

SPR™ ST CASE STUDY

'NO DIG' STRUCTURAL LINING FOR SAN DIEGO CULVERTS



SPR™ ST lining meant no disruption above or below ground

The County of San Diego had a serious problem on hand. How to rehabilitate two 910mm (36 in) storm culverts that had badly deteriorated while preventing any contamination to the stream running through the pipes.

The problem:

Two sections of 910mm (36 in) diameter corrugated metal storm culvert running under Honey Springs Road in San Diego County were on the verge of collapse.

The invert of the culvert had rusted out, and the supporting bedding soil had been eroded away.

Furthermore, the pipeline was under a road in an environmentally sensitive area where excavation and replacement was impractical.



The solution:

The County of San Diego decided to use SPR™ ST, the ISTT award winning system for large diameter culvert rehabilitation.

SPR™ ST provided the ideal solution, with:

- A strong structural liner suitable for pipes from 450mm (18 in) to 2500mm (100 in) diameter
- A liner with a circular cross section even in the most deteriorated or deformed host pipes
- A liner installed from existing access points, needing no excavation.
- A smooth bore liner providing better flow characteristics than the existing culvert.

The project:

SPR™ ST 126-20RS profile with steel reinforcement was selected for this project. Cementitious grout was used to fill the annulus between the existing culvert and the fixed diameter liner.

To alleviate concerns that grout may migrate into the stream running through the pipe, four tons of stone were used to rebuild the invert prior to lining. The invert was then sealed with quickset mortar.

Once this preparation work was completed, the winding process began. The winding machine was lowered behind the headwall, and plastic profile and the formed steel strip were fed to the SPR™ ST winding machine.

The project specified installation of a 840mm (33 in) outside diameter pipe liner, however deformation in the host pipeline precluded a liner this size.

Measurement showed that the largest fixed diameter liner that could be installed was 760mm (30 in).

The smooth bore of the SPR™ ST liner meant that this diameter reduction did not reduce flow capacity compared to the original corrugated metal culvert.



The patented SPR™ ST winding head was adjusted to the required diameter and the winding process commenced.

Installation of the liner was completed within a 12 hour period.

No excavation was necessary. The project was completed on time and on budget without any contamination of the local waters.

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