

## Hurdcott 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. The Hurdcott catchment was not severely affected over the winter period with no incidents reported attributed to inadequate hydraulic capacity (IHC). No mitigation works were carried out by Wessex Water.

### **Action Plan**

#### Annual activity

- Proactive maintenance of vulnerable sewers to maximise sewer capacity.
- Review data, update reports and meet with stakeholders for an annual update and to share findings.
- Follow procedure for responding to, investigating, resolving and recording operational contact incidents.
- Continue monitoring system performance using telemetry.
- Review existing borehole data including data from the Environment Agency.
- Continue customer engagement, via the Wessex Water website and public meetings when applicable.

#### Completed to date

- Put in place a procedure for recording, investigating and resolving incidents.
- Reviewed existing telemetry data, compared it with borehole data and other infiltration factors.
- Extensive pro-active inspection of sewers to identify infiltration using CCTV.
- Sewer and manhole lining of the public system where proven to be cost effective.
- Promoted a multiple agency approach and communicate during times of elevated groundwater levels.
- Considered construction of local boreholes and installation of web-based auto logging telemetry to monitor groundwater levels.
- Liaised with the Environment Agency regarding their groundwater warning and modelling service.
- Investigated watercourse monitoring in the local area as a possible indicator of groundwater levels and trigger levels for Operational Mitigation Action Plan (OMAP).
- Risk modelling of Wessex Water Assets to plan which catchments require proactive surveys as set out in Sewerage Risk Management Manual.
- Undertook high level assessments of flooding incidents.

- Reviewed historic telemetry and rainfall records.
- Wessex Water infiltration video added to website.
- Monitored local watercourse data and groundwater levels during periods of inundation to inform OMAP.

	2015-20	2020-21	2021-22
<b>Length of sewer inspected (m)</b>	25206	964	584
<b>Length of sewer sealed (m)</b>	1688	17	-

#### Short term

- Continued sewer and manhole lining of the public system where proven to be cost effective.
- Further pro-active inspection of sewers to identify infiltration using CCTV.
- Add OMAP layer to DWMP Hub for Risk Management Authorities.
- Use of machine learning and rainfall forecasting to predict flows in sewers.
- Investigate the use of Artificial Intelligence (AI) to code CCTV, increase survey efficiency and help identify defects and hotspots.

#### Medium term

- Commission further pump station surveys and asset update where necessary.

#### Long term

- CCTV and targeted infiltration studies according to analysis from previous surveys of s105a sewers.
- Inspection of private gullies drains and manholes.
- Remedial works of private assets.
- Monitor and regulate surface water disposal to prevent surface water to foul misconnections through the SUDS approval body.
- Consider sustainable solutions such as above ground attenuation.
- Pass information on private drainage systems to council for further action.
- Existing highway outfalls to be inspected and if necessary, cleared of any build-up of silt.

## Current Performance

The graph below displays the incidents against river levels (as measure at Salisbury Ashley Road) and the inflow at Hurdcott Water Recycling Centre (WRC). Post sewer sealing in 2013/2015, there was a significant reduction in incidents attributed to inadequate hydraulic capacity (IHC). However, following the extreme groundwater levels in 2019/20 and relatively high levels in 2020/21, there was an increase in incidents. Despite additional sealing between 2017 and 2020, a strong correlation between the rise in groundwater levels and inflow into the WRC remains, suggesting there is infiltration in the catchment, much of this may be through private laterals.

Hurdcott - Winterbourne - Hurdcott WRC Incidents vs. Salisbury Ashley Road vs. 13158 HURDCOTT WRC Inflow

