

The logo for ByrneLooby, with 'BYRNE' in orange and 'LOOBY' in white, set against a dark blue background.

BYRNELOOBY

IRELAND | UK | UAE | BAHRAIN | KSA

WHALEY ROAD, BARUGH GREEN, BARNESLEY

PHASE 1 GEO-ENVIRONMENTAL REPORT

Melia Smith & Jones Limited

Report No. 14-K0030-000-ST-R001

06 August 2021

Revision 01

BYRNELOOBY

BYRNELOOBY

BYRNELOOBY

Document Control

Document: PHASE 1 GEO-ENVIRONMENTAL REPORT
Project: WHALEY ROAD, BARUGH GREEN, BARNLEY
Client: Melia Smith & Jones Limited
Report Number: 14-K0030-000-ST-R001

Document Checking:

Revision	Revision/ Review Date	Details of Issue	Authorised		
			Prepared By	Checked By	Approved By
01	06 August 2021	Issued for use	Mark Wilson & Jonny Lewis	Mark Wilson	Kourosh Azimi

Disclaimer: Please note that this report is based on specific information, instructions, and information from our Client and should not be relied upon by third parties.

Contents

1 Introduction 1

 1.1 Report Objectives..... **Error! Bookmark not defined.**

 1.2 Objectives 1

2 The Site 2

 2.1 Site Location and Description..... 2

3 Site History and Mapping 5

 3.1 Historical Mapping 5

4 Environmental Setting..... 12

5 Additional Information 16

 5.1 Previous Reports 16

 5.2 Historical Coal Mining 16

6 Preliminary Environmental Risk Assessment..... 18

 6.1 Introduction 18

 6.2 Conceptual Site Model..... 18

7 Geotechnical Considerations 22

 7.1 Introduction 22

8 Conclusions and Recommendations 23

 8.1 Environmental..... 23

 8.2 Geotechnical..... 23

 8.3 Recommendations..... 23

9 References..... 25

Appendix A – Service Constraints Report Limitations & Planning Requirements A

Appendix B – Current and Proposed Development Plans B

Appendix C – Site Photographs C

Appendix D – Historical Ordnance Survey Plans..... D

Appendix E – Groundsure® Report..... E

Appendix F – Zetica – Regional Unexploded Bomb Risk Map..... F

Appendix G – GroundSure® Consultants Coal Mining Report..... G

Appendix H – CIRIA Risk Classification Scheme H

1 Introduction

1.1 Instruction

ByrneLooby Partners UK Limited (ByrneLooby) was instructed by Melia Smith & Jones Limited (the Client) to carry out a Phase 1 preliminary geo-environmental assessment of a site at Whaley Road, Barugh Green, Barnsley.

The 'Service Constraints Report Limitations & Planning Requirements' are presented as **Appendix A**.

The proposed development is understood to comprise the construction of a commercial warehouse building in the northern corner of the site. A proposed site development plan is presented in **Appendix B**.

1.2 Objectives

The purpose of the report is to provide a preliminary assessment of the site using published information in relation to the proposed development of the site.

This report has been devised to comply with the relevant principles and requirements of a range of guidance with regards to potentially contaminated land, including but not limited to:

- Part IIA of the Environment Protection Act, 1990;
- Contaminated Land (England) (Amendment) Regulations 2012 and Contaminated Land Statutory Guidance (DEFRA, April 2012);
- National Planning Policy Framework (HCA, February 2019);
- BS5930:2015: "Code of practice for site investigations";
- BS10175: 2011 +A2:2017 "Investigation of Potentially Contaminated Sites - Code of Practice";
- The Building Regulations 2010. Part C (HM Government 2013)
- Environment Agency Guidance (October 2020) Land Contamination Risk Management Land Contamination (LCRM);
- Environment Agency (2011) Report GPLC1 "Guiding Principles for Land Contamination";
- Environment Agency (2017) "The Environment Agency's Approach to Groundwater Protection" November 2017 Version 1.1.

2 The Site

2.1 Site Location and Description

Table 2.1 below provides details of the location and size of the site, including site address and/ or nearest postcode, grid reference and current land use both on and in the vicinity. A description of the surrounding land use is presented in **Table 2.2**, and a description of the site based on publicly available information is presented in **Table 2.3**. The approximate site location is shown in **Figure 1** and the site boundary in **Figure 2**.

Table 2.1 Site Location

Site Location	
Site Address	Whaley Road, Barugh Green, Barnsley
Nearest Town/City	Barugh Green, 1.05 km to the west. Redbrook, 1.06 km to the southeast.
Postcode (Nearest)	S75 1HT
Grid Reference	432152, 408301
Size of Site (Approx.)	0.71 ha
Topography	Ground elevations are generally flat, with elevations ranging between 68 m AOD in the northern part of site and 71 m AOD in the southern part of site.
Current Land Use	The site comprises of an industrial unit and is currently used for storing plant equipment and construction materials. Several buildings are located along the northeast boundary of the site. The ground surface appears to be compacted hardstanding. The site also contains above ground fuel tanks for fuelling of construction plant and a concrete area for plant and equipment washdown.

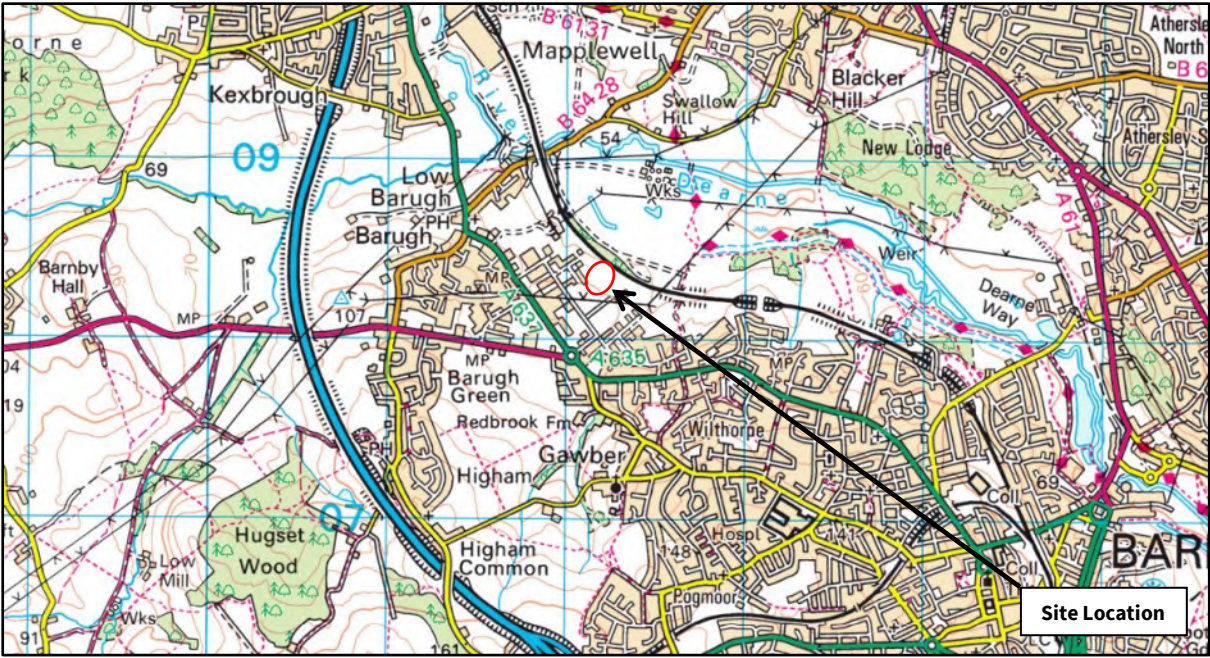


Figure 1 Site Location Plan

Reproduced from Ordnance Survey 1:50,000 Map with the permission of Ordnance Survey® on behalf of the Controller of Her Majesty's Stationary Office © Crown copyright (2008) All Rights Reserved Licence number 100035365.

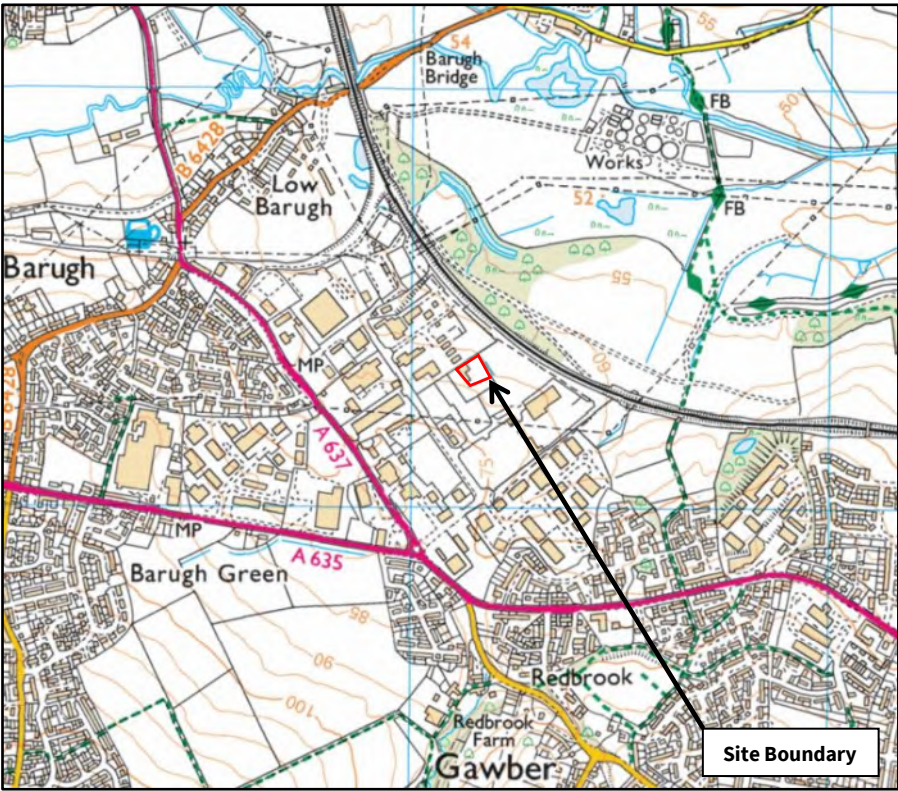


Figure 2 Site Boundary Plan

Reproduced from Ordnance Survey 1:25,000 Map with the permission of Ordnance Survey® on behalf of the Controller of Her Majesty's Stationary Office © Crown copyright (2008) All Rights Reserved Licence number 100035365.

Table 2.2 Surrounding Land Use

Surrounding Land Use	
North	Industrial units and railway line beyond.
East	Industrial units and railway line beyond.
South	Industrial units and Whaley Road beyond.
West	Industrial units and Whaley Road beyond.

Table 2.3 Site Description

Site Description
<p>A site walkover was undertaken by a representative of ByrneLooby on 21st July 2021. Photographs are presented in Appendix C.</p> <p>The site comprised an open area of industrial land, located approx. 3km northwest of Barnsley city centre. The site covers an approx. area of 0.71ha and was accessed via an asphalt road from the site’s southern boundary, off Whaley Road.</p> <p>The site does not contain any fauna or flora.</p> <p>The site surface is comprised of compacted hardcore.</p> <p>The site is currently occupied by Wordsworth excavations and is used as a lay-down area for heavy plant and machinery. A number of Intermediate Bulk Container (IBC)s containing ad-blue was noted on the site, and two large above ground bunded fuel tanks containing white diesel and red diesel. Several empty fuel drums were noted on the site. Site material storage appears well controlled with designated storage areas.</p> <p>A concrete pad on the eastern boundary of site is used as a washdown area for plant and a surface drain runs along the eastern site boundary.</p> <p>The site is surrounded on all sides by the Redbrook Industrial Estate.</p>

3 Site History and Mapping

3.1 Historical Mapping

Historical Ordnance Survey (OS) mapping for the site area has been obtained and reviewed. These map and plan extracts date from the 1854 OS County Series to the current 2021 National Grid OS Plans. The historical plans reviewed have been reproduced in **Appendix D**. The key points of the historical development of the site and surrounding area are summarised below in **Table 3.1** below.

Table 3.1 Key Points of Site Development (1854 – 2021) and Surrounding Area

OS Map Edition	On-site	Off-site
1854 County Series Plan 1:10,560	The site spans across three arable fields.	<p>The site is surrounded by arable fields.</p> <p>Lancashire & Yorkshire Railway line located approx. 60 m northeast of site.</p> <p>Barnsley Canal located approx. 240 m north of site.</p> <p>Clay Cliff located approx. 245 m south of site.</p> <p>Well associated with Clay Cliff located approx. 250 m south of site.</p> <p>Unnamed Stream located approx. 255 m southwest of site.</p> <p>Clay Cliff Quarry (Sandstone) located approx. 270 m west of site.</p> <p>Unnamed Road located approx. 275 m southwest of site.</p> <p>Clay Cliff House located approx. 345 m south of site.</p> <p>Pump located approx. 355 m south of site.</p> <p>Unnamed Pond located approx. 320 m east of site.</p> <p>Unnamed Pond located approx. 355 m south of site.</p> <p>Day House located approx. 360 m east of site.</p> <p>Day House Wood located approx. 360 m southeast of site.</p> <p>Unnamed Pond located approx. 370 m southeast of site.</p> <p>Unnamed Road located approx. 380 m south of site.</p>

<p>1891 County Series Plan 1:10,560 1893 County Series Plan 1:2,500</p>	<p>No significant changes noted.</p>	<p>Clay Cliff Quarry (Sandstone) located approx. 270 m west of site no longer present, replaced by unnamed pond. Unnamed Pond located approx. 355 m south of site no longer present. Unnamed Pond located approx. 370 m southeast of site no longer present. Unnamed Pond located approx. 480 m northeast of site.</p>
<p>1904 County Series Plan 1:10,560 1906 County Series Plan 1:2,500</p>	<p>Footpath crosses southern part of the site.</p>	<p>Golf Course located approx. 105 m southeast of site. Well associated with Clay Cliff located approx. 250 m south of site no longer present. Pump located approx. 355 m south of site no longer present. Unnamed Pond located approx. 480 m northeast of site now part of marsh/swamp land.</p>
<p>1930 County Series Plan 1:10,560</p>	<p>No significant changes noted.</p>	<p>Golf Course located approx. 105 m southeast of site no longer present. Barugh Coke and By-Products Works (includes buildings, tanks, cooling ponds, and railway sidings) located approx. 90 m east and 100 m northeast of site. Coalite Works (includes buildings, tanks, and railway sidings) located approx. 100 m northeast of site. Chemical Works located approx. 125 m southeast of site. Tank located approx. 345 m northeast of site. Unnamed Pond located approx. 355 m south of site. Unnamed Pond located approx. 480 m northeast of site no longer present.</p>
<p>1938 County Series Plan 1:10,560</p>	<p>No significant changes noted.</p>	<p>Unnamed Road located approx. 275 m southwest of site relabelled "Claycliffe Road". Unnamed Road located approx. 380 m south of site relabelled "Barugh Green Lane".</p>

		Residential properties located between approx. 425 m and 485 m south of site.
1948 County Series Plan 1:10,560	Unnamed tip associated with Barugh Coke and By-Products Works covers the northern, western, and southern parts of site.	Expansion of railway sidings associated with Barugh Coke and By-Products Works located approx. 60 m northeast, 35 m east and 130 m south of site. Expansion of Residential properties located between approx. 425 m and 485 m south of site.
1956 Provisional Plan 1:10,560	Electricity pylons cross the site from north to south.	No significant changes noted.
1961 National Grid Plan 1:2,500	No significant changes noted.	Unnamed pond located approx. 75 m west of site.
1966 Provisional Plan 1:10,560	Electricity pylons previously crossing the site from north to south no longer present. Unnamed tip associated with Barugh Coke and By-Products Works now covers the entire site.	Expansion of unnamed tip to immediate north, east, and south of site. Unnamed pond located approx. 75 m west of site now infilled. Reduction in buildings, tanks, cooling ponds and railway sidings associated with Barugh Coke and By-Products Works located approx. 90 m east and 100 m northeast of site. Cooling ponds associated with Barugh Coke and By-Products Works located approx. 185 m northeast of site now infilled. Barnsley Canal located approx. 240 m north of site now disused. Unnamed Stream located approx. 255 m southwest of site partially culverted under unnamed tip and relabelled "Drain". Unnamed pond (formerly Clay Cliff Quarry (Sandstone)) located approx. 270 m west of site no longer present. Clay Cliff House located approx. 345 m south of site no longer present. Chemical Works located approx. 125 m southeast of site no longer present. Reduction in buildings, tanks, and railway sidings associated with Coalite Works (now relabelled

		<p>Works) located approx. 100 m northeast of site.</p> <p>Tank located approx. 345 m northeast of site no longer present.</p> <p>Opencast Workings located approx. 350 m east and 450 m southwest of site.</p> <p>Expansion of Residential properties located approx. 425 m south of site.</p>
<p>1970 National Grid Plan 1:2,500 (Partial)</p> <p>1971 National Grid Plan 1:2,500 (Partial)</p>	<p>Unnamed tip located on-site referred to as "Slag Heap"</p>	<p>Remaining buildings and railway sidings associated with Barugh Coke and By-Products Works located approx. 90 m east and 100 m northeast of site no longer present.</p> <p>Infilled unnamed pond located approx. 75 m west of site no longer present.</p> <p>Refuse Tip located approx. 175m west of site.</p> <p>Motor Repair Works located approx. 210m southwest of site.</p> <p>Refuse tip located approx. 225m northwest of site.</p> <p>Depot and Redbrook Steel Works located approx. 230 m west of site.</p> <p>Electricity Transformer Substation and associated pylons located approx. 265 m northeast of site.</p>
<p>1973 National Grid Plan 1:10,000</p>	<p>Unnamed Tip located on-site now disused.</p>	<p>Electricity pylons located approx. 45 m south of site.</p> <p>Day House located approx. 360 m east of site no longer present.</p> <p>Works located approx. 445m southwest of site.</p> <p>Opencast Workings located approx. 450 m southwest of site no longer present.</p>
<p>1978 National Grid Plan 1:2,500 (Partial)</p>	<p>No significant changes noted.</p>	<p>Whaley Road located approx. 95 m west of site.</p> <p>Depots and warehouses located approx. 85-230 m northwest of site.</p>
<p>1982 National Grid Plan 1:10,000</p>	<p>Unnamed Tip no longer present on-site.</p>	<p>Unnamed tip to immediate north, east, and south of site no longer</p>

	Depot building encroaches onto northwest boundary of site.	<p>present, now located approx. 105 m south of site.</p> <p>Depots located approx. 20-75 m northeast of site.</p> <p>Works (former Coalite Works) located approx. 100 m northeast of site no longer present.</p> <p>Refuse Tip located approx. 175m west of site no longer present.</p> <p>Infilled cooling ponds associated with Barugh Coke and By-Products Works located approx. 185 m northeast of site no longer present.</p> <p>Refuse tip located approx. 225m northwest of site no longer present.</p> <p>Expansion of Depot and Redbrook Steel Works located approx. 230 m west of site.</p> <p>Works & Depots located approx. 305-465 m northwest of site.</p> <p>Opencast Workings located approx. 350 m east of site no longer present.</p> <p>Expansion of Works located approx. 445m southwest of site.</p>
1989 National Grid Plan 1:2,500	No significant changes noted.	<p>Motor Repair Works located approx. 210m southwest of site relabelled “Garage”.</p> <p>Works and Depot located approx. 230 m west of site now labelled “South Yorkshire (Redbrook) Industrial Estate.”</p>
1991 National Grid Plan 1:2,500	No significant changes noted.	No significant changes noted.
1993 National Grid Plan 1:2,500 1993 National Grid Plan 1:10,000	Two depot buildings now encroach onto northwest boundary of site.	<p>Expansion of Whaley Road located approx. 150 m south of site.</p> <p>Woodland created on-site of former Works / former Coalite Works located approx. 100 m northeast of site.</p> <p>Reduction in size of unnamed tip now located approx. 255 m south of site, also relabelled “Disused Workings”.</p> <p>Unnamed works located approx. 225 m south of site.</p>

		<p>Expansion of South Yorkshire (Redbrook) Industrial Estate located approx. 230 m west of site.</p> <p>Expansion of Works & Depots located approx. 305-465 m northwest of site.</p> <p>Garage located approx. 370 m southwest of site.</p> <p>Garage located approx. 375 m south of site.</p> <p>Unnamed works located approx. 475 m west of site.</p>
2001 National Grid Plan 1:10,000	No significant changes noted.	No significant changes noted.
2001 National Grid Plan 1:10,000	Expansion of South Yorkshire (Redbrook) Industrial Estate, now includes the site.	<p>Expansion of South Yorkshire (Redbrook) Industrial Estate located approx. 230 m west of site.</p> <p>Disused Workings located approx. 255 m south of site no longer present.</p> <p>Expansion of Whaley Road located approx. 305 m southeast of site.</p> <p>Reduction in size of Day House Wood, now located approx. 435 m southeast of site.</p> <p>Expansion of Works located approx. 445m southwest of site.</p> <p>Residential estate (The Leylands, Wood Acre Coppice Avenue) located approx. 460 m southeast of site.</p> <p>Unnamed works located approx. 475 m west of site relabelled "Claycliffe Business Park".</p>
2003 Landline Plan 1:1,250	Boundary fence of South Yorkshire (Redbrook) Industrial Estate intersects northeast and southeast boundary of site.	No significant changes noted.
2010 National Grid Plan 1:10,000	No significant changes noted.	<p>Expansion of South Yorkshire (Redbrook) Industrial Estate located approx. 105 m east, 205 m southwest and 290 m northwest of site.</p> <p>Zeneith Park (Business Park) located approx. 250m southeast of site.</p>

		Expansion of Claycliffe Business Park located approx. 475 m west of site. Unnamed pond located approx. 485 m northeast of site.
2021 National Grid Plan 1:10,000	No significant changes noted.	Expansion of woodland located approx. 160 m northeast of site.

4 Environmental Setting

The anticipated environmental setting (geology, hydrogeology, hydrology, landfill etc.) for the site are summarised and discussed within **Tables 4.1 to 4.10** below. Full listings are provided in the Groundsure® Report, as presented in **Appendix E**.

Table 4.1 Geology

Geology Type	Description
Artificial/ Infilled Ground	Worked Ground or Made Ground is indicated to be present on-site. Given the historical development of the site (as identified in historical maps), the potential for presence of Made Ground on-site is expected.
Superficial	Superficial deposits are not indicated to be present on-site.
Bedrock	The site is underlain by Pennine Middle Coal Measures Formation of mudstone, siltstone, and sandstone.
Faults	Three faults are recorded within 500 m of the site, the nearest of these is inferred 125m northwest of the site and striking northeast-southwest.
Other Information sources	65 historical BGS borehole data recorded within 250 m of the site. 59 of the boreholes are confidential. 6 of the boreholes are publicly available.

Table 4.2 Hydrogeology

	Description
Aquifer	Pennine Middle Coal Measures Formation – Secondary A Aquifer.
Groundwater Vulnerability	Secondary bedrock aquifer with low leaching potential and medium vulnerability.
Groundwater Source Protection Zone (GSPZ)	None identified within 500m of the site.
Groundwater Classification	Site located within a medium groundwater vulnerable zone.
Groundwater Abstraction Licenses	None identified within 500 m.

Table 4.3 Hydrology

	Description
Surface Water Feature	Four surface water features are noted within 500m of the site. The nearest of these is an inland stream narrower than 5m situated approximately 150m northwest of site. Unnamed underground inland river located on-site, not influenced by normal tidal action

Surface Water Classification	Site located within WFD river water body catchment for Dearne from Cawthorne Dyke to Lundwood STW.
Surface Water Abstraction Licenses	No records of surface water abstraction licenses within 2000m of site.
Flooding	<p>The site is not within any floodplains.</p> <p>RoFRaS data for the site indicates a “Negligible” (greater than or equal to 1 in 30 chance) risk of flooding (depth between 0.30 m – 1.00 m) in any given year, for the site.</p> <p>The site is located within a “negligible” risk zone of groundwater flooding, with a “negligible” risk zone of groundwater flooding located within 50 m of the site.</p>

Table 4.4 Mining and Mineral Extraction

	Description
Mining/Historical Workings/ Natural Cavities	<p>Coal Mining</p> <p>The site is located within a coal mining area as defined by the Coal Authority and a consultant’s coal mining report has been procured.</p> <p>2 Brit Pits were identified within 500 m of the Site. The nearest of these is situated 303m west of the site and was described as a surface mineral working for sandstone. The second of the Brit Pits was located 481m south of the site and was described as a surface mineral working for coal.</p> <p>65 records of surface ground workings were identified within 250 m of the site, including 6 records of surface ground workings on-site which include refuse heaps and an unspecified disused tip.</p> <p>13 records of underground workings were identified within 1 km of the site, the nearest of these is situated 672m southeast of site and is noted as an unspecified mine.</p> <p>Non-Coal Mining</p> <p>There is 1 record of non-coal mining activities identified within 500 m of the site. The closest being on-site, Class B, for Iron Ore (bedded) minerals and described as sporadic localised underground mining of restricted extent, where potential for difficult ground conditions are unlikely or localised at a level they need not be considered.</p>

Table 4.5 Ground Stability

Hazard Type	Description
Shrinking/ Swelling Clays	Very low hazard potential.
Running Sand	Very low to low hazard potential.
Compressible Ground	Very low to low hazard potential.
Collapsible Ground	Very low hazard potential.
Landslide	Very low hazard potential.

Ground Dissolution	Negligible hazard potential.
--------------------	------------------------------

Table 4.6 Landfill/ Waste Sites (within 500 m)

Description
<p>No active or recent landfill sites were identified within 500 m of the site.</p> <p>Ten historical landfill sites were identified within 500 m of the site, the nearest of these is situated on-site and was operated by Longden Homes and accepted Inert, Commercial wastes between 1983 and 1984.</p> <p>Two licensed waste sites were identified within 500 m of the site. Both are situated on-site and take inert wastes for treatment and transfer.</p> <p>17 waste exemption sites were identified within 500 m of the site. The nearest of these is situated 47m northwest of site associated with Amalgamated Construction, Barnsley, non-agricultural waste (Use of waste in a secure place, and storage of waste in secure containers.</p>

Table 4.7 Hazardous Ground Gases and UXO

	Description
Hazardous Ground Gas	The site is located within a coal mining area. High potential for Made Ground to be present on-site, given the historical development of the site which may be a significant source of ground gases.
Radon	The site is within a Radon Affected Area with 1% to 3% of properties above the Action Level. However, Radon Protection Measures are not required.
UXO	The site is within an area of low UXO risk. Zetica – Regional Unexploded Bomb Risk Map presented in Appendix F .

Table 4.8 Environmental Habitat and Cultural Designations

	Description
Land Based Designation	The site is not within an areas of Outstanding Natural Beauty (England), however Greenbelt land is situated 72m north east of site.
National Habitat Network All Habitats Combined (England)	The site is not within a habitat network. The nearest habitat network is deciduous woodland situated 91m northeast of site.
Land Based Schemes	The site is not subject to any land-based schemes.
Statutory schemes	The site is situated within a SSSI impact risk zone. Developments which could cause air pollution or involve combustion will require consultation with local authorities.
Nitrate Vulnerable Zone (NVZ)	The Site is located within a Nitrate Vulnerable Zone (NVZ) associated with the River Dearne NVZ.
Agricultural Designations	Site located within a Grade 3 (good to moderate quality) Agricultural Designation (Yorkshire & The Humber Region 1:250 000 Series Agricultural Land Classification).
Visual and Cultural Designations	The site is not subject to any visual or cultural designations.

Table 4.9 Potentially Contaminative Industry (On-site)

Description
Wordsworth Crushing Ltd noted on-site associated with ore mining and extractive industries.

Table 4.10 Potentially Contaminative Industry (within 250 m)

Description
<p>A number of potential contaminative industries are noted within 250m of the site, these include:</p> <ul style="list-style-type: none"> - AMCO Giffern, a civil engineering company, providing engineering services, located 46m northwest of site; - An electrical substation, located 80m southeast of site; - Naylor Concrete Products, an industrial production company, located 127m east of site; - Mike Tinker Motor Bodies, a vehicle repair and testing services, located 180m west of site; - Joe Pole Storage, a transport, storage, and delivery company, located 207m southwest of site; - AMCO drilling, cutting, welding, and drilling service, located 212m northwest of site; and, - Rolled Rings, a machine shop, and tools company, located 224m southwest of site.

5 Additional Information

5.1 Previous Reports

No previous ground investigation (GI) reports for the site have been prepared by ByrneLooby. Similarly, no third-party GI reports have been provided to ByrneLooby for review.

5.2 Historical Coal Mining Risk Assessment

The site is located within a coal mining area as defined by the Coal Authority. A review of the Groundsure® Consultant Coal Mining Report confirms that:

- The site is located in an area that could be affected by past underground mining in 10 seams at 126 m to 338 m bgl, last worked 1985. Of these 10 seams, four seams are located directly beneath the site with the shallowest located at 152 m bgl, last worked 1949 with a coal seam thickness of 0.76m.
- The site is not located within an area where probable unrecord shallow workings are present.
- No spine roadways were recorded within the vicinity of the site;
- No mine entries were recorded within 100 metres of the enquiry boundary.
- A minimum of 7 abandonment mine plan catalogues are available for the site;
- No outcrops, geological faults, fissures or breaklines were recorded within the vicinity of the site;
- Several licenced and unlicensed opencast mines were recorded within 500 m of the site; the nearest of this was situated approximately 481m south of site noted as 2C/3615 Whalley Road.
- No Coal Authority managed tips were recorded within 500 m of the site;
- No site investigations, remediated sites, or coal mining subsidence events were recorded within 50 m of the site;
- No mine gas or mine water treatment schemes were recorded within 500 m of the site;
- No future underground mining was recorded within the vicinity of the site;
- No coal mining licenses were recorded within 200 m of the site;
- No court orders, Section 46 notices, withdrawal of support notices or payments to owners of former copyhold land were recorded within the vicinity of the site; and,

- The site is located directly adjacent to a Coal Mining High Development Risk Area, a small area of the western corner of the site may be situated within a high-risk development area.
- The report concludes that the Coal Authority should be contacted in order to obtain technical advice and/or support in relation to understanding the mining legacy, its risks to the proposed development and what next steps would be needed.

Based on the above information, ByrneLooby does consider historical coal mining to present a significant risk to the site and recommends a Detailed Coal Mining Risk Assessment (CMRA) be undertaken for the site. The Groundsure® Consultant Coal Mining Report is presented as

Appendix G.

6 Preliminary Environmental Risk Assessment

6.1 Introduction

The risk posed by any contaminants in soil or groundwater will depend on the nature of the hazard, the probability of exposure, the pathway by which exposure occurs, and the likely effects on the receptors. A contaminant is defined as a substance that has the potential to cause harm, while a risk is considered to exist if such a substance is present in sufficient concentration to cause harm and a pathway exists for a receptor to be exposed to the substance.

The following sections discuss all the identified potential on and off-site sources, pathways, and receptors in the context of the proposed development and plausible pollutant linkages which may represent a risk to identified receptors such as human health and/or controlled waters from the data gained from the desk study. At this stage, the assessment is qualitative and aimed to determine all pollutant linkages, irrespective of significance or allowing for uncertainty.

Three impact potentials exist for any given site, these are:

- The site impacting upon itself;
- The site impacting on its surroundings; and,
- The surroundings impacting on the site.

All three impacts need to be considered in a risk assessment.

A Source, Pathway, Receptor analysis has been undertaken for the site based on the information provided in the preceding sections. This is presented as **Tables 6.1 to 6.3** and further information about the risk classification scheme is included within **Appendix H**.

Sources; these are potential or known sources of contamination that may relate to a former land use or present site feature or process (e.g., railway sidings).

Pathways; a pathway is defined as a mechanism or route by which a contaminant encounters, or otherwise affects a receptor. Pathways by which the identified receptors may be impacted upon in the context of the proposed development.

Receptors; receptors are defined as people, living organisms, ecological systems, controlled waters, atmosphere, structures, and utilities that could be adversely affected by contaminant(s).

6.2 Conceptual Site Model

Based on the data available the following Conceptual Site Model has been developed. **Tables 6.1 to 6.3** show the various components of the potential “source–pathway–receptor” pollutant linkages identified at the site.

Table 6.1 Potential Source of Contamination

Location	Source	Contaminant Type
On-site	<p>Thick Made Ground</p> <p>Bunded Fuel Tankers</p> <p>Vehicle washdown area</p> <p>Heavy Plant</p> <p>Historical landfill</p>	<p>Contaminants relating to the identified sources may include:</p> <ul style="list-style-type: none"> • Hydrocarbons (TPH, PAH) • Heavy Metals//Phytotoxic Elements; • Asbestos Containing Materials (ACM); • VOC's; and, • Hazardous Ground Gases
Off-site	<p>Substations and electricity pylons approx. 80m southeast of the site.</p> <p>Old railway sidings approximately 100m northeast of site, show on the 1893-2003 historical maps.</p> <p>Old Coke and Chemical works situated approximately 200m west of site, shown on the 1930-1956 historical maps.</p> <p>Old steel works located approx. 250m west of site shown on the 1970 historical maps.</p> <p>Old refuse tip located approx. 160m south of the site shown on 1956-1982 historical maps.</p>	<p>Contaminants in relating to the identified sources may include:</p> <ul style="list-style-type: none"> • Hydrocarbons (TPH, PAH) • Heavy Metals//Phytotoxic Elements; • Asbestos Containing Materials (ACM); • PCB's; and • Hazardous Ground Gases.

Table 6.2 Potential Pathways and Receptors

Pathways	Receptors
<p>Dermal contact, Ingestion, and inhalation.</p> <p>Migration of Contaminated Groundwater (Vertical/Lateral).</p>	<p><u>Human Health:</u></p> <ul style="list-style-type: none"> • Construction workers. • Future site users. <p><u>Controlled Waters:</u></p> <ul style="list-style-type: none"> • Pennine Middle Coal Measures – Secondary A Aquifer. • Inland streams and rivers to the north of site.

Table 6.3 Preliminary Conceptual Site Model

Source	Pathway	Receptor	Con	Prob	Risk	Mitigation/Investigation
On-site Thick Made Ground Bunded Fuel Tankers Vehicle washdown area Heavy Plant	Dermal contact, ingestion, and inhalation.	Future site users Construction workers	Md	Li	M	Construction workers should employ appropriate PPE and standard site safety measures during construction.
		Pennine Middle Coal Measures – Secondary A Aquifer. Inland river north of site.				Site investigation is recommended is assess extent of Made Ground across site and to test for a range of the potential contaminants from the on-site uses.
		Migration of contaminated groundwater (vertical/lateral).				Site investigation is recommended to assess extent of Made Ground across site and to test for a range of the potential contaminants from the on-site uses. Installation of monitoring wells to sample groundwaters and assess vertical and lateral groundwater flow from site, to assess risks to controlled waters.
Historical landfill Contaminants may include hydrocarbons, heavy metals, ACMs, VOC's, PAH's, hazardous ground gases.	Migration and accumulation of hazardous ground gasses and vapours (vertical/lateral) leading to asphyxiation (carbon dioxide) or explosion	Future site users	Sv	Li	H	Significant risk of ground gas production due to the history of infilled Made Ground over the site of unknown fill material. Site investigation is recommended with gas monitoring to determine the gas characteristic situation of the site.

	(methane, hydrocarbons).					
Off-site Made Ground associated with old railway sidings approximately 100m northeast of site, show on the 1893-2003 historical maps, Coke and Chemical works situated approximately 200m west of site, shown on the 1930-1956 historical maps, steel works located approx. 250m west of site shown on the 1970 historical maps, refuse tip located approx. 160m south of the site shown on 1956-1982 historical maps. Contaminants in unknown fill may include hydrocarbons, heavy metals, ACMS, and hazardous ground gasses.	Migration of contaminated groundwater (vertical/lateral).	Pennine Middle Coal Measures – Secondary A Aquifer. Inland river north of site.	Md	Li	M	Site investigation is recommended to assess extent of Made Ground across site and to test for a range of the potential contaminants from the on-site uses. Installation of monitoring wells to sample groundwaters and assess vertical and lateral groundwater flow from site, to assess risks to controlled waters.
	Migration and accumulation of hazardous ground gasses and vapours (vertical/lateral) leading to asphyxiation (carbon dioxide) or explosion (methane, hydrocarbons).	Future site users	Sv	Li	H	Significant risk of ground gas production due to the history of infilled Made Ground over the site of unknown fill material. Site investigation is recommended with gas monitoring to determine the gas characteristic situation of the site.

KEY:

Consequence: Sv = Severe, Md = Medium, Mi = Mild, Mr = Minor

Probability: Hi = High, Li = Likely, Lw = Low Likelihood, Ul = Unlikely

Risk: **VH = Very High**, **H = High**, **M = Moderate**, **M/L = Moderate/Low**, **L = Low**, **VL = Very Low**

Pollutant Linkage Assessment Summary - The pollutant linkage assessment has indicated that the site represents a **Medium to High** risk to human health and a **Medium** risk to controlled waters in the context of the current site status. The site has historically been used as industrial ground and as an unspecified refuse tip.

7 Geotechnical Considerations

7.1 Introduction

In addition to the environmental hazards, there are also geotechnical hazards associated with the stability of ground. Local Authorities follow the National Planning Policy Framework (NPPF, 2019) which requires that “site is suitable for its new use taking account of ground conditions and land instability, including from natural hazards or former activities such as mining.”

A summary of the geotechnical considerations is provided in **Table 7.1** below:

Table 7.1 Geotechnical Design Considerations

Hazard Type	Description
Ground Stability	Negligible to low hazard potential.
Geotechnical Hazards (Mining)	Potential risk to the development from historic coal mining. It is recommended a CMRA is undertaken for the site.
Site Clearance	No significant site clearance required to prepare the site.
Trees	No trees on the current site area of the proposed finished site area.
Existing Buildings / Obstructions	No existing buildings in area of proposed development.
Foundations	Shallow spread foundations may not be suitable for the proposed development. Raft foundations or piled foundations may be suitable assuming they are designed following appropriate standards. The volume change potential of the formation material should also be determined.
Groundwater	Groundwater conditions unknown.
Earthworks	Bulk earthworks as part of a wider remediation programme may be required for the proposed development.
Slopes	Slope stability is considered a negligible risk for the proposed development.
Retaining Structures	Retaining structures are not considered to be relevant to the proposed development.
Ground Aggressivity	It is recommended that ground aggressivity assessment is carried out to assess the concrete design as part of any further works.

8 Conclusions and Recommendations

8.1 Environmental

The site comprised of undeveloped arable land spanning across two fields from 1854 to 1948. By 1948 the site was used as a refuse tip until 1982 when it was developed as part of the Redbrook Industrial Estate. No further development has taken place.

The surrounding area around the site has a history of industrial usage including railways, chemical works, and landfills.

Given the sites history of development; it is considered likely there is Made Ground on-site of unknown fill material and unknown depth of fill.

Natural ground conditions at the site are indicated to comprise Pennine Middle Coal Measures formations of sandstone, siltstone and mudstone. The Made Ground is likely in contact with the natural ground bedrock and in hydraulic connectivity with the groundwaters beneath site.

Based on the information presented within this report and with due regard to the proposed development, it is the opinion of ByrneLooby that the site generally represents a moderate to high risk to human health and a moderate risk to controlled waters.

8.2 Geotechnical

There is a potential risk to the site from historical coal mining and it is recommended a CMRA is undertaken for the site.

There is also a potential geotechnical hazard associated with the site from the unknown depth and fill type of the Made Ground.

It is anticipated that shallow spread foundations will not be suitable at this site. Raft foundations or piled foundations may be suitable assuming they are designed following appropriate standards. The volume change potential of the formation material should also be determined and the aggressivity of the ground conditions.

8.3 Recommendations

Based on the risk assessment findings, to make a quantitative assessment of the potential risks and so any required remedial measures can be designed; we recommend that a site investigation is carried out in accordance with BS 10175: 2011+A2:2017. This should be combined with a geotechnical investigation carried out in accordance with BS 5930:2015. We recommend that this investigation comprises:

- Removal of the stored material in the area of the proposed warehouse before any site works are carried out;

- *Shallow boreholes (approx. 5-6mbgl) to assess depth, extent and characterisation of any Made Ground on-site and depth to the natural ground conditions;
- Shallow trial pits across the site assess depth, extent and characterisation of any Made Ground, and near the areas of stored fuel and AdBlue IBC's.
- Analytical chemical testing of soil samples recovered from shallow boreholes and trial pits for contaminants expected from site history;
- Geotechnical testing of soils for foundation design;
- Analytical chemical testing of water samples recovered from shallow boreholes for contaminants expected from site history;
- Installation of ground gas and groundwater monitoring wells in shallow boreholes;
- Ground gas monitoring of installation wells to assess the gas characteristic situations;
- A quantified application of risk assessment models for each contaminant identified in accordance with DEFRA's CLEA guidelines; and,
- Assessment of the Made Ground and natural strata to classify them in accordance with Landfill Waste Acceptance Criteria (as most developments require a portion of excess soil to be sent to a landfill site to ensure safe and legal disposal).

*Deeper rotary boreholes may also be required depending on the outcome of the Detailed CMRA.

Any proposals to remediate or develop the site should be agreed with the relevant authorities (e.g., local authority environmental health officer, Environment Agency etc) to obtain Planning Permission prior to commencement of the works and should be agreed with the NHBC or similar, or with the local authority building control officer prior to commencement of the works. Where remediation works are required, a verification report should be submitted to the relevant authorities for approval in accordance with relevant Planning Conditions.

9 References

1. British Standards Institute, (BSI), BS 8485:2015, Code of Practice for the characterization and remediation from Ground Gas in affected developments
2. British Standards Institute, (BSI), BS 8576:2013, Guidance on investigations for Ground Gas – Permanent gases and Volatile Organic Compounds (VOCs)
3. British Standards Institute, (BSI), BS 10175:2011+A1:2013, Investigation of Contaminated Sites – Code of Practice
4. British Standards Institute, (BSI), BS5930:2015) Code of practice for ground investigations
5. British Standards Institute, (BSI), BS EN 1997-1:2004 Incorporating corrigendum February 2009, Eurocode 7 – Geotechnical Design – Part 1: General rules.
6. British Standards Institute, (BSI), BS EN 1997-2:2007 Incorporating corrigendum June 2010, Eurocode 7 – Geotechnical Design – Part 2: Ground Investigation and testing.
7. Building Research Establishment Special Digest 1 Third Edition. Concrete in Aggressive Ground (2005)
8. Building Research Establishment (BRE) BR211, Radon; Guidance on Protective Measures for New Buildings (2015)
9. Construction Industry Research and Information Association (CIRIA), Report 132, A Guide to Safe working on Contaminated Sites (1996).
10. Construction Industry Research and Information Association (CIRIA). 2001, C522 Contaminated land risk assessment, A guide to good practice.
11. Construction Industry Research and Information Association (CIRIA). 2007, Report C665, Assessing Risk Posed by on Hazardous Ground Gases to Buildings
12. Department for Communities and Local Government (DCLG), 2012, National Planning Policy Framework.
13. Department for Environment Food and Rural Affairs (DEFRA), 2012, Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance.
14. Environment Agency Guidance Land Contamination Risk Management (LCRM) October 2020.
15. Health and Safety Executive (HSE) 'Protection of workers and the general public during the Development of Contaminated Land (1991).
16. Ministry of Housing, Communities & Local Government; Revised National Planning Policy Framework (NPPF); February 2019.

Appendix A – Service Constraints Report Limitations & Planning Requirements

Service Constraints, Report Limitations & Planning Requirements

This consultancy contract, report, and the site investigation (together comprise the "Services") were compiled and carried out by ByrneLooby Partners UK Limited (ByrneLooby) for Melia Smith & Jones Limited (the "client") on the basis of a defined programme and scope of works and the terms of a contract between ByrneLooby and the "client." The Services were performed by ByrneLooby with all reasonable skill and care ordinarily exercised by a reasonable environmental consultant at the time the Services were performed. Further, and in particular, the Services were performed by ByrneLooby taking into account the limits of the scope of works required by the client, the prevailing site conditions, the time scale involved and the resources, including financial and manpower resources, agreed between ByrneLooby and the client. ByrneLooby Partners UK Limited cannot accept responsibility to any parties whatsoever, following the issue of this report, for any matters arising which may be considered out with the agreed scope of works.

Other than that, expressly contained in the above paragraph, ByrneLooby provides no other representation or warranty whether express or implied, is made in relation to the Services. Unless otherwise agreed this report has been prepared exclusively for the use and reliance of the client in accordance with generally accepted consulting practices and for the intended purposes as stated in the agreement under which this work was completed. This report may not be relied upon, or transferred to, by any other party without the written agreement of a Director of ByrneLooby. If a third party relies on this report, it does so wholly at its own and sole risk and ByrneLooby disclaims any liability to such parties.

It is ByrneLooby's understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was a significant factor in determining the scope and level of the Services. Should the purpose for which the report is used, or the proposed use of the site change, this report may no longer be valid and any further use of, or reliance upon the report in those circumstances by the client without ByrneLooby's review and advice shall be at the client's sole and own risk.

The information contained in this report is protected by disclosure under Part 3 of the Environmental Information Regulations 2004 pursuant to the provisions of Regulation 12(5) without the consent in writing of a Director of ByrneLooby Partners UK Limited.

The report was written in July 2021 and should be read in light of any subsequent changes in legislation, statutory requirements, and industry practices. Ground conditions can also change over time and further investigations, or assessment should be made if there is any significant delay in acting on the findings of this report. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of ByrneLooby. In the absence of such written advice of ByrneLooby, reliance on the report in the future shall be at the client's own and sole risk. Should ByrneLooby be requested to review the report in the future, ByrneLooby shall be entitled to additional payment at the then existing rate, or such other terms as may be agreed between ByrneLooby and the client.

The observations and conclusions described in this report are based solely upon the Services that were provided pursuant to the agreement between the client and ByrneLooby. ByrneLooby has not performed any observations, investigations, studies or testing not specifically set out or mentioned within this report. ByrneLooby is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the Services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, ByrneLooby did not seek to evaluate the presence on or off the site of electromagnetic fields or materials in buildings (i.e., materials inside or as part of the building fabric) such as asbestos, lead paint, radioactive or hazardous materials.

The Services are based upon ByrneLooby's observations of existing physical conditions at the site gained from a walkover survey of the site together with ByrneLooby's interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The findings and recommendations contained in this report are based in part upon information provided by third parties, and whilst ByrneLooby Partners UK Limited have no reason to doubt the accuracy and that it has been provided in full from those it was requested from, the items relied on have not been verified. No responsibility can be accepted for errors within third party items presented in this report. Further ByrneLooby was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the Services. ByrneLooby is not liable for any inaccurate information or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to ByrneLooby and including the doing of any independent investigation of the information provided to ByrneLooby save as otherwise provided in the terms of the contract between the client and ByrneLooby.

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

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

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

Throughout the report the term 'geotechnical' is used to describe aspects relating to the physical nature of the site (such as foundation requirements) and the term 'geo-environmental' is used to describe aspects relating to ground-related environmental issues (such as potential contamination). However, it should be appreciated that this is an integrated investigation and these two main aspects are inter-related. The geo-environmental sections are written in broad agreement with BS 10175:2011+A2 2017. For the geotechnical aspects of the report, the general requirements of Eurocode 7 (BS EN 1997-2:2007) are to produce a Ground Investigation Report (GIR) which shall form part of the Geotechnical Design Report (GDR). The geotechnical section of this report is intended to fulfil the general requirements of the GIR as outlined in BS EN 1997-2, Section 6. The GIR contains the factual information including geological features and relevant data, and a geotechnical evaluation of the information stating the assumptions made in the interpretation of the test results. This report shall not be considered as being a GDR.

Planning Requirements

The National Planning Policy Framework (NPPF, 2019) emphasises the presumption in favour of sustainable development. Paragraph 11, which defines the presumption in favour of sustainable development, has two similar clauses which related to potentially contaminated land and sensitive receptors:

11 Plans and decisions should apply a presumption in favour of sustainable development.

*For **plan-making** this means that:*

b) strategic policies should, as a minimum, provide for objectively assessed needs for housing and other uses, as well as any needs that cannot be met within neighbouring areas, unless:

i) the application of policies in this Framework that protect areas or assets of particular importance provides a strong reason for restricting the overall scale, type or distribution of development in the plan area;

*For **decision-taking** this means:*

d) where there are no relevant development plan policies, or the policies which are most important for determining the application are out-of-date, granting permission unless:

ii) the application of policies in this Framework that protect areas or assets of particular importance provides a clear reason for refusing the development proposed

In accordance with the NPPF, areas or assets of particular importance are defined as:

habitats sites (and those sites listed in paragraph 176 – potential Special Protection Areas and Possible Areas of Conservation; listed or proposed Ramsar sites; and sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites) and/or designated as Sites of Special Scientific Interest; land designated as Green Belt, Local Green Space, an Area of Outstanding Natural Beauty, a National Park (or within the Broads Authority) or defined as Heritage Coast; irreplaceable habitats; designated heritage assets (and other heritage assets of archaeological interest referred to in footnote 63 (Non-designated heritage assets of archaeological interest, which are demonstrably of equivalent significance to scheduled monuments, should be considered subject to the policies for designated heritage assets.); and areas at risk of flooding or coastal change.

Paragraph 118 states that planning policies and decisions should:

- *give substantial weight to the value of using suitable brownfield land within settlements for homes and other identified needs, and support appropriate opportunities to remediate despoiled, degraded, derelict, contaminated or unstable land;*

Paragraph 170 clarifies that enhancing the natural environment includes:

Planning policies and decisions should contribute to and enhance the natural and local environment by:

- *protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);*

- *recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;*
- *maintaining the character of the undeveloped coast, while improving public access to it where appropriate;*
- *minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*
- *preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and*
- *remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.*

Paragraph 180 of NPPF states that planning policies and decisions should ensure the following:

- *Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development.*

Paragraph 178 of NPPF states that planning policies and decisions for developments should also ensure that:

- a) a site is suitable for its proposed use taking account of ground conditions and any risks arising from land instability and contamination. This includes risks arising from natural hazards or former activities such as mining, and any proposals for mitigation including land remediation (as well as potential impacts on the natural environment arising from that remediation);*
- b) after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990; and*
- c) adequate site investigation information, prepared by a competent person, is available to inform these assessments.*

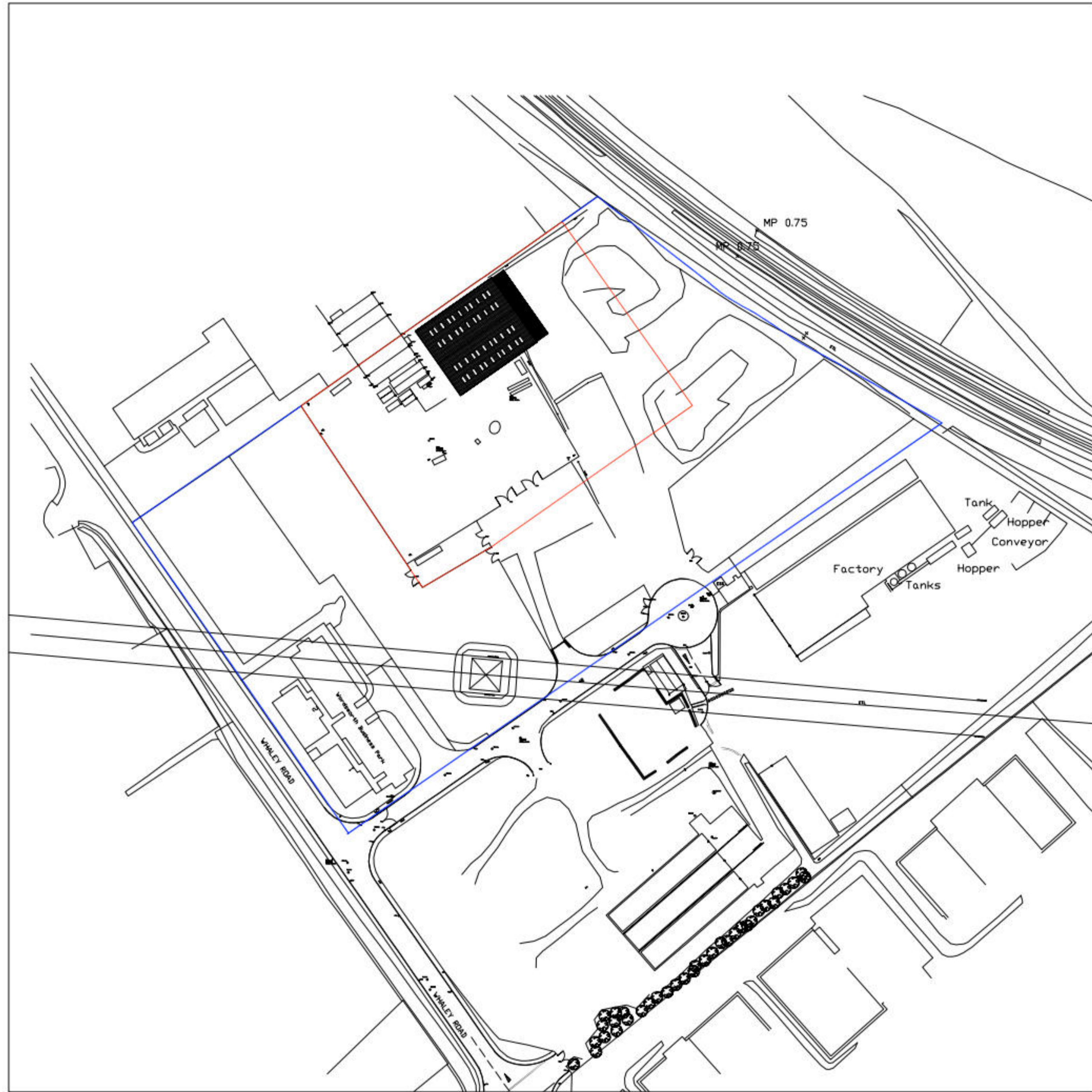
Paragraph 179 states that where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and/or landowner.

This report has been prepared and authorised by staff that are competent as defined in the NPPF.

Unexploded Ordnance

Clients have a legal duty under the CDM 2015 Regulations to provide designers and contractors with project-specific health and safety information needed to identify hazards and risks. This includes the possibility of unexploded ordnance (UXO) being encountered on the site. Further details are given in CIRIA Report C681 (Stone et al 2009). A non-UXO specialist screening exercise has been carried out for the site by considering any evidence of UK defence activities on or near the site evident from the gathered desk study information and the unexploded aerial delivered bomb (UXB) regional risk maps produced by Zetica. Other data sources are available, but as a first stage screening exercise the freely available Zetica maps have been used. The level of risk stated is that determined by Zetica, a company experience in the desk study, field investigation and clearance of UXO/UXB.

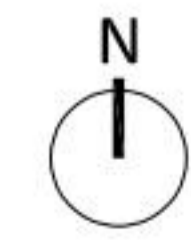
Appendix B – Current and Proposed Development Plans



Scale 1:1250



Scale 1:500



HU	Drawn	Checked	Date
	RL	NR	15/07/21

Document Status: S2 Purpose of Issue: For Information

MARTIN WALSH ARCHITECTURAL
 Fint Buildings, 99 - 103 Leeds Rd, OwersOuly, WF12 7BU c 01924 464342
 e: info@msrlinvalsh.co.uk w: www.mjinkwalsh.co.uk

Project: Proposed Vehicle Workshop at Wordsworth Business Park, Whaley Road, Barugh Green, Barnsley, S751FJ

Title: Location Plan

Client: Wordsworth Properties Ltd.

MWA Project Ref	Scale	OWP Paper Size	Page of	Drawn
6384	As shown	@A1	Landscape	RL

File Number	Originator	Volume	Level	Type	Role	Number	Revision
WEWR-MWA-XX-XX-DR-A-0001							P1

Copyright © 2021 Martin Walsh Architectural. All Rights Reserved. Martin Walsh Architectural is the trading name of Martin Walsh Architectural Limited, Registered in England Number 4409090

Appendix C – Site Photographs

DOCUMENT NO.	14-K0030-000-SV-001
PROJECT	Whaley Rd. Barugh Green
JOB NUMBER	14-K0030

SITE VISIT RECORD

DOCUMENT CONTROL

Revision	Date	Prepared by	Checked by	Reviewed by
00	28/07/2021	H Wrigley	J Thorburn	Kourosh Azimi

VISIT DETAILS

Client Name.	Melia Smith & Jones Limited
Site name	Whaley Rd. Barugh Green
Project description	Phase 1 Geo-Environmental Report
Date of visit	21/07/2021
BL Engineer(s) in attendance	H Wrigley
Also in attendance	-
Purpose of Visit	Desk Study Site Visit
Weather	Light cloud to sunny intervals
Site Location	Whaley Road, Barugh Green, Barnsley, S75 1HT.

1. PHOTOGRAPHIC LOCATION PLAN.



DOCUMENT NO.	14-K0030-000-SV-001
PROJECT	Whaley Rd. Barugh Green
JOB NUMBER	14-K0030

SITE VISIT RECORD

2. PHOTOGRAPHIC RECORD.



Figure 1: Site entrance looking north

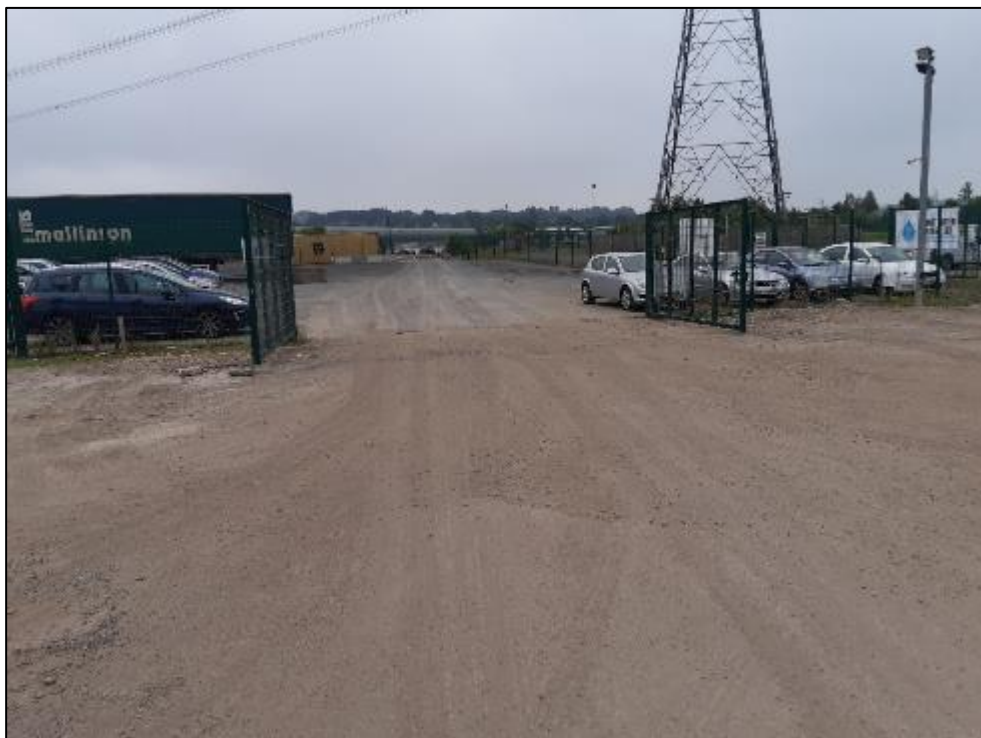


Figure 2: Site entrance looking south

DOCUMENT NO.	14-K0030-000-SV-001
PROJECT	Whaley Rd. Barugh Green
JOB NUMBER	14-K0030

SITE VISIT RECORD



Figure 3: Site yard looking west



Figure 4: Location of proposed workshop looking north

DOCUMENT NO.	14-K0030-000-SV-001
PROJECT	Whaley Rd. Barugh Green
JOB NUMBER	14-K0030

SITE VISIT RECORD



Figure 5: Burnt barrel on proposed workshop location



Figure 6: Current workshop interior

DOCUMENT NO.	14-K0030-000-SV-001
PROJECT	Whaley Rd. Barugh Green
JOB NUMBER	14-K0030

SITE VISIT RECORD



Figure 7: Washdown area



Figure 8: Ditch adjacent to washdown area along northern boundary

DOCUMENT NO.	14-K0030-000-SV-001
PROJECT	Whaley Rd. Barugh Green
JOB NUMBER	14-K0030

SITE VISIT RECORD



Figure 9: Road diesel tank with some stains



Figure 10: Red Diesel tank

DOCUMENT NO.	14-K0030-000-SV-001
PROJECT	Whaley Rd. Barugh Green
JOB NUMBER	14-K0030

SITE VISIT RECORD



Figure 11: Ad-blue IBC storage



Figure 12: Ayton C40B4 drum storage

DOCUMENT NO.	14-K0030-000-SV-001
PROJECT	Whaley Rd. Barugh Green
JOB NUMBER	14-K0030

SITE VISIT RECORD



Figure 13: Rubble piles



Figure 14: Empty/deformed drum storage

DOCUMENT NO.	14-K0030-000-SV-001
PROJECT	Whaley Rd. Barugh Green
JOB NUMBER	14-K0030

SITE VISIT RECORD



Figure 15: Storage containers behind workshop



Figure 16: Western part of the yard looking south

DOCUMENT NO.	14-K0030-000-SV-001
PROJECT	Whaley Rd. Barugh Green
JOB NUMBER	14-K0030

SITE VISIT RECORD



Figure 17: Yard entrance looking northeast

Appendix D – Historical Ordnance Survey Plans

Site Details:

WHALEY ROAD, BARUGH,
BARNSELY, S75 1HT

Client Ref: 14-K0030-000-PO140173
Report Ref: GS-8047019
Grid Ref: 432144, 408308

Map Name: County Series

Map date: 1850-1854

Scale: 1:10,560

Printed at: 1:10,560



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

Surveyed 1851
Revised N/A
Edition 1850
Copyright N/A
Levelled N/A

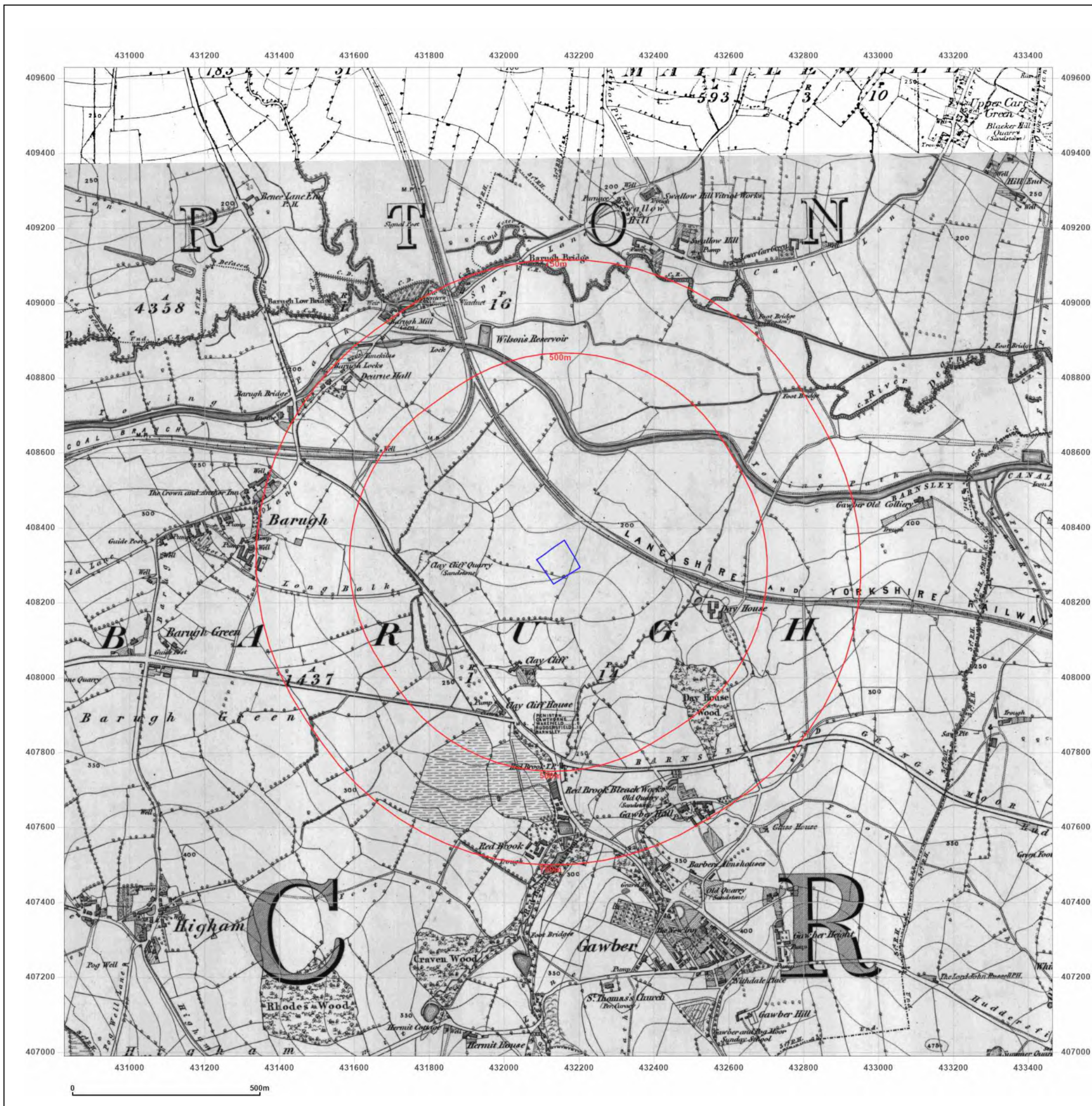


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 15 July 2021

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



Site Details:

WHALEY ROAD, BARUGH,
BARNSELY, S75 1HT

Client Ref: 14-K0030-000-PO140173
Report Ref: GS-8047019
Grid Ref: 432144, 408308

Map Name: County Series

Map date: 1890-1891

Scale: 1:10,560

Printed at: 1:10,560

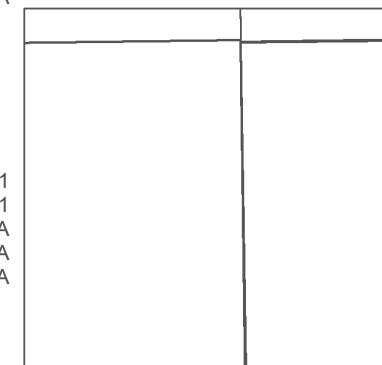


Surveyed 1891
Revised 1891
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1891
Revised 1891
Edition 1891
Copyright N/A
Levelled N/A

Surveyed 1891
Revised 1890
Edition N/A
Copyright N/A
Levelled N/A

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

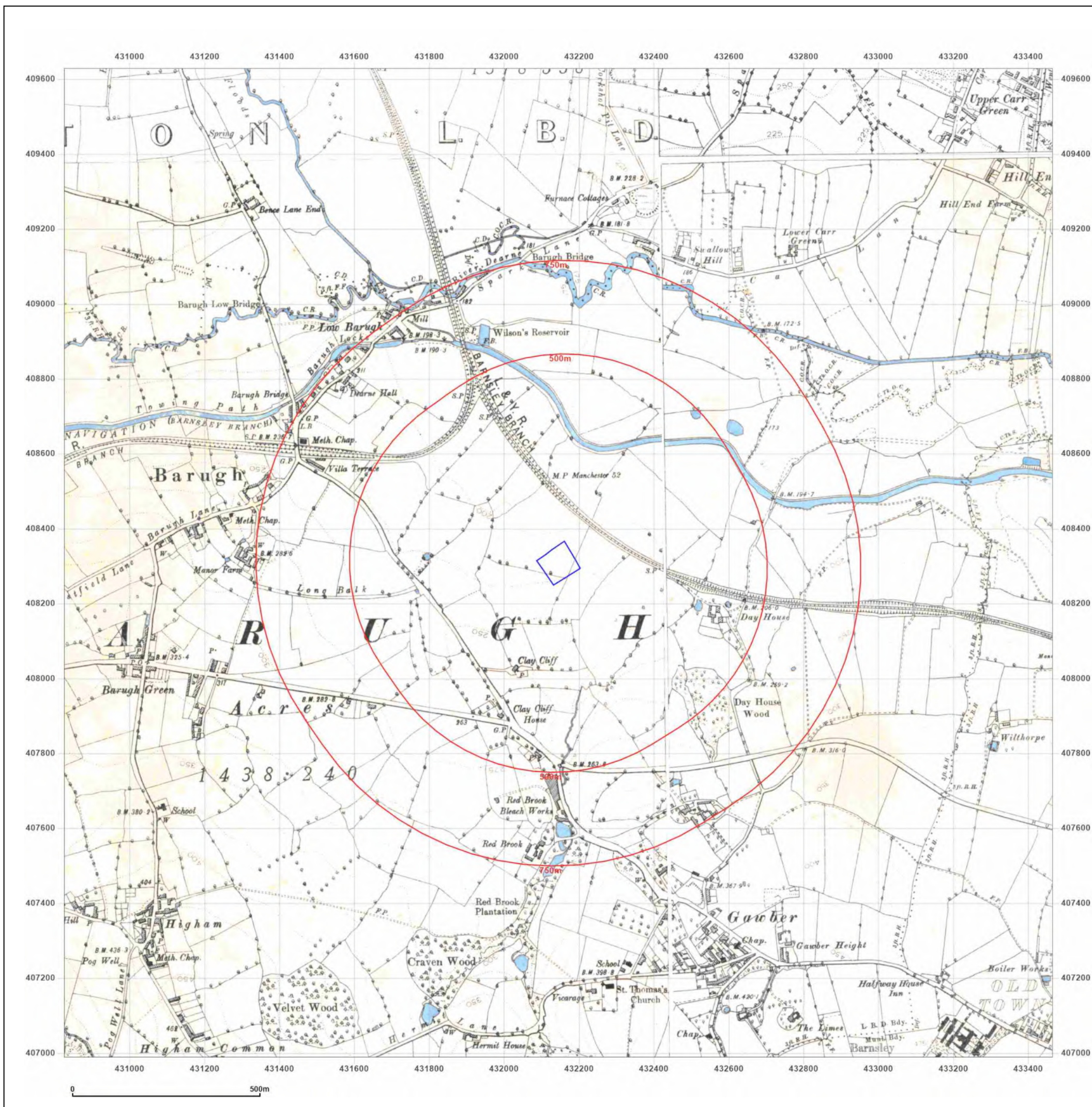


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 15 July 2021

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



Site Details:

WHALEY ROAD, BARUGH,
BARNSELY, S75 1HT

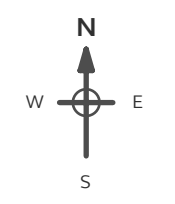
Client Ref: 14-K0030-000-PO140173
Report Ref: GS-8047019
Grid Ref: 432144, 408308

Map Name: County Series

Map date: 1904

Scale: 1:10,560

Printed at: 1:10,560

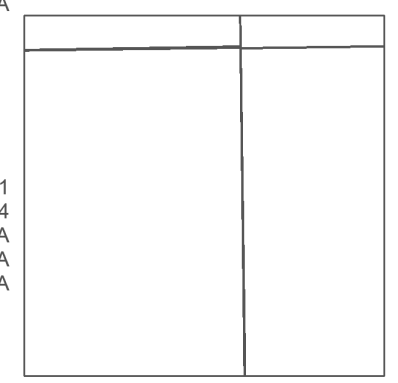


Surveyed 1891
Revised 1904
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1891
Revised 1904
Edition 1904
Copyright N/A
Levelled N/A

Surveyed 1891
Revised 1904
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1891
Revised 1904
Edition 1904
Copyright N/A
Levelled N/A

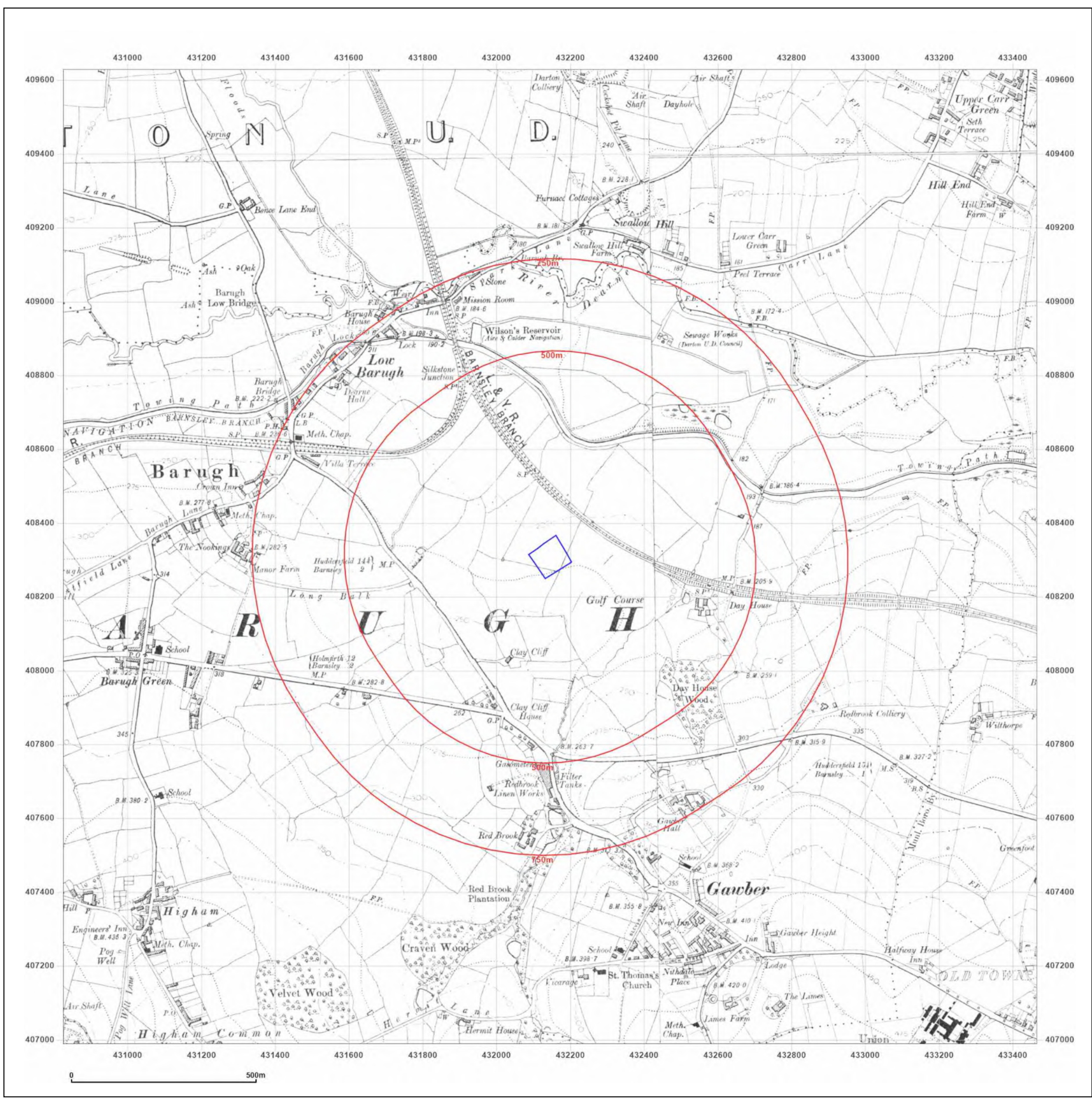


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 15 July 2021

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



Site Details:

WHALEY ROAD, BARUGH,
BARNSELY, S75 1HT

Client Ref: 14-K0030-000-PO140173
Report Ref: GS-8047019
Grid Ref: 432144, 408308

Map Name: County Series

Map date: 1929-1930

Scale: 1:10,560

Printed at: 1:10,560

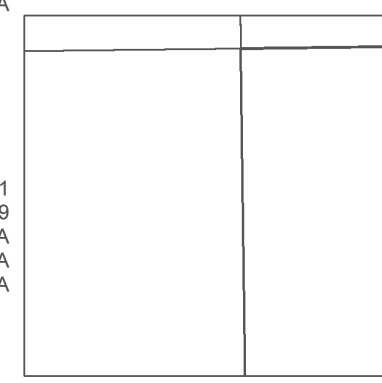


Surveyed 1851
Revised 1930
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1851
Revised 1930
Edition 1930
Copyright N/A
Levelled 1929

Surveyed 1851
Revised 1929
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1851
Revised 1929
Edition 1929
Copyright N/A
Levelled 1915

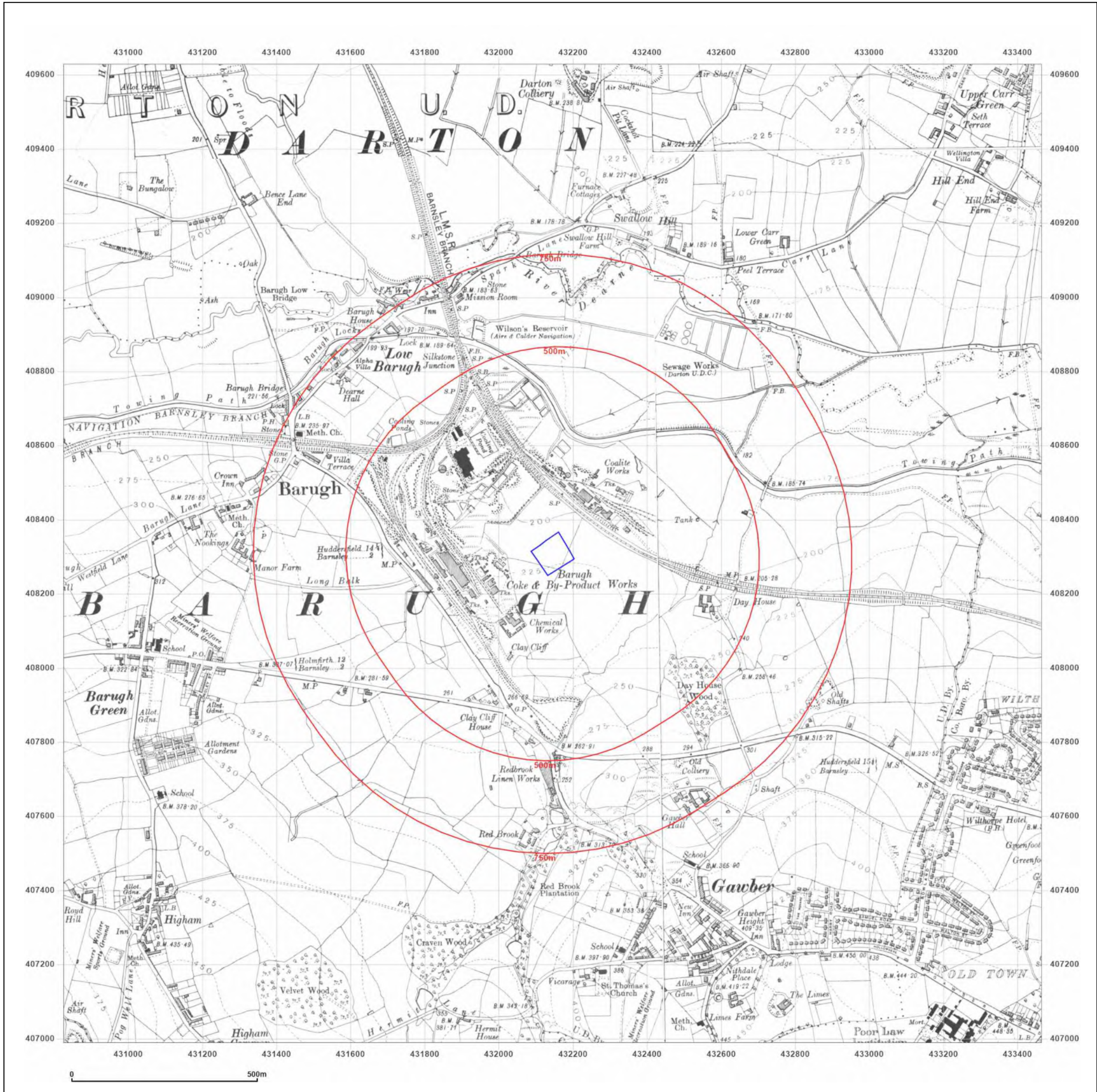


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 15 July 2021

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



Site Details:

WHALEY ROAD, BARUGH,
BARNSELY, S75 1HT

Client Ref: 14-K0030-000-PO140173
Report Ref: GS-8047019
Grid Ref: 432144, 408308

Map Name: County Series

Map date: 1938

Scale: 1:10,560

Printed at: 1:10,560

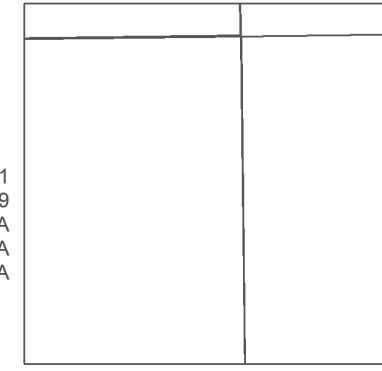


Surveyed 1851
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A

Surveyed 1851
Revised 1938
Edition 1938
Copyright N/A
Levelled 1929

Surveyed 1851
Revised 1929
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1851
Revised 1938
Edition 1938
Copyright N/A
Levelled 1929

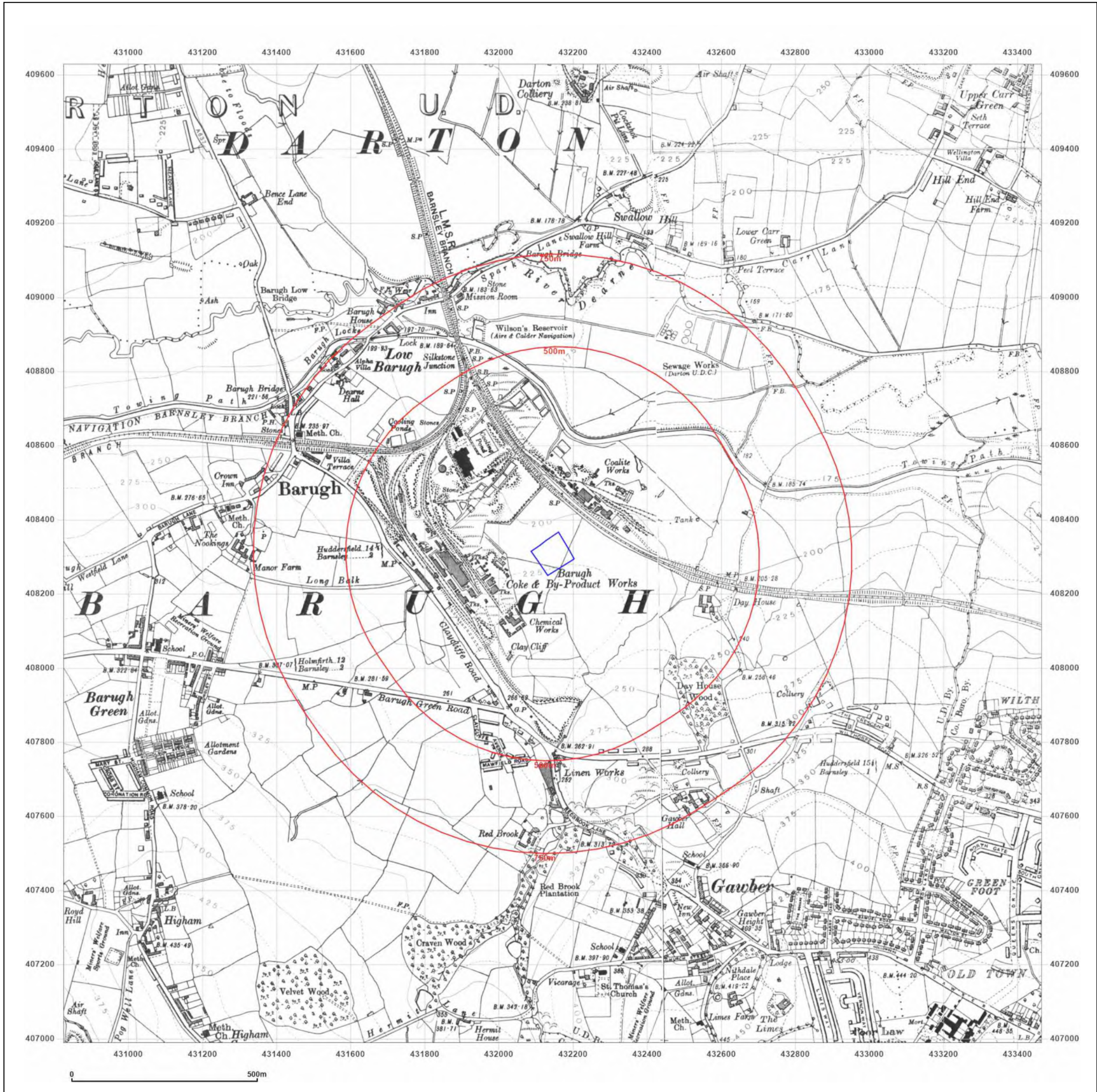


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 15 July 2021

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



Site Details:

WHALEY ROAD, BARUGH,
BARNSELY, S75 1HT

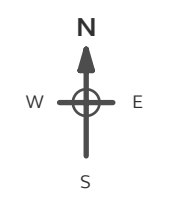
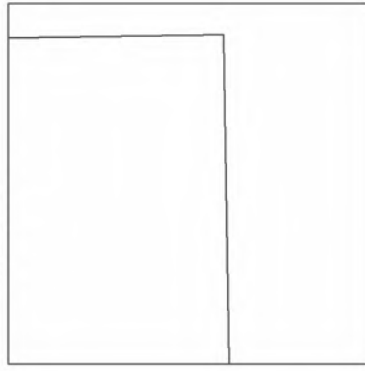
Client Ref: 14-K0030-000-PO140173
Report Ref: GS-8047019
Grid Ref: 432144, 408308

Map Name: County Series

Map date: 1938

Scale: 1:10,560

Printed at: 1:10,560

Surveyed 1851
Revised 1929
Edition N/A
Copyright N/A
Levelled N/A

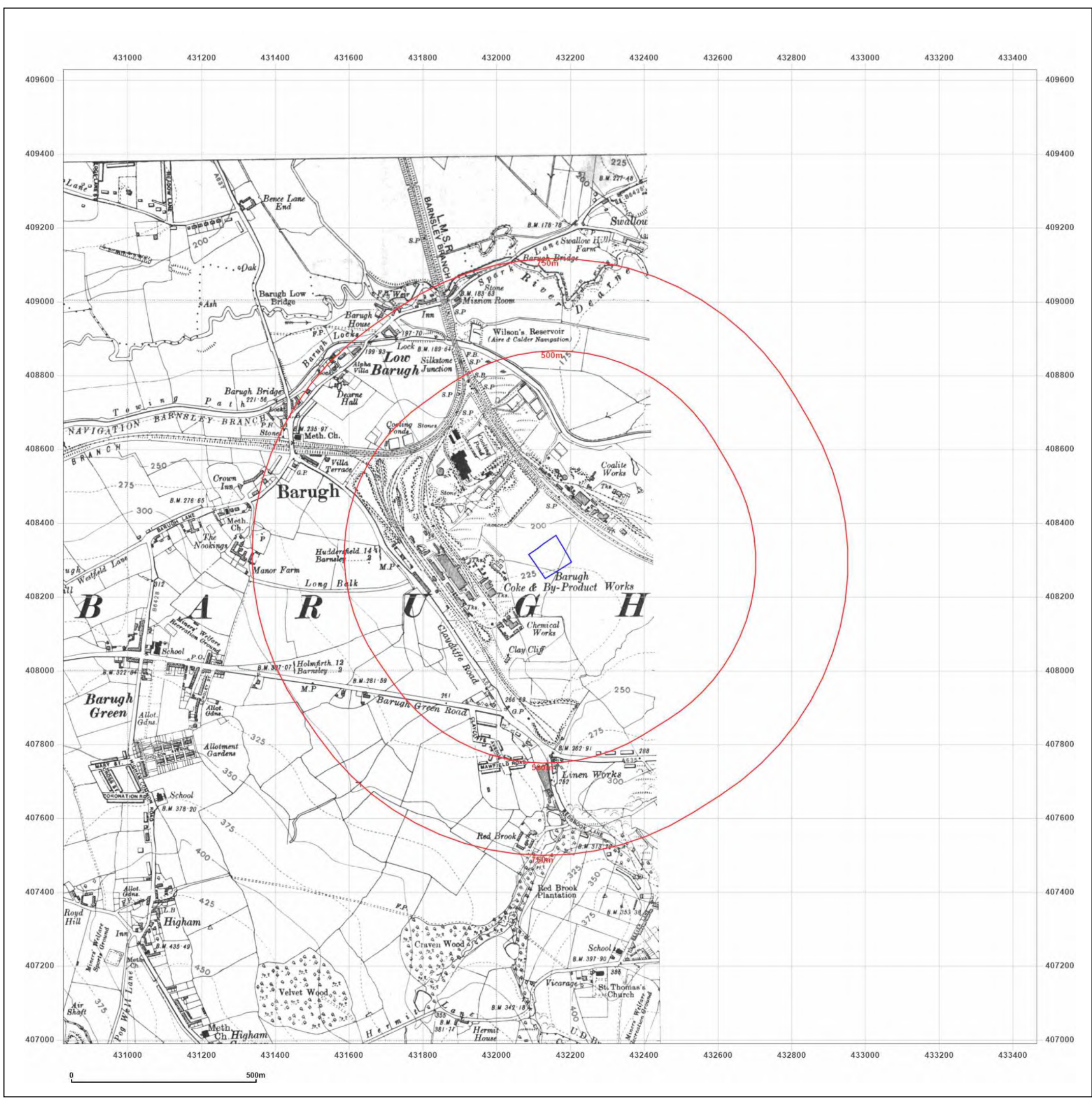


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 15 July 2021

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



Site Details:

WHALEY ROAD, BARUGH,
BARNSELY, S75 1HT

Client Ref: 14-K0030-000-PO140173
Report Ref: GS-8047019
Grid Ref: 432144, 408308

Map Name: County Series

Map date: 1948

Scale: 1:10,560

Printed at: 1:10,560



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

Surveyed 1851
Revised 1948
Edition 1948
Copyright N/A
Levelled 1929

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

Surveyed 1851
Revised 1948
Edition 1948
Copyright N/A
Levelled 1929



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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 15 July 2021

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



Site Details:

WHALEY ROAD, BARUGH,
BARNSELY, S75 1HT

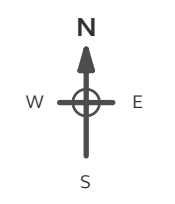
Client Ref: 14-K0030-000-PO140173
Report Ref: GS-8047019
Grid Ref: 432144, 408308

Map Name: Provisional

Map date: 1956

Scale: 1:10,560

Printed at: 1:10,560



Surveyed N/A
Revised 1955
Edition N/A
Copyright 1956
Levelled N/A



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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 15 July 2021

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



Site Details:

WHALEY ROAD, BARUGH,
BARNSELY, S75 1HT

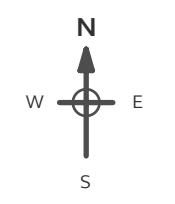
Client Ref: 14-K0030-000-PO140173
Report Ref: GS-8047019
Grid Ref: 432144, 408308

Map Name: Provisional

Map date: 1966

Scale: 1:10,560

Printed at: 1:10,560



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



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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 15 July 2021

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



Site Details:

WHALEY ROAD, BARUGH,
BARNSELY, S75 1HT

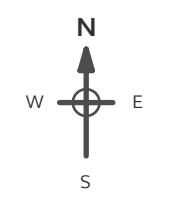
Client Ref: 14-K0030-000-PO140173
Report Ref: GS-8047019
Grid Ref: 432144, 408308

Map Name: National Grid

Map date: 1973

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1973
Revised 1973
Edition N/A
Copyright N/A
Levelled N/A

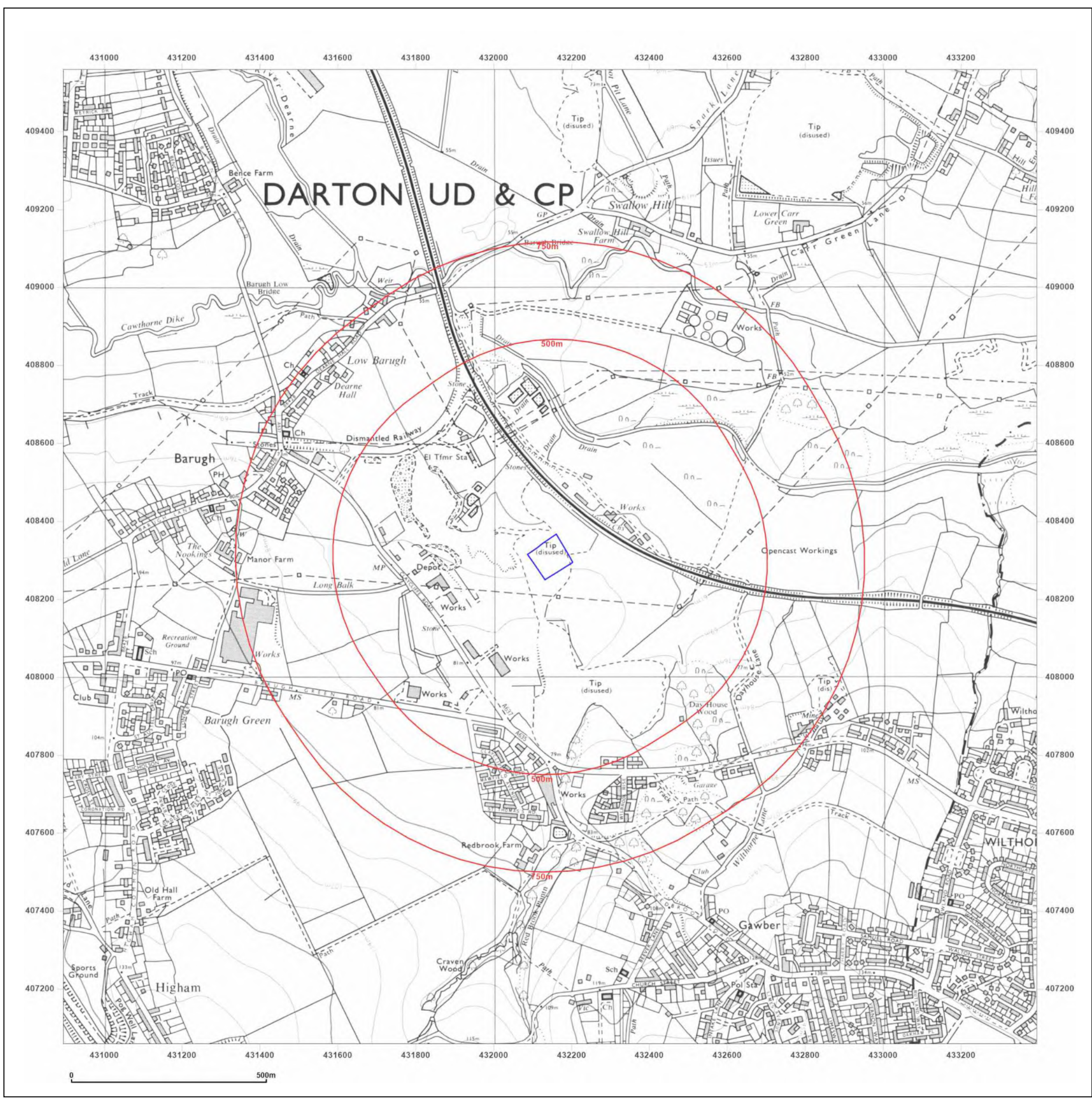


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 15 July 2021

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



Site Details:

WHALEY ROAD, BARUGH,
BARNSELY, S75 1HT

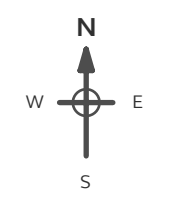
Client Ref: 14-K0030-000-PO140173
Report Ref: GS-8047019
Grid Ref: 432144, 408308

Map Name: National Grid

Map date: 1982

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1982
Revised 1982
Edition N/A
Copyright N/A
Levelled N/A

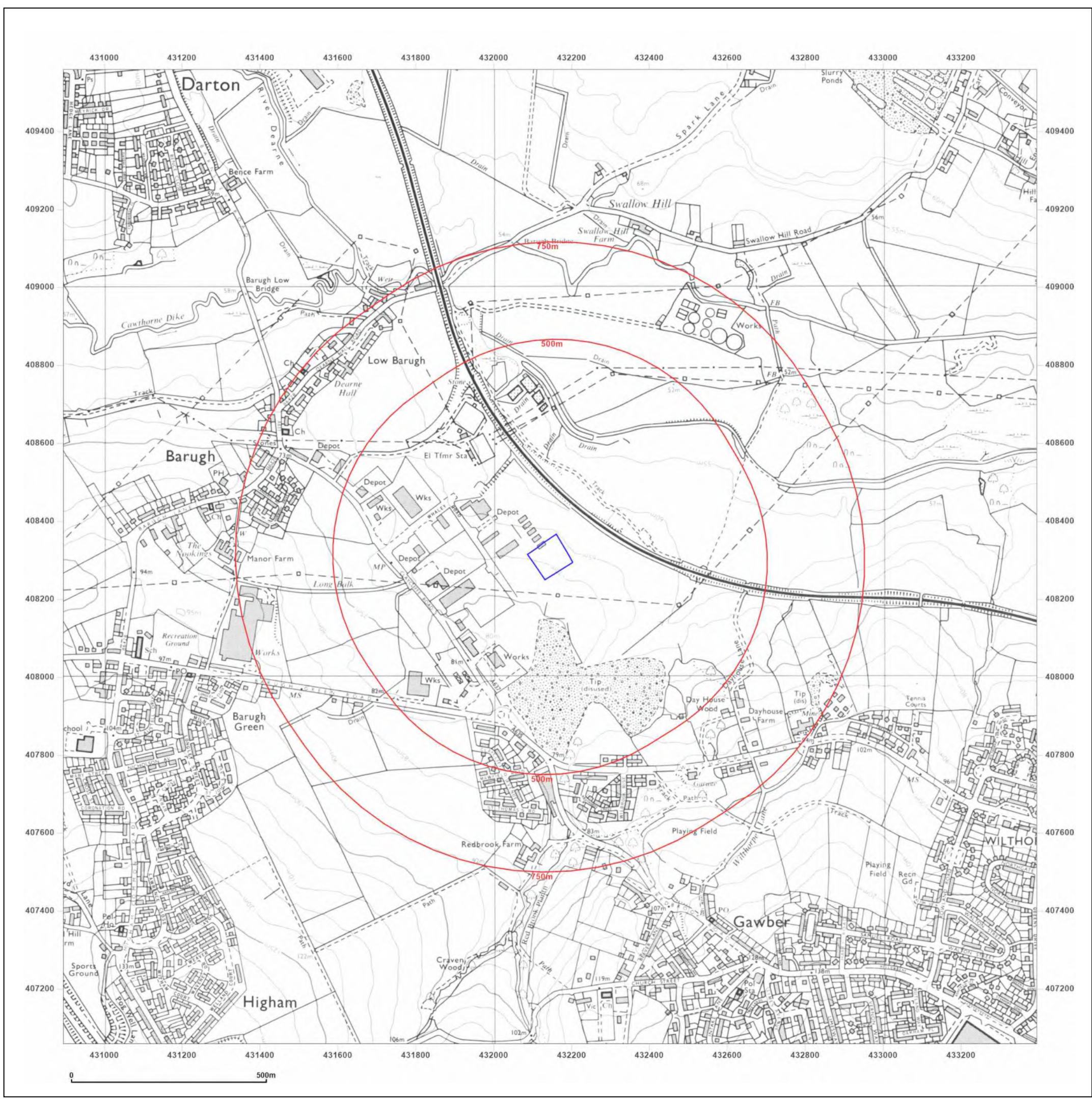


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 15 July 2021

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



Site Details:

WHALEY ROAD, BARUGH,
BARNSELY, S75 1HT

Client Ref: 14-K0030-000-PO140173
Report Ref: GS-8047019
Grid Ref: 432144, 408308

Map Name: National Grid

Map date: 1993

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1992
Revised 1993
Edition N/A
Copyright N/A
Levelled N/A

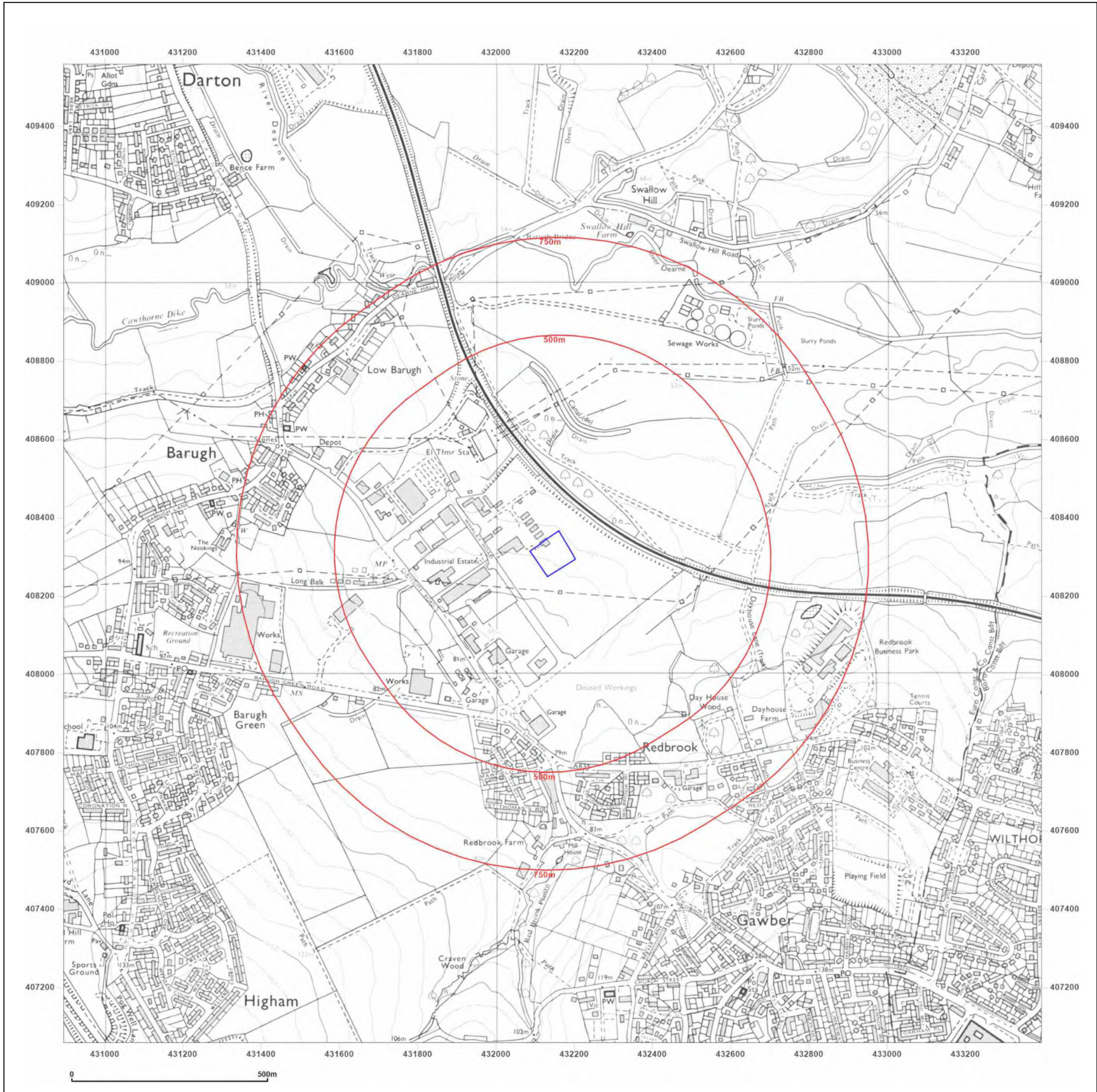


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 15 July 2021

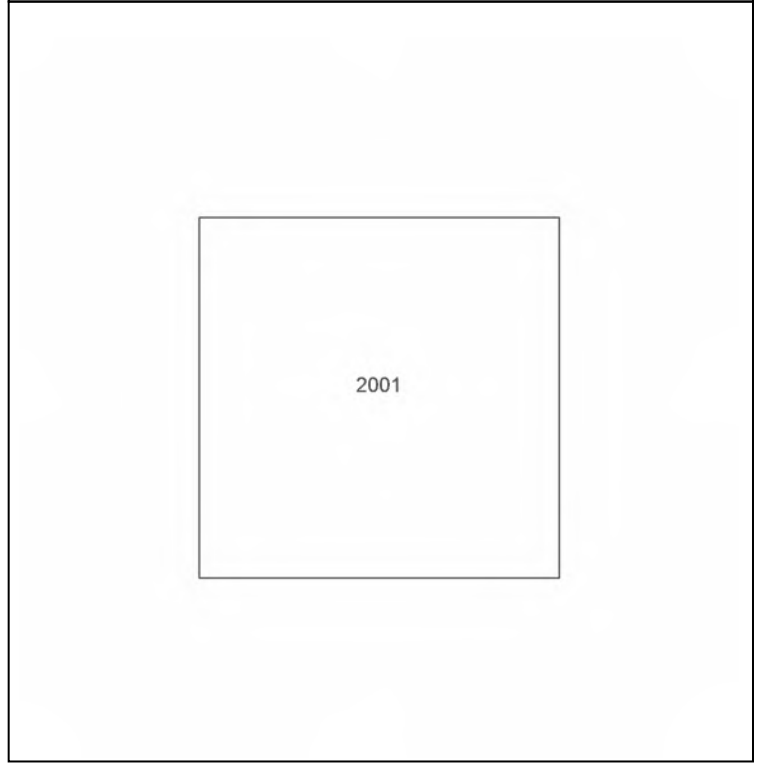
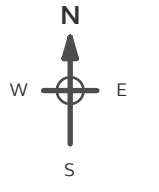
Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:
 WHALEY ROAD, BARUGH,
 BARNSELY, S75 1HT

Client Ref: 14-K0030-000-PO140173
Report Ref: GS-8047019
Grid Ref: 432144, 408308

Map Name: National Grid
Map date: 2001
Scale: 1:10,000
Printed at: 1:10,000

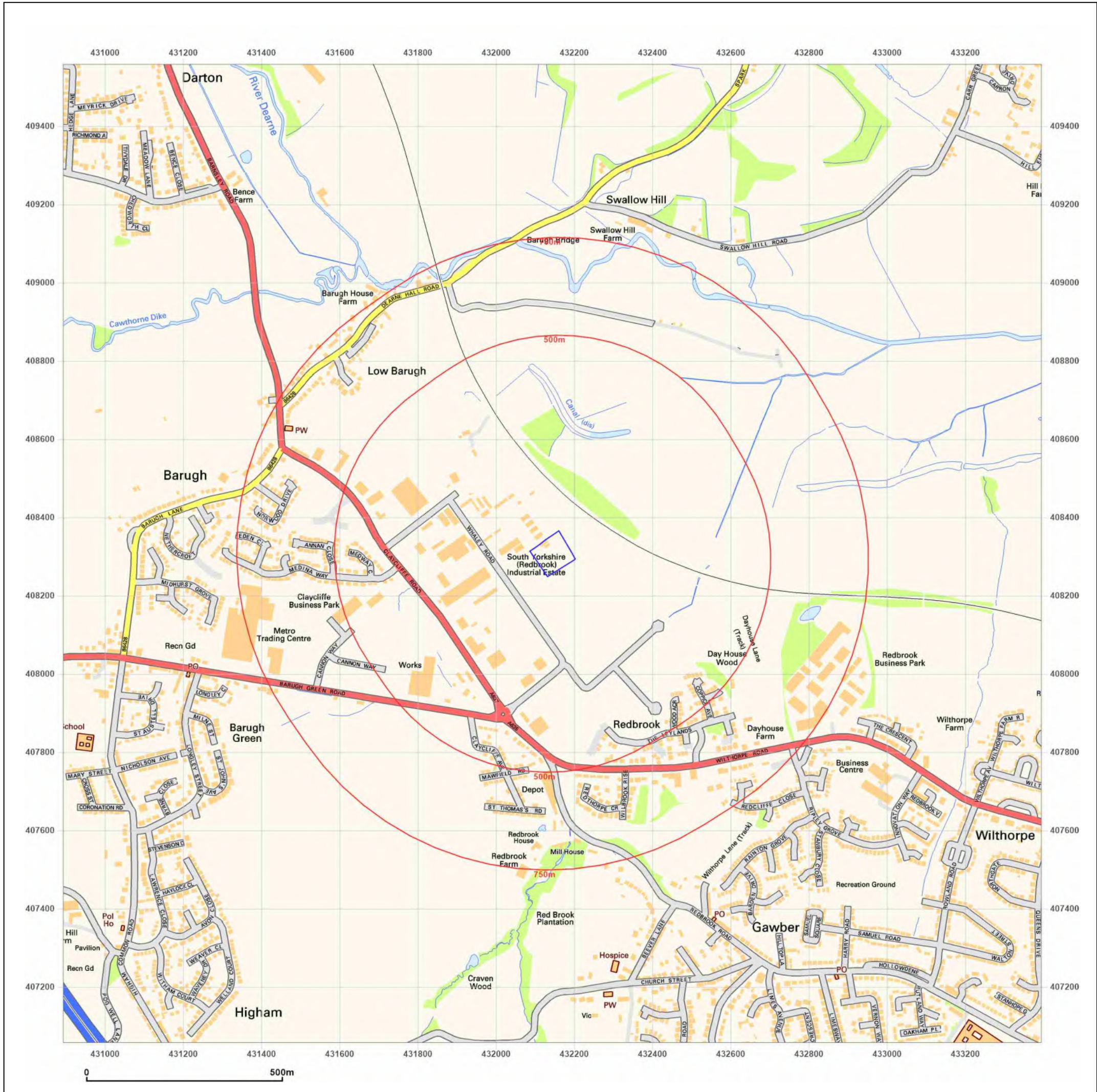


Produced by
 Groundsure Insights
 T: 08444 159000
 E: info@groundsure.com
 W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 15 July 2021

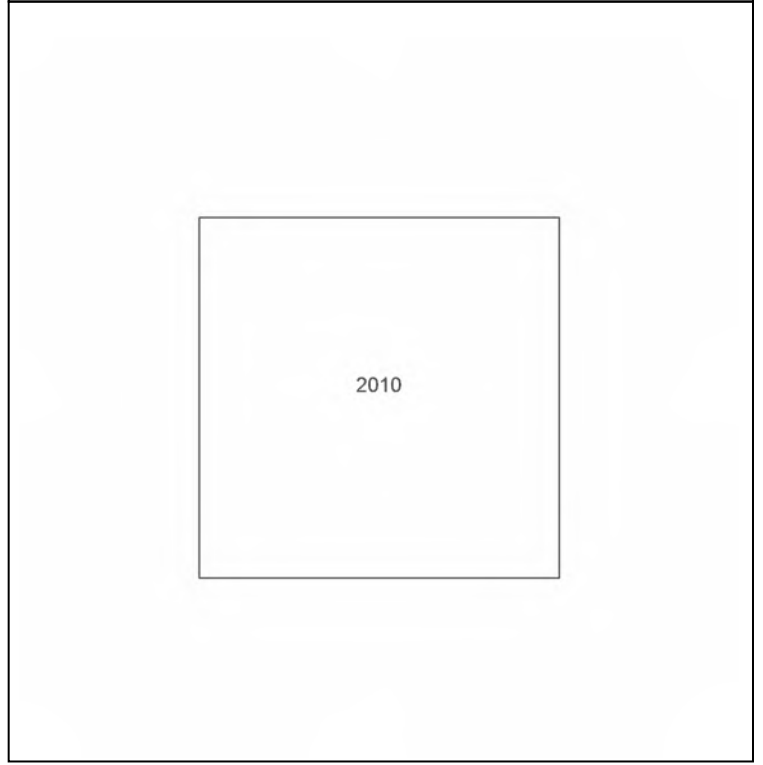
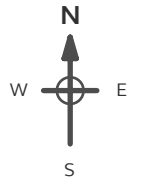
Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:
 WHALEY ROAD, BARUGH,
 BARNSELY, S75 1HT

Client Ref: 14-K0030-000-PO140173
Report Ref: GS-8047019
Grid Ref: 432144, 408308

Map Name: National Grid
Map date: 2010
Scale: 1:10,000
Printed at: 1:10,000

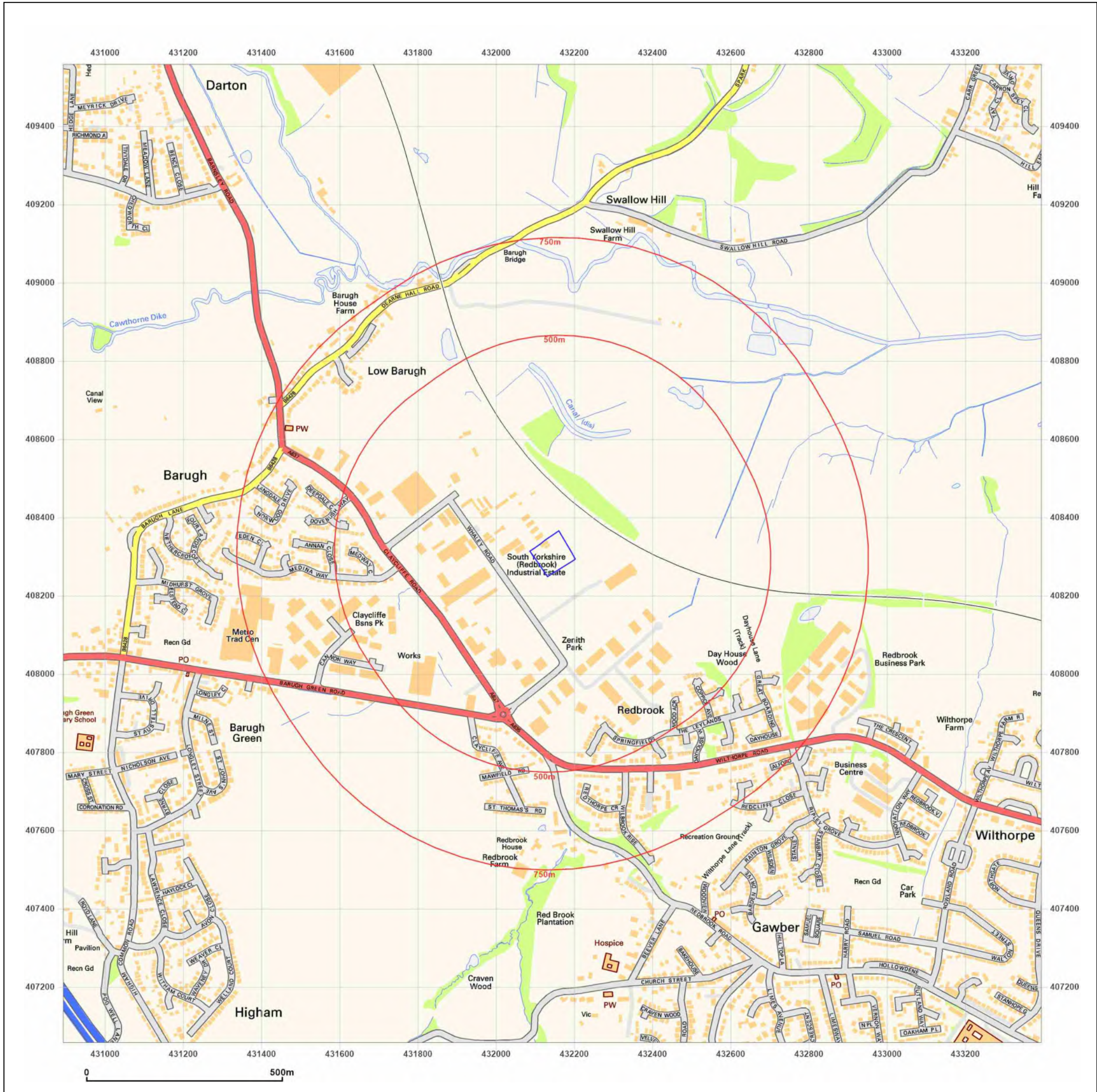


Powered by  Produced by
 Groundsure Insights
 T: 08444 159000
 E: info@groundsure.com
 W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 15 July 2021

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



Site Details:

WHALEY ROAD, BARUGH,
BARNSELY, S75 1HT

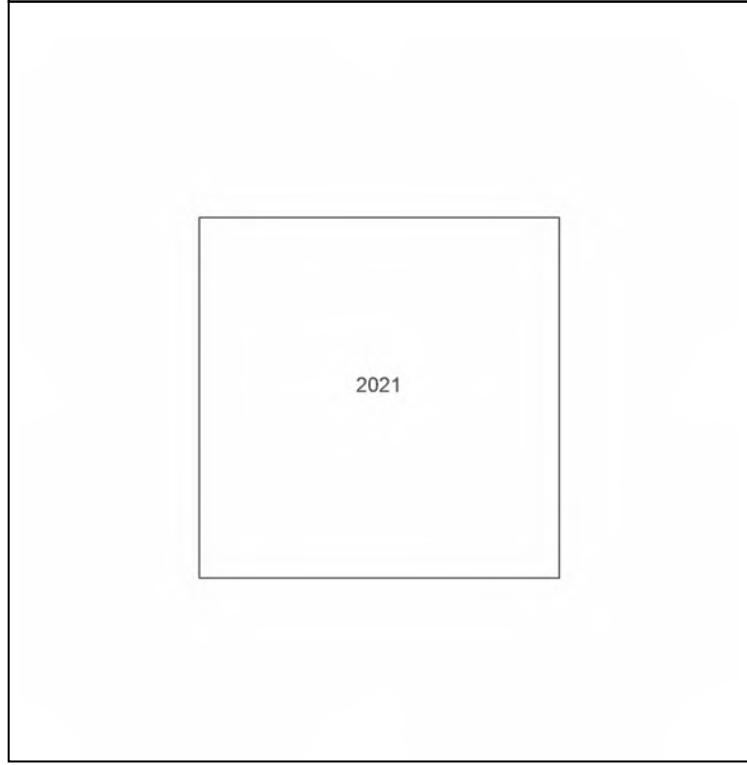
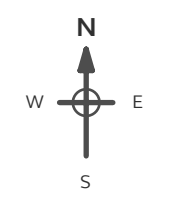
Client Ref: 14-K0030-000-PO140173
Report Ref: GS-8047019
Grid Ref: 432144, 408308

Map Name: National Grid

Map date: 2021

Scale: 1:10,000

Printed at: 1:10,000

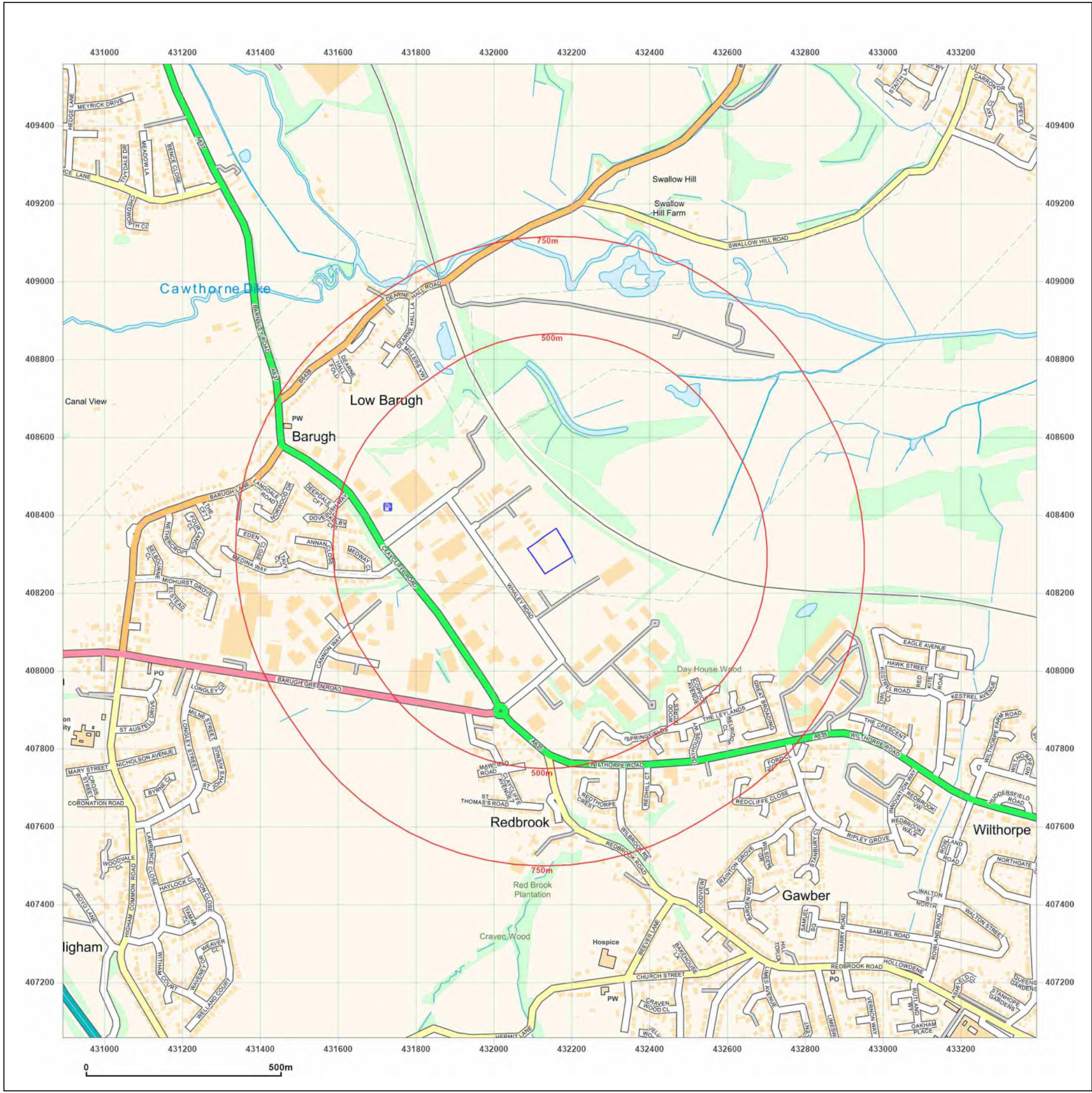


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 15 July 2021

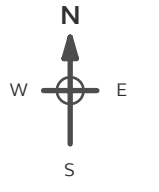
Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:
 WHALEY ROAD, BARUGH,
 BARNSELY, S75 1HT

Client Ref: 14-K0030-000-PO140173
Report Ref: GS-8047019
Grid Ref: 432144, 408308

Map Name: County Series
Map date: 1892-1893
Scale: 1:2,500
Printed at: 1:2,500



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

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

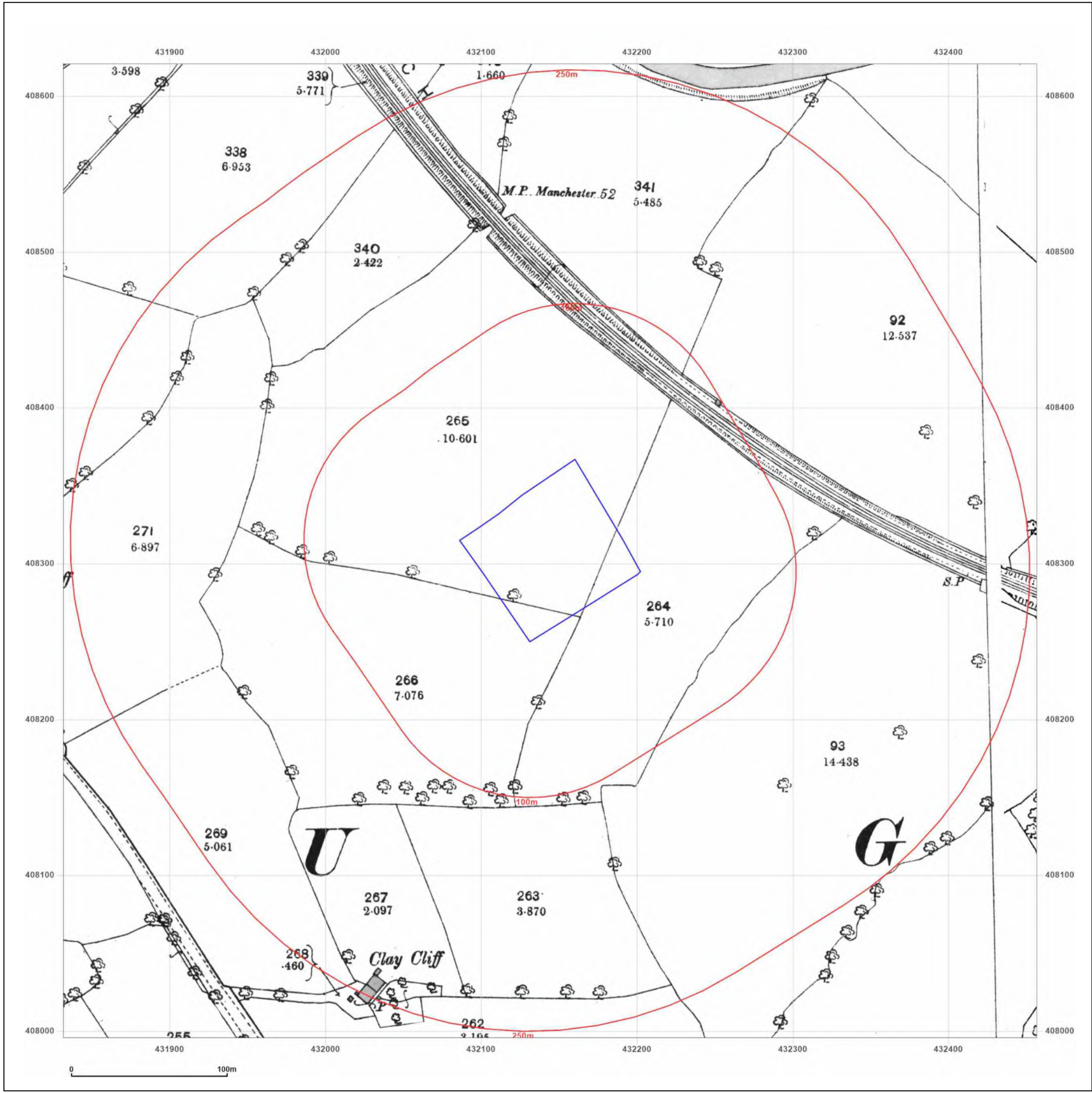
Powered by


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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 15 July 2021

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



Site Details:

WHALEY ROAD, BARUGH,
BARNSELY, S75 1HT

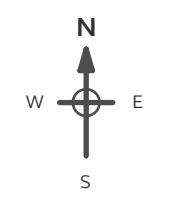
Client Ref: 14-K0030-000-PO140173
Report Ref: GS-8047019
Grid Ref: 432144, 408308

Map Name: County Series

Map date: 1906

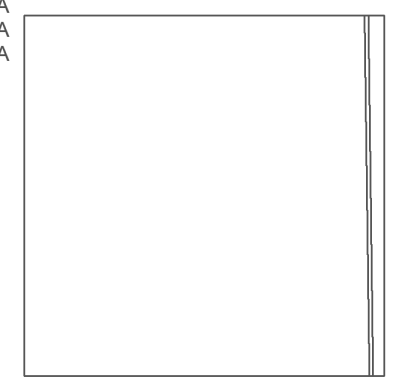
Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1906
Revised 1906
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1906
Revised 1906
Edition N/A
Copyright N/A
Levelled N/A



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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 15 July 2021

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

