

GIRDER MOMENT TABLE (GIRDER 6E)										
		0.4 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2	0.5 Sp. 3	Pier 3	0.5 Sp. 4	Pier 4	0.6 Sp. 5
I_s	(in ⁴)	18,869	28,869	20,051	34,020	20,051	34,020	20,051	28,869	18,869
$I_c(n)$	(in ⁴)	43,984	-	47,574	-	47,574	-	47,574	-	43,984
$I_c(3n)$	(in ⁴)	33,078	-	35,464	-	35,464	-	35,464	-	33,078
$I_c(cr)$	(in ⁴)	-	-	-	-	-	-	-	-	-
S_s	(in ³)	762	1,143	840	1,334	840	1,334	840	1,143	762
$S_c(n)$	(in ³)	1,031	-	1,130	-	1,130	-	1,130	-	1,031
$S_c(3n)$	(in ³)	947	-	1,038	-	1,038	-	1,038	-	947
$S_c(cr)$	(in ³)	-	-	-	-	-	-	-	-	-
S_{xc}	(in ³)	989	1,143	1,100	1,334	1,075	1,334	1,097	1,143	984
DC1	(k/ft)	0.971	1.035	0.980	1.066	0.980	1.066	0.980	1.035	0.971
MDC1	(k)	324.2	680.0	229.9	948.7	433.4	963.6	246.4	743.9	362.3
DC2	(k/ft)	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450
MDC2	(k)	139.1	302.4	116.6	392.7	167.2	408.1	138.7	329.0	162.0
DW	(k/ft)	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333
MDW	(k)	117.1	181.6	91.7	268.9	179.0	273.0	105.9	195.5	134.0
$M\ell + 1M$	(k)	979.1	968.4	1,069.8	1,307.4	1,308.7	1,269.7	1,211.7	1,074.1	1,102.8
f_t (Strength I)	(ksi)	3.23	1.02	2.76	2.24	3.54	2.20	3.41	0.95	3.80
$M_u + 1/2 f_t S_{xc}$	(k)	2,556.9	3,227.5	2,527.1	4,450.9	3,415.0	4,427.5	2,864.6	3,544.1	2,890.2
$\phi_r M_n$	(k)	-	-	-	-	-	-	-	-	-
f_s DC1	(ksi)	5.10	7.14	3.29	8.54	6.19	8.67	3.52	7.81	5.70
f_s DC2	(ksi)	1.76	3.17	1.35	3.53	1.93	3.67	1.60	3.45	2.05
f_s DW	(ksi)	1.48	1.91	1.06	2.42	2.07	2.46	1.22	2.05	1.70
f_s ($\ell + 1M$)	(ksi)	11.40	10.17	11.36	11.76	13.90	11.42	12.87	11.28	12.84
f_t (Service II)	(ksi)	2.42	0.74	2.06	1.32	2.65	1.30	2.55	0.69	2.85
$f_s + 1/2$ (Service II)	(ksi)	24.37	25.81	21.50	30.44	29.59	30.30	24.35	28.32	27.57
0.95R _h F _{yt}	(ksi)	47.50	-	47.50	-	47.50	-	47.50	-	47.50
0.80R _h F _{yt}	(ksi)	-	40.00	-	40.00	-	40.00	-	40.00	-
$f_s + 1/3$ (Total)(Strength I)	(ksi)	31.83	33.89	28.19	40.05	38.76	39.83	31.89	37.21	35.98
$\phi_r F_n$	(ksi)	50.00	46.28	50.00	44.14	50.00	44.19	50.00	46.93	50.00
V _f	(k)	56.0	-	48.6	-	53.9	-	50.3	-	60.0

I_s, S_s : Non-composite moment of inertia and section modulus of the steel section used for computing f_s (Total-Strength I, and Service II) due to non-composite dead loads (in⁴ and in³).

$I_c(n), S_c(n)$: Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing f_s (Total-Strength I, and Service II) in uncracked sections due to short term composite live loads (in⁴ and in³).

$I_c(3n), S_c(3n)$: 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-Strength I, and Service II) in uncracked sections due to long-term composite (superimposed) dead loads (in⁴ and in³).

$I_c(cr), S_c(cr)$: Composite moment of inertia and section modulus of the steel and longitudinal deck reinforcement, used for computing f_s (Total-Strength I and Service II) in cracked sections, due to both short-term composite live loads and long-term composite dead loads (in⁴ and in³).

S_{xc} : Section modulus about the major axis of section to the controlling flange, tension or compression, taken as yield moment with respect to the controlling flange over the yield strength of the controlling flange (in³).

DC1: Un-factored non-composite dead load (kips/ft.).

MDC1: Un-factored moment due to non-composite dead load (kip-ft.).

DC2: Un-factored long-term composite (superimposed excluding future wearing surface) dead load (kips/ft.).

MDC2: Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).

DW: Un-factored long-term composite (superimposed future wearing surface only) dead load (kips/ft.).

MDW: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).

$M\ell + 1M$: Un-factored live load moment plus dynamic load allowance (Impact)(kip-ft.).

M_u (Strength I): Factored design moment (kip-ft.).

$1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M\ell + 1M$

f_t : Factored calculated normal stress at edge of flange for controlling steel flange plate due to lateral bending, Strength I or Service II as applicable (ksi).

$\phi_r M_n$: Factored resistance available according to A6.1.1 (k).

f_s DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).

M_{DC1} / S_{nc}

f_s DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).

$M_{DC2} / S_c(3n)$ or $M_{DC2} / S_c(cr)$ as applicable.

f_s DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).

$M_{DW} / S_c(3n)$ or $M_{DW} / S_c(cr)$ as applicable.

f_s ($\ell + 1M$): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live plus impact loads as calculated below (ksi).

$M\ell + 1M / S_c(3n)$ or $M\ell + 1M / S_c(cr)$ as applicable.

$f_s + 1/2$ (Service II): Sum of stresses as computed below (ksi).

$f_s DC1 + f_s DC2 + f_s DW + 1.3 f_s \ell + 1M + 1/2$

0.95R_hF_{yt}: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

$f_s + 1/3$ (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).

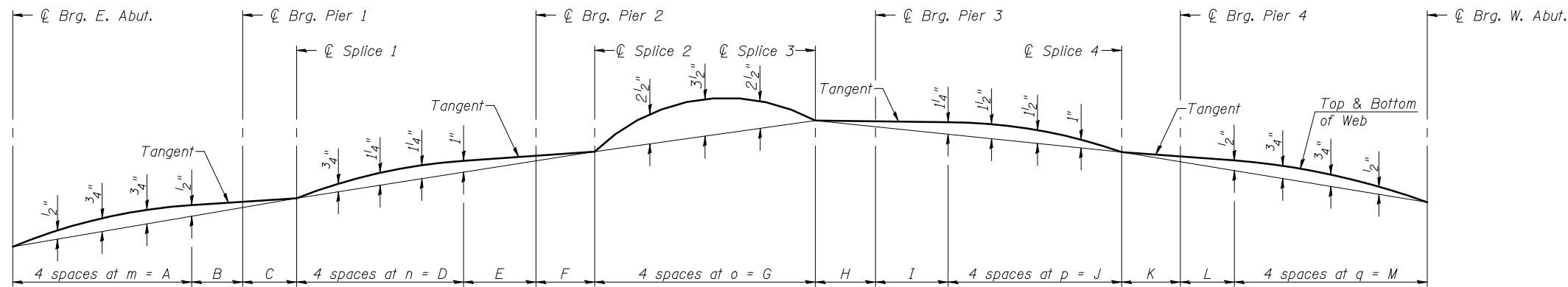
$1.25 (f_s DC1 + f_s DC2) + 1.5 f_s DW + 1.75 f_s \ell + 1M + 1/3$

$\phi_r F_n$: Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7.2 (ksi).

V_f: Maximum factored shear range computed according to Article 6.10.10.

Note:
M ℓ and R ℓ include the effects of centrifugal force and superelevation.

GIRDER REACTION TABLE (GIRDER 6E)							
		E. Abut.	Pier 1	Pier 2	Pier 3	Pier 4	W. Abut.
R _{DC1}	(k)	25.0	84.5	98.2	99.2	88.3	26.2
R _{DC2}	(k)	13.2	44.1	48.0	49.9	46.3	14.9
R _{DW}	(k)	7.6	24.2	27.7	29.2	24.7	9.2
R $\ell + 1M$	(k)	63.8	114.1	130.4	135.2	126.5	88.3
R _{Total}	(k)	109.6	266.9	304.3	313.5	285.8	138.6



CAMBER DIAGRAM

DIMENSION TABLE ①

Girder	A	B	C	D	E	F	G	H	I	J	K	L	M	m	n	o	p	q
1E	59'-3"	16'-0"	17'-0"	55'-9 ¹⁵ / ₁₆ "	23'-0"	18'-6"	72'-8 ⁵ / ₁₆ "	19'-0"	23'-0"	57'-7 ³ / ₄ "	18'-0"	17'-0"	62'-4 ⁹ / ₁₆ "	14'-9 ³ / ₄ "	13'-11 ¹ / ₂ "	18'-2 ¹ / ₁₆ "	14'-4 ¹⁵ / ₁₆ "	15'-7 ¹ / ₈ "
2E	59'-2 ⁵ / ₈ "	16'-0"	17'-0"	55'-9 ⁷ / ₁₆ "	23'-0"	18'-6"	72'-7 ⁵ / ₈ "	19'-0"	23'-0"	57'-7"	18'-0"	17'-0"	62'-3 ⁵ / ₁₆ "	14'-9 ¹¹ / ₁₆ "	13'-11 ³ / ₈ "	18'-1 ⁵ / ₁₆ "	14'-4 ³ / ₄ "	15'-7"
3E	59'-2 ¹ / ₄ "	16'-0"	17'-0"	55'-8 ⁷ / ₈ "	23'-0"	18'-6"	72'-6 ⁵ / ₁₆ "	19'-0"	23'-0"	57'-6 ⁵ / ₁₆ "	18'-0"	17'-0"	62'-3 ¹ / ₄ "	14'-9 ⁹ / ₁₆ "	13'-11 ¹ / ₄ "	18'-1 ³ / ₄ "	14'-4 ⁹ / ₁₆ "	15'-6 ¹³ / ₁₆ "
4E	59'-1 ⁷ / ₈ "	16'-0"	17'-0"	55'-8 ⁵ / ₁₆ "	23'-0"	18'-6"	72'-6 ³ / ₁₆ "	19'-0"	23'-0"	57'-5 ⁹ / ₁₆ "	18'-0"	17'-0"	62'-2 ⁵ / ₈ "	14'-9 ¹ / ₂ "	13'-11 ¹ / ₁₆ "	18'-1 ⁹ / ₁₆ "	14'-4 ³ / ₈ "	15'-6 ¹ / ₁₆ "
5E	59'-1 ¹ / ₂ "	16'-0"	17'-0"	55'-7 ¹³ / ₁₆ "	23'-0"	18'-6"	72'-5 ¹ / ₂ "	19'-0"	23'-0"	57'-4 ⁸ / ₈ "	18'-0"	17'-0"	62'-2"	14'-9 ³ / ₈ "	13'-10 ⁵ / ₁₆ "	18'-1 ³ / ₈ "	14'-4 ¹ / ₄ "	15'-6 ¹ / ₂ "
6E	59'-1 ¹ / ₈ "	16'-0"	17'-0"	55'-7 ¹ / ₄ "	23'-0"	18'-6"	72'-4 ¹³ / ₁₆ "	19'-0"	23'-0"	57'-4 ⁸ / ₈ "	18'-0"	17'-0"	62'-1 ³ / ₈ "	14'-9 ⁵ / ₁₆ "	13'-10 ¹³ / ₁₆ "	18'-1 ¹ / ₁₆ "	14'-4 ¹ / ₁₆ "	15'-6 ³ / ₈ "

Notes:
 ① Horizontal dimensions are taken along centerline of each individual girder.
 ② Analyzed in model as a 0.450 k/ft line load applied at edge of deck.
 ③ Analyzed in model as a 0.050 ksf area load applied from face to face of parapets.



USER NAME =	DESIGNED - JAD	REVISED -
	CHECKED - DGL	REVISED -
PLOT SCALE =	DRAWN - JAD	REVISED -
PLOT DATE =	CHECKED - DGL	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER DETAILS
STRUCTURE NO. 039-0075 (E.B.)

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
331	(12-11B-1)	JACKSON	200	86
CONTRACT NO. 78056				
ILLINOIS FED. AID PROJECT				