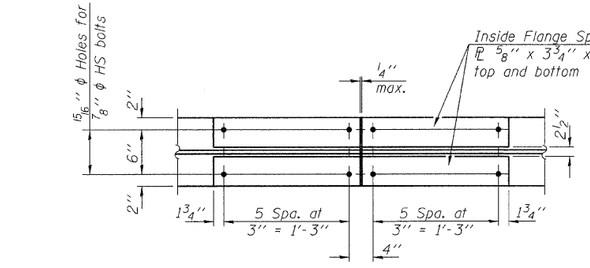
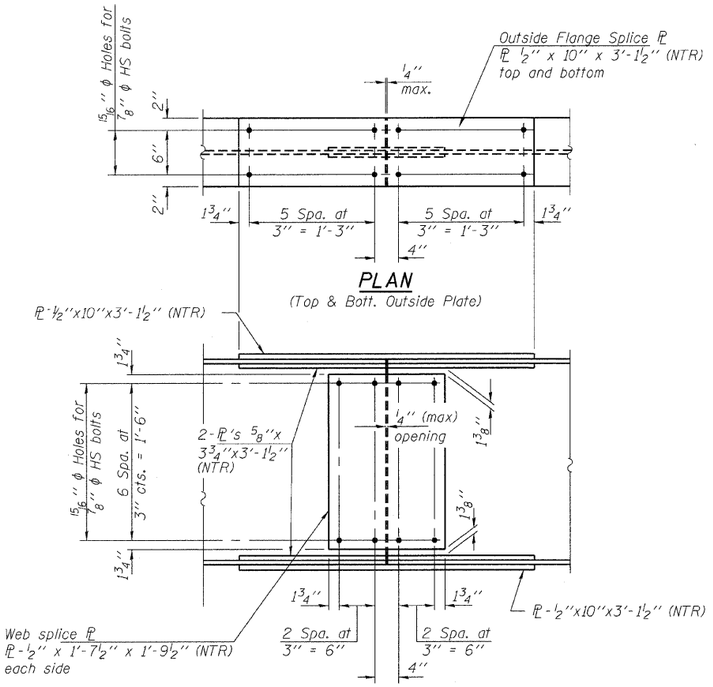


PLAN

(Top & Bott. Inside Plates)



ELEVATION

SPLICE 1 & 2 DETAIL

(8 Required)

INTERIOR GIRDER MOMENT TABLE				
		0.4 Sp. 1 or 0.6 Sp. 3	Pier 1 or 2	0.5 Sp. 2
I_s	(in^4)	2,850	2,850	2,850
$I_c(n)$	(in^4)	8,593	8,593	8,593
$I_c(3n)$	(in^4)	6,310	6,310	6,310
$I_c(cr)$	(in^4)	-	-	-
S_s	(in^3)	213	213	213
$S_c(n)$	(in^3)	334	334	334
$S_c(3n)$	(in^3)	301	301	301
$S_c(cr)$	(in^3)	-	-	-
DC1	(k/')	0.64	0.64	0.64
M_{DC1}	('k)	73	137	72
DC2	(k/')	0.04	0.04	0.04
M_{DC2}	('k)	4	8	4
DW	(k/')	0.26	0.26	0.26
M_{DW}	('k)	30	56	29
M_{L+IM}	('k)	375	326	387
M_u (Strength I)	('k)	798	836	816
* $\phi_f M_n$	('k)	1,739	-	1,741
f_s DC1	(ksi)	4.1	7.7	4.1
f_s DC2	(ksi)	0.2	0.3	0.2
f_s DW	(ksi)	1.2	2.2	1.2
f_s 1.3(LL+IM)	(ksi)	17.5	15.2	18.1
f_f (Service II)	(ksi)	23.0	25.5	23.4
$0.95R_hF_{yf}$	(ksi)	47.5	47.5	47.5
** f_s (Total)(Strength I)	(ksi)	-	33.9	-
** $\phi_f F_n$	(ksi)	-	-	-
V_f	(k)	18.9	18.9	20.0

* Compact sections

** Non-compact sections

INTERIOR GIRDER REACTION TABLE			
		Abut.	Pier 1 or 2
R_{DC1}	(k)	9.7	32.8
R_{DC2}	(k)	0.6	1.8
R_{DW}	(k)	4.0	13.3
R_{L+IM}	(k)	49.9	75.8
R_{Total}	(k)	64.2	123.7

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).

$I_c(cr)$, $S_c(cr)$: 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 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 (kip-ft.).

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

$\phi_f M_{nc}$: 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: Maximum factored shear range in composite portion of span computed according to Article 6.10.10.

Notes:

Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.

All beams and splices shall be M270 Grade 50W.

FILE NAME = 100108-sht-bridge.dgn	USER NAME =	DESIGNED - C.C.S.	REVISED -	STATE OF ILLINOIS VERMILION COUNTY HIGHWAY DEPARTMENT	STRUCTURAL STEEL DETAILS STRUCTURE NO. 092-0085	FAU	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC. 3055 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000989	PLOT SCALE =	CHECKED - S.M.S.	REVISED -			7043	09-00171-00-BR	VERMILION	66	47
	PLOT DATE = 2/9/2012	DRAWN - D.A.B.	REVISED -		SHEET NO. 14 OF 33 SHEETS			CONTRACT NO. 91449		
		CHECKED - S.W.M.	REVISED -					ILLINOIS FED. AID PROJECT		