

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 301	177-2	STEPHENSON	386	166
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

Contract No. 64799

INTERIOR GIRDER MOMENT TABLE

	0.4 Sp. 1 or 0.6 Sp. 7	Pier 1 or Pier 6	0.5 Sp. 2 or 0.5 Sp. 6	Pier 2 or Pier 5	0.5 Sp. 3 or 0.5 Sp. 5	Pier 3 or Pier 4	0.5 Sp. 4
$I_s$	20291	25836	20291	25836	21281	30344	21281
$I_c(n)$	48492		48492		51591		51591
$I_c(3n)$	35815		35815		37821		37821
$S_s$	788	1023	788	1023	801	1190	801
$S_c(n)$	1146		1146		1233		1233
$S_c(3n)$	1048		1048		1128		1128
$Z$							
$Q$	0.94	1.443	0.94	1.443	0.95	1.463	0.95
$M_Q$	519	1348	365	1356	464	1836	584
$s_Q$	0.473		0.473		0.473		0.473
$M_{sQ}$	293		237		290		362
$M_L$	753	585	793	681	863	818	936
$M_{Imp}$	175	131	172	144	179	166	186
$^{5/3} [M_L + M_{Imp}]$	1547	1193	1607	1375	1736	1641	1870
$M_a$	3067	3303	2872	3551	3237	4520	3661
* $M_u$	5443		5836		6185		6185
$f_s Q$ non-comp	7.9	15.8	5.6	15.9	6.9	18.5	8.7
$f_s Q$ (comp)	3.4		2.7		3.1		3.9
$f_s ^{5/3} [M_L + M_{Imp}]$	23.6	14.0	16.8	16.1	16.9	16.5	18.2
$f_s$ (Overload)	34.8	29.8	25.1	32.0	26.9	35.1	30.8
** $f_s$ (Total)		38.7		41.6		45.6	
VR	63.4		51.6		51.5		51.4

INTERIOR GIRDER REACTION TABLE

	Abuts.	Pier 1 & 6	Pier 2 & 5	Pier 3 & 4
$R_Q$	47.6	152.1	151.2	175.1
$R_L$	47.5	67.6	71.5	77.0
Imp.	11.0	10.5	10.3	10.5
$R_{Total}$	106.1	230.2	233.1	262.6

\* 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.<sup>4</sup> and in.<sup>3</sup>).

$I_c(n), S_c(n)$ : 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.<sup>4</sup> and in.<sup>3</sup>).

$I_c(3n), S_c(3n)$ : 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.<sup>4</sup> and in.<sup>3</sup>).

$Z$ : Plastic Section Modulus of the steel section in non-composite areas (in.<sup>3</sup>).

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

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

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

$M_{sQ}$ : Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).

$M_L$ : Un-factored live load moment (kip-ft.).

$M_{Imp}$ : Un-factored moment due to Impact (kip-ft.).

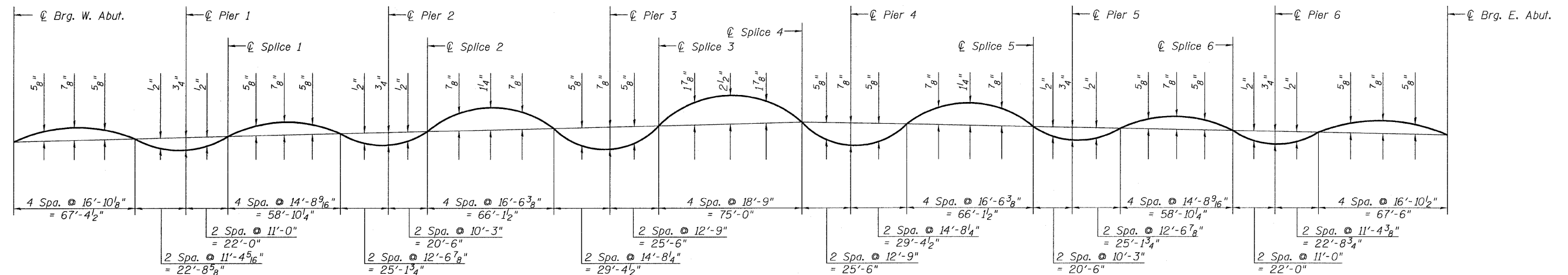
$M_a$ : Factored design moment (kip-ft.).  
 $1.3 [M_Q + M_{sQ} + \frac{5}{3} (M_L + M_{Imp})]$

$M_u$ : 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).  
 $M_Q + M_{sQ} + \frac{5}{3} (M_L + M_{Imp})$

$f_s$  (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).  
 $1.3 [M_Q + M_{sQ} + \frac{5}{3} (M_L + M_{Imp})]$

VR: Maximum  $\pm$  impact horizontal shear range within the composite portion of the span for stud shear connector design (kips).



CAMBER DIAGRAM

DESIGNED	A.HAMMAD
CHECKED	J.BRISBOIS
DRAWN	D.C.PATEL
CHECKED	J.GRAINAWI

FRAMING DETAILS III  
F.A.P. ROUTE 301 SECTION 177-2B-1  
STEPHENSON COUNTY  
STATION 540+65.71  
STRUCTURE NO. 089-0082

