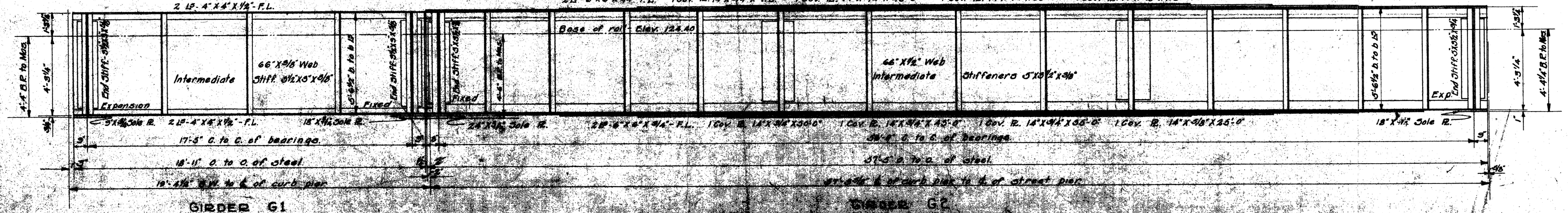
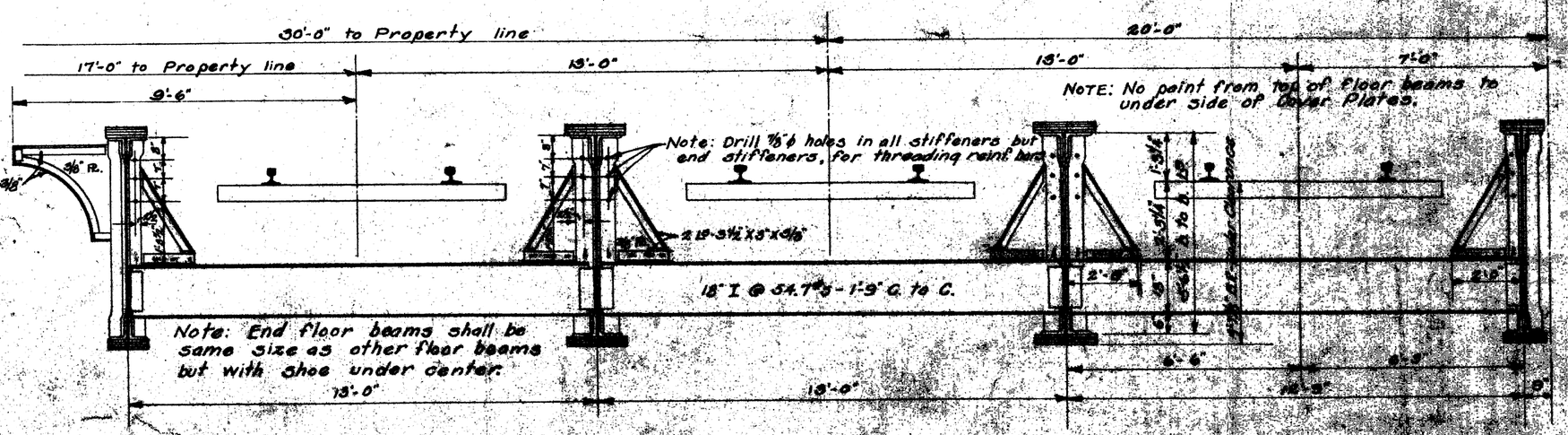
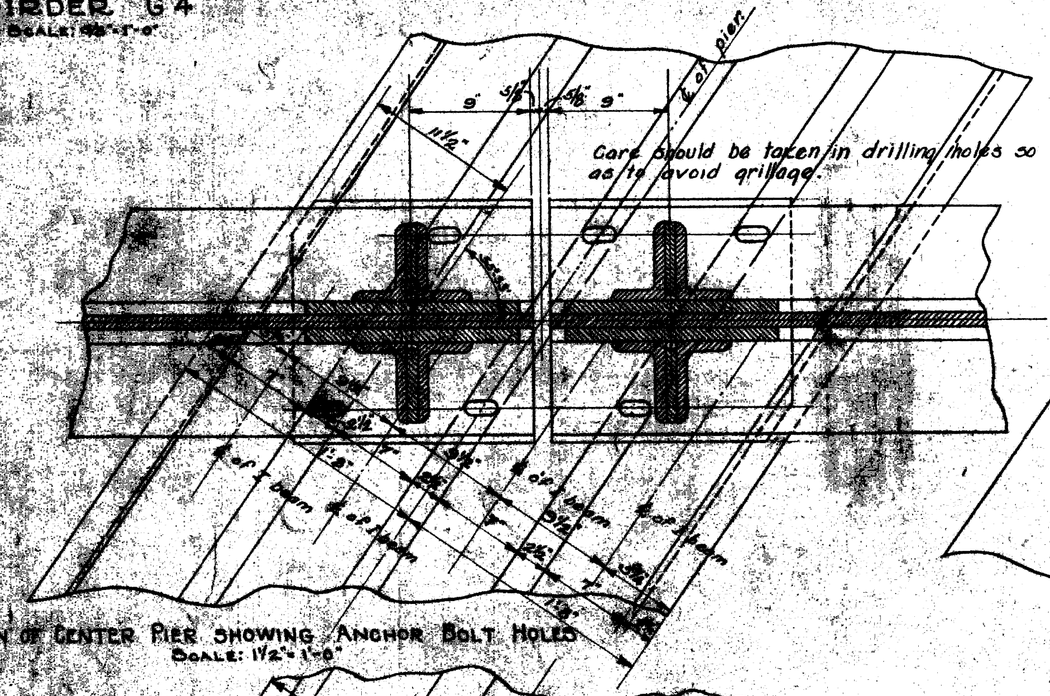
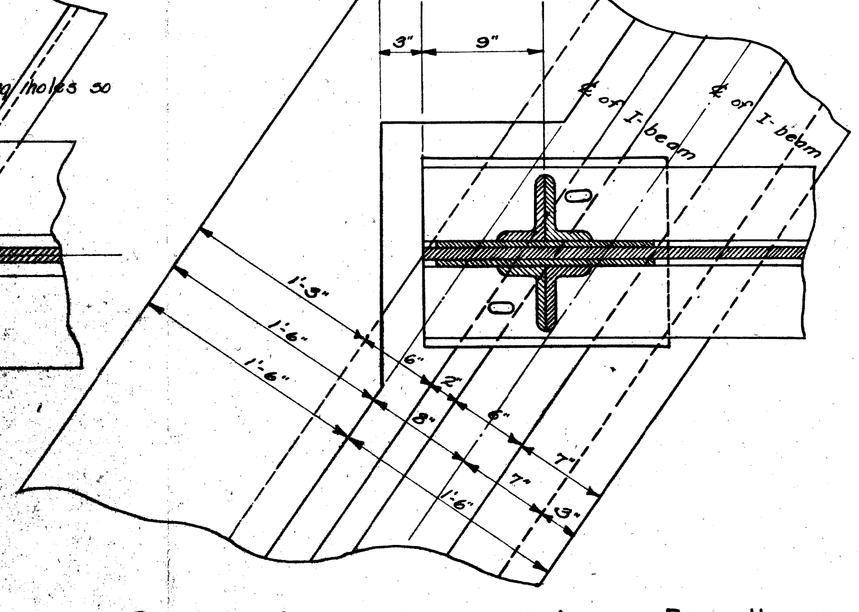




SECTION
SCALE: 4'6"=1'-0"



PLAN OF CENTER PIER SHOWING ANCHOR BOLT HOLES
SCALE: 1 1/2"=1'-0"



PLAN AT ABUTMENT SHOWING ANCHOR BOLT HOLES
SCALE: 1 1/2"=1'-0"

GIRDER G1

Span- 19'-4 1/2" B.W. to ℄ of pier
C. to C. Steel - 18'-11"
C. to C. of bearings 17'-5"
B. to B- 19'-3 7/8"
Dead Loads:

Track	95#
Ballast	780
Concrete	750
Steel	500
	2105#

Maximum Moments:

D.L.	83,000 #ft
L.L.	255,000
I	252,300
	592,300 #ft

Maximum Shears:

D.L.	18,900
L.L.	70,000
I.	63,300
	152,200 #s

Web Area Required - 15.8 □"
Use: 66"X 9/16" - Area - 24.75 □"
Flange Area Required - 7.1 □"
Use - 2 L9 - 4"X4"X 1/2" - 6.50
1/2 Web - 3.12
9.62 □"
Use: 3 1/2"X 5"X 5/16" stiffeners.
5"X 3"X 5/16" End stiffeners.

GIRDER G2

Span: 37'-3 5/8" C. to C. of piers
C. to C. Steel - 37'-5"
C. to C. bearings 38'-9"
B. to B. 38'-3 1/8"
Dead Loads:

Track	95#
Ballast	1300
Concrete	1200
Steel	1000
	4595#

Maximum Moments:

D.L.	1,300,000 #ft
L.L.	1,785,000
I	1,384,600
	4,469,000 #ft

Maximum Shears:

D.L.	91,400 #s
L.L.	140,600
I.	127,300
	359,300 #s

Web area required - 50.9 □"
Use: 66"X 1/2" - Area - 33.0 □"
Flange Area Required - 31.5 □"
Use: 2 L9 - 6"X6"X 3/4" - 16.88
3 Pls. 14"X 3/4" - 27.00
L.E. 18"X 1/2" - 7.49
1/2 Web - 4.12
55.49 □"
Lengths of Cov. Pls.
22'-0" 20'-0", 43'-0", & 36'-0"
Use: 5"X 3 1/2"X 5/16" stiffeners.
3"X 2"X 5/16" End stiffeners.

GIRDER G3

Span - 37'-3 5/8" B.W. to ℄ of Pier
C. to C. Steel - 18'-1"
C. to C. of bearings - 17'-5"
B. to B. 17'-9 1/2"
Dead Loads:

Track	95#
Ballast	1300
Concrete	1200
Steel	1000
	4595#

Maximum Moments:

D.L.	165,000 #ft
L.L.	260,000
I.	455,000
	1,080,000 #ft

Maximum Shears:

D.L.	37,900 #s
L.L.	126,000
I.	125,000
	288,000 #s

Web Area Required - 28.8 □"
Use: 66"X 7/16" - Area - 28.88 □"
Flange Area Required - 13.0 □"
Use: 2 L9 - 6"X6"X 1/2" - 10.88 □"
1/8 Web - 2.40
13.28 □"
Use: 3"X 2 1/2"X 5/16" stiffeners
3"X 2"X 5/16" End Shiffeners

GIRDER G4

Span of 38'-0" C. to C. of piers
C. to C. Steel - 37'-5"
C. to C. bearings 38'-9"
B. to B. 38'-3 1/8"
Dead Loads:

Track	95#
Ballast	1300
Concrete	1200
Steel	1000
	4595#

Maximum Moments:

D.L.	2,080,000 #ft
L.L.	3,240,000
I.	4,243,200
	9,523,000 #ft

Maximum Shears:

D.L.	147,100 #s
L.L.	229,100
I.	229,500
	639,900 #s

Web Area Required - 42.5 □"
Use: 66"X 1/2" Area - 33 □"
Flange Area Required - 81.4 □"
Use: 4 PL 8"X 1/2" - 65.48 □"
1 PL 20"X 1" - 17.74
2 L9. 6"X6"X 1" - 35.36
1/8 Web - 3.13
121.71 □"
Lengths of Cov. Pls.
43'-0", 39'-0", 41'-0" & 36'-0"
Use 6"X 4"X 5/16" stiffeners.
4"X 3"X 5/16" End stiffeners.
1/2"X 18" Plate

ESTIMATED WEIGHTS		
Description	One Girder	Two Girders

GENERAL NOTES:
Specifications: A.R.E.A. 1920-Reamed Work.
Live Load: Cooper's E60.
Impact: A.R.E.A. 1920.
Alignment: Tangent
Skew: Square
Unit Stress: 18,000 lbs. per sq. in. Medium Steel, 20% elsewhere.

Notes: All sole plates shall be 5/16" thick except at center pier where they shall be 1" thick.
All sole plates shall be riveted to girders with countersunk rivets.
Exact location of anchor bolt holes shall be shown on details made by Bridge company.
At curb piers the sole plates are riveted to a 2" plate, which in turn is anchored to the pier so as to fit the ends of the girders.

WABASH RAILWAY

DETROIT TERMINAL DIVISION

DETROIT MICH.

WAYNE COUNTY

LIVERNOIS AVE

STEEL DESIGN

OFFICE OF THE CHIEF ENGINEER

SCALE: AS SHOWN MCH. 30, 1927

SHEET 2 OF 8

DESIGNED BY H.D.R. DRAWN BY H.D.R. CHECKED BY A.H.S.

Approved: [illegible] ENGINEER OF BRIDGES & BUILDINGS

[illegible] CITY ENGINEER

File XU 32-13