

Perth (Tay Street/Shore Road) Super Sewer

supporting the city's continuing growth and reducing the risk of sewer flooding affecting low-lying areas near the Tay between Muirton and the city centre

by John Townshend, Navraj Athwal & Paul Milligan

Perth, often referred to as the Fair City due to Sir Walter Scott's novel, is situated along the banks of the River Tay in Perthshire, Scotland. Whilst the city has an approximate population of 47,350, the Perth City Plan aims to increase the population to about 60,000 by the year 2035. To facilitate this growth, Scottish Water has made investments to ensure the necessary capacity for new homes and businesses to connect to the sewer system, while also enhancing the network's resilience against severe rainstorms. This initiative is being executed by Scottish Water's alliance partner, Caledonia Water Alliance.



Construction works being undertaken between the River Tay and adjacent businesses and properties - Courtesy of CWA

The solution & project scope

Scottish Water required delivery partner Caledonia Water Alliance (CWA) to install 550m of new overflow sewer along Tay Street and Shore Road in Perth's city centre, which would reduce the stress on the current network during heavy rainfall. At a cost of £18m the solution involved the installation new and upsized 2.2m diameter sewer pipe close to the River Tay.

Construction started in July 2023 and was completed in June 2025 and CWA was required to maintain pedestrian access to the adjacent businesses and properties at all times.

The scope included:

- 550m of 2.25m diameter hybrid plastic steel pipe pipework from Aquaspira Ltd.
- Seven bespoke manholes installations up to 4.1m deep to formation level.
- Two phases of over pumping to complete the pipework and manhole installations.

Aquaspira steel reinforced pipe

Traditionally, pipes of this diameter would be concrete, however, the selected pipework was reinforced steel composite pipe from AquaSpira Ltd.

The advantages of utilising these lightweight yet robust composite pipes for the Perth Super Sewer included:

- Reducing product mass over a concrete solution by more than 5,000 tonnes.
- Savings of over 200 tonnes of carbon.
- Reducing excavation by approximately 25% and reducing installation time by approximately 8–10 weeks. At 2.6m long, the pipe sections coupled with push-fit fittings could be handled more swiftly and by smaller machines.

All the pipework was connected via bespoke concrete manhole chambers which will allow flows through both the new and existing networks. CWA also installed three turret pipes, which act as a view chamber for operatives who need to inspect the line.



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Overpumping set up - Courtesy of CWA

Over-pumping

To complete the sections of pipework and construction of manholes, an over-pumping set up was installed to divert flows from the existing sewer line to then allow construction without any disruption. This was designed and installed by Selwood and comprised four pumps capable of pumping 955 l/s, two generators, a vacuum motor, a control panel and a telemetry system.

- Phase 1 required 150m of pipework to complete the construction of two manholes chambers.
- Phase 2 required 400m of pipework to allow the construction of remainder of the manholes and a 50m section of online pipework replacement.

Trench support/piling works

Cofferdams were required to install all the pipework and manhole. These were constructed by Mabey Hire Ltd using 6m piles and the standard cofferdams were 5m x 3m at a typical depth of 4m.

Perth Super Sewer: Supply chain - key participants

- **Project delivery:** Caledonia Water Alliance (CWA)
- **Structural design:** AECOM
- **Civils:** M-Group Water
- **Cofferdams & temporary works:** Mabey Hire Ltd
- **Reinforced steel composite pipe:** Aquaspira Ltd
- **Precast concrete:** FP McCann Ltd
- **Over-pumping:** Selwood
- **Plant hire:** Bedrock Plant Hire | GAP Plant
- **Welfare units:** Wernick Group
- **Security:** Proficient Security Ltd
- **Traffic management:** Contraflow Ltd

Pipe laying through urban environments

The sewer pipeline was laid within public highways, through city centre streets. The project had to consider the most efficient and safest methodology of working in such areas and it became clear that this would involve significant lane closures, traffic management and likely disruption through the centre of Perth.

A close relationship was developed with the local roads authorities with plans put in place to allow such major road closures. In conjunction with the project's Customer Communications Team, information on the closures, diversions and timelines were issued to nearby residents whilst the wider public were informed through VMS and radio adverts.

Customer communications & social value

Local residents have been kept informed throughout all phases of the project. A public information event was held in the Salutation Hotel before the work commenced, allowing customers to discuss the upcoming project with professionals from both CWA and Scottish Water. Regular one-on-one with local businesses were carried out.

The over-pumping set up in close proximity to residential tenements proved challenging and extensive pre and post-condition surveys were offered to all residents.

Conclusion/summary

By super-sizing a 500m section of the trunk sewer next to the River Tay, Scottish Water and CWA have provided additional capacity for new development while also alleviating sewer flood risk that affects customers. This phase of works forms part of a wider programme of investments by Scottish Water to support the growth of Perth.

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Shore Road cofferdam 16: Aquaspira reinforced steel composite pipe installation - Courtesy of CWA



After reinstatement - Courtesy of CWA