

Brent Knoll 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

The groundwater levels in Brent Knoll catchment reached critical levels during 2023/24 and one incident attributed to Inadequate Hydraulic Capacity (IHC) was reported during this period.

Action Plan

Annual Activity

Review asset and operational data and update annual reports.

Undertake pro-active inspection of public sewers and manholes using CCTV to identify points of infiltration.

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.

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.

Sealed sewers and manholes to prevent groundwater infiltration.

Highway outfalls inspected and cleared of silt build-up

Completed (cont.)

Inspected private gullies, drains or manholes to identify points of infiltration.

Short Term

Install in-sewer monitors at key locations to better understand flows in the network.

Medium Term

Analyse flows in sewers using pumping station surveys, flow surveys and/or hydraulic modelling.

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

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

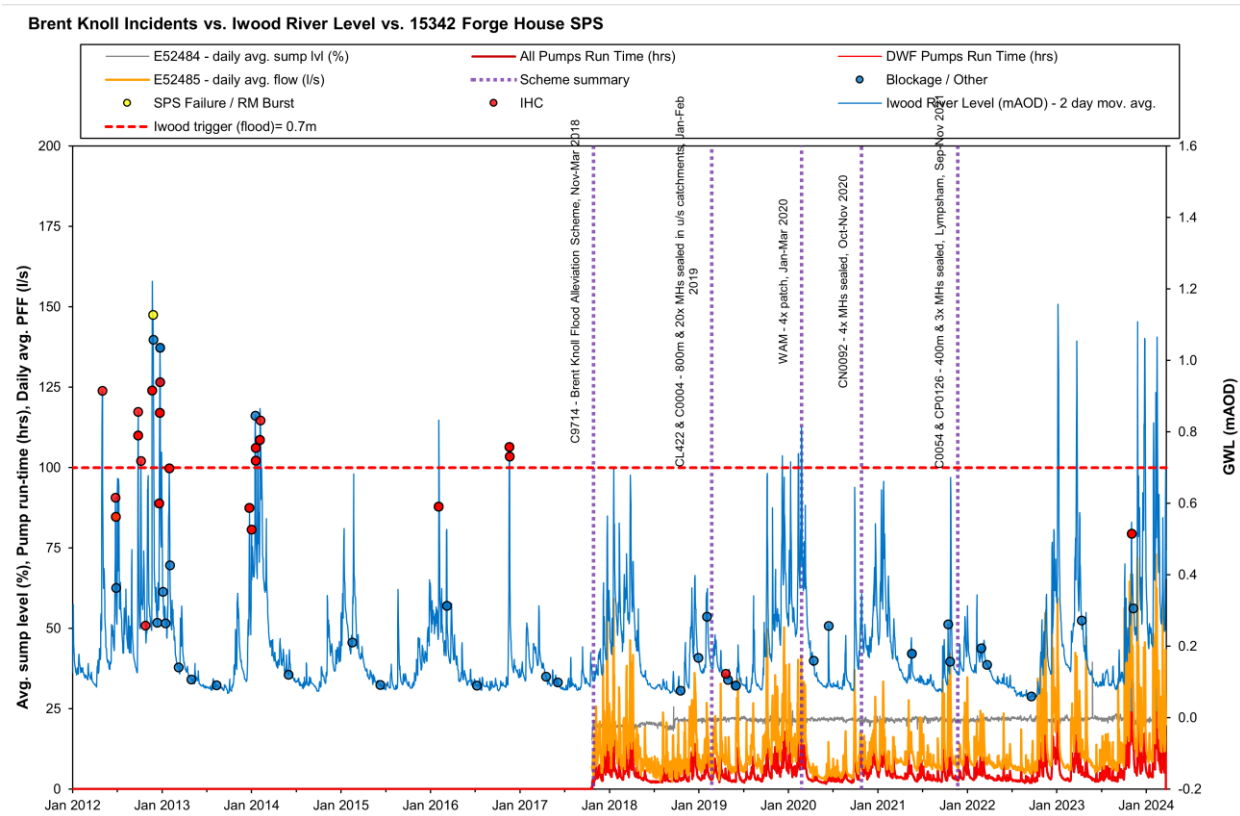
Implement emergency tankering procedure for preventing restricted toilet use and sewer flooding during high groundwater periods, in order to protect public health.

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

This graph compares Inadequate Hydraulic Capacity (IHC) Flooding and Blockage incidents against Iwood River Level and the flow at Forge House SPS (15342). Data from the pumping station is recorded from October 2017 onwards.

Before 2018 many incidents attributed to IHC have been reported during periods of high groundwater levels. A flood alleviation scheme was completed in March 2018 and further infiltration sealing in catchments upstream of Brent Knoll has also been carried out since. In Winter 2023/24 groundwater levels have been especially high for a prolonged period, which has caused a flooding incident.



Inspection and sealing since 2011

	2011-20	2020-21	2021-22	2022-23	2023-24
Length of sewer inspected (m)	15,802	-	394	1,083	377
Length of sewer sealed (m)	853	-	408	-	192