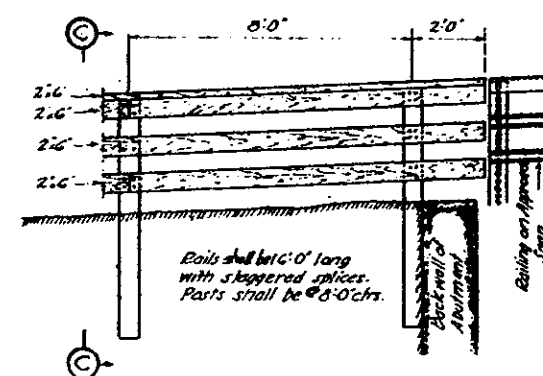
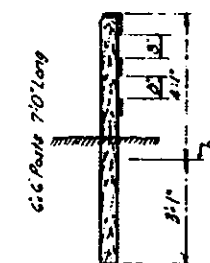


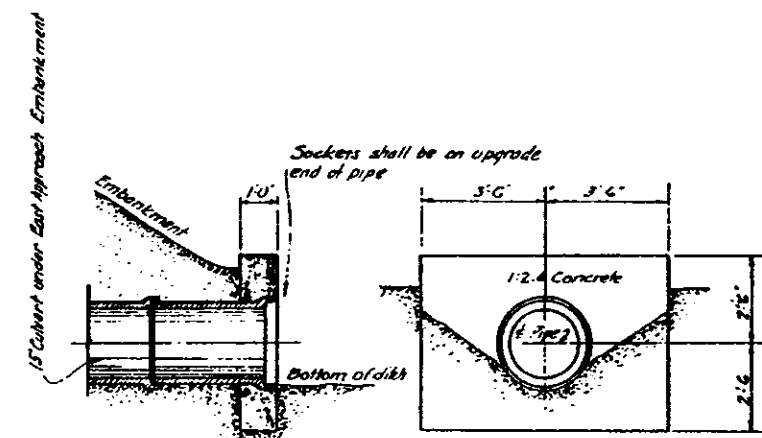
EAST APPROACH
TYPICAL CROSS SECTION OF EMBANKMENT
Scale: $\frac{1}{2}$ " = 1'0"



END PANEL OF EMBANKMENT FENCE
Scale: $\frac{1}{2}$ " = 1'-0"



SECTION C-G



DETAIL OF HEADWALL FOR CULVERTS
For Location See Street No 1
Scale 8"=1'-0"

For Culvert on West Approach see Sheet 2A.

FAYETTE-GREENE COUNTIES
L.R. 451 STA. 0+00
SHEET 2 OF 16 S-7634
SHOP DRAWINGS 0-2179

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**MONONGAHELA RIVER BRIDGE
AT POINT MARION, PA.**

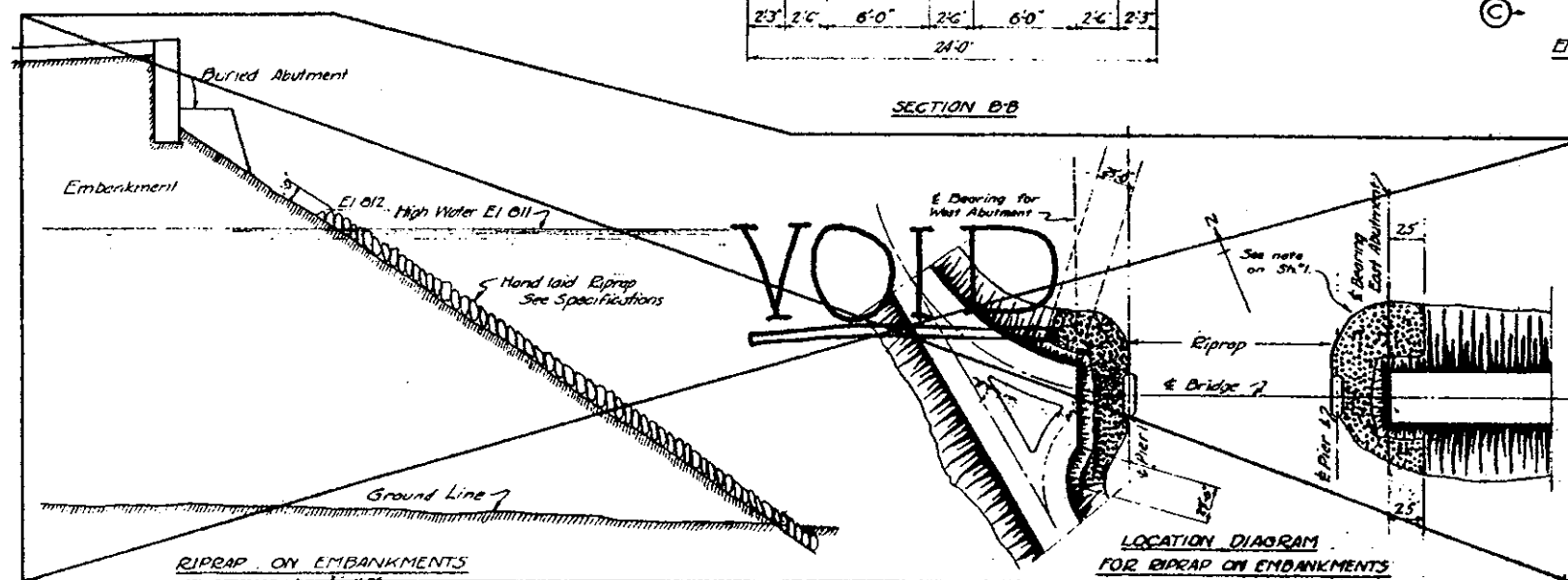
EMBANKMENTS AND ABUTMENTS

SCALE: As Noted
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO.
MADE BY H.W.D. 3-21-30
TRACED BY J.R.L. 3-20-30
CHECKED BY J.C.B. & H.W.D. 3-29
SHEET NO 2

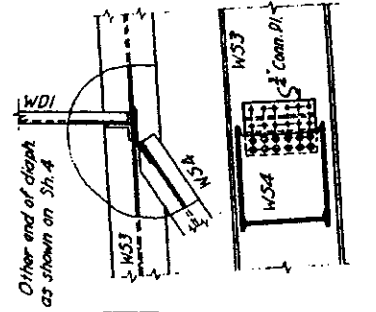
\$ 7634

NOTES:

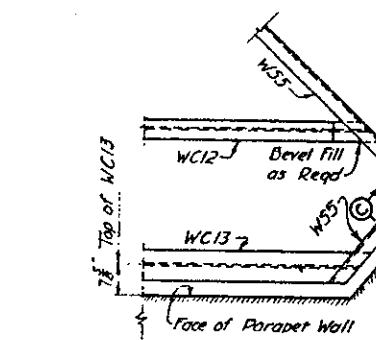
For General Notes on abutments see Sheet No.3
Paint all fences above ground with filler and
two coats of paint. Dip lower 3/4 of posts in
asphaltic cement or other approved waterproofing
material
Use 40d nails in fences



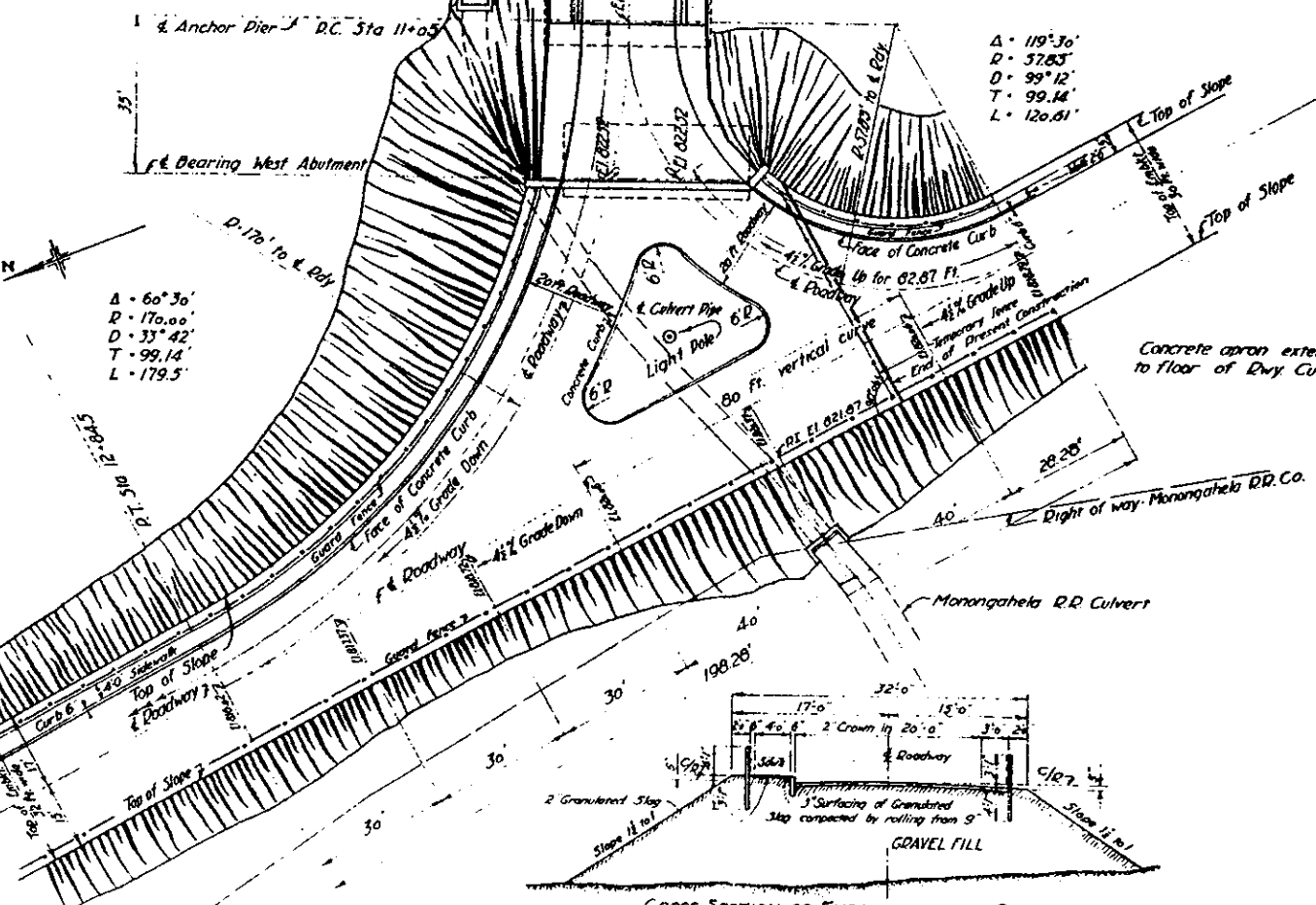
MARK	NAME	SECTION	MAX. END SPREAD
WC1	CROSS BEAM	12' at 31.8"	
WC2	do	9' at 21.8"	
WC3	do	9' at 38.5"	
WS1	STRINGER	28' at 156"	65,000"
WS2	do	30' at 113"	55,000"
WS3	do	28' at 156"	65,000"
WS4	do	22' at 56"	32,300"
WS5	do	12' at 26.7"	
WD1	DIAPHRAGM	15' at 33.0"	
WD2	do	15' at 33.9"	
WD3	do	15' at 33.9"	



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

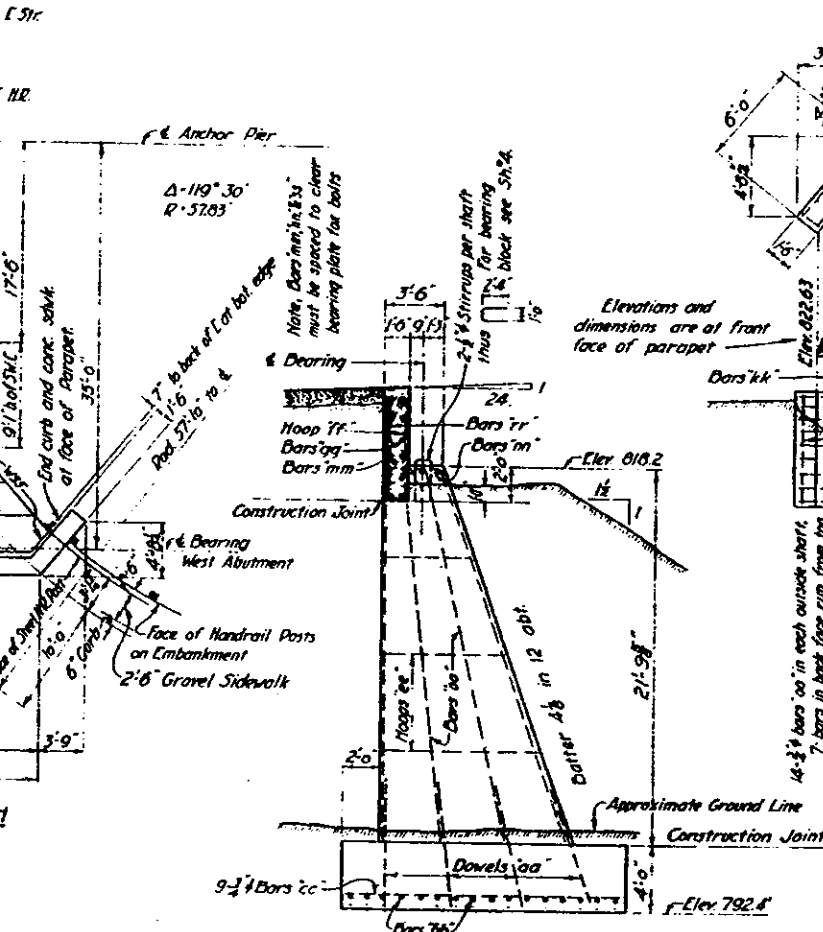


CONNECTION DETAILS
FOR SOUTHWEST CORNER
Scale 1/2" = 1'-0"

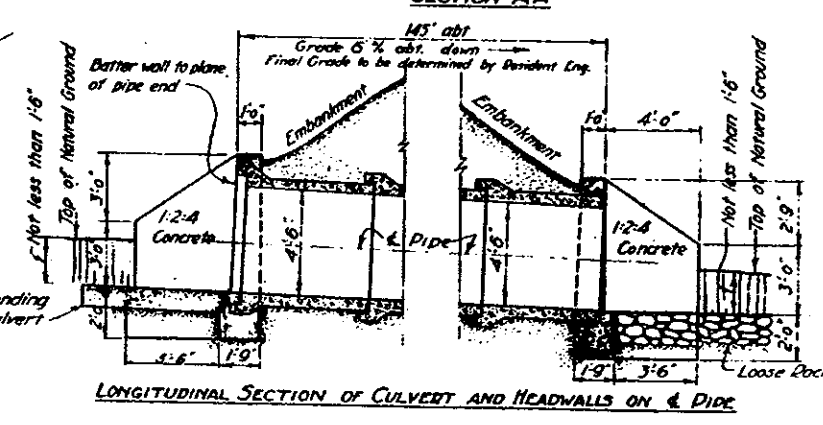


CROSS-SECTION OF EMBANKMENT AT STA. 12+04.5 Scale 1" = 10'-0"
LAYOUT OF WEST APPROACH EMBANKMENT Scale 1" = 20'-0"

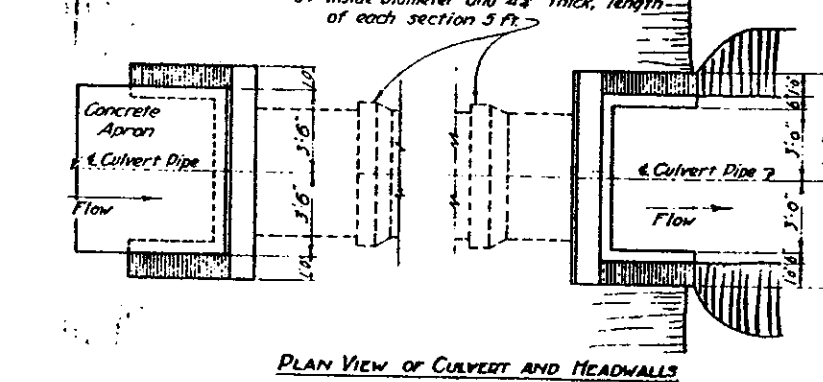
LAYOUT OF STEEL FOR WEST APPROACH
FOR MATERIAL SEE TABLE
All dimensions shown are in horizontal plane.
General details not covered on this sheet, to be same as
for East Approach Span, See Sheet No. 4.
Scale 1/2" = 1'-0"



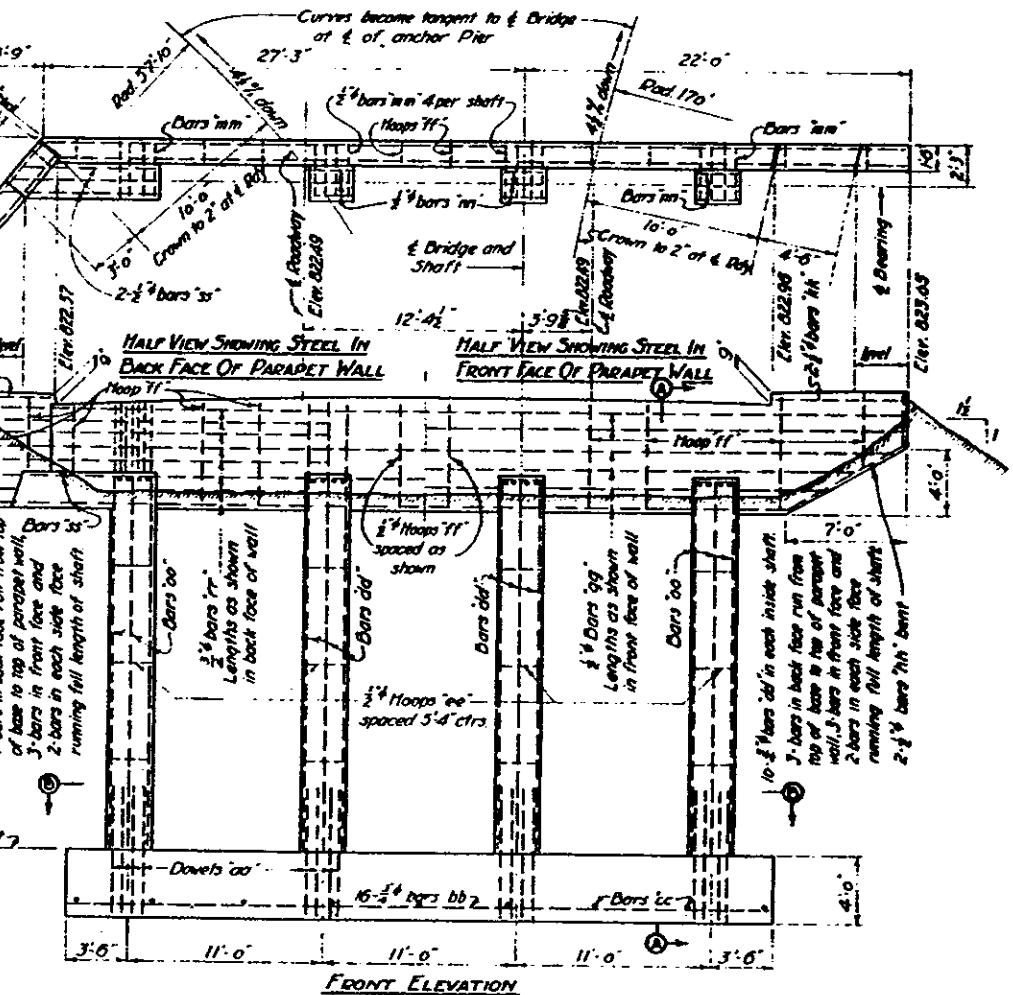
SECTION AA
Scale 1/2" = 1'-0"



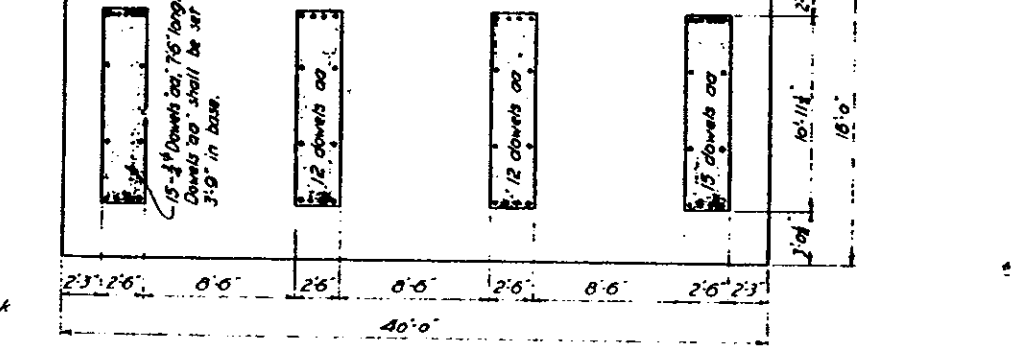
LONGITUDINAL SECTION OF CULVERT AND HEADWALLS ON PIPE



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"

FAYETTE-GREENE COUNTIES
L.R. 451 STA. 0+00
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

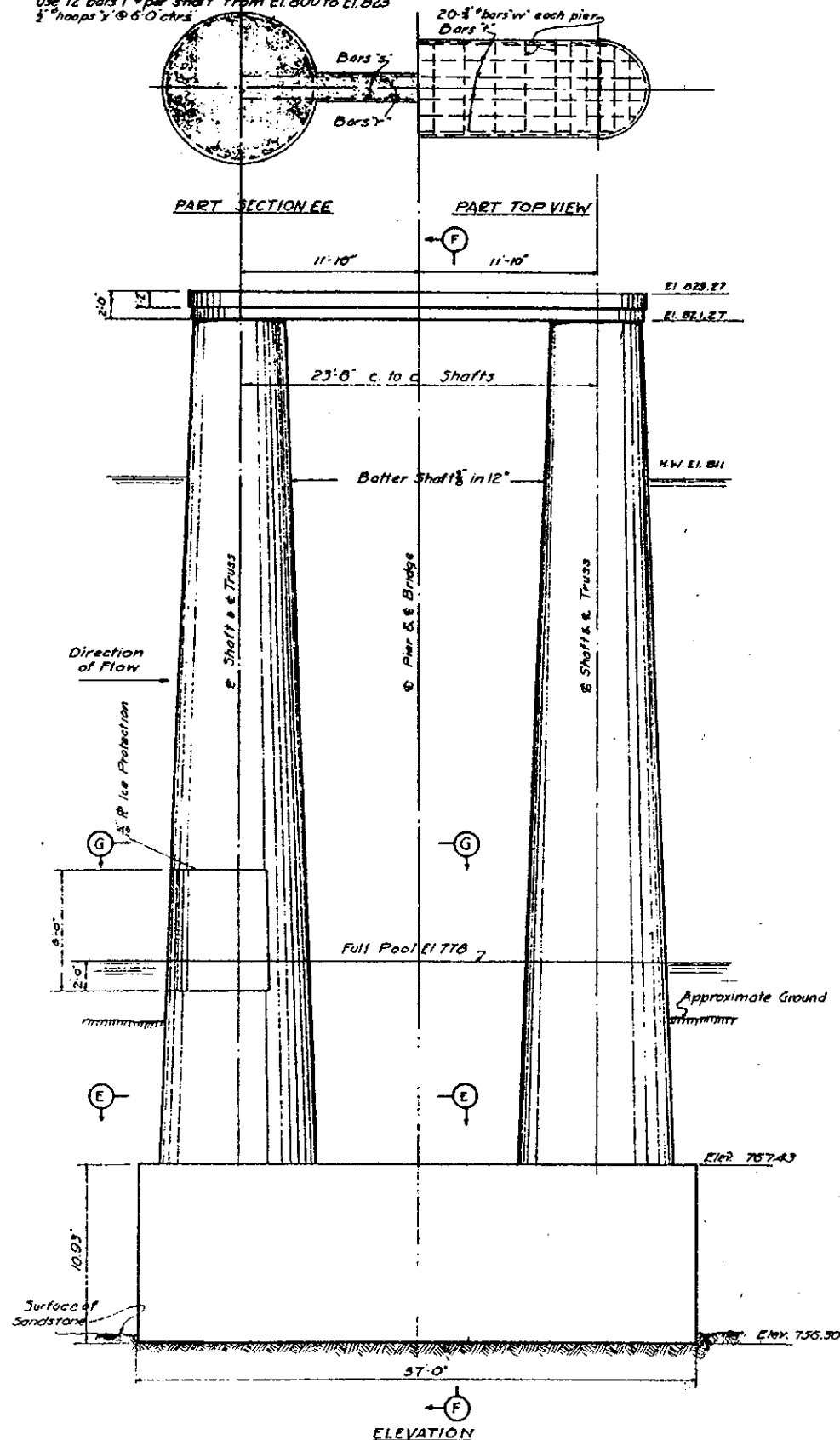
SCALE 1/2" = 1'-0"

7634

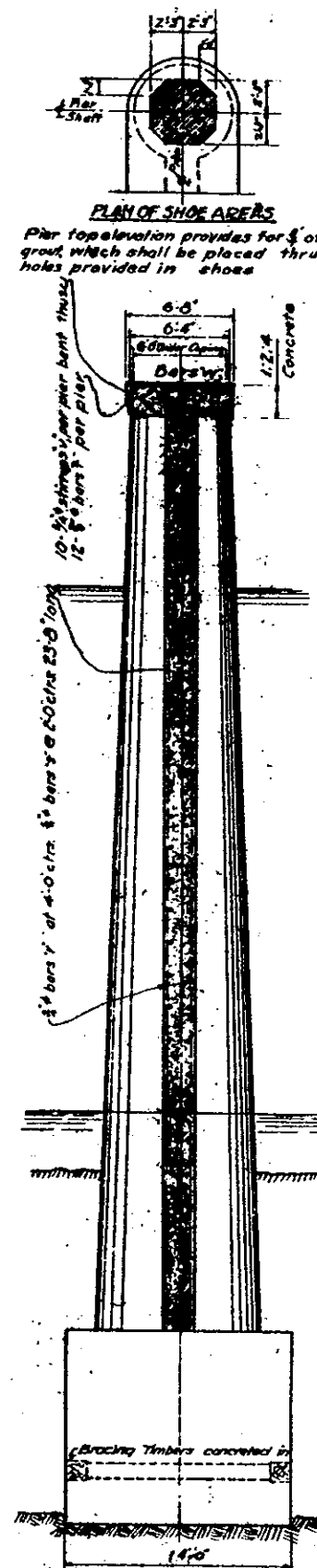
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO.

SHAFT STEEL

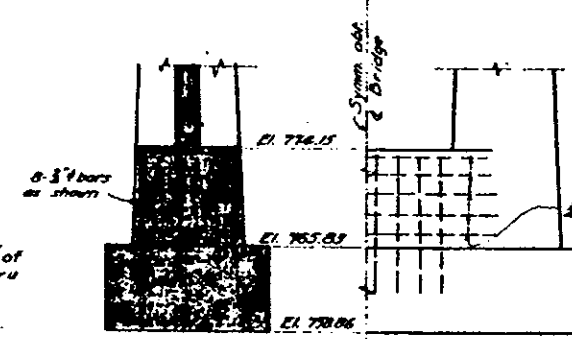
Use 20 dowel bars 1 1/2" x 10'-0" long per shaft set 5'-0" into base
Use 20 bars 1" per shaft from top of base to El. 800
Use 12 bars 1" per shaft from El. 800 to El. 823
3" hoops x 6'-0" cts



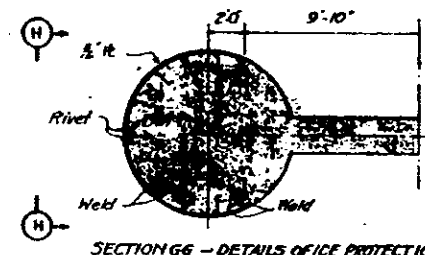
CHANNEL PIER No. 3



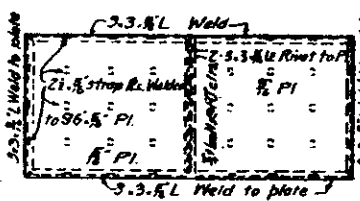
SECTION EE



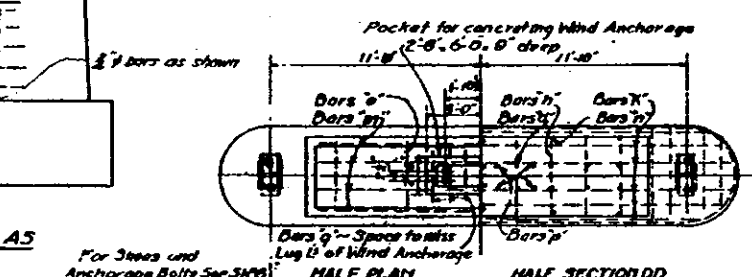
**DIER No. 2
SIMILAR TO DIER 3 EXCEPT AS
SHOWN ABOVE**



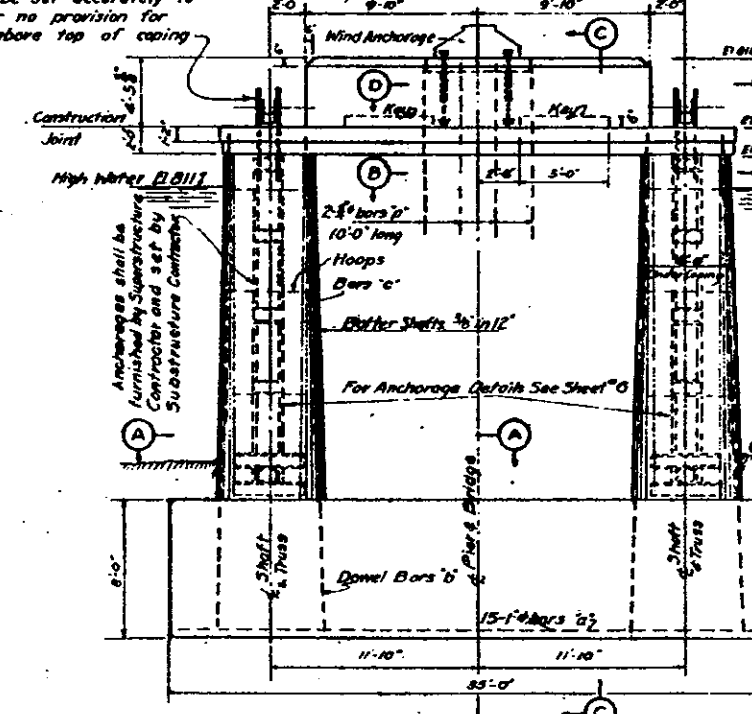
SECTION GG - DETAILS OF OFFICE PROTECTION



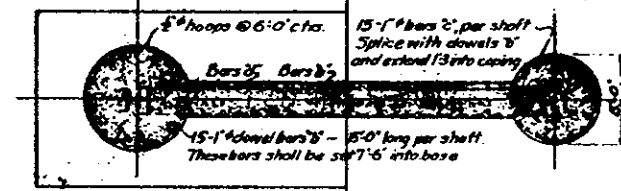
VIEW HH - SHOWING PLATE DEVELOPED



HALF PLAN HALF SECTION DD



ELEVATION



HALF SECTION AA HALF SECTION BB

Wind anchors shall be furnished and set by Superstructure Contractor. Anchor bolts shall be furnished by Superstructure Contractor but set by Substructure Contractor. For details see Sheet No. 6.

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

PIER 4
15 piles in base, spacing about 4'-0". Piles 2'-0" into base. Bore spaced to clear piling. M.E.W. 10/12/29. Average length of piles below base = 21.44'

GENERAL NOTES

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 1/2:3 mix except in copings of piers 2 and 3, copings of abutments, or tremie concrete, in which cases a 1:2:4 mix shall be used.
Chamfer all exposed corners 1 1/2 inches.
Provide substantial keys at 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.

ANCHOR PIERS No. 1 & 4

FAYETTE-GREENE COUNTIES
L.P. 451 STA. 0+00
SHEET 3 OF 16 S-7634
SHOP DRAWINGS D-2179

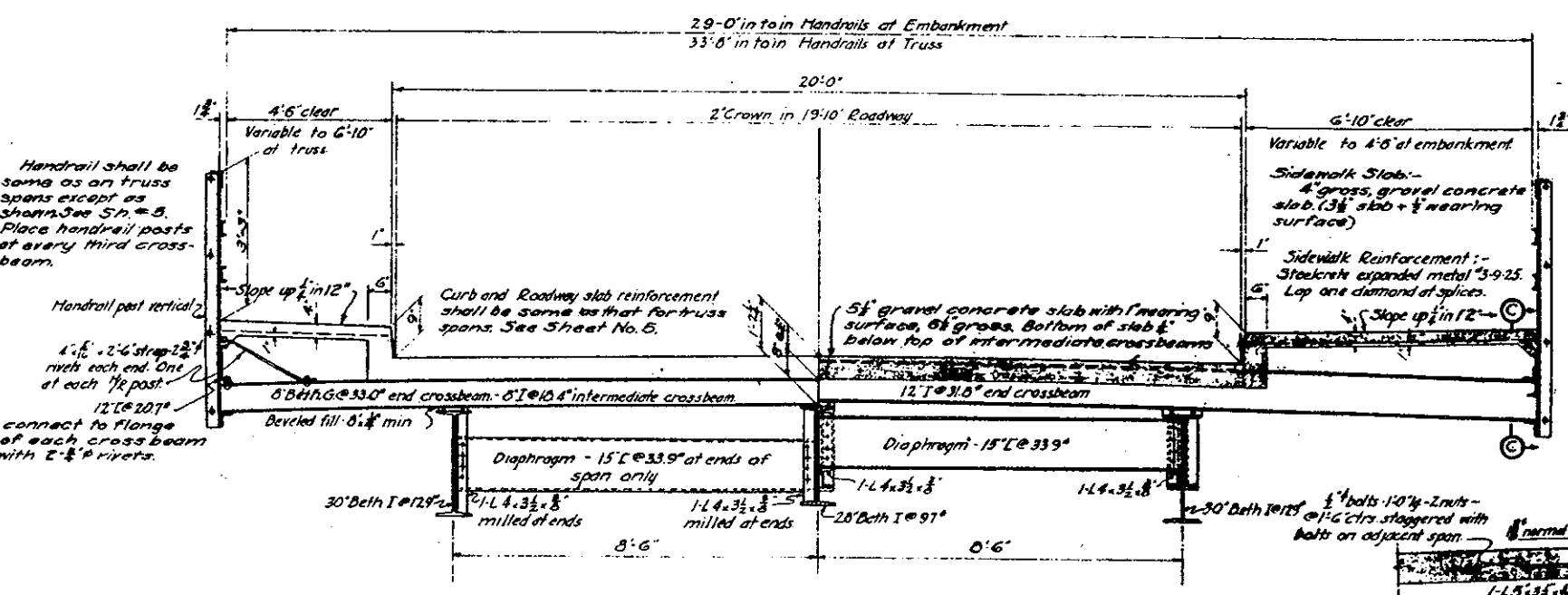
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**MONONGAHELA RIVER BRIDGE
AT POINT MARION, PA.**

PIERS

SCALE 3/4" = 1'-0"
HARRINGTON AND CORTELYOU
ENGINEERS
KANSAS CITY, MO.
SHEET No. 3

\$7634

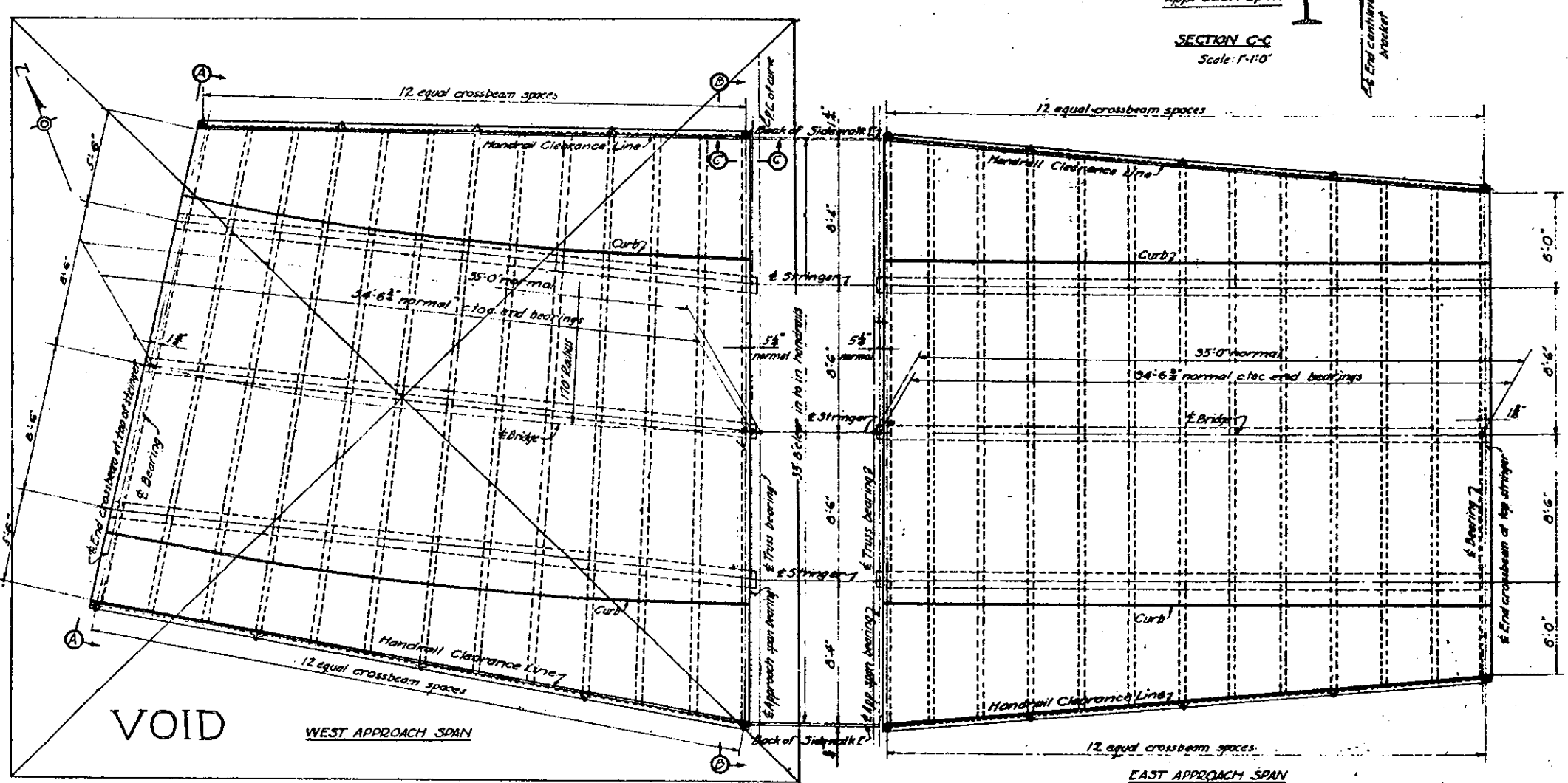


HALF SECTION A-A

HALF SECTION B-B

CROSS SECTION - WEST APPROACH SPAN
Scale: 1/2" = 1'-0"

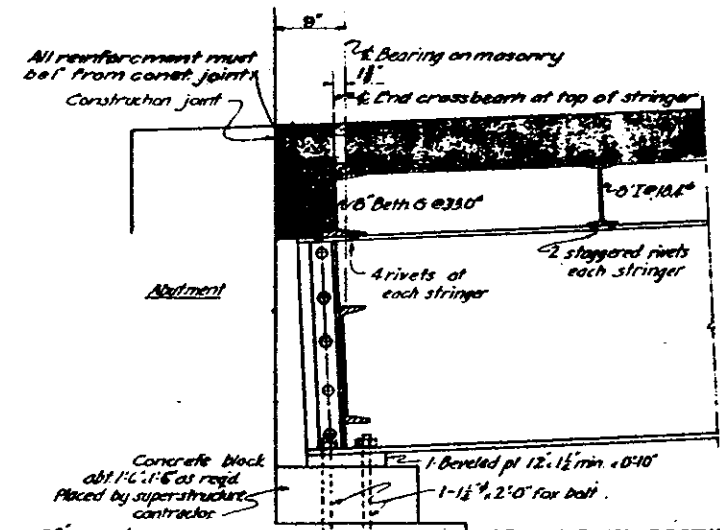
East span same as west span except as shown in plan. See Note Below



WEST APPROACH SPAN

PLAN OF APPROACH SPANS
Scale: 1/2" = 1'-0"

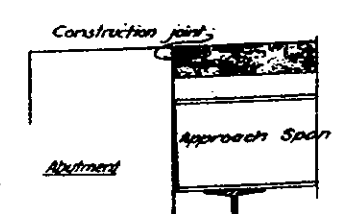
EAST APPROACH SPAN



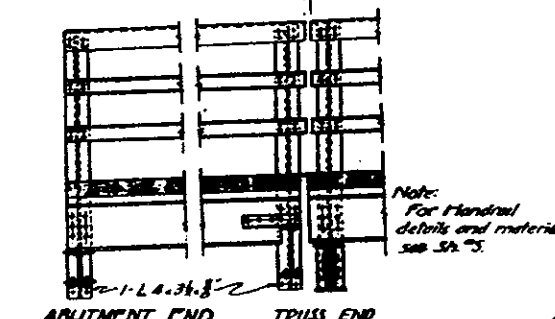
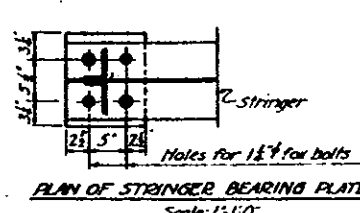
LONGITUDINAL SECTION SHOWING CENTER STRINGER - WEST SPAN. SECTION SIMILAR FOR OUTSIDE STRINGERS

Scale: 1" = 1'-0"

Longitudinal section for East span same as above but opposite hand



SIDEWALK AT ABUTMENT
Scale: 1/2" = 1'-0"



NOTES:-
For General Notes see Sh. 6.
The stringers of the east approach span shall be parallel to the chord, or the same length, of the vertical curve.

NOTE WEST APPROACH

For revised details of West Approach span see Sheet 2A. This sheet VOID for West Approach, except for details not covered on Sheet 2A.

FAYETTE-GREENE COUNTIES
L.R. 451 STA. 0+00
SHEET 4 OF 16 S-7634
SHOP DRAWINGS D-2:79

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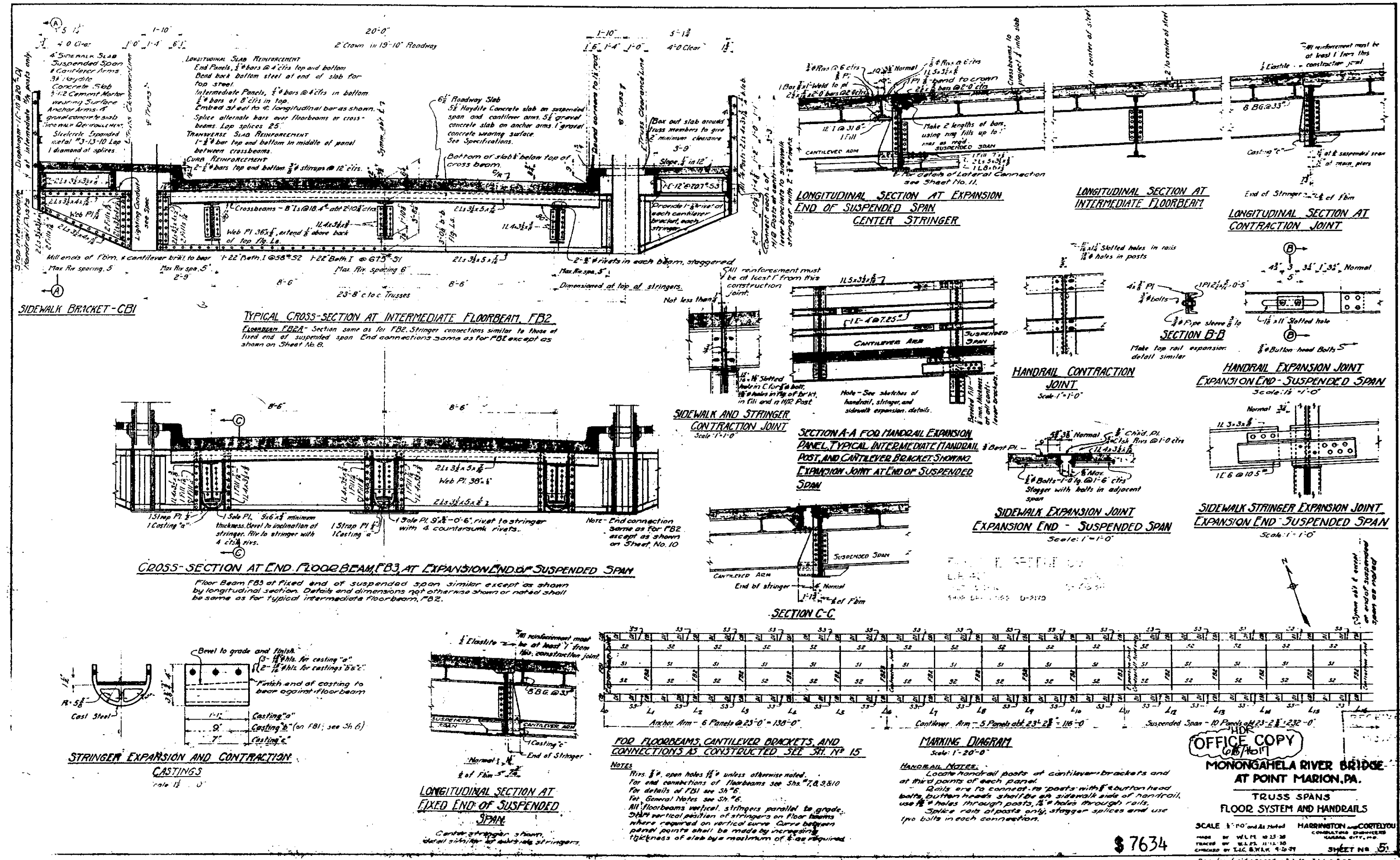
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MONONGAHELA RIVER BRIDGE
AT POINT MARION, PA.

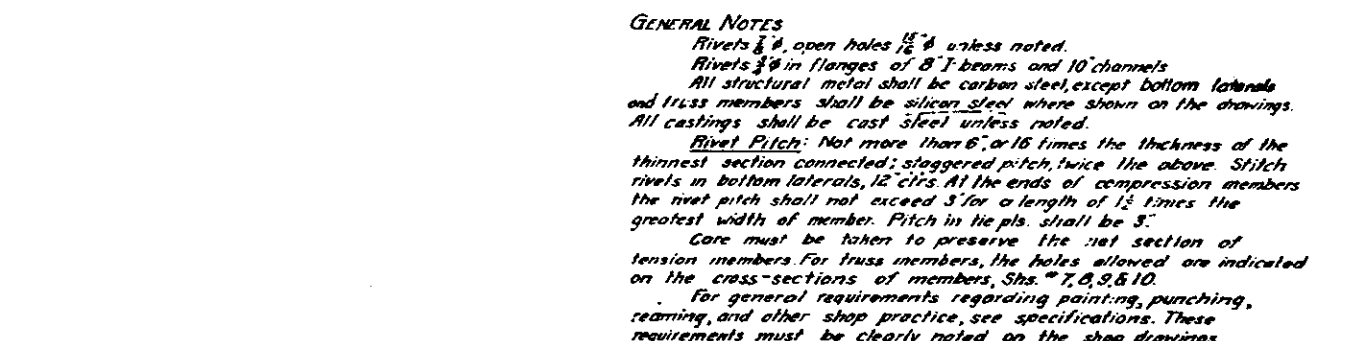
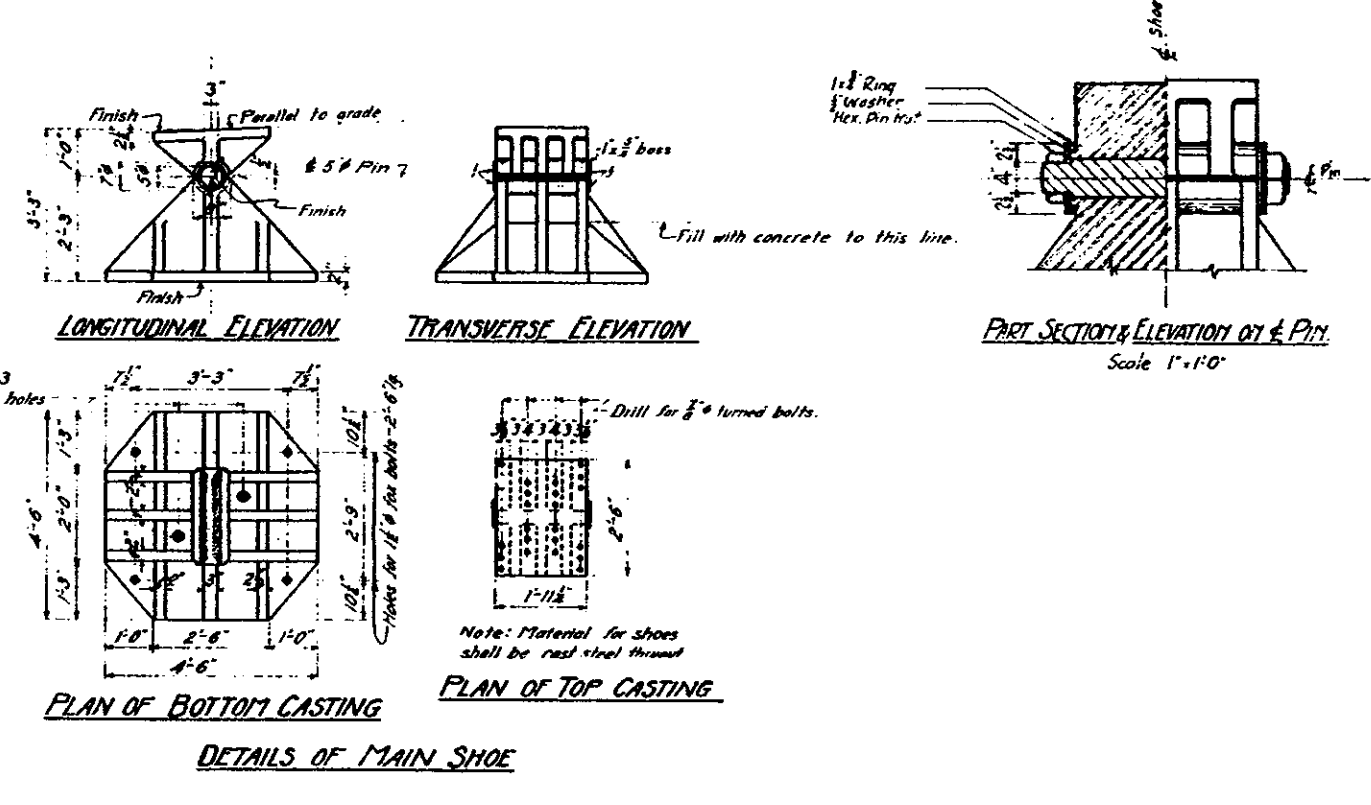
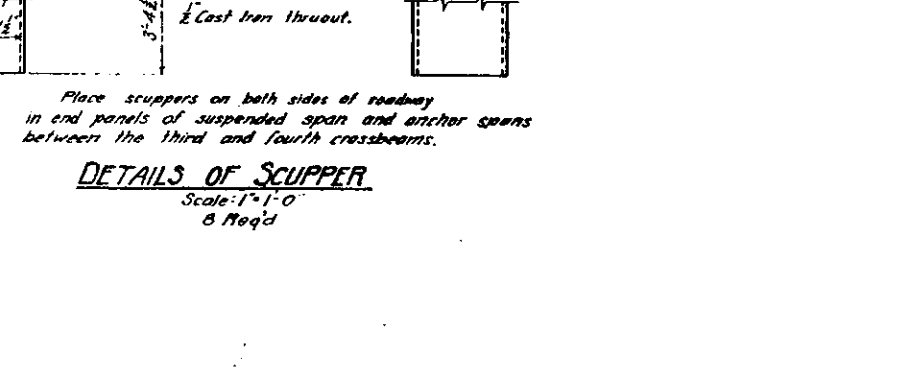
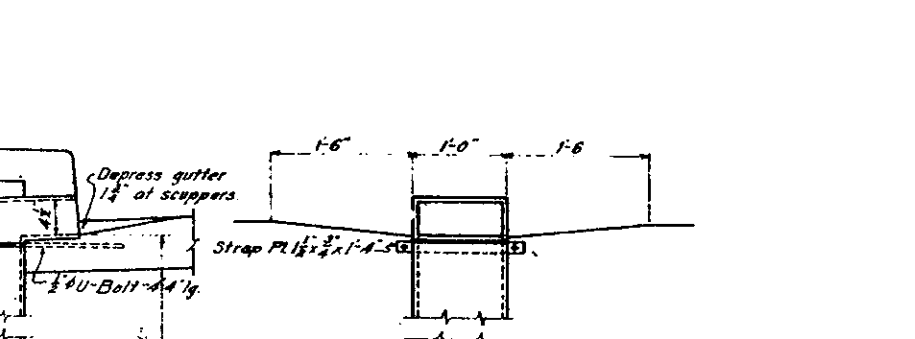
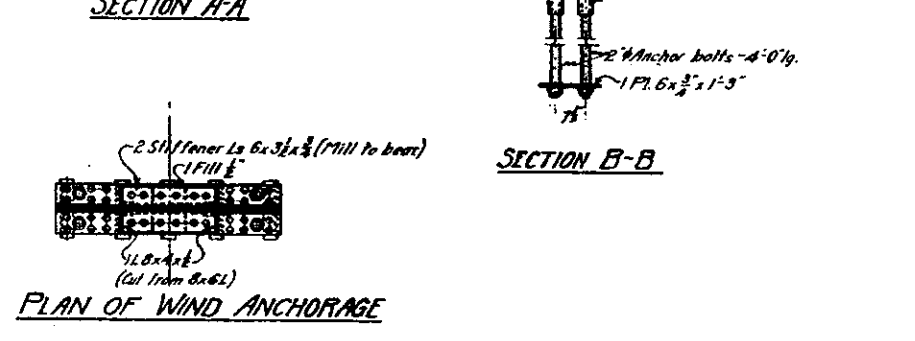
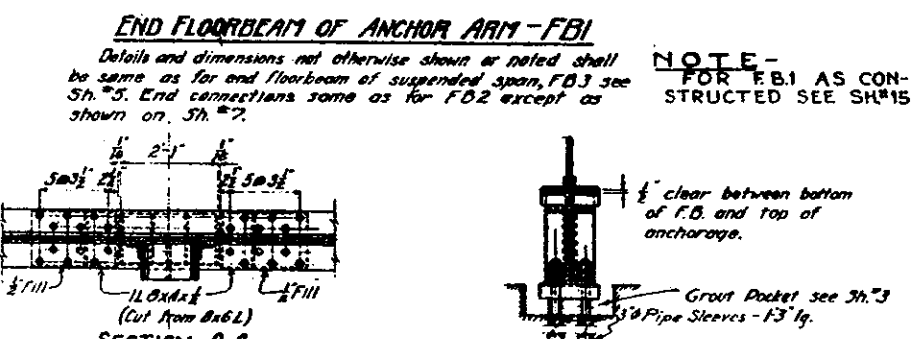
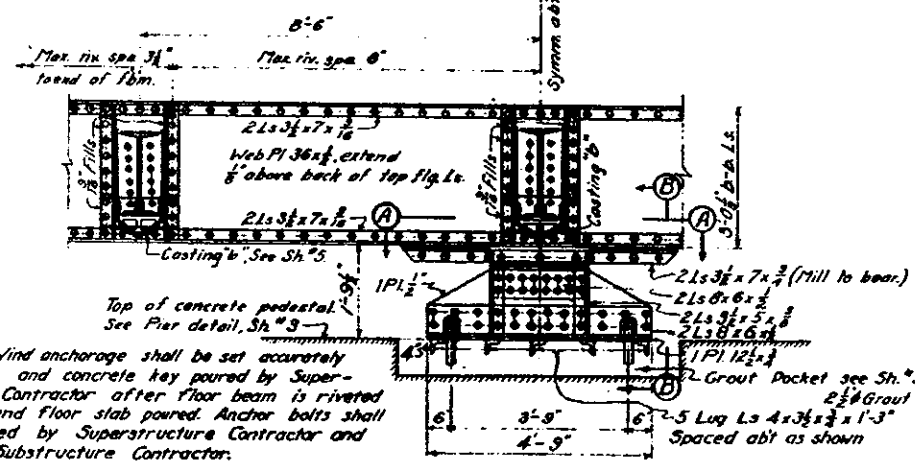
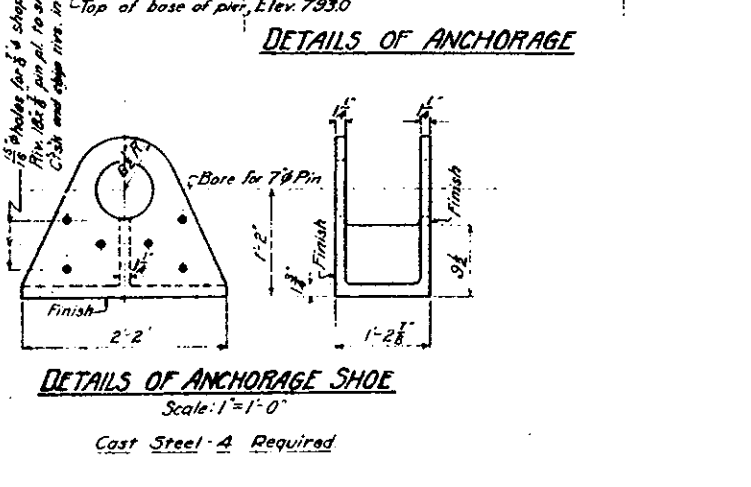
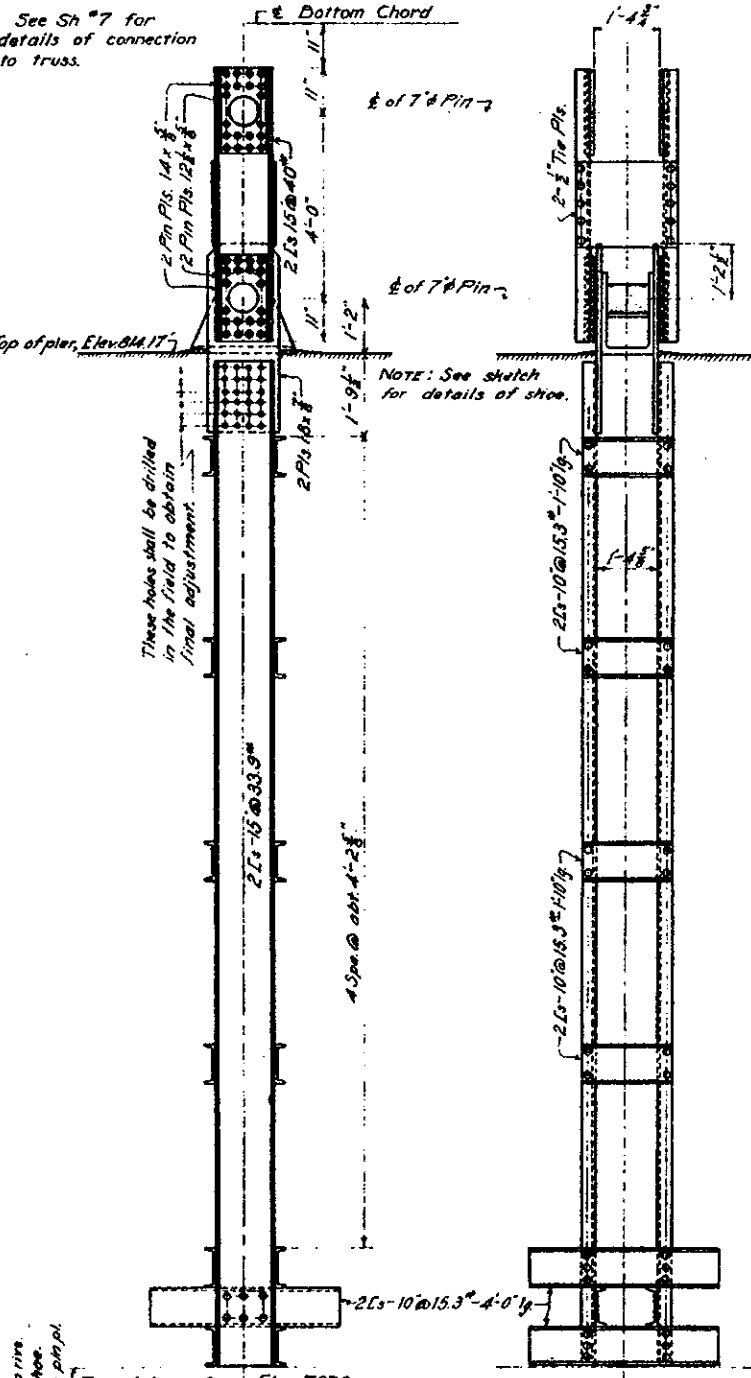
APPROACH SPANS

SCALE: As Noted
HARRINGTON & CORTELLON
MADE BY JAL 10-20-20
CHECKED BY JIC 8-26-21
SHEET NO. 4

\$7634



See Sh #7 for details of connection to truss.



GENERAL NOTES

Rivets $\frac{3}{4}$ " open holes $\frac{15}{16}$ " unless noted.

Rivets $\frac{3}{4}$ " in flanges of 8" I-beams and 10" channels.

All structural metal shall be carbon steel, except bottom laterals and truss members shall be silicon steel where shown on the drawings.

All castings shall be cast steel unless noted.

Rivet Pitch: Not more than 6" or 16 times the thickness of the thinnest section connected; staggered pitch, twice the above. Stitch rivets in bottom laterals, 12 c/s. At the ends of compression members the rivet pitch shall not exceed 3" for a length of 12 times the greatest width of member. Pitch in tie pls. shall be 5".

Core must be taken to preserve the net section of tension members for truss members, the holes allowed are indicated on the cross-sections of members, Shs. #7, 8, 9, & 10.

For general requirements regarding painting, punching, reaming, and other shop practice, see specifications. These requirements must be clearly noted on the shop drawings.

Camber: The trusses shall be cambered to have their normal dimensions under full dead load at 70°F. The lengths of stringers shall correspond to this normal length.

Erection: The design has been made on the basis of stresses in the completed structure; no provision has been made for stresses due to erection.

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L.R. 451
SHEET 6 OF 10
SHOP DRAWINGS D-2179

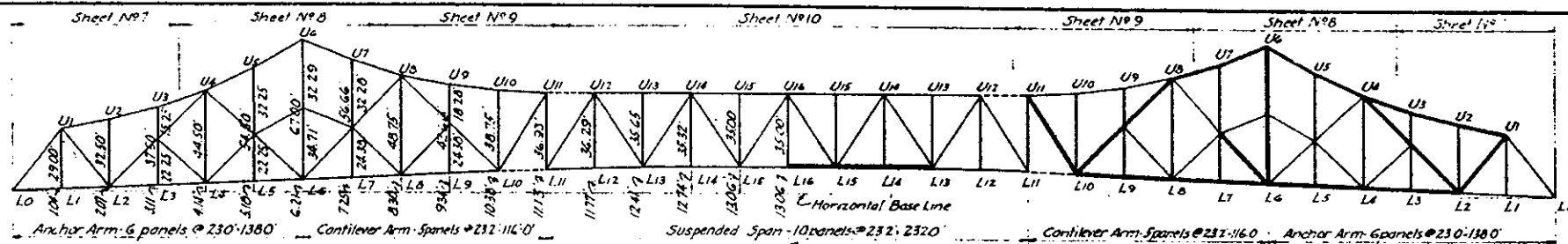
STA. 0+00
S-7634

MONONGAHELA RIVER BRIDGE
AT POINT MARION, PA.

TRUSS SPANS
FLOOR SYSTEM, SHOES AND ANCHORAGES

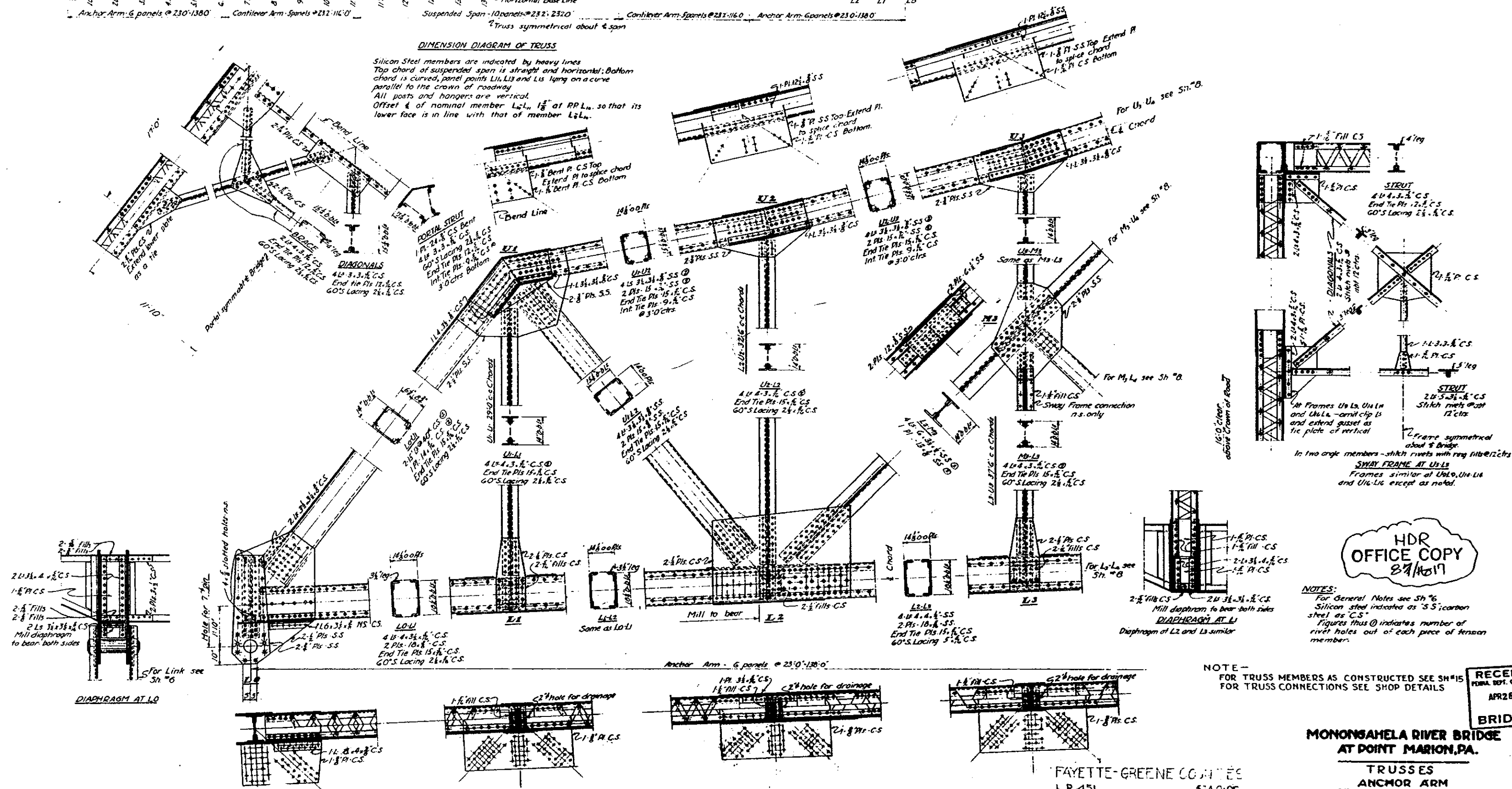
SCALE: 1"=1'-0"
HARRINGTON AND CORTEYAU
DESIGNED BY WLM 11-17-28
CHECKED BY WLM 12-6-28
SHEET NO. 6

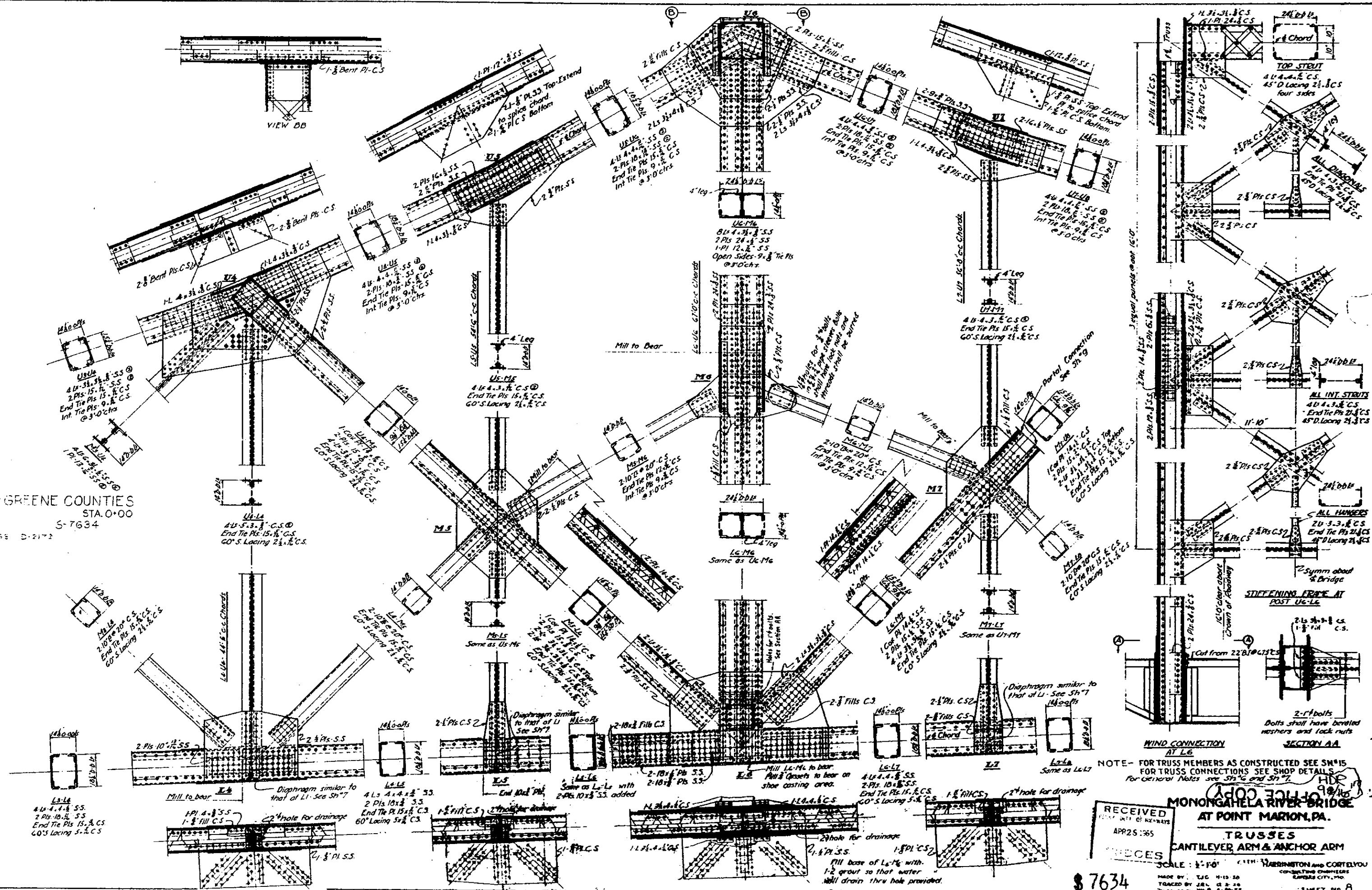
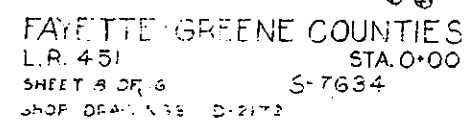
\$ 7634



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 PPL₁₂ so that its lower face is in line with that of member L_{11} .





NOTE- FOR TRUSS MEMBERS AS CONSTRUCTED SEE SM#15
FOR TRUSS CONNECTIONS SEE SHOP DETAILS
For General Notes see Sh #6 and Sh #7. HDR
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MONONGAHELA RIVER BRIDGE
AT POINT MARION, PA.

TRUSSES
CANTILEVER ARM & ANCHOR ARM

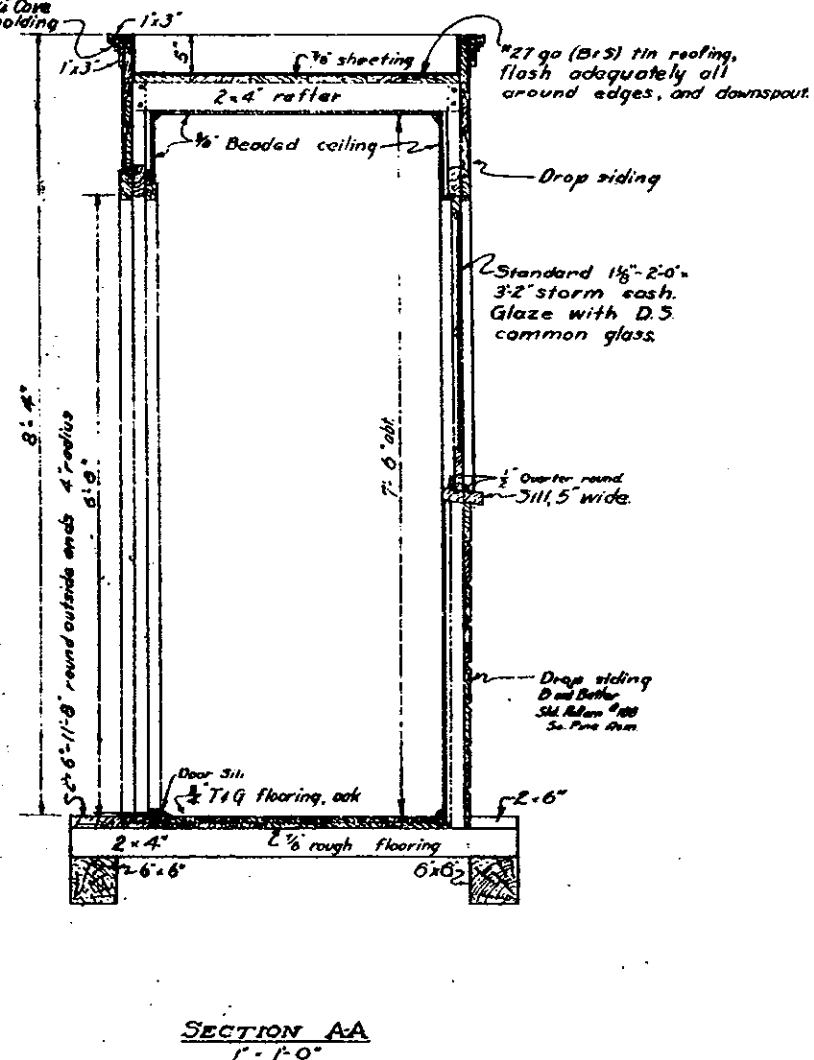
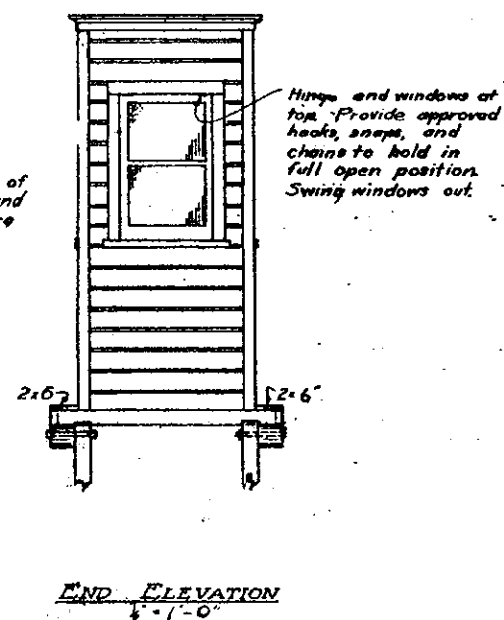
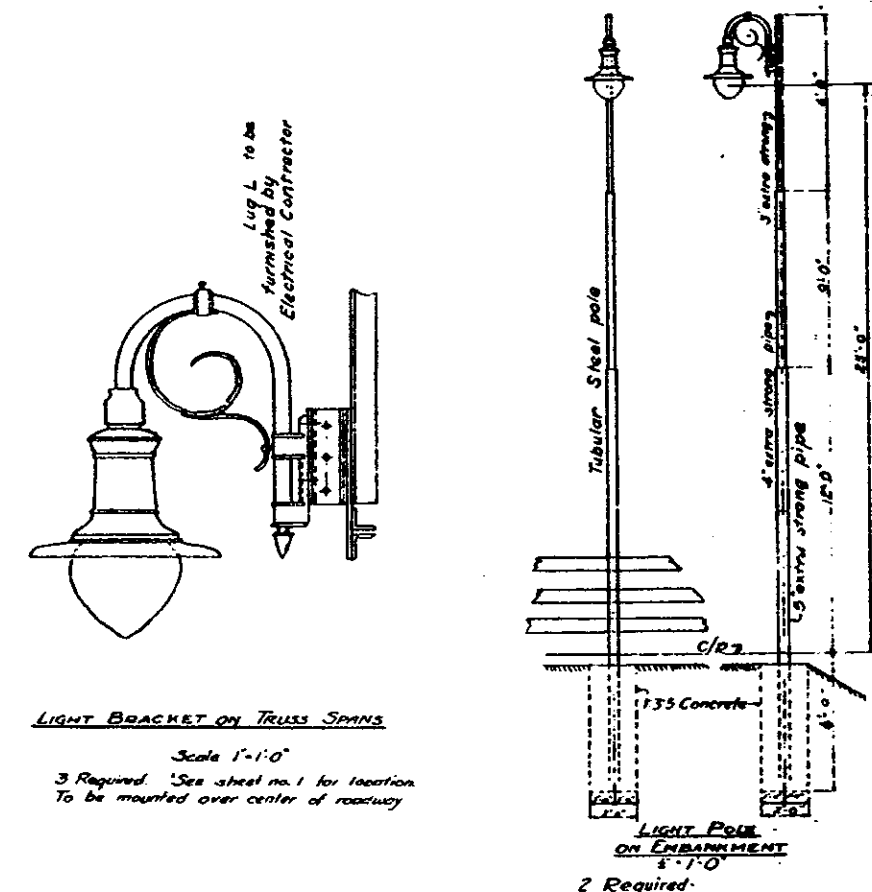
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SCALE : 1" = 40' WITH HARRINGTON AND CORTEZ
CONSULTING ENGINEERS
EASTON, CITY, MD.

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MADE BY TJC 4-15-80
TRACED BY JRL 6-2-80



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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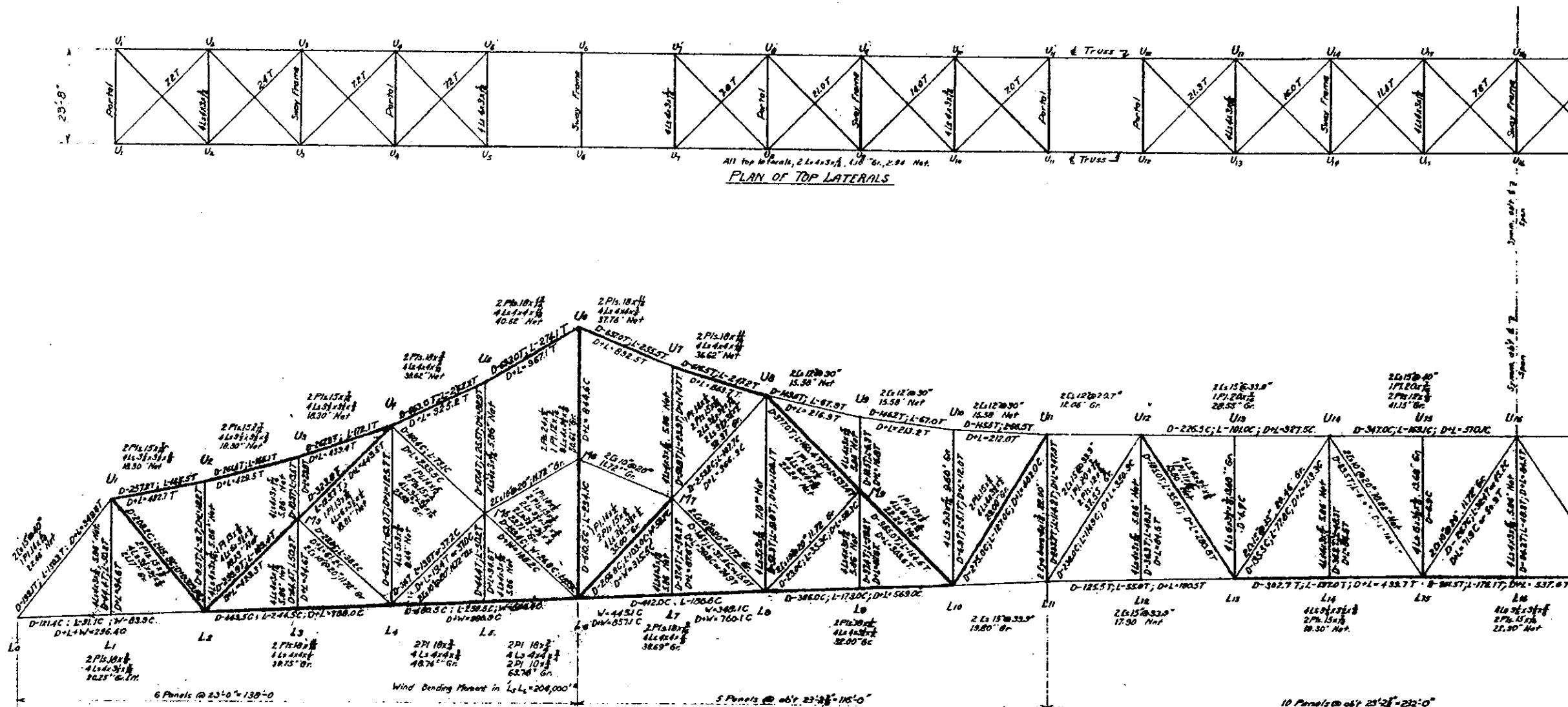
MONONGAHELA RIVER BRIDGE
AT POINT MARION, PA.

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.

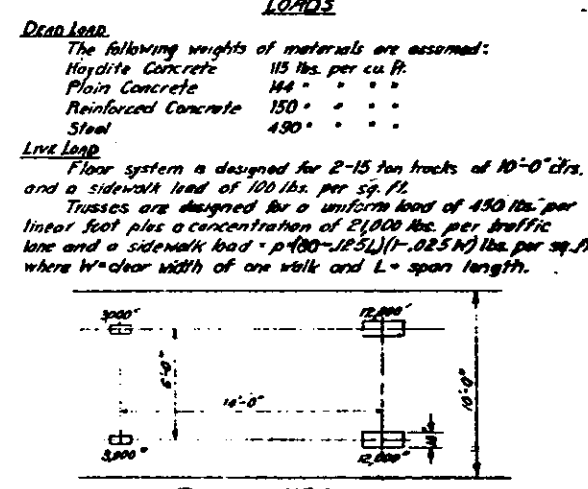
The above stresses are normal stresses.
 For the four combinations of design the normal stresses will be modified as follows:-
 Case I - D+L @ normal unit stress.
 Case II - D+L+15W @ 1.25 normal unit stress.
 Case III - D+30W @ 1.25 " "
 Case IV - D+L+R @ normal unit stress.

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.



PLAN OF LIVE LOADING

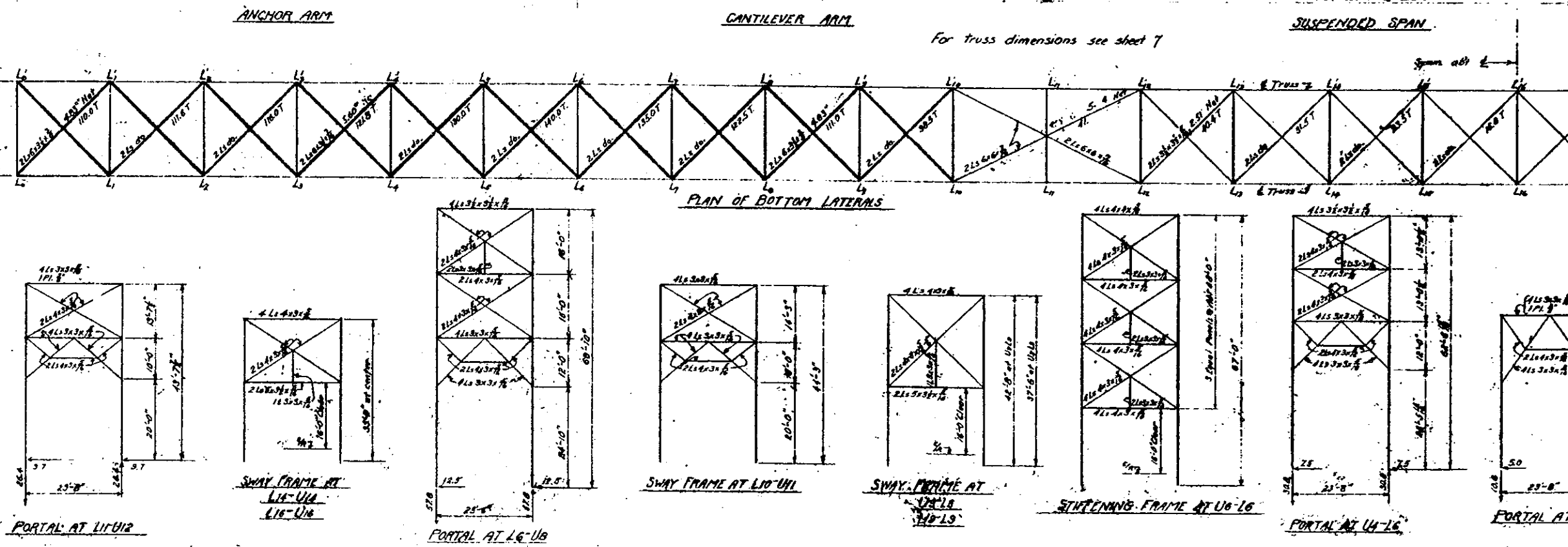
IMPACT
 On floor system I = 30% except 60% for floorbeam connections, and end floorbeams.
 On trusses I = 10% except 60% for hangers and substructure, where L = loaded length in feet.

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

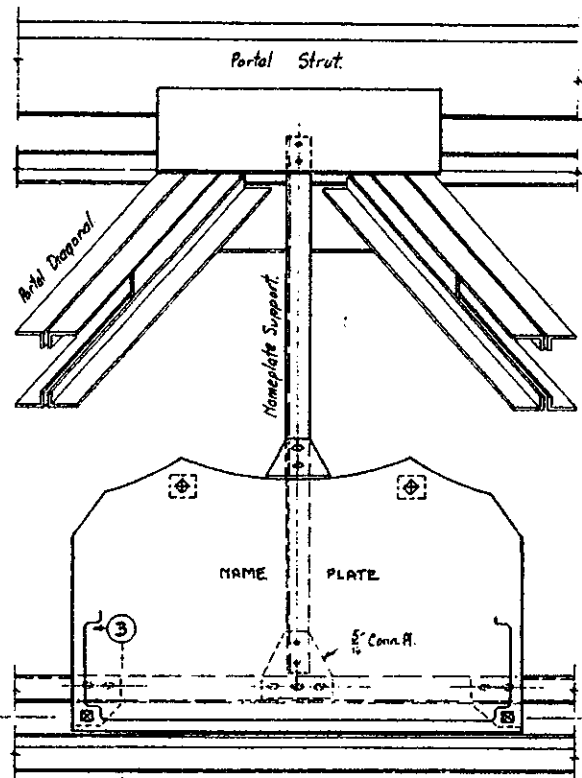
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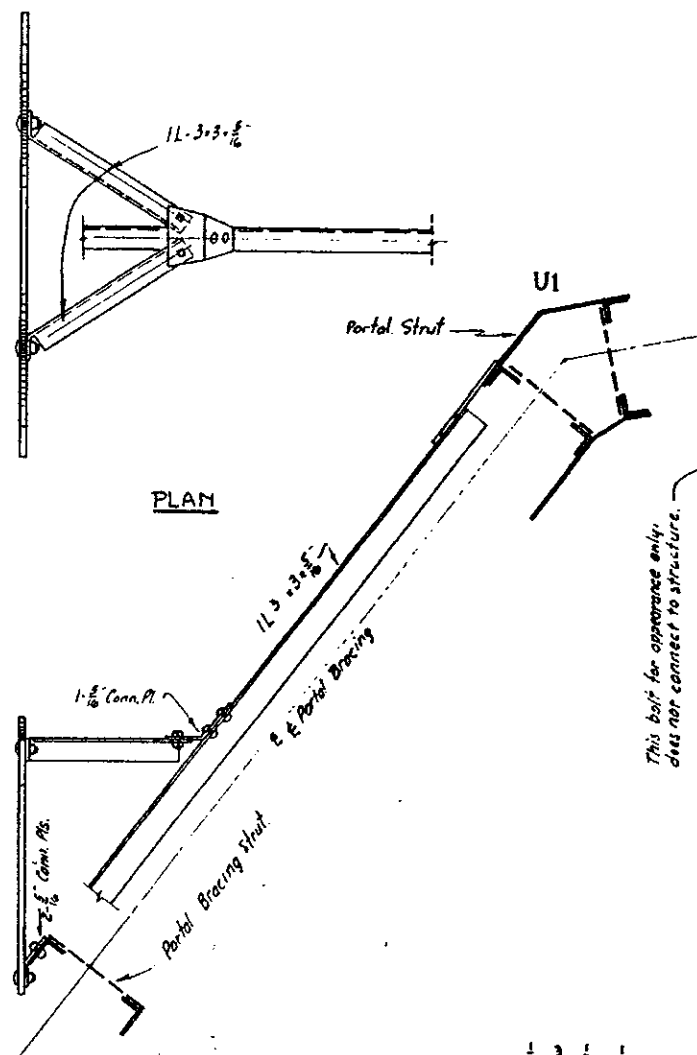
MONONGAHELA RIVER BRIDGE
AT POINT MARION, PA.

STRESS SHEET

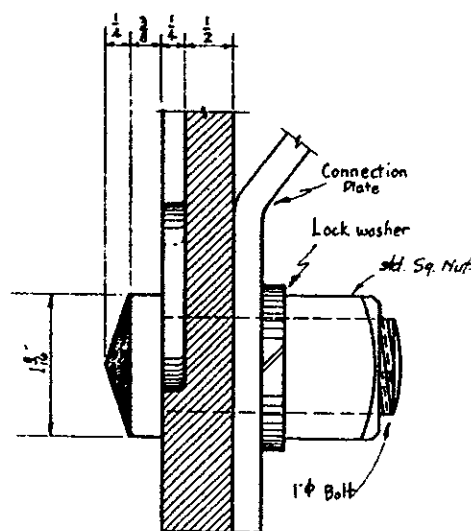
SCALE: 1/4" = 1'-0"
 HARRINGTON & COMPANY
 1412/16/17
 SHEET NO. 13



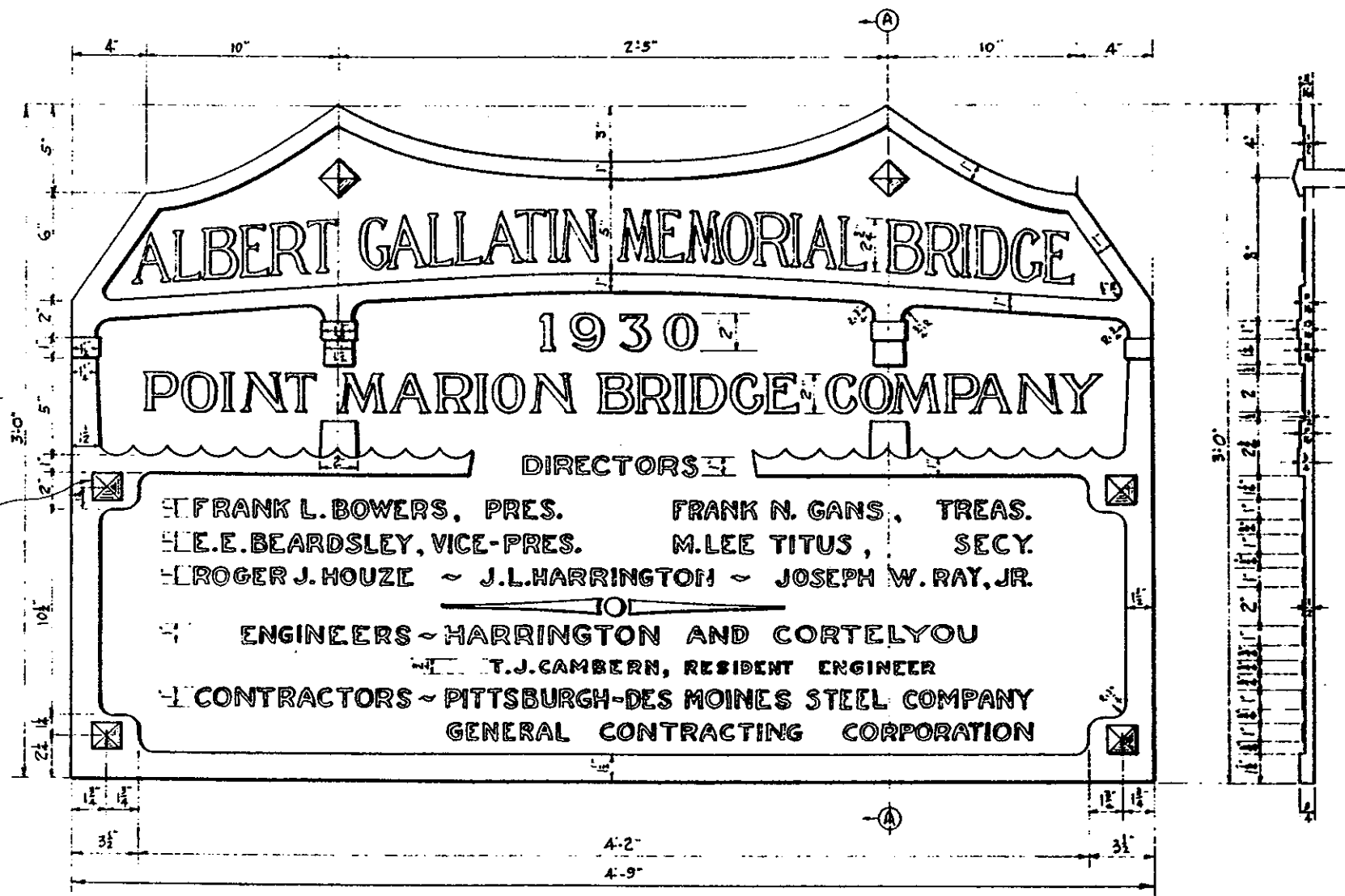
CONNECTION DETAILS
Scale 1"=1'-0"



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.

HDR
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15 APR 1967

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FAYETTE-GREENE CO. DEPT. OF HIGHWAYS
APR 28 1965
BRIDGES

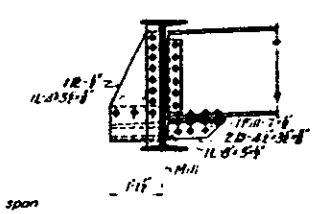
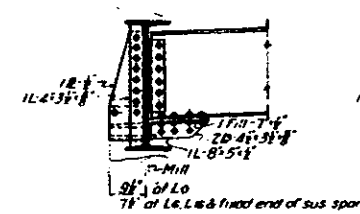
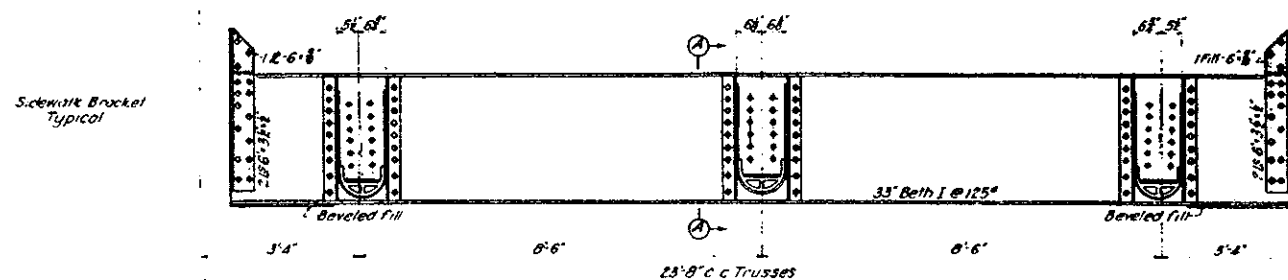
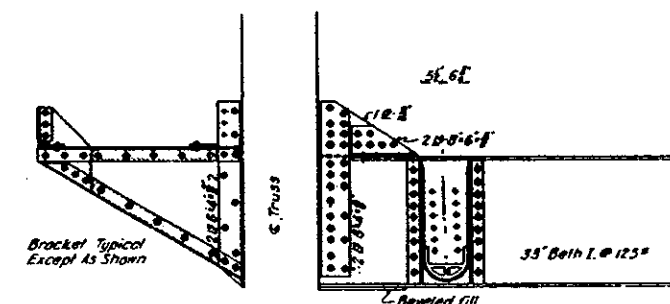
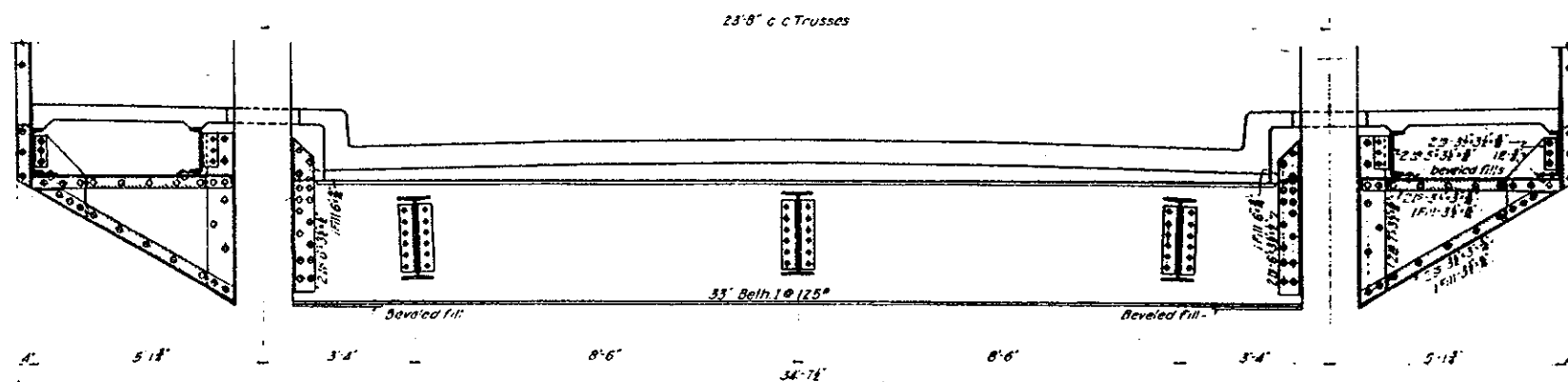
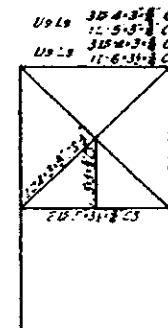
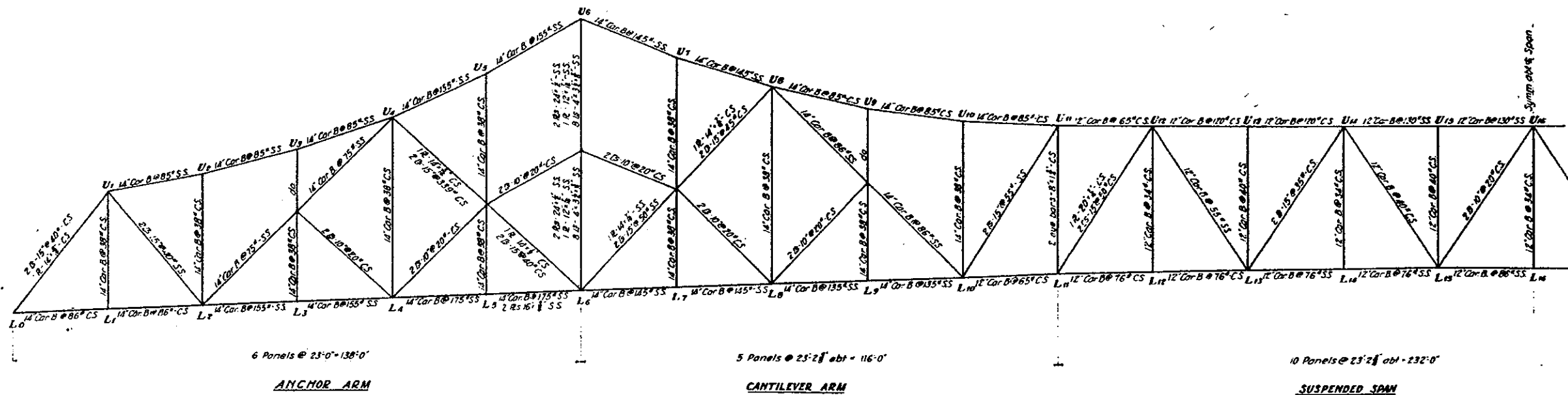
MONONGAHELA RIVER BRIDGE
AT POINT MARION, PA.

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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FAYETTE-GREENE COUNTIES
L.R. 451
STA. 0+00
SHEET 15 OF 16
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APR 28 1965
BRIDGES

This sheet shows main sections of truss members and floor system where different from original design as shown on sheets 5 to 11 incl.

MONONGAHELA RIVER BRIDGE
AT POINT MARION, PA.
TRUSSES AND FLOOR SYSTEM
AS CONSTRUCTED

SCALE 1" = 10'-0"
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO.
SHEET NO. 15

\$ 7634

MADE BY: VLR-2-2-81 CHECKED BY: SEC-2-2-7-9