

I_s	(in ⁴)	0.5 Span
$I_c(n)$	(in ⁴)	131,014
$I_c(3n)$	(in ⁴)	267,371
S_s	(in ³)	6,705
$S_c(n)$	(in ³)	8,015
$S_c(3n)$	(in ³)	7,437
Z	(in ³)	- - -
ϕ	(k/')	2.09
$M\phi$	(k-ft.)	7,910
$s\phi$	(k/')	0.15
$M_s\phi$	(k)	568
$M\phi$	(k)	3217
M_{Imp}	(k)	- - -
$S_3 [M\phi + M_{Imp}]$	(k)	5362
M_a	(k)	17,992
M_u	(k)	20,176
$f_s \phi$ non-comp	(ksi)	14.16
$f_s \phi$ (comp)	(ksi)	0.92
$f_s S_3 [M\phi + M_{Imp}]$	(ksi)	8.03
f_s (Overload)	(ksi)	23.11
f_s (Total)	(ksi)	- - -
VR	(k)	74.0

$R\phi$	(k)	E. Brg. Pier 7 or W. Brg. Pier 8
$R\phi$	(k)	197
$R\phi$	(k)	74
$Imp.$	(k)	0
R_{Total}	(k)	271

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).

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

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

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

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

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

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

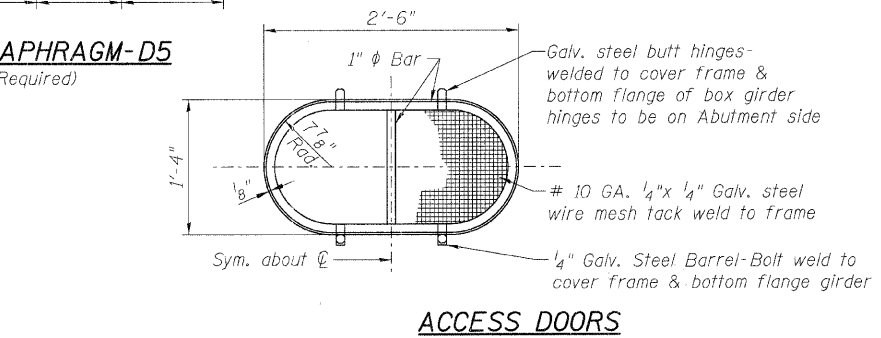
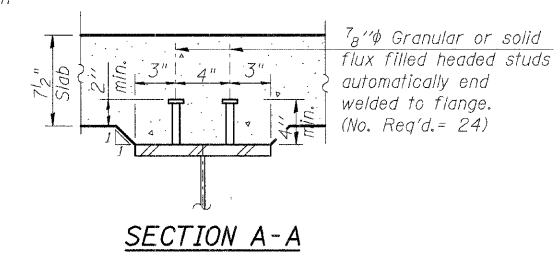
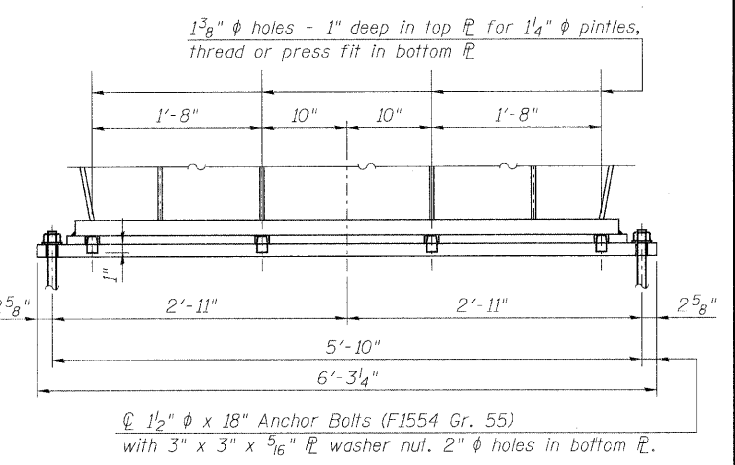
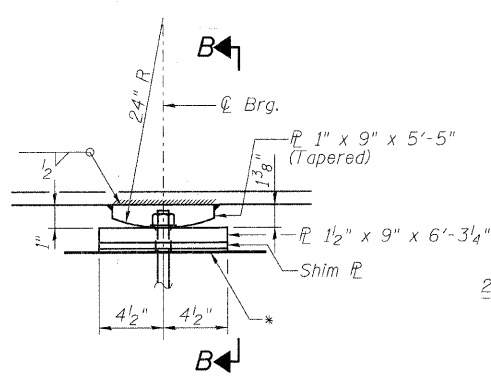
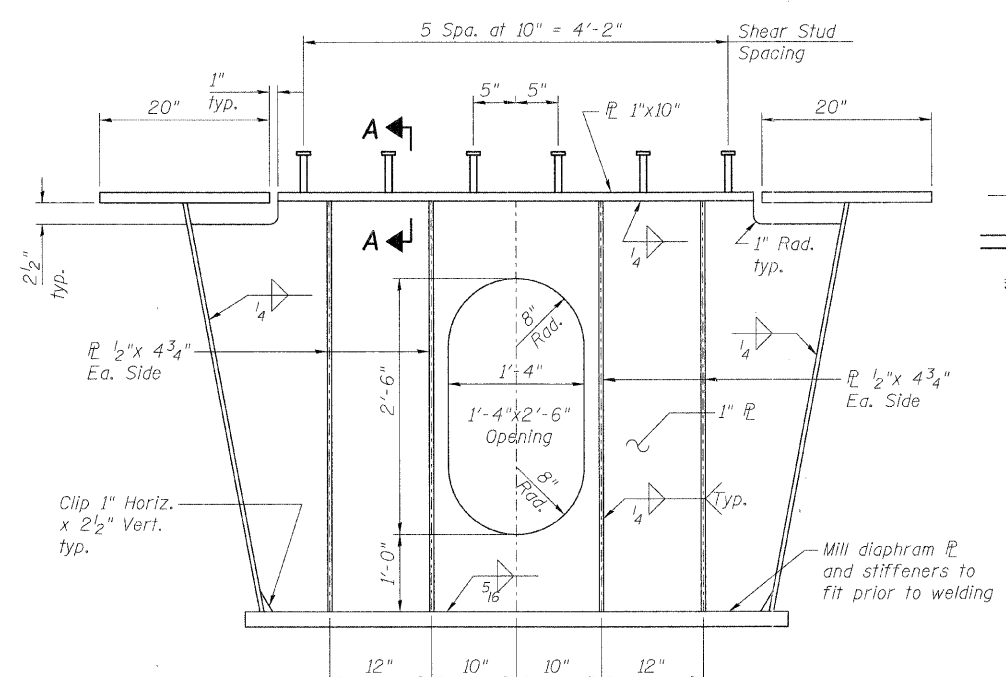
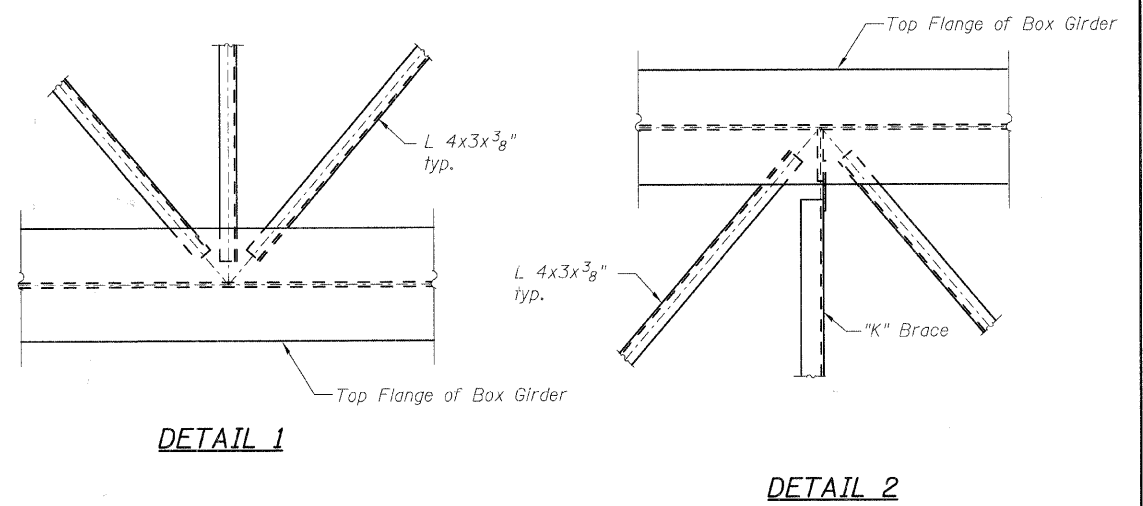
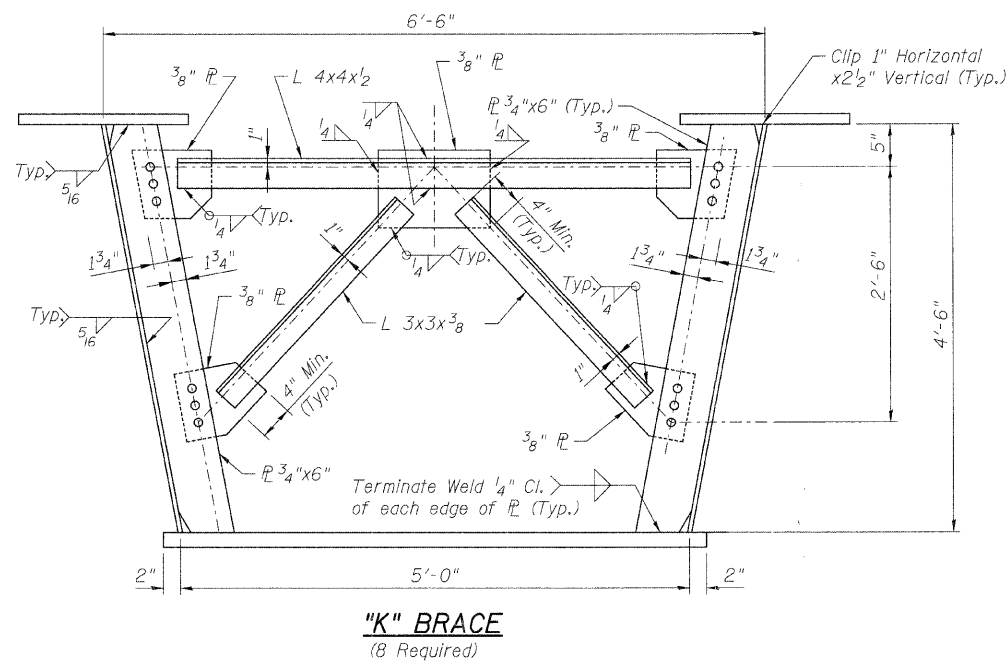
M_a : Factored design moment (kip-ft.).

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).

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

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



FIXED BEARING
(1 Required)

PINTLE

NOTES

All structural steel shall be M 270 Grade 50W.

See Sheet S-25 for Elastomeric Bearing Assembly details at Pier 8(W).

RH&A
Robert H. Anderson & Associates, Inc.
Consulting Engineers
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STRUCTURAL STEEL DETAILS
UNIT 4
PEDESTRIAN BRIDGE OVER RANDALL ROAD
AT SILVER GLEN ROAD
FAU 2505, SECTION 94-P4008-01-BR
KANE COUNTY
STRUCTURE NO. 045-9000
DATE: OCTOBER 31, 2008

DESIGNED MJD
CHECKED AEU
DRAWN MJD
CHECKED AEU

For Locations in box Girder Bottom Flange, See Sheet S-21.
Cost of Access door shall be Included in the Cost of "FURNISHING AND ERECTING STRUCTURAL STEEL".