

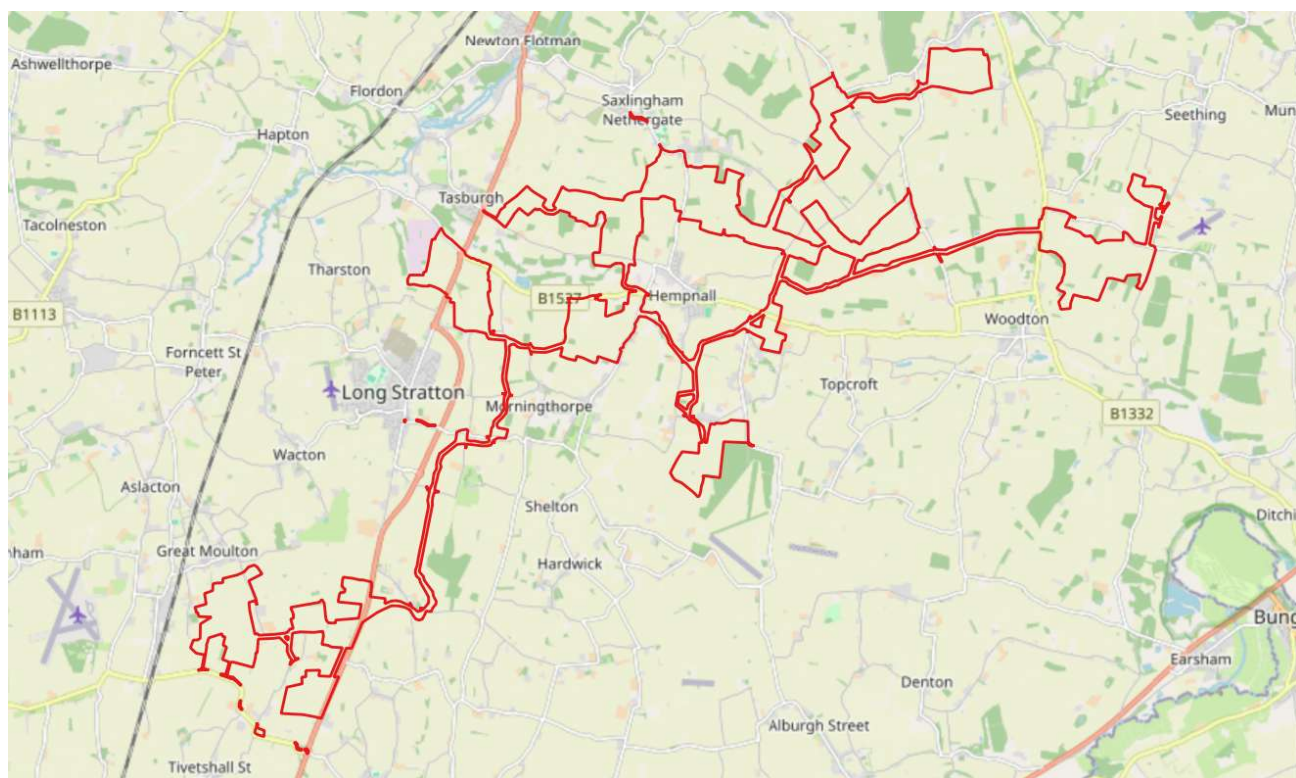


**H Fraser
Consulting**

Contaminated Land
and Hydrogeology

East Pye Solar

Environmental Impact Assessment Review Report: Ground conditions, hydrology and hydrogeology



Prepared for: Block East Pye Solar

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GLOSSARY

BESS Battery Energy Storage System

EA Environment Agency

EPS East Pye Solar

GWDTE Groundwater Dependent Terrestrial Ecosystems

m aOD metres above Ordnance Datum

PrWS Private Water Supplies

PV Photo-voltaic

PWS Public Water Supplies

RBMP River Basin Management Plan

SPZ Source Protection Zone

WFD The Water Framework Directive 2000/60/EC of the European Parliament as transposed into UK Law by The Water Environment (Water Framework Directive)(England and Wales) Regulations 2017



1. INTRODUCTION

H Fraser Consulting Ltd (HFCL) has been instructed by Block East Pye Solar (BEPS) to provide a critical review of the ground conditions and water resources elements of the Environmental Statement and associated documents submitted in support of the application made to the Planning Inspectorate (PINS) by East Pye Solar Ltd (the Applicant), PINS Reference EN0110014.

1.1 Objective

The objective of the work is to ascertain whether environmental impacts of the scheme pertaining to surface water and groundwater have been appropriately identified by East Pye Solar Ltd, and whether the scheme incorporates adequate mitigation to ensure that impacts to surface waters and related human and environmental receptors will be reduced to acceptable levels.

1.2 Scope of works

In undertaking the review, HFCL has reviewed those aspects of the Environmental Statement that pertain to the subject areas, including the associated Technical Appendices. The primary focus of the review was Chapter 9 (Water Resources) and Chapter 16 (Ground Conditions) and the Technical Appendices thereto. Other Chapters have been reviewed where pertinent, including Chapter 4 (The Scheme), Chapter 5 (Reasonable Alternatives and Design Evolution) and Chapter 18 (Other Environmental Matters), but we provide no comments on these chapters directly. HFCL's review has focussed on the areas of its technical specialism in assessment of ground conditions, hydrology and hydrogeology.

2 BACKGROUND

East Pye Solar (EPS) comprises the construction, operation and maintenance, and decommissioning of a ground-mounted solar photovoltaic (PV) generating station and associated development, including:

- A BESS (Battery Energy Storage System);
- A number of project substations (both 132kv and 400kv); and
- A new National Grid substation operated by National Grid Electricity Transmission plc.

The Scheme also involves grid connection infrastructure including works to the existing 400kV overhead line and associated pylon(s) (for example, the relocation or moving of the existing pylon(s), new pylons, temporary replacement pylon(s) and restringing of the overhead line). Underground electricity cabling will run between the Solar PV sites within the Cable Route Corridor (CRC) to connect to the BESS and the National Grid substation¹.

All scheme boundaries and information are based on the most up to date plans available as of June 2026.

This section is informed by desk study information, and a site visit undertaken by HFCL staff on 18th and 19th June 2026; site photographs and commentary on the site visit are presented in Appendix A.

2.1 Site setting and current use

The Site is located 11 km south of the city of Norwich, Norfolk. The indicative plan borders and intersects many smaller villages such as Long Stratton, Morningthorpe, Hempnall and Great Moulton. The site location, and boundaries are shown in Figure 2-1.

¹ <https://www.eastpyesolar.co.uk/scheme-overview>

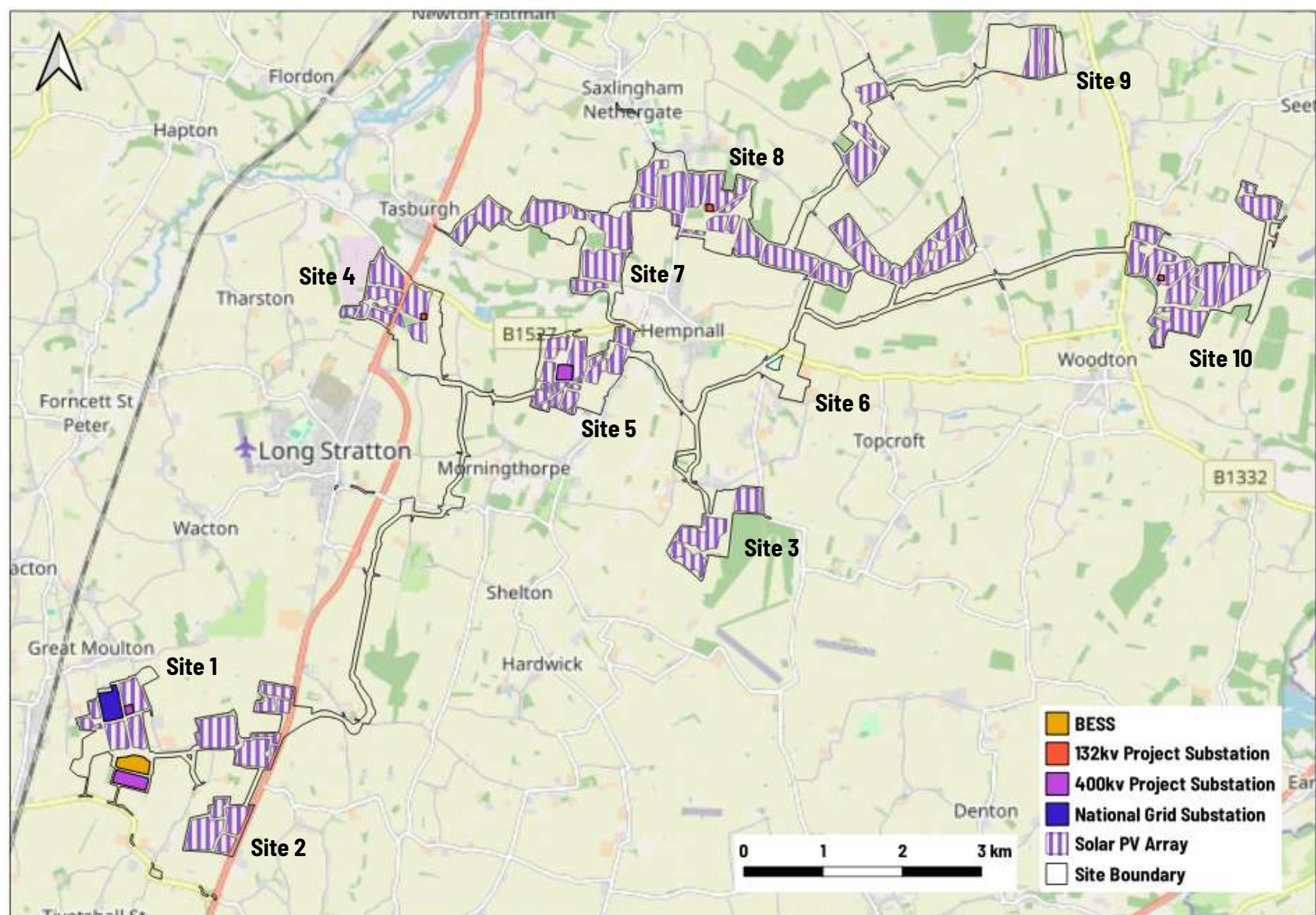


Figure 2-1 Site Location and Indicative Plans

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EPS Indicative Masterplan, April 2026

2.2 Site description

The centre of The Site is easting 622249, northing 292893. The Scheme will cover 1,212.3 hectares (ha) of agricultural land, of which approximately 1,051 ha will host the solar panels, BESS Site and substations and approximately 159 ha of land will be within the Cable Route Corridor (CRC). There are seven highways improvement areas within the Order Limits covering a combined 2.02 ha².

2.3 Topography and Hydrology

The Site spans c. 17 km of varied topography which can be seen in Figure 2-2 below. The highest point is 58 m AOD in the southwest down to 22 m AOD in the middle of The Site. The Site intercepts two river catchments, the River Waveney in the south, and the River Yare in the north. A broad overview of these can be seen in Figure 2-3 below.

The Site and surrounding areas are mapped as having a generally interconnected ditch and stream network. The ditches and watercourses are reported by local residents to have a direct response to rainfall, with high water levels (both groundwater and watercourse levels) in the wet winter months.

Several springs are mapped in the area³. One spring was located on the site visit to Elder Farm/The Forge, situated next to Site 1.

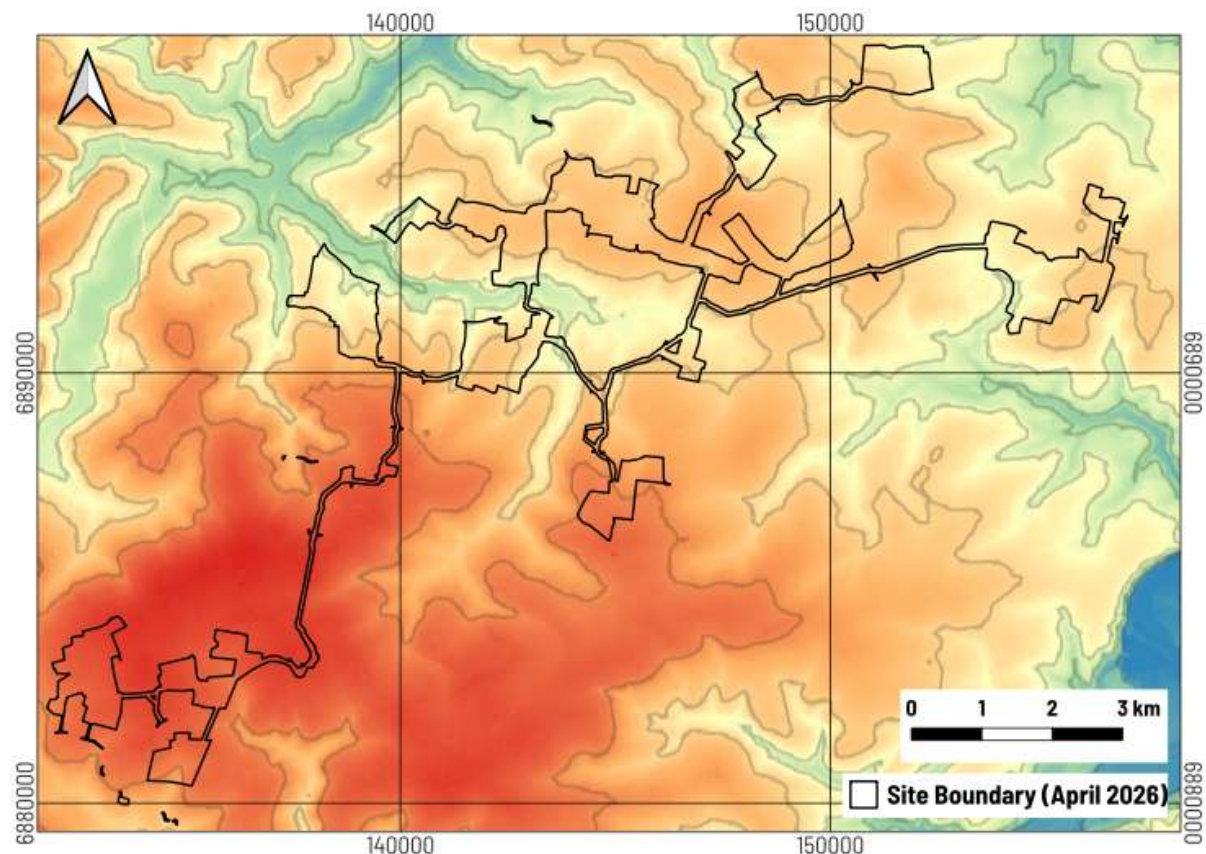


Figure 2-2 Site Topography

National LiDAR programme, © Environment Agency copyright and/or database right 2025. All rights reserved
Based on 2 m DTM (digital terrain model)

² East Pye Solar Pre-Examination Newsletter - April 2026

³ BGS Hydrogeological Maps Northern East Anglia Map 4

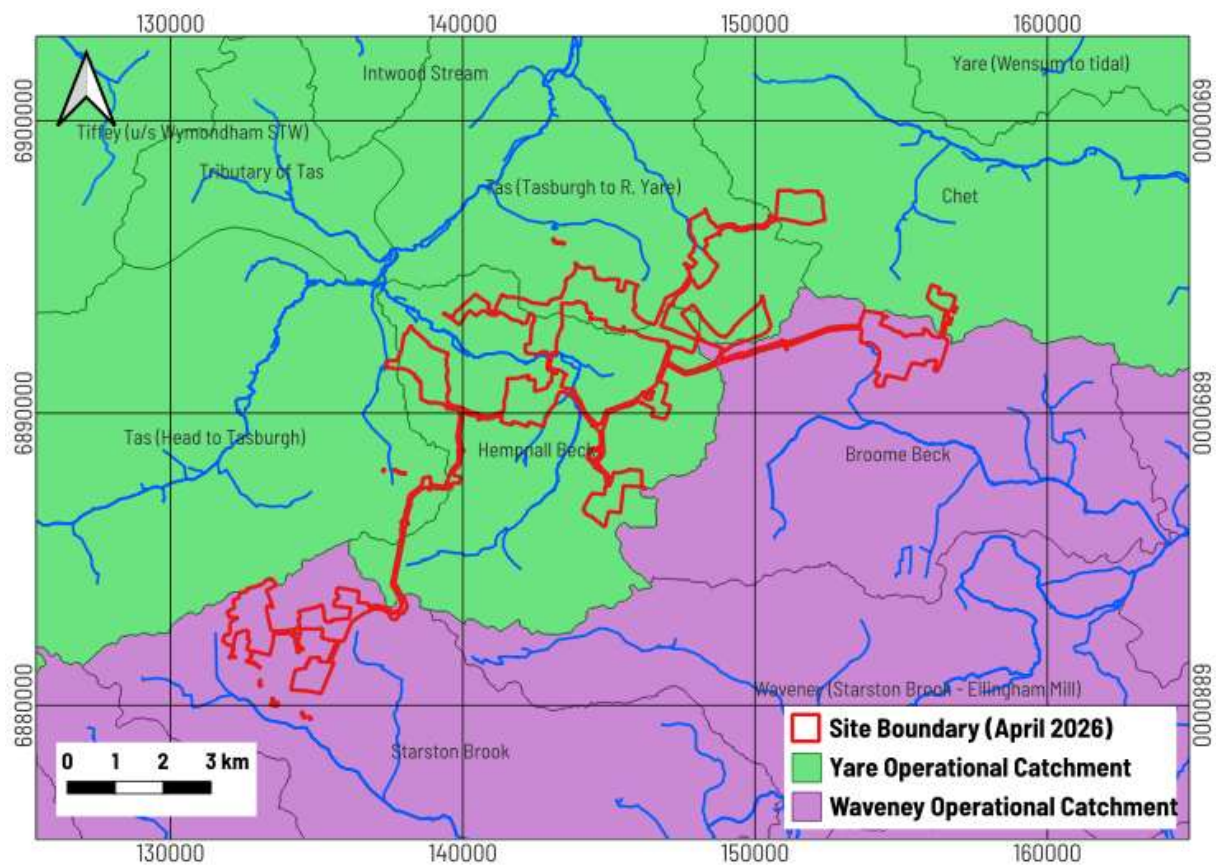


Figure 2-3 Water Bodies Catchments

2.4 Bedrock and Superficial Geology

The bedrock geology under the proposed site plan can be seen in Figure 2-4 below. The Site area sits largely upon the Crag Group bedrock, which is defined as: Sands, gravels, silts and clays. The sands are characteristically dark green from glauconite but weather to bright orange with haematite 'iron pans'. The gravels in the lower part of the group are almost entirely composed of flint⁴.

The White Chalk Subgroup sits unconformably below the Crag group, and below the site on the eastern side. This is defined as: Chalk with flints. With discrete marl seams, nodular chalk, sponge-rich and flint seams throughout.

⁴ The BGS Lexicon of Named Rock Units, Crag Group

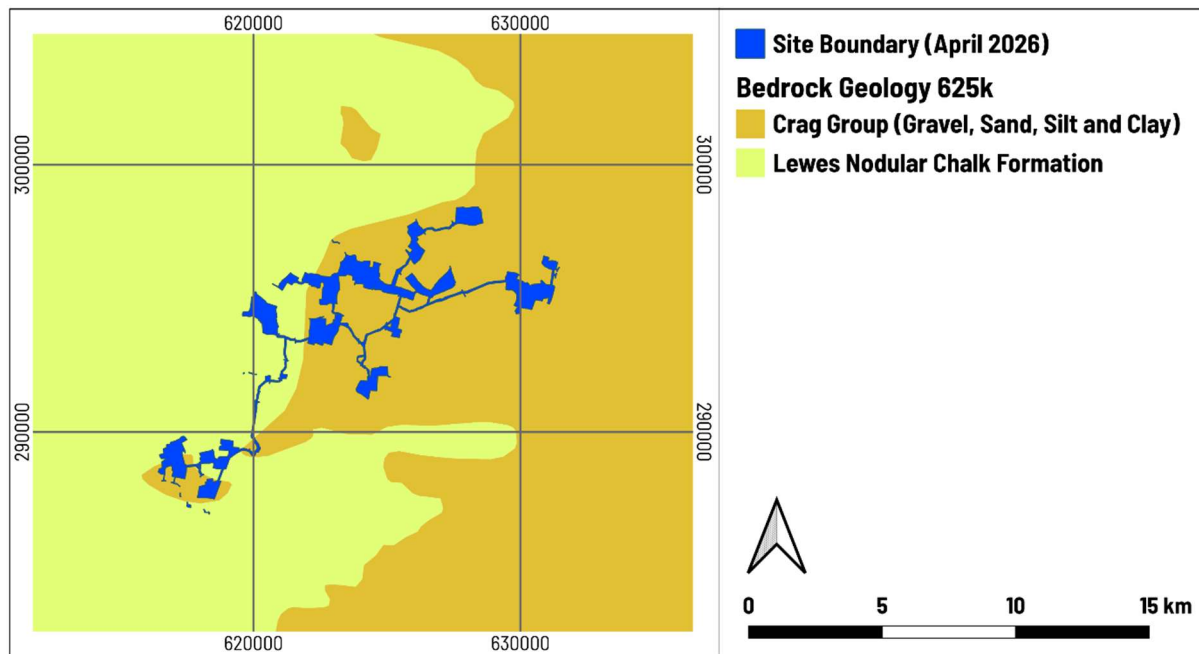


Figure 2-4 Bedrock Geology 625k

Contains British Geological Survey materials © UKRI [2026].

Figure 2-5 below shows the local superficial geology in 50k resolution. This indicates that the site is broadly underlain by Diamictic Till (specifically The Lowestoft Formation, a chalky Till), this is defined as: unsorted and unstratified drift, generally overconsolidated, deposited directly by and underneath a glacier without subsequent reworking by water from the glacier. It consists of a heterogeneous mixture of clay, sand, gravel, and boulders varying widely in size and shape (Diamictic). A band of Leet Hill Sand And Gravel Member lies in the valley of the Hempnall Beck, through the central Site, which is overlain in the central valley by Alluvium, some Happisburgh Glacigenic Formation And Lowestoft Formation, Head and Peat.

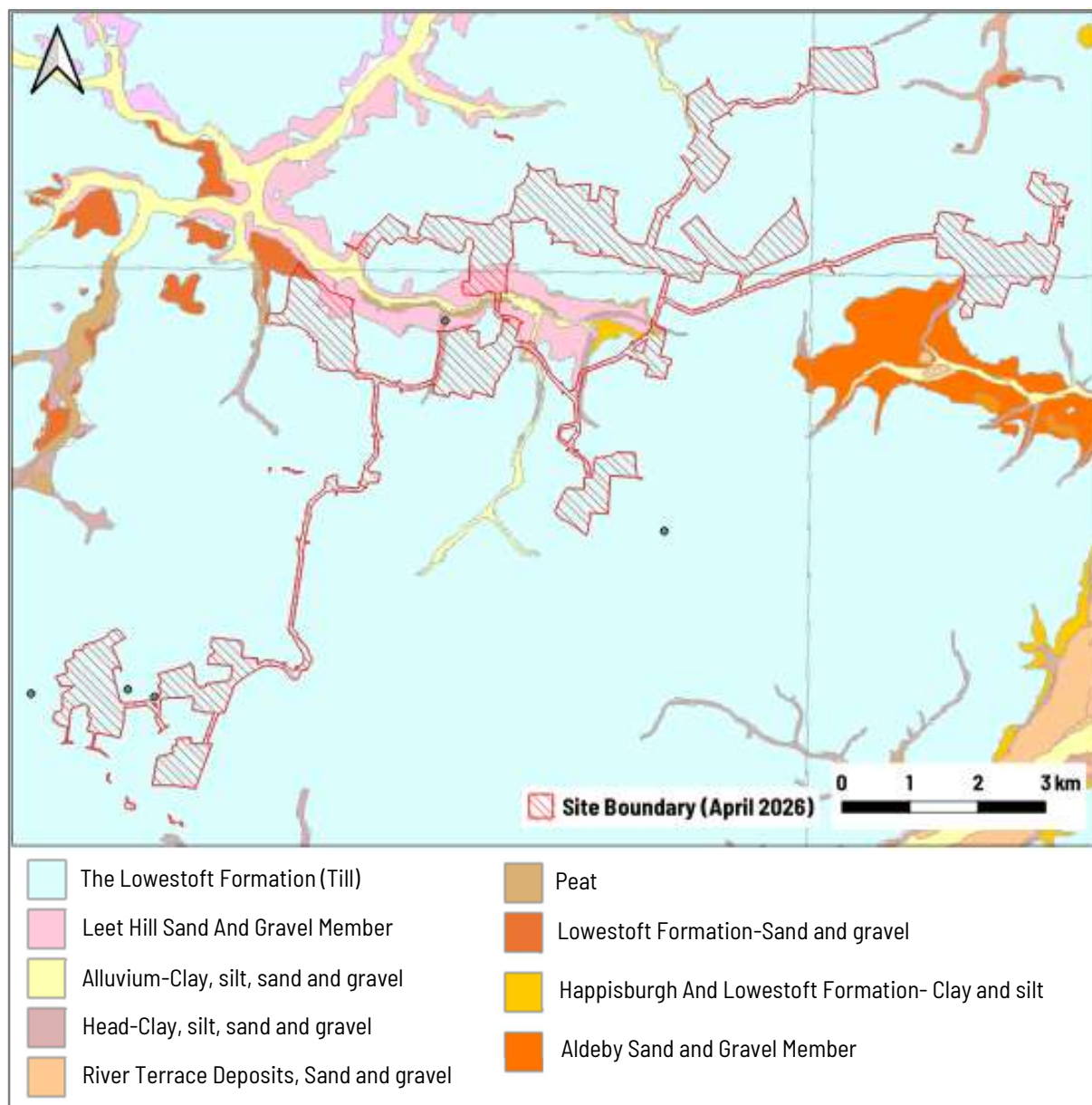


Figure 2-5 Superficial Geology 50k

Contains British Geological Survey materials © UKRI [2026].

2.5 Hydrogeology

The Crag Group and underlying White Chalk are classed as principal aquifers. The Till underlying the site is classed as a Secondary (undifferentiated) aquifer and the Sand and Gravel deposits as Secondary A. The groundwater vulnerability is generally classed as medium to medium-high⁵.

2.5.1 Private water supplies (PrWS)

The Applicant has not provided the full list of PrWS obtained from the Local Authority and states the reason for this as being due to the Local Authority's Data Protection requirements. HFCL approached the Local Authority to obtain the location of PrWS, as shown in Figure 2-6. It can be seen that there are PrWS abstractions within the site itself, and many others close to the proposed development.

⁵ Groundwater Vulnerability Maps (2017) on MAGIC

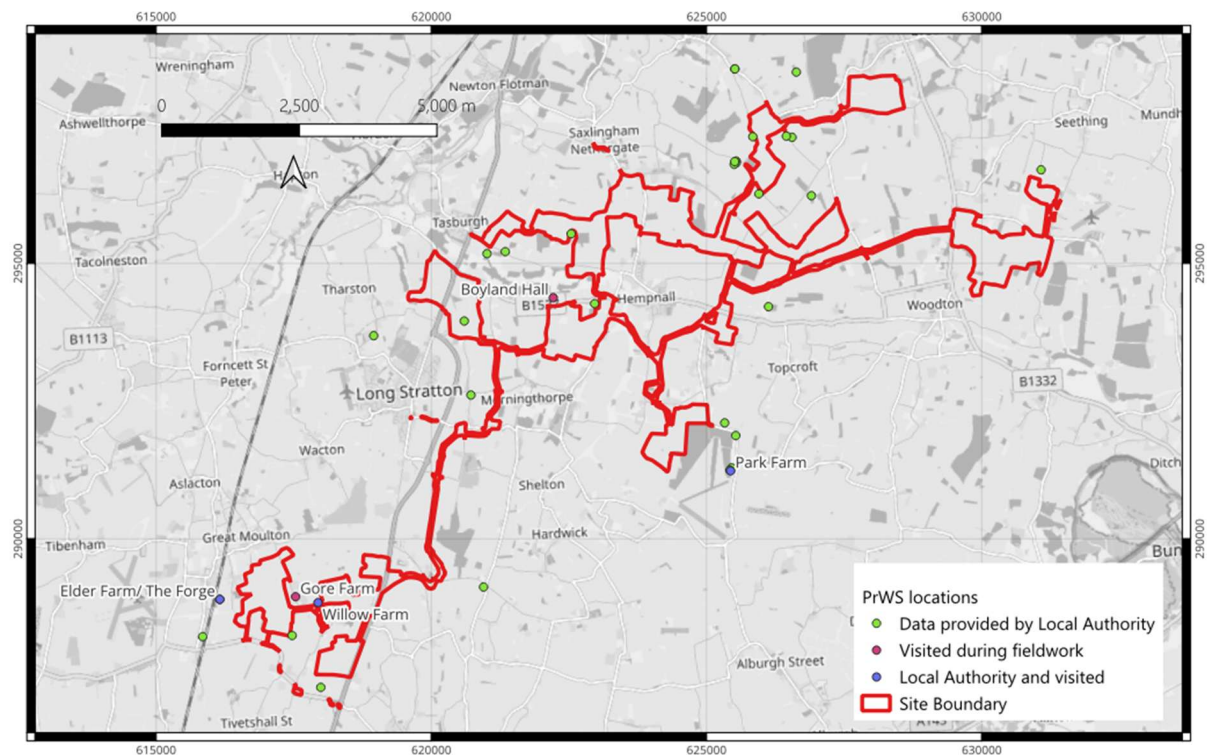


Figure 2-6 Private water supply (PrWS) locations provided by South Norfolk District Council and observed during fieldwork

During the site visit, a small selection of businesses and residences were visited, to verify the local conditions and confirm the location of a subset of Private Water Supplies. These are mapped along with all BGS recorded boreholes in Figure 2-7 below. A summary of the properties visited is given in Table 2.1

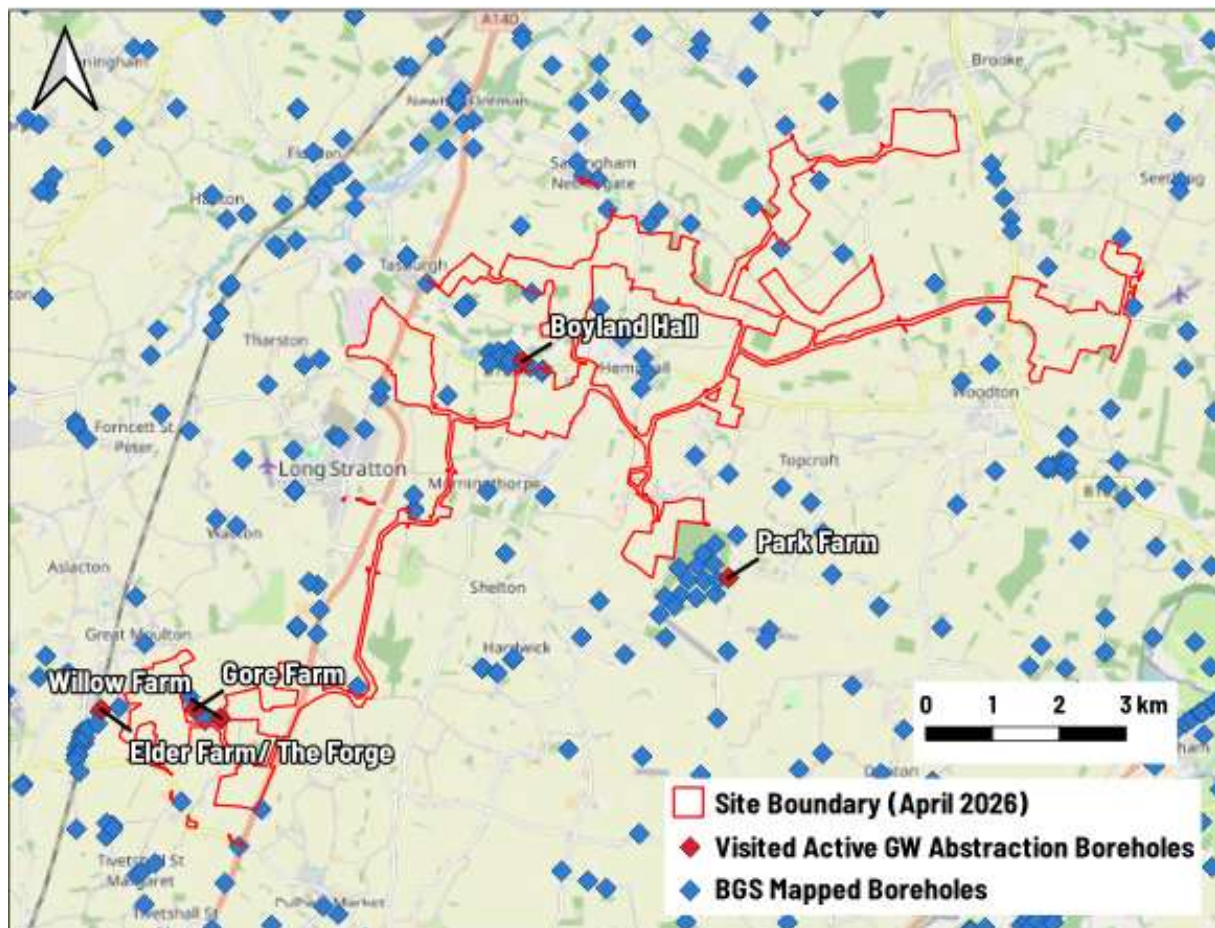


Figure 2-7 Local Borehole Records

Table 2.1 Private water supplies visited during site visit

Name	Location (x,y)	Sit visit notes	Applicant's conclusions
Boyland Hall	622222, 294386	Active groundwater pumping borehole. Resident's only water supply.	Assumed to be represented by BGS logs TM29SW13 and TM29SW14. Boyland Hall and all outbuildings now demolished. Assume disused.
Elder Farm/ The Forge	616144, 288896	Active groundwater pumping borehole, under manhole cover. Resident's only water supply.	BGS records indicate this borehole is lined into the chalk and (in 1980) was fitted with a submersible pump. Assume active.
Gore Farm	617540, 288957	Active groundwater pumping borehole.	EA permitted abstraction. Allows the abstraction groundwater from a borehole, for the purposes of "General Farming and Domestic". Assumed to have drawn water from chalk, based on geology of nearby TM18NE34. Assume active.

Name	Location (x,y)	Sit visit notes	Applicant's conclusions
Park Farm	625451, 291290	Active groundwater pumping well, under manhole cover. Resident's only water supply.	Outside of 250m buffer so not discussed by Applicant.
Willow Farm	617937, 288850	Active groundwater pumping borehole, under manhole cover. Resident's only water supply.	BGS Water Well Record. Borehole encounters chalk at 22.5m bgl. Water struck at 45.1m bgl. Lined to 44.6m bgl. Assumed to draw water from chalk. Visit record dated 30/11/1950 states "in use for farm, 500 [gallons per day]. Takes over an hour to pump. Petrol engine. Bore inaccessible for measurement". Borehole assumed to still be in use as an active PWS record is provided.

It can be seen that there are several locations where a private groundwater supply is the only source of water to a residence; indeed it is likely that a large proportion if not all private water supplies are the only water supply to a residence. It is also evident from speaking with local residents that some of these supplies are from shallow groundwater sources. Assumptions made by the Applicant can be seen to be inaccurate in the case of the Boyland Hall supply. It is considered likely that other PrWS will have been omitted from assessment due to the Applicant's lack of lack of ground truthing and lack of cross-checking with address database.

2.5.2 Environmentally Sensitive Sites

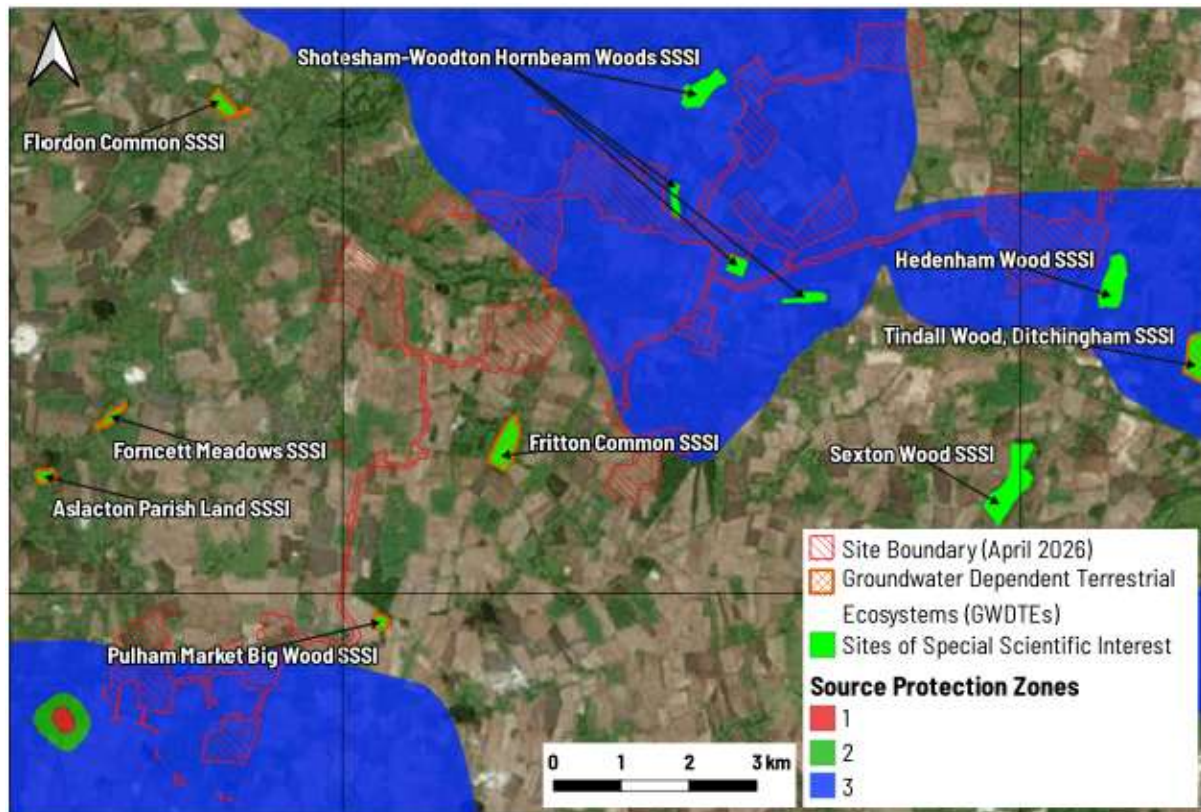


Figure 2-8 Environmentally Sensitive Sites

A variety of environmentally sensitive sites lie close to The Site and can be seen in Figure 2-8 above. Shotesham-Woodton Hornbeam Woods Site of Special Scientific Interest (SSSI) includes land parcels adjacent to The Site boundary towards the top of The Site. Fritton Common SSSI sits with The Site to the west, north and east, Hedenham Wood SSSI sits close to the eastern border and Pulham Market Big Wood SSSI is close to the connecting corridor southwards of the site. Other SSSIs within approximately 5 km include Flordon Common, Forncett Meadows, Aslacton Parish Land, Tindall Wood (Ditchingham) and Sexton Wood.

Flordon Common, Forncett Meadows, Aslacton Parish Land, Pulham Market Big Wood, Fritton Common and Tindall Wood Ditchingham are also designated Groundwater Dependent Terrestrial Ecosystems (GWDTEs), making them sensitive to changes in groundwater level and quality.

Large areas of the Site fall within Source Protection Zones (SPZ) specifically zone 3 (This is the area around a groundwater supply source within which all the groundwater ends up at the abstraction point). A SPZ1 and SPZ2 are present 700 m and 350 m from the southwestern border but do not overlap the site.

3 ES REVIEW

3.1 ES Chapter 9 Water Resources and Chapter 16 Ground Conditions

Hydrology and surface water is the subject of Chapter 9. Chapter 9 also assesses the potential impact on water resources. Hydrogeology forms part of the subject of Chapter 16. The text within the ES acknowledges the interplay between the two Chapters, but the splitting of hydrology and hydrogeology does appear to have led to some inconsistencies and omissions in the overall ES, as discussed below.

Due to the overlapping subject areas, both Chapters are commented on in tandem below, so that the topics of hydrology and hydrogeology can be reviewed in a cohesive manner.

3.1.1 Assessment Methodology

The method of assessment is set out by the Applicant in Sections 9.5 and 16.5 of the ES. That set out in Section 9.5 has several elements that require further clarification:

1. Table 9.3 sets out the criteria for sensitivity of receptor. Within the descriptions of each sensitivity level, distance from the scheme boundary is used as a qualifying factor in receptor sensitivity. There are two issues with this:
 - a. The sensitivity of a receptor is intrinsic to that receptor and its ability to withstand or recover from change. It should not be related to distance from the scheme. The distance from (or connectivity to) the scheme controls how likely an impact on a receptor is, not its sensitivity to that impact.
 - b. Notwithstanding the above point, distance from the scheme is not necessarily a reliable indicator of the degree of connectivity. It is the degree of connectivity that will control how likely a receptor may be impacted, and distance from the scheme is only one of several controls on connectivity.

There is then inconsistency in how distance from the scheme is used to qualify the sensitivity of Private Water Supplies (PWS):

- Table 9.3 uses distance criteria of <50 m Very High, 50 – 250 m High, 250 – 500 m Medium, 500 – 1,000 m Low and >1,000 m Negligible.
 - Table 9.4 uses <1 km Very High, 1 – 3 km High, and 3 – 5 km Medium
2. The water resources assessment is inconsistent with the Anglian District River Basin Management Plan (RBMP) (which sets the required water quality status and objectives under the Water Framework Directive Regulations (2015)). In Table 9.5 the threshold defining a High magnitude of change (the largest magnitude) requires that a detrimental impact on water quality needs to be sufficient to have caused two steps down in the water body status (e.g. from High to Medium). The objectives set by the RBMP however are to; prevent deterioration of the status of surface water and groundwater; to achieve objectives and standards for protected areas, and; to aim to achieve 'good status' for all waterbodies. The definition of a High magnitude of change should match these objectives.
 3. The definition of magnitude of change for water resources assessment is inconsistent with those set out in Chapter 8 for the same receptors. In Chapter 9, the entire loss of a legally protected wildlife site is required to qualify as a High magnitude of change. Chapter 8 describes a High magnitude of change as being "a permanent or long-term effect on an Important Ecological Feature (which is defined elsewhere in the document as including legally protected sites), which may result in severe damage to key characteristics and implications for the integrity of the receptor or its conservation status". This latter definition accords with guidelines provided by the Chartered Institute of Ecology and Environmental Management (CIEEM). The definition as set out in Chapter 9 is inconsistent with this guidance. It does not align with the aims of the Wildlife and Countryside Act

(W&CA) 1981 nor does it adhere to the requirements of the Conservation of Habitats and Species Regulations (Habitats Regulations) 2017, both of which protect the integrity and status of protected wildlife sites, as well as their existence.

4. The matrix used to ascribe the relationship between magnitude of effect, sensitivity of receptor and significance of effect in Chapter 9 is not consistent with that in Chapter 16. Whilst it is accepted practice in EIA that each subject area may have differing mechanisms for defining significance of effect, the commonalities between these two subject areas makes it unhelpful. This is of particular importance given that surface water and groundwater are split between the two Chapters.
Indeed, the matrix used in Chapter 9 is unsatisfactory in that it jumps two classes of significance of effect (Major to Minor) in response to a single step in magnitude of impact (Medium to Low). Negligible significance of change results from a combination of higher sensitivity and magnitude classes (e.g. low x low = negligible, whereas low x low = minor would be more appropriate). Minor/ Negligible is also inappropriately used as a product of medium x low. This inconsistency and inappropriateness in the significance of effect matrix in Chapter 9 is raised in the Environment Agency's representation. The same issues are not present in the equivalent matrix in Chapter 16.
5. The magnitude of impact categories are not consistent between Chapter 9 and Chapter 16. Chapter 9 uses four categories of magnitude; High, Medium, Low and Negligible. Chapter 16 uses five categories; Large, Medium, Small, Very Small and Negligible. It is difficult to correlate between the two chapters where apparent overlap occurs (e.g. for the magnitude of change associated with water quality in surface water features, which is defined in terms of Environmental Quality Standards in Chapter 16, but is described in terms of deterioration between WFD classes in Chapter 9).

3.1.2 Scope

A description of the water body catchments (as defined by the Environment Agency under WFD) that the scheme is situated within is provided in Chapter 9 and in Technical Appendix 9.2 (Water Framework Directive Assessment). There are six such water body catchments and a groundwater body.

The Applicant screens three of the water body catchments out of the WFD and ES process on the basis that there are no main rivers or watercourses within the footprint of the scheme. In each case, ditches have been identified within the scheme. These ditches are connected directly to water bodies. The proposed construction programme will include considerable disturbance of the ground, with the potential for mobilising silt and other pollutants (fuels, oils, foul effluent from works compounds, plant & equipment, for example). The screening out of these water bodies is not appropriate.

The groundwater of the Broadland Rivers Chalk and Crag Water Body has been scoped out of the WFD assessment by the Applicant. The rationale provided is that the proposed scheme only covers a relatively small proportion of the total catchment. Given the importance of this aquifer to both private and public water supply in the region (many of which are extremely close to the scheme), this is inappropriate.

The Water Resources Assessment (Technical Appendix 9.3) appears to take no account of the water required by the project during construction, other than that consumed by the associated welfare units. Water will also be required for concrete batching, dust suppression, cleaning of plant & equipment for example.

3.1.3 Baseline

3.1.3.1 Private Water Supplies (PWS)

The methodology used by the Applicant to ensure that all PWSs have been identified and assessed is not presented. Three sources have been described (Local Authority records, BGS database records and Environment Agency permit records). It is typical that, even in combination, such sources do not enable identification of all of PWS. Cross-checking with an address database and mains water supply records is required such that further investigation can be made into those addresses that do not have an identified PWS, nor are connected to the mains network. Such investigation includes ground-truthing where details of the abstraction are not available.

Unless these steps have been taken, the PWS baseline has been insufficiently characterised, and potentially sensitive receptors remain unidentified.

This is important, as the Water Resources Assessment characterises the known PWS supplies as predominantly drawing from the chalk, which is overlain by the glacial till of the Lowestoft Formation. Limited ground-truthing undertaken by HFCL has proven that PWS abstractions from the glacial till at shallow depths are not unusual.

HFCL have obtained the PWS database from the Local Authority and it has been received in the form of grid reference locations only. Of these, three were visited during the HFCL site survey, in addition to a further EA licenced supply and, critically, a supply that did not appear on the Local Authority list that remains active but was assumed inactive by the Applicant (Boyland Hall). The HFCL site survey was very limited and intended as a snapshot of site conditions only. It is therefore possible (indeed probable) that other PrWS have been omitted from the Applicant's assessment. A programme of cross-checking with address database and subsequent ground truthing is required to ensure that all PrWS are identified and appropriately assessed.

3.1.3.2 GWDTEs

The Environment Agency has identified GWDTEs within SSSIs that have not been identified by the Applicant.

3.1.3.3 Aquifer designation

Table 16.7 characterises the bedrock aquifers as Secondary A Aquifers (incorrectly). Following sections of the Chapter then list it (correctly) as a Principal Aquifer. The Chalk and Crag Group are a Principal Aquifer, and of strategic importance in supplying water to the residents, agriculture and industry of East Anglia. Table 16.12 is confused as to whether the SPZs are protective of groundwater abstractions from the shallow superficial deposits or deeper bedrock beneath. This should be clarified.

3.1.3.4 SPZs

As highlighted by the Environment Agency in their representation, Chapter 9 of the ES has not identified the presence of Zone I of a Source Protection Zone (SPZ) which lies within the study area.

Chapter 9 also does not properly represent the extent of all of the SPZs present beneath the scheme. It simply refers to the northern part of the scheme being within an SPZ. In fact of the entire scheme, only Sites 2C, 4A, 4B, 5A and 7A are outside of an SPZ. The majority of the scheme lies within SPZ limits.

3.1.3.5 Conceptual model

The Applicant does not provide or define the hydrogeological conceptual model anywhere in the ES documentation. The Water Resources Assessment focusses purely on potable and non-potable water resources, with no discussion of the overall conceptual model. The baseline section of Chapter 9 of the ES makes no reference to the current hydrogeological conditions at all. Chapter 16 provides a description of the EA aquifer designations, but provides no description of the hydrogeological conditions. Thus the assessment of wider hydrological and hydrogeological impacts is not supported by a sufficiently defined baseline.

Of particular note is the lack of due consideration of the hydrogeological relationship between the chalk and Crag Group Principal Aquifer at depth and the overlying Lowestoft Till Formation. The BGS have published a paper on the importance of this relationship when assessing the degree to which changes made at the ground surface may impact the Principal Aquifer at depth. This concludes that;

- Recharge to the chalk aquifer through the till is between 4.5% and 20% of effective rainfall (i.e. not insignificant);
- Overland flow is rare, consistent with a relatively permeable weathered till horizon and, where present, cover sand at shallow depths;
- The weathered till of the Lowestoft Formation has hydraulic conductivities typically between 10^{-6} m/s and 10^{-8} m/s, but can be as high as 10^{-5} m/s. Groundwater movement and storage can therefore be expected in some locations in weathered horizons.

The Lowestoft Formation is incorrectly characterised as impermeable in the Ground Conditions Desk Study (e.g. Section 2.4.10). The research undertaken by the BGS indicates that this the reality is more complex than this. The upper, weathered horizons in the formation can be relatively permeable, and are known to support PWSs in some locations. Sand and gravel horizons and lenses are described by the BGS, and the Formation is designated as a Secondary (Undifferentiated) Aquifer by the EA. The degree of permeability in the shallow till is also reflected in the medium groundwater vulnerability ascribed to the Formation by the EA, and the presence of GWDTs within the area of glacial till coverage.

3.1.4 Assessment

3.1.4.1 Assessment of effects

In both Chapters, effects are combined in the assessment, preventing the interrogation of the EIA at a receptor-by-receptor level.

Impact on the hydrogeology and the aquifers beneath the scheme are assessed in Chapter 16. However, the construction phase effects included within the assessment are only those associated with the potential for the scheme to mobilise contamination that may already be present within the areas of brownfield land present within the scheme footprint. No assessment has been made of the potential for the development itself to cause impact to the aquifers (through silt run-off, leaks, spills etc.).

The assessment of effects on water resources is predicated on the water balance set out in the Water Resources Assessment (Technical Appendix 9.3). The lack of available potable or non-potable water in the catchment is acknowledged by the applicant, rendering it impossible for the Applicant to be provided with water by means of supply (from Anglian Water Services) or abstraction.

The solution to this is set out in the WRA as being twofold;

- Import of water to site by road tanker, and;
- Rainwater harvesting.

No information is provided on the origin of the tankered, imported water. Given much of East Anglia is under similar water stress, this is important to define in order that the Applicant can substantiate the lack of significant impact stated within the ES.

Rainwater harvesting for use by the development is presented as water-neutral (i.e. 100% non-consumptive). This will not be the case; for example, there will be water that ends up in foul effluent exported from site, water lost through evapotranspiration during use, etc. This consumptive element could be significant in both construction and operational phase, which in turn reduces the volume of water infiltrating to ground.

This is important, because no account is made of this effect in Chapter 9 or Chapter 16 (with respect to potential impact on PWSs, particularly those which abstract from the shallow glacial till), nor in Chapter 8 (with respect to potential impact on ecological features and habitat creation/ Habitat Management Plan).

3.1.4.2 GWDTE assessment

No assessment of the potential linkage(s) between the scheme and GWDTEs has been provided by the Applicant. GWDTEs are not fully assessed and the hydrogeological conceptual model has not been properly characterised in this regard.

3.1.4.3 Water quality

There is confusion in the assessment of impact to water quality. Chapter 9 uses WFD classes as a metric for measuring magnitude of effect, whereas Chapter 16 uses EQS. Magnitude of change has 4 classes in Chapter 9, 5 classes in Chapter 16.

No hydrogeological conceptual model is provided, and hence assessment of the interaction of the scheme with hydrology and hydrogeology receptors has not been informed by a full understanding of the hydrogeological conditions.

Insufficient detail is provided on; the baseline water quality; the relative position of the scheme in each Water Body catchment, and; the possible impact of the development on these water bodies. This is of particular importance given the scale of the development and its location at the headwater of some catchments.

3.2 Technical Appendices

Where elements of the Technical Appendices are relevant to the discussion of ES content and process, these have been discussed in Section 3.1 above. Additional observations on the individual Appendices are made below, where considered salient.

3.2.1 Technical Appendix 9.1 FRA and Outline Surface Water Drainage Strategy

Paragraph 9.10.16 identified areas at surface water flood risk within and in the area of the 400kV substation and National Grid Substation in Sub-Site 1B. The same paragraph states that “an appropriate solution will be considered at the detailed design stage for the conveyance of surface water exceedance flows from the fields upstream of these areas”. It is critically important that water arising from surface water flooding is not managed by the same system as will deliver the containment of firewater, as this could lead to the overwhelming of the containment system in the event that a fire and stormwater event coincide.

In discussing mitigation measures, paragraph 9.11.4 states that “the BESS may be split into ‘compartments’ of battery units, each with their own associated lined aggregate sub-base area and

separated by lengths of access track. This would aid in the isolating and testing of surface water runoff, and remediation of affected areas following a fire incident". The use of qualifying words "may" and "would" makes it impossible to determine whether this is planned mitigation or not.

3.2.2 Technical Appendix 9.2 WFD Assessment

As discussed in Section 3.1.2, three of the water body catchments and the groundwater body are scoped out of the WFD assessment.

Given that there are water features within the scheme that drain to these water bodies, this is not appropriate.

Similarly, whilst the groundwater of the Broadland Rivers Chalk and Crag Water Body has been scoped out of the WFD assessment by the Applicant, this is purely on the basis that the scheme covers a relatively small proportion of the total catchment. The decision to screen in or out should be made on the likely impact the scheme may have on any part of the groundwater body, not aggregated across its entire catchment. To do otherwise does not give sufficient attention to the potential for deterioration of water quality in groundwater baseflow or in locally important groundwater resources, for example.

3.2.3 Technical Appendix 9.3 Water Resource Assessment

There is no assessment made of water quality impacts within this document. This is addressed at high level only in Chapter 9 and Chapter 16.

No allowance has been made in the WRA water balance assessment for water required in construction processes. Water will be required for processes including concrete batching, dust suppression, cleaning of plant & equipment etc. and this has not been included in the water balance.

There is no confirmation as to where the imported tankered water will be coming from. Other catchments across East Anglia are under similar levels of water stress, and it must be ensured that the problem is not displaced to impact another, similarly stressed catchment.

If rainfall harvesting is used, then this will also need to be considered in the water balance, as some of that use will be consumptive (e.g. that which ends up as foul drainage to be tankered away), and so overall infiltration will be reduced, hence recharge to aquifer will be reduced.

Rainfall capture from the new panels will decrease infiltration to ground, and it is not clear whether this reduction in infiltration been taken account of in the assessment of habitats and ecology in Chapter 8 and in the Habitat Management Plan.

The figures presented within the WRA do not appear to tally correctly. For example, Section 2.1.8 describes 278 people on site during construction, requiring 0.1m³ each (a daily demand of 27.8m³). However, the daily demand stated in Section 2.1.6 is 31.13m³. Section 2.1.9 states that between 0.04m³ and 0.06m³ (40 to 60%) of the required water is non potable, but the daily non-potable construction phase demand stated in Section 2.1.6 is 55.38% and it is not clear how this has been arrived at.

3.2.4 Technical Appendix 16.1 Phase 1 Ground Conditions Assessment

Table 3-10 of the document sets out the details of each identified PWS within 3 km of the scheme. It ascribes a target stratum for each borehole, either based on direct evidence (i.e. historical borehole log) or by extrapolation from other sources. In this process, the Applicant has assumed that the presence of Lowestoft Formation (as indicated by nearby exploratory hole records) precludes the possibility that this is the source of water being abstracted. In other cases the

Applicant states that the thinning of the Lowestoft Formation is also evidence to suggest it is not being used as a source. These two assumptions appear to be confused and inconsistent.

It is known that some PWS in the study area abstract from the Lowestoft Formation, so these assumptions may be unsound. Indeed, for PWS record TM29NW25, the Applicant sets out how the Lowestoft Formation supports this abstraction, confirming that the till can indeed support PWSs.

The document discusses the possible need for piled foundations, and that these may present preferential vertical pathways for pollution migration. It then assesses this to be low risk, due to the absence of brownfield land sources where piled structures may be required. Such assessment takes no account of the source potential represented by the scheme itself, both during the construction phase (fuels, oils etc.) and operational phase (BESS firewater, etc.).

3.2.5 Technical Appendix 16.2 Mineral Resource Assessment Desk Study

No detailed comments are provided on this document and it has not been reviewed in detail.

4 SUMMARY OF KEY COMMENTS

The following table provides a summary of the key observations and comments arising from this review, and provides a note on whether the assessment has met the required guidance, including consideration as to whether Regulation 20 of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 applies (i.e. further information is required from the Applicant).

Table 4.1 Summary of key comments

Ref.	Comment/ Observation	Note on adherence to guidance/ Regulation 20 consideration
1	The definition of effect differs between Chapter 9 (within which hydrology is primarily addressed) and Chapter 16 (within which hydrogeology is primarily addressed). This lack of consistency is significant given the aspects of connectivity and commonality between the two chapters.	Does not follow guidance (e.g. EU 2017 ⁶) Requires further information under Regulation 20
2	The definition of significance of effect in Chapter 9 is not precautionary enough in its treatment of protected wildlife sites. It is not consistent with Chapter 8 in this regard.	Does not meet requirements of W&CA 1981 or Habs Regs 2017. Requires further information under Regulation 20
3	The definition of significance of effect in Chapter 9 is not precautionary enough in its treatment of water bodies, and it is not consistent with Chapter 16 in this regard.	Does not meet the requirements of WFD ⁷ . Requires further information under Regulation 20
4	Three WFD surface water bodies and one WFD groundwater body have been screened out of the EIA and WFD assessment processes, despite development being planned in the catchment, and despite the presence of water features within the scheme that connect to these water bodies. Insufficient consideration has been given to the potentially contaminative effect of the development itself.	Does not meet the requirements of WFD. Requires further information under Regulation 20
5	The assessment of impact on water resources does not include due consideration of the water that will be required during construction (for concrete batching, dust suppression etc.)	Does not follow guidance (e.g. EU 2017 ⁸)

⁶ Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU)

⁷ The Water Framework Directive as transposed into UK Law by The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017

⁸ Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU)

Ref.	Comment/ Observation	Note on adherence to guidance/ Regulation 20 consideration
		Requires further information under Regulation 20
6	The assessment of impact on water resources assumes that the use of rainwater captured within the scheme will be non-consumptive. This will not be the case, as water will be lost to foul effluent, increased evapo-transpiration etc. This impacts the ecological assessment in Chapter 8 and the likely efficacy of the Habitat Management Plan.	Does not meet the requirements of WFD. Requires further information under Regulation 20
7	The assessment of water resources relies on the import of water from outside the catchments in which the scheme is located. The source of this water is not identified. Given that wider East Anglia is similarly water stressed as the scheme catchments, identifying the source for this water is important to ensure that the scheme does not derogate other water users.	Does not meet the requirements of WFD. Requires further information under Regulation 20
8	The baseline provided for PrWSs relies on assumptions that are not sound; • No comparison of the PrWS records, mains water supply records and address database has been undertaken, so properties with PrWS but without records have likely not been identified. • No ground-truthing of PrWS has been undertaken • The general assumption that the Lowestoft Formation glacial till does not support PrWS is unsound.	Lack of adherence to the available guidance on assessing PrWSs (SEPA 2024a⁹). Requires further information under Regulation 20
9	The Applicant has not identified all GWDTEs within the study area. No assessment is presented of the possible connectivity between the scheme and these GWDTEs. The impacts on these sensitive receptors have therefore been omitted from the EIA.	Lack of adherence to Defra/ EA guidance on assessment of groundwater (EA/ Defra 2017¹⁰). and the available guidance on assessing

⁹ <https://www.sepa.org.uk/media/mfzpnjwb/guidance-on-assessing-the-impacts-of-developments-on-groundwater-abstractions.docx>

¹⁰ <https://www.gov.uk/government/publications/groundwater-protection-technical-guidance/groundwater-protection-technical-guidance>

Ref.	Comment/ Observation	Note on adherence to guidance/ Regulation 20 consideration
		GWDTEs (SEPA 2024¹¹). (Hulme, 2001)¹¹ Requires further information under Regulation 20
10	The applicant does not present a conceptual hydrogeological model for the site. The assessment is therefore reliant on a baseline that has not been fully characterised. An example of the importance of this is the relationship between the Lowestoft Formation glacial till and underlying chalk/ crag aquifer: The applicant has assumed the till is impermeable in the majority of cases, whereas published literature indicates a more complex model than this.	Lack of adherence to Defra/ EA guidance on assessment of groundwater^{12 13 14 15}. Requires further information under Regulation 20
11	The ES chapters do not provide sufficient detail on the assessment of each category of receptor, having aggregated the summary of effects across several receptors in the ES text. This makes interrogation of the assessment process impossible and does not follow EIA regulations.	Does not follow guidance (e.g. EIA Regs 2017¹⁶) Requires further information under Regulation 20
12	Insufficient detail is provided in the assessment on the interaction of surface water flooding with the management of firewater and run-off in the 400kV and National Grid substations in Site 1, and on the make-up of the BESS infrastructure with relation to the management of firewater. There is therefore Insufficient detail to assess the likely effectiveness of the proposed embedded mitigation.	Insufficient detail to assess the likely effectiveness of the proposed embedded mitigation. Requires further information under Regulation 20
13	The Assessment of the potential interaction of piled structures with the underlying aquifer focusses solely	Lack of adherence to Defra/ EA guidance on assessment of

¹¹ <https://www.sepa.org.uk/media/a1yh0blq/guidance-on-assessing-the-impacts-of-developments-on-groundwater-dependent-terrestrial-ecosystems.docx>

¹² L Brown, L., Hulme, P., 2001. Environment Agency Framework for Groundwater Resources: Conceptual and Numerical Modelling. Environment Agency, R&D Technical Report W214, 2001.

¹³ McMahon, A., Heathcote, J., Carey, M., Erskine, A., 2001. Guide to Good Practice for the Development of Conceptual Models and the Selection and Application of Mathematical Models of Contaminant Transport Processes in the Subsurface. Environment Agency, R&D Technical Report NC/99/38/2, July 2001.

¹⁴ **LCRM: Stage 1 risk assessment** <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm/lcrm-stage-1-risk-assessment>

¹⁵ **Groundwater risk assessment** for your environmental permit <https://www.gov.uk/guidance/groundwater-risk-assessment-for-your-environmental-permit>

¹⁶ The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 Schedule 5.

Ref.	Comment/ Observation	Note on adherence to guidance/ Regulation 20 consideration
	on the likely presence/ absence of brownfield land (as a source of contamination). The potential for the scheme itself to be a source of contamination (e.g. fuels, oils, firewater) is not assessed.	groundwater (EA/ Defra 2017 ¹⁷). Requires further information under Regulation 20
14	There is confusion in the ES document as to the designation of the bedrock aquifer and the location of SPZs.	Clarification is required from the Applicant.
15	It is not clear how the figures used in the water balance within the Water Resources Assessment have been arrived at.	Clarification is required from the Applicant.

¹⁷ <https://www.gov.uk/government/publications/groundwater-protection-technical-guidance/groundwater-protection-technical-guidance>

5 CONCLUSIONS

HFCL has reviewed the ground conditions, hydrology and hydrogeological assessments within the East Pye Solar scheme ES and associated Technical Appendices.

A series of observations and comments have been made that highlight points of deficiency in the assessment work undertaken, both in the EIA process itself and in the technical work that underpins it.

The failings identified result in the statutory requirements of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, Wildlife and Countryside Act 1981, the Conservation of Habitats and Species Regulations 2017 and the Water Framework Directive Regulations 2015 not being met. The assessment is also not compliant with government and non - statutory guidance.

The deficiencies in the ES result in a significant lack of confidence that impacts to the water environment are properly understood or can be mitigated. The receptors that are potentially under threat from derogation or pollution of water resources include: groundwater in shallow and deep aquifers; residents relying on shallow or deep groundwater as their sole source of water supply; other groundwater and surface water users; local water courses; sensitive local aquatic ecosystems; and groundwater dependent terrestrial ecosystems. Additionally, it has not been satisfactorily demonstrated that the water use requirements of the scheme can be met in a sustainable manner.

As a result, a substantial amount of further information under Regulation 204 of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 is required before any decision can be taken regarding a Development Consent Order for this scheme.

APPENDIX A

Site walkover notes and photographs

SITE WALKOVER SURVEY

A site visit was undertaken on 17th to the 19th of June 2026 by Molly Green. The weather was hot and dry at the time of the visit.

The landscape was seen to be generally flat, with rolling hills in the northeast. Every field visited was seen to have drainage ditches, anecdotally, residents claimed all drainage ditches fill in winter. Some small streams were seen running at the time of the visit. Several properties were visited which rely fully on groundwater abstractions, with the owners all sharing worries that their supply will be effected by the scheme, and the costs of connecting to Anglian water being too expensive.

One property visited indicated a chalk stream started within his property, this also relied fully on groundwater abstractions.

Site 1

Site 1 is the location of the BESS and substations. A walkover was undertaken to ground truth the locations. The Site can be seen in **Figure** , with photos and photo locations marked on. Site 1 is in very close proximity to the village of Great Moulton.

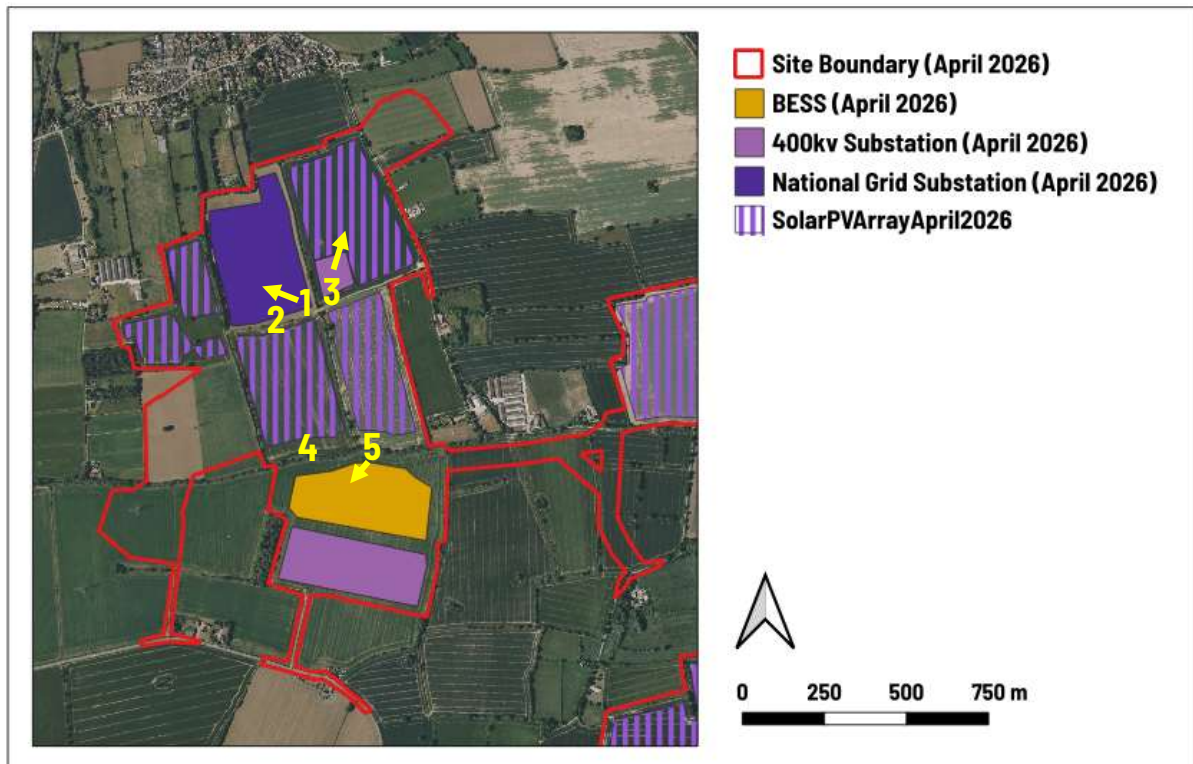


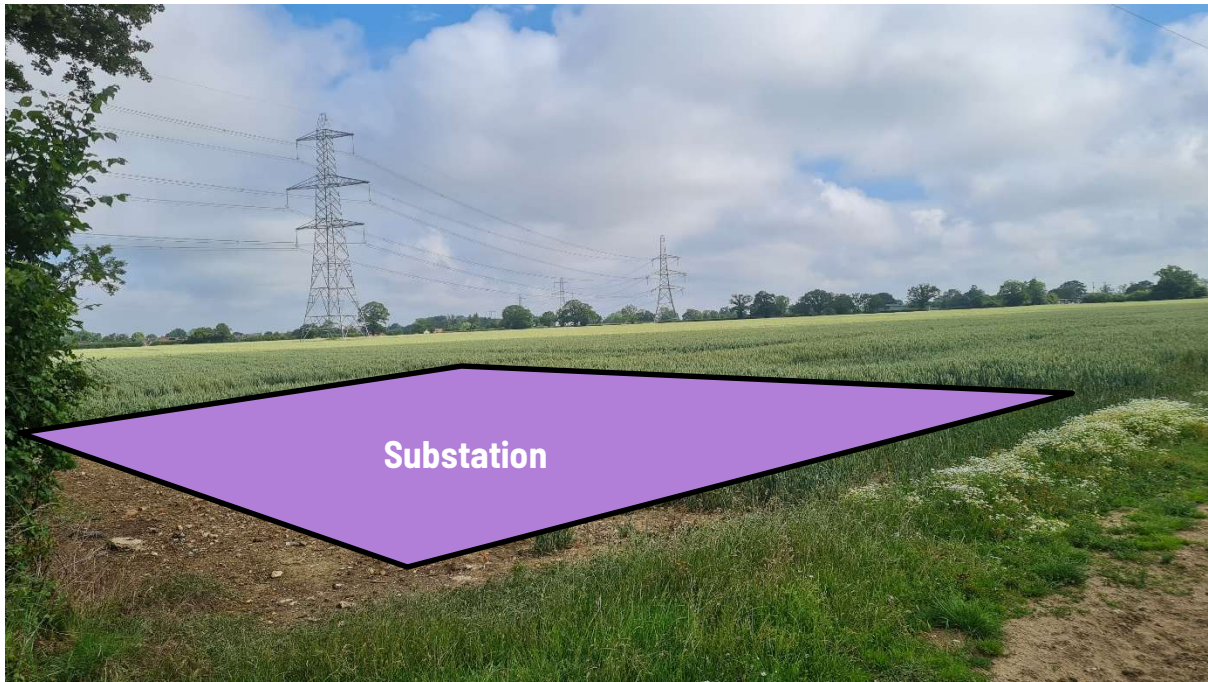
Figure A1 Site 1 Plan April 2026



Photograph 1



Photograph 2



Photograph 3



Photograph 4



Photograph 5

Site 5

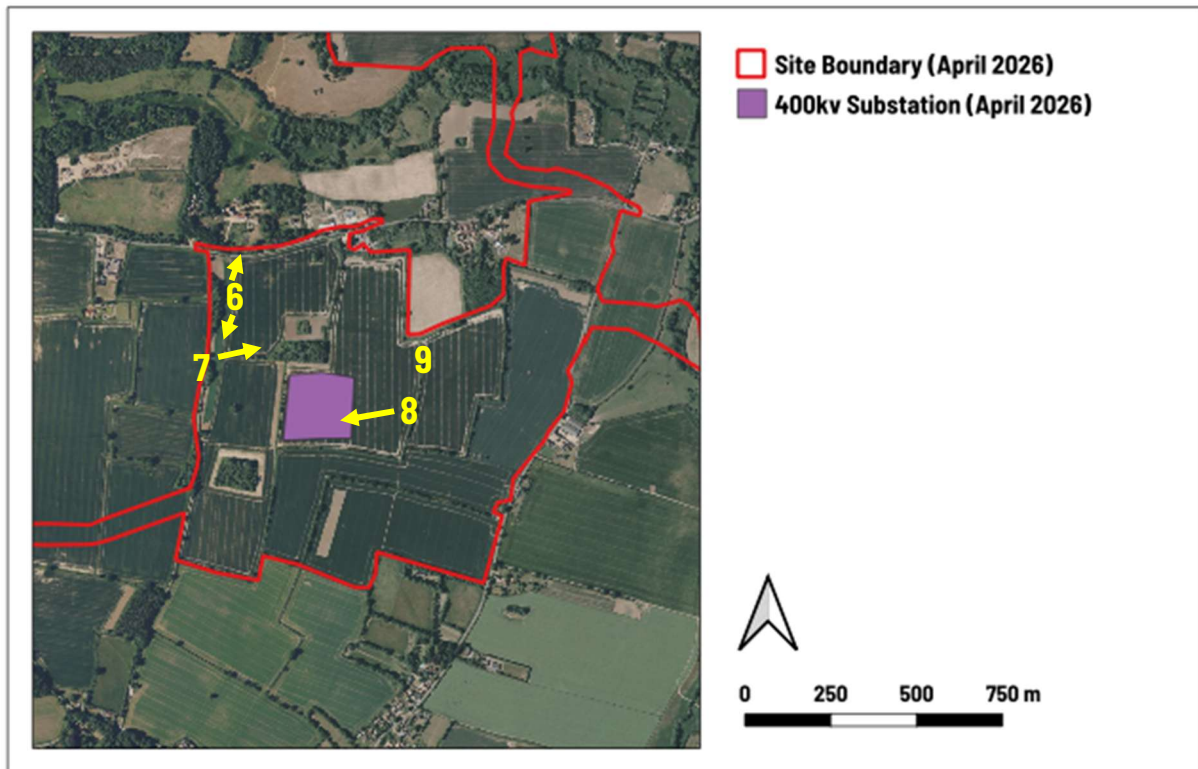


Figure A2 Site 5



Photograph 6



Photograph 7



Photograph 8



Photograph 9