

## **SECTION 8.02      PIPES AND APPURTENANCES**

### **8.02.2 MATERIALS**

#### **A.      Ductile Iron Pipe**

**A.1**      Pipes shall be manufactured to BS EN 545:2002. Unless otherwise indicated in the Bill of Quantities. Class K9 pipes shall be used for diameters up to 500 mm, Class K8 for diameters from 500 to 800 mm and Class K7 for diameters greater than 800 mm.

**A.2**      Spigot and socket ended pipe joints shall be used for straight runs and adjacent to elbows or fittings. These joints shall be provided with rubber gaskets, and external thrust blocks at elbows or fittings. Anchored or self restrained joints shall be used for sections on 1000 mm pipes adjacent to elbows. Anchored joints shall be the push-in, self anchored type. Concrete thrust blocks are not required for anchored joints. The Contractor shall submit calculations verifying the number of restrained joints required noting that pipe pressure testing will be made when pipes are partially backfilled.

**A.3**      Joints: flanged pipes wherever specified shall have screwed-on or cast-on flanges to sustain a minimum working pressure of NP 16 minimum.

**A.4**      Flanges shall be provided in accordance with BS EN 1092-1:2002.

**A.5**      Factory protection for pipes shall be as follows:

- Internally: cement lined to BS EN 545:2002 with ordinary Portland cement to BS EN 197-1:2000 to the thickness specified on the Drawings or as instructed by the Engineer.
- Externally: metallic zinc shall be applied in accordance with BS EN 545:2002 either hot applied coal tar material to BS 4164:2002 or bitumen to BS 3416:1991, minimum thickness 150 microns.

**A.6**      Factory protection for fittings shall be as follows:

Coated internally and externally by dipping, or other method, using hot applied coal tar based material to BS 4164:2002 or hot applied bitumen to BS 3416:1991, Type 1, grade D, minimum thickness 250 microns.