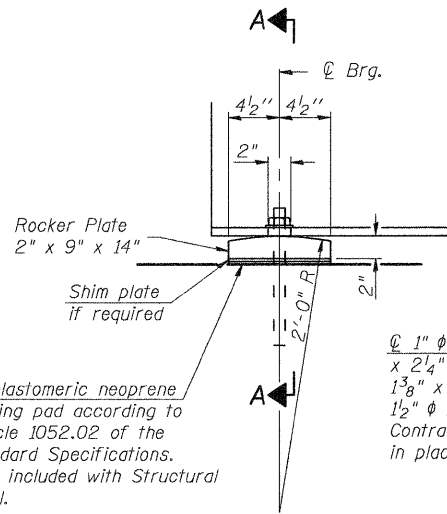
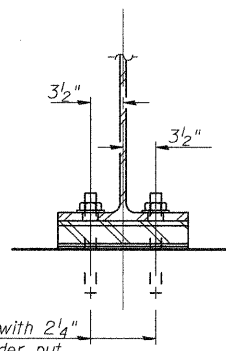


STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

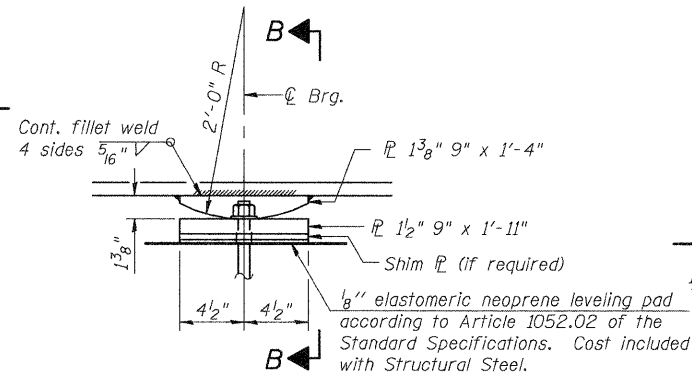
- $I_s, S_s$ : Non-composite moment of inertia and section modulus of the steel section used for computing  $f_s$  (Total-Strength I, and Service II) due to non-composite dead loads (in.<sup>4</sup> and in.<sup>3</sup>).
- $I_c(n), S_c(n)$ : Composite moment of inertia and section modulus of the steel 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.<sup>4</sup> and in.<sup>3</sup>).
- $I_c(3n), S_c(3n)$ : 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.<sup>4</sup> and in.<sup>3</sup>).
- Z: Plastic Section Modulus of the steel section in non-composite areas. Omit line in Moment Table if not used in design calculations (in.<sup>3</sup>).
- DC1: Un-factored non-composite dead load (kips/ft.).
- M<sub>DC1</sub>: 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<sub>DC2</sub>: 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<sub>DW</sub>: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).
- M $\xi$  + Imp: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).
- M<sub>u</sub> (Strength I): Factored design moment (kip-ft.).  
1.25 (M<sub>DC1</sub> + M<sub>DC2</sub>) + 1.5 M<sub>DW</sub> + 1.75 M $\xi$  + Imp
- $\phi_r M_n$ : Compact composite positive moment capacity computed according to Article 6.10.7.1 (kip-ft.).
- $\phi_r M_{nc}$ : 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<sub>DC1</sub> + M<sub>DC2</sub> + M<sub>DW</sub> + 1.3 M $\xi$  + Imp
- $f_s$  (Total)(Strength I): Sum of stresses as computed from the moments below on non-compact section (ksi).  
1.25 (M<sub>DC1</sub> + M<sub>DC2</sub>) + 1.5 M<sub>DW</sub> + 1.75 M $\xi$  + Imp
- V<sub>r</sub>: Factored shear range computed according to Article 6.10.10.



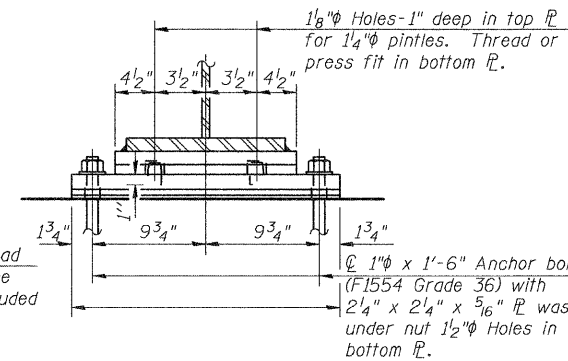
ELEVATION AT ABUTMENT



SECTION A-A



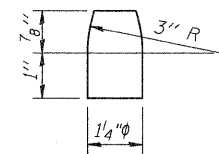
ELEVATION AT PIER



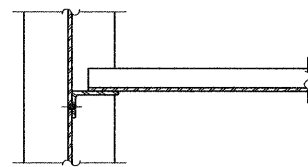
SECTION B-B

FIXED BEARING  
(12 Required)

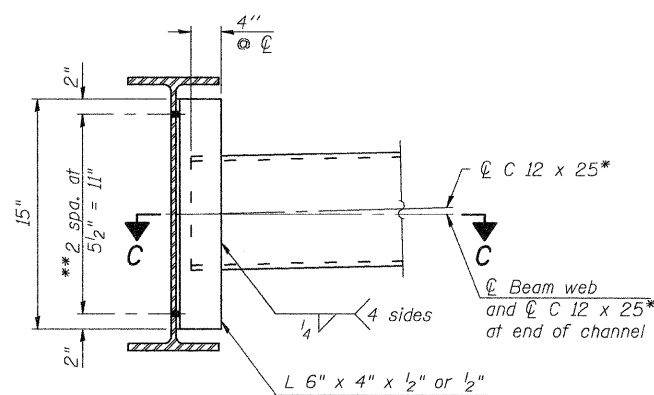
FIXED BEARING  
(12 Required)



\*\*\* PINTLE



SECTION C-C



INTERIOR DIAPHRAGM  
(30 Required)

- \* Alternate C 12 x 30 channels are 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 extra cost to the Department.
- \*\* 3/4"  $\phi$  HS bolts, 5/8"  $\phi$  holes
- \*\*\* AASHTO M270 Grade 50

Notes:  
Two hardened washers required for each set of oversized holes.  
Anchor bolts at fixed bearings may be built into the masonry.

INTERIOR GIRDER MOMENT TABLE				
		0.4 Sp. 1 or 0.6 Sp. 3	Pier 1 or 2	0.5 SP 2
$I_s$	(in <sup>4</sup> )	6310	6310	6310
$I_c(n)$	(in <sup>4</sup> )	15187	-	15187
$I_c(3n)$	(in <sup>4</sup> )	10998	-	10998
$S_s$	(in <sup>3</sup> )	458	458	458
$S_c(n)$	(in <sup>3</sup> )	636	-	636
$S_c(3n)$	(in <sup>3</sup> )	573	-	573
DC1	(k/')	0.78	0.74	0.74
M <sub>DC1</sub>	(k)	73	291	205
DC2	(k/')	0.15	0.15	0.15
M <sub>DC2</sub>	(k)	17	49	47
DW	(k/')	0.292	0.292	0.292
M <sub>DW</sub>	(k)	33	95	92
M $\xi$ + Imp	(k)	430	371	647
M <sub>u</sub> (Strength I)	(k)	915	1214	1584
$\phi_r M_n, \phi_r M_{nc}$	(k)	2989	-	2989
$f_s$ DC1	(ksi)	1.9	7.6	5.4
$f_s$ DC2	(ksi)	0.4	1.3	1.0
$f_s$ DW	(ksi)	0.7	2.5	1.9
$f_s$ 1.3( $\xi$ +I)	(ksi)	10.5	12.6	15.9
$f_s$ (Service II)	(ksi)	13.5	24.0	24.1
$f_s$ (Total)(Strength I)	(ksi)	-	31.9	-
V <sub>r</sub>	(k)	11.1	-	9.9

INTERIOR GIRDER REACTION TABLE HL93 Loading			
		Abut.	Pier 1 or 2
R <sub>DC1</sub>	(k)	11.0	51.6
R <sub>DC2</sub>	(k)	2.3	9.9
R <sub>DW</sub>	(k)	4.5	19.1
R $\xi$ + Imp	(k)	50.2	74.7
R <sub>Total</sub>	(k)	68.0	155.3

STRUCTURAL STEEL  
KINMUNDY/LOUISVILLE ROAD  
OVER ILLINOIS CENTRAL RR  
STA. 475+50.44

DESIGNED	B.B.
CHECKED	C.J.F.
DRAWN	J.G.
CHECKED	C.J.F. & B.B.



BERNARDIN  
LOCHMUELLER &  
ASSOCIATES, INC.

3 Oak Drive  
Maryville, IL 62062-5635  
Local-(618) 288-4665  
Fax 618-288-4666

SHEET NO. 11 22 SHEETS	F.A.S. RTE. 2703	SECTION (9-VBR)B	COUNTY CLAY	TOTAL SHEETS 65	SHEET NO. 33
	SN 013-0044		CONTRACT NO. 74136		
FED. ROAD DIST. NO. 7 ILLINOIS FED. AID PROJECT					