Muckleford 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

Whilst groundwater reached exceptionally high levels, no incidents caused by inadequate hydraulic capacity (IHC) were reported during the winter of 2023/24.

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.
Proactive inspections and maintenance of sewerage assets.

Completed
Reviewed incidents of sewer flooding.
Inspected public sewer network to identify points of infiltration.
Highway outfalls inspected and cleared of silt build-up
Inspected private gullies, drains or manholes to identify points of infiltration.
Sealed sewers and manholes to prevent groundwater infiltration.
Undertaken pumping station or flow surveys to analyse flows in sewers.
Completed (cont.)

Installed sealed covers on manhole chambers vulnerable to overland flow or river water entering through the cover.

Short Term
Use machine learning to predict flows in sewers and proactively identify blockages and other issues.

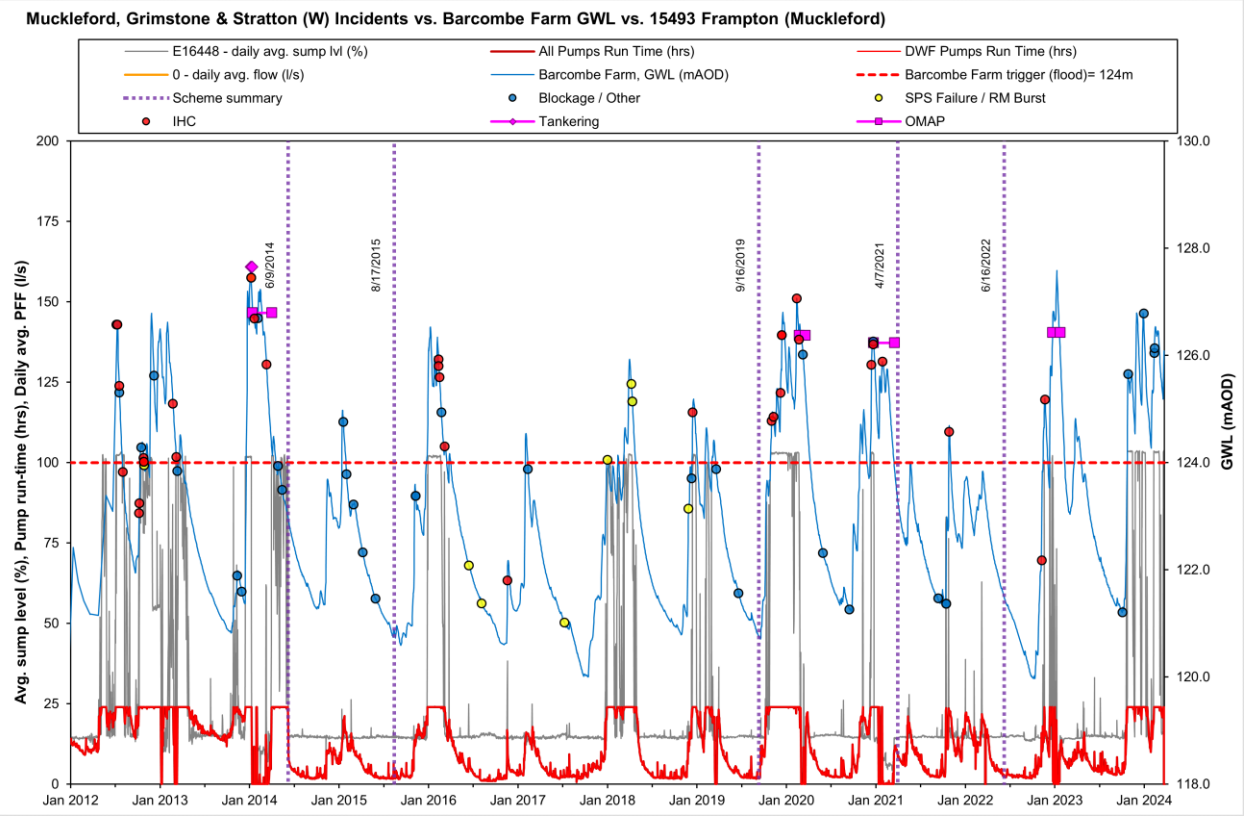
Medium Term
Undertake pro-active inspection of public sewers and manholes using CCTV to identify points of infiltration.
Install in-sewer monitors at key locations to better understand flows in the network.

Long Term
Identify road gullies and other impermeable areas that are connected into the foul sewers.
Inspect private gullies, drains, and manholes where applicable.
Install permanent flow meters at key pumping stations to continuously record pump performance.
Infiltration sealing of sewers and manholes, where deemed cost-effective, targeting work according to study findings.
Update the catchment hydraulic model.
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.
Upgrade pumping stations where appropriate, to improve the reliability and performance of the site.
Implement a scheme to address capacity issues in the sewer network.

Current Performance

This graph shows incidents against Barcombe Farm groundwater levels and the flow at Muckleford Sewage Pumping Station (SPS). Incidents caused by inadequate hydraulic capacity (IHC) have mostly occurred when groundwater levels are high, suggesting groundwater infiltration to be present in Muckleford. This is particularly evident during the winters of 2014/15, 2019/20 and 2020/21.



Inspection and sealing since 2011

	2011-20	2020-21	2021-22	2022-23	2023-24
Length of sewer inspected (m)	16,137	-	-	191	-
Length of sewer sealed (m)	179	-	-	215	-