

**GIRDER NO. 10 MOMENT TABLE**

	0.4 Span 1	Pier 1	0.5 Span 2	Pier 2	0.6 Span 3
Is (in <sup>4</sup> )	115482	191611	115482	124165	107330
Ic (n) (in <sup>4</sup> )	200151	---	200151	---	190621
Ic (3n) (in <sup>4</sup> )	152658	---	152658	---	144237
Ss (in <sup>3</sup> )	2678	4342	2678	2863	2489
Sc (n) (in <sup>3</sup> )	3315	---	3315	---	3132
Sc (3n) (in <sup>3</sup> )	3011	---	3011	---	2829
Sbi (in <sup>3</sup> )	75.0	141.7	75.0	74.3	60.8
φ (k/')	0.96	1.52	0.96	1.40	0.95
M <sub>ℓ</sub> (k)	2528	7539	1727	4672	1447
s <sub>ℓ</sub> (k/')	0.42	---	0.42	---	0.42
Ms <sub>ℓ</sub> (k)	1123	---	852	---	666
M <sub>ℓ</sub> (k)	1257	1573	1165	1164	917
M (Imp) (k)	197	237	169	187	164
5 <sub>3</sub> [M <sub>ℓ</sub> +M(Imp)] (k)	2428	3022	2228	2255	1806
Ma (k)	7902	13729	6248	9005	5094
Mbi (k)	4	6	7	8	4
fs <sub>ℓ</sub> (non-comp) (ksi)	11.3	20.8	7.7	19.6	7.0
fs <sub>ℓ</sub> (comp) (ksi)	4.5	---	3.4	---	2.8
fs <sub>53</sub> [M <sub>ℓ</sub> +M(Imp)] (ksi)	8.8	8.4	8.1	9.5	6.9
fw (ksi)	0.7	0.5	1.1	1.4	0.8
fs+fw (Overload) (ksi)	25.1	28.8	20.1	28.0	17.4
fs (Total) (ksi)	32.0	37.9	25.0	37.7	21.7
fs (Total)+fw (ksi)	32.7	37.4	26.1	36.4	22.6
VR (k)	66.0	---	68.6	---	64.2
Fb (ksi)	50.0	49.4	50.0	46.9	50.0

**GIRDER NO. 11 MOMENT TABLE**

	0.4 Span 1	Pier 1	0.5 Span 2	Pier 2	0.6 Span 3
Is (in <sup>4</sup> )	115482	191611	115482	124165	107330
Ic (n) (in <sup>4</sup> )	200151	---	200151	---	190621
Ic (3n) (in <sup>4</sup> )	152658	---	152658	---	144237
Ss (in <sup>3</sup> )	2678	4342	2678	2863	2489
Sc (n) (in <sup>3</sup> )	3315	---	3315	---	3132
Sc (3n) (in <sup>3</sup> )	3011	---	3011	---	2829
Sbi (in <sup>3</sup> )	75.0	141.7	75.0	74.3	60.8
φ (k/')	0.96	1.52	0.96	1.40	0.95
M <sub>ℓ</sub> (k)	2709	7787	1777	4802	1512
s <sub>ℓ</sub> (k/')	0.42	---	0.42	---	0.42
Ms <sub>ℓ</sub> (k)	1201	---	886	---	692
M <sub>ℓ</sub> (k)	1567	1839	1450	1338	1090
M (Imp) (k)	245	277	211	215	195
5 <sub>3</sub> [M <sub>ℓ</sub> +M(Imp)] (k)	3027	3534	2773	2592	2147
Ma (k)	9017	14717	7066	9612	5657
Mbi (k)	3	19	8	9	1
fs <sub>ℓ</sub> (non-comp) (ksi)	12.1	21.5	8.0	20.1	7.3
fs <sub>ℓ</sub> (comp) (ksi)	4.8	---	3.5	---	2.9
fs <sub>53</sub> [M <sub>ℓ</sub> +M(Imp)] (ksi)	11.0	9.8	10.0	10.9	8.2
fw (ksi)	0.5	1.6	1.3	1.4	0.1
fs+fw (Overload) (ksi)	28.2	30.1	22.5	29.9	18.6
fs (Total) (ksi)	36.2	40.7	28.0	40.3	24.0
fs (Total)+fw (ksi)	36.7	39.1	29.3	38.8	24.1
VR (k)	70.6	---	67.5	---	61.9
Fb (ksi)	50.0	47.0	50.0	47.5	50.0

**GIRDER NO. 12 MOMENT TABLE**

	0.4 Span 1	Pier 1	0.5 Span 2	Pier 2	0.6 Span 3
Is (in <sup>4</sup> )	115482	191611	115482	124165	107330
Ic (n) (in <sup>4</sup> )	200151	---	200151	---	190621
Ic (3n) (in <sup>4</sup> )	152658	---	152658	---	144237
Ss (in <sup>3</sup> )	2678	4342	2678	2863	2489
Sc (n) (in <sup>3</sup> )	3315	---	3315	---	3132
Sc (3n) (in <sup>3</sup> )	3011	---	3011	---	2829
Sbi (in <sup>3</sup> )	75.0	141.7	75.0	74.3	60.8
φ (k/')	0.96	1.52	0.96	1.40	0.95
M <sub>ℓ</sub> (k)	2907	7839	1846	4770	1594
s <sub>ℓ</sub> (k/')	0.42	---	0.42	---	0.42
Ms <sub>ℓ</sub> (k)	1287	---	929	---	728
M <sub>ℓ</sub> (k)	2015	2208	1864	1680	1395
M (Imp) (k)	315	332	271	269	250
5 <sub>3</sub> [M <sub>ℓ</sub> +M(Imp)] (k)	3891	4242	3564	3256	2747
Ma (k)	10511	15706	8241	10433	6589
Mbi (k)	1	20	8	10	7
fs <sub>ℓ</sub> (non-comp) (ksi)	13.0	21.7	8.3	20.0	7.7
fs <sub>ℓ</sub> (comp) (ksi)	5.1	---	3.7	---	3.1
fs <sub>53</sub> [M <sub>ℓ</sub> +M(Imp)] (ksi)	14.1	11.7	12.9	13.6	10.5
fw (ksi)	0.1	1.7	1.3	1.6	1.3
fs+fw (Overload) (ksi)	32.3	32.1	25.9	32.4	22.3
fs (Total) (ksi)	41.9	43.4	32.3	43.7	27.7
fs (Total)+fw (ksi)	42.0	41.7	33.6	42.2	29.0
VR (k)	73.8	---	84.3	---	66.8
Fb (ksi)	50.0	47.3	50.0	48.1	50.0

**GIRDER NO. 10 REACTION TABLE**

	S. Abut.	Pier 1	Pier 2	N. Abut.
R <sub>ℓ</sub> (k)	102.4	353.1	288.8	77.6
R <sub>t</sub> (k)	44.4	57.2	87.1	40.3
Imp. (k)	7.0	51.7	8.7	7.2
R (Total) (k)	153.8	462.0	384.6	125.1

**GIRDER NO. 11 REACTION TABLE**

	S. Abut.	Pier 1	Pier 2	N. Abut.
R <sub>ℓ</sub> (k)	108.7	384.4	300.0	79.2
R <sub>t</sub> (k)	53.2	130.0	110.2	37.9
Imp. (k)	8.3	12.1	11.1	6.8
R (Total) (k)	170.2	526.5	421.3	123.9

**GIRDER NO. 12 REACTION TABLE**

	S. Abut.	Pier 1	Pier 2	N. Abut.
R <sub>ℓ</sub> (k)	114.9	324.8	263.0	86.0
R <sub>t</sub> (k)	50.1	52.5	92.1	46.3
Imp. (k)	7.9	47.3	9.3	8.3
R (Total) (k)	172.9	424.6	364.4	140.6

**Notes:**

Fb - Maximum allowable stress Fbu or Fby computed according to AASHTO [Guide Specifications for Horizontally Curved Highway Bridges Section 2.12(B) and 2.16].

Is and Ss are the moment of inertia and section modulus of the steel section used in computing fs (Total & Overload).

Ic(n) and Sc(n) are the moment of inertia and section modulus of the composite section used in computing stresses due to Live Load.

Ic(3n) and Sc(3n) are the moment of inertia and section modulus of the composite section used in computing stresses due to superimposed dead loads. (see AASHTO 10.38)

VR is the maximum Live Load + Impact shear range in span.

Ma (Applied Moment) = 1.3[M<sub>ℓ</sub> + Ms<sub>ℓ</sub> + 5<sub>3</sub>(M<sub>ℓ</sub> + M (Imp))].

(fs + fw) (Overload) is the sum of the stress due to M<sub>ℓ</sub> + Ms<sub>ℓ</sub> + 5<sub>3</sub>(M<sub>ℓ</sub> + M (Imp)) + (Mbi / 1.3)

fs (Total) is the sum of the stress due to 1.3[M<sub>ℓ</sub> + Ms<sub>ℓ</sub> + 5<sub>3</sub>(M<sub>ℓ</sub> + M (Imp))].

Sbi is the section modulus for one flange plate for lateral flange bending.

Mbi is the lateral bending moment for flange plate (factored). fw is the calculated normal stress at the edge of flange due to lateral bending (factored).

M<sub>ℓ</sub> and R<sub>t</sub> include the effects of centrifugal force and superelevation.

**GIRDER MOMENT & REACTION TABLES  
RAMP B OVER FAP RTE 310  
SECTION 60-15HB-3  
MADISON COUNTY  
STATION 17+72.64 (RAMP B)  
SN 060-0332**

DESIGNED	ADL
CHECKED	WLW
DRAWN	BGJ
CHECKED	WLW