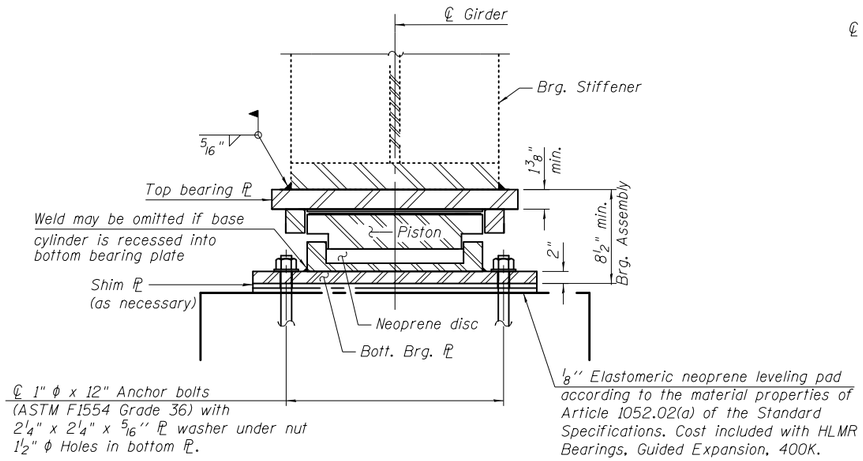
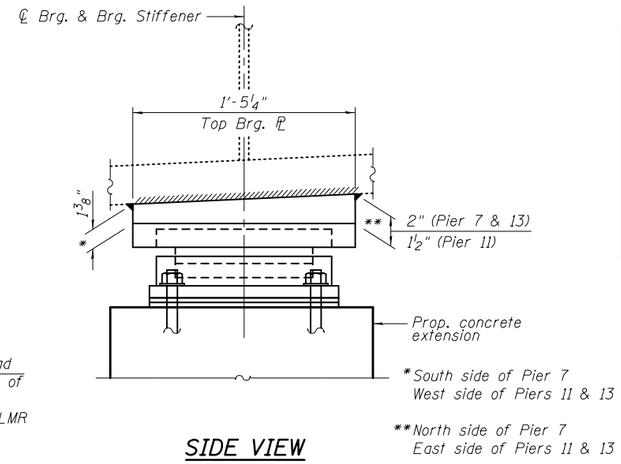


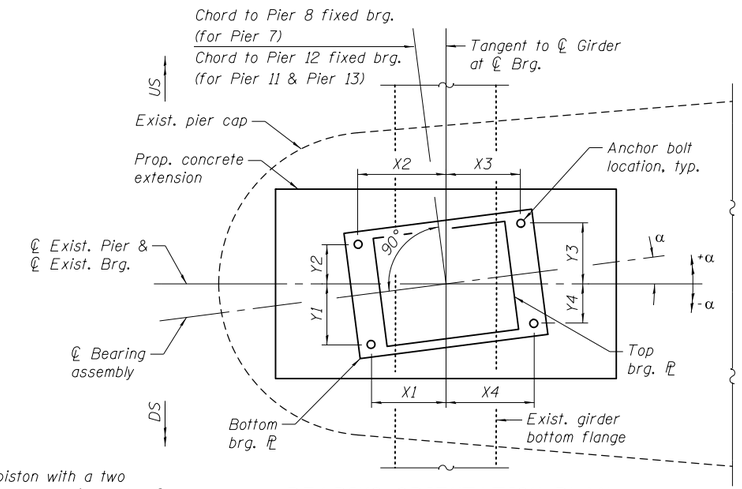

## GUIDED EXPANSION HLMR BEARING




## SIDE VIEW

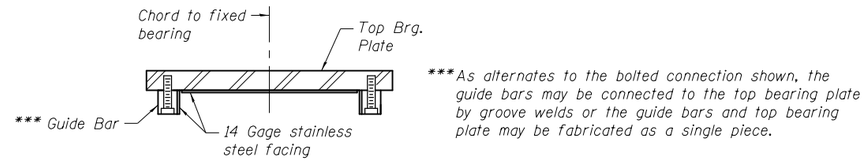
## HLMR BEARING DESIGN DATA

| Location | | Girder slope | Anchor Bolt Layout | | | | | | | | | Vertical Design Load, k | Lateral Design Load, k |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | α | X1 | Y1 | X2 | Y2 | X3 | Y3 | X4 | Y4 | | |
| Pier 7 | G1 | 3.6% | +7°21'02" | 1'-1 7/16" | 9 5/16" | 1'-3 5/16" | 5 9/16" | 1'-1 3/4" | 6 9/16" | 1'-3 5/16" | 5 9/16" | 400 | 80 |
| | G2 thru G4 | | | 11 13/16" | 10 1/16" | 1'-2" | 6 3/4" | 11 13/16" | 10 1/16" | 1'-2" | 6 3/4" | | |
| Pier 11 | G1 | -0.9% | +6°44'59" | 1'-1 1/2" | 9 1/8" | 1'-3 1/4" | 5 3/4" | 1'-1 7/8" | 6 7/16" | 1'-3 1/4" | 5 3/4" | | |
| | G2 thru G4 | | | 11 15/16" | 10" | 1'-1 15/16" | 6 15/16" | 11 15/16" | 10" | 1'-1 15/16" | 6 15/16" | | |
| Pier 13 | G1 | -3.7% | -7°06'01" | 1'-3 5/16" | 5 5/8" | 1'-1 7/16" | 9 1/4" | 1'-3 5/16" | 5 5/8" | 1'-1 13/16" | 6 1/2" | | |
| | G2 thru G4 | | | 1'-1 15/16" | 6 13/16" | 11 7/8" | 10 1/16" | 1'-1 15/16" | 6 13/16" | 11 7/8" | 10 1/16" | | |



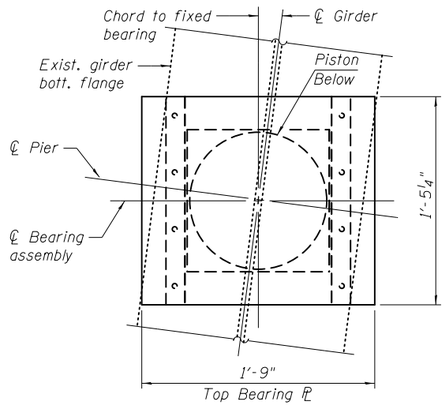

## BEARING ORIENTATION PLAN

(Pier 7 & 11 orientation shown, Pier 13 orientation mirrored)

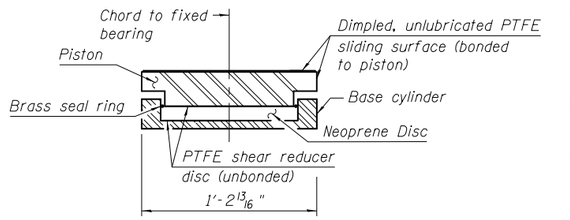



***As alternates to the bolted connection shown, the guide bars may be connected to the top bearing plate by groove welds or the guide bars and top bearing plate may be fabricated as a single piece.

## TOP BEARING PLATE ASSEMBLY




## TOP BEARING PL AND PISTON PLAN



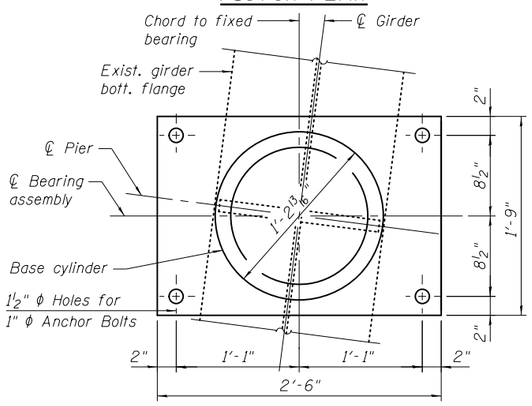

## PISTON ASSEMBLY

Notes:

1. The 1/8" PTFE sheets shall be bonded directly to the piston with a two component medium viscosity epoxy resin, conforming to the requirements of the Federal Specification MM-A-134, Type 1. The bond agent shall be applied to the full area of the contact surfaces.
2. The Vertical Design Load in table is the actual controlling vertical service load.
3. HLMR Bearings dimensions and details are based on a specific manufacturer's design tables. Actual dimensions and details may differ. Contractor to verify bearing heights and adjust concrete extension heights as necessary based on the actual bearings provided. Cost included with HLMR Bearings, Guided Expansion, 400K.

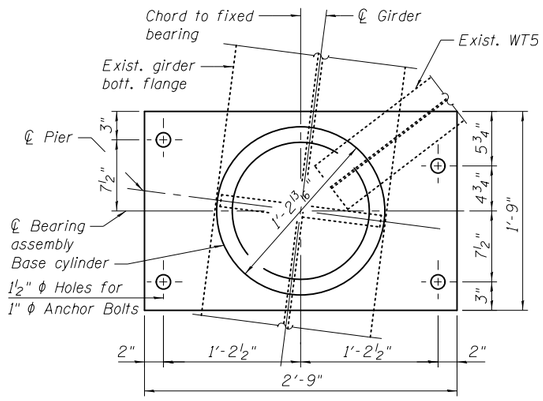
Notes (cont.):

4. Cost of field welding shall be included in the cost of HLMR Bearings, Guided Expansion, 400 K.
5. See Sheet S-62 for Bearing Removal Details and Jacking Procedure.
6. 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.
7. The Contractor shall field verify the slope of the existing girders prior to construction or ordering of materials.
8. The expected movement of each bearing due to temparature change from a normal tempurature of 50°F is 1.0" in each direction for a total movement range of 2.0".
9. 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.
10. Anchor bolts for HLMR bearings shall be placed in holes drilled in the concrete through holes in the bottom bearing plate after bearings are in place.
11. Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
12. Existing cross-frame bolts and lateral bracing bolts shall not be disconnected without prior approval from the Engineer.



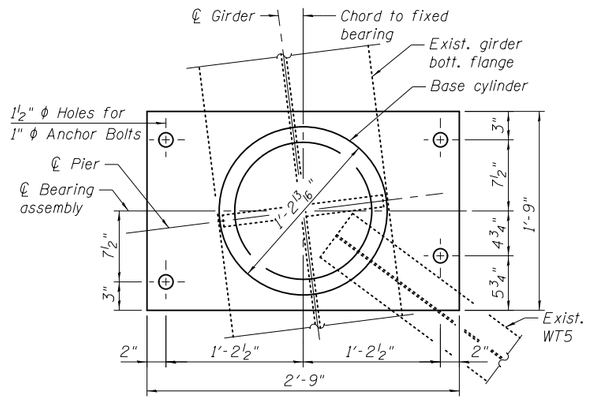

## BOTTOM BEARING PL AND BASE CYLINDER PLAN

Girders G2 thru G4 at Piers 7, 11, and 13 (9 required)




## BOTTOM BEARING PL AND BASE CYLINDER PLAN

Girder G1 at Pier 7 & Pier 11 (2 required)




## BOTTOM BEARING PL AND BASE CYLINDER PLAN

Girder G1 at Pier 13 (1 required)

## BILL OF MATERIAL

| Item | Unit | Total |
|---|---|---|
| HLMR Bearings, Guided Expansion, 400K | Each | 12 |
| Anchor Bolts, 1" | Each | 48 |

BOWMAN, BARRETT & ASSOCIATES INC.
CONSULTING ENGINEERS
Chicago, Illinois
312.228.0100
www.bbandainc.com

| | | | |
|---|---|---|---|
| USER NAME = | DESIGNED - TL | REVISED - | |
| | CHECKED - BAK | REVISED - | |
| PLOT SCALE = | DRAWN - TL | REVISED - | |
| PLOT DATE = 11/08/2012 | CHECKED - BAK | REVISED - | |

**STATE OF ILLINOIS**
**DEPARTMENT OF TRANSPORTATION**

**HLMR BEARING DETAILS**
**STRUCTURE NO. 016-2437**
SHEET NO. S-40 OF S-83 SHEETS

| F.A.I. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 94 | 2012-060-BR | COOK | 285 | 203 |
| | | CONTRACT NO. 60V61 | | |
| | ILLINOIS FED. AID PROJECT | | | |