CASE STUDY

SANIVAR

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Client South West Water
Project Fowey Quay Pumping Station
Completion July 2019

OVERVIEW

Working with H50 South West Water's Capital Delivery Alliance, Sanivar UK have recently completed a project to refurbish a pressure pipeline at Fowey Quay in South Cornwall.

The project involved the restoration of a 300mm rising main, part of which was installed under the estuary as part of South West Water's Clean Sweep program some 20 years ago. A ductile iron section of the subsea pipeline had become badly corroded due to the saline environment and needed to be refurbished and reconnected to a new section of HDPPE pipe within the pumping station.

Without refurbishment the ductile iron pipe posed a significant risk of pollution in a shellfish estuary and H50 were seeking a 'no dig' solution to minimize customer disruption and avoid the prohibitive costs of accessing the main through traditional civils work.

CHALLENGES

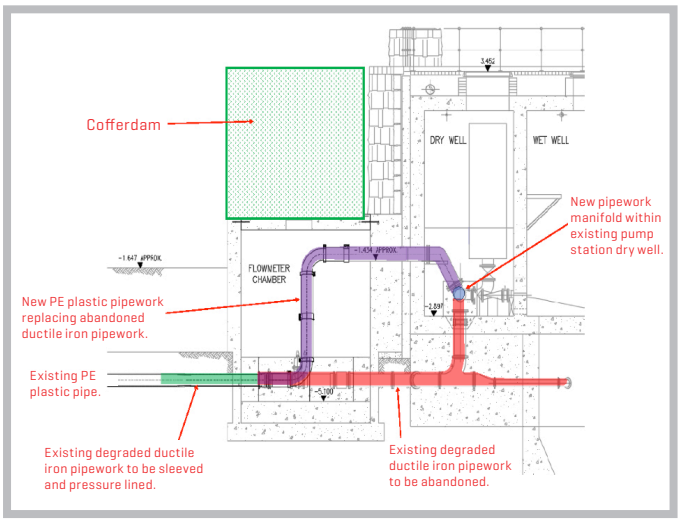
The project posed four significant challenges:

- Accessing the subsea pipeline and connecting to the newly installed HDPPE replacement pipe in a tidal estuary with a 3-hour working window
- Protecting the environment (a shellfish estuary) from pollution during construction and safeguarding throughout future operations
- Developing a solution that minimized customer impact and mitigated disruption to the local tourist economy
- Variations in quality and diameter of the pressure pipeline

Working with Pell Frischmann South West Water's consulting engineers, Sanivar proposed the use of their innovative Sanitube pressure pipe liner to re-line the subsea section of ductile iron pipe and anchor the lining to the inlet wall of the pumping station with a bespoke Sanigrip fitting which would facilitate a connection to new pipework within the works.

OUTCOME

Working with principle contractor Kier and Ex Jet the Sanitube liner was installed within a 3 day working window defined by tidal flows. Access to the subsea outlet was facilitated via a specially constructed coffer damn which extended the daily working window. The Sanitube liner was winched into the ductile iron pipe and inflated by compressed air, end seals were then installed to secure the liner in place and facilitate connection to the on shore pipe. Sanivar UK were on hand throughout the installation to provide specialist support and supervision.



OUTCOME...

Sanitube provided the only practical solution for this complex project due to :

- Flexibility provided by the liners ultra thin wall construction
- Durability – through a pressure rating in excess of 10 bar
- Efficiency – rapid installation enabled by lack of curing or wetting out processes
- Adaptability – was able to accommodate varying pipe diameters
- Sanivar's commitment to collaborative working and on site support

TESTIMONIAL

" Sanivar provided an innovative solution to a complex project, the flexibility of SaniTube and the ability to engineer a bespoke coupling ensured that the challenges were quickly overcome.

Fowey Estuary is one of the most unspoilt estuaries in Cornwell with rich and varied wildlife. This entire project was delivered with minimal disruption whilst protecting the estuary and it's wildlife throughout. "

Johnathan Hubbard- Sewerage Hydraulic Modeller at Pell Frischmann Consultants Ltd

The Project was awarded the Environmental Award at the 2019 UKSTT Awards.

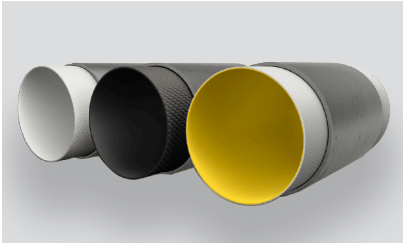
UKSTT 2019 UKSTT Awards Winner Environmental

DATA SHEET

SaniTube®

SaniTube®, the next generation CIPP pressure linings is a well proven technology that is ideally suited for the trenchless rehabilitation of pipelines across multiple sectors including water, gas, energy and industry.

Most pipe materials can be accommodated including cast-iron, ductile iron, steel, PVC and asbestos-cement pipes in diameters from DN25 to DN400.



KEY BENEFITS OF SANITUBE®

- A lining solution for pressurised pipelines (uti 16 bar)
- Can be used to navigate bends of up to 45 degrees
- 100% chemical-free installation process (no adhesives, resins such as epoxy, etc.)
- Minimises customer disruption through rapid installation
- A 'no dig' solution that mitigates health and safety risks associated with civil works
- Durable lining solution with a 50-year product guarantee
- Cost efficiency with install lengths up to 700m
- Regulation 31 for potable water use (pending)

TECHNICAL SPECIFICATIONS

Temperature	Water, petrol, oil and heating	Up to 70°C / Gas: up to 80°C
Material	Liner	Circular-woven hose made from 100% polyester fibers
	Coating	Extruded, thermoplastic polyurethane and polyethylene

TECHNICAL CHARACTERISTICS

Tensile strength, longitudinal	1000-1500 N/cm	**Wall thickness**	2.6 - 3.5 mm
Tensile strength, radial	800-2000 N/cm	**Diameter**	80 - 400 mm
Elongation at break, longitudinal	20-25%	**Max. installation length**	up to 700 m
Elongation at break, radial	40-50%		

Exact characteristics dependant on pipe material and diameters