ENVIRONMENTAL ASSESSMENT REPORT

PROPOSED HOLIDAY LET AND POOL DEVELOPMENT

POTTERS LODGE, MOOR LANE, PLOUGH HILL
POTTERHANWORTH BOOTHS

FOR
MR & MRS DAYNES

GDP PROJECT NUMBER 2291
21 FEBRUARY 2023

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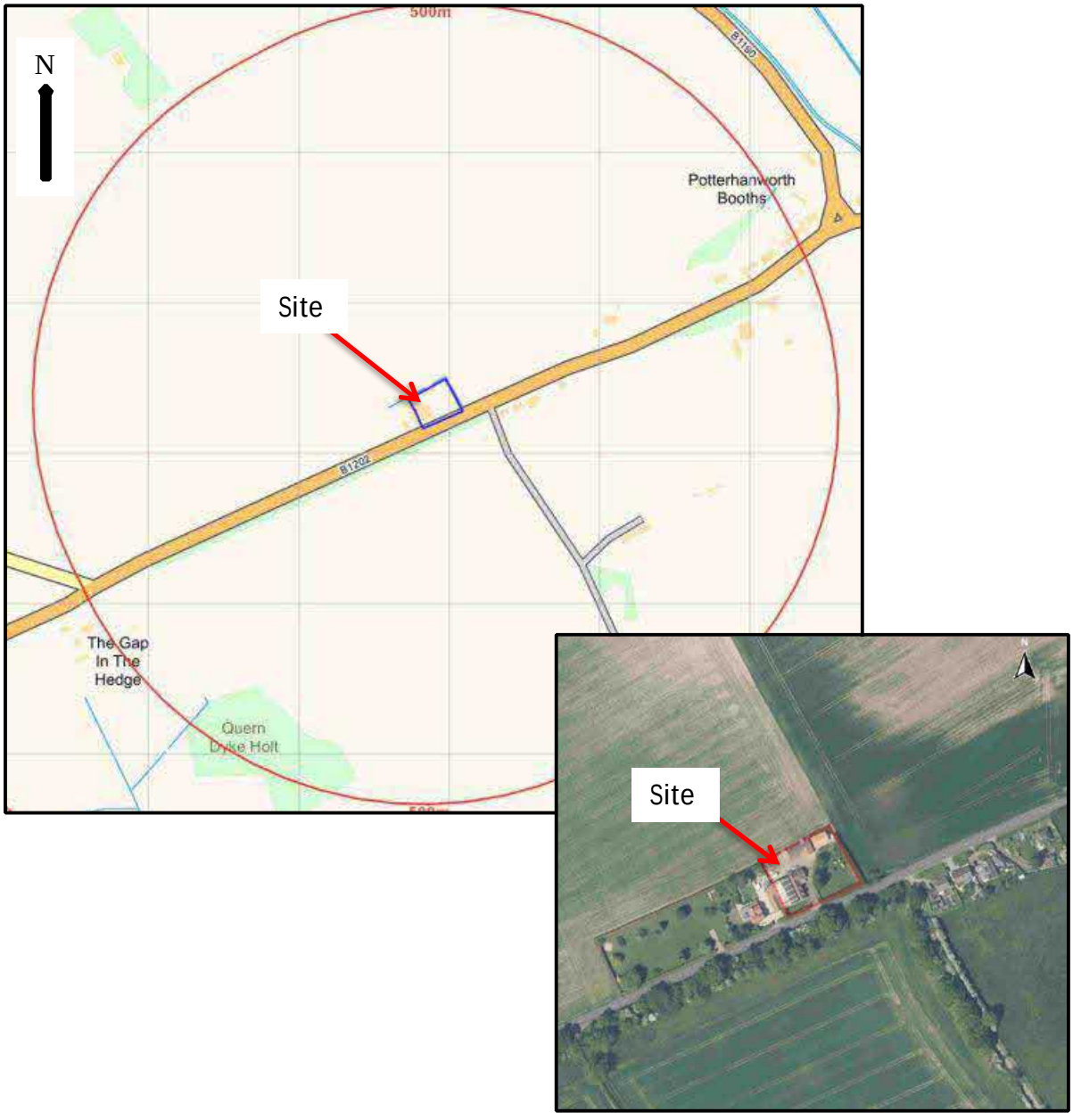
APPENDICES

1.0 INTRODUCTION

1.1 Authorisation and Context

GD Pickles Limited (GDP) was instructed by Mr & Mrs Daynes (the Client) to carry out an Environmental Assessment for a proposed holiday let and swimming pool development at Potters Lodge, Moor Lane, Plough Hill, Potterhanworth Booths, LN4 2AU (hereafter the 'Site').

Figure 1 Site location map



1.2 Development Proposals

Development proposals comprise the demolition of an existing workshop building and erection of building to house a swimming pool and 1no. holiday let bungalow. Development plans are

provided in Appendix 1. The developer owns the adjacent 2no. holiday let bungalows and Potters Lodge properties.

External areas of the new development will comprise existing permanent hardstanding around the swimming pool area and a patio along with existing lawn adjacent the new holiday let.

A planning application has been submitted and approved by North Kesteven District Council under reference 22/0995/FUL subject to a number of conditions. Condition 6 parts a to d relate to the phased investigation, risk assessment and, if necessary, remediation of potential contamination at the Site.

This Report is intended to be submitted to NKDC Council to pursue discharge of contamination related Conditions. The assessment includes a Phase 1 Desk Top Study and Phase 2 Intrusive Investigations with associated soil sampling and analysis.

Limited and preliminary geotechnical evaluation was undertaken as part of this commission for the swimming pool development only.

1.3 Sources of Information

In completing this assessment, GDP has utilised the following information:

- Development plans (Appendix 1) provided by the Client;
- Groundsure Enviro+Geo Insight report, including historic Ordnance Survey (OS) Maps (Appendix 3);
- Various on-line sources including The British Geological Survey; and
- Anecdotal evidence from the Client.

2.0 PRELIMINARY RISK ASSESSMENT

2.1 Objectives of Preliminary Risk Assessment

The objectives of the Preliminary Risk Assessment (PRA) were to:

- Establish the geological and hydrogeological conditions for the Site using existing available information;
- Summarise available information and identify Site specific environmental hazards which may place a constraint upon the proposed development;
- Produce a preliminary Conceptual Site Model (CSM) and preliminary qualitative contamination risk assessment identifying plausible potential linkages between contamination sources, pathways and receptors; and
- Provide objectives and recommendations with regards to an Intrusive Ground Investigation (Phase 2) and other further assessments that may be required.

The assessments in the Report were underpinned by Planning and Regulatory requirements at time of writing.

2.2 Environmental Setting

2.2.1 Site Setting and Description

The Site is a rectangular plot comprising the client's house in the central south, a former workshop in the south east, with a block paviour yard/parking area to its north. Two existing holiday let bungalows are present in the central north and north east of the Site with lawn associated with Potters Lodge to the east and south east. A driveway runs from the central south of the plot from Moor Lane northwards between the house and lawn to the yard in the north west. The Site is located circa 500m west of Potterhanworth Booths in a rural setting. Surrounding land uses are farmland to the north and east, a residential property followed by farmland to the west and Moor Lane to the south beyond which is further farmland.

The Site is centred on National Grid Reference 506782 367665 and red-line area 0.26 hectares, although the areas of proposed development are only a small fraction of this larger area.

The former workshop is the only notable landuse representing a plausible current potential source of contamination. Internally the workshop was observed to have a competent concrete floor with no apparent areas of staining suggestive of past spillages. Activity in the workshop historically included dry powder coating, welding and fabrication. No apparent fluid forms of possible contamination were noted and it is understood bulk fuel, oil or chemical storage has never taken place in the building or within the wider Site.

The Site is essentially level.

Inside workshop – proposed pool area

Area of proposed Holiday Let

2.2.2 Historical Summary

Historical maps were reviewed to determine the likely development history of the Site and its environs to identify any potentially contaminative land-uses and or other development implications. Historical maps are presented in Appendix 2.

Mere Oaks Farm is shown to occupy the south west of the Site from the earliest map edition in approximately the footprint of the existing house and workshop building with buildings extending to the west of Site around a central crew yard in the south west (relict building foundations may run east-west beneath the existing workshop). By 2003 the existing residential property and workshop is shown in the south and a small building shown in the north, now in the location of an existing holiday let. Two ponds are shown on the small scale maps in 2010 in the north east corner (now a holiday let) and central south. Neither pond is shown by 2022. It is understood that the pond in the north east was backfilled with aggregate when the holiday let was constructed (now covered by the existing building and hardstanding) and the pond in the central south filled with imported topsoil from Bardney sugar beet factory which was also used to level the existing lawn area, part of which is proposed to be developed as a holiday let.

2.2.3 Published Geology

Artificial or made ground is not mapped on the Site, however it is likely made ground is present particularly in the west associated with the previous farm and crew yard development. Made ground is also anticipated below the existing holiday let in the north east and central south associated with the infilled ponds. Superficial deposits are recorded as Glaciofluvial Sheet Deposits – Sand and Gravel. Bedrock is the Oxford Clay. A borehole record for the Site (Mere Oaks Farm) dated May 1979 describes 'soil' to 0.7m over clayey sand to 0.9m underlain by Till

comprising grey/dark grey and brown CLAY with 'pebbles' of chalk, flint, red marl and mudstone. Groundwater was not encountered.

2.2.4 Hydrogeology

The superficial deposits are classified as a Secondary A Aquifer. The bedrock is an Unproductive Aquifer. There are no current licensed groundwater abstractions in the vicinity. The Site is located in a Type 3 Source Protection Zone.

2.2.5 Hydrology

According to the Groundsure report a water course is present along the northern boundary of the Site and is listed as 'on ground surface' and underground'. This is likely a field boundary drainage ditch connected to a wider network of field drains. There are no active licensed surface water abstractions in the vicinity.

2.2.6 Flood Risk

Consideration of flood risk falls outside the scope of this Assessment.

2.2.7 Radon Gas

The Site is not located in a radon affected area. Radon protection is not required for new dwellings.

2.2.8 Mining

The Site is not located within a Coal Mining Reporting Area.

The Site is not located within a non-coal mining area or considered likely affected by other mineral extraction. 1 BritPit record exists within 500m of the Site associated with a small sand and gravel pit located 248m south east.

Risks to the Site from resource extraction or geotechnical matters other than for the swimming pool development fall outside of the scope of this commission and are not considered further in this Report.

2.2.9 Environmentally Sensitive Sites

The Site is located in a Nitrate Vulnerable Zone.

The closest listed environmentally sensitive site is an ancient and semi-ancient woodland 407m south west.

2.2.10 Natural Hazards

According to the Groundsure report:

- The shrink swell hazard is negligible;
- The running sands hazard is very low;

- The compressible deposits hazard is negligible;
- The collapsible deposits hazard is very low;
- The landslide hazard is very low;
- The ground dissolution of soluble rocks hazard is negligible.

Risks from geotechnical issues and ground stability excluding preliminary advice for the swimming pool fall outside the scope of this Assessment.

2.2.11 Groundsure Database Entries

Salient points identified from the Groundsure database review include:

- The Groundsure report lists 3 historical potentially contaminative land uses within 500m of the Site – all 3 relate to a former gravel pit located circa 240m south east.
- There are no plausible currently potentially contaminative landuses listed within 500m.

2.3 Qualitative Contaminated Land Assessment

2.3.1 Initial Conceptual Site Model

An initial Conceptual Site Model (CSM) has been developed for the Site adopting the Source-Pathway-Receptor approach. The initial CSM was developed during the preliminary risk assessment stage and used to design the Phase 2 Intrusive Investigations.

- Sources (S) are potential or known contaminant sources e.g. soil contamination resulting from a former land use;
- Pathways (P) are environmental systems thorough which a contaminant could migrate e.g. air, groundwater;
- Receptors (R) are sensitive environmental receptors that could be adversely affected by a contaminant. e.g. Human End User (longer- term risks) or groundworkers (shorter-term risks), surface or groundwater resources and ecology.

Where a source, relevant pathway and receptor are present, a plausible pollutant linkage is considered to exist whereby environmental harm could occur and a potential environmental liability could be realised.

The site specific potential pollutant linkages have been assessed and used to formulate the initial Conceptual Model for the Site presented in Table 2.3.1.

Table 2.3.1 Initial Conceptual Model

POTENTIAL SOURCES		
CSM ID	Detailed Description	Summary Description for CSM
S1	Potentially contaminated soils associated with current and historic site uses: workshop, made ground	S1: Soil Contamination.
S2	Contaminated groundwater resulting from soil contamination.	S2: Groundwater Contamination.
S3	Potential for contamination originating from off-site sources:	S3: Off-site sourced contamination.
S4	Asbestos containing materials on/in existing buildings and within made ground possibly buried.	S4: ACMs
S5	Potential for ground gases and vapours from made ground and on or off-site contamination.	S5: Ground gas
POTENTIAL PATHWAYS		
CSM ID	Detailed Description	Summary description for CSM
P1	Human uptake pathways; - Ingestion of excavated or exposed soils; - Inhalation of soil/dust/volatile compounds or hazardous ground gases via migration through permeable strata/conduits; and - Dermal contact with exposed soils or leachates.	P1: Human uptake
P2	Vertical migration of contaminants through the unsaturated zone.	P2: Vertical Migration Unsaturated Zone
P3	Horizontal and vertical migration of contaminants within groundwater.	P3: Groundwater Migration
P4	Direct contact of soils with construction materials.	P4: Direct Contact Construction Materials
P5	Migration of ground gases and vapour through soil.	P5: Gas migration
POTENTIAL RECEPTORS		
CSM ID	Detailed Description	Summary description for CSM
R1	Construction/maintenance workers.	R1: Construction workers
R2	Controlled waters within the Aquifer.	R2: Controlled waters
R3	End-users.	R3: End-users

R4	Construction Materials - Buried concrete and potable water supply pipes.	R4: Construction Materials
R5	Off-site property and users.	R5: Off-site receptors

2.3.2 Risk Evaluation

For each potential pollutant linkage identified within the Conceptual Model the potential risk has been evaluated for potential receptors using a Preliminary Qualitative Risk Assessment based on the probability of the pollution event and the severity it poses to Site users and the environment. The Methodology is presented in Appendix 3.

The preliminary assessment of risk assumes no specific remediation measures but does take account of obvious pathway disruption due to development such as hard standing, building footprints or necessary excavations.

The risk evaluation assessment is summarised in Table 2.3.2 below. The CSM and Qualitative Risk Assessment is refreshed following review of the ground investigation findings including any geochemical analyses.

Table 2.3.2 Preliminary Qualitative Risk Assessment

Potential Source	Potential Pathway	Potential Receptor	Consequence	Probability	Risk	Comments
S1: Soil Contamination	P1: Human Uptake	R1: Construction workers	Medium	Low likelihood	Moderate/ low	The Site historically formed part of a farm complex including a crew yard and has more recently been used as a fabricating and gas-fired powder coating plant in the west of the Site. Limited infilling is known to have occurred in former ponds including imported sugar factory topsoil in the proposed holiday let area in the east of the Site.
		R3: End-users	Medium	Low likelihood	Moderate/ low	
	P2:Migration unsaturated zone	R3: End-users	Mild	Unlikely	Very low	
		R2: Controlled waters	Mild	Unlikely	Very low	
		R5: Off-site receptors	Mild	Unlikely	Very low	
	P3: Groundwater migration	R2: Controlled waters	Medium	Unlikely	Low	Soil contamination with the potential to impact groundwater is not anticipated.
		R3: End-users	Mild	Unlikely	Very low	
		R4: Construction materials	Mild	Unlikely	Very low	
	P4:Direct contact construction materials	R4: Construction materials	Mild	Unlikely	Very low	Potable water will be connected to the existing network on Site.
S2: Groundwater Contamination	P1: Human Uptake	R1: Construction workers	Mild	Unlikely	Very low	Site sourced groundwater contamination is not anticipated.
		R3: End-users	Mild	Unlikely	Very low	
	P3: Groundwater migration	R2: Controlled waters	Medium	Unlikely	Low	
	P4:Direct contact construction materials	R4: Construction materials	Mild	Low likelihood	Low	
	P1: Human Uptake	R1: Construction workers	Mild	Unlikely	Very low	

S3: Off-site sourced contamination		R3: End-users	Mild	Unlikely	Very low	Plausible off-site sources of contamination have not been identified.
	P3: Groundwater migration.	R2: Controlled waters	Mild	Unlikely	Very low	
	P4: Direct contact construction materials	R4: Construction materials	Mild	Unlikely	Very low	No new potable supplies are proposed.
S4: ACMs	P1: Human Uptake	R1: Construction workers	Severe	Low likelihood	Moderate	Made ground has the potential to contain asbestos. Soils sampling should include analysis for asbestos fibres.
		R3: End-users	Severe	Unlikely	Moderate/ low	
S5: Ground Gas	P1: Human Uptake	R3: End Users	Mild	Low likelihood	Low	Significant sources of permanent ground gases have not been identified. Made ground on Site has the potential to generate low concentrations of ground gases but unlikely at concentrations of flows that would represent a hazard to the proposed development. A period of confirmatory monitoring is recommended.

3.0 SCOPE OF INTRUSIVE GROUND INVESTIGATIONS

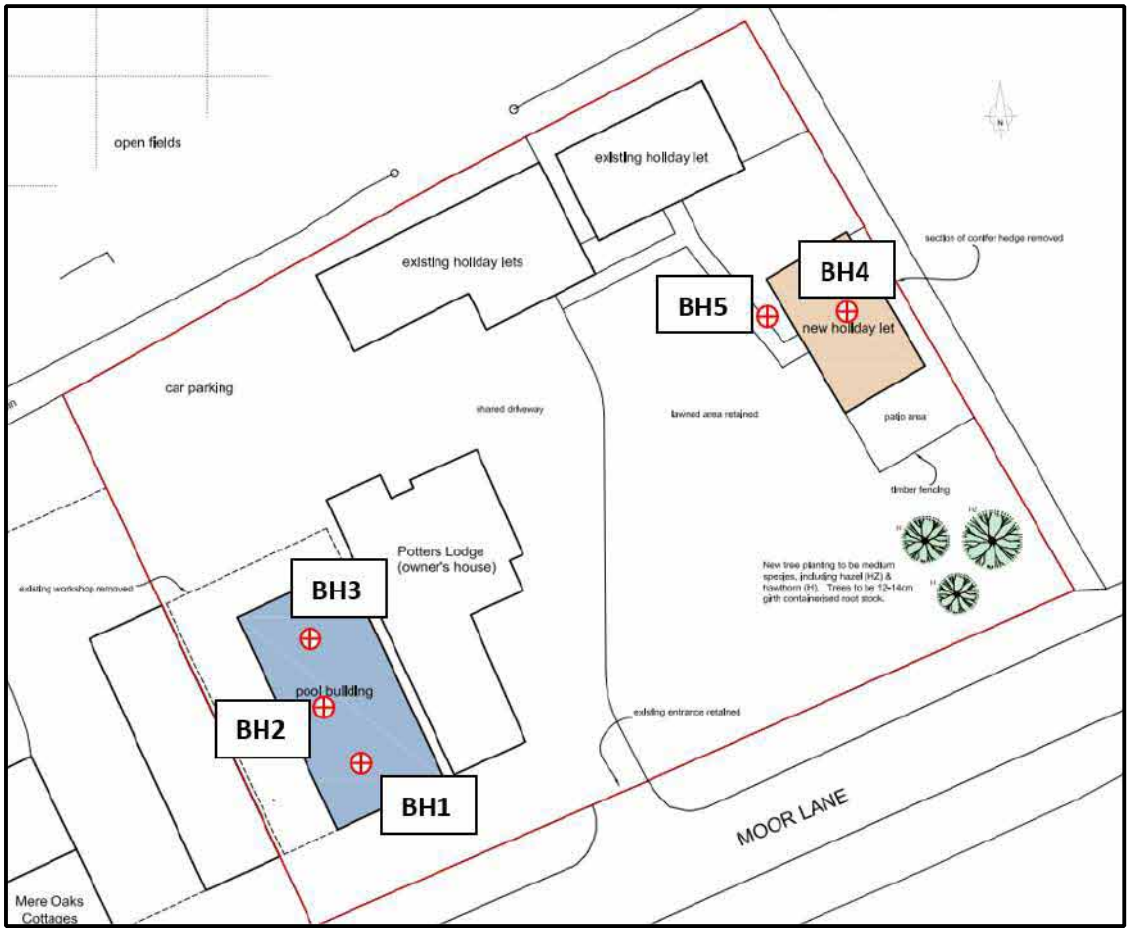
3.1 Fieldwork

A ground investigation was undertaken on 10 January 2023 comprising 4 dynamic sampling boreholes labelled BH1 to BH4 and one hand pit (BH5). Two boreholes (BH2 and BH4) were installed with monitoring wells to facilitate monitoring of ground gases and observe groundwater levels.

Exploratory locations were positioned to focus on the areas of proposed development including 3 boreholes in the area of the proposed swimming pool and a borehole and hand pit in the area of the proposed holiday let.

Positions of the exploratory holes are shown in Figure 2 below.

Figure 2 Exploratory Hole Locations



Not to scale. Locations are approximate.

3.2 Laboratory Testing

Soil samples were collected from soil and made ground most likely to be disturbed as part of the development. Top soil from the lawn in the area of the proposed holiday let was also sampled.

Samples were collected in appropriate glassware supplied by the laboratory and submitted to DETS Limited in chilled conditions for a range of contamination testing including the following determinands;

- Asbestos Screen;
- Heavy metals: As, Ba, Be, Cd, Cr, Cr VI, Cu, Pb, Hg, Ni, Se, V, Zn;
- Water soluble Boron;
- Speciated polyaromatic hydrocarbons (PAH);
- Speciated Total Petroleum Hydrocarbons (TPH LQM Split);
- BTEX & MTBE.

Laboratory testing certificates are presented at Appendix 4.

3.3 Groundwater Monitoring

In the absence of significant contamination no groundwater evaluation has been undertaken to date.

3.4 Permanent Ground Gases

Monitoring wells were installed in BH2 and BH4 to 2.5m bgl. The lower 2m section was constructed with slotted pipe and gravel pack surround with the upper 0.5m constructed in plain pipe and surrounded by a bentonite seal wetted after installation. The well was completed with a bung and gas taps to facilitate monitoring for permanent ground gases.

Monitoring for permanent ground gases has been undertaken on 3 occasions between 25th January and 17th February 2023.

Risks from permanent ground gases are discussed further in Section 5.3.

4.0 OBSERVED GROUND CONDITIONS

4.1 Ground Model

The exploratory holes were logged by an environmental scientist from GDP.

For full descriptions of the strata encountered please refer to the exploratory hole logs presented at Appendix 5.

Table 4.1 Ground Model

Stratum	Description	Depths encountered between.
Site Surface	Concrete was present at surface at BH1, BH2 and BH3.	
Topsoil	Topsoil was present in BH4 and BH5	GL to 0.8m
Made Ground	Made ground was encountered in BH1 to BH3 comprising MoT Type 1 underlain by a weak mix concrete to circa 0.3m. This was underlain by grey brown or black soily sandy gravel. Gravel was of mixed lithology, possibly including ash and occasional brick.	Maximum 0.45m
SAND and GRAVEL	Grey brown organic rich (occasional peaty pocket) variably clayey SAND with fine to medium gravel.	Maximum 2.5m
TILL	firm to stiff grey sandy gravelly CLAY.	Maximum drilled 6m
Groundwater Observations	Boreholes were wet from approximately 0.3m. BH1 to BH3 flooded from perched water running into BHs from weak mix concrete circa 0.3m.	

BH2

BH4

4.2 Observations of Contamination

Whilst typical made ground deposits were observed no unusual odours were noted in any of the borehole locations. Made ground included possibly ashy content in BH1 to BH3. No organic or hydrocarbon odours were observed.

5.0 ASSESSMENT OF CONTAMINATION

5.1 Generic Assessment Criteria

In the absence of a complete published set of screening values derived by the Regulators using the new CLEA Framework, the assessment refers to the following in priority of use order:

- The LQM/CIEH S4ULs for Human Health Risk Assessment. Land Quality Press, 2015. Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3222. All rights reserved.';
- The Soil Guidance Values (SGVs) published by the EA;
- Former SGVs for which no updated SGV has been published;
- The 2009 Chartered Institute of Environmental Health (CIEH)/Land Quality Management (LQM) Generic Assessment Criteria (GAC);
- The guidance values produced by the Environmental Industries Commission (EIC), the Association of Geotechnical and Geoenvironmental Specialists (AGS) and Contaminated Land: Application in Real Environments (CL:AIRE) in December 2009;
- In house Generic Screening Values (HH-GSVs) derived by the Consultant and other non UK values where considered relevant;
- Consideration has been given to Category 4 Screening Levels as it is likely given recent government support that these will be considered by Local Planning Authorities during assessment of contaminated land.

For the purpose of this assessment, the analytical results have been assessed against guidance values for a Residential Without Homegrown Produce land use. These values are considered appropriate for considering risks associated with the holiday let garden. In the area of the proposed swimming pool the risk assessment is more relevant to the potential exposure during construction phase such that less onerous screening values could have been selected.

The S4ULs currently exclude Lead, therefore the Defra approved Category 4 Screening Levels (C4SLs) have been adopted.

In the absence of significant soil contamination leachability and groundwater risk evaluation has not been undertaken.

5.2 Geochemical Test Results

Soil organic matter ranged between 1.2% and 4.5%. Analytical results will be considered against a SOM of 1% in the first instance where applicable to assessment of organics.

5.2.1 Residential Without Consumption of Homegrown Produce

Results from all samples collected from boreholes and hand pits are screened and presented in Table 5.2.1

The laboratory analytical results are presented at Appendix 4.

Table 5.2.1 - Comparison of soil samples to relevant GAC for Residential Without Homegrown Produce

Contaminant	Units	Max	GAC 1% SOM	No. of exceedances (Location)
Arsenic (total)	mg/kg As	12	40*	0
Barium (total)	mg/kg Ba	293	1300#	0
Beryllium (total)	mg/kg Be	1.2	1.7*	0
Water soluble Boron	mg/kg	1.2	11000*	0
Cadmium (total)	mg/kg Cd	0.3	85*	0
Chromium (total)	mg/kg Cr	16	910*a	0
Chromium (hexavalent)	mg/kg CrVI	<2	6*	0
Copper (total)	mg/kg Cu	25	7100*	0
Lead (total)	mg/kg Pb	70	310+	0
Mercury (total)	mg/kg Hg	<1	1.2*b	0
Nickel (total)	mg/kg Ni	20	180*	0
Selenium (total)	mg/kg Se	<3	430*	0
Vanadium (total)	mg/kg V	22	1200*	0
Zinc (total)	mg/kg Zn	72	40000*	0
Naphthalene	mg/kg	<0.1	2.3*	0
Acenaphthylene	mg/kg	<0.1	2900*	0
Acenaphthene	mg/kg	<0.1	3000*	0
Fluorene	mg/kg	<0.1	2800*	0
Phenanthrene	mg/kg	<0.1	1300*	0
Anthracene	mg/kg	<0.1	31000*	0
Fluoranthene	mg/kg	0.28	1500*	0
Pyrene	mg/kg	0.27	3700*	0
Benzo(a)anthracene	mg/kg	0.14	11*	0
Chrysene	mg/kg	0.16	30*	0
Benzo(b)fluoranthene	mg/kg	0.14	3.9*	0
Benzo(k)fluoranthene	mg/kg	<0.1	110*	0
Benzo(a)pyrene	mg/kg	0.15	3.2*	0
Indeno(123cd)pyrene	mg/kg	<0.1	45*	0
Dibenz(ah)anthracene	mg/kg	<0.1	0.31*	0
Benzo(ghi)perylene	mg/kg	<0.1	360*	0
Asbestos Screen Soil	Detect	NAD	Detect	0
MTBE	mg/kg	<0.005	73#	0
Benzene	mg/kg	<0.002	0.38*	0
Toluene	mg/kg	<0.005	880*	0
Ethylbenzene	mg/kg	<0.002	83*	0
m & p-Xylene	mg/kg	<0.002	79*c	0
o-Xylene	mg/kg	<0.002	79*c	0
TPH Aromatic EC5-EC7	mg/kg	<0.01	370*	0
TPH Aromatic EC7-EC8	mg/kg	<0.05	860*	0
TPH Aromatic EC8-EC10	mg/kg	<2	47*	0
TPH Aromatic EC10-EC12	mg/kg	<2	250*	0
TPH Aromatic EC12-EC16	mg/kg	<2	1800*	0
TPH Aromatic EC16-EC21	mg/kg	<3	1900*	0
TPH Aromatic EC21-EC35	mg/kg	<10	1900*	0
TPH Aromatic EC35-EC44	mg/kg	<10	1900*	0
TPH Aliphatic EC5-EC6	mg/kg	<0.01	42*	0
TPH Aliphatic EC6-EC8	mg/kg	<0.05	100*	0
TPH Aliphatic EC8-EC10	mg/kg	<2	27*	0
TPH Aliphatic EC10-EC12	mg/kg	<2	130*	0

TPH Aliphatic EC12-EC16	mg/kg	<3	1100*	0
TPH Aliphatic EC16-EC35	mg/kg	<10	65000*	0
TPH Aliphatic EC35-EC44	mg/kg	<10	65000*	0

* LQM/CIEH GAC for Residential WITHOUT consumption of home grown produce land use scenario based on a sandy loam soil
# EIC/AGS/CL:AIRE GAC for Residential WITHOUT consumption of home grown produce land use based on a sandy loam soil and 1% SOM
+ C4SL for Residential WITHOUT plant uptake land use based on a sandy loam soil
a Based on GAC for trivalent chromium.
b Based on the lowest GAC for elemental mercury.
c All xylene isomers should be compared to the lowest of the three GACs.
[N/A] No GAC relevant to human health publicly available

No exceedances of selected GAC were detected in any soil samples. Asbestos was not detected in any of the 4 samples of made ground and topsoil analysed.

5.3 Ground Gas Monitoring Results

In undertaking this assessment, we have taken account of current best practice guidance in the assessment of risk posed by hazardous permanent ground gases, including:

- BS8485:2015+A1:2019 "Code of Practice for the Design of protective Measures for Methane and Carbon Dioxide Ground Gases for New Buildings";
- BS8576:2013 "Guidance on Investigations for Ground Gas – Permanent Gases and Volatile Organic Compounds (VOCs)";
- CIRIA "Assessing Risks Posed by Hazardous Ground Gases to Buildings", report C665, 2007;
- CIRIA "The VOCs Handbook. Investigating, Assessing and Managing Risks from Inhalation of VOCs at Land Affected by Contamination", report C682, 2009;
- CL:AIRE "A Pragmatic Approach to Ground Gas Risk Assessment", report ref.RB17, November 2012.

Monitoring for hazardous ground gases was undertaken in BH2 and BH4 on 3 occasions, including one event at low and falling barometric pressure – considered to represent 'worst case' conditions. The results of the monitoring undertaken to date are summarised below.

Table 5.3: Gas Monitoring Results

Location ID	Date	CH_4 %v/v	CO_2 %v/v	O_2 %v/v	Steady State Flow [L/hr]	Q_{hg} CH_4* [L/hr]	Q_{hg} CO_2* [L/hr]	DTW mbgl	Barometric Pressure mb
BH2	25-1-23	0.0	0.0	15.0	<0.1	<0.0001	<0.0001	0.4	1027
BH4		0.0	2.2	16.1	<0.1	<0.0001	<0.0022	0.52	
BH2	2-2-23	0.0	0.0	10.5	<0.1	<0.0001	<0.0001	nm	1010
BH4		0.0	2.6	15.3	<0.1	<0.0001	<0.0026	nm	
BH2	17-2-23	0.4	0.0	10.6	<0.1	<0.0004	<0.0001	0.66	1012
BH4		0.0	2.6	15.1	<0.1	<0.0001	<0.0026	0.73	

*Steady State Flow Rate assumed to be <0.1 L/h (LOD) where 0.0 L/h indicated on instrument.
Nm – not measured.

Q_{hg} (Quantity of hazardous gas) values for methane and carbon dioxide were calculated in accordance with BS8485 on the basis of measured gas flows and concentrations. Where no detectable values for gas concentrations or flow rates have been observed then assumed values, based on the limit of detection (LoD) of 0.1L/h and 0.1%v/v, respectively, have conservatively been used in order to generate meaningful values for the assessment.

A Q_{hg} value has been calculated based on the 'worst case check' scenario outlined in BS8485 Section 6.3.7.4, in which the plausible worst case condition has been calculated for each hazardous gas by multiplying the maximum recorded flow rate in any standpipe with the maximum gas concentration in any other standpipe.

The derived 'worst case' check Q_{hg} for methane, based on the highest detected steady state concentration of methane (0.4 %v/v) and the highest plausible steady state flow rate of 0.1L/h. is 0.0004 L/h. The derived 'worst case' check Q_{hg} for carbon dioxide, based on the highest detected steady state concentration of carbon dioxide (2.6%v/v) and the highest plausible steady state flow rate of 0.1L/h. is <0.0026 L/h. On the basis of the data obtained to date and the risk assessment the site characteristic gas screening value GSV is taken to be the 'worst case' Q_{hg} and so is 0.0026L/h. Based on the Q_{hg} and with reference to Table 2 BS8485 the corresponding characteristic gas situation (CS) is CS1 as defined in BS8485. This indicates a 'very low' potential risk from permanent hazardous ground gas.

It is noted that guidance contained in CIRIA C665 recommends a minimum monitoring period of 6 events over 3 months for new residential developments. However, given the observed ground model, consistency in data recorded and absence of meaningful flows it is considered implausible that the gas regime could deteriorate sufficiently to warrant upgrading the classification to CS2. Additional monitoring is considered unnecessary.

In the absence of visual or olfactory observations of organic contaminants during the ground investigation there is no identified source of organic vapours at the Site.

The Site is not located in a radon affected area.

5.2.2 Updated Conceptual Site Model

Following the Phase 2 investigation an updated Conceptual Model is now presented in Table 5.2.2 below.

Table 5.2.2 Updated Qualitative Risk Assessment

Potential Source	Potential Pathway	Potential Receptor	Consequence	Probability	Risk	Comments
S1: Soil Contamination	Unlikely	R1: Construction workers	Mild	Unlikely	Very low	No contamination was detected in soil samples analysed for a broad suite of determinands.
		R3: End-users	Mild	Unlikely	Very low	
	P2:Migration unsaturated zone	R3: End-users	Mild	Unlikely	Very low	
		R2: Controlled waters	Mild	Unlikely	Very low	
		R5: Off-site receptors	Mild	Unlikely	Very low	
	P3: Groundwater migration	R2: Controlled waters	Mild	Unlikely	Very low	Soil contamination with the potential to impact groundwater was not encountered.
		R3: End-users	Mild	Unlikely	Very low	
		R4: Construction materials	Mild	Unlikely	Very low	
	P4:Direct contact construction materials	R4: Construction materials	Mild	Unlikely	Very low	Potable water will be connected to the existing network on Site.
S2: Groundwater Contamination	P1: Human Uptake	R1: Construction workers	Mild	Unlikely	Very low	No indication of groundwater contamination was observed.
		R3: End-users	Mild	Unlikely	Very low	
	P3: Groundwater migration	R2: Controlled waters	Mild	Unlikely	Very low	
	P4:Direct contact construction materials	R4: Construction materials	Mild	Unlikely	Very low	
S3: Off-site sourced contamination	P1: Human Uptake	R1: Construction workers	Mild	Unlikely	Very low	No indication of off-site sourced contamination was observed.
		R3: End-users	Mild	Unlikely	Very low	
		R2: Controlled waters	Mild	Unlikely	Very low	

	P3: Groundwater migration.					
	P4: Direct contact construction materials	R4: Construction materials	Mild	Unlikely	Very low	No new potable supplies are proposed.
S4: ACMs	P1: Human Uptake	R1: Construction workers	Severe	Unlikely	Moderate/ low	Asbestos was not detected in samples of made ground and topsoil tested.
		R3: End-users	Severe	Unlikely	Moderate/ low	
S5: Ground Gas	P1: Human Uptake	R3: End Users	Mild	Unlikely	Very low	Monitoring for permanent ground gases has demonstrated the Site can be classified as CS1 – very low risk. Additional monitoring is considered unnecessary. The Site is not located in a radon affected area.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

Development proposals comprise the construction of a swimming pool in an area of a former workshop and a holiday let bungalow on an area of existing lawn.

A ground investigation comprising 4no. dynamic sample boreholes and a hand pit has been undertaken with soil sampling and analysis for a broad suite of organic and inorganic determinands and asbestos. No exceedances above selected GAC were detected. Asbestos fibres were not detected in made ground or topsoil samples analysed.

No indication of groundwater contamination or off-site sourced contamination was observed. Monitoring for permanent ground gases indicates the Site is CS1 – Very Low Risk. Additional monitoring is not considered warranted. The Site is not in a radon affected area.

6.2 Recommendations

These recommendations are made on the basis of the investigations undertaken to date. If previously unidentified ground conditions or suspected contamination are discovered during preparatory works the LPA must be notified and further assessment may then be required.

6.2.1 Remediation

Based on the information obtained from the desk study and limited intrusive investigations remediation is not required for the proposed development.

Ground gas protection is not necessary based on monitoring performed. Radon protection is not required.

6.2.2 Construction H&S Risks

At construction phase the small risk posed by the contamination in soils on Site to ground workers can be adequately and economically mitigated by adopting best practice standards of personal hygiene with appropriate levels of personal protective equipment (PPE) provided.

A pre-demolition asbestos survey should be performed on the workshop prior to demolition.

6.2.3 Water Supply Pipes and Utilities

New potable supplies are to be made in barrier pipe as a precautionary approach.

On any brownfield Site it would be prudent to install all new services in dedicated utilities trenches backfilled with inert material.

6.2.4 Materials Management and Waste Disposal

The waste classification of the soils has not been formally undertaken as part of this investigation.

Where soils are to be discarded to achieve formation levels it is recommended that the chemical test results are forwarded to a waste disposal contractor or landfill operator to establish the waste classification. Made ground and natural ground should be segregated.

Any soils to be disposed from Site are a 'waste' under the Regulations and should only be disposed at a facility or a Site licensed to accept the materials.

If after classification the surplus soils are to be deposited in an inert or hazardous landfill, then allowance should be made for Waste Acceptance Criteria (WAC) testing of the surplus materials to confirm compliance with the limits for these materials.

Under the Duty of Care Regulations, the producer of the waste is obliged to ensure that all wastes are disposed of appropriately.

6.2.5 Imported Soil and Aggregates

No soils are required to be imported for the development.

7.0 PRELIMINARY ENGINEERING OBSERVATIONS

7.1 General

Preliminary geotechnical advice has been requested for the swimming pool development only. The proposed swimming pool is to be constructed at ground level within the existing workshop building. The exact construction method of the pool is not known at time of writing and could be a traditional tanked and tiled masonry structure or a modern cassette type product. The pool will require adequate support from the underlying ground and the strength of any retained soils needs to be understood such that the engineering design of any retaining or other substructure walls can be completed. The stability of existing foundations will also need consideration.

Groundwater levels are a particularly important consideration when designing swimming pools. If groundwater has the potential to rise above the base of the pool this can lead to issues of floatation / buoyancy either during construction or at some point in the future such as when the pool is emptied for maintenance or no longer used. If groundwater is likely to be problematic then special measures can be installed such as pressure relief valves, additional weight (resistance) or anchorage.

Groundwater flooded the boreholes from the near surface Made Ground and the reported levels on the logs are the standing level in the boreholes and do not necessarily represent the true groundwater (piezometric) level. As all strata including the clayey sand and gravel have low permeability the boreholes may have acted as sumps.

The ground investigation in the area of the pool (BH1, BH2 and BH3) indicates that the foundation for the pool and any ancillary structures will be within a formation of clayey SAND and GRAVEL. Excavations below 2m begl will likely encounter the underlying Till which is a firm to stiff sandy slightly gravelly CLAY.

7.2 Geotechnical Parameters

Standard Penetration Testing

Insitu testing was undertaken in order to estimate geotechnical design parameters for use in engineering design. SPT testing was undertaken at 1.0m intervals to a maximum of 6.0m begl. The results are presented on the borehole logs at Appendix 5.

The natural soils to 2.0m begl are considered to be granular. The shear strength has thus been assessed on the basis of frictional properties of the soil. The SPT N values can be used to estimate the effective angle of friction (shearing resistance) phi (Φ') for use in deriving bearing capacity and earth pressure coefficients for retaining wall design.

SPT N values within the upper 2.0m ranged from 5 to 19. The value of 5 was at the base of Made Ground and may be erroneous so has been discounted. SPT tests at 2.0m are likely at

the top of the Till or cross over the interface between the Sand and Gravel and the Till so are also discounted. A characteristic SPT N of 12 has been selected for preliminary design. Adopting the empirical relationship between SPT N and phi (Φ') (after Peck et al) the characteristic phi (Φ') is 31° for natural sand and gravel.

SPT N values for the Glacial Till at 2.0m and 3.0m range between 15 and 24. No classification testing has been undertaken at present for the underlying Glacial Till. Past experience indicates that these glacial soils are likely to be of Medium to High Plasticity and Medium Volume Change Potential. Adopting Stroud's empirical relationship and adopting Medium plasticity soils (f1 = 5) this equates to an undrained shear strength (Cu) of between 75 and 120 kPa. As a conservative approach the lower value has been selected as the characteristic strength for preliminary purposes.

The assigned characteristic Unit Weight for the Made Ground and natural sands and gravels is 19 kN/m^3. This is based on a medium dense relative density.

The geotechnical design parameters for the encountered materials are summarised below:

Table 7.2: Geotechnical Design Parameters

Strata	Unit Weight /Weight Density	Undrained Shear Strength	Angle of Shearing Resistance
	γ (kN/m^3)	Cu (kPa)	**Φ'** (°)
	(F_F)	(F_{CU})	(TAN Ø') ($F_Ø$)
SAND and GRAVEL	19	-	31
Glacial Till -Firm to stiff gravelly CLAY	19	75	25

7.3 Foundations

Adopting the geotechnical parameters discussed above the calculated preliminary net allowable bearing capacity for the Sand and Gravel is in the order of 150 kN/m^2. This is the allowable increase in bearing pressure at the foundation level and does not take any benefit of overburden. Foundations may be deep enough to be socketed into the underlying Glacial Till and this strata will very likely be subject to increased pressure from the pool construction. The preliminary NABP will be in the order of 130 kN/m^2.

Bearing capacity and settlement calculations for swimming pools need to be undertaken with care and consider the ground loadings under the circumstances of the pool being full or empty.

Normally the design assumes a rigid construction behaving akin to a buoyancy raft. Issues concerning groundwater levels are discussed earlier in this Section.

At the above calculated NABP settlements should be in the order of <25mm. However, the structural loadings are not fully understood and further assessments may be required. Of particular note is the organic content of the shallow soils which may lead to increased settlement as compared to a pure sand and/or gravel. However, the percentage by volume of organic materials is small but could lead to some creep settlement over time (many years). As such the possibility of some longer-term settlement should be included in the design such as allowing for flexible connections for sensitive services.

There is a possibility that foundations around 2.0m depth begl could span between the granular and cohesive soils. In this instance reinforcement should be included to counter the potential for any differential settlement between granular and cohesive soils. Alternatively foundations could be deepened to site within the same strata. More detailed assessment can be made once the pool design is confirmed. It is recommended that a structural engineer be instructed to provide foundation design.

Effects of Trees

No geotechnical testing has been completed at this time. Assessments to determine the effects of trees for foundation design may be required at a later data.

Buried Concrete Design

No soils testing for the design of buried concrete was requested as part of this commission.

Excavation Stability and Groundwater Control

Excavation stability requires consideration particularly within the Made Ground and granular deposits. Excavations may remain open and stable for a short period particularly given the clay component of the sand and gravel however temporary support should always be provided. Groundwater ingress from the upper soils appears likely but should be possible to control via standard sump pumping techniques. It is thought that the true groundwater level, its piezometric level, is similar to that observed i.e. shallow. In these ground conditions it is not uncommon for excavations to initially appear dry but will gradually fill with groundwater.

Potential Buried Obstructions

Historical records indicate that former foundation may pass underneath the existing workshop building. Where this occurs a 'hard spot' can be formed that will lead to differential settlement and possible structural damage to new foundations, floor slabs or other ground bearing structures that span across it. Where practicable any buried structures should be fully removed from within the footprint of any new structures or appropriately spanned.

8.0 LIMITATIONS

8.1 General

GD Pickles Ltd (GDP) have prepared this report solely for the use of the Client. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from GDP; a charge may be levied against such approval.

GDP accepts no responsibility or liability for the consequences of this document being used for any purpose or project other than for which it was commissioned or the consequences of this document being used by any third party with whom an agreement has not been executed.

The Client should be aware that property development carries risk and that unidentified development abnormals should be anticipated particularly on brownfield sites with regard to in-ground risks such as contamination, asbestos, waste and underground obstructions/made ground. This Report provides an assessment of the potential and actual ground conditions found based upon the available information and in the context of the scope of works performed. It does not provide a flood, drainage, asbestos, ecological, geotechnical, mining, archaeological or legal assessments or provide advice on other technical matters which may be appropriate when considering site ownership and development. The Client should satisfy itself that it has adequate information on which to make its own decision with regards the commercial and legal merit of acquiring and developing the site. All development risk rests with the developer and owner. GDP will employ all reasonable endeavours to assist the Client manage and mitigate those risks, however, no liability is accepted by GDP for any loss, damages, or consequential or third party losses which may be suffered by the Client from the inappropriate use or misinterpretation of the content of this report and all liability is limited to those set out in our terms and conditions at the time of instruction.

8.2 Phase I Desk Studies and Preliminary Risk Assessments

The work undertaken in producing this report comprised a study of available in-house and third party documented information from a variety of sources (including the Client), together with (where appropriate) a brief walk over inspection of the site and meetings and discussions with relevant authorities and other interested parties. The assessments and opinions given in this report rely on such information and activities and are only relevant to the purpose for which the report was commissioned. Any information reviewed should not be considered exhaustive and has been accepted and used in good faith as providing accurate and representative data pertaining to site conditions. Should additional information become available which may affect the opinions expressed in this report, GDP reserves the right to review and if necessary modify the opinions accordingly. It should be noted that any risks identified in a Phase 1 report are perceived risks based on the information reviewed; actual risks can usually only be quantified following a physical investigation of the site.

8.3 Phase II Intrusive Geotechnical and Geoenvironmental Investigations

The investigation of the site has been carried out to provide sufficient information concerning the type and significance of contamination and or geotechnical characteristics, and ground and

groundwater conditions to provide a reasonable assessment of the environment risks together with engineering and development implications. If costs have been included in relation to site development professional cost advice should be sought.

The exploratory holes undertaken, which investigate only a small volume of the ground in relation to the size of the site, can only provide a general indication of site conditions. The opinions provided and recommendations given in this report are based on the ground conditions apparent at the site for each of the exploratory holes. There may be exceptional ground conditions elsewhere on the site which have not been disclosed by this investigation and which have therefore not been taken into account in this report. Whilst exploratory testing is intended to gain an accurate representation of the site, the very nature of sampling and testing is such that it cannot ensure that all localised conditions are detected.

The comments made on groundwater conditions are based on observations made at the time the site work was conducted. It should be noted that groundwater levels will vary owing to seasonal, tidal and weather related effects. The scope of the investigation was selected on the basis of the specific development proposed by the Client and may be inappropriate to another form of development or scheme.

The risk assessment and opinions provided take in to consideration, inter alia, currently available guidance relating to acceptable contamination concentrations; no liability can be accepted for the retrospective effects of any future changes or amendments to these values.

Report produced by:

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Report Approved by:

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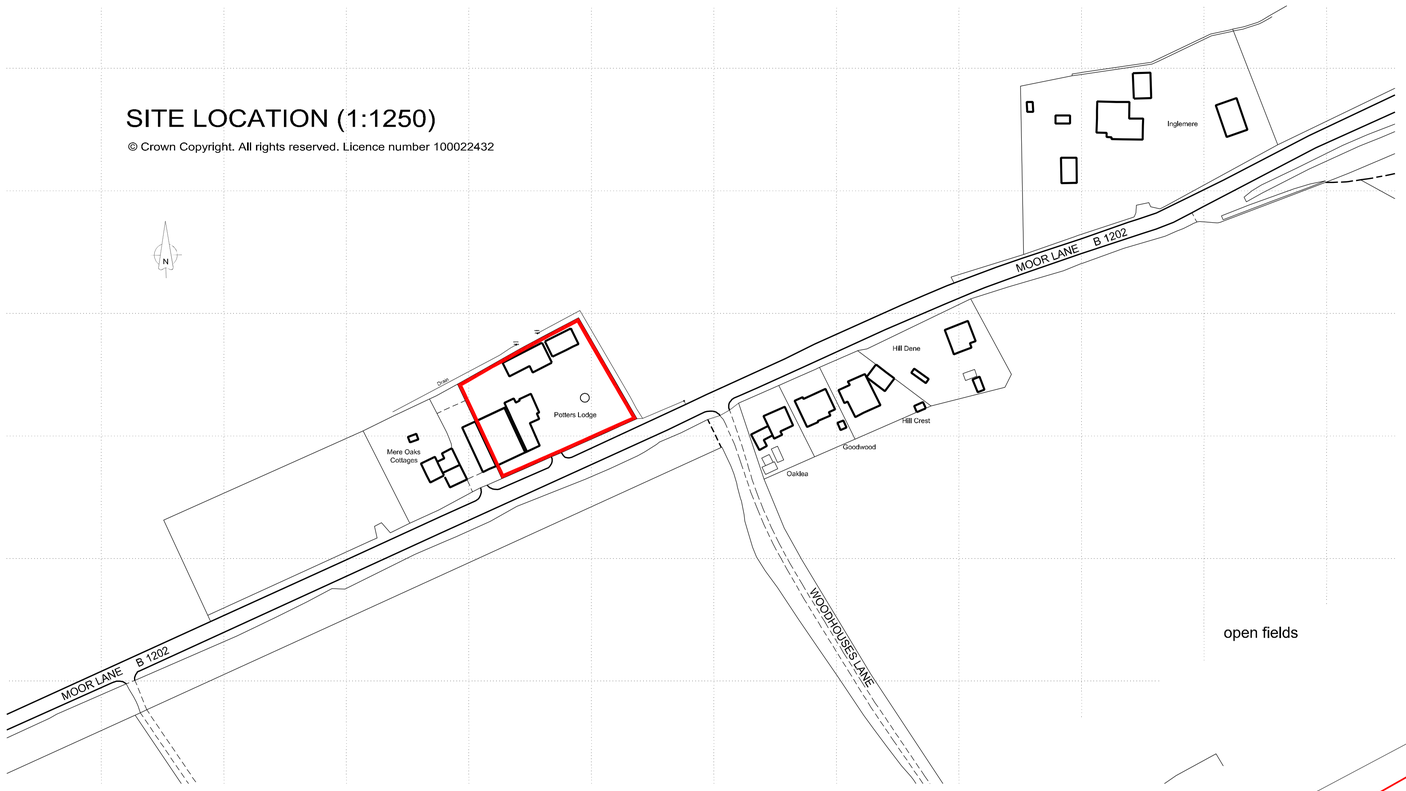
APPENDIX 1

Proposed Development Plan

Brownfield Consulting & Development
GD Pickles Ltd, registered in the UK: 09387115.
Biltons Farm, South Scarle Lane, Swinderby, Lincoln, LN6 9JA

SITE LOCATION (1:1250)



All new trees to be supported with stakes. All stakes should penetrate the soil to at least 60cm (2ft) deep. If the stake moves in the ground, it will not anchor the plant. The stakes should be one-third of the height of the tree.
Stakes should be inserted on the side of the prevailing wind so that the tree is blown away from the stake.
Attach the trees to the stakes with tree straps, with buckles for fastening and adjustment.
Use spacers to prevent the stem and stake rubbing against each other.

BLOCK PLAN (1:200)

C. 17/11/22: New tree planting location & notes added
B. 25/10/22: Pool building reduced in size
A. 30/09/22: Full update
P1. 04/07/22: Initial issue

• NEIL • REYNOLDS •
Salters Barn, Middle Street, Potterhanworth, Lincoln, LN4 2DR
tel: 01522 793006 e-mail: neil@xlarchitects.co.uk

client
MR & MRS DAYNES

project
New Swimming Pool Building and Holiday Let Unit

Plough Hill,
Potterhanworth, Lincoln

drawing title
SITE LAYOUTS

date	scale
June 2022	as shown @ A1

drawing number	revision
ST-525 / 01	C

APPENDIX 2

Groundsure Report & Historical Maps

Brownfield Consulting & Development
GD Pickles Ltd, registered in the UK: 09387115.
Biltons Farm, South Scarle Lane, Swinderby, Lincoln, LN6 9JA

Groundsure
LOCATION INTELLIGENCE

Enviro+Geo
Insight

Plough Hill, Potterhanworth Booths, LN4 2AU

Order Details

Date: 30/11/2022

Your ref: CMAPS-GDP-1075114-33420-301122

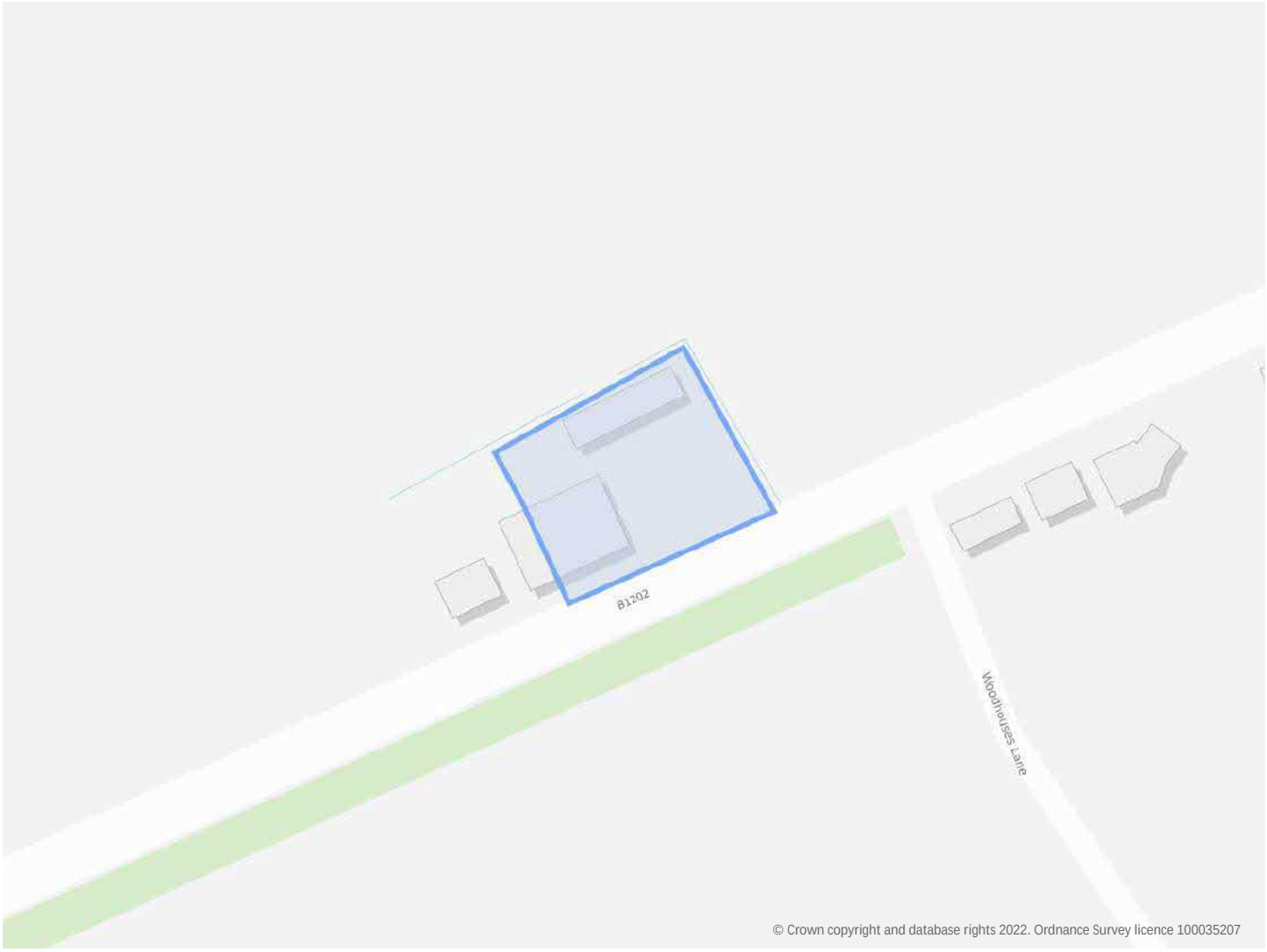
Our Ref: CMAPS-GDP-1075114-33420-301122EDRGEO

Site Details

Location: 506782 367665

Area: 0.26 ha

Authority: North Kesteven District Council



Contact us with any questions at:
info@groundsure.com
08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
14	1.1	Historical industrial land uses	0	0	3	0	-
15	1.2	Historical tanks	0	0	0	0	-
15	1.3	Historical energy features	0	0	0	0	-
15	1.4	Historical petrol stations	0	0	0	0	-
16	1.5	Historical garages	0	0	0	0	-
16	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
17	2.1	Historical industrial land uses	0	0	4	0	-
18	2.2	Historical tanks	0	0	0	0	-
18	2.3	Historical energy features	0	0	0	0	-
18	2.4	Historical petrol stations	0	0	0	0	-
18	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
19	3.1	Active or recent landfill	0	0	0	0	-
19	3.2	Historical landfill (BGS records)	0	0	0	0	-
19	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
19	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
19	3.5	Historical waste sites	0	0	0	0	-
20	3.6	Licensed waste sites	0	0	0	0	-
20	3.7	Waste exemptions	0	0	0	0	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
21	4.1	Recent industrial land uses	0	0	0	-	-
21	4.2	Current or recent petrol stations	0	0	0	0	-
22	4.3	Electricity cables	0	0	0	0	-
22	4.4	Gas pipelines	0	0	0	0	-
22	4.5	Sites determined as Contaminated Land	0	0	0	0	-

22	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
22	4.7	Regulated explosive sites	0	0	0	0	-
23	4.8	Hazardous substance storage/usage	0	0	0	0	-
23	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
23	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
23	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
23	4.12	Radioactive Substance Authorisations	0	0	0	0	-
24	4.13	Licensed Discharges to controlled waters	0	0	0	1	-
24	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
24	4.15	Pollutant release to public sewer	0	0	0	0	-
24	4.16	List 1 Dangerous Substances	0	0	0	0	-
25	4.17	List 2 Dangerous Substances	0	0	0	0	-
25	4.18	Pollution Incidents (EA/NRW)	0	0	0	0	-
25	4.19	Pollution inventory substances	0	0	0	0	-
25	4.20	Pollution inventory waste transfers	0	0	0	0	-
25	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
26	5.1	Superficial aquifer	Identified (within 500m)				
28	5.2	Bedrock aquifer	Identified (within 500m)				
29	5.3	Groundwater vulnerability	Identified (within 50m)				
30	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
30	5.5	Groundwater vulnerability- local information	None (within 0m)				
31	5.6	Groundwater abstractions	0	0	0	0	0
32	5.7	Surface water abstractions	0	0	0	2	9
34	5.8	Potable abstractions	0	0	0	0	0
34	5.9	Source Protection Zones	1	0	0	1	-
35	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
36	6.1	Water Network (OS MasterMap)	0	3	0	-	-

37	6.2	Surface water features	0	2	0	-	-
37	6.3	WFD Surface water body catchments	1	-	-	-	-
38	6.4	WFD Surface water bodies	0	0	0	-	-
38	6.5	WFD Groundwater bodies	0	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
39	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
39	7.2	Historical Flood Events	0	0	0	-	-
39	7.3	Flood Defences	0	0	0	-	-
40	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
40	7.5	Flood Storage Areas	0	0	0	-	-
41	7.6	Flood Zone 2	None (within 50m)				
41	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
42	8.1	Surface water flooding	1 in 30 year, 0.1m - 0.3m (within 50m)				
Page	Section	Groundwater flooding					
44	9.1	Groundwater flooding	Moderate (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
45	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	1
46	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
46	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
46	10.4	Special Protection Areas (SPA)	0	0	0	0	0
46	10.5	National Nature Reserves (NNR)	0	0	0	0	0
47	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
47	10.7	Designated Ancient Woodland	0	0	0	1	7
47	10.8	Biosphere Reserves	0	0	0	0	0
48	10.9	Forest Parks	0	0	0	0	0
48	10.10	Marine Conservation Zones	0	0	0	0	0
48	10.11	Green Belt	0	0	0	0	0
48	10.12	Proposed Ramsar sites	0	0	0	0	0

48	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
49	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
49	10.15	Nitrate Sensitive Areas	0	0	0	0	0
49	10.16	Nitrate Vulnerable Zones	1	0	0	0	3
50	10.17	SSSI Impact Risk Zones	1	-	-	-	-
51	10.18	SSSI Units	0	0	0	0	1
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
52	11.1	World Heritage Sites	0	0	0	-	-
52	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
52	11.3	National Parks	0	0	0	-	-
52	11.4	Listed Buildings	0	0	0	-	-
53	11.5	Conservation Areas	0	0	0	-	-
53	11.6	Scheduled Ancient Monuments	0	0	0	-	-
53	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
54	12.1	Agricultural Land Classification	Grade 3 (within 250m)				
55	12.2	Open Access Land	0	0	0	-	-
55	12.3	Tree Felling Licences	0	0	0	-	-
55	12.4	Environmental Stewardship Schemes	0	1	2	-	-
56	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
57	13.1	Priority Habitat Inventory	0	0	0	-	-
57	13.2	Habitat Networks	0	0	0	-	-
57	13.3	Open Mosaic Habitat	0	0	0	-	-
57	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
58	14.1	10k Availability	Identified (within 500m)				
59	14.2	Artificial and made ground (10k)	0	0	0	0	-
60	14.3	Superficial geology (10k)	0	0	0	0	-

60	14.4	Landslip (10k)	0	0	0	0	-
61	14.5	Bedrock geology (10k)	0	0	0	0	-
61	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
62	15.1	50k Availability	Identified (within 500m)				
63	15.2	Artificial and made ground (50k)	0	0	0	0	-
63	15.3	Artificial ground permeability (50k)	0	0	-	-	-
64	15.4	Superficial geology (50k)	1	0	1	0	-
65	15.5	Superficial permeability (50k)	Identified (within 50m)				
65	15.6	Landslip (50k)	0	0	0	0	-
65	15.7	Landslip permeability (50k)	None (within 50m)				
66	15.8	Bedrock geology (50k)	1	0	0	0	-
67	15.9	Bedrock permeability (50k)	Identified (within 50m)				
67	15.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
68	16.1	BGS Boreholes	1	0	0	-	-
Page	Section	Natural ground subsidence					
69	17.1	Shrink swell clays	Negligible (within 50m)				
70	17.2	Running sands	Very low (within 50m)				
71	17.3	Compressible deposits	Negligible (within 50m)				
72	17.4	Collapsible deposits	Very low (within 50m)				
73	17.5	Landslides	Very low (within 50m)				
74	17.6	Ground dissolution of soluble rocks	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
75	18.1	Natural cavities	0	0	0	0	-
76	18.2	BritPits	0	0	1	0	-
76	18.3	Surface ground workings	0	0	4	-	-
76	18.4	Underground workings	0	0	0	0	0
77	18.5	Historical Mineral Planning Areas	0	0	0	0	-

77	18.6	Non-coal mining	0	0	0	0	0
77	18.7	Mining cavities	0	0	0	0	0
77	18.8	JPB mining areas	None (within 0m)				
77	18.9	Coal mining	None (within 0m)				
78	18.10	Brine areas	None (within 0m)				
78	18.11	Gypsum areas	None (within 0m)				
78	18.12	Tin mining	None (within 0m)				
78	18.13	Clay mining	None (within 0m)				

Page	Section	Radon	
79	19.1	Radon	Less than 1% (within 0m)

Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
80	20.1	BGS Estimated Background Soil Chemistry	1	0	-	-	-
80	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
80	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-

Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
81	21.1	Underground railways (London)	0	0	0	-	-
81	21.2	Underground railways (Non-London)	0	0	0	-	-
81	21.3	Railway tunnels	0	0	0	-	-
81	21.4	Historical railway and tunnel features	0	0	0	-	-
81	21.5	Royal Mail tunnels	0	0	0	-	-
82	21.6	Historical railways	0	0	0	-	-
82	21.7	Railways	0	0	0	-	-
82	21.8	Crossrail 1	0	0	0	0	-
82	21.9	Crossrail 2	0	0	0	0	-
82	21.10	HS2	0	0	0	0	-

Recent aerial photograph

Capture Date: 31/05/2021

Site Area: 0.26ha

Recent site history - 2018 aerial photograph

Capture Date: 05/05/2018

Site Area: 0.26ha

Recent site history - 2015 aerial photograph

Capture Date: 18/07/2015

Site Area: 0.26ha

Recent site history - 2006 aerial photograph

Capture Date: 21/09/2006

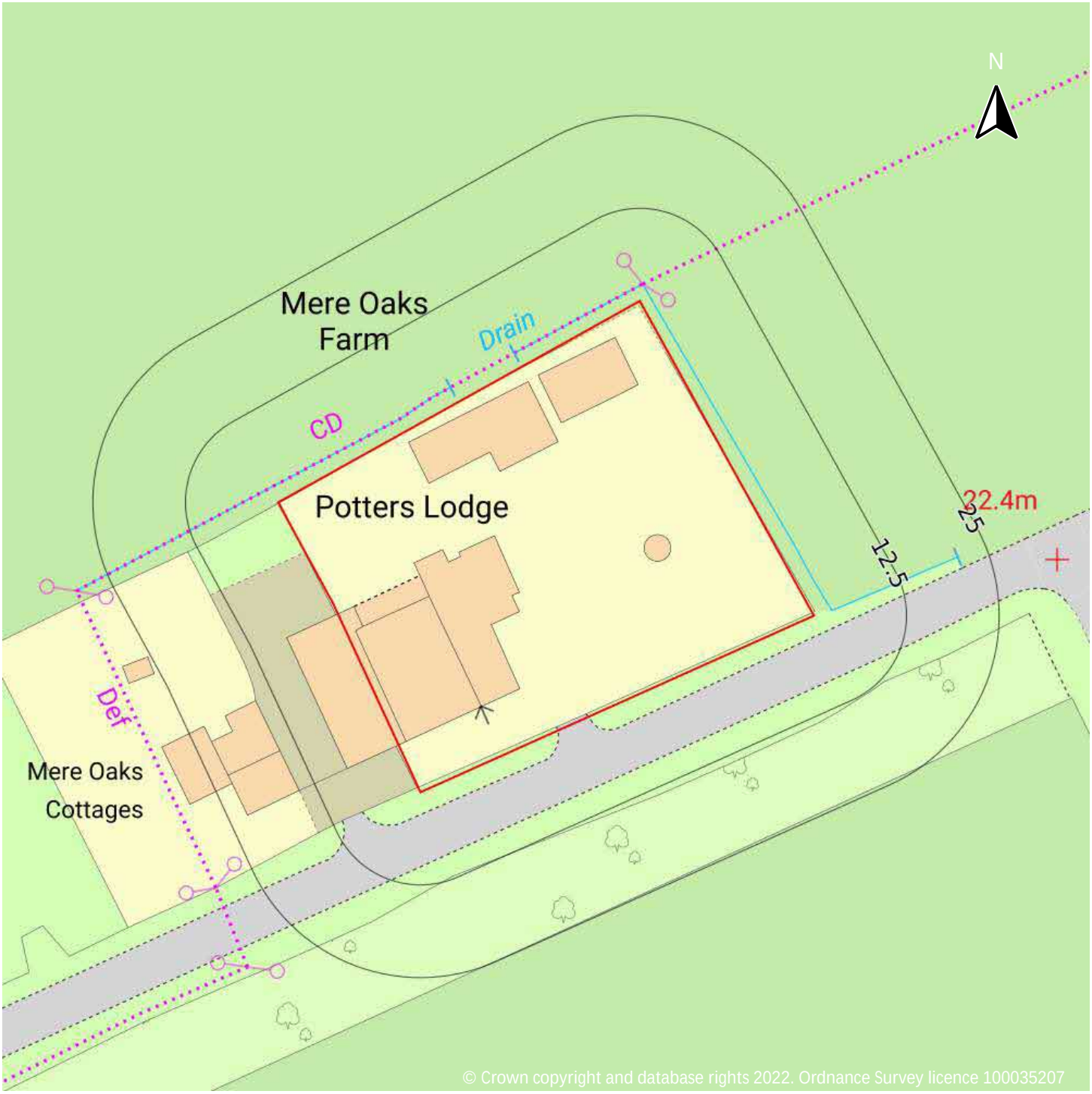
Site Area: 0.26ha

Recent site history - 1999 aerial photograph

Capture Date: 05/05/1999

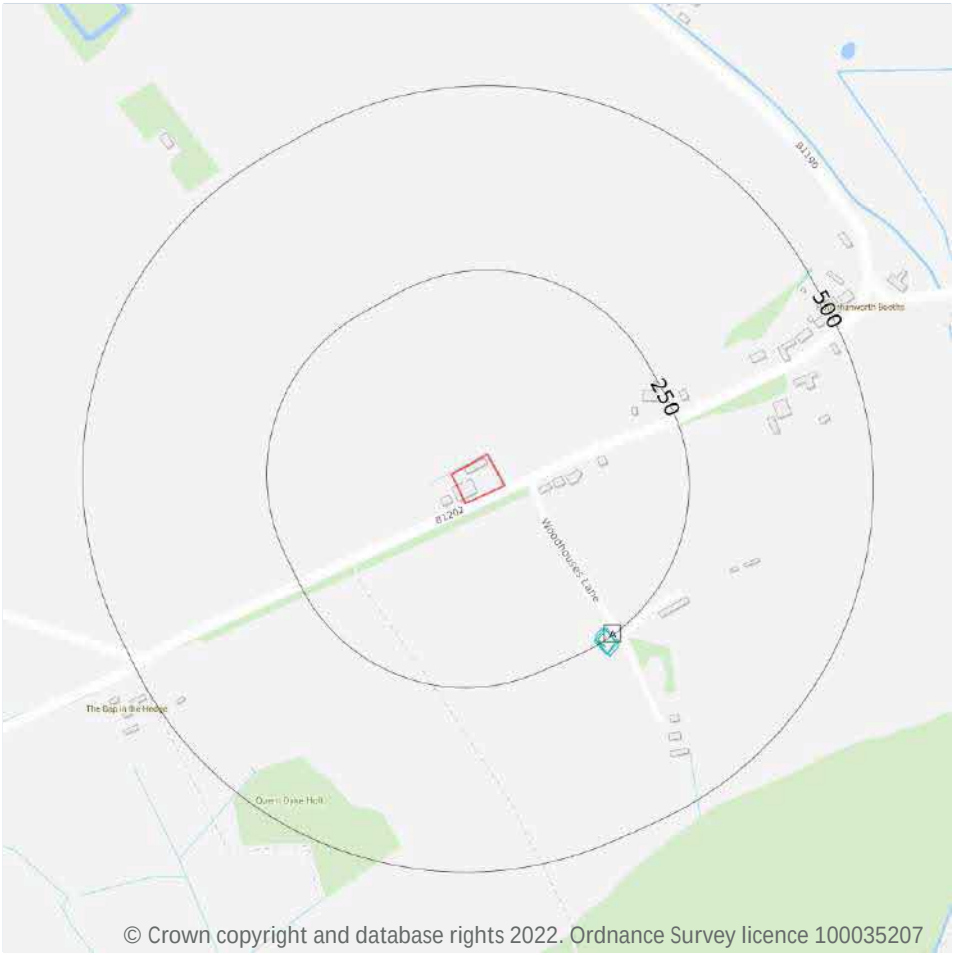
Site Area: 0.26ha

OS MasterMap site plan



Site Area: 0.26ha

1 Past land use



Site Outline

Search buffers in metres (m)

Historical industrial land uses

1.1 Historical industrial land uses

Records within 500m	3

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on page 14

ID	Location	Land use	Dates present	Group ID
A	235m SE	Unspecified Pit	1904 - 1946	2038718

ID	Location	Land use	Dates present	Group ID
A	236m SE	Unspecified Pit	1951	2031346
A	241m SE	Old Gravel Pit	1887	2010107

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	0

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	0

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	0

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	0

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

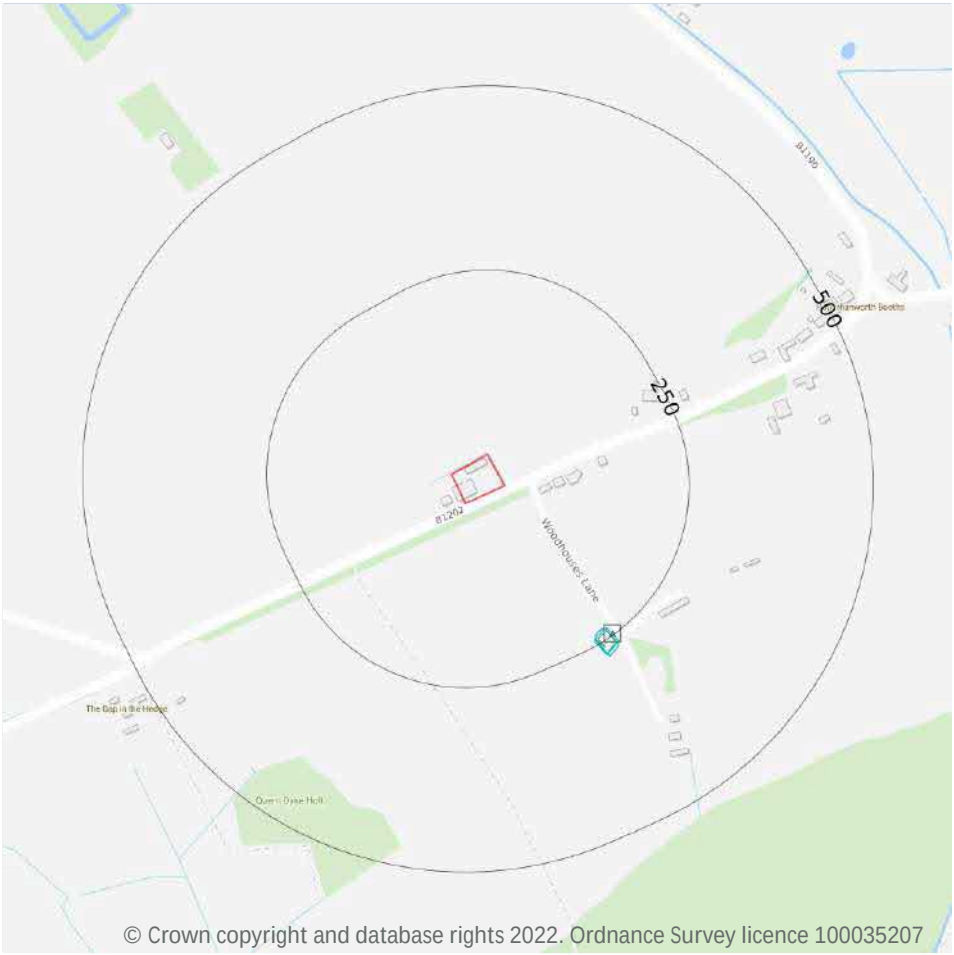
1.6 Historical military land

Records within 500m	0

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

This data is sourced from Ordnance Survey / Groundsure / other sources.

2 Past land use - un-grouped



Site Outline

Search buffers in metres (m)

Historical industrial land uses

2.1 Historical industrial land uses

Records within 500m	4

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on page 17

ID	Location	Land Use	Date	Group ID
A	235m SE	Unspecified Pit	1946	2038718
A	235m SE	Unspecified Pit	1904	2038718
A	236m SE	Unspecified Pit	1951	2031346

ID	Location	Land Use	Date	Group ID
A	241m SE	Old Gravel Pit	1887	2010107

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	0

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	0

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	0

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m	0

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill

3.1 Active or recent landfill

Records within 500m	0

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.2 Historical landfill (BGS records)

Records within 500m	0

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m	0

Landfill sites identified from Local Authority records and high detail historical mapping.

This data is sourced from the Ordnance Survey/Groundsure and Local Authority records.

3.4 Historical landfill (EA/NRW records)

Records within 500m	0

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.5 Historical waste sites

Records within 500m	0

Waste site records derived from Local Authority planning records and high detail historical mapping.

This data is sourced from Ordnance Survey/Groundsure and Local Authority records.

3.6 Licensed waste sites

Records within 500m	0

Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

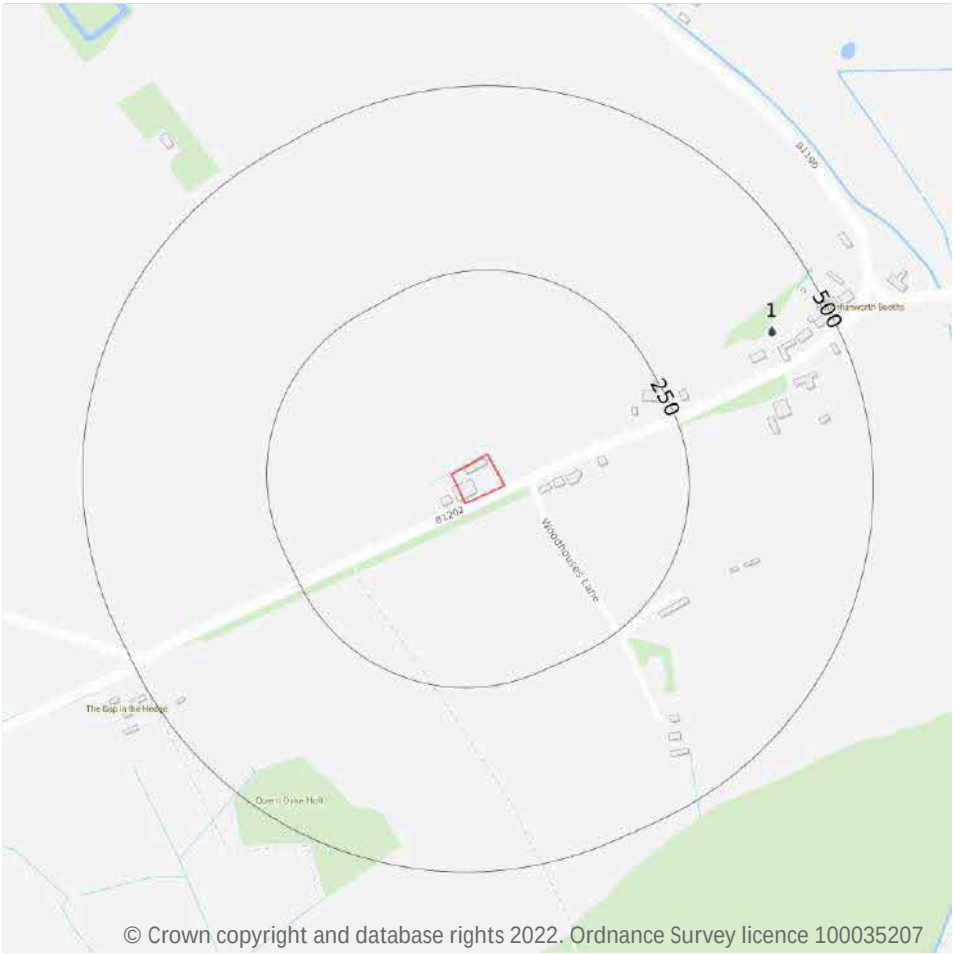
3.7 Waste exemptions

Records within 500m	0

Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

This data is sourced from the Environment Agency and Natural Resources Wales.

4 Current industrial land use



Site Outline

Search buffers in metres (m)

Licensed Discharges to controlled waters

4.1 Recent industrial land uses

Records within 250m	0

Current potentially contaminative industrial sites.

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	0

Open, closed, under development and obsolete petrol stations.

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	0

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m	0

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m	0

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m	0

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	0

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.10 Licensed industrial activities (Part A(1))

Records within 500m	0

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.11 Licensed pollutant release (Part A(2)/B)

Records within 500m	0

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m	0

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.13 Licensed Discharges to controlled waters

Records within 500m	1

Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991.

Features are displayed on the Current industrial land use map on page 21

ID	Location	Address	Details	
1	417m NE	THE COTTAGES, PLOUGH HILL, POTTERHANWORTH BOOTHS, LINCOLNSHIRE, LN4 2UA	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: EPRVB3994NJ Permit Version: 1 Receiving Water: GROUNDWATER	Status: NEW ISSUED UNDER EPR 2010 Issue date: 06/12/2021 Effective Date: 06/12/2021 Revocation Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

4.14 Pollutant release to surface waters (Red List)

Records within 500m	0

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.15 Pollutant release to public sewer

Records within 500m	0

Discharges of Special Category Effluents to the public sewer.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.16 List 1 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.17 List 2 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.18 Pollution Incidents (EA/NRW)

Records within 500m	0

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.19 Pollution inventory substances

Records within 500m	0

The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.20 Pollution inventory waste transfers

Records within 500m	0

The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

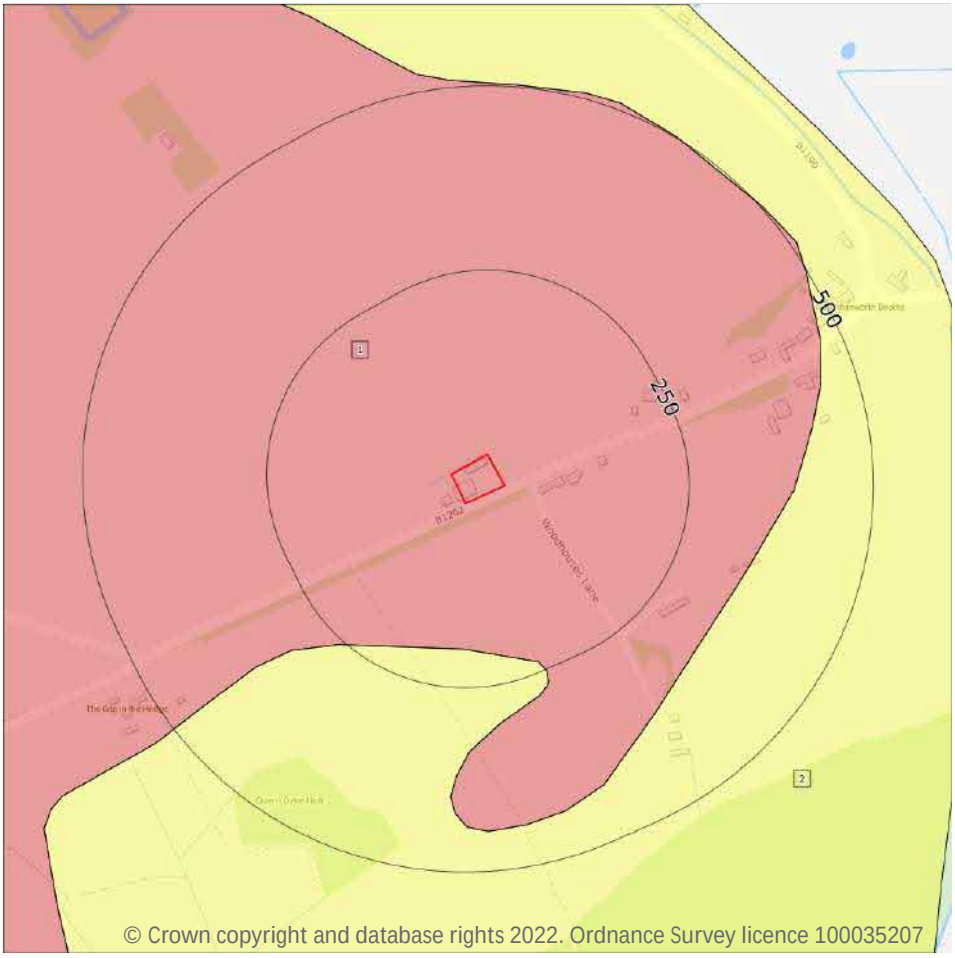
4.21 Pollution inventory radioactive waste

Records within 500m	0

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

5 Hydrogeology - Superficial aquifer



Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive
- Unknown

5.1 Superficial aquifer

Records within 500m	2

Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on page 26

ID	Location	Designation	Description
1	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
2	198m S	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

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Bedrock aquifer

Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive

5.2 Bedrock aquifer

Records within 500m	1

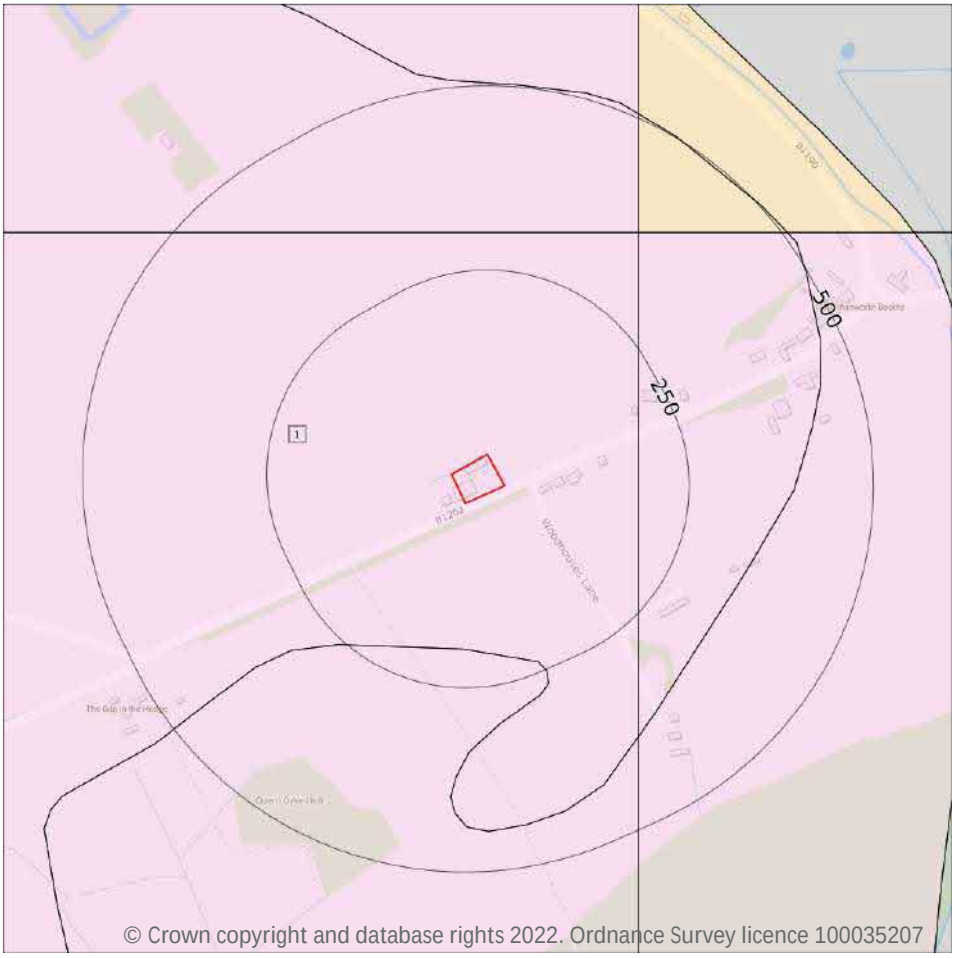
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on page 28

ID	Location	Designation	Description
1	On site	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Groundwater vulnerability



Site Outline

Search buffers in metres (m)

Superficial vulnerability
- Principal superficial aquifer, high vulnerability
- Secondary superficial aquifer, high vulnerability
- Principal superficial aquifer, medium vulnerability
- Secondary superficial aquifer, medium vulnerability
- Principal superficial aquifer, low vulnerability
- Secondary superficial aquifer, low vulnerability

Bedrock vulnerability
- Principal bedrock aquifer, high vulnerability
- Secondary bedrock aquifer, high vulnerability
- Principal bedrock aquifer, medium vulnerability
- Secondary bedrock aquifer, medium vulnerability
- Principal bedrock aquifer, low vulnerability
- Secondary bedrock aquifer, low vulnerability

Other information
- Unproductive aquifer
- Soluble rock risk
- Local information

5.3 Groundwater vulnerability

Records within 50m	1

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Features are displayed on the Groundwater vulnerability map on page 29

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Secondary superficial aquifer - Medium Vulnerability Combined classification: Unproductive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: 40-70% Dilution value: <300mm/year	Vulnerability: Medium Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: High	Vulnerability: Unproductive Aquifer type: Unproductive Flow mechanism: Well connected fractures

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

5.4 Groundwater vulnerability- soluble rock risk

Records on site	0

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

This data is sourced from the British Geological Survey and the Environment Agency.

5.5 Groundwater vulnerability- local information

Records on site	0

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk.

This data is sourced from the British Geological Survey and the Environment Agency.

Abstractions and Source Protection Zones

Site Outline

Search buffers in metres (m)

- Source Protection Zone 1 — Inner catchment
- Source Protection Zone 2 — Outer catchment
- Source Protection Zone 3 — Total catchment
- Source Protection Zone 4 — Zone of Special Interest
- Source Protection Zone 1c — Inner catchment - confined aquifer
- Source Protection Zone 2c — Outer catchment - confined aquifer
- Source Protection Zone 3c — Total catchment - confined aquifer
- Drinking water abstraction licences
- Drinking water abstraction licences — Polygon features
- Drinking water abstraction licences — Linear features
- Groundwater abstraction licence (point)
- Groundwater abstraction licence (area)
- Groundwater abstraction licence (linear)
- Surface Water Abstractions (point)
- Surface Water Abstractions (area)
- Surface Water Abstractions (linear)

5.6 Groundwater abstractions

Records within 2000m	0

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.7 Surface water abstractions

Records within 2000m	11

Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on page 31

ID	Location	Details	
A	481m E	Status: Historical Licence No: 4/30/09/*S/0110 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: DRAINS AND DYKES Data Type: Poly4 Name: Beeswax Farming (Rainbow) Limited Easting: 507300 Northing: 369200	Annual Volume (m^3): 227303 Max Daily Volume (m^3): 6819 Original Application No: - Original Start Date: 01/03/1983 Expiry Date: - Issue No: 102 Version Start Date: 29/10/2012 Version End Date: -
A	481m E	Status: Historical Licence No: 4/30/09/*S/0110 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: DRAINS & DYKES AT NOCTON & POTTERHANWORTH FENS Data Type: Poly4 Name: Beeswax Farming (Rainbow) Limited Easting: 507300 Northing: 369200	Annual Volume (m^3): 227303 Max Daily Volume (m^3): 6819 Original Application No: - Original Start Date: 01/03/1983 Expiry Date: - Issue No: 103 Version Start Date: 01/04/2015 Version End Date: -
-	946m E	Status: Active Licence No: 4/30/09/*S/0117 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: THE UPRIGHT DR - BRANSTON Data Type: Point Name: F G BATTLE & SONS LTD Easting: 507700 Northing: 368000	Annual Volume (m^3): 36,368 Max Daily Volume (m^3): 1,137 Original Application No: - Original Start Date: 01/07/1984 Expiry Date: - Issue No: 100 Version Start Date: 01/06/1992 Version End Date: -
-	982m SE	Status: Active Licence No: 4/30/09/*S/0117 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: FOXES DRAIN POTTERHANWORTH FEN Data Type: Line Name: F G BATTLE & SONS LTD Easting: 507300 Northing: 366800	Annual Volume (m^3): 36,368 Max Daily Volume (m^3): 1,137 Original Application No: - Original Start Date: 01/07/1984 Expiry Date: - Issue No: 100 Version Start Date: 01/06/1992 Version End Date: -

ID	Location	Details	
-	1304m E	Status: Active Licence No: 4/30/09/*S/0117 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: THE HORSE DIKE DR.POTTERHANWOR Data Type: Point Name: F G BATTLE & SONS LTD Easting: 508100 Northing: 367900	Annual Volume (m^3): 36,368 Max Daily Volume (m^3): 1,137 Original Application No: - Original Start Date: 01/07/1984 Expiry Date: - Issue No: 100 Version Start Date: 01/06/1992 Version End Date: -
-	1523m E	Status: Active Licence No: 4/30/09/*S/0117 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: HORSESHOE DR POTTERHANWORTH FN Data Type: Line Name: F G BATTLE & SONS LTD Easting: 508300 Northing: 367300	Annual Volume (m^3): 36,368 Max Daily Volume (m^3): 1,137 Original Application No: - Original Start Date: 01/07/1984 Expiry Date: - Issue No: 100 Version Start Date: 01/06/1992 Version End Date: -
-	1615m NE	Status: Active Licence No: 4/30/09/*S/0117 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: THE UPRIGHT DRAIN PART 2 Data Type: Point Name: F G BATTLE & SONS LTD Easting: 508300 Northing: 368300	Annual Volume (m^3): 36,368 Max Daily Volume (m^3): 1,137 Original Application No: - Original Start Date: 01/07/1984 Expiry Date: - Issue No: 100 Version Start Date: 01/06/1992 Version End Date: -
-	1679m NE	Status: Active Licence No: 4/30/09/*S/0129 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: BRANSTON SEWER DRAIN Data Type: Line Name: DAVID ARMSTRONG FARMS LTD Easting: 507690 Northing: 369120	Annual Volume (m^3): 54,552 Max Daily Volume (m^3): 1,818 Original Application No: NPS/WR/025154 Original Start Date: 01/05/1986 Expiry Date: - Issue No: 104 Version Start Date: 25/04/2017 Version End Date: -
-	1886m S	Status: Historical Licence No: 4/30/09/*S/0003 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: CARR DYKE WHOLE REACH NOCTON Data Type: Line Name: NOCTON FEN FARMS LTD Easting: 507250 Northing: 365810	Annual Volume (m^3): 68710 Max Daily Volume (m^3): 4364 Original Application No: - Original Start Date: 01/05/1966 Expiry Date: - Issue No: 101 Version Start Date: 01/04/2010 Version End Date: -

ID	Location	Details	
-	1891m S	Status: Historical Licence No: 4/30/09/*S/0003 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: CARR DYKE WHOLE REACH NOCTON Data Type: Line Name: Beeswax Farming (Rainbow) Limited Easting: 507274 Northing: 365811	Annual Volume (m^3): 68710 Max Daily Volume (m^3): 4364 Original Application No: - Original Start Date: 01/05/1966 Expiry Date: - Issue No: 103 Version Start Date: 01/04/2015 Version End Date: -
-	1895m S	Status: Historical Licence No: 4/30/09/*S/0003 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: CARR DYKE WHOLE REACH NOCTON Data Type: Line Name: NOCTON FARMS LTD Easting: 507250 Northing: 365800	Annual Volume (m^3): 68710 Max Daily Volume (m^3): 4364 Original Application No: - Original Start Date: 01/05/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/08/1997 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.8 Potable abstractions

Records within 2000m	0

Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.9 Source Protection Zones

Records within 500m	2

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

Features are displayed on the Abstractions and Source Protection Zones map on page 31

ID	Location	Type	Description
1	On site	3	Total catchment
2	355m NW	2	Outer catchment

This data is sourced from the Environment Agency and Natural Resources Wales.

5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

This data is sourced from the Environment Agency and Natural Resources Wales.

6 Hydrology

Site Outline

Search buffers in metres (m)

Water Network (OS MasterMap)

Surface water features (wider than 5m)

Surface water features (narrower than 5m)

WFD River, canal and surface water transfer water bodies

WFD Lake water bodies

WFD Transitional and coastal water bodies

WFD Surface water body catchments boundaries

WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m	3

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

Features are displayed on the Hydrology map on page 36

ID	Location	Type of water feature	Ground level	Permanence	Name
A	1m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
A	1m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
A	2m N	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	2

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

Features are displayed on the Hydrology map on page 36

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	1

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on page 36

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
A	On site	River	Car Dyke North and Delph System	GB105030056235	Witham Lower	Witham

This data is sourced from the Environment Agency and Natural Resources Wales.

6.4 WFD Surface water bodies

Records identified	1

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each water body listed.

Features are displayed on the Hydrology map on page 36

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	606m NE	River	Car Dyke North and Delph System	GB105030056235	Bad	Fail	Bad	2019

This data is sourced from the Environment Agency and Natural Resources Wales.

6.5 WFD Groundwater bodies

Records on site	0

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

This data is sourced from the Environment Agency and Natural Resources Wales.

7 River and coastal flooding

7.1 Risk of flooding from rivers and the sea

Records within 50m	0

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m within the Risk of Flooding from Rivers and Sea (RoFRaS)/Flood Risk Assessment Wales (FRAW) models. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition. The risk categories for RoFRaS for rivers and the sea and FRAW for rivers are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance). The risk categories for FRAW for the sea are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 200 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 200 chance) or High (greater than or equal to 1 in 30 chance).

This data is sourced from the Environment Agency and Natural Resources Wales.

7.2 Historical Flood Events

Records within 250m	0

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.3 Flood Defences

Records within 250m	0

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.4 Areas Benefiting from Flood Defences

Records within 250m	0

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.5 Flood Storage Areas

Records within 250m	0

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

This data is sourced from the Environment Agency and Natural Resources Wales.

River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m	0

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.7 Flood Zone 3

Records within 50m	0

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

8 Surface water flooding

Site Outline

Search buffers in metres (m)

1 in 1000 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

8.1 Surface water flooding

Highest risk on site	1 in 30 year, 0.1m - 0.3m
Highest risk within 50m	1 in 30 year, 0.1m - 0.3m

Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

Features are displayed on the Surface water flooding map on page 42

The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Between 0.3m and 1.0m
1 in 250 year	Between 0.3m and 1.0m
1 in 100 year	Between 0.3m and 1.0m
1 in 30 year	Between 0.1m and 0.3m

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding

Site Outline

Search buffers in metres (m)

High

Moderate - High

Moderate

Low

Negligible

9.1 Groundwater flooding

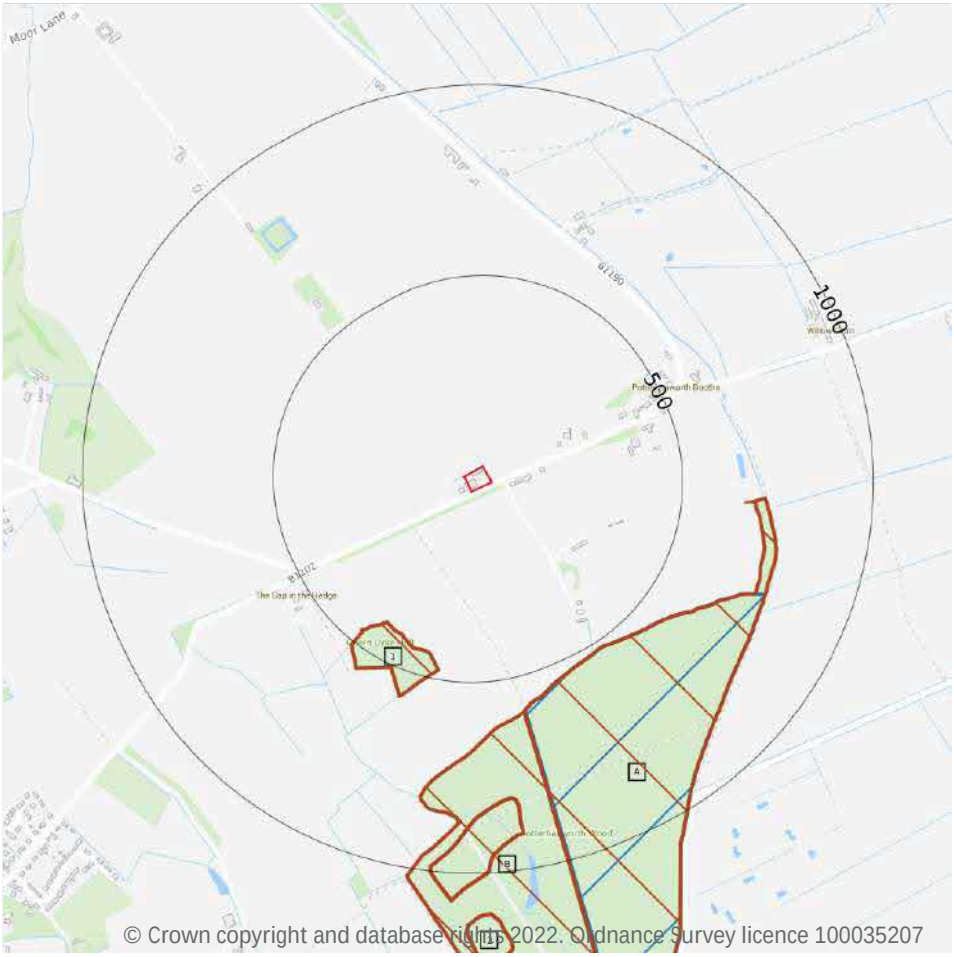
Highest risk on site	Moderate
Highest risk within 50m	Moderate

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on page 44

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



Site Outline

Search buffers in metres (m)

Sites of Special Scientific Interest (SSSI)

Designated Ancient Woodland

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	1

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

Features are displayed on the Environmental designations map on page 45

ID	Location	Name	Data source
A	519m SE	Potterhanworth Wood	Natural England

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	0

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.3 Special Areas of Conservation (SAC)

Records within 2000m	0

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.4 Special Protection Areas (SPA)

Records within 2000m	0

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.5 National Nature Reserves (NNR)

Records within 2000m	0

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.6 Local Nature Reserves (LNR)

Records within 2000m	0

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.7 Designated Ancient Woodland

Records within 2000m	8

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

Features are displayed on the Environmental designations map on page 45

ID	Location	Name	Woodland Type
1	407m SW	Unknown	Ancient & Semi-Natural Woodland
A	519m SE	Burnt Wood	Ancient & Semi-Natural Woodland
B	593m S	Burnt Wood	Ancient Replanted Woodland
B	811m S	Burnt Wood	Ancient & Semi-Natural Woodland
2	1109m S	Burnt Wood	Ancient & Semi-Natural Woodland
-	1286m S	Burnt Wood	Ancient Replanted Woodland
-	1827m S	Bottom Barff	Ancient Replanted Woodland
-	1904m S	Bottom Barff	Ancient & Semi-Natural Woodland

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.8 Biosphere Reserves

Records within 2000m	0

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.9 Forest Parks

Records within 2000m	0

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m	0

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.11 Green Belt

Records within 2000m	0

Areas designated to prevent urban sprawl by keeping land permanently open.

This data is sourced from the Ministry of Housing, Communities and Local Government.

10.12 Proposed Ramsar sites

Records within 2000m	0

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m	0

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

This data is sourced from Natural England and Natural Resources Wales.

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m	0

Special Protection Areas (SPAs) are areas designated (or 'classified') under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m	0

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

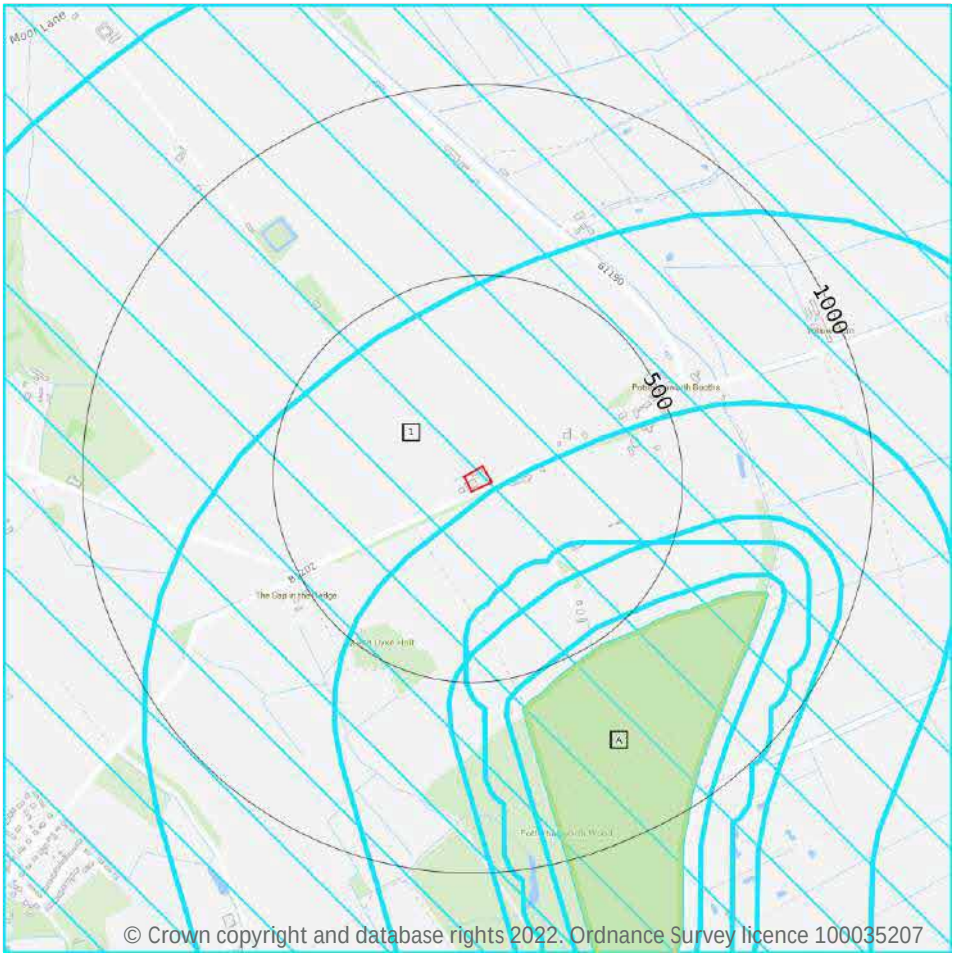
Records within 2000m	4

Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

Location	Name	Type	NVZ ID	Status
On site	Lower Witham NVZ	Surface Water	375	Existing
848m NW	Lincolnshire Limestone	Groundwater	69	Existing
1651m S	Lower Witham NVZ	Surface Water	375	Existing
1714m S	Lincolnshire Limestone	Groundwater	69	Existing

This data is sourced from Natural England and Natural Resources Wales.

SSSI Impact Zones and Units



Site Outline

Search buffers in metres (m)

SSSI Impact Risk Zones

SSSI Units

- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

10.17 SSSI Impact Risk Zones

Records on site	1

Developed to allow rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

Features are displayed on the SSSI Impact Zones and Units map on page 50

ID	Location	Type of developments requiring consultation
1	On site	Infrastructure - Pipelines, pylons and overhead cables. any transport proposal including road, rail and by water (excluding routine maintenance). airports, helipads and other aviation proposals. Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, review of minerals permissions (romp), extensions, variations to conditions etc. oil & gas exploration/extraction. Residential - Residential development of 100 units or more. Rural residential - Any residential development of 50 or more houses outside existing settlements/urban areas. Air pollution - Any industrial/agricultural development that could cause air pollution (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 200m², manure stores > 250t). Combustion - General combustion processes >20mw energy input. incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion. Waste - Landfill. incl: inert landfill, non-hazardous landfill, hazardous landfill. Composting - Any composting proposal with more than 500 tonnes maximum annual operational throughput. incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management. Water supply - Large infrastructure such as warehousing / industry where net additional gross internal floorspace is > 1,000m² or any development needing its own water supply .

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	1

Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

Features are displayed on the SSSI Impact Zones and Units map on page 50

ID: A
Location: 519m SE
SSSI name: Potterhanworth Wood
Unit name: Potterhanworth Wood
Broad habitat: Broadleaved, Mixed And Yew Woodland - Lowland
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
Lowland mixed deciduous woodland	Favourable	06/10/2009

This data is sourced from Natural England and Natural Resources Wales.

11 Visual and cultural designations

11.1 World Heritage Sites

Records within 250m	0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.2 Area of Outstanding Natural Beauty

Records within 250m	0

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.3 National Parks

Records within 250m	0

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.

11.4 Listed Buildings

Records within 250m	0

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.5 Conservation Areas

Records within 250m	0

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.6 Scheduled Ancient Monuments

Records within 250m	0

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

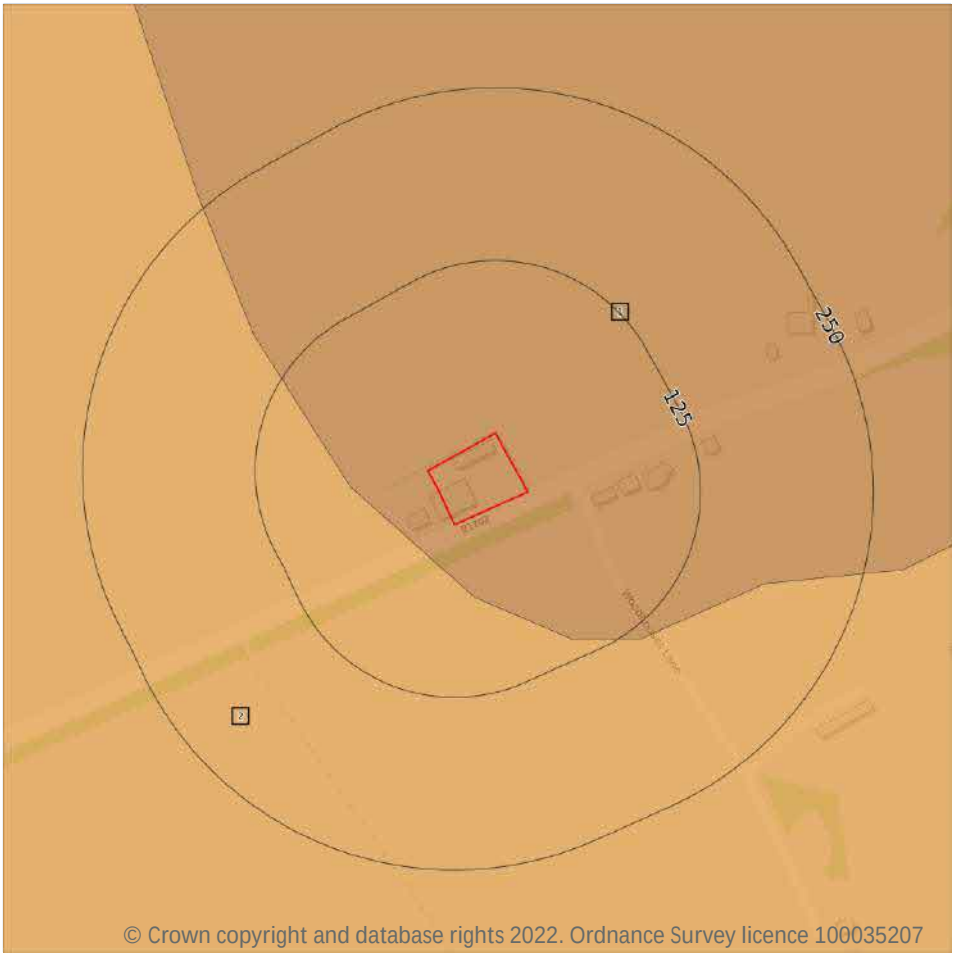
11.7 Registered Parks and Gardens

Records within 250m	0

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

12 Agricultural designations



Site Outline

Search buffers in metres (m)

- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Non-agricultural land
- Urban land
- Exclusion land
- Tree felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m	2

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on page 54

ID	Location	Classification	Description
1	On site	Grade 2	Very good quality agricultural land. Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.
2	30m SW	Grade 3	Good to moderate quality agricultural land. Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.

This data is sourced from Natural England.

12.2 Open Access Land

Records within 250m	0

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

This data is sourced from Natural England and Natural Resources Wales.

12.3 Tree Felling Licences

Records within 250m	0

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	3

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. The schemes identified may be historical schemes that have now expired, or may still be active.

Location	Reference	Scheme	Start Date	End date
25m SE	AG00292497	Entry Level plus Higher Level Stewardship	01/05/2009	30/04/2021

Location	Reference	Scheme	Start Date	End date
57m E	AG00379208	Entry Level plus Higher Level Stewardship	01/07/2012	30/06/2022
232m NW	AG00292497	Entry Level plus Higher Level Stewardship	01/05/2009	30/04/2021

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m	0

Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

This data is sourced from Natural England.

13 Habitat designations

13.1 Priority Habitat Inventory

Records within 250m	0

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	0

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m	0

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

This data is sourced from Natural England.

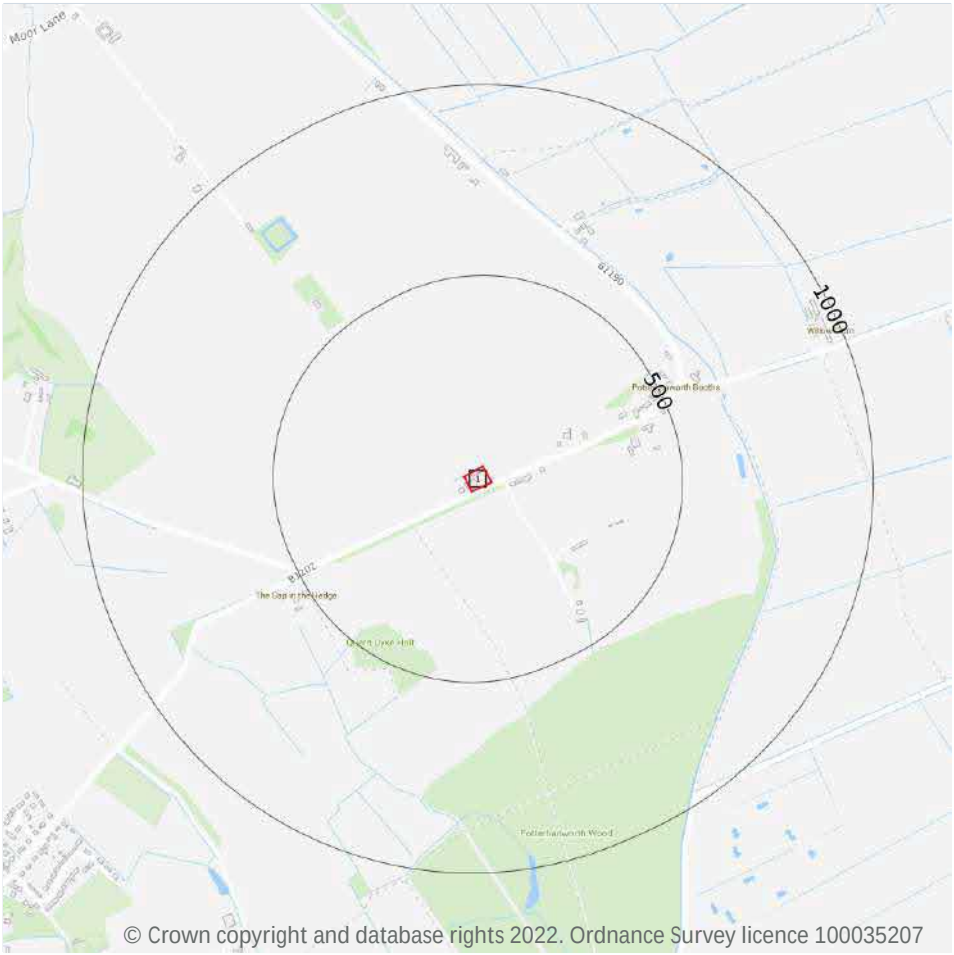
13.4 Limestone Pavement Orders

Records within 250m	0

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.

14 Geology 1:10,000 scale - Availability



Site Outline

Search buffers in metres (m)

Full coverage

Partial coverage

No coverage

14.1 10k Availability

Records within 500m	1

An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on page 58

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	No coverage	No coverage	No coverage	No coverage	NoCov

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Artificial and made ground

14.2 Artificial and made ground (10k)

Records within 500m	0

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial

14.3 Superficial geology (10k)

Records within 500m	0

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

This data is sourced from the British Geological Survey.

14.4 Landslip (10k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock

14.5 Bedrock geology (10k)

Records within 500m	0

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

This data is sourced from the British Geological Survey.

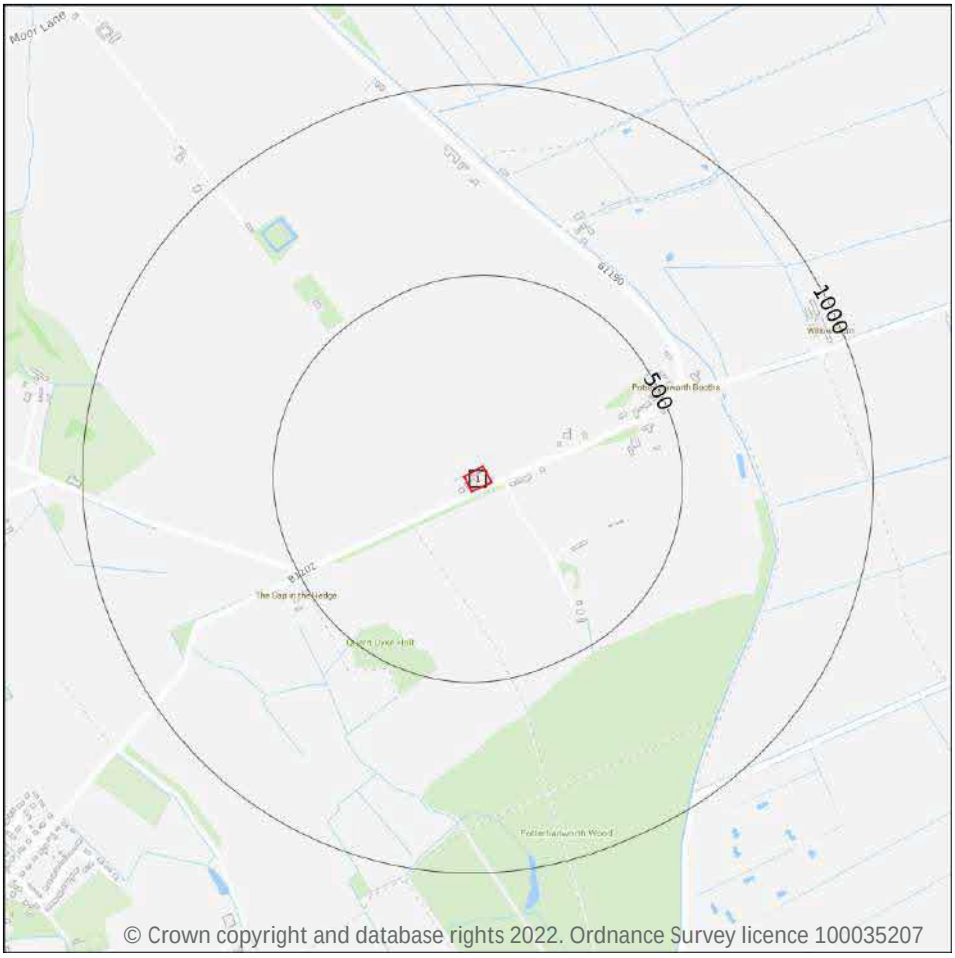
14.6 Bedrock faults and other linear features (10k)

Records within 500m	0

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.

15 Geology 1:50,000 scale - Availability



Site Outline

Search buffers in metres (m)

Geological map tile

15.1 50k Availability

Records within 500m	1

An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on page 62

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	No coverage	EW114_lincoln_v4

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Artificial and made ground

15.2 Artificial and made ground (50k)

Records within 500m	0

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

This data is sourced from the British Geological Survey.

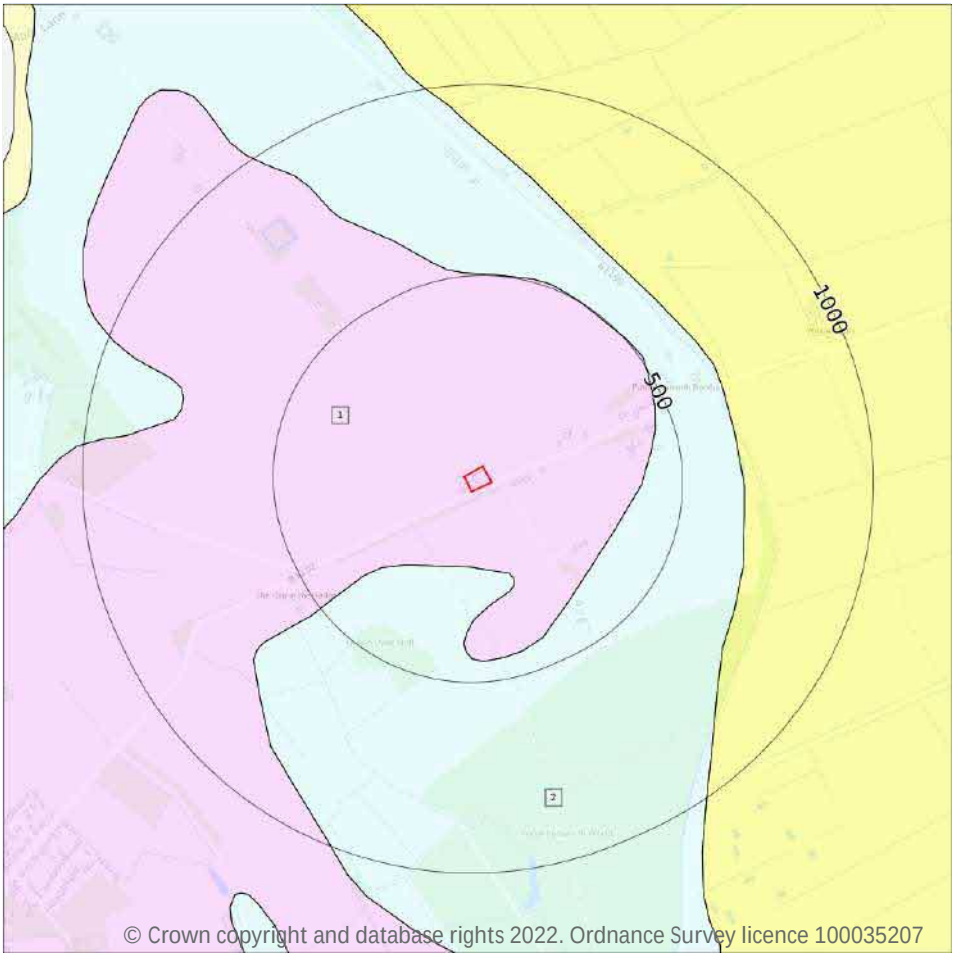
15.3 Artificial ground permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

Superficial geology (50k)
Please see table for more details.

15.4 Superficial geology (50k)

Records within 500m	2

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:50,000 scale - Superficial map on page 64

ID	Location	LEX Code	Description	Rock description
1	On site	GFSMP-XSV	GLACIOFLUVIAL SHEET DEPOSITS, MID PLEISTOCENE	SAND AND GRAVEL
2	198m S	TILMP-DMTN	TILL, MID PLEISTOCENE	DIAMICTON

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	1

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	Intergranular	Very High	High

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

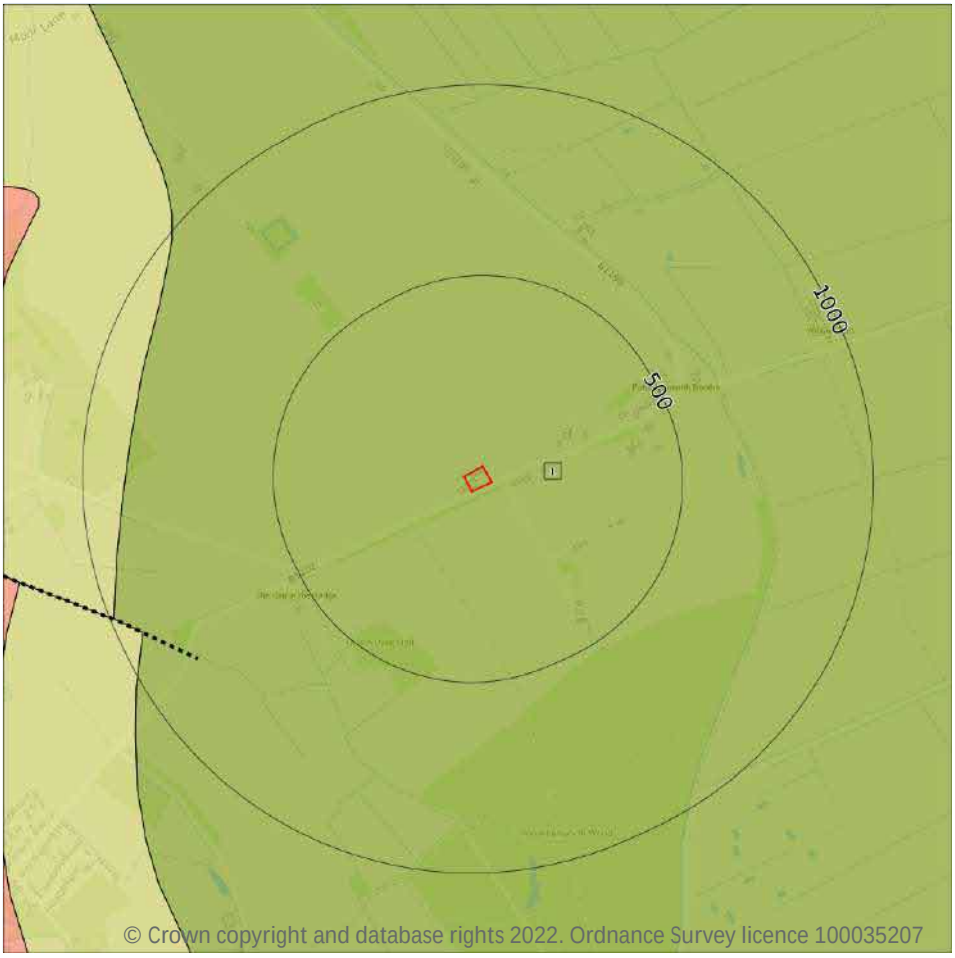
15.7 Landslip permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

Bedrock geology (50k)
Please see table for more details.

15.8 Bedrock geology (50k)

Records within 500m	1

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on page 66

ID	Location	LEX Code	Description	Rock age
1	On site	OXC-MDST	OXFORD CLAY FORMATION - MUDSTONE	CALLOVIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	1

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	Fracture	Low	Very Low

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m	0

Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.

16 Boreholes

Site Outline

Search buffers in metres (m)

Confidential

0 - 10m

10 - 30m

30m+

Unknown

16.1 BGS Boreholes

Records within 250m	1

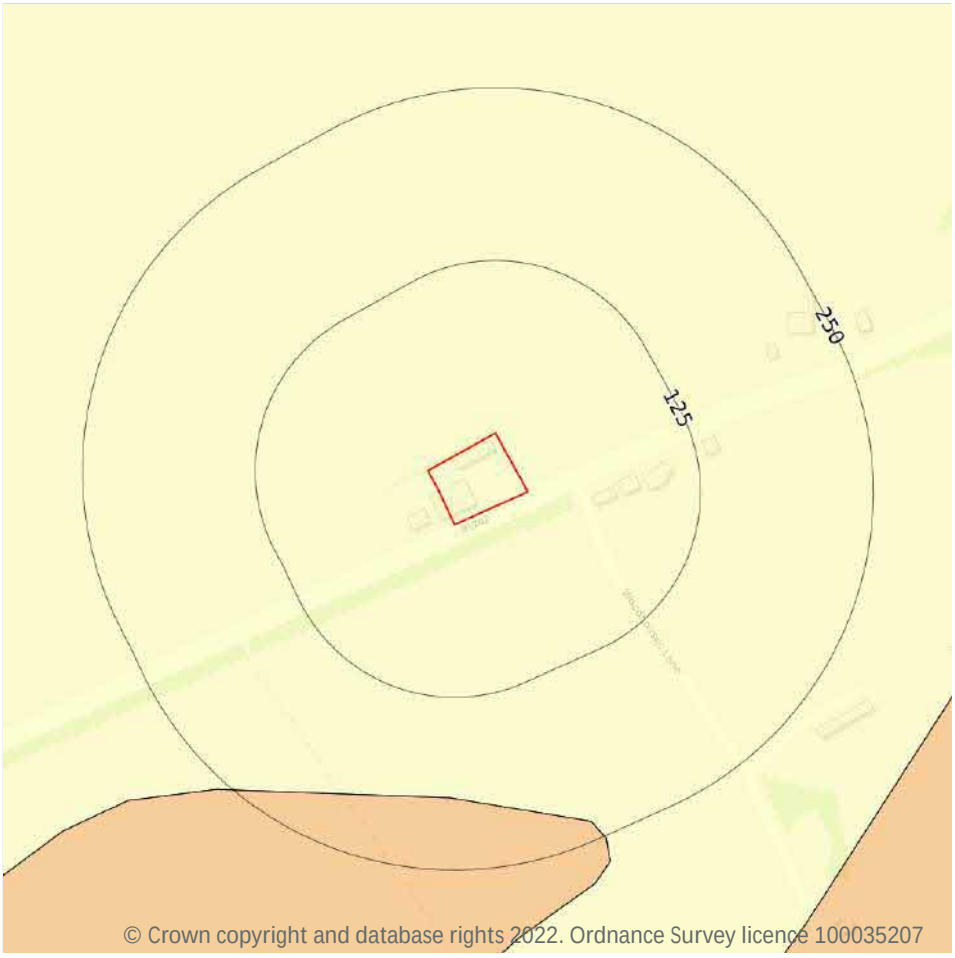
The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

Features are displayed on the Boreholes map on page 68

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	On site	506790 367670	MERE OAKS FARM	19.4	N	469251

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.1 Shrink swell clays

Records within 50m	1

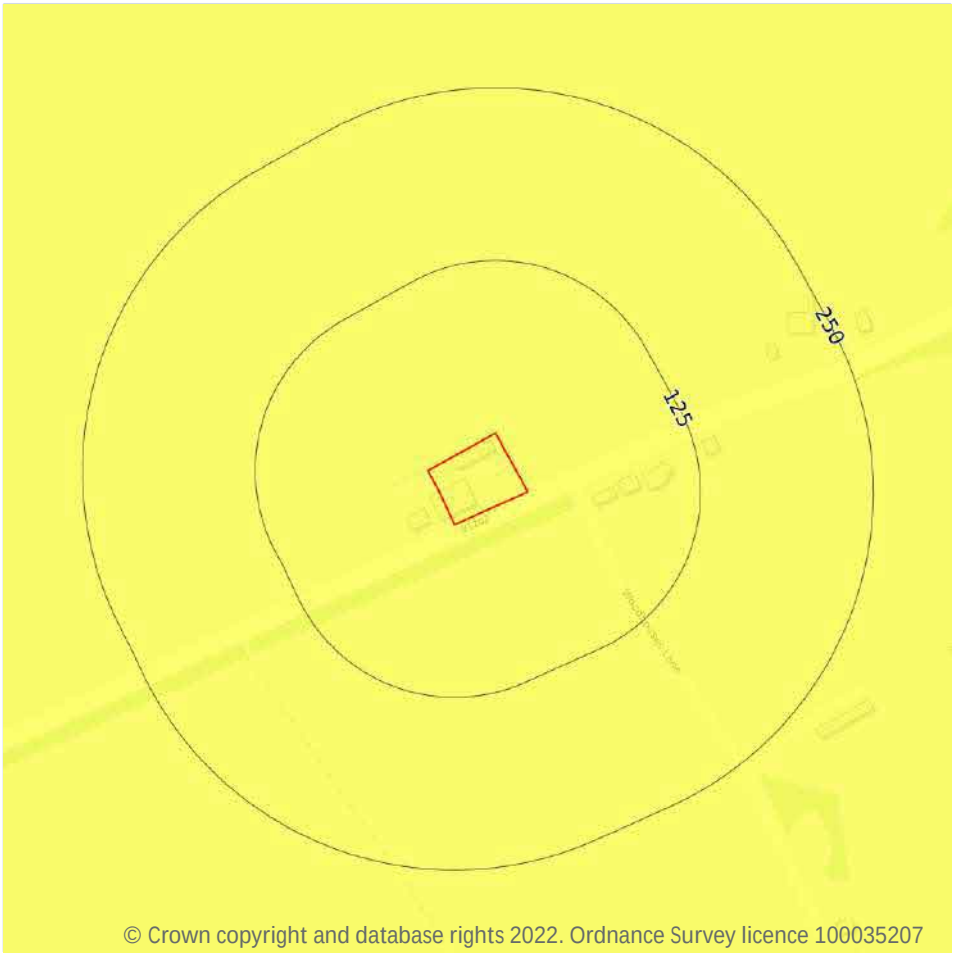
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

Features are displayed on the Natural ground subsidence - Shrink swell clays map on page 69

Location	Hazard rating	Details
On site	Negligible	Ground conditions predominantly non-plastic.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.2 Running sands

Records within 50m	1

The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on page 70

Location	Hazard rating	Details
On site	Very low	Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits

Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.3 Compressible deposits

Records within 50m	1

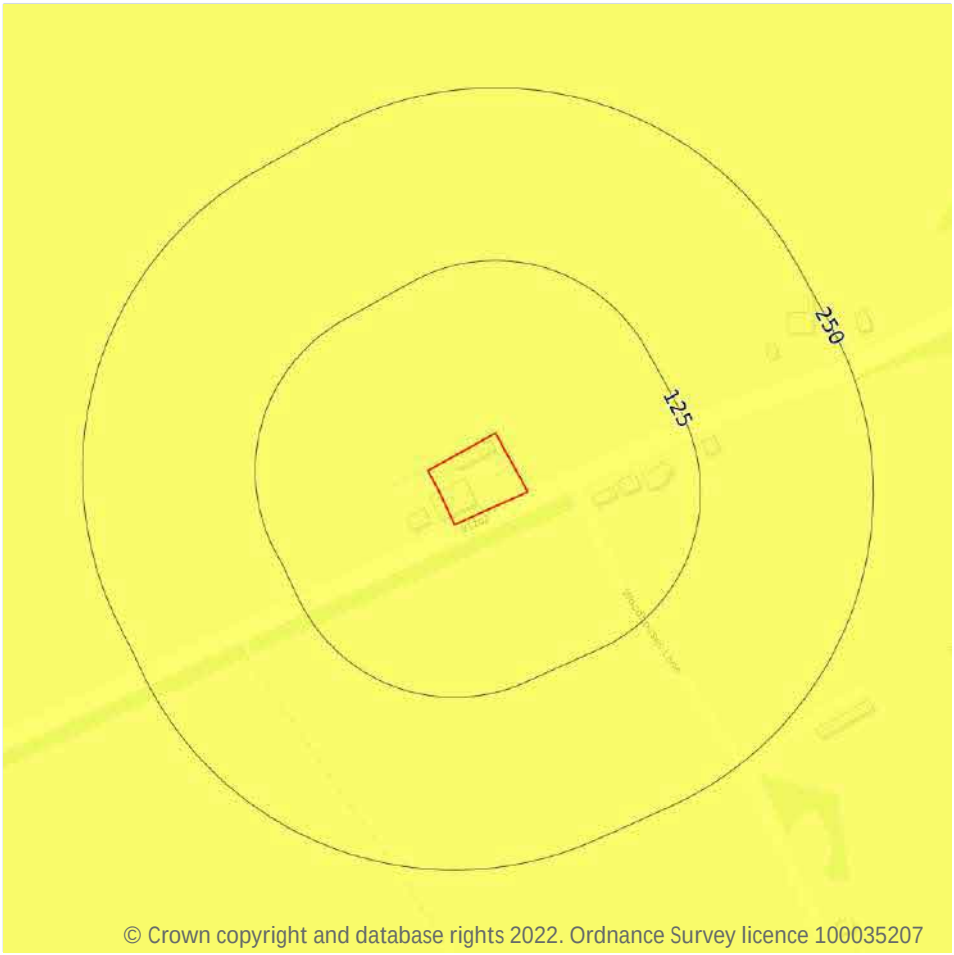
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on page 71

Location	Hazard rating	Details
On site	Negligible	Compressible strata are not thought to occur.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.4 Collapsible deposits

Records within 50m	1

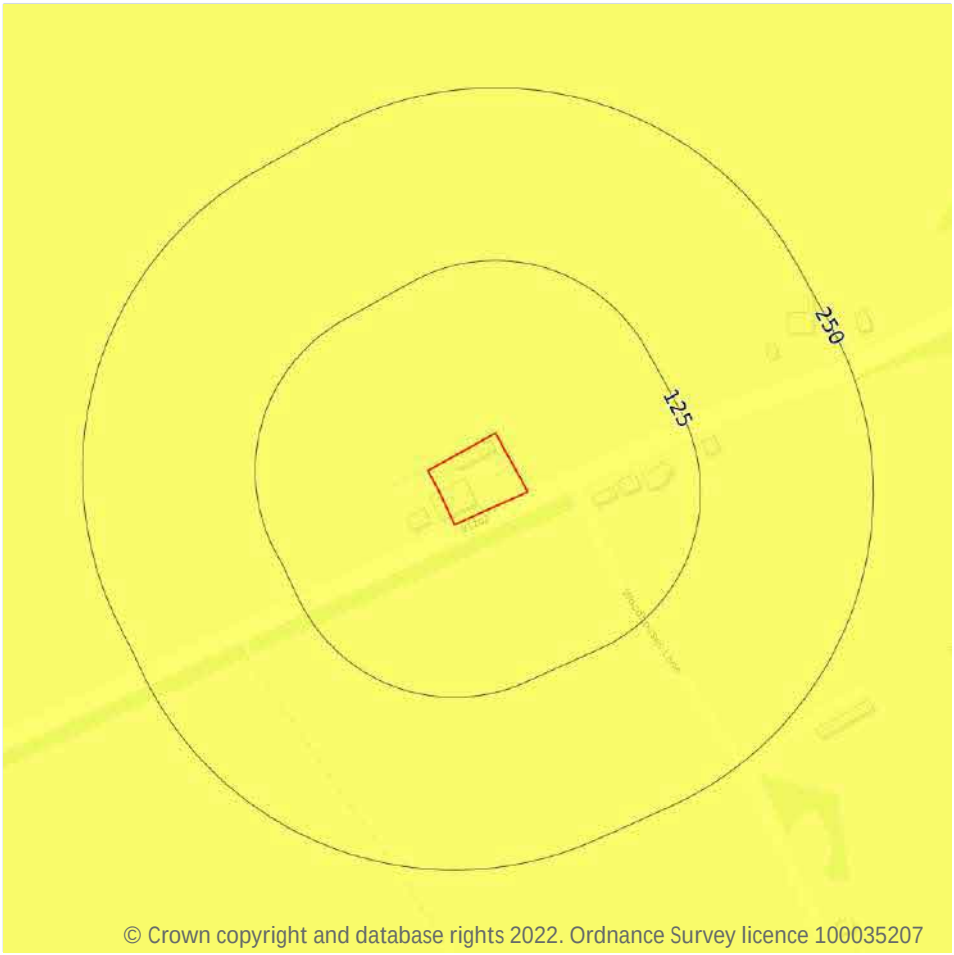
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on page 72

Location	Hazard rating	Details
On site	Very low	Deposits with potential to collapse when loaded and saturated are unlikely to be present.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.5 Landslides

Records within 50m	1

The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on page 73

Location	Hazard rating	Details
On site	Very low	Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks

Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.6 Ground dissolution of soluble rocks

Records within 50m	1

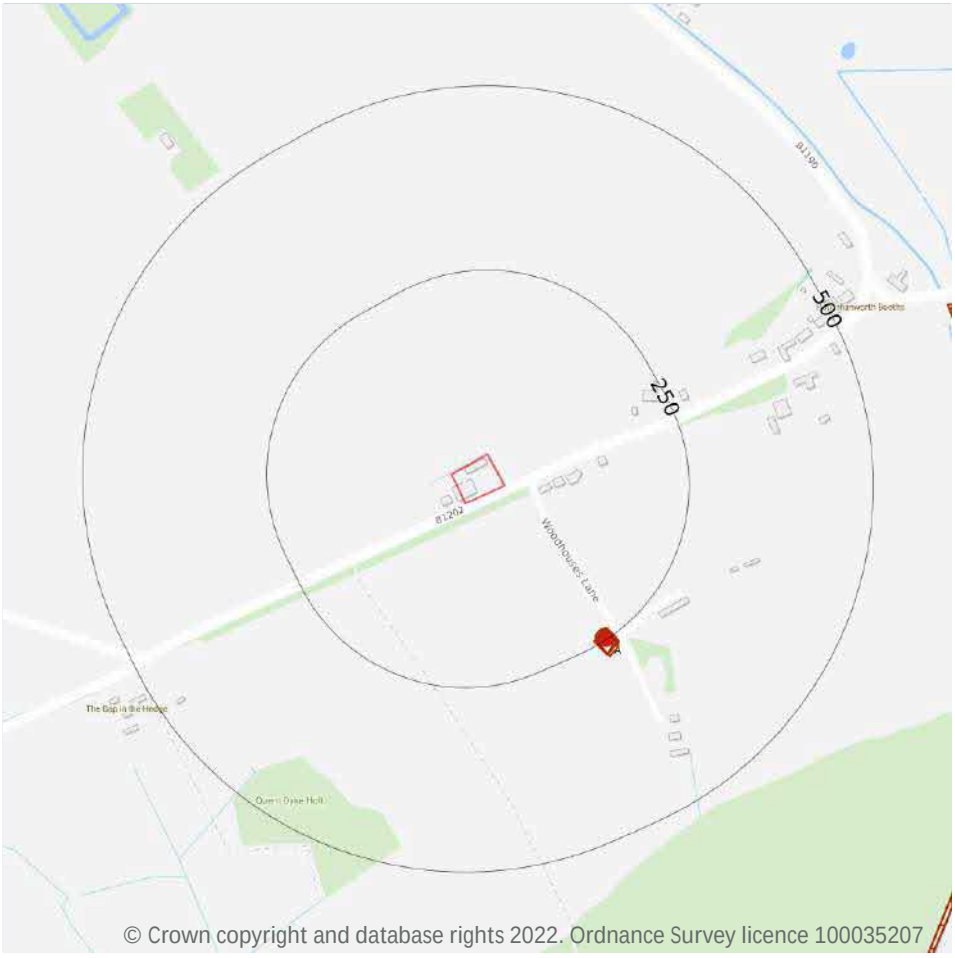
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on page 74

Location	Hazard rating	Details
On site	Negligible	Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.

This data is sourced from the British Geological Survey.

18 Mining, ground workings and natural cavities



Site Outline

Search buffers in metres (m)

- Natural cavities (Area)
- Natural cavities (Point)
- BritPits
- Surface ground workings
- Underground workings
- Historical Mineral Planning Areas
- Mining Cavities

Non Coal Mining

- Sporadic underground mining of restricted extent possible
- Localised small scale underground mining possible
- Small scale mining possible
- Underground mining known or likely within or in close proximity
- Underground mining known within or in very close proximity

18.1 Natural cavities

Records within 500m	0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Stantec UK Ltd.

18.2 BritPits

Records within 500m	1

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

Features are displayed on the Mining, ground workings and natural cavities map on page 75

ID	Location	Details	Description
A	248m SE	Name: Thurgarton Wood Farm Gravel Pit Address: Potterhanworth Booths, Potterhanworth, LINCOLN, Lincolnshire Commodity: Sand & Gravel Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m	4

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining, ground workings and natural cavities map on page 75

ID	Location	Land Use	Year of mapping	Mapping scale
A	235m SE	Unspecified Pit	1946	1:10560
A	235m SE	Unspecified Pit	1904	1:10560
A	236m SE	Unspecified Pit	1951	1:10560
A	241m SE	Old Gravel Pit	1887	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m	0

Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

This is data is sourced from Ordnance Survey/Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	0

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	0

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

This data is sourced from the British Geological Survey.

18.7 Mining cavities

Records within 1000m	0

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Stantec UK Ltd.

18.8 JPB mining areas

Records on site	0

Areas which could be affected by former coal and other mining. This data includes some mine plans unavailable to the Coal Authority.

This data is sourced from Johnson Poole and Bloomer.

18.9 Coal mining

Records on site	0

Areas which could be affected by past, current or future coal mining.

This data is sourced from the Coal Authority.

18.10 Brine areas

Records on site	0

The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

This data is sourced from the Cheshire Brine Subsidence Compensation Board.

18.11 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

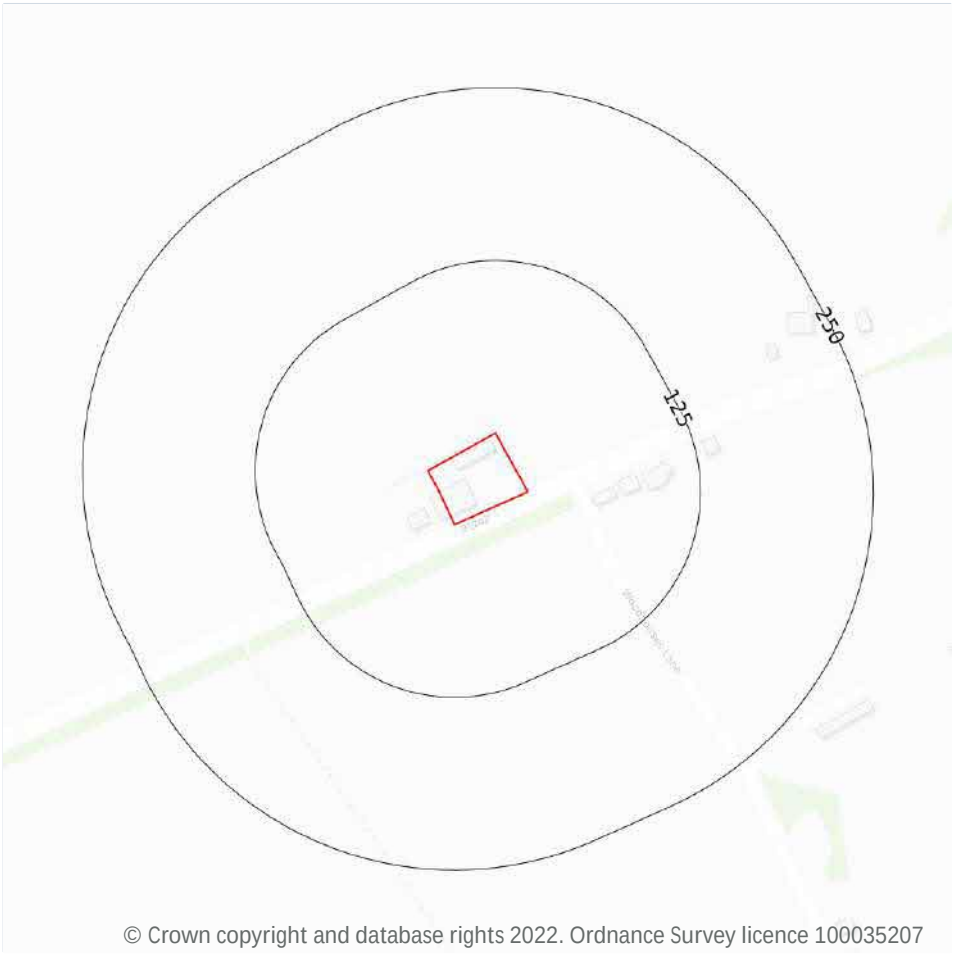
18.13 Clay mining

Records on site	0

Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).

19 Radon



Site Outline

Search buffers in metres (m)

- Greater than 30%
- Between 10% and 30%
- Between 5% and 10%
- Between 3% and 5%
- Between 1% and 3%
- Less than 1%

19.1 Radon

Records on site	1

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households.

Features are displayed on the Radon map on page 79

Location	Estimated properties affected	Radon Protection Measures required
On site	Less than 1%	None**

This data is sourced from the British Geological Survey and Public Health England.

20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m	1

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km^2. In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km^2; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	40 - 60 mg/kg	15 mg/kg

This data is sourced from the British Geological Survey.

20.2 BGS Estimated Urban Soil Chemistry

Records within 50m	0

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km^2).

This data is sourced from the British Geological Survey.

20.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km^2.

This data is sourced from the British Geological Survey.

21 Railway infrastructure and projects

21.1 Underground railways (London)

Records within 250m	0

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m	0

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.

This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m	0

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

This data is sourced from Ordnance Survey/Groundsure.

21.5 Royal Mail tunnels

Records within 250m	0

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.

This data is sourced from Groundsure/the Postal Museum.

21.6 Historical railways

Records within 250m	0

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

This data is sourced from OpenStreetMap.

21.7 Railways

Records within 250m	0

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways.

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 Crossrail 1

Records within 500m	0

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

21.9 Crossrail 2

Records within 500m	0

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

21.10 HS2

Records within 500m	0

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 ltd.

Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see https://www.groundsure.com/sources-reference.

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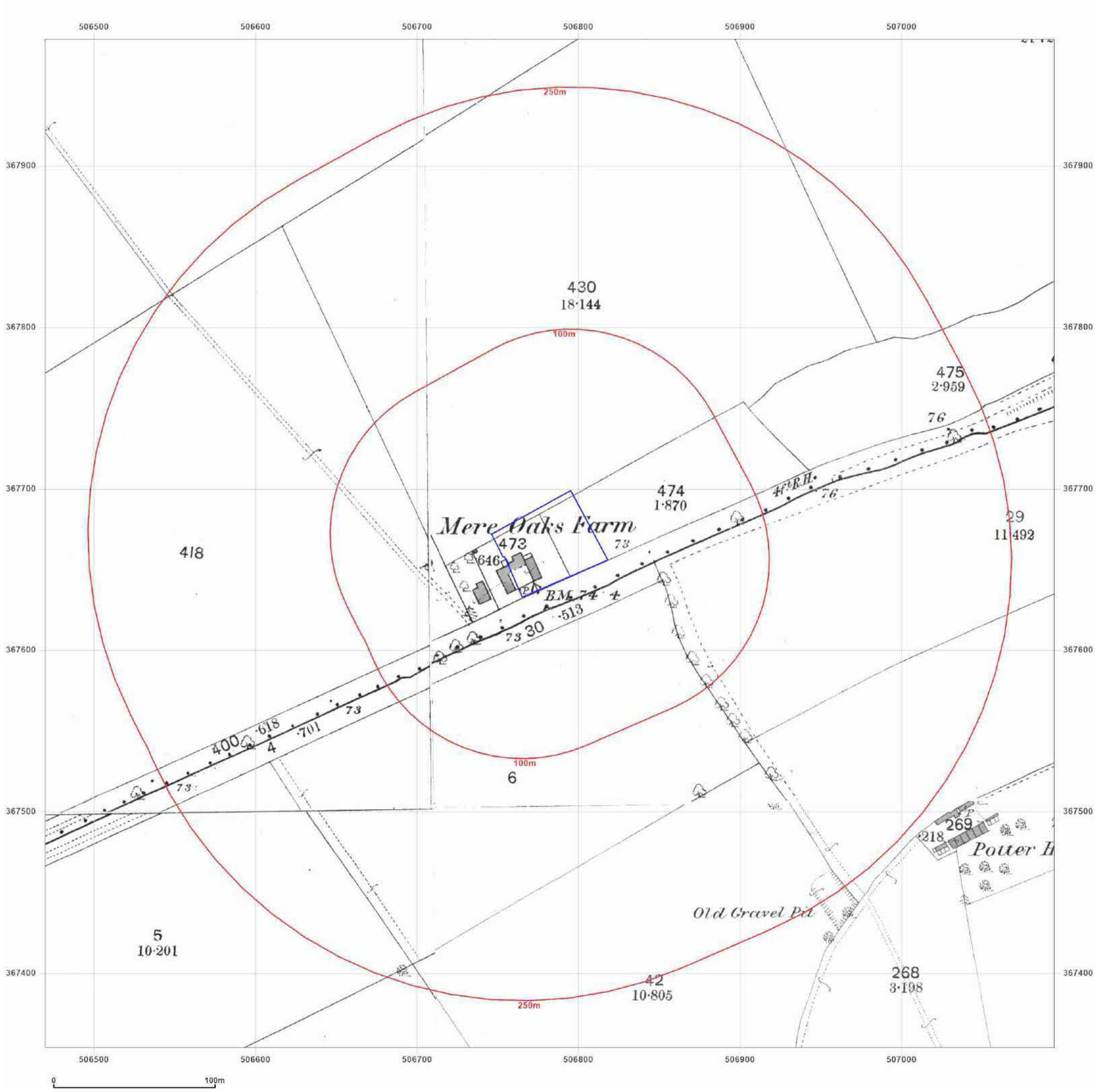

gdp
Brownfield Consulting & Development

Site Details

Plough Hill, Potterhanworth
Booths, LN4 2AU

Client Ref: CMAPS-GDP-1075114-33420-301122
Report Ref: CMAPS-GDP-1075114-33420-301122HIS
Grid Ref: 506782, 367666

Map Name: County Series
Map date: **1887-1888**
Scale: 1:2,500
Printed at: 1:2,500

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Edition N/A
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Revised 1887
Edition N/A
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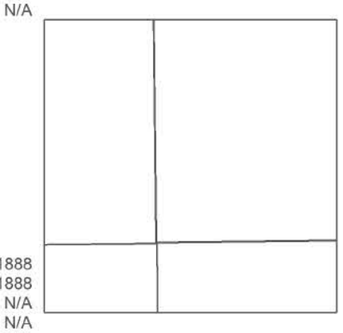

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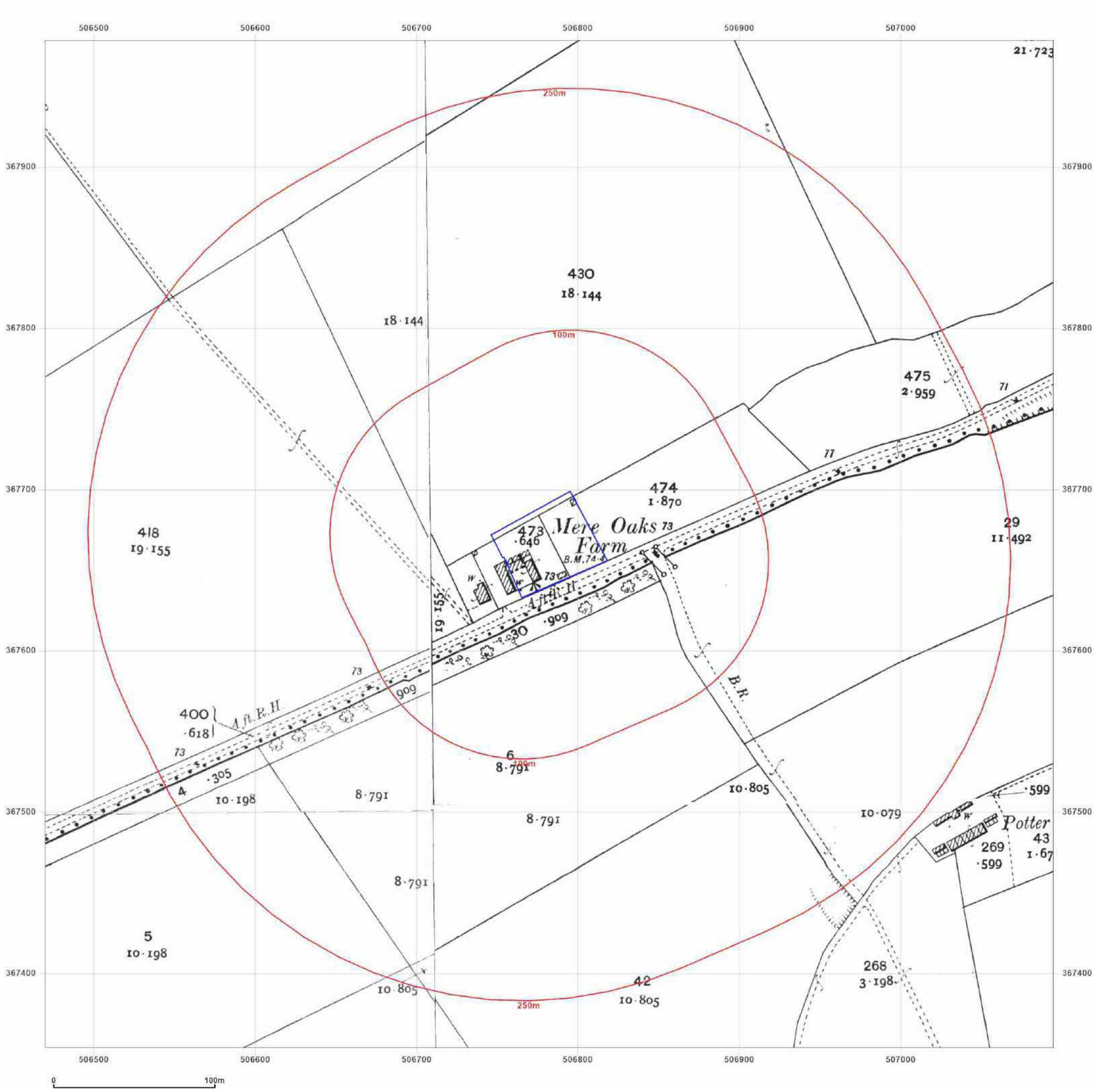

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Brownfield Consulting & Development

Site Details

Plough Hill, Potterhanworth
Booths, LN4 2AU

Client Ref: CMAPS-GDP-1075114-33420-301122
Report Ref: CMAPS-GDP-1075114-33420-301122HIS
Grid Ref: 506782, 367666

Map Name: County Series

Map date: **1905-1906**

Scale: 1:2,500

Printed at: 1:2,500

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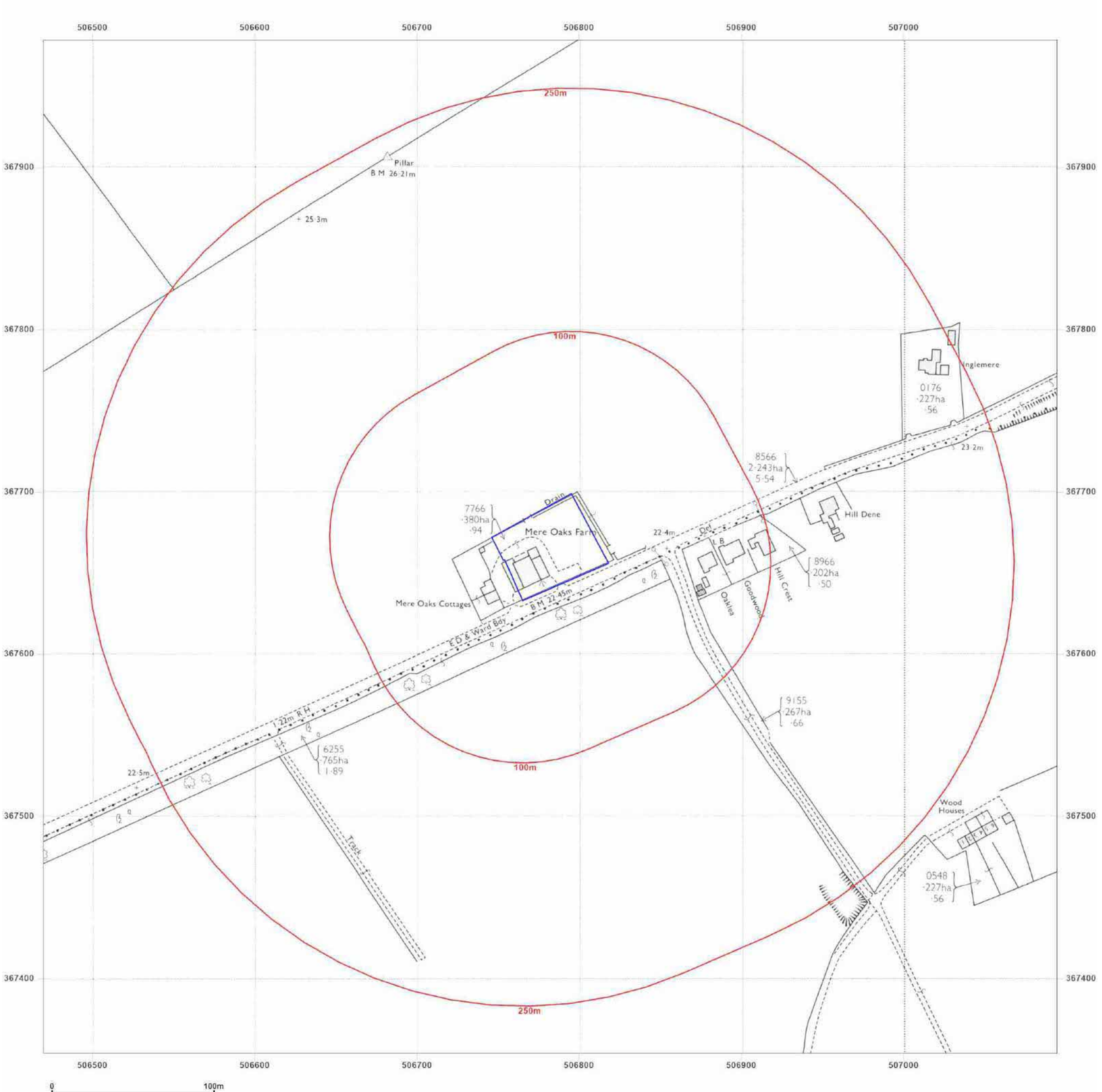
Production date 30 November 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.p



gdp

Brownfield Consulting & Development

Site Details

Plough Hill, Potterhanworth
Booths, LN4 2AU

Client Ref: CMAPS-GDP-1075114-33420-301122
Report Ref: CMAPS-GDP-1075114-33420-301122HIS
Grid Ref: 506782, 367666

Map Name: National Grid

Map date: **1977**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
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Surveyed 1976
Revised 1976
Edition N/A
Copyright 1977
Levelled 1966

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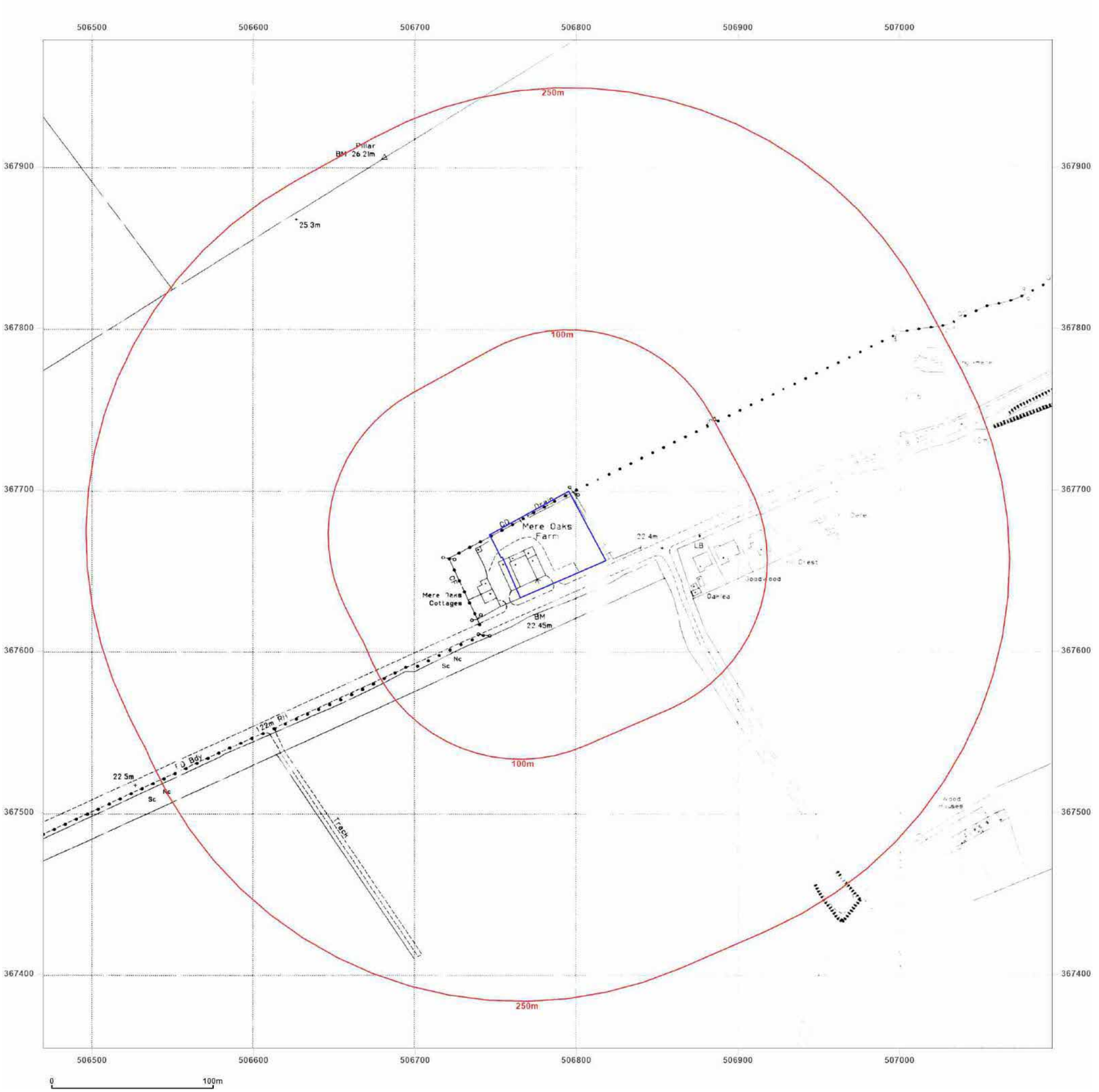
W: www.groundsure.com

Production date 30 November 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.p



gdp

Brownfield Consulting & Development

Site Details

Plough Hill, Potterhanworth
Booths, LN4 2AU

Client Ref: CMAPS-GDP-1075114-33420-301122
Report Ref: CMAPS-GDP-1075114-33420-301122HIS
Grid Ref: 506782, 367666

Map Name: National Grid

Map date: **1995**

Scale: 1:2,500

Printed at: 1:2,500

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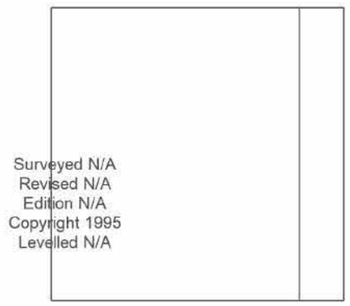

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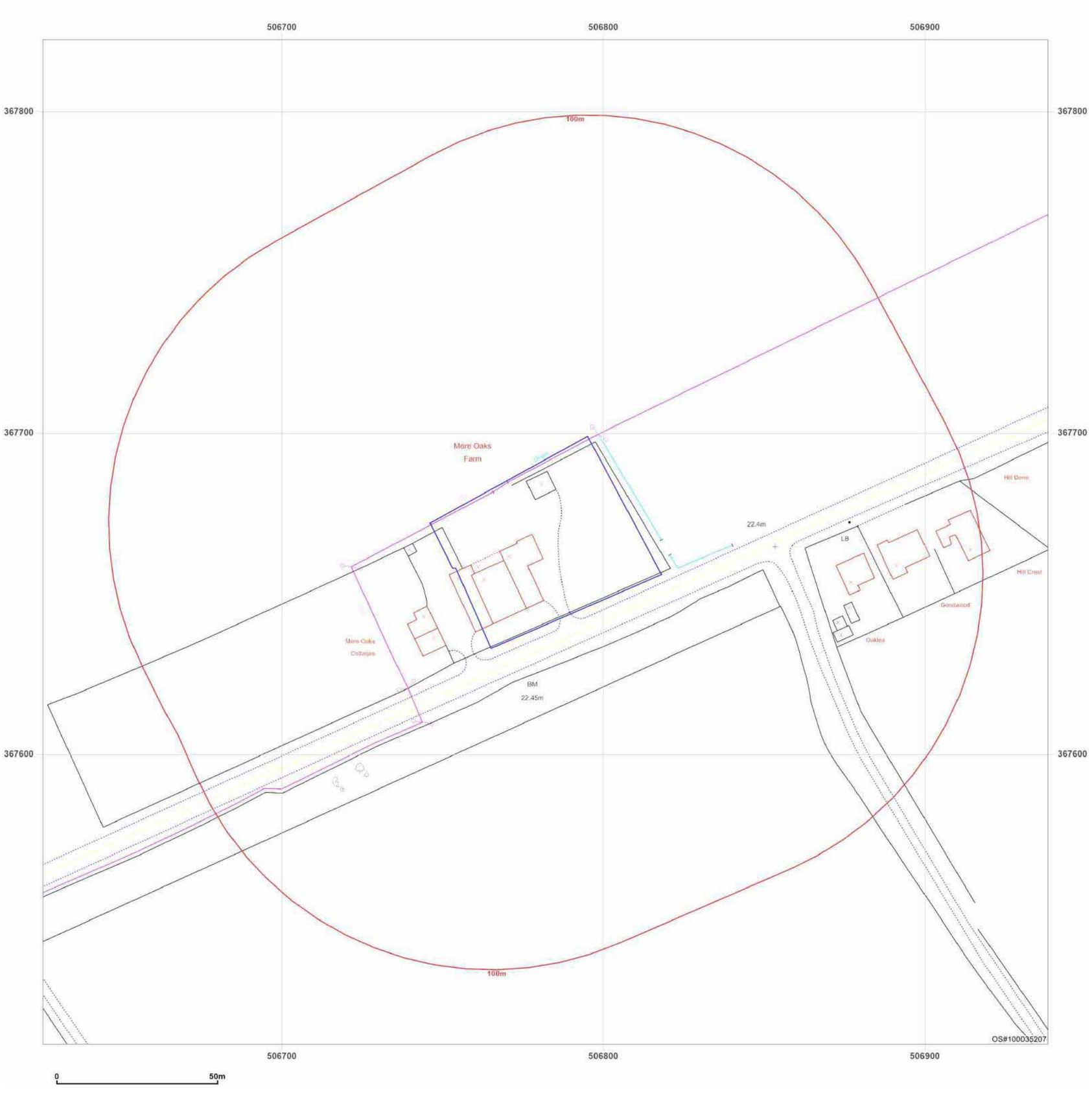
W: www.groundsure.com

Production date 30 November 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.p



gdp

Brownfield Consulting & Development

Site Details

Plough Hill, Potterhanworth
Booths, LN4 2AU

Client Ref: CMAPS-GDP-1075114-33420-301122
Report Ref: CMAPS-GDP-1075114-33420-301122HIS
Grid Ref: 506782, 367666

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

N
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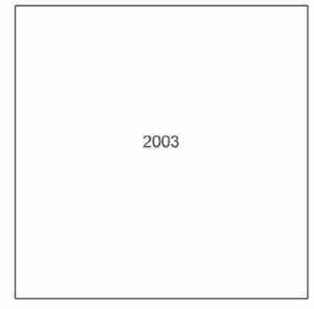

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Production date 30 November 2022

Map legend available at:
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Site Details

Plough Hill, Potterhanworth
Booths, LN4 2AU

Client Ref: CMAPS-GDP-1075114-33420-301122
Report Ref: CMAPS-GDP-1075114-33420-301122HIS
Grid Ref: 506782, 367666

Map Name: County Series

Map date: **1886-1887**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1886
Revised 1886
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1886
Revised 1886
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1887
Revised 1887
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1887
Revised 1887
Edition N/A
Copyright N/A
Levelled N/A

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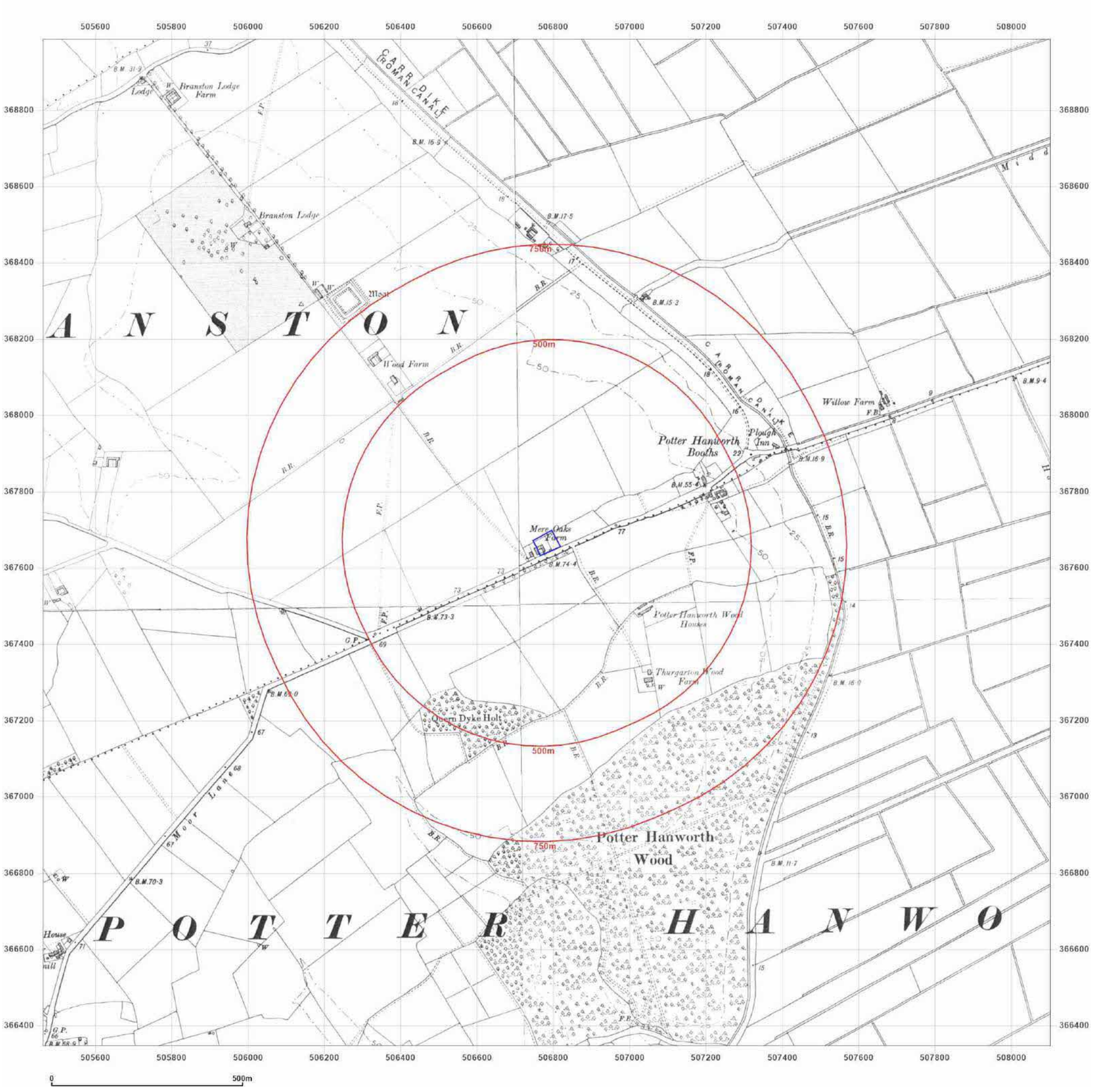
Production date 30 November 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.p



gdp

Brownfield Consulting & Development

Site Details

Plough Hill, Potterhanworth
Booths, LN4 2AU

Client Ref: CMAPS-GDP-1075114-33420-301122
Report Ref: CMAPS-GDP-1075114-33420-301122HIS
Grid Ref: 506782, 367666

Map Name: County Series

Map date: **1904-1906**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1886
Revised 1904
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1886
Revised 1904
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1887
Revised 1906
Edition 1906
Copyright N/A
Levelled N/A

Surveyed 1887
Revised 1904
Edition N/A
Copyright N/A
Levelled N/A

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Powered by

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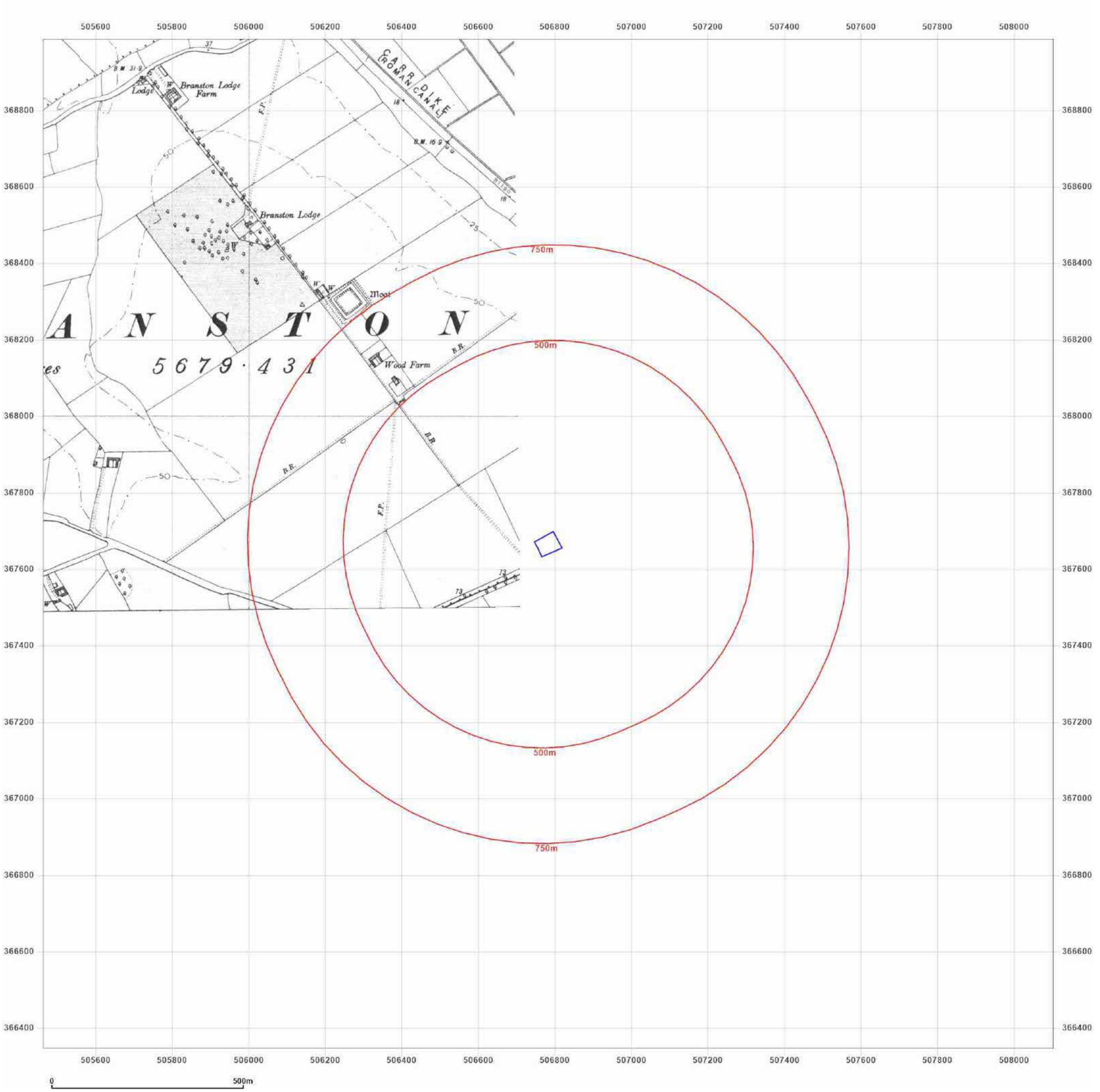
E: info@groundsure.com
W: www.groundsure.com

Production date 30 November 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.p



gdp

Brownfield Consulting & Development

Site Details

Plough Hill, Potterhanworth
Booths, LN4 2AU

Client Ref: CMAPS-GDP-1075114-33420-301122
Report Ref: CMAPS-GDP-1075114-33420-301122HIS
Grid Ref: 506782, 367666

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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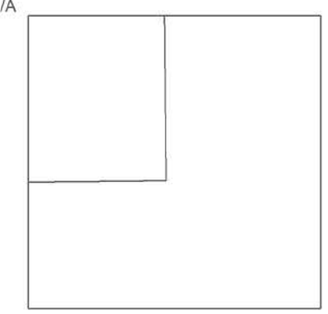
Surveyed 1885
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A



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Powered by OS

Produced by
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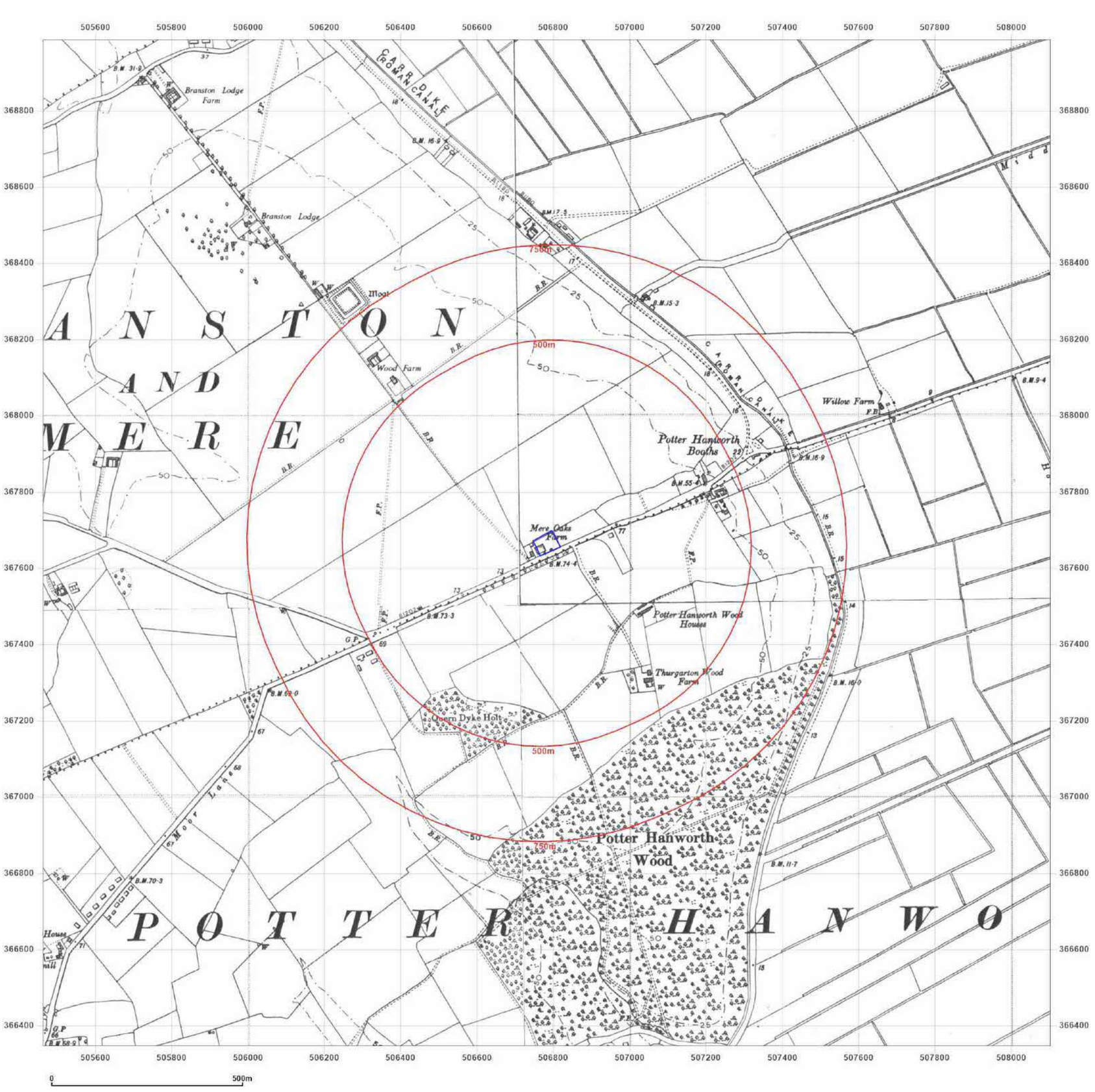
E: info@groundsure.com
W: www.groundsure.com

Production date 30 November 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.p



gdp

Brownfield Consulting & Development

Site Details

Plough Hill, Potterhanworth
Booths, LN4 2AU

Client Ref: CMAPS-GDP-1075114-33420-301122
Report Ref: CMAPS-GDP-1075114-33420-301122HIS
Grid Ref: 506782, 367666

Map Name: County Series

Map date: **1946**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1885
Revised 1946
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1885
Revised 1946
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1886
Revised 1946
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1886
Revised 1946
Edition N/A
Copyright N/A
Levelled N/A

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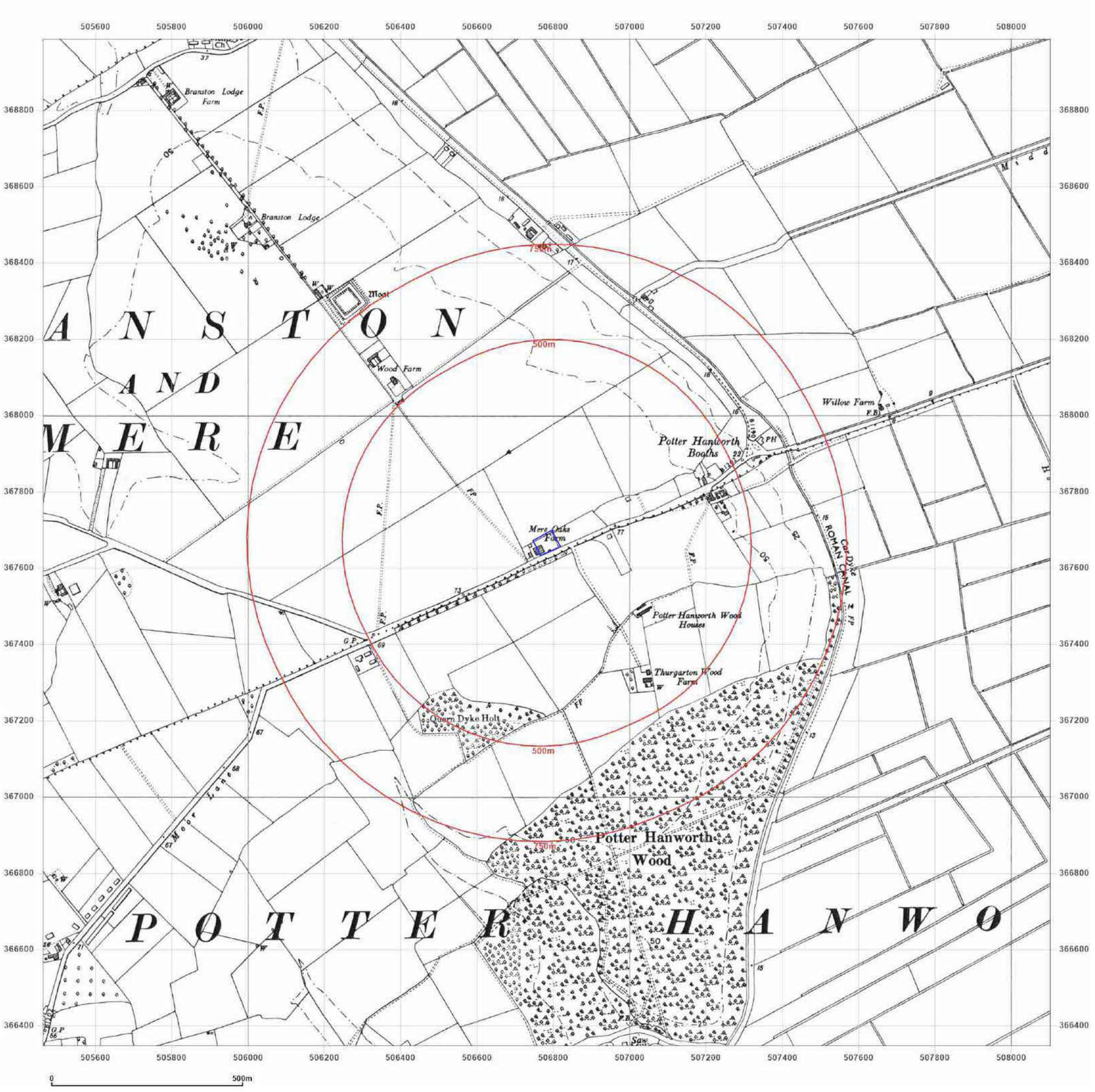
Production date 30 November 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.p



gdp

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Site Details

Plough Hill, Potterhanworth Booths, LN4 2AU

Client Ref: CMAPS-GDP-1075114-33420-301122
Report Ref: CMAPS-GDP-1075114-33420-301122HIS
Grid Ref: 506782, 367666

Map Name: Provisional

Map date: **1951**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1951
Revised 1951
Edition N/A
Copyright N/A
Levelled N/A

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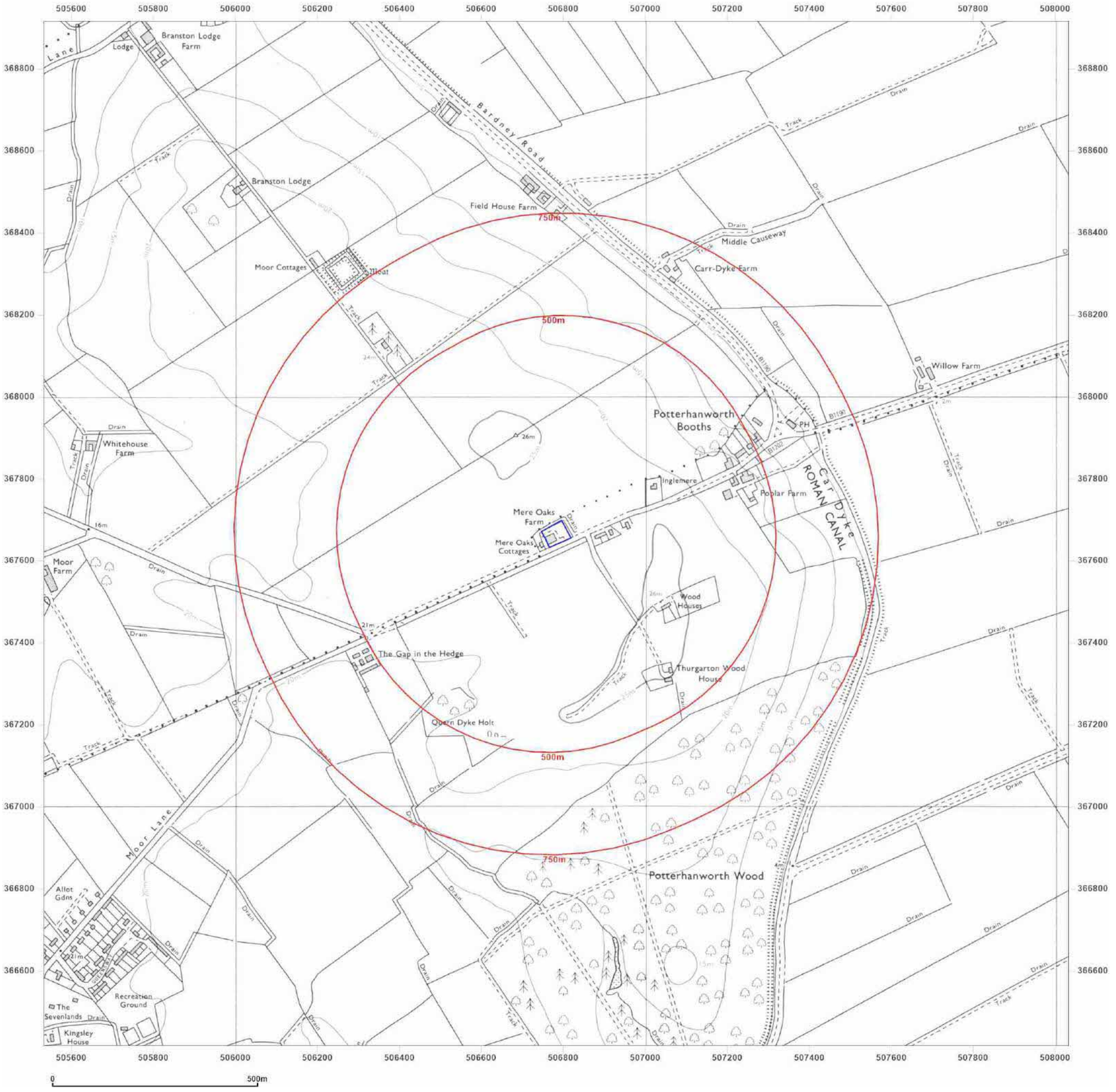
W: www.groundsure.com

Production date 30 November 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.p



gdp

Brownfield Consulting & Development

Site Details

Plough Hill, Potterhanworth
Booths, LN4 2AU

Client Ref: CMAPS-GDP-1075114-33420-301122
Report Ref: CMAPS-GDP-1075114-33420-301122HIS
Grid Ref: 506782, 367666

Map Name: National Grid

Map date: **1980**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

Surveyed 1976
Revised 1980
Edition N/A
Copyright N/A
Levelled N/A

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W: www.groundsure.com

Production date 30 November 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.p

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Brownfield Consulting & Development

Site Details

Plough Hill, Potterhanworth
Booths, LN4 2AU

Client Ref: CMAPS-GDP-1075114-33420-301122
Report Ref: CMAPS-GDP-1075114-33420-301122HIS
Grid Ref: 506782, 367666

Map Name: National Grid

Map date: **2001**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
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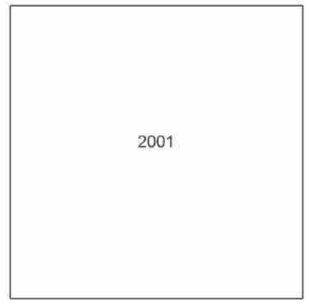

Groundsure INSIGHTS
Powered by OS
Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

Production date 30 November 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.p

gdp

Brownfield Consulting & Development

Site Details

Plough Hill, Potterhanworth
Booths, LN4 2AU

Client Ref: CMAPS-GDP-1075114-33420-301122
Report Ref: CMAPS-GDP-1075114-33420-301122HIS
Grid Ref: 506782, 367666

Map Name: National Grid

Map date: **2010**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

2010

Groundsure INSIGHTS

Powered by OS

Produced by
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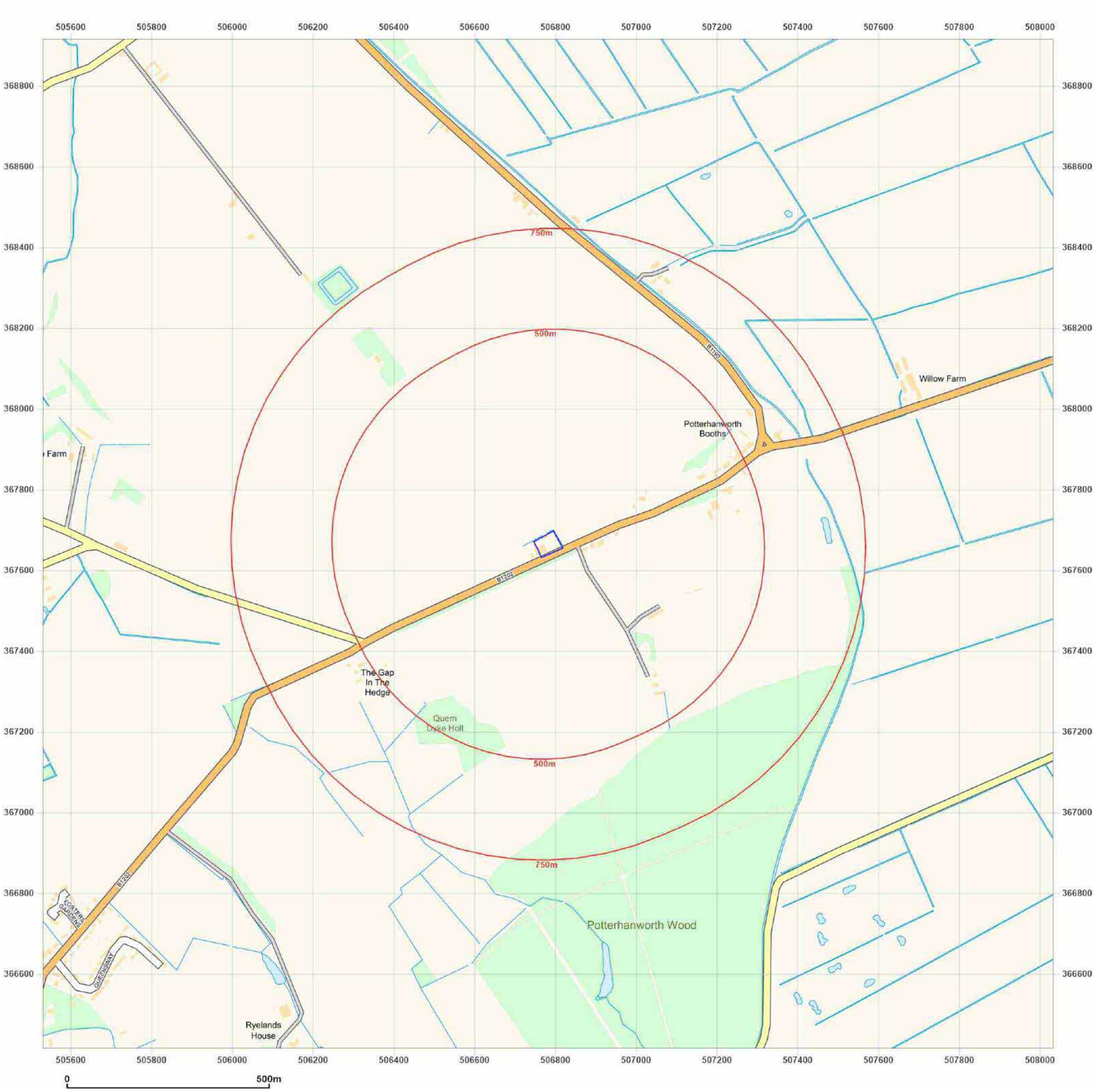
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

Production date 30 November 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.p



gdp

Brownfield Consulting & Development

Site Details

Plough Hill, Potterhanworth
Booths, LN4 2AU

Client Ref: CMAPS-GDP-1075114-33420-301122
Report Ref: CMAPS-GDP-1075114-33420-301122HIS
Grid Ref: 506782, 367666

Map Name: National Grid

Map date: **2022**

Scale: 1:10,000

Printed at: 1:10,000

N
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Groundsure INSIGHTS

Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

Production date 30 November 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.p

APPENDIX 3

Risk Assessment Methodology

Brownfield Consulting & Development
GD Pickles Ltd, registered in the UK: 09387115.
Biltons Farm, South Scarle Lane, Swinderby, Lincoln, LN6 9JA

The following classification was published by the NHBC, EA, and CIEH (2008). This was developed from DOE Guide to Risk Assessment and Risk Management for Environmental Protection and the Statutory Guidance on Contaminated Land (Defra September 2006).

The methodology differs from that presented in Contaminated Land Risk Assessment, A Guide to Good Practice (CIRIA C552, 2001), particularly in terms of the definitions of classification of consequence, which includes consideration of immediacy of hazards. The risk assessment methodology is now better aligned with health and safety and geotechnical risk assessment processes.

The designation of risk is based upon the consideration of both:

- the magnitude of the potential consequence (i.e. severity).
  [takes into account both the potential severity of the hazard and the sensitivity of the receptor]
- the magnitude of probability (i.e. likelihood).
  [takes into account both the presence of the hazard and receptor and the integrity of the pathway]

The potential consequences of contamination risks occurring at this Site are classified in accordance with Table 1 below:

Table 1: Classification of Consequence (**Source: R&D 66:2008)**

Classification	Definition of Consequence
Severe	Highly elevated concentrations likely to result in "significant harm" to human health as defined by the EPA 1990, Part 2A, if exposure occurs. Equivalent to EA Category 1 pollution incident including persistent and/or extensive effects on water quality; leading to closure of a potable abstraction point; major impact on amenity value or major damage to agriculture or commerce. Major damage to aquatic or other ecosystems, which is likely to result in a substantial adverse change in its functioning or harm to a species of special interest that endangers the long-term maintenance of the population. Catastrophic damage to crops, buildings or property.
Medium	Elevated concentrations which could result in "significant harm" to human health as defined by the EPA 1990, Part 2A if exposure occurs. Equivalent to EA Category 2 pollution incident including significant effect on water quality; notification required to abstractors; reduction in amenity value or significant damage to agriculture or commerce. Significant damage to aquatic or other ecosystems, which may result in a substantial adverse change in its functioning or harm to a species of special interest that may endanger the long-term maintenance of the population. Significant damage to crops, buildings or property.
Mild	Exposure to human health unlikely to lead to "significant harm". Equivalent to EA Category 3 pollution incident including minimal or short lived effect on water quality; marginal effect on amenity value, agriculture or commerce. Minor or short lived damage to aquatic or other ecosystems, which is unlikely to result in a substantial adverse change in its functioning or harm to a species of special interest that would endanger the long- term maintenance of the population. Minor damage to crops, buildings or property.
Minor	No measurable effect on humans. Equivalent to insubstantial pollution incident with no observed effect on water quality or ecosystems. Repairable effects of damage to buildings, structures and services.

The probability of contamination risks occurring at this Site is classified in accordance with Table 2 below. Note: A pollution linkage must first be established before probability is classified. If there isno pollution linkage then there is no potential risk. If there is no pollution linkage then it follows that there is no need to apply tests for probability and consequence.

Table 2: Classification of Probability

Classification	Definition of Probability
High Likelihood	There is pollutant linkage and an event would appear very likely in the short-term and almost inevitable over the long-term, or there is evidence at the receptor of harm or pollution.
Likely	There is pollutant linkage and all the elements are present and in the right place which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short-term and likely over the long-term.
Low Likelihood	There is pollutant linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a long period such an event would take place, and is less likely in the shorter term.
Unlikely	There is a pollutant linkage but circumstances are such that it is improbable that an event would occur even in the very long-term.

For each possible pollutant linkage (source-pathway-receptor) identified, the potential risk can be evaluated based upon the following probability x consequence matrix shown in Table 3 below.

Table 3: Overall Contamination Risk Matrix

		Consequence			
		Severe	Medium	Mild	Minor
Probability	High likelihood	Very high risk	High risk	Moderate risk	Low risk
	Likely	High risk	Moderate risk	Moderate / Low risk	Low risk
	Low likelihood	Moderate risk	Moderate / Low risk	Low risk	Very low risk
	Unlikely	Moderate / Low risk	Low risk	Very low risk	Very low risk

R&D 66:2008 presents definitions of the risk categories, together with the investigatory and remedial actions that are likely to be necessary for each outcome. These definitions are reproduced in Table 4. These risk categories apply to each pollutant linkage, i.e. not only to each hazard or receptor.

[Continued next page]

Table 4: Definition of Risk Categories and Likely ActionsRequired

Risk Category	Definition and likely actions required
Very high	There is a high probability that severe harm could arise to a designated receptor from an identified hazard at the Site without remediation action OR there is evidence that severe harm to a designated receptor is already occurring. Realisation of that risk is likely to present a substantial liability to be Site owner/or occupier. Investigation is required as a matter of urgency and remediation works likely to follow in the short-term.
High	Harm is likely to arise to a designated receptor from an identified hazard at the Site without remediation action. Realisation of the risk is likely to present a substantial liability to the Site owner/or occupier. Investigation is required as a matter of urgency to clarify the risk. Remediation works may be necessary in the short-term and are likely over the longer term.
Moderate	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, and if any harm were to occur it is more likely, that the harm would be relatively mild. Further investigative work is normally required to clarify the risk and to determine the potential liability to Site owner/occupier. Some remediation works may be required in the longer term.
Low	It is possible that harm could arise to a designated receptor from identified hazard, but it is likely at worst, that this harm if realised would normally be mild. It is unlikely that the Site owner/or occupier would face substantial liabilities from such a risk. Further investigative work (which is likely to be limited) to clarify the risk may be required. Any subsequent remediation works are likely to be relatively limited.
Very low	It is a low possibility that harm could arise to a designated receptor, but it is likely at worst, that this harm if realised would normally be mild or minor.
No potential risk	There is no potential risk if no pollution linkage has been established.

APPENDIX 4

Laboratory Test Certificates

Brownfield Consulting & Development
GD Pickles Ltd, registered in the UK: 09387115.
Biltons Farm, South Scarle Lane, Swinderby, Lincoln, LN6 9JA

Gareth Pickles
GD Pickles Ltd
Biltons Farm
South Scarle Lane
Swinderby
Lincoln
LN6 9JA

Derwentside Environmental Testing Services Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 23-00406

Site Reference:	Potterhanworth
Project / Job Ref:	2291
Order No:	2291
Sample Receipt Date:	13/01/2023
Sample Scheduled Date:	13/01/2023
Report Issue Number:	1
Reporting Date:	19/01/2023

Authorised by:

[redacted]

Dave Ashworth
Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate						
DETS Report No: 23-00406	Date Sampled	10/01/23	10/01/23	10/01/23	10/01/23	10/01/23
GD Pickles Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Potterhanworth	TP / BH No	BH1	BH1	BH2	BH3	BH4
Project / Job Ref: 2291	Additional Refs	D1	D2	D1	D1	D1
Order No: 2291	Depth (m)	0.35 - 0.45	0.50 - 0.60	0.40 - 1.00	0.30 - 0.35	0.10 - 0.20
Reporting Date: 19/01/2023	DETS Sample No	627757	627758	627759	627760	627761

Determinand	Unit	RL	Accreditation	(n)	(n)			
Asbestos Screen (S)	N/a	N/a	ISO17025	Not Detected			Not Detected	
Organic Matter (SOM)	%	< 0.1	MCERTS	1.2		4.5		
Arsenic (As)	mg/kg	< 2	MCERTS	7	6	6	8	9
Barium (Ba)	mg/kg	< 2.5	MCERTS	56	26	51	82	293
Beryllium (Be)	mg/kg	< 0.5	MCERTS	< 0.5	0.5	< 0.5	1.2	< 0.5
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	1.1	1.2	< 1
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2	< 0.2	< 0.2	0.2	0.3
Chromium (Cr)	mg/kg	< 2	MCERTS	11	16	7	7	14
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2		< 2		
Copper (Cu)	mg/kg	< 4	MCERTS	13	11	12	25	23
Lead (Pb)	mg/kg	< 3	MCERTS	20	14	64	70	27
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	13	20	6	7	10
Selenium (Se)	mg/kg	< 2	MCERTS	< 3	< 3	< 3	< 3	< 3
Vanadium (V)	mg/kg	< 1	MCERTS	17	22	13	17	22
Zinc (Zn)	mg/kg	< 3	MCERTS	41	65	47	53	72

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)
(n) Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate						
DETS Report No: 23-00406	Date Sampled	10/01/23				
GD Pickles Ltd	Time Sampled	None Supplied				
Site Reference: Potterhanworth	TP / BH No	BH5				
Project / Job Ref: 2291	Additional Refs	D1				
Order No: 2291	Depth (m)	0.05 - 0.20				
Reporting Date: 19/01/2023	DETS Sample No	627762				

Determinand	Unit	RL	Accreditation					
Asbestos Screen (S)	N/a	N/a	ISO17025					
Organic Matter (SOM)	%	< 0.1	MCERTS	3.6				
Arsenic (As)	mg/kg	< 2	MCERTS	12				
Barium (Ba)	mg/kg	< 2.5	MCERTS	101				
Beryllium (Be)	mg/kg	< 0.5	MCERTS	< 0.5				
W/S Boron	mg/kg	< 1	NONE	< 1				
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	0.2				
Chromium (Cr)	mg/kg	< 2	MCERTS	13				
Chromium (hexavalent)	mg/kg	< 2	NONE					
Copper (Cu)	mg/kg	< 4	MCERTS	17				
Lead (Pb)	mg/kg	< 3	MCERTS	27				
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1				
Nickel (Ni)	mg/kg	< 3	MCERTS	11				
Selenium (Se)	mg/kg	< 2	MCERTS	< 3				
Vanadium (V)	mg/kg	< 1	MCERTS	21				
Zinc (Zn)	mg/kg	< 3	MCERTS	64				

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)

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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 23-00406	Date Sampled	10/01/23	10/01/23	10/01/23	10/01/23	10/01/23
GD Pickles Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Potterhanworth	TP / BH No	BH1	BH1	BH3	BH4	BH5
Project / Job Ref: 2291	Additional Refs	D1	D2	D1	D1	D1
Order No: 2291	Depth (m)	0.35 - 0.45	0.50 - 0.60	0.30 - 0.35	0.10 - 0.20	0.05 - 0.20
Reporting Date: 19/01/2023	DETS Sample No	627757	627758	627760	627761	627762

Determinand	Unit	RL	Accreditation	(n)	(n)			
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	0.28
Pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	0.27
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	0.14
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	0.16
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	0.14
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	0.15
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6

(n) Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation

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Soil Analysis Certificate - TPH LQM Banded						
DETS Report No: 23-00406	Date Sampled	10/01/23	10/01/23			
GD Pickles Ltd	Time Sampled	None Supplied	None Supplied			
Site Reference: Potterhanworth	TP / BH No	BH1	BH3			
Project / Job Ref: 2291	Additional Refs	D1	D1			
Order No: 2291	Depth (m)	0.35 - 0.45	0.30 - 0.35			
Reporting Date: 19/01/2023	DETS Sample No	627757	627760			

Determinand	Unit	RL	Accreditation	(n)				
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01	< 0.01			
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05			
Aliphatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2			
Aliphatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2			
Aliphatic >C12 - C16	mg/kg	< 3	MCERTS	< 3	< 3			
Aliphatic >C16 - C35	mg/kg	< 10	MCERTS	< 10	< 10			
Aliphatic >C35 - C44	mg/kg	< 10	NONE	< 10	< 10			
Aliphatic (C5 - C44)	mg/kg	< 30	NONE	< 30	< 30			
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01	< 0.01			
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05			
Aromatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2			
Aromatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2			
Aromatic >C12 - C16	mg/kg	< 2	MCERTS	< 2	< 2			
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	< 3			
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	< 10	< 10			
Aromatic >C35 - C44	mg/kg	< 10	NONE	< 10	< 10			
Aromatic (>C5 - C44)	mg/kg	< 30	NONE	< 30	< 30			
Total >C5 - C44	mg/kg	< 60	NONE	< 60	< 60			

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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 23-00406	Date Sampled	10/01/23	10/01/23			
GD Pickles Ltd	Time Sampled	None Supplied	None Supplied			
Site Reference: Potterhanworth	TP / BH No	BH1	BH3			
Project / Job Ref: 2291	Additional Refs	D1	D1			
Order No: 2291	Depth (m)	0.35 - 0.45	0.30 - 0.35			
Reporting Date: 19/01/2023	DETS Sample No	627757	627760			

Determinand	Unit	RL	Accreditation	(n)				
Benzene	ug/kg	< 2	MCERTS	< 2	< 2			
Toluene	ug/kg	< 5	MCERTS	< 5	< 5			
Ethylbenzene	ug/kg	< 2	MCERTS	< 2	< 2			
p & m-xylene	ug/kg	< 2	MCERTS	< 2	< 2			
o-xylene	ug/kg	< 2	MCERTS	< 2	< 2			
MTBE	ug/kg	< 5	MCERTS	< 5	< 5			

(n) Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation

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Soil Analysis Certificate - Sample Descriptions
DETS Report No: 23-00406
GD Pickles Ltd
Site Reference: Potterhanworth
Project / Job Ref: 2291
Order No: 2291
Reporting Date: 19/01/2023

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
627757	BH1	D1	0.35 - 0.45	13.6	Black sludge with stones
627758	BH1	D2	0.50 - 0.60	9.1	Brown sandy gravel with stones
627759	BH2	D1	0.40 - 1.00	26.5	Black sandy clay with stones and concrete
627760	BH3	D1	0.30 - 0.35	24.7	Brown sandy clay with stones
627761	BH4	D1	0.10 - 0.20	27.3	Brown sandy clay with stones and vegetation
627762	BH5	D1	0.05 - 0.20	18.7	Brown sandy clay

Moisture content is part of procedure E003 & is not an accredited test
Insufficient Sample I/S
Unsuitable Sample U/S

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Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 23-00406
GD Pickles Ltd
Site Reference: Potterhanworth
Project / Job Ref: 2291
Order No: 2291
Reporting Date: 19/01/2023

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

Gareth Pickles
GD Pickles Ltd
Biltons Farm
South Scarle Lane
Swinderby
Lincoln
LN6 9JA

Derwentside Environmental Testing Services Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 23-00711

Site Reference:	Potterhanworth
Project / Job Ref:	2291
Order No:	2291
Sample Receipt Date:	20/01/2023
Sample Scheduled Date:	20/01/2023
Report Issue Number:	1
Reporting Date:	26/01/2023

Authorised by:

[redacted]

Dave Ashworth
Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

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UKAS TESTING 4480

Soil Analysis Certificate							
DETS Report No: 23-00711	Date Sampled	10/01/23	10/01/23			
GD Pickles Ltd	Time Sampled	None Supplied	None Supplied			
Site Reference: Potterhanworth	TP / BH No	BH4	BH5			
Project / Job Ref: 2291	Additional Refs	D1	D1			
Order No: 2291	Depth (m)	0.10 - 0.20	0.05 - 0.20			
Reporting Date: 26/01/2023	DETS Sample No	628994	628995			

Determinand	Unit	RL	Accreditation					
Asbestos Screen (S)	N/a	N/a	ISO17025	Not Detected	Not Detected			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)

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Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 23-00711
GD Pickles Ltd
Site Reference: Potterhanworth
Project / Job Ref: 2291
Order No: 2291
Reporting Date: 26/01/2023

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
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Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

APPENDIX 5

Boreholes Logs

Brownfield Consulting & Development
GD Pickles Ltd, registered in the UK: 09387115.
Biltons Farm, South Scarle Lane, Swinderby, Lincoln, LN6 9JA

GD Pickles Limited
Bilton's Farm
South Scarle Lane
Swinderby, Lincoln, LN6 9JA
W: gdpickles.co.uk

Borehole Record BH1:

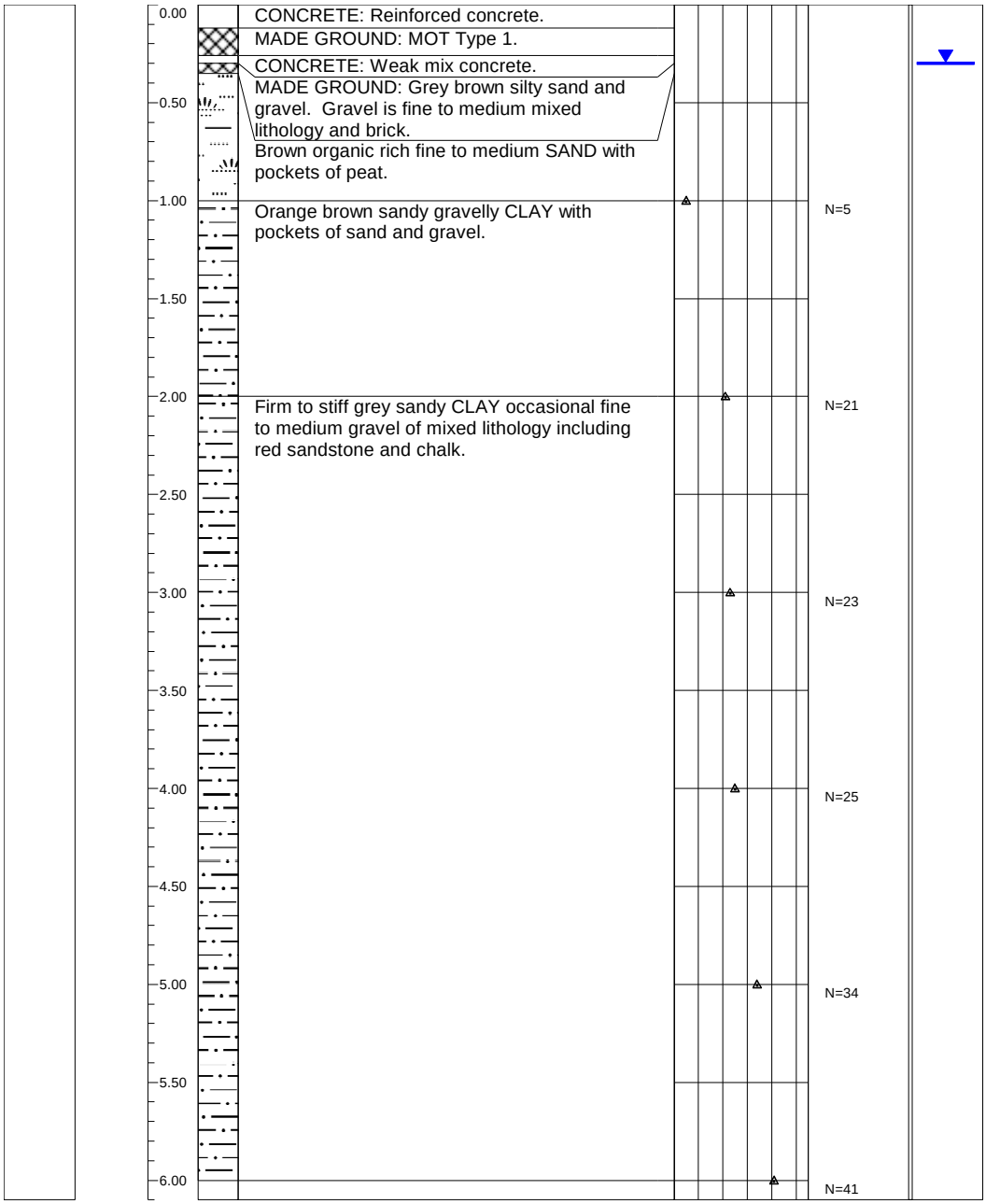
gdp
Brownfield Consulting & Development

DRILLING DETAILS	Drilling Date: 10 January 2023	GDP Project Ref: 2291
Drilling Company: Regional Drilling	Location: Potternanworth Booths	Bore Diameter: 100/80 (mm)
Drilling Method: Dynamic Sampling	Ground Elevation: (mAOD)	Coordinates:

			Soil or Rock Field Material Description	SPT (blows/300mm)		Piezometer Construction Details And Groundwater Levels
D1		0.00	CONCRETE: Reinforced concrete.			
			MADE GROUND: MOT Type 1.			
			CONCRETE: Weak mix concrete.			
D2		0.50	MADE GROUND: Black silty sand and gravel. Gravel is fine to medium, mixed lithology brick and possible ash.			
			Grey brown variably clayey SAND AND GRAVEL.			
		1.00			N=14	
		1.50				
		2.00			N=19	
		2.50	Firm to stiff grey sandy slightly gravelly CLAY occasional fine to medium gravel of mixed lithology including chalk.			
		3.00			N=21	
		3.50				
		4.00			N=24	
		4.50				
		5.00			N=29	
		5.50				
		6.00				

Groundwater Observations:

No recovery 4-5m Standing water circa 0.3m on completion of drilling


0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
4.50
5.00
5.50
6.00
CONCRETE: Reinforced concrete.
MADE GROUND: MOT Type 1.
CONCRETE: Weak mix concrete.
MADE GROUND: Grey brown silty sand and gravel. Gravel is fine to medium mixed lithology and brick.
Brown organic rich fine to medium SAND with pockets of peat.
Orange brown sandy gravelly CLAY with pockets of sand and gravel.
Firm to stiff grey sandy CLAY occasional fine to medium gravel of mixed lithology including red sandstone and chalk.
N=5
N=21
N=23
N=25
N=34
N=41

GD Pickles Limited
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South Scarle Lane
Swinderby, Lincoln, LN6 9JA
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Borehole Record BH3:

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DRILLING DETAILS		
Drilling Company: Regional Drilling	**Drilling Date:** 10 January 2023	**GDP Project Ref:** 2291
Drilling Method: Dynamic Sampling	**Ground Elevation:** (mAOD)	**Bore Diameter:** 100/80 (mm)
	Location: Potternanworth Booths	**Coordinates:**

		Soil or Rock Field Material Description	SPT (blows/300mm)	Piezometer Construction Details And Groundwater Levels
D1	0.00	CONCRETE: Reinforced concrete.		
		MADE GROUND: MOT Type 1.		
		CONCRETE: Weak mix concrete.		
D2	0.50	MADE GROUND: Grey brown soily sand and gravel. Possibly some ash.		
		Brown organic rich peaty SAND with occasional pocket of peat.		
		Grey clayey SAND AND GRAVEL.		
	1.00	Orange brown SAND AND GRAVEL.	N=12	
	1.50			
	2.00	Firm to stiff grey sandy CLAY occasional fine to medium gravel of mixed lithology including red sandstone and chalk.	N=15	
	2.50			
	3.00		N=18	
	3.50			
	4.00		N=25	
	4.50			
	5.00		N=28	
	5.50			
	6.00		N=28	

Groundwater Observations:

Standing water circa 0.3m on completion of drilling.

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Borehole Record BH4:

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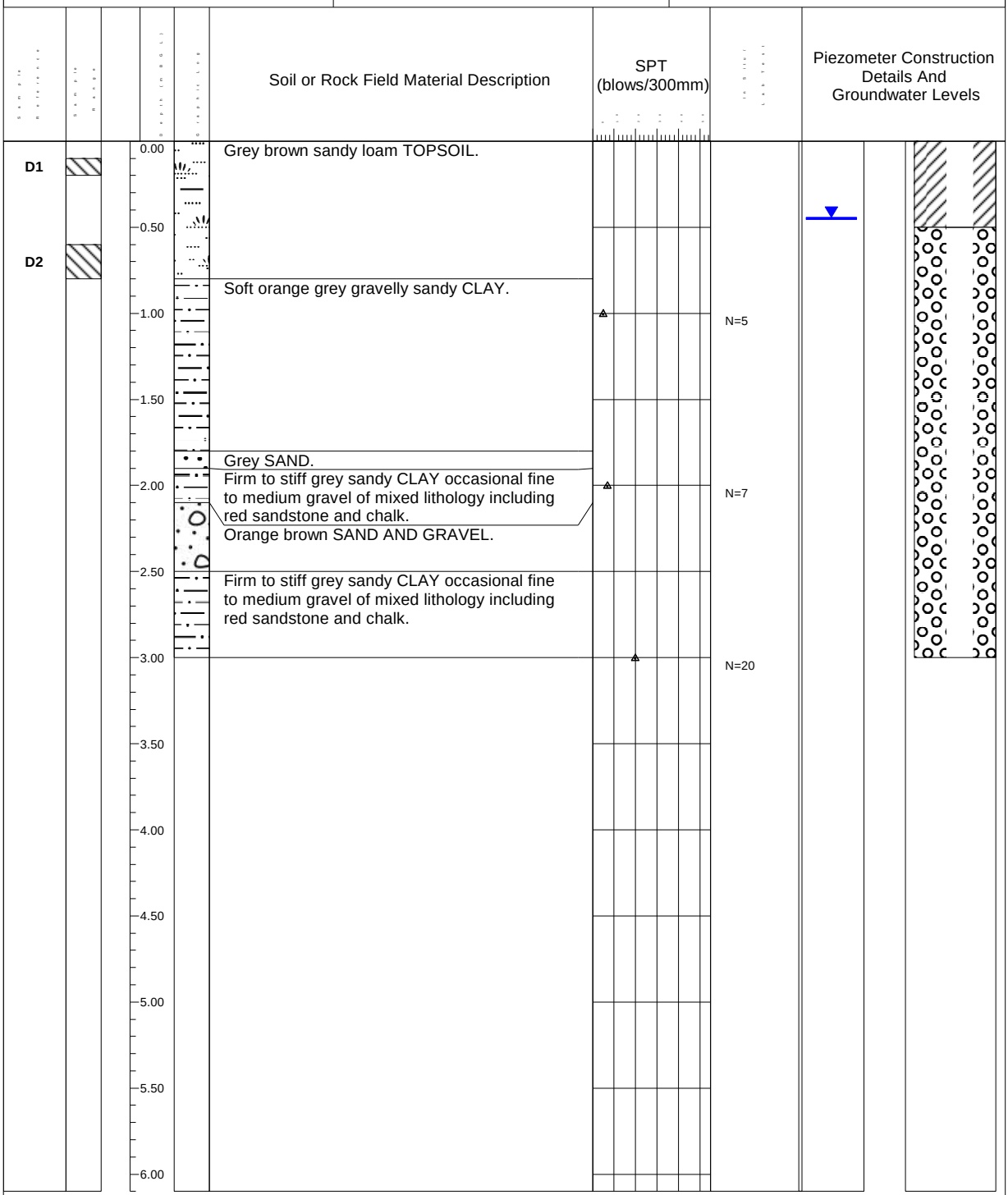
DRILLING DETAILS		
Drilling Company: Regional Drilling	**Drilling Date:** 10 January 2023	**GDP Project Ref:** 2291
Drilling Method: Dynamic Sampling	**Ground Elevation:** (mAOD)	**Bore Diameter:** 100/80 (mm)
	Location: Potternanworth Booths	**Coordinates:**



Groundwater Observations:

Standing water circa 0.45m on completion of drilling.

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Borehole Record

BH3:

DRILLING DETAILS		
Drilling Company: GDP	**Drilling Date:** 10 January 2023	**GDP Project Ref:** 2291
Drilling Method: Hand Pit	**Ground Elevation:** (mAOD)	**Bore Diameter:** 100/80 (mm)
		Coordinates:

			Soil or Rock Field Material Description	SPT (blows/300mm)	Piezometer Construction Details And Groundwater Levels
D1		0.00	Grey brown sandy loam TOPSOIL.		
		0.50			
		1.00			
		1.50			
		2.00			
		2.50			
		3.00			
		3.50			
		4.00			
		4.50			
		5.00			
		5.50			
		6.00			

Groundwater Observations: