

Case Study

Stambourne, Essex

SDS stormwater storage infrastructure future-proofs rural wastewater recycling centre



SDS Systems

SDS Weholite Attenuation Tank;
SDS Weholite Manholes.

SDS Customer

Barhale.

Client

Anglian Water @one Alliance.

Project

Stambourne Wastewater Recycling Centre (WRC)
improvement works.

Purpose

To strengthen and modernise the wastewater network
serving Stambourne and the surrounding rural
catchment.

Brief to SDS

To provide a high-capacity underground stormwater
attenuation solution capable of operating effectively
within a restricted rural site.

The system needed to accommodate peak rainfall
events, integrate with the wider network upgrades, and
include suitable access points to support long-term
inspection and maintenance.

Timing

The project commenced in September 2024, with
the stormwater storage system and associated
infrastructure completed in 2025.

Project Background Information

Stambourne is a small rural village in north Essex
served by an existing wastewater network that extends
across a wide and sparsely distributed catchment and
which has gradually evolved over several decades. This
network essentially comprises of long sewer runs with
limited opportunities for flow balancing and storage;
typical of rural catchments such as this, a high level of
reliance is placed on a small number of critical assets to

maintain day-to-day performance and protect the local environment.

During periods of heavy rainfall, the Sturmer Watsoe Bridge Pumping Station, located downstream of the village, was operating close to its capacity, increasing the risk of network surcharge and localised flooding, and threatening the reliability of service afforded to the village. In addition, the Stambourne Wastewater Recycling Centre required upgrades to meet tighter environmental discharge standards, including limits on phosphorus as part of AMP7 regulatory requirements.

Hydraulic modelling identified that transferring flows into the wider Haverhill catchment alone, as had been the initial solution considered, would not sufficiently mitigate these pressures, as this risked overloading downstream infrastructure, including the Birdbrook Sewer Network.

Project Objectives

To deliver a resilient, long-term solution that will protect a rural community with limited redundancy in its infrastructure, and ensure reliable service for residents now and into the future. Furthermore to address the inability of the Stambourne Wastewater Recycling Centre to meet updated Environmental Permitting Regulations (EPR) for phosphorus under AMP7.

Project Requirements

To provide sufficient additional stormwater storage to retain peak rainfall flows and enable controlled return to the network once conditions normalise. The solution also needed to integrate with wider infrastructure upgrades, including pumping improvements and flow redistribution to the Haverhill catchment, while being suitable for installation within a constrained rural site with challenging ground conditions.

SDS Product Features

SDS supplied a bespoke Weholite attenuation system comprising 243 metres of 2.6m diameter structured wall pipe, including seven 15m and one 9m straight sections, five 175° bends, a tank manifold, and seven 1,200mm diameter Weholite manholes to provide access for system inspection and maintenance. The system, installed within a single elongated trench on former agricultural land, delivers a total storage capacity of 1,290m³ and is designed to attenuate storm flows before controlled discharge back into the network via a downstream flow control. The lightweight yet structurally robust HDPE construction enabled efficient installation while providing long-term durability suited to the site's rural setting and operational demands.

Platipus Percussion Driven Earth Anchors (PDEA®) were included as an anti-flotation measure. These lightweight, corrosion-resistant ground anchors were installed, using portable equipment from ground level and with minimal soil disturbance, to secure the attenuation tank against uplift forces in high groundwater conditions and ensure the long-term structural stability of the system.

Issues Overcome

The project presented a number of construction challenges associated with subsurface conditions, site access and coordination with ongoing infrastructure works.

Dense, compacted ground required the use of pre-augering, Movax sheet piling and impact hammering to enable safe excavation and installation. In addition, the rural location required careful management of access routes, temporary traffic controls and public rights of way.

Close coordination between project stakeholders ensured that installation of the attenuation system aligned with the wider programme of works, while the use of specialist and hybrid plant helped to reduce construction-related emissions and site disturbance.

Stambourne WRC's failure to meet updated EPR created a clear compliance risk and, if left unresolved, would most likely have led to environmental impacts and future operational issues. Once the new system had been commissioned, the former Stambourne WRC was fully decommissioned and its permit surrendered, removing the phosphorus compliance risk ahead of the December 2024 deadline.

Results

The completed Weholite attenuation system provides 1,290m³ of stormwater storage, significantly reducing the risk of network surcharge and flooding during periods of heavy rainfall.

By managing peak flows, the system protects downstream infrastructure, including the Sturmer Watsoe Bridge Pumping Station and Birdbrook Sewer Network, while supporting compliance with environmental performance requirements.

The inclusion of multiple access manholes improves operational visibility and simplifies ongoing maintenance, supporting long-term asset management.

Overall, the solution enhances the performance and reliability of the wastewater network, delivering a robust and efficient outcome suited to the demands of a rural catchment.

Adrian Butler, Project Design Manager, Anglian Water, said: "SDS's expertise and high-quality Weholite system played an important role in delivering additional stormwater storage at Stambourne. The solution supports improved network performance, reduces flood risk and provides a reliable, long-term asset for this rural catchment. The team worked collaboratively throughout and responded effectively to the challenges presented on site."