



EARTH ENVIRONMENTAL  
& GEOTECHNICAL

PHASE I GEO-  
ENVIRONMENTAL  
DESK STUDY REPORT

PLOTS ADJACENT TO 164 &  
166 ARROWSMITH ROAD

CHIGWELL

REDBRIDGE

IG7 4PB

REPORT REF: R3862/24

June 2024

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**June 2024**

Prepared on Behalf of:

**London Borough of Redbridge**

By:

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## PHASE I GEO-ENVIRONMENTAL DESK STUDY REPORT

### Plots Adjacent to 164 & 166 Arrowsmith Road, Chigwell, Redbridge, IG7 4PB

*Report Reference:* R3862/24

*Version* D.0

*Date:* 07<sup>th</sup> June 2024

*Prepared for:* London Borough of Redbridge

*Prepared by:* Earth Environmental & Geotechnical (Southern) Ltd  
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*Definition of Version Code:*

- D. Applied during initial drafting of the report before it has been reviewed.
- C. Applied after the report has been reviewed but before it has been approved by the Project Manager.
- B. Applied after the Project Manager has approved the report ready for issue to the client.
- A. Applied to reports after external/internal review.

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**John Grace**  
**Director**

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## 1.0 INTRODUCTION

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### 1.1 Background

Earth Environmental & Geotechnical (Southern) Ltd (EEGSL) was commissioned by The London Borough of Redbridge (the 'Client'), to undertake a Phase I Geo-Environmental Desk Study for the proposed developments at the Plots Adjacent to 164 & 166 Arrowsmith Road, Chigwell, Redbridge, IG7 4PB.

### 1.2 Proposed Development

There is currently no development plans, but it is assumed that the likely future proposed development plans would be for the development of residential properties.

### 1.3 Terms of Reference

EEGSL was commissioned by the Client to undertake a Phase I Geo-Environmental Desk Study for the site in accordance with a proposal reference R3862, dated 15<sup>th</sup> May 2024.

The objectives of this assessment are as follows:

- *Undertake a review of all relevant information relating to potential contaminated land at the assessment.*
- *Assess the implications of any potential environmental risks, liabilities and development constraints associated with the site in relation to the proposed future use.*

### 1.4 Sources of Information

The Phase 1 Desk Study comprises of a review of the following information sources:

- British Geological Survey online maps.
- Google Earth imagery.
- Environment Agency online data.
- Historical Ordnance Survey maps.
- Site-specific Groundsure Insight Report (REF: GS-X4F-P54-R45-TZM. May 2024)

### 1.5 Limitations of the Study

The report is written in the context of an agreed scope of work and budget and should not be used in a different context. New information, improved practices or changes in legislation may require a reinterpretation of the report in whole or in part. EEGSL reserve the right to amend either conclusions or recommendations in light of any further information that may become available. The report is provided for the sole use by the client and is confidential to them.

Recommendations within this report are also based on records produced by others. It is assumed this information is accurate and no liability can be accepted for the accuracy of this information.

## 2.0 SITE LOCATION & DESCRIPTION

The assessment sites (A and B) are located adjacent to 164 Arrowsmith Road (assessment site A) & 166 Arrowsmith Road (assessment site B) in Chigwell, Redbridge. Site A is centred on National Grid Reference TQ 46242 92269 (E: 546242, N: 192269) and site B is centred on National Grid Reference TQ 46270 92289 (E: 546270, N: 192289) with the nearest postcode being IG7 4PB.

The assessment sites (A and B) and surrounding area are shown in Figure 1 below.

**Figure 1– Site Location Plan**



The size of both assessment sites (A and B) is approximately 0.015ha (0.03ha combined) and are both bound by residential properties in all directions.

A site visit was completed by EEGSL on the 6<sup>th</sup> of June 2024. During the site visit access to both plots was available.



During the site visit it was noted that both plots comprise open soft landscaping areas between rows of terrace housing.

Both plots were noted as being generally flat, with minimal vegetation present, except for grass and a small tree present centrally within Site A.

The surrounding area comprised predominantly of residential housing, except for St Pauls Church and St Pauls Community Hall located opposite and to the north.

No obvious signs of contamination were noted on site or within the surrounding areas.

Photographs taken during the site visit are presented within Figure 2 Below.

**Figure 2 Site Walkover Photographs**

Photograph Showing Site A	Photograph Showing Site B
	
Photograph Showing St Pauls Church and Hall	Photograph Showing the Wider Residential Context
	

### 3.0 GEOLOGICAL SETTING

The geology of the assessment sites (A and B) is covered by British Geological Survey (BGS) online data and the site-specific Groundsure Insight Report (Appendix 1).

The following sections are generally limited to locations within 250m of the assessment sites (A and B) boundary unless it is considered that installations or activities beyond that range could potentially impact on the assessment sites or their redevelopment.

#### 3.1 Geology

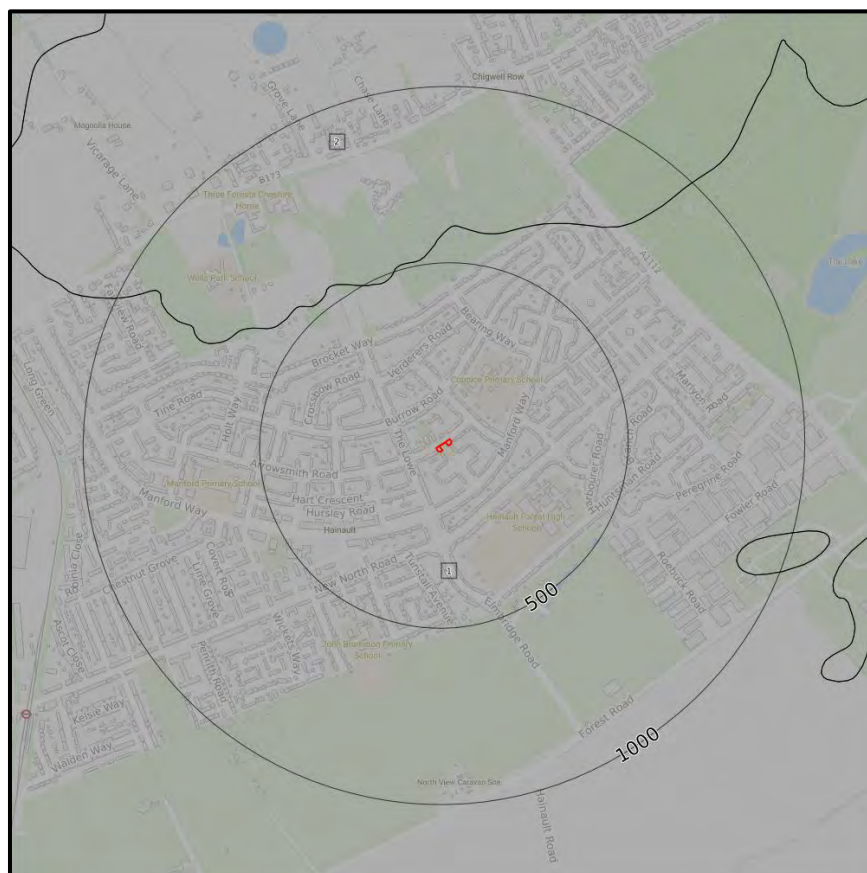
The Groundsure report indicates the assessment sites (A and B) are not underlain by artificial ground (Made Ground).

According to the British Geological Survey (BGS), there are no records of superficial deposits beneath either of the assessment sites (A and B).

According to the BGS, both sites A and B are directly underlain by bedrock geology comprising of the London Clay Formation.

The London Clay Formation mainly comprises bioturbated or poorly laminated, blue-grey or grey, brown, slightly calcareous, silty to very silty clay, clayey silt and sometimes silt, with some layers of sandy clay.

**Figure 3 – Geological Map Extract**



A review of geological maps has proven a lack of bedrock geological faults or linear features within 250m of both a and B sites.

A review of the BGS website has also proven 2 BGS borehole records are located within 250m of the A and B sites. The two BGS borehole records are located 243m west, with a reference of TQ49SEIII A and B. A summary of the data found at TQ49SEIII is provided below.

Details from TQ49SEIII A:

- Topsoil from 0 – 0.27mbgl.
- Clay with some stone from 0.27 – 1.4mbgl.
- Compact Clay from 1.4 – 1.8mbgl.

Details from TQ49SEIII B:

- Topsoil from 0 – 0.27mbgl.
- Compact Clay from 0.27 – 1.8mbgl.

### 3.2 Ground Stability

A review of common geohazards in the area surrounding the assessment site has been completed, and the results are presented within Table 1 below.

**Table 1: Geohazards Risk Ratings**

Geohazards	Risk Rating
Highly Compressible Ground	Negligible risk
Collapsible Soils	Very Low risk
Shrink Swell Clays	<b>Moderate risk</b>
Running Sand	Very Low risk
Ground Dissolution	Negligible risk
Landslides	Very Low risk
Mining & Quarrying	<p>According to the Groundsure report, no underground mining or quarrying is recorded as taking place on-sites.</p> <p>The assessment sites (A and B) are not located within a Coal Mining Reporting Area.</p> <p>A review of the Groundsure Insight Report has identified 6 surface ground workings within 250m of the assessment sites. These features are further discussed in Section 3.4.</p>

### **3.3 Radon Potential**

The assessment sites are located in an Area where less than 1% of properties are expected to be above the Radon Action Level. Therefore, radon protection measures are not expected to be required during redevelopment.

### **3.4 Mining, Ground Workings & Natural Cavities**

Reference to the Coal Authority Interactive viewer shows the assessment sites are not located within a coal mining area, and therefore, are not located within a coal mining Development High Risk Area.

Review of the Groundsure report has also confirmed that the assessment sites are not located within a gypsum, brine, tin, or clay mining area.

There are 6 surface ground workings located within 250m of the assessment sites. The closest record refers to a Graveyard located 110m southwest, mapped in 1871. Other records include 4 former ponds located between 122m west and 218m northeast, mapped in 1871, as well as a Graveyard located 211m east, mapped in 1871.

There are no records of underground workings located within 250m of the assessment sites.

## 4.0 ENVIRONMENTAL SETTING

The following environmental conditions are discovered by reviewing Environment Agency (EA) and British Geological Survey (BGS) online data, and the site-specific Groundsure Insight report (Appendix 1).

The following sections are generally limited to locations within 250m of the assessment sites boundary unless it is considered that installations or activities beyond that range could potentially have an impact on the site or its redevelopment.

### 4.1 Industrial Land Use Information

Historical and current industrial land usage on-site and within 250m of the assessment sites is summarised in Table 2 below:

**Table 2 - Summary of Industrial Land Use**

Description	On-Site	Records within 250m of site	Details of nearest Record
Historical Industrial Land Uses	0	1	<u>Nearest off-site</u> : 208m southwest, Police Station 1989
Historical Tanks	0	0	-
Historical Energy Features	0	4	<u>Nearest off-site</u> : 33m north, Electricity Substation 1981-1992
Historical Petrol Station	0	0	-
Historical Garage	0	0	-
Historical Military Land	0	0	-
Historical Railway and Tunnel Features	0	0	-
Historical Railways	0	0	-
Recent Industrial Land Use	0	5	<u>Nearest off-site</u> : 35m north, Electricity Substation
Current/Recent Petrol Stations	0	0	-
Electricity Cables	0	0	-
Gas Pipelines	0	0	-
Current Railway Features	0	0	-

### 4.2 UXO Assessment

A review of freely available UXO risk mapping indicates that the risk from Unexploded Ordnance (UXO) is considered to be Low.

### 4.3 Waste and Landfill Sites

There are no records of licensed waste sites, historical/active landfill sites or waste exemption licenses within 250m of the assessment sites.

No other records relating to waste exemptions or landfilling activities have been noted.



#### 4.4 Environmental Permits, Incidents and Registers

There are no records of environmental permits, incidents and registers located within 250m of the assessment sites.

#### 4.5 Hydrogeology and Hydrology

The underlying London Clay Formation bedrock geology has been classified as an Unproductive aquifer by the EA. The EA definition of an Unproductive aquifer is provided below:

***“Unproductive”** - These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.*

There are no Source Protection Zones (SPZs), groundwater, surface water or potable water abstractions within 250m of the assessment sites.

#### 4.6 Potential Flood Risks

A comprehensive flood risk assessment is not within the scope of this report. However, based on a preliminary examination of flood data, the following observations can be made:

- The highest risk of surface water flooding on both assessment sites is considered negligible.
- The highest risk of surface water flooding within a 50-meter radius of both assessment sites is considered at a maximum modelled depth of between 0.1m and 0.3m during a 1 in 100-year rainfall event.
- The assessment sites do not fall within planning flood risk zone 2 or 3.

There is a negligible risk of groundwater flooding on both assessment sites, and within a 50m radius.

There are no records of flood defences, areas benefitting from flood defences, and no flood storage areas within 250m of the assessment sites.

#### 4.7 Environmentally Sensitive Sites

There are no records of Special Areas of Conservation, Special Protection Areas, Conserved Wetland Sites, Sites of Special Scientific Interest, Local Nature Reserves, National Nature Reserves or Designated Ancient Woodlands within 250m of the assessment sites.

#### 4.8 Visual/Cultural Designations

There are no world heritage sites, national parks, scheduled ancient monuments, listed buildings or registered parks and gardens within 250m of the assessment sites.

## 5.0 SITE HISTORY

The historical development of the site has been determined by reference to historical plans and Google Earth imagery. The reviewed historical plans comprise only readily available records and may be limited; however, the information available to date indicates that additional searches are unlikely to add to our understanding. The earliest available historical mapping covering the assessment sites is from 1870. The assessment sites history is summarised in Table 3.

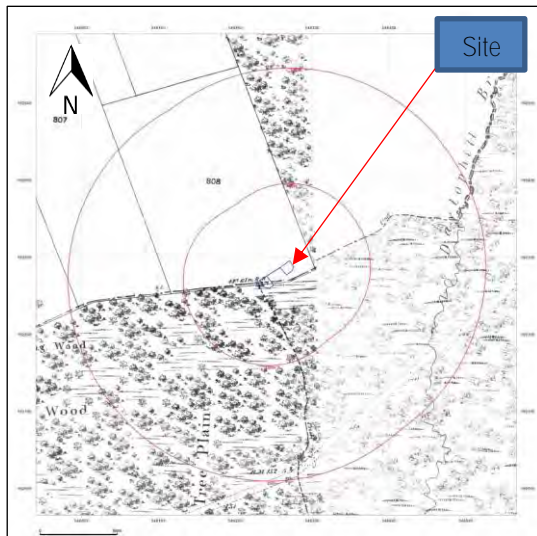
**Table 3 - Summary of Site History**

Date	Site A	Site B	Surrounding Land Use (Within 250m of Site)
1870-1873	The northern area of site A is located with an open field, the southern area of site A is located within a woodland.	Site B is located within an open field.	The land surrounding the assessment sites comprises of woodland in all directions other than to the northwest which comprises of open fields.
1896	Site A is located within an open field.	No significant change.	The map shows residential properties located around 180m southeast of the assessment sites and a pond located around 230m southeast of the assessment sites, the rest of the surrounding land is occupied by open fields.
1919-1920	No significant change.	No significant change.	A commercial building is located around 140m southeast of the assessment site.
1938	No significant change.	No significant change.	No significant change.
1963	Site A is shown located within an open plot of land surrounded by rows of residential development.	Site B is shown located within an open plot of land surrounded by rows of residential development.	The surrounding area consists of residential developments in all directions. Located around 50m north-northwest is a Church, Church Hall and a Vicarage. There are two schools and a playing field located 160m northeast of the assessment sites.
1962-1965	No significant change.	No significant change.	No significant change.
1977-1981	No significant change.	No significant change.	A number of electricity substations have been identified on the map, located around 30m north, 150m northwest, 150m southwest and 200m northeast. Small scale residential development can be seen around 210m northwest.
1983 – 2024	No significant change.	No significant change.	No significant change.

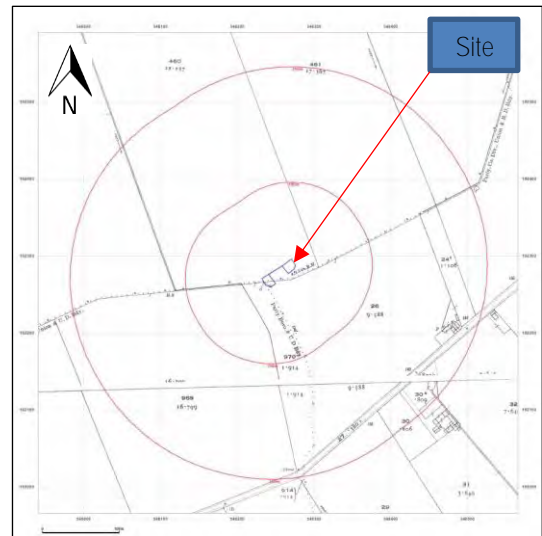
Selected extracts from historical maps and aerial images are presented in Figure 4.

**Figure 4 – Historical Map Extracts**

1870-1873



1919-1920



1977-1981



2003



## 6.0 PRELIMINARY CONTAMINATION RISK ASSESSMENT

### 6.1 Introduction

The following paragraphs outline a Preliminary Risk Assessment (PRA) for the site based on the above desk study information as defined by DEFRA and the EA Land contamination risk management, LCRA (2020) guidance.

Table 6 provides a Preliminary Conceptual Model (PCM) which considers the source-pathway-receptor linkages present alongside the likelihood, severity and risk level as defined within Table 4 and Table 5 below. The assessment of probability, a modified risk table, and certain consequence definitions are based on CIRIA C552 and the former Environment Agency CLR11.

Table 6 considers whether a pollution linkage is potentially present and provides a preliminary qualitative assessment of risk based on the information currently available. Where a possible linkage is identified, it does not necessarily mean that a significant risk exists but indicates that further information is required through appropriate site investigation to substantiate the conceptual model.

The PCM/PRA is based on a residential end use.

**Table 4 - Consequence, Probability and Risk**

Probability	Consequence,	Risk
High Likelihood- There is a pollution linkage and an event either appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution	Very High – acute risk to the human health likely to result in significant harm. Risk of severe or irreversible effect on ground/surface water quality. Catastrophic damage to buildings / property.	Very High – there is a high potential that the source-pathway-receptor scenarios may give rise to harm to human health or the environment and remedial action is likely to be required.
Likely – there is a pollution linkage and all the elements are present, which means that it is probable 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.	High – Severe or irreversible effect on human health. Temporary severe or irreversible effect on ground/surface water quality. Reduction of water quality rendering groundwater or surface water unfit to drink and/or substantial adverse impact on groundwater dependant environmental receptors.	High – it is likely that the source-pathway-receptor scenarios may give rise to an impact on human health or the environment, which may require remediation and/or control measures to mitigate risks
Low likelihood– there is a pollutant linkage and circumstances are possible for 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	Moderate – Long term or short term moderate effect on human health. Moderate effect on ground/surface water quality, reversible with time. Reduced reliability of a supply at a groundwater or surface water abstraction source	Moderate – it is possible that the source-pathway-receptor scenarios may give rise to an impact on human health or the environment, however it is either relatively unlikely that such would be severe, or if any harm were to occur it is more likely that harm would be mild.
Unlikely – there is a pollution linkage, but circumstances are such that it is doubtful that an event would occur even in the very long term.	Low – Non-permanent health effects to human health (easily prevented by means such as personal protective clothing etc.) Slight effect on ground/surface water quality, reversible with time. Marginal reduced reliability of a supply at a groundwater or surface water abstraction source.	Low – it is possible that harm could arise at the source, however it is likely that they would at worst be mild.
		Very Low – it is unlikely that the source-pathway-receptor scenarios will give rise to an impact on human health or the environment.

**Table 6 - Estimation of Level of Risk by Comparison of Consequence and Probability**

		Consequence			
		High	Moderate	Low	Very low
Probability	High Likelihood	Very High	High risk	Moderate risk	Moderate to low risk
	Likely	High risk	Moderate risk	Moderate to low risk	Low risk
	Low Likelihood	Moderate risk	Moderate to low risk	Low risk	Very low risk
	Unlikely	Moderate to low risk	Low risk	Very low risk	Very low risk

## 6.2 Potential Sources

The following sources have been considered at both of the assessment sites:

### Onsite

Given the lack of historical uses onsite, it is considered unlikely that any major onsite sources of contamination exist.

### Offsite

Several offsite sources of contamination have been reviewed as part of this assessment, with the nearest being historic and current day electricity substations located between 33 – 35m north of the assessment sites. However, given the small scale of the substation, and the distance between it and the assessment site, the substation is not expected to act as a significant source of contamination in this instance.

Other potential off-site sources of contamination, including further historic and current electricity substations as well as a two historic graveyards have been considered but have also been deemed as insignificant due to the distance from these potential sources and the assessment sites.

Given the above, it has been deemed that there are no significant onsite or offsite sources of contamination present at the assessment sites.

## 6.3 Potential Receptors

The following receptors have been considered as part of this assessment.

- Current land users.
- Future land users.
- Adjacent land users.
- Construction workers during site development works.

Given the predominantly cohesive nature of the underlying bedrock, and the lack of surface water bodies onsite, controlled waters are not considered a potential receptor in this instance.

## 6.4 Potential Pathways

The following pathways have been considered as part of this assessment.

- Direct / dermal contact, ingestion, inhalation pathways of potentially contaminated soils.
- Vertical or horizontal migration of contamination including ground gasses

**Table 6 - Preliminary Conceptual Model**

Source	Pathway	Receptor	Probability	Consequence	Risk	Comment
On-site Sources						
Contamination of the ground beneath site due to current and historical use	Dermal contact, ingestion and inhalation of soils dust	Current Site users	Unlikely	Moderate	Low	Due to the lack of current and historical on-site sources of contamination, the risk to current site users is LOW.
		Future Site users	Unlikely	Moderate	Low	Due to the lack of current and historical on-site sources of contamination, the risk to future site users is LOW
		Construction Workers	Unlikely	Moderate	Low	Due to the lack of current and historical on-site sources of contamination, the risk to construction workers is LOW.
		Adjacent Land users	Unlikely	Moderate	Low	Due to the lack of current and historical on-site sources of contamination, the risk to adjacent land users is LOW.
Off-site Sources						
Potential contamination associated with the offsite historical and current day use.	Vertical or horizontal migration of contamination including ground gasses	Current Site Users	Unlikely	Moderate	Low	Contamination may have been generated at off-site sources, however, the probability of contamination migrating significantly towards the assessment sites is low (due to the distance to and limited scale of the of the offsite sources). The risk of contamination to current site users from the off-site sources is therefore considered LOW.
		Future land users	Unlikely	Moderate	Low	Given the reasons above, the risk to future site users from off-site sources is also considered LOW.
		Construction Workers	Unlikely	Moderate	Low	Given the reasons above, the risk to construction workers from off-site sources is also considered LOW.

## **6.5 Preliminary Risk Assessment**

A review of the historical and current land use information has highlighted a lack of potentially significant onsite and offsite contamination sources.

Given the lack of contamination sources it is suggested that a Low risk is present to construction workers, current site users, future site users and adjacent site users.



## 7.0 GEOTECHNICAL HAZARD ASSESSMENT

In addition to the environmental hazards, the following geotechnical hazards have been considered at the assessment site. Local Authorities currently follow guidance outlined in the National Planning Policy Framework (NPPF) which requires all sites to be suitable for their intended use considering ground conditions and land instability, including from natural hazards and activities such as mining.

A summary of the geotechnical considerations is provided below in Table 7.

**Table 7: Summary of Geotechnical Hazards**

Geohazards	
Highly Compressible Ground	Negligible risk
Collapsible Soils	Very Low risk
Shrink Swell Clays	Moderate risk. Ground investigation works may be required to inform the most suitable foundation design. Foundations should consider the presence of any nearby vegetation and be designed in accordance with NHBC guidance (specifically NHBC Guidance Chapter 4.2).
Running Sand	Very Low risk
Ground Dissolution	Negligible risk
Mining & Quarrying	No mining or quarrying is recorded as taking place on either of the assessment sites (A and B). The assessment sites (A and B) are not located within a Coal Mining Reporting Area.
Geotechnical Design Considerations	
Site Clearance	Significant site clearance will not be required.
Trees	A small tree is present centrally within Site A. This will need to be removed as part of any redevelopment.
Foundations	The design and depth of proposed foundations will depend on the ground conditions present. An intrusive geotechnical investigation would be necessary to confirm the most suitable foundation design.
Floor Slabs	The design of floor slabs will be dependent on the ground conditions present. Ground investigation works should be completed to inform foundation design.
Groundwater	An intrusive geotechnical investigation would be necessary to confirm if shallow groundwater is present. Shallow groundwater was not present at nearby BGS boreholes (TQ49SE111).
Earthworks	Significant earthworks are not expected to be required at either assessment site A or assessment site B.
Slopes	Both the assessment sites (A and B) appear to be generally flat.
Retaining Walls	There are no retaining walls currently present or proposed at the assessment sites (A and B).
Chemically aggressive ground conditions	An intrusive geotechnical investigation will be necessary to confirm if chemically aggressive ground is present.

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## 8.0 CONCLUSIONS & RECOMMENDATIONS

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### 8.1 Conclusions

EEGSL was commissioned by The London Borough of Redbridge (the 'Client'), to undertake a Phase I Geo-Environmental Desk Study for the Plots Adjacent to 164 & 166 Arrowsmith Road, Chigwell, Redbridge, IG7 4PB.

A review of historical and current day information has highlighted a general lack of potential on-site and off-site sources of contamination.

At this stage it is suggested that a **LOW** risk is present from contamination to current and future site users, however it would be prudent for a contamination watching brief to be completed during any groundworks.

Review of underlying Geohazards has highlighted a moderate potential for shrink swell clays to be present, therefore some ground investigation works for geotechnical design may wish to be considered. Any works completed should be used to inform foundation and ground floor slab design.

### 8.2 Recommendations

An investigation to determine the presence of contamination at the assessment site is not deemed necessary. A contamination watching brief should however be maintained during any groundworks.

Consideration should also be given to ground investigation works to help inform foundation design and drainage.

## **APPENDIX 1**

### **GROUNDSURE REPORT**

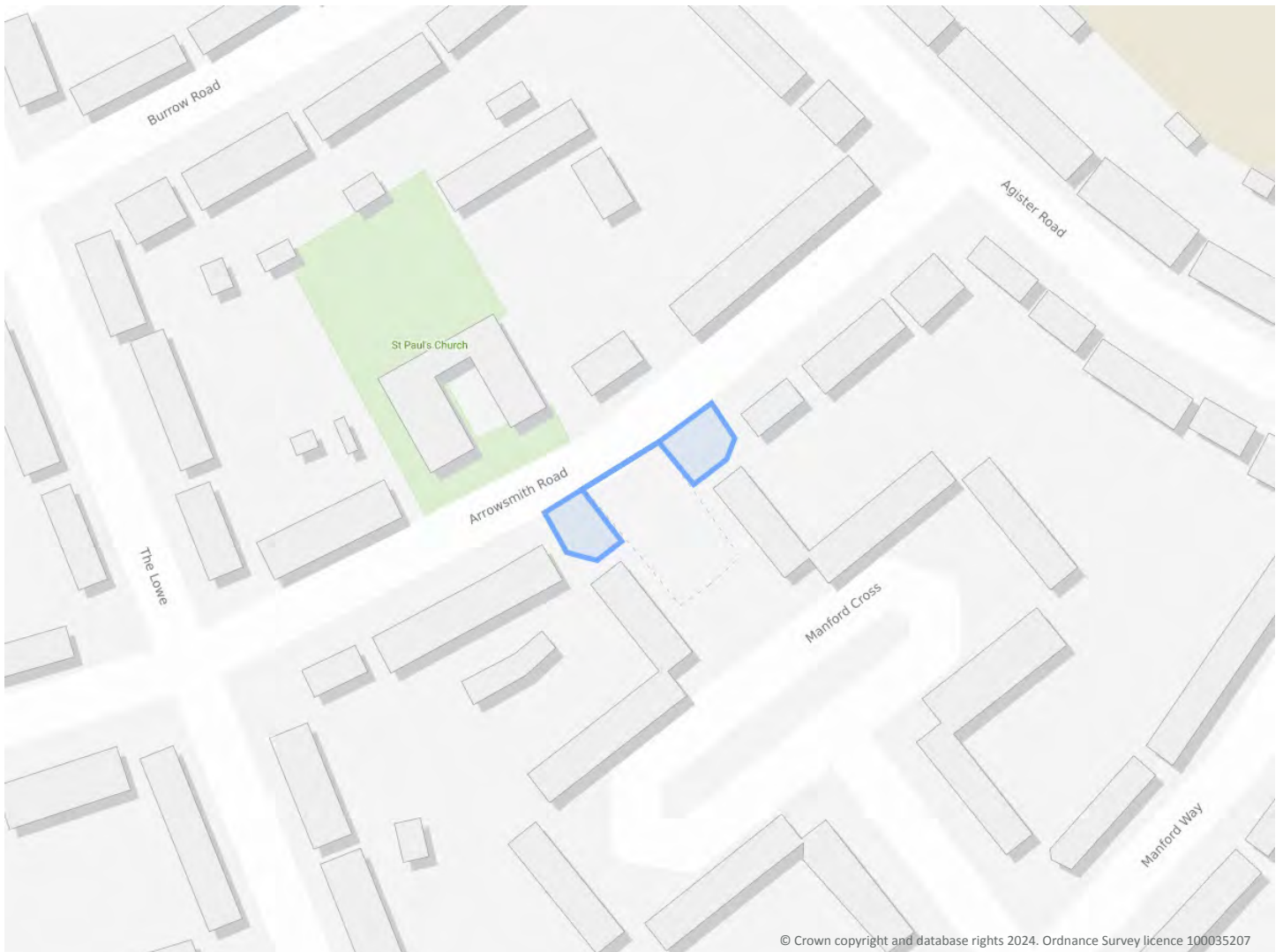
LAND ADJACENT TO 164-166, ARROWSMITH ROAD, CHIGWELL, REDBRIDGE, IG7 4NZ

## Order Details

**Date:** 24/05/2024  
**Your ref:** R3862  
**Our Ref:** GS-X4F-P54-R45-TZM

## Site Details

**Location:** 546254 192277  
**Area:** 0.03 ha  
**Authority:** [London Borough of Redbridge](#) ↗



**Summary of findings**

[p. 2 >](#) **Aerial image**

[p. 9 >](#)

**OS MasterMap site plan**

[p.14 >](#) [Insight User Guide](#) ↗

Contact us with any questions at:

[info@groundsure.com](mailto:info@groundsure.com) ↗

01273 257 755

## Summary of findings

Page	Section	<a href="#">Past land use &gt;</a>	On site	0-50m	50-250m	250-500m	500-2000m
<a href="#">15 &gt;</a>	<a href="#">1.1 &gt;</a>	<a href="#">Historical industrial land uses &gt;</a>	0	0	1	0	-
16	1.2	Historical tanks	0	0	0	0	-
<a href="#">16 &gt;</a>	<a href="#">1.3 &gt;</a>	<a href="#">Historical energy features &gt;</a>	0	1	3	7	-
17	1.4	Historical petrol stations	0	0	0	0	-
<a href="#">17 &gt;</a>	<a href="#">1.5 &gt;</a>	<a href="#">Historical garages &gt;</a>	0	0	0	1	-
17	1.6	Historical military land	0	0	0	0	-
Page	Section	<a href="#">Past land use - un-grouped &gt;</a>	On site	0-50m	50-250m	250-500m	500-2000m
<a href="#">18 &gt;</a>	<a href="#">2.1 &gt;</a>	<a href="#">Historical industrial land uses &gt;</a>	0	0	1	0	-
19	2.2	Historical tanks	0	0	0	0	-
<a href="#">19 &gt;</a>	<a href="#">2.3 &gt;</a>	<a href="#">Historical energy features &gt;</a>	0	3	9	10	-
20	2.4	Historical petrol stations	0	0	0	0	-
<a href="#">20 &gt;</a>	<a href="#">2.5 &gt;</a>	<a href="#">Historical garages &gt;</a>	0	0	0	2	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
21	3.1	Active or recent landfill	0	0	0	0	-
21	3.2	Historical landfill (BGS records)	0	0	0	0	-
21	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
21	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
21	3.5	Historical waste sites	0	0	0	0	-
22	3.6	Licensed waste sites	0	0	0	0	-
22	3.7	Waste exemptions	0	0	0	0	-
Page	Section	<a href="#">Current industrial land use &gt;</a>	On site	0-50m	50-250m	250-500m	500-2000m
<a href="#">23 &gt;</a>	<a href="#">4.1 &gt;</a>	<a href="#">Recent industrial land uses &gt;</a>	0	1	4	-	-
<a href="#">24 &gt;</a>	<a href="#">4.2 &gt;</a>	<a href="#">Current or recent petrol stations &gt;</a>	0	0	0	1	-
24	4.3	Electricity cables	0	0	0	0	-
24	4.4	Gas pipelines	0	0	0	0	-
24	4.5	Sites determined as Contaminated Land	0	0	0	0	-



25	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
25	4.7	Regulated explosive sites	0	0	0	0	-
25	4.8	Hazardous substance storage/usage	0	0	0	0	-
25	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
25	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
<b>26 &gt;</b>	<b>4.11 &gt;</b>	<b><u>Licensed pollutant release (Part A(2)/B) &gt;</u></b>	0	0	0	<b>1</b>	-
26	4.12	Radioactive Substance Authorisations	0	0	0	0	-
26	4.13	Licensed Discharges to controlled waters	0	0	0	0	-
26	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
27	4.15	Pollutant release to public sewer	0	0	0	0	-
27	4.16	List 1 Dangerous Substances	0	0	0	0	-
27	4.17	List 2 Dangerous Substances	0	0	0	0	-
27	4.18	Pollution Incidents (EA/NRW)	0	0	0	0	-
27	4.19	Pollution inventory substances	0	0	0	0	-
28	4.20	Pollution inventory waste transfers	0	0	0	0	-
28	4.21	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	<b><u>Hydrogeology &gt;</u></b>	On site	0-50m	50-250m	250-500m	500-2000m
<b>29 &gt;</b>	<b>5.1 &gt;</b>	<b><u>Superficial aquifer &gt;</u></b>	Identified (within 500m)				
<b>31 &gt;</b>	<b>5.2 &gt;</b>	<b><u>Bedrock aquifer &gt;</u></b>	Identified (within 500m)				
<b>32 &gt;</b>	<b>5.3 &gt;</b>	<b><u>Groundwater vulnerability &gt;</u></b>	Identified (within 50m)				
33	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
33	5.5	Groundwater vulnerability- local information	None (within 0m)				
<b>34 &gt;</b>	<b>5.6 &gt;</b>	<b><u>Groundwater abstractions &gt;</u></b>	0	0	0	0	6
<b>36 &gt;</b>	<b>5.7 &gt;</b>	<b><u>Surface water abstractions &gt;</u></b>	0	0	0	0	2
37	5.8	Potable abstractions	0	0	0	0	0
37	5.9	Source Protection Zones	0	0	0	0	-
37	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	<b><u>Hydrology &gt;</u></b>	On site	0-50m	50-250m	250-500m	500-2000m
38	6.1	Water Network (OS MasterMap)	0	0	0	-	-



38	6.2	Surface water features	0	0	0	-	-
<a href="#">39 &gt;</a>	<a href="#">6.3 &gt;</a>	<a href="#">WFD Surface water body catchments &gt;</a>	1	-	-	-	-
<a href="#">39 &gt;</a>	<a href="#">6.4 &gt;</a>	<a href="#">WFD Surface water bodies &gt;</a>	0	0	0	-	-
40	6.5	WFD Groundwater bodies	0	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
41	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
41	7.2	Historical Flood Events	0	0	0	-	-
41	7.3	Flood Defences	0	0	0	-	-
42	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
42	7.5	Flood Storage Areas	0	0	0	-	-
43	7.6	Flood Zone 2	None (within 50m)				
43	7.7	Flood Zone 3	None (within 50m)				
Page	Section	<a href="#">Surface water flooding &gt;</a>					
<a href="#">44 &gt;</a>	<a href="#">8.1 &gt;</a>	<a href="#">Surface water flooding &gt;</a>	1 in 100 year, 0.1m - 0.3m (within 50m)				
Page	Section	<a href="#">Groundwater flooding &gt;</a>					
<a href="#">46 &gt;</a>	<a href="#">9.1 &gt;</a>	<a href="#">Groundwater flooding &gt;</a>	Negligible (within 50m)				
Page	Section	<a href="#">Environmental designations &gt;</a>	On site	0-50m	50-250m	250-500m	500-2000m
<a href="#">47 &gt;</a>	<a href="#">10.1 &gt;</a>	<a href="#">Sites of Special Scientific Interest (SSSI) &gt;</a>	0	0	0	0	1
48	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
48	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
48	10.4	Special Protection Areas (SPA)	0	0	0	0	0
48	10.5	National Nature Reserves (NNR)	0	0	0	0	0
<a href="#">49 &gt;</a>	<a href="#">10.6 &gt;</a>	<a href="#">Local Nature Reserves (LNR) &gt;</a>	0	0	0	1	2
<a href="#">49 &gt;</a>	<a href="#">10.7 &gt;</a>	<a href="#">Designated Ancient Woodland &gt;</a>	0	0	0	1	1
49	10.8	Biosphere Reserves	0	0	0	0	0
50	10.9	Forest Parks	0	0	0	0	0
50	10.10	Marine Conservation Zones	0	0	0	0	0
<a href="#">50 &gt;</a>	<a href="#">10.11 &gt;</a>	<a href="#">Green Belt &gt;</a>	0	0	0	2	0
50	10.12	Proposed Ramsar sites	0	0	0	0	0



51	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
51	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
51	10.15	Nitrate Sensitive Areas	0	0	0	0	0
<a href="#">51</a> >	<a href="#">10.16</a> >	<a href="#">Nitrate Vulnerable Zones</a> >	0	0	0	0	2
<a href="#">53</a> >	<a href="#">10.17</a> >	<a href="#">SSSI Impact Risk Zones</a> >	2	-	-	-	-
<a href="#">55</a> >	<a href="#">10.18</a> >	<a href="#">SSSI Units</a> >	0	0	0	0	2
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
56	11.1	World Heritage Sites	0	0	0	-	-
56	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
56	11.3	National Parks	0	0	0	-	-
56	11.4	Listed Buildings	0	0	0	-	-
57	11.5	Conservation Areas	0	0	0	-	-
57	11.6	Scheduled Ancient Monuments	0	0	0	-	-
57	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	<a href="#">Agricultural designations</a> >	On site	0-50m	50-250m	250-500m	500-2000m
<a href="#">58</a> >	<a href="#">12.1</a> >	<a href="#">Agricultural Land Classification</a> >	Non Agricultural (within 250m)				
59	12.2	Open Access Land	0	0	0	-	-
59	12.3	Tree Felling Licences	0	0	0	-	-
59	12.4	Environmental Stewardship Schemes	0	0	0	-	-
59	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
60	13.1	Priority Habitat Inventory	0	0	0	-	-
60	13.2	Habitat Networks	0	0	0	-	-
60	13.3	Open Mosaic Habitat	0	0	0	-	-
60	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	<a href="#">Geology 1:10,000 scale</a> >	On site	0-50m	50-250m	250-500m	500-2000m
<a href="#">61</a> >	<a href="#">14.1</a> >	<a href="#">10k Availability</a> >	Identified (within 500m)				
<a href="#">62</a> >	<a href="#">14.2</a> >	<a href="#">Artificial and made ground (10k)</a> >	0	0	0	1	-
<a href="#">63</a> >	<a href="#">14.3</a> >	<a href="#">Superficial geology (10k)</a> >	0	0	0	3	-



64	14.4	Landslip (10k)	0	0	0	0	-
<a href="#">65 &gt;</a>	<a href="#">14.5 &gt;</a>	<a href="#">Bedrock geology (10k) &gt;</a>	1	0	0	1	-
66	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	<a href="#">Geology 1:50,000 scale &gt;</a>	On site	0-50m	50-250m	250-500m	500-2000m
<a href="#">67 &gt;</a>	<a href="#">15.1 &gt;</a>	<a href="#">50k Availability &gt;</a>	Identified (within 500m)				
<a href="#">68 &gt;</a>	<a href="#">15.2 &gt;</a>	<a href="#">Artificial and made ground (50k) &gt;</a>	0	0	0	1	-
69	15.3	Artificial ground permeability (50k)	0	0	-	-	-
<a href="#">70 &gt;</a>	<a href="#">15.4 &gt;</a>	<a href="#">Superficial geology (50k) &gt;</a>	0	0	0	3	-
71	15.5	Superficial permeability (50k)	None (within 50m)				
71	15.6	Landslip (50k)	0	0	0	0	-
71	15.7	Landslip permeability (50k)	None (within 50m)				
<a href="#">72 &gt;</a>	<a href="#">15.8 &gt;</a>	<a href="#">Bedrock geology (50k) &gt;</a>	1	0	0	1	-
<a href="#">73 &gt;</a>	<a href="#">15.9 &gt;</a>	<a href="#">Bedrock permeability (50k) &gt;</a>	Identified (within 50m)				
73	15.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	<a href="#">Boreholes &gt;</a>	On site	0-50m	50-250m	250-500m	500-2000m
<a href="#">74 &gt;</a>	<a href="#">16.1 &gt;</a>	<a href="#">BGS Boreholes &gt;</a>	0	0	2	-	-
Page	Section	<a href="#">Natural ground subsidence &gt;</a>					
<a href="#">75 &gt;</a>	<a href="#">17.1 &gt;</a>	<a href="#">Shrink swell clays &gt;</a>	Moderate (within 50m)				
<a href="#">76 &gt;</a>	<a href="#">17.2 &gt;</a>	<a href="#">Running sands &gt;</a>	Very low (within 50m)				
<a href="#">77 &gt;</a>	<a href="#">17.3 &gt;</a>	<a href="#">Compressible deposits &gt;</a>	Negligible (within 50m)				
<a href="#">78 &gt;</a>	<a href="#">17.4 &gt;</a>	<a href="#">Collapsible deposits &gt;</a>	Very low (within 50m)				
<a href="#">79 &gt;</a>	<a href="#">17.5 &gt;</a>	<a href="#">Landslides &gt;</a>	Very low (within 50m)				
<a href="#">80 &gt;</a>	<a href="#">17.6 &gt;</a>	<a href="#">Ground dissolution of soluble rocks &gt;</a>	Negligible (within 50m)				
Page	Section	<a href="#">Mining and ground workings &gt;</a>	On site	0-50m	50-250m	250-500m	500-2000m
82	18.1	BritPits	0	0	0	0	-
<a href="#">83 &gt;</a>	<a href="#">18.2 &gt;</a>	<a href="#">Surface ground workings &gt;</a>	0	0	6	-	-
83	18.3	Underground workings	0	0	0	0	0
83	18.4	Underground mining extents	0	0	0	0	-
84	18.5	Historical Mineral Planning Areas	0	0	0	0	-

84	18.6	Non-coal mining	0	0	0	0	0
84	18.7	JPB mining areas	None (within 0m)				
84	18.8	The Coal Authority non-coal mining	0	0	0	0	-
85	18.9	Researched mining	0	0	0	0	-
85	18.10	Mining record office plans	0	0	0	0	-
85	18.11	BGS mine plans	0	0	0	0	-
85	18.12	Coal mining	None (within 0m)				
85	18.13	Brine areas	None (within 0m)				
86	18.14	Gypsum areas	None (within 0m)				
86	18.15	Tin mining	None (within 0m)				
86	18.16	Clay mining	None (within 0m)				
Page	Section	Ground cavities and sinkholes	On site	0-50m	50-250m	250-500m	500-2000m
87	19.1	Natural cavities	0	0	0	0	-
87	19.2	Mining cavities	0	0	0	0	0
87	19.3	Reported recent incidents	0	0	0	0	-
87	19.4	Historical incidents	0	0	0	0	-
88	19.5	National karst database	0	0	0	0	-
Page	Section	<a href="#">Radon &gt;</a>					
<a href="#">89 &gt;</a>	<a href="#">20.1 &gt;</a>	<a href="#">Radon &gt;</a>	Less than 1% (within 0m)				
Page	Section	<a href="#">Soil chemistry &gt;</a>	On site	0-50m	50-250m	250-500m	500-2000m
<a href="#">91 &gt;</a>	<a href="#">21.1 &gt;</a>	<a href="#">BGS Estimated Background Soil Chemistry &gt;</a>	1	0	-	-	-
<a href="#">91 &gt;</a>	<a href="#">21.2 &gt;</a>	<a href="#">BGS Estimated Urban Soil Chemistry &gt;</a>	1	5	-	-	-
<a href="#">92 &gt;</a>	<a href="#">21.3 &gt;</a>	<a href="#">BGS Measured Urban Soil Chemistry &gt;</a>	0	1	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
93	22.1	Underground railways (London)	0	0	0	-	-
93	22.2	Underground railways (Non-London)	0	0	0	-	-
93	22.3	Railway tunnels	0	0	0	-	-
93	22.4	Historical railway and tunnel features	0	0	0	-	-
93	22.5	Royal Mail tunnels	0	0	0	-	-



94	22.6	Historical railways	0	0	0	-	-
94	22.7	Railways	0	0	0	-	-
94	22.8	Crossrail 1	0	0	0	0	-
94	22.9	Crossrail 2	0	0	0	0	-
94	22.10	HS2	0	0	0	0	-

## Recent aerial photograph



Aerial photography supplied by Getmapping PLC. © Copyright Getmapping PLC 2024. All Rights Reserved.

Capture Date: 21/04/2022

Site Area: 0.03ha





## Recent site history - 2021 aerial photograph



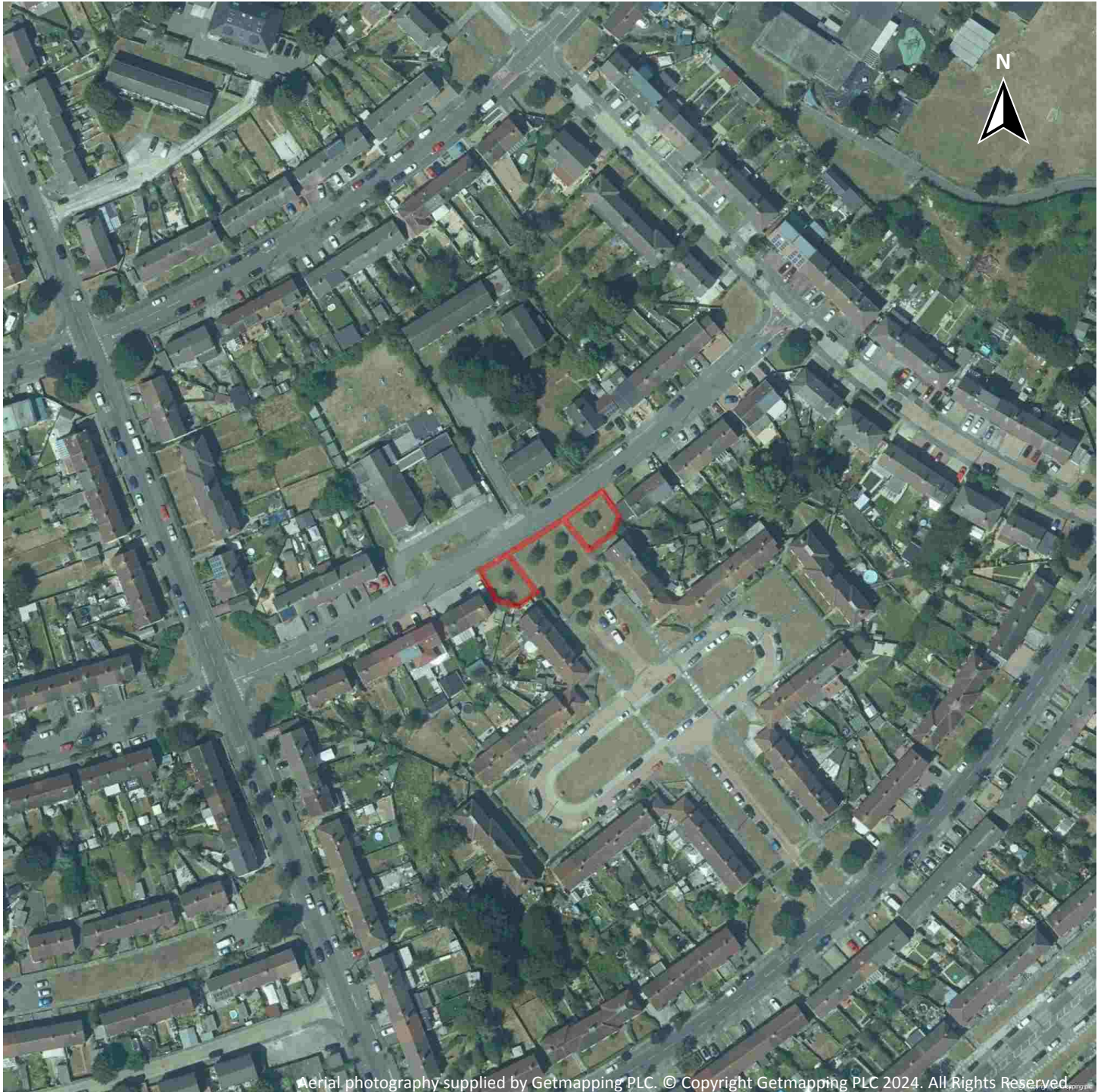
Capture Date: 17/07/2021

Site Area: 0.03ha





## Recent site history - 2018 aerial photograph



Capture Date: 02/08/2018

Site Area: 0.03ha





## Recent site history - 2013 aerial photograph



Capture Date: 28/04/2013

Site Area: 0.03ha





## Recent site history - 1999 aerial photograph



Capture Date: 06/09/1999

Site Area: 0.03ha





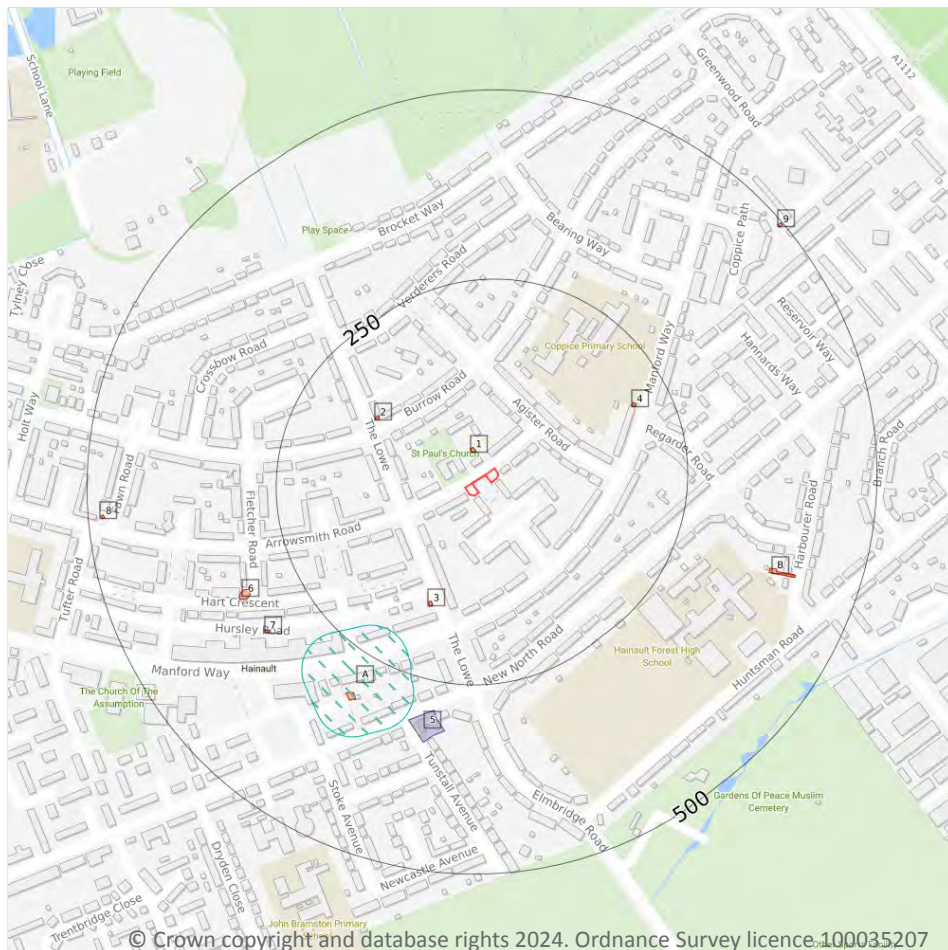
## OS MasterMap site plan



Site Area: 0.03ha



## 1 Past land use



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical energy features
- Historical garages

### 1.1 Historical industrial land uses

#### Records within 500m

1

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

Features are displayed on the Past land use map on [page 15 >](#)

ID	Location	Land use	Dates present	Group ID
A	208m SW	Police Station	1989	2162677



*This data is sourced from Ordnance Survey / Groundsure.*

## 1.2 Historical tanks

<b>Records within 500m</b>	<b>0</b>
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Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

*This data is sourced from Ordnance Survey / Groundsure.*

## 1.3 Historical energy features

<b>Records within 500m</b>	<b>11</b>
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Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on [page 15 >](#)

ID	Location	Land use	Dates present	Group ID
1	33m N	Electricity Substation	1981 - 1992	283012
2	145m NW	Electricity Substation	1981 - 1992	273577
3	150m SW	Electricity Substation	1981 - 1992	279346
4	198m NE	Electricity Substation	1981 - 1992	279428
A	303m SW	Electricity Substation	1973	246166
6	315m SW	Electricity Substation	1981	246183
7	320m SW	Electricity Substation	1981	246182
B	380m E	Electricity Substation	1997	273329
B	402m E	Electricity Substation	1979 - 1985	261147
8	478m W	Electricity Substation	1981	246184
9	493m NE	Electricity Substation	1971 - 1992	279540

*This data is sourced from Ordnance Survey / Groundsure.*





## 1.4 Historical petrol stations

**Records within 500m****0**

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

*This data is sourced from Ordnance Survey / Groundsure.*

## 1.5 Historical garages

**Records within 500m****1**

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

Features are displayed on the Past land use map on [page 15](#) >

ID	Location	Land use	Dates present	Group ID
5	289m S	Garage	1963	83062

*This data is sourced from Ordnance Survey / Groundsure.*

## 1.6 Historical military land

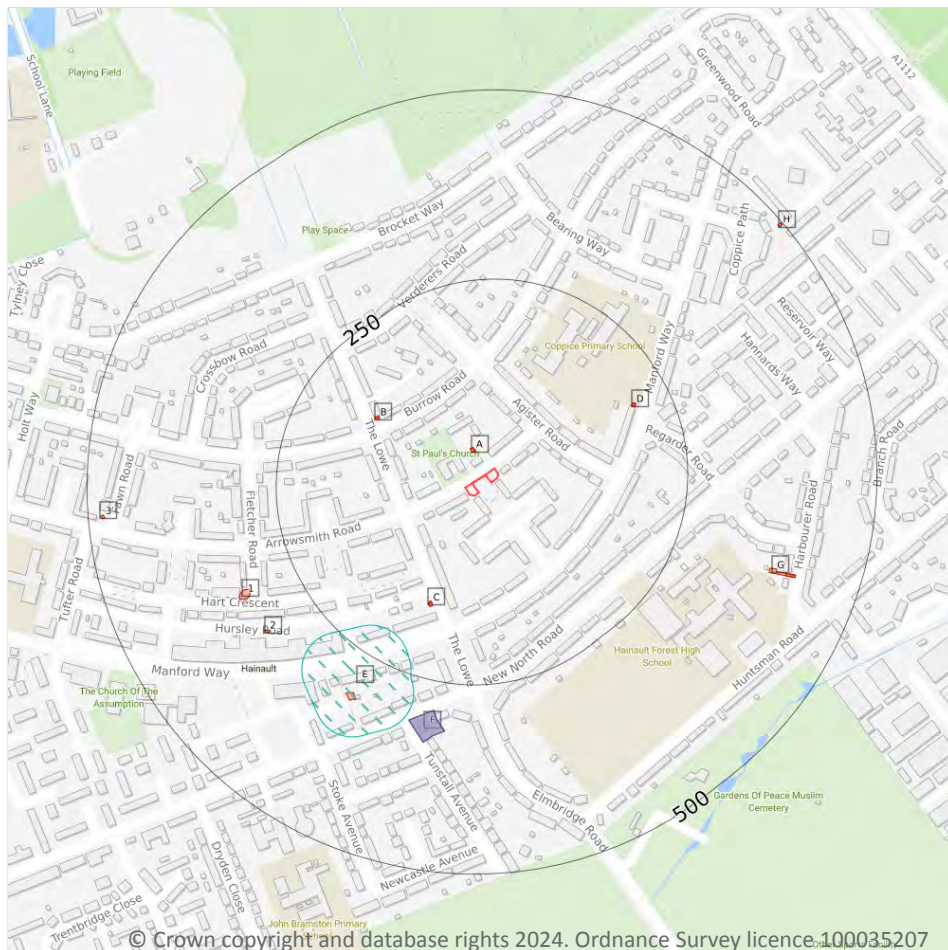
**Records within 500m****0**

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

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



## 2 Past land use - un-grouped



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical energy features
- Historical garages

### 2.1 Historical industrial land uses

#### Records within 500m

1

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

Features are displayed on the Past land use - un-grouped map on [page 18](#) >

ID	Location	Land Use	Date	Group ID
E	208m SW	Police Station	1989	2162677

This data is sourced from Ordnance Survey / Groundsure.



## 2.2 Historical tanks

**Records within 500m****0**

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

*This data is sourced from Ordnance Survey / Groundsure.*

## 2.3 Historical energy features

**Records within 500m****22**

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

Features are displayed on the Past land use - un-grouped map on [page 18 >](#)

ID	Location	Land Use	Date	Group ID
A	33m N	Electricity Substation	1992	283012
A	34m N	Electricity Substation	1983	283012
A	34m N	Electricity Substation	1981	283012
B	145m NW	Electricity Substation	1992	273577
B	146m NW	Electricity Substation	1983	273577
B	146m NW	Electricity Substation	1981	273577
C	150m SW	Electricity Substation	1983	279346
C	150m SW	Electricity Substation	1981	279346
C	151m SW	Electricity Substation	1992	279346
D	198m NE	Electricity Substation	1983	279428
D	198m NE	Electricity Substation	1981	279428
D	199m NE	Electricity Substation	1992	279428
E	303m SW	Electricity Substation	1973	246166
1	315m SW	Electricity Substation	1981	246183
2	320m SW	Electricity Substation	1981	246182
G	380m E	Electricity Substation	1997	273329



ID	Location	Land Use	Date	Group ID
G	402m E	Electricity Substation	1979	261147
G	402m E	Electricity Substation	1985	261147
G	402m E	Electricity Substation	1985	261147
3	478m W	Electricity Substation	1981	246184
H	493m NE	Electricity Substation	1971	279540
H	493m NE	Electricity Substation	1992	279540

*This data is sourced from Ordnance Survey / Groundsure.*

## 2.4 Historical petrol stations

<b>Records within 500m</b>	<b>0</b>
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Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

*This data is sourced from Ordnance Survey / Groundsure.*

## 2.5 Historical garages

<b>Records within 500m</b>	<b>2</b>
----------------------------	----------

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

Features are displayed on the Past land use - un-grouped map on [page 18 >](#)

ID	Location	Land Use	Date	Group ID
F	289m S	Garage	1963	83062
F	289m S	Garage	1963	83062

*This data is sourced from Ordnance Survey / Groundsure.*

## 3 Waste and landfill

### 3.1 Active or recent landfill

Records within 500m

0

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

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

### 3.2 Historical landfill (BGS records)

Records within 500m

0

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

*This data is sourced from the British Geological Survey.*

### 3.3 Historical landfill (LA/mapping records)

Records within 500m

0

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

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

### 3.4 Historical landfill (EA/NRW records)

Records within 500m

0

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

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

### 3.5 Historical waste sites

Records within 500m

0

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

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





### 3.6 Licensed waste sites

Records within 500m

0

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

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

### 3.7 Waste exemptions

Records within 500m

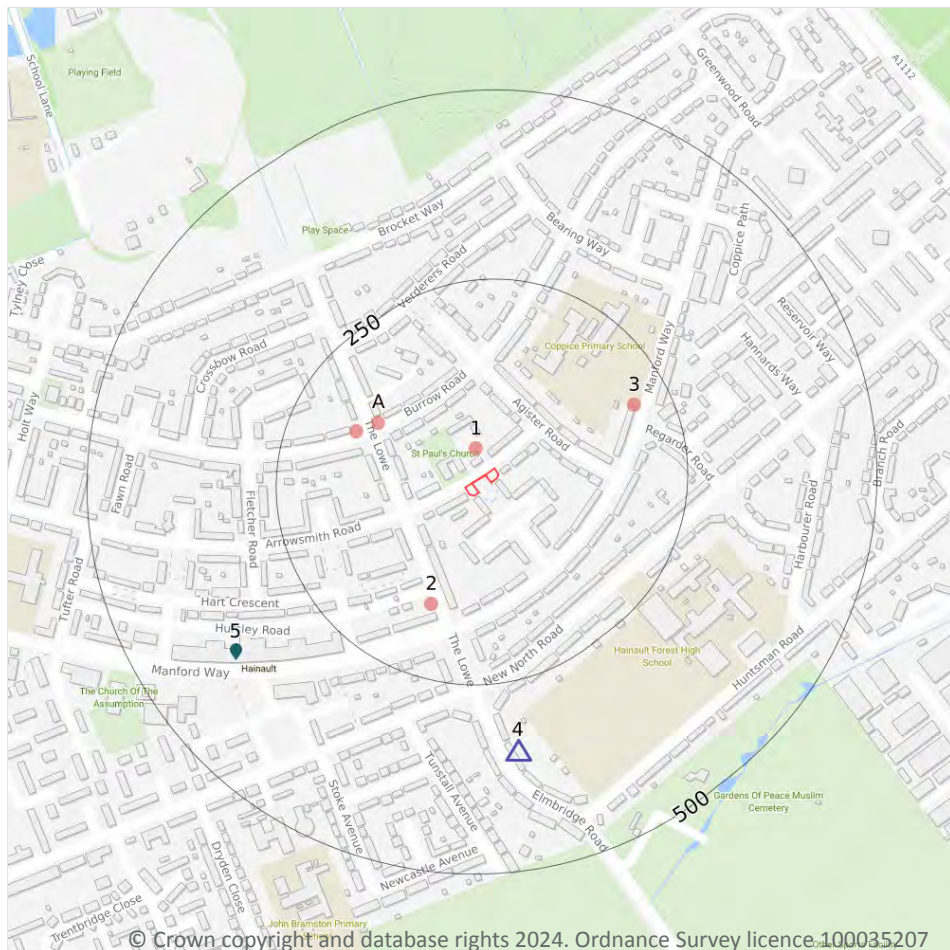
0

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

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



## 4 Current industrial land use



- Site Outline
- Search buffers in metres (m)
- Recent industrial land uses
- △ Current or recent petrol stations
- Licensed pollutant release (Part A(2)/B)

### 4.1 Recent industrial land uses

Records within 250m

5

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on [page 23](#) >

ID	Location	Company	Address	Activity	Category
1	35m N	Electricity Sub Station	Greater London, IG7	Electrical Features	Infrastructure and Facilities
A	144m NW	Electricity Sub Station	Greater London, IG7	Electrical Features	Infrastructure and Facilities
2	153m SW	Electricity Sub Station	Greater London, IG7	Electrical Features	Infrastructure and Facilities



ID	Location	Company	Address	Activity	Category
A	161m W	Pumping Station	Greater London, IG7	Water Pumping Stations	Industrial Features
3	201m NE	Electricity Sub Station	Greater London, IG7	Electrical Features	Infrastructure and Facilities

*This data is sourced from Ordnance Survey.*

## 4.2 Current or recent petrol stations

**Records within 500m**

**1**

Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on [page 23 >](#)

ID	Location	Company	Address	LPG	Status
4	341m S	OBSOLETE	484-494, New North Road, Tunstall Ave, Hainault, Ilford, Outer London, IG6 3AD	Not Applicable	Obsolete

*This data is sourced from Experian.*

## 4.3 Electricity cables

**Records within 500m**

**0**

High voltage underground electricity transmission cables.

*This data is sourced from National Grid.*

## 4.4 Gas pipelines

**Records within 500m**

**0**

High pressure underground gas transmission pipelines.

*This data is sourced from National Grid.*

## 4.5 Sites determined as Contaminated Land

**Records within 500m**

**0**

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

*This data is sourced from Local Authority records.*



## 4.6 Control of Major Accident Hazards (COMAH)

Records within 500m

0

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

*This data is sourced from the Health and Safety Executive.*

## 4.7 Regulated explosive sites

Records within 500m

0

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

*This data is sourced from the Health and Safety Executive.*

## 4.8 Hazardous substance storage/usage

Records within 500m

0

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

*This data is sourced from Local Authority records.*

## 4.9 Historical licensed industrial activities (IPC)

Records within 500m

0

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

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

## 4.10 Licensed industrial activities (Part A(1))

Records within 500m

0

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

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



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

**Records within 500m****1**

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

Features are displayed on the Current industrial land use map on [page 23](#) >

ID	Location	Address	Details	
5	372m SW	Care & Repair, 179 Manford Way, Chigwell, Essex, IG7 4DN	Process: Dry Cleaning Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified

*This data is sourced from Local Authority records.*

#### 4.12 Radioactive Substance Authorisations

**Records within 500m****0**

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

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

#### 4.13 Licensed Discharges to controlled waters

**Records within 500m****0**

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

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

#### 4.14 Pollutant release to surface waters (Red List)

**Records within 500m****0**

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

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



#### 4.15 Pollutant release to public sewer

**Records within 500m****0**

Discharges of Special Category Effluents to the public sewer.

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

#### 4.16 List 1 Dangerous Substances

**Records within 500m****0**

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

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

#### 4.17 List 2 Dangerous Substances

**Records within 500m****0**

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

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

#### 4.18 Pollution Incidents (EA/NRW)

**Records within 500m****0**

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

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

#### 4.19 Pollution inventory substances

**Records within 500m****0**

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

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

## 4.20 Pollution inventory waste transfers

Records within 500m

0

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

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

## 4.21 Pollution inventory radioactive waste

Records within 500m

0

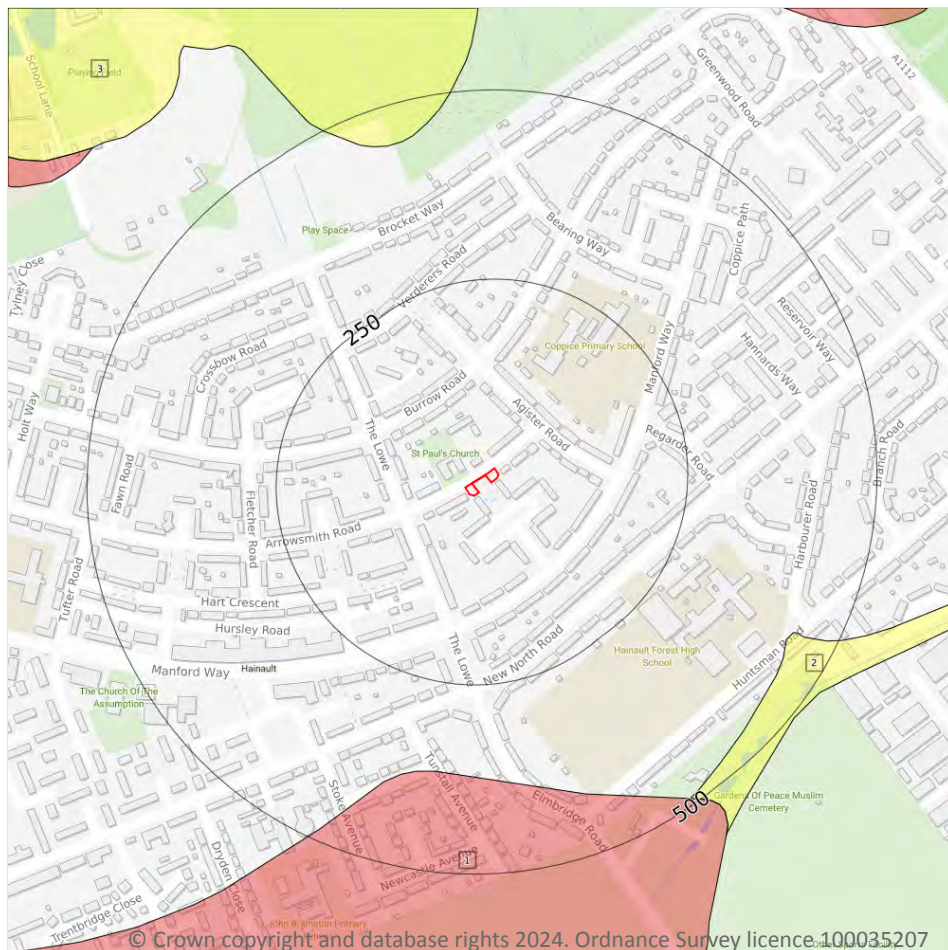
The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

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





## 5 Hydrogeology - Superficial aquifer



- Site Outline
- Search buffers in metres (m)
- Principal
  - Secondary A
  - Secondary B
  - Secondary Undifferentiated
  - Unproductive
  - Unknown

### 5.1 Superficial aquifer

Records within 500m

3

Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on [page 29](#) >

ID	Location	Designation	Description
1	368m 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
2	438m SE	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

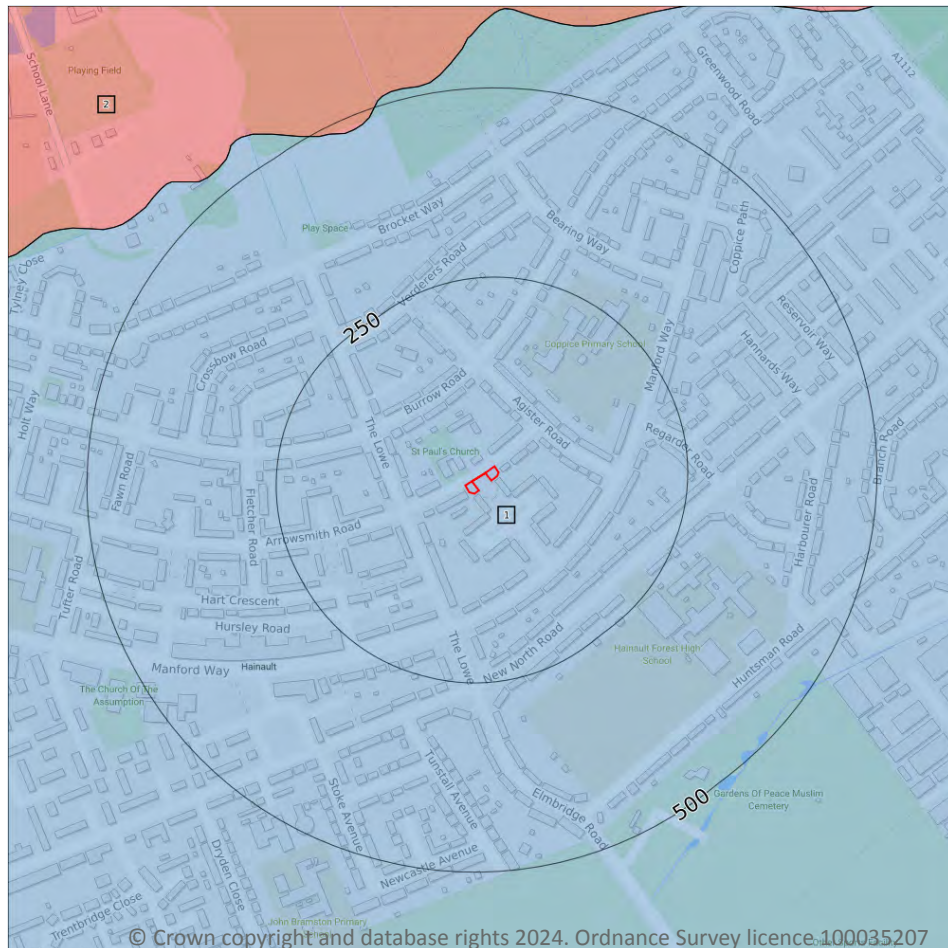


ID	Location	Designation	Description
3	448m N	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

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



## Bedrock aquifer



- Site Outline
- Search buffers in metres (m)
- Principal
  - Secondary A
  - Secondary B
  - Secondary Undifferentiated
  - Unproductive

## 5.2 Bedrock aquifer

### Records within 500m

2

Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on [page 31](#) >

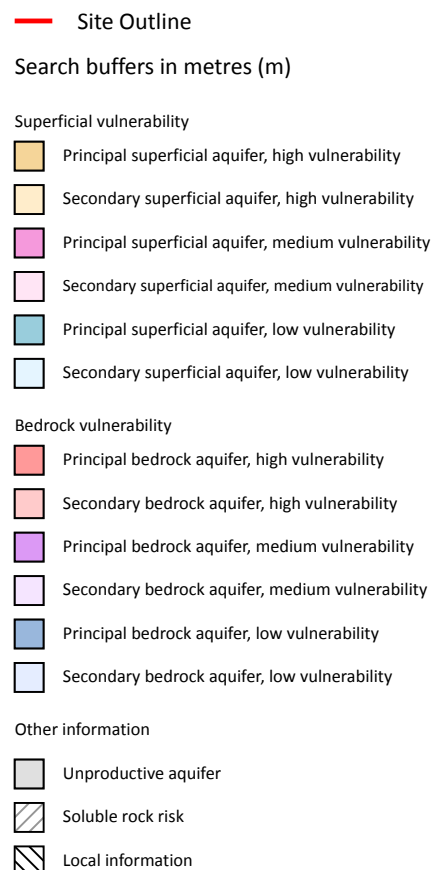
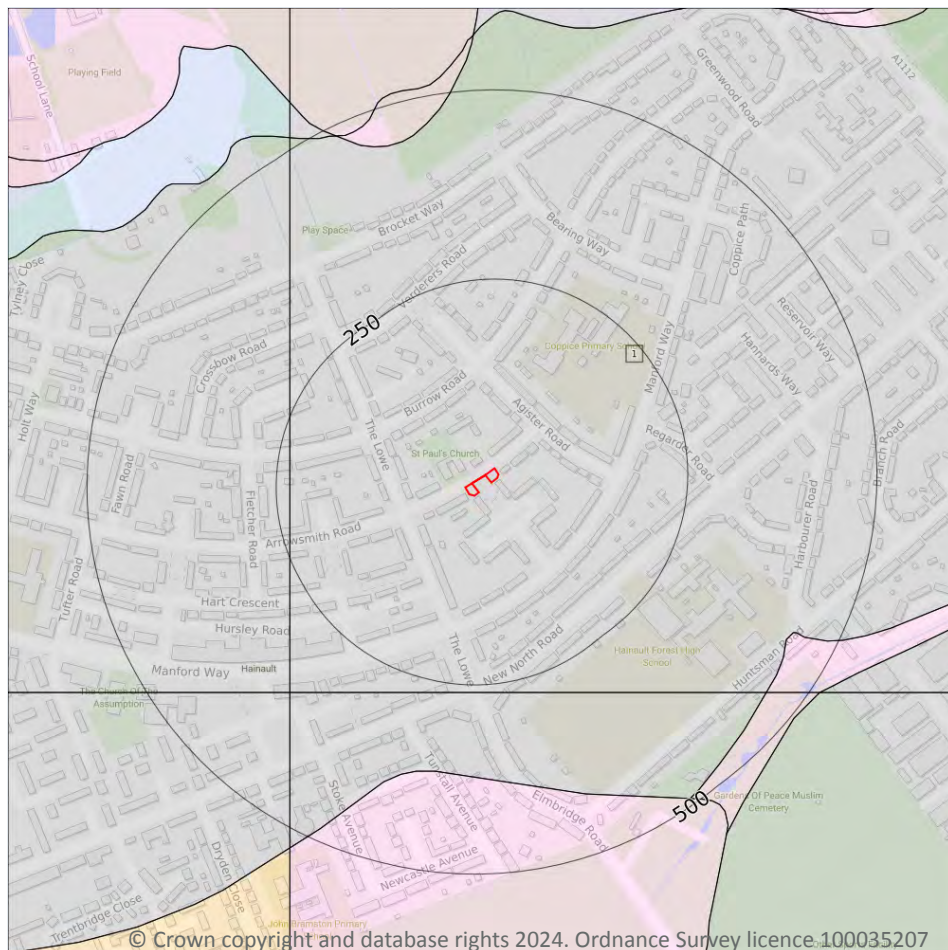
ID	Location	Designation	Description
1	On site	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
2	482m N	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

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





## Groundwater vulnerability



### 5.3 Groundwater vulnerability

#### Records within 50m

1

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

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

Features are displayed on the Groundwater vulnerability map on [page 32 >](#)



ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	<b>Summary Classification:</b> Unproductive aquifer (may have productive aquifer beneath) <b>Combined classification:</b> Unproductive Bedrock Aquifer, No Superficial Aquifer	<b>Leaching class:</b> Low <b>Infiltration value:</b> 40-70% <b>Dilution value:</b> <300mm/year	<b>Vulnerability:</b> - <b>Aquifer type:</b> - <b>Thickness:</b> <3m <b>Patchiness value:</b> <90% <b>Recharge potential:</b> Low	<b>Vulnerability:</b> Unproductive <b>Aquifer type:</b> Unproductive <b>Flow mechanism:</b> Mixed

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

## 5.4 Groundwater vulnerability- soluble rock risk

<b>Records on site</b>	<b>0</b>
------------------------	----------

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

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

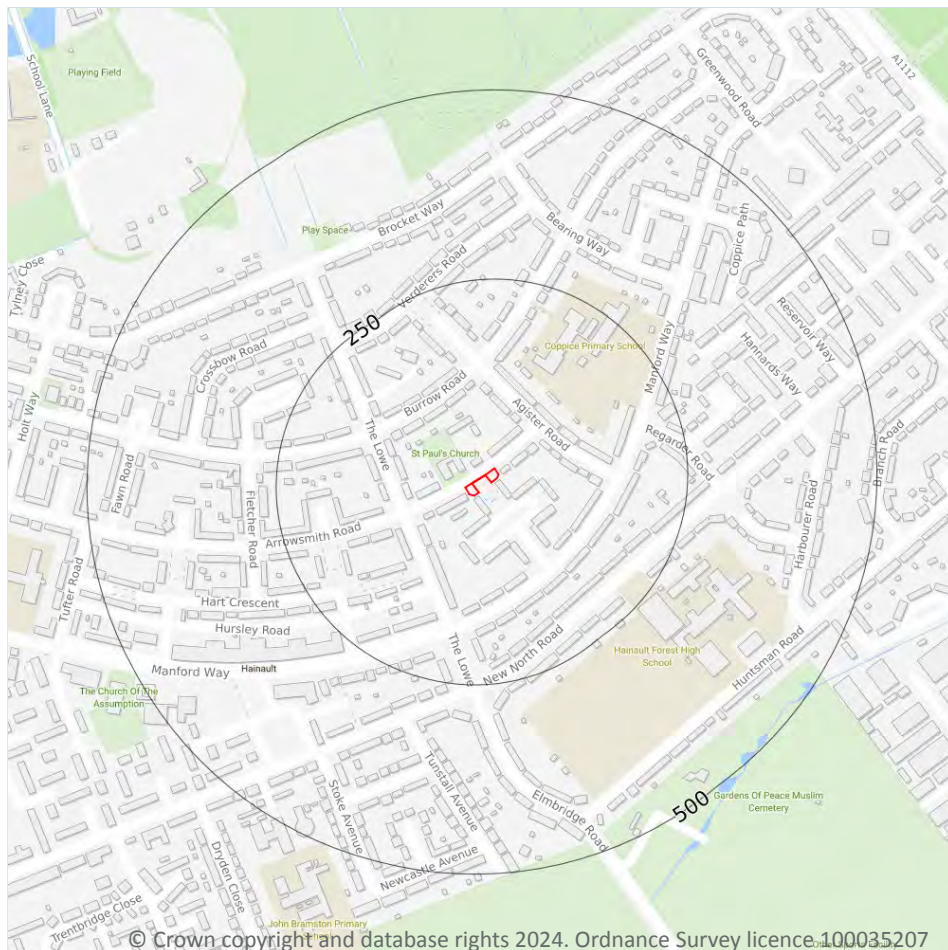
## 5.5 Groundwater vulnerability- local information

<b>Records on site</b>	<b>0</b>
------------------------	----------

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

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

## Abstractions and Source Protection Zones



- Site Outline
- Search buffers in metres (m)**
- Source Protection Zone 1  
Inner catchment
- Source Protection Zone 2  
Outer catchment
- Source Protection Zone 3  
Total catchment
- Source Protection Zone 4  
Zone of Special Interest
- Source Protection Zone 1c  
Inner catchment - confined aquifer
- Source Protection Zone 2c  
Outer catchment - confined aquifer
- Source Protection Zone 3c  
Total catchment - confined aquifer
- Drinking water abstraction licences  
Polygon features
- Drinking water abstraction licences  
Linear features
- Groundwater abstraction licence (point)
- Groundwater abstraction licence (area)
- Groundwater abstraction licence (linear)
- Surface Water Abstractions (point)
- Surface Water Abstractions (area)
- Surface Water Abstractions (linear)

### 5.6 Groundwater abstractions

#### Records within 2000m

6

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

Features are displayed on the Abstractions and Source Protection Zones map on [page 34 >](#)



ID	Location	Details	
-	1709m S	Status: Active Licence No: 08/37/54/0048 Details: Mineral Washing Direct Source: THAMES GROUNDWATER Point: FAIRLOP QUARRY, HAINAULT - WET PIT Data Type: Point Name: Brett Aggregates Limited Easting: 546790 Northing: 190640	Annual Volume (m <sup>3</sup> ): 500000 Max Daily Volume (m <sup>3</sup> ): 2250 Original Application No: NPS/WR/037489 Original Start Date: 02/10/1995 Expiry Date: - Issue No: 105 Version Start Date: 19/05/2022 Version End Date: -
-	1721m S	Status: Historical Licence No: 08/37/54/0048 Details: Mineral Washing Direct Source: THAMES GROUNDWATER Point: FAIRLOP QUARRY, HAINAULT - WET PIT Data Type: Point Name: LAFARGE REDLAND AGGREGATES LIMITED Easting: 546700 Northing: 190600	Annual Volume (m <sup>3</sup> ): - Max Daily Volume (m <sup>3</sup> ): - Original Application No: - Original Start Date: 02/10/1995 Expiry Date: - Issue No: 100 Version Start Date: 01/06/1998 Version End Date: -
-	1741m S	Status: Active Licence No: TH/037/0054/021 Details: Transfer Between Sources (Post Water Act 2003) Direct Source: THAMES GROUNDWATER Point: FAIRLOP AREA A Data Type: Poly4 Name: Brett Tarmac Limited Easting: 546389 Northing: 190499	Annual Volume (m <sup>3</sup> ): - Max Daily Volume (m <sup>3</sup> ): - Original Application No: NPS/WR/033421 Original Start Date: 08/06/2020 Expiry Date: 31/03/2028 Issue No: 1 Version Start Date: 08/06/2020 Version End Date: -
-	1921m S	Status: Active Licence No: 08/37/54/0046 Details: Spray Irrigation - Direct Direct Source: THAMES GROUNDWATER Point: FAIRLOP WATERS COUNTRY PARK - GRAVEL PIT Data Type: Point Name: LONDON BOROUGH OF REDBRIDGE Easting: 545570 Northing: 190460	Annual Volume (m <sup>3</sup> ): 11081 Max Daily Volume (m <sup>3</sup> ): 51 Original Application No: NPS/WR/019120 Original Start Date: 22/07/1991 Expiry Date: - Issue No: 103 Version Start Date: 01/04/2019 Version End Date: -
-	1921m S	Status: Active Licence No: 08/37/54/0046 Details: Spray Irrigation - Direct Direct Source: THAMES GROUNDWATER Point: FAIRLOP WATERS COUNTRY PARK- GRAVEL PIT Data Type: Point Name: LONDON BOROUGH OF REDBRIDGE Easting: 545570 Northing: 190460	Annual Volume (m <sup>3</sup> ): 11081 Max Daily Volume (m <sup>3</sup> ): 51 Original Application No: NPS/WR/019120 Original Start Date: 22/07/1991 Expiry Date: - Issue No: 103 Version Start Date: 01/04/2019 Version End Date: -





ID	Location	Details	
-	1930m S	Status: Historical Licence No: 08/37/54/0046 Details: Spray Irrigation - Direct Direct Source: THAMES GROUNDWATER Point: FAIRLOP WATERS, ILFORD - GRAVEL PIT Data Type: Point Name: NORHAM MULTI LEISURE LTD Easting: 545570 Northing: 190450	Annual Volume (m <sup>3</sup> ): - Max Daily Volume (m <sup>3</sup> ): - Original Application No: - Original Start Date: 22/07/1991 Expiry Date: - Issue No: 100 Version Start Date: 25/09/2000 Version End Date: -

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

## 5.7 Surface water abstractions

### Records within 2000m

2

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

Features are displayed on the Abstractions and Source Protection Zones map on [page 34 >](#)

ID	Location	Details	
-	1166m E	Status: Historical Licence No: 08/37/54/0038 Details: Spray Irrigation - Direct Direct Source: THAMES SURFACE WATER - NON TIDAL Point: HAINUALT FOREST, CHIGWELL ROW - THE LAKE Data Type: Point Name: Hainault Golf Club Limited Easting: 547400 Northing: 192600	Annual Volume (m <sup>3</sup> ): 1591 Max Daily Volume (m <sup>3</sup> ): 114 Original Application No: NPS/WR/004713 Original Start Date: 04/02/1975 Expiry Date: - Issue No: 101 Version Start Date: 02/09/2010 Version End Date: -
-	1500m S	Status: Historical Licence No: 08/37/54/0010 Details: Spray Irrigation - Direct Direct Source: THAMES SURFACE WATER - NON TIDAL Point: FOREST FARM, HAINAULT - RIVER RODING Data Type: Point Name: J FOWLER & SONS Easting: 545900 Northing: 190800	Annual Volume (m <sup>3</sup> ): 9092.2 Max Daily Volume (m <sup>3</sup> ): 681.915 Original Application No: - Original Start Date: 30/09/1966 Expiry Date: - Issue No: 100 Version Start Date: 13/07/1984 Version End Date: -

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



## 5.8 Potable abstractions

Records within 2000m

0

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

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

## 5.9 Source Protection Zones

Records within 500m

0

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

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

## 5.10 Source Protection Zones (confined aquifer)

Records within 500m

0

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

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



## 6 Hydrology



- Site Outline
- Search buffers in metres (m)
- Water Network (OS MasterMap)
- Surface water features (wider than 5m)
- Surface water features (narrower than 5m)
- WFD River, canal and surface water transfer water bodies
- WFD Lake water bodies
- WFD Transitional and coastal water bodies
- WFD Surface water body catchments boundaries
- WFD Groundwater body boundaries

### 6.1 Water Network (OS MasterMap)

Records within 250m

0

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

*This data is sourced from the Ordnance Survey.*

### 6.2 Surface water features

Records within 250m

0

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



*This data is sourced from the Ordnance Survey.*

## 6.3 WFD Surface water body catchments

### Records on site

**1**

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

Features are displayed on the Hydrology map on [page 38](#) >

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
1	On site	River	Seven Kings Water	GB106037028170	Roding Beam and Ingrebourne	Roding Beam and Ingrebourne

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

## 6.4 WFD Surface water bodies

### Records identified

**1**

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

Features are displayed on the Hydrology map on [page 38](#) >

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	1485m S	River	Seven Kings Water	<a href="#">GB106037028170</a> ↗	Moderate	Fail	Moderate	2019

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



## 6.5 WFD Groundwater bodies

### Records on site

**0**

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

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





## 7 River and coastal flooding

### 7.1 Risk of flooding from rivers and the sea

**Records within 50m****0**

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

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

### 7.2 Historical Flood Events

**Records within 250m****0**

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

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

### 7.3 Flood Defences

**Records within 250m****0**

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

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



## 7.4 Areas Benefiting from Flood Defences

Records within 250m

0

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

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

## 7.5 Flood Storage Areas

Records within 250m

0

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

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



## River and coastal flooding - Flood Zones

### 7.6 Flood Zone 2

Records within 50m

0

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

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

### 7.7 Flood Zone 3

Records within 50m

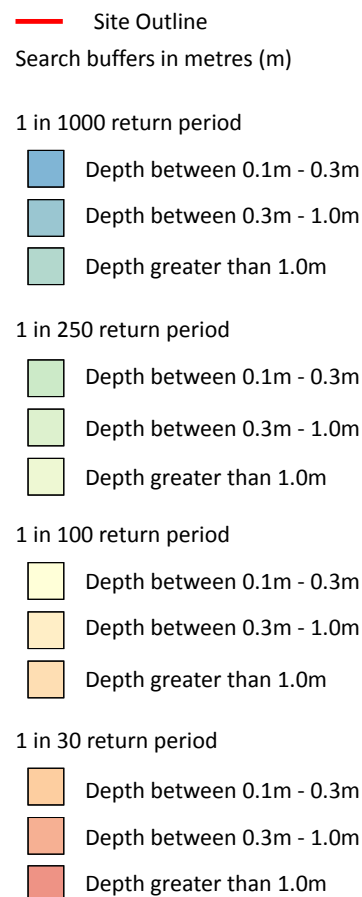
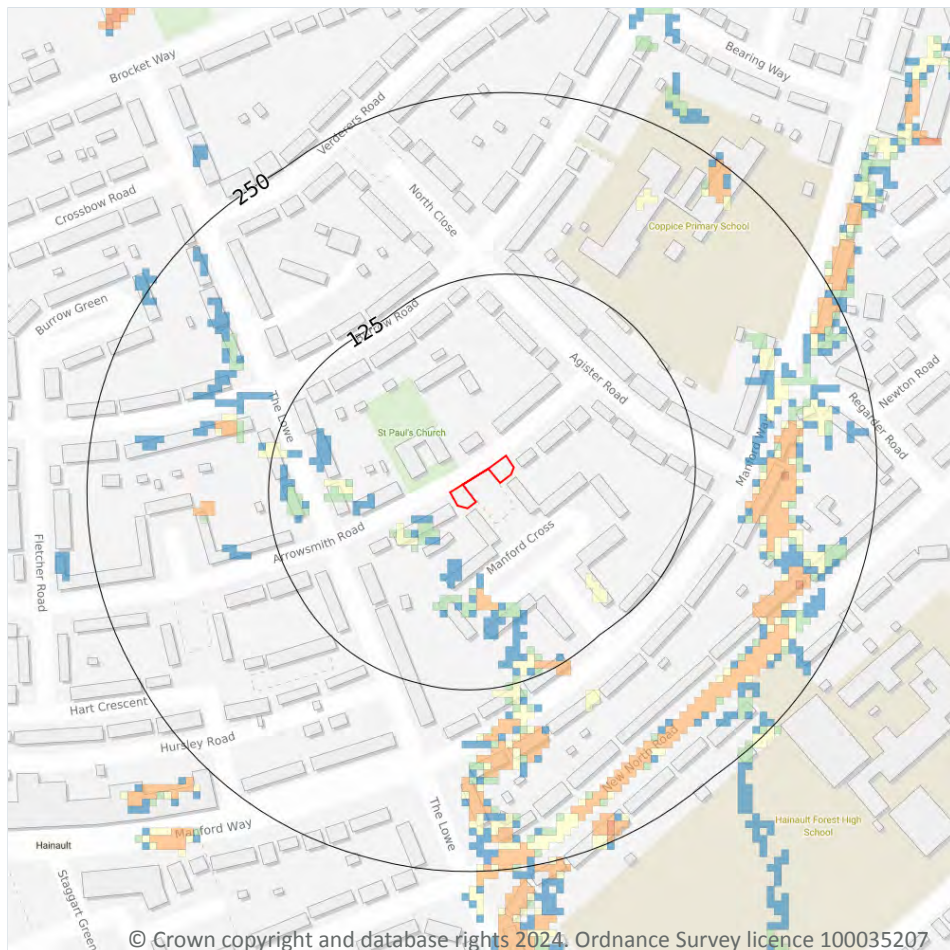
0

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

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



## 8 Surface water flooding



### 8.1 Surface water flooding

**Highest risk on site**

**Negligible**

**Highest risk within 50m**

**1 in 100 year, 0.1m - 0.3m**

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

Features are displayed on the Surface water flooding map on [page 44](#) >

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

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

Return period	Maximum modelled depth
1 in 1000 year	Negligible
1 in 250 year	Negligible
1 in 100 year	Negligible
1 in 30 year	Negligible

*This data is sourced from Ambiantal Risk Analytics.*





## 9 Groundwater flooding



— Site Outline  
Search buffers in metres (m)

- High
- Moderate - High
- Moderate
- Low
- Negligible

### 9.1 Groundwater flooding

**Highest risk on site**

**Negligible**

**Highest risk within 50m**

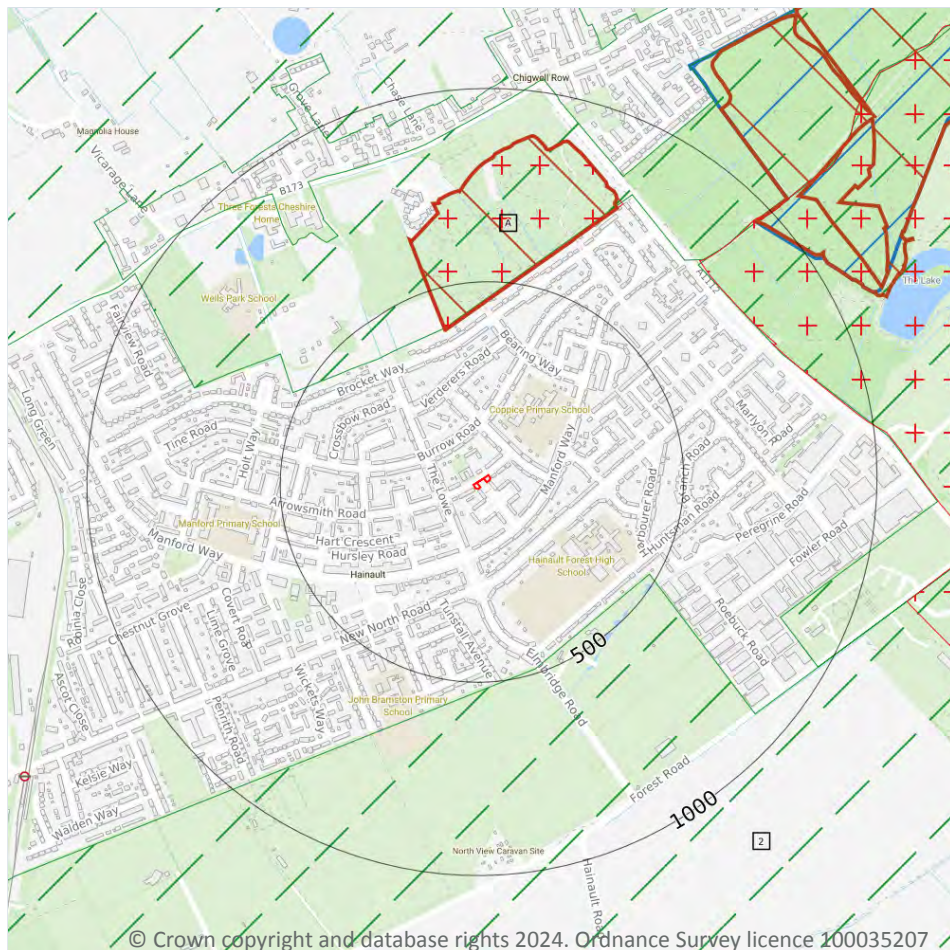
**Negligible**

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

Features are displayed on the Groundwater flooding map on [page 46 >](#)

*This data is sourced from Ambiantal Risk Analytics.*

## 10 Environmental designations



- Site Outline
- Search buffers in metres (m)
- Sites of Special Scientific Interest (SSSI)
- + Local Nature Reserves (LNR)
- Designated Ancient Woodland
- Green Belt

### 10.1 Sites of Special Scientific Interest (SSSI)

#### Records within 2000m

1

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

Features are displayed on the Environmental designations map on [page 47](#) >

ID	Location	Name	Data source
B	954m NE	Hainault Forest	Natural England



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

## 10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m

0

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

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

## 10.3 Special Areas of Conservation (SAC)

Records within 2000m

0

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

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

## 10.4 Special Protection Areas (SPA)

Records within 2000m

0

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

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

## 10.5 National Nature Reserves (NNR)

Records within 2000m

0

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

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



## 10.6 Local Nature Reserves (LNR)

### Records within 2000m

**3**

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

Features are displayed on the Environmental designations map on [page 47 >](#)

ID	Location	Name	Data source
A	391m N	Chigwell Row Wood	Natural England
3	771m NE	Hainault Forest	Natural England
4	1124m E	Hainault Lodge	Natural England

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

## 10.7 Designated Ancient Woodland

### Records within 2000m

**2**

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

Features are displayed on the Environmental designations map on [page 47 >](#)

ID	Location	Name	Woodland Type
A	391m N	Chigwell Row Wood	Ancient & Semi-Natural Woodland
B	954m NE	Hainault Forest	Ancient & Semi-Natural Woodland

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

## 10.8 Biosphere Reserves

### Records within 2000m

**0**

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

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





## 10.9 Forest Parks

**Records within 2000m****0**

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

*This data is sourced from the Forestry Commission.*

## 10.10 Marine Conservation Zones

**Records within 2000m****0**

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

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

## 10.11 Green Belt

**Records within 2000m****2**

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

Features are displayed on the Environmental designations map on [page 47 >](#)

ID	Location	Name	Local Authority name
1	393m N	London	Epping Forest
2	451m SE	London	Redbridge

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

## 10.12 Proposed Ramsar sites

**Records within 2000m****0**

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

*This data is sourced from Natural England.*





### 10.13 Possible Special Areas of Conservation (pSAC)

**Records within 2000m****0**

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

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

### 10.14 Potential Special Protection Areas (pSPA)

**Records within 2000m****0**

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

*This data is sourced from Natural England.*

### 10.15 Nitrate Sensitive Areas

**Records within 2000m****0**

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

*This data is sourced from Natural England.*

### 10.16 Nitrate Vulnerable Zones

**Records within 2000m****2**

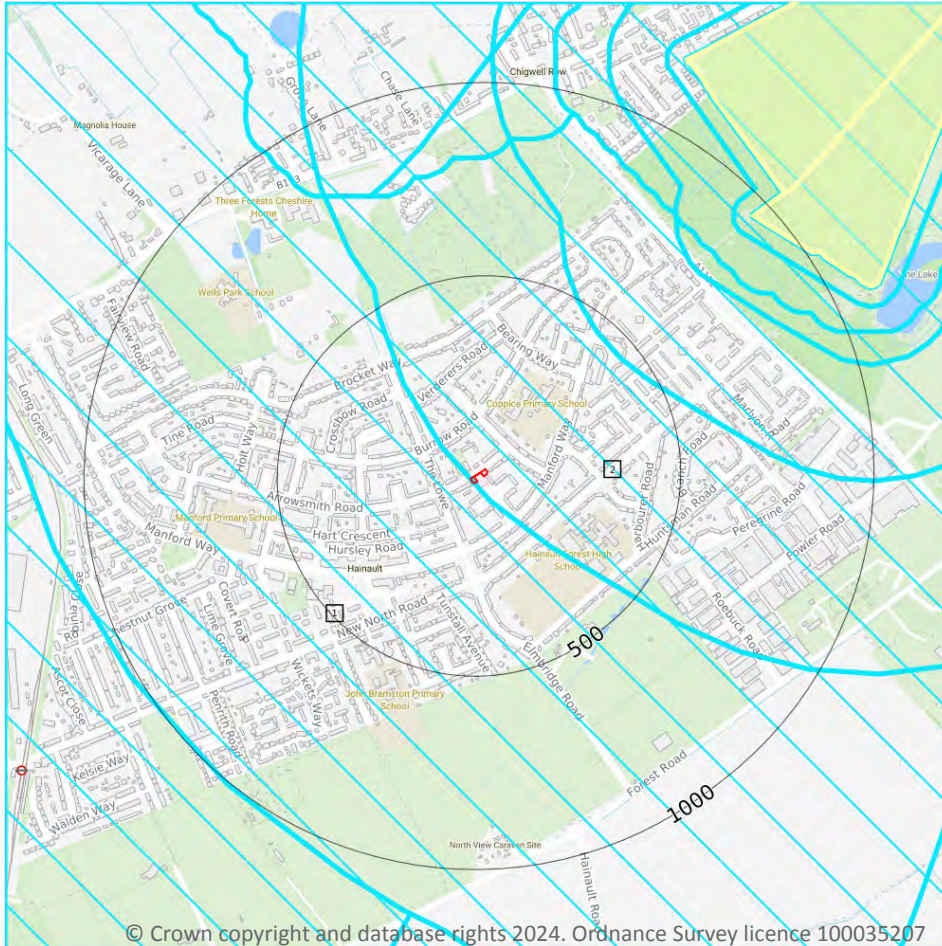
Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

Location	Name	Type	NVZ ID	Status
804m NW	Roding (Cripsey Brook to Loxford Water) NVZ	Surface Water	441	Existing
1575m E	Rom / Beam (Including Bourne Brook, from Watton's Green to confluence with Ravensbourne) NVZ	Surface Water	439	Existing

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



## SSSI Impact Zones and Units



- Site Outline
- Search buffers in metres (m)
- SSSI Impact Risk Zones
- SSSI Units
- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

### 10.17 SSSI Impact Risk Zones

#### Records on site

2

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

Features are displayed on the SSSI Impact Zones and Units map on [page 53](#) >

ID	Location	Type of developments requiring consultation
1	On site	<p>Infrastructure - Pipelines and underground cables, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals.</p> <p>Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil &amp; gas exploration/extraction.</p> <p>Residential - Residential development of 100 units or more.</p> <p>Rural residential - Any residential development of 100 or more houses outside existing settlements/urban areas.</p> <p>Air pollution - Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, livestock &amp; poultry units with floorspace &gt; 500m<sup>2</sup>, slurry lagoons &amp; digestate stores &gt; 200m<sup>2</sup>, manure stores &gt; 250t).</p> <p>Combustion - General combustion processes &gt;20MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.</p> <p>Waste - Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill.</p> <p>Composting - Any composting proposal with more than 75000 tonnes maximum annual operational throughput. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management.</p> <p>Water supply - Large infrastructure such as warehousing / industry where total net additional gross internal floorspace following development is 1,000m<sup>2</sup> or more.</p> <p>Notes: For new residential development in this area an HRA is required on the likely significant effects of recreation on Epping Forest SAC.</p>
2	On site	<p>Infrastructure - Pipelines and underground cables, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals.</p> <p>Wind and Solar - Wind turbines.</p> <p>Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil &amp; gas exploration/extraction.</p> <p>Residential - Residential development of 100 units or more.</p> <p>Rural residential - Any residential development of 50 or more houses outside existing settlements/urban areas.</p> <p>Air pollution - Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, livestock &amp; poultry units with floorspace &gt; 500m<sup>2</sup>, slurry lagoons &amp; digestate stores &gt; 200m<sup>2</sup>, manure stores &gt; 250t).</p> <p>Combustion - General combustion processes &gt;20MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.</p> <p>Waste - Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill.</p> <p>Composting - Any composting proposal with more than 500 tonnes maximum annual operational throughput. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management.</p> <p>Water supply - Large infrastructure such as warehousing / industry where net additional gross internal floorspace is &gt; 1,000m<sup>2</sup> or any development needing its own water supply .</p> <p>Notes: For new residential development in this area an HRA is required on the likely significant effects of recreation on Epping Forest SAC.</p>

*This data is sourced from Natural England.*



## 10.18 SSSI Units

### Records within 2000m

**2**

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

Features are displayed on the SSSI Impact Zones and Units map on [page 53 >](#)

ID: 13  
Location: 954m NE  
SSSI name: Hainault Forest  
Unit name: Hainault Forest South  
Broad habitat: Broadleaved, Mixed And Yew Woodland - Lowland  
Condition: Unfavourable - Recovering  
Reportable features:

Feature name	Feature condition	Date of assessment
Assemblages of breeding birds - Mixed: Scrub, Woodland	Unfavourable - Recovering	09/03/2012
Lowland mixed deciduous woodland	Unfavourable - Recovering	09/03/2012

ID: 15  
Location: 1052m NE  
SSSI name: Hainault Forest  
Unit name: Cabin Plain  
Broad habitat: Broadleaved, Mixed And Yew Woodland - Lowland  
Condition: Unfavourable - Recovering  
Reportable features:

Feature name	Feature condition	Date of assessment
Assemblages of breeding birds - Mixed: Scrub, Woodland	Unfavourable - Recovering	09/03/2012
Lowland mixed deciduous woodland	Unfavourable - Recovering	09/03/2012

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





## 11 Visual and cultural designations

### 11.1 World Heritage Sites

Records within 250m

0

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

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

### 11.2 Area of Outstanding Natural Beauty

Records within 250m

0

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

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

### 11.3 National Parks

Records within 250m

0

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

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

### 11.4 Listed Buildings

Records within 250m

0

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



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

## 11.5 Conservation Areas

Records within 250m

0

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

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

## 11.6 Scheduled Ancient Monuments

Records within 250m

0

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

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

## 11.7 Registered Parks and Gardens

Records within 250m

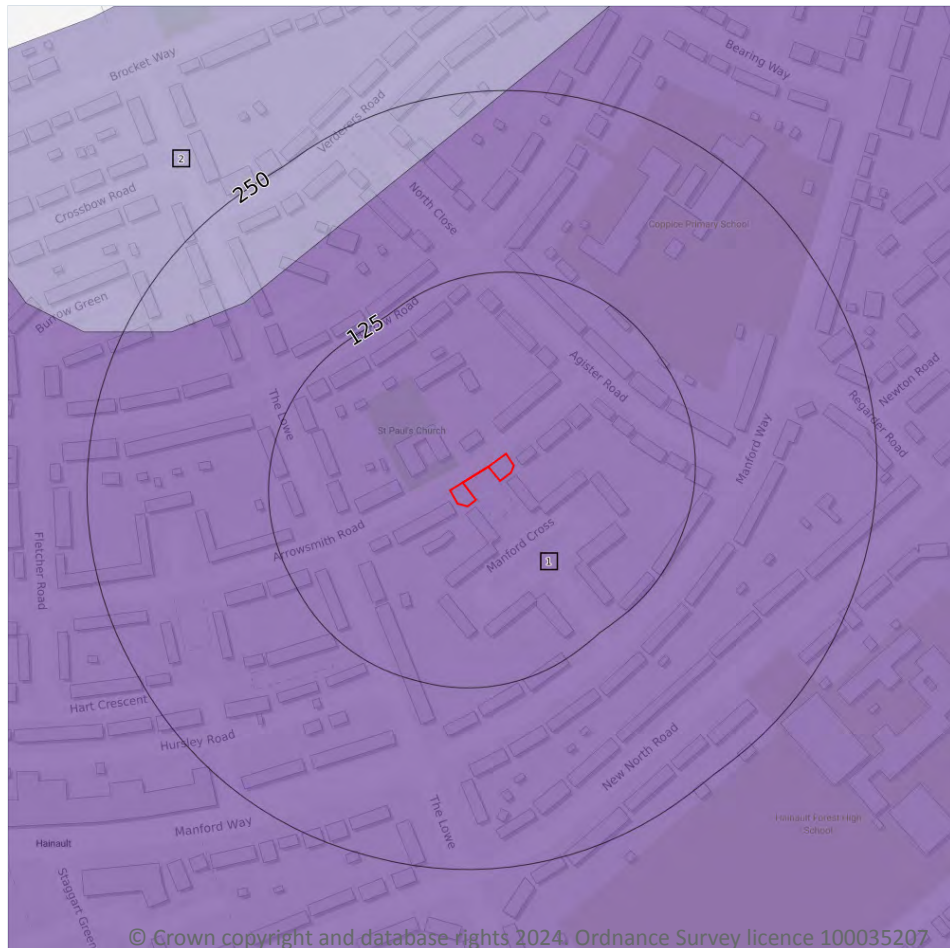
0

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

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



## 12 Agricultural designations



- Site Outline
- Search buffers in metres (m)
- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Non-agricultural land
- Urban land
- Exclusion land
- Tree felling licences
- Open Access land

### 12.1 Agricultural Land Classification

#### Records within 250m

2

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

Features are displayed on the Agricultural designations map on [page 58](#) >

ID	Location	Classification	Description
1	On site	Urban	-
2	190m NW	Non Agricultural	-

*This data is sourced from Natural England.*



## 12.2 Open Access Land

**Records within 250m****0**

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

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

## 12.3 Tree Felling Licences

**Records within 250m****0**

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

*This data is sourced from the Forestry Commission.*

## 12.4 Environmental Stewardship Schemes

**Records within 250m****0**

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

*This data is sourced from Natural England.*

## 12.5 Countryside Stewardship Schemes

**Records within 250m****0**

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

*This data is sourced from Natural England.*

## 13 Habitat designations

### 13.1 Priority Habitat Inventory

Records within 250m

0

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

*This data is sourced from Natural England.*

### 13.2 Habitat Networks

Records within 250m

0

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

*This data is sourced from Natural England.*

### 13.3 Open Mosaic Habitat

Records within 250m

0

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

*This data is sourced from Natural England.*

### 13.4 Limestone Pavement Orders

Records within 250m

0

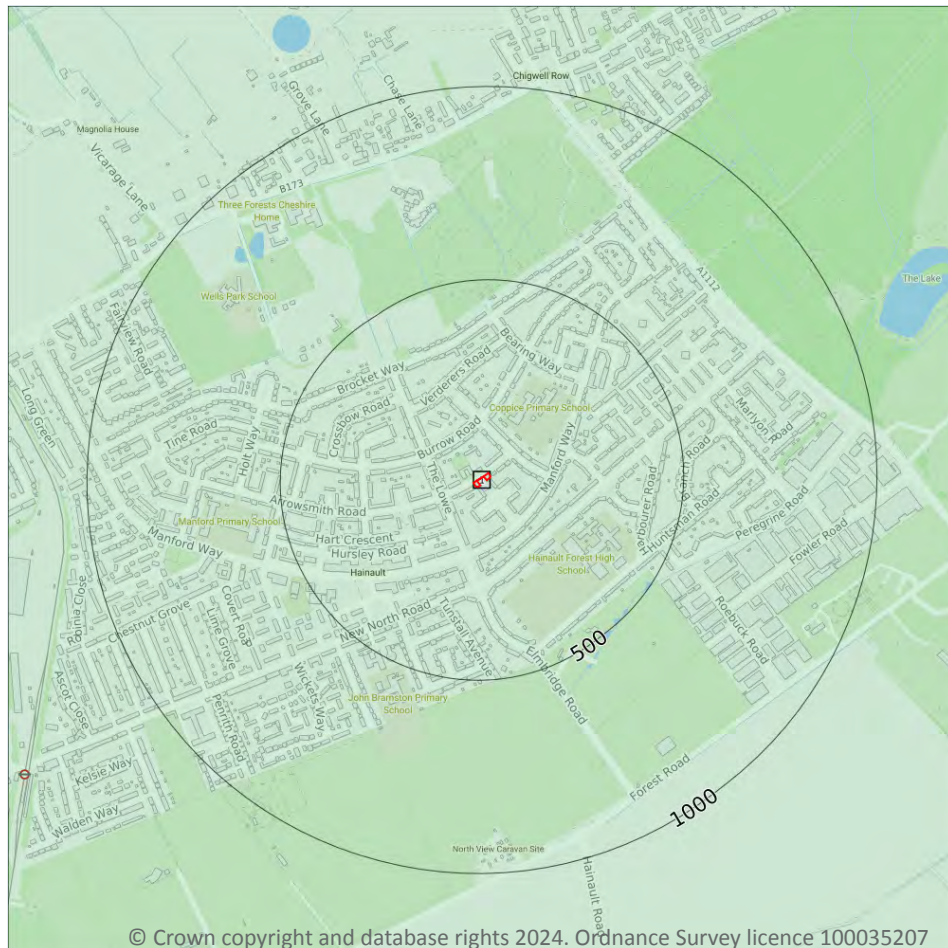
Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened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

*This data is sourced from Natural England.*





## 14 Geology 1:10,000 scale - Availability



- Site Outline**
- Search buffers in metres (m)
- Full coverage
  - Partial coverage
  - No coverage

### 14.1 10k Availability

#### Records within 500m

1

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

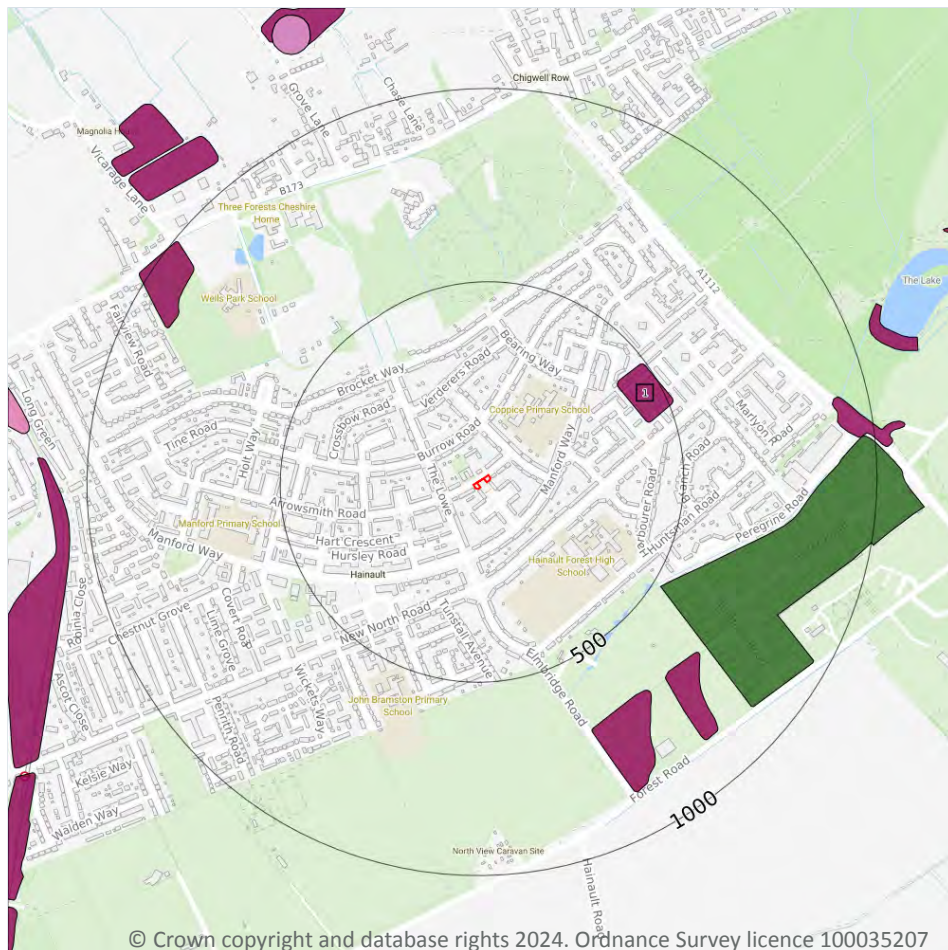
Features are displayed on the Geology 1:10,000 scale - Availability map on [page 61](#) >

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	Full	TQ49SE

*This data is sourced from the British Geological Survey.*



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



- Site Outline**
- Search buffers in metres (m)**
- Reclaimed ground
  - Made ground
  - Worked ground
  - Infilled ground
  - Disturbed ground
  - Landscaped ground

### 14.2 Artificial and made ground (10k)

#### Records within 500m

1

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

Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on [page 62](#) >

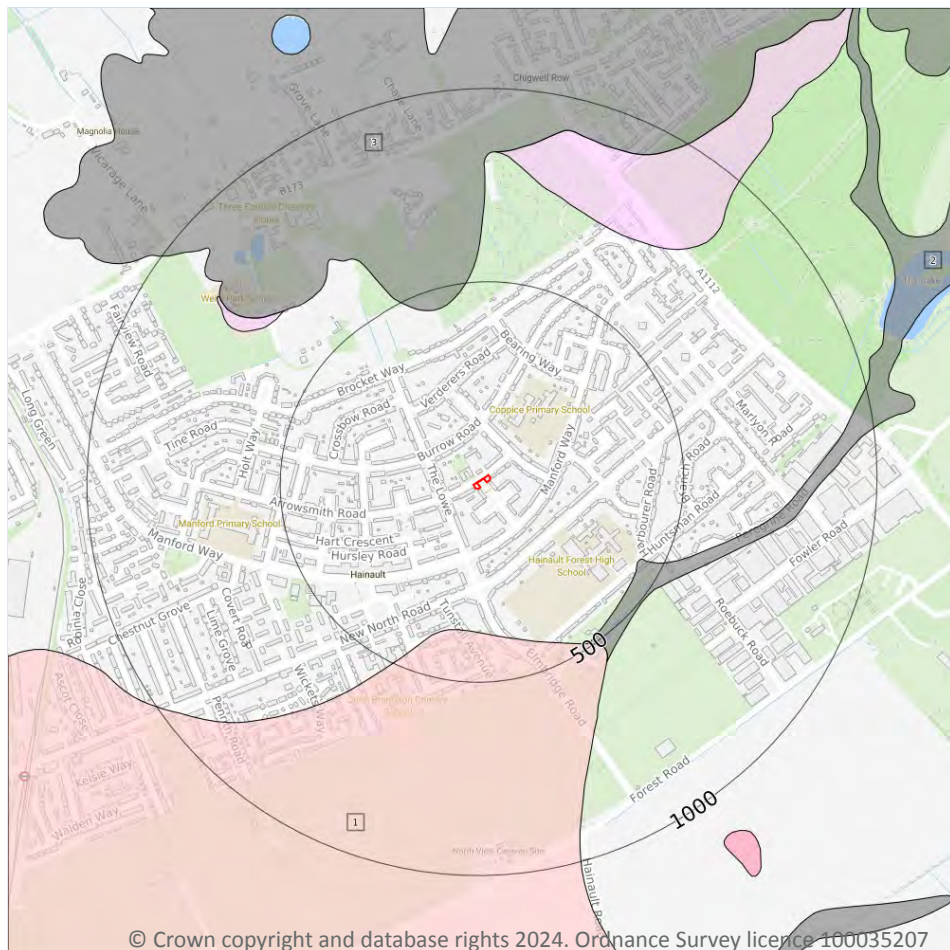
ID	Location	LEX Code	Description	Rock description
1	406m NE	MGR-UNKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry

*This data is sourced from the British Geological Survey.*





## Geology 1:10,000 scale - Superficial



**Site Outline**

Search buffers in metres (m)

**Landslip (10k)**

**Superficial geology (10k)**  
Please see table for more details.

### 14.3 Superficial geology (10k)

#### Records within 500m

3

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

Features are displayed on the Geology 1:10,000 scale - Superficial map on [page 63](#) >

ID	Location	LEX Code	Description	Rock description
1	368m S	BHT-XSV	Boyn Hill Gravel Member - Sand And Gravel	Sand And Gravel
2	438m SE	HEAD-C	Head - Clay (unlithified Deposits Coding Scheme)	Clay
3	449m N	TILL-C	Till - Clay	Clay

*This data is sourced from the British Geological Survey.*



## 14.4 Landslip (10k)

Records within 500m

0

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

*This data is sourced from the British Geological Survey.*



## Geology 1:10,000 scale - Bedrock



**— Site Outline**

**Search buffers in metres (m)**

**.... Bedrock faults and other linear features (10k)**

**Bedrock geology (10k)**  
Please see table for more details.

### 14.5 Bedrock geology (10k)

#### Records within 500m

2

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

Features are displayed on the Geology 1:10,000 scale - Bedrock map on [page 65 >](#)

ID	Location	LEX Code	Description	Rock age
1	On site	LC-CLAY	London Clay Formation - Clay	Eocene Epoch
2	482m N	CLGB-SANDU	Claygate Member - Sand	Eocene Epoch

*This data is sourced from the British Geological Survey.*





## 14.6 Bedrock faults and other linear features (10k)

Records within 500m

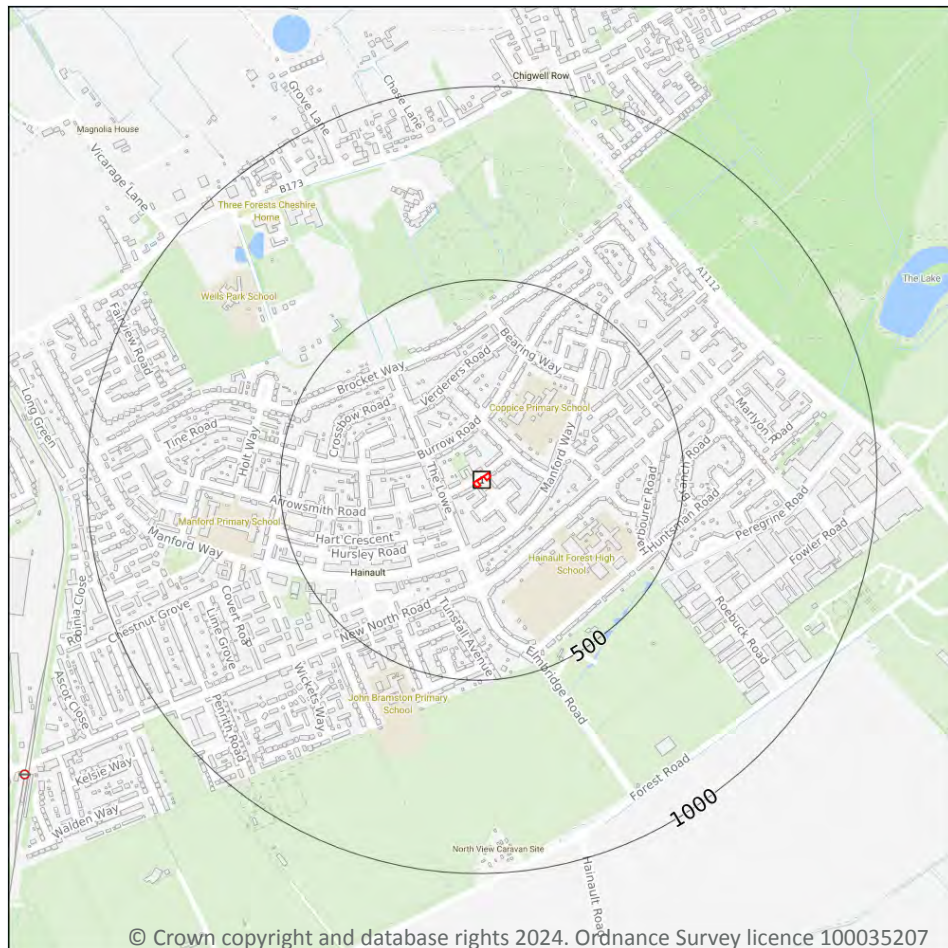
0

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

*This data is sourced from the British Geological Survey.*



## 15 Geology 1:50,000 scale - Availability



— Site Outline

Search buffers in metres (m)

□ Geological map tile

### 15.1 50k Availability

#### Records within 500m

1

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

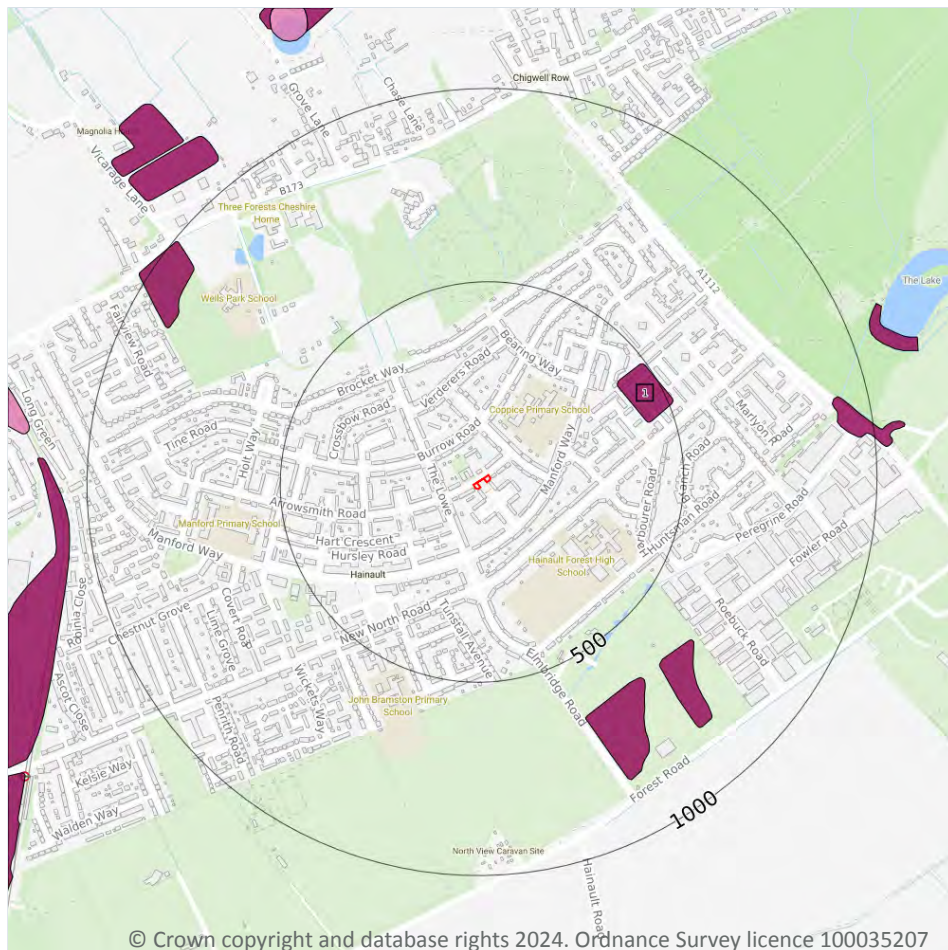
Features are displayed on the Geology 1:50,000 scale - Availability map on [page 67](#) >

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	Full	EW257_romford_v4

*This data is sourced from the British Geological Survey.*



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



- Site Outline**
- Search buffers in metres (m)**
- Made ground
  - Worked ground
  - Infilled ground
  - Disturbed ground
  - Landscaped ground

### 15.2 Artificial and made ground (50k)

#### Records within 500m

1

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

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on [page 68](#) >

ID	Location	LEX Code	Description	Rock description
1	406m NE	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

*This data is sourced from the British Geological Survey.*



## 15.3 Artificial ground permeability (50k)

Records within 50m

0

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

*This data is sourced from the British Geological Survey.*





## Geology 1:50,000 scale - Superficial



**Site Outline**

**Search buffers in metres (m)**

**Landslip (50k)**

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

### 15.4 Superficial geology (50k)

#### Records within 500m

3

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

Features are displayed on the Geology 1:50,000 scale - Superficial map on [page 70 >](#)

ID	Location	LEX Code	Description	Rock description
1	368m S	BHT-XSV	BOYN HILL GRAVEL MEMBER	SAND AND GRAVEL
2	438m SE	HEAD-XCZSV	HEAD	CLAY, SILT, SAND AND GRAVEL
3	448m N	LOFT-DMTN	LOWESTOFT FORMATION	DIAMICTON





*This data is sourced from the British Geological Survey.*

### 15.5 Superficial permeability (50k)

Records within 50m

0

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

*This data is sourced from the British Geological Survey.*

### 15.6 Landslip (50k)

Records within 500m

0

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

*This data is sourced from the British Geological Survey.*

### 15.7 Landslip permeability (50k)

Records within 50m

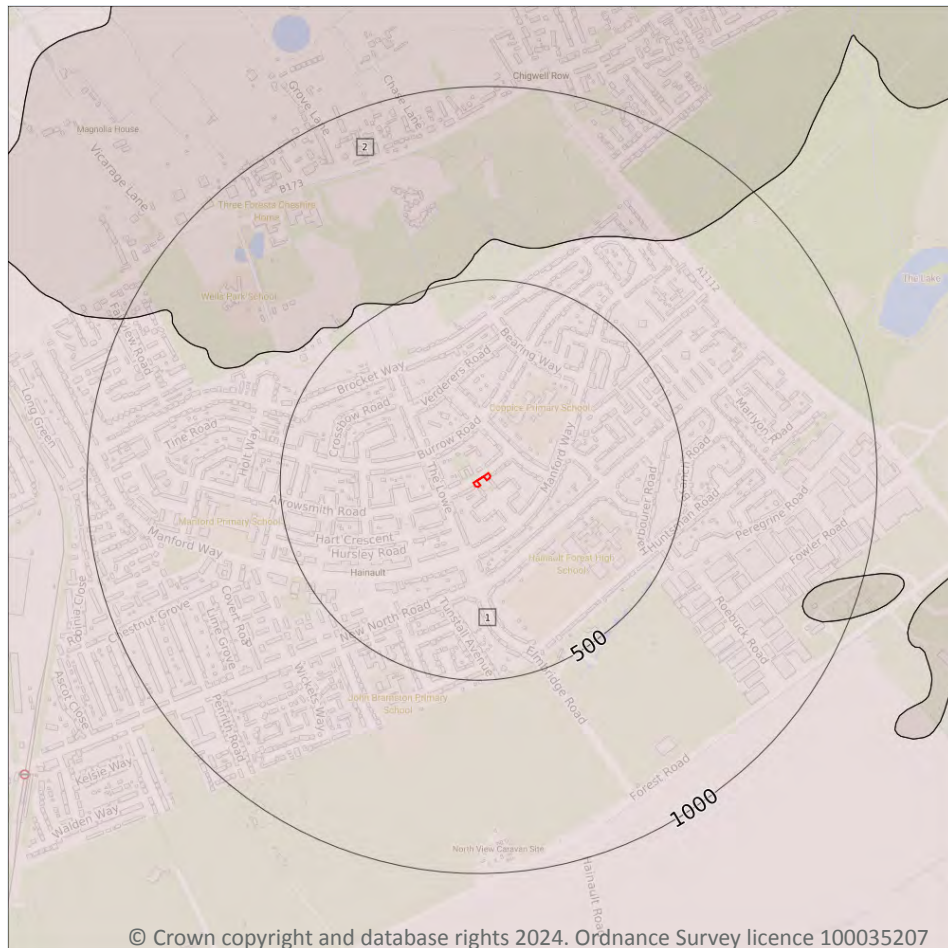
0

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

*This data is sourced from the British Geological Survey.*



## Geology 1:50,000 scale - Bedrock



**— Site Outline**

**Search buffers in metres (m)**

**.... Bedrock faults and other linear features (50k)**

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

### 15.8 Bedrock geology (50k)

#### Records within 500m

2

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

Features are displayed on the Geology 1:50,000 scale - Bedrock map on [page 72 >](#)

ID	Location	LEX Code	Description	Rock age
1	On site	LC-XCZS	LONDON CLAY FORMATION - CLAY, SILT AND SAND	YPRESIAN
2	482m N	CLGB-XCZS	CLAYGATE MEMBER - CLAY, SILT AND SAND	YPRESIAN

*This data is sourced from the British Geological Survey.*



## 15.9 Bedrock permeability (50k)

**Records within 50m****1**

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	Mixed	Moderate	Very Low

*This data is sourced from the British Geological Survey.*

## 15.10 Bedrock faults and other linear features (50k)

**Records within 500m****0**

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

*This data is sourced from the British Geological Survey.*



## 16 Boreholes



— Site Outline  
Search buffers in metres (m)

- Confidential
- 0 - 10m
- 10 - 30m
- 30m+
- Unknown

### 16.1 BGS Boreholes

#### Records within 250m

2

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

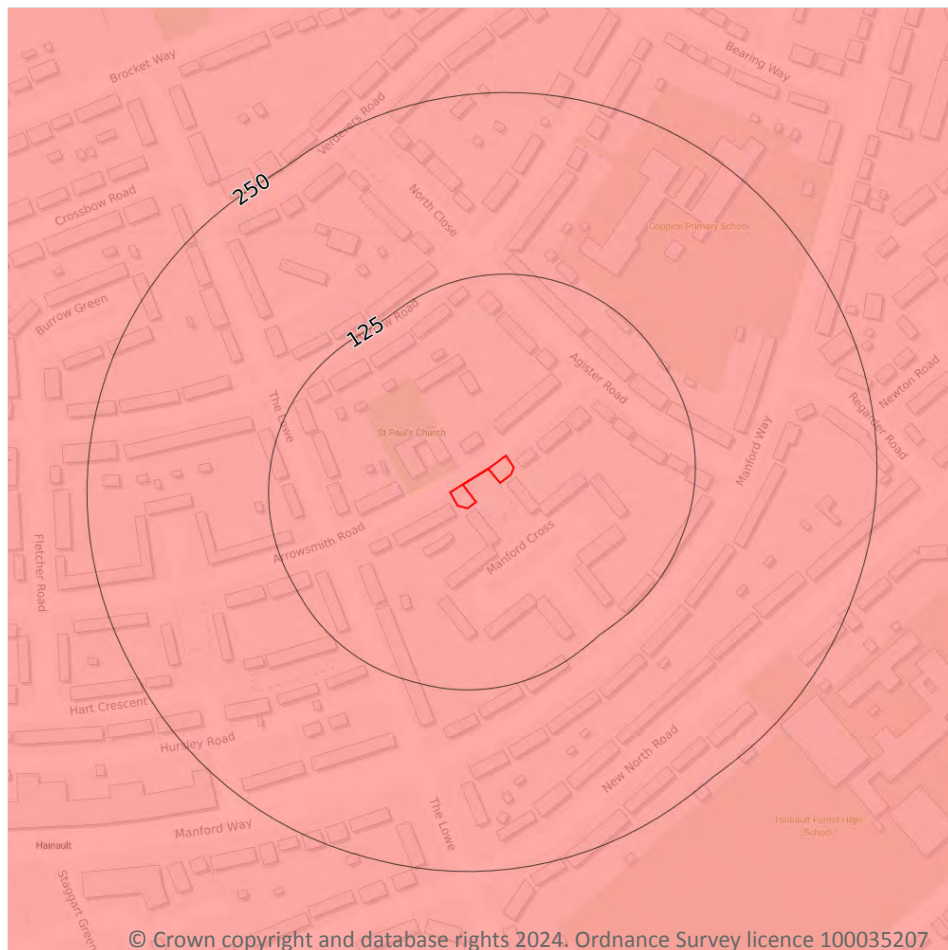
Features are displayed on the Boreholes map on [page 74](#) >

ID	Location	Grid reference	Name	Length	Confidential	Web link
A	243m W	546000 192200	MANFOLD WAY, HAINAULT ESTATE	1.83	N	<a href="#">698979</a> ↗
A	243m W	546000 192200	MANFOLD WAY, HAINAULT ESTATE	1.83	N	<a href="#">698980</a> ↗

This data is sourced from the British Geological Survey.



## 17 Natural ground subsidence - Shrink swell clays



- Site Outline
- Search buffers in metres (m)
- ☐ No data
  - ☐ Negligible
  - ☐ Very low
  - ☐ Low
  - ☐ Moderate
  - ☐ High

### 17.1 Shrink swell clays

#### Records within 50m

1

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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on [page 75 >](#)

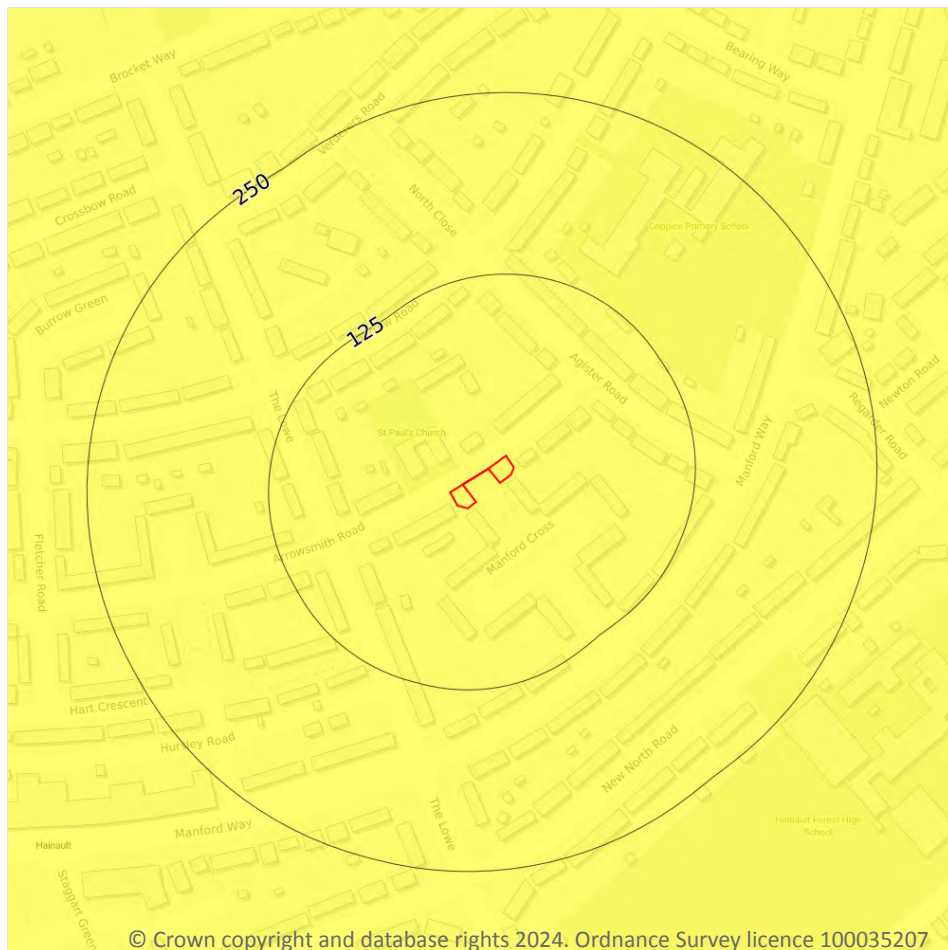
Location	Hazard rating	Details
On site	Moderate	Ground conditions predominantly high plasticity.

*This data is sourced from the British Geological Survey.*





## Natural ground subsidence - Running sands



- Site Outline
- Search buffers in metres (m)
- ☐ No data
  - ☐ Negligible
  - ☒ Very low
  - ☐ Low
  - ☐ Moderate
  - ☐ High

### 17.2 Running sands

#### Records within 50m

1

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

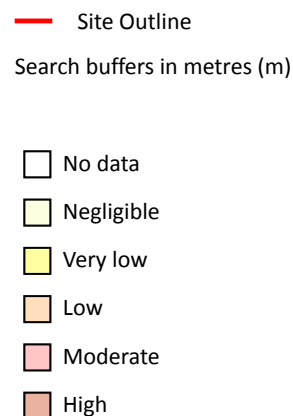
Features are displayed on the Natural ground subsidence - Running sands map on [page 76 >](#)

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

*This data is sourced from the British Geological Survey.*



## Natural ground subsidence - Compressible deposits



### 17.3 Compressible deposits

#### Records within 50m

1

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

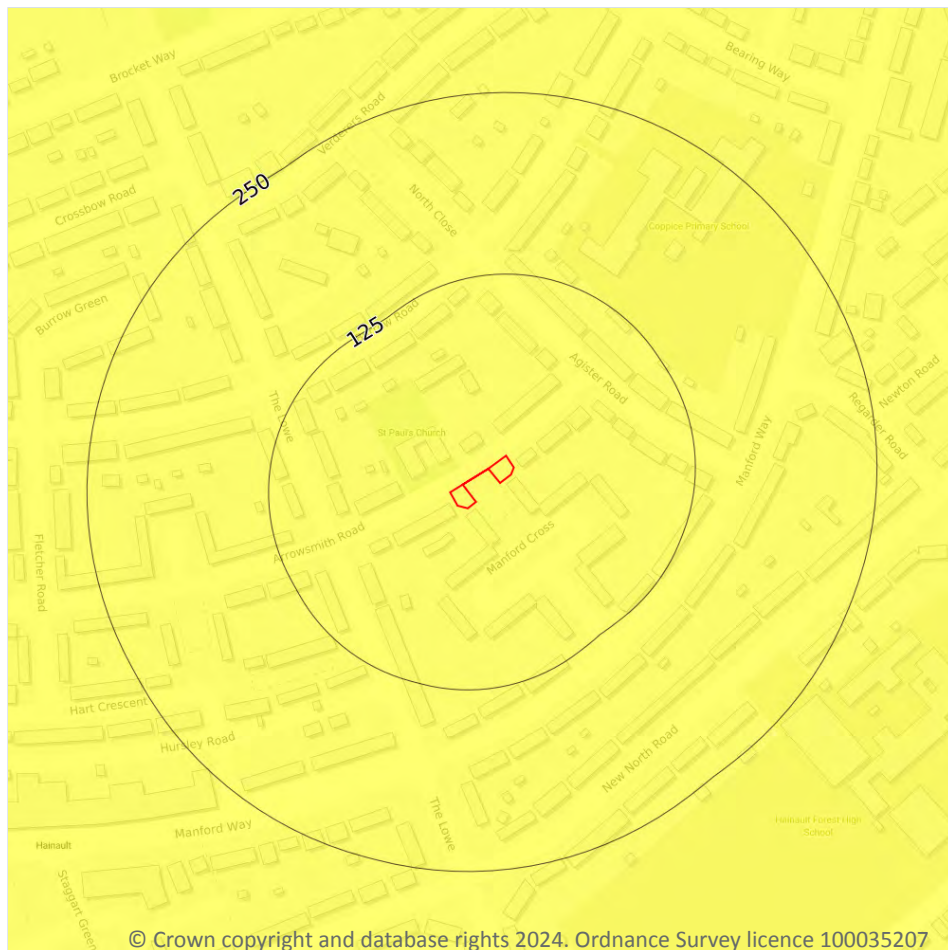
Features are displayed on the Natural ground subsidence - Compressible deposits map on [page 77 >](#)

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

*This data is sourced from the British Geological Survey.*



## Natural ground subsidence - Collapsible deposits



- Site Outline
- Search buffers in metres (m)
- ☐ No data
  - ☐ Negligible
  - ☒ Very low
  - ☐ Low
  - ☐ Moderate
  - ☐ High

### 17.4 Collapsible deposits

#### Records within 50m

1

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

Features are displayed on the Natural ground subsidence - Collapsible deposits map on [page 78](#) >

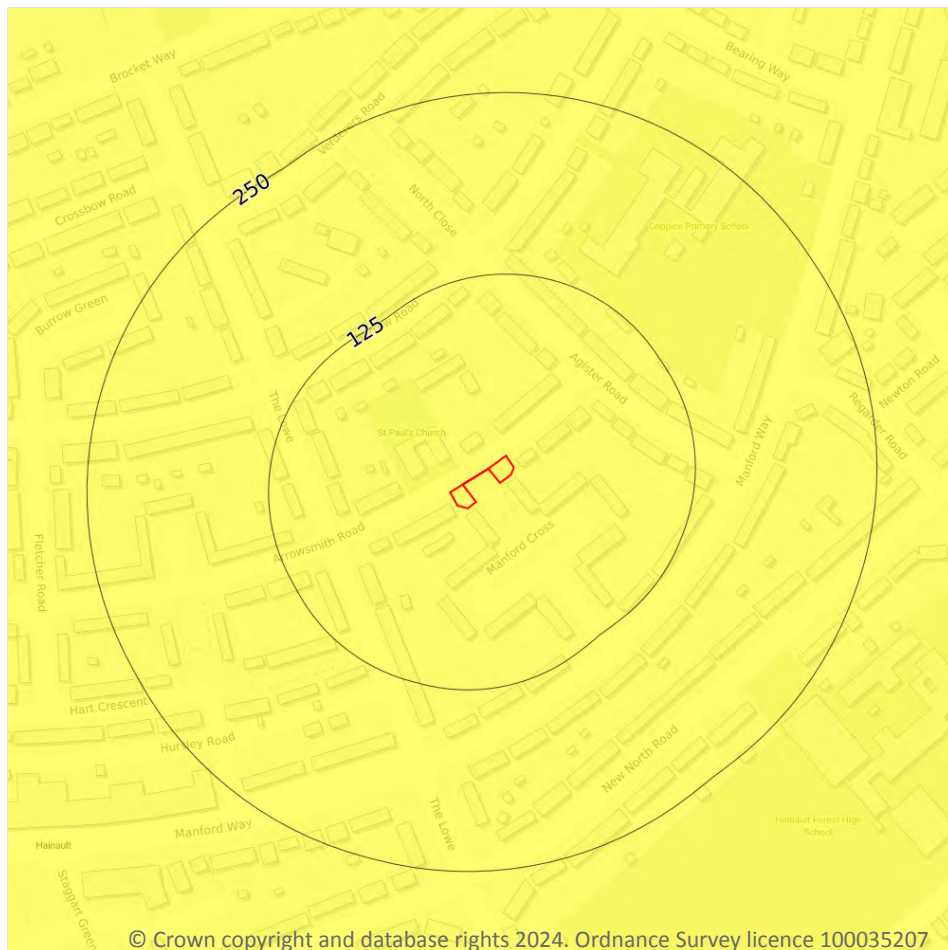
Location	Hazard rating	Details
On site	Very low	Deposits with potential to collapse when loaded and saturated are unlikely to be present.

*This data is sourced from the British Geological Survey.*





## Natural ground subsidence - Landslides



- Site Outline
- Search buffers in metres (m)
- ☐ No data
  - ☐ Negligible
  - ☒ Very low
  - ☐ Low
  - ☐ Moderate
  - ☐ High

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### 17.5 Landslides

#### Records within 50m

1

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

Features are displayed on the Natural ground subsidence - Landslides map on [page 79 >](#)

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

*This data is sourced from the British Geological Survey.*



## Natural ground subsidence - Ground dissolution of soluble rocks



- Site Outline
- Search buffers in metres (m)
- ☐ No data
  - ☐ Negligible
  - ☐ Very low
  - ☐ Low
  - ☐ Moderate
  - ☐ High

### 17.6 Ground dissolution of soluble rocks

#### Records within 50m

1

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

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on [page 80](#)

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

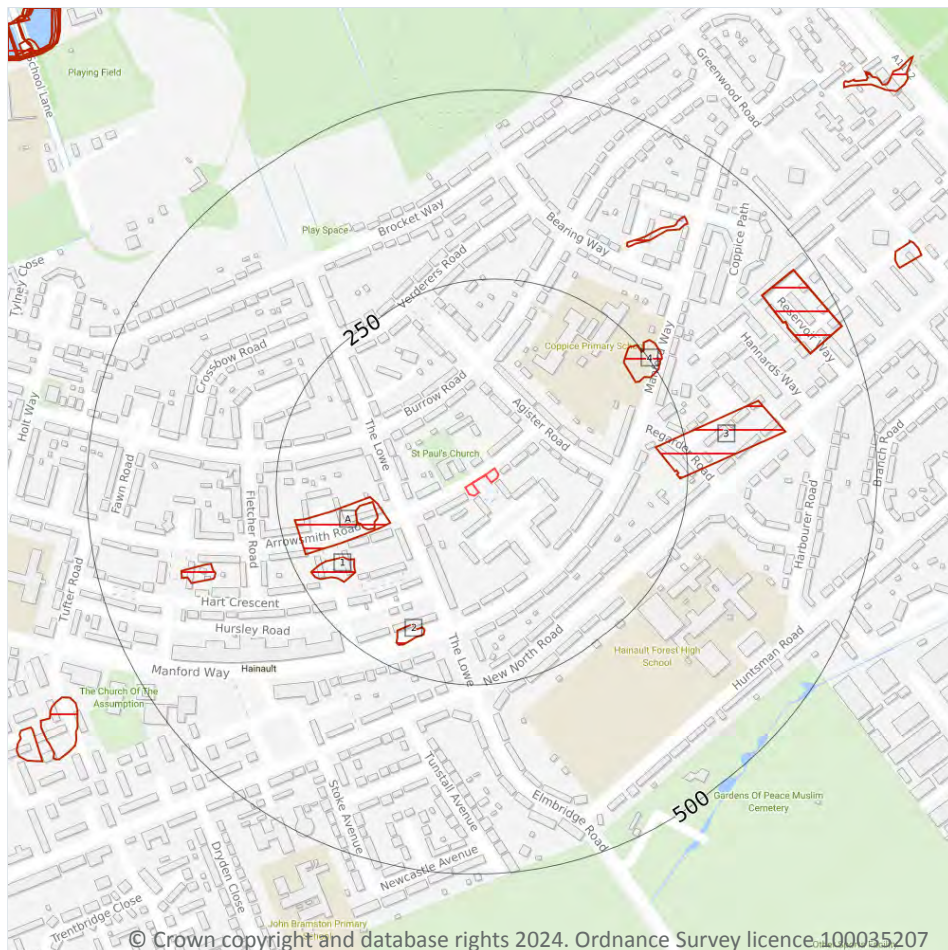




*This data is sourced from the British Geological Survey.*



## 18 Mining and ground workings



- Site Outline
- Search buffers in metres (m)
- BritPits
- Surface ground workings
- Underground workings
- Underground mining extents
- Historical mineral planning areas
- TCA non-coal mining
- Non Coal Mining
  - Sporadic underground mining of restricted extent possible
  - Localised small scale underground mining possible
  - Small scale mining possible
  - Underground mining known or likely within or in close proximity
  - Underground mining known within or in very close proximity

### 18.1 BritPits

#### Records within 500m

0

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

*This data is sourced from the British Geological Survey.*

## 18.2 Surface ground workings

### Records within 250m

**6**

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

Features are displayed on the Mining and ground workings map on [page 82 >](#)

ID	Location	Land Use	Year of mapping	Mapping scale
A	110m SW	Grave Yard	1871	1:10560
A	122m W	Pond	1871	1:10560
1	175m SW	Pond	1871	1:10560
2	186m SW	Pond	1871	1:10560
3	211m E	Grave Yard	1871	1:10560
4	218m NE	Pond	1871	1:10560

*This data is sourced from Ordnance Survey/Groundsure.*

## 18.3 Underground workings

### Records within 1000m

**0**

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

*This data is sourced from Ordnance Survey/Groundsure.*

## 18.4 Underground mining extents

### Records within 500m

**0**

This data identifies underground mine workings that could present a potential risk, including adits and seam workings. These features have been identified from BGS Geological mapping and mine plans sourced from the BGS and various collections and sources.

*This data is sourced from Groundsure.*



## 18.5 Historical Mineral Planning Areas

### Records within 500m

**0**

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

*This data is sourced from the British Geological Survey.*

## 18.6 Non-coal mining

### Records within 1000m

**0**

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

*This data is sourced from the British Geological Survey.*

## 18.7 JPB mining areas

### Records on site

**0**

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

*This data is sourced from Johnson Poole and Bloomer.*

## 18.8 The Coal Authority non-coal mining

### Records within 500m

**0**

This data provides an indication of the potential zone of influence of recorded underground non-coal mining workings. Any and all analysis and interpretation of Coal Authority Data in this report is made by Groundsure, and is in no way supported, endorsed or authorised by the Coal Authority. The use of the data is restricted to the terms and provisions contained in this report. Data reproduced in this report may be the copyright of the Coal Authority and permission should be sought from Groundsure prior to any re-use.

*This data is sourced from The Coal Authority.*

## 18.9 Researched mining

**Records within 500m****0**

This data indicates areas of potential mining identified from alternative or archival sources, including; BGS Geological paper maps, Lidar data, aerial photographs (from World War II onwards), archaeological data services, websites, Tithe maps, and various text/plans from collected books and reports. Some of this data is approximate and Groundsure have interpreted the resultant risk area and, where possible, specific areas of risk have been captured.

*This data is sourced from Groundsure.*

## 18.10 Mining record office plans

**Records within 500m****0**

This dataset is representative of Mining Record Office and/or plan extents held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

*This data is sourced from Groundsure.*

## 18.11 BGS mine plans

**Records within 500m****0**

This dataset is representative of BGS mine plans held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

*This data is sourced from Groundsure.*

## 18.12 Coal mining

**Records on site****0**

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

*This data is sourced from the Coal Authority.*

## 18.13 Brine areas

**Records on site****0**

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

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





## 18.14 Gypsum areas

Records on site

0

Generalised areas that may be affected by gypsum extraction.

*This data is sourced from British Gypsum.*

## 18.15 Tin mining

Records on site

0

Generalised areas that may be affected by historical tin mining.

*This data is sourced from Groundsure.*

## 18.16 Clay mining

Records on site

0

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

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

## 19 Ground cavities and sinkholes

### 19.1 Natural cavities

Records within 500m

0

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

*This data is sourced from Stantec UK Ltd.*

### 19.2 Mining cavities

Records within 1000m

0

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

*This data is sourced from Stantec UK Ltd.*

### 19.3 Reported recent incidents

Records within 500m

0

This data identifies sinkhole information gathered from media reports and Groundsure's own records. This data goes back to 2014 and includes relative accuracy ratings for each event and links to the original data sources. The data is updated on a regular basis and should not be considered a comprehensive catalogue of all sinkhole events. The absence of data in this database does not mean a sinkhole definitely has not occurred during this time.

*This data is sourced from Groundsure.*

### 19.4 Historical incidents

Records within 500m

0

This dataset comprises an extract of 1:10,560, 1:10,000, 1:2,500 and 1:1,250 scale historical Ordnance Survey maps held by Groundsure, dating back to the 1840s. It shows shakeholes, deneholes and other 'holes' as noted on these maps. Dene holes are medieval chalk extraction pits, usually comprising a narrow shaft with a number of chambers at the base of the shaft. Shakeholes are an alternative name for suffusion sinkholes, most commonly found in the limestone landscapes of North Yorkshire but also extensively noted around the Brecon Beacons National Park.

Not all 'holes' noted on Ordnance Survey mapping will necessarily be present within this dataset.



*This data is sourced from Groundsure.*

## 19.5 National karst database

Records within 500m

0

This is a comprehensive database of national karst information gathered from a wide range of sources. BGS have collected data on five main types of karst feature: Sinkholes, stream links, caves, springs, and incidences of associated damage to buildings, roads, bridges and other engineered works.

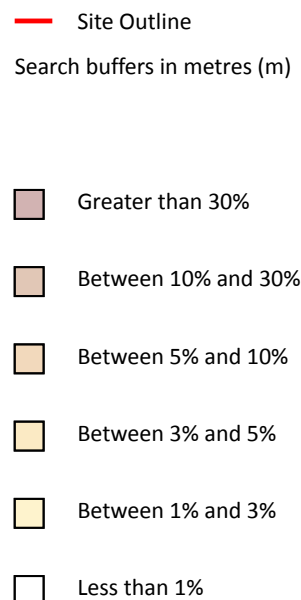
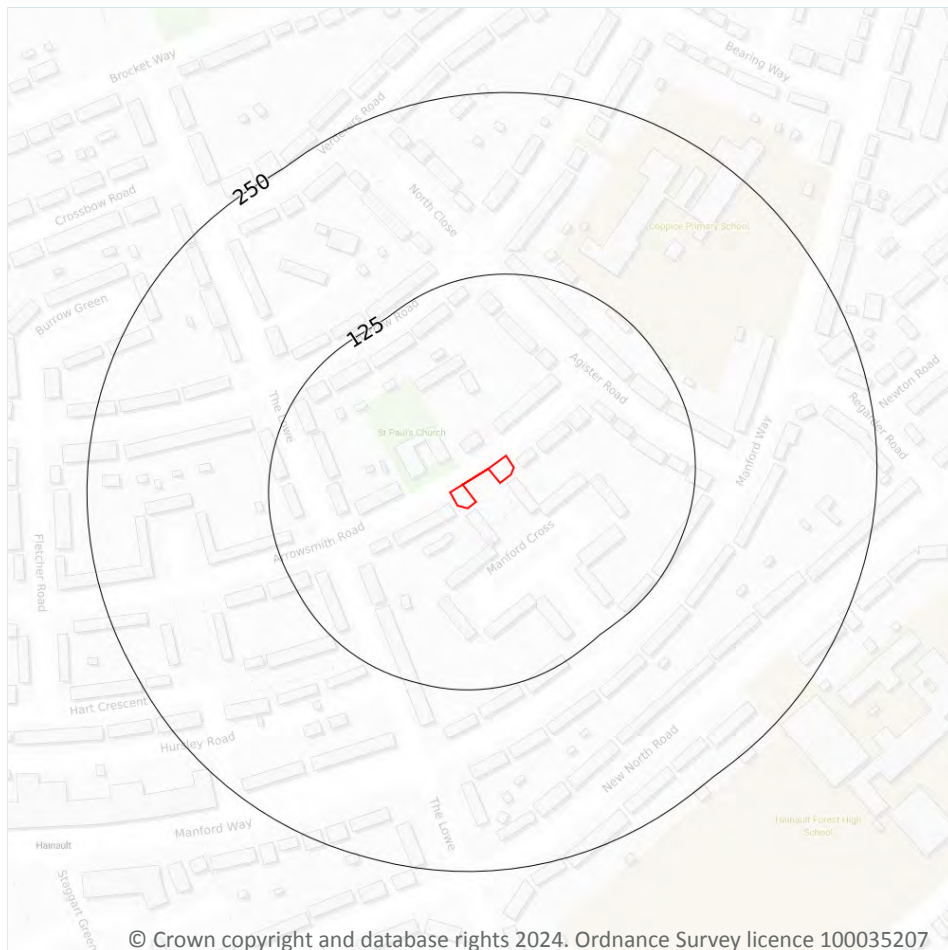
Since the database was set up in 2002 data covering most of the evaporite karst areas of the UK have now been added, along with data covering about 60% of the Chalk, and 35% of the Carboniferous Limestone outcrops. Many of the classic upland karst areas have yet to be included. Recorded so far are: Over 800 caves, 1300 stream sinks, 5600 springs, 10,000 sinkholes.

The database is not yet complete, and not all records have been verified. The absence of data does not mean that karst features are not present at a site. A reliability rating is included with each record.

*This data is sourced from the British Geological Survey.*



## 20 Radon



### 20.1 Radon

#### Records on site

1

The Radon Potential data classifies areas based on their likelihood of a property having a radon level at or above the Action Level in Great Britain. The dataset is intended for use at 1:50,000 scale and was derived from both geological assessments and indoor radon measurements (more than 560,000 records). A minimum 50m buffer should be considered when searching the maps, as the smallest detectable feature at this scale is 50m. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain (1:100,000 scale).

Features are displayed on the Radon map on [page 89 >](#)

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



*This data is sourced from the British Geological Survey and UK Health Security Agency.*





## 21 Soil chemistry

### 21.1 BGS Estimated Background Soil Chemistry

Records within 50m

1

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

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg

*This data is sourced from the British Geological Survey.*

### 21.2 BGS Estimated Urban Soil Chemistry

Records within 50m

6

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

Location	Arsenic (mg/kg)	Bioaccessible Arsenic (mg/kg)	Lead (mg/kg)	Bioaccessible Lead (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Nickel (mg/kg)	Tin (mg/kg)
On site	16	2.8	89	61	6.1	97	33	28	14
4m NE	16	2.8	88	60	5.3	98	33	29	14
24m E	16	2.8	89	61	4.7	98	33	29	13
27m NE	16	2.8	90	62	4.6	98	35	29	13
32m W	16	2.8	88	60	4.3	97	33	29	14
43m W	15	2.6	86	59	3.8	97	33	28	13

*This data is sourced from the British Geological Survey.*



## 21.3 BGS Measured Urban Soil Chemistry

### Records within 50m

**1**

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

Location	Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Nickel (mg/kg)	Lead (mg/kg)	Tin (mg/kg)	Sample Type
9m SE	15.7	6.3	97.5	33.3	28.3	88.6	14.2	Topsoil

*This data is sourced from the British Geological Survey.*



## 22 Railway infrastructure and projects

### 22.1 Underground railways (London)

**Records within 250m****0**

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

*This data is sourced from publicly available information by Groundsure.*

### 22.2 Underground railways (Non-London)

**Records within 250m****0**

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

*This data is sourced from publicly available information by Groundsure.*

### 22.3 Railway tunnels

**Records within 250m****0**

Railway tunnels taken from contemporary Ordnance Survey mapping.

*This data is sourced from the Ordnance Survey.*

### 22.4 Historical railway and tunnel features

**Records within 250m****0**

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

*This data is sourced from Ordnance Survey/Groundsure.*

### 22.5 Royal Mail tunnels

**Records within 250m****0**

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



*This data is sourced from Groundsure/the Postal Museum.*

## 22.6 Historical railways

Records within 250m	0
---------------------	---

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

*This data is sourced from OpenStreetMap.*

## 22.7 Railways

Records within 250m	0
---------------------	---

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

*This data is sourced from Ordnance Survey and OpenStreetMap.*

## 22.8 Crossrail 1

Records within 500m	0
---------------------	---

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

*This data is sourced from publicly available information by Groundsure.*

## 22.9 Crossrail 2

Records within 500m	0
---------------------	---

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

*This data is sourced from publicly available information by Groundsure.*

## 22.10 HS2

Records within 500m	0
---------------------	---

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

*This data is sourced from HS2 Ltd.*



## Data providers

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

## Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: [www.groundsure.com/terms-and-conditions-april-2023/](https://www.groundsure.com/terms-and-conditions-april-2023/) ↗.





**Site Details:**

LAND ADJACENT TO 164-166,  
ARROWSMITH ROAD,  
CHIGWELL, REDBRIDGE, IG7  
4NZ

**Client Ref:** R3862  
**Report Ref:** GS-K28-ANW-ZO5-PF1  
**Grid Ref:** 546253, 192278

**Map Name:** County Series

**Map date:** 1871

**Scale:** 1:10,560

**Printed at:** 1:10,560



Surveyed 1871  
Revised 1871  
Edition N/A  
Copyright N/A  
Levelled N/A

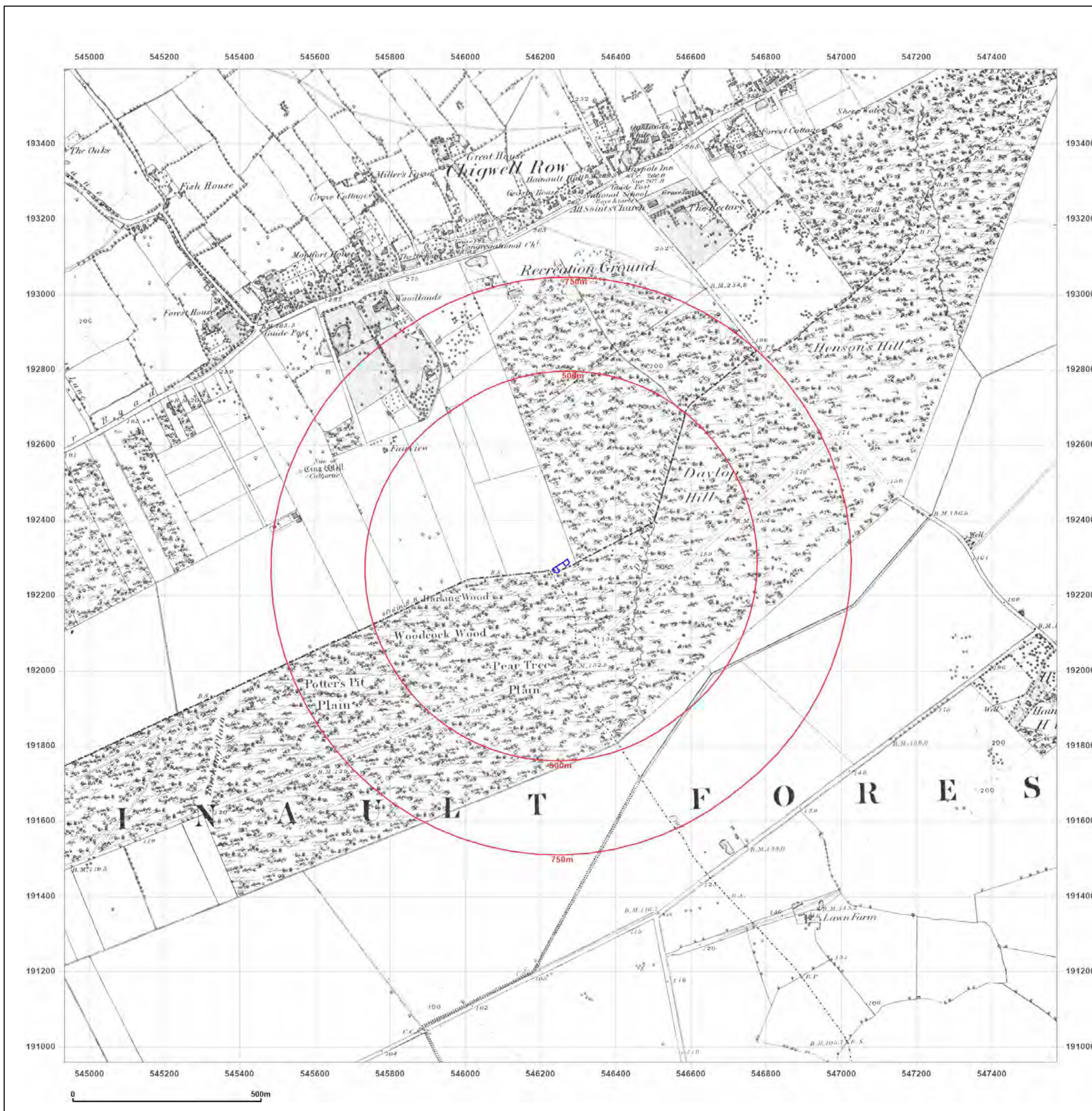


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Production date: 24 May 2024

Map legend available at:  
[www.groundsure.com/sites/default/files/groundsure\\_legend.pdf](http://www.groundsure.com/sites/default/files/groundsure_legend.pdf)





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**Client Ref:** R3862  
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**Printed at:** 1:10,560



Surveyed 1872  
Revised 1895  
Edition N/A  
Copyright N/A  
Levelled N/A

Surveyed 1871  
Revised 1895  
Edition N/A  
Copyright N/A  
Levelled N/A

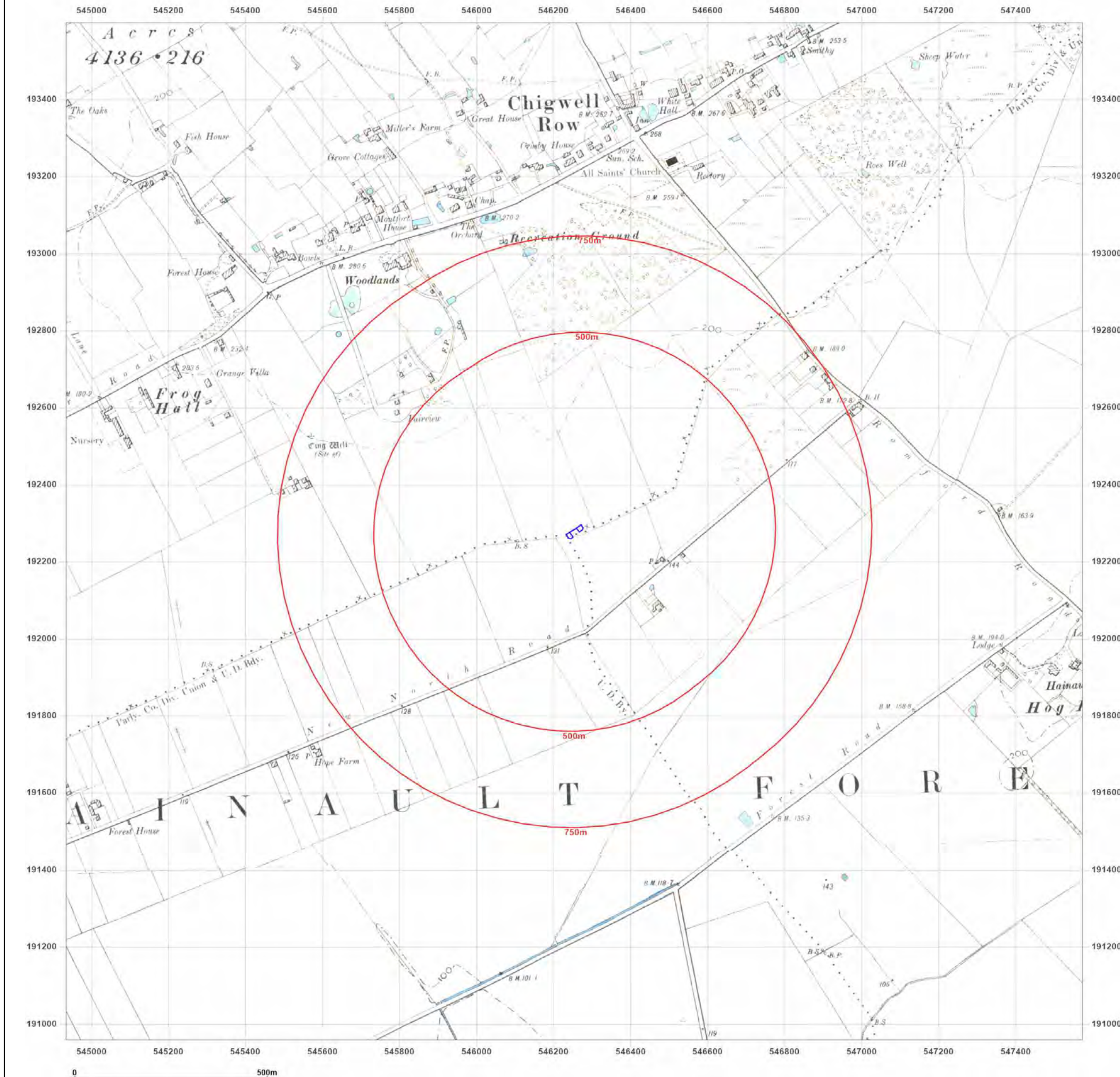


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#### Site Details:

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CHIGWELL, REDBRIDGE, IG7  
4NZ

**Client Ref:** R3862  
**Report Ref:** GS-K28-ANW-ZO5-PF1  
**Grid Ref:** 546253, 192278

**Map Name:** County Series

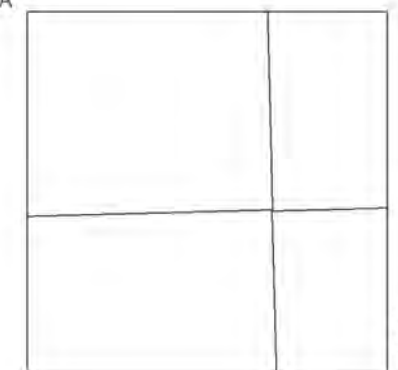
**Map date:** 1914-1915

**Scale:** 1:10,560

**Printed at:** 1:10,560



Surveyed 1871  
Revised 1915  
Edition N/A  
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Surveyed 1871  
Revised 1914  
Edition N/A  
Copyright N/A  
Levelled N/A

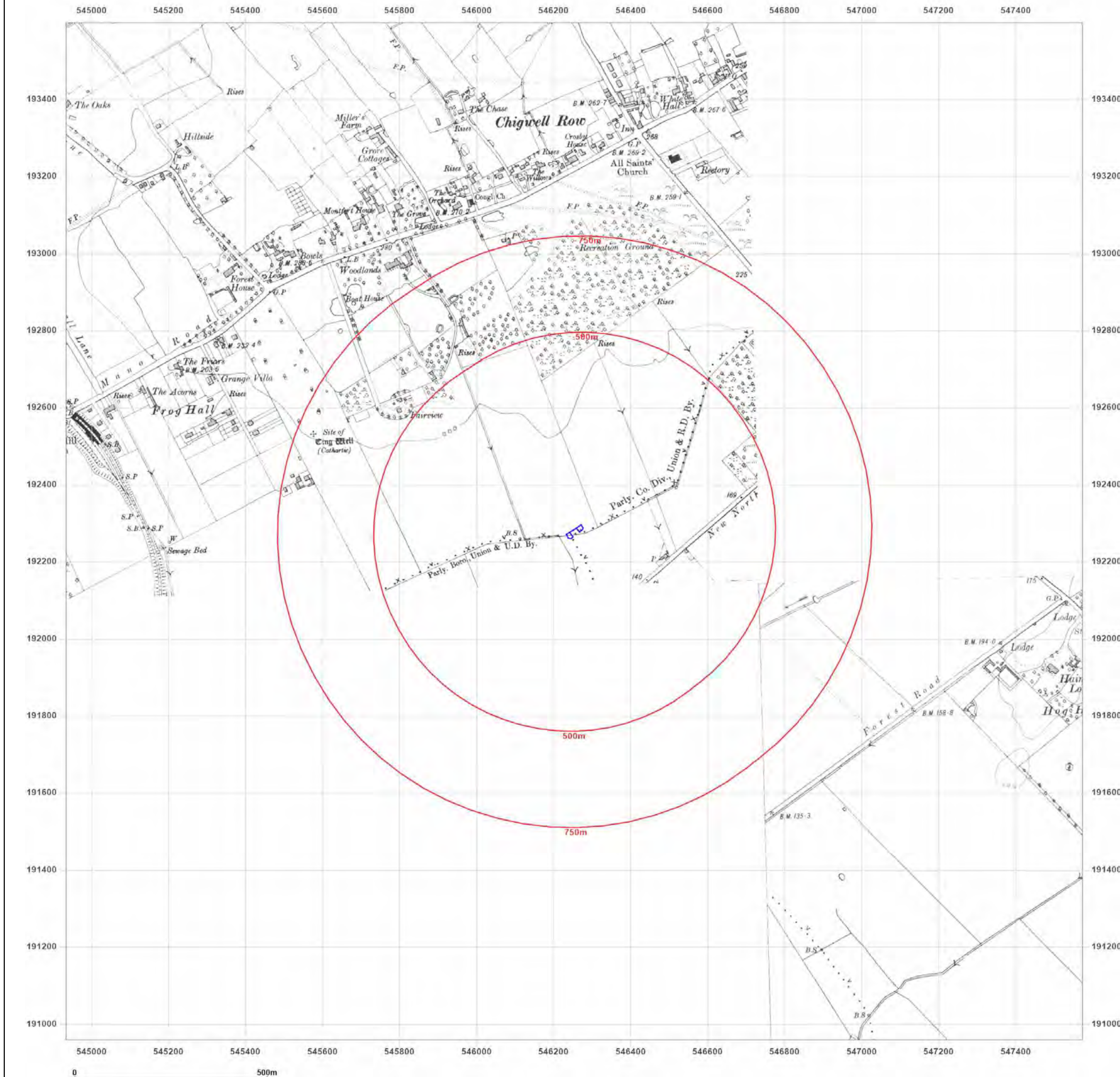


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4NZ

**Client Ref:** R3862  
**Report Ref:** GS-K28-ANW-ZO5-PF1  
**Grid Ref:** 546253, 192278

**Map Name:** County Series

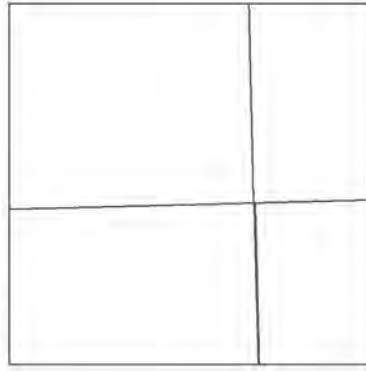
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**Printed at:** 1:10,560



Surveyed 1871  
Revised 1921  
Edition 1921  
Copyright N/A  
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Revised 1921  
Edition N/A  
Copyright N/A  
Levelled N/A

Surveyed 1871  
Revised 1921  
Edition 1921  
Copyright N/A  
Levelled N/A

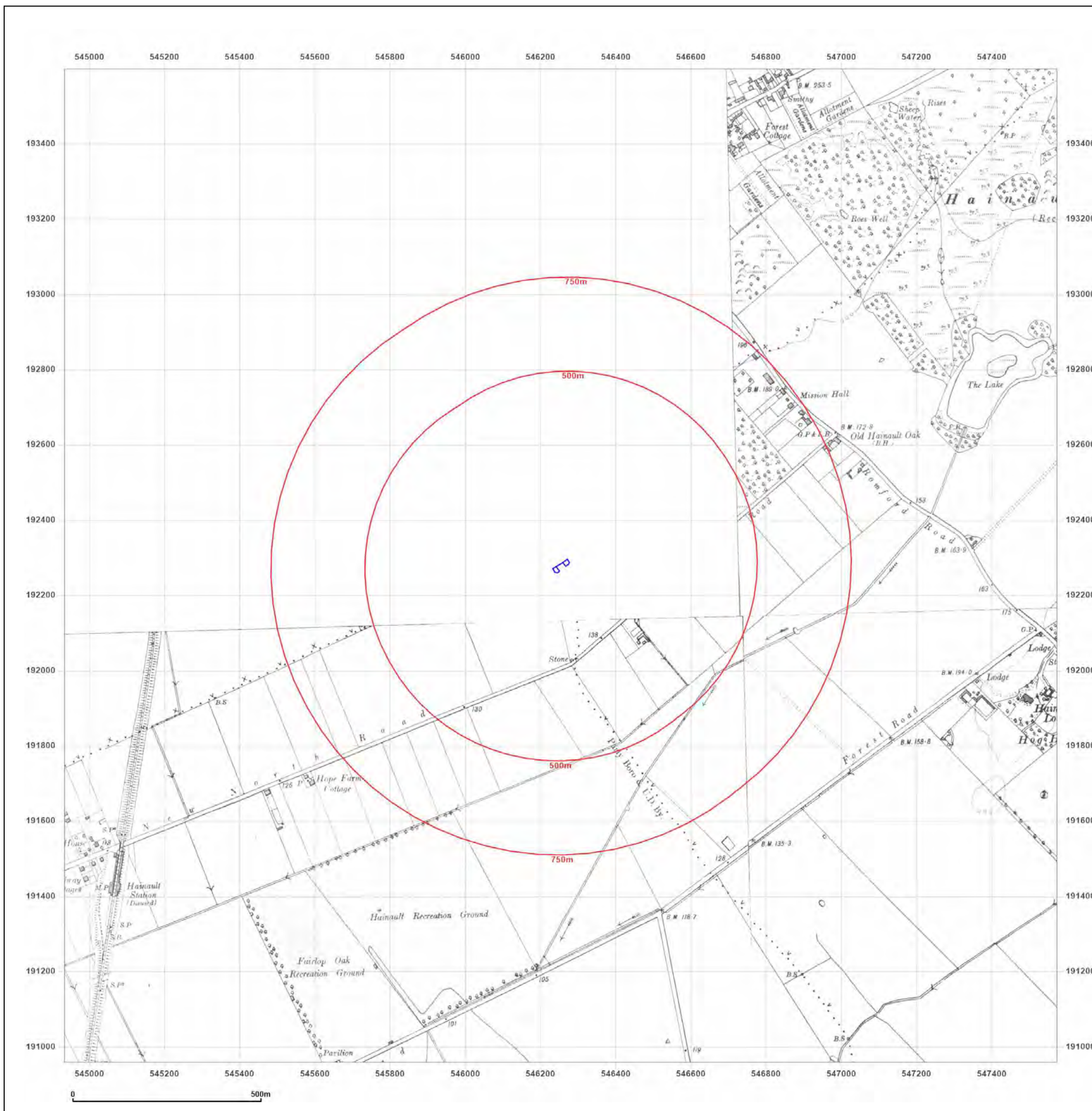


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4NZ

**Client Ref:** R3862  
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**Map Name:** County Series

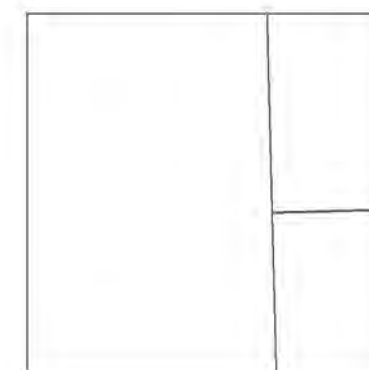
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**Printed at:** 1:10,560



Surveyed 1871  
Revised 1921  
Edition N/A  
Copyright N/A  
Levelled N/A



Surveyed 1871  
Revised 1921  
Edition N/A  
Copyright N/A  
Levelled N/A

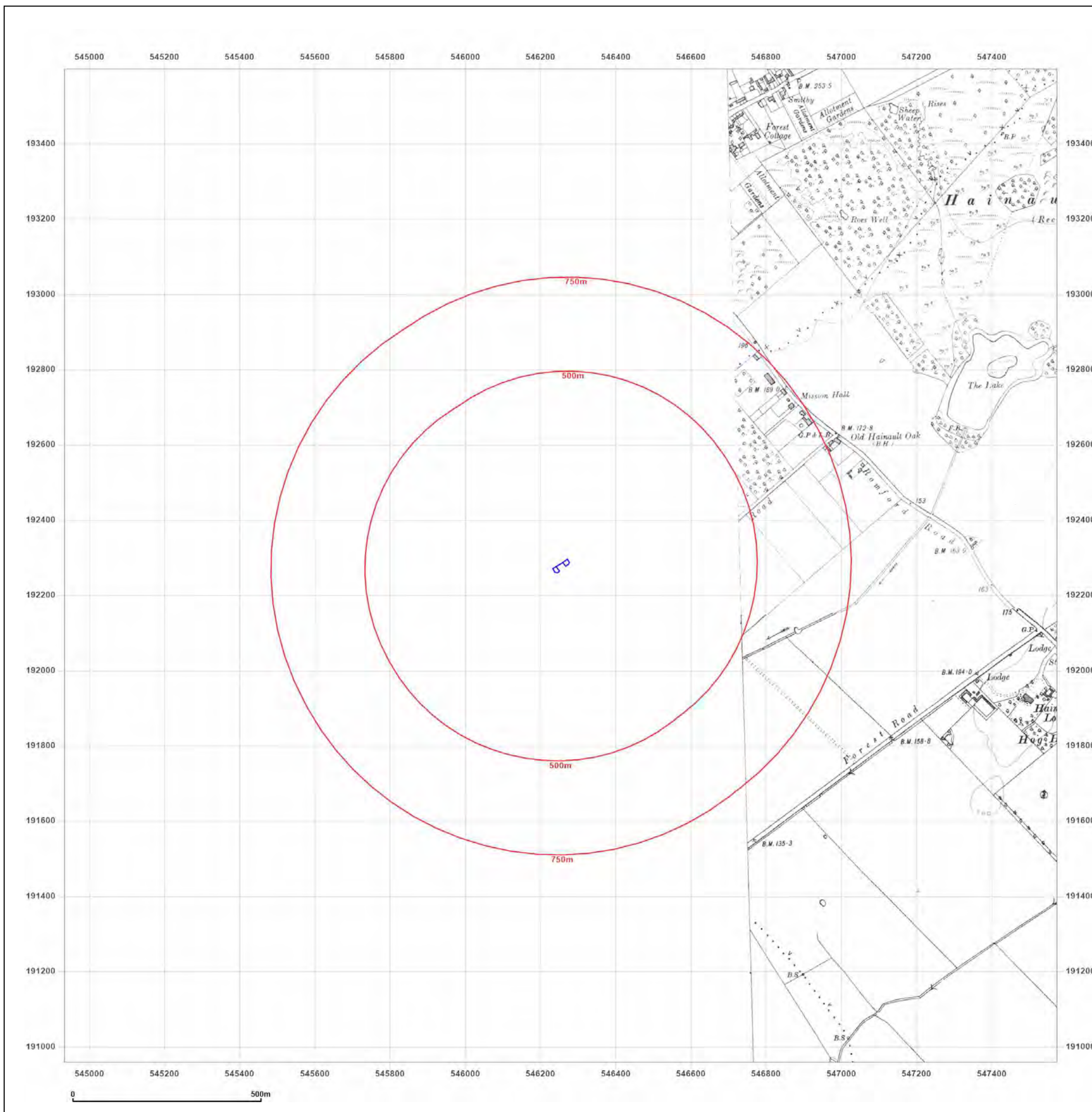


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4NZ

**Client Ref:** R3862  
**Report Ref:** GS-K28-ANW-ZO5-PF1  
**Grid Ref:** 546253, 192278

**Map Name:** County Series

**Map date:** 1938

**Scale:** 1:10,560

**Printed at:** 1:10,560



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Revised 1938  
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Surveyed 1871  
Revised 1938  
Edition N/A  
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Edition N/A  
Copyright N/A  
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Surveyed 1871  
Revised 1938  
Edition N/A  
Copyright N/A  
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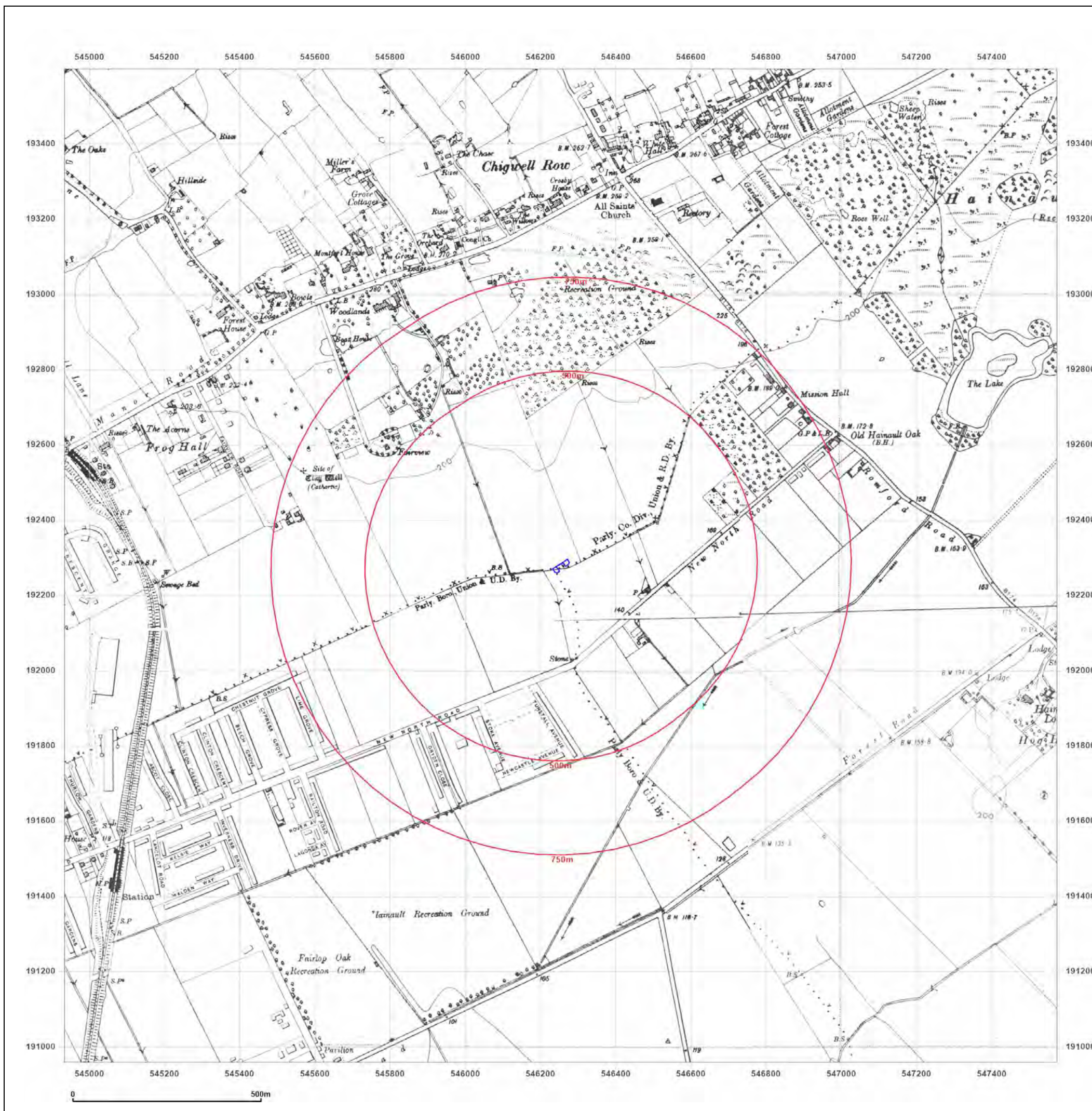


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4NZ

**Client Ref:** R3862  
**Report Ref:** GS-K28-ANW-ZO5-PF1  
**Grid Ref:** 546253, 192278

**Map Name:** Provisional

**Map date:** 1951

**Scale:** 1:10,560

**Printed at:** 1:10,560



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

Surveyed N/A  
Revised 1950  
Edition N/A  
Copyright 1951  
Levelled N/A

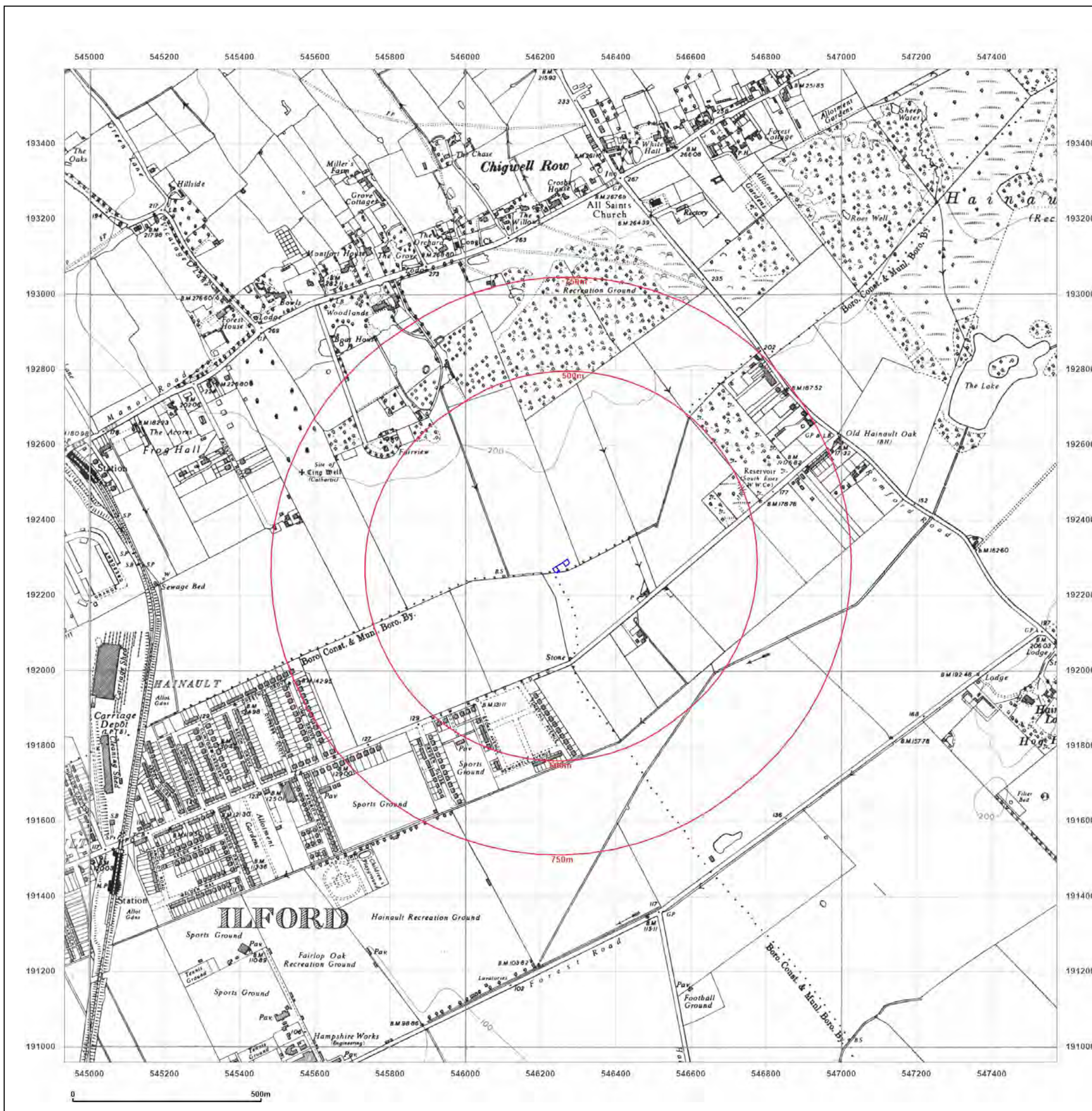


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4NZ

**Client Ref:** R3862  
**Report Ref:** GS-K28-ANW-ZO5-PF1  
**Grid Ref:** 546253, 192278

**Map Name:** County Series

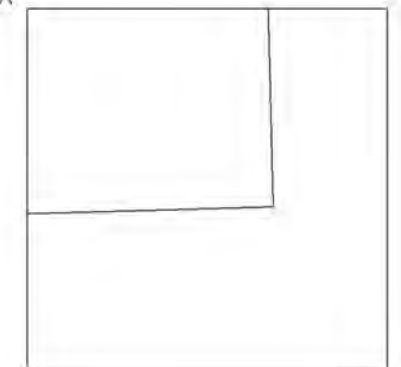
**Map date:** 1953

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**Printed at:** 1:10,560



Surveyed 1871  
Revised 1953  
Edition N/A  
Copyright N/A  
Levelled N/A

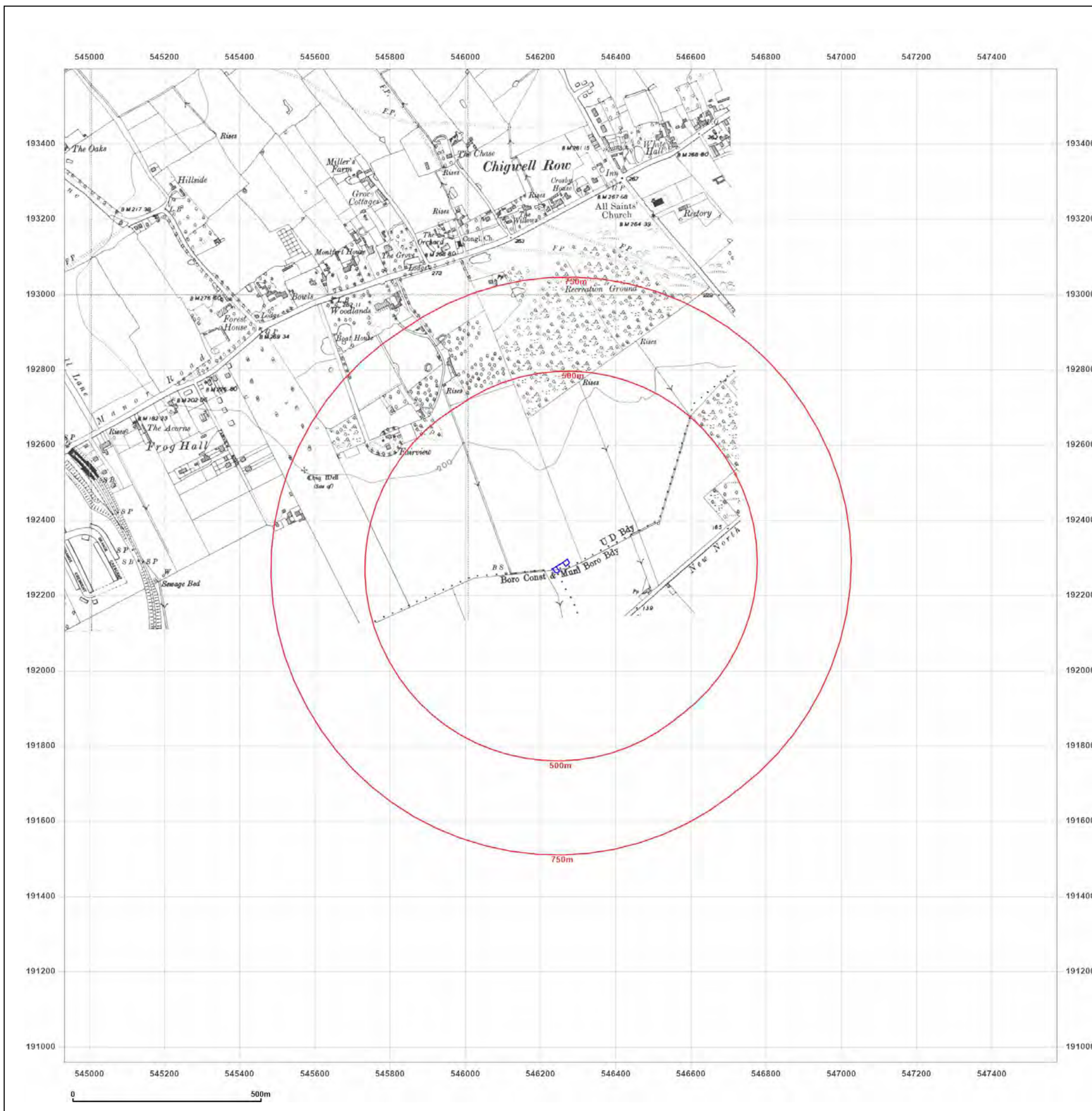


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4NZ

**Client Ref:** R3862  
**Report Ref:** GS-K28-ANW-ZO5-PF1  
**Grid Ref:** 546253, 192278

**Map Name:** Provisional

**Map date:** 1969

**Scale:** 1:10,560

**Printed at:** 1:10,560



Surveyed 1940  
Revised 1969  
Edition N/A  
Copyright N/A  
Levelled N/A

Surveyed N/A  
Revised 1969  
Edition N/A  
Copyright 1951  
Levelled N/A

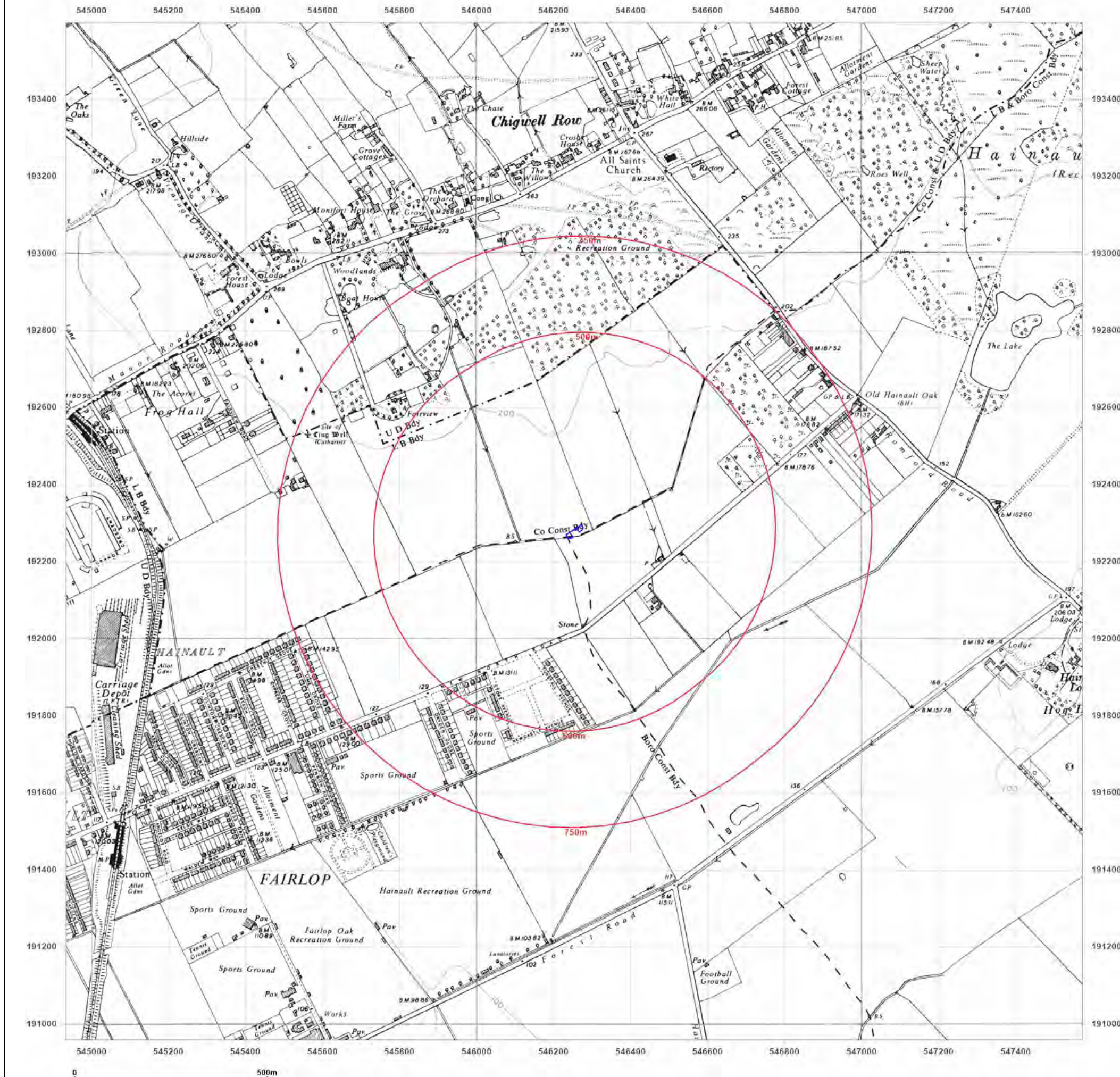


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**Client Ref:** R3862  
**Report Ref:** GS-K28-ANW-ZO5-PF1  
**Grid Ref:** 546253, 192278

**Map Name:** National Grid

**Map date:** 1972

**Scale:** 1:10,000

**Printed at:** 1:10,000



Surveyed 1970  
Revised 1972  
Edition N/A  
Copyright 1972  
Levelled 1962

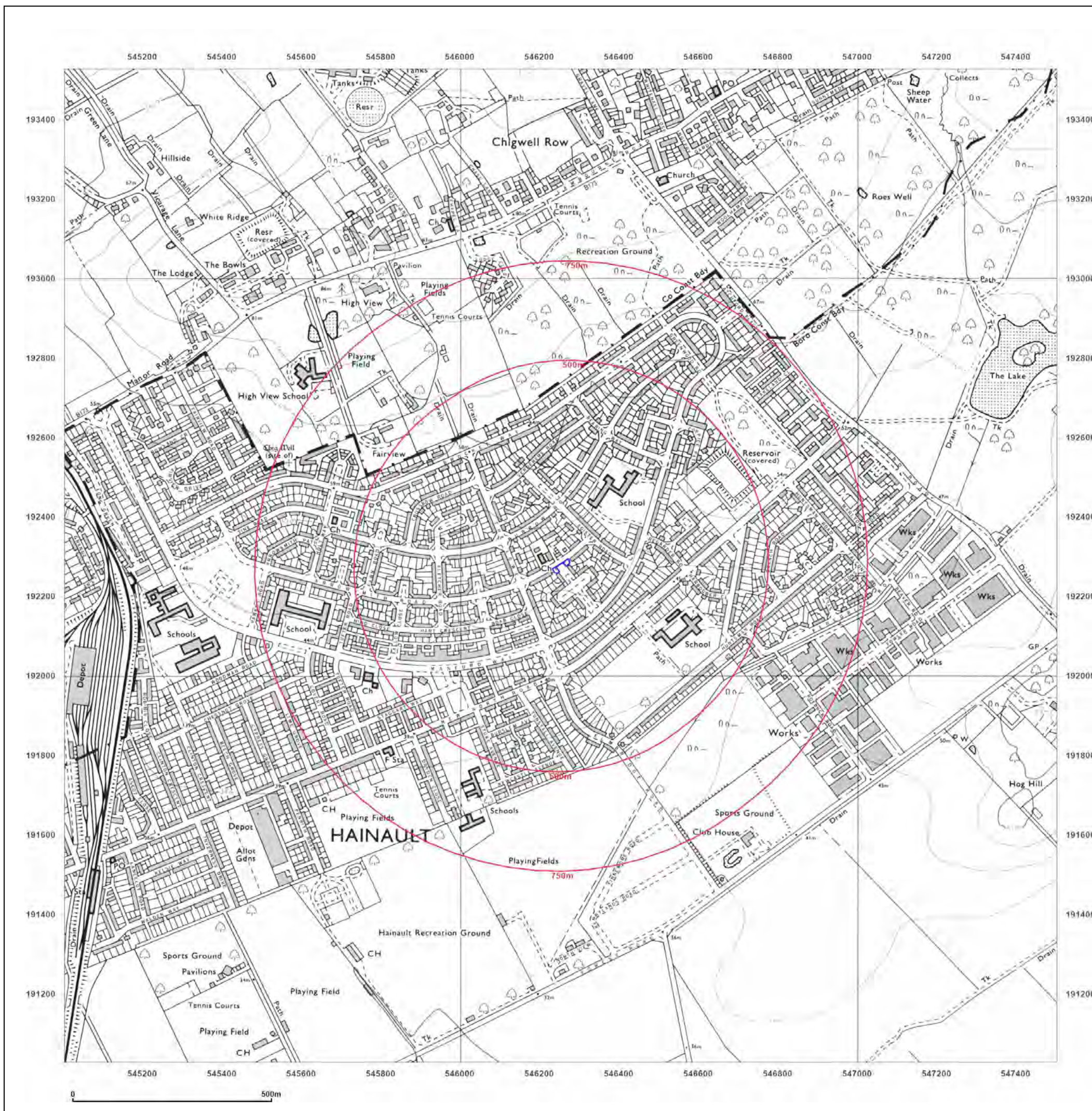


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**Client Ref:** R3862  
**Report Ref:** GS-K28-ANW-ZO5-PF1  
**Grid Ref:** 546253, 192278

**Map Name:** National Grid

**Map date:** 2001

**Scale:** 1:10,000

**Printed at:** 1:10,000



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4NZ

**Client Ref:** R3862  
**Report Ref:** GS-K28-ANW-ZO5-PF1  
**Grid Ref:** 546253, 192278

**Map Name:** National Grid

**Map date:** 2010

**Scale:** 1:10,000

**Printed at:** 1:10,000



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4NZ

**Client Ref:** R3862  
**Report Ref:** GS-K28-ANW-ZO5-PF1  
**Grid Ref:** 546253, 192278

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**Map date:** 2024

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**Printed at:** 1:10,000

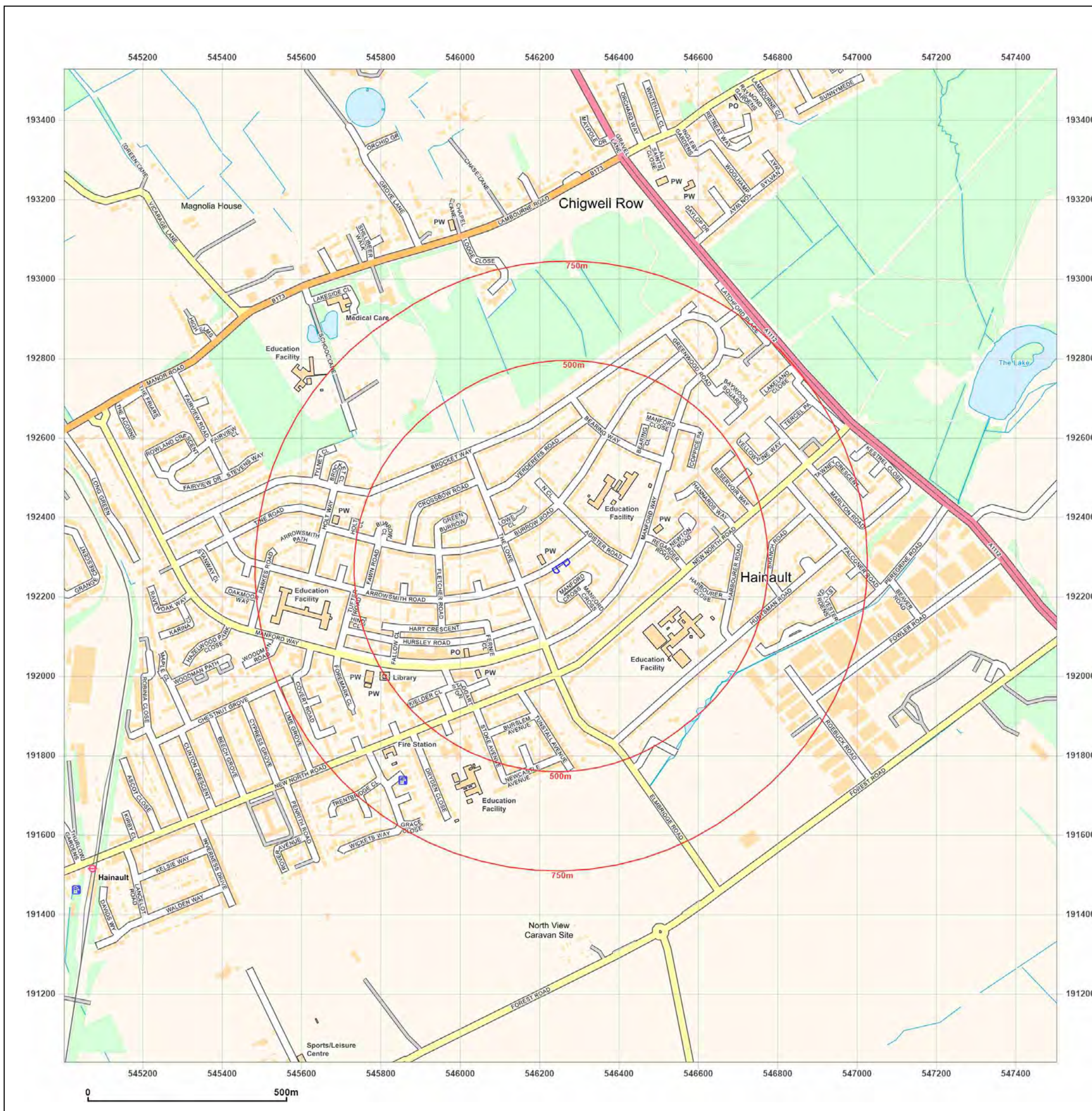


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**Client Ref:** R3862  
**Report Ref:** GS-K28-ANW-ZO5-PF1  
**Grid Ref:** 546253, 192278

**Map Name:** County Series

**Map date:** 1862

**Scale:** 1:2,500

**Printed at:** 1:2,500



Surveyed N/A  
Revised N/A  
Edition 1862  
Copyright N/A  
Levelled N/A

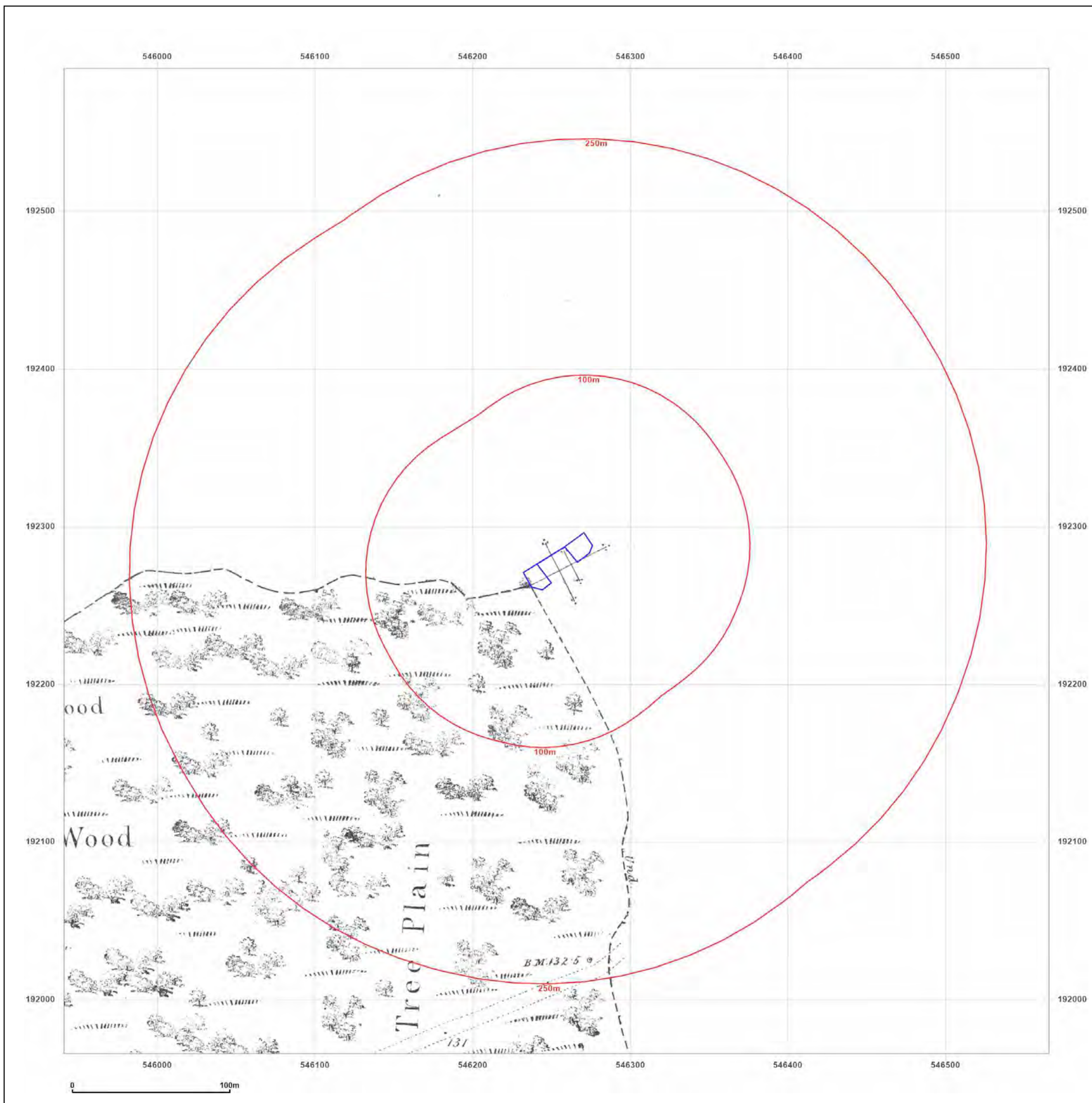


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**Client Ref:** R3862  
**Report Ref:** GS-K28-ANW-ZO5-PF1  
**Grid Ref:** 546253, 192278

**Map Name:** County Series

**Map date:** 1870-1873

**Scale:** 1:2,500

**Printed at:** 1:2,500



Surveyed 1873.  
Revised 1873.  
Edition N/A  
Copyright N/A  
Levelled N/A

Surveyed 1870  
Revised 1870  
Edition N/A  
Copyright N/A  
Levelled N/A

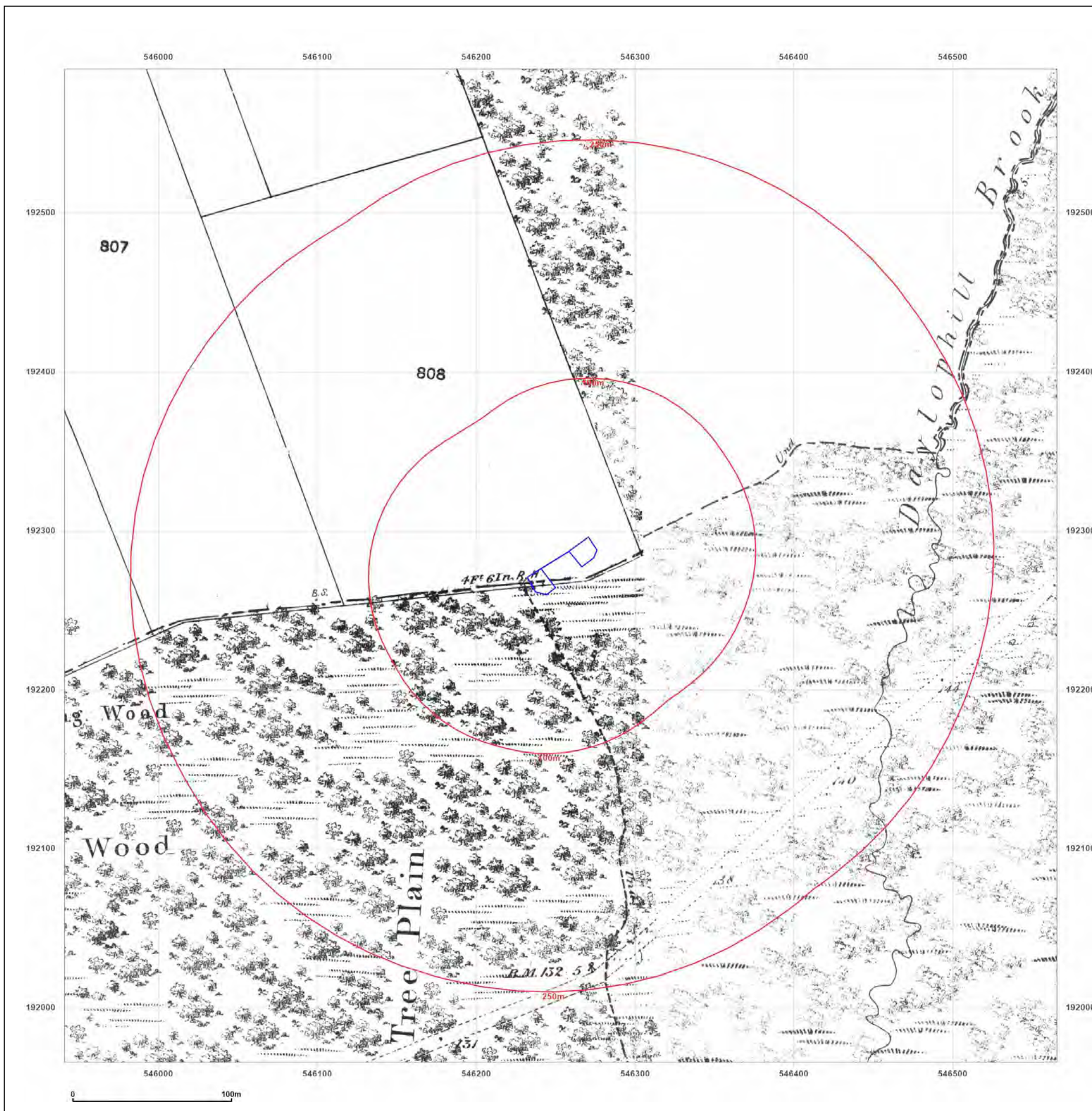


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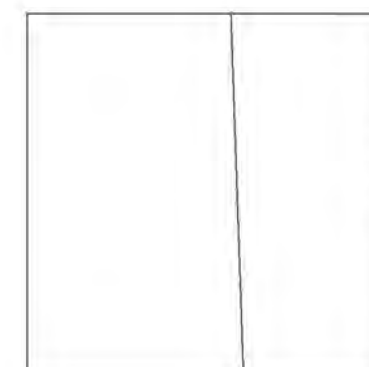
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**Map Name:** County Series

**Map date:** 1873

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**Printed at:** 1:2,500



Surveyed 1873  
Revised 1873  
Edition N/A  
Copyright N/A  
Levelled N/A

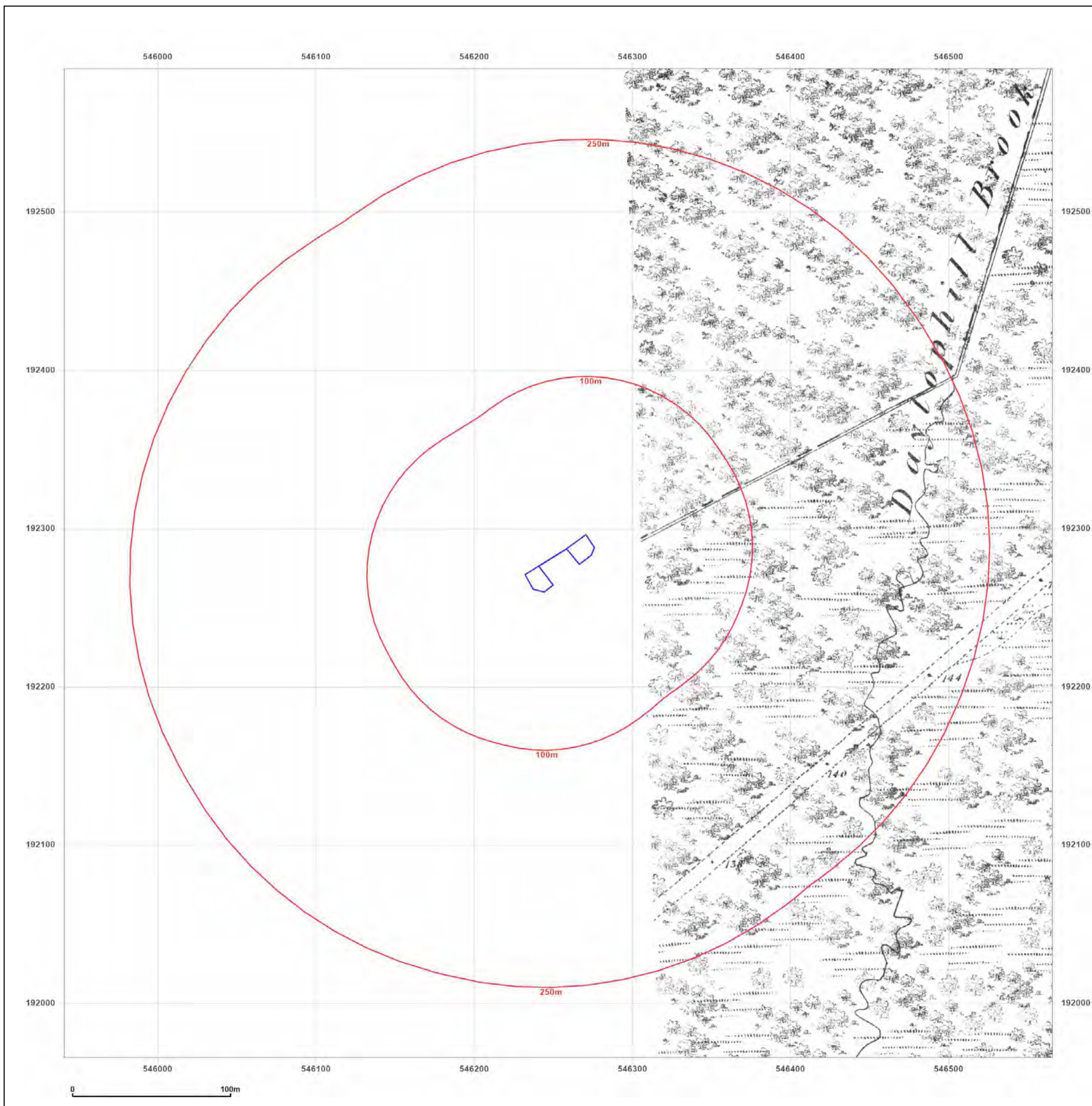


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**Client Ref:** R3862  
**Report Ref:** GS-K28-ANW-ZO5-PF1  
**Grid Ref:** 546253, 192278

**Map Name:** County Series

**Map date:** 1896

**Scale:** 1:2,500

**Printed at:** 1:2,500



Surveyed 1896  
Revised 1896  
Edition N/A  
Copyright N/A  
Levelled N/A

Surveyed 1896  
Revised 1896  
Edition N/A  
Copyright N/A  
Levelled N/A

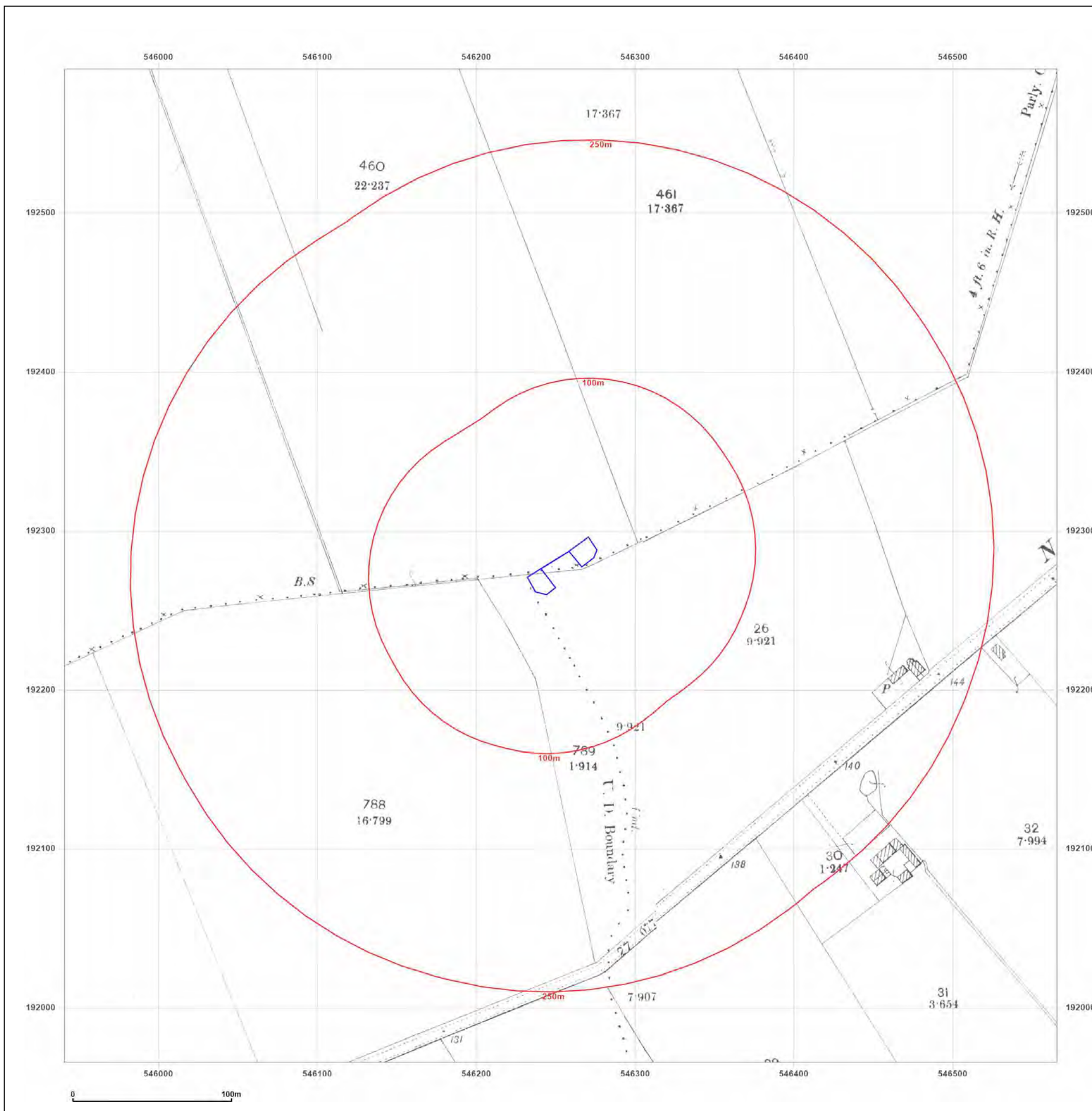


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4NZ

**Client Ref:** R3862  
**Report Ref:** GS-K28-ANW-ZO5-PF1  
**Grid Ref:** 546253, 192278

**Map Name:** County Series

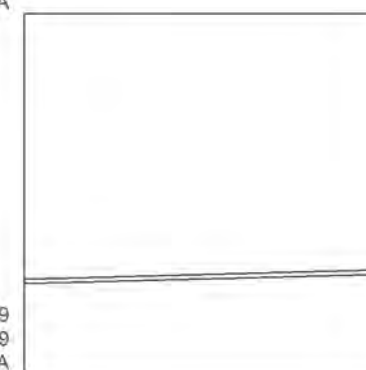
**Map date:** 1919-1920

**Scale:** 1:2,500

**Printed at:** 1:2,500



Surveyed 1920  
Revised 1920  
Edition N/A  
Copyright N/A  
Levelled N/A



Surveyed 1919  
Revised 1919  
Edition N/A  
Copyright N/A  
Levelled N/A

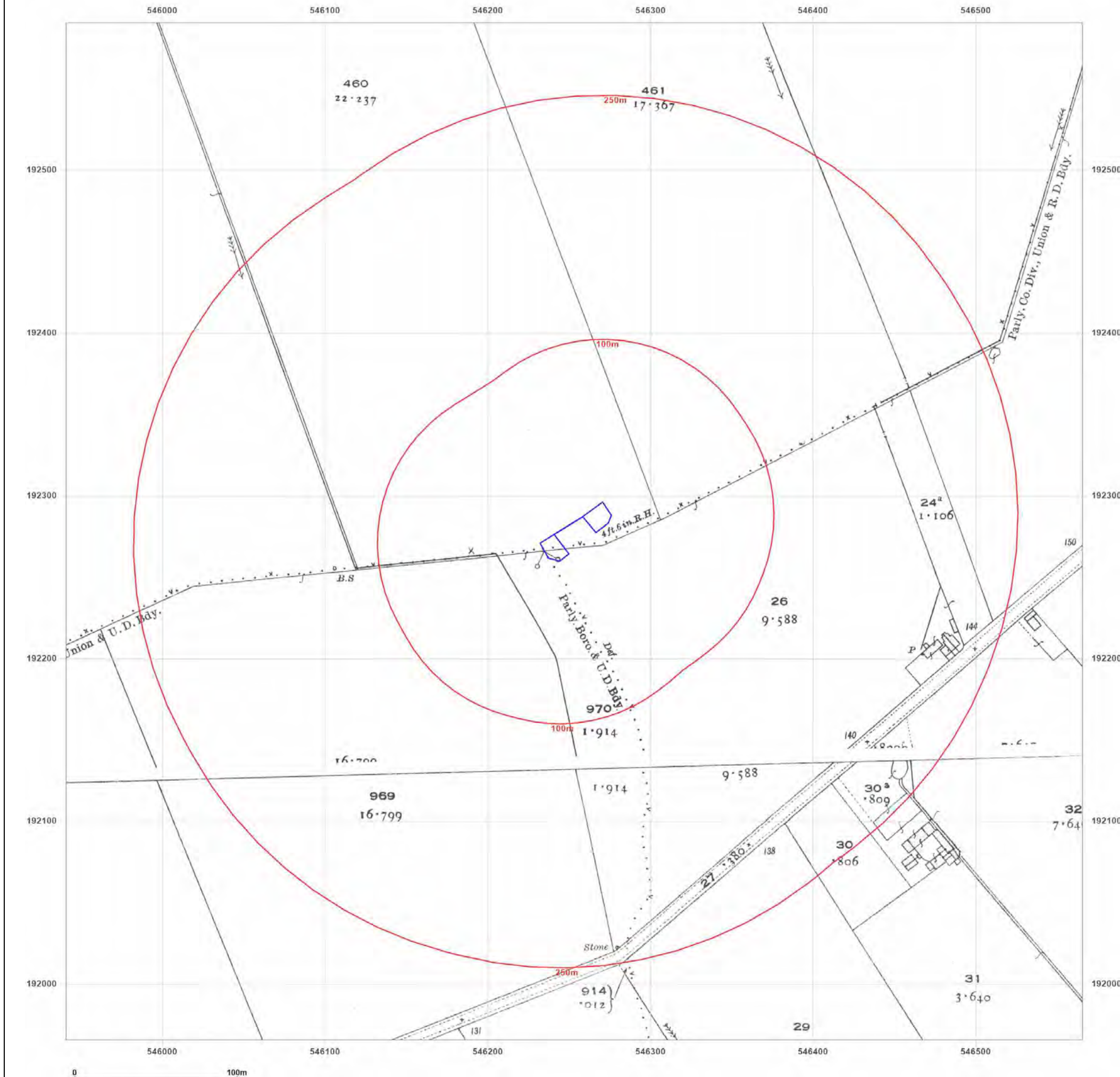


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**Client Ref:** R3862  
**Report Ref:** GS-K28-ANW-ZO5-PF1  
**Grid Ref:** 546253, 192278

**Map Name:** County Series

**Map date:** 1938

**Scale:** 1:2,500

**Printed at:** 1:2,500



Surveyed 1938  
Revised 1938  
Edition N/A  
Copyright N/A  
Levelled N/A

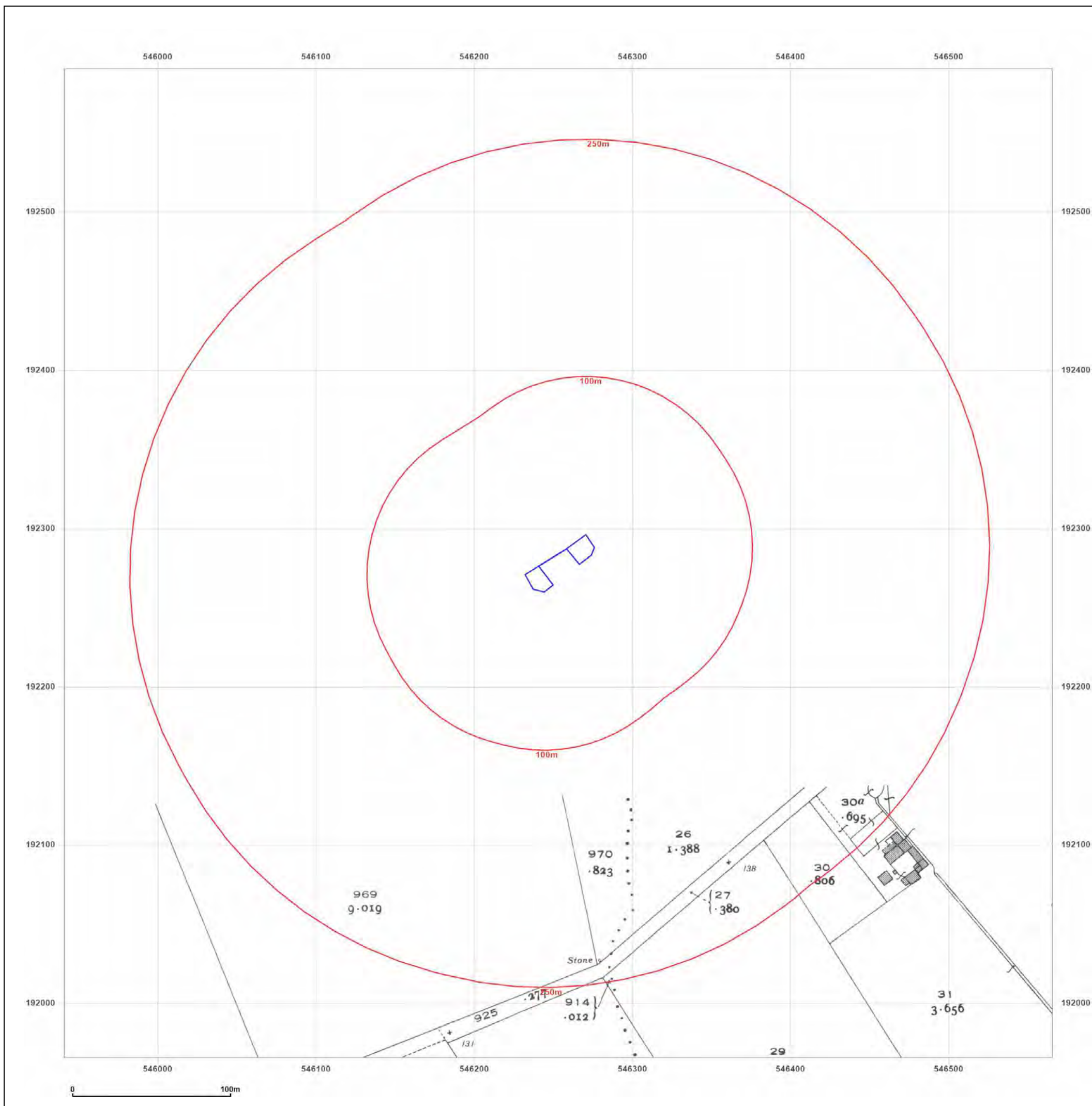


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**Client Ref:** R3862  
**Report Ref:** GS-K28-ANW-ZO5-PF1  
**Grid Ref:** 546253, 192278

**Map Name:** National Grid

**Map date:** 1963

**Scale:** 1:1,250

**Printed at:** 1:2,000



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Revised 1962  
Edition N/A  
Copyright 1963  
Levelled 1961

Surveyed 1962  
Revised 1962  
Edition N/A  
Copyright 1963  
Levelled 1961

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**Client Ref:** R3862  
**Report Ref:** GS-K28-ANW-ZO5-PF1  
**Grid Ref:** 546253, 192278

**Map Name:** National Grid

**Map date:** 1962-1965

**Scale:** 1:2,500

**Printed at:** 1:2,500



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Revised N/A  
Edition N/A  
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Revised 1962  
Edition N/A  
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Revised N/A  
Edition 1965  
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Surveyed 1963  
Revised 1963  
Edition 1964  
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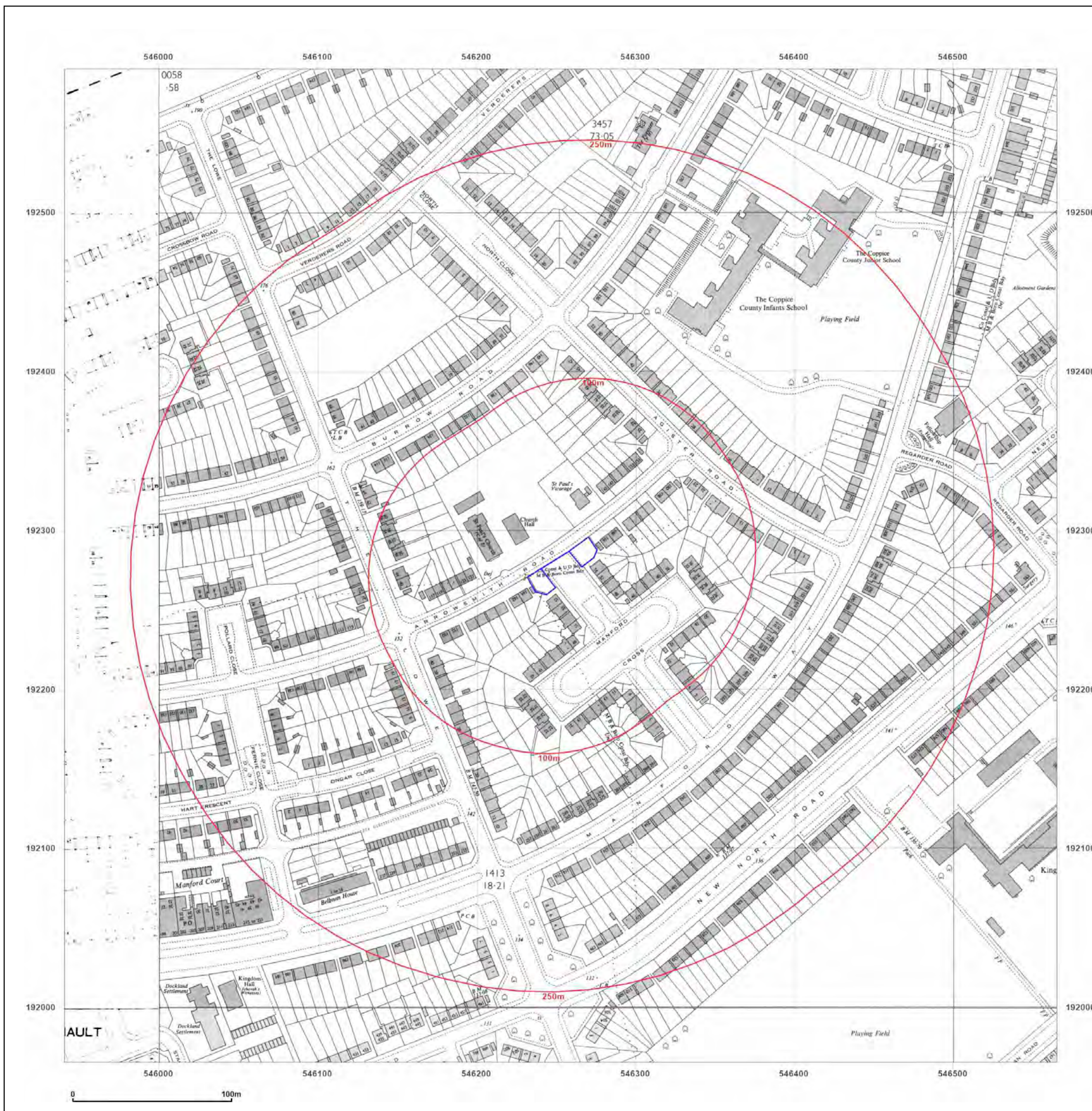


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#### Site Details:

LAND ADJACENT TO 164-166,  
ARROWSMITH ROAD,  
CHIGWELL, REDBRIDGE, IG7  
4NZ

**Client Ref:** R3862  
**Report Ref:** GS-K28-ANW-ZO5-PF1  
**Grid Ref:** 546253, 192278

**Map Name:** National Grid

**Map date:** 1964-1965

**Scale:** 1:2,500

**Printed at:** 1:2,500



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Edition 1965  
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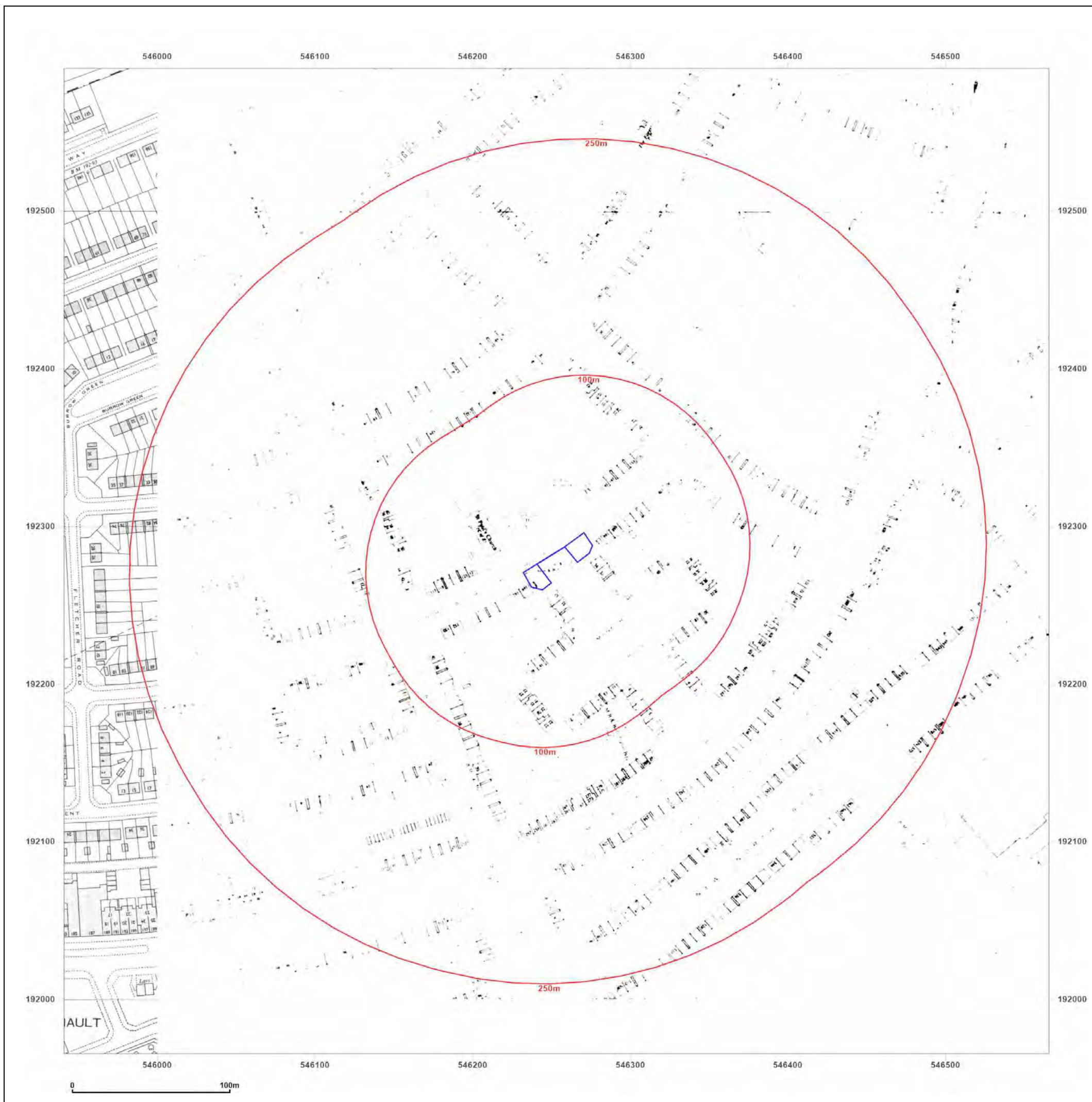


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#### Site Details:

LAND ADJACENT TO 164-166,  
ARROWSMITH ROAD,  
CHIGWELL, REDBRIDGE, IG7  
4NZ

**Client Ref:** R3862  
**Report Ref:** GS-K28-ANW-ZO5-PF1  
**Grid Ref:** 546253, 192278

**Map Name:** National Grid

**Map date:** 1977-1981

**Scale:** 1:1,250

**Printed at:** 1:2,000



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**Site Details:**

LAND ADJACENT TO 164-166,  
ARROWSMITH ROAD,  
CHIGWELL, REDBRIDGE, IG7  
4NZ

**Client Ref:** R3862  
**Report Ref:** GS-K28-ANW-ZO5-PF1  
**Grid Ref:** 546253, 192278

**Map Name:** National Grid

**Map date:** 1983-1985

**Scale:** 1:1,250

**Printed at:** 1:2,000



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**Site Details:**

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ARROWSMITH ROAD,  
CHIGWELL, REDBRIDGE, IG7  
4NZ

**Client Ref:** R3862  
**Report Ref:** GS-K28-ANW-ZO5-PF1  
**Grid Ref:** 546253, 192278

**Map Name:** National Grid

**Map date:** 1991-1992

**Scale:** 1:1,250

**Printed at:** 1:2,000



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#### Site Details:

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4NZ

**Client Ref:** R3862  
**Report Ref:** GS-K28-ANW-ZO5-PF1  
**Grid Ref:** 546253, 192278

**Map Name:** LandLine

**Map date:** 2003

**Scale:** 1:1,250

**Printed at:** 1:1,250



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## **APPENDIX 2 REPORT LIMITATIONS**



## REPORT LIMITATIONS

This contract was completed by Earth Environmental & Geotechnical Ltd on the basis of a defined programme and scope of works and terms and conditions agreed with the client. This report was compiled with all reasonable skill, and care, bearing in mind the project objectives, the agreed scope of works, the prevailing site conditions, the budget and staff resources allocated to the project.

Other than that expressly contained in the above paragraph, Earth Environmental & Geotechnical Ltd provides no other representation or warranty whether express or implied, is made in relation to the services. Unless otherwise agreed this report has been prepared exclusively for the use and reliance of the client in accordance with generally accepted consulting practices and for the intended purposes as stated in the agreement under which this work was completed. This report may not be relied upon, or transferred to, by any other party without the written agreement of a Director of Earth Environmental & Geotechnical Ltd.

If a third party relies on this report, it does so wholly at its own and sole risk and Earth Environmental & Geotechnical Ltd disclaims any liability to such parties.

It is Earth Environmental & Geotechnical Ltd understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was an important factor in determining the scope and level of the services. Should the purpose for which the report is used, or the proposed use of the site change, this report will no longer be valid and any further use of, or reliance upon the report in those circumstances by the client without Earth Environmental & Geotechnical Ltd review and advice shall be at the client's sole and own risk.

The report was written in 2024 and should be read in light of any subsequent changes in legislation, statutory requirements and industry best practices. Ground conditions can also change over time and further investigations or assessment should be made if there is any significant delay in acting on the findings of this report. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of Earth Environmental & Geotechnical Ltd. In the absence of such written advice of Earth Environmental & Geotechnical Ltd, reliance on the report in the future shall be at the client's own and sole risk. Should Earth Environmental & Geotechnical Ltd be requested to review the report in the future, Earth Environmental & Geotechnical Ltd shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between Earth Environmental & Geotechnical Ltd and the client.

The observations and conclusions described in this report are based solely upon the services that were provided pursuant to the agreement between the client and Earth Environmental & Geotechnical Ltd. Earth Environmental & Geotechnical Ltd has not performed any observations, investigations, studies or testing not specifically set out or mentioned within this report.

Earth Environmental & Geotechnical Ltd is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, Earth Environmental & Geotechnical Ltd did not seek to evaluate the presence on or off the site of electromagnetic fields, lead paint, radon gas or other radioactive materials.

The services are based upon Earth Environmental & Geotechnical Ltd observations of existing physical conditions at the site gained from a walkover survey of the site together with Earth

Environmental & Geotechnical Ltd interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The findings and recommendations contained in this report are based in part upon information provided by third parties, and whilst Earth Environmental & Geotechnical Ltd have no reason to doubt the accuracy and that it has been provided in full from those it was requested from, the items relied on have not been verified.

No responsibility can be accepted for errors within third party items presented in this report. Further Earth Environmental & Geotechnical Ltd was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the services. Earth Environmental & Geotechnical Ltd is not liable for any inaccurate information, misrepresentation of data or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to Earth Environmental & Geotechnical Ltd and including the doing of any independent investigation of the information provided to Earth Environmental & Geotechnical Ltd save as otherwise provided in the terms of the contract between the client and Earth Environmental & Geotechnical Ltd.

Where field investigations have been carried out these have been restricted to a level of detail required to achieve the stated objectives of the work. Ground conditions can also be variable and as investigation excavations only allow examination of the ground at discrete locations. The potential exists for ground conditions to be encountered which are different to those considered in this report. The extent of the limited area depends on the soil and groundwater conditions, together with the position of any current structures and underground facilities and natural and other activities on-site. In addition, chemical analysis was carried out for a limited number of parameters [as stipulated in the contract between the client and Earth Environmental & Geotechnical Ltd] based on an understanding of the available operational and historical information, and it should not be inferred that other chemical species are not present.

The groundwater conditions entered on the exploratory hole records are those observed at the time of investigation. The normal speed of investigation usually does not permit the recording of an equilibrium water level for any one water strike. Moreover, groundwater levels are subject to seasonal variation or changes in local drainage conditions and higher groundwater levels may occur at other times of the year than were recorded during this investigation.

Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan but is (are) used to present the general relative locations of features on, and surrounding, the site.