



Horsham
District
Council

Horsham District Local Plan Examination

Response to Action Point 6

**Matter 1, Issue 2 - Legal and
Procedural Requirements- Whether
the Council has complied with
other relevant procedural and legal
requirements?**

HDC31

December 2024

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Action Point 6: An update on the Environment Agency's evidence base work on water supply boreholes in Sussex North

Summary

1. As a result of the Natural England 2021 Water Neutrality Position Statement (**CC08**), several developers in Sussex North are exploring or have already installed private water supply boreholes to meet the water use of their developments or to private 'credits' for multiple developments.
2. The Environment Agency (EA) is the licensing authority for *some* private supply boreholes and all public water supply boreholes in England. For private supply boreholes, an EA licence is required for abstractions greater than 20m³ (20,000 litres) per day. Preliminary Groundwater Investigation Consents (GICs) may also be required to establish the suitability of any proposed borehole, e.g. its yield.
3. The EA has raised concerns with the Sussex North authorities and other partners involved in the development of the SNOWS offsetting scheme about the increasing number of applications for GICs and abstraction licences in the Sussex North area. This has been particularly prevalent in the area around West Chiltington on an area of geological strata known as the Hythe Beds Formation.
4. It should also be noted that Southern Water (SW) revealed plans in their latest draft Water Resources Management Plan (WRMP) consultation (September to December 2024) to re-instate an existing public water supply borehole in the West Chiltington area. We raised concerns with SW in our response to the WRMP (to be published in the Examination Library) about the re-instatement of their borehole at this location because of the several new private supply boreholes that have been bored in the area.
5. Due to the proliferation of new GICs and abstraction licences submitted to the EA's Solent & South Downs (SSD) area team, and associated concerns about the impact of these boreholes on local water supplies, the EA is undertaking a study to assess and better understand two geological areas in Sussex North – the Hythe Beds Formation and the Tunbridge Wells Sands. The study will help inform the EA's licensing strategy for these geological areas and help to confirm when any further exploitation should be curtailed, and where any further abstraction would be unsustainable.
6. Due to an increase in planning enquiries from developers to Horsham District Council (HDC) about using private supply boreholes to meet water neutrality requirements, HDC has published guidance for developers on its website¹ under the section titled '*Will the Council accept boreholes as a means of achieving water neutrality?*'. HDC has also published on its website a non-technical summary of water neutrality and boreholes².
7. The EA has provided a Specification / Statement of Requirement for their evidence base update work, which is attached as Appendix 1 to this note.

¹ <https://www.horsham.gov.uk/planning/water-neutrality-in-horsham-district/water-neutrality-and-planning-applications>

² <https://www.horsham.gov.uk/planning/water-neutrality-in-horsham-district/water-neutrality-and-boreholes>

Appendix 1 – Environment Agency Hythe and Tunbridge Wells Sandstone conceptual models - Specification / Statement of Requirement

Background

In September 2021 Natural England released a Water Neutrality Position Statement for the Sussex North Water Supply Zone (SNWSZ). This can be found on the Horsham District Council website here:

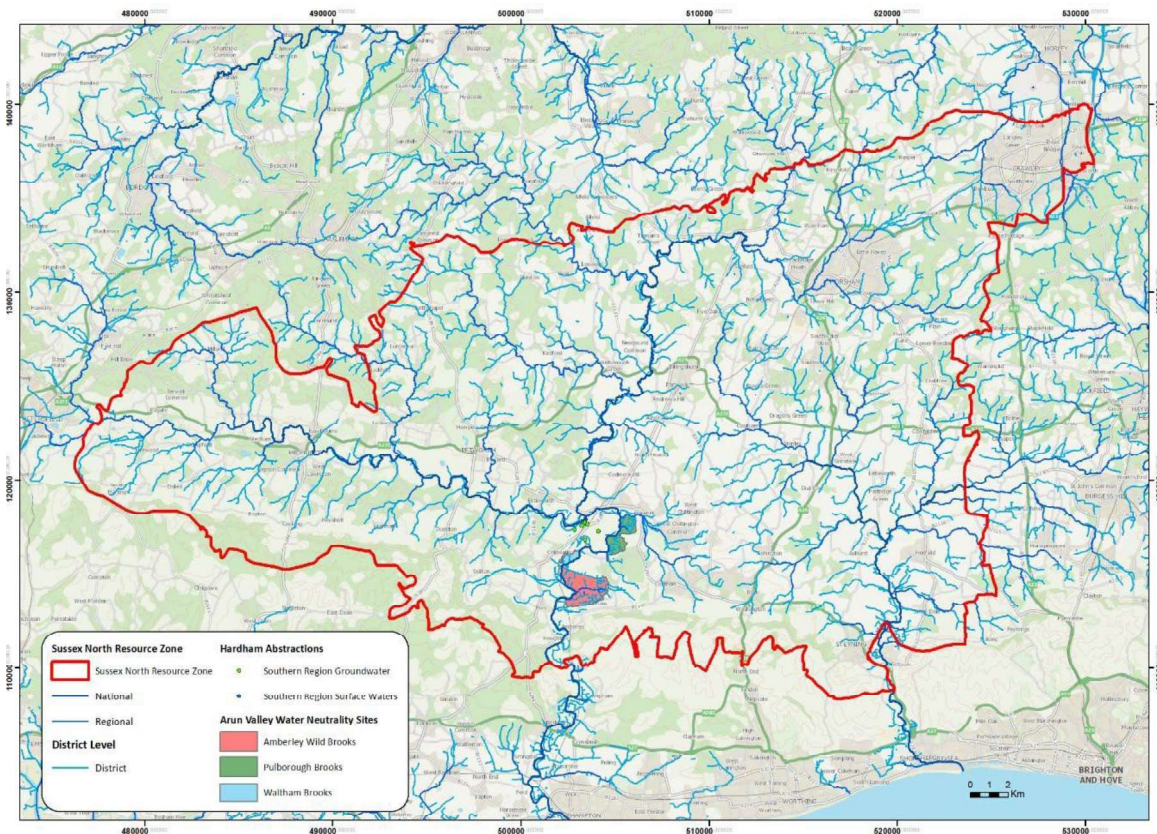
https://www.horsham.gov.uk/data/assets/pdf_file/0019/106552/Natural-Englands-Position-Statement-for-Applications-within-the-Sussex-North-Water-Supply-Zone-September-2021.pdf

As a result of this statement, the Environment Agency have received an increasing number of applications for Groundwater Investigation Consents (GICs) and abstraction licences in the SNWSZ area.

The statement is related to the Southern Water public water groundwater abstraction at Hardham which is located within the SNWSZ. Natural England have advised that it cannot be concluded, with certainty, that there is no adverse effect on the integrity of the following sites from the abstraction at Hardham (see figure 1):

- Arun Valley Special Area Conservation (SAC)
- Arun Valley Special Protection Area (SPA)
- Arun Valley Ramsar Site

Figure 1: Sussex North Water Supply Zone and Location of SSSIs



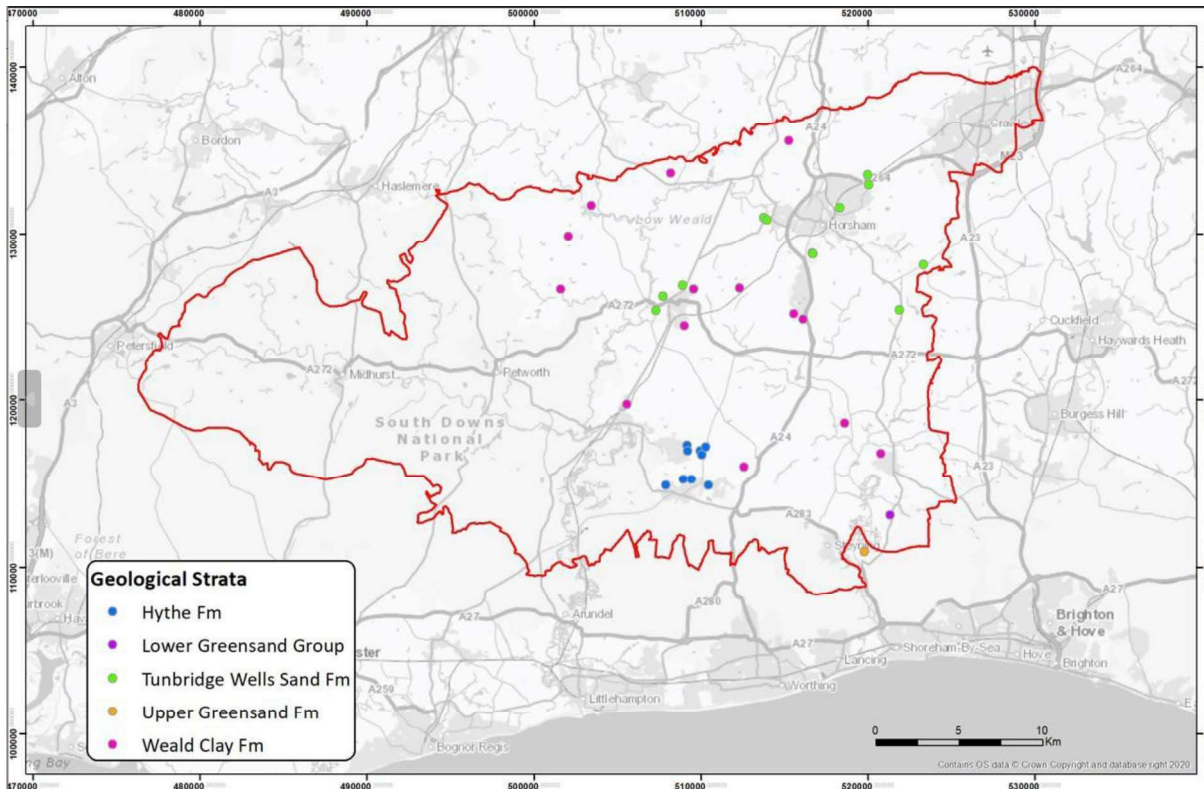
The position statement advises that developments within the supply zone of this abstraction (SNWSZ) must not add to this impact which essentially means new developments are unable to take water from the mains water supply, unless proved to be water neutral.

Private water supplies using aquifers not linked to the Arun Valley protected sites are able to be pursued as part of the new developments. As a result, to gain planning permission within the SNWSZ, there has been a significant increase in developers constructing private water supply boreholes to directly supply their

developments or to generate water credits for use on their sites to offset usage of public water supply connections.

The location of the developments dictate where the boreholes are being drilled. It is frequently the case that the hydrological setting is not appropriate, for example many are being installed in unproductive strata or low yielding aquifers. In addition, there has been a proliferation of boreholes within a relatively small area, creating hotspots of abstraction within some geological strata resulting in competition for water, derogation risks and potential water scarcity. Figure 2 presents the distribution of the recent GIC applications in the SNWSZ.

Figure 2: distribution of GIC applications in the SNWRZ



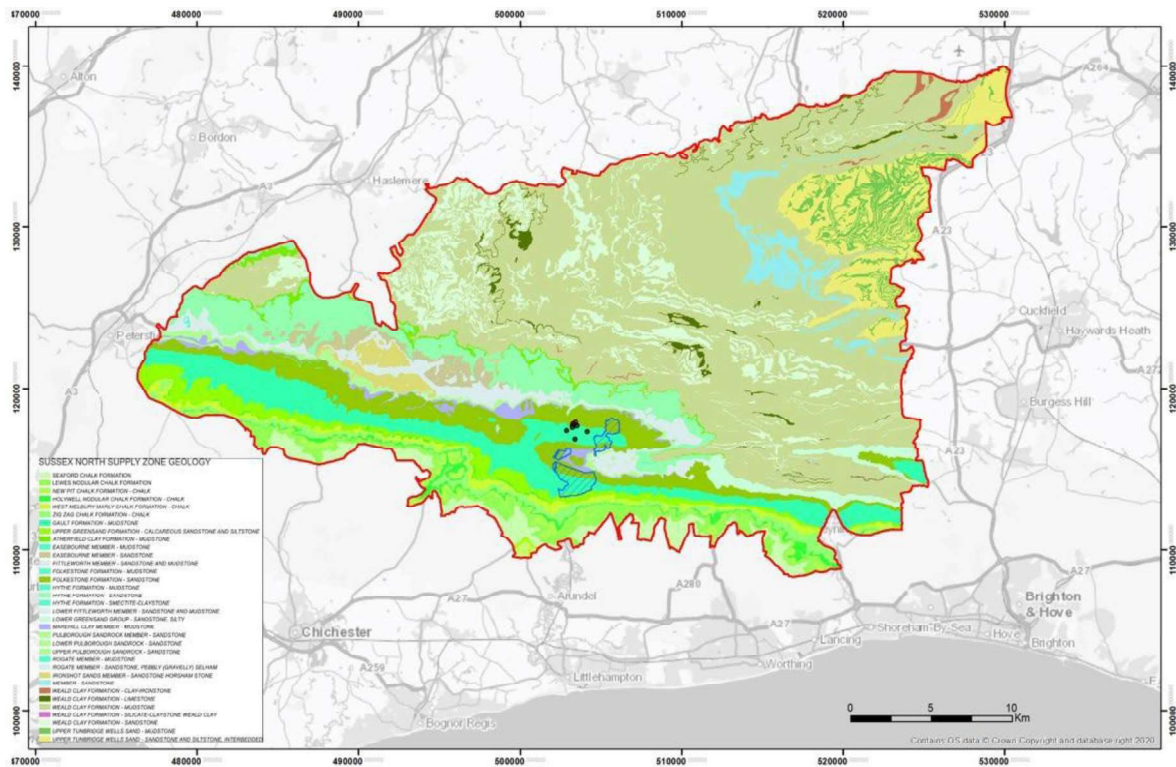
This study will cover two issues that have come up as result of the increase in borehole drilling. Firstly, it will look at the concentration of boreholes in a small geographic area close to Smock Alley in West Sussex where there are concerns about the sustainability of the Hythe Beds within that locality. Secondly it will focus on the Tunbridge Wells Sands in West Sussex where there is more limited information available about this aquifer within SSD.

The specific tasks can be found in the detailed description of tasks section.

[Catchment overview](#)

The SNWSZ covers the area from Petersfield in the west to Horsham in the east, encompassing the Chalk escarpment in the south of the area up to the Weald Clay and Tunbridge Wells Sands in the north of the catchment (see figure 3).

Figure 3: geology of the SNWSZ



The Chalk and Lower Greensand aquifers represent an important groundwater resource. They provide the numerous springs and streams which support surface water flows and wetlands. The River Arun rises from springs to the east of Horsham. It has a ‘flashy’ character with high peak flows but low summer flows. Discharges from water treatment works at the top of the Arun introduce a significant volume of water.

The Western Rother feeds into the tidal River Arun at Pulborough. It is fed by groundwater coming from the Lower Greensand aquifer with small springs also rising from the Chalk of the South Downs. These groundwater inputs mean the Western Rother has much higher summer flows than the Arun. Winter flows can also be high following rainfall.

Across the Chalk and Lower Greensand there is restricted water available for licensing with a policy of a presumption against issuing further consumptive licenses (this does not cover the Lower Greensand around the Smock Alley area). There is no water available in the Hardham GW unit due to action being taken to investigate the Hardham abstraction. The Tunbridge Wells Sand aquifer is classed as having water available for licensing. The Weald Clay, being considered unproductive in WFD, does not have a licensing policy and abstractions are granted based on their sustainability. See the abstraction licensing strategy for more info [Arun and Western Streams abstraction licensing strategy \(ALS\) - GOV.UK \(www.gov.uk\)](http://www.gov.uk).

There is generally restricted or no water available across most of the surface water catchments in the area, apart from in the winter above Q30 (the flow of a river which is exceeded on average for 30% of the time (high flow)).

[Detailed description of project tasks](#)

The project is to be split into 2 tasks to cover an assessment of the Hythe Beds and the Tunbridge Wells Sand.

[Task 1: Hythe beds](#)

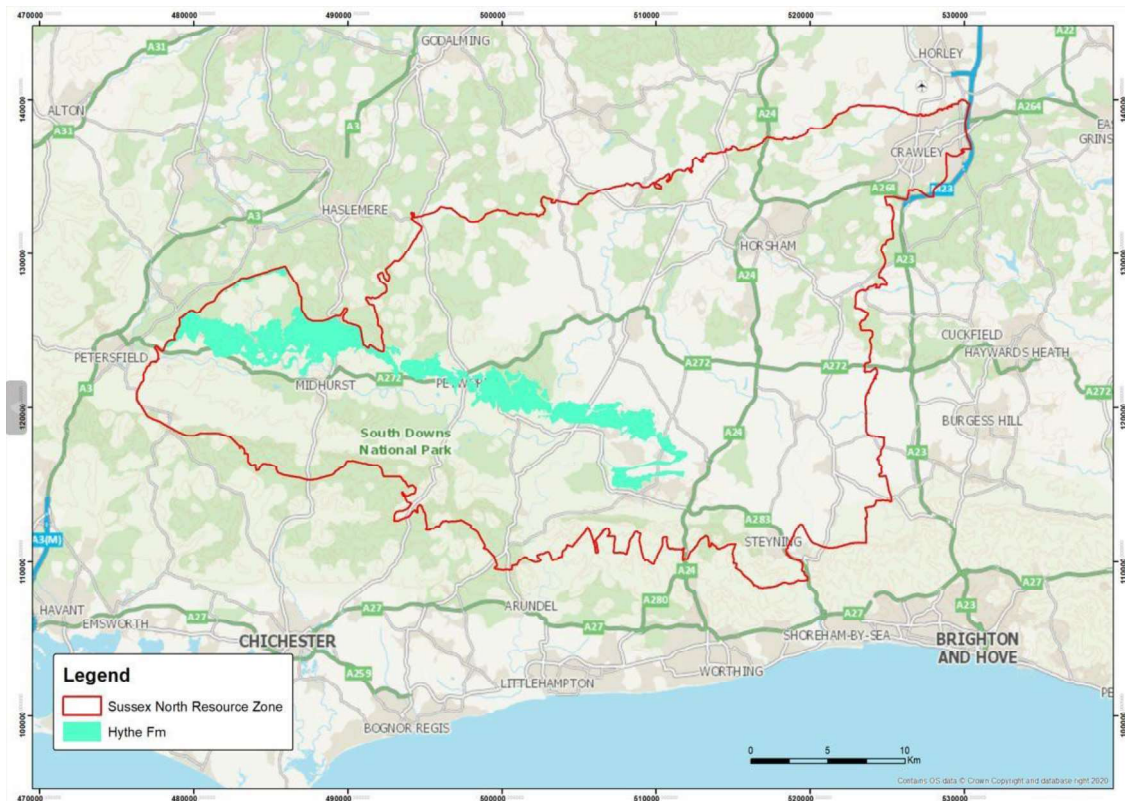
The Hythe Beds Formation is part of the collection of strata known as the Lower Greensand (LGS). The other formations within this group are the overlying Folkestone Beds and Sandgate Beds, and the Atherfield Clay which is underneath the Hythe Beds at the base of the LGS.

The Environment Agency's CAMS has assessed the LGS collection of strata as a principal aquifer, despite the less permeable, and not necessarily hydrogeologically connected, formations also within this group of strata. There is a noticeable variation in the lithology of the Hythe Beds across the south east. In West Sussex the formation comprises of loamy sands and sandstones, with calcareous or siliceous cement in beds or lenses in some areas. Groundwater flow within the Hythe Beds in West Sussex tends to be a mix of intergranular and fracture.

In West Sussex there are a number of public water supply abstractions from the Hythe Beds, in addition to some other smaller abstractions. The Environment Agency has a network of groundwater level observation boreholes in the Hythe Beds to help monitor and manage water resources.

The recent proposals to abstract from the Hythe Beds at a number of sites in a relatively localised area has highlighted the need to further understand the local hydrogeology, and perhaps then produce an abstraction licence policy just for the this strata.

Figure 4: Extent of unconfined Hythe Beds in SNWSZ

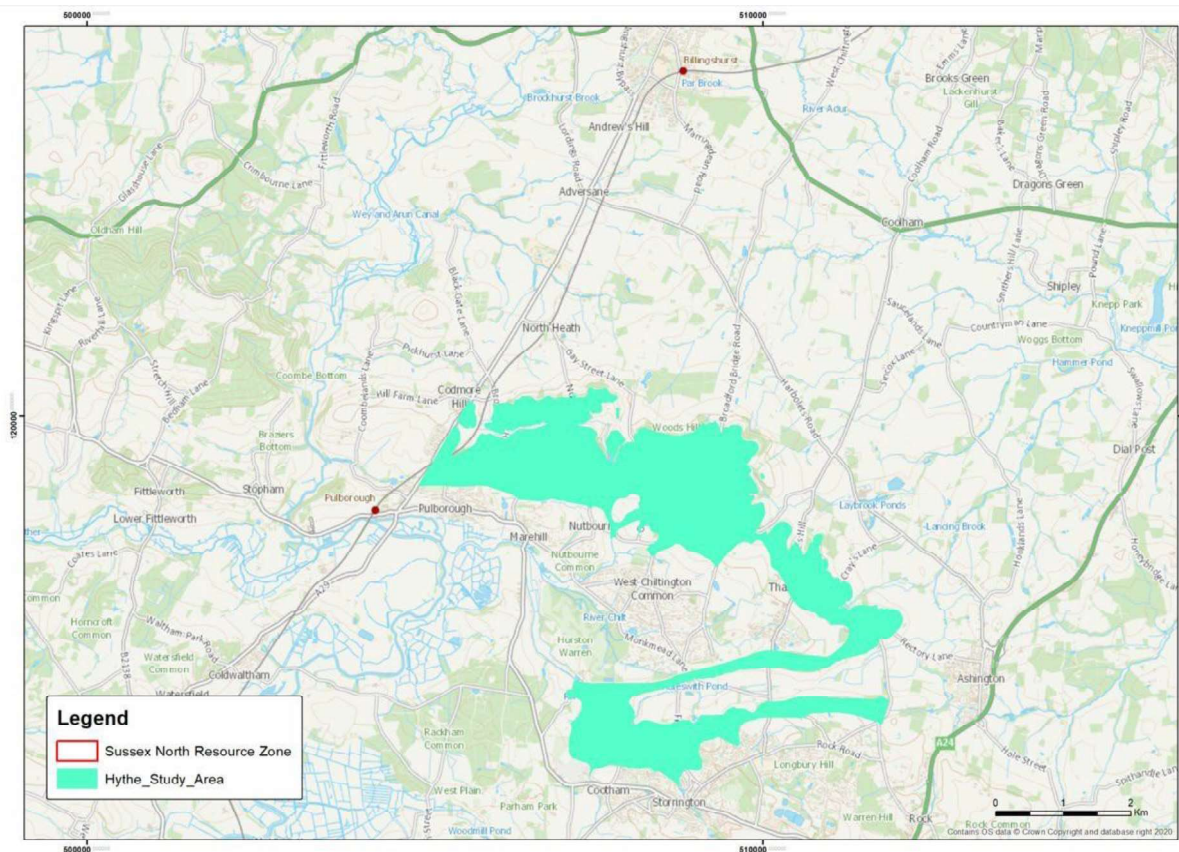


Due to the Water Neutrality position statement, there has been a proliferation of boreholes drilled into the Hythe Beds, in particular concentrating around the Thakeham/West Chiltington area in Sussex, close to the Southern Water Smock Alley PWS. We know of some boreholes through the licensing process, however there are also a number of private supplies that fall under the licensing threshold of 20m³/d, some of which we are aware of, but it is likely there are others that we are unaware of.

Due to the concentration of boreholes in a small geographic area, there are concerns about the sustainability of the Hythe Beds within that locality. In terms of abstraction licensing, we need to understand when we may be at the point when any further exploitation of the Hythe beds should be curtailed, and where any further abstraction would be unsustainable.

The area of study for data collection and aquifer properties is the Hythe Beds in the Sussex North Supply Zone, however for the sustainability study, we are likely to define a smaller area similar to the zone marked on figure 5 below. This would include the unconfined Hythe beds as marked on the map, and the confined Hythe Beds linked to the unconfined area where abstractions may contribute to flow depletion or groundwater mining. This can be discussed at the start up meeting.

Figure 5: Unconfined Hythe Beds draft sustainability study area



AIM:

Develop further understanding of the Hythe Beds in the Smock Alley area, produce a conceptual model and an assessment of aquifer sustainability. The outputs from this project will aid our understanding of the Hythe Beds. The sustainability study will be used to assess abstraction licensing applications in the area and future groundwater unit policies.

APPROACH:

Data collation and formulation of conceptual model (literature review not fieldwork):

- Collate, quality assure, analyse and present available data to include (but not exhaustive list):
 - o borehole logs and test pump data provided by EA/BGS/Local Authority
 - o literature review of previous groundwater studies and geology
 - o groundwater levels (EA and other literature as available)
 - o water quality (EA and other literature as available)

- Critically review previous groundwater studies and any models of the area to pick out information on the Hythe formation to include:
 - o Southern Water Hardham investigation data and documentation

- Develop a conceptual model of the groundwater and surface water to include:
 - o A general overview of the Hythe Formation of the Sussex North Zone
 - o A description of the hydrogeological conditions and flows at the boundaries of the study area
 - o An estimate of all inflows and outflows and their variation in time
 - o Interpretation of geology
 - o Yields
 - o Groundwater quality

- o An estimate of the plausible range of all aquifer parameters in each hydrologically distinct zone
- o A description of the limitations of the current conceptual understanding and the major sources of uncertainty.
- o Define any evidence of connectivity with Folkstone beds
- o Assessment of long-term sustainability and availability of water for future abstractions
- o A definition of the extent of the 'Hythe sustainability study area' (area to be confirmed in start-up meetings) and its subdivision into appropriate zones based on hydrogeology if applicable.
 - Delineation of groundwater body
 - Estimation of water balances and recharge to groundwater body or groundwater management area
 - Water features at risk from non-sustainable abstraction
 - Recommended general location (using existing assets) for a monitoring borehole within the Hythe defined 'sustainability' area.

OUTPUTS:

- Report to include (but not an exhaustive list)
 - o General Overview
 - o Water balance
 - o conceptual model
 - o sustainability issues
 - o description of impacts for
 - water features
 - risk of groundwater mining
 - o recommendations
 - general
 - monitoring BHs (suggested distribution/locations/number)
- GIS layers
 - o If newly defined areas are created

Task 2: Tunbridge Wells Sands

There have been a number of boreholes installed recently for private water supply within the Tunbridge Wells Sand (Upper and Lower) within Solent and South Downs area. This aquifer hasn't been exploited a great deal in this area in the past.

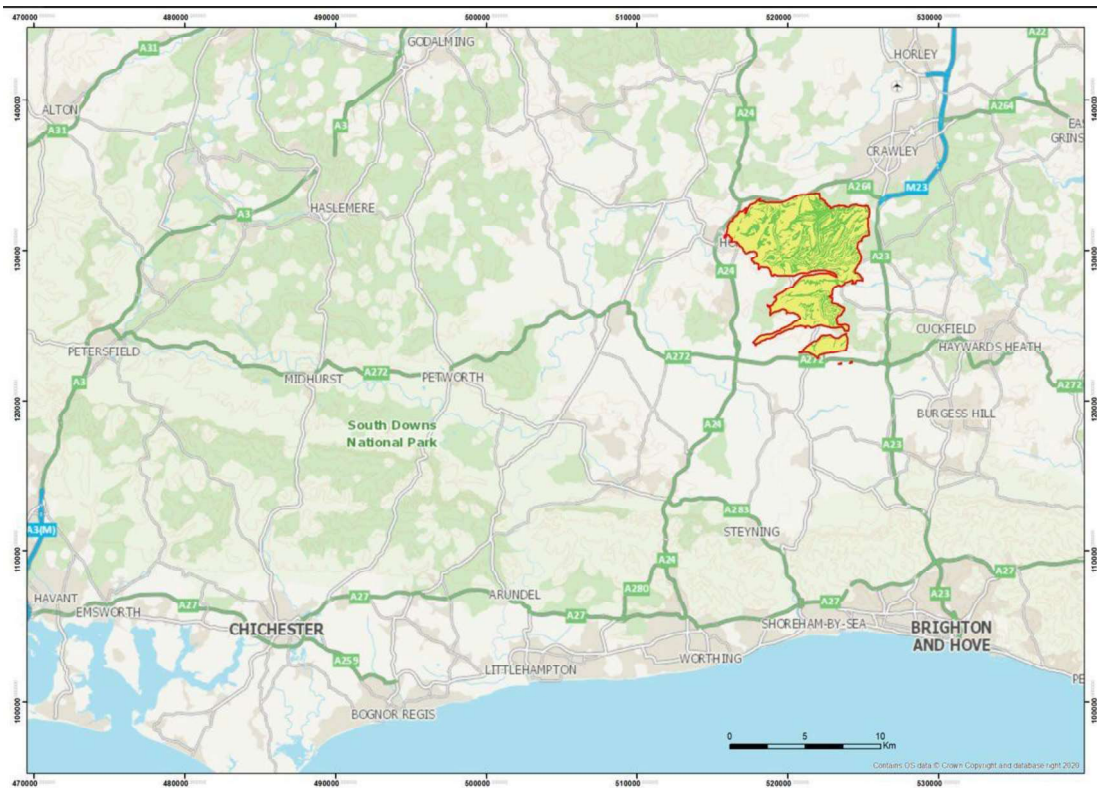
The Tunbridge Wells Sand Formation is the youngest strata of what was called the Hastings Beds, the others being Wadhurst Clay and the Ashdown Beds (now classed as part of the Wealden Group). It is divided into Upper and Lower Tunbridge Wells Sand, with the Grinstead Clay separating them. There are also the sub-divisions Upper and Lower Grinstead Clay which are separated by the Cuckfield Stone. Another distinguishable layer is the Ardingly Sandstone which occurs at the top of the Lower Tunbridge Wells Sand.

The Environment Agency's Abstraction Management Strategy (ALS) has considered the Hastings Beds as a secondary aquifer and as one unit, even though the two differing aquifers (Tunbridge Wells Sand and Ashdown Beds) are separated by the Wadhurst Clay which is classed as a unproductive strata. The Tunbridge Wells Sand has variable or uncertain yield due to fragmented outcrops, and the differing permeability layers within it. Groundwater flow tends to be intergranular with some fracture flow. In comparison with the Ashdown Beds, the Tunbridge Wells Sand has not been developed so much as a source of water, usually just local significant abstractions. There are also very few groundwater level monitoring points in the Tunbridge Wells Sand, probably because historically there was less of a need to understand the hydrogeology as it had not been exploited. Therefore, the recent proposals to develop the aquifer for significant and reliable yields is "new territory" in terms of water resources management and producing an abstraction licensing policy.

AIM:

Develop a conceptual model of the Tunbridge Wells Sand in the SSD, to include the unconfined strata (as seen in figure 6 below) and the confined TWS in the SNWSZ. The conceptual model will increase our understanding of the TWS aquifer and help with GICs and abstraction licensing.

Figure 6: Tunbridge Wells Sands outcrop within the SNWSZ



APPROACH:

Develop a conceptual model of the groundwater and surface water to include:

- o A definition of the extent of the study area and its subdivision into appropriate zones based on hydrogeology
- o A description of the hydrogeological conditions and flows at the boundaries of the study area
- o An estimate of all inflows and outflows and their variation in time
- o An estimate of the plausible range of all aquifer parameters in each hydrologically distinct zone
- o A description of the limitations of the current conceptual understanding and the major sources of uncertainty.
- o Interpretation of geology
- o Connectivity with other geological units if present
- o Delineation of groundwater body
- o Assess the current abstractions from the TWS
 - Number of abstractions
 - Distribution
 - Yields
 - Borehole construction
- o Estimation of water balances and recharge to groundwater body or groundwater management area
- o Water features at risk from non sustainable abstraction
- o Assessment of long term sustainability and availability of water for future abstractions

OUTPUTS:

- Report to include (but not an exhaustive list)
 - o General Overview

- o Water balance
 - o conceptual model
 - o Geology and aquifer properties
 - Upper and lower Tunbridge Wells Sand
 - o Groundwater quality
 - o Recharge – confined/unconfined
 - o sustainability issues
 - o description of impacts for
 - water features
 - risk of groundwater mining
 - o recommendations
 - general
 - monitoring BHs (suggested distribution/locations/number)
- GIS layers
 - o If newly defined areas are created
 - Suggested local groundwater management unit policy and details (if recommended)

Project structure and timescales

TIMESCALES:

When expect to let contact: 1st October 2024 Completion date: 31st March 2025

Summary payment milestones: On completion of all tasks stated in the project deliverables.

OUTLINE OF PROJECT TEAM:

The work will be let by the Groundwater, Hydrology and Contaminated Land team (GWHCL) in Solent and South Downs Area of the Environment Agency.

The project team will consist of staff from within GWHCL and the Area Environment Programme teams.

Project Manager: [redacted] (GWHCL)

GWHCL Technical Project Team: [redacted]

PROJECT MANAGEMENT REQUIREMENTS:

Frequency of meetings: 4 Progress Meetings.

To include a project start up meeting in early October 2024, a meeting to review the draft report in Feb/Early March 2025 and 2 others as required.

PROJECT DELIVERABLES:

Task	Deliverables	Party Responsible	Date
1	Attend start up meeting to discuss the project	Atkins	October 2024 TBC
2	<ul style="list-style-type: none"> Carry out a review of the information as detailed in the approach section for the Hythe beds above. Produce a draft conceptual report for the Hythe Beds as detailed in the outputs section above. Attend a Teams meeting to discuss the draft report and agree amendments. Produce a final report for the Hythe Beds as detailed in the outputs section above. 	Atkins	<p>Sub task deliverable dates TBC</p> <p>March 2025</p>
3	<ul style="list-style-type: none"> Carry out a review of the information as detailed above in the approach section for the Tunbridge Wells Sandstone. Produce a draft conceptual report for the Tunbridge Wells Sandstone as detailed in the outputs section above. Attend a Teams meeting to discuss the draft report and agree amendments. Produce a final conceptual report for the Tunbridge Wells Sandstone as detailed in the outputs section above. 	Atkins	<p>Sub task deliverable dates TBC</p> <p>March 2025</p>

Note:

The startup meetings for Task 1 and 2 will be combined. The meetings to discuss the draft amendments for the reports can either be combined or kept separate as required.

The quotation should also include 2 meetings with the project steering group (dates TBC) and monthly project updates to the EA project manager. All meetings will be via MS Teams.

[Appendix](#)

EXPLANATION OF GICs:

If a private water supply abstracts less than 20 cubic meters per day from its source there is no legal requirement for an abstraction licence, however, if the abstraction is above 20 cubic meters per day a licence is required. In many cases, to apply for an abstraction license the applicant is required to apply for a Groundwater Investigation Consent (GIC).

GICs are a legal requirement in the process of applying for an abstraction licence and covers drilling and test pumping of the proposed borehole. To date the Solent and South Downs area have received 40+ applications since the introduction of Water Neutrality, with between 1 and 3 new applications per month showing an increasing trend. These figures do not include unlicensed abstractions (below 20 cubic meters per day).

END