GIRDERS 1 MOMENT TABLE						
		0.4 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2	0.6 Sp. 3
I_s	(in^4)	23,605	23,605	31,902	48,105	31,435
$I_c(n)$	(in^4)	57,857	57,857	75,218	98,636	79,167
$I_c(3n)$	(in^4)	43,271	43,271	55,491	73,691	57,411
$I_c(cr)$	(in^4)	-----	32,789	-----	59,135	-----
S_s	(in^3)	878	878	1,252	1,798	1,314
$S_c(n)$	(in^3)	1,214	1,214	1,643	2,211	1,753
$S_c(3n)$	(in^3)	1,113	1,113	1,517	2,057	1,616
$S_c(cr)$	(in^3)	-----	1,007	-----	1,926	-----
S_{xc}	(in^3)	1,105	944	1,603	1,836	1,586
$DC1$	(k/')	1.126	1.126	1.171	1.246	1.169
M_{DC1}	('k)	456	-590	66	-1686	1045
$DC2$	(k/')	0.259	0.259	0.259	0.259	0.259
M_{DC2}	('k)	107	-120	24	-342	242
DW	(k/')	0.400	0.400	0.400	0.400	0.400
M_{DW}	('k)	165	-184	38	-527	373
M_{L+IM}	('k)	1066	-1105	1104	-1829	1725
f_l (Strength I)	(ksi)	6.38	3.31	2.55	2.24	4.94
$M_u + 1/3\, f_l\, S_{xc}$	('k)	3013	3184	2215	6640	5405
$\phi_f M_n$	('k)	-----	-----	-----	-----	-----
f_s $DC1$	(ksi)	6.2	8.1	0.6	11.3	9.5
f_s $DC2$	(ksi)	1.2	1.4	0.2	2.1	1.8
f_s DW	(ksi)	1.8	2.2	0.3	3.3	2.8
f_s (L+IM)	(ksi)	10.5	13.2	8.1	11.4	11.8
f_l (Service II)	(ksi)	4.79	2.61	1.91	1.70	3.72
$f_s + f_l/2$ (Service II)	(ksi)	25.3	30.1	12.6	32.3	31.3
$0.95R_hF_{yf}$	(ksi)	47.5	47.5	47.5	47.5	47.5
$f_s + f_l/3$ (Total)(Strength I)	(ksi)	32.5	39.3	16.4	42.3	40.6
$\phi_f F_n$	(ksi)	50	50	50	50	50
V_r	(k)	58.5	70.1	48.9	75.5	59.3

GIRDERS 2 & 3 MOMENT TABLE						
		0.4 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2	0.6 Sp. 3
I_s	(in^4)	23,605	23,605	31,902	48,105	31,435
$I_c(n)$	(in^4)	59,669	59,669	77,807	102,181	82,023
$I_c(3n)$	(in^4)	45,105	45,105	57,862	76,505	60,025
$I_c(cr)$	(in^4)	-----	32,789	-----	59,135	-----
S_s	(in^3)	878	878	1,252	1,798	1,314
$S_c(n)$	(in^3)	1,225	1,225	1,657	2,229	1,767
$S_c(3n)$	(in^3)	1,128	1,128	1,535	2,078	1,636
$S_c(cr)$	(in^3)	-----	1,007	-----	1,926	-----
S_{xc}	(in^3)	1112	955	1633	1868	1580
$DC1$	(k/')	1.141	1.141	1.186	1.261	1.184
M_{DC1}	('k)	532	-574	16	-1746	1343
$DC2$	(k/')	0.259	0.259	0.259	0.259	0.259
M_{DC2}	('k)	117	-140	20	-358	303
DW	(k/')	0.400	0.400	0.400	0.400	0.400
M_{DW}	('k)	180	-215	31	-550	465
M_{L+IM}	('k)	1231	-1386	1263	-1970	1990
f_l (Strength I)	(ksi)	8.10	3.56	1.68	0.88	1.47
$M_u + 1/3\, f_l\, S_{xc}$	('k)	3486	3735	2378	6948	6302
$\phi_f M_n$	('k)	-----	-----	-----	-----	-----
f_s $DC1$	(ksi)	7.3	7.8	0.2	11.7	12.3
f_s $DC2$	(ksi)	1.2	1.7	0.2	2.2	2.2
f_s DW	(ksi)	1.9	2.6	0.2	3.4	3.4
f_s (L+IM)	(ksi)	12.1	16.5	9.1	12.3	13.5
f_l (Service II)	(ksi)	6.09	2.68	1.25	0.69	1.11
$f_s + f_l/2$ (Service II)	(ksi)	29.2	34.9	13.1	33.6	36.0
$0.95R_hF_{yf}$	(ksi)	47.5	47.5	47.5	47.5	47.5
$f_s + f_l/3$ (Total)(Strength I)	(ksi)	37.3	45.8	17.3	44.3	47.4
$\phi_f F_n$	(ksi)	50	50	50	50	50
V_r	(k)	54.2	59.6	46.7	61.1	59.9

GIRDERS 4 MOMENT TABLE						
		0.4 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2 *	0.6 Sp. 3
I_s	(in^4)	24,789	24,789	36,514	55,664	37,410
$I_c(n)$	(in^4)	61,708	61,708	85,301	112,895	94,914
$I_c(3n)$	(in^4)	45,801	45,801	62,373	83,788	67,509
$I_c(cr)$	(in^4)	-----	34,545	-----	67,593	-----
S_s	(in^3)	954	954	1,494	1,753	1,700
$S_c(n)$	(in^3)	1,312	1,312	1,920	7,834	2,210
$S_c(3n)$	(in^3)	1,204	1,204	1,779	3,609	2,046
$S_c(cr)$	(in^3)	-----	1,091	-----	2,406	-----
S_{xc}	(in^3)	1196	1031	1947	2030	2008
$DC1$	(k/')	1.133	1.133	1.200	1.289	1.210
M_{DC1}	('k)	580	-544	-134	-1939	1629
$DC2$	(k/')	0.259	0.259	0.259	0.259	0.259
M_{DC2}	('k)	131	-114	-8	-383	338
DW	(k/')	0.400	0.400	0.400	0.400	0.400
M_{DW}	('k)	201	-175	-12	-589	520
M_{L+IM}	('k)	1348	-1367	1398	-2281	2452
f_l (Strength I)	(ksi)	5.81	2.38	2.00	1.77	3.25
$M_u + 1/3\, f_l\, S_{xc}$	('k)	3742	3545	2359	7878	7711
$\phi_f M_n$	('k)	-----	-----	-----	-----	-----
f_s $DC1$	(ksi)	7.3	6.8	1.1	13.3	11.5
f_s $DC2$	(ksi)	1.3	1.3	0.1	1.9	2.0
f_s DW	(ksi)	2.0	1.9	0.1	2.9	3.1
f_s (L+IM)	(ksi)	12.3	15.0	8.7	11.4	13.3
f_l (Service II)	(ksi)	4.36	1.87	1.49	1.42	2.45
$f_s + f_l/2$ (Service II)	(ksi)	28.8	30.5	13.3	33.6	35.1
$0.95R_hF_{yf}$	(ksi)	47.5	47.5	47.5	47.5	47.5
$f_s + f_l/3$ (Total)(Strength I)	(ksi)	37.3	40.1	17.5	43.9	45.8
$\phi_f F_n$	(ksi)	50	50	50	50	50
V_r	(k)	74.2	89.4	65.4	86.6	81.3

GIRDER 1 REACTION TABLE					
		W. Abut.	Pier 1	Pier 2	E. Abut.
R_{DC1}	(k)	32.4	92.2	159.7	48.5
R_{DC2}	(k)	7.2	20.2	33.2	10.5
R_{DW}	(k)	11.1	31.0	51.1	16.1
R_{L+IM}	(k)	79.8	131.7	177.0	84.3
R_{Total}	(k)	130.5	275.1	421.0	159.4

GIRDERS 2 & 3 REACTION TABLE					
		W. Abut.	Pier 1	Pier 2	E. Abut.
R_{DC1}	(k)	37.1	89.9	159.4	62.3
R_{DC2}	(k)	7.8	20.9	33.5	13.6
R_{DW}	(k)	12.0	32.1	51.5	21.0
R_{L+IM}	(k)	102.0	157.1	189.2	109.7
R_{Total}	(k)	158.9	300.0	433.6	206.6

GIRDER 4 REACTION TABLE					
		W. Abut.	Pier 1	Pier 2	E. Abut.
R_{DC1}	(k)	39.4	85.6	155.4	70.4
R_{DC2}	(k)	8.5	19.2	31.4	14.5
R_{DW}	(k)	13.1	29.6	48.3	22.3
R_{L+IM}	(k)	99.5	148.7	180.4	121.2
R_{Total}	(k)	160.5	283.1	415.5	228.4

* Top flange stress controls

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 $in.^3$).

$I_c(3n)$, $S_c(3n)$: 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 ($in.^4$ and $in.^3$).

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

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 ($in.^3$).

$DC1$: 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.).
$1.25\,(M_{DC1} + M_{DC2}) + 1.5\,M_{DW} + 1.75\,M_{L+IM}$

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

$\phi_f M_n$: 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_{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 (L+IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live plus impact loads as calculated below (ksi).
$M_{L+IM} / S_c(n)$ or $M_{DW} / S_c(cr)$ as applicable.

$f_s + f_l/2$ (Service II): Sum of stresses as computed below (ksi).
$f_{sDC1} + f_{sDC2} + f_{sDW} + 1.3\, f_s(L+IM) + f_l/2$

$0.95R_hF_yf$: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

$f_s + f_l/3$(Total) (Strength I): Sum of stresses as computed below on non-compact section (ksi).
$1.25\,(f_{sDC1} + f_{sDC2}) + 1.5\, f_{sDW} + 1.75\, f_s(L+IM) + f_l/3$

$\phi_f F_n$: 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.

Note:
M_{L+IM} and R_{L+IM} include the effects of centrifugal force and superelevation.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

MOMENT & REACTION TABLES
STRUCTURE NO. 016-1512
SHEET NO. SB26 OF SB43 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	(0707-608&611)HB-B	COOK	177	142
		CONTRACT NO. 60W77		
	ILLINOIS FED. AID PROJECT			