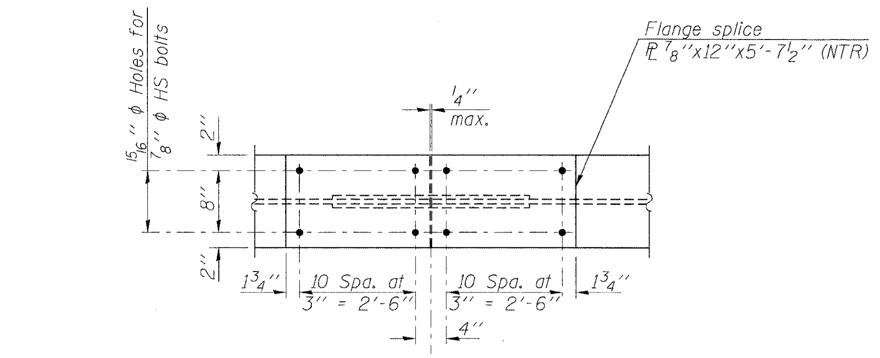
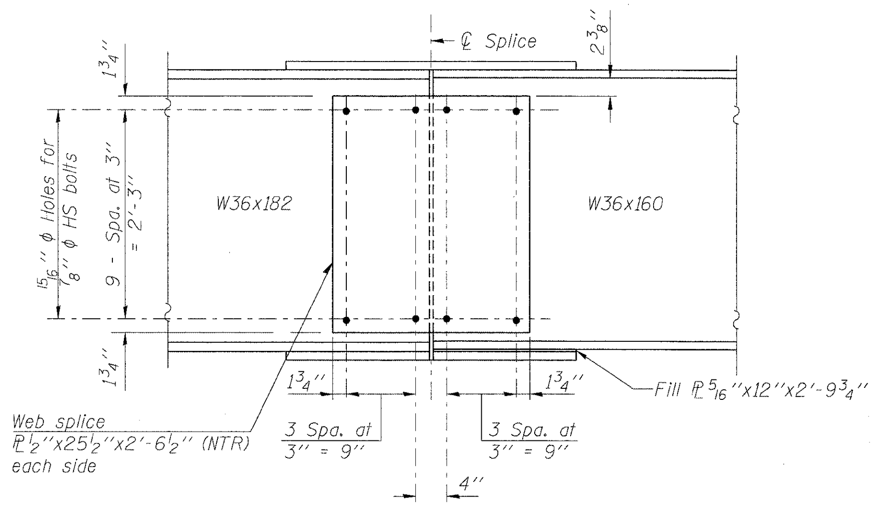
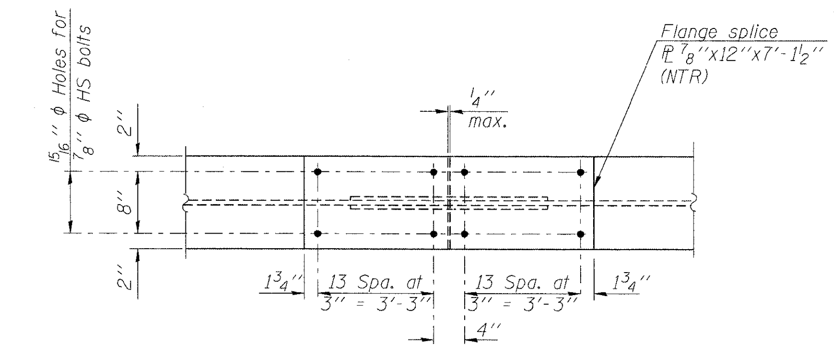


PLAN
(Top & Bottom Flanges)

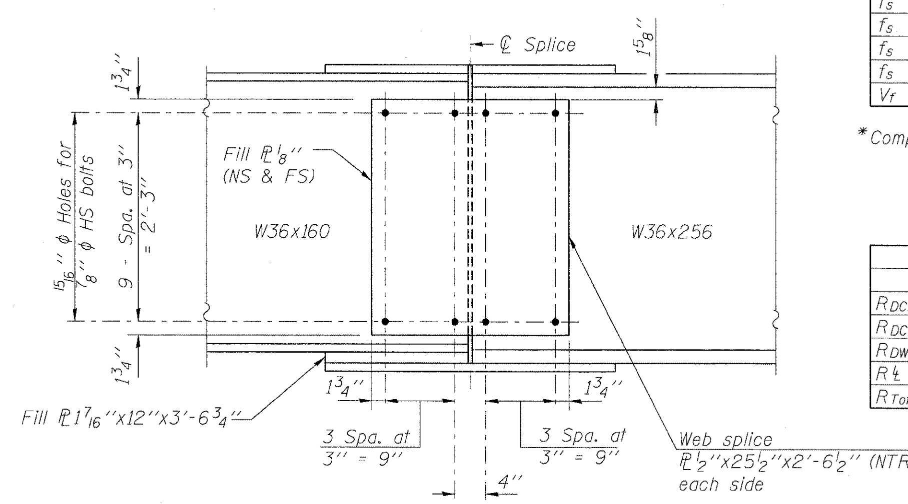


ELEVATION

SPLICE DETAIL #1 & #4
(12 Required)



PLAN
(Top & Bottom Flanges)



ELEVATION

SPLICE DETAIL #2 & #3
(12 Required)

Notes:
1. Splice plates shall conform to requirements of AASHTO M270 Grade 50.
2. Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.
3. Bolts shall have no threads in shear planes of the connected plates.

INTERIOR GIRDER MOMENT TABLE

		0.4 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2	0.5 Sp. 3	Pier 3	0.6 Sp. 4
I_s	(in^4)	11,300	11,300	9,760	16,800	9,760	11,300	11,300
$I_c(n)$	(in^4)	28,446	- -	25,340	- -	25,340	- -	28,446
$I_c(3n)$	(in^4)	21,070	- -	18,938	- -	18,938	- -	21,070
S_s	(in^3)	623	623	542	898	542	623	623
$S_c(n)$	(in^3)	884	- -	778	- -	778	- -	884
$S_c(3n)$	(in^3)	803	- -	709	- -	709	- -	803
Z	(in^3)	- -	718	- -	1,040	- -	718	- -
DC1	(k/')	1.043	1.043	1.021	1.117	1.021	1.043	1.043
M_{DC1}	('k)	241	649	377	1030	403	597	68
DC2	(k/')	0.150	0.150	0.150	0.150	0.150	0.150	0.150
M_{DC2}	('k)	39	82	69	132	73	75	14
DW	(k/')	0.367	0.367	0.367	0.367	0.367	0.367	0.367
M_{DW}	('k)	96	201	170	322	178	184	34
M_{LL+IM}	('k)	885	798	1,185	1,097	1,177	749	643
M_u (Strength I)	('k)	2,042	2,612	2,886	3,856	2,923	2,427	1,279
* $\phi_f M_n$, $\phi_f M_{nc}$	('k)	4,508	2,992	3,903	4,333	3,882	2,889	4,508
f_s DC1	(ksi)	4.6	12.5	8.3	13.8	8.9	11.5	1.3
f_s DC2	(ksi)	0.6	1.6	1.2	1.8	1.2	1.4	0.2
f_s DW	(ksi)	1.4	3.9	2.9	4.3	3.0	3.5	0.5
f_s 1.3(LL+IM)	(ksi)	15.6	20.0	23.8	19.0	23.6	18.8	11.3
f_s (Service II)	(ksi)	22.3	38.0	36.2	38.9	36.8	35.3	13.4
V_f	(k)	17	- -	18	- -	18	- -	17

*Compact sections

INTERIOR GIRDER REACTION TABLE

		N. Abut.	Pier 1	Pier 2	Pier 3	S. Abut.
R_{DC1}	(k)	35.7	89.4	111.6	83.5	26.8
R_{DC2}	(k)	3.5	12.8	15.7	11.9	2.2
R_{DW}	(k)	8.4	31.3	38.3	29.2	5.4
R_{LL+IM}	(k)	82.1	133.0	148.5	126.6	75.4
R_{Total}	(k)	129.7	266.5	313.9	251.2	109.7

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}).

Z: Plastic Section Modulus of the steel section in non-composite areas. (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_{LL+IM}: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).

M_u (Strength I): Factored design moment (kip-ft.).
$1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{LL+IM}$

$\phi_f M_n$: 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).
$M_{DC1} + M_{DC2} + M_{DW} + 1.3 M_{LL+IM}$

V_f: Maximum factored shear range in composite portion of span computed according to Article 6.10.10.

TOP OF BEAM ELEVATIONS

For fabrication only.

Beam No.	℄ N. Abut.	℄ Pier 1	℄ Splice #1	℄ Splice #2	℄ Pier 2	℄ Splice #3	℄ Splice #4	℄ Pier 3	℄ S. Abut.
1	862.18	863.11	863.38	864.13	864.22	864.46	864.81	864.78	864.94
2	862.35	863.28	863.55	864.30	864.39	864.63	864.99	864.95	865.11
3	862.48	863.41	863.68	864.43	864.52	864.76	865.12	865.08	865.24
4	862.48	863.41	863.68	864.43	864.52	864.76	865.10	865.08	865.24
5	862.35	863.28	863.55	864.30	864.39	864.62	864.99	864.95	865.11
6	862.18	863.11	863.38	864.13	864.22	864.46	864.81	864.78	864.94

LOCHNER H.W. LOCHNER, INC. CONSULTING ENGINEERS AND PLANNERS 20 N. WACKER DRIVE, SUITE 1200 CHICAGO, ILLINOIS 60606	USER NAME = FILE NAME = 0710096-64D17-017-SD1.dgn PLOT SCALE = PLOT DATE =	DESIGNED - CMM CHECKED - JSD/GWS DRAWN - EF CHECKED - JSD/GWS	REVISED - REVISED - REVISED - REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	STRUCTURAL STEEL DETAILS I STRUCTURE 071-0096 SHEET NO. 17 OF 29 SHEETS	F.A.P. RTE. 316 / SECTION 4VBR-1 / COUNTY OGLE / TOTAL SHEETS 73 / SHEET NO. 61 CONTRACT NO. 64D17 ILLINOIS FED. AID PROJECT