A PHASE I DESK STUDY REPORT TO SUPPORT A CLASS Q PLANNING APPLICATION FOR THE RESIDENTIAL CONVERSION OF BARNS LOCATED AT:

PANORAMA, FOXES LANE, MENDHAM, IP20 0PE

CLIENT:	**Jane Crockett & David Lane-Godbold**
AGENT:	**Durrants**
REFERENCE:	**DJM/19.381/PhaseI**
DATE:	**22 November 2019**

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CONTENTS

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1. TERMS OF REFERENCE

A F Howland Associates Limited was instructed by Jane Crockett & David Lane-Godbold (the "Client") to carry out a Phase I Desk Study at Panorama, Foxes Lane, Mendham, IP20 0PE (Fig. 19.381/PhaseI/01). This was required to support a Class Q permitted development planning application for the proposed residential conversion of several agricultural buildings.

This report presents historical and environmental information collated for the site and gives details of a walkover survey undertaken to confirm the current condition of the site and surrounding area. The information is used to develop a preliminary conceptual model using the source-pathway-receptor principle and provides a qualitative risk assessment of land contamination.

An environmental database report was commissioned to provide background information and is included in Appendix B. Other sources of data were used to verify the findings of the environmental database report and add details where appropriate; these are listed in the appendices.

The report has been carried out in general accordance with accepted best practice and methodologies (BSI, 2017) (DEFRA and EA, 2004) (DCLG, 2010) and was prepared for the sole and exclusive use of the Client and their advisors. Other parties using the contained information do so at their own risk and any duty of care to those parties is specifically excluded subject to copyright as detailed below.

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2. LOCATION

The site is located off Foxes Lane, approximately 1.3 km south east of the village of Mendham, Suffolk, centred at National Grid reference 627737, 281782 and at an elevation of approximately 44 m above Ordnance Datum (aOD).

The geomorphology of the area comprises a plateau with little topographical relief, with the valley of the River Waveney approximately 500 m to the west at its closest extent. The valley is approximately 1.25 km wide, with a minimum elevation of approximately 15 m aOD.

3. GEOLOGY

The regional geology as mapped for the area by the British Geological Survey (BGS, 2019) indicates bedrock of the Crag Group (sand and gravel) overlain by superficial deposits of the Lowestoft Formation (diamicton). The geology is reproduced on drawing 19.381/PhaseI/02, which is included in Appendix D.

There are two nearby archive borehole records held by the BGS, referenced TM28SE54 and TM28SE60, which are located approximately 330 m to the north east and 350 m to the west respectively. The records are included in Appendix C for reference. Borehole TM28SE54 recorded approximately 15 m of "Boulder Clay" (Lowestoft Formation) overlying 5 m of "Beccles Bed" (gravelly sands) to the base. The nomenclature for the Beccles Beds has been updated and split into the Corton Sand Member and Leet Hill Sand and Gravel Member, forming the Happisburgh Glacigenic Formation. Borehole TM28SE60, which was undertaken on the edge of the plateau, recorded 11 m of "Boulder Clay" overlying 14 m of "Beccles Beds" to the base. The bedrock geology was not considered to have been encountered.

4. HYDROLOGY

The closest surface water feature is a pond and drainage ditch on the eastern edge of the site. There are drainage ditches along Foxes Lane and other small ponds located in the vicinity, with surface water features recorded 130 m to the north east, 105 m to the north west, 162 and 230 m to the north and 211 and 222 m to the south. There are also prevalent drainage ditches on lower lying land approximately 450 m to the west, associated with the River Waveney, which is 1.4 km to the north west at its closest extent. There are no surface water or potable water abstraction licences within 2 km of the site.

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Superficial deposits of the Lowestoft Formation are designated a secondary (undifferentiated) aquifer status, whilst deposits of the Leet Hill Sand and Gravel Member are designated a secondary (A) aquifer status. The underlying Crag Group bedrock is classified as a principal aquifer. The site is not located within a groundwater source protection zone. There are three groundwater abstraction licences within 2 km of the site, the closest being 855 m to the south west, which is for general farming and domestic use.

Regional hydrogeological mapping indicates groundwater to be at approximately 14 m aOD, corresponding to approximately 30 m below ground level (bgl; Institute of Geological Sciences, 1981). Archive BGS borehole TM28SE60 struck groundwater at approximately 12 m bgl, corresponding to approximately 31 m aOD, whilst borehole TM28SE54 did not encountered groundwater and was taken to 20 m bgl, corresponding to approximately 22 m aOD.

5. HISTORICAL INFORMATION

A review of historical information has been undertaken, including OS mapping and aerial images. The historical map extracts are included in Appendix C. A summary of the pertinent details is presented below.

In 1885, the earliest historical map extract reviewed, the site was occupied by a building in the north eastern area, bisected by a track on an east to west alignment and with a small pond on the eastern boundary. The building is considered to be the barn which still occupies the north eastern area of the site today. The remaining parts of the site formed the edges of fields. Foxes Lane is already established, although labelled as Punt's Lane during the early 1900s, forming the eastern boundary of the site.

The site and wider surrounding area comprised agricultural land with several farms located within the vicinity, including Park Farm and Gray's Farm approximately 80 m and 160 m to the north respectively along Foxes Lane, whilst Botwright's Farm was surveyed approximately 450 m to the east and Chestnut Lodge Farm 500 m to the west. Anecdotal evidence suggests the structure on site was associated with Chestnut Lodge Farm. Each farmstead was surveyed with structures considered likely to comprise farmhouses and barns as well as small ponds. The ponds are likely to be historical clay extraction pits, with the clay often used to construct the dwellings. These have not been infilled.

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Adjacent to Chestnut Lodge Farm is an area of worked ground/pit feature which is approximately 310 m to the west of the site at its closest extent. This feature is surveyed on all map extracts until the 1970s and then shown as a wooded area till the present-day. The pit feature is probably associated with historical extraction and likely to still be present.

There are no significant changes to the site or immediate surrounding area over the course of the historical map extracts until some point between the 1953 and 1976 map extracts. By 1976, the present-day layout of the site had been established with additional barns surveyed across the northern and southern parts of the site. There is also another structure immediately off site to the west. A dwelling, labelled *Panorama,* is also surveyed approximately 100 m to the north. There has also been further development at Park Farm, including additional structures approximately 100 m to north of the site. The wider area still remains agricultural.

Publically available aerial images from 1999 through to the present-day have been reviewed and confirm the findings of the map extracts, with structures in the northern and southern parts, with a track between them. There are no significant changes to the site or immediate surrounding area over the course of the images, except the scale and nature of vegetation. The wider surrounding area comprises fields with Park Farm shown just to the north west of the site, with associated structures.

Additional information available from the environmental database report indicates that there is one historical pollution event recorded within 500 m of the site, approximately 300 m to the south east, associated with solid manure and occurred in February 2002. There was no impact to water, land or air.

6. HAZARDOUS GASES

Building Research Establishment report BR211 (BRE, 2015) indicates that the site is not within an area where specific protection from radon gas is required. There are no historical or current landfill sites within a kilometre of the site. There is no evidence of potentially infilled land on site.

The historical map extracts and the environmental database report indicate ponds in the surrounding area which are likely to be associated with former clay extraction pits. The ponds are concentrated at the farmsteads in the surrounding area, with most of the ponds

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still shown on aerial images to the present day. Some may have been infilled, but none are considered to be within 100 m of the site. There was an area of worked ground approximately 310 m to the west, which does not appear to have been infilled. Notwithstanding, if the ponds or worked ground had been infilled, the distance to, presence of low permeability soils and little topographical gradient between them and the site suggests that there is unlikely to be significant ground gas migration towards the site. The preferential pathway would be vertical degassing to the atmosphere. There are no other areas of potentially infilled land within 500 m of the site.

There are no fuel storage tanks noted on the environmental database report within 250 m of the site. However, anecdotal evidence suggests there was a diesel tank and a tractor vapouring oil (TVO) tank on site, which are no longer present except the remnants of the bases (as seen during the site walkover and detailed further in Section 8). There was also a diesel tank, although no longer in use, just off site to the west adjacent to a structure.

7. CURRENT LAND USES

The site comprises agricultural buildings set with fields to the north, south and west, and Foxes Lane to the east. There are no current industrial, or petrol/fuel sites, within 500 m of the site. The wider surrounding area is agricultural and comprises fields and farmsteads, the closest being Park Farm just to the north east.

8. WALKOVER SURVEY

A walkover survey was carried out on 19 November 2019 to enable identification of the current land use and other details not otherwise available from the archival information. The salient features are shown on drawing 19.381/PhaseI/03.

The site comprised 4 No. agricultural buildings with soft landscaped curtilages and an unmade track bisecting the site on an east to west alignment. There was a small pond and drainage ditch on the eastern boundary of the site. The arrangement of the structures is indicated in Figure 1 below, and descriptions of each structure given below. The barns were historically used to store grain. The northern, western and southern boundaries were undefined, as these areas comprised fields. The eastern boundary was defined by Foxes Lane with a drainage ditch and mature trees along the road.

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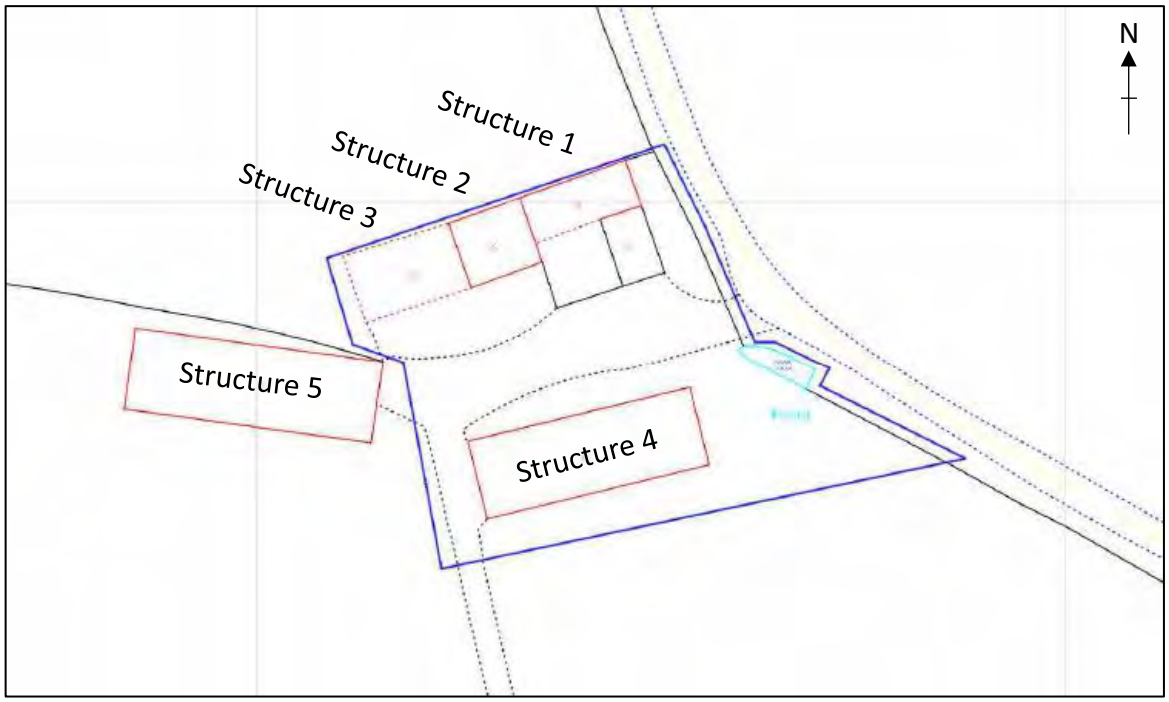

Figure 1: 2003 1:1250 map extract with structures on-site and off-site numbered and described in the text

Structure 1: a single-storey L-shaped barn of a brick and timber frame construction, with a clay pantile roof. The floor was mainly bare soils, as well as concrete in places, with a small courtyard area enclosed by a brick wall. The courtyard was unmade. The barn was empty upon inspection. Anecdotal evidence suggests the structure was formerly a bullock barn and yard, whilst it had been used to store vintage tractors and agricultural machinery more recently. There was a metal tank raised on blocks just to the south of Structure 1, which is understood to have been used to store water. There was also a stack of corrugated asbestos cement boards (ACM), and a large concrete pipe just to the east of this structure in an area of grass. They were in good condition.

Structure 2: a single-storey square-shaped structure of a blockwork construction and metal framed roof clad with corrugated ACM. It had a concrete floor in good condition with no signs of cracks or staining. The barn was predominantly empty except a few timber and miscellaneous agricultural items. Anecdotal evidence suggests the barn was historically used to store sacks of grain. Immediately to the south of the structure were the remnants of two former tank bases which comprised concrete blocks. The former tanks, whilst no longer present, are understood to have been used to store diesel and tractor vaporising oil (TVO). This area was slightly overgrown, but comprised unmade ground.

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Structure 3: a double-height open-sided metal framed structure with a corrugated cement board (ACM) roof. The floor comprised bare soils, with straw bales stored in it, as well as an old car and a pile of metal and corrugated cement board sheets (ACM), which had been broken.

Structure 4: a large rectangular barn of a blockwork construction with a metal framed roof clad with cement board panels (possible ACM). The barn had been used to store grain and contained associated machinery including a grain dresser. The floor comprised concrete hardstanding in good condition with associated concrete-lined pits for receiving and processing grain. There was a timber partition in one corner of the building, with this area used as a grain silo. The floor level was slightly higher than the external ground level to the north, with a concrete ramp up to a metal roller door. The area immediately north of the barn comprised bare soils with concentrations of fragmented anthropogenic material, including brick, timber, concrete and cement board fragments (ACM). There was also a stack of ACM in the same area which were in a relatively good condition, although some had broken edges, as well as several corrugated metal sheets and a rusty metal drum. To the east of the structure was another stack of ACM in an area of grass. This stack was in relatively good condition.

The areas around the structures were generally grassed or with nettles and bare soils, whilst there were fields to the north and south. To the west was another structure (labelled Structure 5 on Figure 1) and a field boundary. Structure 5 comprised a Romney Hut which had been relocated from an airfield post-WWII. It was of block and steel framed construction clad with corrugated metal sheets. It was also understood to have been used to store grain. No access was made inside the structure, which is off site.

In the wider surrounding area, Park Farm was on the eastern side of Foxes Lane just to the north of the site which comprised numerous agricultural buildings, whilst a residential property, known as Panorama, was approximately 100 m to the north along Foxes Lane with Grays Farm opposite.

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9. DISCUSSION OF ENVIRONMENTAL ISSUES

The residential conversion of the site will introduce sensitive human receptors and will include private garden and soft landscaped areas.

Superficial deposits of the Lowestoft Formation (diamicton) are mapped from surface and underlain by deposits of the Leet Hill Sand and Gravel Member and then Crag Group bedrock, with the bedrock classified as a principal aquifer. The Lowestoft Formation is a secondary (undifferentiated) aquifer, whilst the Leet Hill Sand and Gravel Member is a secondary (A) aquifer.

The closest surface water features are the pond and drainage ditch on the eastern boundary of the site, as well as ponds in the wider surrounding area and drainage ditches along Foxes Lane. The site is not within a source protection zone, and there are no abstraction licences within 500 m of the site.

A review of historical and contemporary archives, as well as anecdotal evidence, indicates that the site has had a structure in the north eastern area since at least 1885, which is understood to have been a bullock barn associated with Chestnut Lodge Farm to the west. Further structures were built in the 1960s and the site was primarily used to store grain. The site use and wider surrounding land use has always been agricultural, with the site set within fields with farmsteads in the wider vicinity.

The general agricultural use of the site may have introduced localised areas of contamination. This includes associated activities such as the above ground storage of diesel and TVO, as well as the use and storage of asbestos cement board.

The stacks of asbestos cement board found on site, as well as in use as roofing on the buildings, should be handled and disposed of appropriately. There is also an area of made ground to the north of structure 4 where fragments of asbestos cement board are clearly evident on the soil surface, as well as broken asbestos cement board on bare soils in Structure 3.

The surrounding land use has always been agricultural and is unlikely to have introduced significant contamination that would have adversely affected the site.

There are no areas of potentially infilled ground on site. There is also no significant infilled ground in the immediate surrounding area. There is a possible area of worked ground

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approximately 310 m to the west of the site, but it is not considered to pose a risk to site even if it has been infilled due to the distance and low permeable soils preventing lateral ground gas migration. Therefore, there are not considered to be any significant on or off site sources of ground gas.

There may be potential contamination associated with fuel storage on site which would could be a source of vapours.

10. KEY CONTAMINANTS

It is considered that the key contaminants associated with specific activities discussed in Section 9 include:

- Fuels/Oils, including vapours
- Polyaromatic hydrocarbons
- Heavy metals and metalloids
- Asbestos

11. PRELIMINARY CONCEPTUAL MODEL

Following a review of the archival information and the walkover survey a preliminary conceptual model was devised to determine the risk to appropriate targets from the potential contaminating activities assessed for the site. This collates the evidence gained and establishes the potential linkages that may exist under the principle of "source-pathway-receptor" and is presented in Table 1 below.

A risk category is determined for the potential linkages and an assessment made of risk and the significance of that risk from professional judgement. Risk assessment classification is included in Appendix E. Where appropriate, further work is recommended to assess whether the potential linkages are realised and a revised conceptual model formulated as part of a Phase II investigation.

It should be noted that an assessment of risk to construction workers suggests that only contamination of acute toxicity might represent an unacceptable risk to the health of construction workers but which should be managed through health and safety procedures.

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Source of Contamination	Pathway	Receptor	Probability and Reasoning	Consequence and Reasoning	Risk Classification
Potentially contaminated soils (associated with fuel/oil storage and asbestos cement boards)	Direct contact, inhalation, ingestion	Human end-users	**Likely** – Potential localised sources of contamination identified and high exposure areas proposed with residential end-users, e.g. private gardens	**Medium** – Chronic damage to human health	**Moderate Risk**
		Construction workers		**Mild** – Potential short term exposure can be managed with PPE and adoption of good hygiene practices	**Low to Moderate Risk**
	Percolation of leachate / mobile contaminants	Groundwater	**Low Likelihood** – Significant contamination unlikely, but there is potential for localised mobile or leachable contamination. Low permeability soils underlie the site which also inhibit significant vertical and lateral migration of contaminants. Significant depth to groundwater allowing for natural attenuation and degradation of any possible contaminants as well.	**Medium** – The site is on a principal aquifer, but not within a source protection zone. No nearby abstraction licences. Groundwater anticipated to be approximately 30 m bgl	**Low to Moderate Risk**
		Surface water		**Medium** – Drainage ditch and pond eastern boundary of the site. Drainage ditches and ponds in wider vicinity, with valley of River Waveney approximately 500 m to the west.	**Low to Moderate Risk**
	Direct Contact	Buried concrete	**Unlikely** –Whilst potential localised sources of contamination identified, aggressive soils chemistry with respect to proposed buried concrete considered unlikely	**Mild** – Damage to buildings/structures	**Low Risk**
	Permeation through water supply pipes	Human end-users	**Low Likelihood** – Potential localised sources of contamination identified; water supply pipes to be installed as part of residential development	**Medium** – Chronic damage to human health	**Low to Moderate Risk**
Ground Gas (Unknown infilled ground / potential thick made ground)	Gas/vapour migration through permeable strata, ingress and accumulation in structures	Human end-users & Structures	**Unlikely** – No significant areas of infilled ground on site or in the surrounding area. Low permeability soils preventing significant ground gas migration.	**Severe** – Acute risk to potential end users	**Low Risk**[1]
Vapours (Potential localised contaminated soils associated with fuel storage)			**Low Likelihood** –Potential for localised contamination associated with fuel/oil storage which may be source of vapours.		**Moderate Risk**
Radon Gas		Human end-users	**Unlikely** – Site outside of radon affected area	**Medium** – Chronic risk to human end users	**Low Risk**

Table 1 – Preliminary Conceptual Site Model

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12. SUMMARY

1. A Phase I Desk Study was undertaken to support a Class Q permitted development planning application for the residential conversion of barns located at Panorama, Foxes Lane, Mendham, IP20 0PE, Suffolk.
2. Geological mapping indicates the site to be underlain by deposits of the Lowestoft Formation (diamicton) overlying deposits of the Leet Hill Sand and Gravel Member and then bedrock of the Crag Group (sand).
3. Groundwater is considered to be approximately 30 m bgl. Bedrock geology is classified as a principal aquifer, whilst Lowestoft Formation is classified as a secondary (undifferentiated) aquifer and the Leet Hill Sand and Gravel Member is a secondary (A) aquifer. There are no nearby abstraction licences and the site is not within a source protection zone.
4. The closest surface water feature is a drainage ditch and pond on the eastern boundary of the site. There are other drainage ditches along Foxes Lane and small ponds in the wider vicinity. The valley of the River Waveney is approximately 500 m to the west.
5. The site has had a structure in the north eastern corner since at least 1885, which is understood to have been a bullock barn. The site was then further developed in the 1960s with additional structures primarily of a metal frame/blockwork construction with corrugated asbestos cement board clad roofs. The site was then primarily used to process and store grain. The surrounding area has always been agricultural and comprised fields with farmsteads.
6. The general agricultural use of the site and surrounding area may have introduced localised areas of contamination, including known activities such as the former above ground storage of fuels/oil as well as the use and storage of asbestos cement board, fragments of which were clearly visible on bare soils to the north of Structure 4 and in Structure 3.
7. Asbestos containing materials should be handled and disposed of appropriately during redevelopment.
8. A moderate risk to human end-users and a low to moderate risk construction workers has been identified from direct contact, inhalation or ingestion of potentially localised contaminated soil.
9. Controlled waters are considered to be at low to moderate risk, given the potential for localised mobile and leachable contamination.

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10. Buried concrete is considered to be at low risk from being affected by contamination arising from the former use of the site.
11. There is considered to be a low to moderate risk of the permeation of contaminants through water supply pipes associated with localised potential fuel/oil contamination.
12. There are no significant sources of ground gas on or off site in the immediate surrounding area. There are also low permeability soils across the site. Therefore, a low risk from ground has been concluded.
13. Potentially localised contamination associated with fuel/oil storage may be a source of vapours. A moderate risk from vapours is concluded.
14. The site is not in a radon affected area. A low risk from radon gas is concluded.

13. RECOMMENDATIONS

1. A Phase II intrusive investigation is considered to be required in order to identify the presence/absence of potentially localised contaminated soils and vapours which pose a moderate risk to human end-users, low to moderate risk to controlled construction workers, controlled waters and water supply pipes.
2. An intrusive investigation should target the localised areas of potentially contaminated soils to determine if the associated activities have impacted the site, as well as provide general coverage of proposed areas of private gardens and soft landscaping. This should primarily include the areas where asbestos cement boards have been stored, the area of made ground to the north of structure 4 and within structure 3, and where the former diesel/TVO tanks were located.
3. Soil samples should be obtained and tested for key contaminants, as outlined in Section 10, and the results assessed as part of a generic quantitative risk assessment. Soil samples should be screened for vapours in pertinent locations.
4. Soil leachate samples should also be obtained and tested for a generic suite of contaminants in order to further address the risk to controlled waters.
5. The scope for the investigation should be agreed, in writing, with the Local Planning Authority prior to implementation.

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MSc FGS

Eur Ing Dr A F Howland
MSc PhD DIC CEng FIMMM CGeol FGS

A F HOWLAND ASSOCIATES
22 November 2019

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APPENDIX A: REFERENCES

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APPENDIX B: ENVIRONMENTAL DATABASE REPORT

Groundsure Enviro Insight Report Reference: GS-6463648

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Enviro Insight

Address:	**PANORAMA, FOXES LANE, MENDHAM, IP20 0PE**
Date:	**14 Nov 2019**
Reference:	**GS-6463648**
Client:	**A F Howland Associates**

NW N NE

W E

SW S SE

Aerial Photograph Capture date:	04-May-2018
Grid Reference:	627757,281785
Site Size:	0.2133ha

Report Reference: GS-6463648
Client Reference: DJM-19-381

Contents Page

Overview of Findings

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

Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	0	0	0	8
1.2 Additional Information – Historical Tank Database	0	0	0	0
1.3 Additional Information – Historical Energy Features Database	0	0	0	0
1.4 Additional Information – Historical Petrol and Fuel Site Database	0	0	0	0
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	0	0	0	0
1.6 Historical military sites	0	0	0	0
1.7 Potentially Infilled Land	0	0	14	20

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

Section 3: Landfill and Other Waste Sites	On-site	0-50m	51-250	251-500	501-1000	1000-1500
3.1 Landfill Sites						
3.1.1 Environment Agency/Natural Resources Wales Registered Landfill Sites	0	0	0	0	0	Not searched
3.1.2 Environment Agency/Natural Resources Wales Historic Landfill Sites	0	0	0	0	0	0
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	0
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	0	0
3.2 Landfill and Other Waste Sites Findings						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	Not searched	Not searched
3.2.2 Environment Agency/Natural Resources Wales Licensed Waste Sites	0	0	0	0	0	0

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	0	0	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	0	0
4.3 National Grid Underground Electricity Cables	0	0	0	0
4.4 National Grid Gas Transmission Pipelines	0	0	0	0

Section 5: Geology	
5.1 Records of Artificial Ground and Made Ground present beneath the study site	None identified
5.2 Records of Superficial Ground and Drift Geology present beneath the study site	Identified
5.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 6: Hydrogeology and Hydrology	0-500m
6.1 Records of Strata Classification in the Superficial Geology within 500m of the study site	Identified
6.2 Records of Strata Classification in the Bedrock Geology within 500m of the study site	Identified

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	1	2
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	2	0	0	3	Not searched	Not searched

Section 6: Hydrogeology and Hydrology

	0-500m					
	On-site	0-50m	51-250	251-500	501-1000	1000-1500
6.9 Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site	No	No	No	No	No	Yes
6.10 Ordnance Survey MasterMap Water Network entries within 500m of the site	0	0	0	6	Not searched	Not searched
6.11 Surface water features within 250m of the study site	No	No	Yes	Not searched	Not searched	Not searched

Section 7: Flooding

7.1 Enviroment Agency Zone 2 floodplains within 250m of the study site	None identified
7.2 Environment Agency/Natural Resources Wales Zone 3 floodplains within 250m of the study site	None identified
7.3 Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site	Very Low
7.4 Flood Defences within 250m of the study site	None identified
7.5 Areas benefiting from Flood Defences within 250m of the study site	None identified
7.6 Areas used for Flood Storage within 250m of the study site	None identified
7.7 Maximum BGS Groundwater Flooding susceptibility within 50m of the study site	Limited potential
7.8 BGS confidence rating for the Groundwater Flooding susceptibility areas	Low

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	0
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
8.6 Records of Ancient Woodlands	0	0	0	0	0	0
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	0
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	1	0	1

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

Section 9: Natural Hazards

9.1 Maximum risk of natural ground subsidence	Low
9.1.1 Maximum Shrink-Swell hazard rating identified on the study site	Low
9.1.2 Maximum Landslides hazard rating identified on the study site	Very Low
9.1.3 Maximum Soluble Rocks hazard rating identified on the study site	Negligible
9.1.4 Maximum Compressible Ground hazard rating identified on the study site	Negligible
9.1.5 Maximum Collapsible Rocks hazard rating identified on the study site	Very Low
9.1.6 Maximum Running Sand hazard rating identified on the study site	Very Low
9.2 Radon	
9.2.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The site is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.
9.2.2 Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary.

Section 10: Mining

10.1 Coal mining areas within 75m of the study site	None identified
10.2 Non-Coal Mining areas within 50m of the study site boundary	None identified
10.3 Brine affected areas within 75m of the study site	None identified

Using this report

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

1. Historical Industrial Sites

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

2. Environmental Permits, Incidents and Registers

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

3. Landfills and Other Waste Sites

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

4. Current Land Uses

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

5. Geology

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

6. Hydrogeology and Hydrology

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

7. Flooding

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

8. Designated Environmentally Sensitive Sites

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

9. Natural Hazards

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

10. Mining

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

11. Contacts

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

Note: Maps

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

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

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

1. Historical Land Use

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Site Outline

250
500
Search Buffers (m)

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

Industrial Land Use

Potentially Infilled Land

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

Energy Features

Petrol Stations

Historical military sites

Tanks

Garages

1. Historical Industrial Sites

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

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

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 8

ID	Distance [m]	Direction	Use	Date
1A	327	W	Unspecified Ground Workings	1905
2A	327	W	Unspecified Ground Workings	1905
3A	332	W	Unspecified Ground Workings	1953
4I	336	W	Unspecified Pits	1883
5B	375	W	Unspecified Pit	1905
6B	375	W	Unspecified Pit	1905
7B	376	W	Unspecified Pit	1946
8B	380	W	Unspecified Pit	1953

1.2 Additional Information – Historical Tank Database

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

Records of historical tanks within 500m of the search boundary: 0

Database searched and no data found.

1.3 Additional Information – Historical Energy Features Database

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

Records of historical energy features within 500m of the search boundary: 0

Database searched and no data found.

1.4 Additional Information – Historical Petrol and Fuel Site Database

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

provides the following information.

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

Database searched and no data found.

1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database

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

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

Database searched and no data found.

1.6 Historical military sites

Certain military installations were not noted on historic mapping for security reasons. Whilst not all military land is necessarily of concern, Groundsure has researched and digitised a number of Ordnance Factories and other military industrial features (e.g. Ordnance Depots, Munitions Testing Grounds) which may be of contaminative concern. This research was drawn from a number of different sources, and should not be regarded as a definitive or exhaustive database of potentially contaminative military installations. The boundaries of sites within this database have been estimated from the best evidence available to Groundsure at the time of compilation.

Records of historical military sites within 500m of the search boundary: 0

Database searched and no data found.

1.7 Potentially Infilled Land

Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 34

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

ID	Distance(m)	Direction	Use	Date
9C	92	NE	Ponds	1953
10C	95	NE	Ponds	1928
11C	97	NE	Ponds	1883
12C	97	NE	Ponds	1903
13C	97	NE	Ponds	1946
14D	128	NE	Ponds	1978
15D	128	NE	Ponds	1992
16E	148	N	Pond	1883
17E	156	N	Pond	1978
18E	156	N	Pond	1992
19F	167	N	Ponds	1992
20F	167	N	Ponds	1978

21G	188	N	Pond	1883
22G	188	N	Pond	1903
23H	322	E	Pond	1953
24H	326	E	Pond	1903
25H	326	E	Pond	1946
26H	326	E	Pond	1928
27A	327	W	Unspecified Ground Workings	1905
28A	327	W	Unspecified Ground Workings	1905
29H	330	E	Pond	1883
30A	332	W	Unspecified Ground Workings	1953
31I	336	W	Unspecified Pits	1883
32J	336	E	Ponds	1978
33J	336	E	Ponds	1992
34B	375	W	Unspecified Pit	1905
35B	375	W	Unspecified Pit	1905
36B	376	W	Unspecified Pit	1946
37B	380	W	Unspecified Pit	1953
38K	453	E	Pond	1953
39K	455	E	Pond	1928
40K	455	E	Pond	1903
41K	455	E	Pond	1946
42K	461	E	Pond	1883

2. Environmental Permits, Incidents and Registers Map

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- Site Outline
- 250 / 500 Search Buffers (m)
- Recorded Pollution Incident
- Dangerous Substances (List 1)
- Dangerous Substances (List 2)
- Water Industry Referrals
- Licenced Discharge Consents
- Red List Discharge Consents
- RAS 3 & 4 Authorisations
- Part A(1) Authorised Processes and Historic IPC Authorisations
- Part A(2) and Part B Authorised Processes
- COMAH / NIHHS Sites
- Sites Determined as Contaminated Land
- Hazardous Substance Consents and Enforcements

2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

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

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

2.1.6 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site: 0

Database searched and no data found.

2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations: 0

Database searched and no data found.

2.1.8 Records of Licensed Discharge Consents within 500m of the study site: 0

Database searched and no data found.

2.1.9 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site: 0

Database searched and no data found.

2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site: 0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

Records of COMAH & NIHHS sites within 500m of the study site: 0

Database searched and no data found.

2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

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

1

The following NIRS List 2 records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
1	297	SE	628028.0 281593.0	Incident Date: 05-Feb-2002 Incident Identification: 56775.0 Pollutant: Agricultural Materials and Wastes Pollutant Description: Solid Manure	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

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

0

Database searched and no data found.

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

Records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site 0

Database searched and no data found.

3. Landfill and Other Waste Sites Map

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Site Outline

250
500
Search Buffers (m)

EA/NRW Active Landfill

EA/NRW Historic Landfill

BGS / DoE Survey Landfill

Historic and Planned Waste Sites

EA/NRW Licensed Waste Site

Local Authority/Historical Mapping Landfill Records

3. Landfill and Other Waste Sites

3.1 Landfill Sites

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

3.2 Other Waste Sites

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

0

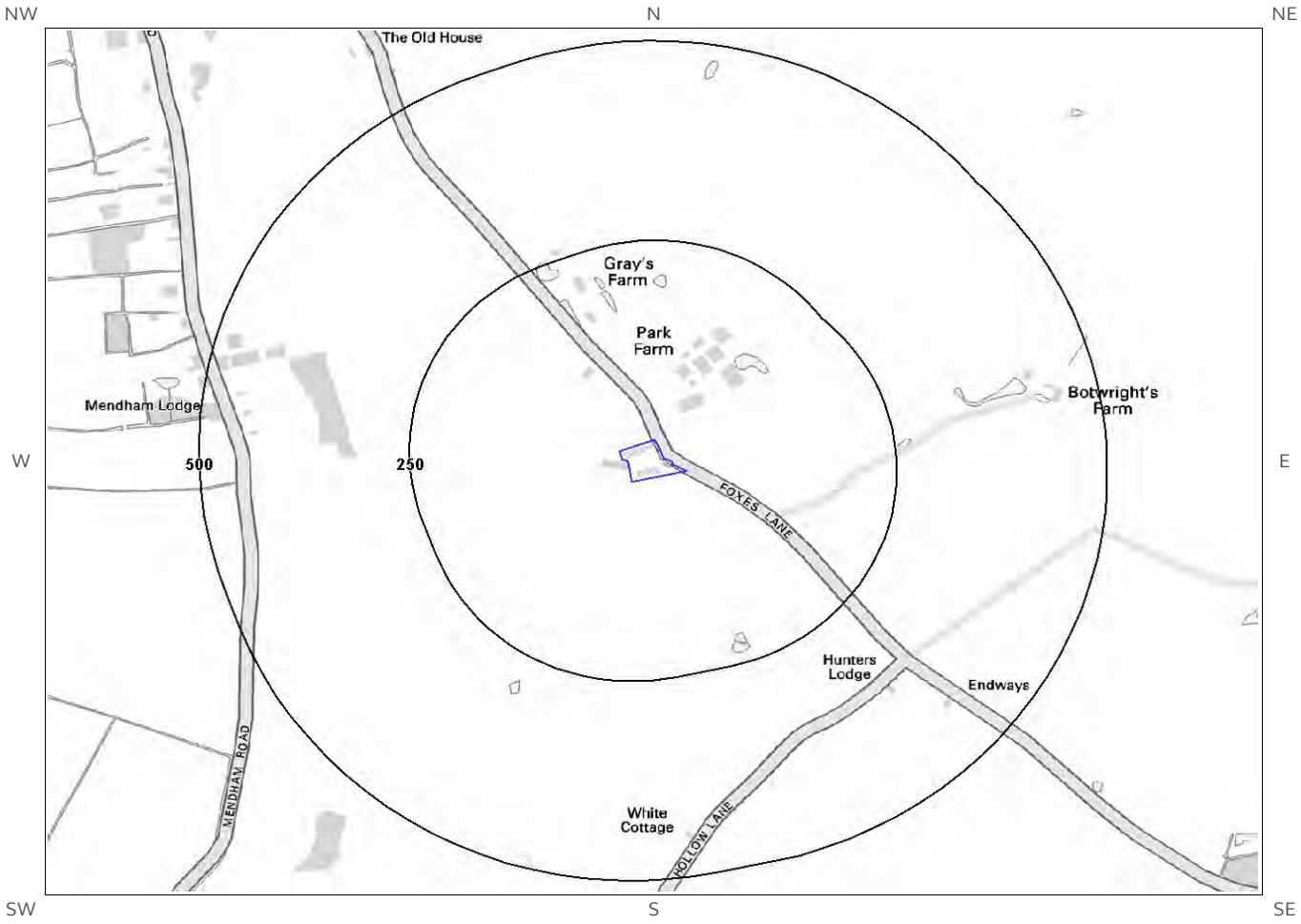
Database searched and no data found.

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

0

Database searched and no data found.

4. Current Land Use Map



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Site Outline

Search Buffers (m)
250
500

Current Industrial Sites

Petrol & Fuel Sites

Electricity Transmission Cables

Gas Transmission Pipelines

4. Current Land Uses

4.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site: 0

Database searched and no data found.

4.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site: 0

Database searched and no data found.

4.3 National Grid High Voltage Underground Electricity Transmission Cables

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

Records of National Grid high voltage underground electricity transmission cables within 500m of the study site: 0

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

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

Records of National Grid high pressure gas transmission pipelines within 500m of the study site: 0

Database searched and no data found.

5. Geology

5.1 Artificial Ground and Made Ground

Database searched and no data found.

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

5.2 Superficial Ground and Drift Geology

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

Lex Code	Description	Rock Type
LOFT-DMTN	LOWESTOFT FORMATION	DIAMICTON

5.3 Bedrock and Solid Geology

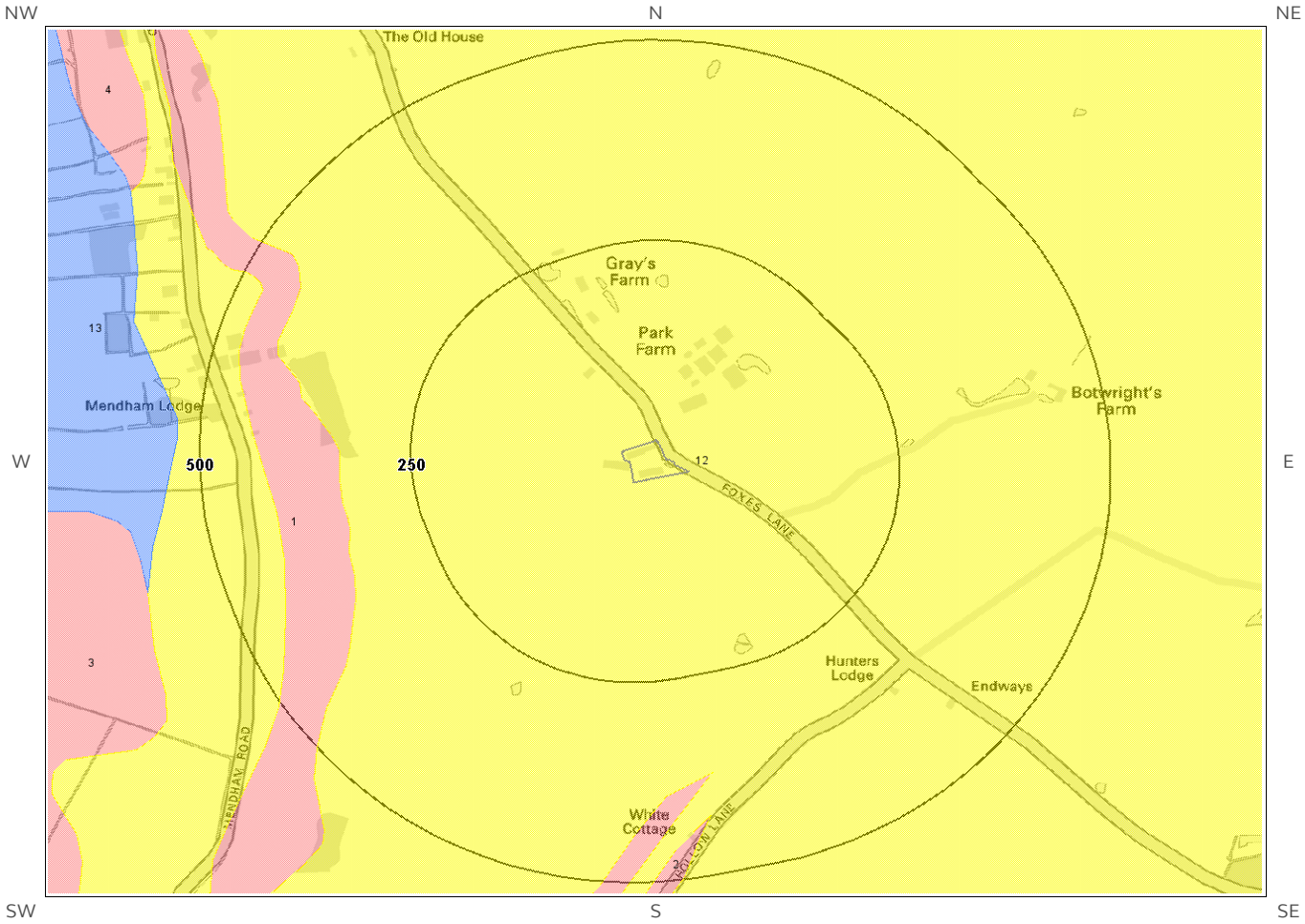
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
CRAG-S	CRAG GROUP	SAND

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

6 Hydrogeology and Hydrology

6a. Aquifer Within Superficial Geology



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Site Outline

250
500
Search Buffers (m)

Principal Aquifer

Secondary (A) Aquifer - Permeable Layers

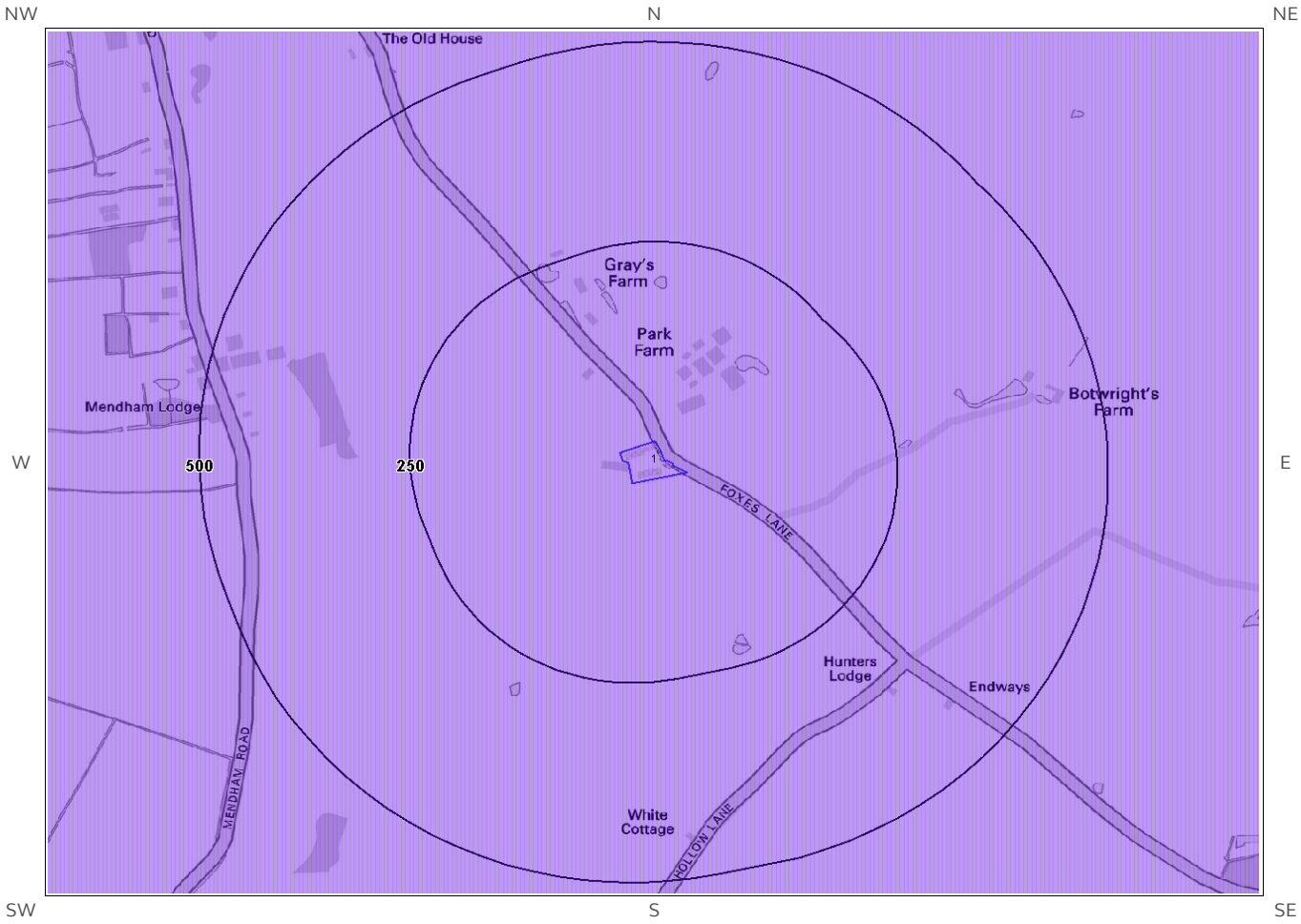
Secondary (B) Aquifer - Lower Permeability Layers

Secondary Aquifer - Undifferentiated Layers

Unproductive

Unknown (lakes and landslip)

6b. Aquifer Within Bedrock Geology and Abstraction Licences



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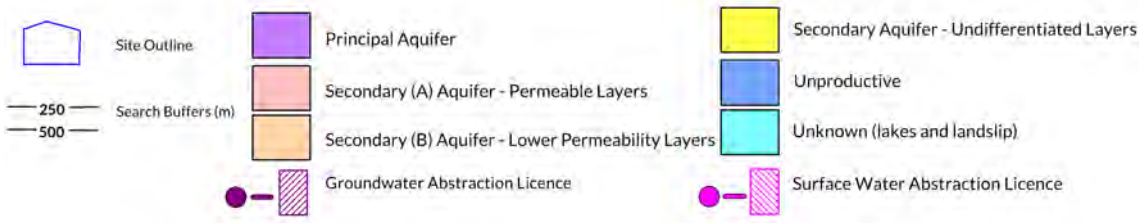
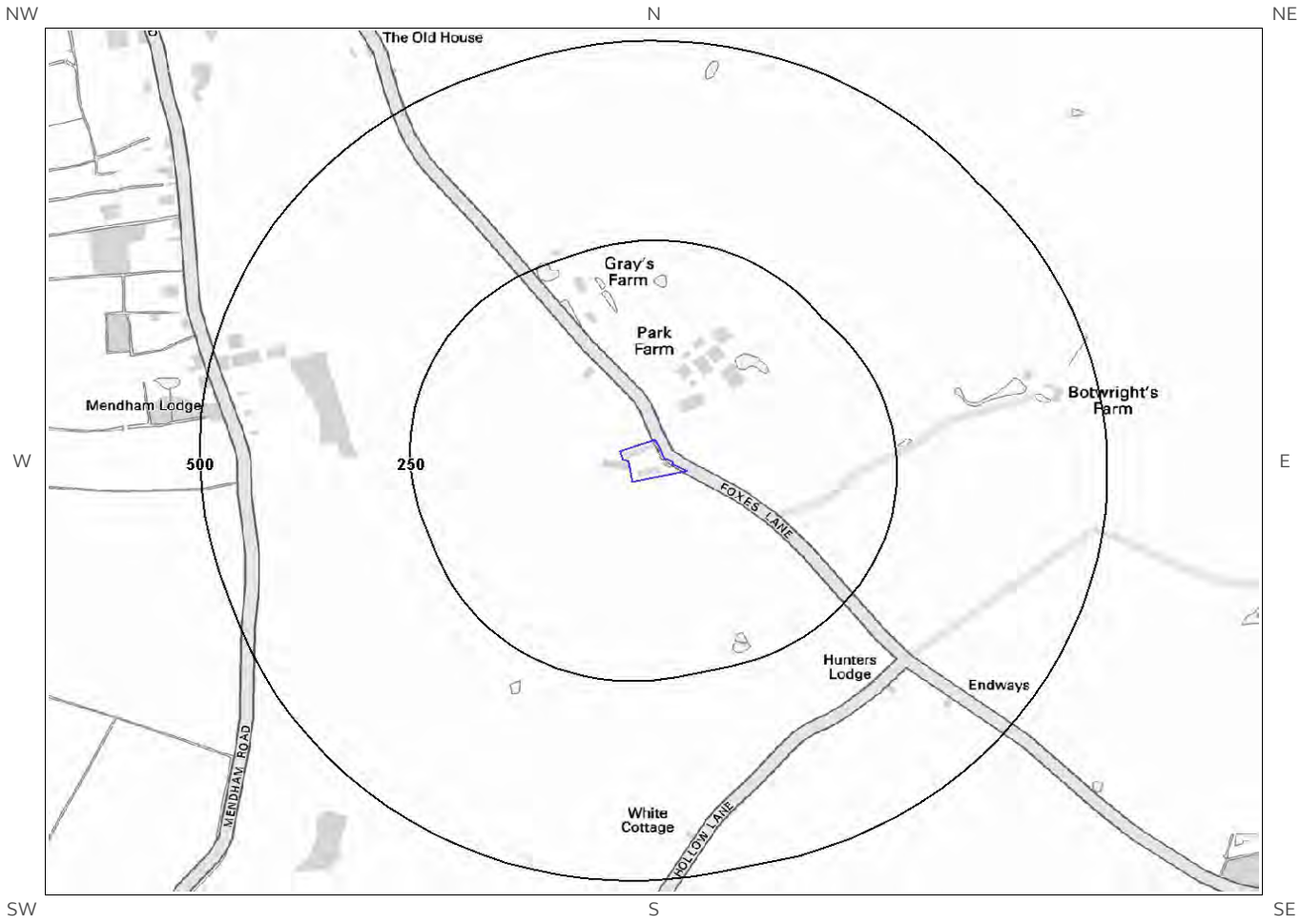


6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences



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Site Outline

250
500
Search Buffers (m)

Source Protection Zone 1 - Inner Catchment

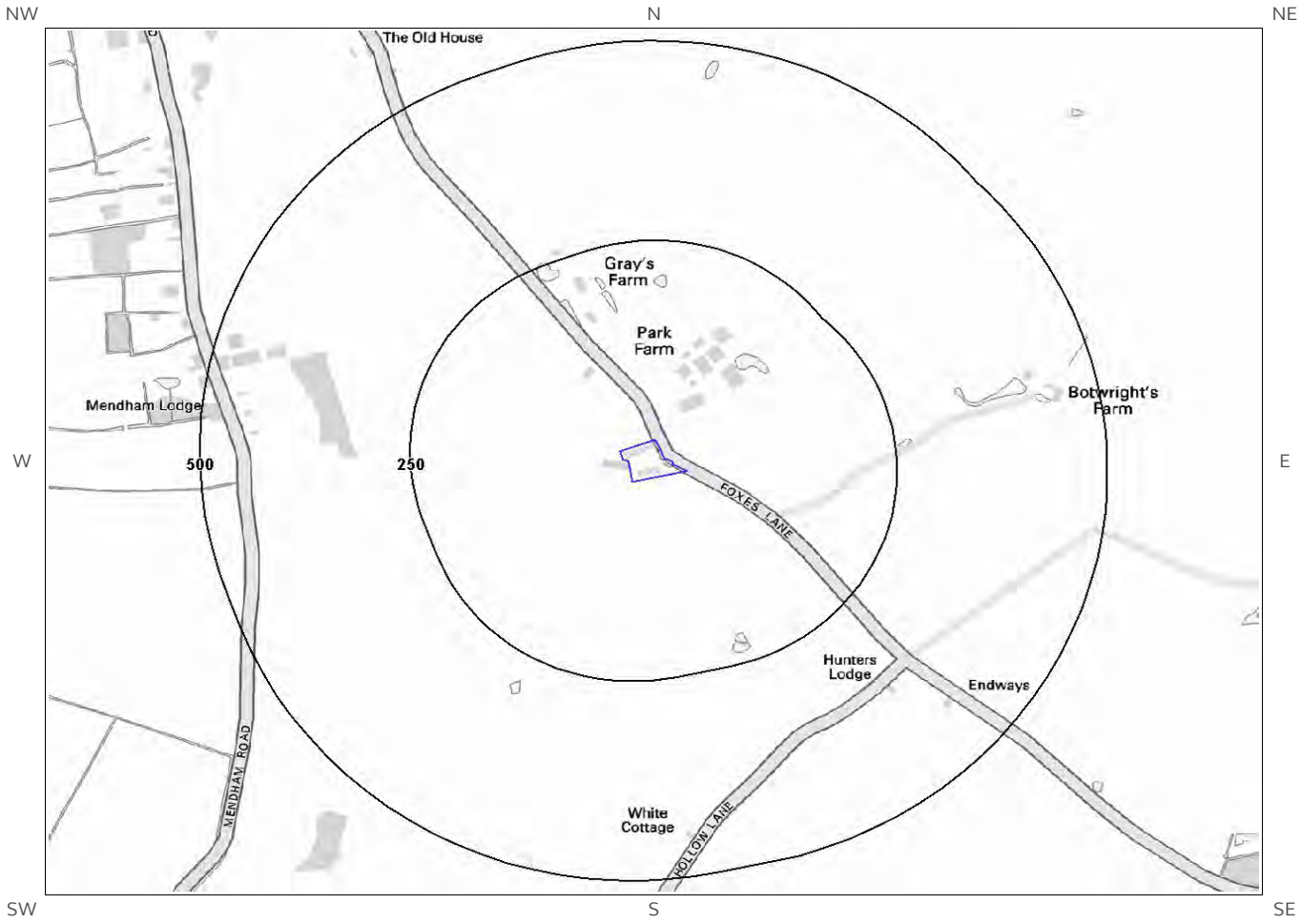
Source Protection Zone 2 - Outer Catchment

Source Protection Zone 3 - Total Catchment

Source Protection Zone 4 - Zone of Special Interest

Potable Water Abstraction Licence

6d. Hydrogeology – Source Protection Zones within confined aquifer



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Source Protection Zone 1 - Inner Catchment

Source Protection Zone 2C - Outer Catchment within Confined Aquifer

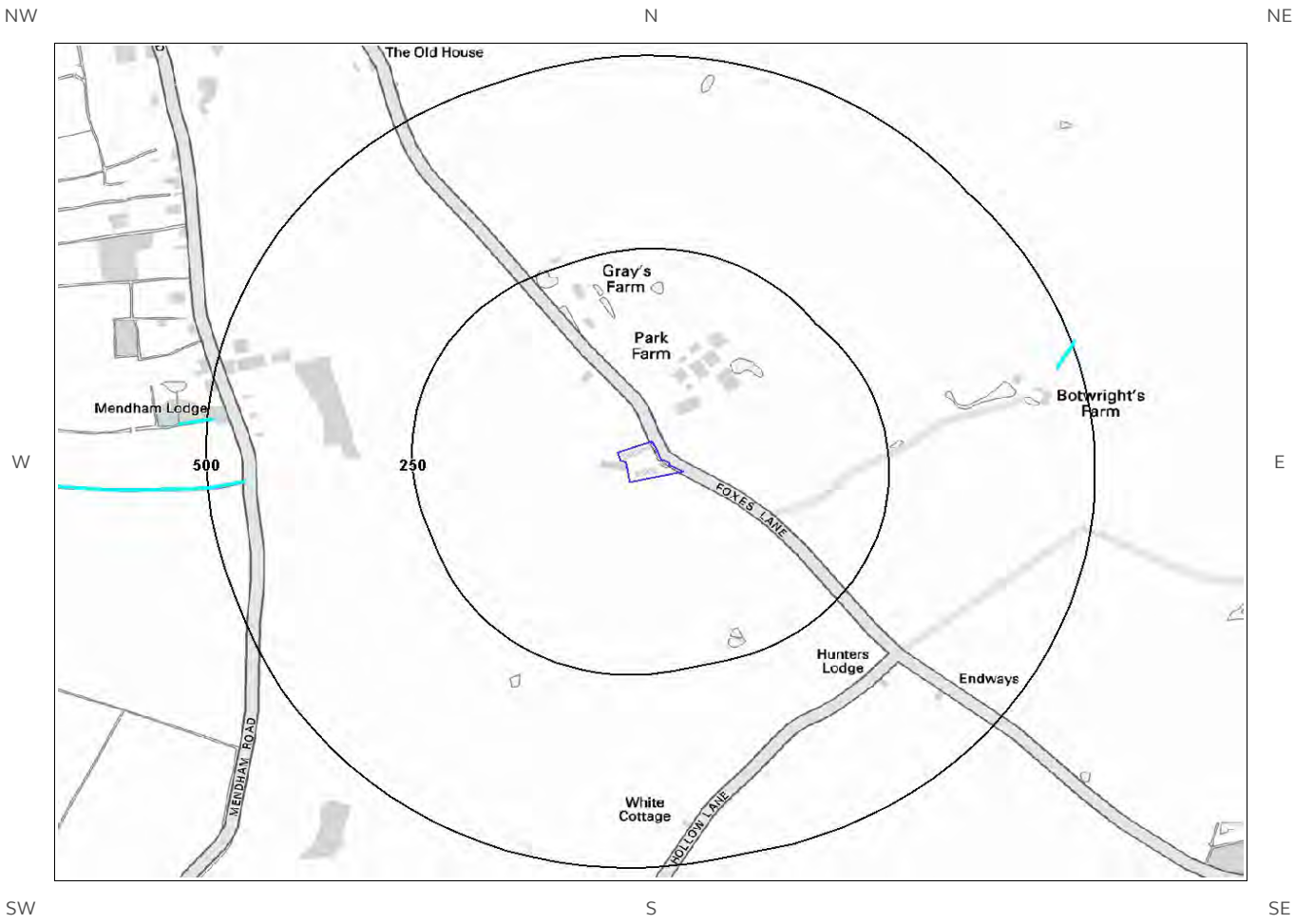
Source Protection Zone 3C - Total Catchment within Confined Aquifer

Site Outline

250
500
Search Buffers (m)

Potable Water Abstraction Licence

6e. Hydrology – Watercourse Network and River Quality



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Site Outline

250
500
Search Buffers (m)

Watercourse type

- Tidal River
- Inland River
- Canal
- Lock or Flight of Locks
- Lake, Reservoir, or Marsh
- Foreshore
- Drain or Transfer

Watercourse level

- On ground surface
- Underground or Elevated
- Level unknown

- General Quality Assessment: Biology
- General Quality Assessment: Chemistry

6.Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

Records of strata classification within the superficial geology at or in proximity to the property Yes

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

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

ID	Distance (m)	Direction	Designation	Description
12	0	On Site	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
1	334	W	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	425	S	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

6.2 Aquifer within Bedrock Deposits

Records of strata classification within the bedrock geology at or in proximity to the property Yes

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

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

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

6.3 Groundwater Abstraction Licences

Groundwater Abstraction Licences within 2000m of the study site — Identified

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

ID	Distance (m)	Direction	NGR	Details	
Not shown	855	SW	627150 281120	Status: Historical Licence No: 7/34/18/*G/0047 Details: General Farming & Domestic Direct Source: GROUND WATER SOURCE OF SUPPLY Point: WELL AT RED HOUSE FM,MENDHAM Data Type: Point Name: ELLIOTT	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 01/04/1967 Version End Date:
Not shown	1729	NE	629190 282780	Status: Historical Licence No: 7/34/18/*G/0022 Details: General Farming & Domestic Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BORE AT WESTON HOUSE FM,MEND'M Data Type: Point Name: HOLDEN	Annual Volume (m^3): 4,546 Max Daily Volume (m^3): 18 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 01/02/1966 Version End Date:
Not shown	1759	NW	626640 283190	Status: Historical Licence No: 7/34/18/*G/0011 Details: General Farming & Domestic Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BORE AT FRESTON FARM,MENDHAM Data Type: Point Name: WRIGHT	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 01/01/1966 Version End Date:

6.4 Surface Water Abstraction Licences

Surface Water Abstraction Licences within 2000m of the study site — None identified

Database searched and no data found.

6.5 Potable Water Abstraction Licences

Potable Water Abstraction Licences within 2000m of the study site — None identified

Database searched and no data found.

6.6 Source Protection Zones

Source Protection Zones within 500m of the study site — None identified

Database searched and no data found.

6.7 Source Protection Zones within Confined Aquifer

Source Protection Zones within the Confined Aquifer within 500m of the study site — None identified

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

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

Environment Agency/Natural Resources Wales information on groundwater vulnerability and soil leaching potential within 500m of the study site — Identified

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Major Aquifer/Low Leaching Potential	L	Soils in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants.
0	On Site	Major Aquifer/High Leaching Potential	H2	Deep, permeable, coarse textured soils which readily transmit a wide range of pollutants because of their rapid drainage and low attenuation potential.
311	W	Major Aquifer/Intermediate Leaching Potential	I1	Soils which can possibly transmit a wide range of pollutants.
432	W	Major Aquifer/Intermediate Leaching Potential	I2	Soils which can possibly transmit non – or weakly adsorbed pollutants and liquid discharges but are unlikely to transmit adsorbed pollutants.
472	S	Major Aquifer/High Leaching Potential	H2	Deep, permeable, coarse textured soils which readily transmit a wide range of pollutants because of their rapid drainage and low attenuation potential.

6.9 River Quality

Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site Identified

6.9.1 Biological Quality:

Database searched and no data found.

6.9.2 Chemical Quality:

Chemical quality data is based on the General Quality Assessment Headline Indicators scheme (GQAHI). In England, each chemical sample is measured for ammonia and dissolved oxygen. In Wales, the samples are measured for biological oxygen demand (BOD), ammonia and dissolved oxygen. The results are graded from A ('Very Good') to F ('Bad').

The following Chemical Quality records are shown on the Hydrology Map (6e):

					Chemical Quality Grade				
ID	Distance (m)	Direction	NGR	River Quality Grade	2005	2006	2007	2008	2009
Not shown	1453	NW	626900 283000	River Name: Waveney Reach: Mendham Bridge Bungay End/Start of Stretch: Start of Stretch NGR	B	B	B	B	B
Not shown	1453	NW	626900 283000	River Name: Waveney Reach: Needham Mill Mendham Bridge End/Start of Stretch: Sample Point NGR	C	C	C	B	B
Not shown	1453	NW	626900 283000	River Name: Waveney Reach: Needham Mill Mendham Bridge End/Start of Stretch: End of Stretch NGR	C	C	C	B	B

6.10 Ordnance Survey MasterMap Water Network

Ordnance Survey MasterMap Water Network entries within 500m of the study site

This watercourse information is provided by Ordnance Survey MasterMap Water Network. The data provides a detailed centre line following the curve of the waterway precisely, so all distances provided in the report should be understood as measurements to the centreline rather than a measurement to the nearest point of the watercourse. Underground watercourses are inferred from entry and exit points so caution is advised in using these to indicate precise locations of underground watercourses when planning site investigation and development.

The following Ordnance Survey MasterMap Water Network records are represented on the Hydrology Map (6e):

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
1	453	-	Inland river not influenced	Catchment Area: Waveney

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	W		by normal tidal action.	Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.2
Not shown	453 W	-	Inland river not influenced by normal tidal action.	Catchment Area: Waveney Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.2
2	472 E	-	Inland river not influenced by normal tidal action.	Catchment Area: Waveney Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	472 E	-	Inland river not influenced by normal tidal action.	Catchment Area: Waveney Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
3	493 W	-	Inland river not influenced by normal tidal action.	Catchment Area: Waveney Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.5
Not shown	493 W	-	Inland river not influenced by normal tidal action.	Catchment Area: Waveney Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.5

6.11 Surface Water Features

Surface water features within 250m of the study site Identified

The following surface water records are not represented on mapping:

Distance (m)	Direction
162	N
211	S
222	S
230	N

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

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Site Outline

100
250
Search Buffers (m)

Zone 2 Floodplain

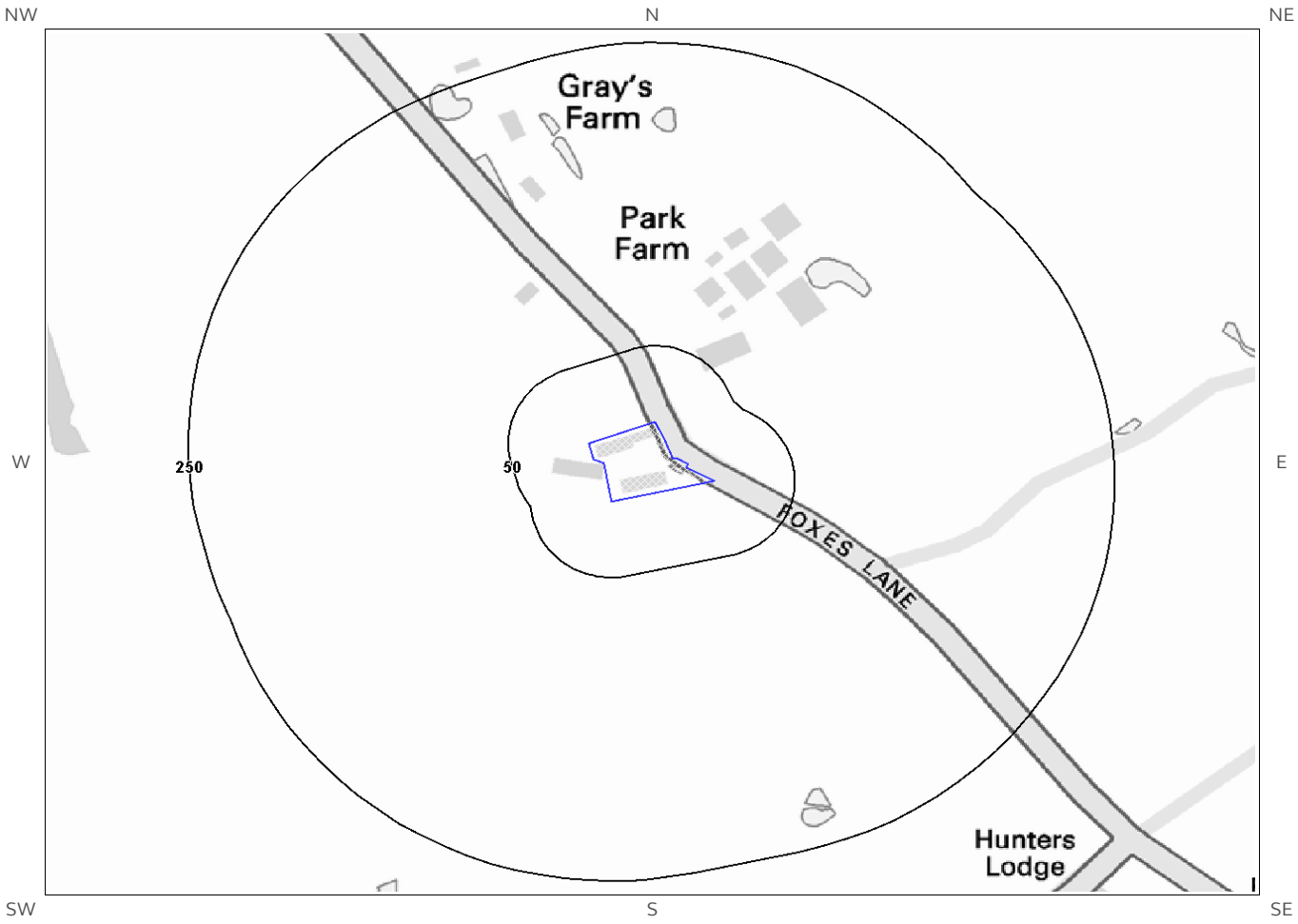
Zone 3 Floodplain

Flood Defences

Area used for Flood Storage

Area Benefiting from Flood Defences

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



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Site Outline

100
250
Search Buffers (m)

RoFRaS Rating

Very Low

Low

Medium

High

7 Flooding

7.1 River and Coastal Zone 2 Flooding

Environment Agency/Natural Resources Wales Zone 2 floodplain within 250m — None identified

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

Database searched and no data found.

7.2 River and Coastal Zone 3 Flooding

Environment Agency/Natural Resources Wales Zone 3 floodplain within 250m — None identified

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

Database searched and no data found.

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

Highest risk of flooding onsite — Very Low

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

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

7.4 Flood Defences

Flood Defences within 250m of the study site — None identified

Database searched and no data found.

7.5 Areas benefiting from Flood Defences

Areas benefiting from Flood Defences within 250m of the study site — None identified

7.6 Areas benefiting from Flood Storage

Areas used for Flood Storage within 250m of the study site	None identified

7.7 Groundwater Flooding Susceptibility Areas

7.7.1 British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site	Identified
Clearwater Flooding or Superficial Deposits Flooding	Clearwater Flooding

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

7.7.2 Highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions

Limited potential

Where limited potential for groundwater flooding to occur is indicated, this means that although given the geological conditions there may be a groundwater flooding hazard, unless other relevant information, e.g. records of previous flooding, suggests groundwater flooding has occurred before in this area, you need take no further action in relation to groundwater flooding hazard.

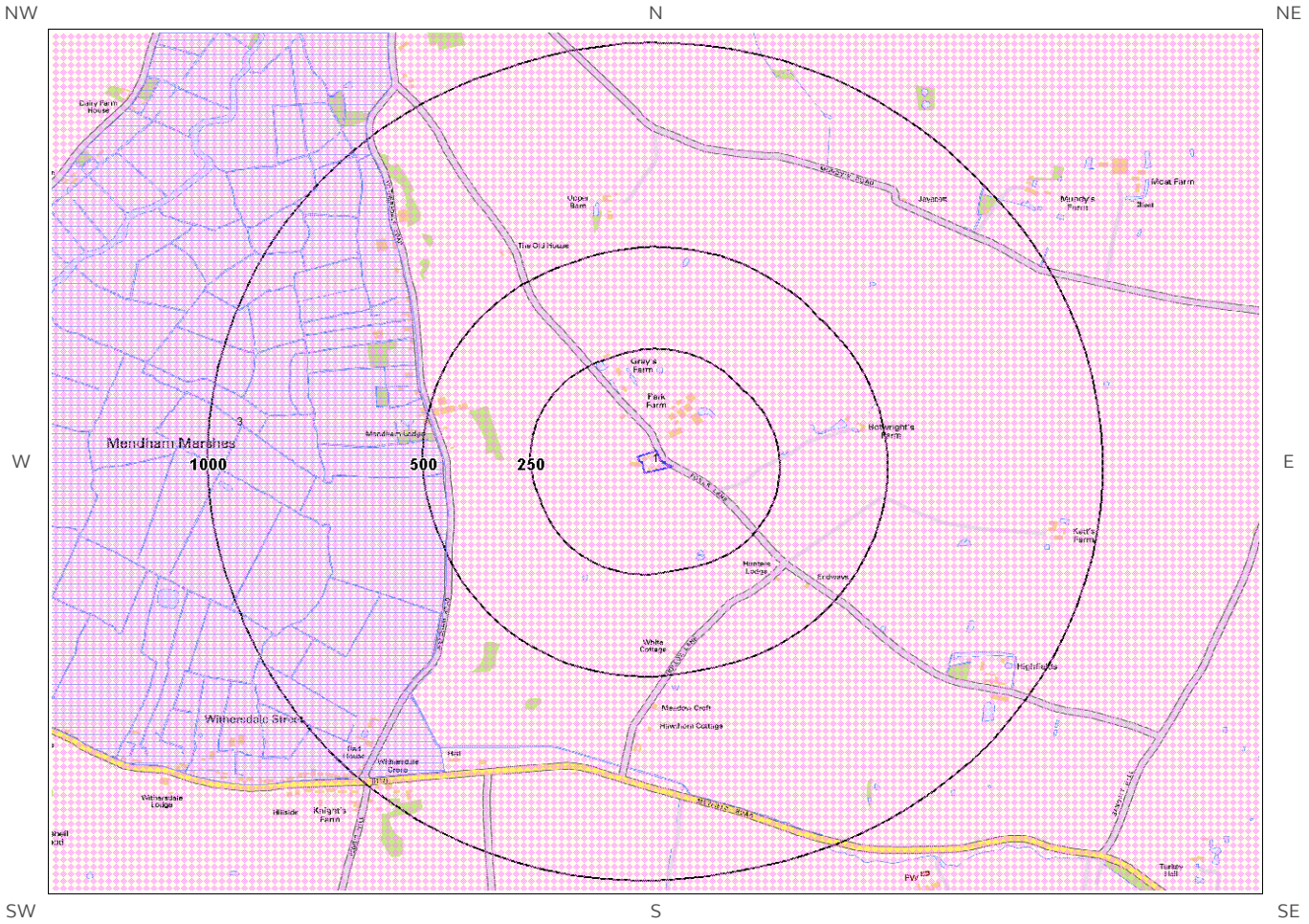
7.8 Groundwater Flooding Confidence Areas

British Geological Survey confidence rating in this result	Low

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

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

8. Designated Environmentally Sensitive Sites Map



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Site Outline

100
250
Search Buffers (m)

AONB
National Park
SSSI
Special Protection Areas
Nitrate Vulnerable Zones

Green Belt
Environmentally Sensitive Areas
Special Areas of Conservation
World Heritage Sites
Nitrate Sensitive Areas

Ancient Woodland
National Nature Reserve
Local Nature Reserves
Ramsar Sites

8. Designated Environmentally Sensitive Sites

Designated Environmentally Sensitive Sites within 2000m of the study site	Identified

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

2

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

ID	Distance (m)	Direction	ESA Name	Data Source
3	450	W	Broads	Natural England
Not shown	1594	N	Broads	Natural England

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

2

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

ID	Distance (m)	Direction	NVZ Name	Data Source
1	0	On Site	Existing	DEFRA
Not shown	1775	N	Existing	DEFRA

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

0

Database searched and no data found.

9. Natural Hazards Findings

9.1 Detailed BGS GeoSure Data

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

9.1.1 Shrink Swell

Maximum Shrink-Swell* hazard rating identified on the study site — Low

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

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

9.1.2 Landslides

Maximum Landslide* hazard rating identified on the study site — Very Low

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

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

9.1.3 Soluble Rocks

Maximum Soluble Rocks* hazard rating identified on the study site — Negligible

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

Hazard
Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

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

9.1.4 Compressible Ground

Maximum Compressible Ground* hazard rating identified on the study site — Negligible

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

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

9.1.5 Collapsible Rocks

Maximum Collapsible Rocks* hazard rating identified on the study site — Very Low

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

Hazard
Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

9.1.6 Running Sand

Maximum Running Sand*[*] hazard rating identified on the study site — Very Low

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

Hazard
Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

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

9.2 Radon

9.2.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The site is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

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

9.2.2 Radon Protection

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

10. Mining

10.1 Coal Mining

Coal mining areas within 75m of the study site — None identified

Database searched and no data found.

10.2 Non-Coal Mining

Non-Coal Mining areas within 50m of the study site boundary — None identified

Database searched and no data found.

10.3 Brine Affected Areas

Brine affected areas within 75m of the study site — None identified
Guidance: No Guidance Required.

Contact Details

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info@groundsure.com

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Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
Fax: 0115 936 3276.
Email:
Web:**www.bgs.ac.uk**
BGS Geological Hazards Reports and general geological enquiries:
enquiries@bgs.ac.uk

Environment Agency
National Customer Contact Centre, PO Box 544
Rotherham, S60 1BY
Tel: 03708 506 506
Web: **www.environment-agency.gov.uk**
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Public Health England, Wellington House
133-155 Waterloo Road, London, SE1 8UG
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Tel: 08456 050505

Local Authority
Authority: Mid Suffolk District Council
Phone: 03001 234 000
Web: http://www.midsuffolk.gov.uk/
Address: Endeavor House, 8 Russell Road, Ipswich, IP1 2BX

Gemapping PLC
Virginia Villas, High Street, Hartley Witney,
Hampshire RG27 8NW
Tel: 01252 845444

Acknowledgements: Site of Special Scientific Interest, National Nature Reserve, Ramsar Site, Special Protection Area, Special Area of Conservation data is provided by, and used with the permission of, Natural England/Natural Resources Wales who retain the Copyright and Intellectual Property Rights for the data.
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APPENDIX C: OTHER SUPPORTING DOCUMENTS

Archive BGS Borehole Records – TM28SE54 and TM28SE60

Historical Map Extracts – Groundsure report reference: GS-6463649

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Archive BGS Borehole Record –TM28SE54

TM 28 SE 54 2791 8210 North of Park Farm, Mendham Block I

Surface level +42.0 m
Water not struck
B 30 Power Auger 115 mm diameter
July 1982

Overburden 14.9 m
Mineral 4.8 m+

British Geological Survey British Geological Survey British Geological Survey

LOG

Geological classification	Lithology	Thickness m	Depth m	
	Soil; sandy clay, moderate brown	0.2	0.2	
Boulder Clay (Lowestoft Till)	Clay, waxy, moderate olive brown to olive black, with rounded and subangular chalk pebbles (abundant to 1.2 m) and flint pebbles	2.9	3.1	LTIL
Glacial Silt	Silt, olive grey, micaceous	3.5	6.6	+38·9 BSTC.
Boulder Clay (Lowestoft Till)	Clay, silty, olive grey, becoming brown near the base; chalk and flint pebbles throughout	8.3	14.9	+35·4 LTIL
Beccles Beds	Pebbly sand; two beds of yellowish brown sandy silty clay, containing sparse rounded chalk pebbles, near the base Gravel: well rounded flint and vein quartz, with some angular flint Sand: medium and fine; subangular quartz with some angular flint; moderate brown	4.8+	19.7	+27·1. FG1

British Geological Survey British Geological Survey British Geological Survey

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Archive BGS Borehole Record – TM28SE60

TM 28 SE 60 2735 5177 **Chestnut Lodge Farm, Mendham** **Block I**

Surface level +43.1 m
Water struck at +31.2 m
Shell and auger
September 1983

Overburden	11.9 m
Mineral	8.5 m
Waste	0.3 m
Mineral	1.7 m
Waste	0.9 m
Mineral	1.7 m+

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil, sandy, dark yellowish brown	0.3	0.3
Cover Sand	Sand, silty, moderate brown; sparse ironstone pebbles	0.2	0.5
Boulder Clay (Lowestoft Till)	Clay, silty; sandy at the top, waxy below 1.6 m; mottled light olive brown and light olive grey near top, mainly olive grey below; abundant rounded chalk pebbles and scattered angular flint and black (Jurassic) mudstone pebbles	11.4	11.9
Beccles Beds ('Glacial')	a Pebbly sand, with charcoal fragments near the base Gravel: mainly fine; rounded chalk and angular flint, with some rounded brown quartzite and vein quartz Sand: mainly medium; subrounded quartz with some angular flint and calcite; a trace of chalk below 18.0 m; pale yellowish brown	8.5	20.4
	Silt, clayey, brown, with sparse well rounded flint and quartzite pebbles at the top	0.3	20.7
	b 'Very clayey' pebbly sand Gravel: mainly fine; flint, vein quartz and quartzite Sand: mainly fine; well rounded quartz with some mica; dark yellowish orange	1.7	22.4
	Silt, sandy, stiff, laminated, dusky yellow green and brownish grey	0.9	23.3
(Pebbly Series)	c Gravel Gravel: mainly fine; well rounded black and grey flint with some angular flint, vein quartz and quartzite Sand: mainly medium; with coarse; rounded quartz and angular flint; pale yellowish brown	1.7+	25.0

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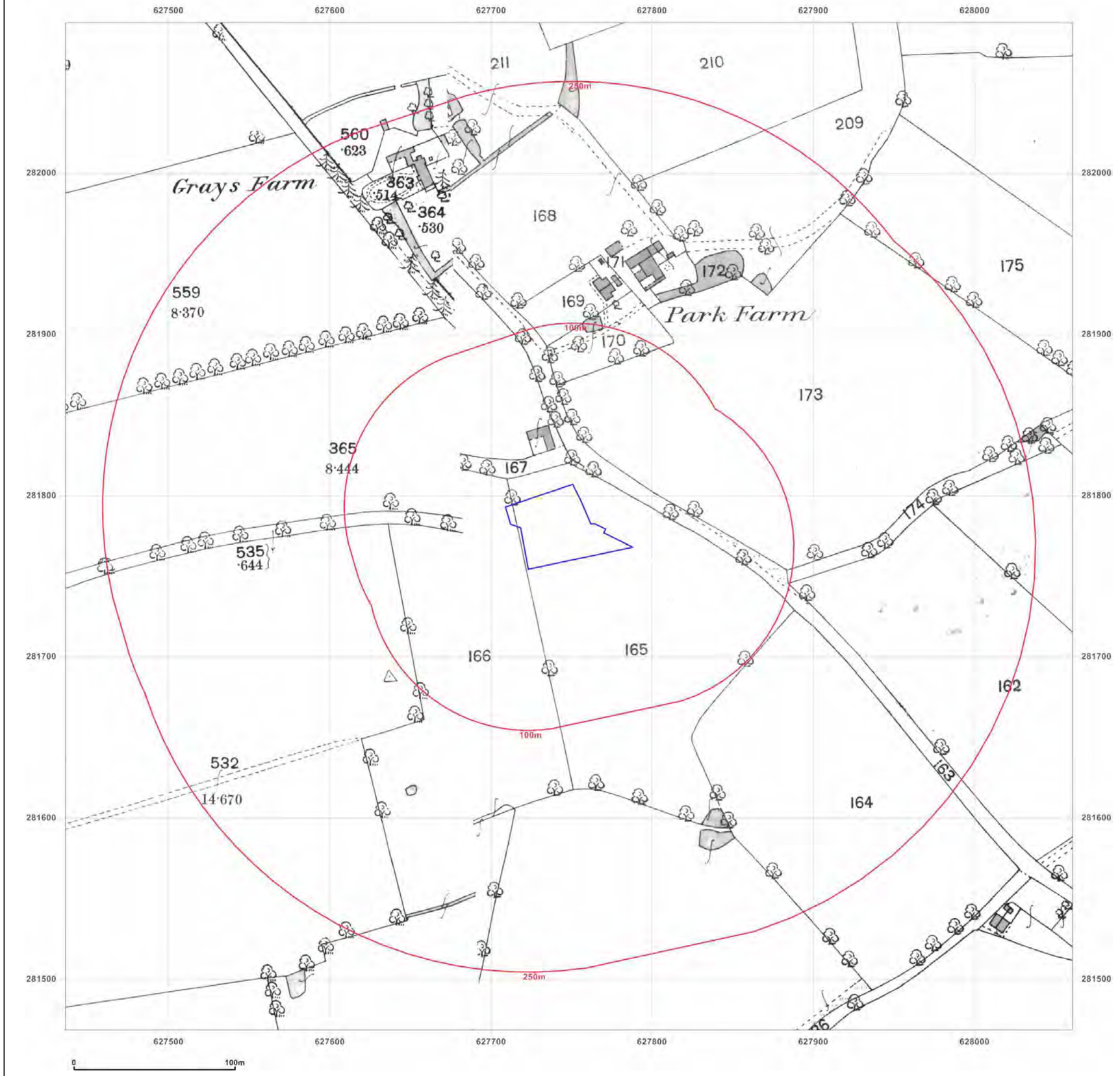

Groundsure INSIGHTS

Site Details:

PANORAMA, FOXES LANE,
MENDHAM, IP20 0PE

Client Ref: DJM-19-381
Report Ref: GS-6463649
Grid Ref: 627748, 281781

Map Name: County Series

Map date: **1883-1886**

Scale: 1:2,500

Printed at: 1:2,500

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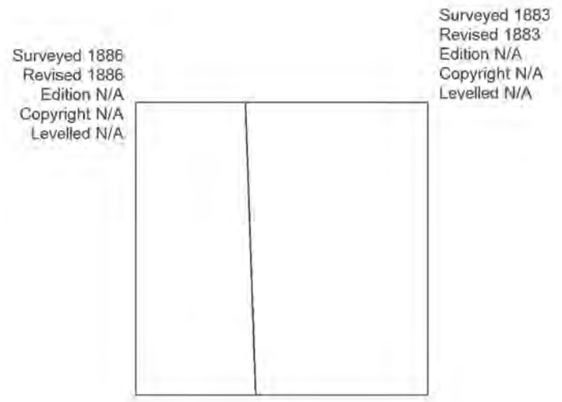

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Production date: 14 November 2019

Map legend available at:
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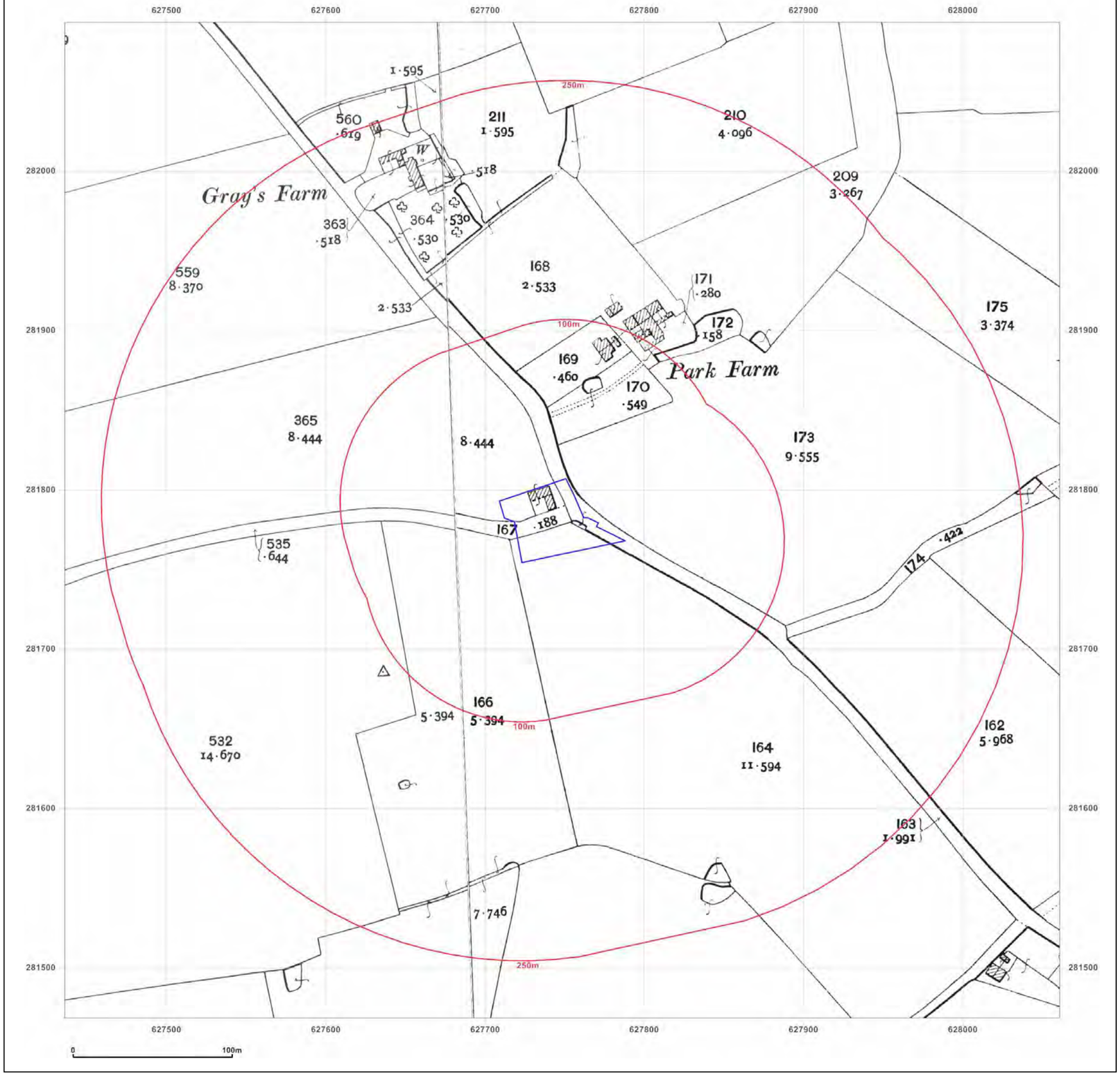

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Client Ref: DJM-19-381
Report Ref: GS-6463649
Grid Ref: 627748, 281781

Map Name: County Series

Map date: **1903-1904**

Scale: 1:2,500

Printed at: 1:2,500

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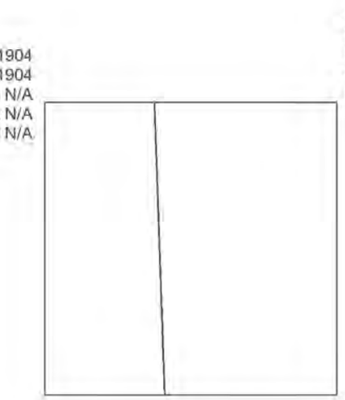
Surveyed 1904
Revised 1904
Edition N/A
Copyright N/A
Levelled N/A

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



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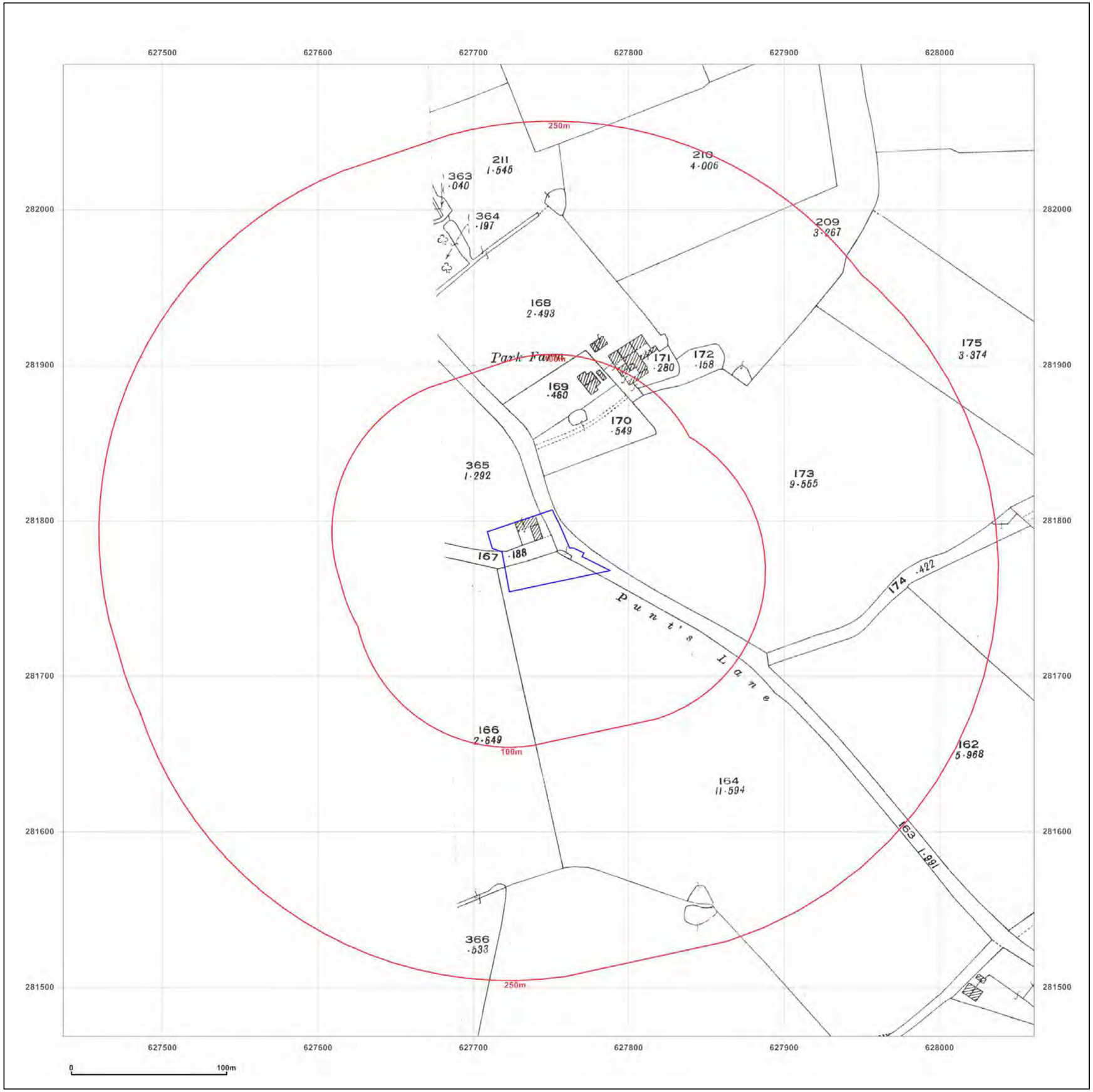

Groundsure INSIGHTS

Site Details:

PANORAMA, FOXES LANE,
MENDHAM, IP20 0PE

Client Ref: DJM-19-381
Report Ref: GS-6463649
Grid Ref: 627748, 281781

Map Name: County Series

Map date: **1927**

Scale: 1:2,500

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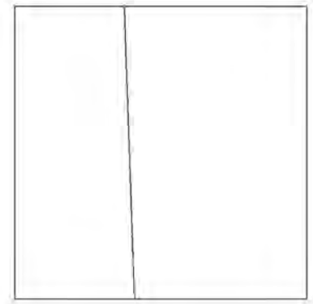
Revised 1927
Edition N/A
Copyright N/A
Levelled N/A



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Production date: 14 November 2019

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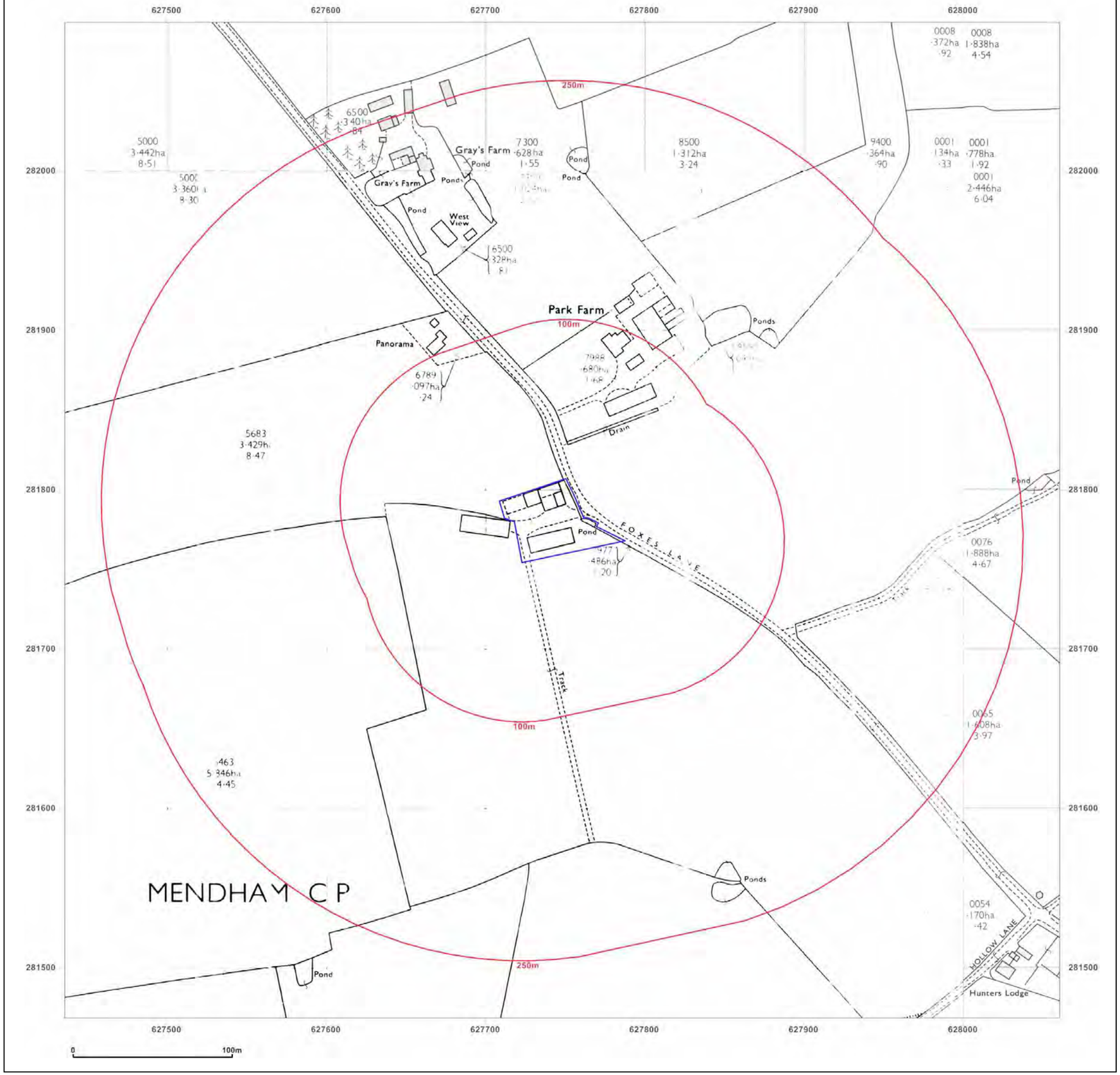

Groundsure INSIGHTS

Site Details:

PANORAMA, FOXES LANE,
MENDHAM, IP20 0PE

Client Ref: DJM-19-381
Report Ref: GS-6463649
Grid Ref: 627748, 281781

Map Name: National Grid

Map date: **1974-1976**

Scale: 1:2,500

Printed at: 1:2,500

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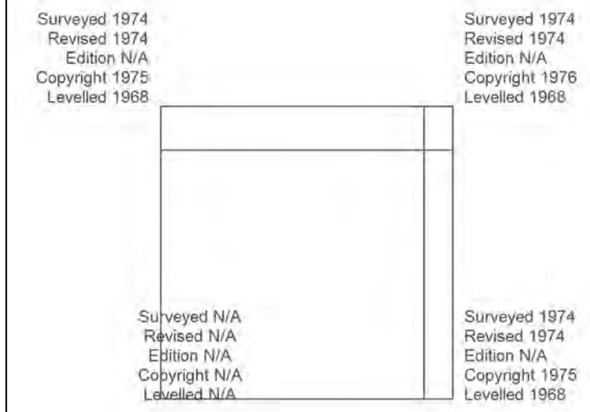

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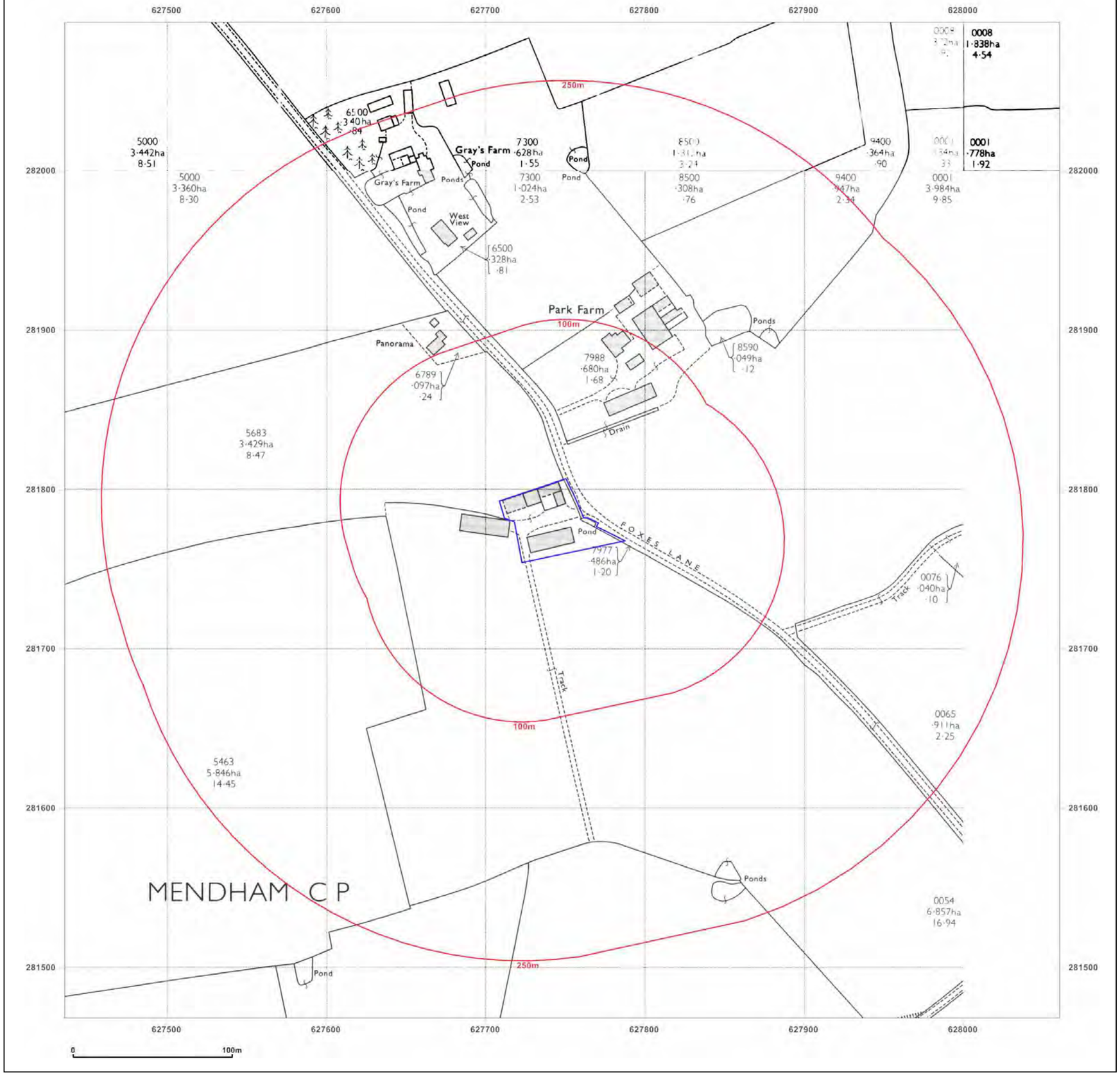

Groundsure INSIGHTS

Site Details:

PANORAMA, FOXES LANE,
MENDHAM, IP20 0PE

Client Ref: DJM-19-381
Report Ref: GS-6463649
Grid Ref: 627748, 281781

Map Name: National Grid

Map date: **1974-1976**

Scale: 1:2,500

Printed at: 1:2,500

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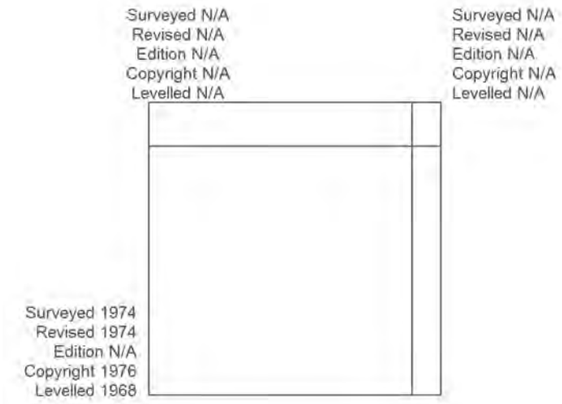

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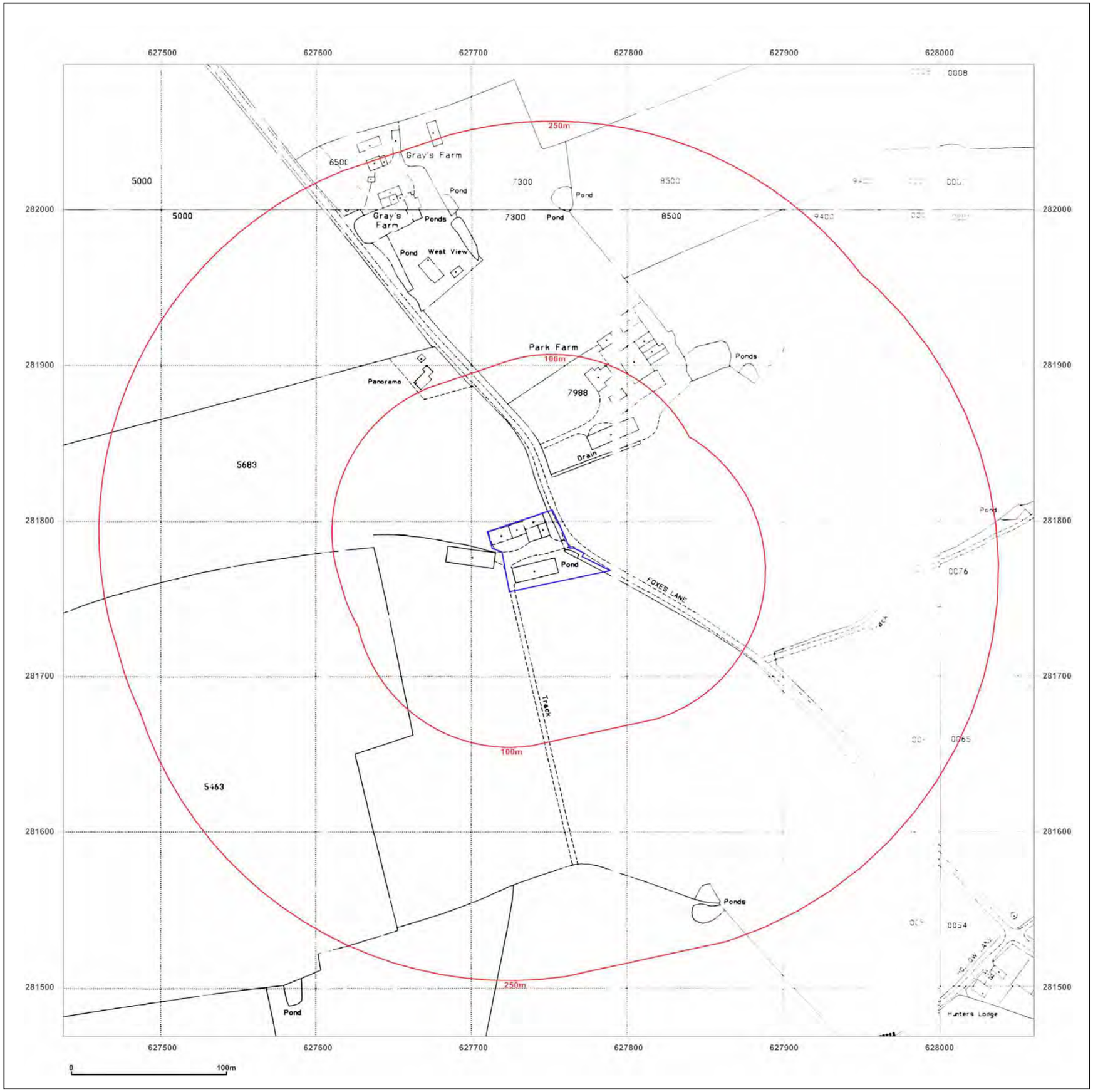

Groundsure INSIGHTS

Site Details:

PANORAMA, FOXES LANE,
MENDHAM, IP20 0PE

Client Ref: DJM-19-381
Report Ref: GS-6463649
Grid Ref: 627748, 281781

Map Name: National Grid

Map date: **1994**

Scale: 1:2,500

Printed at: 1:2,500

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Revised N/A
Edition N/A
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Site Details:

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Client Ref: DJM-19-381
Report Ref: GS-6463649
Grid Ref: 627748, 281781

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

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Site Details:

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Client Ref: DJM-19-381
Report Ref: GS-6463649
Grid Ref: 627748, 281781

Map Name: County Series

Map date: **1883-1888**

Scale: 1:10,560

Printed at: 1:10,560

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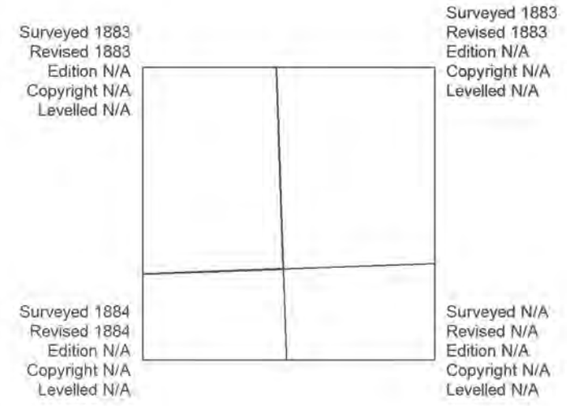

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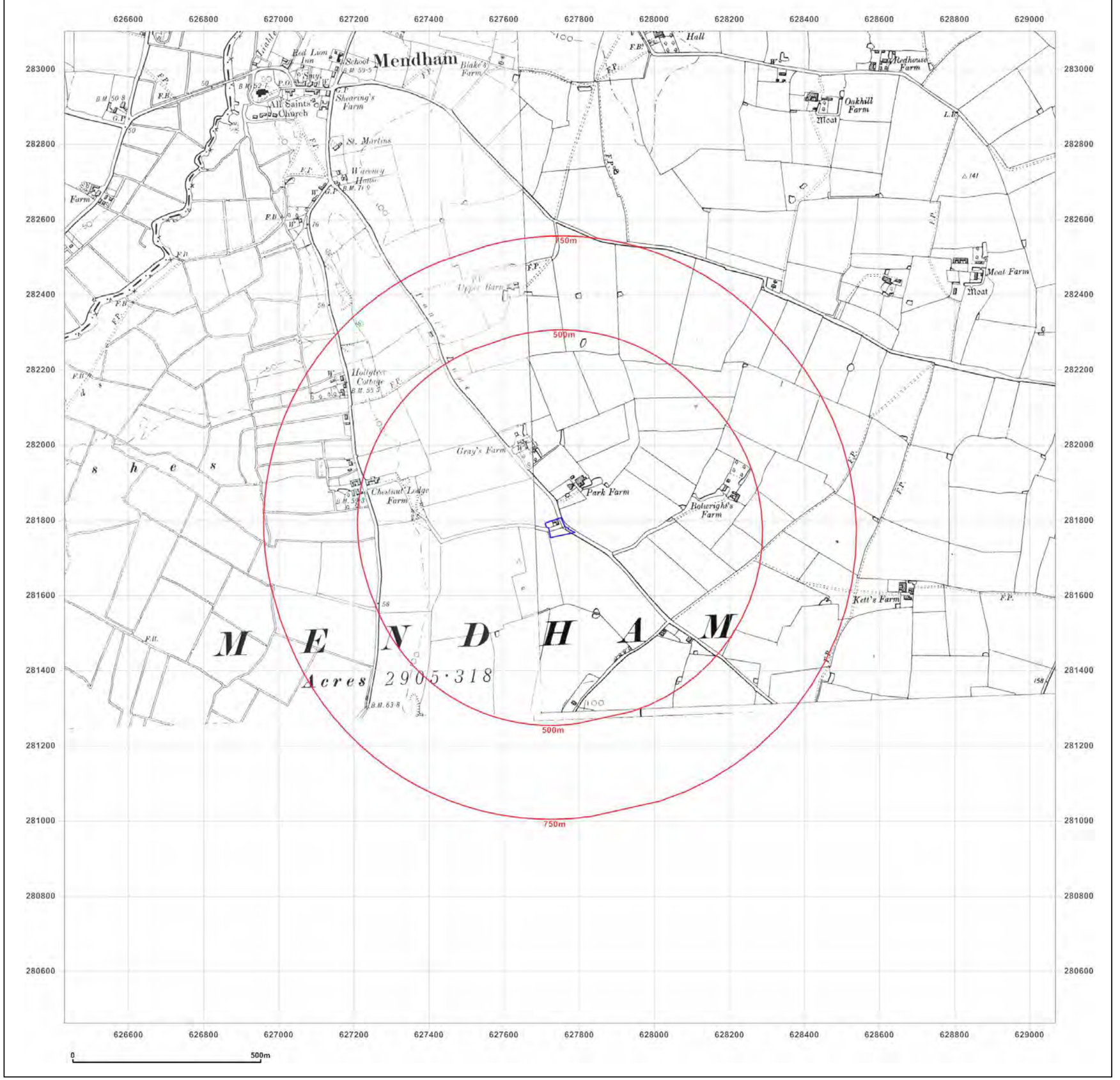

Groundsure INSIGHTS

Site Details:

PANORAMA, FOXES LANE,
MENDHAM, IP20 0PE

Client Ref: DJM-19-381
Report Ref: GS-6463649
Grid Ref: 627748, 281781

Map Name: County Series

Map date: **1904-1905**

Scale: 1:10,560

Printed at: 1:10,560

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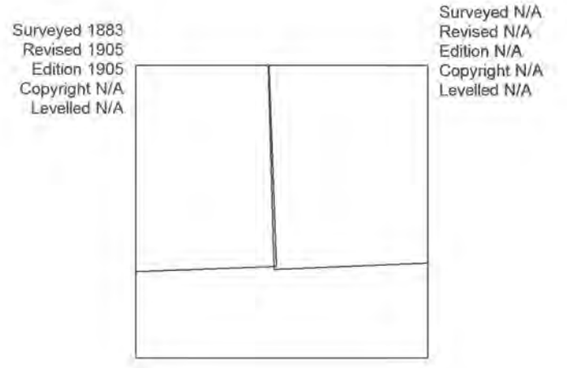

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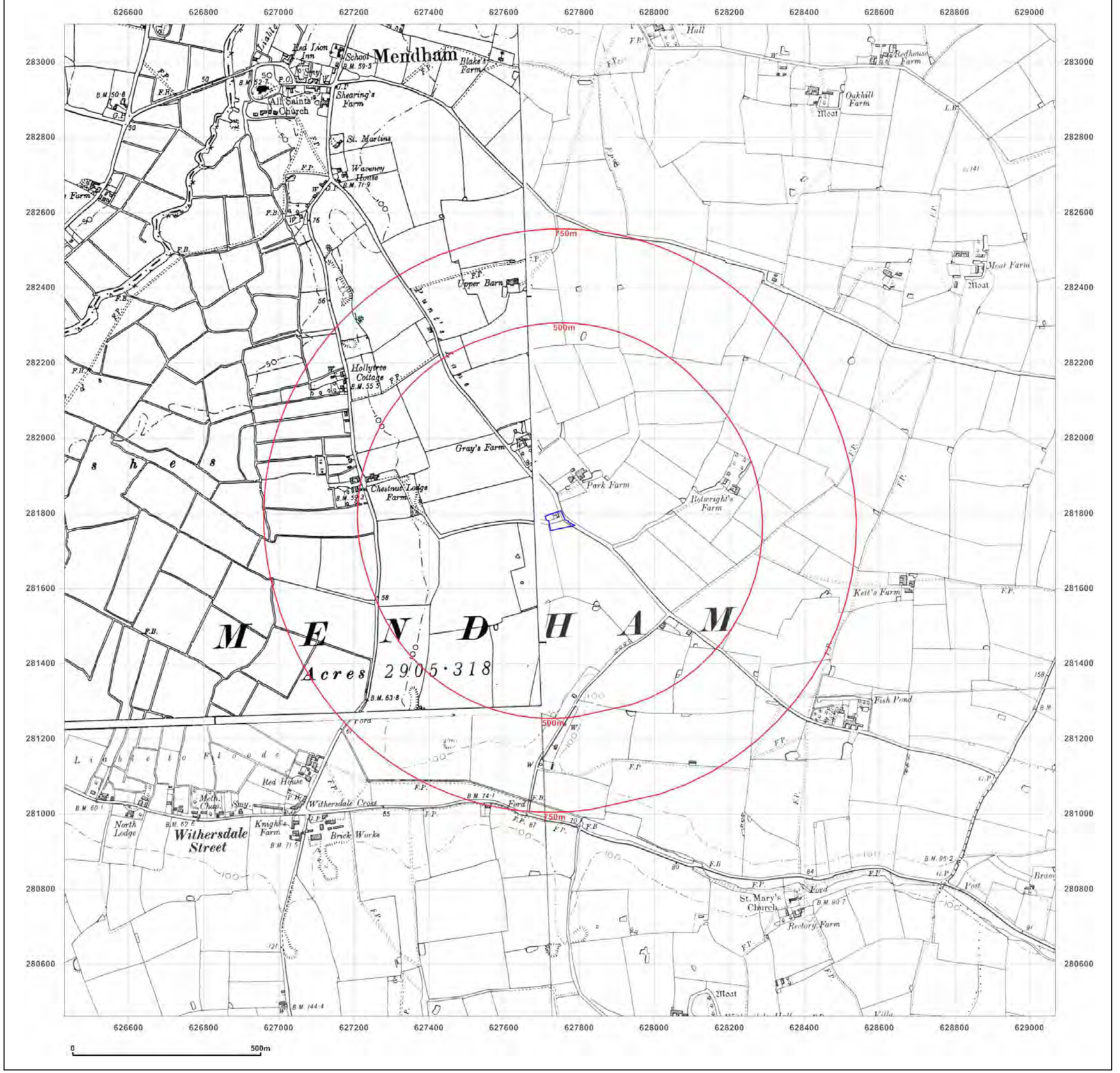

Groundsure INSIGHTS

Site Details:

PANORAMA, FOXES LANE,
MENDHAM, IP20 0PE

Client Ref: DJM-19-381
Report Ref: GS-6463649
Grid Ref: 627748, 281781

Map Name: County Series

Map date: **1903-1905**

Scale: 1:10,560

Printed at: 1:10,560

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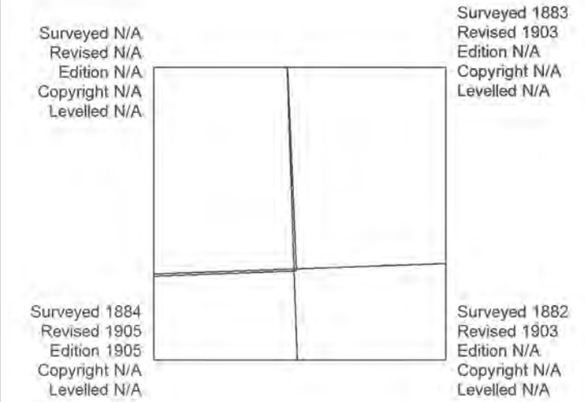

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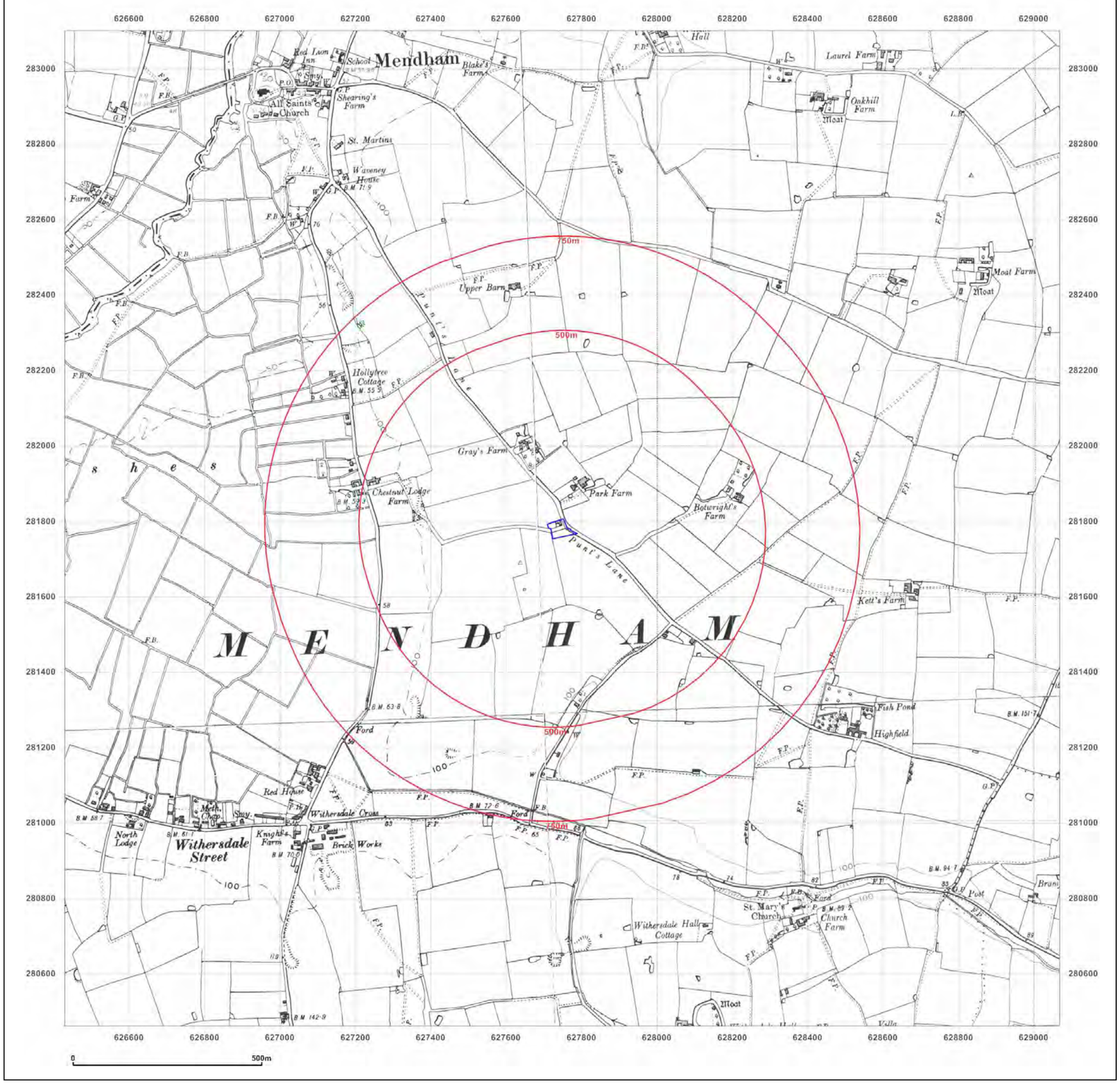

Groundsure INSIGHTS

Site Details:

PANORAMA, FOXES LANE,
MENDHAM, IP20 0PE

Client Ref: DJM-19-381
Report Ref: GS-6463649
Grid Ref: 627748, 281781

Map Name: County Series

Map date: **1946-1947**

Scale: 1:10,560

Printed at: 1:10,560

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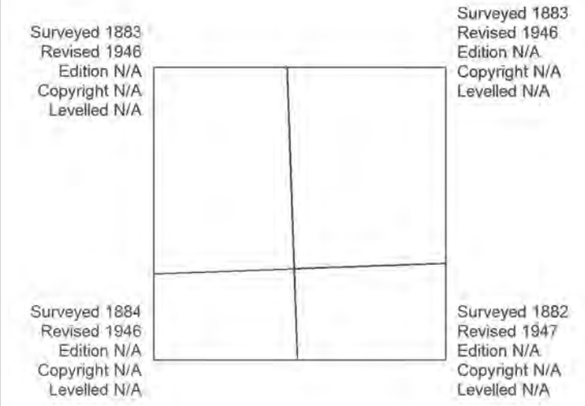

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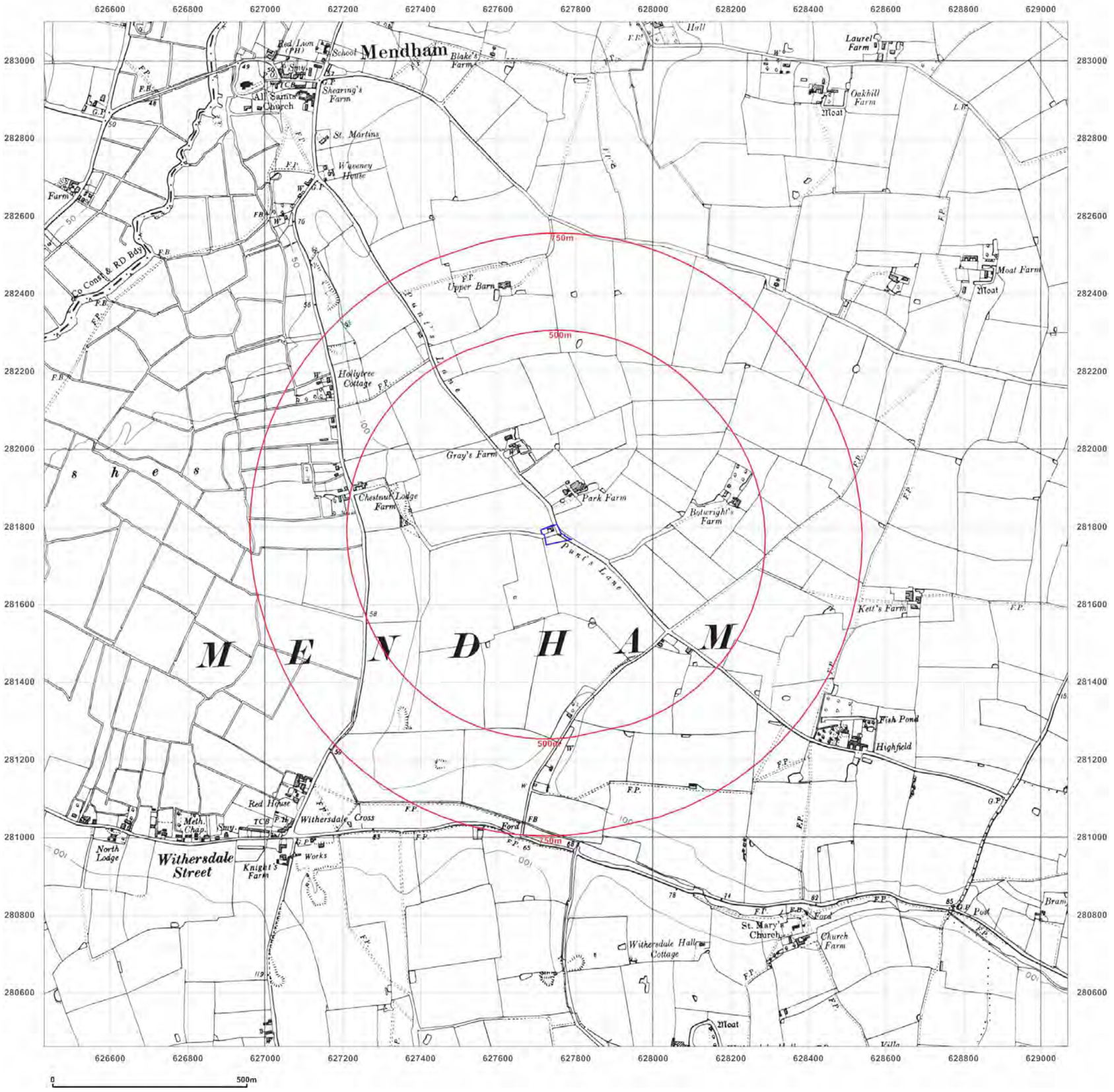

Groundsure INSIGHTS

Site Details:

PANORAMA, FOXES LANE,
MENDHAM, IP20 0PE

Client Ref: DJM-19-381
Report Ref: GS-6463649
Grid Ref: 627748, 281781

Map Name: Provisional

Map date: **1953**

Scale: 1:10,560

Printed at: 1:10,560

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~~Surveyed 1953~~
Revised 1953
Edition N/A
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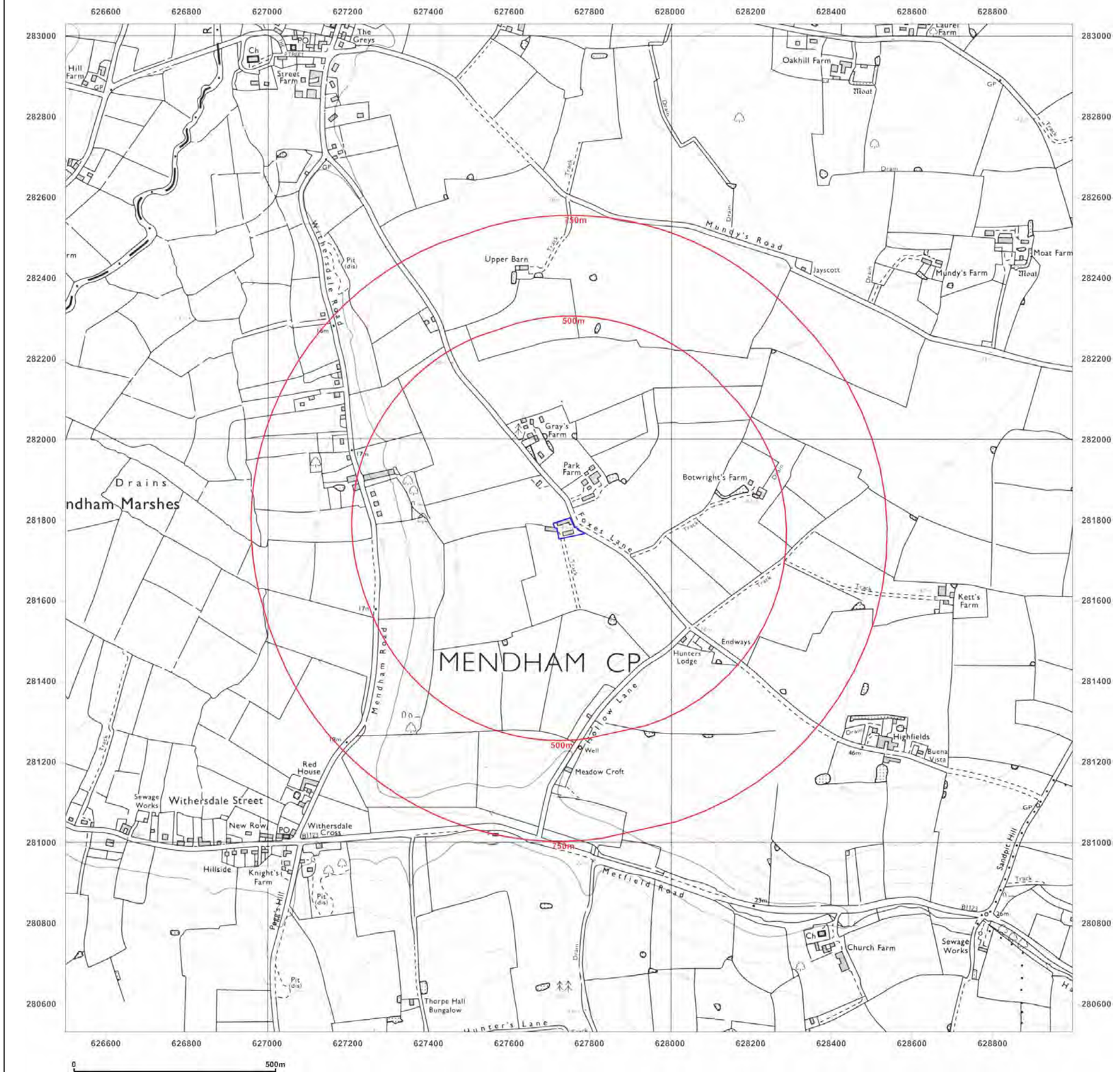

Groundsure INSIGHTS

Site Details:

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MENDHAM, IP20 0PE

Client Ref: DJM-19-381
Report Ref: GS-6463649
Grid Ref: 627748, 281781

Map Name: National Grid

Map date: **1978**

Scale: 1:10,000

Printed at: 1:10,000

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Edition N/A
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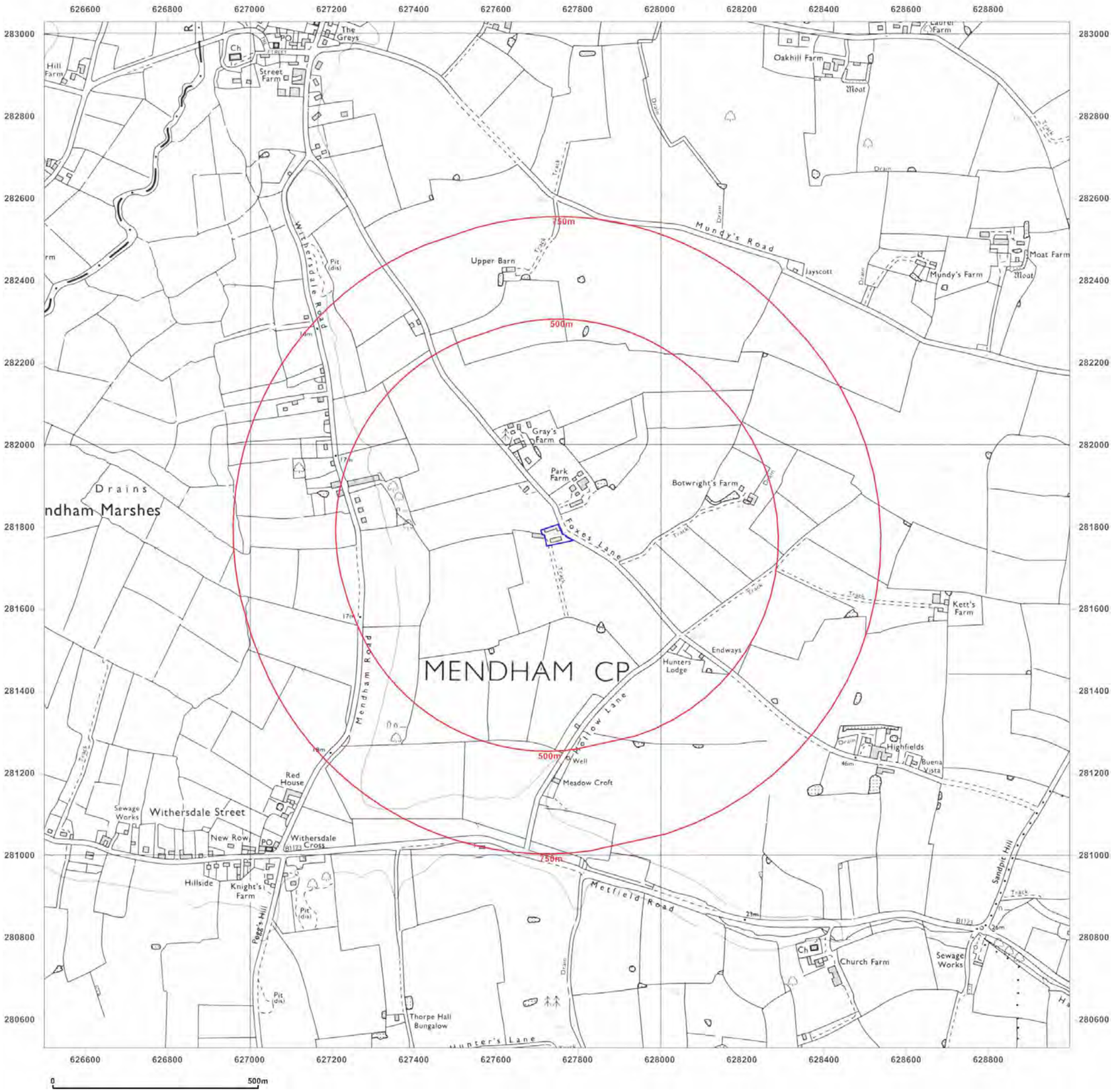

Groundsure INSIGHTS

Site Details:

PANORAMA, FOXES LANE,
MENDHAM, IP20 0PE

Client Ref: DJM-19-381
Report Ref: GS-6463649
Grid Ref: 627748, 281781

Map Name: National Grid

Map date: **1992**

Scale: 1:10,000

Printed at: 1:10,000

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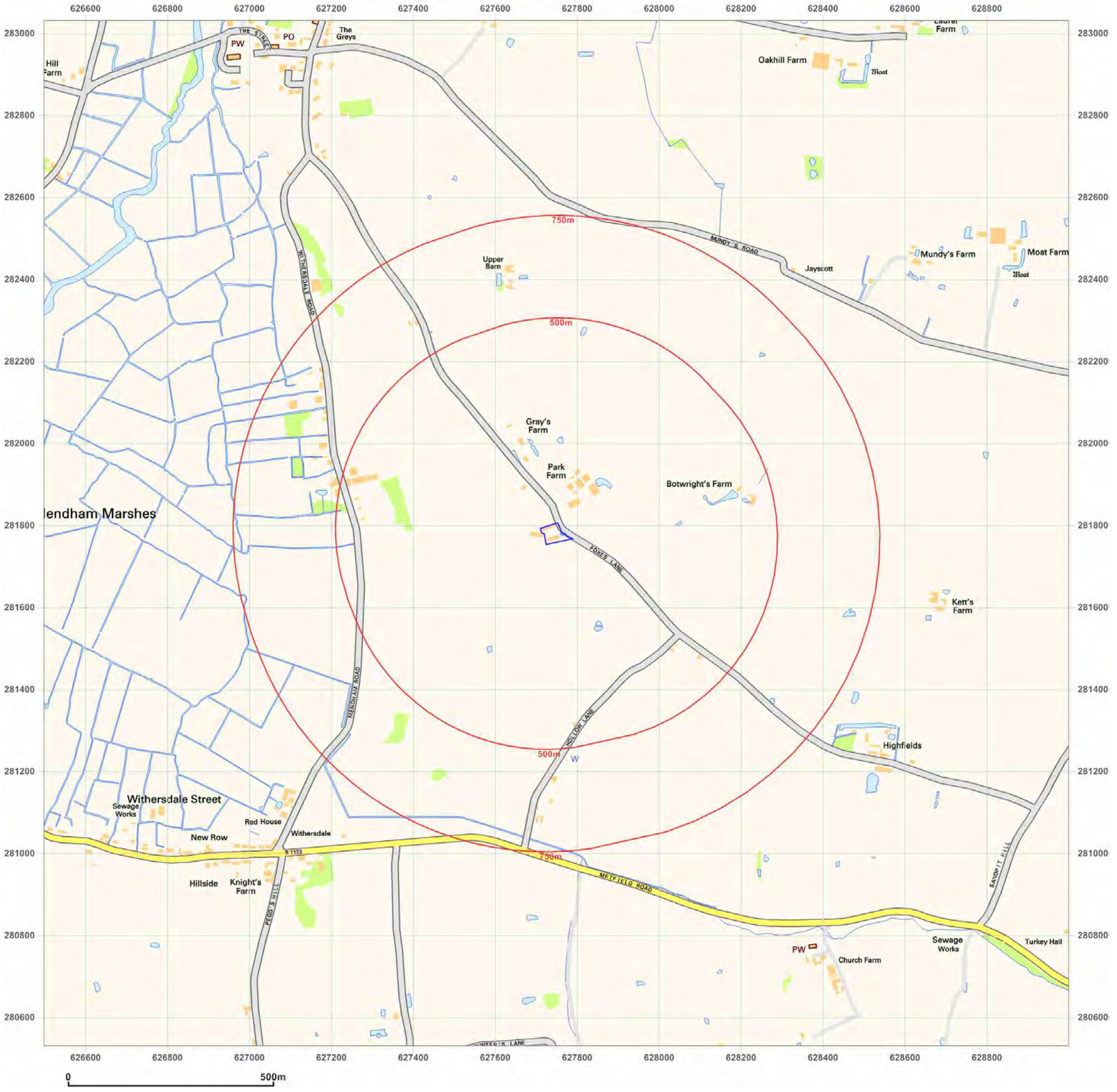

Groundsure INSIGHTS

Site Details:

PANORAMA, FOXES LANE,
MENDHAM, IP20 0PE

Client Ref: DJM-19-381
Report Ref: GS-6463649
Grid Ref: 627748, 281781

Map Name: National Grid

Map date: **2001**

Scale: 1:10,000

Printed at: 1:10,000

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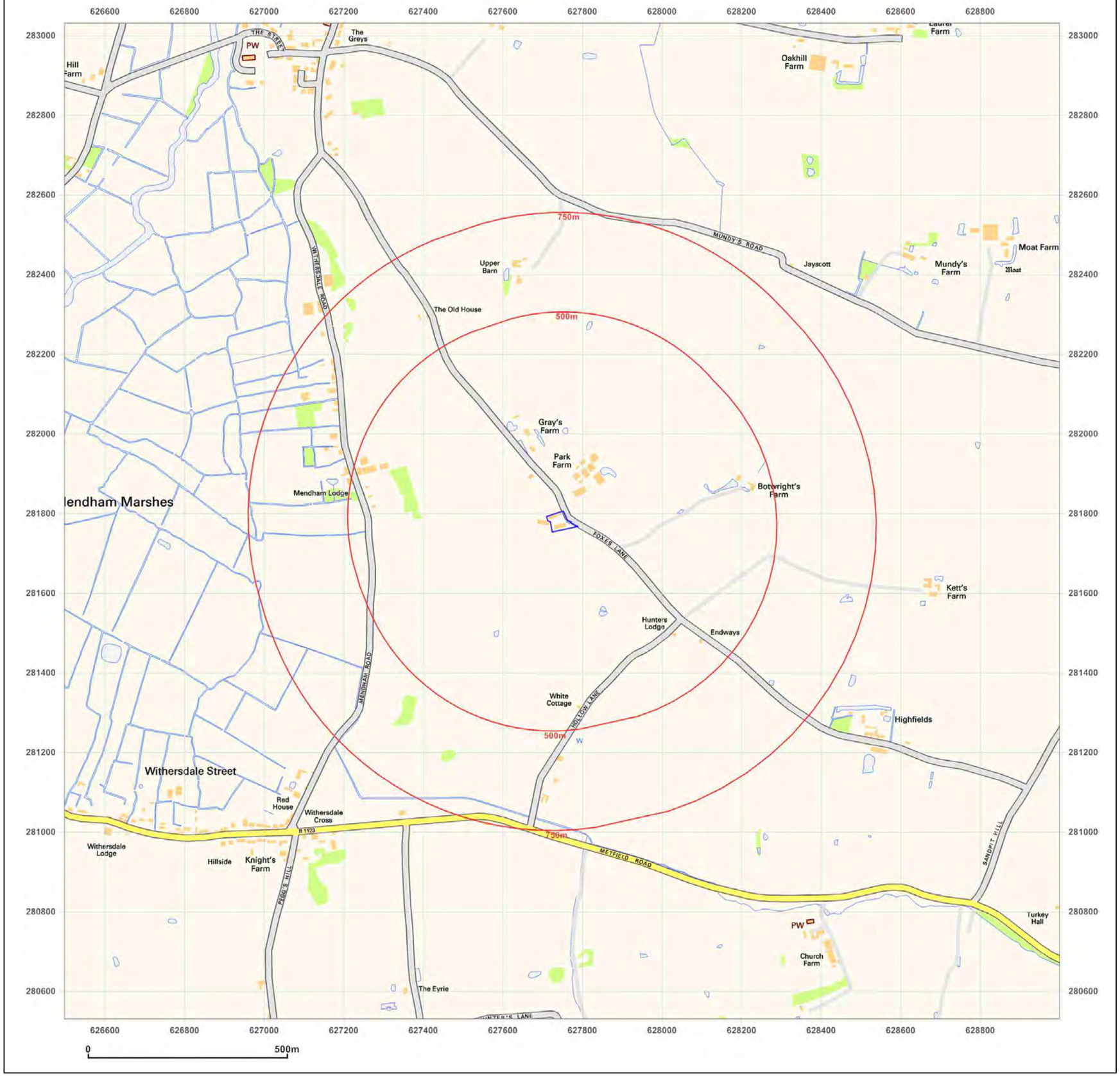

Groundsure INSIGHTS

Site Details:

PANORAMA, FOXES LANE,
MENDHAM, IP20 0PE

Client Ref: DJM-19-381
Report Ref: GS-6463649
Grid Ref: 627748, 281781

Map Name: National Grid

Map date: **2010**

Scale: 1:10,000

Printed at: 1:10,000

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Groundsure INSIGHTS

Site Details:

PANORAMA, FOXES LANE,
MENDHAM, IP20 0PE

Client Ref: DJM-19-381
Report Ref: GS-6463649
Grid Ref: 627748, 281781

Map Name: National Grid

Map date: **2019**

Scale: 1:10,000

Printed at: 1:10,000

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APPENDIX D: DRAWINGS

Drawing 19.381/PhaseI/01	Site Location Plan
Drawing 19.381/PhaseI/02	BGS Geology and Borehole Location Plan
Drawing 19.381/PhaseI/03	Relevant Feature Plan

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North

Circle indicates approximate location of site

Scale 1: 25,000 @ A4

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A F Howland Associates
Geotechnical Engineers

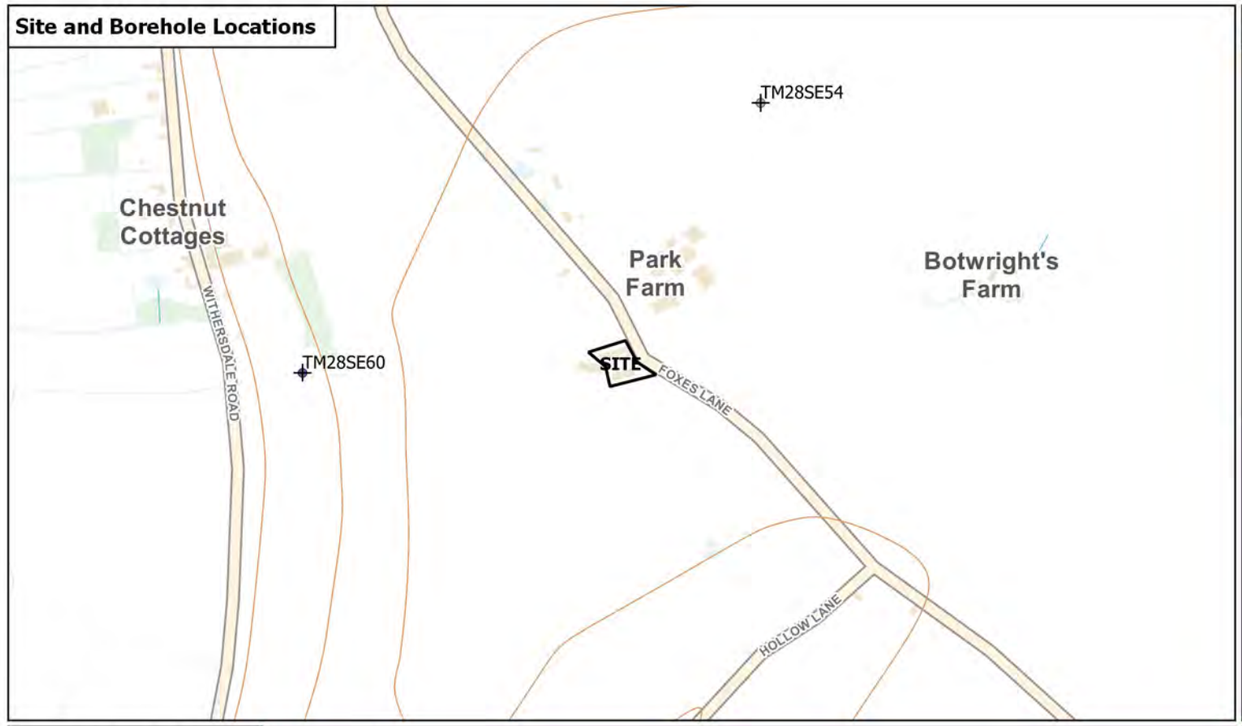
Site: Panorama, Foxes Lane, Mendham, IP20 0PE

SITE LOCATION PLAN

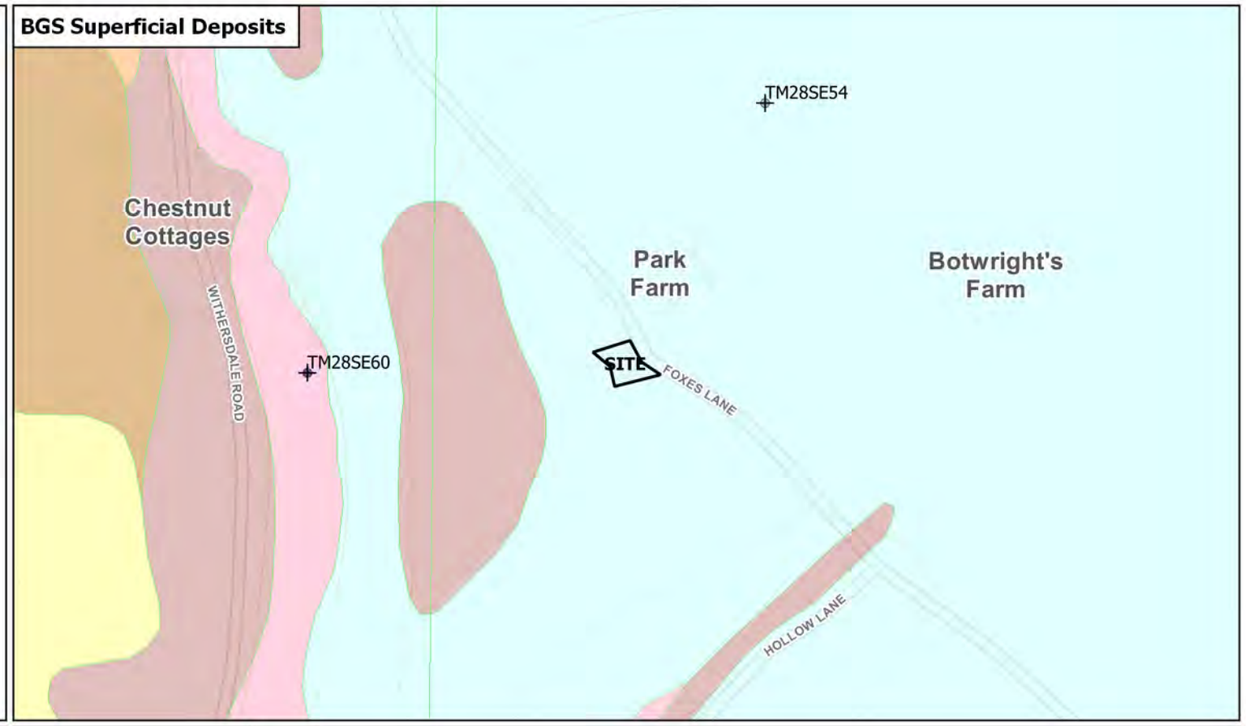
Client : Jane Crockett & David Lane-Godbold

Date : November 2019 **Dwg :** 19.381/Phasel/01

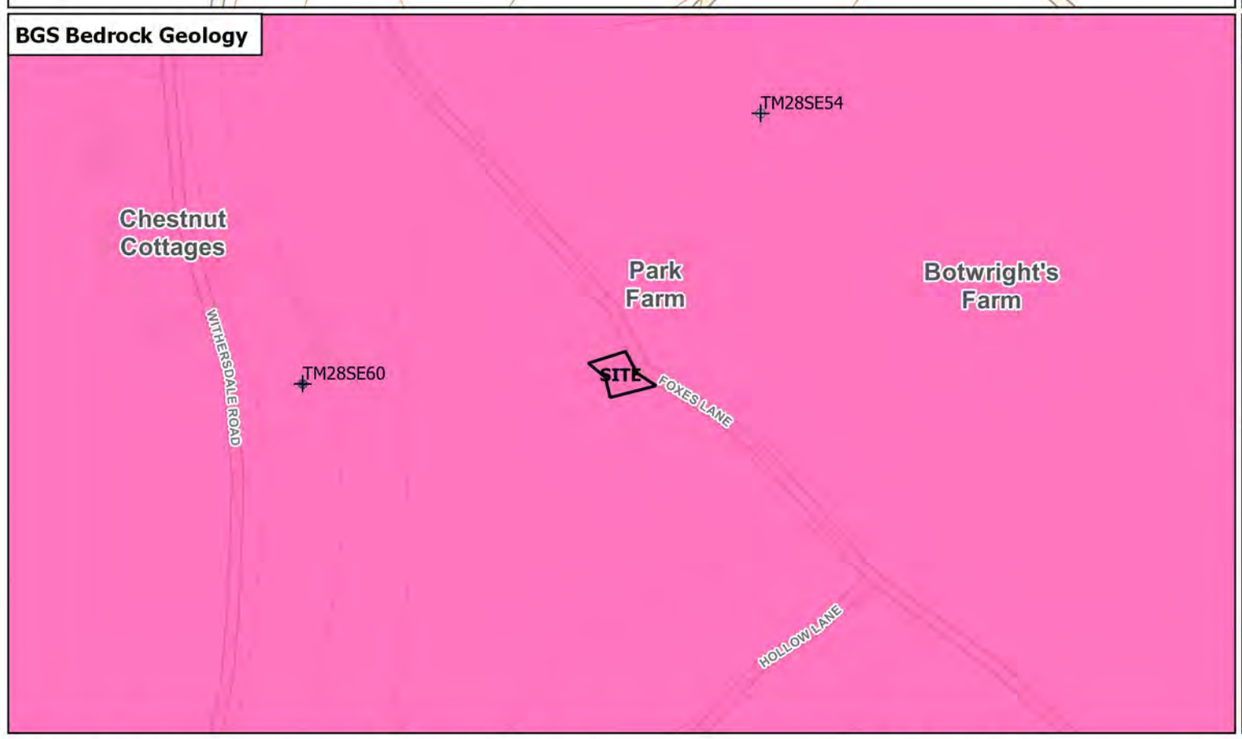
Site and Borehole Locations



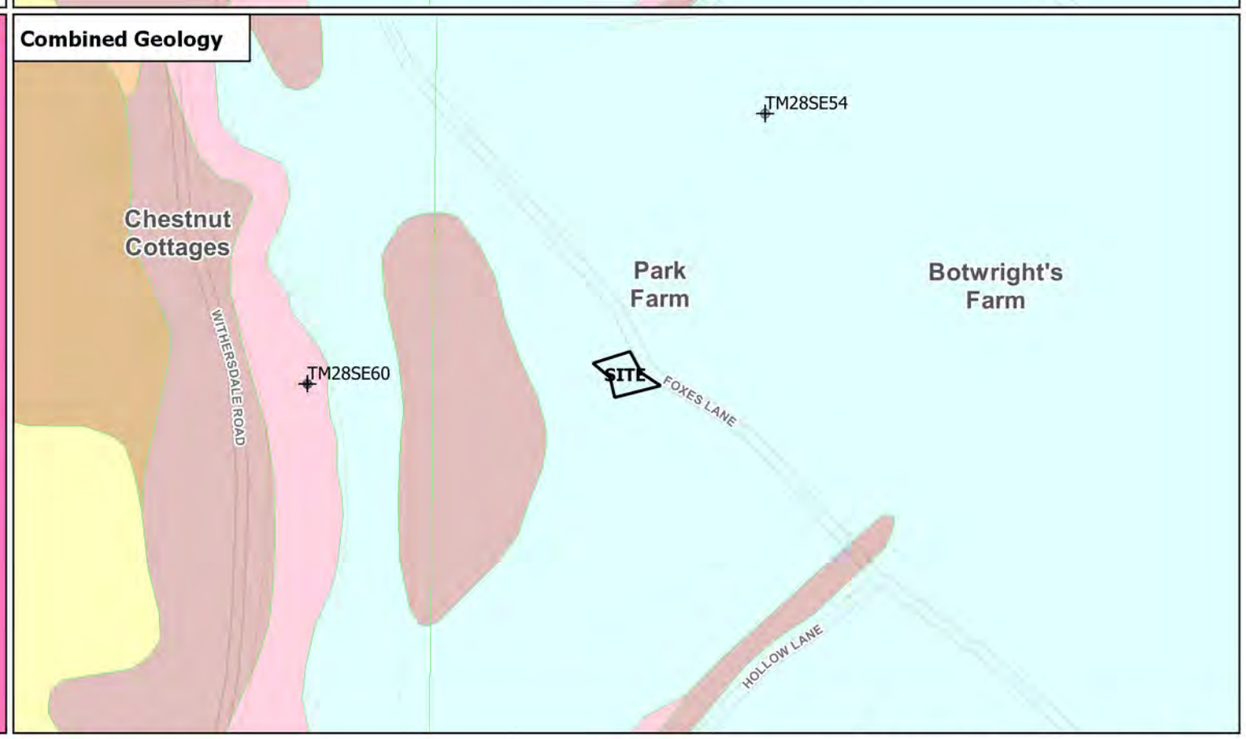
BGS Superficial Deposits



BGS Bedrock Geology



Combined Geology



Site Location

Approximate Site Boundary

BGS Superficial Deposits

- ALLUVIUM - Clay, silt, sand and gravel
- PEAT - Peat
- RIVER TERRACE DEPOSITS, 2 - Sand and gravel
- HEAD - Clay, silt, sand and gravel
- LOWESTOFT FORMATION - Diamicton
- LEET HILL SAND AND GRAVEL MEMBER - Sand and gravel

BGS Bedrock Geology

- CRAG GROUP - Sand and gravel

Archive BGS Boreholes Records

- Pertinent BGS borehole record and reference

Scale 1:7500

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Geotechnical Engineers

Site: Panorama, Foxes Lane, Mendham, IP20 0PE

BGS GEOLOGY AND BOREHOLE LOCATION PLAN

Client: Jane Crockett & David Lane-Godbold

Date: November 2019 **Dwg:** 19.381/Phase1/02

Photo 1: Structure 4

Photo 2: Stack of asbestos cement board in front of Structure 4

Photo 3: Made ground in front of Structure 4 including ACM

Photo 4: Asbestos cement board fragments on bare soil in front of Structure 4

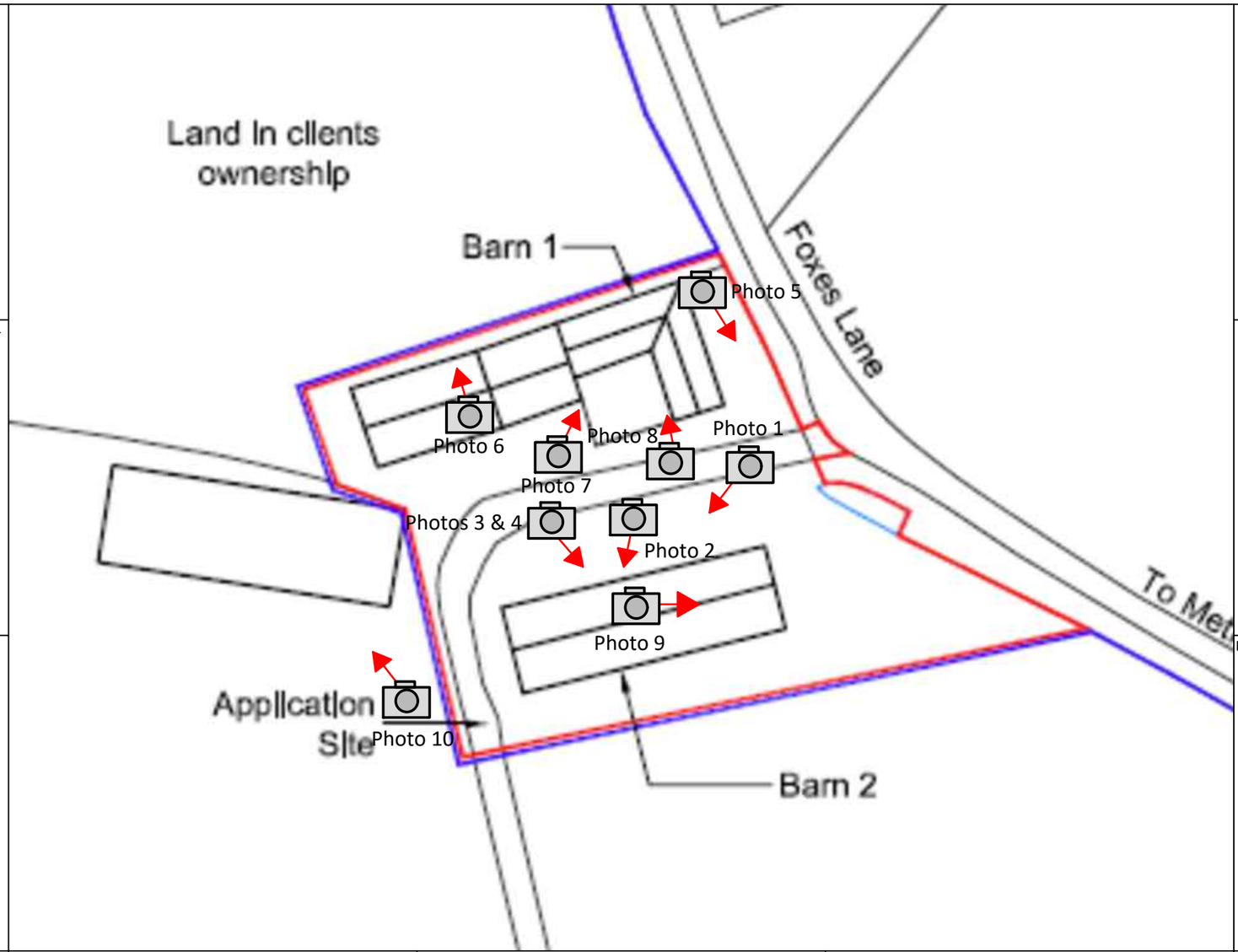

Photo 5: Stack of asbestos cement board to east of Structure 1

Photo 6: Broken asbestos cement board in Structure 3

Photo 7: Remnants of bases for former above ground tanks

Photo 8: Metal water tank to north of Structure 1

Photo 9: Grain dresser in Structure 4

Photo 10: Structure 5 just off site with former above ground tank

A F Howland Associates
Geotechnical Engineers

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The Old Exchange
Newmarket Road
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NR4 6UF
Tel: 01603 250754
Website: www.howland.co.uk Email: admin@howland.co.uk

Client:	Jane Crockett & David Lane-Godbold
Site:	Panorama, Foxes Lane, Mendham, IP20 0PE
Job No.:	19.381
Drawing title:	Relevant Feature Plan
Drawing No.:	19.381/Phasel/03
Date:	November 2019

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APPENDIX E: RISK ASSESSMENT CLASSIFICATION

Classification	Definition	Examples
High Likelihood	There is a pollution linkage and an event which would either 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.	Free product visible on surface of sensitive water body or in the soil. On site or adjacent gassing 'landfill site'.
Likely	There is a pollution 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.	Potentially contaminative land use i.e. 'Brownfield' site, fuel storage depot, factory, petrol station etc. Sensitive receptors to be introduced as part of site redevelopment. Potentially infilled land identified on site or off-site with credible migration pathway.
Low Likelihood	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term.	Potential source of contamination identified i.e. historical land use as allotments or domestic above ground fuel storage tanks, areas of burning garden waste. Possible off-site infilled land.
Unlikely	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.	No significant potential sources of contamination identified e.g. 'Greenfield' site. No potential sources of ground gas.

TABLE E1: CLASSIFICATION OF PROBABILITY

Classification	Definition	Examples
Severe	**Short term (acute) risk to human health.** Short term risk of pollution of sensitive water resource. Catastrophic damage to buildings/property. A short term risk to a particular ecosystem.	High concentrations of cyanide on the surface of an informal recreation area. Major spillage of contaminants from site into controlled water. Credible source of ground gas.
Medium	**Chronic damage to Human Health.** **Pollution of sensitive water resources.** A significant change in a particular ecosystem, or organism forming part of such ecosystem.	Concentrations of a contaminant from site exceeds the generic, or site specific assessment criteria. Leaching of contaminants from a site to a Secondary or Principal aquifer.
Mild	**Pollution of non-sensitive water resources.** Significant damage to buildings/structures and crops ("significant harm" as defined in the Circular on Contaminated Land, DETR, 2000). Damage to sensitive buildings/structures or the environment.	Concentrations of a contaminant do not exceed the generic, or site specific assessment criteria. Pollution of non-classified groundwater. Damage to building rendering it unsafe to occupy (e.g. foundation damage resulting in instability).
Minor	Harm, although not necessarily significant harm, which may result in a financial loss, or expenditure to resolve. Non-permanent health effects to human health (easily prevented by means such as Personal Protective Equipment, etc).	The presence of contaminants at such concentrations that protective equipment is required during site works. The loss of plants in a landscaping scheme.

TABLE E2: CLASSIFICATION OF CONSEQUENCE

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Classification	Definition
Very High Risk	There is a high probability that severe harm could arise to a designated receptor from an identified hazard or there is evidence that severe harm is occurring. The risk, if realised, is likely to result in a substantial liability. **Urgent investigation and remediation will be required.**
High Risk	Harm or chronic damage is likely to arise to a designated receptor from an identified hazard. **Investigation is required and remediation is likely to be required** to ensure the site is suitable for a proposed use.
Moderate Risk	It is possible that harm or chronic damage could arise to a designated receptor from an identified hazard. However, it is relatively unlikely that any such harm would be severe. **Investigation and remediation are likely to be required** to ensure the site is suitable for a proposed use.
Low/Moderate Risk	It is possible that harm or chronic damage could arise to a designated receptor from an identified hazard. **Investigation is likely to be required.** However, circumstances are such that investigation may prove the consequence to be mild and the site suitable for use without remediation.
Low Risk	It is possible that harm could arise to a designated receptor from an identified hazard but it is likely that this harm, if realised, would at worst be mild. **Investigation is unlikely to be required.**
Very Low Risk	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe. **Investigation is not required.**

TABLE E3: DESCRIPTION OF RISK

		CONSEQUENCE			
		Severe	**Medium**	**Mild**	**Minor**
PROBABILITY	**High likelihood**	**Very High**	**High**	**Moderate**	**Low/Moderate**
	Likely	**High**	**Moderate**	**Low/Moderate**	**Low**
	Low likelihood	**Moderate**	**Low/Moderate**	**Low**	**Very Low**
	Unlikely	**Low/Moderate**	**Low**	**Very Low**	**Very Low**

TABLE E4: DETERMINATION OF RISK

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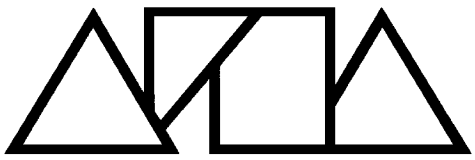

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