

MOMENT AND REACTION TABLES - GIRDERS 1 THRU 17

		Girder 1			Girder 2			Girders 3 thru 15		Girder 16			Girder 17		
		0.4 Sp. 1	Pier	0.6 Sp. 2	0.4 Sp. 1	Pier	0.6 Sp. 2	0.4 Sp.1 / 0.6 Sp.2	Pier	0.4 Sp. 1	Pier	0.6 Sp. 2	0.4 Sp. 1	Pier	0.6 Sp. 2
Is	(in ⁴)	28664	44550	28664	14268	22578	14268	9750	12100	14268	22578	14268	28664	44550	28664
Ic (n)	(in ⁴)	50600		50600	31550		31550	25062		31550		31550	50600		50600
Ic (3n)	(in ⁴)	38257		38257	23230		23230	18317		23230		23230	38257		38257
Ss	(in ³)	1549	2285	1549	782	1188	782	542	664	782	1188	782	1549	2285	1549
Sc (n)	(in ³)	1870		1870	1027		1027	783		1027		1027	1870		1870
Sc (3n)	(in ³)	1719		1719	938		938	707		938		938	1719		1719
Z	(in ³)		2529			1315			767		1315			2529	
DL	(k/')	2.32	1.74	2.29	1.11	1.82	1.14	1.05	1.53	1.14	1.82	1.11	2.29	1.74	2.32
Mdl	(' k)	1031	3477	985	560	1707	556	496	1100	556	1707	560	985	3477	1031
s DL	(k/')	0.48		0.48	0.61		0.59	0.48		0.61		0.59	1.24		1.28
Ms _{DL}	(' k)	612		584	301		286	252		286		301	584		612
M _{LL}	(' k)	2086	1943	1697	1173	1043	1080	805	572	1080	1043	1173	1697	1943	2086
M (Imp)	(' k)	562	525	458	317	281	292	196	140	292	281	317	458	525	562
5/3[M _{LL} + M(Imp)]	(' k)	4414	4114	3592	2483	2207	2287	1728	1068	2287	2207	2483	3592	4114	4414
Ma	(' k)	7874	9868	6709	4348	5087	4069	3218	2818	4069	5087	4348	6709	9868	7874
Mu	(' k)	7896	10538	7896	4736	5479	4736	3921	3196	4736	5479	4736	7896	10538	7896
fs DL non-comp	(ksi)	8.0	18.3	7.6	8.6	17.2	8.5	11.0	19.9	8.5	17.2	8.6	7.6	18.3	8.0
fs DL (comp)	(ksi)	4.3		4.1	3.9		3.7	4.3		3.7		3.9	4.1		4.3
fs 5/3[M _{LL} + M(Imp)]	(ksi)	28.3	21.6	23.1	29.0	22.3	26.7	26.5	19.3	26.7	22.3	29.0	23.1	21.6	28.3
fs (Overload)	(ksi)	40.6	39.9	34.8	41.5	39.5	38.9	41.7	39.2	38.9	39.5	41.5	34.8	39.9	40.6
VR	(k)	120.0		113.5	63.5		73.8	69.9		73.8		63.53	113.5		120.0

		Girder 1			Girder 2			Girders 3 thru 15		Girder 16			Girder 17		
		W. Abutment	Pier	E. Abutment	W. Abutment	Pier	E. Abutment	Abutments	Pier	W. Abutment	Pier	E. Abutment	W. Abutment	Pier	E. Abutment
R _{DL}	(k)	79.1	373.6	74.3	60.0	193.4	53.7	45.4	153.0	53.7	193.4	60.0	74.3	373.6	79.1
R _{LL}	(k)	83.3	189.8	75.9	43.7	106.3	50.9	51.6	73.6	50.9	106.3	43.7	75.9	189.8	83.3
Imp.	(k)	22.5	57.2	20.5	11.8	28.7	13.7	12.6	18.0	13.7	28.7	11.8	20.5	57.2	22.5
R (Total)	(k)	184.9	620.6	170.7	115.6	328.4	118.3	109.6	244.6	118.3	328.4	115.6	170.7	620.6	184.9

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.

Z is the plastic section modulus used to determine the fully plastic moments in the non-composite areas.

Ma (Applied Moment) = 1.3[M_{DL} + Ms_{DL} + 5₃(M_{LL} + M(Imp))].

The Plastic Moment capacity (Mu) is computed according to AASHTO 10.48.1 and 10.50.1.1.

fs (Overload) is the sum of the stresses due to M_{DL} + Ms_{DL} + 5₃(M_{LL} + M(Imp)).

fs (Total) (Non-compact section) is the sum of the stresses due to 1.3[M_{DL} + Ms_{DL} + 5₃(M_{LL} + M(Imp))].

SHT. S-46 OF S-68



REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 IL ROUTE 162 OVER I-55/70 IN TROY
 F.A.I. ROUTE 70 SECTION 60-10K-1, 60-10HB
 MADISON COUNTY STATION 499+48.35
 STRUCTURE NO. 060-0338

**MOMENT AND REACTION TABLES
 GIRDERS 1 THRU 17**

DESIGNED: BTO DRAWN: JAN
 CHECKED: JAN CHECKED: BTO

DATE: 03/06