Ireby

Infiltration Reduction Plan

Last Updated: October 2026



United Utilities

Water for the North West

Executive summary

Ireby in Cumbria is currently in the monitoring stage (see Figure 1) to address infiltration and reduce spills at the Ireby Wastewater Treatment Works Storm Overflow. An initial desktop assessment concluded that there was a possibility of groundwater infiltration. CCTV surveys confirmed the presence of infiltration, and interventions were completed in Spring 2025.

As groundwater infiltration has been found but is yet to be confirmed as a leading cause of spills to environment, interventions have been completed to address the localised infiltration identified during the 2024 surveys. As more is known on the results of the interventions, this Infiltration Reduction Plan will be updated accordingly.

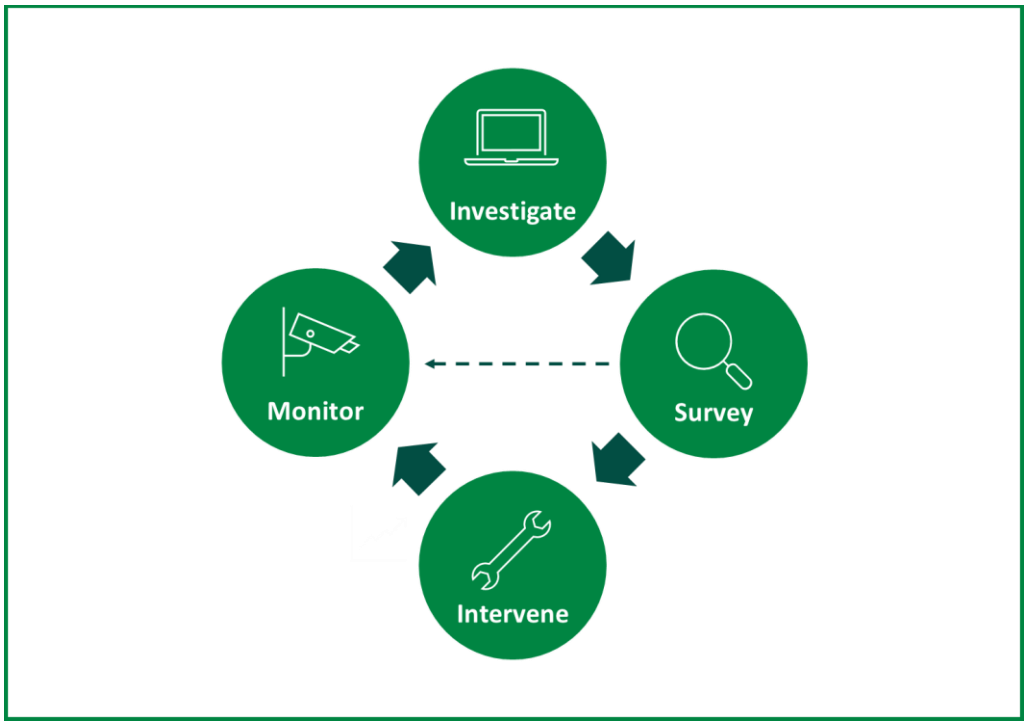


Figure 1: Iterative process to investigate, identify and address groundwater infiltration

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 Ireby drainage area and its associated overflow, Ireby Wastewater Treatment Works Storm Overflow. Infiltration has been identified as a potential leading cause of the storm overflow discharging. The purpose of this plan is to capture the process to investigate, identify, and address significant groundwater infiltration.

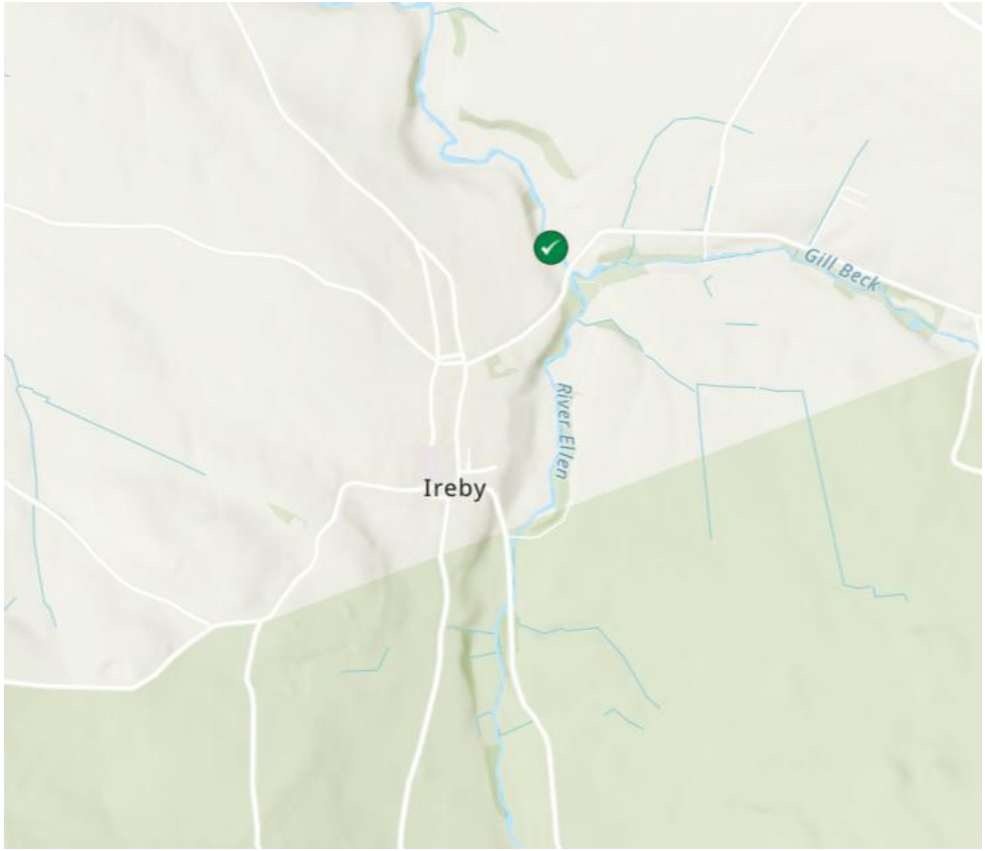


Figure 2: United Utilities – Better Rivers – Storm Overflow Map (January 2026). The green dot marks the Ireby Wastewater Treatment Works Storm Overflow

Ireby is situated just outside the northern border of the Lake District National Park in the Cumberland district. The village sits higher than the River Ellen, which borders Ireby to the east.

Investigation

An initial 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 found evidence of seasonally varying baseflow infiltration. It also found points where sewers crossed open fields; if this land became saturated, defects in pipes could allow infiltration. CCTV surveys were recommended to check if there was any infiltration from the watercourse into the sewer network. CCTV surveys could also identify if there was land drainage connected into the sewer, which would be assessed for removal.

Survey

277m of CCTV surveys were completed in Autumn 2024. The CCTV surveys were assessed using Artificial Intelligence to rapidly identify and locate points of infiltration. The surveys were then reviewed by an engineer to assess for any required remedial works. Several points of infiltration were identified in the sewer network, and interventions were recommended as a result.

The network was also checked for inflows; no lateral connections are suspected of receiving flows not bound to receive.

Intervention

As recommended, remedial works were completed in Spring 2025. This involved lining 80m of sewers to seal the network and prevent infiltration.

Next steps

Ireby is currently in the monitoring stage of identifying and addressing infiltration (see Figure 1). The site will follow the iterative process displayed in Figure 1 to monitor the efficacy of the completed interventions and identify new points of infiltration, should they arise.