INTERIOR GIRDER MOMENT TABLE				
		0.4 Sp. 1 or 0.6 Sp. 3	Pier	0.5 Sp. 2
I_s	(in^4)	3990	5360	5360
$I_c(n)$	(in^4)	12344		15330
$I_c(3n)$	(in^4)	9154		11188
$I_c(cr)$	(in^4)		7467	
S_s	(in^3)	269	355	355
$S_c(n)$	(in^3)	426		540
$S_c(3n)$	(in^3)	385		486
$S_c(cr)$	(in^3)		413	
DC1	(k/')	.833	.850	.850
M_{DC1}	('k)	85.5	228.6	141.6
DC2	(k/')	.150	.150	.150
M_{DC2}	('k)	15.7	40.3	24.9
DW	(k/')	.300	.300	.300
M_{DW}	('k)	31.5	80.7	49.9
M_{L+IM}	('k)	407.6	389.3	483.4
M_u (Strength I)	('k)	887	1139	1129
$\phi_f M_n$	('k)	2216	--	2776
f_s DC1	(ksi)	3.9	7.8	4.9
f_s DC2	(ksi)	.5	1.2	.6
f_s DW	(ksi)	1.0	2.3	1.2
f_s (L+IM)	(ksi)	11.5	11.3	10.7
f_s (Service II)	(ksi)	20.3	26.0	20.7
$0.95R_hF_{yf}$	(ksi)	47.5	47.5	47.5
f_s (Total)(Strength I)	(ksi)	--	34.5	--
$\phi_f F_n$	(ksi)	--	38.5	--
V_f	(k)	14.4	20.0	13.9

INTERIOR GIRDER REACTION TABLE			
		Abut.	Pier
R_{DC1}	(k)	12.1	48.0
R_{DC2}	(k)	2.2	8.5
R_{DW}	(k)	4.4	17.1
R_{L+IM}	(k)	61.2	118.5
R_{Total}	(k)	79.9	192.1

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.).
$1.25\ (M_{DC1} + M_{DC2}) + 1.5\ M_{DW} + 1.75\ M_{L+IM}$

$\phi_f M_n$: 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).
$f_{sDC1} + f_{sDC2} + f_{sDW} + 1.3\ f_s(L+IM)$

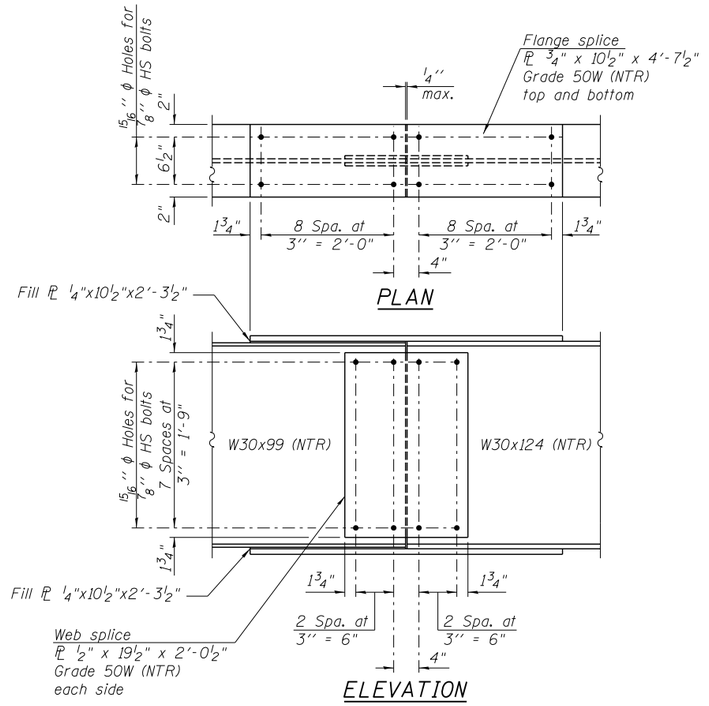
$0.95R_hF_yf$: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

f_s (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).
$1.25\ (f_{sDC1} + f_{sDC2}) + 1.5\ f_{sDW} + 1.75\ f_s(L+IM)$

$\phi_r F_n$: Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).

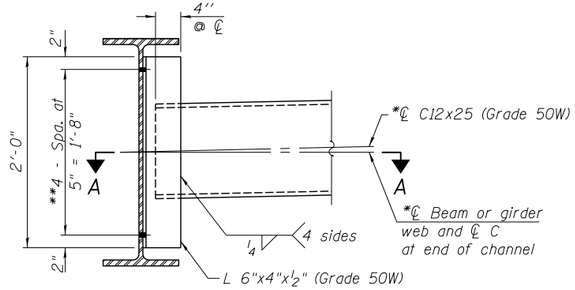
V_f: Maximum factored shear range in span computed according to Article 6.10.10.

Note:
M_{L+IM} and R_{L+IM} include the effects of centrifugal force and superelevation.

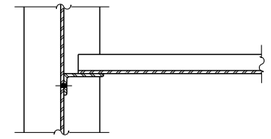


Fasteners shall be AASHTO A325 Type 3 bolts.
Bolts 7/8" dia., holes 15/16" dia.

Load carrying components designated "NTR" shall conform to the Impact Testing Requirements, Zone 2.



INTERIOR DIAPHRAGM
(55 Required)



SECTION A-A

Note:
Two hardened washers required for each set of oversized holes.
*Alternate channels C12X30 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, 15/16" ϕ holes. In Stage II Beam 4, 3/4"ϕ HS bolts, 13/16"x1 7/8" slots.
Bolts in slots shall be finger tight until the second stage pour is complete.
Position slots so bolts start at one end with no concrete load and finish near the opposite end under deck load, allowing maximum displacement without laterally stressing main members.

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ZROKA engineering
Zroka Engineering, P.C.
4216 North Hermitage
Chicago, IL 60613

USER NAME = SAW	DESIGNED - JLA	REVISED -
	CHECKED - DAZ	REVISED -
PLOT SCALE = 0:2.0000 '' / in.	DRAWN - SAW	REVISED -
PLOT DATE = 6/26/2013	CHECKED - JLA	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL DETAILS
S.N. 008-0049
SHEET NO. SA-16 OF SA-24 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
17	4BR-5	CARROLL	150	55
		CONTRACT NO. 64D83		
	ILLINOIS FED. AID PROJECT			