CASE STUDY

from Southern Water

WATER for LIFE

Sealing pipes with Tubogel to **reduce groundwater infiltration in the Pan Parishes**

Background

The Pan Parishes are a group of villages west of Andover. The area is affected by groundwater infiltration. This is when excess groundwater finds its way into the sewer system through public or private pipework and causes the system to become overwhelmed. When the sewer system becomes overwhelmed, we use tankers to suck out the water and safely move it to our treatment works, but this can be disruptive for residents and is not a long-term solution.

We know that 25% of storm overflow releases are due to groundwater getting into the system, and this requires a different solution to storm overflows caused by rainfall. We needed to find a way to stop groundwater entering the system. We also wanted to find a solution that would cause the least impact on residents, while also providing effective and long-term results.

There is a lot of the sewage system that we do not own, so when we need to work on parts that are privately owned, we must first get permission from the homeowner or landowner, meaning collaboration was a big part of this project.

Our approach

- **Tubogel:** Traditionally, to work on sewer network we'd have to dig it up or reline. This would cause road closures, disruption, and a lot of expense. Tubogel is a new product used to seal pipework from the outside, meaning the pipe can be repaired without disruption.
- **Fixing leaks:** We set out to seal over 1.4km of leaking joints in the Pan Parishes this year to prevent excess groundwater entering and overwhelming the system. We've more than doubled our target and sealed over 3.4km of joints so far.
- **Private pipework:** We worked with customers and local authorities to seal over 1.2km of private pipework. We appreciate the cooperation of those who helped us make these changes.
- **Monitoring:** We've installed 30 temperature sensors so we can understand the relationship between groundwater and sewage. Sewage is generally warmer than groundwater, so the temperature sensors help us find out when there might be groundwater getting into a sewage pipe. We also drilled boreholes to measure groundwater level.

We use a flexible pipe camera to find damaged pipes

Tubogel explained

Tubogel is a two-part compound, meaning it works by one part reacting to the other. The first part is installed, which leaves a coating on the outside of the pipe through gaps, fractures or cracks. It's then followed by the second part, causing a chemical reaction to solidify the first part on contact. This process makes an extensive and enduring stone hard seal around any breaches or breaks in the pipe.

Using Tubogel guarantees a reliable and long-lasting seal on pipework, including systems that are inaccessible. This means expensive and disruptive construction and engineering processes are avoided.

Part one of the formula

Outcome

Work is ongoing and we expect to complete the project in early 2024. We're already seeing an improvement and have been able to reduce tankering in Pan Parishes as a result. We know tankers are an inconvenience, and we hope to continue this success in Pan Parishes and extend the project to other areas.

We'll continue to monitor the results through the sewer level monitors and boreholes we installed, and will use what we learn to inform similar projects in areas where groundwater infiltration is an issue.

Advantages

- Reduced pollution, CO_2 output and energy consumption.
- Lower cost and disturbance thanks to the 'no-dig' approach.
- Improved private pipework for residents.
- Less disruption for residents from tankers.

Costs

The project cost totalled £2.3 million, including the investigation into pipework, Tubogel relining and manhole repair. This is balanced by the estimated £1.3 million that will be saved over the next five years by using Tubogel instead of digging up infrastructure to repair it, as well as the other benefits above.

This is a large-scale project, with over 500 properties identified as needing their private pipework repaired. Although this pipework is not under Southern Water's ownership and is therefore the landowner's responsibility, we are covering the costs to make sure the project can move forwards on a large scale and without delays, making an instant and lasting impact.

Contact details

If you have any questions, please get in touch with our customer service team.

Contact us