UNIT D - GIRDER D2

EXISTING INTERIOR GIRDER MOMENT TABLE										
		0.4 Span 8	Pier 8	0.5 Span 9	Pier 9	0.5 Span 10	Pier 10	0.5 Span 11	Pier 11	0.6 Span 12
I_s	(in^4)	4,470	4,470	4,470	4,470	4,470	4,470	4,470	4,470	4,470
$I_c(n)$	(in^4)	12,984	4,470	12,984	4,470	12,984	4,470	12,984	4,470	13,120
$I_c(3n)$	(in^4)	9,761	----	9,761	----	9,761	----	9,761	----	9,910
S_s	(in^3)	300	300	300	300	300	300	300	300	300
$S_c(n)$	(in^3)	457	----	457	----	457	----	457	----	459
$S_c(3n)$	(in^3)	415	----	415	----	415	----	415	----	418
Z	(in^3)	----	----	----	----	----	----	----	----	----
$\wp$	(k/')	0.884	1.057	0.884	1.057	0.884	1.057	0.884	1.070	0.923
$M\wp$	('k)	95.4	218.0	105.9	233.9	100.4	232.2	104.2	229.8	110.8
$s\wp$	(k/')	0.173	----	0.173	----	0.173	----	0.173	----	0.173
$M_s\wp$	('k)	21.2	----	26.7	----	25.1	----	26.6	----	23.2
M_L	('k)	260.2	151.8	321.2	169.7	320.8	170.3	319.9	158.5	288.5
M_I	('k)	78.0	44.4	90.7	47.9	90.6	48.1	90.2	46.1	86.5
$\frac{5}{3}[M_L + I]$	('k)	564	327	687	363	686	364	684	341	625
M_a	('k)	884.4	708.6	1064.9	775.5	1054.5	775.1	1058.6	742.0	986.7
* M_u	('k)	1768.2	----	1777.6	----	1782.7	----	1778.7	----	1768.7
f_s $\wp$ non-comp	(ksi)	3.8	8.7	4.2	9.4	4.0	9.3	4.2	9.2	4.4
f_s $\wp$ (comp)	(ksi)	0.6	----	0.8	----	0.7	----	0.8	----	0.7
f_s $\frac{5}{3}[M_L + M_I]$	(ksi)	14.8	13.1	18.0	14.5	18.0	14.6	17.9	13.6	16.3
f_s (Overload)	(ksi)	19.2	21.8	23.0	23.9	22.7	23.8	22.9	22.8	21.4
** f_s (Total)	(ksi)	----	28.3	----	31.0	----	31.0	----	29.7	----
VR	(k)	59.3	----	62.0	----	46.0	----	62.9	----	63.3

INTERIOR GIRDER REACTION TABLE							
		Pier 7	Pier 8	Pier 9	Pier 10	Pier 11	N. Abut.
$R\wp$	(k)	16.1	53.9	55.4	55.2	55.7	17.7
R_L	(k)	40.8	49.1	49.3	49.4	49.5	41.9
R_I	(k)	12.2	11.3	10.8	10.8	11.3	12.6
R_{Total}	(k)	69.2	114.3	115.5	115.3	116.5	72.2

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

RAMP F SPAN 6 - GIRDER R4

EXISTING INTERIOR GIRDER MOMENT TABLE		
		0.5 Span 7F
I_s	(in^4)	4,930
$I_c(n)$	(in^4)	12,767
$I_c(3n)$	(in^4)	9,275
S_s	(in^3)	329
$S_c(n)$	(in^3)	480
$S_c(3n)$	(in^3)	431
Z	(in^3)	----
$\wp$	(k/')	0.655
$M\wp$	('k)	104.7
$s\wp$	(k/')	0.104
$M_s\wp$	('k)	16.6
M_L	('k)	201.1
M_I	('k)	60.3
$\frac{5}{3}[M_L + I]$	('k)	436
M_a	('k)	724.1
* M_u	('k)	1834.6
f_s $\wp$ non-comp	(ksi)	3.8
f_s $\wp$ (comp)	(ksi)	0.5
f_s $\frac{5}{3}[M_L + M_I]$	(ksi)	10.9
f_s (Overload)	(ksi)	15.2
** f_s (Total)	(ksi)	----
VR	(k)	42.0

INTERIOR GIRDER REACTION TABLE		
		Pier 6
$R\wp$	(k)	14.8
R_L	(k)	32.8
R_I	(k)	9.8
R_{Total}	(k)	57.4

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

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 (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 and Overload) due to short-term composite live loads (in.^{4} and in.^{3}).
$I_c(3n)$, $S_c(3n)$: 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 (in.^{4} and in.^{3}).
Z: Plastic Section Modulus of the steel section in non-composite areas (in.^{3}).
$\wp$: Un-factored non-composite dead load (kips/ft.).
$M\wp$: Un-factored moment due to non-composite dead load (kip-ft.).
$s\wp$: Un-factored long-term composite (superimposed) dead load (kips/ft.)
$M_s\wp$: 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.).
M_a: Factored design moment (kip-ft.).
$1.3\ [M\wp + M_s\wp + \frac{5}{3}(M_L + M_I)]$
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).
$M\wp + M_s\wp + \frac{5}{3}(M_L + M_I)$
f_s (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).
$1.3\ [M\wp + M_s\wp + \frac{5}{3}(M_L + M_I)]$
VR: Maximum L + impact shear range within the composite portion of the span for stud shear connector design (kips).

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FILE NAME = 0160486_60J16_062_momtbls2.dgn	USER NAME = jsurber	DESIGNED - TJJ	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
		CHECKED - AJK/LRB	REVISED -	
	PLOT SCALE =	DRAWN - TJJ	REVISED -	
	PLOT DATE = 8/6/2014	CHECKED - AJK/LRB	REVISED -	

MOMENT AND REACTION TABLES (2 OF 2)
STRUCTURE NO. 016-0486
SHEET NO. SG62 OF SG100 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-038B-R	COOK	821	652
		CONTRACT NO. 60J16		
	ILLINOIS FED. AID PROJECT			

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