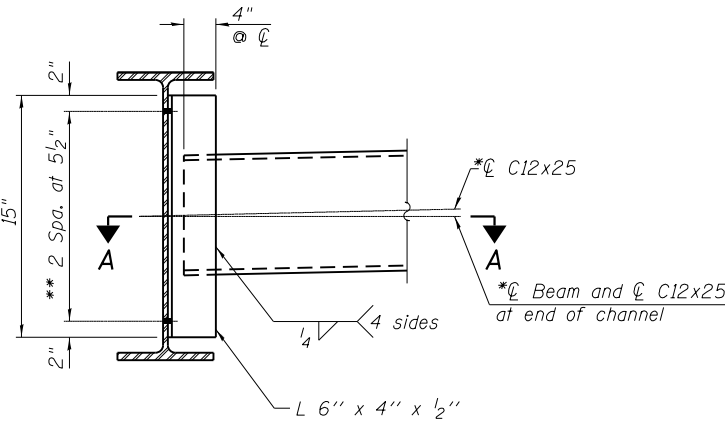


PLAN

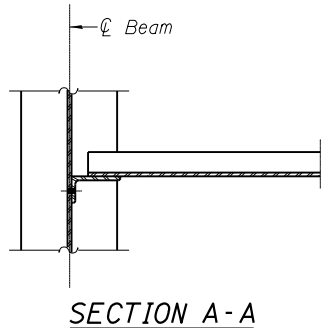
ELEVATION

SPLICE DETAIL
(24 Required)



DIAPHRAGM A
(120 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



SECTION A-A

	0.4 Sp. 1 or 0.6 Sp. 3	0.5 Sp. 2	Piers
I_s	5,630.0	5,630.0	5,630.0
$I_c(n)$	15,801.0	15,801.0	15,801.0
$I_c(3n)$	11,531.0	11,531.0	11,531.0
$I_c(cr)$	---	---	7,799.0
S_s	411.0	411.0	411.0
$S_c(n)$	608.0	608.0	608.0
$S_c(3n)$	550.0	550.0	550.0
$S_c(cr)$	---	---	476.0
DC1	0.976	0.976	0.976
M_{DC1}	204.9	207.3	382.1
DC2	0.150	0.150	0.150
M_{DC2}	31.5	31.9	58.7
DW	0.342	0.342	0.342
M_{DW}	71.7	72.6	133.8
$M_L + IM$	666.4	663.6	636.5
M_u (Strength I)	1,569.3	1,569.2	1,865.6
$\phi_r M_n$	2,993.0	2,993.0	1,980.0
f_s DC1	5.98	6.05	11.16
f_s DC2	0.69	0.70	1.28
f_s DW	1.56	1.58	2.92
f_s ($L + IM$)	13.15	13.10	12.56
f_s (Service II)	25.33	25.36	31.69
$0.95R_n F_y f$	47.50	47.50	47.50
f_s (Total)(Strength I)	33.69	33.73	48.01
$\phi_r F_n$			
V_r	31.2	32.8	55.8

	Abut.	Piers
R_{DC1}	20.1	67.8
R_{DC2}	3.1	10.4
R_{DW}	7.0	23.8
$R_L + IM$	92.4	139.3
R_{Total}	122.6	241.3

TOP OF BEAM ELEVATIONS
(SN 006-0184 - For Fabrication Only)

Location	Beam 7	Beam 8	Beam 9	Beam 10	Beam 11	Beam 12
⊕ Brg W Abut	643.52	643.44	643.37	643.30	643.23	643.12
⊕ Brg Pier 1	643.83	643.77	643.71	643.65	643.58	643.48
⊕ Splice # 1	643.91	643.85	643.79	643.73	643.66	643.57
⊕ Splice # 2	644.23	644.17	644.12	644.06	643.99	643.89
⊕ Brg Pier 2	644.33	644.27	644.22	644.15	644.08	643.98
⊕ Brg E Abut	644.74	644.67	644.59	644.52	644.43	644.31

TOP OF BEAM ELEVATIONS
(SN 006-0185 - For Fabrication Only)

Location	Beam 1	Beam 2	Beam 3	Beam 4	Beam 5	Beam 6
⊕ Brg W Abut	643.17	643.08	642.99	642.90	642.81	642.70
⊕ Brg Pier 1	643.35	643.27	643.20	643.12	643.04	642.94
⊕ Splice # 1	643.40	643.32	643.25	643.17	643.10	643.00
⊕ Splice # 2	643.62	643.55	643.48	643.41	643.35	643.25
⊕ Brg Pier 2	643.72	643.65	643.59	643.52	643.46	643.37
⊕ Brg E Abut	644.11	644.06	644.00	643.95	643.89	643.81

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 (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 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 $M_L + IM / S_c(cr)$ as applicable.

f_s (Service II): Sum of stresses as computed below (ksi).
 $f_{sDC1} + f_{sDC2} + f_{sDW} + 1.3 f_s (L + IM)$

$0.95R_n F_y f$: 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_r : Maximum factored shear range in span computed according to Article 6.10.10.

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

FILE NAME = 0060184_0185_66998-23-BeamDetail.dgn
MODEL = Default
PLOT DRIVER = V8_PDF_11x17.plt



USER NAME = tfray	DESIGNED - SCD	REVISED
FILE NAME =	CHECKED - DRB	REVISED
PLOT SCALE = 240.0000' / ft.	DRAWN - TKW	REVISED
PLOT DATE = 7/29/2013	CHECKED - SCD	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BEAM DETAILS
STRUCTURE NO. 006-0184 (E.B.) & 006-0185 (W.B.)

SHEET NO. 23 OF 43 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
80	06-2IBR-3,4	BUREAU	133	67
CONTRACT NO. 66998				
ILLINOIS FED. AID PROJECT				