

INTERIOR GIRDER MOMENT TABLE - UNIT #1				
	0.4 Sp. 1 & 0.6 Sp. 4	Pier 1 Pier 3	0.5 Sp. 2 & 0.5 Sp. 3	Pier 2
I_s	(in ⁴)	9,760	9,760	9,760
$I_c(n)$	(in ⁴)	27,060	-	27,060
$I_c(3n)$	(in ⁴)	19,543	-	19,543
S_s	(in ³)	542	542	542
$S_c(n)$	(in ³)	821	-	821
$S_c(3n)$	(in ³)	736	-	736
ϕ	(k'/')	0.937	1.447	0.937
$M\phi$	(k)	253.5	679.7	248.4
$s\phi$	(k'/')	0.51	-	0.51
$M_s\phi$	(k)	152.9	-	169.2
$M\phi$	(k)	662.6	404.5	737.9
M_{IM}	(k)	176.7	103.5	181.3
$^5_3[M\phi + I]$	(k)	1,398.9	846.7	1,531.9
M_o	(k)	2,350.4	1,986.5	2,538.3
M_u	(k)	3,973.9	2,600	3,973.9
$f_s \phi_{non-comp}$	(ksi)	5.6	15.1	5.5
$f_s \phi_{comp}$	(ksi)	2.49	-	2.76
$f_s ^5_3[M\phi + M_I]$	(ksi)	20.48	18.8	22.5
f_s (Overload)	(ksi)	28.58	33.9	30.76
VR	(k)	75.8	-	75.4

INTERIOR GIRDER MOMENT TABLE UNIT #2		0.5 Span 5
I_s	(in ⁴)	6,710
$I_c(n)$	(in ⁴)	20,201
$I_c(3n)$	(in ⁴)	14,737
S_s	(in ³)	406
$S_c(n)$	(in ³)	638
$S_c(3n)$	(in ³)	574
ϕ	(k'/')	0.907
$M\phi$	(k)	306.4
$s\phi$	(k'/')	0.51
$M_s\phi$	(k)	172.4
$M\phi$	(k)	437.2
M_{IM}	(k)	123.5
$^5_3[M\phi + I]$	(k)	934.6
M_o	(k)	1,839.8
M_u	(k)	3,113.3
$f_s \phi_{non-comp}$	(ksi)	9.06
$f_s \phi_{comp}$	(ksi)	3.60
$f_s ^5_3[M\phi + M_I]$	(ksi)	17.63
f_s (Overload)	(ksi)	30.29
VR	(k)	51.84

INTERIOR GIRDER MOMENT TABLE - UNIT #3					
	0.4 Sp. 6 & 0.6 Sp. 10	Pier 6 Pier 9	0.5 Spans 7 thru 9	Pier 7 Pier 8	0.5 Span 8
I_s	(in ⁴)	6,710	6,710	6,710	6,710
$I_c(n)$	(in ⁴)	20,201	-	20,201	-
$I_c(3n)$	(in ⁴)	14,737	-	14,737	-
S_s	(in ³)	405	405	405	405
$S_c(n)$	(in ³)	637	-	637	-
$S_c(3n)$	(in ³)	574	-	574	-
ϕ	(k'/')	0.907	1.417	0.907	1.417
$M\phi$	(k)	152.1	439.9	169.3	474.0
$s\phi$	(k'/')	0.51	-	0.51	-
$M_s\phi$	(k)	97.1	-	121.9	-
$M\phi$	(k)	360.1	212.8	431.4	239.1
M_{IM}	(k)	102.9	58.3	113.5	62.9
$^5_3[M\phi + I]$	(k)	771.7	452	907	503.2
M_o	(k)	1,329.1	1,160.6	1,560.0	1,272.9
M_u	(k)	3,340.4	1,945.8	3,340.4	1,945.8
$f_s \phi_{non-comp}$	(ksi)	4.5	13.0	5.0	14.0
$f_s \phi_{comp}$	(ksi)	2.03	-	2.55	-
$f_s ^5_3[M\phi + M_I]$	(ksi)	14.55	13.38	17.11	14.9
f_s (Overload)	(ksi)	21.08	26.39	24.66	28.93
VR	(k)	54.8	-	58.1	-

I_s, S_s : 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).

$I_c(n), S_c(n)$: Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing f_s (Total and Overload) 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 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).

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

$M\phi$: Un-factored moment due to non-composite dead load (kip-ft.).

$s\phi$: Un-factored long-term composite (superimposed) dead load (kips/ft.).

$M_s\phi$: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).

$M\phi$: Un-factored live load moment (kip-ft.).

M_I : Un-factored moment due to impact (kip-ft.).

M_o : Factored design moment (kip-ft.).

M_u : 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).

$M\phi + M_s\phi + \frac{5}{8}(M\phi + M_I)$

VR: Maximum ϕ + impact shear range within the composite portion of the span for stud shear connector design (kips).

INTERIOR GIRDER REACTION TABLE - UNIT #1			
	W. Abut. Pier 4	Pier 1 Pier 3	Pier 2
$R\phi$	(k)	35.2	112.5
$R\phi$	(k)	53.8	69.9
R_I	(k)	14.3	13.1
R_{Total}	(k)	103.4	195.5

INTERIOR GRDR RXN TABLE - UNIT #2		Pier 4 Pier 5
$R\phi$	(k)	37.7
$R\phi$	(k)	40.1
R_I	(k)	11.3
R_{Total}	(k)	89.2

INTERIOR GIRDER REACTION TABLE - UNIT #3			
	Pier 5 E. Abut.	Pier 6 Pier 9	Pier 7 Pier 8
$R\phi$	(k)	27.5	89.7
$R\phi$	(k)	38.6	45.5
R_I	(k)	11.0	9.5
R_{Total}	(k)	77.1	144.7

Based on girder 13 in Unit 2 & Unit 3

* Compact section
Based on girder 12 in Unit 1.

Note: All Tables are based on new beams.

NOTES

1. Work this sheet with Sheets S42 thru S49.

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USER NAME =	DESIGNED - J.Z. 6/15/2012	REVISED -
	CHECKED - E.E.J. 6/15/2012	REVISED -
PLOT SCALE =	DRAWN - E.E.J. 6/15/2012	REVISED -
PLOT DATE =	CHECKED - J.Z. 6/15/2012	REVISED -

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
349	(10 & 11VB) R-3	KANE	507	271
			CONTRACT NO. 60133	
ILLINOIS FED. AID PROJECT				