

Puddletown 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 2021 – March 2022

Winter groundwater levels across the region were relatively low, with peak levels comparable to the winters of 2014/15 and 2016/17. Following high groundwater levels during the preceding winter, groundwater levels rose again in May 2021 with a monthly rainfall 66% above the long-term average (LTA) (fourth highest UK May rainfall on record). This particularly affected areas in the north of the region. During the autumn, heavy rainfall in October (33% above the LTA) caused groundwater levels to rise. However, below-average rainfall between November 2021 and March 2022 meant that most catchments were not severely affected by infiltration. Groundwater levels did not reach critical levels in 2021/2022 and no incidents due to inadequate hydraulic capacity (IHC) have been reported since October 2020.

Action Plan

Annual activity

- Continue monitoring system performance using telemetry and flows at Puddletown Water Recycling Centre.
- Promotion of multiple agency approach. Regular meetings with Lead Local Flood Authority and other Risk Management Authorities where appropriate.

Completed to date

- Appraised incidents of sewer and surface water flooding.
- Reviewed and analysed flows in the sewers, historic telemetry, rainfall, and borehole data and used hydraulic modelling where required.
- Reviewed existing boreholes.
- Proactively inspected vulnerable sewers, assessed, and surveyed the pumping stations and updated records where necessary.
- Carried out manhole and sewer infiltration sealing of the public network where deemed cost-effective.
- Identified road gullies and other impermeable areas connected to the foul sewer and separated where appropriate.
- Raised awareness of sewer overloading and the need for a risk-based approach to improvements.
- Investigated local watercourse monitoring as an indicator of groundwater levels and trigger for mitigation actions.
- Communication with other authorities during times of elevated groundwater levels.

	2015-20	2020-21	2021-22
Length of sewer inspected (m)	3,892	-	-
Length of sewer sealed (m)	-	-	-

Short term

- Add Operational Mitigation Action Plan (OMAP) layer to Drainage and Wastewater Management Plan Hub for Risk Management Authorities.
- Use of machine learning and rainfall forecasting to predict flows in sewers.

Medium term

- Undertake pro-active inspection of public sewers as set out in Sewerage Risk Management Manual and identify infiltration using CCTV.
- Continued sewer and manhole sealing of the public system where proven to be cost effective based on proactive inspections.
- Use of Artificial Intelligence (AI) to increase the length surveyed, targeting high risk sites where pollutions are more likely to occur and identify blockages in hotspots before they lead to a flooding incident.
- Commission a further pump station survey for Puddletown sewage pumping station (SPS).

Long term

- Inspection of private gullies, drains and manholes.
- Remedial works of private assets.
- Where areas of infiltration in private drainage systems are found, pass information on to the Council for further action. Wessex Water to consider funding private improvements.
- CCTV and targeted infiltration studies according to analysis from previous surveys of s105a sewers.
- Investigate options for surface water separation if cost beneficial.

Current Performance

This graph shows incidents against Little Puddle River level and the flow at Puddletown WRC. The wet well level and pump activity at Puddletown SPS show some correlation with groundwater levels in the region, but only remained very high during the 2012/13 and 2013/14 winter months where there was exceptionally high groundwater. During the winter of 2019/20 there was a report of the river bursting its banks and entering the sewerage network and three flooding incidents due to IHC were reported for the first time since 2014.

