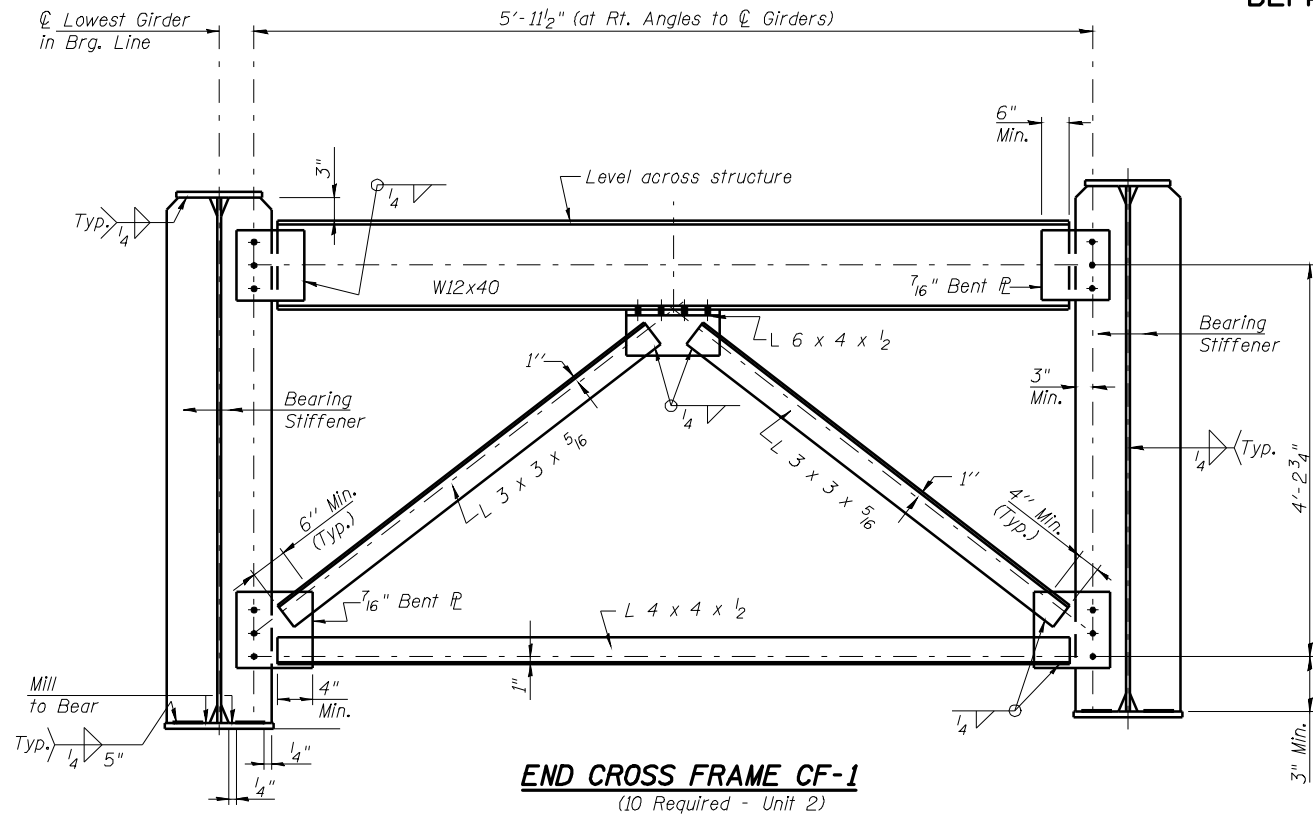


STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP Rte 614	144(B-1)	Cass & Mason	351	178
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

Contract #72A76

SHEET NO. 42
86 SHEETS



UNIT 2 - INTERIOR GIRDER MOMENT TABLE

	0.4 Sp. 4 0.6 Sp. 6	0.5 Sp. 5	Piers 4 & 5
I_s	(in ⁴) 35154	35154	98849
$I_c(n)$	(in ⁴) 82317	82317	-
$I_c(3n)$	(in ⁴) 59998	59998	-
S_s	(in ³) 1070	1070	2804
$S_c(n)$	(in ³) 1517	1517	-
$S_c(3n)$	(in ³) 1359	1359	-
DC1	(k/ft) 0.936	0.936	1.41
M _{DC1}	(k) 1254	1020	4856
DC2	(k/ft) 0.150	0.150	-
M _{DC2}	(k) 224	204	-
DW	(k/ft) 0.300	0.300	-
M _{DW}	(k) 447	408	-
$M_L + IM$	(k) 2149	2104	2436
M_u (Strength I)	(k) 6279	5824	10577
*** $\phi_f M_n$, $\phi_f M_{nc}$	(k) 7176	7391	-
f_s DC1	(ksi) 14.06	11.45	20.78
f_s DC2	(ksi) 1.98	1.80	-
f_s DW	(ksi) 3.95	3.60	-
f_s 1.3(L+IM)	(ksi) 22.10	21.63	13.56
f_s (Service II)	(ksi) 42.09	38.48	34.33
**** f_s (Total)(Strength I)	(ksi) -	-	45.26
V_f	(k) 33.2	26.0	-

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 $M_L + IM$

$\phi_f M_n$: 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 $M_L + IM$

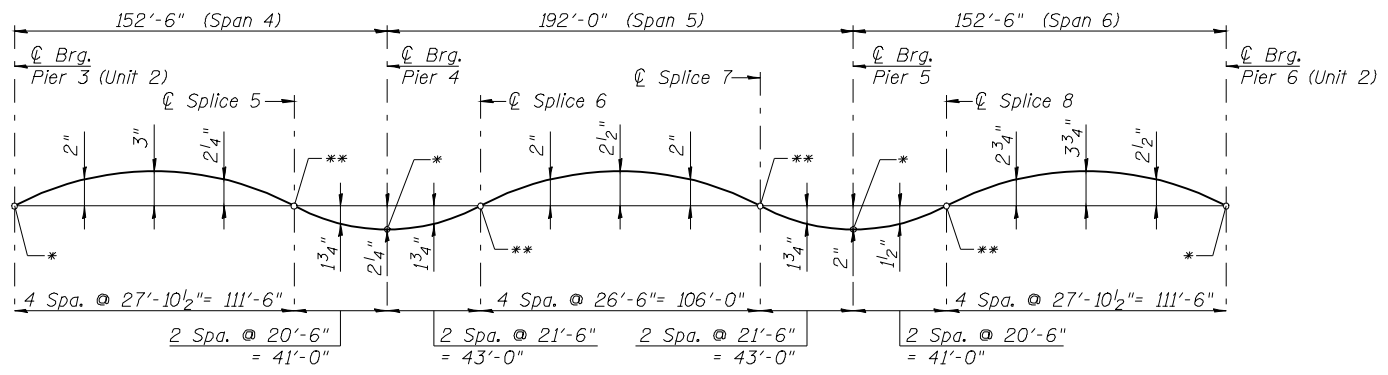
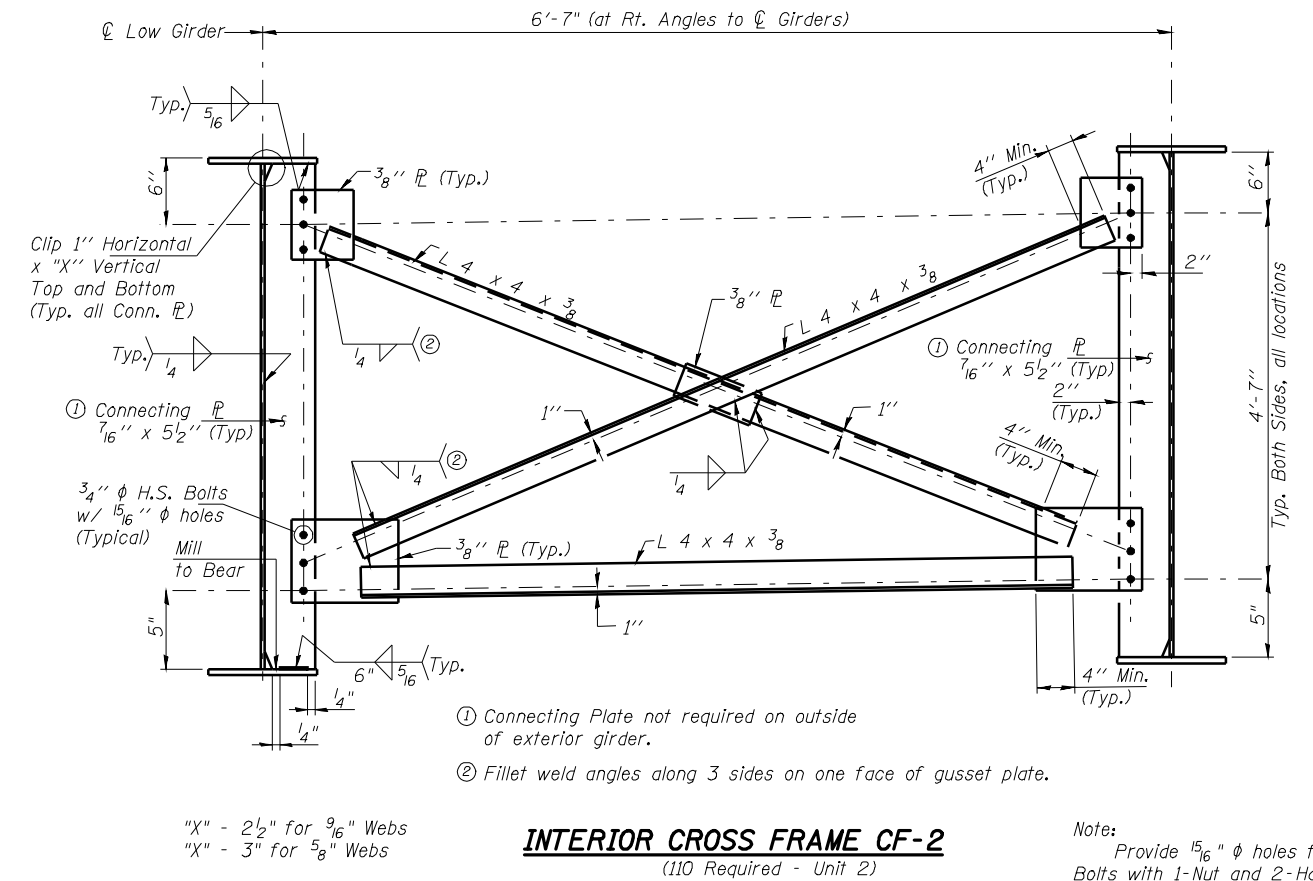
f_s (Total)(Strength I): Sum of stresses as computed from the moments below on non-compact section (ksi).
1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 $M_L + IM$

V_f : Factored shear range computed according to Article 6.10.10.

*** Compact Sections.
**** Non-compact and Slender Sections.

UNIT 2 - INTERIOR GIRDER REACTION TABLE
HL93 Loading

	Piers 3 & 6	Piers 4 & 5
R _{DC1}	(k) 49.1	185.6
R _{DC2}	(k) 8.2	29.0
R _{DW}	(k) 16.5	58.1
$R_L + IM$	(k) 103.4	197.2
R _{Total}	(k) 177.2	469.9



UNIT 2 - CAMBER DIAGRAM (Spans 4 thru 6)
* See Table for Final Top of Web Elevations at abutments and piers.
** Theoretical Top of Web Elevations before dead load deflections.

UNIT 2 - TOP OF WEB ELEVATIONS TABLE (Spans 4 thru 6)
For Fabrication Only

Girder Number	℄ Brg. Pier 3	℄ Splice No. 5	℄ Brg. Pier 4	℄ Splice No. 6	℄ Splice No. 7	℄ Brg. Pier 5	℄ Splice No. 8	℄ Brg. Pier 6
Girder 1	473.23	473.84	473.85	474.24	474.77	474.81	475.17	475.23
Girder 2	473.36	473.98	473.99	474.38	474.91	474.94	475.30	475.34
Girder 3	473.48	474.09	474.10	474.49	475.02	475.05	475.41	475.44
Girder 4	473.49	474.11	474.11	474.51	475.04	475.07	475.42	475.43
Girder 5	473.41	474.02	474.03	474.42	474.95	474.98	475.33	475.33
Girder 6	473.30	473.92	473.93	474.32	474.85	474.87	475.22	475.20

UNIT 2 - STRUCTURAL STEEL DETAILS
F.A.P. 614 (IL 78) OVER SANGAMON RIVER
PUBLIC WATERS
CASS & MASON CONSULTANTS
SECTION 144 (B-1)
STA. 913+26.00
STRUCTURE NUMBER 009-0510
PROFESSIONAL DESIGN FIRM LICENSE #184-001084
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HANSON
Hanson Professional Services Inc.

JOB NO. 07S2026
DATE 03/27/09

LAYOUT 09/12/08
 DRAWN 09/10/08
 REVIEWED 09/30/08
 MHW 09/12/08
 BCD 09/10/08
 TER 09/30/08
 No. 312008 080231M
 C:\work\p1007\144(B-1)\R1\034498-009-0510 Master Steel Fabric

"X" - 2 1/2" for 9/16" Webs
"X" - 3" for 5/8" Webs

- ① Connecting Plate not required on outside of exterior girder.
- ② Fillet weld angles along 3 sides on one face of gusset plate.

Note:
Provide 1 5/16" φ holes for 3/4" φ High Strength Bolts with 1-Nut and 2-Hardened Washers each (Typical for all Cross Frame Connections).