

Houghton Bridge Water Main - VIC

Redcliffe Main is Water Under the Bridge



Objectives:

Redcliffe, Queensland, kids, now in their teens, are as old as the 2.7km Houghton Bridge. When they were born, their parents began planning for their futures... and Redcliffe City Council began preparing to supply the water which those families and many others would need in years to come. Houghton Bridge was designed to carry a DN 500 trunk water main, suspended beneath the carriageway. By 1991, Council concluded that water consumption was approaching a level which warranted installation of the new main. The funding was ready, and a detailed strategy was set in motion for construction during the winter of 1993.

Doval Constructions undertook the project - and the challenges it presented. Traffic flow could not be disrupted, so no part of the work was to be done topside, on the carriageway. When designed in 1980, the only option would have been to wait each day for the incoming tide and work from pontoons below the bridge.

The future belongs to innovators

Doval Constructions designed a motorised radio controlled shuttle which could run in the open tunnel space immediately below the bridge deck in the space reserved for the pipeline. It could run at all hours and had the capacity to carry pipe in lengths of 27m, the distance between the bridge piers.

Challenge

Total Quality

The precision of this operation required equal precision in the fabrication and supply of the pipe lengths by Steel Mains. Everything concerned with the Houghton Bridge project had to be specially made for very demanding circumstances. The pipeline needed maximum strength, to span the unusually long distance between piers. Considering the difficulties and cost of renovation, the pipeline had to be long-lived able to absorb vibration from traffic overhead and from the constant flow of water below, able to resist corrosion from exhaust emissions, road run-off and salt air.

Solution

Redcliffe City Council chose mild steel for strength and decided on SINTAKOTE by Steel Mains for longevity. One end of each 27m long pipe was loaded into the shuttle trailer, the other end was loaded into the shuttle itself. The laden shuttle was sent by remote control to the opposite end of the bridge. After the first length of pipe was in place, each additional section was transported and then unloaded and inserted in one operation into the socket in the previous section. The rubber ring joint was completed by the use of a come-along. This procedure laid the pipe neatly in the brackets set into each pier and into the braces suspended between piers. The use of the innovative construction method combined with the specially supplied pipe, ensured the most cost effective and time efficient means of satisfying the project criteria.

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Client Redcliffe City Council

Pipeline 2,700m of 559 x 6mm
WT SINTAJOINT RRJ MSCL pipe
with deep entry sockets,
27.44m effective lengths

Construction Doval Constructions (QLD) Pty
Ltd

Construction August / October 1993

Period: