

**Low Hesket**

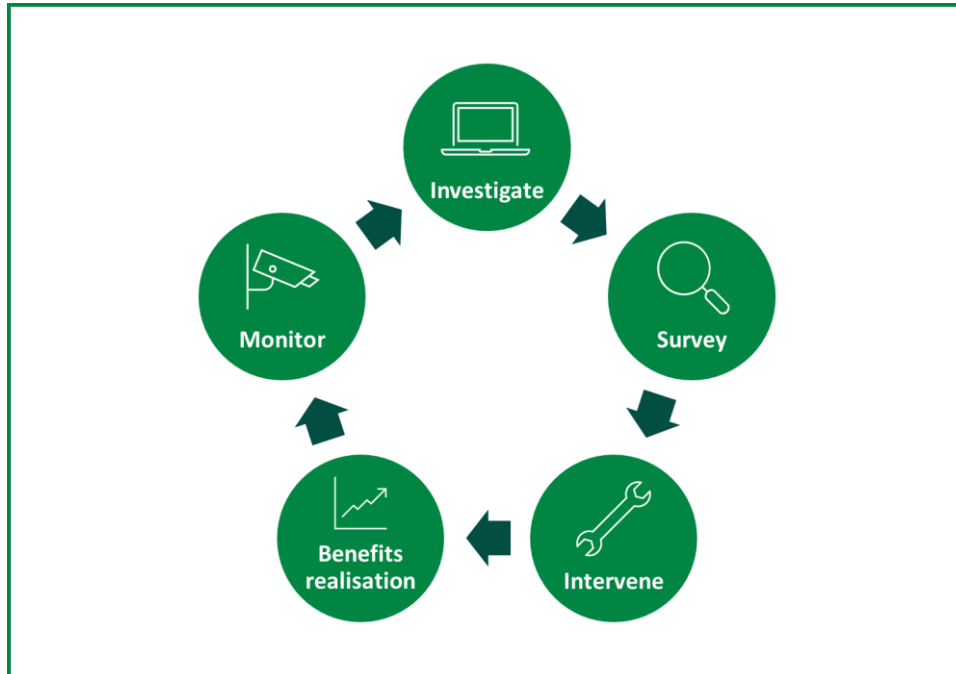
# **Infiltration Reduction Plan**

**Last Updated: March 2025**



## Executive summary

Low Heskett in Cumbria is currently in the intervention stage (see Figure 1) to address infiltration and reduce spills at the Low Heskett Wastewater Treatment Works Storm Overflow (017670104SO). A desktop assessment concluded there is a low likelihood of infiltration in the catchment however CCTV surveys have confirmed infiltration, and remedial works are due to be completed in Spring / Summer 2025.



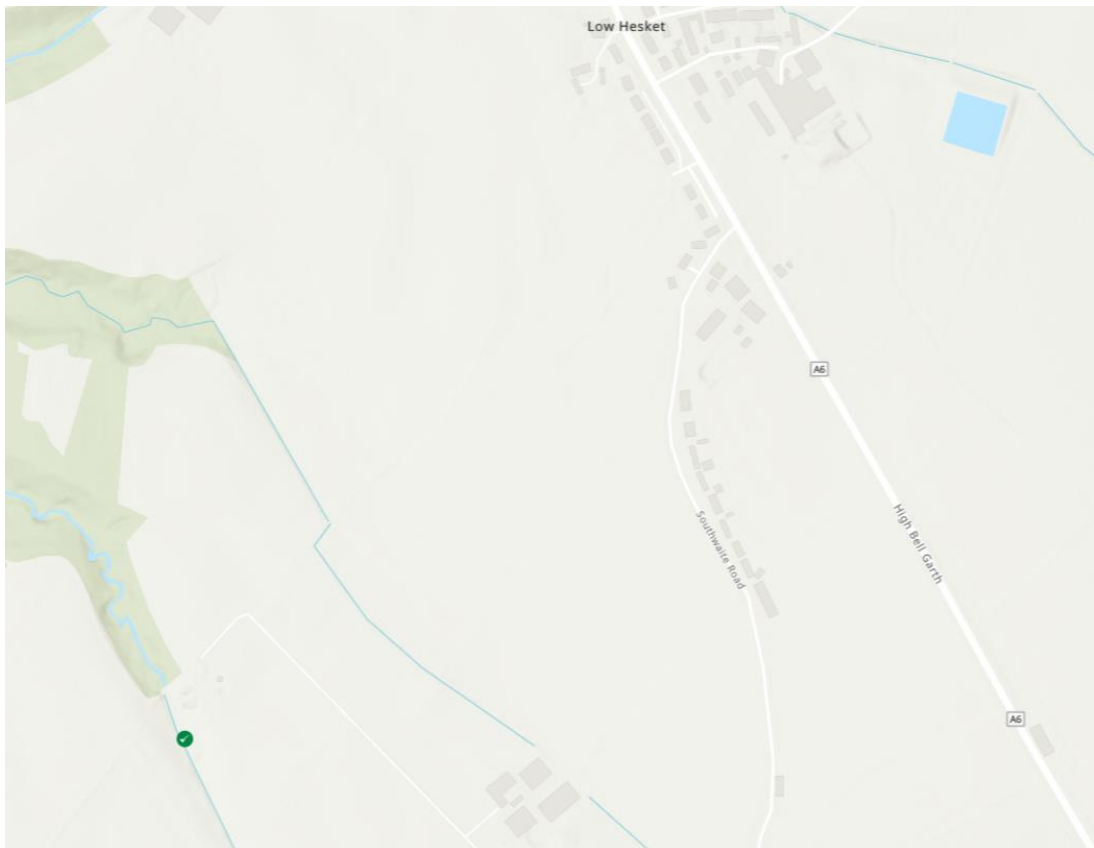
**Figure 1:** Iterative process to investigate, identify and address groundwater infiltration

## Context

Sometimes, water can enter our wastewater pipes that 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 Heskett drainage area and the associated overflow, Low Heskett Wastewater Treatment Works Storm Overflow (017670104SO).

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. If groundwater infiltration is found to be a leading cause of spills, interventions will be assessed and this Infiltration Reduction Plan will be updated accordingly. If not, this plan will end at the survey stage and next steps will be processed through other relevant workstreams.



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

## 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 significant infiltration was unlikely in the catchment and spill frequency is not related to infiltration. However, there were some areas of the catchment where rural streams / ditches cross or run close to public sewers. Potential interactions of these water courses with the sewer via highway gullies or defects could contribute to flows in the network.

From these findings, it was recommended that further site investigations could include CCTV surveys to confirm that flow from the streams does not enter the sewer system via defects.

## Survey

As survey works were recommended through the desktop investigations, 731m of CCTV surveys were completed in Winter 2024 and identified areas of infiltration within the catchment. The CCTV surveys were reviewed by an engineer and assessed using Artificial Intelligence to rapidly identify and locate points of infiltration requiring remedial works. Infiltration in the sewer network was confirmed.

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

## Remedials

Remedial works to address infiltration are expected to be completed in Spring / Summer 2025. Remedial works at Low Heskett could include, but not be limited to, relaying sewers, lining sewers, sealing manholes or disconnecting inflows, the best methods for the specific points of infiltration are currently being assessed.

## Next steps

Low Heskett is currently in the intervention 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 and identify new points of infiltration, should they arise.