

## Barton Lane 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 Barton Lane, Ruishton catchment did not reach critical levels in 2021/22. There were no reported flooding incidents due to Inadequate Hydraulic Capacity (IHC). The pumps at Barton Lane Sewage Pumping Station (SPS) coped with increased inflow.

### **Action Plan**

#### Annual activity

- Pro-active maintenance of vulnerable sewers including 6 monthly routine jetting.
- Promotion of multiple agency approach. Regular meetings with LLFA and other risk authorities where appropriate.
- Continue monitoring system performance using telemetry and rainfall records.

#### Completed to date

- Proactive inspection using CCTV of vulnerable public sewers undertaken.
- Appraisal of flooding incidents.
- Reviewed and discounted local watercourse monitoring as a possible indicator of groundwater levels and trigger levels.
- Pro-actively inspected public sewers as set out in Sewerage Risk Management Manual.
- Analysed survey data to identify infiltration.
- Analysis of sewer flows using telemetry.
- Carried out manhole and sewer infiltration sealing of the public network where deemed cost-effective.
- Pump station surveys and asset updates.
- Informed customers on the mechanisms of sewer overloading and need for a risk-based approach to improvements.
- Wessex Water infiltration [video](#) added to website.
- Reviewed existing borehole data in the area.
- Routine review of telemetry compared with other data to assess residual levels of infiltration.
- Communicated with other authorities during times of elevated groundwater levels.
- Liaise with the Environment Agency with regards to their ground water warning modelling and service.

- Initiated monitoring of local watercourses to indicate local groundwater levels and inform Operational Mitigation Action Plans.

	2015-20	2020-21	2021-22
<b>Length of sewer inspected (m)</b>	2335	188	-
<b>Length of sewer sealed (m)</b>	360	12	54

#### Short term

- Review long term options for monitoring and improving data collection, for example Event Duration Monitoring.
- Use of machine learning and rainfall forecasting to predict flows in sewers.

#### Medium term

- Commission further pump station surveys and asset updates.
- Investigate the use of Artificial Intelligence (AI) to code CCTV, increase survey efficiency and help identify defects and hotspots.

#### Long term

- Remedial works of private assets.
- Monitor and regulate surface water disposal to prevent surface water to foul misconnections.
- Inspection of private gullies, drains and manholes.
- Where areas 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 studies according to analysis from previous surveys of s105a sewers.

### Current Performance

This graph compares IHC flooding and blockage incidents against Taunton Market River Level and the flow at Barton Lane SPS. Prior to the sewer sealing, there was a strong correlation between the River Level and the flow at Barton Lane. Post sealing this relationship has reduced but is still visible. The last recorded incident due to inadequate hydraulic capacity (IHC) was recorded in April 2018, when groundwater levels were high and during severe weather. During the exceptionally wet winter of 2019/20 the groundwater level reached critical levels, however the pumps coped with the increased inflow and the only incidents recorded were due to blockages. In 2020/21 there are no record of flooding due to IHC, however the wet well level remains fairly high when groundwater levels are elevated, there is also a noticeable correlation between the sump level and rainfall events. In 2021/22 there were again no recorded flooding incidents due to IHC. The Taunton River did not reach high levels as seen in previous years and did not exceed the 1.1m trigger.

