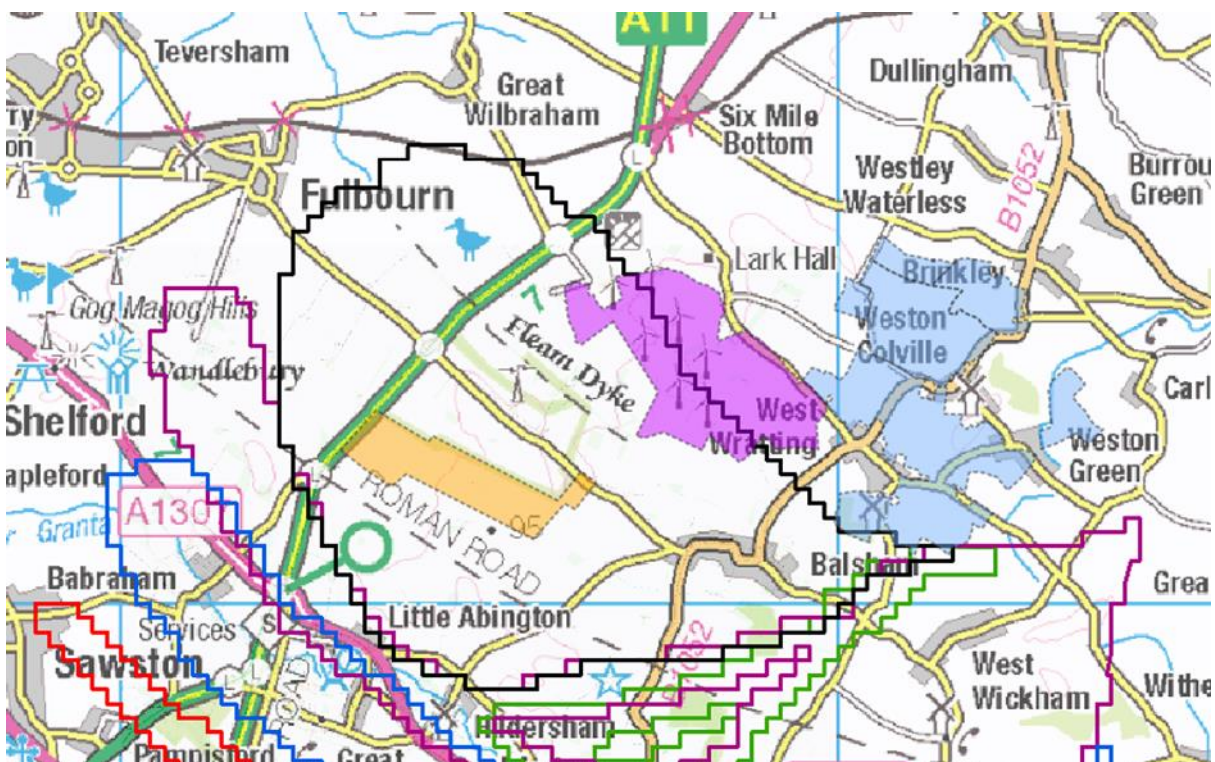


Advice received on hydrology, and in particular the chalk aquifer, 9/12/24

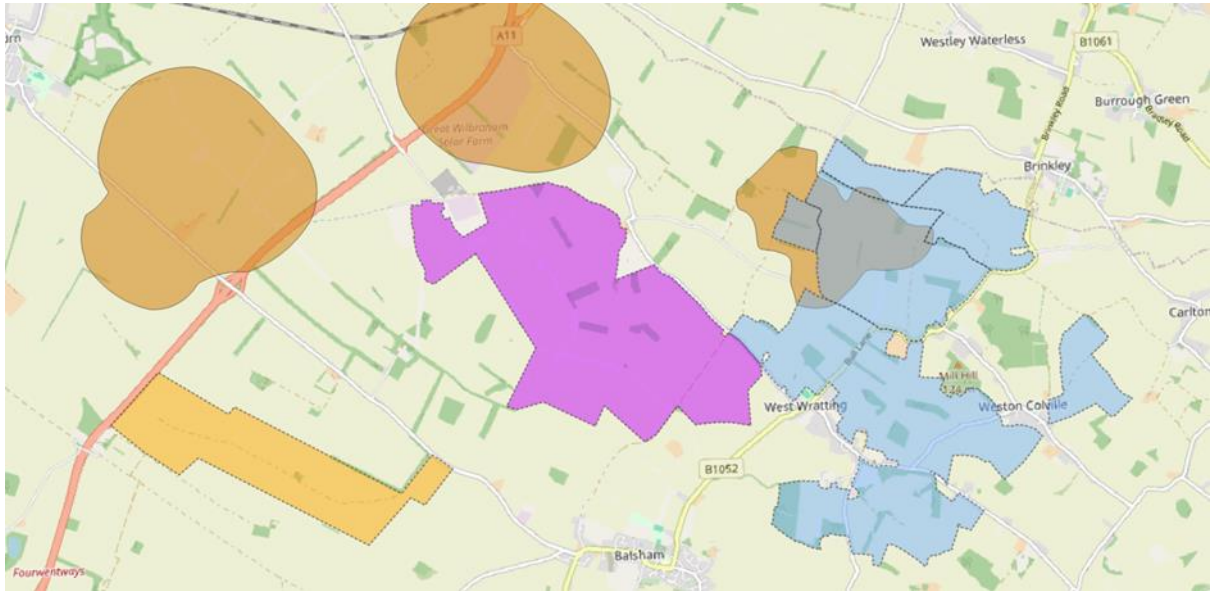
Can you provide a reference which indicates what area is supplied by water from the chalk aquifer?

Is there information on what proportion of water comes from the chalk aquifer?

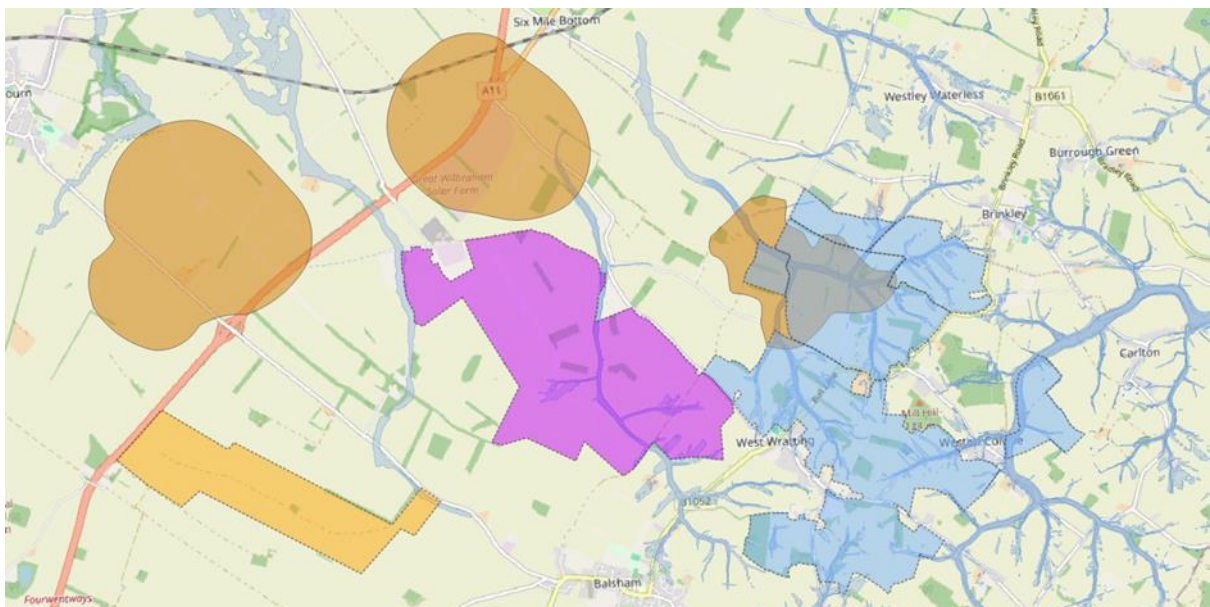
- “The Chalk” is a very large aquifer that runs under the proposed land parcels [Principal aquifers in England and Wales | Aquifer, shale and clay maps | Aquifers and shales | Groundwater | Our research | British Geological Survey \(BGS\)](#)
- Water companies in South East England where groundwater contributes > 75% of total public water supply are heavily reliant on the Chalk. [Groundwater resources in the UK - British Geological Survey](#)
- As much as 99% of the public supply provided by Cambridge Water is abstracted from the groundwater supplied by the aquifer. [Addressing water scarcity in Greater Cambridge: update on government measures - GOV.UK](#)
- The Cambridge Water groundwater catchments are provided in [cambridge-sources-map.pdf](#).
- Sites A and B are inside the Fleam Dyke Catchment. It looks like Site C is outside the Cambridge Water source catchments. I have not been able to figure out whether Site C lands inside an Anglian Water source catchment instead.



- As shown on https://kingswaysolarfarm.co.uk/wp-content/uploads/2024/10/P663900_Phase_One_consultation_environmental_constraints_A3L.pdf, there is a ground water inner source protection zone overlapping Site C and there is one just to the north of Site B. My version of the map is below.



- Box 3.1 of the report at [Baseline report series. 5, the Chalk of the North Downs, Kent and east Surrey - NERC Open Research Archive](#) states that the Inner Source Protection Zone is designed to protect against toxic chemicals and waterborne disease.
- If you also look at the surface water maps, it's clear that the surface water from Site B and some of Site C passes through the inner source protection zones:



- According to Position Statement C1 in [The Environment Agency's approach to groundwater protection](#), the EA will require nationally significant scheme to "protect groundwater".

- Position Statement C5 indicates that the EA would object to fluid filled cables passing through a Source Protection Zone. There is an interesting NRW review of a turbine, solar and battery scheme at [CAS 245502 Y0L3.pdf](#) (Chapter 10) which picks up a lot of concerns, including fluid filled cables.

It should be confirmed if any proposed cables will be fluid filled. Should high voltage fluid filled cables be proposed, we refer to position statement C5 in [The Environment Agency's approach to groundwater protection](#) (publishing.service.gov.uk). The application must confirm whether cables are fluid filled and if so, they must be located above the water table.

- The NRW review at [CAS 245502 Y0L3.pdf](#) (Chapter 10) also points out that groundwater may need to be monitored and that this would make groundwater monitoring of the baseline conditions necessary for comparison.

We may require identified groundwater features to be monitored during the proposed workings. We would therefore recommend that the survey be undertaken as soon as possible to enable the developer to carry out suitable baseline monitoring prior to the commencement of workings at the site. This will potentially have an effect on any GWDTEs present on the application area and dependent on groundwater/sub-surface run-off inputs.

- I understand that the groundwater team for a large infrastructure scheme we are working on has been informed by the Environment Agency that they will need 12 months of baseline groundwater monitoring for the planning application. This will pose a significant challenge due to the lead time for ground investigations and monitoring set up.
- I suspect that the Environment Agency and Cambridge Water will both be very keen to monitor and protect the groundwater and will require strong evidence for assessing impacts from the scheme in the application.

Is there information on risks to the chalk aquifer, particularly from contamination? If there is a battery fire, very large volumes of contaminated water would result. This should be contained, but if not, how serious an issue would that be? For water courses and the aquifer?

- I have not managed to find any good material on the fire and pollution risks of the solar farm's battery energy storage system (BESS).
- There is a BBC news article at [BEES: The charged debate over battery energy storage systems - BBC News](#) which mentions one of the few UK examples of a BESS fire in Liverpool.
- To me, the incident report of the Liverpool fire at [Significant Incident Report Final redacted.pdf](#) suggests that the fire service did not have well-defined procedures for dealing with a battery fire. Their priority seems to have been to put the fire out without considering what happened to the run-off. The incident report notes that "run-off was low due to the

container involved being sited on a gravel base". It's not clear whether the run-off was contained or was allowed to drain through the gravel. The report does not state how much water was used, but I assume full containment to prevent any groundwater pollution would require some very large, lined sumps.

- A Freedom of Information Request at [EIR-185-2024 Craig Hughes](#) from June 2024 supports my suspicion that firefighting procedures are immature - "However, to limit the use of water and potential damage to the environment the SFRS are currently developing innovative solutions for dealing with fires involving Lithium-Ion battery fires."