PHASE I GEO-ENVIRONMENTAL DESK STUDY REPORT

The Homestead, Hurst Knowle, Huddersfield

October 2020



hsp consulting

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The Homestead
Hurst Knowle
Huddersfield

Phase I Geo-Environmental Desk Study Report

This report was produced by HSP Consulting Engineers Ltd for Frank Shaw Associates Ltd on behalf of Kirklees Council as the Phase I Geo-Environmental Desk Study Report for The Homestead, Hurst Knowle, Huddersfield to provide a preliminary assessment of potential ground related development constraints and to support a planning application.

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Executive Summary

HSP Consulting Ltd has been commissioned by Frank Shaw Associates Ltd on behalf of Kirklees Council to provide a geo-environmental desk study (Phase I) providing information on likely constraints to the redevelopment of the site. The purpose of the report is to collate background historical and geo-environmental data to address where possible land contamination within Planning Policy Guidance and geo-environmental constraints for replacement of the existing buildings. No change of use is proposed for the site.

The site is broadly rectangular in shape and is approximately 0.63Ha in area. The topography of the site shows levels fall from the west to the east varying from 115.42m AOD to 111.94m AOD a fall of approximately 3.5m. Some reprofiling of the site has taken place to provide a level platform for the existing building.

The site was undeveloped, being shown as fields with a possible stream (southern section) on historical mapping until 1957 where the site became a vacant parcel of land with the (possible) stream no longer shown. By this time residential development had taken place within the immediate surrounding area to the north, south and west. Sometime between 1961 and 1968 the site was developed where it was occupied by The Homestead. The current layout has not changed since this time with a building occupying the central section of site with communal gardens surrounding to the north and south. Some reprofiling of the ground in the north western corner of the site was shown on the 1968 historical map.

The BGS mapping does not indicate any Made Ground/Artificial Ground on site. However, the site appears to have been reprofiled and therefore some Made Ground may be encountered.

No superficial deposits are expected on site. The site is underlain by bedrock geology of mudstone, siltstone and sandstone of the Pennine Lower Coal Measures Group comprising the Greenmoor Rock in the west and the Pennine Lower Coal Measures Formation in the east.

The site is located within a coal mining area but it is unlikely any coal mining related features will impact upon the stability of the site area. No further information is required.

The Pennine Lower Coal Measures Group are designated as a Secondary A Aquifer with soils classified as high vulnerability. The site is not located within 500m of a Source Protection Zone and there are no groundwater abstraction licences within 500m of the site boundary.

The site is at low to high risk of surface water flooding in the southern section only. There is negligible risk to the site from groundwater flooding.

No Historical or Active Landfill Sites or Licensed Waste Management Facilities have been recorded within a 1000m radius of the site.

The Preliminary Conceptual Site Model indicates a low possibility that harm could arise to a designated receptor from identified hazards.

The executive summary contains an overview of key findings and conclusions. However, no reliance should be placed on the executive summary until the whole of the report has been read. Other sections of the report may contain information which puts into context the findings noted within the executive summary.

1. Introduction

1.1 Background

Kirklees Council propose to replace the existing building on site to provide a 25 place facility for Dementia day care. There will be no change of use to the site.

1.2 Scope and Limitations

HSP Consulting has been commissioned by Frank Shaw Associates Ltd to provide technical studies to support an outline planning application. The geo-environmental desk study (Phase I) is one of a series of studies providing information on likely constraints to the development of the site. The purpose of the report is to collate background historical and geo-environmental data to address where possible land contamination and stability matters within Planning Policy Guidance and to aid a feasibility study on the site and support a planning application.

The recommendations made in this report are based on the assessment of the published information and information provided by the Client.

1.3 Report Objectives

The objectives of this report are to:

- Establish the geological and hydrogeological conditions using existing available/published information.
- Summarise available information and identify site specific geotechnical and environmental hazards which may place a constraint upon the proposed site use.
- Produce a Conceptual Site Model and preliminary qualitative environmental risk assessment identifying potential pollution linkages between sources of contamination, pathways and receptors.
- Provide recommendations for Phase II Ground Investigation and any other assessments required.

1.4 Sources of Information

The following sources of information were used during the preparation of this report.

- Emapsite^{TM} Groundsure Enviro and Geo Insight Ref: EMS 629186_837340
- Emapsite^{TM} Groundsure Historical Mapping Ref: EMS 629186_837339 Various Scales
- British Geological Survey. Onshore Geoindex. www.bgs.ac.uk
- DEFRA Magic Map: http://defra.gov.uk/magicmap.aspx
- Department of the Environment Industry Profiles.

A walkover was undertaken by HSP Consulting on the 2nd September 2020. The purpose of the walkover was to record the current land use, topography and principal physical features and to identify, where possible, visual and olfactory indicators of contamination. Photographs can be found within Appendix VI.

2. Site Setting

2.1 The Site

2.1.1 Location

The site is located off Hurst Knowle ~~r~~Road, approximately 2km east of Huddersfield town centre. The approximate National Grid Reference for the centre of the site is (NGR) 417229, 415786. A Site Location Plan is included in Appendix I.

2.1.2 Description

The site is broadly rectangular in shape and is approximately 0.63Ha in area. Access is gained off Hurst Knowle Road to the east.

The site is currently used as a day care centre for Dementia care and comprises one large building 'The Homestead' (photo 1) located centrally surrounded by communal gardens and two small parking areas. The building occupies approximately a quarter of the site area and is a traditional 2 storey brick building with tiled roof (photo 2). The two small carparks are located adjacent to the north and south of the building. Both are accessed from Hurst Knowle Road via separate driveways. The driveways and carparks are laid to asphalt concrete which were noted to be in good condition (photo 4) with some patched areas noted on the driveway to the southern carpark (photo 3). Paving slabs are located around the perimeter of the building providing pathways and patio areas and plastic and metal waste bins are located to the north of the building.

The majority of the remaining site area is occupied by communal landscaping and comprises an extensive grassed area in the south of the site behind a row of mature trees (photo 6). A further raised grassed area is located in the northeast corner of the site which slopes down to the northern car park (photo 7). Several bushes and shrubs are located adjacent to the southern carpark (photo 5).

No sign of staining was noted around the site.

The northern and western site boundaries of the site are marked by a 0.3m barrier. The southern boundary is marked by a 1.3m high hedge or 0.5m fence/stone wall. A brick wall defines the eastern site boundary. A 3m hedge is noted along the northern and part of the western site boundary.

A topographical survey of the site shows levels fall from the west to the east varying from 115.42m AOD to 111.94m AOD a fall of approximately 3.5m. Some reprofiling of the site has taken place to provide a level platform for the existing building. A raised grass area is located in the northwest corner with levels around 116m AOD falling to 113.65m AOD within the carpark located at the bottom of the slope.

2.1.3 Surrounding Land Use

The main features of interest identified are:

North:	Residential housing and gardens
East:	Hurst Knowle Road with Fernside Park beyond
South:	Residential housing and gardens
West:	Residential housing and gardens

2.1.4 Proposed End Use

Kirklees Council propose to replace the existing building on site to provide a 25 place facility for Dementia day care. There will be no change of use to the site.

2.2 Geology

2.2.1 Made Ground

The BGS mapping does not indicate any Made Ground/Artificial Ground on site. However, the site appears to have been reprofiled and therefore some Made Ground may be encountered.

2.2.2 Superficial Deposits

The BGS mapping does not indicate any superficial deposits on the site. The nearest superficial deposits are associated with Alluvium deposits located 750m to the east of the site.

2.2.3 Bedrock Geology

BGS bedrock mapping indicates the site is underlain by mudstones, siltstone and sandstone of the Pennine Lower Coal Measures Group of the Westphalian age. The eastern half of the site is shown to be underlain by the Pennine Lower Coal Measures Formation described by the BGS as '*interbedded grey mudstone, siltstone and pale grey sandstone, commonly with mudstones containing marine fossils in the lower part and more numerous and thicker coal seams in the upper part'*, and the western half of the site is shown to be underlain by the Greenmoor Rock described as *'fine-grained thinly bedded, ripple cross laminated sandstone.'*

2.2.4 Structural Geology

No faults have been identified on the site, but two faults are shown within a 250m radius of the site boundary. The closest is located 13m southwest and is an inferred fault within the underlying bedrock.

2.2.5 Historical Boreholes

There are no BGS borehole records within 250m of the site. The closest borehole record is 580m to the southwest located within the bedrock geology of the Greenmoor Rock. Below is a summary of the ground conditions recorded:

Table 2.1 - Summary of Historical BGS Borehole Information

BGS Reference		Summary of Ground Conditions
SE11NE393 580m SouthWest of site boundary	Drilled by: J.T.Hymas Ltd Date: 1996 Method: Cable Percussion	Made Ground to 0.8m bgl Firm grey brown mottled silty CLAY to 2.0m bgl. Very compact grey brown weathered SANDSTONE proved to 3.2m bgl.

2.2.6 Geological Hazard Ratings

The Envirocheck® Report provides ground stability data for the site and surrounding area, a summary is provided in Table 2.2 below:

Table 2.2 - Summary of BGS Hazard Ratings

Hazard	Located	Direction	Hazard Potential
Potential for Collapsible Rocks Stability Hazards	On-site	-	Very Low
Potential for Landslide Ground Stability Hazards	On-site	-	Very Low
Potential for Ground Dissolution Stability Hazards	On-site	-	Negligible
Potential for Compressible Ground Stability Hazards	On-Site	-	Negligible
Potential for Running Sand Ground Stability Hazards	On-site	-	Negligible
Potential for Shrinking or Swelling Clay Ground Stability Hazards	On-site	-	Very Low

2.3 Mining

2.3.1 BGS Mineral Sites

No records of mineral extraction have been identified within a 250m radius of the site.

2.3.2 Brine Extraction

No Brine Extraction Areas have been identified within a 250m radius of the site.

2.3.3 Non Coal Mining

The site is located in an area unaffected by underground non coal mining.

2.3.4 Coal Mining

The site is located within a coal mining area as defined by the Coal Authority. A Consultants Coal Mining Report (ref 51002298164001 dated 3rd September 2020) has been obtained. The main findings are detailed below:

The property is not within a surface area that could be affected by past, present or future underground coal mining. Reserves of coal exist in the local area which could be worked at some time in the future.

The land is not known to be at risk from subsidence.

The property does not lie within the boundary of any past opencast sites and does not lie within 200m of any present opencast sites. No future licence for opencast mining has been granted.

On the basis of the report it is unlikely any coal mining related features will impact on the stability of the site area. No further information is required.

2.4 Hydrogeology

2.4.1 Aquifer Units

The bedrock deposits of the Pennine Lower Coal Measures Group are classified as a Secondary A Aquifer, described by the Environment Agency as '*permeability 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.

2.4.2 Groundwater Vulnerability

The site is not located within 500m of a Source Protection Zone.

The soil underlying the site are classified as high vulnerability due to well connected fractures within the underlying bedrock.

2.4.3 Groundwater Abstractions

No groundwater abstraction licences are located within 500m of the site. The closest active abstraction point is located 809m to the northeast and relates to general use at a fitness health club.

2.5 Hydrology

2.5.1 Nearest Surface Water Course

An inland stream is shown 235m to the south and appears to have been culverted within the residential housing estate located to the south of the site. The stream is not shown on the historical maps.

Fenay Beck is located approximately 750m to the east.

2.5.2 Surface Water Quality

River Quality Records have been provided for Fenay Beck and show an overall rating of Moderate in 2016.

2.5.3 Surface Water Abstractions

No licensed surface water abstraction points are recorded within a 1000m radius of the site.

2.5.4 Surface Water Discharge Consents

There are no surface water discharge consents within 1000m of the site.

2.6 Flood Risk

There is negligible risk to the site from groundwater flooding which is caused by unusually high groundwater levels. A low to high risk of surface water flooding (worst case 1 in a 30 year rainfall events and a maximum modelled depth of 0.1m and 0.3m) is shown located in the southern section of the site only.

The site does not lie within 50m of an Environment Agency Zone 2 or Zone 3 floodplain.

The site does not lie within an area benefitting from flood defences or within an area used for flood storage.

There are no historic flood events recorded within 250m of the site.

Although the report provides some information on flood risk this does not constitute a flood risk assessment for the site. The flood risk information provided only relates to flooding from Rivers or Seas and surface water. It does not account for flooding from other sources such as blockages in drainage systems and artificial water features. A separate Flood Risk Assessment is likely to be required for the site.

2.7 Radon

The site is located within an area which has a lower probability less than 1% of properties above the action level. No radon protection measures are considered necessary for any new dwellings on the site.

2.8 Sensitive Land Uses, Ecological and Statutory Designations

The site is in a SSSI impact risk zone where consultation is required for certain types of development. For the proposed redevelopment this is unlikely to be needed. No other records of sensitive land use (SAC, SPA, Nature Reserves, Environmentally Sensitive Areas, Nitrate Sensitive Areas etc) have been identified within a 250m radius of the site.

3. Site History

The following section details the historical development of the site, with reference to historical Ordnance Survey maps. All distances are approximate and given from the site boundary. Descriptions in italics are as identified on the historical plans. For a complete list of maps consulted refer to the Emapsite™ Historical Mapping presented in Appendix IV.

Table 3.1 - Summary of Historical Maps

Published Map Date & Scale	Land Use on Site	Surrounding Land Use
Date : 1855 -1918 Scale: 1:2,500 1:10,560 County Series	The site is occupied by fields with a possible stream crossing the southern section of the site A footpath crosses the centre of the site from northwest to southeast.	Immediate surrounding area is occupied by tree lined fields. Several residential houses are located along *Oaks Lane* approximately 300m to the east. *Fenay Beck* approximately 750m to the east with a flow direction from south to north.
Date : 1931 - 1932 Scale: 1:2,500 1:10,560 County Series	No significant change.	Wooded area located along the stream 50m south east of the site. Residential development 150m southwest. Nurseries are located approximately 250m to the south.
Date : 1938 - 1956 Scale: 1:10,560 County Series	No significant change.	By 1956, approximately 25m to the north of the site a series of roads have been constructed for residential development.
Date : 1957 - 1961 Scale: 1:1,250 1:2,500 National Grid	By 1957 the site is a vacant parcel of land. The (possible) stream is no longer shown in the southern section of the site or within the immediate surrounding area.	In the area immediately surrounding the site residential development has taken place to the north, south and west. Hurst Knowle road has been constructed adjacent to the eastern site boundary. *Almondbury County Junior School* is located approximately 50m to the south.
Date : 1968 Scale: 1:1,250 1:10,560 National Grid	Site now occupied by '*The Homestead (Home for Aged)*' with large building and associated gardens. Some reprofiling of the ground has taken place in the north western corner of the site adjacent to the building. Trees are shown along the site boundary.	*Fernside Park* located to the east of Hurst Knowle road. '*The Lion*' public house located approximately 50m to the northeast. Significant residential development in the surrounding area to the north, east, south and west.
Date : 1977 Scale: 1:10,000 National Grid	No significant change.	School and playing fields shown 200m to the west.
Date : 1990 - 2020 Scale: 1:1,250 1:10,000 National Grid Aerial Photo	No significant change.	No significant change

4. Environmental Data

4.1 Polluting Activity

4.1.1 Pollution Incidents to Controlled Water

No recorded Pollution Incidents to Controlled Waters have been recorded within 1000m radius of the site.

4.1.2 Pollution Incidents to Land

No recorded Pollution Incidents to Land have been recorded within a 1000m radius of the site.

4.2 Licensed Industrial Activity

4.2.1 Licensed Sites

There are no Local Authority Pollution Prevention and Controls or Integrated Pollution Prevention and Controls within a 1000m radius of the site.

There are no Registered Radioactive Substance Licences recorded within 1000m of the site.

4.2.2 Current Industrial Activities

There are no current industrial activities recorded within a 250m radius of the site. Three recent industrial land uses have been recorded, the closest located 128m southwest of the site for agricultural use.

4.2.3 Fuel Stations & Tanks

There are no fuel stations within 1000m of the site.

There are no records of high pressure underground pipelines (oil and gas) within 1000m of the site.

4.3 Waste and Material Storage Locations

4.3.1 Landfill

No records of Historical or Active Landfill Sites or Licensed Waste Management Facilities are recorded within a 1000m radius of the site.

4.3.2 Waste Transfer Stations

There are no registered waste transfer sites located within a 250m radius of the site.

There are no other operational or non-operational Registered Waste Treatment, Transfer or Disposal sites identified within a 250m radius of the site.

4.3.3 Waste Exemptions

There are five waste exemptions within 500m of the site all located 199m – 201m to the east. The type of waste permitted is for treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising, use of mulch or storage of waste in secure containers.

4.4 Summary

Based on the information collated for the desk study, the geo-environmental setting of the site is summarised as follows:

- The site was undeveloped, being shown as fields with a possible stream (southern section) on historical mapping until 1957 where the site became a vacant parcel of land with the (possible) stream no longer shown. By this time residential development had taken place within the immediate surrounding area to the north, south and west. Sometime between 1961 and 1968 the site was developed where it was occupied by The Homestead. The current layout has not changed since this time with a building occupying the central section of site with communal gardens surrounding to the north and south. Some reprofiling of the ground in the north western corner of the site was shown on the 1968 historical map.
- Historically the surrounding land use has been residential.
- Made Ground is not indicated within the site boundary on the published geological mapping. However, given the site is occupied by a building some Made Ground is likely to be encountered.
- It is unlikely any coal mining related features will impact the stability of the site.
- No superficial deposits are expected on site. The site is underlain by bedrock geology of mudstone, siltstone and sandstone of the Pennine Lower Coal Measures Group comprising the Greenmoor Rock in the west and the Pennine Lower Coal Measures Formation in the east.
- The Pennine Lower Coal Measures Group bedrock geology is designated as a Secondary A Aquifer with soils classified as high vulnerability. The site is not located within a Source Protection Zone and there are no groundwater abstraction licences within 500m of the site.
- The site is at low to high risk of surface water flooding in the southern section only. There is negligible risk to the site from groundwater flooding.
- No Historical or Active Landfill Sites or Licensed Waste Management Facilities have been recorded within a 1000m radius of the site.

Based on the above, the environmental sensitivity of the site can be considered to be Low at this stage.

5. Preliminary Conceptual Site Model (PCSM)

5.1 Introduction

The UK approach to risk assessment for both 'Contaminated Land' as defined by Part 2A of the Environmental Protection Act 1990 (EPA 1990) and for 'land affected by contamination' as defined in National Planning Policy Framework Planning Practice Guidance follows a risk-based tiered framework published by Defra and the Environment Agency in their guidance document *'CLR11 Model Procedures for the Management of Land Contamination'*.

The basis of CLR11 is the development of the conceptual site model (CSM) which is the representation of the source-pathway-receptor (pollutant) linkages upon which the assessment of risk can be based.

5.2 Risk Assessment Approach

The approach to the human health risk assessment reported here follows the principals given in CLR 11, i.e. application of the following assessment hierarchy:

- Tier 1 risk screening by establishment of potential pollutant linkages, i.e. the preliminary conceptual site model (PCSM), or
- Tier 2 generic quantitative assessment using generic assessment criteria (GACs) that represent 'acceptably low' risk, or
- Tier 3 quantitative risk assessment using site specific assessment criteria (SSACs) that represent 'unacceptable risk', or where generic assessment criteria are not available, or they are not applicable to the CSM.

The potential sources of contamination based on historical and current land uses were identified using the Envirocheck® Datasheet and Envirocheck® Site Sensitivity Report and Envirocheck® Historical Mapping (Appendix II, III & IV) and Department of the Environment Industry Profiles. The standard exposure scenario of commercial uptake has been used to identify potential exposure pathways for human health receptors. Controlled water, flora and fauna and property receptors have also been included within the PCSM. It is noted that there is no change to the current end use of the site.

5.3 Preliminary Conceptual Site Model

The PCSM was produced by undertaking a Source-Pathway-Receptor analysis of the site:

Sources (**S**) are potential or known contaminant sources, e.g. a former land use:
Pathways (**P**) are environmental systems through which a contaminant could migrate, e.g. air, groundwater;
Receptors (**R**) are sensitive environmental receptors that could be adversely affected by a contaminant, e.g. Site Occupiers, groundwater resources.

5.3.1 For a pollutant linkage to exist between a contaminant source and a receptor, a pathway must be present.

5.3.2 Sources

The potential sources of contamination within 250m of the site and associated groups of potentially contaminative substances are outlined below. The list of potential contaminants was derived from the Department of the Environment Industry Profiles. The activities and substances listed below should not be considered exhaustive and provides a guide to the likely range of contaminants which may be present.

On Site

S1: Historical and Contemporary land use: Made Ground associated with development and reprofiling of the site for the care unit
Inorganic and organic contaminants including heavy metals, metalloids, asbestos

Off Site

S2: Historical & Contemporary Land Use: Nurseries
Inorganic and organic contaminants including pesticides/herbicides.

5.3.3 Pathways

The site is underlain by a Secondary A Aquifer.

P1: Human uptake;
- Dermal contact with soils and dust
- Ingestion of soils and dust
- Inhalation of soils, dust and vapour

P2: Horizontal and vertical migration of contaminants through potentially permeable soils and rocks

P3: Migration along preferential pathways via underground services and drainage runs (pipes, culverts and granular material)

P4: Overland flow / surface runoff

P5: Vertical and lateral migration of ground gases and/or vapour

P6: Root uptake

5.3.4 Receptors

R1: End Users: Staff and patients

R2: Construction and maintenance workers

R3: Controlled Water, Secondary A Aquifer.

R4: Controlled Water, Surface Water.

R5: Property: Services (e.g. drinking water supply pipes) and structures/buildings (concrete used in foundations)

R6: Adjacent residential properties, Public house

R7: Proposed flora and fauna

5.3.5 Preliminary Qualitative Risk Assessment

For each potential pollutant linkage identified within the PCSM, the potential risk has been assessed on the probability of a pollution event and the severity it may have on the identified receptors. The results are presented in Table 5.1 below. The methodology for the assessment is presented in Appendix V.

Table 5.1 Preliminary Conceptual Site Model and Qualitative Risk Assessment

Source	Pathway	Receptor	Consequence	Probability	Risk	Comments
On site **S1:** Historical and Contemporary land use: Made Ground associated with development and reprofiling of the site for the care unit	**P1:** Human uptake pathways	**R1:** End Users **R2:** Construction and maintenance workers	Mild	Low Likelihood	Low	There is the potential for Made Ground associated with development of the site. It is possible that end users / construction workers will come into contact with the soils across the site. This will be quantified during a ground investigation. Given the limited potential for contamination, the risk is considered to be LOW
	P2: Horizontal and vertical migration of contaminants through potentially permeable soils and rocks. **P3:** Migration of contaminants along preferential pathways (man- made). **P4:** Surface runoff.	**R3:** Controlled Water: Groundwater **R4:** Controlled Water: Surface Water	Mild	Low Likelihood	Low	The bedrock geology is classified as Secondary A Aquifer. No surface water features on site or in the immediate surrounding area. Surface water flooding possible in the south of site. There is a potential risk of contamination as a result of vertical and lateral migration from any potential sources identified on site. Until the risk has been investigated further, the risk is considered to be LOW.
	P2: Horizontal and vertical migration of contaminants through potentially permeable soils and rocks. **P3:** Migration of contaminants along preferential pathways (man- made). **P4:** Surface runoff.	**R1:** End Users **R2:** Construction and maintenance workers	Minor	Unlikely	Very Low	Due to the distance of potential off-site sources, the risk is considered to be VERY LOW.
Off site **S2:** Historical and Contemporary land use: Nurseries	**P5:** Vertical and lateral migration of ground gases and/or vapour.	**R1:** End Users	Mild	Low	Low	Potential sources of ground gas generation have been identified associated with possible Made Ground and the underlying bedrock. Uncertainty exists until further investigation is undertaken. At this stage the risk is considered to be LOW.
	P2: Horizontal and vertical migration of contaminants through potentially permeable soils and rocks. **P3:** Migration of contaminants along preferential pathways (man- made). **P4:** Surface runoff. **P5:** Vertical and lateral migration of ground gases and/or vapour.	**R5:** Property, services and substructures **R6:** Adjacent Residential/Commercial Properties	Mild	Low	Low	Shallow Made Ground and natural deposits may be aggressive to concrete and underground utilities. Until the potential has been investigated further, the risk is considered to be LOW.
	P6: Root uptake.	**R6:** Proposed Flora and fauna	Mild	Low	Low	Minimal landscaping exists on site. Development plans do not show any additional landscaped areas. The risk at this stage of uptake to proposed flora and fauna is LOW.

6. Preliminary Engineering Constraints and Recommendations

The proposals for the site are to replace the existing building to provide a 25 place facility for Dementia care. There will be no change of use.

6.1 Geotechnical Constraints

Some reprofiling of the ground in the north western corner of the site was shown on the 1968 historical map. It is anticipated that some Made Ground may be encountered across the site. Any Made Ground would have an unknown composition and strength. It is unknown if the existing stream was diverted or culverted under the site.

The site is underlain by bedrock geology of mudstone, siltstone and sandstone of the Pennine Lower Coal Measures Group comprising the Greenmoor Rock in the west and the Pennine Lower Coal Measures Formation in the east. No superficial deposits are expected to be encountered upon the site.

The groundwater regime on site is unknown and should be assessed further. The flood risk is defined as high to low from surface water and should be assessed further.

The soils and groundwater on site may be aggressive to buried/surface concrete and proposed utilities and should be assessed further.

6.2 Environmental Constraints

Any Made Ground on site may contain elevated concentrations of potentially harmful contaminants which may present a risk to the receptors identified in the PCSM including end users, adjacent residential properties or construction workers.

Potential sources of ground gas have been identified in the form of potential Made Ground associated with historical site use and the underlying bedrock. Given the nature of the site, ground gas monitoring is likely to be required in accordance with BS8485:2015 and CIRIA C665.

The Preliminary Conceptual Site Model indicates a low possibility that harm could arise to a designated receptor from identified hazards.

6.3 Recommendations

HSP would recommend that an intrusive geo-environmental investigation be undertaken across the site to confirm the recommendations outlined above.

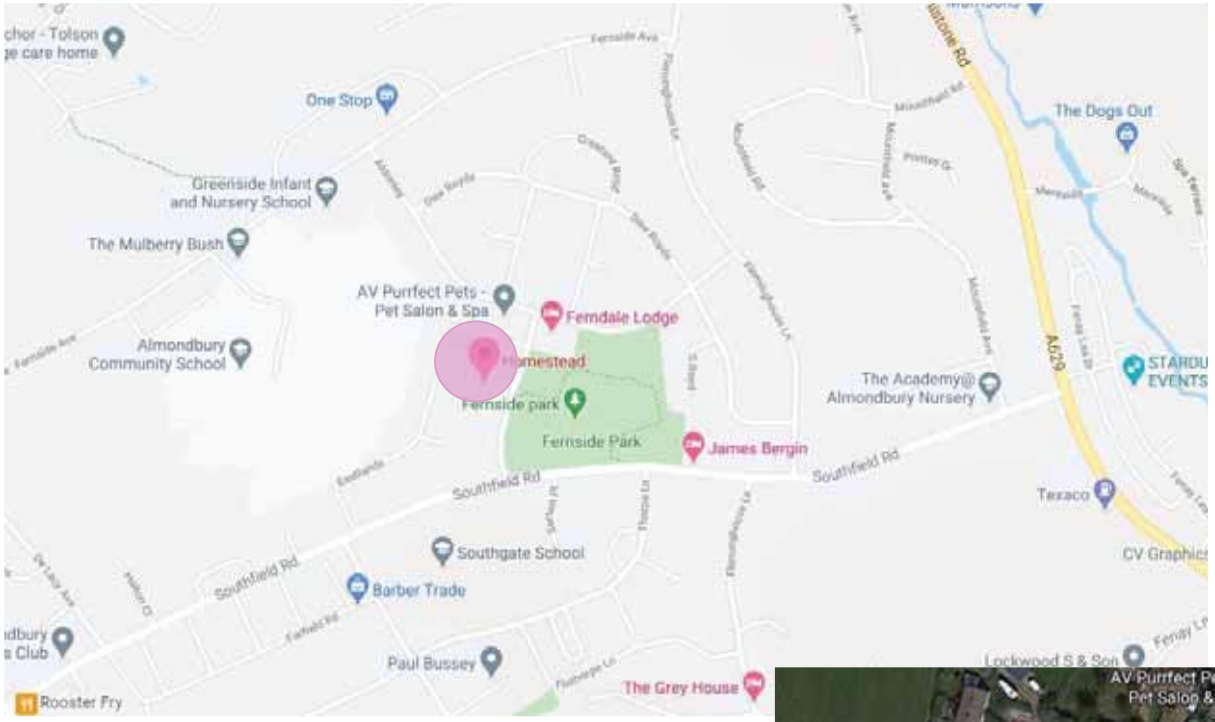
The objectives of the investigation should be as follows:

- To establish the ground conditions laterally and vertically across the site, including the presence, distribution and composition of any Made Ground.
- To obtain soil samples for contamination analysis, in order to refine the PCSM and undertake generic quantitative risk assessment.
- To obtain data on the ground gas and groundwater regime.
- To obtain geotechnical design parameters for the proposed rebuild of the existing building including in-situ and laboratory testing.
- To assess if the soils and groundwater on site are likely to be aggressive to buried/surface concrete and proposed utilities.

Recommended Ground Investigation Scope:

- 8No Windowless Samper Boreholes to 5m with in-situ testing and sample recovery.
- 5No. Standard CLEA chemical analysis suites (to include total metals/semi metals, inorganics, PAH speciated & TPH CWG) plus limited Asbestos Screen & ID.
- 3No dual purpose gas and groundwater monitoring wells
- 6No monitoring events (biweekly for 3 months) for ground gases and groundwater levels.
- Geotechnical Testing to include Plasticity Index & moisture content, BRE Sulphates (soils and groundwater, if present).

Appendix I





DO NOT SCALE

NOTES:

- Approximate Site Location

hsp consulting

Lawrence House, Meadowbank Way, Eastwood, Nottingham, NG16 3SB
Tel: 01773 535 555 Fax: 0870 600 6091
www.hspconsulting.com

CLIENT:
Frank Shaw Associates Ltd

PROJECT:
The Homestead Hurst Knowle Road, Huddersfield

TITLE:
Site Location Plan

SCALE@SIZE :	ISSUE:
NTS	FINAL
DESIGN/DRAWN: KM	DATE: Sep 2020
PROJECT No: C3257	DRAWING No: 001

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Appendix II

WS05

WS06

WS07

M1
115.191

M2
112.445

Ridge
123.85

Eaves
120.65

Ridge
123.95

Eaves
120.70

Flat Roof
118.36

Grass

CPS

IC
115.33

IC
115.35

IC
113.56

IC
113.45

IC
113.25

IC
113.59

IC
115.28

Steps

Step

CPS Ramp

H'rail

IR Fence ht 1.2m

Hedge ht. 3.0m

Barrier ht. 0.3m

Panel Fence ht. 2.0m

Hedge ht. 1.5m

Brick Wall

Tarmac

Overhead Cable

Building Overhang

Canopy

Wooden Sleeper Wall

Concrete

Bushes

Bushes/Vegetation

Planting

Memorial Sign

Grit-Salt

Sign

Stump

Bench

Post

Pipe

Wp

Gas

ICU

IB

CTV

BT

Lp

Gy

THL

TTL
118.68

TTL
118.80

TTL
119.57

TTL
116.05

TTL
122.70

TTL
128.02

TTL
116.68

TTL
125.60

Twl
114.12

Twl
113.43

Appendix III

Groundsure LOCATION INTELLIGENCE

Enviro+Geo Insight

Homestead, Hurst Knowle, Huddersfield,

Order Details

Date: 21/08/2020

Your ref: EMS_629186_837340

Our Ref: EMS-629186_837340

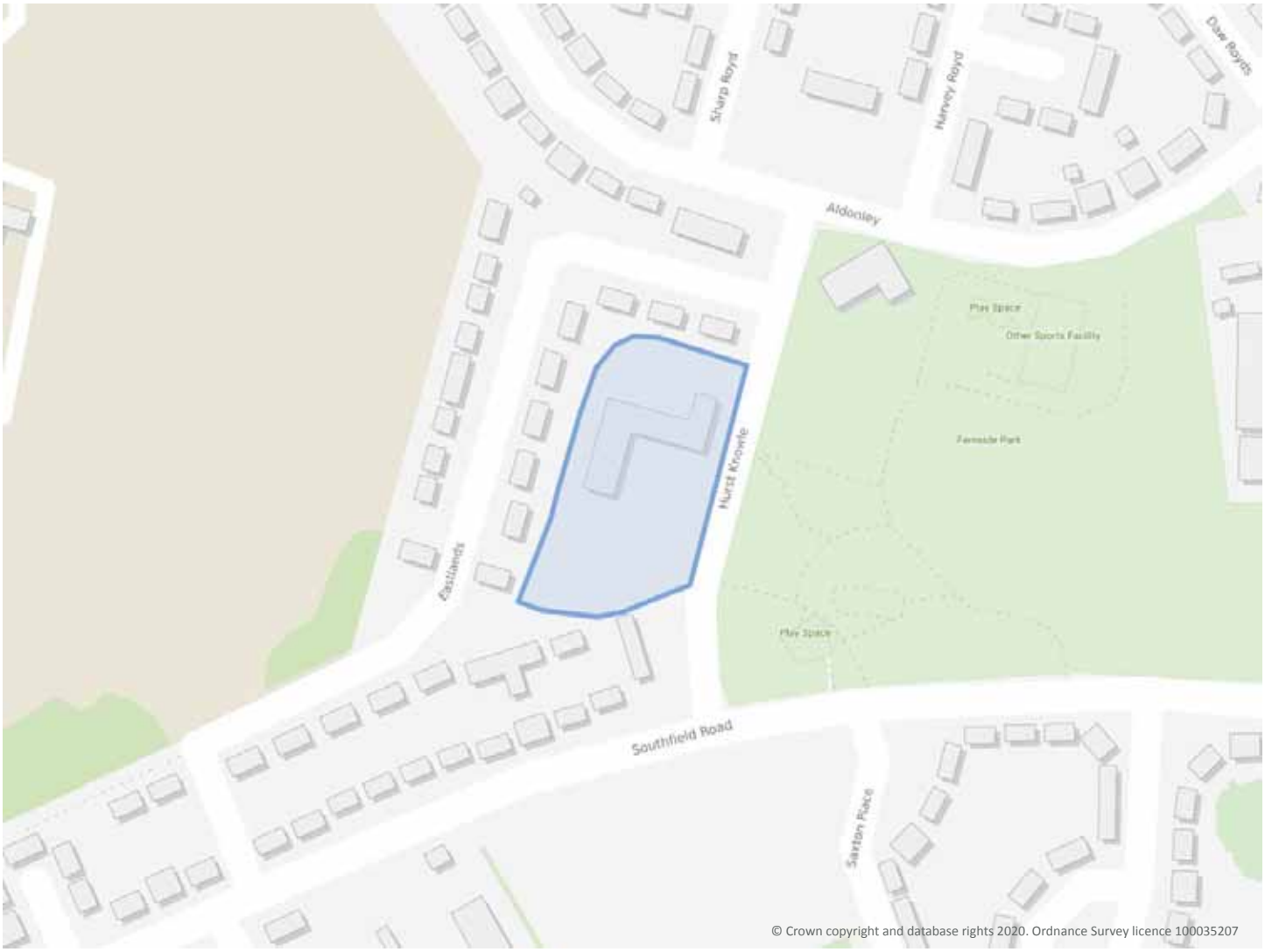
Client: emapsite

Site Details

Location: 417229 415786

Area: 0.63 ha

Authority: Kirklees Council



Summary of findings p. 2

OS MasterMap site plan p.12

Aerial image p. 8

groundsure.com/insightuserguide

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

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
13	1.1	Historical industrial land uses	0	0	0	8	-
14	1.2	Historical tanks	0	0	1	4	-
14	1.3	Historical energy features	0	0	1	10	-
15	1.4	Historical petrol stations	0	0	0	0	-
15	1.5	Historical garages	0	0	0	0	-
16	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
17	2.1	Historical industrial land uses	0	0	0	10	-
18	2.2	Historical tanks	0	0	1	5	-
18	2.3	Historical energy features	0	0	2	29	-
20	2.4	Historical petrol stations	0	0	0	0	-
20	2.5	Historical garages	0	0	0	0	-
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	-
22	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
22	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
22	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	5	0	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
24	4.1	Recent industrial land uses	0	0	3	-	-
25	4.2	Current or recent petrol stations	0	0	0	0	-
25	4.3	Electricity cables	0	0	0	0	-
25	4.4	Gas pipelines	0	0	0	0	-
25	4.5	Sites determined as Contaminated Land	0	0	0	0	-

25	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
26	4.7	Regulated explosive sites	0	0	0	0	-
26	4.8	Hazardous substance storage/usage	0	0	0	0	-
26	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
26	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
26	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
27	4.12	Radioactive Substance Authorisations	0	0	0	0	-
27	4.13	Licensed Discharges to controlled waters	0	0	0	0	-
27	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	-
28	4.17	List 2 Dangerous Substances	0	0	0	0	-
28	4.18	Pollution Incidents (EA/NRW)	0	0	0	0	-
28	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	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
29	5.1	Superficial aquifer	None (within 500m)				
30	**5.2**	**Bedrock aquifer**	Identified (within 500m)				
31	**5.3**	**Groundwater vulnerability**	Identified (within 50m)				
32	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
32	5.5	Groundwater vulnerability- local information	None (within 0m)				
33	**5.6**	**Groundwater abstractions**	0	0	0	0	8
36	**5.7**	**Surface water abstractions**	0	0	0	0	1
36	5.8	Potable abstractions	0	0	0	0	0
36	5.9	Source Protection Zones	0	0	0	0	-
36	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
38	**6.1**	**Water Network (OS MasterMap)**	0	0	1	-	-

39	6.2	Surface water features	0	0	1	-	-
39	6.3	WFD Surface water body catchments	1	-	-	-	-
39	6.4	WFD Surface water bodies	0	0	0	-	-
40	6.5	WFD Groundwater bodies	1	-	-	-	-

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 Sea (RoFRaS)	None (within 50m)				
41	7.2	Historical Flood Events	0	0	0	-	-
41	7.3	Flood Defences	0	0	0	-	-
41	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	Surface water flooding	
44	8.1	Surface water flooding	1 in 30 year, 0.1m - 0.3m (within 50m)

Page	Section	Groundwater flooding	
46	9.1	Groundwater flooding	Negligible (within 50m)

Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
47	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
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
49	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
49	10.7	Designated Ancient Woodland	0	0	0	0	10
50	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
50	10.11	Green Belt	0	0	0	1	0
51	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
52	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
53	**10.17**	**SSSI Impact Risk Zones**	1	-	-	-	-
54	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
55	11.1	World Heritage Sites	0	0	0	-	-
55	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
55	11.3	National Parks	0	0	0	-	-
55	11.4	Listed Buildings	0	0	0	-	-
56	11.5	Conservation Areas	0	0	0	-	-
56	11.6	Scheduled Ancient Monuments	0	0	0	-	-
56	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
57	**12.1**	**Agricultural Land Classification**	Urban (within 250m)				
58	12.2	Open Access Land	0	0	0	-	-
58	12.3	Tree Felling Licences	0	0	0	-	-
58	12.4	Environmental Stewardship Schemes	0	0	0	-	-
58	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
59	13.1	Priority Habitat Inventory	0	0	0	-	-
59	13.2	Habitat Networks	0	0	0	-	-
59	13.3	Open Mosaic Habitat	0	0	0	-	-
59	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
60	**14.1**	**10k Availability**	Identified (within 500m)				
61	**14.2**	**Artificial and made ground (10k)**	0	0	0	1	-
62	14.3	Superficial geology (10k)	0	0	0	0	-

62	14.4	Landslip (10k)	0	0	0	0	-
63	**14.5**	**Bedrock geology (10k)**	2	3	3	12	-
64	**14.6**	**Bedrock faults and other linear features (10k)**	0	1	1	2	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
66	**15.1**	**50k Availability**	Identified (within 500m)				
67	15.2	Artificial and made ground (50k)	0	0	0	0	-
67	15.3	Artificial ground permeability (50k)	0	0	-	-	-
68	15.4	Superficial geology (50k)	0	0	0	0	-
68	15.5	Superficial permeability (50k)	None (within 50m)				
68	15.6	Landslip (50k)	0	0	0	0	-
68	15.7	Landslip permeability (50k)	None (within 50m)				
69	**15.8**	**Bedrock geology (50k)**	2	3	3	12	-
70	**15.9**	**Bedrock permeability (50k)**	Identified (within 50m)				
71	**15.10**	**Bedrock faults and other linear features (50k)**	0	1	1	1	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
72	16.1	BGS Boreholes	0	0	0	-	-
Page	Section	Natural ground subsidence					
73	**17.1**	**Shrink swell clays**	Very low (within 50m)				
75	**17.2**	**Running sands**	Negligible (within 50m)				
76	**17.3**	**Compressible deposits**	Negligible (within 50m)				
77	**17.4**	**Collapsible deposits**	Very low (within 50m)				
78	**17.5**	**Landslides**	Very low (within 50m)				
79	**17.6**	**Ground dissolution of soluble rocks**	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
80	18.1	Natural cavities	0	0	0	0	-
81	18.2	BritPits	0	0	0	0	-
81	**18.3**	**Surface ground workings**	0	0	3	-	-
81	18.4	Underground workings	0	0	0	0	0
81	18.5	Historical Mineral Planning Areas	0	0	0	0	-

82	18.6	Non-coal mining	0	0	0	0	0
82	18.7	Mining cavities	0	0	0	0	0
82	18.8	JPB mining areas	None (within 0m)				
82	**18.9**	**Coal mining**	Identified (within 0m)				
83	18.10	Brine areas	None (within 0m)				
83	18.11	Gypsum areas	None (within 0m)				
83	18.12	Tin mining	None (within 0m)				
83	18.13	Clay mining	None (within 0m)				

Page	Section	Radon	
84	**19.1**	**Radon**	Less than 1% (within 0m)

Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
85	**20.1**	**BGS Estimated Background Soil Chemistry**	2	3	-	-	-
85	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
86	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-

Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
87	21.1	Underground railways (London)	0	0	0	-	-
87	21.2	Underground railways (Non-London)	0	0	0	-	-
87	21.3	Railway tunnels	0	0	0	-	-
87	21.4	Historical railway and tunnel features	0	0	0	-	-
87	21.5	Royal Mail tunnels	0	0	0	-	-
88	21.6	Historical railways	0	0	0	-	-
88	21.7	Railways	0	0	0	-	-
88	21.8	Crossrail 1	0	0	0	0	-
88	21.9	Crossrail 2	0	0	0	0	-
88	21.10	HS2	0	0	0	0	-

Recent aerial photograph



Capture Date: 01/07/2018

Site Area: 0.63ha

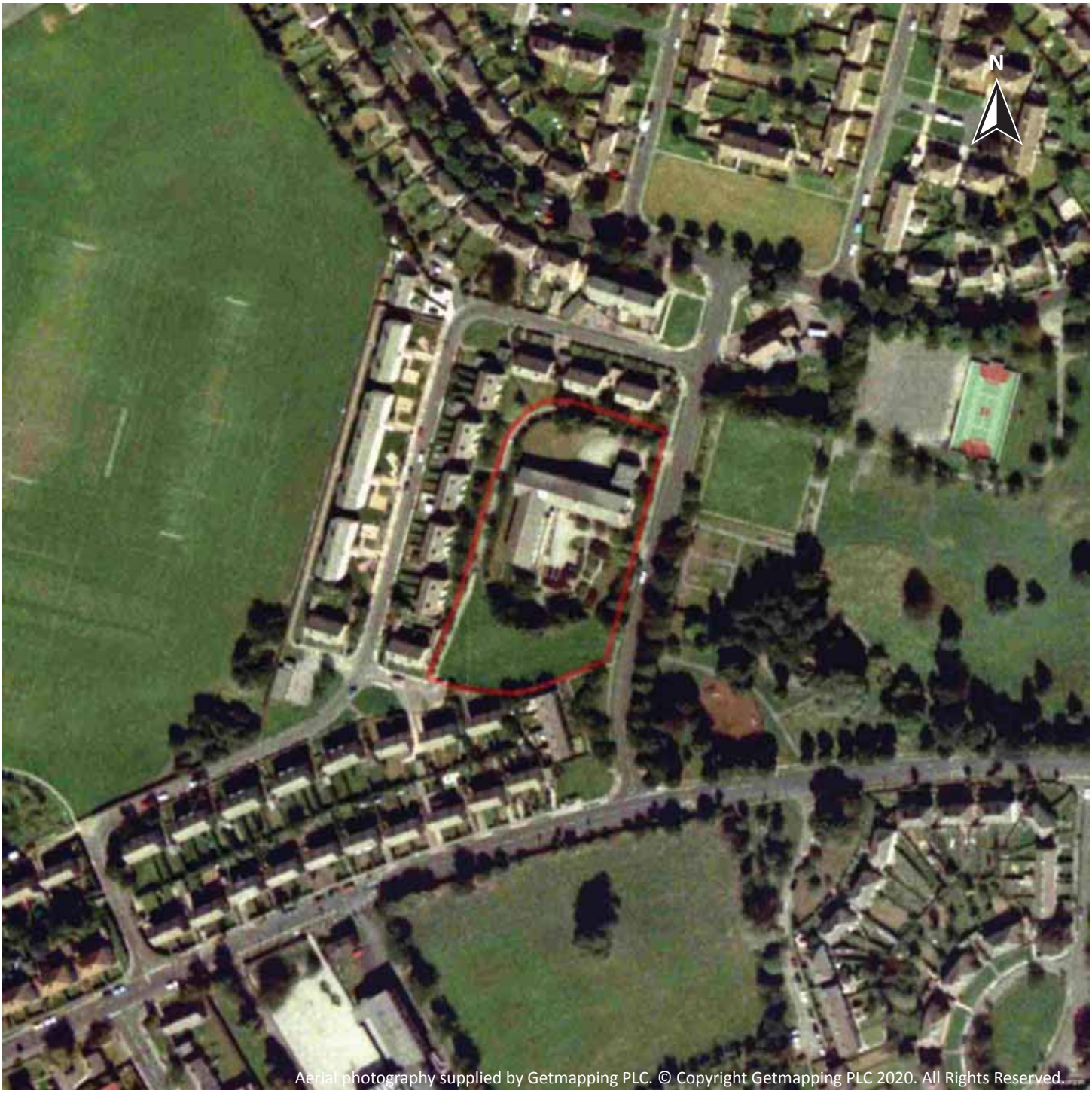
Recent site history - 2012 aerial photograph



Capture Date: 26/03/2012

Site Area: 0.63ha

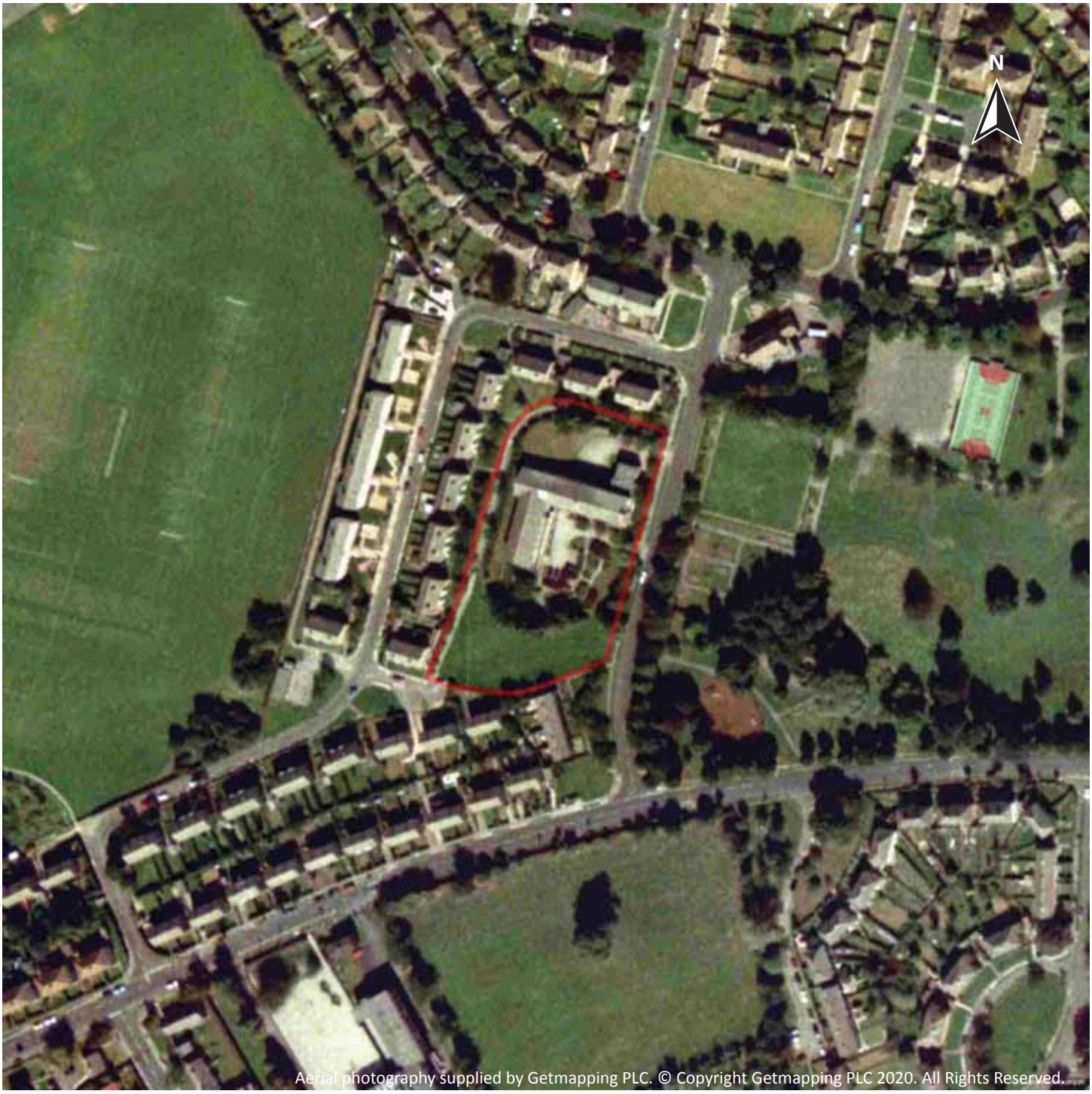
Recent site history - 2000 aerial photograph



Capture Date: 05/08/2000

Site Area: 0.63ha

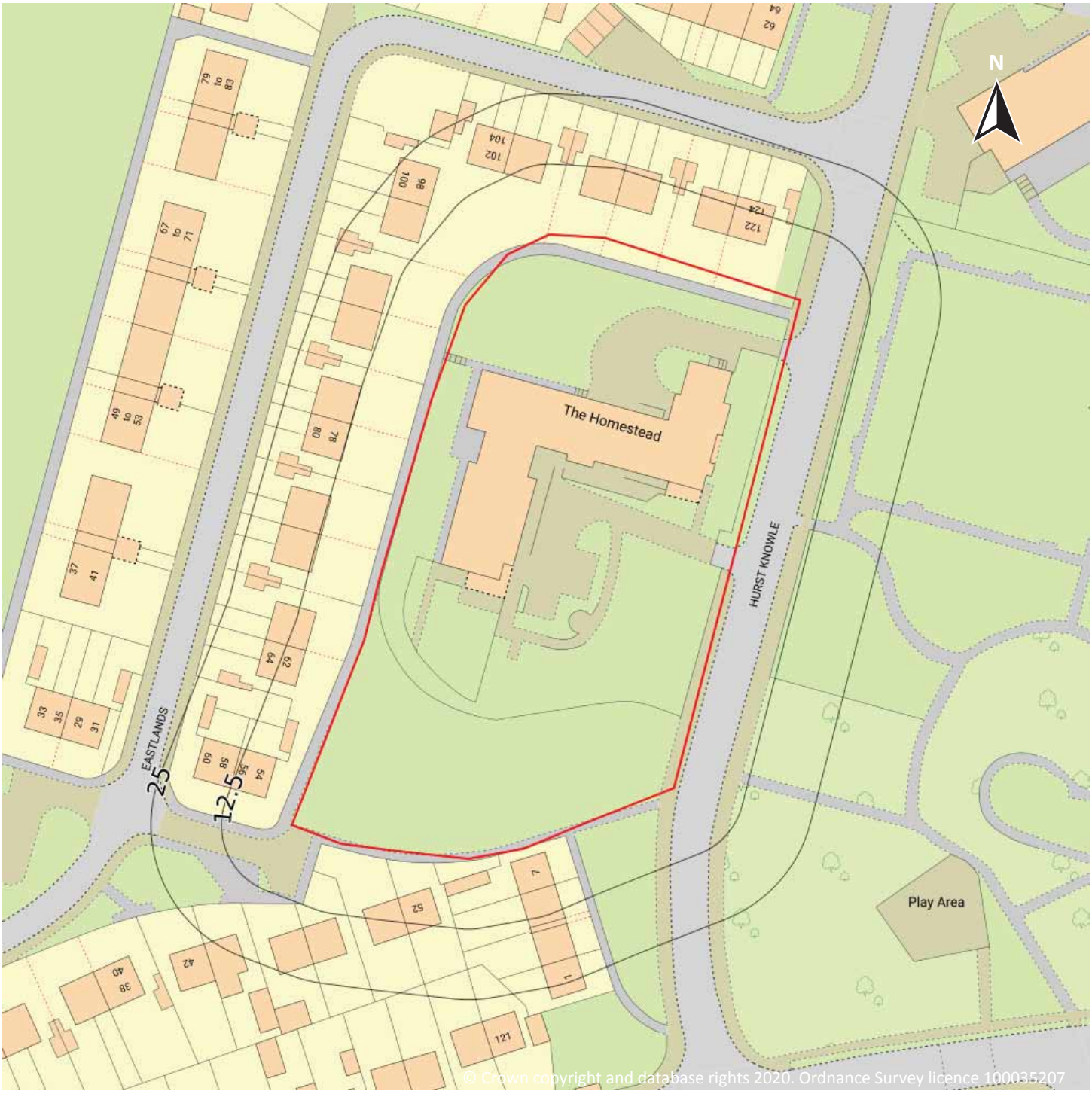
Recent site history - 1999 aerial photograph



Capture Date: 04/09/1999

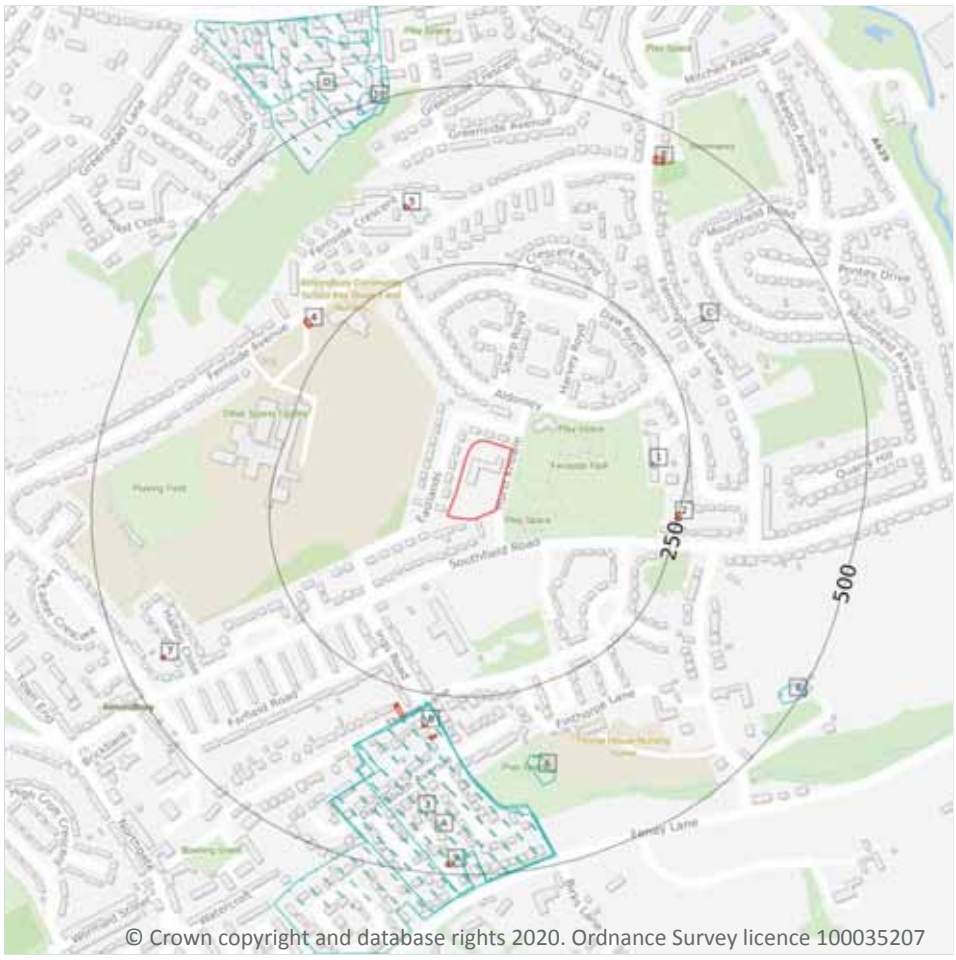
Site Area: 0.63ha

OS MasterMap site plan



Site Area: 0.63ha

1 Past land use



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Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

1.1 Historical industrial land uses

Records within 500m	8

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 13**

ID	Location	Land use	Dates present	Group ID
3	262m S	Nurseries	1938	1524089

ID	Location	Land use	Dates present	Group ID
A	262m S	Nurseries	1948	1551222
A	267m S	Nurseries	1956 - 1965	1544514
6	342m S	Unspecified Pit	1905	1451966
D	446m NW	Unspecified Mills	1988	1526726
D	472m N	Unspecified Mills	1948 - 1965	1540064
8	474m SE	Unspecified Pit	1905	1451968
10	488m N	Unspecified Heap	1965	1415211

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	5

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

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
1	198m E	Unspecified Tank	1893	223338
B	291m S	Unspecified Tank	1957 - 1959	236301
C	326m NE	Unspecified Tank	1963	238149
C	326m NE	Unspecified Tank	1957	246528
C	326m NE	Unspecified Tank	1957	246964

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	11

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or

succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
2	246m E	Electricity Substation	1979 - 1990	146053
B	273m S	Electricity Substation	1989 - 1993	137072
B	274m S	Electricity Substation	1971	137221
4	281m NW	Electricity Substation	1967 - 1995	135052
B	306m S	Electricity Substation	1971	134754
B	306m S	Electricity Substation	1989 - 1993	145929
5	341m N	Electricity Substation	1971 - 1993	137783
7	443m SW	Electricity Substation	1972	129018
E	448m NE	Electricity Substation	1990 - 1993	134355
E	457m NE	Electricity Substation	1968 - 1971	134575
9	480m S	Electricity Substation	1971 - 1993	136744

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

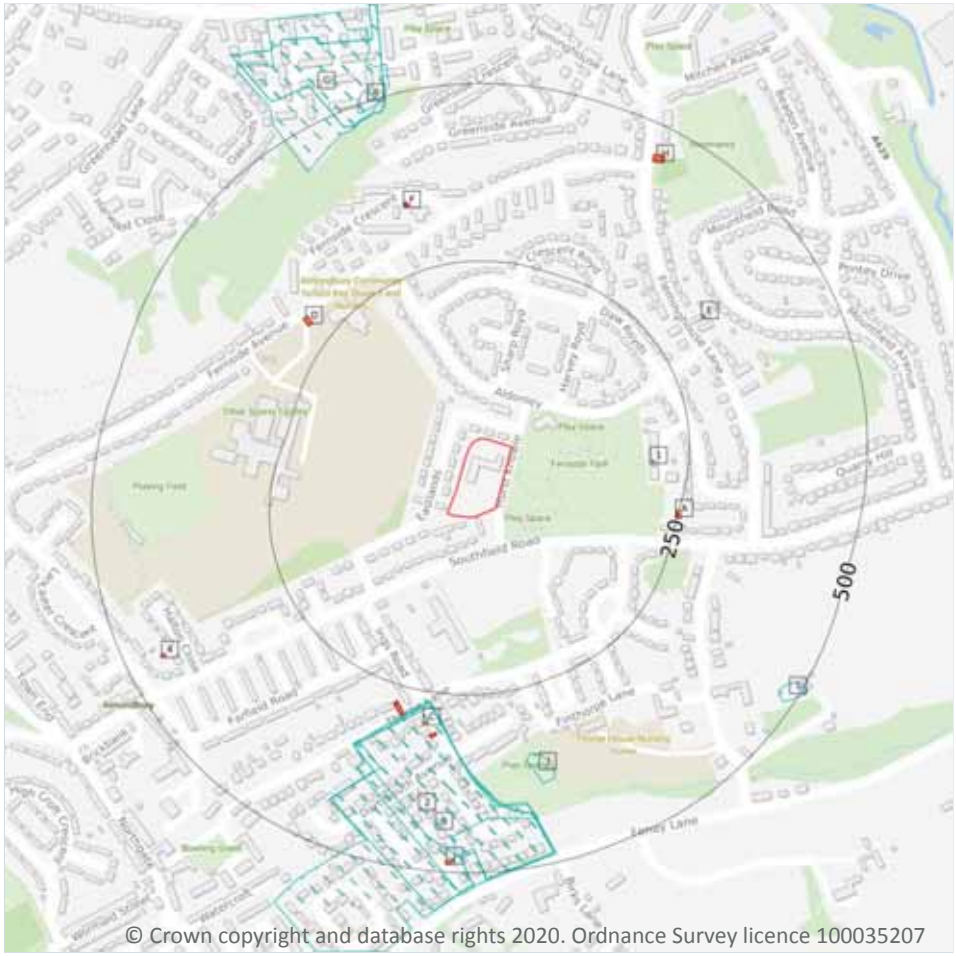
1.6 Historical military land

Records within 500m	0

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

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

2 Past land use - un-grouped



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2.1 Historical industrial land uses

Records within 500m	10

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

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

ID	Location	Land Use	Date	Group ID
2	262m S	Nurseries	1938	1524089
B	262m S	Nurseries	1948	1551222
B	267m S	Nurseries	1956	1544514

ID	Location	Land Use	Date	Group ID
B	270m S	Nurseries	1965	1544514
3	342m S	Unspecified Pit	1905	1451966
G	446m NW	Unspecified Mills	1988	1526726
G	472m N	Unspecified Mills	1965	1540064
G	472m N	Unspecified Mills	1956	1540064
5	474m SE	Unspecified Pit	1905	1451968
6	488m N	Unspecified Heap	1965	1415211

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**6**

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'.

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

ID	Location	Land Use	Date	Group ID
1	198m E	Unspecified Tank	1893	223338
C	291m S	Unspecified Tank	1959	236301
C	292m S	Unspecified Tank	1957	236301
E	326m NE	Unspecified Tank	1963	238149
E	326m NE	Unspecified Tank	1957	246528
E	326m NE	Unspecified Tank	1957	246964

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**31**

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 17**

ID	Location	Land Use	Date	Group ID
A	246m E	Electricity Substation	1990	146053
A	246m E	Electricity Substation	1979	146053
C	273m S	Electricity Substation	1989	137072
C	273m S	Electricity Substation	1989	137072
C	273m S	Electricity Substation	1993	137072
C	274m S	Electricity Substation	1971	137221
D	281m NW	Electricity Substation	1967	135052
D	281m NW	Electricity Substation	1995	135052
D	281m NW	Electricity Substation	1994	135052
C	306m S	Electricity Substation	1971	134754
C	306m S	Electricity Substation	1993	145929
C	306m S	Electricity Substation	1989	145929
C	306m S	Electricity Substation	1989	145929
F	341m N	Electricity Substation	1993	137783
F	342m N	Electricity Substation	1971	137783
F	343m N	Electricity Substation	1990	137783
F	343m N	Electricity Substation	1990	137783
F	343m N	Electricity Substation	1990	137783
F	343m N	Electricity Substation	1992	137783
4	443m SW	Electricity Substation	1972	129018
H	448m NE	Electricity Substation	1993	134355
H	449m NE	Electricity Substation	1990	134355
H	449m NE	Electricity Substation	1990	134355
H	449m NE	Electricity Substation	1990	134355
H	449m NE	Electricity Substation	1992	134355
H	457m NE	Electricity Substation	1968	134575
H	457m NE	Electricity Substation	1971	134575

ID	Location	Land Use	Date	Group ID
I	480m S	Electricity Substation	1971	136744
I	480m S	Electricity Substation	1993	136744
I	481m S	Electricity Substation	1989	136744
I	481m S	Electricity Substation	1989	136744

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	**0**

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

This data is sourced from Ordnance Survey / Groundsure.

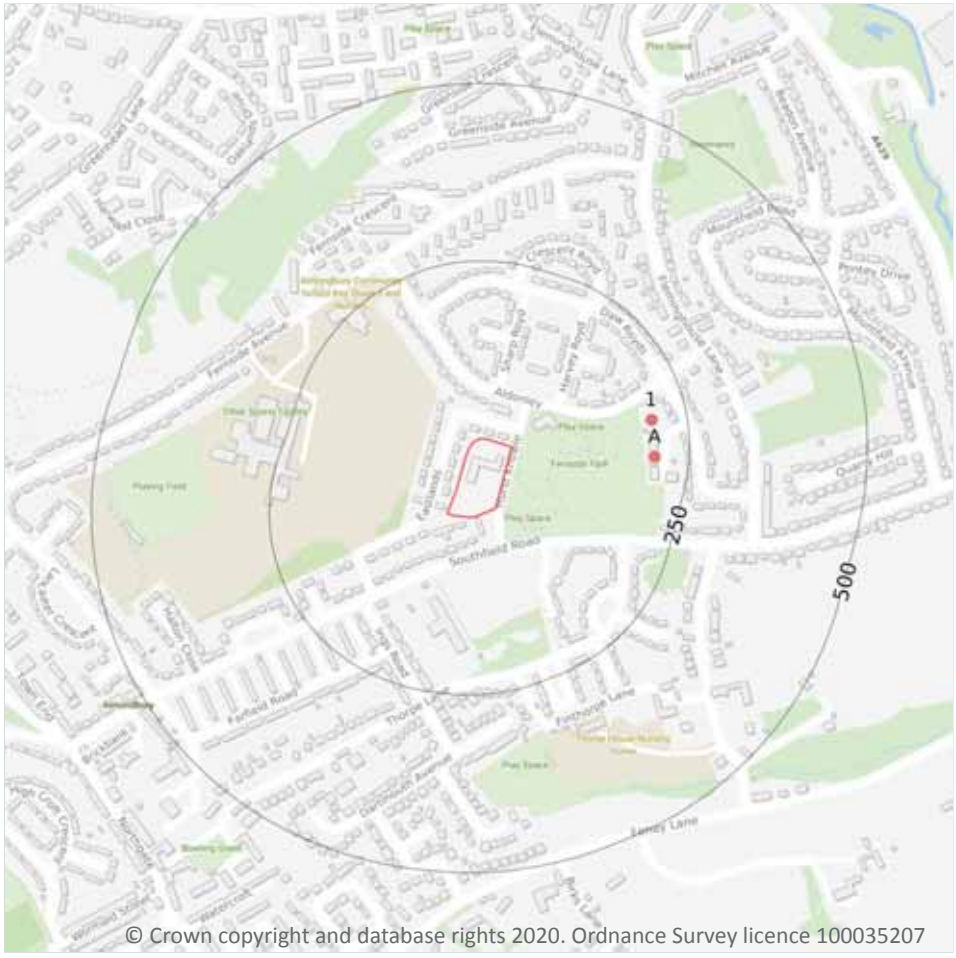
2.5 Historical garages

Records within 500m	**0**

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

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill



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Site Outline

Search buffers in metres (m)

Waste exemptions

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	5

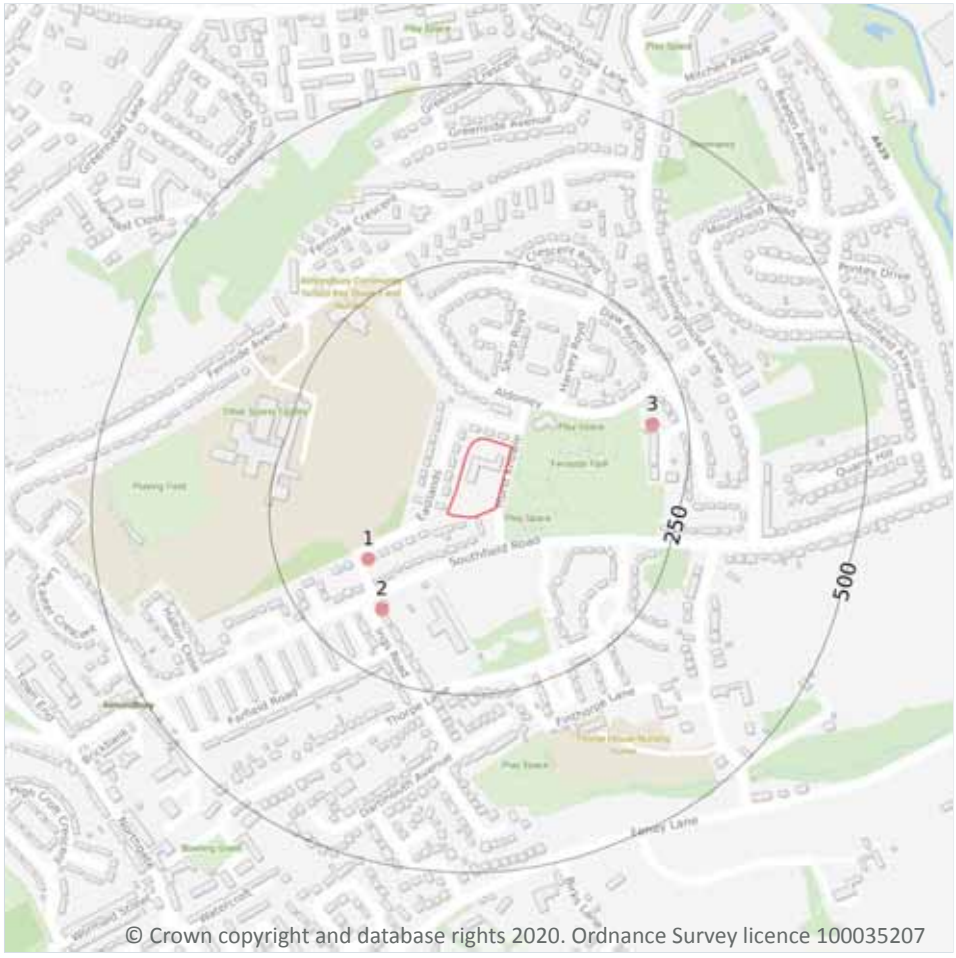
Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

Features are displayed on the Waste and landfill map on **page 21**

ID	Location	Site	Reference	Category	Sub-Category	Description
1	199m E	npa - Depot 14m From 1 South Royd. 27m From South Royd South Royd HUDDERSFIELD HD5 8SU	EPR/VF0003VX/A001	Treating waste exemption	Agricultural Waste Only	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
A	201m E	Fernside Park Depot, South Royd, Almondbury, Huddersfield, HD5 8SU	WEX157013	Using waste exemption	Not on a Farm	Spreading of plant matter to confer benefit
A	201m E	Fernside Park Depot, South Royd, Almondbury, Huddersfield, HD5 8SU	WEX157013	Treating waste exemption	Not on a Farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
A	201m E	Fernside Park Depot, South Royd, Almondbury, Huddersfield, HD5 8SU	WEX157013	Storing waste exemption	Not on a Farm	Storage of waste in secure containers
A	201m E	Fernside Park Depot, South Royd, Almondbury, Huddersfield, HD5 8SU	WEX157013	Using waste exemption	Not on a Farm	Use of mulch

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

4.1 Recent industrial land uses

Records within 250m	3

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 24**

ID	Location	Company	Address	Activity	Category
1	128m SW	Paul Brook Quality Builder	4, Eastlands, Huddersfield, West Yorkshire, HD5 8SE	Agricultural Contractors	Contract Services
2	163m SW	Electricity Sub Station	West Yorkshire, HD5	Electrical Features	Infrastructure and Facilities

ID	Location	Company	Address	Activity	Category
3	200m E	Depot	West Yorkshire, HD5	Container and Storage	Transport, Storage and Delivery

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	0

Open, closed, under development and obsolete petrol stations.

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	0

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0

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

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m	0

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

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m	0

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

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m	0

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

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	0

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

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

4.10 Licensed industrial activities (Part A(1))

Records within 500m	0

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

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

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

Records within 500m	0

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

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m	0

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

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

4.13 Licensed Discharges to controlled waters

Records within 500m	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

5.1 Superficial aquifer

Records within 500m	0

Aquifer status of groundwater held within superficial geology.

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

Bedrock aquifer



Site Outline

Search buffers in metres (m)

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

5.2 Bedrock aquifer

Records within 500m	1

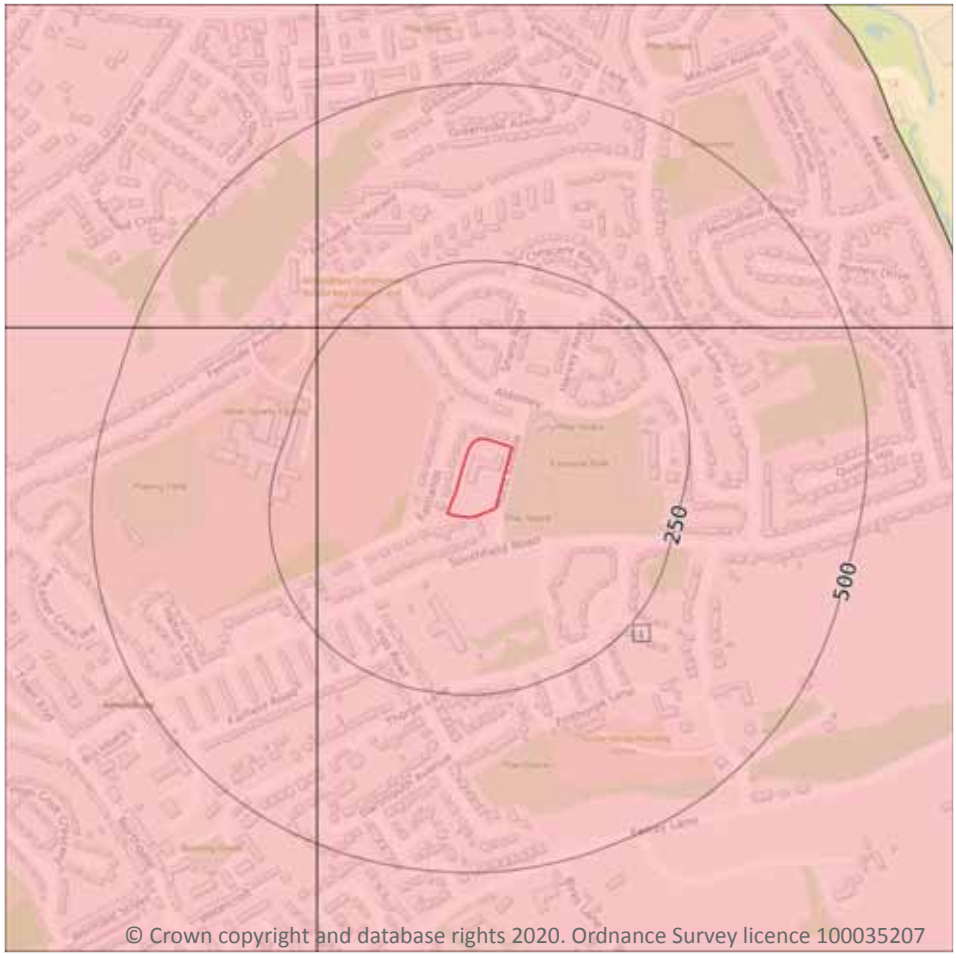
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 30**

ID	Location	Designation	Description
1	**On site**	**Secondary A**	**Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers**

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

Groundwater vulnerability



Site Outline

Search buffers in metres (m)

Superficial vulnerability

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

Bedrock vulnerability

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

Other information

- Unproductive aquifer
- Soluble rock risk
- Local information

5.3 Groundwater vulnerability

Records within 50m	1

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

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

Features are displayed on the Groundwater vulnerability map on **page 31**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	**On site**	**Summary Classification: Secondary bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer**	**Leaching class: High Infiltration value: >70% Dilution value: 300-550mm/year**	**Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: No Data**	**Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures**

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

5.4 Groundwater vulnerability- soluble rock risk

Records on site	**0**

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

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

5.5 Groundwater vulnerability- local information

Records on site	**0**

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

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

Abstractions and Source Protection Zones



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5.6 Groundwater abstractions

Records within 2000m	8

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 33**

ID	Location	Details	
A	809m NE	Status: Active Licence No: 2/27/11/188/R01 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: GROUNDWATERS Point: BOREHOLE - LOWER COAL MEASURES - HUDDERSFIELD Data Type: Point Name: Total Fitness Health Clubs Ltd Easting: 417876 Northing: 416373	Annual Volume (m^3): 31,000 Max Daily Volume (m^3): 250 Original Application No: - Original Start Date: 01/04/2015 Expiry Date: 31/03/2027 Issue No: 1 Version Start Date: 01/04/2015 Version End Date: -
A	817m NE	Status: Historical Licence No: 2/27/11/188 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: GROUNDWATERS Point: BOREHOLE - LOWER COAL MEASURES - HUDDERSFIELD Data Type: Point Name: Total Fitness 2010 Ltd Easting: 417880 Northing: 416380	Annual Volume (m^3): 60000 Max Daily Volume (m^3): 250 Original Application No: - Original Start Date: 16/07/2001 Expiry Date: 31/03/2015 Issue No: 3 Version Start Date: 08/02/2012 Version End Date: -
-	1553m W	Status: Historical Licence No: 2/27/11/031 Details: General use relating to Secondary Category (Medium Loss) Direct Source: GROUNDWATERS Point: BOREHOLE Data Type: Point Name: W T JOHNSON & SONS (HUDDERSFIELD) LTD Easting: 415700 Northing: 416200	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 14/12/1965 Expiry Date: - Issue No: 100 Version Start Date: 14/12/1965 Version End Date: -
-	1553m W	Status: Historical Licence No: 2/27/11/018 Details: General use relating to Secondary Category (Medium Loss) Direct Source: GROUNDWATERS Point: BOREHOLE Data Type: Point Name: W T JOHNSON & SONS (HUDDERSFIELD) LTD Easting: 415700 Northing: 416200	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 14/12/1965 Expiry Date: - Issue No: 100 Version Start Date: 14/12/1965 Version End Date: -

ID	Location	Details	
-	1553m W	Status: Historical Licence No: 2/27/11/031 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: GROUNDWATERS Point: BOREHOLE - MILLSTONE GRIT - MOLDGREEN Data Type: Point Name: W T JOHNSON & SONS (HUDDERSFIELD) LTD Easting: 415700 Northing: 416200	Annual Volume (m^3): 36754 Max Daily Volume (m^3): 136.38 Original Application No: - Original Start Date: 14/12/1965 Expiry Date: - Issue No: 100 Version Start Date: 14/12/1965 Version End Date: -
-	1553m W	Status: Historical Licence No: 2/27/11/018 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: GROUNDWATERS Point: BOREHOLE - MILLSTONE GRIT - MOLDGREEN Data Type: Point Name: W T JOHNSON & SONS (HUDDERSFIELD) LTD Easting: 415700 Northing: 416200	Annual Volume (m^3): 105854 Max Daily Volume (m^3): 390.956 Original Application No: - Original Start Date: 14/12/1965 Expiry Date: - Issue No: 100 Version Start Date: 14/12/1965 Version End Date: -
-	1553m W	Status: Active Licence No: 2/27/11/018 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: GROUNDWATERS Point: BOREHOLE - COAL MEASURES - MOLDGREEN Data Type: Point Name: W T JOHNSON & SONS (HUDDERSFIELD) LTD Easting: 415700 Northing: 416200	Annual Volume (m^3): 105,854 Max Daily Volume (m^3): 390.96 Original Application No: - Original Start Date: 14/12/1965 Expiry Date: - Issue No: 100 Version Start Date: 14/12/1965 Version End Date: -
-	1553m W	Status: Active Licence No: 2/27/11/031 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: GROUNDWATERS Point: BOREHOLE - COAL MEASURES - MOLDGREEN Data Type: Point Name: W T JOHNSON & SONS (HUDDERSFIELD) LTD Easting: 415700 Northing: 416200	Annual Volume (m^3): 36,754 Max Daily Volume (m^3): 136.38 Original Application No: - Original Start Date: 14/12/1965 Expiry Date: - Issue No: 100 Version Start Date: 14/12/1965 Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m	1

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 33**

ID	Location	Details	
-	1584m SE	Status: Active Licence No: 2/27/11/156 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER Point: POND - WOODSOME HALL Data Type: Point Name: WOODSOME HALL GOLF CLUB LTD Easting: 417900 Northing: 414300	Annual Volume (m^3): 6,819 Max Daily Volume (m^3): 40.91 Original Application No: - Original Start Date: 16/12/1970 Expiry Date: - Issue No: 100 Version Start Date: 16/12/1970 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.

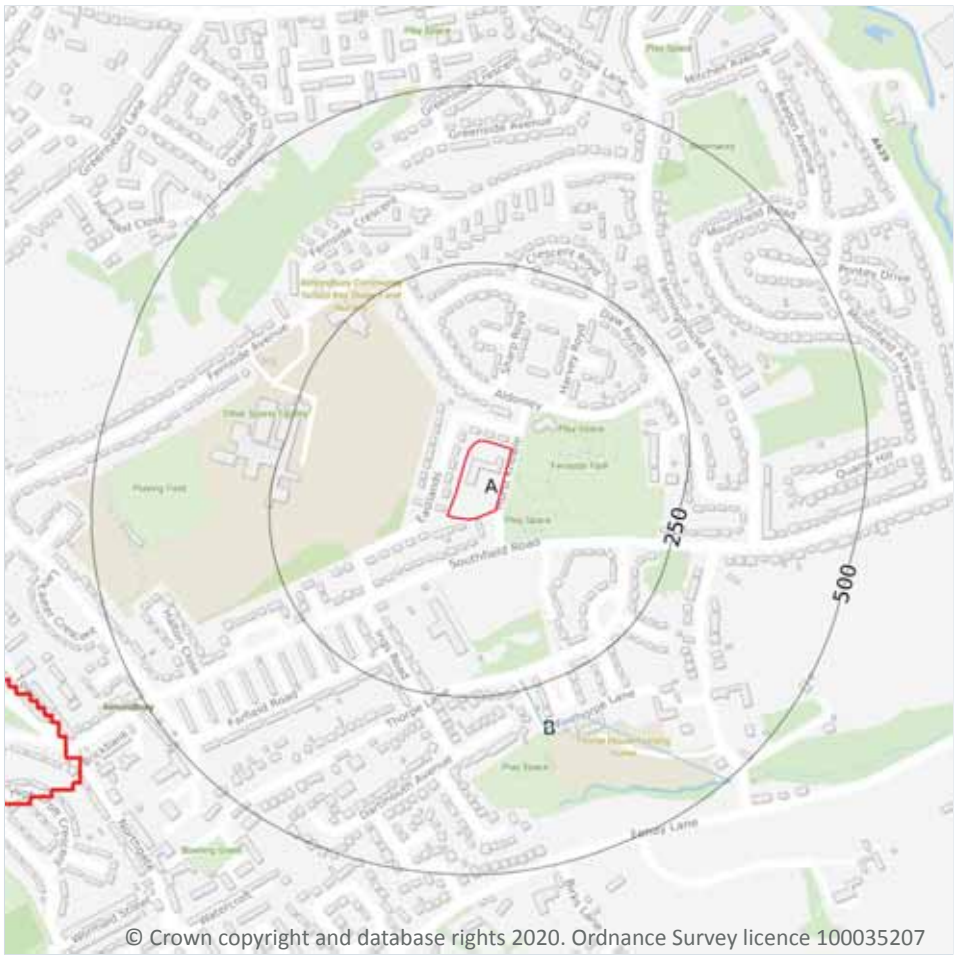
5.10 Source Protection Zones (confined aquifer)

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	**1**

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

Features are displayed on the Hydrology map on **page 38**

ID	Location	Type of water feature	Ground level	Permanence	Name
B	235m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	1

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

Features are displayed on the Hydrology map on **page 38**

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
A	**On site**	**River WB catchment**	**Fenay beck from Source to River Colne**	**GB104027063340**	**Colne and Holme**	**Aire and Calder**

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
-	686m NE	River	Fenay beck from Source to River Colne	GB104027063340	Moderate	Good	Moderate	2016

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

6.5 WFD Groundwater bodies

Records on site	**1**

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.

Features are displayed on the Hydrology map on **page 38**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
A	**On site**	**Aire & Calder Carb Limestone / Millstone Grit / Coal Measures.**	**GB40402G700400**	**Poor**	**Poor**	**Good**	**2015**

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 Sea (RoFRaS)

Records within 50m	0

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition; 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).

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

7.2 Historical Flood Events

Records within 250m	0

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

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

7.3 Flood Defences

Records within 250m	0

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

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

7.4 Areas Benefiting from Flood Defences

Records within 250m	0

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

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

7.5 Flood Storage Areas

Records within 250m	0

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

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

River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m	0

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

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

7.7 Flood Zone 3

Records within 50m	0

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

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

8 Surface water flooding



Site Outline
Search buffers in metres (m)

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

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

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

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

8.1 Surface water flooding

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

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

Features are displayed on the Surface water flooding map on **page 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	Between 0.1m and 0.3m
1 in 250 year	Between 0.1m and 0.3m
1 in 100 year	Between 0.1m and 0.3m
1 in 30 year	Between 0.1m and 0.3m

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding



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Site Outline

Search buffers in metres (m)

High

Moderate - High

Moderate

Low

Negligible

9.1 Groundwater flooding

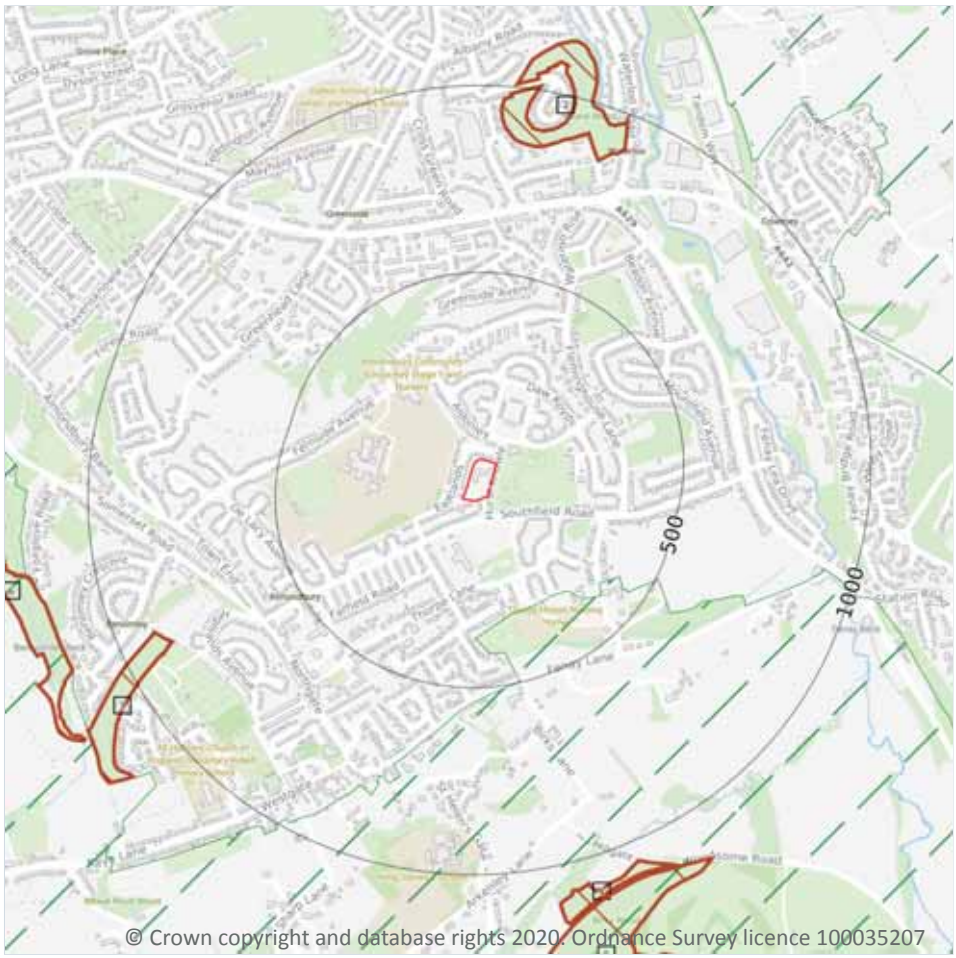
Highest risk on site	**Negligible**
Highest risk within 50m	**Negligible**

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 Ambiental Risk Analytics.

10 Environmental designations



Site Outline

Search buffers in metres (m)

Designated Ancient Woodland

Green Belt

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	0

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.

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

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	0

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

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

10.3 Special Areas of Conservation (SAC)

Records within 2000m	0

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

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

10.4 Special Protection Areas (SPA)

Records within 2000m	0

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

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

10.5 National Nature Reserves (NNR)

Records within 2000m	0

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

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

10.6 Local Nature Reserves (LNR)

Records within 2000m	0

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

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

10.7 Designated Ancient Woodland

Records within 2000m	10

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
2	849m N	ROUND WOOD	Ancient & Semi-Natural Woodland
3	865m SW	BENHOLMLEY WOOD	Ancient Replanted Woodland
4	1054m SE	CARR WOOD	Ancient & Semi-Natural Woodland
5	1100m S	CARR WOOD	Ancient & Semi-Natural Woodland
6	1137m SW	BENHOLMLEY WOOD	Ancient Replanted Woodland
-	1367m SE	CARR WOOD	Ancient & Semi-Natural Woodland
-	1430m S	CARR WOOD	Ancient & Semi-Natural Woodland
-	1492m S	CARR WOOD	Ancient & Semi-Natural Woodland
-	1738m SW	MELLOR WOOD	Ancient Replanted Woodland
-	1863m S	CARR WOOD	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	1

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	314m SE	South and West Yorkshire	Kirklees

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.

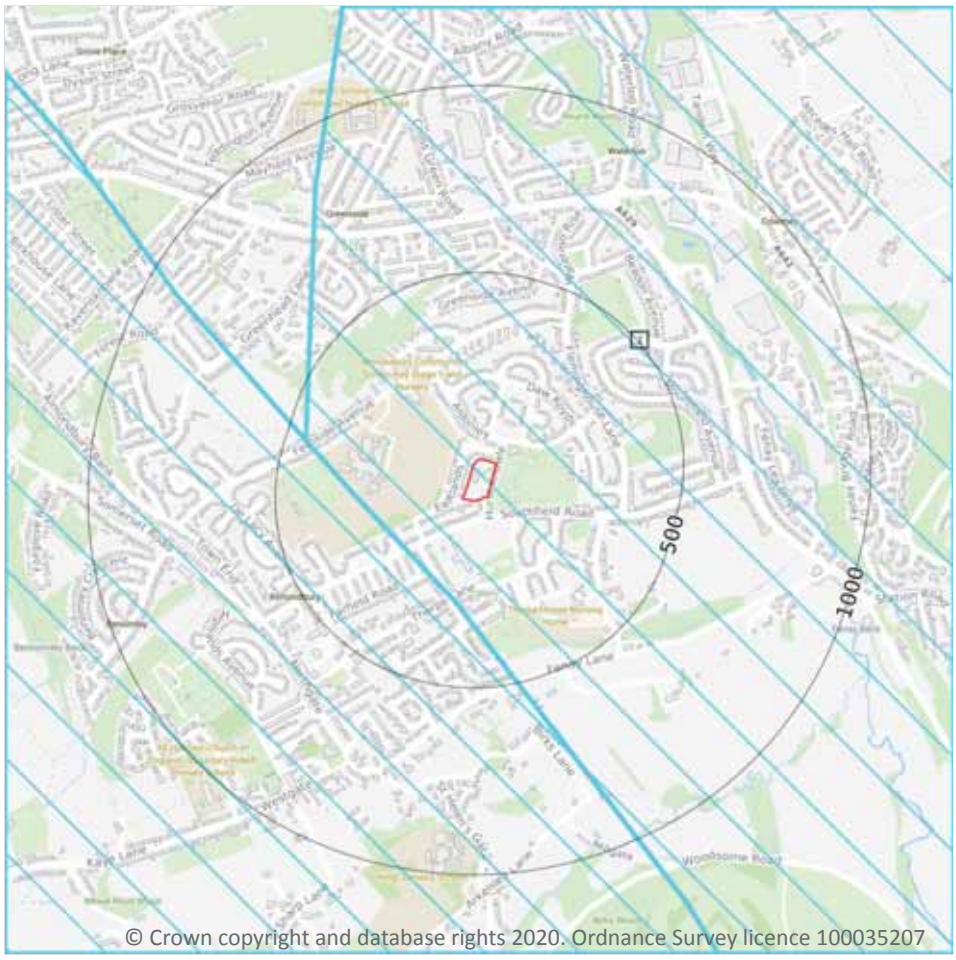
10.16 Nitrate Vulnerable Zones

Records within 2000m	0

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.

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

SSSI Impact Zones and Units



Site Outline

Search buffers in metres (m)

SSSI Impact Risk Zones

SSSI Units

Not recorded

Favourable

Unfavourable - Recovering

Unfavourable - No change

Unfavourable - Declining

Partially destroyed

Destroyed

10.17 SSSI Impact Risk Zones

Records on site	1

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

Features are displayed on the SSSI Impact Zones and Units map on **page 53**

ID	Location	Type of developments requiring consultation
1	On site	**Air pollution - Livestock & poultry units with floorspace > 500m², slurry lagoons > 4000m². Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.**

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	0

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.

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 English Heritage, 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 English Heritage, 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 English Heritage, 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 English Heritage, 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	1

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 57**

ID	Location	Classification	Description
1	**On site**	**Urban**	-

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.

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.

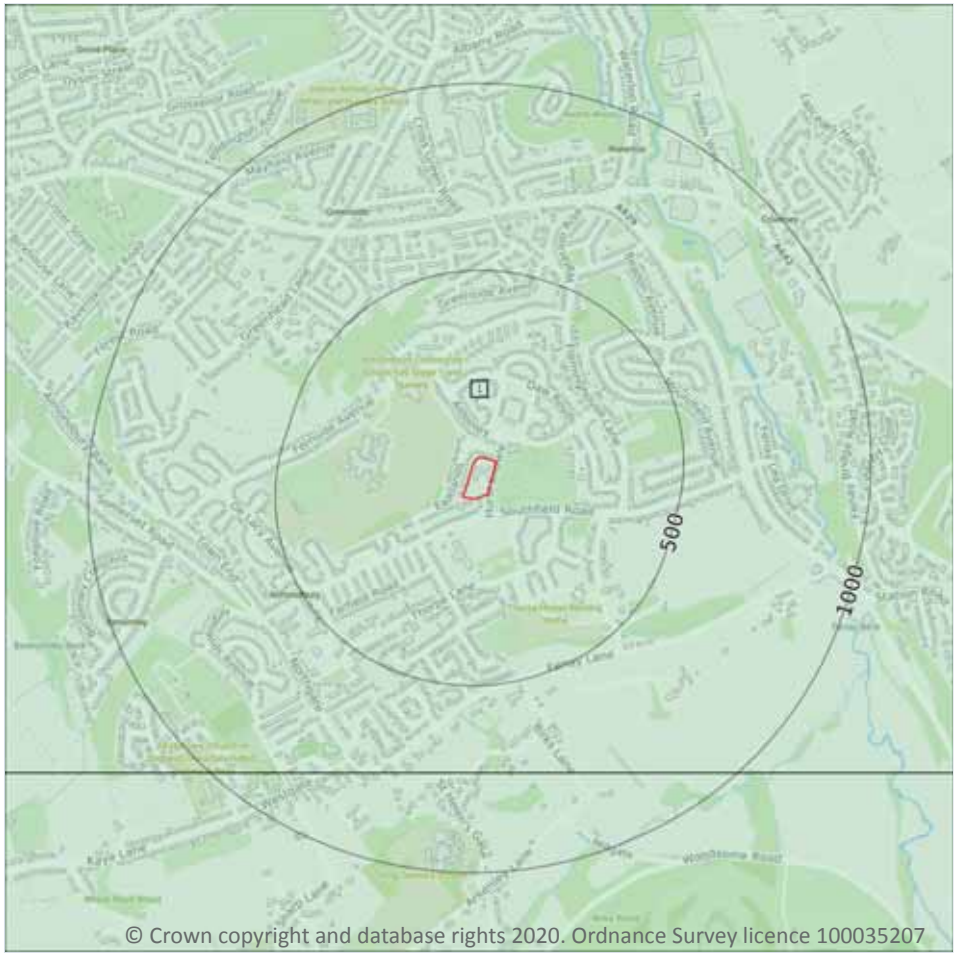
13.4 Limestone Pavement Orders

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

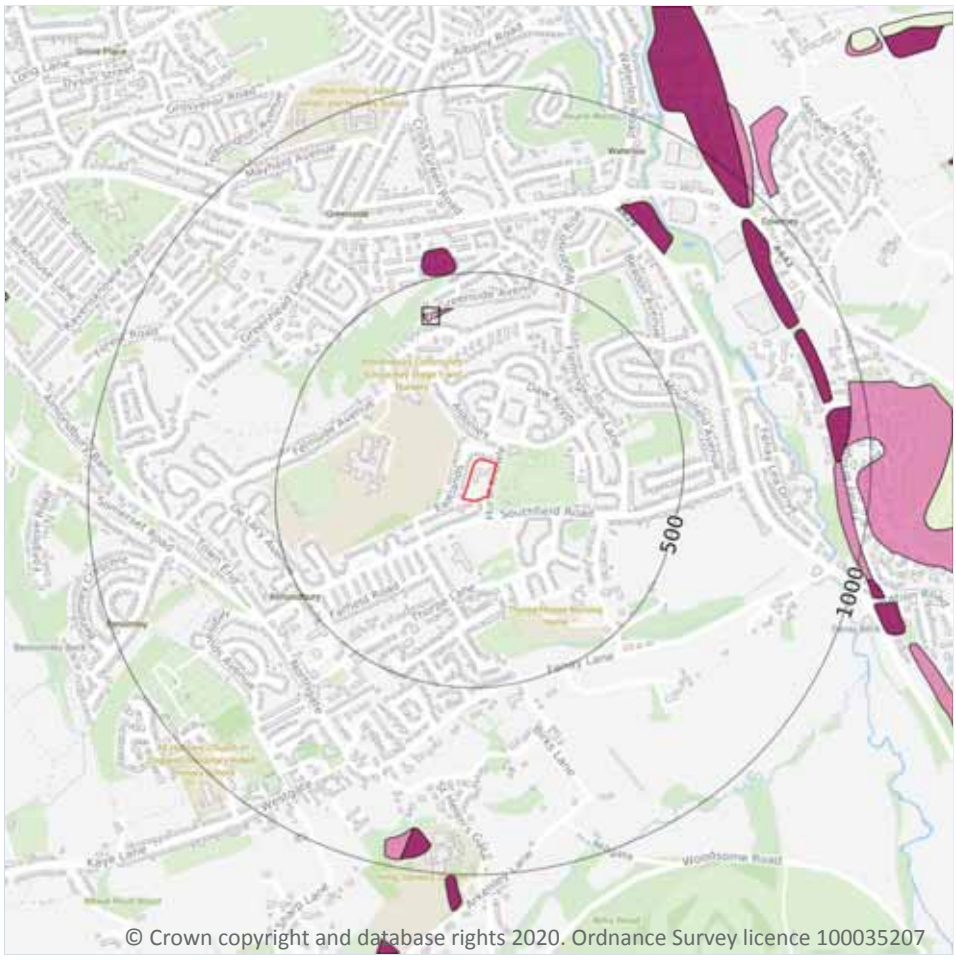
An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 60**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**SE11NE**

This data is sourced from the British Geological Survey.

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



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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 61**

ID	Location	LEX Code	Description	Rock description
1	392m N	WGR-VOID	Worked Ground (Undivided)	Void

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial

14.3 Superficial geology (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

14.4 Landslip (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock



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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 **20**

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 63**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**PLCM-MDSS**	**Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone**	**Langsettian Sub-age**
2	**On site**	**GM-SDST**	**Greenmoor Rock - Sandstone**	**Langsettian Sub-age**
4	15m SW	GM-SDST	Greenmoor Rock - Sandstone	Langsettian Sub-age

ID	Location	LEX Code	Description	Rock age
5	37m SW	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
6	38m E	GM-SDST	Greenmoor Rock - Sandstone	Langsettian Sub-age
8	153m SE	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
9	179m E	GM-SDST	Greenmoor Rock - Sandstone	Langsettian Sub-age
10	189m E	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
11	292m NW	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
12	297m NW	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
13	308m SE	GR-SDST	Grenoside Sandstone - Sandstone	Langsettian Sub-age
14	319m NW	GM-SDST	Greenmoor Rock - Sandstone	Langsettian Sub-age
15	322m E	GR-SDST	Grenoside Sandstone - Sandstone	Langsettian Sub-age
16	328m NE	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
19	359m NE	GM-SDST	Greenmoor Rock - Sandstone	Langsettian Sub-age
20	361m S	GM-SDST	Greenmoor Rock - Sandstone	Langsettian Sub-age
21	367m NW	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
22	374m NW	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
23	453m N	GM-SDST	Greenmoor Rock - Sandstone	Langsettian Sub-age
24	484m NE	GM-SDST	Greenmoor Rock - Sandstone	Langsettian Sub-age

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m	**4**

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.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 63**

ID	Location	Category	Description
3	15m SW	FAULT	Normal fault, inferred; crossmarks on downthrow side
7	153m SE	FAULT	Normal fault, inferred; crossmarks on downthrow side
17	328m NE	FAULT	Normal fault, inferred; crossmarks on downthrow side
18	328m NE	FAULT	Normal fault, inferred; crossmarks on downthrow side

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 66**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**EW077_huddersfield_v4**

This data is sourced from the British Geological Survey.

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

15.2 Artificial and made ground (50k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

15.3 Artificial ground permeability (50k)

Records within 50m	0

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

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial

15.4 Superficial geology (50k)

Records within 500m	0

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.

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



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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	20

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 69**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**PLCM-MDSS**	**PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE**	**WESTPHALIAN**
2	**On site**	**GM-SDST**	**GREENMOOR ROCK - SANDSTONE**	**WESTPHALIAN**
4	13m SW	GM-SDST	GREENMOOR ROCK - SANDSTONE	WESTPHALIAN

ID	Location	LEX Code	Description	Rock age
5	40m SW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
6	40m E	GM-SDST	GREENMOOR ROCK - SANDSTONE	WESTPHALIAN
8	155m SE	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
9	183m E	GM-SDST	GREENMOOR ROCK - SANDSTONE	WESTPHALIAN
10	194m E	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
11	278m NW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
12	289m NW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
13	312m SE	GR-SDST	GRENOSIDE SANDSTONE - SANDSTONE	WESTPHALIAN
14	321m NW	GM-SDST	GREENMOOR ROCK - SANDSTONE	WESTPHALIAN
15	330m E	GR-SDST	GRENOSIDE SANDSTONE - SANDSTONE	WESTPHALIAN
17	333m NE	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
18	362m S	GM-SDST	GREENMOOR ROCK - SANDSTONE	WESTPHALIAN
19	364m NE	GM-SDST	GREENMOOR ROCK - SANDSTONE	WESTPHALIAN
20	364m NW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
21	376m NW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
22	454m N	GM-SDST	GREENMOOR ROCK - SANDSTONE	WESTPHALIAN
23	483m NE	GM-SDST	GREENMOOR ROCK - SANDSTONE	WESTPHALIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	**4**

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Fracture**	**High**	**Moderate**
On site	**Fracture**	**High**	**Low**
40m SE	Fracture	High	Moderate
40m SW	Fracture	High	Low

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m	**3**

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.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 69**

ID	Location	Category	Description
3	13m SW	FAULT	Fault, inferred
7	155m SE	FAULT	Fault, inferred
16	333m NE	FAULT	Fault, inferred

This data is sourced from the British Geological Survey.

16 Boreholes

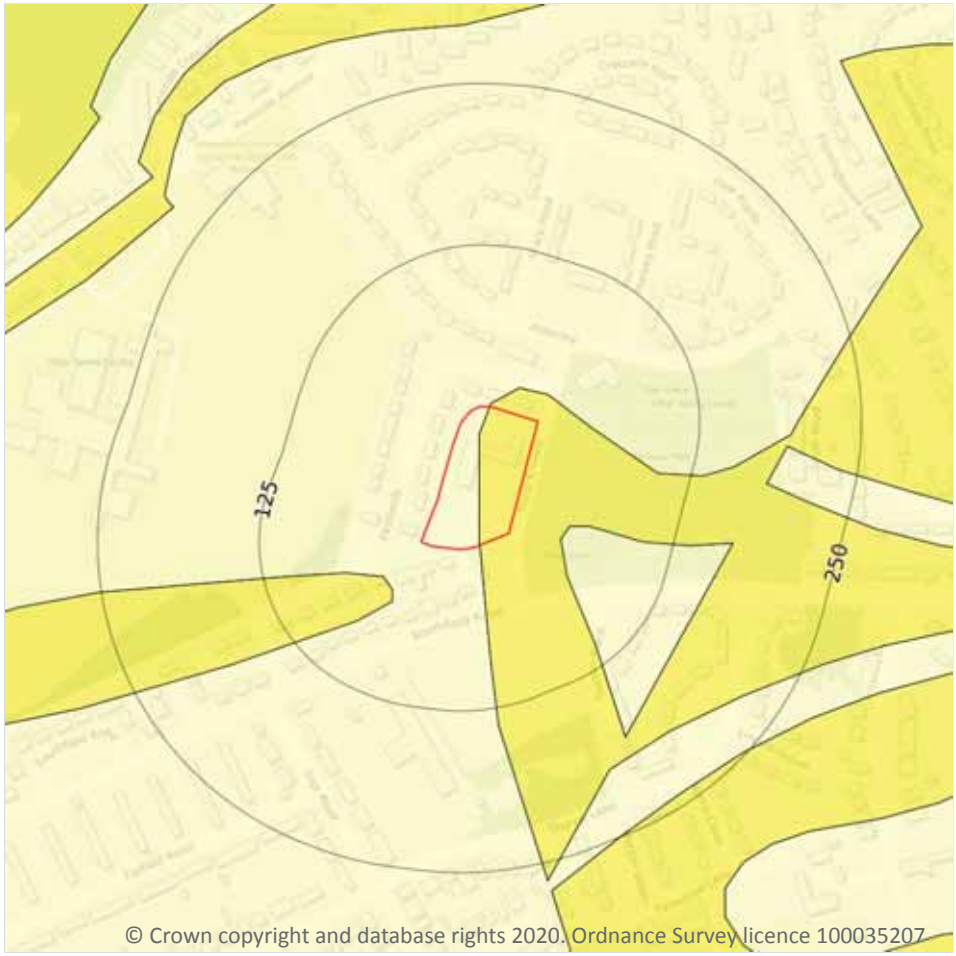
16.1 BGS Boreholes

Records within 250m	0

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.

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



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Site Outline

Search buffers in metres (m)

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

17.1 Shrink swell clays

Records within 50m	4

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).

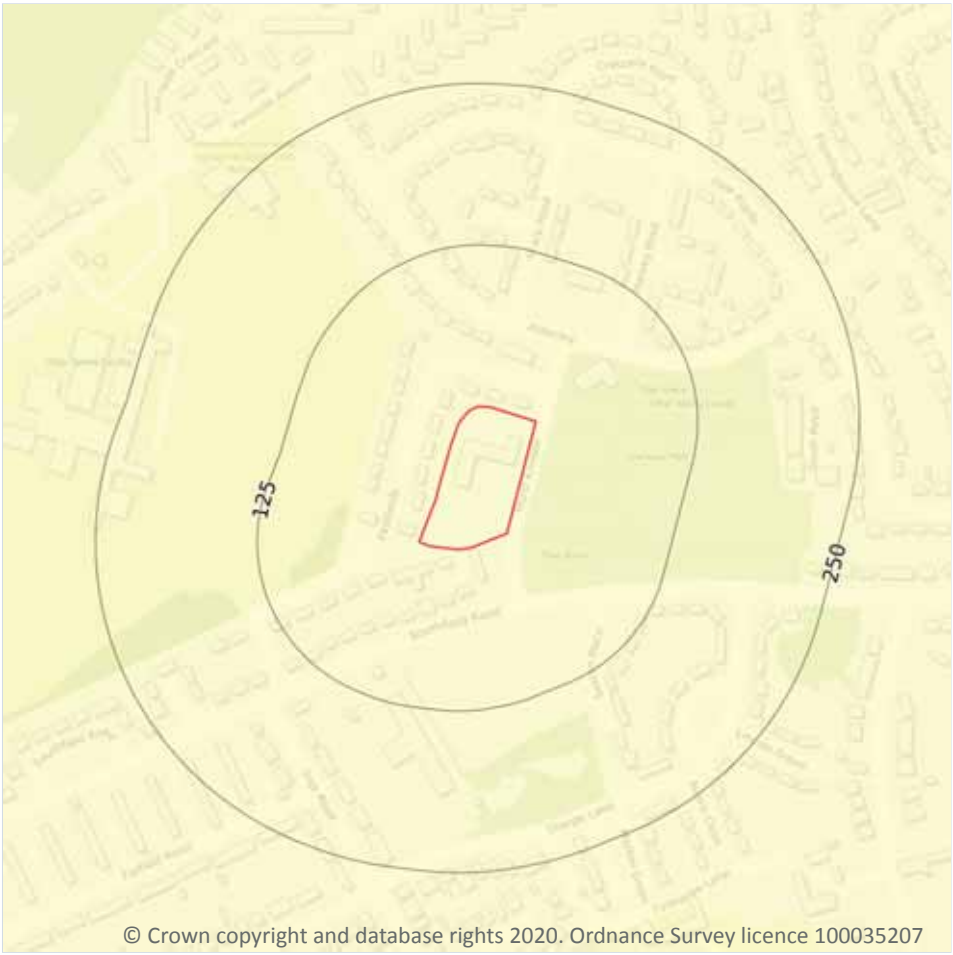
Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 73**

Location	Hazard rating	Details
On site	**Negligible**	**Ground conditions predominantly non-plastic.**
On site	**Very low**	**Ground conditions predominantly low plasticity.**
40m SW	Very low	Ground conditions predominantly low plasticity.

Location	Hazard rating	Details
40m E	Negligible	Ground conditions predominantly non-plastic.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



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Site Outline

Search buffers in metres (m)

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

17.2 Running sands

Records within 50m	1

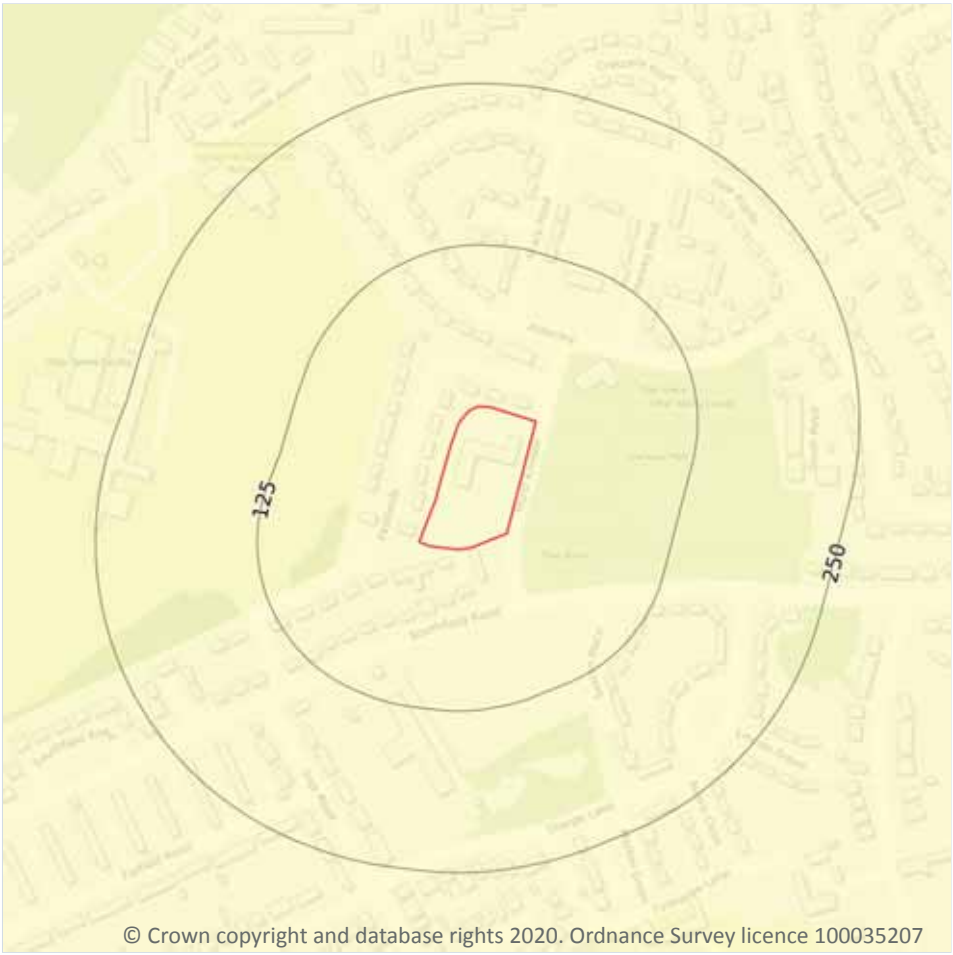
The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on **page 75**

Location	Hazard rating	Details
On site	**Negligible**	**Running sand conditions are not thought to occur whatever the position of the water table. No identified constraints on lands use due to running conditions.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



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Site Outline

Search buffers in metres (m)

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

17.3 Compressible deposits

Records within 50m	1

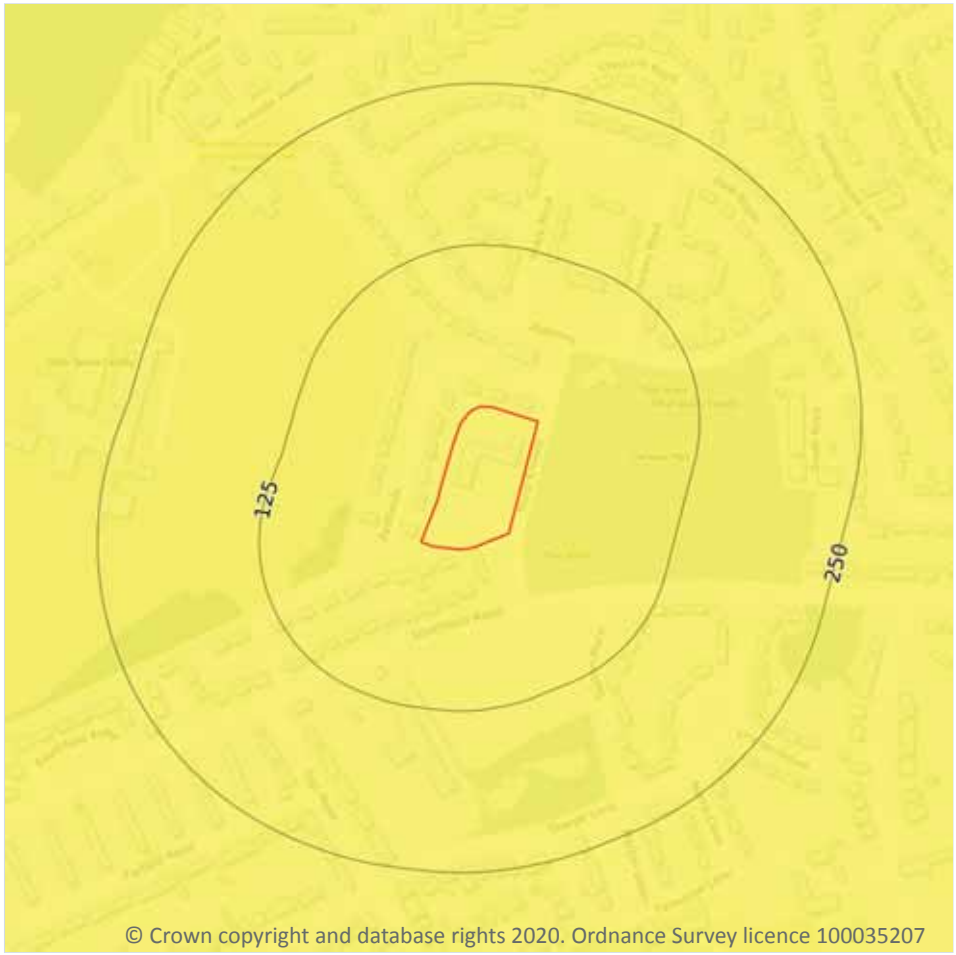
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 76**

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



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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 77**

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



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17.5 Landslides

Records within 50m	1

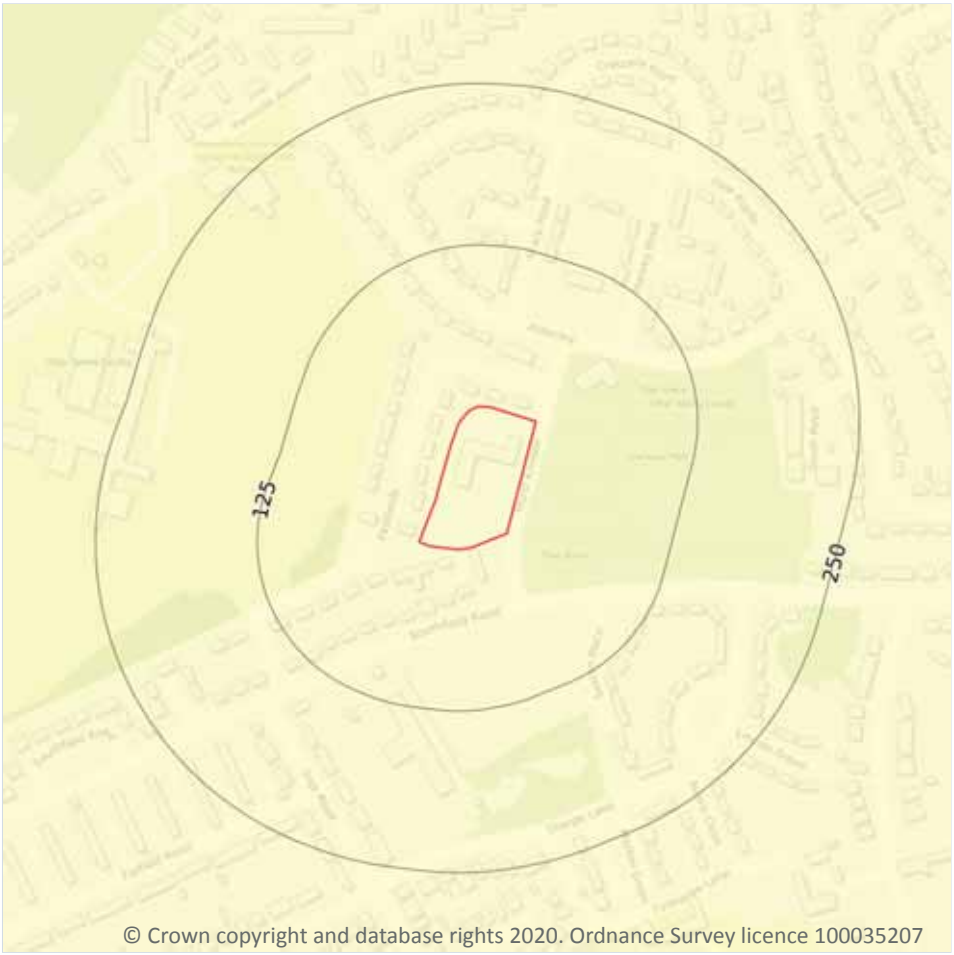
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 78**

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



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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 79**

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

This data is sourced from the British Geological Survey.

18 Mining, ground workings and natural cavities



Site Outline

Search buffers in metres (m)

Natural cavities (Area)

Natural cavities (Point)

BritPits

Surface ground workings

Underground workings

Historical Mineral Planning Areas

Mining Cavities

Non Coal Mining

Sporadic underground mining of restricted extent possible

Localised small scale underground mining possible

Small scale mining possible

Underground mining known or likely within or in close proximity

Underground mining known within or in very close proximity

18.1 Natural cavities

Records within 500m	0

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

This data is sourced from Peter Brett Associates (PBA).

18.2 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.

18.3 Surface ground workings

Records within 250m	3

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

Features are displayed on the Mining, ground workings and natural cavities map on **page 80**

ID	Location	Land Use	Year of mapping	Mapping scale
A	52m E	Pool	1988	1:10000
A	52m E	Pool	1965	1:10560
A	52m E	Pool	1975	1:10000

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m	0

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

This is data is sourced from Ordnance Survey/Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	0

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

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	0

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

This data is sourced from the British Geological Survey.

18.7 Mining cavities

Records within 1000m	0

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

This data is sourced from Peter Brett Associates (PBA).

18.8 JPB mining areas

Records on site	0

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

This data is sourced from Johnson Poole and Bloomer.

18.9 Coal mining

Records on site	1

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

Location	Details
On site	**The site is located within a coal mining area as defined by the Coal Authority. A Consultants Coal Mining Report is recommended to further assess coal mining issues at the site. This can be ordered directly through Groundsure or your preferred search provider.**

This data is sourced from the Coal Authority.

18.10 Brine areas

Records on site	0

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

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

18.11 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Mining Searches UK.

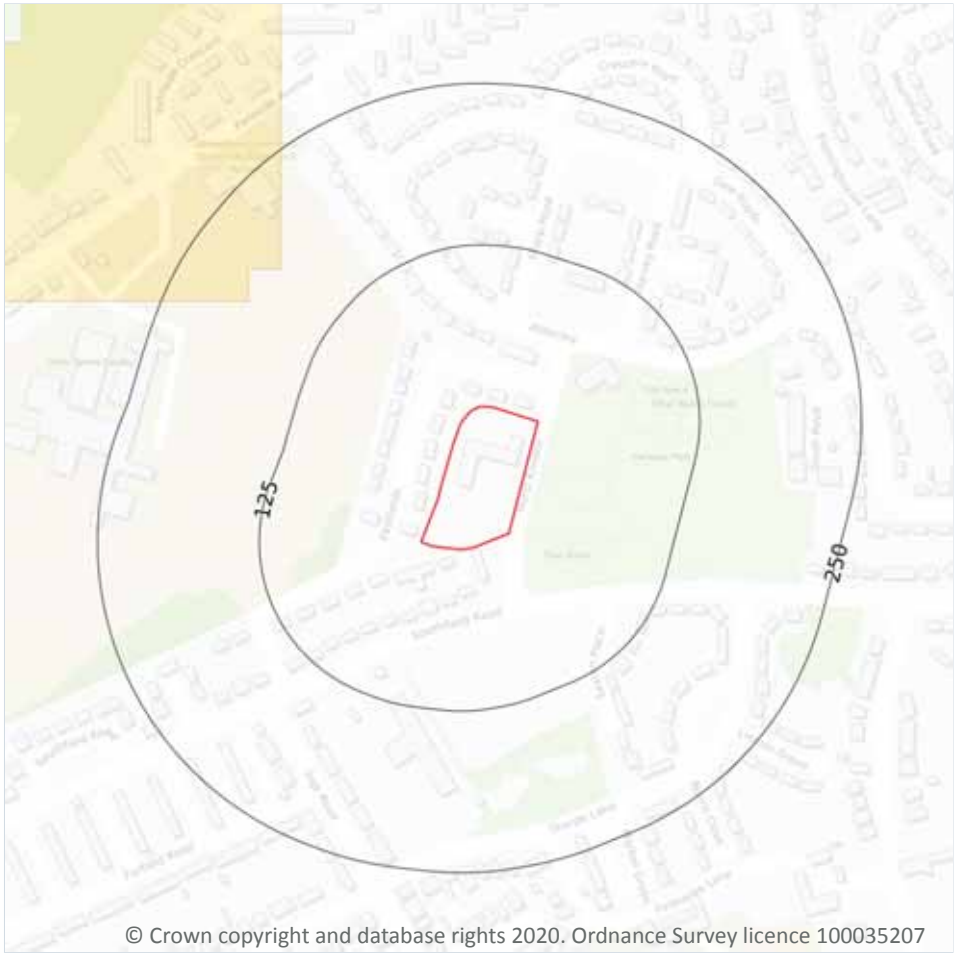
18.13 Clay mining

Records on site	0

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

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

19 Radon



Site Outline

Search buffers in metres (m)

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

19.1 Radon

Records on site	1

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

Features are displayed on the Radon map on **page 84**

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

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

20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m	5

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

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**25 - 35 mg/kg**	**No data**	**100 - 200 mg/kg**	**60 - 120 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**35 - 45 mg/kg**	**No data**	**100 - 200 mg/kg**	**60 - 120 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**30 - 45 mg/kg**
13m SW	35 - 45 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	90 - 120 mg/kg	30 - 45 mg/kg
40m SW	25 - 35 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
40m SE	35 - 45 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	90 - 120 mg/kg	30 - 45 mg/kg

This data is sourced from the British Geological Survey.

20.2 BGS Estimated Urban Soil Chemistry

Records within 50m	0

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

This data is sourced from the British Geological Survey.

20.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

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

This data is sourced from the British Geological Survey.

21 Railway infrastructure and projects

21.1 Underground railways (London)

Records within 250m	0

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

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m	0

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

This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m	0

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

This data is sourced from Ordnance Survey/Groundsure.

21.5 Royal Mail tunnels

Records within 250m	0

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

This data is sourced from Groundsure/the Postal Museum.

21.6 Historical railways

Records within 250m	0

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

This data is sourced from OpenStreetMap.

21.7 Railways

Records within 250m	0

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

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 Crossrail 1

Records within 500m	0

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

This data is sourced from publicly available information by Groundsure.

21.9 Crossrail 2

Records within 500m	0

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

This data is sourced from publicly available information by Groundsure.

21.10 HS2

Records within 500m	0

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

This data is sourced from HS2 ltd.

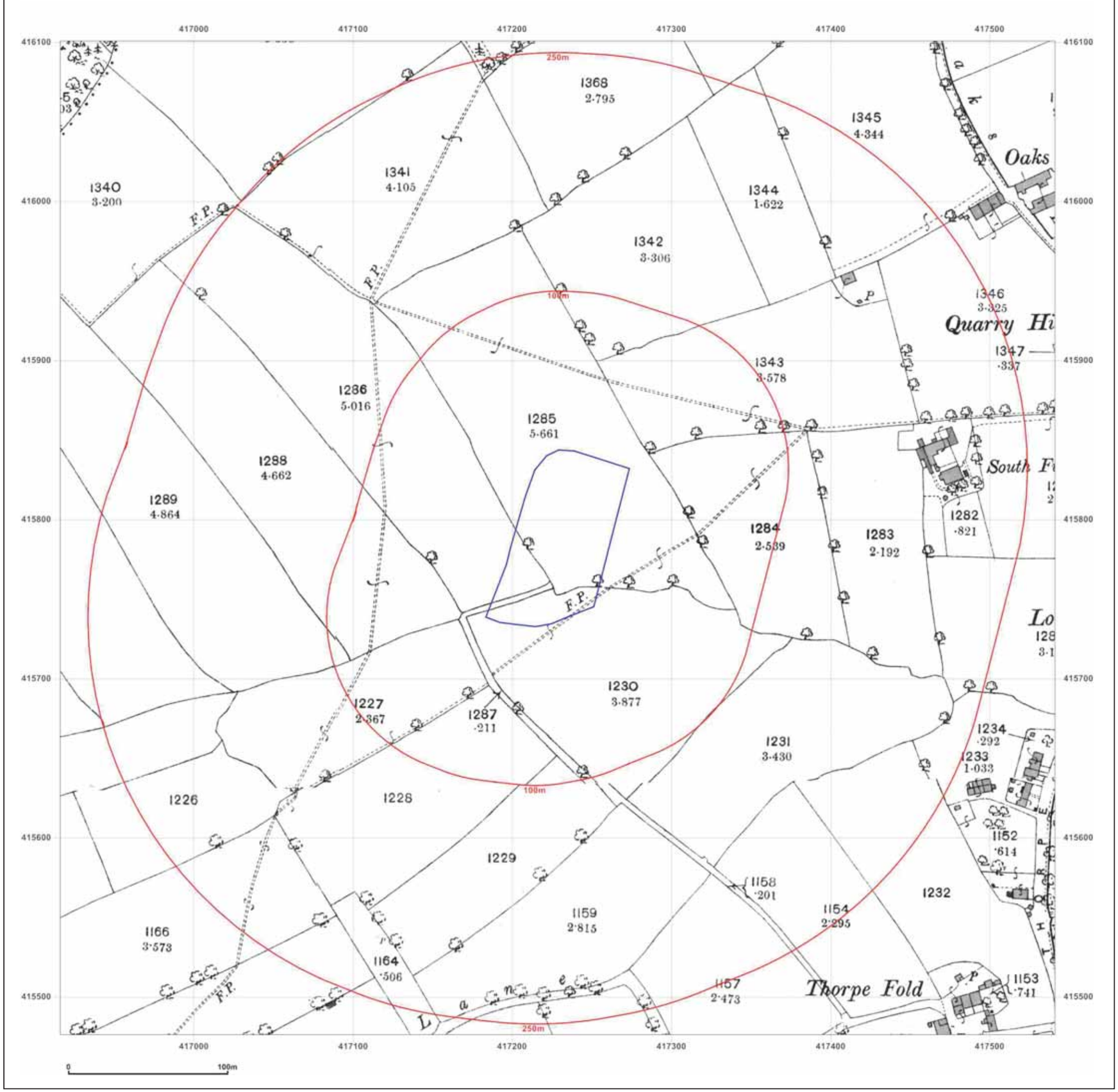
Data providers

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

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: https://www.groundsure.com/terms-and-conditions-jan-2020/.

Appendix IV



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Site Details:

Homestead,Hurst
Knowle,Huddersfield

Client Ref: EMS_629186_837339
Report Ref: EMS-629186_837339
Grid Ref: 417228, 415788

Map Name: County Series

Map date: **1893**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1893
Revised 1893
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1893
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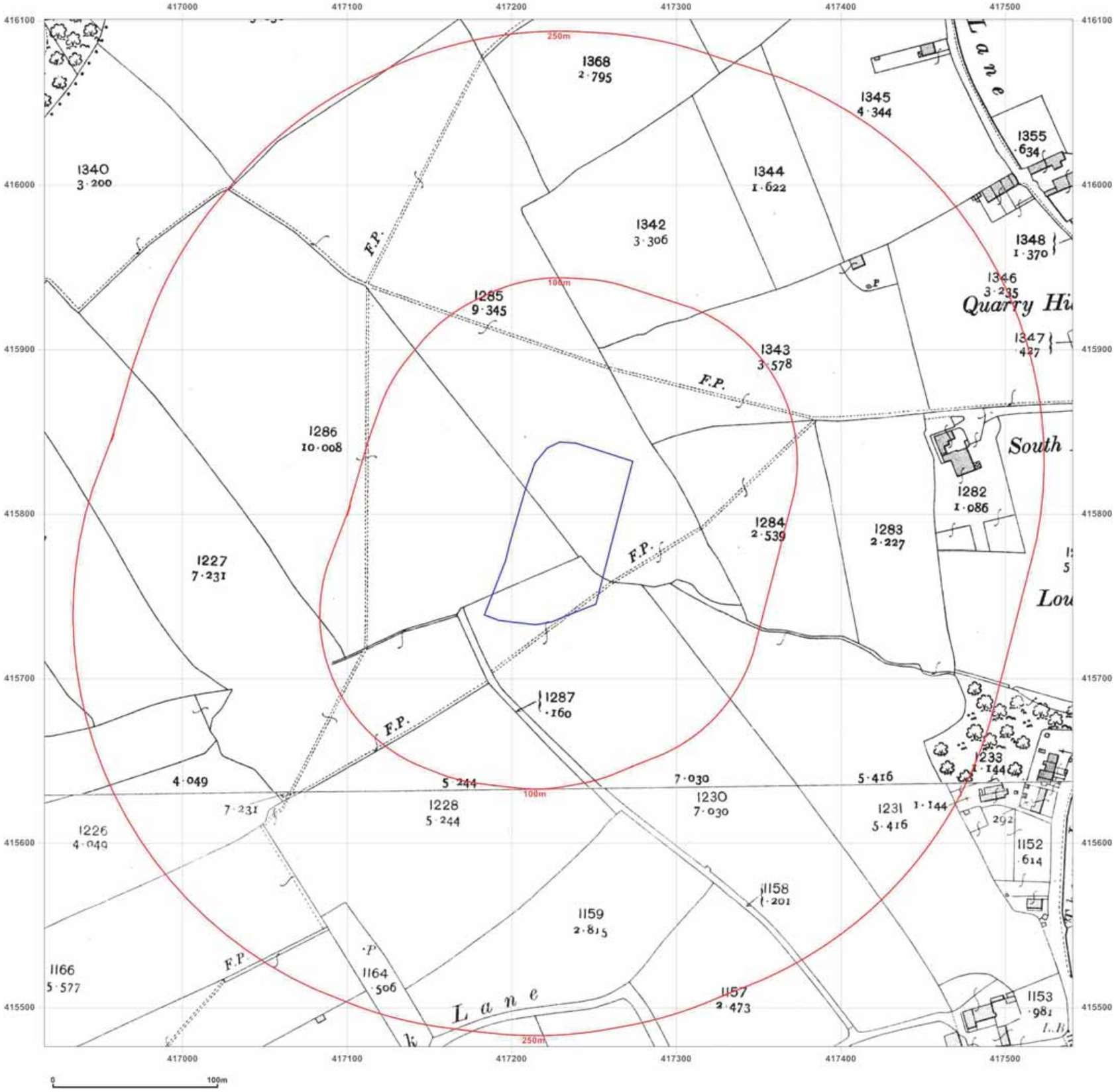
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Map legend available at:
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Site Details:

Homestead,Hurst
Knowle,Huddersfield

Client Ref: EMS_629186_837339
Report Ref: EMS-629186_837339
Grid Ref: 417228, 415788

Map Name: County Series

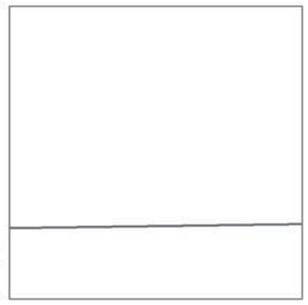
Map date: **1907**

Scale: 1:2,500

Printed at: 1:2,500

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Revised 1907
Edition N/A
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Surveyed 1907
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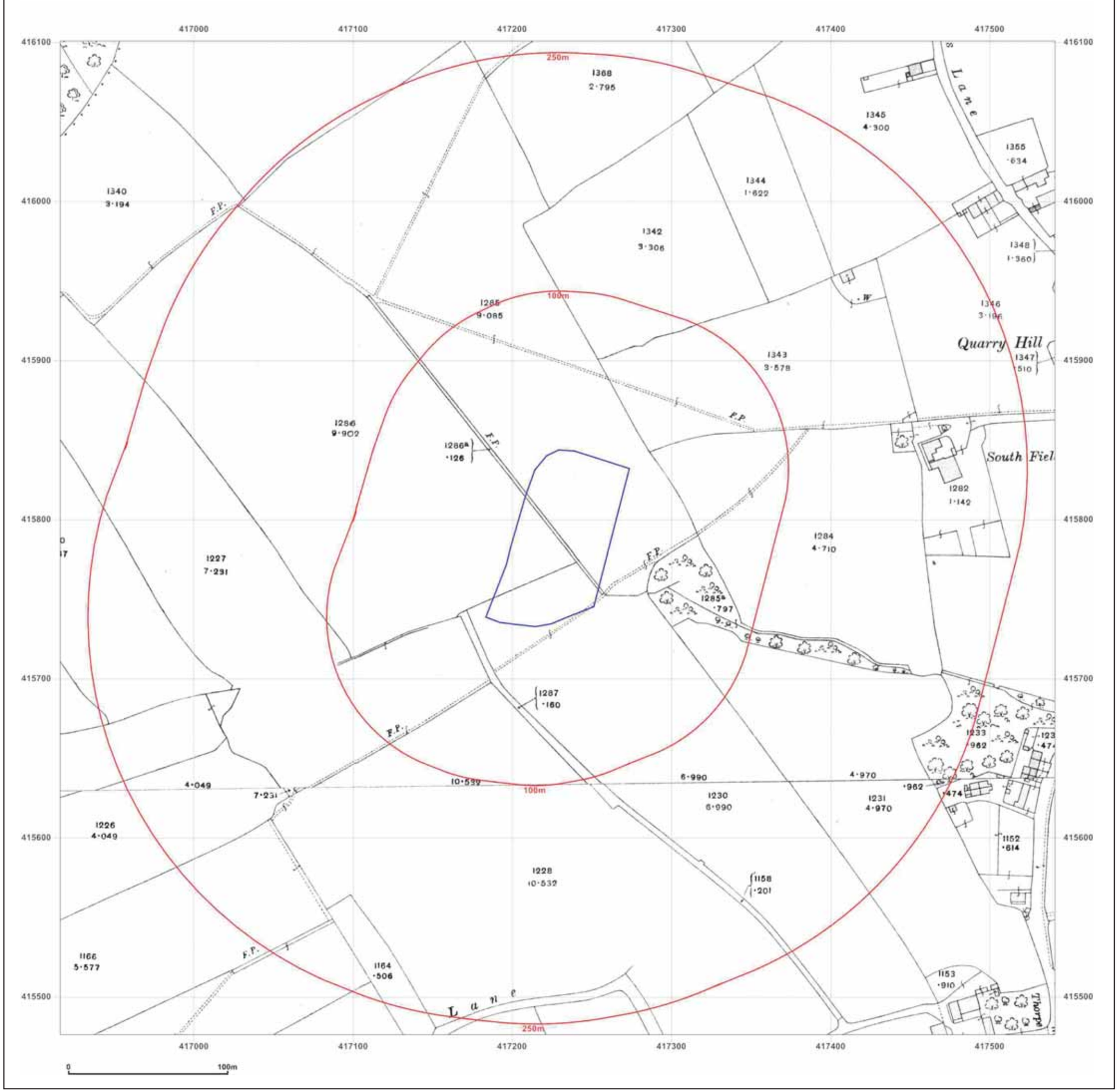
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Site Details:

Homestead,Hurst
Knowle,Huddersfield

Client Ref: EMS_629186_837339
Report Ref: EMS-629186_837339
Grid Ref: 417228, 415788

Map Name: County Series

Map date: **1913-1918**

Scale: 1:2,500

Printed at: 1:2,500

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Revised 1918
Edition N/A
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Surveyed 1913
Revised 1913
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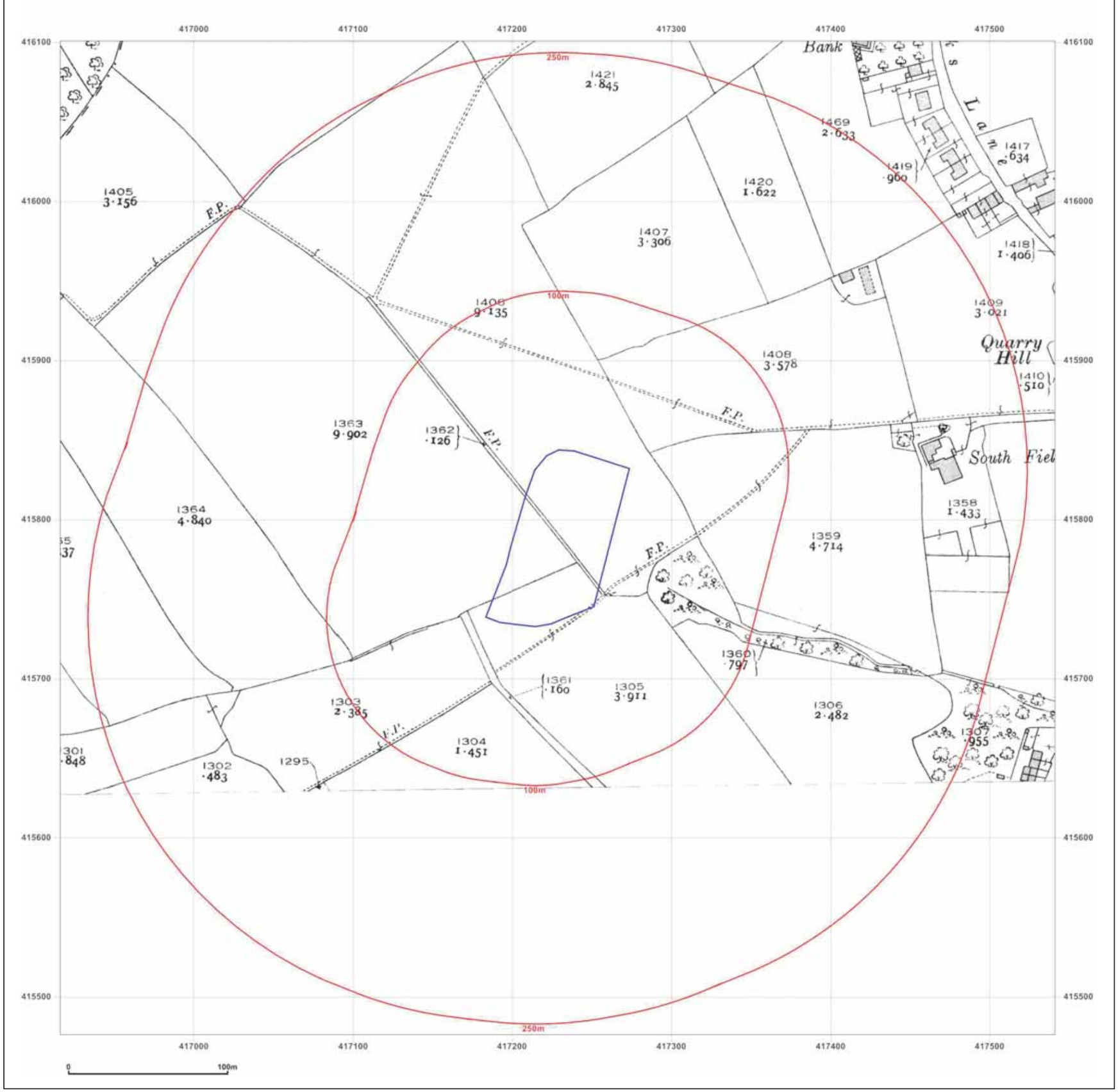
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Site Details:

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Knowle,Huddersfield

Client Ref: EMS_629186_837339
Report Ref: EMS-629186_837339
Grid Ref: 417228, 415788

Map Name: County Series

Map date: **1932**

Scale: 1:2,500

Printed at: 1:2,500

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Site Details:

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Knowle,Huddersfield

Client Ref: EMS_629186_837339
Report Ref: EMS-629186_837339
Grid Ref: 417228, 415788

Map Name: National Grid
Map date: **1957**
Scale: 1:1,250
Printed at: 1:2,000

N
W E
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Surveyed 1957
Revised 1957
Edition N/A
Copyright N/A
Levelled 1931

Surveyed 1957
Revised 1957
Edition N/A
Copyright N/A
Levelled 1931

Surveyed 1957
Revised 1957
Edition N/A
Copyright N/A
Levelled 1931

Surveyed 1957
Revised 1957
Edition N/A
Copyright N/A
Levelled 1931

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Site Details:

Homestead,Hurst
Knowle,Huddersfield

Client Ref: EMS_629186_837339
Report Ref: EMS-629186_837339
Grid Ref: 417228, 415788

Map Name: National Grid

Map date: **1958**

Scale: 1:1,250

Printed at: 1:2,000

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

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

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

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Revised N/A
Edition N/A
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Site Details:

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Knowle,Huddersfield

Client Ref: EMS_629186_837339
Report Ref: EMS-629186_837339
Grid Ref: 417228, 415788

Map Name: National Grid

Map date: **1957-1959**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed 1957
Revised 1957
Edition 1959
Copyright 1959
Levelled 1931

Surveyed 1957
Revised 1957
Edition 1958
Copyright N/A
Levelled 1931

Surveyed 1959
Revised 1959
Edition 1961
Copyright 1961
Levelled 1931

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Site Details:

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Knowle,Huddersfield

Client Ref: EMS_629186_837339
Report Ref: EMS-629186_837339
Grid Ref: 417228, 415788

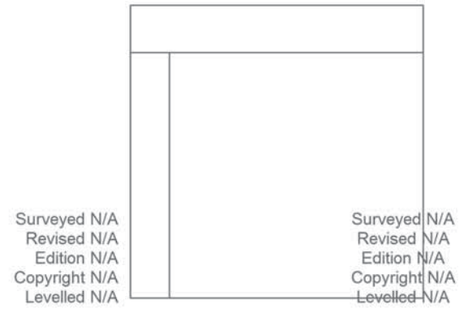
Map Name: National Grid

Map date: **1961**

Scale: 1:2,500

Printed at: 1:2,500

N
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Site Details:

Homestead,Hurst
Knowle,Huddersfield

Client Ref: EMS_629186_837339
Report Ref: EMS-629186_837339
Grid Ref: 417228, 415788

Map Name: National Grid

Map date: **1963-1968**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed 1957
Revised 1966
Edition N/A
Copyright 1967
Levelled 1959

Surveyed 1957
Revised 1968
Edition N/A
Copyright 1968
Levelled 1959

Surveyed 1957
Revised 1962
Edition N/A
Copyright 1963
Levelled 1959

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Client Ref: EMS_629186_837339
Report Ref: EMS-629186_837339
Grid Ref: 417228, 415788

Map Name: National Grid

Map date: **1990-1993**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A

Surveyed 1959
Revised 1990
Edition N/A
Copyright 1990
Levelled 1959

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A

Surveyed 1993
Revised 1993
Edition N/A
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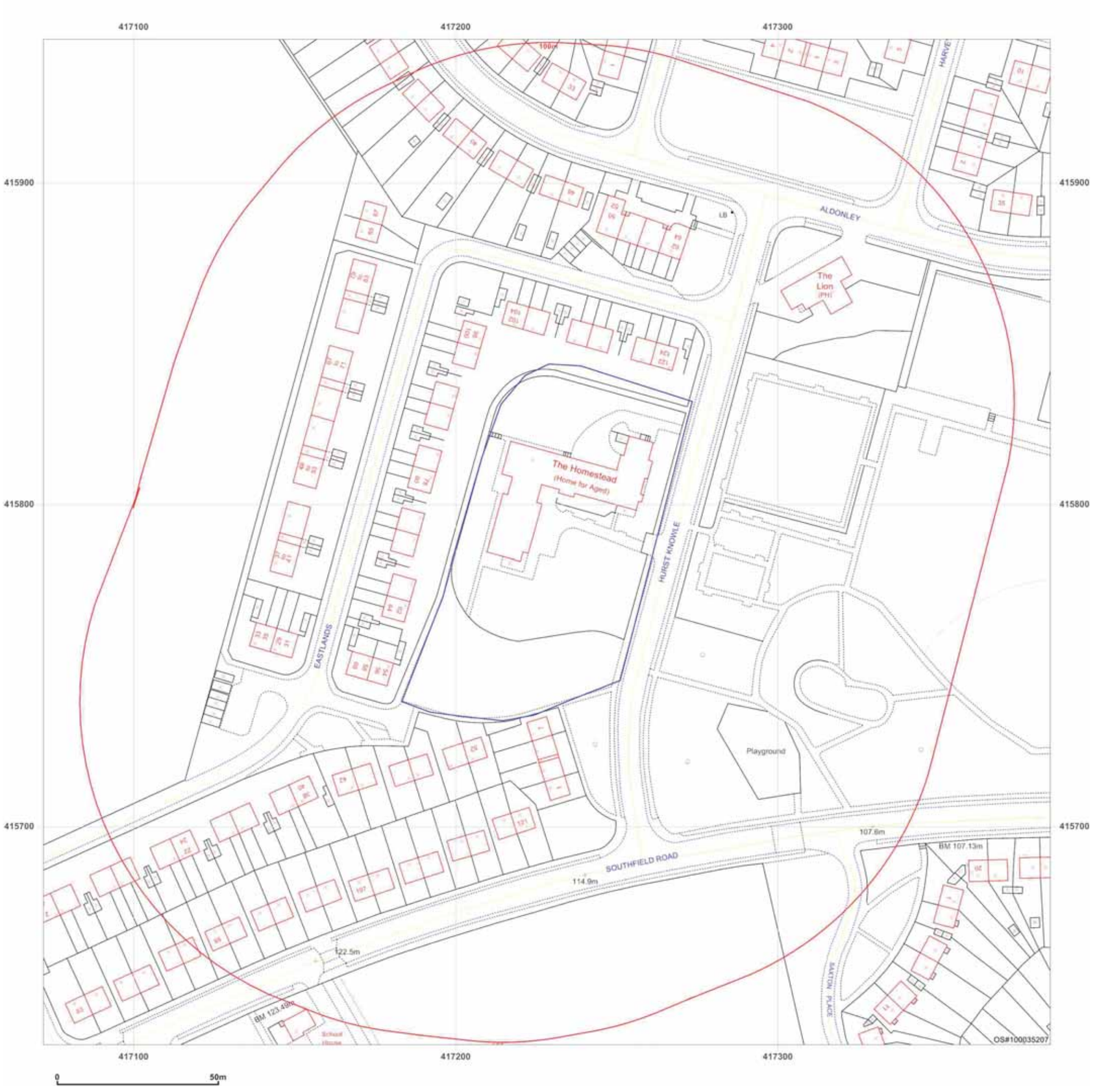
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Client Ref: EMS_629186_837339
Report Ref: EMS-629186_837339
Grid Ref: 417228, 415788

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

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2003

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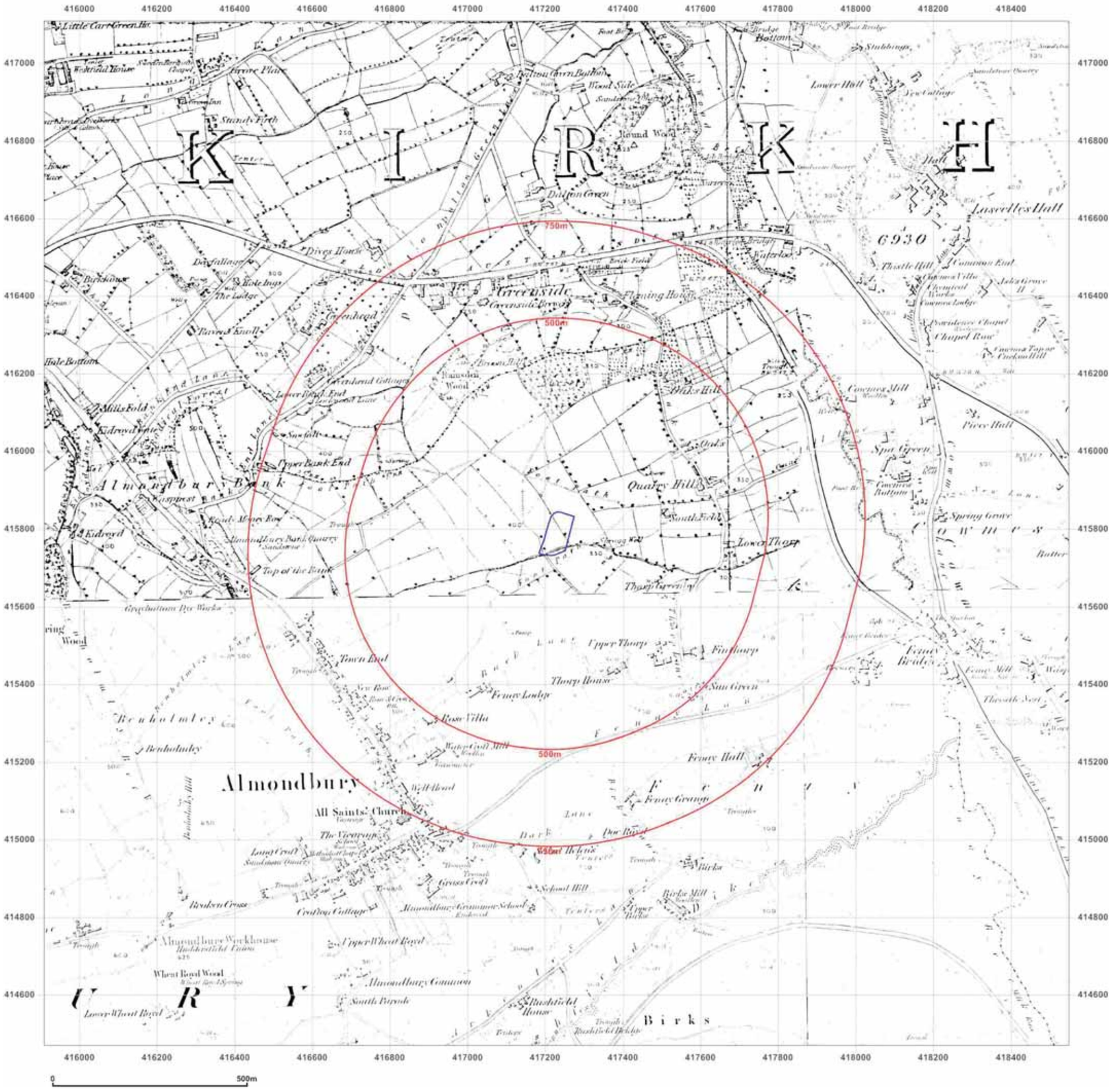
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Site Details:

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Knowle,Huddersfield

Client Ref: EMS_629186_837339
Report Ref: EMS-629186_837339
Grid Ref: 417228, 415788

Map Name: County Series

Map date: **1854-1855**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1850
Revised N/A
Edition 1854
Copyright N/A
Levelled 1853

Surveyed 1851
Revised N/A
Edition 1855
Copyright N/A
Levelled N/A

Surveyed 1851
Revised N/A
Edition 1854
Copyright N/A
Levelled N/A

Surveyed 1850
Revised N/A
Edition 1854
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Levelled N/A

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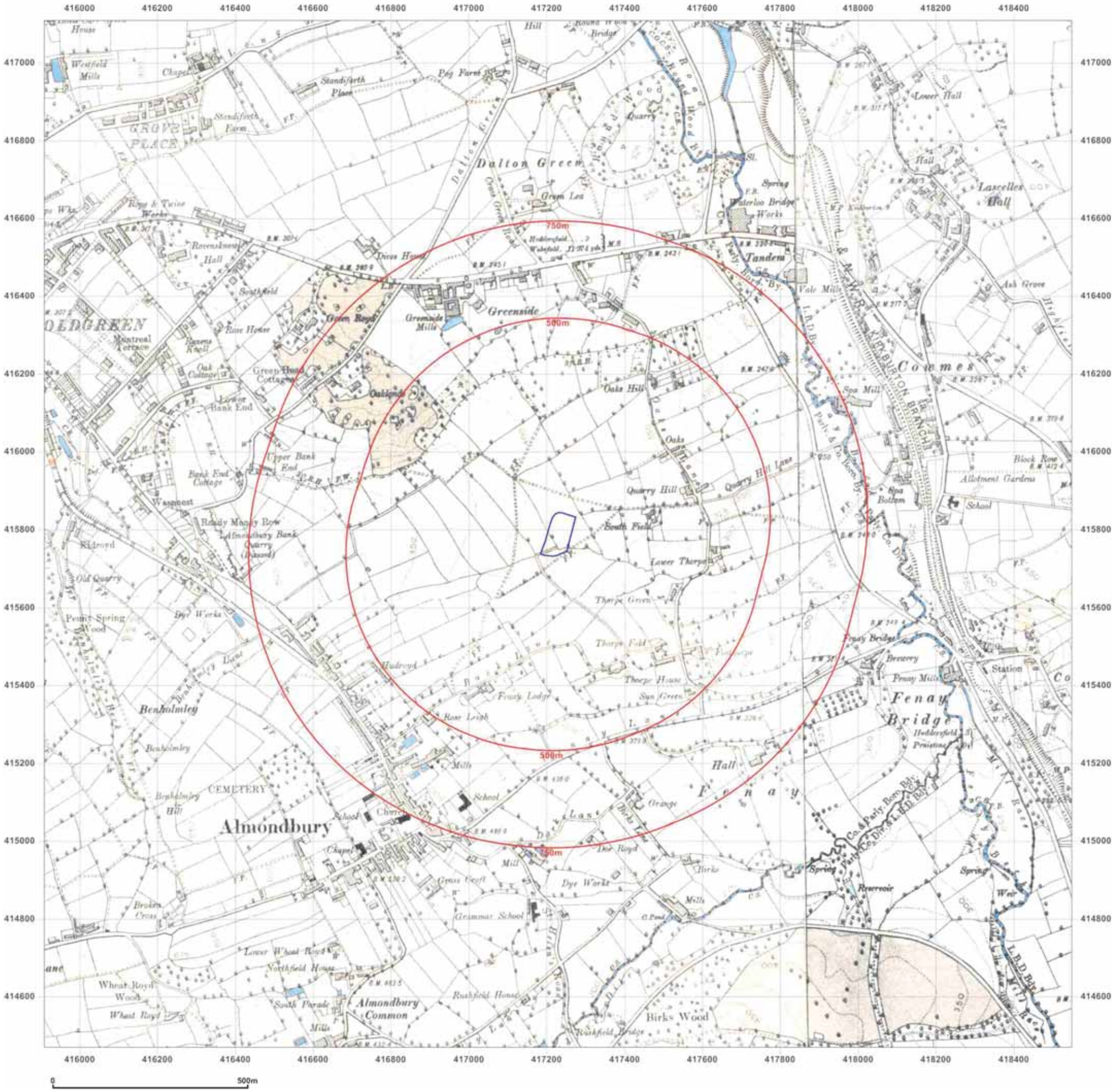
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Knowle,Huddersfield

Client Ref: EMS_629186_837339
Report Ref: EMS-629186_837339
Grid Ref: 417228, 415788

Map Name: County Series

Map date: **1888-1892**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1889
Revised 1889
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1888
Revised 1888
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1888
Revised 1888
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1892
Revised 1892
Edition N/A
Copyright N/A
Levelled N/A

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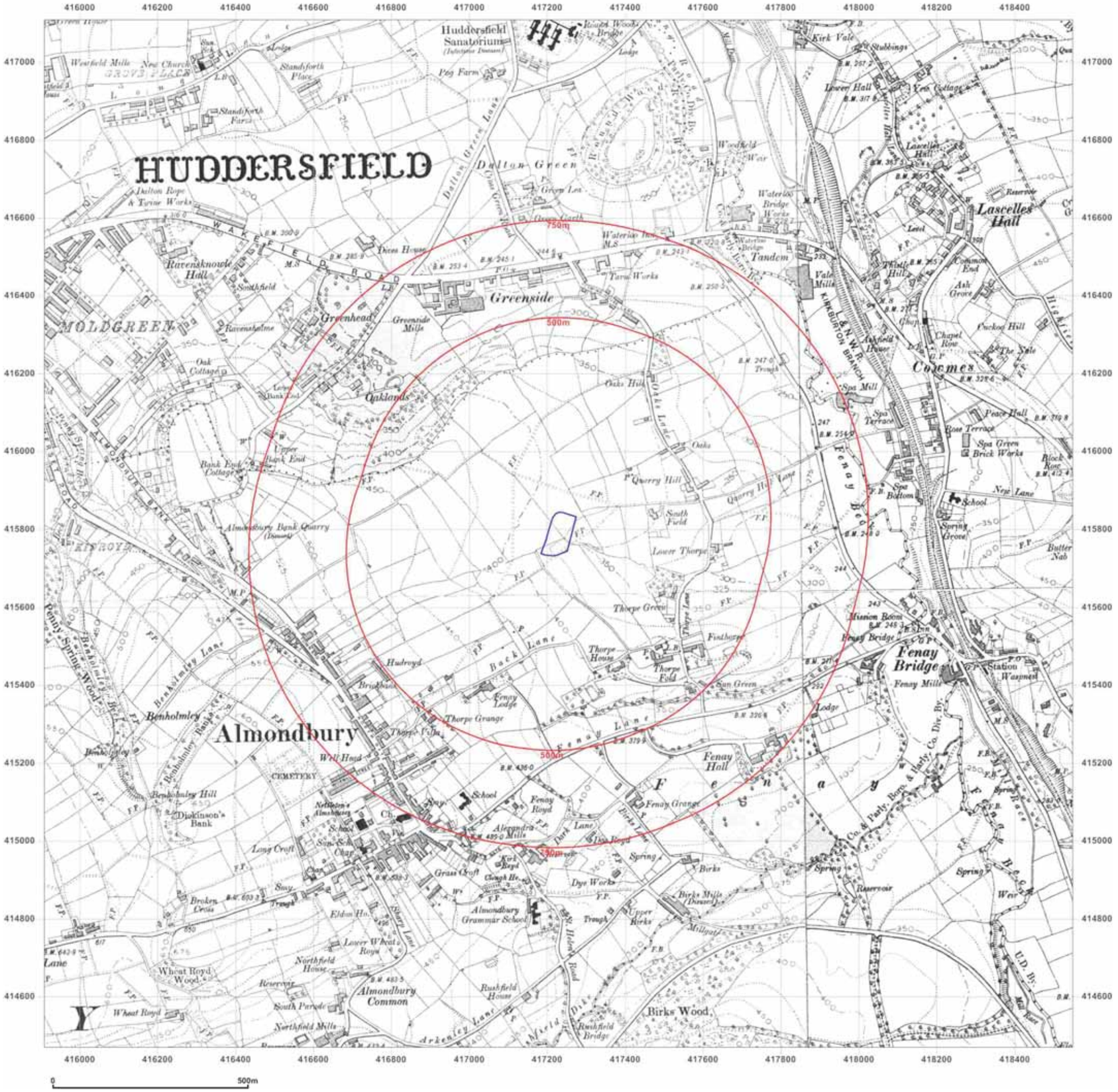
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Knowle,Huddersfield

Client Ref: EMS_629186_837339
Report Ref: EMS-629186_837339
Grid Ref: 417228, 415788

Map Name: County Series

Map date: **1904-1905**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1889
Revised 1905
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1888
Revised 1904
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1888
Revised 1905
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1892
Revised 1904
Edition N/A
Copyright N/A
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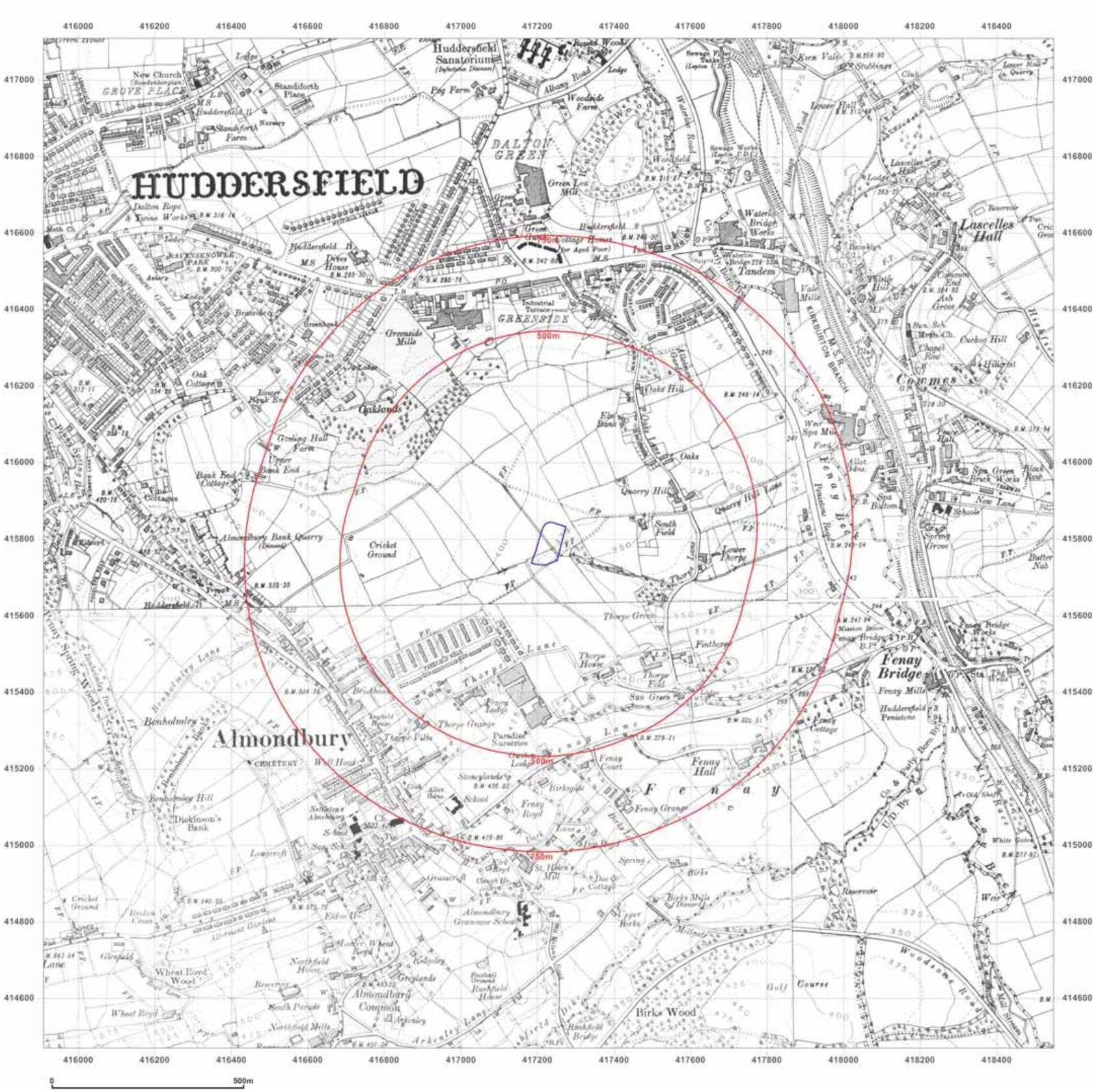
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Client Ref: EMS_629186_837339
Report Ref: EMS-629186_837339
Grid Ref: 417228, 415788

Map Name: County Series

Map date: **1930-1931**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1851
Revised 1930
Edition 1930
Copyright N/A
Levelled 1931

Surveyed 1851
Revised 1930
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1851
Revised 1930
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1851
Revised 1930
Edition N/A
Copyright N/A
Levelled N/A

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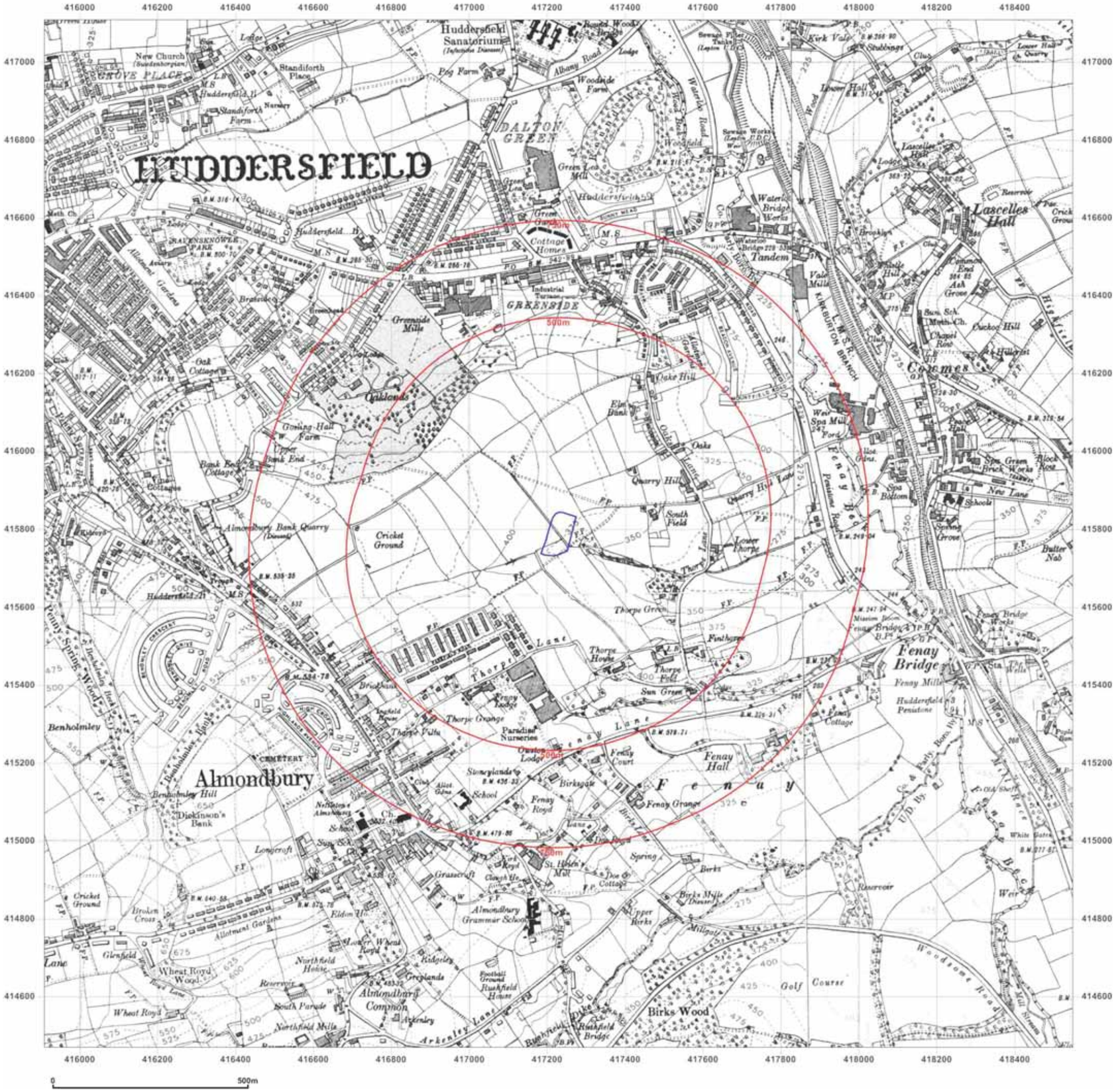
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Client Ref: EMS_629186_837339
Report Ref: EMS-629186_837339
Grid Ref: 417228, 415788

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1851
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A

Surveyed 1851
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A

Surveyed 1851
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A

Surveyed 1851
Revised 1938
Edition N/A
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Client Ref: EMS_629186_837339
Report Ref: EMS-629186_837339
Grid Ref: 417228, 415788

Map Name: County Series

Map date: 1948

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1851
Revised 1948
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1850
Revised 1948
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1851
Revised 1948
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1851
Revised 1948
Edition 1948
Copyright N/A
Levelled N/A

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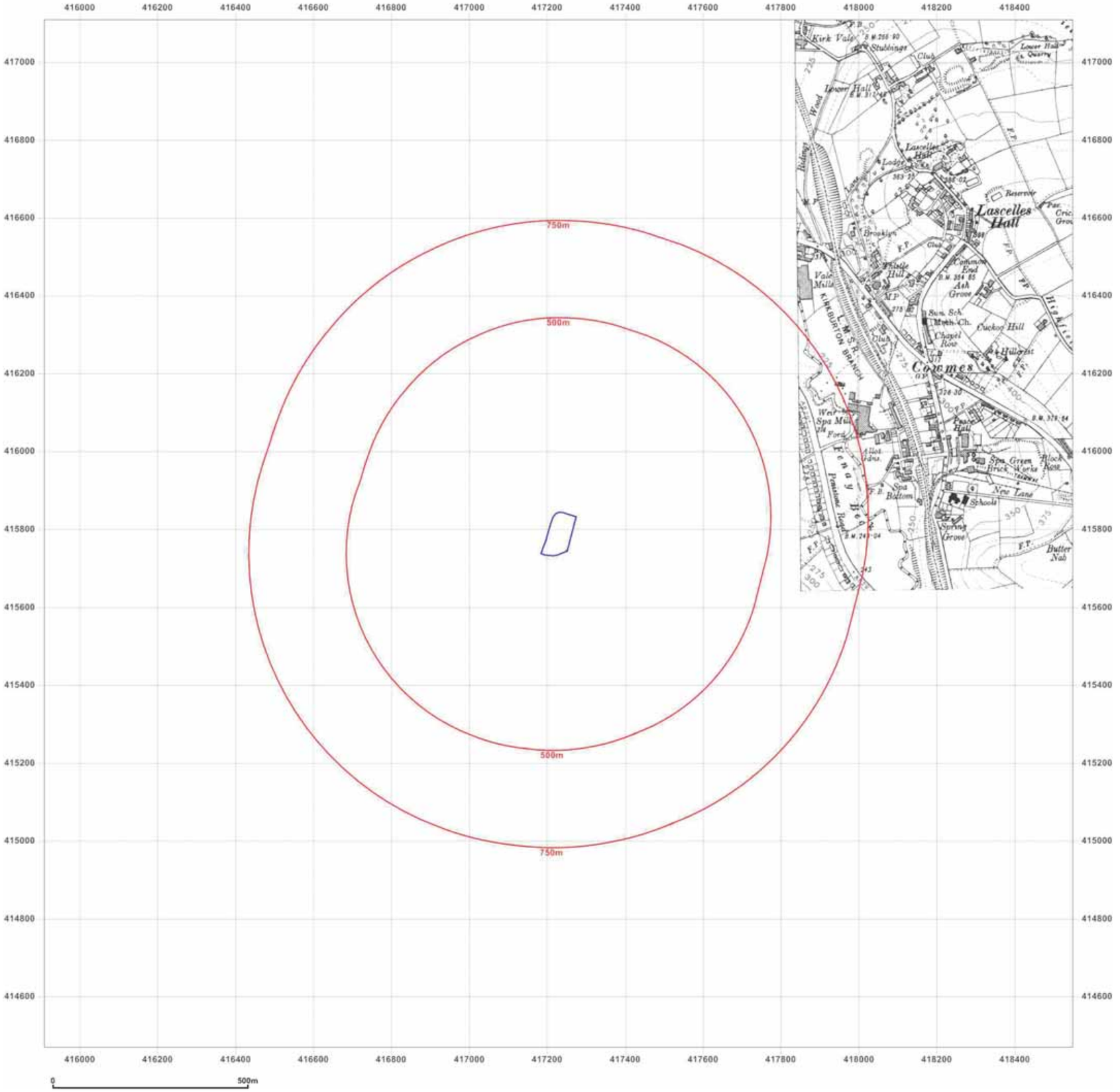
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Site Details:

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Knowle,Huddersfield

Client Ref: EMS_629186_837339
Report Ref: EMS-629186_837339
Grid Ref: 417228, 415788

Map Name: County Series

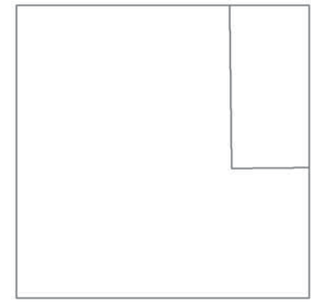
Map date: **1948**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1851
Revised 1948
Edition N/A
Copyright N/A
Levelled N/A



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Client Ref: EMS_629186_837339
Report Ref: EMS-629186_837339
Grid Ref: 417228, 415788

Map Name: Provisional

Map date: **1955-1956**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1951
Revised 1951
Edition N/A
Copyright 1956
Levelled N/A

Surveyed N/A
Revised 1955
Edition N/A
Copyright 1955
Levelled N/A

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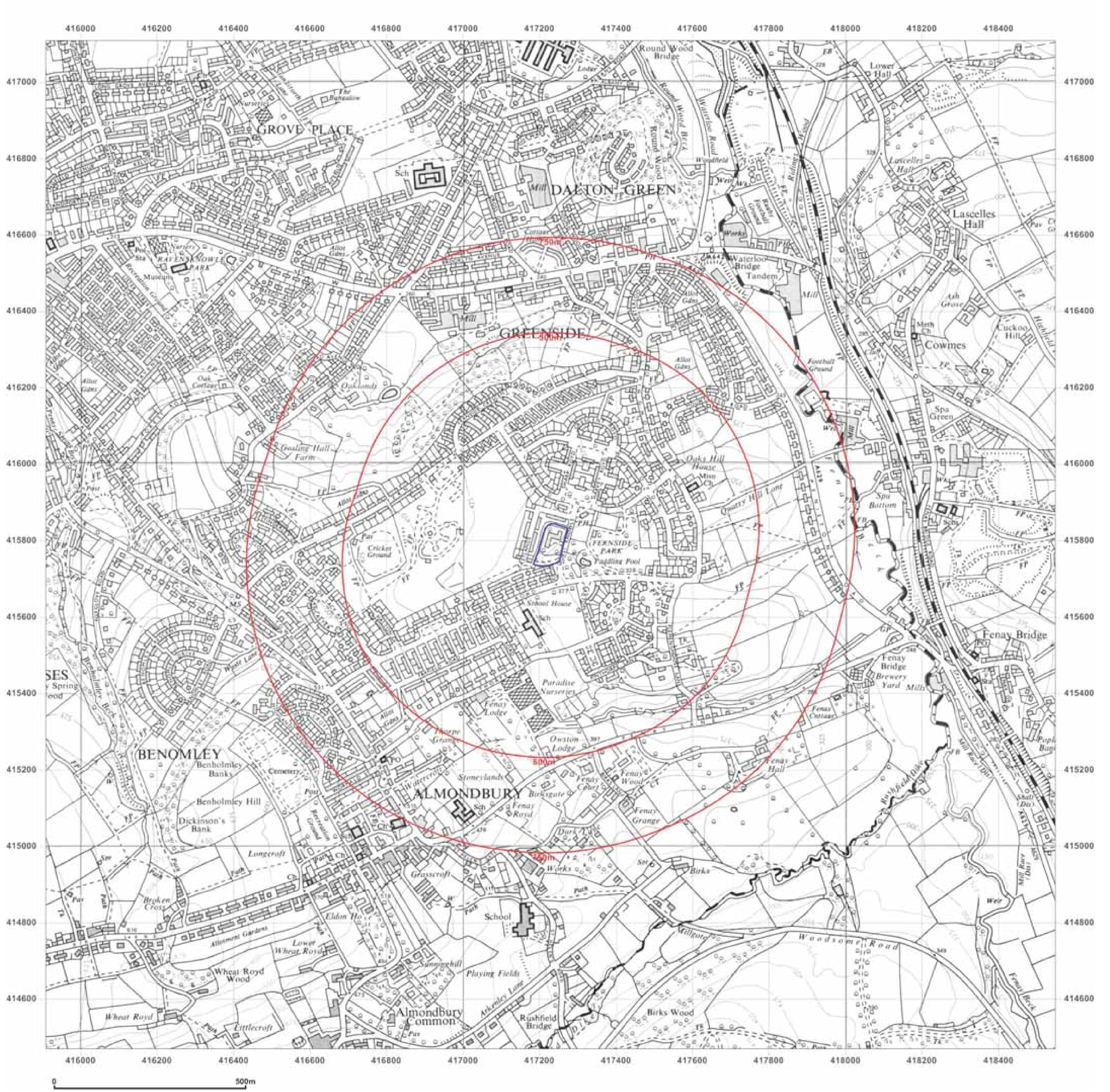
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Client Ref: EMS_629186_837339
Report Ref: EMS-629186_837339
Grid Ref: 417228, 415788

Map Name: Provisional

Map date: **1965-1968**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1965
Revised 1965
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1968
Revised 1968
Edition N/A
Copyright N/A
Levelled N/A

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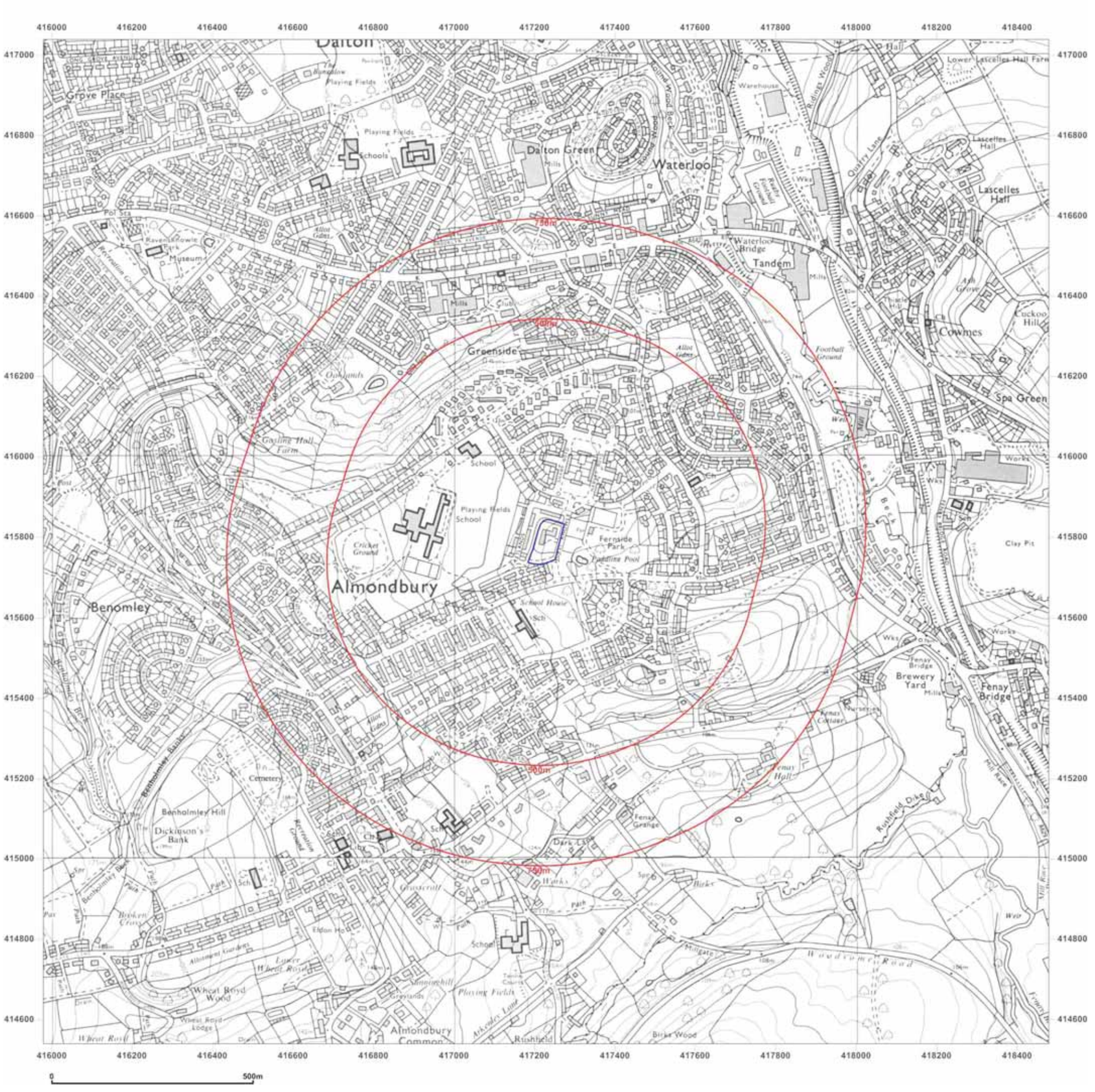
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Client Ref: EMS_629186_837339
Report Ref: EMS-629186_837339
Grid Ref: 417228, 415788

Map Name: National Grid

Map date: **1975-1977**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
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Surveyed 1974
Revised 1975
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1977
Revised 1977
Edition N/A
Copyright N/A
Levelled N/A

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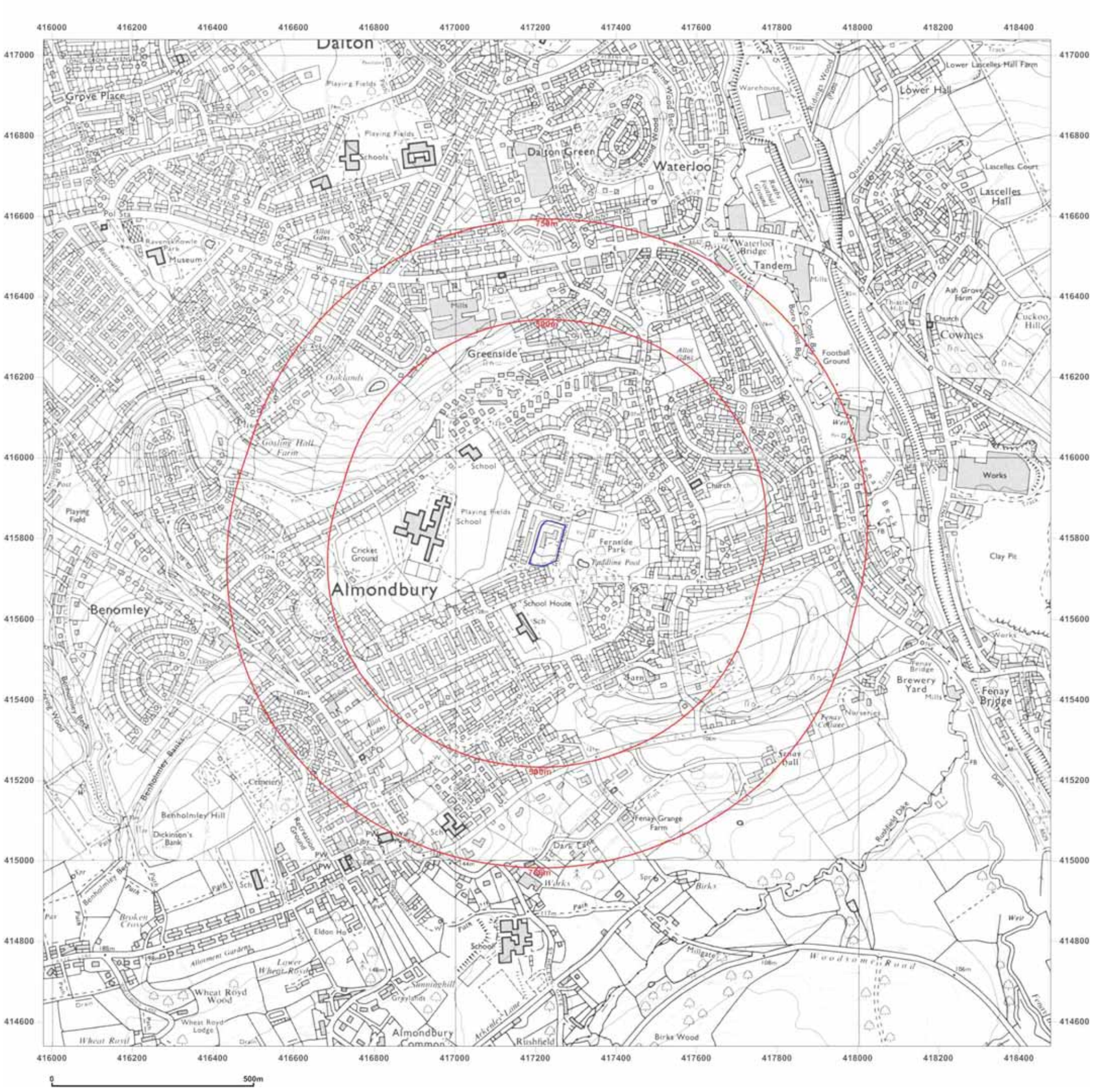
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Client Ref: EMS_629186_837339
Report Ref: EMS-629186_837339
Grid Ref: 417228, 415788

Map Name: National Grid

Map date: **1988-1990**

Scale: 1:10,000

Printed at: 1:10,000

N
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Surveyed 1984
Revised 1988
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1984
Revised 1990
Edition N/A
Copyright N/A
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Client Ref: EMS_629186_837339
Report Ref: EMS-629186_837339
Grid Ref: 417228, 415788

Map Name: National Grid

Map date: **2001**

Scale: 1:10,000

Printed at: 1:10,000

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2001

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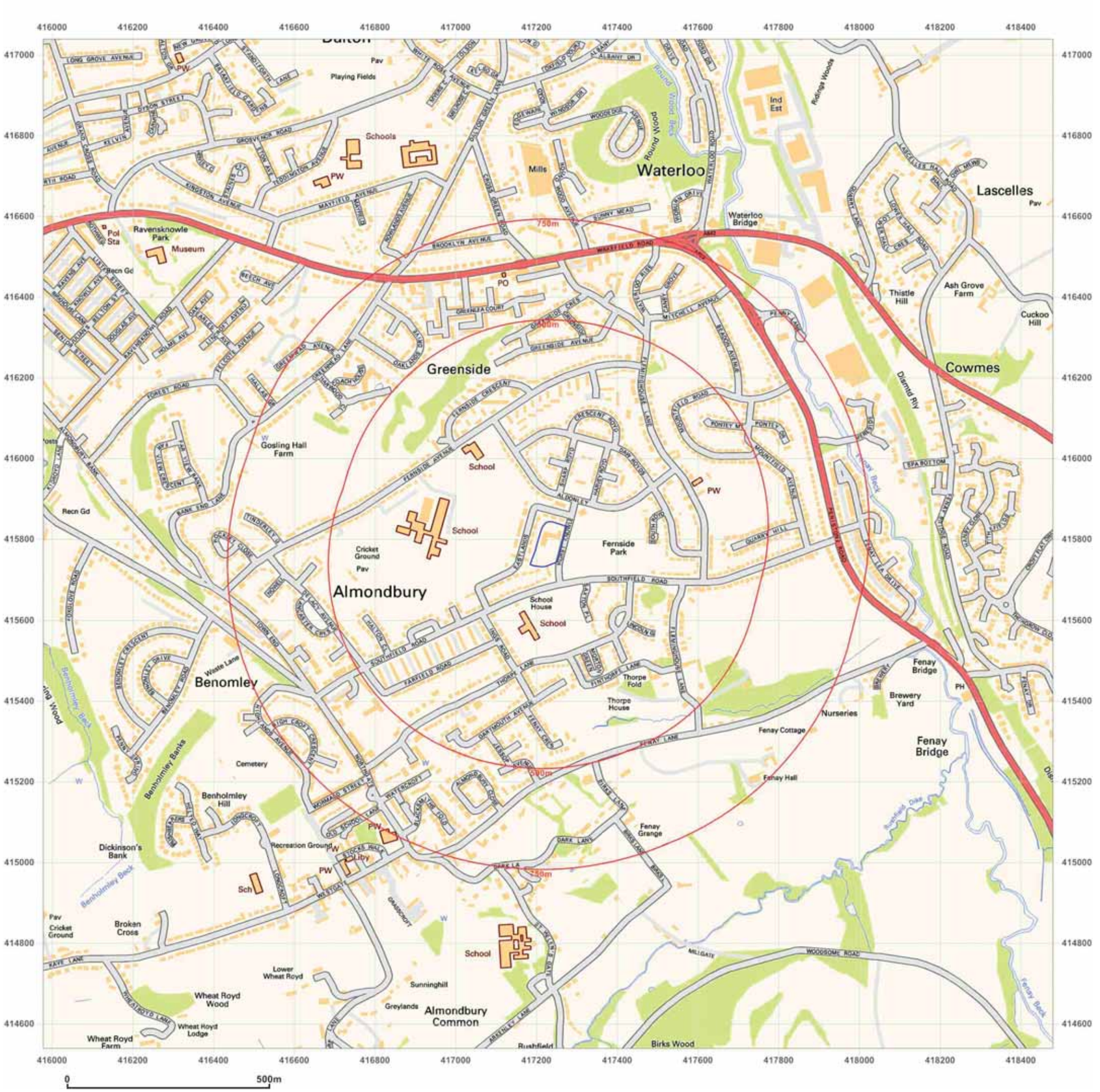
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Knowle,Huddersfield

Client Ref: EMS_629186_837339
Report Ref: EMS-629186_837339
Grid Ref: 417228, 415788

Map Name: National Grid

Map date: **2010**

Scale: 1:10,000

Printed at: 1:10,000

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2010

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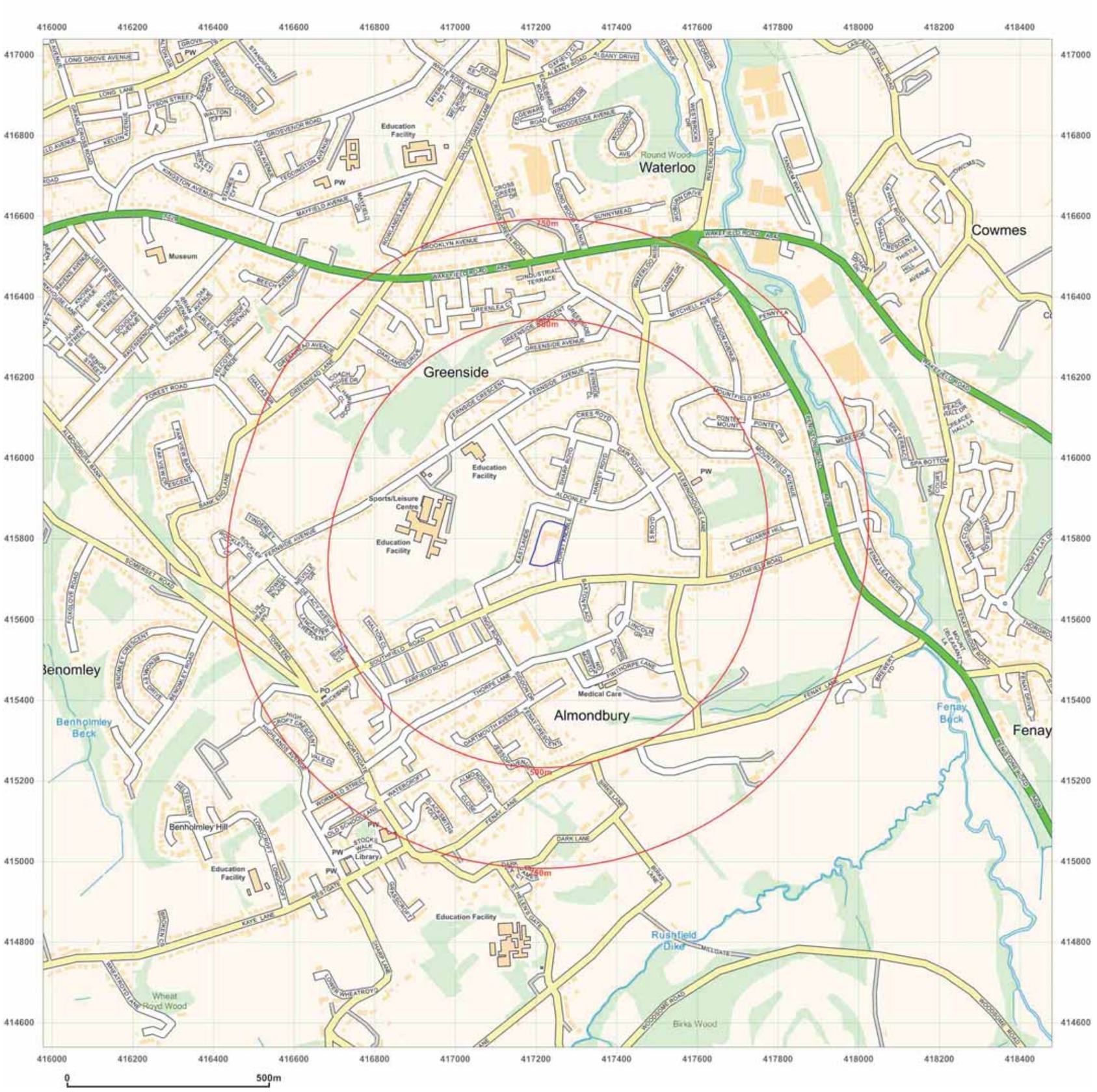
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Site Details:

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Client Ref: EMS_629186_837339
Report Ref: EMS-629186_837339
Grid Ref: 417228, 415788

Map Name: National Grid

Map date: **2020**

Scale: 1:10,000

Printed at: 1:10,000

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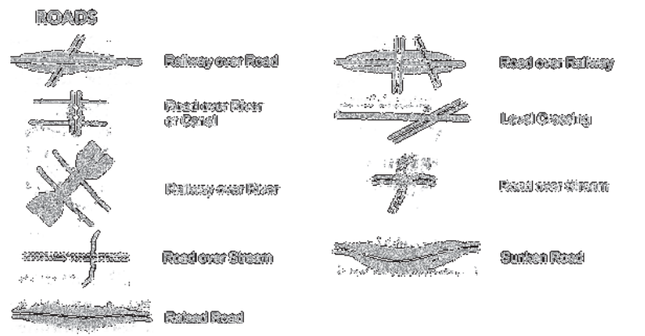
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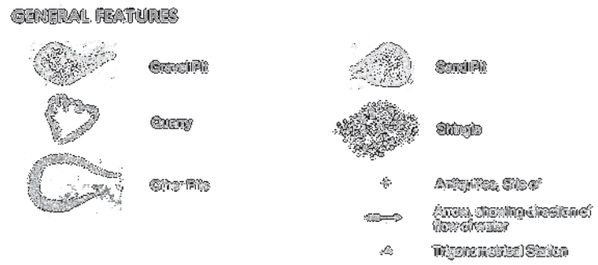
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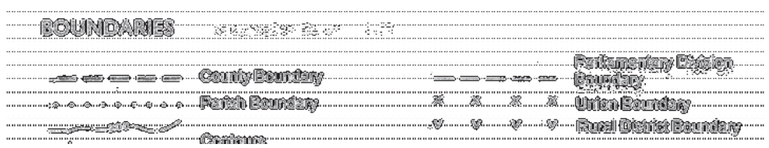
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www.groundsure.com/sites/default/files/groundsure_legend.pdf

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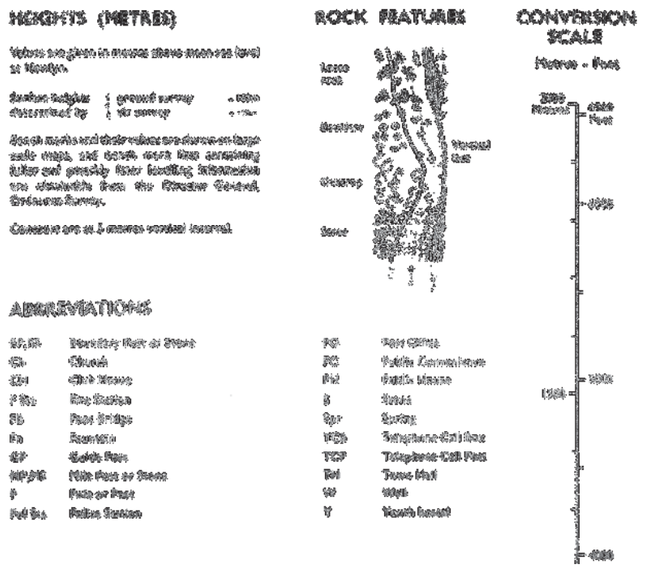


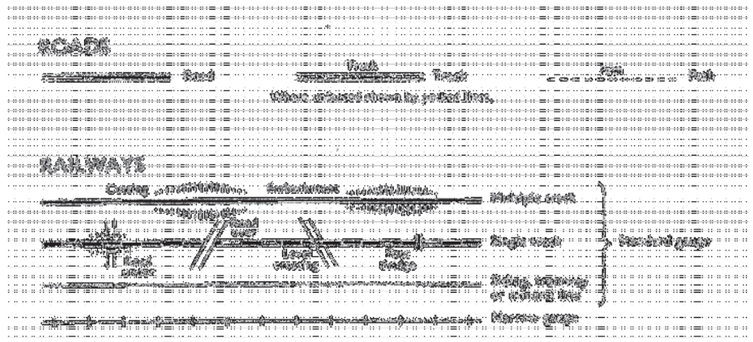


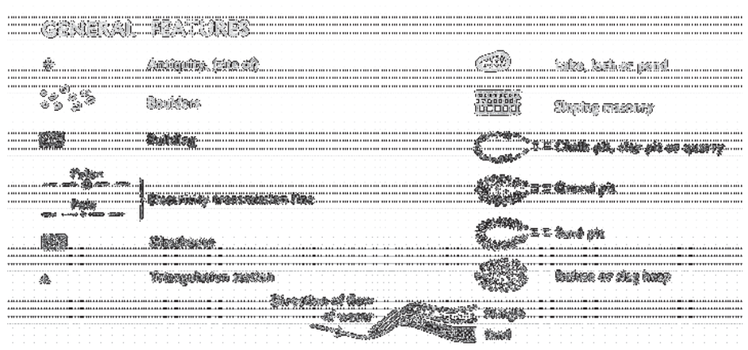


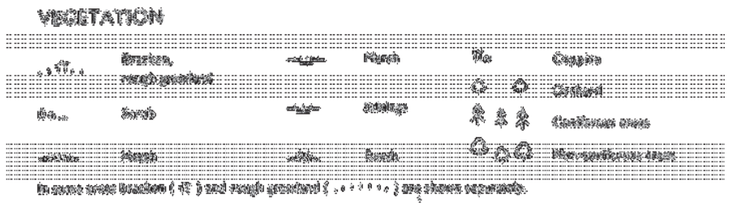


National Grid 1:10,000 scale









GroundSure

Historical Map Pack Legend

County Series & National Grid

1:10,560 scale

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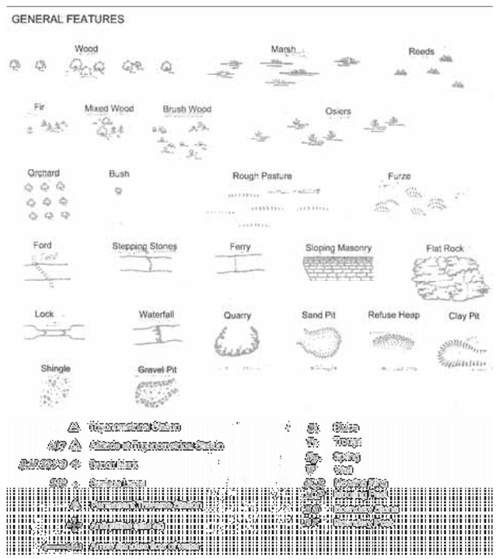
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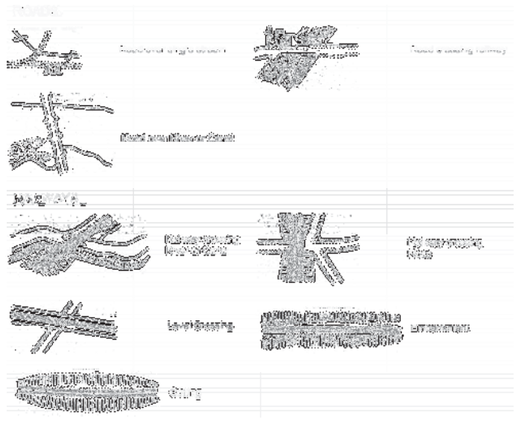
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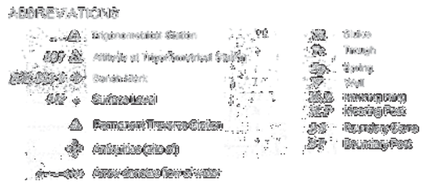
Tel 08444159000

groundsureinsight@groundsure.com
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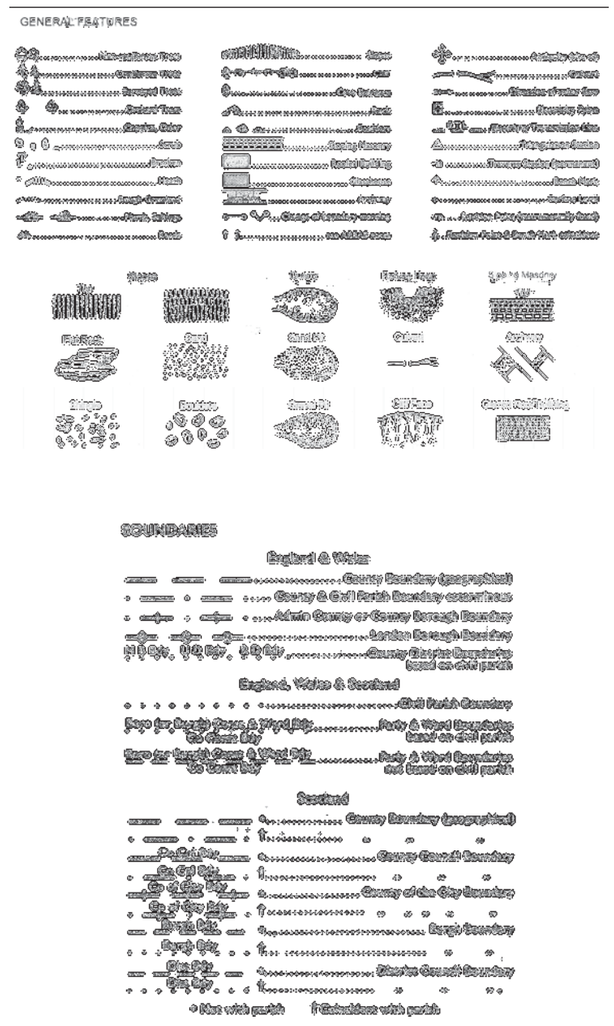
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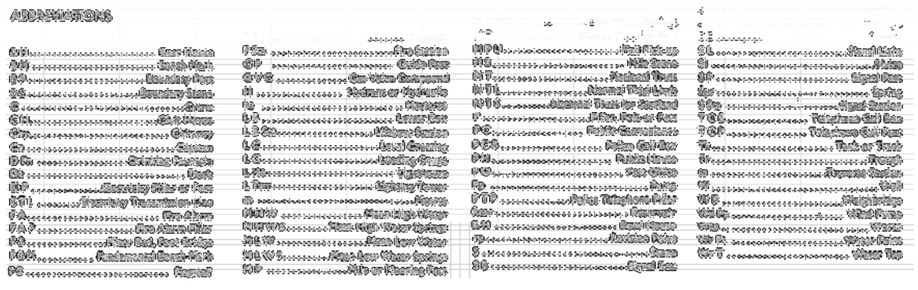






National Grid 1:2,500 / 1:1,250 scale





GroundSure

Historical Map Pack Legend

County Series

1:1,250 scale

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County Series & National Grid

1:2,500 scale

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Appendix V

Appendix V
Basis for Contaminated Land Qualitative Risk Assessment

The following Contaminated Land Risk Assessment methodology is based on CIRIA C552 (2001) *Contaminated Land Risk Assessment – A Guide to Good Practice*, in order to quantify potential risk via **risk estimation** and **risk evaluation**, which can be adopted at the Phase I (Desk Study) stage. This will then determine an overall risk category which can be used to identify potential investigation or remedial actions. This methodology uses qualitative descriptors and therefore is a qualitative approach based on desk information. The risk assessment should be refined following receipt of ground investigation data.

The methodology requires the classification of:

- the magnitude of the **consequence** (severity) of a risk occurring, and
- the magnitude of the **probability** (likelihood) of a risk occurring.

The potential consequences of contamination risks occurring at this Site are classified in accordance with Table VI-1 below, which is adapted from the CIRIA guidance.

Table VI-1: Classification of Consequence

Classification	Definition of Consequence
Severe	Short-term (acute) risks to human health likely to result in "significant harm" as defined by the Environmental Protection Act 1990, Part IIA. Short-term risk of pollution of sensitive water resource. Catastrophic damage to buildings/property. A short-term risk to a particular ecosystem, or organism forming part of such an ecosystem.
Medium	Chronic damage to Human Health (significant harm as defined in DEFRA, 2012). Pollution of sensitive water resources. A significant change in a particular ecosystem, or organism forming part of such an ecosystem.
Mild	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services ("significant harm" as defined in the DEFRA, 2012). Damage to sensitive buildings/structures/services or the environment.
Minor	Harm, though not necessarily significant harm, which may result in a financial loss, or expenditure to resolve. Non-permanent health effects to human health (easily prevented by means such as personal protective clothing etc.). Easily repairable effects of damage to buildings, structures and services.

Source: CIRIA C552

The probability of contamination risks occurring at this Site will be classified in accordance with Table VI-2 below from the CIRIA guidance. Note that for each category, it is assumed that a pollution linkage exists. Where a pollution linkage does not exist, the likelihood is zero, as is the risk.

Table VI-2: Classification of Probability

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

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

Table VI-3: Overall Contamination Risk Matrix

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

Based upon this, CIRIA C552 present definitions of the risk categories, together with the investigatory and remedial actions that are likely to be necessary in each case, as in Table VI-4. These risk categories apply to each pollutant linkage, not simply to each hazard or receptor.

Table VI-4: Definition of Risk Categories and Likely Actions Required

Risk Category	Definition and likely actions required
Very high	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.
High	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short term and are likely over the longer term.
Moderate	It is possible that harm could arise to a designated receptor from an identified hazard. However, if [it] is relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.
Low	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised would at worst be relatively mild.
Very Low	There is a low possibility that harm could rise to a receptor. In the event of such harm being realised it is not likely to be severe.

Appendix VI

Client: Frank Shaw Associates Ltd

Date: 11.09.20

Project: C3257
Site: The Homestead, Hurst Knowle Road, Huddersfield

Photo No: 01

Comments: View of ‘The Homestead’ from Hurst Knowle Road.



Client: Frank Shaw Associates Ltd

Date: 11.09.20

Project: C3257
Site: The Homestead, Hurst Knowle Road, Huddersfield

Photo No: 02

Comments: Rear of the building with bin storage area



Client: Frank Shaw Associates Ltd

Date: 11.09.20

Project: C3257
Site: The Homestead, Hurst Knowle Road, Huddersfield

Photo No: 03

Comments: Tarmac driveway from Hurst Knowle Road



Client: Warwickshire County Council

Date: 11.09.20

Project: C3257
Site: The Homestead, Hurst Knowle Road, Huddersfield

Photo No: 04

Comments: Tarmac carpark in front of the building



Client: Frank Shaw Associates Ltd

Date: 11.09.20

Project: C3257
Site: The Homestead, Hurst Knowle Road, Huddersfield

Photo No: 05

Comments: Communal garden area



Client: Frank Shaw Associates Ltd

Date: 11.09.20

Project: C3257
Site: The Homestead, Hurst Knowle Road, Huddersfield

Photo No: 06

Comments: Communal garden area



Client: Frank Shaw Associates Ltd
Date: 11.09.20

Project: C3257
Site: The Homestead, Hurst Knowle Road, Huddersfield

Photo No: 07

Comments: Raised ground in the north west corner of the site.



Appendix VII

The Coal Authority

CON29M
coal mining report

THE HOMESTEAD, HURST KNOWLE, ALMONDBURY, HUDDERSFIELD, KIRKLEES HD5 8SG

Known or potential coal mining risks

Future underground coal mining Page 3

Further action

No further reports from the Coal Authority are required. Further information on any next steps can be found in our Professional opinion.

For more information on our reports please visit www.groundstability.com

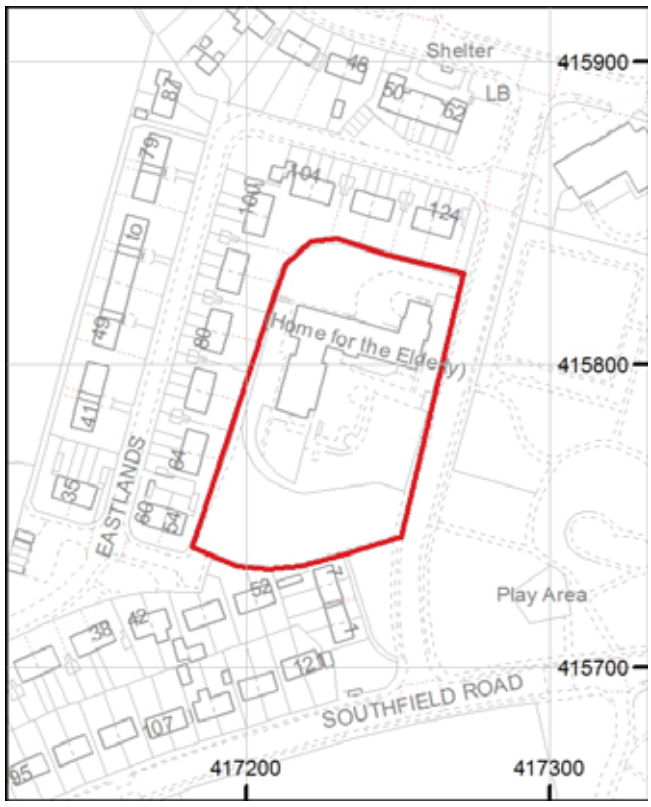
Professional opinion

According to the official mining information records held by the Coal Authority at the time of this search, evidence of, or the potential for, coal mining related features have been identified. It is unlikely that these features will impact on the stability of the enquiry boundary.

Enquiry boundary

Key

Approximate position of enquiry boundary shown



We can confirm that the location is **on the coalfield**

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This report is prepared in accordance with the latest Law Society's Guidance Notes 2018, the User Guide 2018 and the Coal Authority's Terms and Conditions applicable at the time the report was produced.

Accessibility

If you would like this information in an alternative format, please contact our communications team on 0345 762 6848 or email communications@coal.gov.uk.

Detailed findings

Information provided by the Coal Authority in this report is compiled in response to the Law Society's CON29M Coal Mining enquiries. The said enquiries are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL.

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1 Past underground coal mining

The property is not within a surface area that could be affected by any past recorded underground coal mining.

2 Present underground coal mining

The property is not within a surface area that could be affected by present underground mining.

3 Future underground coal mining

The property is not in an area where the Coal Authority has received an application for, and is currently considering whether to grant a licence to remove or work coal by underground methods.

The property is not in an area where a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area likely to be affected from any planned future underground coal mining.

However, reserves of coal exist in the local area which could be worked at some time in the future.

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

4 Mine entries

There are no recorded coal mine entries known to the Coal Authority within, or within 20 metres, of the boundary of the property.

5 Coal mining geology

The Coal Authority is not aware of any damage due to geological faults or other lines of weakness that have been affected by coal mining.

6 Past opencast coal mining

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

7 Present opencast coal mining

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

8 Future opencast coal mining

There are no licence requests outstanding to remove coal by opencast methods within 800 metres of the boundary.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

9 Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

10 Mine gas

The Coal Authority has no record of a mine gas emission requiring action.

11 Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Coal Authority, under its Emergency Surface Hazard Call Out procedures.

12 Withdrawal of support

The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

13 Working facilities order

The property is not in an area where an order has been made, under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

14 Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Statutory cover



Coal mining subsidence

In the unlikely event of any coal mining related subsidence damage, the Coal Authority or the mine operator has a duty to take remedial action in respect of subsidence caused by the withdrawal of support from land or property in connection with lawful coal mining operations.

When the works are the responsibility of the Coal Authority, our dedicated public safety and subsidence team will manage the claim. The house or land owner ("the owner") is covered for these works under the terms of the Coal Mining Subsidence Act 1991 (as amended by the Coal Industry Act 1994). Please note, this Act does not apply where coal was worked or gotten by virtue of the grant of a gale in the Forest of Dean, or any other part of the Hundred of St. Briavels in the county of Gloucester.

If you believe your land or property is suffering from coal mining subsidence damage and you need more information on what to do next, please use the following link to our website which sets out what your rights are and what you need to consider before making a claim.
www.gov.uk/government/publications/coal-mining-subsidence-damage-notice-form



Coal mining hazards

Our public safety and subsidence team provide a 24 hour a day, 7 days a week hazard reporting service, to help protect the public from hazards caused by past coal workings, such as a mine shaft or shallow working collapse. To report any hazards please call 01623 646 333. Further information can be found on our website: www.gov.uk/coalauthority.

Glossary

Key terms

adit - horizontal or sloped entrance to a mine

coal mining subsidence - ground movement caused by the removal of coal by underground mining

Coal Mining Subsidence Act 1991 - the Act setting out the duties of the Coal Authority to repair damage caused by coal mining subsidence

coal mining subsidence damage - damage to land, buildings or structures caused by the removal of coal by underground mining

coal seams - bed of coal of varying thickness

future opencast coal mining - a licence granted, or licence application received, by the Coal Authority to excavate coal from the surface

future underground coal mining - a licence granted, or licence application received, by the Coal Authority to excavate coal underground. Although it is unlikely, remaining coal reserves could create a possibility for future mining, which would be licensed by the Coal Authority

mine entries - collective name for shafts and adits

payments to owners of former copyhold land - historically, copyhold land gave rights to coal to the copyholder. Legislation was set up to allow others to work this coal, but they had to issue a notice and pay compensation if a copyholder came forward

shaft - vertical entry into a mine

site investigation - investigations of coal mining risks carried out with the Coal Authority's permission

stop notice - a delay to repairs because further coal mining subsidence damage may occur and it would be unwise to carry out permanent repairs

subsidence claim - a formal notice of subsidence damage to the Coal Authority since it was established on 31 October 1994

withdrawal of support - a historic notice informing landowners that the coal beneath their property was going to be worked

working facilities orders - a court order which gave permission, restricted or prevented coal mine workings