Low Hesket

Infiltration Reduction Plan

Last Updated: October 2026



United Utilities

Water for the North West

Executive summary

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

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

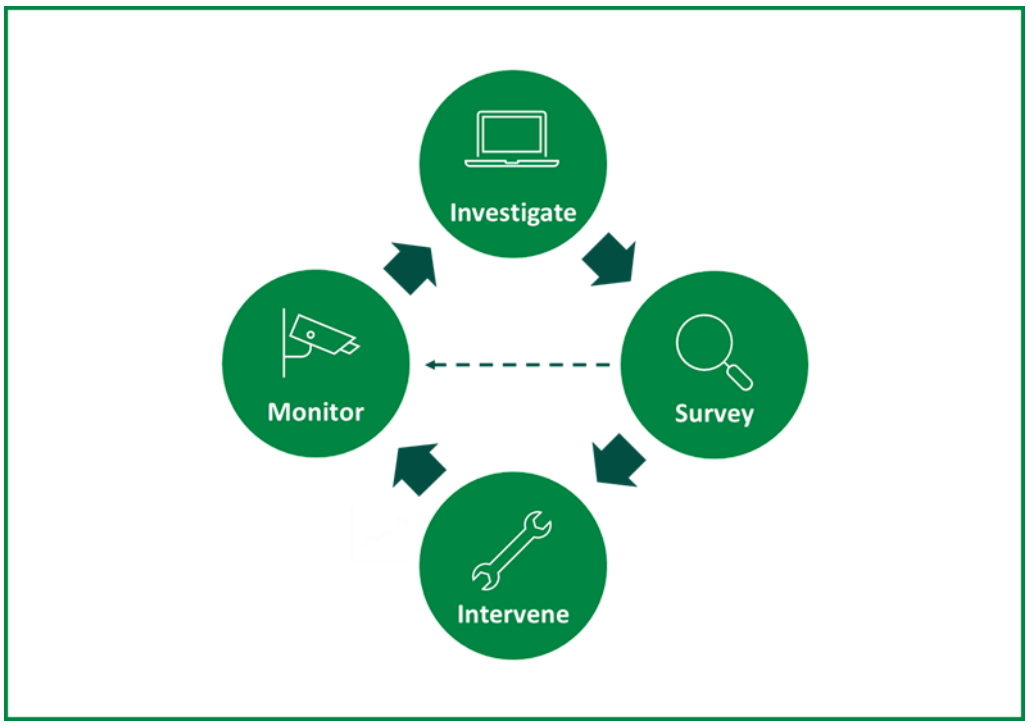


Figure 1: Iterative process to investigate, identify and address groundwater infiltration

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 Low Hesket drainage area and its associated overflow, Low Hesket Wastewater Treatment Works Storm Overflow. In 2022, infiltration was 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.

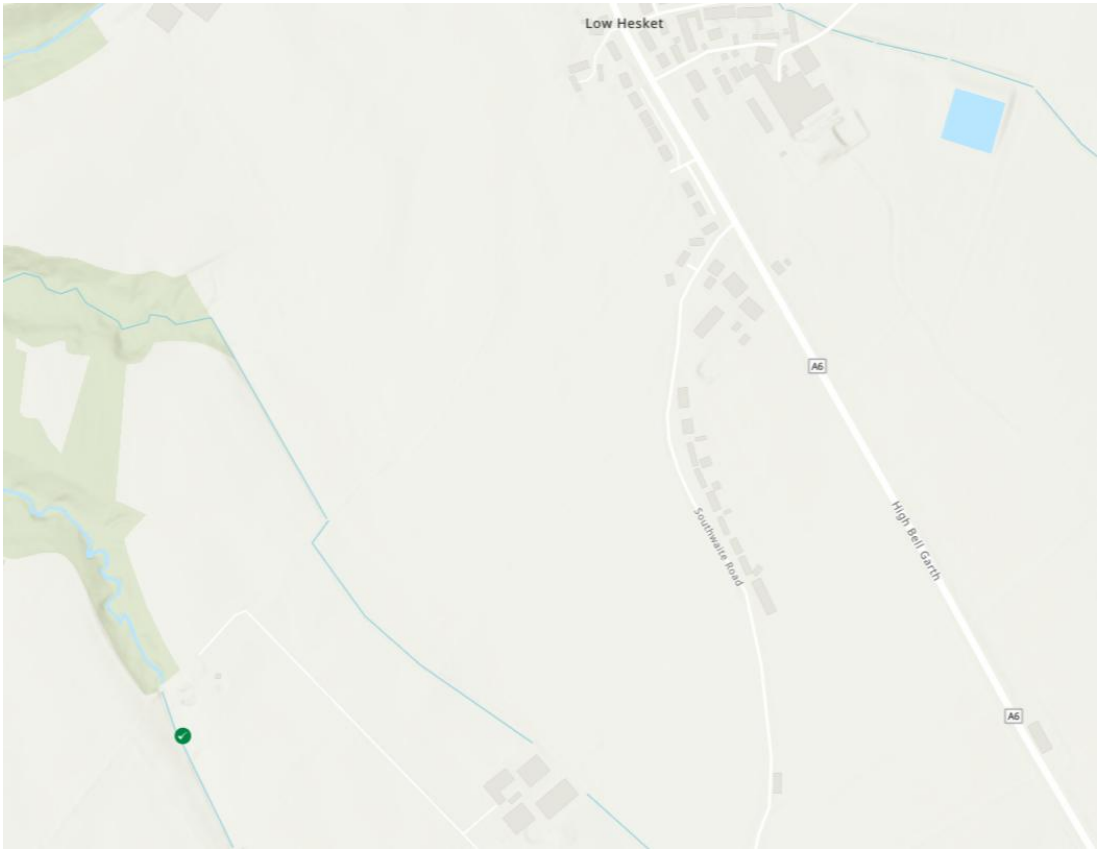


Figure 2: United Utilities – Better Rivers – Storm Overflow Map (October 2024). The green dot marks the Low Hesket Wastewater Treatment Works Storm Overflow

The village of Low Hesket shares a catchment area with High Hesket to the south. It lies east of the River Petteril with Barrock Gill flowing through the village.

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 concluded that significant infiltration was unlikely in the catchment. However, there were some areas of the catchment where rural streams and ditches crossed or ran close to sewers. Interactions of these watercourses with the sewer network via highway gullies or sewer defects could contribute to flows in the network.

From these findings, it was recommended that CCTV surveys be completed to check that flow from the watercourses wasn't entering the sewer system via defects. CCTV surveys could also identify if there was land drainage connected into the sewers, which would be assessed for removal.

Survey

As recommended, 731 metres of CCTV surveys were completed in winter 2024. The surveys were assessed using artificial intelligence (AI) to rapidly identify and locate points of infiltration. They were then reviewed by an engineer to assess for any required remedial works. Infiltration in the sewer network was confirmed, and remedial works were recommended.

The network was also checked for any unexpected inflows, and no lateral connections were identified as receiving water they were not intended to receive.

Intervention

Interventions were completed in autumn 2025. This involved lining 67 metres of the sewer network to prevent infiltration.

Next steps

Low Hesket 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 completed interventions and identify new points of infiltration, should they arise.