

**MODIFICATION TO TUCSON WATER STANDARD WATERWORKS SPECIFICATION  
NO. 1406, THRUST RESTRAINT**

**1406.0101 Description of Work.**

**DELETE THE STANDARD DETAIL REFERENCE AND ADD THE FOLLOWING:**

(MDWID Supplemental Detail MW 600, MW 610)

**1406.0201 Materials**

**(A) Ductile Iron Pipe.**

**MODIFY THE 1ST SENTENCE OF PARAGRAPH ONE AS FOLLOWS:**

When mechanically restrained joints are required for ductile iron pipe, they shall comply with the MDWID Approved Materials List.

**(C) Polyvinyl Chloried Pipe (PVC)**

**REMOVE THE SECOND PARAGRAPH AND REPLACE WITH THE FOLLOWING:**

Restraint harnesses shall consist of: a split ring that fits behind the bell; either a split or full restraint ring that installs on the spigot end; and tie bars or tee bolts which connect the two rings. The harness restraint may be split to enable installation after the pipe spigot has been installed into the bell. All components which comprise the restraint harness shall be manufactured of ductile iron conforming to the requirements of ASTM A536. Each ring shall have serrations on its full inside diameter (360°).

**ADD THE FOLLOWING AS A THIRD AND FOURTH PARAGRAPH:**

Mechanical joint retainer gland restraints for polyvinyl chloride pipe shall be designed to fit standard mechanical joint bells with standard “tee” head bolts conforming to ANSI/AWWA C111/A21.11 and ANSI/AWWA C153/A21.53. Glands shall be manufactured of ductile iron conforming to ASTM A36 grade 60-42-10. Mechanical joint restraint devices shall have a working pressure of at least 305 PSI with a minimum safety factor of 2:1.

Glands shall be provided with a restraining mechanism consisting of a sufficient number of individually set gripping surfaces whose total combined length shall encompass near 360° circumferential coverage. Gripping surfaces shall impart a wedging action against the pipe, increasing in resistance with increasing pressure. The gripping surfaces shall incorporate twist-off nuts to

insure proper setting. Restraint mechanisms shall be installed in accordance with the manufacturer's recommendations.

**(D) High Density Polyethylene Pipe (HDPE).**

**REMOVE THIS ENTIRE SECTION.**