Cartmel

Infiltration Reduction Plan

Last Updated: January 2026

United Utilities

Water for the North West

Executive summary

Cartmel in Cumbria is currently in the survey stage (see Figure 1) to address infiltration and reduce spills at the Cartmel-in-Cark Pumping Station Storm Overflow (LAK0099SO). An initial desktop assessment found evidence of infiltration and determined that the spill frequency of the overflow could be reduced if infiltration was addressed. CCTV surveys were completed in Autumn 2025 and are currently being reviewed to determine which interventions are required.

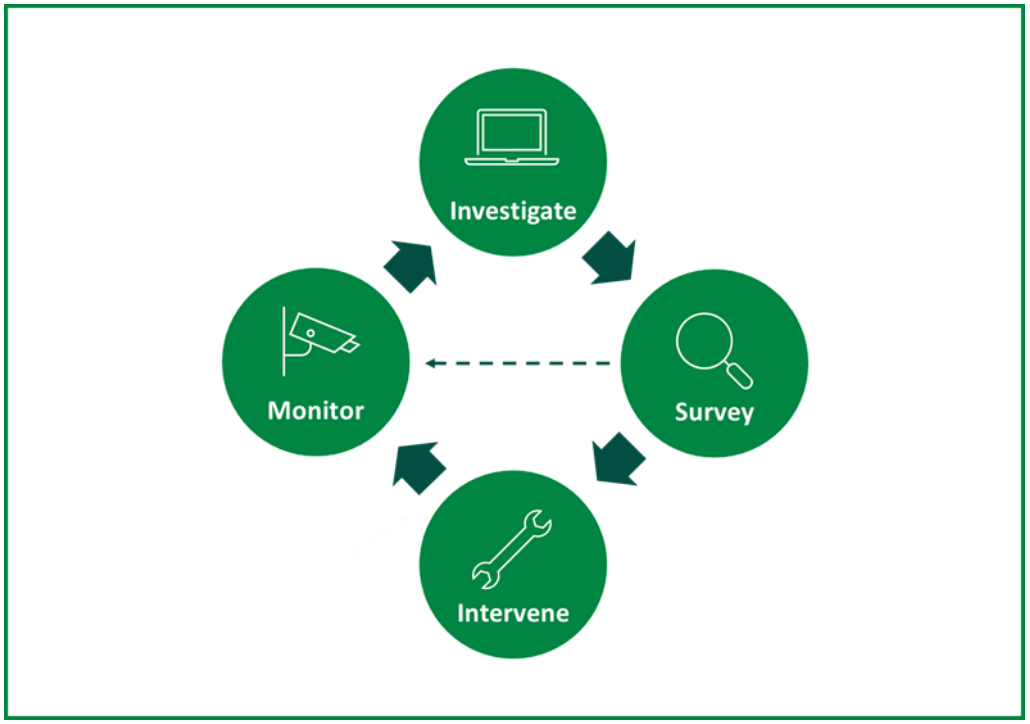

Figure 1: Iterative process to investigate, identify and address groundwater infiltration

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 Cartmel drainage area and its associated overflow, Cartmel-in-Cark Pumping Station Storm Overflow (LAK0099SO). 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.

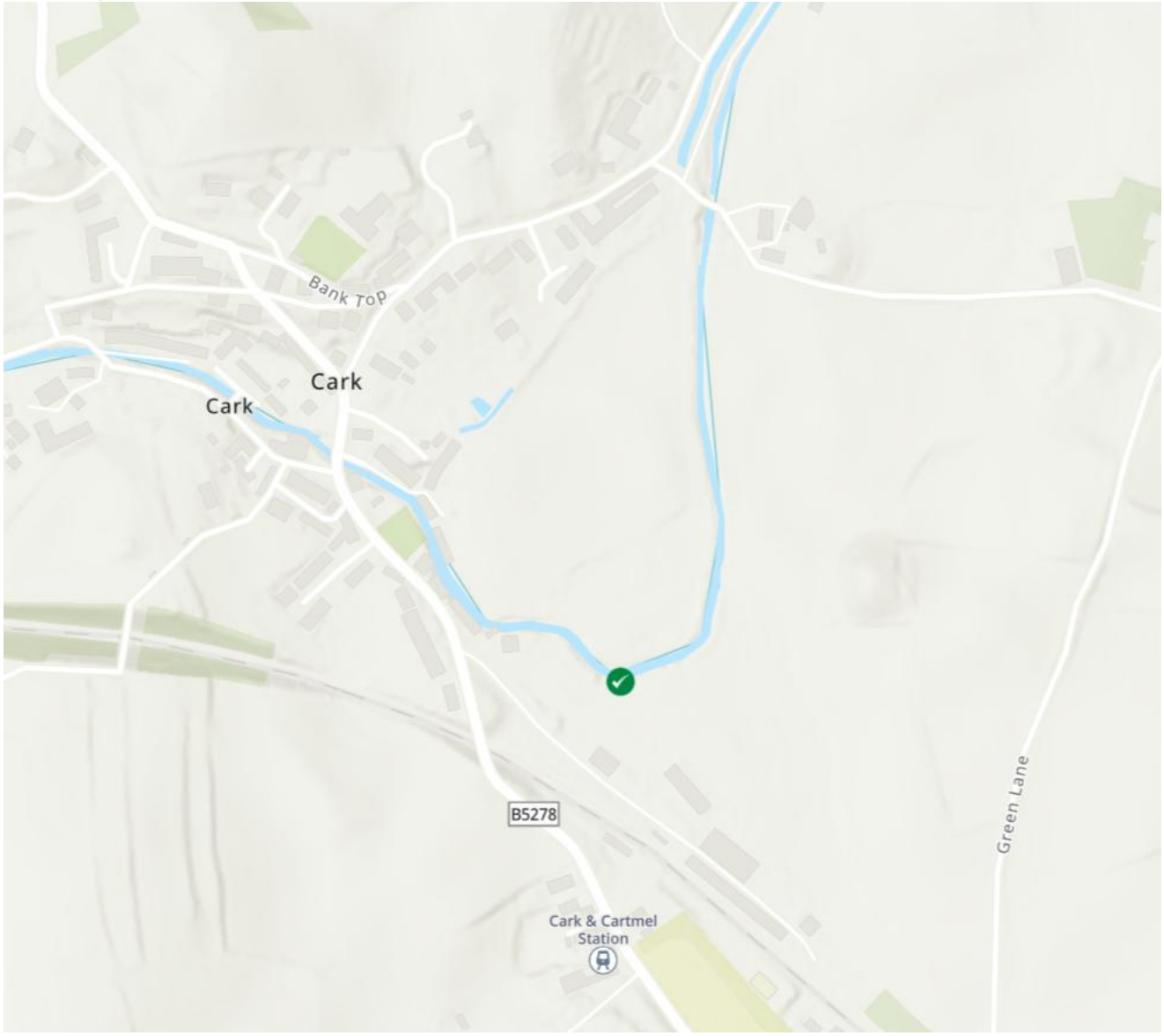

Figure 2: United Utilities – Better Rivers – Storm Overflow Map (January 2026). The green dot marks the Cartmel In Cark Pumping Station Storm Overflow

The village of Cartmel is situated 3km west of the coast, on the north side of Morecambe Bay. It sits just south of the Lake District National Park. Cartmel lies in a shallow valley between Hampsfell and Ellerside. The River Eea flows south-westerly through the village at a high level and receives tributaries from the north.

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 significant evidence of rainfall-induced infiltration; this could be due to very slow response runoff or below-ground ingress due to soil saturation. Evidence was also found of base infiltration in the area.

The assessment identified points where sewers run adjacent to or cross watercourses; these could be sources of infiltration. It was recommended that surveys be undertaken to determine if there was any infiltration from the watercourses.

CCTV surveys were recommended to verify if infiltration was present. The CCTV surveys can also identify if there is land drainage connected into the sewer, which would be assessed for removal.

Survey

As recommended, 3,481m of CCTV surveys were completed in Autumn 2025. The CCTV surveys are being assessed using Artificial Intelligence to rapidly identify and locate points of infiltration requiring remedial works. The CCTV is being reviewed by an engineer and required interventions are being assessed.

Next steps

Cartmel is currently in the survey stage of identifying and addressing infiltration. Interventions are being assessed and will be undertaken if required. The site will then continue follow the iterative process displayed in Figure 1 to identify any new points of infiltration, should they arise.