5.3.9.5 Jointing and Cutting

All joints shall comply with the relevant provisions of the appropriate international standard and shall be made to the manufacturer's recommendations and the specifications hereafter.

Flanged joints shall be properly aligned before any bolts are tightened. Gaskets for flanged joints shall be of the inside-bolt-circle type. Jointing compounds shall not be used when making flanged joints, except that to facilitate the making of vertical joints, gaskets may by secured temporarily to one flange face by a minimum quantity of clear rubber solution. Bolt threads shall be treated with graphite paste and the nuts shall be tightened evenly in diametrically opposite pairs. Nuts shall be secured against loosening by vibration.

Rubber joint rings for water mains and drainage purposes shall be obtained from the pipe manufacturer. Joint lubricants for sliding joints and used for jointing water pipes shall not impart to water taste, colour, or any effect known to be injurious to health, and shall be resistant to bacterial growth.

Unless specified otherwise joints having exposed mild steel components shall be cleaned and all loose rust shall be removed. The internal lining in a gap, which has been left for the joint to be made, shall be completed in accordance with the recommendations of approved supplier, unless specified otherwise. The external protection shall comprise bitumen applied to a thickness of not less than one millimeter on to the external surface of the joint, followed where appropriate by a spiral wrap of heavy duty glass fiber tape bonded with hot bitumen.

For closing lengths, it may be necessary to cut pipes of various materials. Pipes shall be cut by a method which provides a clean square profile without splitting or fracturing the pipe wall, and which causes minimum damage to any protective coating. Where necessary, the cut ends of pipes shall be formed to the tapers and chamfers suitable for the type of joint to be used and any protective coatings shall be made good.

Where ductile pipes larger than 450 mm diameter are to be cut to form non-standard lengths, the Contractor shall comply with the Manufacturer's recommendations in respect of ovality correction to the cut spigot end.

Where cut concrete pipes are used any exposes reinforcement shall be sealed with an approved epoxy resin.

5.3.9.6 Curves and Bends

The pipes shall be laid in straight lines where possible. Curves of long radius shall be obtained by deflection at the joints. The deflection of the joints for this purpose shall not be more than 50% of the maximum deflection as specified by the pipe manufacturer for the relevant type of joint. Where a required change of direction cannot be obtained by deflection of the joints, prefabricated bends shall be used.

Concrete thrust blocks shall be provided to pressure pipelines at reducers, tee junctions, caps, etc., and curves or bends deflecting 11.25o or more, except where welded steel pipes or self-anchoring joints are used. The type and size of thrust blocks shall be in accordance with the drawings or as approved by the Engineer.

Concrete for thrust blocks shall comply with all the relevant requirements of Section 6: Concrete and Steel Works" and shall be placed carefully against undisturbed earth or rock with suitable bearing capacity and shall in no case be less than 150 mm of cover to the pipe. Concrete shall be grade C20. When casting thrust blocks no couplings or joints shall be covered, and if required the pipe with fittings shall be firmly fixed to the block by a suitable stainless steel strap belted to the block. Where timber shuttering has been used such timber shall be removed before backfilling. The concrete shall be allowed to develop adequate strength prior to any pressure being applied to the pipeline.