

# ARKANSAS STATE HIGHWAY COMMISSION

DWIGHT H. BLACKWOOD  
CHAIRMAN

JUSTIN MATTHEWS      J. LAN WILLIAMS

J. S. PARKS            SAM J. WILSON

COMMISSIONERS

## HIGHWAY BRIDGE OVER OUACHITA RIVER

NEAR  
**FELSENTHAL, ARKANSAS**  
UNION-ASHLEY COUNTIES

C. S. CHRISTIAN  
HIGHWAY ENGINEER

N. B. GARVER

JOB NO. 1120

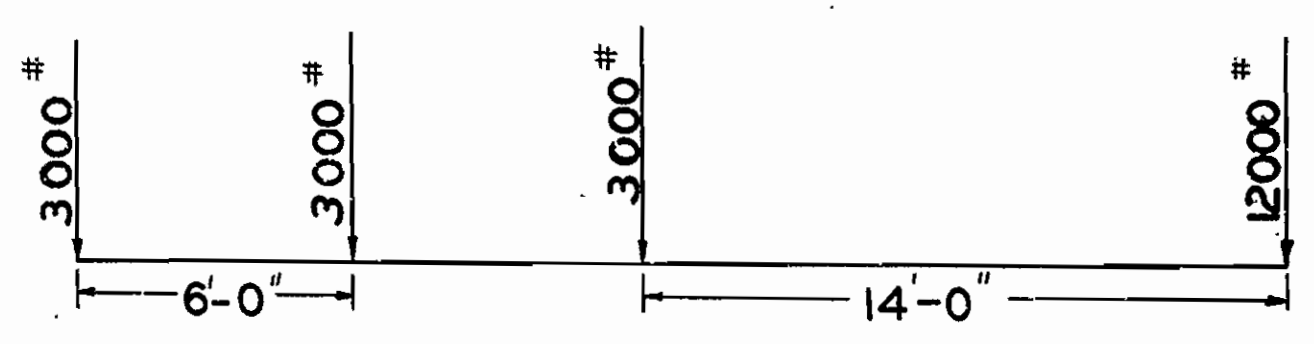
U.S.R. 82 S-7 UNION COUNTY  
S-8 ASHLEY COUNTY  
INDEX

IRA G. HEDRICK, INC.  
CONSULTING ENGINEERS  
HOT SPRINGS, ARKANSAS

BRIDGE ENGINEER SHEET NO.	LOCATION LAYOUT	DRWG. NO.
"	"	4982
"	"	4983
"	"	4984-G
"	"	4985
"	"	4986
"	"	4986 R
"	"	4987
"	"	4988
"	"	4989
"	"	4990
"	"	4991
"	"	4992
"	"	4993
"	"	4994
"	"	4995
"	"	4946

### LOCATION "C"

#### WHEEL CONCENTRATIONS CLASS A LOADING



2-15 TON TRUCKS

EQUIVALENT UNIFORM LIVE LOADS

CONCRETE-25% IMPACT      STEEL -  $\frac{100}{L+300}$

SPAN LENGTH	LOAD PER SQ. FT.
50' TO 100'	130*
100' TO 200'	80*
200' AND OVER	64*

#### GENERAL NOTES

ALL HOOKS ON REINFORCING BARS TO HAVE A RADIUS OF 4D AND A RETURN OF 12D, WHERE D=DIAMETER OF ROUND BAR OR SIDE OF SQUARE BAR. LENGTHS OF HOOKED BARS ARE GIVEN TO STARTING POINT OF HOOK, THUS: ALL BENDS SUCH AS ON GIRDER BARS MUST HAVE A RADIUS OF NOT LESS THAN 12D.

CENTERS OF BARS IN FLOOR SLAB TO BE NOT LESS THAN  $\frac{1}{2}$ " FROM FACE OF CONCRETE. CENTERS OF BARS TO BE 4" FROM FACE OF CONCRETE ON PIERS AND ABUTMENT SHAFTS AND 3" ON GIRDERS AND COLUMNS, UNLESS OTHERWISE NOTED.

CHAMFERS TO BE 2" THROUGHOUT UNLESS OTHERWISE NOTED.

#### CONSTANTS

	CONCRETE I-1-2 MIX PER SQ. IN.	STEEL PER SQ. IN.
FLOORSLABS, CROSSGIRDERS, GIRDERS, ETC. AT CENTER OF BEAMS	975*	16000#
BEAMS CONTINUOUS OVER SUPPORTS: OVER SUPPORTS	975*	16000#
BOND FOR STEEL IN CONCRETE	1200*	30000000*
COLUMNS DIRECT COMPRESSION	150#	
NOTE: FOR I-2-4 CONCRETE DECREASE ABOVE STRESSES 33 1/3%	900 - $\frac{22.5L}{D}$ *	
TENSION NET SECTION COMP. IN COLS. & OTHER COMP. MEMBERS FIXED ENDS	900 - $\frac{22.5L}{D}$ *	16000#
MODULUS OF ELASTICITY STEEL		30000000*
" " " " CONCRETE: I-2-4	2000000*	
" " " " I-1-2	3000000*	
VARIATION IN TEMPERATURE	±40°	
COEFFICIENT OF EXPANSION	.0000060	.0000067

423

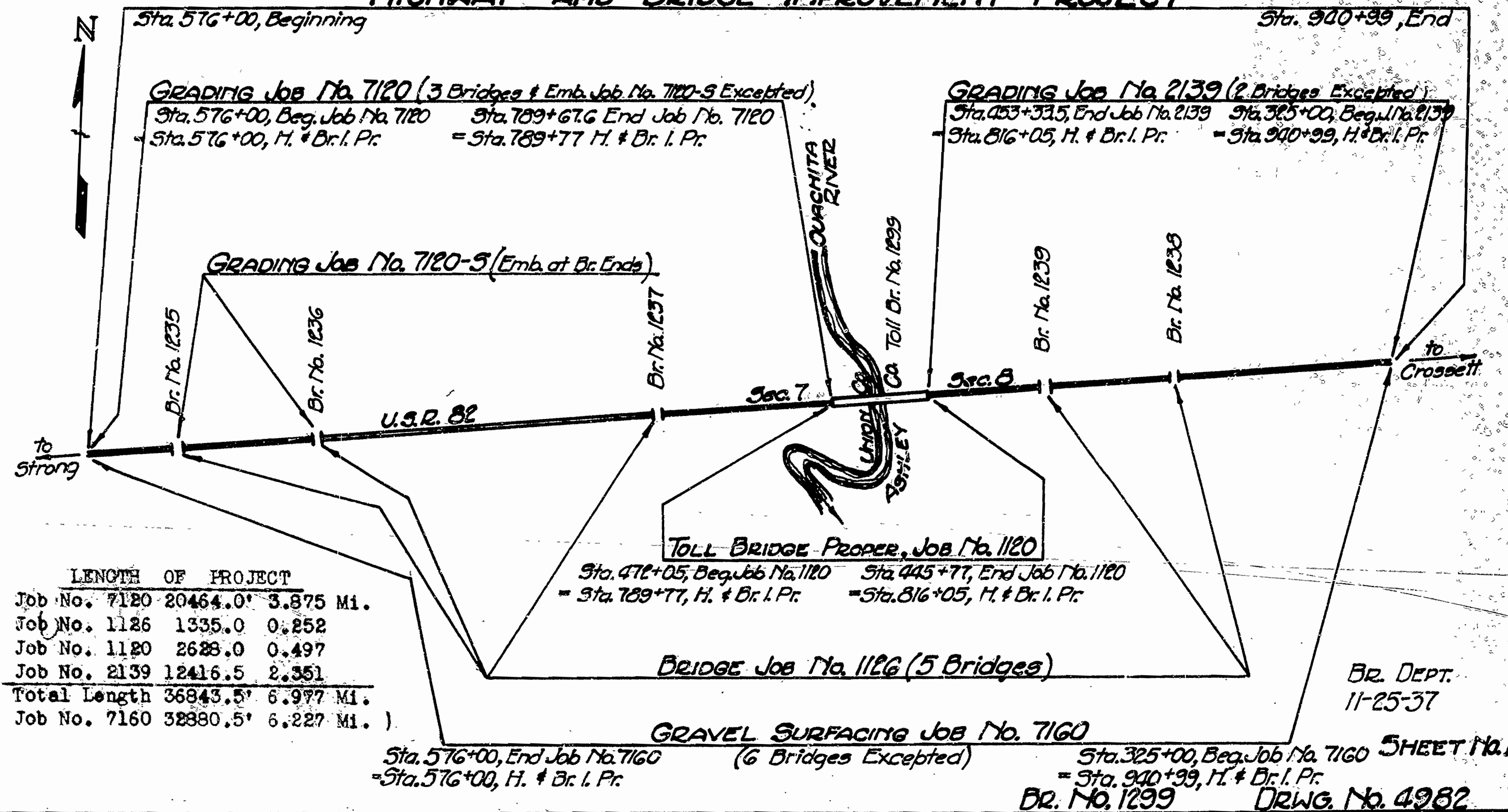
Felsenthal

1929 Sheet No. 1 of 16  
Job No. 1120

STATE OF ARKANSAS  
ARKANSAS STATE HIGHWAY COMMISSION  
LAYOUT SHOWING  
HIGHWAY & BRIDGE IMPROVEMENT  
ACROSS

OVERFLOW SECTION OF QUACHITA RIVER BOTTOM  
U.S. Route 82 Union & Ashley County S-7&8  
Sta. 576+00 to Sta. 940+99  
Scale: 1" = 4000' = 0"

HIGHWAY AND BRIDGE IMPROVEMENT PROJECT



LENGTH OF PROJECT

Job No. 7120	20464.0'	3.875 Mi.
Job No. 1126	1335.0	0.252
Job No. 1120	2628.0	0.497
Job No. 2139	12416.5	2.351
Total Length	36843.5'	6.977 Mi.
( Job No. 7160	32880.5'	6.227 Mi. )

Br. Dept.  
11-25-37

Sta. 576+00, End Job No. 7160  
= Sta. 576+00, H. & Br. I. Pr.

Sta. 325+00, Beg. Job No. 7160  
= Sta. 940+99, H. & Br. I. Pr.

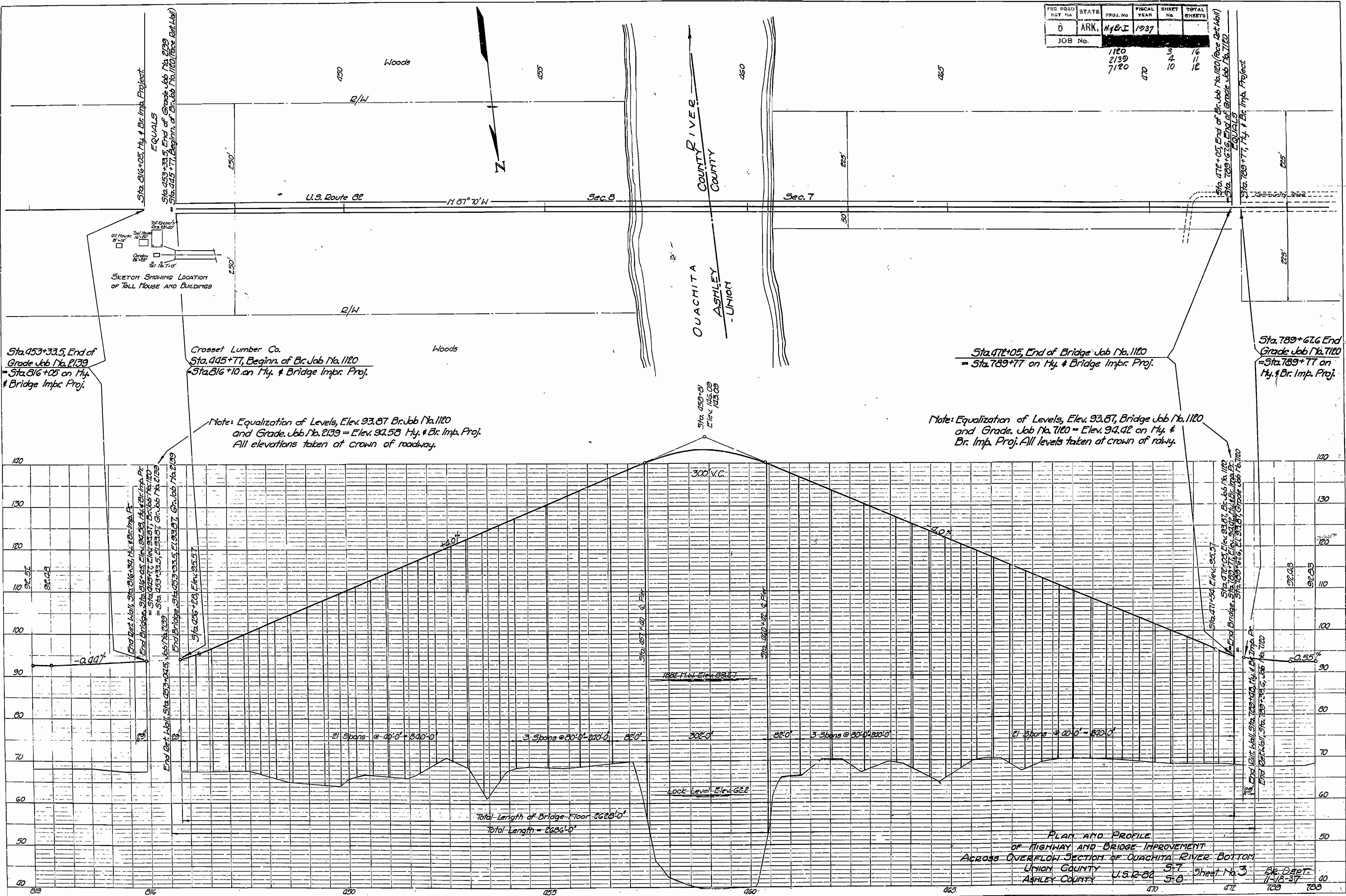
BR. No. 1299 DRWG. No. 4982

SHEET No. 1

FOR ROAD DIST. No.	STATE	PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
0	ARK.	H.I.R.I.	1937		
JOB No.		1120		3	16
		2139		4	11
		7120		10	12
			470		

PLAN SHEET NO. 3  
 ROUTE 88  
 U.S. ROUTE 88  
 U.S. ROUTE 88  
 U.S. ROUTE 88

PROFILE SHEET NO. 3  
 ROUTE 88  
 U.S. ROUTE 88  
 U.S. ROUTE 88  
 U.S. ROUTE 88



PLAN AND PROFILE  
 OF HIGHWAY AND BRIDGE IMPROVEMENT  
 ACROSS OVERFLOW SECTION OF OUACHITA RIVER BOTTOM  
 UNION COUNTY  
 ASHLEY COUNTY  
 U.S. 88  
 SHEET No. 3  
 DR. DATE: 11-18-37

Dr. No. 1299

DRWG. No. 4984-G

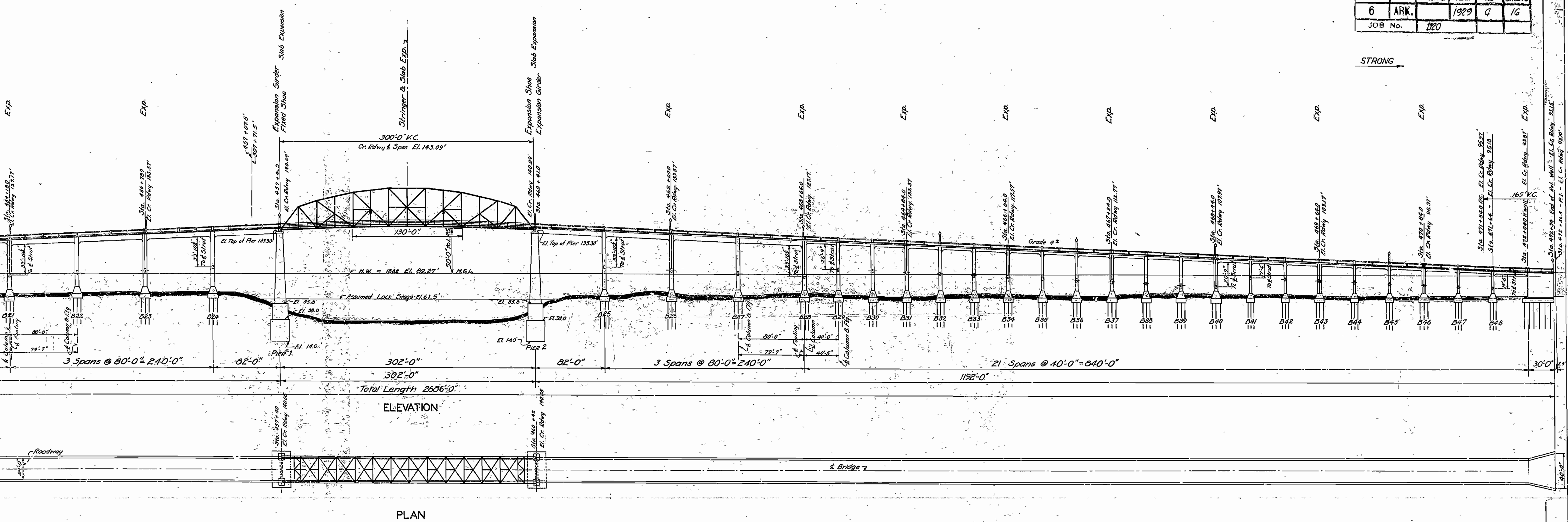
PLATE 1-PLAN-PROFILE & P. R. STANDARD  
EUGENE DIETZGEN CO. CHGO., ILL.

PRINTED IN U. S. A.  
ON 100% RAG STOCK MADE IN U. S. A.

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FED. ROAD DIST. No.	STATE	PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.		1929	9	16
JOB No.		1120			

STRONG



East Retaining Wall - Bottom of Base	Elev. -	60.2
B-1 to B-8 Inclusive - Top of Cap	" "	69.0
B-9 to B-15 " " " "	" "	70.0
B-16 to B-24 " " " "	" "	72.0
B-25 to B-31 " " " "	" "	72.0
B-32 to B-40 " " " "	" "	73.5
B-41 to B-48 " " " "	" "	70.5
West Retaining Wall - Bottom of Base	Elev. -	60.2

Datum: U.S. Bench Mark - P.R.P. Marie Saline Landing - El. 62.93 M. G. L.

REVISED HANDRAIL, Aug. 15, 1930  
 REVISED: DEC. 14, 1929 REVISED: MARCH 10, 1930.

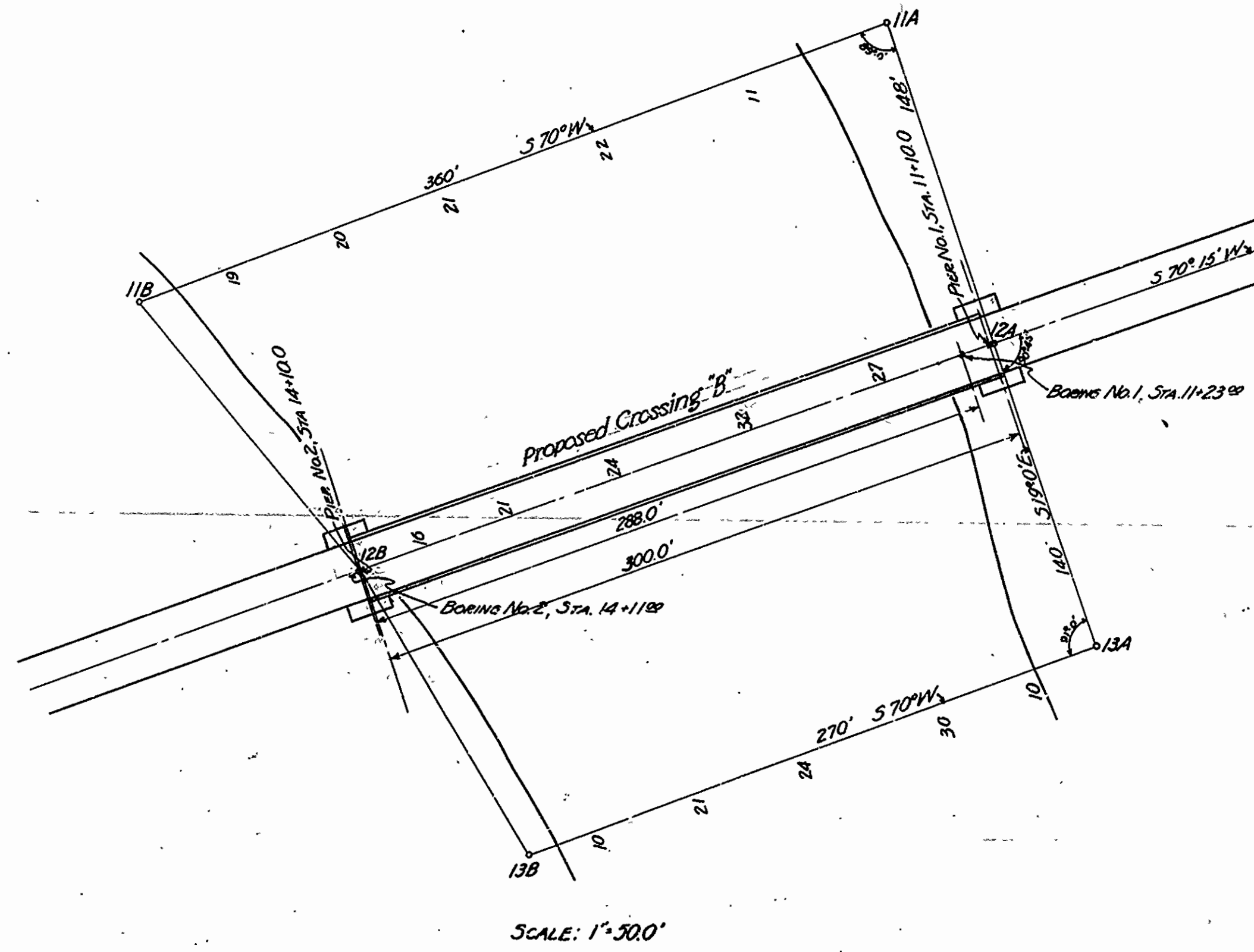
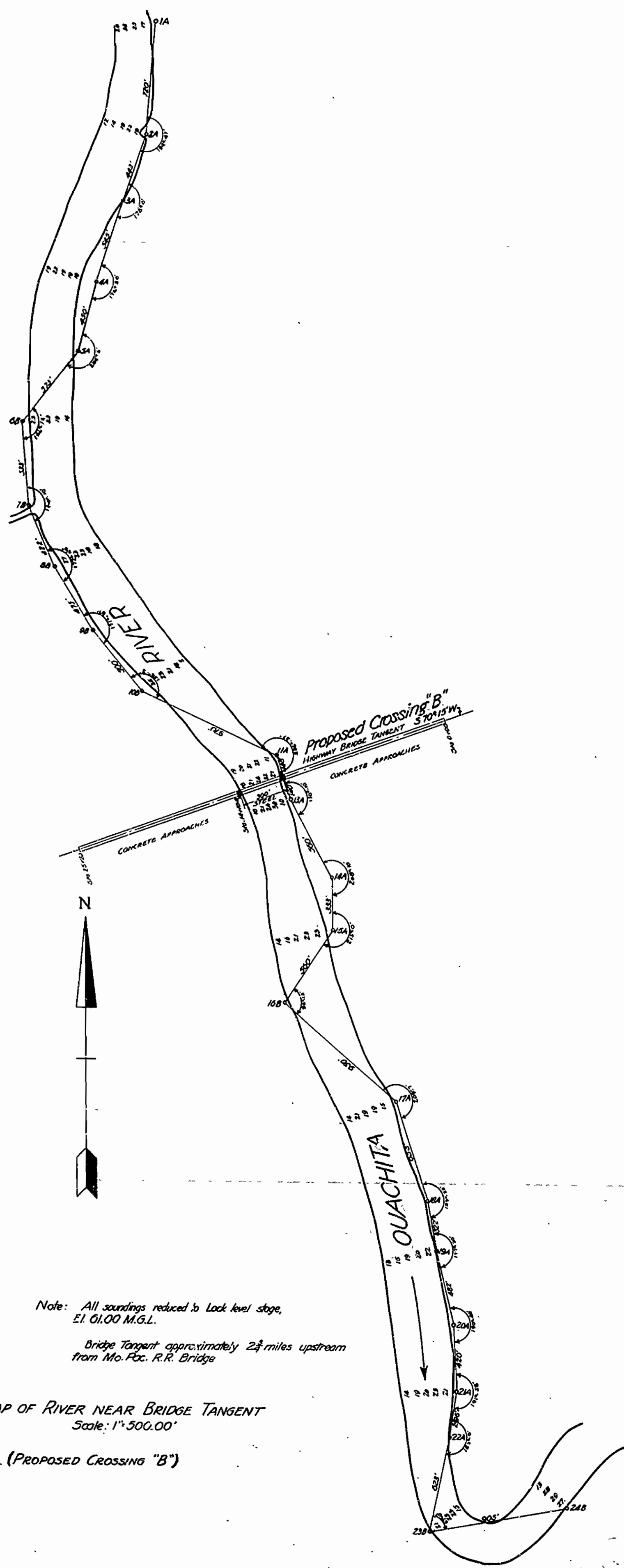
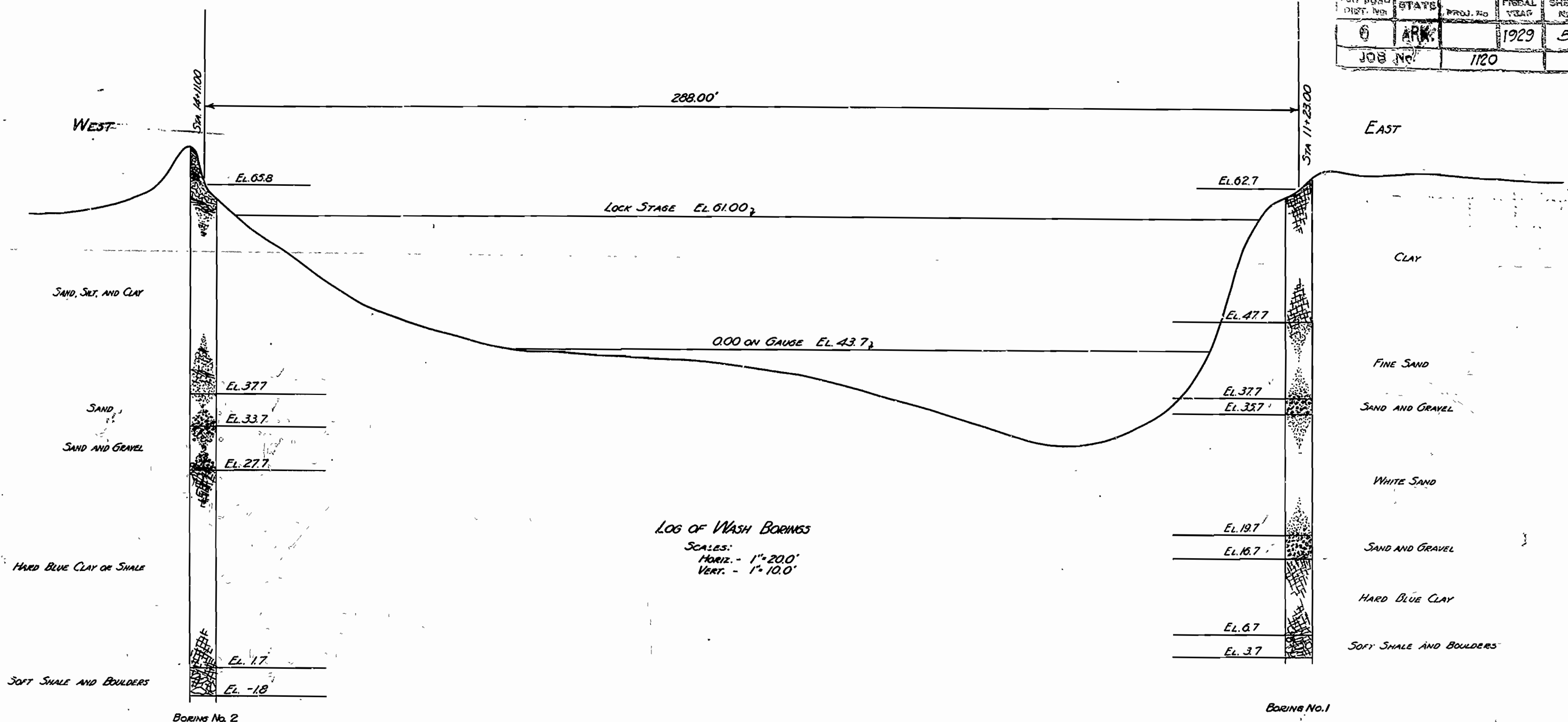
**ARKANSAS STATE HIGHWAY COMMISSION**  
**BRIDGE OVER OUACHITA RIVER**  
 NEAR  
 FELSENTHAL, ARKANSAS  
 LOCATION "C"  
**GENERAL PLAN & PROFILE**  
 ROUTE No. 82 SEC. 7

MADE BY: HKS & T.L.H.  
 TRACED BY: HKS & T.L.H.  
 CHECKED BY: H.W.S.  
 DATE: Mar 7, 1929 SCALE: 1" = 50'-0" SHEET NO. 9

IRAG HEDRICK, INC.  
 CONSULTING ENGINEERS  
 HOT SPRINGS, ARKANSAS

Dr. No. 1299 DRWG. No. 4985

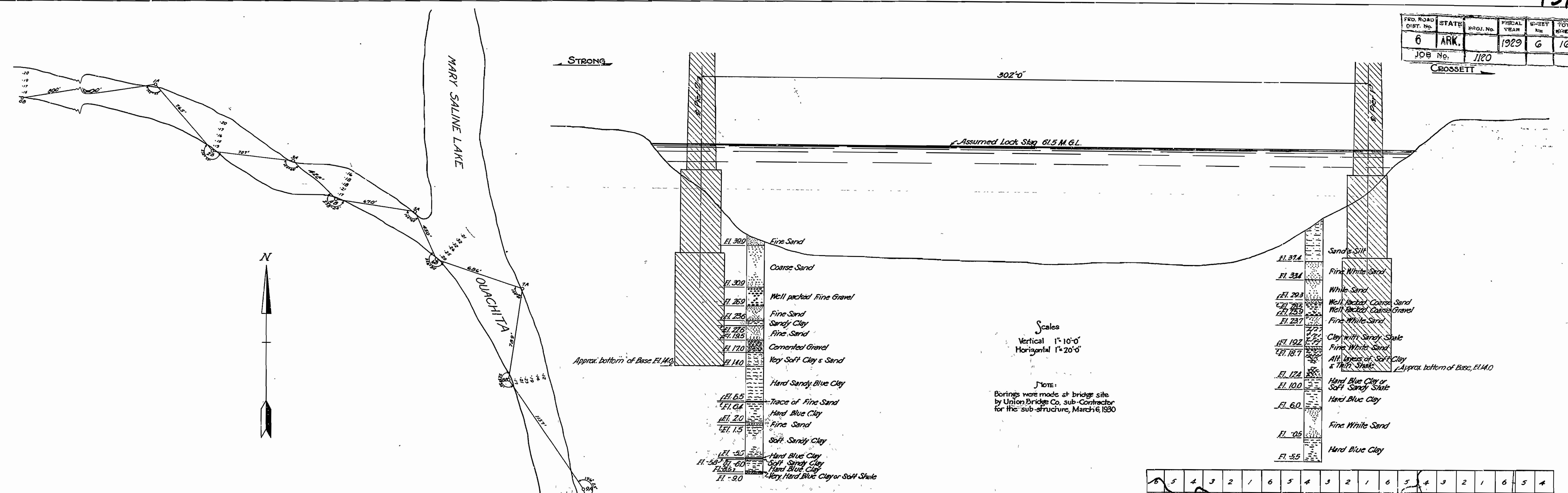
STATE	ARK.	FEDERAL YEAR	1929	SHEET NO.	5	TOTAL SHEETS	16
JOB No.	1120						



BORING NO. 1

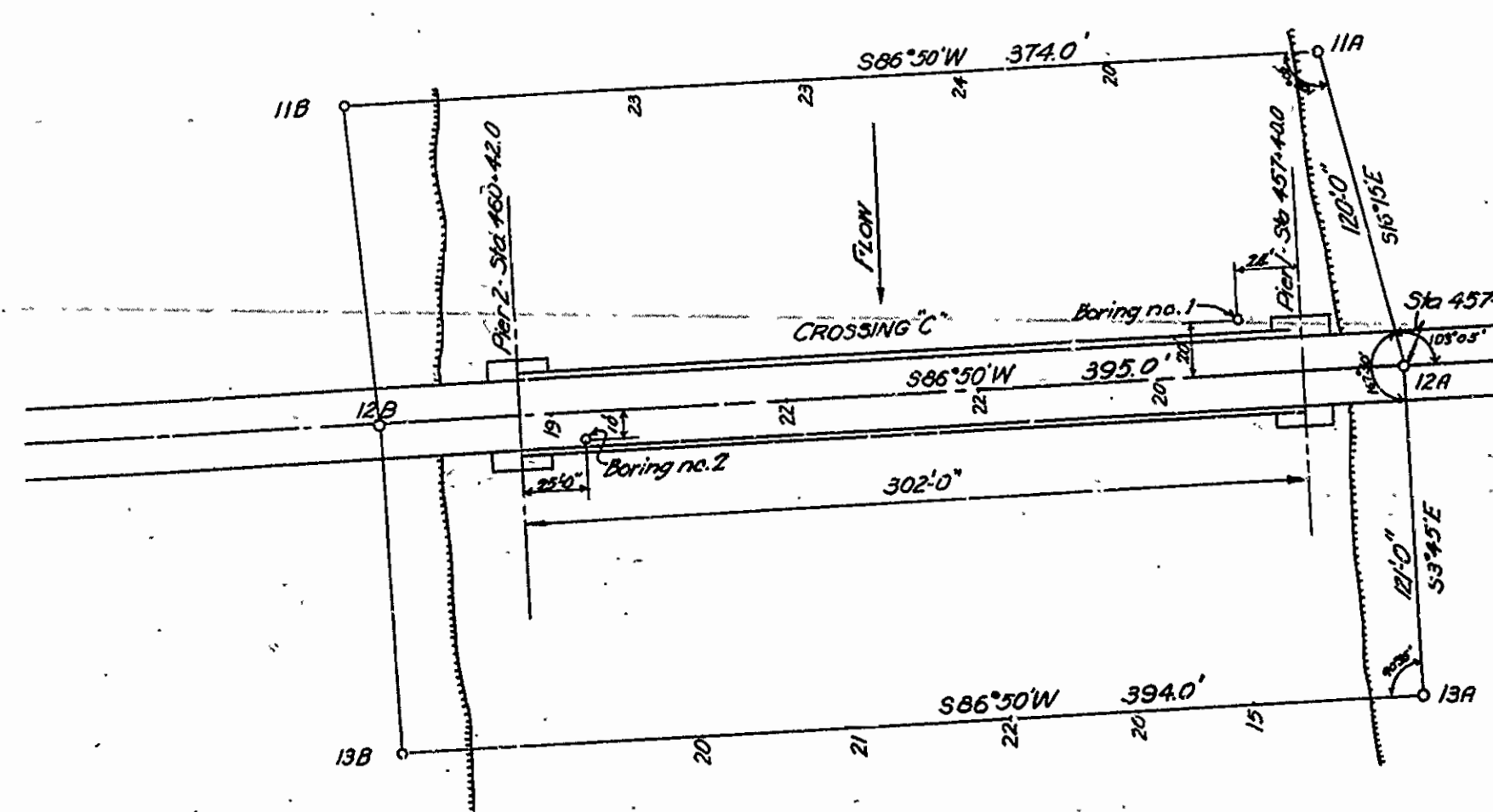
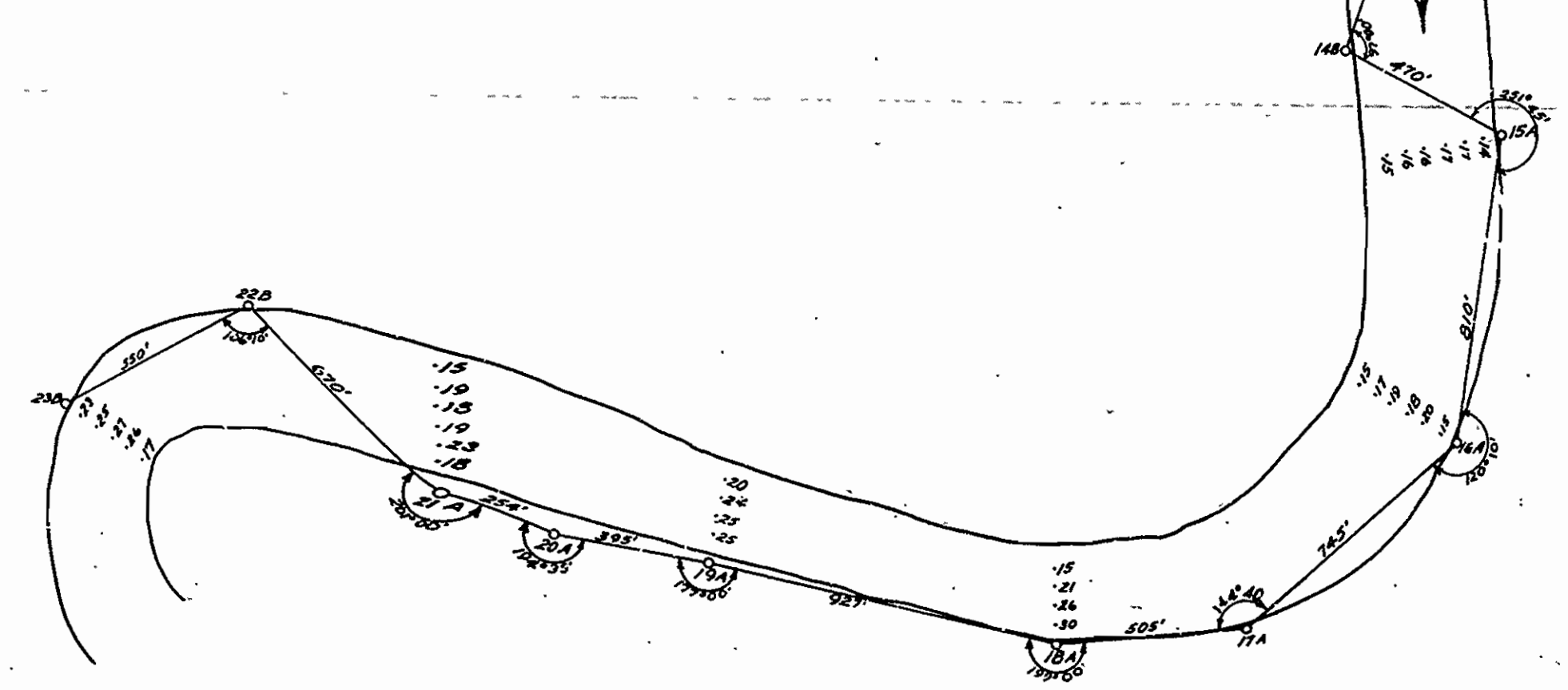
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FED. ROAD DIST. No.	STATE	PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.		1929	6	16
JOB No.		1120			
CROSSETT					



Note  
 All soundings reduced to Lock Stage El. 61. M.G.L.  
 Bridge tangent 6.76 mi. downstream from Camden  
 and 252 mi. from mouth of Black River.

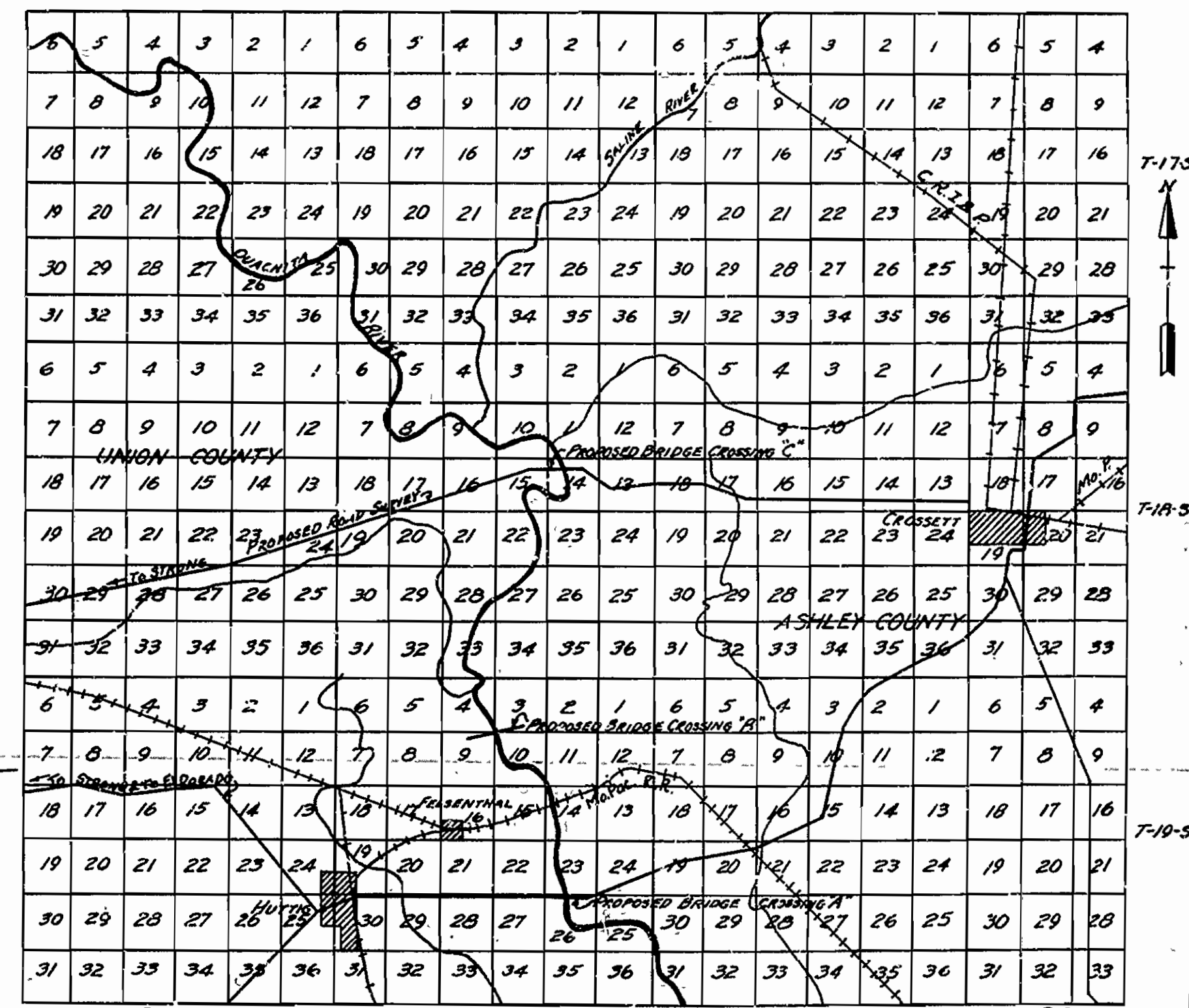
MAP OF RIVER NEAR BRIDGE SITE  
 Scale 1"=400'-0"



SCALE 1"=600'  
 SKETCH SHOWING LOCATION OF WASH BORINGS

Scales  
 Vertical 1"=10'-0"  
 Horizontal 1"=20'-0"

NOTE:  
 Borings were made at bridge site by Union Bridge Co. sub-contractor for the sub-structure, March 6, 1930

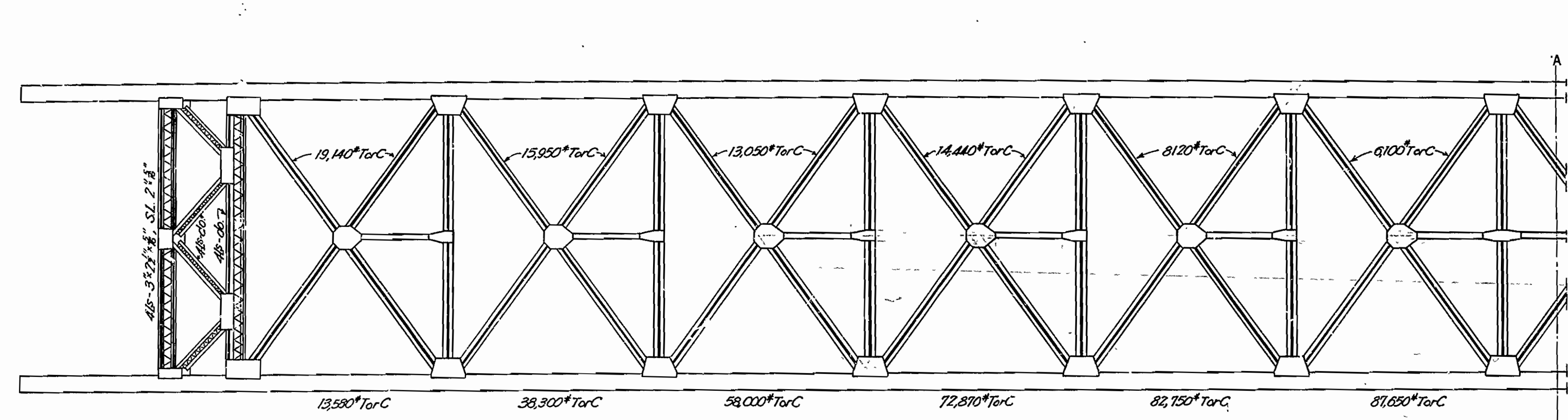


MAP SHOWING LOCATIONS OF THE THREE PROPOSED HIGHWAY BRIDGE TANGENTS

ARKANSAS STATE HIGHWAY COMMISSION  
 BRIDGE OVER OUACHITA RIVER  
 FELSENTHAL, ARKANSAS  
 REVISED  
 MAP OF BRIDGE SITE  
 PROFILE OF BORINGS  
 MADE BY: H.W.S. IRA G. HEDRICK, INC.  
 TRACED BY: H.W.S. & E.S. CONSULTING ENGINEERS  
 CHECKED BY: L.D. HOT SPRINGS, ARKANSAS  
 DATE: Nov. 7, 1929 SCALE: As shown SHEET NO. 6

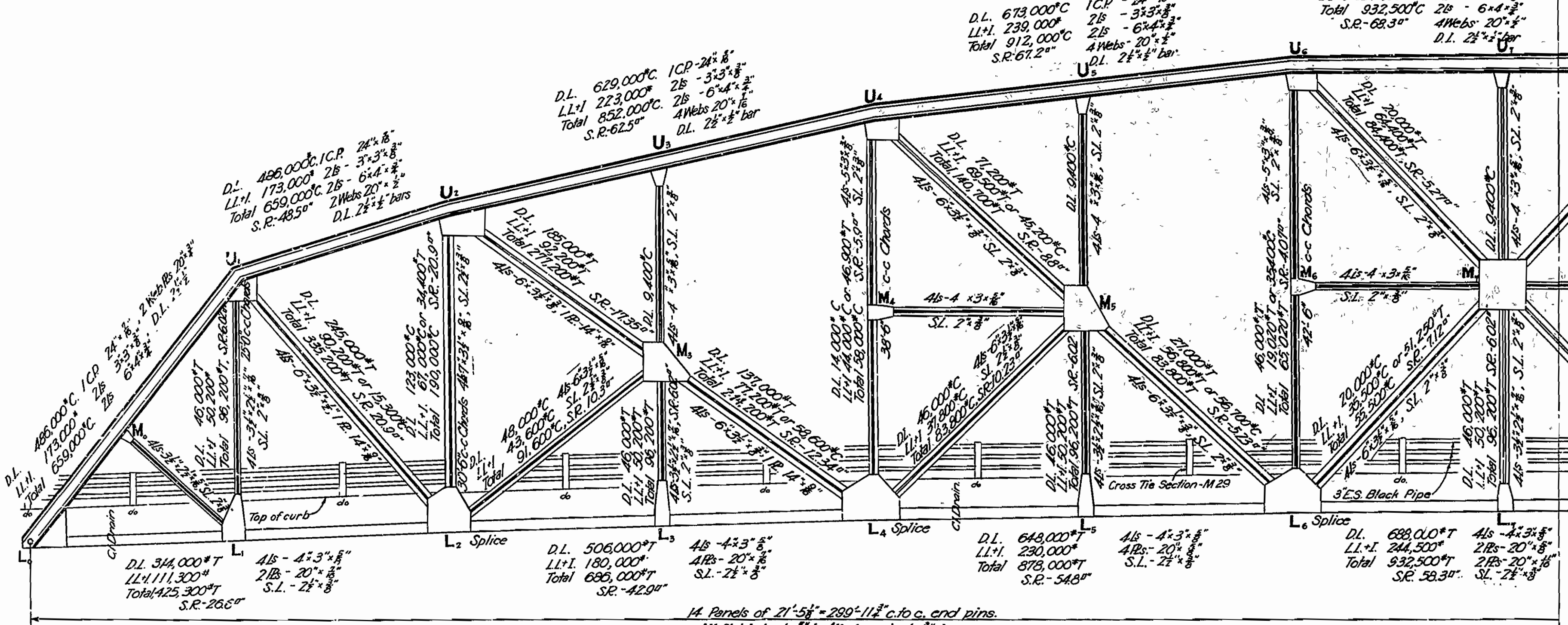
440

FE. ROAD DIST. NO.	STATE	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	ARK.	1929	7	16
JOB NO.		1120		

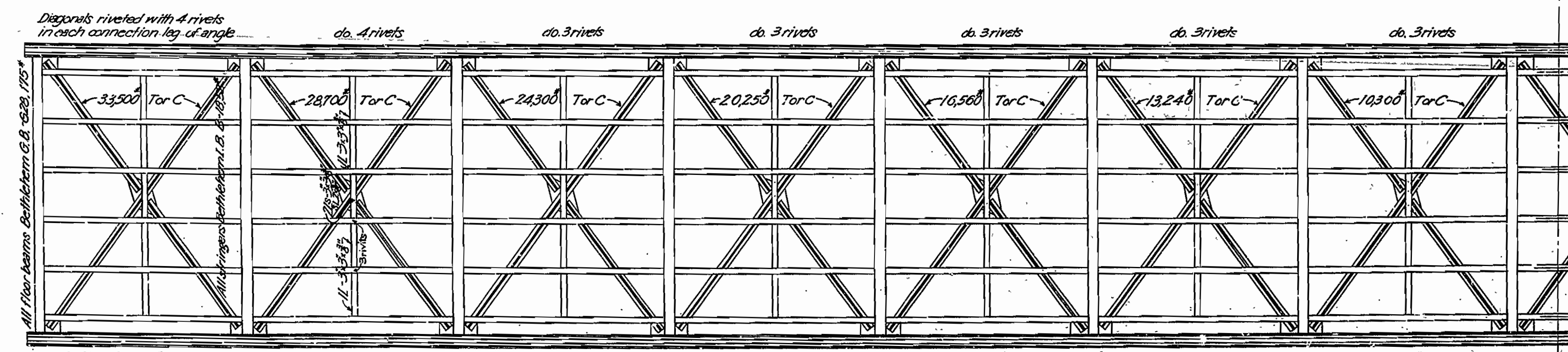


Note: All diagonals and transverse struts of  $4b-3 \times 2 \frac{1}{2} \times \frac{5}{8}$ , S.L.  $2 \frac{1}{2} \times \frac{5}{8}$ . Longitudinal struts  $2b-3 \times 2 \frac{1}{2} \times \frac{5}{8}$ , S.L.  $2 \frac{1}{2} \times \frac{5}{8}$ . Intersect on center lines of top chords. Largest legs of all angles horizontal. All field rivets #3. All shop rivets #4, 3 in each connecting leg of angle.

UPPER LATERAL SYSTEM

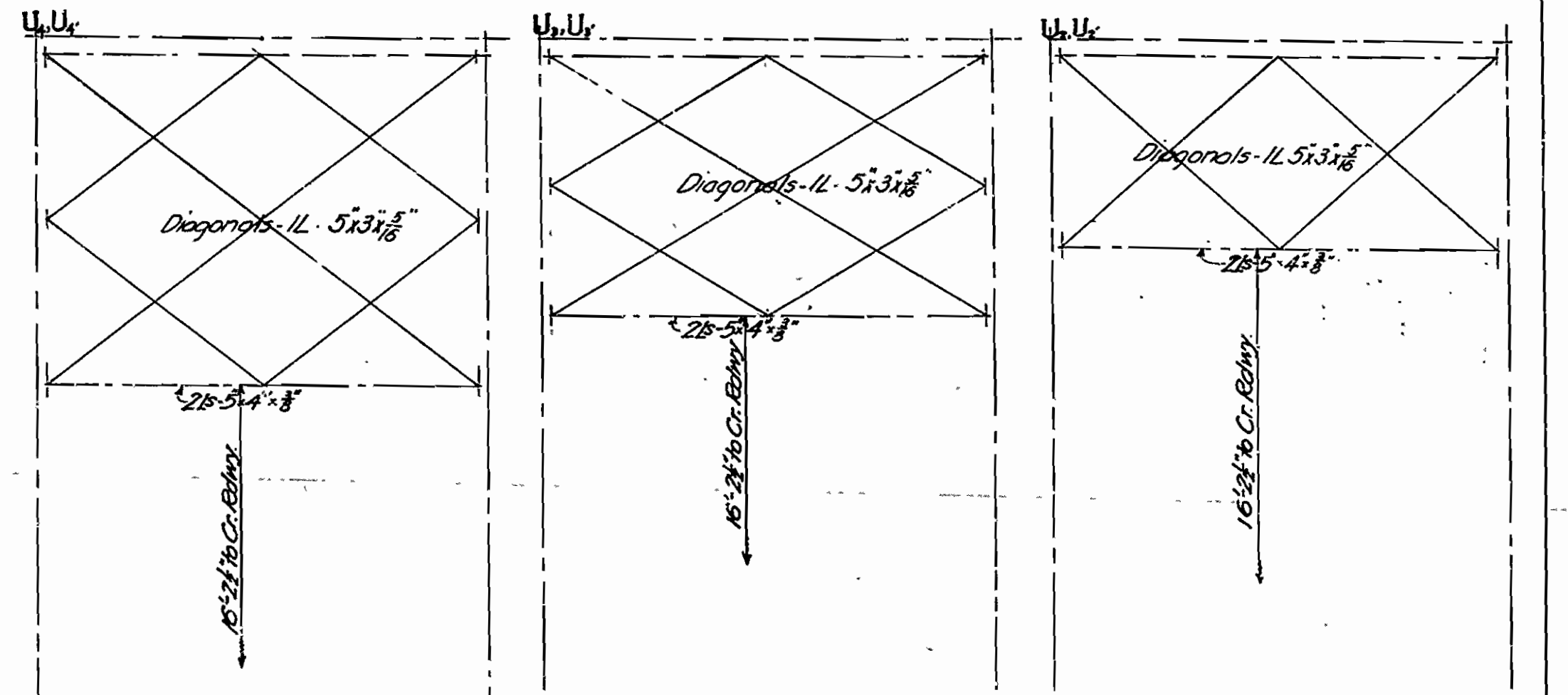


TRUSS SYSTEM

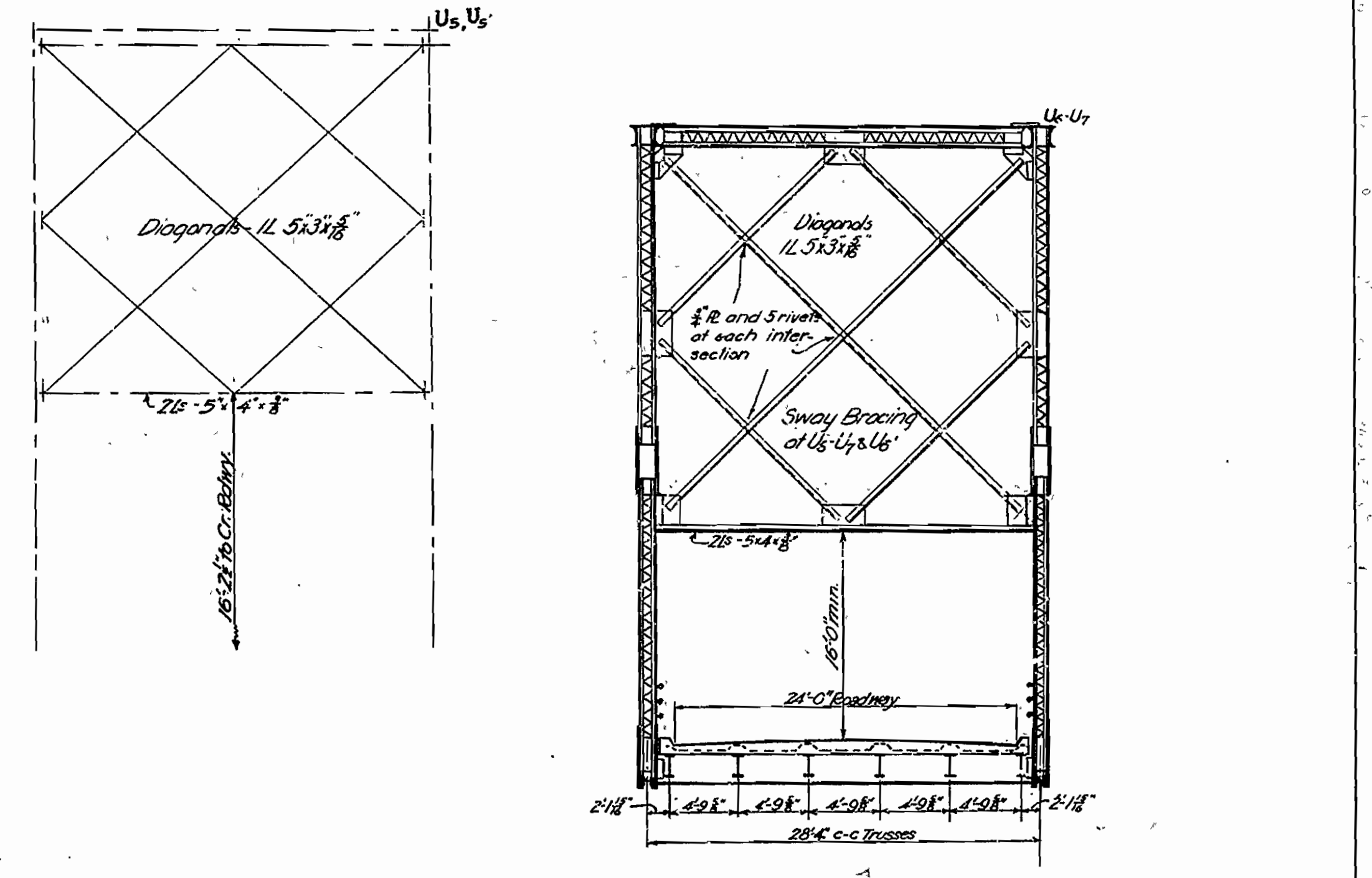


Note: All bottom laterals of  $2b-4 \times 3 \times \frac{5}{8}$ , bottoms of angles in plane of bottom of bottom chords, slash riveted 12's. Intersections of lower lateral diagonals at chord points must be concentric with center lines of bottom chords and floor beams. Clip to all stringers with angles and plates. All shop rivets #4. All field rivets #3.

LOWER LATERAL SYSTEM



SWAY BRACINGS



SECTION A-A

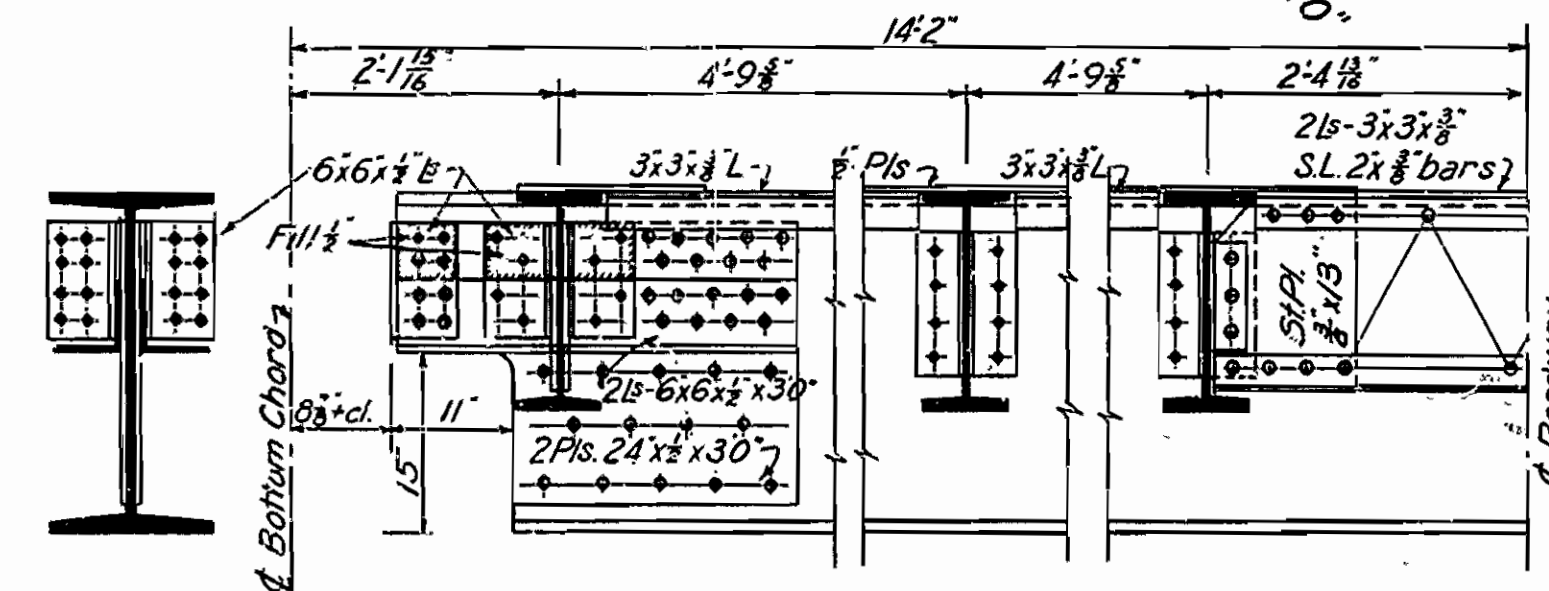
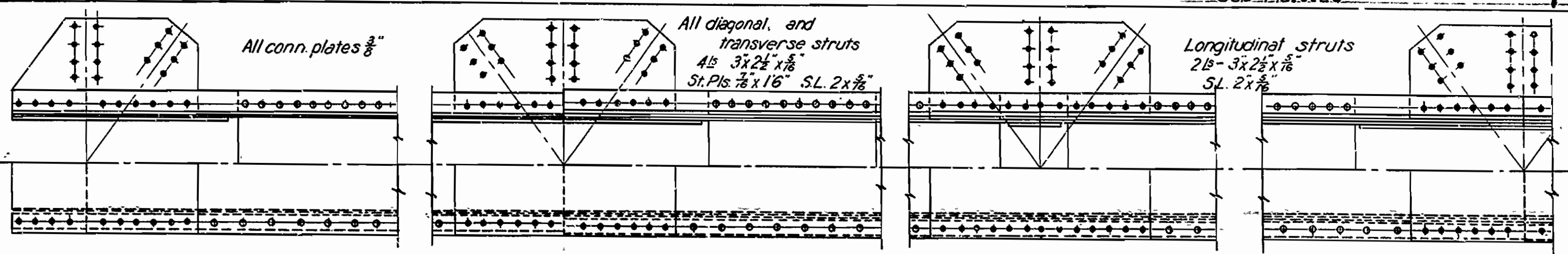
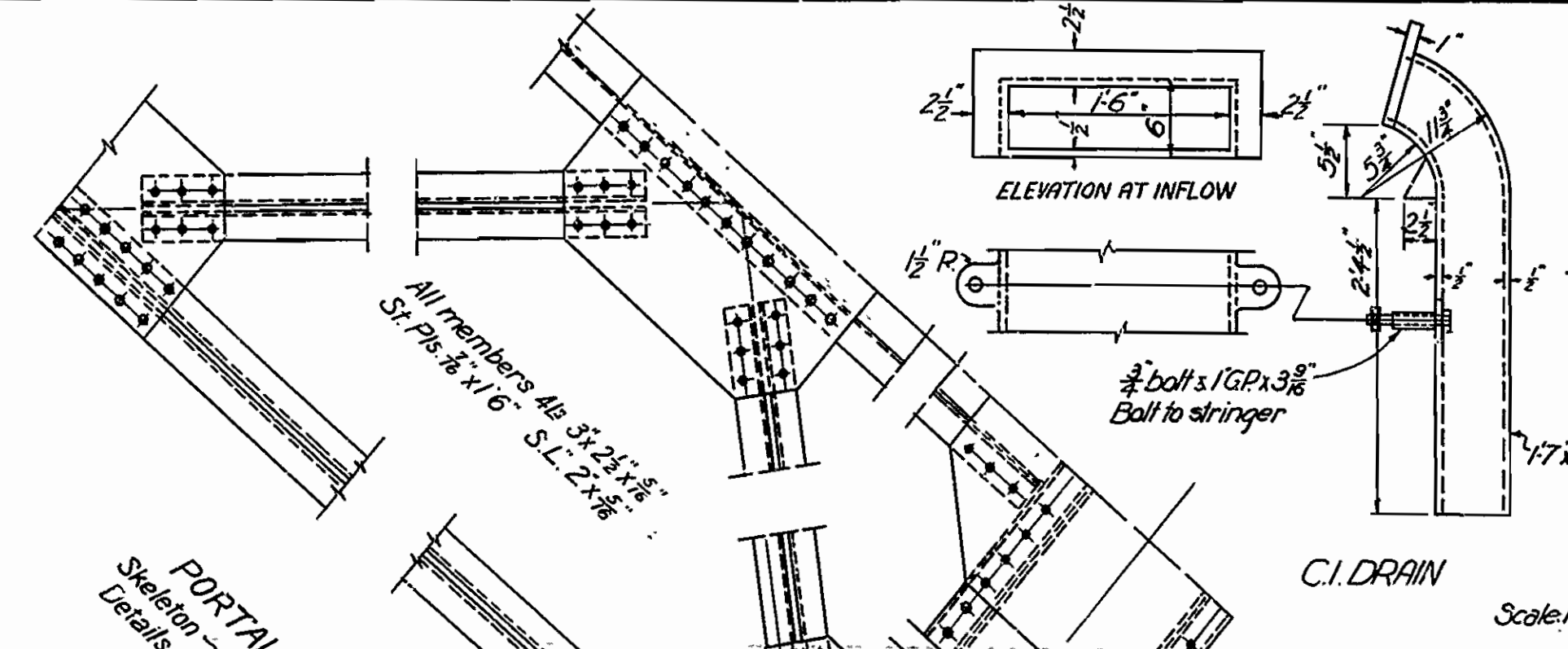
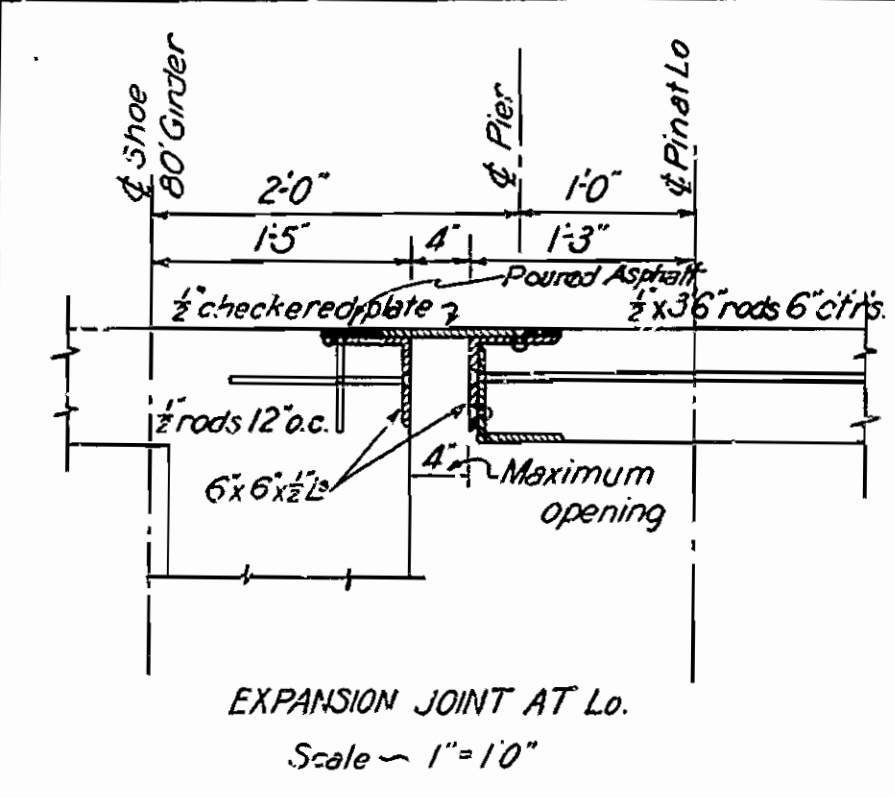
ARKANSAS STATE HIGHWAY COMMISSION  
 BRIDGE OVER OUACHITA RIVER  
 NEAR  
 FELSENTHAL, ARKANSAS  
**STRESSES & SECTIONS**  
 TRUSS SPAN

MADE BY L.D. & K.F. TRACED BY H.S. & K.F. CHECKED BY L.D. DATE JULY 1, 1929. SCALE  $\frac{1}{8}''=1'-0''$

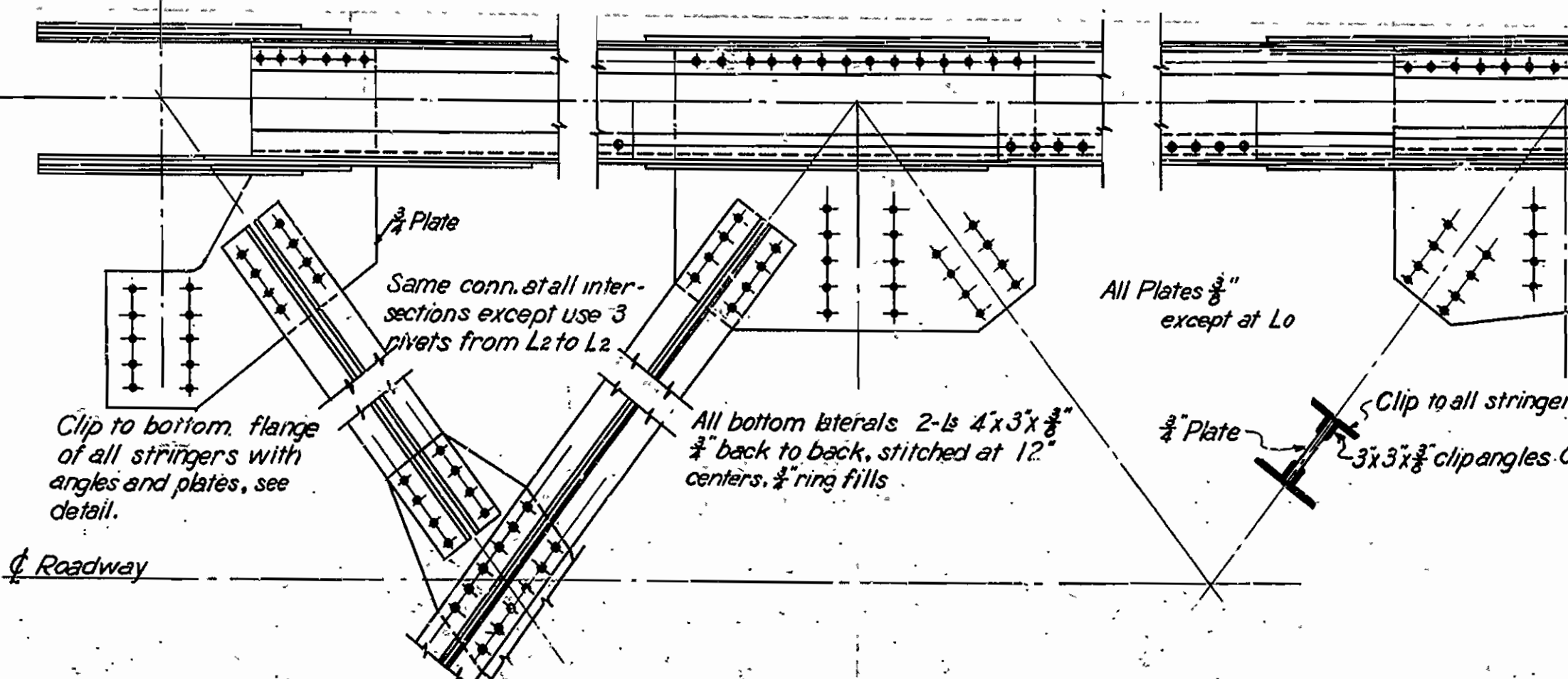
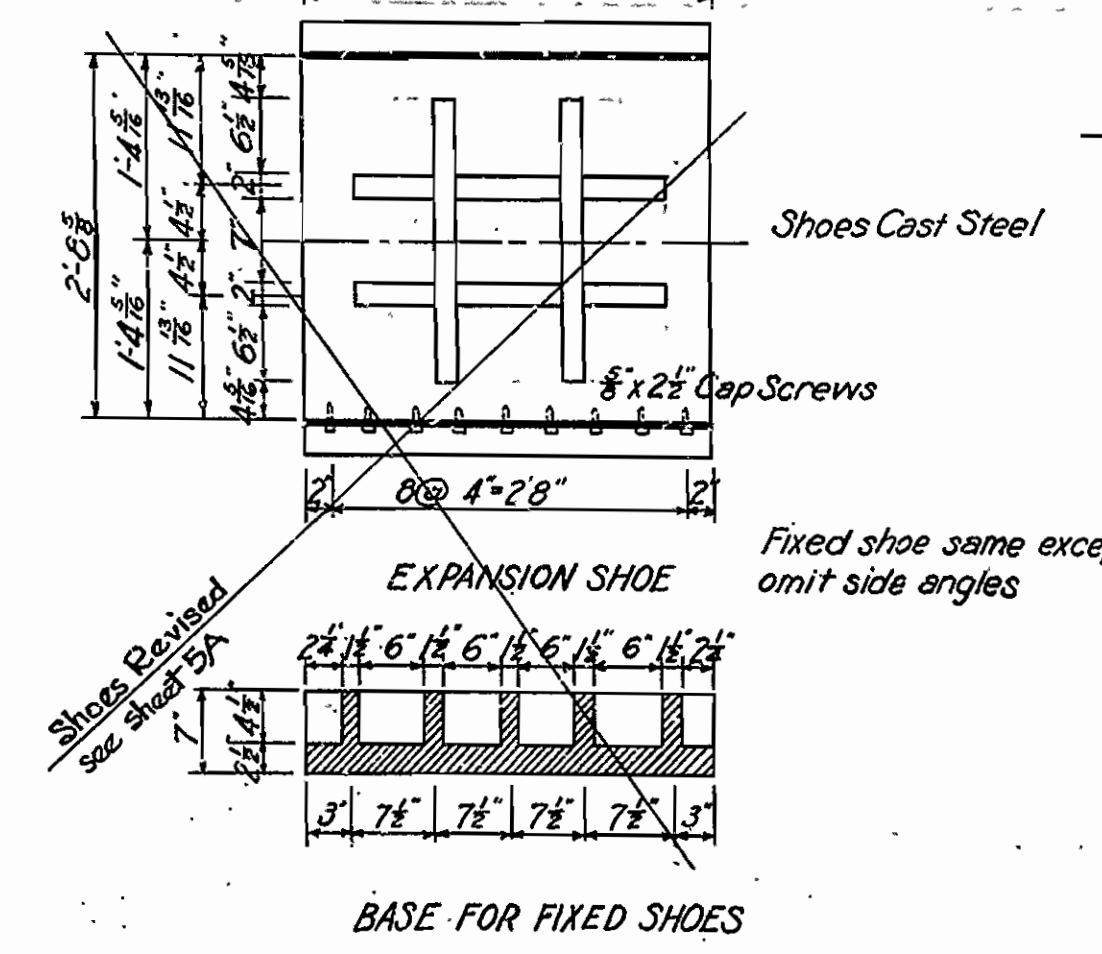
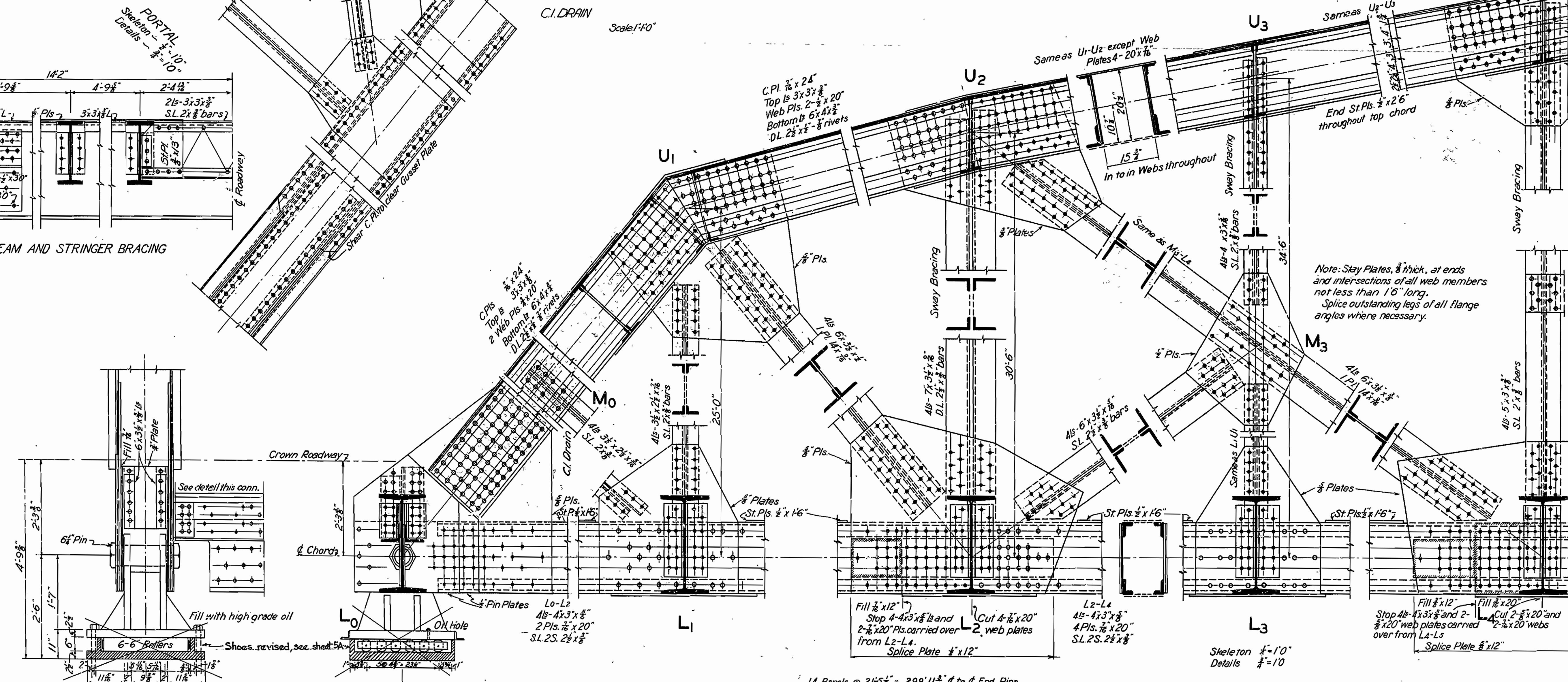
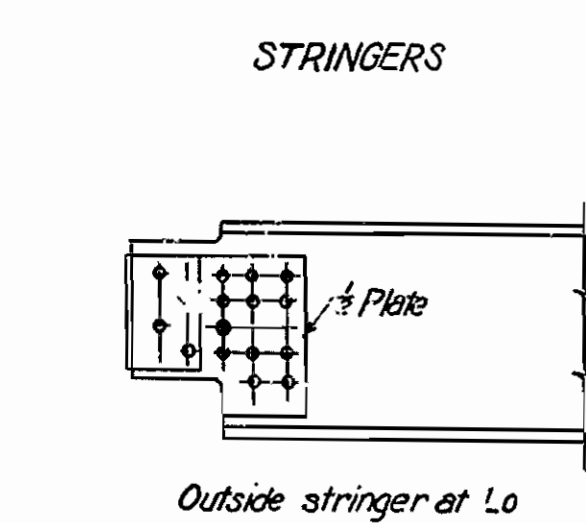
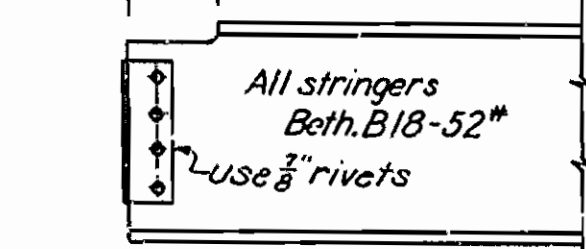
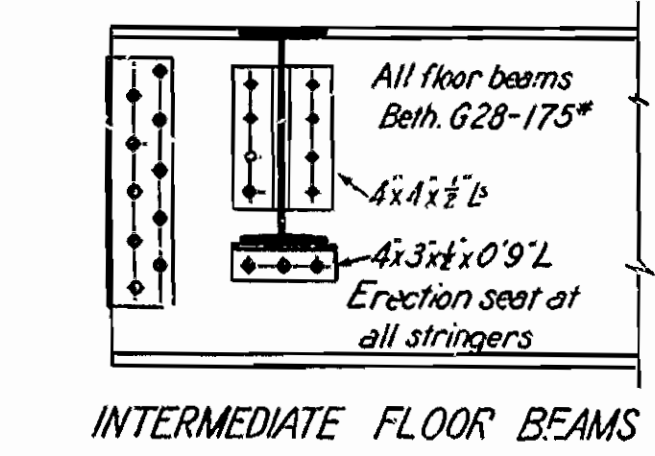
IRA G. HEDRICK, INC. CONSULTING ENGINEERS HOT SPRINGS, ARKANSAS SHEET NO. 7

Revised, Nov. 7, 1929

RD No 1299 DWG No 4987



Note:  $\frac{3}{4}$ " rivets in conn. of all floor beams.



**GENERAL NOTES**  
 All metal medium steel unless otherwise noted.  
 All shop rivets  $\frac{3}{4}$ " cl. All field rivets  $\frac{3}{4}$ " cl.  
 Rivet holes punched  $\frac{1}{8}$ " less in diameter and reamed to  $\frac{1}{8}$ " greater, except in laterals and sway bracing where punch full size. Metal over  $\frac{1}{8}$ " thick to be drilled.  
 Minimum thickness of  $\frac{1}{4}$ "  
 Anchor bolts soft steel,  $\frac{1}{2}$ " dia.  
 Abutting ends of all compression members faced.  
 Truss to be assembled in shop and field holes reamed to perfect match.  
 All rivet to receive one coat of paint in shop.  
 Single lacing 60°. Double lacing 45°, riveted at intersections.

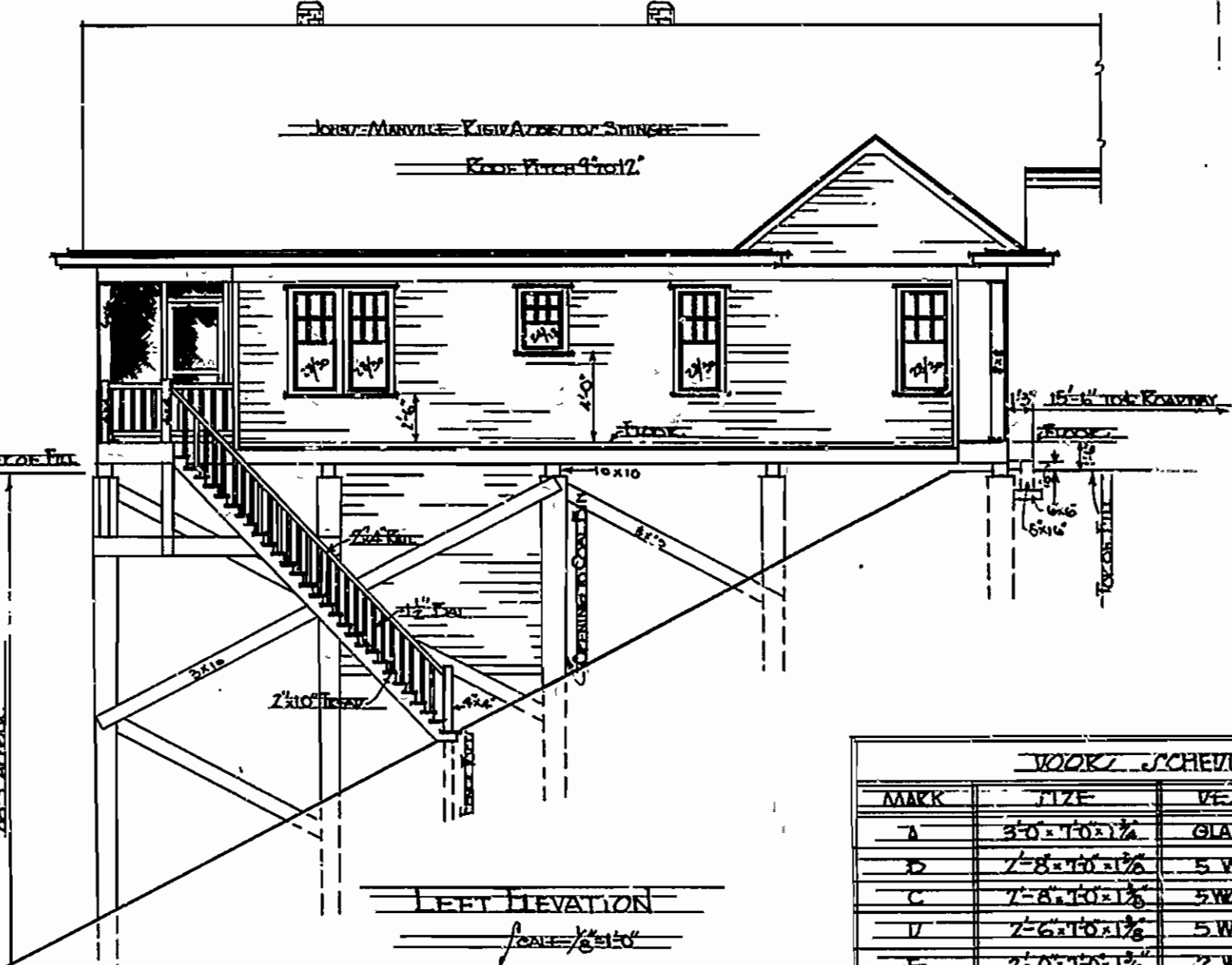
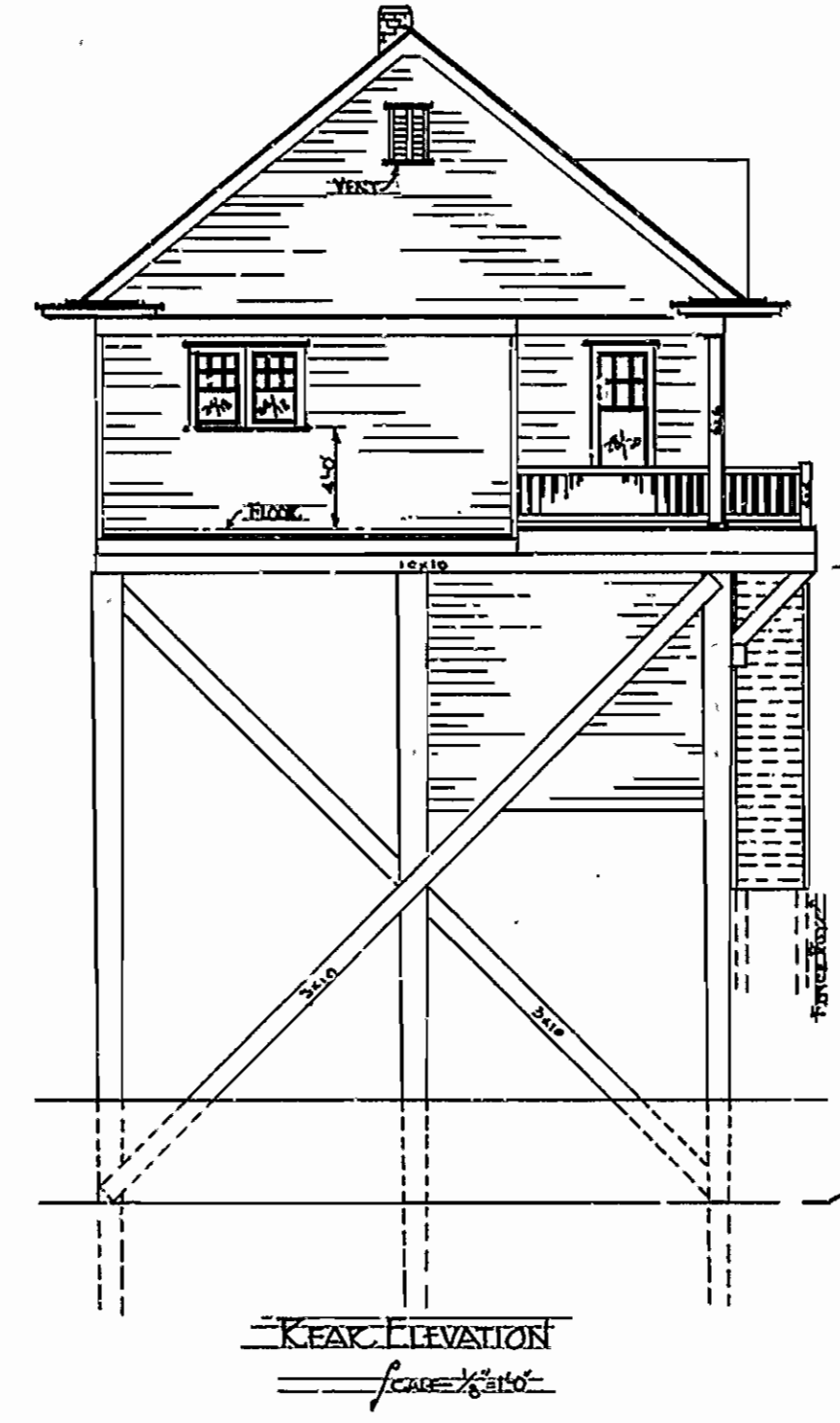
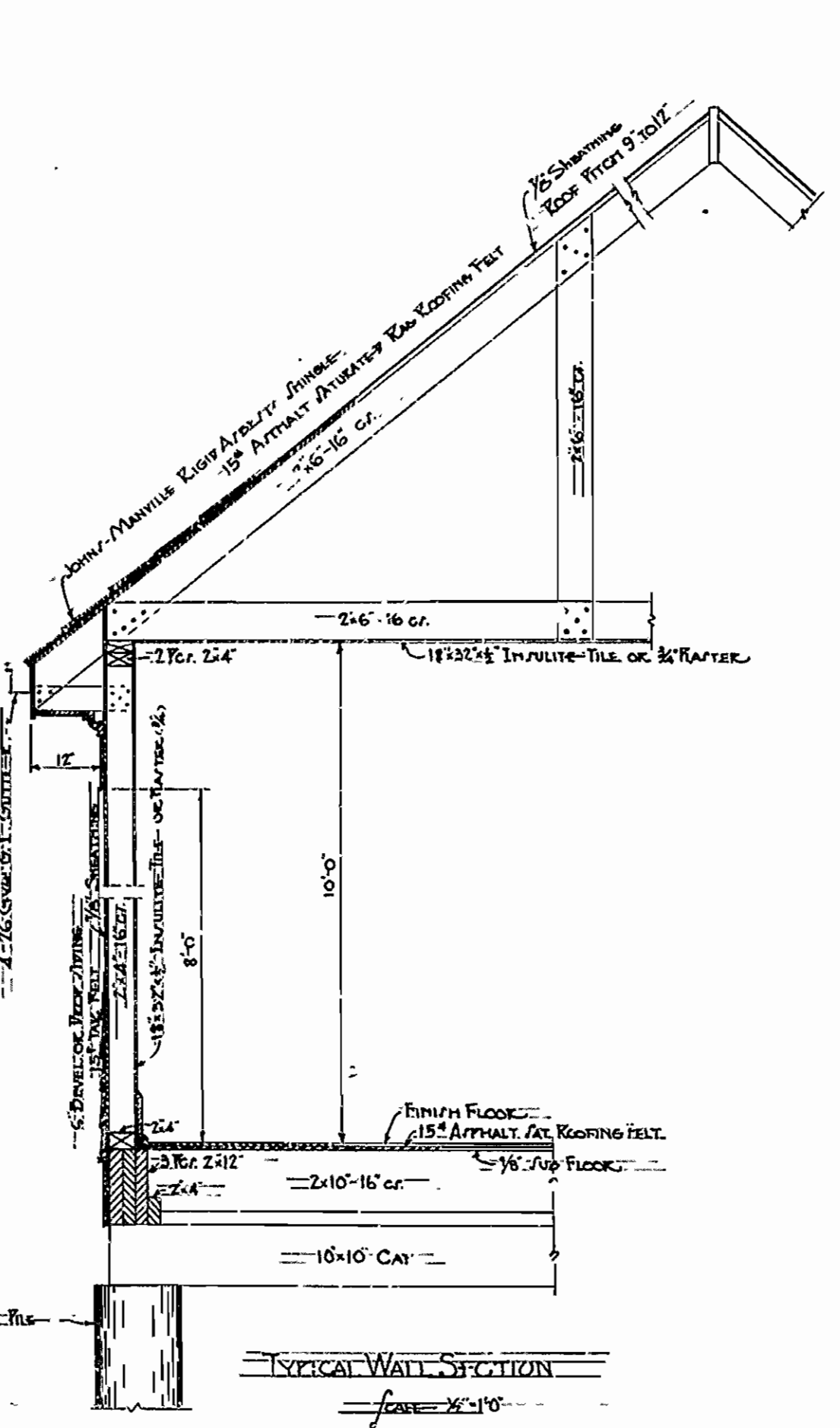
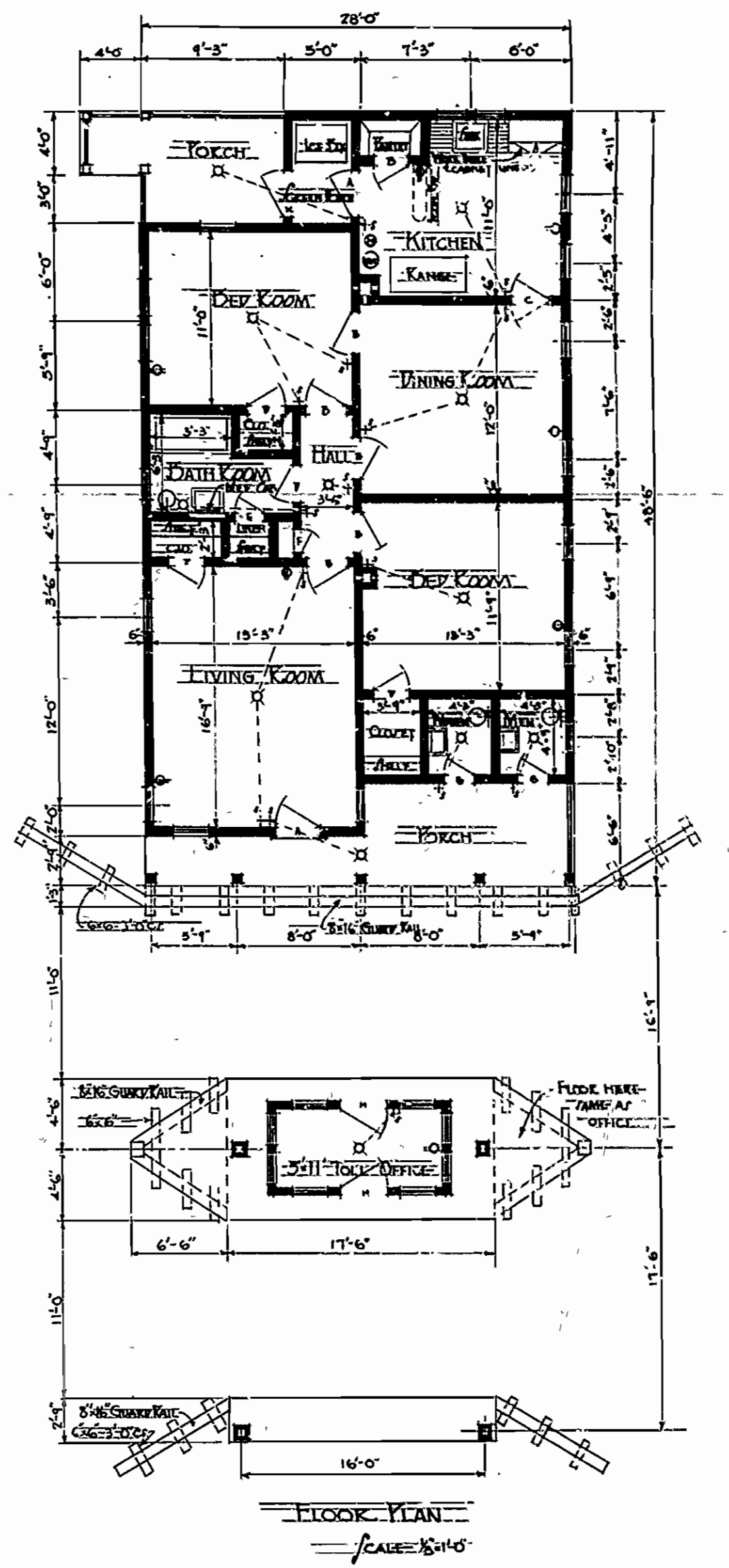
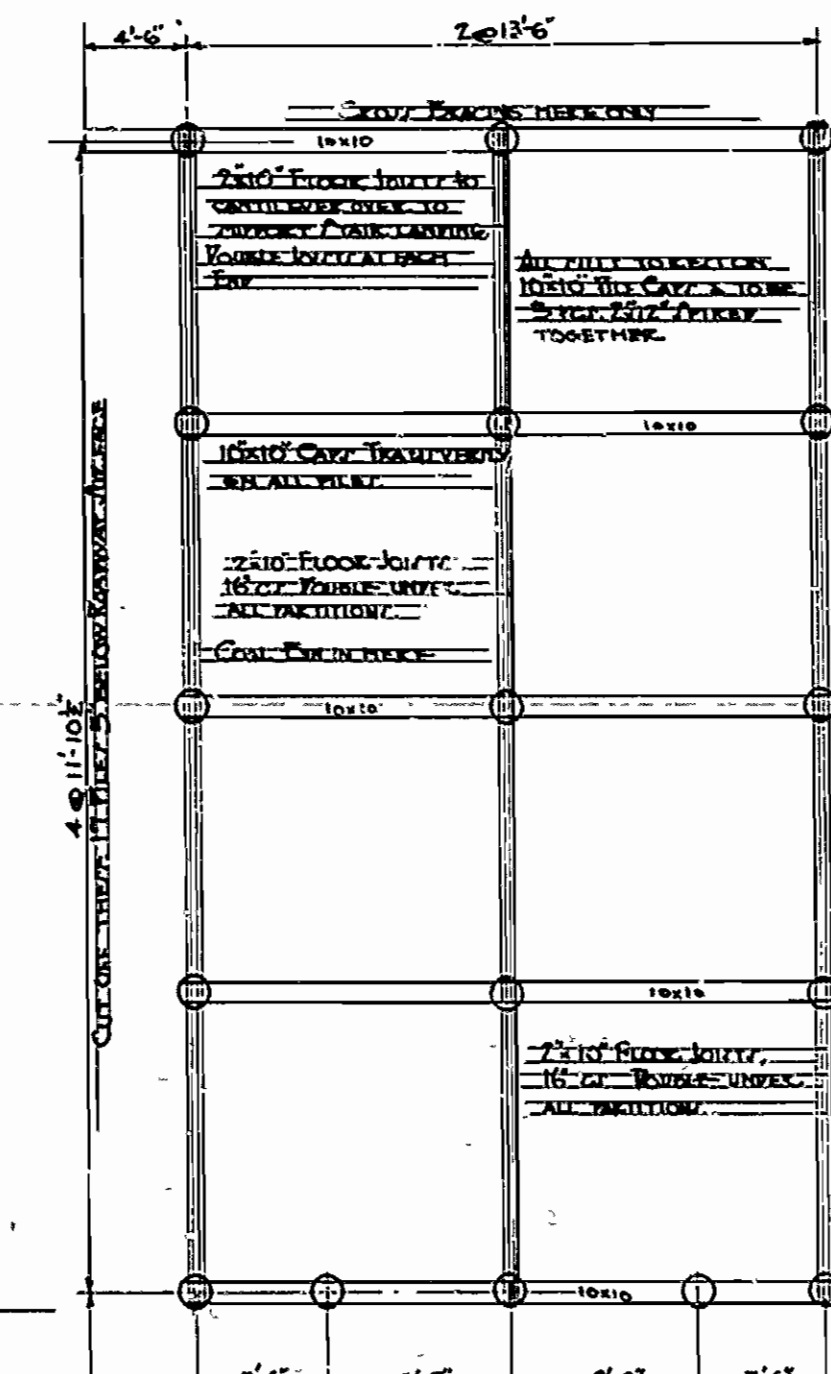
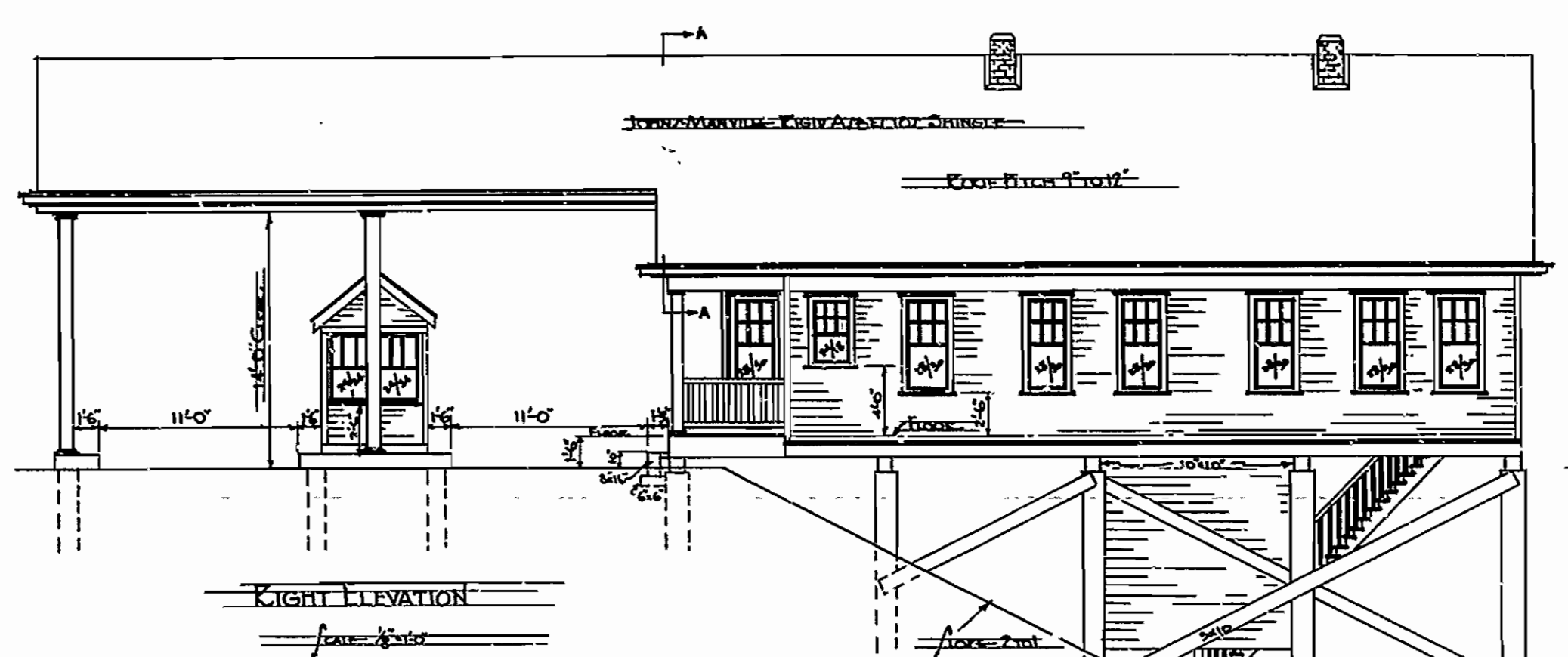
ARKANSAS STATE HIGHWAY COMMISSION  
**BRIDGE OVER OUACHITA RIVER**  
 NEAR  
**FELSENTHAL, ARKANSAS**  
**DETAILS OF MAIN MEMBERS**  
**300 FT. TRUSS L<sub>0</sub>-L<sub>4</sub>**

MADE BY L.D. TRACED BY L.D. CHECKED BY E.S. DATE: July 1st, 1929. SCALE: As shown. SHEET NO. 8

RA G. HEDRICK, INC., CONSULTING ENGINEERS, HOT SPRINGS, ARKANSAS

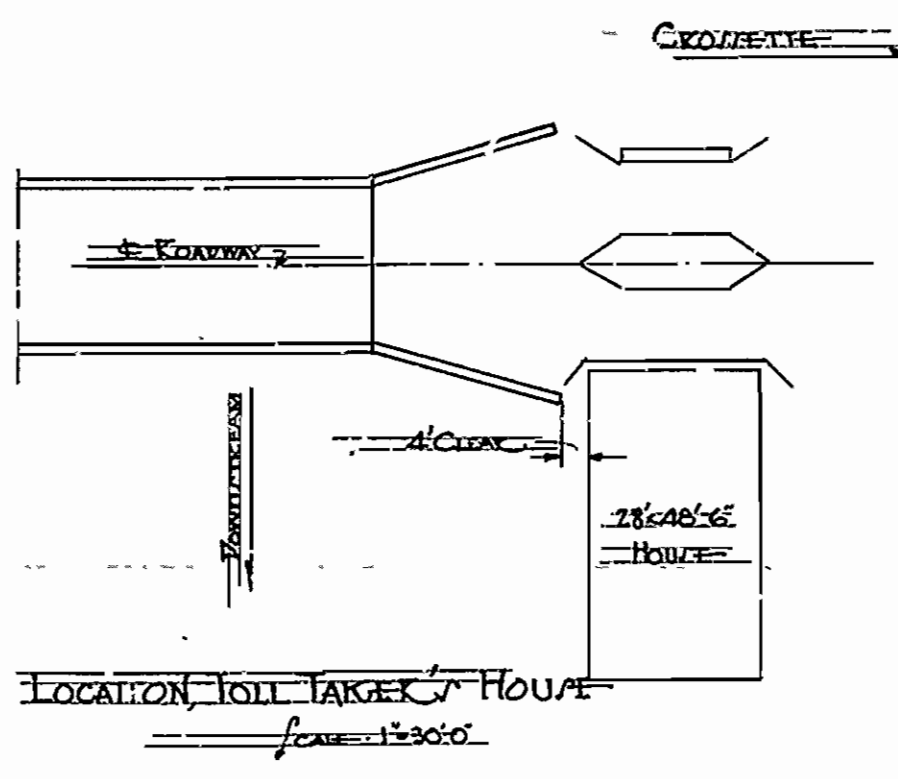
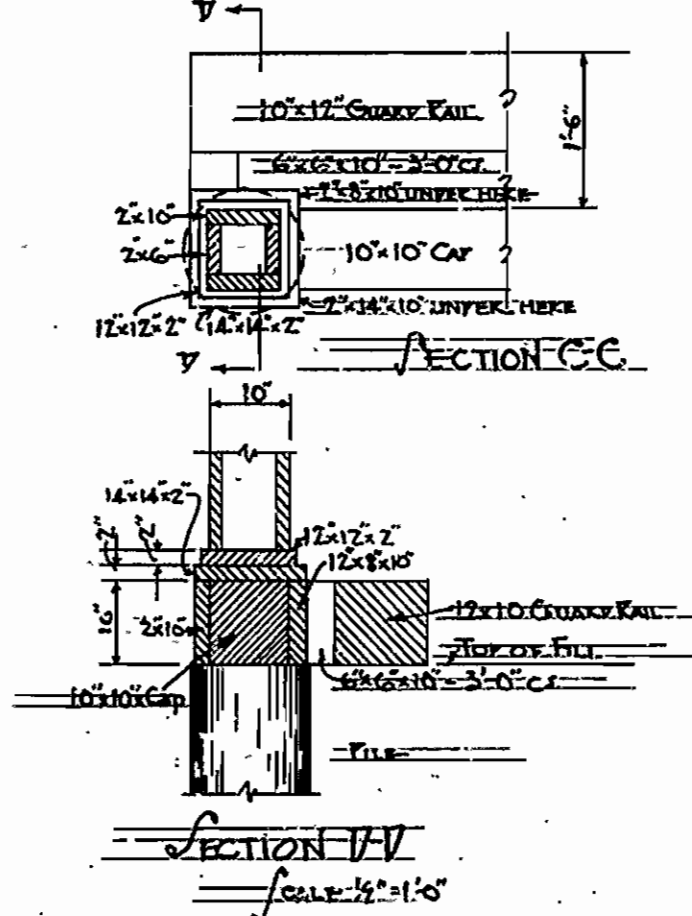
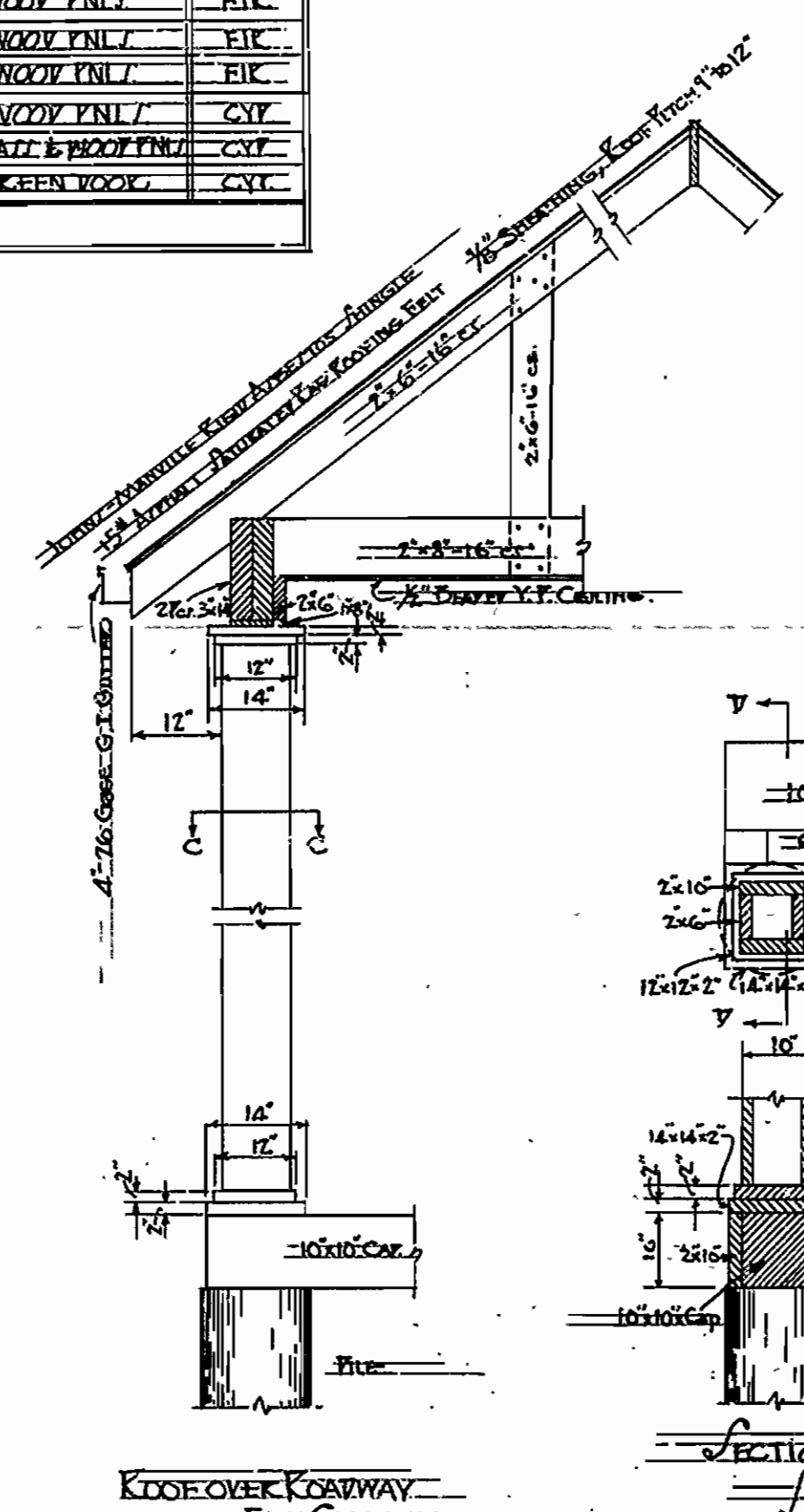
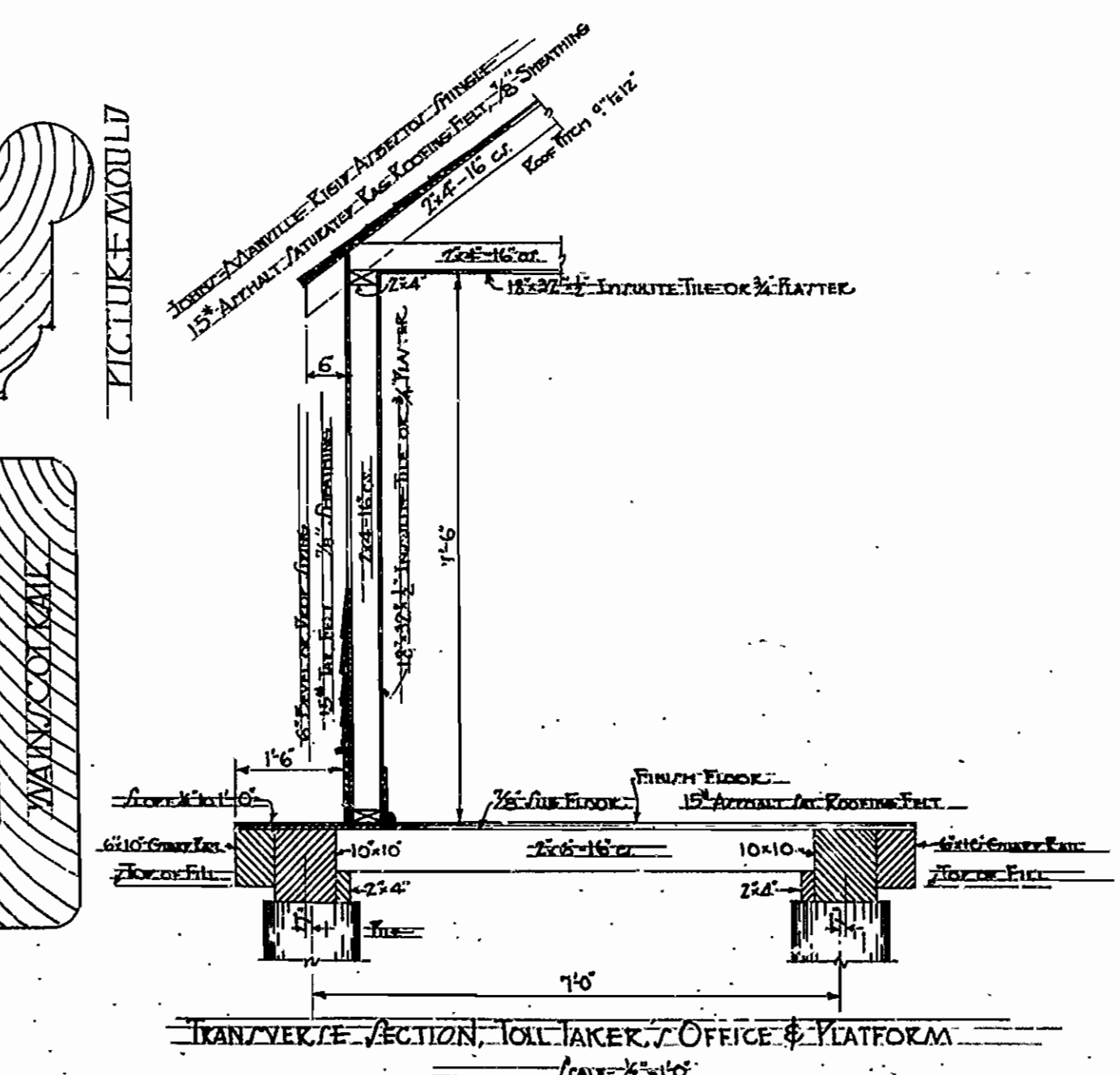
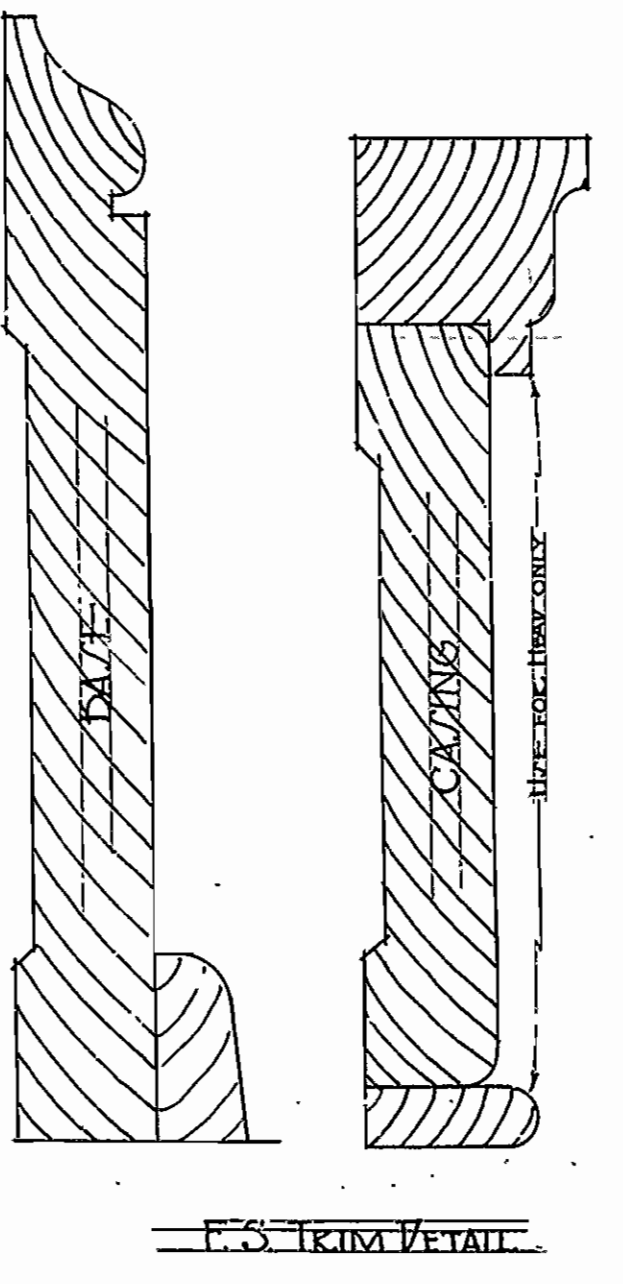
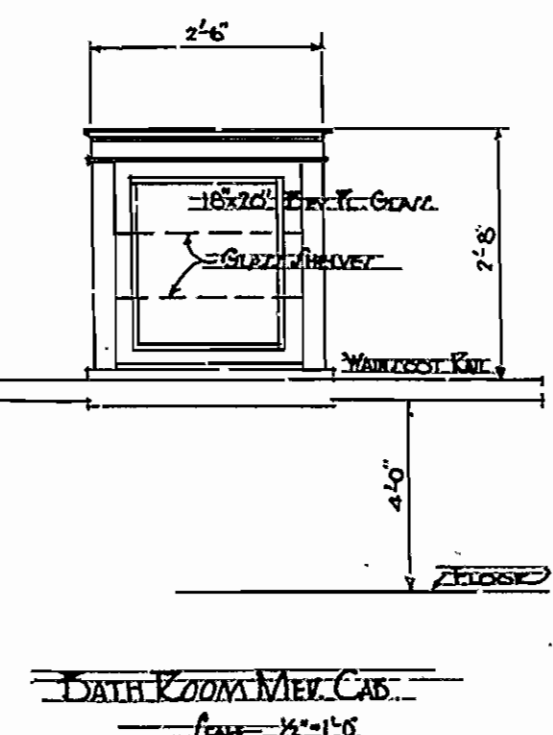
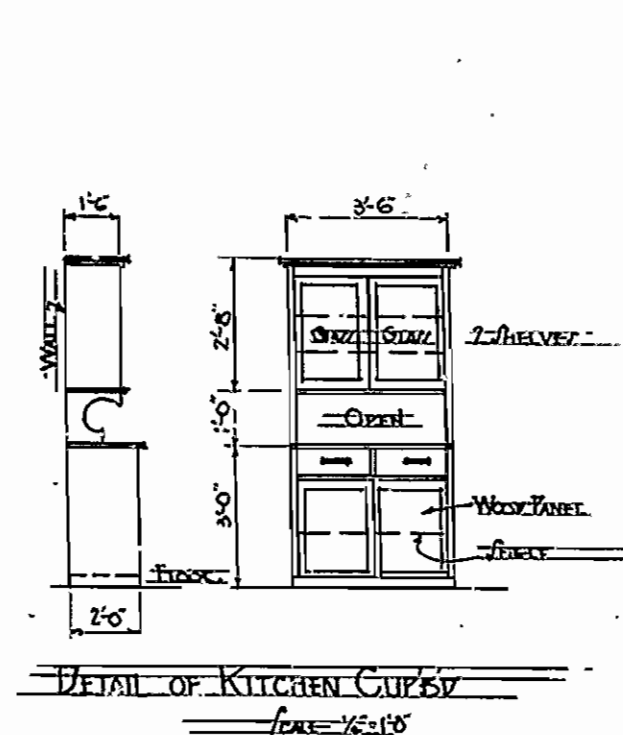






WOOD SCHEDULE

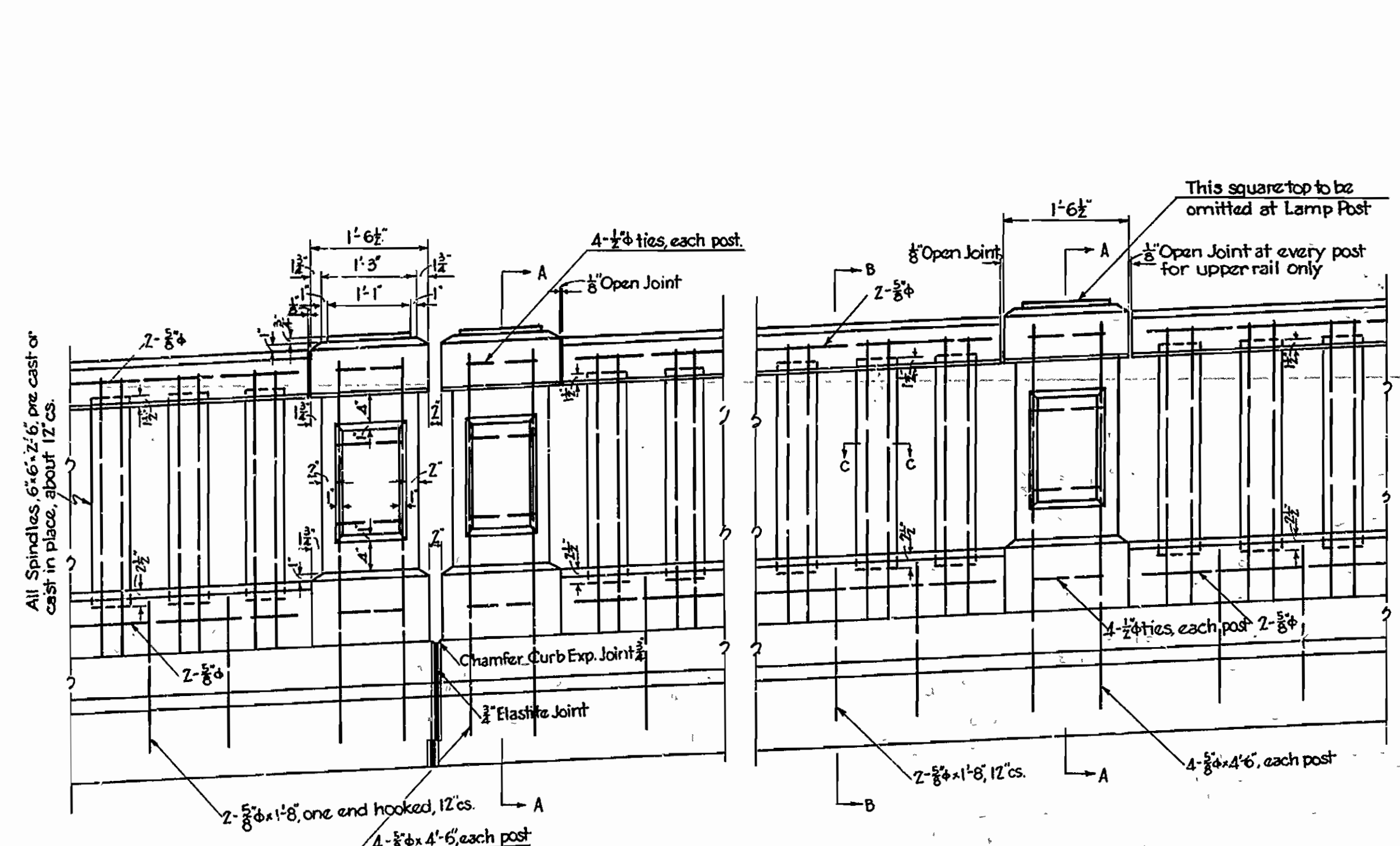
MARK	SIZE	DESCRIPTION	WOOD
A	2" x 4" x 10' x 1/2"	BLIND FINISH	CNT
B	2" x 8" x 10' x 1/2"	5 WOOD FINISH	FK
C	2" x 6" x 10' x 1/2"	5 WOOD FINISH	FK
D	2" x 6" x 10' x 1/2"	5 WOOD FINISH	FK
E	2" x 6" x 10' x 1/2"	2 WOOD FINISH	FK
F	1" x 6" x 10' x 1/2"	2 WOOD FINISH	FK
G	2" x 4" x 10' x 1/2"	2 WOOD FINISH	CNT
H	2" x 6" x 10' x 1/2"	BLIND & PROTECTIVE	CNT
K	2" x 4" x 10' x 1/2"	GREEN WOOD	CNT



ARKANSAS STATE HIGHWAY COMMISSION  
 BRIDGE OVER OUACHITA RIVER  
 COTTER, NEAR WHITE  
 FELSENTHAL, ARKANSAS  
 LOCATION "C"  
**TOLL TAKER'S RESIDENCE**  
 MADE BY: K.F.  
 TRACED BY: K.F.  
 CHECKED BY: L.D.  
 DATE: JULY 1, 1930. SCALE: AS SHOWN SHEET NO. 10  
 IRA G. HEDRICK, INC.  
 CONSULTING ENGINEERS  
 HOT SPRINGS, ARK. 16  
 DR. No. 702 DRWG. No. 4940

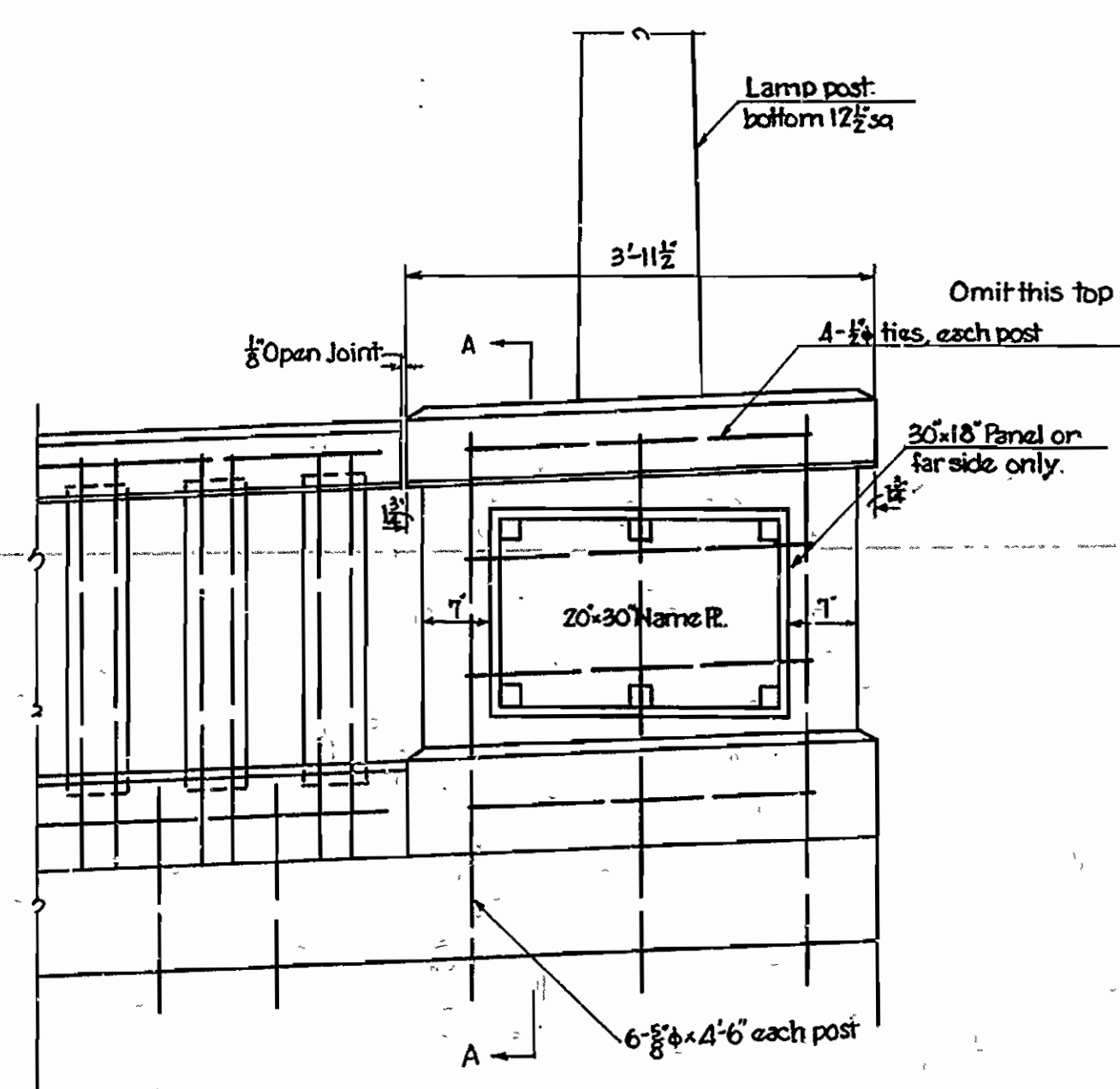


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.		1929	13	16
JOB No.		1120			

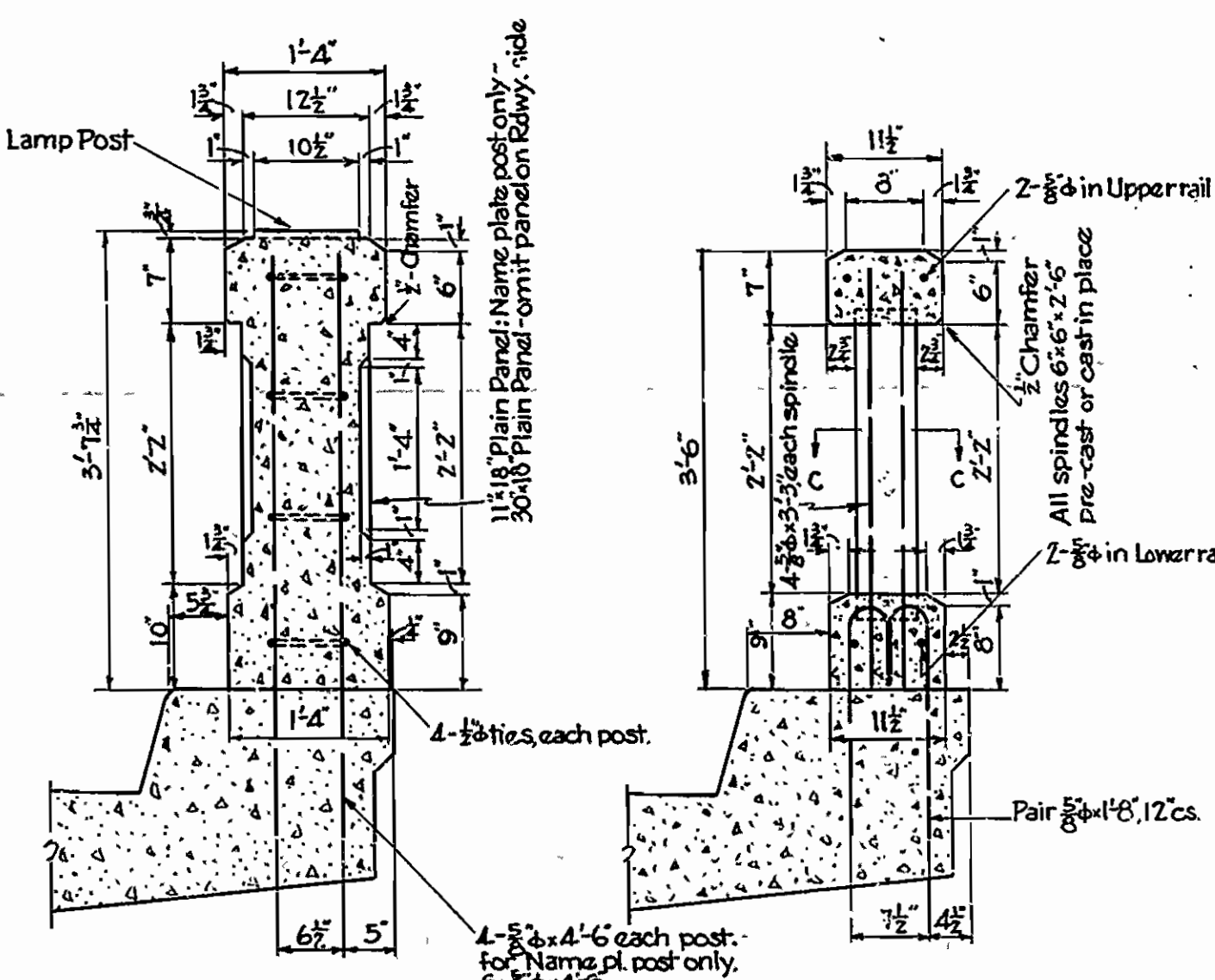


Note: Single Posts @ 20' cs. approx. except at Retaining Walls, where they are to be placed midway of Name Plate Post & post at expansion joint at Head Wall. Double Posts at all expansion joints except at the end of steel span.

DETAIL OF HANDRAIL  
SCALE 3/4" = 1'-0"

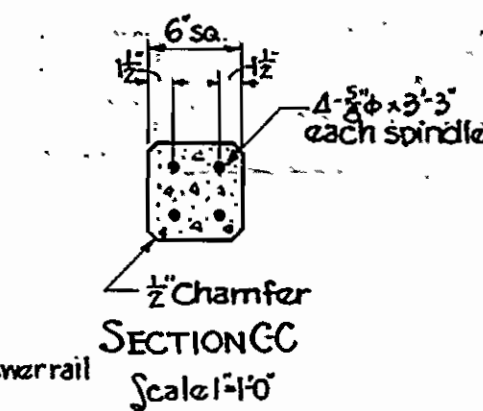


DETAIL OF NAME PLATE POST  
SCALE 3/4" = 1'-0"



SECTION AA  
SCALE 3/4" = 1'-0"

SECTION B-B  
SCALE 3/4" = 1'-0"

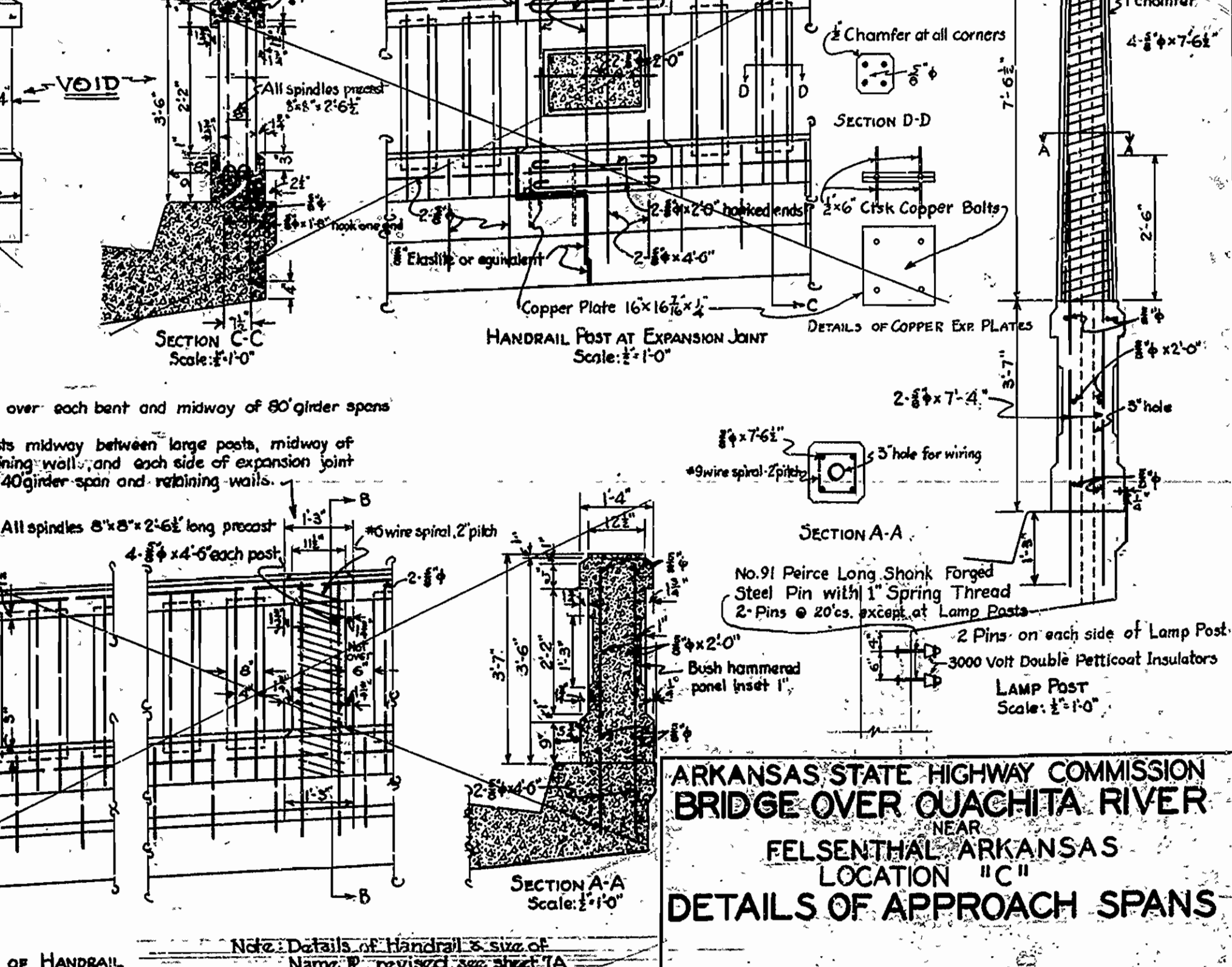
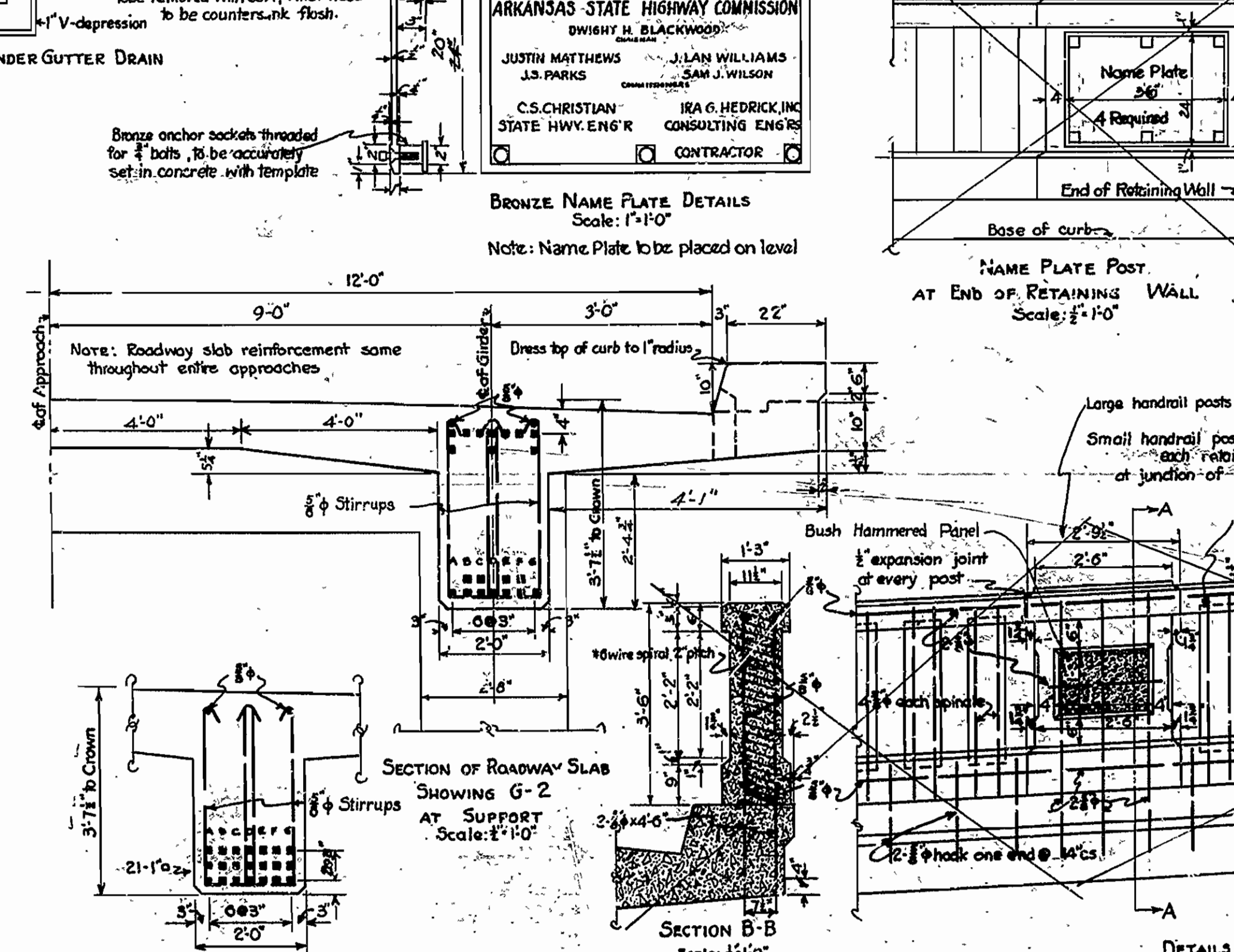
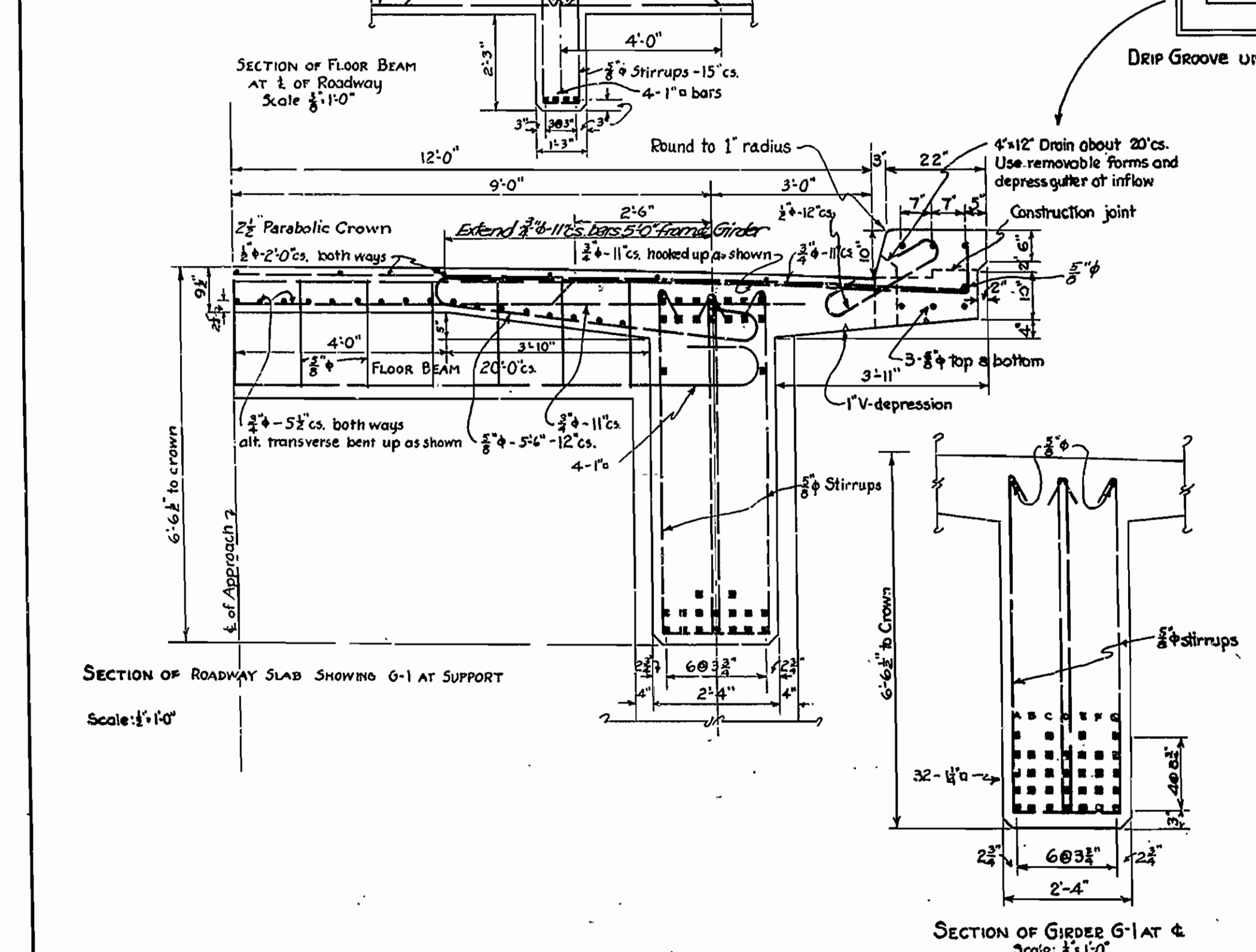
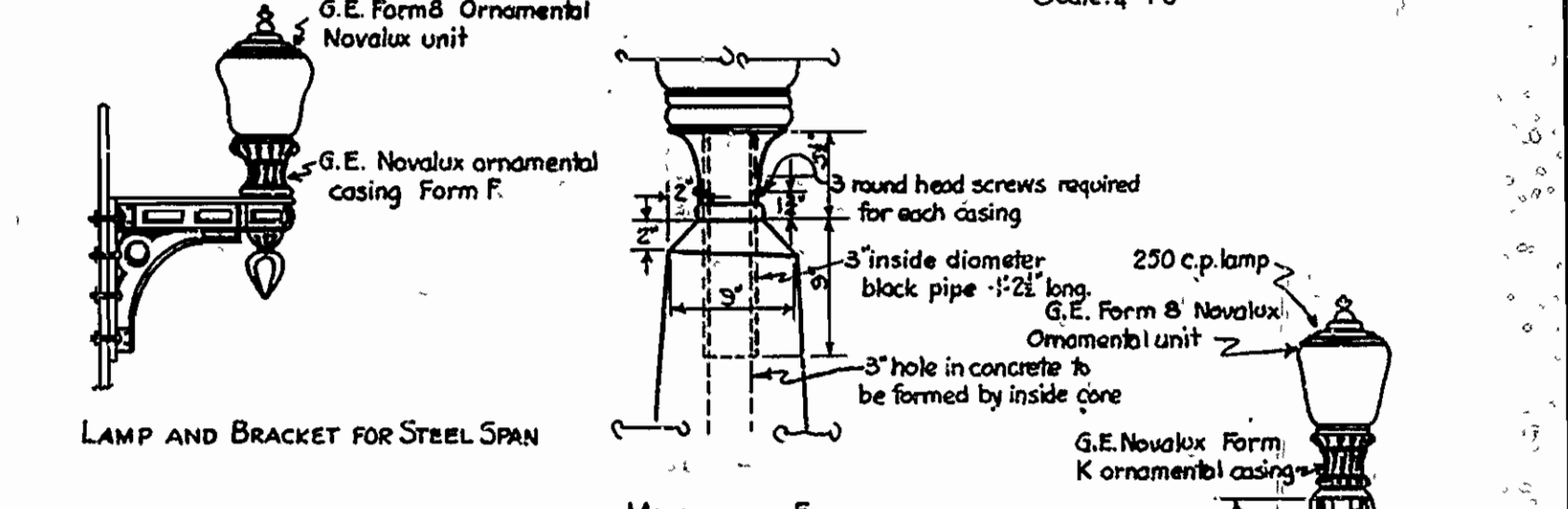
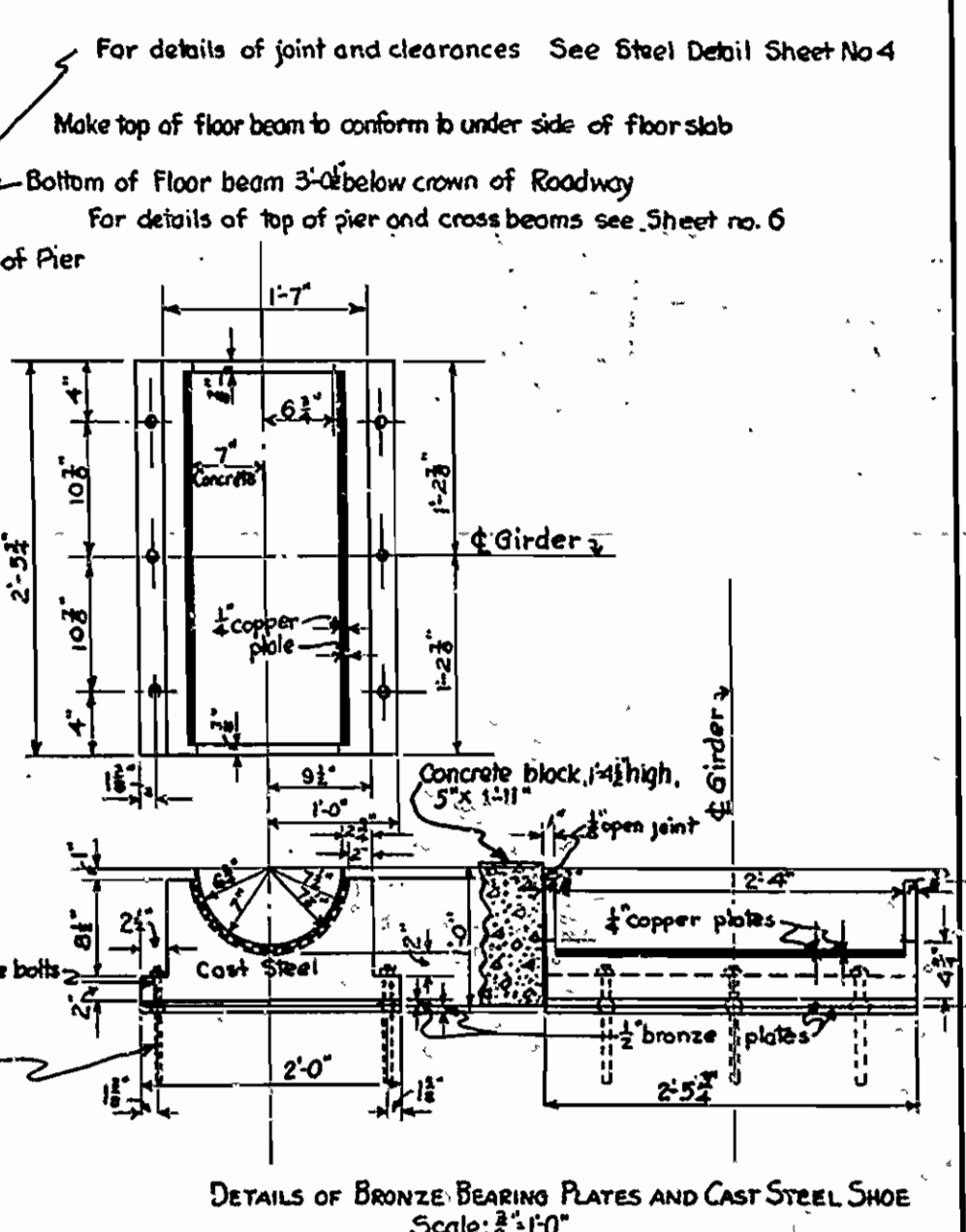
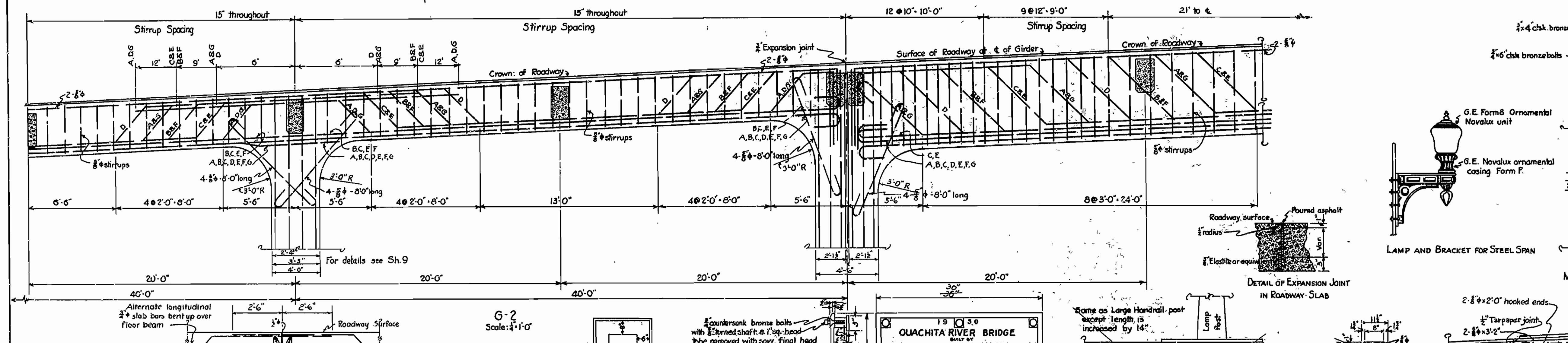
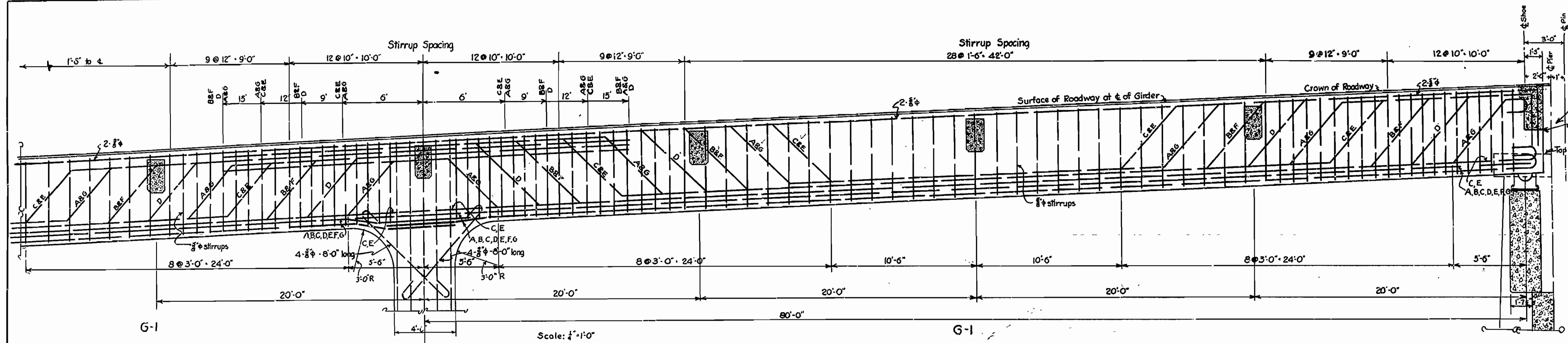


ARKANSAS STATE HIGHWAY COMMISSION  
BRIDGE OVER OUACHITA RIVER  
NEAR  
FELSENTHAL, ARKANSAS  
LOCATION "C"  
REVISED DETAILS OF HANDRAIL

MADE BY: K.F. IRAG. HEDRICK, INC.  
TRACED BY: K.F. CONSULTING ENGINEERS  
CHECKED BY: K.F. HOT SPRINGS, ARKANSAS

DATE: AUG. 15, 1930. SCALE: AS SHOWN SHEET NO. 13

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	ARK.		1929	12	16
JOB NO.		1120			



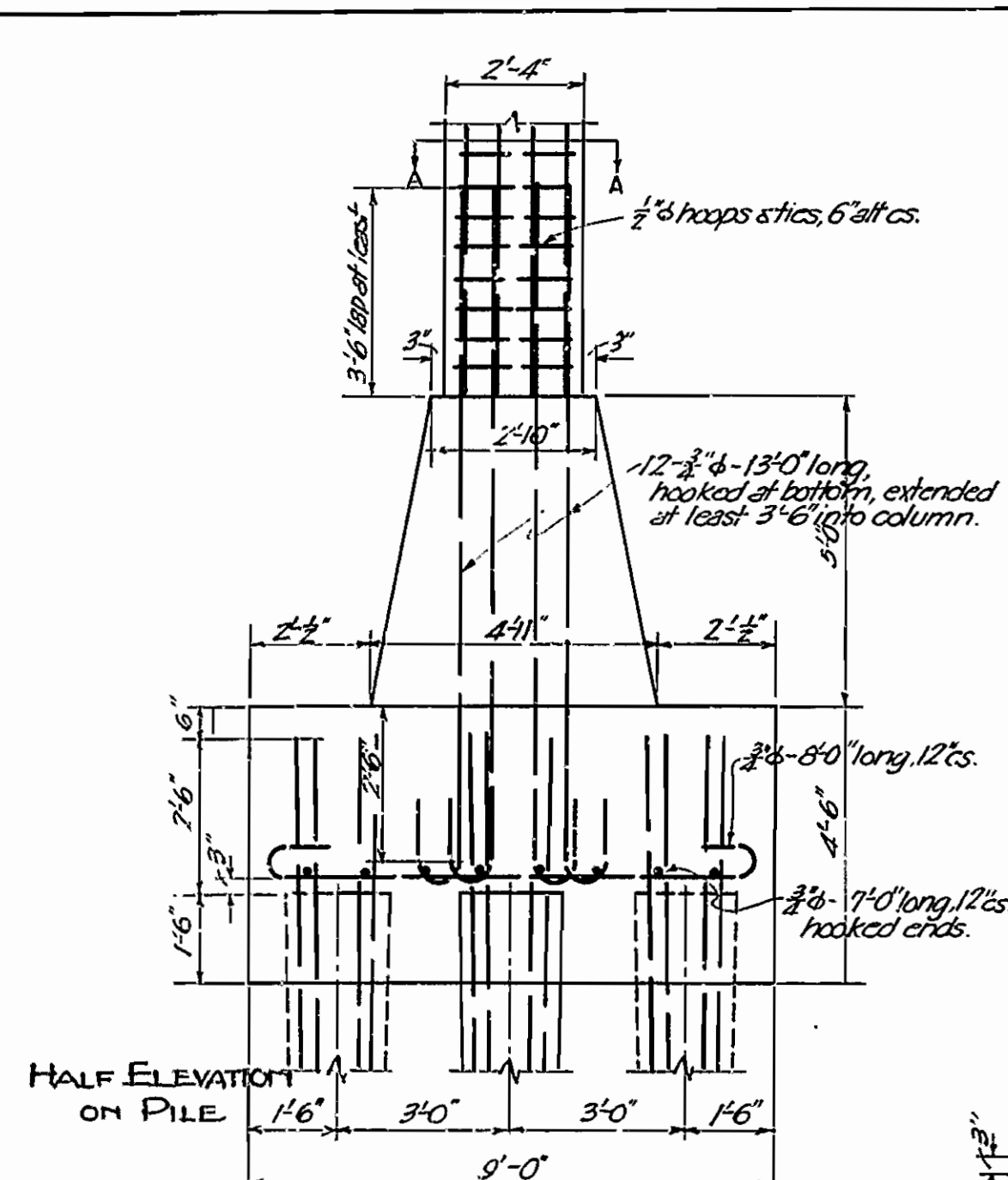
ARKANSAS STATE HIGHWAY COMMISSION  
BRIDGE OVER QUACHITA RIVER  
NEAR  
FELSENTHAL ARKANSAS  
LOCATION "C"  
DETAILS OF APPROACH SPANS

MADE BY K.F. TRACED BY J.G.M. CHECKED BY K.F. DATE: NOV. 7, 1929 SCALE: AS NOTED SHEET NO. 12

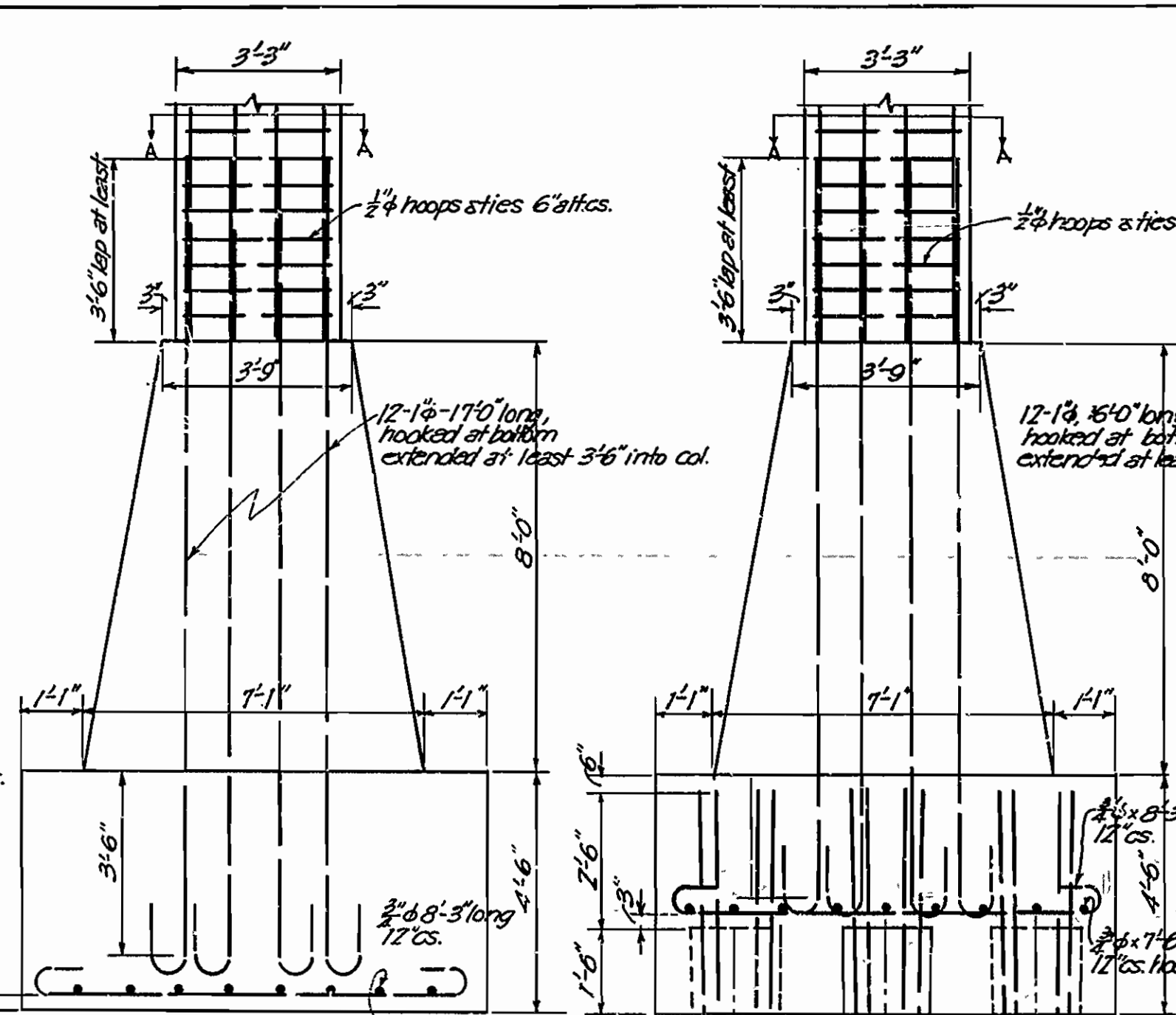
IRA G. HEDRICK, INC. CONSULTING ENGINEERS HOT SPRINGS, ARKANSAS



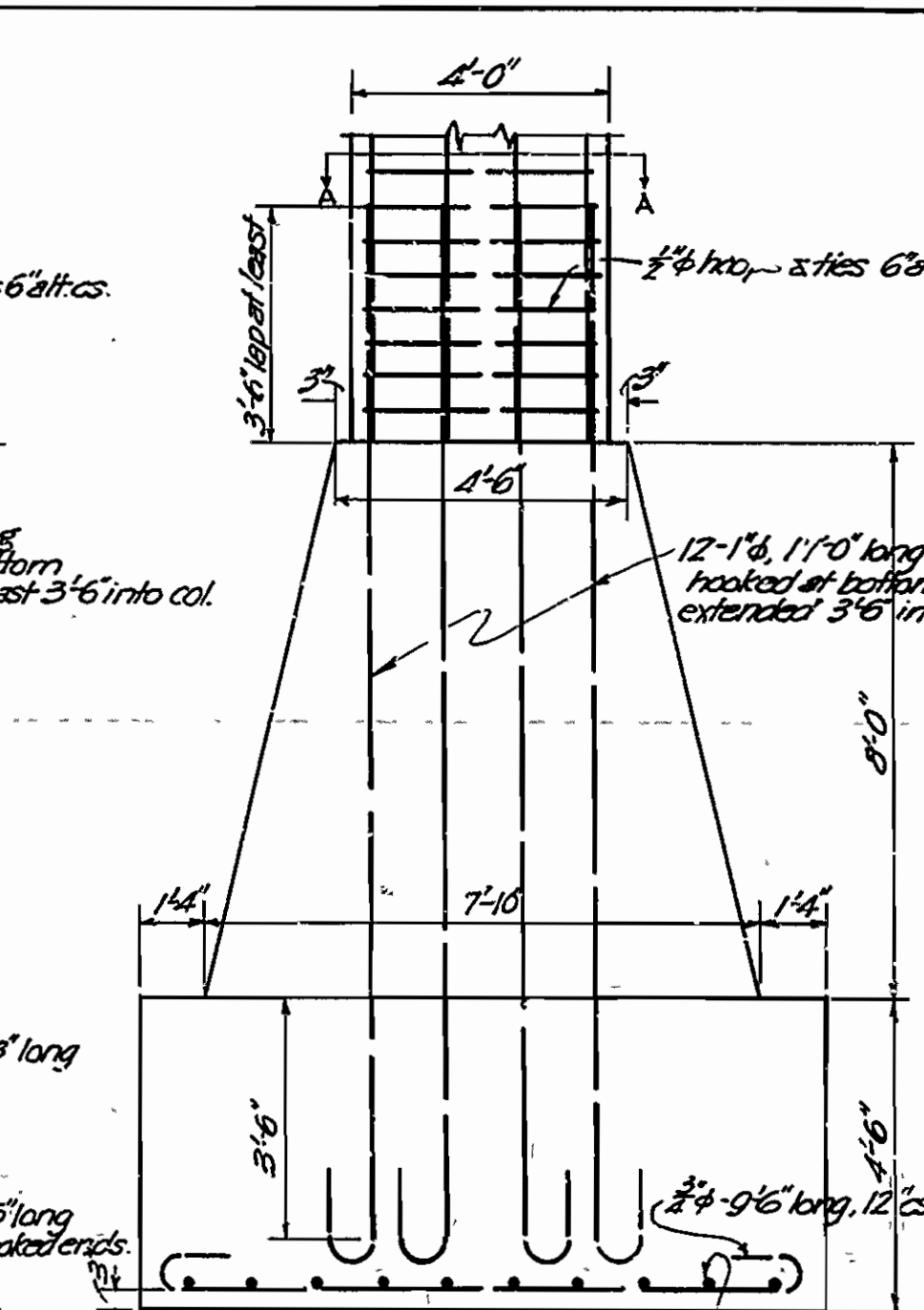




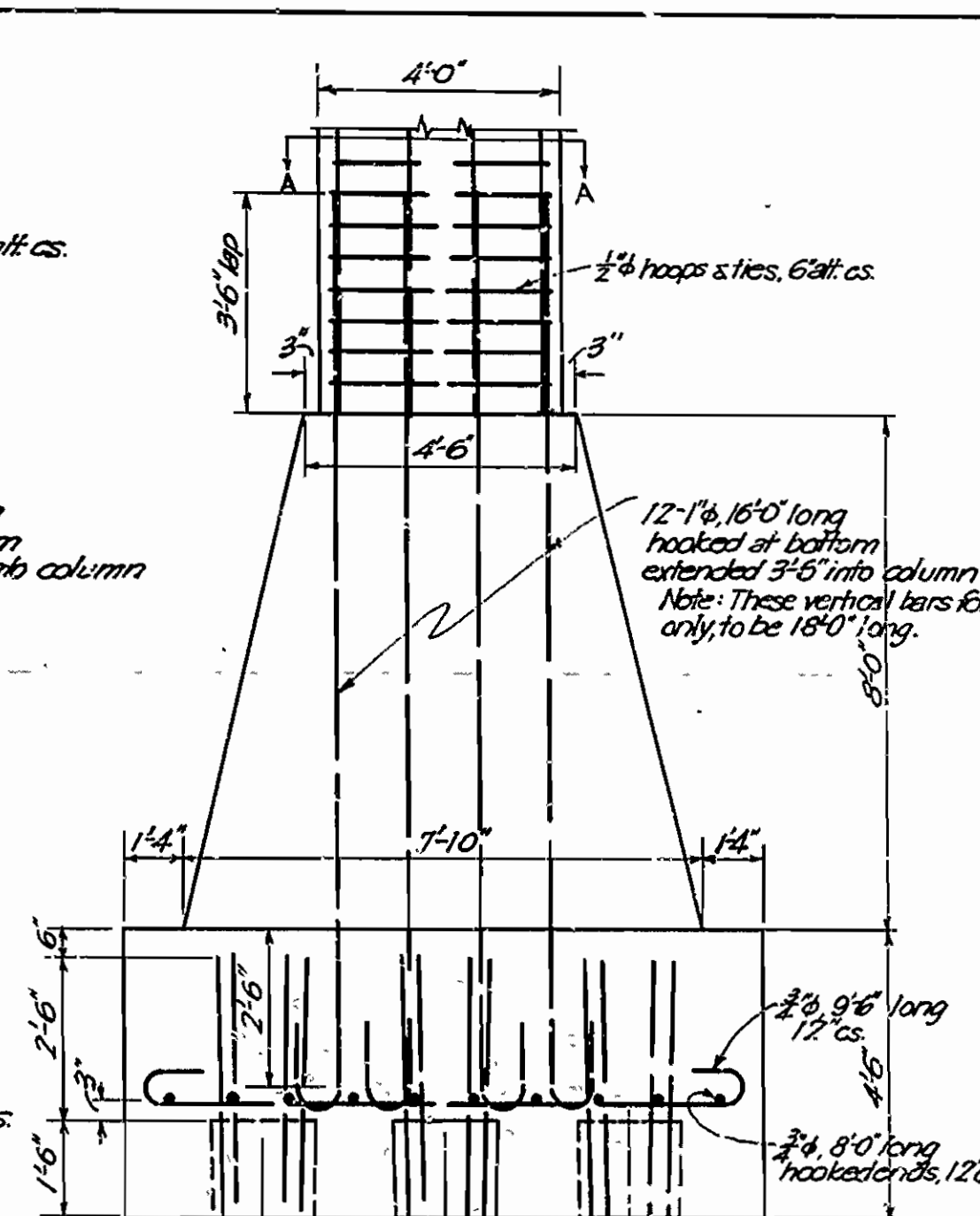
COLUMN AND FOOTING, B1, 2, 4, 5, 7, 8, A1, A2, A4, A5, 47, 48.



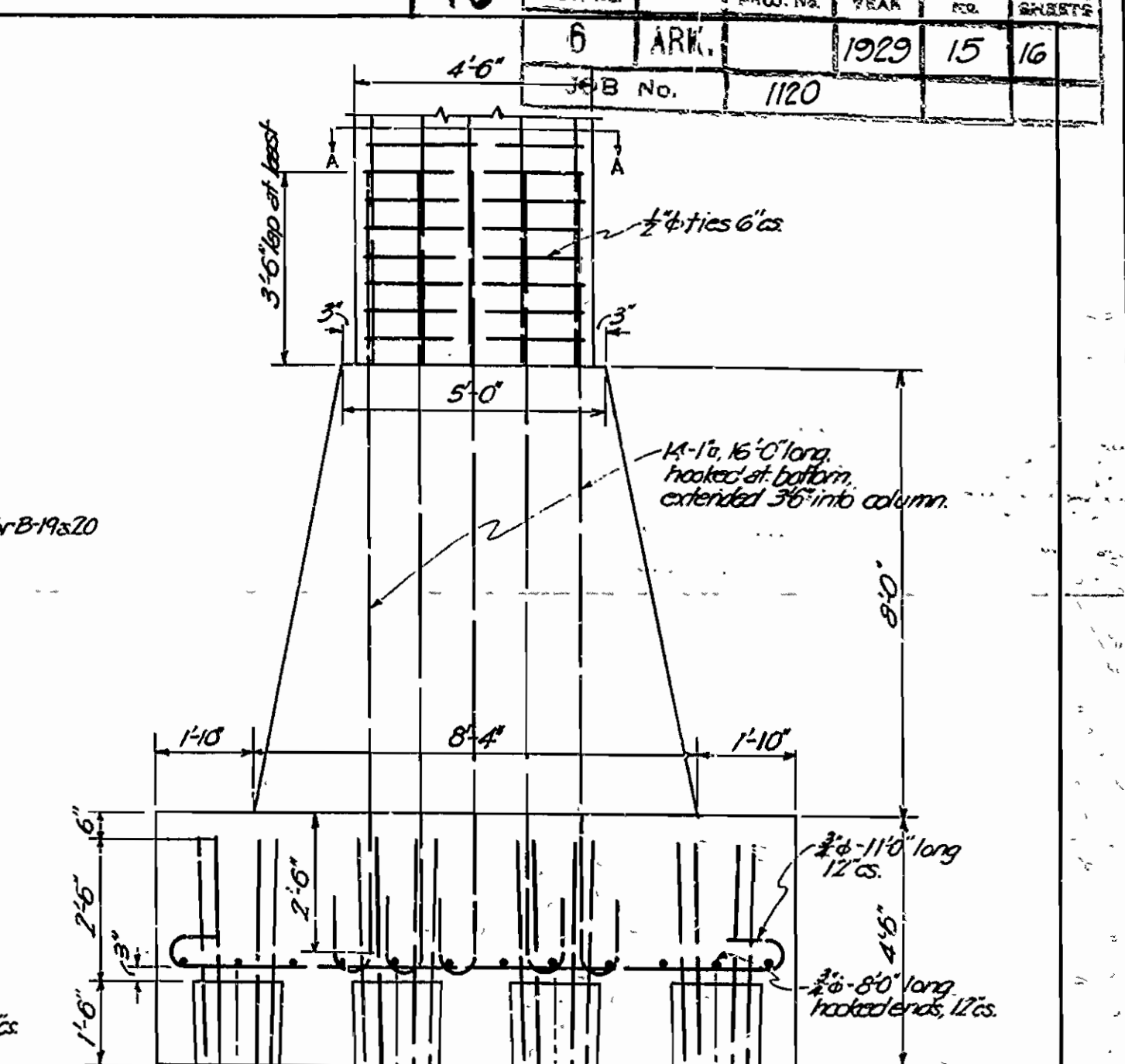
COLUMN AND FOOTING FOR B10, 11, 13, 14, 35, 36, 38, 39.



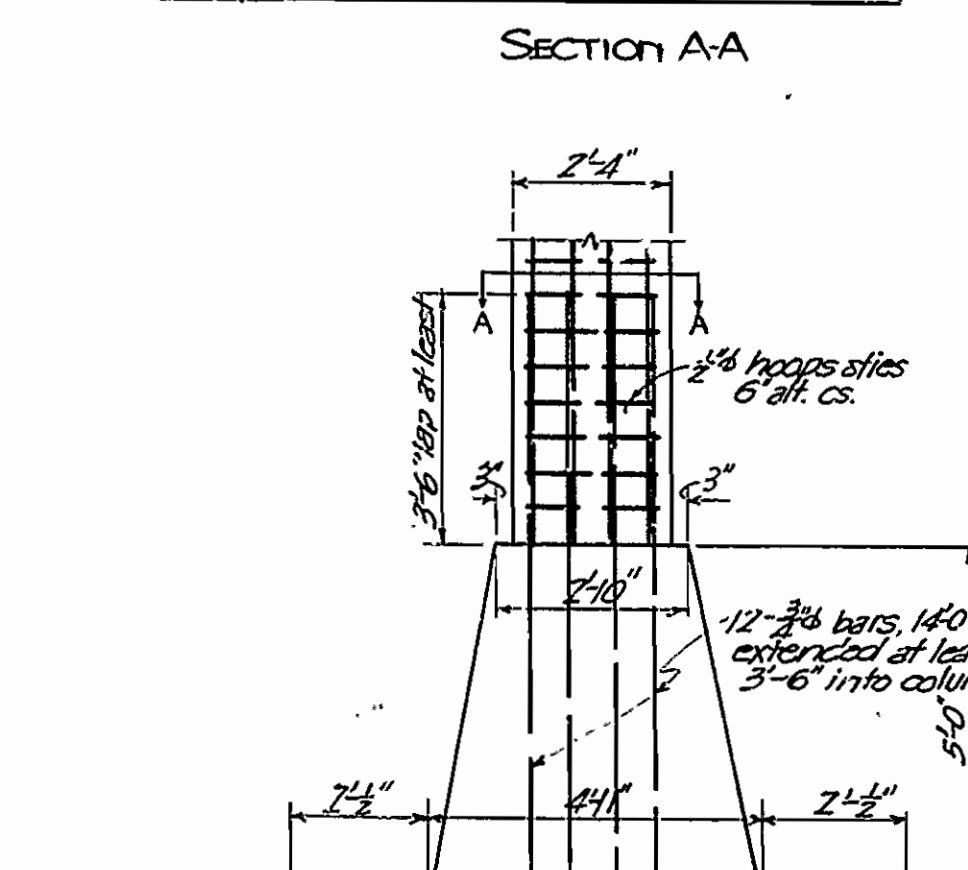
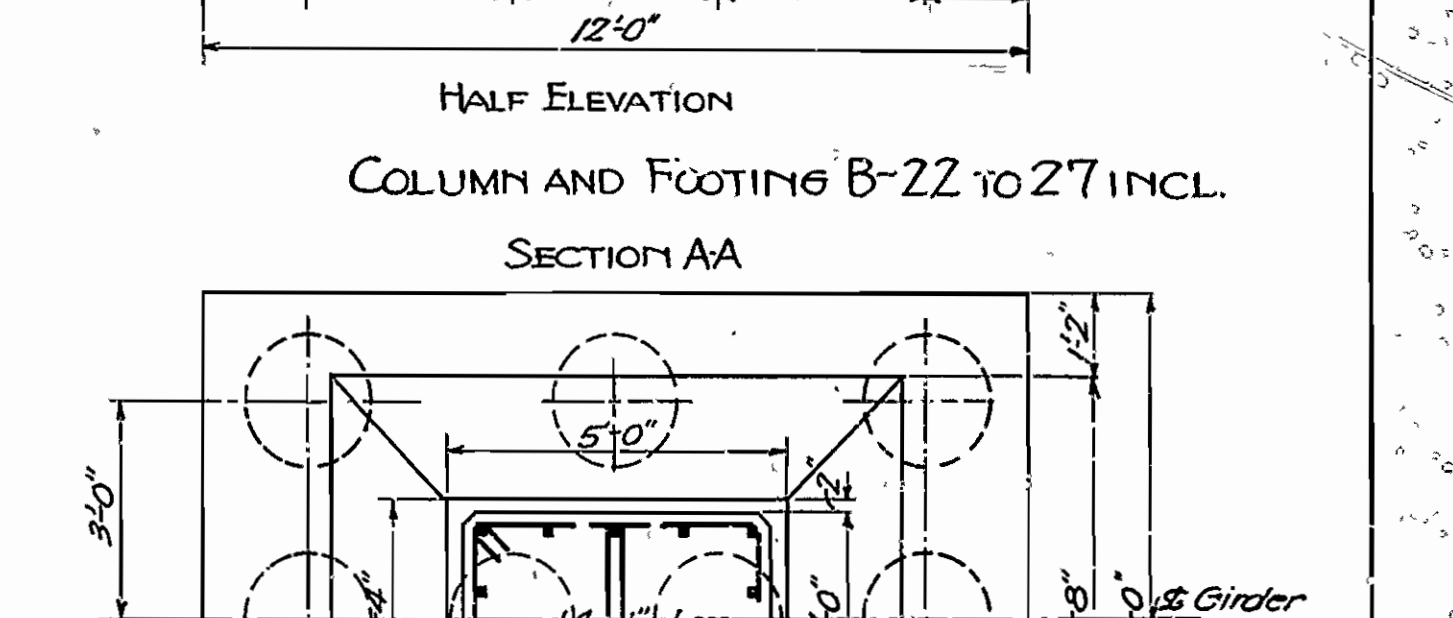
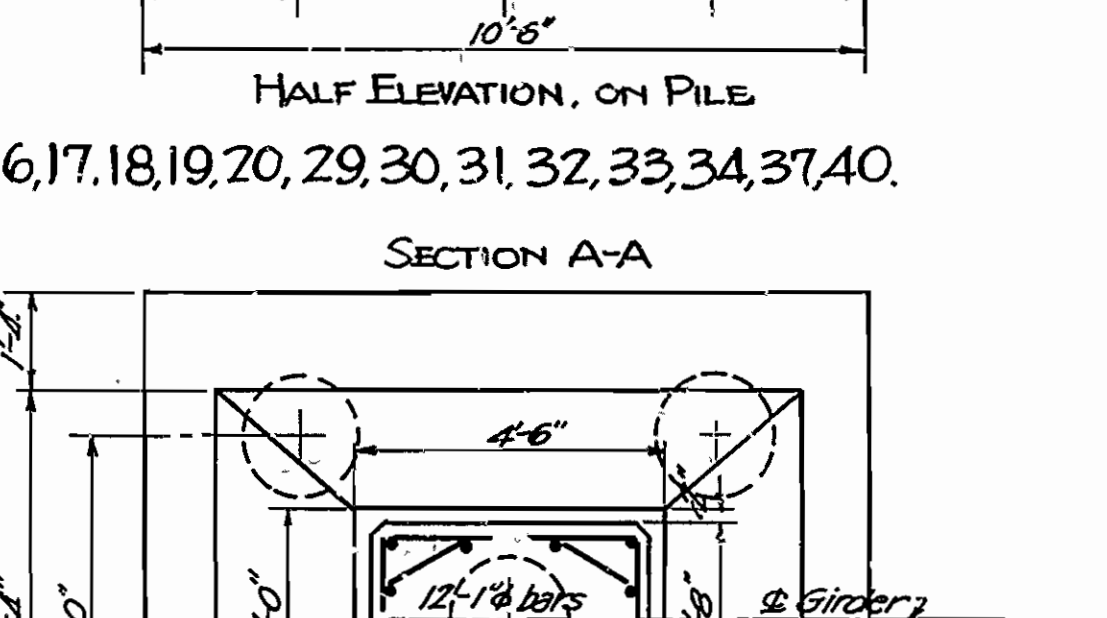
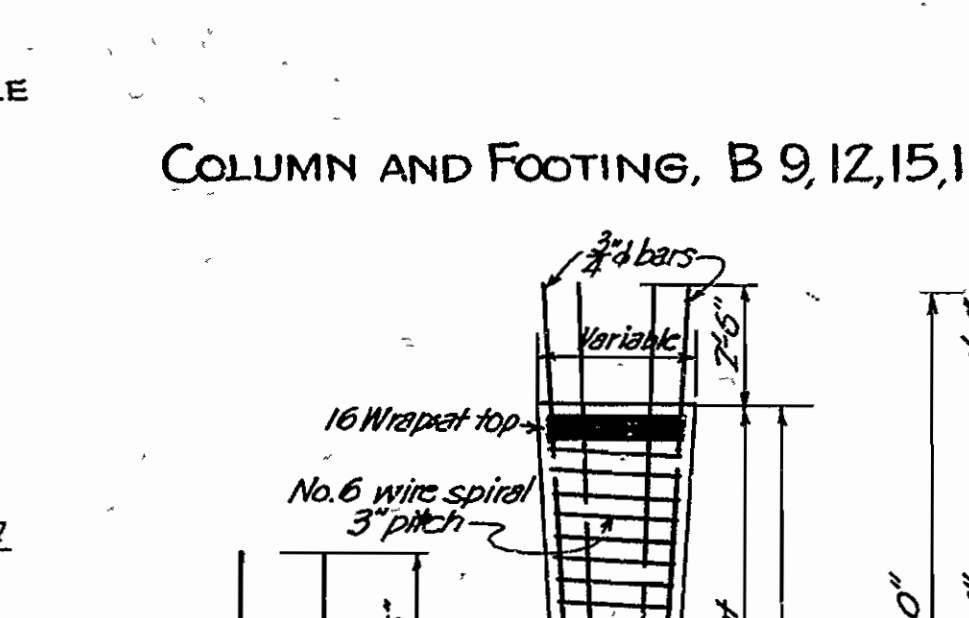
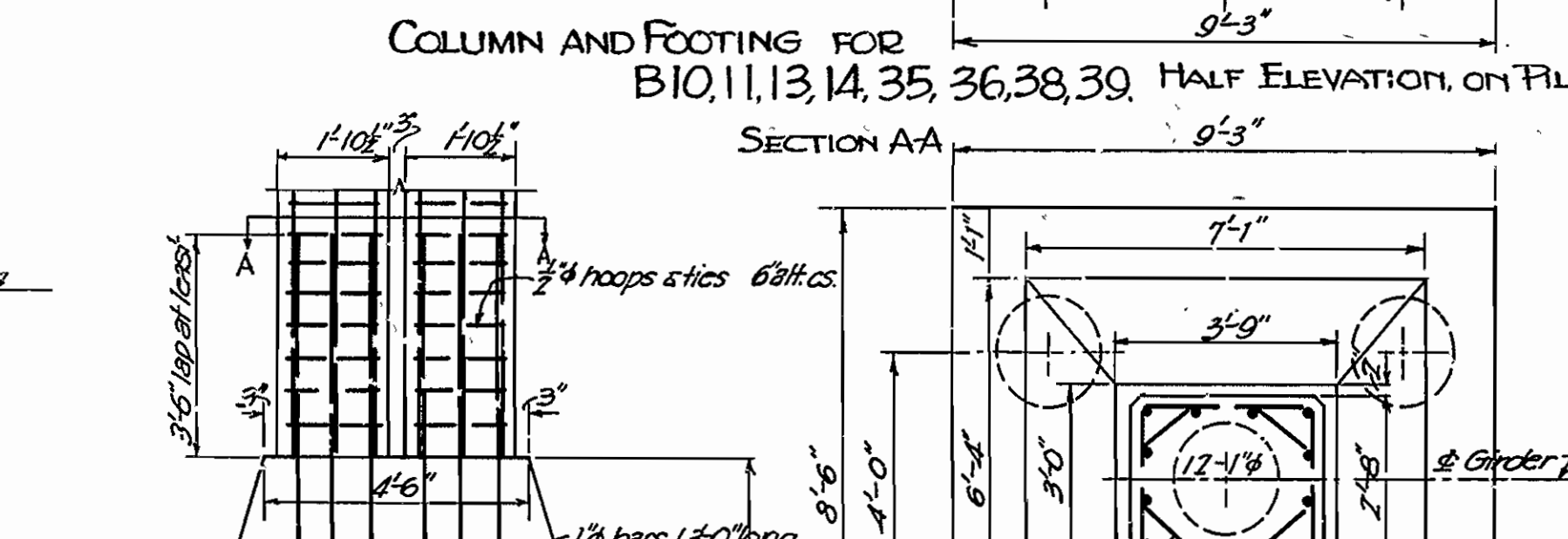
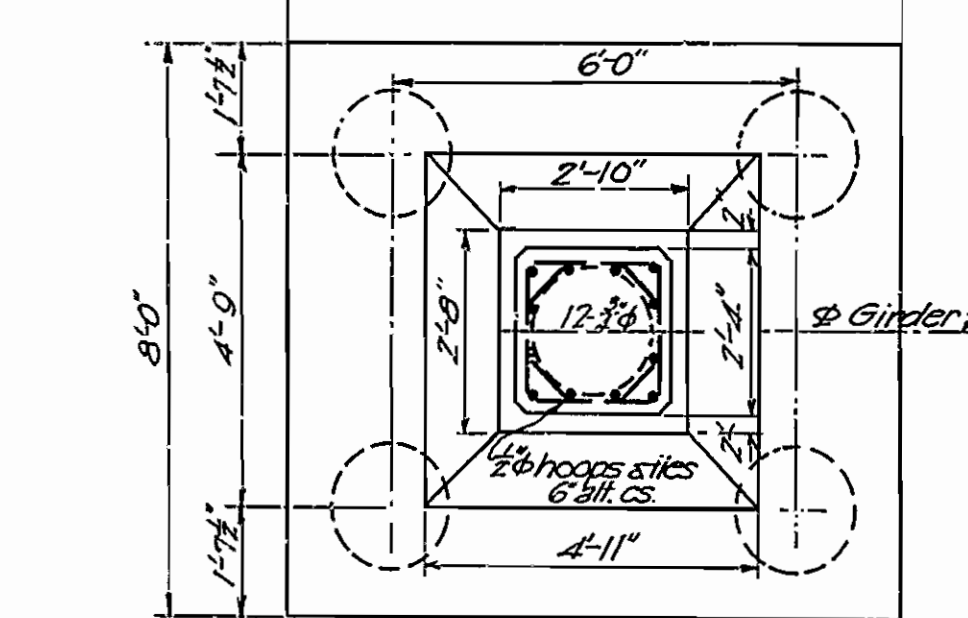
COLUMN AND FOOTING, B 9, 12, 15, 16, 17, 18, 19, 20, 29, 30, 31, 32, 33, 34, 37, 40.



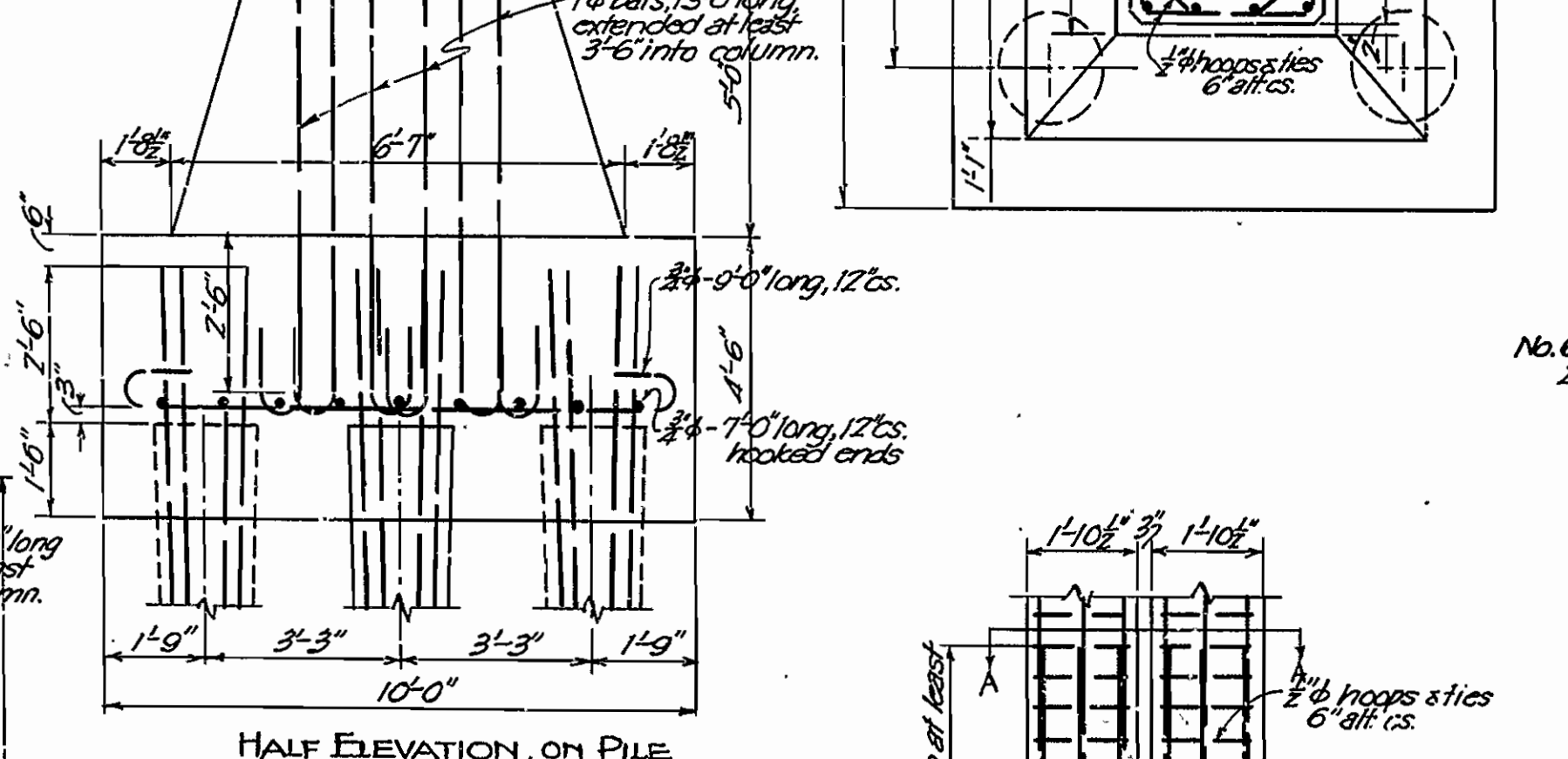
COLUMN AND FOOTING B-22 TO 27 INCL.



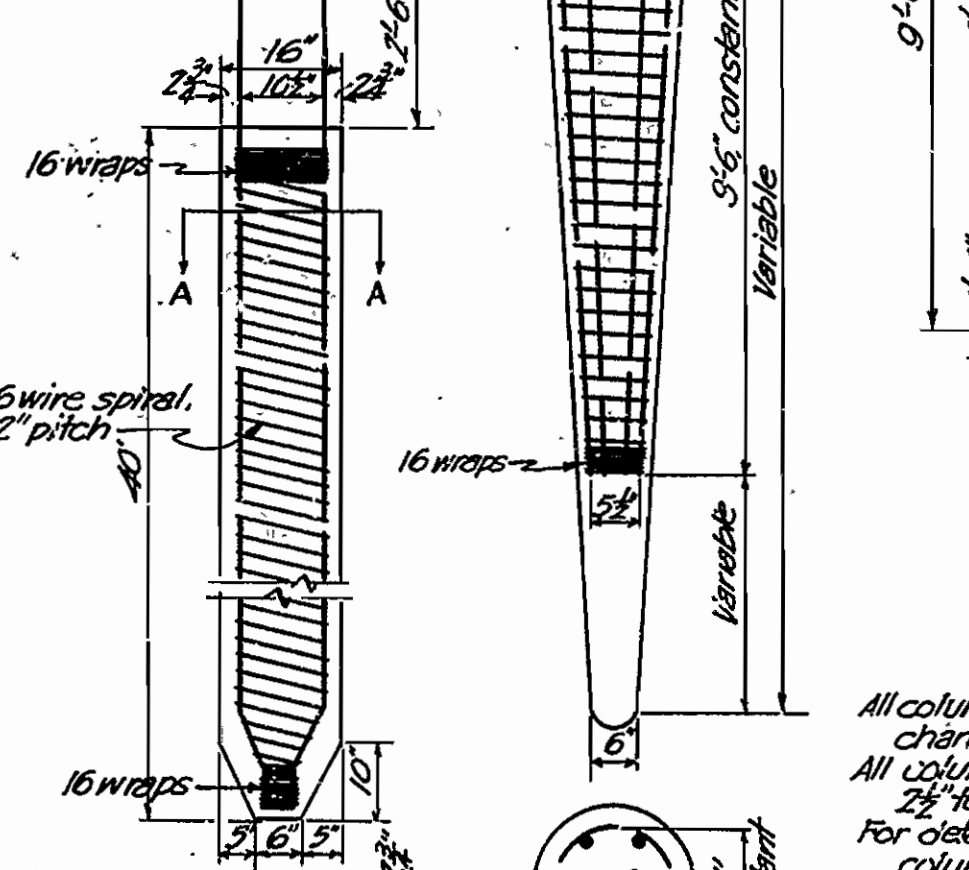
COLUMN AND FOOTING B-22 TO 27 INCL.



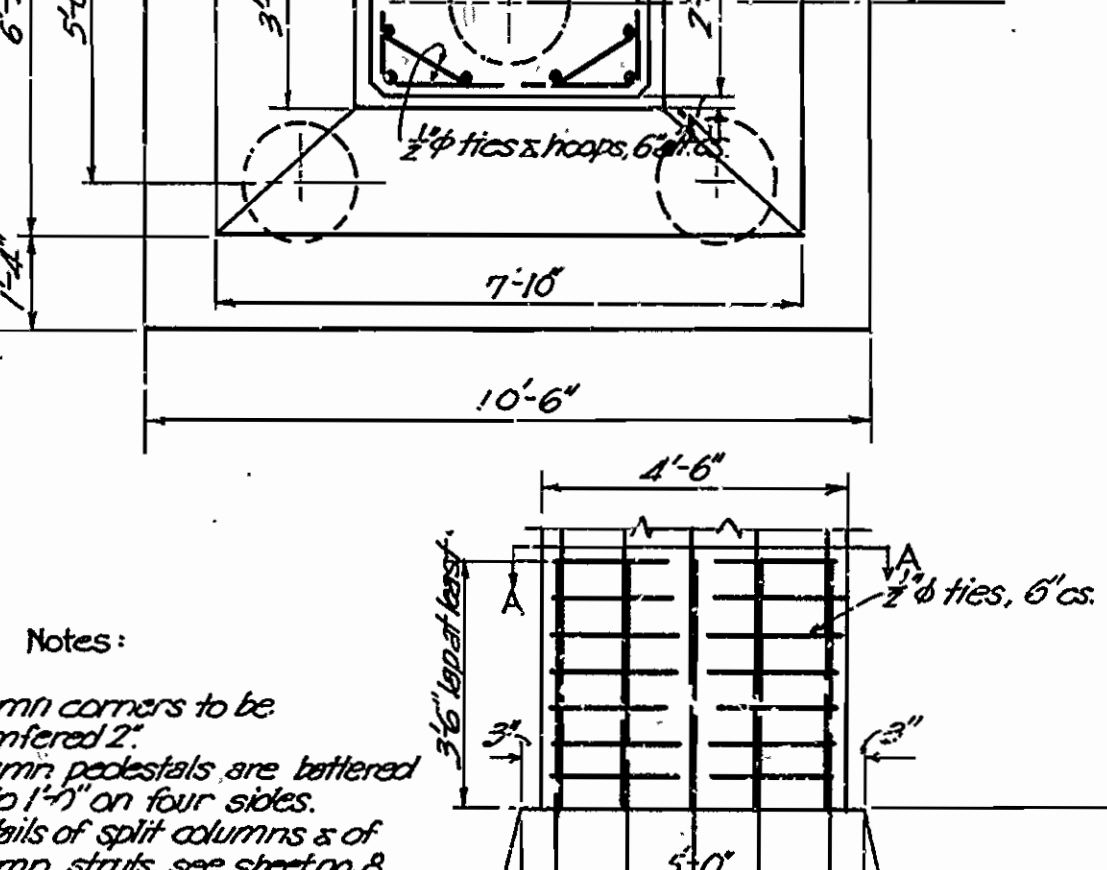
COLUMN & FOOTING, B 3, 6, 43, 46



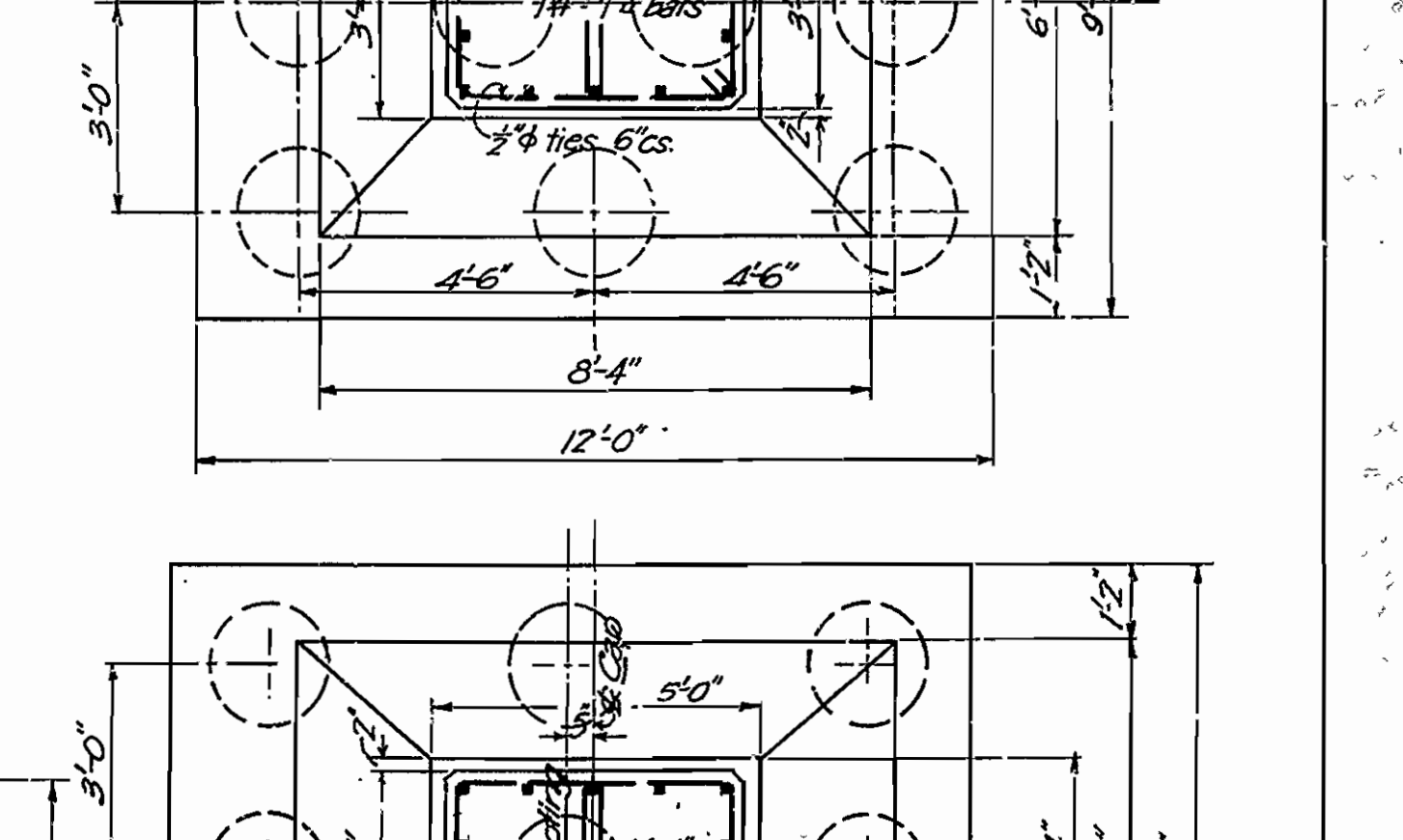
COLUMN AND FOOTING, B3, 6, 43, 46



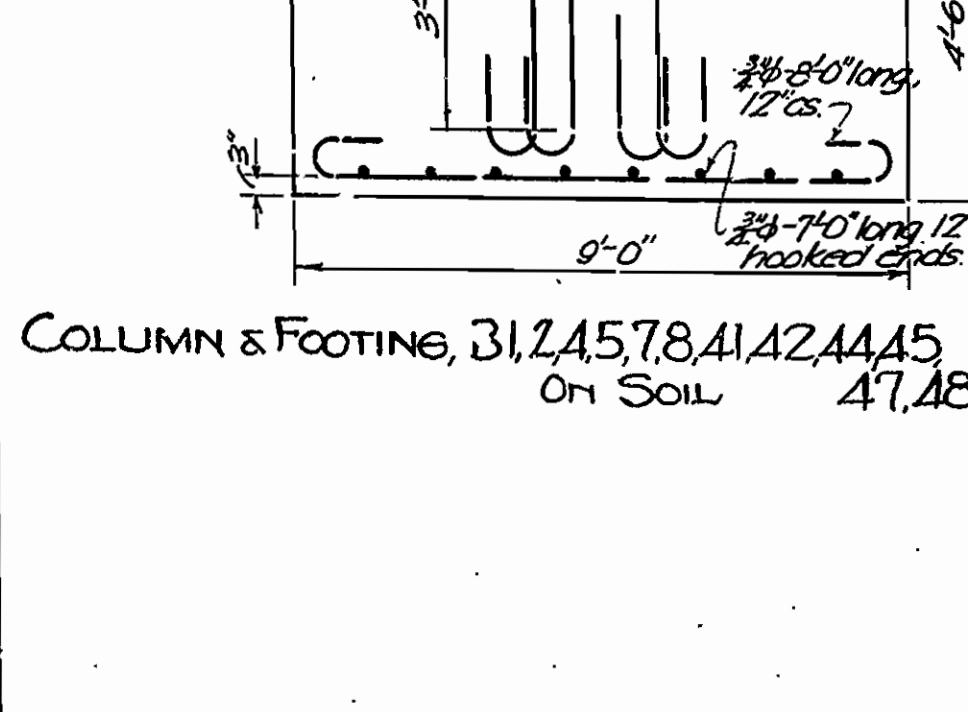
DETAIL OF STANDARD 40' PRE-CAST CONCRETE PILE



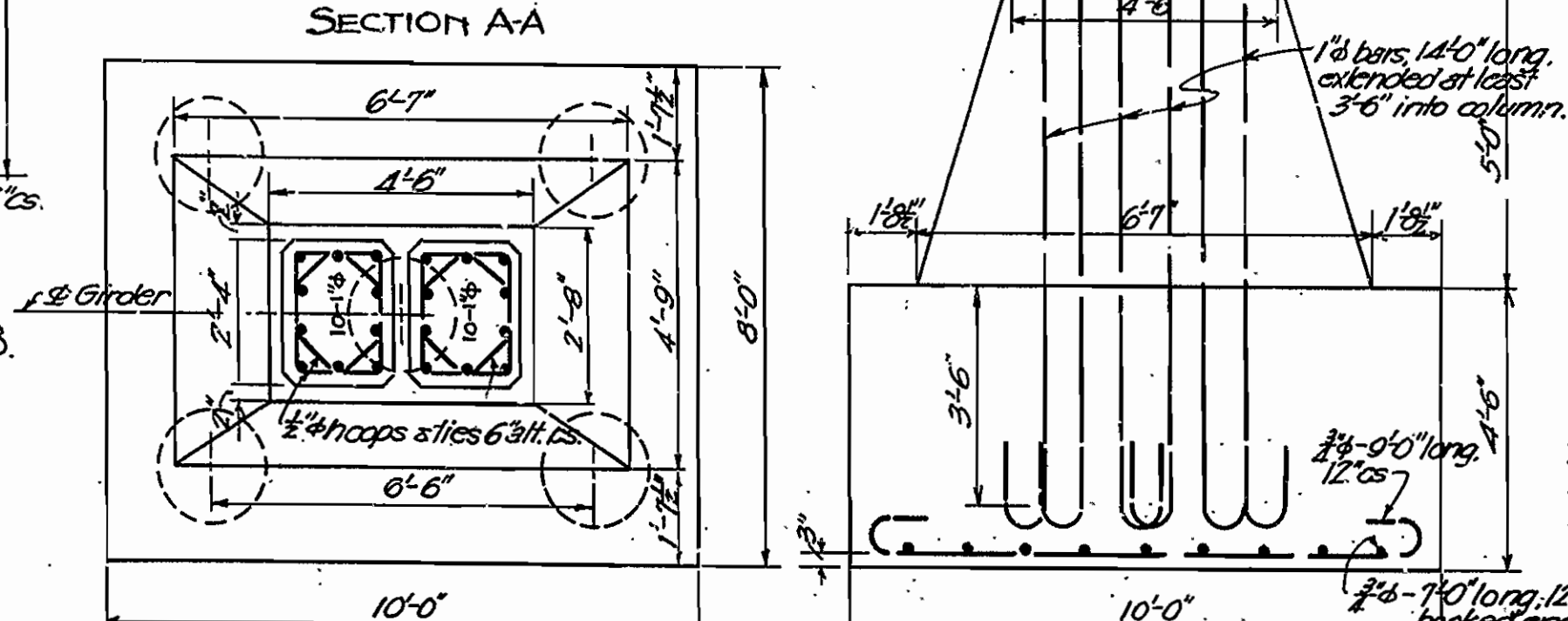
DETAIL OF REINFORCING RAYMOND CONCRETE PILES



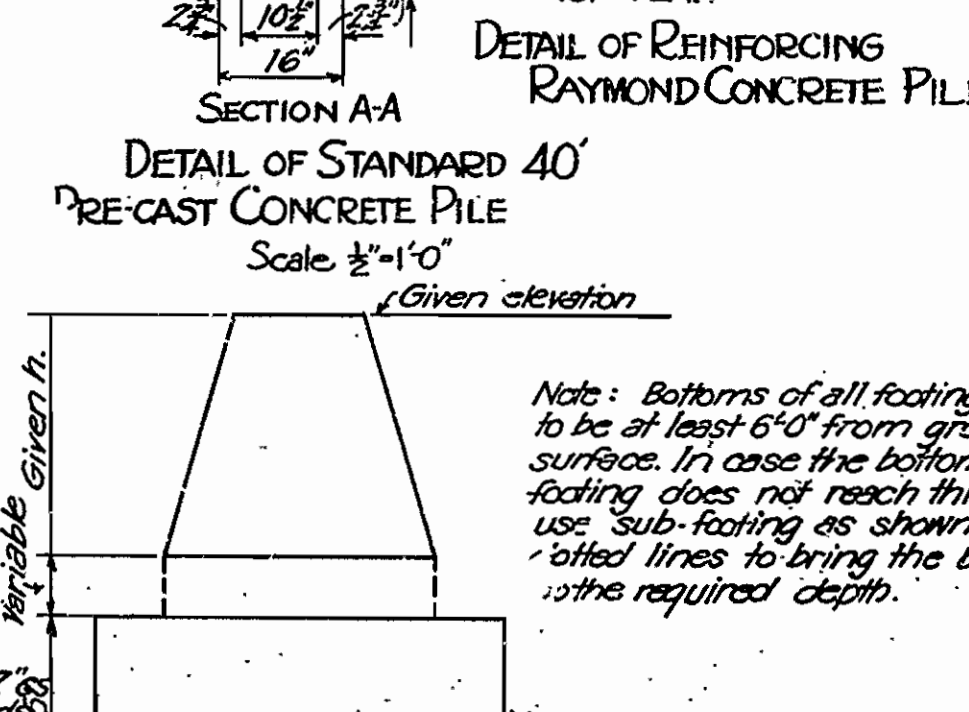
COLUMN AND FOOTING, B-21 & 28.



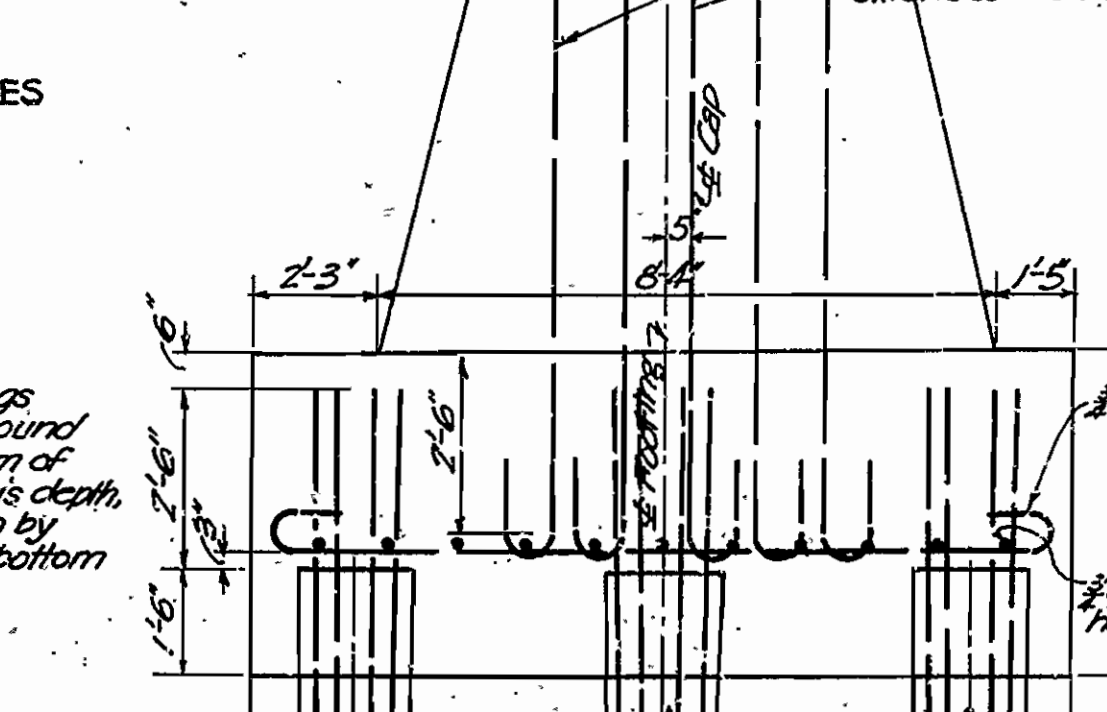
COLUMN & FOOTING, B1, 2, 4, 5, 7, 8, A1, A2, A4, A5, 47, 48.



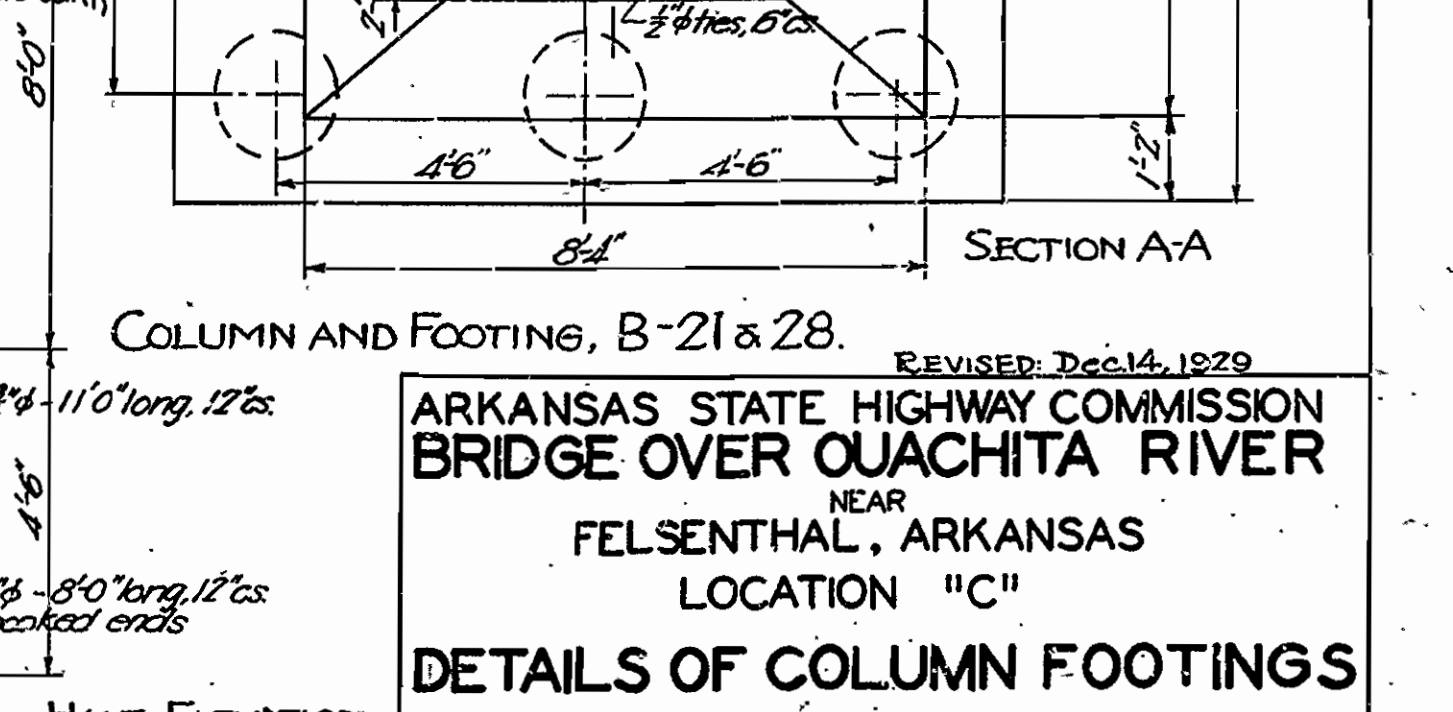
COLUMN AND FOOTING, B3, 6, 43, 46.



METHOD OF KEEPING BOTTOMS OF FOOTINGS 6'0" BELOW GROUND SURFACE



COLUMN AND FOOTING, B-22, 27.



COLUMN AND FOOTING, B-20, 20.

Notes:  
 All column corners to be chamfered 2".  
 All column pedestals are battered 2 1/2" to 1" on four sides.  
 For details of split columns & of column struts, see sheet no. 8.

Note: Bottoms of all footings to be at least 6'0" from ground surface. In case the bottom of footing does not reach this depth, use 'sub-footing' as shown by dotted lines to bring the bottom to the required depth.

REVISED: Dec. 14, 1929  
 ARKANSAS STATE HIGHWAY COMMISSION  
 BRIDGE OVER OUACHITA RIVER  
 NEAR  
 FELSENTHAL, ARKANSAS  
 LOCATION "C"  
 DETAILS OF COLUMN FOOTINGS  
 MADE BY: K.F. IRAG. HEDRICK, INC.  
 TRACED BY: K.F. CONSULTING ENGINEERS  
 CHECKED BY: L.D. HOT SPRINGS, ARKANSAS  
 DATE: Nov. 7, 1929. SCALE: 3/8"=1'-0" SHEET No. 15  
 Dr. No. 1299 Drawg. No. 4995