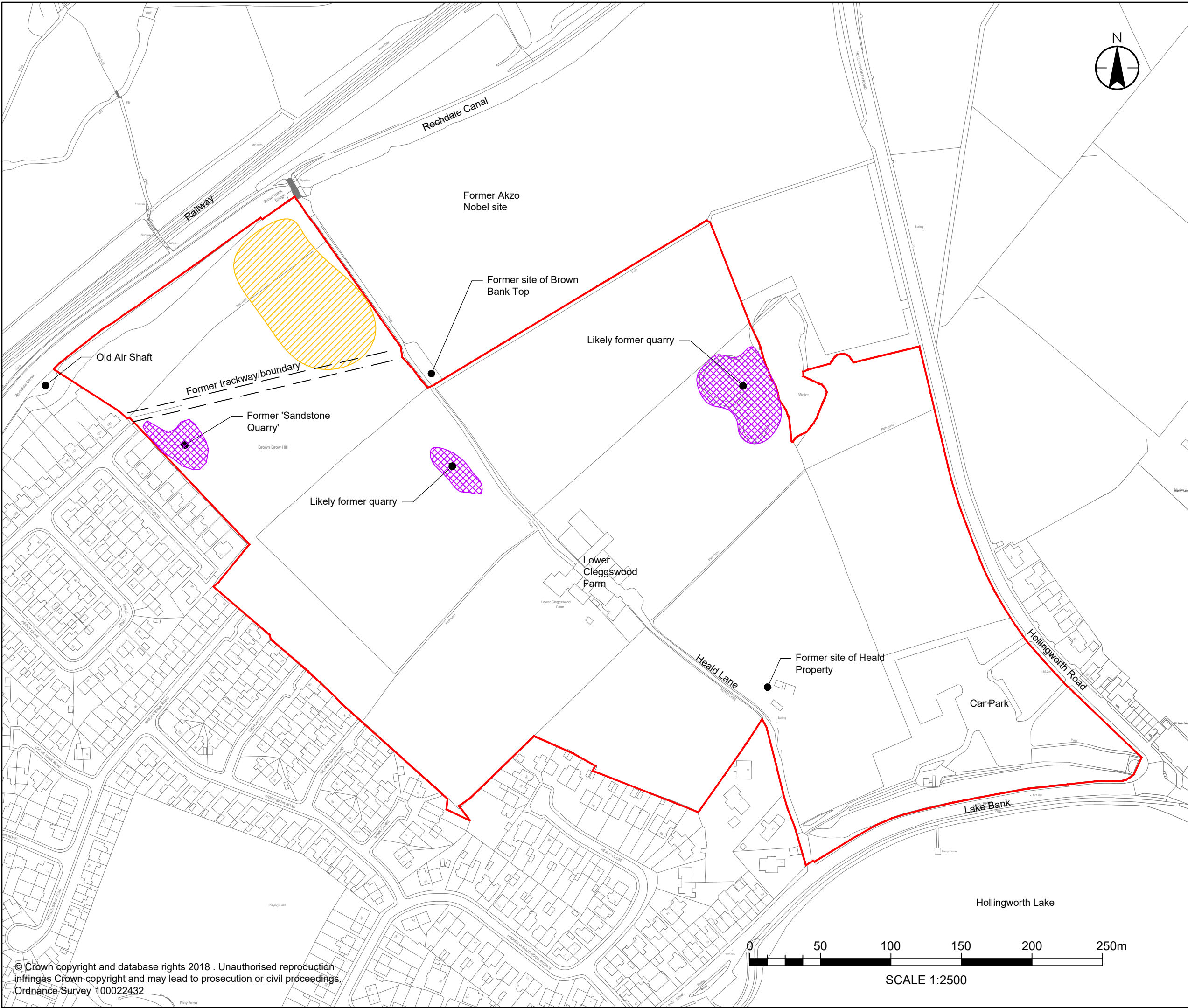


Appendix D: Ground Conditions

Appendix D.1: Ground Conditions Site Features Plan

Plotted: 10.02.2023 2023.02.10 3:09:18 PM By: Cotton, David
ORIGINAL SHEET - ISCA3
\\pba\h\nca\projects\332010570\600 eia\ground conditions\07 figures and drawings\cad\dwgs\332010570 figure 2





Stantec UK Limited
MANCHESTER
61 Oxford Street, Manchester, M1 6EQ
Tel: +44 161 245 8900
www.stantec.com/uk

Key

- Approximate Site Boundary
- Landslip Area (1:10 000 BGS mapping)

Client/Project:
Bloor Homes

**Hollingworth Road,
Littleborough**

Prepared: davco	Checked: KB	Date: 2023.02.09
--------------------	----------------	---------------------

Title
Site Features Plan

Revision: 0	Figure 2
----------------	-------------

Appendix D.2: Phase 1 Ground Conditions Assessment



Hollingworth Road, Littleborough

**Phase 1 Ground Condition Assessment
(Desk Study)**

On behalf of **Bloor Homes**

Project Ref: 332010570 | Rev: 01 | Date: February 2024

Registered Office: Buckingham Court Kingsmead Business Park, London Road, High Wycombe, Buckinghamshire, HP11 1JU
Office Address: 61 Oxford Street, Manchester, M1 6EQ
T: +44 (0) 161 245 8900 E: manchester.uk@Stantec.com

Document Control Sheet

Project Name: Hollingworth Road, Littleborough

Project Ref: 332010570

Report Title: Phase 1 Ground Contamination Assessment (Desk Study)

Doc Ref: 332010570-STN-RP-3501-P00-Rev01

Date: February 2024

	Name	Position	Signature	Date
Prepared by:	Katherine Brightwell	Engineer	K Brightwell	09/02/2023
Reviewed by:	David Bissell	Associate	D Bissell	20/01/2023
Approved by:	Oliver Belson	Senior Associate	O Belson	06/04/2023
For and on behalf of Stantec UK Limited				

Revision	Date	Description	Prepared	Reviewed	Approved
00	April 2023	First Issue	KB	DBi	OB
01	Feb 2024	Updated following revisions to the proposed development layout plan	RM	OB	OB

This report has been prepared by Stantec UK Limited ('Stantec') on behalf of its client to whom this report is addressed ('Client') in connection with the project described in this report and takes into account the Client's particular instructions and requirements. This report was prepared in accordance with the professional services appointment under which Stantec was appointed by its Client. This report is not intended for and should not be relied on by any third party (i.e. parties other than the Client). Stantec accepts no duty or responsibility (including in negligence) to any party other than the Client and disclaims all liability of any nature whatsoever to any such party in respect of this report.

Contents

1	Introduction.....	1
1.1	Appointment	1
1.2	Objective.....	1
1.3	Scope of Work / Terms of Reference	1
1.4	Site Location.....	2
1.5	Proposed Development.....	2
1.6	Sources of Information	2
2	Land Use Information.....	4
2.1	Introduction	4
2.2	Current Land Use	4
2.3	Historical Land Use	5
2.4	LiDAR Data.....	6
3	Environmental Setting	7
3.2	Geology	7
3.3	Potential Geological Hazards	9
3.4	Controlled Waters – Groundwater.....	10
3.5	Controlled Waters- Surface Water	11
3.6	Environmental Data – Consultations and Searches.....	11
3.7	Information from Rochdale Borough Council	12
3.8	Ecological Systems	12
3.9	Ancient Monuments.....	12
4	Preliminary (Tier 1) Contamination Risk Assessment.....	13
4.1	Introduction	13
4.2	Conceptual Model.....	13
4.3	Potential Sources (Hazards) and Contaminants of Concern	13
4.4	Hazard Assessment	15
	Pathways	15
4.5	Risk Estimation.....	16
4.6	Risk Evaluation.....	17
4.7	Confidence and Uncertainties	17
5	Preliminary Land Stability Appraisal.....	18
5.1	Introduction	18
5.2	Naturally Occurring Geological Hazards	18
5.3	Coal Mining.....	19
5.4	Artificial (Non-coal Mining) Cavities.....	19
5.5	Natural Cavities	19
5.6	Slope Stability.....	19
5.7	Excavations	19

5.8	Groundwater Control	20
5.9	Shrinkable Soils/Building near Trees	20
5.10	Potentially Adverse Foundation Conditions	20
6	Conclusions and Recommendations	22
6.1	Contamination Appraisal Conclusions.....	22
6.2	Preliminary Stability Appraisal Conclusions	22
6.3	Recommendations.....	22
7	References	24
8	Essential Guidance for Report Readers.....	25

Figures

Figure 1 – Site Location Plan
Figure 2 – Site Features Plan

Tables

Table 3.1	Summary of Site Geology	7
Table 3.2	Summary of Hydrogeology and Groundwater Vulnerability Related Information	10
Table 3.3	Summary of Surface Water Related Information	11
Table 3.4	Summary of Environmental Information	11
Table 4.1	Summary of Sources of Potential Contamination and Contaminants of Concern	14
Table 4.2	Identification of Potential Receptors	15
Table 4.3	Estimated Risks	16
Table 5.1	Summary of Potential Geological Hazards	18

Appendices

Appendix A	Stantec Methodology for Assessing Land Contamination in England
Appendix B	Site Reconnaissance Walkover Photos
Appendix C	Groundsure Map Insight Report
Appendix D	Groundsure Enviro+Geo Insight Report
Appendix E	BGS Boreholes
Appendix F	Information from Rochdale Borough Council
Appendix G	Tables of Estimated Risk

This page is intentionally blank

1 Introduction

1.1 Appointment

- 1.1.1 Stantec UK Ltd (Stantec) has been commissioned by Bloor Homes North West ('Bloor Homes', the Client) to undertake a Phase 1 Ground Conditions Assessment to support a planning application for a proposed development of land at Hollingworth Road, Littleborough, Rochdale (the site).
- 1.1.2 This report presents the findings of desk study research carried out together with the development of a preliminary Conceptual Model (CM) and a land contamination Tier 1, qualitative, Preliminary Risk Assessment (PRA).
- 1.1.3 Attention is directed to the final section of this report entitled Essential Guidance for Report Readers.

1.2 Objective

- 1.2.1 The primary objective of this assessment is to meet the requirements of the National Planning Policy Framework (NPPF) (MHCLG, 2023). The NPPF states the following:

Planning policies and decisions should 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.

- 1.2.2 Further information on the requirements of the NPPF in respect of ground conditions is presented in the accompanying Stantec Guide: Methodology for Assessment of Land Contamination (England), which is included in **Appendix A**.

1.3 Scope of Work / Terms of Reference

- 1.3.1 The scope of work undertaken by Stantec comprises:
- Collection of desk study information relating to the geological, environmental and historical setting of the site.
 - A qualitative Tier 1 contamination risk assessment utilising a Conceptual Model to identify 'source - pathway - receptor' linkages to assess the potential risk and hazards, if any, associated with existing or potential future contamination in the ground.
 - A preliminary land instability appraisal.
- 1.3.2 This assessment has been carried out in accordance with current UK good practice and guidance given in British Standard BS10175:2011+A2:2017 and with reference to Environment Agency guidance Land Contamination Risk Management (EA, 2021) <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>. This

element of the study has been carried out in accordance with Stantec's 'Methodology for Assessing Land Contamination', a copy of which is included in **Appendix A**.

- 1.3.3 The preliminary land instability appraisal methodology adopted by Stantec follows the guidance given in the Planning Practice Guidance for Land Stability (MHCLG, 2019) accessed from <https://www.gov.uk/guidance/land-stability>. The guidance states that "*Preparation of a slope stability risk assessment report will vary according to location but is likely to involve at least a comprehensive desk study examination and a site visit.*".
- 1.3.4 The objective of this report is to identify the likely ground conditions at the site using published and readily available public information (see below for sources of information accessed), to assess whether there is the potential for significant contamination associated with the ground conditions and to provide a preliminary assessment of potential land instability.
- 1.3.5 With respect to contamination this report presents a review of the acquired information, together with the developed preliminary conceptual model (CM) and the associated Preliminary Risk Assessment.
- 1.3.1 With respect to land instability, the preliminary appraisal includes for example, where relevant, a review of geological hazards for the site such as natural and man-made (mining) cavities, landslide, collapsible and compressible soils, running sand, and subsidence and heave due to volumetric change in the ground.

1.4 Site Location

- 1.4.1 The site comprises approximately 19 hectares (ha) of land to the immediate west of Hollingworth Road, north-east of Smithy Bridge and south of Littleborough, in the north-eastern part of Rochdale, Greater Manchester. The site is centred approximately at National Grid Reference SD 93341 15448. A site location plan is enclosed as **Figure 1**.

1.5 Proposed Development

- 1.5.1 The site is being considered for a mixed end use, with approximately 310 residential dwelling and a primary school proposed in the south east corner, together with associated open space, infrastructure and attenuation ponds.

1.6 Sources of Information

- 1.6.1 The following primary sources of information were used in the preparation of this report:
- Site reconnaissance walkovers by Stantec representatives to observe current land use on 23rd September and 11th November 2022. Photographs from these visits are presented in **Appendix B**.
 - Groundsure was commissioned to provide historical Ordnance Survey (OS) maps, geological and environmental setting data searches (Groundsure Map Insight and Geo+Enviro Insight reports). These are presented in **Appendix C** and **D**, respectively.
 - A review of geological map records held by the British Geological Society (BGS) (accessed January 2024) via their website.
 - A review of borehole records and geological mapping held by the BGS via their website, [GeolIndex - British Geological Survey \(bgs.ac.uk\)](https://www.bgs.ac.uk) (accessed January 2023). Relevant extracts are presented in **Appendix E**.
 - Current and recent-past satellite imagery accessed through the web-hosted Google Earth and Bing maps portals.

- Review of public register environmental database information on the Multi-Agency Geographic Information for the Countryside (MAGIC) webhosted database (accessed August 2022) <http://www.magic.gov.uk>.
- An enquiry to Rochdale Borough Council for information on contaminated land and private water supplies and review of information provided (generally relating to the adjacent Akzo Nobel chemical works site). Their response is enclosed in **Appendix F**.
- Review of 'Ground Investigation Report for Hollingworth Road, Littleborough' prepared by Betts Geo Consulting Engineers on behalf of Bloor Homes, September 2019.

2 Land Use Information

2.1 Introduction

- 2.1.1 This section presents a summary of current and historical land uses on and immediately adjacent to the site. Land use informs the hazard identification element of the contaminated land risk assessment. For the purposes of this report “on-site” is defined as within the site boundary shown in Figure 2 of this report.
- 2.1.2 The current land use information is based on various sources, including aerial imagery, the site reconnaissance section of the Betts Geo report (2019) and site visits undertaken by Stantec representatives on 23rd September 2022 and 11th November 2022. Photographs from the Stantec site visits are presented in **Appendix B** and salient features are identified on **Figure 2**.

2.2 Current Land Use

- 2.2.1 The site comprises approximately 19 hectares of farmland, bordered by the Rochdale Canal and the former Akzo Nobel site to the north, Hollingworth Road to the east, Lake Bank Road to the south, Hollingworth Lake beyond, and residential dwelling associated with the settlement of Smithy Bridge to the west.
- 2.2.2 The site predominantly comprises land used for grazing of horses and cattle with field boundaries enclosed by dry stone walls and hedgerows. There are eight parcels of land in total surrounding Lower Cleggswood Farm, central to the site and accessed via Heald Lane which runs south to Lake Bank. Heald Lane is a Public Right of Way (‘PRoW’). The south-eastern part of the site comprises a public car park for visitors to Hollingworth Lake.
- 2.2.3 The site is variable in topography, with land falling away from a central ridge through the site to the east and dropping steeply towards the Rochdale Canal to the north and rising to the west to a plateau. This variable topography is characteristic of the surrounding landscape.
- 2.2.4 Pertinent observations from the Betts Geo (2019) site description (based on a site reconnaissance undertaken in January 2019) are summarised below:
- Lower Cleggswood Farm comprised a number of buildings in various states of repair (but generally poor), including a stone farmhouse and outbuildings, timber and steel framed corrugated metal clad outbuildings and sheds.
 - Waterlogged ground and areas of ‘reeds’ were noted in the eastern third of the site.
 - In the south of the site to the east of the track was a fenced area containing a static caravan and shed type building.
 - To the north of the farm and to the west of the track a former small earthworks/quarry appeared to have been used to dispose of general farm waste, with plastic sheeting visible at the surface.
- 2.2.5 A site visit undertaken by Stantec representatives in September and November 2022 confirmed the site land uses were largely unchanged since the 2019 Betts Geo reconnaissance. Observations of note are summarised below:
- The area around Lower Cleggswood Farm was in a general state of disrepair, with piles of waste present surrounding the farm (generally timber and household waste). A plastic heating oil tank was noted adjacent to one of the farm buildings and a metal tank labelled ‘New Oil’ was noted in the parking area to the southeast of the farm.

- Extant structural remains, including walls and debris, associated with the buildings at Brown Bank Top and Heald Spring were observed.
- Broad linear earthworks (possible ridge and furrow features) were identified on the north facing slope of the hillside within the north-western part of the site and in the eastern part of the site.

2.3 Historical Land Use

On-Site

2.3.1 The site appears to have been used as agricultural land (divided into a number of field enclosures) since the start of the historical record period available, 1851. Brown Brow Hill forms a topographical high point in the central eastern part of the site. Features of note include:

- A sandstone quarry in the northwest of the site. This is labelled as an Old Quarry by the 1892.
- Three farms/dwellings (Brown Bank Top, Lower Cleggs Wood and Heald) are present on the 1851 mapping. The residence labelled Heald is no longer shown from 1938, and Brown Bank Top is no longer shown from 1961. Lower Cleggs Wood Farm undergoes expansion in the 1960s and 1970s.
- Two wells are shown in proximity to the dwelling labelled Heald in 1851. By 1892, one of these is no longer shown and the other is labelled as a Spring. A separate well is shown in the west of the site.
- A Drain Conduit runs across the site from the off-site Hollingworth Reservoir north to the Rochdale Canal. This feature is only shown on the 1851 mapping.
- The site is traversed by Cleggs Wood Lane, and other smaller footpaths.
- An embankment is present on the southern boundary of the site, with a Water Meter House shown from 1930. Water Meter House is no longer labelled from 1949, and no longer shown on the mapping from 1967.
- A ground working is shown in the eastern part of the site from 1930, adjacent to the off-site Reservoir.
- From the late 1980s, a car park is shown to occupy the south-east corner of the site.

Off-Site

2.3.2 To the north-west, the site is bounded by the Rochdale Canal, with the Lancashire & Yorkshire Railway beyond. A Sandstone Quarry and an Old Coal Pit are shown approximately 100m north of the site on the 1851 map. By the 1890s, this area is occupied by Clough Field Works (Oil & Tallow) (also labelled as Cleggswood Works (Grease & Size) on the 1:2,500 scale map) and by 1910 the western part of the works are labelled as Cleggswood Oil Distillery. Between the 1950s and 1970s the works undergo expansion to the west and south, up to the site boundary. By the 1980s, over 30 tanks are shown on the Works site. The Works are presumed demolished between 2001 and 2010 (based on aerial photography).

2.3.3 To the east of the site, a Reservoir is shown immediately east of the site boundary from 1898 onwards. Hollingworth Road is present along the southern part of the site's eastern boundary for all of the examined period, with land-use to the east noted as predominantly agricultural. Some small-scale linear residential development occurs along Hollingworth Road from the 1920s onwards. A tank is shown approximately 120m east of the site from 1930 to 1961.

- 2.3.4 To the south of the site is a road (named Fen Lane, then Lake Bank), with Hollingworth Lake beyond. A sandstone quarry is shown approximately 20m south of the site on the 1851 map and is subsequently labelled as an Old Quarry. Associated ground workings remain until at least the 1960s. A Hotel is shown between the former quarry and the lake and is replaced by residential development in the 1930s.
- 2.3.5 To the west, land use is predominantly agricultural until the 1960s and 1970s when residential development associated with Smithy Bridge and Hollingworth occurs. A small pond is present approximately 10m south-west of the site from the earliest mapping. This feature appears to be infilled by the 1970s. By 1976, land use up to the western site boundary is residential. Paragon Works (Steel) are present approximately 200m west of the site from 1891. By 2010 the works are shown as an Industrial Estate. An 'Old Air Shaft' is shown approximately 10m west of the site, adjacent to the Rochdale Canal from 1907 to 1967.

2.4 LiDAR Data

- 2.4.1 As part of the Historic Environment Desk-based Assessment (Stantec, 2023), LiDAR data was downloaded from the Environment Agency and processed to provide a Multi-Hillshade Visualisation. This shows a number of features identified on the historical mapping, including the trackway/boundary shown to cross the northern part of the site, and the former Drain Conduit crossing the eastern part of the site.
- 2.4.2 A feature identified as a 'former channel/rivulet' is present in the east of the site, running approximately north-south.
- 2.4.3 A number of 'quarry' features are identified, as summarised below:
- Former 'sandstone quarry' in the northwest of the site, as shown on the 1851 OS map. At the time of the site walkover this area was a gently sloping, grassed depression.
 - Likely former quarry in the east of the site, adjacent to the reservoir. This was shown as an area of ground workings on the 1930 OS map. The site walkover identified this area as low-lying marsh.
 - Likely former quarry in the central part of the site, to the northwest of Lower Cleggswood Farm. This corresponds to the area identified by Betts Geo as a former small earthworks/quarry that may have been used to dispose of farm waste.
 - An area in the north of the site interpreted to be a 'borrow pit or former quarry'. This is shown on geological maps as a landslip and is discussed in Section 3.2 below.

3 Environmental Setting

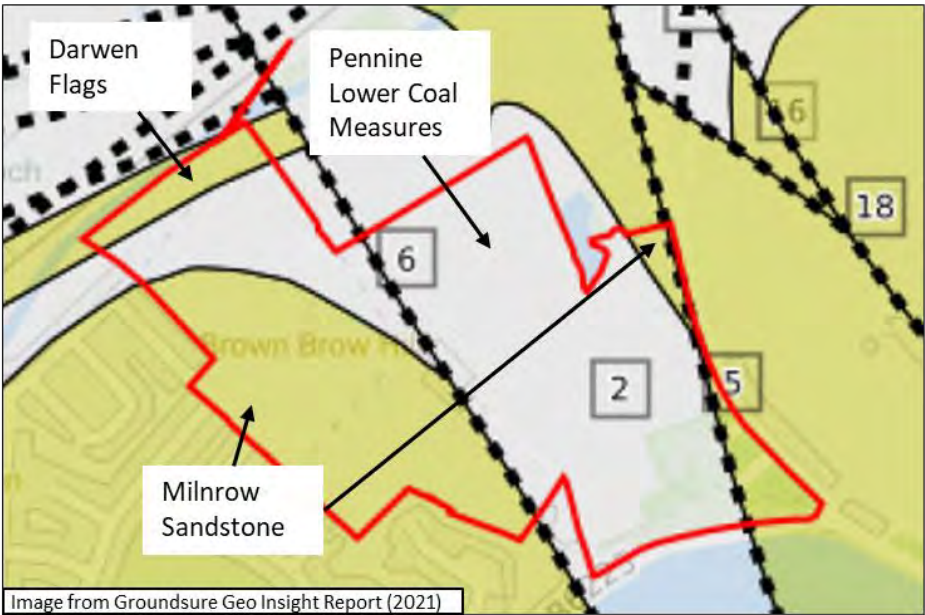
3.1.1 Information on the geological and environmental setting of the site is used in the Hazard Assessment section of the Preliminary Risk Assessment to identify potential pathways and receptors.

3.2 Geology

3.2.1 The 1:10,000 scale geological maps presented within the Groundsure report, the BGS online GeolIndex viewer and the BGS map covering the area of the site (BGS, 2008, 1:50,000 Bedrock and Superficial, Rochdale) have been reviewed and geological information for the site is summarised below.

Table 3.1 Summary of Site Geology

Item	Details
Superficial Strata	Generally, superficial deposits are absent from the western part of the site, with Till and Head deposits present in the east of the site, as shown on the map below.  Till – Diamicton (generally mapped in the west of the site) is unsorted and unstratified drift, generally overconsolidated, deposited directly by and underneath a glacier without subsequent reworking by water from the glacier. It consists of a heterogenous mixture of clay, sand, gravel and boulders varying widely in size and shape. Head – Diamicton is poorly sorted and poorly stratified, angular rock debris and/or clayey hillwash and soil creep, mantling a hillslope and deposited by solifluction and gelifluction deposits. Head generally comprises gravel, sand and clay depending on upslope sources and distance from source. Locally with lenses of silt, clay, or peat and organic material. A landslip is mapped in an area of Till in the northern part of the site – the ground in this location is likely to be disturbed. Alluvium (mapped off-site to the north, associated with the River Roch) is a general term for clay, silt, sand and gravel. It is the unconsolidated detrital material deposited by a river or stream as a sorted or semi-sorted sediment in the bed of the stream or on its floodplain. It is normally a soft to firm consolidated, compressible silty clay.
Bedrock Strata	The area of the site is underlain by the Pennine Lower Coal Measures Formation (PLCM) which is of Westphalian age (Upper Carboniferous period) and comprises

Item	Details
	mudstone and siltstone interbedded with fine- to medium-grained sandstone, subordinate seatearths and ironstone beds, marine bands and coal seams. The Darwen Flags and Milnrow Sandstone form sandstone beds within the PLCM. The Darwen Flags are typically 0-c.10m in thickness, and generally comprise fine-grained, ripple laminated, micaceous sandstone. The Milnrow Sandstone is typically 0 – 50m in thickness, and is described by the BGS as a sandstone, weathering ochreous, mainly medium-grained, cross-bedded or massive.  Image from Groundsure Geo Insight Report (2021)
Artificial Ground	• Area of infilled ground is mapped in the centre of the site. • Area of Made Ground is mapped in the east of the site, corresponding to the area of ground workings adjacent to the off-site reservoir. • Area of Made Ground is mapped on the southern boundary of the site, associated with the enclosure embankment of Hollingworth Lake • Several areas of Made Ground / Worked Ground are mapped on the former Works site to the north of the site. • A linear strip of Made Ground associated with the Rochdale Canal is mapped immediately off-site to the north.
Faults and other linear features	Two faults are mapped on site (labelled on the bedrock geology map above), generally oriented north-west to south-east. A further 28 linear features are mapped within 500m of the site, including coal seams (the Upper Mountain coal seam is mapped approximately 20m north of the site, and the Lower Mountain coal seam mapped approximately 50m north of the site), the margins of a buried channel, faults and fossil horizons. The 1:50,000 scale BGS map of the area depicts a deep buried (drift infilled) channel feature immediately to the north of the site aligned north-east to south-west, with the southern extent of the channel at this location broadly delineated by the canal. The feature is a glacial meltwater channel.
BGS Borehole Records	There is one borehole record within 250m of the site (reference SD91NW6), associated with Cleggswold Colliery (approximately 140m NW). Ground conditions were as follows: • Glacial deposits to 6.4m bgl • Pennine Lower Coal Measures to the base of the borehole at 115.2m bgl with subdivisions recorded at the following depths: - o Milnrow Sandstone 13.4m - 19.8m bgl

Item	Details
	- o Coal 46.74 – 46.76m bgl - o Darwen Flags 48.29 – 55.75m bgl - o Upper Mountain coal seam 71.88 – 72.29 m bgl - o Inch coal seam 82.04 – 82.07m bgl - o Upper Foot coal seam 102.79 – 103.10m bgl - o Lower Mountain coal seam 114.07 – 114.73m bgl

Findings of the Betts Geo (2019) investigation

- 3.2.2 The ground investigation undertaken at the site generally encountered ground conditions consistent with the information summarised above. The fieldwork comprised the sinking of 9no. windowless sampler boreholes, excavation of 25no. trial pits and ground gas monitoring. Exploratory hole elevations were not recorded.
- 3.2.3 Made ground was encountered in three locations (all adjacent to the boundary with the former Akzo Nobel site) at depths of up to 2.2m bgl. The presence of reworked natural material was also inferred in the area of the historical quarry, to a depth of 2.3m bgl. Glacial (Diamicton) till (generally a firm to stiff sandy gravelly brown/orange/grey clay) was encountered in the majority of trial pits to depths of between 0.20 and over 3.50m (base not proven in all locations). Localised bands of sand and gravel were encountered in the glacial till. Weathered sandstone was found to underly the glacial till. Groundwater was recorded at depths between 0.56m and 1.45m bgl in post-fieldwork monitoring.
- 3.2.4 Peat was recorded within the area of the historical quarry within WS05 only at 2.3 – 2.5 m bg.
- 3.2.5 Asbestos (amosite and chrysotile) was identified in the made ground in two locations in the north east of the Site adjacent to the former AkzoNobel chemical works. The samples were recovered from depths of 0.1m bgl and 2.0m bgl (TP07 and WS01 respectively) and will require delineation due to the Proposed Development layout and plans to construct an attenuation pond in that area.
- 3.2.6 Elevated concentrations of lead and arsenic were recorded in samples of glacial till located in the central part of the site (TP20) within a sample collected from a depth of 2.5m bgl. The elevated concentrations of arsenic and lead in the natural soils appear to have been dismissed in the Betts Geo report as possible cross contamination or a laboratory error, however it would be prudent to carry out additional sampling to confirm whether elevated concentrations are present or absent in this location of the site.
- 3.2.7 Ground gas monitoring generally recorded low concentrations of methane (<0.1% by volume) and carbon-dioxide (<3.5% by volume). However elevated methane concentrations of 65.1% and 16.3% by volume were recorded at WS01 and WS03 (respectively) adjacent to the former Akzo Nobel site, and depleted oxygen concentrations and elevated carbon-dioxide concentrations of 8.0% and 25.1% (by volume) were recorded at WS01 and WS07 (the latter located in the vicinity of the farm buildings).

3.3 Potential Geological Hazards

Radon

- 3.3.1 Radon is a naturally occurring radioactive gas produced by the decay of naturally occurring radioactive elements in the ground.

- 3.3.2 The Groundsure report identifies that the site is located within a Lower probability radon area where less than 1% of homes are estimated to be above the Radon Action Level of 200 becquerels per metre cubed (bqm³).
- 3.3.3 As such, risks from radon are not considered further in this report as no control measures are required.

3.4 Controlled Waters – Groundwater

- 3.4.1 The table below summarises the hydrogeology of the site and groundwater vulnerability information recorded in the Groundsure report, a review of the MAGIC (<http://magic.defra.gov.uk/>) website and through consultation with Rochdale Borough Council.

Table 3.2 Summary of Hydrogeology and Groundwater Vulnerability Related Information

Item	Details
Aquifer Classification	Superficial Till – Diamicton (on-site) – Secondary Undifferentiated ⁽¹⁾ Head – Diamicton (on-site) – Secondary B Aquifer ⁽²⁾ Alluvium (off-site) – Secondary A Aquifer ⁽³⁾ Bedrock Pennine Lower Coal Measures (on-site) – Secondary A Aquifer ⁽³⁾
Groundwater Vulnerability	Secondary bedrock and superficial aquifer – medium vulnerability ⁽⁴⁾ .
Depth to Groundwater	Groundwater was encountered at depths between 1.0m-3.3m bgl in the Betts Geo ground investigation and was recorded at depths between 0.56m-2.90m bgl in their post-fieldwork monitoring.
Groundwater Flow Direction	On the basis of the ground investigation undertaken by WSP at the adjacent Akzo Nobel site (WSP, 2006), groundwater in both the superficial and bedrock aquifers is indicated to flow to the north/northwest, towards the River Roch. Groundwater behaviour may also be controlled to some extent by the faults and potential coal workings beneath the site.
Source Protection Zones	None on site or within 500m.
Licensed Discharge Consents	8 within 500m of the site – 1 of these relevant to groundwater. This is located approximately 190m NE of the site at Cleggswood Farm and relates to the discharge of final/treated sewage effluent to land via soakaways.
Private Water Supplies	None within 250m.
Groundwater Abstraction	None within 500m.
1. Secondary Undifferentiated Aquifer - assigned by the Environment Agency (EA) 'where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type' 2. Secondary B Aquifer – defined by the EA as 'Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers' 2. Secondary A Aquifer – defined by the EA as '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.' 4. Medium Vulnerability – Defined by the EA as intermediate between Low Vulnerability (areas characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability) and High Vulnerability (Areas able to easily transmit pollution to groundwater, likely to be characterised by high leaching soils and the absence of low permeability superficial deposits).	

3.5 Controlled Waters- Surface Water

3.5.1 The table below summarises the information recorded in the Groundsure report with respect to the general hydrology of the site.

Table 3.3 Summary of Surface Water Related Information

Feature/ Parameter	Details
Surface Water Features	A reservoir is located immediately east of the site, and Hollingworth Lake is located approximately 20m south of the site. The Rochdale Canal runs along the northern boundary of the site. The River Roch is located approximately 70m north of the site and flows to the southwest.
Water Quality (2016 data)	The Rochdale Canal has an overall rating of Moderate, a chemical rating of Good and an ecological rating of Moderate. The River Roch has an overall rating of Moderate, a chemical rating of Good and an ecological rating of Moderate.
Surface Water Abstraction	There are 2 abstraction points within 500m of the site, both abstracting from the Rochdale Canal. Licenses were held by AkzoNobel Chemicals Ltd for abstractions at a location 200m north and 470m northeast of the site. Abstraction was for boiler feeds, process water, general cooling. The licenses are listed as Historical, and the AkzoNobel site is understood to have been decommissioned in the 2000s.
Recorded Pollution Incidents	12 records within 500m with an impact on water. The closest was at a location c. 20m south-west of the site in 2002. The pollutant was an unspecified organic chemical, and the incident had a minor impact on air (no impact on water or land). Other recorded incidents date from 2001 to 2007, and generally had a minor impact on water (no impact on water or land). Pollutants included construction and demolition materials and wastes, crude sewage, diesel, oils and fuel, grey water and minewater.
Licensed Discharge Consents	8 within 500m of the site, 7 of which are relevant to surface water. The closest of these is approximately 190m west of the site and relates to the discharge of sewer storm overflow to the River Roch. Other entries include trade discharges – cooling water to the Rochdale Canal (310m W), and sewage discharges – final/treated effluent to Hollingworth Brook (425m E and 485m E).

3.6 Environmental Data – Consultations and Searches

3.6.1 The table below summarises environmental information recorded in the Groundsure report (see **Appendix D**) and from other sources.

Table 3.4 Summary of Environmental Information

Category	Details
Landfills and Waste	Three areas of historical landfill are recorded by the EA within 250m of the site: 70m NE – Clough Field Works, Canal Side, operated by Armour Hess Chemicals 90m SW – Paragon Industrial Works, Smithy Bridge, operated by Salpha Kay Ltd (licence surrendered in 1985). Accepted inert and industrial waste. 170m SE – Rakewood Road, Littleborough, operated by Littleborough Urban District Council. Accepted commercial and household wastes.
Contaminated Land*	None recorded within 500m.

Category	Details
Fuel Stations & Garages	None recorded within 500m.
*Sites determined as Contaminated Land under Part 2a of the Environmental Protection Act 1990	

- 3.6.2 There are a number of permits and consents associated with the former Akzo Nobel site to the north, including a Control of Major Accident Hazards (COMAH) designation, a Hazardous Substances Consent, historical Integrated Pollution Consents (IPC) for combustion processes, manufacture and use of organic chemicals, and inorganic chemical processes, a historical Part B permit for chemical and acid processes and authorisations for discharge of List 1 (Mercury and Cadmium) and List 2 (Zinc) Dangerous Substances to the River Roch.

3.7 Information from Rochdale Borough Council

Planning Portal

- 3.7.1 It is understood from the planning officer's report (enclosed in **Appendix F**) for the planning application at the former Akzo Nobel site that the landfill recorded above as at Clough Field Works was land located on the northern side of the Rochdale Canal, historically used for tipping of waste materials in connection with operations on the main Akzo Nobel site. Tipping operations took place until 1970 when the tipped area was partially capped and landscaped. The area was remediated in 2007.

Response from Environmental Health Officer

- 3.7.2 The Environmental Health Officer (EHO) for Rochdale Borough Council provided 11no. reports relating to the former Akzo Nobel site. These included a baseline report, site investigation factual and interpretive reports, a flood risk assessment and a remediation strategy prepared by WSP between 2004 and 2006. The former works (excluding the 'Island site') were subsequently taken on by Woodford Land and remediated by Woodford Remediation Ltd to a standard deemed suitable for residential use as reported in their Remediation Statement dated April 2008, also provided by the RBC EHO.

3.8 Ecological Systems

- 3.8.1 The Rochdale Canal on the northern boundary of the site is a Site of Special Scientific Interest (SSSI) and a Special Area of Conservation (SAC).
- 3.8.2 There are no local or national nature reserves, RAMSAR sites or Special Protection Areas within 500m of the site.

3.9 Ancient Monuments

- 3.9.1 There is one listed building within 250m of the site, Rochdale Canal Lodge Bridge 160m southwest of the site, which is Grade II listed.
- 3.9.2 There are no Conservation Areas, World Heritage Sites or Scheduled Ancient Monuments within 250m of the site.

4 Preliminary (Tier 1) Contamination Risk Assessment

4.1 Introduction

4.1.1 A Tier 1 qualitative contamination risk assessment has been undertaken for the site. The methodology and criteria adopted by Stantec for the preliminary geo-environmental risk assessment is presented in **Appendix A**.

4.1.2 When there is a pollutant linkage (and therefore some measure of risk) it is necessary to determine whether the risk matters and therefore whether further action is required. Stantec provide an estimation of the level of risk but do not comment on whether or not it is an unacceptable risk because the significance or acceptability of a risk depends on the individual stakeholder. Risk estimation involves predicting the likely consequence (what degree of harm might result) and the probability that the consequences will arise (how likely is the outcome).

4.2 Conceptual Model

4.2.1 The Tier 1 Preliminary Risk Assessment includes the development of a conceptual model (CM). The CM describes the types and locations of potential contamination sources, the identification of potential receptors and the identification of potential transport/migration pathways.

4.3 Potential Sources (Hazards) and Contaminants of Concern

4.3.1 The site has been agricultural land since the start of the examined period (1851) with a farm located in the centre of the site (which has undergone expansion) and scattered dwellings (demolished by the 1960s). A former sandstone quarry is present in the west of the site (since infilled), and a ground working is present in the east of the site, adjacent to the off-site reservoir. The south-east corner of the site has been used as a car park since the 1980s.

4.3.2 Off-site, land use was predominantly agricultural with some industry at the start of the examined period. The Rochdale Canal runs along the north-western boundary of the site, with the Lancashire & Yorkshire Railway beyond. Hollingworth Lake, a reservoir built to supply the Rochdale Canal is present to the south of the site. Land to the north/north-east of the site is occupied by a range of industries over the period, including Cleggswood Works (Grease & Size), Cleggswood Oil Distillery, and the Akzo Nobel Works Complex. To the southwest, land use is predominantly residential, associated with the settlements of Smithy Bridge and Hollingworth, which expanded during the 1960s and 1970s, up to the boundary of the site. Land use to the east remained predominantly agricultural throughout the period.

4.3.3 The contamination potential from the site is generally considered to be **Low** (classification score 2 out of 5 as per **Table 1, Appendix A**) in accordance with its history of general agricultural use, with localised areas of other land use (infilled quarry, ground working, car park). The extent to which the existing building fabric (specifically the small barn) contains asbestos containing materials (ACMs) is not known. It is assumed that as part of any demolition works that any ACMs will be subject to appropriate survey, controlled removal in accordance with current legislation and best working practices. The Betts Geo GI encountered locally elevated concentrations of lead and arsenic in natural soils in TP20 in the centre of the site which area above the relevant assessment criteria. Asbestos was identified in WS01 and TP07 (both close to the offsite former chemical works to the north east) as amosite and chrysotile loose fibres respectively. Significantly elevated concentrations of methane were identified in WS01 and WS03 in the north east of the site and depleted oxygen and elevated concentrations of carbon dioxide were identified in WS01 and WS07 in the north east and centre of the site (respectively).

4.3.4 The contamination potential from off-site sources is considered to be **Moderate** (classification score 3 out of 5 as per **Table 1, Appendix A**) based on the industrial use to the north-east, the railway to the north-west and other industrial land use in the wider area.

4.3.5 A number of localised Sources of Potential Contamination (SPC) and associated Contaminants of Potential Concern (CoPC) have been identified. These are summarised in **Table 4.1** below.

Table 4.1 Summary of Sources of Potential Contamination and Contaminants of Concern

SPC	Location of Source	Description	CoPC
1	On-site	Farmyard/farm buildings and associated tanks. Potential for asbestos within farm building fabric. Potential for Made Ground (likely to be of limited thickness)	Agricultural Chemicals - Storage and use of herbicides, pesticides and fertilisers. Hydrocarbons - Storage and use of fuels and oils associated with operation and maintenance of farm machinery. Asbestos PAH, metals, sulphates, ground gases potentially associated with made ground materials
		Infilled quarry	Asbestos, heavy metals and hydrocarbons within fill materials. Hazardous ground gas from biodegradable/ organic inclusions.
		Car park	Petroleum hydrocarbons, PAH, BTEX. Potential coal tar in hardstanding depending on composition.
2	Off-Site	Former Akzo Nobel Complex / Cleggswood Works (Grease & Size) / Clough Field Works (Oil & Tallow) / Cleggswood Oil Distillery (located immediately off-site to the NE)	Asbestos, PAH, Hydrocarbons, acids, heavy metals, PCBs, phenols, combustion soots, ash.
		Landfills (approx 70m NE, 90m SW and 170m SE)	Asbestos, heavy metals and hydrocarbons within landfill materials, depending on composition of waste. Potential for hazardous ground gas from biodegradable/ organic inclusions.
		Former coal workings – Old Coal Pit (100m N) and shafts (approx 10m W and 100m N)	Coal-related contaminants including PAH, TPH, heavy metals, tars, phenols and the migration of mine gas from offsite shallow coal workings
		Paragon Works (Steel) (200m W)	Metals, acids, PAH, BTEX, phenols, fuel oils, organic solvents.

4.4 Hazard Assessment

Potential Receptors and Sensitivity Score

- 4.4.1 The receptors considered as part of this PRA are summarised in **Table 4.2** and, based on the information reviewed are either eliminated from further consideration or allocated a sensitivity score in accordance with the Stantec Methodology (**Appendix A**). The sensitivity score informs the consequence element of the risk estimation process.

Table 4.2 Identification of Potential Receptors

Receptor Type	Plausible Receptor (Y/N)	Sensitivity/ Value ¹
Human Health – Current Users	Yes – Farm residents and workers, members of the public using footpaths and car park.	5
Human Health - Neighbours	Yes – Neighbouring residents to the southwest and on Hollingworth Road to the east.	4
Human Health – Future Users	Yes – Future residents of the proposed housing scheme, users of proposed public open space (including sports pitches and play areas), school pupils and staff.	5
Human Health - Construction & maintenance workers	Yes – Workers on site during construction and after for maintenance.	4
Controlled Waters - Surface Water	Yes – Reservoir, Rochdale Canal, Hollingworth Lake, River Roch	3
Controlled Waters – Groundwater (Superficial geology)	Yes – Secondary Undifferentiated (associated with Till - Diamicton) and Secondary B (associated with Head – Diamicton)	1
Controlled Waters – Groundwater (Bedrock geology)	Yes – Secondary A Aquifer (associated with Pennine Lower Coal Measures)	2
Property – Buildings.	Yes – current on-site farm buildings and residential buildings also proposed as part of the development.	2
Property – Animal or crop effect	Yes – livestock grazing on site	2
Ecological Systems [neighbouring Ancient Woodland, AONB]	Yes – Rochdale Canal is a SSSI and an SAC.	5
Designated archaeological sites (other than listed buildings) and other ancient monuments	No - No officially designated sites.	-
¹ Based on Table 2 of Stantec Guide: Methodology for Assessment of Land Contamination (England) - see Appendix A.		

Pathways

- 4.4.2 **Table 3** in the Stantec methodology describes possible pathways for each receptor type. Each of these possible pathways is then considered when assessing the possible pollutant linkage.
- 4.4.3 Possible pollutant linkages have been identified for human health, groundwater, surface water, buildings, material and property.

4.5 Risk Estimation

- 4.5.1 Where there is a potential pollutant linkage (and therefore some measure of risk) it is necessary to determine whether further action is required. Risk estimation involves predicting the likely consequence (what degree of harm might result) and the probability that the consequence will arise (how likely the outcome is).
- 4.5.2 Based on the information available, the estimated risks have been designated with further comments in the section below. A summary of the estimated risks is presented in Table 4.3 below. This should be read in conjunction with the tables in **Appendix G** which set out the classification of risk for each receptor.

Table 4.3 Estimated Risks

Receptor	SPC 1 (on-site localised sources)	SPC 2 (off-site sources)
Human Health Current Users (Farm workers, Public)	Moderate	Moderate
Human Health Off Site (Residential Properties)	Very Low	Low
Human Health Future Users (Residential Properties)	Moderate	Moderate
Human Health (Construction Workers)	Moderate	Moderate
Groundwater	Very Low	Low
Surface Waters	Moderate	Moderate
Ecological Systems	Low	Low
Buildings/ Materials	Low	Low
Property	Very Low	Very Low

- 4.5.3 The risks to current site users and to construction workers are assessed as Moderate. Post construction in the medium and long term, there are theoretical localised risks to future occupiers of the site that are also assessed as Moderate.
- 4.5.4 Both during construction and in the medium to long term there are theoretical risks to surface waters that are assessed as Moderate, groundwater, buildings and ecological systems that are assessed as Low, and to property that are assessed as Very Low.
- 4.5.5 A Moderate risk is defined as '*It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer-term.*'
- 4.5.6 A Low risk is defined as '*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.*'
- 4.5.7 A Very Low risk is defined as '*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.*'

4.6 Risk Evaluation

- 4.6.1 Possible pollutant linkages are determined using professional judgement. If a linkage is considered possible, it is considered that this represents a potentially 'unacceptable risk' and therefore requires further consideration. This may be through remediation or mitigation or through further tiers of assessment.

4.7 Confidence and Uncertainties

- 4.7.1 The assessment presented herein is based on publicly available land use data and a third-party ground investigation report. There may be conditions and potential sources of contamination present on the site that have not been identified as part of the current study. The ground condition data and risk assessment given in this report is qualitative in nature.
- 4.7.2 Given the known history of the site, the site setting, scale of the identified SPCs and the Low level of risk identified in the PRA, it is anticipated that the requirement to carry out any required Phase 2 intrusive investigation (and associated quantitative risk assessment) can be satisfactorily dealt with through the conditions of a planning consent.

5 Preliminary Land Stability Appraisal

5.1 Introduction

5.1.1 The potential for land stability at the site has been considered, in relation to

- Artificial Cavities;
- Natural Cavities;
- Slope Stability; and,
- Potentially adverse foundation conditions.

5.2 Naturally Occurring Geological Hazards

5.2.1 An assessment of potential geological hazards that may give rise to adverse foundation or construction conditions as supplied by the British Geological Society from their National Geoscience Information Service are presented in the GeolInsight Report (Groundsure, 2022) enclosed in **Appendix D**. The assessment is generated automatically based on digital geological maps and the scope and accuracy is limited by the methods used to create the dataset and is therefore only indicative for the search area.

5.2.2 The information contained in the GeolInsight Report has been reviewed and where considered necessary reassessed by Stantec considering the specific information available for the site with the potential hazards being rated as very low, low, moderate, high or very high in general accordance with the criteria given by the BGS property hazard rating system. The Stantec assessment of the potential for geological hazards to be present on the site is summarised below.

Table 5.1 Summary of Potential Geological Hazards

Stability Hazard	Hazard Potential	Comment
Shrink Swell Clays	Low	Ground conditions in the area mapped as Head Deposits in the eastern part of the site are indicated to be medium plasticity, which is associated with a low risk of shrink swell action.
Running Sands	Very Low	Very Low hazard potential relates to the area in the east of the site where superficial deposits (Till and Head) are mapped. This is likely to be associated with the limited potential for pockets of water-bearing sands within these deposits.
Compressible Deposits	Negligible	Compressible strata are not thought to occur.
Collapsible Deposits	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present.
Landslides	Moderate	Localised slope instability problems are probably present or have occurred in the past. A landslide is mapped in the northern part of the site, adjacent to the Rochdale Canal, coincident with an evident depression in the landscape. This is discussed further in Section 5.6 below.
Natural ground subsidence	Negligible	Soluble rocks are either not thought to be present or not prone to dissolution. Dissolution features are unlikely to be present.

5.3 Coal Mining

- 5.3.1 A coal mining risk assessment for the site has been prepared under separate cover (Stantec, 2023) and should be referred to when considering the risks posed by coal mining activity.

5.4 Artificial (Non-coal Mining) Cavities

- 5.4.1 A search of the Stantec UK Artificial Cavities Database indicated that the closest artificial cavity record to the site relates to a lead mine 2.8km to the east.

5.5 Natural Cavities

- 5.5.1 A search of the Stantec UK Natural Cavities Database indicates that the closest natural cavity record to the site relates to a gull/fissure in the form of cambering approximately 7.7km to the south-east.

5.6 Slope Stability

- 5.6.1 There is an area of landslip shown on the published geology map on the northern boundary of the site. These are a local feature of the Rochdale district often associated with glacially oversteered valleys, faulting, and/ or stream rejuvenation in drift filled valleys. A buried (drift infilled) glacial meltwater channel is present to the north of the site, broadly following the valley of the River Roch, and the mapped landslip may be associated with this.
- 5.6.2 Steep slopes are also present in the north of the site, sloping down to the canal, and along the central part of the site, coincident with Heald Lane, sloping down to the northeast. A spring is shown at the southern end of Heald Lane on historical OS mapping. Given this and the presence of shallow groundwater recorded in the Betts Geo ground investigation (2019) it is considered that there is potential for spring lines to develop on this slope, which can cause instability.
- 5.6.3 The landslide deposits are noted to be generally constrained to the northernmost part of the site, bound to the west by a row of trees and to the south by the existing trackway. From the available aerial imagery and LiDAR of the site, there is little evidence to show that there is a tension crack/scarp beyond these bounding features and it does not appear as if the landslip is regressing. No date is provided for the landslide event by the BGS but aerial imagery dating back to the year 2000 show it in much the same extent as it is presently.
- 5.6.4 From visual evidence provided by Google Streetview and aerial imagery, it would appear that the landslide features here more generally correspond to a “creep” type movement – i.e. the movement is typically much slower than a typical slope failure and is typically much thinner, usually affecting the shallow soils only.
- 5.6.5 Generally, the risk is considered to be Low, with Moderate risk in the area of landslip and where the topography is steeper. It is understood that these areas of the site (landslip and areas of steep topography) are not being considered for development.
- 5.6.6 Given the proposed development and the comments above it is not considered likely that there will be a reactivation of slope movement in the slope at the north of the site where previous slope failures are recorded. However, a couple of considerations need to be taken into account and may require investigation at the detailed ground investigation and design stages. These recommendations are set out in **Section 6.3** below.

5.7 Excavations

- 5.7.1 In the Betts Geo investigation (2019), near-surface soils were generally found to comprise soft to firm sandy gravelly clay, with localised bands of sand and gravel, underlain by weathered

sandstone. These materials should be readily excavated using conventional plant and equipment, depending on depth to bedrock. The majority of the exploratory holes in the Betts investigation were completed at their target depth, with the exception of three locations in the north of the site, where bedrock was encountered within 2m of the surface.

- 5.7.2 Although the sides of shallow trenches and open cut may stand with near-vertical side slopes in the very short term, these may need to be either battered back to a safe slope angle or restrained by full-face support to ensure stability in the short to medium term.
- 5.7.3 Any excavations below the groundwater table (which may be shallow) are unlikely to remain open unsupported for any duration.

5.8 Groundwater Control

- 5.8.1 Groundwater strikes were encountered at depths between 1.0m-3.3m bgl in the Betts Geo ground investigation and groundwater was recorded at depths between 0.56m-2.90m bgl in their post-fieldwork monitoring. Allowance should be made for controlling inflows of any groundwater from excavations in shallow soils.

5.9 Shrinkable Soils/Building near Trees

- 5.9.1 There is potential for cohesive material to be present at shallow depths, which will be potentially shrinkable (in accordance with NHBC, 2022). Atterberg tests were undertaken on a limited number of samples of the glacial Till clays in the Betts investigation. These recorded the cohesive material to be of low to medium plasticity.
- 5.9.2 The effects of tree removal and the influence of remaining trees on the volume of shallow soils must be considered. Deepening of foundations in accordance with NHBC standards will be required where foundations are within the zone of influence of existing or proposed trees and proposed shrub planting and shrinkable soils are encountered at foundation level.

5.10 Potentially Adverse Foundation Conditions

Foundations

- 5.10.1 It is envisaged that shallow trench or pad foundations will be suitable for small buildings such as 1-2 storey houses across most of the site. Larger buildings (e.g. school buildings) may need to be piled, depending on ground conditions and the size of individual structures.
- 5.10.2 Adverse foundation conditions may be encountered locally, associated with the following features:
- Areas of possible infilled ground; the former quarry in the west of the site, and the ground working adjacent to the reservoir in the east of the site.
 - Area mapped as a landslide in the northern part of the site, adjacent the Rochdale Canal.
 - Culvert carrying water supply from Hollingworth Reservoir to the Rochdale Canal.
 - Steep topography in the central part of the site, and the northern part, along the Rochdale Canal.

At present, the illustrative masterplan has zoned all of the above areas as public open space or similar.

Floor Slabs

- 5.10.3 Suspended floor construction would be recommended for low-rise structures at the site, given the presence of shrinkable soils and the elevated ground gas concentrations recorded during the Betts investigation, which will require incorporation of a ventilated subfloor void (together with other potential mitigation measures).

6 Conclusions and Recommendations

6.1 Contamination Appraisal Conclusions

- 6.1.1 Potential pollutant linkages have been identified using information on potential sources, receptors and exposure pathways. This is based on qualitative information and as such there is a degree of uncertainty regarding the actual ground conditions. However, it is considered that the information presented in this report provides a good understanding of the likely ground conditions and enables identification of potential risks.
- 6.1.2 The potential for site-wide contamination to be present on site based on its past and present use has been assessed as being generally Low to Moderate. A Moderate risk is assessed for human health receptors during the construction phase, and for the future development. Both during construction and in the medium to long term there are theoretical risks to surface waters that are assessed as Moderate, groundwater, buildings and ecological systems that are assessed as Low, and to property that are assessed as Very Low.

6.2 Preliminary Stability Appraisal Conclusions

- 6.2.1 The site is in a location that has been subject to historical underground coal mining activity. This is assessed in a Coal Mining Risk Assessment (Stantec, 2023), prepared under separate cover, which should be referred to in conjunction with this report.
- 6.2.2 The risk of slope instability in localised areas of the site (steep topography in central and northern part of the site; mapped landslip in the north of the site) is considered to be Moderate. If these areas are proposed for development, further assessment of their potential instability will be required.
- 6.2.3 Adverse foundation conditions may be encountered locally, associated with the following features:
- Areas of possible infilled ground (the former quarry in the west of the site, and the ground working adjacent to the reservoir in the east of the site).
 - Area mapped as a landslide in the northern part of the site, adjacent to the Rochdale Canal.
 - Culvert carrying water supply from Hollingworth Reservoir to the Rochdale Canal.
 - Steep topography in the central part of the site, and the northern part, along the Rochdale Canal.

6.3 Recommendations

- 6.3.1 It is recommended that a detailed intrusive ground investigation is undertaken prior to development of the site to:
- Provide information on the ground conditions and inform the detailed design of the proposed structures including foundations, basements and site drainage;
 - Investigate spatial gaps in the current preliminary GI including the south of the site;
 - Undertake further risk assessment and delineation of localised soil contamination encountered in the preliminary GI in the areas of the site being proposed for development;

- Undertake further investigation of the area around the farm where a likely quarry has been identified and a targeted investigation of a possible former quarry at Lower Cleggswood Farm where waste in the ground has been observed.
 - Carry out further ground gas monitoring, particularly in the far north east of the site (adjacent to the offsite former AkzoNobel chemical works) and in the centre of the site at in the area of monitoring well WS07 (in the area of the farm buildings).
- 6.3.2 This can be secured through a suitably worded planning condition on a planning permission for the development of the site.
- 6.3.3 It is recommended that the BGS recorded landslip in the north west of the site is further assessed at the detailed design stage, including:
- Walkovers of the site should be undertaken by a qualified geotechnical engineering professional to identify any evidence of recent movement in the slope and confirm the above comments, with particular attention to the position of head scarps and fresh movement faces.
 - Building foundations at the north of the site are expected to have a bearing horizon at/in bedrock. During foundation design, this should be ensured to be below the level of the soil creep recorded locally.
 - During construction, consideration should be made to the control of groundwater in the vicinity of the slope. This may include the design of drainage systems or channels which divert water away from this slope in order to mitigate against the increase of pore water pressures in this area which may reduce stability of the slope. Similarly, the local proposed attenuation pond should be suitably lined to prevent the increase of pore water pressure in these areas.

7 References

- Betts Geo (2019) Ground Investigation Report 18BLH008/GI. Hollingsworth Road, Littleborough. For Bloor Homes.
- BGS (2008) 1:50,000 geological map series Bedrock Deposits, Sheet 76, Rochdale. British Geological Survey, Nottingham.
- BGS (2008) 1:50,000 geological map series Superficial and Bedrock Deposits, Sheet 76, Rochdale. British Geological Survey, Nottingham.
- BGS (2010) Sheet Explanations England and Wales (1:50,000 Series). Geology of the Rochdale district – a brief explanation of the geological sheet 76 Rochdale. British Geological Survey, Nottingham.
- BGS (2023) GeoIndex interactive viewer, available at: <http://mapapps2.bgs.ac.uk/geoindex/home.html>, accessed: 13/01/2023.
- BRE (2015) Radon: Guidance on protective measures for new buildings. Building Research Establishment, 2015.
- EA (2021) Land Contamination: Risk Management. Environment Agency, Bristol.
- Groundsure (2022) Groundsure Enviro Insight Report for Hollingworth Road, Littleborough Groundsure reference HMD-8121637. Groundsure Ltd, Brighton.
- Groundsure (2022) Groundsure Geo Insight Report for Hollingworth Road, Littleborough Groundsure reference HMD-8121638. Groundsure Ltd, Brighton.
- Groundsure (2022) Groundsure Historical Mapping for Hollingworth Road, Littleborough, Groundsure reference GS-9027683. Groundsure Ltd, Brighton.
- MAGIC (undated) Multi-Agency Geographic Information for the Countryside website <http://www.magic.gov.uk> accessed January 2023.
- MHCLG (2019) Planning Guidance: Land Stability. Ministry for Housing, Communities and Local Government.
- MHCLG (2021) National Planning Policy Framework. Ministry for Housing, Communities and Local Government.
- NHBC (2022) Technical Standards. National House Building Council, Milton Keynes.
- Stantec (2023a) Hollingworth Road, Littleborough, Historic Environment Desk-Based Assessment. Reference 332010570. For Bloor Homes.
- Stantec (2023b) Hollingworth Road, Littleborough, Coal Mining Risk Assessment. Reference 332010570/3501/R02. For Bloor Homes.
- WSP (2006) Akzo Nobel, Littleborough, Interpretative Report. Reference 12121110/002/7320. For Akzo Nobel Chemicals Ltd.

8 Essential Guidance for Report Readers

This report has been prepared within an agreed timeframe and to an agreed budget that will necessarily apply some constraints on its content and usage. The remarks below are presented to assist the reader in understanding the context of this report and any general limitations or constraints.

If there are any specific limitations and constraints, they are described in the report text. The opinions and recommendations expressed in this report are based on statute, guidance, and best practice current at the time of its publication. Stantec does not accept any liability whatsoever for the consequences of any future legislative changes or the release of subsequent guidance documentation, etc. Such changes may render some of the opinions and advice in this report inappropriate or incorrect and the report should be returned to us and reassessed if required for re-use after one year from date of publication. Following delivery of the report Stantec has no obligation to advise the Client or any other party of such changes or their repercussions.

Some of the conclusions in this report may be based on third party data. No guarantee can be given for the accuracy or completeness of any of the third party data used. Historical maps and aerial photographs provide a “snap shot” in time about conditions or activities at the site and cannot be relied upon as indicators of any events or activities that may have taken place at other times.

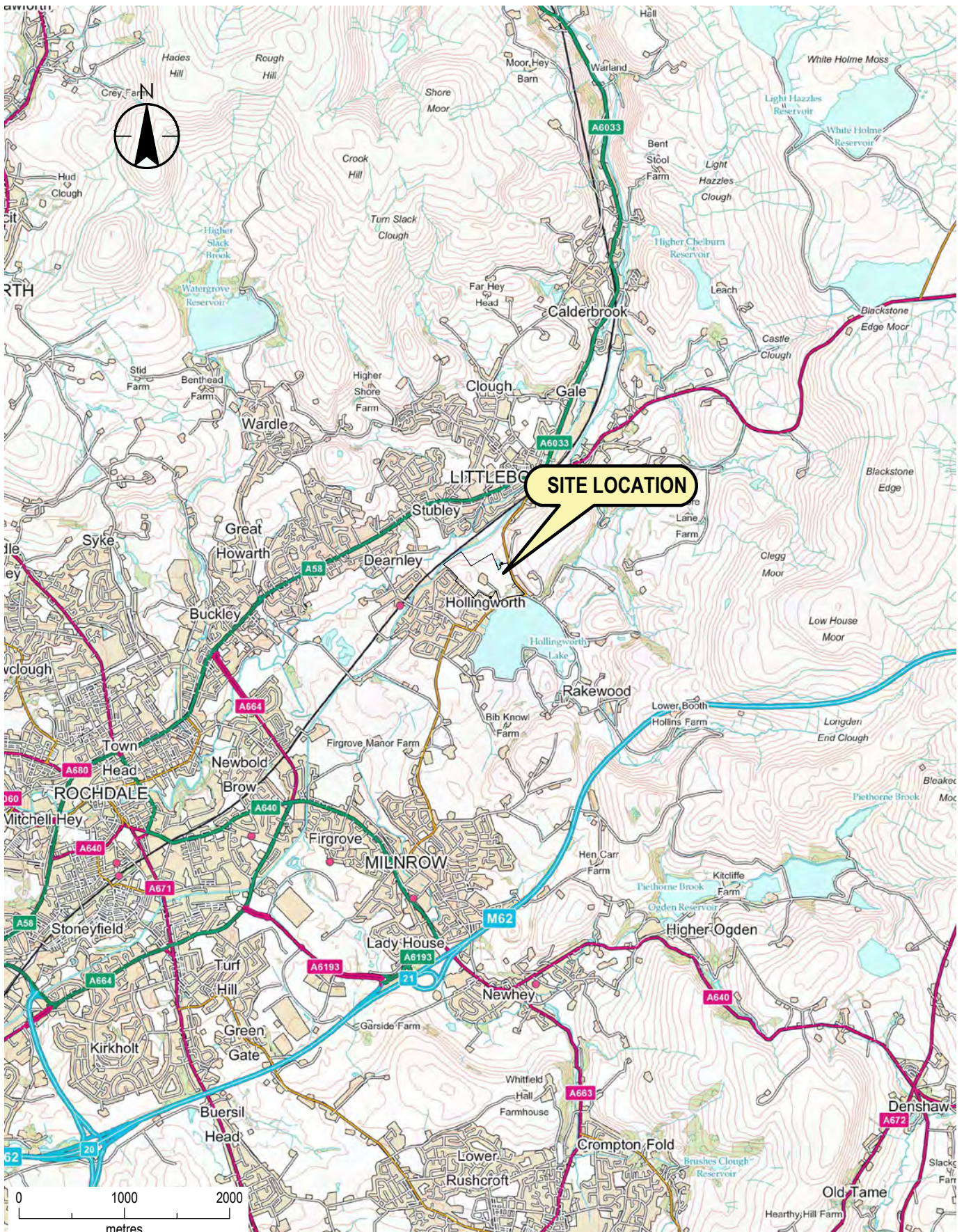
The conclusions and recommendations made in this report and the opinions expressed are based on the information reviewed and/or the ground conditions encountered in exploratory holes and the results of any field or laboratory testing undertaken. There may be ground conditions at the site that have not been disclosed by the information reviewed or by the investigative work undertaken. Such undisclosed conditions cannot be taken into account in any analysis and reporting.

This report has been written for the sole use of the Client stated at the front of the report in relation to a specific development or scheme. The conclusions and recommendations presented herein are only relevant to the scheme or the phase of project under consideration. This report shall not be relied upon or transferred to any other party without the express written authorisation of Stantec. Any such party relies upon the report at its own risk.

The interpretation carried out in this report is based on scientific and engineering appraisal carried out by suitably experienced and qualified technical consultants based on the scope of our engagement. We have not taken into account the perceptions of, for example, banks insurers, other funders, laypeople, etc., unless the report has been prepared specifically for that purpose. Advice from other specialists may be required such as the legal, planning and architecture professions, whether specifically recommended in our report or not. Public or legal consultations or enquiries, or consultation with any Regulatory Bodies (such as the Environment Agency, Natural England or Local Authority) have taken place only as part of this work where specifically stated.

It should be noted that this report is for a land condition assessment and does not purport to be an ecological, flood risk, agricultural land quality assessment, archaeological survey etc. and as such additional surveys may be required to support a planning application.

Figures



Contains Ordnance Survey data © Crown copyright and database right 2021

Site Grid Reference: SD 933 154



Stantec UK Limited
MANCHESTER
61 Oxford Street, Manchester, M1 6EQ
Tel: +44 161 245 8900
www.stantec.com/uk

Client/Project:

Bloor Homes

Hollingworth Road,
Littleborough

Prepared:
davco

Checked:
KB

Date:
2022.09.22

Title

Site Location Plan

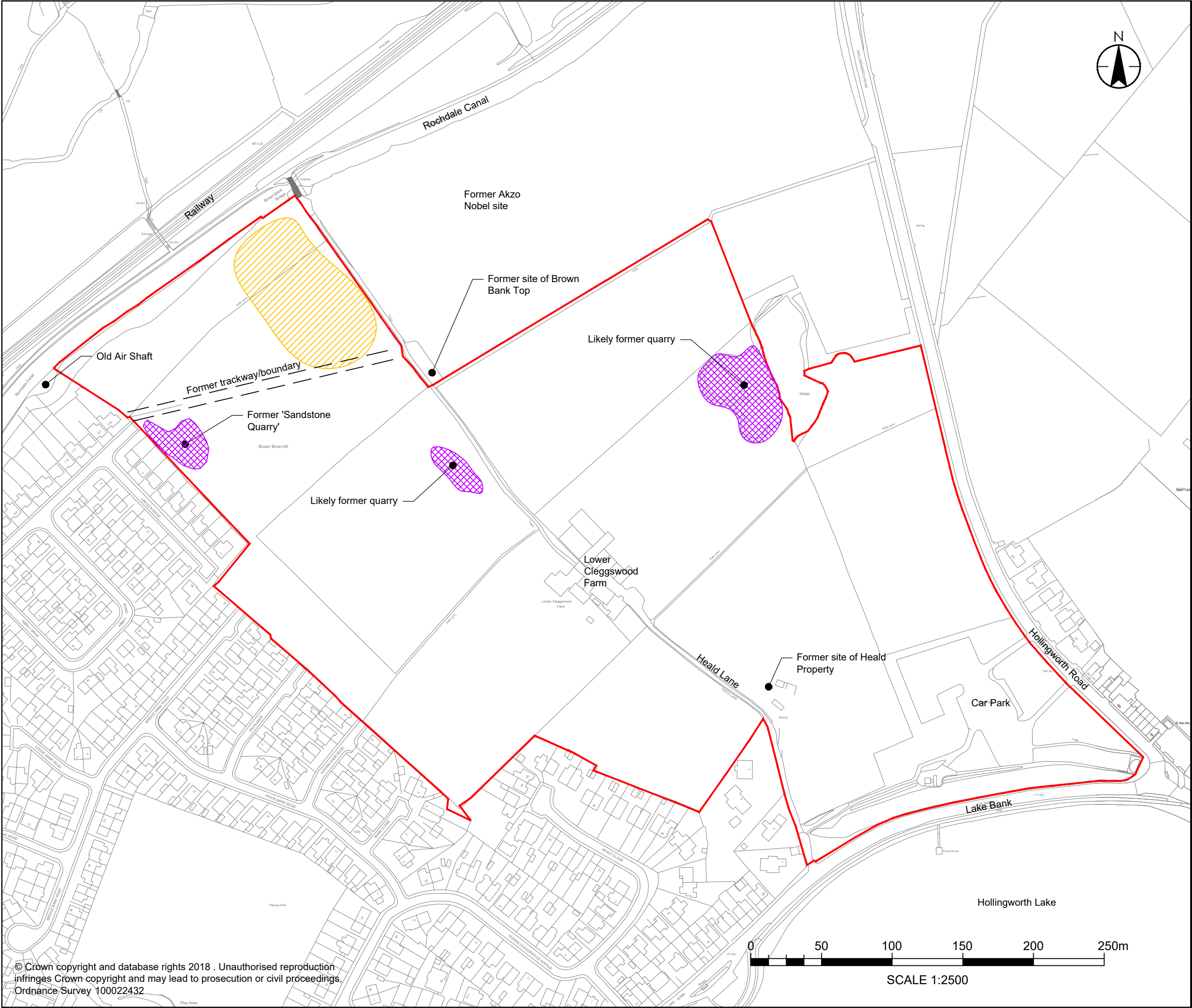
Revision:

0

Figure

1

Plotted: 10.02.2023 2023.02.10 3:09:18 PM By: Cotton, David
ORIGINAL SHEET - ISCA3
\\pba\h\mca\projects\332010570\600 eia\ground conditions\07 figures and drawings\cad\dwgs\332010570 figure 2



**Stantec**

Stantec UK Limited
MANCHESTER
61 Oxford Street, Manchester, M1 6EQ
Tel: +44 161 245 8900
www.stantec.com/uk

Key

 Approximate Site Boundary

 Landslip Area (1:10 000 BGS mapping)

Client/Project:
Bloor Homes

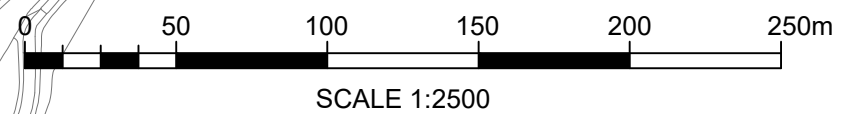
**Hollingworth Road,
Littleborough**

Prepared: davco	Checked: KB	Date: 2023.02.09
--------------------	----------------	---------------------

Title
Site Features Plan

Revision: 0	Figure 2
----------------	-------------

© Crown copyright and database rights 2018 . Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings.
Ordnance Survey 100022432



Appendix A Stantec Methodology for Assessing Land Contamination in England

Stantec Guide: Methodology for Assessment of Land Contamination (England)

1 INTRODUCTION

This document defines the approach adopted by Stantec in relation to the assessment of land contamination in England. The aim is for the approach to (i) be systematic and objective, (ii) provide for the assessment of uncertainty and (iii) provide a rational, consistent, transparent framework.

When preparing our methodology, we have made reference to various technical guidance documents and legislation referenced in Section 7 of which the principal documents are (i) Contaminated Land Statutory Guidance (Defra 2012), (ii) online guidance Land Contamination: Risk Management (LC:RM) accessed from GOV.UK which is expected to replace Contaminated Land Research (CLR) Report 11: Model Procedures for the Management of Contamination (EA 2004). It should be noted that LCRM is currently due to be revised following consultation and CLR 11 is archived, (iii) Contaminated land risk assessment: A guide to good practice (C552) (CIRIA 2001) (iv) National Planning Policy Framework (NPPF, 2019) (v) BS 10175 Investigation of potentially contaminated sites - Code of Practice (BSI 2017) and (vi) The series of British Standards on Soil Quality BS 18400.

2 DEALING WITH LAND CONTAMINATION

Government policy on land contamination aims to prevent new contaminated land from being created and promotes a risk-based approach to addressing historical contamination. For historical contamination, regulatory intervention is held in reserve for land that meets the legal definition and cannot be dealt with through any other means, including through planning. Land is only considered to be “contaminated land” in the legal sense if it poses an unacceptable risk.

UK legislation on contaminated land is principally contained in Part 2A of the Environmental Protection Act, 1990 (which was inserted into the 1990 Act by section 57 of the Environment Act 1995). Part 2A was introduced in England on 1 April 2000 and provides a risk-based approach to the identification and remediation of land where contamination poses an unacceptable risk to human health or the environment.

The Model Procedures for the Management of Land Contamination (CLR 11), were developed to provide the technical framework for applying a risk management process when dealing with land affected by contamination. The process involves identifying, making decisions on, and taking appropriate action to deal with land contamination in a way that is consistent with government policies and legislation within the UK. The approach, concepts and principles for land contamination management promoted by LC:RM (and its predecessor CLR 11) are applied to the determination of planning applications. The

guidance given in LC:RM follows the same principles.

Other legislative regimes may also provide a means of dealing with land contamination issues, such as the regimes for waste, water, environmental permitting, and environmental damage. Further, the law of statutory nuisance may result in contaminants being unacceptable to third parties whilst not attracting action under Part 2A or other environmental legislation.

2.1 Part 2A

The Regulations and Statutory Guidance that accompanied the Act, including the Contaminated Land (England) Regulations 2006, has been revised with the issue of The Contaminated Land (England) (Amendment) Regulations 2012 (SI 2012/263) and the Contaminated Land Statutory Guidance for England 2012.

Part 2A defines contaminated land as “*land which appears to the Local Authority in whose area it is situated to be in such a condition that, by reason of substances in, on or under the land that significant harm is being caused, or there is a significant possibility that such significant harm (SPOSH) could be caused, or significant pollution of controlled waters is being caused, or there is a significant possibility of such pollution (SPOSP) being caused*”.

Harm is defined as “*harm to the health of living organisms or other interference with the ecological systems of which they form part, and in the case of man, includes harm to his property*”.

Part 2A provides a means of dealing with unacceptable risks posed by land contamination to human health and the environment, and under the guidance enforcing authorities should seek to find and deal with such land. It states that “*under Part 2A the starting point should be that land is not contaminated land unless there is reason to consider otherwise. Only land where unacceptable risks are clearly identified, after a risk assessment has been undertaken in accordance with the Guidance, should be considered as meeting the Part 2A definition of contaminated land*”. Further, the guidance makes it clear that “*regulatory decisions should be based on what is reasonably likely, not what is hypothetically possible*”.

The overarching objectives of the Government's policy on contaminated land and the Part 2A regime are:

- “(a) To identify and remove unacceptable risks to human health and the environment.
- (a) To seek to ensure that contaminated land is made suitable for its current use.
- (b) To ensure that the burdens faced by individuals, companies and society as a whole are proportionate, manageable and compatible with the principles of

Stantec Guide: Methodology for Assessment of Land Contamination (England)

sustainable development”.

The enforcing authority may need to decide whether and how to act in situations where decisions are not straight forward, and where there is uncertainty. *“In so doing, the authority should use its judgement to strike a reasonable balance between: (a) dealing with risks raised by contaminants in land and the benefits of remediating land to remove or reduce those risks; and (b) the potential impacts of regulatory intervention including financial costs to whoever will pay for remediation, health and environmental impacts of taking action, property blight, and burdens on affected people”.*

The authority is required to *“take a precautionary approach to the risks raised by contamination, whilst avoiding a disproportionate approach given the circumstances of each case”.* The aim is *“that the regime produces net benefits, taking account of local circumstances”.*

The guidance recognises that *“normal levels of contaminants in soils should not be considered to cause land to qualify as contaminated land, unless there is a particular reason to consider otherwise”.* Normal levels are quoted as:

- “a) natural presence of contaminants’ such as from underlying geology ‘that have not been shown to pose an unacceptable risk to health and the environment*
- b) ...low level diffuse pollution, and common human activity...”*

Similarly the guidance states that significant pollution or significant possibility of significant pollution of controlled waters is required for land to be considered contaminated and the *“fact that substances are merely entering water”* or *“where discharge from land is not discernible at a location immediately downstream”* does not constitute contaminated land.

To help achieve a more targeted approach to identifying and managing contaminated land in relation to the risk (or possibility) of harm to human health, the revised Statutory Guidance presented a new four category system for considering land under Part 2A, ranging from Category 4, where there is no risk that land poses a significant possibility of significant harm (SPOSH), or the level of risk is low, to Category 1, where the risk that land poses a significant possibility of significant harm (SPOSH) is unacceptably high.

For land that cannot be readily placed into Categories 1 or 4 further assessment is required. If there is sufficient concern that the risks could cause significant harm or have the significant possibility of significant harm the land is to be placed into Category 2. If the concern is not met land is considered Category 3.

The technical guidance clearly states that the currently published Soil Guidance Values (SGV's) and Generic Assessment Criteria (GAC's) represent *“cautious estimates of level of contaminants in soils”* which should be considered *“no risk to health or, at most, a minimal risk”.* These values do not represent the boundary between categories 3 and 4 and *“should be considered to be comfortably within Category 4”.*

At the end of 2013 technical guidance in support of Defra's revised Statutory Guidance (SG) was published and then revised in 2014 (CL: AIRE 2014) which provided:

- A methodology for deriving C4SLs for four generic land-uses comprising residential, commercial, allotments and public open space; and
- A demonstration of the methodology, via the derivation of C4SLs for six substances – arsenic, benzene, benzo(a)pyrene, cadmium, chromium (VI) and lead.

For controlled waters, the revised Statutory Guidance states that the following types of pollution should be considered to constitute significant pollution of controlled waters:

- “(a) Pollution equivalent to “environmental damage” to surface water or groundwater as defined by The Environmental Damage (Prevention and Remediation) Regulations 2009, but which cannot be dealt with under those Regulations.*
- (b) Inputs resulting in deterioration of the quality of water abstracted, or intended to be used in the future, for human consumption such that additional treatment would be required to enable that use.*
- (c) A breach of a statutory surface water Environment Quality Standard, either directly or via a groundwater pathway.*
- (d) Input of a substance into groundwater resulting in a significant and sustained upward trend in concentration of contaminants (as defined in Article 2(3) of the Groundwater Daughter Directive (2006/118/EC)).*

The guidance also states that, in some circumstances, significant concentrations at a compliance point (in groundwater or surface water) may constitute pollution of controlled waters.

As with SPOSH for human health, the revised Statutory Guidance presents a four-category system for Significant Pollution of controlled waters. Category 1 covers land where there is a strong and compelling case for SPOSP, for example where significant pollution would almost certainly occur if no action was taken to avoid it. Category 4 covers land where there is no risk or the risk is low, for

Stantec Guide: Methodology for Assessment of Land Contamination (England)

example, where the land contamination is having no discernible impact on groundwater or surface water quality. Category 2 is for land where the risks posed to controlled waters are not high enough to consider the land as Category 1 but nonetheless are of sufficient concern to constitute SPOSP, Category 3 is for land where the risks posed to controlled waters are higher than low but not of sufficient concern to constitute SPOSP.

2.2 Planning

The Local Planning Authority (LPA) is responsible for the control of development, and in doing so it has a duty to take account of all material considerations, including contamination.

The principal planning objective is to ensure that any unacceptable risks to human health, buildings and other property and the natural and historical environment from the contaminated condition of the land are identified so that appropriate action can be considered and taken to address those risks.

The National Planning Policy Framework (NPPF, 2021), includes the following.

Paragraph 120 states that planning policies and decisions should “(c) 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 184 states “Where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and/or landowner”.

Paragraph 174 states “planning policies and decisions should contribute to and enhance the natural and local environment by:

- (e) *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*
- (f) *remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.”*

Paragraph 183 describes the policy considerations the Government expects LPA's to have in regard to land affected by contamination when preparing policies for development plans and in taking decisions on applications.

Paragraph 183 states “*planning policies and decisions should 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 187 states “The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities.”

The Glossary in Annex 2 provides the following:

Brownfield land registers: Registers of previously developed land that local planning authorities consider to be appropriate for residential development, having regard to criteria in the Town and Country Planning (Brownfield Land Registers) Regulations 2017. Local planning authorities will be able to trigger a grant of permission in principle for residential development on suitable sites in their registers where they follow the required procedures.

Competent person (to prepare site investigation information): A person with a recognised relevant qualification, sufficient experience in dealing with the type(s) of pollution or land instability, and membership of a relevant professional organisation.

Previously developed land: Land which is or was occupied by a permanent structure, including the curtilage of the developed land (although it should not be assumed that the whole of the curtilage should be developed) and any associated fixed surface infrastructure. This excludes: land that is or was last occupied by agricultural or forestry buildings; land that has been developed for minerals extraction or waste disposal by landfill, where provision for restoration has been made through development management procedures; land in built-up areas such as residential gardens, parks, recreation grounds and allotments; and land that was previously developed but where the

Stantec Guide: Methodology for Assessment of Land Contamination (England)

remains of the permanent structure or fixed surface structure have blended into the landscape.

Site investigation information: Includes a risk assessment of land potentially affected by contamination, or ground stability and slope stability reports, as appropriate. All investigations of land potentially affected by contamination should be carried out in accordance with established procedures (such as BS10175 Investigation of Potentially Contaminated Sites – Code of Practice).

Stantec adopt the principle that a Preliminary Investigation (Desk Study and Site Reconnaissance) and Preliminary Risk Assessment (see below) is the minimum assessment requirement to support a planning application.

The level at which contamination is deemed to be unacceptable, or, gives rise to adverse effects under a planning context has not been identified but is envisaged to be more precautionary than the level required to determine land as contaminated under Part 2A.

2.3 Building Control

The building control department of the local authority or private sector approved inspectors are responsible for the operation and enforcement of the Building Regulations (DCLG 2010) to protect the health, safety and welfare of people in and around buildings. Approved Document C requires the protection of buildings and associated land from the effects of contamination, to be applied (non-exclusively) in all changes of use from commercial or industrial premises, to residential property.

3 APPROACH

As with CLR11 the guidance given in LC:RM presents three stages of land contamination management: -

- (a) Stage 1 - Risk Assessment;
- (b) Stage 2 - Options Appraisal; and
- (c) Stage 3 - Remediation.

Each stage has three tiers. The three tiers of Stage 1 Risk Assessment are: -

- Tier 1 - Preliminary Risk Assessment (PRA) - first tier of RA that develops the outline conceptual model (CM) and establishes whether there are any potentially unacceptable risks.
- Tier 2 - Generic Quantitative Risk Assessment (GQRA) - carried out using generic assessment criteria and assumptions to estimate risk.
- Tier 3 - Detailed Quantitative Risk Assessment (DQRA) - carried out using detailed site-specific information to generate Site Specific

Assessment Criteria (SSAC) as risk evaluation criteria.

For each tier of a Stage 1 - Risk Assessment you must:

1. Identify the hazard - establish contaminant sources.
2. Assess the hazard - use a source-pathway-receptor (S-P-R) pollutant linkage approach to find out if there is the potential for unacceptable risk.
3. Estimate the risk - predict what degree of harm or pollution might result and how likely it is to occur.
4. Evaluate the risk - decide whether a risk is unacceptable.

A Stantec Preliminary Investigation report normally comprises a desk study, walkover site reconnaissance and preliminary risk assessment (PRA). The project specific proposal defines the actual scope of work which might include review of ground investigation data in which case the report includes a GQRA.

Risk estimation involves identifying the magnitude of the potential consequence (taking into account both the potential severity of the hazard and the sensitivity of the receptor) and the magnitude of the likelihood i.e. the probability (taking into account the presence of the hazard and the receptor and the integrity of the pathway). This approach is promoted in current guidance such as R&D 66 (NHBC 2008).

For a PRA, Stantec's approach is that if a pollution linkage is identified then it represents a potentially unacceptable risk which either (1) remediation / direct risk management or (2) progression to further tiers of risk assessment (GQRA and DQRA) requiring additional data collection and enabling refinement of the CM using the site specific data.

4 IDENTIFICATION OF POLLUTANT LINKAGES AND DEVELOPMENT OF A CONCEPTUAL MODEL (CM)

For all Tiers of a Stage 1 Risk Assessment, the underlying principle to ground condition assessment is the identification of *pollutant linkages* in order to evaluate whether the presence of a source of contamination could potentially lead to harmful consequences. A pollutant linkage consists of the following three elements: -

- A source/hazard – a substance or situation which has the potential to cause harm or pollution;
- A pathway – a means by which the hazard moves along / generates exposure; and
- A receptor/target – an entity which is vulnerable to the potential adverse effects of the hazard.

Stantec Guide: Methodology for Assessment of Land Contamination (England)

The *Conceptual Model* identifies the types and locations of potential contaminant sources/hazards and potential receptors and potential migration/transportation pathway(s). The CM is refined through progression to further tiers of risk assessment (GQRA and GQRA) requiring additional data collection.

4.1 Hazard Identification

A hazard is a substance or situation that has the potential to cause harm. Hazards may be chemical, biological or physical.

In a PRA the potential for hazards to be present is determined from consideration of the previous or ongoing activities on or near to the site in accordance with the criteria presented in the **Table 1**.

Based on the land use information Contaminants of Potential Concern (COPC) are identified. The COPC direct the scope of the collection of site-specific data and the analytical testing selected for subsequent Tiers.

At Tier 2 the site-specific data is evaluated using appropriate published assessment criteria (refer to Stantec document entitled Rationale for the Selection of Evaluation Criteria for a Generic Quantitative Risk Assessment (GQRA)). In general, published criteria have been developed using highly conservative assumptions and therefore if the screening criterion is not exceeded (and if enough samples from appropriate locations have been analysed) then the COPC is eliminated as a potential Hazard. It should be noted that exceedance does not necessarily indicate that a site is contaminated and/or unsuitable for use only that the COPC is retained as a potential Hazard. Published criteria are generated using models based on numerous and complex assumptions. Whether or not these assumptions are appropriate or sufficiently protective requires confirmation on a project by project basis. Manipulation of the default assumptions would normally form part of a Tier 3 Detailed Quantitative Risk Assessment (DQRA).

When reviewing or assessing site specific data Stantec utilise published guidance on comparing contamination data with a critical concentration (CL:AIRE/CIEH 2008) which presents a structured

process for employing statistical techniques for data assessment purposes.

4.2 Receptor and Pathway Identification

For all Tiers the potential receptors (for both on site and adjoining land) that will be considered are:

- Human Health – including current and future occupiers, construction and future maintenance workers, and neighbouring properties/third parties;
- Ecological Systems;¹
- Controlled Waters² – Under section 78A(9) of Part 2A the term “pollution of controlled waters” means the entry into controlled waters of any poisonous, noxious or polluting matter or any solid waste matter. The term “controlled waters” in relation to England has the same meaning as in Part 3 of the Water Resources Act 1991, except that “ground waters” does not include waters contained in underground strata but above the saturation zone.
- Property - Animal or Crop (including timber; produce grown domestically, or on allotments, for consumption; livestock; other owned or domesticated animals; wild animals which are the subject of shooting or fishing rights); and
- Property - Buildings (any structure or erection, and any part of a building including any part below ground level, but does not include plant or machinery comprised in a building, or buried services such as sewers, water pipes or electricity cables including archaeological sites and ancient monuments).

If a receptor is taken forward for further assessment it will be classified in terms of its sensitivity, the criteria for which are presented in **Table 2**. Table 2 has been generated using descriptions of environmental receptor importance/value given in various guidance documents including R&D 66 (NHBC 2008), EA 2017 and Transport Analysis Guidance (based on DETR 2000). Human health and buildings classifications have been generated by Stantec using the attribute description for each class. Surface water sensitivity is classified using the Water Framework Directive (WFD) status for the River Basin obtained from: <https://environment.data.gov.uk/catchment-planning/>

without such a survey a Land Contamination risk assessment may conclude that the identification of potential ecological receptors is inconclusive (refer to Stantec Specification for a Preliminary Investigation (Desk Study and Site Reconnaissance)).

² The definition of “pollution of controlled water” was amended by the introduction of Section 86 of the Water Act 2003. For the purposes of Part 2A groundwater does not include waters above the saturated zone and our assessment does not therefore address perched water other than where development causes a pathway to develop.

¹ International or nationally designated sites (as defined in the statutory guidance (Defra Circular 04/12)) “in the local area” will be identified as potential ecological receptors. A search radius of 1, 2 or 5km will be utilised depending on the site-specific circumstances (see also pathway identification). The Environment Agency has published an ecological risk assessment framework (EA 2008) which promotes (as opposed to statutorily enforces) consideration of additional receptors to include locally protected sites and protected or notable species. These additional potential receptors will only be considered if a Phase 1 habitat survey, undertaken in accordance with guidance (JNCC 1993), is commissioned and the data provided to Stantec. It should be noted that

Stantec Guide: Methodology for Assessment of Land Contamination (England)

The exposure pathway and modes of transport that will be considered are presented in **Table 3**.

4.3 Note regarding Ecological Systems

The Environment Agency (EA) has developed an ecological risk assessment framework which aims to provide a structured approach for assessing the risks to ecology from chemical contaminants in soils (EA 2008). In circumstances where contaminants in water represent a potential risk to aquatic ecosystems then risk assessors will need to consider this separately.

The framework consists of a three-tiered process: -

- Tier 1 is a screening step where the site soils chemical data is compared to a soil screening value (SSV)
- Tier 2 uses various tools (including surveys and biological testing) to gather evidence for any harm to the ecological receptors
- Tier 3 seeks to attribute the harm to the chemical contamination

Tier 1 is preceded by a desk study to collate information about the site and the nature of the contamination to assess whether pollutant linkages are feasible. The framework presents ten steps for ecological desk studies and development of a conceptual model as follows.

1. Establish Regulatory Context
2. Collate and Assess Documentary Information
3. Summarise Documentary Information
4. Identify Contaminants of Potential Concern
5. Identify Likely Fate Transport of Contaminants
6. Identify Potential Receptors of Concern
7. Identify Potential Pathways of Concern
8. Create a Conceptual Model
9. Identify Assessment and Measurement Endpoints
10. Identify Gaps and Uncertainties

The information in a standard PRA report covers Steps 1 to 4 inclusive. Step 5 considers fate and transport of contaminants and it should be noted that our standard report adopts a simplified approach considering only transport mechanisms. A simplified approach has also been adopted in respect of Steps 6 and 7 receptors (a detailed review of the ecological attributes has not been undertaken) and pathways (a food chain assessment has not been undertaken). Step 9 is outside the scope of our standard PRA report.

It should be noted that the PRA report will present an assessment for ecological systems (where identified as a receptor for a land contamination assessment) considering the viability of the mode of transport given the site-specific circumstances and not specific pathways. The PRA may conclude that the risk to potential ecological receptors is inconclusive.

4.4 Note regarding controlled waters

Controlled waters are rivers, estuaries, coastal waters, lakes and groundwaters, but not perched waters.

The EU Water Framework Directive (WFD) 2000/60/EC provides for the protection of sub-surface, surface, coastal and territorial waters through a framework of river basin management. The EU Updated Water Framework Standards Directive 2014/101/EU amended the EU WFD to update the international standards therein; it entered into force on 20 November 2014 with the requirements for its provisions to be transposed in Member State law by 20 May 2016. Other EU Directives in the European water management framework include:

- the EU Priority Substances Directive 2013/39/EU;
- EU Groundwater Pollutants Threshold Values Directive 2014/80/EU amending the EU Groundwater Directive 2006/118/EC; and
- EU Biological Monitoring Directive 2014/101/EU.

The Ground Water Daughter Directive (GWDD) was enacted by the Groundwater Regulations (2009), which were subsumed by the Environmental Permitting Regulations (2010) which provide essential clarification including on the four objectives specifically for groundwater quality in the WFD: -

Achieve 'Good' groundwater chemical status by 2015, commonly referred to as 'status objective';
Achieve Drinking Water Protected Area Objectives;
Implement measures to reverse any significant and sustained upward trend in groundwater quality, referred to as 'trend objective'; and

Prevent or limit the inputs of pollutants into groundwater, commonly referred to as 'prevent or limit' objectives

The Water Act 2003 (Commencement No.11) Order 2012 amends the test for 'contaminated land' which relates to water pollution so that pollution of controlled waters must now be "significant" to meet the definition of contaminated land.

The Water Framework Directive (WFD) requires the preparation, implementation and review of River Basin Management Plans (RBMP) on a six-year cycle. River basins are made up of lakes, rivers, groundwaters, estuaries and coastal waters, together with the land they drain. River Basin Districts (RBD) and the WFD Waterbodies that they comprise are important spatial management units, regularly used in catchment management studies. River Basin Management Plans (RBMP) have been developed for the 11 River Basin Districts in England and Wales.

Stantec Guide: Methodology for Assessment of Land Contamination (England)

These were released by Defra in 2009 (Defra 2009) and updated in 2015.

These RBMP's establish the current status of waters within the catchments of the respective Districts and the current status of adjoining waters identified. As part of a Tier 2 risk assessment water quality data is screened against the WFD assessment criteria. Comparison with the RBMP's current status of waters for the catchment under consideration would form part of a Tier 3 assessment.

5 RISK ESTIMATION

Risk estimation classifies what degree of harm might result to a receptor (defined as consequence) and how likely it is that such harm might arise (probability).

At Tier 1 the consequence classification is generated by multiplying the hazard classification score and the receptor sensitivity score. This approach follows that presented in the republished R&D 66 (NHBC 2008).

The criteria for classifying probability are set out in **Table 4** and have been taken directly from Table 6.4 CIRIA C552 (CIRIA 2001). Probability considers the integrity of the exposure pathway.

The consequence classifications detailed in **Table 5** have been adapted from Table 6.3 presented in C552 and R&D 66 (Annex 4 Table A4.3).

The Tier 1 risk classification is estimated for each pollutant linkage using the matrix given in **Table 6** which is taken directly from C552 (Table 6.5).

Subsequent Tiers refine the CM through retention or elimination of potential hazards and pollutant linkages.

6 RISK EVALUATION

Evaluation criteria are the parameters used to judge whether harm or pollution needs further assessment or is unacceptable. The evaluation criteria used will depend on:

- the reasons for doing the RA and the regulatory context such as Part 2A or planning;
- the CM and pollutant linkages present;
- any criteria set by regulators;
- any advisory requirements such as from Public Health England;
- the degree of confidence and precaution required;
- the level of confidence required to judge whether a risk is unacceptable;
- how you've used or developed more detailed assessment criteria in the later tiers of RA;
- the availability of robust scientific data;
- how much is known - for example, about the pathway mechanism and how the contaminants affect receptors; and

- any practical reasons such as being able to measure or predict against the criteria.

In order to put the Tier 1 risk classification into context the likely actions are described in **Table 7** which is taken directly from Table 6.6 of C552 (CIRIA 2001).

REFERENCES

BSI 2017 BS 10175:2011+A2:2017 Investigation of potentially contaminated sites - Code of Practice

BSI 2019 BS 8485:2015+A1:2019 Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings

CIRIA 2001: Contaminated land risk assessment – a guide to good practice C552.

CIRIA 2008: Assessing risks posed by hazardous ground gases to buildings C655

CL: AIRE/CIEH 2008 Guidance on Comparing Soil Contamination Data with a Critical Concentration. Published by Contaminated Land: Applications in Real Environments (CL: AIRE) and the Chartered Institute of Environmental Health (CIEH)

CL: AIRE 2013 SP1010 – Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination. Final Project Report published by Contaminated Land: Applications in Real Environments (CL: AIRE) 20th December 2013

DCLG 2010 Building Regulations 2010 Approved Document C Site preparation and resistance to contaminants and moisture.

DETR 2000 Methodology for Multi Modal Studies. Volume 2 Section 4. The Environmental Objective.

DEFRA 2012 Environmental Protection Act 1990: Part 2A. Contaminated Land Statutory Guidance. Department for Environment, Food and Rural Affairs

DEFRA, 2006 The Contaminated Land (England) Regulations 2006.

DEFRA, 2012 The Contaminated Land (England) (Amendment) Regulations 2012 (SI2012/263).

DEFRA, 2012 Environmental Protection Act 1990: Part 2A. Contaminated Land Statutory Guidance. April 2012.

DEFRA, 2013 Environmental Damage (Prevention and Remediation) Regulations 2009: Guidance for England and Wales

Defra '2009 Water for Life and Livelihoods. River Basin Management Plan. (11 Districts: Anglia, Dee, Humber, Northumbria, Northwest, Severn, Solway

Stantec Guide: Methodology for Assessment of Land Contamination (England)

and Tweed, Southeast, Thames, Western Wales)
December 2009

EA 2004: Contaminated Land Research (CLR) Report 11: The Model Procedures for the Management of Land Contamination CRL 11 by the Environment Agency (EA).

EA 2008 Ecological Risk Assessment Science Report Series SC070009 published by the Environment Agency (EA).

EA 2017 New groundwater vulnerability mapping methodology in England and Wales Report – SC040016/R Environment Agency (EA) September 2017

JNCC 1993 Handbook for Phase 1 Habitat Survey – A Technical for Environmental Audit prepared by the Joint Nature Conservancy Council (JNCC)

NHBC/EA/CIEH 2008: R&D Publication 66 Guidance for the safe development of housing on land affected by contamination.

National Planning Policy Framework (February 2019 revised), published by the Ministry of Housing, Communities and Local Government (MHCLG) at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

Stantec Methodology for Assessment of Land Contamination (England)

Table 1: Criteria for Classifying Hazards / Potential for Generating Contamination

Classification/Score	Potential for generating contamination/gas based on land use
Very Low 1	Land Use: Residential, retail or office use, agriculture Contamination: Limited. Gas generation potential: Soils with low organic content
Low 2	Land Use: Recent small scale industrial and light industry Contamination: locally slightly elevated concentrations. Gas generation potential: Soils with high organic content (limited thickness)
Moderate 3	Land Use: Railway yards, collieries, scrap yards, engineering works. Contamination: Possible widespread slightly elevated concentrations and locally elevated concentrations. Gas generation potential: Dock silt and substantial thickness of organic alluvium/peat
High 4	Land Use: Heavy industry, non-hazardous landfills. Contamination: Possible widespread elevated concentrations. Gas generation potential: Shallow mine workings Pre 1960s landfill
Very High 5	Land Use: Hazardous waste landfills, gas works, chemical works, Contamination: Likely widespread elevated concentrations. Gas generation potential: Landfill post 1960

"Greenfield" is land which has not been developed and there has been no use of agrochemicals

Table 2: Criteria for Classifying Receptor Sensitivity/Value

Classification	Definition
Very Low 1	Receptor of limited importance - Groundwater: Unproductive strata (Strata with negligible significance for water supply or river baseflow) (previously Non-aquifer), Secondary B (water-bearing parts of non-aquifers), Secondary undifferentiated (previously minor or non-aquifer, but information insufficient to classify as secondary A or B) - Surface water: WFD Surface Water status Bad - Ecology: No local designation - Buildings: Replaceable - Human health: Unoccupied/limited access
Low 2	Receptor of local or county importance with potential for replacement - Groundwater: Secondary A aquifer - Surface water: WFD Surface Water status Poor - Ecology: local habitat resources - Buildings: Local value - Human health: Minimum score 4 where human health identified as potential receptor
Moderate 3	Receptor of local or county importance with potential for replacement - Groundwater: Principal aquifer - Surface water: WFD Surface Water status Moderate - Ecology: County wildlife sites, Areas of Outstanding Natural Beauty (AONB) - Buildings: Area of Historic Character - Human health: Minimum score 4 where human health identified as potential receptor
High 4	Receptor of county or regional importance with limited potential for replacement - Groundwater: Source Protection Zone 2 or 3 - Surface water: WFD Surface Water status Good - Ecology: SSSI, National or Marine Nature Reserve (NNR or MNR) - Buildings: Conservation Area - Human health: Minimum score 4 where human health identified as potential receptor
Very High 5	Receptor of national or international importance - Groundwater: Source Protection Zone (SPZ) 1 - Surface water: WFD Surface Water status High - Ecology: Special Areas of Conservation (SAC and candidates), Special Protection Areas (SPA and potentials) or wetlands of international importance (RAMSAR) - Buildings: World Heritage site - Human health: Residential, open spaces and uses where children are present

Stantec Methodology for Assessment of Land Contamination (England)

Table 3: Exposure Pathway and Modes of Transport

Receptor	Pathway	Mode of transport
Human health	Ingestion	Fruit or vegetable leaf or roots
		Contaminated water
		Soil/dust indoors
		Soil/dust outdoors
	Inhalation	Particles (dust / soil) – outdoor
		Particles (dust / soil) - indoor
		Vapours – outdoor - migration via natural or anthropogenic pathways
		Vapours - indoor - migration via natural or anthropogenic pathways
	Dermal absorption	Direct contact with soil
		Direct contact with waters (swimming / showering)
		Irradiation
Groundwater	Leaching	Gravity / permeation
	Migration	Natural – groundwater as pathway Anthropogenic (e.g. boreholes, culverts, pipelines etc.)
Surface Water	Direct	Runoff or discharges from pipes
	Indirect	Recharge from groundwater
	Indirect	Deposition of windblown dust
Buildings	Direct contact	Sulphate attack on concrete, hydrocarbon corrosion of plastics
	Gas ingress	Migration via natural or anthropogenic paths
Ecological systems	See Notes	Runoff/discharge to surface water body
	See Notes	Windblown dust
	See Notes	Groundwater migration
	See Notes	At point of contaminant source
Animal and crop	Direct	Windblown or flood deposited particles / dust / sediments
	Indirect	Plants via root up take or irrigation. Animals through watering
	Inhalation	By livestock / fish - gas / vapour / particulates / dust
	Ingestion	Consumption of vegetation / water / soil by animals

Table 4: Classification of Probability

Classification	Definition
High likelihood	There is a pollution linkage and an event either appears very likely in the short-term and almost inevitable over the long-term, or there is already evidence at the receptor of harm / pollution.
Likely	There is a pollution linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short-term and likely over the long-term.
Low likelihood	There is a 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 event would take place, and 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.

Stantec Methodology for Assessment of Land Contamination (England)

Table 5: Classification of Consequence (score = magnitude of hazard and sensitivity of receptor)

Classification Score	Examples
Severe 17-25 (3 out of 25 outcomes)	Human health effect - exposure likely to result in "significant harm" as defined in the Defra (2012) Part 2A Statutory Guidance ¹. Controlled water effect - short-term risk of pollution (note: Water Resources Act contains no scope for considering significance of pollution) of sensitive water resource. Equivalent to EA Category 1 incident (persistent and/or extensive effects on water quality leading to closure of potable abstraction point or loss of amenity, agriculture or commercial value. Major fish kill. Ecological effect - short-term exposure likely to result in a substantial adverse effect. Catastrophic damage to crops, buildings or property
Medium 10-16 (7 out of 25 outcomes)	Human health effect - exposure could result in "significant harm" ¹. Controlled water effect - equivalent to EA Category 2 incident requiring notification of abstractor Ecological effect - short-term exposure may result in a substantial adverse effect. Damage to crops, buildings or property
Mild 5-9 (7 out of 25 outcomes)	Human health effect - exposure may result in "significant harm" ¹. Controlled water effect - equivalent to EA Category 3 incident (short lived and/or minimal effects on water quality). Ecological effect - unlikely to result in a substantial adverse effect. Minor damage to crops, buildings or property. Damage to building rendering it unsafe to occupy (for example foundation damage resulting in instability).
Minor 1-4 (8 out of 25 outcomes)	No measurable effect on humans. Protective equipment is not required during site works. Equivalent to insubstantial pollution incident with no observed effect on water quality or ecosystems. Repairable effects to crops, buildings or property. The loss of plants in a landscaping scheme. Discolouration of concrete.

¹ Significant harm includes death, disease, serious injury, genetic mutation, birth defects or impairment of reproductive function. The local authority may also consider other health effects to constitute significant harm such as physical injury; gastrointestinal disturbances; respiratory tract effects; cardio-vascular effects; central nervous system effects; skin ailments; effects on organs such as the liver or kidneys; or a wide range of other health impacts. Whether or not these would constitute significant harm would depend on the seriousness of harm including impact on health, quality of life and scale of impact.

Table 6: Classification of Risk (Combination of Consequence Table 5 and Probability Table 4)

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

Stantec Methodology for Assessment of Land Contamination (England)

Table 7: Description of Risks and Likely Action Required

Risk Classification	Description
<i>Very high risk</i>	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation is likely to be required in the short term.
<i>High risk</i>	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short-term and are likely over the longer-term.
<i>Moderate risk</i>	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer-term.
<i>Low risk</i>	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.
<i>Very low risk</i>	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.

Appendix B Site Reconnaissance Walkover Photos



Photograph 1: Heald Lane access to Cleggswood Farm (facing northwest).



Photograph 2: Oil tank at Cleggswood Farm.



Photograph 3: Residential Buildings at Lower Cleggswood Farm (heating oil tank in right of photo).



Photograph 4: View of marshy ground and (off-site) reservoir (facing northeast).



Photograph 5: View of site from reservoir facing southwest towards Cleggswood Farm.



Photograph 6: View of site looking northwest towards the Rochdale Canal. Area of 'Landslip' is on the left of photo and boundary with Akzo Nobel site is on the right.



Hollingworth Road,
Littleborough

SITE WALKOVER PHOTOGRAPHS
(23.09.2022 & 09.11.2022)

Date	09.02.2023
Scale	NTS
Drawn by	KB
Checked by	OB
Revision	0



Photograph 7: View of area of 'Landslip' from bridge over Rochdale Canal (shown in foreground), facing south.



Photograph 8: Steep topography in north of site, with canal and railway line visible in the right of photograph (facing southwest).



Photograph 9: Remains of former trackway/boundary in northern part of the site (facing east).



Photograph 10: View from central northern part of the Site, facing east towards the former Akzo Nobel site beyond the boundary fence.



Photograph 11: View of site and neighbouring residential development (facing northwest).



Photograph 12: Cluster of buildings (static caravan & 'shed' structures) at former 'Heald' site.

	Hollingworth Road, Littleborough	SITE WALKOVER PHOTOGRAPHS (23.09.2022 & 09.11.2022)	Date	09.02.2023
			Scale	NTS
			Drawn by	KB
			Checked by	OB
			Revision	0

Appendix C Groundsure Insight Report

Site Details:

HOLLINGWORTH ROAD,
LITTLEBOROUGH, OL15 0AZ

Client Ref: EPL014140
Report Ref: GS-9027683_LS_1_1
Grid Ref: 393053, 415132

Map Name: County Series

Map date: 1891

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1891
Revised 1891
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: 07 September 2022

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



Site Details:

HOLLINGWORTH ROAD,
LITTLEBOROUGH, OL15 0AZ

Client Ref: EPL014140
Report Ref: GS-9027683_LS_1_1
Grid Ref: 393053, 415132

Map Name: County Series

Map date: 1910

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1910
Revised 1910
Edition N/A
Copyright N/A
Levelling N/A

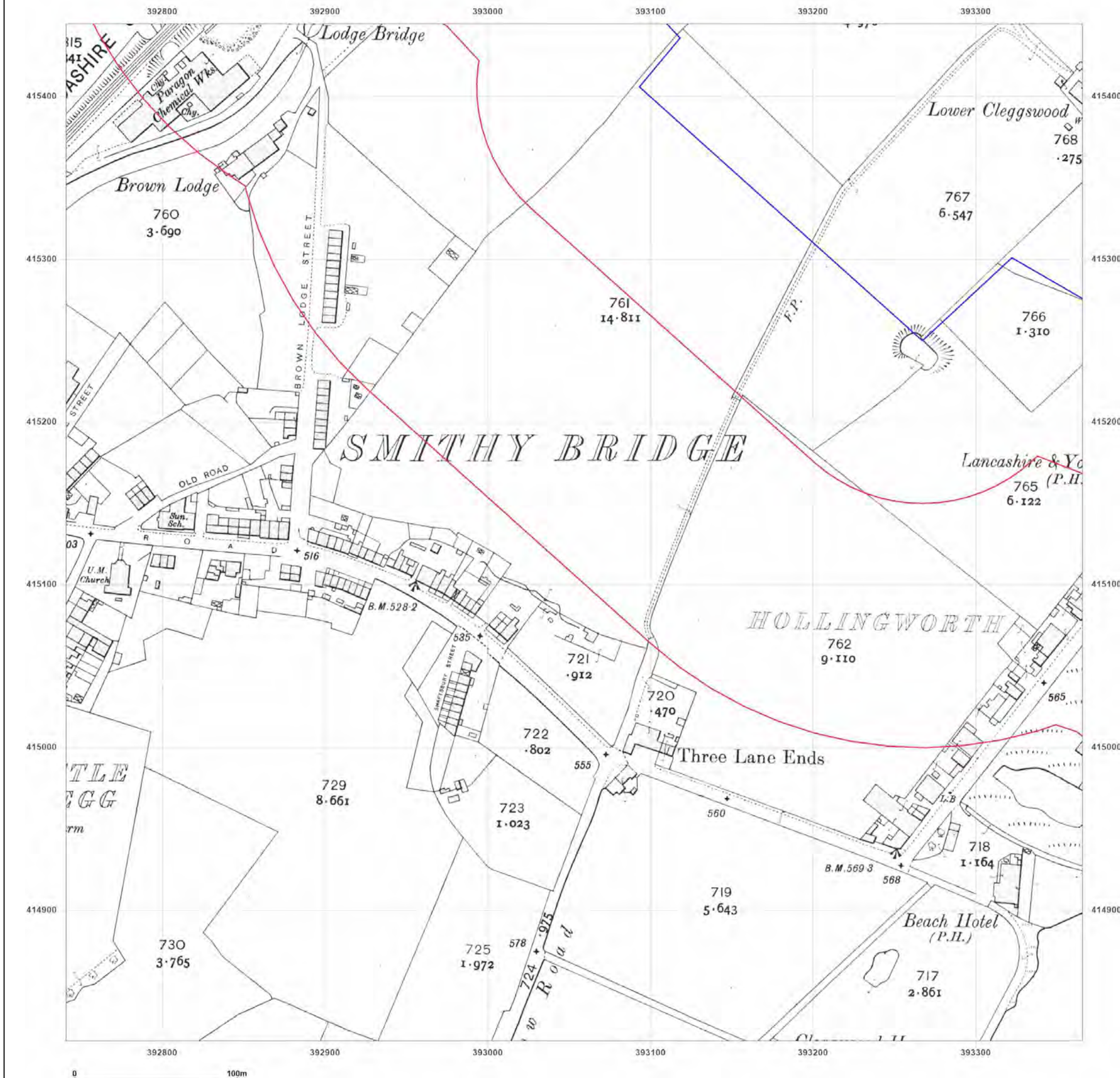


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 07 September 2022

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



Site Details:

HOLLINGWORTH ROAD,
LITTLEBOROUGH, OL15 0AZ

Client Ref: EPL014140
Report Ref: GS-9027683_LS_1_1
Grid Ref: 393053, 415132

Map Name: County Series

Map date: 1930

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1930
Revised 1930
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: 07 September 2022

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



Site Details:

HOLLINGWORTH ROAD,
LITTLEBOROUGH, OL15 0AZ

Client Ref: EPL014140
Report Ref: GS-9027683_LS_1_1
Grid Ref: 393053, 415132

Map Name: County Series

Map date: 1938

Scale: 1:2,500

Printed at: 1:2,500



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

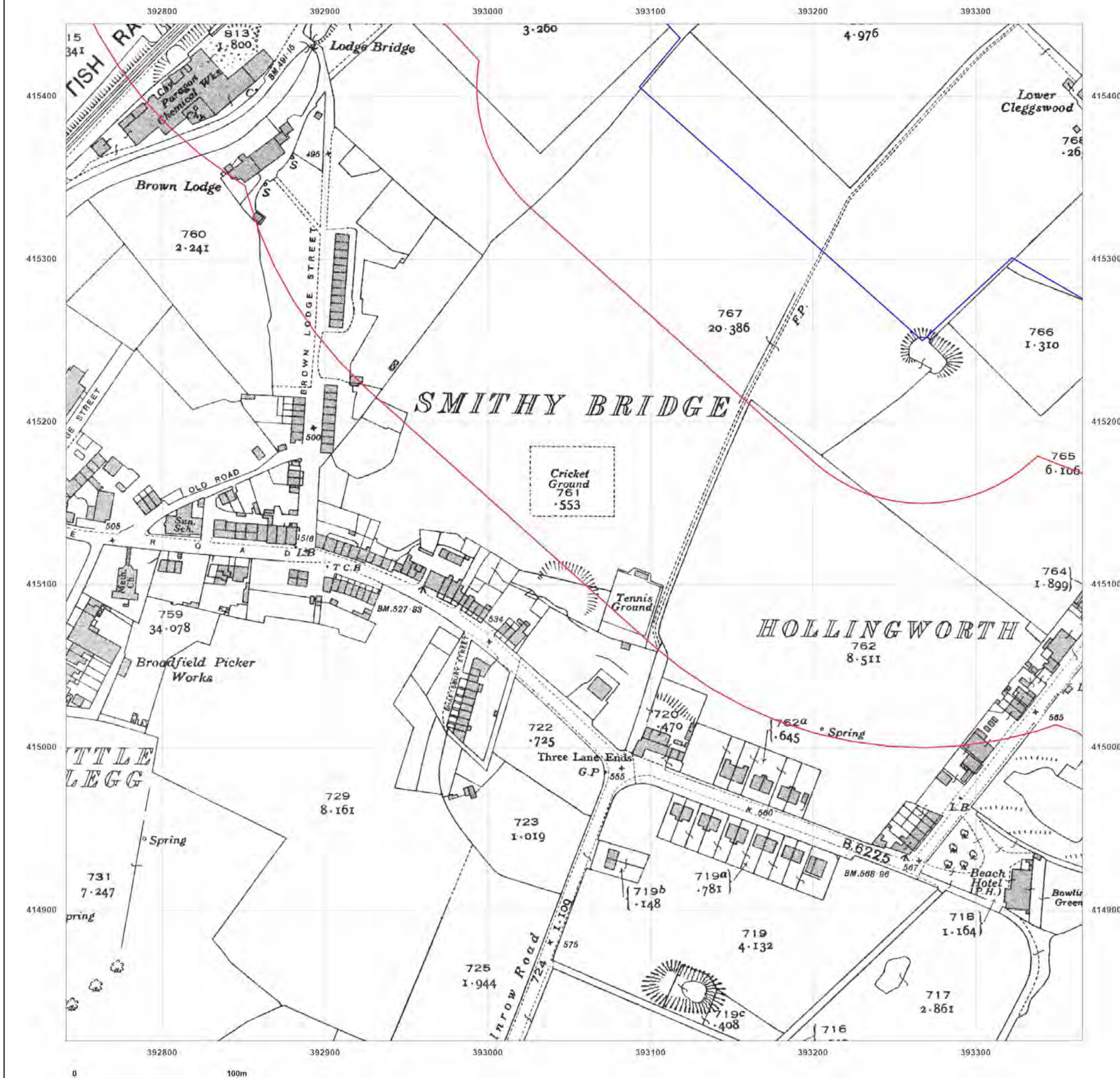


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 07 September 2022

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



Site Details:

HOLLINGWORTH ROAD,
LITTLEBOROUGH, OL15 0AZ

Client Ref: EPL014140
Report Ref: GS-9027683_LS_1_1
Grid Ref: 393053, 415132

Map Name: National Grid

Map date: 1956-1961

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1959
Revised 1959
Edition 1961
Copyright 1961
Levelled 1956

Surveyed 1955
Revised 1955
Edition 1956
Copyright N/A
Levelled 1929

Surveyed 1955
Revised 1955
Edition 1956
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: 07 September 2022

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



Site Details:

HOLLINGWORTH ROAD,
LITTLEBOROUGH, OL15 0AZ

Client Ref: EPL014140
Report Ref: GS-9027683
Grid Ref: 393366, 415445

Map Name: County Series

Map date: 1851

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1848
Revised N/A
Edition 1851
Copyright N/A
Levelled N/A

Surveyed 1848
Revised N/A
Edition 1851
Copyright N/A
Levelled N/A

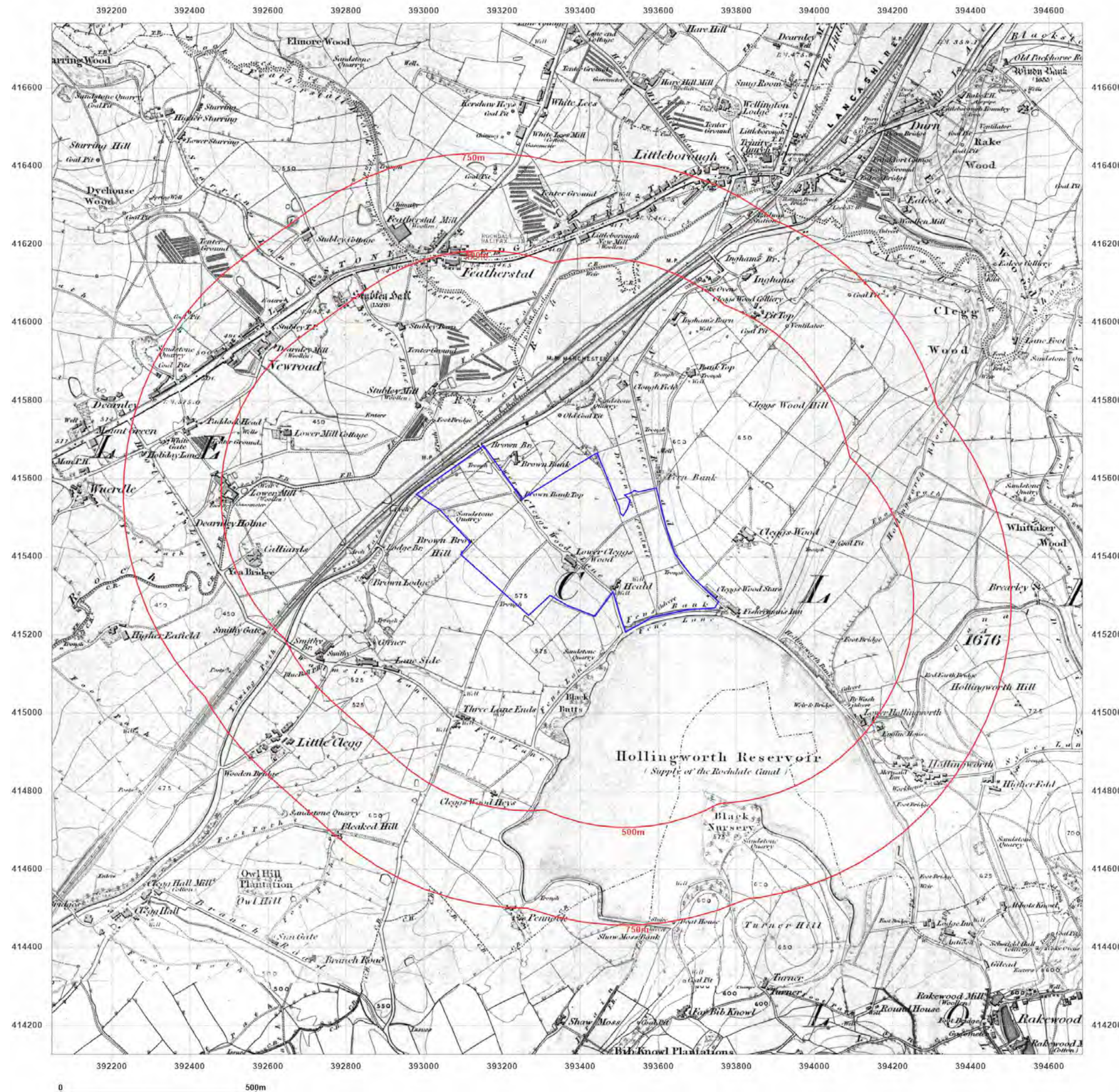


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 07 September 2022

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



Site Details:

HOLLINGWORTH ROAD,
LITTLEBOROUGH, OL15 0AZ

Client Ref: EPL014140
Report Ref: GS-9027683
Grid Ref: 393366, 415445

Map Name: County Series

Map date: 1890-1892

Scale: 1:10,560

Printed at: 1:10,560



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

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

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

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

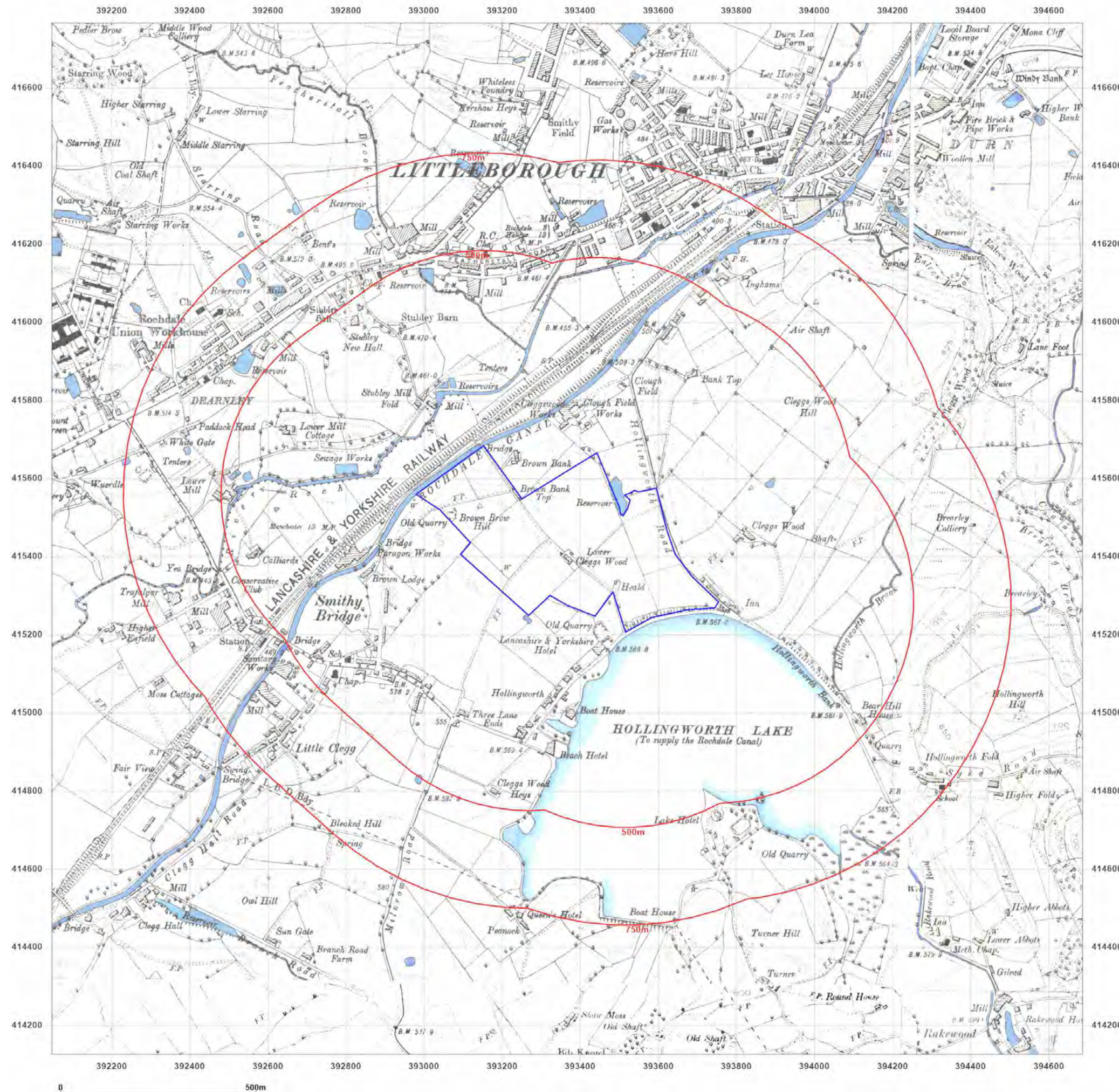


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 07 September 2022

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



Site Details:

HOLLINGWORTH ROAD,
LITTLEBOROUGH, OL15 0AZ

Client Ref: EPL014140
Report Ref: GS-9027683
Grid Ref: 393366, 415445

Map Name: County Series

Map date: 1907-1909

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1848
Revised 1908
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1847
Revised 1909
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1848
Revised 1908
Edition N/A
Copyright N/A
Levelled N/A

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

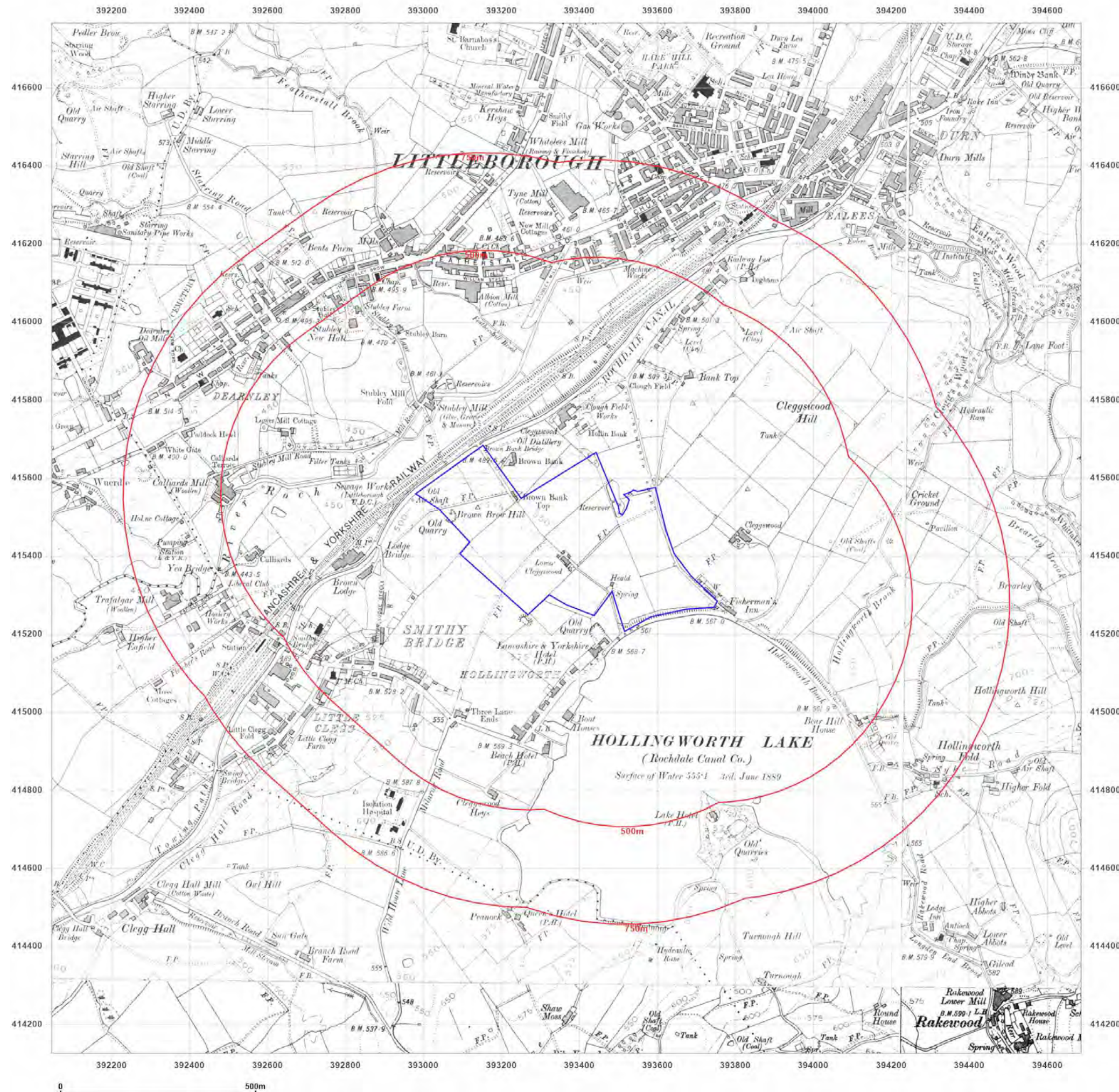


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 07 September 2022

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



Site Details:

HOLLINGWORTH ROAD,
LITTLEBOROUGH, OL15 0AZ

Client Ref: EPL014140
Report Ref: GS-9027683
Grid Ref: 393366, 415445

Map Name: County Series

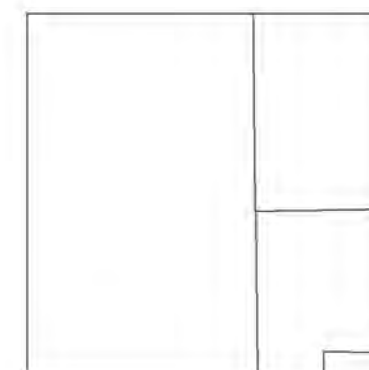
Map date: 1907-1911

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1849
Revised 1911
Edition 1911
Copyright N/A
Levelled N/A



Surveyed 1848
Revised 1900
Edition N/A
Copyright N/A
Levelled N/A

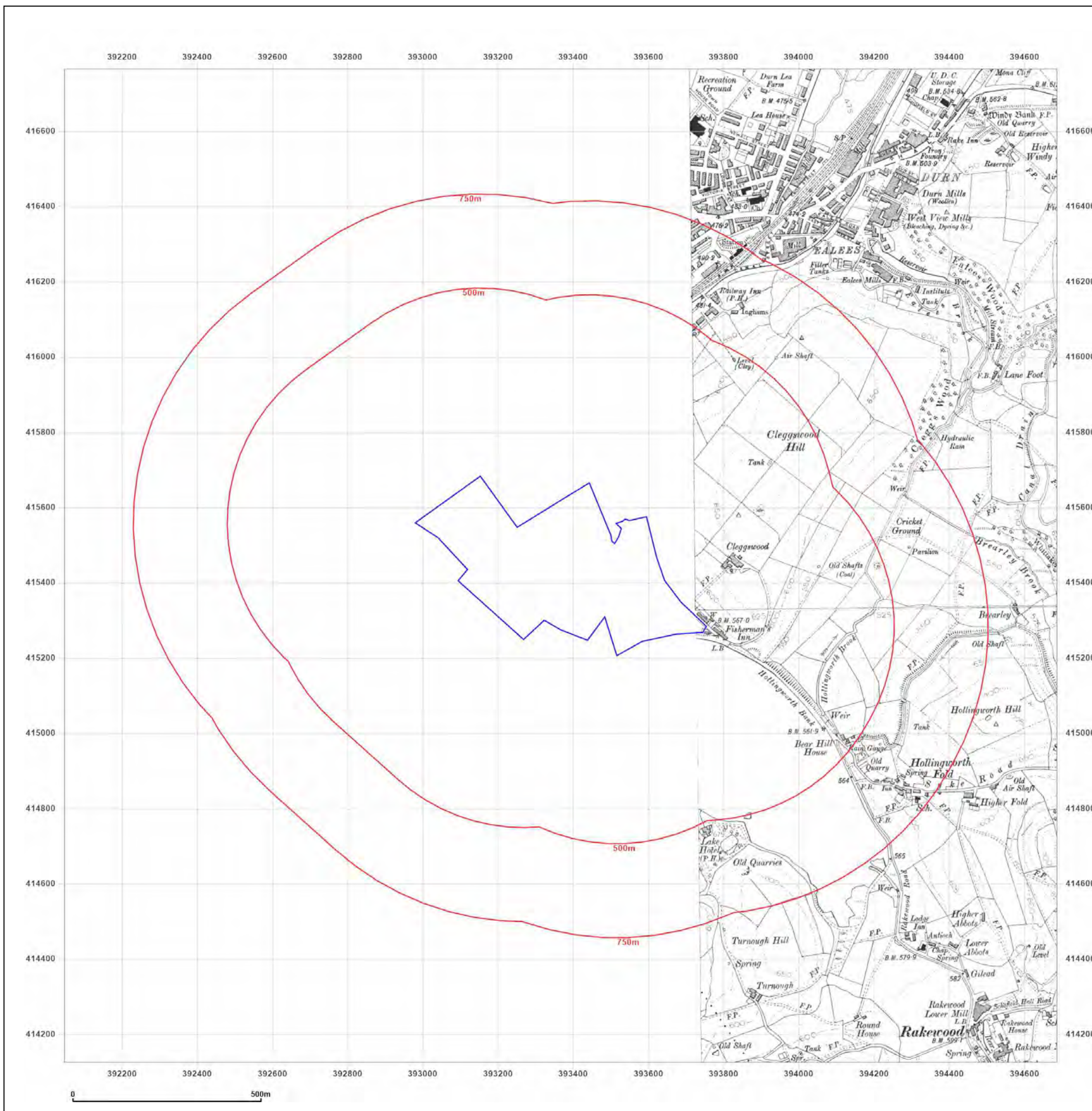


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 07 September 2022

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



Site Details:

HOLLINGWORTH ROAD,
LITTLEBOROUGH, OL15 0AZ

Client Ref: EPL014140
Report Ref: GS-9027683
Grid Ref: 393366, 415445

Map Name: County Series

Map date: 1910-1911

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1849
Revised 1911
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1849
Revised 1910
Edition N/A
Copyright N/A
Levelled N/A

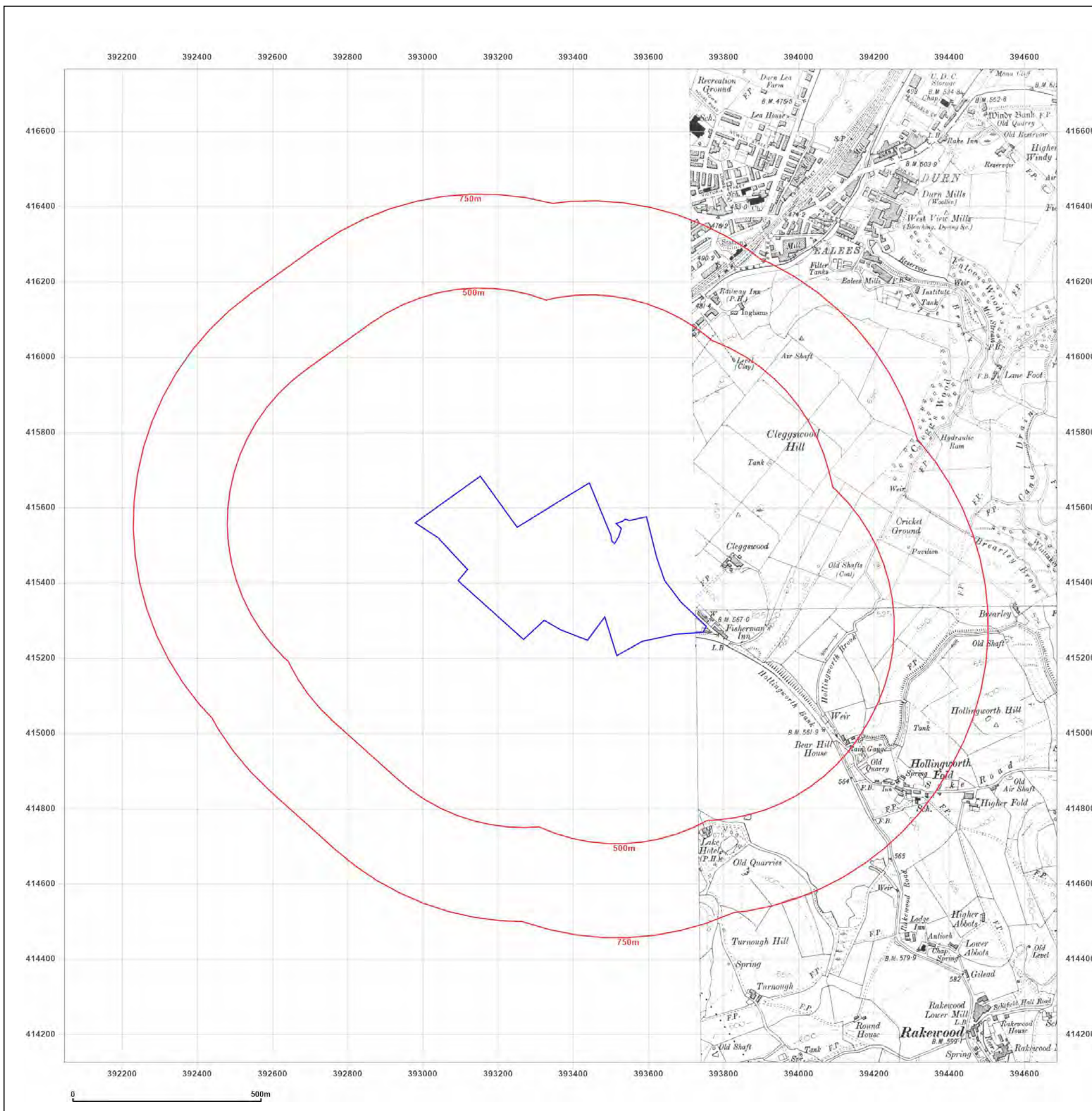


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 07 September 2022

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



Site Details:

HOLLINGWORTH ROAD,
LITTLEBOROUGH, OL15 0AZ

Client Ref: EPL014140
Report Ref: GS-9027683
Grid Ref: 393366, 415445

Map Name: County Series

Map date: 1928

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1848
Revised 1928
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1848
Revised 1928
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1848
Revised 1928
Edition N/A
Copyright N/A
Levelled N/A

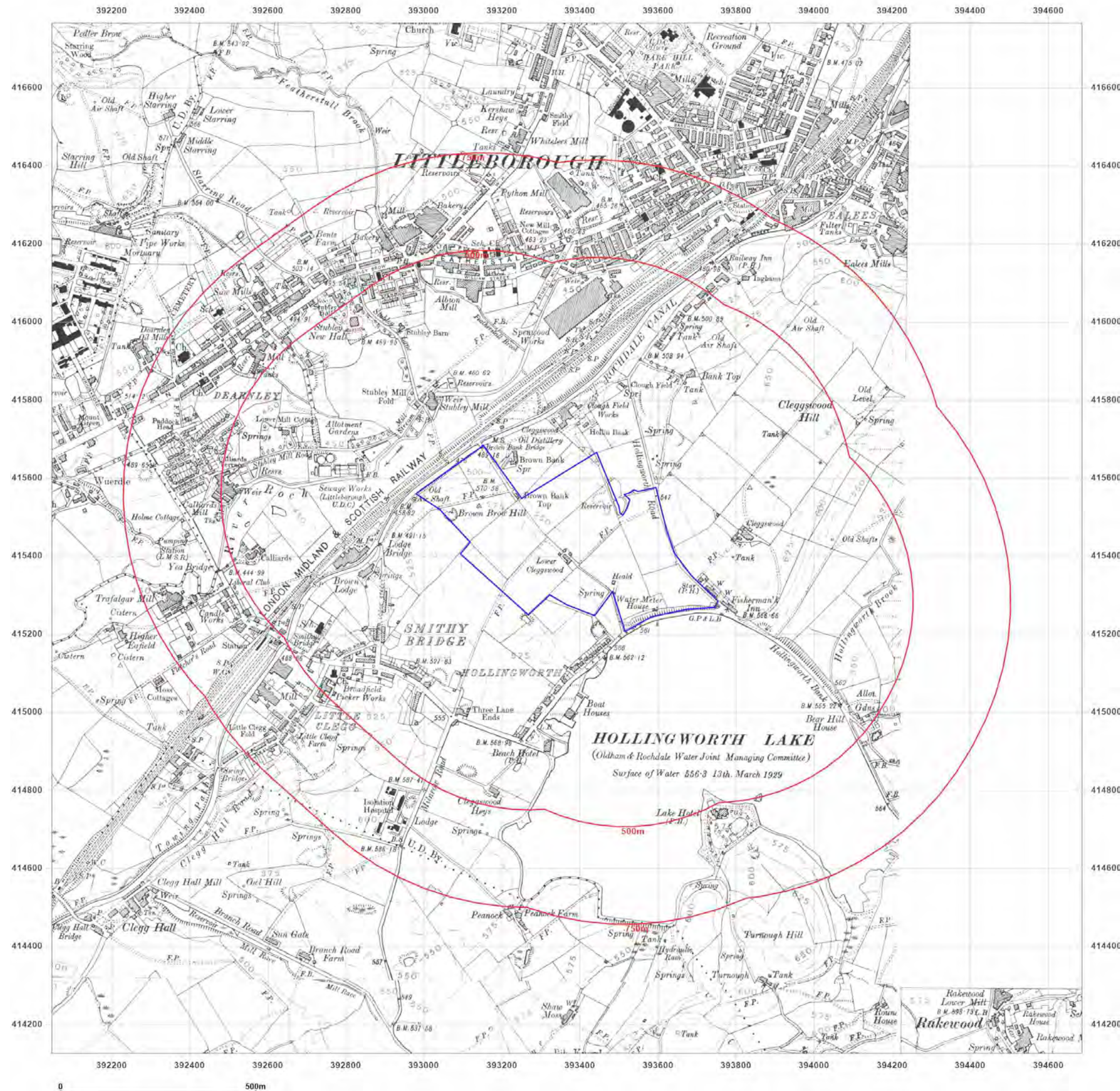


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 07 September 2022

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



Site Details:

HOLLINGWORTH ROAD,
LITTLEBOROUGH, OL15 0AZ

Client Ref: EPL014140
Report Ref: GS-9027683
Grid Ref: 393366, 415445

Map Name: County Series

Map date: 1938

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1848
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1848
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

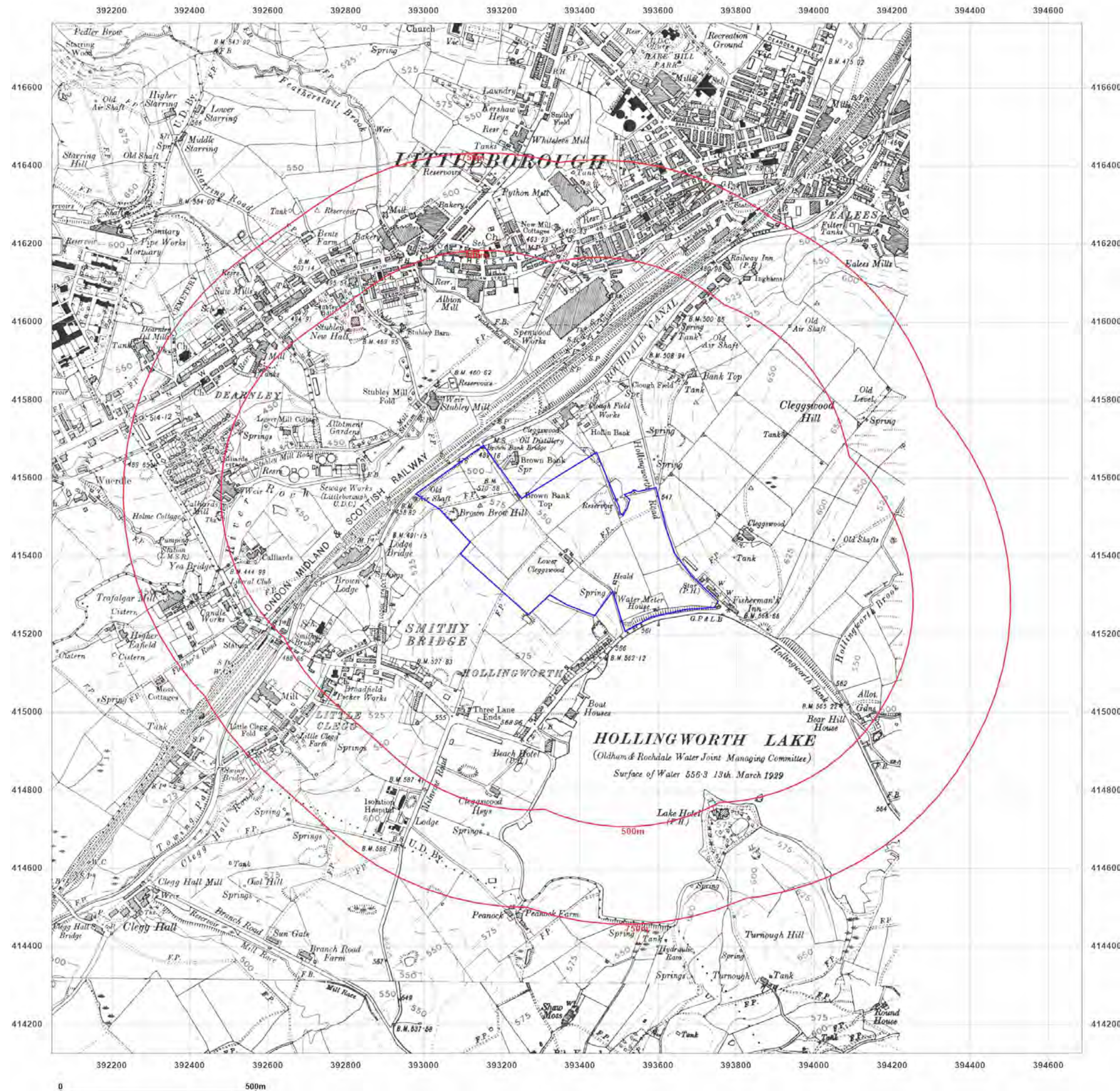


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 07 September 2022

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



Site Details:

HOLLINGWORTH ROAD,
LITTLEBOROUGH, OL15 0AZ

Client Ref: EPL014140
Report Ref: GS-9027683
Grid Ref: 393366, 415445

Map Name: Provisional

Map date: 1949-1954

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1949
Revised 1949
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1954
Revised 1954
Edition N/A
Copyright N/A
Levelled N/A

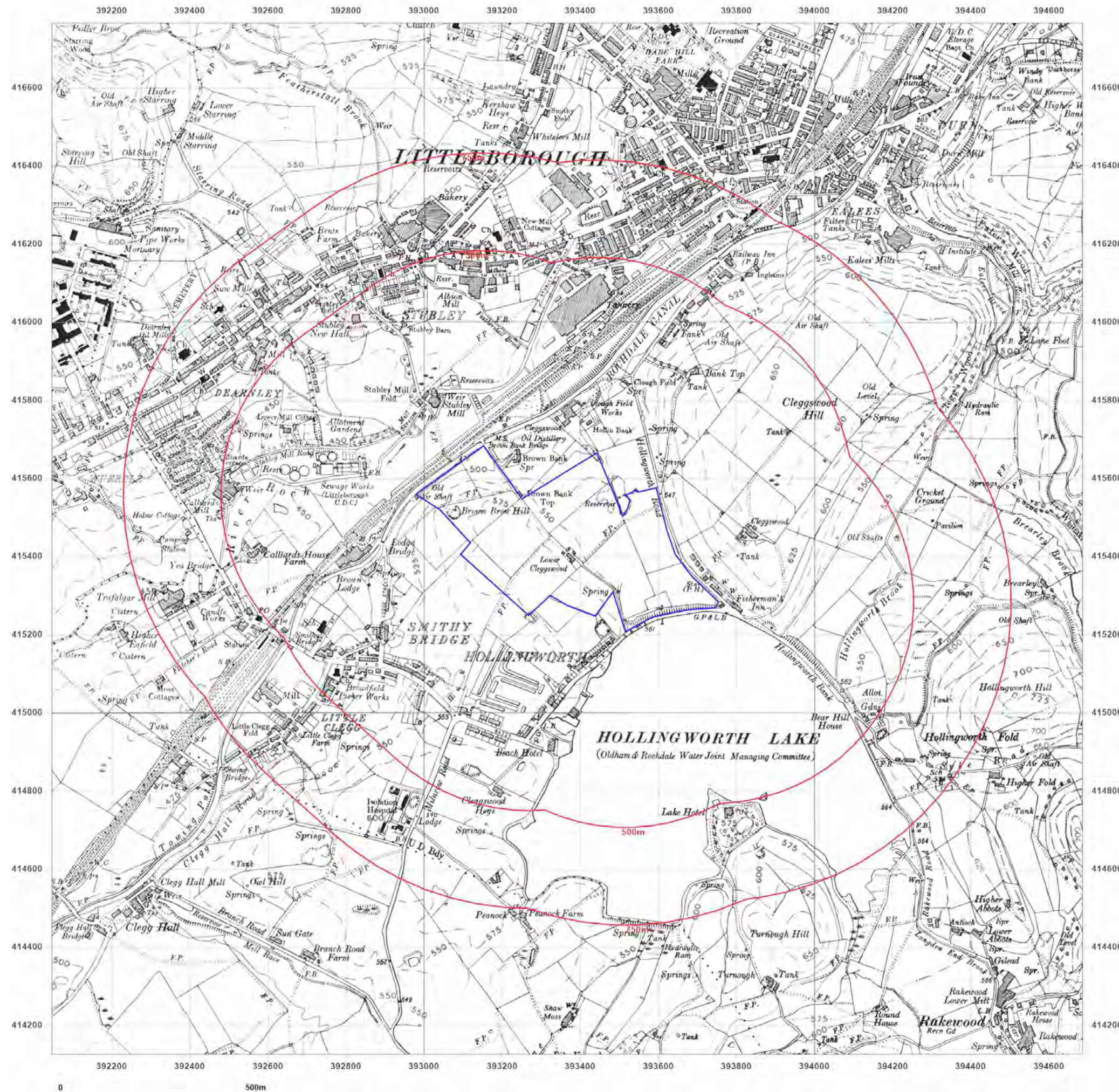


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 07 September 2022

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



Site Details:

HOLLINGWORTH ROAD,
LITTLEBOROUGH, OL15 0AZ

Client Ref: EPL014140
Report Ref: GS-9027683
Grid Ref: 393366, 415445

Map Name: Provisional

Map date: 1967-1968

Scale: 1:10,560

Printed at: 1:10,560



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

Surveyed 1967
Revised 1967
Edition N/A
Copyright N/A
Levelled N/A

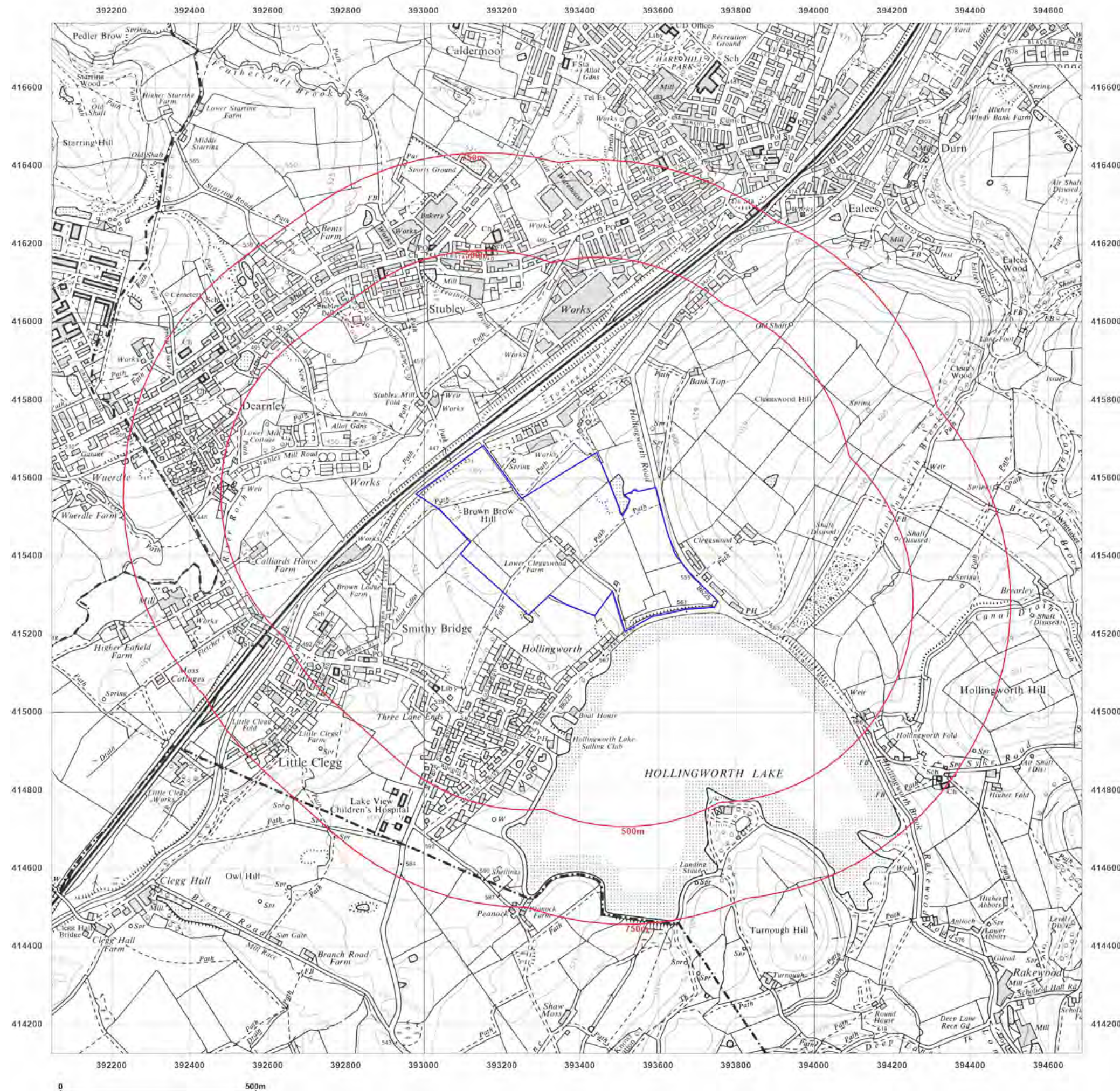


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 07 September 2022

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



Site Details:

HOLLINGWORTH ROAD,
LITTLEBOROUGH, OL15 0AZ

Client Ref: EPL014140
Report Ref: GS-9027683
Grid Ref: 393366, 415445

Map Name: National Grid

Map date: 1976

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1975
Revised 1976
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1976
Revised 1976
Edition N/A
Copyright N/A
Levelled N/A

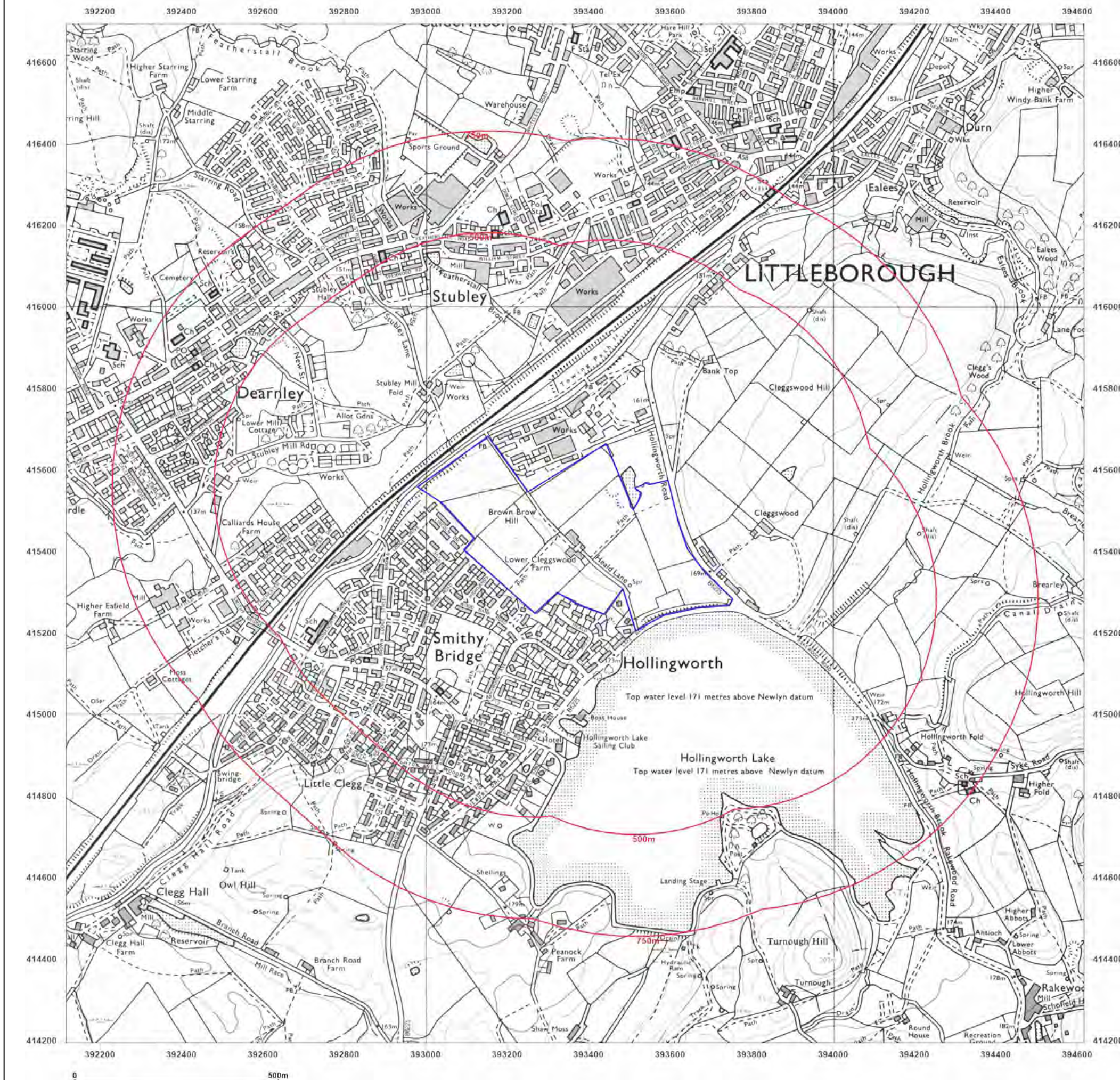


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 07 September 2022

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



Site Details:

HOLLINGWORTH ROAD,
LITTLEBOROUGH, OL15 0AZ

Client Ref: EPL014140
Report Ref: GS-9027683
Grid Ref: 393366, 415445

Map Name: National Grid

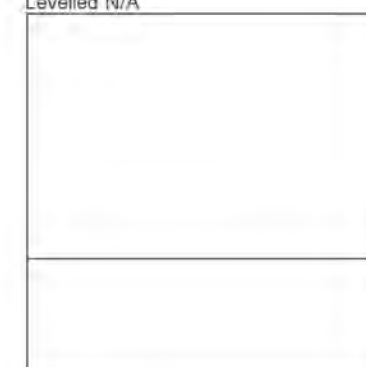
Map date: 1989

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1983
Revised 1989
Edition N/A
Copyright N/A
Levelled N/A

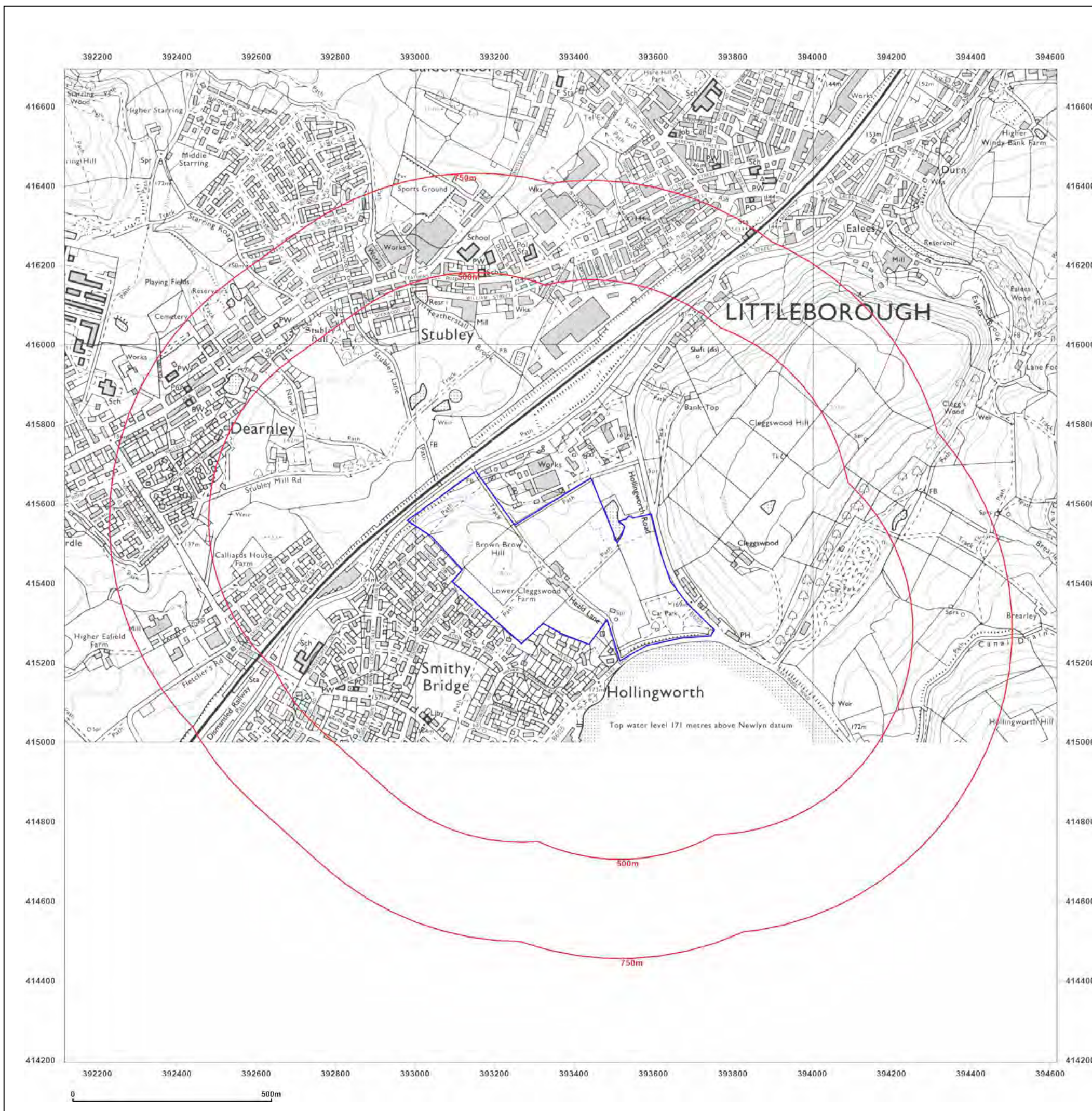


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 07 September 2022

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



Site Details:

HOLLINGWORTH ROAD,
LITTLEBOROUGH, OL15 0AZ

Client Ref: EPL014140
Report Ref: GS-9027683
Grid Ref: 393366, 415445

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: 07 September 2022

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



Site Details:

HOLLINGWORTH ROAD,
LITTLEBOROUGH, OL15 0AZ

Client Ref: EPL014140
Report Ref: GS-9027683
Grid Ref: 393366, 415445

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000

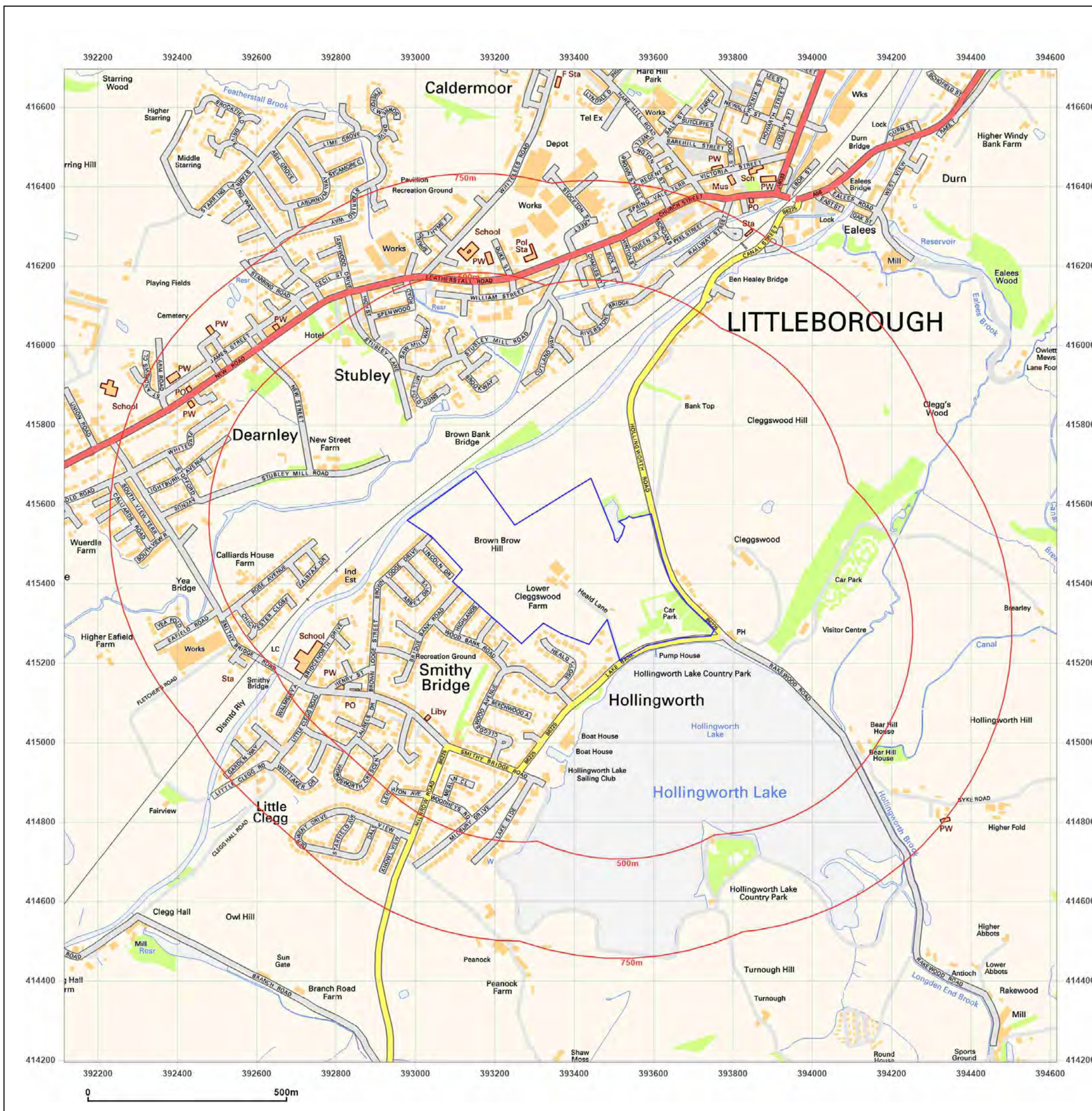


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 07 September 2022

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



Appendix D Groundsure Enviro+Geo Insight Report

LAND NORTH OF SMITHY BRIDGE, LITTLEBOROUGH, OL15 0NE

Order Details

Date: 13/08/2021
Your ref: 332010570_-_EPL004870
Our Ref: HMD-8121637
Client: Stantec UK Ltd

Site Details

Location: 393335 415444
Area: 18.84 ha
Authority: [Rochdale Metropolitan Borough Council](#)



Summary of findings

p. 2

Aerial image

p. 6

OS MasterMap site plan

N/A: >10ha

groundsure.com/insightuserguide

Contact us with any questions at:

info@groundsure.com

08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
11	1.1	Historical industrial land uses	17	21	61	111	-
19	1.2	Historical tanks	0	9	34	21	-
22	1.3	Historical energy features	0	1	2	13	-
23	1.4	Historical petrol stations	0	0	0	0	-
23	1.5	Historical garages	0	0	0	3	-
23	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
24	2.1	Historical industrial land uses	22	26	85	144	-
34	2.2	Historical tanks	0	9	49	37	-
38	2.3	Historical energy features	0	1	2	18	-
39	2.4	Historical petrol stations	0	0	0	0	-
39	2.5	Historical garages	0	0	0	5	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
41	3.1	Active or recent landfill	0	0	0	0	-
41	3.2	Historical landfill (BGS records)	0	0	2	1	-
42	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
42	3.4	Historical landfill (EA/NRW records)	0	1	2	1	-
43	3.5	Historical waste sites	0	0	0	0	-
43	3.6	Licensed waste sites	0	0	0	0	-
43	3.7	Waste exemptions	2	0	1	86	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
53	4.1	Recent industrial land uses	0	10	17	-	-
55	4.2	Current or recent petrol stations	0	0	0	0	-
55	4.3	Electricity cables	0	0	0	0	-
55	4.4	Gas pipelines	0	0	0	0	-
55	4.5	Sites determined as Contaminated Land	0	0	0	0	-



56	4.6	<u>Control of Major Accident Hazards (COMAH)</u>	1	0	0	0	-
56	4.7	Regulated explosive sites	0	0	0	0	-
56	4.8	<u>Hazardous substance storage/usage</u>	0	0	3	0	-
57	4.9	<u>Historical licensed industrial activities (IPC)</u>	0	0	9	0	-
58	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
58	4.11	<u>Licensed pollutant release (Part A(2)/B)</u>	0	0	1	0	-
59	4.12	Radioactive Substance Authorisations	0	0	0	0	-
59	4.13	<u>Licensed Discharges to controlled waters</u>	0	0	3	5	-
60	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
60	4.15	Pollutant release to public sewer	0	0	0	0	-
61	4.16	<u>List 1 Dangerous Substances</u>	0	1	1	0	-
61	4.17	<u>List 2 Dangerous Substances</u>	0	0	1	0	-
61	4.18	<u>Pollution Incidents (EA/NRW)</u>	0	1	4	7	-
63	4.19	Pollution inventory substances	0	0	0	0	-
63	4.20	Pollution inventory waste transfers	0	0	0	0	-
63	4.21	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	Geology (basic)					
64	5.1	<u>Superficial geology (625k)</u>	Identified (within 500m)				
64	5.2	<u>Bedrock geology (625k)</u>	Identified (within 500m)				
Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
65	6.1	<u>Superficial aquifer</u>	Identified (within 500m)				
67	6.2	<u>Bedrock aquifer</u>	Identified (within 500m)				
69	6.3	<u>Groundwater vulnerability</u>	Identified (within 50m)				
71	6.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
72	6.5	Groundwater vulnerability- local information	None (within 0m)				
73	6.6	<u>Groundwater abstractions</u>	0	0	0	0	8
76	6.7	<u>Surface water abstractions</u>	0	0	9	15	20
87	6.8	<u>Potable abstractions</u>	0	0	0	0	5
88	6.9	Source Protection Zones	0	0	0	0	-



88	6.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
89	<u>7.1</u>	<u>Water Network (OS MasterMap)</u>	1	0	11	-	-
91	<u>7.2</u>	<u>Surface water features</u>	1	1	4	-	-
91	<u>7.3</u>	<u>WFD Surface water body catchments</u>	1	-	-	-	-
91	<u>7.4</u>	<u>WFD Surface water bodies</u>	1	0	1	-	-
92	<u>7.5</u>	<u>WFD Groundwater bodies</u>	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
93	<u>8.1</u>	<u>Risk of Flooding from Rivers and Sea (RoFRaS)</u>	High (within 50m)				
94	<u>8.2</u>	<u>Historical Flood Events</u>	0	0	2	-	-
94	<u>8.3</u>	<u>Flood Defences</u>	0	0	1	-	-
94	8.4	Areas Benefiting from Flood Defences	0	0	0	-	-
95	8.5	Flood Storage Areas	0	0	0	-	-
96	<u>8.6</u>	<u>Flood Zone 2</u>	Identified (within 50m)				
97	<u>8.7</u>	<u>Flood Zone 3</u>	Identified (within 50m)				
Page	Section	Surface water flooding					
98	<u>9.1</u>	<u>Surface water flooding</u>	1 in 30 year, 0.3m - 1.0m (within 50m)				
Page	Section	Groundwater flooding					
100	<u>10.1</u>	<u>Groundwater flooding</u>	Low (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
101	<u>11.1</u>	<u>Sites of Special Scientific Interest (SSSI)</u>	1	0	0	1	1
102	11.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
102	<u>11.3</u>	<u>Special Areas of Conservation (SAC)</u>	1	0	0	1	1
103	<u>11.4</u>	<u>Special Protection Areas (SPA)</u>	0	0	0	0	2
103	11.5	National Nature Reserves (NNR)	0	0	0	0	0
104	11.6	Local Nature Reserves (LNR)	0	0	0	0	0
104	<u>11.7</u>	<u>Designated Ancient Woodland</u>	0	0	0	0	4
104	11.8	Biosphere Reserves	0	0	0	0	0
105	11.9	Forest Parks	0	0	0	0	0



105	11.10	Marine Conservation Zones	0	0	0	0	0
105	11.11	<u>Green Belt</u>	1	0	0	0	0
105	11.12	Proposed Ramsar sites	0	0	0	0	0
106	11.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
106	11.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
106	11.15	Nitrate Sensitive Areas	0	0	0	0	0
106	11.16	Nitrate Vulnerable Zones	0	0	0	0	0
107	11.17	<u>SSSI Impact Risk Zones</u>	5	-	-	-	-
109	11.18	<u>SSSI Units</u>	1	0	0	1	1
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
111	12.1	World Heritage Sites	0	0	0	-	-
112	12.2	Area of Outstanding Natural Beauty	0	0	0	-	-
112	12.3	National Parks	0	0	0	-	-
112	12.4	<u>Listed Buildings</u>	0	0	1	-	-
113	12.5	Conservation Areas	0	0	0	-	-
113	12.6	Scheduled Ancient Monuments	0	0	0	-	-
113	12.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
114	13.1	<u>Agricultural Land Classification</u>	Urban (within 250m)				
115	13.2	Open Access Land	0	0	0	-	-
115	13.3	Tree Felling Licences	0	0	0	-	-
115	13.4	<u>Environmental Stewardship Schemes</u>	0	1	0	-	-
116	13.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
117	14.1	<u>Priority Habitat Inventory</u>	8	0	10	-	-
118	14.2	<u>Habitat Networks</u>	4	0	2	-	-
119	14.3	Open Mosaic Habitat	0	0	0	-	-
119	14.4	Limestone Pavement Orders	0	0	0	-	-

Recent aerial photograph



Capture Date: 23/05/2019

Site Area: 18.84ha



Recent site history - 2018 aerial photograph



Capture Date: 01/07/2018

Site Area: 18.84ha



Recent site history - 2012 aerial photograph



Capture Date: 26/03/2012

Site Area: 18.84ha



Recent site history - 2001 aerial photograph



Aerial photography supplied by Getmapping PLC. © Copyright Getmapping PLC 2021. All Rights Reserved.

Capture Date: 12/05/2001

Site Area: 18.84ha



Recent site history - 2000 aerial photograph

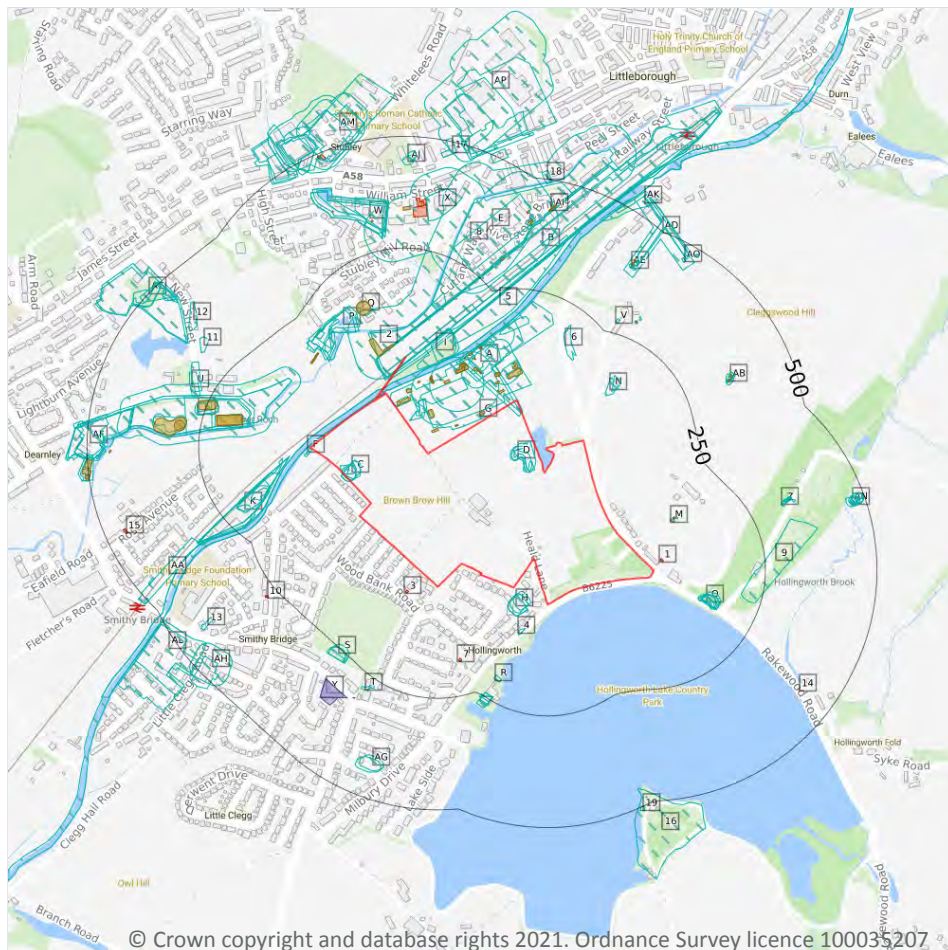


Capture Date: 19/06/2000

Site Area: 18.84ha



1 Past land use



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

1.1 Historical industrial land uses

Records within 500m

210

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

Features are displayed on the Past land use map on **page 11**

ID	Location	Land use	Dates present	Group ID
A	On site	Unspecified Works	1949	714199



ID	Location	Land use	Dates present	Group ID
A	On site	Disused Canal	1989	752921
A	On site	Disused Canal	1976	754144
A	On site	Unspecified Works	1938	766624
B	On site	Railway Sidings	1908	722984
B	On site	Railway Sidings	1928	721033
B	On site	Railway Sidings	1938	722406
B	On site	Railway Sidings	1890	780778
C	On site	Unspecified Pit	1968	690610
C	On site	Sandstone Quarry	1851	687453
C	On site	Unspecified Quarry	1928	702195
C	On site	Unspecified Old Quarry	1890 - 1908	741113
C	On site	Unspecified Quarry	1938 - 1949	746986
D	On site	Unspecified Ground Workings	1928	647815
D	On site	Unspecified Pit	1938 - 1949	744174
D	On site	Unspecified Pits	1968 - 1989	763875
E	On site	Unspecified Works	1968	779166
A	1m NE	Unspecified Works	1989	767216
F	2m SW	Old Air Shaft	1949	652019
B	3m NW	Railway Sidings	1949 - 1968	696002
A	8m NE	Oil Distillery	1938	750387
G	9m NW	Unspecified Tank	1989	674698
F	10m SW	Old Air Shaft	1938	722438
A	13m NE	Unspecified Tanks	1989	666385
F	16m SW	Old Air Shaft	1908 - 1928	768090
H	16m SE	Unspecified Quarry	1938	700426
H	17m SE	Unspecified Quarry	1949 - 1968	704685
A	19m NW	Unspecified Works	1976	772044
H	19m S	Unspecified Quarry	1928	760064



ID	Location	Land use	Dates present	Group ID
H	19m S	Unspecified Old Quarry	1890 - 1908	773471
A	26m NE	Oil Distillery	1908 - 1928	790163
I	32m SE	Refuse Heap	1908 - 1928	745023
A	39m NW	Oil Distillery	1949	665919
A	40m NE	Unspecified Tank	1989	674699
A	41m NW	Unspecified Works	1890	739128
2	41m NW	Railway Sidings	1968	712106
E	41m NW	Tannery	1949	691825
A	47m NE	Unspecified Tanks	1989	666410
A	51m N	Unspecified Tanks	1989	666384
K	52m SW	Unspecified Works	1968	736288
K	52m SW	Unspecified Commercial/Industrial	1976 - 1989	790226
A	56m NE	Unspecified Works	1968	697384
K	67m W	Unspecified Works	1890	755640
I	68m E	Refuse Heap	1938	785747
A	69m NW	Unspecified Tank	1989	674558
4	74m SW	Sandstone Quarry	1851	687454
A	74m N	Unspecified Tank	1989	674557
A	81m NW	Field Works	1908 - 1928	787507
K	88m SW	Unspecified Commercial/Industrial	1938	781454
A	100m NW	Unspecified Works	1890	750321
L	104m NW	Sewage Works	1890	777680
M	106m NE	Unspecified Tank	1928 - 1938	786311
N	112m NE	Unspecified Pit	1928 - 1938	732986
A	114m E	Unspecified Tanks	1989	666386
O	116m SE	Unspecified Pit	1928	790756
O	117m SE	Unspecified Ground Workings	1908	647816
M	119m NE	Unspecified Tank	1949	674697



ID	Location	Land use	Dates present	Group ID
P	119m NW	Unspecified Mill	1928 - 1938	725376
A	120m N	Sandstone Quarry	1851	687452
O	121m SE	Unspecified Pit	1938	701602
L	121m NW	Unspecified Works	1968 - 1976	750217
L	121m NW	Sewage Works	1949	762013
O	122m SE	Unspecified Pit	1910	716094
5	122m E	Unspecified Pit	1989	690611
P	124m NW	Glue, Grease and Manure Mill	1908	657586
P	124m NW	Unspecified Mill	1949	749447
O	125m SE	Unspecified Pit	1910	747426
K	125m SW	Unspecified Commercial/Industrial	1908 - 1928	705332
O	127m SE	Unspecified Pit	1949 - 1976	741849
N	127m NE	Unspecified Pit	1949	716892
Q	129m NW	Unspecified Tank	1968 - 1989	764782
A	129m NW	Old Coal Pit	1851	682300
K	129m SW	Refuse Heap	1938	736367
E	132m NE	Unspecified Works	1928 - 1938	719709
K	133m SW	Refuse Heap	1908 - 1928	779859
P	135m NW	Unspecified Mill	1890	779299
L	136m W	Sewage Works	1938	779023
L	146m W	Sewage Works	1928	699466
L	147m W	Sewage Works	1908	719147
P	147m NW	Unspecified Works	1968 - 1976	751883
A	151m N	Unspecified Heap	1938	650668
6	153m NE	Unspecified Ground Workings	1938 - 1949	724535
L	159m W	Filter Tanks	1908	675261
P	159m NW	Woollen Mill	1851	671015
P	179m NW	Unspecified Mill	1968 - 1976	720218



ID	Location	Land use	Dates present	Group ID
K	189m SW	Refuse Heap	1908 - 1928	779065
R	196m SW	Boat Houses	1938	653069
8	201m NE	Unspecified Works	1976	772004
9	202m E	Refuse Heap	1968	677850
L	220m W	Unspecified Tanks	1938	737421
L	223m NW	Unspecified Tanks	1949 - 1976	770922
L	224m W	Unspecified Tanks	1928	738746
R	240m SW	Boat House	1967	733296
R	240m SW	Boat House	1976	766050
S	240m SW	Unspecified Pit	1949 - 1968	743447
R	241m SW	Boat House	1890	729946
R	242m SW	Boat Houses	1908 - 1938	746476
S	247m SW	Unspecified Pit	1938	759123
S	248m SW	Unspecified Pit	1928	755523
E	251m NE	Unspecified Commercial/Industrial	1989	643243
T	263m SW	Unspecified Ground Workings	1949	647999
U	272m NW	Cuttings	1908 - 1928	778913
U	274m NW	Cuttings	1938 - 1949	703195
V	274m N	Unspecified Tank	1938	674562
W	275m N	Cotton Mill	1908	644408
W	275m N	Unspecified Mill	1928	781299
W	278m N	Unspecified Mill	1938	743547
L	283m W	Unspecified Tanks	1938	712339
L	283m W	Unspecified Tanks	1949 - 1976	754973
W	285m N	Unspecified Mill	1890	715501
V	286m NE	Unspecified Tank	1928	674561
W	288m N	Unspecified Mill	1949	759036
W	290m N	Unspecified Mill	1968 - 1989	731047



ID	Location	Land use	Dates present	Group ID
V	297m NE	Unspecified Tank	1949	674560
E	311m NE	Unspecified Tank	1928 - 1938	760024
X	316m N	Unspecified Works	1989	769545
11	320m NW	Unspecified Heap	1968 - 1989	711769
Z	321m NE	Coal Pit	1851	654271
Z	326m NE	Old Coal Shafts	1908	684755
Z	326m NE	Unspecified Old Shafts	1928 - 1938	767632
AA	328m SW	Railway Sidings	1938 - 1949	754627
Z	336m NE	Old Coal Shafts	1911	748444
Z	338m NE	Unspecified Shaft	1890	665133
Z	339m NE	Unspecified Disused Shaft	1968 - 1976	732659
AB	344m E	Unspecified Heap	1938	650653
Z	345m NE	Unspecified Old Shafts	1949	640176
AB	345m NE	Unspecified Tank	1908	724296
AB	345m NE	Unspecified Tank	1928	759130
Z	348m NE	Unspecified Shaft	1892	665138
AB	353m E	Unspecified Tank	1938	674559
AB	354m NE	Unspecified Tank	1989	771849
AB	356m NE	Unspecified Tank	1911	752103
AC	360m NW	Unspecified Mill	1938 - 1949	759823
AB	362m NE	Unspecified Tank	1949	780319
AC	362m NW	Unspecified Mill	1928	787341
12	372m NW	Unspecified Heap	1928	650664
AD	379m NE	Railway Sidings	1908	754581
AE	392m NE	Clay Level	1908	672435
AE	392m NE	Unspecified Tank	1928	674563
B	392m N	Unspecified Tanks	1928 - 1938	777583
AE	392m NE	Old Air Shaft	1928 - 1938	745722



ID	Location	Land use	Dates present	Group ID
AE	398m NE	Unspecified Tank	1938	674564
13	400m SW	Smithy	1851	692925
AE	402m NE	Unspecified Disused Shaft	1989	664280
AE	404m NE	Old Air Shaft	1949	652018
AF	404m W	Unspecified Mill	1938	788736
AF	405m W	Unspecified Mills	1949	653251
AG	405m S	Unspecified Pit	1954	781231
AE	408m NE	Unspecified Tank	1949	674565
B	409m N	Unspecified Tanks	1949	666383
AF	409m W	Unspecified Mill	1928	775139
AF	409m W	Woollen Mill	1908	765668
AD	409m NE	Railway Sidings	1911	753415
AD	411m NE	Railway Sidings	1911	748549
AG	412m S	Unspecified Pit	1928 - 1938	747247
AH	427m SW	Unspecified Works	1949	728527
AJ	436m N	Unspecified Heap	1928	778914
AC	440m NW	Unspecified Ground Workings	1928	749418
AC	445m NW	Unspecified Heap	1938	650665
AK	445m NE	Colliery	1851	645211
AL	446m SW	Sanitary Works	1890	665538
AJ	446m N	Unspecified Heap	1949	721292
AC	452m NW	Unspecified Ground Workings	1968 - 1989	704369
AF	455m W	Unspecified Mill	1890	752243
AA	455m SW	Railway Building	1890	670162
AM	457m NW	Woollen Mill	1851	671016
AF	457m W	Woollen Mill	1851	786328
AN	458m E	Refuse Heap	1908	781117
AO	458m NE	Clay Level	1908	672436



ID	Location	Land use	Dates present	Group ID
16	458m SE	Nursery	1851	679931
AH	459m SW	Unspecified Works	1928 - 1938	774314
AM	459m N	Bakery	1949	762310
17	461m N	Police Station	1976 - 1989	782183
AN	464m E	Unspecified Heap	1928	713766
AP	464m N	Unspecified Works	1989	765720
AN	466m E	Unspecified Heap	1938 - 1949	724293
AN	468m E	Unspecified Old Shafts	1928	640174
AN	468m E	Old Coal Shafts	1908	684754
AM	470m NW	Bakery	1928 - 1938	722086
AN	470m E	Refuse Heap	1911	764009
AN	471m E	Refuse Heap	1911	753095
AO	472m NE	Clay Level	1911	716526
AP	472m N	Cotton Mill	1908	644409
AM	473m N	Bakery	1968	762119
AM	473m N	Unspecified Commercial/Industrial	1976 - 1989	773143
AM	474m NW	Unspecified Works	1968	787081
AM	474m NW	Unspecified Mill	1890	766081
AN	474m E	Unspecified Old Shafts	1938	640175
AM	475m NW	Unspecified Mills	1908	653252
AL	476m SW	Unspecified Commercial/Industrial	1908	643189
AK	477m NE	Coke Ovens	1851	682877
AC	478m NW	Refuse Heap	1938 - 1949	754014
AP	478m N	Unspecified Mill	1890	726212
AC	478m NW	Refuse Heap	1928	704457
AO	482m NE	Coal Pit	1851	654273
AN	482m E	Old Coal Shafts	1911	684753
AN	482m E	Unspecified Disused Shaft	1968 - 1976	730868



ID	Location	Land use	Dates present	Group ID
AM	483m NW	Unspecified Works	1968 - 1989	769343
AP	483m NE	Woollen Mill	1851	671030
AP	484m N	Unspecified Commercial/Industrial	1949	763690
AN	486m E	Unspecified Old Shafts	1949	640173
AF	487m W	Gasometer	1851	655100
AM	487m NW	Unspecified Mill	1890	743497
AF	488m W	Unspecified Tanks	1938 - 1949	783556
AP	488m N	Unspecified Works	1968	744437
18	489m N	Machine Works	1908	682801
AF	494m W	Unspecified Tanks	1928	788875
AA	497m SW	Railway Building	1938	670161
AM	497m NW	Unspecified Mill	1928 - 1938	770054
19	498m SE	Pump House	1976	693614

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m

64

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

Features are displayed on the Past land use map on **page 11**

ID	Location	Land use	Dates present	Group ID
A	6m NE	Tanks	1987	87614
G	12m NW	Tanks	1987	87610
A	16m NE	Tanks	1987	87613
A	20m NW	Unspecified Tank	1987	84044
A	31m NW	Tanks	1987	87609



ID	Location	Land use	Dates present	Group ID
A	33m NW	Unspecified Tank	1987	84045
J	39m NW	Unspecified Tank	1938	84038
A	40m NE	Tanks	1987	87612
J	44m NW	Tanks	1938	87598
A	50m NE	Tanks	1987	87611
A	51m N	Tanks	1987	87607
A	54m SE	Unspecified Tank	1987	84042
A	54m NW	Tanks	1987	87608
A	67m NW	Tanks	1959 - 1960	103604
A	68m NW	Tanks	1987	90454
A	70m N	Tanks	1987	87606
A	70m SE	Unspecified Tank	1987	84039
A	71m SE	Tanks	1987	94683
A	73m SE	Tanks	1959	88651
A	73m SE	Tanks	1960	103058
A	92m NW	Unspecified Tank	1987	84036
A	93m SE	Unspecified Tank	1960	89940
A	93m SE	Unspecified Tank	1959	94123
A	101m NW	Tanks	1959 - 1960	103427
A	102m SE	Unspecified Tank	1987	84043
A	104m NW	Unspecified Tank	1987	84037
M	105m NE	Unspecified Tank	1930 - 1938	94701
M	114m NE	Unspecified Tank	1959 - 1992	92278
A	116m NW	Tanks	1987	91626
A	118m NW	Tanks	1959 - 1960	95907
A	126m NW	Tanks	1930 - 1938	97452
A	126m NW	Tanks	1960	102329
Q	132m NW	Unspecified Tank	1959 - 1987	96920



ID	Location	Land use	Dates present	Group ID
A	135m E	Unspecified Tank	1959 - 1960	95773
A	139m NW	Tanks	1910 - 1938	103580
A	140m NW	Tanks	1959 - 1987	97583
A	142m NW	Unspecified Tank	1891	84035
P	146m NW	Tanks	1938	104138
P	147m NW	Tanks	1930	96789
P	154m NW	Tanks	1910	96005
L	160m W	Settlement Tanks	1938	85895
L	160m W	Filter Tanks	1910 - 1930	93347
L	229m NW	Tanks	1959 - 1960	102962
L	282m W	Tanks	1938 - 1960	93081
L	285m W	Unspecified Tank	1938	84040
V	289m NE	Unspecified Tank	1930 - 1938	94322
T	310m SW	Unspecified Tank	1988	84041
E	313m NE	Unspecified Tank	1930 - 1937	97900
W	316m N	Unspecified Tank	1891	84063
X	335m N	Tanks	1979	87599
AB	349m NE	Unspecified Tank	1910 - 1938	100543
AB	357m NE	Unspecified Tank	1959 - 1960	92676
W	366m NW	Unspecified Tank	1910	84065
B	394m N	Tanks	1930	87605
AE	400m NE	Unspecified Tank	1910 - 1937	92494
B	404m N	Unspecified Tank	1937	84064
AE	409m NE	Unspecified Tank	1959 - 1960	91703
14	415m SE	Unspecified Tank	1938	84029
AI	430m N	Tanks	1985	92387
AI	430m N	Tanks	1959 - 1960	97739
AF	446m W	Tanks	1891	87615



ID	Location	Land use	Dates present	Group ID
AF	489m W	Tanks	1910 - 1938	98731
AF	493m W	Tanks	1910 - 1938	93503
AF	498m W	Tanks	1910 - 1938	92636

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m

16

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

Features are displayed on the Past land use map on **page 11**

ID	Location	Land use	Dates present	Group ID
1	27m NE	Electricity Substation	1992	45410
3	52m SW	Electricity Substation	1975	45414
7	168m S	Electricity Substation	1975	45412
10	272m SW	Electricity Substation	1976 - 1988	48919
X	320m N	Electricity Substation	1910	47018
X	345m N	Electricity Substation	1988 - 1999	51830
X	349m N	Electricity Substation	1985	55646
X	349m N	Electricity Substation	1979	58626
B	419m N	Electricity Substation	1988	45411
15	451m SW	Electricity Substation	1976 - 1988	58519
AM	482m N	Electricity Substation	1979 - 1985	49926
AM	487m NW	Electricity Substation	1988	53534
AM	487m NW	Electricity Substation	1996	57725
AM	487m NW	Electricity Substation	1996 - 1999	58770
AM	488m NW	Electricity Substation	1988	51355



ID	Location	Land use	Dates present	Group ID
AM	489m NW	Electricity Substation	1971	48439

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

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

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

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	3
----------------------------	----------

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

Features are displayed on the Past land use map on **page 11**

ID	Location	Land use	Dates present	Group ID
Y	321m SW	Garage	1959	15953
Y	321m SW	Garage	1960 - 1975	19466
Y	334m SW	Garage	1988	15769

This data is sourced from Ordnance Survey / Groundsure.

1.6 Historical military land

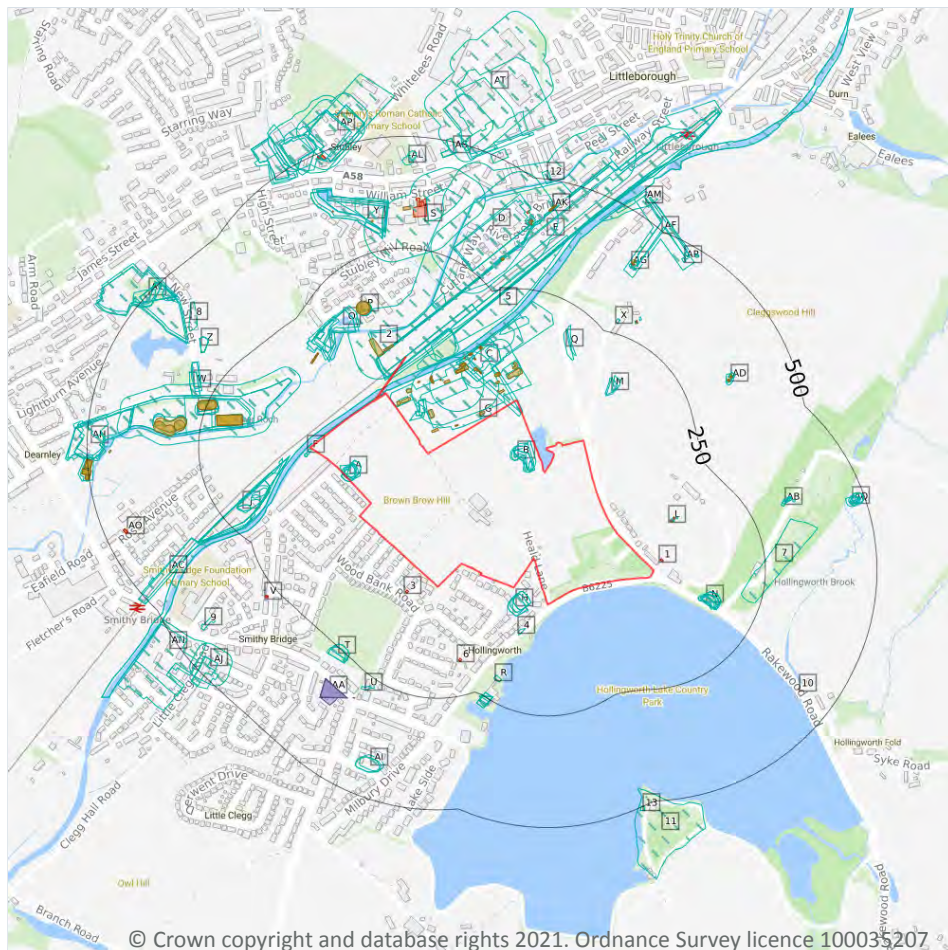
Records within 500m	0
----------------------------	----------

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

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



2 Past land use - un-grouped



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

2.1 Historical industrial land uses

Records within 500m

277

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

Features are displayed on the Past land use - un-grouped map on **page 24**

ID	Location	Land Use	Date	Group ID
A	On site	Unspecified Quarry	1949	746986
A	On site	Sandstone Quarry	1851	687453
A	On site	Unspecified Quarry	1938	746986



ID	Location	Land Use	Date	Group ID
A	On site	Unspecified Old Quarry	1890	741113
A	On site	Unspecified Pit	1968	690610
A	On site	Unspecified Quarry	1928	702195
A	On site	Unspecified Old Quarry	1908	741113
B	On site	Unspecified Ground Workings	1928	647815
B	On site	Unspecified Pits	1989	763875
B	On site	Unspecified Pits	1976	763875
B	On site	Unspecified Pit	1949	744174
B	On site	Unspecified Pits	1968	763875
B	On site	Unspecified Pit	1938	744174
C	On site	Unspecified Works	1949	714199
C	On site	Disused Canal	1989	752921
C	On site	Disused Canal	1976	754144
C	On site	Unspecified Works	1938	766624
D	On site	Unspecified Works	1968	779166
E	On site	Railway Sidings	1928	721033
E	On site	Railway Sidings	1908	722984
E	On site	Railway Sidings	1938	722406
E	On site	Railway Sidings	1890	780778
C	1m NE	Unspecified Works	1989	767216
F	2m SW	Old Air Shaft	1949	652019
E	3m NW	Railway Sidings	1949	696002
E	3m NW	Railway Sidings	1968	696002
C	8m NE	Oil Distillery	1938	750387
G	9m NW	Unspecified Tank	1989	674698
F	10m SW	Old Air Shaft	1938	722438
C	13m NE	Unspecified Tanks	1989	666385
F	16m SW	Old Air Shaft	1928	768090



ID	Location	Land Use	Date	Group ID
F	16m SW	Old Air Shaft	1908	768090
H	16m SE	Unspecified Quarry	1938	700426
H	17m SE	Unspecified Quarry	1949	704685
H	17m SE	Unspecified Quarry	1968	704685
C	19m NW	Unspecified Works	1976	772044
H	19m S	Unspecified Quarry	1928	760064
H	19m S	Unspecified Old Quarry	1908	773471
H	20m SE	Unspecified Old Quarry	1890	773471
C	26m NE	Oil Distillery	1928	790163
C	26m NE	Oil Distillery	1908	790163
C	32m SE	Refuse Heap	1908	745023
C	39m NW	Oil Distillery	1949	665919
C	40m NE	Unspecified Tank	1989	674699
C	41m NW	Unspecified Works	1890	739128
2	41m NW	Railway Sidings	1968	712106
D	41m NW	Tannery	1949	691825
C	47m NE	Unspecified Tanks	1989	666410
C	51m N	Unspecified Tanks	1989	666384
J	52m SW	Unspecified Commercial/Industrial	1989	790226
J	52m SW	Unspecified Commercial/Industrial	1976	790226
J	52m SW	Unspecified Works	1968	736288
C	52m NE	Refuse Heap	1928	745023
C	56m NE	Unspecified Works	1968	697384
J	67m W	Unspecified Works	1890	755640
C	68m E	Refuse Heap	1938	785747
C	69m NW	Unspecified Tank	1989	674558
4	74m SW	Sandstone Quarry	1851	687454
C	74m N	Unspecified Tank	1989	674557



ID	Location	Land Use	Date	Group ID
C	81m NW	Field Works	1928	787507
C	81m NW	Field Works	1908	787507
J	88m SW	Unspecified Commercial/Industrial	1938	781454
C	100m NW	Unspecified Works	1890	750321
K	104m NW	Sewage Works	1890	777680
L	106m NE	Unspecified Tank	1928	786311
L	108m NE	Unspecified Tank	1938	786311
M	112m NE	Unspecified Pit	1938	732986
C	114m E	Unspecified Tanks	1989	666386
M	115m NE	Unspecified Pit	1928	732986
N	116m SE	Unspecified Pit	1928	790756
N	117m SE	Unspecified Ground Workings	1908	647816
L	119m NE	Unspecified Tank	1949	674697
O	119m NW	Unspecified Mill	1938	725376
C	120m N	Sandstone Quarry	1851	687452
N	121m SE	Unspecified Pit	1938	701602
K	121m NW	Unspecified Works	1976	750217
K	121m NW	Sewage Works	1949	762013
K	121m NW	Unspecified Works	1968	750217
N	122m SE	Unspecified Pit	1910	716094
5	122m E	Unspecified Pit	1989	690611
O	124m NW	Unspecified Mill	1928	725376
O	124m NW	Glue, Grease and Manure Mill	1908	657586
O	124m NW	Unspecified Mill	1949	749447
N	125m SE	Unspecified Pit	1910	747426
N	125m SE	Unspecified Pit	1910	747426
J	125m SW	Unspecified Commercial/Industrial	1928	705332
J	125m SW	Unspecified Commercial/Industrial	1908	705332



ID	Location	Land Use	Date	Group ID
N	127m SE	Unspecified Pit	1976	741849
N	127m SE	Unspecified Pit	1949	741849
N	127m SE	Unspecified Pit	1968	741849
M	127m NE	Unspecified Pit	1949	716892
P	129m NW	Unspecified Tank	1989	764782
P	129m NW	Unspecified Tank	1976	764782
P	129m NW	Unspecified Tank	1968	764782
C	129m NW	Old Coal Pit	1851	682300
J	129m SW	Refuse Heap	1938	736367
D	132m NE	Unspecified Works	1938	719709
J	133m SW	Refuse Heap	1928	779859
O	135m NW	Unspecified Mill	1890	779299
K	136m W	Sewage Works	1938	779023
K	146m W	Sewage Works	1928	699466
K	147m W	Sewage Works	1908	719147
O	147m NW	Unspecified Works	1976	751883
O	147m NW	Unspecified Works	1968	751883
C	151m N	Unspecified Heap	1938	650668
Q	153m NE	Unspecified Ground Workings	1938	724535
J	156m SW	Refuse Heap	1908	779859
K	159m W	Filter Tanks	1908	675261
O	159m NW	Woollen Mill	1851	671015
Q	164m NE	Unspecified Ground Workings	1949	724535
O	179m NW	Unspecified Mill	1976	720218
O	179m NW	Unspecified Mill	1968	720218
J	189m SW	Refuse Heap	1928	779065
J	189m SW	Refuse Heap	1908	779065
R	196m SW	Boat Houses	1938	653069



ID	Location	Land Use	Date	Group ID
D	201m NE	Unspecified Works	1976	772004
7	202m E	Refuse Heap	1968	677850
S	220m N	Unspecified Works	1976	772004
K	220m W	Unspecified Tanks	1938	737421
K	223m NW	Unspecified Tanks	1976	770922
K	223m NW	Unspecified Tanks	1949	770922
K	223m NW	Unspecified Tanks	1968	770922
K	224m W	Unspecified Tanks	1928	738746
R	240m SW	Boat House	1976	766050
R	240m SW	Boat House	1967	733296
T	240m SW	Unspecified Pit	1949	743447
T	240m SW	Unspecified Pit	1968	743447
R	241m SW	Boat House	1890	729946
R	242m SW	Boat Houses	1938	746476
T	247m SW	Unspecified Pit	1938	759123
T	248m SW	Unspecified Pit	1928	755523
R	249m SW	Boat Houses	1928	746476
R	249m SW	Boat Houses	1908	746476
D	251m NE	Unspecified Commercial/Industrial	1989	643243
D	253m NE	Unspecified Works	1928	719709
U	263m SW	Unspecified Ground Workings	1949	647999
W	272m NW	Cuttings	1928	778913
W	272m NW	Cuttings	1908	778913
W	274m NW	Cuttings	1949	703195
X	274m N	Unspecified Tank	1938	674562
Y	275m N	Unspecified Mill	1928	781299
Y	275m N	Cotton Mill	1908	644408
Y	278m N	Unspecified Mill	1938	743547



ID	Location	Land Use	Date	Group ID
W	280m NW	Cuttings	1938	703195
K	283m W	Unspecified Tanks	1976	754973
K	283m W	Unspecified Tanks	1949	754973
K	283m W	Unspecified Tanks	1968	754973
K	283m W	Unspecified Tanks	1938	712339
Y	285m N	Unspecified Mill	1890	715501
X	286m NE	Unspecified Tank	1928	674561
Y	288m N	Unspecified Mill	1949	759036
Y	290m N	Unspecified Mill	1989	731047
Y	290m N	Unspecified Mill	1976	731047
Y	290m N	Unspecified Mill	1968	731047
X	297m NE	Unspecified Tank	1949	674560
D	311m NE	Unspecified Tank	1928	760024
D	313m NE	Unspecified Tank	1938	760024
S	316m N	Unspecified Works	1989	769545
Z	320m NW	Unspecified Heap	1989	711769
Z	320m NW	Unspecified Heap	1976	711769
Z	320m NW	Unspecified Heap	1968	711769
AB	321m NE	Coal Pit	1851	654271
AB	326m NE	Old Coal Shafts	1908	684755
AB	326m NE	Unspecified Old Shafts	1928	767632
AC	328m SW	Railway Sidings	1938	754627
AC	329m SW	Railway Sidings	1949	754627
AB	332m NE	Unspecified Old Shafts	1938	767632
AB	336m NE	Old Coal Shafts	1911	748444
AB	337m NE	Old Coal Shafts	1911	748444
AB	338m NE	Unspecified Shaft	1890	665133
AB	339m NE	Unspecified Disused Shaft	1976	732659



ID	Location	Land Use	Date	Group ID
AB	339m NE	Unspecified Disused Shaft	1968	732659
AD	344m E	Unspecified Heap	1938	650653
AB	345m NE	Unspecified Old Shafts	1949	640176
AD	345m NE	Unspecified Tank	1928	759130
AD	345m NE	Unspecified Tank	1908	724296
AB	348m NE	Unspecified Shaft	1892	665138
AD	353m E	Unspecified Tank	1938	674559
AD	354m NE	Unspecified Tank	1989	771849
AD	356m NE	Unspecified Tank	1911	752103
AD	356m NE	Unspecified Tank	1911	752103
AE	360m NW	Unspecified Mill	1938	759823
AD	362m NE	Unspecified Tank	1949	780319
AE	362m NW	Unspecified Mill	1928	787341
AE	365m NW	Unspecified Mill	1949	759823
8	372m NW	Unspecified Heap	1928	650664
AF	379m NE	Railway Sidings	1908	754581
AG	392m NE	Unspecified Tank	1928	674563
AG	392m NE	Clay Level	1908	672435
E	392m N	Unspecified Tanks	1928	777583
AG	392m NE	Old Air Shaft	1928	745722
E	393m N	Unspecified Tanks	1938	777583
AG	394m NE	Old Air Shaft	1938	745722
AG	398m NE	Unspecified Tank	1938	674564
9	400m SW	Smithy	1851	692925
AG	402m NE	Unspecified Disused Shaft	1989	664280
AG	404m NE	Old Air Shaft	1949	652018
AH	404m W	Unspecified Mill	1938	788736
AH	405m W	Unspecified Mills	1949	653251



ID	Location	Land Use	Date	Group ID
AI	405m S	Unspecified Pit	1954	781231
AG	408m NE	Unspecified Tank	1949	674565
E	409m N	Unspecified Tanks	1949	666383
AH	409m W	Unspecified Mill	1928	775139
AH	409m W	Woollen Mill	1908	765668
AF	409m NE	Railway Sidings	1911	753415
AF	411m NE	Railway Sidings	1911	748549
AI	412m S	Unspecified Pit	1928	747247
AI	412m S	Unspecified Pit	1938	747247
AJ	427m SW	Unspecified Works	1949	728527
AL	436m N	Unspecified Heap	1928	778914
AE	440m NW	Unspecified Ground Workings	1928	749418
AE	445m NW	Unspecified Heap	1938	650665
AM	445m NE	Colliery	1851	645211
AN	446m SW	Sanitary Works	1890	665538
AL	446m N	Unspecified Heap	1949	721292
AE	452m NW	Unspecified Ground Workings	1989	704369
AE	452m NW	Unspecified Ground Workings	1976	704369
AE	452m NW	Unspecified Ground Workings	1968	704369
AH	455m W	Unspecified Mill	1890	752243
AC	455m SW	Railway Building	1890	670162
AP	457m NW	Woollen Mill	1851	671016
AH	457m W	Woollen Mill	1851	786328
AQ	458m E	Refuse Heap	1908	781117
AR	458m NE	Clay Level	1908	672436
11	458m SE	Nursery	1851	679931
AJ	459m SW	Unspecified Works	1928	774314
AP	459m N	Bakery	1949	762310



ID	Location	Land Use	Date	Group ID
AS	461m N	Police Station	1989	782183
AS	461m N	Police Station	1976	782183
AQ	464m E	Unspecified Heap	1928	713766
AT	464m N	Unspecified Works	1989	765720
AJ	464m SW	Unspecified Works	1938	774314
AQ	466m E	Unspecified Heap	1938	724293
AQ	468m E	Old Coal Shafts	1908	684754
AQ	468m E	Unspecified Old Shafts	1928	640174
AP	470m NW	Bakery	1938	722086
AQ	470m E	Refuse Heap	1911	764009
AQ	471m E	Refuse Heap	1911	753095
AQ	471m E	Refuse Heap	1911	753095
AR	472m NE	Clay Level	1911	716526
AT	472m N	Cotton Mill	1908	644409
AR	473m NE	Clay Level	1911	716526
AP	473m N	Bakery	1968	762119
AP	473m N	Unspecified Commercial/Industrial	1989	773143
AP	473m N	Unspecified Commercial/Industrial	1976	773143
AP	474m NW	Unspecified Works	1968	787081
AP	474m NW	Unspecified Mill	1890	766081
AQ	474m E	Unspecified Old Shafts	1938	640175
AP	475m NW	Unspecified Mills	1908	653252
AN	476m SW	Unspecified Commercial/Industrial	1908	643189
AM	477m NE	Coke Ovens	1851	682877
AE	478m NW	Refuse Heap	1938	754014
AT	478m N	Unspecified Mill	1890	726212
AQ	478m E	Unspecified Heap	1949	724293
AE	478m NW	Refuse Heap	1928	704457



ID	Location	Land Use	Date	Group ID
AR	482m NE	Coal Pit	1851	654273
AQ	482m E	Old Coal Shafts	1911	684753
AQ	482m E	Unspecified Disused Shaft	1976	730868
AQ	482m E	Unspecified Disused Shaft	1968	730868
AP	483m NW	Unspecified Works	1989	769343
AP	483m NW	Unspecified Works	1976	769343
AP	483m NW	Unspecified Works	1968	769343
AT	483m NE	Woollen Mill	1851	671030
AP	484m N	Bakery	1928	722086
AE	484m NW	Refuse Heap	1949	754014
AT	484m N	Unspecified Commercial/Industrial	1949	763690
AQ	486m E	Unspecified Old Shafts	1949	640173
AH	487m W	Gasometer	1851	655100
AP	487m NW	Unspecified Mill	1890	743497
AH	488m W	Unspecified Tanks	1949	783556
AT	488m N	Unspecified Works	1968	744437
AH	489m W	Unspecified Tanks	1938	783556
12	489m N	Machine Works	1908	682801
AH	494m W	Unspecified Tanks	1928	788875
AC	497m SW	Railway Building	1938	670161
AP	497m NW	Unspecified Mill	1938	770054
13	498m SE	Pump House	1976	693614

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m

95

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



Features are displayed on the Past land use - un-grouped map on **page 24**

ID	Location	Land Use	Date	Group ID
C	6m NE	Tanks	1987	87614
G	12m NW	Tanks	1987	87610
C	16m NE	Tanks	1987	87613
C	20m NW	Unspecified Tank	1987	84044
C	31m NW	Tanks	1987	87609
C	33m NW	Unspecified Tank	1987	84045
I	39m NW	Unspecified Tank	1938	84038
C	40m NE	Tanks	1987	87612
I	44m NW	Tanks	1938	87598
C	50m NE	Tanks	1987	87611
C	51m N	Tanks	1987	87607
C	54m SE	Unspecified Tank	1987	84042
C	54m NW	Tanks	1987	87608
C	67m NW	Tanks	1960	103604
C	67m NW	Tanks	1959	103604
C	68m NW	Tanks	1987	90454
C	70m N	Tanks	1987	87606
C	70m SE	Unspecified Tank	1987	84039
C	71m SE	Tanks	1987	94683
C	73m SE	Tanks	1959	88651
C	73m SE	Tanks	1960	103058
C	92m NW	Unspecified Tank	1987	84036
C	93m SE	Unspecified Tank	1960	89940
C	93m SE	Unspecified Tank	1959	94123
C	101m NW	Tanks	1960	103427
C	101m NW	Tanks	1959	103427
C	102m SE	Unspecified Tank	1987	84043



ID	Location	Land Use	Date	Group ID
C	104m NW	Unspecified Tank	1987	84037
L	105m NE	Unspecified Tank	1930	94701
L	105m NE	Unspecified Tank	1938	94701
L	114m NE	Unspecified Tank	1960	92278
L	115m NE	Unspecified Tank	1959	92278
L	115m NE	Unspecified Tank	1992	92278
C	116m NW	Tanks	1987	91626
C	118m NW	Tanks	1960	95907
C	118m NW	Tanks	1959	95907
C	126m NW	Tanks	1930	97452
C	126m NW	Tanks	1938	97452
C	126m NW	Tanks	1960	102329
P	132m NW	Unspecified Tank	1959	96920
P	133m NW	Unspecified Tank	1987	96920
C	135m E	Unspecified Tank	1959	95773
C	135m E	Unspecified Tank	1960	95773
C	139m NW	Tanks	1910	103580
C	139m NW	Tanks	1930	103580
C	139m NW	Tanks	1938	103580
C	140m NW	Tanks	1960	97583
C	140m NW	Tanks	1959	97583
C	141m NW	Tanks	1987	97583
C	142m NW	Unspecified Tank	1891	84035
O	146m NW	Tanks	1938	104138
O	147m NW	Tanks	1930	96789
O	154m NW	Tanks	1910	96005
K	160m W	Filter Tanks	1910	93347
K	160m W	Filter Tanks	1930	93347



ID	Location	Land Use	Date	Group ID
K	160m W	Settlement Tanks	1938	85895
K	229m NW	Tanks	1959	102962
K	229m NW	Tanks	1960	102962
K	282m W	Tanks	1960	93081
K	285m W	Unspecified Tank	1938	84040
X	289m NE	Unspecified Tank	1930	94322
X	289m NE	Unspecified Tank	1938	94322
K	305m W	Tanks	1938	93081
U	310m SW	Unspecified Tank	1988	84041
D	313m NE	Unspecified Tank	1930	97900
D	313m NE	Unspecified Tank	1937	97900
Y	316m N	Unspecified Tank	1891	84063
S	335m N	Tanks	1979	87599
AD	349m NE	Unspecified Tank	1910	100543
AD	349m NE	Unspecified Tank	1930	100543
AD	349m NE	Unspecified Tank	1938	100543
AD	357m NE	Unspecified Tank	1959	92676
AD	357m NE	Unspecified Tank	1960	92676
Y	366m NW	Unspecified Tank	1910	84065
E	394m N	Tanks	1930	87605
AG	400m NE	Unspecified Tank	1910	92494
AG	400m NE	Unspecified Tank	1930	92494
AG	400m NE	Unspecified Tank	1937	92494
E	404m N	Unspecified Tank	1937	84064
AG	409m NE	Unspecified Tank	1960	91703
AG	409m NE	Unspecified Tank	1959	91703
10	415m SE	Unspecified Tank	1938	84029
AK	430m N	Tanks	1985	92387



ID	Location	Land Use	Date	Group ID
AK	430m N	Tanks	1959	97739
AK	430m N	Tanks	1960	97739
AH	446m W	Tanks	1891	87615
AH	489m W	Tanks	1910	98731
AH	489m W	Tanks	1930	98731
AH	489m W	Tanks	1938	98731
AH	493m W	Tanks	1910	93503
AH	493m W	Tanks	1930	93503
AH	493m W	Tanks	1938	93503
AH	498m W	Tanks	1910	92636
AH	498m W	Tanks	1930	92636
AH	498m W	Tanks	1938	92636

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m

21

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

Features are displayed on the Past land use - un-grouped map on **page 24**

ID	Location	Land Use	Date	Group ID
1	27m NE	Electricity Substation	1992	45410
3	52m SW	Electricity Substation	1975	45414
6	168m S	Electricity Substation	1975	45412
V	272m SW	Electricity Substation	1976	48919
V	273m SW	Electricity Substation	1988	48919
S	320m N	Electricity Substation	1910	47018
S	345m N	Electricity Substation	1999	51830
S	346m N	Electricity Substation	1988	51830



ID	Location	Land Use	Date	Group ID
S	349m N	Electricity Substation	1979	58626
S	349m N	Electricity Substation	1985	55646
E	419m N	Electricity Substation	1988	45411
AO	451m SW	Electricity Substation	1976	58519
AO	451m SW	Electricity Substation	1988	58519
AP	482m N	Electricity Substation	1979	49926
AP	482m N	Electricity Substation	1985	49926
AP	487m NW	Electricity Substation	1988	53534
AP	487m NW	Electricity Substation	1996	58770
AP	487m NW	Electricity Substation	1996	57725
AP	487m NW	Electricity Substation	1999	58770
AP	488m NW	Electricity Substation	1988	51355
AP	489m NW	Electricity Substation	1971	48439

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m

0

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

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m

5

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

Features are displayed on the Past land use - un-grouped map on **page 24**



ID	Location	Land Use	Date	Group ID
AA	321m SW	Garage	1959	15953
AA	321m SW	Garage	1960	19466
AA	321m SW	Garage	1965	19466
AA	321m SW	Garage	1975	19466
AA	334m SW	Garage	1988	15769

This data is sourced from Ordnance Survey / Groundsure.



3 Waste and landfill



- Site Outline
- Search buffers in metres (m)
- Historical landfill (EA/NRW)
- Historical landfill (BGS)
- Waste exemptions

3.1 Active or recent landfill

Records within 500m

0

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

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

3.2 Historical landfill (BGS records)

Records within 500m

3

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

Features are displayed on the Waste and landfill map on **page 41**

ID	Location	Address	BGS Number	Risk	Waste Type
4	191m W	Para Wales, Smithy Bridge, Littleborough, Lancs	500	No risk to aquifer	N/A
B	238m N	Clough Field Works, Canal Side, L'borough, Lancs	504	No risk to aquifer	N/A
6	410m NE	Hollingworth Lake, Rakewood Road, Littleborough	498	No risk to aquifer	N/A

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

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

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

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

3.4 Historical landfill (EA/NRW records)

Records within 500m	4
----------------------------	----------

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

Features are displayed on the Waste and landfill map on **page 41**

ID	Location	Details		
B	5m SE	Site Address: Clough Field Works, Canal Side, Littleborough, Lancashire Licence Holder Address: -	Waste Licence: - Site Reference: - Waste Type: - Environmental Permitting Regulations (Waste) Reference: - Licence Issue: - Licence Surrender: -	Operator: Armourthess Chemicals Limited Licence Holder: - First Recorded 31/12/1835 Last Recorded: -
1	92m SW	Site Address: Paragon Industrial Works, Off Brown Lodge Drive, Smithy Bridge, Littleborough, Greater Manchester Licence Holder Address: -	Waste Licence: Yes Site Reference: RD/LIC/321/83, D052 Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 03/04/1984 Licence Surrender: 04/11/1985	Operator: Salpha Kay Limited Licence Holder: MPB Auto Painters First Recorded 01/05/1984 Last Recorded: 31/12/1984

ID	Location	Details		
3	172m SE	Site Address: Rakewood Road, Littleborough, Greater Manchester, Greater Manchester Licence Holder Address: -	Waste Licence: - Site Reference: D058 Waste Type: Commercial, Household Environmental Permitting Regulations (Waste) Reference: - Licence Issue: - Licence Surrender: -	Operator: Littleborough Urban District Council Licence Holder: - First Recorded 31/12/1932 Last Recorded: -
5	358m W	Site Address: New Street/Land At Stubley Mill Road, Off Littleborough, Rochdale, Greater Manchester Licence Holder Address: Rochdale MBC, Municipal Offices, Smith Street, Rochdale	Waste Licence: Yes Site Reference: D033, RD/LIC/490/87 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 09/03/1988 Licence Surrender: -	Operator: - Licence Holder: Rochdale Borough Planning and Estates Officer First Recorded 31/03/1988 Last Recorded: 31/12/1990

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

3.5 Historical waste sites

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

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

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

3.6 Licensed waste sites

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

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

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

3.7 Waste exemptions

Records within 500m	89
----------------------------	-----------

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

Features are displayed on the Waste and landfill map on **page 41**

ID	Location	Site	Reference	Category	Sub-Category	Description
A	On site	LOWER CLEGGSWOOD FARM, HEALD LANE, LITTLEBOROUGH, OL15 OAE	WEX005867	Using waste exemption	On a farm	Spreading waste on agricultural land to confer benefit
A	On site	LOWER CLEGGSWOOD FARM, HEALD LANE, LITTLEBOROUGH, OL15 OAE	WEX005867	Using waste exemption	On a farm	Use of waste for a specified purpose
2	121m W	-	WEX257171	Storing waste exemption	On a farm	Storage of sludge
C	307m N	BANK TOP, HOLLINGWORTH ROAD, LITTLEBOROUGH, OL15 OAU	WEX169759	Using waste exemption	On a farm	Burning of waste as a fuel in a small appliance
C	307m N	BANK TOP, HOLLINGWORTH ROAD, LITTLEBOROUGH, OL15 OAU	WEX169759	Using waste exemption	On a farm	Use of waste in construction
C	307m N	BANK TOP, HOLLINGWORTH ROAD, LITTLEBOROUGH, OL15 OAU	WEX169759	Disposing of waste exemption	On a farm	Burning waste in the open
C	307m N	BANK TOP, HOLLINGWORTH ROAD, LITTLEBOROUGH, OL15 OAU	WEX169759	Treating waste exemption	On a farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
C	307m N	BANK TOP, HOLLINGWORTH ROAD, LITTLEBOROUGH, OL15 OAU	WEX169759	Using waste exemption	On a farm	Spreading waste on agricultural land to confer benefit
C	307m N	BANK TOP, HOLLINGWORTH ROAD, LITTLEBOROUGH, OL15 OAU	WEX169759	Using waste exemption	On a farm	Use of mulch
C	315m N	Bank Top Hollingworth Road LITTLEBOROUGH Lancashire OL15 OAU	EPR/RH0077LF /A001	Disposing of waste exemption	Both agricultural and non-agricultural waste	Burning waste in the open



ID	Location	Site	Reference	Category	Sub-Category	Description
C	315m N	Bank Top Hollingworth Road LITTLEBOROUGH Lancashire OL15 0AU	EPR/RH0077LF /A001	Treating waste exemption	Both agricultural and non-agricultural waste	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
C	315m N	Bank Top Hollingworth Road LITTLEBOROUGH Lancashire OL15 0AU	EPR/RH0077LF /A001	Using waste exemption	Both agricultural and non-agricultural waste	Use of waste in construction
C	315m N	Bank Top Hollingworth Road LITTLEBOROUGH Lancashire OL15 0AU	EPR/RH0077LF /A001	Using waste exemption	Both agricultural and non-agricultural waste	Spreading waste on agricultural land to confer benefit
C	315m N	Bank Top Hollingworth Road LITTLEBOROUGH Lancashire OL15 0AU	EPR/RH0077LF /A001	Using waste exemption	Both agricultural and non-agricultural waste	Use of mulch
C	315m N	Bank Top Hollingworth Road LITTLEBOROUGH Lancashire OL15 0AU	EPR/RH0077LF /A001	Using waste exemption	Both agricultural and non-agricultural waste	Burning of waste as a fuel in a small appliance
D	316m N	BUTTERWORTH STREET, LITTLEBOROUGH, OL15 8JS	WEX228871	Using waste exemption	Not on a farm	Use of waste to manufacture finished goods
D	316m N	BUTTERWORTH STREET, LITTLEBOROUGH, OL15 8JS	WEX228871	Treating waste exemption	Not on a farm	Manual treatment of waste
D	316m N	BUTTERWORTH STREET, LITTLEBOROUGH, OL15 8JS	WEX230809	Treating waste exemption	Not on a farm	Preparatory treatments (baling, sorting, shredding etc)
D	316m N	BUTTERWORTH STREET, LITTLEBOROUGH, OL15 8JS	WEX085853	Treating waste exemption	Not on a farm	Preparatory treatments (baling, sorting, shredding etc)
E	348m SW	69, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 0DY	WEX255878	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
E	348m SW	69, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 0DY	WEX233662	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal



ID	Location	Site	Reference	Category	Sub-Category	Description
E	348m SW	69, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 ODY	WEX115075	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
E	348m SW	69, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 ODY	WEX115078	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
E	348m SW	69, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 ODY	WEX103993	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
E	348m SW	69, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 ODY	WEX089736	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
E	354m SW	67-69 Smithy Bridge Road LITTLEBOROUGH Lancashire OL15 ODY	EPR/MF0932 WW/A001	Treating waste exemption	Non- Agricultural Waste Only	Sorting and de-naturing of controlled drugs for disposal
F	369m N	Unit 5 Butterworth Street LITTLEBOROUGH Lancashire OL15 8JS	EPR/ME5088J X/A001	Treating waste exemption	Non- Agricultural Waste Only	Preparatory treatments (baling, sorting, shredding etc)
F	395m N	Unit 5 Butterworth Street Littleborough Lancashire OL15 8JS	EPR/YE5155NE /A001	Treating waste exemption	Non- Agricultural Waste Only	Preparatory treatments (baling, sorting, shredding etc)
G	414m W	-	WEX218413	Storing waste exemption	On a farm	Storage of sludge
G	414m W	-	WEX249091	Storing waste exemption	On a farm	Storage of sludge
G	430m W	Calliards Farm Smithy Bridge Road LITTLEBOROUGH Lancashire OL15 8QF	EPR/SE5888GB /A001	Disposing of waste exemption	Agricultural Waste Only	Burning waste in the open
G	430m W	Calliards Farm Smithy Bridge Road LITTLEBOROUGH Lancashire OL15 8QF	EPR/SE5888GB /A001	Using waste exemption	Agricultural Waste Only	Spreading waste on agricultural land to confer benefit
G	430m W	Calliards Farm Smithy Bridge Road LITTLEBOROUGH Lancashire OL15 8QF	EPR/SE5888GB /A001	Treating waste exemption	Both agricultural and non- agricultural waste	Aerobic composting and associated prior treatment



ID	Location	Site	Reference	Category	Sub-Category	Description
G	430m W	Calliards Farm Smithy Bridge Road LITTLEBOROUGH Lancashire OL15 8QF	EPR/SE5888GB /A001	Treating waste exemption	Both agricultural and non-agricultural waste	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
G	430m W	Calliards Farm Smithy Bridge Road LITTLEBOROUGH Lancashire OL15 8QF	EPR/SE5888GB /A001	Using waste exemption	Both agricultural and non-agricultural waste	Use of waste in construction
G	430m W	Calliards Farm Smithy Bridge Road LITTLEBOROUGH Lancashire OL15 8QF	EPR/SE5888GB /A001	Using waste exemption	Both agricultural and non-agricultural waste	Use of mulch
G	430m W	Calliards Farm Smithy Bridge Road LITTLEBOROUGH Lancashire OL15 8QF	EPR/SE5888GB /A001	Using waste exemption	Both agricultural and non-agricultural waste	Burning of waste as a fuel in a small appliance
G	430m W	Calliards Farm Smithy Bridge Road LITTLEBOROUGH Lancashire OL15 8QF	EPR/SE5888GB /A001	Using waste exemption	Both agricultural and non-agricultural waste	Use of waste for a specified purpose
G	430m W	Calliards Farm Smithy Bridge Road LITTLEBOROUGH Lancashire OL15 8QF	EPR/SE5888GB /A001	Disposing of waste exemption	Non-Agricultural Waste Only	Deposit of waste from dredging of inland waters
G	430m W	Calliards Farm Smithy Bridge Road LITTLEBOROUGH Lancashire OL15 8QF	EPR/SE5888GB /A001	Disposing of waste exemption	Non-Agricultural Waste Only	Deposit of waste from a portable sanitary convenience
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX196245	Using waste exemption	On a Farm	Use of waste in construction
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX196245	Using waste exemption	On a Farm	Burning of waste as a fuel in a small appliance



ID	Location	Site	Reference	Category	Sub-Category	Description
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX196245	Using waste exemption	On a Farm	Use of waste derived biodiesel as fuel
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX196245	Using waste exemption	On a Farm	Use of waste for a specified purpose
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX196245	Using waste exemption	On a Farm	Spreading waste on agricultural land to confer benefit
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX196245	Using waste exemption	On a Farm	Use of mulch
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX196245	Using waste exemption	On a Farm	Spreading of plant matter to confer benefit
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX196245	Using waste exemption	On a Farm	Use of depolluted end-of-life vehicles for vehicle parts
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX196245	Treating waste exemption	On a Farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX196245	Treating waste exemption	On a Farm	Recovery of scrap metal
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX196245	Treating waste exemption	On a Farm	Aerobic composting and associated prior treatment
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX196245	Treating waste exemption	On a Farm	Anaerobic digestion at premises not used for agriculture and burning of resultant biogas



ID	Location	Site	Reference	Category	Sub-Category	Description
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX196245	Disposing of waste exemption	On a Farm	Deposit of waste from dredging of inland waters
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX196245	Disposing of waste exemption	On a Farm	Deposit of waste from a portable sanitary convenience
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX196245	Disposing of waste exemption	On a Farm	Burning waste in the open
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX196229	Using waste exemption	On a Farm	Use of waste in construction
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX196229	Using waste exemption	On a Farm	Burning of waste as a fuel in a small appliance
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX196229	Using waste exemption	On a Farm	Use of waste derived biodiesel as fuel
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX196229	Using waste exemption	On a Farm	Use of waste for a specified purpose
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX196229	Using waste exemption	On a Farm	Spreading waste on agricultural land to confer benefit
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX196229	Using waste exemption	On a Farm	Use of mulch
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX196229	Using waste exemption	On a Farm	Spreading of plant matter to confer benefit



ID	Location	Site	Reference	Category	Sub-Category	Description
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX196229	Using waste exemption	On a Farm	Use of depolluted end-of-life vehicles for vehicle parts
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX196229	Treating waste exemption	On a Farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX196229	Treating waste exemption	On a Farm	Recovery of scrap metal
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX196229	Treating waste exemption	On a Farm	Aerobic composting and associated prior treatment
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX196229	Disposing of waste exemption	On a Farm	Deposit of waste from dredging of inland waters
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX196229	Disposing of waste exemption	On a Farm	Deposit of waste from a portable sanitary convenience
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX196229	Disposing of waste exemption	On a Farm	Burning waste in the open
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX044262	Disposing of waste exemption	On a farm	Deposit of waste from dredging of inland waters
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX044262	Disposing of waste exemption	On a farm	Deposit of waste from a portable sanitary convenience
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX044262	Disposing of waste exemption	On a farm	Burning waste in the open



ID	Location	Site	Reference	Category	Sub-Category	Description
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX044262	Treating waste exemption	On a farm	Aerobic composting and associated prior treatment
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX044262	Treating waste exemption	On a farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX044262	Treating waste exemption	On a farm	Recovery of scrap metal
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX044262	Using waste exemption	On a farm	Use of waste in construction
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX044262	Using waste exemption	On a farm	Spreading waste on agricultural land to confer benefit
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX044262	Using waste exemption	On a farm	Use of mulch
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX044262	Using waste exemption	On a farm	Spreading of plant matter to confer benefit
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX044262	Using waste exemption	On a farm	Use of depolluted end-of-life vehicles for vehicle parts
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX044262	Using waste exemption	On a farm	Burning of waste as a fuel in a small appliance
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX044262	Using waste exemption	On a farm	Use of waste derived biodiesel as fuel

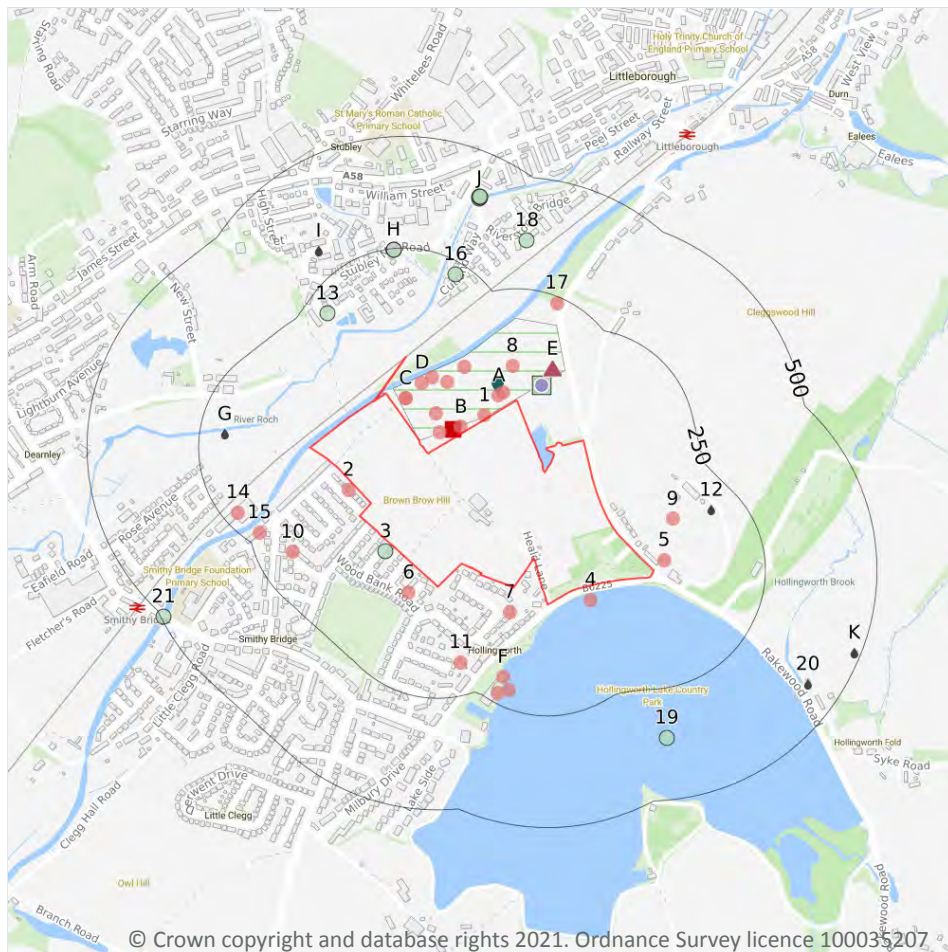


ID	Location	Site	Reference	Category	Sub-Category	Description
G	432m W	CALLIARDS FARM, SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 8QF	WEX044262	Using waste exemption	On a farm	Use of waste for a specified purpose
H	454m NE	Bank Top Farm, Hollingworth Road, Littleborough, OL15 0AU	WEX011255	Disposing of waste exemption	On a farm	Burning waste in the open
H	454m NE	Bank Top Farm, Hollingworth Road, Littleborough, OL15 0AU	WEX011255	Treating waste exemption	On a farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
H	454m NE	Bank Top Farm, Hollingworth Road, Littleborough, OL15 0AU	WEX011255	Using waste exemption	On a farm	Use of waste in construction
H	454m NE	Bank Top Farm, Hollingworth Road, Littleborough, OL15 0AU	WEX011255	Using waste exemption	On a farm	Spreading waste on agricultural land to confer benefit
H	454m NE	Bank Top Farm, Hollingworth Road, Littleborough, OL15 0AU	WEX011255	Using waste exemption	On a farm	Use of mulch
H	454m NE	Bank Top Farm, Hollingworth Road, Littleborough, OL15 0AU	WEX011255	Using waste exemption	On a farm	Burning of waste as a fuel in a small appliance

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



4 Current industrial land use



- Site Outline
- Search buffers in metres (m)
- Recent industrial land uses
- Control of Major Accident Hazards
- ▲ Hazardous substance storage/usage
- Historical licensed industrial activities
- ◆ Licensed pollutant release (Part A(2)/B)
- ◆ Licensed Discharges to controlled waters
- List 1 Dangerous Substances
- List 2 Dangerous Substances
- Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m

27

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 53**

ID	Location	Company	Address	Activity	Category
1	8m NW	Tanks	Greater Manchester, OL15	Tanks (Generic)	Industrial Features
B	13m NW	Tank	Greater Manchester, OL15	Tanks (Generic)	Industrial Features
2	17m SW	Priority Alarms	9, Lincoln Drive, Littleborough, Greater Manchester, OL15 ONE	Electronic Equipment	Industrial Products
B	28m NW	Tank	Greater Manchester, OL15	Tanks (Generic)	Industrial Features



ID	Location	Company	Address	Activity	Category
C	29m NE	Tank	Greater Manchester, OL15	Tanks (Generic)	Industrial Features
C	29m NE	Tanks	Greater Manchester, OL15	Tanks (Generic)	Industrial Features
A	29m NW	Tank	Greater Manchester, OL15	Tanks (Generic)	Industrial Features
A	30m NW	Tank	Greater Manchester, OL15	Tanks (Generic)	Industrial Features
4	32m S	Pump House	Greater Manchester, OL15	Water Pumping Stations	Industrial Features
5	33m NE	Electricity Sub Station	Greater Manchester, OL15	Electrical Features	Infrastructure and Facilities
6	54m SW	Electricity Sub Station	Greater Manchester, OL15	Electrical Features	Infrastructure and Facilities
7	56m S	A Q D Developments Ltd	18, Heald Close, Littleborough, Greater Manchester, OL15 0DL	Cooling and Refrigeration	Industrial Products
D	63m SE	Tank	Greater Manchester, OL15	Tanks (Generic)	Industrial Features
B	66m NE	Tanks	Greater Manchester, OL15	Tanks (Generic)	Industrial Features
D	74m SE	Tank	Greater Manchester, OL15	Tanks (Generic)	Industrial Features
8	78m N	Tanks	Greater Manchester, OL15	Tanks (Generic)	Industrial Features
D	110m SE	Tank	Greater Manchester, OL15	Tanks (Generic)	Industrial Features
9	112m NE	Tank	Greater Manchester, OL15	Tanks (Generic)	Industrial Features
A	125m NW	Tanks	Greater Manchester, OL15	Tanks (Generic)	Industrial Features
10	171m SW	Rustons Scaffolding Ltd	16, Lodge Bank Road, Littleborough, Greater Manchester, OL15 8QS	Construction and Tool Hire	Hire Services
11	177m S	Electricity Sub Station	Greater Manchester, OL15	Electrical Features	Infrastructure and Facilities
F	191m SW	Slipway	Greater Manchester, OL15	Moorings and Unloading Facilities	Water
F	210m SW	Slipway	Greater Manchester, OL15	Moorings and Unloading Facilities	Water
14	217m SW	Industrial Estate	Greater Manchester, OL15	Business Parks and Industrial Estates	Industrial Features
15	221m SW	Sigma Polymers	Brown Lodge Barn, Brown Lodge Street, Littleborough, Lancashire, Greater Manchester, OL15 0EP	Rubber, Silicones and Plastics	Industrial Products



ID	Location	Company	Address	Activity	Category
F	227m SW	Slipway	Greater Manchester, OL15	Moorings and Unloading Facilities	Water
17	237m N	Electricity Sub Station	Greater Manchester, OL15	Electrical Features	Infrastructure and Facilities

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m **0**

Open, closed, under development and obsolete petrol stations.

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m **0**

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m **0**

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m **0**

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

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m

1

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

Features are displayed on the Current industrial land use map on **page 53**

ID	Location	Company	Address	Operational status	Tier
A	On site	Akzo Chemie (uk) Ltd	Akzo Chemie (uk) Ltd, Hollingworth Road, Littleborough, OL15 0BA	Historical NIHHS Site	-

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m

0

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

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m

3

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

Features are displayed on the Current industrial land use map on **page 53**

ID	Location	Details	
E	106m NE	Application reference number: 01/D38893 Application status: Approved Application date: 30/05/2001 Address: Akzo Nobel Chemicals Ltd, Cloughfield Works, Hollingworth Road, Littleborough, Rochdale, Lancashire, England, OL15 0NE	Details: Application for Hazardous Substances Consent. Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified
E	106m NE	Application reference number: 99/D37052 Application status: Historical Consent Application date: 15/10/1999 Address: Akzo Nobel Chemicals Ltd, Hollingworth Road, Littleborough, Lancashire, OL15 0BA	Details: Application for consent to store hazardous substances. Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified



ID	Location	Details	
E	107m NE	Application reference number: 92/D28806 Application status: Historical Consent Application date: 17/11/2002 Address: Akzo Nobel Chemicals Ltd, Hollingworth Road, Littleborough, Lancashire, OL15 0BA	Details: Application for Hazardous Substances Consent (Deemed Consent). Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m

9

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

Features are displayed on the Current industrial land use map on **page 53**

ID	Location	Details	
E	65m NE	Operator: Akzo Nobel Chemicals Ltd Address: Hollingworth Road, Littleborough, Lancashire, OL15 0BA Process: Combustion Processes Permit Number: AG5552	Original Permit Number: IPCAIRAPP Date Approved: 17-2-1993 Effective Date: 17-2-1993 Status: Superseded By Variation
E	65m NE	Operator: Akzo Nobel Chemicals Ltd Address: Hollingworth Road, Littleborough, Lancashire, OL15 0BA Process: Combustion Processes Permit Number: AJ3948	Original Permit Number: IPCMINVAR Date Approved: 16-9-1993 Effective Date: 16-9-1993 Status: Revoked
E	65m NE	Operator: Akzo Nobel Chemicals Ltd Address: Hollingworth Road, Littleborough, Lancashire, OL15 0BA Process: Manufacture And Use Of Organic Chemicals Permit Number: AK3412	Original Permit Number: IPCAIRAPP Date Approved: 21-2-1994 Effective Date: 21-2-1994 Status: Superseded By Variation
E	65m NE	Operator: Akzo Nobel Chemicals Ltd Address: Hollingworth Road, Littleborough, Lancashire, OL15 0BA Process: Manufacture And Use Of Organic Chemicals Permit Number: AW1454	Original Permit Number: IPCMINVAR Date Approved: 3-11-1997 Effective Date: 3-11-1997 Status: Superseded By Variation
E	65m NE	Operator: Akzo Nobel Chemicals Ltd Address: Hollingworth Road, Littleborough, Lancashire, OL15 0BA Process: Manufacture And Use Of Organic Chemicals Permit Number: BD6522	Original Permit Number: IPCMINVAR Date Approved: 24-11-1998 Effective Date: 30-11-1998 Status: Superseded By Variation



ID	Location	Details	
E	65m NE	Operator: Akzo Nobel Chemicals Ltd Address: Hollingworth Road, Littleborough, Lancashire, OL15 0BA Process: Inorganic Chemical Processes Permit Number: BG8181	Original Permit Number: IPCAPP Date Approved: 11-11-1999 Effective Date: 15-11-1999 Status: Superseded By Variation
E	65m NE	Operator: Akzo Nobel Chemicals Ltd Address: Hollingworth Road, Littleborough, Lancashire, OL15 0BA Process: Inorganic Chemical Processes Permit Number: BI3148	Original Permit Number: IPCMINVAR Date Approved: 8-6-2000 Effective Date: 19-6-2000 Status: Revoked
E	65m NE	Operator: Akzo Nobel Chemicals Ltd Address: Hollingworth Road, Littleborough, Lancashire, OL15 0BA Process: Manufacture And Use Of Organic Chemicals Permit Number: BJ8448	Original Permit Number: IPCMINVAR Date Approved: 20-12-2000 Effective Date: 20-12-2000 Status: Superseded By Variation
E	65m NE	Operator: Akzo Nobel Chemicals Ltd Address: Hollingworth Road, Littleborough, Lancashire, OL15 0BA Process: Manufacture And Use Of Organic Chemicals Permit Number: BL3412	Original Permit Number: IPCMINVAR Date Approved: 5-9-2001 Effective Date: 10-9-2001 Status: Revoked

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

4.10 Licensed industrial activities (Part A(1))

Records within 500m

0

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

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

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

Records within 500m

1

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

Features are displayed on the Current industrial land use map on **page 53**

ID	Location	Address	Details	
A	50m NW	Akzo Chemicals Ltd, Hollingworth Rd	Process: Chemical & Acid Processes Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified



This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m

0

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

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

4.13 Licensed Discharges to controlled waters

Records within 500m

8

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

Features are displayed on the Current industrial land use map on **page 53**

ID	Location	Address	Details	
12	187m NE	CLEGGSWOOD FARM, HOLLINGWORTH LAKE, LITTLEBOROUGH	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 016993939 Permit Version: 1 Receiving Water: LAND VIA SOAKAWAY	Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 23/08/2007 Effective Date: 23/08/2007 Revocation Date: 15/09/2009
G	193m W	LITTLEBOROUGH SW L5, ROCHDALE	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01ROC0122 Permit Version: 1 Receiving Water: -	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 01/04/1991 Revocation Date: 31/12/1994
G	193m W	SMITH BRIDGE ROAD CSO 35051, ACROSS FROM YEA BRIDGE, SMITHY ROAD, LITTLEBOROUGH, GREATER MANCHESTER, OL15 8QF	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01ROC0122 Permit Version: 2 Receiving Water: RIVER ROCH	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: - Effective Date: 01/01/1995 Revocation Date: -
I	309m NW	ARMOUR HESS CHEMICALS, CLOUGHFIELD WORKS, BROWN BANK, LITTLEBOROUGH, GREATER MANCHESTER	Effluent Type: TRADE DISCHARGES - COOLING WATER Permit Number: 0168/816 Permit Version: 1 Receiving Water: ROCHDALE CANAL	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 07/07/1994 Revocation Date: 07/07/1994



ID	Location	Address	Details	
I	309m NW	ARMOUR HESS CHEMICALS, CLOUGHFIELD WORKS, BROWN BANK, LITTLEBOROUGH, GREATER MANCHESTER	Effluent Type: TRADE DISCHARGES - COOLING WATER Permit Number: 0168/816 Permit Version: 1 Receiving Water: ROCHDALE CANAL	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 07/07/1994 Revocation Date: 07/07/1994
20	426m SE	1 & 2 BEARHILL, RAKEWOOD RD, HOLLINGWORTH LAKE, LITTLEBOROUGH, LANCASHIRE, OL15 0AQ	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 01M/690 Permit Version: 1 Receiving Water: UNKNOWN	Status: PRE NRA LEGISLATION WHERE ISSUE DATE 01-SEP-89 (HISTORIC ONLY) Issue date: 06/09/1963 Effective Date: 06/09/1963 Revocation Date: -
K	485m E	HOLLINGWORTH LAKE VISITORS CENTRE, HOLLINGWORTH LAKE COUNTY PARK, RAKEWOOD ROAD LITTLEBOROUGH, ROCHDALE, LANCASHIRE	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 016990310 Permit Version: 1 Receiving Water: HOLLINGWORTH BROOK	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 01/07/1981 Revocation Date: 30/10/1983
K	485m E	HOLLINGWORTH LAKE VISITORS CENTRE, HOLLINGWORTH LAKE COUNTY PARK, RAKEWOOD ROAD LITTLEBOROUGH, ROCHDALE, LANCASHIRE	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 016990310 Permit Version: 2 Receiving Water: HOLLINGWORTH BROOK	Status: PRE NRA LEGISLATION WHERE ISSUE DATE 01-SEP-89 (HISTORIC ONLY) Issue date: - Effective Date: 31/10/1983 Revocation Date: -

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

4.14 Pollutant release to surface waters (Red List)

Records within 500m

0

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

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

4.15 Pollutant release to public sewer

Records within 500m

0

Discharges of Special Category Effluents to the public sewer.

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



4.16 List 1 Dangerous Substances

Records within 500m

2

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

Features are displayed on the Current industrial land use map on **page 53**

ID	Location	Name	Status	Receiving Water	Authorised Substances
B	18m NW	Akzo Nobel Chemicals	Active	River Roch, Manchester Ship Canal	Mercury (other), Cadmium
E	66m NE	Akzo Nobel Chemicals Ltd	Not Active	River Roch, Manchester Ship Canal	Mercury (other), Cadmium

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

4.17 List 2 Dangerous Substances

Records within 500m

1

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

Features are displayed on the Current industrial land use map on **page 53**

ID	Location	Name	Status	Receiving Water	Authorised Substances
E	66m NE	Akzo Nobel Chemicals Ltd, Hollingworth Road Littleborough	Not Active	River Roch	Zinc

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

4.18 Pollution Incidents (EA/NRW)

Records within 500m

12

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

Features are displayed on the Current industrial land use map on **page 53**



ID	Location	Details	
3	20m SW	Incident Date: 20/09/2001 Incident Identification: 31831 Pollutant: Organic Chemicals/Products Pollutant Description: Other Organic Chemical or Product	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
13	199m NW	Incident Date: 10/05/2002 Incident Identification: 82291 Pollutant: Inert Materials and Wastes Pollutant Description: Construction and Demolition Materials and Wastes	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
16	223m NE	Incident Date: 02/05/2001 Incident Identification: 4163 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
H	247m N	Incident Date: 11/04/2003 Incident Identification: 150418 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
H	247m N	Incident Date: 11/04/2003 Incident Identification: 150418 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
18	359m N	Incident Date: 21/06/2001 Incident Identification: 10682 Pollutant: Oils and Fuel Pollutant Description: Diesel	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
19	360m S	Incident Date: 01/04/2002 Incident Identification: 67950 Pollutant: Oils and Fuel Pollutant Description: Unidentified Oil	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
J	398m NE	Incident Date: 18/08/2002 Incident Identification: 101261 Pollutant: Sewage Materials Pollutant Description: Grey Water	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
J	400m NE	Incident Date: 04/09/2002 Incident Identification: 107304 Pollutant: Contaminated Water Pollutant Description: Minewater	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
J	401m NE	Incident Date: 03/06/2007 Incident Identification: 499854 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified	Water Impact: Category 2 (Significant) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)



ID	Location	Details	
J	401m NE	Incident Date: 14/12/2001 Incident Identification: 48154 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
21	494m SW	Incident Date: 24/07/2002 Incident Identification: 94177 Pollutant: Oils and Fuel Pollutant Description: Diesel	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

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

4.19 Pollution inventory substances

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

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

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

4.20 Pollution inventory waste transfers

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

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

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

4.21 Pollution inventory radioactive waste

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

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

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

5 Geology (basic)

5.1 Superficial geology (625k)

Records within 500m

2

Generalised geology data based on BGS's published poster maps of the UK (North and South). Superficial related themes digitised from 1977 first edition Quaternary map (North and South).

Location	Lex code	Description	Rock type
On site	ALV-CLSS	ALLUVIUM	CLAY, SILT AND SAND
On site	TILL-DMTN	TILL	DIAMICTON

This data is sourced from the British Geological Survey.

5.2 Bedrock geology (625k)

Records within 500m

1

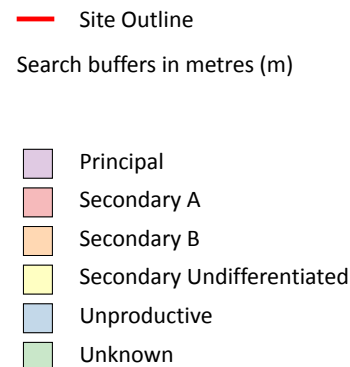
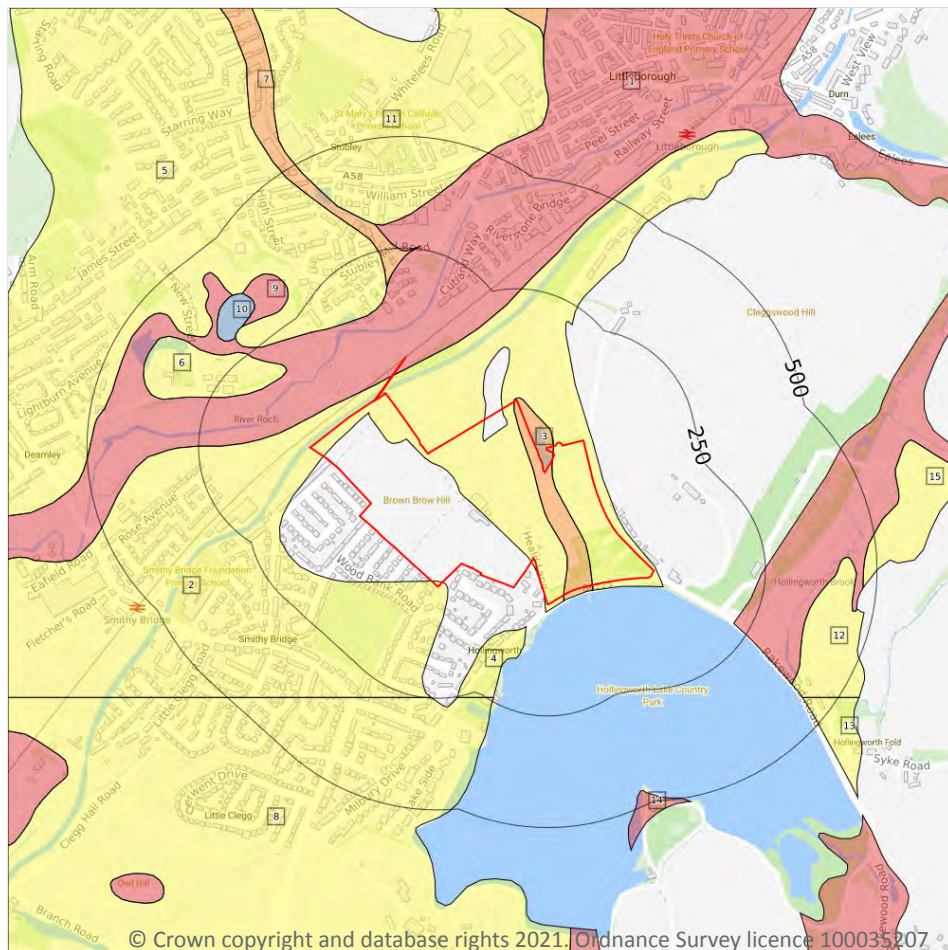
Generalised geology data based on BGS's published poster maps of the UK (North and South). Bedrock related themes created through generalisation of 1:50,000 data.

Location	Lex code	Description	Rock type
On site	PSLCM-MSCI	PENNINE LOWER COAL MEASURES FORMATION AND SOUTH WALES LOWER COAL MEASURES FORMATION (UNDIFFERENTIATED)	MUDSTONE, SILTSTONE, SANDSTONE, COAL, IRONSTONE AND FERRICRETE

This data is sourced from the British Geological Survey.



6 Hydrogeology - Superficial aquifer



6.1 Superficial aquifer

Records within 500m

15

Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on **page 65**

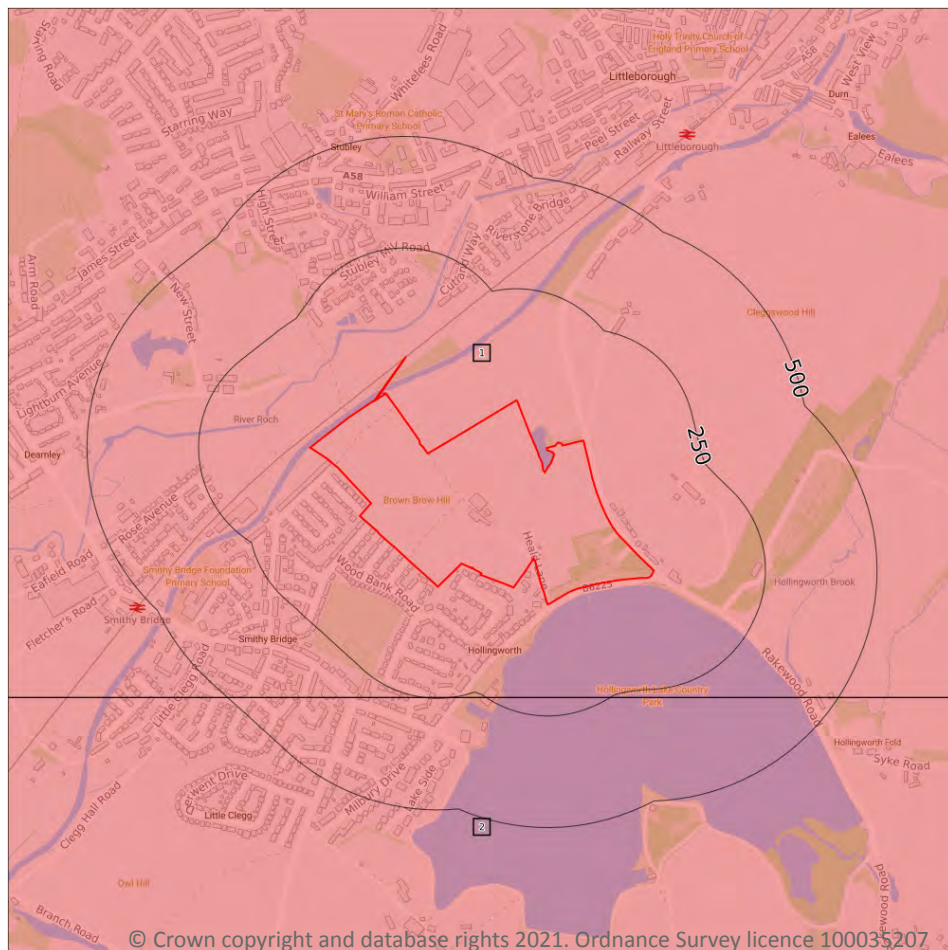
ID	Location	Designation	Description
1	On site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	On site	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

ID	Location	Designation	Description
3	On site	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers
4	69m SW	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
5	128m NW	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
6	164m NW	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
7	167m N	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers
8	241m SW	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
9	285m NW	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
10	296m NW	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
11	305m N	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
12	357m E	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
13	435m SE	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
14	467m SE	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
15	470m E	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

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



Bedrock aquifer



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

6.2 Bedrock aquifer

Records within 500m

2

Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 67**

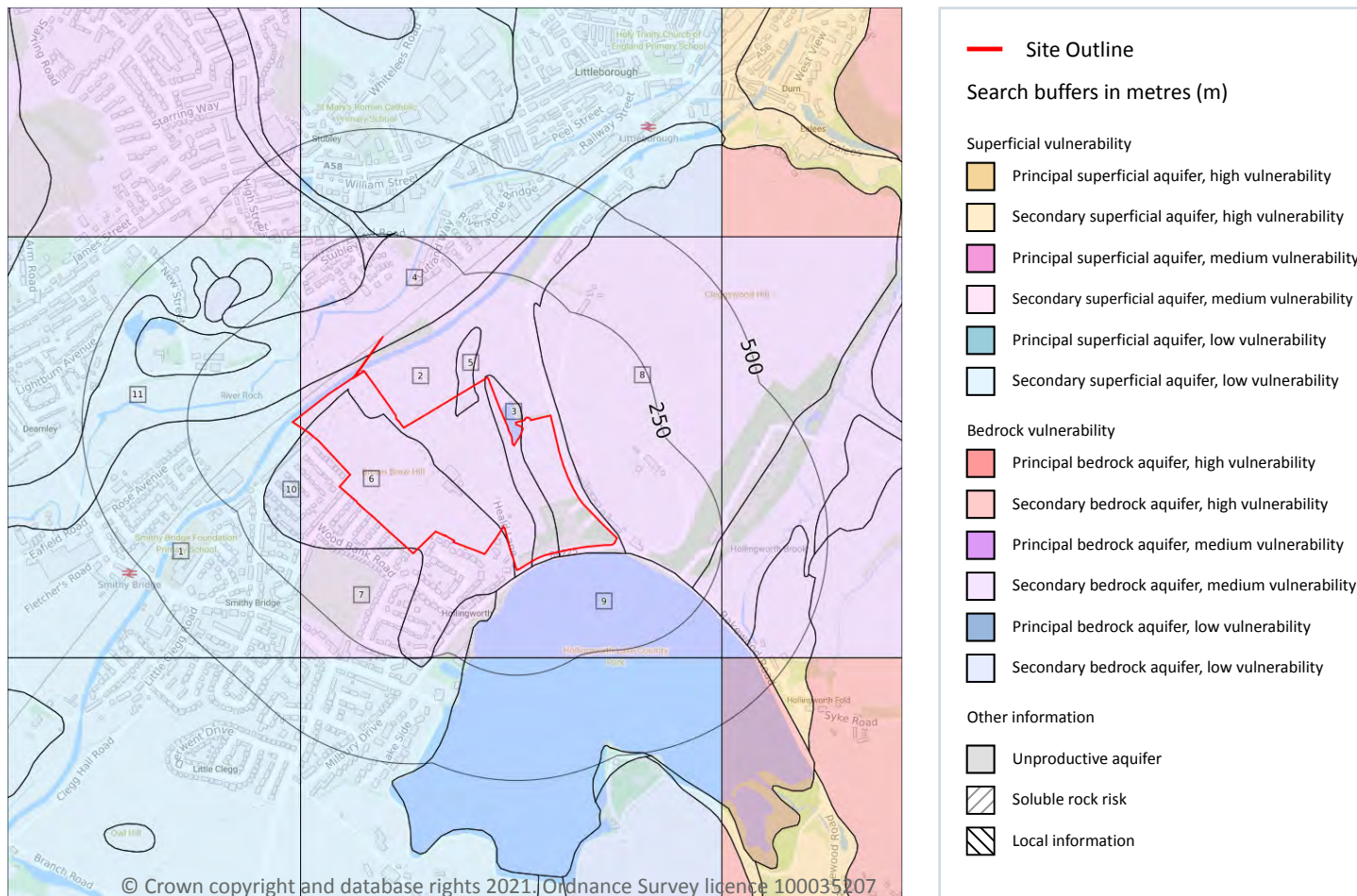
ID	Location	Designation	Description
1	On site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	209m S	Secondary 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



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



Groundwater vulnerability



6.3 Groundwater vulnerability

Records within 50m

11

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

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

Features are displayed on the Groundwater vulnerability map on **page 69**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
2	On site	Summary Classification: Secondary bedrock aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: 3-10m Patchiness value: <90% Recharge potential: High	Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures
3	On site	Summary Classification: Secondary bedrock aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: 3-10m Patchiness value: <90% Recharge potential: High	Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures
4	On site	Summary Classification: Secondary bedrock aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: 3-10m Patchiness value: <90% Recharge potential: High	Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures
5	On site	Summary Classification: Secondary bedrock aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year	Vulnerability: - Aquifer type: - Thickness: 3-10m Patchiness value: <90% Recharge potential: High	Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures
6	On site	Summary Classification: Secondary bedrock aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year	Vulnerability: - Aquifer type: - Thickness: 3-10m Patchiness value: <90% Recharge potential: High	Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures



ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
7	On site	Summary Classification: Secondary bedrock aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: 3-10m Patchiness value: <90% Recharge potential: High	Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures
8	5m NE	Summary Classification: Secondary bedrock aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year	Vulnerability: - Aquifer type: - Thickness: 3-10m Patchiness value: <90% Recharge potential: High	Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures
9	10m SE	Summary Classification: Secondary bedrock aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year	Vulnerability: - Aquifer type: Unknown (lakes+landslip) Thickness: 3-10m Patchiness value: <90% Recharge potential: High	Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures
10	17m SW	Summary Classification: Secondary bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year	Vulnerability: - Aquifer type: - Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
11	49m NW	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures

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

6.4 Groundwater vulnerability- soluble rock risk

Records on site

0

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

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



6.5 Groundwater vulnerability- local information

Records on site

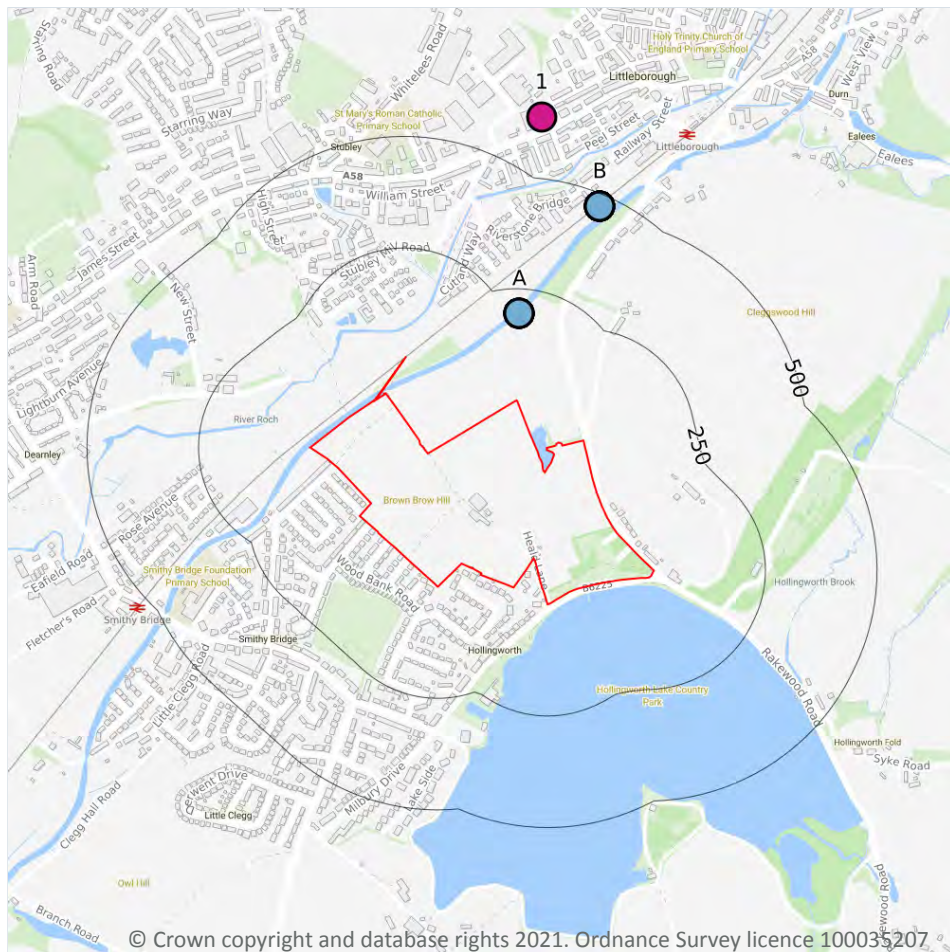
0

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

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



Abstractions and Source Protection Zones



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

6.6 Groundwater abstractions

Records within 2000m

8

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 73**

ID	Location	Details	
1	624m NE	Status: Historical Licence No: 2569002250 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT STOCKTON STREET LITTLEBOROUGH Data Type: Point Name: VITA THERMOPLASTIC COMPOUNDS LTD Easting: 393500 Northing: 416300	Annual Volume (m ³): 72730 Max Daily Volume (m ³): 331 Original Application No: - Original Start Date: 23/01/1991 Expiry Date: - Issue No: 101 Version Start Date: 24/10/2005 Version End Date: -
-	1004m E	Status: Historical Licence No: 2569002246 Details: "Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household" Direct Source: Ground Water - North West Region Point: "BOREHOLE AT WHITTAKER FARM, SHORE LANE, LITTLEBOROUGH" Data Type: Point Name: SUTCLIFFE Easting: 394720 Northing: 415550	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 04/07/1991 Expiry Date: - Issue No: 100 Version Start Date: 03/09/1991 Version End Date: -
-	1004m E	Status: Historical Licence No: 2569002246 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household Direct Source: Ground Water - North West Region Point: BOREHOLE AT WHITTAKER FARM, SHORE LANE, LITTLEBOROUGH Data Type: Point Name: SUTCLIFFE Easting: 394720 Northing: 415550	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 04/07/1991 Expiry Date: - Issue No: 100 Version Start Date: 03/09/1991 Version End Date: -
-	1004m E	Status: Historical Licence No: 2569002246 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household Direct Source: Ground Water - North West Region Point: BOREHOLE AT WHITTAKER FARM SHORE LANE LITTLEBOROUGH Data Type: Point Name: WHITTAKER MANAGEMENT COMPANY LTD Easting: 394720 Northing: 415550	Annual Volume (m ³): 2727.6 Max Daily Volume (m ³): 18.184 Original Application No: - Original Start Date: 04/07/1991 Expiry Date: - Issue No: 101 Version Start Date: 01/04/1994 Version End Date: -

ID	Location	Details	
-	1659m SW	Status: Historical Licence No: 2569002216 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: "SPRING FED TANK AT PREMISES, MILNROW" Data Type: Point Name: HEGINBOTTOMS FARM LTD Easting: 392300 Northing: 413900	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 25/11/1975 Expiry Date: - Issue No: 100 Version Start Date: 25/11/1975 Version End Date: -
-	1659m SW	Status: Historical Licence No: 2569002216 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: SPRING FED TANK AT PREMISES, MILNROW Data Type: Point Name: HEGINBOTTOMS FARM LTD Easting: 392300 Northing: 413900	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 25/11/1975 Expiry Date: - Issue No: 100 Version Start Date: 25/11/1975 Version End Date: -
-	1761m N	Status: Historical Licence No: 2569002062 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: "BRICK LINED CATCHPIT AT HIGHER GALE,GALE, LITTLEBOROUGH" Data Type: Point Name: HARRISON Easting: 394100 Northing: 417300	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 10/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 10/02/1966 Version End Date: -
-	1761m N	Status: Historical Licence No: 2569002062 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BRICK LINED CATCHPIT AT HIGHER GALE,GALE, LITTLEBOROUGH Data Type: Point Name: HARRISON Easting: 394100 Northing: 417300	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 10/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 10/02/1966 Version End Date: -

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



6.7 Surface water abstractions

Records within 2000m

44

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 73**

ID	Location	Details	
A	194m N	Status: Historical Licence No: 2569002008 Details: Boiler Feed Direct Source: "Surface, Non-Tidal - North West Region" Point: "ROCHDALE CANAL AT PREMISES, LITTLEBOROUGH" Data Type: Point Name: AKZO NOBEL CHEMICALS LTD Easting: 393450 Northing: 415860	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 21/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/11/1994 Version End Date: -
A	194m N	Status: Historical Licence No: 2569002008 Details: Process water Direct Source: "Surface, Non-Tidal - North West Region" Point: "ROCHDALE CANAL AT PREMISES, LITTLEBOROUGH" Data Type: Point Name: AKZO NOBEL CHEMICALS LTD Easting: 393450 Northing: 415860	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 21/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/11/1994 Version End Date: -
A	194m N	Status: Historical Licence No: 2569002008 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: "Surface, Non-Tidal - North West Region" Point: "ROCHDALE CANAL AT PREMISES, LITTLEBOROUGH" Data Type: Point Name: AKZO NOBEL CHEMICALS LTD Easting: 393450 Northing: 415860	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 21/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/11/1994 Version End Date: -

ID	Location	Details	
A	194m N	Status: Historical Licence No: 2569002008 Details: Boiler Feed Direct Source: Surface, Non-Tidal - North West Region Point: ROCHDALE CANAL AT PREMISES, LITTLEBOROUGH Data Type: Point Name: AKZO NOBEL CHEMICALS LTD Easting: 393450 Northing: 415860	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 21/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/11/1994 Version End Date: -
A	194m N	Status: Historical Licence No: 2569002008 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Surface, Non-Tidal - North West Region Point: ROCHDALE CANAL AT PREMISES, LITTLEBOROUGH Data Type: Point Name: AKZO NOBEL CHEMICALS LTD Easting: 393450 Northing: 415860	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 21/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/11/1994 Version End Date: -
A	194m N	Status: Historical Licence No: 2569002008 Details: Process water Direct Source: Surface, Non-Tidal - North West Region Point: ROCHDALE CANAL AT PREMISES, LITTLEBOROUGH Data Type: Point Name: AKZO NOBEL CHEMICALS LTD Easting: 393450 Northing: 415860	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 21/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/11/1994 Version End Date: -
A	194m N	Status: Historical Licence No: 2569002008 Details: Boiler Feed Direct Source: Surface, Non-Tidal - North West Region Point: ROCHDALE CANAL AT PREMISES LITTLEBOROUGH Data Type: Point Name: AKZO NOBEL CHEMICALS LTD Easting: 393450 Northing: 415860	Annual Volume (m ³): 1654780 Max Daily Volume (m ³): 4546 Original Application No: - Original Start Date: 21/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/11/1994 Version End Date: -



ID	Location	Details	
A	194m N	Status: Historical Licence No: 2569002008 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Surface, Non-Tidal - North West Region Point: ROCHDALE CANAL AT PREMISES LITTLEBOROUGH Data Type: Point Name: AKZO NOBEL CHEMICALS LTD Easting: 393450 Northing: 415860	Annual Volume (m ³): 1654780 Max Daily Volume (m ³): 4546 Original Application No: - Original Start Date: 21/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/11/1994 Version End Date: -
A	194m N	Status: Historical Licence No: 2569002008 Details: Process water Direct Source: Surface, Non-Tidal - North West Region Point: ROCHDALE CANAL AT PREMISES LITTLEBOROUGH Data Type: Point Name: AKZO NOBEL CHEMICALS LTD Easting: 393450 Northing: 415860	Annual Volume (m ³): 1654780 Max Daily Volume (m ³): 4546 Original Application No: - Original Start Date: 21/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/11/1994 Version End Date: -
B	472m NE	Status: Historical Licence No: 2569002008 Details: Boiler Feed Direct Source: Surface, Non-Tidal - North West Region Point: ROCHDALE CANAL AT PREMISES, LITTLEBOROUGH 95 Data Type: Point Name: AKZO NOBEL CHEMICALS LTD Easting: 393630 Northing: 416100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 21/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/11/1994 Version End Date: -
B	472m NE	Status: Historical Licence No: 2569002008 Details: Process water Direct Source: Surface, Non-Tidal - North West Region Point: ROCHDALE CANAL AT PREMISES, LITTLEBOROUGH 95 Data Type: Point Name: AKZO NOBEL CHEMICALS LTD Easting: 393630 Northing: 416100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 21/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/11/1994 Version End Date: -

ID	Location	Details	
B	472m NE	Status: Historical Licence No: 2569002008 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Surface, Non-Tidal - North West Region Point: ROCHDALE CANAL AT PREMISES, LITTLEBOROUGH 95 Data Type: Point Name: AKZO NOBEL CHEMICALS LTD Easting: 393630 Northing: 416100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 21/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/11/1994 Version End Date: -
B	472m NE	Status: Historical Licence No: 2569002008 Details: Boiler Feed Direct Source: "Surface, Non-Tidal - North West Region" Point: "ROCHDALE CANAL AT PREMISES, LITTLEBOROUGH \$95" Data Type: Point Name: AKZO NOBEL CHEMICALS LTD Easting: 393630 Northing: 416100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 21/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/11/1994 Version End Date: -
B	472m NE	Status: Historical Licence No: 2569002008 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: "Surface, Non-Tidal - North West Region" Point: "ROCHDALE CANAL AT PREMISES, LITTLEBOROUGH \$95" Data Type: Point Name: AKZO NOBEL CHEMICALS LTD Easting: 393630 Northing: 416100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 21/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/11/1994 Version End Date: -
B	472m NE	Status: Historical Licence No: 2569002008 Details: Process water Direct Source: "Surface, Non-Tidal - North West Region" Point: "ROCHDALE CANAL AT PREMISES, LITTLEBOROUGH \$95" Data Type: Point Name: AKZO NOBEL CHEMICALS LTD Easting: 393630 Northing: 416100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 21/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/11/1994 Version End Date: -



ID	Location	Details	
B	472m NE	Status: Historical Licence No: 2569002008 Details: Boiler Feed Direct Source: Surface, Non-Tidal - North West Region Point: ROCHDALE CANAL AT PREMISES, LITTLEBOROUGH S95 Data Type: Point Name: AKZO NOBEL CHEMICALS LTD Easting: 393630 Northing: 416100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 21/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/11/1994 Version End Date: -
B	472m NE	Status: Historical Licence No: 2569002008 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Surface, Non-Tidal - North West Region Point: ROCHDALE CANAL AT PREMISES, LITTLEBOROUGH S95 Data Type: Point Name: AKZO NOBEL CHEMICALS LTD Easting: 393630 Northing: 416100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 21/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/11/1994 Version End Date: -
B	472m NE	Status: Historical Licence No: 2569002008 Details: Process water Direct Source: Surface, Non-Tidal - North West Region Point: ROCHDALE CANAL AT PREMISES, LITTLEBOROUGH S95 Data Type: Point Name: AKZO NOBEL CHEMICALS LTD Easting: 393630 Northing: 416100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 21/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/11/1994 Version End Date: -
B	472m NE	Status: Historical Licence No: 2569002008 Details: Boiler Feed Direct Source: Surface, Non-Tidal - North West Region Point: ROCHDALE CANAL AT PREMISES, LITTLEBOROUGH Data Type: Point Name: AKZO NOBEL CHEMICALS LTD Easting: 393630 Northing: 416100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 21/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/11/1994 Version End Date: -



ID	Location	Details	
B	472m NE	Status: Historical Licence No: 2569002008 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Surface, Non-Tidal - North West Region Point: ROCHDALE CANAL AT PREMISES, LITTLEBOROUGH Data Type: Point Name: AKZO NOBEL CHEMICALS LTD Easting: 393630 Northing: 416100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 21/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/11/1994 Version End Date: -
B	472m NE	Status: Historical Licence No: 2569002008 Details: Process water Direct Source: Surface, Non-Tidal - North West Region Point: ROCHDALE CANAL AT PREMISES, LITTLEBOROUGH Data Type: Point Name: AKZO NOBEL CHEMICALS LTD Easting: 393630 Northing: 416100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 21/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/11/1994 Version End Date: -
B	472m NE	Status: Historical Licence No: 2569002008 Details: Boiler Feed Direct Source: Surface, Non-Tidal - North West Region Point: ROCHDALE CANAL AT PREMISES LITTLEBOROUGH Data Type: Point Name: AKZO NOBEL CHEMICALS LTD Easting: 393630 Northing: 416100	Annual Volume (m ³): 1654780 Max Daily Volume (m ³): 4546 Original Application No: - Original Start Date: 21/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/11/1994 Version End Date: -
B	472m NE	Status: Historical Licence No: 2569002008 Details: Process water Direct Source: Surface, Non-Tidal - North West Region Point: ROCHDALE CANAL AT PREMISES LITTLEBOROUGH Data Type: Point Name: AKZO NOBEL CHEMICALS LTD Easting: 393630 Northing: 416100	Annual Volume (m ³): 1654780 Max Daily Volume (m ³): 4546 Original Application No: - Original Start Date: 21/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/11/1994 Version End Date: -

ID	Location	Details	
B	472m NE	Status: Historical Licence No: 2569002008 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Surface, Non-Tidal - North West Region Point: ROCHDALE CANAL AT PREMISES LITTLEBOROUGH Data Type: Point Name: AKZO NOBEL CHEMICALS LTD Easting: 393630 Northing: 416100	Annual Volume (m ³): 1654780 Max Daily Volume (m ³): 4546 Original Application No: - Original Start Date: 21/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 11/11/1994 Version End Date: -
-	962m E	Status: Active Licence No: 2569002136 Details: Process Water Direct Source: Surface, Non-Tidal - North West Region Point: SHORE LANE BRK AT LITTLEBOROUGH Data Type: Point Name: FOTHERGILL ENGINEERED FABRICS LTD Easting: 394500 Northing: 415900	Annual Volume (m ³): 35,641 Max Daily Volume (m ³): 136 Original Application No: - Original Start Date: 01/02/1966 Expiry Date: - Issue No: 101 Version Start Date: 25/06/2007 Version End Date: -
-	962m E	Status: Active Licence No: 2569002136 Details: Non-Evaporative Cooling Direct Source: Surface, Non-Tidal - North West Region Point: SHORE LANE BRK AT LITTLEBOROUGH Data Type: Point Name: FOTHERGILL ENGINEERED FABRICS LTD Easting: 394500 Northing: 415900	Annual Volume (m ³): 35,641 Max Daily Volume (m ³): 136 Original Application No: - Original Start Date: 01/02/1966 Expiry Date: - Issue No: 101 Version Start Date: 25/06/2007 Version End Date: -
-	1070m E	Status: Historical Licence No: 2569002232 Details: Spray Irrigation - Direct Direct Source: "Surface, Non-Tidal - North West Region" Point: "SPRING FED STORAGE TANK AT WHITTAKER GOLF CLUB, LITTLEBOROUGH" Data Type: Point Name: WHITTAKER GOLF CLUB Easting: 394800 Northing: 415500	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 23/05/1985 Expiry Date: - Issue No: 100 Version Start Date: 19/12/2000 Version End Date: -



ID	Location	Details	
-	1070m E	Status: Historical Licence No: 2569002232 Details: "Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services" Direct Source: "Surface, Non-Tidal - North West Region" Point: "SPRING FED STORAGE TANK AT WHITTAKER GOLF CLUB, LITTLEBOROUGH" Data Type: Point Name: WHITTAKER GOLF CLUB Easting: 394800 Northing: 415500	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 23/05/1985 Expiry Date: - Issue No: 100 Version Start Date: 19/12/2000 Version End Date: -
-	1070m E	Status: Historical Licence No: 2569002232 Details: Spray Irrigation - Direct Direct Source: Surface, Non-Tidal - North West Region Point: SPRING FED STORAGE TANK AT WHITTAKER GOLF CLUB, LITTLEBOROUGH Data Type: Point Name: WHITTAKER ESTATE COMPANY LTD. Easting: 394800 Northing: 415500	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 23/05/1985 Expiry Date: - Issue No: 101 Version Start Date: 03/02/2004 Version End Date: -
-	1070m E	Status: Historical Licence No: 2569002232 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Surface, Non-Tidal - North West Region Point: SPRING FED STORAGE TANK AT WHITTAKER GOLF CLUB, LITTLEBOROUGH Data Type: Point Name: WHITTAKER ESTATE COMPANY LTD. Easting: 394800 Northing: 415500	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 23/05/1985 Expiry Date: - Issue No: 101 Version Start Date: 03/02/2004 Version End Date: -
-	1079m NE	Status: Historical Licence No: 2569002230 Details: Spray Irrigation - Direct Direct Source: "Surface, Non-Tidal - North West Region" Point: "UNNAMED WATERCOURSE AT WHITTAKER GOLF CLUB, LITTLEBOROUGH" Data Type: Point Name: WHITTAKER GOLF CLUB Easting: 394700 Northing: 415800	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 23/05/1985 Expiry Date: - Issue No: 100 Version Start Date: 23/05/1985 Version End Date: -



ID	Location	Details	
-	1079m NE	Status: Historical Licence No: 2569002230 Details: Spray Irrigation - Direct Direct Source: Surface, Non-Tidal - North West Region Point: UNNAMED WATERCOURSE AT WHITTAKER GOLF CLUB, LITTLEBOROUGH Data Type: Point Name: WHITTAKER ESTATE COMPANY LTD. Easting: 394700 Northing: 415800	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 23/05/1985 Expiry Date: - Issue No: 101 Version Start Date: 03/02/2004 Version End Date: -
-	1450m SE	Status: Historical Licence No: 2569002047 Details: Process water Direct Source: "Surface, Non-Tidal - North West Region" Point: "LONGDEN END BRK AT PREMISES, RAKEWOOD, LITTLEBOROUGH" Data Type: Point Name: J CLEGG BROS RAKEWOOD LTD Easting: 394600 Northing: 414100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 18/01/1966 Expiry Date: - Issue No: 101 Version Start Date: 21/05/1999 Version End Date: -
-	1450m SE	Status: Historical Licence No: 2569002047 Details: Process Water Direct Source: Surface, Non-Tidal - North West Region Point: LONGDEN END BRK AT PREMISES, RAKEWOOD, LITTLEBOROUGH Data Type: Point Name: J CLEGG BROS RAKEWOOD LTD Easting: 394600 Northing: 414100	Annual Volume (m ³): 120000 Max Daily Volume (m ³): 618.256 Original Application No: - Original Start Date: 18/01/1966 Expiry Date: - Issue No: 101 Version Start Date: 21/05/1999 Version End Date: -
-	1450m SE	Status: Historical Licence No: 2569002047 Details: Lake & Pond Throughflow Direct Source: Surface, Non-Tidal - North West Region Point: LONGDEN END BRK AT PREMISES, RAKEWOOD, LITTLEBOROUGH Data Type: Point Name: J CLEGG & BROS RAKEWOOD LTD Easting: 394600 Northing: 414100	Annual Volume (m ³): 120000 Max Daily Volume (m ³): 618.3 Original Application No: - Original Start Date: 18/01/1966 Expiry Date: 31/03/2014 Issue No: 102 Version Start Date: 04/09/2007 Version End Date: -

ID	Location	Details	
-	1538m NE	Status: Historical Licence No: 2569002240 Details: Process water Direct Source: Surface, Non-Tidal - North West Region Point: TOWN HOUSE BROOK AND GALE HOUSE RESERVOIR OVERFLOW AT LI Data Type: Point Name: WALSDEN PRINTING CO LTD Easting: 393800 Northing: 417170	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 18/07/1989 Expiry Date: - Issue No: 100 Version Start Date: 13/12/1996 Version End Date: -
-	1646m N	Status: Historical Licence No: 2569001244 Details: Make-Up or Top Up Water Direct Source: "Surface, Non-Tidal - North West Region" Point: "LONG CLOUGH BROOK, LITTLEBOROUGH" Data Type: Point Name: LITTLEBOROUGH ANGLING SOCIETY Easting: 393300 Northing: 417400	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 07/05/1993 Expiry Date: - Issue No: 100 Version Start Date: 13/07/1993 Version End Date: -
-	1646m N	Status: Historical Licence No: 2569002271 Details: Fish Farm/Cress Pond Throughflow Direct Source: "Surface, Non-Tidal - North West Region" Point: "LONG CLOUGH BROOK, LITTLEBOROUGH" Data Type: Point Name: BARBER Easting: 393300 Northing: 417400	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 07/05/1993 Expiry Date: - Issue No: 3 Version Start Date: 01/04/2000 Version End Date: -
-	1646m N	Status: Historical Licence No: 2569001244 Details: Make-Up Or Top Up Water Direct Source: Surface, Non-Tidal - North West Region Point: LONG CLOUGH BROOK, LITTLEBOROUGH Data Type: Point Name: LITTLEBOROUGH ANGLING SOCIETY Easting: 393300 Northing: 417400	Annual Volume (m ³): 72000 Max Daily Volume (m ³): 197.26 Original Application No: - Original Start Date: 07/05/1993 Expiry Date: - Issue No: 100 Version Start Date: 13/07/1993 Version End Date: -
-	1646m N	Status: Active Licence No: 2569002271 Details: Fish Farm/Cress Pond Throughflow Direct Source: Surface, Non-Tidal - North West Region Point: LONG CLOUGH BROOK, LITTLEBOROUGH Data Type: Point Name: Todmorden Anglers Society Easting: 393300 Northing: 417400	Annual Volume (m ³): 72,000 Max Daily Volume (m ³): 197.26 Original Application No: - Original Start Date: 07/05/1993 Expiry Date: - Issue No: 5 Version Start Date: 24/12/2018 Version End Date: -



ID	Location	Details	
-	1682m NE	Status: Historical Licence No: 2569002240 Details: Process water Direct Source: Surface, Non-Tidal - North West Region Point: TOWN HOUSE BROOK AND GALE HOUSE RESERVOIR OVERFLOW111 Data Type: Point Name: WALSDEN PRINTING CO LTD Easting: 394110 Northing: 417210	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 18/07/1989 Expiry Date: - Issue No: 100 Version Start Date: 13/12/1996 Version End Date: -
-	1760m E	Status: Historical Licence No: 2569002231 Details: Spray Irrigation - Direct Direct Source: "Surface, Non-Tidal - North West Region" Point: "SHORE LANE BRK AT LITTLEBOROUGH, LANCS" Data Type: Point Name: WHITTAKER GOLF CLUB Easting: 395400 Northing: 415900	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 23/05/1985 Expiry Date: - Issue No: 100 Version Start Date: 23/05/1985 Version End Date: -
-	1760m E	Status: Historical Licence No: 2569002231 Details: Spray Irrigation - Direct Direct Source: Surface, Non-Tidal - North West Region Point: SHORE LANE BRK AT LITTLEBOROUGH, LANCS Data Type: Point Name: WHITTAKER ESTATE COMPANY LTD. Easting: 395400 Northing: 415900	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 23/05/1985 Expiry Date: - Issue No: 101 Version Start Date: 03/02/2004 Version End Date: -
-	1936m SE	Status: Historical Licence No: NW/069/0002/008 Details: Lake & Pond Throughflow Direct Source: Surface, Non-Tidal - North West Region Point: LONGDEN END BROOK ADJ TO RAKEWOOD ROAD, LITTLEBOROUGH Data Type: Point Name: J CLEGG & BROS RAKEWOOD LTD Easting: 394803 Northing: 413650	Annual Volume (m ³): 120,000 Max Daily Volume (m ³): 619 Original Application No: - Original Start Date: 01/04/2014 Expiry Date: 31/03/2021 Issue No: 1 Version Start Date: 01/04/2014 Version End Date: -

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



6.8 Potable abstractions

Records within 2000m

5

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 73**

ID	Location	Details	
-	1004m E	Status: Historical Licence No: 2569002246 Details: "Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household" Direct Source: Ground Water - North West Region Point: "BOREHOLE AT WHITTAKER FARM, SHORE LANE, LITTLEBOROUGH" Data Type: Point Name: SUTCLIFFE Easting: 394720 Northing: 415550	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 04/07/1991 Expiry Date: - Issue No: 100 Version Start Date: 03/09/1991 Version End Date: -
-	1004m E	Status: Historical Licence No: 2569002246 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household Direct Source: Ground Water - North West Region Point: BOREHOLE AT WHITTAKER FARM, SHORE LANE, LITTLEBOROUGH Data Type: Point Name: SUTCLIFFE Easting: 394720 Northing: 415550	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 04/07/1991 Expiry Date: - Issue No: 100 Version Start Date: 03/09/1991 Version End Date: -
-	1004m E	Status: Historical Licence No: 2569002246 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household Direct Source: Ground Water - North West Region Point: BOREHOLE AT WHITTAKER FARM SHORE LANE LITTLEBOROUGH Data Type: Point Name: WHITTAKER MANAGEMENT COMPANY LTD Easting: 394720 Northing: 415550	Annual Volume (m ³): 2727.6 Max Daily Volume (m ³): 18.184 Original Application No: - Original Start Date: 04/07/1991 Expiry Date: - Issue No: 101 Version Start Date: 01/04/1994 Version End Date: -



ID	Location	Details	
-	1070m E	Status: Historical Licence No: 2569002232 Details: "Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services" Direct Source: "Surface, Non-Tidal - North West Region" Point: "SPRING FED STORAGE TANK AT WHITTAKER GOLF CLUB, LITTLEBOROUGH" Data Type: Point Name: WHITTAKER GOLF CLUB Easting: 394800 Northing: 415500	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 23/05/1985 Expiry Date: - Issue No: 100 Version Start Date: 19/12/2000 Version End Date: -
-	1070m E	Status: Historical Licence No: 2569002232 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Surface, Non-Tidal - North West Region Point: SPRING FED STORAGE TANK AT WHITTAKER GOLF CLUB, LITTLEBOROUGH Data Type: Point Name: WHITTAKER ESTATE COMPANY LTD. Easting: 394800 Northing: 415500	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 23/05/1985 Expiry Date: - Issue No: 101 Version Start Date: 03/02/2004 Version End Date: -

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

6.9 Source Protection Zones

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

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

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

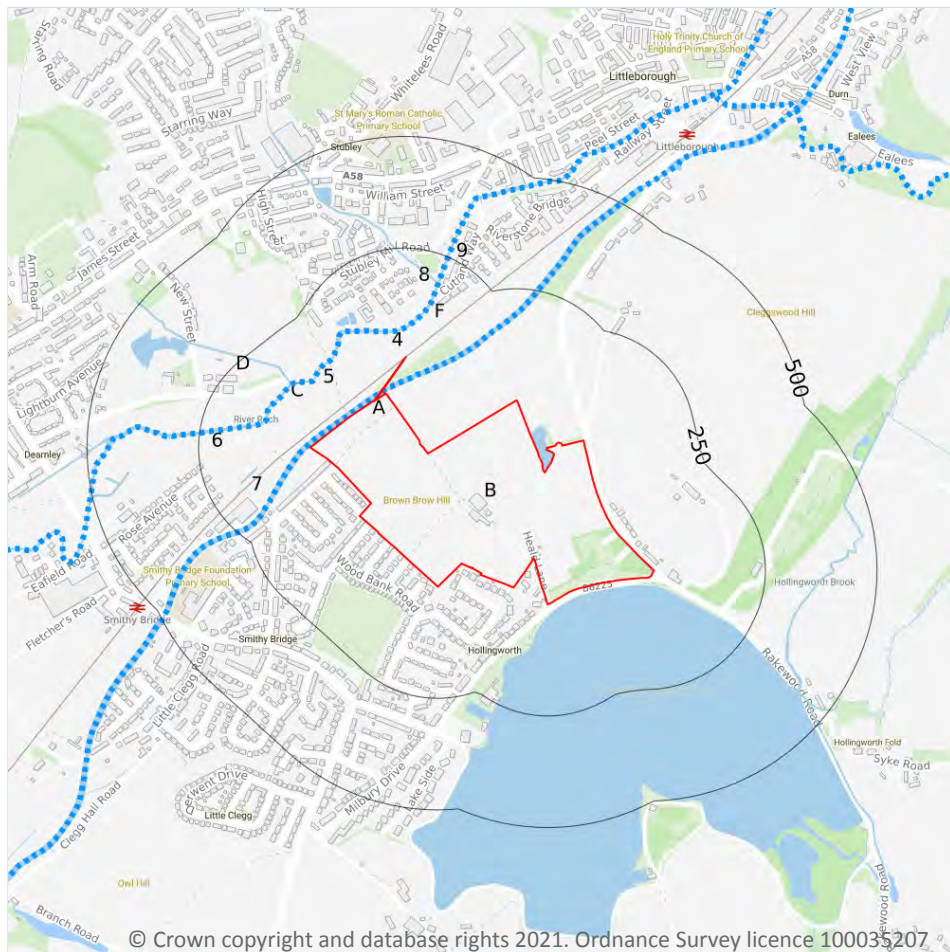
6.10 Source Protection Zones (confined aquifer)

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

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

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

7 Hydrology



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

7.1 Water Network (OS MasterMap)

Records within 250m

12

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

Features are displayed on the Hydrology map on **page 89**

ID	Location	Type of water feature	Ground level	Permanence	Name
A	On site	Canal. A manmade watercourse for inland navigation.	On ground surface	Watercourse contains water year round (in normal circumstances)	Rochdale Canal



ID	Location	Type of water feature	Ground level	Permanence	Name
4	67m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	River Roch
5	114m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	River Roch
6	117m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	River Roch
7	126m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	137m NW	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
F	141m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
F	142m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	River Roch
C	156m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
D	186m NW	Inland river not influenced by normal tidal action.	Not provided	Watercourse contains water year round (in normal circumstances)	-
8	188m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Featherstall Brook
9	190m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	River Roch

This data is sourced from the Ordnance Survey.



7.2 Surface water features

Records within 250m

6

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

Features are displayed on the Hydrology map on **page 89**

This data is sourced from the Ordnance Survey.

7.3 WFD Surface water body catchments

Records on site

1

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

Features are displayed on the Hydrology map on **page 89**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
B	On site	River WB catchment	Roch (Source to Spodden)	GB112069064720	Roch Irk Medlock	Irwell

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

7.4 WFD Surface water bodies

Records identified

2

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

Features are displayed on the Hydrology map on **page 89**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
A	On site	Canal	Rochdale Canal, western section	GB71210517	Moderate	Good	Moderate	2016



ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
D	67m N	River	Roch (Source to Spodden)	GB112069064720	Moderate	Good	Moderate	2016

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

7.5 WFD Groundwater bodies

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

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

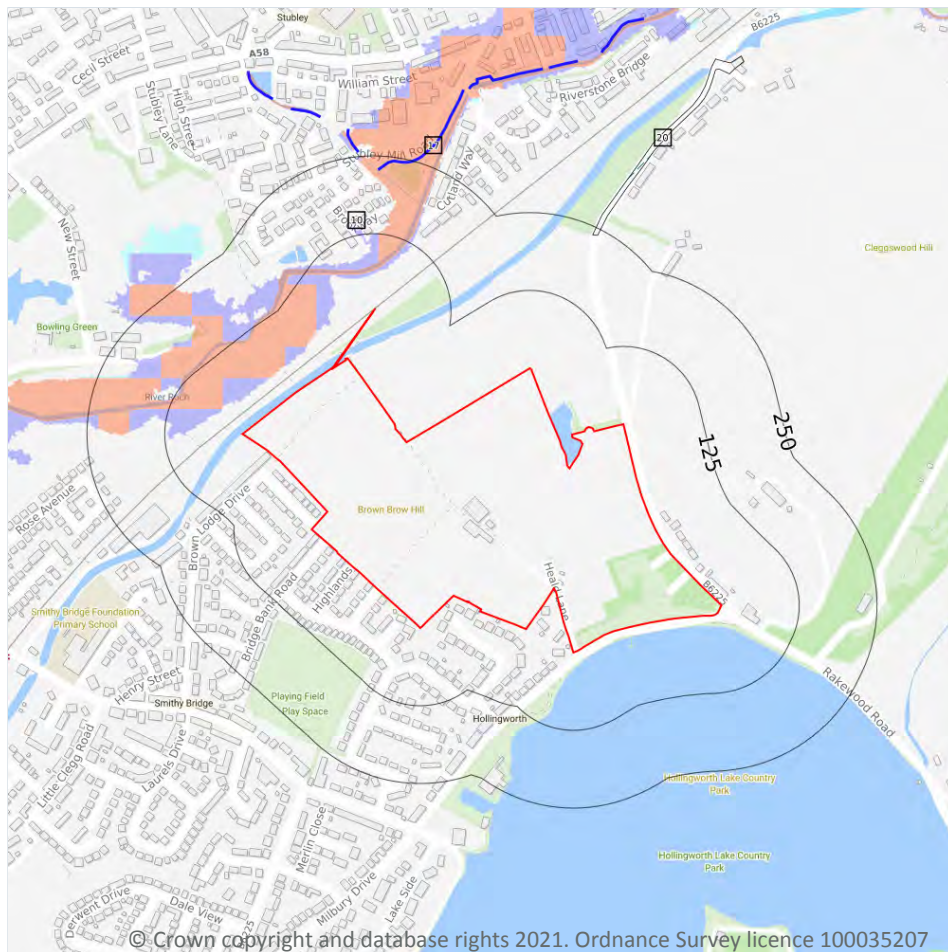
Features are displayed on the Hydrology map on **page 89**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
B	On site	Northern Manchester Carboniferous Aquifers	GB41202G101800	Poor	Poor	Good	2015

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



8 River and coastal flooding



- Site Outline
- Search buffers in metres (m)
- Environment Agency river and coastal flooding:
 - High
 - Medium
 - Low
 - Very Low
- Historical Flood Events
- Areas Used for Flood Storage
- Areas Benefiting from Flood Defences
- Flood Defences

8.1 Risk of Flooding from Rivers and Sea (RoFRaS)

Records within 50m

5

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance).

Features are displayed on the River and coastal flooding map on **page 93**

Distance	RoFRaS flood risk
On site	N/A
0 - 50m	High



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

8.2 Historical Flood Events

Records within 250m

2

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

Features are displayed on the River and coastal flooding map on **page 93**

ID	Location	Event name	Date of flood	Flood source	Flood cause	Type of flood
10	148m N	Ea01327_21 January 2008_Featherstall Brook_Dearnle	2008-01-21 2008-01-22	Main river	Unknown	Fluvial
20	237m NE	Inghams Lane	2019-03-16 2019-03-16	Unknown	Unknown	Fluvial

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

8.3 Flood Defences

Records within 250m

1

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

Features are displayed on the River and coastal flooding map on **page 93**

ID	Location	Update
17	228m N	25/05/2021

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

8.4 Areas Benefiting from Flood Defences

Records within 250m

0

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

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



8.5 Flood Storage Areas

Records within 250m

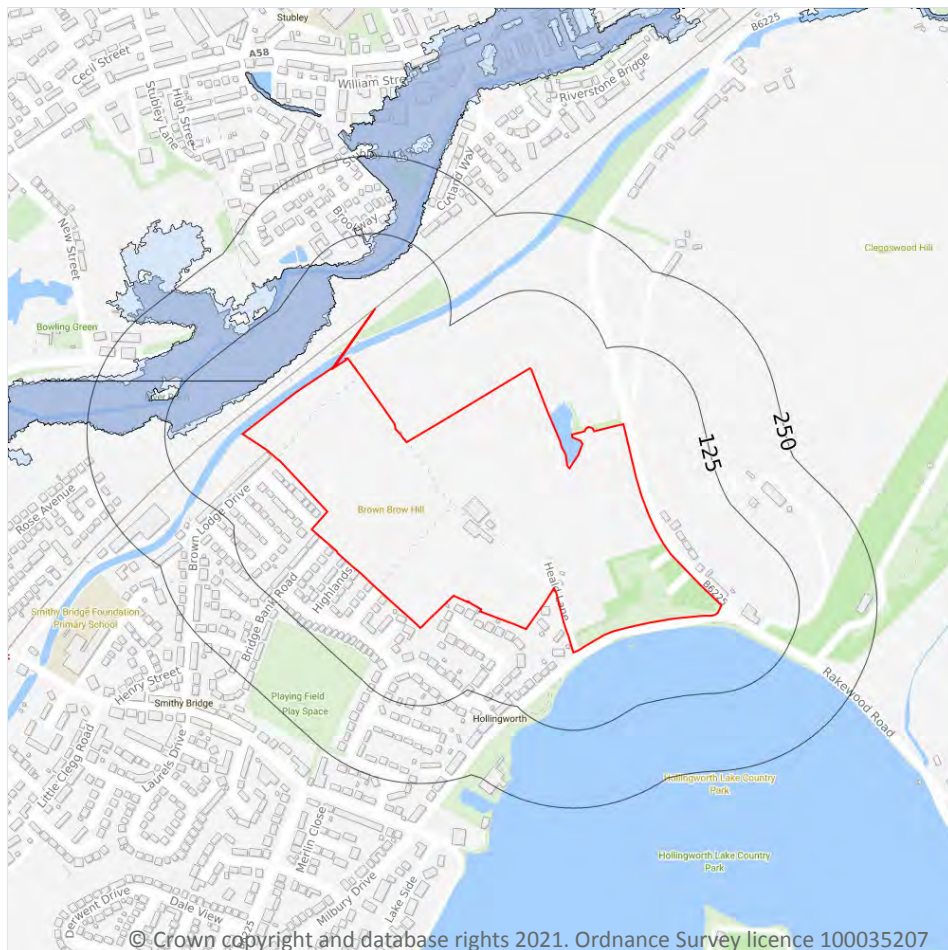
0

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

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



River and coastal flooding - Flood Zones



- Site Outline
- Search buffers in metres (m)
- Flood zone 2
- Flood zone 3

8.6 Flood Zone 2

Records within 50m

1

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

Features are displayed on the River and coastal flooding map on **page 93**

Location	Type
42m NW	Zone 2 - (Fluvial /Tidal Models)

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

8.7 Flood Zone 3

Records within 50m

1

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

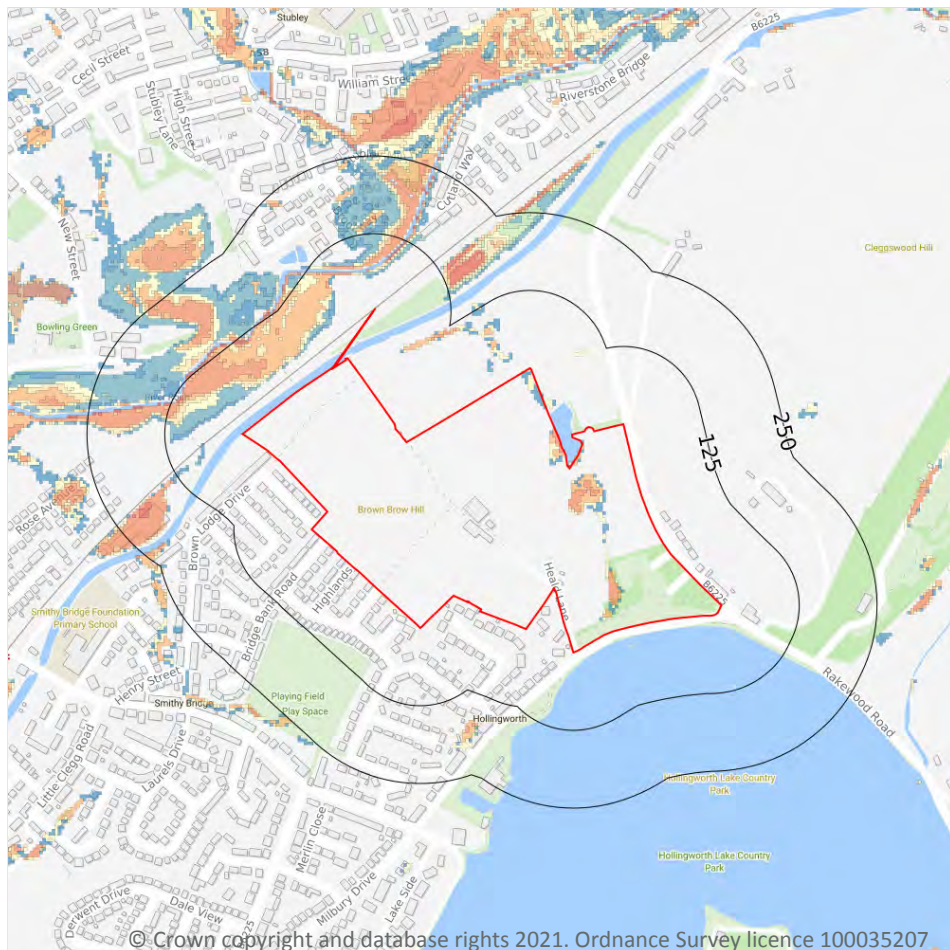
Features are displayed on the River and coastal flooding map on **page 93**

Location	Type
42m NW	Zone 3 - (Fluvial Models)

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



9 Surface water flooding



— Site Outline

Search buffers in metres (m)

1 in 1000 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

9.1 Surface water flooding

Highest risk on site

1 in 30 year, 0.3m - 1.0m

Highest risk within 50m

1 in 30 year, 0.3m - 1.0m

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

Features are displayed on the Surface water flooding map on **page 98**

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

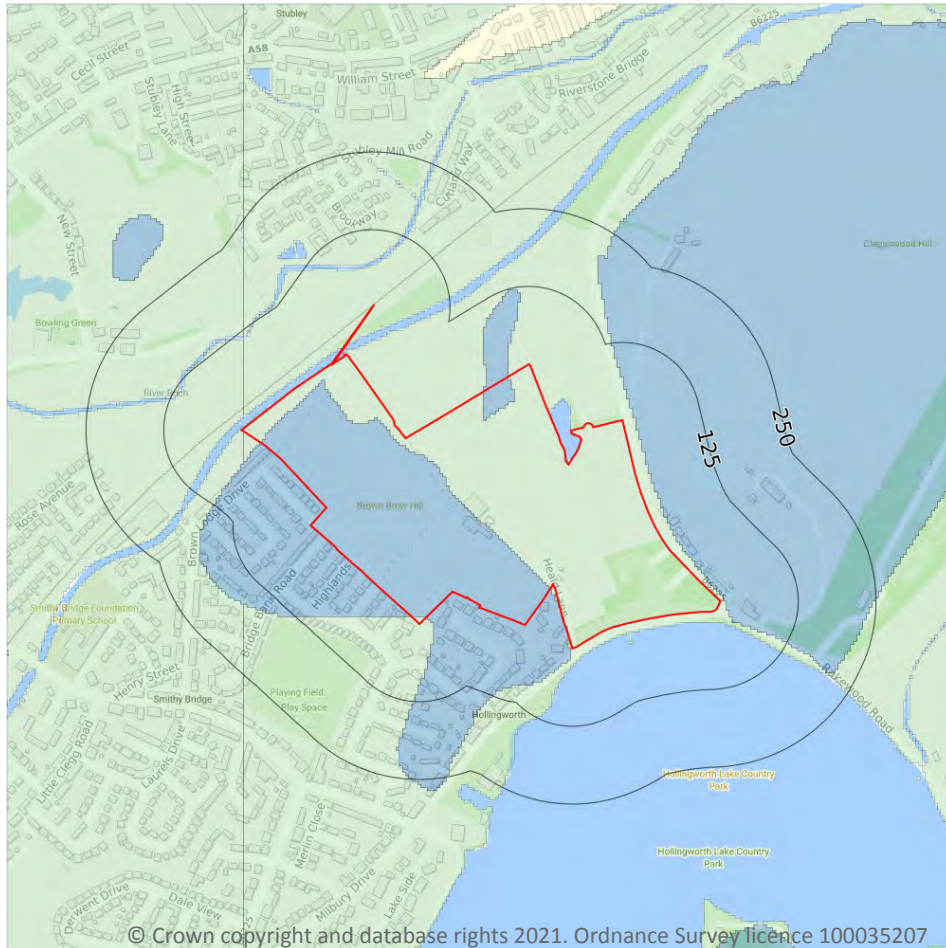
The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Between 0.3m and 1.0m
1 in 250 year	Between 0.3m and 1.0m
1 in 100 year	Between 0.3m and 1.0m
1 in 30 year	Between 0.3m and 1.0m

This data is sourced from Ambiantal Risk Analytics.



10 Groundwater flooding



— Site Outline
Search buffers in metres (m)

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

10.1 Groundwater flooding

Highest risk on site

Low

Highest risk within 50m

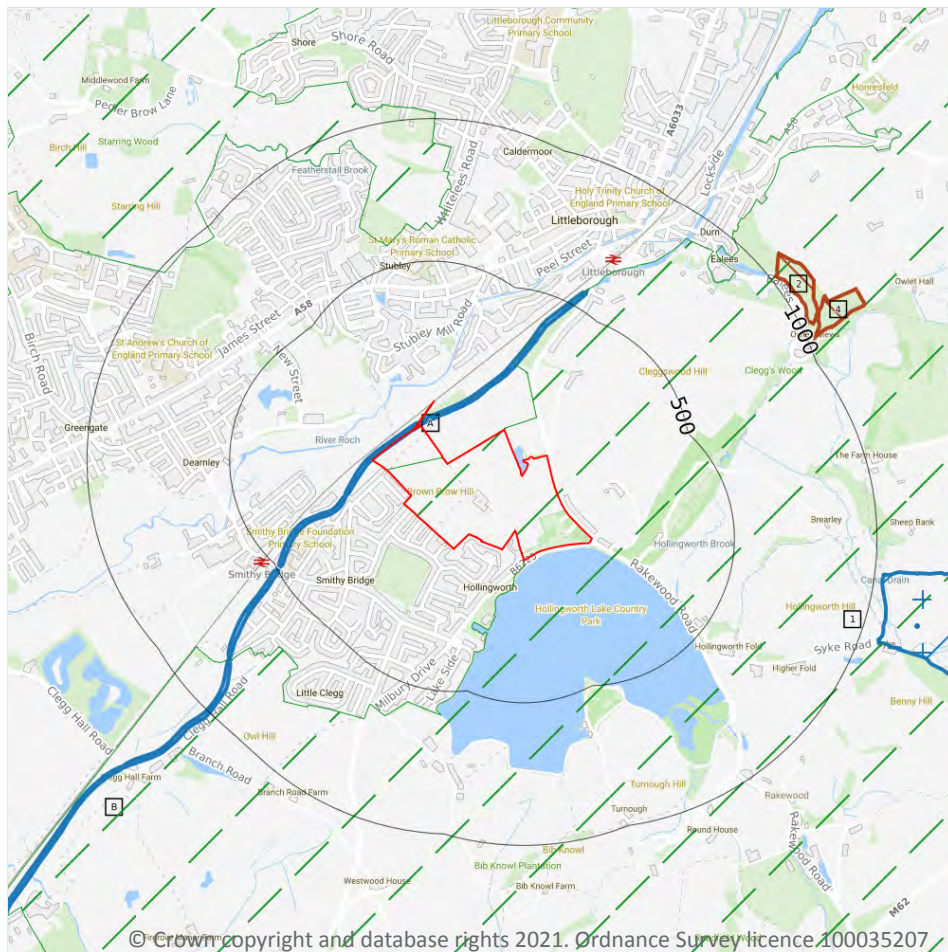
Low

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

Features are displayed on the Groundwater flooding map on **page 100**

This data is sourced from Ambiantal Risk Analytics.

11 Environmental designations



- Site Outline
- Search buffers in metres (m)
- / Sites of Special Scientific Interest (SSSI)
- + Special Areas of Conservation (SAC)
- Special Protection Areas (SPA)
- / Designated Ancient Woodland
- Green Belt

11.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m

3

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

Features are displayed on the Environmental designations map on **page 101**

ID	Location	Name	Data source
A	On site	Rochdale Canal	Natural England



ID	Location	Name	Data source
B	499m SW	Rochdale Canal	Natural England
C	1030m E	South Pennine Moors	Natural England

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

11.2 Conserved wetland sites (Ramsar sites)

Records within 2000m

0

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

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

11.3 Special Areas of Conservation (SAC)

Records within 2000m

3

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

Features are displayed on the Environmental designations map on **page 101**

ID	Location	Name	Features of interest	Habitat description	Data source
A	On site	Rochdale Canal	Floating water-plantain.	Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites); Inland water bodies (Standing water, Running water)	Natural England
B	499m SW	Rochdale Canal	Floating water-plantain.	Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites); Inland water bodies (Standing water, Running water)	Natural England



ID	Location	Name	Features of interest	Habitat description	Data source
C	1030m E	South Pennine Moors	Wet heathland with cross-leaved heath; Dry heaths; Blanket bog; Very wet mires often identified by an unstable 'quaking' surface; Western acidic oak woodland.	Inland water bodies (Standing water, Running water); Humid grassland, Mesophile grassland; Mixed woodland; Heath, Scrub, Maquis and Garrigue, Phygrana; Non-forest areas cultivated with woody plants (including Orchards, groves, Vineyards, Dehesas); Bogs, Marshes, Water fringed vegetation, Fens; Broad-leaved deciduous woodland; Dry grassland, Steppes	Natural England

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

11.4 Special Protection Areas (SPA)

Records within 2000m	2
-----------------------------	----------

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

Features are displayed on the Environmental designations map on **page 101**

ID	Location	Name	Species of interest	Habitat description	Data source
3	1030m E	South Pennine Moors Phase 2	Merlin; European golden plover; Short-eared owl	Inland water bodies (Standing water, Running water); Heath, Scrub, Maquis and Garrigue, Phygrana; Humid grassland, Mesophile grassland; Bogs, Marshes, Water fringed vegetation, Fens	Natural England
-	1474m E	South Pennine Moors Phase 2	Merlin; European golden plover; Short-eared owl	Inland water bodies (Standing water, Running water); Heath, Scrub, Maquis and Garrigue, Phygrana; Humid grassland, Mesophile grassland; Bogs, Marshes, Water fringed vegetation, Fens	Natural England

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

11.5 National Nature Reserves (NNR)

Records within 2000m	0
-----------------------------	----------

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

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



11.6 Local Nature Reserves (LNR)

Records within 2000m**0**

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

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

11.7 Designated Ancient Woodland

Records within 2000m**4**

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

Features are displayed on the Environmental designations map on **page 101**

ID	Location	Name	Woodland Type
2	1020m NE	Ealees Wood	Ancient & Semi-Natural Woodland
4	1032m NE	Ealees Wood	Ancient & Semi-Natural Woodland
-	1581m N	Unknown	Ancient & Semi-Natural Woodland
-	1603m NE	Unknown	Ancient & Semi-Natural Woodland

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

11.8 Biosphere Reserves

Records within 2000m**0**

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

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

11.9 Forest Parks

Records within 2000m**0**

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

This data is sourced from the Forestry Commission.

11.10 Marine Conservation Zones

Records within 2000m**0**

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

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

11.11 Green Belt

Records within 2000m**1**

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

Features are displayed on the Environmental designations map on **page 101**

ID	Location	Name	Local Authority name
1	On site	Merseyside and Greater Manchester	Rochdale

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

11.12 Proposed Ramsar sites

Records within 2000m**0**

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

This data is sourced from Natural England.

11.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m**0**

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

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

11.14 Potential Special Protection Areas (pSPA)

Records within 2000m**0**

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

This data is sourced from Natural England.

11.15 Nitrate Sensitive Areas

Records within 2000m**0**

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

This data is sourced from Natural England.

11.16 Nitrate Vulnerable Zones

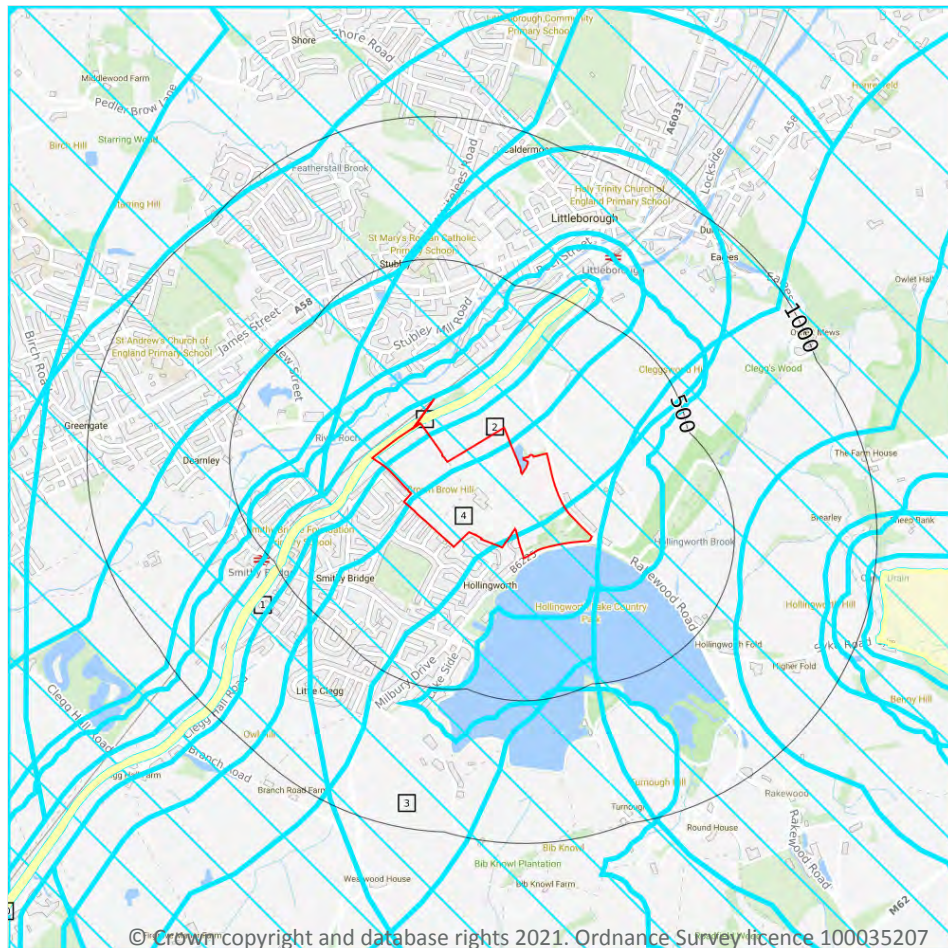
Records within 2000m**0**

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

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



SSSI Impact Zones and Units



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

11.17 SSSI Impact Risk Zones

Records on site

5

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

Features are displayed on the SSSI Impact Zones and Units map on **page 107**

ID	Location	Type of developments requiring consultation
1	On site	All applications - All Planning Applications - Except Householder Applications.

ID	Location	Type of developments requiring consultation
2	On site	Infrastructure - Pipelines, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals Wind and Solar - Solar schemes with footprint > 0.5ha, all wind turbines Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction. Rural non-residential - Large non residential developments outside existing settlements/urban areas where net additional gross internal floorspace is > 1,000m² or footprint exceeds 0.2ha Residential - Residential development of 50 units or more. Rural residential - Any residential development of 10 or more houses outside existing settlements/urban areas. Air pollution - Any development that could cause AIR POLLUTION or DUST either in its construction or operation (incl: industrial/commercial processes, livestock & poultry units, slurry lagoons/manure stores). Combustion - All general combustion processes. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion. Waste - Mechanical and biological waste treatment, inert landfill, non-hazardous landfill, hazardous landfill, household civic amenity recycling facilities construction, demolition and excavation waste, other waste management Composting - Any composting proposal. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management. Discharges - Any discharge of water or liquid waste that is discharged to ground (ie to seep away) or to surface water, such as a beck or stream (NB this does not include discharges to mains sewer which are unlikely to pose a risk at this location). Water supply - Large infrastructure such as warehousing / industry where net additional gross internal floorspace is > 1,000m² or any development needing its own water supply
3	On site	Infrastructure - Pipelines, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals Wind and Solar - Solar schemes with footprint > 0.5ha, all wind turbines Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction. Rural non-residential - Large non residential developments outside existing settlements/urban areas where net additional gross internal floorspace is > 1,000m² or footprint exceeds 0.2ha Residential - Residential development of 50 units or more. Rural residential - Any residential development of 50 or more houses outside existing settlements/urban areas. Air pollution - Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons > 200m² & manure stores > 250t). Combustion - General combustion processes >20MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion Waste - Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill. Composting - Any composting proposal with more than 500 tonnes maximum annual operational throughput. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management. Discharges - Any discharge of water or liquid waste of more than 2m³/day to ground (ie to seep away) or to surface water, such as a beck or stream (NB This does not include discharges to mains sewer which are unlikely to pose a risk at this location). Water supply - Large infrastructure such as warehousing / industry where net additional gross internal floorspace is > 1,000m² or any development needing its own water supply

ID	Location	Type of developments requiring consultation
4	On site	Infrastructure - Pipelines, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals Wind and Solar - Solar schemes with footprint > 0.5ha, all wind turbines Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction. Rural non-residential - Large non residential developments outside existing settlements/urban areas where net additional gross internal floorspace is > 1,000m² or footprint exceeds 0.2ha Residential - Residential development of 50 units or more. Rural residential - Any residential development of 50 or more houses outside existing settlements/urban areas. Air pollution - Any development that could cause AIR POLLUTION (incl: industrial/commercial processes, livestock & poultry units, slurry lagoons/manure stores). Combustion - All general combustion processes. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion. Waste - Mechanical and biological waste treatment, inert landfill, non-hazardous landfill, hazardous landfill, household civic amenity recycling facilities construction, demolition and excavation waste, other waste management Composting - Any composting proposal. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management. Discharges - Any discharge of water or liquid waste that is discharged to ground (ie to seep away) or to surface water, such as a beck or stream (NB this does not include discharges to mains sewer which are unlikely to pose a risk at this location). Water supply - Large infrastructure such as warehousing / industry where net additional gross internal floorspace is > 1,000m² or any development needing its own water supply
A	On site	All applications - All Planning Applications.

This data is sourced from Natural England.

11.18 SSSI Units

Records within 2000m

3

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

Features are displayed on the SSSI Impact Zones and Units map on **page 107**

ID: A
 Location: On site
 SSSI name: Rochdale Canal
 Unit name: Failsworth
 Broad habitat: Standing Open Water And Canals
 Condition: Unfavourable - Recovering
 Reportable features:



Feature name	Feature condition	Date of assessment
Population of Schedule 8 plant - Luronium natans, Floating Water-plantain	Unfavourable - Recovering	25/11/2010

ID: 20
 Location: 499m SW
 SSSI name: Rochdale Canal
 Unit name: Failsworth
 Broad habitat: Standing Open Water And Canals
 Condition: Unfavourable - Recovering
 Reportable features:

Feature name	Feature condition	Date of assessment
Population of Schedule 8 plant - Luronium natans, Floating Water-plantain	Unfavourable - Recovering	25/11/2010

ID: 27
 Location: 1030m E
 SSSI name: South Pennine Moors
 Unit name: Clegg Moor
 Broad habitat: Bogs - Upland
 Condition: Unfavourable - Recovering
 Reportable features:

Feature name	Feature condition	Date of assessment
H4010 Northern Atlantic wet heaths with Erica tetralix	Unfavourable - Recovering	31/01/2014
H4030 European dry heaths	Unfavourable - Recovering	31/01/2014
H7130 Blanket bog	Unfavourable - Recovering	31/01/2014

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

12 Visual and cultural designations



- Site Outline
- Search buffers in metres (m)
- Listed buildings
- Conservation areas
- Conservation areas - no data
- National Parks
- Areas of Outstanding Natural Beauty
- Registered parks and gardens
- Scheduled Monuments
- World Heritage Sites

12.1 World Heritage Sites

Records within 250m

0

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

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

12.2 Area of Outstanding Natural Beauty

Records within 250m**0**

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

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

12.3 National Parks

Records within 250m**0**

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

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

12.4 Listed Buildings

Records within 250m**1**

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

Features are displayed on the Visual and cultural designations map on **page 111**

ID	Location	Name	Grade	Reference Number	Listed date
1	158m SW	Rochdale Canal Lodge Bridge, Littleborough Lakeside, Rochdale, OL15	II	1068522	23/04/1986

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



12.5 Conservation Areas

Records within 250m**0**

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

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

12.6 Scheduled Ancient Monuments

Records within 250m**0**

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

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

12.7 Registered Parks and Gardens

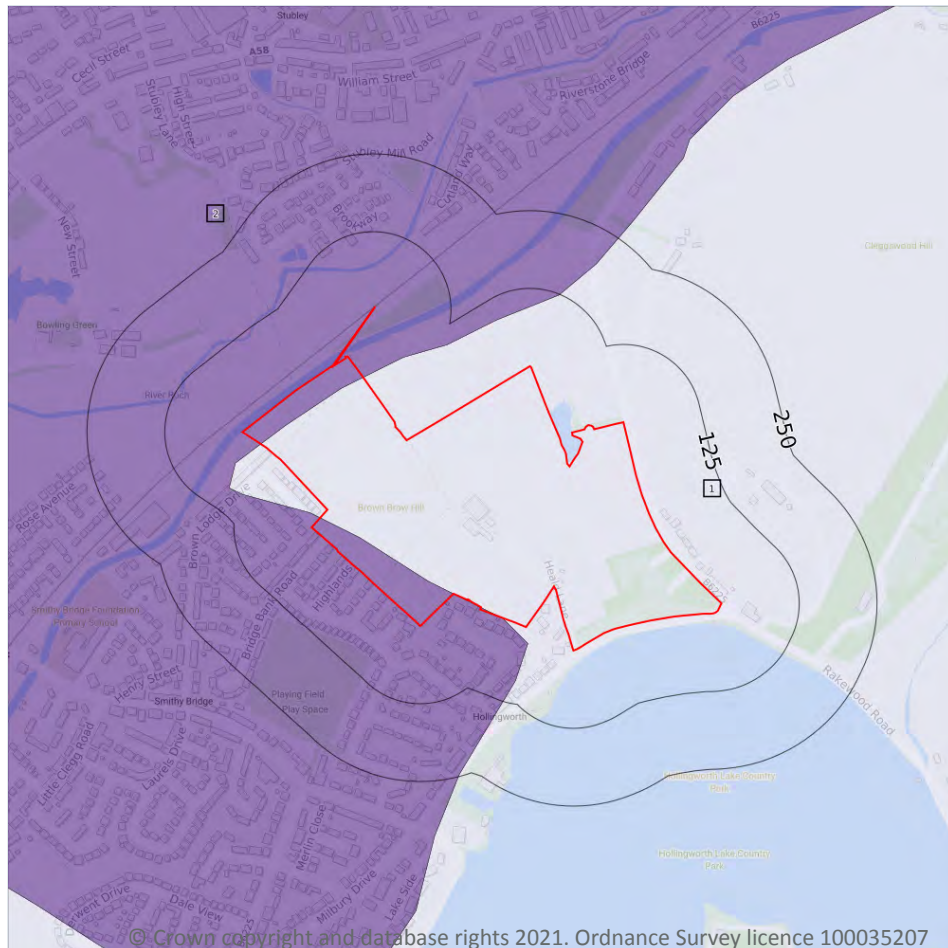
Records within 250m**0**

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

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



13 Agricultural designations



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

13.1 Agricultural Land Classification

Records within 250m

2

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

Features are displayed on the Agricultural designations map on **page 114**

ID	Location	Classification	Description
1	On site	Grade 4	Poor quality agricultural land. Land with severe limitations which significantly restrict the range of crops and/or level of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops) the yields of which are variable. In moist climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.

ID	Location	Classification	Description
2	On site	Urban	-

This data is sourced from Natural England.

13.2 Open Access Land

Records within 250m

0

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

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

13.3 Tree Felling Licences

Records within 250m

0

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

This data is sourced from the Forestry Commission.

13.4 Environmental Stewardship Schemes

Records within 250m

1

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

Location	Reference	Scheme	Start Date	End date
12m NE	AG00456262	Entry Level Stewardship	01/10/2013	30/09/2018

This data is sourced from Natural England.



13.5 Countryside Stewardship Schemes

Records within 250m

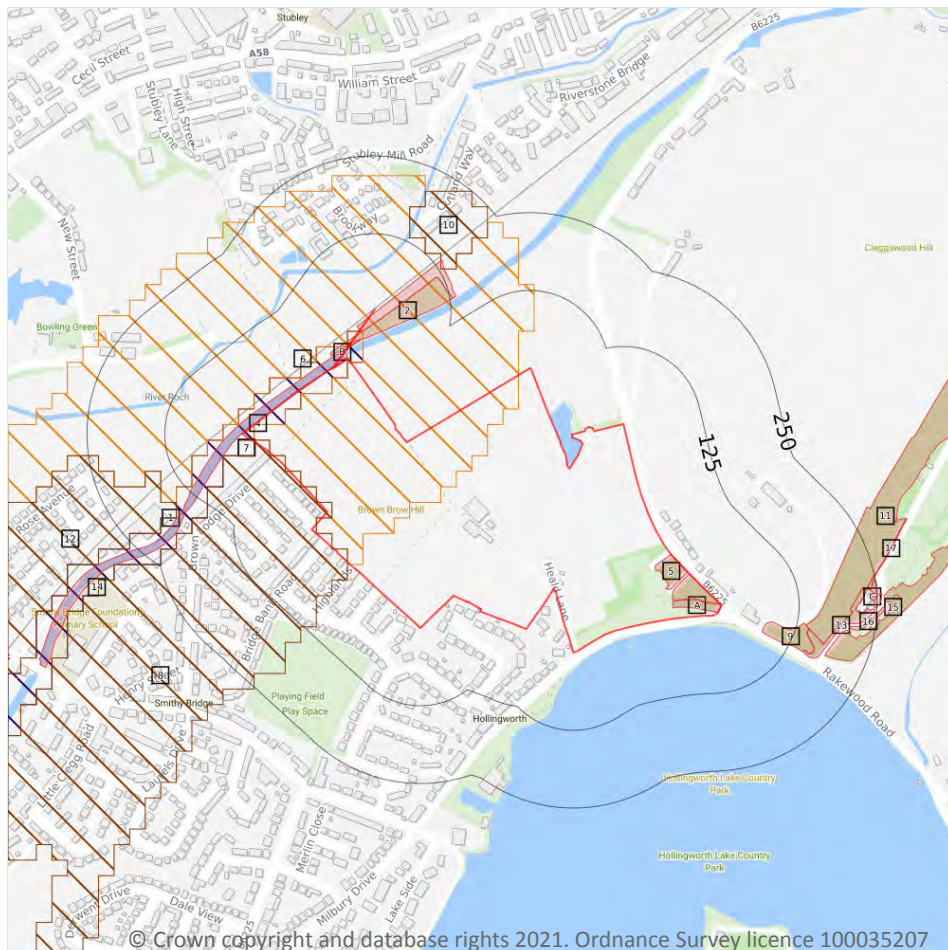
0

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

This data is sourced from Natural England.



14 Habitat designations



- Site Outline**
- Search buffers in metres (m)**
- Priority Habitat Inventory
 - Open Mosaic Habitat
 - Limestone Pavement Orders
- Habitat Networks**
- Primary Habitat
 - Restorable Habitat
 - Associated Habitats
 - Habitat Restoration-Creation
 - Network Enhancement Zone 1
 - Network Enhancement Zone 2

14.1 Priority Habitat Inventory

Records within 250m

18

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

Features are displayed on the Habitat designations map on **page 117**

ID	Location	Main Habitat	Other habitats
2	On site	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
3	On site	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
4	On site	Lowland fens	Main habitat: LFENS (INV > 50%)
5	On site	Deciduous woodland	Main habitat: DWOOD (INV > 50%)



ID	Location	Main Habitat	Other habitats
A	On site	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
A	On site	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
B	On site	Lowland fens	Main habitat: LFENS (INV > 50%)
B	On site	Lowland fens	Main habitat: LFENS (INV > 50%)
9	77m SE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
11	140m E	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
13	145m E	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
14	160m SW	Lowland fens	Main habitat: LFENS (INV > 50%)
15	185m SE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
16	209m E	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
C	237m E	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
C	241m E	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
C	245m E	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
17	246m E	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

This data is sourced from Natural England.

14.2 Habitat Networks

Records within 250m

6

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

Features are displayed on the Habitat designations map on **page 117**

ID	Location	Type	Habitat
1	On site	Primary Habitat	Lowland fens
6	On site	Network Enhancement Zone 1	Not specified
7	On site	Network Enhancement Zone 1	Not specified
8	On site	Network Enhancement Zone 2	Not specified
10	125m NE	Network Enhancement Zone 2	Not specified
12	144m SW	Network Enhancement Zone 2	Not specified



This data is sourced from Natural England.

14.3 Open Mosaic Habitat

Records within 250m

0

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

This data is sourced from Natural England.

14.4 Limestone Pavement Orders

Records within 250m

0

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

This data is sourced from Natural England.



Data providers

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

Terms and conditions

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



LAND NORTH OF SMITHY BRIDGE, LITTLEBOROUGH, OL15 0NE

Order Details

Date: 13/08/2021
Your ref: 332010570_-_EPL004870
Our Ref: HMD-8121638
Client: Stantec UK Ltd

Site Details

Location: 393335 415444
Area: 18.84 ha
Authority: [Rochdale Metropolitan Borough Council](#)



Summary of findings

p. 2

Aerial image

p. 5

OS MasterMap site plan

N/A: >10ha

groundsure.com/insightuserguide

Contact us with any questions at:

info@groundsure.com

08444 159 000

Summary of findings

Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
10	1.1	10k Availability	Identified (within 500m)				
11	1.2	Artificial and made ground (10k)	5	2	10	6	-
13	1.3	Superficial geology (10k)	3	0	5	7	-
14	1.4	Landslip (10k)	1	1	1	2	-
15	1.5	Bedrock geology (10k)	8	1	8	9	-
17	1.6	Bedrock faults and other linear features (10k)	6	2	10	12	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
19	2.1	50k Availability	Identified (within 500m)				
20	2.2	Artificial and made ground (50k)	0	0	1	0	-
21	2.3	Artificial ground permeability (50k)	0	0	-	-	-
22	2.4	Superficial geology (50k)	3	0	4	5	-
23	2.5	Superficial permeability (50k)	Identified (within 50m)				
23	2.6	Landslip (50k)	0	0	1	1	-
24	2.7	Landslip permeability (50k)	None (within 50m)				
25	2.8	Bedrock geology (50k)	7	0	6	8	-
27	2.9	Bedrock permeability (50k)	Identified (within 50m)				
27	2.10	Bedrock faults and other linear features (50k)	3	2	9	8	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
29	3.1	BGS Boreholes	0	0	1	-	-
Page	Section	Natural ground subsidence					
30	4.1	Shrink swell clays	Low (within 50m)				
32	4.2	Running sands	Low (within 50m)				
34	4.3	Compressible deposits	Moderate (within 50m)				
36	4.4	Collapsible deposits	Very low (within 50m)				
37	4.5	Landslides	Moderate (within 50m)				
39	4.6	Ground dissolution of soluble rocks	Negligible (within 50m)				



Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
40	5.1	Natural cavities	0	0	0	0	-
41	5.2	<u>BritPits</u>	1	0	2	0	-
41	5.3	<u>Surface ground workings</u>	32	20	57	-	-
46	5.4	<u>Underground workings</u>	0	4	0	23	25
48	5.5	Historical Mineral Planning Areas	0	0	0	0	-
48	5.6	Non-coal mining	0	0	0	0	0
48	5.7	Mining cavities	0	0	0	0	0
48	5.8	JPB mining areas	None (within 0m)				
49	5.9	<u>Coal mining</u>	Identified (within 0m)				
49	5.10	Brine areas	None (within 0m)				
49	5.11	Gypsum areas	None (within 0m)				
49	5.12	Tin mining	None (within 0m)				
49	5.13	Clay mining	None (within 0m)				
Page	Section	Radon					
50	6.1	<u>Radon</u>	Less than 1% (within 0m)				
Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
51	7.1	<u>BGS Estimated Background Soil Chemistry</u>	22	11	-	-	-
53	7.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
53	7.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
54	8.1	Underground railways (London)	0	0	0	-	-
54	8.2	Underground railways (Non-London)	0	0	0	-	-
55	8.3	Railway tunnels	0	0	0	-	-
55	8.4	<u>Historical railway and tunnel features</u>	4	11	7	-	-
56	8.5	Royal Mail tunnels	0	0	0	-	-
56	8.6	Historical railways	0	0	0	-	-
56	8.7	<u>Railways</u>	1	6	8	-	-
57	8.8	Crossrail 1	0	0	0	0	-



57	8.9	Crossrail 2	0	0	0	0	-
57	8.10	HS2	0	0	0	0	-



Recent aerial photograph



Capture Date: 23/05/2019

Site Area: 18.84ha



Recent site history - 2018 aerial photograph



Capture Date: 01/07/2018

Site Area: 18.84ha



Recent site history - 2012 aerial photograph



Capture Date: 26/03/2012

Site Area: 18.84ha



Recent site history - 2001 aerial photograph



Capture Date: 12/05/2001

Site Area: 18.84ha



Recent site history - 2000 aerial photograph

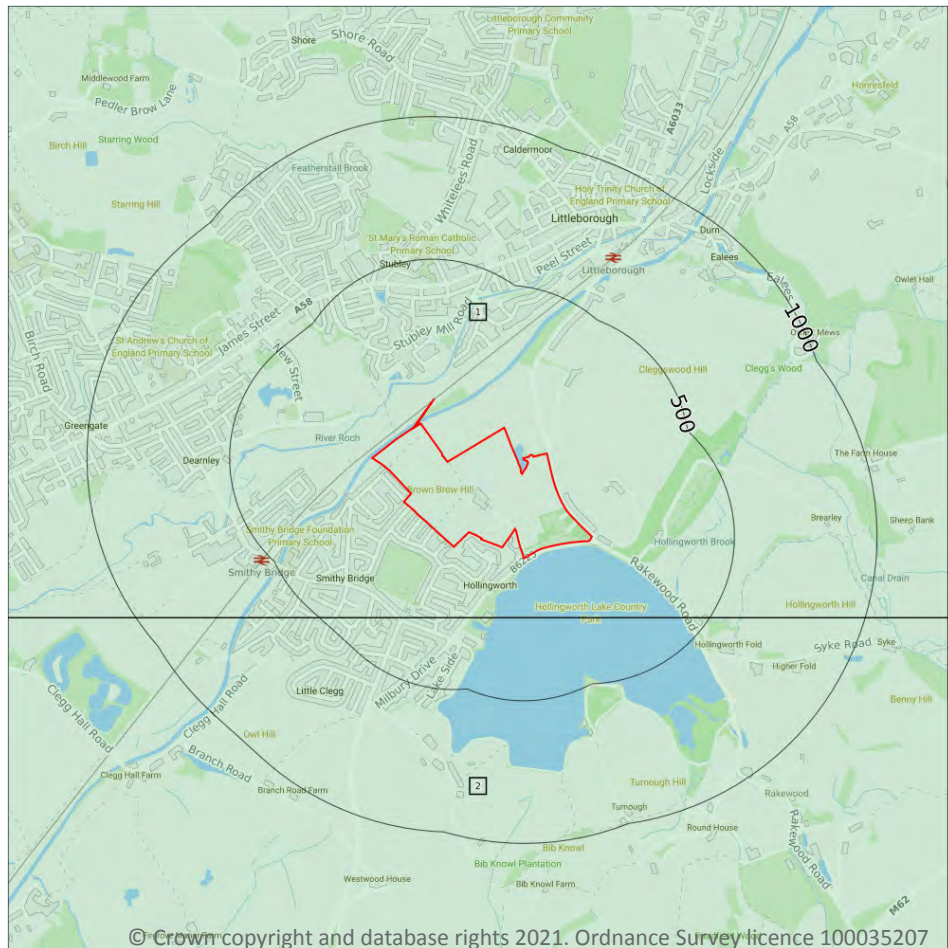


Capture Date: 07/05/2000

Site Area: 18.84ha



1 Geology 1:10,000 scale - Availability



— Site Outline
Search buffers in metres (m)

- Full coverage
- Partial coverage
- No coverage

1.1 10k Availability

Records within 500m

2

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

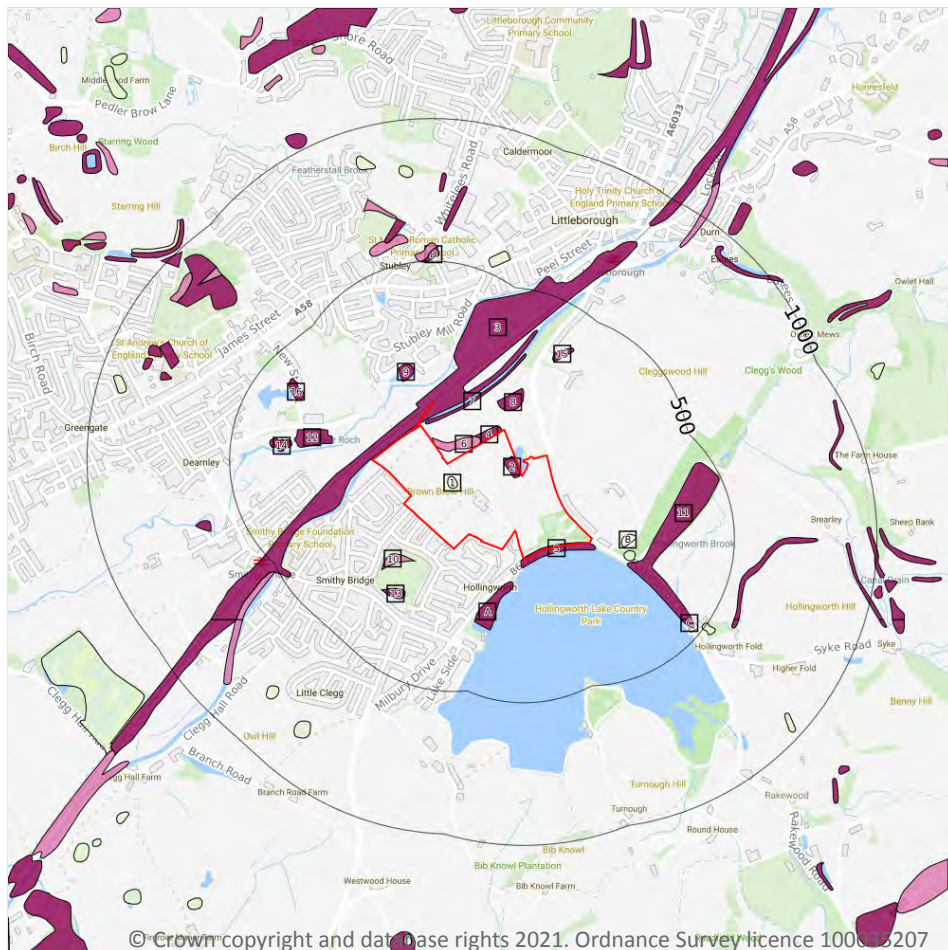
Features are displayed on the Geology 1:10,000 scale - Availability map on **page 10**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	Full	SD91NW
2	209m S	Full	Full	Full	Full	SD91SW

This data is sourced from the British Geological Survey.



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



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

1.2 Artificial and made ground (10k)

Records within 500m

23

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

Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 11**

ID	Location	LEX Code	Description	Rock description
1	On site	WMGR-ARTDP	Infilled Ground	Artificial Deposit
2	On site	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
3	On site	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
4	On site	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

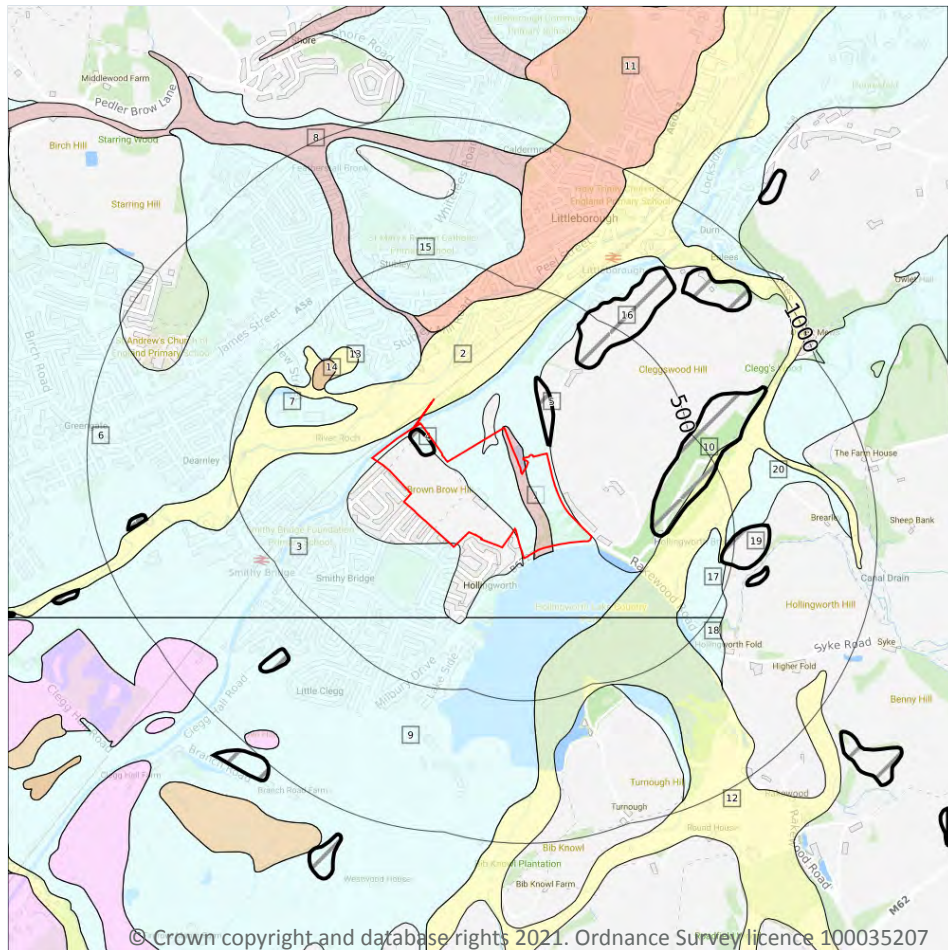


ID	Location	LEX Code	Description	Rock description
5	On site	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
6	1m NW	WGR-VOID	Worked Ground (Undivided)	Void
7	18m SE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
8	69m N	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
A	87m SW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
B	105m E	WMGR-ARTDP	Infilled Ground	Artificial Deposit
9	122m NW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
10	123m SW	WGR-VOID	Worked Ground (Undivided)	Void
B	125m SE	WMGR-ARTDP	Infilled Ground	Artificial Deposit
11	151m SE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
12	152m NW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
13	226m SW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
A	233m SW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
14	287m W	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
15	299m NE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
16	326m NW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
C	420m SE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
C	492m SE	WMGR-ARTDP	Infilled Ground	Artificial Deposit
D	498m N	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (10k)

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

1.3 Superficial geology (10k)

Records within 500m

15

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

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 13**

ID	Location	LEX Code	Description	Rock description
1	On site	HEAD-DMTN	Head - Diamicton	Diamicton
2	On site	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel
3	On site	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton



ID	Location	LEX Code	Description	Rock description
6	122m NW	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton
7	164m NW	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton
8	167m N	HEAD-DMTN	Head - Diamicton	Diamicton
9	209m S	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton
11	245m N	ALF-XSV	Alluvial Fan Deposits - Sand And Gravel	Sand And Gravel
12	273m S	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel
13	285m NW	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel
14	297m NW	PEAT-P	Peat - Peat	Peat
15	305m N	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton
17	357m E	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton
18	408m SE	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton
20	469m E	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton

This data is sourced from the British Geological Survey.

1.4 Landslip (10k)

Records within 500m

5

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

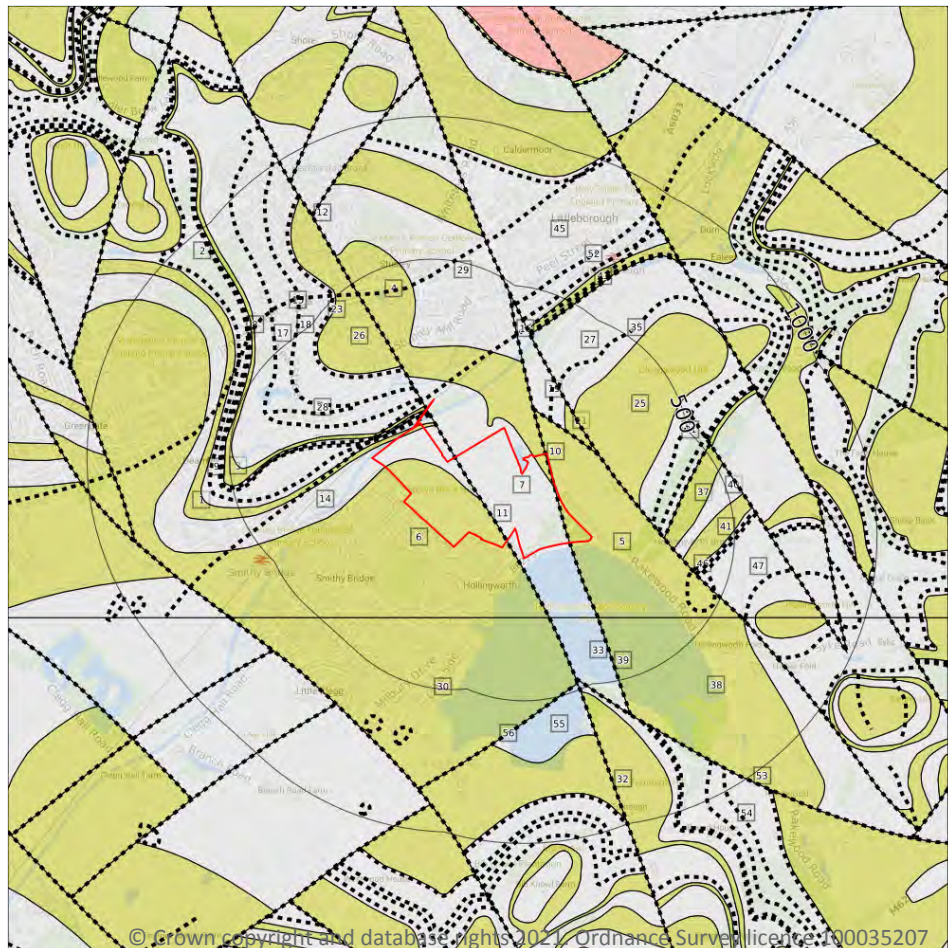
Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 13**

ID	Location	LEX Code	Description	Rock description
4	On site	SLIP-UNKNOWN	Landslide Deposits	Unknown/unclassified Entry
5	32m N	SLIP-UNKNOWN	Landslide Deposits	Unknown/unclassified Entry
10	213m E	SLIP-UNKNOWN	Landslide Deposits	Unknown/unclassified Entry
16	331m NE	SLIP-UNKNOWN	Landslide Deposits	Unknown/unclassified Entry
19	461m E	SLIP-UNKNOWN	Landslide Deposits	Unknown/unclassified Entry

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Bedrock



— Site Outline

Search buffers in metres (m)

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

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

1.5 Bedrock geology (10k)

Records within 500m

26

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

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 15**

ID	Location	LEX Code	Description	Rock age
1	On site	DF-SDST	Darwen Flags - Sandstone	Langsettian Sub-age
2	On site	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
3	On site	GAS-SDST	Great Arc Sandstone - Sandstone	Langsettian Sub-age

ID	Location	LEX Code	Description	Rock age
4	On site	MLRS-SDST	Milnrow Sandstone - Sandstone	Langsettian Sub-age
5	On site	MLRS-SDST	Milnrow Sandstone - Sandstone	Langsettian Sub-age
6	On site	MLRS-SDST	Milnrow Sandstone - Sandstone	Langsettian Sub-age
7	On site	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
14	On site	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
15	13m NW	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
19	103m NE	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
21	104m NE	DF-SDST	Darwen Flags - Sandstone	Langsettian Sub-age
25	151m NE	DF-SDST	Darwen Flags - Sandstone	Langsettian Sub-age
26	165m NW	WH-SDST	Woodhead Hill Rock - Sandstone	Langsettian Sub-age
27	169m NE	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
29	192m N	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
30	209m S	MLRS-SDST	Milnrow Sandstone - Sandstone	Langsettian Sub-age
33	227m S	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
37	254m E	GAS-SDST	Great Arc Sandstone - Sandstone	Langsettian Sub-age
38	271m S	MLRS-SDST	Milnrow Sandstone - Sandstone	Langsettian Sub-age
40	290m E	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
41	328m E	GAS-SDST	Great Arc Sandstone - Sandstone	Langsettian Sub-age
43	340m N	GAS-SDST	Great Arc Sandstone - Sandstone	Langsettian Sub-age
45	355m N	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
47	376m E	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
54	459m SE	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age



ID	Location	LEX Code	Description	Rock age
55	477m S	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age

This data is sourced from the British Geological Survey.

1.6 Bedrock faults and other linear features (10k)

Records within 500m	30
----------------------------	-----------

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

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 15**

ID	Location	Category	Description
8	On site	ROCK	Coal seam, inferred
9	On site	ROCK	Coal seam, inferred
10	On site	FAULT	Normal fault, inferred
11	On site	FAULT	Normal fault, inferred
12	On site	FAULT	Normal fault, inferred
13	On site	FOSSIL_HORIZON	Fossil horizon, marine band
16	22m NW	LANDFORM	Buried channel or valley margin
17	36m NW	ROCK	Coal seam, inferred
18	80m NW	ROCK	Coal seam, inferred
20	103m NE	FAULT	Normal fault, inferred
22	118m N	ROCK	Coal seam, inferred
23	151m NW	ROCK	Coal seam, inferred
24	151m NE	FAULT	Normal fault, inferred
28	178m NW	LANDFORM	Crestline of elongate mound
31	218m E	ROCK	Coal seam, inferred
32	227m S	FAULT	Normal fault, inferred; crossmarks on downthrow side
34	235m E	FOSSIL_HORIZON	Fossil horizon, marine band
35	236m N	ROCK	Coal seam, inferred



ID	Location	Category	Description
36	254m E	ROCK	Coal seam, inferred coincident with bedrock geology boundary
39	271m S	FAULT	Normal fault, inferred; crossmarks on downthrow side
42	340m N	FOSSIL_HORIZON	Fossil horizon, marine band coincident with bedrock geology boundary
44	345m N	ROCK	Coal seam, inferred
46	367m E	LANDFORM	Kettle hole; closed hollow
48	385m N	ROCK	Coal seam, inferred
49	388m E	ROCK	Coal seam, inferred
50	398m E	FOSSIL_HORIZON	Fossil horizon, marine band
51	408m N	LANDFORM	Buried channel or valley margin
52	435m N	ROCK	Coal seam, inferred
53	459m SE	FAULT	Normal fault, inferred; crossmarks on downthrow side
56	477m S	FAULT	Normal fault, inferred; crossmarks on downthrow side

This data is sourced from the British Geological Survey.



2 Geology 1:50,000 scale - Availability



— Site Outline
Search buffers in metres (m)

☐ Geological map tile

2.1 50k Availability

Records within 500m

1

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

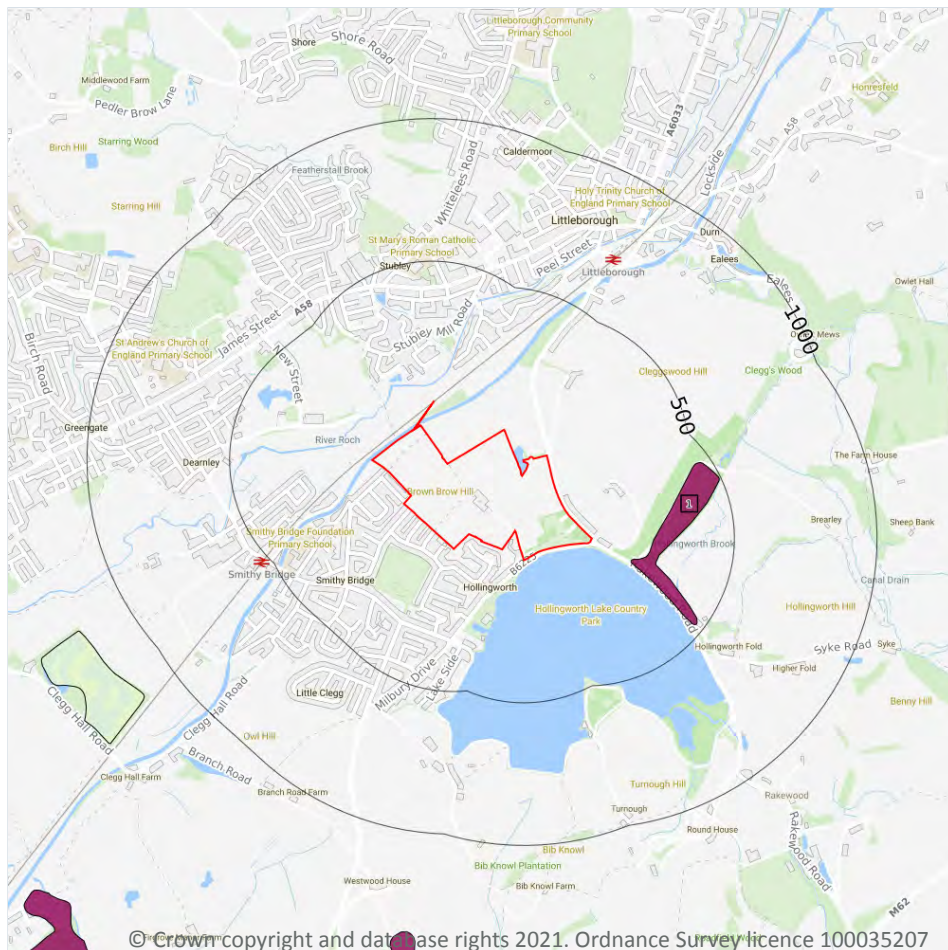
Features are displayed on the Geology 1:50,000 scale - Availability map on **page 19**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	No coverage	Full	Full	Full	EW076_rochdale_v4

This data is sourced from the British Geological Survey.



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



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

2.2 Artificial and made ground (50k)

Records within 500m

1

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

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on **page 20**

ID	Location	LEX Code	Description	Rock description
1	158m SE	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.

2.3 Artificial ground permeability (50k)

Records within 50m

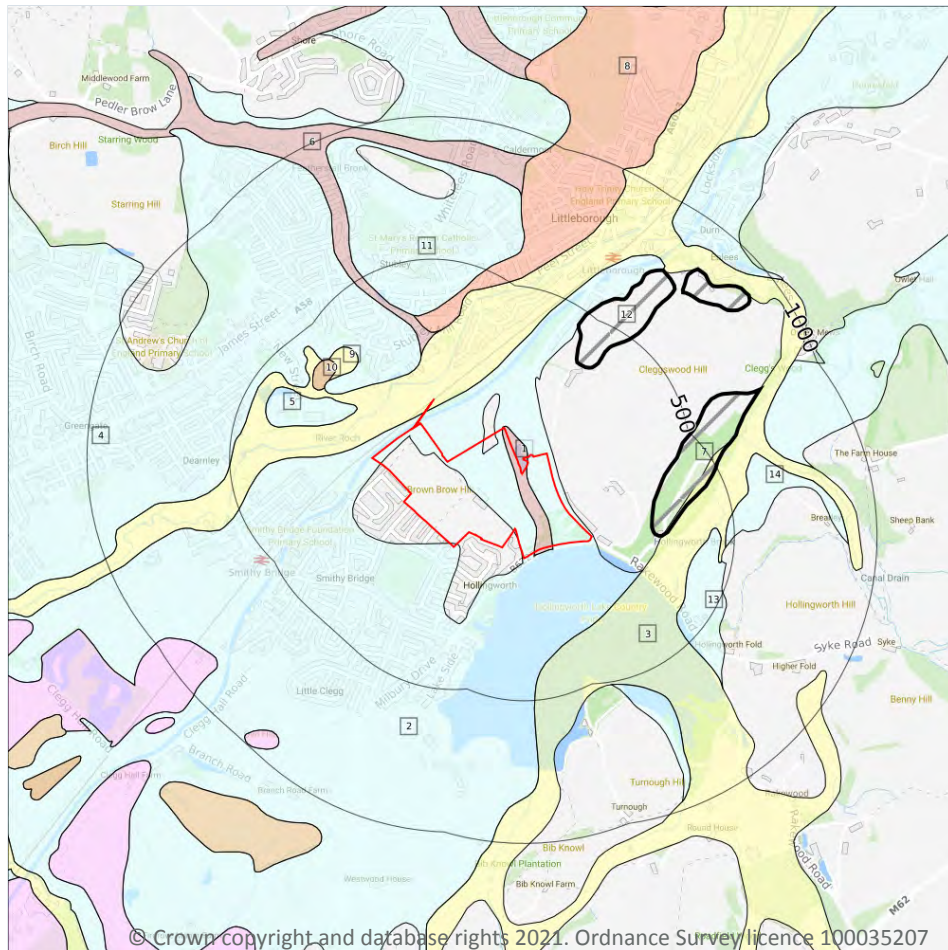
0

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

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

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

2.4 Superficial geology (50k)

Records within 500m

12

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

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 22**

ID	Location	LEX Code	Description	Rock description
1	On site	HEAD-DMTN	HEAD	DIAMICTON
2	On site	TILLD-DMTN	TILL, DEVANSIAN	DIAMICTON
3	On site	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL



ID	Location	LEX Code	Description	Rock description
4	128m NW	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
5	164m NW	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
6	167m N	HEAD-DMTN	HEAD	DIAMICTON
8	244m N	ALF-XSV	ALLUVIAL FAN DEPOSITS	SAND AND GRAVEL
9	285m NW	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
10	296m NW	PEAT-P	PEAT	PEAT
11	305m N	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
13	357m E	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
14	470m E	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON

This data is sourced from the British Geological Survey.

2.5 Superficial permeability (50k)

Records within 50m

4

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	Mixed	High	Low
On site	Mixed	High	Low
On site	Intergranular	High	Very Low
11m SE	UNKNOWN	NULL	NULL

This data is sourced from the British Geological Survey.

2.6 Landslip (50k)

Records within 500m

2

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

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 22**



ID	Location	LEX Code	Description	Rock description
7	213m E	SLIP-UNKNOWN	LANDSLIDE DEPOSITS	UNKNOWN/UNCLASSIFIED ENTRY
12	331m NE	SLIP-UNKNOWN	LANDSLIDE DEPOSITS	UNKNOWN/UNCLASSIFIED ENTRY

This data is sourced from the British Geological Survey.

2.7 Landslip permeability (50k)

Records within 50m

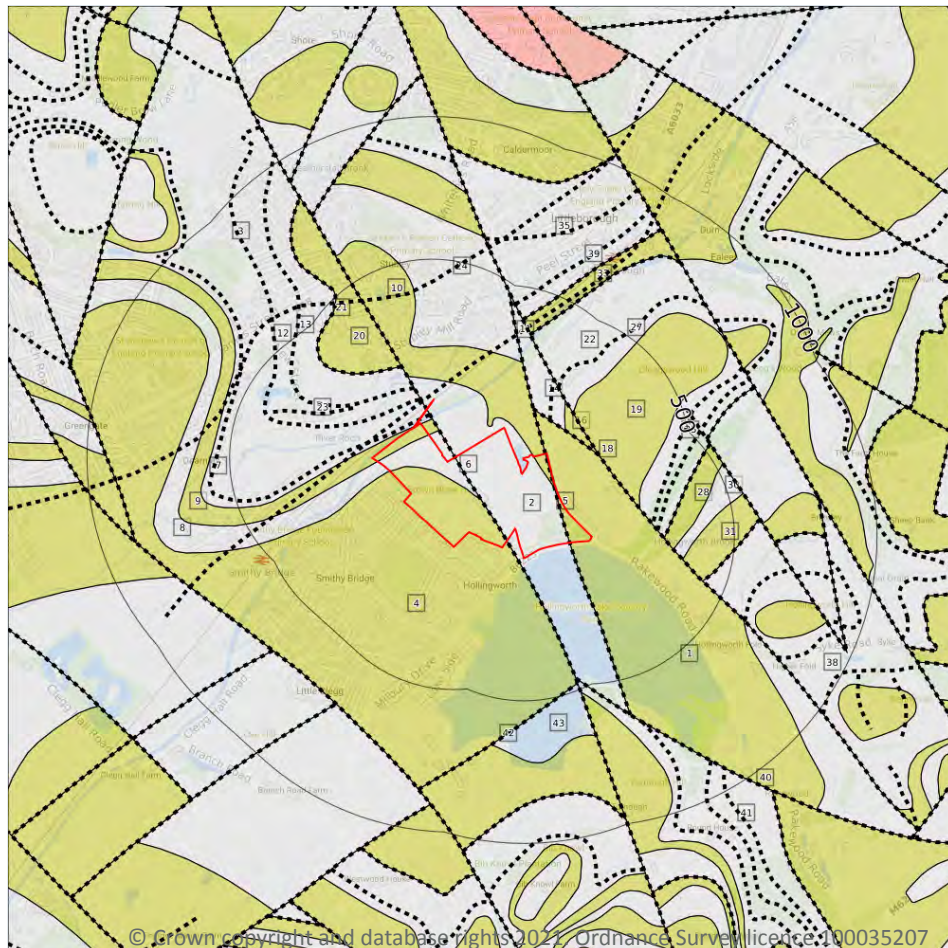
0

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

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Bedrock



— Site Outline

Search buffers in metres (m)

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

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

2.8 Bedrock geology (50k)

Records within 500m

21

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

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 25**

ID	Location	LEX Code	Description	Rock age
1	On site	MLRS-SDST	MILNROW SANDSTONE - SANDSTONE	WESTPHALIAN
2	On site	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
3	On site	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN



ID	Location	LEX Code	Description	Rock age
4	On site	MLRS-SDST	MILNROW SANDSTONE - SANDSTONE	WESTPHALIAN
8	On site	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
9	On site	DF-SDST	DARWEN FLAGS - SANDSTONE	WESTPHALIAN
10	On site	MLRS-SDST	MILNROW SANDSTONE - SANDSTONE	WESTPHALIAN
14	103m NE	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
16	103m NE	DF-SDST	DARWEN FLAGS - SANDSTONE	WESTPHALIAN
19	151m NE	DF-SDST	DARWEN FLAGS - SANDSTONE	WESTPHALIAN
20	164m NW	WH-SDST	WOODHEAD HILL ROCK - SANDSTONE	WESTPHALIAN
22	170m NE	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
24	192m N	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
28	254m E	GAS-SDST	GREAT ARC SANDSTONE - SANDSTONE	WESTPHALIAN
30	290m E	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
31	329m E	GAS-SDST	GREAT ARC SANDSTONE - SANDSTONE	WESTPHALIAN
33	340m N	GAS-SDST	GREAT ARC SANDSTONE - SANDSTONE	WESTPHALIAN
35	385m N	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
38	419m E	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
41	459m SE	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
43	477m SE	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN

This data is sourced from the British Geological Survey.



2.9 Bedrock permeability (50k)

Records within 50m

4

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	Fracture	High	Moderate
On site	Fracture	High	Moderate
On site	Fracture	High	Moderate
On site	Fracture	High	Low

This data is sourced from the British Geological Survey.

2.10 Bedrock faults and other linear features (50k)

Records within 500m

22

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

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 25**

ID	Location	Category	Description
5	On site	FAULT	Fault, inferred
6	On site	FAULT	Fault, inferred
7	On site	ROCK	Coal seam, inferred
11	22m NW	LANDFORM	Approximate margin of buried (superficial deposit-filled) channel or valley
12	35m NW	ROCK	Coal seam, inferred
13	80m NW	ROCK	Coal seam, inferred
15	103m NE	FAULT	Fault, inferred, displacement unknown
17	118m N	ROCK	Coal seam, inferred
18	151m NE	FAULT	Fault, inferred
21	164m NW	ROCK	Coal seam, inferred
23	178m NW	LANDFORM	Elongate mound crestline



ID	Location	Category	Description
25	218m E	ROCK	Coal seam, inferred
26	232m E	FOSSIL_HORIZON	Marine band
27	236m N	ROCK	Coal seam, inferred
29	254m E	ROCK	Coal seam, inferred
32	340m N	ROCK	Coal seam, inferred
34	385m N	ROCK	Coal seam, inferred
36	389m N	LANDFORM	Approximate margin of buried (superficial deposit-filled) channel or valley
37	419m E	FOSSIL_HORIZON	Marine band
39	435m N	ROCK	Coal seam, inferred
40	459m SE	FAULT	Fault, inferred
42	477m SE	FAULT	Fault, inferred

This data is sourced from the British Geological Survey.



3 Boreholes



— Site Outline
Search buffers in metres (m)

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

3.1 BGS Boreholes

Records within 250m

1

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

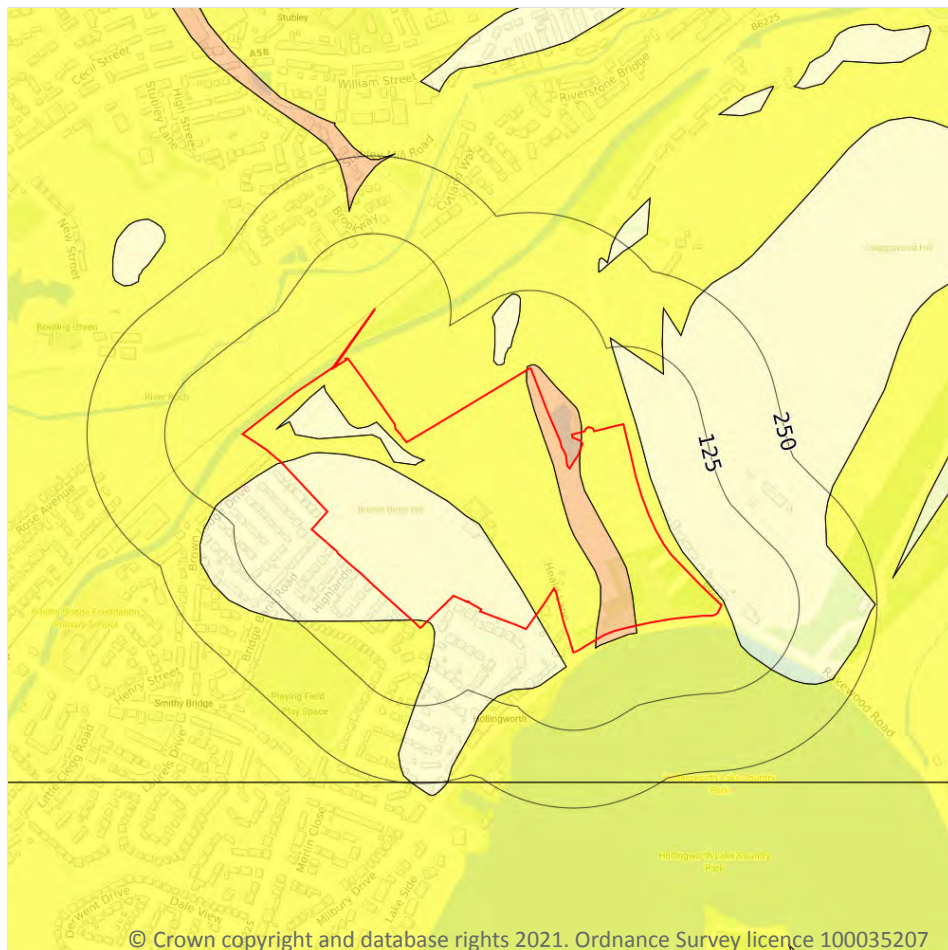
Features are displayed on the Boreholes map on **page 29**

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	137m NW	393344 415766	CLEGGSWOOD COLLIERY	115.21	N	34814

This data is sourced from the British Geological Survey.



4 Natural ground subsidence - Shrink swell clays



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

4.1 Shrink swell clays

Records within 50m

5

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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 30**

Location	Hazard rating	Details
On site	Negligible	Ground conditions predominantly non-plastic.
On site	Very low	Ground conditions predominantly low plasticity.
On site	Low	Ground conditions predominantly medium plasticity.

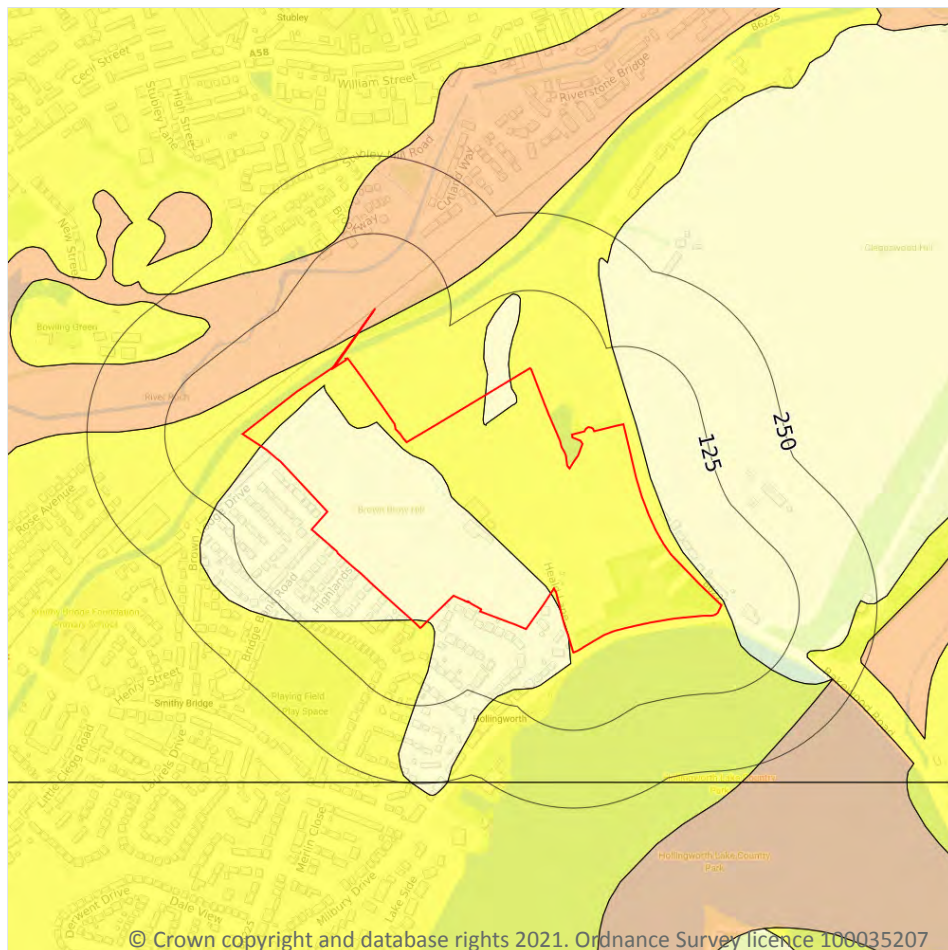


Location	Hazard rating	Details
6m NE	Negligible	Ground conditions predominantly non-plastic.
28m NW	Negligible	Ground conditions predominantly non-plastic.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Running sands



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

4.2 Running sands

Records within 50m

4

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

Features are displayed on the Natural ground subsidence - Running sands map on **page 32**

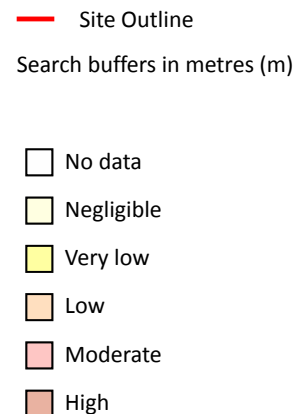
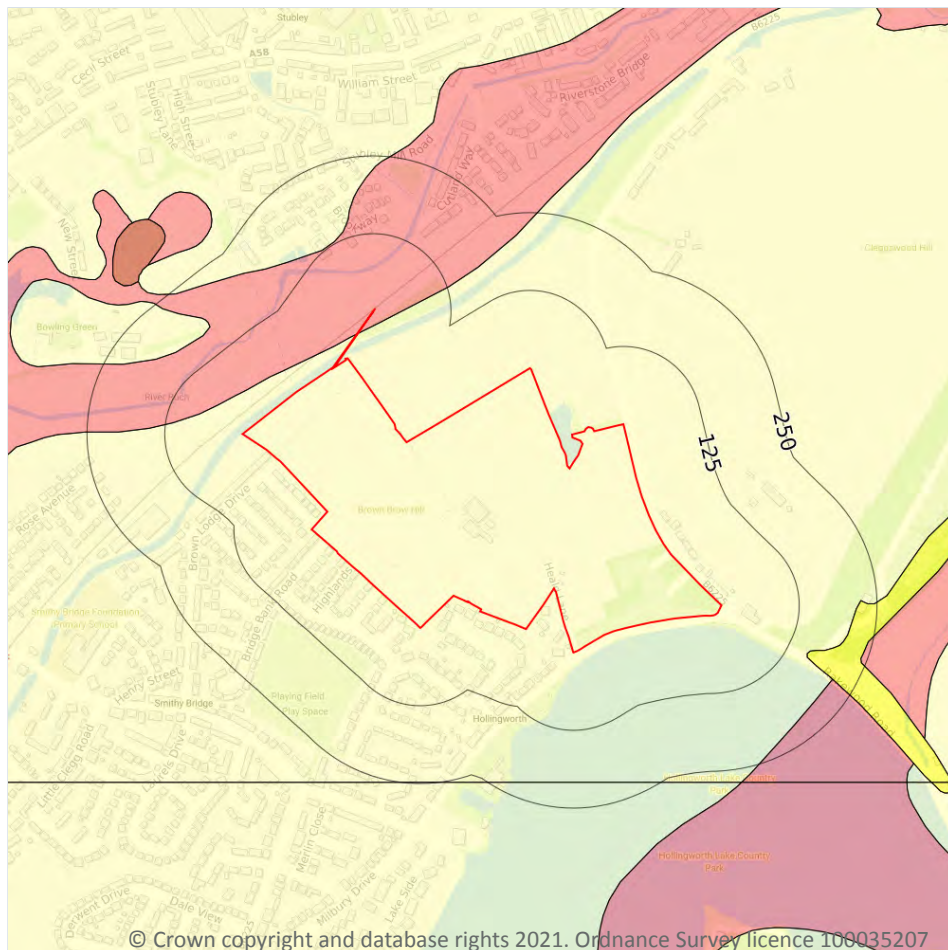
Location	Hazard rating	Details
On site	Negligible	Running sand conditions are not thought to occur whatever the position of the water table. No identified constraints on lands use due to running conditions.

Location	Hazard rating	Details
On site	Very low	Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.
On site	Low	Running sand conditions may be present. Constraints may apply to land uses involving excavation or the addition or removal of water.
6m NE	Negligible	Running sand conditions are not thought to occur whatever the position of the water table. No identified constraints on lands use due to running conditions.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Compressible deposits



4.3 Compressible deposits

Records within 50m

2

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

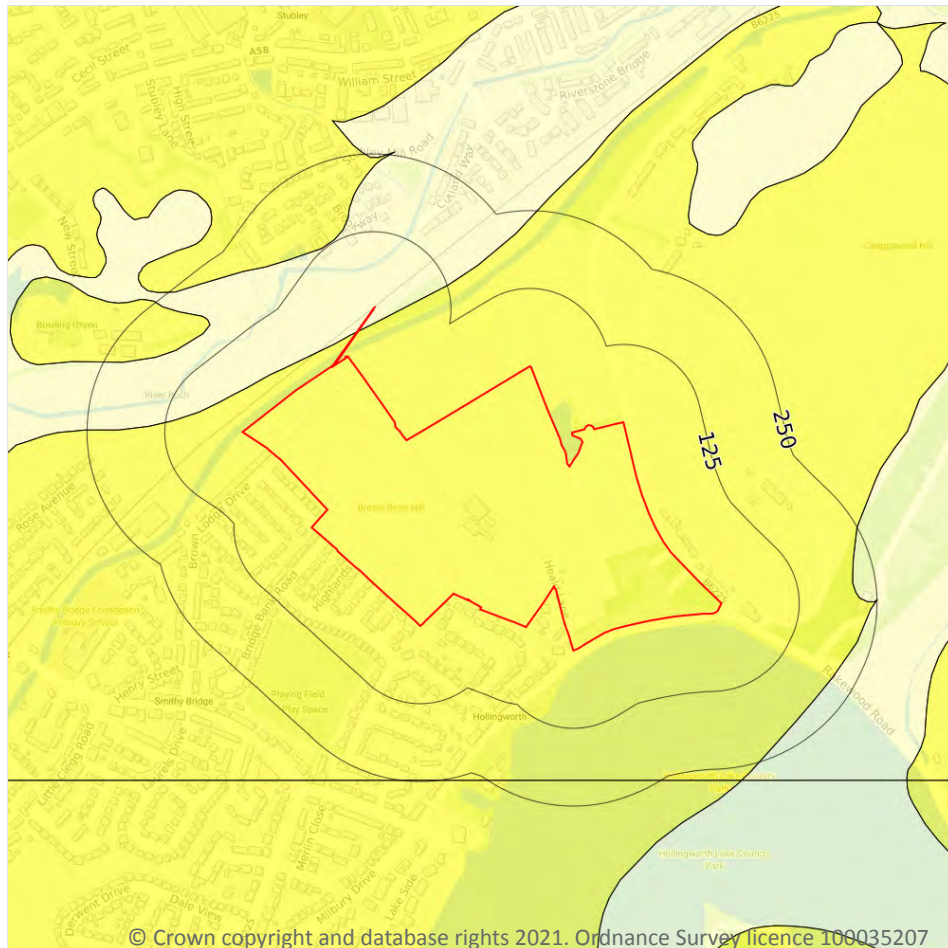
Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 34**

Location	Hazard rating	Details
On site	Negligible	Compressible strata are not thought to occur.
On site	Moderate	Compressibility and uneven settlement hazards are probably present. Land use should consider specifically the compressibility and variability of the site.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Collapsible deposits



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

4.4 Collapsible deposits

Records within 50m

2

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

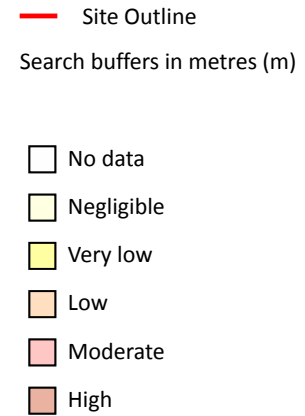
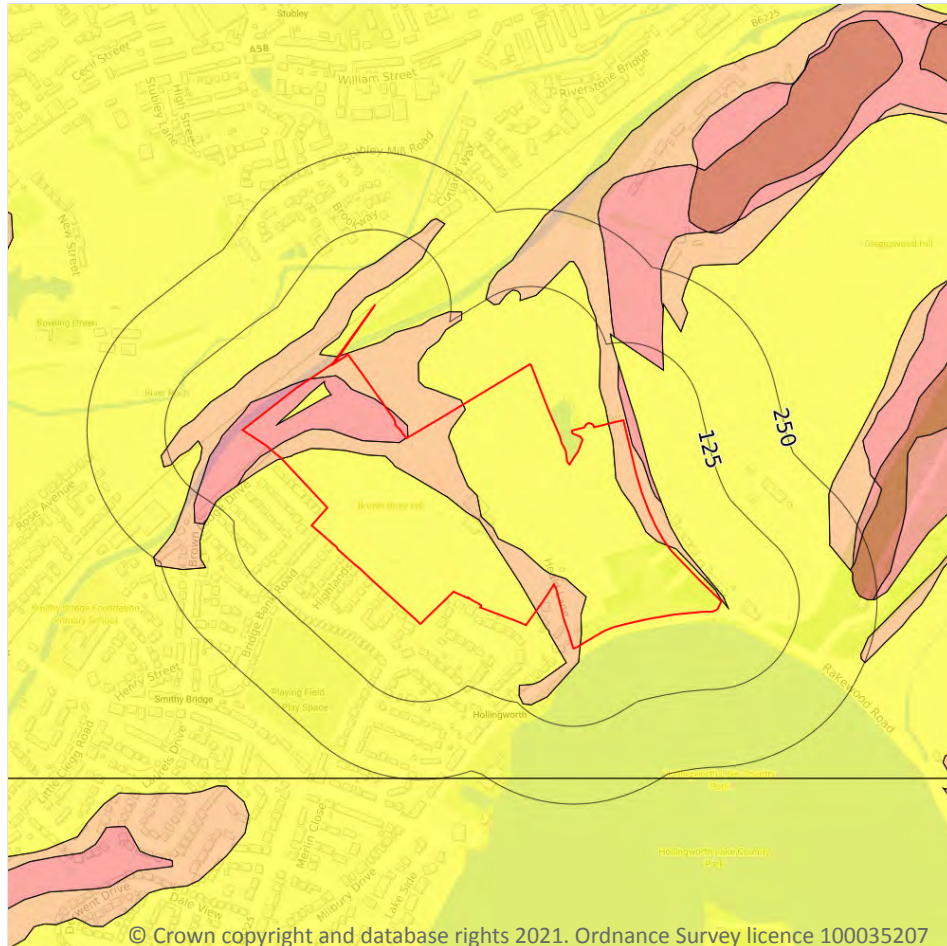
Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 36**

Location	Hazard rating	Details
On site	Negligible	Deposits with potential to collapse when loaded and saturated are believed not to be present.
On site	Very low	Deposits with potential to collapse when loaded and saturated are unlikely to be present.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Landslides



4.5 Landslides

Records within 50m

4

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

Features are displayed on the Natural ground subsidence - Landslides map on **page 37**

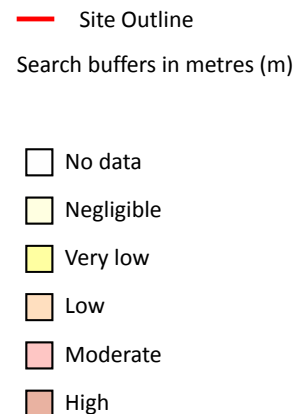
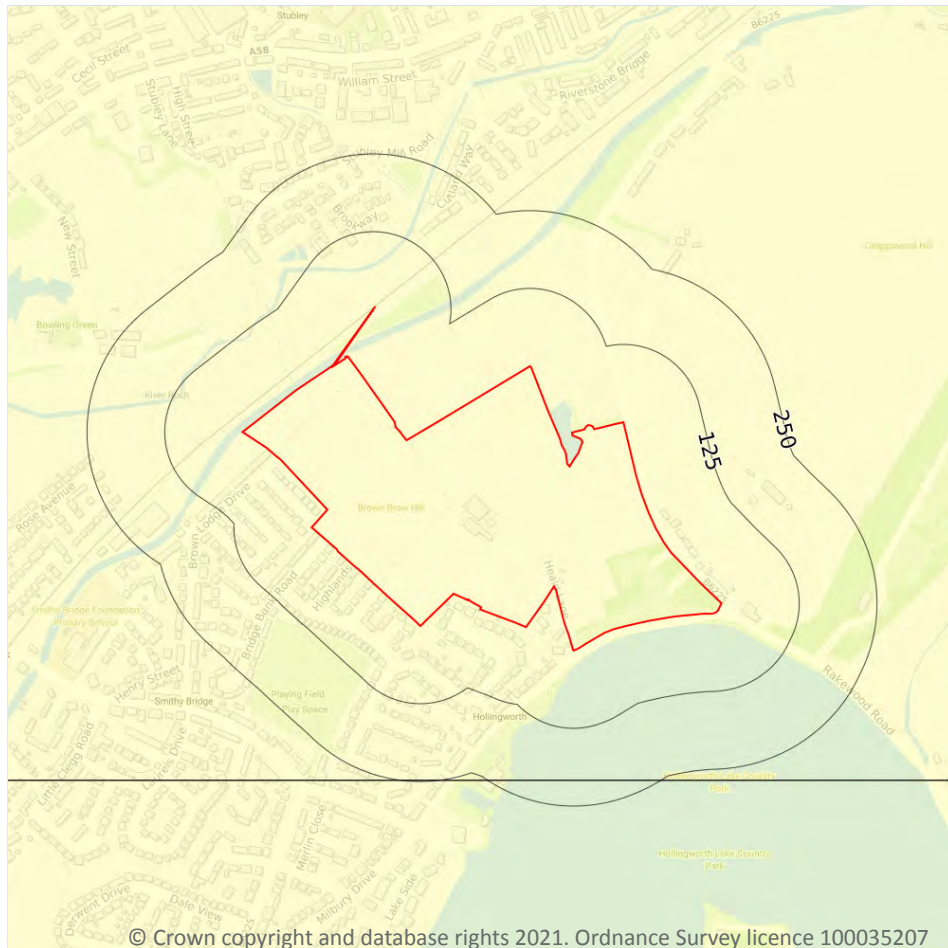
Location	Hazard rating	Details
On site	Very low	Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.

Location	Hazard rating	Details
On site	Low	Slope instability problems may be present or anticipated. Site investigation should consider specifically the slope stability of the site.
On site	Moderate	Slope instability problems are probably present or have occurred in the past. Land use should consider specifically the stability of the site.
5m E	Moderate	Slope instability problems are probably present or have occurred in the past. Land use should consider specifically the stability of the site.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Ground dissolution of soluble rocks



4.6 Ground dissolution of soluble rocks

Records within 50m

1

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

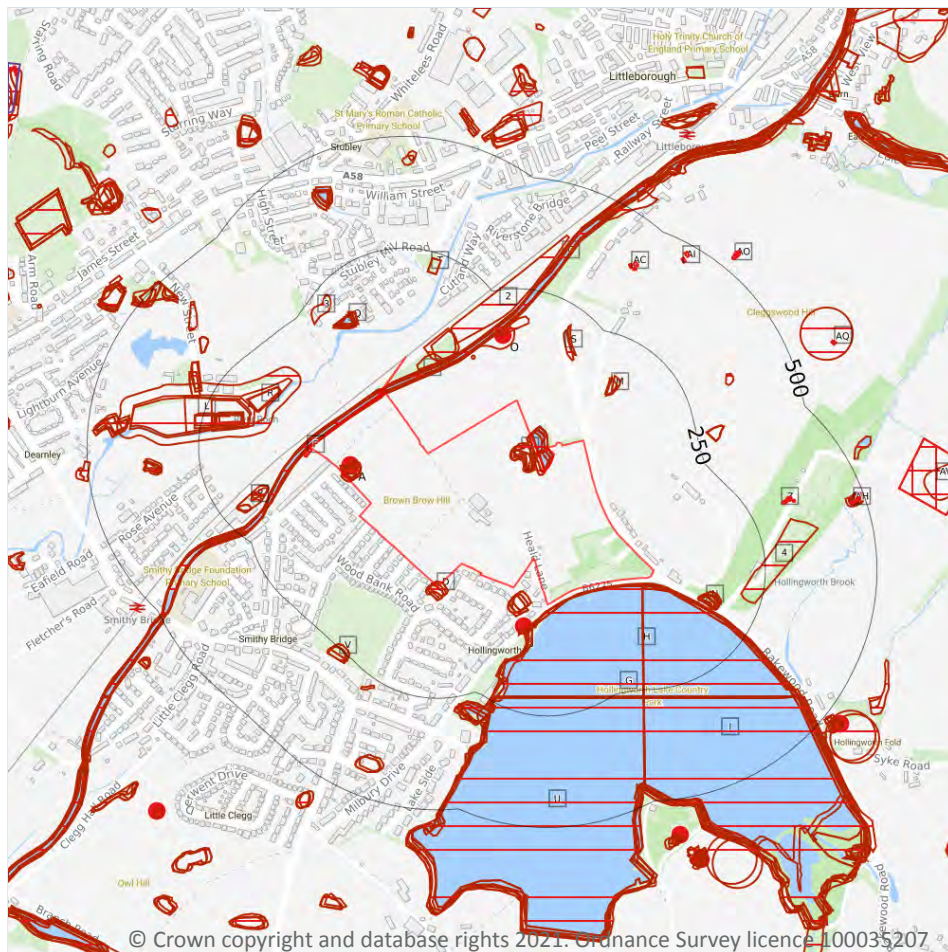
Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 39**

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

This data is sourced from the British Geological Survey.



5 Mining, ground workings and natural cavities



- Site Outline
- Search buffers in metres (m)
- ▢ Natural cavities (Area)
- Natural cavities (Point)
- BritPits
- ▢ Surface ground workings
- ▢ Underground workings
- ▢ Historical Mineral Planning Areas
- Mining Cavities
- Non Coal Mining
- ▢ Sporadic underground mining of restricted extent possible
- ▢ Localised small scale underground mining possible
- ▢ Small scale mining possible
- ▢ Underground mining known or likely within or in close proximity
- ▢ Underground mining known within or in very close proximity

5.1 Natural cavities

Records within 500m

0

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

This data is sourced from Stantec UK Ltd.

5.2 BritPits

Records within 500m

3

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

Features are displayed on the Mining, ground workings and natural cavities map on **page 40**

ID	Location	Details	Description
A	On site	Name: Brown Brow Hill Address: LITTLEBOROUGH, Lancashire Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
J	73m SW	Name: Hollingworth Address: Hollingworth, LITTLEBOROUGH, Lancashire Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
O	149m N	Name: Clough Field Address: LITTLEBOROUGH, Lancashire Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.

5.3 Surface ground workings

Records within 250m

109

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

Features are displayed on the Mining, ground workings and natural cavities map on **page 40**

ID	Location	Land Use	Year of mapping	Mapping scale
A	On site	Unspecified Quarry	1949	1:10560
A	On site	Unspecified Quarry	1928	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
A	On site	Unspecified Old Quarry	1908	1:10560
A	On site	Unspecified Quarry	1938	1:10560
A	On site	Unspecified Old Quarry	1890	1:10560
A	On site	Sandstone Quarry	1851	1:10560
A	On site	Unspecified Pit	1968	1:10560
B	On site	Unspecified Pit	1938	1:10560
B	On site	Pond	1989	1:10000
B	On site	Pond	1976	1:10000
B	On site	Reservoir	1949	1:10560
B	On site	Unspecified Ground Workings	1928	1:10560
B	On site	Reservoir	1928	1:10560
B	On site	Reservoir	1908	1:10560
B	On site	Pond	1968	1:10560
B	On site	Unspecified Pits	1989	1:10000
B	On site	Unspecified Pits	1976	1:10000
B	On site	Unspecified Pit	1949	1:10560
B	On site	Reservoir	1938	1:10560
B	On site	Reservoir	1890	1:10560
B	On site	Unspecified Pits	1968	1:10560
C	On site	Disused Canal	1989	1:10000
C	On site	Disused Canal	1976	1:10000
C	On site	Canal	1949	1:10560
C	On site	Canal	1968	1:10560
D	On site	Pond	1949	1:10560
D	On site	Pond	1968	1:10560
D	On site	Pond	1938	1:10560
E	On site	Canal	1928	1:10560
E	On site	Canal	1908	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
E	On site	Canal	1938	1:10560
E	On site	Canal	1890	1:10560
D	1m SW	Pond	1928	1:10560
D	1m SW	Pond	1908	1:10560
G	10m S	Lake	1890	1:10560
G	10m SE	Reservoir	1851	1:10560
G	11m SE	Lake	1928	1:10560
G	11m SE	Lake	1908	1:10560
G	12m SE	Lake	1938	1:10560
H	12m S	Lake	1989	1:10000
H	12m S	Lake	1976	1:10000
H	12m S	Lake	1968	1:10560
I	14m S	Lake	1910	1:10560
J	16m SE	Unspecified Quarry	1938	1:10560
I	16m S	Lake	1910	1:10560
J	17m SE	Unspecified Quarry	1949	1:10560
J	17m SE	Unspecified Quarry	1968	1:10560
J	19m S	Unspecified Quarry	1928	1:10560
J	19m S	Unspecified Old Quarry	1908	1:10560
J	20m SE	Unspecified Old Quarry	1890	1:10560
1	23m S	Lake	1890	1:10560
K	32m SE	Refuse Heap	1908	1:10560
K	52m NE	Refuse Heap	1928	1:10560
K	68m E	Refuse Heap	1938	1:10560
J	74m SW	Sandstone Quarry	1851	1:10560
L	104m NW	Sewage Works	1890	1:10560
M	112m NE	Unspecified Pit	1938	1:10560
M	115m NE	Unspecified Pit	1928	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
N	116m SE	Unspecified Pit	1928	1:10560
N	117m SE	Unspecified Ground Workings	1908	1:10560
O	120m N	Sandstone Quarry	1851	1:10560
N	121m SE	Unspecified Pit	1938	1:10560
L	121m NW	Sewage Works	1949	1:10560
N	122m SE	Unspecified Pit	1910	1:10560
2	122m E	Unspecified Pit	1989	1:10000
N	125m SE	Unspecified Pit	1910	1:10560
N	125m SE	Unspecified Pit	1910	1:10560
N	127m SE	Unspecified Pit	1976	1:10000
N	127m SE	Unspecified Pit	1949	1:10560
N	127m SE	Unspecified Pit	1968	1:10560
M	127m NE	Unspecified Pit	1949	1:10560
C	129m NW	Old Coal Pit	1851	1:10560
P	129m SW	Refuse Heap	1938	1:10560
Q	130m NW	Pond	1989	1:10000
Q	130m NW	Pond	1976	1:10000
Q	130m NW	Pond	1968	1:10560
Q	131m NW	Reservoirs	1938	1:10560
P	133m SW	Refuse Heap	1928	1:10560
Q	134m NW	Reservoirs	1949	1:10560
Q	134m NW	Reservoirs	1928	1:10560
Q	134m NW	Reservoirs	1908	1:10560
Q	135m NW	Reservoirs	1890	1:10560
L	136m W	Sewage Works	1938	1:10560
R	137m NW	Pond	1938	1:10560
R	140m NW	Pond	1928	1:10560
L	146m W	Sewage Works	1928	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
L	147m W	Sewage Works	1908	1:10560
O	151m N	Unspecified Heap	1938	1:10560
S	153m NE	Unspecified Ground Workings	1938	1:10560
P	156m SW	Refuse Heap	1908	1:10560
L	159m W	Filter Tanks	1908	1:10560
L	159m W	Ponds	1949	1:10560
L	160m W	Pond	1890	1:10560
L	161m W	Ponds	1938	1:10560
S	164m NE	Unspecified Ground Workings	1949	1:10560
P	189m SW	Refuse Heap	1928	1:10560
P	189m SW	Refuse Heap	1908	1:10560
3	200m NW	Pond	1989	1:10000
4	202m E	Refuse Heap	1968	1:10560
T	204m N	Pond	1989	1:10000
T	204m N	Pond	1976	1:10000
U	207m S	Lake	1976	1:10000
U	207m S	Lake	1967	1:10560
U	207m S	Lake	1954	1:10560
L	221m W	Ponds	1949	1:10560
V	240m SW	Unspecified Pit	1949	1:10560
V	240m SW	Unspecified Pit	1968	1:10560
V	247m SW	Unspecified Pit	1938	1:10560
V	248m SW	Unspecified Pit	1928	1:10560

This is data is sourced from Ordnance Survey/Groundsure.



5.4 Underground workings

Records within 1000m

52

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

Features are displayed on the Mining, ground workings and natural cavities map on **page 40**

ID	Location	Land Use	Year of mapping	Mapping scale
F	2m SW	Old Air Shaft	1949	1:10560
F	10m SW	Old Air Shaft	1938	1:10560
F	16m SW	Old Air Shaft	1928	1:10560
F	16m SW	Old Air Shaft	1908	1:10560
Z	326m NE	Old Coal Shafts	1908	1:10560
Z	326m NE	Unspecified Old Shafts	1928	1:10560
Z	332m NE	Unspecified Old Shafts	1938	1:10560
Z	337m NE	Old Coal Shafts	1911	1:10560
Z	338m NE	Unspecified Shaft	1890	1:10560
Z	339m NE	Unspecified Disused Shaft	1976	1:10000
Z	339m NE	Unspecified Disused Shaft	1968	1:10560
Z	345m NE	Unspecified Old Shafts	1949	1:10560
Z	348m NE	Unspecified Shaft	1892	1:10560
AC	392m NE	Clay Level	1908	1:10560
AC	392m NE	Old Air Shaft	1928	1:10560
AC	394m NE	Old Air Shaft	1938	1:10560
AC	402m NE	Unspecified Disused Shaft	1989	1:10000
AC	404m NE	Old Air Shaft	1949	1:10560
AI	458m NE	Clay Level	1908	1:10560
AH	468m E	Old Coal Shafts	1908	1:10560
AH	468m E	Unspecified Old Shafts	1928	1:10560
AI	473m NE	Clay Level	1911	1:10560
AH	474m E	Unspecified Old Shafts	1938	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
AH	482m E	Old Coal Shafts	1911	1:10560
AH	482m E	Unspecified Disused Shaft	1976	1:10000
AH	482m E	Unspecified Disused Shaft	1968	1:10560
AH	486m E	Unspecified Old Shafts	1949	1:10560
AO	527m NE	Old Air Shaft	1928	1:10560
AO	527m NE	Air Shaft	1908	1:10560
AO	533m NE	Old Air Shaft	1938	1:10560
AO	535m NE	Air Shaft	1890	1:10560
AO	538m NE	Unspecified Disused Shaft	1976	1:10000
AO	538m NE	Unspecified Old Shaft	1968	1:10560
AO	541m NE	Air Shaft	1911	1:10560
AO	546m NE	Old Air Shaft	1949	1:10560
AV	579m E	Colliery	1892	1:10560
AQ	597m E	Unspecified Old Level	1928	1:10560
AQ	600m E	Unspecified Old Level	1938	1:10560
-	797m E	Unspecified Old Shaft	1930	1:10560
-	797m E	Unspecified Old Shaft	1909	1:10560
-	797m E	Unspecified Old Shaft	1910	1:10560
-	803m E	Unspecified Disused Shaft	1976	1:10000
-	803m E	Unspecified Disused Shaft	1968	1:10560
-	810m E	Unspecified Old Shaft	1949	1:10560
-	894m SE	Unspecified Disused Shaft	1976	1:10000
-	898m SE	Old Air Shaft	1930	1:10560
-	898m SE	Old Air Shaft	1909	1:10560
-	900m SE	Disused Air Shaft	1967	1:10560
-	900m SE	Old Air Shaft	1954	1:10560
-	902m SE	Old Air Shaft	1910	1:10560
-	902m SE	Air Shaft	1890	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
-	910m SE	Air Shaft	1891	1:10560

This data is sourced from Ordnance Survey/Groundsure.

5.5 Historical Mineral Planning Areas

Records within 500m

0

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

This data is sourced from the British Geological Survey.

5.6 Non-coal mining

Records within 1000m

0

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

This data is sourced from the British Geological Survey.

5.7 Mining cavities

Records within 1000m

0

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

This data is sourced from Stantec UK Ltd.

5.8 JPB mining areas

Records on site

0

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

This data is sourced from Johnson Poole and Bloomer.

5.9 Coal mining

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

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

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

This data is sourced from the Coal Authority.

5.10 Brine areas

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

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

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

5.11 Gypsum areas

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

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

5.12 Tin mining

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

Generalised areas that may be affected by historical tin mining.

This data is sourced from Mining Searches UK.

5.13 Clay mining

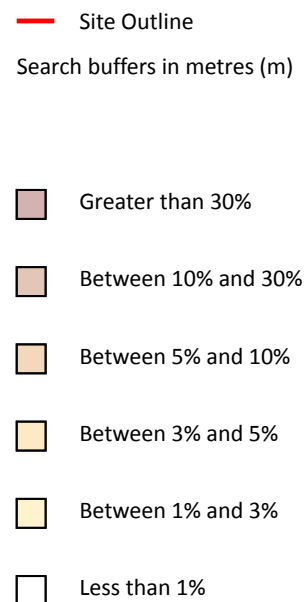
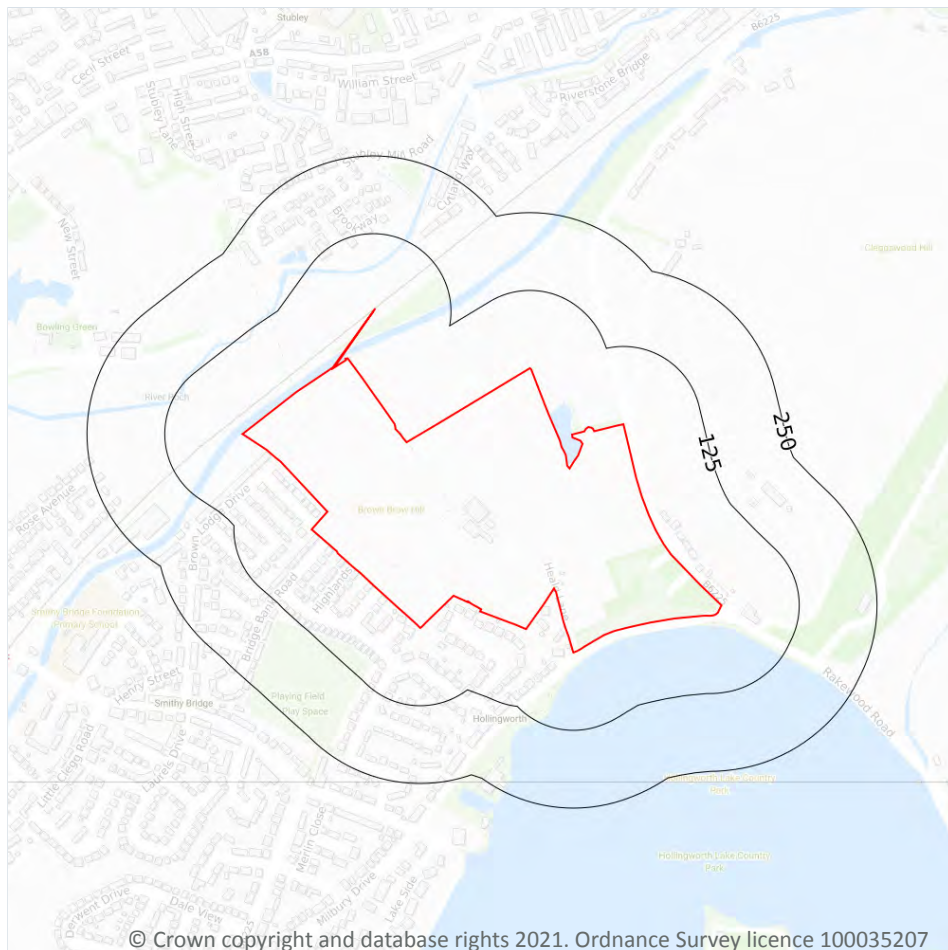
Records on site	0
-----------------	---

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

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



6 Radon



6.1 Radon

Records on site

1

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

Features are displayed on the Radon map on **page 50**

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

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



7 Soil chemistry

7.1 BGS Estimated Background Soil Chemistry

Records within 50m

33

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km². In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km²; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 - 2.2 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 - 2.2 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
On site	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 - 2.2 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 - 2.2 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
On site	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
On site	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 - 2.2 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg



Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 - 2.2 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 - 2.2 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 - 2.2 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 - 2.2 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
7m NE	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 - 2.2 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
14m SE	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
21m W	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
21m W	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
29m NW	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
29m N	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
29m W	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
31m W	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg



Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
32m SW	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
39m W	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
39m W	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

7.2 BGS Estimated Urban Soil Chemistry

Records within 50m

0

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km²).

This data is sourced from the British Geological Survey.

7.3 BGS Measured Urban Soil Chemistry

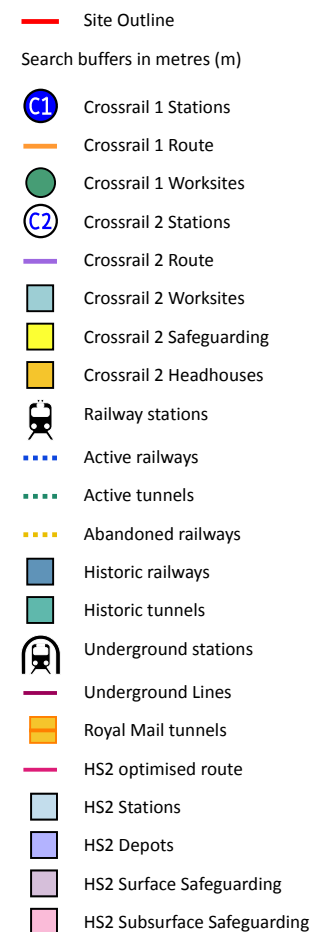
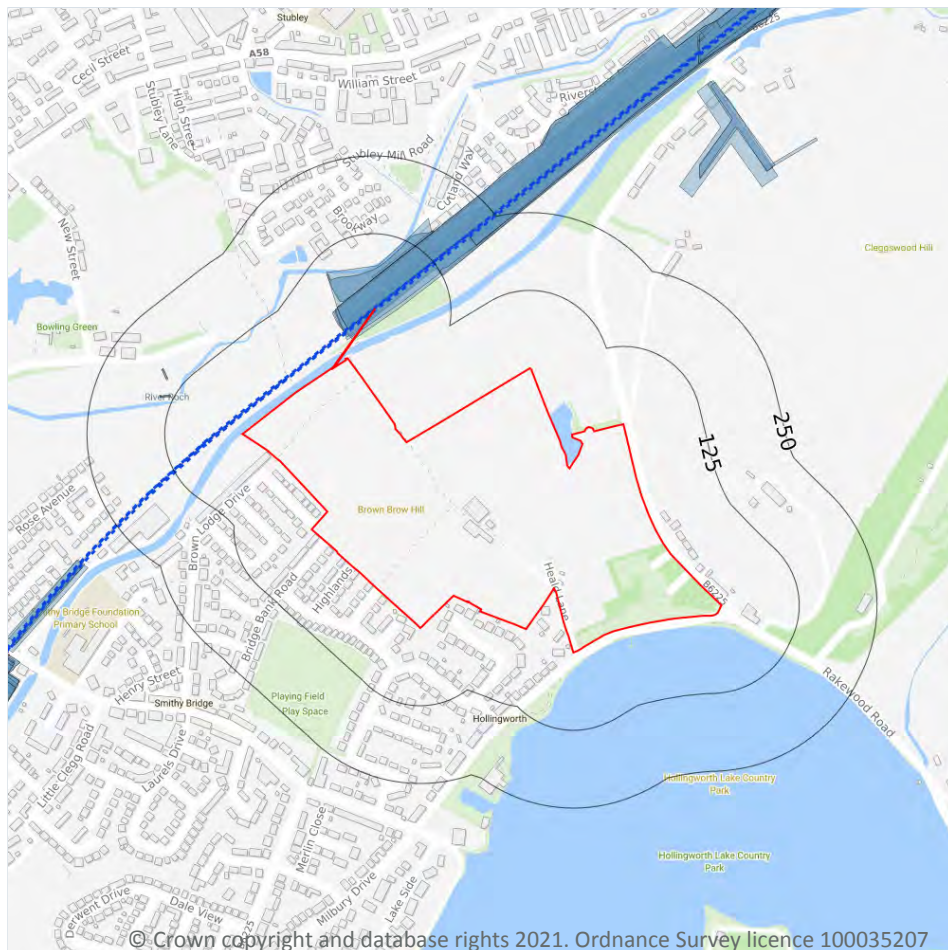
Records within 50m

0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km².

This data is sourced from the British Geological Survey.

8 Railway infrastructure and projects



8.1 Underground railways (London)

Records within 250m

0

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

This data is sourced from publicly available information by Groundsure.

8.2 Underground railways (Non-London)

Records within 250m

0

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



This data is sourced from publicly available information by Groundsure.

8.3 Railway tunnels

Records within 250m

0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

8.4 Historical railway and tunnel features

Records within 250m

22

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

Features are displayed on the Railway infrastructure and projects map on **page 54**

Location	Land Use	Year of mapping	Mapping scale
On site	Railway Sidings	1928	10560
On site	Railway Sidings	1908	10560
On site	Railway Sidings	1938	10560
On site	Railway Sidings	1890	10560
3m NW	Railway Sidings	1910	2500
3m NW	Railway Sidings	1930	2500
3m NW	Railway Sidings	1938	2500
3m NW	Railway Sidings	1949	10560
3m NW	Railway Sidings	1968	10560
4m NW	Railway Sidings	1960	1250
6m NW	Railway Sidings	1959	2500
9m NW	Railway Sidings	1891	2500
40m NW	Railway Sidings	1959	2500
41m NW	Railway Sidings	1968	10560
41m NW	Railway Sidings	1960	1250
53m N	Railway Sidings	1987	1250
130m NW	Railway Sidings	1960	1250



Location	Land Use	Year of mapping	Mapping scale
131m NW	Railway Sidings	1959	2500
149m NW	Railway Sidings	1960	1250
150m NW	Railway Sidings	1959	2500
202m NE	Railway Sidings	1959	2500
218m NE	Railway Sidings	1930	2500

This data is sourced from Ordnance Survey/Groundsure.

8.5 Royal Mail tunnels

Records within 250m **0**

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

This data is sourced from Groundsure/the Postal Museum.

8.6 Historical railways

Records within 250m **0**

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

This data is sourced from OpenStreetMap.

8.7 Railways

Records within 250m **15**

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways. Features are displayed on the Railway infrastructure and projects map on **page 54**

Location	Name	Type
On site	Caldervale Line	rail
2m NW	Not given	Multi Track
3m NW	Caldervale Line	rail
25m NW	Caldervale Line	rail



Location	Name	Type
26m NW	Caldervale Line	rail
29m NW	Caldervale Line	rail
29m NW	Caldervale Line	rail
61m W	Caldervale Line	rail
63m W	Caldervale Line	rail
69m W	Not given	Multi Track
78m W	Caldervale Line	rail
79m W	Caldervale Line	rail
90m W	Not given	Multi Track
176m SW	Not given	Multi Track
215m NE	Not given	Multi Track

This data is sourced from Ordnance Survey and OpenStreetMap.

8.8 Crossrail 1

Records within 500m

0

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

This data is sourced from publicly available information by Groundsure.

8.9 Crossrail 2

Records within 500m

0

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

This data is sourced from publicly available information by Groundsure.

8.10 HS2

Records within 500m

0

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



is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 Ltd.



Data providers

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

Terms and conditions

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



Appendix E BGS Boreholes



Draw up graphically.

Lancashire ^{6" map} 9 ^W E
Littleborough

British Geological Survey

bleggwood bolling
Littleborough.

British Geological Survey

British Geological Survey S.D. 91 NW/6

bleggwood Bolling is at Littleborough alongside the Rochdale Canal and the Lancashire & Yorkshire Railway, 750 yards southwest of Littleborough Railway Station. Now disused. Formerly worked by Messrs Thomas Huxley & Co. about 1880 to 4/10 feet O.D.
 Sifted below

	Thickness		Depth		Thickness (meters)	Depth
	ft	in	ft	in		
[Glind. 21 ft]						
{ Clay & gravel	19	0	19	0	5	79
{ Sand & loam	2	0	21	0	0	61
3 Sandstone MS	44	0	65	0	13	41
10 Grey layers. Rocky bands.	6	6	71	6	1	98
28 Grey layers. Sandy shales.	5	6	77	0	1	68
28 Strong black shales.	21	6	98	6	6	55
27 Grey layers. Sandy shales with water.	1	6	100	0	0	46
26 Iron band.	7		100	7	0	15
25 Black shale	16	5	117	0	5	00
24 Grey layers. Sandy shales.	5	0	122	0	1	53
23 Black shale with very hard bands of fossils.	31	0	153	0	9	44
22 Iron band.	4		153	4	0	11
21 Incl. Coal coal	1		153	5	0	02
20 Grey layers	5	0	158	5	1	53
19 White sandstone DF	24	6	182	11	7	46
18 Soft sand	3		183	2	0	08
17 Grey layers	5	10	189	0	1	75
16 Grey layers with each band.	12	6	201	6	3	51
15 Soft sand	1		201	7	0	02
14 Black shale	21	7	228	2	8	11
13 Iron	9		228	10	0	20
12 Black shale	7	0	235	10	2	13
11 Forty Yards Mine Coal UM	1	4	237	2	0	41
10 Clay.	6	0	243	2	1	53
9 Black shale with iron bands.	26	0	269	2	7	42
8 Incl. Mine Coal Inch	1		269	3	0	03
7 Clay.	12	0	281	3	3	66
6 Strong black shale with each band & increasing water	56	0	337	3	17	06
5 Bullion Coal UFF	1	0	338	3	0	31
4 Stone clunch or rock warrant	6	0	344	3	1	83
3 Grey layers. Sandy shales.	10	0	379	3	9	14
2 Mountain Mine Coal UM	2	2	376	5	0	66
1 Granite or very hard rock	1	7	378	0	0	48

R.C. Coth
18/10/99

British Geological Survey

British Geological Survey

British Geological Survey

Appendix F Information from Rochdale Borough Council

From: [Michael Moore P](#)
To: [Brightwell, Katherine](#)
Subject: RE: Hollingworth Road, Littleborough, Rochdale
Date: 23 September 2022 11:26:20
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)

Good morning Katherine,

- Registered landfill/waste sites
Landfill approximately 300m east, Rifle Road, accepted some domestic refuse, venting installed on site
Landfill situated at the portion of the site just south of the railway line, part of the former Akza Nobel site, the Paragon Industrial Estate landfill accepted industrial waste, was investigated as part of the Akza Nobel development.
- Contaminated Land sites under Part 2A Environmental Protection Act 1990 (or potentially contaminated sites which may require further investigation)
There are no areas on site or within the site proximity that has been determined as contaminated in accordance with Part 2A of the 1990 EPA, neither are there any Part 2A inspections currently being planned.
- Pollution incidents
There are no pollution incidents recorded within proximity of the site.
- Intrusive investigations and/or remediation
The former Akza Nobel site situated to the east of the site, since the reports are large I've arranged for the reports to be sent via a link for downloading separately.
- Registered private water supplies under the Private Water Supply (England) Regulations 2016
There are no registered private water supplies within 250m of the site.

Regards

Michael Moore P

Environmental Health Senior Officer (Environment Prot)
Place



 [01706 924107](tel:01706924107)

 [07976 059366](tel:07976059366)

 michael.moore@rochdale.gov.uk

Rochdale Borough Council
Floor 3, Number One Riverside
Smith Street, Rochdale, OL16 1XU

To access our services go to www.rochdale.gov.uk
For news, events and social media updates go to www.rochdale.gov.uk/newsandevents

Please consider the environment before printing this email.

From: Brightwell, Katherine <Katherine.Brightwell@stantec.com>

Sent: 22 September 2022 08:44

To: Michael Moore P <Michael.Moore@rochdale.gov.uk>

Subject: RE: Hollingworth Road, Littleborough, Rochdale

Hi Michael

Yep that's fine, please proceed.

Kind regards

Katherine Brightwell

Geoenvironmental Engineer

Direct: 01223802914

Mobile: 07599200473

katherine.brightwell@stantec.com

Cambridge

Address: 3rd Floor, 50-60 Station Road, Cambridge, CB1 2JH



The content of this email is the confidential property of Stantec and should not be copied, modified, retransmitted, or used for any purpose except with Stantec's written authorization. If you are not the intended recipient, please delete all copies and notify us immediately.

From: Michael Moore P <Michael.Moore@rochdale.gov.uk>

Sent: 22 September 2022 07:18

To: Brightwell, Katherine <Katherine.Brightwell@stantec.com>

Subject: RE: Hollingworth Road, Littleborough, Rochdale

Morning Katherine,

I do believe we've reports relating to Akza Nobel, however if you want me to send them the original charge will apply as it will take some time to dig them out and make sure I can email them.

Is that acceptable?

Michael Moore P

Environmental Health Senior Officer (Environment Prot)
Place



 01706 924107

 07976 059366

 michael.moore@rochdale.gov.uk

Rochdale Borough Council
Floor 3, Number One Riverside
Smith Street, Rochdale, OL16 1XU

To access our services go to www.rochdale.gov.uk

For news, events and social media updates go to www.rochdale.gov.uk/newsandevents

Please consider the environment before printing this email.

From: Brightwell, Katherine <Katherine.Brightwell@stantec.com>

Sent: 21 September 2022 15:56

To: Michael Moore P <Michael.Moore@rochdale.gov.uk>

Subject: RE: Hollingworth Road, Littleborough, Rochdale

Hi Michael

An email would suffice. Do you hold copies of the ground investigation/remediation reports relating to the work undertaken at the former Akzo Nobel site to the north of our subject site? I have had a look on the planning portal but cannot find any records.

Kind regards

Katherine Brightwell

Geoenvironmental Engineer

Direct: 01223802914

Mobile: 07599200473

katherine.brightwell@stantec.com

Cambridge

Address: 3rd Floor, 50-60 Station Road, Cambridge, CB1 2JH



The content of this email is the confidential property of Stantec and should not be copied, modified, retransmitted, or used for any purpose except with Stantec's written authorization. If you are not the intended recipient, please delete all copies and notify us immediately.

From: Michael Moore P <Michael.Moore@rochdale.gov.uk>

Sent: 21 September 2022 14:09

To: Brightwell, Katherine <Katherine.Brightwell@stantec.com>

Subject: RE: Hollingworth Road, Littleborough, Rochdale

Good afternoon Katherine,

I'm afraid I'm having problems with the software that produces the reports.

If the matter has become urgent I could send a email response for which there will be no charge?

Regards

Michael Moore P

Environmental Health Senior Officer (Environment Prot)
Place



 [01706 924107](tel:01706924107)

 [07976 059366](tel:07976059366)

 michael.moore@rochdale.gov.uk

Rochdale Borough Council
Floor 3, Number One Riverside
Smith Street, Rochdale, OL16 1XU

To access our services go to www.rochdale.gov.uk

For news, events and social media updates go to www.rochdale.gov.uk/newsandevents

Please consider the environment before printing this email.

From: Brightwell, Katherine <Katherine.Brightwell@stantec.com>

Sent: 21 September 2022 11:47

To: Michael Moore P <Michael.Moore@rochdale.gov.uk>

Subject: FW: Hollingworth Road, Littleborough, Rochdale

Hi Michael

Do you have any updates on this environmental search?

Kind regards

Katherine Brightwell

Geoenvironmental Engineer

Direct: 01223802914

Mobile: 07599200473

katherine.brightwell@stantec.com

Cambridge

Address: 3rd Floor, 50-60 Station Road, Cambridge, CB1 2JH



The content of this email is the confidential property of Stantec and should not be copied, modified, retransmitted, or used for any purpose except with Stantec's written authorization. If you are not the intended recipient, please delete all copies and notify us immediately.

From: Brightwell, Katherine

Sent: 07 September 2022 15:24

To: Michael Moore P <Michael.Moore@rochdale.gov.uk>

Subject: RE: Hollingworth Road, Littleborough, Rochdale

Great, thank you. Please proceed with the search.

Kind regards

Katherine Brightwell

Geoenvironmental Engineer

Direct: 01223802914

Mobile: 07599200473

katherine.brightwell@stantec.com

Cambridge

Address: 3rd Floor, 50-60 Station Road, Cambridge, CB1 2JH



The content of this email is the confidential property of Stantec and should not be copied, modified, retransmitted, or used for any purpose except with Stantec's written authorization. If you are not the intended recipient, please delete all copies and notify us immediately.

From: Michael Moore P <Michael.Moore@rochdale.gov.uk>
Sent: 07 September 2022 12:33
To: Brightwell, Katherine <Katherine.Brightwell@stantec.com>
Subject: RE: Hollingworth Road, Littleborough, Rochdale

You can pay by card, the invoice will contain instructions on how to pay.

Michael Moore P

Environmental Health Senior Officer (Environment Prot)
Place



01706 924107

07976 059366

michael.moore@rochdale.gov.uk

Rochdale Borough Council
Floor 3, Number One Riverside
Smith Street, Rochdale, OL16 1XU

To access our services go to www.rochdale.gov.uk

For news, events and social media updates go to www.rochdale.gov.uk/newsandevents

Please consider the environment before printing this email.

From: Brightwell, Katherine <Katherine.Brightwell@stantec.com>
Sent: 07 September 2022 08:44
To: Michael Moore P <Michael.Moore@rochdale.gov.uk>
Subject: RE: Hollingworth Road, Littleborough, Rochdale

Hi

Do you know if it's possible to pay the invoice by card once received? Otherwise we have to set RBC up as an approved supplier on our procurement system which is a do-able but lengthy process!

Thanks for your assistance

Katherine Brightwell

Geoenvironmental Engineer

Direct: 01223802914

Mobile: 07599200473

katherine.brightwell@stantec.com

Cambridge

Address: 3rd Floor, 50-60 Station Road, Cambridge, CB1 2JH

The content of this email is the confidential property of Stantec and should not be copied, modified, retransmitted, or used for any purpose except with Stantec's written authorization. If you are not the intended recipient, please delete all copies and notify us immediately.

From: Michael Moore P <Michael.Moore@rochdale.gov.uk>
Sent: 06 September 2022 11:27
To: Brightwell, Katherine <Katherine.Brightwell@stantec.com>
Subject: RE: Hollingworth Road, Littleborough, Rochdale

Not really, the invoice way is the easiest.

Michael Moore P

Environmental Health Senior Officer (Environment Prot)
Place



 [01706 924107](tel:01706 924107)

 [07976 059366](tel:07976 059366)

 michael.moore@rochdale.gov.uk

Rochdale Borough Council
Floor 3, Number One Riverside
Smith Street, Rochdale, OL16 1XU

To access our services go to www.rochdale.gov.uk

For news, events and social media updates go to www.rochdale.gov.uk/newsandevents

Please consider the environment before printing this email.

From: Brightwell, Katherine <Katherine.Brightwell@stantec.com>
Sent: 06 September 2022 11:25
To: Michael Moore P <Michael.Moore@rochdale.gov.uk>
Subject: RE: Hollingworth Road, Littleborough, Rochdale

Hi Michael

Thank you for your email. Is there an option to pay via credit card?

Kind regards

Katherine Brightwell

Geoenvironmental Engineer

Direct: 01223802914

Mobile: 07599200473

katherine.brightwell@stantec.com

Cambridge

Address: 3rd Floor, 50-60 Station Road, Cambridge, CB1 2JH

From: Michael Moore P <Michael.Moore@rochdale.gov.uk>
Sent: 06 September 2022 10:05
To: Brightwell, Katherine <Katherine.Brightwell@stantec.com>
Subject: RE: Hollingworth Road, Littleborough, Rochdale

Good morning Katherine,

The cost of undertaking searches is £116.40, we can complete the search then invoice.

Email me back if this is agreeable.

Regards

Michael Moore P
Environmental Health Senior Officer (Environment Prot)
Place



 [01706 924107](tel:01706924107)

 [07976 059366](tel:07976059366)

 michael.moore@rochdale.gov.uk

Rochdale Borough Council
Floor 3, Number One Riverside
Smith Street, Rochdale, OL16 1XU

To access our services go to www.rochdale.gov.uk

For news, events and social media updates go to www.rochdale.gov.uk/newsandevents

Please consider the environment before printing this email.

From: Brightwell, Katherine <Katherine.Brightwell@stantec.com>
Sent: 31 August 2022 14:59
To: Contaminated Land <Contaminated.Land@Rochdale.Gov.UK>
Subject: Hollingworth Road, Littleborough, Rochdale

:CAUTION: This email originated from outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Hi

Please could you advise if you have information on any of the following on or within 500m of this site (red line boundary shown below):

- Registered landfill/waste sites
- Contaminated Land sites under Part 2A Environmental Protection Act 1990 (or potentially

contaminated sites which may require further investigation)

- Pollution incidents
- Intrusive investigations and/or remediation
- Registered private water supplies under the Private Water Supply (England) Regulations 2016

The site is located to the west of Hollingworth Road, Littleborough, OL15 0NE. Grid reference for the centre of the site is SD 93317 15457.



Kind regards

Katherine Brightwell

Geoenvironmental Engineer

Direct: 01223802914

Mobile: 07599200473

katherine.brightwell@stantec.com

Cambridge

Address: 3rd Floor, 50-60 Station Road, Cambridge, CB1 2JH



The content of this email is the confidential property of Stantec and should not be copied, modified, retransmitted, or used for any purpose except with Stantec's written authorization. If you are not the intended recipient, please delete all copies and notify us immediately.

Disclaimer: The content of this email is the confidential property of Stantec and should not be copied, modified, retransmitted, or used for any purpose except with Stantec's written authorization. If you are not the intended recipient, please delete all copies and notify us immediately. This communication may come from a variety of legal entities within or associated with the Stantec group. For a full list of details for these entities please see our website at www.stantec.com. Where business communications relate to the Stantec UK Limited entity, the registered office is Kingsmead Business Park, London Road, High Wycombe, Buckinghamshire HP11 1JU Tel: 01494 526240 and the company is registered in England as registration number 01188070.

This email, its contents and any attachments are intended only for the above named. As the email may contain confidential and/or legally privileged information, if you are not, or suspect that you are not, the above named or the person responsible for delivery of the message to the above named, please delete or destroy the email and any attachments immediately and inform the sender of the error. Unauthorised access, use, disclosure, storage or copying is not permitted and may be unlawful. The views of the author may not necessarily reflect those of Rochdale Borough Council.

Rochdale Borough Council undertakes monitoring of both incoming and outgoing e-mails. You should therefore be aware that if you send an e-mail to a person within Rochdale Borough Council it may be subject to any monitoring deemed necessary by Rochdale Borough Council from time to time. Rochdale Borough Council cannot guarantee that this message or any attachment is virus free or has not been intercepted and amended.

As a public body, Rochdale Borough Council may be required to disclose this email (or any response to it) under the Freedom of Information Act 2000, unless the information in it is covered by one of the exemptions within the Act.

Disclaimer: The content of this email is the confidential property of Stantec and should not be copied, modified, retransmitted, or used for any purpose except with Stantec's written authorization. If you are not the intended recipient, please delete all copies and notify us immediately. This communication may come from a variety of legal entities within or associated with the Stantec group. For a full list of details for these entities please see our website at www.stantec.com. Where business communications relate to the Stantec UK Limited entity, the registered office is Kingsmead Business Park, London Road, High Wycombe, Buckinghamshire HP11 1JU Tel: 01494 526240 and the company is registered in England as registration number 01188070.

This email, its contents and any attachments are intended only for the above named. As the email may contain confidential and/or legally privileged information, if you are not, or suspect that you are not, the above named or the person responsible for delivery of the message to the above named, please delete or destroy the email and any attachments immediately and inform the sender of the error. Unauthorised access, use, disclosure, storage or copying is not permitted and may be unlawful. The views of the author may not necessarily reflect those of Rochdale Borough Council.

Rochdale Borough Council undertakes monitoring of both incoming and outgoing e-mails. You should therefore be aware that if you send an e-mail to a person within Rochdale Borough Council it may be subject to any monitoring deemed necessary by Rochdale Borough Council from time to time. Rochdale Borough Council cannot guarantee that this message or any attachment is virus free or has not been intercepted and amended.

As a public body, Rochdale Borough Council may be required to disclose this email (or any response to it) under the Freedom of Information Act 2000, unless the information in it is covered by one of the exemptions within the Act.

Disclaimer: The content of this email is the confidential property of Stantec and should not be copied, modified, retransmitted, or used for any purpose except with Stantec's written authorization. If you are not the intended recipient, please delete all copies and notify us immediately. This communication may come from a variety of legal entities within or associated with the Stantec group. For a full list of details for these entities please see our website at www.stantec.com. Where business communications relate to the Stantec UK Limited entity, the registered office is Kingsmead Business Park, London Road, High Wycombe, Buckinghamshire HP11 1JU Tel: 01494 526240 and the company is registered in England as registration number 01188070.

This email, its contents and any attachments are intended only for the above named. As the email may contain confidential and/or legally privileged information, if you are not, or suspect that you are not, the above named or the person responsible for delivery of the message to the above named, please delete or destroy the email and any attachments immediately and inform the sender of the error.

Unauthorised access, use, disclosure, storage or copying is not permitted and may be unlawful. The views of the author may not necessarily reflect those of Rochdale Borough Council.

Rochdale Borough Council undertakes monitoring of both incoming and outgoing e-mails. You should therefore be aware that if you send an e-mail to a person within Rochdale Borough Council it may be subject to any monitoring deemed necessary by Rochdale Borough Council from time to time. Rochdale Borough Council cannot guarantee that this message or any attachment is virus free or has not been intercepted and amended.

As a public body, Rochdale Borough Council may be required to disclose this email (or any response to it) under the Freedom of Information Act 2000, unless the information in it is covered by one of the exemptions within the Act.

Disclaimer: The content of this email is the confidential property of Stantec and should not be copied, modified, retransmitted, or used for any purpose except with Stantec's written authorization. If you are not the intended recipient, please delete all copies and notify us immediately. This communication may come from a variety of legal entities within or associated with the Stantec group. For a full list of details for these entities please see our website at www.stantec.com. Where business communications relate to the Stantec UK Limited entity, the registered office is Kingsmead Business Park, London Road, High Wycombe, Buckinghamshire HP11 1JU Tel: 01494 526240 and the company is registered in England as registration number 01188070.

This email, its contents and any attachments are intended only for the above named. As the email may contain confidential and/or legally privileged information, if you are not, or suspect that you are not, the above named or the person responsible for delivery of the message to the above named, please delete or destroy the email and any attachments immediately and inform the sender of the error. Unauthorised access, use, disclosure, storage or copying is not permitted and may be unlawful. The views of the author may not necessarily reflect those of Rochdale Borough Council.

Rochdale Borough Council undertakes monitoring of both incoming and outgoing e-mails. You should therefore be aware that if you send an e-mail to a person within Rochdale Borough Council it may be subject to any monitoring deemed necessary by Rochdale Borough Council from time to time. Rochdale Borough Council cannot guarantee that this message or any attachment is virus free or has not been intercepted and amended.

As a public body, Rochdale Borough Council may be required to disclose this email (or any response to it) under the Freedom of Information Act 2000, unless the information in it is covered by one of the exemptions within the Act.

Disclaimer: The content of this email is the confidential property of Stantec and should not be copied, modified, retransmitted, or used for any purpose except with Stantec's written authorization. If you are not the intended recipient, please delete all copies and notify us immediately. This communication may come from a variety of legal entities within or associated with the Stantec group. For a full list of details for these entities please see our website at www.stantec.com. Where business communications relate to the Stantec UK Limited entity, the registered office is Kingsmead Business Park, London Road, High Wycombe, Buckinghamshire HP11 1JU Tel: 01494 526240 and the company is registered in England as registration number 01188070.

This email, its contents and any attachments are intended only for the above named. As the email may contain confidential and/or legally privileged information, if you are not, or suspect that you are not, the above named or the person responsible for delivery of the message to the above named, please delete or destroy the email and any attachments immediately and inform the sender of the error. Unauthorised access, use, disclosure, storage or copying is not permitted and may be unlawful. The views of the author may not necessarily reflect those of Rochdale Borough Council.

Rochdale Borough Council undertakes monitoring of both incoming and outgoing e-mails. You should therefore be aware that if you send an e-mail to a person within Rochdale Borough Council it may be subject to any monitoring deemed necessary by Rochdale Borough Council from time to time. Rochdale Borough Council cannot guarantee that this message or any attachment is virus free or has not been intercepted and amended.

As a public body, Rochdale Borough Council may be required to disclose this email (or any response

to it) under the Freedom of Information Act 2000, unless the information in it is covered by one of the exemptions within the Act.

Disclaimer: The content of this email is the confidential property of Stantec and should not be copied, modified, retransmitted, or used for any purpose except with Stantec's written authorization. If you are not the intended recipient, please delete all copies and notify us immediately. This communication may come from a variety of legal entities within or associated with the Stantec group. For a full list of details for these entities please see our website at www.stantec.com. Where business communications relate to the Stantec UK Limited entity, the registered office is Kingsmead Business Park, London Road, High Wycombe, Buckinghamshire HP11 1JU Tel: 01494 526240 and the company is registered in England as registration number 01188070.

This email, its contents and any attachments are intended only for the above named. As the email may contain confidential and/or legally privileged information, if you are not, or suspect that you are not, the above named or the person responsible for delivery of the message to the above named, please delete or destroy the email and any attachments immediately and inform the sender of the error. Unauthorised access, use, disclosure, storage or copying is not permitted and may be unlawful. The views of the author may not necessarily reflect those of Rochdale Borough Council.

Rochdale Borough Council undertakes monitoring of both incoming and outgoing e-mails. You should therefore be aware that if you send an e-mail to a person within Rochdale Borough Council it may be subject to any monitoring deemed necessary by Rochdale Borough Council from time to time. Rochdale Borough Council cannot guarantee that this message or any attachment is virus free or has not been intercepted and amended.

As a public body, Rochdale Borough Council may be required to disclose this email (or any response to it) under the Freedom of Information Act 2000, unless the information in it is covered by one of the exemptions within the Act.

Appendix G Tables of Estimated Risk

Receptor	Receptor Sensitivity ('0' if not present)	Pathway	Present (Y=1, N=0)	EPH & Solvents	PAHs	Inorganics and Metals	Asbestos	Biocides	Permanent Gases	Consequence	Probability/ Likelihood	Estimated Risk
Human Health - Current users	4	Ingestion of fruit or vegetable leaf or roots	0	✓	✓	✓	x	✓	x	N/A	N/A	N/A
		Ingestion of contaminated drinking water	0	✓	✓	x	x	✓	x	N/A	N/A	N/A
		Ingestion of water / sediments when swimming	0	✓	✓	✓	✓	✓	x	N/A	N/A	N/A
		Ingestion of soil/dust indoors	1	✓	✓	✓	✓	✓	x	Mild	Low	Low
		Ingestion of soil/dust outdoors	1	✓	✓	✓	✓	✓	x	Mild	Likely	Moderate
		Inhalation of particles (dust / soil) indoor and outdoor	1	✓	✓	✓	✓	✓	x	Mild	Likely	Moderate
		Inhalation of vapours/gases – outdoor	1	✓	x	x	x	x	✓	Mild	Likely	Moderate
		Inhalation of vapours/gases - indoor	1	✓	x	x	x	x	✓	Mild	Low	Low
		Dermal absorption via direct contact with soil	1	✓	✓	✓	✓	✓	x	Mild	Low	Low
		Dermal absorption via waters (swimming / showering)	0	✓	✓	✓	✓	✓	x	N/A	N/A	N/A
Human Health - Neighbours	4	Ingestion of fruit or vegetable leaf or roots	0	✓	✓	✓	x	✓	x	N/A	N/A	N/A
		Ingestion of contaminated drinking water	0	✓	✓	x	x	✓	x	N/A	N/A	N/A
		Ingestion of water / sediments when swimming	0	✓	✓	x	x	✓	x	N/A	N/A	N/A
		Ingestion of soil/dust indoors	0	✓	✓	✓	✓	✓	x	N/A	N/A	N/A
		Ingestion of soil/dust outdoors	1	✓	✓	✓	✓	✓	x	Mild	Unlikely	Very Low
		Inhalation of particles (dust / soil) indoor and outdoor	1	✓	✓	✓	✓	✓	x	Mild	Unlikely	Very Low
		Inhalation of vapours – outdoor	1	✓	x	x	x	x	✓	Mild	Unlikely	Very Low
		Inhalation of vapours - indoor	1	✓	x	x	x	x	✓	Mild	Unlikely	Very Low
		Dermal absorption via direct contact with soil	0	✓	✓	✓	✓	✓	x	N/A	N/A	N/A
		Dermal absorption via waters (swimming / showering)	0	✓	✓	✓	✓	✓	x	N/A	N/A	N/A
Human Health - Future Users	5	Ingestion of fruit or vegetable leaf or roots	1	✓	✓	✓	x	✓	x	Mild	Low	Low
		Ingestion of contaminated drinking water	0	✓	✓	x	x	✓	x	N/A	N/A	N/A
		Ingestion of water / sediments when swimming	0	✓	✓	✓	✓	✓	x	N/A	N/A	N/A
		Ingestion of soil/dust indoors	1	✓	✓	✓	✓	✓	x	Mild	Likely	Moderate
		Ingestion of soil/dust outdoors	1	✓	✓	✓	✓	✓	x	Mild	Likely	Moderate
		Inhalation of particles (dust / soil) indoor and outdoor	1	✓	✓	✓	✓	✓	x	Mild	Likely	Moderate
		Inhalation of vapours/gases – outdoor	1	✓	x	x	x	x	✓	Mild	Likely	Moderate
		Inhalation of vapours/gases - indoor	1	✓	x	x	x	x	✓	Mild	Likely	Moderate
		Dermal absorption via direct contact with soil	1	✓	✓	✓	✓	✓	x	Mild	Likely	Moderate
		Dermal absorption via waters (swimming / showering)	0	✓	✓	✓	✓	✓	x	N/A	N/A	N/A
Human Health - Construction workers	4	Ingestion of fruit or vegetable leaf or roots	0	✓	✓	✓	x	✓	x	N/A	N/A	N/A
		Ingestion of contaminated drinking water	0	✓	✓	x	x	✓	x	N/A	N/A	N/A
		Ingestion of water / sediments when swimming	0	✓	✓	✓	✓	✓	x	N/A	N/A	N/A
		Ingestion of soil/dust indoors	1	✓	✓	✓	✓	✓	x	Mild	Low	Low
		Ingestion of soil/dust outdoors	1	✓	✓	✓	✓	✓	x	Mild	Likely	Moderate
		Inhalation of particles (dust / soil) indoor and outdoor	1	✓	✓	✓	✓	✓	x	Mild	Likely	Moderate
		Inhalation of vapours/gases – outdoor	1	✓	x	x	x	x	✓	Mild	Likely	Moderate
		Inhalation of vapours/gases - indoor	1	✓	x	x	x	x	✓	Mild	Likely	Moderate
		Dermal absorption via direct contact with soil	1	✓	✓	✓	✓	✓	x	Mild	Likely	Moderate
		Dermal absorption via waters (swimming / showering)	1	✓	✓	✓	✓	✓	x	Mild	Low	Low
Groundwater (Superficial)	1	Leaching	1	✓	✓	✓	x	✓	x	Minor	Low	Very Low
		Migration via natural or anthropogenic	1	✓	✓	✓	x	✓	x	Minor	Low	Very Low
Groundwater (Bedrock)	2	Leaching	1	✓	✓	✓	x	✓	x	Minor	Low	Very Low
		Migration via natural or anthropogenic	1	✓	✓	✓	x	✓	x	Minor	Low	Very Low
Surface Water	3	Direct runoff or discharges from pipes	1	✓	✓	✓	✓	✓	x	Mild	Likely	Moderate
		Indirect via recharge from groundwater (hydraulic flow)	1	✓	✓	✓	✓	✓	x	Mild	Likely	Moderate
		Deposition of wind blown dust	1	✓	✓	✓	✓	✓	x	Mild	Low	Low
Property - Buildings On-site	2	Direct contact	1	✓	✓	✓	x	x	x	Minor	Low	Very Low
		Explosion due to gas migration via natural / anthropogenic	1	✓	x	x	x	x	✓	Minor	Likely	Low
Property - Buildings Off-site	2	Direct contact	1	✓	✓	✓	x	x	x	Minor	Low	Very Low
		Explosion due to gas migration via natural / anthropogenic	1	✓	x	x	x	x	✓	Minor	Unlikely	Very Low
Ecological Systems	5	Direct deposition of particles / dust - wind blown or flood	1	✓	✓	✓	✓	✓	x	Medium	Unlikely	Low
		Indirect - through watering	1	✓	✓	✓	x	✓	x	Medium	Unlikely	Low
		Inhalation of gases/vapours or particulates/dust by animals	1	✓	✓	✓	✓	✓	✓	Medium	Unlikely	Low
		Ingestion of of vegetation / water / soil by animals	1	✓	✓	✓	✓	✓	x	Medium	Unlikely	Low
Property - Animal/Crop - On-site	2	Direct (including deposition via wind or flood)	1	✓	✓	✓	✓	✓	x	Minor	Low	Very Low
		Indirect (through watering)	1	✓	✓	✓	x	✓	x	Minor	Low	Very Low
		Inhalation of gas / vapour / particulates / dust by animals	1	✓	✓	✓	✓	✓	✓	Minor	Low	Very Low
		Ingestion of vegetation / water / soil by animals	1	✓	✓	✓	✓	✓	x	Minor	Low	Very Low
Property - Animal/Crop - Off-site	2	Direct (including deposition via wind or flood)	1	✓	✓	✓	✓	✓	x	Minor	Unlikely	Very Low
		Indirect (through watering)	0	✓	✓	✓	x	✓	x	N/A	Unlikely	N/A
		Inhalation of gas / vapour / particulates / dust by animals	1	✓	✓	✓	✓	✓	✓	Minor	Unlikely	Very Low
		Ingestion of vegetation / water / soil by animals	1	✓	✓	✓	✓	✓	x	Minor	Unlikely	Very Low

Risk estimation establishes the magnitude and probability of the possible consequences (what degree of harm might result and how likely).
The criteria for classifying probability and consequence are set out in Tables 4 and 5 of the Stantec methodology.
Green text highlights one or more elements of the Pollutant Linkage are missing and therefore eliminated

EPH = Extractable hydrocarbons
PAHs = Poly Aromatic Hydrocarbons
Note For Metals there is an Inhalation pathway if Mercury is present
Note for PAHs there are Inhalation and/or Solubility pathways for some eg Naphthalene



Bloor Homes

Hollingworth Road, Littleborough

TABLE SUMMARISING POLLUTANT LINKAGES AND RISK ESTIMATION

HAZARD CLASSIFICATION

2

THE POTENTIAL CONTAMINANTS OF CONCERN ARE :- Asbestos, PAH, TPH, sVOC, VOC, Metals

Date	23/01/2023
A3 Scale	NTS
Drawn By	KB
Checked By	Dbi

Receptor	Receptor Sensitivity ('0' if not present)	Pathway	Present (Y=1, N=0)	EPH & Solvents	PAHs	Inorganics and Metals	Asbestos	Biocides	Permanent Gases	Consequence	Probability/ Likelihood	Estimated Risk
Human Health - Current users	4	Ingestion of fruit or vegetable leaf or roots	0	✓	✓	✓	x	✓	x	N/A	N/A	N/A
		Ingestion of contaminated drinking water	0	✓	✓	x	x	✓	x	N/A	N/A	N/A
		Ingestion of water / sediments when swimming	0	✓	✓	✓	✓	✓	x	N/A	N/A	N/A
		Ingestion of soil/dust indoors	1	✓	✓	✓	✓	✓	x	Medium	Low	Moderate
		Ingestion of soil/dust outdoors	1	✓	✓	✓	✓	✓	x	Medium	Low	Moderate
		Inhalation of particles (dust / soil) indoor and outdoor	1	✓	✓	✓	✓	✓	x	Medium	Low	Moderate
		Inhalation of vapours/gases – outdoor	1	✓	x	x	x	x	✓	Medium	Low	Moderate
		Inhalation of vapours/gases - indoor	1	✓	x	x	x	x	✓	Medium	Low	Moderate
		Dermal absorption via direct contact with soil	1	✓	✓	✓	✓	✓	x	Medium	Low	Moderate
		Dermal absorption via waters (swimming / showering)	0	✓	✓	✓	✓	✓	x	N/A	N/A	N/A
Human Health - Neighbours	4	Ingestion of fruit or vegetable leaf or roots	0	✓	✓	✓	x	✓	x	N/A	N/A	N/A
		Ingestion of contaminated drinking water	0	✓	✓	x	x	✓	x	N/A	N/A	N/A
		Ingestion of water / sediments when swimming	0	✓	✓	x	x	✓	x	N/A	N/A	N/A
		Ingestion of soil/dust indoors	0	✓	✓	✓	✓	✓	x	N/A	N/A	N/A
		Ingestion of soil/dust outdoors	1	✓	✓	✓	✓	✓	x	Medium	Unlikely	Low
		Inhalation of particles (dust / soil) indoor and outdoor	1	✓	✓	✓	✓	✓	x	Medium	Unlikely	Low
		Inhalation of vapours – outdoor	1	✓	x	x	x	x	✓	Medium	Unlikely	Low
		Inhalation of vapours - indoor	1	✓	x	x	x	x	✓	Medium	Unlikely	Low
		Dermal absorption via direct contact with soil	0	✓	✓	✓	✓	✓	x	N/A	N/A	N/A
		Dermal absorption via waters (swimming / showering)	0	✓	✓	✓	✓	✓	x	N/A	N/A	N/A
Human Health - Future Users	5	Ingestion of fruit or vegetable leaf or roots	1	✓	✓	✓	x	✓	x	Medium	Low	Moderate
		Ingestion of contaminated drinking water	0	✓	✓	x	x	✓	x	N/A	N/A	N/A
		Ingestion of water / sediments when swimming	0	✓	✓	✓	✓	✓	x	N/A	N/A	N/A
		Ingestion of soil/dust indoors	1	✓	✓	✓	✓	✓	x	Medium	Low	Moderate
		Ingestion of soil/dust outdoors	1	✓	✓	✓	✓	✓	x	Medium	Low	Moderate
		Inhalation of particles (dust / soil) indoor and outdoor	1	✓	✓	✓	✓	✓	x	Medium	Low	Moderate
		Inhalation of vapours/gases – outdoor	1	✓	x	x	x	x	✓	Medium	Low	Moderate
		Inhalation of vapours/gases - indoor	1	✓	x	x	x	x	✓	Medium	Low	Moderate
		Dermal absorption via direct contact with soil	1	✓	✓	✓	✓	✓	x	Medium	Low	Moderate
		Dermal absorption via waters (swimming / showering)	0	✓	✓	✓	✓	✓	x	N/A	N/A	N/A
Human Health - Construction workers	4	Ingestion of fruit or vegetable leaf or roots	0	✓	✓	✓	x	✓	x	N/A	N/A	N/A
		Ingestion of contaminated drinking water	0	✓	✓	x	x	✓	x	N/A	N/A	N/A
		Ingestion of water / sediments when swimming	0	✓	✓	✓	✓	✓	x	N/A	N/A	N/A
		Ingestion of soil/dust indoors	1	✓	✓	✓	✓	✓	x	Medium	Low	Moderate
		Ingestion of soil/dust outdoors	1	✓	✓	✓	✓	✓	x	Medium	Low	Moderate
		Inhalation of particles (dust / soil) indoor and outdoor	1	✓	✓	✓	✓	✓	x	Medium	Low	Moderate
		Inhalation of vapours/gases – outdoor	1	✓	x	x	x	x	✓	Medium	Low	Moderate
		Inhalation of vapours/gases - indoor	1	✓	x	x	x	x	✓	Medium	Low	Moderate
		Dermal absorption via direct contact with soil	1	✓	✓	✓	✓	✓	x	Medium	Low	Moderate
		Dermal absorption via waters (swimming / showering)	1	✓	✓	✓	✓	✓	x	Medium	Low	Moderate
Groundwater (Superficial)	1	Leaching	1	✓	✓	✓	x	✓	x	Minor	Low	Very Low
		Migration via natural or anthropogenic	1	✓	✓	✓	x	✓	x	Minor	Low	Very Low
Groundwater (Bedrock)	2	Leaching	1	✓	✓	✓	x	✓	x	Mild	Low	Low
		Migration via natural or anthropogenic	1	✓	✓	✓	x	✓	x	Mild	Low	Low
Surface Water	3	Direct runoff or discharges from pipes	1	✓	✓	✓	✓	✓	x	Mild	Likely	Moderate
		Indirect via recharge from groundwater (hydraulic flow)	1	✓	✓	✓	✓	✓	x	Mild	Likely	Moderate
		Deposition of wind blown dust	1	✓	✓	✓	✓	✓	x	Mild	Low	Low
Property - Buildings On-site	2	Direct contact	1	✓	✓	✓	x	x	x	Mild	Low	Low
		Explosion due to gas migration via natural / anthropogenic	1	✓	x	x	x	x	✓	Mild	Likely	Moderate
Property - Buildings Off-site	2	Direct contact	1	✓	✓	✓	x	x	x	Mild	Low	Low
		Explosion due to gas migration via natural / anthropogenic	1	✓	x	x	x	x	✓	Mild	Low	Low
Ecological Systems	5	Direct deposition of particles / dust - wind blown or flood	1	✓	✓	✓	✓	✓	x	Medium	Unlikely	Low
		Indirect - through watering	1	✓	✓	✓	x	✓	x	Medium	Unlikely	Low
		Inhalation of gases/vapours or particulates/dust by animals	1	✓	✓	✓	✓	✓	✓	Medium	Unlikely	Low
		Ingestion of of vegetation / water / soil by animals	1	✓	✓	✓	✓	✓	x	Medium	Unlikely	Low
Property - Animal/Crop - On-site	2	Direct (including deposition via wind or flood)	1	✓	✓	✓	✓	✓	x	Mild	Low	Low
		Indirect (through watering)	1	✓	✓	✓	x	✓	x	Mild	Low	Low
		Inhalation of gas / vapour / particulates / dust by animals	1	✓	✓	✓	✓	✓	✓	Mild	Low	Low
		Ingestion of vegetation / water / soil by animals	1	✓	✓	✓	✓	✓	x	Mild	Low	Low
Property - Animal/Crop - Off-site	2	Direct (including deposition via wind or flood)	1	✓	✓	✓	✓	✓	x	Mild	Unlikely	Very Low
		Indirect (through watering)	0	✓	✓	✓	x	✓	x	N/A	Unlikely	N/A
		Inhalation of gas / vapour / particulates / dust by animals	1	✓	✓	✓	✓	✓	✓	Mild	Unlikely	Very Low
		Ingestion of vegetation / water / soil by animals	1	✓	✓	✓	✓	✓	x	Mild	Unlikely	Very Low

Risk estimation establishes the magnitude and probability of the possible consequences (what degree of harm might result and how likely).
The criteria for classifying probability and consequence are set out in Tables 4 and 5 of the Stantec methodology.
Green text highlights one or more elements of the Pollutant Linkage are missing and therefore eliminated

EPH = Extractable hydrocarbons
PAHs = Poly Aromatic Hydrocarbons
Note For Metals there is an Inhalation pathway if Mercury is present
Note for PAHs there are Inhalation and/or Solubility pathways for some eg Naphthalene

 Client Bloor Homes	Hollingworth Road, Littleborough			Date	23/01/2023
	TABLE SUMMARISING POLLUTANT LINKAGES AND RISK ESTIMATION			A3 Scale	NTS
				Drawn By	KB
				Checked By	Dbi
	HAZARD CLASSIFICATION	3	THE POTENTIAL CONTAMINANTS OF CONCERN ARE :- Asbestos, PAH, TPH, sVOC, VOC, Metals		