

NEW BEAM MOMENT TABLE						
		0.4 Span 1	Pier 1 or 3	0.5 Span 2	Pier 2 or 4	0.6 Span 3
I_s	(in ⁴)	5660	5660	5660	5660	5660
$I_c(n)$	(in ⁴)	13,718	-	13,718	-	13,718
$I_c(3n)$	(in ⁴)	9795	-	9795	-	9795
S_s	(in ³)	414	414	414	414	414
$S_c(n)$	(in ³)	578	-	578	-	578
$S_c(3n)$	(in ³)	517	-	517	-	517
Z	(in ³)	-	-	-	-	-
ρ	(k/')	0.688	1.069	0.704	1.085	0.719
$M\rho$	(k)	107.3	291.7	109.3	296.8	113.5
$s\rho$	(k/')	0.380	-	0.380	-	0.380
$M_s\rho$	(k)	67.5	-	78.4	-	67.5
M_L	(k)	254.1	152.1	267.8	151.5	253.6
M_{IM}	(k)	73.7	42.6	72.2	42.4	73.5
$\sum M_L + I$	(k)	546.3	324.5	566.7	323.2	545.2
M_o	(k)	932.4	801.1	980.7	806.0	944.1
M_u	(k)	2339	-	2342	-	2347
$f_s \rho$ non-comp	(ksi)	3.1	8.5	3.2	8.7	3.3
$f_s \rho$ (comp)	(ksi)	1.6	-	1.8	-	1.6
$f_s \sum M_L + M_I$	(ksi)	11.3	9.4	11.8	9.4	11.3
f_s (Overload)	(ksi)	16.0	17.9	16.8	18.1	16.2
f_s (Total)	(ksi)	-	20.7	-	20.7	-
VR	(k)	39.6	-	41.9	-	40.1

INTERIOR BEAM MOMENT TABLE						
		0.4 Span 1	Pier 1 or 3	0.5 Span 2	Pier 2 or 4	0.6 Span 3
I_s	(in ⁴)	4930	4930	4930	4930	4930
$I_c(n)$	(in ⁴)	13,244	-	13,244	-	13,244
$I_c(3n)$	(in ⁴)	9542	-	9542	-	9542
S_s	(in ³)	329	329	329	329	329
$S_c(n)$	(in ³)	488	-	488	-	488
$S_c(3n)$	(in ³)	436	-	436	-	436
Z	(in ³)	-	-	-	-	-
ρ	(k/')	0.684	1.064	0.684	1.064	0.684
$M\rho$	(k)	107.8	286.2	105.7	285.9	107.5
$s\rho$	(k/')	0.380	-	0.380	-	0.380
$M_s\rho$	(k)	68.4	-	79.8	-	68.2
M_L	(k)	251.2	145.4	264.6	145.4	250.8
M_{IM}	(k)	72.8	40.7	71.4	40.7	72.7
$\sum M_L + I$	(k)	540.0	310.2	560.1	310.2	539.2
M_o	(k)	931.1	775.3	969.3	774.9	929.4
M_u	(k)	1381	-	1381	-	1381
$f_s \rho$ non-comp	(ksi)	3.9	10.4	3.9	10.4	3.9
$f_s \rho$ (comp)	(ksi)	1.9	-	2.2	-	1.9
$f_s \sum M_L + M_I$	(ksi)	13.3	11.3	13.8	11.3	13.3
f_s (Overload)	(ksi)	19.1	21.7	19.9	21.7	19.1
f_s (Total)	(ksi)	-	28.0	-	28.0	-
VR	(k)	38.8	-	41.0	-	39.4

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

NOTES

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

All splice plate material shall be AASHTO M270 Grade 50.

NEW BEAM REACTION TABLE					
		W. Abut.	Pier 1 or 3	Pier 2 or 4	E. Abut.
$R\rho$	(k)	42.8	63.9	63.9	43.4
R_L	(k)	32.5	38.2	38.2	32.5
R_I	(k)	9.4	10.7	10.7	9.4
R_{Total}	(k)	84.7	112.8	112.8	85.3

INTERIOR BEAM REACTION TABLE					
		W. Abut.	Pier 1 or 3	Pier 2 or 4	E. Abut.
$R\rho$	(k)	42.8	63.1	63.1	42.8
R_L	(k)	32.0	37.5	37.5	32.0
R_I	(k)	9.3	10.5	10.5	9.3
R_{Total}	(k)	84.1	111.1	111.1	84.1

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 (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 and Overload) 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 and Overload) due to long-term composite (superimposed) dead loads (in⁴ and in³).

Z : Plastic Section Modulus of the steel section in non-composite areas (in³).

ρ : Un-factored non-composite dead load (kips/ft.).

$M\rho$: Un-factored moment due to non-composite dead load (kip-ft.).

$s\rho$: Un-factored long-term composite (superimposed) dead load (kips/ft.).

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

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

M_I : Un-factored moment due to impact (kip-ft.).

M_o : Factored design moment (kip-ft.).

$1.3 [M\rho + M_s\rho + \frac{5}{8} (M_L + M_I)]$

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).

$M\rho + M_s\rho + \frac{5}{8} (M_L + M_I)$

f_s (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).

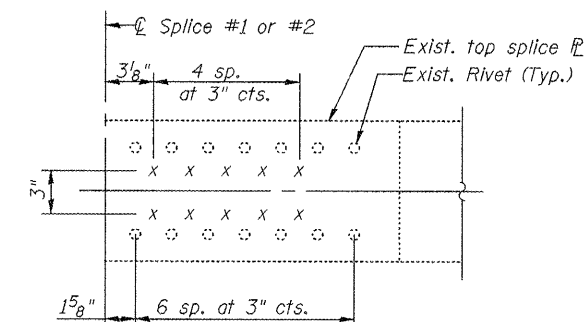
$1.3 [M\rho + M_s\rho + \frac{5}{8} (M_L + M_I)]$

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

TOP OF BEAM ELEVATIONS (EASTBOUND)

(FOR FABRICATION ONLY)

Location	New Beam
⊕ Brg. W. Abutment	603.00
⊕ Pier 3	602.71
⊕ Splice #1	602.64
⊕ Pier 4	602.42
⊕ Splice #2	602.36
⊕ Brg. E. Abutment	602.27

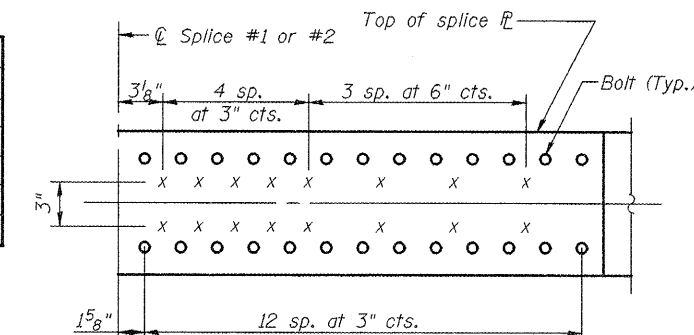


EXIST BEAM

TOP OF BEAM ELEVATIONS (WESTBOUND)

(FOR FABRICATION ONLY)

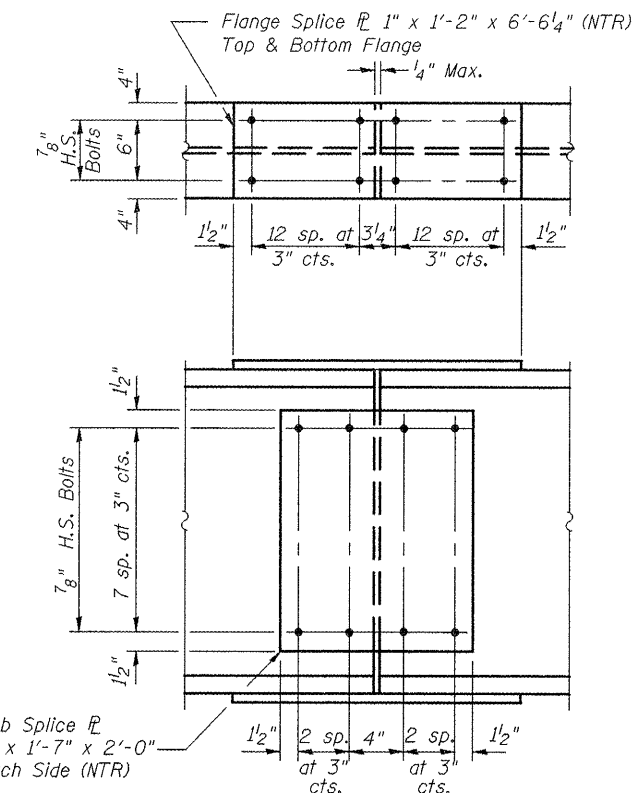
Location	New Beam
⊕ Brg. W. Abutment	604.07
⊕ Pier 1	603.78
⊕ Splice #1	603.71
⊕ Pier 2	603.49
⊕ Splice #2	603.44
⊕ Brg. E. Abutment	603.35



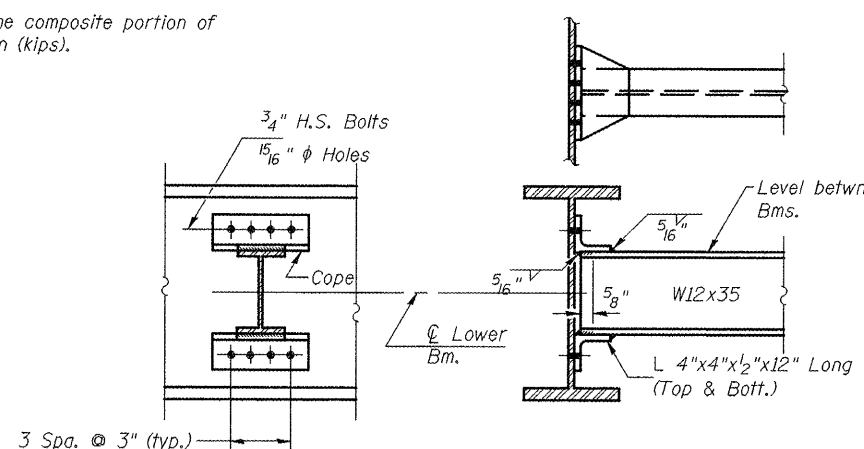
NEW BEAM

STUD SHEAR CONNECTORS AT SPLICE

x - Stud Shear Connectors



SPLICE #1 & #2



INT. DIAPHRAGM D

14 Required

Note: Two hardened washers shall be required over all overside holes for diaphragms. The Contractor shall field drill holes in the existing beam web for connection of new diaphragms using holes in the connection angles as a template. Cost included in Furnishing and Erecting Structural Steel.



V3 Companies of Illinois Ltd.
 7325 Janas Avenue
 Woodridge, IL 60517
 630.724.9200 phone
 630.724.9202 fax
 www.v3co.com

DESIGNED: B. Vegrzyn
 CHECKED: Coombe-Bloxdorf
 DRAWN: B. Vegrzyn
 CHECKED: Coombe-Bloxdorf

REVISIONS:
 REVISION -
 REVISION -
 REVISION -
 REVISION -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL DETAILS
 STRUCTURE NO. 072-0001 & 072-0002
 SHEET NO. 16 OF 34 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	72-6VB	PEORIA	133	59

CONTRACT NO. 68874
 ILLINOIS FED. AID PROJECT