

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 14
F.A.I.-72	58-63HVB	MACON	27	53	26 SHEETS
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT		

**INTERIOR GIRDER REACTION TABLE**

	S. Abut.	Pier 1	Pier 2	*N. Abut. Int.	N. Abut. Exter.
R <sub>e</sub> (K)	42.9	192.4	101.1	21.5	20.6
R <sub>i</sub> (K)	42.3	75.3	53.0	34.3	29.7
Imp (K)	9.5	15.9	15.9	10.3	8.9
R total (K)	94.7	283.6	170.0	66.1	59.2

\*Reaction at link same as N. Abut.

**TOP OF WEB ELEVATIONS**

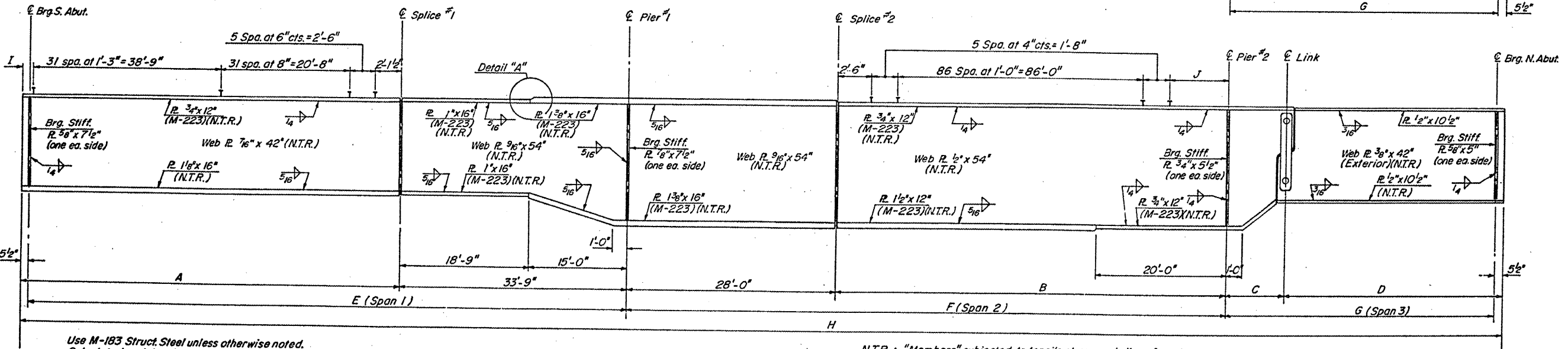
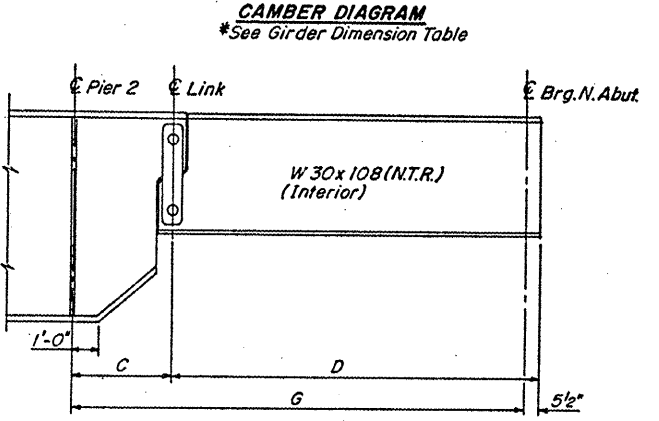
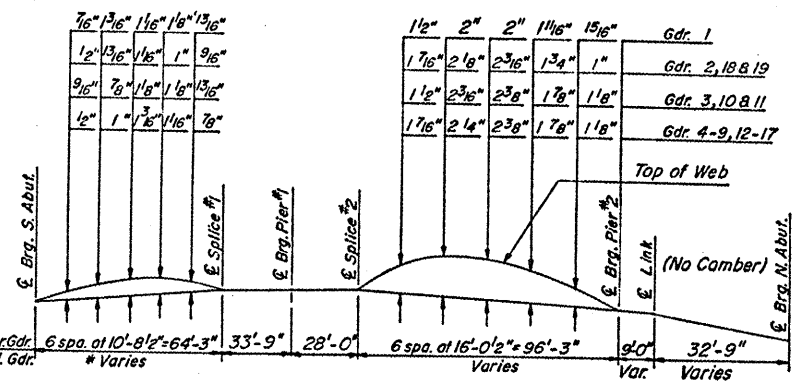
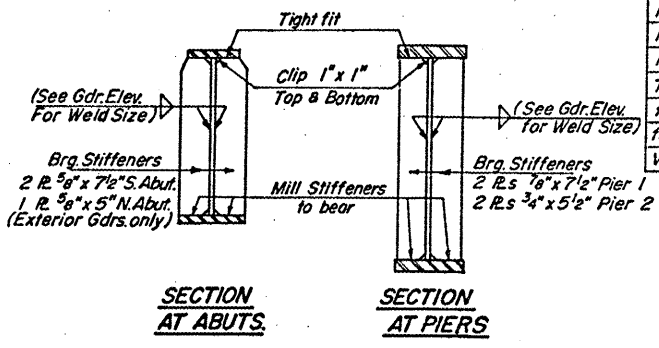
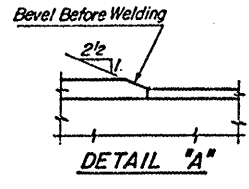
Gdr.	Loc.	€ Brg. S. Abut.	€ Splice No. 1	€ Brg. Pier No. 1	€ Splice No. 2	€ Brg. Pier No. 2	€ Link	€ Brg. N. Abut.
1		711.83	711.92	711.88	711.85	711.39	711.35	711.12
2		711.92	711.96	711.94	711.92	711.52	711.48	711.31
3		712.02	712.08	712.06	712.04	711.66	711.62	711.45
4		712.17	712.23	712.21	712.20	711.80	711.77	711.59
5		712.33	712.38	712.37	712.35	711.95	711.91	711.74
6		712.47	712.52	712.50	712.49	712.08	712.04	711.87
7		712.59	712.64	712.62	712.60	712.19	712.15	711.99
8		712.54	712.59	712.56	712.54	712.13	712.09	711.92
9		712.42	712.47	712.44	712.42	712.01	711.97	711.79
10		712.27	712.31	712.28	712.25	711.85	711.81	711.59
11		712.04	712.06	712.02	711.98	711.55	711.51	711.28
12		712.19	712.22	712.18	712.15	711.70	711.65	711.46
13		712.35	712.37	712.33	712.30	711.84	711.80	711.61
14		712.49	712.51	712.47	712.44	711.98	711.93	711.74
15		712.61	712.62	712.58	712.55	712.09	712.04	711.85
16		712.58	712.59	712.55	712.51	712.05	712.00	711.81
17		712.47	712.47	712.43	712.39	711.93	711.88	711.69
18		712.38	712.36	712.31	712.26	711.76	711.72	711.51
19		712.29	712.25	712.18	712.12	711.60	711.55	711.29

\* Top of W30 Beam

**INTERIOR GIRDER MOMENT TABLE**

	0.4 Span 1	Pier 1	0.6 Span 2	Pier 2	0.6 Span 3	0.6 Span 3
I <sub>s</sub> (in. <sup>4</sup> )	14340	41115	25984	20051	4470	7066
I <sub>c</sub> (in. <sup>4</sup> )	39654	—	66933	—	—	—
S <sub>s</sub> (in. <sup>3</sup> )	805	1449	1091	723	300	328
S <sub>c</sub> (in. <sup>3</sup> )	1099	—	1506	—	—	—
Q (K/I)	0.927	1.442	0.960	1.330	1.312	1.253
M <sub>2</sub> (I'K)	406.5	2221.2	1014.1	240.8	175.9	169.5
f <sub>s</sub> (ksi)	6.06	18.39	11.15	4.00	7.04	6.20
s (K/I)	0.404	—	0.421	—	—	—
M <sub>s</sub> (I'K)	250.6	—	508.6	—	—	—
M <sub>2</sub> (I'K)	789.1	811.9	1123.8	271.2	231.0	229.5
M <sub>imp</sub> (I'K)	176.9	171.9	225.5	81.3	69.3	68.8
Total (I'K)	1216.6	983.8	1857.9	352.5	300.3	298.3
f <sub>s</sub> (s <sub>2</sub> +t) (ksi)	13.29	8.14	14.8	5.85	12.01	10.90
f <sub>s</sub> Total (ksi)	19.35	26.53	25.95	9.85	19.05	17.10
VR (K)	55.5	—	54.0	—	—	—

I<sub>s</sub> and S<sub>s</sub> are the moment of inertia and section modulus of the steel section.  
I<sub>c</sub> and S<sub>c</sub> are the moment of inertia and section modulus of the composite section used in computing f<sub>s</sub>.  
VR is the maximum  $\frac{1}{4}$  + Impact shear range in span used to determine shear connector spacing.



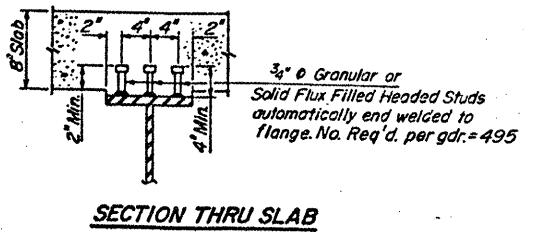
Use M-183 Struct. Steel unless otherwise noted. Calculated weight of structural steel includes 383,210 lbs. of high strength steel (M-223).

N.T.R. : "Members" subjected to tensile stresses shall conform to Supplemental Requirements for Notch Toughness (N.T.R.)

GIRDER ELEVATION

**GIRDER DIMENSIONS**

Gdr. Dim.	A	B	C	D	E	F	G	H	I	J
Gdr. 1	64'-5 1/2"	95'-11 1/4"	8'-11 3/4"	33'-1 1/2"	97'-9 1/16"	123'-11 1/4"	41'-7 3/4"	264'-3 1/2"	5 1/8"	4'-1 1/4"
Gdr. 2	64'-6 5/16"	96'-1 1/16"	8'-11 7/8"	33'-2"	97'-10 7/16"	124'-1 1/16"	41'-8 3/8"	264'-6 7/8"	6 7/8"	4'-3 1/8"
Gdr. 3-17	64'-8 1/2"	96'-3"	9'-0"	33'-2 1/2"	98'-0"	124'-3"	41'-9"	264'-1 1/8"	8"	4'-5"
Gdr. 18	64'-11"	96'-6 1/8"	9'-0 1/4"	33'-3 3/8"	98'-2 1/2"	124'-6 1/8"	41'-10 1/8"	265'-5 1/8"	10 1/2"	4'-8 1/8"
Gdr. 19	65'-1 1/8"	96'-9 3/8"	9'-0 1/2"	33'-4 1/4"	98'-5 3/8"	124'-9 3/8"	41'-11 1/4"	266'-1 1/8"	1'-13 1/8"	4'-11 3/8"



DESIGNED	DVK
CHECKED	G.E.P.
DRAWN	J.T.
CHECKED	G.E.P. 3/75

STRUCTURAL STEEL  
FAI 72 OVER ILL. RTE. 121  
B ILL. CENT. GULF RR.  
MACON COUNTY  
SEC. 58-63HVB  
STA. 724+45.63

9A