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MONONGAHELA RIVER BRIDGE
AT POINT MARION, PA.

S-7634

GENERAL PLAN AND ELEVATION

SCALE As Noted

HARRINGTON and CORTIS
ENGINEERS

MADE BY T.J.C. 10-16-28
TRACED BY J.R.L. 10-25-28
CHECKED BY H.W.B. 10-8-29

WINDING CITY, MO.
JUL 11 '28

SHEET NO. 1

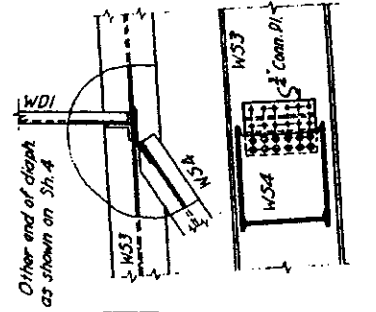
FAYETTE-GREENE COUNTIES
L.R. 451
SHEET 1 OF 16
SHOP DRAWINGS D-2179 ✓

Posted 4-15
1961 Painted 1RL-2A1

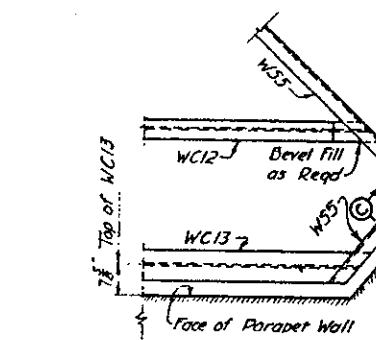
For details of this
end see Sh. #2A

Piers 2 and 3 corrected findings of excavations.

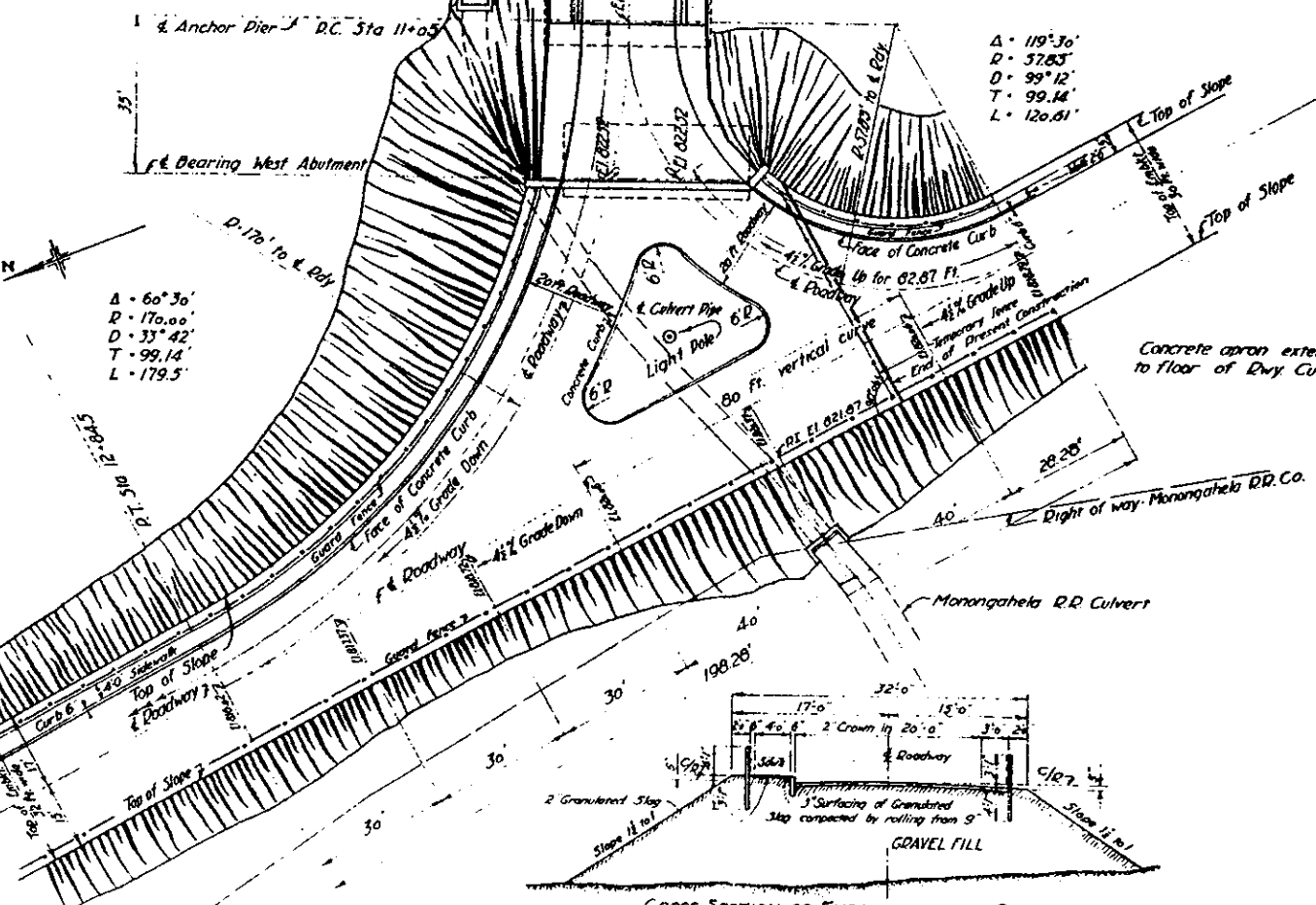
MARK	NAME	SECTION	MAX. END SPREAD
WC1	CROSS BEAM	12' at 31.8"	
WC2	do	9' at 21.8"	
WC3	do	9' at 38.5"	
WS1	STRINGER	28' at 156"	65,000"
WS2	do	30' at 113"	55,000"
WS3	do	28' at 156"	65,000"
WS4	do	22' at 56"	32,300"
WS5	do	12' at 26.7"	
WD1	DIAPHRAGM	15' at 33.0"	
WD2	do	15' at 33.9"	
WD3	do	15' at 33.9"	



CONNECTION DETAILS
STRINGER WS4
TO
STRINGER WS3
Scale 1/2" = 1'-0"

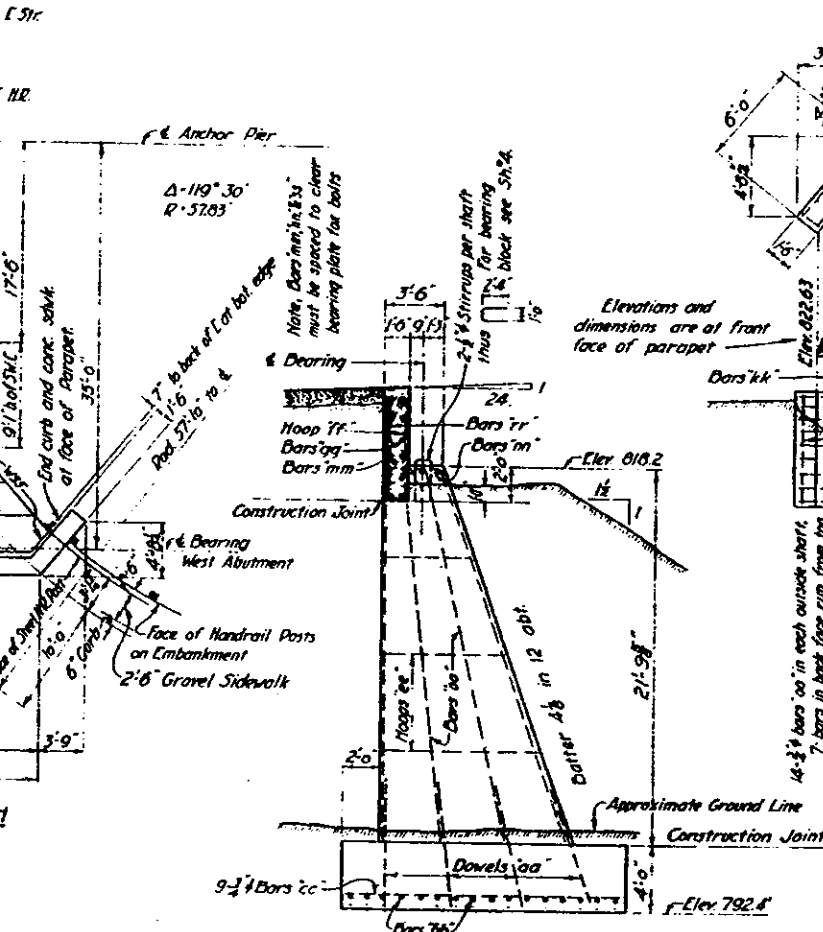


CONNECTION DETAILS
FOR SOUTHWEST CORNER
Scale 1/2" = 1'-0"

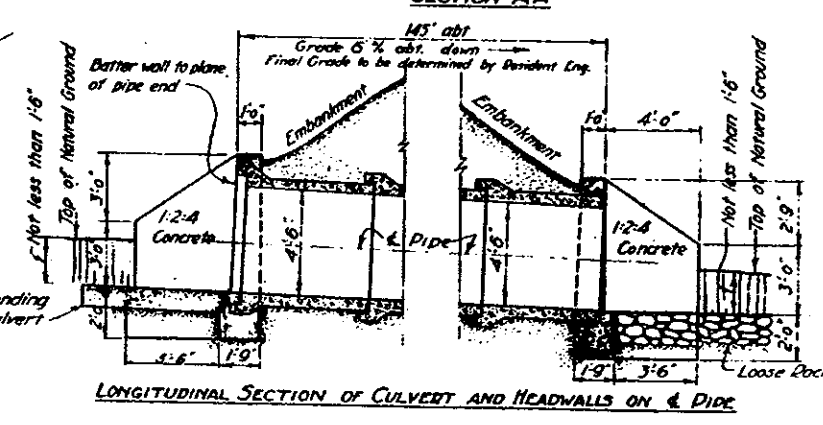


CROSS-SECTION OF EMBANKMENT AT STA. 12+04.5 Scale 1" = 10'-0"
LAYOUT OF WEST APPROACH EMBANKMENT
Scale 1" = 20'-0"

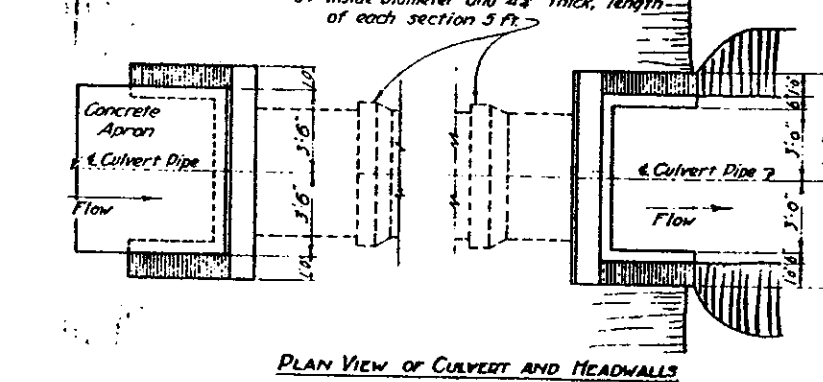
LAYOUT OF STEEL FOR WEST APPROACH
FOR MATERIAL SEE TABLE
All dimensions shown are in horizontal plane.
General details not covered on this sheet, to be same as
for East Approach Span, See Sheet No. 4.
Scale 1/2" = 1'-0"



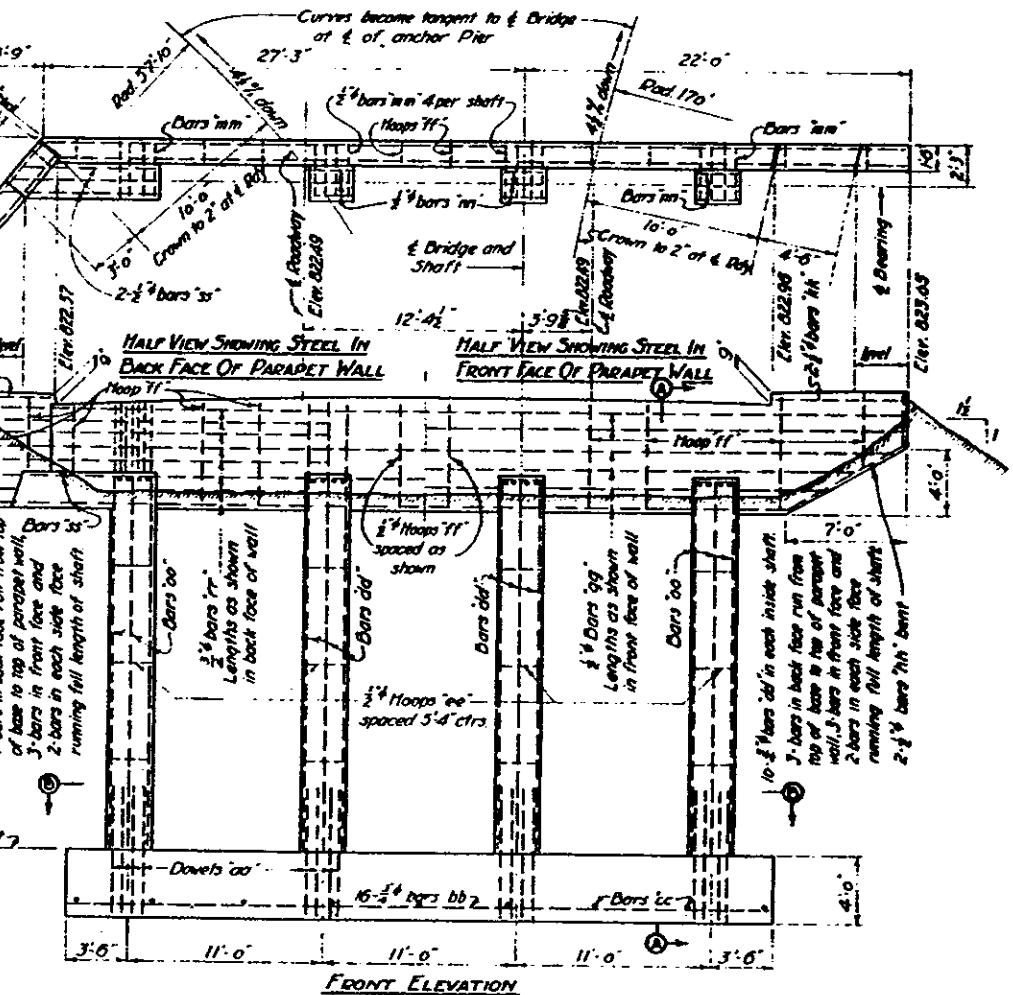
SECTION AA
Scale 1/2" = 1'-0"



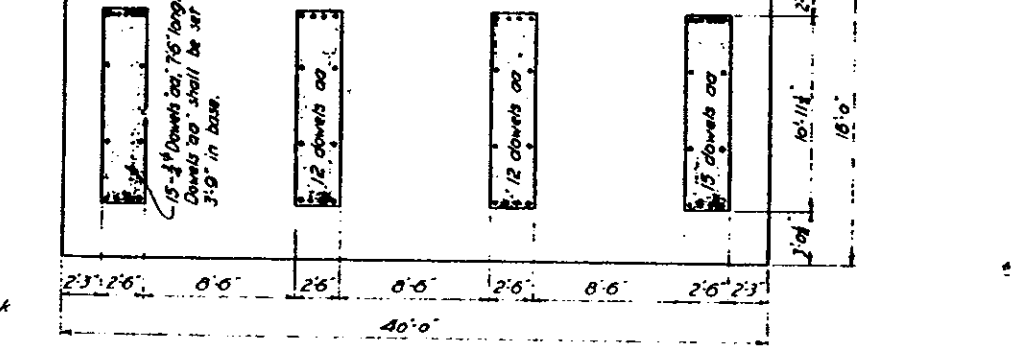
LONGITUDINAL SECTION OF CULVERT AND HEADWALLS ON PIPE



PLAN VIEW OF CULVERT AND HEADWALLS
CULVERT UNDER WEST APPROACH
Scale 1/2" = 1'-0"



FRONT ELEVATION



SECTION BB
DETAILS OF WEST ABUTMENT
Scale 1/2" = 1'-0"

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SHEET 2A OF 16 5-7634
SHOP DRAWINGS D-2179

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MONONGAHELA RIVER BRIDGE
AT POINT MARION, PA.

REVISION OF WEST APPROACH

SCALE 1/2" = 1'-0"

7634

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO.

Use 20 dowel bars 1 $\frac{1}{2}$ " ϕ 10'-0" long per shaft set 5'-0" into base
Use 20 bars 1" ϕ per shaft from top of base to El. 800
Use 12 bars 1" ϕ per shaft from El. 800 to El. 823
 $\frac{1}{2}$ " hoops x 6'-0" ctrs



Anchorage shoes must be set accurately to location and grade, for no provision for adjustment is made above top of coping



Details of timber framing and connections for cofferdam are omitted from this drawing. Before commencing construction, the contractor must supply the Engineers with complete drawings showing bolts, splices and fastenings he proposes to use. Said drawings shall be approved by the Engineers before any work is started.

" Concrete in all piers shall be 1:2:3 mix except in copings of piers 2 and 3, copings of abutments, or frame concrete, in which cases a 1:2:4 mix shall be used.
Chamber all exposed corners 1/2 inches.
Provide substantial keys of all construction joints.
Reinforcing steel shall be placed 3 inches from surface of concrete unless otherwise noted.
Lap reinforcing 60 diameters where necessary to splice.



FAYETTE-GREENE COUNTIES
L.R. 451 STA. 0+00
SHEET 3 OF 16 S-7634
SHOP DRAWINGS D-2-79

NOTE Sept 20, 1929
Dimensions of Piers 1 and 4
changed to 6'0" under coping
at request of Contractor.
Coping same as for Piers 2
and 3.

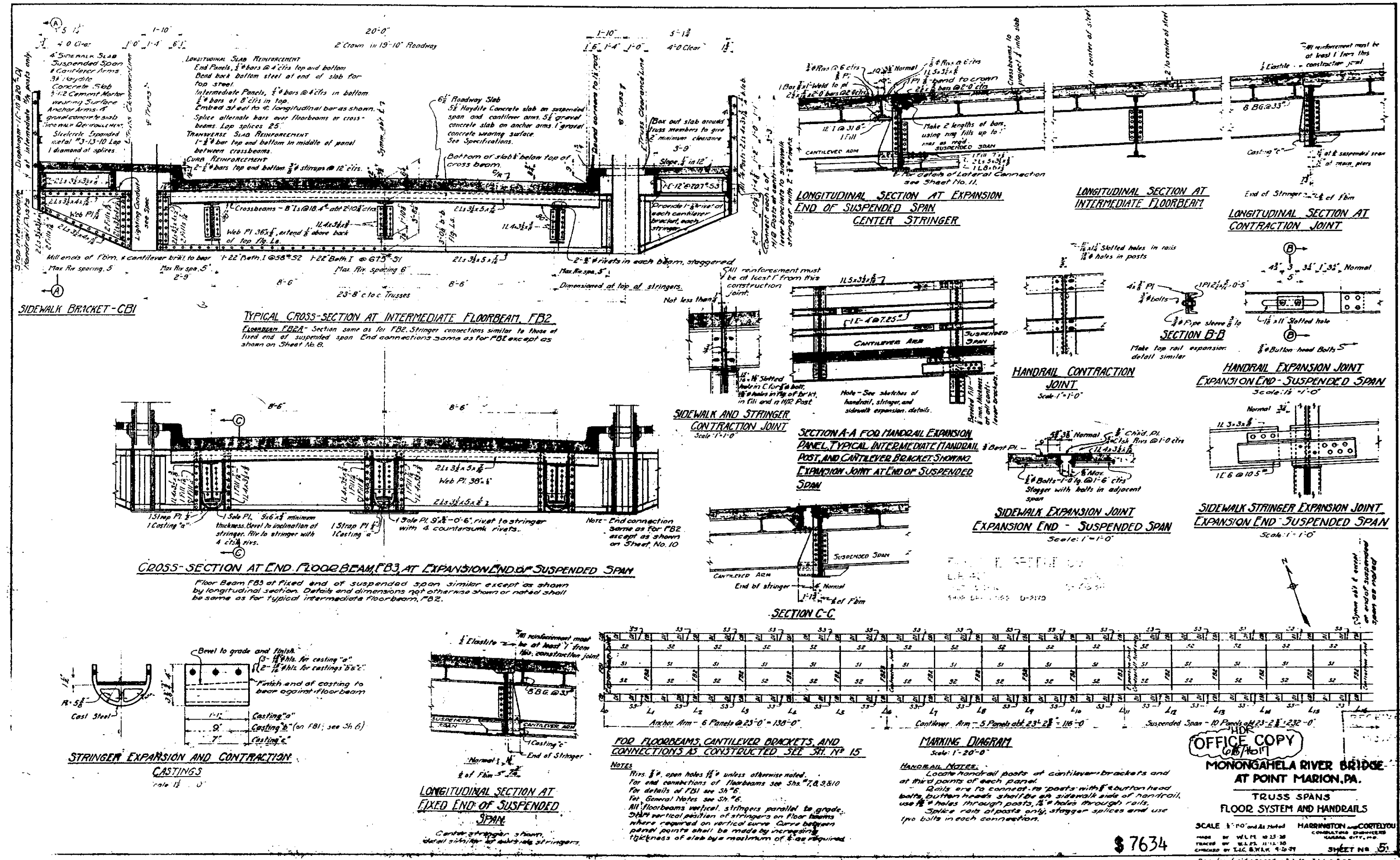
PIER 4
18 piles in base, spacing about
4' x 6'. Piles 2' x 6" into base.
Bars spaced to clear piling.
N.E.W. / 10/12/22
Average length of piles below
base = 21.44'

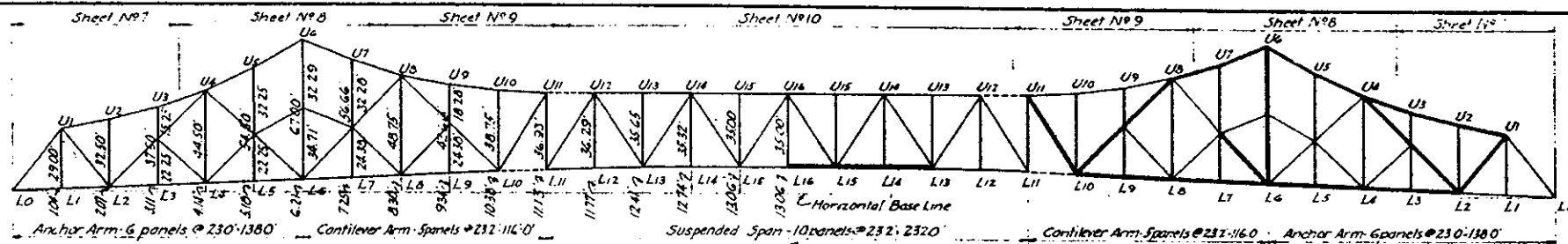
MONONGAHELA RIVER BRIDGE
AT POINT MARION, PA.

PIERS

SCALE 3/4"=1'-0" HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO
MADE BY: HWS P-20.25
CHECKED BY: E. J. 1-14.20
ENGR'D BY: FAL BWR 4-9-24
SHEET NO. 3
REV BY: HWS P.D. 0-00

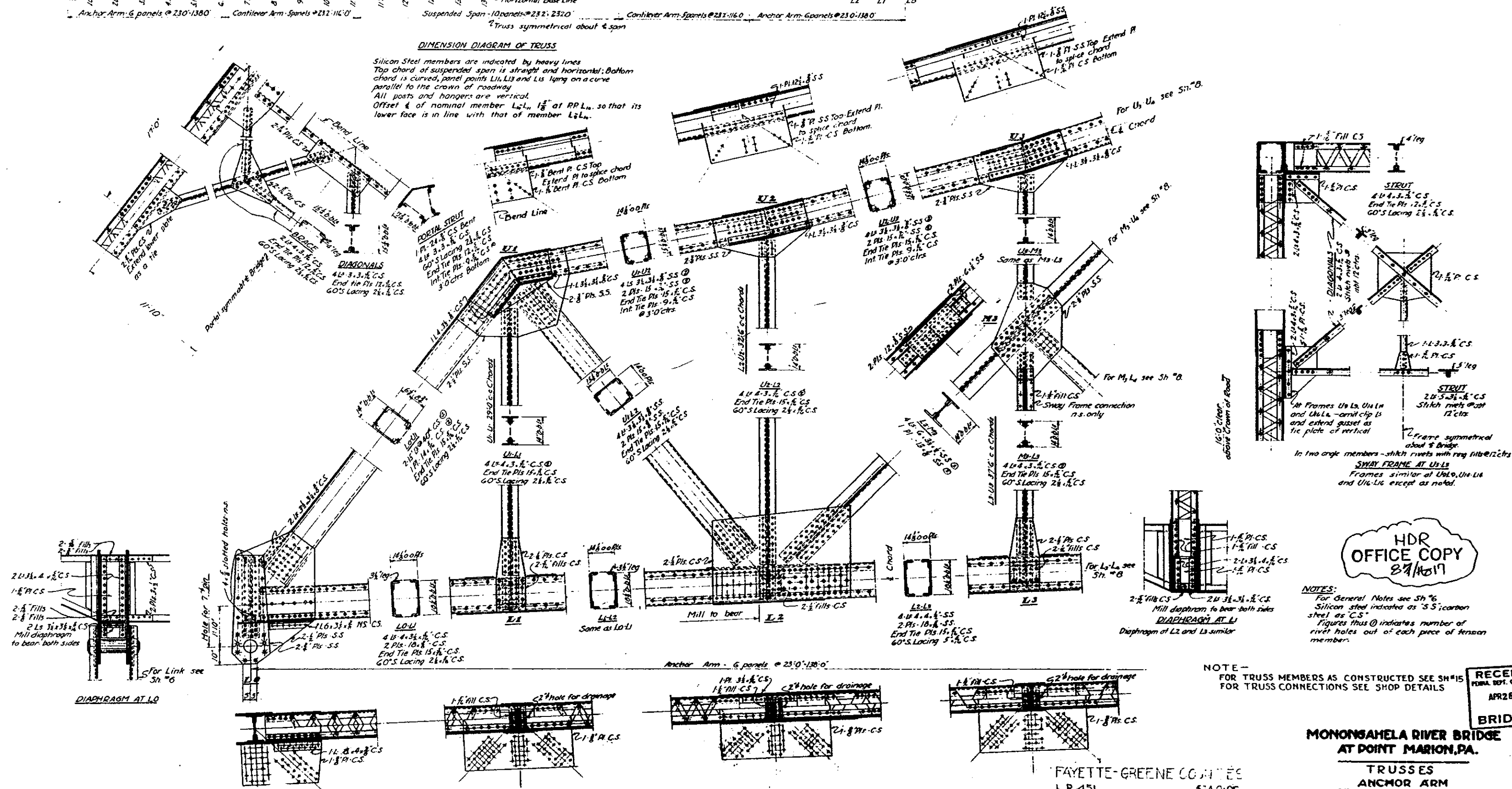
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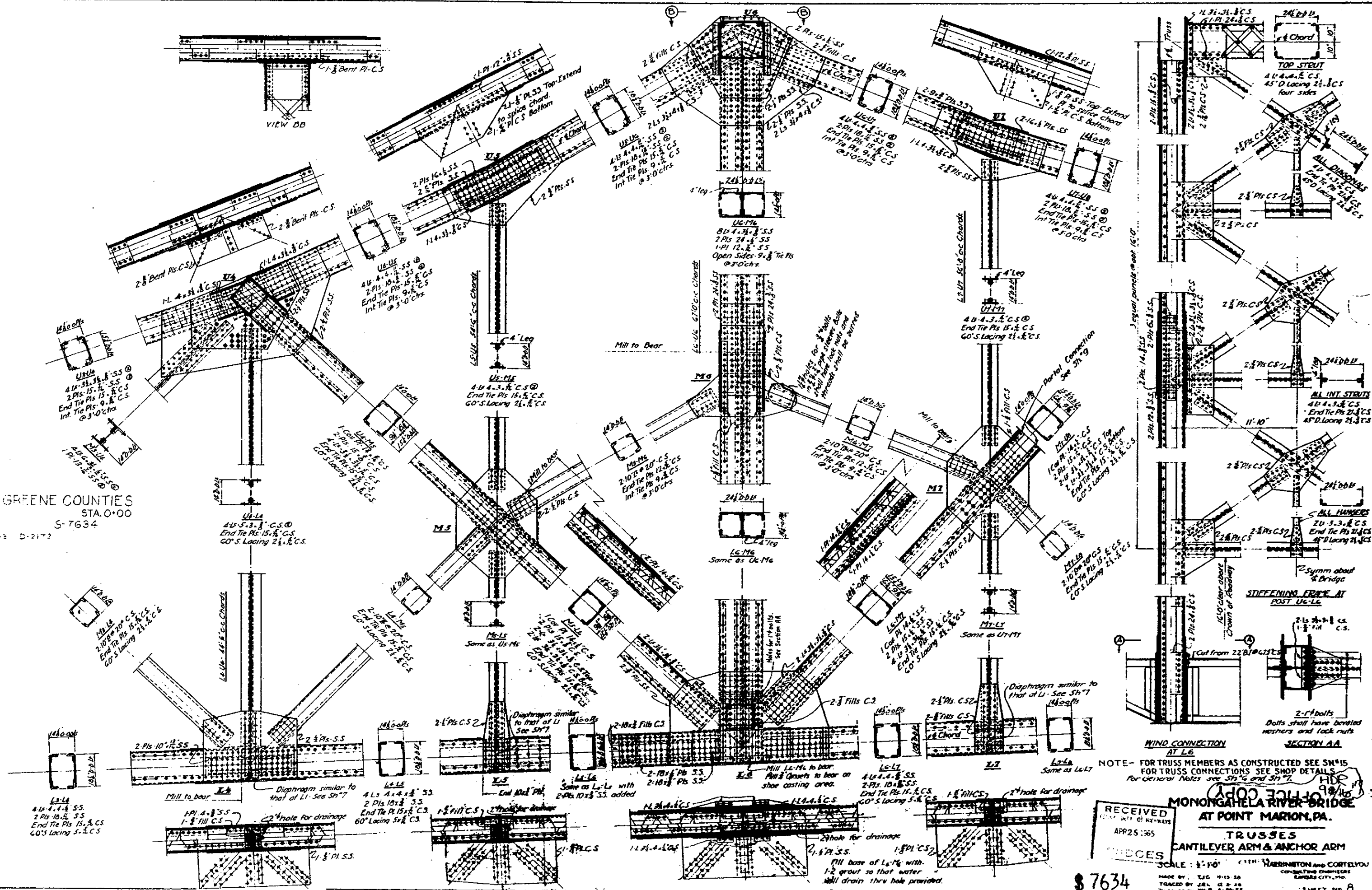


DIMENSION DIAGRAM OF TRUSS

Silicon Steel members are indicated by heavy lines
Top chord of suspended span is straight and horizontal; Bottom chord is curved, panel points U1, U3 and U5 lying on a curve parallel to the crown of roadway.
All posts and hangers are vertical.
Offset $\frac{1}{2}$ of nominal member L_{12} at P.P.L., so that its lower face is in line with that of member L_{11} .



FAYETTE-GREENE COUNTIES
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 SHEET 8 OF 8 S-7634
 SHOP DRAWING D-2172

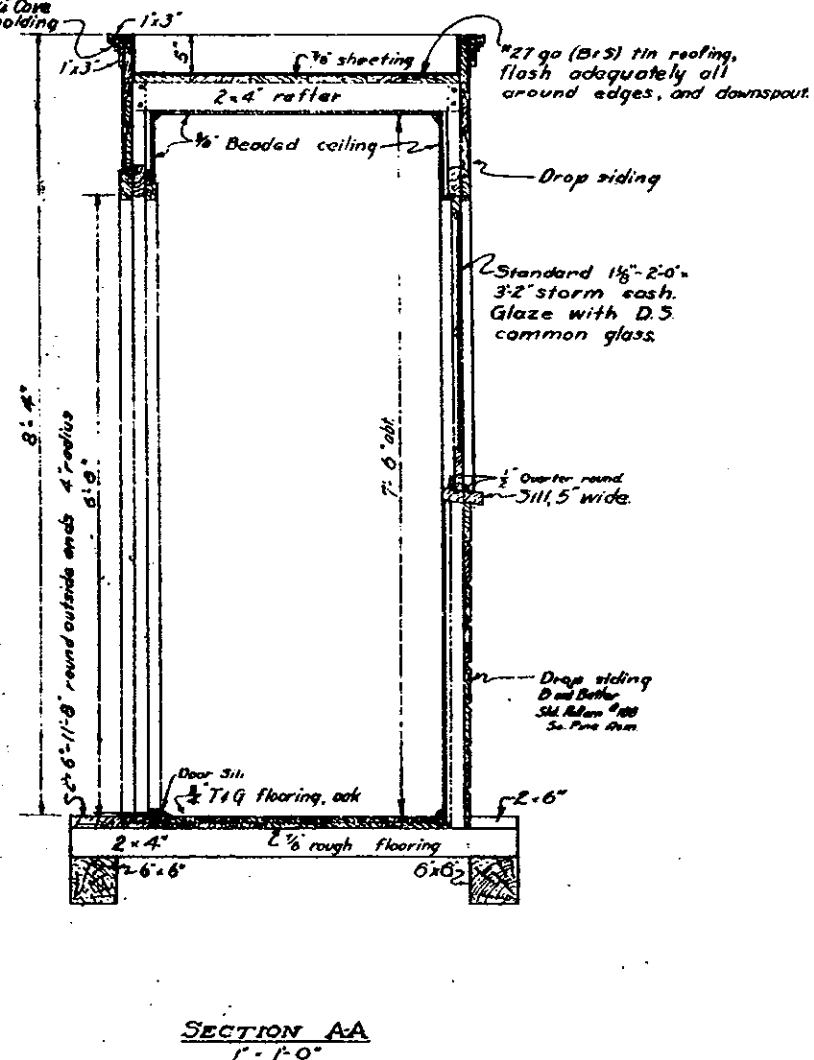
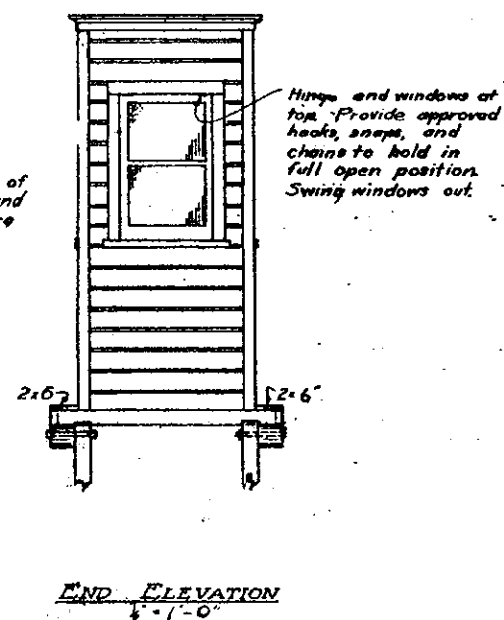
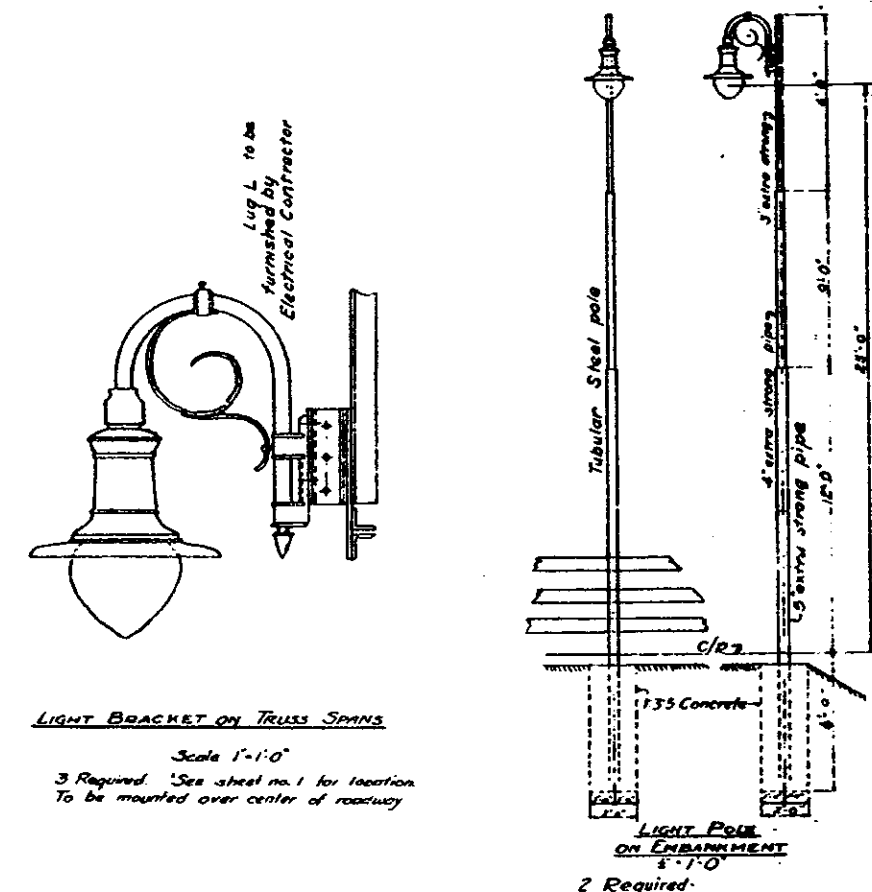


NOTE- FOR TRUSS MEMBERS AS CONSTRUCTED SEE SH-15
 FOR TRUSS CONNECTIONS SEE SHOP DETAILS
 FOR GENERAL NOTES SEE SH-16 AND SH-17

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 AT POINT MARION, PA.
 TRUSSES
 CANTILEVER ARM & ANCHOR ARM
 SCALE: 1/4\"/>

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SHEET NO 8



LIGHTING

Lighting Fixtures: No. 120 Globe, No. 120-656 Reflector General Electric Light Unit ~~No. 200-232~~, suspended from Nonflex Bishop's Grook Bracket or equivalent. Provide adapter for medium screw base. Lights on spans shall have two-way reflectors and metal screens attached to reflector; see specifications.

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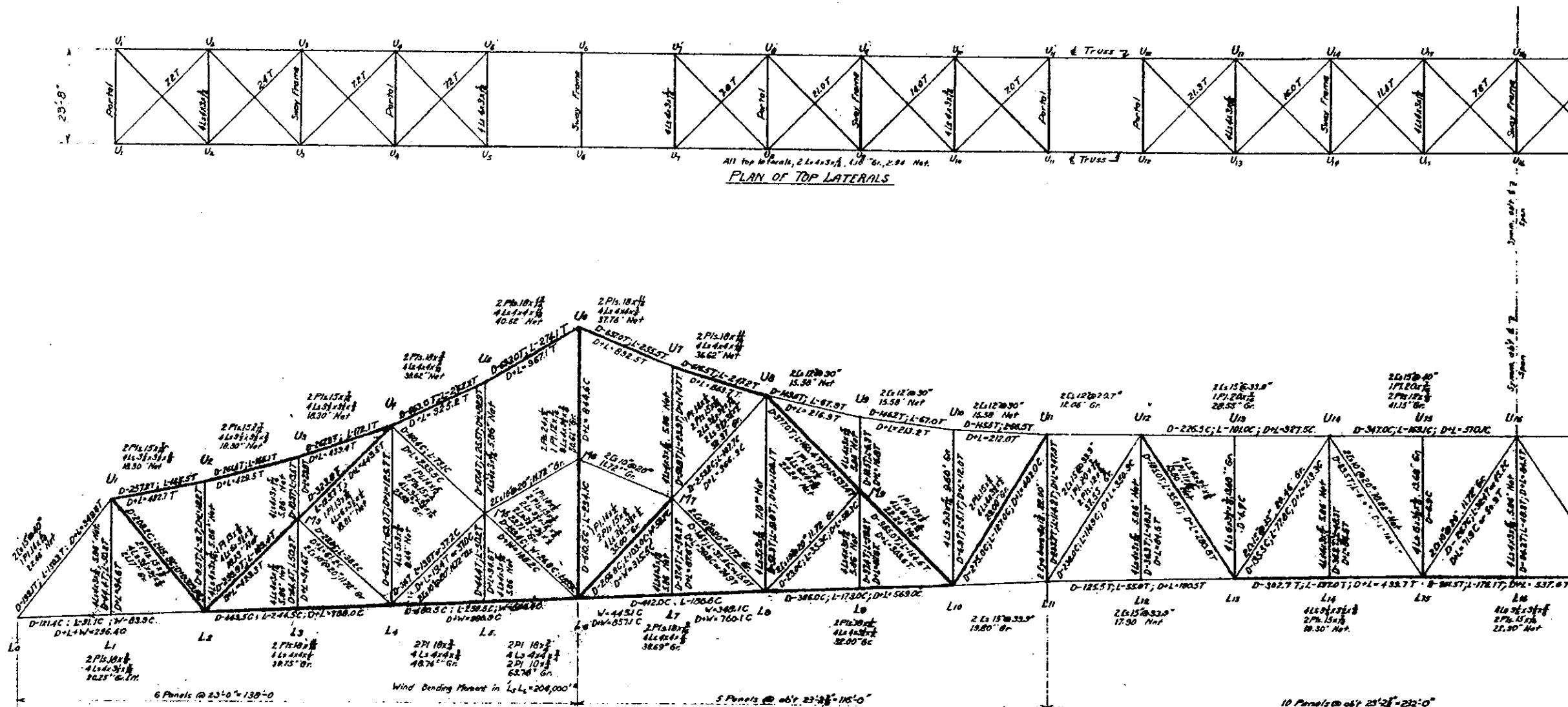
MONONGAHELA RIVER BRIDGE-
AT POINT MARION, PA.

TOLL COLLECTORS HOUSE
AND LIGHTING

FAYETTE-GREENE COUNTIES
L.R. 451 STA. 0+00
SHEET 12 OF 16 S-7634
SHOP DRAWINGS, D-2179

SCALE 1:100,000
HARRINGTON AND CORTES
CONSERVATION PROJECT
FARMER CITY, MO.
12

\$ 7634



DESIGN STRESSES FOR TRUSS

CARBON STEEL
 Tension members = 16,000 lbs. per sq. in.
 Compression members = 15,000 - 50 lbs. per sq. in.
 13,500 lbs. per sq. in. max.

SILICON STEEL
 Tension members = 24,000 lbs. per sq. in.
 Compression members = 22,500 - 90 lbs. per sq. in.
 19,000 lbs. per sq. in. max.

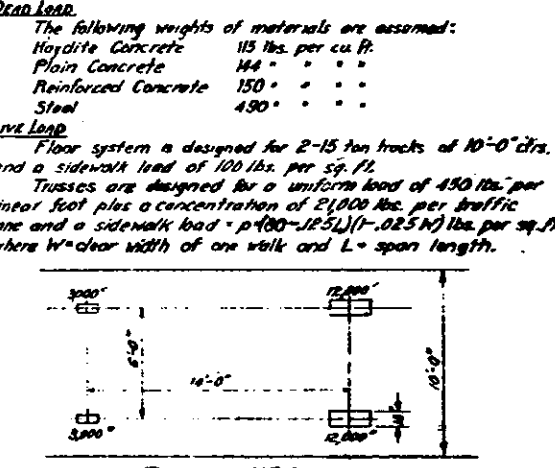
The above stresses are normal stresses.
 For the four combinations of design the normal stresses will be modified as follows:-
 Case I - D+L @ normal unit stress.
 Case II - D+L+15W @ 1.25 normal unit stress.
 Case III - D+30W @ 1.25 " "
 Case IV - D+L+R @ normal unit stress.

NOMENCLATURE
 D = Dead Load
 L = Live Load
 W = Wind Load
 R = Reaction; taken as 1/2 of smaller stress.

LOADS

Dead Load
 The following weights of materials are assumed:
 Haydite Concrete 115 lbs. per cu. ft.
 Plain Concrete 144 " "
 Reinforced Concrete 150 " "
 Steel 490 " "

Live Load
 Floor system is designed for 2-15 ton trucks of 10'-0" dia. and a sidewalk load of 100 lbs. per sq. ft.
 Trusses are designed for a uniform load of 450 lbs. per linear foot plus a concentration of 2,000 lbs. per traffic lane and a sidewalk load = $p(100-125L)(1-.025W)$ lbs. per sq. ft. where W = clear width of one walk and L = span length.



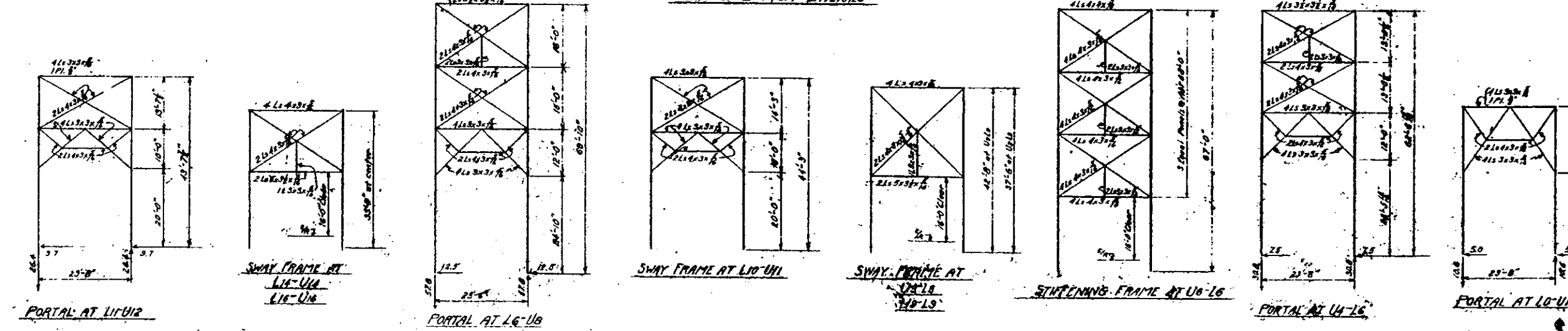
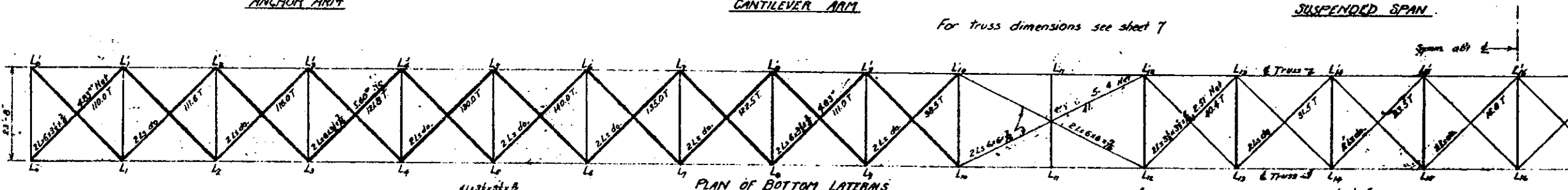
IMPACT
 On floor system I = 30% except 60% for floorbeam connections, and end floorbeams.
 On trusses I = 15% except 60% for hangers and substructure, where L = loaded length in feet.

WIND LOADS
 Laterals are designed for a 30 lb. transverse wind (moving load) on exposed area. The exposed area is taken as side area of floor plus side area of each headrail and truss.

SPECIFICATIONS
 The above loads and stresses conform in general to the specifications of the A.A.S.H.O., 1924.

FAYETTE-GREENE COUNTIES
 L.R. 451 STA. 0+00
 SHEET 13 OF 16 S-7634
 SHOP DRAWINGS D-2179

NOTES
 Stresses are given in kips.
 T denotes tension.
 C denotes compression.
 Carbon Steel is indicated thus: _____
 Silicon Steel is indicated thus: _____



FOR TRUSS MEMBERS AS CONSTRUCTED
 SEE SH-15
 STRESSES UNCHANGED

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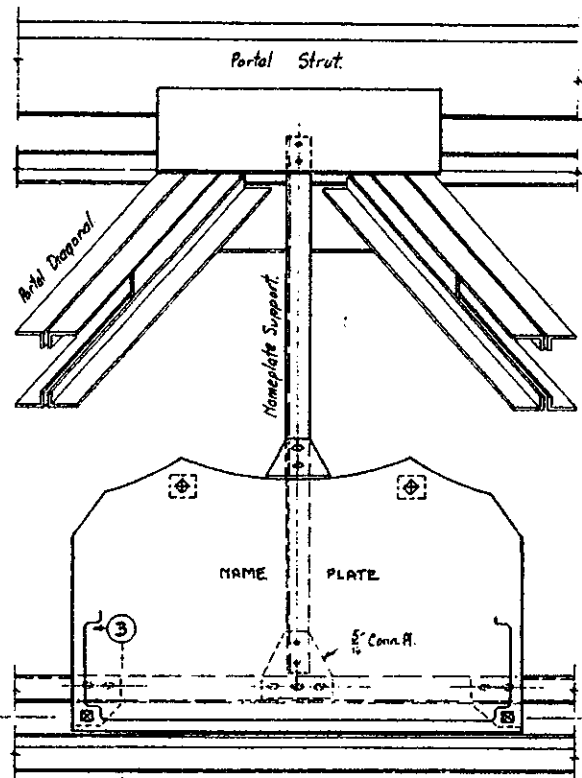
MONONGAHELA RIVER BRIDGE
 AT POINT MARION, PA.

STRESS SHEET

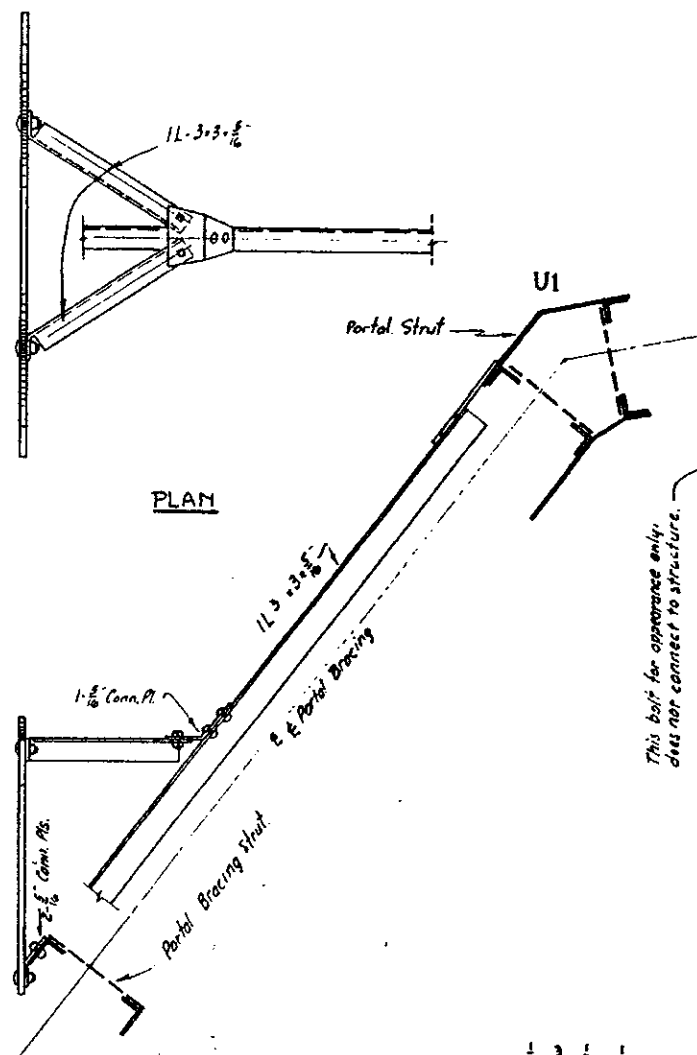
SCALE: 1/4" = 1'-0"

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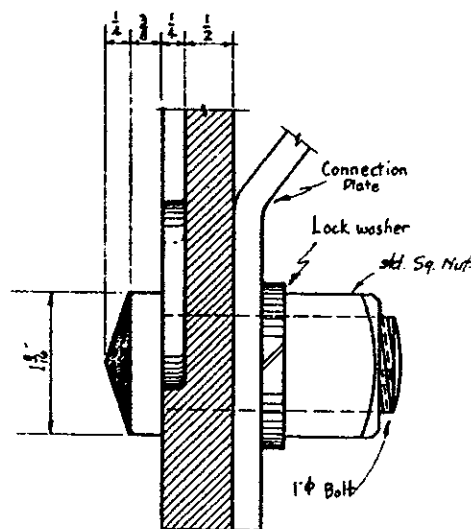
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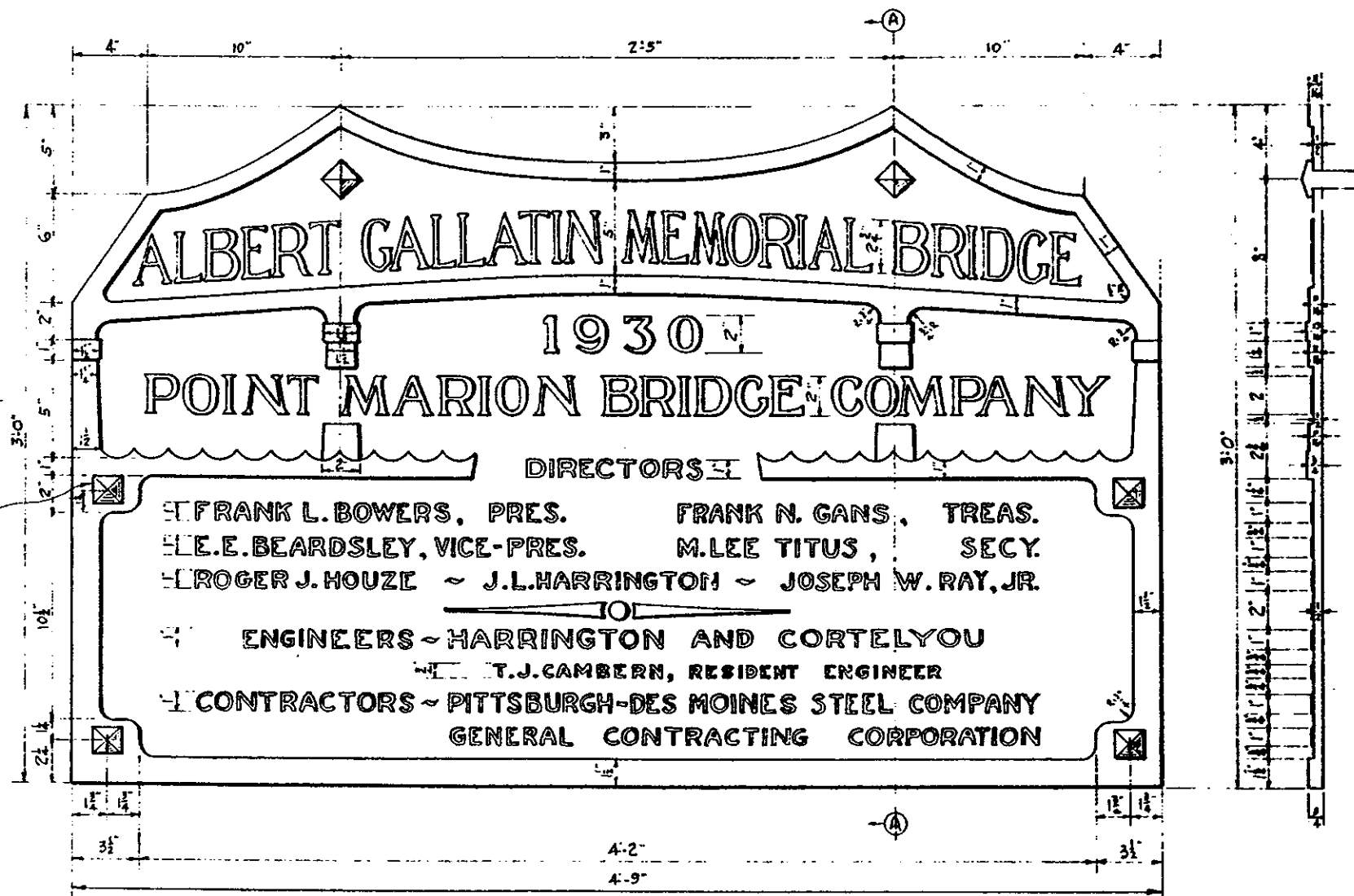
CONNECTION DETAILS
Scale 1"=1'-0"



SIDE ELEVATION



SECTION BB
Scale - Full Size



NAMEPLATE DETAIL
Scale 1"=5'-10"
CAST IRON - 2 REQD.

NOTES

Provide two Nameplates, one on each end of the bridge, connected to portal members as shown on this drawing. Letters shall be flat top Modern Roman Type and shall project 1/8" above background. Background may be left rough; all raised portions shall be smooth finish. Plate shall be cast of Iron, in one piece. Bolt heads shall be smooth finish, true to dimensions shown on this drawing, assembled carefully in position shown, and provided with lock washers to prevent rotation. Paint; Background blue; raised portions, including letters, gold. Rear, including edges, aluminum. Contractor shall submit for approval, a rubbing print from pattern, before casting plates.

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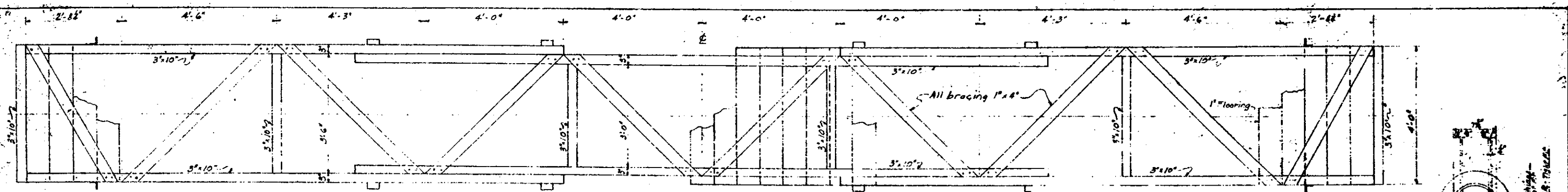
MONONGAHELA RIVER BRIDGE
AT POINT MARION, PA.

NAMEPLATE AND CONNECTION DETAILS.

FAYETTE-GREENE COUNTIES
L.R. 451 STA. 0+00
SHEET 14 OF 16 S-7634
SHOP DRAWINGS D-2175

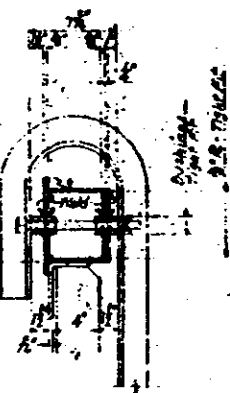
SCALE: As Shown
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
PITTSBURGH, PA.
SHEET NO. 14.

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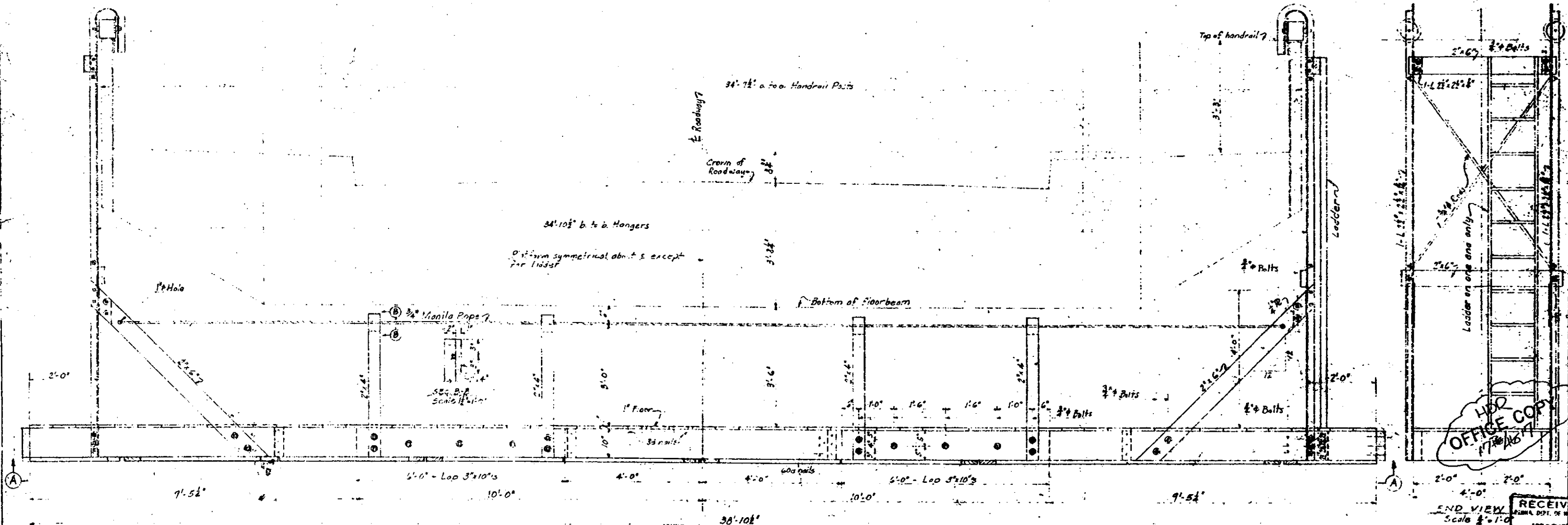


VIEW A-A
Scale $\frac{1}{4}$ " = 1'-0"

- Material for Trolley:
- 1-6" Std. Steel Pipe
 - 2- $\frac{3}{4}$ " R.
 - 2-12" Steel Bushings 10-2"
 - 1- $\frac{1}{2}$ " Pin
 - 1- $\frac{3}{4}$ " Cotter
 - All welding $\frac{1}{4}$ " continuous fillet



TROLLEY
Scale $\frac{1}{2}$ " = 1'-0"



ELEVATION
Scale $\frac{1}{4}$ " = 1'-0"

END VIEW
Scale $\frac{1}{4}$ " = 1'-0"

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L.R. 451 STA. 0+00
SHEET 16 OF 16 S-7634
SHOP DRAWINGS D-2176

NOTE:
All timber to be full size.
All bolts $\frac{3}{4}$ " A.
Holes in timber $\frac{3}{4}$ " unless noted.
Holes in steel $\frac{13}{16}$ "

Provide bolts with washers to prevent crushing of timbers.

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PAINTING PLATFORM
MORGAN RIVER BRIDGE
AT POINT MARION, PA.
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO.
CHECKED BY S.E. J. 2-28
DATE 2-28-21

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