Blindcrake

Infiltration Reduction Plan

Last Updated: December 2025

United Utilities

Water for the North West

Executive summary

Blindcrake in Cumbria is currently in the monitoring stage (see Figure 1) to address infiltration and reduce spills at the Blindcrake Wastewater Treatment Works Storm Tank Overflow (017570023ST). An initial desktop assessment concluded that infiltration was likely and reducing infiltration in this area would be significant enough to reduce spill frequency at the overflow. CCTV surveys have confirmed infiltration, and the latest remedial works were completed in Winter 2025.

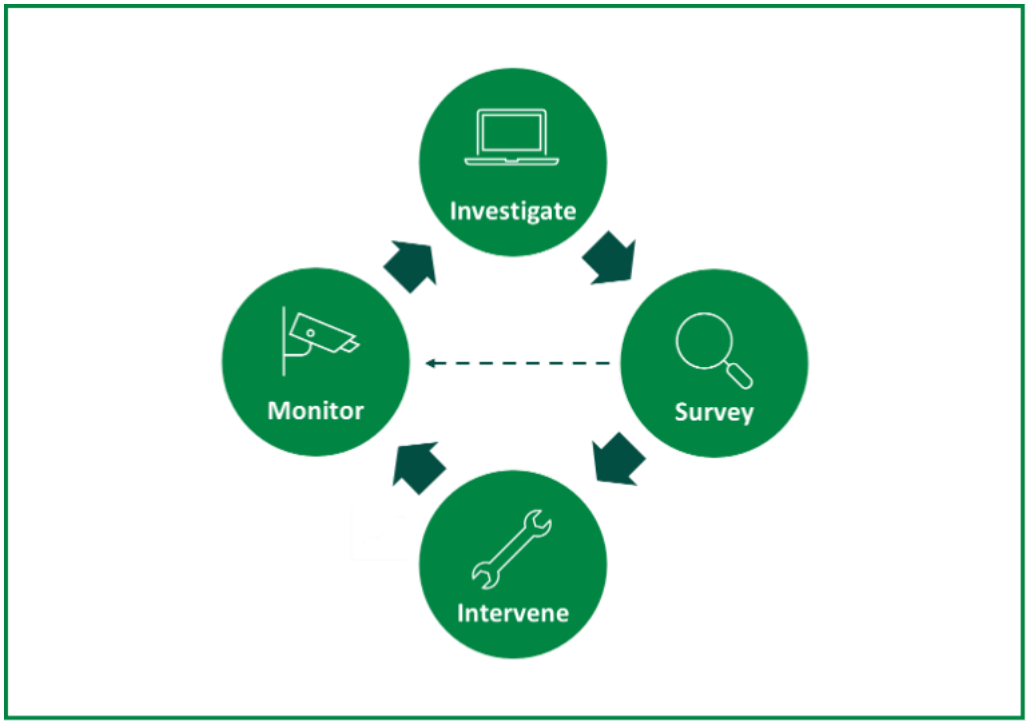

Figure 1: Iterative process to investigate, identify and address groundwater infiltration

Context

Sometimes, water can enter our wastewater pipes for which they were not designed to receive. One source of these additional flows can be groundwater infiltration which can occur through pipe defects, leaky joints, or issues with manholes. Extra water in the network can cause the sewer capacity to be exceeded, leading to sewer flooding or contributing to storm overflow activations.

As part of our ongoing work to maintain an effective network and achieve Better Rivers for the North West, our Infiltration Reduction Plans demonstrate our efforts to date and next steps to address infiltration and inflows in the catchment. This plan covers the Blindcrake drainage area and its associated overflow, the Blindcrake Wastewater Treatment Works Storm Tank Overflow. In 2022, infiltration was identified as a potential leading cause of the storm overflow discharging. The purpose of this plan is to further investigate and address this, and to capture the process to investigate, identify and address significant groundwater infiltration.

Figure 2: United Utilities – Better Rivers – Storm Overflow Map (September 2024). The green dot marks the Blindcrake Wastewater Treatment Works Storm Tank Overflow.

Blindcrake sits just north of the River Derwent, with Gill Beck running into the village. It is near the northern edge of the Lake District National Park and is surrounded by farmland and scenic countryside.

Investigate

A desktop study was undertaken using available data to understand the extent of infiltration in the sewer network of the drainage catchment. The following data (where available) was analysed to determine the scale and location of potential infiltration:

- Relevant flow and depth data
- Operational information
- MCERTS Data
- Hydraulic models of the catchment
- River Levels
- Groundwater (borehole) data
- Spill analysis
- Topographical and Sewer maps

The assessment concluded that infiltration is likely in the catchment. There were several indicators of groundwater infiltration in the system as well as infiltration driven by rainfall. The assessment also identified areas of the catchment where sewers are in proximity to or cross local watercourses.

From these findings, it was recommended that CCTV surveys be completed to identify potential infiltration sources.

The spill analysis suggested that reducing infiltration in this area would be significant enough to reduce spill frequency at Blindcrake Wastewater Treatment Works Storm Tank Overflow. However, the contribution of groundwater infiltration to the modelled baseflow used in this assessment can only be determined following further investigation.

Survey

As recommended, we completed 650m of CCTV surveys in Autumn/Winter 2024 and infiltration was identified. The CCTV surveys were reviewed by an engineer and assessed using Artificial Intelligence to rapidly identify and locate points of infiltration requiring remedial works. Several points of linear infiltration were identified, with varying degrees of severity, and remedial works recommended to seal the sewer. It should be noted that surveys capture a point in time and severity of infiltration can change based on the time of the year and seasonal ground water levels as well as recent weather events prior to surveys taking place.

The network was also checked for inflows and lateral connections; none are suspected of receiving flows not bound to receive and all appear to be combined customer laterals or highway drainage.

A second survey was completed in Autumn/Winter 2025. We completed 732m of CCTV surveys and additional infiltration was identified. Remedial works have been recommended as a result of this and are to be completed in Winter 2025/26.

Intervention

Remedial works to address the initial infiltration found were completed in Summer 2025. 425m of the sewer network was lined to prevent infiltration and a manhole chamber was sealed.

Additional remedial works were completed in Winter 2025. This involved lining 209m of the sewer network.

Next steps

Blindcrake is currently in the monitoring stage of identifying and addressing infiltration. The site will follow the iterative process displayed in Figure 1 to monitor the efficacy of the remedial works completed to date and identify new points of infiltration, should they arise.