



Ground Condition Consultants

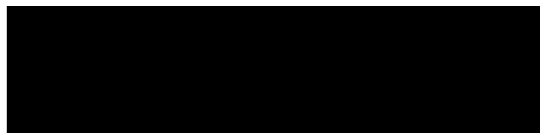
YEOMANS HONDA, LITTLEHAMPTON RD, WORTHING

GROUND CONDITION DESK TOP STUDY

FEBRUARY 2018

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0. EXECUTIVE SUMMARY

Brief	The brief was to undertake a site visit to inspect the site and, using the information provided in an Environmental Database Search relating to the site, assess and report on the findings with respect to potential ground contamination and potential associated future liabilities in accordance with the Preliminary Risk Assessment procedure outlined in the Model Procedures for the Management of Land Contamination (CLR 11), published by the Environment Agency.
Current Site Status	The study site is located to the north of Littlehampton Road (A259), Ferring, Worthing BN12 6PB (at approximate grid ref: 508929,103451) and currently comprises a car dealership, a residential property and former stables.
Site History	According to the Ordnance Survey maps provided and reviewed from 1876 to 2014 (scales 1:2,500, 1:10,000, 1:1,250, 1:10,560) the site appears to have been in agricultural use and residential use, prior to its current layout.
Geology	The 1:10,000 scale map indicates the site to directly overlie superficial Brickearth deposits (silt), whereas the 1:50,000 scale map indicates the site to directly overlie superficial River Terrace Deposits (sand, silt and clay). Both scales of mapping indicate bedrock geology of the Lewes Nodular Chalk Formation, Seaford Chalk Formation, Newhaven Chalk Formation, Culver Chalk Formation and Portsdown Chalk Formation (Undifferentiated).
Hydrogeology	The Environment Agency Groundwater Vulnerability Map extracts (see Appendix 2) indicate the site to be overlying a bedrock Principal Aquifer, interpreted as the Chalk, with a superficial Secondary A aquifer, interpreted as the Brickearth/River Terrace Deposits.
Hydrology	The closest surface water feature to the site is Ferring Rife, located 210m to the southeast.
Risk Assessment	The preliminary risk assessment identified the following possible contamination sources associated with the site: • Potential for asbestos cement fragments within the soil and on the ground surface in the centre north of the site, associated with the stable type buildings, and from demolition material associated with former buildings on site. • Potential for a range of contaminants, including oil and fuel hydrocarbons, associated with the vehicle servicing and washdown area in the northeast of the site. • Potential for PCBs in the soil and groundwater associated with the electrical substation in the southeast of the site. • Potential for the current or past residential properties on site to have been fuelled by heating oil and for oil to have leaked from storage tanks. It should be noted that additional sources of contamination may become apparent during any future investigation and development of the site.
Conclusions and Recommendations	The risk of impact to identified receptors from the identified potential sources is generally considered to be very low to low. As such, an intrusive investigation is recommended for the development to further assess the risks associated with potential asbestos containing material in soil. It is also considered prudent to investigate the risks associated with the potential migration of other contaminants associated with the servicing of vehicles on site. As an intrusive investigation is likely to be undertaken for geotechnical purposes, it is recommended that these risks are investigated as part of a combined contamination and geotechnical investigation.
<i>This sheet is intended to provide a summary only of the initial indicative assessment study of the site in relation to ground contamination. It does not provide a definitive engineering analysis for the purposes of costing or construction, and is subject to the limitation of the agreed brief.</i>	

1. INTRODUCTION

1.1 INSTRUCTION

Ground Condition Consultants Ltd. (GCC) was commissioned by AKS Ward in February 2018 to undertake a Ground Condition Desk Top Study of a site adjacent to and incorporating the Yeomans Peugeot dealership at Littlehampton Rd, Ferring, Worthing BN12 6PB.

The brief was to undertake a site visit to inspect the site and, using the information provided in an Environmental Database Search relating to the site, assess and report on the findings with respect to potential ground contamination and potential associated future liabilities in accordance with the Preliminary Risk Assessment procedure outlined in the Model Procedures for the Management of Land Contamination (CLR 11), published by the Environment Agency.

This report is prepared in line with the agreed brief and is subject to the report conditions shown in Appendix 1.

1.2 LEGAL CONTEXT

Part IIA of the Environmental Protection Act 1990 (inserted by Section 57 of the Environment Act 1995) provides a regime for the control of specific threats to health or the environment from land contamination. In accordance with the Act and the statutory guidance document 'The Contaminated Land (England) Regulations 2000', the definition of contaminated land is intended to embody the concept of risk assessment. Within the meaning of the Act, land is only "contaminated land" where it appears to the Regulatory Authority, by reason of substances within or under the land, that:

- Significant harm is being caused, or there is a significant possibility of such harm being caused; or
- Pollution of controlled waters is being, or is likely to be, caused."

Inherent in this definition is the requirement for contamination risk assessment to be undertaken on a site specific basis, as the potential for harm is determined by the site's end use and its specific environmental setting.

The guidance defines "risk" as the combination of:

- The probability, or frequency, of occurrence of a defined hazard (for example, exposure of a property to a substance with the potential to cause harm); and

- The magnitude (including the seriousness) of the consequences.

While Part IIA of the Environmental Protection Act provides a risk based approach to the identification and remediation of land where contamination poses an unacceptable risk to human health or the environment, the regime does not take into account future uses. New developments are therefore controlled by the planning regime, with reference to the National Planning Policy Framework (NPPF), rather than directly by Part IIA of the Environmental Protection Act.

The NPPF is based on the principal that the site should be suitable for its new use, taking account of ground conditions, including from natural hazards or former activities and states that “Where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and/or landowner”. The NPPF also links the planning and Part IIA regimes by stating that “after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990”. Key components of the Part IIA regime, such as the definition of Contaminated Land and the associated risk based assessment approach, are therefore considered to also be applicable to the planning regime.

1.3 METHODOLOGY

This report has been prepared in accordance with published Environment Agency guidance (‘Model Procedures for the Management of Land Contamination – Contaminated Land Report (CLR) 11’). CLR 11 provides the technical framework for structured decision making about land contamination and builds on previous work carried out under the Contaminated Land Research Programme (of the former Department of the Environment). CLR 11 has adopted and refined the well recognised methodology and terminology that has been used in contaminated land risk assessment for a number of years.

1.3.1. Pollutant linkage concept

In the context of land contamination, there are three essential elements to any risk:

- A **contaminant source** – a substance that is in, on or under the land and has the potential to cause harm or to cause pollution of controlled waters.
- A **receptor** – in general terms, something that could be adversely affected by a contaminant, such as people, an ecological system, property, or a water body.

- A **pathway** – a route or means by which a receptor can be exposed to, or affected by, a contaminant.

Each of these elements can exist independently, but they create a risk only where they are linked together, so that a particular contaminant affects a particular receptor through a particular pathway. This kind of linked combination of contaminant–pathway–receptor is described as a pollutant linkage.

1.3.2. Conceptual model

An important thread throughout the overall process of risk assessment is the need to formulate and develop a **conceptual model** for the site, which supports the identification and assessment of pollutant linkages. A conceptual model represents the characteristics of the site in diagrammatic or written form that shows the possible relationships between contaminants, pathways and receptors (pollutant linkages).

1.3.3. Risk assessment

CLR 11 advocates a phased approach to risk assessment comprising the following in order, as necessary:

Preliminary Risk Assessment – a desk study consisting of a review of documentary, anecdotal and site walk over evidence.

Generic Quantitative Risk Assessment (GQRA) - comparison of contaminant concentrations obtained from site investigation with generic assessment criteria.

Detailed Quantitative Risk Assessment (DQRA) - comparison of contaminant concentrations obtained from site investigation with site-specific assessment criteria.

This document constitutes a Preliminary Risk Assessment.

1.4 PROPOSED USE

It is currently understood that the existing Peugeot dealership is to be extended to include a Honda dealership and office accommodation for the Yeomans Group. The proposed layout comprises buildings and hard standing with minimal soft landscaping around the periphery. A change in the site use from that currently proposed may result in the need for re-assessment of risk criteria and the conclusions and recommendations resulting from the risk assessment could therefore significantly change.

1.5 REPORT SCOPE AND LIMITATIONS

This report is based upon a review of readily available historical and current information, a site walkover survey, geological and hydrogeological maps and information from an environmental database search. The assessment is based on the proposed use stated in Section 1.4 and the outcomes of this assessment could change if the end uses change.

The information contained in this report is intended for the use of AKS Ward and Yeomans Ltd. GCC can take no responsibility for the use of this information by any other party or for uses other than that described in this report.

2. PRELIMINARY RISK ASSESSMENT

2.1 SITE LOCATION AND DESCRIPTION

The study site is located to the north of Littlehampton Road (A259), Ferring, Worthing BN12 6PB (at approximate grid ref: 508929,103451). The east of the site currently is occupied by a car dealership building, comprising a showroom in the south and a workshop in the north, with a washdown area and bin store to the north and a separate workshop building beyond that to the north. A brick paved accessway to the workshops and a parking area are located to the east of the dealership building. The washdown area and bin store are surfaced with concrete. A three stage interceptor is present in the washdown area and an electrical substation is located in the southeast corner of the site. It is understood from the manager of the dealership that there is no bulk storage of fuel on site. Fresh and waste oil is stored in tanks within an elevated bund within the workshop to the rear of the showroom.

The south of the site comprises a brick paved forecourt and parking bays with peripheral soft landscaping.

The central north of the proposed development site could not be accessed during the walkover survey, although it was possible to view the area over the wall to the north and the fence to the south. This area of the site is occupied by a series of wooden stables type buildings in the north, surrounding a concrete covered courtyard. These buildings were noted to have suspected asbestos cement roofs. The south of this area was noted to be covered by dense vegetation. Access to this area appears to be via a concrete track along the north-western boundary of the proposed development area.

The northwest of the proposed development area comprises a residential property (Hill View) and its associated gardens and outbuildings. Again, access to this area was not possible during the walkover survey but the topographic survey of the site indicates the presence of the main residential property, various wooden sheds, a brick garage, a greenhouse and several mature trees.

2.2 SITE HISTORY

According to the Ordnance Survey maps provided and reviewed from 1876 to 2014 (scales 1:2,500, 1:10,000, 1:1,250, 1:10,560) the majority of the site appears to have been in agricultural use with what appears to be a farm building spanning the north-western boundary of the site on the earliest available map. This farm building appears to have been removed by 1896.

The east of the site was developed with residential properties in the late 1930s/early 1940s with Hill View and property (The Bungalow) constructed in the west of the site by 1962. The presence of a substation in the southeast of the site also appears to date from this period. The stable type buildings in the centre north of the site first appear on the 1983 map.

The main car dealership building first appears in the east of the site on the 2002 map and it is understood from the site manager that it dates from the late 1990s. The forecourt in the southwest of the site appears to have been a relatively recent addition with the former residential property in this area of the site (The Bungalow) first shown to be absent on the 2014 map.

The area surrounding the site has generally been used as plant nurseries, garden centres, agricultural land and residential properties.

2.3 DOCUMENTATED GROUND CONDITIONS

Ground conditions recorded in readily available sources are summarised below.

2.3.1. Geology

Reference to the British Geological Survey (BGS) Map extracts at 1:10,000 scale and 1:50,000 scale (see Appendix 2) are contradictory in terms of the superficial geology. The 1:10,000 scale map indicates the site to directly overlie superficial Brickearth deposits (silt), whereas the 1:50,000 scale map indicates the site to directly overlie superficial River Terrace Deposits (sand, silt and clay).

Both scales of mapping indicate bedrock geology of the Lewes Nodular Chalk Formation, Seaford Chalk Formation, Newhaven Chalk Formation, Culver Chalk Formation and Portsdown Chalk Formation (Undifferentiated).

2.3.2. Hydrogeology

The Environment Agency Groundwater Vulnerability Map extracts (see Appendix 2) indicate the site to be overlying a bedrock Principal Aquifer, interpreted as the Chalk, with a superficial Secondary A aquifer, interpreted as the Brickearth/River Terrace Deposits.

Secondary A Aquifers are permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

Principal Aquifers are geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers

The site is not located within a Groundwater Source Protection Zone.

2.3.3. Hydrology

The closest surface water feature to the site is Ferring Rife, located 210m to the southeast.

2.3.4. Radon

2.4 Radon is a naturally occurring radioactive gas which may be harmful to human health. Radon is generally released into the atmosphere in areas underlain by granite and limestone. Harmful concentrations of radon may build up if it becomes trapped in an enclosed space such as a building.

BGS/Public Health England data presented within the Groundsure Report indicates that the percentage of houses exceeding the Action Levels for Radon in this area is between 1% and 3%. Therefore the property is not in a Radon Affected Area, as defined by the Health Protection Agency (HPA), and radon protection measures are not necessary in new dwellings or extensions.

2.5 ENVIRONMENTAL DATA SEARCH

A search of an environmental database was undertaken together with information from various other organisations as part of the desk study and is summarised in the following sections. The following summary is generally limited to locations within 250m of the site boundaries unless it is considered that installations or activities beyond that range could potentially have an impact on the site or be affected by the redevelopment of the site.

Table 2.1. Data search results

Discharge consents	There are 3no. current discharge consents located within 250m of the site, all relating to discharge of treated sewage effluent to land/groundwater.
Pollution incidents	There are no recorded pollution incidents within 250m of the site.
Water abstractions	There is 1no. recorded water abstraction located within 500m of the site. It is an historical general farming and domestic abstraction for Reynards Nursery, 77m north of the site an dates from 1971.
Fuel Stations	There are no recorded fuel stations within 250m of the site.
Landfill Sites	There are no historical or current landfill sites within 250m of the site.

2.6 MINING AND NATURAL GROUND HAZARDS

2.6.1. Mining

The Site is located in an area which may not be affected by coal mining. However, sporadic underground Chalk mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered.

2.6.2. Natural Ground Hazards

The following ground hazards were identified:

Compressible ground stability hazards – Negligible hazard

BGS Notes: No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

Collapsible ground stability hazards – Low hazard

BGS Notes: Slight possibility for collapsible deposit problems after major changes in loading or groundwater conditions. Normal maintenance to avoid large amounts of water entering the ground through pipe leakage or soak-aways should reduce the likelihood of problems due to collapsible deposits. For new build, assess the possibility of collapsible (loessic) deposits in ground investigation. For existing property, no significant increase in insurance risk from collapsible deposits is likely.

Ground dissolution stability hazards – Very Low hazard

BGS Notes: Significant soluble rocks are present. Problems unlikely except with considerable surface or subsurface water flow. No special actions required to avoid problems due to soluble rocks. No special ground investigation required or increased construction costs are likely. An increase in financial risk due to potential problems with soluble rocks is unlikely.

Landslide ground stability hazard – Very Low hazard

BGS Notes: Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

Shrinking or swelling clay ground stability hazard – Low hazard

BGS Notes: Ground conditions predominantly medium plasticity. Do not plant trees with high soil moisture demands near to buildings. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a possible increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a possible increase in insurance risk, especially during droughts or where vegetation with high moisture demands is present.

Running sand ground stability hazards – Low hazard

BGS Notes: Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build - consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to Site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property - no significant increase in insurance risk due to running sand problems is likely.

2.7 DEPARTMENT OF ENVIRONMENT – INDUSTRY PROFILES

The Department of the Environment Industry Profile for Road Vehicle Servicing and Repair: Garages and Filling Stations has been reviewed in relation to the use of the north east of the site for servicing cars.

As a result of this use, the following potential contaminants have a significant potential to be present:

- Metals
- Asbestos
- Inorganic chemicals
- Organic chemicals including oil and fuel hydrocarbons

3. CONCEPTUAL SITE MODEL

3.1 SOURCES

The conceptual model, based on information obtained as part of the preliminary risk assessment, identified the following potential contaminant sources:

3.1.1. On-Site – Historic and Current

- Potential for asbestos cement fragments within the soil and on the ground surface in the centre north of the site, associated with the stable type buildings, and from demolition material associated with former buildings on site.
- Potential for a range of contaminants, including oil and fuel hydrocarbons, associated with the vehicle servicing and washdown area in the northeast of the site.
- Potential for PCBs in the soil and groundwater associated with the electrical substation in the southeast of the site.
- Potential for the current or past residential properties on site to have been fuelled by heating oil and for oil to have leaked from storage tanks.

It should be noted that additional sources of contamination may become apparent during any future investigation and development of the site.

3.1.2. Off-Site – Historic and Current

- None

3.2 PATHWAYS

The key environmental pathways and exposure routes by which potentially toxic substances can reach the identified potential receptors are considered to be:

3.2.1. Indirect

- Vertical and lateral migration driven by infiltration.

3.2.2. Direct

- Direct contact,
- Ingestion,
- Inhalation of dust.

3.3 RECEPTORS

Receptors that may be affected by the potential contamination are:

3.3.1. Human

- Future users.
- Adjacent residents

Construction workers have been excluded from this assessment on the basis that they are subject to health and safety at work regulations and are expected to use appropriate personal protective equipment (PPE).

3.3.2. Environmental

- Secondary A Aquifer
- Principal Aquifer

4. RISK ASSESSMENT

4.1 RISK ASSESSMENT PROCEDURE

By considering the sources, pathways and receptors (pollutant linkages), an assessment of the human health/ environmental risks is made with reference to the significance and degree of the risk. This assessment is based on consideration of whether the source contamination can reach a receptor and hence whether it is of major or minor significance.

The risk assessment has been undertaken with reference to BS10175 and CIRIA Document C552: Contaminated Land Risk assessment 'A Guide to Good Practice'. The risk assessment has been carried out by assessing the severity of the potential consequence, taking into account both the potential magnitude of the hazard and the sensitivity of the target, based on the categories given overleaf.

Table 4.1. Sensitivity of receptor

Category	Examples
High	Residential with gardens/Groundwater Source Protection Zone
Medium	Residential without gardens/Principal (Major) Aquifer/sensitive watercourse
Low	Commercial and industrial use/Secondary (Minor) Aquifer
Very Low	Construction and maintenance workers/non-sensitive watercourse

Table 4.2. Magnitude of impact

Category	Examples
Gross Impact	Heavily contaminated gasworks or industrial site, hazardous waste landfill
Moderate Impact	Major leaks and spills from fuel infrastructure (e.g. petrol stations), domestic waste landfill
Slight Impact	Minor leaks and spills from fuel infrastructure, 'inert' waste landfills
No Impact	No identified or suspected contamination

Table 4.3. Level of severity for potential hazard

Magnitude of impact	Sensitivity of receptor			
	High	Medium	Low	Very Low
Gross impact	Severe	Medium	Mild	Minor
Moderate impact	Medium	Mild	Minor	Minor
Slight impact	Mild	Minor	Minor	Minor
No impact	Minor	Minor	Minor	Minor

The likelihood of an event (probability) takes into account both the presence of the hazard and target and the integrity of the pathway and has been assessed based on the categories given below.

Table 4.4. Probability of risk definition

Category	Definition
High likelihood	Pollutant linkage may be present, and risk is almost certain to occur in long term, or there is evidence of harm to the receptor
Likely	Pollutant linkage may be present, and it is probable that the risk will occur over the long term
Low likelihood	Pollutant linkage may be present, and there is a possibility of the risk occurring, although there is no certainty that it will do so
Unlikely	Pollutant linkage may be present, but the circumstances under which harm would occur are improbable

The potential severity of the risk and the probability of the risk occurring have been combined in accordance with the following matrix in order to give a level of risk for each potential hazard.

Table 4.5. Level of risk for potential hazard definition

Probability of risk	Potential severity			
	Severe	Medium	Mild	Minor
High Likelihood	Very high	High	Moderate	Low/ Moderate
Likely	High	Moderate	Low/ Moderate	Low
Low likelihood	Moderate	Low/ Moderate	Low	Very low
Unlikely	Low/ Moderate	Low	Very low	Very low

The assessment is discussed below in terms of plausible pollutant linkages. A complete assessment of the pollutant linkages is presented in Table 4.6 overleaf.

A description of these risk classifications and likely action required are given in CIRIA 552 as:

Very high risk – High probability that severe harm could arise to a designated receptor from an identified hazard OR there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in substantial liability. Urgent investigation and remediation are likely to be required.

High risk – Harm is likely to arise to a designated receptor from an identified hazard. This risk, if realised, is likely to result in substantial liability. Urgent investigation is required and remedial works may be necessary in the short term and are likely over the long term.

Moderate risk – It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation is normally required to clarify risks and to determine potential liability. Some remedial works may be required in the long term.

Low risk – It is possible that harm could arise to a designated receptor from an identified hazard but it is likely that this harm, if realised, would at worst normally be mild.

Very low risk – It is a low possibility that harm could arise to a designated receptor. In the event of such harm being realised it is not likely to be severe.

4.2 POLLUTANT LINKAGE ASSESSMENT

Table 4.6. Pollutant Linkage Assessment

Source	Pathway	Receptor	Severity	Likelihood	Risk Level
Potential for asbestos cement fragments within the soil and on the ground surface	Inhalation	Future Users	Medium	Unlikely	Low
		Adjacent Residents	Medium	Unlikely	Low
Potential contamination from vehicle servicing	Direct Contact Ingestion Inhalation	Future users	Minor	Unlikely	Very Low
	Vertical migration leading to direct contact	Secondary A Aquifer	Minor	Low Likelihood	Very Low
		Principal Aquifer	Minor	Unlikely	Very Low
Potential PCB contamination from electrical substation	Direct Contact Ingestion Inhalation	Future users	Minor	Unlikely	Very Low
	Vertical migration leading to direct contact	Secondary A Aquifer	Minor	Low Likelihood	Very Low
		Principal Aquifer	Minor	Unlikely	Very Low
Potential contamination from possible former heating oil storage	Direct Contact Ingestion Inhalation	Future users	Minor	Unlikely	Very Low
	Vertical migration leading to direct contact	Secondary A Aquifer	Minor	Low Likelihood	Very Low
		Principal Aquifer	Minor	Unlikely	Very Low

4.2.1. Potential for asbestos cement fragments

During the site walkover survey, the buildings in the centre north of the site were noted to be roofed in suspected asbestos cement sheeting and the potential exists for demolition material from former buildings to remain on site. In relation to the final proposed development layout, the predominance of hard standing across the site with limited peripheral soft landscaping is considered to limit the potential for any asbestos fibres to become airborne with the possible requirement for management in the soft landscaped areas if asbestos is present in soil. The greatest risks are considered likely to be as a result of fibre release during development work on the site and dust generation may need to be managed. There may also be some additional disposal costs for asbestos containing materials. It is recommended that asbestos screening and quantification is undertaken as part of any intrusive investigation, although the potential will remain for asbestos to be encountered throughout the development, even if it is not identified by the investigation.

4.2.2. Vehicle servicing

Vehicle maintenance activities on site involve potentially contaminative substances but the workshops appear to be well maintained with no evidence of viable migration pathways for such contaminants to enter the ground from the service areas. This pollutant linkage has therefore been assessed as a very low risk to the future users of the site and the underlying aquifers. While this risk is not considered to warrant an intrusive investigation in its own right, it is considered prudent to confirm that a significant pollutant linkage is not present as part of any intrusive investigation.

4.2.3. Electrical substation

The potential exists for the current or former electrical substation in the southeast of the site to have leaked oil containing PCBs. PCBs do not typically migrate far from their source in soils but their migration potential can increase if they impact groundwater. The potential for PCB migration will also be dependent on whether the site is underlain by Brickearth or River Terrace Deposits, as they are likely to have quite different permeabilities. Overall, the risks to future site users and the underlying aquifers have been assessed to be very low as any leaks are likely to have been minor and migration is likely to have been limited.

4.2.4. Heating oil from former properties

The fuel used to heat the former buildings on the site is unknown but the potential exists for heating oil to have been used and for storage tanks to have leaked. It is considered likely that any gross contamination from such a source would have been observed and dealt with during the construction of the existing car dealership. Due to access restrictions during the walkover survey, it is also not known if the Hill View property in the west of the site has used heating oil, although there is no indication of a tank or tank base on the topographic survey.

5. CONCLUSIONS AND RECOMMENDATIONS

The following potential sources of contamination were identified:

- Potential for asbestos cement fragments within the soil and on the ground surface in the centre north of the site, associated with the stable type buildings, and from demolition material associated with former buildings on site.
- Potential for a range of contaminants, including oil and fuel hydrocarbons, associated with the vehicle servicing and washdown area in the northeast of the site.
- Potential for PCBs in the soil and groundwater associated with the electrical substation in the southeast of the site.
- Potential for the current or past residential properties on site to have been fuelled by heating oil and for oil to have leaked from storage tanks.

It should be noted that additional sources of contamination may become apparent during any future investigation and development of the site.

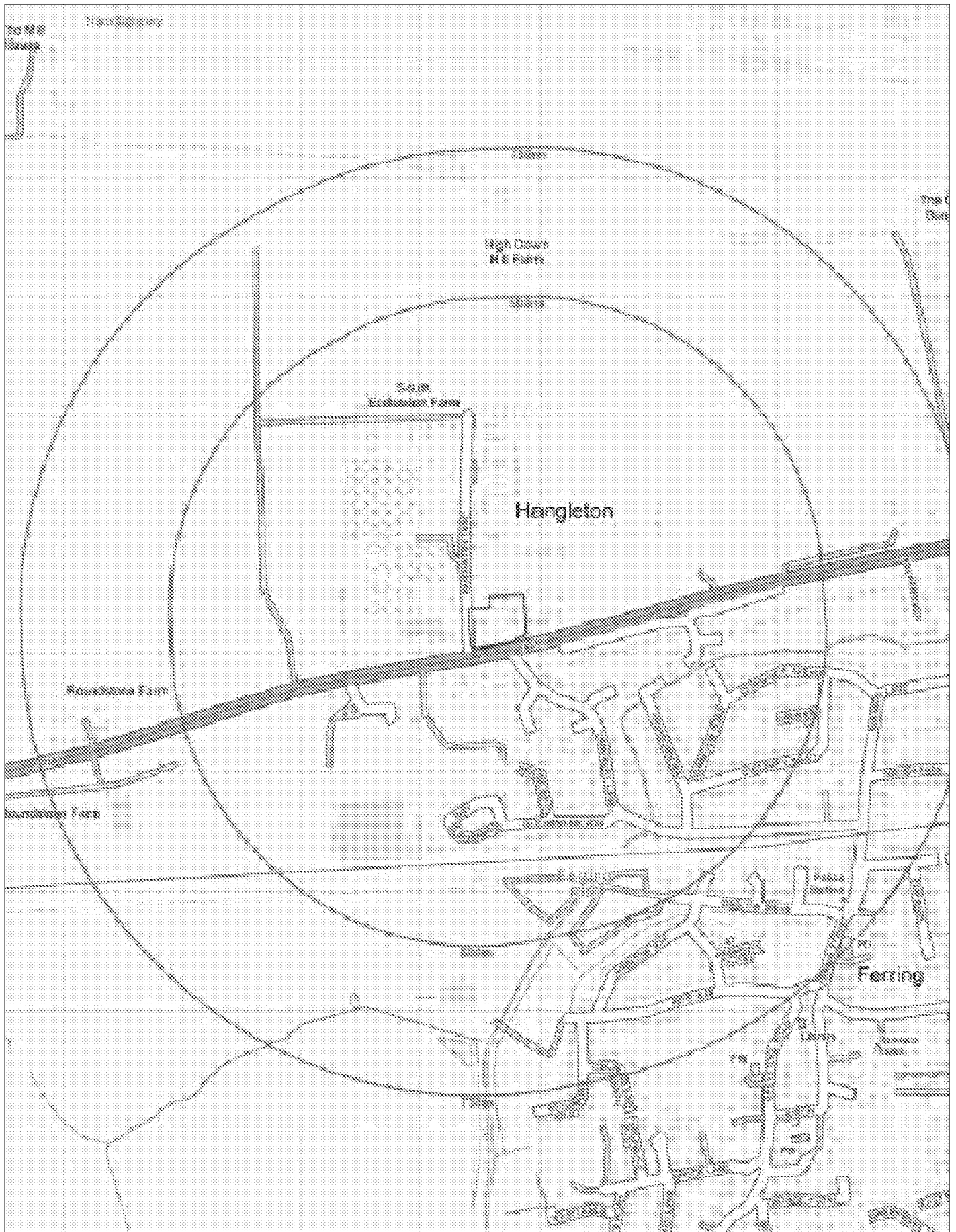
The risk of impact to identified receptors from the identified potential sources is generally considered to be **very low to low**. As such, an intrusive investigation is recommended for the development to further assess the risks associated with potential asbestos containing material in soil. It is also considered prudent to investigate the risks associated with the potential migration of other contaminants associated with the servicing of vehicles on site.

As an intrusive investigation is likely to be undertaken for geotechnical purposes, it is recommended that these risks are investigated as part of a combined contamination and geotechnical investigation.

It is considered appropriate that the intrusive investigation of the site is undertaken after planning permission is granted for the site and controlled via planning conditions as intrusive investigation can be a considerable cost that may not be required if planning permission is refused on other grounds. It is also possible that the planning process may lead to alterations to the proposed site layout that may influence the selection of investigation locations and techniques.

A discovery strategy and appropriate PPE are recommended during any redevelopment of the site to address any as yet unidentified contamination that may be identified during the works.

FIGURE 1: STUDY AREA LOCATION PLAN



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ask@groundcc.co.uk www.groundcc.co.uk

client
AKS WARD

site
YEOMANS HONDA, WORTHING

title
STUDY AREA LOCATION PLAN

scale	NTS	drawn by	AP	checked by	RP
date	12 FEB 2018	job no	J18-004		
drawing number	FIGURE 1			rev.	-

FIGURE 2: STUDY AREA LAYOUT PLAN



Ground Condition Consultants Ltd
 10 Waldegrave Close Southampton SO19 9RY
 Telephone 07971 450113
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STUDY AREA LAYOUT PLAN

scale	NTS	drawn by	AP	checked by	RP
date	12 FEB 2018	job no	J18-004		
drawing number	FIGURE 2			rev.	-

APPENDIX 1: REPORT CONDITIONS

This report is produced solely for the benefit of **AKS Ward and Yeomans Ltd** and no liability is accepted for any reliance placed on it by any other party unless specifically agreed in writing otherwise.

This report refers, within the limitations stated, to the condition of the Site at the time of the inspections. No warranty is given as to the possibility of future changes in the condition of the Site.

This report is based on a visual Site inspection, study of readily accessible referenced historical records, information supplied by those parties noted in the text and preliminary discussions with local and Statutory Authorities. Some of the opinions are based on unconfirmed data and information and are presented in good faith without exhaustive clarification. Where ground contamination is suspected but no physical Site test results are available to confirm this, the report must be regarded as initial advice only, and further assessment should be undertaken prior to detailed activities related to the Site. Where test results undertaken by others have been made available these can only be regarded as a limited sample. The possibility of the presence of contaminants, not revealed by this research cannot be discounted.

Whilst confident in the findings detailed within this report because there are no exact UK definitions of these matters, being subject to risk analysis, we are unable to give categorical assurances that they will be accepted by Authorities or Funds etc. without question, as such bodies may have unpublished, often more stringent objectives. This report is prepared for the proposed uses stated in the report and should not be used in a different context without reference to Ground Condition Consultants Ltd. In time improved practices or amended legislation may necessitate a re-assessment.

The report is necessarily limited to those aspects of land contamination specifically reported on and no liability is accepted for any other aspect especially concerning gradual or sudden pollution incidents that may occur. The opinions expressed cannot be absolute due to the limitations of time and resources within the context of the agreed brief and the possibility of unrecorded previous use and abuse of the Site and adjacent Sites. The report concentrates on the Site as defined in the report and provides an opinion on surrounding Sites. If migrating pollution or contamination (past or present) exists this can only practically be better assessed following extensive on and off Site intrusive investigations and monitoring.

APPENDIX 2: GROUNDSURE REPORT



Groundsure

LOCATION INTELLIGENCE

Ground Condition Consultants Ltd
10, WALDEGRAVE CLOSE,
SOUTHAMPTON, SO19 9RY

Groundsure Reference: GS-4706352

Your Reference: J18-004

Report Date 2 Feb 2018

Report Delivery Method: Email - pdf

Enviro Insight

Address: YEOMANS PEUGEOT, GARAGE PREMISES, LITTLEHAMPTON ROAD, FERRING, BN12 6PB

Dear Sir/ Madam,

Thank you for placing your order with Groundsure. Please find enclosed the **Groundsure Enviro Insight** as requested.

If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above Groundsure reference number.

Yours faithfully,

Managing Director
Groundsure Limited

Enc.
Groundsure Enviroinsight

Address: YEOMANS PEUGEOT, GARAGE PREMISES, LITTLEHAMPTON ROAD, FERRING, BN12 6PB
Date: 2 Feb 2018
Reference: GS-4706352
Client: Ground Condition Consultants Ltd

NW

N

NE

W

E



SW

S

SE

Aerial Photograph Capture date: 07-Jun-2015
Grid Reference: 508929,103451
Site Size: 0.69ha

Report Reference: GS-4706352
Client Reference: J18-004

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Overview of Findings

For further details on each dataset, please refer to each individual section in the main report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	4	3	10	2
1.2 Additional Information – Historical Tank Database	0	0	23	0
1.3 Additional Information – Historical Energy Features Database	3	0	0	9
1.4 Additional Information – Historical Petrol and Fuel Site Database	0	0	0	0
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	0	0	0	0
1.6 Potentially Infilled Land	0	0	0	5

Section 2: Environmental Permits, Incidents and Registers	On-site	0-50m	51-250	251-500
2.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
2.1.1 Records of historic IPC Authorisations	0	0	0	0
2.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	0	0
2.1.3 Records of Red List Discharge Consents	0	0	0	0
2.1.4 Records of List 1 Dangerous Substances Inventory sites	0	0	0	0
2.1.5 Records of List 2 Dangerous Substances Inventory sites	0	0	0	0
2.1.6 Records of Part A(2) and Part B Activities and Enforcements	0	2	1	0
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0
2.1.8 Records of Licensed Discharge Consents	0	2	10	12
2.1.9 Records of Water Industry Referrals	0	0	0	0
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	0	0	0	0
2.2 Records of COMAH and NIHHS sites	0	0	0	0
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	0	0	0
2.3.2 National Incidents Recording System, List 1	0	0	0	0
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

Section 3: Landfill and Other Waste Sites	On-site	0-50m	51-250	251-500	501-1000	1000-1500
---	---------	-------	--------	---------	----------	-----------

3.1 Landfill Sites						
3.1.1 Environment Agency/Natural Resources Wales Registered Landfill Sites	0	0	0	0	0	Not searched
3.1.2 Environment Agency/Natural Resources Wales Historic Landfill Sites	0	0	0	0	0	0
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	0
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	0	0
3.2 Landfill and Other Waste Sites Findings						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	Not searched	Not searched
3.2.2 Environment Agency/Natural Resources Wales Licensed Waste Sites	0	0	0	0	0	0

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
-----------------------------	---------	-------	--------	---------

4.1 Current Industrial Sites Data	2	0	7	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	0	0
4.3 National Grid Underground Electricity Cables	0	0	0	0
4.4 National Grid Gas Transmission Pipelines	0	0	0	0

Section 5: Geology

5.1 Are there any records of Artificial Ground and Made Ground present beneath the study site?	No
5.2 Are there any records of Superficial Ground and Drift Geology present beneath the study site?	Yes
5.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 6: Hydrogeology and Hydrology	0-500m
---------------------------------------	--------

6.1 Are there any records of Strata Classification in the Superficial Geology within 500m of the study site?	Yes
6.2 Are there any records of Strata Classification in the Bedrock Geology within 500m of the study site?	Yes

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	1	0	1	4
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	2	0	0	1	Not searched	Not searched

Section 6: Hydrogeology and Hydrology

0-500m

	On-site	0-50m	51-250	251-500	501-1000	1000-1500
6.9 Is there any Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site?	No	No	No	No	No	No
6.10 Detailed River Network entries within 500m of the site	0	0	1	2	Not searched	Not searched
6.11 Surface water features within 250m of the study site	No	No	Yes	Not searched	Not searched	Not searched

Section 7: Flooding

7.1 Are there any Environment Agency Zone 2 floodplains within 250m of the study site?	Yes					
7.2 Are there any Environment Agency/Natural Resources Wales Zone 3 floodplains within 250m of the study site	Yes					
7.3 What is the Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site?	Very Low					
7.4 Are there any Flood Defences within 250m of the study site?	No					
7.5 Are there any areas benefiting from Flood Defences within 250m of the study site?	No					
7.6 Are there any areas used for Flood Storage within 250m of the study site?	No					
7.7 What is the maximum BGS Groundwater Flooding susceptibility within 50m of the study site?	Potential at Surface					
7.8 What is the BGS confidence rating for the Groundwater Flooding susceptibility areas?	High					

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	0
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
8.6 Records of Ancient Woodlands	0	0	0	0	0	13
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	0
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0

Section 8: Designated Environmentally Sensitive Sites	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
8.11 Records of National Parks	0	0	0	0	1	1
8.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
8.13 Records of Nitrate Vulnerable Zones	0	0	0	0	0	2
8.14 Records of Green Belt land	0	0	0	0	0	0

Section 9: Natural Hazards	
9.1 What is the maximum risk of natural ground subsidence?	Low
9.1.1 What is the maximum Shrink-Swell hazard rating identified on the study site?	Low
9.1.2 What is the maximum Landslides hazard rating identified on the study site?	Very Low
9.1.3 What is the maximum Soluble Rocks hazard rating identified on the study site?	Very Low
9.1.4 What is the maximum Compressible Ground hazard rating identified on the study site?	Negligible
9.1.5 What is the maximum Collapsible Rocks hazard rating identified on the study site?	Low
9.1.6 What is the maximum Running Sand hazard rating identified on the study site?	Low
9.2 Radon	
9.2.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The property is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.
9.2.2 Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary.

Section 10: Mining	
10.1 Are there any coal mining areas within 75m of the study site?	No
10.2 Are there any Non-Coal Mining areas within 50m of the study site boundary?	No
10.3 Are there any brine affected areas within 75m of the study site?	No

Using this report

The following report is designed by Environmental Consultants for Environmental Professionals bringing together the most up-to-date market leading environmental data. This report is provided under and subject to the Terms & Conditions agreed between Groundsure and the Client. The document contains the following sections:

1. Historical Industrial Sites

Provides information on past land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. Potentially Infilled Land features are also included. This search is conducted using radii of up to 500m.

2. Environmental Permits, Incidents and Registers

Provides information on Regulated Industrial Activities and Pollution Incidents as recorded by Regulatory Authorities, and sites determined as Contaminated Land. This search is conducted using radii up to 500m.

3. Landfills and Other Waste Sites

Provides information on landfills and other waste sites that may pose a risk to the study site. This search is conducted using radii up to 1500m.

4. Current Land Uses

Provides information on current land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. These searches are conducted using radii of up to 500m. This includes information on potentially contaminative industrial sites, petrol stations and fuel sites as well as high pressure gas pipelines and underground electricity transmission lines.

5. Geology

Provides information on artificial and superficial deposits and bedrock beneath the study site.

6. Hydrogeology and Hydrology

Provides information on productive strata within the bedrock and superficial geological layers, abstraction licenses, Source Protection Zones (SPZs) and river quality. These searches are conducted using radii of up to 2000m.

7. Flooding

Provides information on river and coastal flooding, flood defences, flood storage areas and groundwater flood areas. This search is conducted using radii of up to 250m.

8. Designated Environmentally Sensitive Sites

Provides information on the Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, Local Nature Reserves (LNR), Areas of Outstanding Natural Beauty (AONB), National Parks (NP), Environmentally Sensitive Areas, Nitrate Sensitive Areas, Nitrate Vulnerable Zones and World Heritage Sites and Scheduled Ancient Woodland. These searches are conducted using radii of up to 2000m.

9. Natural Hazards

Provides information on a range of natural hazards that may pose a risk to the study site. These factors include natural ground subsidence and radon.

10. Mining

Provides information on areas of coal and non-coal mining and brine affected areas.

11. Contacts

This section of the report provides contact points for statutory bodies and data providers that may be able to provide further information on issues raised within this report. Alternatively, Groundsure provide a free Technical Helpline (08444 159000) for further information and guidance.

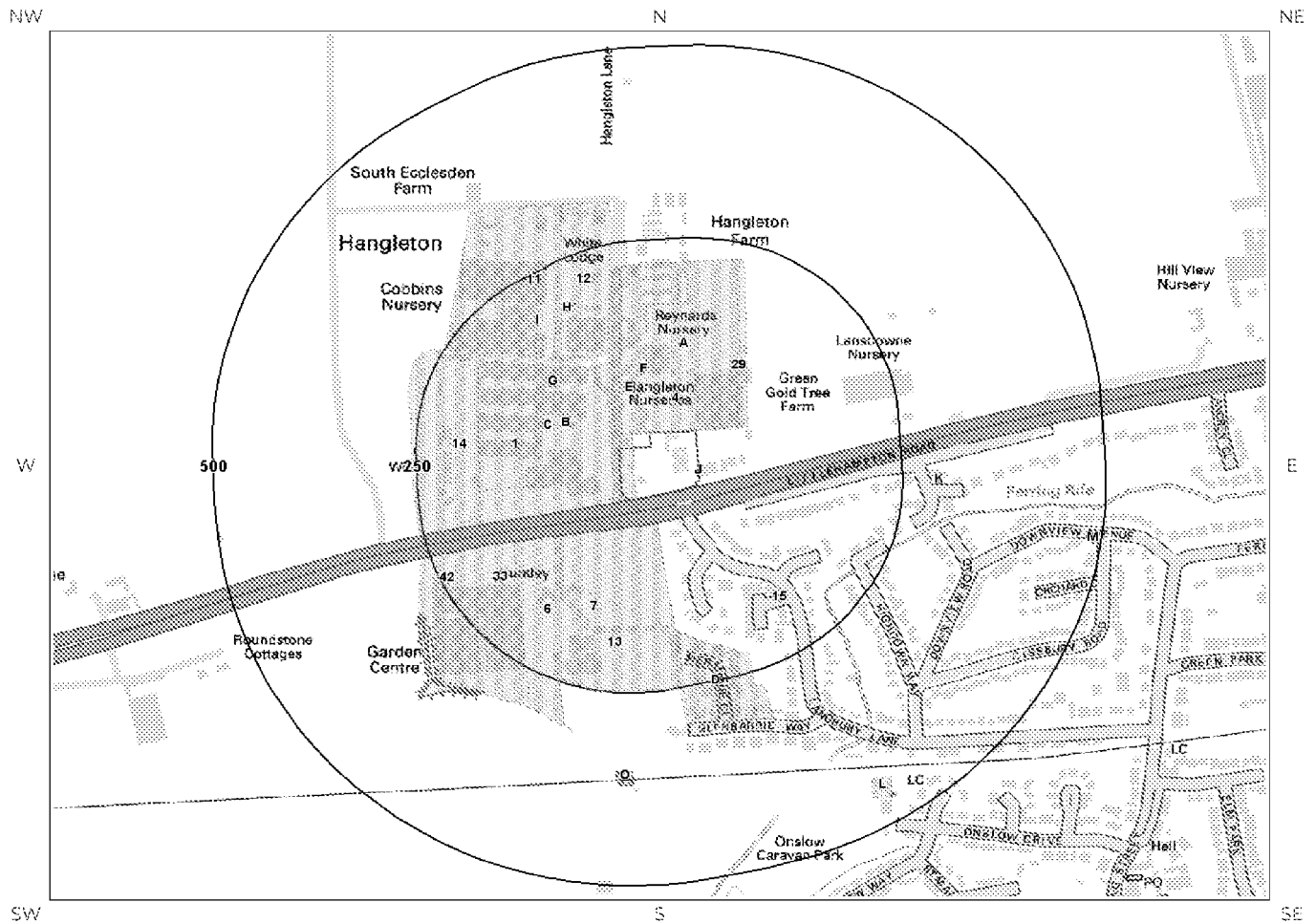
Note: Maps

Only certain features are placed on the maps within the report. All features represented on maps found within this search are given an identification number. This number identifies the feature on the mapping and correlates it to the additional information provided below. This identification number precedes all other information and takes the following format -Id: 1, Id: 2, etc. Where numerous features on the same map are in such close proximity that the numbers would obscure each other a letter identifier is used instead to represent the features. (e.g. Three features which overlap may be given the identifier "A" on the map and would be identified separately as features 1A, 3A, 10A on the data tables provided).

Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as "Not Shown".

All distances given in this report are in Metres (m). Directions are given as compass headings such as N: North, E: East, NE: North East from the nearest point of the study site boundary.

1. Historical Land Use



Historical 1:10,000 and 1:10,560 scale mapping



Site Outline

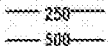


Industrial Land Use



Potentially Infilled Land

Historical 1:2,500, 1:1,250 and 1:500 scale mapping



Search Buffers (m)



Energy Features



Petrol Stations



Tanks



Garages

1. Historical Industrial Sites

1.1 Potentially Contaminative Uses identified from 1:10,000 scale Mapping

The systematic analysis of data extracted from standard 1:10,560 and 1:10,000 scale historical maps provides the following information:

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 19

ID	Distance [m]	Direction	Use	Date
1	0	On Site	Unspecified Commercial/Industrial	1957
2A	0	On Site	Nurseries	1974
3A	0	On Site	Nursery	1957
4	0	N	Nursery	1943
5C	4	W	Nursery	1974
6	23	S	Nurseries	1974
7	23	S	Nursery	1957
8B	69	NW	Unspecified Tank	1943
9B	69	NW	Unspecified Tank	1932
10C	72	NW	Unspecified Tank	1957
11	112	NW	Nursery	1974
12	112	NW	Nursery	1974
13	130	SW	Nursery	1943
14	172	W	Unspecified Works	1974
15	176	SE	Unspecified Tank	1876
16D	177	S	Nursery	1943
17D	179	S	Nursery	1957
18O	353	S	Cuttings	1957
19L	436	SE	Pumping Station	1943

1.2 Additional Information – Historical Tank Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical tanks within 500m of the search boundary: 23

ID	Distance (m)	Direction	Use	Date
20E	59	NW	Unspecified Tank	1911
21E	61	NW	Unspecified Tank	1932
22E	61	NW	Unspecified Tank	1942
23B	62	NW	Unspecified Tank	1971

24B	70	NW	Unspecified Tank	1932
25B	70	NW	Unspecified Tank	1942
26F	75	N	Unspecified Tank	1983
27F	75	N	Unspecified Tank	1993
28F	75	N	Unspecified Tank	1992
29	93	NE	Unspecified Tank	1994
30G	113	NW	Tanks	1993
31G	113	NW	Tanks	1983
32G	113	NW	Tanks	1971
33	184	SW	Unspecified Tank	1971
34H	186	NW	Unspecified Tank	1971
35H	186	NW	Unspecified Tank	1983
36I	187	NW	Tanks	1983
37I	187	NW	Tanks	1993
38I	188	NW	Unspecified Tank	1971
39H	189	NW	Unspecified Tank	1971
40H	189	NW	Unspecified Tank	1983
41I	202	NW	Unspecified Tank	1983
42	237	SW	Tanks	1983

1.3 Additional Information – Historical Energy Features Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical energy features within 500m of the search boundary:

12

ID	Distance (m)	Direction	Use	Date
43J	0	On Site	Electricity Substation	1993
44J	0	On Site	Electricity Substation	1983
45J	0	On Site	Electricity Substation	1971
46K	292	E	Electricity Substation	1979
47K	292	E	Electricity Substation	1969
48K	293	E	Electricity Substation	1971
49L	464	SE	Electricity Substation	1979
50L	465	SE	Electricity Substation	1971
51L	465	SE	Electricity Substation	1969
52M	487	E	Electricity Substation	1979
53M	487	E	Electricity Substation	1969
54M	488	E	Electricity Substation	1971

1.4 Additional Information – Historical Petrol and Fuel Site Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps

provides the following information.

Records of historical petrol stations and fuel sites within 500m of the search boundary: 0

Database searched and no data found.

1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical garage and motor vehicle repair sites within 500m of the search boundary: 0

Database searched and no data found.

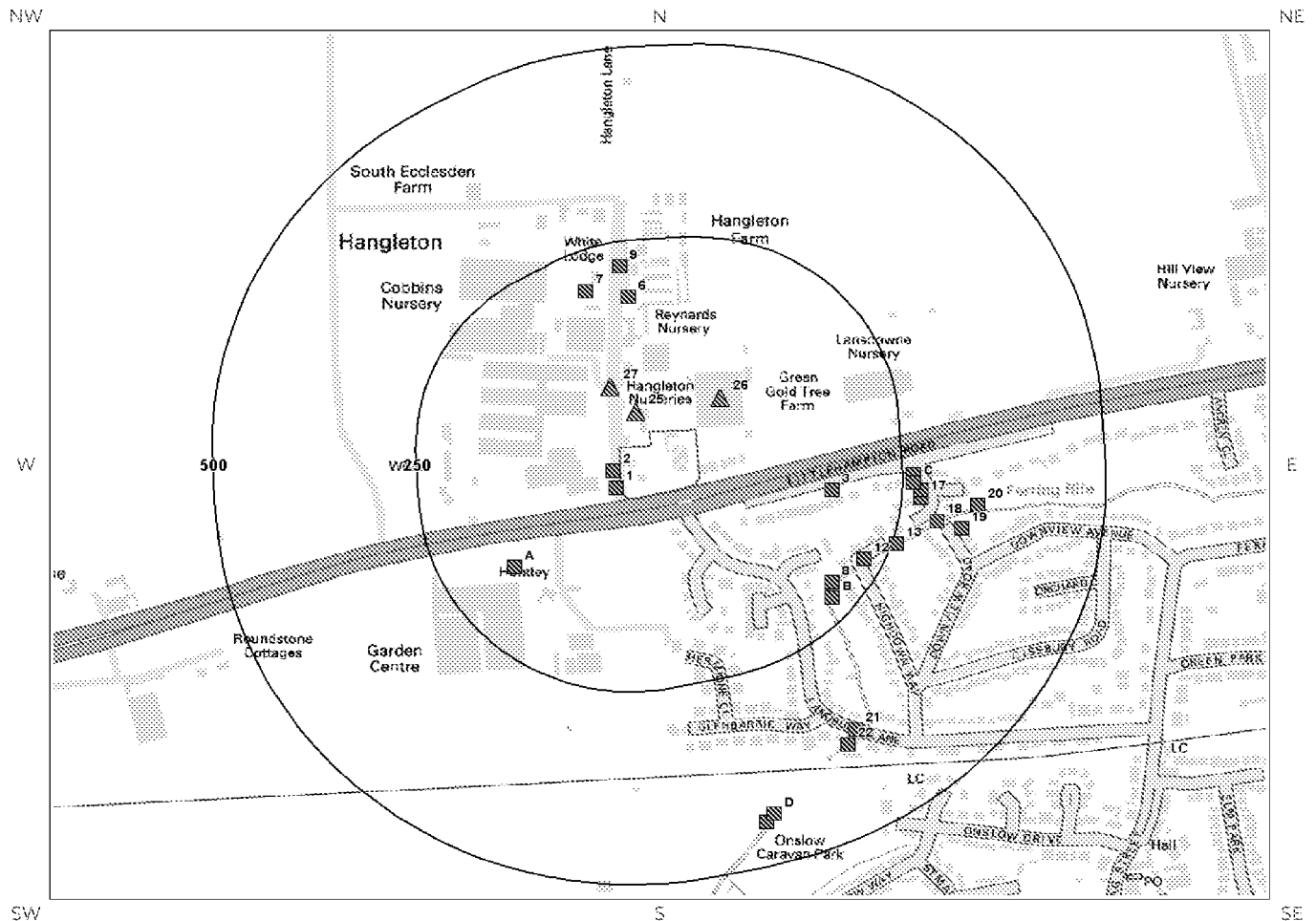
1.6 Potentially Infilled Land

Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 5

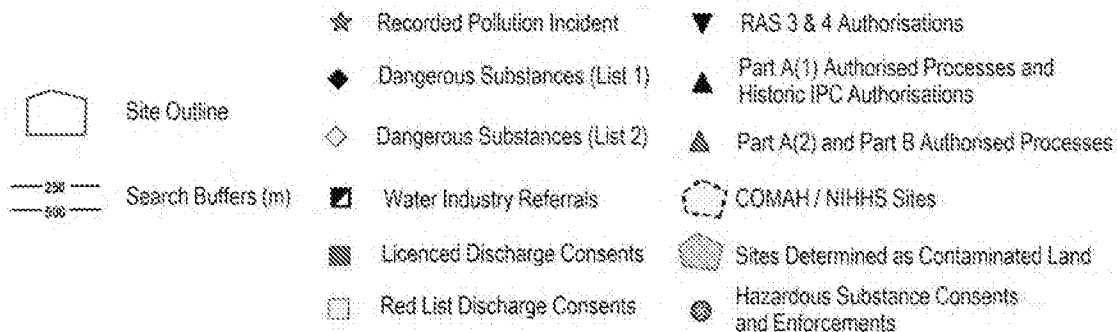
The following Historical Potentially Infilled Features derived from the Historical Mapping information is provided by Groundsure:

ID	Distance(m)	Direction	Use	Date
55N	292	SW	Pond	1932
56N	292	SW	Pond	1910
57N	292	SW	Pond	1943
58N	296	SW	Pond	1957
59O	353	S	Cuttings	1957

2. Environmental Permits, Incidents and Registers Map



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2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

Searches of information provided by the Environment Agency/Natural Resources Wales and Local Authorities reveal the following information:

2.1.1 Records of historic IPC Authorisations within 500m of the study site:

0

Database searched and no data found.

2.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site:

0

Database searched and no data found.

2.1.3 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site:

0

Database searched and no data found.

2.1.4 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site:

0

Database searched and no data found.

2.1.5 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site:

0

Database searched and no data found.

2.1.6 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site:

3

The following Part A(2) and Part B Activities are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details
25	28	NW	508901 103519	Address: Perifleur Nursery, Hangleton Lane, Ferring, Worthing, BN12 6PP Process: No Details Status: Historical Permit Permit Type: Part B Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified
26	49	NE	509004 103538	Address: Milibeech Hangleton Nursery, Hangleton Lane, BN12 6PP Process: Combustion & Incineration Status: Historical Permit Permit Type: Part B Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified
27	74	NW	508867 103551	Address: Cobbins Nurseries, Hangleton Lane, Ferring, Worthing, West Sussex, BN12 6PP Process: Combustion of Waste Wood Status: Current Permit Permit Type: Part B Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified

2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

2.1.8 Records of Licensed Discharge Consents within 500m of the study site:

24

The following Licensed Discharge Consents records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details
1	8	W	508875 103423	Address: WYEVALE GARDEN CENTRE, FERRING, WYEVALE GARDEN CENTRE, A259, FERRING, WEST SUSSEX, BN12 6PG Effluent Type: SEWAGE & TRADE COMBINED - UNSPECIFIED Permit Number: P12182 Permit Version: 2 Receiving Water: VIA A CULVERT TO FERRING RIFE Status: SURRENDERED UNDER EPR 2010 Issue date: 19/05/2008 Effective Date: 19-May-2008 Revocation Date: 05/03/2012
2	10	W	508871 103445	Address: WYEVALE GARDEN CENTRE, FERRING, WYEVALE GARDEN CENTRE, A259, FERRING, WEST SUSSEX, BN12 6PG Effluent Type: SEWAGE & TRADE COMBINED - UNSPECIFIED Permit Number: P12182 Permit Version: 1 Receiving Water: VIA A CULVERT TO FERRING RIFE Status: VARIED BY APPLICATION - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 10/12/2004 Effective Date: 10-Dec-2004 Revocation Date: 18/05/2008

ID	Distance (m)	Direction	NGR	Details
3	163	E	509140 103420	Address: LITTLEHAMPTON ROAD, A.259, LITTLEHAMPTON ROAD, A.259, AT FERRING, WORTHING, WEST SUSSEX Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: S01652 Permit Version: 1 Receiving Water: FRESHWATER RIVER Status: LAPSED UNDER SCHEDULE 23 ENVIRONMENT ACT 1995 Issue date: 09/10/1967 Effective Date: 09-Oct-1967 Revocation Date: 31/03/1997
4A	164	SW	508750 103320	Address: COUNTRY FAYRE MARKET, COUNTRY FAYRE MARKET, LITTLEHAMPTON ROAD, FERRING, WORTHING, WEST SUSSEX, BN12 6PN Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: P01993 Permit Version: 2 Receiving Water: INTO LAND Status: REVOKED UNDER EPR 2010 Issue date: 21/12/2012 Effective Date: 21-Dec-2012 Revocation Date: 28/08/2013
5A	164	SW	508750 103320	Address: COUNTRY FAYRE MARKET, COUNTRY FAYRE MARKET, LITTLEHAMPTON ROAD, FERRING, WORTHING, WEST SUSSEX, BN12 6PN Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: P01993 Permit Version: 1 Receiving Water: INTO LAND Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 08/11/1988 Effective Date: 08-Nov-1988 Revocation Date: 20/12/2012
6	177	N	508890 103670	Address: HANGLETON FARM STABLES, HANGLETON FARM STABLES, HANGLETON LANE, FERRING WEST SUSSEX Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: P02511 Permit Version: 1 Receiving Water: INTO LAND Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 25/09/1989 Effective Date: 25-Aug-1989 Revocation Date: -
7	199	NW	508838 103678	Address: STP & INFILT. @ FOSCHINI NURSERY, HANGLETON LANE, FERRING, WORTHING, WEST SUSSEX, BN12 6PP Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: EPRGB3399DR Permit Version: 1 Receiving Water: GROUNDWATER VIA INFILT. SYSTEM Status: NEW ISSUED UNDER EPR 2010 Issue date: 18/07/2017 Effective Date: 18-Jul-2017 Revocation Date: -
8	209	SE	509140 103300	Address: LITTLEHAMPTON ROAD, A.259, LITTLEHAMPTON ROAD, A.259, AT FERRING, WORTHING, WEST SUSSEX Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: S01652 Permit Version: 1 Receiving Water: FRESHWATER RIVER Status: LAPSED UNDER SCHEDULE 23 ENVIRONMENT ACT 1995 Issue date: 09/10/1967 Effective Date: 09-Oct-1967 Revocation Date: 31/03/1997
9	218	N	508880 103710	Address: DWELLING, HANGLETON FARM, DWELLING, HANGLETON FARM, HANGLETON LANE, FERRING, WORTHING, WEST SUSSEX Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: N03456 Permit Version: 1 Receiving Water: INTO LAND Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 23/05/1983 Effective Date: 23-May-1983 Revocation Date: -
10B	222	SE	509140 103280	Address: BROOKSIDE NURSERY, BROOKSIDE NURSERY, LANGBURY LANE, FERRING, WORTHING WEST SUSSEX Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: S01568 Permit Version: 1 Receiving Water: FRESHWATER RIVER Status: LAPSED UNDER SCHEDULE 23 ENVIRONMENT ACT 1995 Issue date: 22/02/1967 Effective Date: 22-Feb-1967 Revocation Date: 31/03/1997

ID	Distance (m)	Direction	NGR	Details
11B	222	SE	509140 103280	Address: RESIDENTIAL DEVELOPMENT, RESIDENTIAL DEVELOPMENT, BROOKSIDE NURSERY, LANGBURY LANE FERRING, WORTHING WEST SUSSEX Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: S01497 Permit Version: 1 Receiving Water: CONTROLLED SEA Status: Lapsed UNDER SCHEDULE 23 ENVIRONMENT ACT 1995 Issue date: 01/04/1991 Effective Date: 01-Apr-1991 Revocation Date: 31/03/1997
12	227	SE	509180 103330	Address: LAND AT RIFESIDE, HIGHDOWN WAY, LAND AT RIFESIDE, HIGHDOWN WAY, FERRING Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: S02835 Permit Version: 1 Receiving Water: FRESHWATER RIVER Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 26/05/1960 Effective Date: 26-May-1960 Revocation Date: 01/07/1991
13	256	E	509220 103350	Address: BUNGALOWS ADJ. STANBROOKE, BUNGALOWS ADJ. STANBROOKE, FERRING, WORTHING, WEST SUSSEX Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: S01185 Permit Version: 1 Receiving Water: CONTROLLED SEA Status: Lapsed UNDER SCHEDULE 23 ENVIRONMENT ACT 1995 Issue date: 17/05/1960 Effective Date: 17-May-1960 Revocation Date: 31/03/1997
14C	262	E	509240 103430	Address: BUNGALOWS ADJ. STANBROOKE, BUNGALOWS ADJ. STANBROOKE, FERRING, WORTHING, WEST SUSSEX Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: S01185 Permit Version: 1 Receiving Water: CONTROLLED SEA Status: Lapsed UNDER SCHEDULE 23 ENVIRONMENT ACT 1995 Issue date: 17/05/1960 Effective Date: 17-May-1960 Revocation Date: 31/03/1997
15C	262	E	509240 103440	Address: BUNGALOWS ADJ. STANBROOKE, BUNGALOWS ADJ. STANBROOKE, FERRING, WORTHING, WEST SUSSEX Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: S01185 Permit Version: 1 Receiving Water: CONTROLLED SEA Status: Lapsed UNDER SCHEDULE 23 ENVIRONMENT ACT 1995 Issue date: 17/05/1960 Effective Date: 17-May-1960 Revocation Date: 31/03/1997
16C	272	E	509250 103420	Address: BUNGALOWS ADJ. STANBROOKE, BUNGALOWS ADJ. STANBROOKE, FERRING, WORTHING, WEST SUSSEX Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: S01185 Permit Version: 1 Receiving Water: CONTROLLED SEA Status: Lapsed UNDER SCHEDULE 23 ENVIRONMENT ACT 1995 Issue date: 17/05/1960 Effective Date: 17-May-1960 Revocation Date: 31/03/1997
17	273	E	509250 103410	Address: BUNGALOWS ADJ. STANBROOKE, BUNGALOWS ADJ. STANBROOKE, FERRING, WORTHING, WEST SUSSEX Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: S01185 Permit Version: 1 Receiving Water: CONTROLLED SEA Status: Lapsed UNDER SCHEDULE 23 ENVIRONMENT ACT 1995 Issue date: 17/05/1960 Effective Date: 17-May-1960 Revocation Date: 31/03/1997
18	297	E	509270 103380	Address: LITTLEHAMPTON ROAD, A.259, LITTLEHAMPTON ROAD, A.259, AT FERRING, WORTHING, WEST SUSSEX Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: S01652 Permit Version: 1 Receiving Water: FRESHWATER RIVER Status: Lapsed UNDER SCHEDULE 23 ENVIRONMENT ACT 1995 Issue date: 09/10/1967 Effective Date: 09-Oct-1967 Revocation Date: 31/03/1997
19	328	E	509300 103370	Address: 21 DOWNVIEW ROAD, 21 DOWNVIEW ROAD, FERRING Effluent Type: UNSPECIFIED Permit Number: S02523 Permit Version: 1 Receiving Water: FRESHWATER RIVER Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 30/07/1965 Effective Date: 30-Jul-1965 Revocation Date: 28/02/1997

ID	Distance (m)	Direction	NGR	Details	
20	344	E	509320 103400	Address: BUNGALOWS ADJ. STANBROOKE, BUNGALOWS ADJ. STANBROOKE, FERRING, WORTHING, WEST SUSSEX Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: S01185 Permit Version: 1	Receiving Water: CONTROLLED SEA Status: LAPSED UNDER SCHEDULE 23 ENVIRONMENT ACT 1995 Issue date: 17/05/1960 Effective Date: 17-May-1960 Revocation Date: 31/03/1997
21	373	SE	509170 103110	Address: ROAD OFF LANGBURY LANE, ROAD OFF LANGBURY LANE, FERRING, WORTHING WEST SUSSEX Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: S01180 Permit Version: 1	Receiving Water: CONTROLLED SEA Status: LAPSED UNDER SCHEDULE 23 ENVIRONMENT ACT 1995 Issue date: 24/03/1961 Effective Date: 24-Mar-1961 Revocation Date: 31/03/1997
22	385	SE	509160 103090	Address: PLOT 16 LANGBURY LANE, PLOT 16 LANGBURY LANE, FERRING Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: S02559 Permit Version: 1	Receiving Water: FRESHWATER RIVER Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 31/10/1966 Effective Date: 31-Oct-1966 Revocation Date: 28/02/1997
23D	435	S	509070 103000	Address: ONSLOW DRIVE PUMPING STATION, ONSLOW DRIVE PUMPING STATION, FERRING, SUSSEX Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: A00859 Permit Version: 1	Receiving Water: FRESHWATER RIVER Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 23/07/2001 Effective Date: 23-Jul-2001 Revocation Date: -
24D	443	S	509060 102990	Address: ONSLOW DRIVE FERRING WPS, FERRING, ONSLOW CARAVAN PARK, ONSLOW DRIVE, FERRING, WORTHING, WEST SUSSEX, BN12 5RX Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: A01404 Permit Version: 1	Receiving Water: FERRING RIFE Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 17/10/2006 Effective Date: 17-Oct-2006 Revocation Date: -

2.1.9 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site:

0

Database searched and no data found.

2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site:

0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

Records of COMAH & NIHHS sites within 500m of the study site:

0

Database searched and no data found.

2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

2.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site:

0

Database searched and no data found.

2.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site:

0

Database searched and no data found.

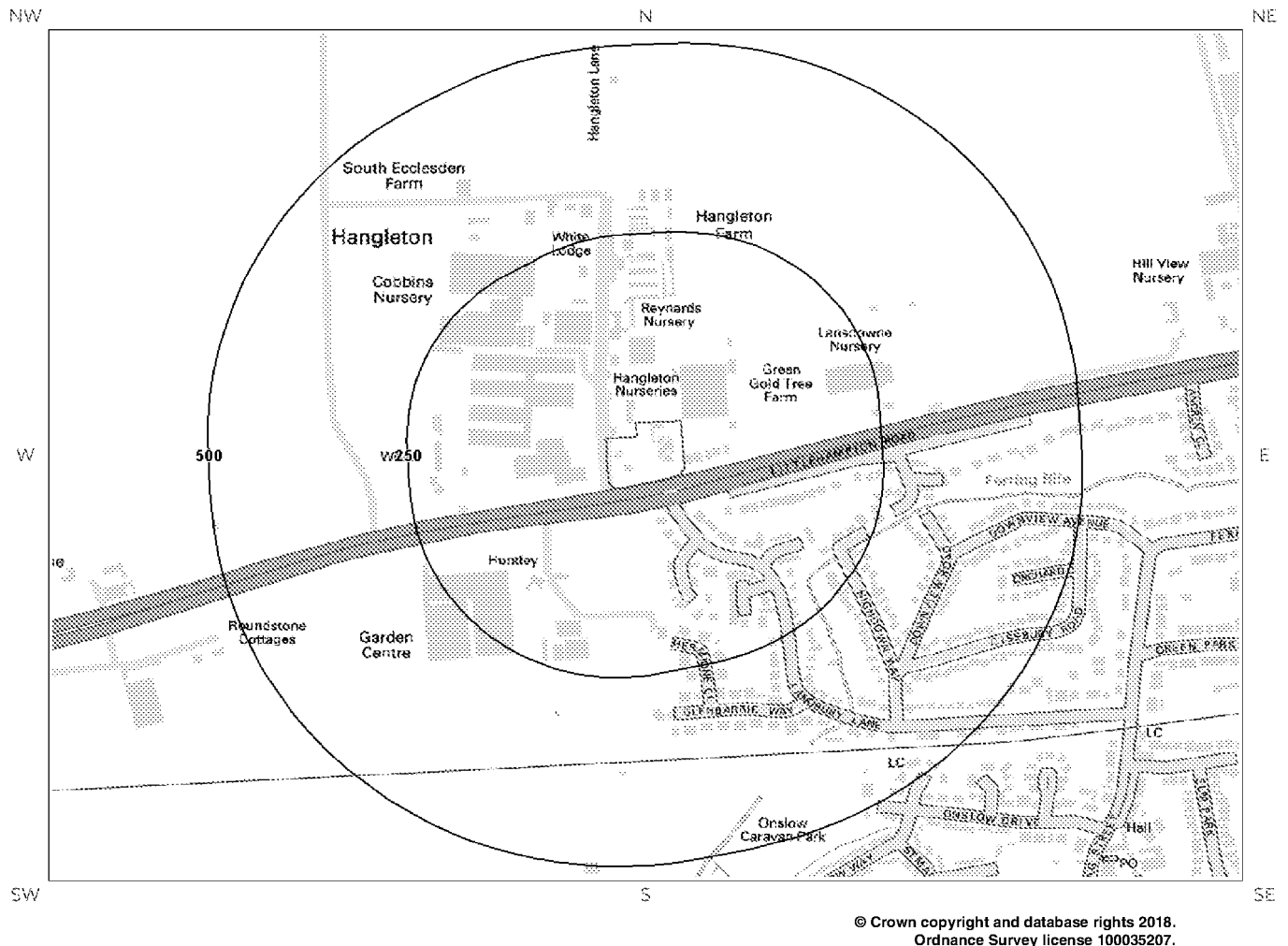
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

How many records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site?

0

Database searched and no data found.

3. Landfill and Other Waste Sites Map



- | | | | | | |
|---|--------------------|---|---------------------------|---|---|
|  | Site Outline |  | EA/NRW Active Landfill |  | Historic and Planned Waste Sites |
|  | Search Buffers (m) |  | EA/NRW Historic Landfill |  | EA/NRW Licensed Waste Site |
| | |  | BGS / DoE Survey Landfill |  | Local Authority/Historical Mapping Landfill Records |

3. Landfill and Other Waste Sites

3.1 Landfill Sites

3.1.1 Records from Environment Agency/Natural Resources Wales landfill data within 1000m of the study site:

0

Database searched and no data found.

3.1.2 Records of Environment Agency/Natural Resources Wales historic landfill sites within 1500m of the study site:

0

Database searched and no data found.

3.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site:

0

Database searched and no data found.

3.1.4 Records of Landfills from Local Authority and Historical Mapping Records within 1500m of the study site:

0

Database searched and no data found.

3.2 Other Waste Sites

3.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site:

0

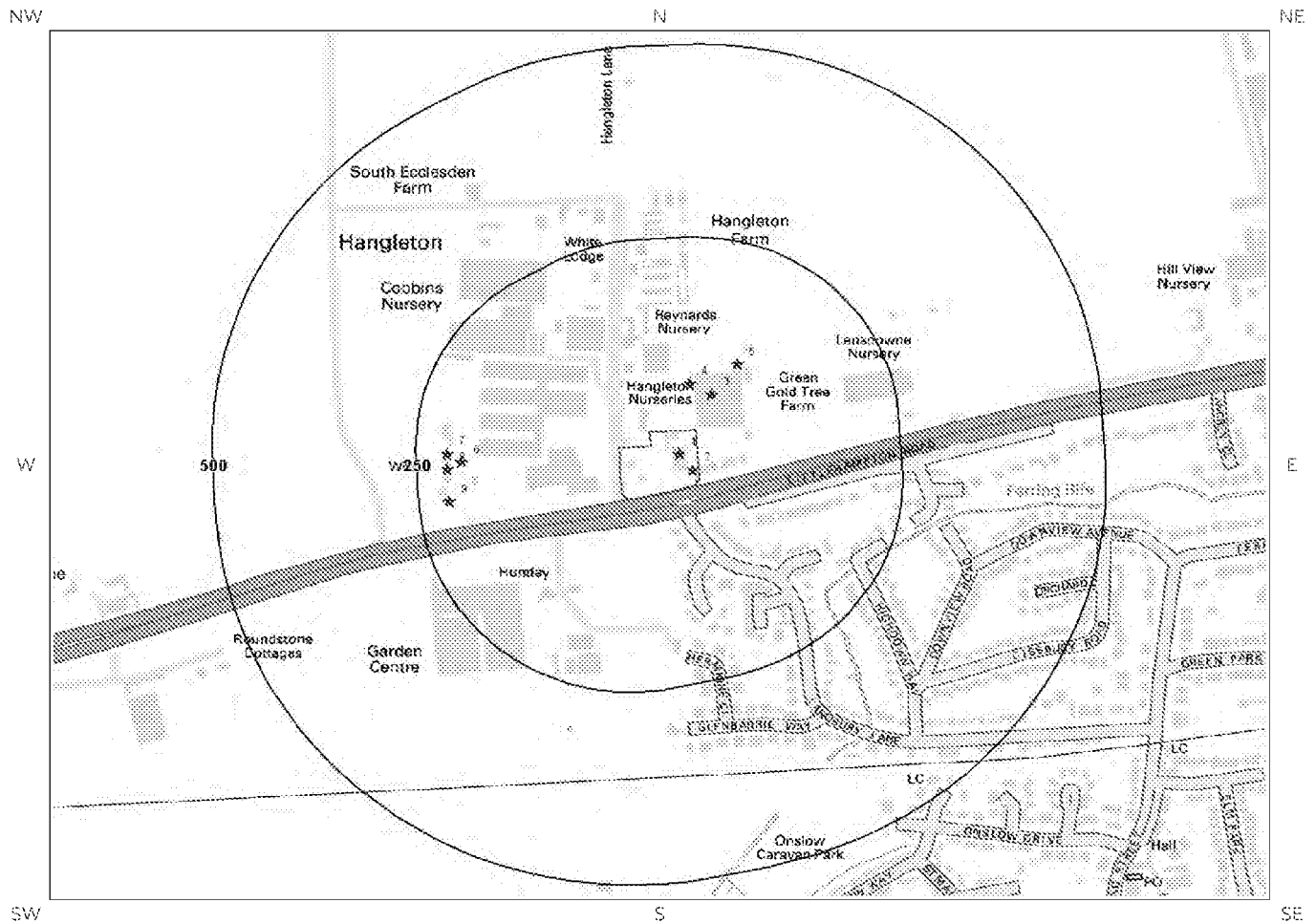
Database searched and no data found.

3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site:

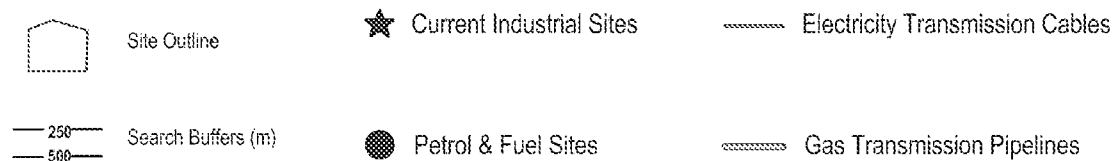
0

Database searched and no data found.

4. Current Land Use Map



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4. Current Land Uses

4.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site:

9

The following records are represented as points on the Current Land Uses map.

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	0	On Site	Yeomans Peugeot	508953 103467	Littlehampton Road, Ferring, Worthing, BN12 6PB	New Vehicles	Motoring
2	0	On Site	Electricity Sub Station	508969 103447	BN12	Electrical Features	Infrastructure and Facilities
3	51	NE	Docu-shred	508993 103545	Hangleton Nursery, Hangleton Lane, Ferring, Worthing, BN12 6PP	Recycling, Reclamation and Disposal	Recycling Services
4	61	N	Kirby Concrete	508966 103559	Hangleton Nursery, Hangleton Lane, Ferring, Worthing, BN12 6PP	Concrete Products	Industrial Products
5	99	NE	Tank	509024 103584	BN12	Tanks (Generic)	Industrial Features
6	195	W	Works	508685 103457	BN12	Unspecified Works Or Factories	Industrial Features
7	211	W	Nebula P P S Ltd	508668 103468	Unit E Coopers Industrial Estate, Littlehampton Road, Ferring, Worthing, BN12 6PW	Electronic Equipment	Industrial Products
8	212	W	Brent Taunton Joinery Ltd	508668 103447	Unit 3 Coopers Industrial Estate, Littlehampton Road, Ferring, Worthing, BN12 6PW	General Construction Supplies	Industrial Products
9	213	W	N S Marine	508670 103406	Downsview, Littlehampton Road, Ferring, Worthing, BN12 6PW	Marine Engineers and Services	Engineering Services

4.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site:

0

Database searched and no data found.

4.3 National Grid High Voltage Underground Electricity Transmission Cables

This dataset identifies the high voltage electricity transmission lines running between generating power plants and electricity substations. The dataset does not include the electricity distribution network (smaller, lower voltage cables distributing power from substations to the local user network). This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high voltage underground electricity transmission cables within 500m of the study site:

0

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

This dataset identifies high-pressure, large diameter pipelines which carry gas between gas terminals, power stations, compressors and storage facilities. The dataset does not include the Local Transmission System (LTS) which supplies gas directly into homes and businesses. This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high pressure gas transmission pipelines within 500m of the study site:

0

Database searched and no data found.

5. Geology

5.1 Artificial Ground and Made Ground

Database searched and no data found.

The database has been searched on site, including a 50m buffer.

5.2 Superficial Ground and Drift Geology

The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
RTDU-XSZC	RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)	SAND, SILT AND CLAY

5.3 Bedrock and Solid Geology

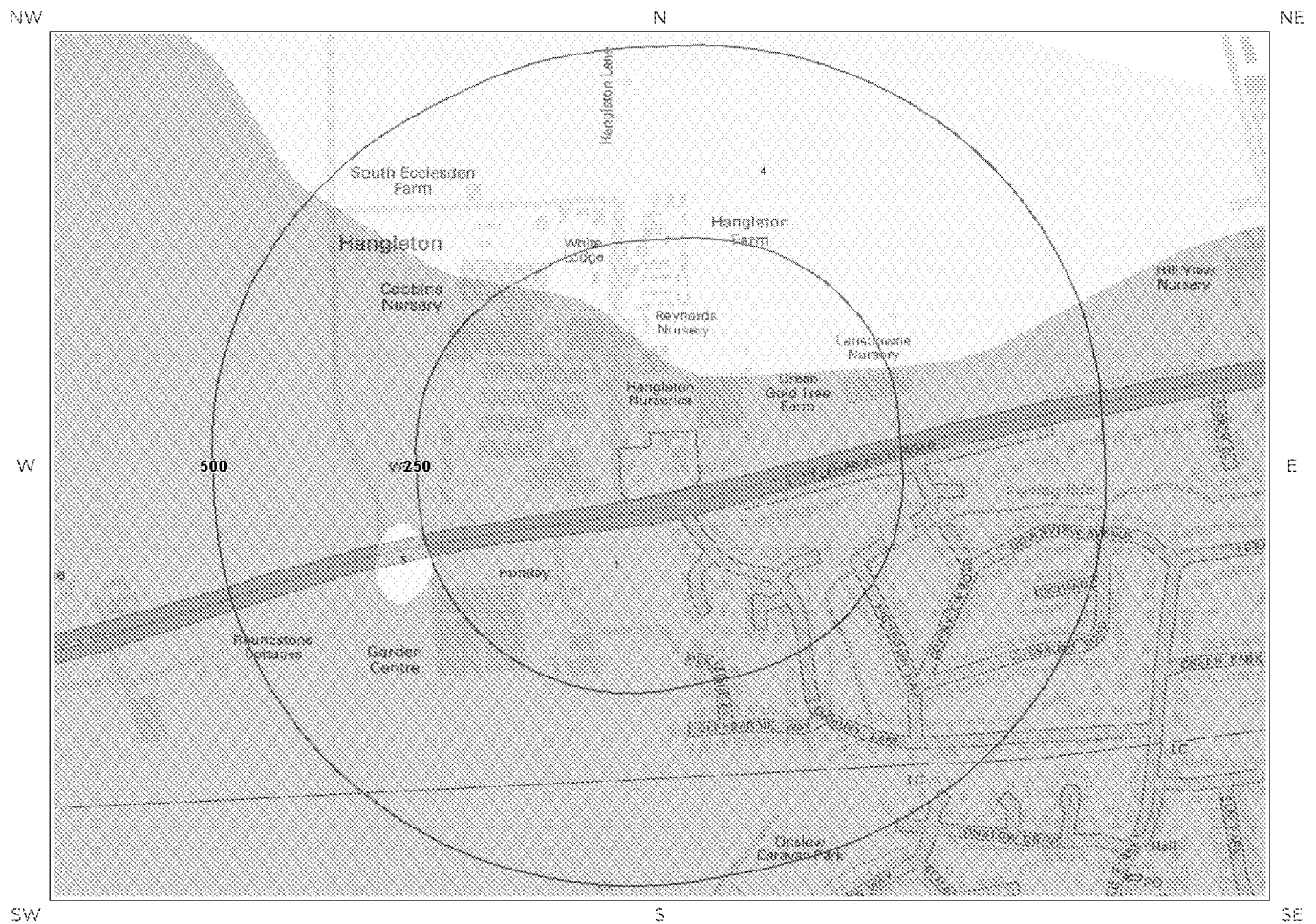
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
LPCK-CHLK	LEWES NODULAR CHALK FORMATION, SEAFORD CHALK FORMATION, NEWHAVEN CHALK FORMATION, CULVER CHALK FORMATION AND PORTSDOWN CHALK FORMATION (UNDIFFERENTIATED)	CHALK

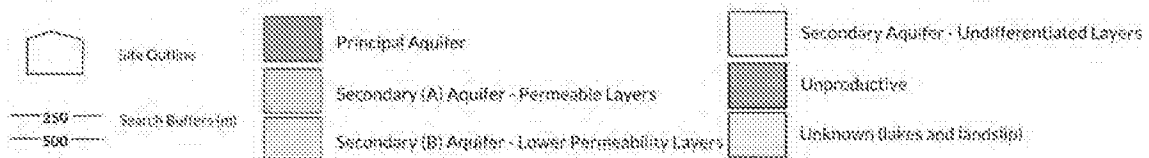
(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

6 Hydrogeology and Hydrology

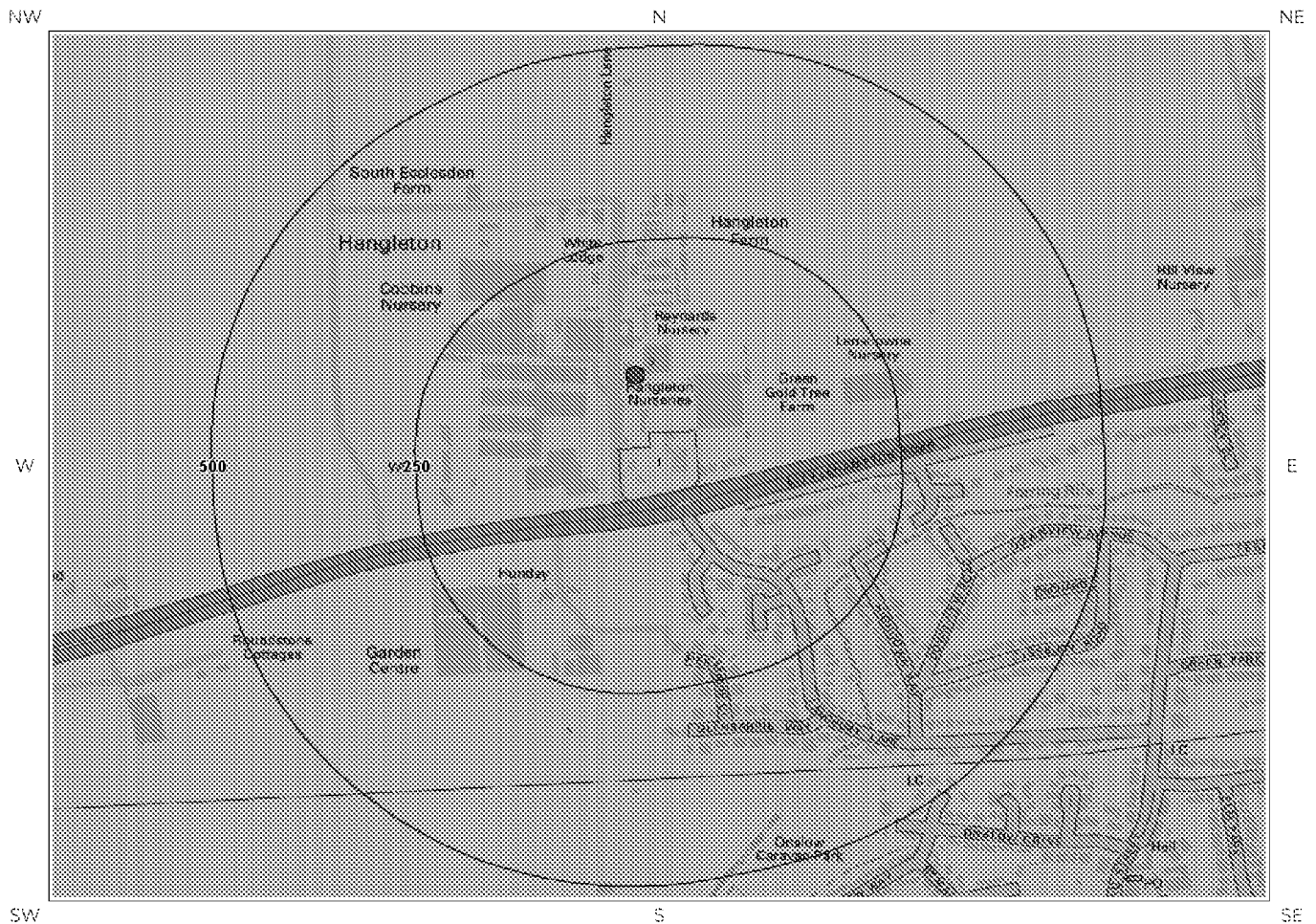
6a. Aquifer Within Superficial Geology



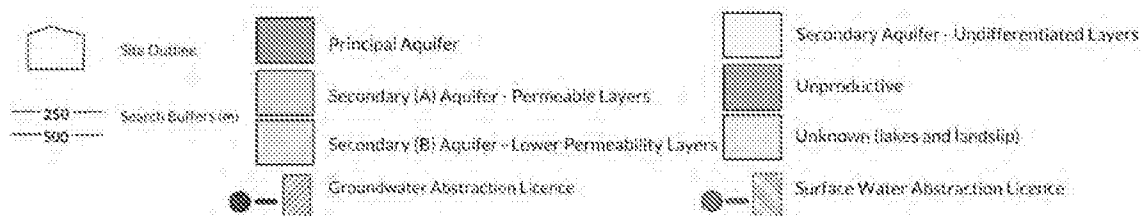
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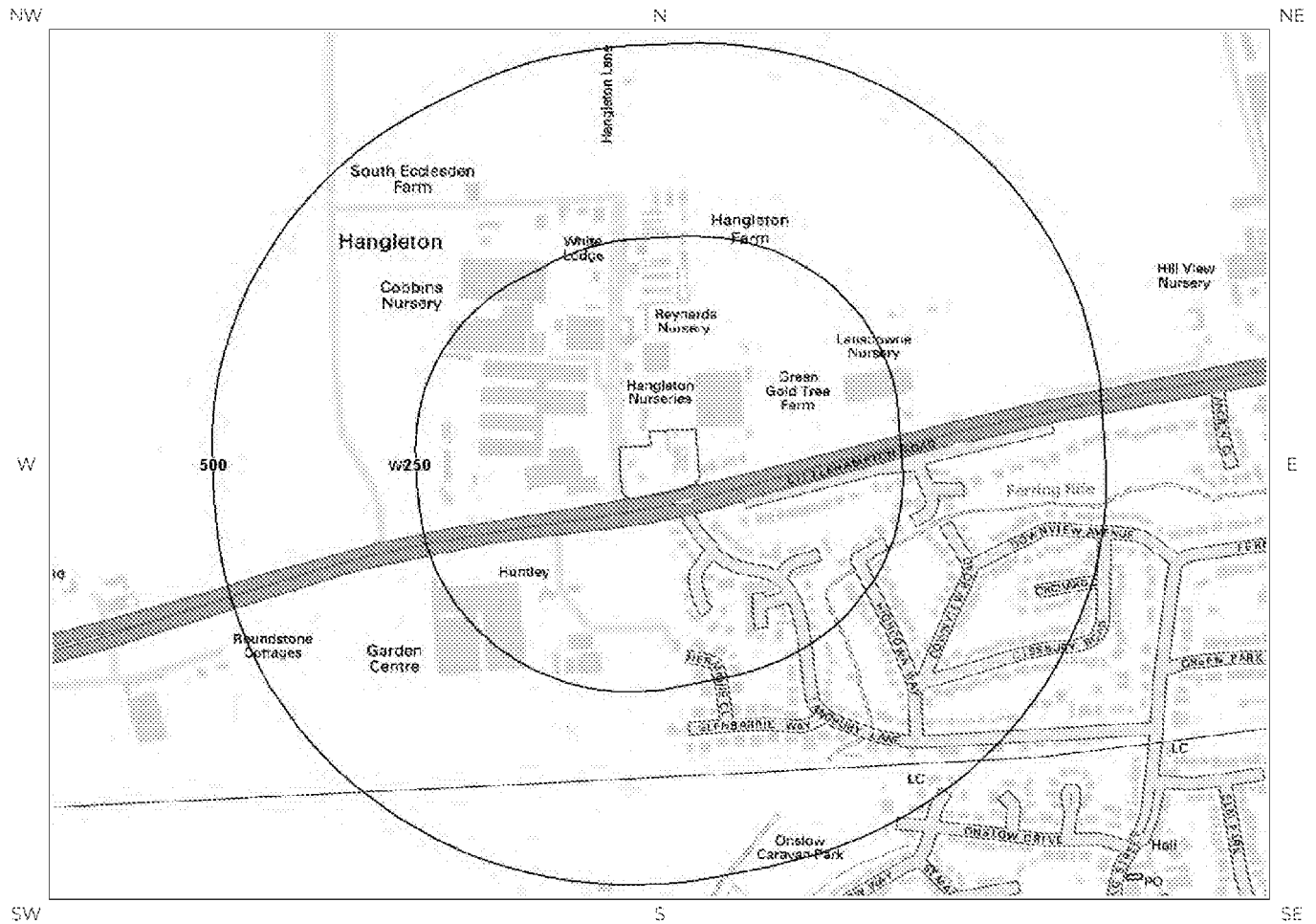
6b. Aquifer Within Bedrock Geology and Abstraction Licenses



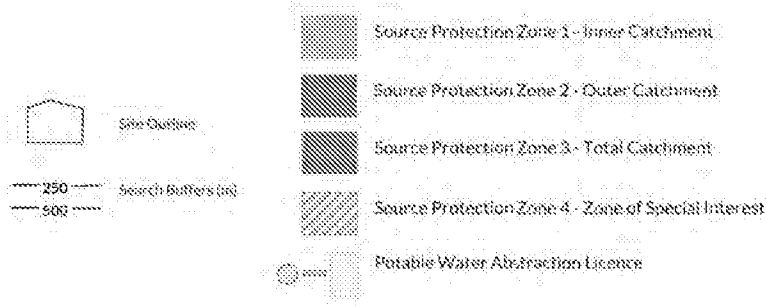
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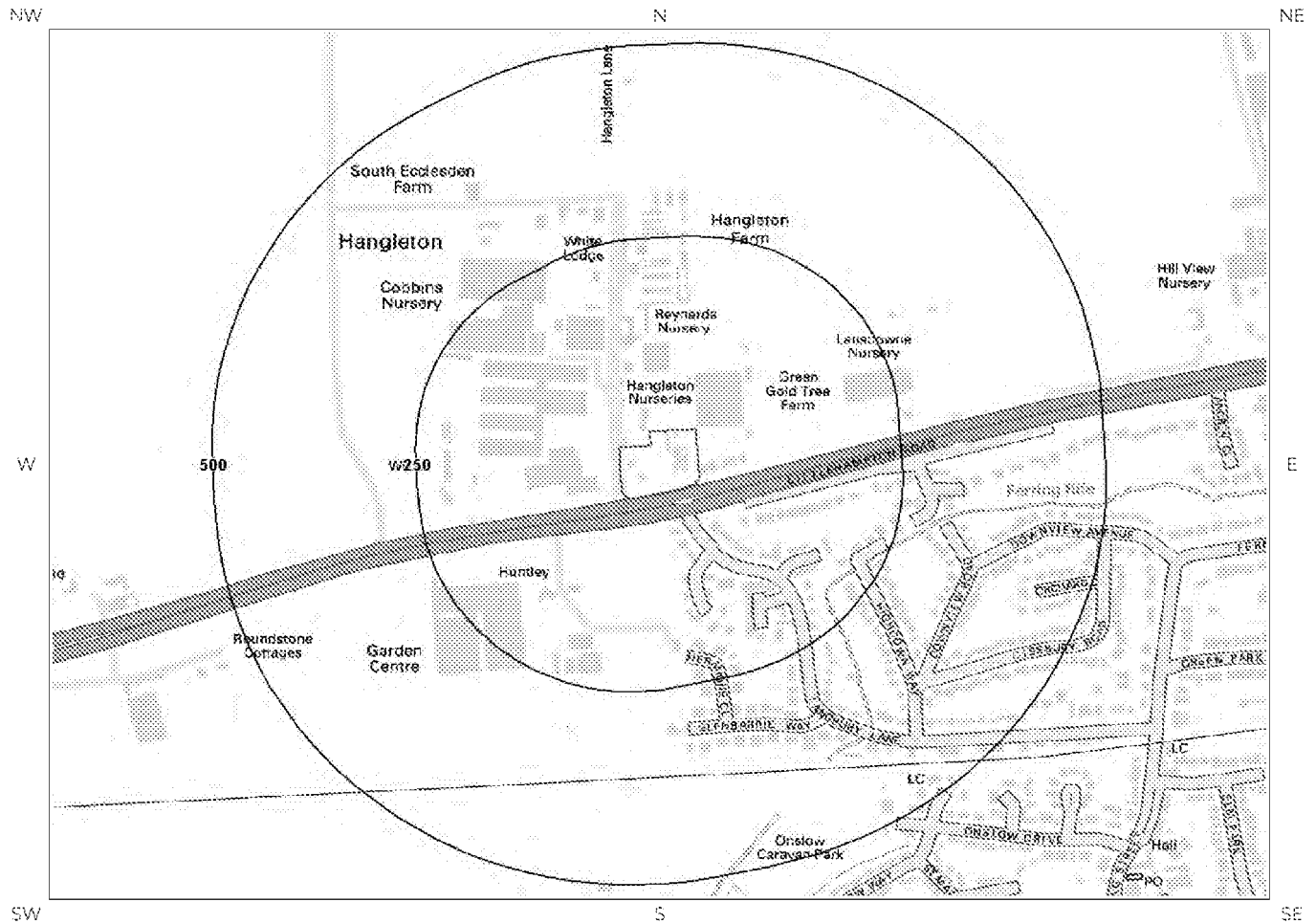
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licenses



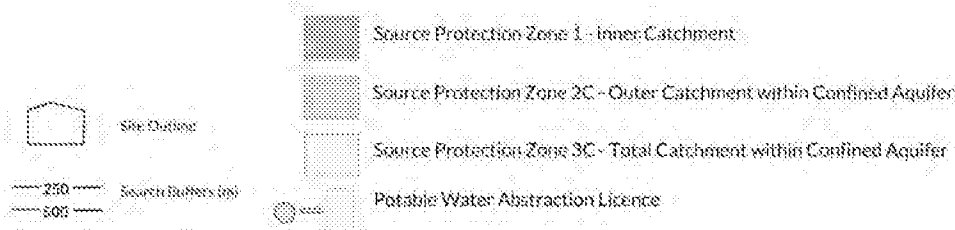
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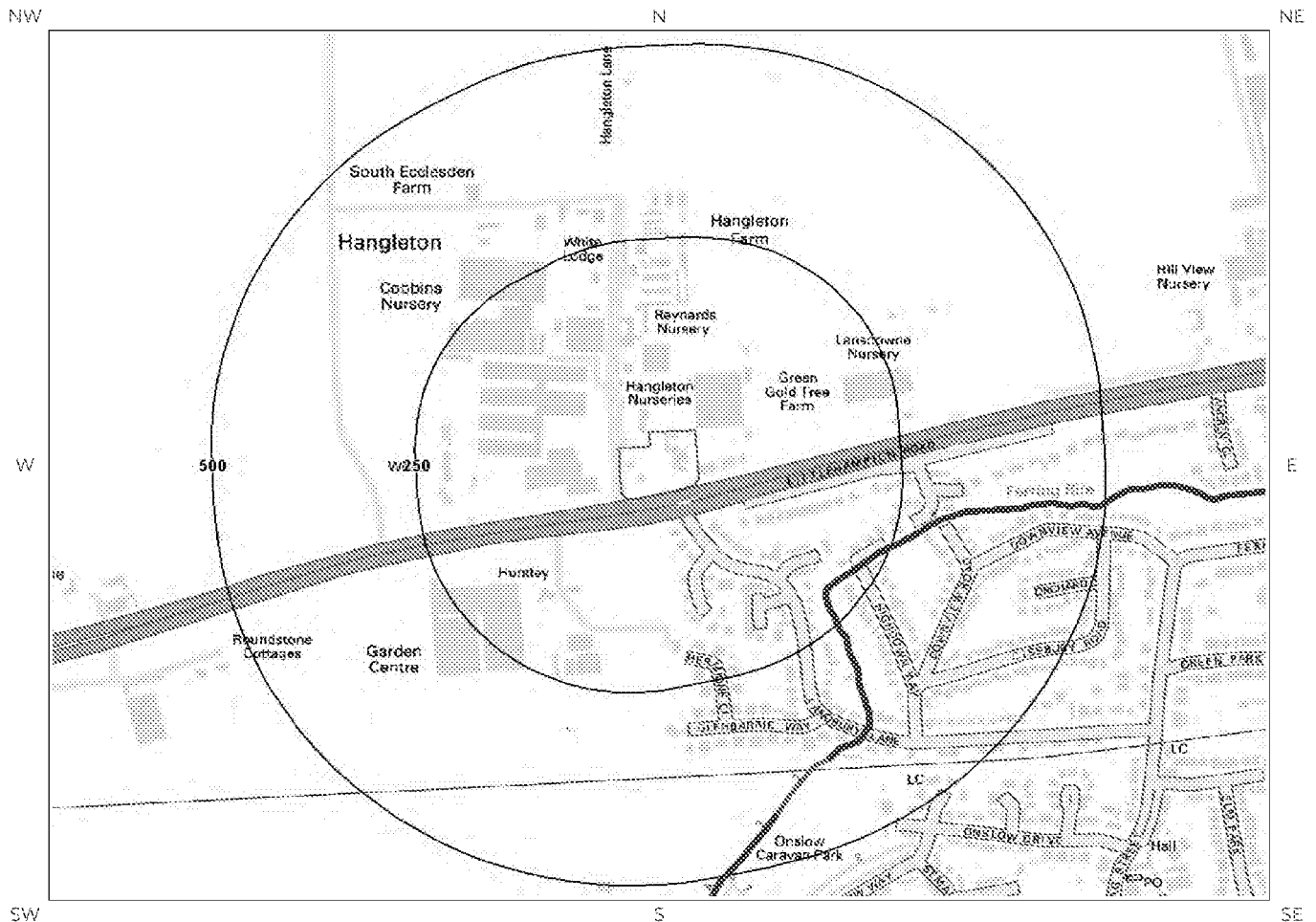
6d. Hydrogeology – Source Protection Zones within confined aquifer



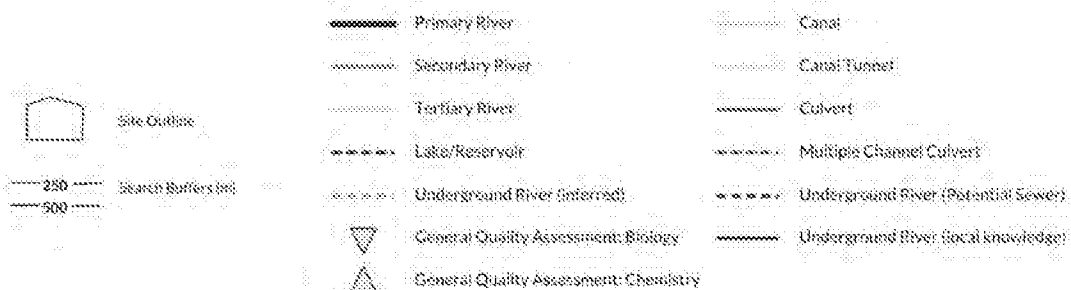
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6e. Hydrology – Detailed River Network and River Quality



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6. Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

Are there records of strata classification within the superficial geology at or in proximity to the property? **Yes**

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Superficial Geology Map (6a):

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
4	74	N	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
5	250	W	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

6.2 Aquifer within Bedrock Deposits

Are there records of strata classification within the bedrock geology at or in proximity to the property? **Yes**

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers

6.3 Groundwater Abstraction Licences

Are there any Groundwater Abstraction Licences within 2000m of the study site?

Yes

The following Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	NGR	Details	
3	77	N	508900 103570	Status: Historical Licence No: 10/41/310103 Details: General Farming & Domestic Direct Source: Southern Region Groundwater Point: Reynards Nursery Data Type: Point Name: Fox Esq	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: WR.0061 Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 1/1/1971 Version End Date:
Not shown	710	NW	508580 104120	Status: Active Licence No: 10/41/310112 Details: Spray Irrigation - Direct Direct Source: Southern Region Groundwater Point: Roundstone Farm Ferring Data Type: Point Name: Langmead	Annual Volume (m³): 77270 Max Daily Volume (m³): 1820 Original Application No: 169/0753 Original Start Date: 3/11/1987 Expiry Date: - Issue No: 100 Version Start Date: 8/6/2009 Version End Date:
Not shown	1256	W	507640 103240	Status: Active Licence No: 10/41/310106 Details: Spray Irrigation - Direct Direct Source: Southern Region Groundwater Point: Roundstone Nursery Data Type: Point Name: Roundstone Garden Centre Ltd	Annual Volume (m³): 18200 Max Daily Volume (m³): 191 Original Application No: WR.0596 Original Start Date: 27/1/1966 Expiry Date: - Issue No: 101 Version Start Date: 8/5/2015 Version End Date:
Not shown	1340	W	507540 103530	Status: Historical Licence No: 10/41/414002 Details: Horticultural Watering Direct Source: Southern Region Groundwater Point: West End Nurseries Data Type: Point Name: Van Heyningen Bros. Ltd	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: WR.0392 Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 11/1/1966 Version End Date:
Not shown	1402	NE	510230 104120	Status: Historical Licence No: 10/41/310110 Details: Spray Irrigation - Direct Direct Source: Southern Region Groundwater Point: Northbrook Farm Goring Data Type: Point Name: S.Salbstein Limited	Annual Volume (m³): 10000 Max Daily Volume (m³): 614 Original Application No: NPS/WR/003038 Original Start Date: - Expiry Date: - Issue No: 102 Version Start Date: 1/4/2010 Version End Date:
Not shown	1773	W	507140 103820	Status: Historical Licence No: 10/41/414018 Details: Horticultural Watering Direct Source: Southern Region Groundwater Point: Fresh Acres Nurseries Data Type: Point Name: Fresh Acres Nurseries Ltd	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: WR.0295 Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 19/7/1967 Version End Date:

6.4 Surface Water Abstraction Licences

Are there any Surface Water Abstraction Licences within 2000m of the study site?

No

Database searched and no data found.

6.5 Potable Water Abstraction Licences

Are there any Potable Water Abstraction Licences within 2000m of the study site?

No

Database searched and no data found.

6.6 Source Protection Zones

Are there any Source Protection Zones within 500m of the study site?

No

Database searched and no data found.

6.7 Source Protection Zones within Confined Aquifer

Are there any Source Protection Zones within the Confined Aquifer within 500m of the study site?

No

Historically, Source Protection Zone maps have been focused on regulation of activities which occur at or near the ground surface, such as prevention of point source pollution and bacterial contamination of water supplies. Sources in confined aquifers were often considered to be protected from these surface pressures due to the presence of a low permeability confining layer (e.g. glacial till, clay). The increased interest in subsurface activities such as onshore oil and gas exploration, ground source heating and cooling requires protection zones for confined sources to be marked on SPZ maps where this has not already been done.

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

Is there any Environment Agency/Natural Resources Wales information on groundwater vulnerability and soil leaching potential within 500m of the study site? Yes

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Major Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.
0	On Site	Major Aquifer/Intermediate Leaching Potential	I1	Soils which can possibly transmit a wide range of pollutants.
463	S	Major Aquifer/High Leaching Potential	H1	Soils which readily transmit liquid discharges because they are shallow or susceptible to rapid flow directly to rock, gravel or groundwater.

6.9 River Quality

Is there any Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site? No

6.9.1 Biological Quality:

Database searched and no data found.

6.9.2 Chemical Quality:

Database searched and no data found.

6.10 Detailed River Network

Are there any Detailed River Network entries within 500m of the study site? Yes

The following Detailed River Network records are represented on the Hydrology Map (6e):

ID	Distance (m)	Direction	Details
1	210	SE	River Name: Ferring Rife Welsh River Name: - Alternative Name: - River Type: Primary River Main River Status: Currently Undefined
2	391	SE	River Name: Ferring Rife Welsh River Name: - Alternative Name: - River Type: Culvert Main River Status: Currently Undefined

ID	Distance (m)	Direction	Details
3	436	S	River Name: Ferring Rife Weish River Name: - Alternative Name: - River Type: Primary River Main River Status: Currently Undefined

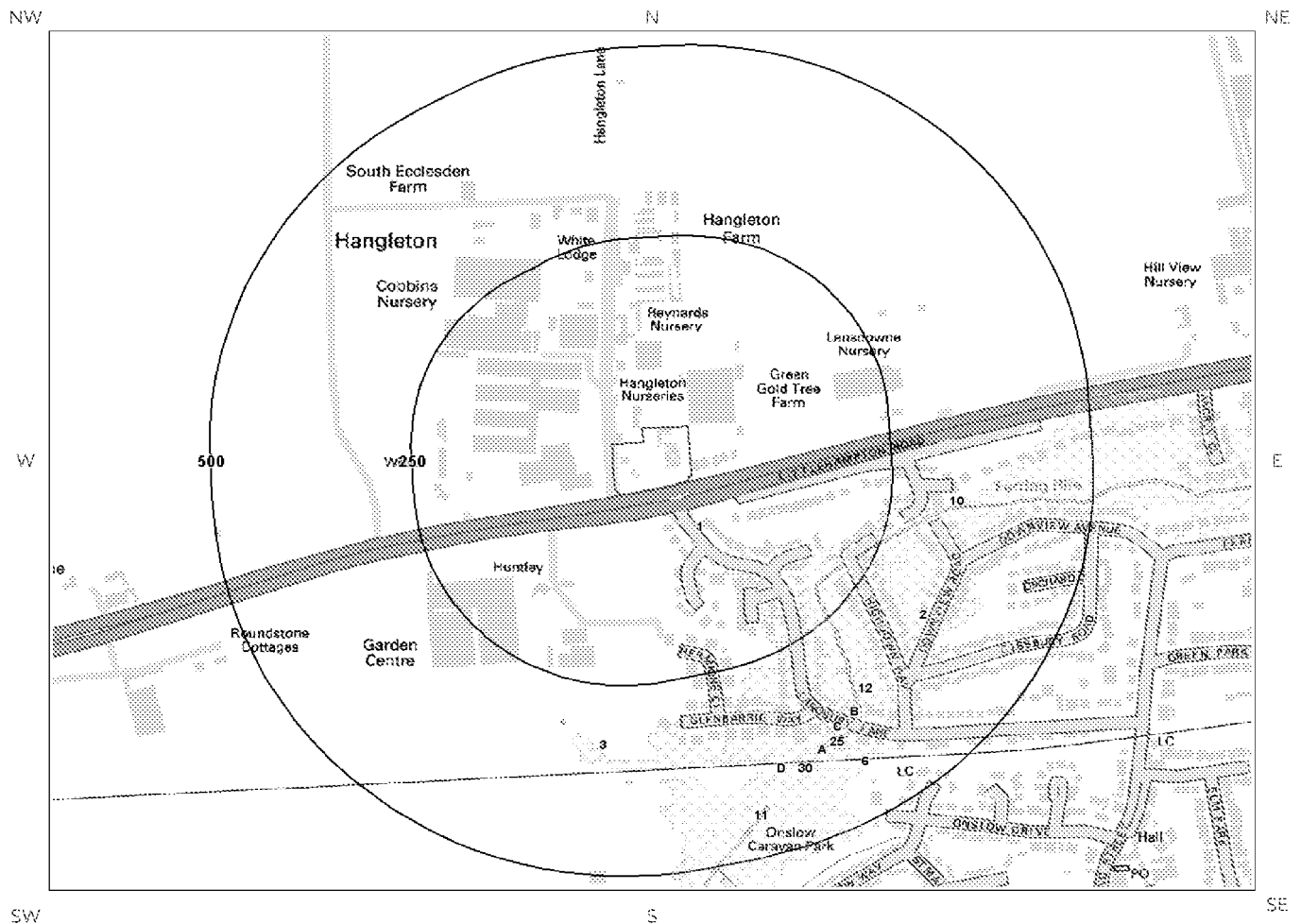
6.11 Surface Water Features

Are there any surface water features within 250m of the study site? Yes

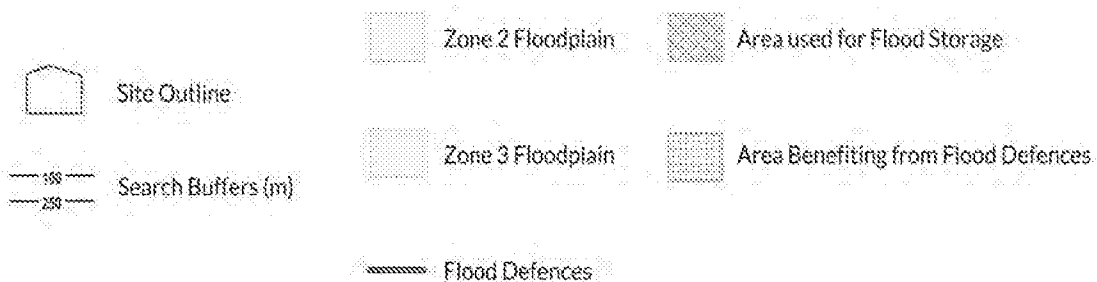
The following surface water records are not represented on mapping:

Distance (m)	Direction
203	SE
226	SE

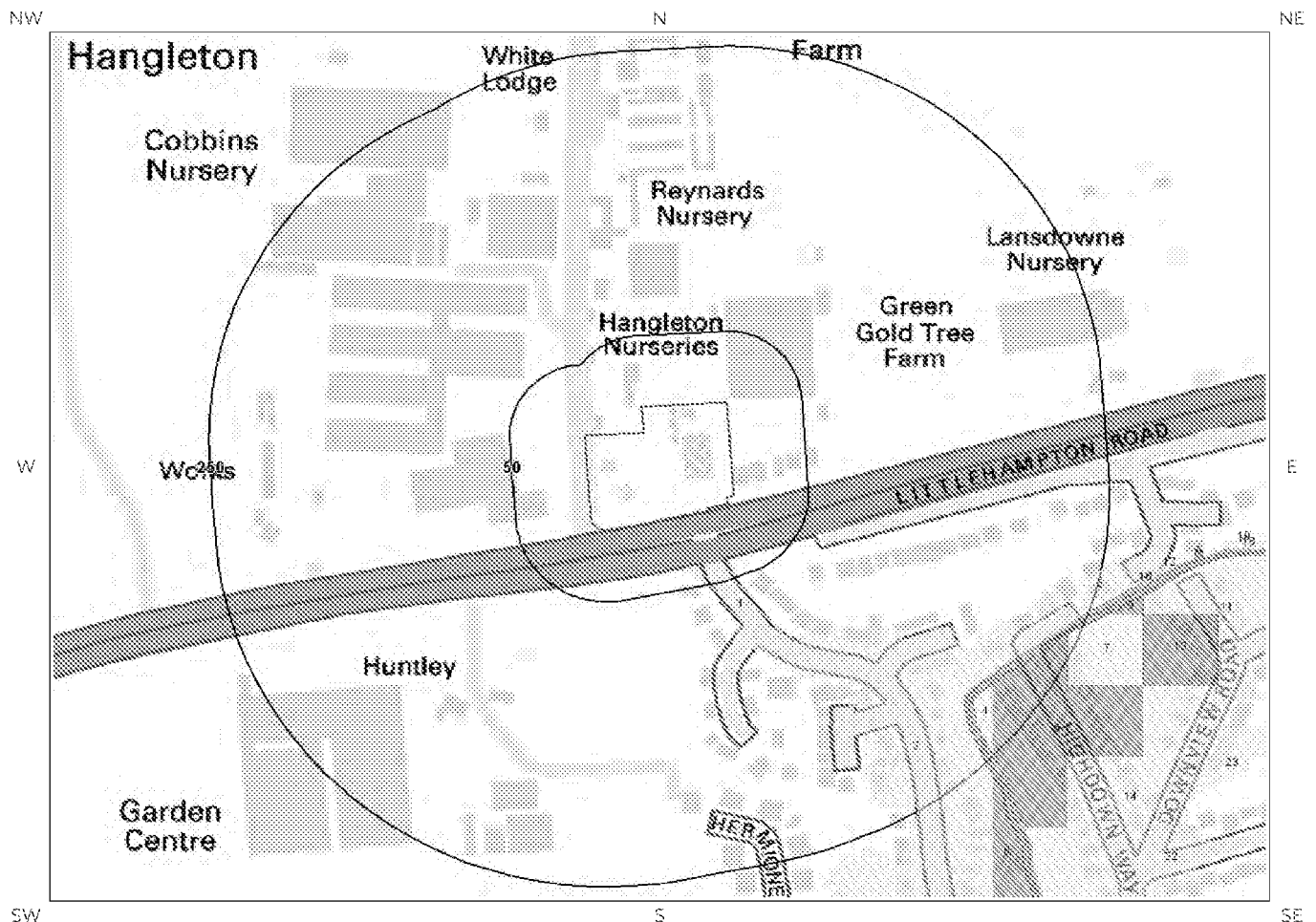
7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)



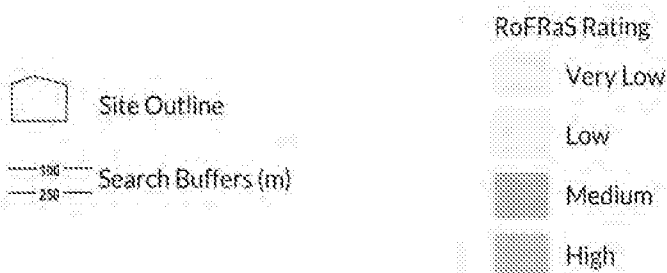
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7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map



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7 Flooding

7.1 River and Coastal Zone 2 Flooding

Is the site within 250m of an Environment Agency/Natural Resources Wales Zone 2 floodplain? **Yes**

Environment Agency/Natural Resources Wales Zone 2 floodplains estimate the annual probability of flooding as between 1 in 1000 (0.1%) and 1 in 100 (1%) from rivers and between 1 in 1000 (0.1%) and 1 in 200 (0.5%) from the sea. Any relevant data is represented on Map 7a – Flood Map for Planning:

ID	Distance (m)	Direction	Update	Type
1	64	S	24-Nov-2017	Zone 2 - (Fluvial /Tidal Models)
2	76	S	24-Nov-2017	Zone 2 - (Fluvial /Tidal Models)

7.2 River and Coastal Zone 3 Flooding

Is the site within 250m of an Environment Agency/Natural Resources Wales Zone 3 floodplain? **Yes**

Zone 3 shows the extent of a river flood with a 1 in 100 (1%) or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year. Any relevant data is represented on Map 7a – Flood Map for Planning.

ID	Distance (m)	Direction	Update	Type
1	203	SE	24-Nov-2017	Zone 3 - (Fluvial Models)

7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating

What is the highest risk of flooding onsite? **Very Low**

The Environment Agency/Natural Resources Wales RoFRaS database provides an indication of river and coastal flood risk at a national level on a 50m grid with the flood rating at the centre of the grid calculated and given above. The data considers the probability that the flood defences will overtop or breach by considering their location, type, condition and standard of protection.

RoFRaS data for the study site indicates the property is in an area with a Very Low (less than 1 in 1000) chance of flooding in any given year.

7.4 Flood Defences

Are there any Flood Defences within 250m of the study site? No
Database searched and no data found.

7.5 Areas benefiting from Flood Defences

Are there any areas benefiting from Flood Defences within 250m of the study site? No

7.6 Areas benefiting from Flood Storage

Are there any areas used for Flood Storage within 250m of the study site? No

7.7 Groundwater Flooding Susceptibility Areas

7.7.1 Are there any British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site? Yes

Does this relate to Clearwater Flooding or Superficial Deposits Flooding? Clearwater Flooding

Notes: Groundwater flooding may either be associated with shallow unconsolidated sedimentary aquifers which overlie unproductive aquifers (Superficial Deposits Flooding), or with unconfined aquifers (Clearwater Flooding).

7.7.2 What is the highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions?

Potential at Surface

Where potential for groundwater flooding to occur at surface is indicated, this means that given the geological conditions in the area groundwater flooding hazard should be considered in all land-use planning decisions. It is recommended that other relevant information e.g. records of previous incidence of groundwater flooding, rainfall, property type, and land drainage information be investigated in order to establish relative, but not absolute, risk of groundwater flooding.

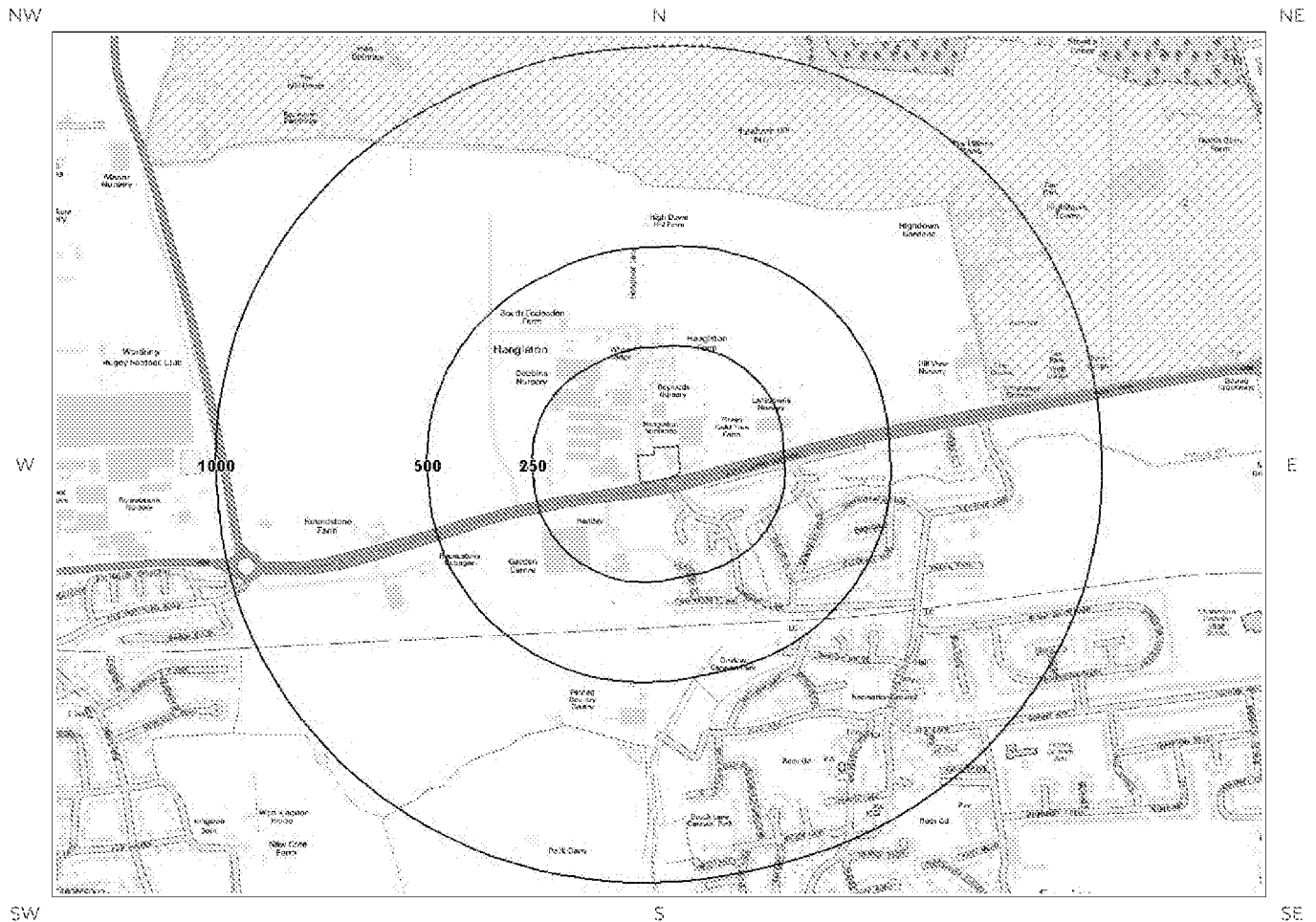
7.8 Groundwater Flooding Confidence Areas

What is the British Geological Survey confidence rating in this result? High

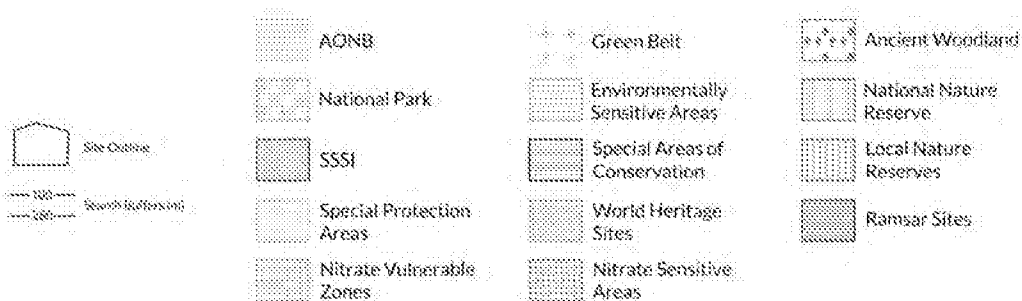
Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

The confidence rating is on a threefold scale - Low, Moderate and High. This provides a relative indication of the BGS confidence in the accuracy of the susceptibility result for groundwater flooding. This is based on the amount and precision of the information used in the assessment. In areas with a relatively lower level of confidence the susceptibility result should be treated with more caution. In other areas with higher levels of confidence the susceptibility result can be used with more confidence.

8. Designated Environmentally Sensitive Sites Map



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8. Designated Environmentally Sensitive Sites

Presence of Designated Environmentally Sensitive Sites within 2000m of the study site? Yes

8.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:

0

Database searched and no data found.

8.2 Records of National Nature Reserves (NNR) within 2000m of the study site:

0

Database searched and no data found.

8.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:

0

Database searched and no data found.

8.4 Records of Special Protection Areas (SPA) within 2000m of the study site:

0

Database searched and no data found.

8.5 Records of Ramsar sites within 2000m of the study site:

0

Database searched and no data found.

8.6 Records of Ancient Woodland within 2000m of the study site:

13

The following records of Designated Ancient Woodland provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	Ancient Woodland Name	Data Source
5	1023	N	UNKNOWN	Ancient and Semi-Natural Woodland
6	1230	NE	UNKNOWN	Ancient and Semi-Natural Woodland
7	1317	NE	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1511	NE	UNKNOWN	Ancient and Semi-Natural Woodland
9	1567	NE	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1601	NE	UNKNOWN	Ancient and Semi-Natural Woodland
11	1613	NE	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1791	N	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1795	NE	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1877	NW	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1892	NE	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1893	NE	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1956	N	UNKNOWN	Ancient and Semi-Natural Woodland

8.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:

0

Database searched and no data found.

8.8 Records of World Heritage Sites within 2000m of the study site:

0

Database searched and no data found.

8.9 Records of Environmentally Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

8.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:

0

Database searched and no data found.

8.11 Records of National Parks (NP) within 2000m of the study site:

2

The following National Park records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	NP Name	Data Source
1	645	N	South Downs	Natural England
2	1038	E	South Downs	Natural England

8.12 Records of Nitrate Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

8.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:

2

The following Nitrate Vulnerable Zone records produced by DEFRA are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	NVZ Name	Data Source
Not shown	1539	N	Modified	DEFRA
Not shown	1932	NE	Modified	DEFRA

8.14 Records of Green Belt land within 2000m of the study site:

Database searched and no data found.

0

9. Natural Hazards Findings

9.1 Detailed BGS GeoSure Data

BGS GeoSure Data has been searched to 50m. The data is included in tabular format. If you require further information on geology and ground stability, please obtain a Groundsure Geo Insight, available from our [website](#). The following information has been found:

9.1.1 Shrink Swell

What is the maximum Shrink-Swell* hazard rating identified on the study site? Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Ground conditions predominantly medium plasticity. Do not plant trees with high soil moisture demands near to buildings. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a possible increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a possible increase in insurance risk, especially during droughts or where vegetation with high moisture demands is present.

9.1.2 Landslides

What is the maximum Landslide* hazard rating identified on the study site? Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

9.1.3 Soluble Rocks

What is the maximum Soluble Rocks* hazard rating identified on the study site? Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Significant soluble rocks are present. Problems unlikely except with considerable surface or subsurface water flow. No special actions required to avoid problems due to soluble rocks. No special ground investigation required or increased construction costs are likely. An increase in financial risk due to potential problems with soluble rocks is unlikely.

* This indicates an automatically generated 50m buffer and site.

9.1.4 Compressible Ground

What is the maximum Compressible Ground* hazard rating identified on the study site? Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

9.1.5 Collapsible Rocks

What is the maximum Collapsible Rocks* hazard rating identified on the study site? Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Slight possibility for collapsible deposit problems after major changes in loading or groundwater conditions. Normal maintenance to avoid large amounts of water entering the ground through pipe leakage or soak-aways should reduce the likelihood of problems due to collapsible deposits. For new build, assess the possibility of collapsible (loessic) deposits in ground investigation. For existing property, no significant increase in insurance risk from collapsible deposits is likely.

9.1.6 Running Sand

What is the maximum Running Sand* hazard rating identified on the study site? Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property no significant increase in insurance risk due to running sand problems is likely.

* This indicates an automatically generated 50m buffer and site.

9.2 Radon

9.2.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.

The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, combined with geological data. The dataset is considered accurate to 50m to allow for the margin of error in geological lines, and the findings of this report supercede any answer given in the less accurate Indicative Atlas of Radon in Great Britain, which simplifies the data to give the highest risk within any given 1km grid square. As such, the radon atlas is considered indicative, whereas the data given in this report is considered definitive.

9.2.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

10. Mining

10.1 Coal Mining

Are there any coal mining areas within 75m of the study site?

No

Database searched and no data found.

10.2 Non-Coal Mining

Are there any Non-Coal Mining areas within 50m of the study site boundary?

No

Database searched and no data found.

10.3 Brine Affected Areas

Are there any brine affected areas within 75m of the study site?

No

Guidance: No Guidance Required.

Contact Details

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info@groundsure.com

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Keyworth, Nottingham NG12 5GG
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Web: www.bgs.ac.uk

BGS Geological Hazards Reports and general geological enquiries:
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Tel: 08456 050505

Local Authority
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Acknowledgements: Site of Special Scientific Interest, National Nature Reserve, Ramsar Site, Special Protection Area, Special Area of Conservation data is provided by, and used with the permission of, Natural England who retain the Copyright and Intellectual Property Rights for the data.

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<https://www.groundsure.com/terms-and-conditions-sept-2016>



Groundsure

LOCATION INTELLIGENCE

Ground Condition Consultants Ltd
10, WALDEGRAVE CLOSE,
SOUTHAMPTON, SO19 9RY

Groundsure Reference: GS-4706353

Your Reference: J18-004

Report Date 2 Feb 2018

Report Delivery Method: Email - pdf

Geo Insight

Address: YEOMANS PEUGEOT, GARAGE PREMISES, LITTLEHAMPTON ROAD, FERRING, BN12 6PB

Dear Sir/ Madam,

Thank you for placing your order with Groundsure. Please find enclosed the **Groundsure Geo Insight** as requested.

If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above Groundsure reference number.

Yours faithfully,

Managing Director
Groundsure Limited

Enc.
Groundsure Geo Insight

Address: YEOMANS PEUGEOT, GARAGE PREMISES, LITTLEHAMPTON ROAD,
FERRING, BN12 6PB

Date: 2 Feb 2018

Reference: GS-4706353

Client: Ground Condition Consultants Ltd

NW N NE



SW S SE

Aerial Photograph Capture date: 07-Jun-2015
Grid Reference: 508929,103451
Site Size: 0.69ha

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Overview of Findings

The Groundsure Geo Insight provides high quality geo-environmental information that allows geo-environmental professionals and their clients to make informed decisions and be forewarned of potential ground instability problems that may affect the ground investigation, foundation design and possibly remediation options that could lead to possible additional costs.

The report is based on the BGS 1:50,000 and 1:10,000 Digital Geological Map of Great Britain, BGS Geosure data; BRITPITS database; Non-coal mining data and Borehole Records, Coal Authority data including brine extraction areas, PBA non-coal mining and natural cavities database, Johnson Poole and Bloomer mining data and Groundsure's unique database including historical surface ground and underground workings.

For further details on each dataset, please refer to each individual section in the report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Geology 1:10,000 Scale

1.1 Artificial Ground	1.1 Is there any Artificial Ground/ Made Ground present beneath the study site at 1:10,000 scale?	No
1.2 Superficial Geology and Landslips	1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site at 1:10,000 scale?*	Yes
	1.2.2 Are there any records of landslip within 500m of the study site boundary at 1:10,000 scale?	No
1.3 Bedrock, Solid Geology and linear features	1.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	1.3.2 Are there any records of linear features within 500m of the study site boundary at 1:10,000 scale?	No

Section 2: Geology 1:50,000 Scale

2.1 Artificial Ground	2.1.1 Is there any Artificial Ground/ Made Ground present beneath the study site?	No
	2.1.2 Are there any records relating to permeability of artificial ground within the study site*boundary?	No
2.2 Superficial Geology and Landslips	2.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?*	Yes
	2.2.2 Are there any records of permeability of superficial ground within 500m of the study site?	Yes
	2.2.3 Are there any records of landslip within 500m of the study site boundary?	No
	2.2.4 Are there any records relating to permeability of landslips within the study site* boundary?	No

Section 2: Geology 1:50,000 Scale

2.3 Bedrock, Solid Geology and linear features

2.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.

2.3.2 Are there any records relating to permeability of bedrock ground within the study site boundary?

Yes

2.3.3 Are there any records of linear features within 500m of the study site boundary?

No

Section 3: Radon

3. Radon

3.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?

The property is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.

3.2 Radon Protection

No radon protective measures are necessary.

Section 4: Ground Workings

	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	0	0	0	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	0	0	0	0
4.3 Current Ground Workings	0	0	0	0	9

Section 5: Mining, Extraction & Natural Cavities

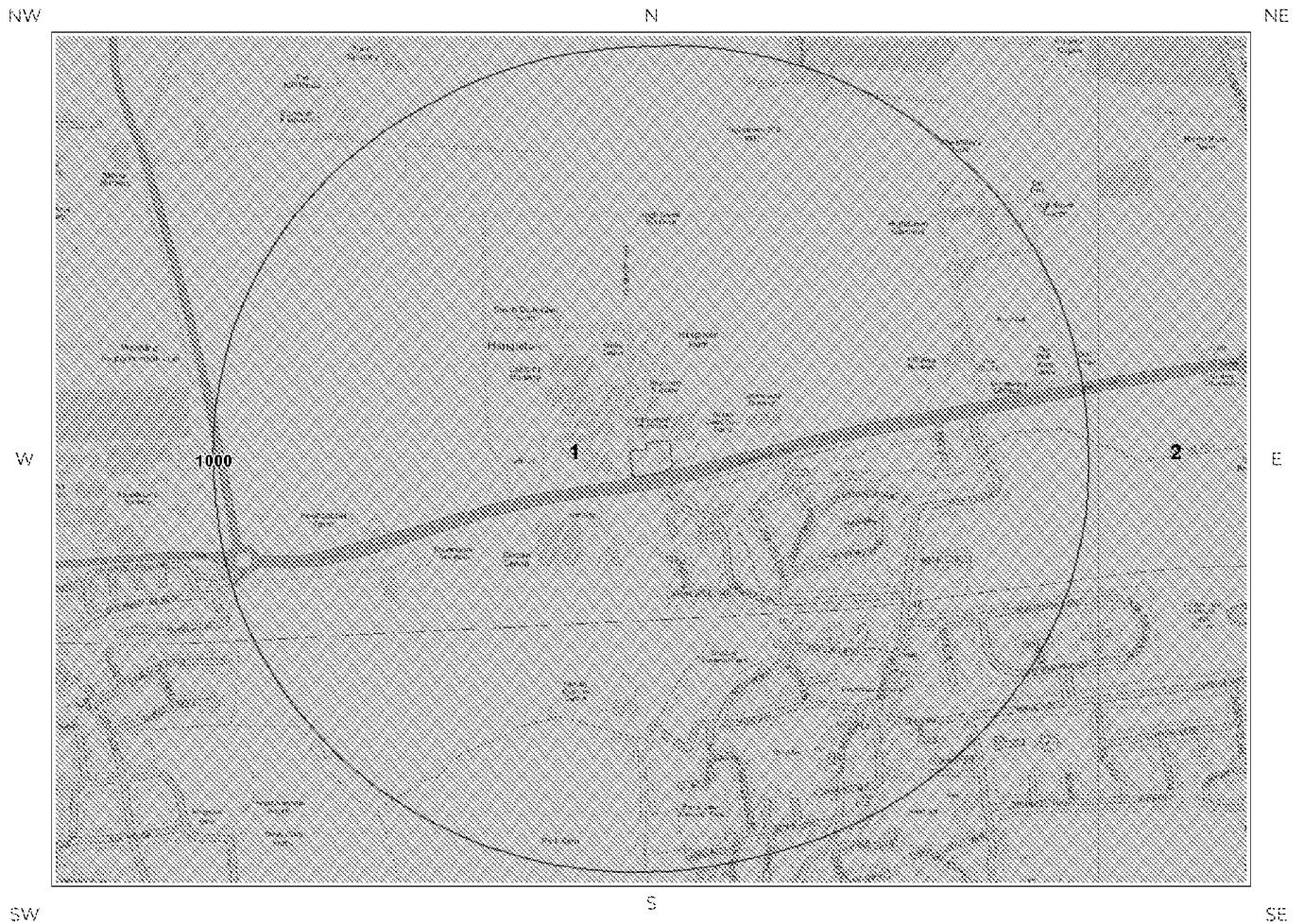
	On-site	0-50m	51-250	251-500	501-1000
5.1 Historical Mining	0	0	0	0	0
5.2 Coal Mining	0	0	0	0	0
5.3 Johnson Poole and Bloomer Mining Area	0	0	0	0	0
5.4 Non-Coal Mining*	0	0	1	0	1
5.5 Non-Coal Mining Cavities	0	0	0	0	0
5.5 Natural Cavities	0	0	0	0	0

Report Reference: GS-4706353

Client Reference: J18-004

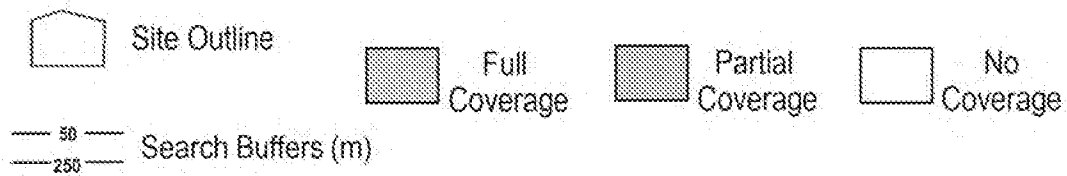
Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Tin Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0
Section 6: Natural Ground Subsidence	On-site				
6.1 Shrink-Swell Clay	Low				
6.2 Landslides	Very Low				
6.3 Ground Dissolution of Soluble Rocks	Very Low				
6.4 Compressible Deposits	Negligible				
6.5 Collapsible Deposits	Low				
6.5 Running Sand	Low				
Section 7: Borehole Records	On-site	0-50m	51-250		
7 BGS Recorded Boreholes	0	0	2		
Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250		
8 Records of Background Soil Chemistry	1	5	0		
Section 9: Railways and Tunnels	On-site	0-50m	51-250	250-500	
9.1 Tunnels	0	0	0	Not Searched	
9.2 Historical Railway and Tunnel Features	0	0	0	Not Searched	
9.3 Historical Railways	0	0	0	Not Searched	
9.4 Active Railways	0	0	0	Not Searched	
9.5 Railway Projects	0	0	0	0	

1:10,000 Scale Availability



1_10,000 Availability Legend

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Availability of 1:10,000 Scale Geology Mapping

The following information represents the availability of the key components of the 1:10,000 scale geological data.

ID	Distance	Artificial Coverage	Superficial Coverage	Bedrock Coverage	Mass Movement Coverage
1	0.0	No deposits are mapped	Full	Full	No coverage
2	1022.0	Some deposits are mapped	Full	Full	No coverage
N3	1502.0	Some deposits are mapped	Full	Full	Some deposits are mapped
N4	1819.0	Some deposits are mapped	Full	Full	No coverage

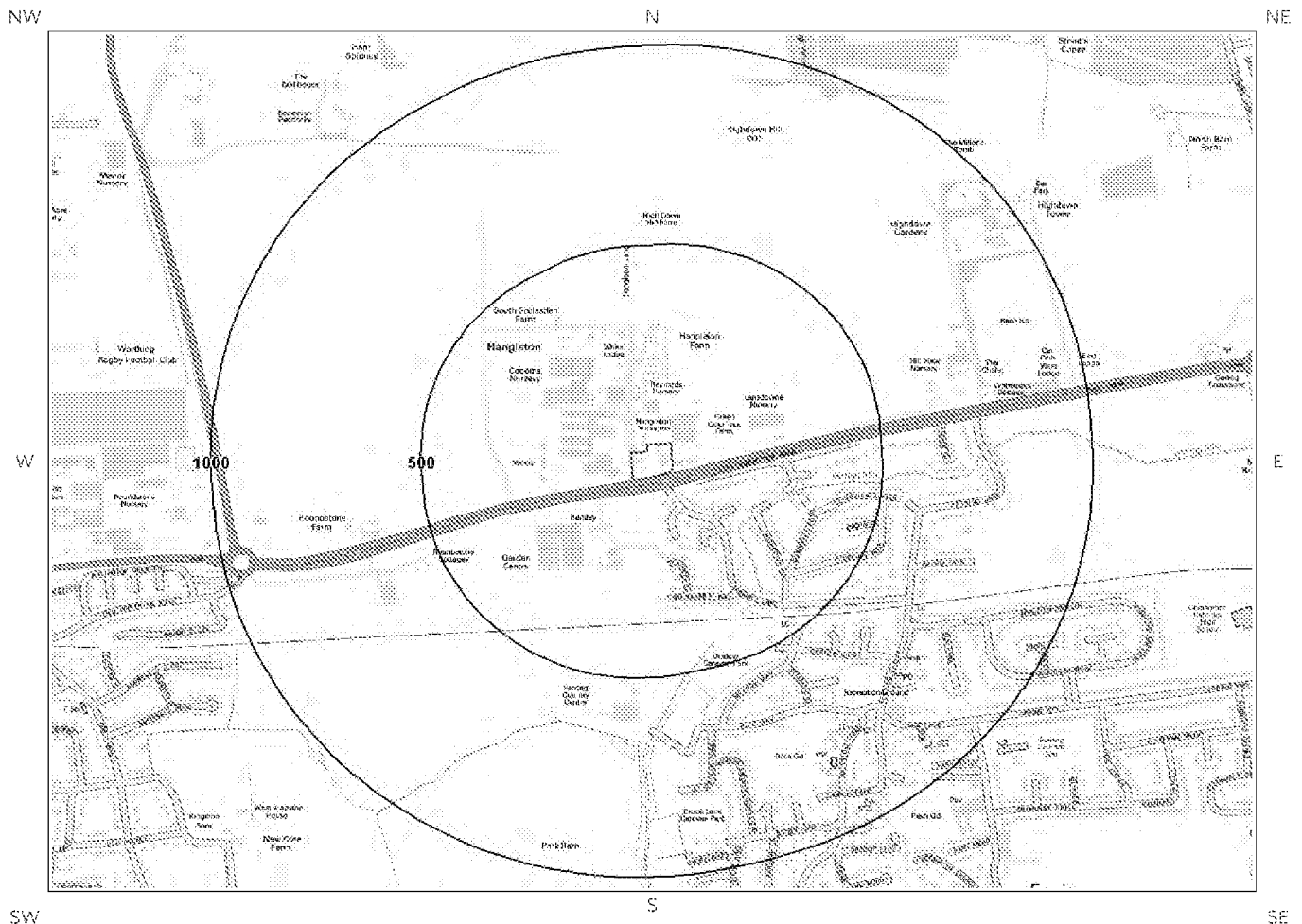
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not all themes are mapped or available on every map sheet. Therefore a coverage layer showing the availability of the four themes is presented above.

The definitions of coverage are as follows:

Geology	Full Coverage	Partial Coverage	No Coverage
Bedrock	The whole tile has been mapped	Some but not all the tile has been mapped	No coverage
Superficial	The whole tile has been mapped	Some but not all of the tile has been mapped	No coverage
Artificial	Some deposits are mapped on this tile	-	No deposits are mapped
Mass Movement	Some deposits are mapped on this tile	-	No coverage

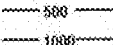
1 Geology (1:10,000 scale).

1.1 Artificial Ground map (1:10,000 scale)



Artificial Ground Legend

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	Site Outline		Made Ground (undivided)		Disturbed Ground (undivided)
	Search Buffers (m)		Worked Ground (undivided)		Landscaped Ground (undivided)
			Infilled Ground		Reclaimed Ground

1. Geology 1:10,000 scale

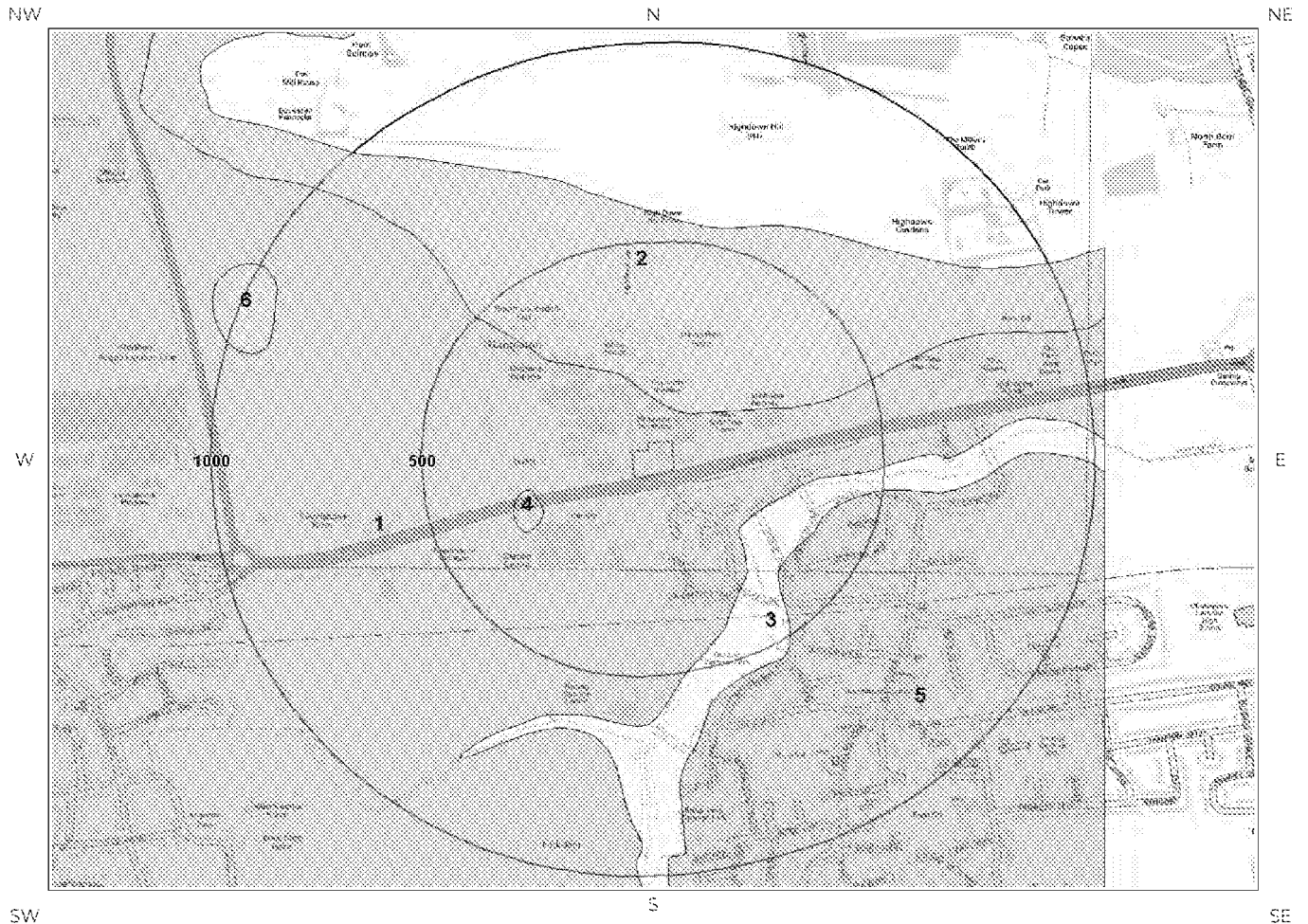
1.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

Are there any records of Artificial/ Made Ground within 500m of the study site boundary at 1:10,000 scale? No

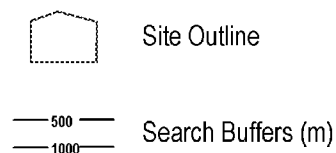
Database searched and no data found.

1.2 Superficial Deposits and Landslips map (1:10,000 scale)



Artificial Ground Legend

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1.2 Superficial Deposits and Landslips

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping

1.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary at 1:10,000 scale? Yes

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	BRK-Z	Brickearth - Silt	Silt
2	77.0	N	HEAD-DMTN	Head - Diamicton	Diamicton
3	217.0	SE	ALV-XSZC	Alluvium - Sand, Silt And Clay	Sand, Silt And Clay
4	233.0	W	HEAD-DMTN	Head - Diamicton	Diamicton
5	350.0	SE	BRK-Z	Brickearth - Silt	Silt

1.2.2 Landslip

Are there any records of Landslip within 500m of the study site boundary at 1:10,000 scale?

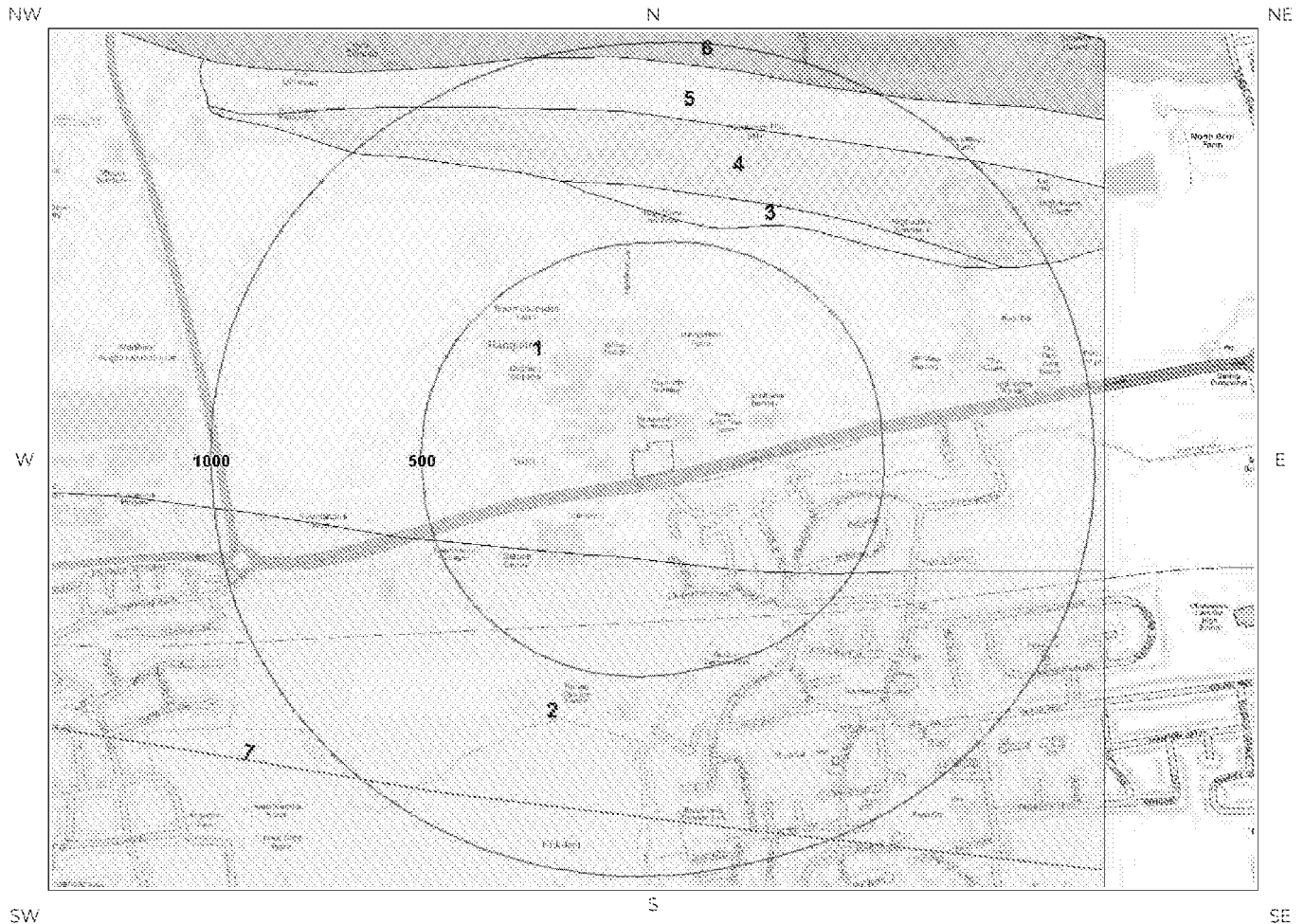
No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:10,000 scale

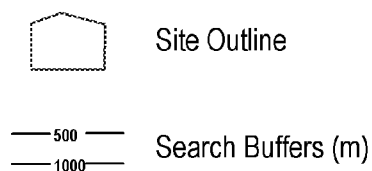
This Geology shows the main components as discrete layers, these are: Artificial / Made Ground, Superficial / Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

1.3 Bedrock and linear features map (1:10,000 scale)



Bedrock and linear features Legend

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1.3 Bedrock and linear features

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

1.3.1 Bedrock/ Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary at 1:10,000 scale.

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1	0.0	On Site	LPCK-CHLK	Lewes Nodular Chalk Formation, Seaford Chalk Formation, Newhaven Chalk Formation, Culver Chalk Formation And Portsdown Chalk Formation (undifferentiated) - Chalk	Campanian Age - Turonian Age
2	202.0	S	NPCH-CHLK	New Pit Chalk Formation - Chalk	Turonian Age

1.3.2 Linear features

Are there any records of linear features within 500m of the study site boundary at 1:10,000 scale? No

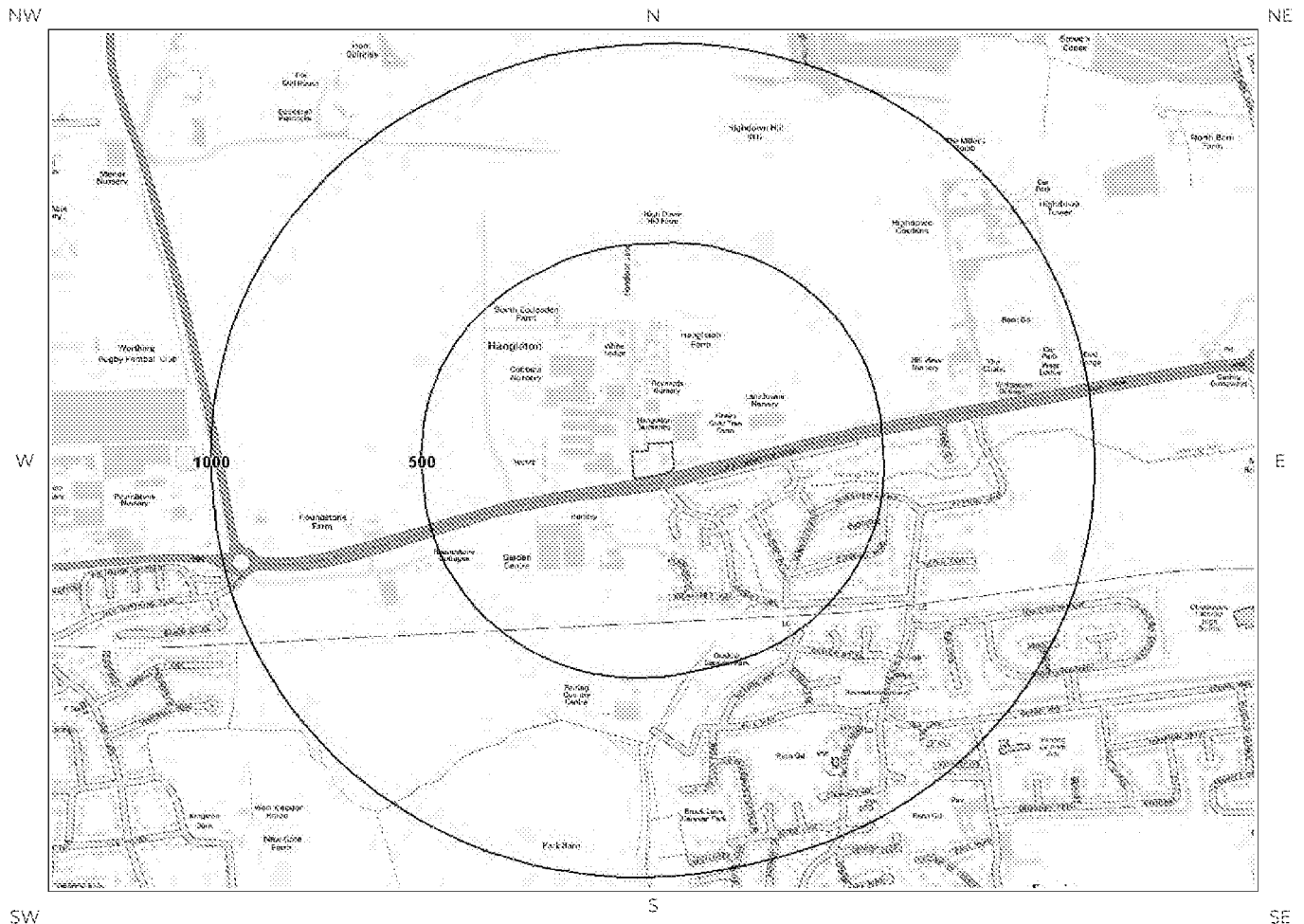
Database searched and no data found at this scale.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of great Britain at 1:10,000 scale.

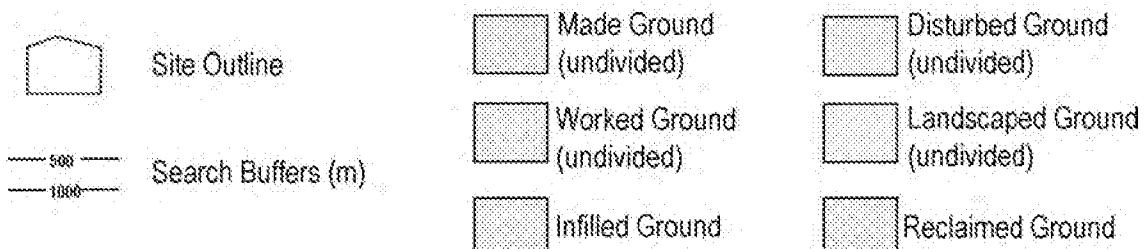
This Geology shows the main components as discrete layers, these are: Bedrock/ Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2 Geology 1:50,000 Scale

2.1 Artificial Ground map



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2. Geology 1:50,000 scale

2.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 317

2.1.1 Artificial/ Made Ground

Are there any records of Artificial/ Made Ground within 500m of the study site boundary? No

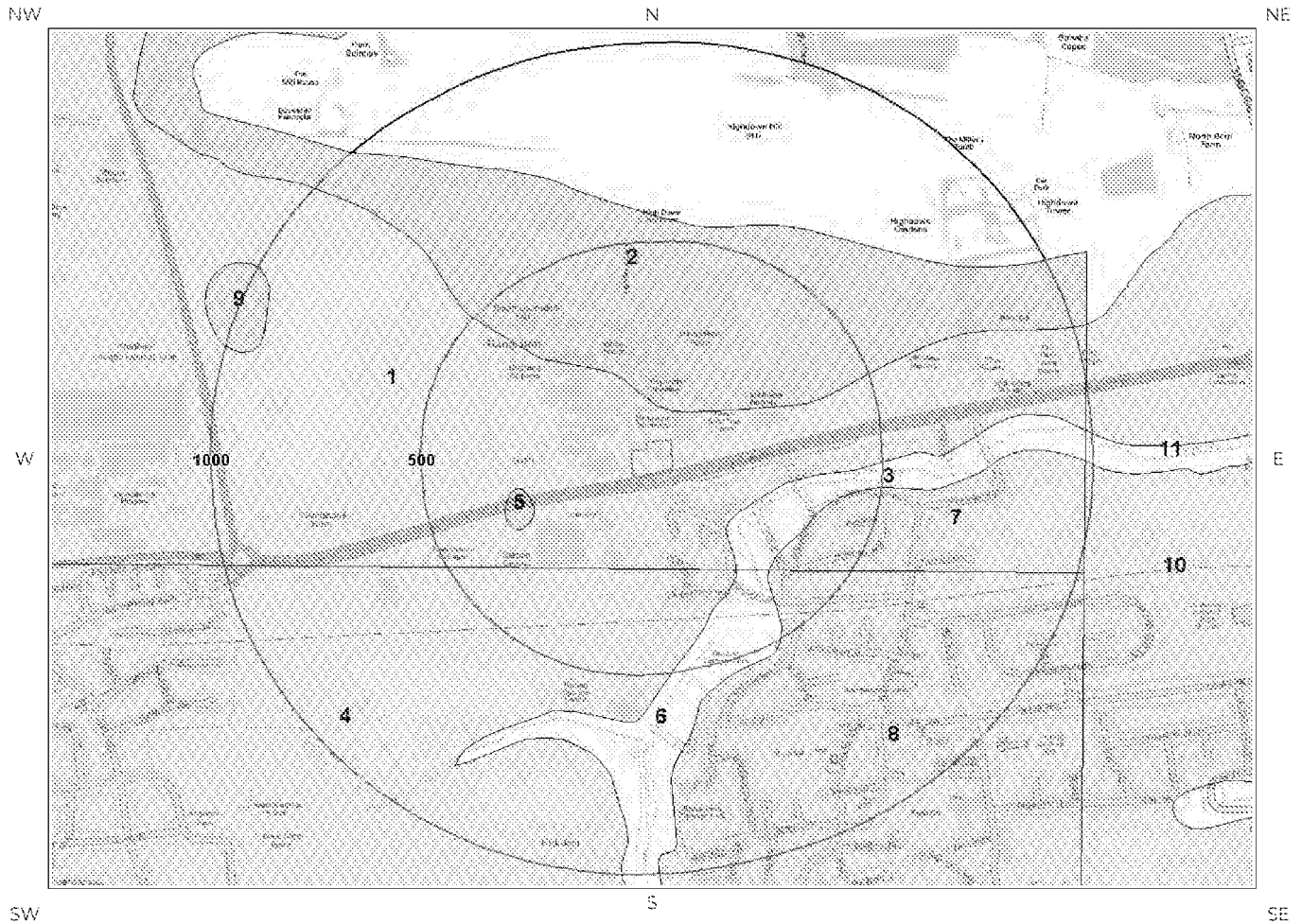
Database searched and no data found.

2.1.2 Permeability of Artificial Ground

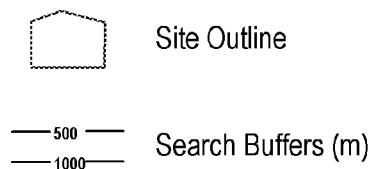
Are there any records relating to permeability of artificial ground within the study site boundary? No

Database searched and no data found.

2.2 Superficial Deposits and Landslips map (1:50,000 scale)



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2.2 Superficial Deposits and Landslips

2.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary? Yes

ID	Distance	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	RTDU-XSZC	RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)	SAND, SILT AND CLAY
2	74.0	N	HEAD-XCZSV	HEAD	CLAY, SILT, SAND AND GRAVEL
3	190.0	SE	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
4	232.0	S	RTDU-XSZC	RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)	SAND, SILT AND CLAY
5	250.0	W	HEAD-XCZSV	HEAD	CLAY, SILT, SAND AND GRAVEL
6	297.0	SE	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
7	333.0	SE	RTDU-XSZC	RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)	SAND, SILT AND CLAY
8	345.0	SE	RTDU-XSZC	RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)	SAND, SILT AND CLAY

2.2.2 Permeability of Superficial Ground

Are there any records relating to permeability of superficial ground within the study site boundary? Yes

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Intergranular	High	Low

2.2.3 Landslip

Are there any records of Landslip within 500m of the study site boundary?

No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground, Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

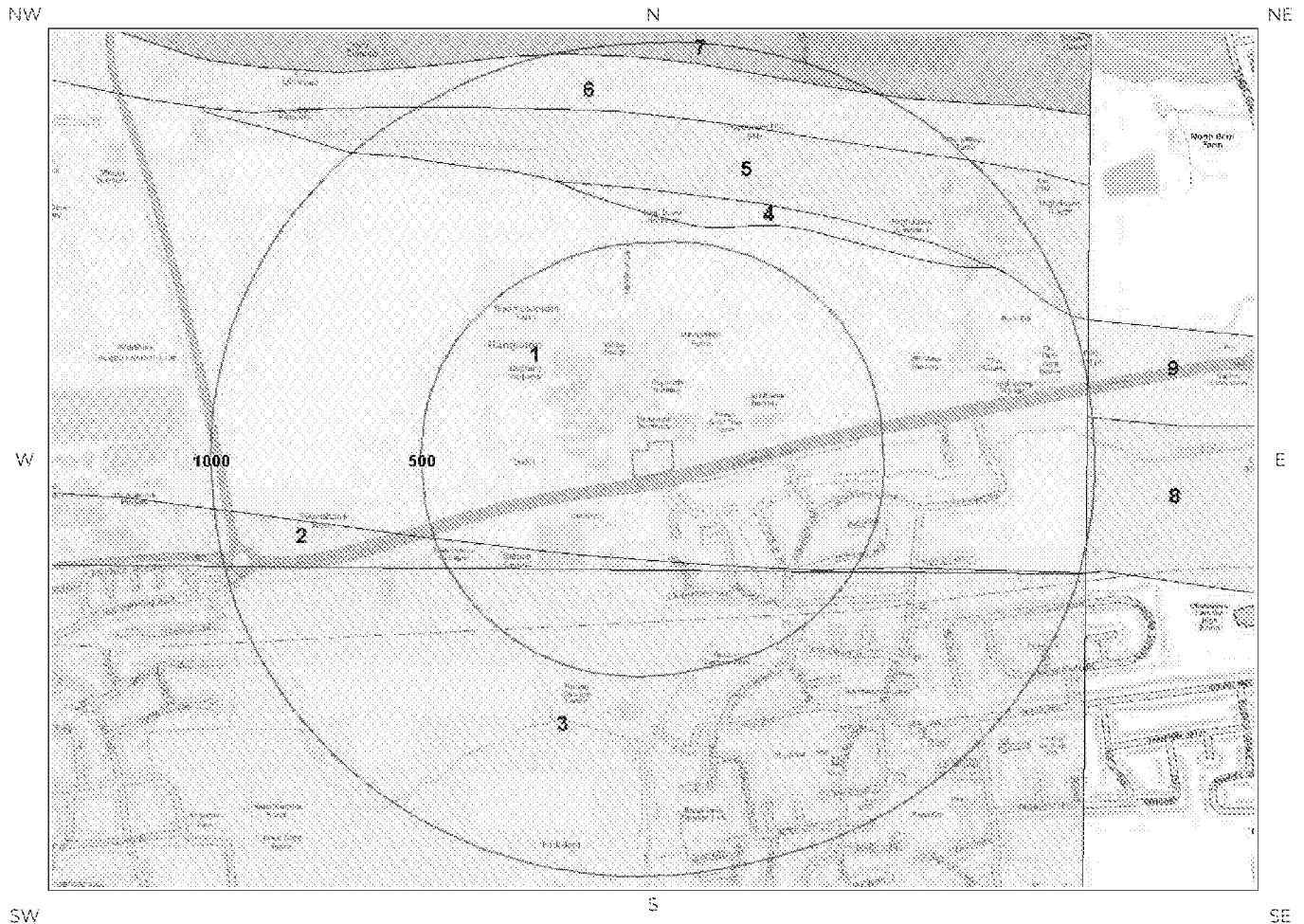
2.2.4 Landslip Permeability

Are there any records relating to permeability of landslips within the study site boundary?

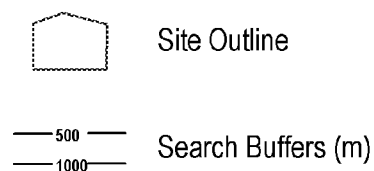
No

Database searched and no data found.

2.3 Bedrock and linear features map (1:50,000 scale)



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2.3 Bedrock, Solid Geology & linear features

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 317

2.3.1 Bedrock/Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary:

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
1	0.0	On Site	LPCK-CHLK	LEWES NODULAR CHALK FORMATION, SEAFORD CHALK FORMATION, NEWHAVEN CHALK FORMATION, CULVER CHALK FORMATION AND PORTSDOWN CHALK FORMATION (UNDIFFERENTIATED) - CHALK	TURONIAN
2	205.0	S	NPCH-CHLK	NEW PIT CHALK FORMATION - CHALK	TURONIAN
3	232.0	S	NPCH-CHLK	NEW PIT CHALK FORMATION - CHALK	TURONIAN

2.3.2 Permeability of Bedrock Ground

Are there any records relating to permeability of bedrock ground within the study site boundary? Yes

Distance	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Fracture	Very High	Very High

2.3.3 Linear features

Are there any records of linear features within 500m of the study site boundary? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nation wide coverage.

3 Radon Data

3.1 Radon Affected Areas

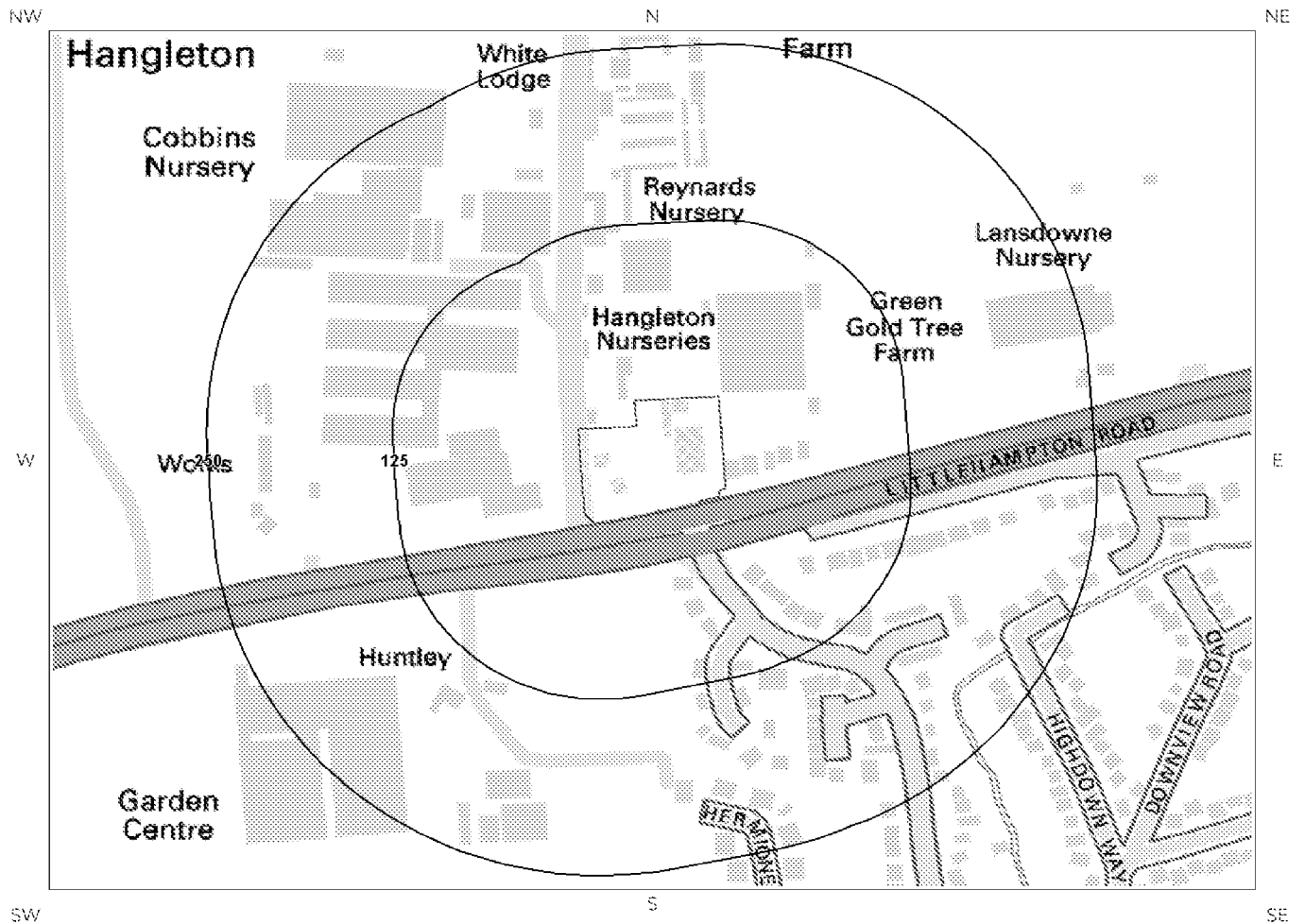
Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.

The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, combined with geological data. The dataset is considered accurate to 50m to allow for the margin of error in geological lines, and the findings of this report supercede any answer given in the less accurate Indicative Atlas of Radon in Great Britain, which simplifies the data to give the highest risk within any given 1km grid square. As such, the radon atlas is considered indicative, whereas the data given in this report is considered definitive.

3.2 Radon Protection

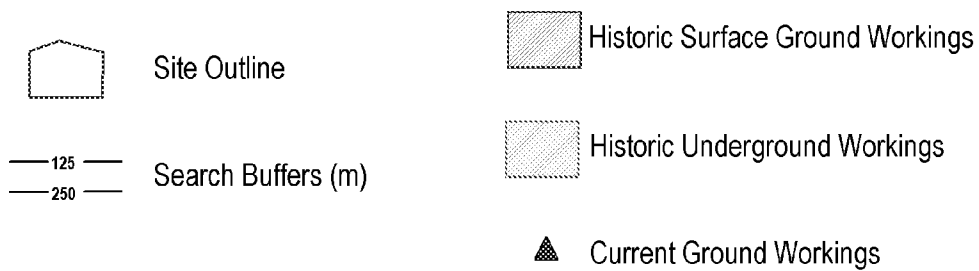
Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

4 Ground Workings map



Ground Workings Legend

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4 Ground Workings

4.1 Historical Surface Ground Working Features derived from Historical Mapping

This dataset is based on Groundsure's unique Historical Land Use Database derived from 1:10,560 and 1:10,000 scale historical mapping

Are there any Historical Surface Ground Working Features within 250m of the study site boundary? No

Database searched and no data found.

4.2 Historical Underground Working Features derived from Historical Mapping

This data is derived from the Groundsure unique Historical Land Use Database. It contains data derived from 1:10,000 and 1:10,560 historical Ordnance Survey Mapping and includes some natural topographical features (Shake Holes for example) as well as manmade features that may have implications for ground stability. Underground and mining features have been identified from surface features such as shafts. The distance that these extend underground is not shown.

Are there any Historical Underground Working Features within 1000m of the study site boundary? No

Database searched and no data found.

4.3 Current Ground Workings

This dataset is derived from the BGS BRITPITS database covering active; inactive mines; quarries; oil wells; gas wells and mineral wharves; and rail deposits throughout the British Isles.

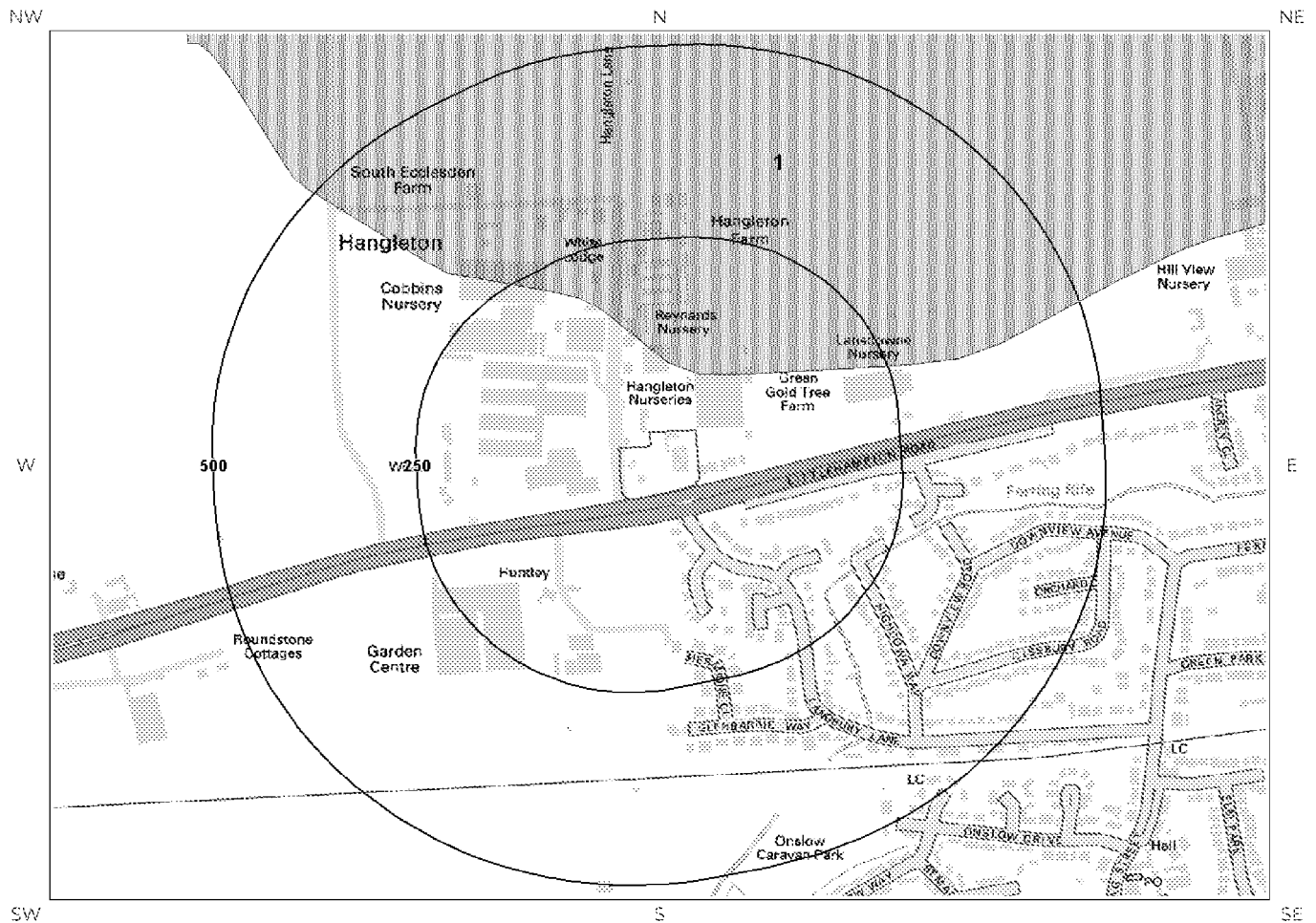
Are there any BGS Current Ground Workings within 1000m of the study site boundary? Yes

The following Current Ground Workings information is provided by British Geological Survey:

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	684.0	NE	509267 104116	Chalk	Highdown Hill Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	724.0	N	508845 104216	Chalk	Highdown Hill Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	724.0	N	508920 104221	Chalk	Highdown Hill Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	863.0	S	509055 102560	Flint	Stony Lane Flint Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	893.0	NE	509599 104136	Chalk	Highdown Tower Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

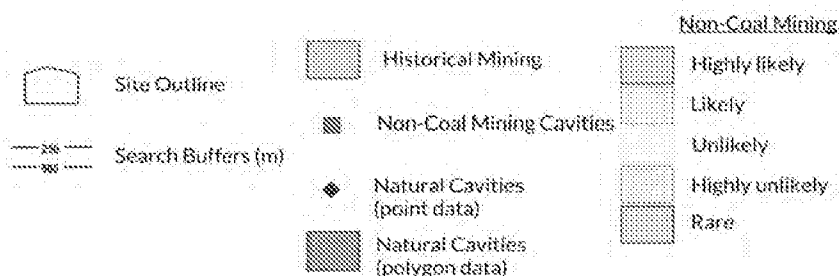
ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	920.0	N	508887 104415	Chalk	Highdown Hill Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	923.0	NE	509372 104331	Chalk	Highdown Hill Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	927.0	NE	509646 104137	Chalk	Highdown Tower Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	995.0	NW	508510 104403	Chalk	Ham Spinney Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

5 Mining, Extraction & Natural Cavities map



Mining, Extraction and
Natural Cavities Legend

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5 Mining, Extraction & Natural Cavities

5.1 Historical Mining

This dataset is derived from Groundsure unique Historical Land-use Database that are indicative of mining or extraction activities.

Are there any Historical Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.2 Coal Mining

This dataset provides information as to whether the study site lies within a known coal mining affected area as defined by the coal authority.

Are there any Coal Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.3 Johnson Poole and Bloomer

This dataset provides information as to whether the study site lies within an area where JPB hold information relating to mining.

Are there any JPB Mining areas within 1000m of the study site boundary? No

The following information provided by JPB is not represented on mapping: Database searched and no data found.

5.4 Non-Coal Mining

This dataset provides information as to whether the study site lies within an area which may have been subject to non-coal historic mining.

Are there any Non-Coal Mining areas within 1000m of the study site boundary? Yes

The following non-coal mining information is provided by the BGS:

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
1	74.0	N	Not available	Chalk	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
Not shown	981.0	E	Not available	Chalk	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered

5.5 Non-Coal Mining Cavities

This dataset provides information from the Peter Brett Associates (PBA) mining cavities database (compiled for the national study entitled "Review of mining instability in Great Britain, 1990" PBA has also continued adding to this database) on mineral extraction by mining.

Are there any Non-Coal Mining cavities within 1000m of the study site boundary? No

Database searched and no data found.

5.6 Natural Cavities

This dataset provides information based on the Peter Brett Associates natural cavities database. The dataset is made up of points and polygons. Where polygons are used these represent an area in which it is expected the cavities could be found. It does not indicate that cavities are present everywhere within the polygon, and caution should be used in the interpretation of this data.

Are there any Natural Cavities within 1000m of the study site boundary? No

Database searched and no data found.

5.7 Brine Extraction

This data provides information from the Coal Authority issued on behalf of the Cheshire Brine Subsidence Compensation Board.

Are there any Brine Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.8 Gypsum Extraction

This dataset provides information on Gypsum extraction from British Gypsum records.

Are there any Gypsum Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.9 Tin Mining

This dataset provides information on tin mining areas and is derived from tin mining records. This search is based upon postcode information to a sector level.

Are there any Tin Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.10 Clay Mining

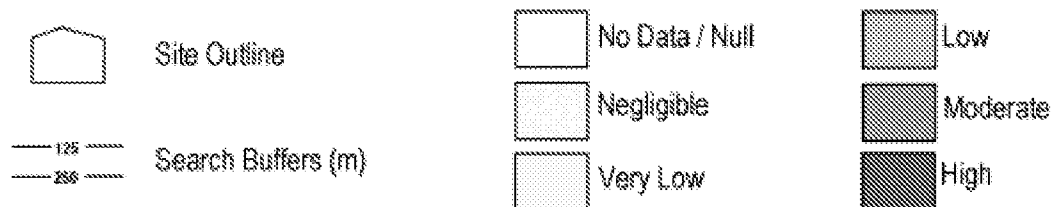
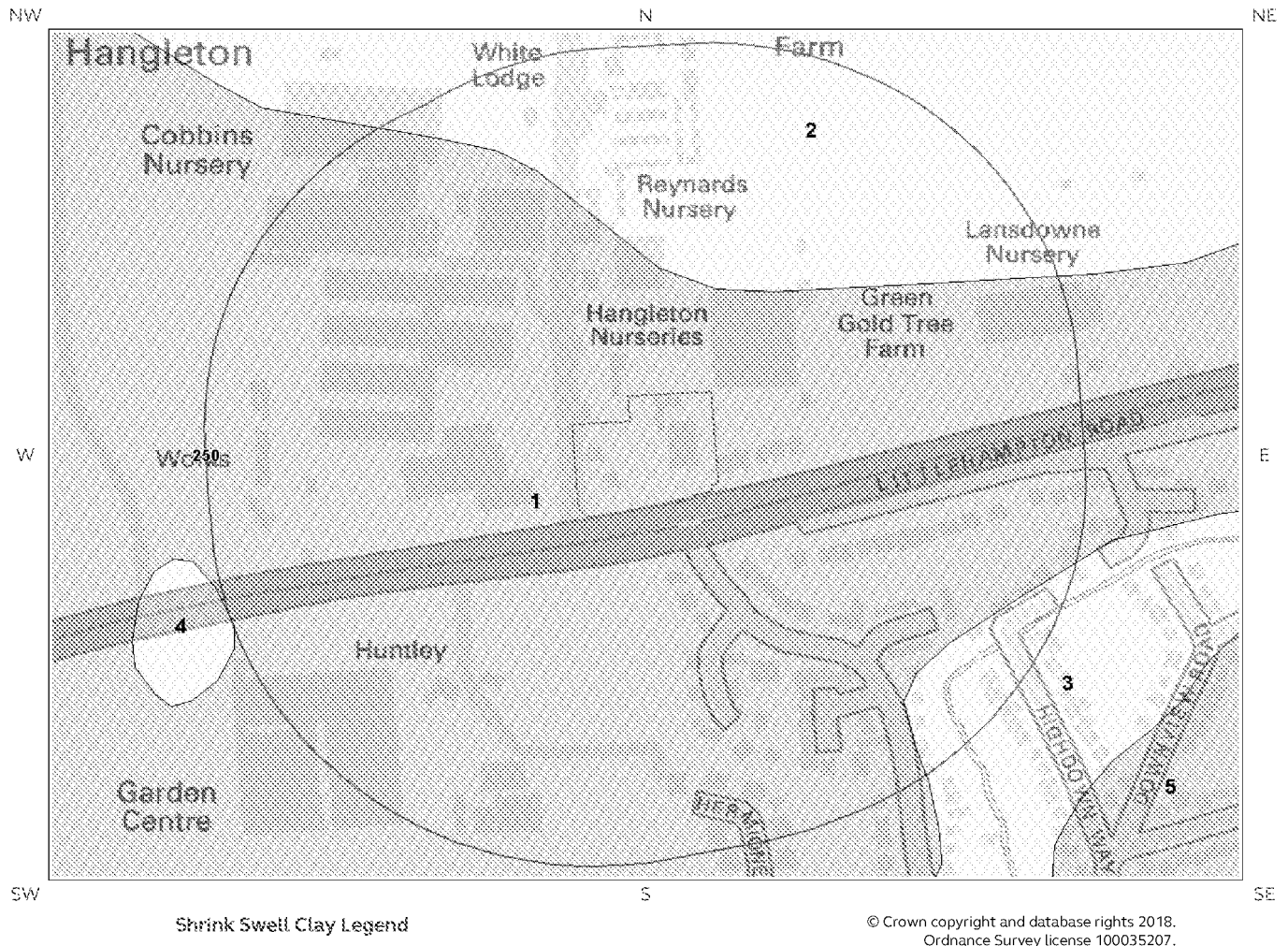
This dataset provides information on Kaolin and Ball Clay mining from relevant mining records.

Are there any Clay Mining areas within 1000m of the study site boundary? No

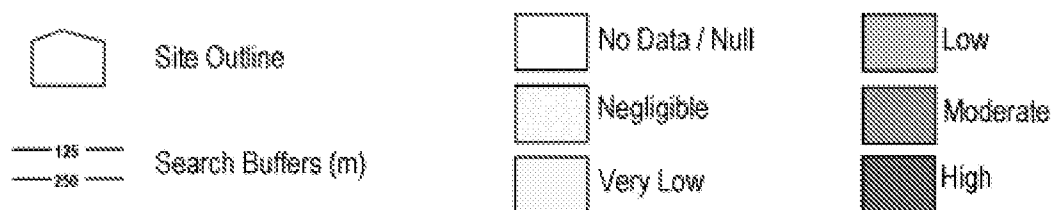
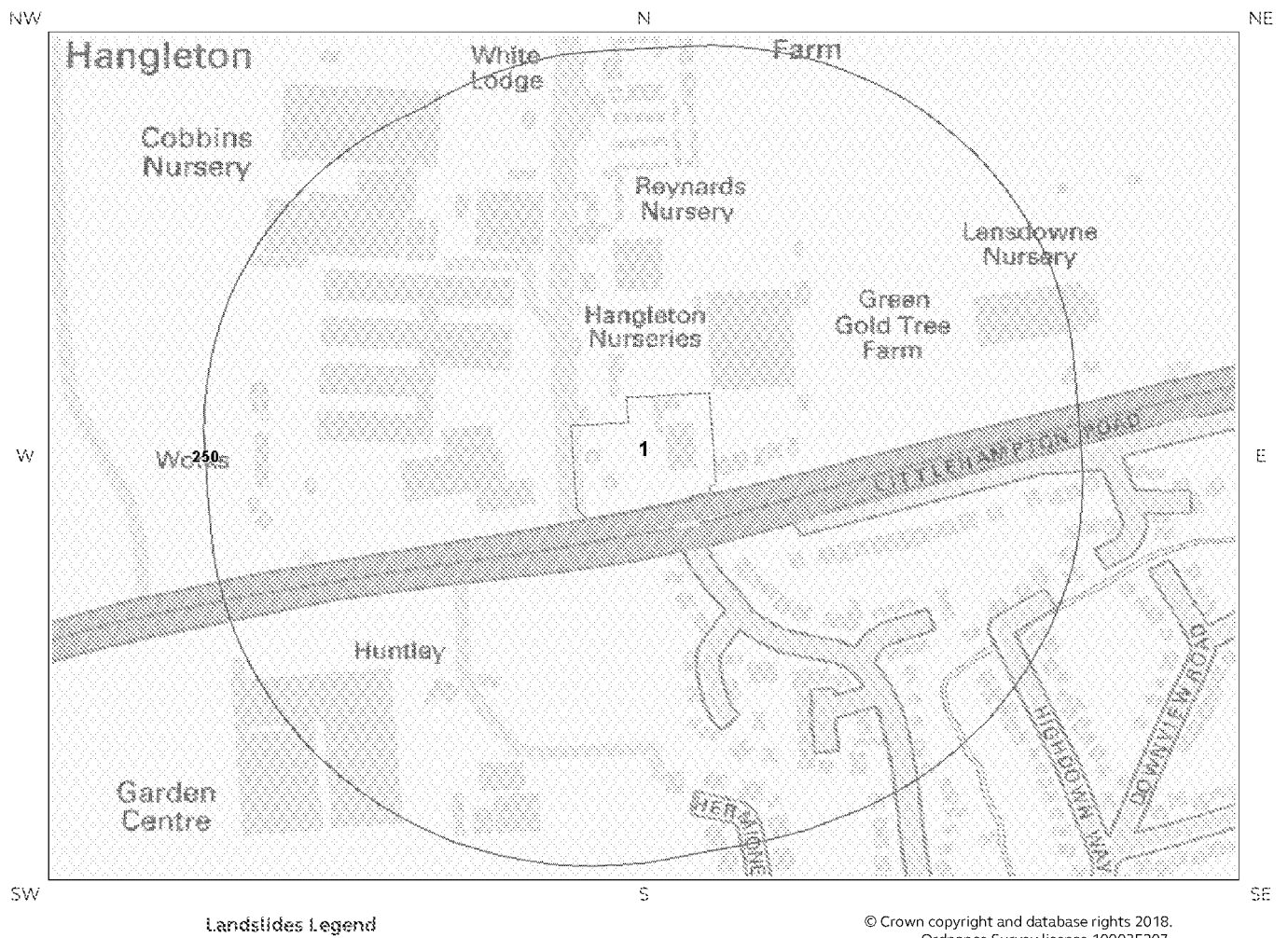
Database searched and no data found.

6 Natural Ground Subsidence

6.1 Shrink-Swell Clay map



6.2 Landslides map



6.3 Ground Dissolution of Soluble Rocks map

