# Phase 1 Desk Study & Preliminary Risk Assessment

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| Site Address: | Plots 1 & 2, 124 Hartshead Lane, Hartshead, Liversedge, West Yorkshire WF15 8AJ |
| **Client:** | Mr David Brown |
| **Report Ref:** | AC00195/P1DSPRA/V1.0 |
| **Date:** | September 2024 |

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AC Environment Solutions knows of no conflict of interest in the production of this report.

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Date: September 2024

# Stage 1 Desk Study & Preliminary Risk Assessment
# Plots 1 & 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

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# 1 Introduction / Executive Summary

1.1 AC Environment Solutions Limited (AC Environment Solutions) was originally instructed by Mr David Brown in August 2024, to prepare a Stage 1 Desk Study and Preliminary Risk Assessment (S1DSPRA), for the property known as Plots 1 & 2, 124 Hartshead Lane, Hartshead, Liversedge, West Yorkshire WF15 8AJ.

1.2 It is understood that the client intends to erect two detached dwellings on the site (Original Kirklees Planning Application Reference 2023/62/92340/E; Appeal Reference APP/Z4718/W/23/3334872). Annex A, Condition 6 of the Appeal Decision requires the completion of a Stage 1 Desk Study and Preliminary Risk Assessment.

1.3 The purpose of this report is to identify and qualitatively assess the potential for environmental risk which may impact both upon the development of, and the intended future use of the site.

1.4 This desk study report has been prepared in accordance with Environment Agency, Local Authority and other relevant sector guidance, including 'Environment Agency Land Contamination Risk Management (LCRM) guides' published 08 October 2020 and 'Development on Land Affected by Contamination: Technical Guidance for Developers, Landowners and Consultants – Version 12.2 June 2023' produced by the Yorkshire and Lincolnshire Pollution Advisory Group (YALPAG).

1.5 The study examines information relevant to the site gathered from a number of sources including historical Ordnance Survey mapping, records from British Geological Survey and publicly available records including those of the Environment Agency, Natural England, the Coal Authority, the Local Authority and other engineering and environmental bodies. The report may therefore contain public sector information licensed under the Open Government Licence v3.0. The majority of the information has been collectively sourced from Groundsure Ltd in the form of an industry standard data report which has been interpreted and incorporated into this report.

1.6 AC Environment Solutions undertook a site reconnaissance inspection of the site and surrounding area on 12 September 2024, during which a photographic record of the property was made, and some anecdotal information relating to the site was also obtained from Mr Brown.

1.7 No intrusive testing has been carried out as part of this assessment. The report may be used as both as reference point and an informative tool by the client in the design of future investigative works, in the event that a potential for environmental risk, including the potential for significant issues associated with the presence of any contamination or other environmental risk is identified.

1.8 The conclusions reached in this report are necessarily restricted to those which can be determined from available information and may be subject to amendment in the light of additional information becoming available or to changes in relevant legislation.

# 2 Site Location and Topography

2.1 The site is located on land immediately to the south of Hartshead Lane within the small village of Hartshead in the county of West Yorkshire.

2.2 Hartshead is situated on the north-east side of the Calder Valley; the nearest small towns being Liversedge approximately 1.5km to the north-east, Mirfield approximately 2.2km to the south-east and Brighouse approximately 3.0 km to the west. The nearest large town is Huddersfield approximately 6.0km to the south-west.

2.3 At the date of this report, the land could be accessed from the entrance to an adjacent property known as '*Sherwood House*'. The land once formed part of the large garden to Sherwood House, prior to its recent programme of external remodelling. The site area is shown on the plan at Appendix A.

2.4 The drawings at Appendix B show the layout of the site following development. It is understood that the client wishes to construct two no. two storey detached houses with their own separate entrances and driveways in fully soft landscaped surroundings.

2.5 An approximate National Grid Reference for the centre of the site where the dwelling houses are to be constructed is (SE) 418337 422504 and the site, including the access is approximately 0.27 hectares in aerial extent.

2.6 The land lies approximately 125 metres above Ordnance Datum (AOD) at road level on Hartshead Lane, and sloping moderately at first then gently to the south. The southern boundary lies at approximately 119.5m AOD.

# 3 Site History

3.1 The history of the subject site and its surroundings has been ascertained by reference to historical 1:1,250, 1:2,500, 1:10,000 and 1:10,560 scale Ordnance Survey (OS) map extracts dating from between 1854 and 2024; copies of which are presented at Appendix C, and the Enviro and Geo Insight data report at Appendix F.

3.2 The small scale maps provide full site coverage, however, there is an absence of coverage of the site on the small scale maps dating from 1855, 1905, 1938 and both of the 1948 maps. The information has been supplemented using the Groundsure Enviro/Geo-Insight report data from the Past Land Use Map, page 14 and the Past Land Use – Un-grouped Map, page 18.

**Historical Potentially Contaminative Features On-site**

3.3 Details of on site features are summarised in the table below:

| Map ID | Date From | Date To | Feature |
|---|---|---|---|
| OS | 1854 | 1854 | Undeveloped Site (Possibly in agricultural use). |
| OS | 1905 | 1905 | A small square of land in the north-west corner had been separated off from the main site area. |
| OS | 1907 | 1907 | Two unspecified buildings now present in the north-west corner (possibly a dwelling and garage or outbuilding). |
| OS | 1907 | 1963 | There were no material changes made to the main site area during this period. There were minor changes to the buildings in the north-west corner. A large dwelling was present on directly adjacent land to the east by 1963 – '*Sherwood*'. |
| OS | 1971 | 1971 | The building in the north-west corner is no longer present. No changes to the remainder of the site. |
| OS | 1971 | 2024 | No material changes to the site during this period. |

**Historical Potentially Contaminative Features Within 250m**

Details of historical off site development features within 500m of the site boundary are summarised in the table below:

| Map ID | Distance / Direction | Date From | Date To | Feature |
|---|---|---|---|---|
| A | 80m SE | 1931 | 1931 | Rural District Council Sewage Works |
| A | 81m SE | 1931 | 1951 | Sewage Works |
| 1 | 101m SW | 1892 | 1892 | Unspecified Ground Workings |
| A | 116m SE | 1938 | 1938 | Sewage Works |
| A | 124m SE | 1951 | 1966 | Refuse Heap |
| A | 127m SE | 1931 | 1931 | |
| A | 132m SE | 1948 | 1948 | |
| A | 132m SE | 1892 | 1905 | Unspecified Pit |
| A | 132m SE | 1931 | 1931 | Refuse Heap |
| A | 133m SE | 1938 | 1938 | |
| 2 | 229m E | 1971 | 1971 | Electricity Substation |
| 3 | 324m SE | 1892 | 1892 | Unspecified Holes |
| B | 349m N | 1892 | 1905 | Unspecified Pit |
| B | 354m N | 1948 | 1948 | |
| B | 354m N | 1951 | 1966 | |
| 4 | 381m E | 1938 | 1938 | Sewage Works |
| C | 466m NE | 1892 | 1892 | Refuse Heaps |
| C | 478m NE | 1892 | 1892 | Unspecified Shafts |
| D | 486m E | 1931 | 1931 | Rural District Council Sewage Works |

| Map ID | Distance / Direction | Date From | Date To | Feature |
|---|---|---|---|---|
| D | 486m E | 1931 | 1931 | Sewage Works |
| D | 486m E | 1948 | 1948 | |
| D | 487m E | 1951 | 1951 | |

**Aerial Imagery**

3.4 Recent aerial imagery from Groundsure available from 1999 to 2021 shows that the site does not appear to have been excavated, or developed in any way and previously comprised a large lawned garden area belonging to the adjacent property known as '*Sherwood*'. There are less trees on site in 2021 than were present in 1999.

# 4 Site Reconnaissance

4.1 An inspection of the subject site was undertaken by a representative of AC Environment Solutions on 12 September 2024 accompanied by Mr David Brown. The weather at the time of the inspection was cloudy and warm with sunny intervals with clear visibility. Photographs from the inspection are presented at Appendix D.

4.2 The land where Plots 1 and 2 are to be constructed was currently being accessed via the entrance to '*Sherwood House*', previously the original and only property on the site which has been fairly recently redesigned and remodelled. Plots 1 and 2 will have their own separate entrances on completion of the development.

4.3 The boundary with Hartshead Lane was seen to comprise a dwarf dry stone wall with access to the site being prevented by Heras type security fencing. Mr Brown stated that the aged stone making up the dwarf dry stone wall would eventually be removed and used in the repair of the dry stone wall on the western and southern boundaries of the property, giving way to a newly constructed dry stone wall with two separate entrances, in the style of the new build property immediately to the east of Sherwood House.

4.4 The northern quarter of the site closest to Hartshead Lane was open and moderately sloping away from the Lane, with a patchy covering of vegetation including both grass and weeds.

4.5 In the north-western corner of the site, some discarded stone lintels/slabs were observed adjacent to the western boundary dry stone wall. The historical maps indicated that a small building was present in this corner of the site between 1907 and 1970. Mr Brown stated that the site had been in the ownership of his family since 1971. The lady who lives in the grade II listed property adjacent told him that it was a small and very basic stone dwelling that had gradually deteriorated and fallen down after being abandoned in the 1950s.

4.6 The remaining three quarters of the site sloped more gently to the south. Beyond the partly stone surfaced accessed track was a small hardstanding area adjacent to Sherwood house and established lawn all the way to the southern boundary.

4.7 The western and southern boundaries of the site comprised dry stone walling in need of some repair in places. The western boundary wall was approximately 1.1m in height at the northern end and approximately 0.7m at the southern end. The southern boundary comprised a lower dwarf dry stone wall similar to that adjacent to Hartshead Lane.

4.8 A pile of new walling stone was being temporarily stored in the central area of the site adjacent to the western boundary. Mr Brown had pre-purchased all the stone in advance to ensure a colour match with the wall of aforementioned new build property to the east of Sherwood House which had already been completed. Beyond the stone stockpile and also adjacent to the western boundary wall was the builders mixed waste skip, a shipping container for the storage of tools and building materials and a static caravan, also all present temporarily to facilitate the building work. Building materials and equipment (mainly timbers and scaffolding) were also being stored at the eastern side adjacent to Sherwood House.

4.9 Adjacent to the southern part of the western boundary was a small Araucaria araucana (Monkey Puzzle) tree, and an apple tree was present in the south-western corner of the site.

4.10 A number of manhole covers were observed on site. Mr Brown told me that an existing Yorkshire Water combined sewer enters the site firstly from Hartshead Lane and via adjacent properties to the west. He indicated where the drain enters Plots 1 and 2 with the first chamber/cover being located in front of the shipping container, the second adjacent to the north-west corner of Sherwood House (Photograph 11), the third a small distance to the south-west corner of Sherwood House and the fourth just inside the boundary of Plot 3 to the east of Sherwood House (Photograph 12). The drain then crosses the adjacent field beyond the southern boundary and into another main run which makes its way down to the sewage works in Huddersfield.

4.11 The surface soils were visible in places and comprised a medium red brown to dark brown sandy clay. I asked Mr Brown's builder, Mr Glenn Armitage, who was working on site about what was encountered whilst installing the foundation for Plot 3. He stated that the soils were slightly deeper closest to Hartshead Lane, the subsoil being stiff brown clay perfect for working in with bedrock at the southern end and was able to show some photographs from the project folder.

4.12 There were no signs of invasive species such as *Fallopia japonica* (Japanese Knotweed), or *Impatiens glandulifera* (Himalayan Balsam) present on site.

4.13 There were no visible signs of settlement or instability identified during the inspection.

4.14 The observed uses within the property and in the site vicinity, were noted as follows:

Observed use of the **subject property**:

| | | |
|---|---|---|
| Industry/manufacturing? | ☐ Yes | ☑ No |
| Waste disposal or waste processing? | ☐ Yes | ☑ No |
| Surface or underground mineral working? | ☐ Yes | ☑ No |
| Vehicle maintenance or refuelling? | ☐ Yes | ☑ No |

Evidence seen of such uses having taken place **within the vicinity** of the subject property:

| | | |
|---|---|---|
| Industry/manufacturing? | ☐ Yes | ☑ No |
| Waste disposal or waste processing? | ☐ Yes | ☑ No |
| Surface or underground mineral working? | ☐ Yes | ☑ No |
| Vehicle maintenance or refuelling? | ☐ Yes | ☑ No |

Evidence of **potential flooding issues** on or within the vicinity of the subject property:

| | | |
|---|---|---|
| Is the property near a river, stream or ditch? | ☐ Yes | ☑ No |
| Is the property in a hollow or at the bottom of a hill where flood water could collect? | ☐ Yes | ☑ No |
| Knowledge of any flood events affecting the property or immediate area? | ☐ Yes | ☑ No |

# 5 Geology

5.1 An assessment of the geology relating to the site has been made from the web based British Geological Survey (BGS) Geology of Britain Viewer and the BGS lexicon of named rock units. Reference has also been made to web based BGS Geoindex information relating to artificial ground, faulting, mass movement and any available borehole records for the locality and information provided in the Groundsure Enviro and Geo Insights report at Appendix F.

5.2 From the above it is anticipated that the sequence of strata beneath the subject property and any foundations or hardstanding, in order of successive depth, is as set out in the following table:

| **Artificial Ground** | |
|---|---|
| **None identified** | There are no records of artificial ground directly underlying any part of the site. |
| **Superficial Geology** | |
| **None identified** | There are no records of superficial geology directly underlying any part of the site. |
| **Solid Geology (Bedrock)** | |
| **Pennine Lower Coal Measures Formation** | **Sandstone:**<br>Sedimentary Bedrock formed between 319 and 318 million years ago during the Carboniferous Period.<br>**Lithological Description:**<br>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. |

5.3 There are twenty records of bedrock geology (whether exposed at the surface or concealed beneath superficial deposits or water) within 500m of the subject property:

| Location | Lex Code | Description | Rock Age |
|---|---|---|---|
| On Site | PLCM-SDST | Pennine Lower Coal Measures Formation - Sandstone | Westphalian (Langsettian Sub-age) |
| 102m S | | | |
| 112m NE | | | |
| 197m S | | | |
| 251m W | | | |
| 303m E | | | |
| 327m NE | | | |
| 397m S | | | |
| 420m S | | | |
| 487m S | | | |
| 492m S | | | |
| 30m N | PLCM-MDSS | Pennine Lower Coal Measures Formation – Mudstone, Siltstone and Sandstone | |
| 58m S | | | |
| 137m S | | | |
| 272m NE | | | |
| 326m NE | | | |
| 365m SE | | | |
| 444m S | | | |
| 277m NE | LPE_SDST | Lepton Edge Rock - Sandstone | |
| 466m E | | | |

5.4 The Groundsure Enviro and Geo Insights report identifies two records of the qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone beneath the land surface and the water table), within 50m as follows:

| Location | Flow Type | Maximum Permeability | Minimum Permeability |
|---|---|---|---|
| On site | Fracture | High | Moderate |
| 22m N | Fracture | Moderate | Low |

5.5 Linear features at the ground or bedrock surface comprise six main types which include rock, fault, fold axis, mineral vein, alteration area or landform (features are either observed or inferred and relate primarily to bedrock. There are thirteen records of linear features within 500m of the property:

| Location | Category | Description |
|---|---|---|
| 48m N | Rock | Coal seam, inferred |
| 179m S | Rock | Coal seam, inferred |
| 272m NE | Fault | Normal fault, inferred; crossmarks on downthrow side |
| 326m NE | Fault | Normal fault, inferred; crossmarks on downthrow side |
| 327m NE | Fault | Normal fault, inferred; crossmarks on downthrow side |
| 374m SE | Rock | Coal seam, inferred |
| 419m S | Fault | Normal fault, inferred; crossmarks on downthrow side |
| 432m S | Rock | Coal seam, inferred |
| 451m E | Rock | Coal seam, inferred |
| 466m S | Rock | Coal seam, inferred |
| 468m SW | Rock | Coal seam, inferred |
| 470m SW | Rock | Coal seam, observed |
| 480m NE | Rock | Coal seam, inferred |

5.6 Artificial ground may comprise made, worked, infilled, disturbed and landscaped ground and can be associated with potentially contaminated material, unpredictable engineering conditions and instability. The Groundsure Enviro and Geo Insights report identifies one area of artificial ground within 500m of the site:

| Location | Lex Code | Description | Rock Description |
|---|---|---|---|
| 359m N | WMGR-ARTDP | Infilled ground | Artificial Deposit |

5.7 The Geo Insights report identifies no pre-existing borehole data within 250m of the property boundary.

# 6 Mining and Ground Stability

### Coal Authority Interactive Map Viewer

6.1 A search of the site area has been made using the Coal Authority Interactive Map Viewer available on The Coal Authority website.

6.2 This has identified that no part of the site lies within a Coal Mining Development High Risk Area although the site lies within a Coal Mining Reporting Area as defined by The Coal Authority.

### Coal Mining

6.3 The site lies within a Coal Authority identified area 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 Consultant's Coal Mining Report is recommended to further assess coal mining issues at the site. |

### Coal Authority Mining Report

6.4 A Consultants Coal Authority Mining Report dated 16 August 2024 was obtained for the site, a copy of which is presented at Appendix E.

6.5 The report is based on and limited to the records held by the Coal Authority at the time the Coal Mining Report was issued.

### Section 1 – Mining Activity and Geology

6.6 The report indicates that there are three records of past underground mining recorded beneath the subject property:

| | | | |
|---|---|---|---|
| **Colliery** | Unnamed | Unnamed | Unnamed |
| **Seam** | Whinmoor | Black Bed | Better Bed |
| **Mineral** | Coal | Coal | Coal |
| **Coal Authority Reference** | 6H99 | 6H9E | 6H9H |
| **Depth (m)** | 39 | 119 | 165 |
| **Direction to Working** | Beneath Property | Beneath Property | Beneath Property |
| **Dipping Rate of Seam Worked (degrees)** | 2.4 | 2.5 | 2.4 |
| **Dipped Direction of Seam Worked** | South-West | South | South |
| **Extraction Thickness** | 86 | 82 | 46 |
| **Year Last Mined** | 1903 | 1932 | 1917 |

6.7 The report indicates that there are no probable unrecorded shallow workings present and no spine roadways recorded at shallow depth. There are no mine entries recorded within 100m of the enquiry boundary.

6.8 There are a number of abandoned mine plans which intersect with some or all of the enquiry boundary which are likely to relate to the past underground mining activity identified in paragraph 6.6 above.

6.9 There are no outcrops, geological faults, fissures and breaklines within the enquiry boundary.

6.10 No opencast mines or Coal Authority Managed tips are recorded within 500m of the enquiry boundary.

**Section 2 – Investigative or Remedial Activity**

6.11 There are no site investigations or remediated sites recorded within 50m of the enquiry boundary.

6.12 The Coal Authority has not received a damage notice or claim for the subject property or any property with 50 metres of the enquiry boundary site 31 October 1994. There is no current Stop Notice delaying the start of remedial works or repairs to the property and the Coal Authority is not aware of any request having been made to carry out preventative works before coal is worked under Section 33 of the Coal Mining Subsidence Act 1991.

6.13 There are no instances of mine gas having been recorded and no mine water treatment schemes located within 500m of the enquiry boundary.

**Section 3 – Licensing and Future Mining Activity**

6.14 There are no known plans for future underground mining at this location. There is no Coal Mining Licensing identified within 200m of the enquiry boundary and no identified court orders relating to mining activity.

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

6.16 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.

6.17 The site is not in an area where a relevant notice has been published under the Coal Industry Act 1975 / Coal Industry Act 1994 relating to payments to owners of former copyhold land.

**British Pits (BGS Brit Pits Database)**

6.18 There are five records of currently active or closed surface and underground mineral workings are located within 500 metres of the property boundary as detailed in the table below:

| Location | Details | Description |
|---|---|---|
| 138m SE | Name: Dockontail<br>Address: Robert Town, Batley, West Yorkshire<br>Commodity: Sandstone<br>Status: Ceased | Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site.<br>Status Description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by the operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority. |
| 192m SE | | |
| 374m E | Name: Common Bottom<br>Address: Robert Town, Batley, West Yorkshire<br>Commodity: Coal, Deep<br>Status: Ceased | |
| 437m E | Name: Chumney<br>Address: Robert Town, Batley, West Yorkshire<br>Commodity: Coal, Deep<br>Status: Ceased | |
| 447mE | | |

### Surface Ground Workings

6.19 There are sixteen records of historical land uses within 250m that have been identified from Ordnance Survey mapping involving ground excavation at the surface which may or may not have been subsequently backfilled:

| Location | Land Use | Year of Mapping | Mapping Scale |
|---|---|---|---|
| 80m SE | Rural District Council Sewage Works | 1931 | 1:10560 |
| 80m SE | Rural District Council Sewage Works | 1931 | 1:10560 |
| 81m SE | Sewage Works | 1948 | 1:10560 |
| 81m SE | Sewage Works | 1931 | 1:10560 |
| 81m SE | Sewage Works | 1951 | 1:10560 |
| 101m SW | Unspecified Ground Workings | 1892 | 1:10560 |
| 116m SE | Sewage Works | 1938 | 1:10560 |
| 124m SE | Refuse Heap | 1966 | 1:10560 |
| 127m SE | Refuse Heap | 1931 | 1:10560 |
| 127m SE | Refuse Heap | 1931 | 1:10560 |
| 129m SE | Refuse Heap | 1951 | 1:10560 |
| 132m SE | Refuse Heap | 1948 | 1:10560 |
| 132m SE | Refuse Heap | 1931 | 1:10560 |
| 132m SE | Unspecified Pit | 1905 | 1:10560 |
| 132m SE | Unspecified Pit | 1892 | 1:10560 |
| 133m SE | Refuse Heap | 1938 | 1:10560 |

### Underground Workings

6.20 There are seven historical land uses within 1000m, that have been identified from Ordnance Survey mapping, indicating the presence of underground workings e.g. mine shafts:

| Location | Land Use | Year of Mapping | Mapping Scale |
|---|---|---|---|
| 478m NE | Unspecified Shafts | 1892 | 1:10560 |
| 478m NE | Unspecified Shafts | 1892 | 1:10560 |
| 783m E | Unspecified Shaft | 1892 | 1:10560 |
| 958m S | Colliery | 1948 | 1:10560 |
| 958m S | Colliery | 1931 | 1:10560 |
| 985m NW | Colliery | 1951 | 1:10560 |
| 987m S | Colliery | 1892 | 1:10560 |

### Non-Coal Mining

6.21 There is one record within 1000m of the potential for historical non-coal mining to have affected the area in which the subject property is located. 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).

| Location | Name | Commodity | Class | Likelihood |
|---|---|---|---|---|
| 942m NE | Leeds / Bradford area | Iron Ore (Bedded) | B | Underground mine workings may have occurred in the past or current mines may be working at significant depth to modern engineering standards. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered. |

**Natural Ground Hazards**

6.22 The National Ground Subsidence rating is obtained through the six natural ground stability hazard datasets supplied by the BGS and the data for the area within the site boundary is included in the Groundsure report. The maximum hazard rating of natural subsidence within the site is **Very Low**.

6.23 **Shrink-Swell Clays: (Risk – Negligible)**. The shrink-swell behaviour is controlled by the type and amount of clay in the soil and seasonal changes in moisture content leading to the soils absorbing water when wet and losing water as they dry. Ground conditions on site are predominantly non plastic. No special actions and no special ground investigation required to avoid problems due to shrink-swell clays and increased construction costs or financial risks are unlikely. Ground conditions are predominantly low plasticity with the risk of shrink-swell clays being **Very Low** within 50m of the property boundary.

6.24 **Running Sands:** [**Risk – Negligible**]. No indicators for running sand identified regardless of the position of the water table. No identified constraints on the land use due to running conditions. No special actions required to avoid problems from running sand. (No constraints identified therefore no special ground investigation required and increased construction costs or increased financial risks are unlikely due to potential problems with running sand).

6.25 **Compressible Ground Deposits: (Risk – Negligible)**. Land that may contain layers of very soft materials such as clay or peat and may compress if loaded by overlying structures or if groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations. No indicators for compressible deposits identified. No special actions and no special ground investigation required to avoid problems due to compressible deposits and increased construction costs or financial risks are unlikely.

6.26 **Collapsible Deposits: (Risk – Very Low)**. Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required to avoid problems due to collapsible deposits and increased construction costs or financial risks are unlikely.

6.27 **Landslides: (Risk – Very Low)**. Slope instability problems are unlikely to be present but consideration of any potential problems relating to adjacent areas impacting upon the site should always be considered. Special actions required to avoid problems due to landslides, special ground investigations, and increased construction costs or increased financial/ insurance risks are anticipated to be unlikely due to potential problems with landslides.

6.28 **Ground Dissolution of Soluble Rocks: (Risk – Negligible).** Occurs when water passing through soluble rocks produces underground cavities and cave systems. Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present. No special actions and no special ground investigation required to avoid problems due to soluble rocks and increased construction costs or financial risks are unlikely.

**Radon**

6.29 The Groundsure Enviro Insights report now utilises 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 are said to supersede any estimations derived from the online interactive Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessment and long term measurements of radon in more than 479,000 households.

6.30 The data indicates that between 1% and 3% of homes tested for radon within the 1.0 kilometre grid square in which the site is located, are anticipated to be above the Action Level for homes of 200 Bq $m^{-3}$. (NB The Action Level for radon in the workplace is 400 Bq $m^{-3}$).

6.31 The site is located in an area where no specific radon protection measures are required for new properties, or extensions to existing ones, as advised in BRE report BR 211 '*Radon: guidance on protective measures for new dwellings*' dated 2015.

# 7 Hydrology

7.1 The Ordnance Survey Water Network of Great Britain Maps show the flow and precise central course of every river, stream, lake and canal. This data indicates that the closest surface water features located within 250m of the site are two unnamed open streams:

| Location | Type of Feature | Ground Level | Permanence | Name |
|---|---|---|---|---|
| 90m SE | Inland river not influenced by normal tidal action | On ground surface | Watercourse contains water year round (in normal circumstances) | Unnamed |
| 176m W | | | | Unnamed |

7.2 There are no other surface water features (including small ponds) within 250m of the site.

7.3 The Environment Agency's Catchment Data Explorer indicates that the subject site lies within the Calder from River Colne to River Chald water body catchment, and the Calder Lower Operational Catchment, within the River Aire and Calder Management Catchment. The water body catchment is heavily modified but is not a surveillance water body.

7.4 To achieve the purpose of the Water Framework Directive (WFD), environmental objectives are set and reported upon for each surface water body. The progress towards deliver of the objectives is reported on by the relevant competent authorities at the end of each six-year cycle. The current range for condition or '*status*' of surface water bodies is High, Good, Moderate, Poor and Bad.

7.5 The following is the most recent WFD Cycle 3 Classifications data for the '*Calder from River Colne to River Chald*' surface water body:

| Location | Classification Item | 2019 |
|---|---|---|
| 1523m S | Overall Water Body | Moderate |
| | Ecological | Fail |
| | Chemical | Moderate |

7.6 The Catchment Data Explorer indicates that the reasons for not achieving good status / reasons for deterioration of surface water include physical modification of the watercourse (for urban/transport reasons, local and central government initiatives, navigation and industry), point source pollution from the water industry in the form of sewage discharge, other incidents, and diffuse pollution from agriculture and rural land management.

7.7 There is one record of discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991 within 500m of the site:

| Location | Address | Details | Status / Dates |
|---|---|---|---|
| 408m NW | Emsley Farm<br>Hartshead Lane<br>Hartshead, West Yorkshire | Effluent Type: Sewage Discharges – Final/Treated Effluent – Not Water Company.<br>Permit Number: C4819<br>Permit Version: 1<br>Receiving Water: Tributary of Nun Brook | Status: Transferred from COPA 1974<br>Issue Date: 21/10/1987<br>Effective Date: 21/10/1987<br>Revocation Date: 31/07/1994 |

7.8 There are four records of licensed Surface Water Abstractions located within 2000m of the site, located at two sites, both of which have licenses which are active:

| Location | Details | Description |
|---|---|---|
| 1554m S | Status: Active<br>Licence No: 2/27/13/049<br>Details: General Use Relating to Secondary Category (Medium Loss)<br>Direct Source: Surface Water<br>Point: Nunbrook Beck - Mirfield<br>Data Type: Point<br>Name: John Cotton (Mirfield) Ltd<br>Easting 418300 Northing 420900 | Annual Volume ($m^3$) 57825<br>Max Daily Volume ($m^3$) 327.31<br>Original Application No: 726<br>Original Start Date: 20/01/1966<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 20/01/2008<br>Version End Date: - |
| 1853m SW | Status: Active<br>Licence No: 2/27/12/185<br>Details: Boiler Feed<br>Direct Source: Surface Water<br>Point: River Calder - Bradley<br>Data Type: Point<br>Name: E Bottomley & Sons Ltd<br>Easting 417500 Northing 420800 | Annual Volume ($m^3$) 109090<br>Max Daily Volume ($m^3$) 1364<br>Original Application No: 4308<br>Original Start Date: 28/04/1966<br>Expiry Date: -<br>Issue No: 102<br>Version Start Date: 03/03/2008<br>Version End Date: - |

# 8 Flooding

### River and Coastal Flooding

8.1 Information is included in the Groundsure Report from the Environment Agency's Flooding from Rivers and Sea (RoFRaS) database. The RoFRaS database provides an indication of river and coastal flood risk at a national level on a 50m grid with the flood rating at the centre of the grid calculated to give a rating of either:

- 1. Very Low (less than 1 in 1000 year chance in any given year);
- 2. Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance);
- 3a. Medium (less than 1 in 30 but greater or equal to 1 in 100 chance), or;
- 3b. High (less than 1 in 30 but greater than or equal to 1 in 100 chance).

8.2 The data considers the probability that the flood defences will overtop or breach by considering their location, type condition and standard of protection.

8.3 There is no data available indicating a risk of flooding from rivers and/or the sea within 50m of the site. The site is located within Flood Zone 1 and has a **VERY LOW** risk of flooding. There are no areas within Flood Zone 2 or Flood Zone 3 within 50m of the site.

8.4 The Environment Agency's Historical Flood Map indicates that the site has not suffered from historical flooding since records commenced in 1946.

8.5 There are no Flood Defences identified within 250m of the site.

8.6 There are no areas benefiting from Flood Defences identified within 250m of the site.

8.7 There are no areas used for Flood Storage identified within 250m of the site.

### Surface Water Flooding

8.8 The Ambiental Risk Analytics surface water data identifies areas likely to flood as a result of extreme rainfall events i.e. land naturally vulnerable to surface water ponding or flooding. The data provided for the site is based upon a data set produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1000 year rainfall events.

8.9 The highest risk of surface water flooding at site is identified as being **Negligible** and the highest risk within 50m is flooding following a 1 in 30 year rainfall event with a depth of 0.3m – 1.0m at properties on the opposite side of Hartshead Lane to the North and East. The site is not at risk of flooding from surface waters.

### Groundwater Flooding

8.10 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 for a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result can cause significant damage to property. The risk assessment data is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

8.11 The highest risk of groundwater flooding on site is given as Negligible and the highest risk within 50m is also Negligible.

# 9 Hydrogeology

9.1 From 1 April 2010, the Environment Agency and Natural Resources Wales adopted a Groundwater Protection Policy using aquifer designations consistent with the Water Framework Directive.

9.2 The site is not directly underlain by superficial deposits and there are no records of aquifers held within superficial geology within 500m of the site.

9.3 There is one record of an aquifer held within bedrock geology within 500m of the site.

| Location | Designation | Description |
|---|---|---|
| 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. |

9.4 Groundwater vulnerability is measured based on 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 1km square grid. It 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.

9.5 The site lies in an area of Medium groundwater vulnerability as summarised in the table below:

| Location | Summary | Soil / Surface | Superficial Geology | Bedrock Geology |
|---|---|---|---|---|
| On site | Summary Classification: Secondary bedrock aquifer – Medium Vulnerability.<br>Combined Classification: Productive Bedrock Aquifer, No Superficial Aquifer | Leaching Class: Low<br>Infiltration Value: <40%<br>Dilution Value: 300-550mm/year | Vulnerability: -<br>Aquifer Type: -<br>Thickness: <3m<br>Patchiness Value: <90%<br>Recharge Potential: No data | Vulnerability: Medium<br>Aquifer Type: Secondary<br>Flow Mechanism: Well-connected fractures |

9.6 There are no Potable Water Abstractions located within a 2000 m radius of the site.

9.7 There are no Source Protection Zones located within a 500m radius of the site.

9.8 There are no Source Protection Zones within the Confined Aquifer located within a 500m radius of the site.

9.9 There are four records of Groundwater Abstraction Licences located within a 2000m radius of the site. None of these are located within 500m of the site. The closest to abstraction to the site is located 1499m N, its status being historical.

9.10 There is one active Groundwater Abstraction Licence:

| Location | Details | Description |
|---|---|---|
| 1853m SW | Status: Active<br>Licence No: 2/27/12/186<br>Details: Boiler Feed<br>Direct Source: Groundwaters<br>Point: Borehole – Coal Measures Bradley<br>Data Type: Point<br>Name: E Bottomley & Sons Ltd<br>Easting 417500 Northing 420800 | Annual Volume ($m^3$) 109090<br>Max Daily Volume ($m^3$) 1364<br>Original Application No: 4308(2)<br>Original Start Date: 28/04/1966<br>Expiry Date: -<br>Issue No: 102<br>Version Start Date: 03/03/2008<br>Version End Date: - |

9.11 To achieve the purpose of the Water Framework Directive (WFD), environmental objectives are set and reported upon for each groundwater body in the same way as for surface water bodies. The progress towards delivery of the objectives is reported on by the relevant competent authorities at the end of each six-year cycle. The current range for condition or '*status*' of surface water bodies is High, Good, Moderate, Poor and Bad.

9.12 The site lies within the Aire & Calder Carboniferous Limestone / Millstone Grit / Coal Measures Waterbody which is not a surveillance waterbody. The following are the most recent WFD Cycle 3 Classifications for this waterbody:

| Distance (m) | Classification Item | 2019 |
|---|---|---|
| On site | Overall Rating | Poor |
| | Chemical Rating | Poor |
| | Quantitative | Good |

9.13 The Catchment Data Explorer indicates that the reasons for not achieving good status / reasons for deterioration of groundwater relate to abandoned mines / mining activities that relate to both coal and non-coal mining.

# 10 Other Environmental Information

### Waste – Landfill Sites

10.1 The influencing distance of a gassing landfill is dependent on a number of variables, including the type of waste, geology, hydrogeology, site engineering etc. Therefore, owing to the specific nature of each of these factors, it is not possible to guarantee that a site is not within the influencing distance of a known landfill site. However, it is normal practice to consider the 250m consultation zone around the site.

10.2 Where records without plans identify landfilling operations within a 500m radius of the site, these have been considered as they may encroach within the adopted 250m radius consultation zone.

### Historical Landfill (LA/Mapping Records)

10.3 There is one record of a historical landfill site located within 500m of the study site identified from Local Authority records and high detail historical mapping:

| Location | Site Details | Source | Data Type |
|---|---|---|---|
| 123m SE | Refuse Tip | 1961 mapping | Polygon |

### Waste Exemptions

10.4 Waste exemptions include prescribed activities involving, storage, treatment, use or disposal of wastes that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

10.5 There is one record of an exempt waste activity located within a 500m radius of the site identified within the Groundsure Enviro Insights data. This record could not be located on the Environment Agency's public register of exemptions, therefore it may have recently lapsed:

| Location | Site Address | Category / Sub-Category / Description | Reference |
|---|---|---|---|
| 393m NW | New Farm House, Brighouse, HD6 4HD | Storing of waste exemption (on a farm): Storage of sludge. | WEX026649 |

### Recent Industrial Land Uses

10.6 There is one record of a current potentially contaminative industrial site located within 250m:

| Location | Details | Address | Activity / Category |
|---|---|---|---|
| 247m E | Electricity Sub Station | West Yorkshire WF15 | Electrical Features / Infrastructure and Facilities |

### Environmental Designations

10.7 The following Environmental Designations are located within 2000m of the study site:

| Location | Designation | Name | Data Source |
|---|---|---|---|
| 1771m SE | Local Nature Reserve (LNR) | Sunny Bank Ponds | Natural England |
| 650m W | Ancient Replanted Woodland | Lawn Wood | |
| 1264m SW | Ancient Replanted Woodland | Unknown | |
| 1502m W | Ancient Replanted Woodland | Unknown | |
| 1763m W | Ancient Replanted Woodland | Clifton Wood | |
| On site | Green Belt | S & W Yorkshire-Kirklees | Ministry of Housing, Communities and Local Government |
| 730m SW | Green Belt | S & W Yorkshire-Calderdale | |
| 1402m SW | Green Belt | S & W Yorkshire-Kirklees | |
| 1499m S | Green Belt | S & W Yorkshire-Kirklees | |
| 214m N | Nitrate Vulnerable Zone (Surface Water) | Spen Beck from Source to River Calder | Natural England |

### Visual and Cultural Designations

10.8 There are three records of Listed Buildings located within a 250 metre radius of the site.

| Location | Address / Grade | Ref. Number | Listed Date |
|---|---|---|---|
| 15m NW | 120 Hartshead Lane / Grade II | 1184297 | 13/01/1984 |
| 35m NW | 121 Hartshead Lane / Grade II | 1134601 | 13/01/1984 |
| 37m NW | 119 Hartshead Lane / Grade II | 1184295 | 13/01/1984 |

### Agricultural Designations

10.9 Agricultural land classification takes into account multiple factors including climate, physical geography and soil properties. The categories for the grading of agricultural land are not consistent across England, Wales and Scotland. There is one Agricultural Land Classification located within 250m of the subject property, which is located on site:

| Location | Classification | Description |
|---|---|---|
| On site | Grade 3 | Good to moderate quality agricultural land. Land with moderate limitations which affects the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2. |

10.10 There is one record of a Tree Felling Licence approved by the Forestry Commission England within 250m of the site:

| Location | Description | Reference | Date |
|---|---|---|---|
| 161m S | Selective Fell / Thin (Unconditional) | 012/11/06-07 | 17/05/2006 |

10.11 Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. There are five records of current schemes within 250m of the subject property relating to two scheme numbers:

| Location | Reference | Scheme | Start | End |
|---|---|---|---|---|
| On site | 1650386 | Countryside Stewardship (Middle Tier) | 01/01/2024 | 31/12/2028 |
| 110m S | 828243 | Countryside Stewardship (Middle Tier) | 01/01/2020 | 31/12/2024 |
| 113m SW | | | | |
| 155m W | | | | |
| 248m SW | 1650386 | Countryside Stewardship (Middle Tier) | 01/01/2024 | 31/12/2028 |

### BGS Estimated Background Soil Chemistry

10.12 There are three estimated values of the likely background concentrations of the potentially harmful elements Arsenic, Bioaccessible Arsenic, Lead, Bioaccessible Lead, Cadmium, Chromium and Nickel in topsoil within 50 metres of the site; two of which are located on site:

| Location | Arsenic | Bioaccess. Arsenic | Lead | Bioaccess. Lead | Cadmium | Chromium | Nickel |
|---|---|---|---|---|---|---|---|
| On site | 35-45 mg/kg | No data | 100 mg/kg | 60 mg/kg | 1.8 mg/kg | 90-120 mg/kg | 15-30 mg/kg |
| On site | 35-45 mg/kg | No data | 100 mg/kg | 60 mg/kg | 1.8 mg/kg | 90-120 mg/kg | 15-30 mg/kg |
| 22m N | 25-35 mg/kg | No data | 100 mg/kg | 60 mg/kg | 1.8 mg/kg | 90-120 mg/kg | 15-30 mg/kg |

# 11 Preliminary Conceptual Site Model

11.1 The conceptual site model (CSM) is based on the concept that for there to be an environmental risk, particularly a risk of contamination, there must be a link between a source of the contamination, a pathway by which it can migrate and a receptor or target. A CSM has been prepared as a preliminary screening exercise to identify potential source-pathway-receptor linkages in order to establish the potential for contamination prior to the redevelopment taking place. The potential sources, pathways and receptors identified in the CSM have been considered in the context of the future proposed use of the subject site as two residential dwellings with a garden area where no vegetables will be grown, (the landscaping has been designed in accordance with an Ecological Design Strategy as required by the Appeal Decision).

11.2 **Sources:** (potential sources from historical and existing uses of the subject site and surrounding area)

**On-site**

- Potential presence of contamination due to past historical uses of the site.
- Sulphates naturally occurring in the strata.
- Soil vapours and ground gases - carbon dioxide, methane and radon from local geology (coal measures strata).

**Off-site**

- Contamination due to historical uses within the surrounding area including unspecified ground workings, a refuse heap and a sewage works.
- Soil vapours and ground gases - from unspecified ground workings, a refuse heap and a sewage works, or carbon dioxide, methane and radon (coal measures strata).

**Pathways:** (based on the historical and existing use of the subject site and surrounding area)

- Directly via soils (natural strata and made ground).
- Contaminant transport by vertical percolation of rainwater into surface soils and bedrock to groundwater in the Secondary A aquifer.
- Ingress into buildings of soil vapours and gases from refuse heap, other infilled ground and local coal measures strata (carbon dioxide, radon, methane).
- Ingestion and inhalation from direct human contact with soil, and ground gases.
- Diffusion through inadequate service pipes.

**Receptors:** (targets)

- Site workers / future site occupants (exposure to contaminants and gases).
- Soils beneath the site.
- On site drinking water supply pipes / building structure (if aggressive chemical environment exists).
- Groundwater in the Secondary A aquifer.
- Surface watercourses (via soils and drainage systems).

# 12 Preliminary Risk Assessment and Recommendations

### Preliminary Risk Assessment Methodology

12.1 Risk assessment methodology is based on the guidance in the CIRIA report: '*Contaminated Land Risk Assessment: A Guide to Good Practise. CIRIA 552*' which combines the potential severity of the risk and the probability of the risk occurring. It should be noted that this preliminary risk assessment is qualitative and that any identified risk should be perceived as 'potential' until confirmed by intrusive investigations.

12.2 The criteria for the classification of the potential severity of the risk is presented in the table below:

| Severity | Description |
|---|---|
| Severe | Acute Risks to human health likely to result in '*significant harm*' (e.g. very high concentrations of contaminants/ground gases); or<br>Catastrophic damage to buildings/property (e.g. by explosion, sites with high gassing potential, extensive VOS contamination); or<br>Major pollution of controlled waters (e.g. surface watercourses or Principal/Secondary aquifers); or<br>Short term risk to a particular ecosystem. |
| Medium | Chronic (long term) risk to human health likely to result in '*significant harm*' (e.g. elevated concentration of contaminants/ground gases); or<br>Pollution of sensitive controlled waters (e.g. surface watercourses or Principal/Secondary aquifers); or<br>Significant effects on sensitive ecosystems or species. |
| Mild | Pollution of non-sensitive waters (e.g. smaller surface watercourses or unproductive strata); or<br>Significant damage to crops, buildings, structures or services (e.g. by explosion, sites with medium gassing potential, elevated concentrations of contaminants). |
| Minor | Non-permanent human health effects (requirement for protective equipment during site works to mitigate health effects); or<br>Damage to non-sensitive ecosystems or species; or<br>Minor (easily repairable) damage to buildings, structure or services (e.g. by explosion, sites with low gassing potential) |

12.3 The criteria for the classification of the probability of a risk occurring is presented in the table below:

| Probability | Description |
|---|---|
| High Likelihood | Pollution linkage exists and risk either appears very likely in the short term and almost inevitable in the long term, or there is evidence of harm or pollution to the receptor. |
| Likely | Pollution linkage exists, and the risk is very probable; or<br>Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term. |
| Low Likelihood | Pollution linkage exists and risk is possible. However, the risk is less likely in the short term and not even certain in the long term. |
| Unlikely | Pollution linkage exists but risk is improbable even in the long term. |

12.4 The level of risk is then determined by combining the severity and probability as shown in the table below.

| PROBABILITY | SEVERITY | | | |
|---|---|---|---|---|
| | Severe | Medium | Mild | Minor |
| High Likelihood | Very High | High | Moderate | Moderate/Low |
| Likely | High | Moderate | Moderate/Low | Low |
| Low Likelihood | Moderate | Moderate/Low | Low | Very Low |
| Unlikely | Moderate/Low | Low | Very Low | Very Low |

12.5 CIRIA 552, recommends further investigation or mitigation measures where the risk classification is ≥ '***Moderate***'.

**Preliminary Risk Assessment**

12.6 Using the above methodology, a desk study and preliminary risk assessment has been carried out for the site known as 'Plots 1 & 2, 124 Hartshead Lane, Hartshead, Liversedge, West Yorkshire WF15 8AJ' which is located at Appendix G. It is understood that two detached residential dwellings are to be developed (Kirklees Planning Appeal Reference APP/Z4718/W/23/3334872).

12.7 A Preliminary Conceptual Site Model (CSM) has been prepared by identifying the potential contamination sources associated with the current and historical uses of the site and its vicinity, considering the potential receptors and pathways in order to identify the potential for pollutant linkages.

12.8 The risk assessment has identified the following risks requiring further investigation and / or mitigation measures:

- A '*Moderate*' risk to the foundations of the new dwelling due to the presence of sulphates leading to aggressive ground conditions.

**Recommendations**

12.9 It is recommended that testing be undertaken for aggressive ground (sulphates) to determine the appropriate concrete classification for foundations in accordance with BRE Special Digest 1:2005 Third Edition. This guidance advises that all iterations of Coal Measures Strata undergoes testing for new build due to the potential for high concentrations of sulphates to be present.

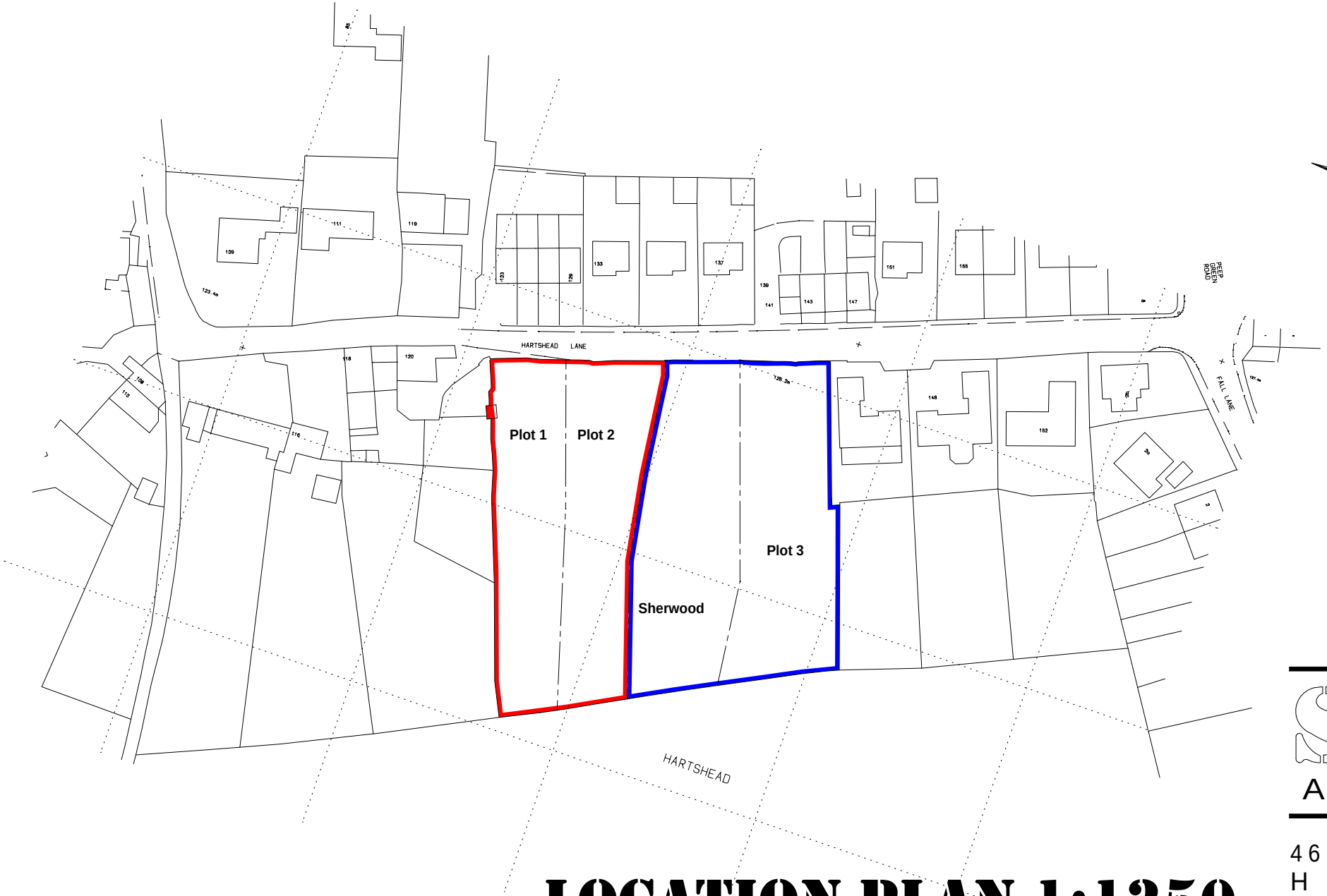
12.10 the development is to be landscaped in accordance with an Ecological Design Strategy to enhance biodiversity and vegetables are unlikely to be grown. The site does not appear to have a history of past contaminative uses. The perceived risk to groundwater and surface waters is also considered to be very low.

12.11 Risks in respect of ground gases or to drinking water supply pipes are perceived to be low. Upgrading to a gas resistant barrier and resistant pipework could be considered at the client's own discretion.

12.12 Consequently, an intrusive investigation, remediation strategy and verification report is not considered to be warranted for this small development.

**Appendix A**

Location Plan




# LOCATION PLAN 1:1250

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**ON A4**

SBP
ARCHITECT

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Wakefield
West Yorkshire
WF4 6DT
TEL: (01924) 277356
designs@sbp-architects.co.uk

**Appendix B**

Approved Development Layout

1m high Drystone Boundary Wall with Stacked copings

1.5m high Close-boarded Fencing

1.2m High Post + Rail Fencing

New Dwellings to have EV charging point adjacent Garage

Rev D - 11/07/2023 - Revised Scheme
Rev C - 08/12/2022 - Plot 1 omitted
Rev B - 04/11/2022 - Dwellings on Plots 1 & 2 reduced in size & re-sited
Rev A - 08/08/2022 - Outbuilding retained

PROJECT
Detached Dwellings on Plots 1 & 2 at 'Sherwood' 124 Hartshead Lane Hartshead, Liversedge WF15 8AJ

CLIENT
Mr. D. Brown

SUBJECT
Proposed Site Plan

| SCALE | 1:200 @ A1 | DRAWN | DRAWING NO. | REV. |
|---|---|---|---|---|
| DATE | 22/06/2022 | SB | 17-017-SP02-3 | D |

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TEL: (01924) 277356
designs@sbp-architects.co.uk

**Appendix C**

Groundsure Map-Insights Historical Maps

Groundsure INSIGHTS

**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** County Series

**Map date:** **1907**

**Scale:** 1:2,500

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

N
W E
S

Surveyed 1907
Revised 1907
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 14 August 2024

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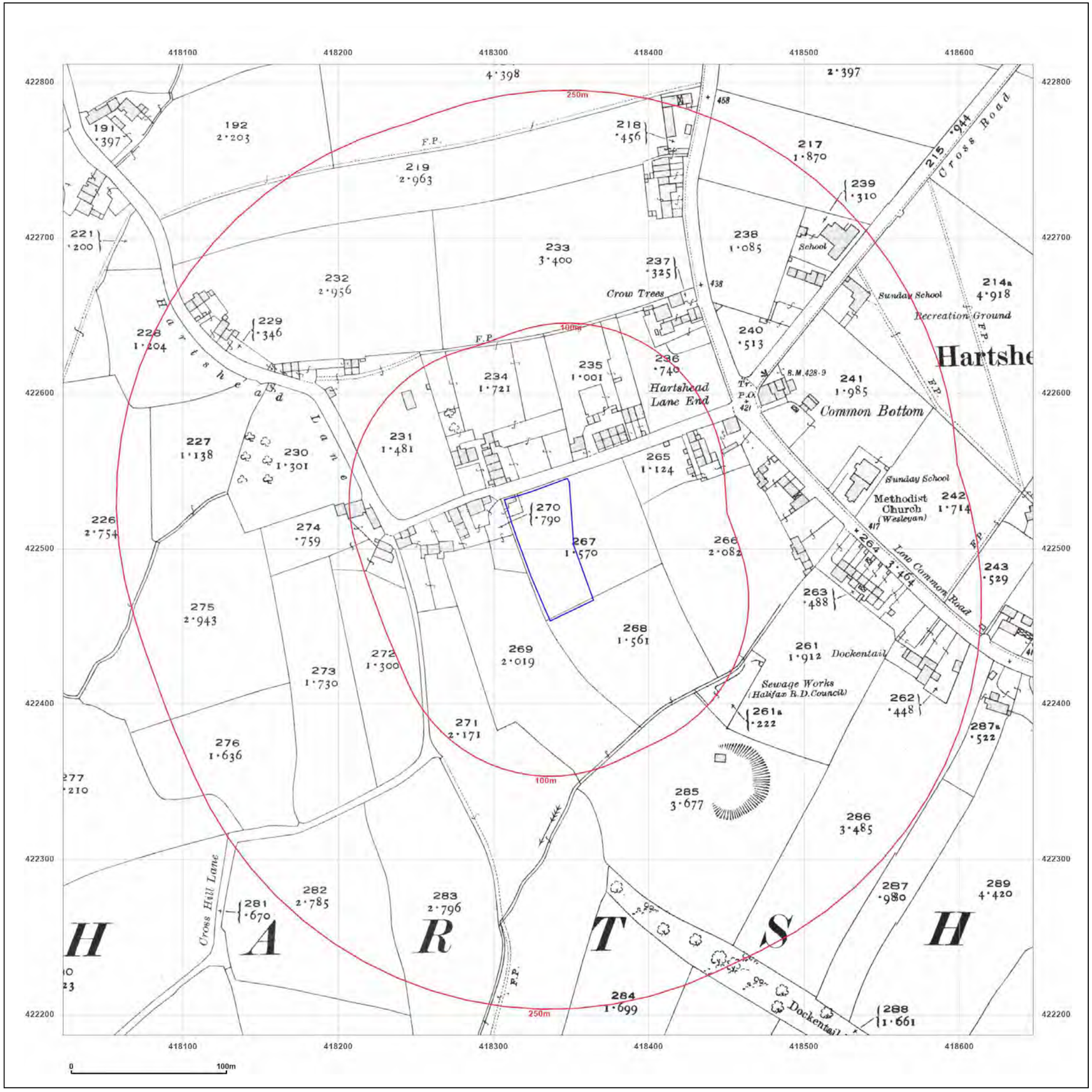
www.groundsure.com/sites/default/files/groundsure_legend.pdf




Groundsure INSIGHTS

**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** County Series

**Map date:** **1922**

**Scale:** 1:2,500

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

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Surveyed 1922
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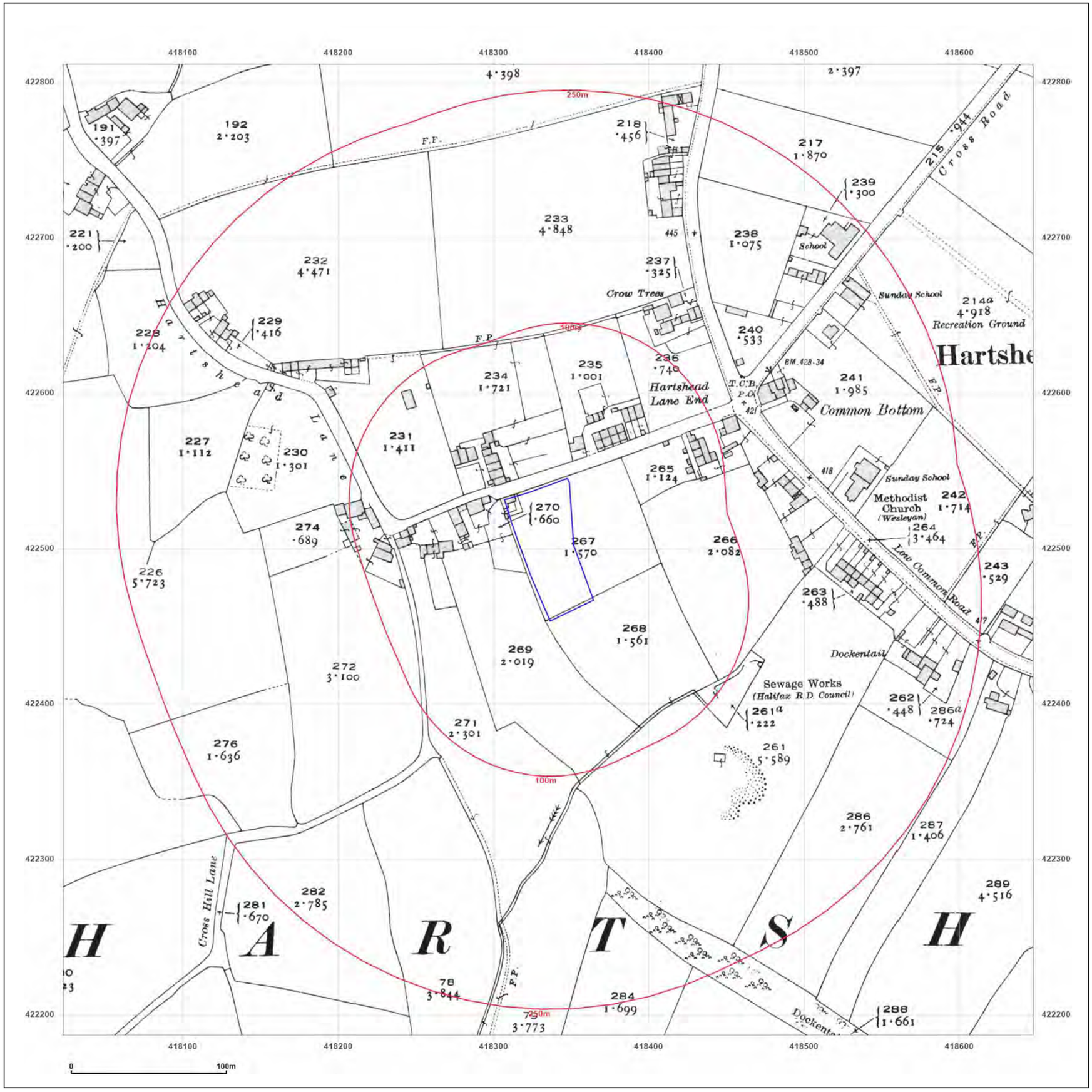
Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf




Groundsure INSIGHTS

**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** County Series

**Map date:** **1933**

**Scale:** 1:2,500

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

N
W E
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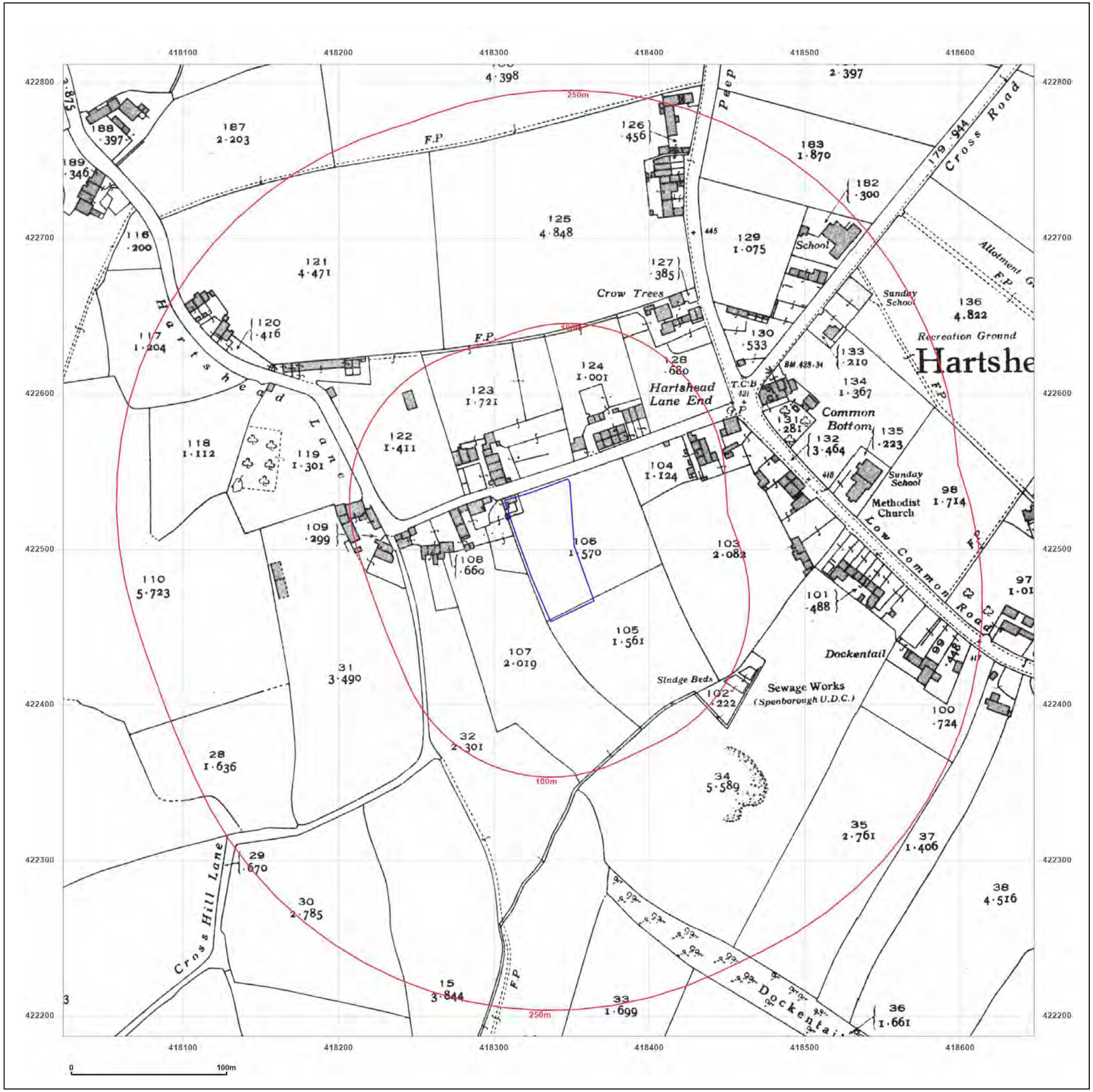


Groundsure INSIGHTS

**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** County Series

**Map date:** **1938**

**Scale:** 1:2,500

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

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

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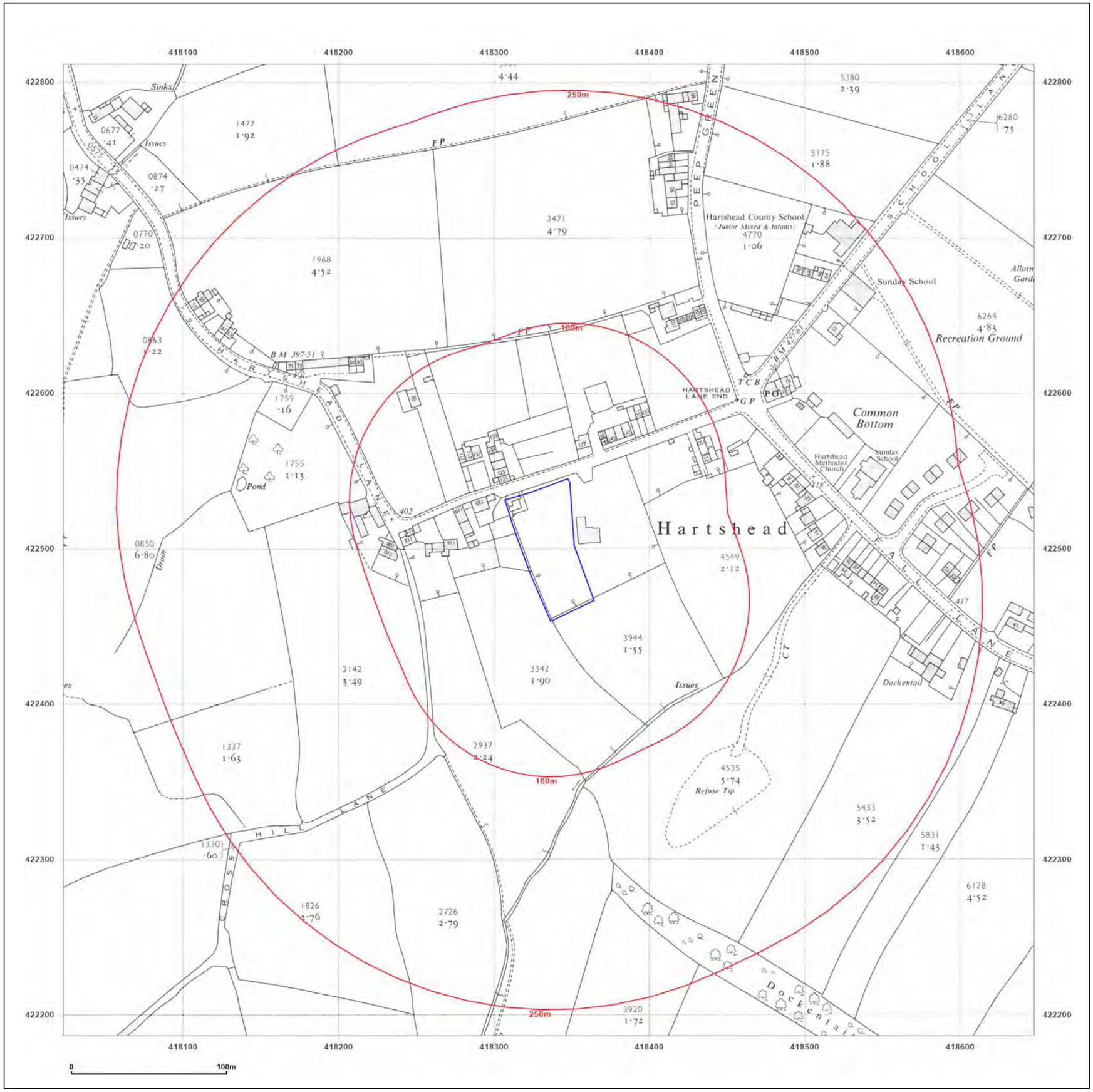


Groundsure INSIGHTS

**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** National Grid

**Map date:** **1963**

**Scale:** 1:2,500

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

N W E S

Surveyed 1961
Revised 1961
Edition 1963
Copyright 1963
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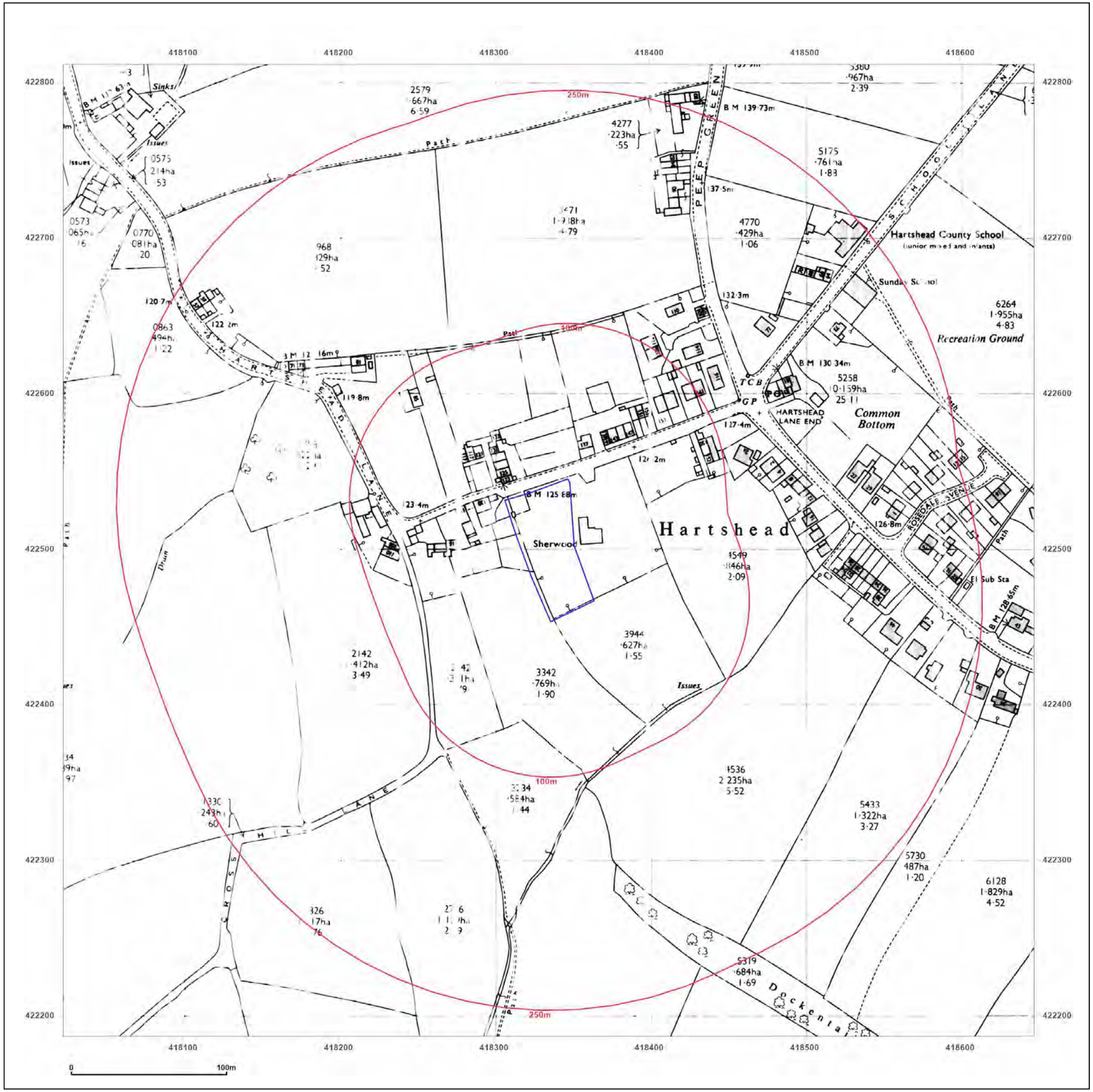


Groundsure INSIGHTS

**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** National Grid

**Map date:** **1971**

**Scale:** 1:2,500

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

N W E S

Surveyed N/A
Revised N/A
Edition N/A
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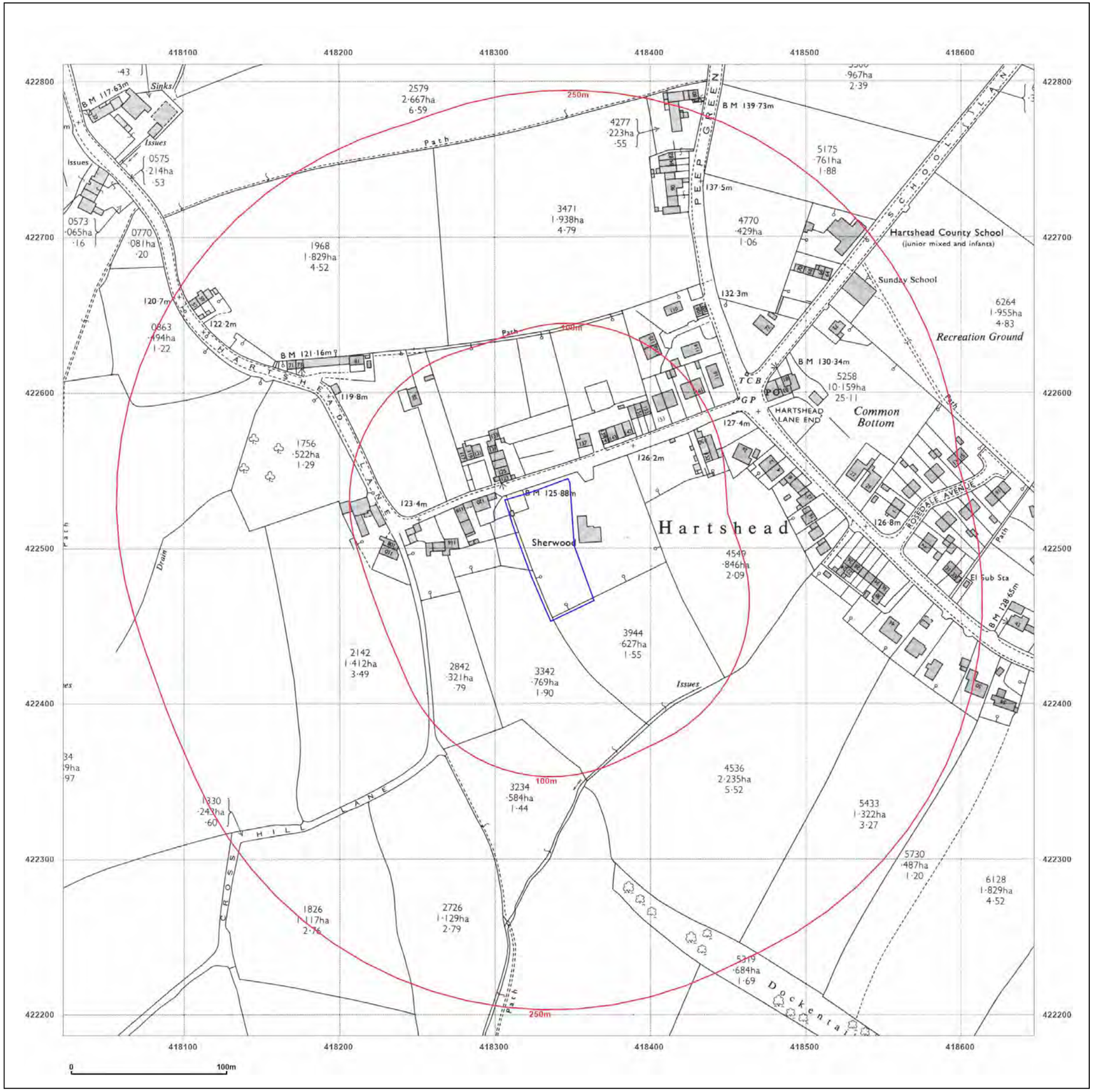


# Groundsure INSIGHTS

**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** National Grid

**Map date:** **1971**

**Scale:** 1:2,500

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

N
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Surveyed 1957
Revised 1969
Edition N/A
Copyright 1971
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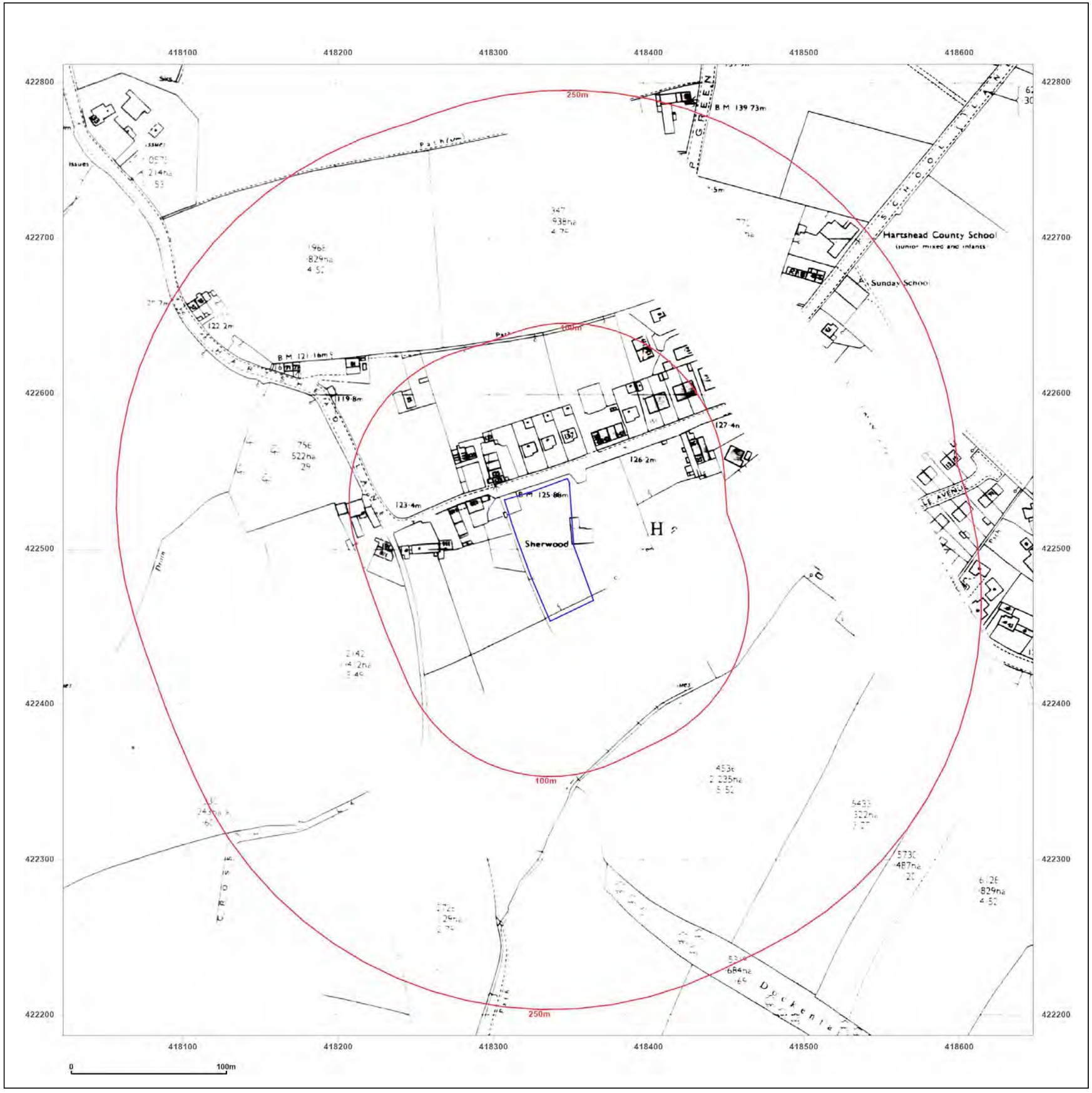


# Groundsure INSIGHTS

**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** National Grid

**Map date:** **1990**

**Scale:** 1:2,500

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

N
W E
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Surveyed 1962
Revised 1990
Edition N/A
Copyright 1990
Levelled 1962

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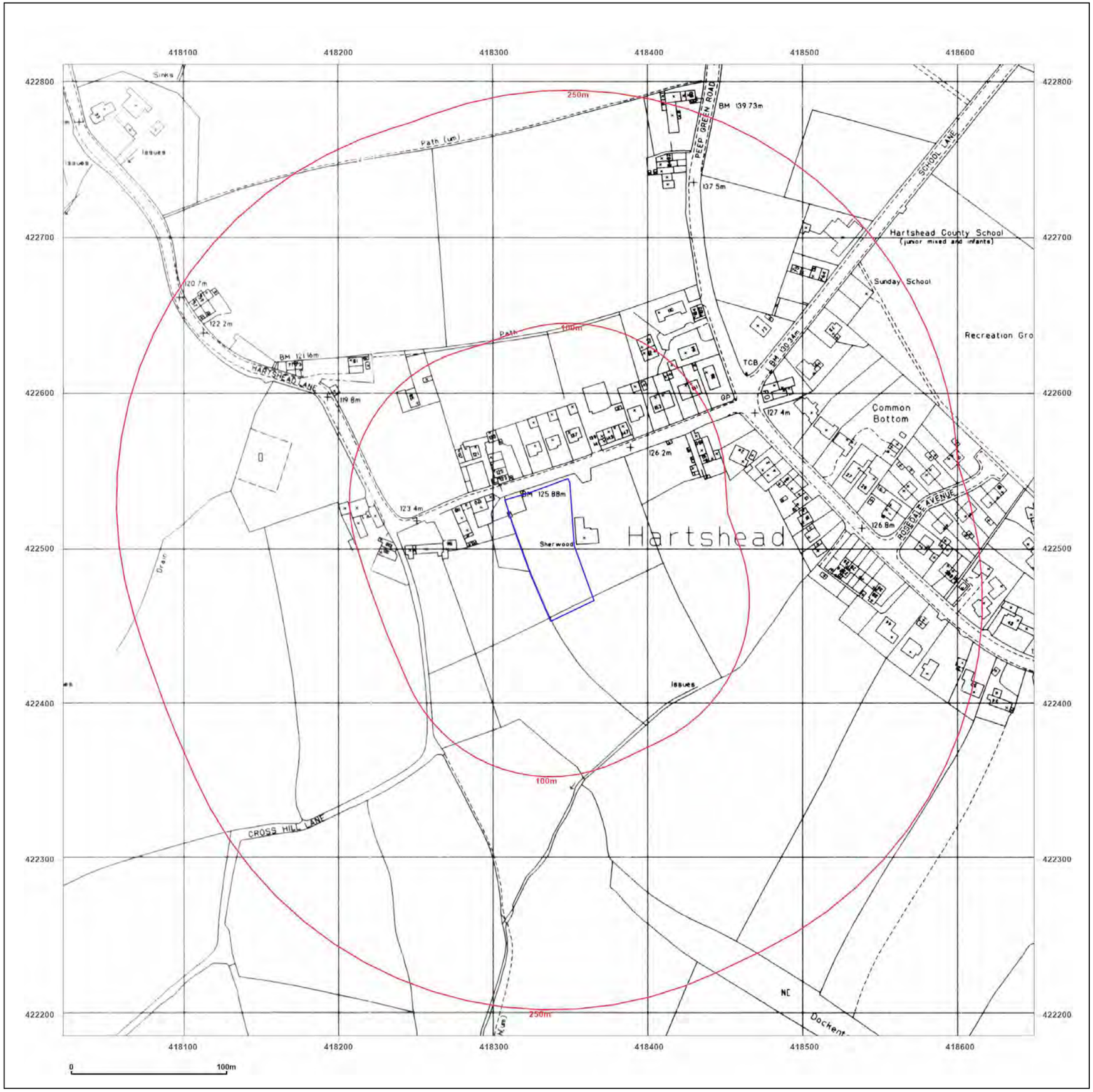


Groundsure INSIGHTS

**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** National Grid

**Map date:** **1990**

**Scale:** 1:2,500

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

N
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Surveyed N/A
Revised N/A
Edition N/A
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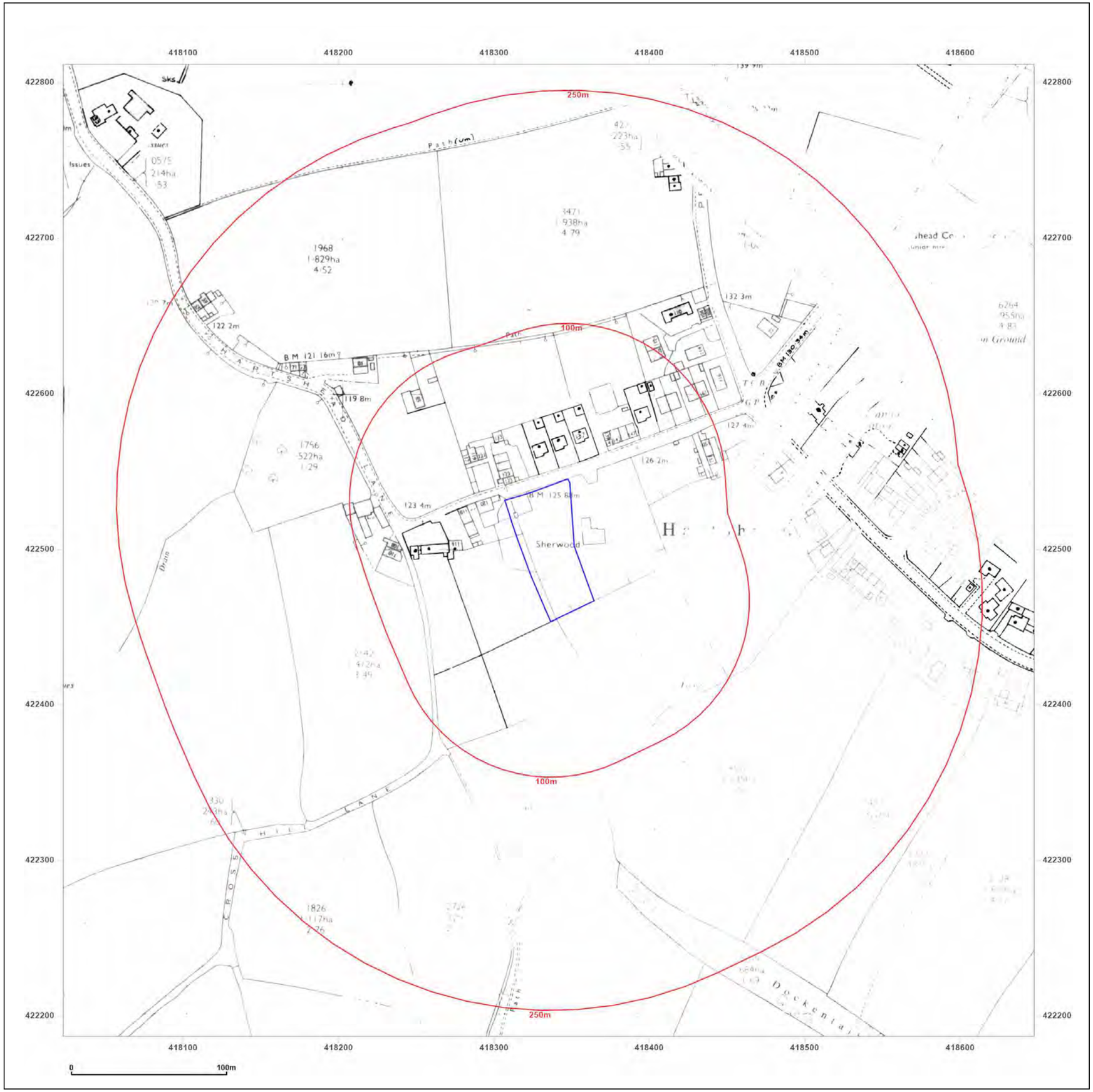


# Groundsure INSIGHTS

**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** National Grid

**Map date:** **1990**

**Scale:** 1:2,500

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

N
W E
S

Surveyed 1962
Revised 1990
Edition N/A
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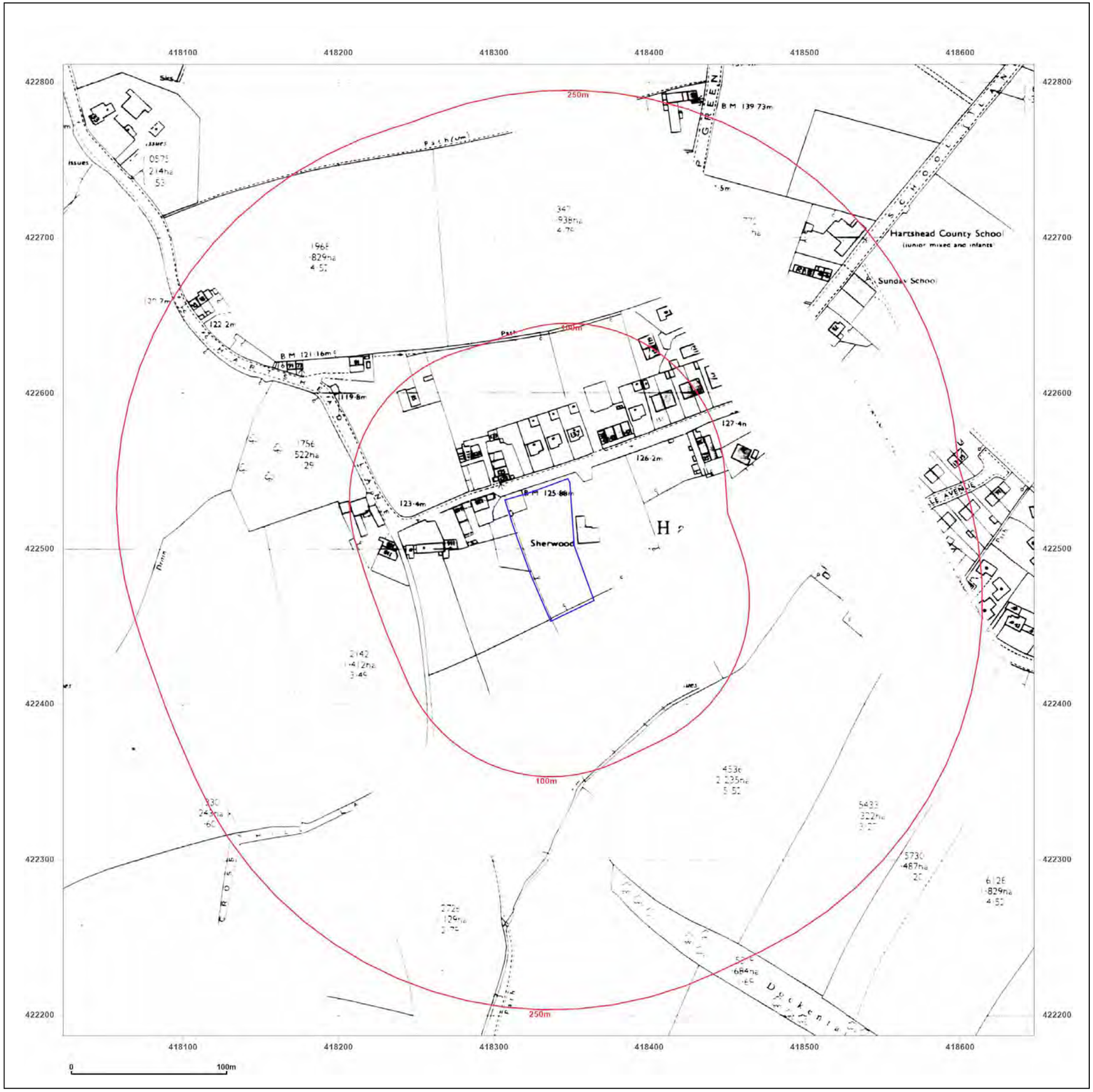


Groundsure INSIGHTS

**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** National Grid

**Map date:** **1990**

**Scale:** 1:2,500

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

N
W E
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Surveyed 1962
Revised 1990
Edition N/A
Copyright 1990
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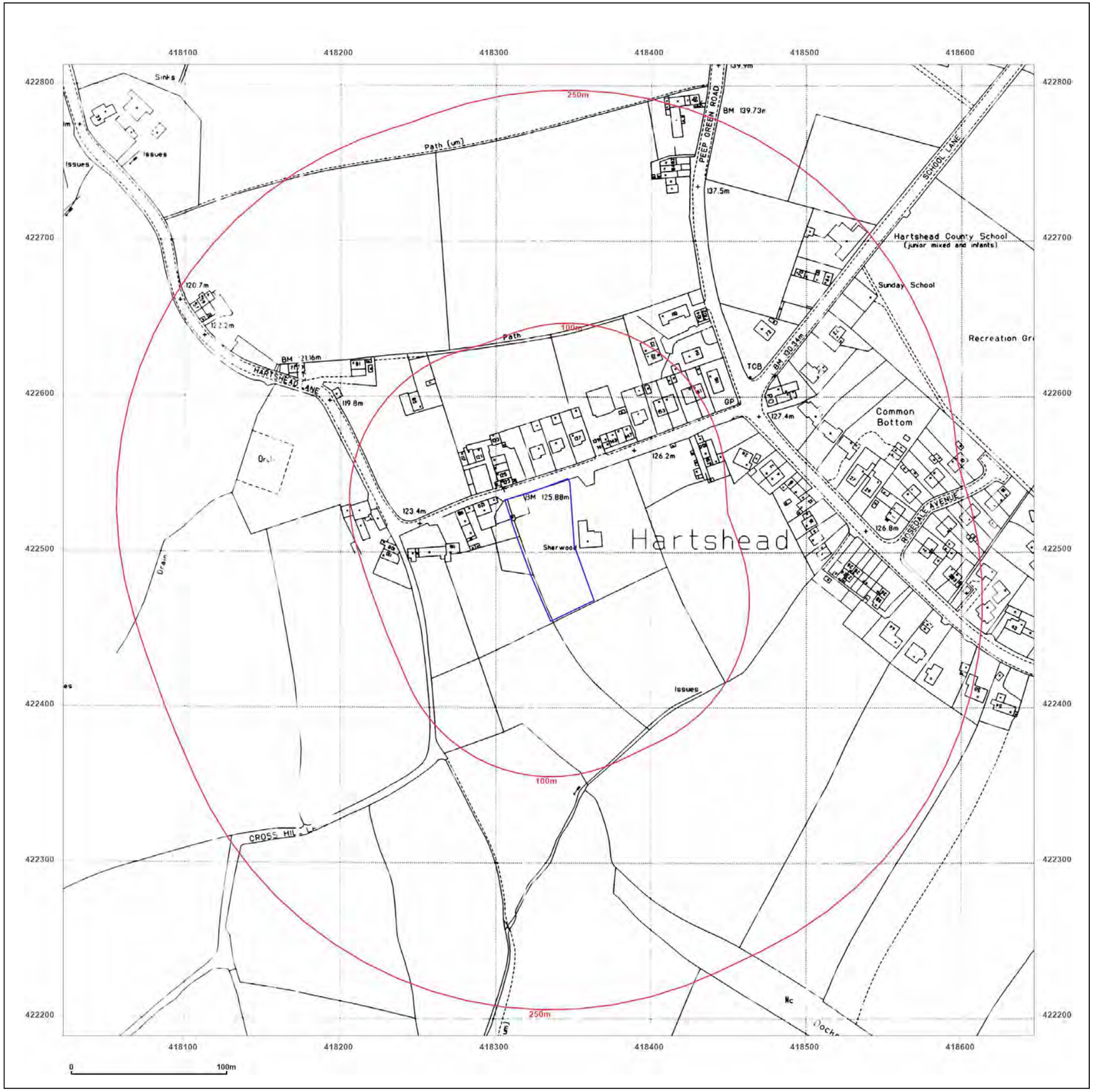


# Groundsure INSIGHTS

**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** National Grid

**Map date:** **1993**

**Scale:** 1:2,500

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

N
W E
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Surveyed N/A
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Edition N/A
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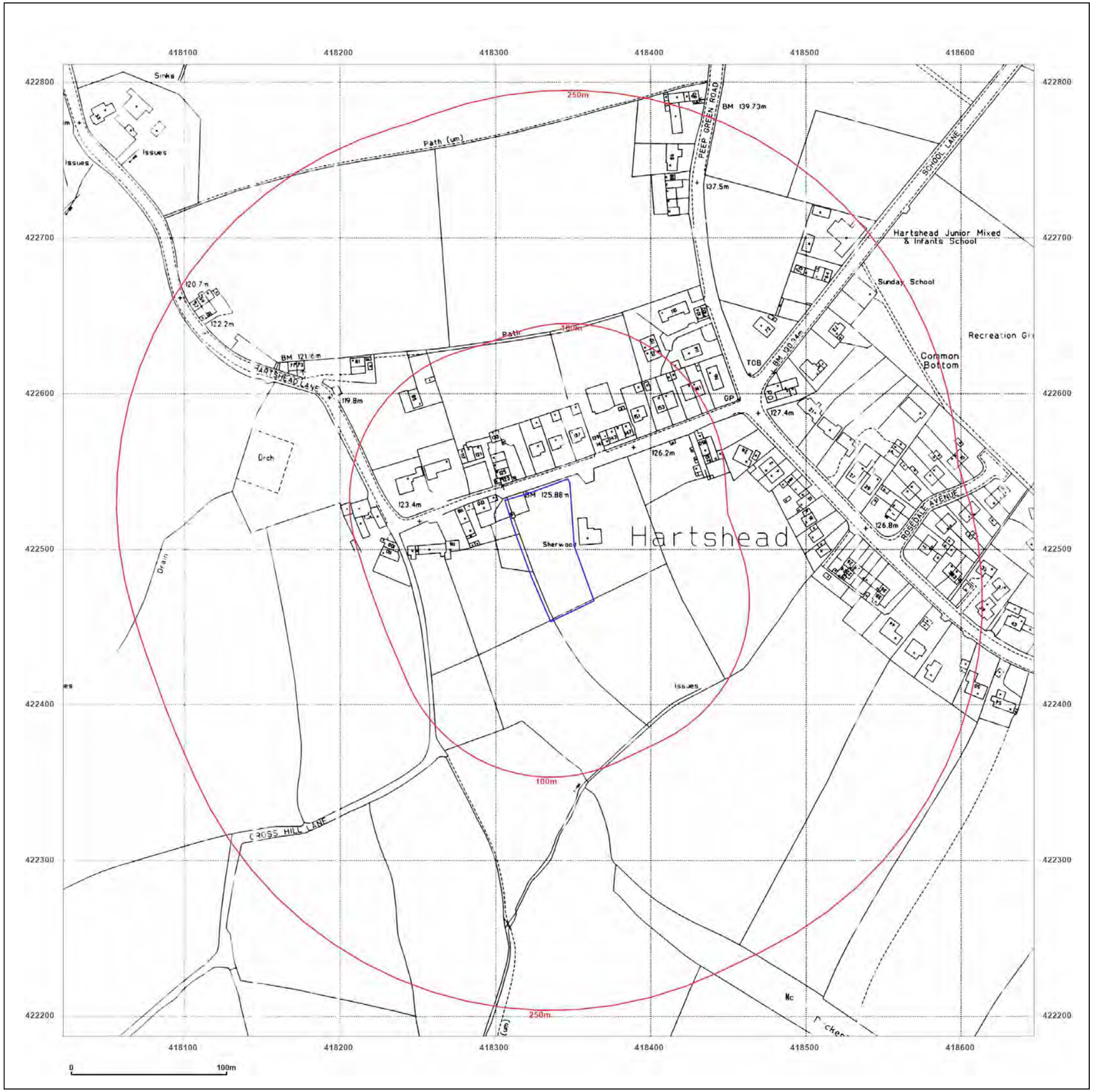


Groundsure INSIGHTS

**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** National Grid

**Map date:** **1994**

**Scale:** 1:2,500

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

N
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Surveyed N/A
Revised N/A
Edition N/A
Copyright 1994
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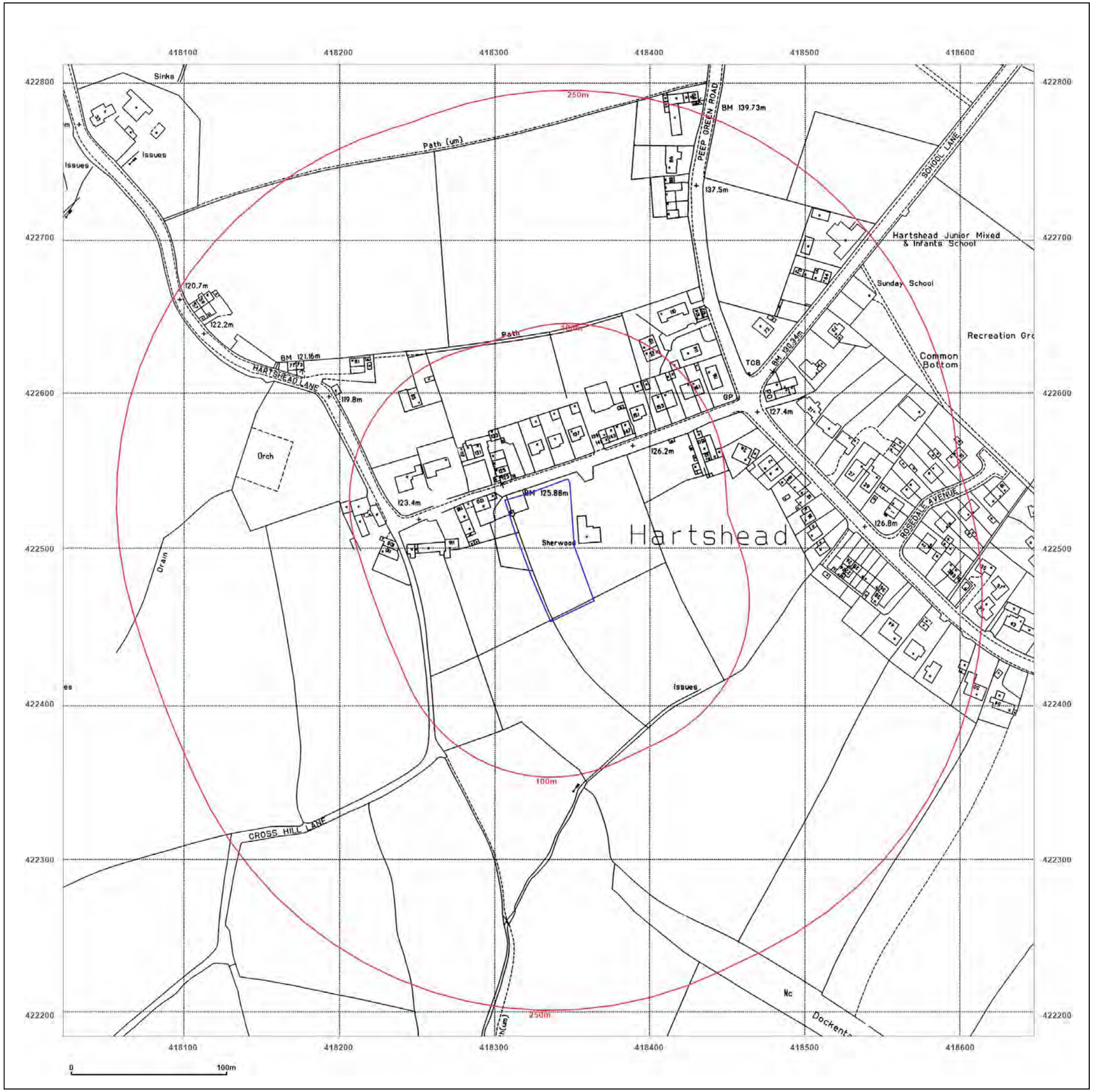


Groundsure INSIGHTS

**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** National Grid

**Map date:** **1994**

**Scale:** 1:2,500

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

N
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Surveyed 1994
Revised 1994
Edition N/A
Copyright 1994
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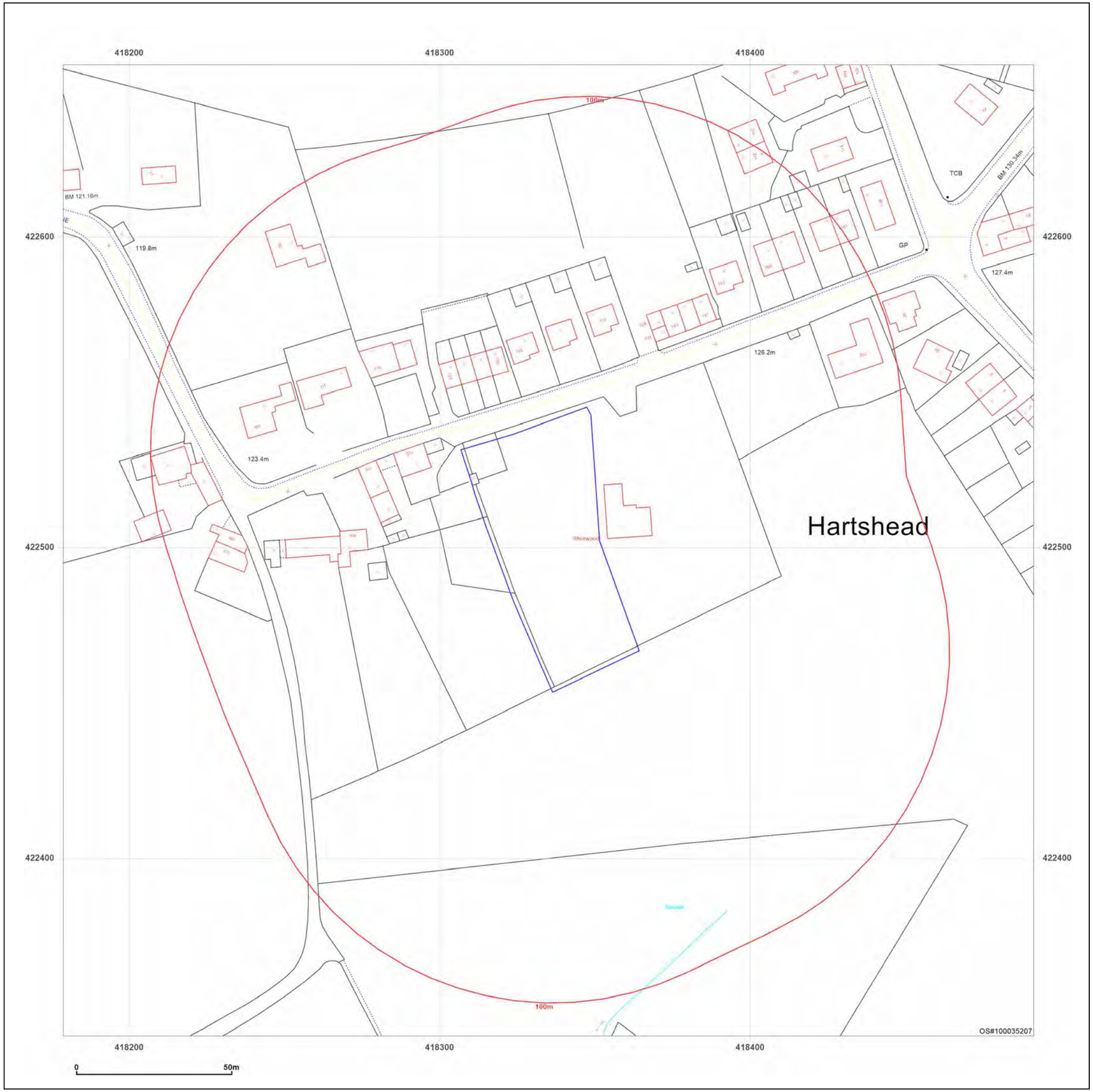


Groundsure INSIGHTS

**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** LandLine

**Map date:** **2003**

**Scale:** 1:1,250

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

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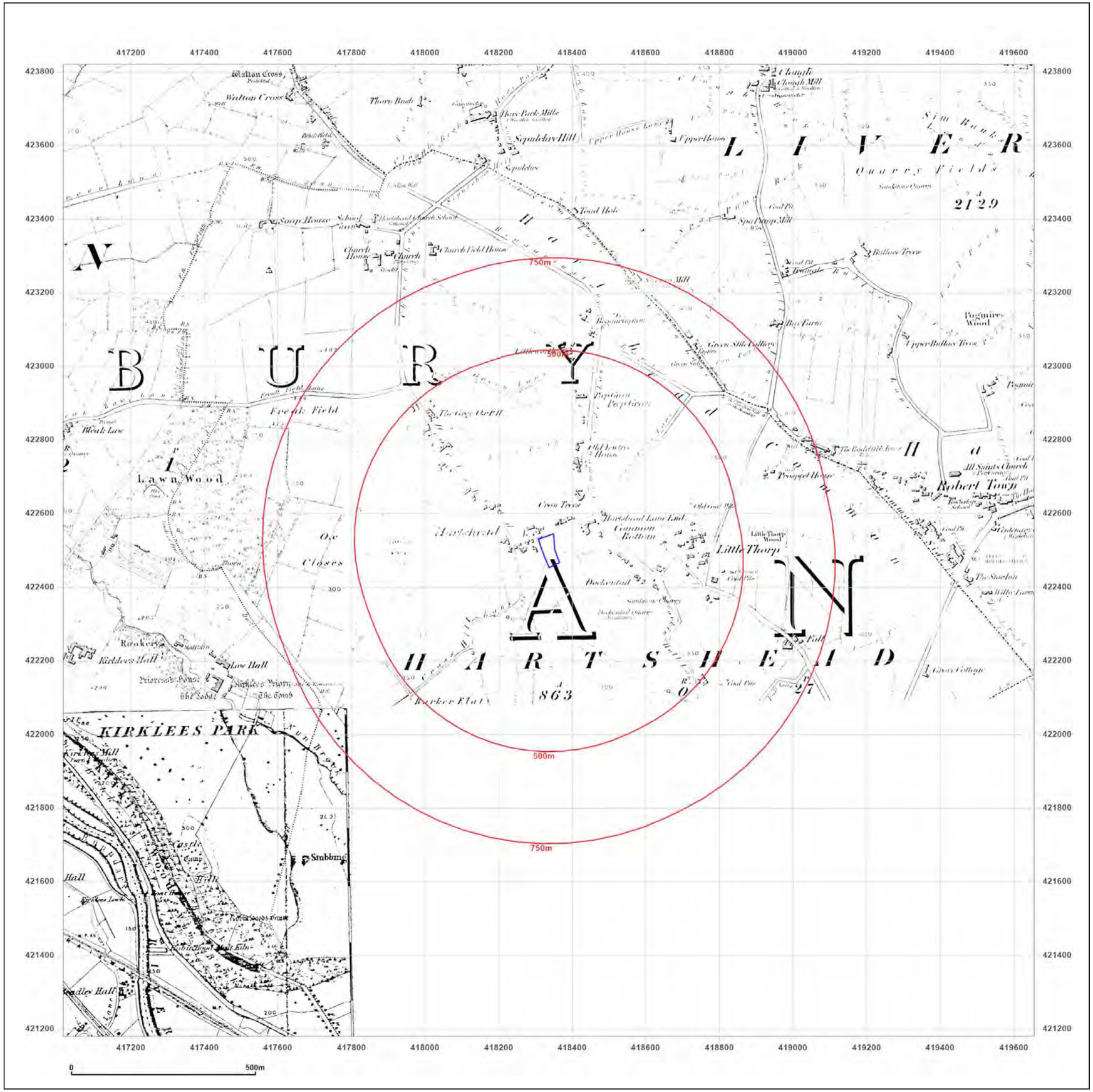


Groundsure INSIGHTS

**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** County Series

**Map date:** **1854**

**Scale:** 1:10,560

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

N
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Surveyed 1849
Revised N/A
Edition 1854
Copyright N/A
Levelled N/A

Surveyed 1847
Revised N/A
Edition 1854
Copyright N/A
Levelled N/A

Surveyed 1850
Revised N/A
Edition 1854
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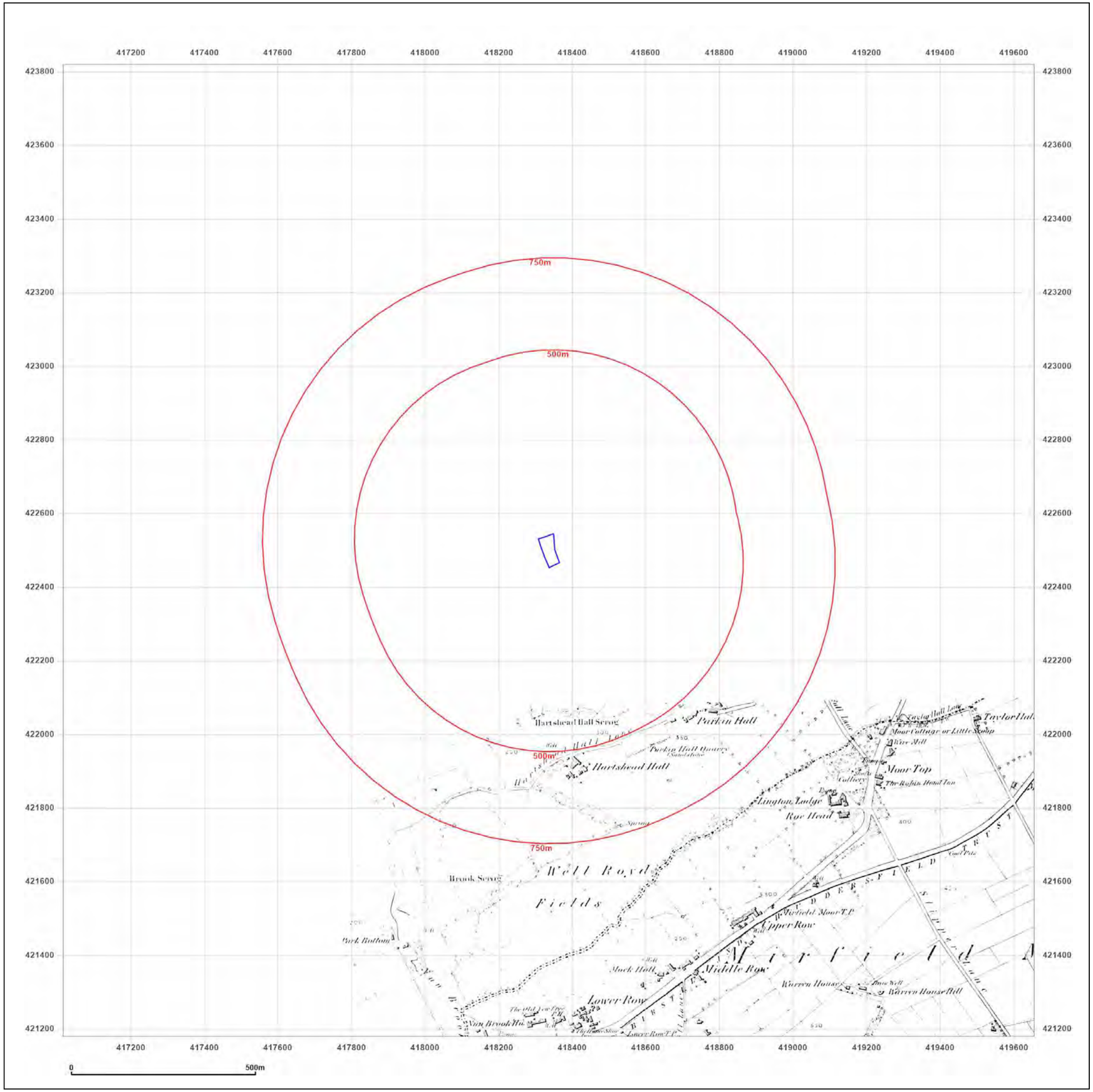


Groundsure INSIGHTS

**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** County Series

**Map date:** **1855**

**Scale:** 1:10,560

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

N
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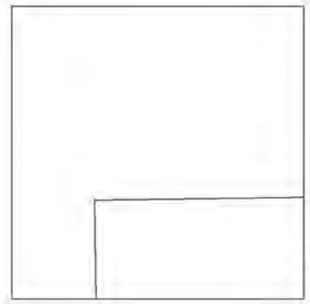

Surveyed 1851
Revised N/A
Edition 1855
Copyright N/A
Levelled N/A

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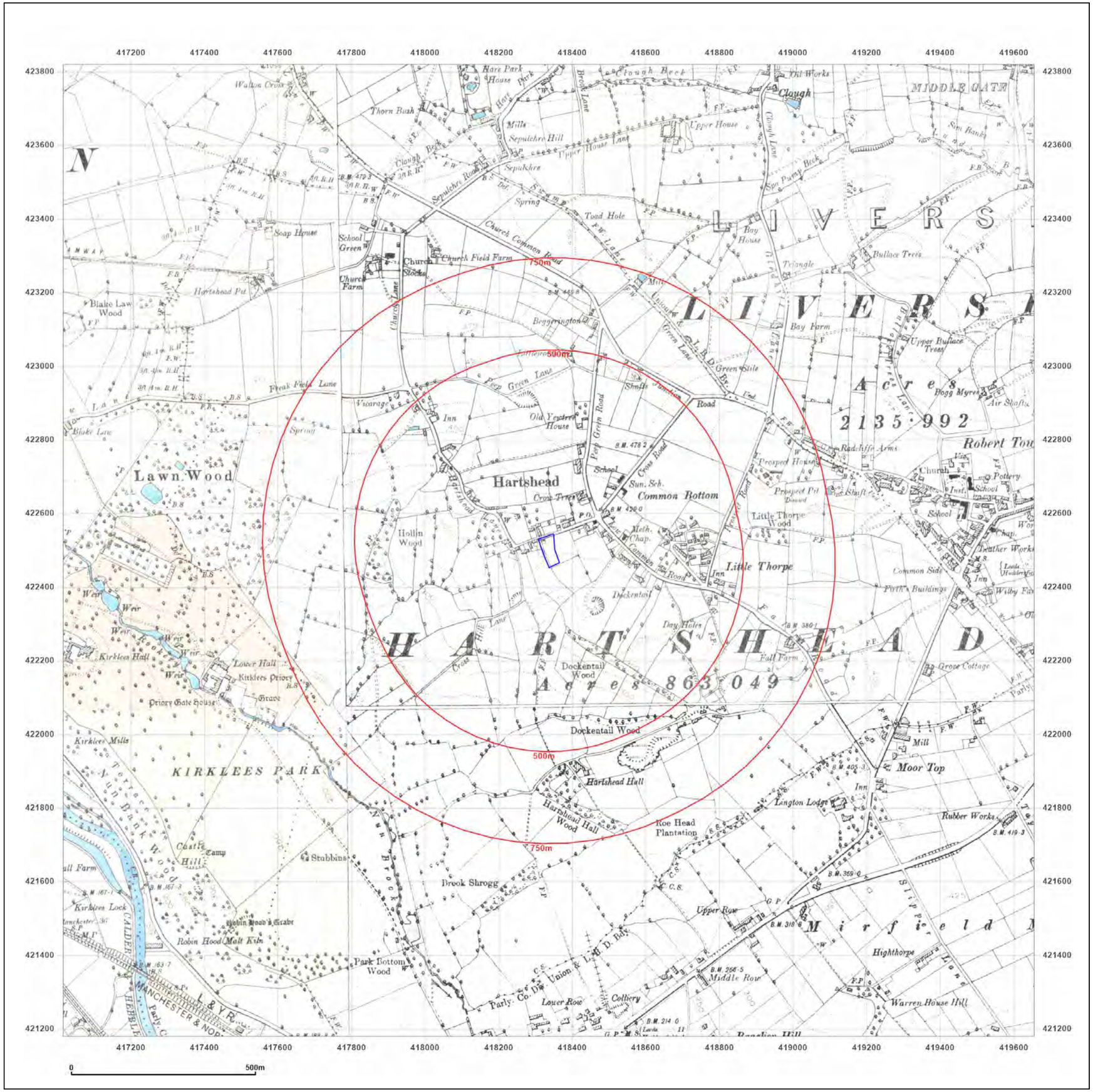


# Groundsure INSIGHTS

**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** County Series

**Map date:** **1892**

**Scale:** 1:10,560

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

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

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

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

Surveyed 1892
Revised 1892
Edition N/A
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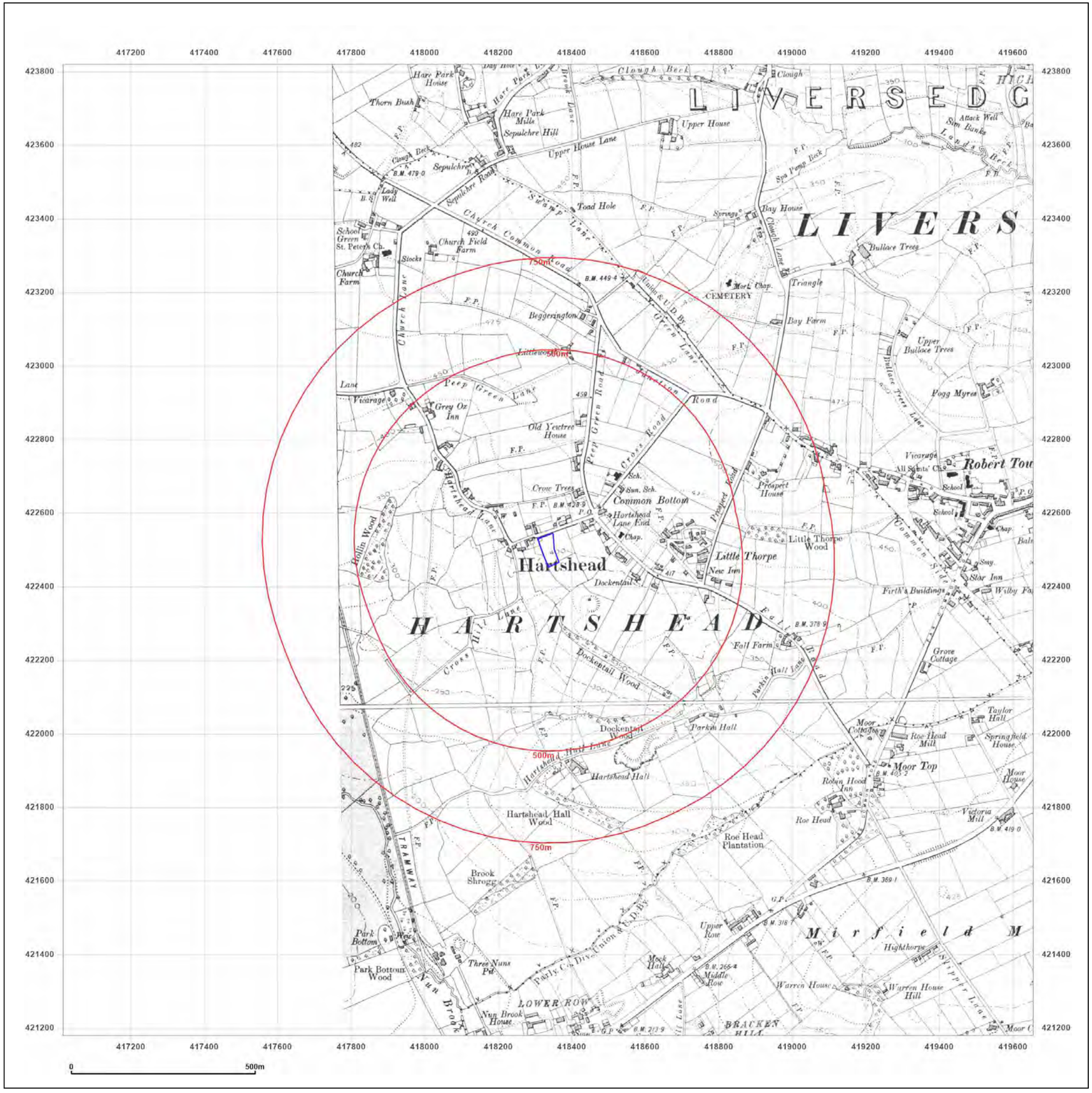


Groundsure INSIGHTS

**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** County Series

**Map date:** **1905**

**Scale:** 1:10,560

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

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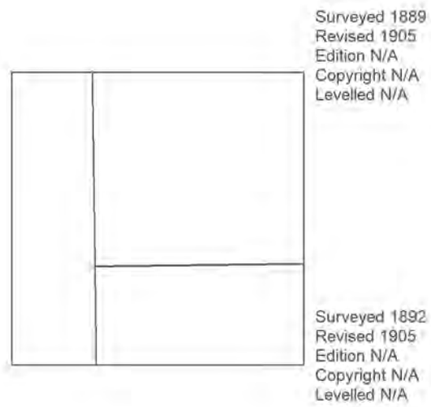


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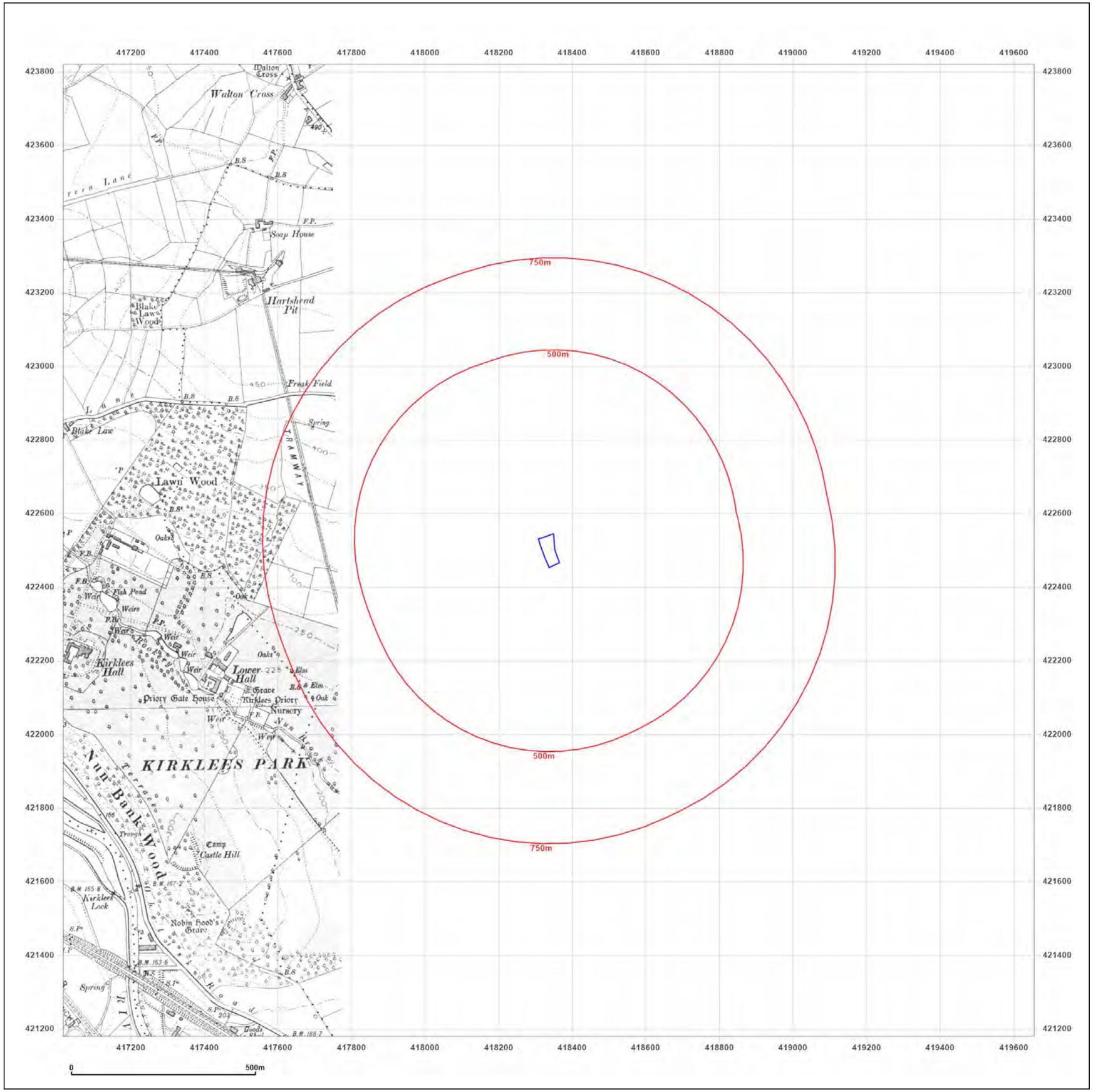


Groundsure INSIGHTS

**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** County Series

**Map date:** **1905**

**Scale:** 1:10,560

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

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

Surveyed 1892
Revised 1905
Edition N/A
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Levelled N/A

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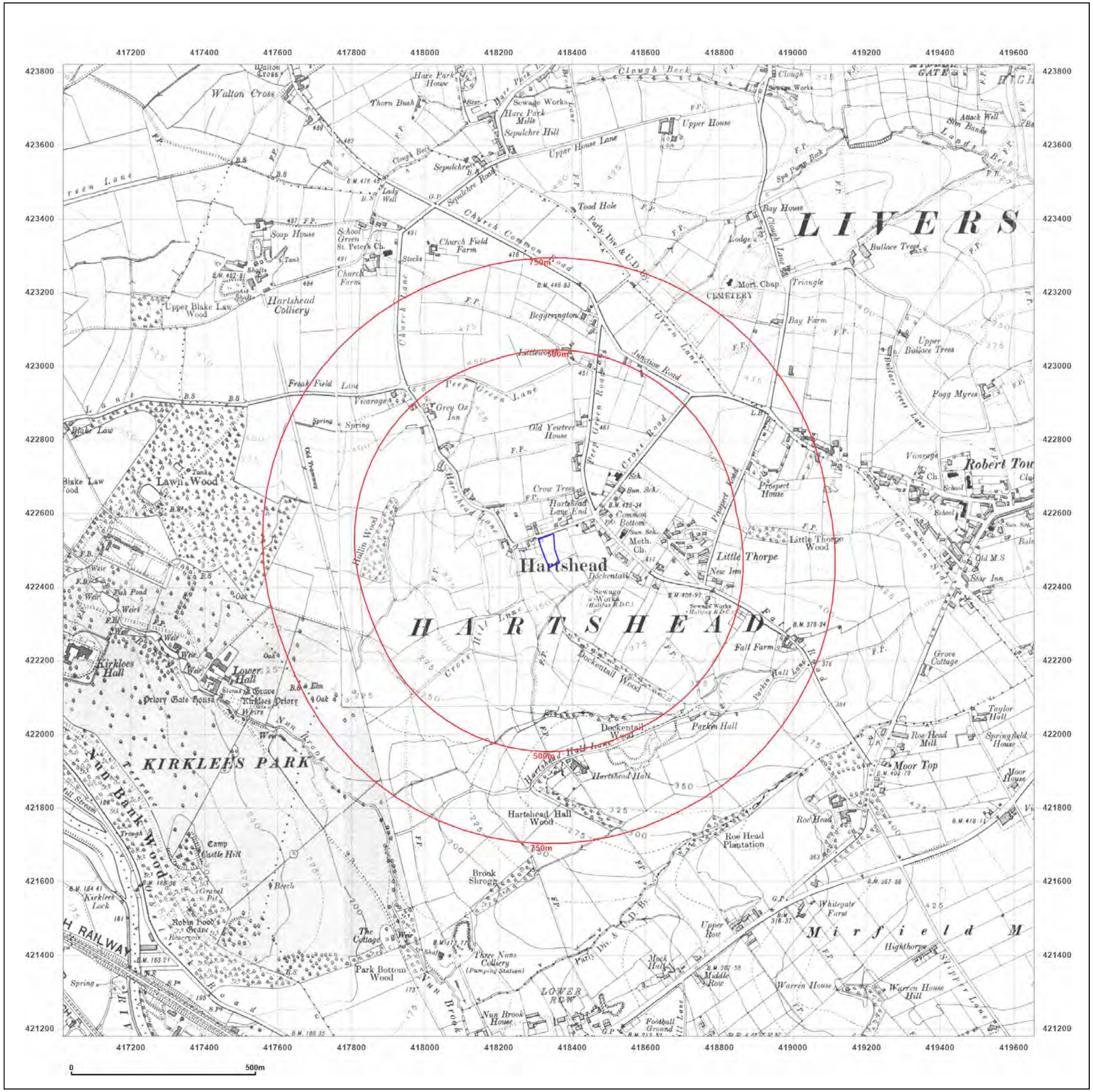


# Groundsure INSIGHTS

**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** County Series

**Map date:** **1930-1931**

**Scale:** 1:10,560

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

N
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Surveyed 1849
Revised 1931
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1851
Revised 1931
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1850
Revised 1930
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1851
Revised 1931
Edition N/A
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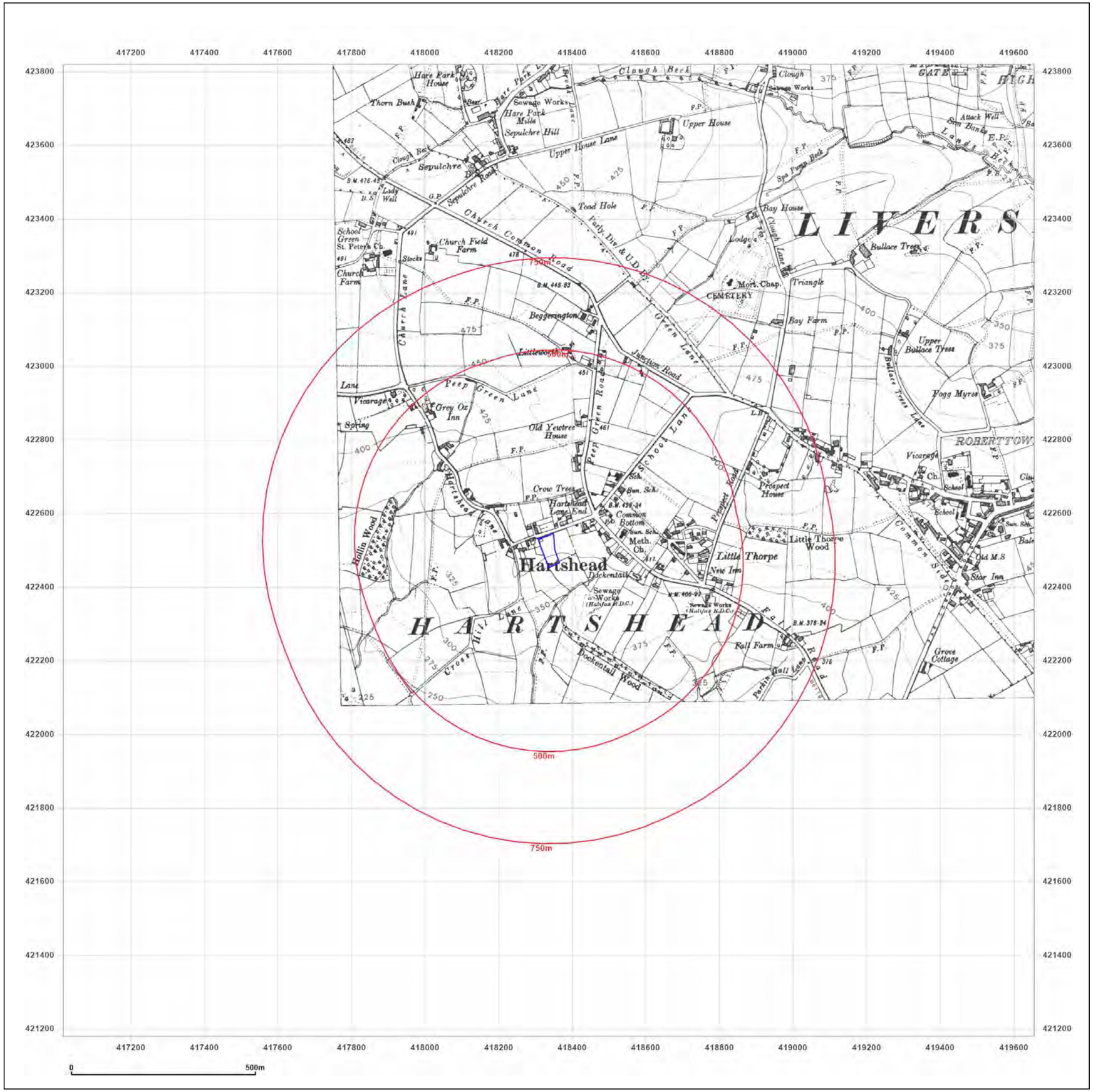


Groundsure INSIGHTS

**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** County Series

**Map date:** **1931**

**Scale:** 1:10,560

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

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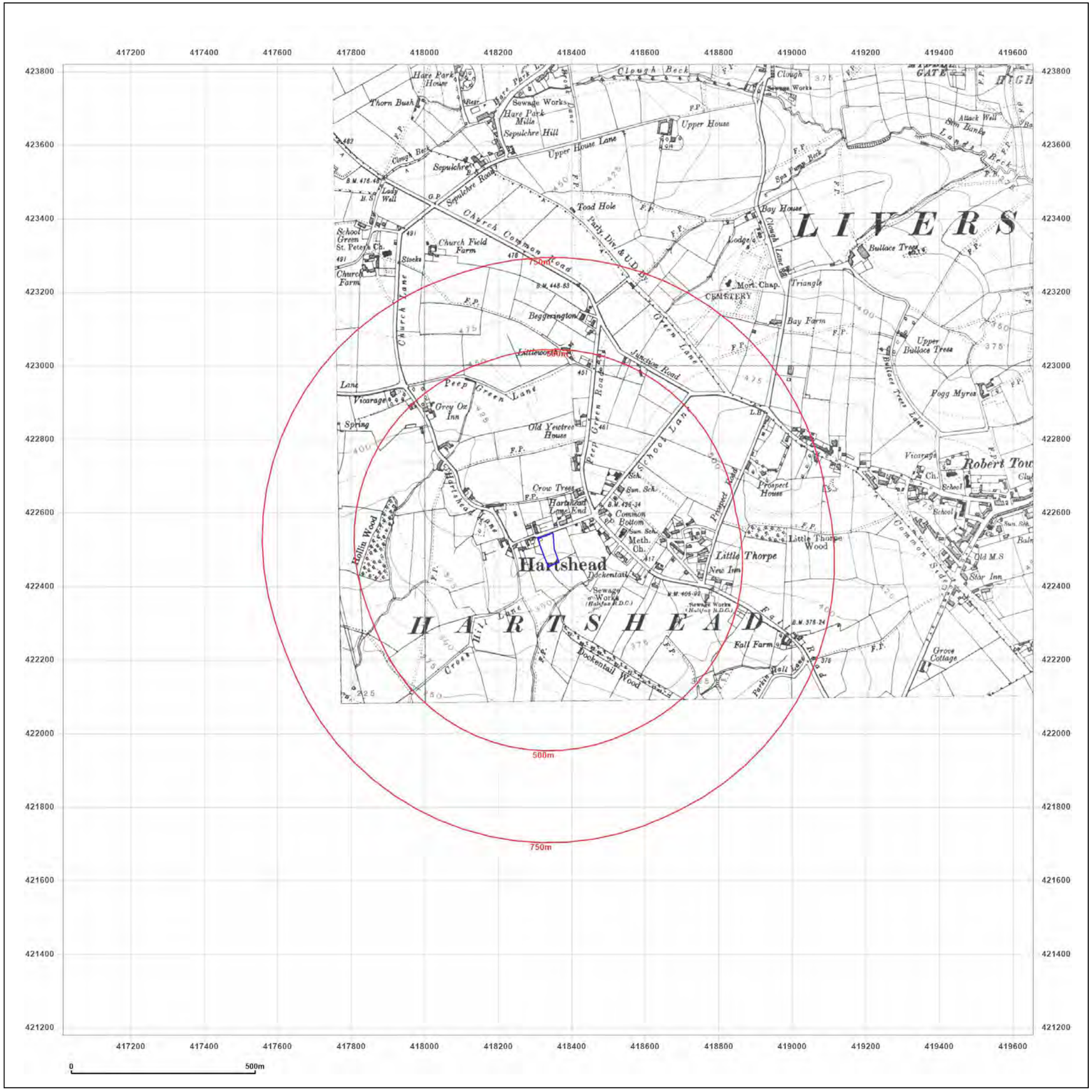


Groundsure INSIGHTS

**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** County Series

**Map date:** **1931**

**Scale:** 1:10,560

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

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Surveyed 1851
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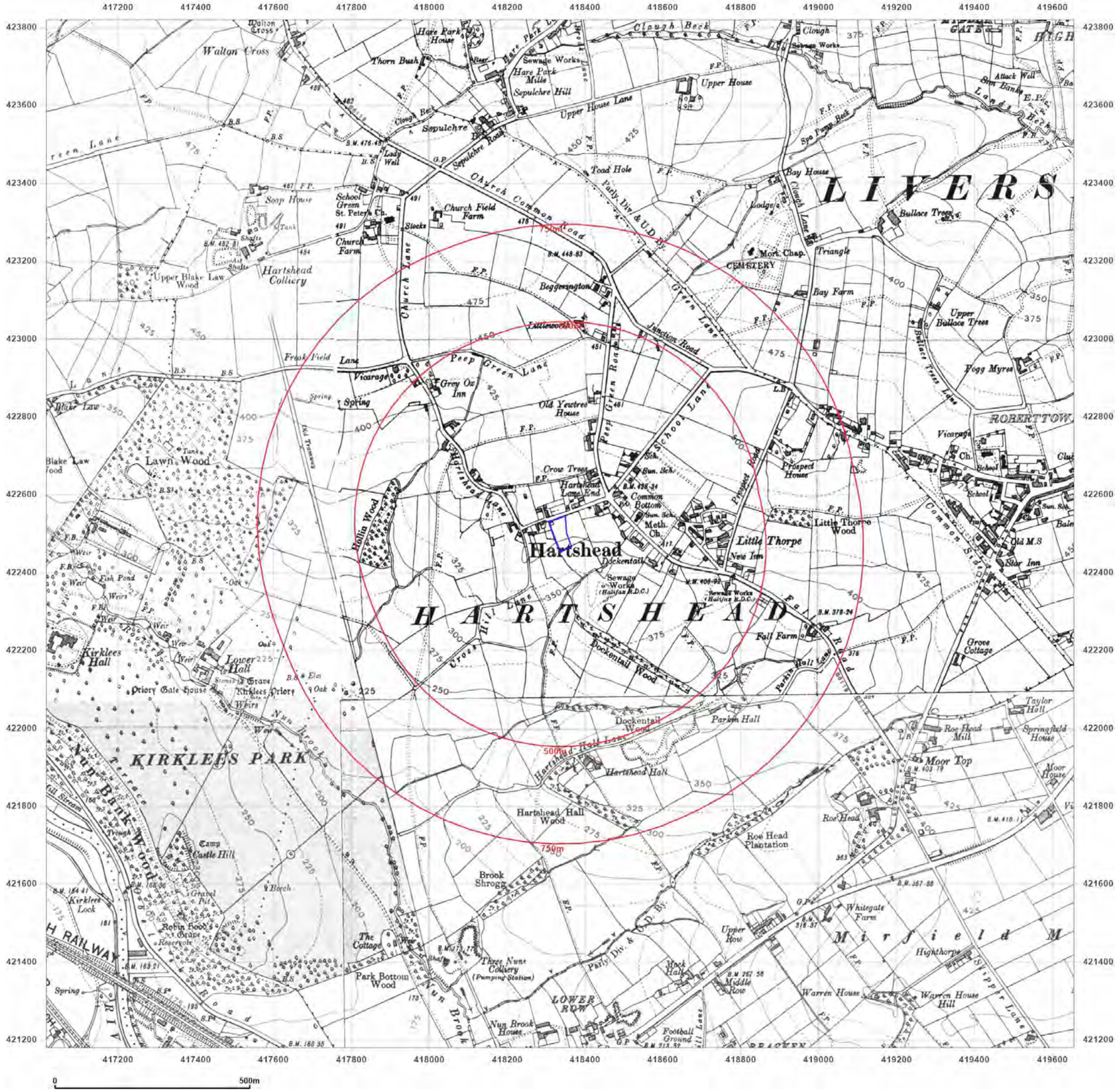


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**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** County Series

**Map date:** **1938**

**Scale:** 1:10,560

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

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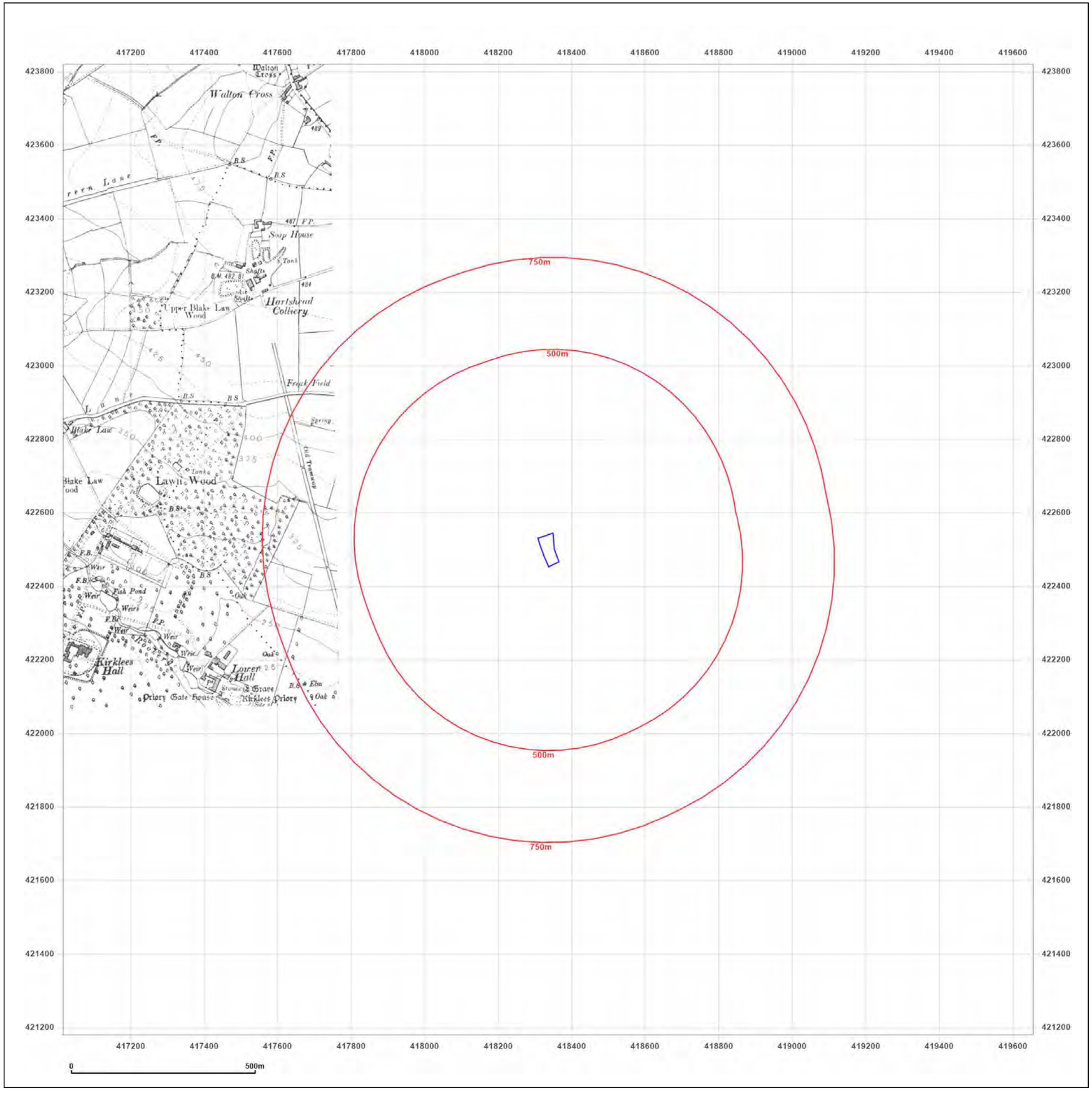


Groundsure INSIGHTS

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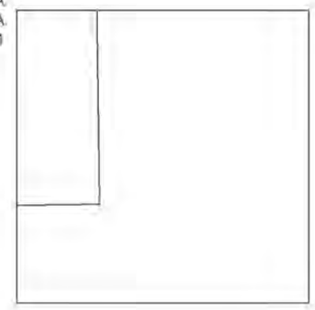

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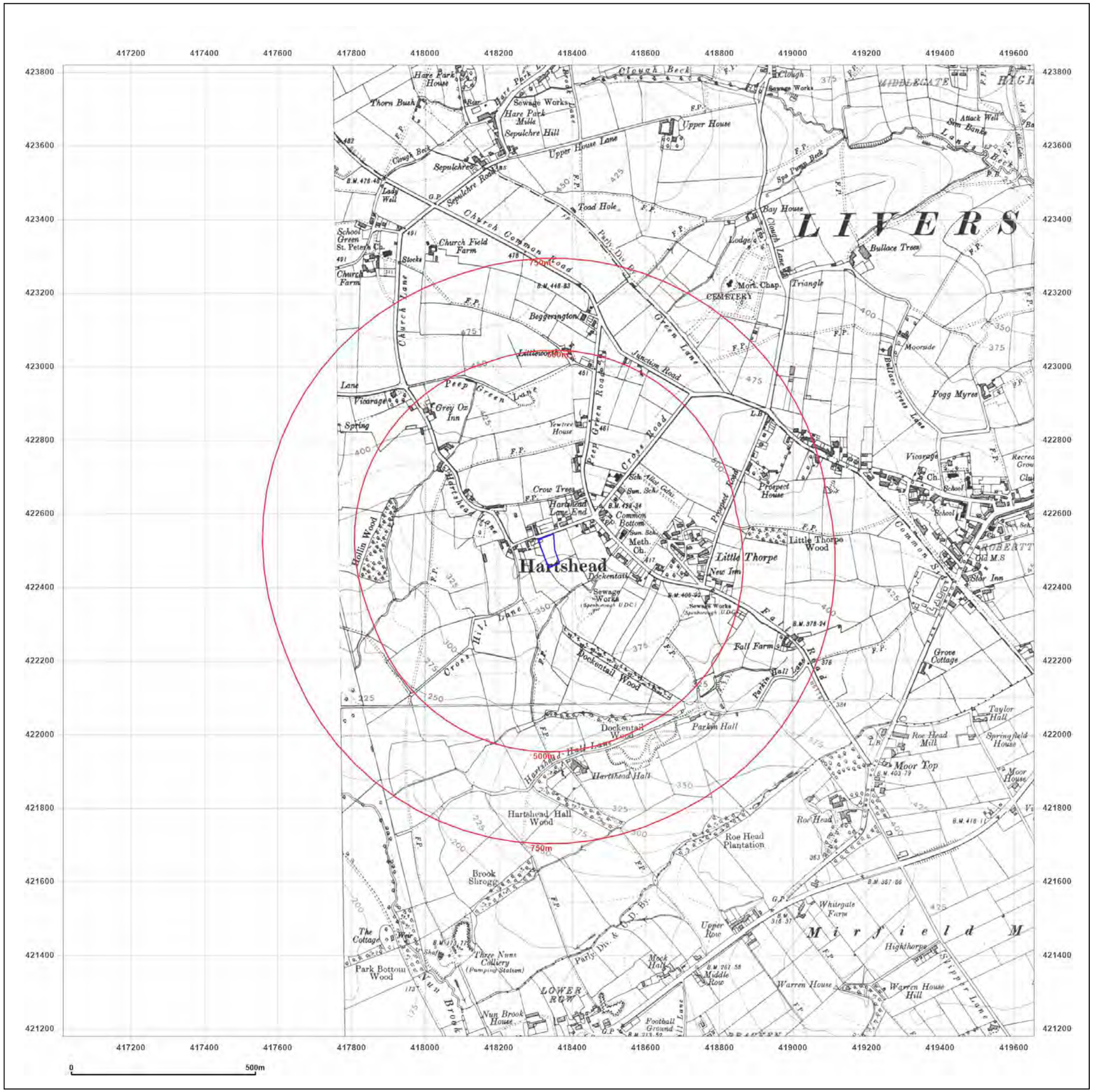


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**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** County Series

**Map date:** **1948**

**Scale:** 1:10,560

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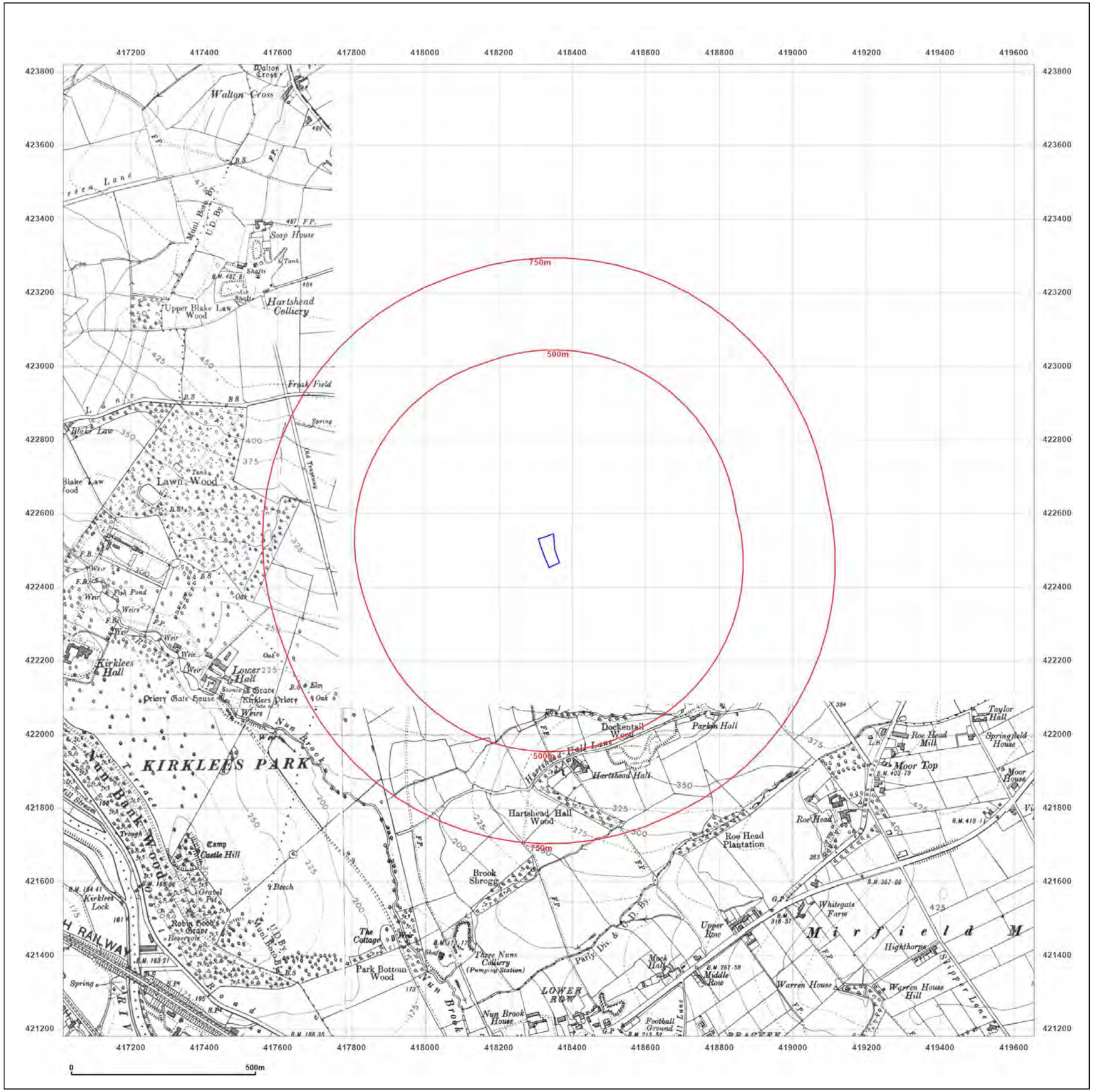


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**Grid Ref:** 418335, 422499

**Map Name:** County Series

**Map date:** **1948**

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

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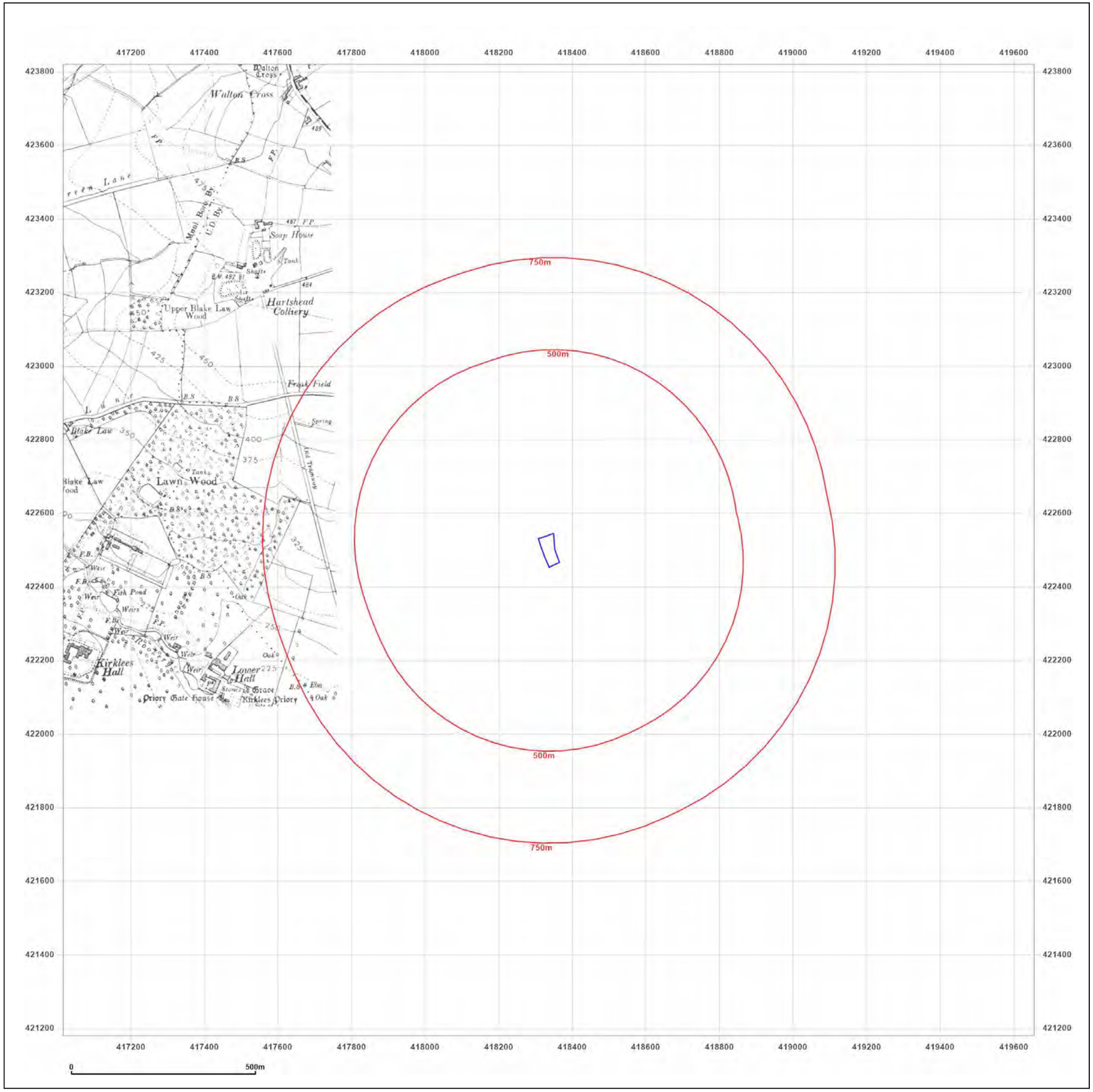


Groundsure INSIGHTS

**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** County Series

**Map date:** **1948**

**Scale:** 1:10,560

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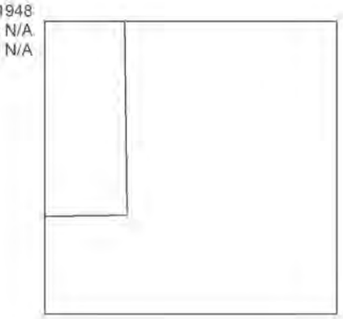

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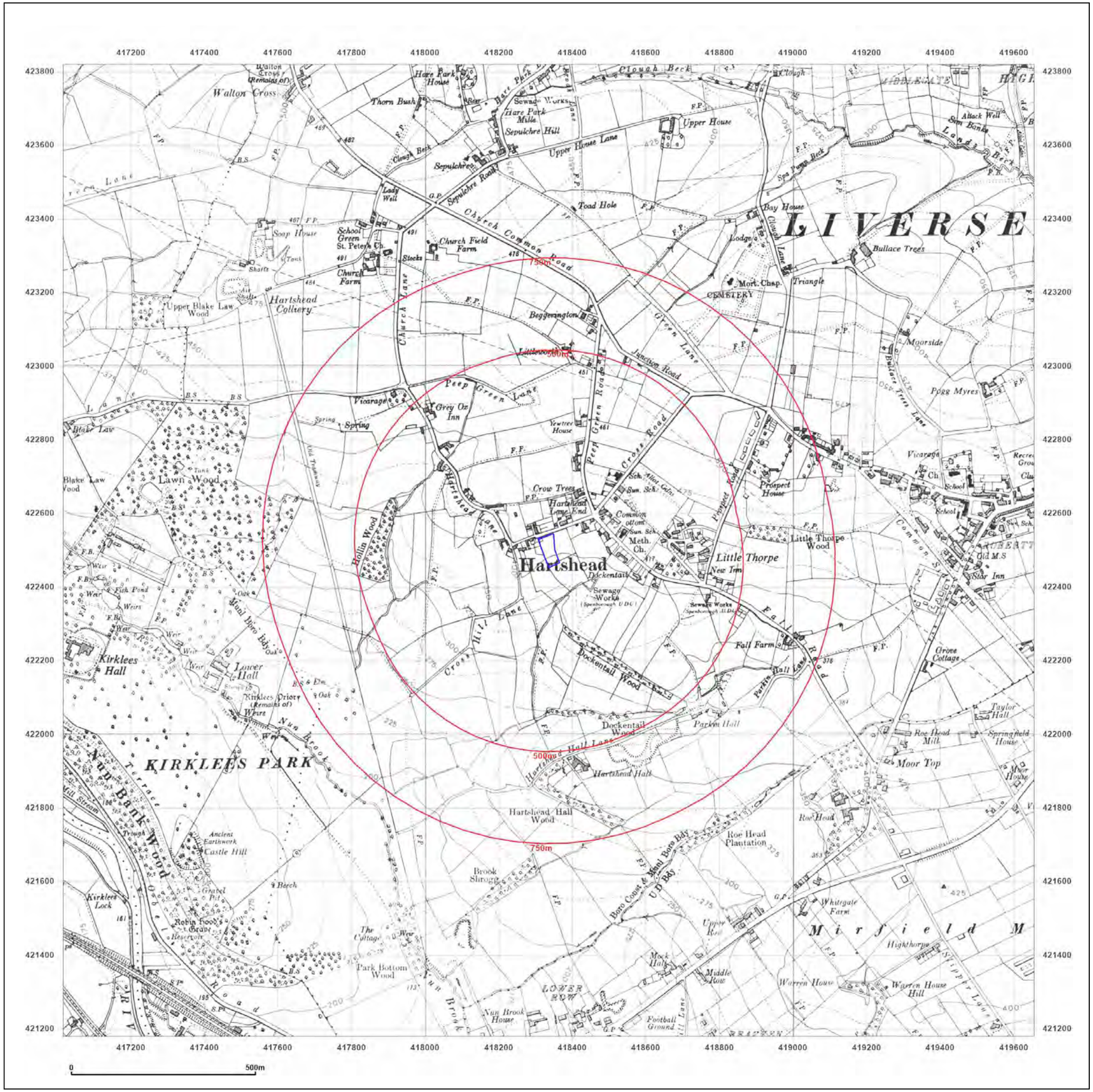


# Groundsure INSIGHTS

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Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** Provisional

**Map date:** **1951**

**Scale:** 1:10,560

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

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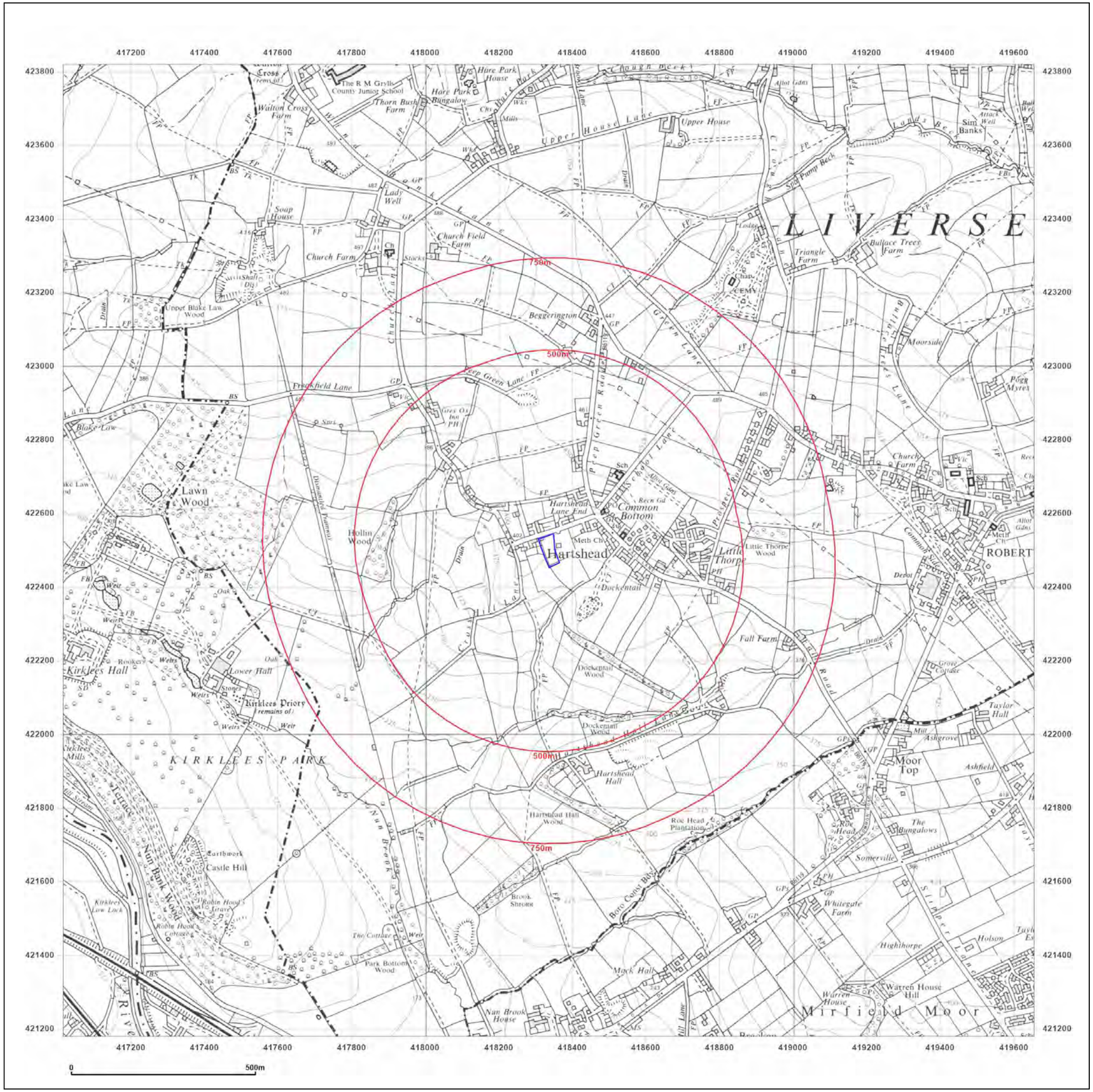


Groundsure INSIGHTS

**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** Provisional

**Map date:** **1966**

**Scale:** 1:10,560

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

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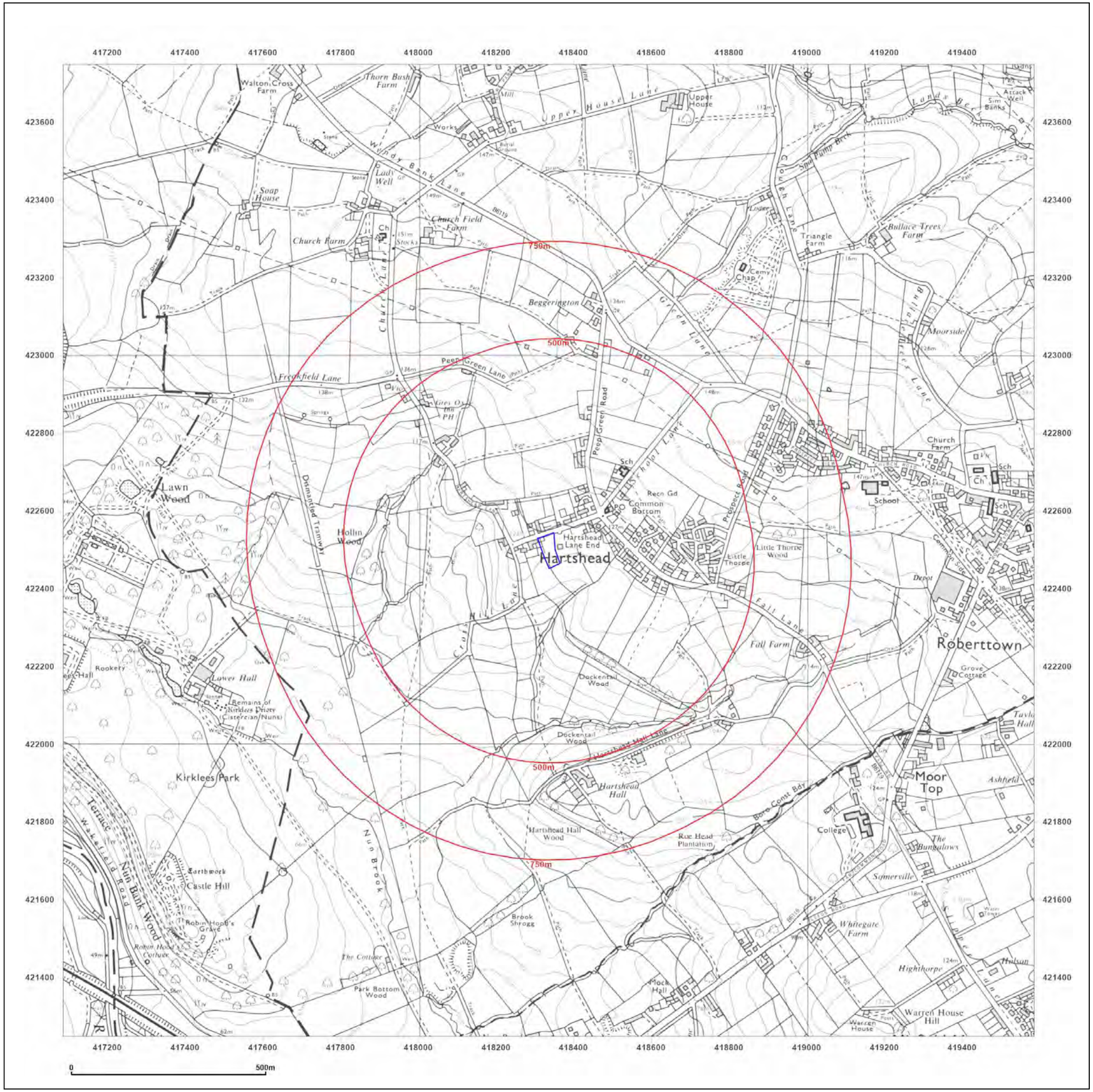


Groundsure INSIGHTS

**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** National Grid

**Map date:** **1975**

**Scale:** 1:10,000

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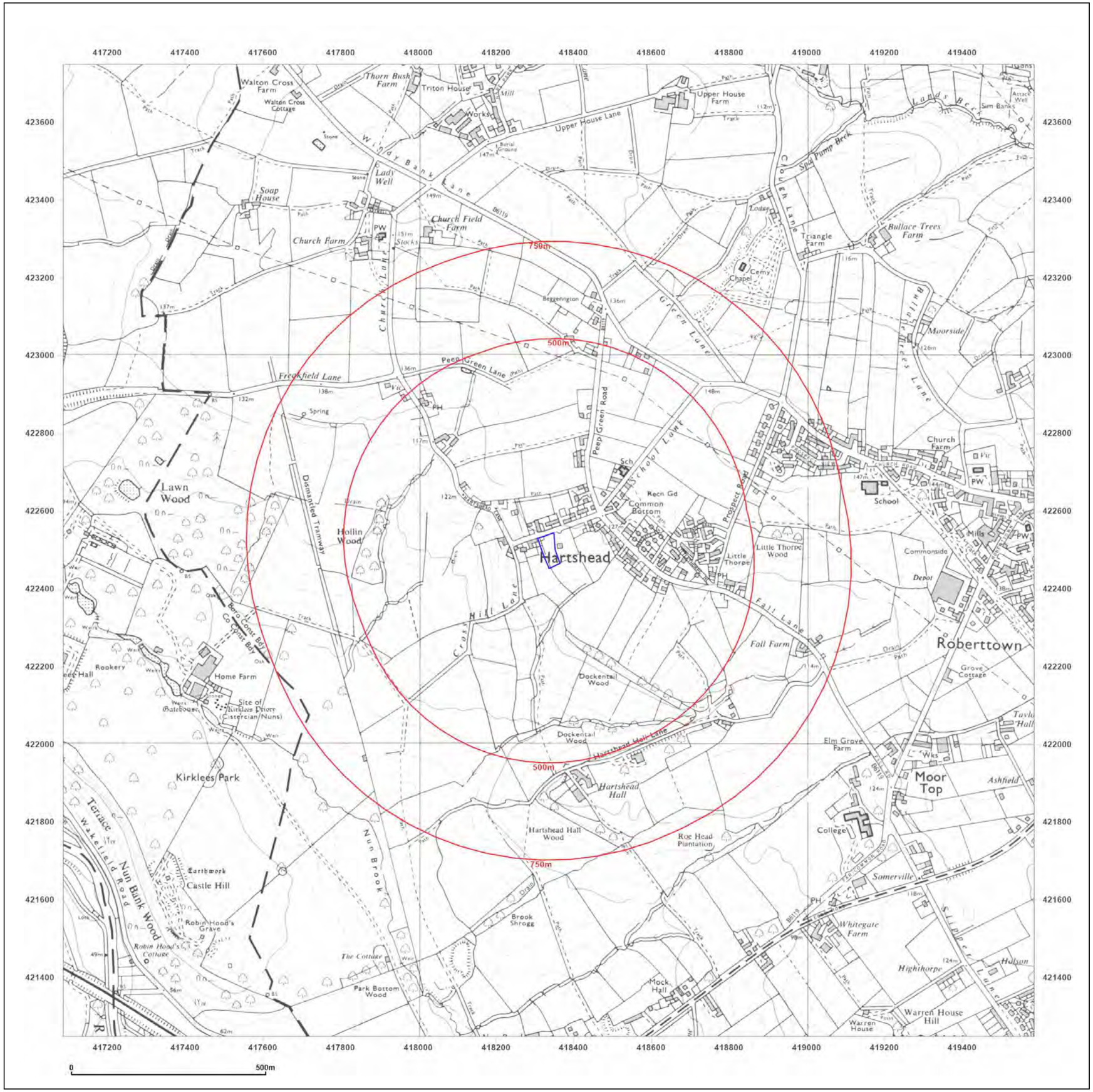


# Groundsure INSIGHTS

**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** National Grid

**Map date:** **1985**

**Scale:** 1:10,000

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

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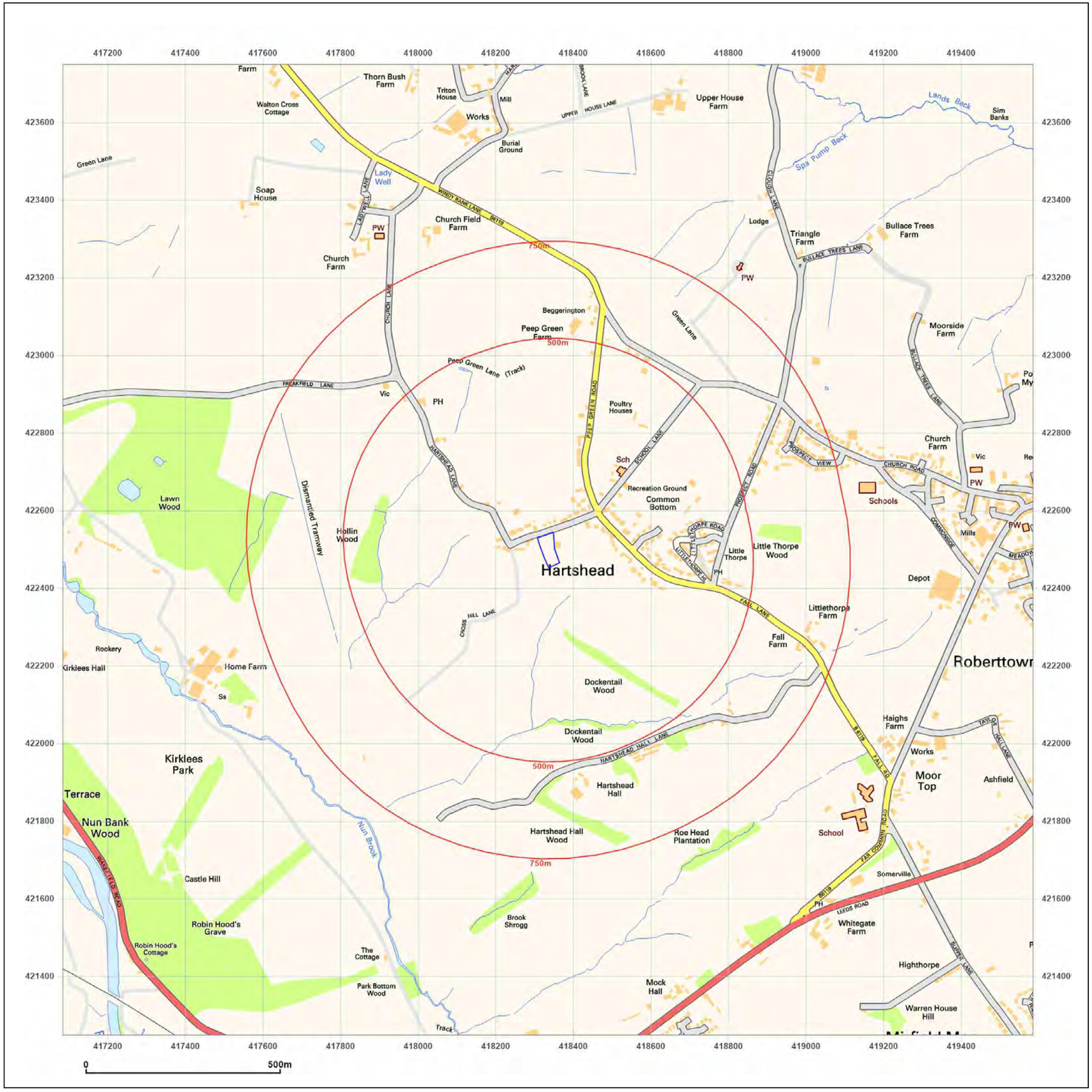


# Groundsure INSIGHTS

**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

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**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** National Grid

**Map date:** **2001**

**Scale:** 1:10,000

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

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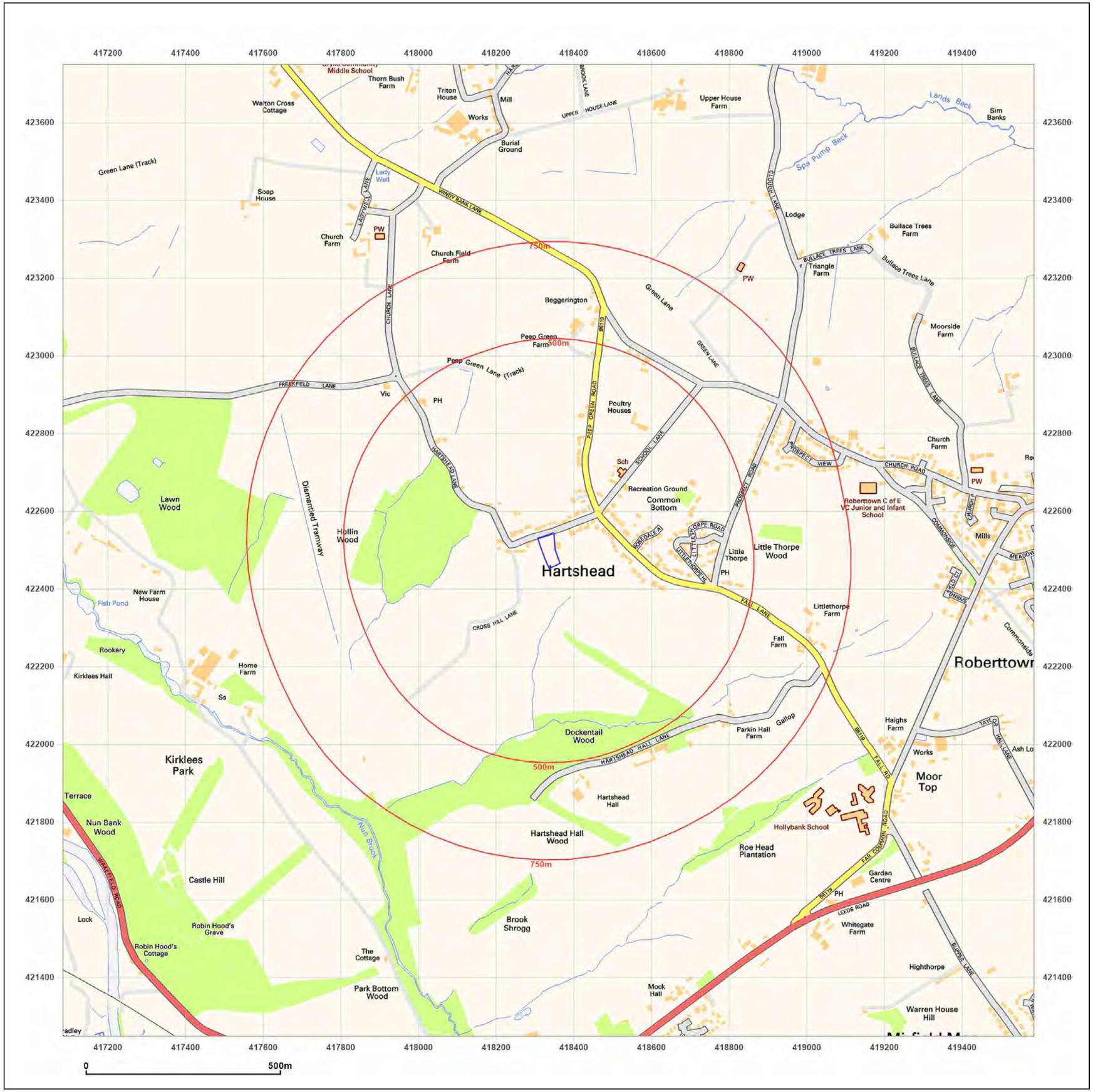


# Groundsure INSIGHTS

**Site Details:**

Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
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**Grid Ref:** 418335, 422499

**Map Name:** National Grid

**Map date:** 2010

**Scale:** 1:10,000

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

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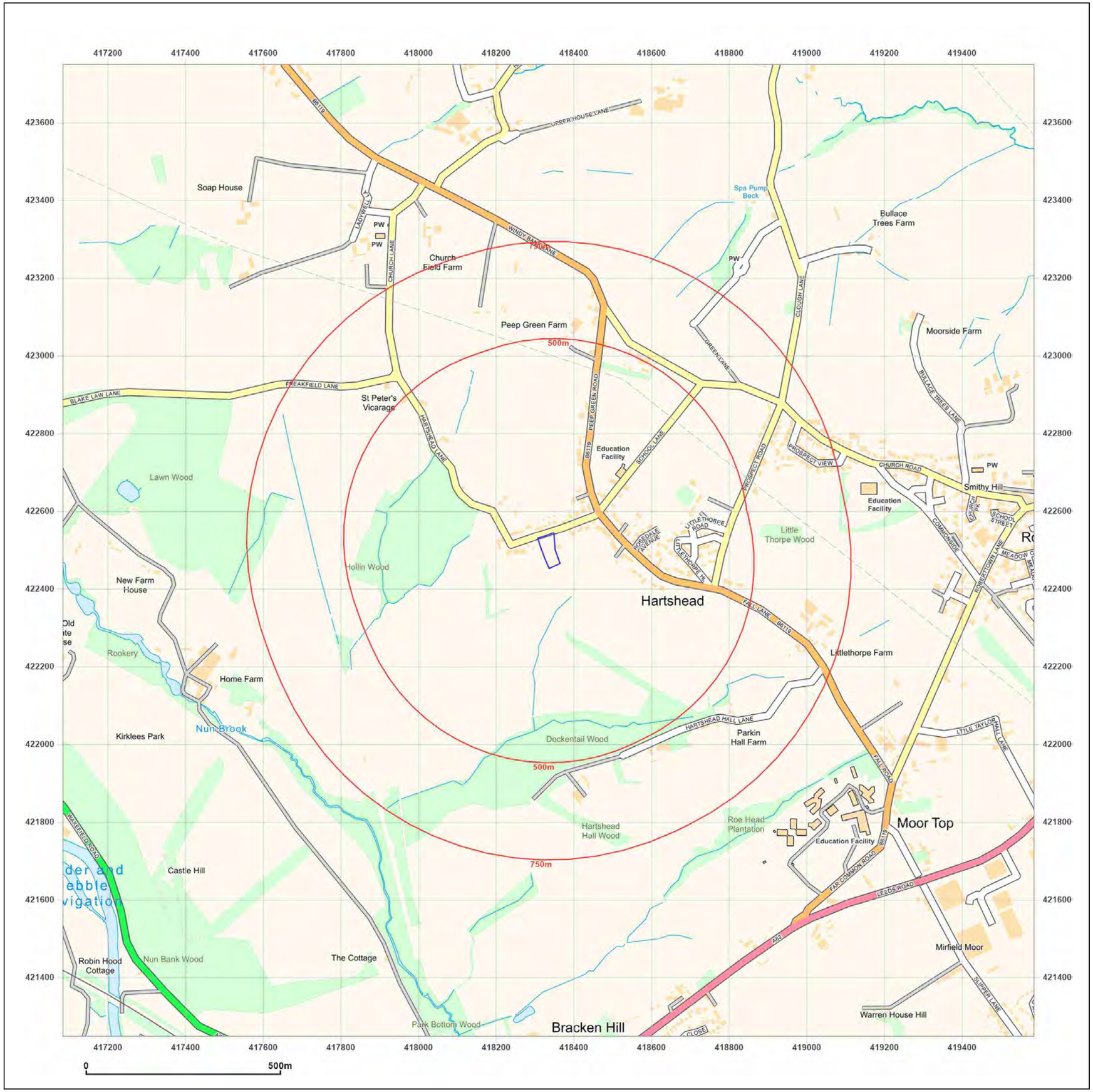


# Groundsure INSIGHTS

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Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

**Client Ref:** AC00195
**Report Ref:** GS-B64-9KX-IXS-ACT
**Grid Ref:** 418335, 422499

**Map Name:** National Grid

**Map date:** **2024**

**Scale:** 1:10,000

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**Appendix D**

Site Photographs

Photograph 1 – Hartshead Lane facing east-north-east from the entrance to Sherwood House.

Photograph 2 - Hartshead Lane facing west-south-west from the entrance to Sherwood House.

| | |
|---|---|
| **Site Address:** | Plots 1 & 2, 124 Hartshead Lane, Hartshead, Liversedge, West Yorkshire WF15 8AJ |
| **Title:** | Appendix D – Site Photographs |
| **Client:** | Mr David Brown |
| **Printed Scale:** | NTS |
| **Date:** | September 2024 |

AC | ENVIRONMENT SOLUTIONS

Photograph 3 – Northern third of Plots 1 and 2 immediately adjacent to Hartshead Lane, with the western boundary in the background.

Photograph 4 – Stone adjacent to the wall close to the north-western corner of the site.

| | |
|---|---|
| **Site Address:** | Plots 1 & 2, 124 Hartshead Lane, Hartshead, Liversedge, West Yorkshire WF15 8AJ |
| **Title:** | Appendix D – Site Photographs |
| **Client:** | Mr David Brown |
| **Printed Scale:** | NTS |
| **Date:** | September 2024 |

AC | ENVIRONMENT SOLUTIONS

Photograph 5 – Central part of the Plots 1 and 2 land with stone being stored for dry stone wall, which is to be built on Hartshead Lane, skip, temporary storage cabin and caravan for use during construction.

Photograph 6 – Dry stone wall, Plot 1 central western boundary.

| | |
|---|---|
| **Site Address:** | Plots 1 & 2, 124 Hartshead Lane, Hartshead, Liversedge, West Yorkshire WF15 8AJ |
| **Title:** | Appendix D – Site Photographs |
| **Client:** | Mr David Brown |
| **Printed Scale:** | NTS |
| **Date:** | September 2024 |

AC | ENVIRONMENT SOLUTIONS

Photograph 7 – Central and southern area of Plot 1.

Photograph 8 - Dry stone wall, Plot 1 central western boundary.

| | |
|---|---|
| **Site Address:** | Plots 1 & 2, 124 Hartshead Lane, Hartshead, Liversedge, West Yorkshire WF15 8AJ |
| **Title:** | Appendix D – Site Photographs |
| **Client:** | Mr David Brown |
| **Printed Scale:** | NTS |
| **Date:** | September 2024 |

AC | ENVIRONMENT SOLUTIONS

Photograph 9 – Southern area of Plots 1 and 2, with the western boundary to the right of the photograph.

Photograph 10 – Plots 1 and 2 facing north from the southern boundary with Sherwood House to the right of the photograph.

| | | |
|---|---|---|
| **Site Address:** | Plots 1 & 2, 124 Hartshead Lane, Hartshead, Liversedge, West Yorkshire WF15 8AJ | |
| **Title:** | Appendix D – Site Photographs | |
| **Client:** | Mr David Brown | |
| **Printed Scale:** | NTS | |
| **Date:** | September 2024 | |

Photograph 11 – Yorkshire Water Drain enters adjacent property from Hartshead Lane crossing Plots 1 and 2 towards Sherwood House.

Photograph 12 – Drain passes in front of Sherwood House through Plot 4 to adjacent field.

| | |
|---|---|
| **Site Address:** | Plots 1 & 2, 124 Hartshead Lane, Hartshead, Liversedge, West Yorkshire WF15 8AJ |
| **Title:** | Appendix D – Site Photographs |
| **Client:** | Mr David Brown |
| **Printed Scale:** | NTS |
| **Date:** | September 2024 |

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Photograph 13 – Land beyond southern boundary of Plots 1 and 2 to the south-east.

Photograph 14 – Land beyond the southern boundary to the south with Huddersfield to the south-west.

| | |
|---|---|
| **Site Address:** | Plots 1 & 2, 124 Hartshead Lane, Hartshead, Liversedge, West Yorkshire WF15 8AJ |
| **Title:** | Appendix D – Site Photographs |
| **Client:** | Mr David Brown |
| **Printed Scale:** | NTS |
| **Date:** | September 2024 |

AC | ENVIRONMENT SOLUTIONS

**Appendix E**

Coal Authority Mining Report

The Coal Authority

# Consultants

## Coal Mining Report

Plots 1 And 2, 124 Hartshead Lane,
Hartshead, Liversedge Wf15 8aj
West Yorkshire

| | |
|---|---|
| Date of enquiry: | **14 August 2024** |
| Date enquiry received: | **14 August 2024** |
| Issue date: | **14 August 2024** |
| Our reference: | **51003443957001** |
| Your reference: | **GS-BDX-URK-ZJR-M7G** |

# Consultants

# Coal Mining Report

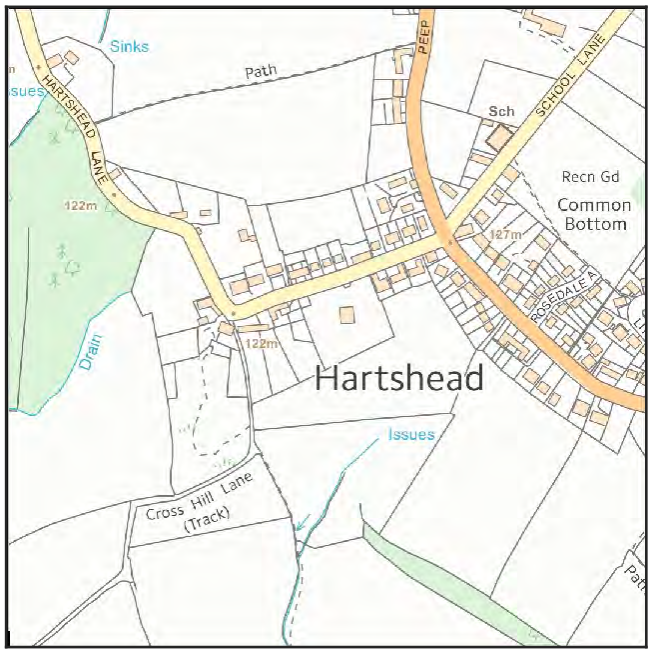
This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

**Client name**

GROUNDSURE LIMITED

**Enquiry address**

Plots 1 And 2, 124 Hartshead Lane, Hartshead,
Liversedge Wf15 8aj
West Yorkshire




Approximate position of property

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0345 762 6848 (UK)
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200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

@coalauthority
/company/the-coal-authority
/thecoalauthority
/thecoalauthority

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# Section 1 – Mining activity and geology

## Past underground mining

| Colliery | Seam | Mineral | Coal Authority reference | Depth (m) | Direction to working | Dipping rate of seam worked (degrees) | Dipped direction of seam worked | Extraction thickness (cm) | Year last mined |
|---|---|---|---|---|---|---|---|---|---|
| unnamed | WHINMOOR | Coal | 6H99 | 39 | Beneath Property | 2.4 | South-West | 86 | 1903 |
| unnamed | BLACK BED | Coal | 6H9E | 119 | Beneath Property | 2.5 | South | 82 | 1932 |
| unnamed | BETTER BED | Coal | 6H9H | 165 | Beneath Property | 2.4 | South | 46 | 1917 |

## Probable unrecorded shallow workings

None.

## Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

## Mine entries

None recorded within 100 metres of the enquiry boundary.

## Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

| | | |
|---|---|---|
| 8526 | GCR202 | CT44 |
| 12719 | M134 | CT46 |
| M49 | M144 | 454 |

Our records show we have more plans than those shown above which could affect the enquiry boundary.

**Please contact us on 0345 762 6848** to determine the exact abandoned mine plans you require based on your needs.

## Outcrops

No outcrops recorded.

## Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

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### Opencast mines

None recorded within 500 metres of the enquiry boundary.

### Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

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# Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

### Site investigations

None recorded within 50 metres of the enquiry boundary.

### Remediated sites

None recorded within 50 metres of the enquiry boundary.

### 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.

### Mine gas

None recorded within 500 metres of the enquiry boundary.

### Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

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# Section 3 – Licensing and future mining activity

### Future underground mining
None recorded.

### Coal mining licensing
None recorded within 200 metres of the enquiry boundary.

### Court orders
None recorded.

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

### Withdrawal of support notices
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.

### 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.

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# Section 4 – Further information

The following potential risks have been identified and as part of your risk assessment should be investigated further.

### Future development

If development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply specialist engineering practice required for former mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or coal mines without first obtaining the permission of the Coal Authority.

**MINE GAS:** Please note, if there are no recorded instances of mine gas within 500m of the enquiry boundary, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded. Developers should be aware that the investigation of coal seams, mine workings or mine entries may have the potential to generate and/or displace underground gases. Associated risks both to the development site and any neighbouring land or properties should be fully considered when undertaking any ground works. The need for effective measures to prevent gases migrating onto any land or into any properties, either during investigation or remediation work, or after development must also be assessed and properly addressed. In these instances, the Coal Authority recommends that a more detailed Gas Risk Assessment is undertaken by a competent assessor.

### Development advice

The site is within an area of historical coal mining activity. Should you require advice and/or support on understanding the mining legacy, its risks to your development or what next steps you need to take, please contact us.

**For further information on specific site or ground investigations in relation to any issues raised in Section 4, please call us on 0345 762 6848 or email us at groundstability@coal.gov.uk.**

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# Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk.**

### Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

### Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

### Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

### Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

### Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

### Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

### Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

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### Opencast mines

Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

### Coal Authority managed tips

Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

### Site investigations

Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

### Remediated sites

Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

### Coal mining subsidence

Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

### Mine gas

Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission. Please note, if there are no recorded instances of mine gas reported, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded.

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### Mine water treatment schemes

Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

### Future underground mining

Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

### Coal mining licensing

Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

### Court orders

Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

### Section 46 notices

Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

### Withdrawal of support notices

Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

### Payment to owners of former copyhold land

Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

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The Coal Authority

# Summary of findings

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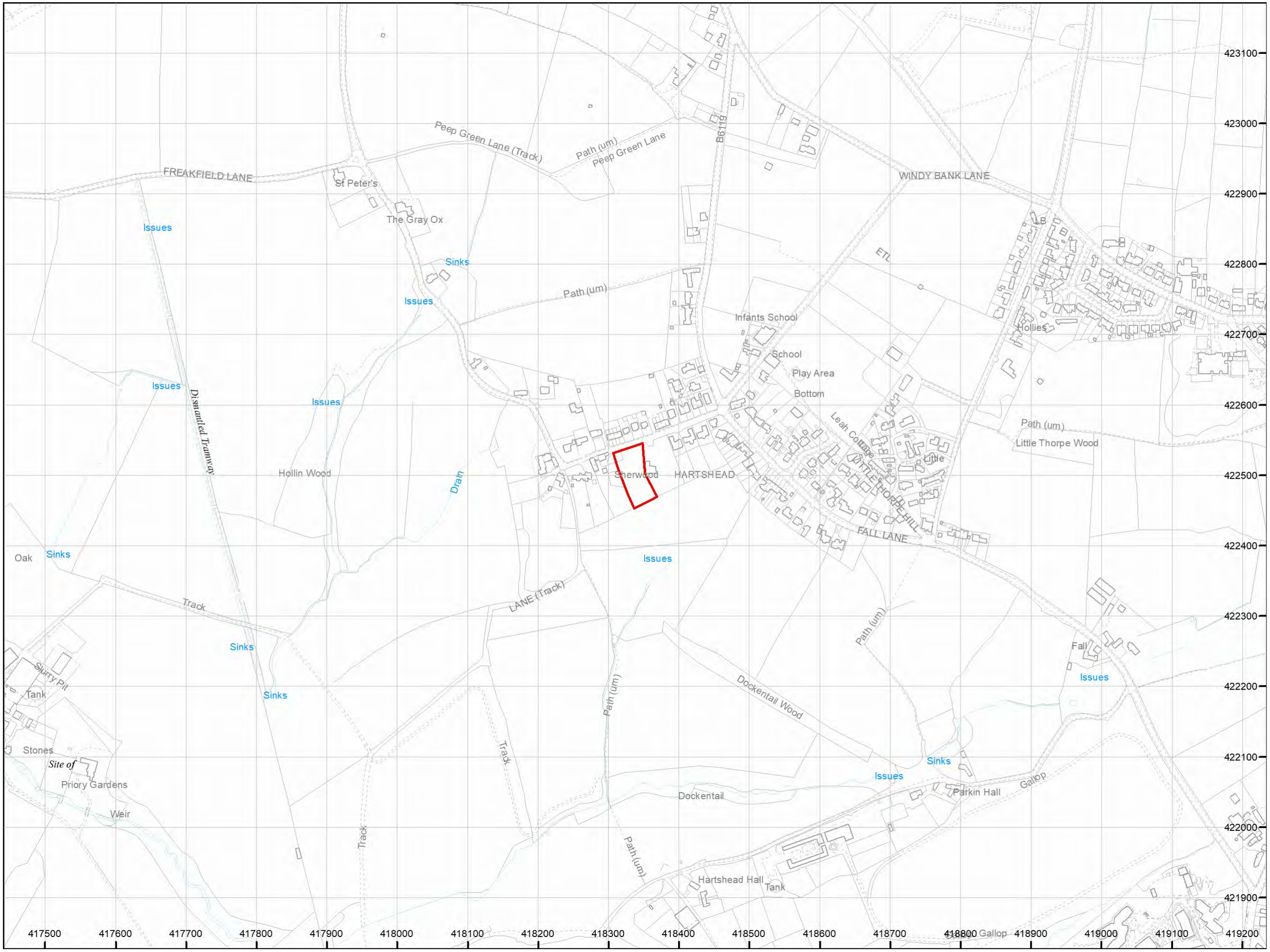
The map highlights any specific surface or subsurface features within or near to the boundary of the site.

## Key

Approximate position of the enquiry boundary shown




## How to contact us

0345 762 6848 (UK)
+44 (0)1623 637 000 (International)
www.groundstability.com

**Appendix F**

Groundsure Enviro and Geo-Insights Data Report

Groundsure
LOCATION INTELLIGENCE

# Enviro+Geo Insight

## Plots 1 and 2, 124 Hartshead Lane, Hartshead, Liversedge WF15 8AJ

## Order Details

**Date:** 14/08/2024

**Your ref:** AC00195

**Our Ref:** GS-GO1-N55-VO7-K7E

## Site Details

**Location:** 418336 422500

**Area:** 0.29 ha

**Authority:** Kirklees Council ↗

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**Summary of findings** p. 2 >

**Aerial image** p. 9 >

**OS MasterMap site plan** p.13 >

Insight User Guide ↗

Contact us with any questions at:
info@groundsure.com ↗
01273 257 755

Certified B Corporation

## Summary of findings

| Page | Section | Past land use > | On site | 0-50m | 50-250m | 250-500m | 500-2000m |
|---|---|---|---|---|---|---|---|
| 14 > | 1.1 > | Historical industrial land uses > | 0 | 0 | 11 | 12 | - |
| 15 | 1.2 | Historical tanks | 0 | 0 | 0 | 0 | - |
| 16 > | 1.3 > | Historical energy features > | 0 | 0 | 1 | 0 | - |
| 16 | 1.4 | Historical petrol stations | 0 | 0 | 0 | 0 | - |
| 16 | 1.5 | Historical garages | 0 | 0 | 0 | 0 | - |
| 17 | 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 |
| 18 > | 2.1 > | Historical industrial land uses > | 0 | 0 | 16 | 15 | - |
| 20 | 2.2 | Historical tanks | 0 | 0 | 0 | 0 | - |
| 20 > | 2.3 > | Historical energy features > | 0 | 0 | 1 | 0 | - |
| 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 | 1 | 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 | 0 | 1 | - |
| 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 | 1 | - | - |
| 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 | 1 | - |
| 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 | - |
| 28 | 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 | - |
| 29 | 4.21 | Pollution inventory radioactive waste | 0 | 0 | 0 | 0 | - |
| Page | Section | Hydrogeology | On site | 0-50m | 50-250m | 250-500m | 500-2000m |
| 30 | 5.1 | Superficial aquifer | None (within 500m) | | | | |
| **31 >** | **5.2 >** | **Bedrock aquifer >** | Identified (within 500m) | | | | |
| **32 >** | **5.3 >** | **Groundwater vulnerability >** | Identified (within 50m) | | | | |
| 33 | 5.4 | Groundwater vulnerability- soluble rock risk | None (within 0m) | | | | |
| 33 | 5.5 | Groundwater vulnerability- local information | None (within 0m) | | | | |
| **34 >** | **5.6 >** | **Groundwater abstractions >** | 0 | 0 | 0 | 0 | 4 |
| **36 >** | **5.7 >** | **Surface water abstractions >** | 0 | 0 | 0 | 0 | 4 |
| 37 | 5.8 | Potable abstractions | 0 | 0 | 0 | 0 | 0 |
| 37 | 5.9 | Source Protection Zones | 0 | 0 | 0 | 0 | - |
| 37 | 5.10 | Source Protection Zones (confined aquifer) | 0 | 0 | 0 | 0 | - |
| Page | Section | **Hydrology >** | On site | 0-50m | 50-250m | 250-500m | 500-2000m |
| **38 >** | **6.1 >** | **Water Network (OS MasterMap) >** | 0 | 0 | 2 | - | - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 39 > | 6.2 > | Surface water features > | 0 | 0 | 2 | - | - |
| 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 the sea | None (within 50m) | | | | |
| 41 | 7.2 | Historical Flood Events | 0 | 0 | 0 | - | - |
| 41 | 7.3 | Flood Defences | 0 | 0 | 0 | - | - |
| 42 | 7.4 | Areas Benefiting from Flood Defences | 0 | 0 | 0 | - | - |
| 42 | 7.5 | Flood Storage Areas | 0 | 0 | 0 | - | - |
| 43 | 7.6 | Flood Zone 2 | None (within 50m) | | | | |
| 43 | 7.7 | Flood Zone 3 | None (within 50m) | | | | |
| Page | Section | Surface water flooding > | | | | | |
| 44 > | 8.1 > | Surface water flooding > | 1 in 30 year, 0.3m - 1.0m (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 | 1 |
| 49 > | 10.7 > | Designated Ancient Woodland > | 0 | 0 | 0 | 0 | 4 |
| 49 | 10.8 | Biosphere Reserves | 0 | 0 | 0 | 0 | 0 |
| 50 | 10.9 | Forest Parks | 0 | 0 | 0 | 0 | 0 |
| 50 | 10.10 | Marine Conservation Zones | 0 | 0 | 0 | 0 | 0 |
| 50 > | 10.11 > | Green Belt > | 1 | 0 | 0 | 0 | 3 |
| 50 | 10.12 | Proposed Ramsar sites | 0 | 0 | 0 | 0 | 0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 51 | 10.13 | Possible Special Areas of Conservation (pSAC) | 0 | 0 | 0 | 0 | 0 |
| 51 | 10.14 | Potential Special Protection Areas (pSPA) | 0 | 0 | 0 | 0 | 0 |
| 51 | 10.15 | Nitrate Sensitive Areas | 0 | 0 | 0 | 0 | 0 |
| **51 >** | **10.16 >** | **Nitrate Vulnerable Zones >** | 0 | 0 | 1 | 0 | 0 |
| 53 | 10.17 | SSSI Impact Risk Zones | 0 | - | - | - | - |
| 53 | 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 |
| 54 | 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 | 3 | 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 >** | Grade 3 (within 250m) | | | | |
| 58 | 12.2 | Open Access Land | 0 | 0 | 0 | - | - |
| **58 >** | **12.3 >** | **Tree Felling Licences >** | 0 | 0 | 1 | - | - |
| 58 | 12.4 | Environmental Stewardship Schemes | 0 | 0 | 0 | - | - |
| **58 >** | **12.5 >** | **Countryside Stewardship Schemes >** | 1 | 0 | 4 | - | - |
| Page | Section | Habitat designations | On site | 0-50m | 50-250m | 250-500m | 500-2000m |
| 60 | 13.1 | Priority Habitat Inventory | 0 | 0 | 0 | - | - |
| 60 | 13.2 | Habitat Networks | 0 | 0 | 0 | - | - |
| 60 | 13.3 | Open Mosaic Habitat | 0 | 0 | 0 | - | - |
| 60 | 13.4 | Limestone Pavement Orders | 0 | 0 | 0 | - | - |
| Page | Section | **Geology 1:10,000 scale >** | On site | 0-50m | 50-250m | 250-500m | 500-2000m |
| **61 >** | **14.1 >** | **10k Availability >** | Identified (within 500m) | | | | |
| **62 >** | **14.2 >** | **Artificial and made ground (10k) >** | 0 | 0 | 0 | 1 | - |
| 63 | 14.3 | Superficial geology (10k) | 0 | 0 | 0 | 0 | - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 63 | 14.4 | Landslip (10k) | 0 | 0 | 0 | 0 | - |
| 64 > | 14.5 > | Bedrock geology (10k) > | 1 | 1 | 5 | 13 | - |
| 65 > | 14.6 > | Bedrock faults and other linear features (10k) > | 0 | 1 | 1 | 11 | - |
| Page | Section | Geology 1:50,000 scale > | On site | 0-50m | 50-250m | 250-500m | 500-2000m |
| 67 > | 15.1 > | 50k Availability > | Identified (within 500m) | | | | |
| 68 | 15.2 | Artificial and made ground (50k) | 0 | 0 | 0 | 0 | - |
| 68 | 15.3 | Artificial ground permeability (50k) | 0 | 0 | - | - | - |
| 69 | 15.4 | Superficial geology (50k) | 0 | 0 | 0 | 0 | - |
| 69 | 15.5 | Superficial permeability (50k) | None (within 50m) | | | | |
| 69 | 15.6 | Landslip (50k) | 0 | 0 | 0 | 0 | - |
| 69 | 15.7 | Landslip permeability (50k) | None (within 50m) | | | | |
| 70 > | 15.8 > | Bedrock geology (50k) > | 1 | 1 | 4 | 11 | - |
| 72 > | 15.9 > | Bedrock permeability (50k) > | Identified (within 50m) | | | | |
| 72 > | 15.10 > | Bedrock faults and other linear features (50k) > | 0 | 1 | 1 | 9 | - |
| Page | Section | Boreholes | On site | 0-50m | 50-250m | 250-500m | 500-2000m |
| 73 | 16.1 | BGS Boreholes | 0 | 0 | 0 | - | - |
| Page | Section | Natural ground subsidence > | | | | | |
| 74 > | 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 and ground workings > | On site | 0-50m | 50-250m | 250-500m | 500-2000m |
| 81 > | 18.1 > | BritPits > | 0 | 0 | 2 | 3 | - |
| 82 > | 18.2 > | Surface ground workings > | 0 | 0 | 16 | - | - |
| 83 > | 18.3 > | Underground workings > | 0 | 0 | 0 | 2 | 5 |
| 84 | 18.4 | Underground mining extents | 0 | 0 | 0 | 0 | - |
| 84 | 18.5 | Historical Mineral Planning Areas | 0 | 0 | 0 | 0 | - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **84 >** | **18.6 >** | **Non-coal mining >** | 0 | 0 | 0 | 0 | 1 |
| 85 | 18.7 | JPB mining areas | None (within 0m) | | | | |
| 85 | 18.8 | The Coal Authority non-coal mining | 0 | 0 | 0 | 0 | - |
| 85 | 18.9 | Researched mining | 0 | 0 | 0 | 0 | - |
| 85 | 18.10 | Mining record office plans | 0 | 0 | 0 | 0 | - |
| 86 | 18.11 | BGS mine plans | 0 | 0 | 0 | 0 | - |
| **86 >** | **18.12 >** | **Coal mining >** | Identified (within 0m) | | | | |
| 86 | 18.13 | Brine areas | None (within 0m) | | | | |
| 86 | 18.14 | Gypsum areas | None (within 0m) | | | | |
| 86 | 18.15 | Tin mining | None (within 0m) | | | | |
| 87 | 18.16 | Clay mining | None (within 0m) | | | | |
| Page | Section | Ground cavities and sinkholes | On site | 0-50m | 50-250m | 250-500m | 500-2000m |
| 88 | 19.1 | Natural cavities | 0 | 0 | 0 | 0 | - |
| 88 | 19.2 | Mining cavities | 0 | 0 | 0 | 0 | 0 |
| 88 | 19.3 | Reported recent incidents | 0 | 0 | 0 | 0 | - |
| 88 | 19.4 | Historical incidents | 0 | 0 | 0 | 0 | - |
| 89 | 19.5 | National karst database | 0 | 0 | 0 | 0 | - |
| Page | Section | **Radon >** | | | | | |
| **90 >** | **20.1 >** | **Radon >** | Between 1% and 3% (within 0m) | | | | |
| Page | Section | **Soil chemistry >** | On site | 0-50m | 50-250m | 250-500m | 500-2000m |
| **92 >** | **21.1 >** | **BGS Estimated Background Soil Chemistry >** | 2 | 1 | - | - | - |
| 92 | 21.2 | BGS Estimated Urban Soil Chemistry | 0 | 0 | - | - | - |
| 92 | 21.3 | BGS Measured Urban Soil Chemistry | 0 | 0 | - | - | - |
| Page | Section | Railway infrastructure and projects | On site | 0-50m | 50-250m | 250-500m | 500-2000m |
| 93 | 22.1 | Underground railways (London) | 0 | 0 | 0 | - | - |
| 93 | 22.2 | Underground railways (Non-London) | 0 | 0 | 0 | - | - |
| 93 | 22.3 | Railway tunnels | 0 | 0 | 0 | - | - |
| 93 | 22.4 | Historical railway and tunnel features | 0 | 0 | 0 | - | - |
| 93 | 22.5 | Royal Mail tunnels | 0 | 0 | 0 | - | - |

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

## Recent aerial photograph

Capture Date: 30/05/2021

Site Area: 0.29ha

## Recent site history - 2018 aerial photograph

Capture Date: 02/07/2018

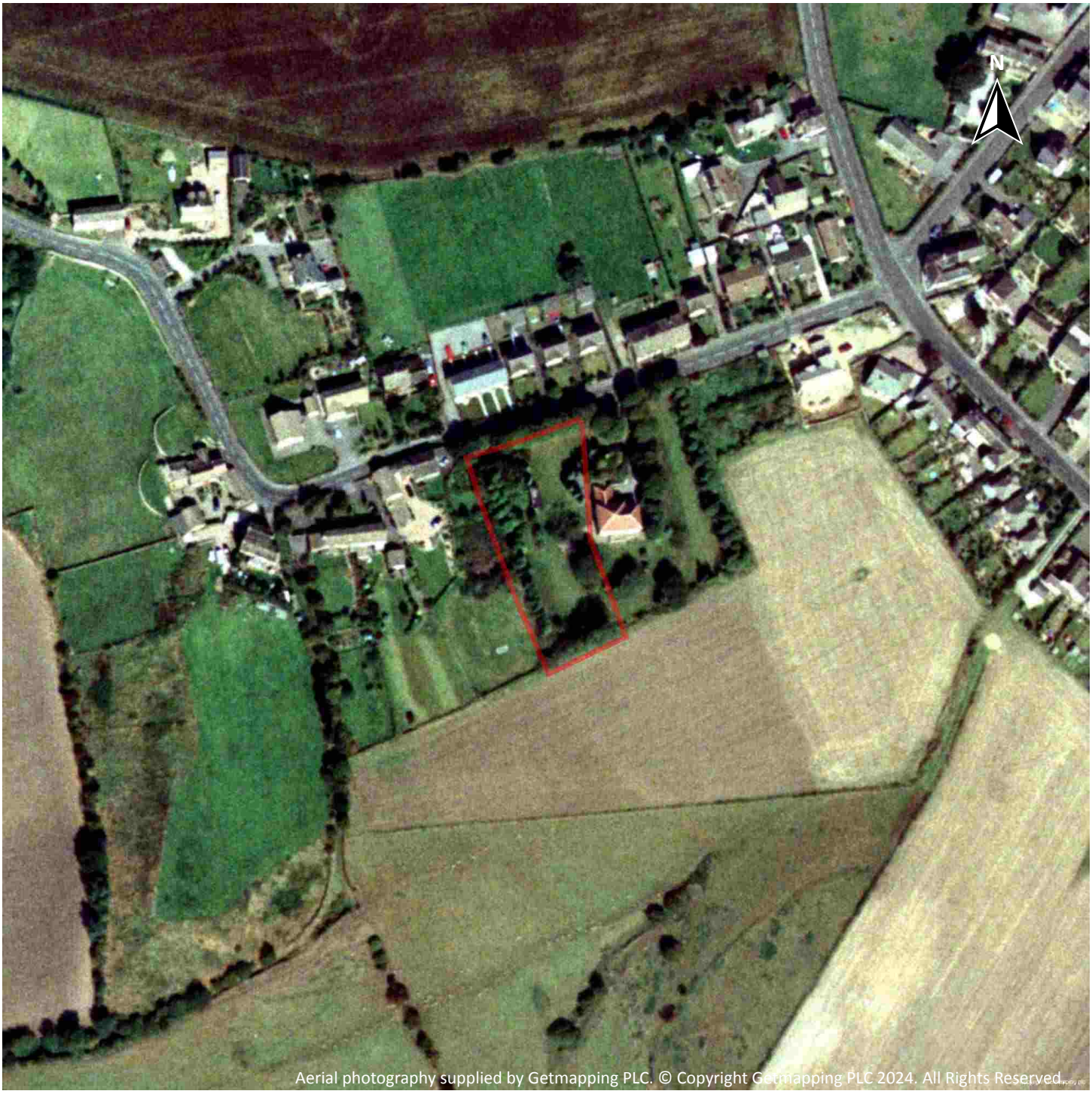
Site Area: 0.29ha

# Recent site history - 2012 aerial photograph

Capture Date: 26/03/2012

Site Area: 0.29ha

## Recent site history - 1999 aerial photograph




Capture Date: 10/07/1999

Site Area: 0.29ha

## OS MasterMap site plan

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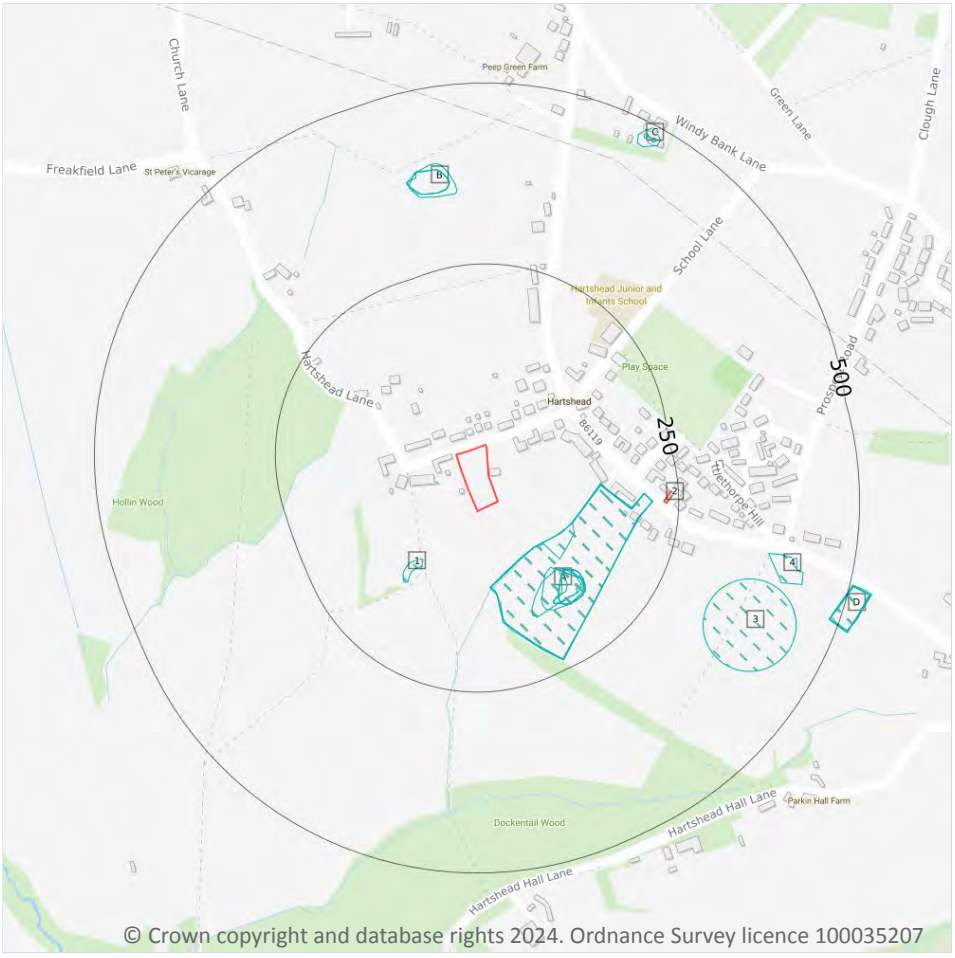
Site Area: 0.29ha

# 1 Past land use




Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical energy features

## 1.1 Historical industrial land uses

| Records within 500m | 23 |
|---|---|

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

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

| ID | Location | Land use | Dates present | Group ID |
|---|---|---|---|---|
| A | 80m SE | Rural District Council Sewage Works | 1931 | 1495137 |

| ID | Location | Land use | Dates present | Group ID |
|---|---|---|---|---|
| A | 81m SE | Sewage Works | 1931 | 1516218 |
| A | 81m SE | Sewage Works | 1948 - 1951 | 1554091 |
| 1 | 101m SW | Unspecified Ground Workings | 1892 | 1440162 |
| A | 116m SE | Sewage Works | 1938 | 1512600 |
| A | 124m SE | Refuse Heap | 1951 - 1966 | 1522895 |
| A | 127m SE | Refuse Heap | 1931 | 1497516 |
| A | 132m SE | Refuse Heap | 1948 | 1485248 |
| A | 132m SE | Unspecified Pit | 1892 - 1905 | 1488894 |
| A | 132m SE | Refuse Heap | 1931 | 1540846 |
| A | 133m SE | Refuse Heap | 1938 | 1574452 |
| 3 | 324m SE | Unspecified Holes | 1892 | 1465850 |
| B | 349m N | Unspecified Pit | 1892 - 1905 | 1486686 |
| B | 354m N | Unspecified Pit | 1948 | 1499820 |
| B | 354m N | Unspecified Pit | 1951 - 1966 | 1534646 |
| 4 | 381m E | Sewage Works | 1938 | 1470603 |
| C | 466m NE | Refuse Heaps | 1892 | 1432554 |
| C | 478m NE | Unspecified Shafts | 1892 | 1463475 |
| C | 478m NE | Unspecified Shafts | 1892 | 1463476 |
| D | 486m E | Rural District Council Sewage Works | 1931 | 1580610 |
| D | 486m E | Sewage Works | 1948 | 1501381 |
| D | 486m E | Sewage Works | 1931 | 1541325 |
| D | 487m E | Sewage Works | 1951 | 1489067 |

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

## 1.2 Historical tanks

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

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

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

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

## 1.3 Historical energy features

| Records within 500m | 1 |
|---|---|

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 14 >**

| ID | Location | Land use | Dates present | Group ID |
|---|---|---|---|---|
| 2 | 229m E | Electricity Substation | 1971 | 142606 |

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

## 1.4 Historical petrol stations

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

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

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

## 1.5 Historical garages

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

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

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

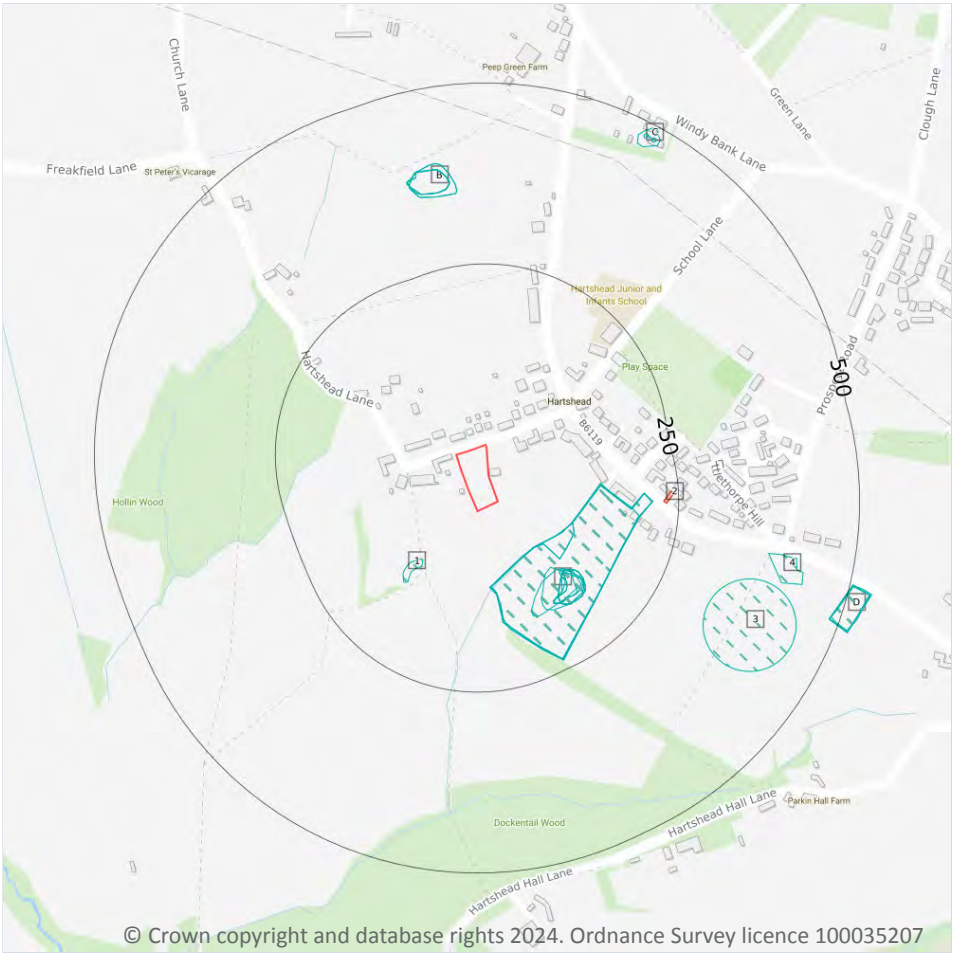
## 1.6 Historical military land

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

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

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

# 2 Past land use - un-grouped




Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical energy features

## 2.1 Historical industrial land uses

| Records within 500m | 31 |
|---|---|

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

Features are displayed on the Past land use - un-grouped map on **page 18 >**

| ID | Location | Land Use | Date | Group ID |
|---|---|---|---|---|
| A | 80m SE | Rural District Council Sewage Works | 1931 | 1495137 |
| A | 80m SE | Rural District Council Sewage Works | 1931 | 1495137 |
| A | 81m SE | Sewage Works | 1948 | 1554091 |

| ID | Location | Land Use | Date | Group ID |
|---|---|---|---|---|
| A | 81m SE | Sewage Works | 1931 | 1516218 |
| A | 81m SE | Sewage Works | 1951 | 1554091 |
| 1 | 101m SW | Unspecified Ground Workings | 1892 | 1440162 |
| A | 116m SE | Sewage Works | 1938 | 1512600 |
| A | 124m SE | Refuse Heap | 1966 | 1522895 |
| A | 127m SE | Refuse Heap | 1931 | 1497516 |
| A | 127m SE | Refuse Heap | 1931 | 1497516 |
| A | 129m SE | Refuse Heap | 1951 | 1522895 |
| A | 132m SE | Refuse Heap | 1948 | 1485248 |
| A | 132m SE | Refuse Heap | 1931 | 1540846 |
| A | 132m SE | Unspecified Pit | 1905 | 1488894 |
| A | 132m SE | Unspecified Pit | 1892 | 1488894 |
| A | 133m SE | Refuse Heap | 1938 | 1574452 |
| 3 | 324m SE | Unspecified Holes | 1892 | 1465850 |
| B | 349m N | Unspecified Pit | 1905 | 1486686 |
| B | 349m N | Unspecified Pit | 1892 | 1486686 |
| B | 354m N | Unspecified Pit | 1948 | 1499820 |
| B | 354m N | Unspecified Pit | 1951 | 1534646 |
| B | 354m N | Unspecified Pit | 1966 | 1534646 |
| 4 | 381m E | Sewage Works | 1938 | 1470603 |
| C | 466m NE | Refuse Heaps | 1892 | 1432554 |
| C | 478m NE | Unspecified Shafts | 1892 | 1463475 |
| C | 478m NE | Unspecified Shafts | 1892 | 1463476 |
| D | 486m E | Rural District Council Sewage Works | 1931 | 1580610 |
| D | 486m E | Rural District Council Sewage Works | 1931 | 1580610 |
| D | 486m E | Sewage Works | 1948 | 1501381 |
| D | 486m E | Sewage Works | 1931 | 1541325 |
| D | 487m E | Sewage Works | 1951 | 1489067 |

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

## 2.2 Historical tanks

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

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

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

## 2.3 Historical energy features

| Records within 500m | 1 |
|---|---|

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

Features are displayed on the Past land use - un-grouped map on **page 18 >**

| ID | Location | Land Use | Date | Group ID |
|---|---|---|---|---|
| 2 | 229m E | Electricity Substation | 1971 | 142606 |

*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.*

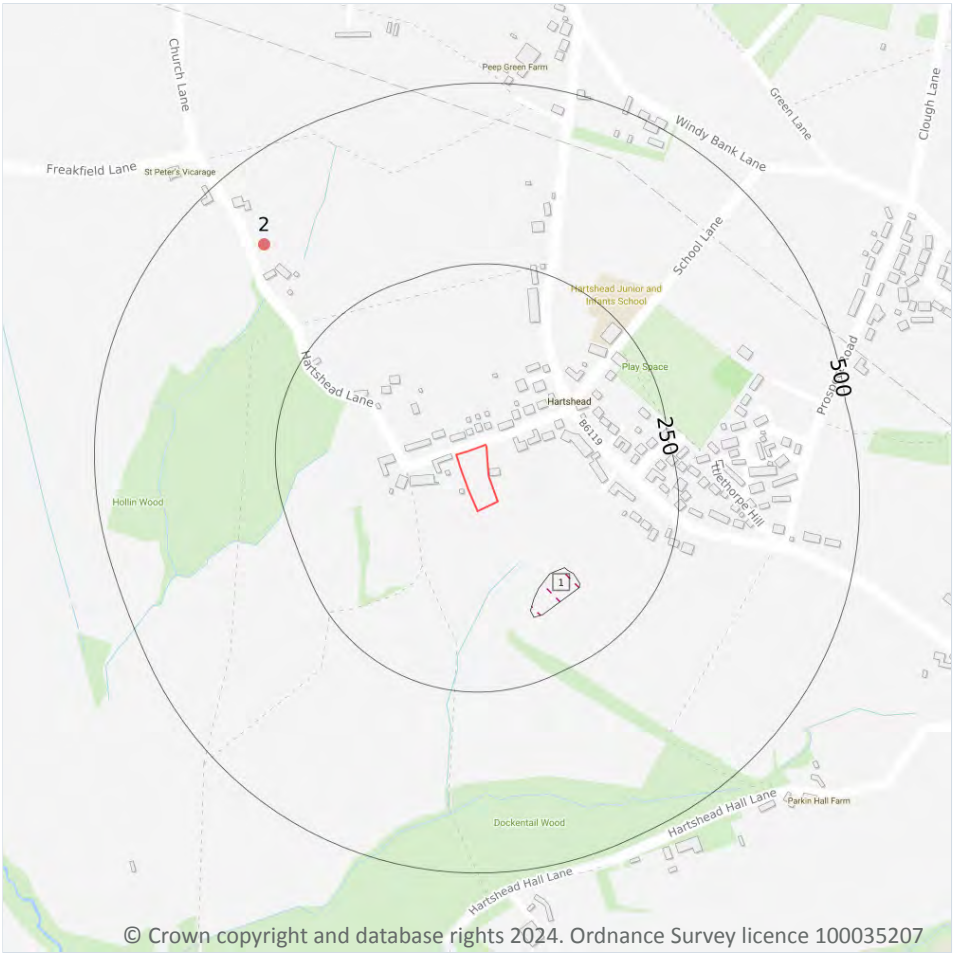
## 2.5 Historical garages

| 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)

Historical landfill (LA/OS)

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 | 1 |
|---|---|

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

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

| ID | Location | Site address | Source | Data type |
|---|---|---|---|---|
| 1 | 123m SE | Refuse Tip | 1961 mapping | Polygon |

*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 | 1 |
|---|---|

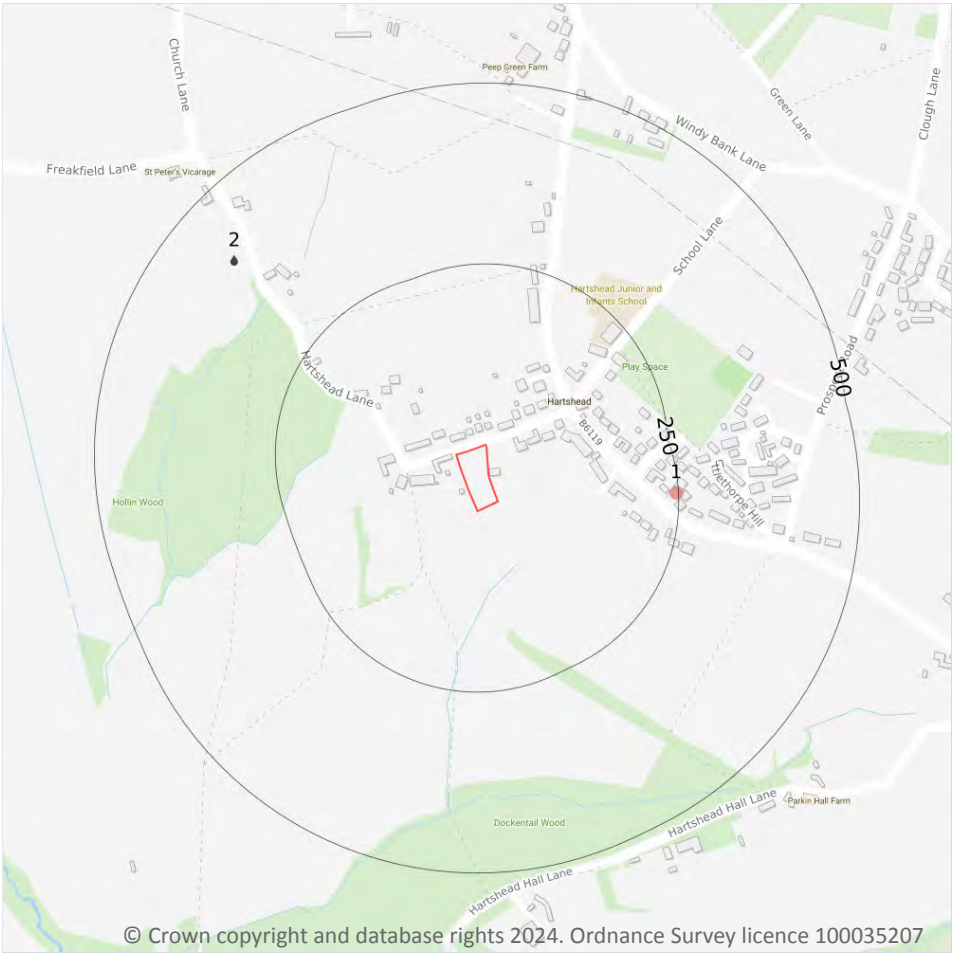
Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

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

| ID | Location | Site | Reference | Category | Sub-Category | Description |
|---|---|---|---|---|---|---|
| 2 | 393m NW | New Farm House, Kirklees, Brighouse, Hd6 4hd | WEX026649 | Storing waste exemption | On a farm | Storage of sludge |

*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

Licensed Discharges to controlled waters

## 4.1 Recent industrial land uses

| Records within 250m | 1 |
|---|---|

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 | 247m E | Electricity Sub Station | West Yorkshire, WF15 | Electrical Features | Infrastructure and Facilities |

*This data is sourced from Ordnance Survey.*

## 4.2 Current or recent petrol stations

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

Open, closed, under development and obsolete petrol stations.

*This data is sourced from Experian.*

## 4.3 Electricity cables

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

High voltage underground electricity transmission cables.

*This data is sourced from National Grid.*

## 4.4 Gas pipelines

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

High pressure underground gas transmission pipelines.

*This data is sourced from National Grid.*

## 4.5 Sites determined as Contaminated Land

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

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

*This data is sourced from Local Authority records.*

## 4.6 Control of Major Accident Hazards (COMAH)

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

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

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

## 4.7 Regulated explosive sites

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

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

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

## 4.8 Hazardous substance storage/usage

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

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

*This data is sourced from Local Authority records.*

## 4.9 Historical licensed industrial activities (IPC)

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

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

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

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

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

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

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

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

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

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

*This data is sourced from Local Authority records.*

## 4.12 Radioactive Substance Authorisations

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

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

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

## 4.13 Licensed Discharges to controlled waters

| Records within 500m | 1 |
|---|---|

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

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

| ID | Location | Address | Details | |
|---|---|---|---|---|
| 2 | 408m NW | EMSLEY FARM, HARTSHEAD LANE, HARTSHEAD, WEST YORKSHIRE | Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY<br>Permit Number: C4819<br>Permit Version: 1<br>Receiving Water: TRIBUTARY OF NUN BROOK | Status: TRANSFERRED FROM COPA 1974<br>Issue date: 21/10/1987<br>Effective Date: 21/10/1987<br>Revocation Date: 31/07/1994 |

*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

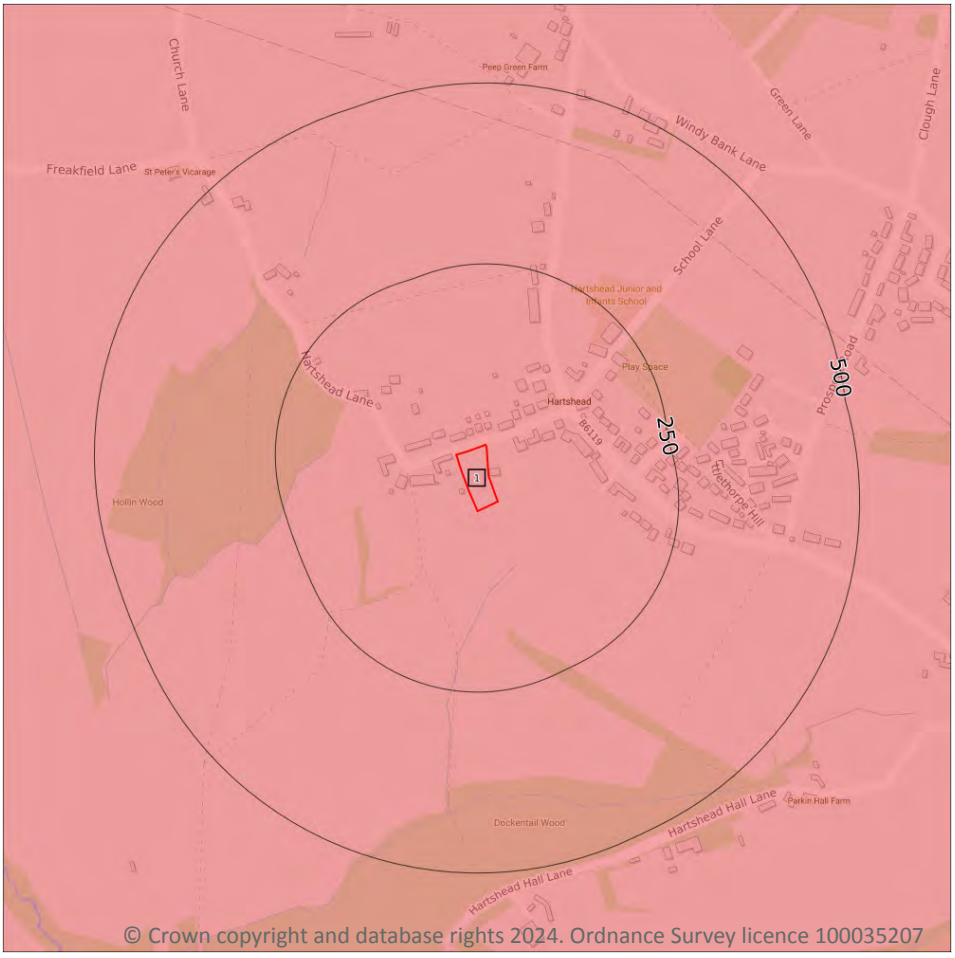
## 5.1 Superficial aquifer

| 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 |
|---|---|

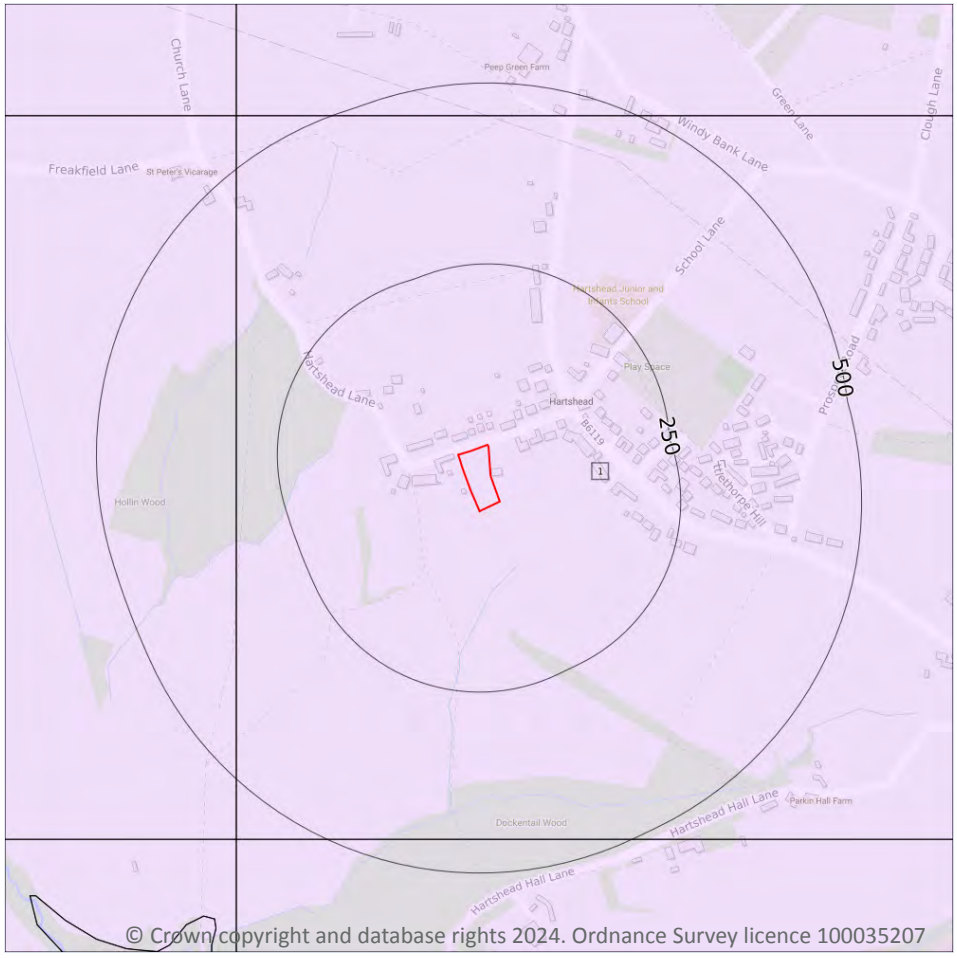
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 31 >**

| 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 32 >**

| ID | Location | Summary | Soil / surface | Superficial geology | Bedrock geology |
|---|---|---|---|---|---|
| **1** | **On site** | **Summary Classification: Secondary bedrock aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer** | **Leaching class: Low Infiltration value: <40% Dilution value: 300-550mm/year** | **Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: No Data** | **Vulnerability: Medium 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

Site Outline

Search buffers in metres (m)

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

## 5.6 Groundwater abstractions

| Records within 2000m | 4 |
|---|---|

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 34 >**

| ID | Location | Details | |
|---|---|---|---|
| - | 1499m N | Status: Historical<br>Licence No: 2/27/13/198<br>Details: General use relating to Secondary Category (Medium Loss)<br>Direct Source: GROUNDWATERS<br>Point: BOREHOLE - COAL MEASURES - LIVERSEDGE<br>Data Type: Point<br>Name: HARRISON GARDNER & CO LTD<br>Easting: 418230<br>Northing: 424040 | Annual Volume ($m^3$): 112464<br>Max Daily Volume ($m^3$): 340.8<br>Original Application No: -<br>Original Start Date: 09/10/1998<br>Expiry Date: 31/12/2007<br>Issue No: 101<br>Version Start Date: 06/06/2000<br>Version End Date: - |
| - | 1555m N | Status: Historical<br>Licence No: 2/27/13/198<br>Details: General use relating to Secondary Category (Medium Loss)<br>Direct Source: GROUNDWATERS<br>Point: BOREHOLE - COAL MEASURES - LIVERSEDGE<br>Data Type: Point<br>Name: HARRISON GARDNER & CO LTD<br>Easting: 418310<br>Northing: 424100 | Annual Volume ($m^3$): 112464<br>Max Daily Volume ($m^3$): 340.8<br>Original Application No: -<br>Original Start Date: 09/10/1998<br>Expiry Date: 31/12/2007<br>Issue No: 101<br>Version Start Date: 06/06/2000<br>Version End Date: - |
| - | 1853m SW | Status: Active<br>Licence No: 2/27/12/186<br>Details: Boiler Feed<br>Direct Source: GROUNDWATERS<br>Point: BOREHOLE - COAL MEASURES - BRADLEY<br>Data Type: Point<br>Name: E BOTTOMLEY & SONS LTD<br>Easting: 417500<br>Northing: 420800 | Annual Volume ($m^3$): 109090<br>Max Daily Volume ($m^3$): 1364<br>Original Application No: 4308(2)<br>Original Start Date: 28/04/1966<br>Expiry Date: -<br>Issue No: 102<br>Version Start Date: 03/03/2008<br>Version End Date: - |
| - | 1853m SW | Status: Historical<br>Licence No: 2/27/12/186<br>Details: Boiler Feed<br>Direct Source: GROUNDWATERS<br>Point: BOREHOLE<br>Data Type: Point<br>Name: BOTTOMLEY & SON LIMITED<br>Easting: 417500<br>Northing: 420800 | Annual Volume ($m^3$): -<br>Max Daily Volume ($m^3$): -<br>Original Application No: -<br>Original Start Date: 28/04/1966<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 01/07/1998<br>Version End Date: - |

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

## 5.7 Surface water abstractions

| Records within 2000m | 4 |
|---|---|

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 34 >**

| ID | Location | Details | |
|---|---|---|---|
| - | 1554m S | Status: Active<br>Licence No: 2/27/13/049<br>Details: General Use Relating To Secondary Category (Medium Loss)<br>Direct Source: SURFACE WATER<br>Point: NUNBROOK BECK - MIRFIELD<br>Data Type: Point<br>Name: JOHN COTTON (MIRFIELD) LTD<br>Easting: 418300<br>Northing: 420900 | Annual Volume ($m^3$): 57825<br>Max Daily Volume ($m^3$): 327.31<br>Original Application No: 726<br>Original Start Date: 20/01/1966<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 20/01/1966<br>Version End Date: - |
| - | 1554m S | Status: Historical<br>Licence No: 2/27/13/049<br>Details: General Use Relating To Secondary Category (Medium Loss)<br>Direct Source: SURFACE WATER<br>Point: NUNBROOK BECK<br>Data Type: Point<br>Name: JOHN COTTON (MIRFIELD) LTD<br>Easting: 418300<br>Northing: 420900 | Annual Volume ($m^3$): 57825<br>Max Daily Volume ($m^3$): 327.312<br>Original Application No: -<br>Original Start Date: 20/01/1966<br>Expiry Date: -<br>Issue No: 100<br>Version Start Date: 20/01/1966<br>Version End Date: - |
| - | 1853m SW | Status: Active<br>Licence No: 2/27/12/185<br>Details: Boiler Feed<br>Direct Source: SURFACE WATER<br>Point: RIVER CALDER - BRADLEY<br>Data Type: Point<br>Name: E BOTTOMLEY & SONS LTD<br>Easting: 417500<br>Northing: 420800 | Annual Volume ($m^3$): 109090<br>Max Daily Volume ($m^3$): 1364<br>Original Application No: 4308<br>Original Start Date: 28/04/1966<br>Expiry Date: -<br>Issue No: 102<br>Version Start Date: 03/03/2008<br>Version End Date: - |
| - | 1853m SW | Status: Historical<br>Licence No: 2/27/12/185<br>Details: Boiler Feed<br>Direct Source: SURFACE WATER<br>Point: RIVER CALDER<br>Data Type: Point<br>Name: E BOTTOMLEY & SON LTD<br>Easting: 417500<br>Northing: 420800 | Annual Volume ($m^3$): 109090<br>Max Daily Volume ($m^3$): 1364<br>Original Application No: -<br>Original Start Date: 28/04/1966<br>Expiry Date: -<br>Issue No: 101<br>Version Start Date: 16/01/2006<br>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

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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 | 2 |
|---|---|

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 |
|---|---|---|---|---|---|
| A | 90m SE | Inland river not influenced by normal tidal action. | On ground surface | Watercourse contains water year round (in normal circumstances) | - |

| ID | Location | Type of water feature | Ground level | Permanence | Name |
|---|---|---|---|---|---|
| B | 176m W | 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 | 2 |
|---|---|

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

Features are displayed on the Hydrology map on **page 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 |
|---|---|---|---|---|---|---|
| **1** | **On site** | **River** | **Calder from River Colne to River Chald** | **GB104027062631** | **Calder Lower** | **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 |
|---|---|---|---|---|---|---|---|---|
| - | 1523m S | River | Calder from River Colne to River Chald | GB104027062631 ↗ | Moderate | Fail | Moderate | 2019 |

*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 |
|---|---|---|---|---|---|---|---|
| **2** | **On site** | **Aire & Calder Carb Limestone / Millstone Grit / Coal Measures.** | GB40402G700400 ↗ | **Poor** | **Poor** | **Good** | **2019** |

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

# 7 River and coastal flooding

## 7.1 Risk of flooding from rivers and the sea

| Records within 50m | 0 |
|---|---|

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

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

## 7.2 Historical Flood Events

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

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

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

## 7.3 Flood Defences

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

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

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

## 7.4 Areas Benefiting from Flood Defences

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

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

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

## 7.5 Flood Storage Areas

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

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

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

# River and coastal flooding - Flood Zones

## 7.6 Flood Zone 2

| Records within 50m | 0 |
|---|---|

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

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

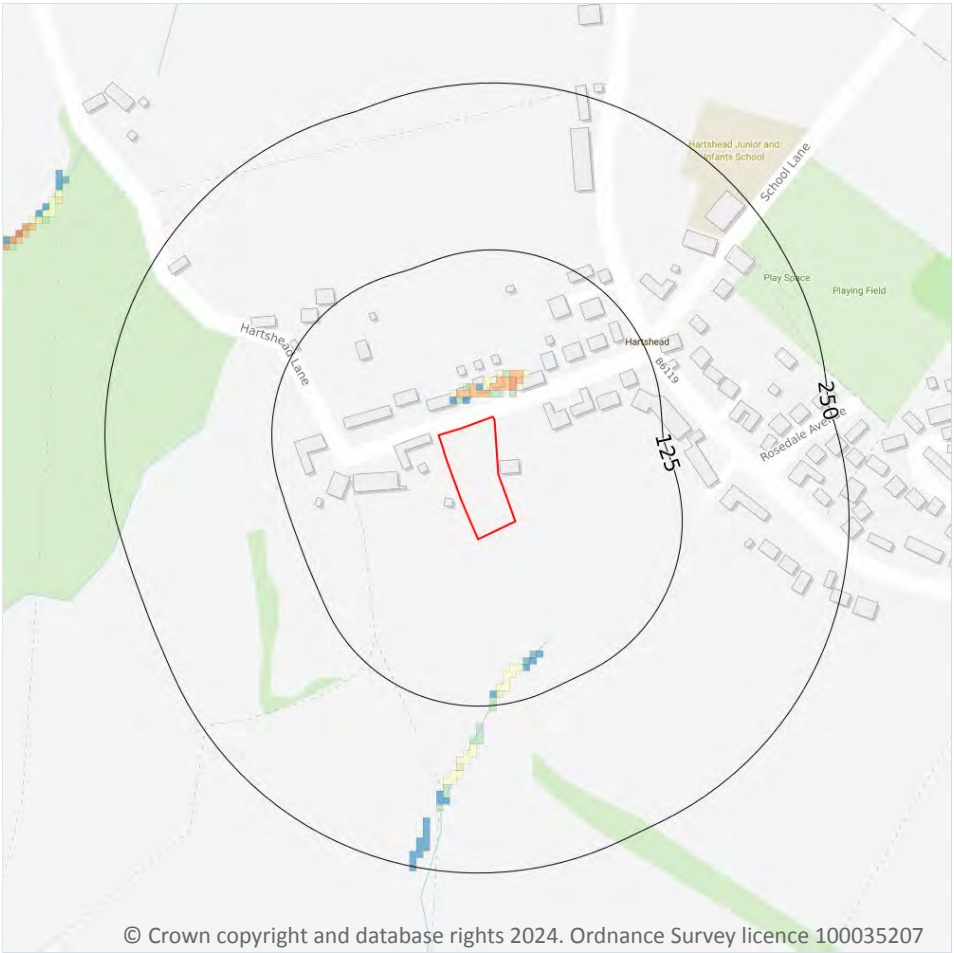
## 7.7 Flood Zone 3

| Records within 50m | 0 |
|---|---|

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

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

# 8 Surface water flooding

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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** | **Negligible** |
| **Highest risk within 50m** | **1 in 30 year, 0.3m - 1.0m** |

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

Features are displayed on the Surface water flooding map on **page 44 >**

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

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

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

*This data is sourced from 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

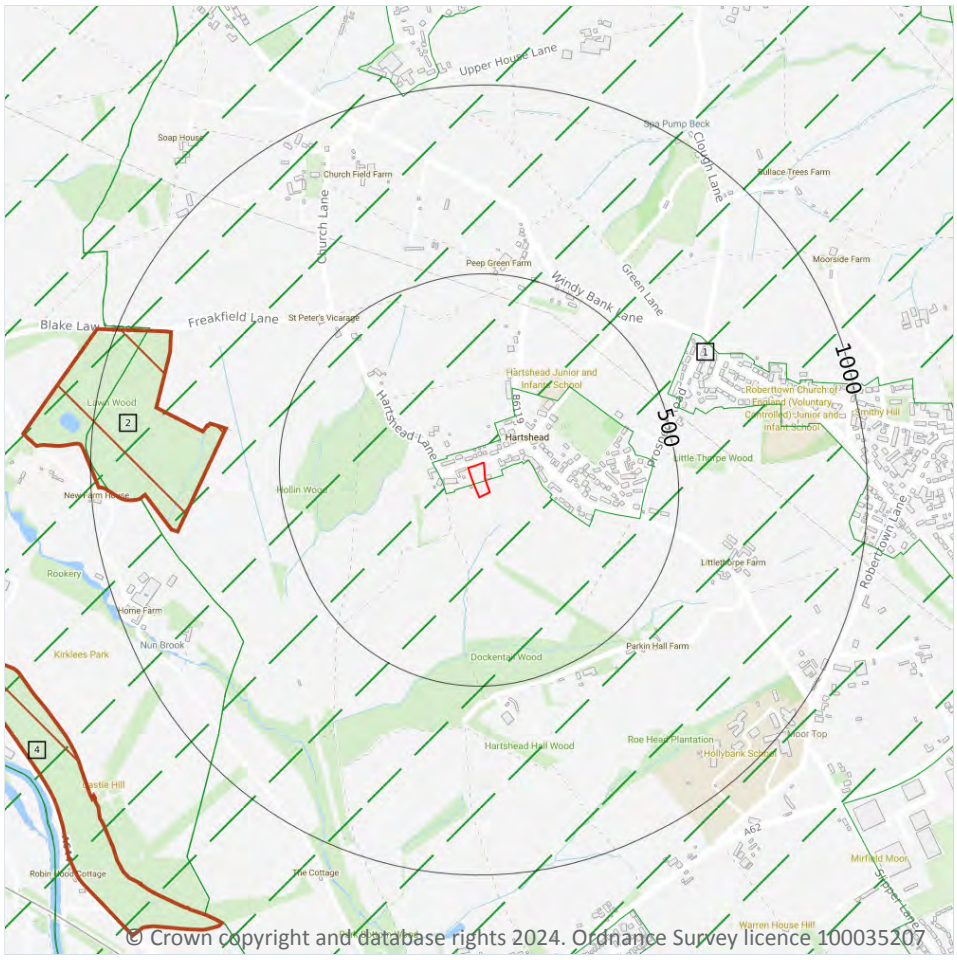
| | |
|---|---|
| **Highest risk on site** | **Negligible** |
| **Highest risk within 50m** | **Negligible** |

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)

Local Nature Reserves (LNR)

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 | 1 |
|---|---|

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

Features are displayed on the Environmental designations map on **page 47 >**

| ID | Location | Name | Data source |
|---|---|---|---|
| - | 1771m SE | Sunny Bank Ponds | Natural England |

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

## 10.7 Designated Ancient Woodland

| Records within 2000m | 4 |
|---|---|

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 | 650m W | Lawn Wood | Ancient Replanted Woodland |
| 4 | 1264m SW | Unknown | Ancient Replanted Woodland |
| - | 1502m W | Unknown | Ancient Replanted Woodland |
| - | 1763m W | Clifton Wood | Ancient Replanted 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 | 4 |
|---|---|

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** | **On site** | **South and West Yorkshire** | **Kirklees** |
| 3 | 730m SW | South and West Yorkshire | Calderdale |
| 5 | 1402m SW | South and West Yorkshire | Kirklees |
| - | 1499m S | 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 | 1 |
|---|---|

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

| Location | Name | Type | NVZ ID | Status |
|---|---|---|---|---|
| 214m N | Spen Beck from Source to River Calder NVZ | Surface Water | 271 | Existing |

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

# SSSI Impact Zones and Units

## 10.17 SSSI Impact Risk Zones

| Records on site | 0 |
|---|---|

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.

*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

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Site Outline

Search buffers in metres (m)

- Listed buildings
- Conservation areas
- Conservation areas - no data
- National Parks
- Areas of Outstanding Natural Beauty
- Registered parks and gardens
- Scheduled Monuments
- World Heritage Sites

## 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 | 3 |
|---|---|

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.

Features are displayed on the Visual and cultural designations map on **page 54 >**

| ID | Location | Name | Grade | Reference Number | Listed date |
|---|---|---|---|---|---|
| 1 | 15m NW | 120, Hartshead Lane | II | 1184297 | 13/01/1984 |
| A | 35m NW | 121, Hartshead Lane | II | 1134601 | 13/01/1984 |
| A | 37m NW | 119, Hartshead Lane | II | 1184295 | 13/01/1984 |

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

## 11.5 Conservation Areas

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

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

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

## 11.6 Scheduled Ancient Monuments

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

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

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

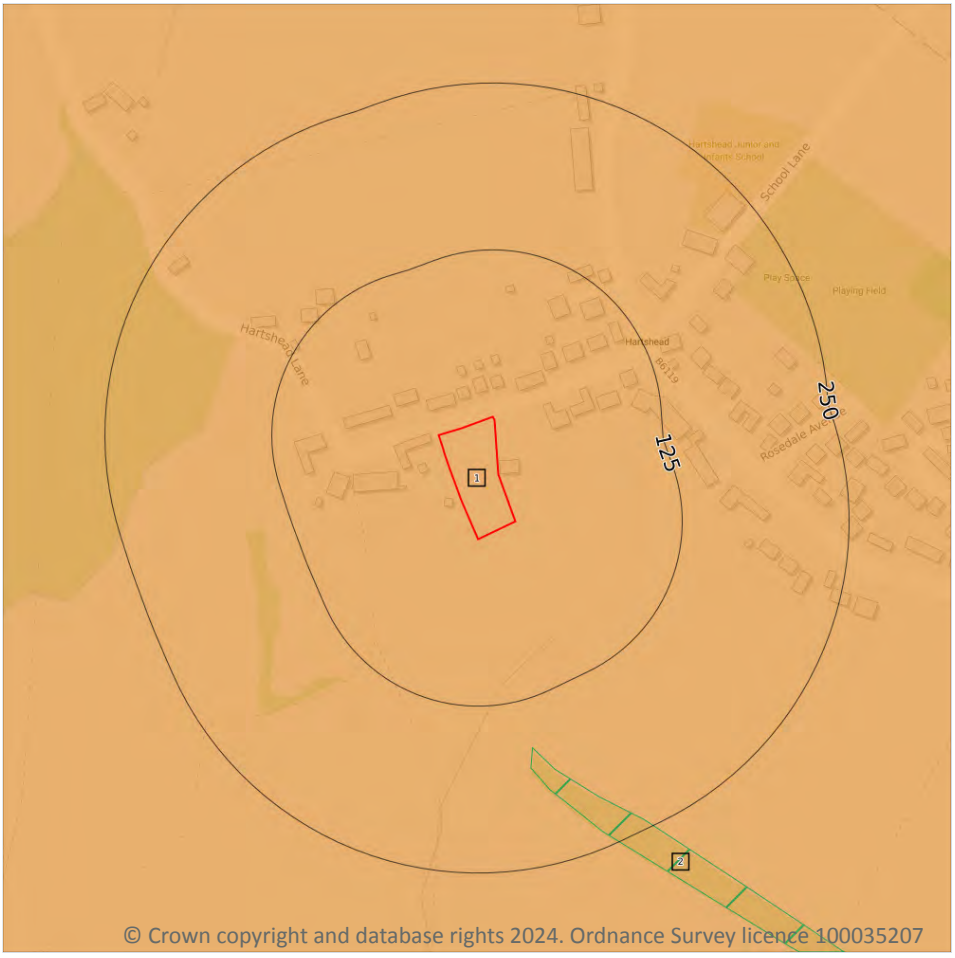
## 11.7 Registered Parks and Gardens

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

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

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

# 12 Agricultural designations

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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** | **Grade 3** | **Good to moderate quality agricultural land. Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.** |

*This data is sourced from Natural England.*

## 12.2 Open Access Land

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

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

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

## 12.3 Tree Felling Licences

| Records within 250m | 1 |
|---|---|

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.

Features are displayed on the Agricultural designations map on **page 57 >**

| ID | Location | Description | Reference | Application date |
|---|---|---|---|---|
| 2 | 161m S | Selective Fell/Thin (Unconditional) | 012/11/06-07 | 17/05/2006 |

*This data is sourced from the Forestry Commission.*

## 12.4 Environmental Stewardship Schemes

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

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

*This data is sourced from Natural England.*

## 12.5 Countryside Stewardship Schemes

| Records within 250m | 5 |
|---|---|

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.

| Location | Reference | Scheme | Start Date | End Date |
|---|---|---|---|---|
| **On site** | **1650386** | **Countryside Stewardship (Middle Tier)** | **01/01/2024** | **31/12/2028** |

| Location | Reference | Scheme | Start Date | End Date |
|---|---|---|---|---|
| 110m S | 828243 | Countryside Stewardship (Middle Tier) | 01/01/2020 | 31/12/2024 |
| 113m SW | 828243 | Countryside Stewardship (Middle Tier) | 01/01/2020 | 31/12/2024 |
| 155m W | 828243 | Countryside Stewardship (Middle Tier) | 01/01/2020 | 31/12/2024 |
| 248m SW | 1650386 | Countryside Stewardship (Middle Tier) | 01/01/2024 | 31/12/2028 |

*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.*

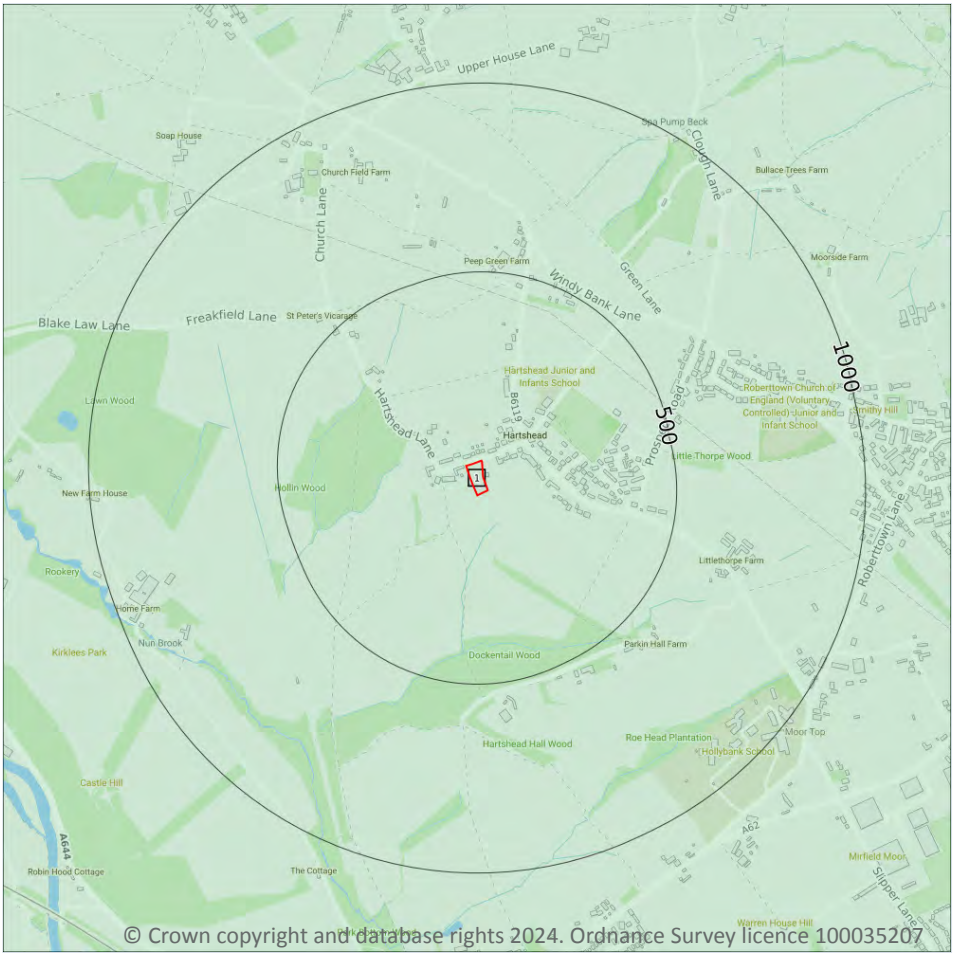
## 13.4 Limestone Pavement Orders

| 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

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Site Outline

Search buffers in metres (m)

- Full coverage
- Partial coverage
- No coverage

## 14.1 10k Availability

| Records within 500m | 1 |
|---|---|

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

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 61 >**

| ID | Location | Artificial | Superficial | Bedrock | Mass movement | Sheet No. |
|---|---|---|---|---|---|---|
| **1** | **On site** | **Full** | **Full** | **Full** | **Full** | **SE12SE** |

*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 62 >**

| ID | Location | LEX Code | Description | Rock description |
|---|---|---|---|---|
| 1 | 359m N | WMGR-ARTDP | Infilled Ground | Artificial Deposit |

*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.*

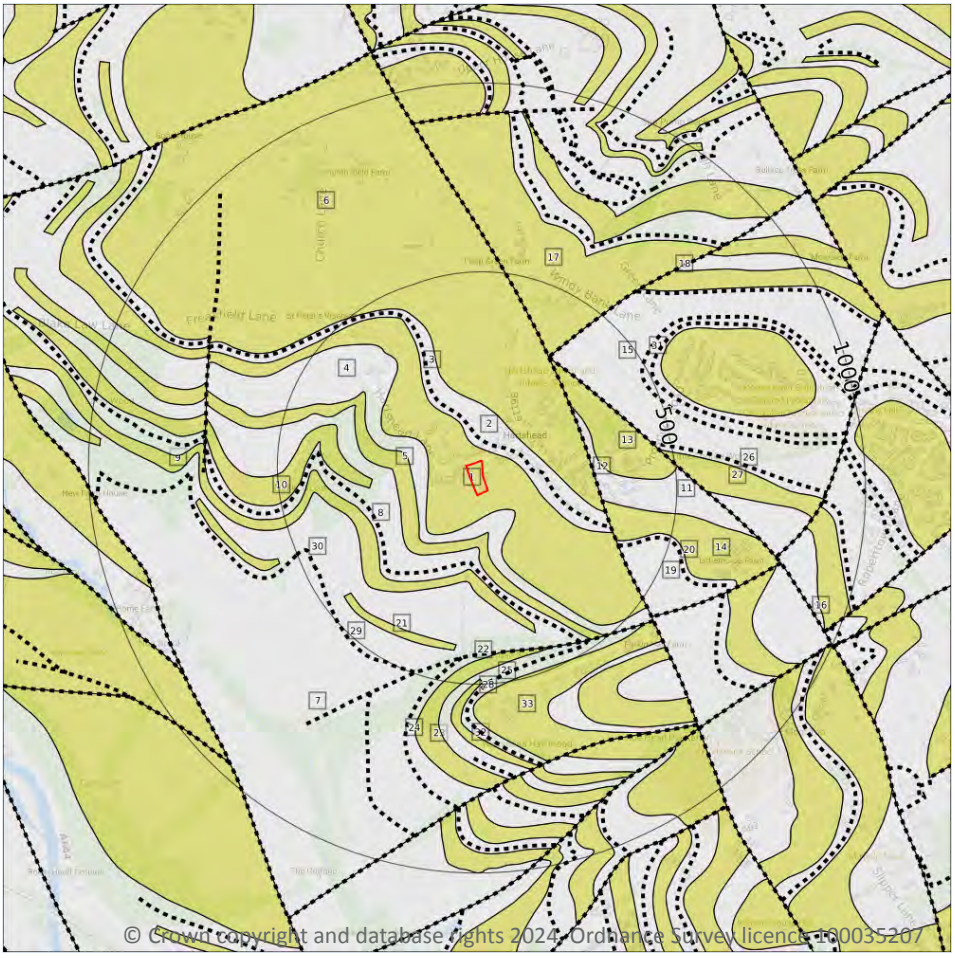
## 14.4 Landslip (10k)

| 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




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 64 >**

| ID | Location | LEX Code | Description | Rock age |
|---|---|---|---|---|
| **1** | **On site** | **PLCM-SDST** | **Pennine Lower Coal Measures Formation - Sandstone** | **Langsettian Sub-age** |
| 2 | 30m N | PLCM-MDSS | Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone | Langsettian Sub-age |
| 4 | 58m S | PLCM-MDSS | Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone | Langsettian Sub-age |

| ID | Location | LEX Code | Description | Rock age |
|---|---|---|---|---|
| 5 | 102m S | PLCM-SDST | Pennine Lower Coal Measures Formation - Sandstone | Langsettian Sub-age |
| 6 | 112m NE | PLCM-SDST | Pennine Lower Coal Measures Formation - Sandstone | Langsettian Sub-age |
| 7 | 137m S | PLCM-MDSS | Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone | Langsettian Sub-age |
| 9 | 197m S | PLCM-SDST | Pennine Lower Coal Measures Formation - Sandstone | Langsettian Sub-age |
| 10 | 251m W | PLCM-SDST | Pennine Lower Coal Measures Formation - Sandstone | Langsettian Sub-age |
| 11 | 272m NE | PLCM-MDSS | Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone | Langsettian Sub-age |
| 13 | 277m NE | LPE-SDST | Lepton Edge Rock - Sandstone | Langsettian Sub-age |
| 14 | 303m E | PLCM-SDST | Pennine Lower Coal Measures Formation - Sandstone | Langsettian Sub-age |
| 15 | 326m NE | PLCM-MDSS | Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone | Langsettian Sub-age |
| 17 | 327m NE | PLCM-SDST | Pennine Lower Coal Measures Formation - Sandstone | Langsettian Sub-age |
| 19 | 365m SE | PLCM-MDSS | Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone | Langsettian Sub-age |
| 21 | 397m S | PLCM-SDST | Pennine Lower Coal Measures Formation - Sandstone | Langsettian Sub-age |
| 23 | 420m S | PLCM-SDST | Pennine Lower Coal Measures Formation - Sandstone | Langsettian Sub-age |
| 25 | 444m S | PLCM-MDSS | Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone | Langsettian Sub-age |
| 27 | 466m E | LPE-SDST | Lepton Edge Rock - Sandstone | Langsettian Sub-age |
| 32 | 487m S | PLCM-SDST | Pennine Lower Coal Measures Formation - Sandstone | Langsettian Sub-age |
| 33 | 492m S | PLCM-SDST | Pennine Lower Coal Measures Formation - 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** | **13** |
|---|---|

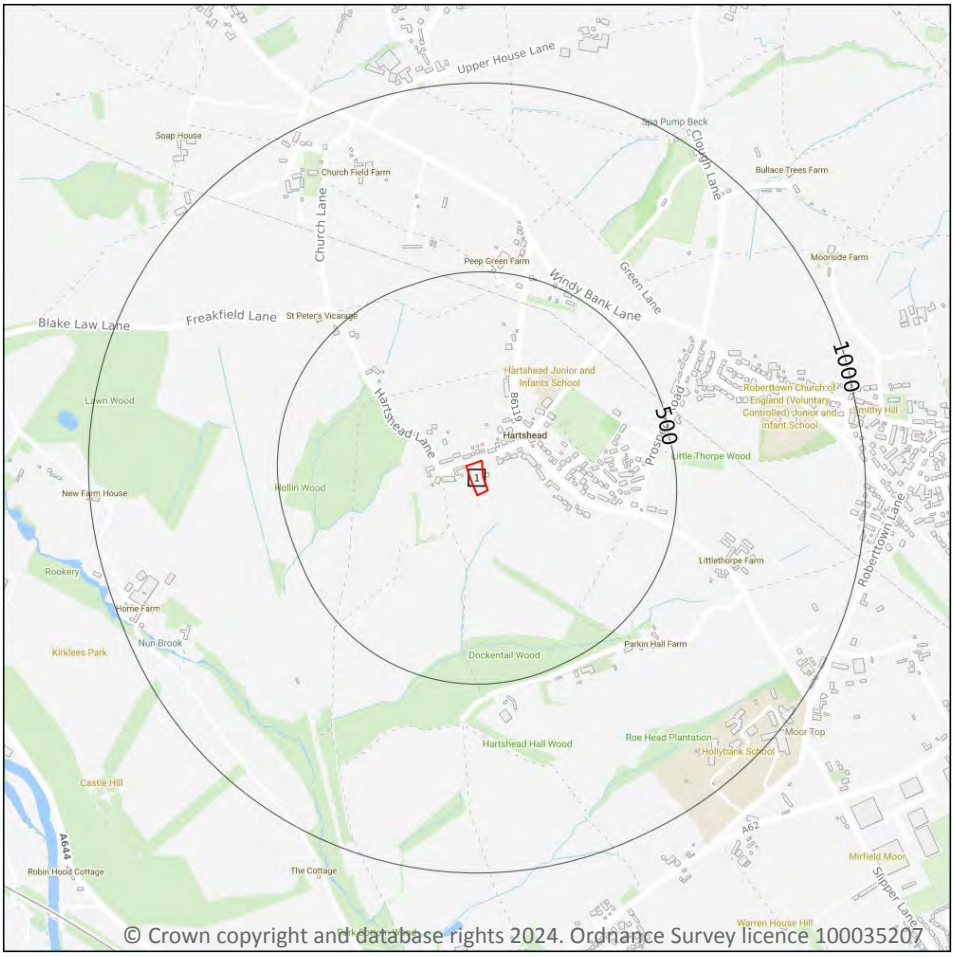
Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 64 >**

| ID | Location | Category | Description |
|---|---|---|---|
| 3 | 48m N | ROCK | Coal seam, inferred |
| 8 | 179m S | ROCK | Coal seam, inferred |
| 12 | 272m NE | FAULT | Normal fault, inferred; crossmarks on downthrow side |
| 16 | 326m NE | FAULT | Normal fault, inferred; crossmarks on downthrow side |
| 18 | 327m NE | FAULT | Normal fault, inferred; crossmarks on downthrow side |
| 20 | 374m SE | ROCK | Coal seam, inferred |
| 22 | 419m S | FAULT | Normal fault, inferred; crossmarks on downthrow side |
| 24 | 432m S | ROCK | Coal seam, inferred |
| 26 | 451m E | ROCK | Coal seam, inferred |
| 28 | 466m S | ROCK | Coal seam, inferred |
| 29 | 468m SW | ROCK | Coal seam, inferred |
| 30 | 470m SW | ROCK | Coal seam, observed |
| 31 | 480m NE | ROCK | Coal seam, inferred |

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

# 15 Geology 1:50,000 scale - Availability




Site Outline

Search buffers in metres (m)

Geological map tile

## 15.1 50k Availability

| Records within 500m | 1 |
|---|---|

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

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 67 >**

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

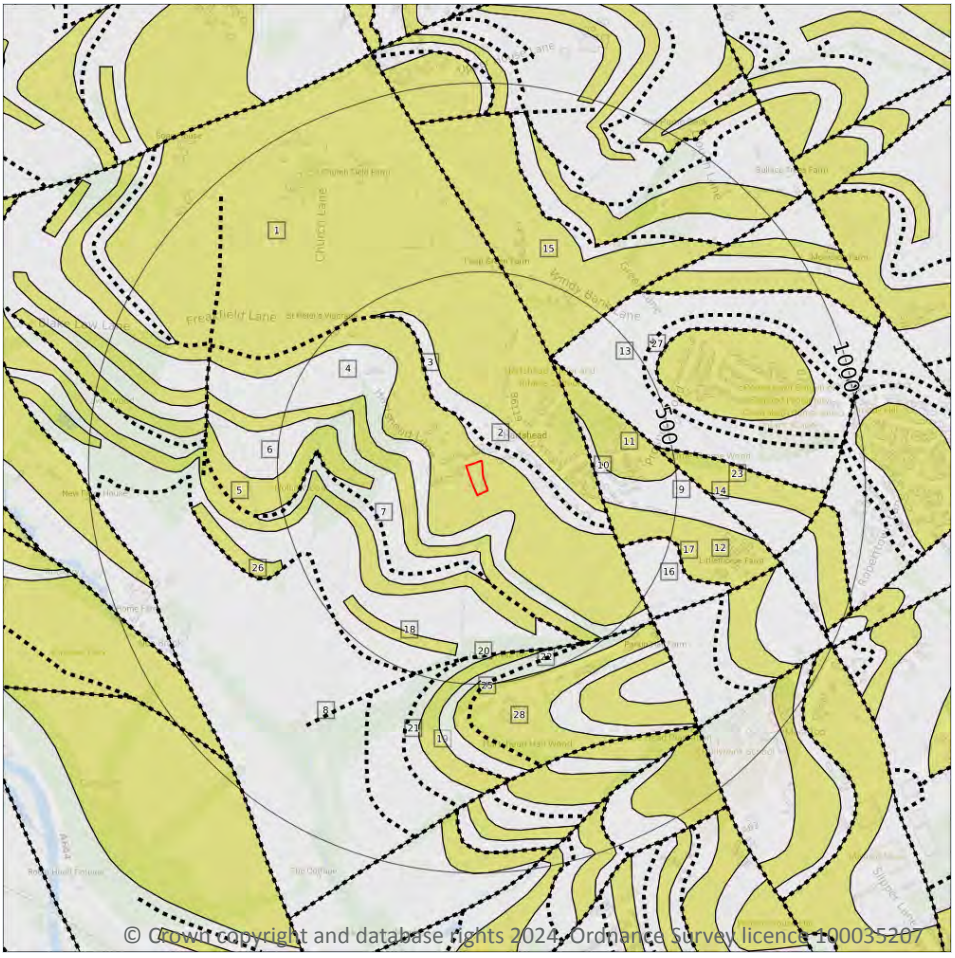
## 15.7 Landslip permeability (50k)

| 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




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 | 17 |
|---|---|

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 70 >**

| ID | Location | LEX Code | Description | Rock age |
|---|---|---|---|---|
| **1** | **On site** | **PLCM-SDST** | **PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE** | **WESTPHALIAN** |
| 2 | 22m N | PLCM-MDSS | PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE | WESTPHALIAN |

| ID | Location | LEX Code | Description | Rock age |
|---|---|---|---|---|
| 4 | 66m S | PLCM-MDSS | PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE | WESTPHALIAN |
| 5 | 108m S | PLCM-SDST | PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE | WESTPHALIAN |
| 6 | 148m S | PLCM-MDSS | PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE | WESTPHALIAN |
| 8 | 242m S | PLCM-MDSS | PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE | WESTPHALIAN |
| 9 | 273m NE | PLCM-MDSS | PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE | WESTPHALIAN |
| 11 | 276m NE | PLCM-SDST | PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE | WESTPHALIAN |
| 12 | 306m E | PLCM-SDST | PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE | WESTPHALIAN |
| 13 | 326m NE | PLCM-MDSS | PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE | WESTPHALIAN |
| 15 | 327m NE | PLCM-SDST | PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE | WESTPHALIAN |
| 16 | 381m SE | PLCM-MDSS | PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE | WESTPHALIAN |
| 18 | 396m S | PLCM-SDST | PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE | WESTPHALIAN |
| 19 | 422m S | PLCM-SDST | PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE | WESTPHALIAN |
| 22 | 447m S | PLCM-MDSS | PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE | WESTPHALIAN |
| 23 | 459m E | LPE-SDST | LEPTON EDGE ROCK - SANDSTONE | WESTPHALIAN |
| 28 | 492m S | PLCM-SDST | PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE | WESTPHALIAN |

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

## 15.9 Bedrock permeability (50k)

| Records within 50m | 2 |
|---|---|

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** |
| 22m N | Fracture | Moderate | Low |

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

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

| Records within 500m | 11 |
|---|---|

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 70 >**

| ID | Location | Category | Description |
|---|---|---|---|
| 3 | 47m NE | ROCK | Coal seam, inferred |
| 7 | 180m S | ROCK | Coal seam, inferred |
| 10 | 273m NE | FAULT | Fault, inferred |
| 14 | 326m NE | FAULT | Fault, inferred |
| 17 | 381m SE | ROCK | Coal seam, inferred |
| 20 | 422m S | FAULT | Fault, inferred |
| 21 | 434m S | ROCK | Coal seam, inferred |
| 24 | 459m E | ROCK | Coal seam, inferred |
| 25 | 468m S | ROCK | Coal seam, inferred |
| 26 | 470m SW | ROCK | Coal seam, inferred |
| 27 | 481m NE | ROCK | Coal seam, inferred |

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

# 16 Boreholes

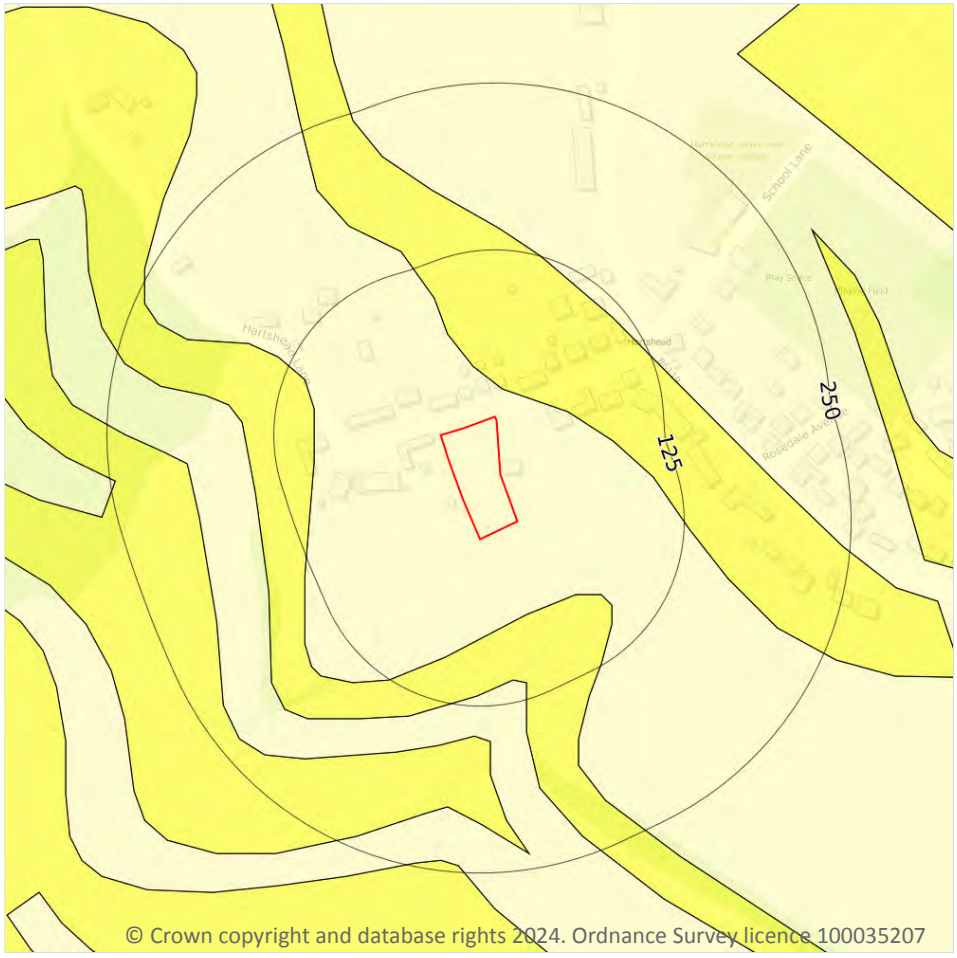
## 16.1 BGS Boreholes

| 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




Site Outline

Search buffers in metres (m)

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

## 17.1 Shrink swell clays

| Records within 50m | 2 |
|---|---|

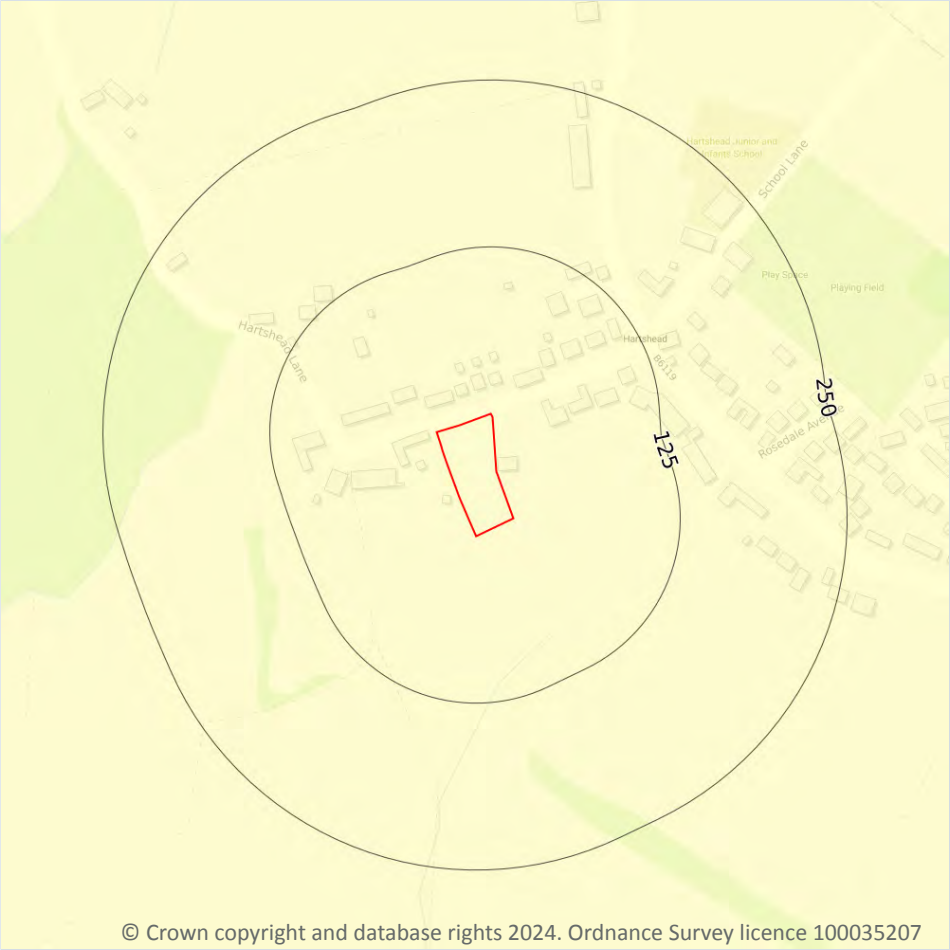
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 74 >**

| Location | Hazard rating | Details |
|---|---|---|
| **On site** | **Negligible** | **Ground conditions predominantly non-plastic.** |
| 22m N | Very low | Ground conditions predominantly low plasticity. |

*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 |
|---|---|

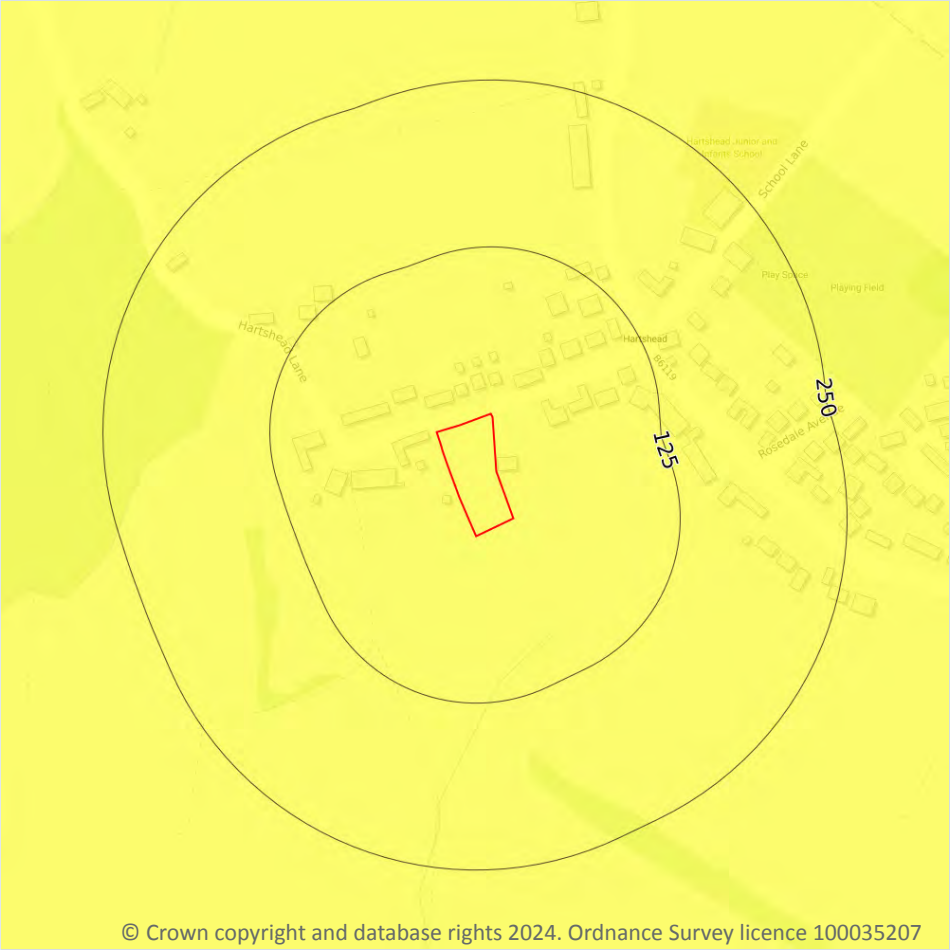
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

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 |
|---|---|

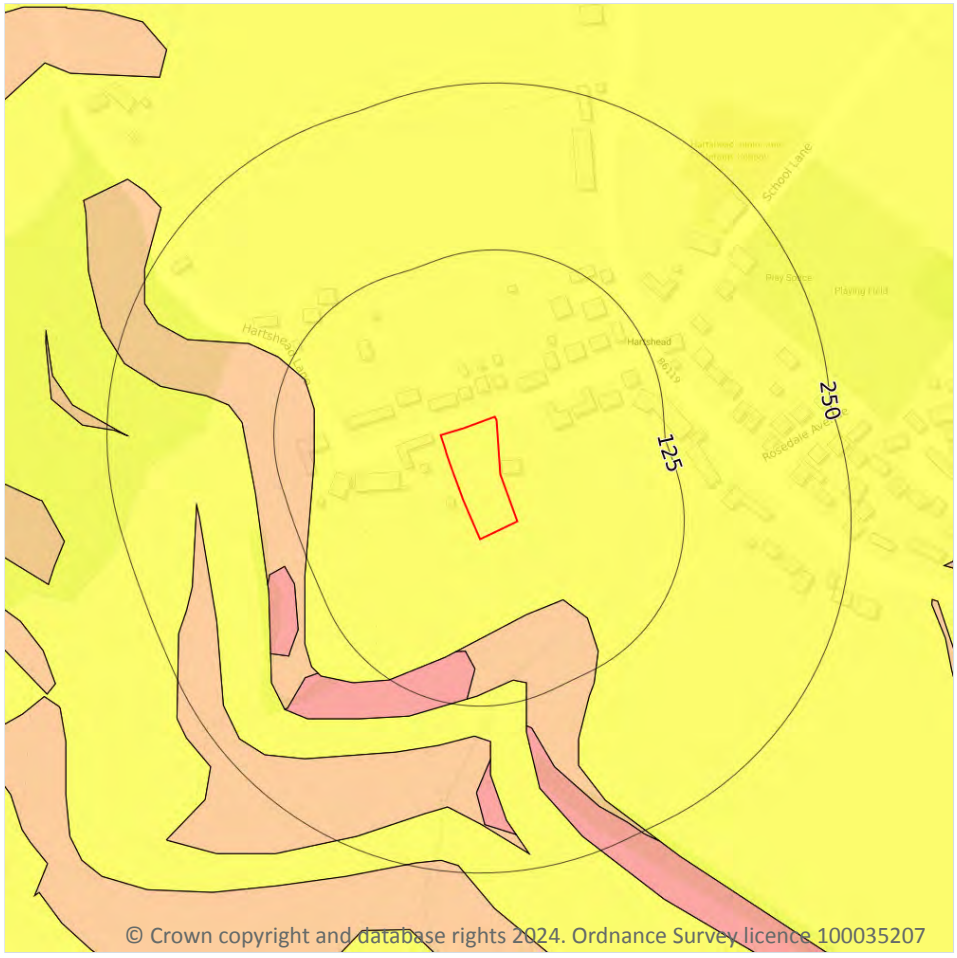
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

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




Site Outline

Search buffers in metres (m)

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

## 17.5 Landslides

| Records within 50m | 1 |
|---|---|

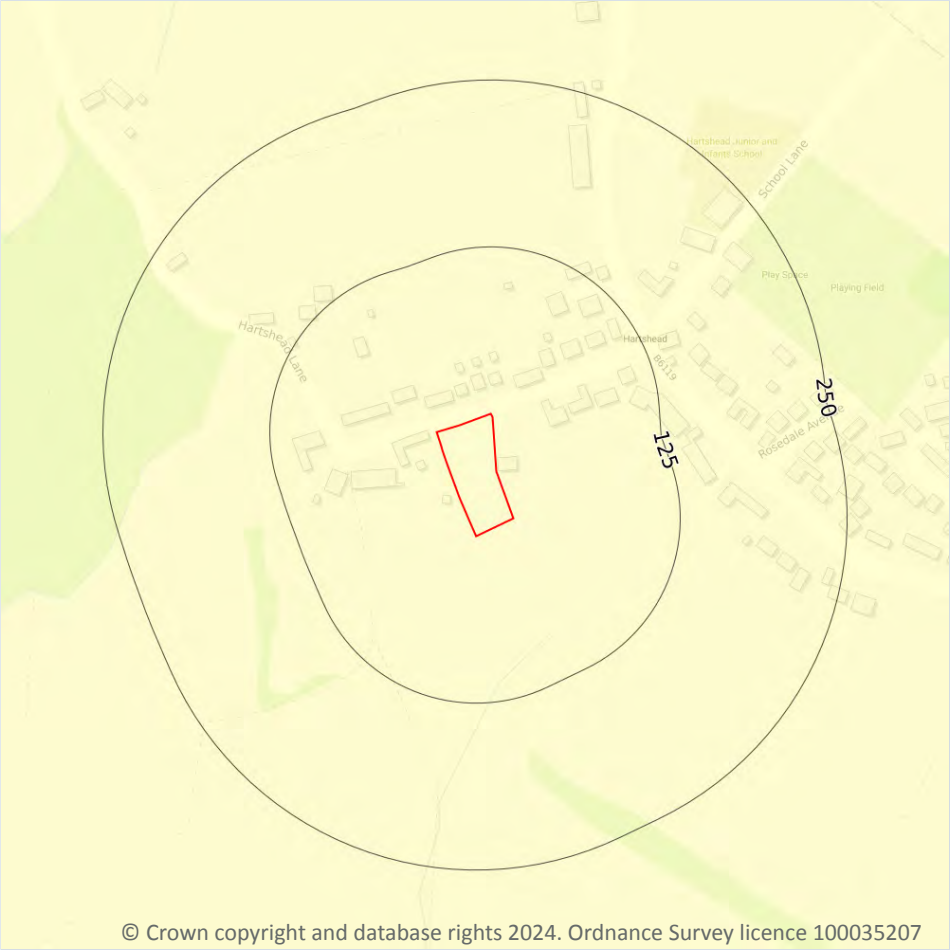
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

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

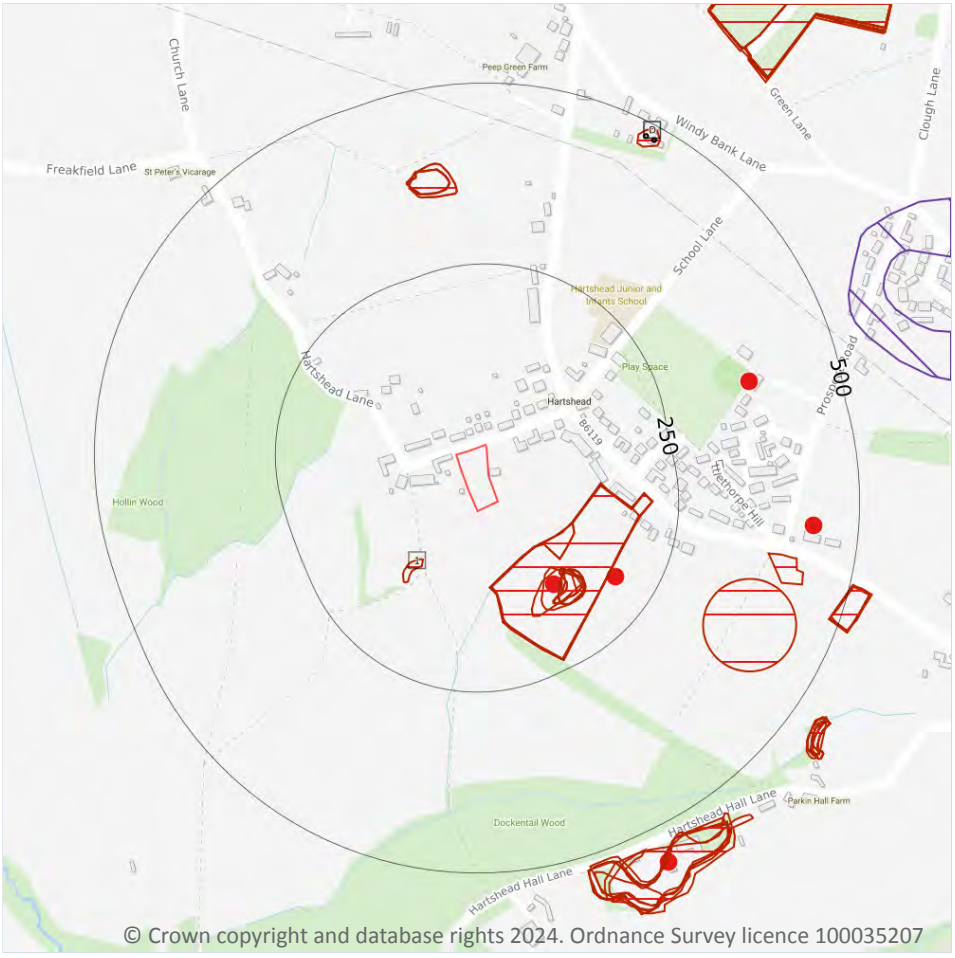
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

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 and ground workings




Site Outline

Search buffers in metres (m)

- BritPits
- Surface ground workings
- Underground workings
- Underground mining extents
- Historical mineral planning areas
- TCA non-coal mining

Non Coal Mining

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

## 18.1 BritPits

| Records within 500m | 5 |
|---|---|

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

Features are displayed on the Mining and ground workings map on **page 81 >**

| ID | Location | Details | Description |
|---|---|---|---|
| A | 138m SE | Name: Dockontail<br>Address: Robert Town, BATLEY, West Yorkshire<br>Commodity: Sandstone<br>Status: Ceased | Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site<br>Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority |
| 2 | 192m SE | Name: Dockontail<br>Address: Robert Town, BATLEY, West Yorkshire<br>Commodity: Sandstone<br>Status: Ceased | Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site<br>Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority |
| 4 | 374m E | Name: Common Bottom<br>Address: Robert Town, BATLEY, West Yorkshire<br>Commodity: Coal, Deep<br>Status: Ceased | Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site<br>Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority |
| C | 437m E | Name: Chumney<br>Address: Robert Town, BATLEY, West Yorkshire<br>Commodity: Coal, Deep<br>Status: Ceased | Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site<br>Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority |
| C | 447m E | Name: Chumney<br>Address: Robert Town, BATLEY, West Yorkshire<br>Commodity: Coal, Deep<br>Status: Ceased | Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site<br>Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority |

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

## 18.2 Surface ground workings

| Records within 250m | 16 |
|---|---|

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

Features are displayed on the Mining and ground workings map on **page 81 >**

| ID | Location | Land Use | Year of mapping | Mapping scale |
|---|---|---|---|---|
| A | 80m SE | Rural District Council Sewage Works | 1931 | 1:10560 |
| A | 80m SE | Rural District Council Sewage Works | 1931 | 1:10560 |
| A | 81m SE | Sewage Works | 1948 | 1:10560 |
| A | 81m SE | Sewage Works | 1931 | 1:10560 |
| A | 81m SE | Sewage Works | 1951 | 1:10560 |
| 1 | 101m SW | Unspecified Ground Workings | 1892 | 1:10560 |
| A | 116m SE | Sewage Works | 1938 | 1:10560 |
| A | 124m SE | Refuse Heap | 1966 | 1:10560 |
| A | 127m SE | Refuse Heap | 1931 | 1:10560 |
| A | 127m SE | Refuse Heap | 1931 | 1:10560 |
| A | 129m SE | Refuse Heap | 1951 | 1:10560 |
| A | 132m SE | Refuse Heap | 1948 | 1:10560 |
| A | 132m SE | Refuse Heap | 1931 | 1:10560 |
| A | 132m SE | Unspecified Pit | 1905 | 1:10560 |
| A | 132m SE | Unspecified Pit | 1892 | 1:10560 |
| A | 133m SE | Refuse Heap | 1938 | 1:10560 |

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

## 18.3 Underground workings

| Records within 1000m | 7 |
|---|---|

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

Features are displayed on the Mining and ground workings map on **page 81 >**

| ID | Location | Land Use | Year of mapping | Mapping scale |
|---|---|---|---|---|
| D | 478m NE | Unspecified Shafts | 1892 | 1:10560 |
| D | 478m NE | Unspecified Shafts | 1892 | 1:10560 |
| - | 783m E | Unspecified Shaft | 1892 | 1:10560 |
| - | 958m S | Colliery | 1948 | 1:10560 |

| ID | Location | Land Use | Year of mapping | Mapping scale |
|---|---|---|---|---|
| - | 958m S | Colliery | 1931 | 1:10560 |
| - | 985m NW | Colliery | 1951 | 1:10560 |
| - | 987m S | Colliery | 1892 | 1:10560 |

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

## 18.4 Underground mining extents

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

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

*This data is sourced from Groundsure.*

## 18.5 Historical Mineral Planning Areas

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

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

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

## 18.6 Non-coal mining

| Records within 1000m | 1 |
|---|---|

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).

Features are displayed on the Mining and ground workings map on **page 81 >**

| ID | Location | Name | Commodity | Class | Likelihood |
|---|---|---|---|---|---|
| - | 942m NE | Leeds/Bradford area | Iron Ore (Bedded) | B | Underground mine workings may have occurred in the past or current mines may be working at significant depth to modern engineering standards. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered. |

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

## 18.7 JPB mining areas

| Records on site | 0 |
|---|---|

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

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

## 18.8 The Coal Authority non-coal mining

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

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

*This data is sourced from The Coal Authority.*

## 18.9 Researched mining

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

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

*This data is sourced from Groundsure.*

## 18.10 Mining record office plans

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

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

*This data is sourced from Groundsure.*

## 18.11 BGS mine plans

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

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

*This data is sourced from Groundsure.*

## 18.12 Coal mining

| Records on site | 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.*

## 18.13 Brine areas

| Records on site | 0 |
|---|---|

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

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

## 18.14 Gypsum areas

| Records on site | 0 |
|---|---|

Generalised areas that may be affected by gypsum extraction.

*This data is sourced from British Gypsum.*

## 18.15 Tin mining

| Records on site | 0 |
|---|---|

Generalised areas that may be affected by historical tin mining.

*This data is sourced from Groundsure.*

## 18.16 Clay mining

| Records on site | 0 |
|---|---|

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

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

# 19 Ground cavities and sinkholes

## 19.1 Natural cavities

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

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

*This data is sourced from Stantec UK Ltd.*

## 19.2 Mining cavities

| Records within 1000m | 0 |
|---|---|

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

*This data is sourced from Stantec UK Ltd.*

## 19.3 Reported recent incidents

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

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

*This data is sourced from Groundsure.*

## 19.4 Historical incidents

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

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

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

*This data is sourced from Groundsure.*

## 19.5 National karst database

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

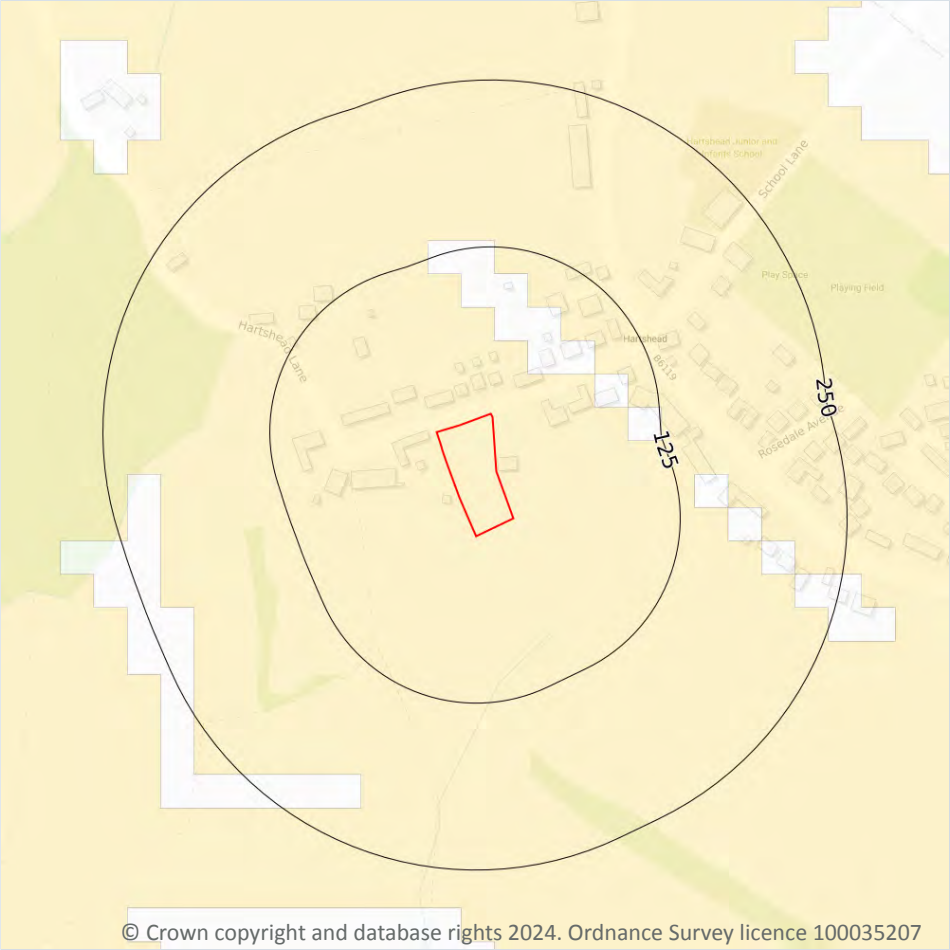
This is a comprehensive database of national karst information gathered from a wide range of sources. BGS have collected data on five main types of karst feature: Sinkholes, stream links, caves, springs, and incidences of associated damage to buildings, roads, bridges and other engineered works.

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

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

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

# 20 Radon




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%

## 20.1 Radon

| Records on site | 1 |
|---|---|

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

Features are displayed on the Radon map on **page 90 >**

| Location | Estimated properties affected | Radon Protection Measures required |
|---|---|---|
| **On site** | **Between 1% and 3%** | **None** |

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

# 21 Soil chemistry

## 21.1 BGS Estimated Background Soil Chemistry

| Records within 50m | 3 |
|---|---|

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** | **35 - 45 mg/kg** | **No data** | **100 mg/kg** | **60 mg/kg** | **1.8 mg/kg** | **90 - 120 mg/kg** | **15 - 30 mg/kg** |
| **On site** | **35 - 45 mg/kg** | **No data** | **100 mg/kg** | **60 mg/kg** | **1.8 mg/kg** | **90 - 120 mg/kg** | **15 - 30 mg/kg** |
| 22m N | 25 - 35 mg/kg | No data | 100 mg/kg | 60 mg/kg | 1.8 mg/kg | 90 - 120 mg/kg | 15 - 30 mg/kg |

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

## 21.2 BGS Estimated Urban Soil Chemistry

| Records within 50m | 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.*

## 21.3 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.*

# 22 Railway infrastructure and projects

## 22.1 Underground railways (London)

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

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

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

## 22.2 Underground railways (Non-London)

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

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

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

## 22.3 Railway tunnels

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

Railway tunnels taken from contemporary Ordnance Survey mapping.

*This data is sourced from the Ordnance Survey.*

## 22.4 Historical railway and tunnel features

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

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

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

## 22.5 Royal Mail tunnels

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

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

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

## 22.6 Historical railways

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

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

*This data is sourced from OpenStreetMap.*

## 22.7 Railways

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

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

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

## 22.8 Crossrail 1

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

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

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

## 22.9 Crossrail 2

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

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

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

## 22.10 HS2

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

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

*This data is sourced from HS2 ltd.*

## Data providers

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

## Terms and conditions

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

**Appendix G**

Preliminary Risk Assessment

| Source | Pathway | Receptor | Risk Assessment | | | Justification / Assessment |
|---|---|---|---|---|---|---|
| | | | Severity | Probability | Risk | |
| Possible contamination from historical uses of the site and / or surroundings: mining, quarrying, refuse tip, sewage works. | Inhalation, ingestion, dermal contact | Development Site Workers | Minor | Unlikely | Very Low | **Minor / Unlikely:** Short term exposure for groundworkers and other development contract workers. **Recommendation**: Appropriate health & safety measures including use of PPE. No investigative requirement. |
| | | Future Occupants | Mild | Low Likelihood | Low | **Mild:** Site has been a field / garden since OS mapping began. No historical shallow coal workings identified. Refuse heap very old with waste types probably not likely to produce of ground gas. Migration of contamination from offsite would not occur – property is upgradient of offsite historical uses including refuse tip, unspecified ground workings and historical sewage works. **Low Likelihood:** Little potential for contamination to be present or prolonged exposure. **Recommendation:** No specific investigative requirement identified. |
| | Direct deposit or spillage, wind transport, leaching / movement through soils or migration, along or through engineered structures / pipes | Soils | Mild | Low Likelihood | Low | **Mild / Low Likelihood:** As above. **Recommendation**: No specific investigative requirement identified. |
| | | Secondary A Aquifer | Mild | Unlikely | Very Low | **Mild / Unlikely:** Site is small with no identified source of contamination. Will not affect groundwater. **Recommendation**: No specific investigative requirement. Boreholes / groundwater monitoring not justifiable. |
| | | Surface Waters | Minor | Unlikely | Very Low | **Minor / Unlikely:** Nearest d/s surface water is a drain 90m SE. No source of contamination identified for migration to occur. **Recommendation:** No specific investigative requirement. |
| | | Water Supply | Mild | Low Likelihood | Low | **Mild / Low Likelihood:** Possible health effects unlikely as no source of contamination identified. **Recommendation**: Resistant pipework (lead etc) not considered necessary but many types resistant as standard. |
| Potentially aggressive ground conditions (Sulphates) | Direct contact with soil, rainfall percolating through soil | Building Structure / Foundations | Medium | Likely | Moderate | **Medium / Likley:** Long term exposure. Property not identified as being in an area of known high sulphurous geology leading to potential aggressive ground conditions (BRE SD1 2005 maps) but bedrock is Pennine Lower Coal Measures (testing recommended for all iterations of PLCM). **Recommendation**: Testing for aggressive ground to determine appropriate concrete classification in accordance with BRE Special Digest 1:2005 Third Edition. |

| | | | | | | |
|---|---|---|---|---|---|---|
| Ground gas (landfill gas) - from historical refuse tip (offsite) | Inhalation | Development Site Workers | Minor | Unlikely | Very Low | **Minor / Unlikely:** Short term exposure for development contractors / refuse tip very old and is unlikely to be still producing gas. Perceived very minimal to no risk. **Recommendation:** Health & safety measures during construction not likely to be required for this issue. |
| | Migration through ground / through cracks into confined spaces | Building / Future Occupants | Medium | Low | Low | **Medium / Low Likelihood:** Longer term exposure for residents / refuse tip very old and is unlikely to be still producing gas. Perceived very minimal to no risk. **Recommendation:** No specific actions identified. |
| Ground gas (methane, $CO_2$, radon) - from natural strata / coal measures strata (onsite and offsite) | Inhalation | Development Site Workers | Minor | Unlikely | Very Low | **Minor / Unlikely:** Short term exposure for development contractors / see comments in box below. Perceived very minimal to no risk. **Recommendation:** Health & safety measures during construction not likely to be required for this issue. |
| | Migration through ground / through cracks into confined spaces | Building / Future Occupants | Medium | Low | Low | **Medium / Unlikely:** Longer term exposure for residents / Coal Measures strata present, seams of coal at depth so perceived as low risk. Coal Authority Mining Report identifies no issues with methane gas. The site is not in a Radon affected area. Perceived very minimal to no risk. **Recommendation:** No specific actions identified. |