



# London Water Quality Update

## Summer 2023

This is a water quality update for the London groundwater catchments. Updates will be circulated quarterly to keep you updated with the latest water quality data from your catchment.

Pollution of water can come from many different sources and activities like agriculture, the general public, and all types of industry (including the water industry). However, the focus of this update is on diffuse pollution of raw water sources from agricultural pesticides and fertilisers, in both river and groundwater sources, which is an ongoing problem for water companies as we regularly detect them in raw water. Removing these compounds through water treatment is expensive, energy intensive and not the most sustainable approach. We're keen to work with farmers and advisors within the catchment to avoid pesticides and fertilisers reaching groundwater and surface water sources in the first place. Please consider the impact on water quality before advising or applying fertilisers and plant protection products.

See an overview of the catchment in the table and map below, followed by short and long term water quality summaries. If you have any questions, or would like to be added to the mailing list, please contact [catchment.projects@thameswater.co.uk](mailto:catchment.projects@thameswater.co.uk).

### Catchment Overview

Thames Water drinking water quality priorities	Groundwater: Nitrate
Thames Water projects	Catchment Fund and farm advice: Westerham, Wilmington, Southfleet, Green Street Green and Lane End (groundwater)
Contact	<a href="mailto:catchment.projects@thameswater.co.uk">catchment.projects@thameswater.co.uk</a>



### Groundwater

The tables and graphs below show raw, untreated water quality data from our London groundwater catchments. These samples are grab samples which have been analysed at the Thames Water laboratory. All results are recorded concentrations in groundwater in milligrams per litre (mg/l).

Treated drinking water cannot contain more than 50mg/l of nitrate; this is known as the Drinking Water Standard (DWS). If raw water concentrations are higher than this at our abstraction points, our treatment and blending processes are designed to remove the nitrate. However, if levels are too high in the raw water, then it can be challenging to reduce them enough. That's why we're sharing information to help raise awareness of the issue.

### Location and Hydrogeology Summary

Wilmington Water Treatment Works (WTW) is located near Dartford, Kent. Groundwater is abstracted from the Chalk aquifer and treated on site at the WTW.

Lane End WTW is located between the villages of Lane End and Green Street Green in Dartford, Kent. Groundwater is collected from the Chalk aquifer via 11 separate boreholes and combined before entering the WTW. There are also two boreholes at Green Street Green, which pump water from the aquifer to Lane End WTW.

Westerham WTW is located near Tatsfield, Surrey. Groundwater is abstracted from the Chalk and Greensand aquifers and treated at the WTW.

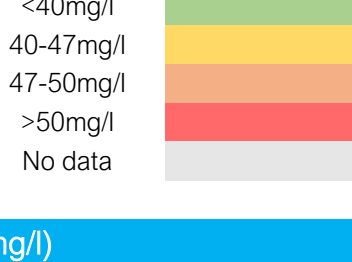
Southfleet WTW is located near Southfleet, Kent. Groundwater is abstracted via a single well at the WTW.

The nature of Chalk catchments means that although short term changes in catchment management are unlikely to have an immediate effect, current catchment practices are important for the long term trends of nitrate. This means the data below is generally reflecting historical nitrate use.

### Groundwater Quality Results Summary

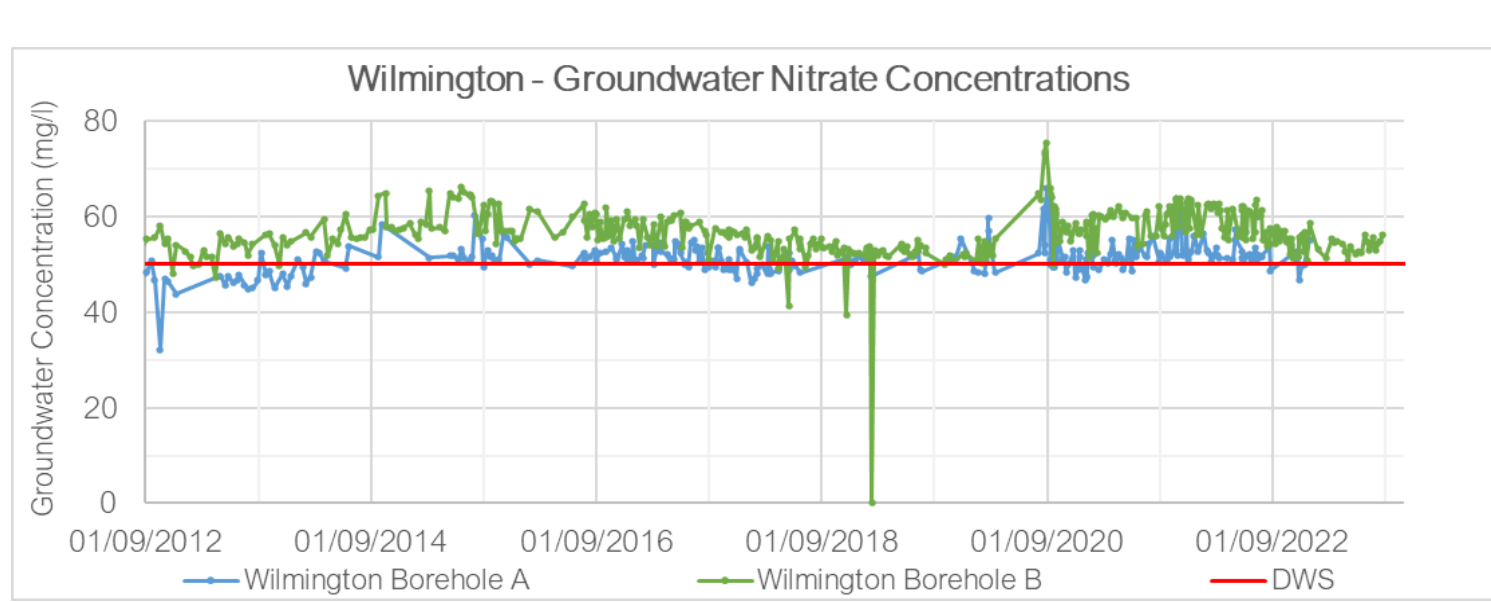
The below tables show maximum nitrate concentrations in the raw, untreated water for each groundwater catchment and the graphs show long term water quality trends.

Please note, sampling frequency for groundwater sources varies depending on a number of factors, meaning data may not be available for all months.

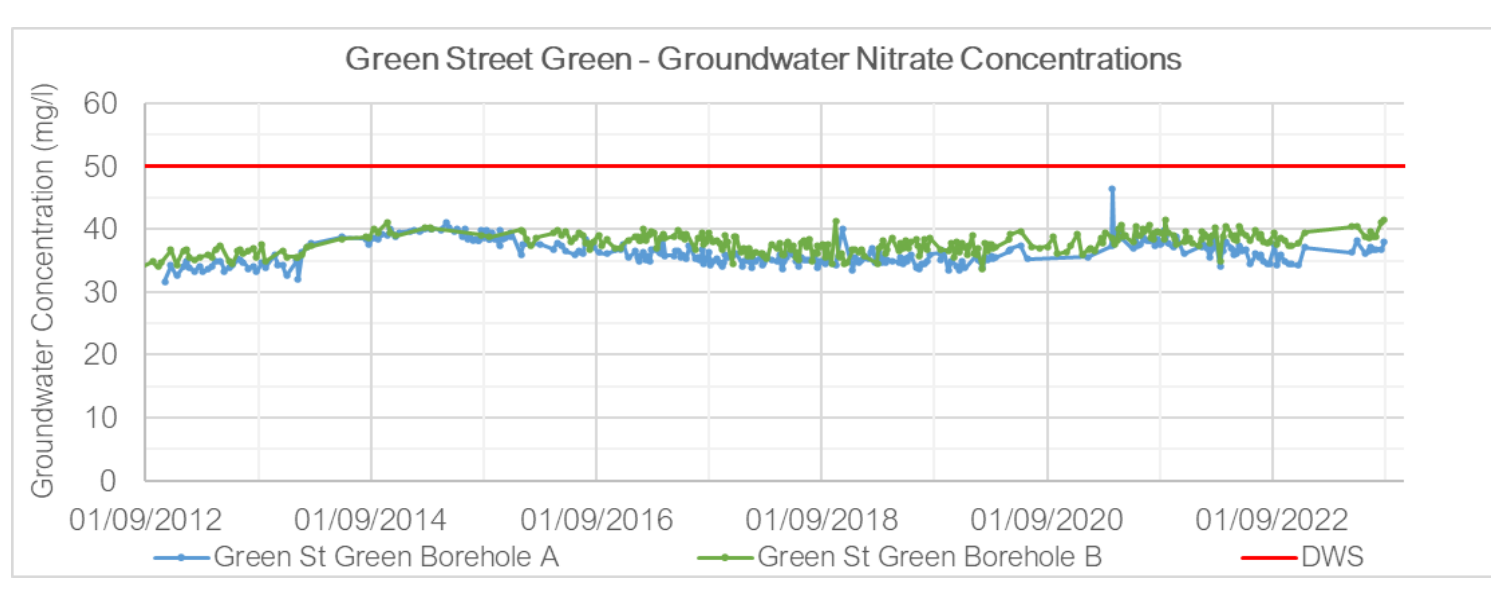


Nitrate - monthly maximum groundwater concentrations (mg/l)												
Location	Sep 2022	Oct 2022	Nov 2022	Dec 2022	Jan 2023	Feb 2023	Mar 2023	Apr 2023	May 2023	Jun 2023	Jul 2023	Aug 2023
Wilmington	57.73	57.05	55.70	58.61	53.11	51.44	55.41	54.45	53.76	56.15	55.78	56.26
Green Street Green	39.35	38.13	37.75	39.45	-	-	-	-	40.42	40.47	39.67	41.56
Lane End	55.65	52.90	46.01	40.74	40.02	42.15	40.59	39.96	51.41	54.05	55.29	52.74
Westerham	46.35	45.52	46.38	45.38	-	-	33.43	34.69	34.74	34.08	33.70	41.74
Southfleet	-	-	-	-	-	-	-	-	-	-	-	-

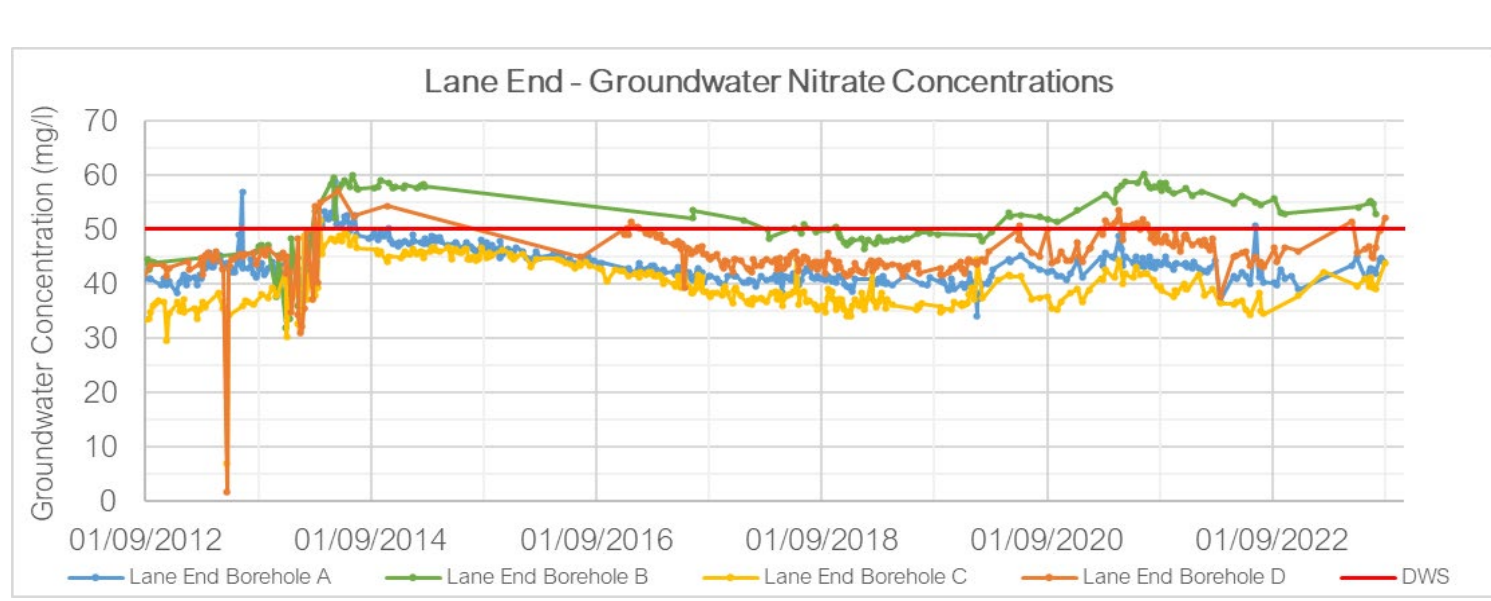
Elevated levels of nitrate (>50mg/l) have been detected at Wilmington for all of the last 12 months, and at Lane End for six of the last 12 months. Green Street Green and Westerham have recorded levels below the DWS for the last 12 months, but with all values >33mg/l, and a highest reading of 46.38mg/l in November 2022 in Westerham. Due to limited sampling this year at Southfleet, there is no available nitrate data for groundwater at the abstraction.



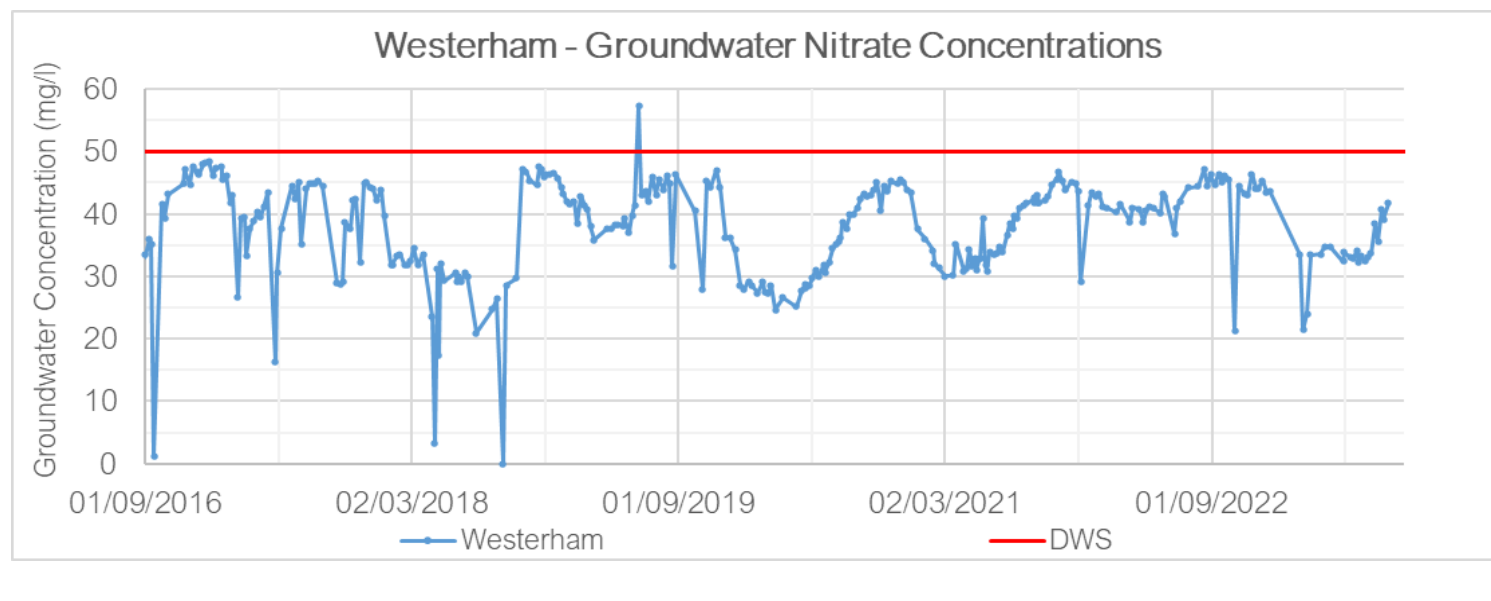
Groundwater nitrate concentrations at both Borehole A and Borehole B in the Wilmington catchment have fluctuated around the DWS for the past ten years. Generally, Borehole B records higher concentrations than Borehole A, although both are showing a gradually increasing baseline trend. The highest recorded concentration shown was 75.55mg/l in August 2020 from Borehole B.



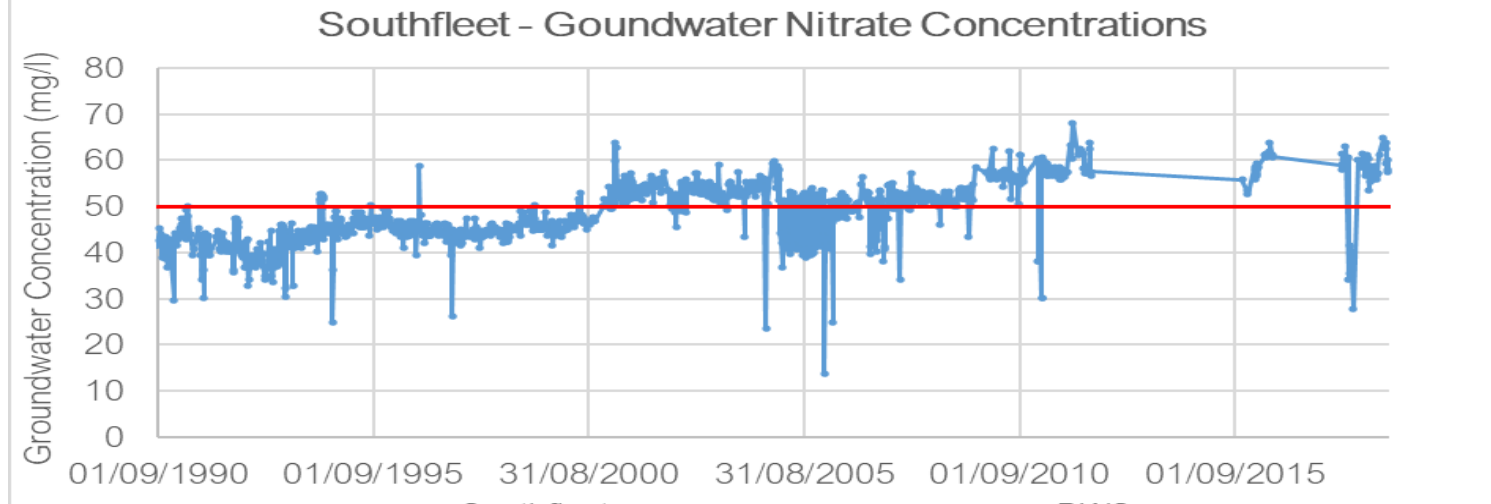
Groundwater nitrate concentrations at Green Street Green Boreholes A and B have shown a gradually increasing baseline trend over the last decade, from around 31mg/l to 34mg/l, and 34mg/l to 38mg/l, from 2012 to 2022, respectively. Borehole B continues to record the highest nitrate concentrations between the two abstractions. All concentrations remain below the DWS, however we'd like to avoid further deterioration in future water quality to make sure we can continue to produce wholesome drinking water from this source.



Groundwater nitrate concentrations at all Lane End boreholes shown have fluctuated around the DWS of 50mg/l over the past decade, showing a gradually increasing trend. Borehole B has consistently recorded the highest concentrations, going above the DWS in May 2014 and again in June 2020, remaining above it since, with the most recent concentration recording 52.74mg/l of nitrate. We'd like to avoid deterioration in future water quality to make sure we can continue to produce wholesome drinking water from this source and reduce our reliance on nitrate removal treatment.



Nitrate concentrations in the groundwater at the Westerham abstraction have fluctuated a lot over the last ten years, but have remained below the DWS, except for the detection of 57.3mg/l in June 2019. The trend generally shows a gradually deteriorating baseline, with concentrations in recent years especially showing an increase, with recent concentrations exceeding 40mg/l. We'd like to reverse this trend and avoid deterioration in the future.



Please note, the above graph shows historic groundwater quality data. The borehole at Southfleet has been out of service since March 2019 and no water quality data is available since this date.

Historically, nitrate concentrations in the groundwater at Southfleet were generally below 50mg/l, however since 2001 they have frequently exceeded the DWS shown by the gradual upward trend. There were several notable peaks, such as 58.85mg/l recorded in 1996, 62.9mg/l in 2001, and 68.14mg/l in 2011. Due to limited running of the site we have limited data between 2012 - 2015, no data recorded since March 2019.

Thank you for your interest in protecting water quality in your local area. If you have any questions or feedback, please don't hesitate to get in touch.

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