Blennerhasset

Infiltration Reduction Plan

Last Updated: June 2026

United Utilities

Water for the North West

Executive summary

Blennerhasset in Cumbria is currently in two separate stages of the iterative process (see Figure 1) to address infiltration and reduce spills at the Blennerhasset Pumping Station Storm Overflow.

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 confirmed the presence of infiltration.

Remedial work is in progress to address infiltration found in the first stage of surveys and is due to be completed in Summer 2026. A second stage of surveys is also underway to look for additional infiltration.

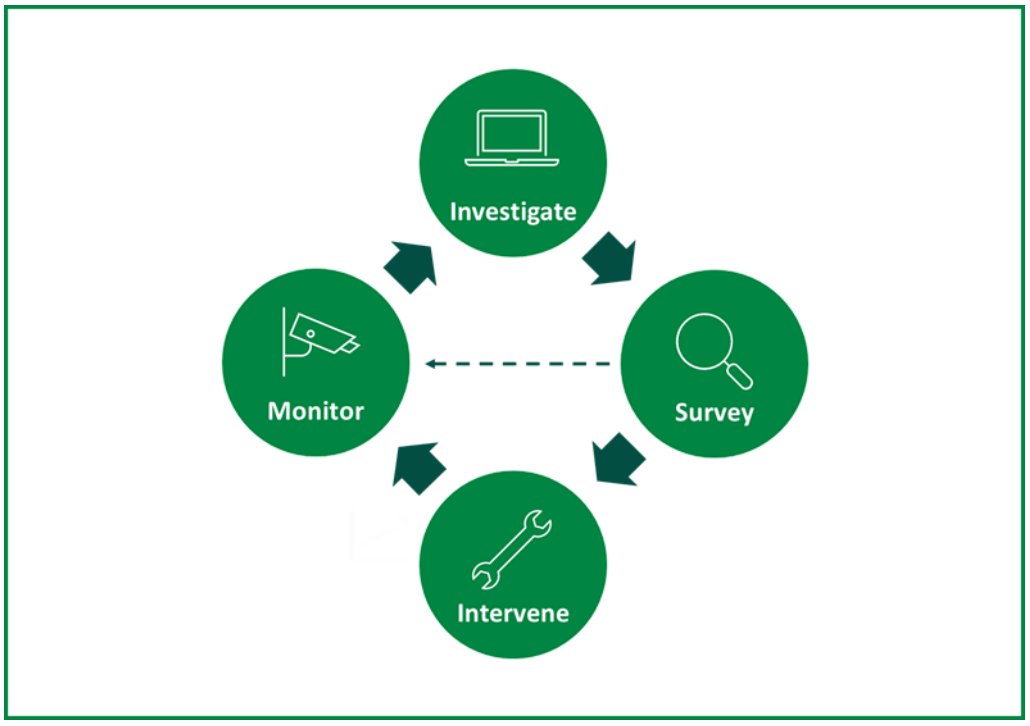

Figure 1: Iterative process to investigate, identify and address groundwater infiltration

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 Blennerhasset drainage area and its associated overflow, Blennerhasset Pumping Station 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 Blennerhasset Pumping Station Storm Overflow

The village of Blennerhasset lies on the River Ellen. It sits at the edge of the Lake District National Park, about ten miles inland. The area is predominantly rural, featuring agricultural and scenic land.

Investigate

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 infiltration was likely in the catchment. There were several indicators of groundwater infiltration in the system, as well as infiltration driven by rainfall. The assessment also indicated that spills may be partly driven by rural runoff and identified areas of the catchment where public sewers crossed the local watercourse.

From these findings, it was recommended that CCTV surveys be completed to identify potential infiltration sources. CCTV surveys would also identify if there was infiltration from watercourses into the sewer, where pipes cross the watercourses.

The spill analysis suggested that reducing infiltration in this area would be significant enough to reduce spill frequency at Blennerhasset Pumping Station Storm Overflow. The contribution of groundwater infiltration to the modelled baseflow used in the assessment could only be determined following further investigations.

Survey

As recommended, 810m of CCTV surveys were completed in Winter 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 linear infiltration were identified, with varying degrees of severity. Remedial works were 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 no lateral connections were suspected of receiving flows not bound to receive.

A second stage of CCTV surveys was started in November 2025 and is due to be completed in Summer 2026. The surveys will look for further infiltration and, if found, additional remedial works will be planned.

Intervention

Remedial works to address infiltration were started in Spring 2025 and are due to be finished in Summer 2026. To date, 605m of the sewer network has been lined in order to prevent infiltration.

Next steps

Blennerhasset is currently in the intervention stage to address infiltration (see Figure 1). It is also in a second stage of surveys to identify any further infiltration. If surveys find further infiltration in the network, additional remedial works will be planned.