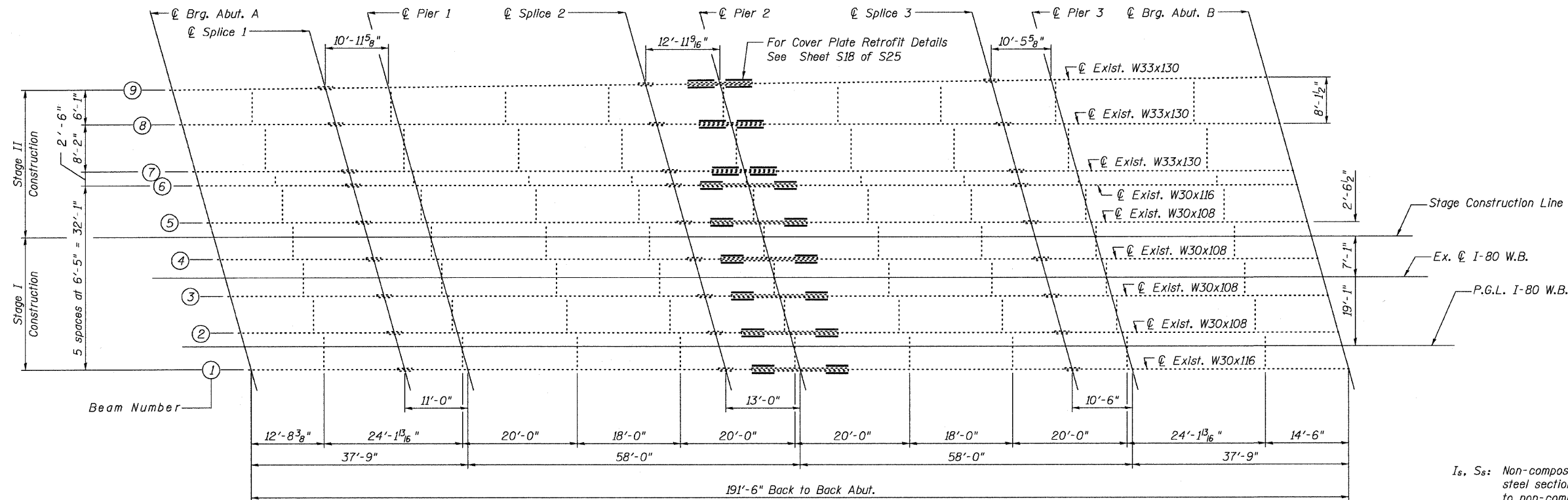


STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

Sheet S16 of S25

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
80	81-IHBY-D	ROCK ISLAND	120	45
FED. ROAD DIST. NO. 2			ILLINOIS FED. AID PROJECT	

Contract # 64C74



**FRAMING PLAN**

(Westbound bridge is shown. Eastbound bridge is similar.)

	0.4 Sp. 1 or 0.6 Sp. 4	Pier 1 or Pier 3	0.5 Sp. 2 or 0.5 Sp. 3	Pier 2
$I_s$	(in <sup>4</sup> ) 4,470	4,470	4,470	6,373
$I_c(n)$	(in <sup>4</sup> ) 13,204		13,204	
$I_c(3n)$	(in <sup>4</sup> ) 9,729		9,729	
$S_s$	(in <sup>3</sup> ) 300	300	300	415
$S_c(n)$	(in <sup>3</sup> ) 466		466	
$S_c(3n)$	(in <sup>3</sup> ) 420		420	
$Z$	(in <sup>3</sup> )			
$\phi$	(k/')	0.78	0.78	0.78
$M\phi$	(k)	177.2	112.5	258.7
$s\phi$	(k/')	0.39	0.39	0.39
$M_s\phi$	(k)	73.2	72.9	110.6
$M\phi$	(k)	140.8	316.7	189.3
$M_{imp}$	(k)	40.4	86.5	51.7
$S_3 [M\phi + M_{imp}]$	(k)	302.0	672.2	401.7
$M_a$	(k)	718.1	1114.8	1002.3
$M_u$	(k)		1978.5	
$f_s \phi$ non-comp	(ksi)	10.02	4.50	10.67
$f_s \phi$ (comp)	(ksi)		2.08	
$f_s S_3 [M\phi + M_{imp}]$	(ksi)	12.09	17.32	11.61
$f_s$ (Overload)	(ksi)	22.11	23.91	22.28
$f_s$ (Total)	(ksi)		28.74	28.96
VR	(k)		39.4	

	0.4 Sp. 1 or 0.6 Sp. 4	Pier 1 or Pier 3	0.5 Sp. 2 or 0.5 Sp. 3	Pier 2
$I_s$	(in <sup>4</sup> ) 6,710	6,710	6,710	9,293
$I_c(n)$	(in <sup>4</sup> ) 18,480		18,480	
$I_c(3n)$	(in <sup>4</sup> ) 13,852		13,852	
$S_s$	(in <sup>3</sup> ) 406	406	406	547
$S_c(n)$	(in <sup>3</sup> ) 599		599	
$S_c(3n)$	(in <sup>3</sup> ) 546		546	
$Z$	(in <sup>3</sup> )			
$\phi$	(k/')	0.98	0.98	0.98
$M\phi$	(k)	225.4	145.3	311.5
$s\phi$	(k/')	0.39	0.39	0.39
$M_s\phi$	(k)	75.1	73.8	106.8
$M\phi$	(k)	183.3	402.0	232.3
$M_{imp}$	(k)	52.5	109.8	63.5
$S_3 [M\phi + M_{imp}]$	(k)	393.0	853.1	492.9
$M_a$	(k)	901.5	1393.9	1184.7
$M_u$	(k)		2532.7	
$f_s \phi$ non-comp	(ksi)	8.89	4.30	9.18
$f_s \phi$ (comp)	(ksi)		1.62	
$f_s S_3 [M\phi + M_{imp}]$	(ksi)	11.63	17.08	10.81
$f_s$ (Overload)	(ksi)	20.52	23.00	19.98
$f_s$ (Total)	(ksi)		26.67	25.98
VR	(k)		50.1	

- $I_s, S_s$ : 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 (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>).
- $\phi$ : 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.).
- $M_{imp}$ : Un-factored moment due to impact (kip-ft.).
- $M_a$ : Factored design moment (kip-ft.).  
 $1.3 [M\phi + M_s\phi + \frac{2}{3} (M\phi + M_{imp})]$
- $M_u$ : 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).  
 $M\phi + M_s\phi + \frac{2}{3} (M\phi + M_{imp})$
- $f_s$  (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).  
 $1.3 [M\phi + M_s\phi + \frac{2}{3} (M\phi + M_{imp})]$
- VR: Maximum  $\phi$  + impact horizontal shear range within the composite portion of the span for stud shear connector design (kips).

	Abut.'s	Pier 1, 3, 4 or 6	Pier 2 or 5
$R\phi$	(k)	60.9	72.4
$R\phi$	(k)	42.4	42.2
Imp.	(k)	12.3	11.5
$R_{Total}$	(k)	115.6	126.1

	Abut.'s	Pier 1, 3, 4 or 6	Pier 2 or 5
$R\phi$	(k)	71.8	83.9
$R\phi$	(k)	53.0	52.4
Imp.	(k)	15.4	14.3
$R_{Total}$	(k)	140.2	150.6

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

ILLINOIS DEPARTMENT OF TRANSPORTATION  
**FRAMING PLAN,  
MOMENT AND REACTION TABLES**  
INTERSTATE 80 OVER INTERSTATE 88  
F.A.I. ROUTE 80 - SECTION 81-IHBY-D  
ROCK ISLAND COUNTY  
STATION 217+81.50  
EB S.N. 081-0012 & WB 081-0013  
DRAWN BY: M. Woldezion  
CHECKED BY: A. Yargicoglu  
DATE: FEBRUARY 27, 2008

FILES  
STIMES  
INDEXES  
NOTES

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ENGINEERING INC.  
LISLE, ILLINOIS