

cover slab, intermediate landing slabs, platforms and manhole benching. Intermediate landing slabs/platforms that have been removed may not necessarily have to be reinstated, at the Engineer's discretion, the GRP ladder is adjusted and re-installed as a continuous ladder throughout the manhole height. Unless specifically itemised and listed in the Bill Of Quantities, modifications to manholes which may be necessary to carry out the drainage pipeline rehabilitation and associated works shall be deemed to be included in the drainage pipeline rehabilitation rates.

29.3.7 Cured-In-Place Pipe Installation

- A. The Contractor shall retain the services of a licensed installer of the manufacturer of the cured in place liner pipe rehabilitation system to assist the Contractor during preparation and installation of the system to certify that the work has been performed in accordance with the manufacturer's recommendations.
- B. The following procedures shall serve as a general installation guide only. The Contractor shall obtain detailed installation instructions and procedures from the manufacturer for the actual installation of the cured in place liner system. The requirements of ASTM F1216 shall also be satisfied.
 - i. The section of pipeline to be lined shall have been cleaned, surveyed and repaired to the requirements of this section of the standard specification prior to liner installation.
 - ii. The flexible felt liner tube shall be fabricated to a size that when installed will neatly fit the internal circumference of the required pipeline. Allowance shall be made for circumferential stretching during insertion. The minimum length shall be that deemed necessary by the Contractor to effectively span the distance from the inlet to the outlet of the respective manholes unless otherwise specified. The Contractor shall verify the lengths in the field before impregnation. Individual installation runs can be made over one or more manhole sections as determined in the field by the Contractor and approved by the Engineer.
 - iii. Prior to insertion the Contractor shall have provided data on the maximum allowable stresses and elongation of the tube. The exterior of the manufactured tube shall be marked along its length at regular intervals not to exceed 1.5m. These marks shall be used as a gauge to measure elongation during insertion. Should the elongation at any time exceed the allowable values the liner shall be rejected.
 - iv. The Contractor shall designate a location or locations where the