

Cerne Abbas Infiltration Reduction Plan Summary

This provides an update on the last year's groundwater situation, what mitigation actions, if any, were taken and a summary of our action plan to prevent flooding due to groundwater infiltration of our sewer network.

April 2021 – March 2022

Winter groundwater levels across the region were relatively low, with peak levels comparable to the winters of 2014/15 and 2016/17. Following high groundwater levels during the preceding winter, groundwater levels rose again in May 2021 with a monthly rainfall 66% above the long-term average (LTA) (fourth highest UK May rainfall on record). This particularly affected areas in the north of the region. During the autumn, heavy rainfall in October (33% above the LTA) caused groundwater levels to rise. However, below-average rainfall between November 2021 and March 2022 meant that most catchments were not severely affected by infiltration. The groundwater in Cerne Abbas did not reach critical levels, however the pumping station wet well reacted to rainfall events. The pumps coped with the inflow and no incidents due to inadequate hydraulic capacity (IHC) were reported.

Action Plan

Annual activity

- Review asset and operational data and update annual reports.
- Continue monitoring system performance using telemetry, rainfall records and local groundwater levels.
- Communicate with other authorities during times of elevated groundwater levels and promote a multiple agency approach.

Completed to date

- Proactive inspection using CCTV of vulnerable public sewers.
- Analysis of inspection data to identify infiltration.
- Analyse flows in sewers using flow survey and modelling.
- Commission pump station survey and asset update.
- Appraise incidents of sewer and surface water flooding.
- Review of historic telemetry and rainfall records.
- Carry out significant infiltration sealing of sewer and manholes where deemed cost-effective, targeting work according to study findings.
- Raise awareness about mechanisms of sewer overloading and need for risk-based approach for improvements.
- Routine review of telemetry and compare with borehole, watercourse, rainfall data and customer incidents to assess infiltration levels.
- Monitored local watercourse data and groundwater levels during periods of inundation to inform operational mitigation plans.
- CCTV and targeted infiltration studies according to analysis from previous surveys and telemetry data.

	2011-2020	2020-21	2021-22
Length of sewer inspected (m)	5016	-	1959
Length of sewer sealed (m)	594	-	-

Short term

- Undertake rehabilitation work based on the survey findings where cost beneficial.
- Investigate watercourse monitoring in the local area.
- Analyse flows in the sewers using flow surveys and modelling where appropriate.
- Further infiltration sealing according to study findings.

Medium term

- Identify road gullies and other impermeable areas connected into the foul sewers and remove them where cost effective.
- Commission pump station surveys where necessary.
- Investigate the use of Artificial Intelligence to code CCTV footage, increase survey efficiency and help identify defects and hotspots.
- Use of machine learning and rainfall forecasting to predict flows in sewers.

Long term

- Inspection of private gullies, drains, and manholes.
- Remedial works of private assets.
- Monitor and regulate surface water deposal to prevent foul sewer infiltration.
- Consider sustainable solutions.

Current Performance

This graph shows incidents against groundwater level (as measured at Barcombe Farm borehole) and inflow at Cerne Abbas Water Recycling Centre (WRC). Prior to sewer sealing in March 2015 and March 2016, to prevent infiltration, there was a strong correlation between groundwater level and inflow to Cerne Abbas WRC. The sealing has reduced the infiltration in the catchment as the number of flooding incidents recorded as due to inadequate hydraulic capacity (IHC) has reduced significantly. However, there remains a correlation between groundwater level, as was particularly evident in 2019/20.

