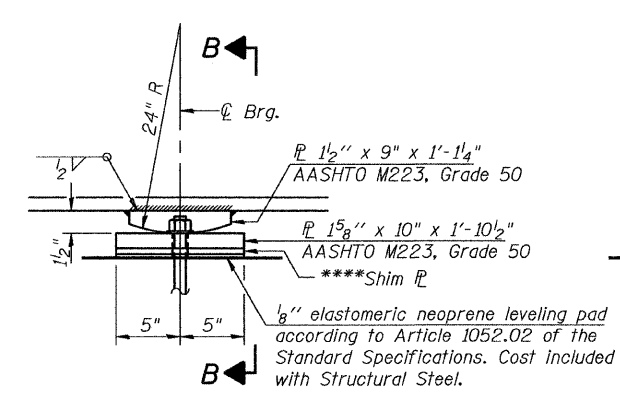
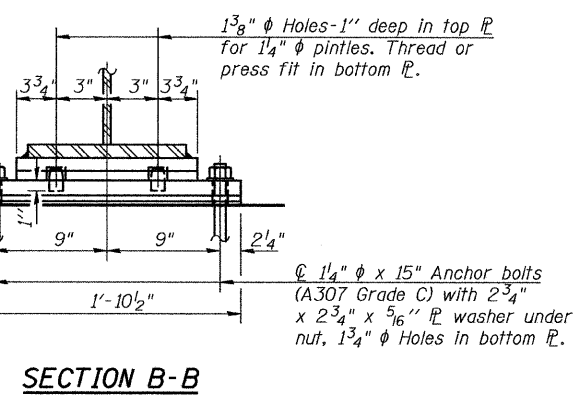


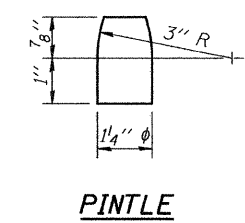
ELEVATION AT ABUTMENTS
TYPE I ELASTOMERIC EXP. BEARING



ELEVATION AT PIER
FIXED BEARING



****1-1/4" x 10" x 1'-10 1/2"
Shim Plate required
under Beam No. 4 at
Pier 1.



PINTLE

NOTES

Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 (Fy=36ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.

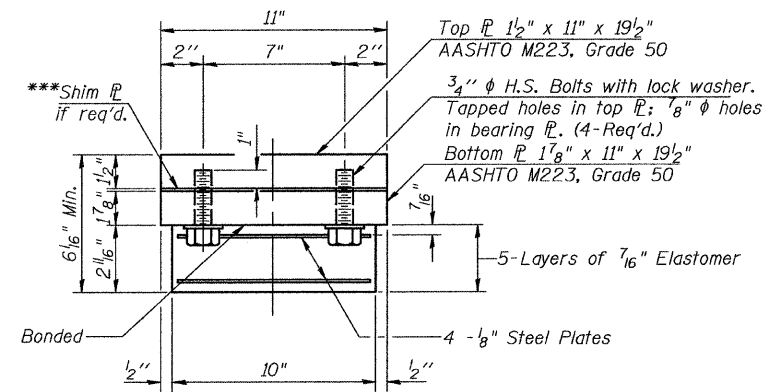
Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.

Anchor bolts for side retainers may be cast in place or installed in holes drilled before or after members are in place.

Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.

Side retainers and other steel members required for the bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type I.

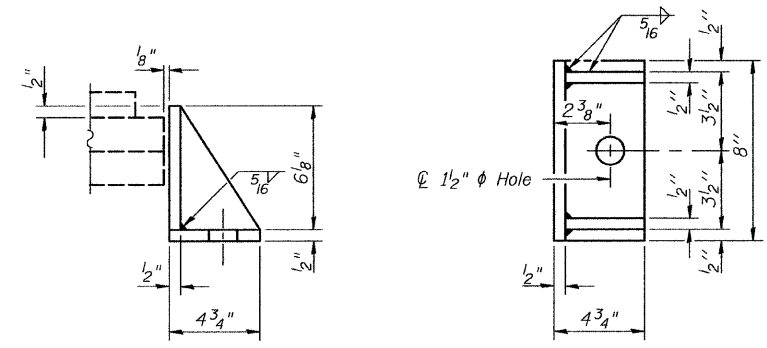
Two 1/8 in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.



BEARING ASSEMBLY

See Section A-A for 3/4" ϕ Stud in Top Plate
Note: Shim plates shall not be placed under Bearing Assembly.

****1-1/8" x 11" x 19 1/2"
Shim Plate required
under Beam No. 5 at
the West Abutment.



SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.

		0.4 Sp. 1 or 0.6 Sp. 2	Pier	0.5 Span 2
I_s	(in ⁴)	8160	8160	8160
$I_c(n)$	(in ⁴)	20000	—	20000
$I_c(3n)$	(in ⁴)	14660	—	14660
S_s	(in ³)	487	487	487
$S_c(n)$	(in ³)	682	—	682
$S_c(3n)$	(in ³)	616	—	616
Z	(in ³)	—	—	—
ρ	(k/')	0.86	1.20	0.86
$M \rho$	(k)	288	644	243
$s \rho$	(k/')	0.34	—	0.34
$M_s \rho$	(k)	126	—	130
$M \ddagger$	(k)	597	371	608
M_{imp}	(k)	155	93	146
$S_s [M \ddagger + M_{imp}]$	(k)	1253	773	1257
M_a	(k)	2170	1843	2120
M_u	(k)	—	2004	—
$f_s \rho$ non-comp	(ksi)	7.1	—	6.0
$f_s \rho$ (comp)	(ksi)	2.5	—	2.5
$f_s S_s [M \ddagger + M_{imp}]$	(ksi)	22.0	—	22.1
f_s (Overload)	(ksi)	31.6	—	30.6
f_s (Total)	(ksi)	41.1	—	39.8
VR	(k)	46.7	—	48.3

		Abut.	Piers 1 or 2
$R \rho$	(k)	31.6	100.1
$R \ddagger$	(k)	35.2	46.6
$Imp.$	(k)	9.1	11.7
R_{Total}	(k)	75.9	158.4

* 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).

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.).

$M \ddagger$: Un-factored live load moment (kip-ft.).

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

M_a : Factored design moment (kip-ft.).
 $1.3 [M \rho + M_s \rho + \frac{2}{3} (M \ddagger + M_{imp})]$

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).
 $M \rho + M_s \rho + \frac{2}{3} (M \ddagger + M_{imp})$

f_s (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).
 $1.3 [M \rho + M_s \rho + \frac{2}{3} (M \ddagger + M_{imp})]$

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

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	12
Anchor Bolts 1 1/4" ϕ	Each	48

ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE: BEARING DETAILS

PROJECT: F.A.S. RT. 287 (C.H. 29) SECTION 05-00039-03-BR GRUNDY COUNTY STATION 126+42.00 STRUCTURE NO. 032-3101

PROJECT NO. 05042

DATE: 8/27/09

DRAWN BY: TFG

CHECKED BY: MCB/CME

DRAWING NO. 16

COOMBE-BLOXDORF P.C. Engineers / Land Surveyors Springfield, Illinois Design Firm License No. 184-002703 OF 25 SHTS

PLOT DATE = 08/27/2009
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