

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
80	32-3HBR-1	GRUNDY	88	42
STA.		TO STA.		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		

SHEET NO. B15

OF 35 SHEETS

	0.4 Sp. 1	Pier
$I_s$ (in <sup>4</sup> )	16986	23457
$I_c$ (in <sup>4</sup> )	35898	
$I_c$ (3n) (in <sup>4</sup> )	26666	
$S_s$ (in <sup>3</sup> )	790	1331
$S_c$ (in <sup>3</sup> )	1020	
$S_c$ (3n) (in <sup>3</sup> )	934	
$Z$ (in <sup>3</sup> )		1457
$\phi$ (k/')	0.770	1.283
$M\phi$ (k)	697	2512
$s\phi$ (k/')	0.421	
$M_s\phi$ (k)	426	
$M\phi$ (k)	818	781
$M$ (Imp) (k)	172	164
$^{2/3}[M_d + M(Imp)]$ (k)	1650	1575
$M_a$ (k)	3605	5313
$M_u$ (k)	3675	6071
$f_s\phi$ non-comp (ksi)	10.6	22.6
$f_s\phi$ (comp) (ksi)	5.5	
$f_s^{2/3}[M_d + M(Imp)]$ (ksi)	19.4	14.2
$f_s$ (Overload) (ksi)	35.5	36.8
$f_s$ (Total) (ksi)		
$VR$ (k)	41.0	

	Abut.	Pier
$R\phi$ (k)	52.6	189.8
$R\frac{1}{2}$ (k)	35.3	64.5
Imp. (k)	7.4	13.5
$R$ (Total) (k)	95.3	267.8

$I_s$  and  $S_s$  are the moment of inertia and section modulus of the steel section used in computing  $f_s$  (Total and Overload).

$I_c(n)$  and  $S_c(n)$  are the moment of inertia and section modulus of the composite section used in computing stresses due to Live Load.

$I_c(3n)$  and  $S_c(3n)$  are the moment of inertia and section modulus of the composite section used in computing stresses due to superimposed dead loads. (See AASHTO 10.38).

$VR$  is the maximum  $\frac{1}{4}$  + impact shear range within the composite portion of the span.

$Z$  is the plastic section modulus used to determine the Fully Plastic Moments in the non-composite areas.

The Plastic Moment capacity ( $M_u$ ) is computed according to AASHTO 10.48.1 & 10.50.1.1.

$f_s$  (Total) is the sum of the stresses due to  $1.3 [M\phi + M_s\phi + ^{2/3}(M\frac{1}{2} + M(Imp))]$

$f_s$  (Overload) is the sum of the stresses due to  $M\phi + M_s\phi + ^{2/3}(M\frac{1}{2} + M(Imp))$

$M\phi$  - Moment due to dead loads on non-composite section.

$M_s\phi$  - Moment due to dead loads on composite section.

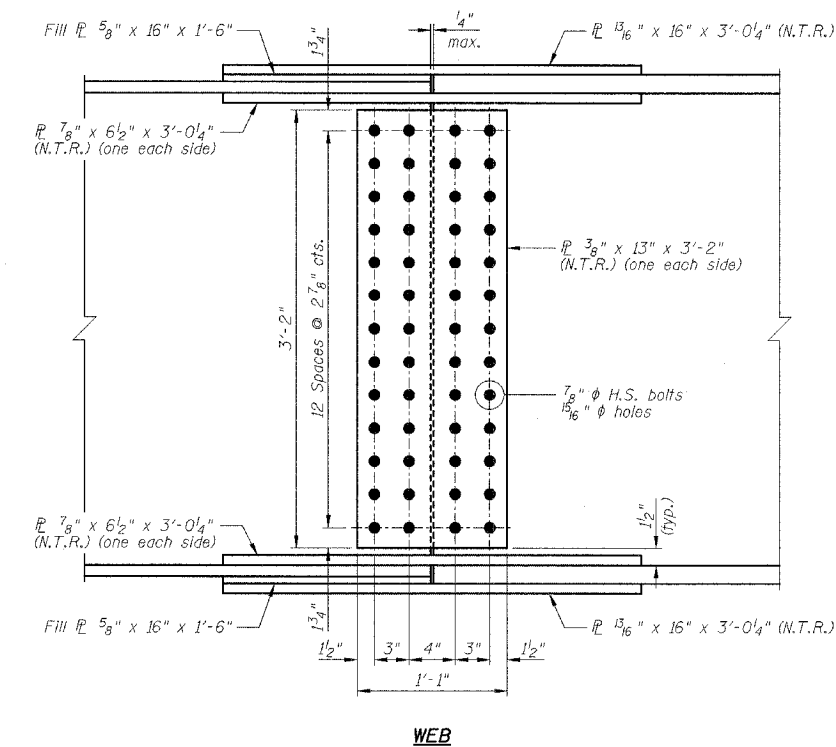
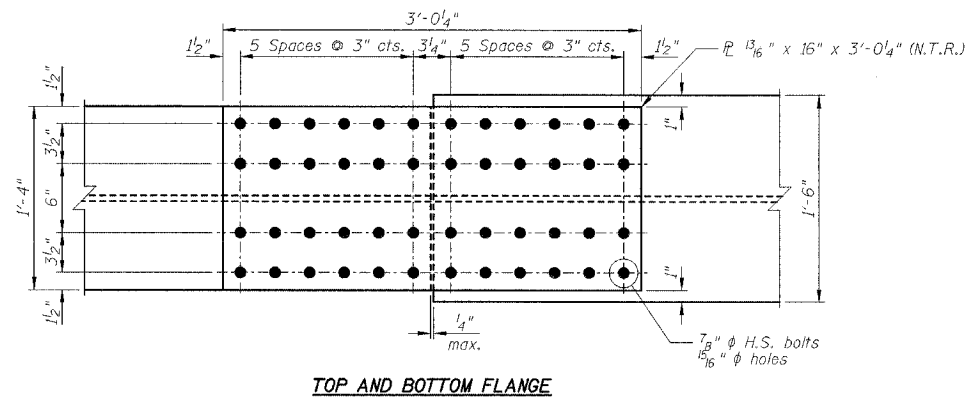
$M\frac{1}{2}$  - Moment due to live load on non-composite or composite section.

$M(Imp)$  - Moment due to live load impact on non-composite or composite section.

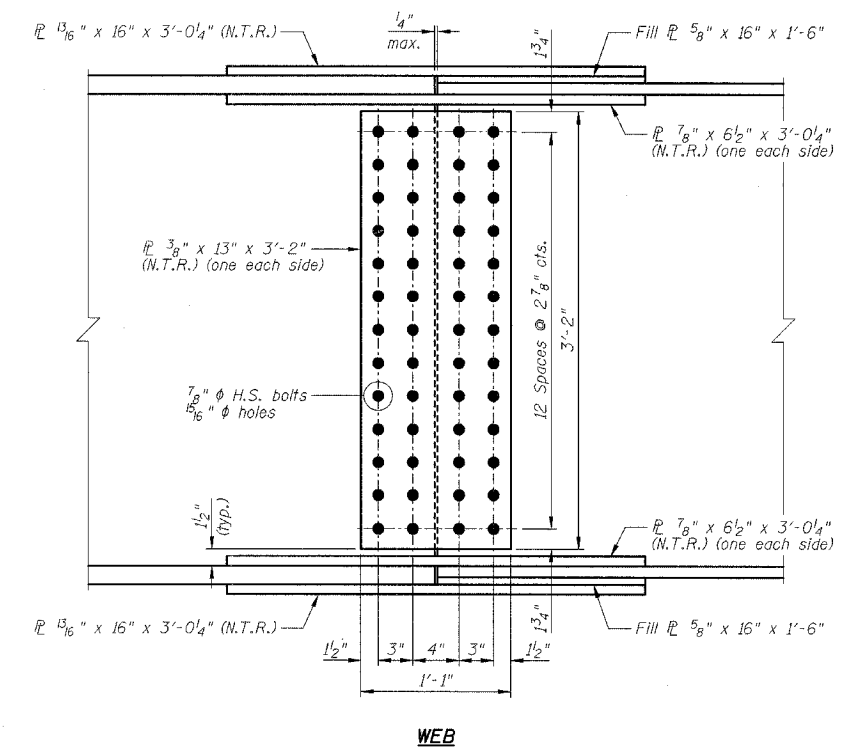
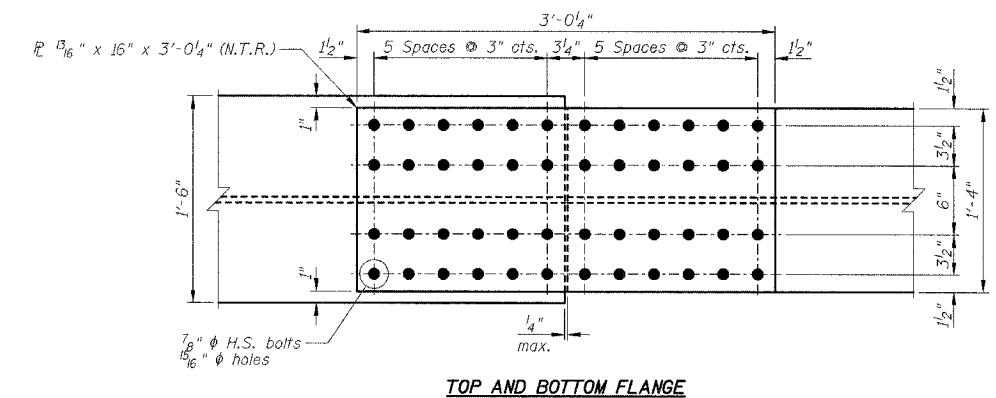
$M_a$  (Applied Moment) =  $1.3 [M\phi + M_s\phi + ^{2/3}(M\frac{1}{2} + M(Imp))]$

Location	Girder 1	Girder 2	Girder 3	Girder 4	Girder 5	Girder 6
℄ Brg. N. Abut.	566.594	566.740	566.872	566.916	566.872	566.815
℄ Splice 1	567.251	567.364	567.464	567.476	567.400	567.310
℄ Brg. Pier	567.281	567.382	567.470	567.470	567.382	567.281
℄ Splice 2	567.310	567.400	567.476	567.464	567.364	567.251
℄ Brg. S. Abut.	566.815	566.872	566.916	566.872	566.740	566.594

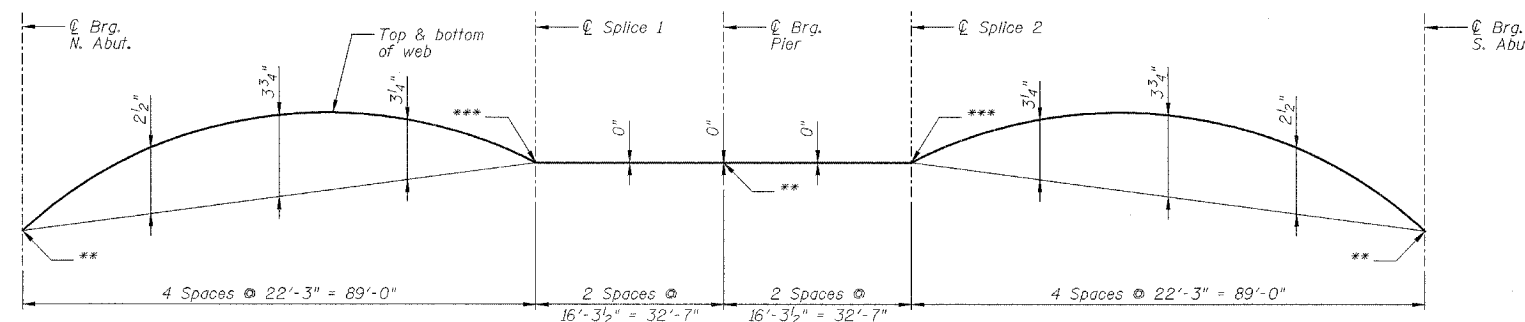
\*For fabrication use only.  
Elevations at splices have been adjusted for Dead Load Deflection.



WEB  
SPLICE 1 DETAILS  
(6 - Required)



WEB  
SPLICE 2 DETAILS  
(6 - Required)



CAMBER DIAGRAM

\*\*Final top of web elevations at abutments and pier.  
\*\*\*Theoretical top of web elevations before Dead Load Deflection.

NOTES:

- 1.) All splice plate material shall be AASHTO M270 Gr50.
- 2.) N.T.R. denotes plates to which Notch Toughness Requirements are applicable.
- 3.) Work this sheet with Sheets B14 & B16.

REVISIONS	NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
STRUCTURAL STEEL DETAILS  
F.A.I. 80 (I-80)  
F.A.U. 5974 (ASHLEY ROAD) OVER I-80  
SECTION 32-3HBR-1  
GRUNDY COUNTY  
STATION 110+00.00 STRUCTURE NO. 032-0113  
DESIGNED BY: JML  
DRAWN BY: DJM  
DATE: 09/09/05  
CHECKED BY: MSW