

CASE STUDY

ICP BREATHE PROCESS CURED-IN-PLACE LINING SYSTEM

Background

The ICP Breathe Process is a cured-in-place lining system developed for the renovation of gravity sewers or pressure sewers of 0.5 bar or less including laterals and manholes.

The system consists of a resin-absorbent polyester quilt coated in an unsaturated polyester resin to form the liner. The liner is inverted and pressurised. Curing is carried out by spraying the inside of the liner with heated water.

Scope of assessment

To assess the performance of the ICP Breathe process based on WIS 4-34-04 for cured-in-place pipes.



Programme

1. A series of technical audits were carried out on the production facilities, quality control systems and materials storage in Japan.
2. A comprehensive type testing programme in conjunction with Hitachi Chemicals was carried out on samples from 150mm – 1350mm linings. In total over 200 type tests were completed.
3. Site visits were carried out to witness the installation of main pipe, lateral and manhole lining systems.
4. The design methods were evaluated and declared long-term modulus incorporated into the design equations.

Results

The technical audits confirmed that the ICP Breathe Process meets the requirements of WIS 4-34-04 and assessment schedule PT/70/0499 in sizes 150mm to 1350mm.

Certificate PT/70/0499 was awarded in April 1999 for the Shonan Gosei-Jushi Seisakusho K.K. ICP Breathe Process for cured-in-place lining of sewers, manholes and laterals.