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LAND AT CARRS LANE, CUDWORTH, BARNSLEY, SOUTH YORKSHIRE, S72 8JG

PHASE 1 PRELIMINARY RISK ASSESSMENT

Prepared by

SILKSTONE ENVIRONMENTAL LTD

For

PEAK ARCHITECTS LTD

On behalf of

JAGUAR ESTATES & WORTLEY CONSTRUCTION

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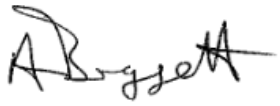

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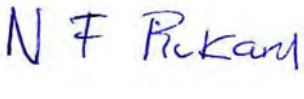

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EXECUTIVE (NON-TECHNICAL) SUMMARY

Silkstone Environmental Ltd (SEL) have carried out a Phase 1 Preliminary Risk Assessment (Desk Study) for Peak Architects (PA), on behalf of Jaguar Estates and Wortley Construction, with a view to the development of 10 residential dwellings at the site.

This section summarises the findings of the report and makes recommendations regarding further work. It should be read in conjunction with the whole report to gain a full understanding of the conclusions reached.

The area under consideration comprises 2 plots of land immediately adjacent to Carrs Lane, Cudworth, to the north east of Barnsley, South Yorkshire. The site is located within a semi-rural location with an existing residential area adjoining the site beyond Carrs Lane to the east and a further area being developed for housing adjoining the site to the west.

The site is shown to be underlain by Coal Measure rocks with the Sharlston Top Coal Seam shown to outcrop immediately to the east of the site.

Following a review of current and historic land uses on site, the Preliminary Environmental Risk Assessment has derived an overall risk rating of **Low to Moderate**.

The risk relates to the following:

- Risk to construction workers and site end users from potential contamination associated with former buildings of unspecified use during the early history of the southern plot (likely to be farm related);
- The potential for mine gas from 'probable' shallow mine workings to the immediate east of the site;
- A small but identifiable risk of instability to the proposed development from the probable shallow (<30m depth) mine workings from the area to the immediate east, with the level of risk depending on the precise location of these workings.

The following Phase 2 intrusive site investigation has been recommended to provide further clarity on the potential risks from contamination, ground gas and shallow coal mining and to provide data to inform foundation design for the proposed development:

- One day of window sampling (up to 6 locations) to provide ground bearing information for the proposed development.
- The installation of gas monitoring standpipes in 4 of the window sampling locations and follow-on monitoring of gas concentrations.
- Sampling of soils from the window sampling locations for laboratory chemical analysis and geotechnical testing.
- The drilling of 3 rotary boreholes to a maximum depth of 30m to confirm for the avoidance of doubt the presence/absence of any coal seams/old workings within the study area and the presence of mine gases if any such coal seam/old workings are identified.

Prior to intrusive site investigations, records of services should be obtained to accurately locate existing services on site. Services should be protected in order to prevent damage by drilling or use of excavation equipment. This is most important where undefined services are known for a site.

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KEY REFERENCES

A Contaminated Land Report (CLR) 11 '***Model Procedures for the Management of Land Contamination***' published by the Environment Agency (September 2004).
B Guiding Principles for Land Contamination, Environment Agency (March 2010).
C Town and Country Planning Act 1990.
D National Planning Policy Framework (July 2018).
E Revised Statutory Guidance dated April 2012 implementing the contaminated land provisions under Part 2A of the Environmental Protection Act 1990.
F CIRIA 665 ***'Assessing Risks Posed by Hazardous Ground Gases to Buildings'*** (2007).

1.0 INTRODUCTION

1.1 Brief

Silkstone Environmental Ltd (SEL) has prepared this report for Peak Architects (PA) on behalf of Jaguar Estates and Wortley Construction following an email instruction received from Mr Lloyd Wilson of PA, dated 8th March 2019. The site is located on 2 plots of land adjacent to Carrs Lane, south of Cudworth. SEL understands that the client is proposing to construct 10 no. dwellings on the land.

The stated purpose of the work was to carry out a Phase 1 Preliminary Risk Assessment (also known as a Desk Study) to assess the potential for historic contamination at the site which may adversely impact upon human health and/or the wider environment. Geotechnical issues have also been considered and a review made of the potential for instability at the surface from former coal mining legacy operations. The report has been compiled in general accordance with Refs. A & B as a 'Preliminary Risk Assessment', as defined therein.

This preliminary assessment will highlight potential requirements for further assessment via an intrusive investigation if considered appropriate. This has been determined based on the following:

- A description of the site showing location and layout.
- A review of the site history including previous surrounding land uses.
- Determination of the environmental setting by reference to geology, mining / quarrying, hydrology, flood risk and hydrogeology, risks associated with hazardous gas (such as radon, landfill gas, mine gas), proximity to landfilled ground and permits and authorisations, such as Control of Major Accident Hazard (COMAH) and explosive sites.
- A site walkover and inspection.
- An assessment of anticipated ground conditions including potential contaminants.
- An assessment of anticipated foundation and engineering issues associated with the redevelopment.
- An inspection of historical and geological maps and information provided by the Local Planning Authority, Environment Agency, British Geological Survey and the Coal Authority, as appropriate.
- A risk assessment in the context of the proposed residential development of the site based on an appraisal of the potential contamination sources, pathways and receptors in an outline conceptual site model.

Conclusions are given alongside any further recommendations. No other site investigations are known, or have been made available to SEL.

1.2 Legislative and Regulatory Context

If land proposed to be developed is suspected of being contaminated either historically or by its current use, an investigation will be requested by the Local Authority under the Town and Country Planning Act (1990) (Ref. C) and the National Planning Policy Framework (Ref. D) to determine the level of risk and if remediation is necessary or whether there may be grounds for the land to be considered contaminated under Part 2A of the Environmental Protection Act 1990 (Ref. E). Under this regime investigations are carried out to determine if the current condition of the site is suitable for its proposed use.

1.3 Guidance and Information Sources Used Within This Report

This report has been produced in line with relevant guidance and best practice and in particular references A, B, C, D, E and F. This list includes all of the cited references. It is not exhaustive and comprises only the principal references used in conducting this risk assessment.

1.4 Report Limitations

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.

This report is strictly confidential to the party to whom it is addressed and may only be relied upon by that party or their other professional advisors, for the specific purpose to which it refers. Any third party using this report does so entirely at their own risk and SEL accepts no responsibility or liability for any costs, claims, damages or expenses (including consequential damages) as a result of this report or any part of its contents being used by any third party.

Except in connection with the specific purpose for which this report has been prepared, neither the whole nor any part of this report, nor any reference thereto, may be included in any published document, circular or statement, nor published in any way, nor disclosed orally to a third party, without the written approval from SEL of the form and context of such publication or disclosure. Such approval is required whether or not SEL are referred to by name and whether or not the report is combined with others.

SEL are unaware of any conflicts of interest in the preparation of this report.

2.0 ENVIRONMENTAL SETTING

2.1 Site Location

The area under consideration adjoins Carrs Lane on the south western edge of Cudworth, approximately 4km north east of Barnsley, South Yorkshire. The location of the site is shown in Figure 1, Appendix A.

The National Grid Reference (NGR) for the centre of the review area is 438859, 408087. The site is approximately 0.61ha in area and is situated at an approximate height of 37m to 44m Above Ordnance Datum (AOD).

2.2 Historical Land Use

Information relating to the historical uses of the site and surrounding area has been determined from a review of the following:

- The large scale (1:2500 and 1:1250) and small scale (1:10,560 and 1:10,000) historical Ordnance Survey maps dating from 1854 to 2014 (Appendix B);
- Groundsure environmental data reports for the site (Appendix C).
- Google Earth aerial imagery dating from 2009 to 2018.

It is important to note that any date referred to in this section refers to the date a feature appears on the map and not necessarily the date the feature was first present. Additionally, the marked site boundary may appear to move with respect to successive editions. This is predominantly due to minor variations in the Ordnance Survey (OS) with time.

The information arising is outlined below and summarised in Table 1, which shows the dates of the significant maps and aerial imagery referred to.

Within the Site

Earliest maps (1854) show the study areas to be mainly green field with trees. There are two small buildings on the southern plot. By 1893, one of the buildings has been demolished on the southern plot and one field boundary is shown. The 1906 map shows that both buildings have been removed on the southern plot. No other significant activities are shown on later plans.

In the Surrounding Area:

The earliest maps (1854) show the site to be located south of Lower Cudworth village. Water wells are shown to the north of the site. Other large features are a sandstone quarry 350m to the north, Birk Ing Wood 250m to the south east, a railway cutting extending north west to south east 300m south west and a railway station shown 500m west. The majority of the surrounding area is otherwise agricultural with Small Bridge Dike cutting through the land WNW to ESE 120m south of the site. The land south of Small Bridge Dike is shown as marshland. By 1932 a sewage works is shown 550m south east (Cudworth U.D.C.). At this time, the area formerly known as Birk Ing Wood had been developed for residential use.

By 1955 there is further residential development to the north west and extensions of residential development in Cudworth by 1966. The 1988 map shows a residential development to the east on the other side of Carrs Lane.

Table 1: Historic Land Uses of the Site and Surrounding Area

Date	Scale	On Site	Surrounding Area
1854	1:10,560	N plot – field. S plot – fields with two small buildings.	Lower Cudworth village to N. Cudworth Green to E. Road adjacent to site NNW – SSE known as Carrs Lane. 1 No. well – 50m N. 1 No. well – 150m NE. 3 No. wells – 300m N. Sandstone quarry – 350m N. Birk Ing Wood – 250m SE Railway cutting NW – SE. 300m SW. Railway station shown 500m W.
1893	1:2,500	N plot – no change. S plot – one building shown at N end of plot. One field boundary shown.	Enfield House – 30m N. Ring Farm – 100m S. There is a dike 120m S running WNW – ESE then southwards. It is called 'Small Bridge Dike'.
1894	1:10,560	No change.	Quarry to N no longer described (feature still shown). Railway station to W now called 'Cudworth Station'.
1904	1:10,560	No change.	Reservoir shown approximately 450m NW. Disused quarry shown 750m NW (Knowles Quarry). Marshland shown to south of dike. Lower Cudworth now known as Cudworth.
1906	1:2,500	N plot – No change. S plot – 2 fields. Building no longer shown.	No change.
1931	1:2,500	No change.	Enfield House not shown. More residential development on W side of Lower Cudworth.
1932	1:10,560	No change.	Sewage works (Cudworth U.D.C.) shown 550m SE. Area formerly Birk Ing Wood now residential development. Allotments shown adjacent to former sandstone quarry to N of site.
1938	1:10,560	No change.	No change.
1948	1:10,560	No change.	No change.
1955	1:10,560	No change.	Further development 500 – 750m NW.
1961	1:2,500	No change.	Pond shown 100m NE.
1966 - 1967	1:10,560	No change.	Extension of residential development to SE along Danfield Road and further development of Cudworth to N. Opencast workings are shown 1000m E of site.
1969	1:2,500	No change.	No change.
1974	1:10,000	No change.	Allotments are shown 300m to E.
1981-1982	1:10,000	No change.	No change.
1988 – 1992	1:10,000	No change.	Residential development to E along 'Sunnybank Drive' on other side of Carrs Lane.
2002	1:10,000	No change.	Further residential development to E on other side of Carrs Lane.
2009	Google Earth	No change.	No change.
2018	Google Earth	No change.	Construction site immediately to W and NW for proposed residential development.

Google Earth (2018) shows a large construction site immediately to the west. This is for a proposed residential development.

2.3 Site Description

A site walkover was carried out by a SEL representative on 8th April 2019 in dry but overcast weather. A photographic record is presented in Appendix D.

The site is located on land adjacent to Carrs Lane, Cudworth and in total is approximately 0.61ha in area. The smaller portion of the site at the northern end is less than 0.1ha in area. This is separated from the larger portion of the site by Newland Avenue which accesses a new Barratt Homes housing development. The topography overall is relatively flat although the site slopes to the south with an approximate difference in level of 3m from the north end to the south end. The site is bounded to the north by residential properties and to the south by an access track to the new housing development for construction plant. The west side is bound by the new housing development and the east is adjacent to Carrs Lane with residential properties on the other side of the road.

Small Plot

The smaller plot at the northern end of the site is currently 50% laid over to rough grass with slightly hummocky ground and the remainder is being used for a temporary showroom with associated parking and grassed areas.

There was no obvious evidence of past mining activities such as shafts/adits, spoil heaps etc, either on-site or on the observable adjoining land.

There was no visible evidence of potential contamination such as vegetation dieback, discoloured ground, or the seepage of odorous or discoloured liquid. The unused part of the site was partially littered in places mostly with unused construction materials such as polystyrene, breeze blocks and pipework. The ground in the unused section was slightly hummocky, evidence of re-working and possible building demolition materials spread across the site. There is also stone rubble along much of the east boundary due to the construction of a new stone wall along this boundary

The unused section of the site had a telegraph pole positioned at the north eastern part of the site with an associated metal box immediately adjacent. The showroom had temporary electrical supplies and drainage.

There was no obvious evidence of services crossing the smaller plot.

The boundaries to the unused section of this plot consist of:

- To the south, 2m high wooden fencing.
- To the west, temporary heras fencing.
- To the north, some temporary heras fencing and a 1m high breeze block wall.
- To the east, 1m high new stone wall.

Access to the showroom was off Newland Avenue.

Larger Plot

The larger plot is currently 100% laid over to rough grass excepting a small section of the southern end which has been ploughed and has a fairly even topsoil surface. The remainder is rough slightly hummocky ground. Much of the eastern boundary has dense bush vegetation and the plot is split into two by a line of trees running west to east.

There was no obvious evidence of past mining activities such as shafts/adits, spoil heaps etc, either on-site or on the observable adjoining land.

There was no visible evidence of potential contamination such as vegetation dieback, discoloured ground, or the seepage of odorous or discoloured liquid. The site was partially littered in places mostly with unused construction materials such as polystyrene, breeze blocks and pipework. The ground in the larger plot was slightly hummocky, with evidence of re-working and possible building demolition materials spread across the site. There was also stone rubble along much of the eastern boundary due to the construction of a new stone wall along part of this boundary

There was no obvious evidence of services crossing the larger plot.

The boundaries to this section of the site consist of:

- To the south, temporary heras fencing.
- To the west, temporary heras fencing with ongoing construction of a low brick wall.
- To the north, 2m high wooden fencing.
- To the east, dilapidated dry stone wall/high dense bushes/new stone wall at north end of site.

As part of the neighbouring new housing development there is a large storm water basin excavation adjacent to the south western end of the site. This is approximately 60m in length along each side and is approximately 6m deep.

2.4 Geology

According to the Soilscapes on-line viewer from the Cranfield Soil and AgriFood Institute, supported by DEFRA, the natural soils within the area in which the site is located are described as being Soilscape Grade 17: slowly seasonally wet acid loamy and clayey soils with impeded drainage.

There is no recorded artificial ground or made ground within 250m of the site.

Superficial deposits are not present on site.

The site bedrock is made up of rocks from the Pennine Middle Coal Measures comprising thick sandstone (Glass Houghton Rock) underlain by mudstone, siltstones and other sandstones. The BGS map (Sheet 87) indicates a coal seam immediately east of the site (Sharlston Top) from 0m (outcropped) up to 1.9m in thickness. This is shown to possibly outcrop at surface.

With respect to surface mining activities, historic maps document a sandstone quarry 350m to the north of the site (1854). By 1894 the quarry was no longer described although still shown as a feature.

There are no recorded non coal mining or natural cavities within 250m of the review area. However it is possible that small scale underground mining of iron ore may have occurred in the site area.

Former mining history is described in Section 2.6.

The assessment of the artificial ground, superficial (drift) and solid (bedrock) geology relating to the site has been gained from various sources and is summarised in Table 2 below:

Table 2: Geological Summary

Maps / Publications Referenced	British Geological Survey (BGS) 1:50,000 Sheet 87 (Barnsley), Bedrock and Superficial Deposits BGS Geology of Britain Viewer, BGS lexicon of named rock units and BGS Onshore Geoindex webpages. Groundsure Geoinsight Report GS-5884028 Coal Authority CON29M Mining Report No.51002048973001. Coal Authority Interactive Viewer website. BGS Hydrogeological Map of Southern Yorkshire (1:100,000) - 1982
Artificial Ground	No recorded artificial or made ground either on or within 500m of site. Made ground to 0.3m bgl shown on trial pit/borehole logs from a Geoenvironmental Appraisal Report for the adjoining Barratt Homes site viewed on the Barnsley Metropolitan Borough Council on-line Planning Portal (Application Reference No. 2017/0577).
Superficial Deposits & Landslips	No superficial deposits indicated. No landslips recorded on site or within 500m.
Solid Geology (Bedrock)	Pennine Middle Coal Measures Formation comprising sandstone (Glass Houghton Rock) underlain by mudstone, siltstones and other sandstones. The Sharlston Top Coal Seam is inferred to outcrop near the surface close to the eastern boundary of the site. Maximum permeability rating: low to moderate (fracture type).
Dip of Solid Strata	None recorded on site.
Faults	None within 500m of site.
Coal Seams / Mining / Natural Cavities	Is located immediately to the west of a Coal Authority ***Development High Risk Area.*** Is located immediately adjacent to a surface area that could be affected by past underground workings. Is located immediately adjacent to probable shallow old workings. No shafts/adits. No surface (opencast) mining. Coal Authority report presented in Appendix E. No historic or ground workings within 250m. Historic sandstone quarry worked 1890s 300m N No recorded non-coal mining cavities within 250m. No recorded natural cavities within 250m.

2.5 Background Soil Contamination

The Groundsure Geoinsight report records estimated background soil chemistry with particular reference to concentrations of arsenic, cadmium, copper, nickel and lead, against which SEL have compared levels of concern for human health currently applicable in the UK where residential use with the consumption of home grown produce is considered:

	Estimated On Site	Max (Residential Use)
Arsenic (As)	15 - 25 mg/kg	32 mg/kg
Cadmium (Cd)	<1.8 mg/kg	10 mg/kg
Chromium (Cr)	90 - 120 mg/kg	910 mg/kg
Nickel (Ni)	30 - 45 mg/kg	130 mg/kg
Lead (Pb)	<100 mg/kg	200 mg/kg

It should be stressed that these are estimated background levels for the area and should not be relied upon as reflecting the actual chemical status of soils on site.

2.6 Mining and Ground Stability

As the site lies within a Coal Mining Reporting Area, a CON29M Coal Mining Report was obtained for the site and the following comments are made based on the report and the Coal Authority Online Interactive Map Viewer:

- The site is immediately adjacent to a ***Development High Risk Area*** where there are ***probable*** (unrecorded) ***shallow mine workings*** (east of the site and encroaching within the south eastern corner)***.***
- The site is "***within a surface area that could be affected by past underground coal mining in 7 seams of coal at 270m to 660m depth, and last worked in 1987. Any movement in the ground due to coal mining activity associated with these workings should have stopped by now.***"
- There are ***"no known coal mine entries within or within 20m of the site.***" The closest recorded mine entry is approximately 500m west of the site adjacent to Small Bridge Dike. This is a shaft entry.
- The site has not been subject to "***past opencast coal mining.***"
- There are reserves of coal in the local area that ***"could be worked at some time in the future".***
- There has been past subsidence claims adjacent to the study area***.***

The table below summarises the potential risk associated with coal mining legacy issues for the site and has been compiled in accordance with The Coal Authority document entitled "***A risk based approach to development management, Guidance for Developers,"***(Version 4, 2017).

Table 3: Summary of Potential Risks Associated with Coal Mining

Coal Mining Issue	Coal Mining Risk		Risk Assessment
	Yes	No	
Past recorded underground coal mining at greater than 30m depth.		✓	7 seams of coal 270-660m deep, last worked in 1987. Ground movement due to coal mining activity should have stopped by now.
Past shallow recorded underground coal mining.		✓	
Past shallow unrecorded underground coal mining (<30m deep)	✓		Not identified on site by the Coal Authority but identified as being probably present immediately east of site within a defined Development High Risk Area.
Present underground coal mining.		✓	
Future underground coal mining		✓	Although The Coal Authority identifies the potential for future underground coal mining, under current economic, environmental and planning constraints SEL consider this a negligible risk.
Recorded mine entries (shafts/adits)		✓	No recorded shaft/adit within, or within 20m of site boundary.
Unrecorded mine entries (shafts/adits)		✓	Hazard not identified by Coal Authority.
Coal mining geology (fissures)		✓	
Past opencast (surface) coal mining		✓	
Present/future opencast coal mining		✓	
Coal mining subsidence	✓		Former subsidence claims to N & NE of site.
Record of past mine gas emissions		✓	
Recorded surface hazards related to coal mining		✓	

"***A damage notice or claim for alleged subsidence damage was made in September 1995 for 40 Carrs Lane, Cudworth, Barnsley, South Yorkshire S72 8EJ located to the immediate north of the northern plot. However, the claim was rejected by the Coal Authority."*** There were a further two claims within 50m of the property address but no further information was given. These two claims lie within the identified ***Development High Risk Area***, where the Sharlston Top seam occurs at shallow depth and is believed to be subject to unrecorded shallow mine workings.

A Geoenvironmental Appraisal Report was viewed on the Barnsley Metropolitan Borough Council on-line Planning Portal (Application Reference No. 2017/0577). This was in regard to the proposed residential development to the west and north-west of the site. A rotary open hole was drilled in 2014 at the extreme south east of the proposed development at the boundary of the southern plot. This encountered made ground to 0.3m bgl overlying sandstone/mudstone to below 30.0m bgl. No coal was encountered.

Three trial pits were also carried out in the site area adjacent to Carrs Lane encountering made ground above sand/gravelly clay and sandstone bedrock. Ground conditions encountered in the south eastern part of the neighbouring development site were described as cohesive residual soils being firm to very stiff, slightly sandy clay with occasional gravel of sandstone, siltstone and locally mudstone overlying bedrock. The Sharlston Low Coal Seam was only proven in the western part of the neighbouring site and considered too deep elsewhere to affect surface stability.

A Supplementary Mining Investigation Letter dated May 2017 forms part of the Planning Application viewed online (Application Reference No. 2017/0577). With reference to the neighbouring site to the west, the letter recommends that despite evidence of potential shallow mine-workings, it is considered that ***"sufficient rock cover exists above the Sharlston Low coal seam to mitigate the risk of surface instability associated with unrecorded pillar and stall mine workings"***

Considering current economic, planning and governmental factors affecting coal mining, the risk of future coal being extracted beneath the site is considered to be negligible.

The information presented by the Coal Authority and recent ground investigation works demonstrate a low risk of subsidence on the site. However, for the avoidance of doubt, it is considered that the immediate vicinity of a potentially worked coal outcrop at shallow depth (Sharlston Top Seam) would warrant further investigation on site in order to further eliminate the risks associated with such workings.

Regarding non-coal mining activities, there has been no historic mining, recorded within 250m of the review area, nor none coal mining cavities or natural cavities within 1000m. However, the Groundsure Report indicates that small scale underground mining of iron ore may have occurred in the site area.

With regard to natural ground stability hazards, the Geoinsight report refers to six BGS defined natural ground stability hazard datasets which provide a hazard rating for ground subsidence arising from natural ground conditions. These are detailed below:

Table 4: Natural Ground Stability Hazards

Ground Condition	Hazard Potential
Shrink-Swell Clays	Negligible
Landslides	Very Low
Ground Dissolution of Soluble Rocks	Negligible
Compressible Deposits	Negligible
Collapsible Deposits	Very Low
Running Sand	Negligible

2.7 Historical Borehole Data

The British Geological Survey records several boreholes within the adjoining area to the east, but all have a confidential status. The nearest BGS recorded borehole, for which information is accessible, is located approximately 260m south of the site, but this is an underground borehole and therefore not relevant. The next nearest BGS recorded borehole is located approximately 450m to the west, but is considered too distant to provide accurate information relevant to the site.

2.8 Hydrogeology

There are no superficial deposits recorded on site. However, to the south of the site adjacent to Small Bridge Dike (117m), superficial deposits are designated a Secondary (A) aquifer. Formerly known as minor aquifers, Secondary (A) aquifers are defined as containing layers that are capable of supporting water supplies at a local, rather than strategic scale, and in some cases may form an important source of base flows to rivers.

The bedrock underlying the site is also classified as a Secondary (A) aquifer.

The BGS Hydrogeological Map of Southern Yorkshire (1982) shows the underlying bedrock geology to be water bearing sandstones. However these sandstone beds are discontinuous as a result of folding and faulting and are restricted in outcrop. Intergranular permeabilities are low but movement of water is possible through joints/faults. The bedrock geology on site has no designation as an aquifer.

The site is not located within 500m of a Groundwater Source Protection Zone which are zones designated in England and Wales by the Environment Agency (EA) as major groundwater sources (from wells, boreholes and springs) used for drinking water supply.

There are no groundwater abstractions (including potable water) licenced by the EA, recorded within 1km of the site.

Based on the information described above, groundwater is not considered a highly sensitive receptor at this location.

2.9 Hydrology

The nearest watercourse to the site is Small Bridge Dike, the nearest point of which is located 120m to the south. This is downhill of the site and is considered to be an inland river not influenced by normal tidal action.

To the immediate southwest and downslope of the site there is a large storm water basin under construction for the new housing development adjoining the site to the west.

The EA's on-line Catchment Data Explorer map shows the site to be located in the Humber River Basin (Don and Rother management catchment area). The most recent water body classification (2016) shows the site to have an overall Ecological and Chemical Cycle 2 category of 'Poor' (ecological poor, chemical good) for Cudworth Dyke to the River Dearne.

There are no surface water abstraction licences (including potable water) recorded by the EA within 1km of the site.

There are 4 discharge consents to controlled waters licensed by the EA within a 250m radius, one of which has been revoked and 2 of which relate to the same location. These are summarised in the following table.

Table 5: Discharge Consents

License Holder & Address	Location	Nature of Discharge	Receiving Waters	Status
Carrs Lane No. 37 SSO, Cudworth	80m S	Sewage discharges – sewer storm overflow – water company	Small Bridge Dike	Revoked 13/04/2004
Carrs Lane Pumping Station, Cudworth	165m S	Sewage discharges – pumping station – water company	Small Bridge Dike	Current
Carrs Lane, Cudworth (rear of no. 31)	168m S	Sewage discharges – sewer storm overflow – water company	Small Bridge Dike	Current

There are no pollution incidents to controlled waters recorded in the Groundsure data reports within a 500m radius of the site.

It is considered that the site is located in a sensitive area in terms of surface water resources, due to the close distance between the review area and identified watercourse and storm water basin and their location downgradient from the site.

2.10 Flood Risk

Rivers and the Sea

The EA Website (Flood Map for Planning) records the study area as being within a Flood Zone 1 flood plain, which is an area with a low risk of flooding. A copy of the EA Flood Map for Planning (Rivers and Sea) is provided in Appendix F[1]. The EA information with the map indicates that a flood risk assessment is not required as the site is less than 1ha, but may be required if the site is affected by other sources of flooding.

A review of the EA map of long term risk of flooding from rivers and the sea available on the Gov.UK website indicates the study site is in an area with a 'very low risk' (<0.1% chance of flooding in any given year).

There is a Zone2/3 floodplain 120m south of the site adjacent to Small Bridge Dike. At this location, there are areas at low/medium/high risk of flooding from rivers and the sea.

Groundsure records no flood defences, no areas benefiting from flood defences or areas benefiting from flood storage within 250m of the site.

Surface Water (Pluvial)

The EA map showing the long term risk from surface water (pluvial) flooding (on the Gov.UK website) identifies the majority of the site as being at very low (<0.1% chance) risk, with small areas of low (0.1 to 1% chance) and medium (1 to 3.3% chance) risk within the south eastern part of the southern plot.

[1] Reproduced under Open Government Licence https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/

Groundwater

The site is within 50m of areas identified by the BGS that may be at risk from groundwater flooding. Groundwater flooding may be associated with either shallow unconsolidated sedimentary aquifers (superficial deposits flooding), or with unconfined bedrock aquifers (clearwater flooding). The BGS does not consider the site to be prone to superficial deposit or groundwater flooding.

The site is within 50m of an area identified by the BGS as a groundwater flooding susceptibility area, being at risk from clearwater flooding (groundwater flooding from an unconfined aquifer). However, this is identified as being of 'Limited Potential' based on the underlying geological conditions. The BGS also place a low confidence in the accuracy of the data used in this assessment.

Reservoirs

The EA map showing flood risk from reservoirs shows that the site is located in an area that is not at risk from flooding, should a reservoir fail and release the water it holds.

Flood Risk Assessment

Regulators are entitled to require a standalone flood risk assessment to be undertaken for a site in addition to the Phase 1 Preliminary Assessment Report should they consider it necessary. Based on the above information SEL consider that a Flood Risk Assessment will not be required for this site.

2.11 Landfills and Licenced Waste Management Facilities

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 a 250 metre consultation zone around the property.

The Groundsure environmental data report (Appendix C) has reviewed EA, BGS, DoE and Local Authority records and concludes there are no active, non-operational, historic landfills, or landfills identified from historic mapping, within a 250m radius of the site (Table 6).

Table 6: Historical Landfill Sites

Site Name, Address & Operator	Location	Accepted Waste Types	First Input Date	Last Input Date
None within 250m.				

With respect to other waste sites, the review has identified no EA licenced waste treatment, transfer or disposal sites within 500m of the review area (Table 7).

Table 7: EA Licenced & Other Waste Sites

Site Name, Address & Operator	Location	Type of Site	Date	Data Source
None within 250m.				

2.12 Ground Gases

CIRIA report C665 (Ref. F) requires that where potentially infilled land occurs within 250m of a development site, the study area should be assessed for risk from ground gas. Records show there are no active or historic landfills or licenced waste management/treatment/disposal sites within 250m of the review area.

There are also no areas of artificial ground and potentially infilled land recorded in the Groundsure data reports within 250m of the site.

However, a review of past coal mining activities indicates 'probable' shallow mine workings to the immediate east of the site and therefore a potential ground gas risk. SEL therefore consider that ground gas monitoring will be required.

Regarding radon, inspection of the gov.uk radon maps website indicates the site is located within a Radon Affected Area where there is a maximum radon potential of 1 - 3%. However, the maps showing areas requiring radon protection measures in BR 211 (2015)[2] indicates that no radon protection measures are required for new development in this area.

2.13 Air Quality

Section 82 of the Environment Act 1995 requires every Local Authority to review the air quality within its area and Section 83 requires them to designate an Air Quality Management Area (AQMA) where air quality objectives put in place to protect human health and the environment are not being achieved, or are not likely to be achieved, as set out in the Air Quality (England) Regulations 2000.

The revised NPPF (Ref. D) requires AQMAs and Clean Air Zones to be taken into account in planning policies and decisions.

Reference to the on-line interactive map of Air Quality Management Areas managed by DEFRA[3] shows that the site is not located within any of the Air Quality Management Areas that have been declared by the Local Authority.

2.14 Other Potentially Significant Information Relating to the Site

With regard to ***current industrial activities***, the Groundsure environmental data report identifies one record of potentially contaminative industrial activities within 250m of the review area, this being an electricity substations located 242m east of the site. Two electricity substations are also identified in the ***historical energy features database*** at locations 61m to the south and 237m to the east.

[2] BR 211 '***Radon: guidance on protective measures for new buildings***', BRE, 2015,
[3] https://uk-air.defra.gov.uk/aqma/maps

There are no Petrol/Fuel stations, National Grid High Voltage Underground Electricity Transmission Cables or High Pressure Gas Transmission Pipes within 500m of the site.

There are no ***potentially contaminative uses identified from 1:10,000 scale mapping,*** or records on the ***historical tank database, historical petrol and fuel site database, historical garage and motor vehicle repair database,*** or records of historical military sites and potentially infilled land within 250m of the review area.

Regarding ***environmental permits, incidents and registers*** within the Groundsure environmental data report, there are 4 no. licenced discharge consents recorded within 250m of the site (see section 2.9). Otherwise there are no historic IPC authorisations, Part A(1) & IPPC authorised activities, red list discharge consents, List 1 & 2 dangerous substance inventory sites, Part A(2) & Part B activities and enforcements, category 3 or 4 radioactive substance authorisations, water industry referrals, planning hazardous substance consents/enforcements, dangerous or hazardous COMAH/NIHHS sites, EA / NIRS List 1 and 2 pollution incidents, or sites determined as Contaminated Land under Part 2A of the Environmental Protection Act (1990) within 500m of the review area.

With respect to ***environmentally sensitive areas***, reference has been made to the Groundsure environmental data report (Appendix C) which shows that there are no environmentally sensitive sites located within 1km of the site.

3.0 CONCEPTUAL SITE MODEL AND PRELIMINARY RISK ASSESSMENT

3.1 Potential Pollutant Linkages

To determine the potential for a pollutant linkage to be present, the preliminary risk assessment process involves the identification of potential sources, pathways and receptors. A pollutant linkage can only be present if all three of these factors are involved. In this model there must be a **source** of contamination present (normally a contaminant or pollutant), with a **pathway** representing a route for the contaminant to migrate within the environment towards a **receptor** which may be susceptible to impact from the contamination. A receptor can be a natural feature such as surface or groundwater and humans, but may also include ecological systems and property.

This approach is in accordance with the contaminated land provisions under Part 2A of the Environmental Protection Act 1990. Under the 2014 revised Statutory Guidance implementing these provisions (Ref. E), land is defined as being contaminated if:

- Significant harm is being caused or there is a significant possibility of such harm being caused to human health, or relevant non-human (ecological or property), receptor; and / or
- Significant pollution of controlled waters is being caused, or there is a significant possibility of significant pollution of controlled waters being caused.

The Conceptual Site Model assumes that the site will be developed for residential purposes. Should any other activities be proposed at a future date, then this report will require amendment.

3.2 Potential Sources of Contamination

Potential sources of contamination and associated contaminants which may be present on site are shown in Table 7 below.

Table 8: Potential Sources of Contamination

Potential Sources	Potential Contaminants
On Site	
Agricultural land use. Building of unspecified use (southern plot). Demolition of buildings. Radon gas. Possible old shallow mine workings.	Asbestos fibres. Metals / metalloids including As, B, Cd, Cr, Cu, Ni, Pb, Hg, Zn, Se. Sulphates/sulphides. PAHs, TPHs. Phenols. Ground gases (principally CH_4, CO_2, radon).
Off Site	
Agricultural land use, including plantation. Buildings of unspecified use (adj. W). Building demolition (adj. W). Farms (70m NE & 95m S). Marshy ground (145m S). Electricity substation (242m distant). Radon gas. Probable old shallow mine workings	Metals / metalloids including As, B, Cd, Cr, Cu, Ni, Pb, Hg, Zn, Se. Sulphates/sulphides. PAHs, TPHs, VOCs & SVOCs. Polychlorinated Biphenyls (PCBs). Phenols, pesticdes. Ground gases (principally CH_4, CO_2, radon)

3.3 Potential Pathways

The potential pathways representing the routes by which contaminants may migrate are listed as follows:

- Ingestion and inhalation of soil / water / dust;
- Dermal contact with soil / water / dust;
- Migration and / or inhalation of gases and vapours;
- Migration / leaching of contaminants through soil / groundwater;
- Volatisation of contaminants to indoor or outdoor air;
- Surface water runoff;
- Migration of groundwater through joints and fissures.
- Service pipes;
- Ground instability.

3.4 Receptors

3.4.1 Human Health

Chronic Risks

The chronic risks to human health take into account those risks to end users of the site (occupants and visitors) and neighbouring occupants.

Acute Risks

Acute risks are considered with respect to construction workers / engineers on site.

NB: During any intrusive ground works appropriate health and safety measures should be adopted to protect site workers from any potential risks associated with contamination in the ground. This should include the use of any personal protective equipment necessary and a general awareness of any possible risks to safety and human health on site.

3.4.2 Controlled Waters

Groundwater

Groundwater is not considered a highly sensitive receptor for the site.

Surface Water

Surface waters are considered a sensitive receptor for the site.

3.4.3 Non-Human Receptors

Ecological Systems

No designated ecological receptors have been identified either on site or within a 1km radius.

Property (buildings / structures / crops / livestock)

Property receptors include the new residential development to the west of the site and the 10 residential dwellings proposed for the site.

3.5 Outline Conceptual Site Model

Based on all the information determined from previous sections of this report, the outline Conceptual Site Model (CSM) identifies the potential pollutant linkages which may exist on the site and is presented as Table 9 (below).

Table 9: Outline Conceptual Site Model

Potential Pollutant (Source)	Potential Linkage (Pathway)	Receptor
On-Site: Agricultural land use. Buildings of unspecified use (southern plot). Demolition of buildings. Radon gas. Possible old shallow mine workings ***Off-Site***: Agricultural land use, including plantation. Buildings of unspecified use. Building demolition. Farms. Marshy ground. Electricity substation. Radon gas. Probable old shallow mine workings.	Migration and inhalation of gases / vapours. Inhalation of soil, water or dust. Dermal contact with / ingestion of contaminated soil, water, dust. Migration / leaching, runoff and percolation into groundwater. Volatisation of contaminants to indoor or outdoor air; Service Pipes. Ground instability.	Construction workers. Site end users. Neighbouring occupants. Groundwater in the Secondary (A) bedrock aquifer. Property (land and buildings). Surface watercourse. Storm water basin in neighbouring development.

3.6 Preliminary Environmental Risk Assessment

This section aims to expand the outline CSM to assess the level of risk for each potential pollutant linkage.

Risk is a combination of the 'probability' (likelihood) of an event occurring and the magnitude of its 'consequence' (severity). Therefore, in order to assess risk, both the probability and the consequence of an event must be taken into account. SEL has adopted guidance provided by CIRIA C552[4], for use in the production of risk assessments for contaminated land and a simple guide to this process is provided in Appendix G.

The risk categories that are ultimately determined as the basis for assessing the likelihood of the site being described as contaminated, are provided with their respective definitions in the following Table.

Table 10: Risk Classification Definitions from CIRIA C552

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

[4] CIRIA C552 ***Contaminated land risk assessment. A guide to good practice***, CIRIA 2001

The pollutant linkages from the outline CSM and resulting risks are now considered in Table 10 below.

Table 11: Preliminary Environmental Risk Assessment

Receptor	Potential Pollutant Linkage	Estimated Degree of Risk to Receptor
Construction Workers	Migration and inhalation of ground gas/vapours	Low*
	Inhalation of soil, water or dust.	Low*
	Dermal contact with/ ingestion of contaminated soil/water/dust.	Low*
Site End Users	Migration and inhalation of ground gas/vapours	Low/Moderate
	Dermal contact with/ingestion of contaminated soil/water/dust.	Low/Moderate
Neighbouring Occupants	Migration and Inhalation of soil, water or dust.	Low**
	Migration / leaching / runoff.	Low**
Surface Water	Migration / leaching / runoff.	Low**
Groundwater	Migration / leaching / runoff.	Low**
Property (Land & Buildings)	Migration / leaching / runoff.	Low**
	Ground instability.	Low/Moderate
Ecological Systems	Migration / leaching / runoff.	Low

* Assumes basic PPE is used, including the use of personal gas alarms for working in deep excavations and confined spaces.
**Assumes good site construction practice, including control of runoff, dust & spillages

In this preliminary qualitative risk assessment, a **Low to Moderate** risk has been attributed for the site.

4.0 CONCLUSIONS AND RECOMMENDATIONS

This report has reviewed the available data for the study area in the context of the proposed future residential use of the site. The Phase 1 Preliminary Environmental Risk Assessment has derived the overall level of risk to human health and the wider environment at the site from on and off-site sources to be **Low to Moderate**.

The risk mainly relates to construction workers and site end users from potential contamination associated with former buildings of unspecified use during the early history of the southern plot (likely to be farm related) and the potential for mine gas from 'probable' shallow mine workings to the immediate east of the site.

There is also an anticipated small but identifiable risk of instability to the proposed development from the probable shallow mine workings (<30m) from the area to the immediate east, which forms part of a '***Development High Risk Area'***, in terms of coal mining legacy and the level of risk will depend on the precise location of these workings.

It is therefore recommended that a Phase 2 intrusive site investigation is undertaken to assess the on-site contamination status with respect to its past land uses.

The objectives of the Phase 2 investigation would be to:

- Clarify the outline Conceptual Site Model.
- Clarify the Preliminary Environmental Risk Assessment.
- Benchmark the contamination status of the site and potential for ground gas.
- Clarify the situation regarding coal seam outcrop and old shallow workings within the site.
- Provide data to inform the design of any foundations or ground improvements that may be required.

It is recommended that the following Phase 2 site investigation be undertaken:

- One day of window sampling (up to 6 locations) to provide ground bearing information for the proposed redevelopment.
- The installation of gas monitoring standpipes in 4 of the window sampling locations and follow-on monitoring of gas concentrations involving six visits over a period of three months (the minimum period usually required by Local Authorities).
- Representative soil samples will be recovered from window sampling locations, which will be sent for appropriate contamination analysis. Samples would normally be tested for a range of parameters including metals / metalloids, speciated polycyclic aromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPHs), monohydric phenol, cyanide, soil organic matter, soluble sulphate, sulphide, pH and for the presence of asbestos. Any groundwater encountered should be sampled and tested for a similar range of contaminants.
- Where possible all window sampling holes and dynamic probes should pass through any made ground into underlying natural soils and extend below any obvious soil contamination.

- For the avoidance of doubt, it is also recommended that 3 rotary boreholes be drilled to confirm the coal seam/old workings, recorded as being probable adjacent to and east of the site, are not present within the review area. Boreholes should be drilled to a target depth of 30m, but would terminate if either the coal seam or mine workings are encountered at shallower depths. Boreholes should be drilled under a Coal Authority licence. The requirement for an air or water flush drilling medium will be determined by the Coal Authority having reviewed the proximity of potential receptors to the site. The Authority normally require water flush drilling where residences occur within 50m.
- If the coal seam or old workings are encountered in any of the rotary holes, it would be prudent to install gas monitoring apparatus in accordance with CIRIA guidance C665. It is accepted practice to monitor gas levels for six visits over a period of three months as a minimum, in order to assess mine gas risk for the site upon completion of the monitoring.

Other Considerations:

Prior to intrusive site investigations, records of services should be obtained to accurately locate existing services on site. Services should be protected in order to prevent damage by drilling or use of excavation equipment. This is most important where undefined services are known for a site.

Should the use of plastic pipes and/or services be envisaged as part of the redevelopment works, SEL's advice is that soil sampling requirements can vary between different service providers. For this reason prior to fully commissioning any ground investigation, it is recommended that the client agree any additional sampling requirements that may be required with each service provider.

APPENDIX A

Figures:

Figure 1 Location Plan.

Figure 2 Coal Authority Search; Development High Risk Areas.

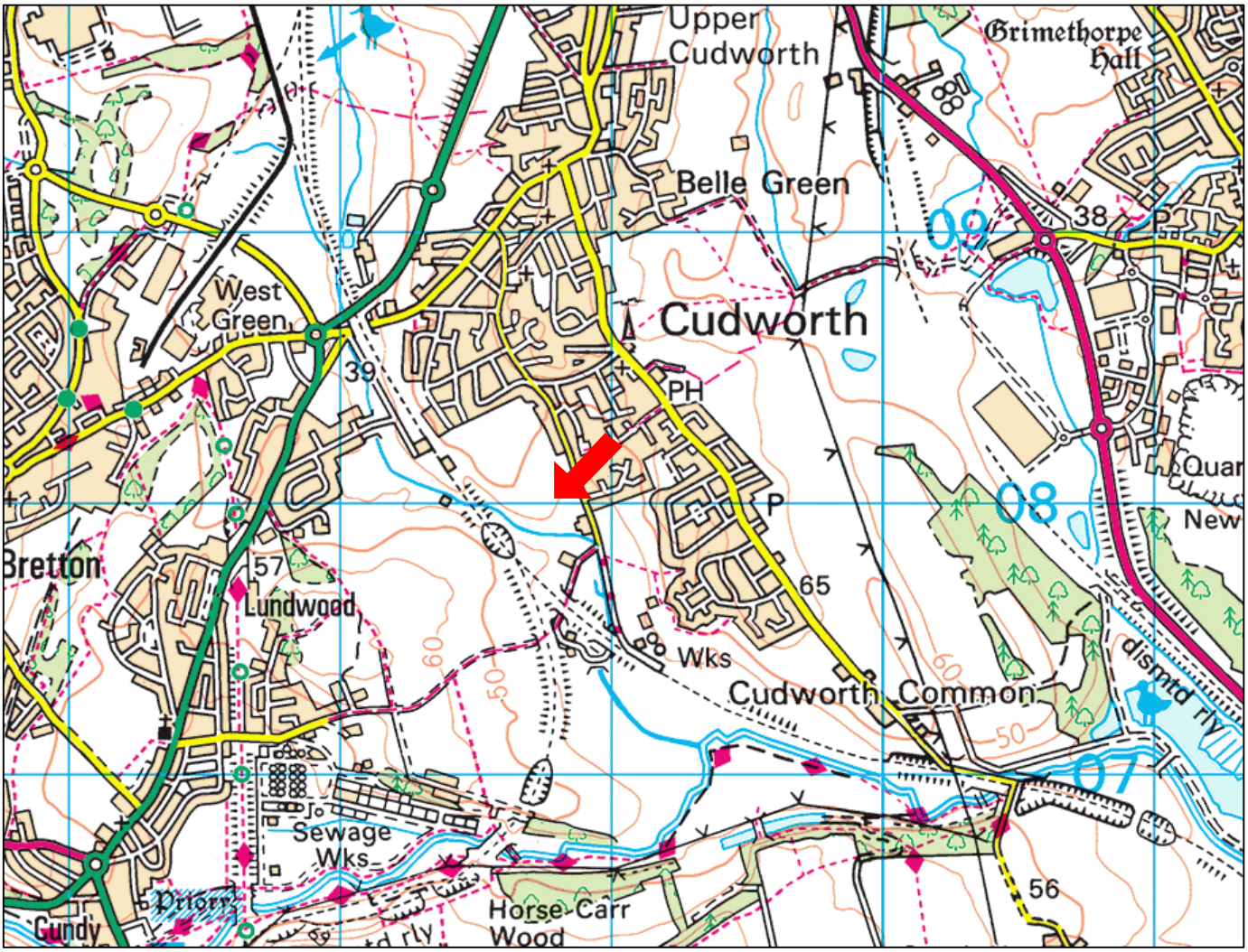
Figure 3 Coal Authority Search; Mine Entries (Shafts & Adits)

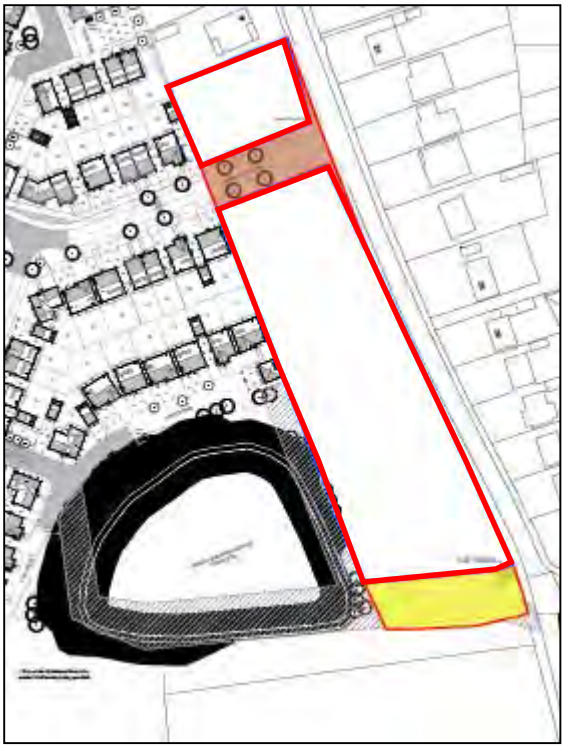
Figure 4 Coal Authority Search; Recorded Shallow Underground Mine Workings and Probable Shallow Unrecorded Underground Mine Workings.

Figure 5 Coal Authority Search; Past Surface (Opencast) Mining.

Figure 6 BGS Search; geological Plans Sheet 87 (Barnsley)

Figure 7 Potentially Contaminative Activities





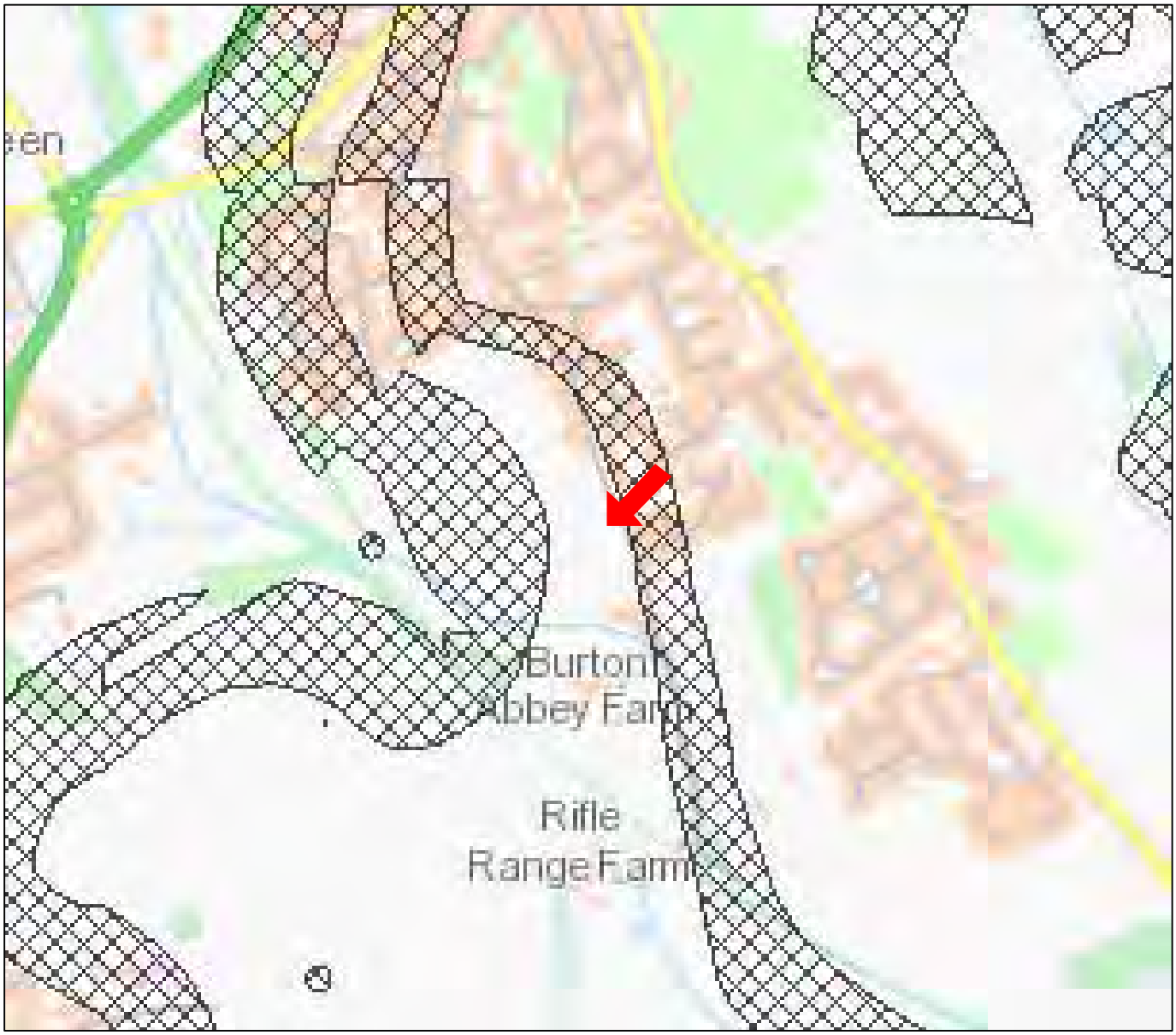
Site Location

Ref No. 19052

**Carrs Lane, Cudworth,
Barnsley, South Yorkshire,
S72 8JG**

FIGURE 1:

SITE LOCATION



Site Location

Development High Risk Area

The Coal Authority defines a Development High Risk Area as the part of a coal mining reporting area that has one or more recorded coal mining features which have the potential for instability, or a degree of risk, to the surface from the legacy of coal mining operations.

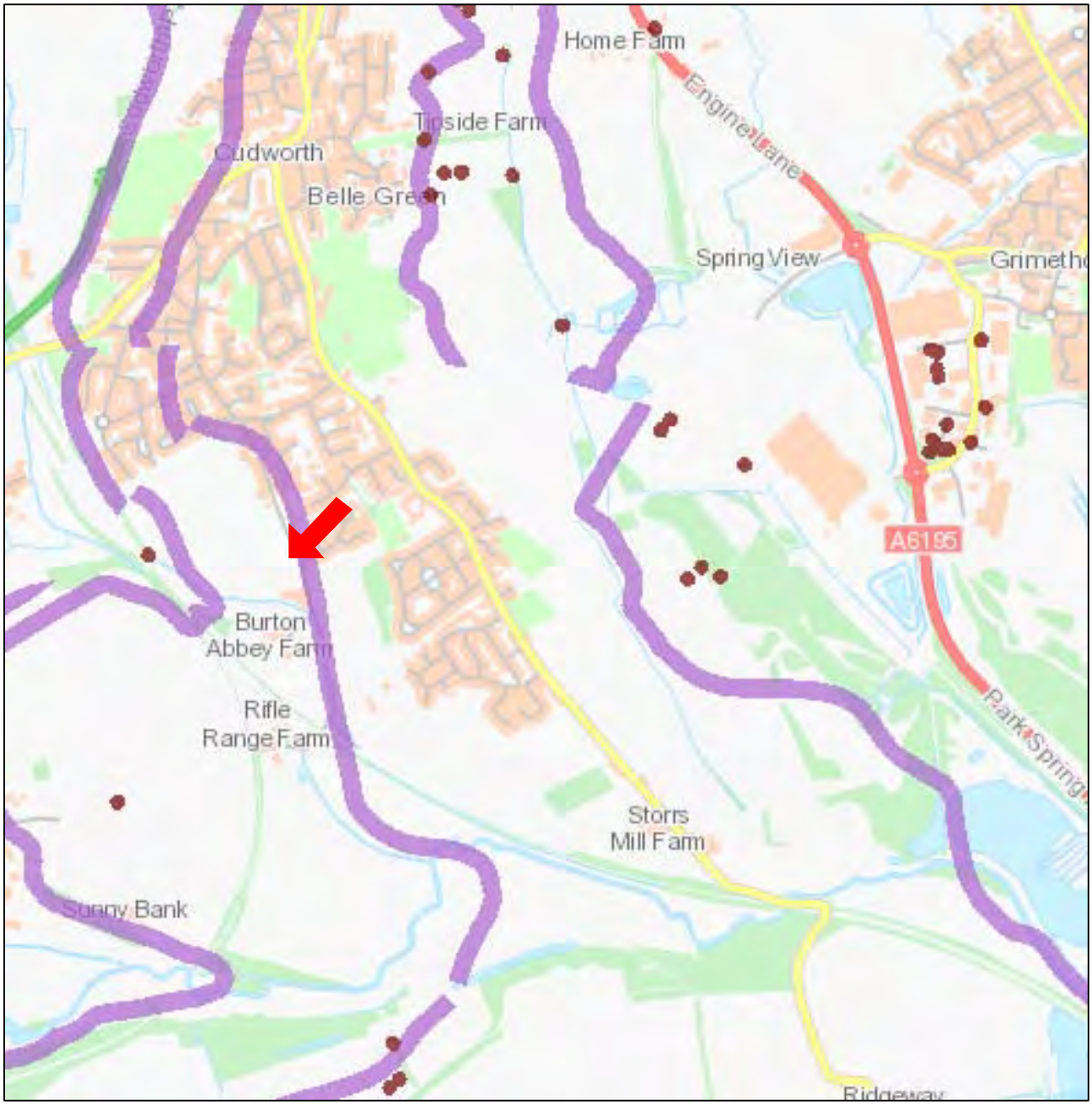
Ref No. 19052

Carrs Lane, Cudworth, Barnsley, South Yorkshire, S72 8JG

FIGURE 2:

COAL AUTHORITY SEARCH

DEVELOPMENT HIGH RISK AREAS



Site Location

Recorded Mine Entry (Shaft/Adit)

Outcrop of Coal Seam

Ref No. 19052

Carrs Lane, Cudworth, Barnsley, South Yorkshire, S72 8JG.

FIGURE 3:

COAL AUTHORITY SEARCH

RECORDED MINE ENTRIES (SHAFTS & ADITS)

Probable shallow coal mine workings show the extent of probable shallow coal mine workings for which no records exist, but where it is likely that workable coal at shallow depths has been mined before records were kept.

Site Location

Recorded Past Shallow Underground Coal Mining Activity

Probable Shallow Underground Coal Mining Activity

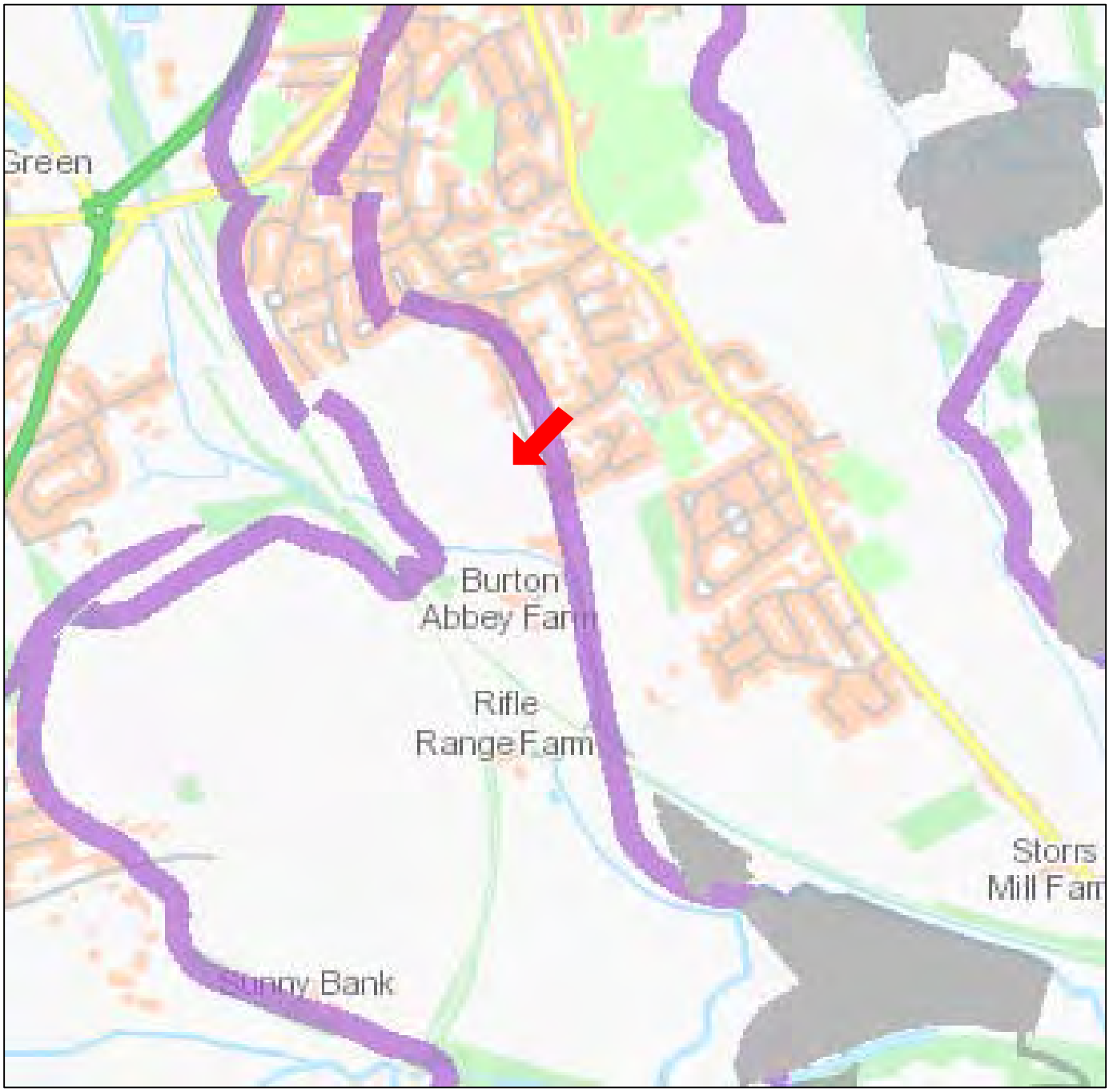
Ref No. 19052

Carrs Lane, Cudworth, Barnsley, South Yorkshire, S72 8JG

FIGURE 4:

COAL AUTHORITY SEARCH

RECORDED SHALLOW U/G MINE WORKINGS & PROBABLE SHALLOW UNRECORDED U/G MINE WORKINGS



Site Location

Past Surface (Opencast) Mining

Outcrop of Coal Seam

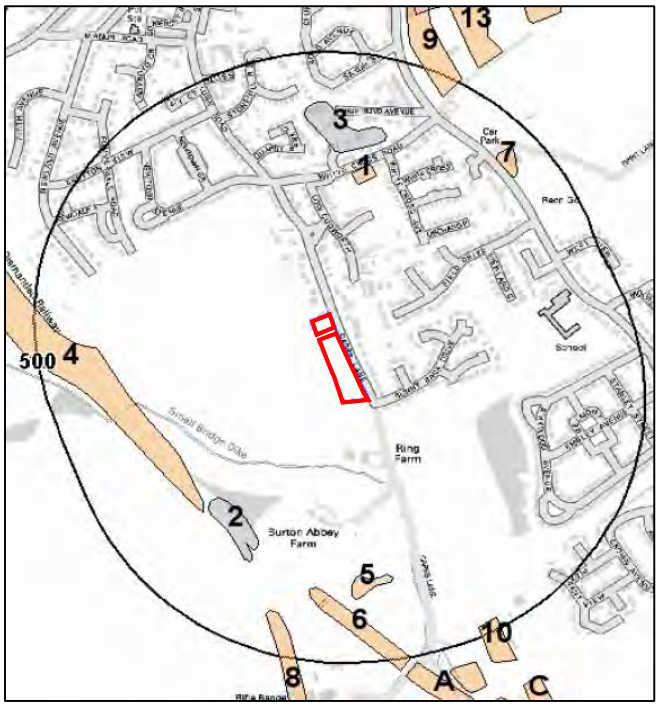
Ref No. 19052

Carrs Lane, Cudworth,
Barnsley, South Yorkshire,
S72 8JG.

FIGURE 5:

COAL AUTHORITY SEARCH

PAST SURFACE (OPENCAST) MINING

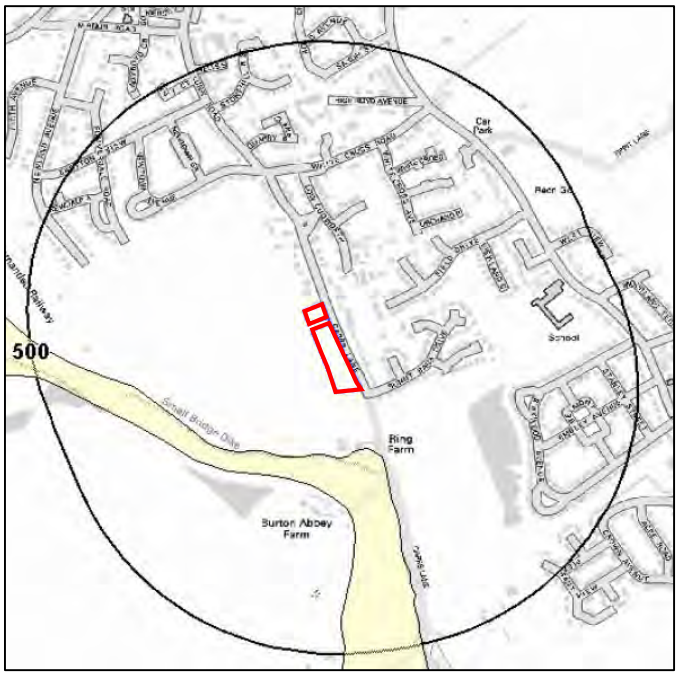


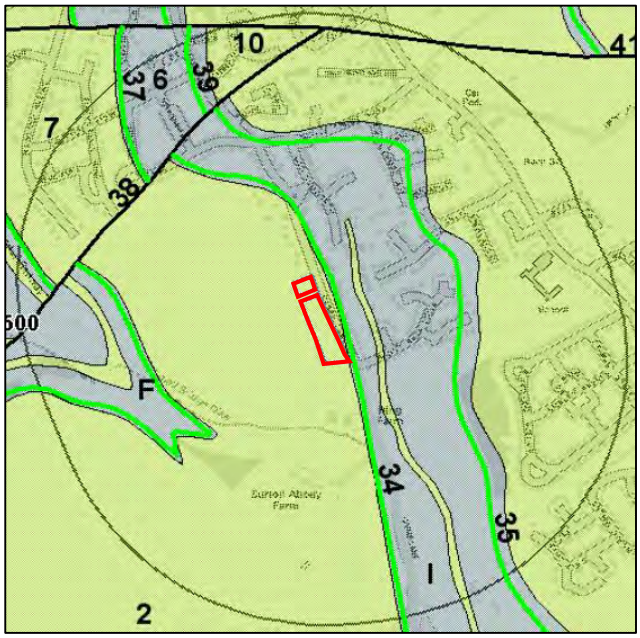
Artificial Ground Map (Left)

Made Ground (undivided)	Disturbed Ground (undivided)
Worked Ground (undivided)	Landscaped Ground (undivided)
Infilled Ground	Reclaimed Ground

Superficial Deposits (Right)

No superficial deposits on site.





Site Location

Bedrock/Solid Geology (Above)

Thick Sandstone.

Siltstones, Mudstones & Thin Sandstones.

Outcrop of Coal Seam.

Ref No. 19052

Carrs Lane, Cudworth,
Barnsley, South Yorkshire,
S72 8JG

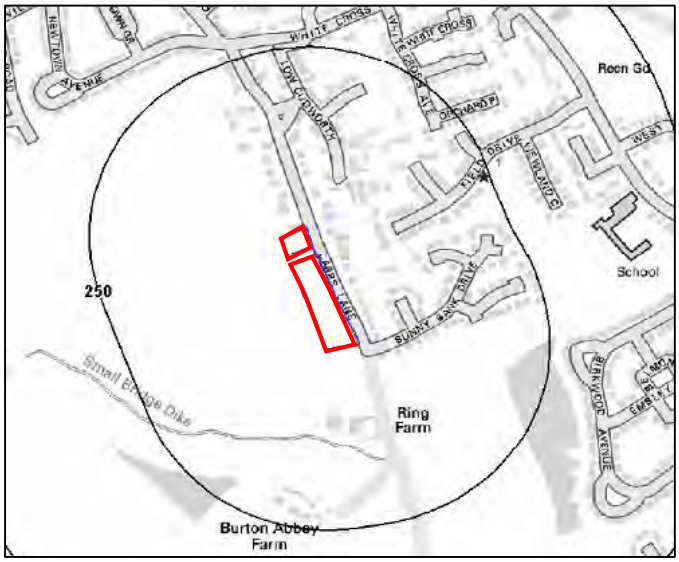
FIGURE 6:

BRITISH GEOLOGICAL SURVEY SEARCH

GEOLOGICAL PLANS – SHEET 87 (BARNSLEY)

BEDROCK & SUPERFICIAL DEPOSITS

1:50,000 SCALE

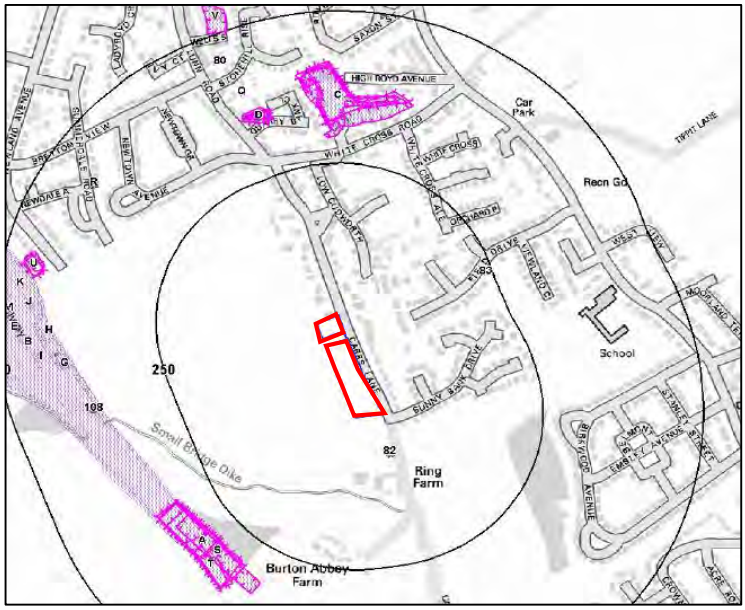


Current Industrial Activities (Left)

- Current Industrial Sites
- Petrol & Fuel Sites
- Electricity Transmission Cables
- Gas Transmission Pipelines

Historic Land Use (Right)

- Industrial Land Use
- Potentially Infilled Land
- Energy Features
- Tanks
- Petrol Stations
- Garages
- Historical military sites



Environmental Permits, Incidents & Registers (Left)

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

Ref No. 19052

Carrs Lane, Cudworth, Barnsley, South Yorkshire, S72 8JG

Site Location

FIGURE 7:

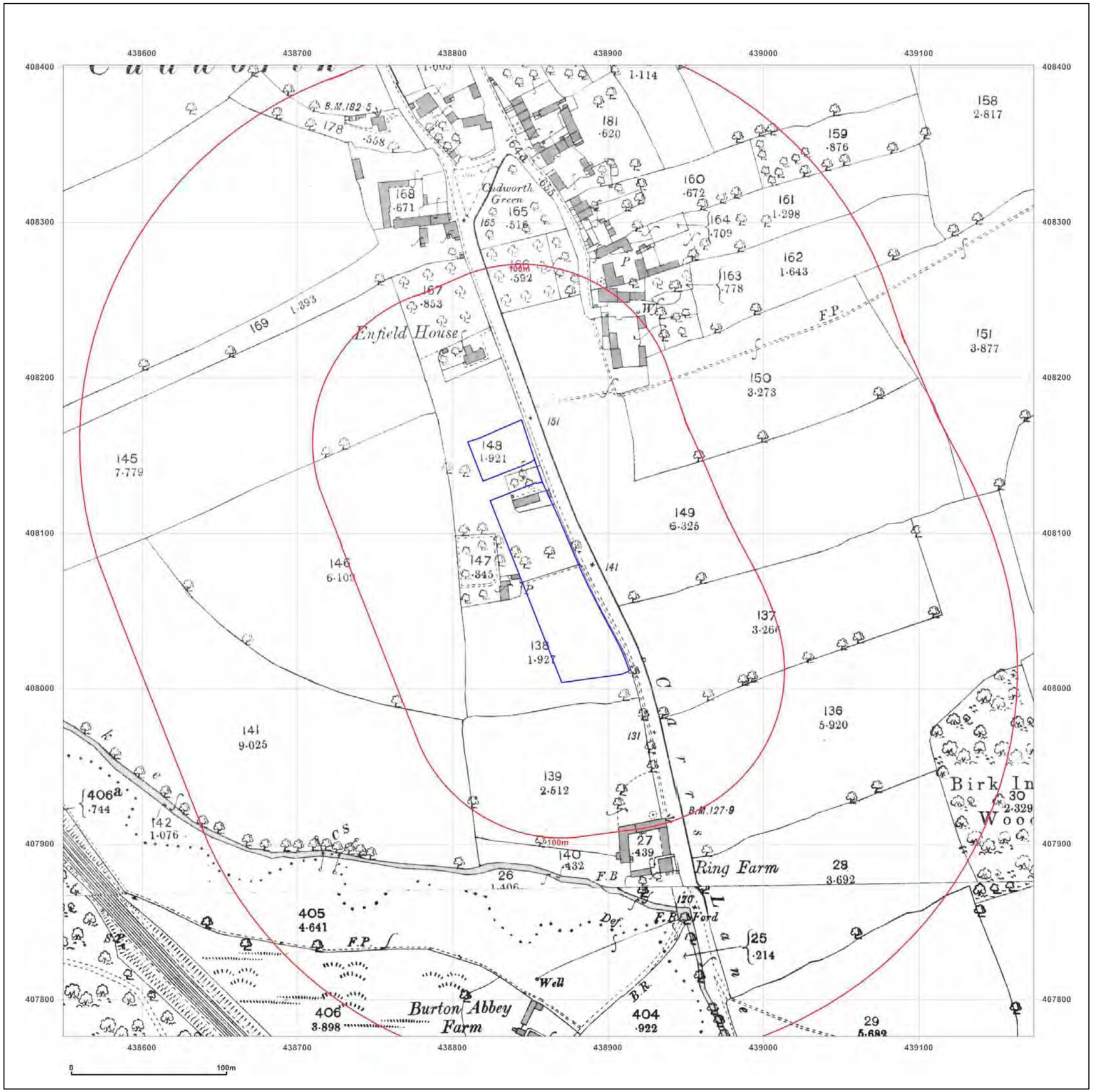
POTENTIALLY CONTAMINATIVE ACTIVITIES

APPENDIX B

Historical Maps

Large Scale Ordnance Survey Maps (1:1250 & 1:2500 scale).

Small Scale Ordnance Survey Maps (1:10,560 & 1:10,000 scales).



Groundsure INSIGHTS

Site Details:

Land at Carrs Lane, Cudworth, Barnsley, S72 8JG

Client Ref: 19052
Report Ref: GS-5884029
Grid Ref: 438861, 408089

Map Name: County Series

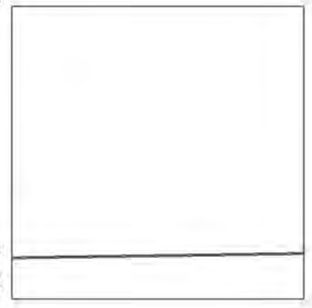
Map date: **1893**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

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



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

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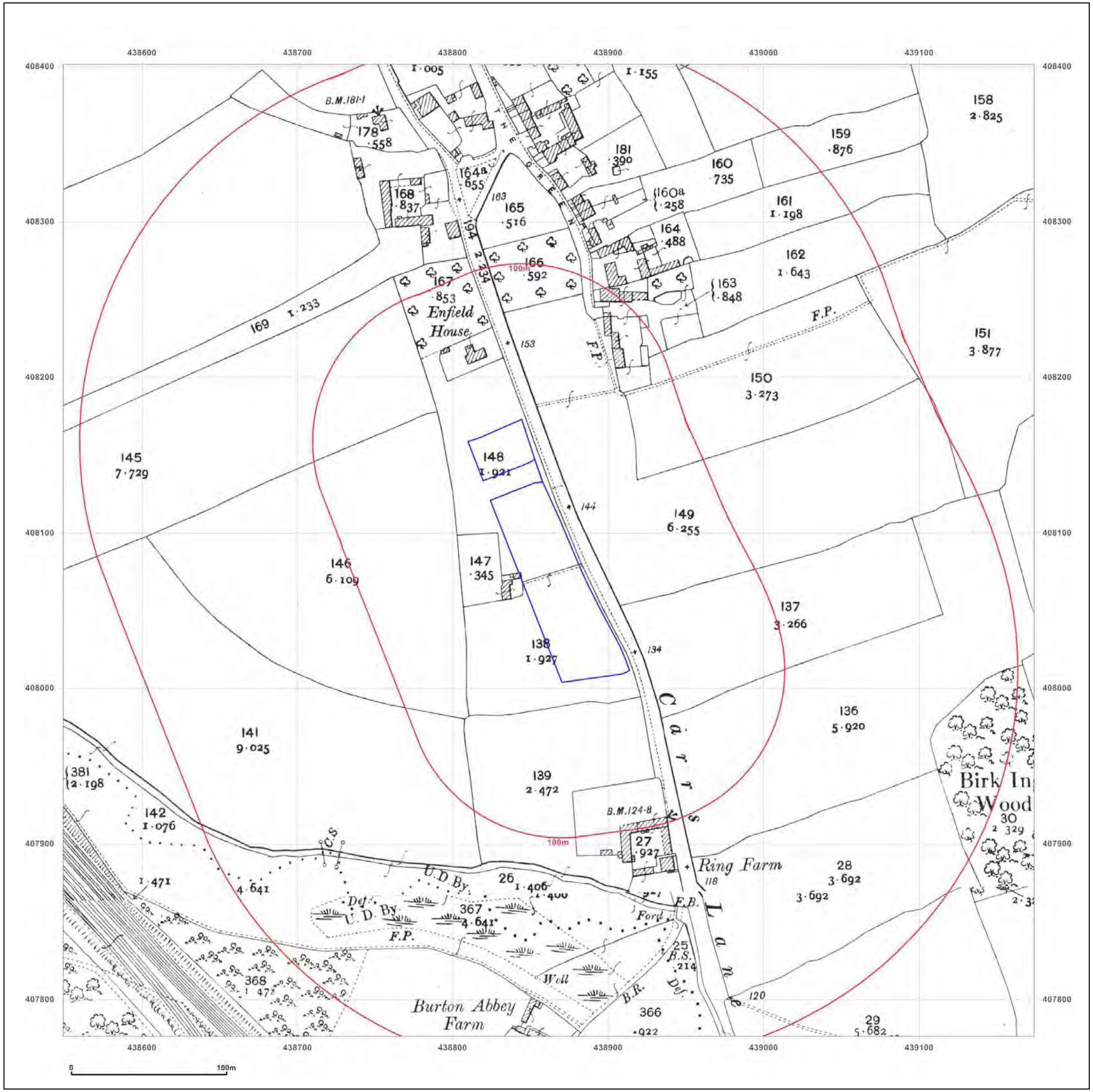
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

Production date: 18 March 2019

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



Groundsure INSIGHTS

Site Details:

Land at Carrs Lane, Cudworth,
Barnsley, S72 8JG

Client Ref: 19052
Report Ref: GS-5884029
Grid Ref: 438861, 408089

Map Name: County Series

Map date: **1906**

Scale: 1:2,500

Printed at: 1:2,500

N
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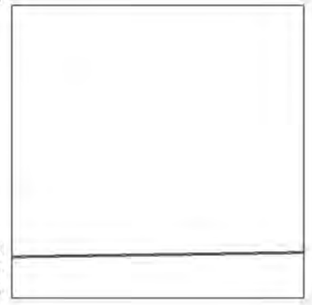
Surveyed 1890
Revised 1904
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1890
Revised 1904
Edition N/A
Copyright N/A
Levelled N/A

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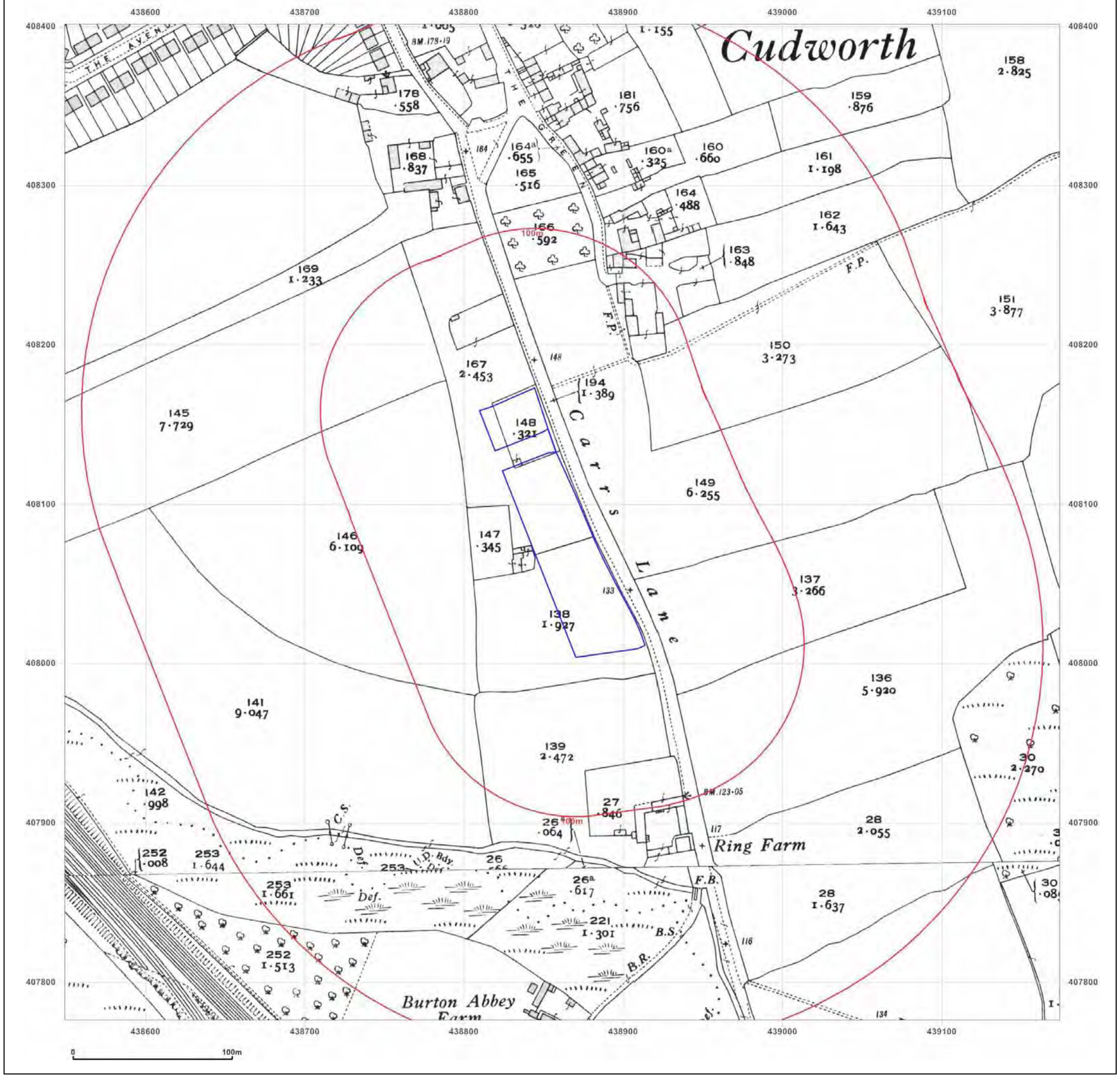
Production date: 18 March 2019

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



Groundsure INSIGHTS

Site Details:

Land at Carrs Lane, Cudworth,
Barnsley, S72 8JG

Client Ref: 19052
Report Ref: GS-5884029
Grid Ref: 438861, 408089

Map Name: County Series

Map date: **1931**

Scale: 1:2,500

Printed at: 1:2,500

N
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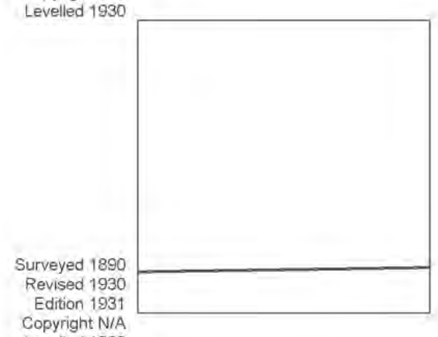
Surveyed 1890
Revised 1930
Edition 1931
Copyright N/A
Levelled 1930



Surveyed 1890
Revised 1930
Edition 1931
Copyright N/A
Levelled 1930

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Groundsure INSIGHTS

Site Details:

Land at Carrs Lane, Cudworth,
Barnsley, S72 8JG

Client Ref: 19052
Report Ref: GS-5884029
Grid Ref: 438861, 408089

Map Name: National Grid

Map date: **1961**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed 1961
Revised 1961
Edition N/A
Copyright 1962
Levelled 1959

Surveyed N/A
Revised 1961
Edition N/A
Copyright 1962
Levelled 1959

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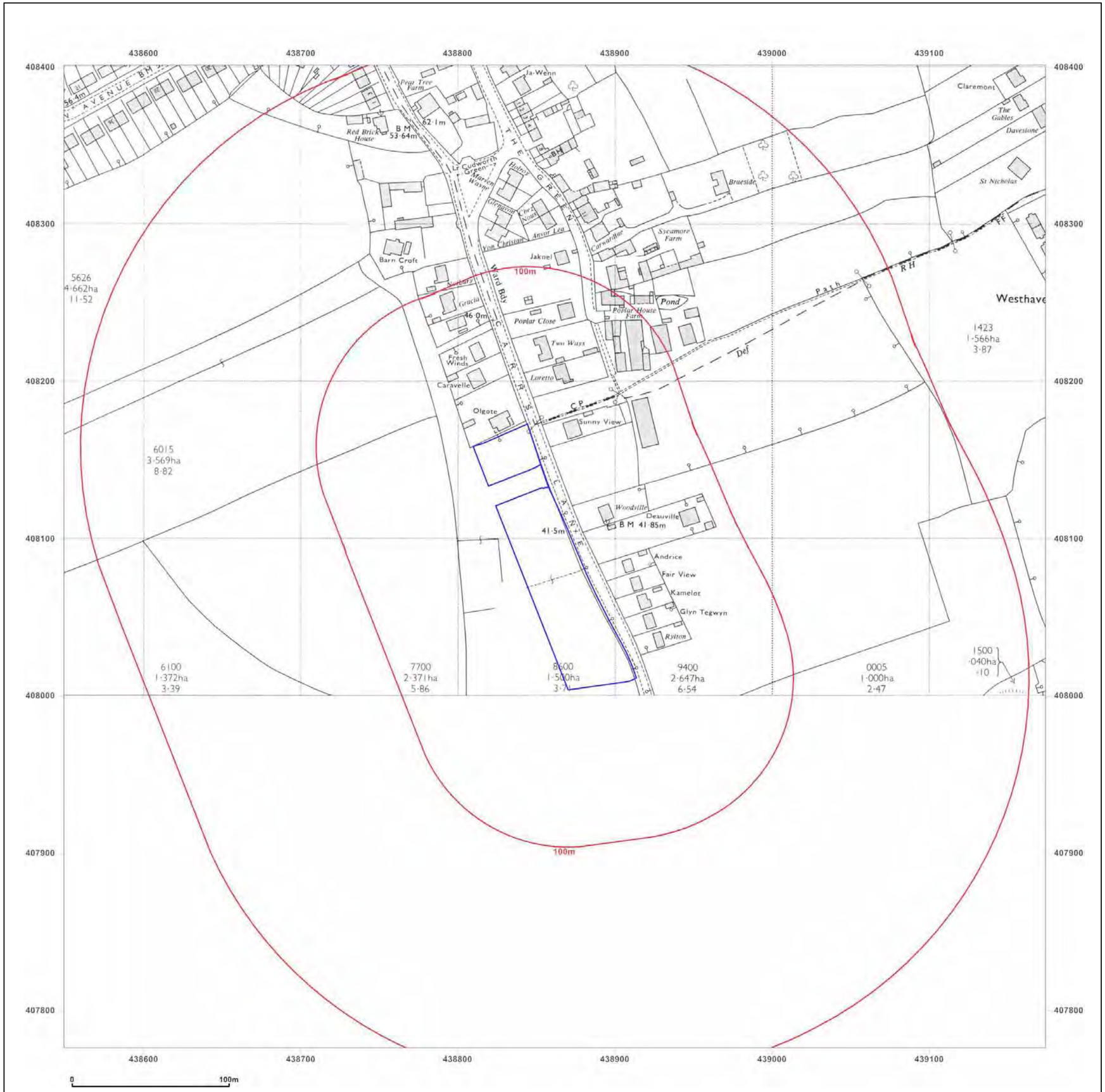

Groundsure INSIGHTS

Site Details:

Land at Carrs Lane, Cudworth,
Barnsley, S72 8JG

Client Ref: 19052
Report Ref: GS-5884029
Grid Ref: 438861, 408089

Map Name: National Grid

Map date: **1969**

Scale: 1:2,500

Printed at: 1:2,500

N
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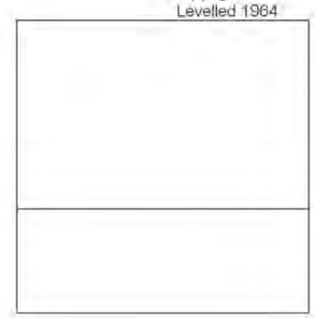
Surveyed 1969
Revised 1969
Edition N/A
Copyright 1970
Levelled 1964



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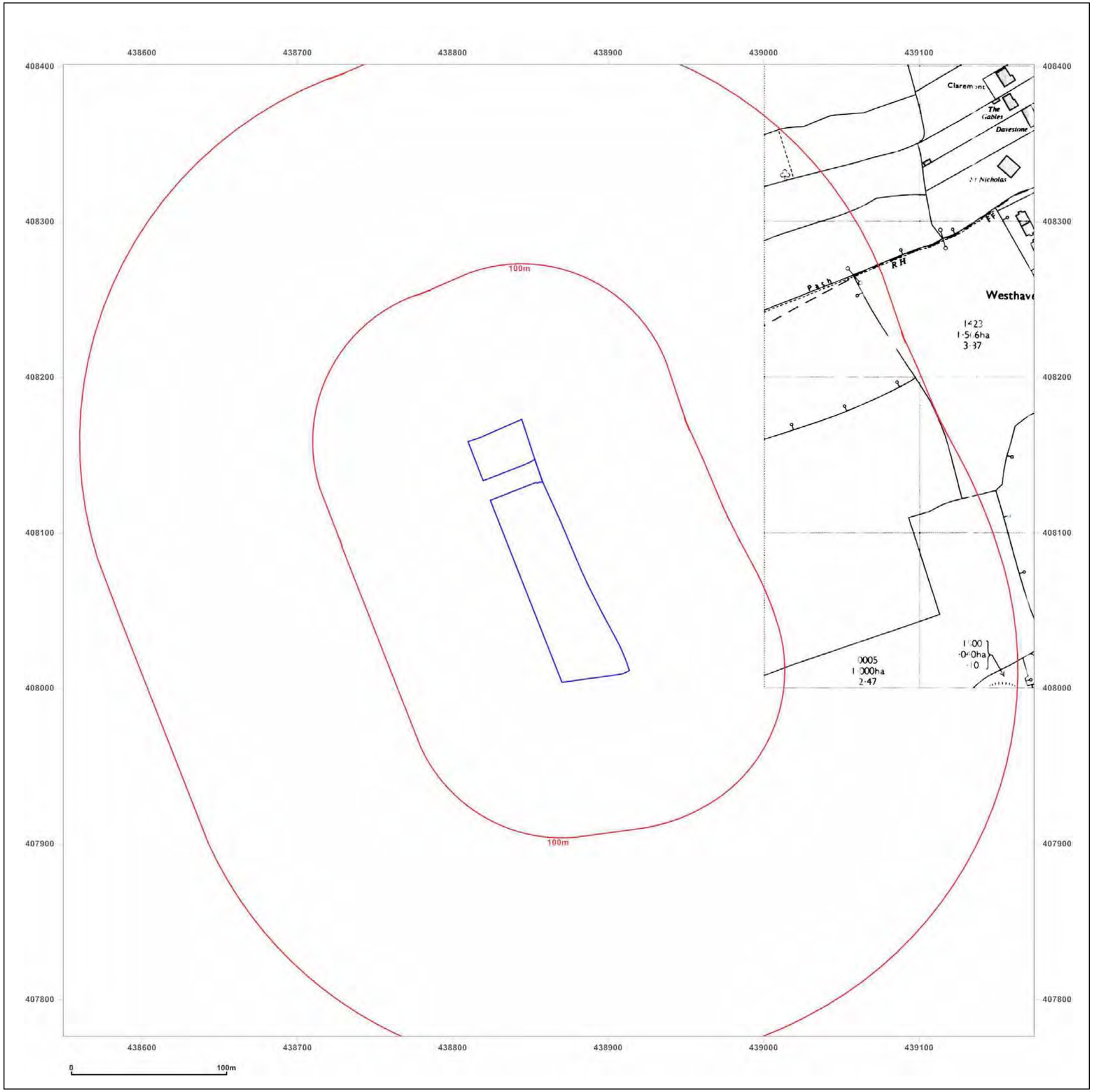

Groundsure INSIGHTS

Site Details:

Land at Carrs Lane, Cudworth,
Barnsley, S72 8JG

Client Ref: 19052
Report Ref: GS-5884029
Grid Ref: 438861, 408089

Map Name: National Grid

Map date: **1970**

Scale: 1:2,500

Printed at: 1:2,500

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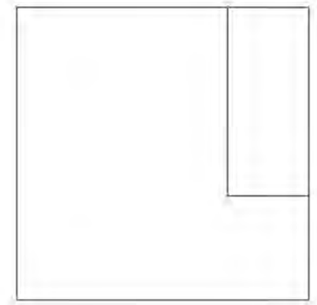
Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



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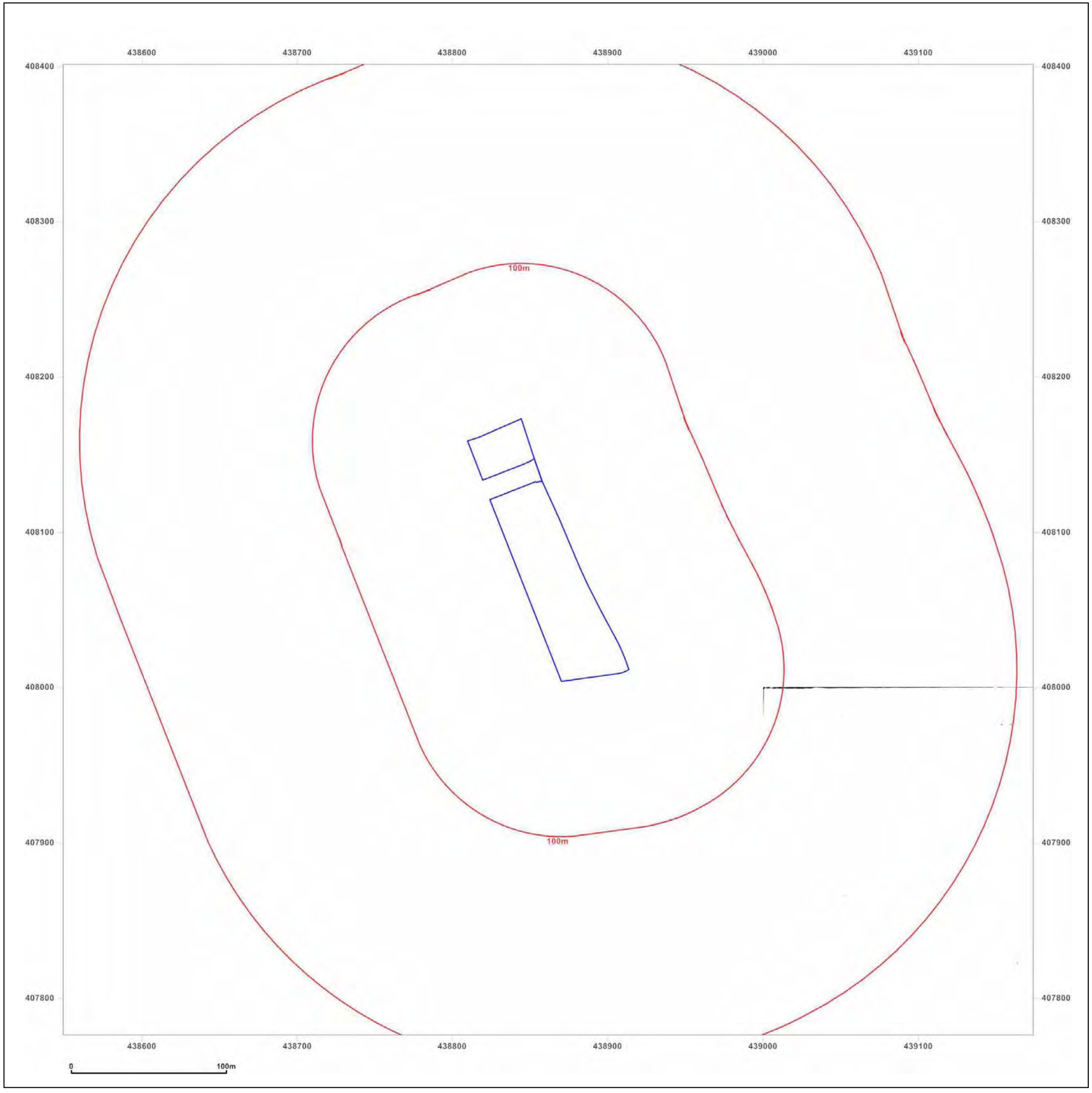

Groundsure INSIGHTS

Site Details:

Land at Carrs Lane, Cudworth,
Barnsley, S72 8JG

Client Ref: 19052
Report Ref: GS-5884029
Grid Ref: 438861, 408089

Map Name: National Grid

Map date: **1976**

Scale: 1:2,500

Printed at: 1:2,500

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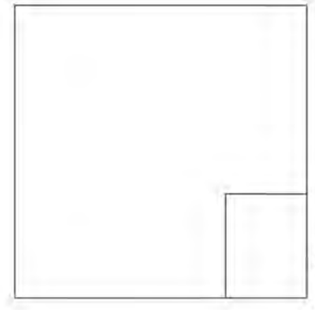

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Groundsure INSIGHTS

Site Details:

Land at Carrs Lane, Cudworth,
Barnsley, S72 8JG

Client Ref: 19052
Report Ref: GS-5884029
Grid Ref: 438861, 408089

Map Name: National Grid

Map date: **1976-1977**

Scale: 1:1,250

Printed at: 1:2,000

N
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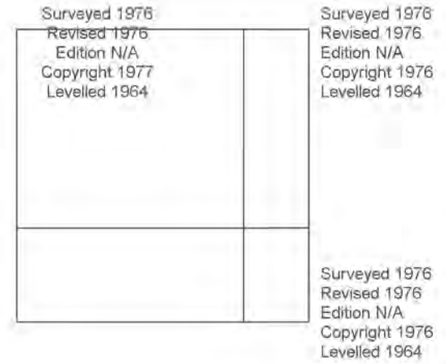

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Site Details:

Land at Carrs Lane, Cudworth,
Barnsley, S72 8JG

Client Ref: 19052
Report Ref: GS-5884029
Grid Ref: 438861, 408089

Map Name: National Grid

Map date: **1983**

Scale: 1:2,500

Printed at: 1:2,500

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Groundsure INSIGHTS

Site Details:

Land at Carrs Lane, Cudworth,
Barnsley, S72 8JG

Client Ref: 19052
Report Ref: GS-5884029
Grid Ref: 438861, 408089

Map Name: National Grid

Map date: **1983**

Scale: 1:2,500

Printed at: 1:2,500

N
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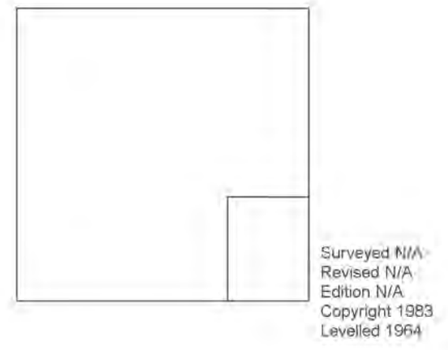

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Production date: 18 March 2019

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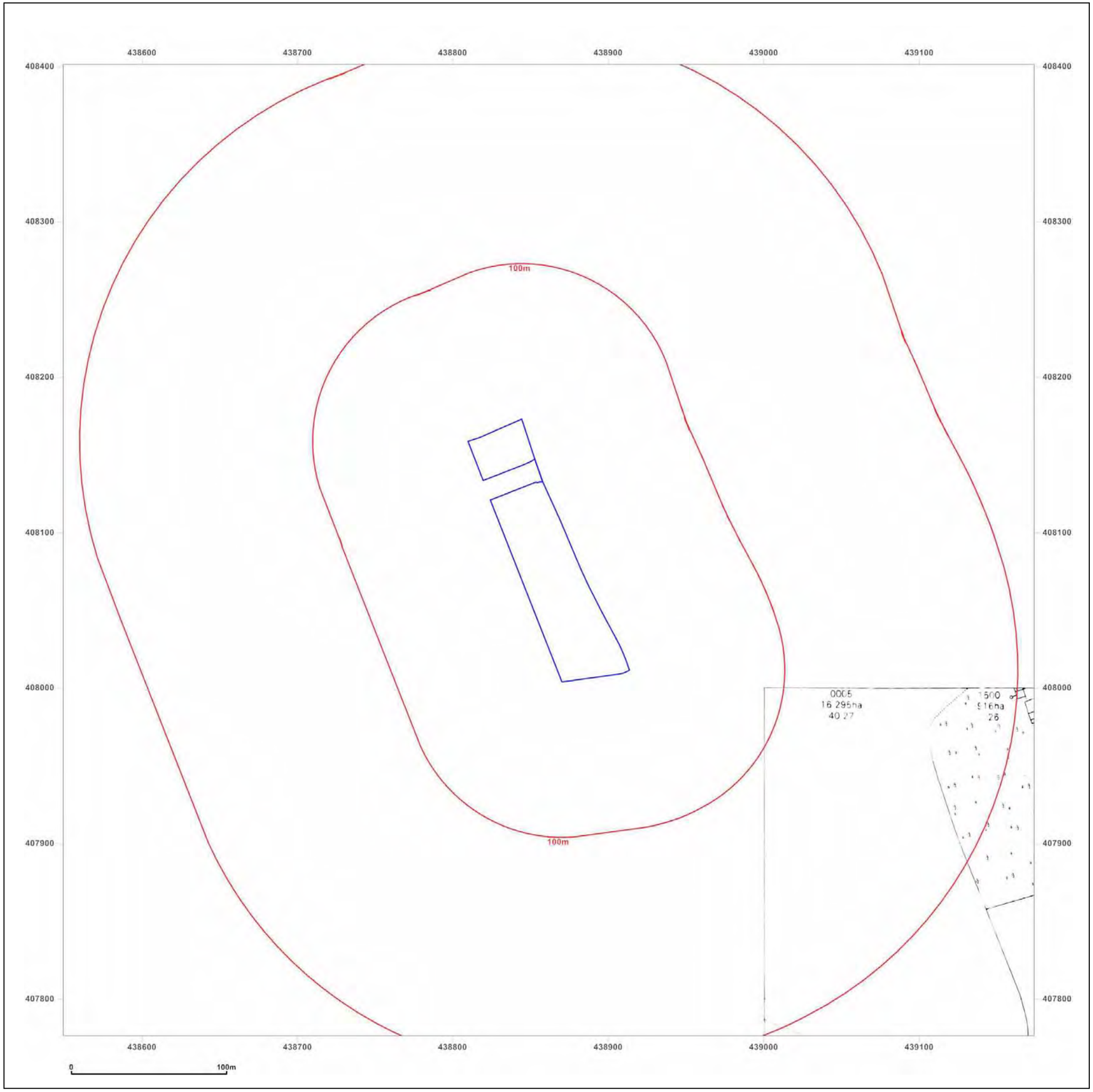

Groundsure INSIGHTS

Site Details:

Land at Carrs Lane, Cudworth,
Barnsley, S72 8JG

Client Ref: 19052
Report Ref: GS-5884029
Grid Ref: 438861, 408089

Map Name: National Grid

Map date: **1984**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
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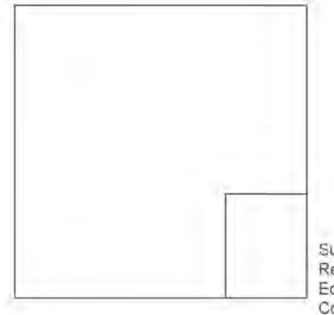

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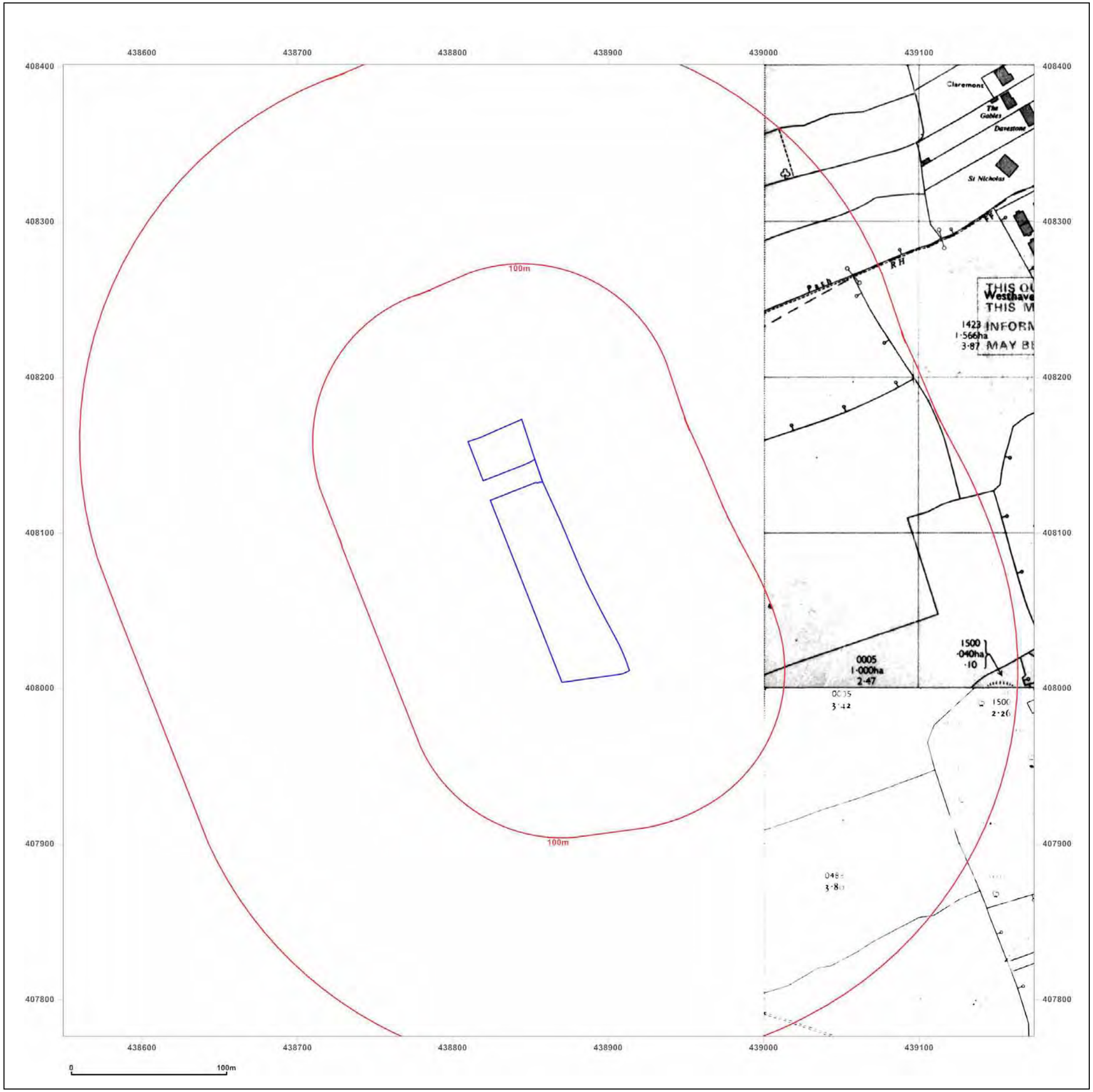

Groundsure INSIGHTS

Site Details:

Land at Carrs Lane, Cudworth,
Barnsley, S72 8JG

Client Ref: 19052
Report Ref: GS-5884029
Grid Ref: 438861, 408089

Map Name: National Grid

Map date: **1983-1988**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
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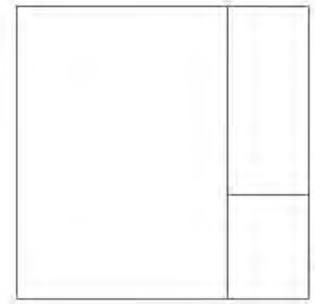
Surveyed 1988
Revised 1988
Edition N/A
Copyright 1988
Levelled N/A



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

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Groundsure INSIGHTS

Site Details:

Land at Carrs Lane, Cudworth,
Barnsley, S72 8JG

Client Ref: 19052
Report Ref: GS-5884029
Grid Ref: 438861, 408089

Map Name: National Grid

Map date: **1990-1993**

Scale: 1:1,250

Printed at: 1:2,000

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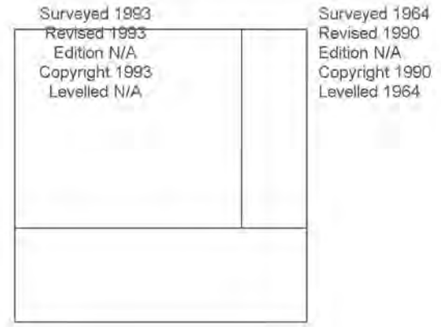

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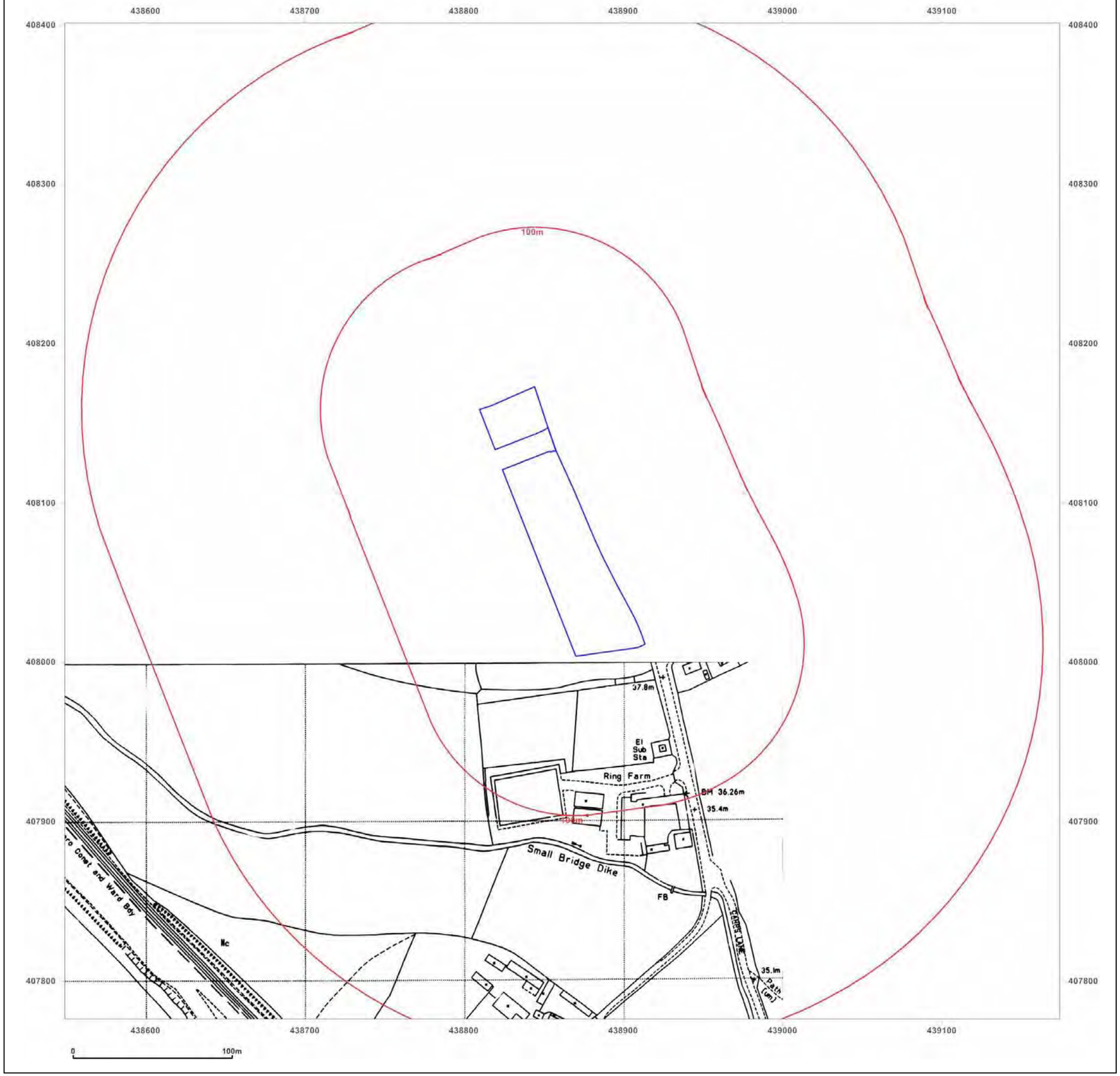

Groundsure INSIGHTS

Site Details:

Land at Carrs Lane, Cudworth,
Barnsley, S72 8JG

Client Ref: 19052
Report Ref: GS-5884029
Grid Ref: 438861, 408089

Map Name: National Grid

Map date: **1993**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
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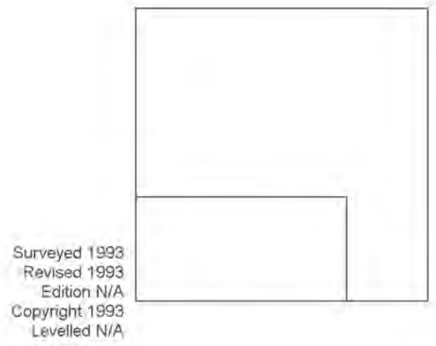

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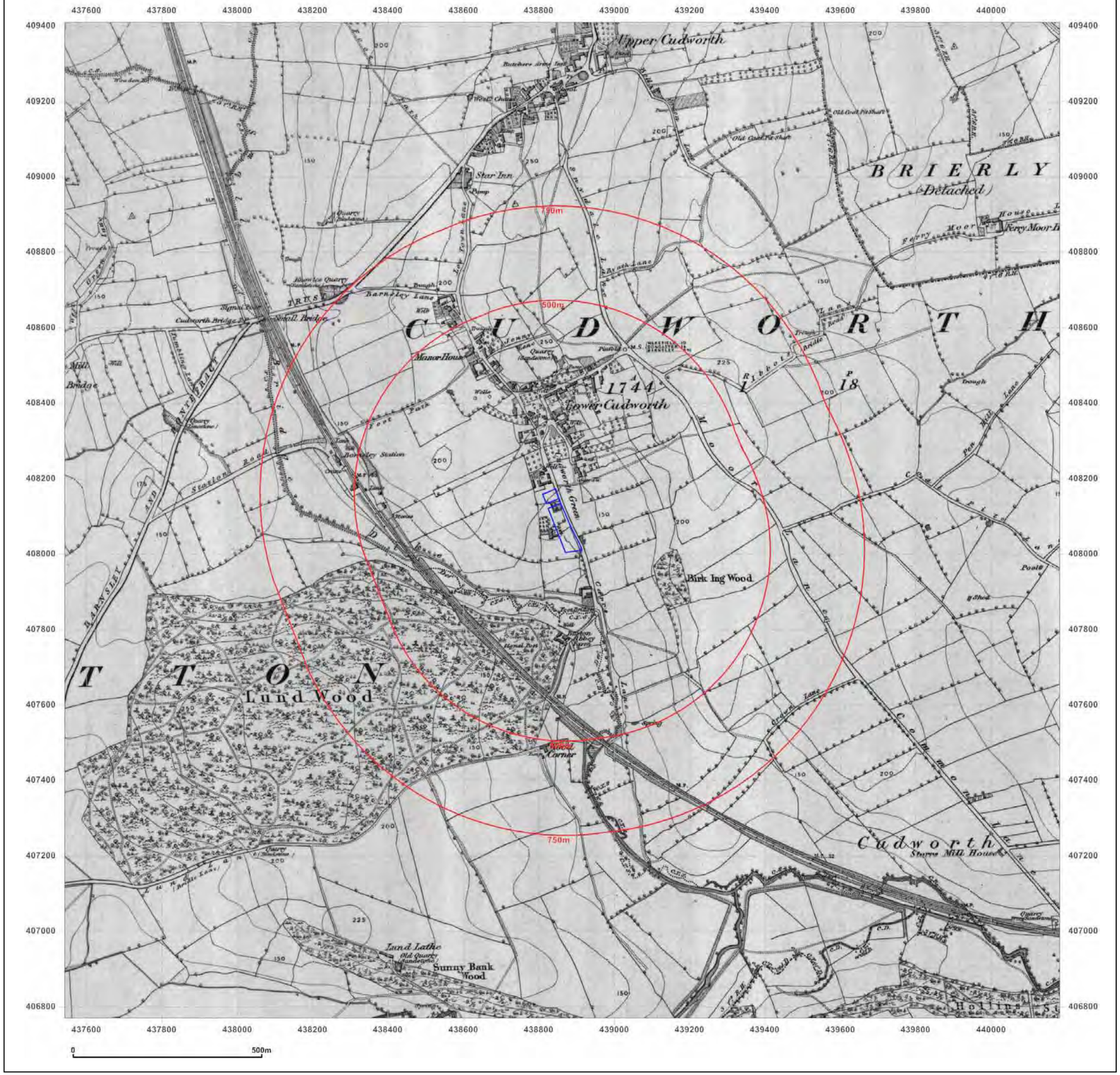

Groundsure INSIGHTS

Site Details:

Land at Carrs Lane, Cudworth,
Barnsley, S72 8JG

Client Ref: 19052
Report Ref: GS-5884029
Grid Ref: 438861, 408089

Map Name: County Series

Map date: **1854**

Scale: 1:10,560

Printed at: 1:10,560

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

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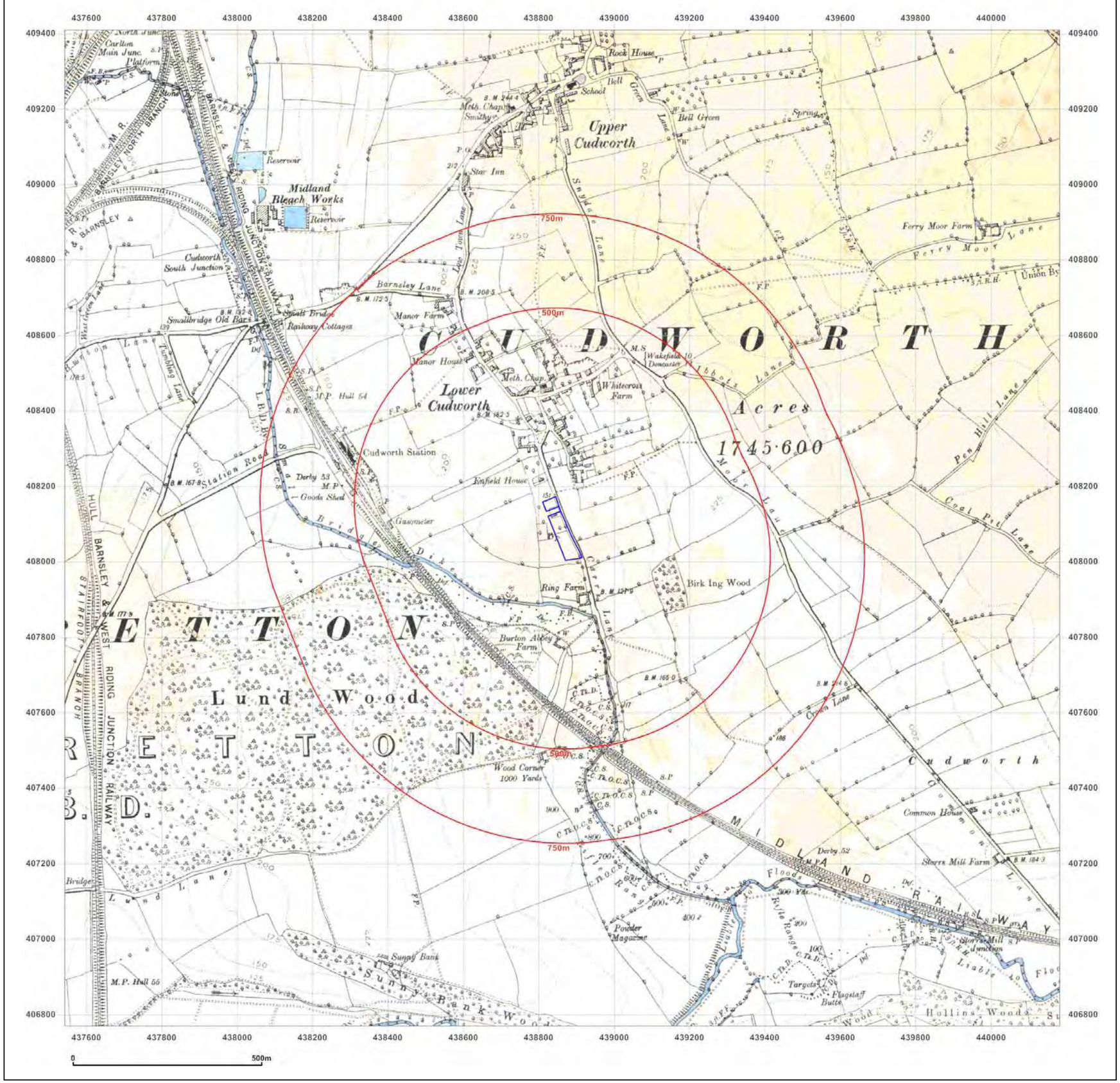

Groundsure INSIGHTS

Site Details:

Land at Carrs Lane, Cudworth, Barnsley, S72 8JG

Client Ref: 19052
Report Ref: GS-5884029
Grid Ref: 438861, 408089

Map Name: County Series

Map date: **1894**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1890
Revised N/A
Edition 1894
Copyright N/A
Levelled N/A

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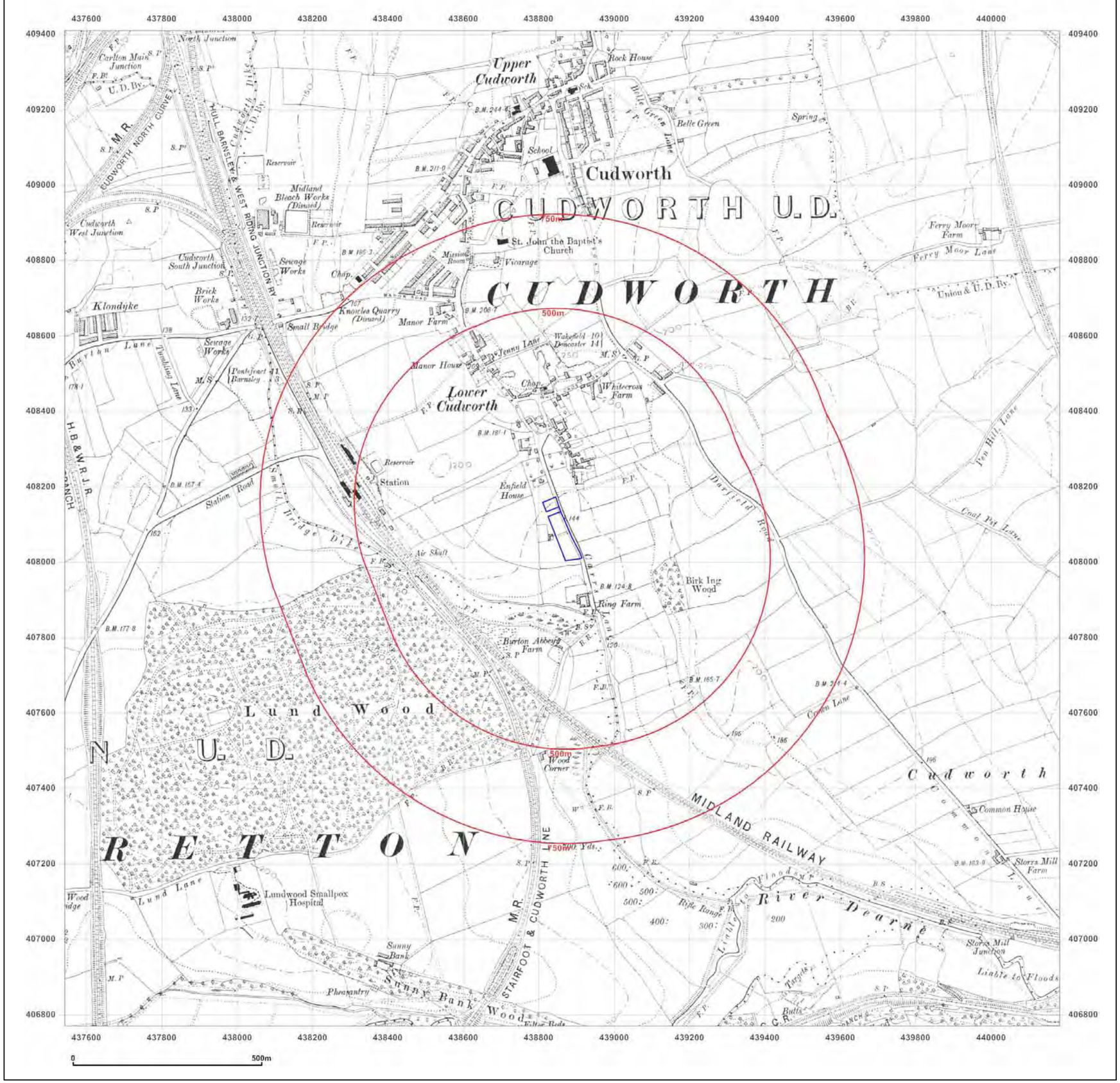

Groundsure INSIGHTS

Site Details:

Land at Carrs Lane, Cudworth,
Barnsley, S72 8JG

Client Ref: 19052
Report Ref: GS-5884029
Grid Ref: 438861, 408089

Map Name: County Series

Map date: **1904**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1890
Revised 1904
Edition 1904
Copyright N/A
Levelled N/A

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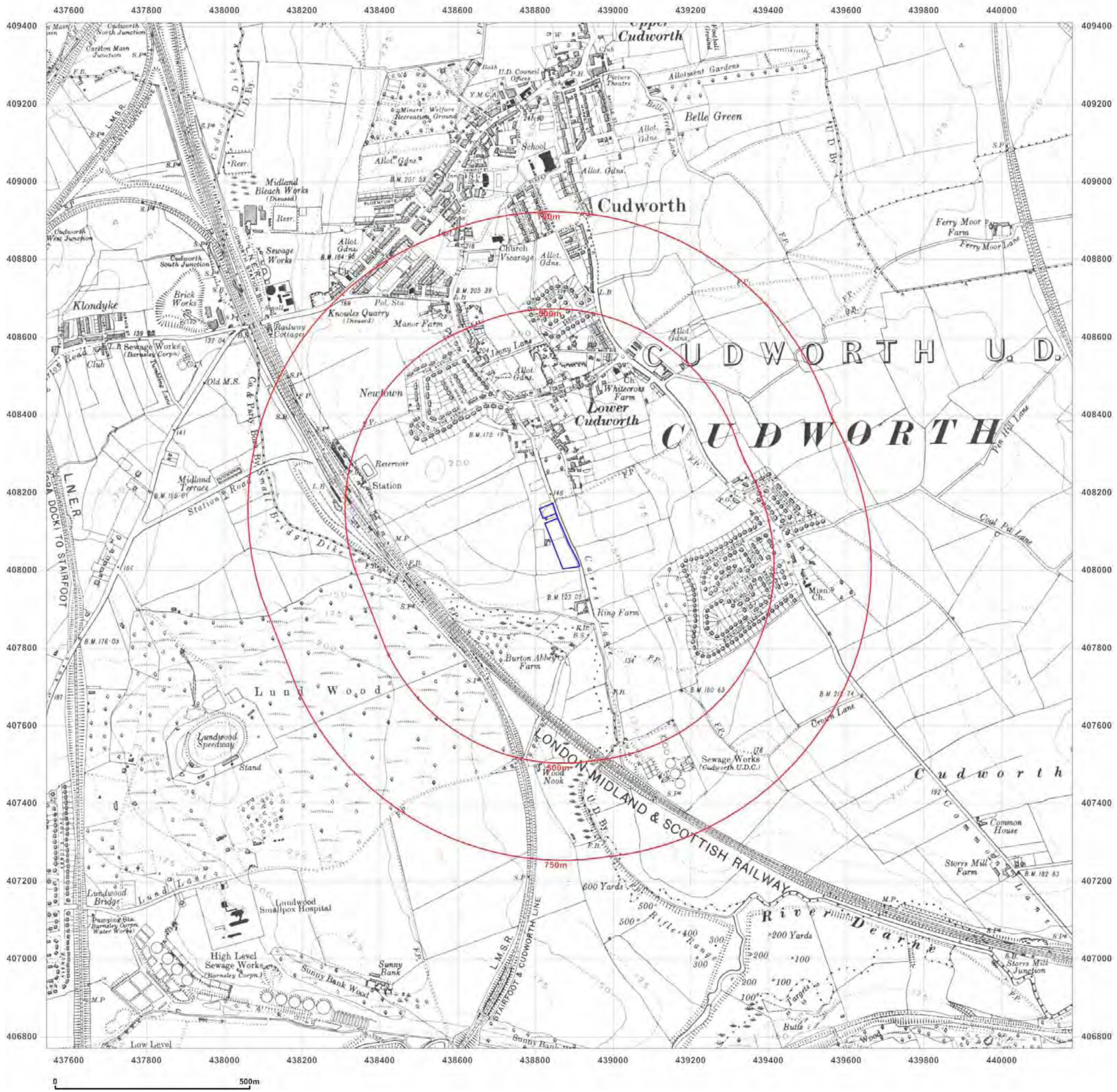

Site Details:

Land at Carrs Lane, Cudworth,
Barnsley, S72 8JG

Client Ref: 19052
Report Ref: GS-5884029
Grid Ref: 438861, 408089

Map Name: County Series

Map date: **1932**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1850
Revised 1930
Edition 1932
Copyright N/A
Levelled N/A

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Production date: 18 March 2019

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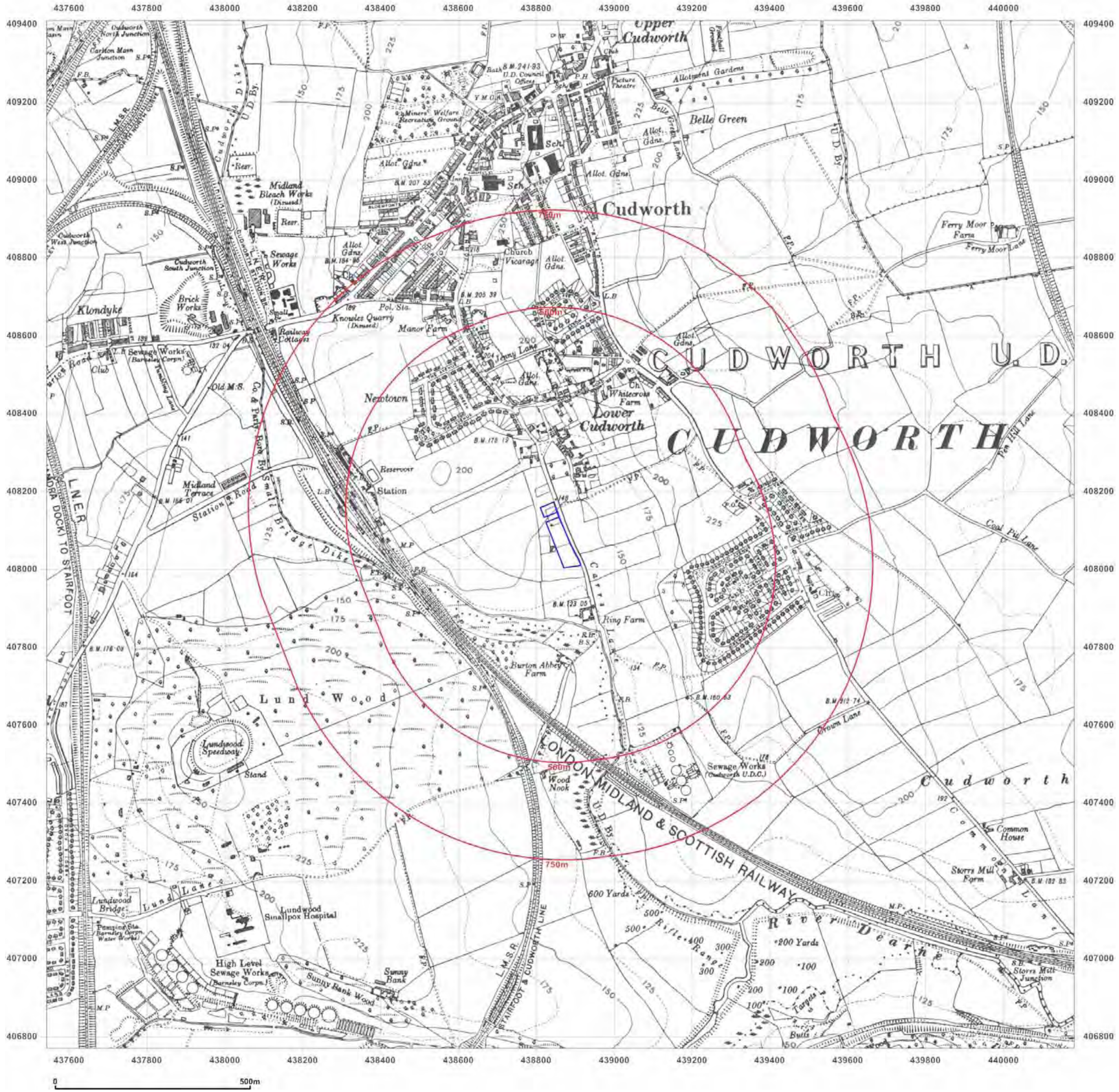

Groundsure INSIGHTS

Site Details:

Land at Carrs Lane, Cudworth, Barnsley, S72 8JG

Client Ref: 19052
Report Ref: GS-5884029
Grid Ref: 438861, 408089

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1850
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A

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Production date: 18 March 2019

Map legend available at:
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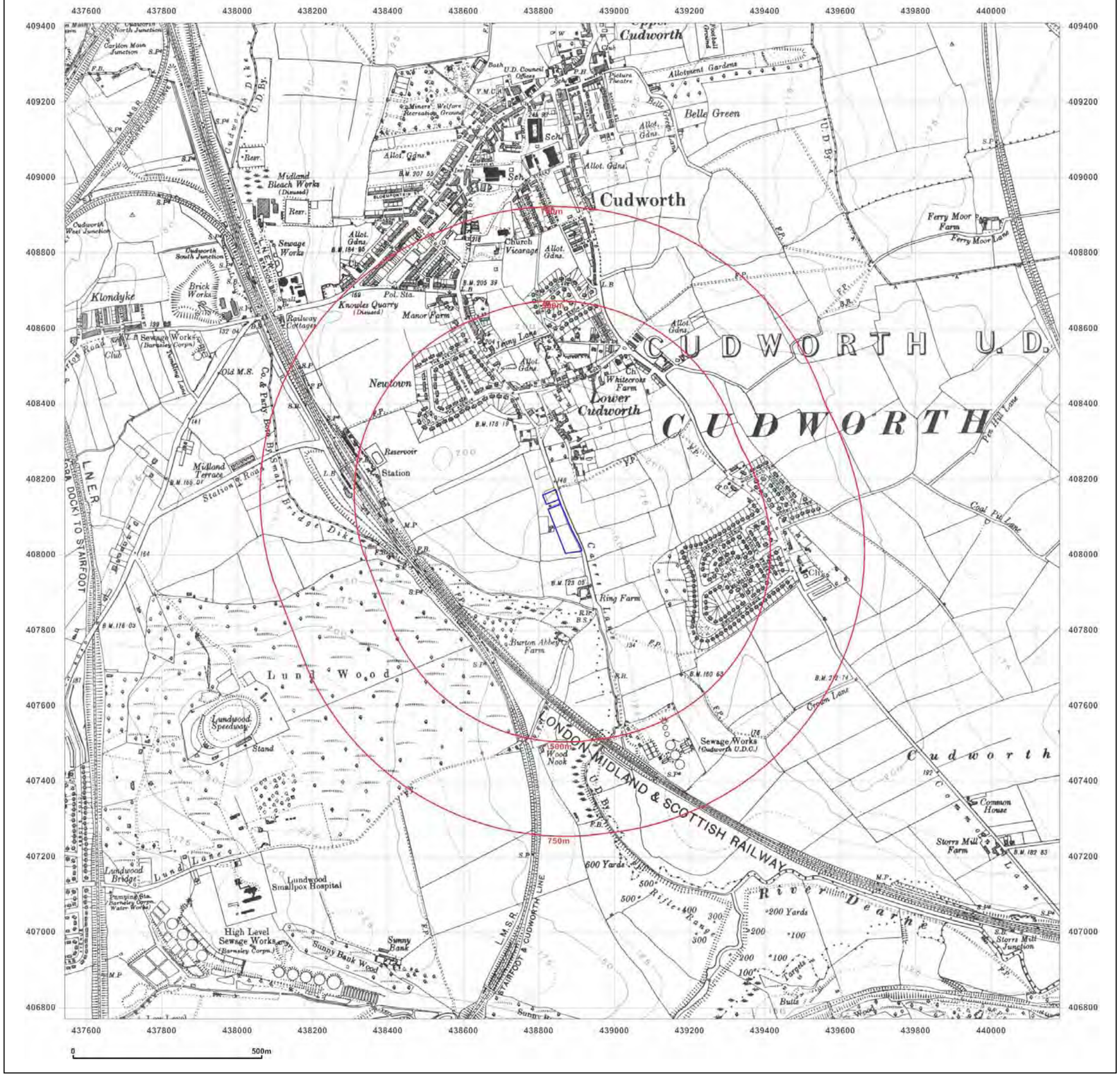

Groundsure INSIGHTS

Site Details:

Land at Carrs Lane, Cudworth, Barnsley, S72 8JG

Client Ref: 19052
Report Ref: GS-5884029
Grid Ref: 438861, 408089

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1850
Revised 1938
Edition 1938
Copyright N/A
Levelled 1929

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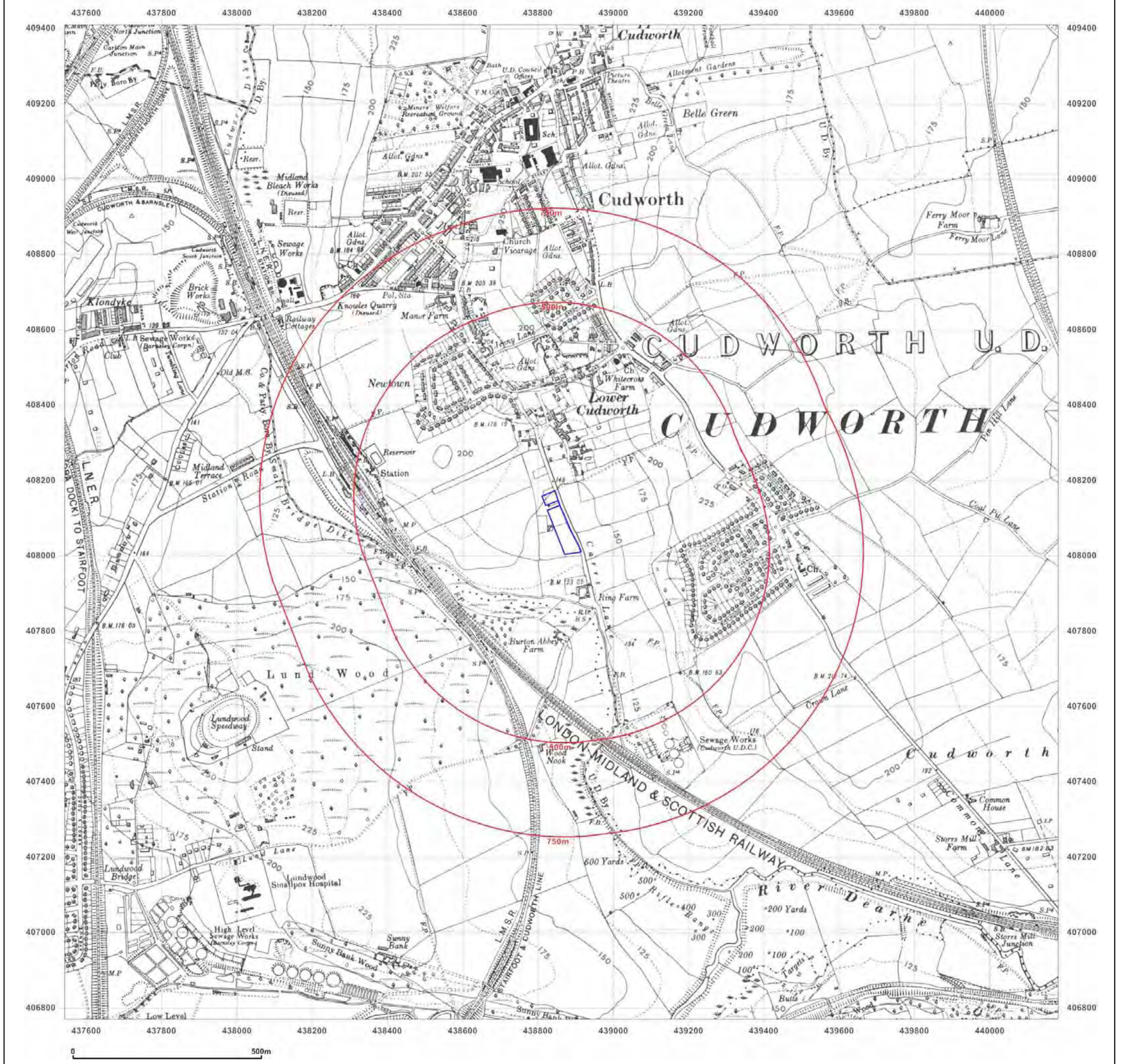

Groundsure INSIGHTS

Site Details:

Land at Carrs Lane, Cudworth,
Barnsley, S72 8JG

Client Ref: 19052
Report Ref: GS-5884029
Grid Ref: 438861, 408089

Map Name: County Series

Map date: **1948**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1850
Revised 1948
Edition 1948
Copyright N/A
Levelled 1929

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Map legend available at:
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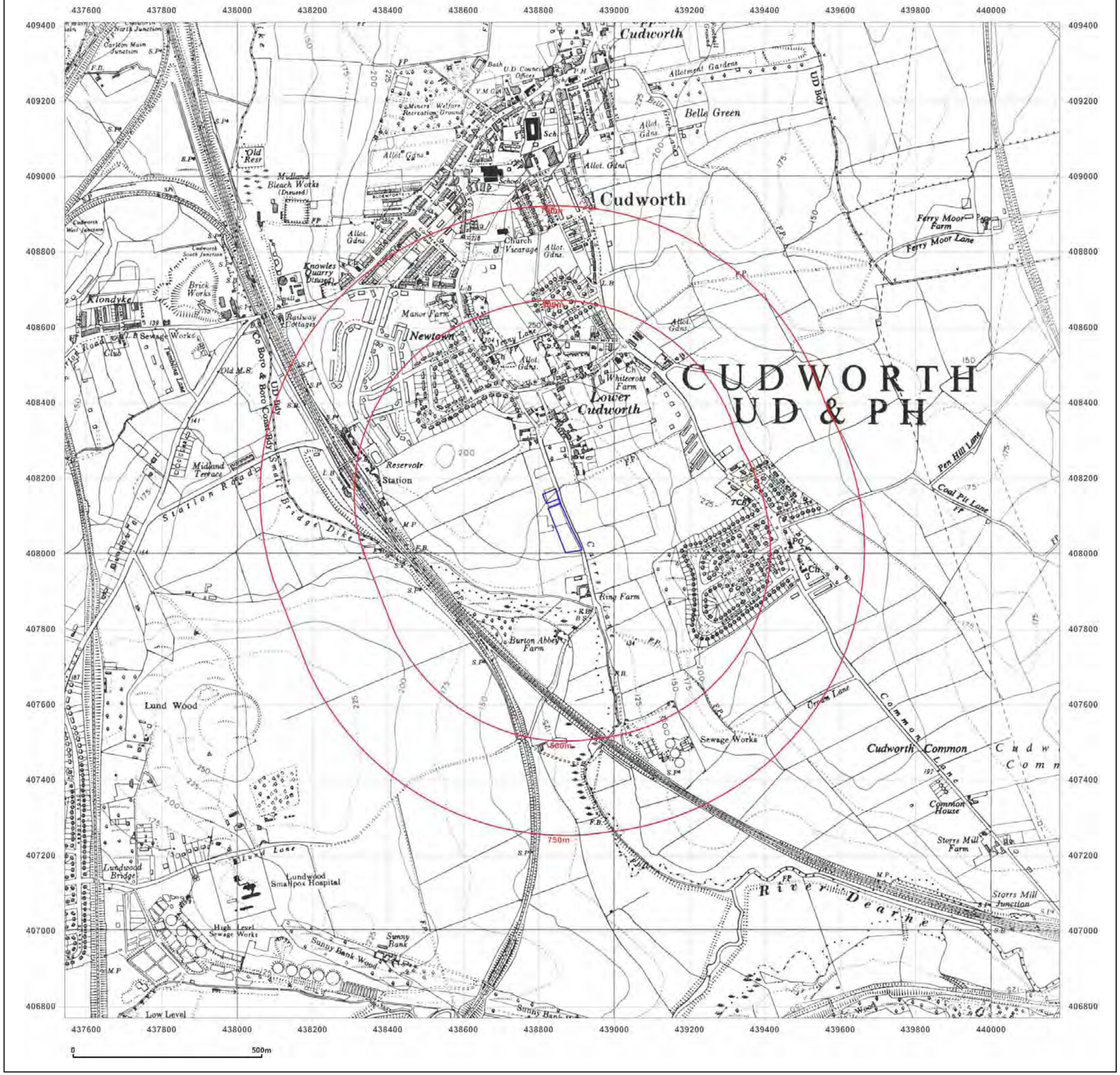

Groundsure INSIGHTS

Site Details:

Land at Carrs Lane, Cudworth, Barnsley, S72 8JG

Client Ref: 19052
Report Ref: GS-5884029
Grid Ref: 438861, 408089

Map Name: Provisional
Map date: **1955**
Scale: 1:10,560
Printed at: 1:10,560

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

Surveyed 1951
Revised 1955
Edition N/A
Copyright N/A
Levelled N/A

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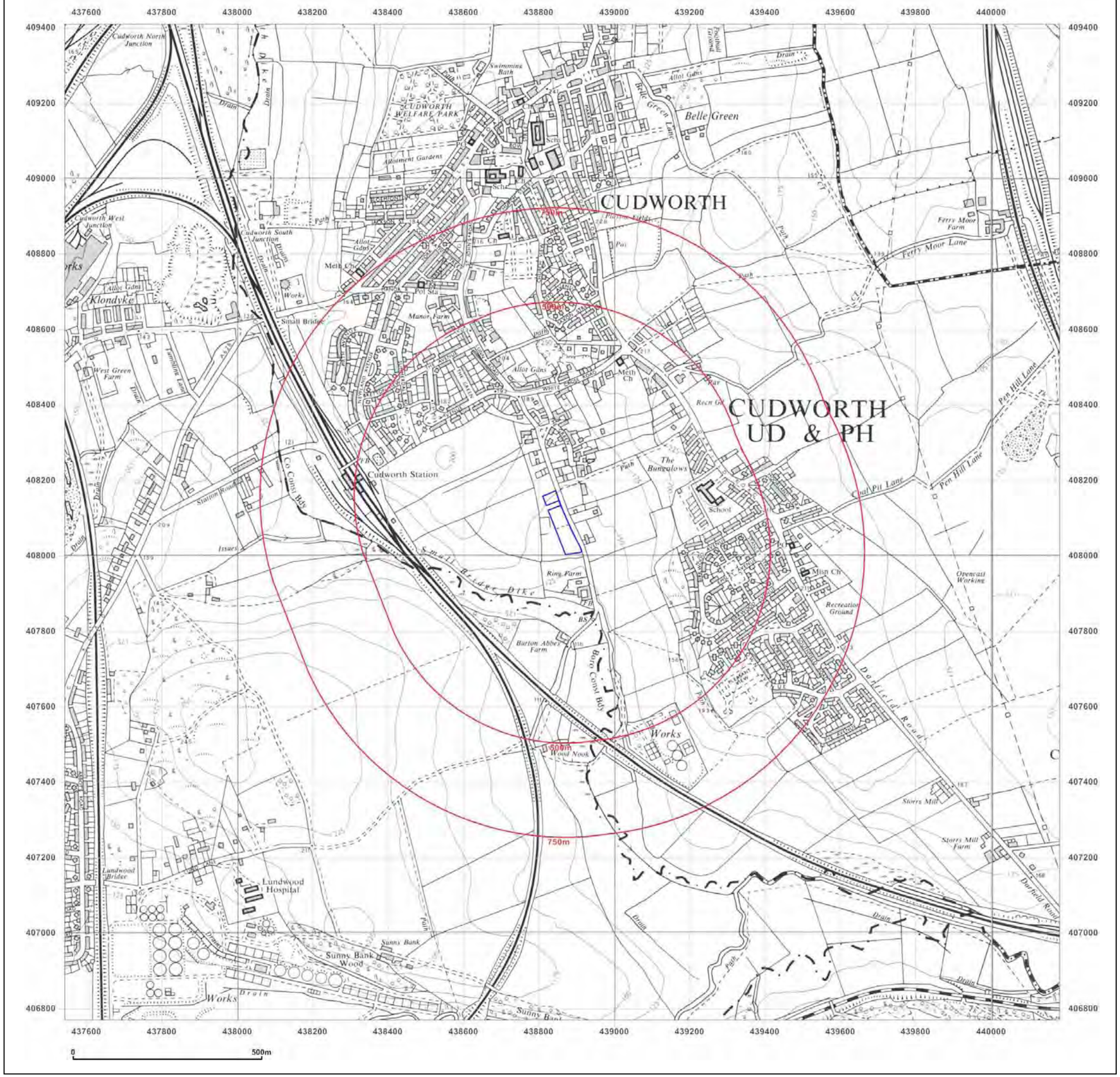

Groundsure INSIGHTS

Site Details:

Land at Carrs Lane, Cudworth,
Barnsley, S72 8JG

Client Ref: 19052
Report Ref: GS-5884029
Grid Ref: 438861, 408089

Map Name: Provisional

Map date: **1966-1967**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1966
Revised 1966
Edition N/A
Copyright 1966
Levelled N/A

Surveyed 1967
Revised 1967
Edition N/A
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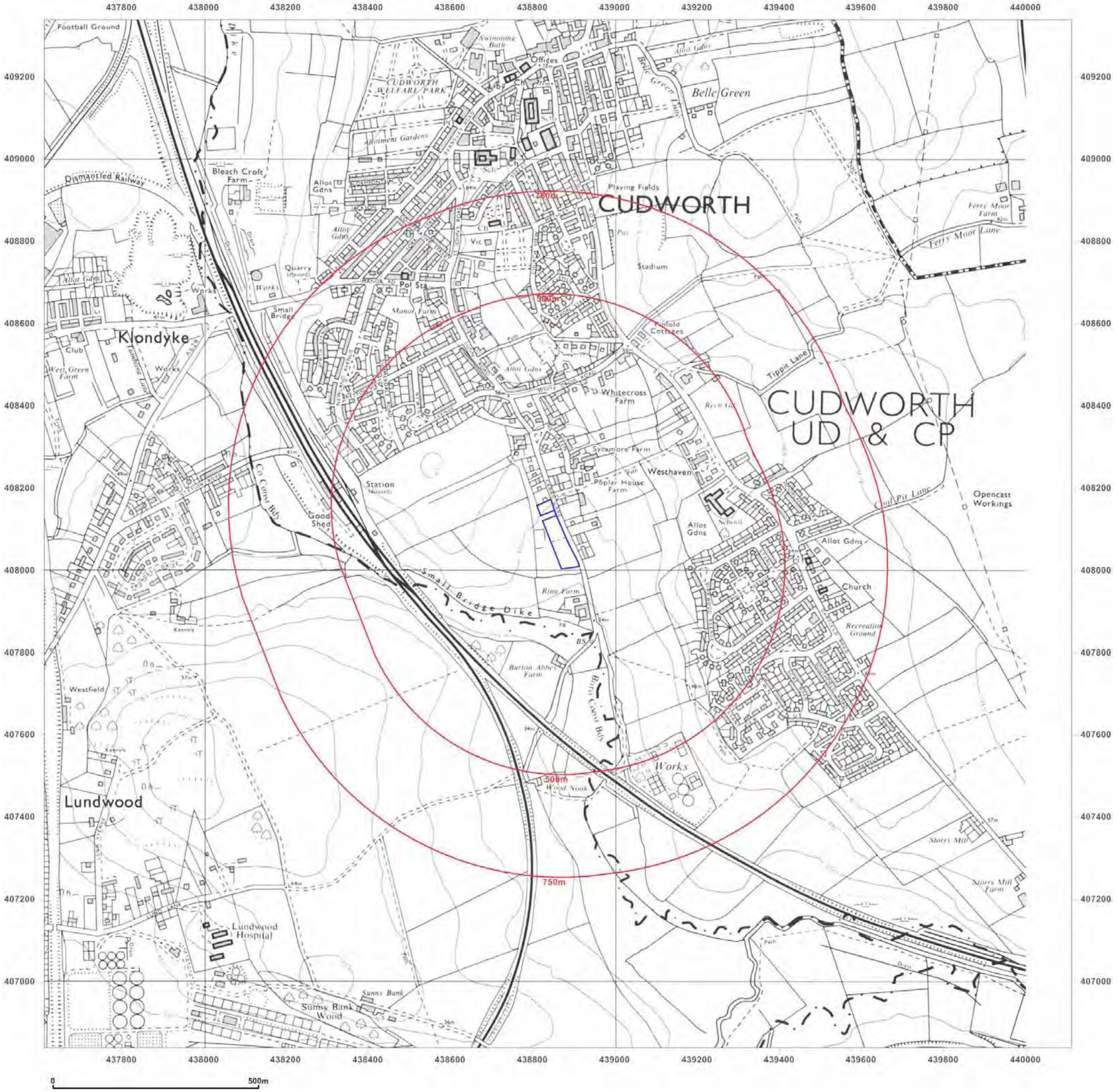

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Site Details:

Land at Carrs Lane, Cudworth,
Barnsley, S72 8JG

Client Ref: 19052
Report Ref: GS-5884029
Grid Ref: 438861, 408089

Map Name: National Grid

Map date: **1974**

Scale: 1:10,000

Printed at: 1:10,000

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Revised 1974
Edition N/A
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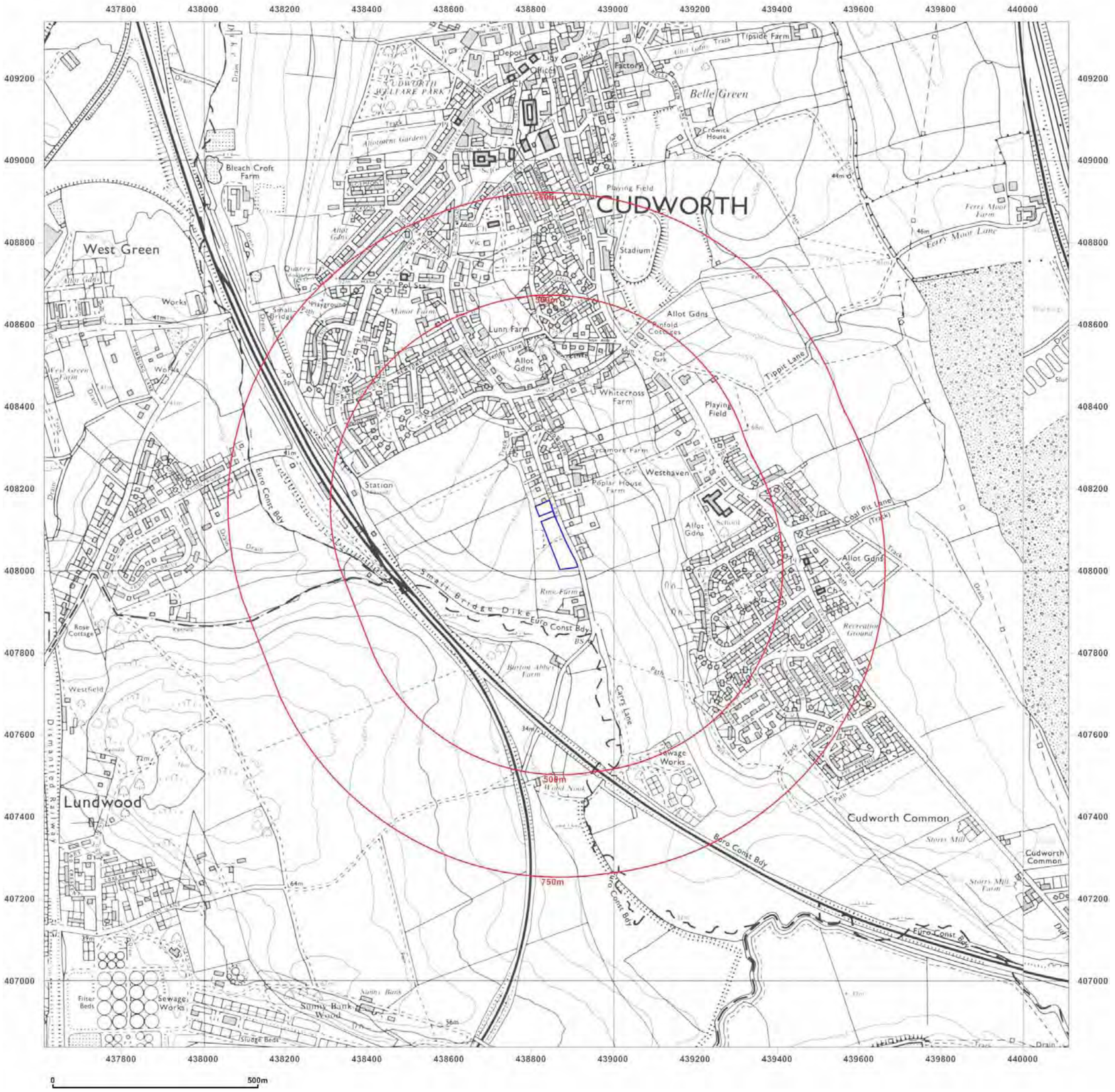

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Site Details:

Land at Carrs Lane, Cudworth,
Barnsley, S72 8JG

Client Ref: 19052
Report Ref: GS-5884029
Grid Ref: 438861, 408089

Map Name: National Grid

Map date: **1981-1982**

Scale: 1:10,000

Printed at: 1:10,000

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Revised 1982
Edition N/A
Copyright 1983
Levelled 1978

Surveyed 1980
Revised 1981
Edition N/A
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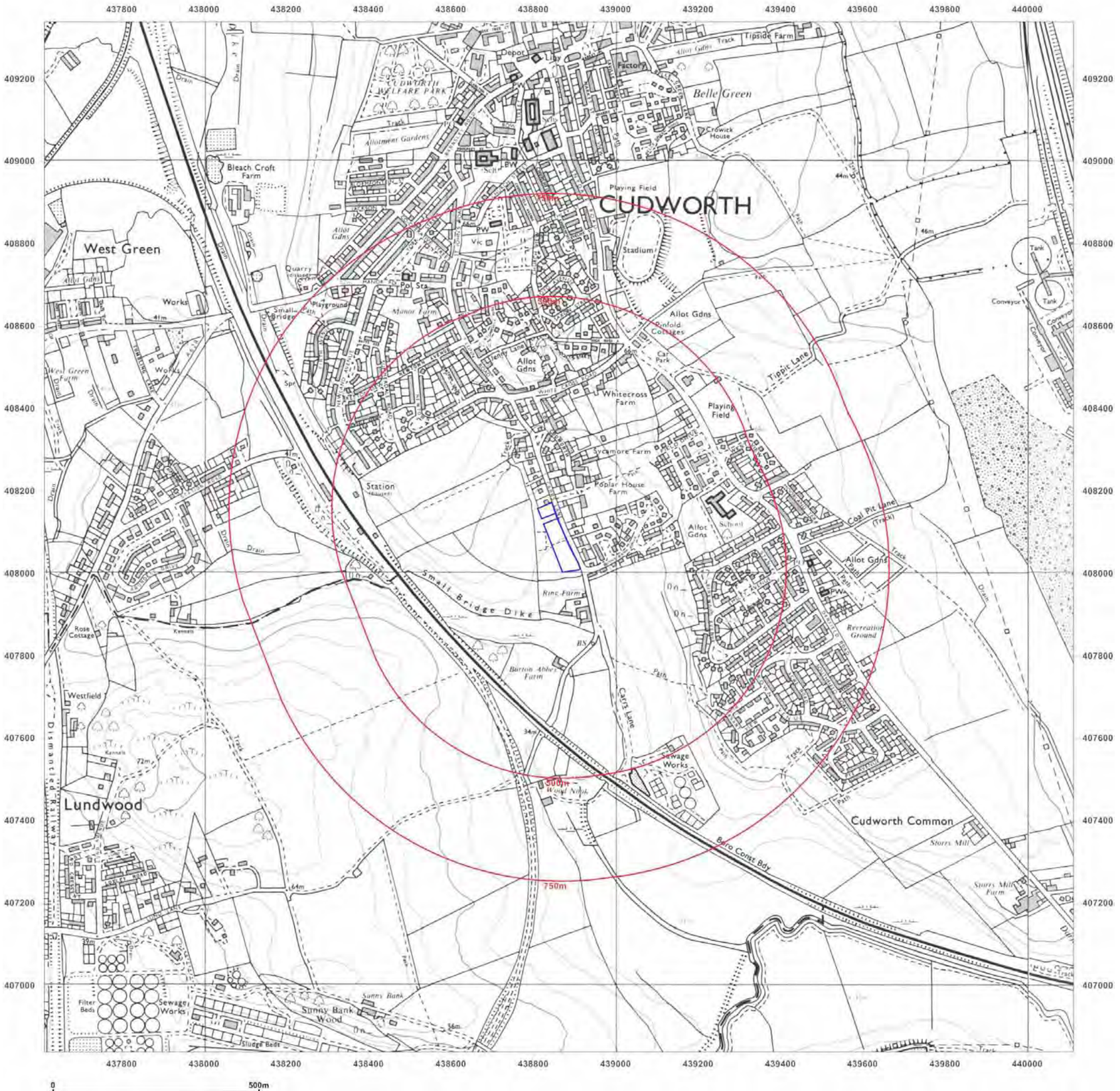

Groundsure INSIGHTS

Site Details:

Land at Carrs Lane, Cudworth,
Barnsley, S72 8JG

Client Ref: 19052
Report Ref: GS-5884029
Grid Ref: 438861, 408089

Map Name: National Grid

Map date: **1988-1992**

Scale: 1:10,000

Printed at: 1:10,000

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Revised 1992
Edition N/A
Copyright 1993
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Surveyed 1987
Revised 1988
Edition N/A
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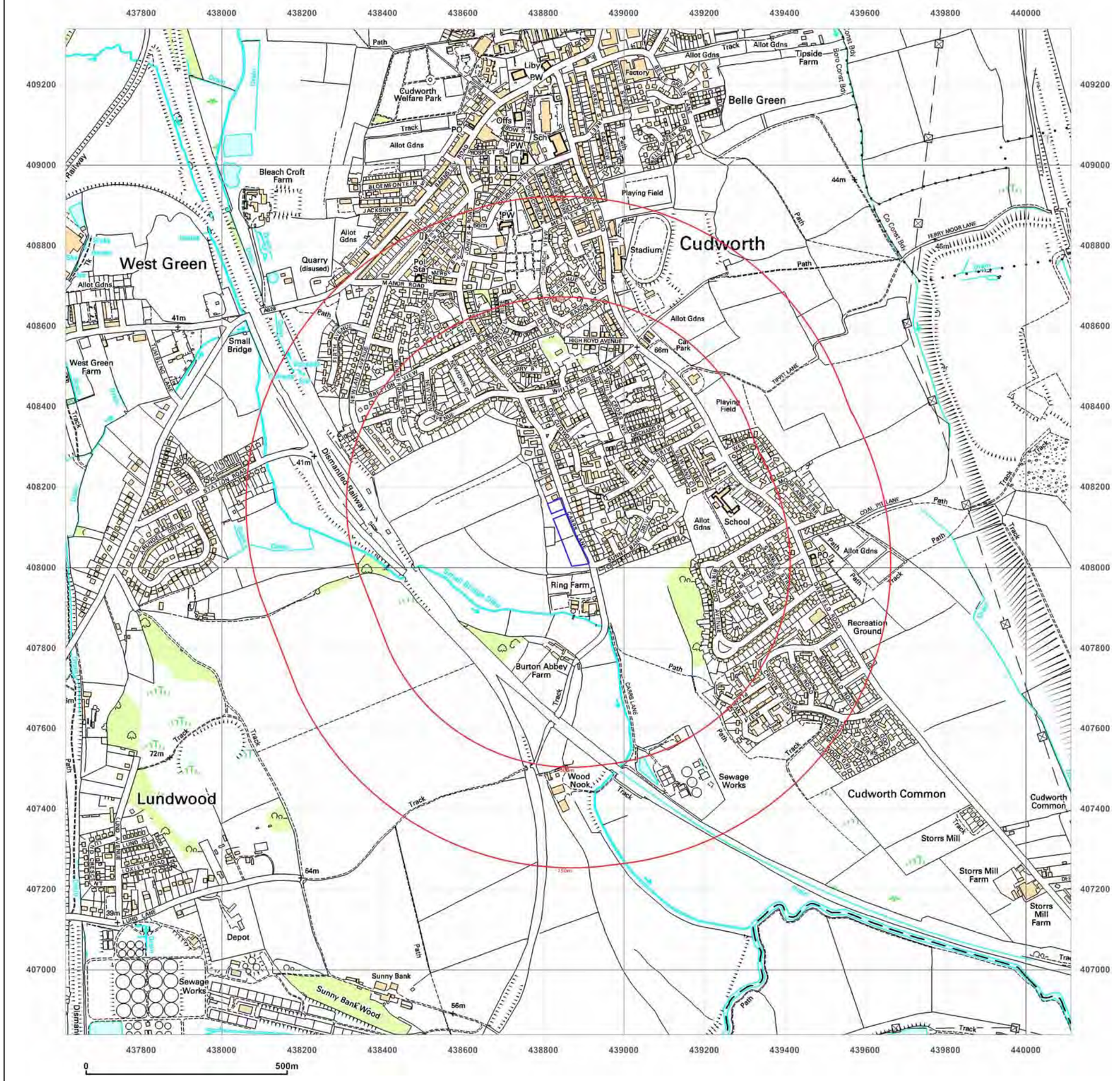

Groundsure INSIGHTS

Site Details:

Land at Carrs Lane, Cudworth,
Barnsley, S72 8JG

Client Ref: 19052
Report Ref: GS-5884029
Grid Ref: 438861, 408089

Map Name: 1:10,000 Raster

Map date: **2002**

Scale: 1:10,000

Printed at: 1:10,000

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Groundsure INSIGHTS

Site Details:

Land at Carrs Lane, Cudworth,
Barnsley, S72 8JG

Client Ref: 19052
Report Ref: GS-5884029
Grid Ref: 438861, 408089

Map Name: National Grid

Map date: **2010**

Scale: 1:10,000

Printed at: 1:10,000

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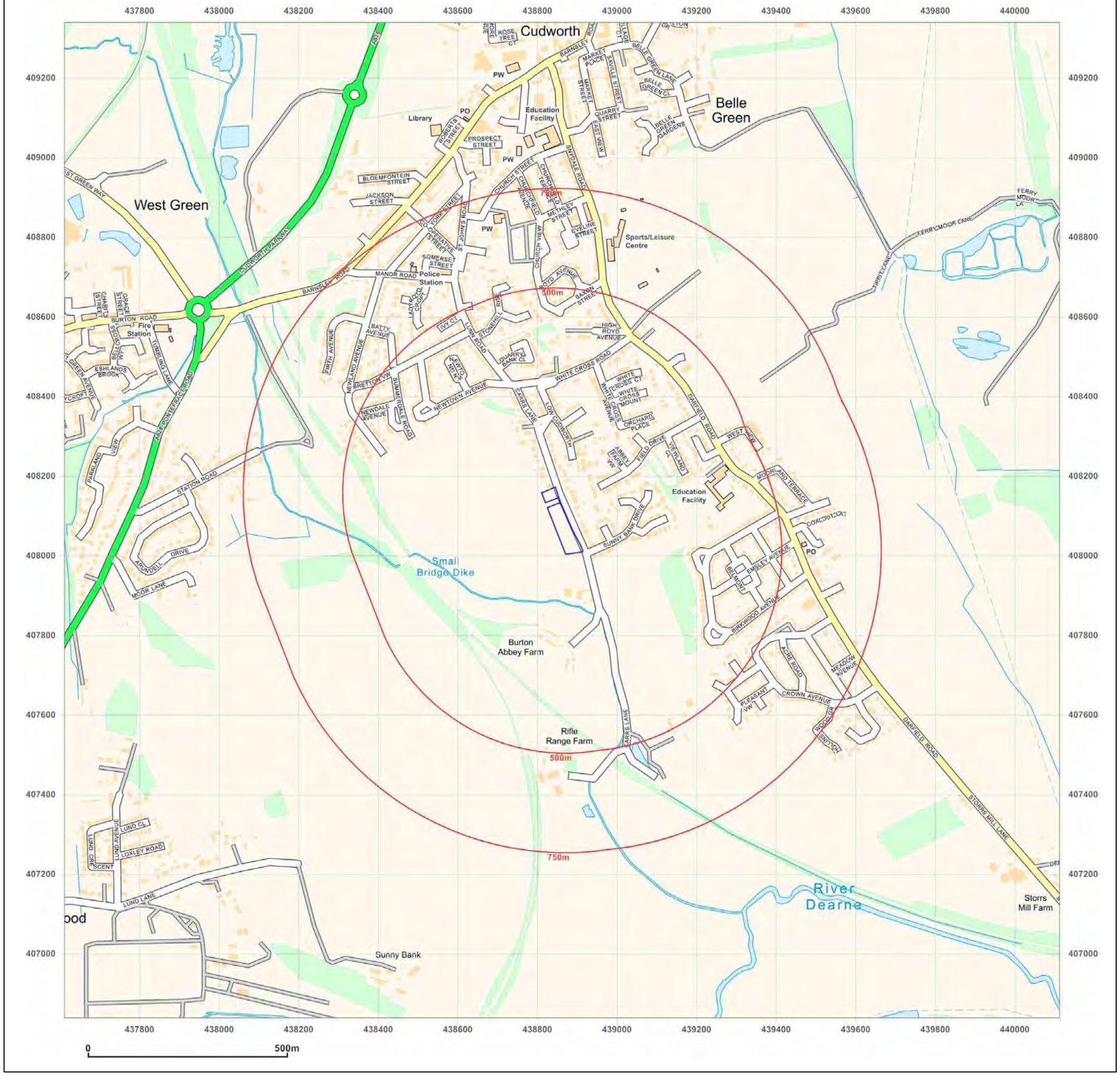

Groundsure INSIGHTS

Site Details:

Land at Carrs Lane, Cudworth, Barnsley, S72 8JG

Client Ref: 19052
Report Ref: GS-5884029
Grid Ref: 438861, 408089

Map Name: National Grid

Map date: **2014**

Scale: 1:10,000

Printed at: 1:10,000

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APPENDIX C

Environmental Data Reports

Enviroinsight Report Number GS-5884027

Geoinsight Report Number GS-5884028

Groundsure
LOCATION INTELLIGENCE

Silkstone Environmental Ltd

THORNCLIFFE HALL ANNEXE SILKSTONE ENVIRONMENTAL, NEWTON CHAMBERS ROAD,
SHEFFIELD/CHAPELTOWN, S35 2PH

Groundsure Reference:	GS-5884027
Your Reference:	19052
Report Date	18 Mar 2019
Report Delivery Method:	Email - pdf

Enviro Insight

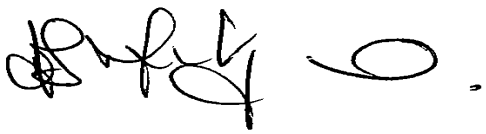
Address: Land at Carrs Lane, Cudworth, Barnsley, S72 8JG

Dear Sir/ Madam,

Thank you for placing your order with Groundsure. Please find enclosed the **Groundsure Enviro Insight** as requested.

If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above Groundsure reference number.

Yours faithfully,



Managing Director
Groundsure Limited

Enc.
Groundsure Enviroinsight

Enviro Insight

Address:	**Land at Carrs Lane, Cudworth, Barnsley, S72 8JG**
Date:	**18 Mar 2019**
Reference:	**GS-5884027**
Client:	**Silkstone Environmental Ltd**

NW N NE

W E

SW S SE

Aerial Photograph Capture date:	26-Mar-2012
Grid Reference:	438859,408087
Site Size:	0.6093ha

Report Reference: GS-5884027
Client Reference: 19052

Groundsure
LOCATION INTELLIGENCE

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Overview of Findings

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

Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	0	0	0	78
1.2 Additional Information – Historical Tank Database	0	0	0	3
1.3 Additional Information – Historical Energy Features Database	0	0	2	6
1.4 Additional Information – Historical Petrol and Fuel Site Database	0	0	0	0
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	0	0	0	0
1.6 Historical military sites	0	0	0	0
1.7 Potentially Infilled Land	0	0	0	35

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

Section 3: Landfill and Other Waste Sites	On-site	0-50m	51-250	251-500	501-1000	1000-1500
3.1 Landfill Sites						
3.1.1 Environment Agency/Natural Resources Wales Registered Landfill Sites	0	0	0	0	1	Not searched
3.1.2 Environment Agency/Natural Resources Wales Historic Landfill Sites	0	0	0	4	3	6
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	2	0
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	2	0
3.2 Landfill and Other Waste Sites Findings						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	Not searched	Not searched
3.2.2 Environment Agency/Natural Resources Wales Licensed Waste Sites	0	0	0	0	5	6

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	0	1	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	0	0
4.3 National Grid Underground Electricity Cables	0	0	0	0
4.4 National Grid Gas Transmission Pipelines	0	0	0	0

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

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

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

Section 6: Hydrogeology and Hydrology

	0-500m					
	On-site	0-50m	51-250	251-500	501-1000	1000-1500
6.9 Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site	No	No	No	No	No	Yes
6.10 Ordnance Survey MasterMap Water Network entries within 500m of the site	0	0	4	8	Not searched	Not searched
6.11 Surface water features within 250m of the study site	No	No	Yes	Not searched	Not searched	Not searched

Section 7: Flooding

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

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	0
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
8.6 Records of Ancient Woodlands	0	0	0	0	0	6
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	1
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
8.11 Records of National Parks	0	0	0	0	0	0
8.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
8.13 Records of Nitrate Vulnerable Zones	1	0	0	0	0	2
8.14 Records of Green Belt land	0	1	0	0	0	2

Section 9: Natural Hazards

9.1 Maximum risk of natural ground subsidence	Very Low
9.1.1 Maximum Shrink-Swell hazard rating identified on the study site	Very Low
9.1.2 Maximum Landslides hazard rating identified on the study site	Very Low
9.1.3 Maximum Soluble Rocks hazard rating identified on the study site	Negligible
9.1.4 Maximum Compressible Ground hazard rating identified on the study site	Negligible
9.1.5 Maximum Collapsible Rocks hazard rating identified on the study site	Very Low
9.1.6 Maximum Running Sand hazard rating identified on the study site	Negligible
9.2 Radon	
9.2.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The site is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.
9.2.2 Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary.

Section 10: Mining

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

Using this report

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

1. Historical Industrial Sites

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

2. Environmental Permits, Incidents and Registers

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

3. Landfills and Other Waste Sites

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

4. Current Land Uses

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

5. Geology

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

6. Hydrogeology and Hydrology

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

7. Flooding

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

8. Designated Environmentally Sensitive Sites

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

9. Natural Hazards

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

10. Mining

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

11. Contacts

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

Note: Maps

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

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

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

1. Historical Land Use

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

Site Outline

Industrial Land Use

Potentially Infilled Land

250
500
Search Buffers (m)

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

Energy Features

Petrol Stations

Historical military sites

Tanks

Garages

1. Historical Industrial Sites

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

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

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 78

ID	Distance [m]	Direction	Use	Date
1A	290	SW	Cuttings	1974
2A	291	SW	Cuttings	1982
3A	291	SW	Cuttings	1992
4C	292	N	Unspecified Quarry	1951
5A	293	SW	Cuttings	1948
6A	293	SW	Cuttings	1938
7B	294	SW	Railway Sidings	1938
8A	296	SW	Cuttings	1951
9S	297	SW	Cuttings	1890
10B	301	SW	Railway Sidings	1951
11E	304	SW	Railway Sidings	1948
12B	304	SW	Railway Sidings	1904
13C	307	N	Unspecified Quarry	1938
14C	310	N	Unspecified Quarry	1904
15C	310	N	Unspecified Quarry	1948
16C	317	N	Unspecified Quarry	1890
17T	319	SW	Cuttings	1904
18D	336	N	Unspecified Quarry	1904
19D	336	N	Unspecified Quarry	1948
20D	339	N	Unspecified Quarry	1951
21D	341	N	Unspecified Quarry	1938
22E	342	W	Railway Sidings	1966
23D	345	N	Unspecified Quarry	1890
24F	369	W	Railway Sidings	1982
25F	369	W	Railway Sidings	1974
26M	372	W	Railway Sidings	1890
27G	392	W	Railway Building	1982
28G	392	W	Railway Building	1992
29G	398	W	Railway Building	1938
30G	402	W	Railway Building	1904
31G	402	W	Railway Building	1948
32G	402	W	Railway Building	1951
33G	402	W	Railway Building	1974
34G	402	W	Railway Building	1966

35G	403	W	Gasometer	1890
36G	404	W	Railway Building	1890
37H	405	W	Railway Buildings	1938
38H	417	W	Railway Building	1890
39I	426	W	Railway Building	1982
40I	426	W	Railway Building	1992
41B	430	W	Railway Building	1938
42I	433	W	Railway Building	1951
43I	435	W	Railway Building	1904
44I	435	W	Railway Building	1948
45J	441	W	Railway Building	1966
46J	441	W	Railway Building	1974
47J	441	W	Railway Building	1982
48J	441	W	Railway Building	1992
49K	461	W	Railway Building	1948
50K	461	W	Railway Building	1904
51L	462	S	Sewage Works	1951
52L	464	SE	Sewage Works	1948
53L	465	SE	Sewage Farm	1938
54L	465	SE	Sewage Farm	1938
55L	468	S	Sewage Works	1982
56L	468	S	Sewage Works	1992
57L	468	S	Unspecified Works	1974
58L	468	S	Unspecified Works	1966
59M	476	W	Disused Railway Station	1974
60M	476	W	Railway Station	1966
61N	479	W	Railway Station	1938
62N	479	W	Railway Station	1948
63N	479	W	Railway Station	1904
64	481	W	Railway Station	1951
65L	487	SE	Unspecified Tanks	1938
66N	487	W	Railway Building	1890
67O	488	SE	Unspecified Pit	1966
68O	488	SE	Unspecified Pit	1974
69L	489	SE	Unspecified Tanks	1951
70	489	SE	Unspecified Tanks	1948
71N	492	W	Goods Shed	1890
72V	498	N	Unspecified Quarry	1966
73N	498	W	Disused Railway Station	1992
74N	498	W	Disused Railway Station	1982
75	499	W	Railway Station	1938
76P	499	S	Unspecified Ground Workings	1938
77P	499	S	Unspecified Ground Workings	1938
78P	500	S	Unspecified Ground Workings	1948

1.2 Additional Information – Historical Tank Database

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

Records of historical tanks within 500m of the search boundary: 3

ID	Distance (m)	Direction	Use	Date
79G	406	W	Gasometer	1893
80	451	NW	Unspecified Tank	1969
81	466	SE	Humus Tanks	1931

1.3 Additional Information – Historical Energy Features Database

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

Records of historical energy features within 500m of the search boundary: 8

ID	Distance (m)	Direction	Use	Date
82	61	S	Electricity Substation	1983
83	237	E	Electricity Substation	1996
84Q	391	NW	Electricity Substation	1993
85Q	396	NW	Electricity Substation	1984
86G	406	W	Gasometer	1893
87R	408	NW	Electricity Substation	1993
88R	408	NW	Electricity Substation	1977
89R	410	NW	Electricity Substation	1969

1.4 Additional Information – Historical Petrol and Fuel Site Database

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

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

Database searched and no data found.

1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database

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

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

Database searched and no data found.

1.6 Historical military sites

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

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

Database searched and no data found.

1.7 Potentially Infilled Land

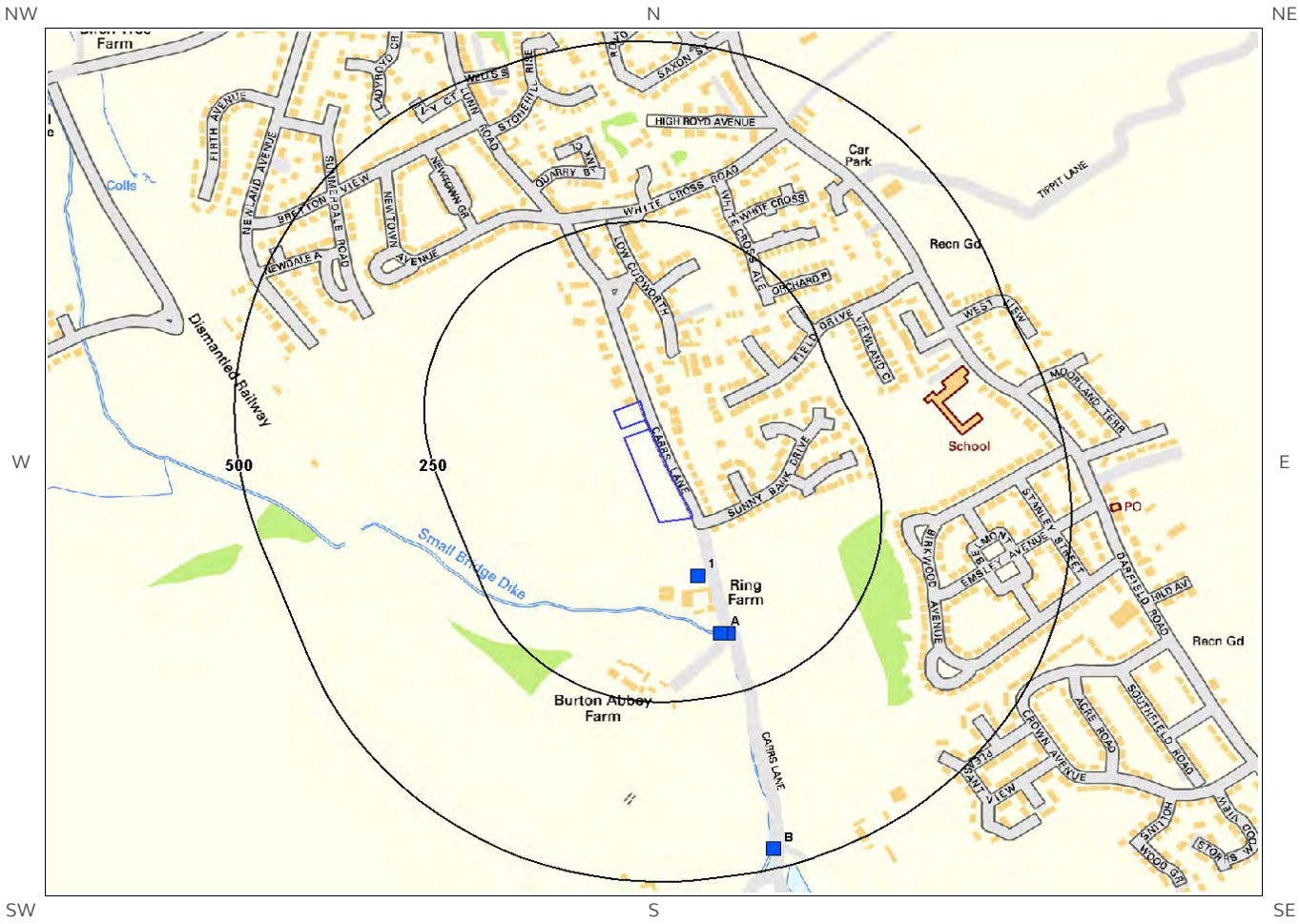
Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 35

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

ID	Distance(m)	Direction	Use	Date
90A	290	SW	Cuttings	1974
91A	291	SW	Cuttings	1992
92A	291	SW	Cuttings	1982
93C	292	N	Unspecified Quarry	1951
94A	293	SW	Cuttings	1948
95A	293	SW	Cuttings	1938
96A	296	SW	Cuttings	1951
97S	297	SW	Cuttings	1890
98C	307	N	Unspecified Quarry	1938
99C	310	N	Unspecified Quarry	1904
100C	310	N	Unspecified Quarry	1948
101C	317	N	Unspecified Quarry	1890
102T	319	SW	Cuttings	1904
103D	336	N	Unspecified Quarry	1948
104D	336	N	Unspecified Quarry	1904
105D	339	N	Unspecified Quarry	1951
106D	341	N	Unspecified Quarry	1938
107D	345	N	Unspecified Quarry	1890
108	372	W	Air Shaft	1904

109U	434	W	Reservoir	1904
110U	434	W	Reservoir	1948
111U	435	W	Reservoir	1938
112U	435	W	Reservoir	1951
113L	462	S	Sewage Works	1951
114L	464	SE	Sewage Works	1948
115L	465	SE	Sewage Farm	1938
116L	465	SE	Sewage Farm	1938
117L	468	S	Sewage Works	1992
118L	468	S	Sewage Works	1982
119O	488	SE	Unspecified Pit	1974
120O	488	SE	Unspecified Pit	1966
121V	498	N	Unspecified Quarry	1966
122P	499	S	Unspecified Ground Workings	1938
123P	499	S	Unspecified Ground Workings	1938
124P	500	S	Unspecified Ground Workings	1948

2. Environmental Permits, Incidents and Registers Map



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

2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

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

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

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

7

The following Licensed Discharge Consents records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
1	80	S	438920 407930	Address: CARRS LANE NO. 37 SSO, CUDWORTH, NR WAKEFIELD, WEST YORKSHIRE Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: YWUCD2/25 Permit Version: 1	Receiving Water: SMALL BRIDGE DYKE Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 12/11/1997 Effective Date: 12-Nov-1997 Revocation Date: 13/04/2004
2A	165	S	438950 407850	Address: CARRS LANE PUMPING STATION, CUDWORTH, BARNSLEY, SOUTH YORKSHIRE, ENGLAND Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: 3320 Permit Version: 1	Receiving Water: SMALL BRIDGE DIKE Status: TRANSFERRED FROM R(PP)A 1951-1961 Issue date: 30/10/1978 Effective Date: 30-Oct-1978 Revocation Date: 05/03/2001
3A	165	S	438950 407850	Address: CARRS LANE PUMPING STATION, CUDWORTH, BARNSLEY, SOUTH YORKSHIRE, ENGLAND Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: 3320 Permit Version: 2	Receiving Water: SMALL BRIDGE DIKE Status: MODIFIED - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 06/03/2001 Effective Date: 06-Mar-2001 Revocation Date: -
4A	168	S	438960 407850	Address: CARRS LANE CUDWORTH, CARRS LANE (REAR OF NO. 31), CUDWORTH, BARNSLEY, SOUTH YORKSHIRE, S72 8EQ Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: EPRUP3126GQ Permit Version: 1	Receiving Water: SMALL BRIDGE DIKE Status: NEW ISSUED UNDER EPR 2010 Issue date: 22/03/2016 Effective Date: 22-Mar-2016 Revocation Date: -
5B	473	S	439020 407550	Address: CUDWORTH WWTW, CARRS LANE, CUDWORTH, BARNSLEY, SOUTH YORKSHIRE Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: 2655	Receiving Water: SMALL BRIDGE DYKE Status: VARIED BY APPLICATION - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 26/10/2001 Effective Date: 26-Oct-2001 Revocation Date: 28/12/2001

ID	Distance (m)	Direction	NGR	Details	
				Permit Version: 3	
6B	473	S	439020 407550	Address: CUDWORTH WWTW, CARRS LANE, CUDWORTH, BARNSLEY, SOUTH YORKSHIRE Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: 2655 Permit Version: 3	Receiving Water: SMALL BRIDGE DYKE Status: VARIED BY APPLICATION - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 26/10/2001 Effective Date: 26-Oct-2001 Revocation Date: 28/12/2001
7B	473	S	439020 407550	Address: CUDWORTH WWTW, CARRS LANE, CUDWORTH, BARNSLEY, SOUTH YORKSHIRE Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: 2655 Permit Version: 3	Receiving Water: SMALL BRIDGE DYKE Status: VARIED BY APPLICATION - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 26/10/2001 Effective Date: 26-Oct-2001 Revocation Date: 28/12/2001

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

0

Database searched and no data found.

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

0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

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

Database searched and no data found.

2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

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

Database searched and no data found.

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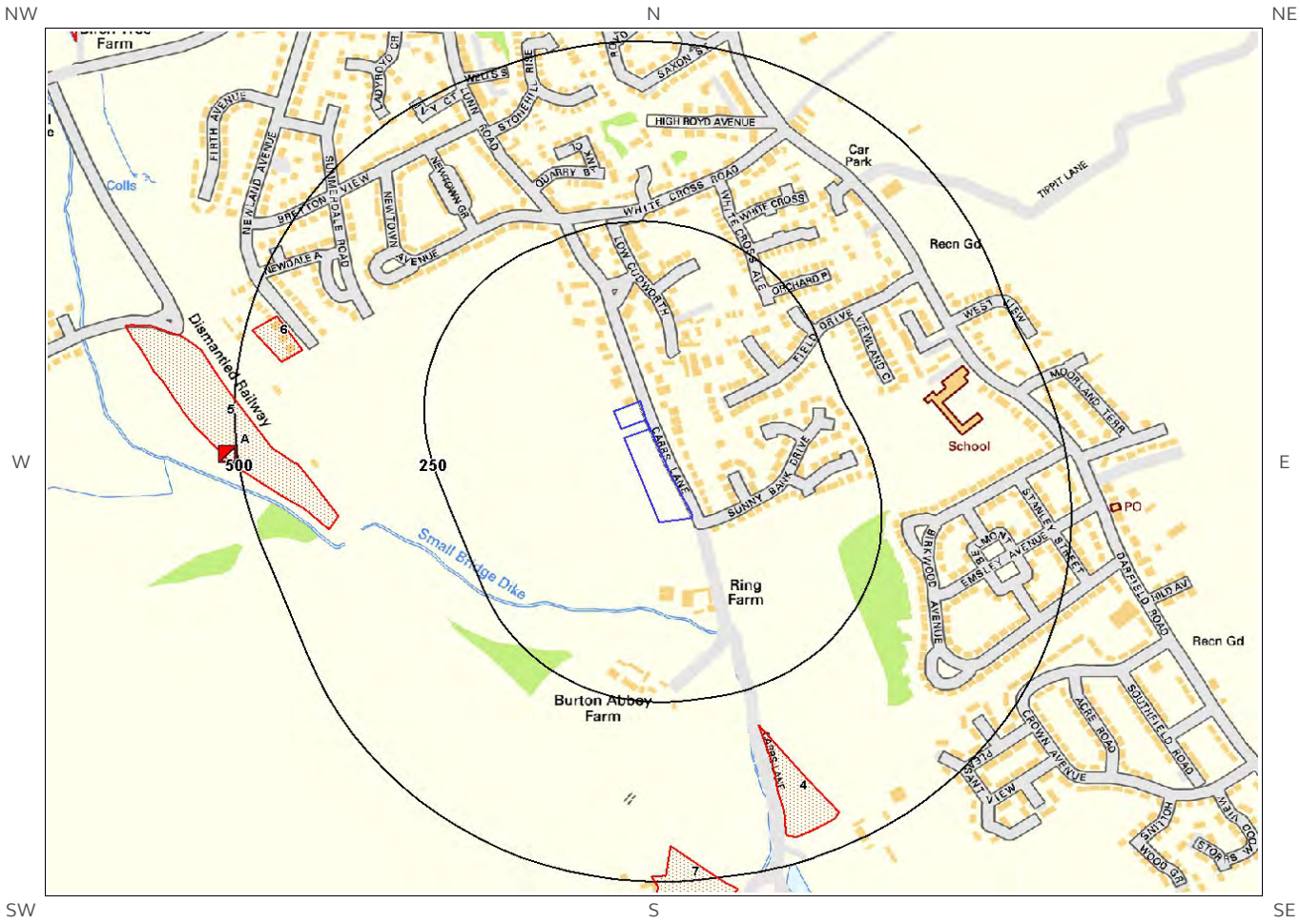
3. Landfill and Other Waste Sites Map



Site Outline

250 Search Buffers (m)
500

EA/NRW Active Landfill

EA/NRW Historic Landfill

BGS / DoE Survey Landfill

Historic and Planned Waste Sites

EA/NRW Licensed Waste Site

Local Authority/Historical Mapping Landfill Records

3. Landfill and Other Waste Sites

3.1 Landfill Sites

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

1

The following Environment Agency/Natural Resources Wales landfill records are represented as polygons on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details	
Not shown	948	NW	438100 408900	Address: Bleachcroft Farm, Barnsley Road, Cudworth, Barnsley, South Yorkshire, S72 8UX Landfill Reference: 60593.0 Environmental Permitting Regulations (Waste) Reference: ARM001 Landfill Type: A05: Landfill taking Non-Biodegradeable Wastes	Operator: Armstrong Mr R Status: Issued IPPC Reference: EPR Reference:

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

13

The following landfill records are represented as either points or polygons on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details	
4	301	S		Site Address: Land adjacent to Rifle Range Farm, Carrs Lane, Cudworth, Barnsley, South Yorkshire Waste Licence: Yes Site Reference: WD20 B426, 4400/B426, 20B426(91) Waste Type: Inert, Industrial, Commercial, Household Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 16-May-1984 Licence Surrendered: 11-Nov-1985 Licence Holder Address: Rifle Range Farm, Cudworth, Barnsley Operator: Cudworth Urban District Council Licence Holder: R and V Rodbourne First Recorded: 16-May-1984 Last Recorded: 11-Nov-1985
5	391	W		Site Address: Former Cudworth Railway Station, Cudworth, Barnsley, South Yorkshire Waste Licence: Yes Site Reference: WD20 B1000, NE4240 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: YQ1/L/MES008	Licence Issue: 08-Sep-1994 Licence Surrendered: 17-May-2001 Licence Holder Address: 350, Midland Road, Royston, Barnsley, South Yorkshire Operator: Mr D Heeley Licence Holder: Messrs Heeley and Sanders First Recorded: 08-Sep-1994

ID	Distance (m)	Direction	NGR	Details	
					Last Recorded: -
6	419	W		Site Address: Newland Avenue, Newlands Avenue, Cudworth Waste Licence: - Site Reference: (157)B, 4400/(157) Waste Type: - Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: 31-Dec-1972 Last Recorded: -
7	451	S		Site Address: Land adjacent to Rifle Range Farm, Carrs Lane, Cudworth, Barnsley, South Yorkshire Waste Licence: Yes Site Reference: WD20 B426, 4400/B426, 20B426(91) Waste Type: Inert, Industrial, Commercial, Household Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 16-May-1984 Licence Surrendered: 11-Nov-1985 Licence Holder Address: Rifle Range Farm, Cudworth, Barnsley Operator: Cudworth Urban District Council Licence Holder: R and V Rodbourne First Recorded: 16-May-1984 Last Recorded: 11-Nov-1985
8	876	NW		Site Address: Bleach Croft Farm, Cudworth, Barnsley Waste Licence: Yes Site Reference: WD20 B330, WD20 B815, 4400/B330, 20B815, 20B330(43) Waste Type: Inert, Commercial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 24-Nov-1981 Licence Surrendered: 04-Dec-1992 Licence Holder Address: Bleach Croft Farm, Cudworth, Barnsley Operator: R Armstrong Licence Holder: R Armstrong First Recorded: 30-Nov-1987 Last Recorded: 31-Dec-1994
Not shown	916	NW		Site Address: Klondyke Tip, Burton Road, Barnsley, South Yorkshire Waste Licence: - Site Reference: - Waste Type: Inert, Industrial, Commercial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: Redland Purle Limited Licence Holder: - First Recorded: 04-Apr-1972 Last Recorded: -
Not shown	952	NW		Site Address: Cudworth Landfill Site, Burton Road, Monk Bretton, Barnsley Waste Licence: Yes Site Reference: WD20 B3, 4400/B3, 20B3(18) Waste Type: Inert, Industrial, Commercial, Household, Special Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 30-Mar-1981 Licence Surrendered: 29-Jun-1994 Licence Holder Address: Claydons Lane, Rayleigh, Essex Operator: Redland Purle (Cleanaway) Limited Licence Holder: Redland Purle (Cleanaway) Limited First Recorded: 31-Dec-1973 Last Recorded: 31-Dec-1977
Not shown	1118	NW		Site Address: Cudworth Tip Site, Off Burton Road, Monk Bretton, Barnsley Waste Licence: - Site Reference: - Waste Type: - Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: Burnett and Hallamshire Fuel Limited Licence Holder: Neepsend / North Strip Mining / B and H Fuel Limited First Recorded: - Last Recorded: -
Not shown	1158	W		Site Address: Land adjacent to 480 - 502 Burton Road, Burton Road, Monk Bretton, Barnsley Waste Licence: Yes Site Reference: - Waste Type: Inert, Commercial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 07-Dec-1984 Licence Surrendered: 31-Dec-1988 Licence Holder Address: West Green Testing Centre, Burton Road, Monk Bretton, Barnsley Operator: Mr D Higgs Licence Holder: Mr D Higgs First Recorded: 31-Dec-1984 Last Recorded: 31-Dec-1988
Not shown	1194	W		Site Address: Littleworth Lane, Monk Bretton, Barnsley Waste Licence: -	Licence Issue: Licence Surrendered: Licence Holder Address: -

ID	Distance (m)	Direction	NGR	Details	
				Site Reference: (20)B Waste Type: Household Environmental Permitting Regulations (Waste) Reference: -	Operator: Barnsley Metropolitan Borough Council Licence Holder: Barnsley Metropolitan Borough Council First Recorded: - Last Recorded: 31-Dec-1996
Not shown	1225	W		Site Address: Littleworth Lane, Monk Bretton, Barnsley Waste Licence: - Site Reference: (20)B Waste Type: Household Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: Barnsley Metropolitan Borough Council Licence Holder: Barnsley Metropolitan Borough Council First Recorded: - Last Recorded: 31-Dec-1996
Not shown	1422	W		Site Address: Land at Burton Road, Monk Bretton, Barnsley Waste Licence: Yes Site Reference: WD20 B399, 4400/B399, 20B399(88) Waste Type: Inert, Commercial, Household Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 08-Nov-1983 Licence Surrendered: 29-Apr-1994 Licence Holder Address: Arunden House, Lund Lane, Burton Grange, Barnsley Operator: Mr E J Lidster Licence Holder: Mr E J Lidster First Recorded: 30-Nov-1983 Last Recorded: 31-Dec-1989
Not shown	1481	NW		Site Address: P L M Redfearn Limited, Rear Of P L M Redfearn, Burton Road, Monk Bretton, Barnsley, South Yorkshire Waste Licence: Yes Site Reference: WD20/B771, 4400/B771, NE2111 Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: YQ1/L/PLM001	Licence Issue: 31-Aug-1990 Licence Surrendered: 17-Feb-2000 Licence Holder Address: Burton Road, Monk Bretton, Barnsley, South Yorkshire Operator: P L M Redfearn Limited Licence Holder: P L M Redfearn Limited First Recorded: 31-Aug-1990 Last Recorded: -

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

2

The following landfill records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details	
Not shown	825	W	438000.0 408000.0	Address: Wheetshaw Lane, Cudworth, Barnsley, S.Yorks BGS Number: 232.0	Risk: Risk to minor aquifer Waste Type: N/A
Not shown	911	W	437900.0 408100.0	Address: Klondyke Tip, Burton Rd, Barnsley, Yorks BGS Number: 1893.0	Risk: No risk to aquifer Waste Type: N/A

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

2

The following landfill records are represented as points or polygons on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Site Address	Source	Data Type
Not shown	932	NW	437886 408744	Refuse Tip	1977 mapping	Polygon
Not shown	946	NW	437927 408555	Refuse Tip	1977 mapping	Polygon

3.2 Other Waste Sites

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

0

Database searched and no data found.

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

11

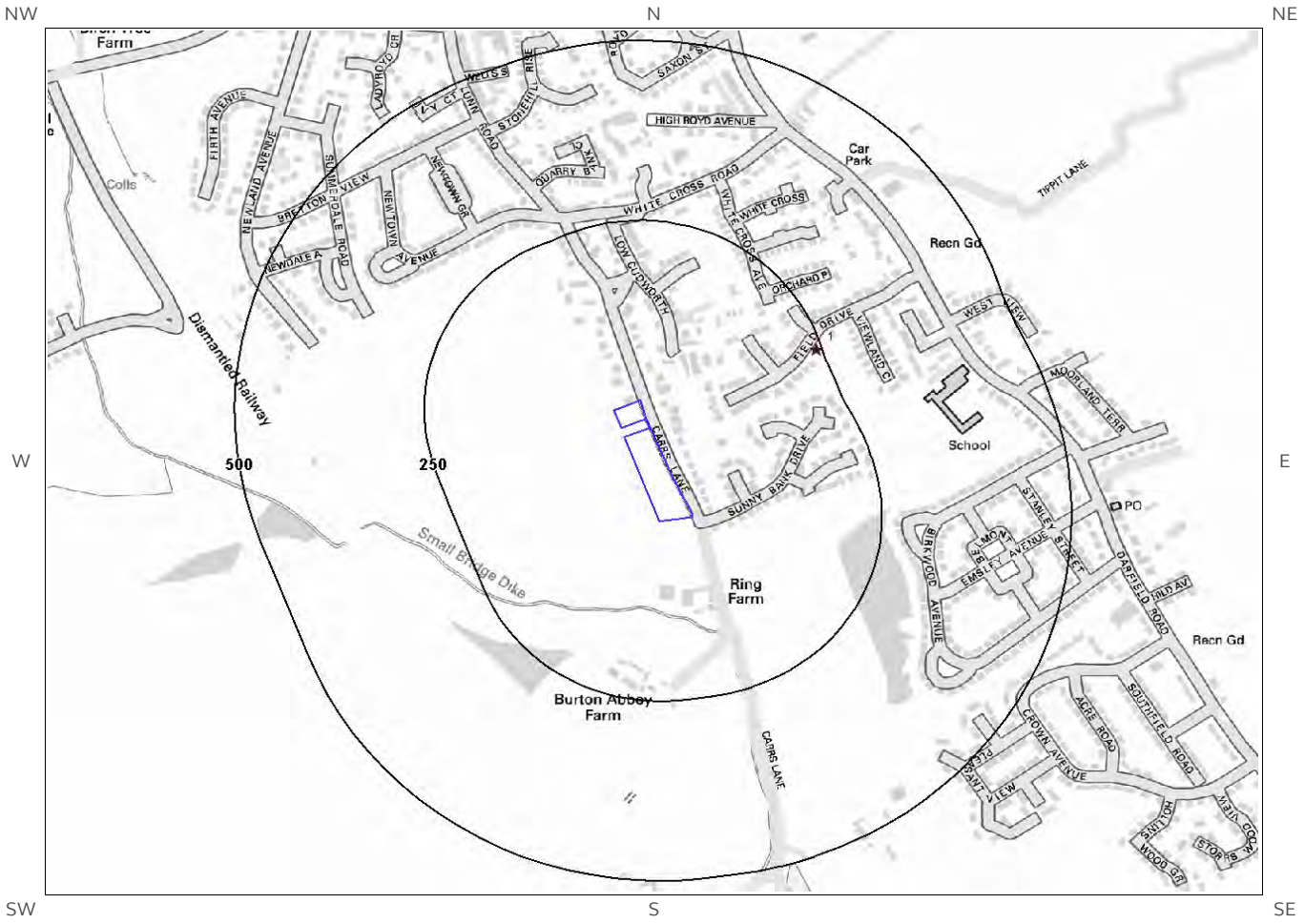
The following waste treatment, transfer or disposal sites records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details	
17A	513	W	438300 408100	Site Address: Cudworth, Barnsley, South Yorkshir Type: Landfill taking Non-Biodegradeable Wastes Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MES008 EPR reference: EA/EPR/WP3690ZB/S002 Operator: Messrs Heeley & Sanders Waste Management licence No: 60543 Annual Tonnage: 40271.0	Issue Date: 08/09/1994 Effective Date: - Modified: - Surrendered Date: May 17 2001 12:00AM Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Former Cudworth Railway Station Correspondence Address: -
18A	513	W	438300 408100	Site Address: Cudworth, Barnsley, S Yorks Type: Landfill taking Non-Biodegradeable Wastes Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MES008 EPR reference: - Operator: Messrs Heeley & Sanders Waste Management licence No: 60543 Annual Tonnage: 0.0	Issue Date: 08/09/1994 Effective Date: - Modified: - Surrendered Date: 17/05/2001 Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Former Cudworth Railway Station Correspondence Address: 350, Midland Road, Royston, Barnsley, S Yorks, S71 4AZ

ID	Distance (m)	Direction	NGR	Details	
Not shown	974	NW	438000 408700	Site Address: Land At Junction Of, Pontefract Road & Burton Road, West Green, Barnsley, South Yorkshire Type: Inert & excavation Waste TS + treatment Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: EJL002 EPR reference: EA/EPR/AP3390ZY/V003 Operator: E J Lidster (Construction) Ltd Waste Management licence No: 60546 Annual Tonnage: 74999.0	Issue Date: 31/01/1994 Effective Date: - Modified: 23/08/2013 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Land At Junction Of Pontefract Road And Burton Road Correspondence Address: -
Not shown	974	NW	438000 408700	Site Address: The Brickyard, Burton Road, West Green, Barnsley, South Yorkshire, S71 4RP Type: Transfer Station taking Non-Biodegradable Wastes Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: EJL002 EPR reference: EA/EPR/AP3390ZY/A001 Operator: E J Lidster Construction Ltd Waste Management licence No: 60546 Annual Tonnage: 30000.0	Issue Date: 31/01/1994 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: E. J. Lidster Correspondence Address: -
Not shown	974	NW	438000 408700	Site Address: Land At Junction Of, Pontefract Road & Burton Road, West Green, Barnsley, South Yorkshir Type: Inert & excavation Waste TS + treatment Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SEA001 EPR reference: EA/EPR/BB3702UV/T001 Operator: Sealquest Limited Waste Management licence No: 60546 Annual Tonnage: 74999.0	Issue Date: 31/01/1994 Effective Date: 14/06/2014 Modified: 23/08/2013 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Transferred Site Name: Land At Junction Of Pontefract Road And Burton Road Correspondence Address: -
Not shown	1026	NW	438100 408900	Site Address: Bleachcroft Farm, Cudworth, Barnsley, S Yorks, S72 8UX Type: Landfill taking Non-Biodegradeable Wastes Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ARM001 EPR reference: - Operator: Armstrong Ralph Waste Management licence No: 60593 Annual Tonnage: 0.0	Issue Date: 15/04/1991 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: R. Armstrong Correspondence Address: Bleachcroft Farm, Cudworth, Barnsley, S Yorks, S72 8UX
Not shown	1026	NW	438100 408900	Site Address: Bleachcroft Farm, Barnsley Road, Cudworth, Barnsley, South Yorkshire, S72 8UX Type: Landfill taking Non-Biodegradeable Wastes Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ARM001 EPR reference: EA/EPR/YP3290ZR/A001 Operator: Armstrong Mr R Waste Management licence No: 60593 Annual Tonnage: 125000.0	Issue Date: 15/04/1991 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: R. Armstrong Correspondence Address: -
Not shown	1026	NW	438100 408900	Site Address: Bleachcroft Farm, Barnsley Road, Cudworth, Barnsley, S Yorks, S72 8UX Type: Landfill taking Non-Biodegradeable Wastes Size: < 25000 tonnes Environmental Permitting Regulations	Issue Date: 15/04/1991 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued

ID	Distance (m)	Direction	NGR	Details	
				(Waste) Licence Number: ARM001 EPR reference: - Operator: Armstrong Ralph Waste Management licence No: 60593 Annual Tonnage: 0.0	Site Name: R. Armstrong Correspondence Address: Bleachcroft Farm, Barnsley Road, Cudworth, Barnsley, S Yorks, S72 8UX
Not shown	1257	W	437600 408500	Site Address: West Green Testing Centre, Burton Road, Monk Bretton, Barnsley, South Yorkshire, S71 5RS Type: Metal Recycling Site (mixed MRS's) Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: DHI001 EPR reference: EA/EPR/JP3990ZA/A001 Operator: Dennis Higgs & Son Ltd Waste Management licence No: 60601 Annual Tonnage: 30000.0	Issue Date: 17/12/1992 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Expired Site Name: Dennis Higgs & Son Ltd Correspondence Address: -
Not shown	1422	W	437400 408350	Site Address: Unit 1, The Brick Yard, Burton Road, Barnsley, South Yorkshire, S71 5RP Type: ELV Facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: 000152 EPR reference: EA/EPR/TP3792ZM/A001 Operator: Roddis Francis Lee Waste Management licence No: 65337 Annual Tonnage: 3.0	Issue Date: 24/06/2004 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Ford Salvage Centre Correspondence Address: -
Not shown	1485	SW	438000 406800	Site Address: Lundwood Wwtw, Lund Lane, Barnsley, South Yorkshire, S71 5PA Type: Biological Treatment Facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: YOR039 EPR reference: EA/EPR/YP3392ZB/V003 Operator: Yorkshire Water Services Ltd Waste Management licence No: 65474 Annual Tonnage: 24999.0	Issue Date: 17/05/2006 Effective Date: - Modified: 22/04/2009 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Lundwood Wwtw Correspondence Address: -

4. Current Land Use Map



Site Outline

Search Buffers (m)
250
500

Current Industrial Sites

Petrol & Fuel Sites

Electricity Transmission Cables

Gas Transmission Pipelines

4. Current Land Uses

4.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site: 1

The following records are represented as points on the Current Land Uses map.

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	242	E	Electricity Sub Station	439076 408244	South Yorkshire, S72	Electrical Features	Infrastructure and Facilities

4.2 Petrol and Fuel Sites

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

Database searched and no data found.

4.3 National Grid High Voltage Underground Electricity Transmission Cables

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

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

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

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

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

Database searched and no data found.

5. Geology

5.1 Artificial Ground and Made Ground

Database searched and no data found.

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

5.2 Superficial Ground and Drift Geology

Database searched and no data found.

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

5.3 Bedrock and Solid Geology

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

Lex Code	Description	Rock Type
GH-SDST	GLASS HOUGHTON ROCK	SANDSTONE
PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION	MUDSTONE, SILTSTONE AND SANDSTONE

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

6 Hydrogeology and Hydrology

6a. Aquifer Within Superficial Geology

Site Outline

250 — Search Buffers (m)
500

Principal Aquifer

Secondary (A) Aquifer - Permeable Layers

Secondary (B) Aquifer - Lower Permeability Layers

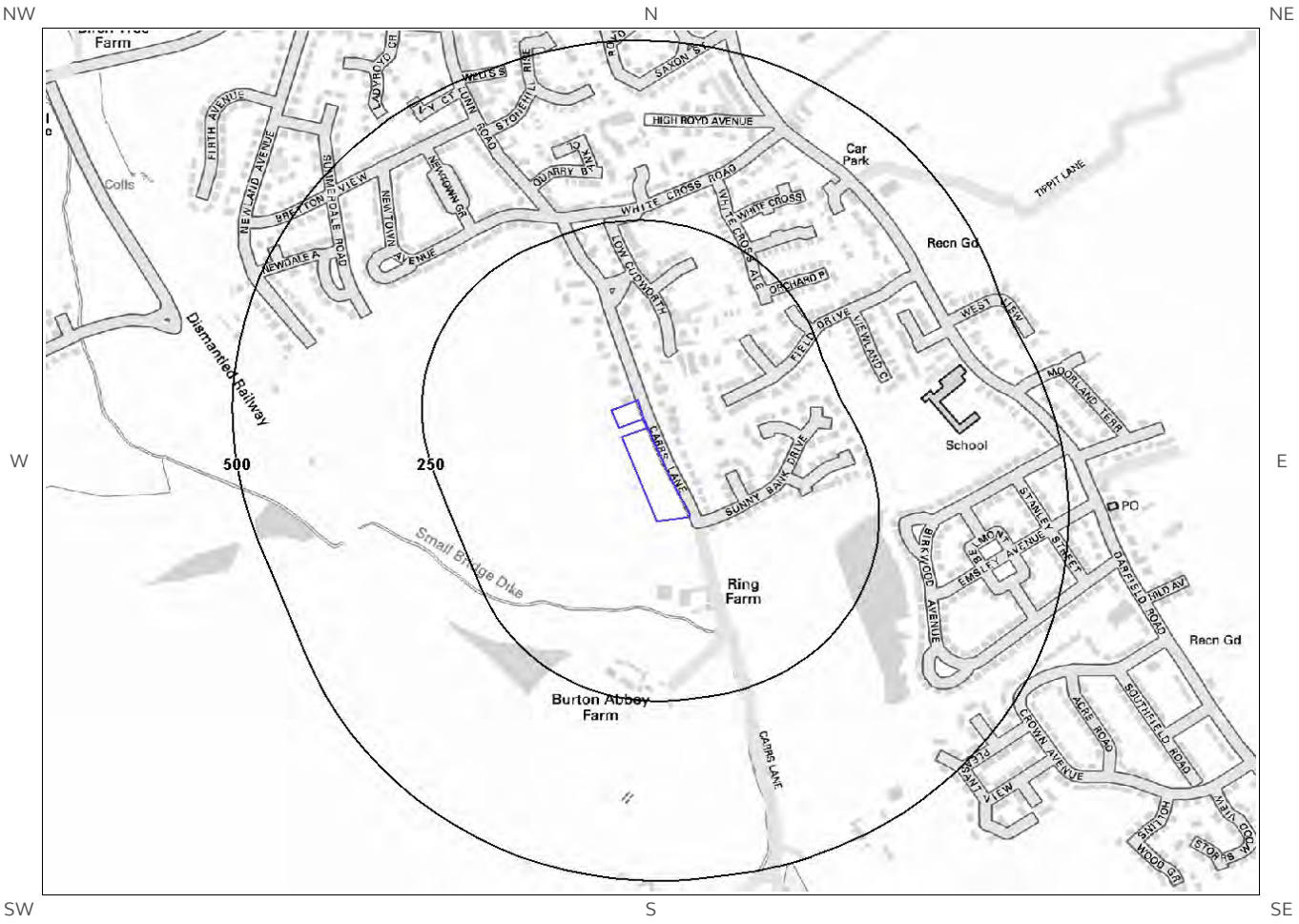
Secondary Aquifer - Undifferentiated Layers

Unproductive

Unknown (lakes and landslip)

6b. Aquifer Within Bedrock Geology and Abstraction Licences

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



Site Outline

250
500
Search Buffers (m)

Source Protection Zone 1 - Inner Catchment

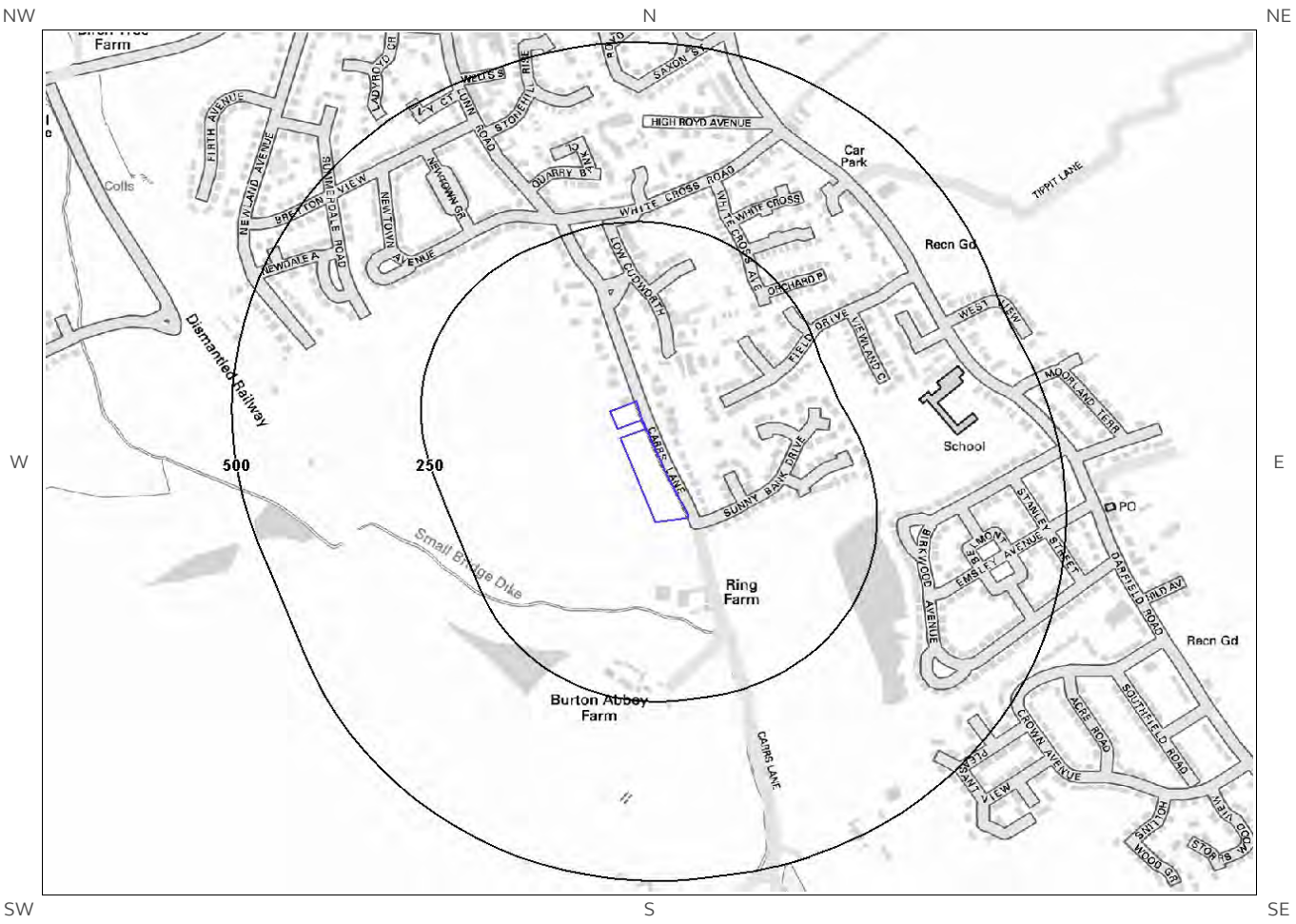
Source Protection Zone 2 - Outer Catchment

Source Protection Zone 3 - Total Catchment

Source Protection Zone 4 - Zone of Special Interest

Potable Water Abstraction Licence

6d. Hydrogeology – Source Protection Zones within confined aquifer



Source Protection Zone 1 - Inner Catchment

Source Protection Zone 2C - Outer Catchment within Confined Aquifer

Source Protection Zone 3C - Total Catchment within Confined Aquifer

Potable Water Abstraction Licence

Site Outline

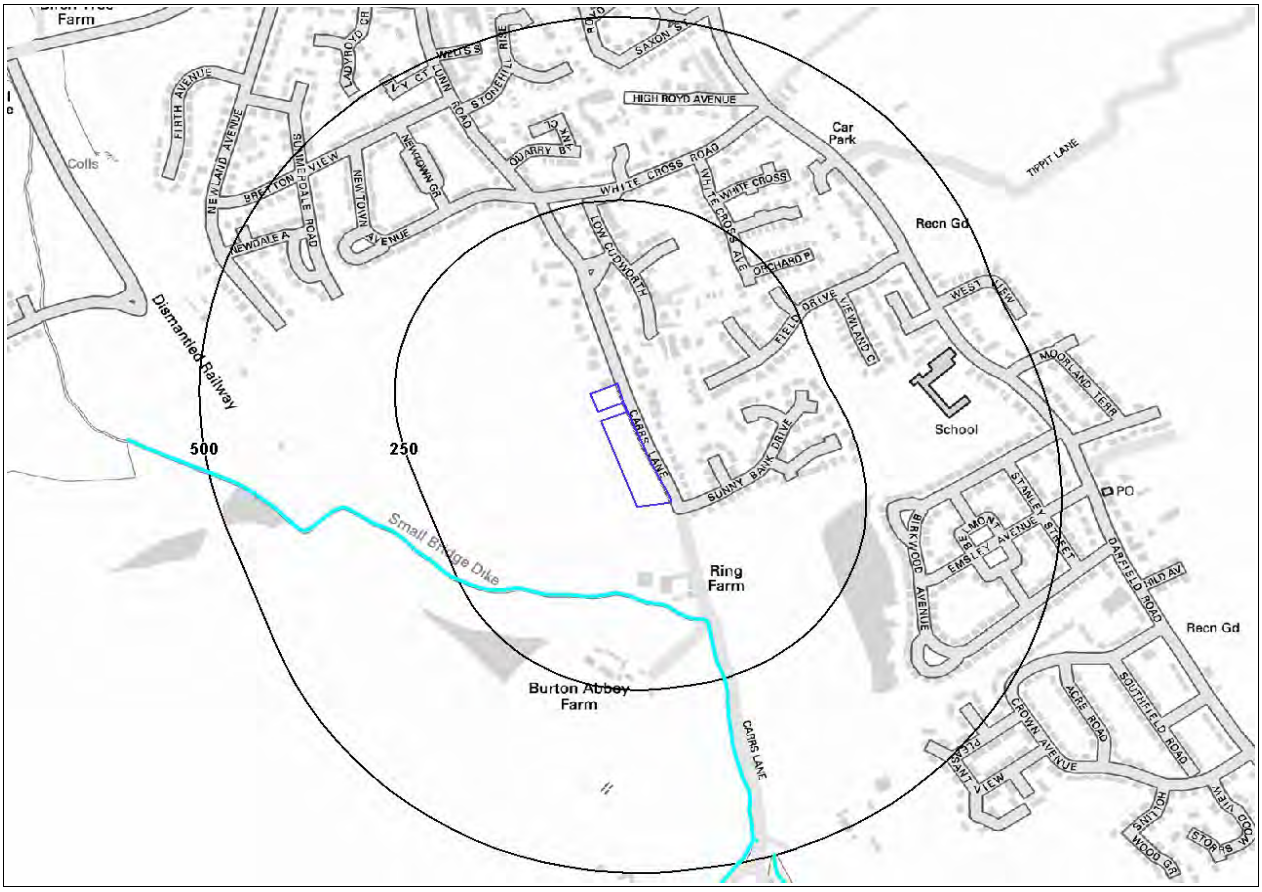
250
500
Search Buffers (m)

6e. Hydrology – Watercourse Network and River Quality

NW N NE

W E

SW S SE



Site Outline

250
500
Search Buffers (m)

Tidal River
Inland River
Underground or Elevated Tidal River
Underground or Elevated Inland River
Foreshore
General Quality Assessment: Chemistry

Canal
Underground or Elevated Canal
Lock or Flight of Locks
Lake, Reservoir, or Marsh
Drain or Transfer
General Quality Assessment: Biology

6.Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

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

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

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

ID	Distance (m)	Direction	Designation	Description
1	117	S	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

6.2 Aquifer within Bedrock Deposits

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

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

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

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

6.3 Groundwater Abstraction Licences

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

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

ID	Distance (m)	Direction	NGR	Details	
Not shown	1654	SE	439584 406499	Status: Active Licence No: NE/027/0008/011 Details: General Farming & Domestic Direct Source: GROUNDWATERS Point: BOREHOLE - COAL MEASURES - TYERS HALL - BARNSLEY Data Type: Point Name: J & E Dickinson	Annual Volume (m^3): 30000 Max Daily Volume (m^3): 100 Original Application No: - Original Start Date: 19/12/2012 Expiry Date: 31/03/2029 Issue No: 1 Version Start Date: 19/12/2012 Version End Date:
Not shown	1654	SE	439584 406499	Status: Active Licence No: NE/027/0008/011 Details: Heat Pump Direct Source: GROUNDWATERS Point: BOREHOLE - COAL MEASURES - TYERS HALL - BARNSLEY Data Type: Point Name: J & E Dickinson	Annual Volume (m^3): 30000 Max Daily Volume (m^3): 100 Original Application No: - Original Start Date: 19/12/2012 Expiry Date: 31/03/2029 Issue No: 1 Version Start Date: 19/12/2012 Version End Date:

6.4 Surface Water Abstraction Licences

Surface Water Abstraction Licences within 2000m of the study site — Identified

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

ID	Distance (m)	Direction	NGR	Details	
Not shown	1288	SE	439770 407050	Status: Active Licence No: 2/27/08/090 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER Point: RIVER DEARNE Data Type: Point Name: J & E DICKINSON	Annual Volume (m^3): 144000 Max Daily Volume (m^3): 3408 Application No: - Original Start Date: 25/07/1977 Expiry Date: - Issue No: 101 Version Start Date: 01/11/2006 Version End Date:
Not shown	1288	SE	439770 407050	Status: Active Licence No: 2/27/08/090 Details: Spray Irrigation - Storage Direct Source: SURFACE WATER Point: RIVER DEARNE Data Type: Point Name: J & E DICKINSON	Annual Volume (m^3): 144000 Max Daily Volume (m^3): 3408 Application No: - Original Start Date: 25/07/1977 Expiry Date: - Issue No: 101 Version Start Date: 01/11/2006 Version End Date:

6.5 Potable Water Abstraction Licences

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

Database searched and no data found.

6.6 Source Protection Zones

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

Database searched and no data found.

6.7 Source Protection Zones within Confined Aquifer

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

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

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

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

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Minor Aquifer/Low Leaching Potential	L	Soils in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants.
16	NE	Minor Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.
191	S	Minor Aquifer/High Leaching Potential	H3	Coarse textured or moderately shallow soils which readily transmit non-adsorbed pollutants and liquid discharges but have some ability to attenuate adsorbed pollutants because of their clay or organic matter content.

6.9 River Quality

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

6.9.1 Biological Quality:

Biological Quality data describes water quality in terms of 83 groups of macroinvertebrates, some of which are pollution sensitive. The results are graded from A ('Very Good') to F ('Bad').

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

ID	Distance (m)	Direction	NGR	River Quality Grade	Biological Quality Grade				
					2005	2006	2007	2008	2009
Not shown	1062	SE	439348 407043	River Name: Dearne Reach: Lundwood Stw Cudworth Dyke End/Start of Stretch: End of Stretch NGR	D	D	D	D	D
Not shown	1062	SE	439348 407043	River Name: Dearne Reach: Cudworth Dyke Grimethorpe Dike End/Start of Stretch: Start of Stretch NGR	D	D	D	D	D
Not shown	1288	S	438507 406768	River Name: Dearne Reach: Lundwood Stw Cudworth Dyke End/Start of Stretch: Start of Stretch NGR	D	D	D	D	D

6.9.2 Chemical Quality:

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

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

					Chemical Quality Grade				
ID	Distance (m)	Direction	NGR	River Quality Grade	2005	2006	2007	2008	2009
Not shown	1062	SE	439348 407043	River Name: River Dearne Reach: Cudworth Dyke Grimethorpe Dike End/Start of Stretch: Start of Stretch NGR	E	E	E	D	D

6.10 Ordnance Survey MasterMap Water Network

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

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

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

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
1	120 S	Small Bridge Dike	Inland river not influenced by normal tidal action.	Catchment Area: Don and Rother Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.0
18	120 S	Small Bridge Dike	Inland river not influenced by normal tidal action.	Catchment Area: Don and Rother Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.0
2	155 S	Small Bridge Dike	Inland river not influenced by normal tidal action.	Catchment Area: Don and Rother Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3
19	155 S	Small Bridge Dike	Inland river not influenced by normal tidal action.	Catchment Area: Don and Rother Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3
3	347 S	Small Bridge Dike	Inland river not influenced by normal tidal action.	Catchment Area: Don and Rother Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				conditions) Average Width in Watercourse Section (m): 2.8
Not shown	347 S	Small Bridge Dike	Inland river not influenced by normal tidal action.	Catchment Area: Don and Rother Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.8
4	472 S	Small Bridge Dike	Inland river not influenced by normal tidal action.	Catchment Area: Don and Rother Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 8.9
5	472 S	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Don and Rother Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.3
Not shown	472 S	Small Bridge Dike	Inland river not influenced by normal tidal action.	Catchment Area: Don and Rother Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 8.9
Not shown	472 S	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Don and Rother Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.3
6	498 S	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Don and Rother Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 14.2
Not shown	498 S	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Don and Rother Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 14.2

6.11 Surface Water Features

Surface water features within 250m of the study site Identified

The following surface water records are not represented on mapping:

Distance (m)	Direction
119	S
127	S
163	S

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

Site Outline

100
250
Search Buffers (m)

Zone 2 Floodplain

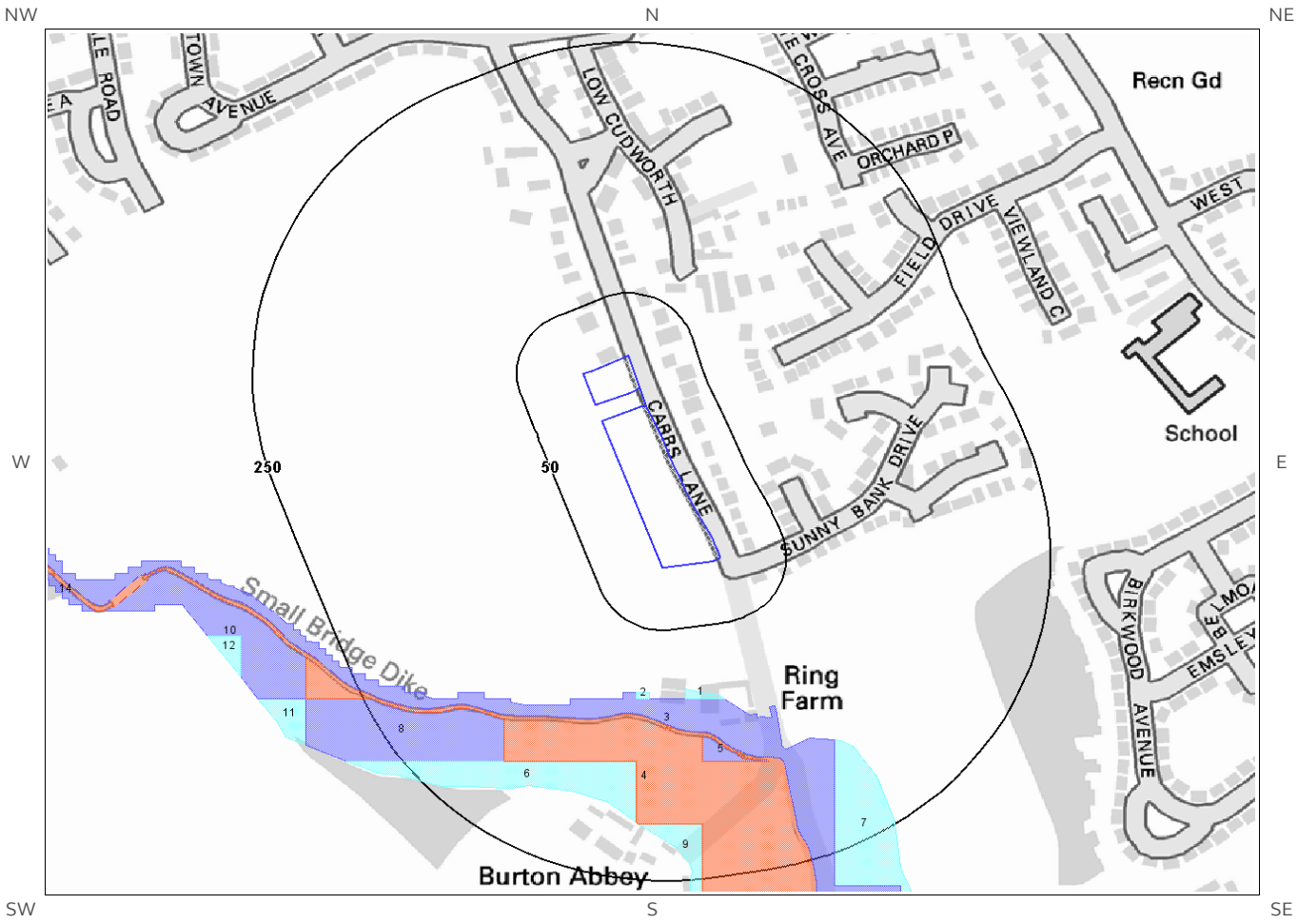
Zone 3 Floodplain

Flood Defences

Area used for Flood Storage

Area Benefiting from Flood Defences

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



Site Outline

100 250 Search Buffers (m)

RoFRaS Rating

Very Low

Low

Medium

High

7 Flooding

7.1 River and Coastal Zone 2 Flooding

Environment Agency/Natural Resources Wales Zone 2 floodplain within 250m — Identified

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

ID	Distance (m)	Direction	Update	Type
1	98	S	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
2	100	S	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
3	105	S	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
4	146	S	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
5	151	SW	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
6	155	SW	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
7A	156	S	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
8	158	SE	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
9A	159	S	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
10	193	S	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
11	202	SW	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
12	205	SW	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)

7.2 River and Coastal Zone 3 Flooding

Environment Agency/Natural Resources Wales Zone 3 floodplain within 250m — Identified

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

ID	Distance (m)	Direction	Update	Type
1	104	S	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)

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

Highest risk of flooding onsite — Very Low

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

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

7.4 Flood Defences

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

Database searched and no data found.

7.5 Areas benefiting from Flood Defences

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

7.6 Areas benefiting from Flood Storage

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

7.7 Groundwater Flooding Susceptibility Areas

7.7.1 British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site — Identified

Clearwater Flooding or Superficial Deposits Flooding — Clearwater Flooding

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

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

Limited potential

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

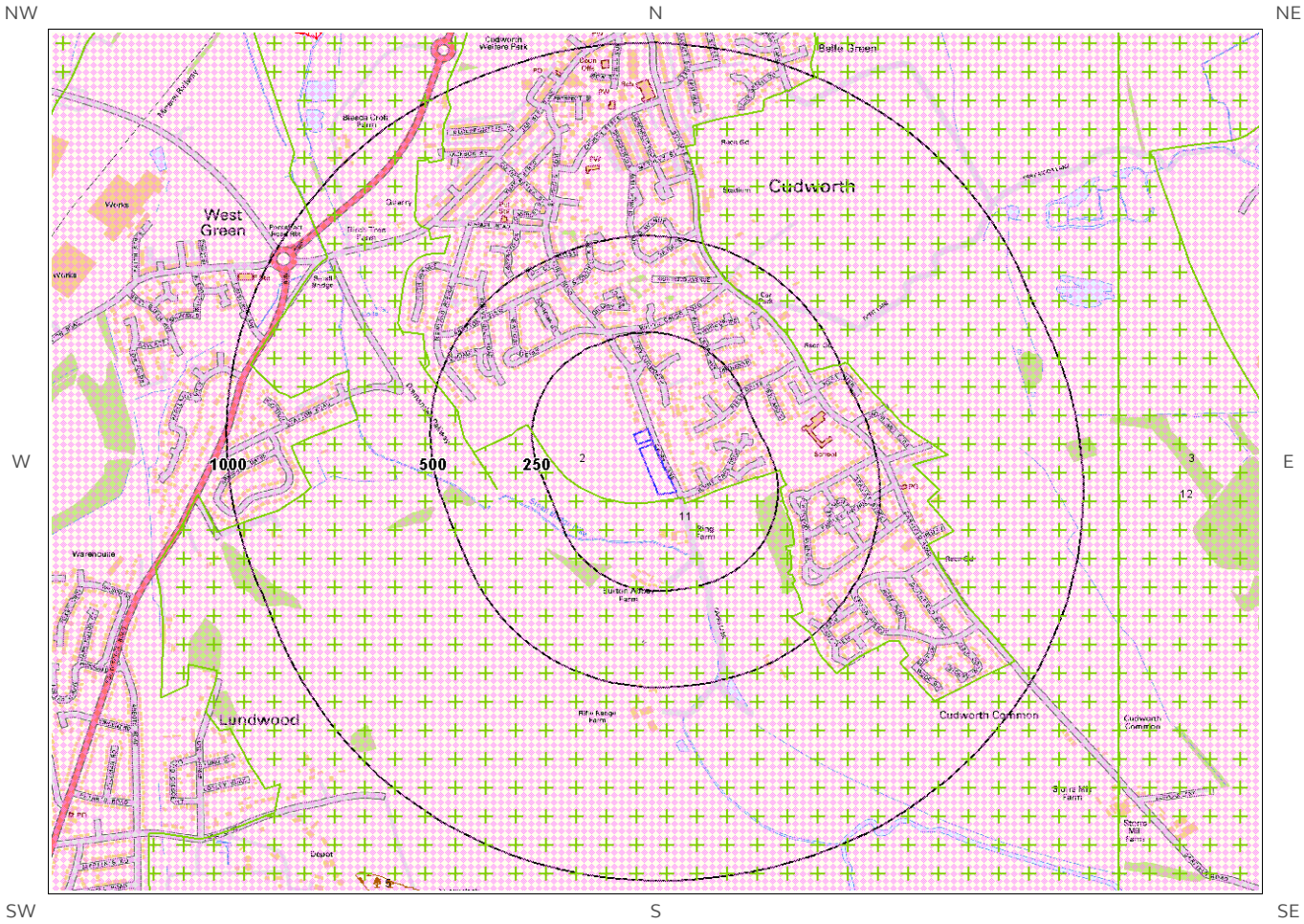
7.8 Groundwater Flooding Confidence Areas

British Geological Survey confidence rating in this result	Low

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

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

8. Designated Environmentally Sensitive Sites Map



Site Outline

100 Search Buffers (m)
250

AONB
National Park
SSSI
Special Protection Areas
Nitrate Vulnerable Zones

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

Ancient Woodland
National Nature Reserve
Local Nature Reserves
Ramsar Sites

8. Designated Environmentally Sensitive Sites

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

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

6

The following records of Designated Ancient Woodland provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	Ancient Woodland Name	Data Source
5	1168	SW	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1179	S	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1392	S	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1476	SE	STORRS WOOD	Ancient and Semi-Natural Woodland
Not shown	1552	S	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1690	S	UNKNOWN	Ancient and Semi-Natural Woodland

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

1

The following Local Nature Reserve (LNR) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	LNR Name	Data Source
1	1288	NW	Carlton Marsh (mapped boundary not verified)	Natural England

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

3

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

ID	Distance (m)	Direction	NVZ Name	Data Source
2	0	On Site	Existing	DEFRA
3	1087	E	Existing	DEFRA
Not shown	1827	N	Existing	DEFRA

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

3

Green Belt data contains Ordnance Survey data © Crown copyright and database right [2015].

ID	Distance	Direction	Green Belt Name	Local Authority Name
11	16	S	Liverpool, Manchester and West Yorks Greenbelt	Barnsley District (B)
12	1087	E	Liverpool, Manchester and West Yorks Greenbelt	Barnsley District (B)
Not shown	1827	N	Liverpool, Manchester and West Yorks Greenbelt	Barnsley District (B)

9. Natural Hazards Findings

9.1 Detailed BGS GeoSure Data

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

9.1.1 Shrink Swell

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

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

Hazard
Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.

9.1.2 Landslides

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

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

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

9.1.3 Soluble Rocks

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

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

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

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

9.1.4 Compressible Ground

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

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

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

9.1.5 Collapsible Rocks

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

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

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

9.1.6 Running Sand

Maximum Running Sand** hazard rating identified on the study site — Negligible

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

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

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

9.2 Radon

9.2.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The site is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.

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

9.2.2 Radon Protection

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

10. Mining

10.1 Coal Mining

Coal mining areas within 75m of the study site — Identified

The following coal mining information provided by the Coal Authority is not represented on Mapping:

Distance (m)	Direction	Details
0	On Site	The study site is located within the specified search distance of an identified mining area. Further details concerning this can be obtained from the Coal Authority Helpline on 0845 762 6848.

10.2 Non-Coal Mining

Non-Coal Mining areas within 50m of the study site boundary — Identified

The following non-coal mining information is provided by the BGS:

Distance (m)	Direction	Name	Commodity	Assessment of likelihood
0.0	On Site	Not available	Iron Ore (Bedded)	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered

Past underground mine workings may occur. The rock types present in these areas are such that small mineral veins may be present on which it is possible that small scale mining has been undertaken and/or it is possible that limited underground extraction of other materials may have occurred. All such occurrences are likely to be of minor localised extent and infrequent. It should be noted, however, that there is always the possibility of the existence of other sub-surface excavations, such as wells, cess pits, follies, air raid shelters/bunkers and other military structures etc. that could affect surface ground stability but which are outside the scope of this dataset. However, if in a coalfield area you should still consider a Coal Authority mining search for the area of interest.

10.3 Brine Affected Areas

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

Contact Details

Groundsure Helpline
Telephone: 08444 159 000
info@groundsure.com

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

Environment Agency
National Customer Contact Centre, PO Box 544
Rotherham, S60 1BY
Tel: 03708 506 506
Web: **www.environment-agency.gov.uk**
Email: enquiries@environment-agency.gov.uk

Public Health England
Public information access office
Public Health England, Wellington House
133-155 Waterloo Road, London, SE1 8UG
www.gov.uk/phe
Email:**enquiries@phe.gov.uk**
Main switchboard**: 020 7654 8000**

The Coal Authority
200 Lichfield Lane
Mansfield
Notts NG18 4RG
Tel: 0345 7626 848
DX 716176 Mansfield 5
www.coal.gov.uk

Ordnance Survey
Adanac Drive, Southampton
SO16 0AS
Tel: 08456 050505

Local Authority
Authority: Barnsley Metropolitan Borough Council
Phone: 01226 770770
Web: http://www.barnsley.gov.uk/
Address: PO Box 634, Barnsley, South Yorkshir, S70 9GG

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

Standard Terms and Conditions

Groundsure's Terms and Conditions can be viewed online at this link:

https://www.groundsure.com/terms-and-conditions-feb11-2019

APPENDIX D

Photographic Record

Photo Reference	Description
A	Site layout and location of photographs.
B	Looking E towards Area 1.
C	Large storm water basin W of Areas 1/2.
D	Collapsed dry stone wall adjacent to Carrs Lane (Area 2)
E	W boundary of Area 2.
F	Looking NE across Area 2 from W boundary.
G	Looking S along W boundary of Area 2.
H	Looking N along E boundary of Area 3.
I	Looking N along W boundary of Area 3.
J	Looking S along W boundary of Area 3.
K	New stone wall with original wall rubble in fore-ground at NE corner of Area 3.
L	Looking S along E boundary of Area 3.
M	Temporary showroom with car parking area in Area 4.
N	Looking towards E boundary of Area 5.

PHOTO A: Site layout & location of photographs.

Photograph B – Looking E towards Area 1.

Photograph C – Large storm water basin in new housing development W of Area 1/2.

Photograph D – Collapsed dry stone wall adjacent to Carrs Lane (Area 2)

Photograph E – W boundary of Area 2.

Photograph F – Looking NE across Area 2 from W boundary.

Photograph G – Looking S along W boundary of Area 2.

Photograph H - Looking N along E boundary of Area 3.

Photograph I – Looking N along W boundary of Area 3.

Photograph J – Looking S along W boundary of Area 3.

Photograph K – New stone wall with old wall rubble in foreground.

Photograph L – Looking S along E boundary of Area 3.

Photograph M – Temporary showroom and car park in Area 5.

Photograph N – Looking toward E boundary of Area 5.

APPENDIX E

Coal Authority Mining Report

The Coal Authority

CON29M Non-Residential Mining Report

LAND AT CARRS LANE
CUDWORTH
BARNSLEY
S72 8JG

Date of enquiry:	**18 March 2019**
Date enquiry received:	**18 March 2019**
Issue date:	**18 March 2019**
Our reference:	**51002048973001**
Your reference:	**19052**

CON29M Non-Residential Mining Report

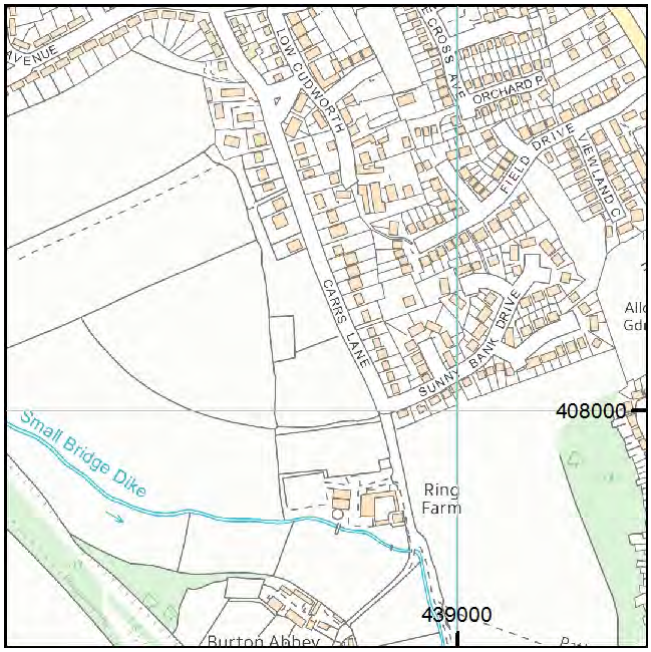
This report is based on, and limited to, the records held by the Coal Authority, at the time we answer the search.

Client name

SILKSTONE ENVIRONMENTAL LTD

Enquiry address

LAND AT CARRS LANE
CUDWORTH
BARNSLEY
S72 8JG



Approximate position of property

How to contact us

0345 762 6848 (UK)
+44 (0)1623 637 000 (International)

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

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

Summary

Has the search report highlighted evidence or potential of		
1	Past underground coal mining	Yes
2	Present underground coal mining	No
3	Future underground coal mining	Yes
4	Mine entries	No
5	Coal mining geology	No
6	Past opencast coal mining	No
7	Present opencast coal mining	No
8	Future opencast coal mining	No
9	Coal mining subsidence	Yes
10	Mine gas	No
11	Hazards related to coal mining	No
12	Withdrawal of support	Yes
13	Working facilities order	No
14	Payments to owners of former copyhold land	No

Further recommended reports
Subsidence claims history
Subsidence claims 50m buffer report

For detailed findings, please go to page 4.

Detailed findings

1. Past underground coal mining

The property is in a surface area that could be affected by underground mining in 7 seams of coal at 270m to 660m depth, and last worked in 1987.

Any movement in the ground due to coal mining activity associated with these workings should have stopped by now.

2. Present underground coal mining

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

3. Future underground coal mining

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

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

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

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

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

4. Mine entries

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

5. Coal mining geology

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

6. Past opencast coal mining

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

7. Present opencast coal mining

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

8. Future opencast coal mining

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

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

9. Coal mining subsidence

A damage notice or claim for alleged subsidence damage was made in September 1995 for 40 CARRS LANE, CUDWORTH, BARNSLEY, SOUTH YORKSHIRE, S72 8EJ. However, the claim was rejected.

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

There are a further 2 claims within 50 metres of the property boundary that do not match the property address. These are shown on the enquiry boundary plot.

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.

If further subsidence damage claims information is required, please visit www.groundstability.com.

10. Mine gas

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

11. Hazards related to coal mining

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

12. Withdrawal of support

The property is in an area where notices to withdraw support were given in 1977 and 1981.

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

13. Working facilities order

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

14. Payments to owners of former copyhold land

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

Comments on the Coal Authority information

The Coal Authority own the copyright in this report and the information used is protected by our database right.

A site investigation was carried out in April 2015 by Sirius, 4245 Park Approach, Thorpe Park, Leeds, LS15 8GB on behalf of Barratt DWH Yorks West, Vico Court, Ring Road, Lower Wortley, Leeds, LS12 6AN.

A site investigation was carried out in September 2014 by Sirius Remediation Ltd, 4245 park Approach, Thorpe Park, Leeds, LS15 8GB on behalf of Barratt DWH Yorks West.

Additional remarks

Information provided by the Coal Authority in this report is compiled in response to the Law Society's CON29M Coal Mining enquiries. The said enquiries are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL. This report is prepared in accordance with the Law Society's Guidance Notes 2018, the User Guide 2018 and the Coal Authority's Terms and Conditions applicable at the time the report was produced.

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Alternative formats

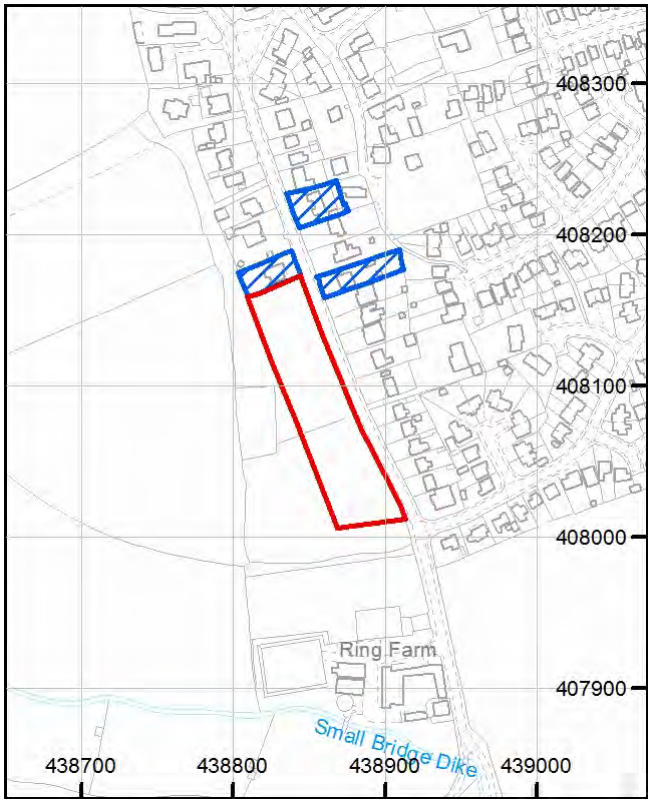
If you would like this information in an alternative format, please contact our communications team on 0345 762 6848 or email communications@coal.gov.uk.

Enquiry boundary

Key

Approximate position of enquiry boundary shown

Coal claims



Map data

How to contact us

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200 Lichfield Lane
Mansfield
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NG18 4RG

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/thecoalauthority
/thecoalauthority

APPENDIX F

Environment Agency Flood Map for Planning (Rivers and Sea)

Flood map for planning

Your reference	Location (easting/northing)	Created
19052	**438858/408090**	**14 Apr 2019 11:02**

Your selected location is in flood zone 1, an area with a low probability of flooding.

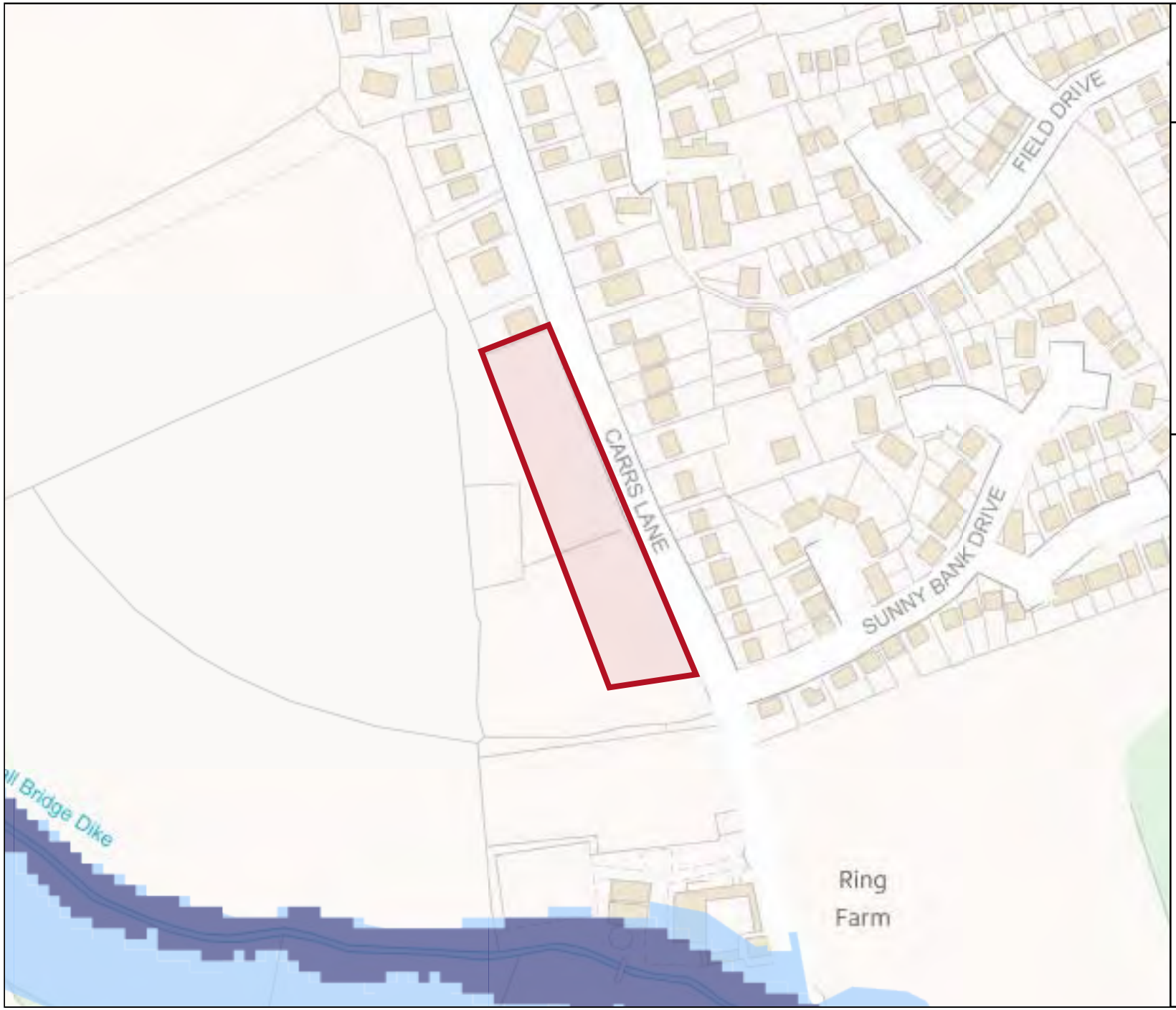
This means:

- you don't need to do a flood risk assessment if your development is smaller than 1 hectare and not affected by other sources of flooding
- you may need to do a flood risk assessment if your development is larger than 1 hectare or affected by other sources of flooding or in an area with critical drainage problems

Notes

The flood map for planning shows river and sea flooding data only. It doesn’t include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.



Environment Agency

Flood map for planning

Your reference
19052

Location (easting/northing)
438858/408090

Scale
1:2500

Created
14 Apr 2019 11:02

- Selected area
- Flood zone 3
- Flood zone 3: areas benefitting from flood defences
- Flood zone 2
- Flood zone 1
- Flood defence
- Main river
- Flood storage area

0 20 40 60m

APPENDIX G

Guide to the Risk Assessment Process Under CIRIA C552

The estimation of 'probability; and 'consequence' are made based on the following classifications:

The **probability** (likelihood) of a risk being realised can be classified as follows:

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

The **consequence** (severity) of a risk being realised can be classified as follows:

- **Severe:** Short-term (acute) risk to human health likely to result in 'significant harm' as defined by the Environmental Protection Act 1990, Part 2A. Short-term risk of pollution of sensitive water resources. Catastrophic damage to buildings / property. Short-term risk to a particular ecosystem, or organism forming part of such ecosystem;
- **Medium:** Chronic damage to human health ('significant harm' as defined in 'Draft Circular on Contaminated Land', DETR 2000). Pollution of sensitive water resources. A significant change in a particular ecosystem;
- **Mild:** Pollution of non-sensitive water resources. Significant damage to buildings, structures and services ('significant harm' as defined in 'Draft Circular on Contaminated Land', DETR 2000). Damage to sensitive buildings / structures / services. Significant damage to crops. Damage to the environment;
- **Minor:** Harm, although not necessarily significant harm, which may result in a financial loss, or expenditure to resolve. Non-permanent human health effects to human health (easily prevented by means such as personal protective clothing, etc). Easily repairable effects of damage to buildings, structures and services.

Once the probability of an event occurring and its consequence have been classified, a risk category can be assigned from the Table below.

Risk Classification Matrix from CIRIA C552

Probability	Consequence			
	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

The definitions of the risk categories within the above Table are provided in section 3.6 of the report.