Daglingworth Stream & Gumstool Brook Water Resources Situation

23 February 2021

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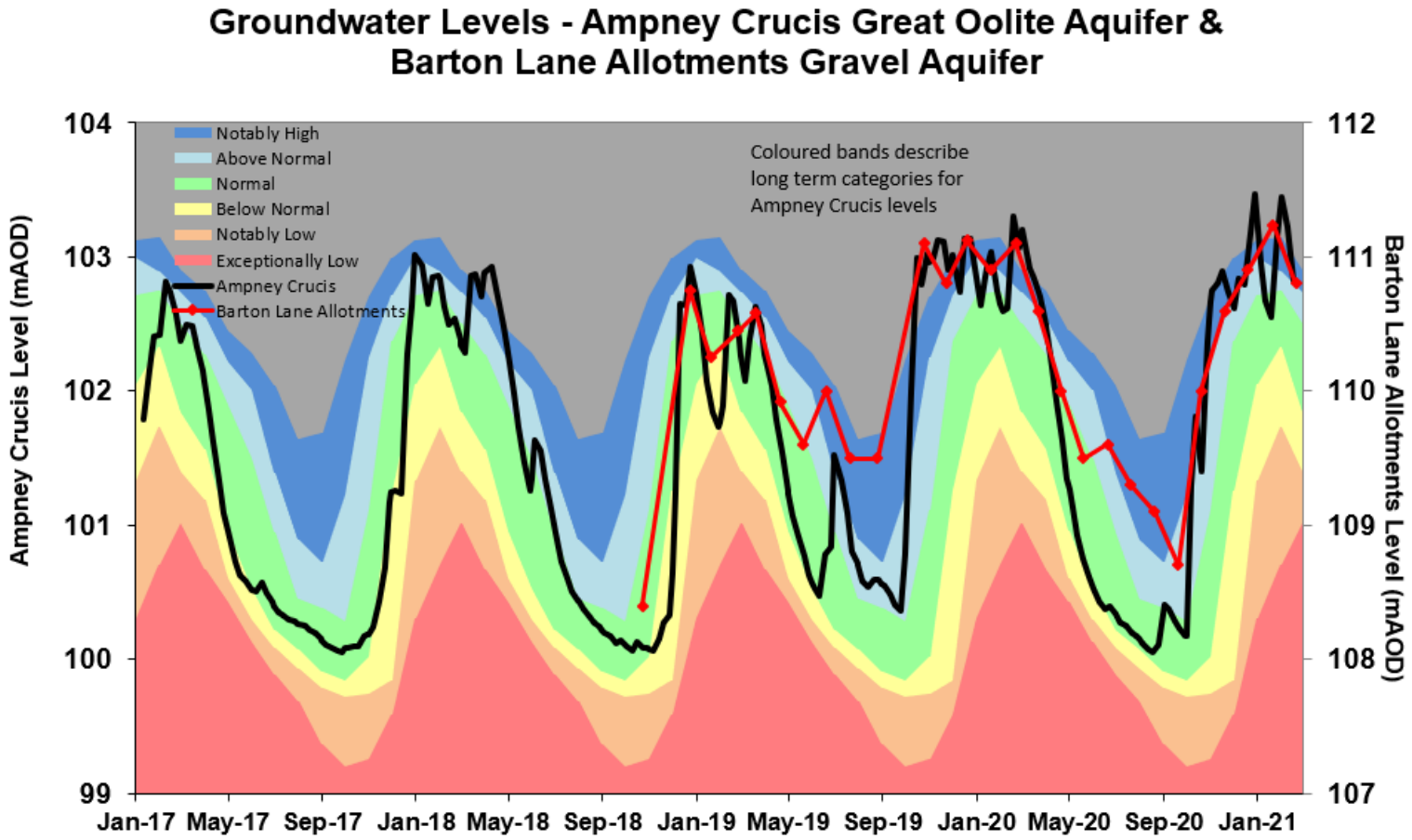
Water resources situation

Key Updates

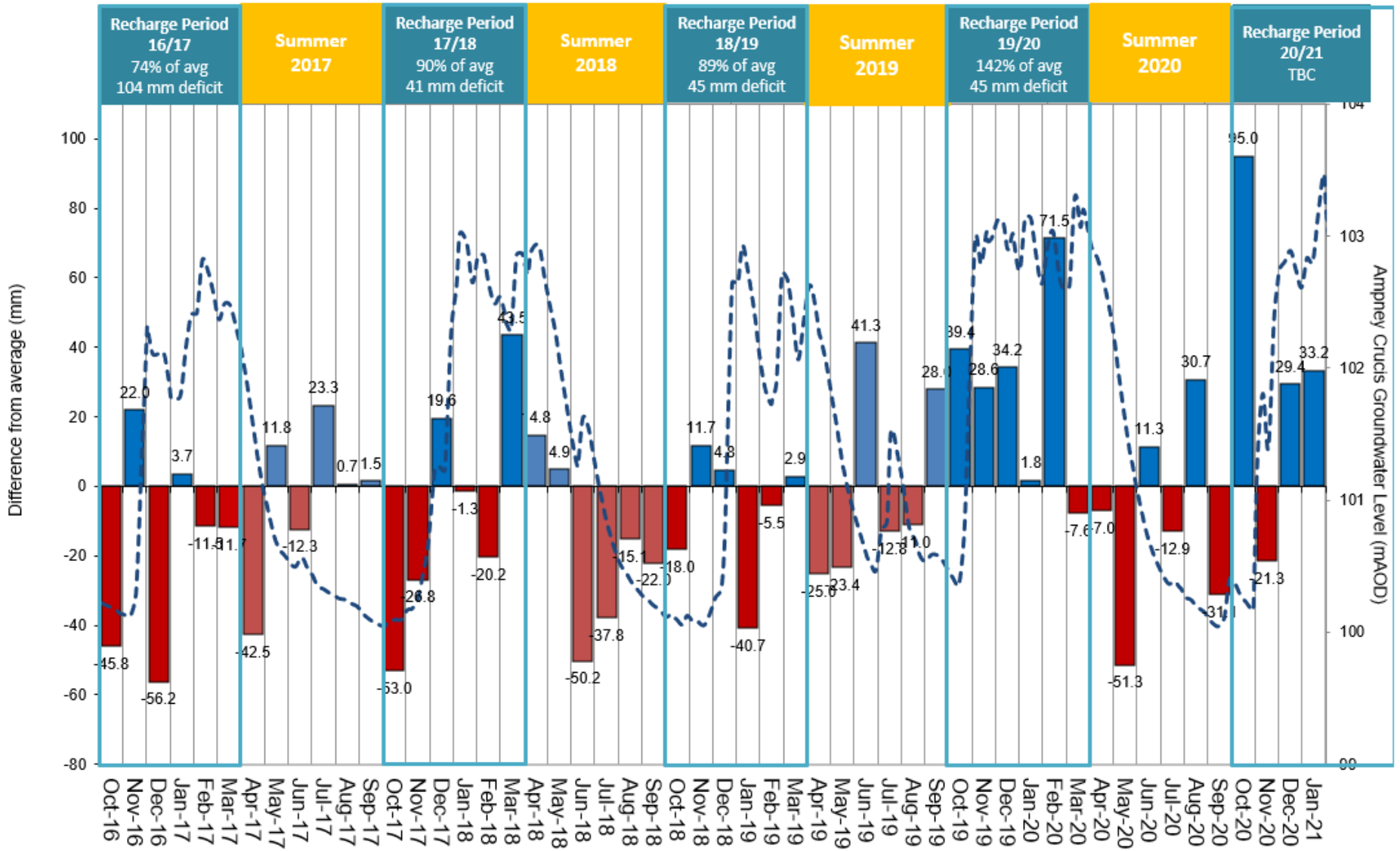
- Rainfall, groundwater levels & river flows
- Impact of water resources situation on sewer system
- Current work & future plans for sewer system

Deep Great Oolite & shallow Gravel groundwater



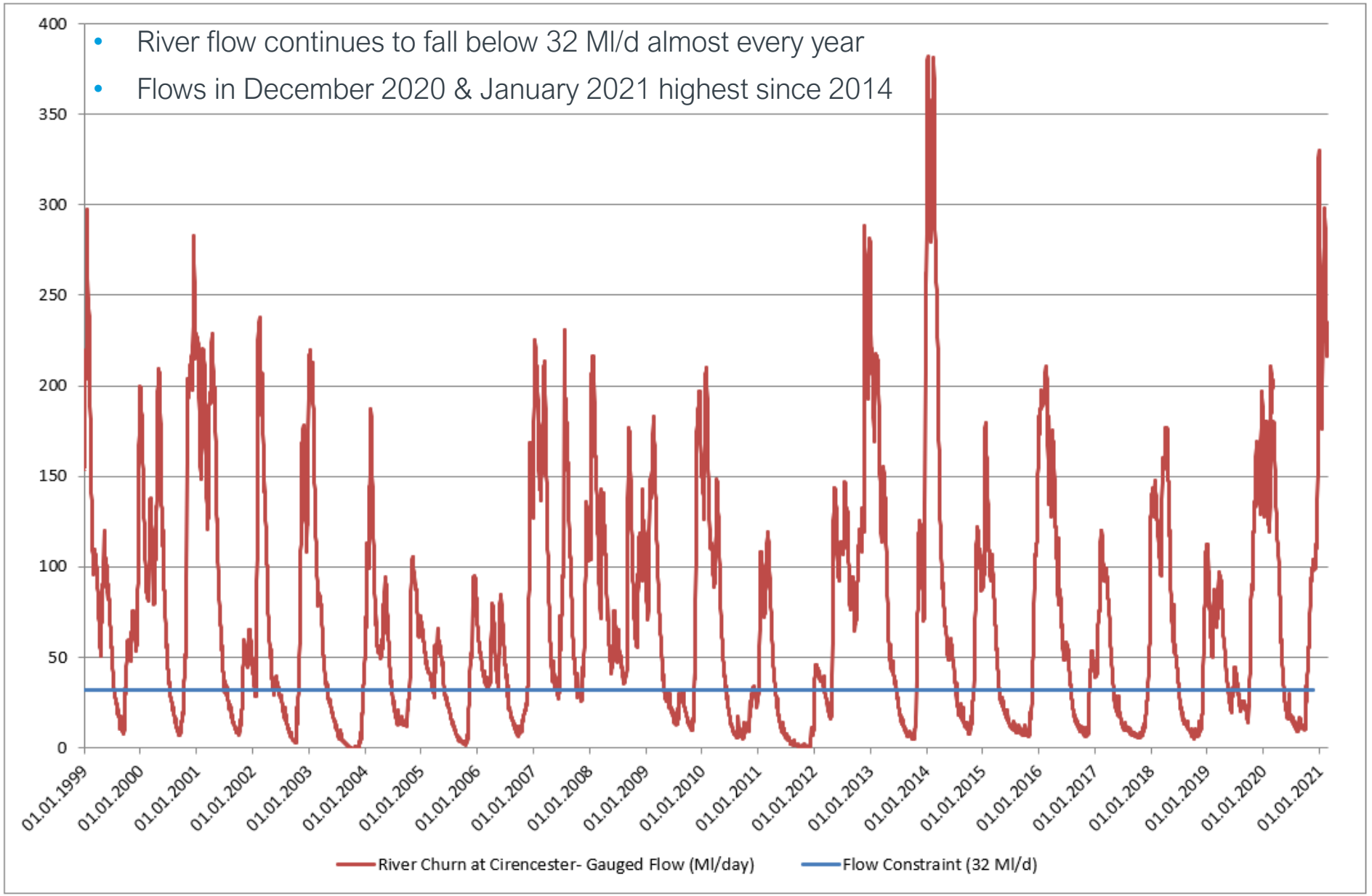
- Similar patterns in Great Oolite & Gravel aquifers in 2018/19 & 2019/20
- Groundwater higher in summer & early autumn of 2019, support Daglingworth Stream & Gumstool Brook flow
- January 2021 Gravel groundwater levels highest recorded; Great Oolite highest groundwater level since 2014

Rainfall, aquifer recharge & groundwater levels



- Groundwater level rises due to rainfall during autumn & winter recharge periods.
- Above average rainfall in 2019/20 produced high groundwater, but hot, dry spring in 2020 resulted in lower levels.
- In December 2020, Thames catchment had almost 140% of long term average rainfall
- January 2021, just under 150% of average rainfall, while parts of Cotswolds had almost 175% of average
- Over past 6 months, parts of Cotswolds had exceptionally high rainfall. Oct 2020 to Jan 2021 is 9th wettest in 138 year record (provisional)

Flow in River Churn & abstraction flow constraint operation



Water resources & drainage

Important factors

- High groundwater levels – water rising from below sewers can infiltrate into sewer
- High river levels – flow out of channel into floodplains can inundate sewers from above, via manholes
- Intense rainfall – high surface runoff
- River management – including sluice control
- Separating surface water and foul sewer can provide a solution, but not always possible
- Sustainable drainage systems (SuDS) – can help, for example, route roof runoff away from foul sewers
- Modelling analysis – need tools to model sewer flows integrated with river flows, plus population growth as well as climate change impact

"Cleaning up after a sewage escape is extremely challenging when the waters are still rising…..I do recognise that this is something that our customers shouldn't have to deal with and I know that as a company we are more than just a business. We deliver life's essential service and we take that responsibility very seriously."

Long Term Drainage Plans for Cirencester

Cirencester is one of our high priority areas.

- Cirencester is served by sewers where the influence of groundwater infiltration is viewed as excessive
- We've been carrying out detailed investigations
- Need to fully understand the root cause of the drainage problems
- How they might be improved in the future

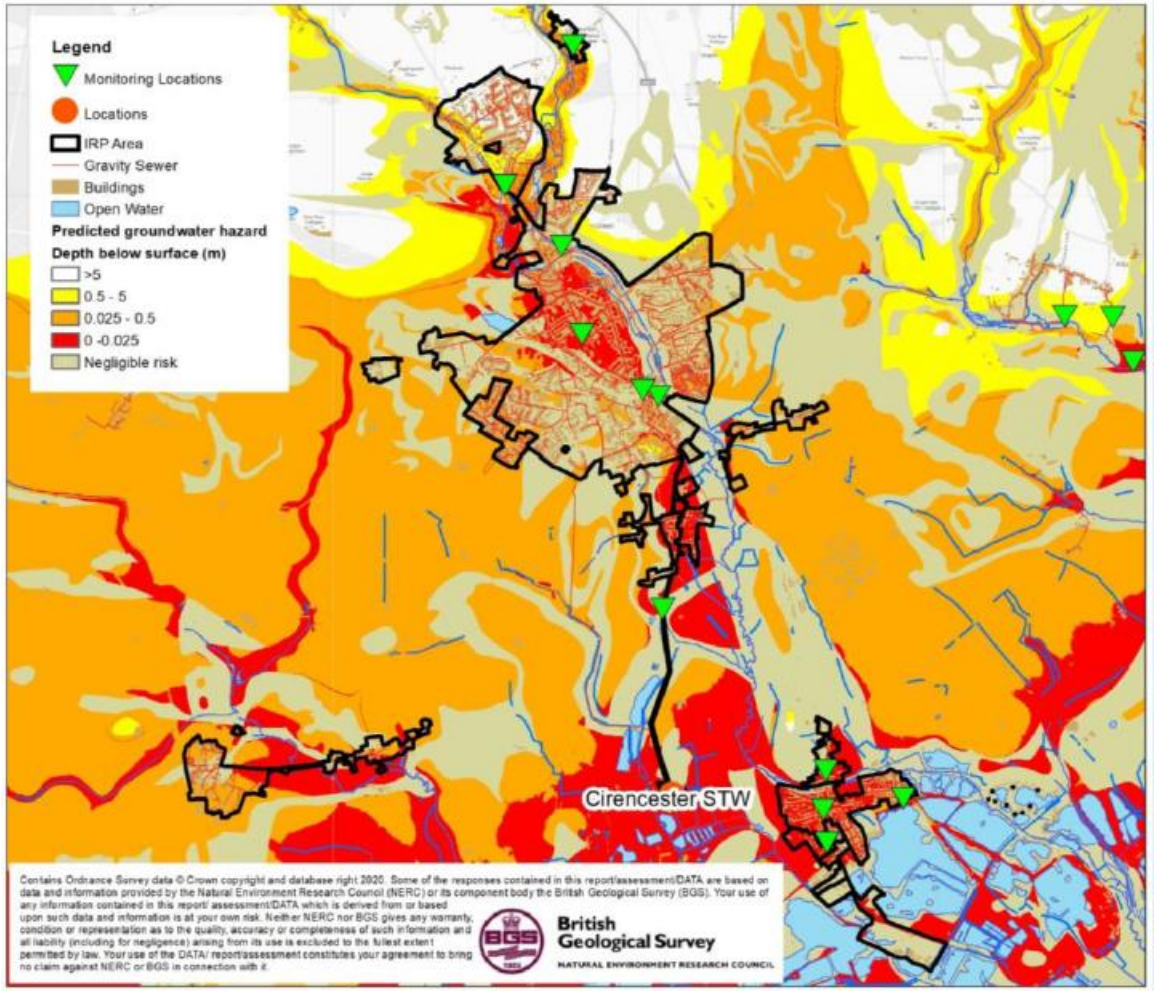
Investigation & planning stages

- Root cause & work completed to date
- Current work
- Next steps
- Drainage & Wastewater Management Plan (DWMP)

Long Term Drainage Plans for Cirencester

Root cause & work completed to date

- Groundwater is likely to be a significant source of uncontrolled escape of untreated or partially treated sewage affecting our customers.
- Key to bringing the impact of groundwater infiltration under control is enhanced monitoring. We have already installed several telemetered depth monitor locations.
- We have identified and delivered some “quick fixes” that could achieve immediate drainage improvements.
- During October & November 2020 we carried out extensive rehabilitation of sewers in Cirencester & South Cerney to reduce groundwater infiltration: lined >2.4 km of sewers, sealed 4 manholes & 19 patch repairs.
- Root cause of foul sewers becoming overwhelmed during storm weather conditions are numerous and resolution of issues complex. It will require all stakeholders responsible for drainage to work together to resolve them.



Long Term Drainage Plans for Cirencester

Current work

- We are undertaking site investigations this winter which involve ‘look & lift’ surveys and CCTV. If we detect minor works being required, we would look to resolve these as and when we find them.
- There are four projects underway that aim to reduce and mitigate the impact of potential flooding and pollution incidents affecting Cirencester. These are as follows:
    - Implementation of a permanent and less intrusive over pumping system at Station Road in South Cerney – due for completion by March 2022.
    - Diverting ~800 dwellings through a new sewer which we are constructing for the proposed Chesterton Farm development. Due to be completed by Autumn 2021.
    - Quality improvement by increasing the capacity of Cirencester sewage treatment works. Programmed to be completed by March 2024.
    - Surface Water Management Programme funding contribution to enable the delivery of partnership schemes with Cotswolds District Council and other stakeholders to remove misconnected surface water runoff areas from foul sewer network.

Long Term Drainage Plans for Cirencester

Next steps

- We have developed a long term Groundwater Impacted System Management Plan (GISMP) for Cirencester. Key focus will be to develop short, medium and long term plans to tackling infiltration. This plan, available here https://www.thameswater.co.uk/about-us/regulation/drainage-plans is agreed with the EA.
    - This will review historical & recent survey data to build evidence to support further interventions.
    - We have reviewed the effectiveness of our find and fix approach, which has not delivered the improvements in performance we would have liked.
    - We are building evidence for sewer lining of large portions of the network in high risk groundwater areas.
    - We are not funded to deliver this level of lining in this funding period (2020-25), but where routine sewer maintenance allows, these will be communicated and progressed.
- If significant investment is identified as being required, consideration will be required to assess relative need between our sewer systems taking into account a benefit evaluation for our customers.
- Significant investment needs may need to be included in our next investment planning cycle (2025-30).

Long Term Drainage Plans for Cirencester

Drainage & Wastewater Management Plan (DWMP)

- We are developing our long term DWMPs to look at future capacity needs, in light of climate change, aligned with necessary infrastructure upgrades.
- The Cirencester sewerage catchment has met the criteria to progress to the optioneering stage. These plans will be completed in draft format by summer 2022 and will help us understand the current and future flood risk in this area.
- Stakeholder engagement is a key part of this and all organisations with interests and/or responsibilities relating to drainage, flooding and protection of the environment will work together to create these plans. They will be publicly available and more information can be found here,

  https://www.water.org.uk/policy-topics/managing-sewage-and-drainage/drainage-and-wastewater-management-plans/ and here,

  https://www.thameswater.co.uk/about-us/regulation/drainage-and-wastewater-management
- Engagement via catchment partnerships; Upper Thames Catchment Partnership includes Cirencester.

Look ahead for 2021

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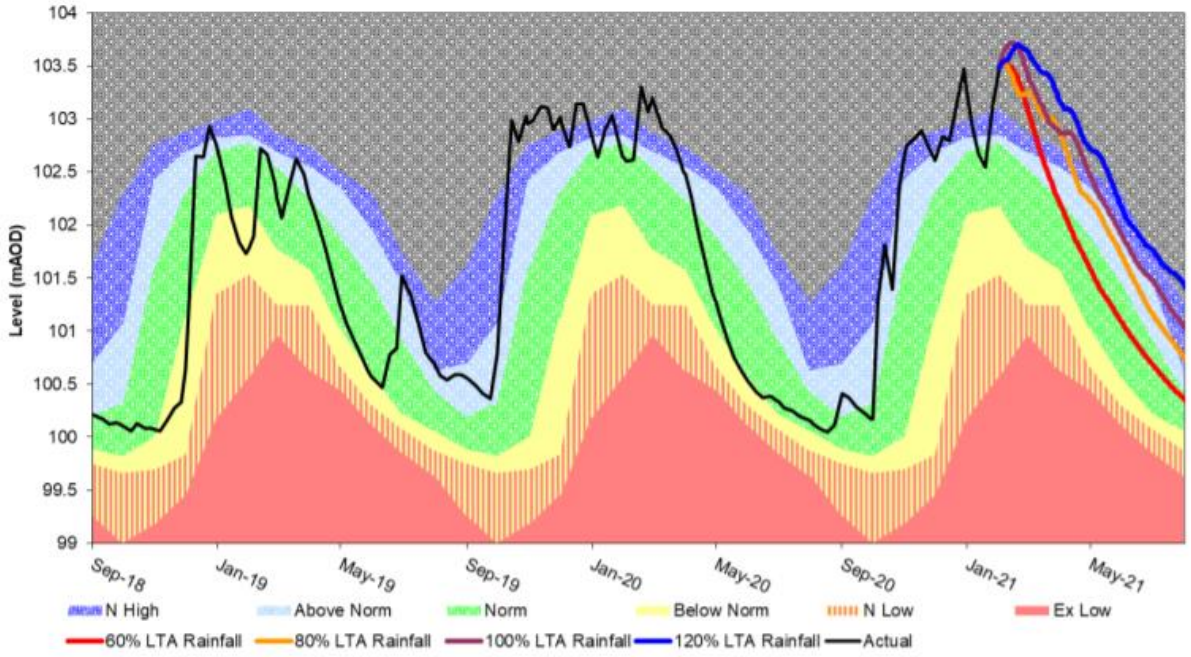
- Scrutiny meeting on 5th March with Thames Water, EA, Cotswolds DC, MPs, residents
- Groundwater in the Cotswolds more likely to remain at normal levels or above into summer/autumn 2021.
- Following significant winter recharge and exceptionally high groundwater levels, low river flows are less likely to occur in summer/autumn 2021

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