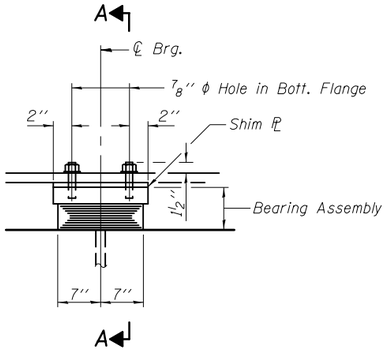
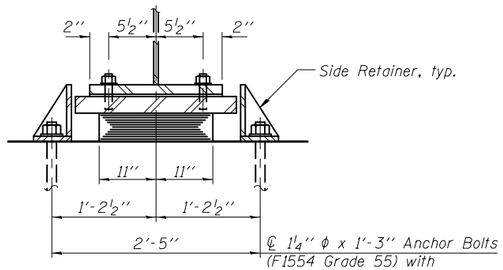
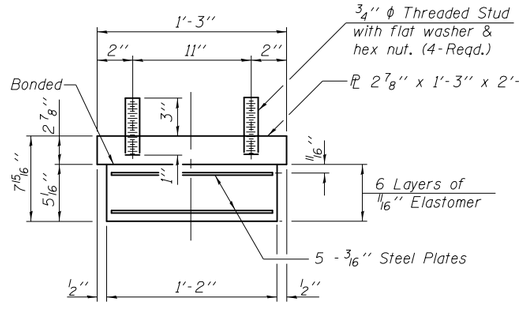


ELEVATION AT PIER



SECTION A-A

TYPE I ELASTOMERIC EXP. BRG.



BEARING ASSEMBLY

Note:
Shim plates shall not be placed under Bearing Assembly.

Notes:

Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. 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.

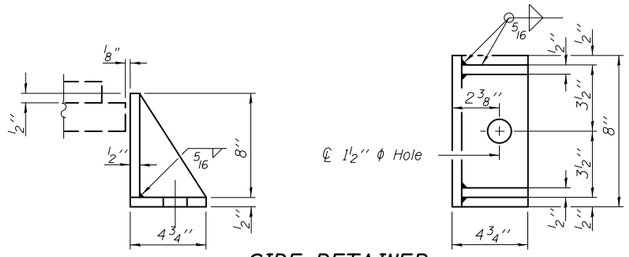
Anchor bolts for side retainers may be cast in place or installed in holes drilled before or after members are in place.

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 elastomeric bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type I.

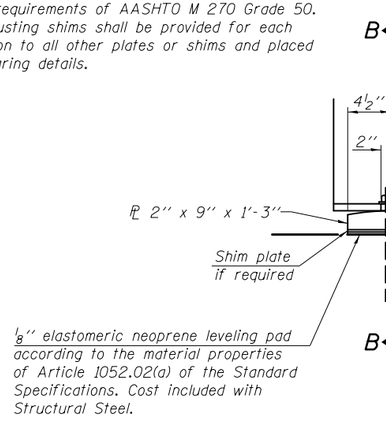
The structural steel plates of the Bearing Assembly shall conform to the requirements of AASHTO M 270 Grade 50.

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.

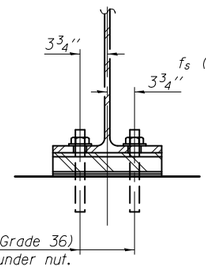


SIDE RETAINER

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



ELEVATION AT ABUTMENT



SECTION B-B

FIXED BEARING

INTERIOR GIRDER MOMENT TABLE				
		0.4 Sp. 1 or 0.6 Sp. 3	Pier 1 or Pier 2	0.5 Span 2
I_s	(in^4)	8230	8230	8230
$I_c(n)$	(in^4)	20503	--	20503
$I_c(3n)$	(in^4)	15160	--	15160
$I_c(cr)$	(in^4)	-	10831	-
S_s	(in^3)	541	541	541
$S_c(n)$	(in^3)	752	--	752
$S_c(3n)$	(in^3)	685	--	685
$S_c(cr)$	(in^3)	-	606.5	-
DC1	(k/')	1.058	1.058	1.058
M_{DC1}	('k)	94.0	-675	506
DC2	(k/')	0.150	0.150	0.150
M_{DC2}	('k)	13.3	-95.8	71.7
DW	(k/')	0.374	0.374	0.374
M_{DW}	('k)	33.2	-239	179
M_{L+IM}	('k)	652	-869	863
M_u (Strength I)	('k)	1325	-2843	2500
$\phi_f M_n$	('k)	3782	-3145	3708
f_s DC1	(ksi)	2.1	-15.0	11.2
f_s DC2	(ksi)	0.2	-1.9	1.3
f_s DW	(ksi)	0.6	-4.7	3.1
f_s (L+IM)	(ksi)	10.4	-17.2	13.8
f_s (Service II)	(ksi)	16.4	-44.0	33.5
$0.95R_hF_{yf}$	(ksi)	47.5	-47.5	47.5
f_s (Total)(Strength I)	(ksi)	--	--	--
$\phi_f F_n$	(ksi)	--	--	--
V_f	(k)	30.1	29.1	24.5

INTERIOR GIRDER REACTION TABLE			
		Abuts.	Piers
R_{DC1}	(k)	15.7	90.9
R_{DC2}	(k)	2.2	12.9
R_{DW}	(k)	5.6	32.1
R_{L+IM}	(k)	84.2	129.1
R_{Total}	(k)	107.7	265.0

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) in uncracked sections, 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) in uncracked sections, due to long-term composite (superimposed) dead loads ($in.^4$ and $in.^3$).

$I_c(cr)$, $S_c(cr)$: Composite moment of inertia and section modulus of the steel and longitudinal deck reinforcement, used for computing f_s (Total-Strength I and Service II) in cracked sections, due to both short-term composite live loads and long-term composite dead loads ($in.^4$ and $in.^3$).

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_{L+IM}: Un-factored live load moment plus dynamic load allowance (impact) ((kip-ft.).

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

$\phi_f M_n$: Compact composite positive moment capacity computed according to Article 6.10.7.1 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft.).

f_s DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).
M_{DC1} / S_{nc}

f_s DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).
$M_{DC2} / S_c(n)$ or $M_{DC2} / S_c(cr)$ as applicable.

f_s DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).
$M_{DW} / S_c(3n)$ or $M_{DW} / S_c(cr)$ as applicable.

f_s (L+IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live plus impact loads as calculated below (ksi).
$M_{L+IM} / S_c(n)$ or $M_{L+IM} / S_c(cr)$ as applicable.

f_s (Service II): Sum of stresses as computed below (ksi).
$f_{sDC1} + f_{sDC2} + f_{sDW} + 1.3\ f_s(L+IM)$

$0.95R_hF_yf$: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

f_s (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).
$1.25\ (f_{sDC1} + f_{sDC2}) + 1.5\ f_{sDW} + 1.75\ f_{sL+IM}$

$\phi_r F_n$: Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7.2 or 6.10.8 (ksi).

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

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly, Type I	Each	14
Anchor Bolts, 1"	Each	28
Anchor Bolts, 1 1/4"	Each	28

FILE NAME = $FILES$	USER NAME = piersonbr	DESIGNED - BAS	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	BEARING DETAILS STRUCTURE NO. 057-0254	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
MAURER-STUTZ ENGINEERS SURVEYORS		CHECKED - JAE	REVISED -			74	(57-20HB)BR-1	MCLEAN	440	253
	PLOT SCALE =	DRAWN - SGM	REVISED -						CONTRACT NO. 70570	
	PLOT DATE = 7/30/2013 $TIME$	CHECKED - BAS	REVISED -		SHEET NO. 18 OF 28 SHEETS			ILLINOIS FED. AID PROJECT		