

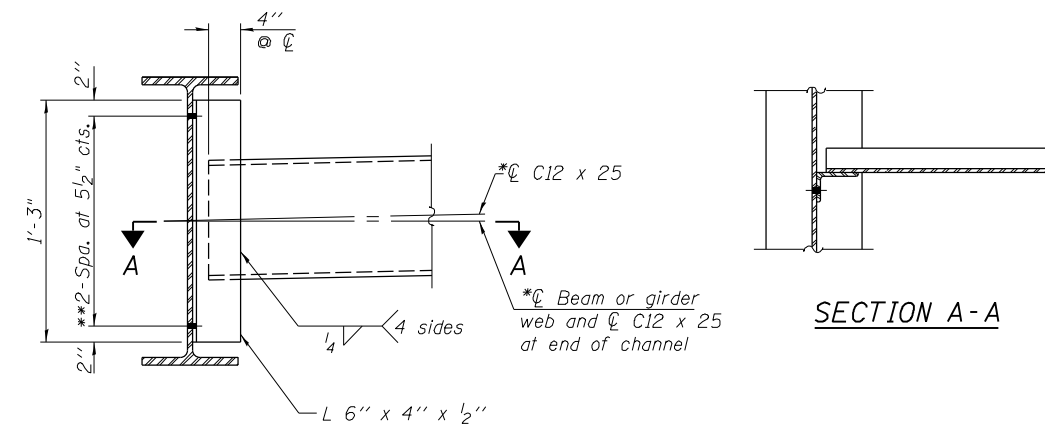
		0.4 Sp. 1 or 0.6 Sp. 3	0.5 Sp. 2	Pier 1 or Pier 2
I_s	(in ⁴)	2850	2850	2850
$I_c(n)$	(in ⁴)	8886	8886	8886
$I_c(3n)$	(in ⁴)	6617	6617	6617
$I_c(cr)$	(in ⁴)	-	-	4523
S_s	(in ³)	213	213	213
$S_c(n)$	(in ³)	339	339	339
$S_c(3n)$	(in ³)	306	306	306
$S_c(cr)$	(in ³)	-	-	265
DC1	(k/')	0.714	0.714	0.714
M _{DC1}	(k)	98	34	125
DC2	(k/')	0.150	0.150	0.150
M _{DC2}	(k)	20	7	26
DW	(k/')	0.267	0.267	0.267
M _{DW}	(k)	36	13	47
M _{ℓ + IM}	(k)	370	294	287
M _u (Strength I)	(k)	849	585	762
φ _r M _n	(k)	1731.3	1799.8	998.1
f _s DC1	(ksi)	5.5	1.9	7.0
f _s DC2	(ksi)	0.8	0.3	1.2
f _s DW	(ksi)	1.3	0.5	2.1
f _s (ℓ + IM)	(ksi)	13.1	10.4	13.0
f _s (Service II)	(ksi)	24.6	16.2	27.2
0.95R _n F _{yf}	(ksi)	47.5	47.5	47.5
f _s (Total)(Strength I)	(ksi)			
φ _r F _n	(ksi)			
V _r	(k)	16.8	18.7	

		Abutments	Piers
R _{DC1}	(k)	18.4*	32.9
R _{DC2}	(k)	20.6*	6.9
R _{DW}	(k)	7.8*	12.3
R _{ℓ + IM}	(k)	65.1	80.9
R _{Total}	(k)	111.9	133.0

* Dead Load reaction includes concrete diaphragm and approach slab.

- 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.⁴ and in.³).
- $I_c(n), S_c(n)$: 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) in uncracked sections due to short-term composite live loads (in.⁴ and in.³).
- $I_c(3n), S_c(3n)$: 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) in uncracked sections, due to long-term composite (superimposed) dead loads (in.⁴ and in.³).
- $I_c(cr), S_c(cr)$: Composite moment of inertia and section modulus of the steel and longitudinal deck reinforcement, used for computing f_s (Total-Strength I and Service II) in cracked sections, due to both short-term composite live loads and long-term composite (superimposed) dead loads (in.⁴ and in.³).
- DC1: Un-factored non-composite dead load (kips/ft.).
- M_{DC1}: 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_{DC2}: 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_{DW}: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).
- M_{ℓ + IM}: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).
- M_u (Strength I): Factored design moment (kip-ft.).
 $1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{ℓ + IM}$
- φ_rM_n: Compact composite positive moment capacity computed according to Article 6.10.7.1 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft.).
- f_s DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).
 M_{DC1} / S_{nc}
- f_s DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).
 $M_{DC2} / S_c(3n)$ or $M_{DC2} / S_c(cr)$ as applicable.
- f_s DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).
 $M_{DW} / S_c(3n)$ or $M_{DW} / S_c(cr)$ as applicable.
- f_s (ℓ + IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live load plus impact loads as calculated below (ksi).
 $M_{ℓ + IM} / S_c(n)$ or $M_{DW} / S_c(cr)$ as applicable.
- f_s (Service II): Sum of stresses as computed below (ksi).
 $f_{sDC1} + f_{sDC2} + f_{sDW} + 1.3 f_s(ℓ + IM)$
- 0.95R_nF_{yf}: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).
- f_s (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).
 $1.25 (f_{sDC1} + f_{sDC2}) + 1.5 f_{sDW} + 1.75 f_s(ℓ + IM)$
- φ_rF_n: Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).
- V_r: Maximum factored shear range in span computed according to Article 6.10.10.

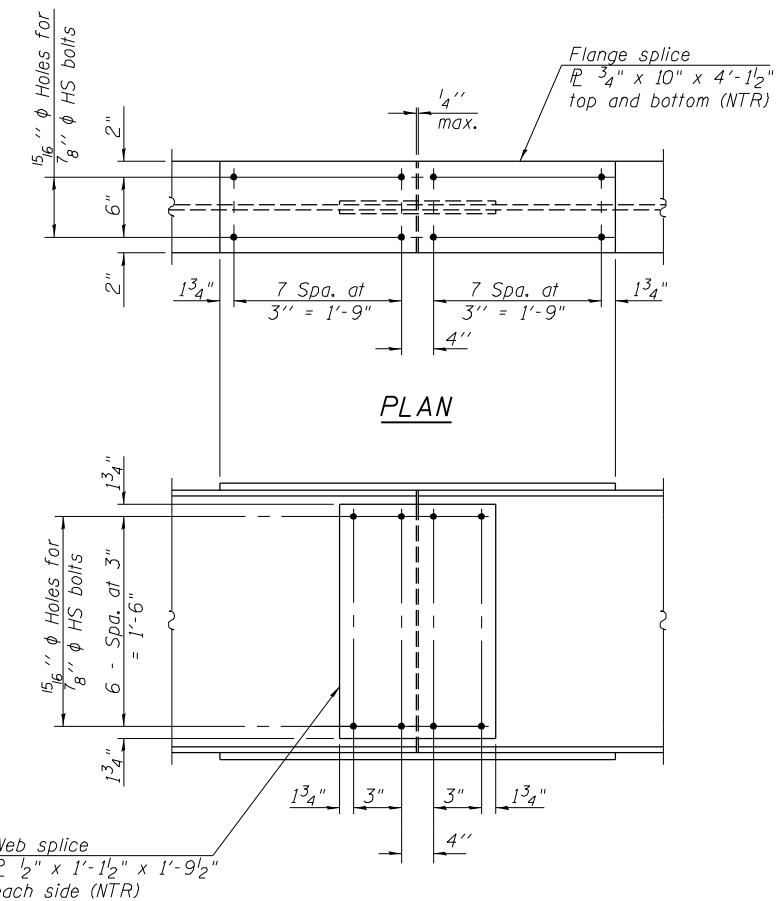
Note:
 Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.
 All steel required for Diaphragms and Splice to be AASHTO M270 Grade 50W.



DIAPHRAGM D
 (25 Required)

Note:

Two hardened washers required for each set of oversized holes.
 *C12 x 30 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" φ HS bolts. 1 5/16" φ holes except at Beam Number 3-4 diaphragm connection to Beam Number 4 use 1 3/8" vertical slotted holes in L6x4x1/2" and 1 5/16" φ hole in Beam. Provide 5/16" plate washers for slotted holes.
 Bolts in 1 3/8" x 1 7/8" holes shall be finger tight until the second stage pour is complete.



ELEVATION
SPLICE DETAIL
 (6 Required)

FILENAME: F:\3-1308 IDDTDist\3-1308B\US34C\Submittals\Comments\2014 BP 11 BBS Comments Response\CAD Files\0052140-66A17-015-StrSteelDetail.dwg



USER NAME = bmattas	DESIGNED - KO	REVISED
	CHECKED - BCM	REVISED
PLOT SCALE = N/A	DRAWN - KO	REVISED
PLOT DATE = 9/11/2014	CHECKED - 7/27/2012	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL DETAILS
STRUCTURE NO. 006-0140

SHEET NO. S15 OF S26 SHEETS

F.A.P. RTE. 613	SECTION (8D-BR) BR	COUNTY BUREAU	TOTAL SHEETS 63	SHEET NO. 37
CONTRACT NO. 66A17				ILLINOIS FED. AID PROJECT