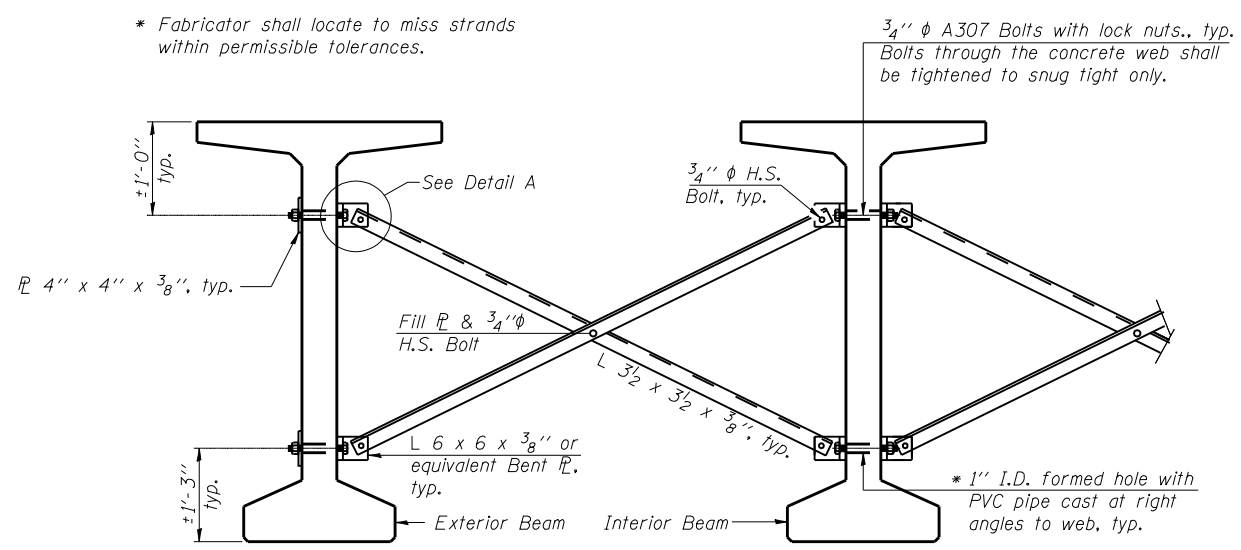
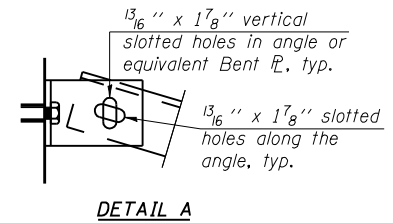


PLAN



Notes:
 All material for bracing shall be hot dip galvanized according to AASHTO M111 unless otherwise noted.
 Two hardened washers are required for each set of oversized holes. All holes shall be 1/16" φ unless otherwise noted.
 5/16" x 3" x 3" plate washers are required over all slotted holes. All bolts shall be galvanized according to AASHTO M232.
 Bracing shall be installed as beams are erected and tightened as soon as possible during erection.
 Permanent bracing shall not be paid separately but shall be included in the cost of Furnishing and Erecting Precast Prestressed Concrete Bulb T-Beams, 63".

**PERMANENT BRACING DETAILS
 FOR BULB-T BEAMS**
 Not required between beams 3 and 4



DETAIL A

	0.4 Span 1	Pier 1	0.5 Span 2	Pier 2	0.5 Span 3	Pier 3	0.6 Span 4
<i>I</i>	(in ⁴) 392638		392638		392638		392638
<i>I'</i>	(in ⁴) 752799		752799		752799		752799
<i>S_b</i>	(in ³) 12224		12224		12224		12224
<i>S_b'</i>	(in ³) 16191		16191		16191		16191
<i>S_t</i>	(in ³) 12715		12715		12715		12715
<i>S_t'</i>	(in ³) 45610		45610		45610		45610
<i>DC1</i>	(k/ft) 1.543		1.543		1.543		1.543
<i>M_{DC1}</i>	(k) 1158		2250		1852		1477
<i>DC2</i>	(k/ft) 0.291	0.291	0.291	0.291	0.291	0.291	0.291
<i>M_{DC2}</i>	(k) 108	268	171	269	103	252	173
<i>DW</i>	(k/ft) 0.3	0.3	0.3	0.3	0.3	0.3	0.3
<i>M_{DW}</i>	(k) 111	276	177	278	106	260	178
** <i>M_{L + IM}</i>	(k) 1144	1272	1290	1293	1192	1254	1321

I: Non-composite moment of inertia of beam section (in⁴).
I': Composite moment of inertia of beam section (in⁴).
S_b: Non-composite section modulus for the bottom fiber of the prestressed beam (in³).
S_b': Composite section modulus for the bottom fiber of the prestressed beam (in³).
S_t: Non-composite section modulus for the top fiber of the prestressed beam (in³).
S_t': Composite section modulus for the top fiber of the prestressed beam (in³).
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.).

	S Abut	Pier 1	Pier 2	Pier 3	N Abut		
		Sp. 1	Sp. 2	Sp. 3	Sp. 3	Sp. 4	
<i>R_{DC1}</i>	(k) 59.8	59.8	83.3	83.3	75.6	67.5	67.5
<i>R_{DC2}</i>	(k) 8	15.4	15.4	15.4	15.4	15	10
<i>R_{DW}</i>	(k) 8.2	15.9	15.9	15.9	15.9	15.5	10.3
** <i>R_{L + IM}</i>	(k) 86.7	89.4	89.4	97.7	94.7	88.6	90.9
<i>R_{Total}</i>	(k) 162.7	180.5	204	209.3	201.6	194.7	178.7

* The total *R_{DC2}*, *R_{DW}* and ***R_{L + IM}*** are assumed to be distributed evenly to each bearing line at a pier regardless of the span ratios. The bearing design at a pier is based on the maximum reactions of either span.
 ** Includes sidewalk live load.

**FRAMING PLAN & BRACING DETAIL
 STRUCTURE NO. 010-0287**

PLOT DATE = 9/24/2009
 FILE NAME = \\br-ig\proj\1-21-10\fram-plan.dgn
 SCALE = 1/8" = 1'-0"
 USER NAME = JML

 Coombe-Bloxdorf P.C. CIVIL ENGINEERS- STRUCTURAL ENGINEERS- LAND SURVEYORS- Design Firm License No. 184-002703	PROJECT NO. 06027-3 SCALE DATE 9/24/09 DESIGN BY DRAWN BY TFG CHECKED BY MCB	SHEET NO. 21 36 SHEETS	F.A.P. RTE. 326 SECTION (137BR)BR COUNTY CHAMPAIGN TOTAL SHEETS 75 SHEET NO. 41	CONTRACT NO. 70428 FED. ROAD DIST. NO. 7 ILLINOIS FED. AID PROJECT
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