STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

INTERIOR GIRDER MOMENT TABLE				
		0.4 Sp. 1	Pier	0.6 Sp. 2
I_s	(in^4)	4930	6680	6680
$I_c(n)$	(in^4)	12741	-	16016
$I_c(3n)$	(in^4)	9436	-	11747
S_s	(in^3)	328.6	435.6	435.6
$S_c(n)$	(in^3)	472.8	-	606.2
$S_c(3n)$	(in^3)	429.1	-	548.5
Z	(in^3)	-	500	-
DC1	(k/')	0.84	0.87	0.87
M_{DC1}	('k)	311	476	149
DC2	(k/')	0.15	0.15	0.15
M_{DC2}	('k)	63	71	31
DW	(k/')	0.30	0.30	0.30
M_{DW}	('k)	126	143	63
M_{L+IM}	('k)	785	524	643
M_u (Strength I)	('k)	2030	1815	1445
* $\phi_f M_n$, $\phi_f M_{nc}$	('k)	2313	2083	3176
f_s DC1	(ksi)	11.4	13.1	4.1
f_s DC2	(ksi)	1.8	2.0	0.7
f_s DW	(ksi)	3.5	3.9	1.4
f_s 1.3(L+IM)	(ksi)	25.9	18.8	16.6
f_s (Service II)	(ksi)	42.5	37.8	22.7
V_r	(k)	15.4		15.1

* Compact sections

INTERIOR GIRDER REACTION TABLE				
		S. Abut.	Pier	N. Abut.
R_{DC1}	(k)	23.3	69.0	17.0
R_{DC2}	(k)	4.4	11.9	3.1
R_{DW}	(k)	8.7	23.8	6.2
R_{L+IM}	(k)	72.7	102.9	68.2
R_{Total}	(k)	109.1	207.6	94.5

TOP OF BEAM ELEVATIONS				
Location	℄ Brg. S. Abut.	℄ Splice	℄ Brg. Pier	℄ Brg. N. Abut.
Beam 1 & 6	477.44	477.77	477.91	478.34
Beam 2 & 5	477.57	477.90	478.04	478.47
Beam 3 & 4	477.67	478.01	478.14	478.57

For fabrication use only.

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) 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) due to long-term composite (superimposed) dead loads ($in.^4$ and $in.^3$).

Z: Plastic Section Modulus of the steel section in non-composite areas. Omit line in Moment Table if not used in design calculations ($in.^3$).

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

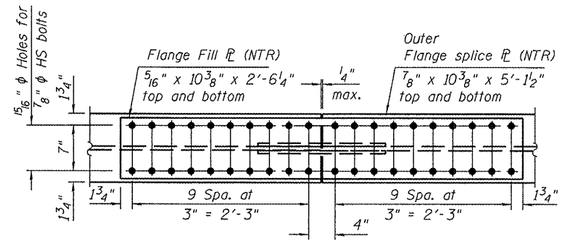
$\phi_f M_n$: Compact composite positive moment capacity computed according to Article 6.10.7.1 (kip-ft.).

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

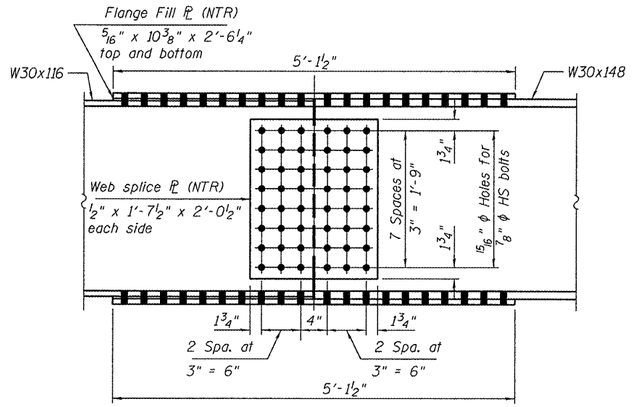
f_s (Service II): Sum of stresses as computed from the moments below (ksi).
$M_{DC1} + M_{DC2} + M_{DW} + 1.3\ M_{L+IM}$

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.



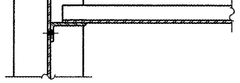
PLAN



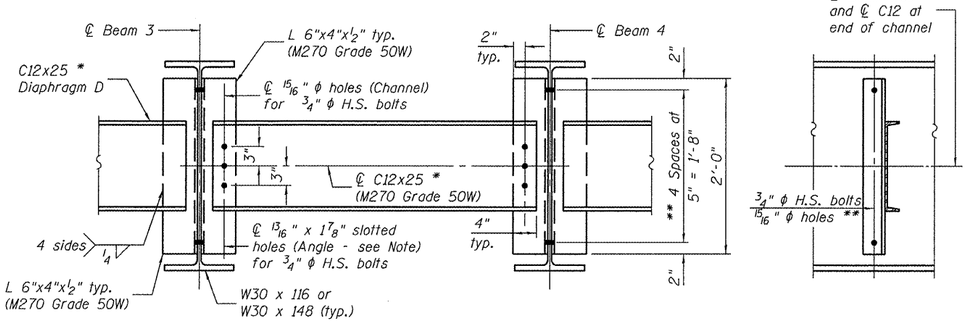
ELEVATION

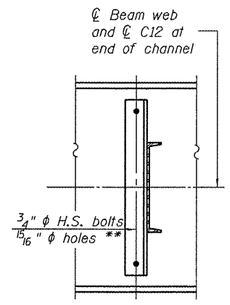
SPLICE DETAIL
(6 Required)

Note:
All bolts shall be AASHTO M164 Type 3 (ASTM A325).



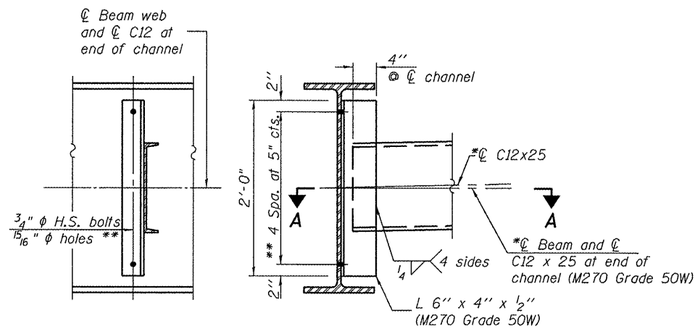
SECTION A-A





INTERIOR DIAPHRAGM D1
(7 Required)

Note:
Two hardened washers are required for each slotted hole or set of oversized holes.
Provide 13/16" x 1 7/8" long slotted vertical holes in outstanding leg of diaphragm connection angles of Diaphragm D1 at Beams 3 and 4. Bolts in slots shall be finger tight until the second stage pour is complete and fully tightened after completion of the deck pour for Stage II Construction. 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.



INTERIOR DIAPHRAGM D
(28 Required)

Note:
Two hardened washers required for each set of oversized holes.
*Alternate channel C12x30 is 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 (Beam), 15/16" ϕ holes (Angles)

DESIGNED	CTW
CHECKED	PMM
DRAWN	DP
CHECKED	CDL

STRUCTURAL STEEL DETAILS
STRUCTURE NO. 102-0068

EFK•Moen, LLC
Civil Engineering Design
331 Salem Place Suite 225 Fairview Heights, IL 62208
Phone 618-206-4250 Fax 618-206-4253

SHEET NO. 15
26 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2370	29BR-1	WOODFORD	76	37
		CONTRACT NO. 68466		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		