

# Storm Tank Programme

## Anglian Water's £96m investment across 112 sites to increase capacity and manage stormwater surges during extreme weather events

by Anglian Water's @one Alliance

Anglian Water serves the East of England, a region known for its flat terrain and susceptibility to climate-related challenges such as flooding and heavy rainfall. As one of the UK's driest regions, managing water effectively is crucial not only to ensure supply but also to prevent the detrimental effects of surface water and storm surges. To address these challenges, Anglian Water launched a bold initiative to modernise and expand its storm tank infrastructure at the start of AMP7. With an investment exceeding £96 million, this programme involves the construction and upgrading of 112 storm tanks across the region.



New stormwater storage tank from Hayes GFS Ltd and (foreground) base preparation for a second tank - Courtesy of Anglian Water's @one Alliance.

### Background

The primary goal of the programme of work is to enhance the capacity to manage stormwater surges during extreme weather events; minimising the risk of flooding and protecting local watercourses. This forward-thinking programme underscores Anglian Water's commitment to resilience, sustainability and safeguarding communities in the face of increasingly unpredictable weather patterns.

### The problem

Stormwater events pose a significant challenge to the region's water infrastructure. During periods of heavy rainfall, the increased flow into combined sewer systems can overwhelm our Water Recycling Centres (WRC), leading to stormwater discharges into rivers and coastal areas. These events, if unmanaged, can result in pollution events, damage to aquatic ecosystems and huge disruption to local communities with flooding that we serve day in day out.

Anglian Water identified sites where the existing storm tank capacity was insufficient to meet regulatory expectations.

Without intervention, these sites were at risk of non-compliance, environmental penalties and reputational harm.

### The solution phase

Anglian Water tasked the Anglian Water's @one Alliance to provide a robust solution to these issues. The Storm Tank Programme was split into a series of individual projects, each designed to meet the unique demands of its location while adhering to a consistent programme approach to maximise efficiency and resource management. Below are the key solution components implemented across the 112 sites included within the programme.

**Storm tank construction and upgrades:** At the core of this programme was the construction of new storm tanks and the enhancement of existing ones. The majority of the new tanks were above ground glass coated steel tanks. The tanks were supplied and designed by Hayes and were designed to provide additional storage capacity during peak flows, preventing untreated water from entering natural watercourses. Hydraulic profiles and modelling were used to determine optimal tank sizes and configurations for

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each site. Above-ground tanks were all constructed from ground level upwards to avoid the teams working at height.

**New infrastructure features:** As part of the delivery of these projects, each site required varying enhancements to the current infrastructure. These included:

- New side weir storm overflows were installed from the feed channel upstream of the existing flow-to-full treatment flow meters, to help manage the incoming flow into some of the storm tanks.
- During the engineering optioneering and detailed design phase (prior to construction), the teams looked into ways to reuse and recycle as much as possible. At some of the WRC's, existing assets were converted into new storm tanks to provide part of the additional volume required. For example, at Cotton Valley WRC in Milton Keynes two primary settlements tanks were converted into permanent storm tanks via core connections between the tanks which reduced the required size of the new asset.
- As part of the delivery of the projects, new storm pumps were installed, including submersible feed pumps which were capable of handling storm flows up to 1900 l/s to the new glass coated steel (GCS) tanks from Hayes GFS Ltd.
- Where required, new storm return pumps and return pipework were provided which, once the storm event had subsided, would allow the storm tanks to be emptied and take flows back to the works for treatment.

**Cleaning & maintenance systems:** As part of the commitment to the Anglian Water's operational teams, many cleaning and maintenance systems were provided. These included new manual washing systems, wash-water feed pumps, new tank cleaning system with externally mounted nozzle rings, as well as modifications to the existing tanks for cleaning.

**Upgraded infrastructure:** Many of the projects required critical installations, including transformers, motor control centres (MCCs) and advanced pumping stations. These would ensure effective stormwater transfer and flow management during peak conditions while minimising the environmental impact.

#### AMP7 Storm Tank Programme: Supply chain - key participants

- **Project delivery:** @one Alliance
- **Civil works:** Bell Formwork
- **Storm tanks:** Hayes GFS Ltd
- **MEICA:** Kemada Project & Contract Services Ltd
- **MEICA:** Field Systems Design Ltd
- **MEICA:** Glasswell & Last Ltd
- **MEICA:** Waveney's
- **Access steelwork/platforms:** Cobra Engineering (UK) Ltd
- **MCCs:** CEMA Ltd | TES Group | Paktronic Engineering Co Ltd
- **Power upgrade:** Power Testing
- **Pipework:** Freeflow Pipesystems Ltd
- **Pipework:** Saint Gobain PAM
- **Pipework:** Powerrun Pipe-Mech Ltd
- **Temporary generator for power upgrade:** Stuart Power

#### Benefits of the storm tank solution

**Flood risk mitigation & community protection:** The overriding benefit to the installation of the new storm tanks is that stormwater storage capacity has been significantly increased. This reduces the risk of sewer overflows within the catchment and around the WRCs which helps to protect the local communities, ecosystems and infrastructure from the damaging effects of stormwater.

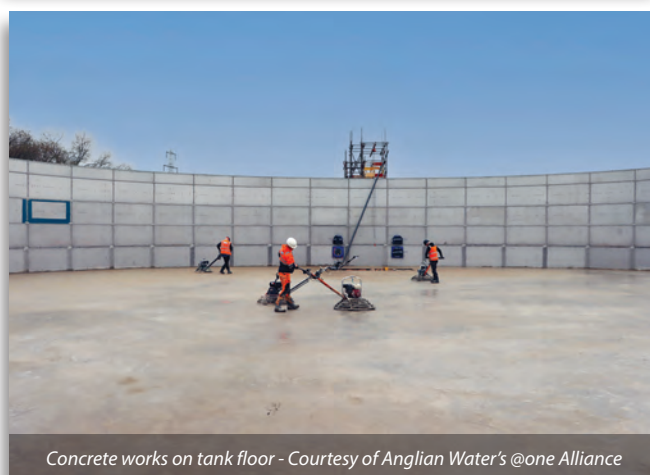
By effectively managing stormwater, the Storm Tank Programme has safeguarded against potential flooding, ensuring a more resilient environment for Anglian Water's customers.



Inside a stormwater storage tank - Courtesy of Anglian Water's @one Alliance



New return pipework - Courtesy of Anglian Water's @one Alliance



Concrete works on tank floor - Courtesy of Anglian Water's @one Alliance



Access platform - Courtesy of Anglian Water's @one Alliance





*New stormwater storage tank from Hayes GFS Ltd - Courtesy of Anglian Water's @one Alliance*

**Regulatory compliance & environmental standards:** The delivery of this huge programme ensures Anglian Water's compliance with rigorous environmental regulations, by enhancing the resilience of the Water Recycling Centres and meeting strict discharge standards. This helps maintain the integrity of the WRCs while supporting long-term environmental sustainability to the entire region.

**Environmental protection & cleaner waterways:** Through introducing and installing the controlled stormwater management, the volume of pollutants entering local watercourses has been significantly reduced.

This not only protects ecosystems but also contributes to cleaner waterways, benefiting wildlife and communities alike.

#### Summary

The £96m Storm Tank Programme undertaken by Anglian Water's @one Alliance is a shining example of how proactive investment in infrastructure can address critical environmental challenges. By expanding stormwater storage capacity, integrating advanced

technologies, and prioritising safety and sustainability, this initiative safeguards communities while protecting the region's precious water networks.

The programme's success underscores the importance of collaboration, innovation, and a long-term vision in overcoming complex challenges. With the realities of climate change, Anglian Water's commitment to resilience serves as an inspiring benchmark for the water industry; building a future where water management is smarter, safer, and more sustainable for everyone.

*The editor and publishers would like to thank Anglian Water's @one Alliance for providing the above article for publication.*

*The @one Alliance is a collaboration of eight partner companies that each provide specialist knowledge allowing the Alliance to deliver complex delivery projects in the most efficient way, reducing the cost to Anglian Water's customers. The partners are Anglian Water Asset Delivery, Balfour Beatty, Barhale, Binnies, Mott MacDonald Bentley, Sweco, Skanska, and MWH Treatment.*



*Interconnecting pipework between new stormwater storage tanks and the head of the treatment works - Courtesy of Anglian Water's @one Alliance*