

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

MOMENT TABLE - SPANS 1, 2 & 3

	SG2				
	0.4 Sp. 1	Pier 1	.5 Sp. 2	Pier 2	0.6 Sp. 3
Is (in ⁴)	13200	13200	13200	13200	13200
Ic (n) (in ⁴)	26804	--	28241	--	29465
Ic (3n) (in ⁴)	19604	--	20595	--	21509
Ss (in ³)	719	719	719	719	719
Sc (n) (in ³)	952	--	968	--	981
Sc (3n) (in ³)	853	--	869	--	883
Z (in ³)	--	--	--	--	--
D (k/')	0.80	1.20	0.84	1.20	0.85
M _D (k)	224	681	283	744	305
s _D (k/')	0.36	--	0.36	--	0.35
M _{sD} (k)	127	--	151	--	123
M _L (k)	374	285	497	324	531
M (Im) (k)	93	71	124	81	133
⁵ ₃ [M _L +I] (k)	778	593	1035	675	1107
Ma (k)	1468	1657	1910	1845	1995
* Mu (k)	4395	--	4643	--	4648
f _{sD} non-comp (ksi)	3.7	11.4	4.7	12.4	5.1
f _{sD} comp (ksi)	1.8	--	2.1	--	1.7
f _s ⁵ ₃ (M _L +M _I) (ksi)	9.8	9.9	12.8	11.3	13.5
f _s (Overload) (ksi)	15.3	21.3	19.6	23.7	20.3
** f _s (Total) (ksi)	--	27.6	--	30.8	--
VR (k)	32.3	--	31.2	--	41.2

MOMENT TABLE - SPANS 4, 5 & 6

	SG8			SG9				SG12	
	0.4 Sp. 4 or 0.6 Sp. 6	Pier 4 or 5	0.5 Sp. 5	0.4 Sp. 4	Pier 4	.5 Sp. 5	Pier 5	0.6 Sp. 6	.5 Sp. 6
Is (in ⁴)	13200	13200	13200	13200	13200	13200	13200	13200	13200
Ic (n) (in ⁴)	29559	--	29559	29370	--	29370	--	29370	25844
Ic (3n) (in ⁴)	21582	--	21582	21436	--	21436	--	21436	18986
Ss (in ³)	719	719	719	719	719	719	719	719	719
Sc (n) (in ³)	982	--	982	980	--	980	--	980	941
Sc (3n) (in ³)	884	--	884	882	--	882	--	882	842
Z (in ³)	--	--	--	--	767	--	--	--	--
D (k/')	0.91	1.26	0.91	0.89	1.24	0.89	2.21	1.51	0.74
M _D (k)	295	763	315	309	685	248	1016	575	296
s _D (k/')	0.35	--	0.35	0.35	--	0.35	--	0.70	0.43
M _{sD} (k)	123	--	144	131	--	116	--	291	181
M _L (k)	532	357	578	500	335	555	348	508	287
M (Im) (k)	133	82	144	130	80	128	83	132	78
⁵ ₃ [M _L +I] (k)	1108	732	1203	1050	692	1138	718	1067	608
Ma (k)	1984	1943	2161	1937	1790	1953	2255	2513	1411
* Mu (k)	4604	--	4767	4748	--	4748	--	4748	4143
f _{sD} non-comp (ksi)	4.9	12.7	5.3	5.2	11.4	4.1	17.0	9.6	4.9
f _{sD} comp (ksi)	1.7	--	2.0	1.8	--	1.6	--	4.0	2.6
f _s ⁵ ₃ (M _L +M _I) (ksi)	13.5	12.2	14.7	12.9	11.5	13.9	12.0	13.1	7.8
f _s (Overload) (ksi)	20.1	24.9	21.9	19.8	23.0	19.6	28.9	26.6	15.3
** f _s (Total) (ksi)	--	32.4	--	--	29.9	--	37.6	--	--
VR (k)	42.7	--	36.0	42.5	--	36.7	--	43.2	38.8

(1) Average

* Compact section
** Braced non-compact and partially braced section

REACTION TABLE - SPANS 1, 2 & 3

	SG2			
	S. Abut.	Pier 1	Pier 2	S. Brg. Pier 3
R _D (k)	28.2	97.4	105.7	33.6
R _L (k)	29.1	43.1	50.1	37.9
R _I (k)	7.2	7.3	8.5	9.5
R (Total) (k)	64.5	147.8	164.3	81.0

REACTION TABLE - SPANS 4, 5 & 6

	SG8		SG9			SG12	
	N. Brg. Pier 3 / S. Brg. C. Abut. 1	Pier 4 or 5	N. Brg. Pier 3	Pier 4	Pier 5	S. Brg. C. Abut. 1	S. Brg. C. Abut. 1
R _D (k)	33.3	110.0	33.9	103.1	152.0	62.7	34.8
R _L (k)	38.8	53.3	36.6	50.2	50.6	36.7	26.7
R _I (k)	9.7	9.1	9.6	9.0	9.1	9.6	7.2
R (Total) (k)	81.8	172.4	80.1	162.3	211.7	109.0	68.7

MOMENT & REACTION TABLES
STRUCTURE NO. 016-3241

TYLIN INTERNATIONAL	DESIGNED - PK	REVISIONS		SHEET NO. 15	F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.				
	CHECKED - AMD,	NAME	DATE		55					0711.2R & 1011.1BR	COOK	200	19
	DRAWN - PK				CONTRACT NO. 60L39								
	CHECKED - AMD,				FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT								
	DATE - 08/02/10												

Is, Ss: Non-composite moment of inertia and section modulus of the steel section used for computing f_s (Total and Overload) due to non-composite dead loads (in⁴ and in³).
Ic(n), Sc(n): Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing f_s (Total and Overload) due to short-term composite live loads (in⁴ and in³).
Ic(3n), Sc(3n): Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing f_s (Total and Overload) due to long-term composite (superimposed) dead loads (in⁴ and in³).
Z: Plastic Section Modulus of the steel section in non-composite areas (in³).
D: Un-factored non-composite dead load (kips/ft.).
M_D: Un-factored moment due to non-composite dead load (kip-ft.).
s_D: Un-factored long-term composite (superimposed) dead load (kips/ft.).
M_{sD}: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).
M_L: Un-factored live load moment (kip-ft.).
M_I: Un-factored moment due to impact (kip-ft.).
Ma: Factored design moment (kip-ft.).
1.3 [M_D + M_{sD} + $\frac{5}{3}$ (M_L + M_I)]
Mu: Compact composite moment capacity according to AASHTO LFD 10.50.1.1 or compact non-composite moment capacity according to AASHTO LFD 10.48.1 (kip-ft.).
f_s (Overload): Sum of stresses as computed from the moments below (ksi).
M_D + M_{sD} + $\frac{5}{3}$ (M_L + M_I)
f_s (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).
1.3 [M_D + M_{sD} + $\frac{5}{3}$ (M_L + M_I)]
VR: Maximum L + impact shear range within the composite portion of the span for stud shear connector design (kips).

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