8'-2"	do	Column
A82	96	5/8ϕ	21'-0"	Straight	Diaphragm
A83	4	do	10'-0"	do	do

PIERS 3 & 7

Mark	No	Size	Length	Shape	Location
A1	76	1"ϕ	23'-6"	Bent	Footing
A2	40	do	18'-0"	do	do
A3	120	5/8ϕ	19'-5"	do	Beam
A4	76	5/8ϕ	22'-8"	do	do
A5	72	do	28'-11"	do	do
A6	120	5/8ϕ	7'-10"	do	Ice-Breaker
A7	120	do	18'-2"	Straight	do
A8	60	5/8ϕ	38'-0"	Bent	do
A9	58	do	18'-5"	do	do
A10	4	do	12'-5"	do	do
A11	4	do	11'-7"	do	do
A12	4	do	10'-4"	do	do
A13	4	do	8'-10"	do	do
A14	No	Bar			
A15	4	1"ϕ	29'-8"	Bent	Ice-Breaker
A16	4	do	30'-9"	do	do
A17	4	do	31'-1"	do	do

PIERS 3 & 7

Mark	No Reqd	Size	Length	Shape	Location
A 3	4	1"ϕ	32'-3"	Bent	Ice-Breaker
A 9	4	do	32'-5"	do	do
A10	128	do	9'-6"	do	Column
A11	16	do	15'-3"	Straight	do
A12	88	do	22'-3"	do	do
A13	24	do	22'-8"	do	do
A21	52	5/8ϕ	26'-3"	do	Diaphragm
A25	52	do	5'-0"	do	do
A26	92	5/8ϕ	21'-8"	do	do
A27	4	do	10'-3"	do	do
A28	No	Bar			
A29	184	5/8ϕ	6'-0"	Straight	Diaphragm
A30	208	1/2ϕ	9'-6"	Bent	Column
A31	120	do	11'-2"	do	do
A32	12	1"ϕ	20'-6"	do	Beam
A33	8	5/8ϕ	20'-6"	Straight	do
A34	20	1"ϕ	29'-3"	Bent	do
A35	4	1/2ϕ	6'-10"	do	do
A36	8	do	16'-5"	do	do
A37	8	do	16'-0"	do	do
A38	8	do	17'-4"	do	do
A39	8	do	18'-3"	do	do
A40	8	do	19'-0"	do	do
A41	4	do	19'-8"	do	do
A42	4	do	20'-3"	do	do
A43	4	do	20'-8"	do	do
A44	4	do	21'-1"	do	do
A45	4	do	21'-6"	do	do
A46	4	do	22'-0"	Straight	do
A47	4	do	22'-4"	Bent	do
A48	4	do	22'-9"	do	do
A49	4	do	23'-2"	do	do
A50	4	do	23'-6"	do	do
A51	4	do	23'-10"	do	do
A52	4	do	24'-3"	do	do
A53	4	do	24'-7"	do	do
A54	4	do	25'-0"	do	do
A55	4	do	25'-4"	do	do
A56	4	do	25'-8"	do	do
A57	4	do	26'-1"	do	do
A58	4	do	26'-5"	do	do
A59	4	do	26'-9"	do	do
A60	4	do	27'-2"	do	do
A61	4	do	27'-6"	do	do
A62	4	do	27'-10"	do	do
A63	4	do	28'-3"	do	do
A64	4	do	28'-7"	do	do
A65	4	do	29'-0"	do	do
A66	4	do	29'-4"	do	do
A67	4	do	29'-8"	do	do
A68	4	do	30'-1"	do	do
A69	4	do	30'-5"	do	do
A70	4	do	30'-9"	do	do
A71	4	do	31'-2"	do	do
A72	4	do	31'-6"	do	do
A73	4	do	31'-10"	do	do
A74	4	do	32'-3"	do	do
A75	112	5/8ϕ	10'-6"	do	do

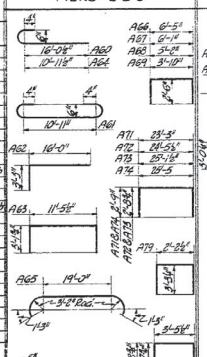
PIERS 4 & 6

Mark	No	Size	Length	Shape	Location
D1	172	1"ϕ	9'-1"	Bent	Caisson
D2	76	do	36'-11"	do	Ice-Breaker
D5	124	do	29'-2"	Straight	do
D4	24	1 1/4ϕ	35'-0"	do	do
D3	64	5/8ϕ	21'-4"	Bent	do
D6	56	do	41'-6"	Straight	do
D7	4	1"ϕ	40'-9"	Bent	do
D 8	4	do	46'-0"	do	do
D 9	4	do	48'-3"	do	do
D10	4	do	49'-7"	do	do
D11	4	do	50'-3"	do	do
D12	4	do	50'-8"	do	do
D13	68	5/8ϕ	17'-4"	do	do
D14	4	do	17'-11"	do	do
D15	4	do	16'-7"	do	do
L 16	4	do	15'-8"	do	do
D 7	4	do	14'-6"	do	do
D 3	4	do	13'-3"	do	do
D13	4	do	11'-9"	do	do
D12	4	do	10'-11"	do	do
D20	4	do	10'-0"	do	do
D21	52	do	18'-9"	Straight	Diaphragm
D18	64	do	8'-0"	do	do
D23	10	1"ϕ	18'-9"	do	do
D24	20	do	24'-3"	do	do
D25	20	5/8ϕ	19'-8"	Bent	do
D26	40	do	19'-0"	Straight	do
D27	200	1"ϕ	11'-5"	Bent	Ice-Breaker
D28	176	do	27'-6"	Straight	Column
D29	24	do	29'-0"	do	do
D30	136	do	26'-2"	do	do
D31	84	do	28'-0"	do	do
D32	20	1"ϕ	28'-2"	Bent	Strut
D33	16	do	11'-9"	Straight	do
D34	16	do	30'-6"	do	do
D35	12	5/8ϕ	28'-6"	do	do
D36	8	do	9'-0"	do	do
D37	4	1"ϕ	18'-0"	Bent	do
D38	4	do	18'-10"	do	do
D39	4	do	19'-0"	do	do
D40	4	do	19'-3"	do	do
D41	4	do	19'-11"	do	do
D42	4	do	20'-1"	do	do
D43	4	do	20'-6"	do	do
D44	4	do	21'-0"	do	do
D45	4	do	21'-5"	do	do
D46	4	do	21'-11"	do	do
D47	4	do	22'-5"	do	do
D48	4	do	18'-11"	do	do
D49	4	do	19'-0"	do	do
D50	4	do	19'-8"	do	do
D51	4	do	19'-8"	do	do
D52	4	do	20'-3"	do	do
D53	4	do	20'-8"	do	do
D54	4	do	21'-2"	do	do
D55	4	do	21'-7"	do	do
D56	4	do	21'-6"	do	do
D57	4	do	21'-11"	do	do
D58	4	do	22'-7"	do	do
D59	4	do	23'-2"	do	do
D60	12	1"ϕ	33'-2"	do	do
D61	12	1 3/8ϕ	42'-10"	do	do
D62	20	5/8ϕ	18'-7"	do	Column
D63	16	do	28'-6"	Straight	Beam
D64	8	do	10'-0"	do	do
D65	8	do	8'-8"	do	do
D66	8	1/8ϕ	15'-4"	Bent	do
D67	8	do	15'-5"	do	do

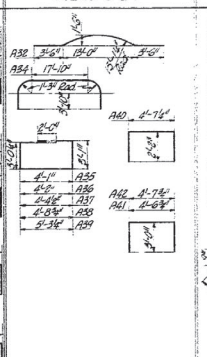
PIER 5

Mark	No	Size	Length	Shape	Ice Breaker
C1	100	1"ϕ	9'-1"	Bent	Ice Breaker
C2	100	do	29'-9"	Straight	do
C3	50	5/8ϕ	31'-6"	Bent	do
C4	32	do	24'-9"	Bent	do
C5	2	1"ϕ	42'-8"	do	do
C6	2	do	46'-0"	do	do
C7	2	do	48'-3"	do	do
C8	2	do	49'-7"	do	do
C9	2	do	50'-3"	do	do
C10	2	do	50'-8"	do	do
C11	33	5/8ϕ	17'-4"	do	do
C12	2	do	17'-11"	do	do
C13	2	do	16'-7"	do	do
C14	2	do	15'-8"	do	do
C15	2	do	14'-6"	do	do
C16	2	do	13'-3"	do	do
C17	2	do	11'-9"	do	do
C18	2	do	10'-0"	do	do
C19	10	do	19'-3"	do	Diaphragm
C20	20	do	8'-0"	Straight	do
C21	16	do	18'-9"	do	do
C22	32	do	8'-0"	do	do
C23	2	1"ϕ	18'-9"	do	do
C24	10	do	18'-0"	do	do
C25	116	1 1/4ϕ	11'-5"	Bent	Ice-Breaker
C26	184	do	27'-6"	Straight	Column
C27	16	do	26'-6"	do	do
C28	10	do	36'-8"	do	Beam
C29	7	do	33'-4"	do	do
C30	10	do	21'-7"	do	do
C31	10	do	18'-9"	do	do
C32	8	5/8ϕ	12'-7"	do	do
C33	2	5/8ϕ	22'-9"	do	do
C34	4	do	22'-0"	do	do
C35	4	do	23'-2"	do	do
C36	4	do	23'-7"	do	do
C37	4	do	24'-1"	do	do
C38	4	do	25'-9"	do	do
C39	4	do	26'-4"	do	do
C40	6	5/8ϕ	10'-8"	do	do
C41	22	do	12'-8"	do	do
C42	10	do	28'-8"	Straight	do
C43	4	do	29'-0"	do	do
C44	100	5/8ϕ	16'-8"	Bent	Column
C45	100	do	8'-0"	do	do
C46	50	do	11'-3"	do	do
C47	50	do	11'-3"	do	do
C48	50	do	6'-11"	do	do
C49	50	do	7'-0"	do	do
C50	120	do	15'-8"	do	do
C51	120	do	6'-0"	do	do
C52	60	do	11'-3"	do	do
C53	60	do	6'-10"	do	do
C54	54	do	10'-5"	do	do
C55	54	do	7'-3"	do	do
C56	76	5/8ϕ	21'-9"	Straight	Caisson
C57	312	1"ϕ	21'-9"	do	do
C58	58	5/8ϕ	19'-0"	do	do

PIERS 2 & 8



PIERS 3 & 7



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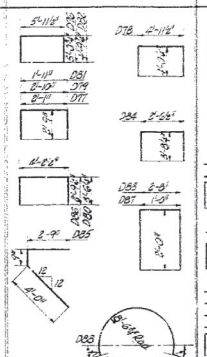

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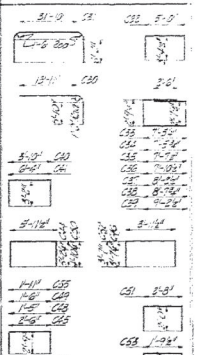

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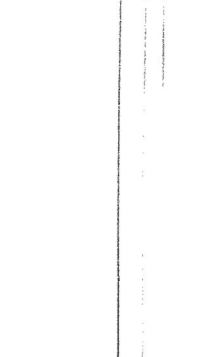
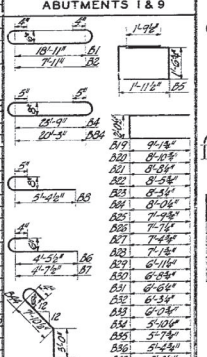
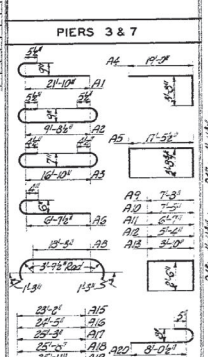


ABUTMENTS 1 & 9



PIERS 3 & 7



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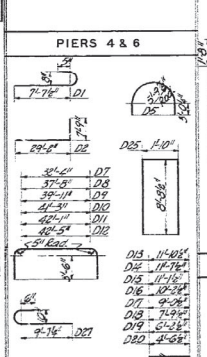

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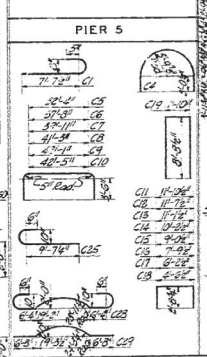

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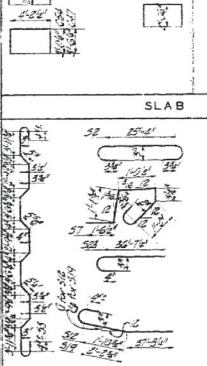


NOTE

All dimensions for reinforcing steel are given to face of bar.

RECORD DRAWING

JAN. 1949

APPROVED:
MISSOURI STATE HIGHWAY DEPT.

BY _____ DATE _____

TITLE _____

NO	DATE	BY	REVISION	APP'D

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE

OVER MISSOURI RIVER

BAR LIST AND DETAILS

JACKSON COUNTY L-588

In 41 Sheets Sheet No. 24 Scale 1/2" to 1'-0"

OFFICE, DISTRICT ENGINEER KANSAS CITY, MO.
KANSAS CITY DISTRICT MAY 1949

Submitted _____ Recommended _____ Approved _____

Submitted _____ Recommended _____ Approved _____

CONSULTING ENGRS., ST. LOUIS, MO. Checked by _____ Year _____

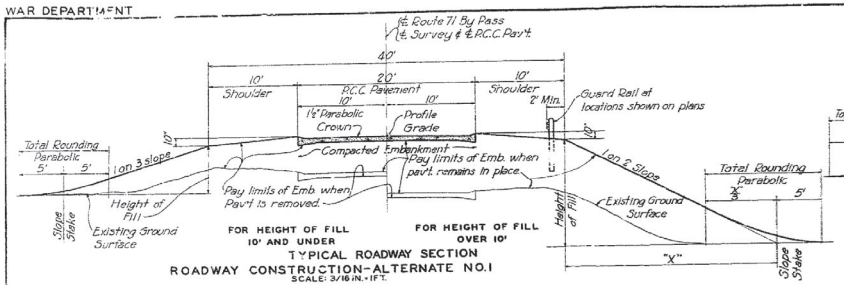
Drawn J.E.K. Traced J.L.E. Checked C.S. Dated JANUARY 1949

A-0-1826

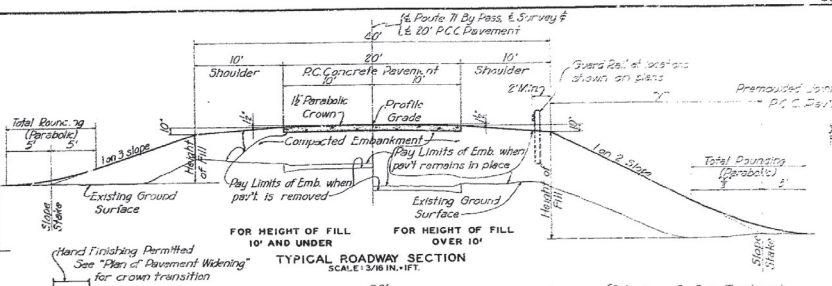
24

WAR DEPARTMENT

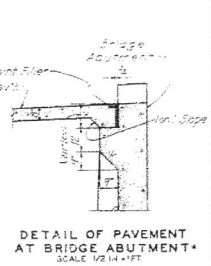
CORPS OF ENGINEERS, U.S. ARMY



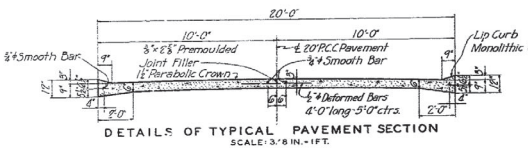
TYPICAL ROADWAY SECTION
ROADWAY CONSTRUCTION - ALTERNATE NO. 1
SCALE: 3/16 IN. = 1 FT.



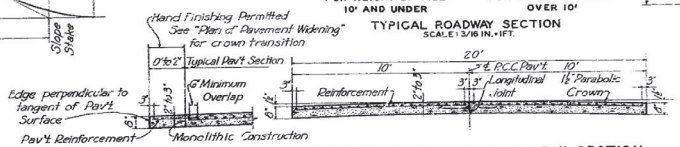
TYPICAL ROADWAY SECTION
SCALE: 3/16 IN. = 1 FT.



DETAIL OF PAVEMENT AT BRIDGE ABUTMENT*
SCALE 1/2 IN. = 1 FT.



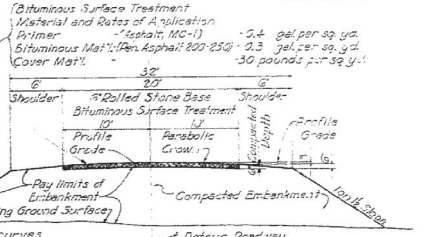
DETAILS OF TYPICAL PAVEMENT SECTION
SCALE: 3/8 IN. = 1 FT.



PAVEMENT WIDENING AT BRIDGE ENDS

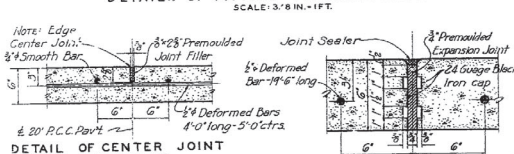
DETAILS OF TYPICAL PAVEMENT SECTION
SCALE: 3/8 IN. = 1 FT.

ROADWAY CONSTRUCTION - ALTERNATE NO. 2*



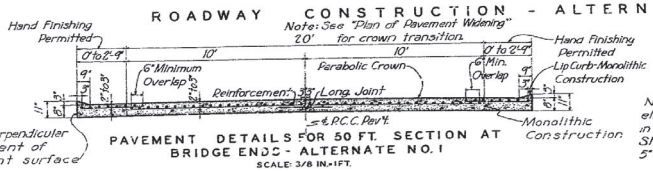
TYPICAL DETOUR SECTION*
SCALE: 3/16 IN. = 1 FT.

NOTE: On Horizontal curves eliminate crown and superelevate in accordance with detail shown on Sheet No. 28. Maximum superelevation .5" in 20'. Pivot S.E. around ℄.

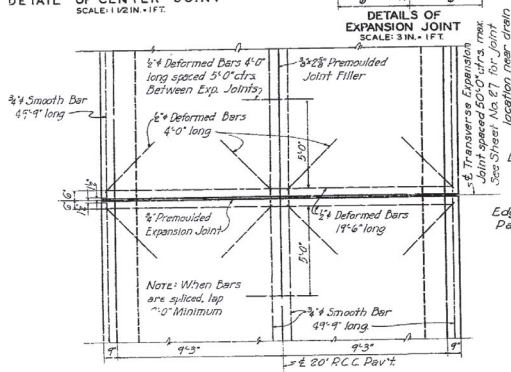


DETAIL OF CENTER JOINT
SCALE: 1 1/2 IN. = 1 FT.

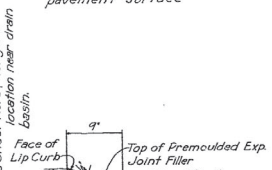
DETAILS OF EXPANSION JOINT
SCALE: 3 IN. = 1 FT.



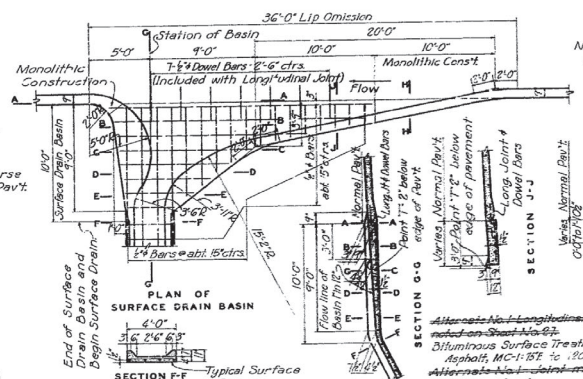
PAVEMENT DETAILS FOR 50 FT. SECTION AT BRIDGE ENDS - ALTERNATE NO. 1
SCALE: 3/8 IN. = 1 FT.

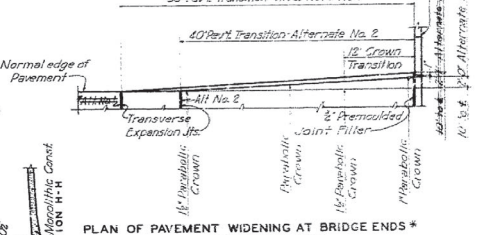


TYPICAL PLAN - 20' P.C.C. PAVEMENT
ROADWAY CONSTRUCTION - ALTERNATE NO. 1
SCALE: 3/8 IN. = 1 FT.



ALTERNATE NO. 1
DETAIL OF EXPANSION JOINT THRU LIP CURB
SCALE: 1 1/2 IN. = 1 FT.

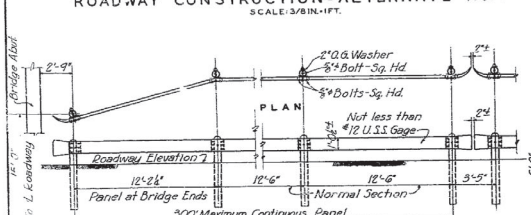




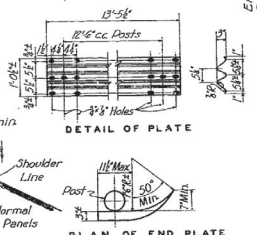
PLAN OF PAVEMENT WIDENING AT BRIDGE ENDS*
SCALE: 1/8 INCH = 1 FOOT

NOTES. Alternate No. 2 - See Sheet No. 27 for details of transverse joints, longitudinal joints and reinforcement in P.C. Concrete Pavement.
~~Alternate No. 1 - See Sheet No. 27 for details of reinforcement for P.C. Concrete Pavement in the first 50 feet of pavement adjacent to bridge. See Sheet No. 27 for spacing of transverse pavement joints and longitudinal pavement joints adjacent to Surface Drain Basins (For Alternate No. 1).~~
~~Alternate No. 1 - Longitudinal joint in P.C. Concrete Pavement in 50 feet adjacent to bridge shall be as shown and noted on Sheet No. 27.~~
Bituminous Surface Treatment for Detour Road - The temperature of application shall be as follows:- Asphalt, MC-1: 150° to 200° F. Penetration Asphalt - 250: 275° to 325° F.
~~Alternate No. 1 - Joint material shall meet the requirements of the following sections of the specifications: Material for sealing transverse joints: (3-03 g (5)). Longitudinal Joint Filler: Premoulded (3-03 g (7)) or (8). Filler through lip curb: (3-03 g (7)) or (8). Expansion Joint Filler: (3-03 g (7)) or (8).~~
Joint filler at bridge ends shall meet the requirements of section 13-03 g (7) or (8) of the Specifications.
* PAVEMENT BUILT ACCORDING TO DETAILS OR ALTERNATE NO. 2.

RECORD DRAWING
JAN. 1949

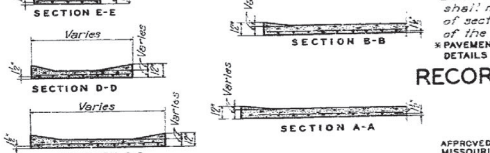


SCALE: 1/4 IN. = 1 FT.



GUARD RAIL - ALTERNATES 1 & 2*

Used Armco Drainage and Metal Products, Inc., type shown. Other types meeting with the approval of the Contracting Officer are permissible.



SURFACE DRAIN BASIN AND SURFACE DRAIN ALTERNATE NO. 1
SCALE: 1/4 IN. = 1 FT.

APPROVED:
MISSOURI STATE HIGHWAY DEPT.
BY W. C. McBroom DATE 12-21-48
TITLE Chief Engineer

NO.	DATE	BY	REVISION	APP'D
2	12-20-48	R.M.C.	Revised approach Notes	R.M.C.
1	11-29-48	R.M.C.	Revised Notes	R.M.C.

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE
(MISSOURI RIVER)

ROAD PLANS
TYPICAL CONSTRUCTION DETAILS
L-563
JACKSON COUNTY

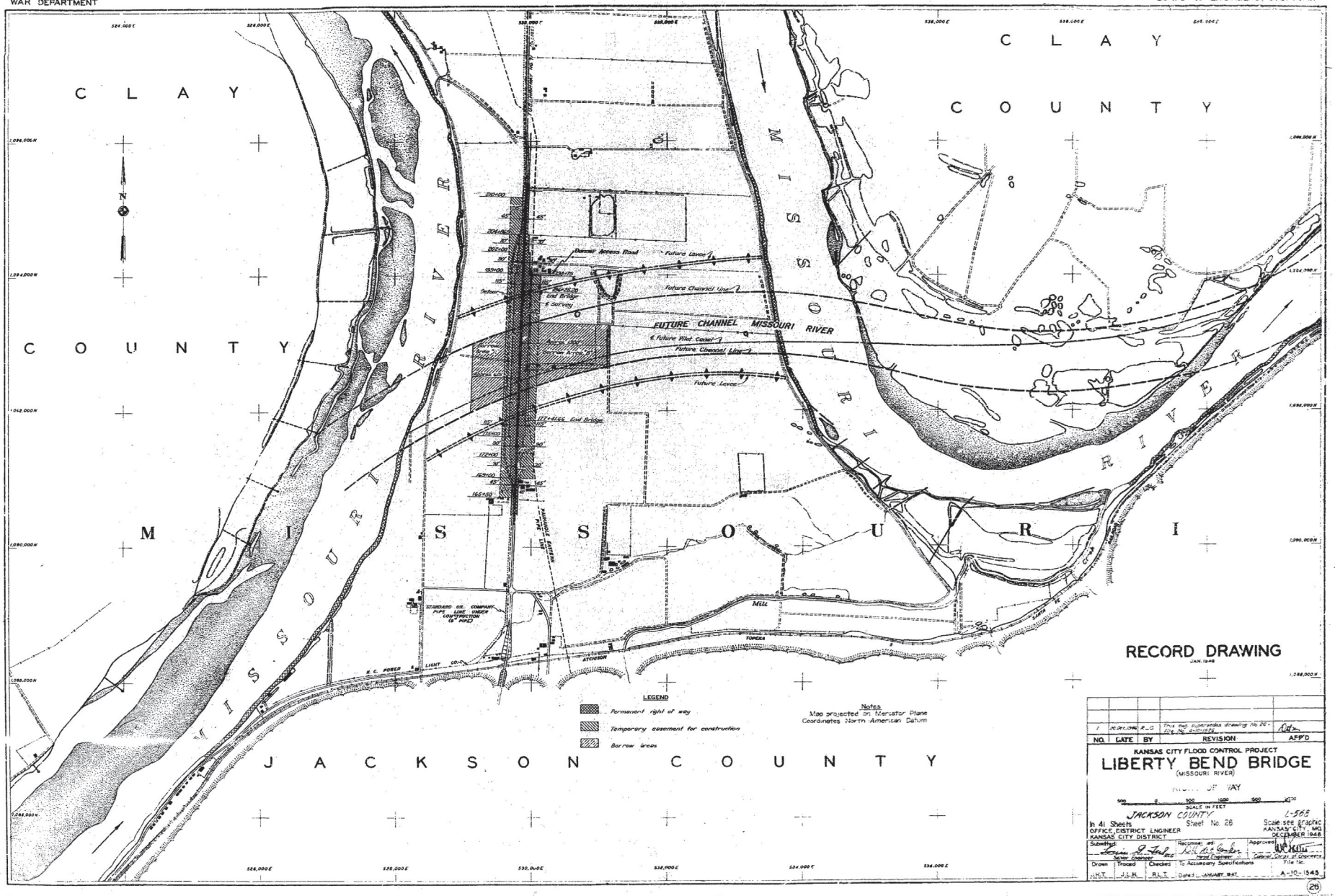
In 41 Sheets | Sheet No. 25 | Scale: As Shown | KANSAS CITY, MO. MAY, 1948

OFFICE DISTRICT ENGINEER, KANSAS CITY DISTRICT
Submitted by: O. R. Kratz — Resident Asst. — Asst. Engineer — Approved: W. E. Hall — District Engineer — Chief Divers of Engrs.
SVERDRUP AND PARCEL CONSULTING ENGINEERS, ST. LOUIS, MO. — To Accompany Specifications — File No.
Drawn: BWR | Traced: SAM | Checked: E.J.S. | Quotes: JANUARY 1947 | A-10-1529

25

WAR DEPARTMENT

CORPS OF ENGINEERS, U.S. ARMY



RECORD DRAWING
JAN. 1948

NO.	DATE	BY	REVISION	APP'D
1	10 Jan 1948	R.C.	This dwg supersedes drawing No 26-File No. 41-0-1545	

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE
(MISSOURI RIVER)

RIGHT OF WAY

SCALE IN FEET 500 0 500 1000 1500 2000

JACKSON COUNTY
In 41 Sheets Sheet No. 26
OFFICE, DISTRICT ENGINEER
KANSAS CITY DISTRICT

L-565
Scale see graphic
KANSAS CITY, MO.
DECEMBER 1948

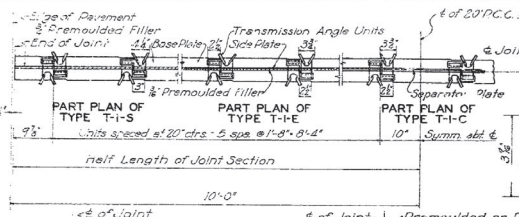
Submitted: Lewis G. Ford, Senior Engineer
Recommended: J.H. Gentry, Head Engineer
Approved: W.M. Kelly, Colonel Corps of Engineers

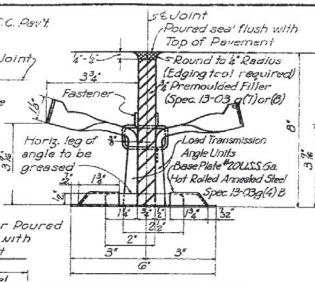
Drawn	Traced	Checked	To Accompany Specifications	File No.
J.H.T.	J.L.H.	R.L.T.	Dated: JANUARY 1948	A-10-1545

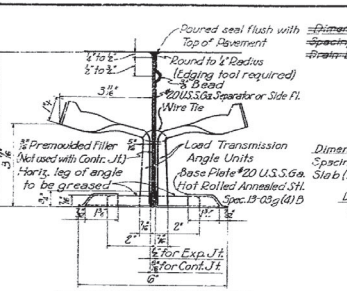
26

WAR DEPARTMENT

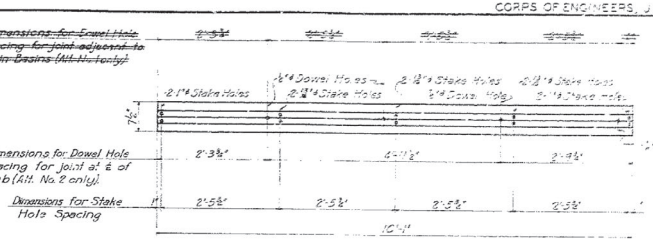
CORPS OF ENGINEERS, U.S. ARMY

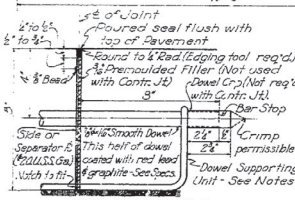


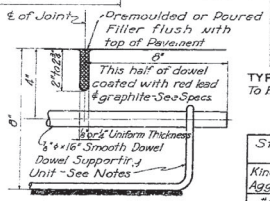




~~Dimensions for Dowel Hole Spacing for joint adjacent to Drain Basins (Alt. No. 1 only)~~







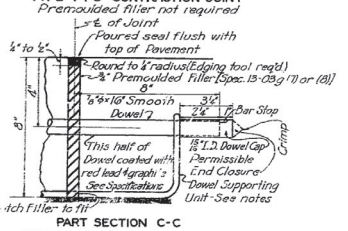
STANDARD JOINT SPACING IN PAVEMENT		
Kind of coarse Aggregate used	Distance between Joints	
	Expansion	Contraction
~~#1 or #2~~	~~No Limit~~	~~None~~
#3	None*	60' c. to c.

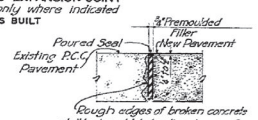
"Aggregate #1 is any aggregate containing more than 30% chert or flint particles.

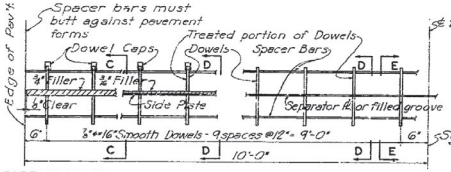
"Aggregate #2 is gravel of glacial origin, consisting principally of particles of quartzite and igneous rock.

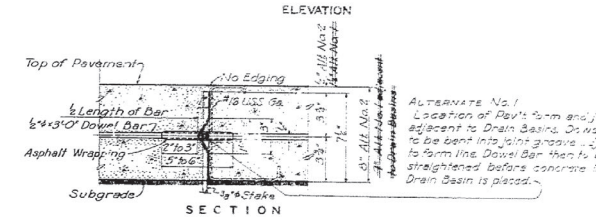
"Aggregate #3 is any other accepted (As Built) coarse aggregate.

* Except adjacent to the first 40' section at Bridge ends and for the beginning and end of new pavement.









NOTES: – Although only one type of Longitudinal Joint is shown, any other type employing the deformed metal strip and dowel bars, meeting the requirements of the specifications and meeting the approval of the Contracting Officer, will be permissible.

The Contractor may use type T-I-E or N-3-E Expansion Joints when other types are not specified. For the Contraction Joints, the Contractor may, at his option, use type T-I-C, N-3-C or N-4-C when permitted. Only the one type expansion joint and the one type contraction joint selected will be used throughout the project.

The dowel supporting unit for all joints where dowel bars are required shall be suitable for the particular type of joint and shall meet the approval of the Contracting Officer.

Metal plates – All holes, notches, beads or other required deformations shall be made at the factory.

Joints with metal plates and Bituminous Filler – The Filler shall be attached to the side plates so that it cannot be displaced by handling and paving operations. Staples, bolts and nuts, bolts, clinched nails or similar devices will not be permitted for this purpose.

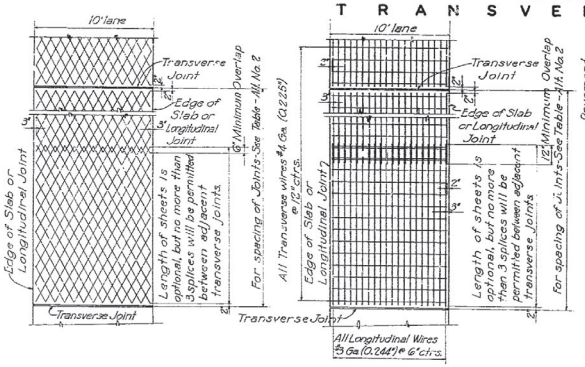
Bituminous Filler for Joints shall meet the requirements for the specific section of the specifications as follows:–

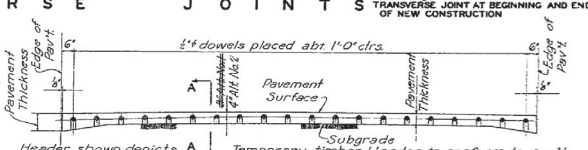
Type N-3-C Contraction Joint, premoulded – Section 13-03 g (1) or (2).
Poured – Section 13-03 g (3).
Poured Seal – Section 13-03 g (5).
Premoulded Bituminous Filler requiring side plates – Section 13-03 g (6) or (8).
All other premoulded bituminous filler – Section 13-03 g (7) or (8).

Side plates for transverse joints shall meet the requirement of section 13-03 g (4) A, B and C of the specifications.

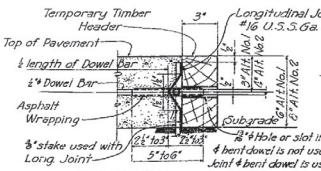
* PAVEMENT BUILT ACCORDING TO DETAILS FOR ALTERNATE NO. 2.

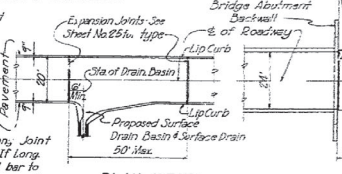
TRANSVERSE JOINTS ALTERNATE NO. 2

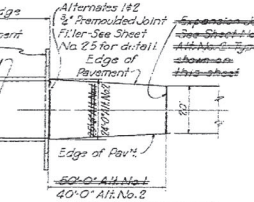




CONSTRUCTION JOINT ALT. NO. 1 & 2*







APPROVED:
MISSOURI STATE HIGHWAY DEPT.
BY [illegible] DATE [illegible]
TITLE Chief Engineer

REINFORCEMENT ALT. NO. 1 & 2

NOTE: Wire fabric or expanded metal reinforcement may be used at the contractor's option. The reinforcement selected shall be used throughout the project for Alternate No. 2 or for the first 50' sections adjacent to the bridge for Alternate No. 1.

RECORD DRAWING
JAN. 1948

NO.	DATE	BY	REVISION	APP'D.
1	[illegible]		Joint Detail Changed	

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE
(MISSOURI RIVER)

ROAD PLANS
JOINT DETAILS

JACKSON COUNTY L-526

In all Sheets Sheet No. 27 Scale: Not to Scale

OFFICE DISTRICT ENGINEER KANSAS CITY, MO.
KANSAS CITY DISTRICT MAY, 1948

Submitted: [illegible] Recommended: [illegible] Approved: [illegible]

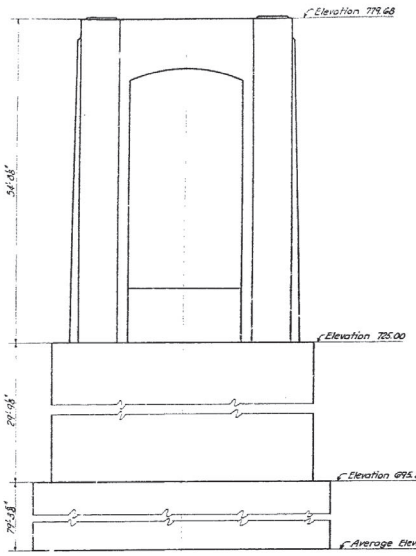
SVERDRUP AND PARCEL CONSULTING ENGR. ST. LOUIS, MO. Prepared to Accompany Specifications of [illegible] P. W. No.

Drawn: B.W.R. Traced: R.A.M. Checked: E.J.S. Dated: JANUARY, 1947 A-10-1687

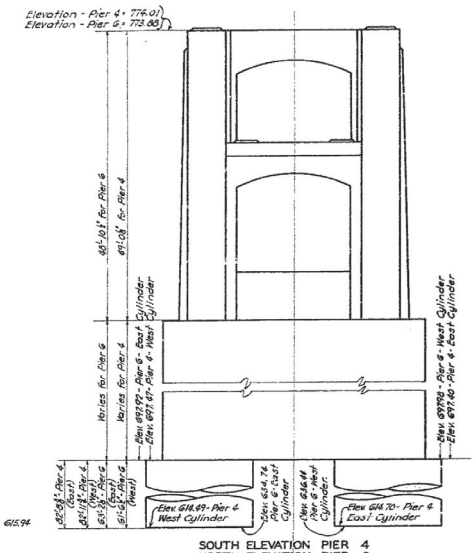
27

27

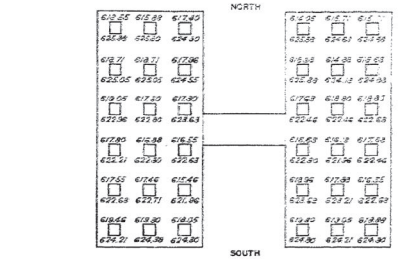
LIBRARY
KANSAS



SOUTH ELEVATION PIER 5

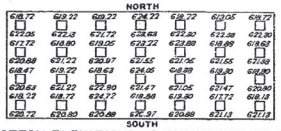


SOUTH ELEVATION PIER 4
NORTH ELEVATION PIER 6



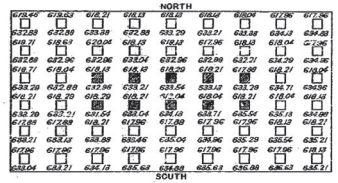
BOTTOM ELEVATIONS OF FOUNDATION PILES
ABUTMENTS 1&9

Elev. for abut 1 above piles; Elev. for abut 9 below pile
Elev. top of all piles - 703.88



BOTTOM ELEVATIONS OF FOUNDATION PILES
PIERS 2&8

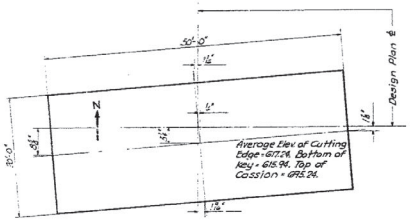
Elev. for pier 2 above pile; Elev. for pair 8 below pile
Elev. top of all piles - 700.80



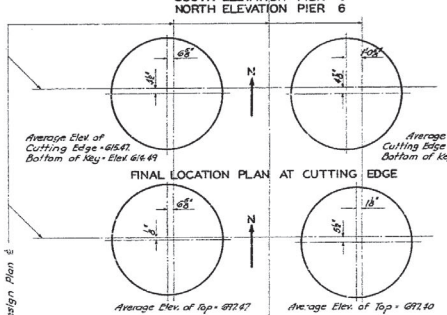
BOTTOM ELEVATIONS OF FOUNDATION PILES
PIERS 3&7

Elev. for pier 3 above pile; Elev. for pier 7 below pile
Elev. top of cross-hatched piles - 696.45; All others - 689.96

PILE ELEVATIONS
(As Built)

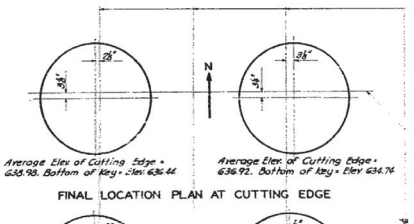


FINAL LOCATION PLAN AT CUTTING EDGE

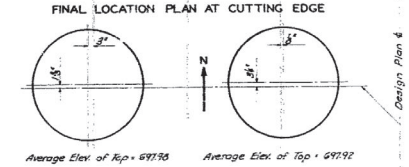


FINAL LOCATION PLAN AT CUTTING EDGE

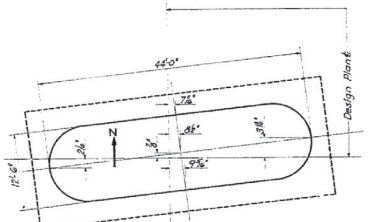
FINAL LOCATION PLAN AT TOP OF CYLINDERS



FINAL LOCATION PLAN AT CUTTING EDGE



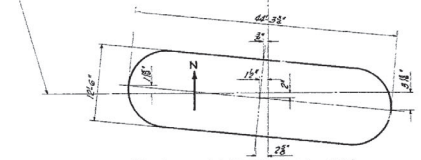
FINAL LOCATION PLAN AT TOP OF CYLINDERS



Note: Dimensions same as designed except average height of Ice Breaker is 29.76'. Top Elev. of Ice Breaker - 775.00. Shafts built and located according to design plans. Ice Breaker on same axes as base.

FINAL LOCATION AT TOP OF ICE BREAKER

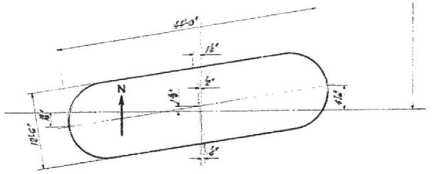
PIER 5



Note: Average height of Ice Breaker = 27.64'. Top Elev. of Ice Breaker = 775.00. Shafts built and located according to design plans.

FINAL LOCATION AND SIZE OF ICE BREAKER

PIER 4



Note: Average height of Ice Breaker = 27.05. Top Elev. of Ice Breaker = 775.00. Shafts built and located according to design plans.

FINAL LOCATION AND SIZE OF ICE BREAKER

PIER 6

RECORD DRAWING
JAN. 1948

NO.	DATE	BY	REVISION	APP'D.

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE
(MISSOURI RIVER)

PIERS 4, 5 AND 6 AS BUILT

JACKSON COUNTY — L-568

In 41 Sheet — Sheet No. 38 — Scale: None

OFFICE, DISTRICT ENGINEER, KANSAS CITY DISTRICT — KANSAS CITY, MO. DEC. 1949

Submitted: — Recommended: — Approved:

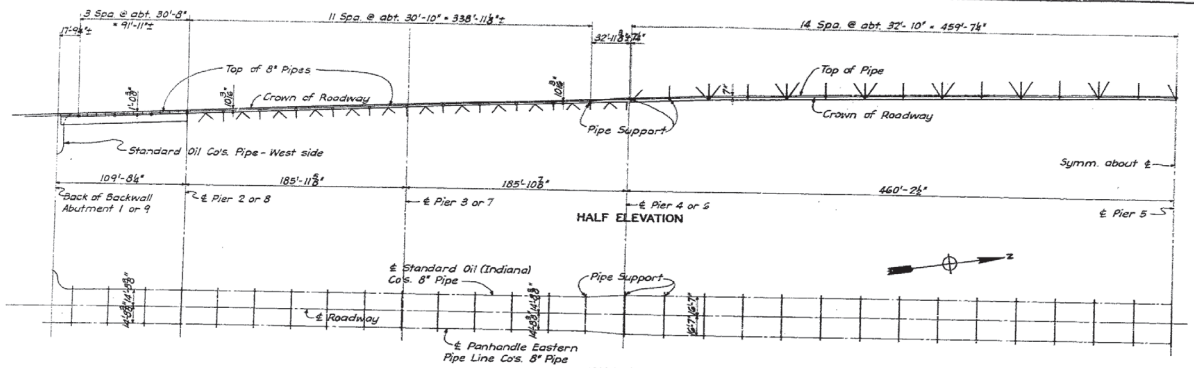
AVERILL AND PARCEL, CONSULTING ENGRS., ST. LOUIS, MO. — Asst. Engineer — Chief, Engr. Div.

Drawn: RMH — Traced: RMH — Checked: HWK — Dates: — To Accompany Specifications — File No. A-10-1798

Note: Do not scale this drawing. Follow dimensions.

WAR DEPARTMENT

CORPS OF ENGINEERS, U. S. ARMY

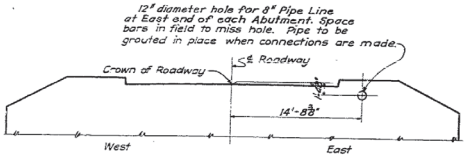


HALF ELEVATION

HALF PLAN

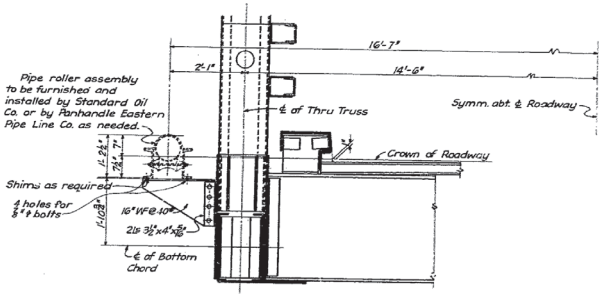
LOCATION OF PIPE SUPPORTS

SCALE: 1 IN. = 40 FT.



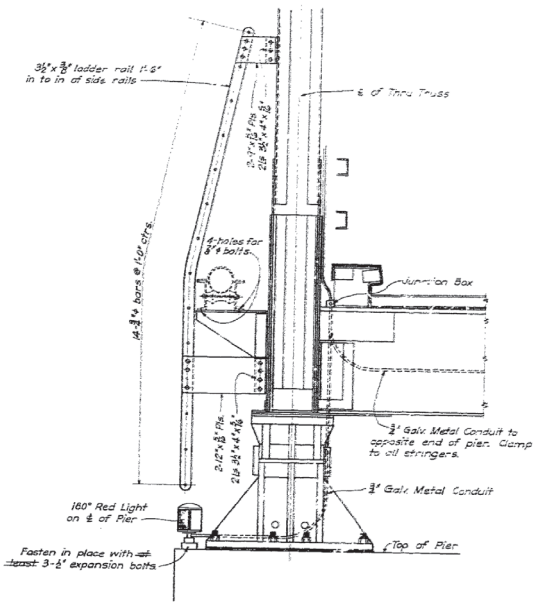
PIPE AT ABUTMENTS

SCALE: 3/16 IN. = 1 FT.



PIPE SUPPORT AT THRU TRUSS SPANS

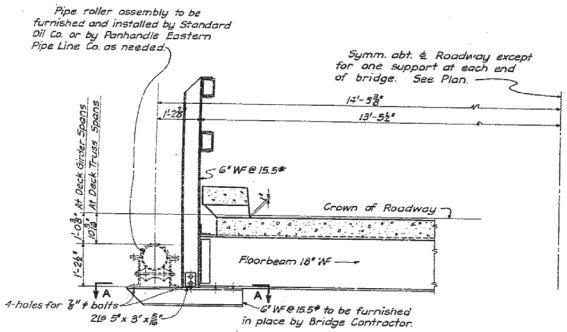
SCALE: 3/4 IN. = 1 FT.



Ladder and light at each side of bridge.

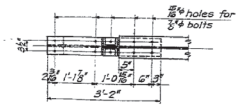
DETAILS OF LADDER AND 180° RED LIGHT AT PIER 5

SCALE: 3/4 IN. = 1 FT.



PIPE SUPPORT AT DECK GIRDER SPANS AND AT DECK TRUSS SPANS

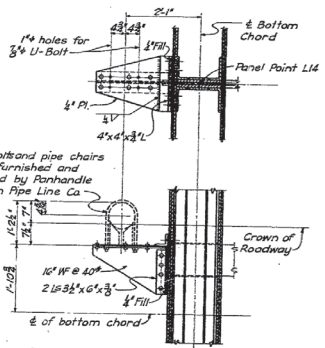
SCALE: 3/4 IN. = 1 FT.



SECTION A-A

SCALE: 3/4 IN. = 1 FT.

Typical support at odd numbered panel points shown. Supports at other panel points similar except as shown for L14 of East truss.



PIPE SUPPORT AT L14 OF EAST TRUSS OF THRU SPANS

SCALE: 3/4 IN. = 1 FT.

Note:- Do not scale this drawing. Follow dimensions.

NOTES

Details of ladder and pipe supports shown on this sheet to supersede respective details of ladder and pipe supports shown elsewhere on Sheets No. 3, 8, 15, 19 and 21.

REVISION NO. 1 APPROVED:
MISSOURI STATE HIGHWAY DEPT.
BY /s/ V. W. Enslow
TITLE Bridge Engineer
DATE 4-29-48

APPROVED:
MISSOURI STATE HIGHWAY DEPT.
BY /s/ V. W. Enslow
TITLE Bridge Engineer
DATE 11-21-47

RECORD DRAWING

JAN. 1948

NO.	DATE	BY	REVISION	APP'D.
2	2 Oct. 1947	R.L.G.	Minor revisions. As Built.	
1	10 May 1948	C.M.M.	Added Pipe Support at L14 of East Truss of Thru Spans.	

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE
(MISSOURI RIVER)

REVISED PIPE LINE DETAILS

JACKSON COUNTY

L-56A

In 41 Sheets | Sheet No. 39 | Scale: As Shown

OFFICE, DISTRICT ENGINEER, KANSAS CITY DISTRICT, KANSAS CITY, MO. DEC. 1947

Submitted: L. E. Schmeckpeper, Major, Corps of Engineers, District Engineer

Approved: Lt. Col. D. R. Crawford, Division Engineer, Missouri River Division

SVERDRUP AND PARCEL, CONSULTING ENGRS., ST. LOUIS, MO.

To Accompany Modification No. 1, Contract No. W-41-022-eng-784

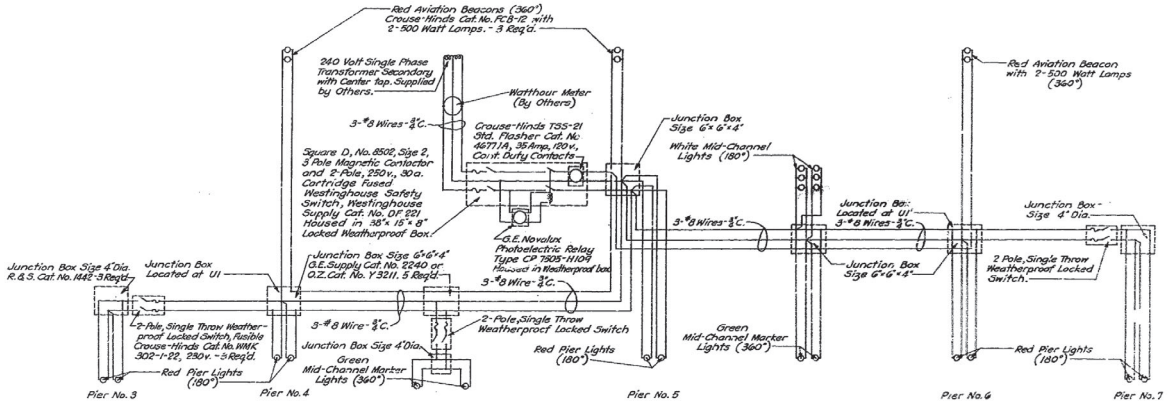
File No. A-10-1556

Drawn: L.R.B. | Traced: L.R.B. | Checked: C.M.M.

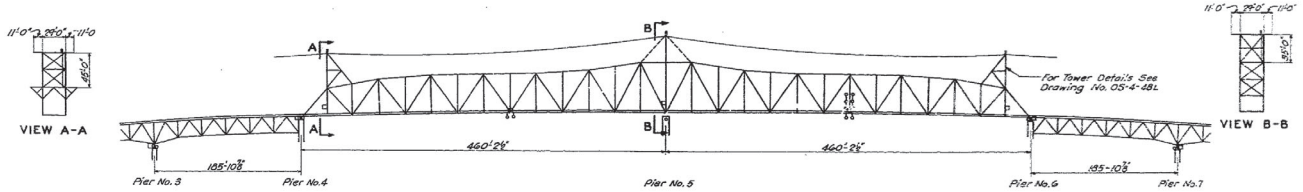
Dates:

29

1663



WIRING DIAGRAM FOR BRIDGE MARKER LIGHTING
REFERENCE LIBERTY BEND BRIDGE - SHEET 20 OF 44, MAY, 1946.



EAST ELEVATION SHOWING LOCATION OF TOWERS

NOTES

1. ~~Any Equal Construction is acceptable for the equipment specified upon approval at owners.~~
2. All Conductors shall be flame retardent and moisture resistant, Type TH.
3. All Conductors shall be No. 12, Type TW in ¾" Conduit unless otherwise specified.
4. All Pier and Mid-Channel Marker Lights shall be 60 watt fixtures.
5. All Lamps shall have 115 volt rating.
6. All Conduit shall be ¾" Rigid Galvanized.
7. Conduit Runs from the junction boxes to the Aircraft Warning Lights on Towers at U1 and U1' will be made similar to run on tower at U14. See Drawing No. 05-4-48L prepared for Kansas City Power and Light Co.
8. All Junction Boxes shall be weatherproof and supplied with mounting lugs and shall have tapped conduit openings as required.
9. Provide Conduilets at least every 70 ft. of conduit length and at other points as necessary.

RECORD DRAWING
JAN. 1949

This drawing is a copy of the original tracing in possession of the K.C.P.& L.Co.

JACKSON COUNTY L-568

KANSAS CITY POWER AND LIGHT CO.

REVISION OF MARKER LIGHTING ON LIBERTY BEND BRIDGE

SVERDRUP AND PARCEL, INC.
CONSULTING ENGINEERS
ST. LOUIS, MO.
FILE NO. A-10-1799

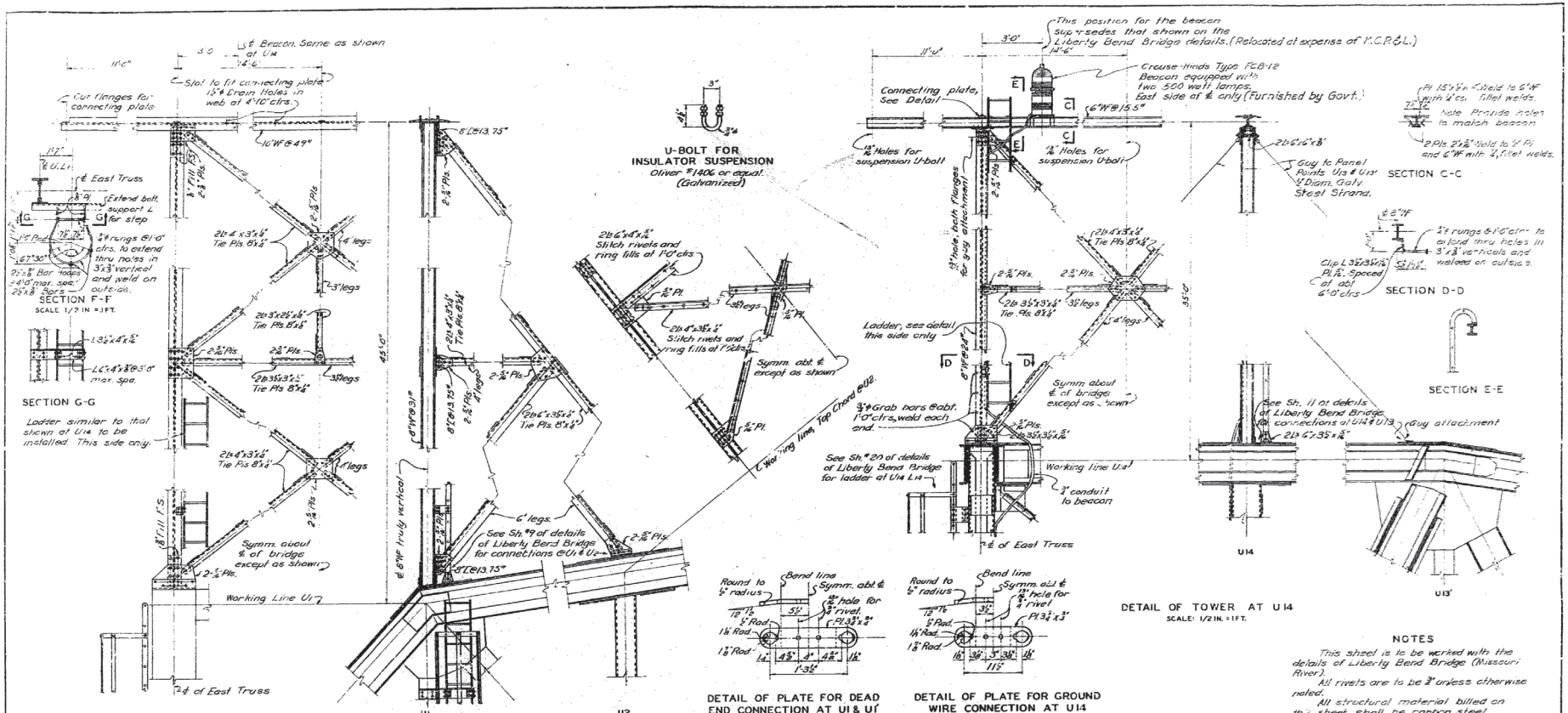
OS 43-48L

REVISION NO.	DATE	DESCRIPTION	BY	CHECKED
1	7-12-48	Revised Wiring & Junction Box Sizes & Added Flasher	G.G.R.	J.N.K.
2	1-3-49	Revised To As Built Condition	RD.C.	J.N.K.

Drawn by D.G.R. May '48
Passed by R.G.C. Dec. 1948
Checked by J.N.K. May 1948

Copy Checked By - J.M.W. Jan. 1949

Note: Do not scale this drawing. Follow dimensions.



NOTES

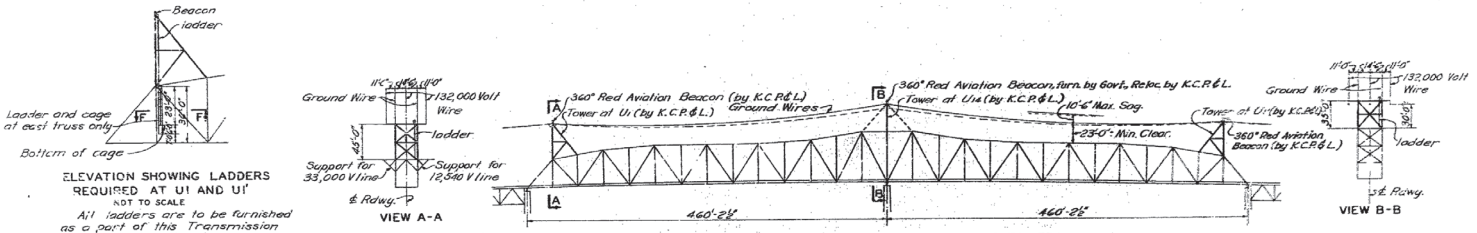
This sheet is to be worked with the details of Liberty Bend Bridge (Missouri River).

All rivets are to be ⅞" unless otherwise noted.

All structural material billed on this sheet shall be carbon steel.

The clear distance between the plates shall not exceed 2'-0".

Materials, fabrication, erection, shop and field painting to conform to specifications of the Liberty Bend Bridge



6677	Drawn by C.M.M. Jan. 1947
A3815	Traced by D.N.Y. Mar. 1947
	Checked by J.F.K. Mar. 1947

Note: Do not scale this drawing. Follow dimensions.

RECORD DRAWING
JAN. 1948

NO.	DATE	BY	REVISION	APPD.
1	2 Jan 1948	R.L.S.	Minor revisions. As built.	

This drawing is a copy of the original tracing in possession of the K.C.P.&L. Co.

JACKSON COUNTY L-568

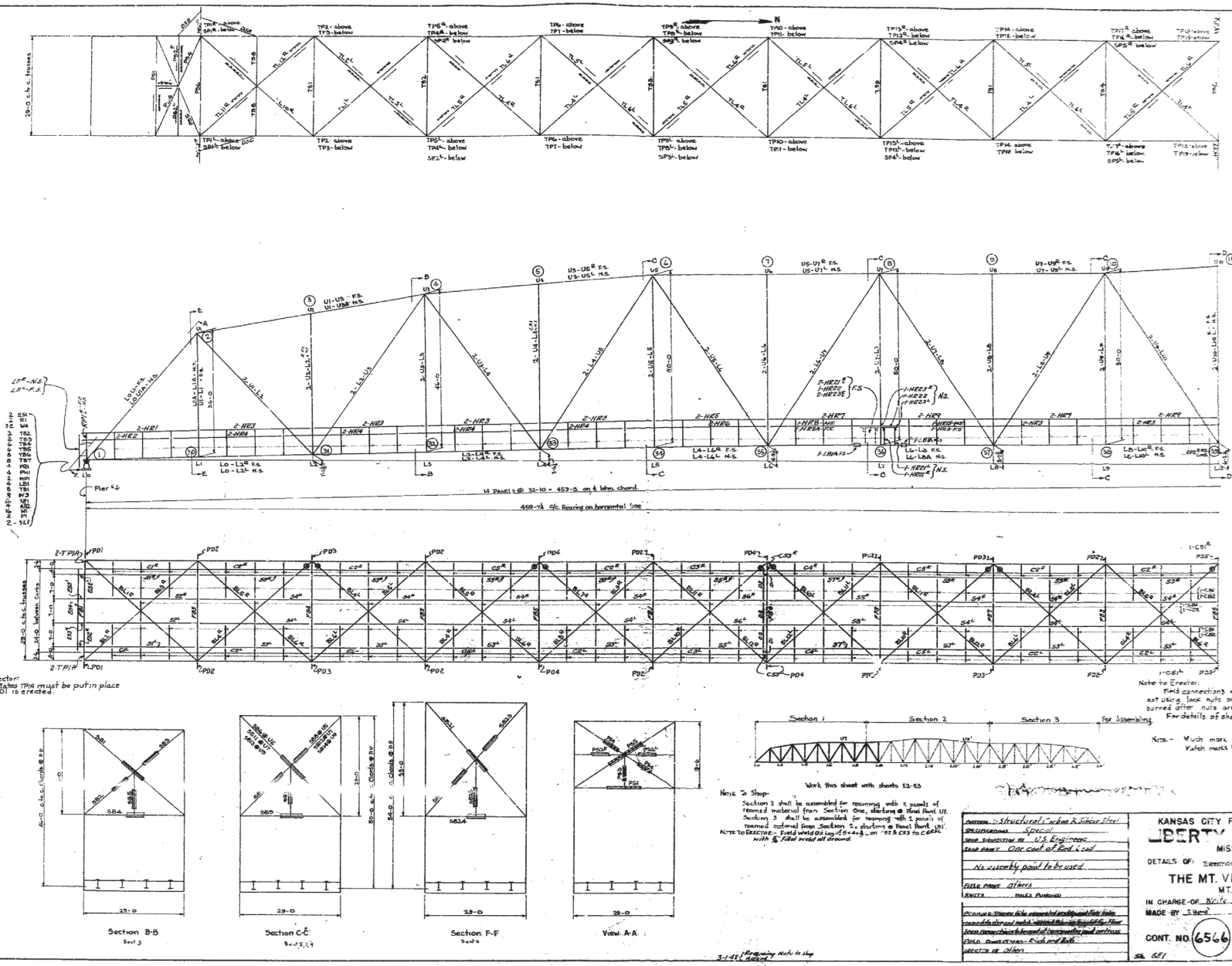
KANSAS CITY POWER & LIGHT CO.

TRANSMISSION LINE TOWERS FOR LIBERTY BEND BRIDGE

SVERDRUP AND PARCEL CONSULTING ENGINEERS ST. LOUIS, MO.

FILE NO. A-10-1800 OS-4-48L

41



LIST of DRAWINGS

Sheet	Description
E1	Erection Plan & Thru Trusses
E2	Erection Plan & Thru Truss
E3	Erection Plan & Thru Truss

1	End Posts L0-U1
2	Top Chord U1-U2
3	Top Chord U2-U3
4	Top Chords U3-U4
5	Top Chords U4-U5
6	Top Chord U5-U6
7	Top Chords U6-U7
8	Top Chord U7-U8
9	Bottom Chord L0-L2
10	Bottom Chord L2-L4
11	Bottom Chord L4-L6
12	Bottom Chord L6-L8, L8-L8A
13	Bottom Chord L8-L10
14	Bottom Chord L10-L12
15	Bottom Chord L12-L14
16	Verticals U1-L1, U2-L2 & U4-L4
17	Verticals U3-L3, U5-L5, U6-L6 & U8-L8
18	Verticals U7-L7, U9-L9, U10-L10 & U11-L11
19	Vertical U12-L12
20	Diagonals U1-L2, L2-U3, U3-L4, L4-U5
21	Diagonals U5-L6, L6-U7, U7-L8, L8-U9
22	Diagonals L8-U9, End Post U9-L10
23	Portal Struts PS1, PS2, PS3, PS4 & PS5
24	Portal Strut PS6 & Top Strut PS6A
25	Portal Strut PS7A & Portal Bracing PS7-B
26	Portal Braces PB4 to PB6
27	Top Strut TS3 Sway Bracing TS3a & 3b
28	Top Laterals TL1 to TL11
29	Bottom Laterals BL1 to BL4
30	Bottom Laterals BL5 to BL11
31	Bottom Laterals BL11 to BL12
32	Bottom Lateral BL12 to BL13
33	Sway Bracing SB1 to SB14
34	Sway Bracing SB15 & 25
35	Power Line Supports at U1
36	Power Line Supports at U10
37	Platform, Hand Rail, Roadway Plate RP1
38	Railing Angles, Ladder, Electric Box
39	Wire Support, Ladder, Light Support
40	Hand Railing HR1 & HR10
41	Hand Railing HR11 & HR12, 27 & 28
42	Expansion Supports, Pipe Supports
43	Slabs, Pins, Anchor Bolts, Turned Bolts
44	Floor Beams at L2 BL4, F3A - F3E
45	Floor Beams FB3, FB5, FB6 & FB10
46	Floor Beams FB8, FB9 & FB12
47	Floor Beams, Curb Supports & Curb Brackets
48	Stringers S1-S3-S5-S7-S9-S10-S13
49	Stringers S2-S4-S6-S8-S11-S12-S14
50	Curb Sections C1-C2A-C3-C4-C5
51	Erection Material

Allowed Erector's List of Field Rivets
Asset Erector's List of Field Bolts
ASM Summary - Field Rivets
ASB Summary - Field Bolts
ATB Turned Bolts

Design	Structural Carbon & Silicon Steel
Specifications	Special
Under Direction of	U.S. Engineer
Shop Paint	One coat of Red Lead
No assembly paint to be used	
Field Paint	Others
Rivets	Holes Punched

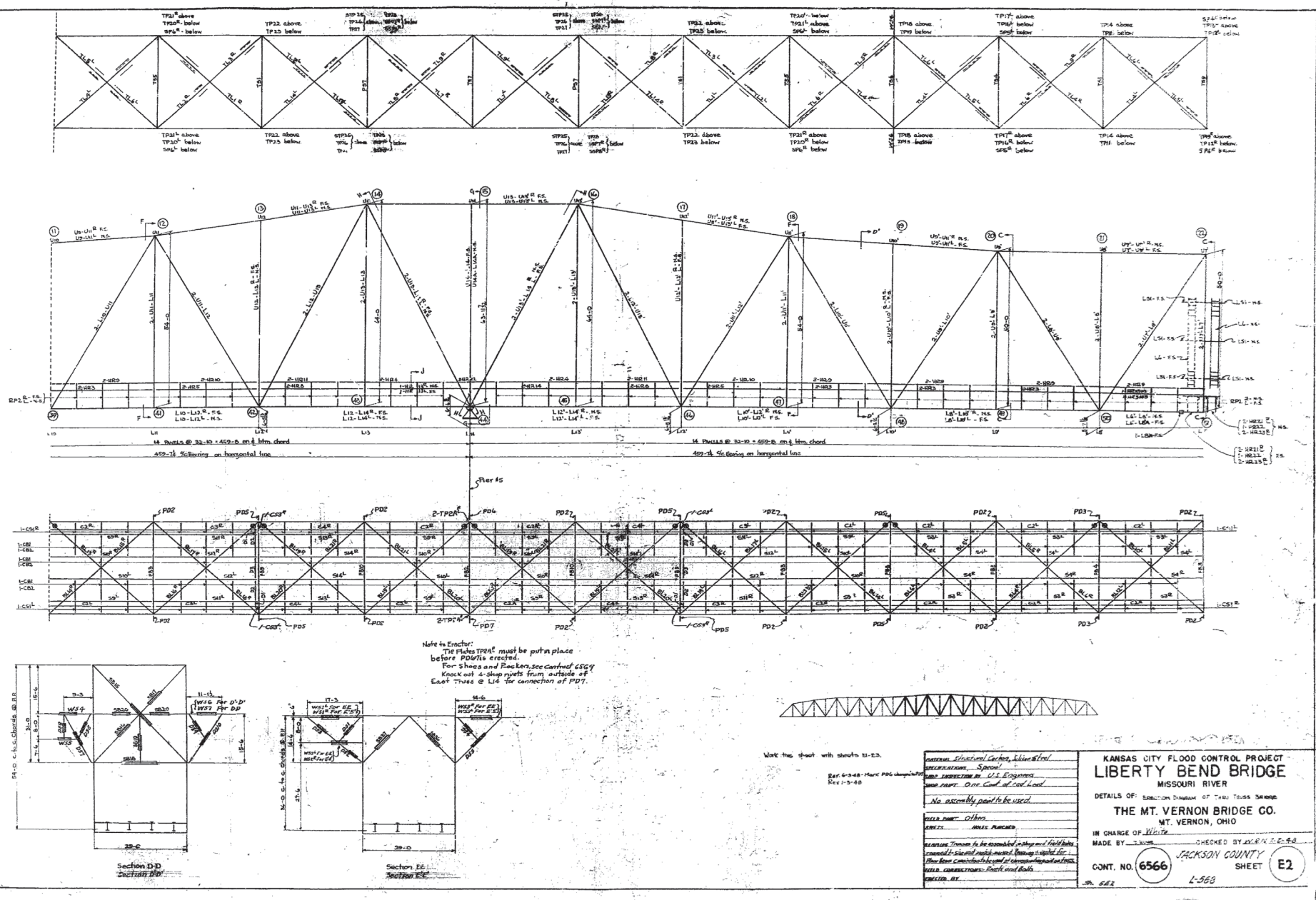
Drawing to be approved and signed before fabrication and no alteration, material substitution or change from approved drawing will be allowed for. Any departure from the layout of corresponding part will be rejected.
Field Paint Others - Red Lead Both
Inspector or Others

KANSAS CITY FLOOD CONTROL PROJECT
LIBERTY BEND BRIDGE
MISSOURI RIVER
DETAILS OF Erection Diagram for Thru Trusses
THE MT. VERNON BRIDGE CO.
MT. VERNON, OHIO
IN CHARGE OF Wylie
MADE BY J.W.H. CHECKED BY AW&N 2-3-48
CONT. NO. 6566 JACKSON COUNTY SHEET E1
Sh. E1
L-569

3-1-48 Engineering Note to Shop

32

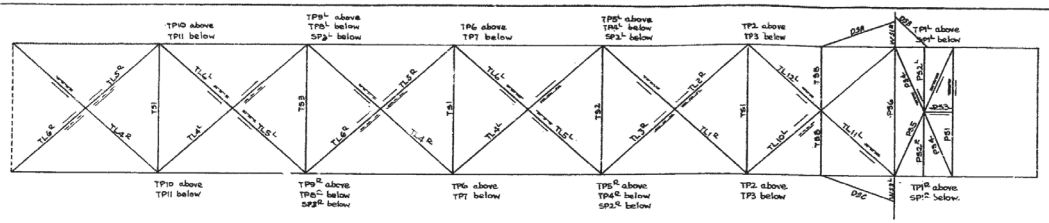
663

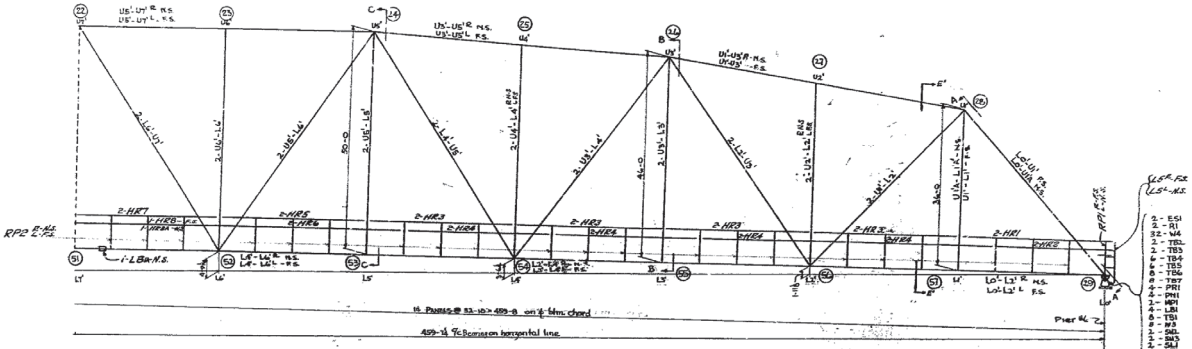

14 Panels @ 32-10 = 459-0 on ℄ btm. chord
459-1½ ℄ Bearing on horizontal line
14 Panels @ 32-10 = 459-0 on ℄ btm. chord
459-1½ ℄ Bearing on horizontal line
Pier #5
Note to Erector:
The Pilches TP2R must be put in place before PD6/7 is erected.
For Shoes and Packers, see contract 6566
Knock out 4 shop rivets from outside of East Truss @ L14 for connection of PD7.
Section D-D
Section EE
Work this sheet with sheets E1-E3.
Ref. 6-3-48 - Mark PDG changed to PD7
Rec'd 5-5-48
KANSAS CITY FLOOD CONTROL PROJECT
LIBERTY BEND BRIDGE
MISSOURI RIVER
DETAILS OF: ERECTION DIAGRAM OF THRU TRUSS BRIDGE
THE MT. VERNON BRIDGE CO.
MT. VERNON, OHIO
IN CHARGE OF White
MADE BY T.W.M. CHECKED BY W.R.N. 2-2-48
CONT. NO. 6566
JACKSON COUNTY
SHEET E2
L-568

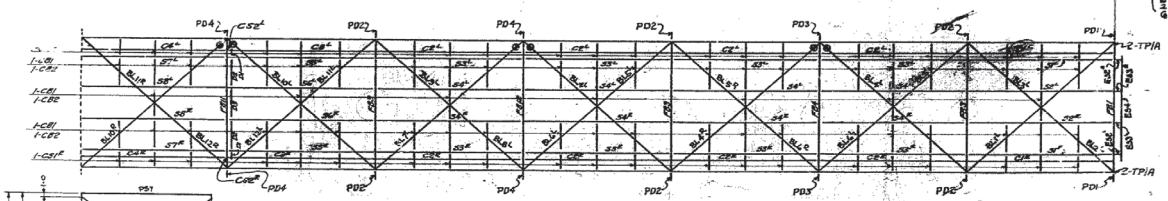
33

663

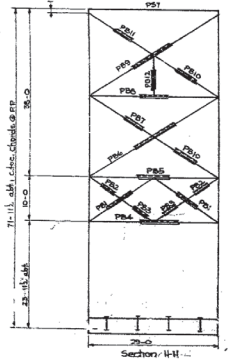
29-t

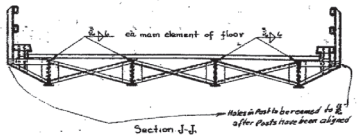




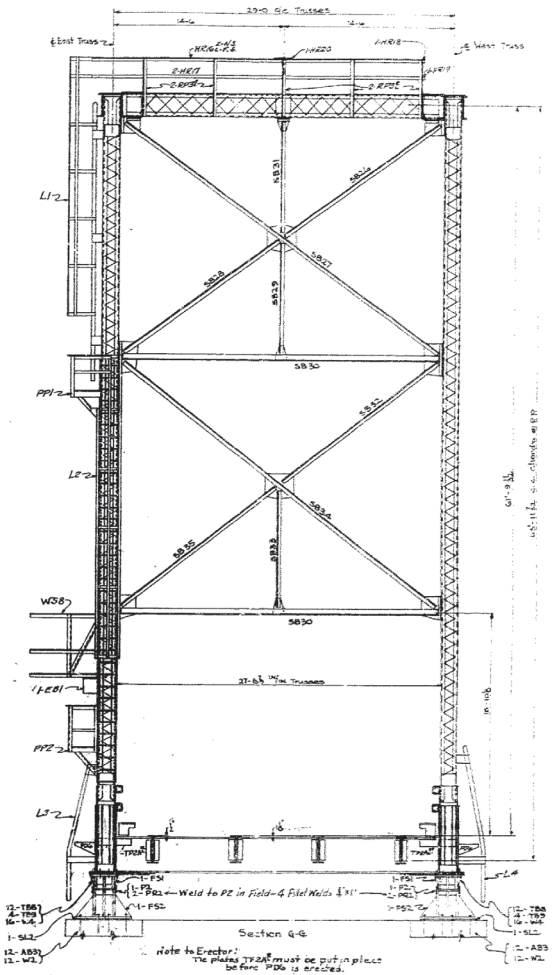


Note to Erector
The plates TP1A must be in place before PD1 is erected.





Section J-J.



Note to Erector:
The plates TP2A must be put in place before PD2 is erected.

Weld this sheet with sheets E1-E2.
See sheet E1 for list of sheets.
For details of shoes & Rockers see Contract GS69

MATERIAL	Structural Carbon & Silicon Steel
SPECIFICATION	Special
SHOP PAINTING BY	U.S. Engineers
ONE COAT	One coat of Red Lead
FIELD PAINT	No assembly paint to be used
PAINT	Others
BOLTS	MACH. FINISHED
	Unless otherwise specified in the general field bolt shall be turned to size and match marked & carefully bagged for shipment. Connection to be used of turned bolts paid extra.
FIELD ASSEMBLING	Rivets and Bolts
CHECKED BY	

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE

MISSOURI RIVER

DETAILS OF: ERECTION DIAGRAM FOR THRU TRUSS BRIDGE

THE MT. VERNON BRIDGE CO.
MT. VERNON, OHIO

IN CHARGE OF Neitz
MADE BY T. [illegible] CHECKED BY W.E.N. 8-6-38

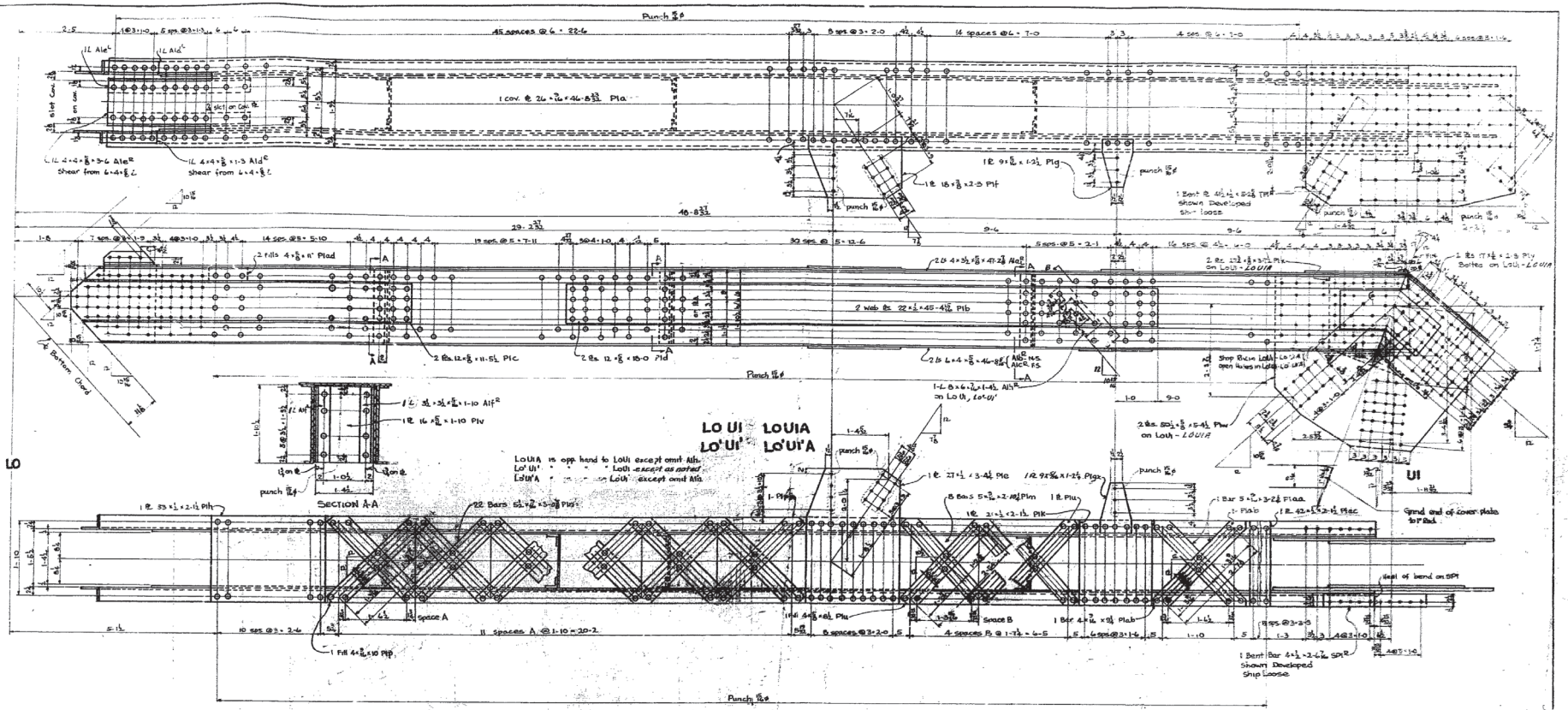
CONT. NO. 6566 JACKSON COUNTY SHEET E3

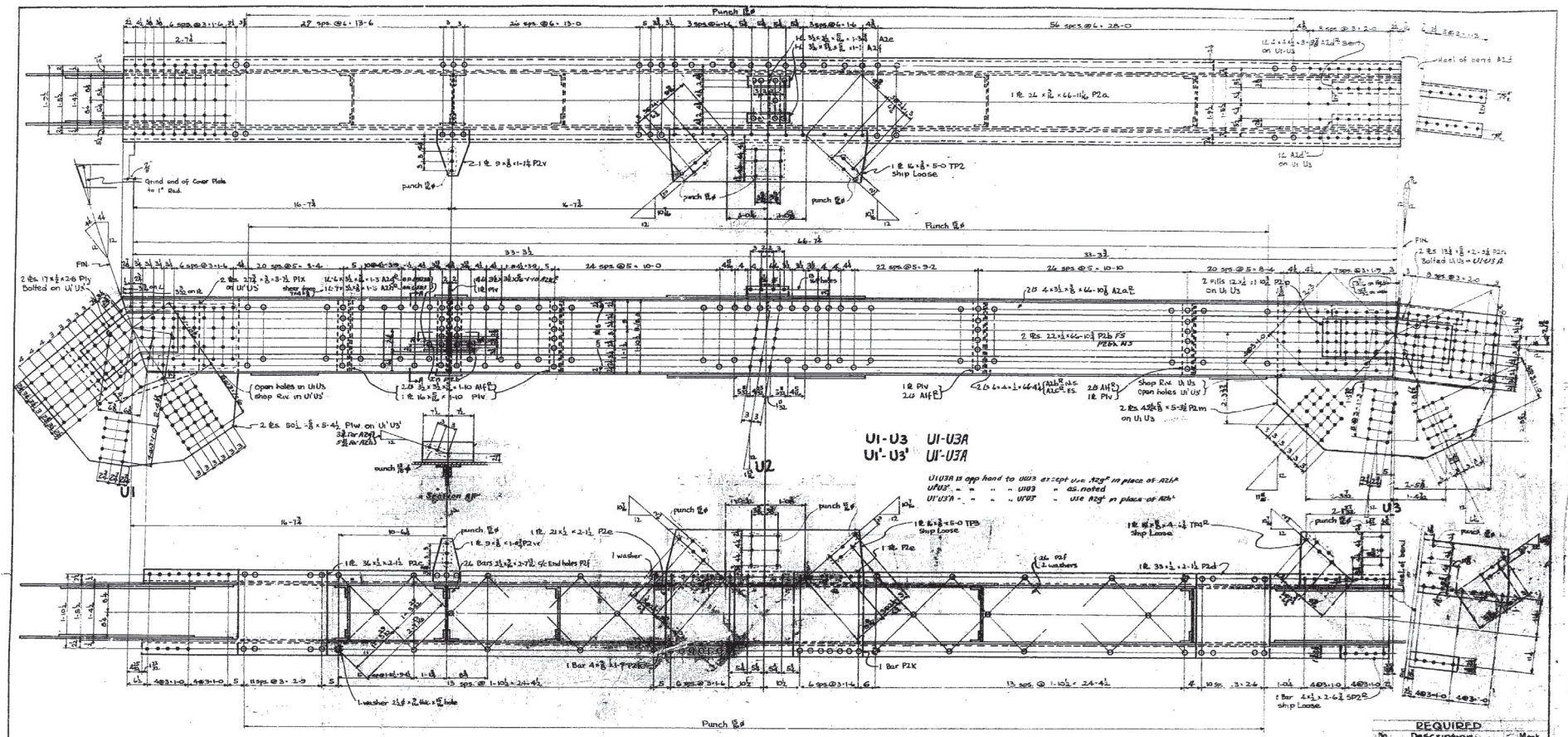
L-553

Sh. 623

34

663


Punch ⅞ ϕ
45 spaces @ 6 = 22-6
14 spaces @ 6 = 7-0
1 cov. @ 24 × ⅜ × 46-8 33/32 Pla
1 PL 9 × ⅞ × 1-2½ Plg
1 PL 18 × ⅞ × 2-3 Plf
1 Bent @ 46½ × 5/16 TH
Shown Developed
Ship Loose
2 Web @ 22 × ½ × 45-4 15/16 Plb
2 Fills 4 × ⅝ × n Plad
2 Bars 12 × ⅝ × 11-5½ Plc
2 Bars 12 × ⅝ × 18-0 Pld
Bottom Chord
Punch ⅞ ϕ
1 L 3½ × 3½ × ⅝ × 1-10 Alf
1 PL 16 × ⅝ × 1-10 Plv
LO UI
LO'UI'
LOUIA
LO'UI'A
LOUIA is opp hand to LoUi except omit Alh
Lo'Ui' " " " " LoUi except as noted
Lo'Ui'A " " " " LoUi' except omit Alh
SECTION A-A
22 Bars 6½ × ⅞ × 3-3⅜ Plb'
1 PL 53 × ½ × 2-½ Plh
1 Fill 4 × ⅜ × 10 Plp
Space A
10 spcs @ 3 = 2-6
11 spaces A @ 1-10 = 20-2
Punch ⅞ ϕ
1-L 8 × 6 × ⅞ × 1-4½ Alh
on LoUi, Lo'Ui'
2 Bars 50½ × ⅝ × 5-4½ Plm
on LoUi - LOUIA
1 PL 27½ × 3-4½ Plc
12 9/16 × 1-2½ Plg
8 Bars 5 × ⅞ × 2-10½ Pln
1 PL 2½ × 2-1½ Plk
1 PL 4½ × ⅝ × 2-0 Plq
Space B
4 spaces B @ 1-7½ = 6-5
1 Bar 4 × ⅜ × 8½ Plab
1 Bar 5 × ½ × 3-2½ Plaa
1 Plab
1 PL 42 × 5½ × 2-½ Plac
Grind end of cover plate
to rad.
1 Bent Bar 4½ × 2-4½ SPI
Shown Developed
Ship Loose
Punch ⅞ ϕ
Ship Rivet LoUi - Lo'Ui'A
open holes in LoUi - Lo'Ui'A
2 Bars 17½ × 2-3 Plv
Bolted on LoUi - LOUIA
Punch ⅞ ϕ
Punch ⅞ ϕ
Punch ⅞ ϕ



REQUIRED		
No.	Description	Mark
1	Top Chord Section	U1-U3
1	" " "	U1-U3A
1	" " "	U1'-U3'
1	" " "	U1'-U3'A
4	Top Lateral Plates - 1" ø Loose Pin	PL
4	" " " " "	TP3
2	" " " " "	TP4
2	" " " " "	TP5
2	Splice Bars - " "	SP2
2	" " " "	SP2A
4	Plates - Bolt to U1-U3	PL1
4	" " " " U1'-U3'A	PL1A

End and edge distance 1½ unless noted

Material	Structural Carbon Steel
Specification	Special
Shop Inspection by	U.S. Engineers
Shop Paint	One coat Red Lead paint. No assembly paint to be used
Field Paint	others
Punch	1 hole through ⅞ ø reamed to 15/16 ø
Unless noted	
Drawing	unless noted, all field holes to be reamed 15/16 ø to a metal template - when temporarily assembled
Field Connections	Rivets
Erected by	others

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE

MISSOURI RIVER

DETAILS OF: Top Chord U1-U3

THE MT. VERNON BRIDGE CO.
MT. VERNON, OHIO

IN CHARGE OF: Work

MADE BY: NSH CHECKED BY: MANUFACTURER

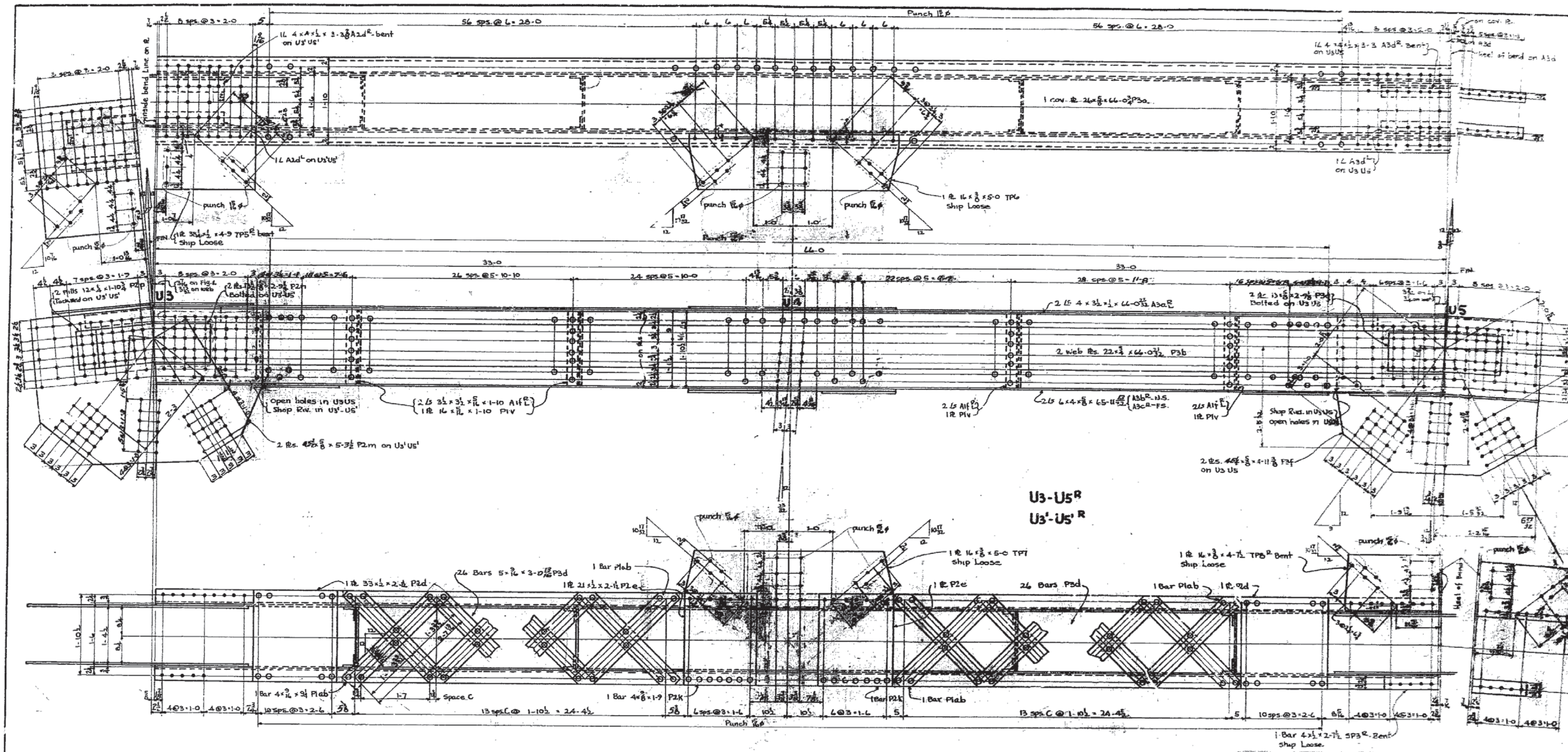
CONT. NO. 4566 JACKSON COUNTY SHEET 2

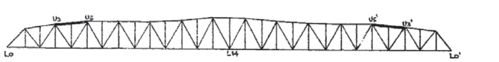
Sh. 502 L-555

36

663

37





LOCATION DIAGRAM

No.	Description	Mark	No.	Description	Mark
4	Plates- bolt to U3U5	P3q	1	Top Chord Section	U3U5R
4	" - bolt to U3'U5'	P2n	1	" " "	U3U5L
			1	" " "	U3'U5'R
			1	" " "	U3'U5'L
			2	Top Lateral Plates- ship Loose	TP5R
			2	" " " "	TP5L
			4	" " " "	TP6
			4	" " " "	TP7
			2	" " " "	TP8R
			2	" " " "	TP8L
			2	Splice Bar	SP3R
			2	" "	SP3L

Material: Structural Carbon Steel
Specification: Special
Shop inspected by: U.S. Engineers
Shop paint: One Coat Red Lead paint
No assembly paint to be used

Field paint: others
Rivets: ⅞ holes punched 13/16 ø reamed to 15/16 ø unless noted
Remarks: unless noted field holes to be punched 11/16 ø reamed to 15/16 to a metal template or while temporarily assembled
Field connections: Rivets
Erected by: Others

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE

MISSOURI RIVER

DETAILS OF: Top Chord U3-U5

THE MT. VERNON BRIDGE CO.

MT. VERNON, OHIO

IN CHARGE OF White

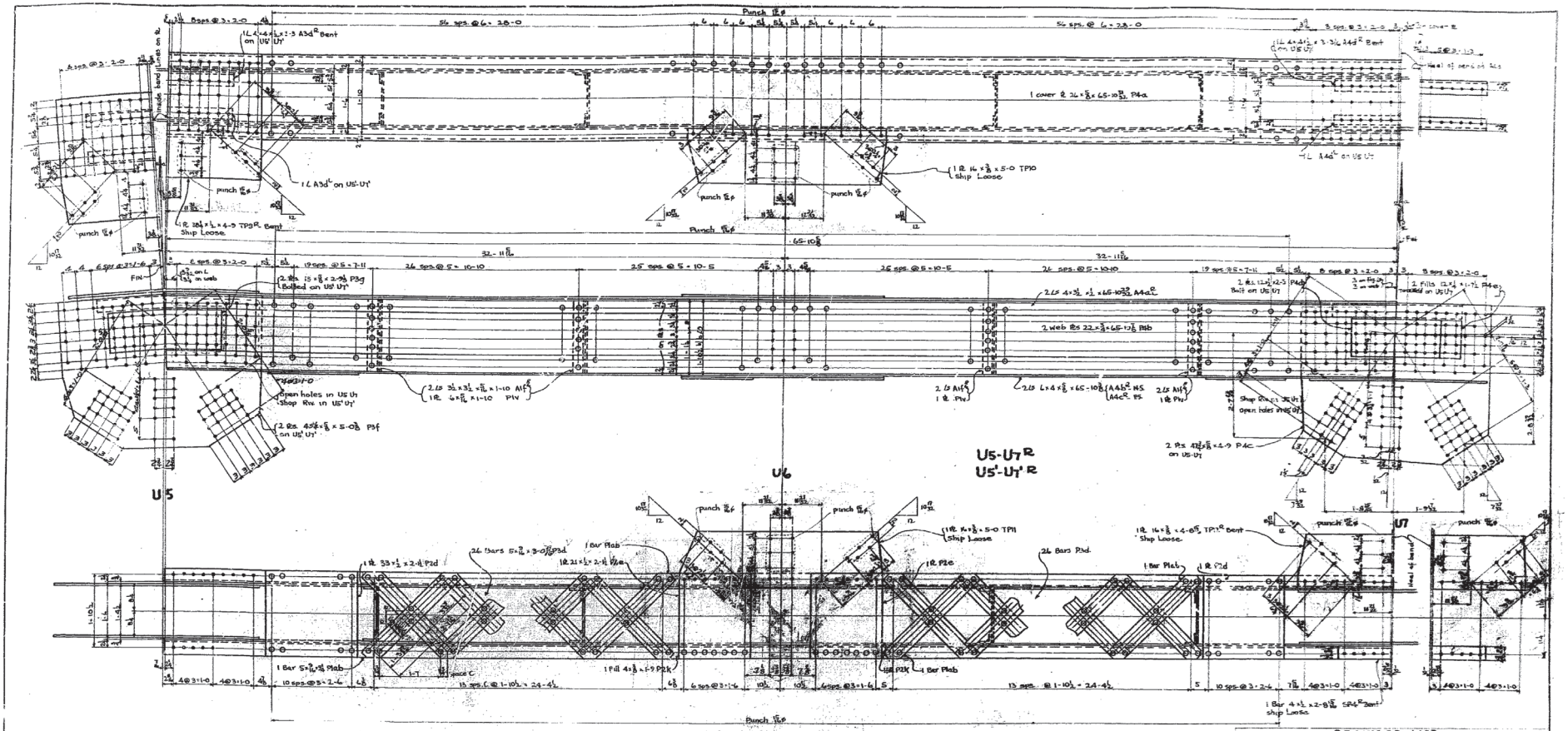
MADE BY M.E.H. CHECKED BY ...-12-12-47

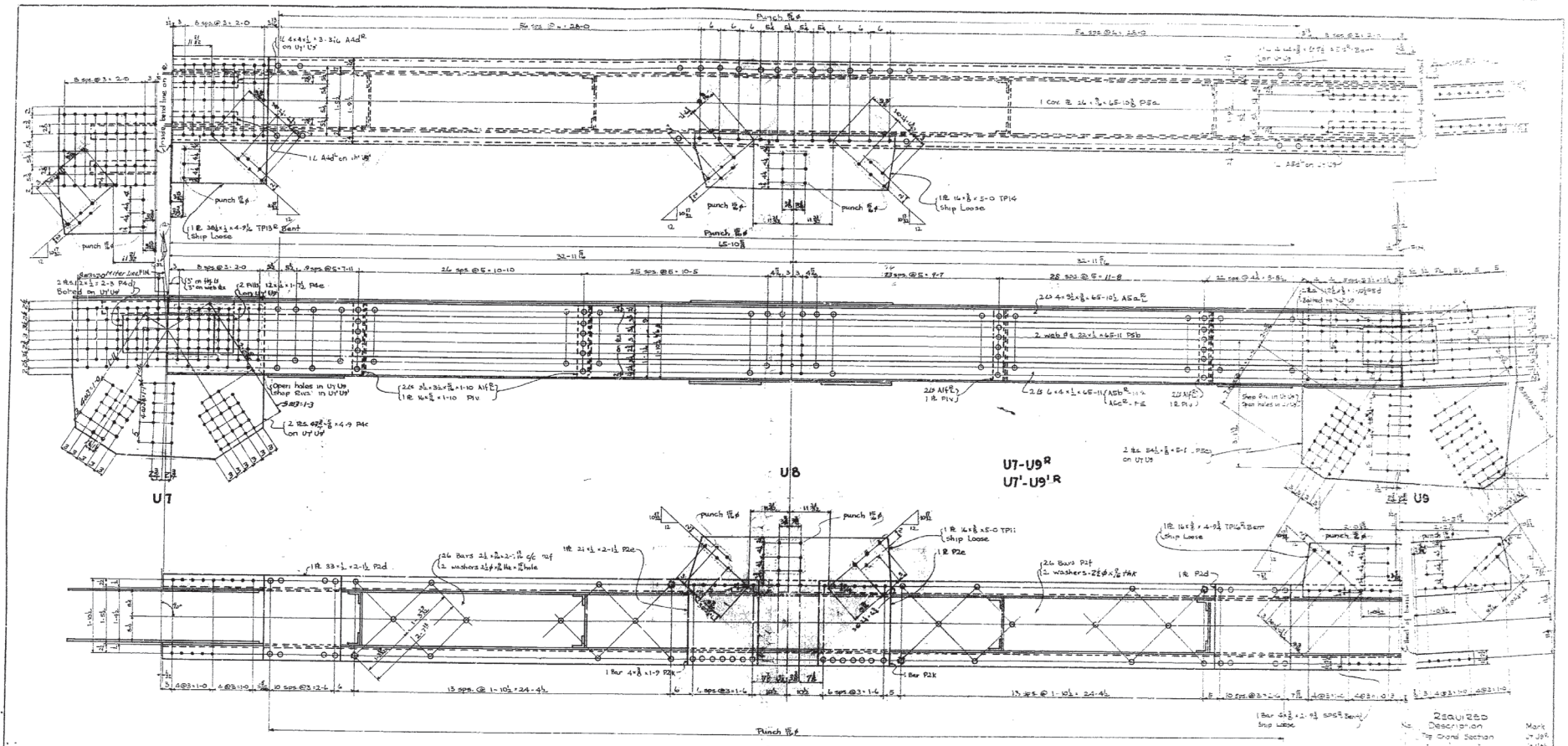
Traced ... 12-12-47

CONT NO. 6566 JACKSON COUNTY SHEET 3

Sh. 603 L-568

1663


U5
U6
U5-U7 R
U5'-U7' R
U7
Punch ⅝ ϕ
Open holes in U5-U7 Shop Rvt. in U5'-U7'
1 Bar Plab
1 Bar Slab
Ship Loose
Punch ⅝ ϕ
Punch ⅝ ϕ
Punch ⅝ ϕ



No.	Required Description	Mark
	Top Chord Section	U7-U8, U7'-U8', U7-U8R, U7'-U8'R, U8-U9, U8-U9R
	Top Lateral Plates - Ship Loose	PL-16-TPL, PL-16-TPLR, PL-14-TPL, PL-14-TPLR
	Splice Bar	SPS, SPSR
	Plates - Bolt to U7-U8	PL-12, PL-14
	" " " U8-U9	PL-12, PL-14

STEEL	Structural Carbon Steel
SPECIFICATIONS	Special
SHOP INSPECTION BY	U.S. Engineers
SHOP PAINT	One coat Red Lead paint
	No assembly paint to be used
FIELD PAINT	Others
FIELD	holes reamed to and reamed to
HOLES	unless noted
DRAWING	unless noted, and holes to be punched to and reamed to to a metal Template or while Temporarily assembled
FIELD CONNECTIONS	Rivets
ERECTED BY	Others

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE

MISSOURI RIVER

DETAILS OF: Top Chord Sections U7-U9

THE MT. VERNON BRIDGE CO.
MT. VERNON, OHIO

IN CHARGE OF [illegible]

MADE BY [illegible] CHECKED BY [illegible]

CONT. NO. 6566 JACKSON COUNTY SHEET 5

SH. 6 OF [illegible]

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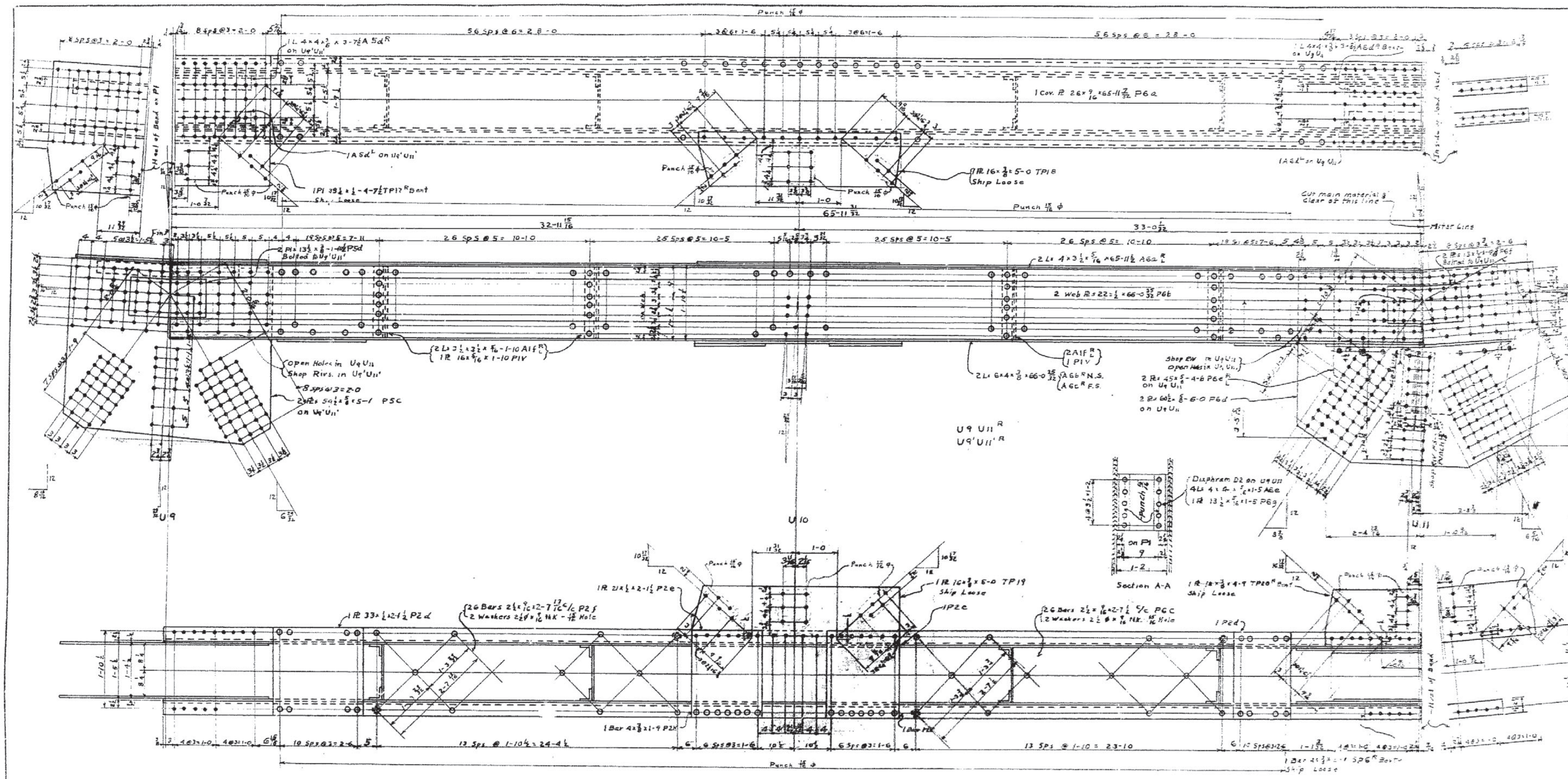
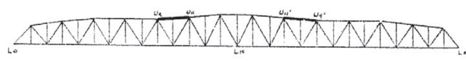
Ls a-b-c-d-e
Pl a-b-c-f-e-f-g

40





LOCATION DIAGRAM

Assembly marks preceded by letter "S" denotes Silicon Steel
Cut main material ⅛" clear of miter line at Splices

REQUIRED LIST

No.	DESCRIPTION	MARK	No.	DESCRIPTION	MARK
1	Top Chord Section	U9U11 R	2	Top Lateral Plates Ship Loose	TP20 R
1	" "	U9U11 L	2	" "	TP20 L
1	" "	U9'U11' R	2	Splice Bars	SP6 R
1	" "	U9'U11' L	2	" "	SP6 L
2	Top Lateral Plates Ship Loose	TP17 R	4	Plates Bolt to U9U11	P6d
2	" "	TP17 L	4	" " U9'U11'	P5d
4	" "	TP18			
4	" "	TP19			

Edge & End distances 1½ Unless noted.

MATERIAL	Structural Carbon and Silicon Steel
SPECIFICATIONS	Special
SHOP INSPECTION BY	U. S. Engineers
SHOP PAINT	One coat Red Lead Paint. No assembly paint to be used
FIELD PAINT	others
RIVETS	⅞ HOLES PUNCHED 15/16 & Reamed to 1 unless noted
REAMING	unless noted, all field holes to be punched 13/16 & reamed to 15/16 to a metal template or while temporarily assembled
FIELD CONNECTIONS	Rivets
ERECTED BY	others

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE

MISSOURI RIVER

DETAILS OF TOP CHORD SECTIONS U9-U11

THE MT. VERNON BRIDGE CO.
MT. VERNON, OHIO

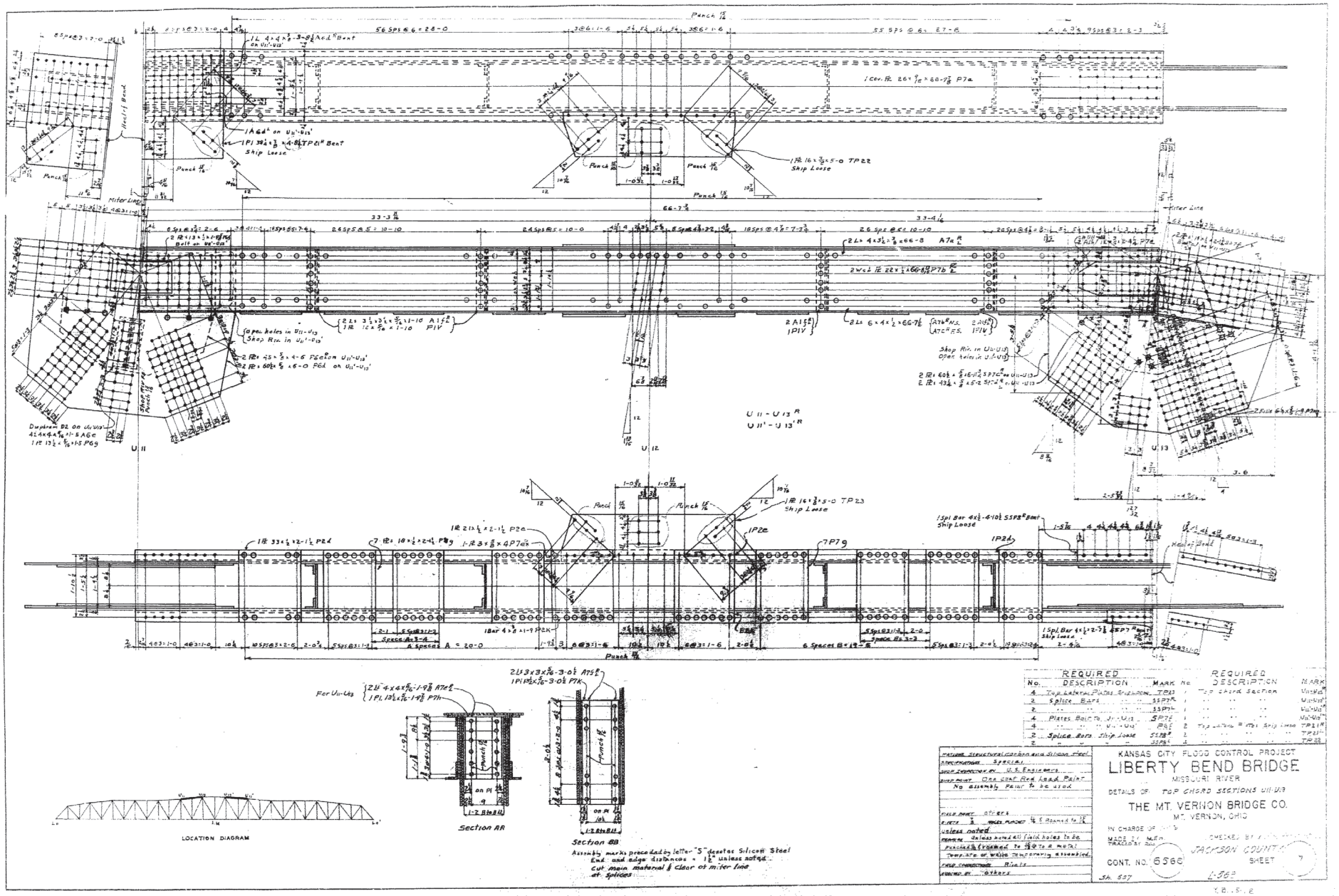
IN CHARGE OF
MADE BY M.S.H. CHECKED BY
TRACED BY D.C.S.

JACKSON COUNTY

CONT. NO. 6566 SHEET 6

Sh. 556 L-568

L.B. 14-19



REQUIRED No.	DESCRIPTION	MARK	No	REQUIRED DESCRIPTION	MARK
4	Top Lateral Plates Stiffener	TP23	1	Top Chord Section	U11-U13
2	Splice Bars	SSP7R	1	" " "	U11'-U13'
2	" "	SSP7L	1	" " "	U11-U13
4	Plates Bolt to Jr. U13	SP7E	1	" " "	U11'-U13'
4	" " " U11-U13	P8E	2	Top Lateral = Rt. Ship Loose	TP21R
2	Splice Bars Ship Loose	SSP7	1	" " "	TP21L
2	" " "	SSP7L	2	" " "	TP22

MATERIAL Structural Carbon and Silicon Steel
SPECIFICATIONS Special
SHOP INSPECTION BY U.S. Engineers
SHOP PAINT One coat Red Lead Paint
No Assembly Paint to be stuck
FIELD PAINT Same
RIVETS ⅞ WHEN PLUNGER ⅝ Reamed to ⅞ unless noted
REAMING Unless noted all field holes to be reamed ⅛ inch to ⅜ metal
Templets of White Pine for erecting assembling
FIELD CONNECTIONS Rivets
PAINTING By Others

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE

MISSOURI RIVER

DETAILS OF TOP CHORD SECTIONS U11-U13

THE MT. VERNON BRIDGE CO.
MT. VERNON, OHIO

IN CHARGE OF ...
MADE BY M.E.H.
TRACED BY ...
CHECKED BY ...

CONT. NO. 6560
JACKSON COUNTY
SHEET 7
Sh. 607
L-562

Y.B. Sh. 2

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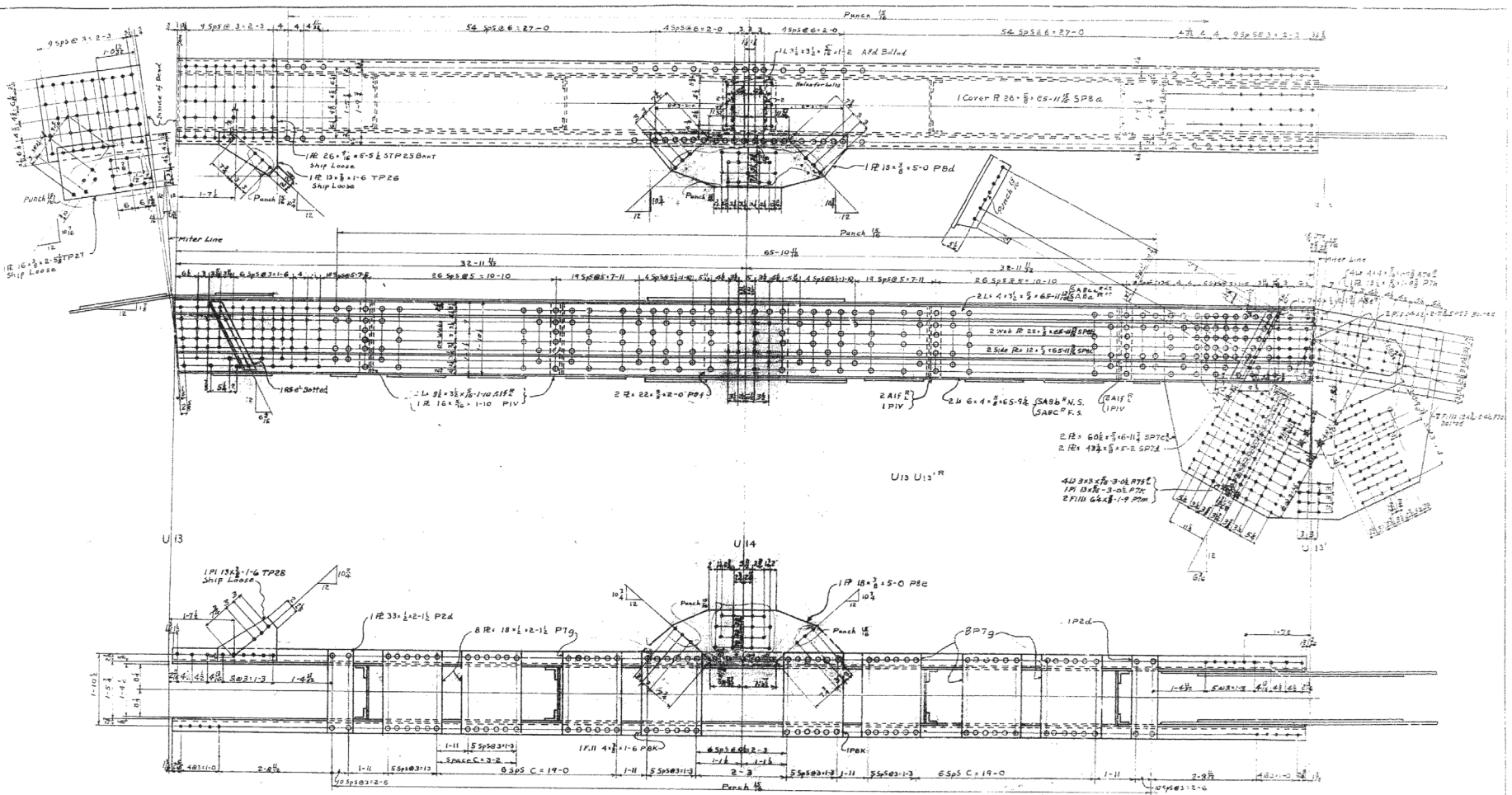
U13
U14
U13 U13'R
U13'
Miter Line
Punch 1/16
54 Sp S @ 6 = 27-0
49 Sp S @ 6 = 2-0
1 Cover PL 26 × 5/8 × 65-11 7/8 SP8a
1 PL 18 × 3/8 × 5-0 P8d
1 PL 26 × 9/16 × 6-5 1/2 STP25 Bent Ship Loose
1 PL 13 × 3/8 × 1-6 TP26 Ship Loose
1 PL 16 × 3/8 × 2-5 3/8 TP27 Ship Loose
1 PL 13 × 3/8 × 1-6 TP28 Ship Loose
1 PL 33 × 1/2 × 2-1 1/2 P2d
8 PL × 18 × 1/2 × 2-1 1/2 P7g
1 PL 18 × 3/8 × 5-0 P8e
2 Web PL 22 × 5/8 × 65-0 3/8 SP9a
2 Side PLs 12 × 5/8 × 65-11 7/8 SP9c
2 PL 22 × 5/8 × 2-0 P8f
2 PL 6 × 4 × 5/8 × 65-9 1/2 SABb N.S. SABc F.S.
2 PL 60 1/2 × 5/8 × 6-11 1/2 SP7c
2 PL 13 3/4 × 5/8 × 5-2 SP7d
40 PL 3 × 3 × 7/16 × 3-0 1/2 A7g
1 PL 13 × 7/16 × 3-0 1/2 P7c
2 PLs 11 64 × 3/8 × 1-9 P7m
1 PL 18 × 3/8 × 5-0 P8k
17 PL 11 4 × 1/2 × 1-6 P8k
Punch 15/16
Punch 13/16
Punch 11/16
Punch 9/16
Punch 5/16
Miter Line
32-11 1/2
65-10 11/16
26 Sp S @ 5 = 10-10
19 Sp S @ 5-7-11
4 Sp S @ 5-1-10
6 Sp S @ 3-1-6
6 Sp S @ 3-1-3
5 Sp S @ 3-1-3
6 Sp S @ 3-2
6 Sp S C = 19-0
5 Sp S @ 3-1-3
5 Sp S @ 6-2-3
40 Sp S @ 3-2-6
2-8 1/2
2-9 1/2
1-11
1-7 1/2
1-4 1/2
1-7 3/4
1-9 1/2
1-10 5/16
1-10 15/16
1-10
1-6
1-7 5/8
1-5 3/8
1-4 C
1-10 3/4
1-5 3/4
1-4 3/4
1-6 1/2
1-7 3/16
1-7 5/16
1-7 7/8
1-8 1/2
1-9 3/4
1-10 1/2
1-11 1/2
2-0 1/2
2-1 1/2
2-2 1/2
2-3
2-4 1/2
2-5 1/2
2-6 1/2
2-7 1/2
2-8 1/2
2-9 1/2
2-10 1/2
2-11 1/2
3-0 1/2
3-1 1/2
3-2 1/2
3-3 1/2
3-4 1/2
3-5 1/2
3-6 1/2
3-7 1/2
3-8 1/2
3-9 1/2
3-10 1/2
3-11 1/2
4-0 1/2
4-1 1/2
4-2 1/2
4-3 1/2
4-4 1/2
4-5 1/2
4-6 1/2
4-7 1/2
4-8 1/2
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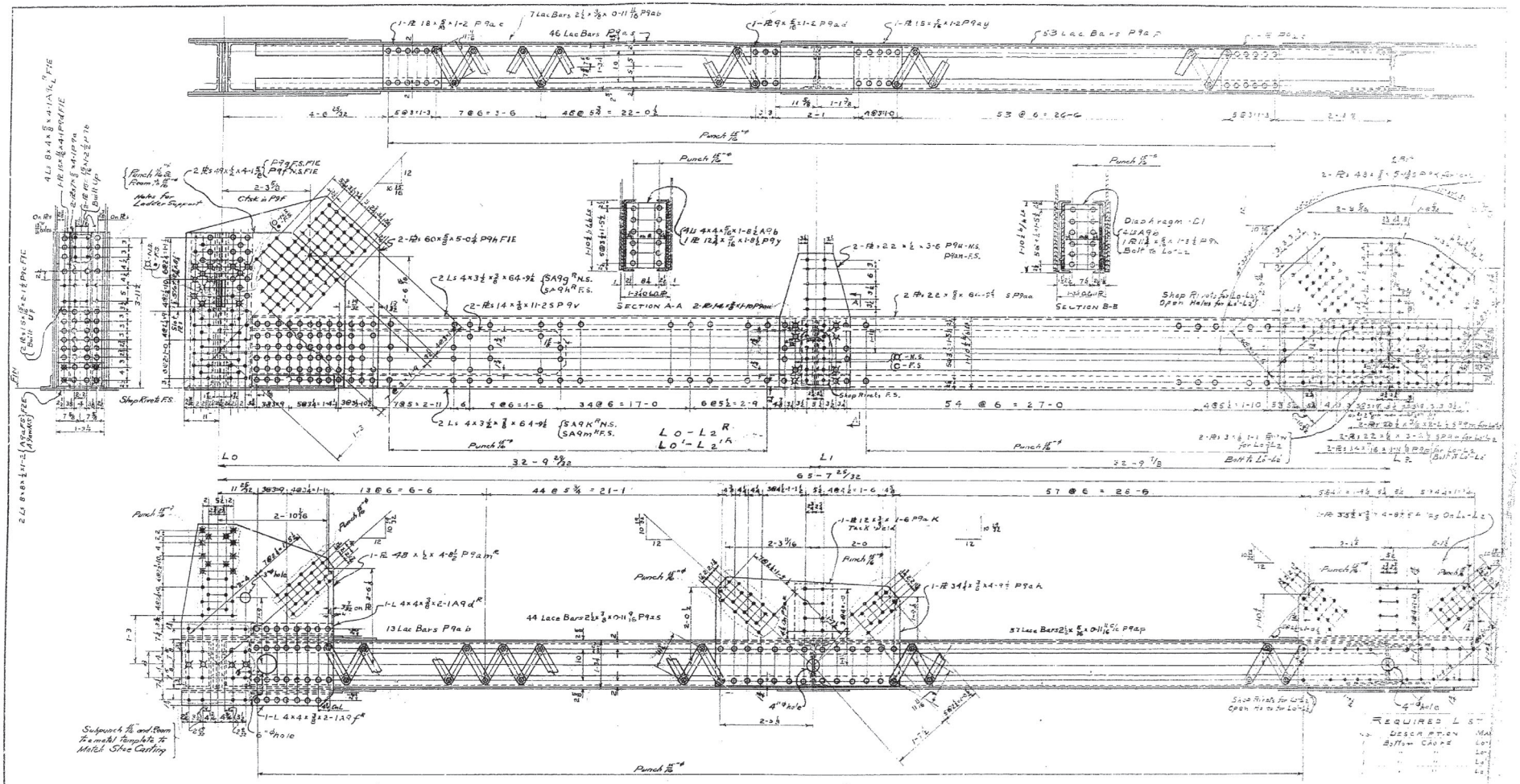
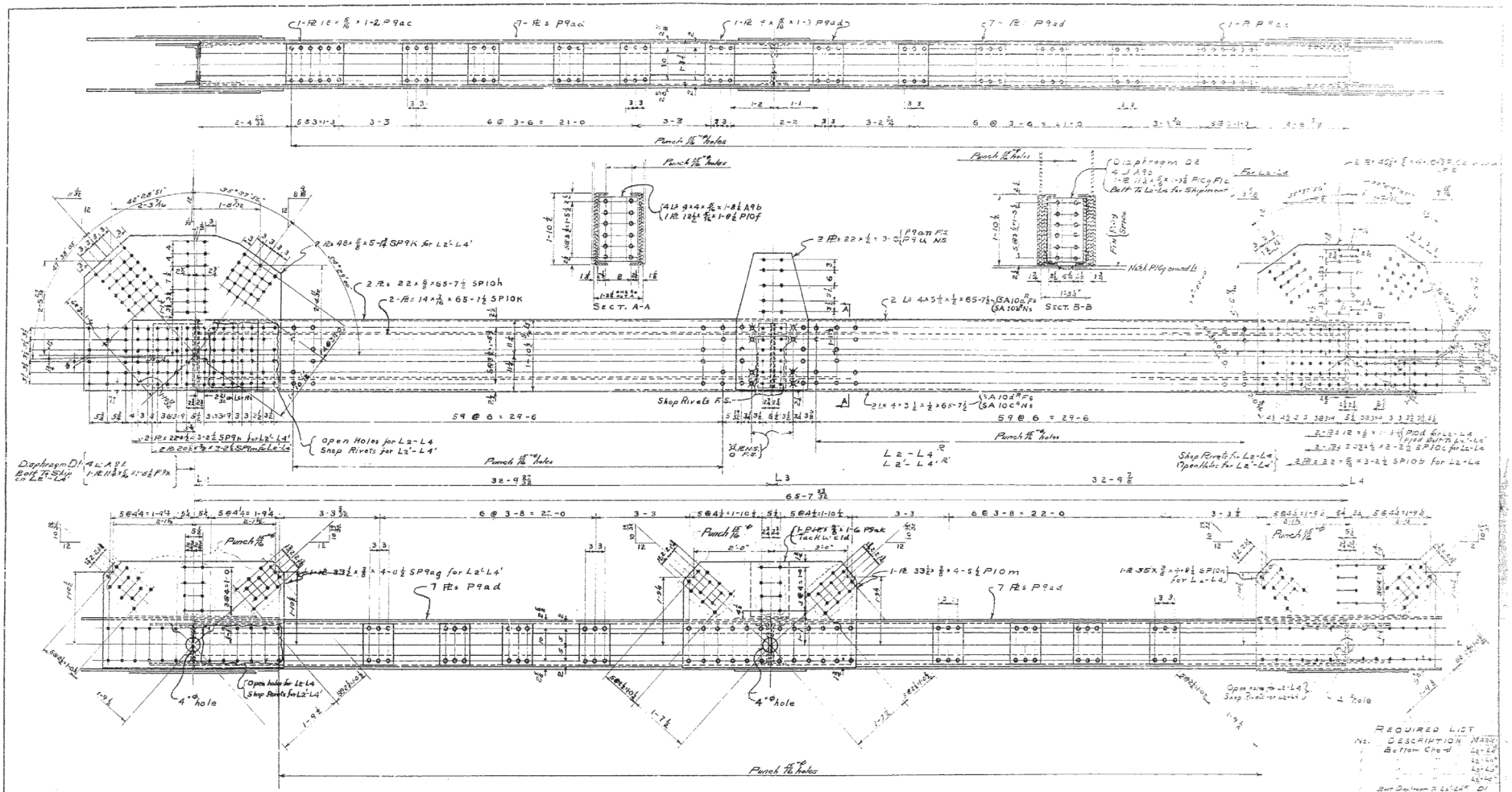
5-2 1/2
5-3 1/2


46 Lac Bars
53 Lac Bars
Punch
SECTION A-A
SECTION B-B
Diaphragm C1
Shop Rivets F.S.
Shop Rivets for Lo-L2
Open Holes for Lo-L2
Bolt in Lo-L2
Shop Rivets for L2-L4
Open Holes for L2-L4
Bolt in L2-L4
13 Lac Bars
44 Lac Bars
57 Lac Bars
4" ϕ hole
6" ϕ hole
Subpunch ⅞ and Ream
to Metal Template to
Match Shop Cutting
Punch 15/16" from 7/8" hole for Ladder Support
Notes for Ladder Support
Built Up
Clear
Lo
L1
L2
32 - 9 29/32
32 - 9 1/8
65 - 7 25/32
Lo - L2 R
Lo' - L2' R
LOCATION DIAGRAM
REQUIRED L ST
DESCRIPTION
Bottom Chord
Assembly Marks preceded by letter 'S' denotes S' Iac Stee
Edge and End distances 1½ unless Not'd.
Bottom Chords Special
Shop Inspection By U.S. Engineers
Paint One Coat of Red Lead
No assembly Pts not to be Used
Paint Others
Reamed Bolt Holes shall be subpunched
and reamed ⅛" to a Metal Template
or Drill Jig & Thoroughly Assembled
KANSAS CITY FLOOD CONTROL PROJECT
LIBERTY BEND BRIDGE
MISSOURI RIVER
DETAILS OF BOTTOM CHORD SECTION L1 L2 & L3
THE MT. VERNON BRIDGE CO.
MT. VERNON, OHIO
IN CHARGE OF WORK
MADE BY JRB
TRACED BY RDS
CHECKED BY
CONT. NO. 6556
SHEET 9
SK. 603



LOCATION DIAGRAM

REQUIRED LIST

No.	DESCRIPTION	MARK
	Bottom Chord	L2-L4
	"	L2'-L4'
	"	L2-L4
	"	L2'-L4'
	Bolt Diaphragm To L2'-L4'	D1
	Bolt " " L2-L4	D1
	Bolt Diaphragm To L2-L4	D2
	Bolt " " L2'-L4'	D2
	Bolt Web To L2'-L4'	P10

Assembly Marks preceeded by L. S. Sturtis & Short Sons
Edge and End Distance 1½ Unless Noted.

Material	Structural Carbon & Silicon Steel
Specifications	Special
Inspection	By Corps of U.S. Engineers
Shop Paint	One Coat of Red Lead
Field Paint	No assembly paint to be used.
Erection	
Field Rivets	Others
Holes for Bolts	Drilled full size in assembly
Holes for Rivets	Punched No. 6 full size in assembly or Diagonally punched and reamed ⅛" to a matched template
Bolts	Unfinished
Shop Rivets	Rivets & Bolts
Field Rivets	Others

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE

MISSOURI RIVER

SECTION OF Bottom Chord Showing Panel Points

THE MT. VERNON BRIDGE CO.

MT. VERNON, OHIO

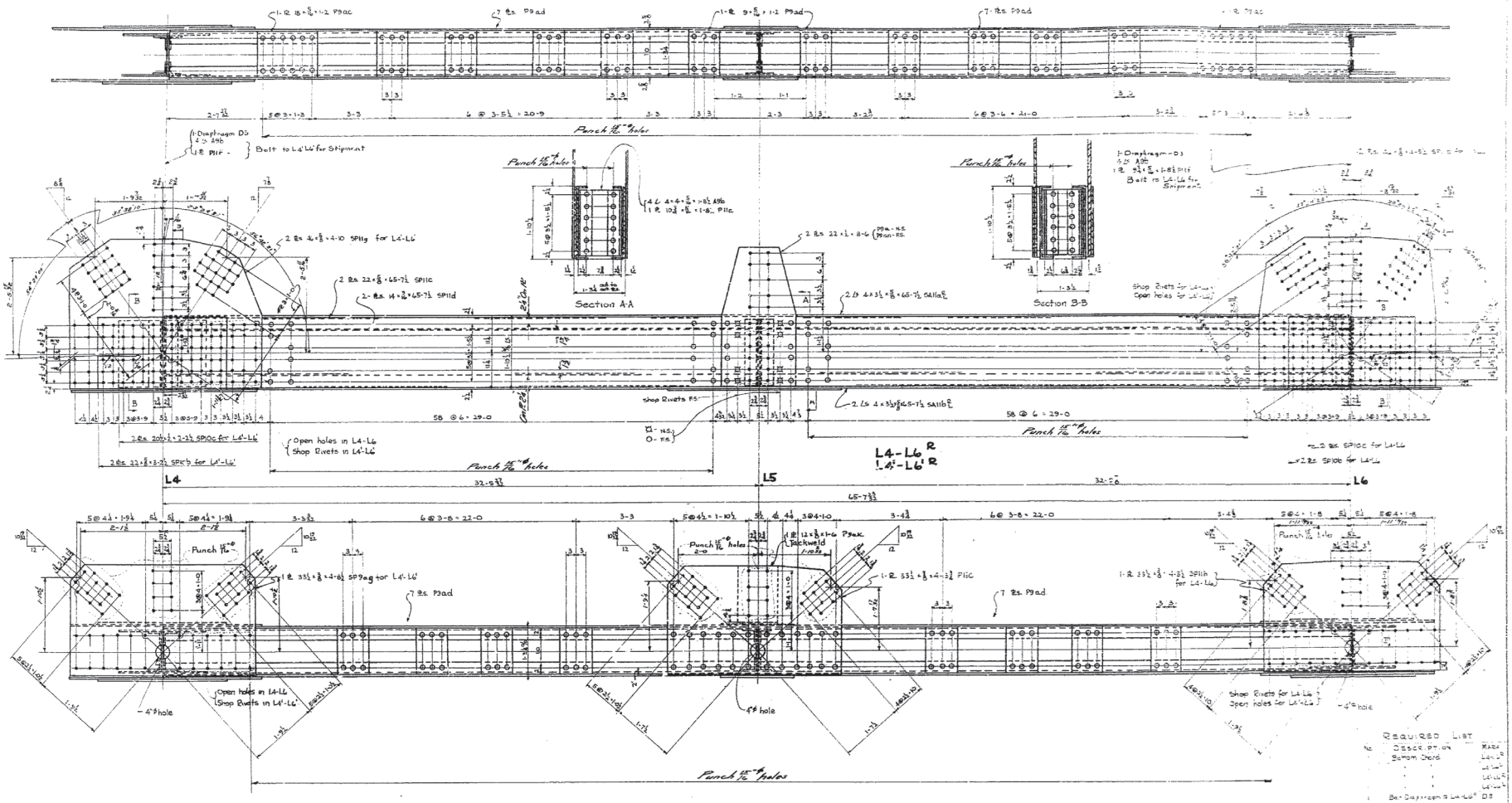
SCALE OF INCHES

MADE BY L.A.J. SHEETED BY

TRACED BY CHECKED BY

CONT. NO. 8506 SHEET NO.

Y.B. 10



Assembly Marks preceded by letter 'S' on area Silicon Steel
Edge and End Distance 1½ unless noted.

Material Structural Carbon & Silicon Steel
Specifications Special
Shop Inspection by U.S. Engineers
Shop Paint One Coat of Red Lead
No assembly paint to be used.
Field Paint others
Rivets ⅞" holes, as shown on Drawings & Shop Orders
Reaming Unless Noted Rivet holes shall be subpunched ⅝" and reamed to ⅞", a metal template or whole temporarily assembled
Field connection Rivets
Erected by Others.

KANSAS CITY FLOOD CONTROL PROJECT
LIBERTY BEND BRIDGE
MISSOURI RIVER
DETAILS OF Bottom Chord Splices L4-L6 & L4'-L6'
THE MT. VERNON BRIDGE CO
MT. VERNON, OHIO
IN CHARGE OF [illegible]
MADE BY KEB 10-21-47 CHECKED BY [illegible]
TRACED AND [illegible] JACKSON COUNTY
CONT. NO. 6566 SHEET 11
SA 611

Required List

No.	Description	Mark
	Bottom Chord	L4'-L6'
		L4-L6
		L4'-L6'
		L4-L6
8	Bs Diaphragm	L4-L6' D3
		L4'-L6' D3
		L4-L6' D3
		L4'-L6' D3

45

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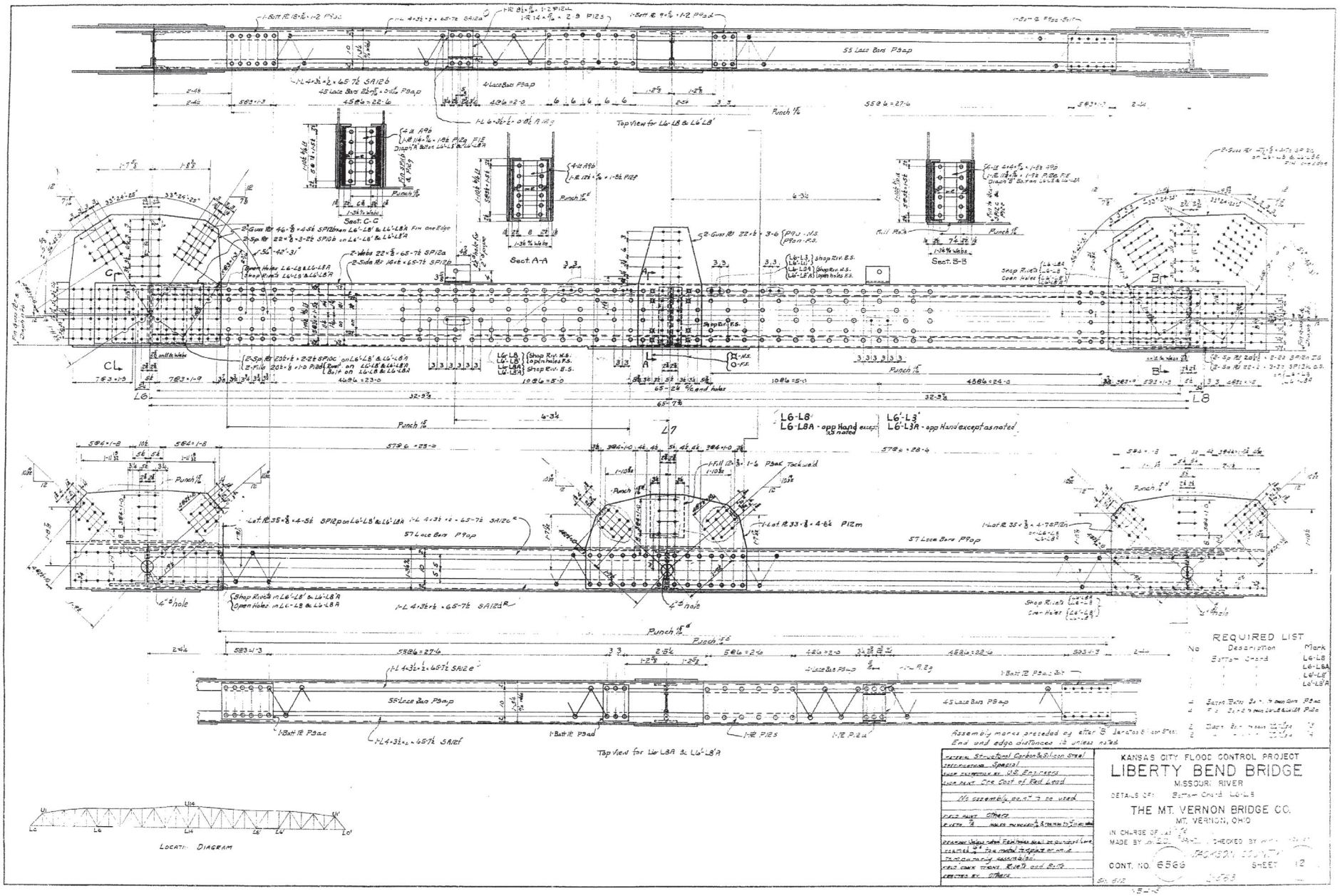
29-1



REQUIRED LIST		
No	Description	Mark
	Bottom Chord	L6-L8
		L6-L8A
		L6'-L8'
		L6'-L8'A

Assembly marks preceded by letter S denotes Silicon Steel.
End and edge distances to be 1¼ unless noted.

Material	Structural Carbon & Silicon Steel
Specifications	Special
Shop Inspection by	U.S. Engineers
Shop Paint	One Coat of Red Lead
Field Paint	Others
Rivets ⅞	Holes punched ⅝ & reamed to ⅞ dia.
Erection Weight when Fabricated must be Shipped	
Stringers	Top metal to depth of web
Floor Beams	
Field Connections, Rivets and Bolts	
Erected by	Others

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE

MISSOURI RIVER

DETAILS OF: Bottom Chord L6-L8

THE MT. VERNON BRIDGE CO.

MT. VERNON, OHIO

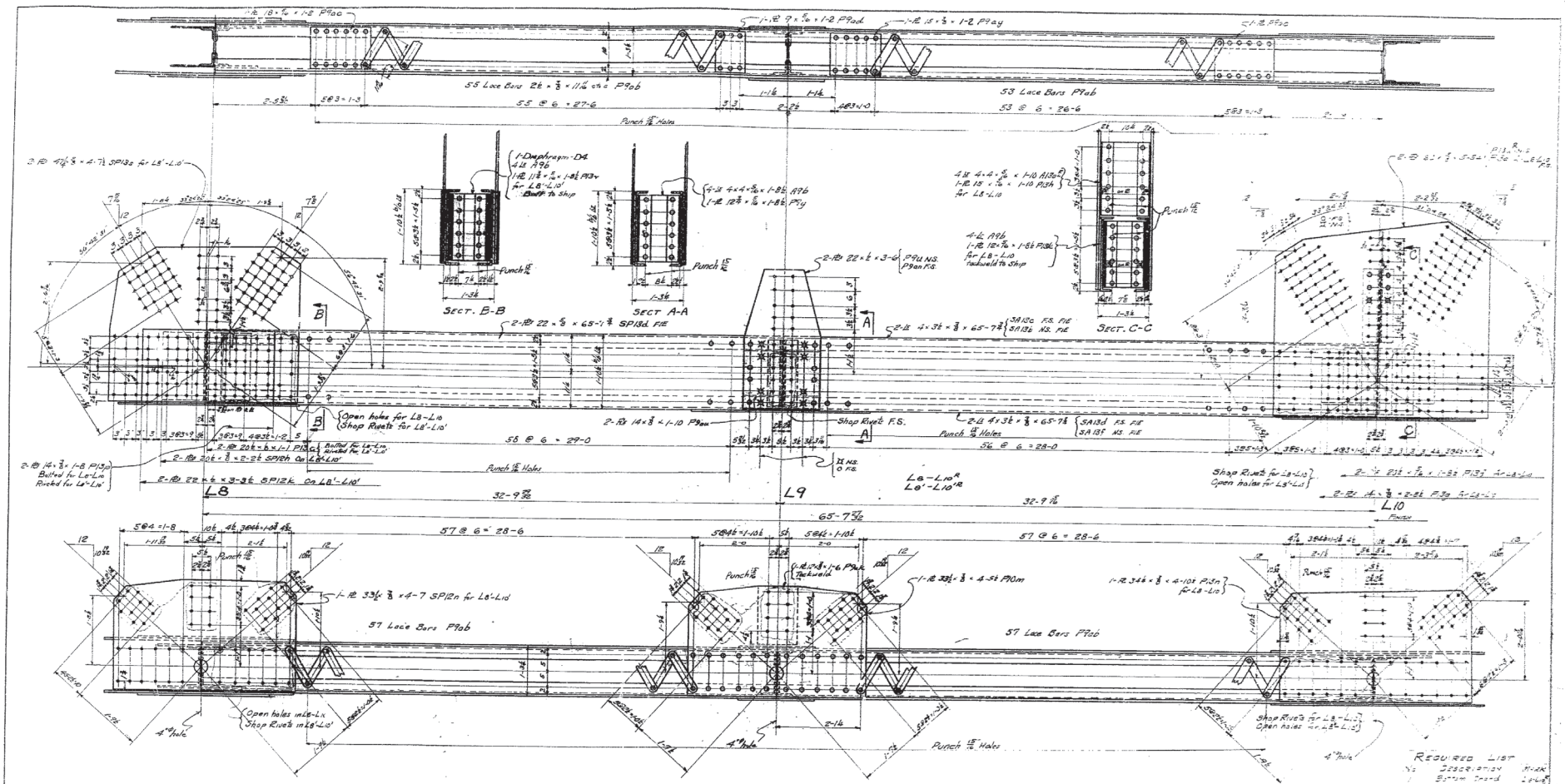
IN CHARGE OF [illegible] CHECKED BY [illegible]

MADE BY [illegible]

JACKSON COUNTY

CONT. NO. 6566 SHEET 12

L6-a-b-c-d
L6'-a-b-c-d-e-f-g-h-i.mp



Assembly Marks recorded by the letter S denote Silicon Steel
Edge and End Distance 1½ Unless Noted

Material	Structural Carbon & Silicon Steel
Specifications	Special
Test Inspection by	U.S. Engineers
Shop Paint	One Coat of Red Lead
Field Paint	No assembly paint to be used.
Field Rivets	Others
Bolts	3/4" Bolts may be Substituted for 7/8" Bolts
Bolt holes for Field Bolts shall be sub-punched	
Reamed	1/16" to 1/8" over nom. dia.
or while temporarily assembled.	
Field Connections	Riveted
Erected by	Others

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE

MISSOURI RIVER

DETAILS OF: Bottom Chord Section L8'-L10' & L8-L10

THE MT. VERNON BRIDGE CO.
MT. VERNON, OHIO

IN CHARGE OF WORK

MADE BY [illegible] CHECKED BY [illegible]

TRACED BY [illegible]

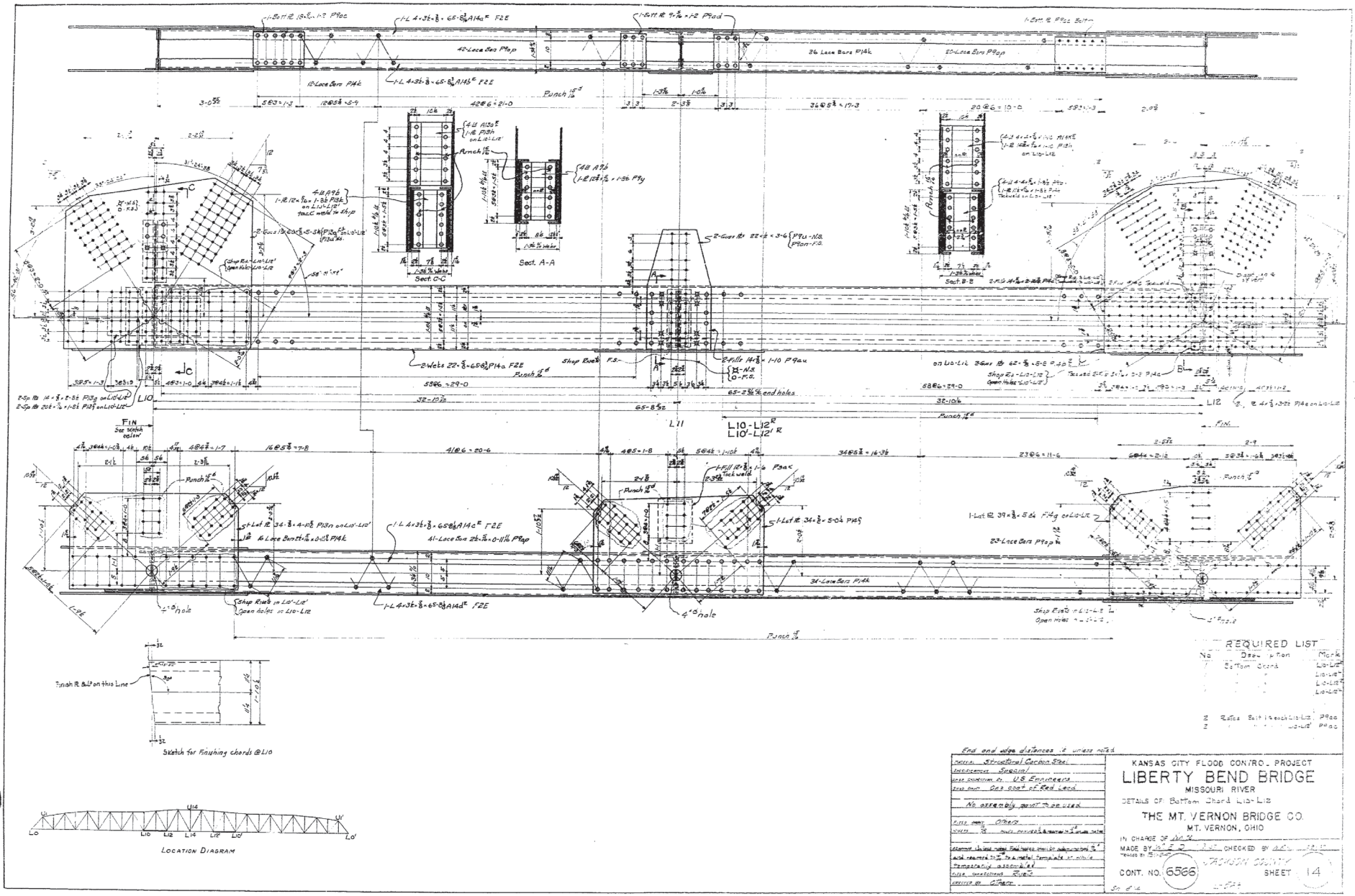
JACKSON COUNTY

CONT. NO. 6566 SHEET 13

Required List

No.	Description	Bottom Chords
		L8'-L10'
		L8-L10
		L8'-L10'
		L8-L10
		L8'-L10'

Bill Diagram 8 L8'-L10' Dia.
" " L8-L10 Dia.



REQUIRED LIST

No.	Description	Mark
	Bottom Chord	L10-L12
		L10-L12'
		L10-L12
		L10-L12'
2	Rolled Bolt 14 each L10-L12	P90a
2	" " " L10-L12'	P90a

Sketch for Finishing chords @ L10

Location Diagram

End and edge distances 1¼ unless noted.

Steel	Structural Carbon Steel
Inspection	Special
Specification to	U.S. Engineers
Shop paint	One coat of Red Lead
	No assembly paint to be used.
Field paint	Others
Welds	Shop welds as shown ; field welds as shown
Material shown under field welds must be ordered 3"	
Work required to fit to metal templates at shops	
Temporarily assembled	
Field connections	Rivets
Erected by	Others

KANSAS CITY FLOOD CONTRO. PROJECT

LIBERTY BEND BRIDGE

MISSOURI RIVER

DETAILS OF Bottom Chord L10-L12

THE MT. VERNON BRIDGE CO.

MT. VERNON, OHIO

IN CHARGE OF W.M.

MADE BY A.S.F. CHECKED BY W.C.

TRACED BY [illegible] TRACING SUBMITTED

CONT. NO. 6566 SHEET 14

Sh. of 14

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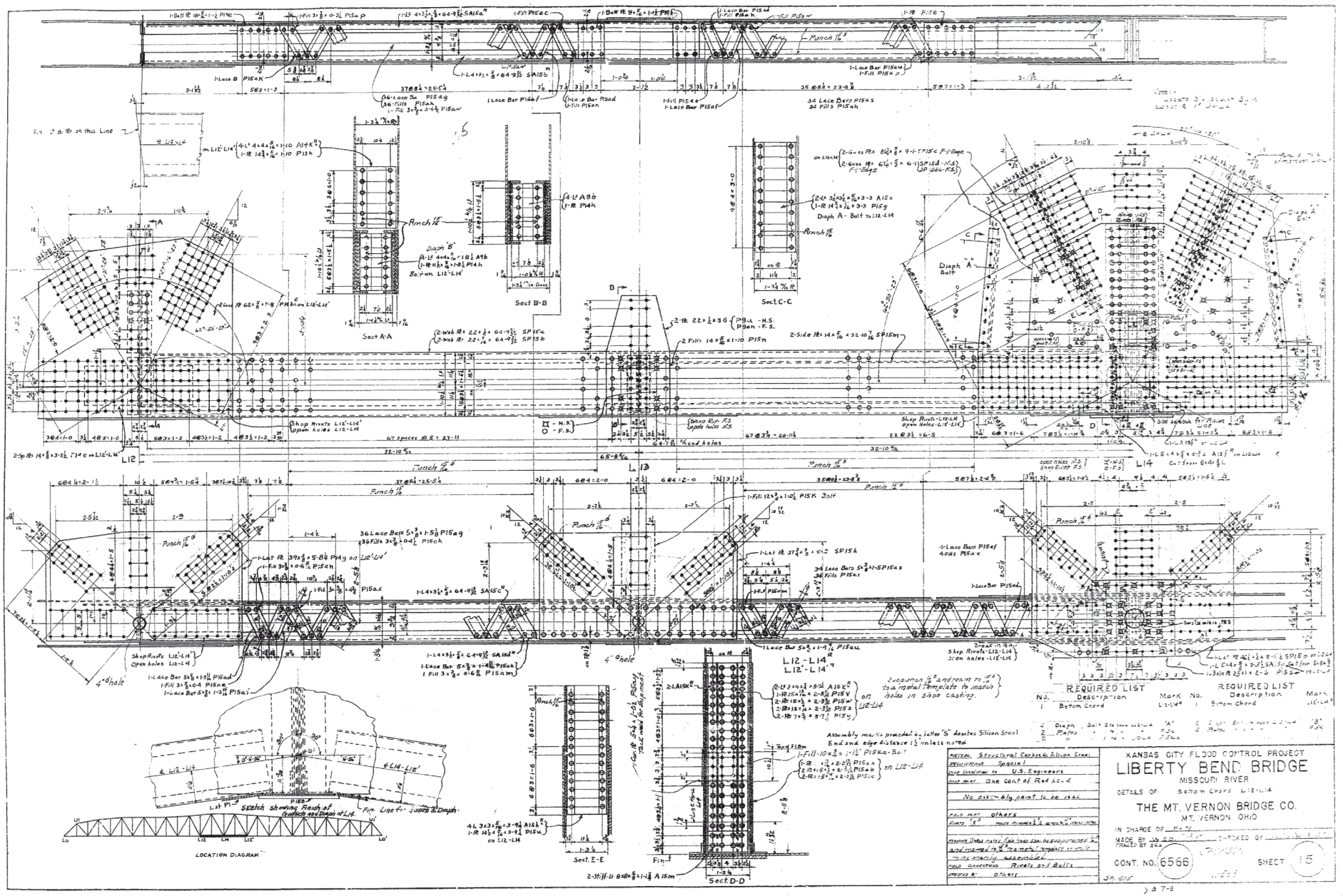
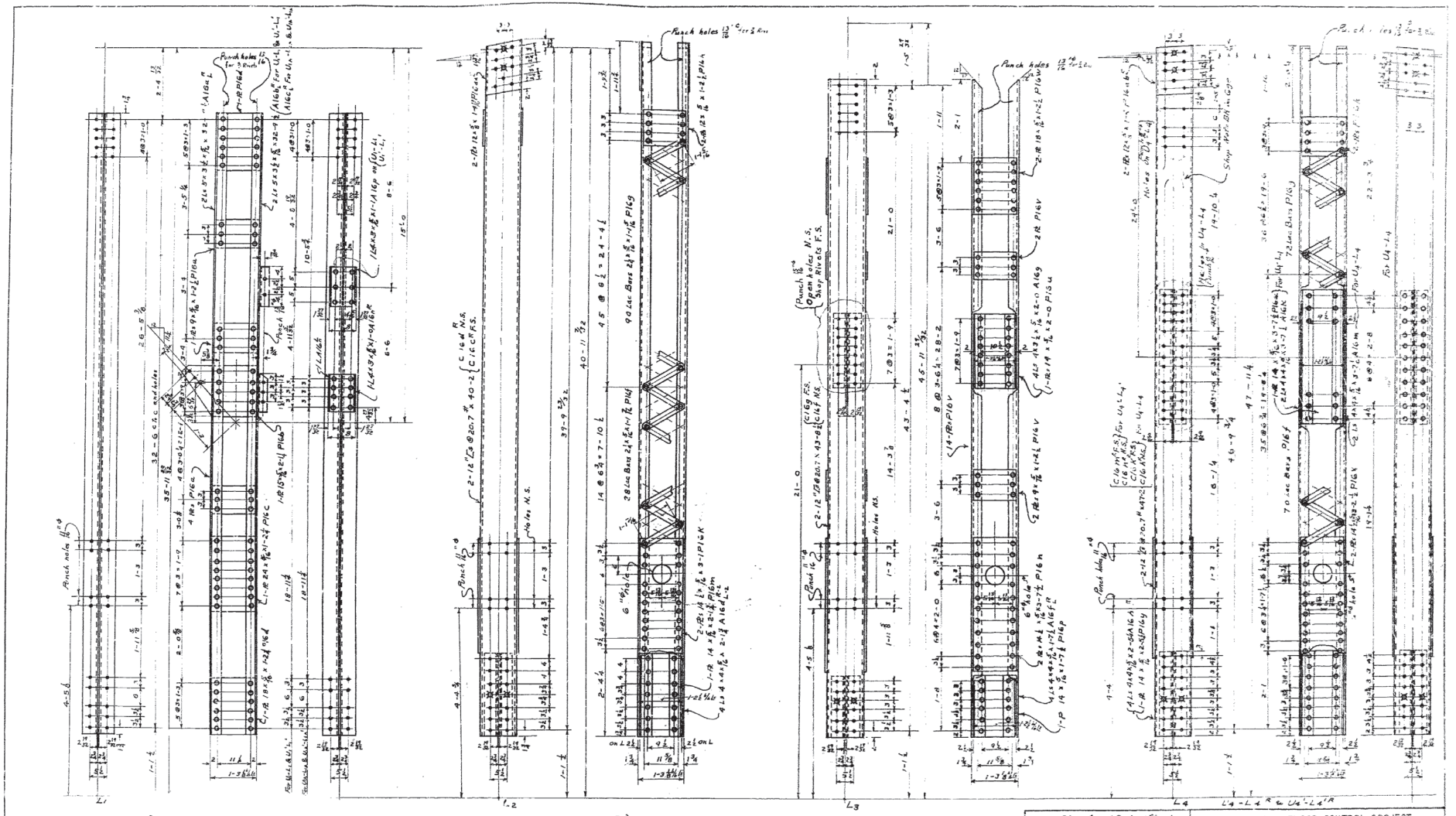

Sect A-A
Sect B-B
Sect C-C
Sect D-D
Sect E-E
LOCATION DIAGRAM
Sketch showing finish of fillets on Diaph at L14
Punch 15/16"
Punch 13/16"
4" ø hole
Shop Rivets L12-L14
Open holes L12-L14
Shop Rivets L12-L14
Open holes L12-L14
Shop Rivets L12-L14
Open holes L12-L14
Diaph "A" Bolt
Diaph "B" Bolt
L12
L13
L14
L12 - L14
L12' - L14'
REQUIRED LIST
No. Description Mark
Bottom Chord L12-L14
REQUIRED LIST
No. Description Mark
Bottom Chord L12-L14
MATERIAL Structural Carbon & Silicon Steel
SPECIFICATIONS Special
DESIGN CONDITIONS U.S. Engineers
SHOP PAINT One coat of Red Lead
No assembly paint to be used
FIELD PAINT Others
PAINTING Steel not to be painted where inaccessible after erection
FIELD CONNECTIONS Rivets and Bolts
INSPECTION BY Others
KANSAS CITY FLOOD CONTROL PROJECT
LIBERTY BEND BRIDGE
MISSOURI RIVER
DETAILS OF Bottom Chord L12-L14
THE MT. VERNON BRIDGE CO.
MT. VERNON OHIO
IN CHARGE OF
MADE BY
TRACED BY
CHECKED BY
CONT. NO. 6566
SHEET 15



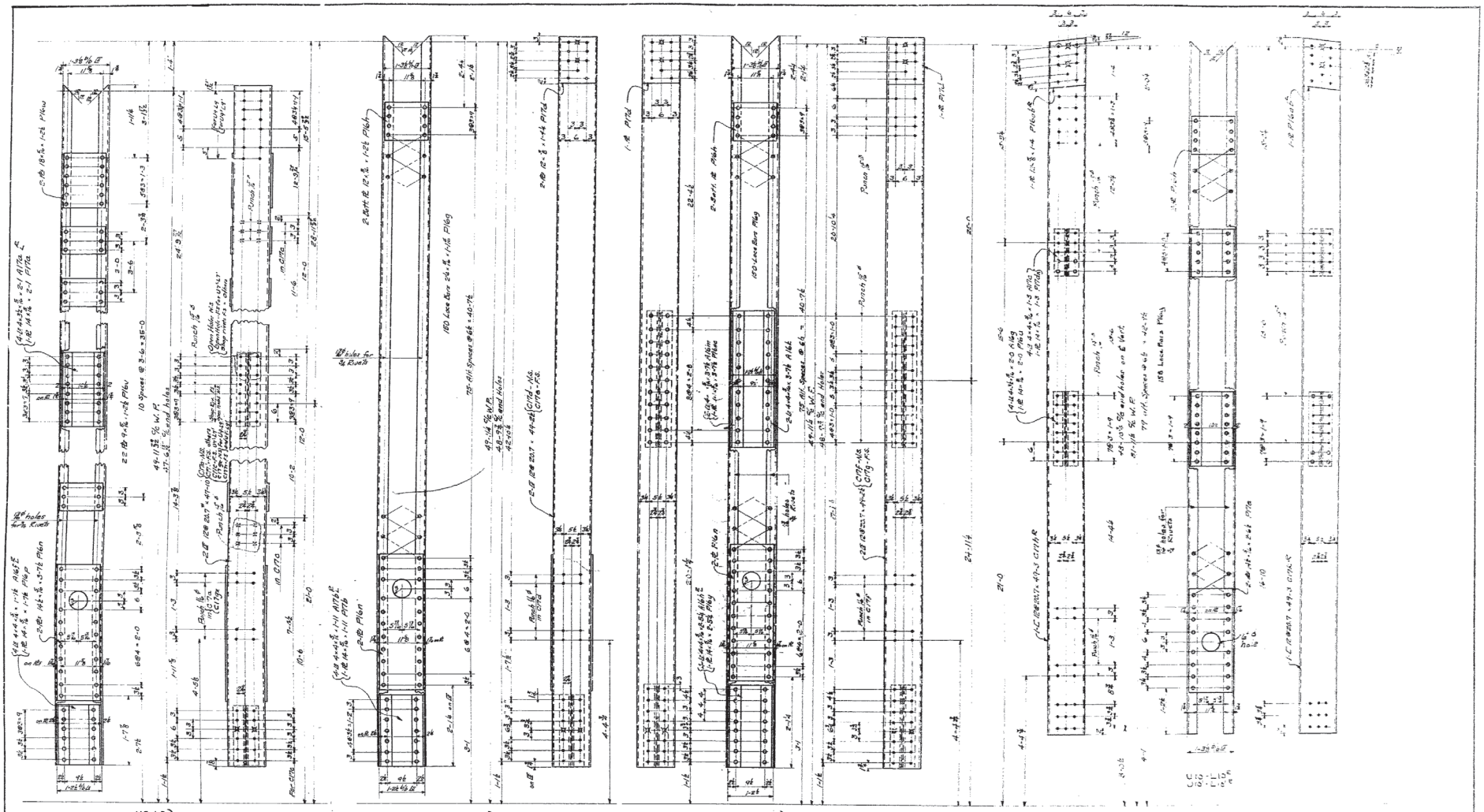
REQUIRED LIST

No.	Description	Mark	No.	Description	Mark
1	Vertical	U1-L1	2	Vertical	U3-L3
1	"	U1'-L1'	2	"	U3'-L3'
1	"	U1A-L1A	1	"	U4-L4 R
1	"	U1A'-L1A'	1	"	U4'-L4' R
1	"	U2-L2 R	1	"	U4-L4' R
1	"	U2'-L2' R	1	"	U4'-L4 R
1	"	U2-L2' R			
1	"	U2'-L2 R			

Material Structural (Carbon Steel)
Specifications Special
Loads
Shop paint One Coat C.L. Red Lead
No Assembly Paint To Be Used.
Field paint Others
Rivets To conform to Specifications Holes punched Full Size No.30
Holes Field holes To be punched 13/16 and reamed to 7/8 To metal Template or while Temporarily assembled. Unless Noted
Field connections Rivets
Inspected by Others

KANSAS CITY FLOOD CONTROL PROJECT
LIBERTY BEND BRIDGE
MISSOURI RIVER
DETAILS OF Verticals
THE MT. VERNON BRIDGE CO.
MT. VERNON, OHIO
IN CHARGE OF [illegible]
MADE BY WEB HIGHWAY CHECKED BY [illegible]
TRACED BY [illegible] JACKSON COUNTY
CONT. NO. 5556 SHEET 15
Sh. 616 1569
Y.B. 18-19

663



U5-L5, U5'-L5', U7-L7, U7'-L7', U9-L9, U9'-L9' } like except as noted

U6-L6, U6'-L6' } alike

U8-L8, U8'-L8' } alike

End and edge distances 1¼ unless noted.

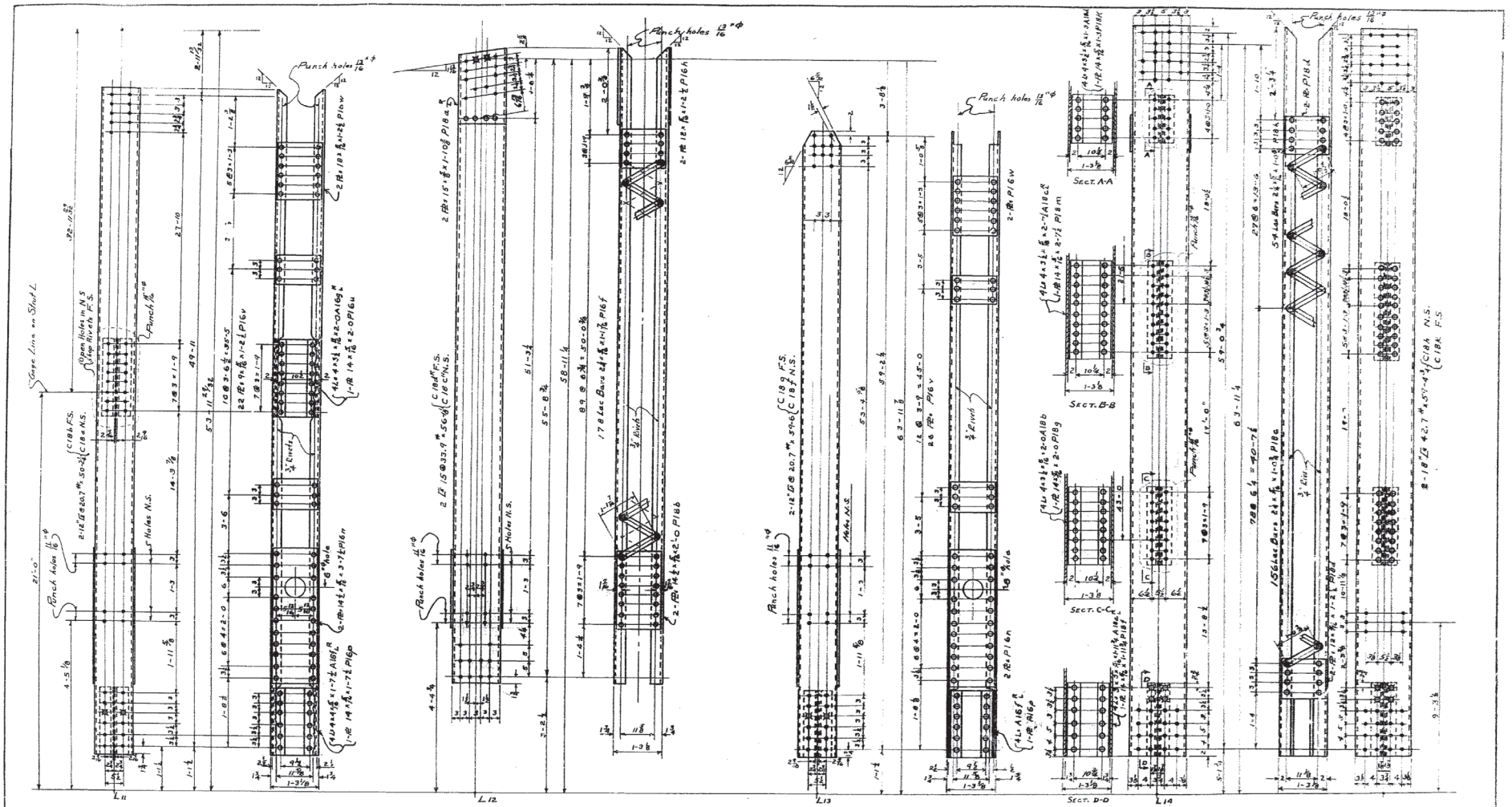
REQUIRED LIST

No	Description	Mark	No	Description	Mark
2	Verticals	U5-L5	2	Verticals	U5'-L5'
2	"	U6-L6	2	"	U6'-L6'
2	"	U7-L7	2	"	U7'-L7'
2	"	U8-L8	2	"	U8'-L8'
2	"	U9-L9	2	"	U9'-L9'
1	"	U10-L10	1	"	U10'-L10'
1	"	U10-L10	1	"	U10'-L10'

Location Diagram

Structural Carbon Steel
Specification Special
Shop inspection by U.S. Engineers
Shop coat One Coat of Red Lead
No assembly paint to be used.
Field paint Others
Holes 7/8" Rivets 15/16" unless noted
Reamed field holes during erection to be reamed in the shop in a metal template or match-marked assemblies unless noted
Field connections Rivets
Erected by Others

KANSAS CITY FLOOD CONTROL PROJECT
LIBERTY BEND BRIDGE
MISSOURI RIVER
DETAILS OF VERTICALS
THE MT. VERNON BRIDGE CO.
MT. VERNON, OHIO
IN CHARGE OF [illegible]
MADE BY [illegible] CHECKED BY [illegible]
TRACED BY [illegible]
CONT. NO. 6566 SHEET 17
Sh. 617

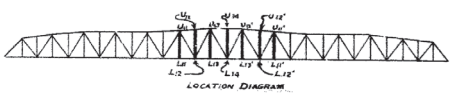


U11 - L11 } Alike
U11' - L11' }

U12 - L12^R } Alike
U12' - L12'^R }

U13 - L13 } Alike
U13' - L13' }

U14 - L14



LOCATION DIAGRAM

REQUIRED LIST		
No.	DESCRIPTION	MARK
2	Verticals	U11-L11
2	"	U11'-L11'
1	"	U12-L12
1	"	U12'-L12'
1	"	U13-L13
1	"	U13'-L13'
2	"	U14-L14
1	"	U14'-L14'

Edge & End Distances 1/4 Unless Noted

MATERIAL Structural Carbon Steel
SPECIFICATIONS Special
SHOP INSPECTION BY U.S. Engineers
SHOP PAINT One Coat of Red Lead
No assembly paint to be used.

FIELD PAINT Others
RIVETS 7/8 unless noted
HOLES PUNCHED 11/16 Unless Noted

REMARKS Field holes to be punched 11/16 and reamed to 12/16 to match templates or while temporarily assembled. Unless Noted
FIELD CONNECTIONS Rivets
ERECTED BY Others

Y.B. 20-21

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE

MISSOURI RIVER

DETAILS OF Verticals

THE MT. VERNON BRIDGE CO.
MT. VERNON, OHIO

IN CHARGE OF [illegible]
MADE BY WEB 11-19-47 CHECKED BY WEB 11-24-47
TRACED BY BCS

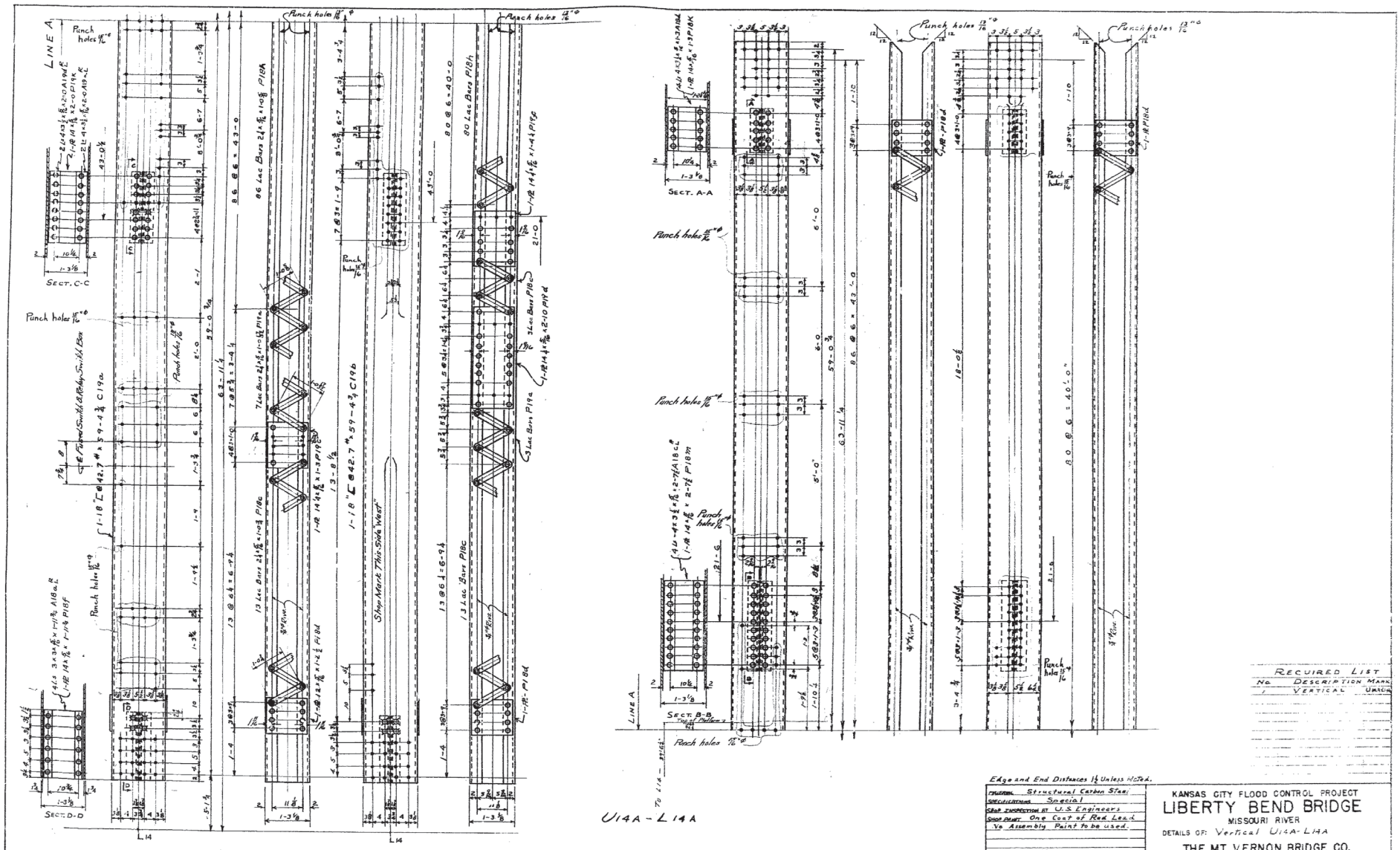
JACKSON COUNTY

CONT. NO. 6566 SHEET 18

Sh. 6/8 L-583

52

663



REQUIRED LIST

No.	Description	Mark
1	Vertical	U14A-L14A

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE

MISSOURI RIVER

DETAILS OF: Vertical U14A-L14A

THE MT. VERNON BRIDGE CO.

MT. VERNON, OHIO

IN CHARGE OF [illegible]

MADE BY WEO 11-14-47 CHECKED BY WCH

TRACED BY [illegible]

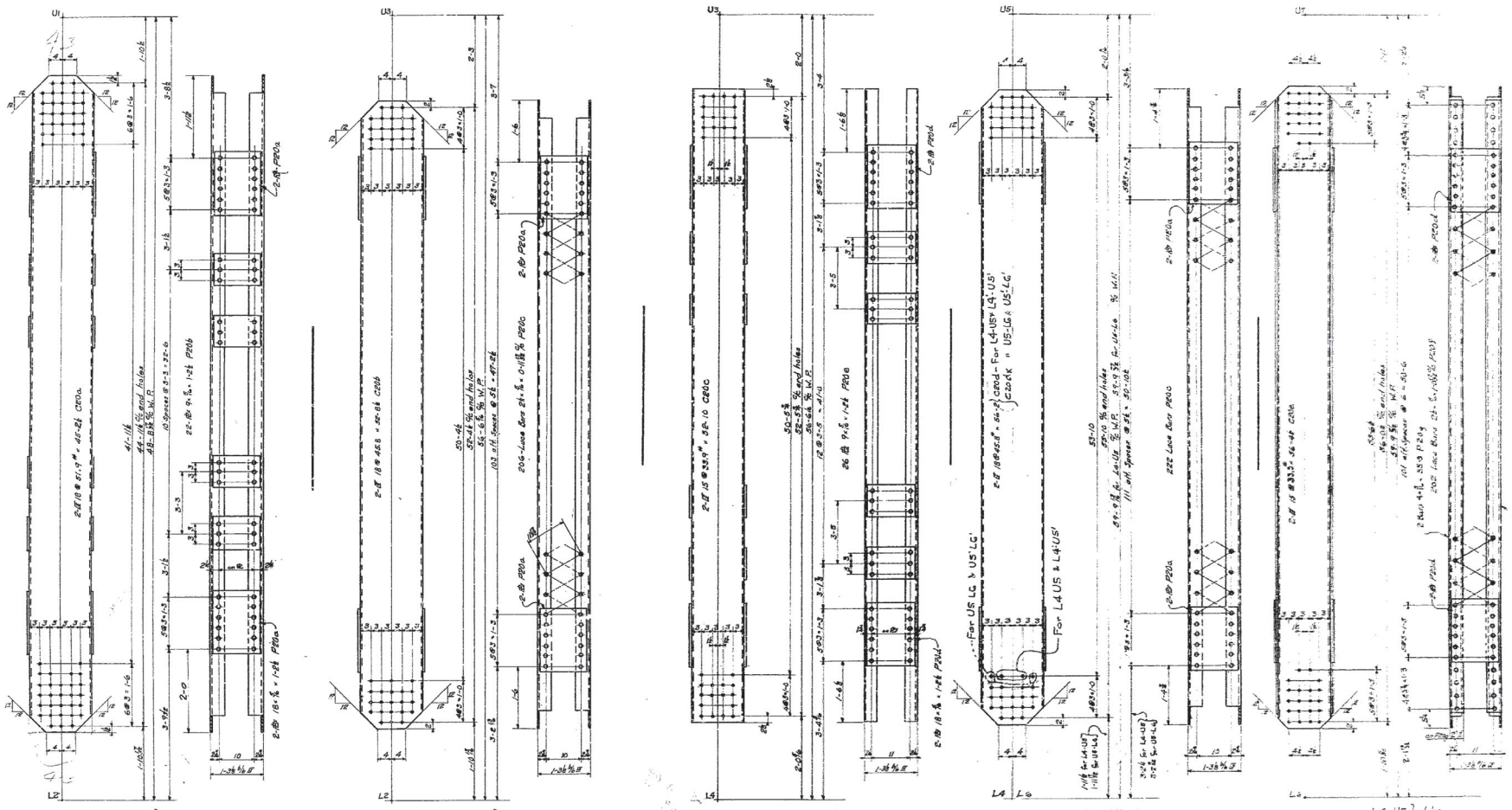
JACKSON COUNTY

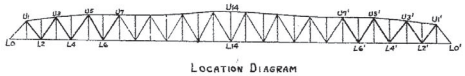
CONT. NO. 6566 SHEET 19

Sh. 618 L-583

53

663





LOCATION DIAGRAM

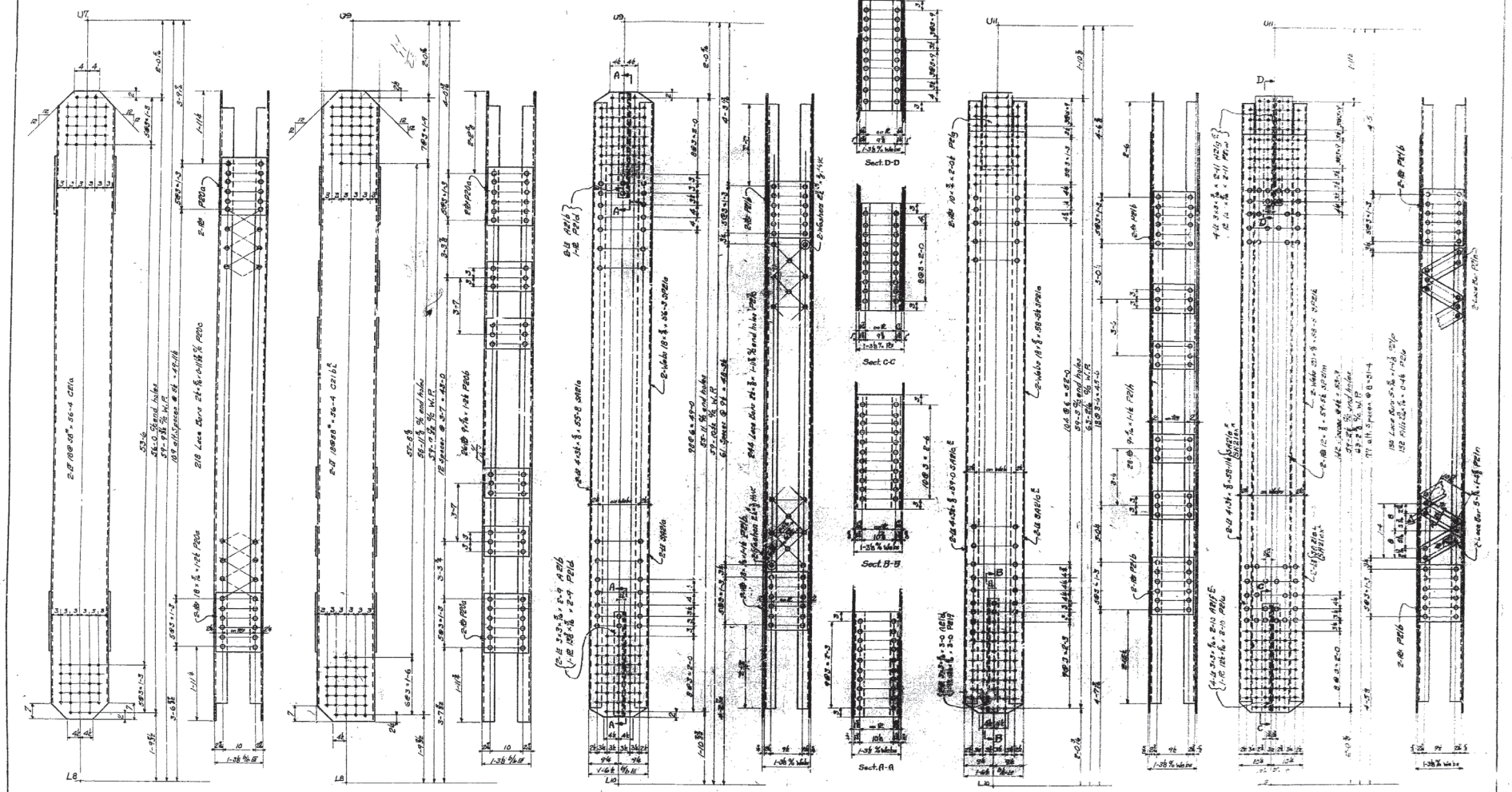
End and edge distances 1¼ unless noted.

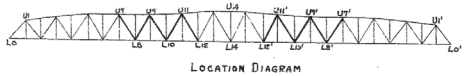
REQUIRED LIST

No	Description	Mark	No	Description	Mark
2	Diagonals	U1-L2	8	Diagonals	U1'-L2'
2	"	L2-U3	2	"	L2'-U3'
20	"	U3-L4	2	"	U3'-L4'
2	"	L4-U5	2	"	L4'-U5'
20	"	U5-L6	2	"	U5'-L6'
20	"	L6-U7	2	"	L6'-U7'

Material Structural Carbon Steel
Workmanship Special
Shop Inspection By U.S. Engineers
Shop Paint One coat of Red Lead
No assembly paint to be used.
Field Paint Others
Rivets ⅞" Holes punched 15/16"
Remarks Field holes to be reamed 1" and reamed holes 7/8" to a metal template or whole temporarily assembled.
Torch Cuttings Smooth
Erected By Others

KANSAS CITY FLOOD CONTROL PROJECT
LIBERTY BEND BRIDGE
MISSOURI RIVER
DETAILS OF: DIAGONALS
THE MT. VERNON BRIDGE CO.
MT. VERNON, OHIO
IN CHARGE OF W.F.D.
MADE BY W.E.P. CHECKED BY H.K.N. 10-23-47
JACKSON COUNTY
CONT. NO. 6566 SHEET 20
STR. 620 L-565
YE 22-23





LOCATION DIAGRAM

Assembly marks preceded by letter "S" denotes Silicon Steel
End and edge distances to ⅛" unless noted.

REQUIRED LIST

No	Description	Mark	No	Description	Mark
2	Diagonals	U7-L8	2	Diagonals	U7'-L8'
2	"	L8-U9	2	"	L8'-U9'
2	"	U9-L10	2	"	U9'-L10'
2	"	L10-U11	2	"	L10'-U11'
2	"	U11-L12	2	"	U11'-L12'

MATERIAL	Structural Carbon & Silicon Steel
SPECIFICATIONS	Special
SHOP INSPECTION BY	U.S. Engineers
SHOP PAINT	One Coat of Red Lead
	No assembly paint to be used
FIELD PAINT	Others
RIVETS	⅞ Holes Punched ⅞
Diagonals	Field holes shall be subpunched ⅞ and reamed ⅞ to a metal template or while temporarily assembled.
FIELD CONNECTIONS	Rivets
ERECTED BY	Others

Rev. NS data. Revise U7-L8 & U9-L10

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE

MISSOURI RIVER

DETAILS OF: DIAGONALS

THE MT. VERNON BRIDGE CO.

MT. VERNON, OHIO

IN CHARGE OF White

MADE BY W.E.T. 1/14/47 CHECKED BY WEB-Dec 22-47

TRACED BY 18-1-48

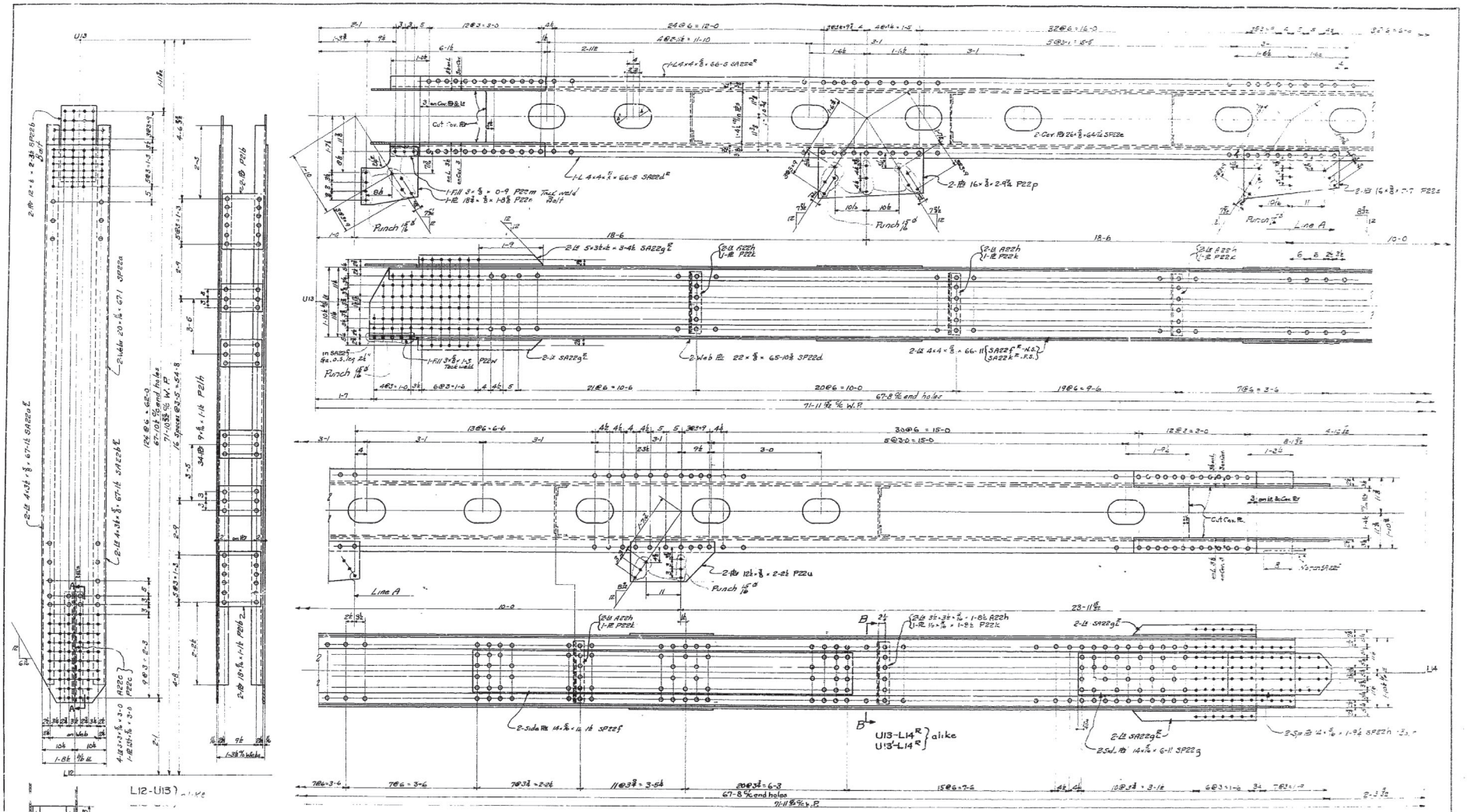
CONT. NO. 6566 JACKSON COUNTY SHEET 21

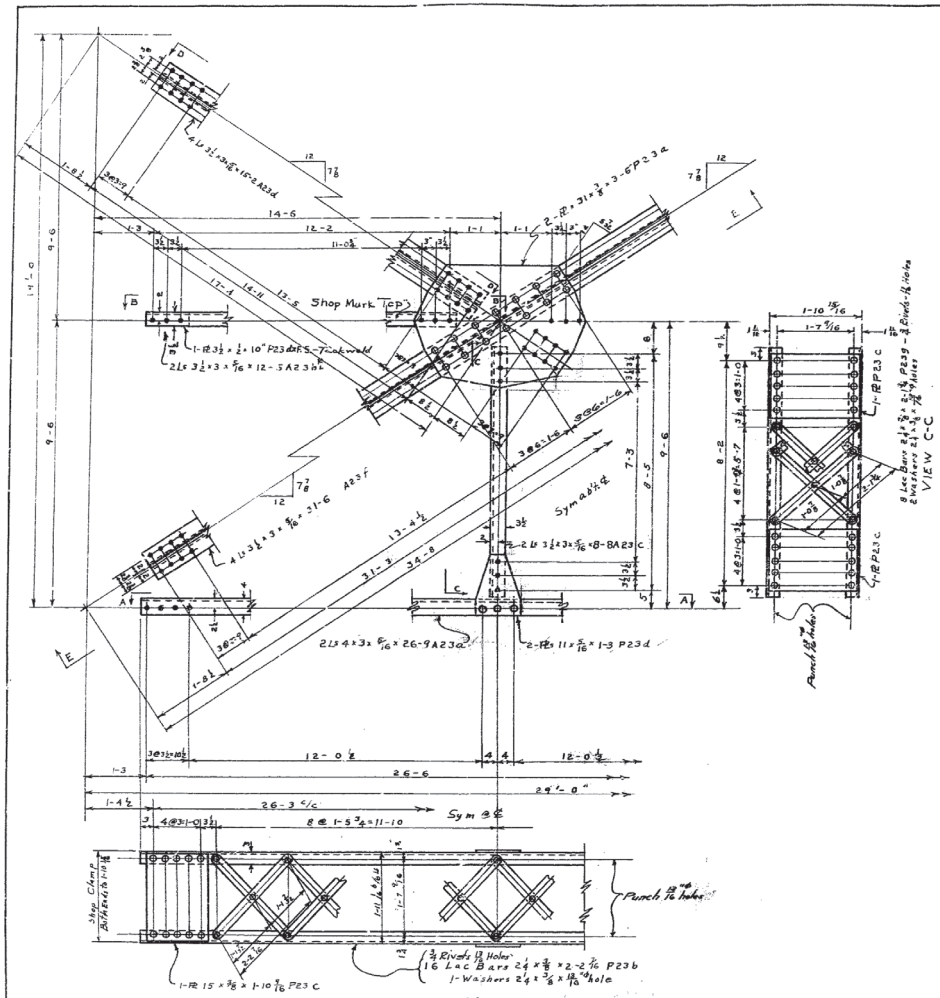
Sh. 621 L-582

48-23-24

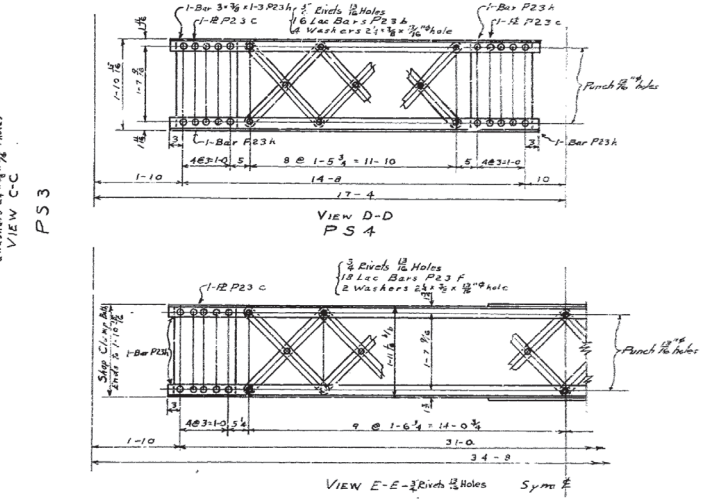
55

663


U13
L12-U13
Sect. A-A
Sect. B-B
Line A
U13-L14R alike
U13-L14L
Punch 15/16 ø
Punch 1 1/16 ø
Cut Cov. Pl
Trim Cov Pls & Le
Trim Web & Le
Trim Web & Le
Trim Cov Pls & Le
Cut Cov. Pl
Trim Cov Pls



VIEW A-A
PS1



VIEW C-C
PS3

VIEW B-B
PS2

VIEW D-D
PS4

VIEW E-E - 3/4" Rivets 13/16" Holes Sym about ℄
PS5

REQUIRED LIST			
No.	DESCRIPTION	MARK
1	Portal Struts	PS1
2	"	PS3
4	"	PS4
2	"	PS5
2	"	PS2
2	"	PS2

End & End Distances 1½" Unless Noted.
MATERIAL Structural Carbon Steel
SPECIFICATIONS Special
SHOP INSPECTION BY U.S. Engineers
SHOP PAINT One Coat of Red Lead
No Assembly Paint to be used.
FIELD PAINT Others
RIVETS 7/8" & 3/4" Rivets Driven 3/4" Unless Noted
DRIFTPINS None.
FIELD CONNECTIONS Rivets
ERECTED BY Others

KANSAS CITY FLOOD CONTROL PROJECT
LIBERTY BEND BRIDGE
MISSOURI RIVER
DETAILS OF Portal at U1-Lo
THE MT. VERNON BRIDGE CO.
MT. VERNON, OHIO
IN CHARGE OF Wolfe
MADE BY JEB 11-12-47 CHECKED BY OKV 11-13-47
TRACED BY DCS
CONT. NO. 556 G JACKSON COUNTY SHEET 23
St. 633 L-563

B. 2.5

57

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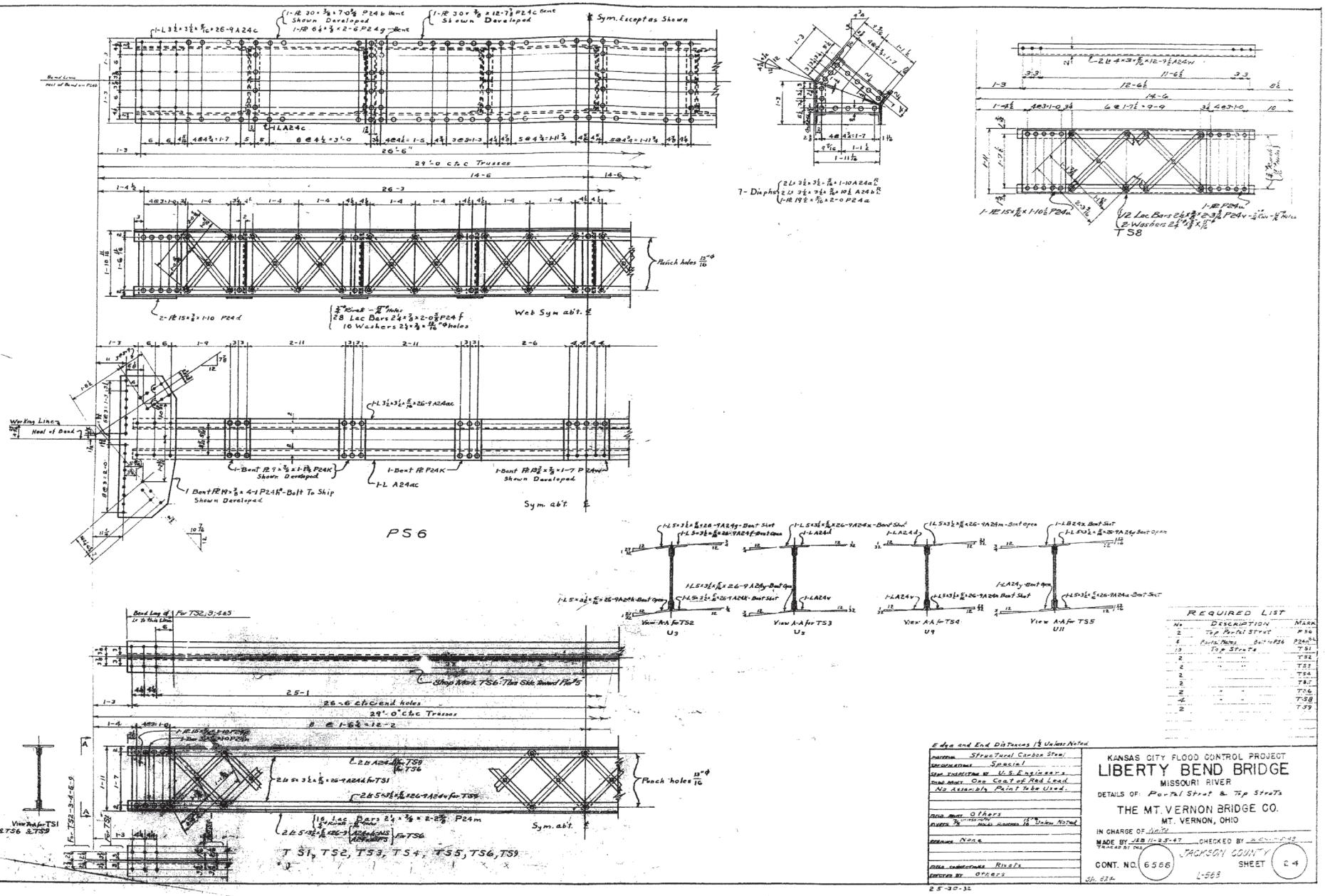

REQUIRED LIST

No.	DESCRIPTION	MARK
2	Top Portal Strut	PS6
4	Portal Plates Built to PS6	P24 3/4"
10	Top Struts	TS1
2	"	TS2
2	"	TS3
2	"	TS4
2	"	TS5
2	"	TS6
4	"	TS8
2	"	TS9

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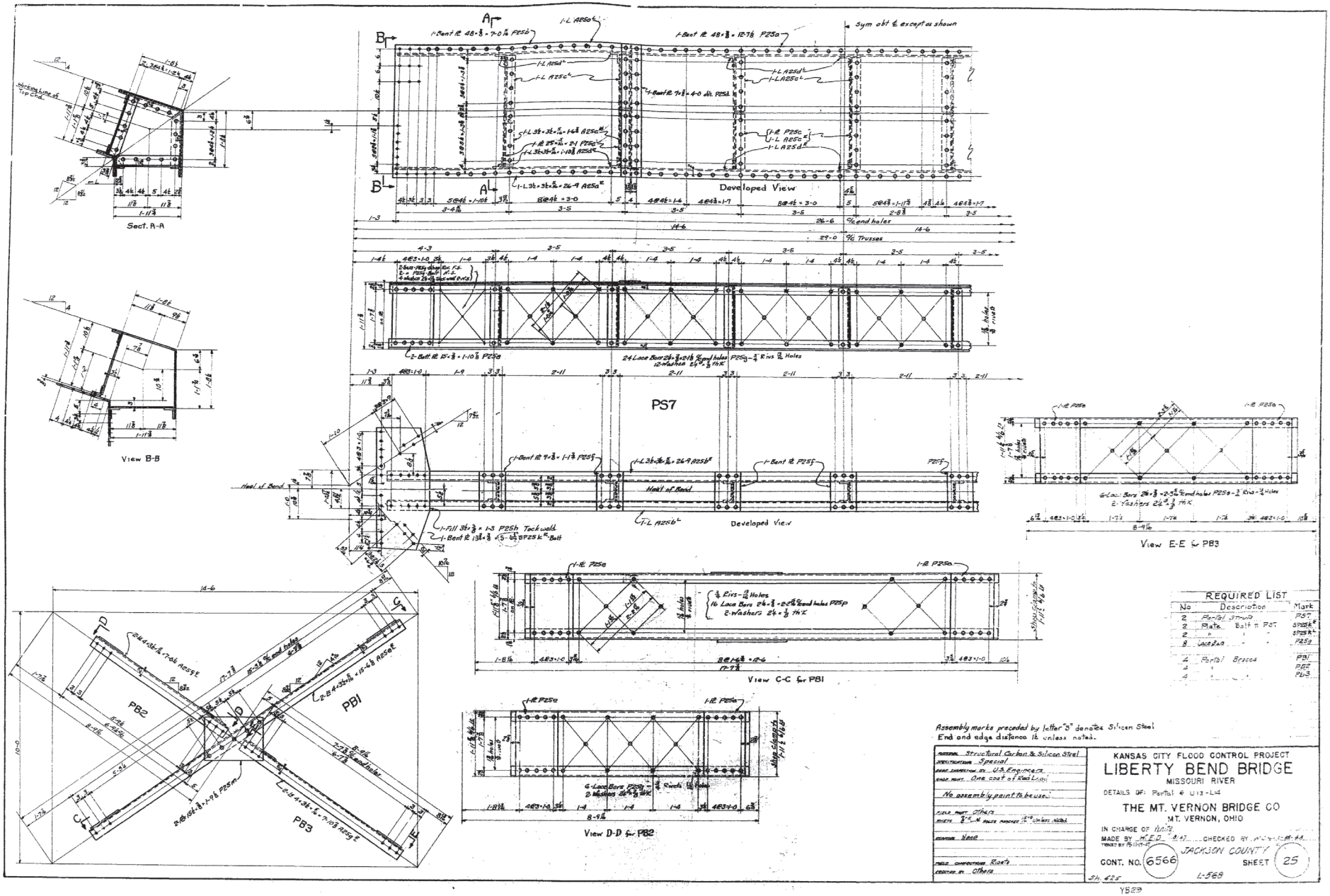

REQUIRED LIST		
No	Description	Mark
2	Partial Stringer	PS7
2	Plate, Batt to PS7	SPS5E, SPS5K
2	" " "	PS5a
8	Lacing Bars	PS5a
4	Partial Bracing	PB1
4	" "	PB2
4	" "	PB3

Assembly marks preceded by letter "S" denotes Silicon Steel
End and edge distance 1¼ unless noted.

MATERIAL	Structural Carbon & Silicon Steel
SPECIFICATIONS	Special
SHOP INSPECTION BY	U.S. Engineers
SHOP PAINT	One coat of Red Lead
	No assembly paint to be used
FIELD PAINT	Others
WELDS	5/16" fillet unless noted
WELDING	None
FIELD CONNECTIONS	Rivets
ERECTED BY	Others

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE

MISSOURI RIVER

DETAILS OF: Partial & U13-L44

THE MT. VERNON BRIDGE CO

MT. VERNON, OHIO

IN CHARGE OF W.H.D.

MADE BY H.E.O. 8-47 CHECKED BY W.H.D. 10-47-48

TRACED BY R.J.H.-S.

CONT. NO. 6566 JACKSON COUNTY SHEET 25

Sh. 625 L-568

YB29

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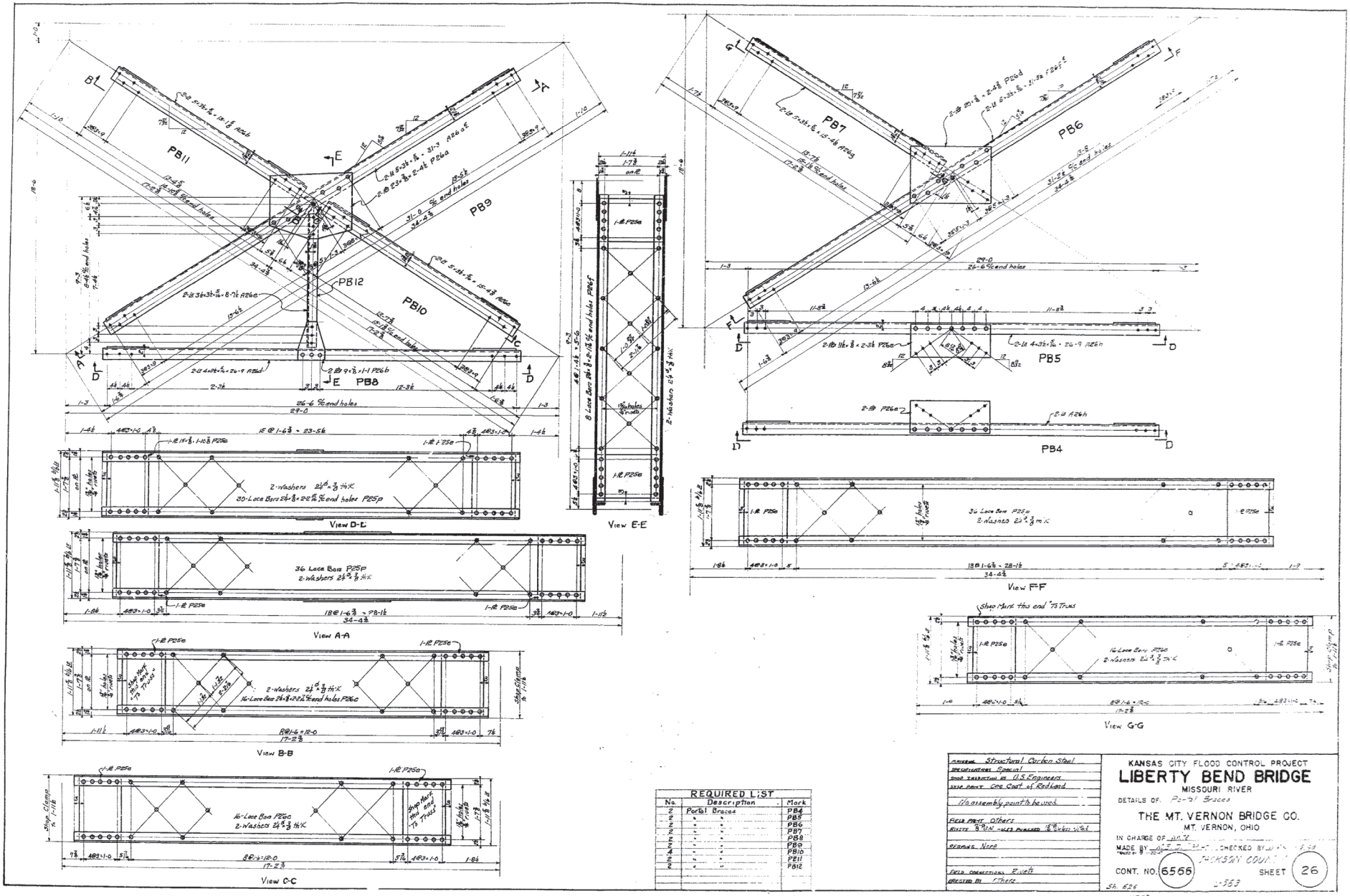


REQUIRED LIST		
No.	Description	Mark
2	Portal Braces	PB4
2	"	PB5
2	"	PB6
2	"	PB7
2	"	PB8
2	"	PB9
2	"	PB10
2	"	PB11
2	"	PB12

Material: Structural Carbon Steel
Specifications: Special
Shop Inspection by U.S. Engineer
Shop Paint: One Coat of Red Lead
(Galvanized paint to be used.)
Field Paint: Others
Rivets 7/8" N.H. holes punched 15/16" when field
Bearing Nuts
Field Connections: Rivets
Erected by Others

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE

MISSOURI RIVER

DETAILS OF: Portal Braces

THE MT. VERNON BRIDGE CO.

MT. VERNON, OHIO

IN CHARGE OF [illegible]

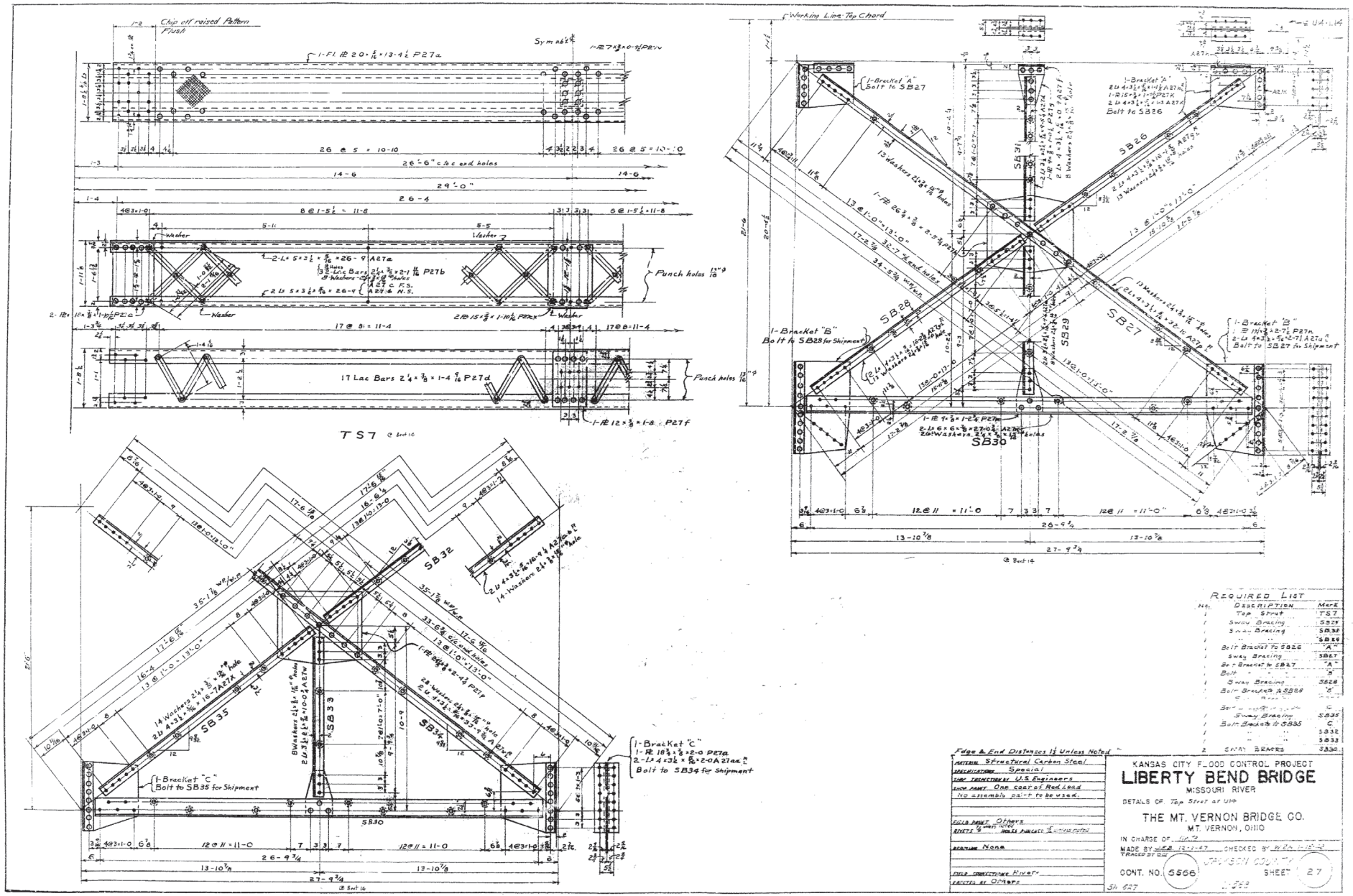
MADE BY [illegible] CHECKED BY [illegible]

CONT. NO. 6556 SHEET 26

Sh. 625 L-353

JACKSON COUN[illegible]

663



REQUIRED LIST

No.	Description	Mark
1	Top Strut	TS7
1	Sway Bracing	SB31
1	Sway Bracing	SB26
1	Bolt Bracket to SB26	"A"
1	Sway Bracing	SB27
1	Bolt Bracket to SB27	"A"
1	Bolt " " "	"B"
1	Sway Bracing	SB28
1	Bolt Brackets to SB28	"B"
1	Bolt " " "	"C"
1	Sway Bracing	SB35
1	Bolt Brackets to SB35	"C"
1	" "	SB32
1	" "	SB33
2	Sway Braces	SB30

Edge & End Distances 1½ Unless Noted

MATERIAL Structural Carbon Steel
SPECIFICATIONS Special
SHOP INSPECTION BY U.S. Engineers
SHOP PAINT One coat of Red Lead
No assembly paint to be used.
FIELD PAINT Others
RIVETS ⅞ when noted, holes punched ⅞ when noted
REMARKS None
FIELD CORRECTIONS Rivets
ERECTED BY Others

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE

MISSOURI RIVER

DETAILS OF Top Strut at U14

THE MT. VERNON BRIDGE CO.
MT. VERNON, OHIO

IN CHARGE OF U.S.E.

MADE BY W.F.B. 12-1-47 CHECKED BY W.B.N. 12-5-47
TRACED BY DLC

CONT. NO. 5566 JAYSON COUNTY SHEET 27

Sh 627

Y.B. 28

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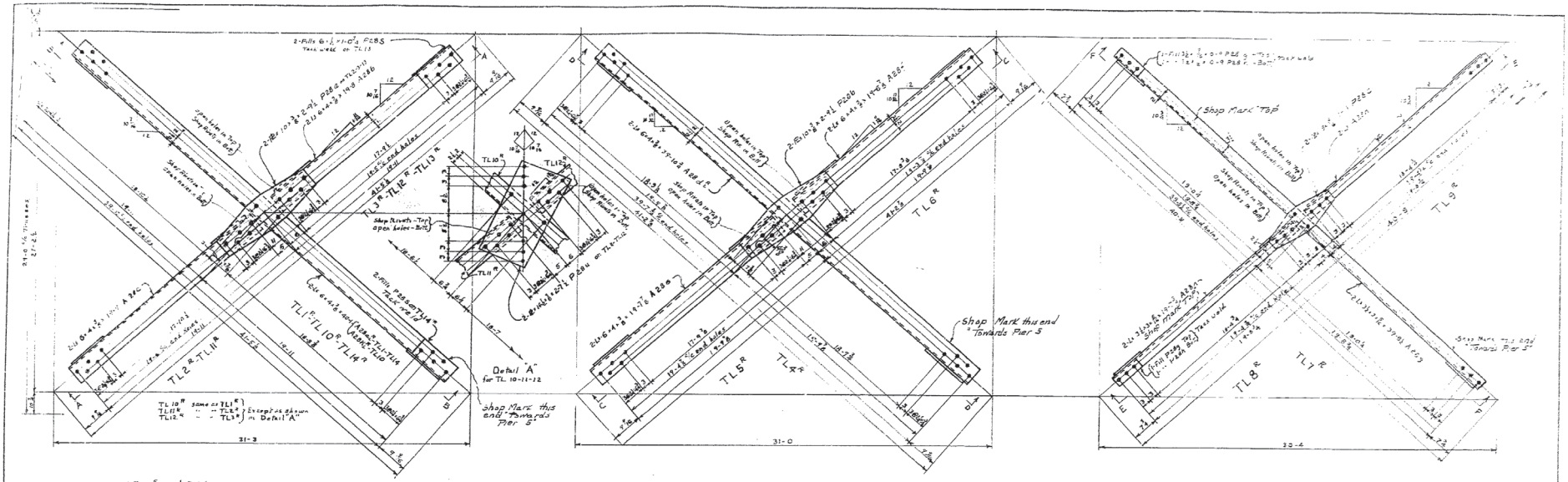
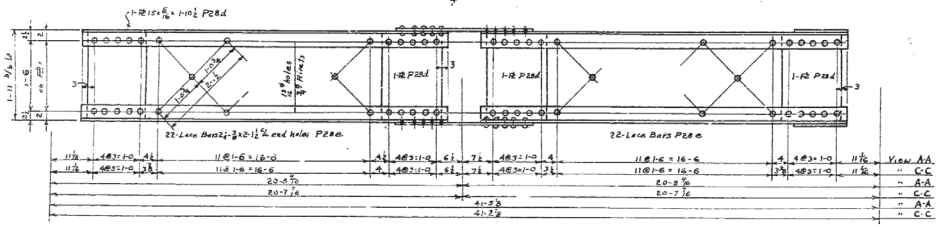
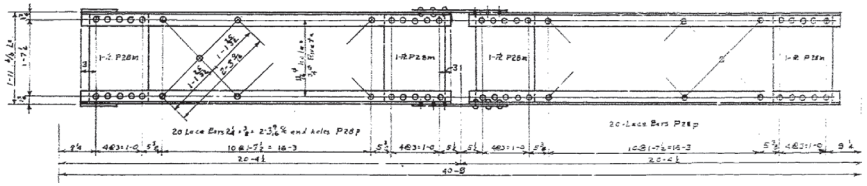
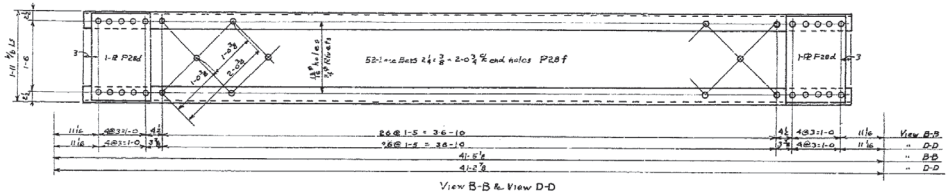
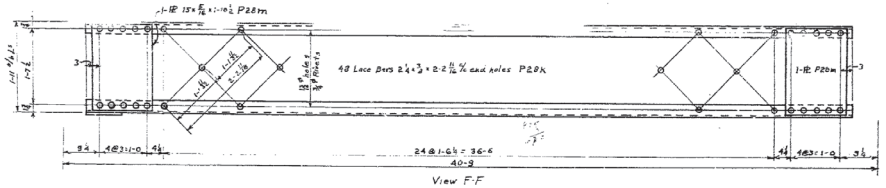










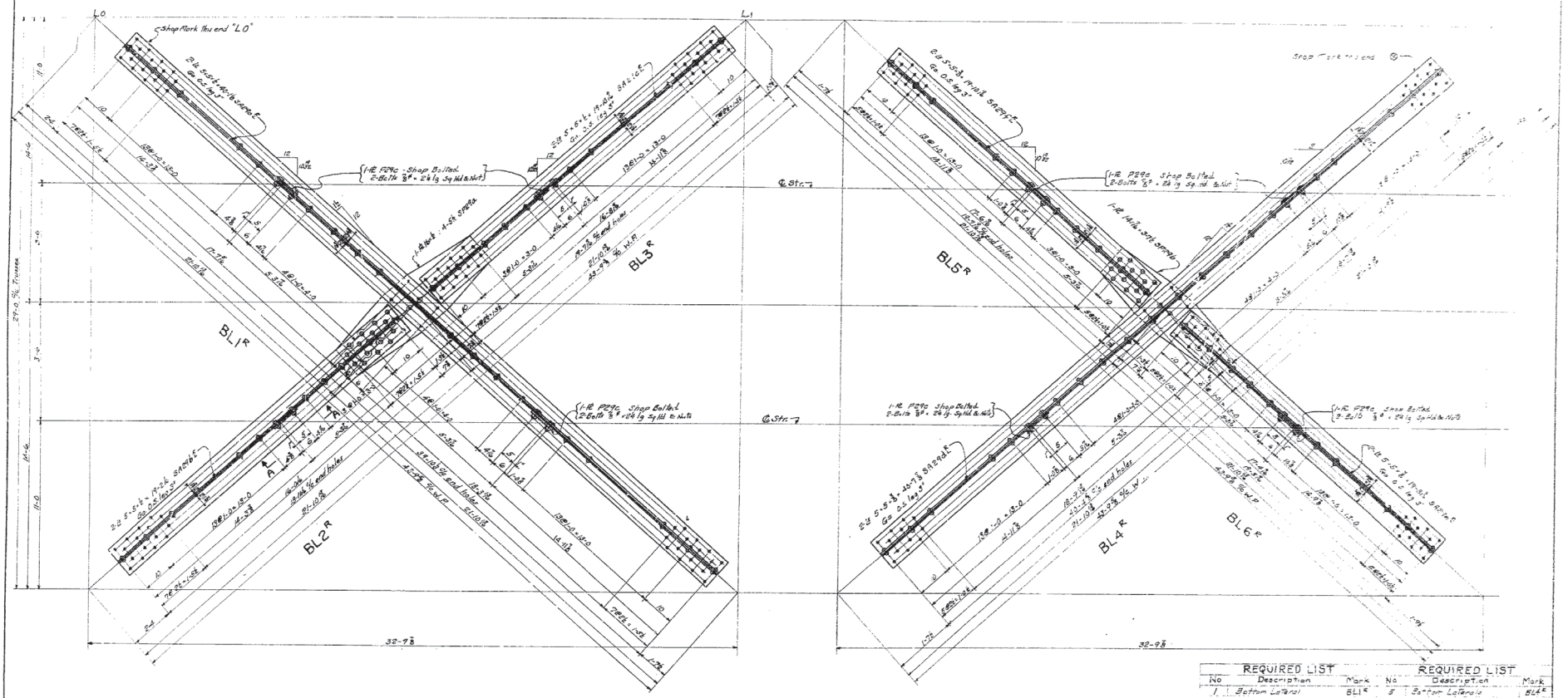
End and edge distances 1½ unless noted

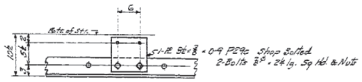
REQUIRED LIST

No.	Description	Mark	No.	Description	Mark
2	Top Laterals	TL1R			
2	" "	TL1L			
3	" "	TL2R		Top Laterals	TL10R
3	" "	TL2L		" "	TL10L
2	" "	TL3R		" "	TL11R
2	" "	TL3L		" "	TL11L
8	" "	TL4R		" "	TL12R
8	" "	TL4L		" "	TL12L
8	" "	TL5R		" "	TL13R
8	" "	TL5L		" "	TL13L
8	" "	TL6R		" "	TL14R
8	" "	TL6L		" "	TL14L
1	" "	TL7R			
1	" "	TL7L			
1	" "	TL8R			
1	" "	TL8L			
1	" "	TL9R			
1	" "	TL9L			

Material Structural Carbon Steel
Specifications Spec. 21
Shop Paint U.S. Engineers
Shop Paint One Coat of Red Lead
No assembly paint to be used
Erection Others
Paint 2" Min. Rivet Heads 1/2" Unless Noted
Welding None
Field Connections Rivets
Erected at Others

KANSAS CITY FLOOD CONTROL PROJECT
LIBERTY BEND BRIDGE
MISSOURI RIVER
DETAILS OF Top Laterals
THE MT. VERNON BRIDGE CO.
MT. VERNON, OHIO
IN CHARGE OF J.C.
MADE BY W.E.D. 1-29-37 CHECKED BY
TRACED BY ZZ
CONT. NO. 6566
JACKSON COUNTY
SHEET 28
SP. 623
1-563
Y B 30





View A-A

REQUIRED LIST				REQUIRED LIST	
No	Description	Mark	No	Description	Mark
1	Bottom Lateral	BL1R	5	Bottom Laterals	BL4R
1	"	BL1-	5	"	BL4-
4	Plates Shop Bolt 2 Beam BL	P29c	20	Plates Shop Bolt 2 Beam BL	P29c
1	Bottom Lateral	BL2R	5	Bottom Laterals	BL5R
1	"	BL2-	5	"	BL5-
2	Plates Shop Bolt 1 Beam BL	P29c	10	Plates Shop Bolt 1 Beam BL	P29c
1	Bottom Lateral	BL3R	5	Bottom Laterals	BL6R
1	"	BL3-	5	"	BL6-
2	Plates Shop Bolt 1 Beam BL	P29c	10	Plates Shop Bolt 1 Beam BL	P29c

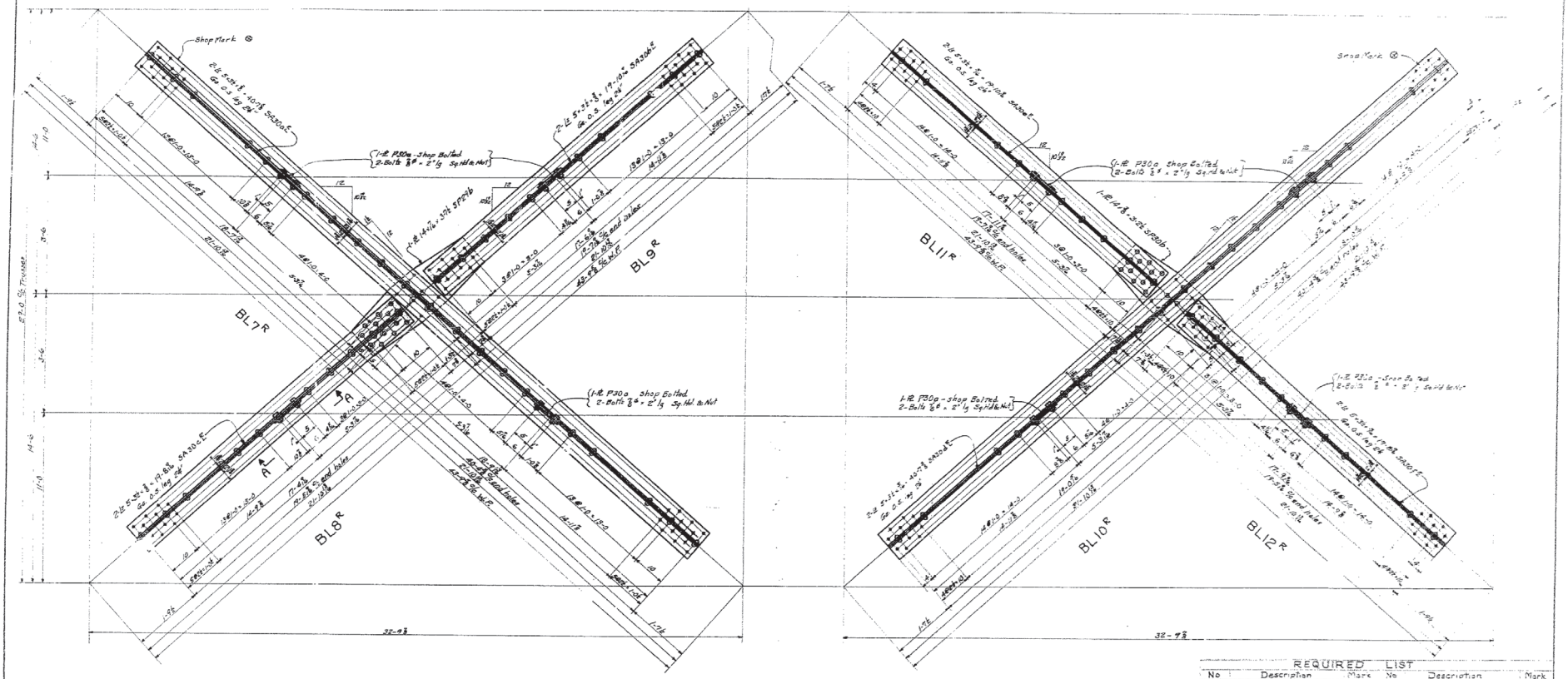
Assembly marks preceded by letter "S" denotes Silicon Steel.
End and edge distances 1½ unless noted.

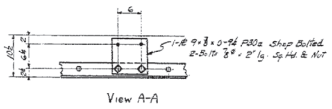
MATERIAL Structural Carbon & Silicon Steel
SPECIFICATIONS Special
SHOP INSPECTION BY U.S. Engineers
SHOP PAINT One coat of Red Lead Paint
Assembly paint to be used
FIELD PAINT Others
RIVETS ⅞" 22 PER SQ. IN. TURNED 10
BOLTS None
FIELD CONNECTIONS Bolted
ERECTED BY Others

KANSAS CITY FLOOD CONTROL PROJECT
LIBERTY BEND BRIDGE
MISSOURI RIVER
DETAILS OF: Bottom Laterals
THE MT. VERNON BRIDGE CO.
MT. VERNON, OHIO
IN CHARGE OF H.C.T.
MADE BY W.E.D. 12-14-37 CHECKED BY J.V.K. 1-7-38
CONT. NO. 5566 JACKSON COUNTY SHEET 29
SH. 629 L-5 of 5
YB38

12-a-b-c-d-e-f
18-g-h-i
63

663





REQUIRED LIST

No.	Description	Mark	No.	Description	Mark
1	Bottom Lateral	BL10R	5	Bottom Lateral	BL10R
1		BL11R	5		BL11R
4	Plates Shop Bolt to each BLT	P30a	12	Plates Shop Bolt to each BLT	P30a
1	Bottom Lateral	BL9R	5	Bottom Lateral	BL7R
1		BL8R	5		BL8R
2	Plates Shop Bolt to each BLT	P30a	6	Plates Shop Bolt to each BLT	P30a
1	Bottom Lateral	BL12R	3	Bottom Lateral	BL12R
1		BL12R	3		BL12R
2	Plates Shop Bolt to each BLT	P30a	6	Plates Shop Bolt to each BLT	P30a

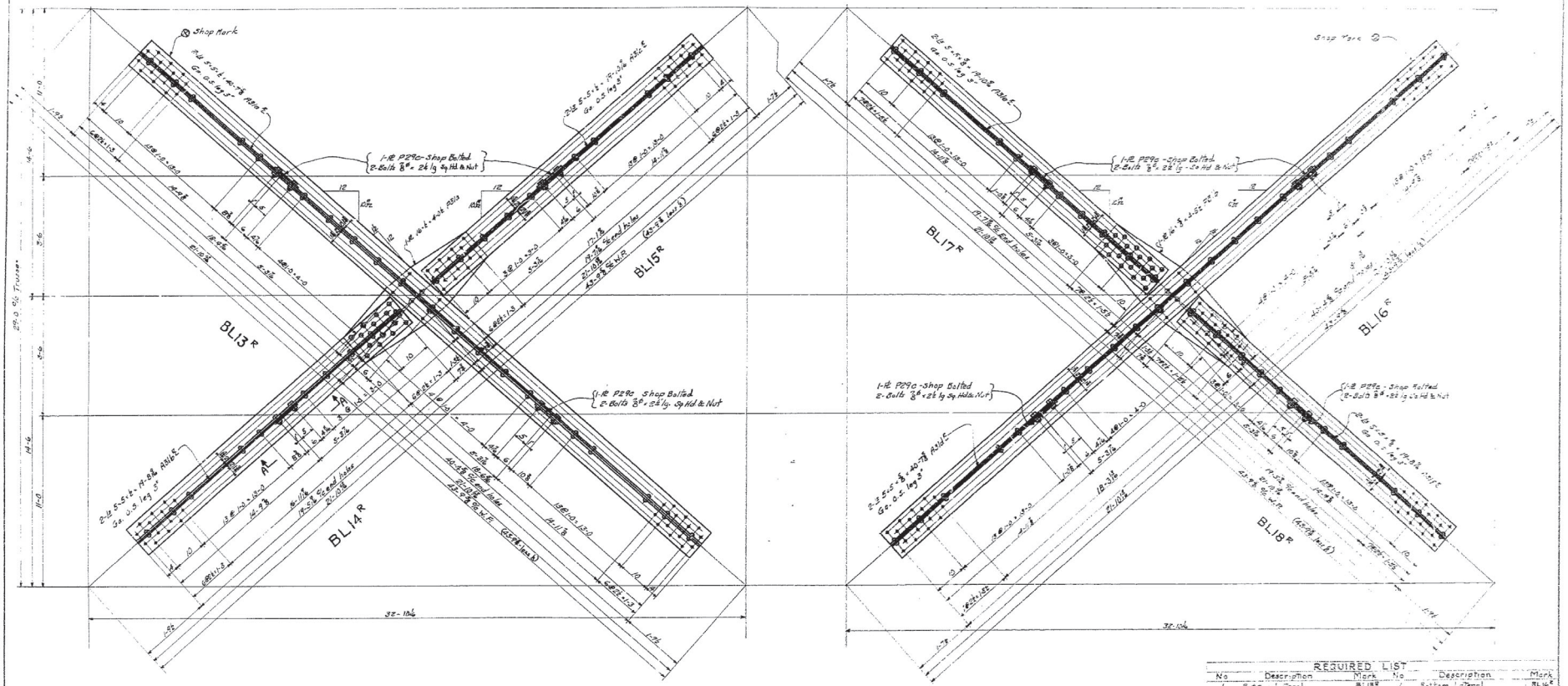
Assembly marks preceded by the letter "S" denote Silicon Steel.
End and edge distance 1½ unless noted.

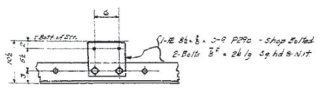
Material Structural Carbon & Silicon Steel
Specifications Special
Shop Inspection by U.S. Engineer
Shop Paint Exterior of End Load Girt
No assembly paint to be used.
Field Paint Others
Parts 5" Inches Painted ½"
Remarks None
Date Shipped [illegible]
Erected by Others

KANSAS CITY FLOOD CONTROL PROJECT
LIBERTY BEND BRIDGE
MISSOURI RIVER
DETAILS OF Bottom Laterals
THE MT. VERNON BRIDGE CO.
MT. VERNON, OHIO
IN CHARGE OF [illegible]
MADE BY [illegible] CHECKED BY [illegible]
TRACED BY [illegible]
JACKSON COUNTY
CONT. NO. 6566 SHEET 30
Sh. 630 1-FEB
V.3.35

64

663





View A-A

REQUIRED LIST

No.	Description	Mark	No.	Description	Mark
1	Bottom Lateral	BL13R	1	Bottom Lateral	BL16R
1	"	BL13L	1	"	BL16L
4	Plates Shop Bolt 27 on BL13	PL90	4	Plates Shop Bolt 27 on BL16	PL90
1	Bottom Lateral	BL14R	1	Bottom Lateral	BL17R
1	"	BL14L	1	"	BL17L
2	Plates Shop Bolt 11 on BL14	PL90	8	Plates Shop Bolt 11 on BL17	PL90
1	Bottom Lateral	BL15R	1	Bottom Lateral	BL18R
1	"	BL15L	1	"	BL18L
2	Plates Shop Bolt 11 on BL15	PL90	2	Plates Shop Bolt 11 on BL18	PL90

End and edge distances 1¼ unless noted.

Fabrication	Structural Carbon Steel
Specifications	Special
Shop Inspection	U.S. Engineer
Shop Paint	One Coat of Red Lead Paint
Fit assembly joint to be tight	
Field Paint	Others
Rivets	7/8" Heads Pressure
Remarks	None
Field Connections	R.H.D.
Painted By	Others

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE

MISSOURI RIVER

DETAILS OF Bottom Laterals

THE MT. VERNON BRIDGE CO.

MT. VERNON, OHIO

IN CHARGE OF H.C.S.

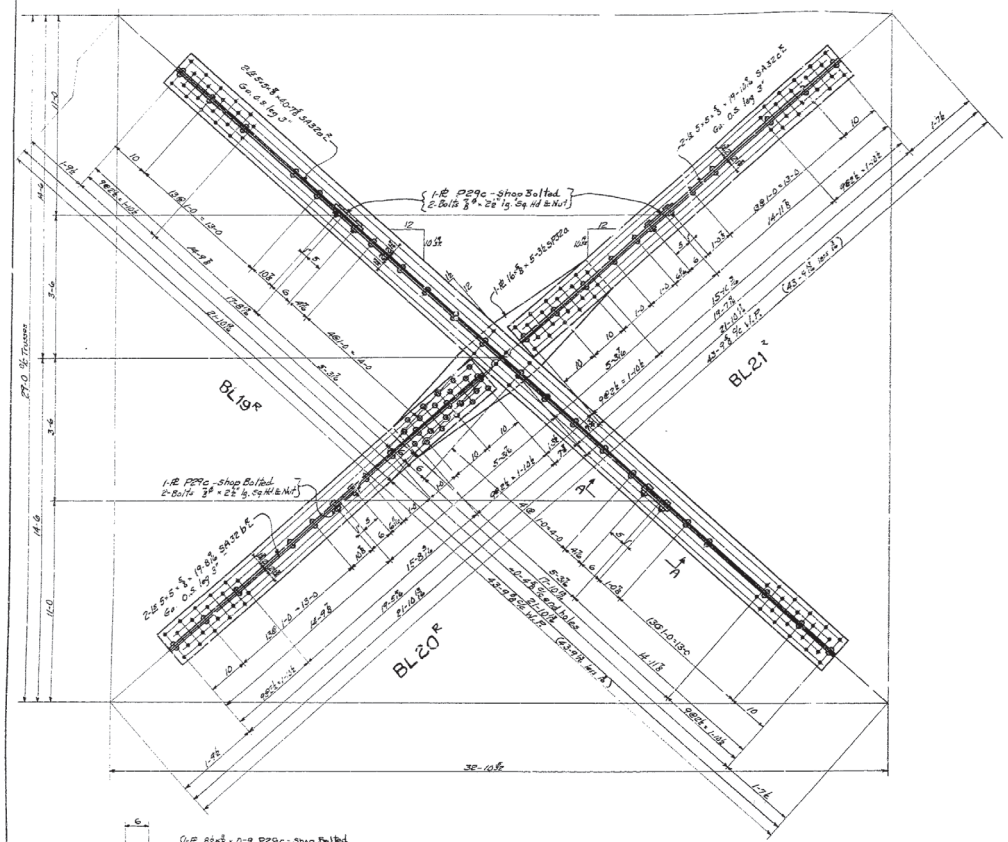
MADE BY W.F.S. TRACED BY A.M.H. CHECKED BY A.M.H.

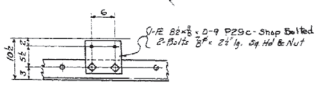
TRACED BY [illegible] JACKSON COUNTY

CONT. NO. 6886 SHEET 31

Sh. 631 L-565

YB 33





View A-A

REQUIRED LIST

No	Description	Mark
2	Bottom Lateral	BL19R
2	"	BL19L
8	Plates Shop Bolt Sizes as BL19	P29c
2	Bottom Lateral	BL20R
2	"	BL20L
4	Plates Shop Bolt Sizes as BL20	P29c
2	Bottom Lateral	BL21R
2	"	BL21L
4	Plates Shop Bolt Sizes as BL21	P29c

Assembly marks preceded by letter 'S' denotes Silicon Steel
End and edge distance 1½ unless noted.

Material Structural Carbon & Silicon Steel	
Specifications Special	
Shop Inspection by U.S. Engineers	
Shop Paint One coat of Red Lead Paint	
No assembly paint to be used	
Field Paint Others	
Powder 3-0 Holes Reamed to	
Remarks None	
Field Connections 7/8" ø	
Detailed by CTH	

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE

MISSOURI RIVER

DETAILS OF: Bottom Laterals

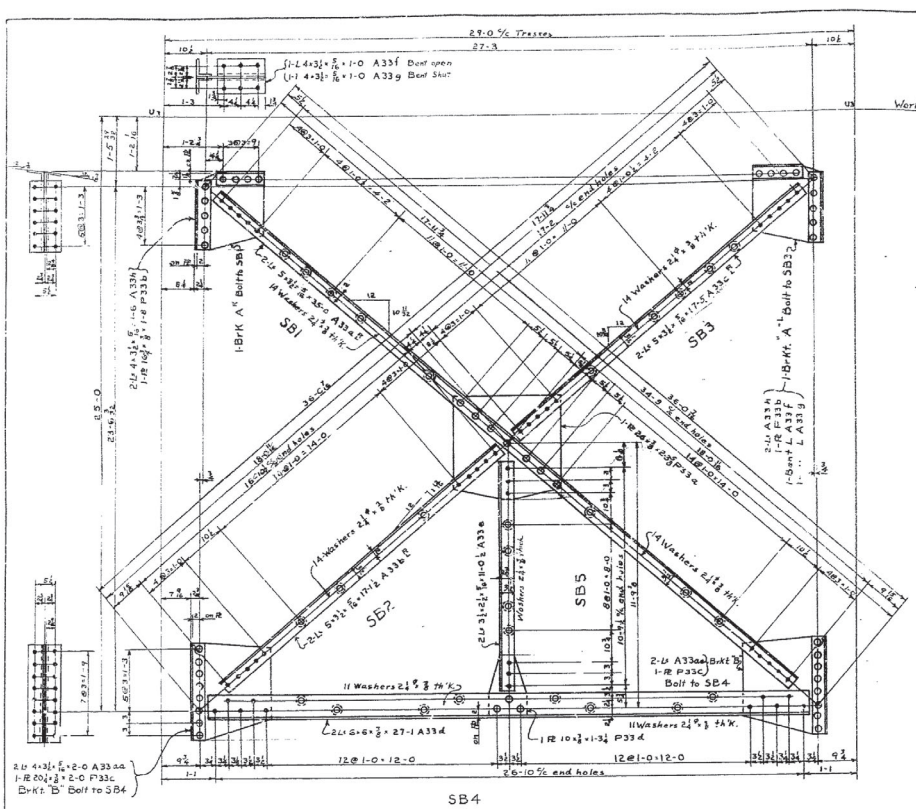
THE MT. VERNON BRIDGE CO.
MT. VERNON, OHIO

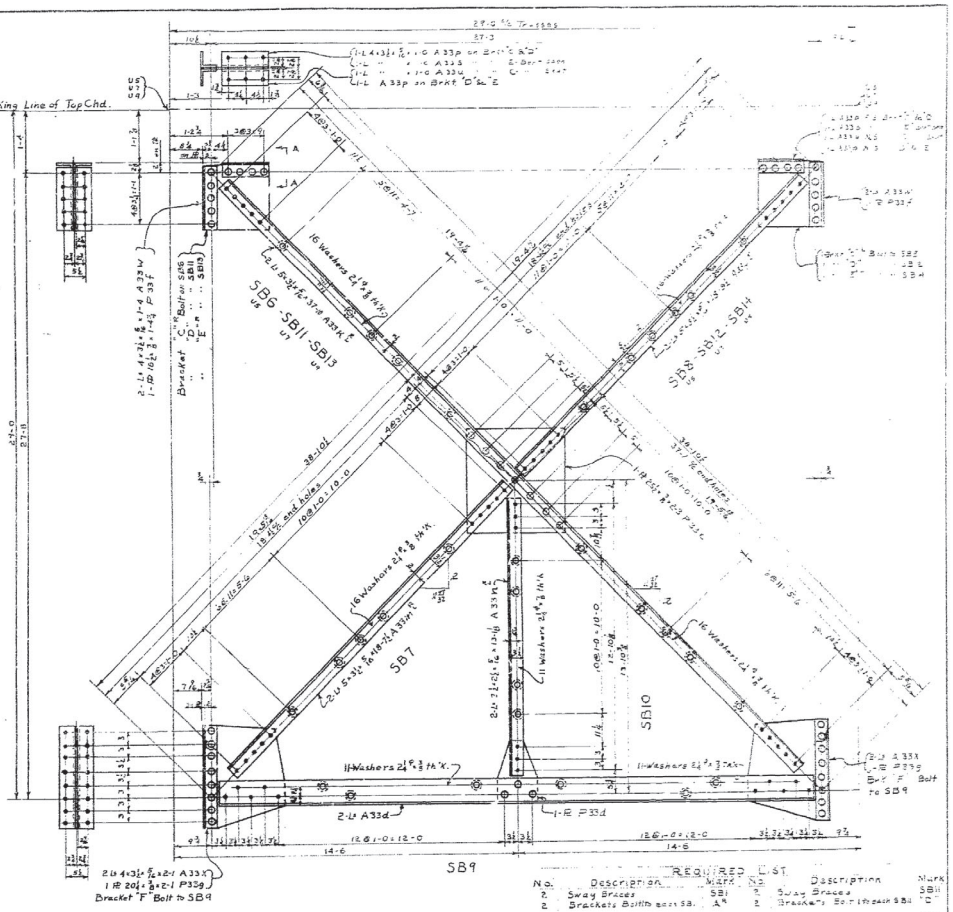
IN CHARGE OF W.C.T.
MADE BY W.E.J. SHEET CHECKED BY
TRACED BY 12-11-36

CONT. NO. 6566 JACKSON COUNTY SHEET 32

SP. 632 L-563

NOTE





View A-A @ U5

View A-A @ U7

View A-A @ U9

REQUIRED LIST

No.	Description	Mark	No.	Description	Mark
2	Sway Braces	SB1	2	Sway Braces	SB11
2	Brackets Bolt to each SB1	"A"	2	Brackets Bolt to each SB11	"G"
2	Sway Braces	SB3	2	Sway Braces	SB12
2	Brackets Bolt to each SB3	"A"	2	Brackets Bolt to each SB12	"G"
2	Sway Braces	SB4	2	Sway Braces	SB13
4	Brackets Bolt to each SB4	"B"	2	Brackets Bolt to each SB13	"E" "K"
2	Sway Braces	SB6	2	Sway Braces	SB14
2	Brackets Bolt to each SB6	"D"	2	Brackets Bolt to each SB14	"E" "L"
2	Sway Braces	SB8		" " "	SB5
2	Brackets Bolt to each SB8	"F"		" " "	SB7
6	Sway Braces	SB9		" " "	SB10
12	Brackets Bolt to each SB9	"F"			

End and edge distances 1½ unless noted

Material	Structural Carbon steel
Specifications	Special
Shop inspection by	U.S. Engineers
Shop Paint	One Coat of Red Lead
	No Assembly Paint to be used
Field Assembly	Others
Holes	Drilled Punched
Reamed Holes	
Field Connections	Rivets
Erected by	Others

KANSAS CITY FLOOD CONTROL PROJECT

LIBLRTY BEND BRIDGE

MISSOURI RIVER

DETAILS OF Sway Bracing

THE MT. VERNON BRIDGE CO.

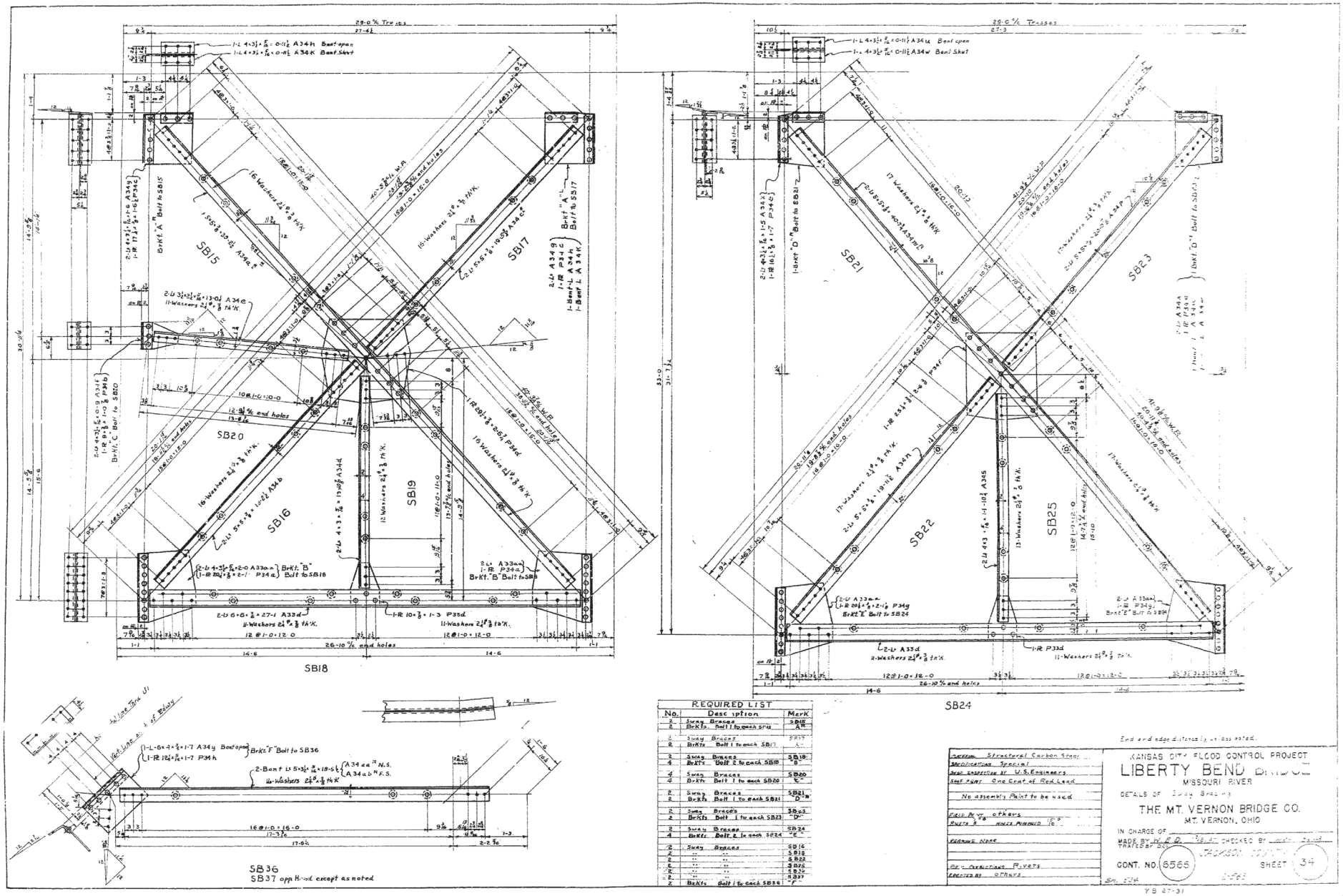
MT. VERNON, OHIO

IN CHARGE OF

MADE BY W.E.D. 1941 CHECKED BY

TRACED BY

CONT. NO. 6566 SHEET 33

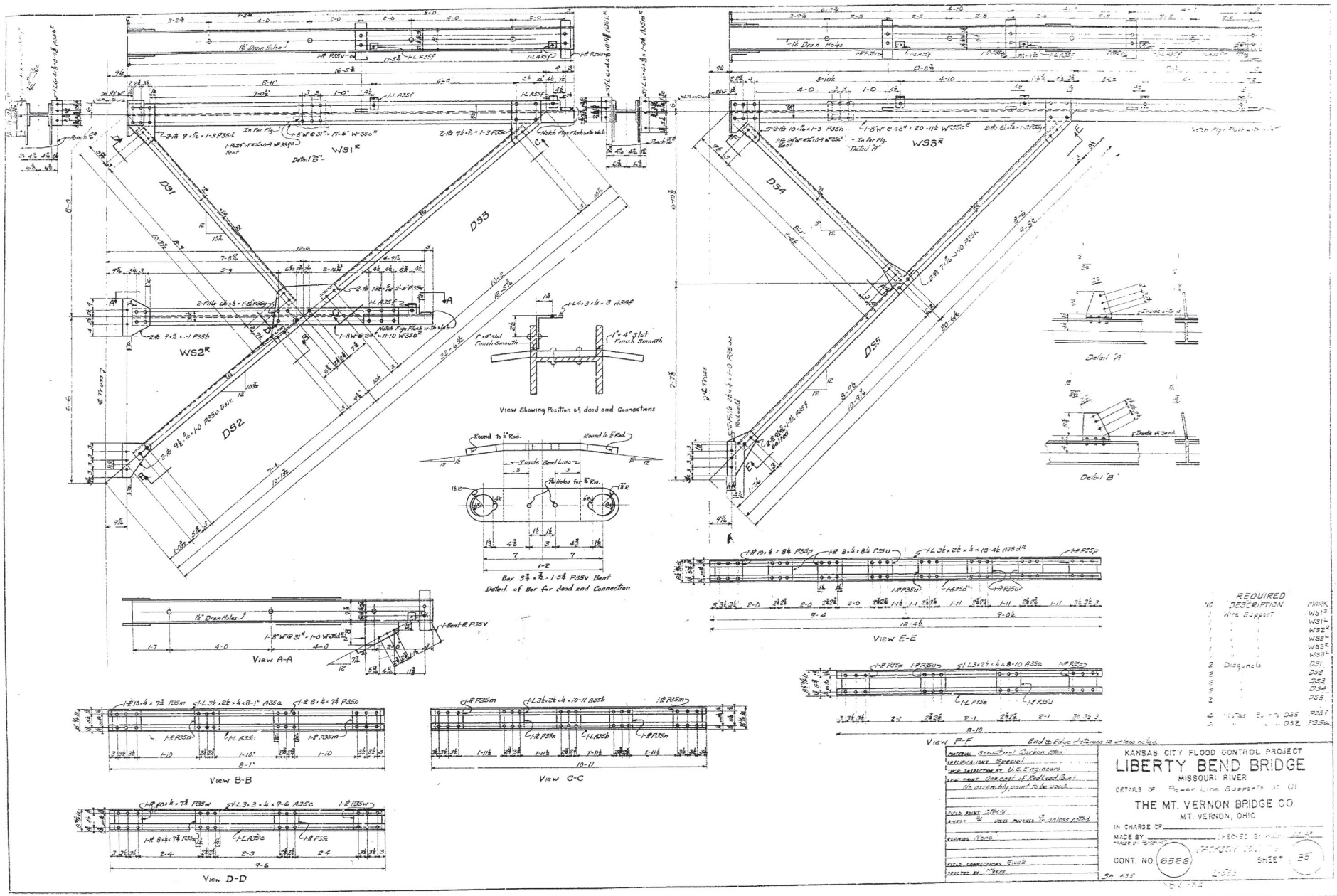


REQUIRED LIST		
No.	Description	Mark
2	Sway Braces	SB15
2	Brkts. Bolt 1 to each SB15	A
2	Sway Braces	SB17
2	Brkts Bolt 1 to each SB17	B
2	Sway Braces	SB18
4	Brkts Bolt 2 to each SB18	C
4	Sway Braces	SB20
4	Brkts Bolt 1 to each SB20	C'
2	Sway Braces	SB21
2	Brkts Bolt 1 to each SB21	D
2	Sway Braces	SB23
2	Brkts Bolt 1 to each SB23	D'
8	Sway Braces	SB24
4	Brkts Bolt 2 to each SB24	E
2	Sway Braces	SB16
2	" "	SB19
2	" "	SB22
2	" "	SB25
2	" "	SB37
2	Brkts Bolt 1 to each SB36	F

End and edge distances as indicated.

Material Structural Carbon Steel
Specifications Special
Shop inspection by U.S. Engineers
Shop paint One coat of Red Lead
No assembly Paint to be used
Field Rivets others
Holes Punched to 13/16
Framing None
Power-Operated Rivets
Erected by others

KANSAS CITY FLOOD CONTROL PROJECT
LIBERTY BEND BRIDGE
MISSOURI RIVER
DETAILS OF Sway Bracing
THE MT. VERNON BRIDGE CO.
MT. VERNON, OHIO
IN CHARGE OF
MADE BY D.H.F.Q. CHECKED BY
TRACED BY
CONT. NO. 6566 SHEET 34
Sh. 204
YB 27-31



NO	REQUIRED DESCRIPTION	MARK
1	Wire Support	WS1R
1	"	WS1L
1	"	WS2R
1	"	WS2L
1	"	WS3R
1	"	WS3L
2	Diagonals	DS1
2	"	DS2
2	"	DS3
2	"	DS4
2	"	DS5
4	Plates Bent	DS5 P35F
4	" " "	DS2 P35a

End & Edge distances 1½ unless noted.

Material Structural Carbon Steel
Specifications Special
Inspection by U.S. Engineers
Shop paint One coat of Red Lead Paint
No painting of paint to be used.
Field paint Others
Rivets ⅞ Solid Machine ½ unless noted
Bolts Nuts
Field connections Rivets
Erected by Others

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE

MISSOURI RIVER

DETAILS OF Power Line Supports AT U1

THE MT. VERNON BRIDGE CO.

MT. VERNON, OHIO

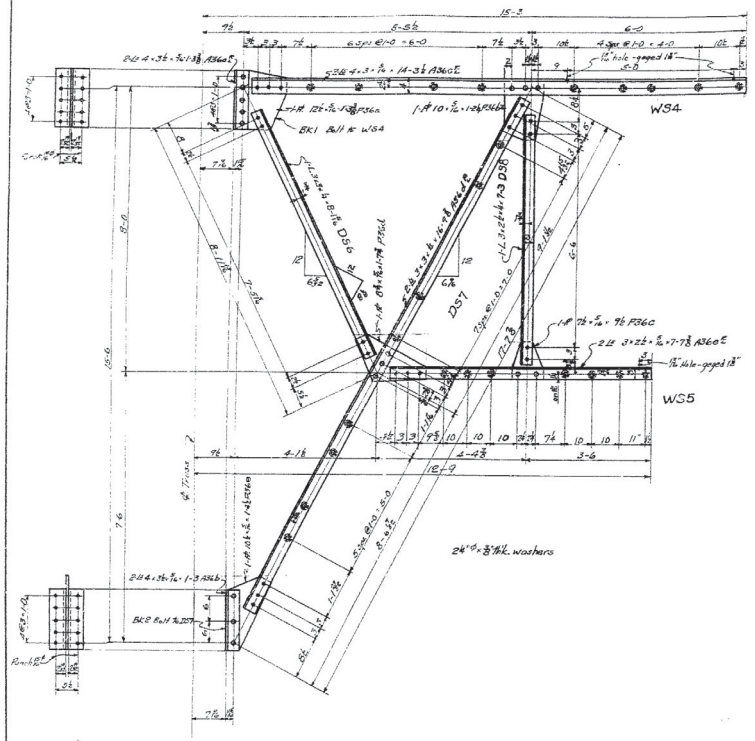
IN CHARGE OF

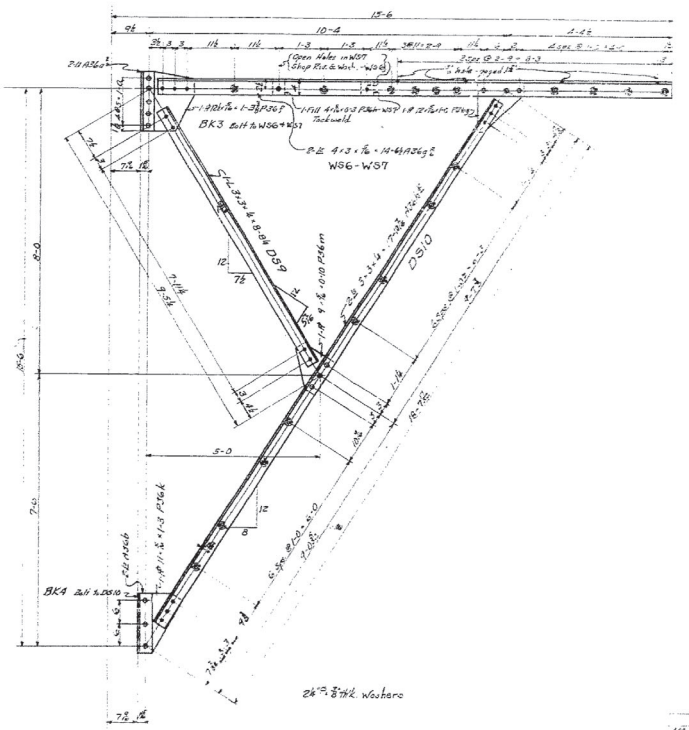
MADE BY

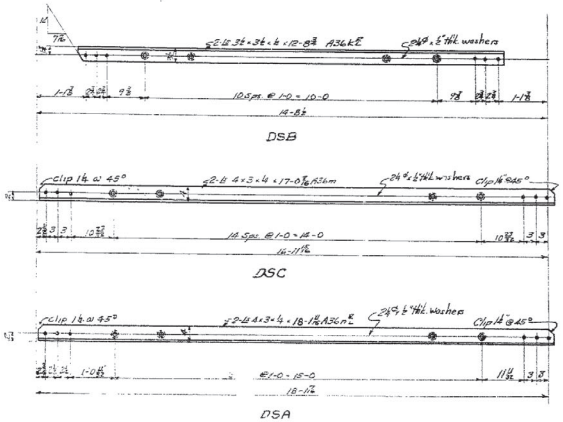
CHECKED BY

CONT. NO. 6566

SHEET 35



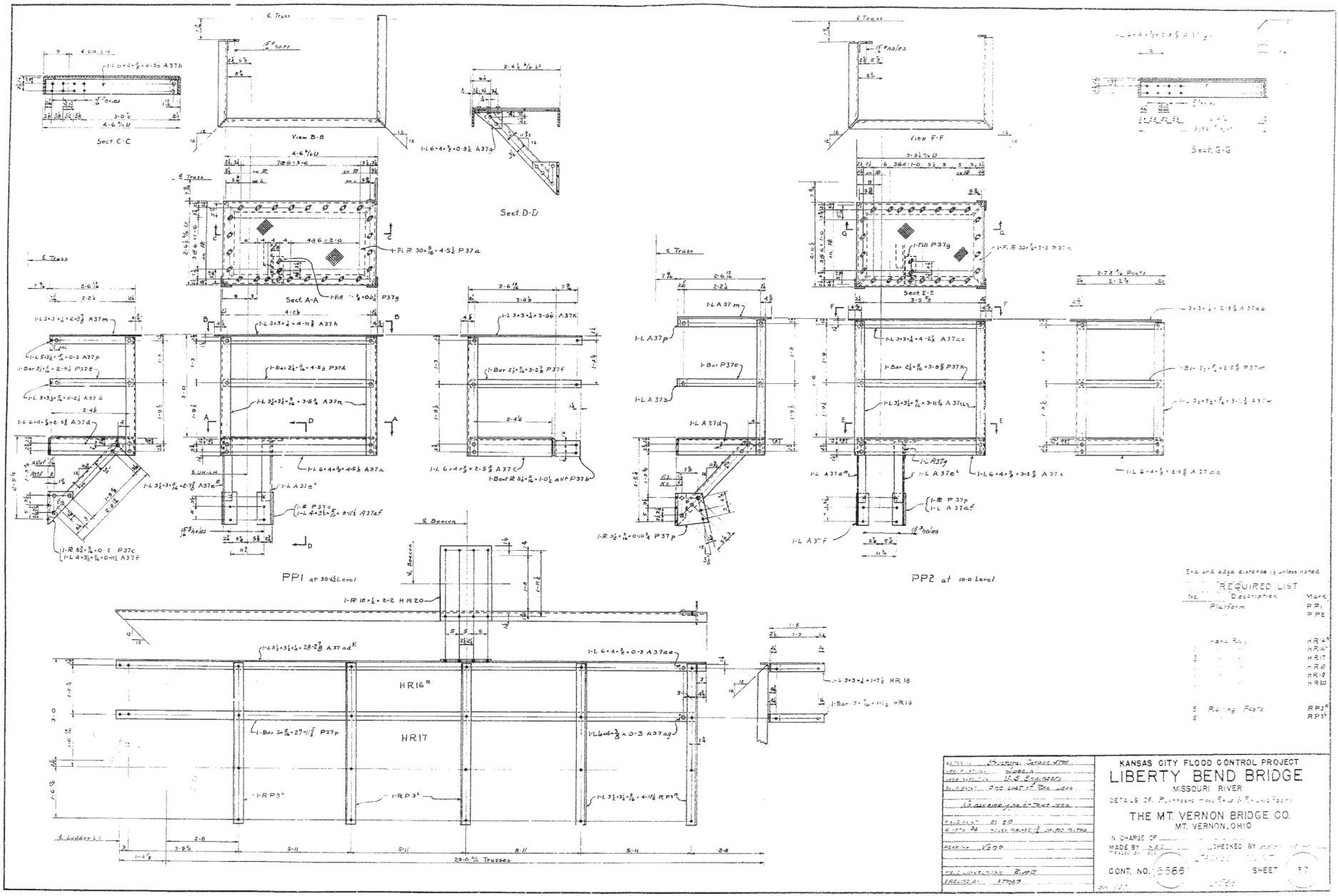




NO.	REQUIRED DESCRIPTION	MARK
2	Wire Support	WS4
2	Bracket Built to WS4	BK1
2	Wire Support	WS5
2	Diagonal	DS6
2	"	DS7
2	Bracket Built to DS7	BK2
2	Wire Support	WS6
2	"	WS7
2	Bracket Built to WS6 & WS7	BK3
2	Diagonal	DS9
2	"	DS10
2	Bracket Built to DS10	BK4
2	Diagonal	DSB
2	"	DSC
2	"	DSA
2	BEARING ANGLES	DSB

End packedge of pieces if unless noted.
Open. Structural Carbon Steel
Inspection Special
Shop Inspection By U.S. Engineers
Shop Paint One coat of Redlead Paint
No interior paint to be used
Bolt Holes Drilled
Bolts 3/4" dia. unless noted 7/8 unless noted
Bearing Plate
Field Connection Bolts
Erection By "Para"

KANSAS CITY FLOOD CONTROL PROJECT
LIBERTY BEND BRIDGE
MISSOURI RIVER
DETAILS OF: Power Line Supports #10
THE MT. VERNON BRIDGE CO.
MT. VERNON, OHIO
IN CHARGE OF
MADE BY CHECKED BY
CONT. NO. 6566 JACKSON COUNTY
SHEET NO. 36
Sh. 136
YB33



End and edge distance is unless noted.

REQUIRED LIST

No.	Description	Mark
	Platform	PP1
		PP2
	Hand Rail	HR16R
		HR16L
2		HR17
		HR18
		HR19
		HR20
5	Railing Posts	RP3R
5		RP3L

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE

MISSOURI RIVER

DETAILS OF PLATFORMS HAND RAIL & RAILING POSTS

THE MT. VERNON BRIDGE CO.

MT. VERNON, OHIO

IN CHARGE OF

MADE BY S.A.P. CHECKED BY

TRACED BY

CONT. NO. 5566 SHEET 27

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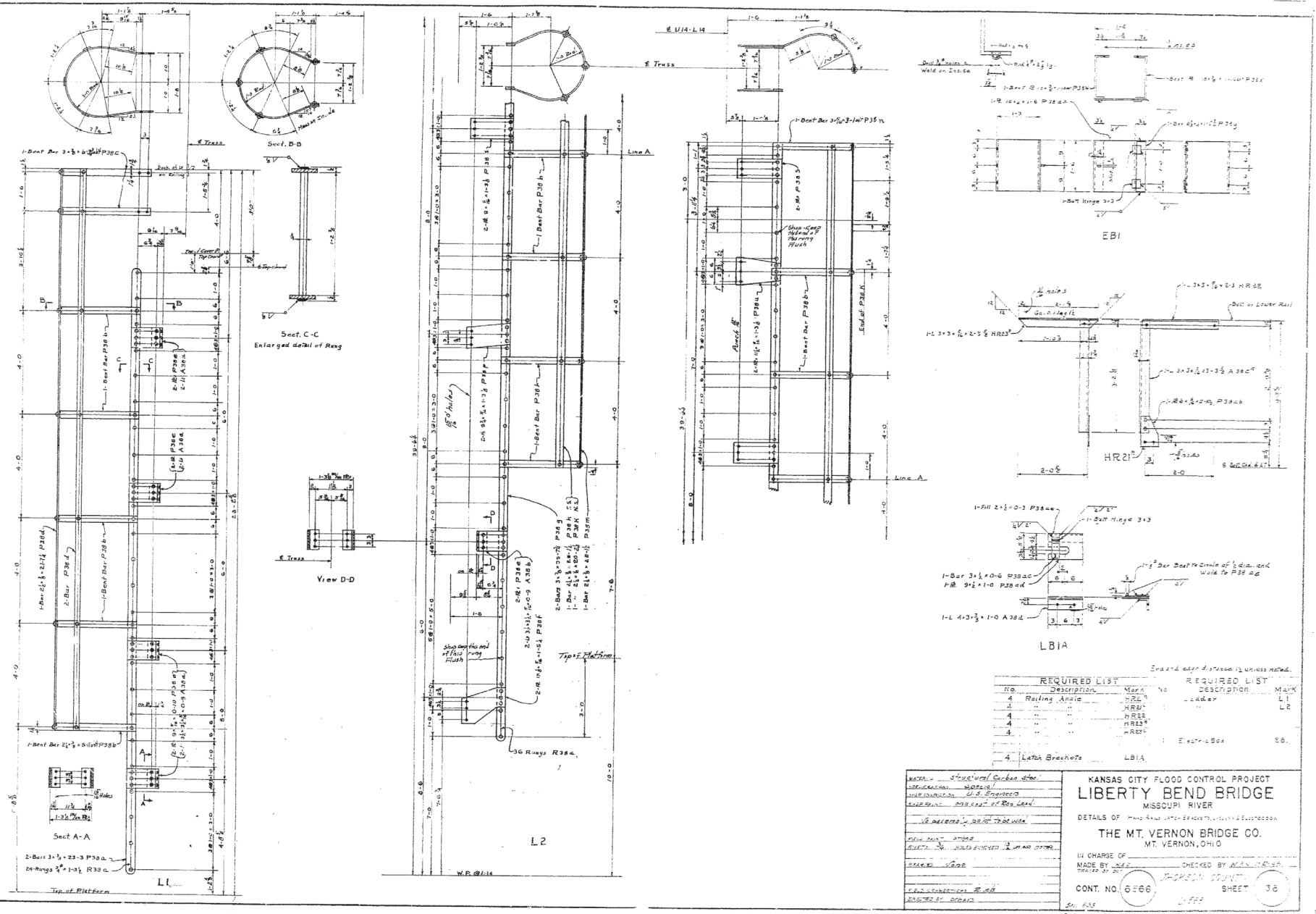

REQUIRED LIST				REQUIRED LIST	
No.	Description	Mark	No.	Description	Mark
4	Railing Angle	HR21		Ladder	L1
4	" "	HR21'		"	L2
4	" "	HR22			
4	" "	HR23			
4	" "	HR23'			
			1	Electric Box	EB1
4	Latch Brackets	LB1A			

End and edge distance 1½ unless noted.

Material: Structural Carbon Steel
Fabrication: Worked
Inspection: U.S. Engineer
Paint: One coat of Red Lead
½ Rivets & Bolts Machine
Field Paint: Other
Rivets: Power
Field Connections: Rivets
Erected by: Others

KANSAS CITY FLOOD CONTROL PROJECT
LIBERTY BEND BRIDGE
MISSOURI RIVER
DETAILS OF Rung and Latch Brackets, Ladders and Electric Box
THE MT. VERNON BRIDGE CO.
MT. VERNON, OHIO
In charge of
Made by N.E.C. Checked by M.D.N. 11-6-43
Traced by
Johnson County
Cont. No. 6566 Sheet 38
Sq. Ft.

YB 4-43-44

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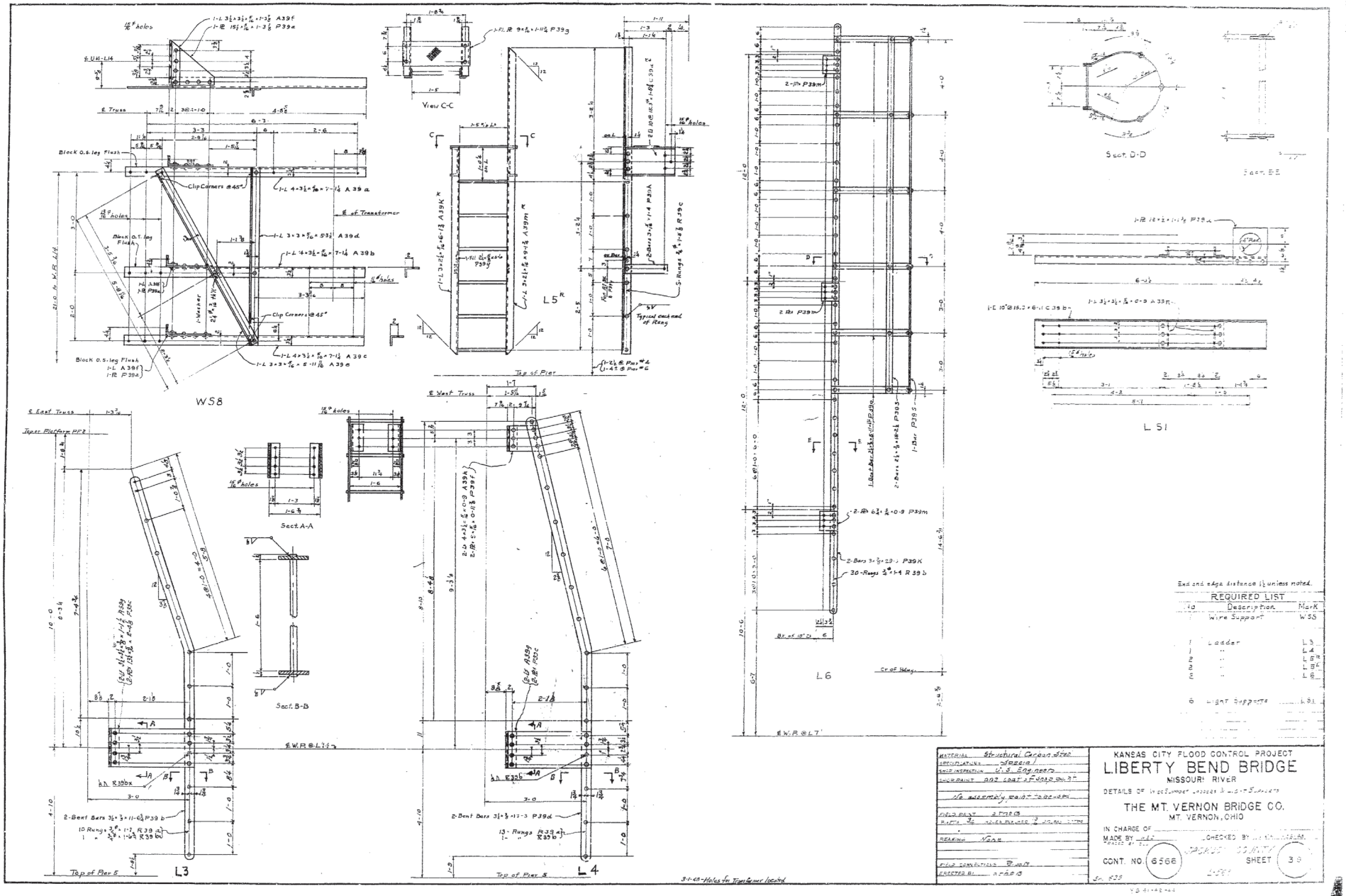
663



End and edge distance 1½ unless noted.

REQUIRED LIST

No	Description	Mark
	Wire Support	WS
1	Ladder	L3
1	"	L4
2	"	L5
2	"	L6
2	"	L7
6	Light Supports	L51

MATERIAL Structural Carbon Steel
SPECIFICATIONS Stevens
SHOP INSPECTION U.S. Eng Insp
SHOP PAINT One coat of Red Lead Paint
No assembly paint to be used
FIELD PAINT 2 Coats
PAINTS ½ Linseed Oil ½ Turpentine
READING N&E
FIELD CONNECTIONS Bolts
ERECTED BY A. & B.

KANSAS CITY FLOOD CONTROL PROJECT
LIBERTY BEND BRIDGE
MISSOURI RIVER
DETAILS OF Investment Trusses & Light Supports
THE MT. VERNON BRIDGE CO.
MT. VERNON, OHIO
IN CHARGE OF
MADE BY H.A.J. CHECKED BY
TRACED BY
CONT. NO. 6566 SHEET 38
Sp. 538

L3 - a-b-c-d-e-f-g-h-k-m-n
L4 - a-b-c-d-e-f-g-h-k-m-p-s-u
L5 - a-b
R - a-b

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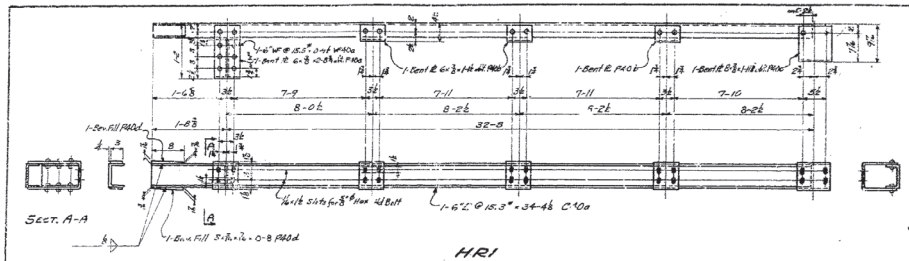
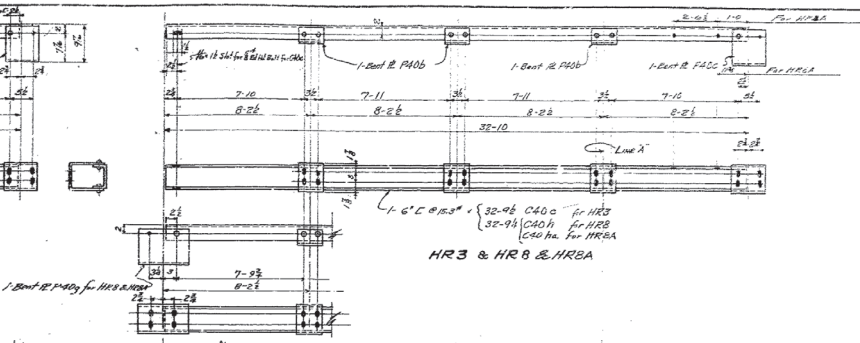
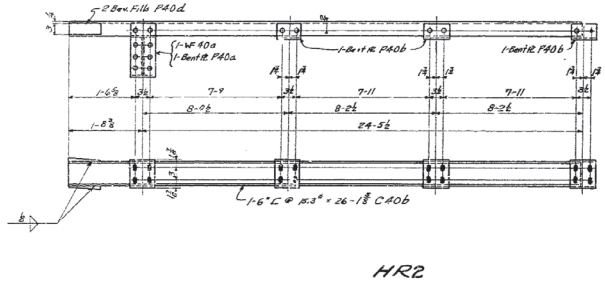
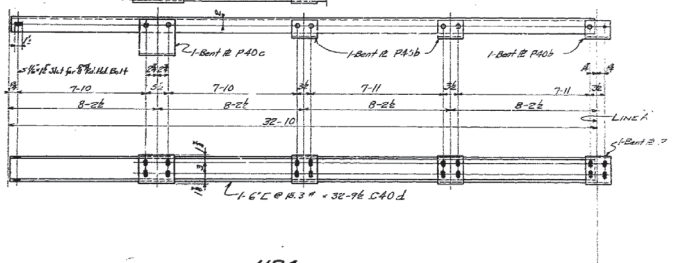
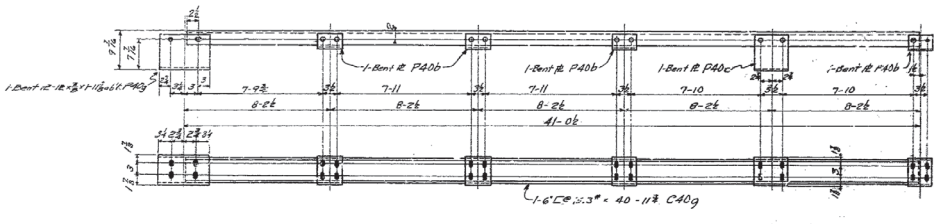
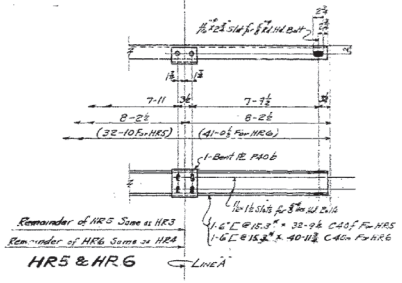


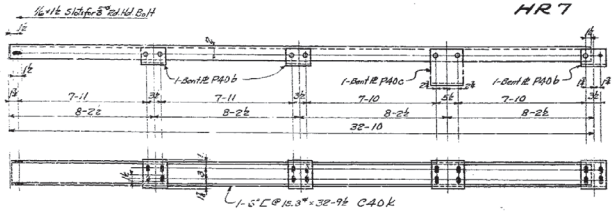


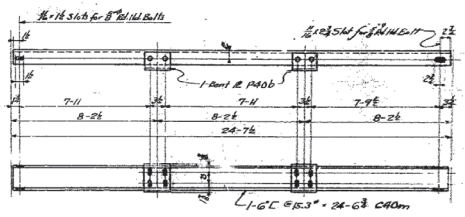












REQUIRED LIST

No.	Description	Mark
1	Hand Railing	HR1
4	"	HR2
30	"	HR3
20	"	HR4
8	"	HR5
4	"	HR6
4	"	HR7
6	"	HR8
16	"	HR9
4	"	HR10
2	"	HR8A

Edge and End Distances 1⅛" Unless Noted.

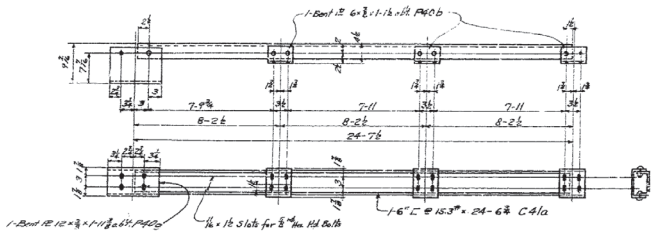
Material Structural Carbon Steel
Inspection Special
Paint Direction By U.S. Engineers
One Shop Coat of Red Lead.
No assembly paint to be used.

Field Paint 2 Coats
Paint Between Faces of Angles & Channels not painted
Remarks As noted

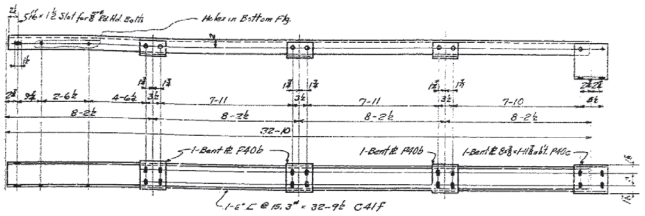
Field Connections Bolts except as noted
Detailed By JAROS

KANSAS PROJECT
LIBERTY BEND BRIDGE
MISSOURI RIVER
DETAILS OF: Railing
THE MT. VERNON BRIDGE CO.
MT. VERNON, OHIO
IN CHARGE OF W.C.S.
MADE BY WEA 11-19-47 CHECKED BY KEN 11-21-47
TRACED BY S-12-47
JACKSON COUNTY
CONT. NO. 6566 SHEET 40
SH. 606 L-563

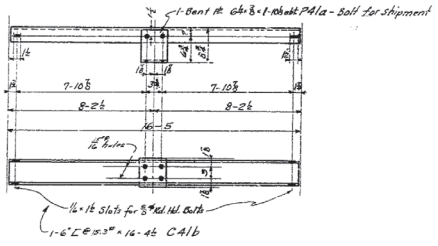
YS 37



HR11



HR15



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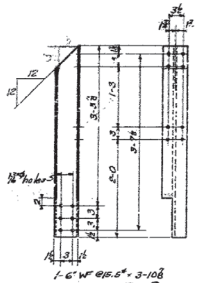
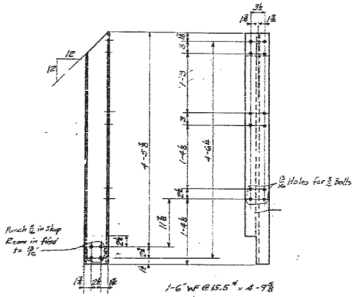
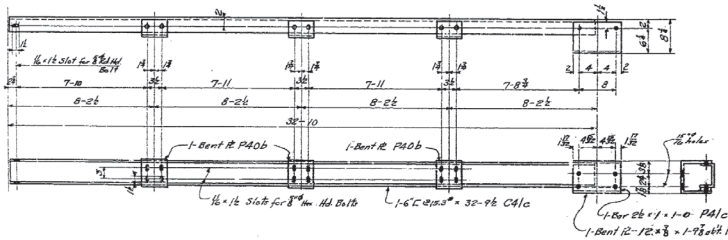


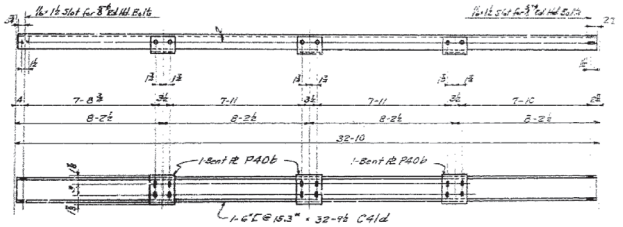
RP1R



RP2R



HR13R



HR14

REQUIRED LIST		
No	DESCRIPTION	MARK
4	Hand Railing	HRM
8	" "	HR12
1	" "	HR13R
1	" "	HR13L
2	" "	HR14
2	" "	HR15
2	Railing Posts	RP1R
2	" "	RP2R
84	" "	RP2L
84	" "	RP2L
2	Bars 2½"x½" for Handrail	P41c
2	" " " " Hand Rail	P41c

Edge and End Distances 1¼ Unless Noted

MATERIAL	Structural Carbon Steel
SPECIFICATIONS	Special
SHOP INSPECTION BY	U.S. Engineers
SHOP PAINT	One Coat of Red Lead
	No assembly paint to be used.
FIELD PAINT	Others
FINISH	⅜" and heavier not painted. ⅛" Galvanized
ERECTING	None.
FIELD CONNECTIONS	Bolts & Rivets
ERECTED BY	Others

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE

MISSOURI RIVER

DETAILS OF Railing & Railing Plates

THE MT. VERNON BRIDGE CO.

MT. VERNON, OHIO

IN CHARGE OF H.C.H.

MADE BY H.E.B. CHECKED BY J.B.C.

TRACED BY [illegible]

JACKSON COUNTY

CONT. NO. 6566

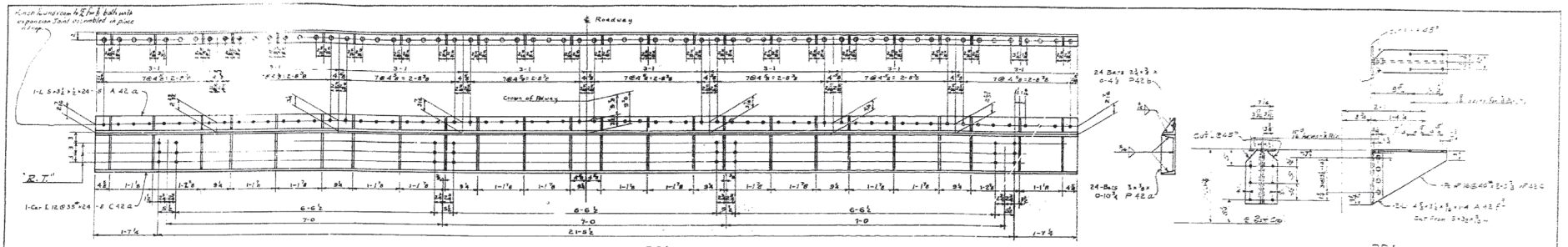
SHEET 41

Sc. 1/2"

1-568

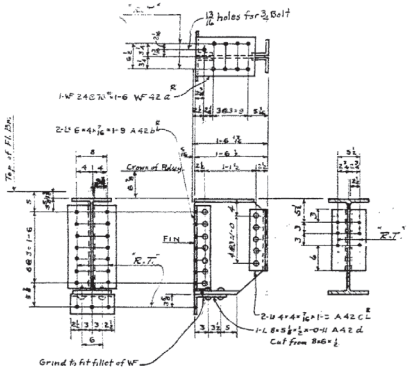
F.B. 37

663

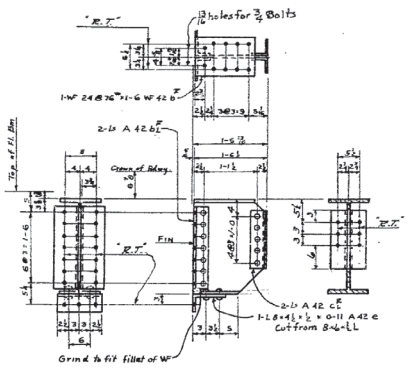


ES4

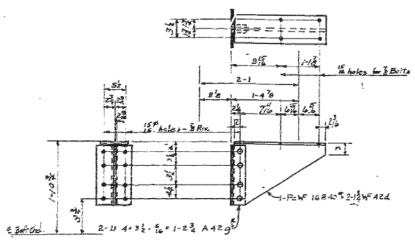
PD1



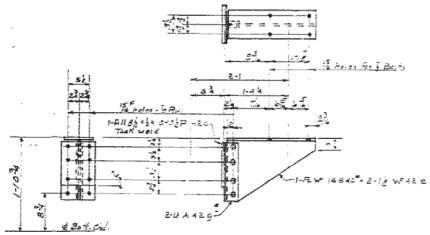
ES2R



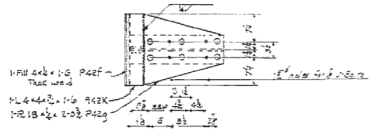
ES3R

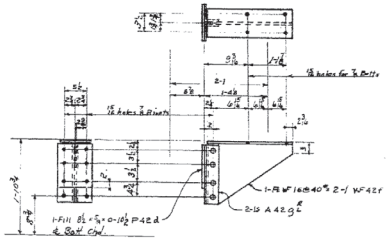


PD2

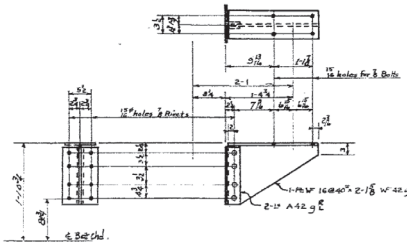


PD3

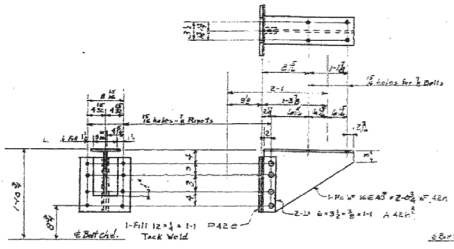




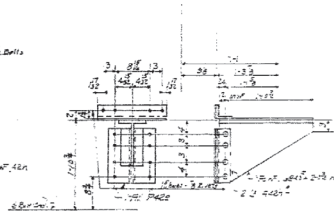
PD4



PD5



PD6



PD7

End and edge distance 1½ unless noted.

REQUIRED LIST

No	Description	Mark
2	Expansion Supports	ES4
2	" "	ES2R
2	" "	ES2L
2	" "	ES3R
2	" "	ES3L
4	Pipe Supports	PD1
28	" "	PD2
8	" "	PD3
6	" "	PD4
6	" "	PD5
1	" "	PD6
1	" "	PD7

Material	Structural Carbon Steel
Specifications	Special
Shop inspection by	U.S. Engineers
Shop paint	one coat of Red Lead
	No assembly paint to be used
Field paint	others
Reamed & DRILLED holes	Ream to 1 7/16 ø
Unless noted	
Erasure	Field holes marked "R.T." to be punched 1 3/16 ø and reamed to 1 3/16 ø material touching or while temporarily assembled
Field connections	Rivets and Bolts
Erected by	others

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE

MISSOURI RIVER

DETAILS OF Expansion Supports and Pipe Supports

THE MT. VERNON BRIDGE CO

MT. VERNON, OHIO

IN CHARGE OF

MADE BY W.E.D. 3/14 CHECKED BY

TRACED BY BLA

CONT. NO. 6566 JACKSON COUNTY SHEET 42

Sh. 6PR

Rev. 6-2-48 PDT added

YB 38-37

E - a
WF - a-b-c-d-e-f-g-h-k
L - a-b-c-d-e-f-g
Rd - a-b-c-d-e-f-g

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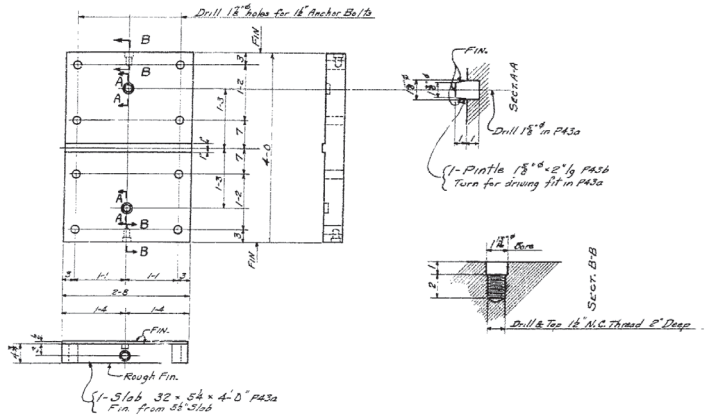
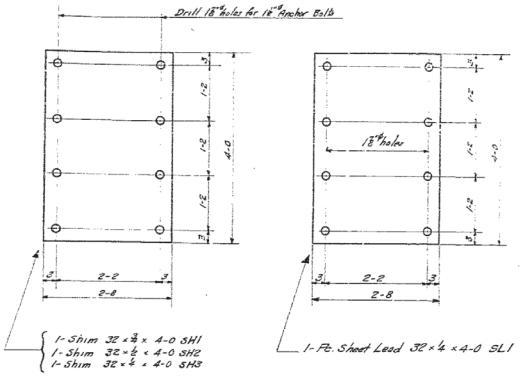
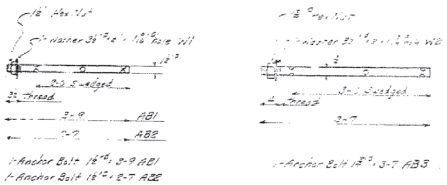
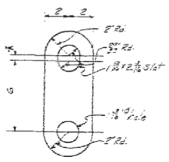
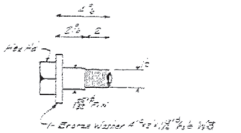


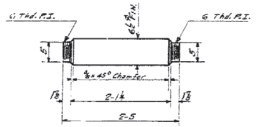
MP1

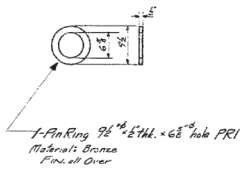


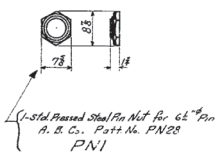


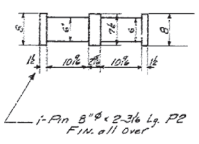


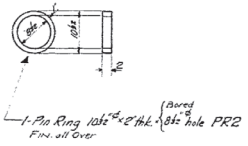


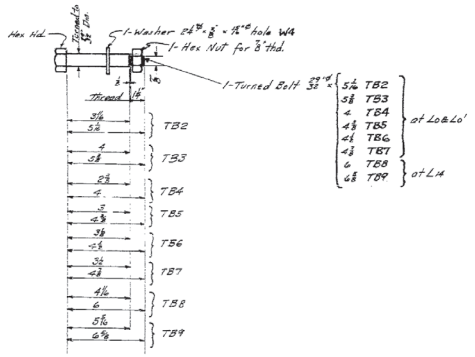


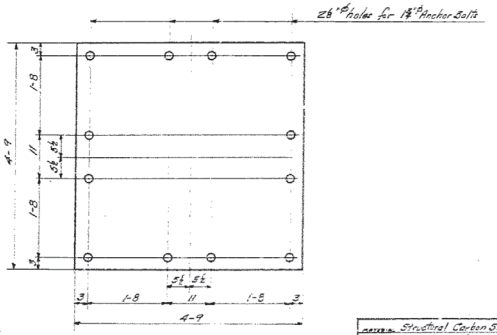












REQUIRED LIST

No	Description	Mark
2	Masonry Plate	MP1
6	Shim	SH1
12	"	SH2
12	"	SH3
4	Sheet Lead	SL1
2	" "	SL2
24	Anchor Bolts	AB1
8	" "	AB2
24	" "	AB3
32	Washers for AB1 + AB2	W1
24	" " AB3	W2
8	Line Bars	LB1
16	Turned Bolts	TB1
16	Washer for TB1	W3
2	Pins	P1
2	Pin Ring (Shop on P1)	PR1
8	Pin Nut (Shop on P1)	PN1
2	Pin	P2
4	Pin Rings (Shop on P2)	PR2
4	Turned Bolts	TB2
4	" "	TB3
12	" "	TB4
12	" "	TB5
16	" "	TB6
16	" "	TB7
24	" "	TB8
8	" "	TB9
56	Washers	W4

Material: Structural Carbon Steel Except as Noted
Fabrication: Special
Shop Inspection By: U.S. Engineers
Paint Shop: One Coat of Red Lead
Machined Finished Surfaces shall be given one coat of white lead and Tallow mixed in the following proportions: 25 lbs white lead to 1 lb of tallow oil
Field Paint: None
Welds: — Holes Punched
Rivets: —
Field Connections: Bolts & Weld
Erected By: Others

KANSAS CITY FLOOD CONTROL PROJECT
LIBERTY BEND BRIDGE
MISSOURI RIVER
DETAILS OF Slabs, Pins, Anchor Bolts, Turned Bolts etc.
THE MT. VERNON BRIDGE CO.
MT. VERNON, OHIO
IN CHARGE OF
MADE BY [illegible] CHECKED BY [illegible]
TRACED BY [illegible]
CONT. NO. 6566 JACKSON COUNTY SHEET 43
Fn. 643 L-562

U.S. 39

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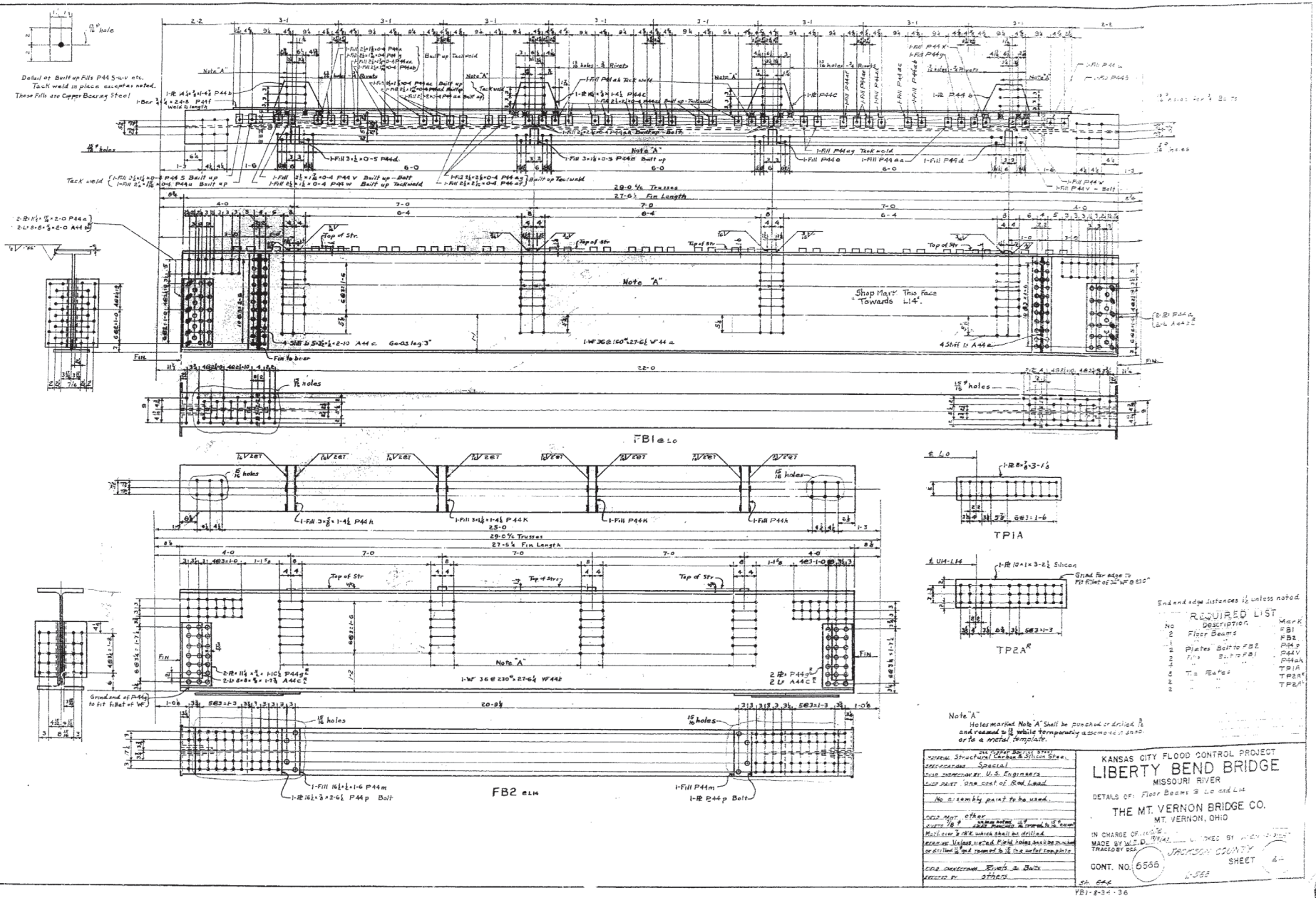
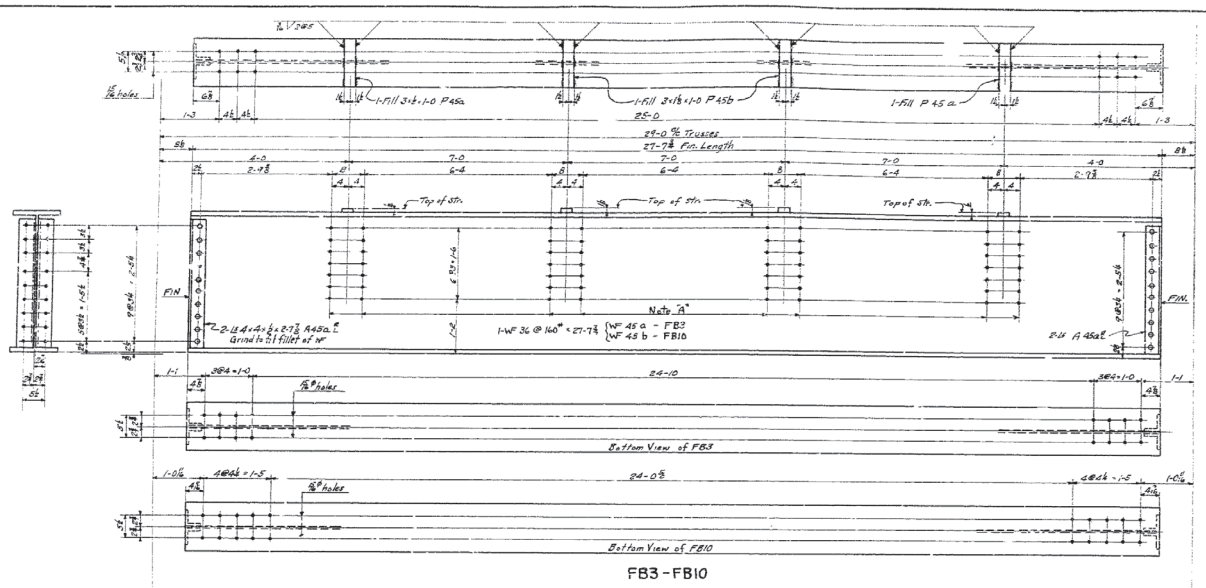
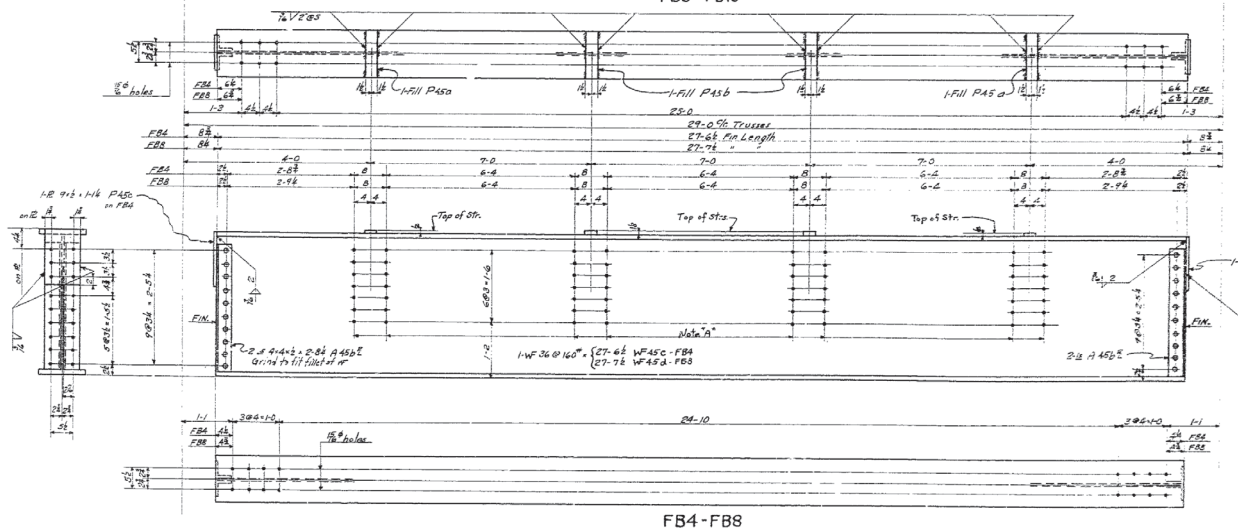

Detail of Built up Fills P44 S-u-v etc.
Tack weld in place except as noted.
These Fills are Copper Bearing Steel
Note "A"
Tack weld
Built up Tack weld
Built up
Top of Str.
Shop Mark This Face Towards L14.
Note "A"
29-0 5/16 Trusses
27-6 1/2 Fin Length
FB1 @ L0
FB2 @ L14
TP1A
TP2A
Grind end of P44g to fit fillet of WF
Fin to bear
Grind flat edge to Fit Fillet of 24" WF @ 310#
End and edge distances 1 1/2 unless noted.
REQUIRED LIST
No | Description | Mark
2 | Floor Beams | FB1
2 | " " | FB2
2 | Plates Bolt to FB2 | P44g
2 | " " Bolt to FB1 | P44K
2 | " " | P44ah
4 | Tie Plates | TP1A
2 | " " | TP2A^R
2 | " " | TP2A^L
Note "A"
Holes marked Note "A" shall be punched or drilled 3/4 and reamed to 15/16 while temporarily assembled at shop or to a metal template.
Material Structural Carbon & Silicon Steel
Specification Special
Shop Inspection by U.S. Engineers
Shop Paint One coat of Red Lead
No assembly paint to be used.
Field Rivet other
Rivets 7/8 ø unless noted, 15/16 ø in holes for 7/8 ø rivets
Min. size of Fill which shall be drilled
Rivets or Unfilled holes in Field holes shall be punched or drilled 1/4 and reamed to 5/16 in the metal template
Field Connections Rivets & Bolts
Erected by others
KANSAS CITY FLOOD CONTROL PROJECT
LIBERTY BEND BRIDGE
MISSOURI RIVER
DETAILS OF: Floor Beams @ L0 and L14
THE MT. VERNON BRIDGE CO.
MT. VERNON, OHIO
IN CHARGE OF DESIGN
MADE BY W.E.D. TRACED BY DCS
CHECKED BY
JACKSON COUNTY
CONT. NO. 6566
SHEET
YB1-8-34-36



FB3 - FB10



FB4 - FB8

Furnished by Stupp Bros.

REQUIRED LIST

No	Description	Mark
12	Floor Beams	FB3
3	Floor Beams	FB4
2	Floor Beams	FB8
2	Floor Beams	FB10

End end edge distances 1½ unless noted.

Note "A"
Holes marked Note "A" shall be punched or drilled ⅞ and reamed to 1⅛ in a matched template or while temporarily assembled

Material Structural Carbon Steel
Inspection Special
Mill Inspection by U.S. Engineers
Shop paint One coat of Red Lead.
No assembly paint to be used
Erection by Others
Bolts ¾" unless noted. Rivets ⅞" Rivets ⅞ reamed to 1"
except rivet over 4½ which will be dr. 1"
Rivet and Turned Field holes shall be punched or drilled & countersunk ½ in matched Templets
Field Connections Bolted
Painted by Others

KANSAS CITY FLOOD CONTROL PROJECT

LIBERTY BEND BRIDGE

MISSOURI RIVER

DETAILS OF: Floor Beams

THE MT. VERNON BRIDGE CO.
MT. VERNON, OHIO

IN CHARGE OF [illegible]
MADE BY [illegible] CHECKED BY [illegible]
TRACED BY [illegible]

JACKSON COUNTY

CONT. NO. 6566 SHEET 45

JOB 645 L-569

YB-1-6

WF a-b-c-d
FB a-b
FB a-b

19

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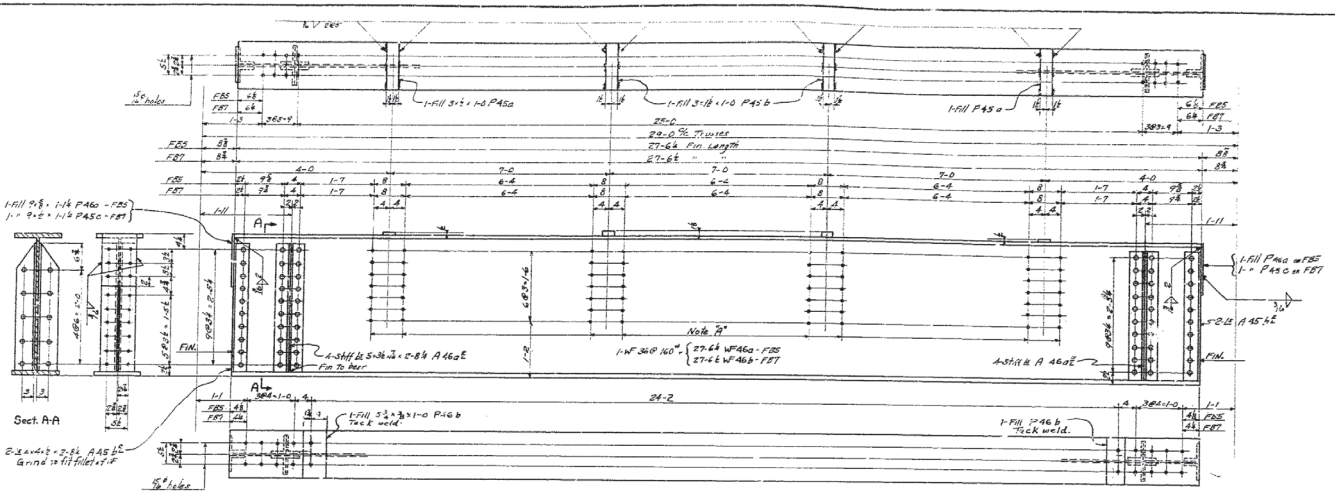
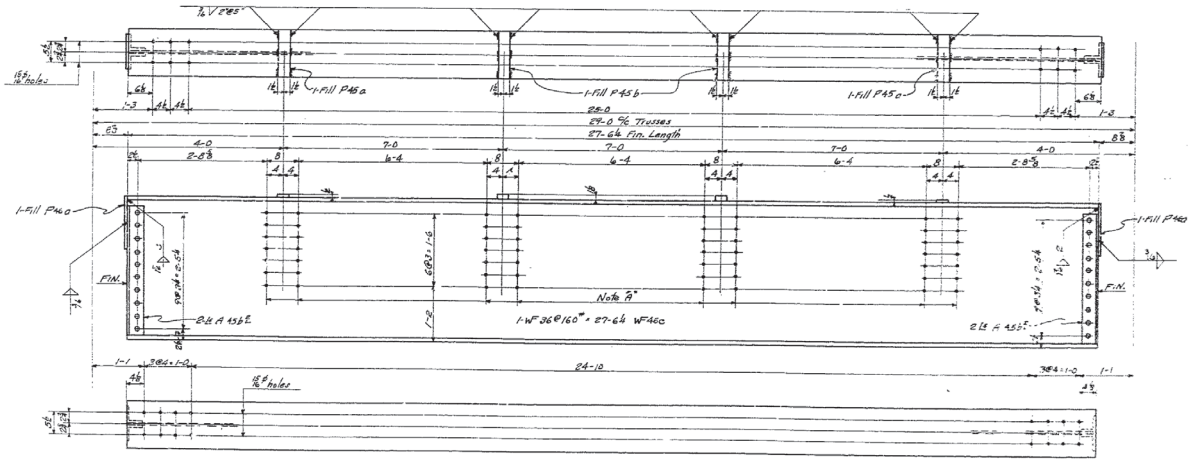
29-1





End and edge distances 1½ unless noted.

Note "A"
Holes marked Note "A" shall be subpunched or drilled and reamed to a 1/32" dia. hole with temporary clamping.

Furnished by Stupp Bros.

REQUIRED LIST

No.	Description	Mark
1	Floor Beam	FB5
1	Floor Beam	FB7
1	Floor Beam	FB12

General Structural Carbon Steel
Workmanship Special
Inspection by U.S. Engineers
Shop paint One coat of Red Lead
No assembly paint to be used.
Field rivets 7/8" unless noted 1" Ø on 1" Ø
except web splice rivets which shall be driven
pneumatic driven rivets shall be removed
or drilled out and reamed out to a full hole
Field connections Rivets
Erected by Others

KANSAS CITY [illegible] PROJECT
LIBERTY BEND BRIDGE
MISSOURI RIVER
DETAILS OF Floor Beams FB5 FB7 & FB12
THE MT. VERNON BRIDGE CO.
MT. VERNON, OHIO
IN CHARGE OF [illegible]
MADE BY [illegible] CHECKED BY [illegible]
TRACED BY [illegible]
JACKSON COUNTY
CONT. NO. 6566 SHEET 46
Sn 644 L-D58
1/2" = 1'-0"

80

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20 1