

Milborne St Andrew 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 2022 – March 2023

2022-23 was a year of extremes for the Wessex Water region. One of the driest summers since 1976 was followed by one of the wettest autumn-winter in last 10 years. This caused groundwater levels to rise in mid-January to a level comparable with 2013/14, with many catchments suffering from groundwater inundation.

As the winter progressed, the [driest February in 30 years](#) enabled many sites to recover, before the [wettest March since 1981](#) resulted in a sharp increase in groundwater levels. This late wet period particularly affected sites in the northern and eastern parts of the region.

The Milborne St Andrew catchment reached critical levels in 2022/23, with the river bursting its banks in mid-January. Tankering and the Operational Mitigation Action Plan (OMAP) was implemented to reduce sewer levels, prevent flooding and to protect public health.

Action Plan

Annual activity

- Pro-active maintenance of vulnerable sewers including routine jetting.
- Promotion of multiple agency approach. Regular meetings with LLFA and other risk authorities where appropriate.
- Continue monitoring system performance using telemetry and rainfall records.
- Produce infiltration reduction update reviewing asset and operational data.

Completed to date

- Proactive inspection using CCTV of vulnerable public sewers undertaken.
- Appraisal of flooding incidents.
- Reviewed and discounted local watercourse monitoring as a possible indicator of groundwater levels and trigger levels
- Pro-actively inspected public sewers as set out in Sewerage Risk Management Manual.
- Analysed survey data to identify infiltration.
- Analysis of sewer flows using telemetry
- Carried out manhole and sewer infiltration sealing of the public network, where deemed cost-effective.

- Carried out sewer infiltration sealing of private laterals, where deemed cost-effective.
- Pump station surveys and asset updates.
- Informed customers on the mechanisms of sewer overloading and need for a risk-based approach to improvements. Wessex Water infiltration [video](#) added to website.
- Reviewed existing borehole data in the area.
- Routine review of telemetry compared with other data to assess residual levels of infiltration.
- Communicated with other authorities during times of elevated groundwater levels.
- Liaise with the Environment Agency with regards to their ground water warning modelling and service
- Initiated monitoring of local watercourses to indicate local groundwater levels and inform operational mitigation plans.

	2013-2018	2018-19	2019-20	2020-21	2021-22	2022-23
Length of sewer inspected (m)	597	4001	-	1249	87	1664
Length of sewer sealed (m)	734	22	-	16	152	-

Short term

- Use of machine learning and rainfall forecasting to predict flows in sewers.
- Appraisal of any flooding incidents.
- Further pro-active inspection of sewers.
- Review long term options for monitoring and improving data collection, for example EDM
- Investigate the use of Artificial Intelligence (AI) to code CCTV, increase survey efficiency and help identify defects and hotspots
- Website messaging and localised alerts introduced during very high groundwater periods.
- Undertake further infiltration and manhole sealing where cost effective.
- Investigate property-level protection for high groundwater periods.

Medium term

- Commission further pump station surveys and asset updates
- CCTV and targeted infiltration studies according to analysis from previous surveys and telemetry data.
- Inspect private gullies, drains, and manholes where applicable. Where areas of infiltration in private drainage systems are found, pass information on to the Council for further action.
- Commission pump station surveys where necessary.

Long term

- Remedial works of private assets
- Monitor and regulate surface water disposal to prevent surface water to foul misconnections
- Inspection of private gullies, drains and manholes
- Consider sustainable solutions such as above ground attenuation
- CCTV and targeted studies according to analysis from previous surveys of s105a sewers

Current Performance

This graph compares flooding due to inadequate hydraulic capacity (IHC) and blockage incidents with Barcombe Farm borehole ground water level and the flow at Milborne St Andrew Water Recycling Centre (WRC) (13212).

There is a strong correlation between groundwater level and inflow at the WRC, which shows the impact of infiltration in the network. Multiple rounds of sewer sealing have had a positive impact, as seen by a reduction in the number of reported incidents attributed to IHC. However, groundwater infiltration remains a significant issue: tankering was required in the winter of 2019/20 and the OMAP was instigated in 2022/23, to protect public health and prevent loss of service.

