

**FRAMING PLAN**

See sheet 14 of 41 for Section A-A and B-B.

	0.4 Sp. 1 0.6 Sp. 5	Pier 1 Pier 4	0.5 Sp. 2 0.5 Sp. 4	Pier 2 Pier 3	0.5 Sp. 3
$I$	(in <sup>4</sup> ) 213,715	213,715	213,715	213,715	213,715
$I'$	(in <sup>4</sup> ) 484,854	-	484,854	-	473,941
$S_b$	(in <sup>3</sup> ) 8,559	8,559	8,559	8,559	8,559
$S_b'$	(in <sup>3</sup> ) 12,571	-	12,571	-	12,466
$S_t$	(in <sup>3</sup> ) 7,362	7,362	7,362	7,362	7,362
$S_t'$	(in <sup>3</sup> ) 31,423	-	31,423	-	29,658
$DC1$	(k/ft) 1.22	1.22	1.22	1.22	1.22
$M_{DC1}$	(k) 1,230	-	1,236	-	1,819
$DC2$	(k/ft) 0.15	0.15	0.15	0.15	0.15
$M_{DC2}$	(k) 99	114	29	123	96
$DW$	(k/ft) 0.29	0.29	0.29	0.29	0.29
$M_{DW}$	(k) 183	204	53	219	171
$M_{LL+IM}$	(k/ft) 1,079	1,003	882	1,031	1,045

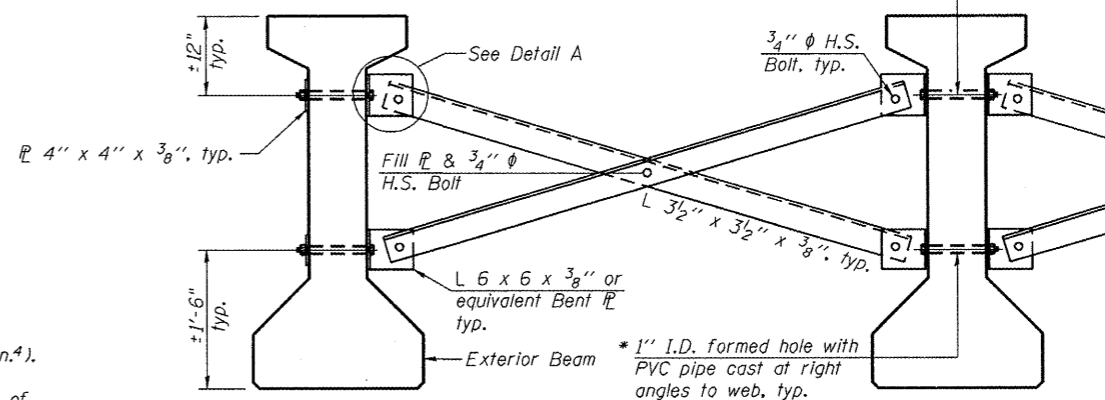
	Abut.	Pier 1 Span 1 Pier 4 Span 5	Pier 1 Span 2 Pier 4 Span 4	Pier 2 Span 2 Pier 3 Span 4	Pier 2 Span 3 Pier 3 Span 3
$R_{DC1}$	(k) 54.4	54.4	54.5	54.5	66.1
* $R_{DC2}$	(k) 5.5	7.5	7.4	7.6	7.6
* $R_{DW}$	(k) 9.8	13.3	13.3	13.6	13.6
* $R_{LL+IM}$	(k) 77.4	72.5	72.5	74.0	74.0
$R_{Total}$	(k) 147.1	147.7	147.7	149.7	161.3

\* The total  $R_{DC2}$ ,  $R_{DW}$  and  $R_{LL+IM}$  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.

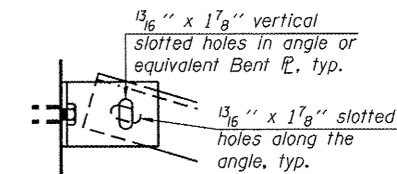
- $I$ : Non-composite moment of inertia of beam section (in<sup>4</sup>).
- $I'$ : Composite moment of inertia of beam section (in<sup>4</sup>).
- $S_b$ : Non-composite section modulus for the bottom fiber of the prestressed beam (in<sup>3</sup>).
- $S_b'$ : Composite section modulus for the bottom fiber of the prestressed beam (in<sup>3</sup>).
- $S_t$ : Non-composite section modulus for the top fiber of the prestressed beam (in<sup>3</sup>).
- $S_t'$ : Composite section modulus for the top fiber of the prestressed beam (in<sup>3</sup>).
- $DC1$ : 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.).
- $M_{LL+IM}$ : Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).

\* Fabricator shall locate to miss strands within permissible tolerances.

$\frac{3}{4}$ "  $\phi$  A307 Bolts with lock nuts., typ. Bolts through the concrete web shall be tightened to snug tight only.



- 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  $\frac{15}{16}$ "  $\phi$  unless otherwise noted.
  - $\frac{5}{16}$ " 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 for separately, but shall be included in the cost of Furnishing and Erecting Precast Prestressed Concrete I-Beams.



**PERMANENT BRACING DETAILS FOR 54" PPC I-BEAMS**