

INTERIOR GIRDER MOMENT TABLE - UNIT I				
	0.4 Sp. 1	Pier 1	0.6 Sp. 2	
I_s	(in ⁴)	74,982	168,835	74,982
$I_c(n)$	(in ⁴)	150,235	-	150,235
$I_c(3n)$	(in ⁴)	111,931	-	111,931
$I_c(cr)$	(in ⁴)	-	181,683	-
S_s	(in ³)	2,068	4,644	2,068
$S_c(n)$	(in ³)	2,662	-	2,662
$S_c(3n)$	(in ³)	2,424	-	2,424
$S_c(cr)$	(in ³)	-	4,760	-
DC1	(k/')	1.06	1.30	1.06
M _{DC1}	(k)	2,087	5,944	2,087
DC2	(k/')	0.19	0.19	0.19
M _{DC2}	(k)	392	990	392
DW	(k/')	0.35	0.35	0.35
M _{DW}	(k)	659	1,677	659
M _{ℓ + IM}	(k)	2,621	3,424	2,621
M _u (Strength I)	(k)	8,674	17,175	8,674
φ _r M _n	(k)	13,257	20,683	13,257
f _s DC1	(ksi)	12.11	15.36	12.11
f _s DC2	(ksi)	1.94	2.50	1.94
f _s DW	(ksi)	3.26	4.23	3.26
f _s (ℓ+IM)	(ksi)	11.82	8.63	11.82
f _s (Service II)	(ksi)	32.67	33.31	32.67
0.95R _n F _{yr}	(ksi)	47.50	47.50	47.50
f _s (Total)(Strength I)	(ksi)	-	-	-
φ _r F _n	(ksi)	-	-	-
V _r	(k)	50.30	52.70	50.30

INTERIOR GIRDER REACTION TABLE - UNIT I				
	S. Abut.	Pier 1	Pier 2-S	
R _{DC1}	(k)	68.7	280.8	68.7
R _{DC2}	(k)	12.4	46.2	12.4
R _{DW}	(k)	21.3	79.2	21.3
R _{ℓ + IM}	(k)	83.9	179.0	83.9
R _{Total}	(k)	186.3	585.2	186.3

EXTERIOR GIRDER MOMENT TABLE - UNIT I				
	0.4 Sp. 1	Pier 1	0.6 Sp. 2	
I_s	(in ⁴)	74,982	168,835	74,982
$I_c(n)$	(in ⁴)	148,331	-	148,331
$I_c(3n)$	(in ⁴)	110,573	-	110,573
$I_c(cr)$	(in ⁴)	-	181,095	-
S_s	(in ³)	2,068	4,644	2,068
$S_c(n)$	(in ³)	2,652	-	2,652
$S_c(3n)$	(in ³)	2,413	-	2,413
$S_c(cr)$	(in ³)	-	4,755	-
DC1	(k/')	1.02	1.27	1.02
M _{DC1}	(k)	2,103	5,958	2,103
DC2	(k/')	0.19	0.19	0.19
M _{DC2}	(k)	392	988	392
DW	(k/')	0.25	0.25	0.25
M _{DW}	(k)	632	1,565	632
M _{ℓ + IM}	(k)	3,111	4,167	3,111
M _u (Strength I)	(k)	9,511	18,322	9,511
φ _r M _n	(k)	13,216	20,637	13,216
f _s DC1	(ksi)	12.20	15.40	12.20
f _s DC2	(ksi)	1.95	2.49	1.95
f _s DW	(ksi)	3.14	3.95	3.14
f _s (ℓ+IM)	(ksi)	14.08	10.52	14.08
f _s (Service II)	(ksi)	35.59	35.51	35.59
0.95R _n F _{yr}	(ksi)	47.50	47.50	47.50
f _s (Total)(Strength I)	(ksi)	-	-	-
φ _r F _n	(ksi)	-	-	-
V _r	(k)	56.80	62.40	56.80

EXTERIOR GIRDER REACTION TABLE - UNIT I				
	S. Abut.	Pier 1	Pier 2-S	
R _{DC1}	(k)	68.4	279.4	68.4
R _{DC2}	(k)	12.4	46.1	12.4
R _{DW}	(k)	19.1	70.6	19.1
R _{ℓ + IM}	(k)	86.8	188.0	86.8
R _{Total}	(k)	186.6	584.2	186.6

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 (in.⁴ and in.³).

$I_c(n), S_c(n)$: 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 (in.⁴ and in.³).

$I(3n), S_c(3n)$: 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 (in.⁴ and in.³).

$I(cr), S_c(cr)$: 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 (superimposed) dead loads (in.⁴ and in.³).

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

M_{DC1}: 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.).

M_{DC2}: 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.).

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

M_{ℓ + IM}: 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_{ℓ + IM}

φ_rM_n: Compact composite positive moment capacity computed according to Article 6.10.7.1 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft.).

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_s

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 (ℓ+IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live load plus impact loads as calculated below (ksi).

M_{ℓ + IM} / S_{c(n)} or M_{ℓ + IM} / S_{c(cr)} as applicable.

f_s (Service II): Sum of stresses as computed below (ksi).

f_{sDC1} + f_{sDC2} + f_{sDW} + 1.3 f_s (ℓ + IM)

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

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

1.25 (f_{sDC1} + f_{sDC2}) + 1.5 f_{sDW} + 1.75 f_s (ℓ + IM)

φ_rF_n: Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).

V_r: Maximum factored shear range in span computed according to Article 6.10.10.

0161705-60W28-5076-SuperStruct.dgn



USER NAME = floresg	DESIGNED - DD	REVISED
	CHECKED - ATB	REVISED
PLOT SCALE = N.T.S.	DRAWN - MRK	REVISED
PLOT DATE = 5/7/2014	CHECKED - DD	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER MOMENT AND REACTION TABLES - UNIT I
STRUCTURE NO. 016-1705

SHEET NO. S-76 OF S-165 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2013-010R	COOK	747	392
CONTRACT NO.			60W28	
ILLINOIS FED. AID PROJECT				