TO:
SUPERSEDED BY
EI 97-028 EFFECTIVE
5/21/98

ENGINEERING INSTRUCTION

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

SUBJECT: Bridge Bearings - Detailing practices

Subject Code: 7.35-11

Distribution: 30 Main Office 32 Regions 34 Consultants 31 City, Town, County

Code: EI 94--018

APPROVED: 6/16/94

Arun M. Shirolé, Deputy Chief Engineer
Structures Division

Date: 6/16/94

Supersedes:

This Engineering Instruction is effective 6/24/94.

As noted by the Materials Bureau, some of the elastomeric bridge bearing assemblies received for testing either do not comply with material standards or do not fulfill the Department's fabrication requirements. This Engineering Instruction modifies and clarifies some of the detailing practices for these elastomeric bridge bearings. In addition, this E.I. will also clarify some questions raised by manufacturers. These detailing practices supplement the information given on BDD 84-40, issued with EI 85-14.

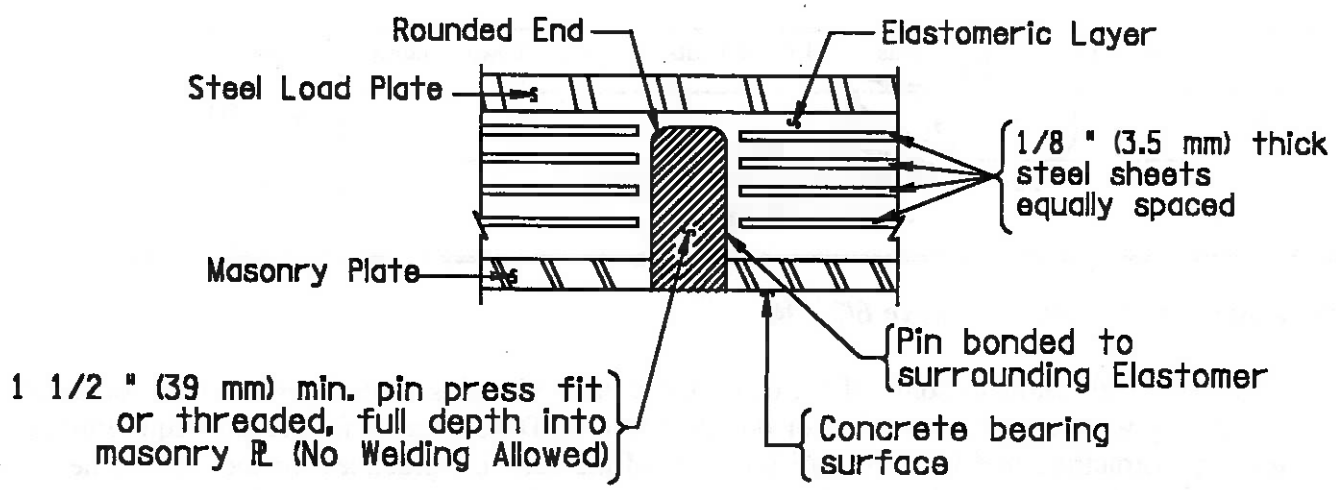
1. For fixed elastomeric bearings with load and masonry plates, current standards require the anchoring pin of diameter $\varnothing p$ to be a tight fit, and rigidly attached to the masonry plate. This E.I. now requires that this rigid attachment be a press fit, with the pin extending through the full thickness of the masonry plate. As an alternate, a threaded connection extending the full thickness of the plate may be used. In no case shall a welded connection be used; this should be noted on the contract plans. The material for the anchor pin shall meet the requirements for either ASTM A449, A572 or A588. (See Figure 1).

2. The designer's attention is directed to the requirements of the NYSDOT Standard Specifications for Highway Bridges, article 10.29.6 regarding anchor bolt placement and edge distances. For fixed bearings, transverse edge distance E(T) shall not be less than 1.75 x Bolt Dia. + 3/16" (5 mm); longitudinal E(L) shall not be less than 1.75 x Bolt Dia. + 3/16"(5 mm). For expansion bearings, E(T) shall not be less than 1.75 x Bolt Dia. + 3/16" (5 mm), and E(L) shall not be less than 1.75 x Bolt Dia. + 1.5" (39 mm), with a slotted hole parallel to the line of translation. (See Figure 2).

3. For circular bearings, the bearing load plate shall be shop welded to the sole plate along arcs extending $\pm$ 45° from a line through the center of the bearing, perpendicular to the line of translation of the girder. This E.I. allows the use of countersunk cap screws, designation F835-92, as an alternate. If used, a minimum of 6 cap screws, evenly spaced around the circumference of the bearing, shall be used. They shall be threaded into the load plate a distance not less than 0.75 times the diameter of the cap screws. (See Figure 3 & 3A).

For projects which are post-PS&E but not yet let, these changes should be implemented by amendment, prepared by the designer. For projects already let but for which bearings have not yet been fabricated and inspected, any necessary changes should be included by order on contract, prepared and submitted by the Region construction group. For projects with inspected bearings not yet installed, contact the Office of the Deputy Chief Engineer (Structures) for guidance.

Any questions regarding this EI should be addressed to Ayaz H. Malik of the Structures Division at 457-6465.



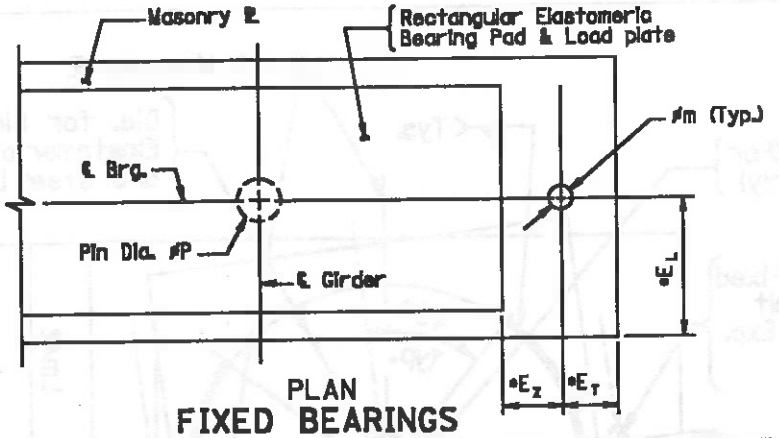
PIN DETAIL FOR FIXED BEARINGS

Not to Scale

Note:

The material for the Anchor Pin shall meet the requirements for either ASTM A449, A572 or A588 steel.

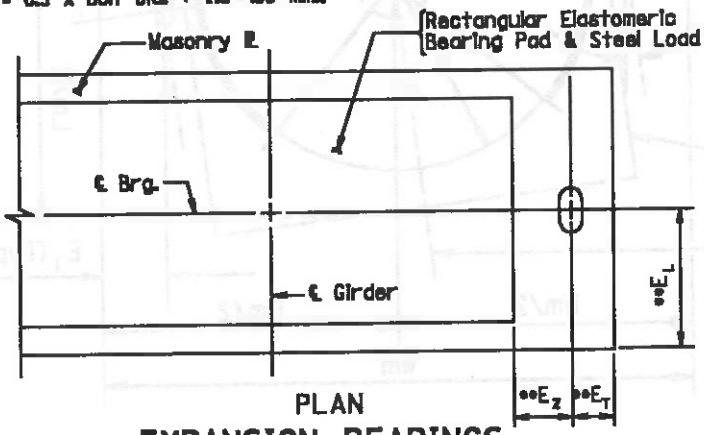
Figure 1



PLAN

FIXED BEARINGS

• Transverse edge distance E(T) shall not be less than 1.75 x Bolt Dia. + 3/16" (5 mm); longitudinal edge distance E(L) shall not be less than 1.75 x Bolt Dia. + 3/16" (5 mm). E(Z) = 0.5 x Bolt Dia. + 1.5" (39 mm).

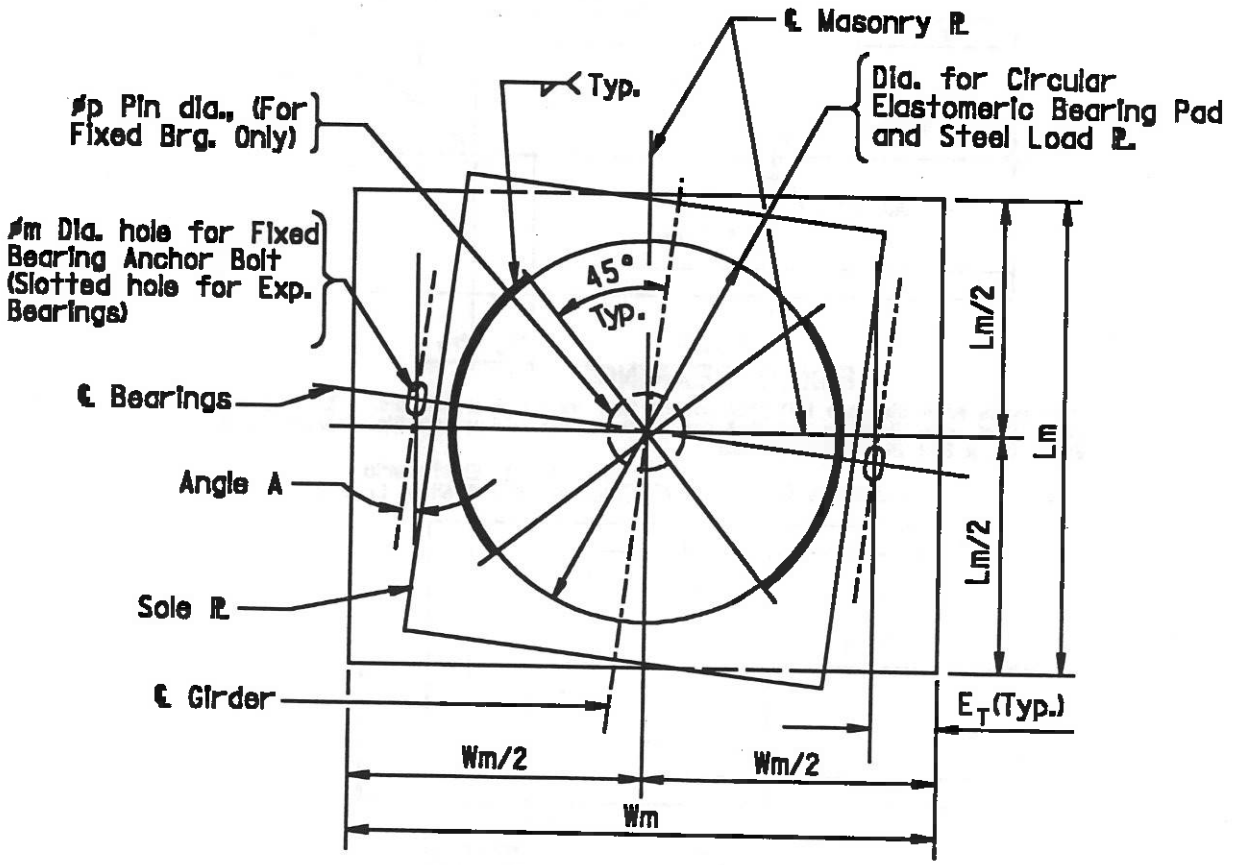


PLAN

EXPANSION BEARINGS

•• Transverse edge distance E(T) shall not be less than 1.75 x Bolt Dia. + 3/16" (5 mm); longitudinal edge distance E(L) shall not be less than 1.75 x Bolt Dia. + 1.5" (39 mm), with a slotted hole parallel to the line of translation. E(Z) = 0.5 x Bolt Dia. + 1.5" (39 mm).

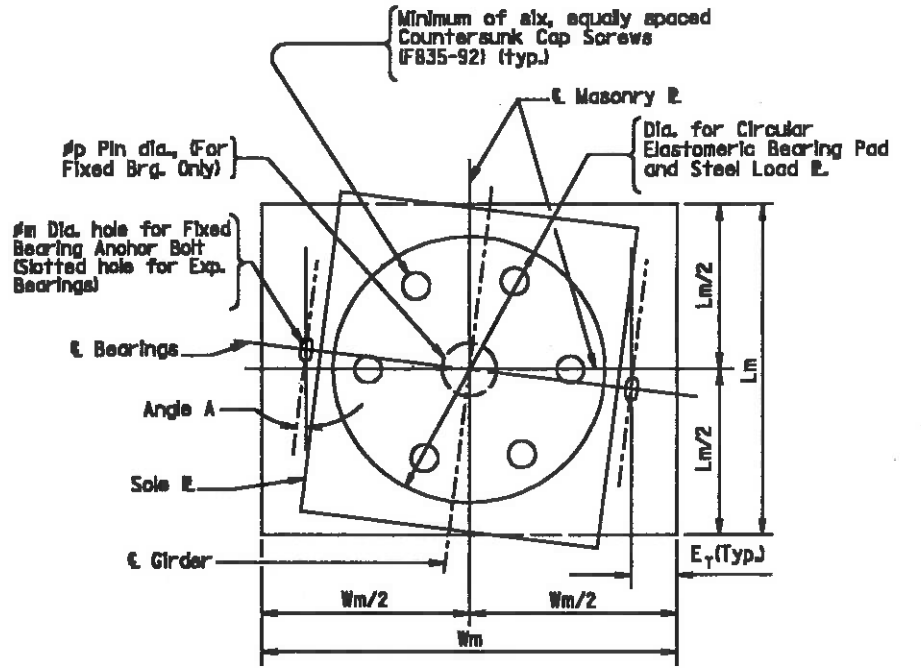
Figure 2



WELDED ATTACHMENT DETAIL OF SOLE PL TO LOAD PL

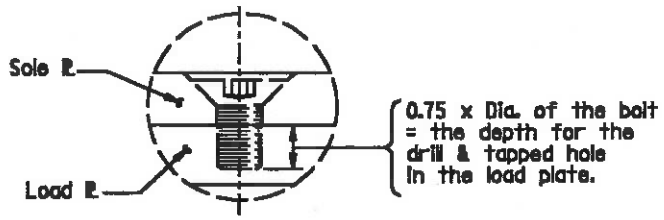
(PLAN)

Figure 3



ALTERNATE ATTACHMENT DETAIL OF SOLE ℙ TO LOAD ℙ

(PLAN)



CAP SCREW

Figure 3A