

# Collingbourne Ducis 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

Groundwater reached critical levels during the winter period, causing Collingbourne Ducis Sewage Pumping Station (SPS) to become inundated. Several 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 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 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.

Reviewed incidents of sewer flooding.

Used specialist cameras to visually monitor critical assets.

Updated the catchment hydraulic model.

Inspected public sewer network to identify points of infiltration.

### Completed (cont.)

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

Undertaken pumping station or flow surveys to analyse flows in sewers.

Sealed sewers and manholes to prevent groundwater infiltration.

Upgraded pumping stations where appropriate, to improve the reliability and performance of the site.

### Short Term

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

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.

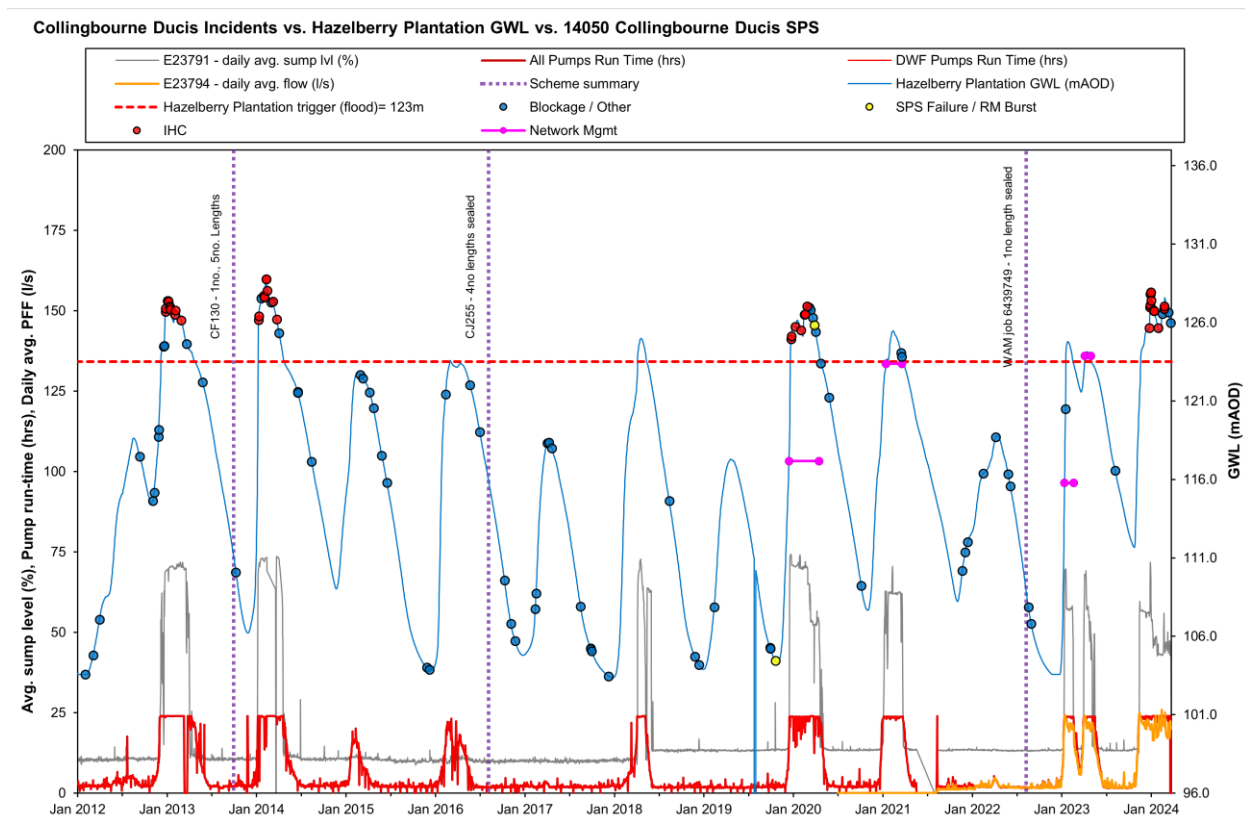
### When Necessary

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

The graph below displays incidents against local groundwater levels, and the inflow to Collingbourne Ducis Sewage Pumping Station (SPS). A strong correlation exist between groundwater levels and pump run times, though the network only becomes inundated during very high groundwater levels. Sewer sealing was completed in 2013 and 2016, and Improvements at the pumping station where carried out in August 2023 to reduce surcharge in the sewers upstream. However, network management may still required to prevent flooding and to protect to protect public health during extreme groundwater levels.



**Inspection and sealing since 2011**

	2011-20	2020-21	2021-22	2022-23	2023-24
Length of sewer inspected (m)	4,752	1,534	-	61	-
Length of sewer sealed (m)	624	-	-	18	30