

Contract #66697

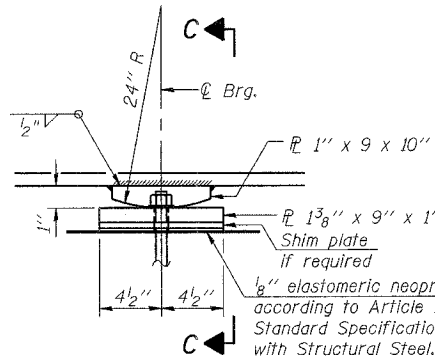
	0.4 Sp. 1 or 0.6 Sp. 3	Pier #1 or Pier #2	0.5 Sp. 2
$I_s$	(in <sup>4</sup> ) 2100	2100	2100
$I_c(n)$	(in <sup>4</sup> ) 7124	-	7124
$I_c(3n)$	(in <sup>4</sup> ) 5255	-	5255
$S_s$	(in <sup>3</sup> ) 176	176	176
$S_c(n)$	(in <sup>3</sup> ) 291	-	291
$S_c(3n)$	(in <sup>3</sup> ) 262	-	262
$P$	(k/ft) 0.65	1.07	0.65
$M_P$	(k) 71.9	204.6	75.1
$s_P$	(k/ft) 0.42	-	0.42
$M_{sP}$	(k) 53.8	-	67.3
$M_L$	(k) 214.9	119.3	232.3
$M_{Imp}$	(k) 64.5	34.6	65.0
$S_3 [M_L + M_{Imp}]$	(k) 465.7	256.5	496.3
$M_a$	(k) 768.8	599.4	830.8
$M_u$	(k) 1141	-	1141
$f_s \text{ non-comp}$	(ksi) 4.9	14.0	5.1
$f_s \text{ (comp)}$	(ksi) 2.5	-	3.1
$f_s \text{ } S_3 [M_L + M_{Imp}]$	(ksi) 19.2	17.5	20.5
$f_s \text{ (Overload)}$	(ksi) 26.6	31.5	28.7
$f_s \text{ (Total)}$	(ksi) -	41.0	-
VR	(k) 40.5	-	35.4

	Abuts.	Piers
$R_P$	(k) 16.3	53.7
$R_L$	(k) 33.0	39.2
Imp.	(k) 9.9	11.4
$R_{Total}$	(k) 59.2	104.3

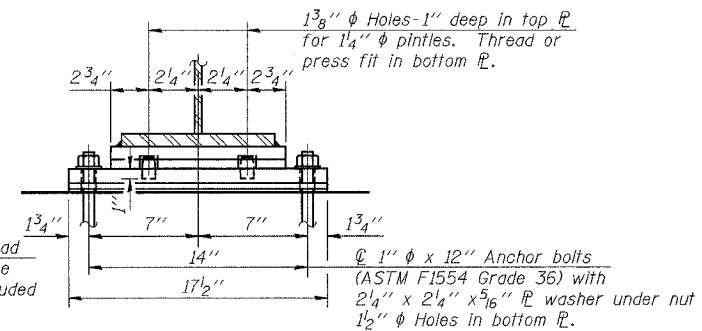
\* Compact section  
\*\* Braced non-compact and partially braced section

$I_s, S_s$ : 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>).  
 $P$ : Un-factored non-composite dead load (kips/ft.).  
 $M_P$ : Un-factored moment due to non-composite dead load (kip-ft.).  
 $s_P$ : Un-factored long-term composite (superimposed) dead load (kips/ft.).  
 $M_{sP}$ : 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.).  
 $1.3 [M_P + M_{sP} + \frac{5}{3} (M_L + M_{Imp})]$   
 $M_u$ : 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).  
 $M_P + M_{sP} + \frac{5}{3} (M_L + M_{Imp})$   
 $f_s$  (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).  
 $1.3 [M_P + M_{sP} + \frac{5}{3} (M_L + M_{Imp})]$   
 VR: Maximum  $L +$  impact horizontal shear range within the composite portion of the span for stud shear connector design (kips).

Beam No.	4	5	6
Shim Height	$\frac{1}{8}$ "	$\frac{1}{8}$ "	$\frac{1}{8}$ "

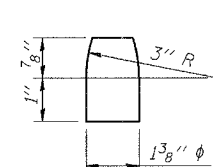


ELEVATION AT PIER

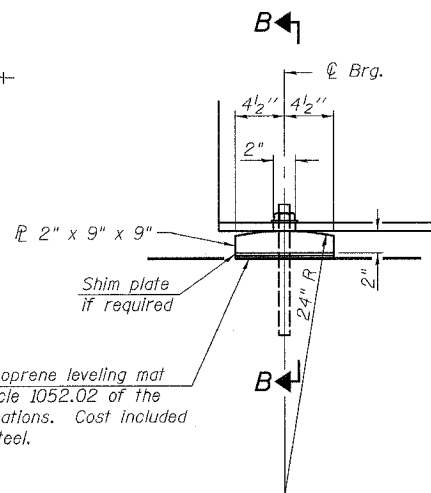


SECTION C-C

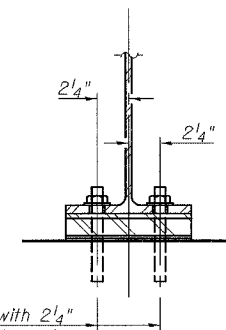
FIXED BEARING AT PIER



PINTLE



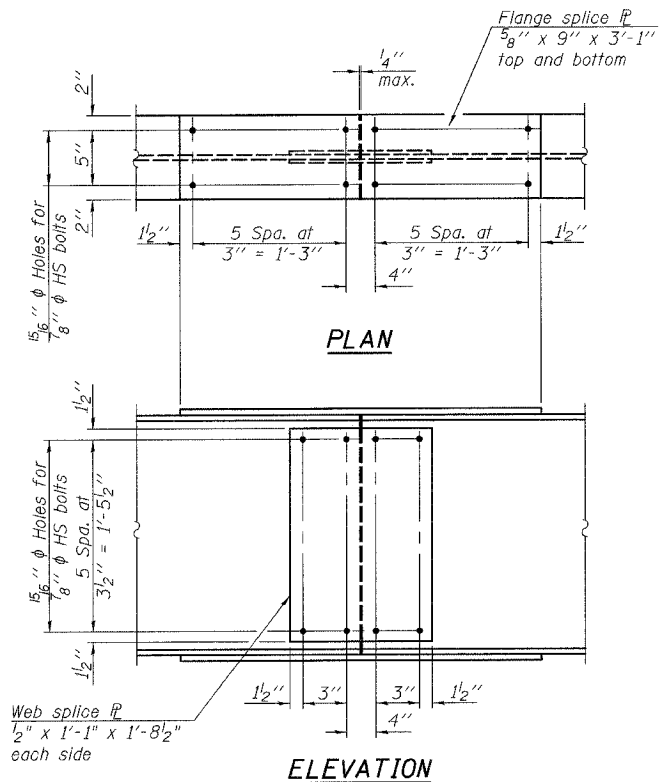
ELEVATION AT ABUTMENT



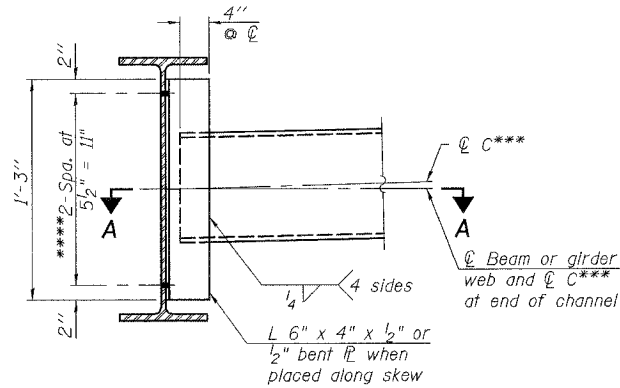
SECTION B-B

FIXED BEARING AT ABUTMENTS

Notes:  
 Two  $\frac{1}{8}$ " adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.  
 Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 (Fy=36ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.  
 Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.  
 Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.  
 NTR is applicable to all splice materials, see notes on sheet 11 of 20.



SPLICE DETAIL  
(6 Required)

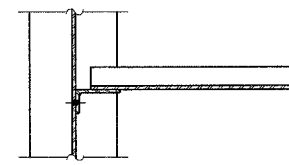


INTERIOR DIAPHRAGM  
30 Required

Note:  
Two hardened washers required for each set of oversized holes.

\*\*\* C12 x 25 or C12 x 30. Alternate channels are permitted to facilitate material acquisition. Calculated weight of structural steel is based on the lighter section.

\*\*\*\*  $\frac{3}{4}$ "  $\phi$  HS bolts,  $\frac{15}{16}$ "  $\phi$  holes



SECTION A-A

BILL OF MATERIAL

Item	Unit	Total
Anchor Bolts, 1"	Each	48

**rjngroup**

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200 West Front Street  
Wheaton, IL 60187

ILLINOIS DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL DETAILS  
 IL RTE 9 OVER DRUMMER CREEK  
 FAP RTE 693 - SECTION 19BR-1  
 FORD COUNTY  
 STATION 810+73.11  
 STRUCTURE NO. 027-0096

DATE: 8/7/2007

DRAWN BY WJV  
 CHECKED BY BLB