Barton St David 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 2023 – March 2024

Regional Summary

The Wessex region experienced incredibly wet weather across 2023-24, with higher-than-average rainfall in nine months during the period. February 2024 was both the warmest on record and the wettest in 30 years, with the 12-month sequence to the end of February being the wettest since our records began in 1911.

Groundwater levels rose rapidly during the autumn, and whilst drier weather in January 2024 provided a brief reprieve, levels remained high for the majority of the winter.

Warmest February on record for England and Wales - Met Office

Local Summary

Barton St. David Sewage Pumping Station (SPS) recorded high wet well level and an increase of the pumps activity across the 2023/24 winter, correlating with exceptionally high ground water levels. Several incidents attributed to inadequate hydrualic capacity were recorded as a result of inundation of the sewer network.

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 to inform the operational response during high-groundwater periods, and to monitor changing infiltration levels in the catchment.
Use machine learning to predict flows in sewers and proactively identify blockages and other issues.
Install in-sewer monitors at key locations to better understand flows in the network.
Undertake review of incidents of sewer flooding suspected to be affected by groundwater infiltration.
Undertake pro-active cleaning (jetting) of sewers to maximise capacity.
Proactive inspections and maintenance of sewerage assets.

Completed
Installed permanent flow meters at key pumping stations to continuously record pump performance.
Installed sealed covers on manhole chambers vulnerable to overland flow or river water entering through the cover.

Completed (cont.)
Updated the catchment hydraulic model.
Sealed sewers and manholes to prevent groundwater infiltration.
Inspected public sewer network to identify points of infiltration.
Undertaken pumping station or flow surveys to analyse flows in sewers.
Inspected private gullies, drains or manholes to identify points of infiltration.
Upgraded pumping stations where appropriate, to improve the reliability and performance of the site.

Short Term
Infiltration sealing of sewers and manholes, where deemed cost-effective, targeting work according to study findings.

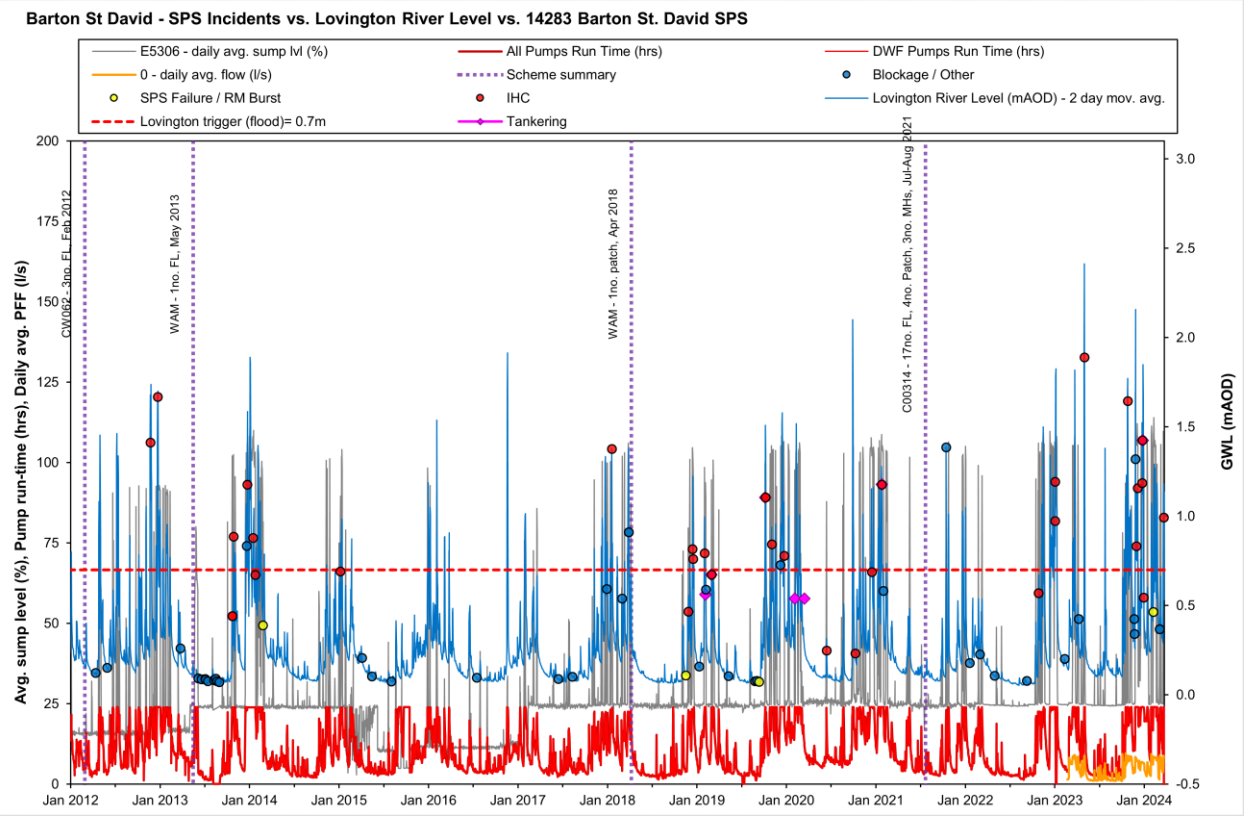
Medium Term
Undertake pro-active inspection of public sewers and manholes using CCTV to identify points of infiltration.
Analyse flows in sewers using pumping station surveys, flow surveys and/or hydraulic modelling.

Long Term
Identify road gullies and other impermeable areas that are connected into the foul sewers.
Inspect private gullies, drains, and manholes where applicable.
Consider sustainable solutions to rainwater management, for example above-ground attenuation and property-level interventions.

When Necessary
Implement emergency tankering procedure for preventing restricted toilet use and sewer flooding during high groundwater periods, in order to protect public health.
Implement Operational Mitigation Action Plan (OMAP) for discharging excess flows to the environment as a last resort, when tankering would not prevent restricted toilet use or sewer flooding, and public health is at risk.

Current Performance

The graph compares operational incidents against the river level at Lovington and the flow at Barton St David Sewage Pumping Station. Telemetry at Barton St David shows a strong correlation with river levels, demonstrating the impact of infiltration on the network. River levels and local groundwater were very high during the winter of 2022/23 and 2023/2024, resulting in an increase of incidents attributed to inadequate hydraulic capacity (IHC) despite sealing works in the catchment carried out in August 2021.



Inspection and sealing since 2011

	2011-20	2020-21	2021-22	2022-23	2023-24
Length of sewer inspected (m)	10,853	-	2,567	75	138
Length of sewer sealed (m)	30	-	890	-	-