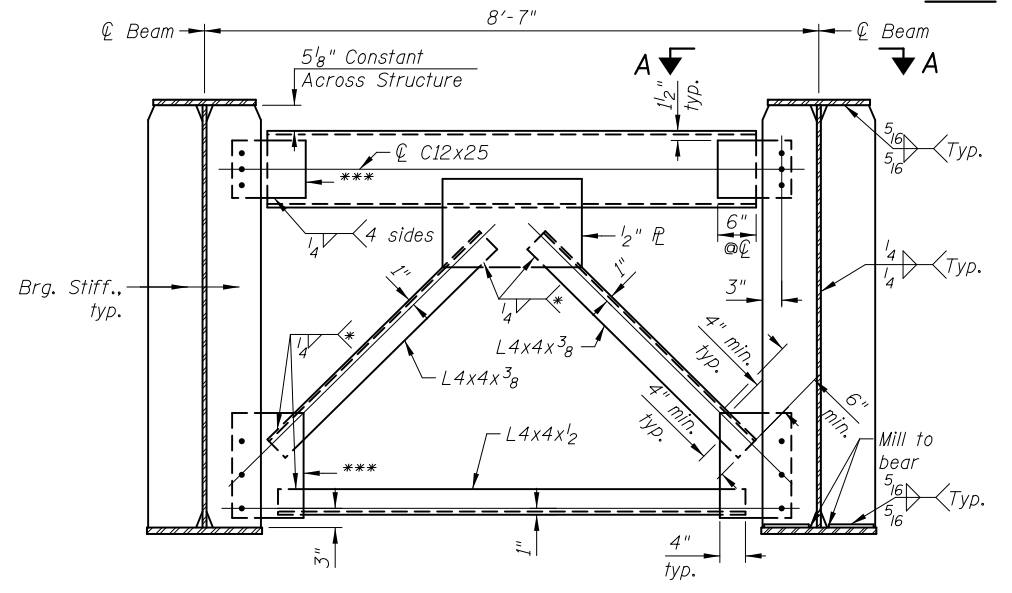


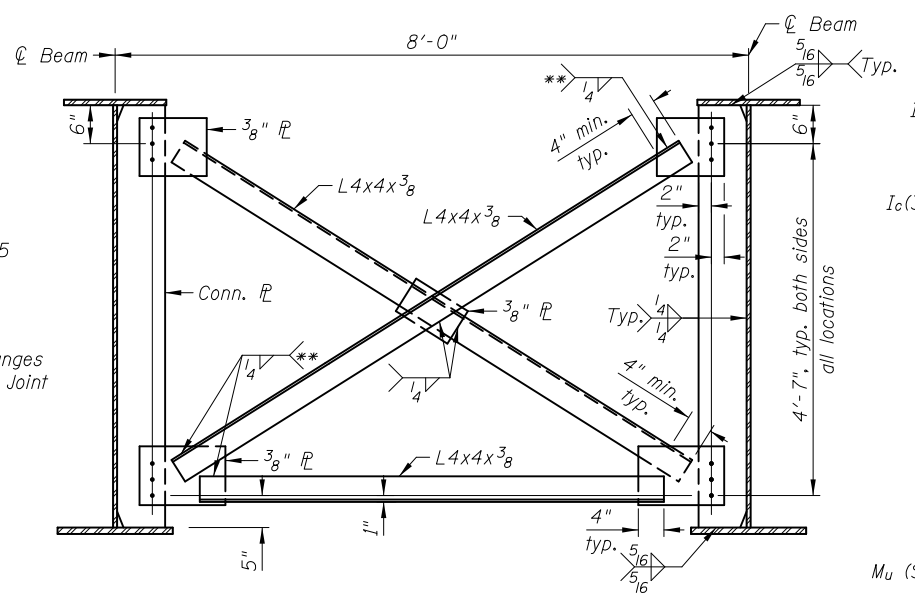
INTERIOR GIRDER MOMENT TABLE		
0.5 Span		
I_s	(in ⁴)	59,000
$I_c(n)$	(in ⁴)	137,842
$I_c(3n)$	(in ⁴)	98,709
S_s	(in ³)	2,027
$S_c(n)$	(in ³)	2,695
$S_c(3n)$	(in ³)	2,454
DC1	(k/ft)	1.137
M _{DC1}	(k)	3,071
DC2	(k/ft)	0.142
M _{DC2}	(k)	384
DW	(k/ft)	0.360
M _{DW}	(k)	972
M _{L + IM}	(k)	2,872
M _u (Strength I)	(k)	10,803
$\phi_r M_n$	(k)	13,887
f_s DC1	(ksi)	18.19
f_s DC2	(ksi)	1.88
f_s DW	(ksi)	4.76
f_s 1.3(L+IM)	(ksi)	16.62
f_s (Service II)	(ksi)	41.44
f_s (Total)(Strength I)	(ksi)	—
V _r	(k)	32.7

INTERIOR GIRDER REACTION TABLE		
Abutment		
R _{DC1}	(k)	83.6
R _{DC2}	(k)	10.4
R _{DW}	(k)	26.5
R _{L + IM}	(k)	120.0
R _{Total}	(k)	240.5

PLAN



END CROSS FRAME D
(18 Required)



INTERIOR CROSS FRAME D1
(45 Required)

SECTION A-A

- * Weld on near side of 1/2" plate.
- ** Fillet weld angles along 3 sides on one face of gusset plate.
- *** 1/2" Plates to be bent for skew

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).

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.).

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.

Notes:
 Detail 1 5/16" ϕ holes for all 3/4" ϕ bolts
 Two hardened washers required for each set of oversized holes.
 Place diaphragm with channel flanges and outstanding angle legs outward from abutment backwall.
 All cross frames shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual cross frames at supports may be temporarily disconnected to install bearing anchor rods.

DRAWN	- M. LANGE	REVISED	-
DESIGNED	- D. ATKINS	REVISED	-
CHECKED	- G. HATLESTAD	REVISED	-
DATE	- 5/3/2012	REVISED	-

O.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0003	18A-2	MCHENRY	825	510
CONTRACT NO. 60F72				
ILLINOIS FED. AID PROJECT				