

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

INTERIOR BEAM MOMENT TABLE			
	0.4 Sp. 1 or 0.6 Sp. 3	Pier 1 or Pier 2	0.5 Sp. 2
I_s	(in ⁴)	6310	6310
$I_c(n)$	(in ⁴)	15423	15423
$I_c(3n)$	(in ⁴)	11056	11056
S_s	(in ³)	458	458
$S_c(n)$	(in ³)	645	645
$S_c(3n)$	(in ³)	578	578
Z	(in ³)		515
DC1	(k/ft)	0.742	0.742
M _{DC1}	(k)	256	453
DC2	(k/ft)	0.150	0.150
M _{DC2}	(k)	56	80
DW	(k/ft)	0.250	0.250
M _{DW}	(k)	94	134
M _{l + IM}	(k)	754	558
M _u (Strength I)	(k)	1851	1844
$\phi_r M_n$, $\phi_r M_{nc}$	(k)	2956	2146
f_s DC1	(ksi)	6.7	11.9
f_s DC2	(ksi)	1.2	2.1
f_s DW	(ksi)	2.0	3.5
f_s 1.3(l+IM)	(ksi)	18.2	19.0
f_s (Service II)	(ksi)	28.1	36.5
f_s (Total/Strength I)	(ksi)		28.6
V _r	(k)	23.8	20.2

* Compact Sections
** Non-Compact and Slender Sections

INTERIOR BEAM REACTION TABLE		
	Abut.	Pier 1 or Pier 2
R _{DC1}	(k)	26.5
R _{DC2}	(k)	4.1
R _{DW}	(k)	6.9
R _{l + IM}	(k)	68.1
R _{Total}	(k)	105.6

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 (in⁴ and in³).

$I_c(n)$, $S_c(n)$: 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 (in⁴ and in³).

$I_c(3n)$, $S_c(3n)$: 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 (in⁴ and in³).

Z : Plastic Section Modulus of the steel section in non-composite areas. Omit line in Moment Table if not used in design calculations (in³).

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}

$\phi_r M_n$: Compact composite positive moment capacity computed according to Article 6.10.7.1 (kip-ft.).

$\phi_r M_{nc}$: Compact non-composite negative moment capacity computed according to Article A6.1.1 (kip-ft.).

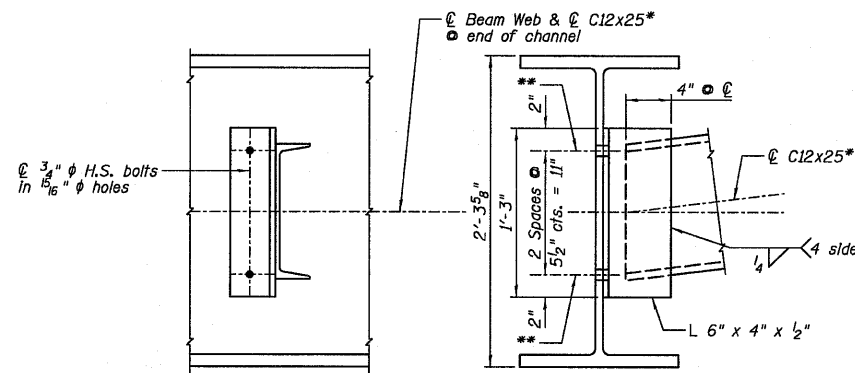
f_s (Service II): Sum of stresses as computed from the moments below (ksi).
M_{DC1} + M_{DC2} + M_{DW} + 1.3 M_{l + IM}

f_s (Total/Strength I): Sum of stresses as computed from the moments below on non-compact section (ksi).
1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{l + IM}

V_r: Maximum factored shear range in composite portion of span computed according to Article 6.10.10.

DESIGNED	SDH
CHECKED	JML
DRAWN	DJM
CHECKED	MSW

DATE 08/13/10



DIAPHRAGM D
(55 - Required)

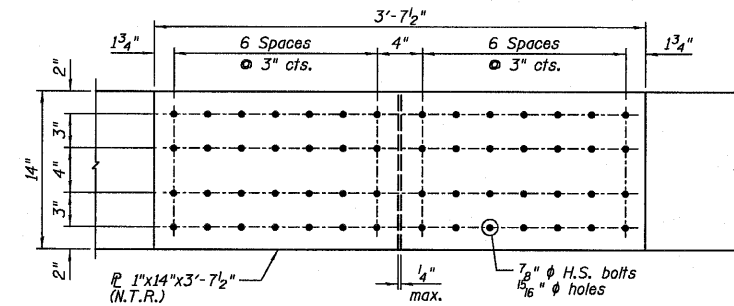
Note:
Two hardened washers required for each set of oversized holes.

*Alternate channels are permitted to facilitate material acquisition. Calculated weight of structural steel is based on C12x25 section. The C12x30, if utilized, shall be provided at no extra cost to the department.

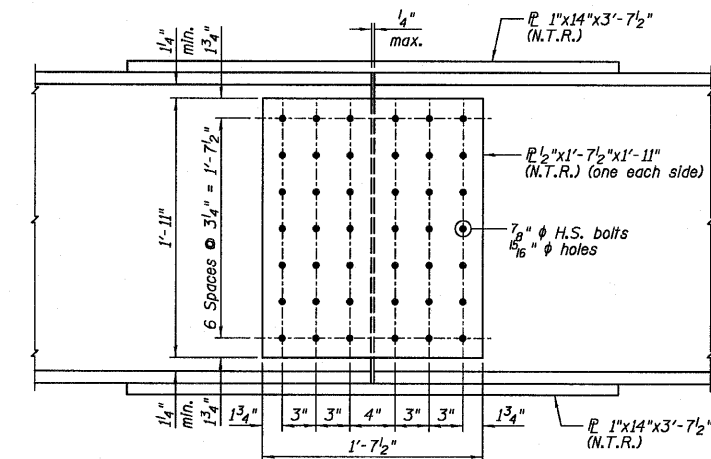
**The connection angles on Beam 4 near the Stage Construction Line shall have 3/8" x 1 1/8" vertical slotted holes. The bolts in the slotted holes shall be finger tight until the Stage II deck pour is completed. The slotted holes in the connection angles shall be positioned to allow the bolts to move from one end of the slotted hole to the opposite end under deck load. The holes shall be positioned allowing maximum bolt displacement without laterally stressing the beams. No slotted holes are allowed on the beams.

NOTES:

- See Sheet B14 for Splice and Diaphragm Locations.
- Load carrying components designated N.T.R. shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.
- All diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual diaphragms at supports may be temporarily disconnected to install bearing anchor rods.



TOP AND BOTTOM FLANGE



WEB

SPLICE DETAILS
(24 - Required)

STRUCTURAL STEEL
STRUCTURE NO. 053-0188

Farnsworth GROUP, INC. 2709 McGraw Drive Bloomington, Illinois 61704 309/663-8435, 309/663-1571 fax	SHEET NO. B15	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	26 SHEETS	317	(25)BR-2	LIVINGSTON	58	38
CONTRACT NO. 66823						
FED. ROAD DIST. NO.		ILLINOIS		FED. AID PROJECT		