

SPR™ PE CASE STUDY

1800mm (72 in) DIAMETER SPR™ PE PROJECT IN SYDNEY, AUSTRALIA



A project in Sydney saw the unveiling of the next generation SEKISUI SPR spiral winding technology for structural lining of large diameter sewers.

Sydney Water's Coogee Diversion Sewer Rehabilitation Project required the structural lining of some 1,300m (4265 ft.) of deteriorated concrete sewer. Parts of the pipeline were badly deteriorated through gas attack and abrasion.

Distances between access chambers extended up to 200m (656.1 ft.) with access chambers up to 7m (22.9 ft.) deep.

The depth of the pipeline and the high water table called for a high stiffness solution which also needed to be cost competitive.

The solution proposed by SEKISUI SPR licensee Interflow involved the first use of the SPR™ PE system in Australia.



SPR™ PE is a fixed diameter liner comprising steel ribs encased in a continuous strip of polyethylene profile. It is installed by a winding machine placed at the base of an access chamber. The winding machine welds the edges of the profile as it is wound to form a liner. The machine can be set to wind the largest fixed diameter that will fit into the deteriorated host pipe and minimise the reduction in cross-sectional area. The annulus between the liner and the host pipe is filled with cementitious grout.

An important advantage for Sydney Water offered by SPR™ PE was that it is a structural stand-alone liner, without the need for a bond between liner, mortar and host pipe in order to withstand all applied loads.

The SPR™ PE solution therefore provided greater reassurance to Sydney Water that the deteriorated pipeline would be comprehensively renewed and no longer pose a threat to nearby Coogee beach.

Polyethylene is a recognised sewer and wastewater pipe material with proven properties of abrasion and corrosion resistance.

Extensive testing confirming the suitability of its use in the SPR™ PE configuration included pipe stiffness testing, tensile testing of the welded seam, impact testing, and deflected pipe environmental exposure.

SPR™ PE is an exciting innovation that extends the trenchless technology boundaries for the lining of deteriorated sewers.

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