STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 328	(8BR-2) B-1	WAYNE	140	37
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 15
25 SHEETS

Contract #74040

INTERIOR GIRDER MOMENT TABLE				
		0.4 Sp. 1 or 0.6 Sp. 3	Pier 1 or Pier 2	0.5 Sp. 2
I_s	(in^4)	3620	3620	3620
$I_c(n)$	(in^4)	10361	-	10361
$I_c(3n)$	(in^4)	7792	-	7792
S_s	(in^3)	267	267	267
$S_c(n)$	(in^3)	400	-	400
$S_c(3n)$	(in^3)	365	-	365
Z	(in^3)	305	305	305
$\mathcal{Q}$	(k/')	0.807	0.807	0.807
$M\mathcal{Q}$	('k)	128.0	245.3	130.4
$s\mathcal{Q}$	(k/')	0.483	0.483	0.483
$M_s\mathcal{Q}$	('k)	86.3	122.6	102.2
M_L	('k)	343.9	196.4	393.6
M_{Imp}	('k)	99.7	55.0	106.3
$\frac{5}{3}[M_L + M_{Imp}]$	('k)	739.3	419.0	833.2
M_a	('k)	1239.7	1023.0	1385.5
* M_u	('k)	1609.7	-	1609.7
f_s $\mathcal{Q}$ non-comp	(ksi)	5.8	11.0	5.9
f_s $\mathcal{Q}$ (comp)	(ksi)	2.8	5.5	3.4
f_s $\frac{5}{3}[M_L + M_{Imp}]$	(ksi)	22.2	18.8	25.0
f_s (Overload)	(ksi)	30.8	35.3	34.3
** f_s (Total)	(ksi)	-	45.9	-
VR	(k)	38.5	-	41.9

INTERIOR GIRDER REACTION TABLE			
		Abut.	Pier
$R\mathcal{Q}$	(k)	23.6	78.2
R_L	(k)	42.7	48.7
Imp.	(k)	12.4	13.6
R_{Total}	(k)	78.7	140.5

* Compact section
** Braced non-compact and partially braced section

I_s, S_s: Non-composite moment of inertia and section modulus of the steel section used for computing f_s (Total and Overload) 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 and Overload) 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 and Overload) 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}).

$\mathcal{Q}$: Un-factored non-composite dead load (kips/ft.).

$M\mathcal{Q}$: Un-factored moment due to non-composite dead load (kip-ft.).

$s\mathcal{Q}$: Un-factored long-term composite (superimposed) dead load (kips/ft.)

$M_s\mathcal{Q}$: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).

M_L: Un-factored live load moment (kip-ft.).

M_{Imp}: Un-factored moment due to impact (kip-ft.).

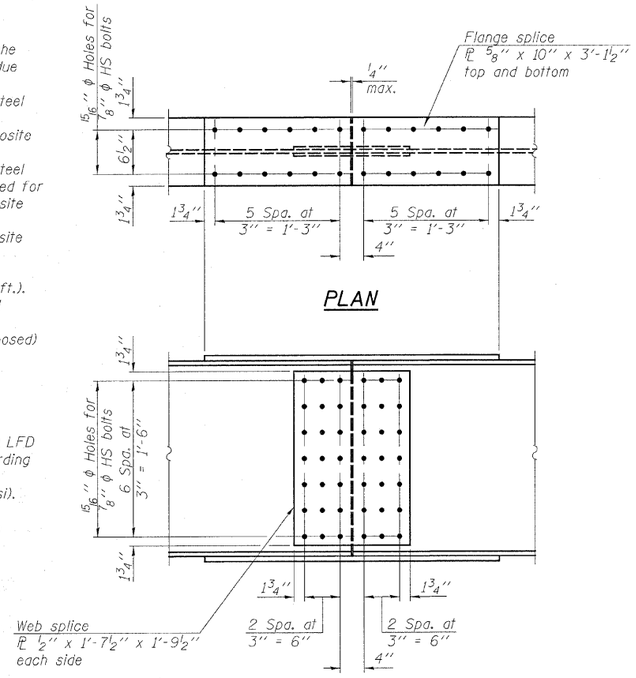
M_a: Factored design moment (kip-ft.).
$1.3\ [\ M\mathcal{Q} + M_s\mathcal{Q} + \frac{5}{3}\ (M_L + M_{Imp})]$

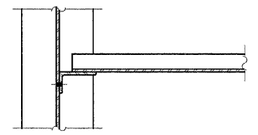
M_u: Compact composite moment capacity according to AASHTO LFD 10.50.1.1 or compact non-composite moment capacity according to AASHTO LFD 10.48.1 (kip-ft.).

f_s (Overload): Sum of stresses as computed from the moments below (ksi).
$M\mathcal{Q} + M_s\mathcal{Q} + \frac{5}{3}\ (M_L + M_{Imp})$

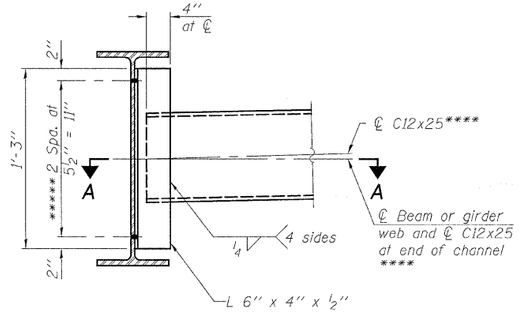
f_s (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).
$1.3\ [M\mathcal{Q} + M_s\mathcal{Q} + \frac{5}{3}\ (M_L + M_{Imp})]$

VR: Maximum $_L$ + impact horizontal shear range within the composite portion of the span for stud shear connector design (kips).





SECTION A-A



INTERIOR DIAPHRAGM

Note:
Two hardened washers required for each set of oversized holes.

**** Alternate channels are permitted to facilitate material acquisition. Calculated weight of structural steel is based on the lighter section.
***** 7/8" ϕ HS bolts, 1 1/16" ϕ holes

The angle and channel of the interior diaphragm shall be AASHTO M 270 Grade 36.

SPLICE DETAIL
(12 Required)

Note:
All bolts shall have the threads excluded from the shear plane.

*** TOP OF BEAM ELEVATIONS

Location	℄ Brg. S. Abut.	℄ Brg. Pier 1	℄ Splice 1	℄ Brg. Pier 2	℄ Splice 2	℄ Brg. N. Abut.
Beam 1	427.40	427.48	427.50	427.45	427.44	427.36
Beam 2	427.54	427.63	427.65	427.61	427.60	427.51
Beam 3	427.65	427.74	427.76	427.73	427.72	427.64
Beam 4	427.64	427.74	427.76	427.73	427.72	427.65
Beam 5	427.51	427.62	427.64	427.61	427.61	427.54
Beam 6	427.36	427.47	427.49	427.46	427.46	427.40

*** For fabrication only

DESIGNED	SJB
CHECKED	EML
DRAWN	KLH
CHECKED	EML

HORNER & SHIFRIN, INC.
ENGINEERS

STRUCTURAL STEEL DETAILS
F.A.P. ROUTE 328 - SECTION (8BR-2)B-1
WAYNE COUNTY
STATION 888+60.00
STRUCTURE NO. 096-0067