

INTERIOR GIRDER MOMENT TABLE		
0.5 Span		
$I_s$	(in <sup>4</sup> )	82.30
$I_c(n)$	(in <sup>4</sup> )	19,298
$I_c(3n)$	(in <sup>4</sup> )	14,106
$S_s$	(in <sup>3</sup> )	542
$S_c(n)$	(in <sup>3</sup> )	4533
$S_c(3n)$	(in <sup>3</sup> )	1514
DC1	(k/')	0.86
M <sub>DC1</sub>	('k)	517
DC2	(k/')	0.03
M <sub>DC2</sub>	('k)	18
DW	(k/')	0.30
M <sub>DW</sub>	('k)	181
$M_k + IM$	('k)	896
$M_u$ (Strength I)	('k)	2508
$\phi_r M_n$	('k)	3470
$f_s$ DC1	(ksi)	11.5
$f_s$ DC2	(ksi)	0.3
$f_s$ DW	(ksi)	3.3
$f_s$ 1.3( $k + IM$ )	(ksi)	18.9
$f_s$ (Service II)	(ksi)	34.0
$f_s$ (Total)(Strength I)	(ksi)	45.1

\* Compact sections

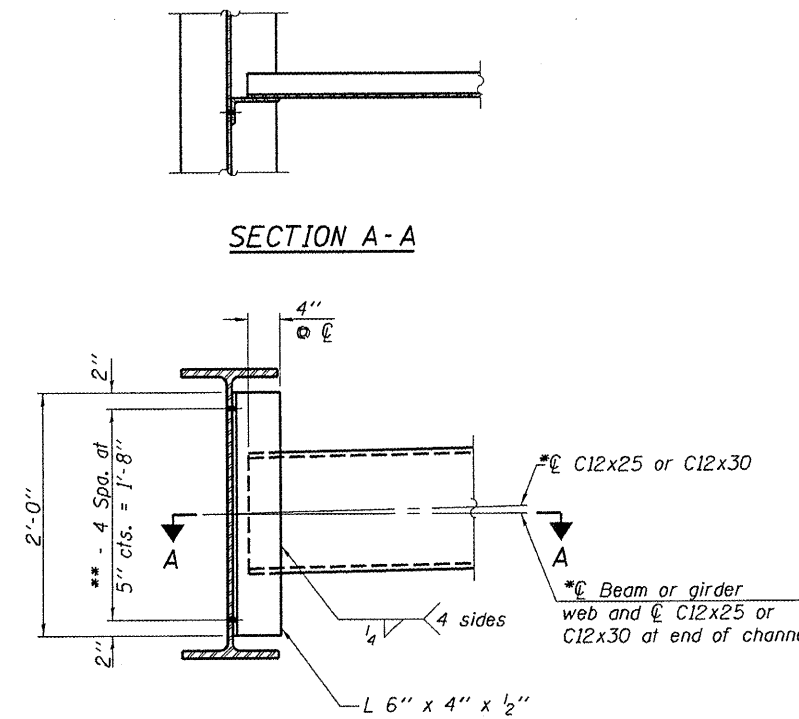
INTERIOR GIRDER REACTION TABLE		
Abut.		
R <sub>DC1</sub>	(k)	29.7
R <sub>DC2</sub>	(k)	1.0
R <sub>DW</sub>	(k)	10.4
R <sub>k + IM</sub>	(k)	73.1
R <sub>Total</sub>	(k)	114.2

$I_s, S_s$ : 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<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-Strength I, and Service II) due to short-term composite live loads (in<sup>4</sup> and in<sup>3</sup>).

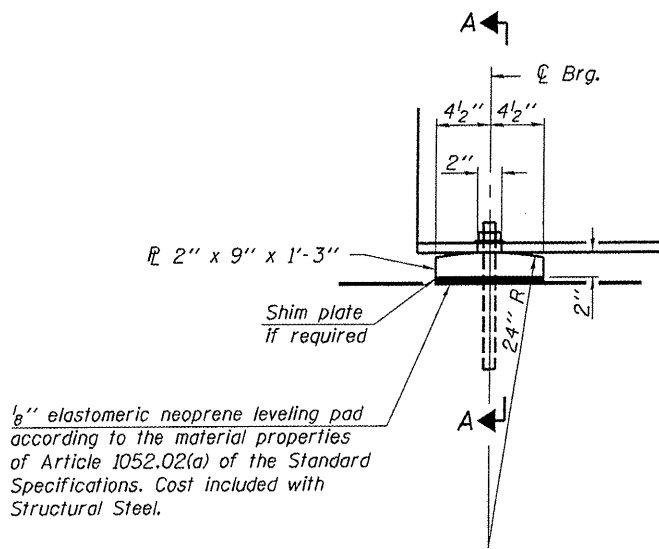
$I_c(3n), S_c(3n)$ : Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing  $f_s$  (Total-Strength I, and Service II) due to long-term composite (superimposed) dead loads (in<sup>4</sup> and in<sup>3</sup>).

DC1: Un-factored non-composite dead load (kips/ft.).  
 M<sub>DC1</sub>: 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<sub>DC2</sub>: 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<sub>DW</sub>: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).  
 M<sub>k + IM</sub>: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).  
 $M_u$  (Strength I): Factored design moment (kip-ft.).  
 1.25 (M<sub>DC1</sub> + M<sub>DC2</sub>) + 1.5 M<sub>DW</sub> + 1.75 M<sub>k + IM</sub>  
 $\phi_r M_n$ : Compact composite positive moment capacity computed according to Article 6.10.7.1 (kip-ft.).  
 $f_s$  (Service II): Sum of stresses as computed from the moments below (ksi).  
 M<sub>DC1</sub> + M<sub>DC2</sub> + M<sub>DW</sub> + 1.3 M<sub>k + IM</sub>  
 $f_s$  (Total)(Strength I): Sum of stresses as computed from the moments below on non-compact section (ksi).  
 1.25 (M<sub>DC1</sub> + M<sub>DC2</sub>) + 1.5 M<sub>DW</sub> + 1.75 M<sub>k + IM</sub>

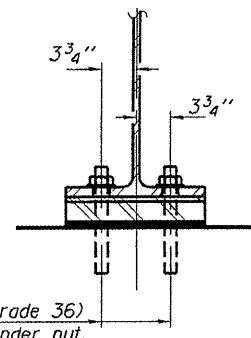


INTERIOR DIAPHRAGM

Notes:  
 Two hardened washers required for each set of oversized holes.  
 \*Alternate channels are permitted to facilitate material acquisition. Calculated weight of structural steel is based on the lighter section. The alternate, if utilized, shall be provided at no additional cost to the Department.  
 \*\*3/4"  $\phi$  HS bolts, 1 5/16"  $\phi$  holes



1/8" elastomeric neoprene leveling pad according to the material properties of Article 1052.02(a) of the Standard Specifications. Cost included with Structural Steel.



1"  $\phi$  x 12" anchor bolts (F1554 Grade 36) with 2 1/4" x 2 1/4" x 5/16"  $\square$  washer under nut.  
 1 3/8" x 2" slotted hole in flange.  
 1 1/2"  $\phi$  holes in bearing plate.

SECTION A-A

ELEVATION AT ABUTMENT

FIXED BEARING  
 (12 required)

Notes:  
 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.  
 The structural steel plates of the Bearing Assembly shall conform to the requirements of AASHTO M270 Grade 50.  
 Two 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.

BILL OF MATERIAL

Item	Unit	Quantity
Anchor Bolts, 1"	Each	24

STRUCTURAL STEEL DETAILS  
 STRUCTURE NUMBER 101-3101

02/01/2011  
 AV/04/05/10/0095-AC/ADD/Struct/Steel/AS-008-Str-Steel/Def.dgn  
 LAYOUT: JKR 12/20/10  
 DRAWN: MRM 1/14/11  
 REVIEWED: SMK 1/14/11

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JOB NO. 10L0054  
 DATE 2/3/11

SHEET NO. 8  
 12 SHEETS

F.A.U. RTE. 5077	SECTION 10-00462-00-BR	COUNTY Winnebago	TOTAL SHEETS 21	SHEET NO. 15
CONTRACT NO. 85534				
FED. ROAD DIST. NO. 2 ILLINOIS FED. AID PROJECT				