Case Study

Holywell Row, Suffolk

SDS stormwater storage system brings to an end years of flooding endured by villagers

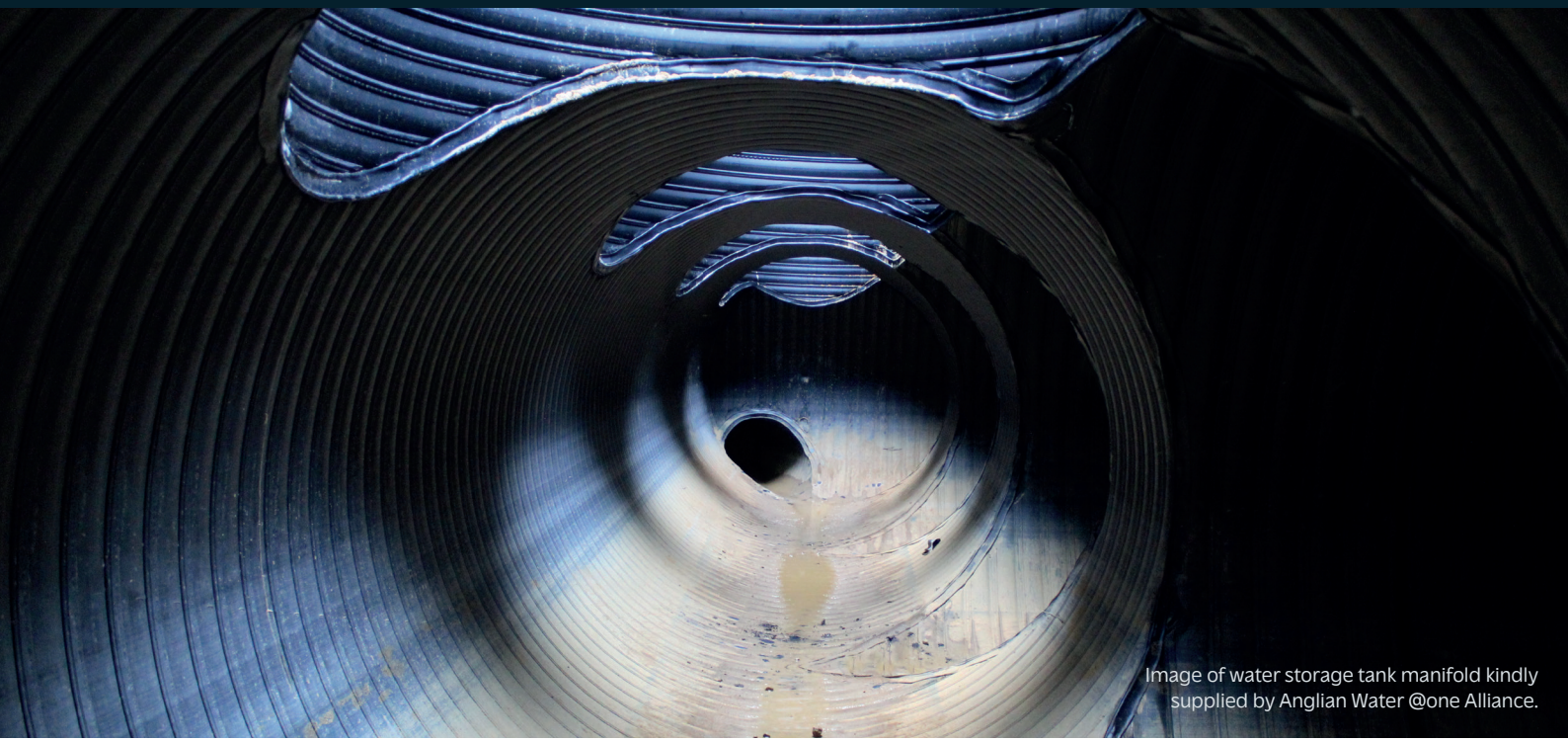

Image of water storage tank manifold kindly supplied by Anglian Water @one Alliance.

SDS Systems
SDS Weholite Attenuation Tank.

SDS Customer
Barhale.

Client
Anglian Water @one Alliance*.

Project
Holywell Row Water Treatment Works.

Purpose
To improve the underground drainage infrastructure across the Anglian Water region.

Brief to SDS
To increase capacity of the sewer network to accommodate additional stormwater.

Timing
Winter 2024/25.

Project Background Information
Anglian Water is the largest water utility company in England and Wales by geographic area, serving more than six million domestic and business customers in the East of England. The region is experiencing significant growth which is placing increasing pressure on an already stretched infrastructure. With only 600mm of annual rainfall, it is recognised as one of the driest, most water-stressed regions in the UK and is, therefore, particularly susceptible to water scarcity.

At Holywell Row, however, a small village near Mildenhall in Suffolk, unusually wet conditions, symptomatic of the UK's increasingly volatile climate, have compromised the efficient dispersal of stormwater such that the sewer system has, on regular occasions over the last five years, been overwhelmed and roads, driveways and gardens contaminated with raw sewage. Residents have even been dissuaded from using their baths and showers and flushing toilets for fear of exacerbating the situation and causing sewage to back up to, and empty from, toilet pans. Furthermore, a planned development of 139 new homes in the village will almost certainly add to the problem without any remedial works.

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Project Objectives

To protect homes and the local roads infrastructure from flooding.

Project Requirements

To provide increased resilience to more extreme rainfall and to accommodate the impact of new housing and growth in the village's population.

SDS Product Features

Located in a field opposite the wastewater treatment plant the installation of a Weholite HDPE storage tank, comprising of five interconnected, parallel rows of 45 metre long, 1,500mm diameter, pipes each equipped with a manhole at the manifold end, will provide capacity to hold 390,000 litres (almost 5,000 baths' worth) of water during heavy rainfall. Once weather and drainage conditions subsequently stabilise and the network frees up, the water will be transported through the pipes to the local recycling centre to be fully treated before being returned safely back into the environment.

Issues Overcome

Occasional pump blockages and pumping station failures had been complicit in the historic flooding issues, in particular the undersized Eldon Lane Pumping Station, which was unable to handle the increased flow from upstream pumping stations during storms. Issues and concerns, such as the site's location close to the off-limits US airbase at Mildenhall, associated with the multiple alternative solutions considered to address the pumping shortfalls, supported Anglian Water's decision to introduce an advanced off-line attenuation storage system connected to the upstream pumping station.

Results

By resolving the capacity limitations of the Eldon Pumping Station and bypassing the inundated existing sewer, the upgraded drainage system is now better equipped to handle peak flows during extreme rainfall events. The improvements made ensure reliable service even under challenging conditions, significantly reducing the likelihood of system failures and flooding incidents and thereby decreasing the financial burden of repair and recovery for homeowners whilst minimising disruption to daily life.

From an economic and social perspective, the project represents a substantial investment into the well-being of Holywell Row residents, enhancing their overall quality of life and fostering a sense of security within the community. It also helps protect local ecosystems and minimises the environmental consequences of stormwater runoff. This holistic approach ensures that the community's needs are met while preserving the natural environment for future generations.

Furthermore, by using carbon-friendly materials and removing the need to install a new pumping station and a 2.9km pipeline, a capital carbon reduction of 81% has been achieved.

Summary

The project is part of a larger £100 million programme of investment between 2020 and 2025, from which Anglian Water assigned £1.4 million for the purpose of preventing flooding by increasing the capacity of the local sewer network at Holywell Row to accommodate more frequent and intense rainfall events.

Within the company's 2025-2030 AMP Anglian Water has proposed a further £80 million of investment to address storm overflows in Suffolk. Focus areas of investment include creating more capacity in Anglian Water's network, storing excess water and treating it, and using natural solutions to protect rivers across the company's region, whilst also boosting the number of its field-based personnel.

*Note: The Anglian Water @one Alliance has been established as a nationally leading collaborative organisation of consultants and contractors working together to deliver the best infrastructure and non-infrastructure solutions for the whole region. Accounting for a significant portion of Anglian Water's capital investment programme, these involve the design and construction of water and wastewater treatment and recycling centres and the maintenance and improvement of the water mains and sewerage network in the region.

Xuan Li, Technical Manager - Water Recycling Infrastructure, Anglian Water @one Alliance, said: *"The flooding challenges at Holywell Row highlight the importance of investing in infrastructure that can adapt to modern demands. This project exemplifies Anglian Water's commitment to resolving systemic issues, empowering communities and preparing for the future. By combining innovative engineering with community-focused initiatives, they are not just solving today's problems but are laying the foundation for a resilient tomorrow."*

Images kindly supplied by Anglian Water @one Alliance and WaterProjectsOnline.