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Environment Group

Company Shop & RULA Developments
Ltd
Maple Road
Tankersley

Phase 1 Geo-Environmental Assessment

MRS
25

1990 - 2015

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Phase 1 Geo-Environmental
Assessment

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EXECUTIVE SUMMARY

Site Address and Site Setting	Maple Road, Tankersley, Barnsley, S75 3DP The Site currently forms a square shaped plot of land covering approximately three hectares with a slight incline from south-east to north-west. The site comprises scrubland, dense vegetation and woodland with a stockpile present close to the north-eastern corner of the site.
Proposed Development	The proposed development is anticipated to be a large warehouse including two story office block covering the majority of the site with associated car parking and landscaping.
Site History	Ironstone pits and associated mining activity are associated with the site, which were later infilled. Several ponds/reservoirs have also been present along the south-eastern boundary of the site, which were infilled during the 1950s. The site has predominantly remained scrubland with the presence of West Wood along the south-western boundary of the site, and several footpaths present along the southern and western boundary of the site.
Geology	Ground conditions are expected to comprise topsoil underlain by the Pennine Lower Coal Measures Formation (PLCMF). However, given the historical activity undertaken at the site and the nature of the geology encountered within boreholes close to the site, significant colliery fill and Made Ground are anticipated to be encountered.
Hydrogeology and Hydrology	The EA Classifies the PLCMF as a Secondary A Aquifer. The Site is not indicated to be within, or within close proximity to an Environment Agency (EA) Groundwater Source Protection Zone (SPZ). The Site is not located within an EA designated floodplain and no surface water abstraction licences exist within 1km of the Site. No potable water abstraction licences have been identified on site or within close proximity.
Regulatory Setting	The identified permits within 1km of the Site are considered unlikely to have had a detrimental impact on the Site. An electricity substation (ESS), additional to the two observed during the walkover, is indicated approximately 20m north-east (Pilkington AG premises) and a petrol filling station (PFS) south of the site have the potential to impact upon the site.
Geotechnical Setting	Removal of existing trees could lead to potential heave issues for the proposed development. A Coal Mining Risk Assessment (CMRA) and ground investigation will be required to quantify the depth to bedrock and assess any implications related to previous mining activities. Shallow spread foundations may not be a viable option depending on ground conditions.
Environmental Appraisal	The assessment has identified several potential sources of both on-site and off-site contamination. <u>On-site</u> These include the mining activity previously undertaken at the site and the subsequent infilled ponds/reservoirs and workings, which could potentially impact upon the site and future users. Potential contaminants comprise low levels of heavy metals, TPH, PAHs, ACMs, PCBs and ground gasses. The stockpile will need to be assessed for potential reuse on site or for appropriate removal from site.

EXECUTIVE SUMMARY

	<u>Off-site</u> Historical mining activities, air ventilation shafts, collieries, industrial activity and the development of the industrial park all have the potential to impact upon the site. Additionally, the ESS identified 20m north-east of the site and the PFS has the potential to impact on the site. Potential contaminants include low levels of heavy metals, TPH, PAHs, ACMs, PCBs and ground gasses. Where pollutant linkages are established by ground investigation, it is anticipated that the linkages could be mitigated through source removal or placement of low permeability cover/hardstanding across the site, provision of a suitable thickness of growing media and/or inclusion of basic gas protection measures where necessary.
Recommendations	It is recommended that a detailed CMRA is undertaken to assess the potential risks to the development from historical mining activity. Following this assessment, it is recommended that a ground investigation is undertaken to quantify the pollutant linkages and inform potential foundation and geotechnical design requirements.
This summary should be read in conjunction with BWB's full report (ref. MRT-BWB-00-XX-EN-RP-0001_DS_P2) and reflects an assessment of the Site based on information received by BWB at the time of production.	

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DRAWINGS

Drawing 1	Site Layout Plan
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APPENDICES

Appendix 1	Proposed Development Masterplan
Appendix 2	Site Photographs
Appendix 3	Historical Ordnance Survey Plans
Appendix 4	Groundsure® Report
Appendix 5	Coal Authority Mining Report
Appendix 6	CIRIA Risk Classification Scheme

1 INTRODUCTION

Instruction

- 1.1 BWB Consulting (BWB) was instructed by Company Shop & RULA Developments Ltd (the Client) to carry out a Geo-Environmental Assessment at the site at Maple Road, Tankersley. Details of the project brief are outlined within email correspondence between Karen Sinclair (BWB) and Greg Nicholson (BWB) on the 30th March 2017.
- 1.2 The proposed development is anticipated to be a large warehouse incorporating a two story office block covering the majority of the site with associated car parking, service yard, balancing pond and landscaping. Two potential development configurations are presented as **Appendix 1**; however, these are not the final design and could potentially change; this report takes account of this.

Objectives

- 1.3 The report has been completed to present pertinent information into the environmental risks and liabilities associated with the site. It has been completed to fulfil the requirements of a preliminary risk assessment in accordance with BS10175: 2011 Investigation of Potentially Contaminated Sites Code of Practice and CLR11 Model Procedures for the Management of Contaminated Land. The objectives of the report are:
- To assess historical activities at the site with respect to their potential impact on the site environment;
 - To characterise the environmental setting of the site, identify migration pathways and vulnerable receptors for contamination originating at the site, focusing on potential soil and groundwater liabilities;
 - To assess historical and current surrounding land use in relation to known or potential off-site contamination issues that may impact the subject property;
 - To review existing site investigation and remediation information available for the site;
 - To develop a preliminary conceptual site model (CSM); and
 - To assess potential environmental liabilities associated with the site.

Scope of Works

- 1.4 The scope of work included:
- Site visit to inspect the current condition of the site at ground surface (Photographs presented as **Appendix 2**);
 - Review of the following information:
 - Information published by the British Geological Survey (BGS) including Geological Mapping and Borehole Records (www.bgs.ac.uk);
 - Historical Ordnance Survey Plans presented as **Appendix 3**;
 - Groundsure® Report comprising Enviroinsight® Report and Geoinsight® Report – Reference HMD-214-3776041 and HMD-214-3776042 respectively presented as **Appendix 4**;
 - Coal Authority Mining report reference HMD-214-3776044 presented as **Appendix 5**;
 - Environment Agency (EA) Website (www.environment-agency.gov.uk).

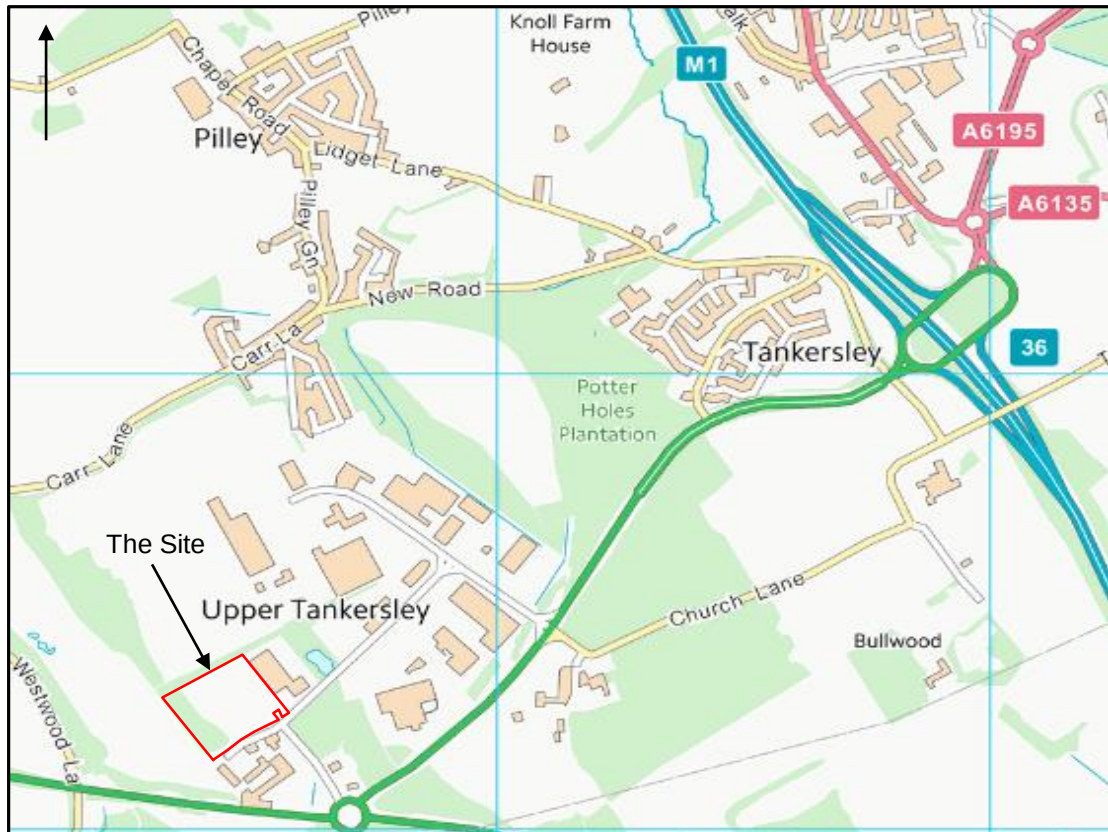
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- Provide a summary of key ground risks that require further ground investigation to control the identified risks; and
 - Produce a Phase I Geo-Environmental Assessment (this report) providing qualitative contamination risk assessment and ground-related constraints to the proposed development.

2 THE SITE

Site Location

- 2.1 The site is located on Maple Road, in Tankersley at National Grid Coordinates (399258, 433481). The location of the site is shown in **Figure 1**.

Figure 1 Site Location Plan



Reproduced from the Ordnance Survey Open Map - Local with the permission of the controller of Her Majesty's Stationery Office Crown Copyright Reserved.

Site Walkover and Description

- 2.2 The layout of the site with the main features is presented as **Drawing 1**.
- 2.3 A site walkover of the site was completed on 4th April 2017 by a suitably qualified BWB engineer. Photographs from the walkover are presented in **Appendix 2** and individual photos are referenced within the following section.
- 2.4 The site forms a three hectares square shaped plot of land with a slight indent in along the southern boundary, and a slight incline from south-east to north-west. The site is an unused area of scrubland, woodland and dense vegetation currently being utilised informally by dog walkers.
- 2.5 The site comprises medium to long grass cover in the western and eastern halves respectively with several immature trees located sporadically across the site. The ground is uneven across the entire site, with the undulations becoming more severe in the eastern half of the site, in combination with the longer grass. The western area of

the site has numerous areas of dense thorn bushes and West Wood comprising semi-mature and mature trees, which is present along the south-western boundary of the site.

- 2.6 A lightly vegetated stockpile of material is present close to the north-eastern corner of the site.
- 2.7 The entire site, especially the southern boundary is covered in litter. Several larger objects, which appear to have been fly tipped (e.g. tyres, seats) were also identified. Several pieces of wood appear to have been burnt in the south of the site.
- 2.8 No surface water features or areas of compressible/saturated ground was identified on site.
- 2.9 The site is easily accessed off Maple Road with a number of notable footpaths positioned over and through the bund.

Site Surroundings

- 2.10 Wentworth Office Park and Maple Road are located to the south of the site with the latter leading to a petrol filling station (PFS) approximately 120m south-east of the site. Grassland is located beyond West Wood to the west.
- 2.11 A large Mercedes Benz Truck UK depot is located directly north of the site, with secure fencing along the northern boundary.
- 2.12 Pilkington AG, a glass merchant, has a large warehouse directly to the east of the site behind a hedgerow and fenced perimeter. Wentworth Industrial Estate is located further east, with numerous companies positioned here, including Tankersley Fire Station, and Epic Fireworks.
- 2.13 Two electricity substations (ESSs) within a brick building were identified approximately 50m and 150m south and north-east of the site respectively. Both appear to be relatively new and in good condition.

Potential Constraints to Ground Investigation

- 2.14 Limited vehicular access has been identified given the current conditions of the bunds in place. Therefore, a section will need to be removed to allow for vehicular access.
- 2.15 The undulating nature of the eastern half of the site will be difficult to traverse.
- 2.16 Sections of the western perimeter of the site are covered by thorn bushes and will require removal if exploratory holes are required in these locations.
- 2.17 The site is easily accessed by the public and therefore all equipment will need to vacate site at the end of each day, or overnight security will be required for the duration of site works.

3 PUBLISHED GROUND CONDITIONS

- 3.1 The anticipated ground conditions for the site and controlled waters vulnerability is discussed within **Table 1** below.

Table 1 Published Ground Conditions

Geology	British Geological Survey (BGS) geological map sheet 70, Leeds (an excerpt provided as part of the GroundSure® Geolinsight report, included in Appendix 3) indicates that the site is directly underlain by solid geology of the Pennine Lower Coal Measures Formation (PLCMF) (mudstone, siltstone and sandstone). No superficial deposits are shown to be present on site. The BGS Lexicon database describes the PLCMF as interbedded grey mudstone, siltstone and pale grey sandstone, commonly with mudstones containing marine fossils in the lower part, and more numerous and thicker coal seams in the upper part. The majority of the site is indicated to be underlain by infilled ground, except for a small area of the western part of the site. Nineteen publicly available borehole records from approximately 45m north-east of the site confirm this sequence. However, these boreholes encountered colliery fill at all locations between 0.10mbgl and 5.40mbgl in places, directly overlying the PLCMF which were identified from depths of 1.30mbgl. The PLCMF was identified to be mudstone and sandstone. Bands of coal and shale between approximately 0.10mbgl and 0.60mbgl thick were identified at several locations (SK39NW120, SK39NW126 and SK39NW128) between depths of 5.40mbgl and 24.10mbgl. Topsoil was encountered at all locations from historical boreholes records close to the site and were proven to depths of between 0.10mbgl and 0.15mbgl.
Hydrogeology	The Environment Agency (EA) classifies the bedrock deposits of the PLCMF as a Secondary A Aquifer, which are 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. Only one location (SK39NW119) out of nineteen historical exploratory holes located approximately 45m north-east of the site reportedly encountered groundwater. The groundwater was noted to be a slow seepage at 2.80mbgl within the coal measures. The Site is not indicated to be within, or within close proximity to an EA groundwater Source Protection Zone (SPZ). No groundwater or potable water abstraction licences have been identified on site or in close proximity. One historical groundwater abstraction licence has been identified approximately 810m west of the site held by Red House Farm and associate with general farming and domestic use.
Surface Waters	No standing water or surface water features are known to be present on Site, however, the Groundsure® Report indicates that the closest mapped surface water feature is a pond like feature located approximately 105m north east of the Site at its closest point, present to the east of Pilkington AG. The Site is not located within an EA designated floodplain. No surface water abstraction licences are recorded within 1km of the Site. One unnamed Tertiary River and two Secondary Rivers, including Storrs Dike, have been identified within 500m south-west of the site.

	Two additional surface water features have been identified approximately 105m and 145m north-east and south-east respectively. Current aerial imagery indicates a pond like feature to be present to the east of Pilkington AG. No water quality data from rivers within 1,500m of the study site have been identified. Two licensed discharge consents (1991 and 1997) located approximately 180m and 195m south-east of the site have been identified, associated with sewage discharge from a pumping station and unspecified trade discharge respectively; both discharged into the receiving water of a tributary of Blackburn Brook.
Ground Gas & Radon	Colliery spoil and Made Ground has been indicated across the local area, including potentially on-site, which presents a potentially significant source for the generation of hazardous ground gases. The Site is not located within a Radon Affected Area, as less than 1% of properties are above the Action level. No radon protective measures are necessary.
Mining and Mineral Extraction	Information published by the Coal Authority (CA) indicates that the Site is within a Development High Risk Area and therefore within the zone of likely physical influence on the surface from past or present underground or opencast workings. Reviewing ordnance survey maps of the area indicates that there are numerous bell pits within the surrounding area. Furthermore, information published within the Groundsure® indicates that localised small scale iron ore and ironstone mining may have occurred. On this basis, a Coal Authority Mining Report (ref. HMD-214-3776044) was obtained. The key conclusions of this report are as follows: • The property is in a surface area that could be affected by underground mining in four seams of coal at shallow to 180m depth, and last worked in 1920. The property is in a surface area that could be affected by underground mining in one seam of ironstone at shallow depth, and last worked in 1841. No current underground coal mining is known to exist; • The CA is not aware of any damage due to geological faults or other lines of weakness that have been affected by coal mining; • The property is not in an area where the CA has plans to grant a licence to remove or otherwise work coal using underground methods. However, reserves of coal exist in the local area which could be worked at some time in the future; • There are six mine entries within the property boundary or within 20 metres of the site boundary. The approximate positions are shown within the Coal Authority Mining Report presented as Appendix 5. • The property is within the boundary of an opencast site from which coal has been removed by opencast methods; • The property does not lie within 200m of the boundary of an opencast site from which coal is currently being removed by opencast methods; • There are no licence requests outstanding to remove coal by opencast methods within 800m of the site boundary; • The CA has not received a damage notice or claim for the subject property, or any property within 50m, since 31 October 1994; • The property has not been subject to remedial works, by or on behalf of the CA, under its Emergency Surface Hazard Call Out procedures; • There is no record of a mine gas emission requiring action by the CA within the boundary of the property;

- The property is not in an area for which a notice of entitlement to withdraw support has been published, or for which a notice has been given under section 41 of the Coal Industry Act 1994, revoking the entitlement to withdraw support.

The Coal Authority Mining Report is included as **Appendix 4**.

Owing to the stated presence of Coal and Iron Ore mining within the site boundary and in close proximity to the site, in addition to the above-reviewed Coal Authority Mining Report, it is recommended that a detailed Coal Mining Risk Assessment (CMRA) will be required under separate cover.

4 SITE HISTORY

- 4.1 Historical Ordnance Survey (OS) mapping for the site area has been reviewed. These maps and plans date from the 1855 OS County Series to the current 2014 OS Plans. The historical plans reviewed have been reproduced in **Appendix 5**. The key points of the historical development of the site and surrounding area are summarised below in **Tables 1** and **2**.

Table 2 Key Points of Site Development History (1855-2014)

Dates	On Site	Significance
1855 - 1894	West Wood is present along the western boundary of the site. An IRONSTONE PIT is present in the south-eastern corner of the site, with a linear steep sided track/workings traversing the north-eastern corner of the site and potential workings along the eastern boundary. The 1891-1894 plans indicate a potential POND/RESERVOIR present in the south of the site. A TRACK runs along the southern boundary and through the centre of the site exiting through the western boundary. Maps reviewed: 1885 (1:10,560), 1891-1894 (1:10,560) and 1893 (1:2,500).	Activities undertaken within the QUARRIES may have caused localised contamination typically associated with petroleum hydrocarbons, PAH, heavy metals, possible PCBs volatile organic hydrocarbons and potential ground gas.
1903 - 1948	The 1903 plans indicate an additional smaller rectangular potential POND/RESERVOIR present north-east of the first. A further irregular shaped POND/RESERVOIR is shown to have been positioned in the south-easterly corner of the site from the 1929-1932 plans. The rest of the site remains unchanged. Maps reviewed: 1903 (1:10,560), 1905 (1:2,500), 1929-1932 (1:10,560), 1931 (1:2,500), 1938 (1:10,560) and 1948 (1:10,560).	No Significance.
1951 - 2014	All three potential pond/reservoirs are no longer present on site. The 1951-1956 (1:10,560) plans indicate the linear track/workings feature located in the north-eastern corner of the site is still present, it appears to have been infilled by the 1956 plans (1:2,500) A footpath runs through the southern section of the site and through the remainder of West Wood.	Possible contamination associated with the use of MADE GROUND and COLLIERY SPOIL during the infill of old ponds/reservoirs, tracks/potential workings. Contaminants may comprise heavy metals, PAH, asbestos containing materials (ACMs), and ground gas. Potentially impacting upon the Site and future site users .

Dates	On Site	Significance
	The site remains unchanged and in its current layout from the 1956 plans. Maps reviewed: 1951-1956 (1:10,560), 1956 (1:2,500), 1965-1966 (1:10,560), 1977-1980 (1:10,000), 1981 (1:2,500), 1984-1989 (1:2,500), 1990-1993 (1:2,500), 1992 (1:10,000), 2002 (1:10,000), 2010 (1:10,000) and 2014 (1:10,000).	

SOURCES IN BOLD AND CAPS

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Table 3 Key Points of Surrounding Area Development History (1855-2014)

Dates	Off Site	Significance
1855	Eight IRONSTONE PITS are identified within 120m north and east of the site boundary. A further eighteen pits were present between 150m and 750m south, south-east and south-west of the site. West Wood is present directly east and Sowell Wood is located approximately 250m south-east of the site. THE MANCHESTER, SHEFFIELD and LINCOLN RAILWAY LINE is positioned approximately 200m east of the site. WESTWOOD COLLIERY and WHARNCLIFFE SILKSTONE COLLIERY are positioned approximately 450m south and north-east of the site respectively. Storrs Dike is located approximately 250m west of the site at its closest point. BURSLEY QUARRY and an unnamed SANDSTONE QUARRY are located approximately 500m and 510m north and south of the site respectively. A BLACKSMITHS and ENGINE HOUSE are positioned approximately 450m and 500m north-east of the site. Further SANDSTONE QUARRIES and COAL PITS are located >1km south of the site. Maps reviewed: 1885 (1:10,560).	Contamination associated with COLLIERY, IRONSTONE PITS and VENTILATION SHAFTS includes petroleum hydrocarbons, PAH, heavy metals, possible PCBs volatile organic hydrocarbons. The RAILWAY INFRASTRUCTURE is considered to represent a potential source hydrocarbon compounds, ACMs and heavy metals which have the potential to impact on localised soil and controlled waters. These contaminants also have the potential to migrate through the groundwater environment onto site and impact upon future site users. Activities within the sandstone QUARRIES and COAL PITS may have caused localised contamination. Additionally, some contamination may be associated with the BLACKSMITHS and ENGINE HOUSE including lubricating oils, acids and alkalis and heavy metals however, this is unlikely to have affected the site, given the underlying ground conditions and distance from site. The majority of these features are unlikely to have impacted on the site due to the distance.
1891-1905	Three old SHAFTS and eleven old IRONSTONE PITS are located within 150m east, southeast and north of the site respectively. Two reservoirs are now present within 100m south and east of the site. A further seven reservoirs are present between 450m and 750m north-west and south-east of the site.	Contamination associated with the COKE OVEN, GASOMETER and COLLIERY includes petroleum hydrocarbons, ACMS, PAH, heavy metals, possible PCBs volatile organic hydrocarbons. However, due to the distance these features are unlikely to have an impact upon the site.

Dates	Off Site	Significance
	WESTWOOD COKE OVENS is positioned 550m south-east of the site. GASOMETERS are located 550m north-east of the site. WESTWOOD COLLIERY is no longer present; however, TANKERSLEY COLLIERY is now positioned approximately 650m south-east of the site. BURSLEY QUARRY is no longer present to the north of the site; however, an additional WHARNCLIFFE SILKSTONE COLLIERY No2. is located 550m north west of the Site. A TRAMLINE has been developed 400m north of the site, associated with the existing train line and collieries. Six AIR VENTILATION SHAFTS are present within 750m west, south and east of the site. A HOSPITAL is present approximately 300m north of the site. Maps reviewed: 1891-1894 (1:10,560, 1893 (1:2,500), 1903 (1:10,560) and 1905 (1:2,500).	AIR VENTILATION SHAFTS could be a potential pathway and source of ground gas.
1929 - 1948	The WESTWOOD COKE OVEN has been shut down. Further DEVELOPMENT has been undertaken surrounding the WHARNCLIFFE SILKSTONE COLLIERY. A number of old shafts, air shafts and ironstone pits are no longer indicated. WESTWOOD MAIN ROAD has been developed, which runs from north-east to south-west and cuts through West Wood and Sowell Wood. It is approximately 250m south-east of the site at its closest point. Large parts of TANKERSLEY COLLIERY have been dismantled. Maps reviewed: 1929-1932 (1:10,560), 1931 (1:2,500), 1938 (1:10,560) and 1948 (1:10,560).	The increased development is considered to represent a potential source of contamination, principally from Made Ground, hydrocarbon compounds ACMs and heavy metals which have the potential to impact on soil and controlled waters. These contaminants also have the potential to migrate through the groundwater environment onto site and impact upon future site users. Possible contamination associated with the use of MADE GROUND and COLLIERY SPOIL during the infill of old shafts, air shafts and ironstone pits. Contaminants may comprise heavy metals, PAH, ACMs, acids and alkalis.
1951 - 1956	Large areas of West Wood and Sowell Wood west, south and south-east of the site have been deforested. Two RESERVOIRS within 100m south of the site have been infilled.	The reservoirs assumed to have been backfilled with MADE GROUND and COLLIERY FILL materials of unknown depth, quality and origin. Contaminants may comprise heavy metals, PAH, asbestos, acids and alkalis.

Dates	Off Site	Significance
	OPENCAST MINING is labelled on an area of land approximately 700m north-west of the site. Sections of railway approximately 400m south-east of the site have been dismantled. <i>Maps reviewed: 1951-1956 (1:10,560) and 1956 (1:2,500)</i>	Contamination associated with the OPENCAST MINING includes petroleum hydrocarbons, ACMS, PAH, heavy metals, possible PCBs and volatile organic hydrocarbons. These contaminants also have the potential to migrate through the groundwater environment onto site and impact upon future site users.
1965 - 1981	The majority of remaining shafts south of the site have now been dismantled WHARNCLIFFE SILKSTONE COLLIERY and TANKERSLEY COLLIERY have been dismantled and backfilled. A smaller COLLIERY appears to be present approximately 700 north-east of the site in the 1965-1966 (1:10,560), plans. However, it is no longer present within the 1977-1980 (1:10,000) plans. From the 1977-1980 (1:10,000) plans the MANCHESTER, SHEFFIELD and LINCOLN RAILWAY LINE has been dismantled. <i>Maps reviewed: 1965-1966 (1:10,560), 1977-1980 (1:10,000) and 1981 (1:2,500).</i>	Possible contamination associated with the use of MADE GROUND and COLLIERY SPOIL during the infill of old collieries. Contaminants may comprise heavy metals, PAH, ACMS, acids and alkalis and ground gas.
1989 - 1992	Road infrastructure has increased in the surrounding area with the development of MAPLE ROAD and the A616 directly south-east and 120m south-west of the site respectively. WENTWORTH INDUSTRIAL PARK has been established between 100m and 200m north-east of the site. Three ponds are positioned approximately 25m, 105m and 250m north-east of the site. A SEWAGE WORKS and DEPOT are located approximately 550m and 600m north-east of the site. A DISUSED TIP is positioned approximately 450m south-east of the site. <i>Maps reviewed: 1984-1989 (1:2,500), 1990-1993 (1:2,500), 1992 (1:10,000), 2002 (1:10,000), 2010 (1:10,000) and 2014 (1:10,000).</i>	The proximity and development of MAPLE ROAD and the A616 is considered to represent a potential source of contamination principally from hydrocarbon compounds, ACMs and heavy metals which have the potential to impact on localised soil and controlled waters. These contaminants also have the potential to migrate through the groundwater environment onto site and impact upon future site users.
2002 - 2014	WENTWORTH INDUSTRIAL PARK has been further developed with an increase in buildings, including one building located directly east of the north east area of the site.	The proximity and development of WENTWORTH INDUSTRIAL PARK is considered to represent a potential source of contamination principally from HYDROCARBON COMPOUNDS, MADE GROUND and HEAVY METALS which have the potential to impact on

Dates	Off Site	Significance
	Numerous other unlabelled buildings, assumed to be the offices have been developed south of the site. A FIRE STATION forms part of the industrial park. The ponds located 25m and 250m north-east of the site are longer present from the 2010 and 2014 plans respectively. Maps reviewed: 2002 (1:10,000), 2010 (1:10,000) and 2014 (1:10,000).	soil and controlled waters. These contaminants also have the potential to migrate through the groundwater environment onto Site and impact upon future site users.

SOURCES IN BOLD AND CAPS

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Aerial Photographs

- 4.2 Aerial photography contained within the Groundsure® Report dated 7th June 2013 (**Appendix 3**) indicates the Site comprising its current layout as stated in Section 2.0.

Operational / Company Records

- 4.3 No operational records have been made available for review as part of this assessment.

Previous Investigation Reports

- 4.4 No previous Ground Investigation (GI) reports for this Site have been prepared by BWB. Similarly, no third party GI reports have been provided to BWB for review.

5 REGULATORY SETTING

Planning History

- 5.1 The Barnsley Metropolitan Borough Council Planning Portal was reviewed on 4th April 2017 for pertinent planning applications and permissions in close proximity to the Site.
- 5.2 No significant developments and/or planning applications, for which potentially pertinent information is available, have been granted within close proximity to the Site.

Permits Consents and Authorisations

- 5.3 A full listing of permits, consents and authorisations including discharge consents, pollution incidences and other environmental information included in the Groundsure® Report, is presented in **Appendix 4**.
- 5.4 The following pertinent features have been identified which have the potential to have a detrimental impact on site.
- Three Part B permits have been identified within 250m of the site. The closest, which is approximately 145m south east, is held by A Y & Y Patel (Dewsbury) associated with the unloading of petrol into storage at service stations. The latter two are associated with the respraying of road vehicles and are both held by Mercedes Benz (UK) Ltd;
 - One historical Notification of Installations Handling Hazardous Substances (NIHHS) Site is located approximately 450m north-east of the site and is associated with Mercedes Benz (UK) Ltd;
- 5.5 The pertinent features identified present limited risk to the Site given their distance and the underlying geology on Site and in the surrounding area.
- 5.6 Industrial activity in the surrounding area comprises the following:
- Three ESSs have been identified 20m north-east, 50m southeast and 145m north-east of the site;
 - Pilkington AG associated with the manufacturing of glass is located directly east of the site;
 - Wentworth Industrial Park is located approximately 230m north-east of the site; and
 - One petrol filling station (PFS) currently occupied by Shell is located approximately 115m south-east of the site.
- 5.7 In the context of the proposed development and limited permeability of the ground in the local area the potential for migration of significant contamination onto site from the above sources is considered to be limited.

Landfilling and Waste Management

- 5.8 A full listing of EA, BGS and Local Authority recorded landfills are provided in the Groundsure® Report presented in **Appendix 4**.
- 5.9 The following facilities have been identified as potential sources of contamination.

- Three historical EA landfill sites have been identified within 1km of the Site. The closest was approximately 390m south west held by Bromley Farm between 1987 and 1993 and is associated with inert waste. Tankersley Park Golf Club located approximately 825m south east of the site held a licence in 1986 associated with inert and commercial waste. Greaves Lane Tip located approximately 975m south of the site held a license between 1924 and 1977 associated with receiving commercial, household, liquid and sludge waste;
- Two historical ground workings and refuse heaps have been identified approximately 325m and 375m north of the site respectively. Ground workings are considered to have also been undertaken on the site given the presence of coal and historic mining activity.

5.10 Given the distance of these entries and the nature of the underlying geology, the offsite historical landfill sites are not expected to have had a detrimental impact upon the Site.

Designated Environmentally Sensitive Sites

- 5.11 A number of ancient woodland sites are located within a 1km radius north-west, south-west and east of the site, the closest located approximately 225m south-west.
- 5.12 Potter Holes Plantation a Natural England Local Nature Reserve (LNR) is located approximately 600m north east of the site.

6 GEOTECHNICAL APPRAISAL

6.1 The Groundsure Report, site history, current site setting and geology setting have all been considered in order to provide an indication of the potential ground related constraints and opportunities in the context of the proposed development as set out in **Table 4** below.

Table 4 Ground Related Constraints & Opportunities

Potential Constraint / Opportunity	Explanation	Potential Mitigation Options
Made Ground	Made Ground comprising colliery fill has been identified in boreholes within close proximity to the site. Given the similar operations, it is anticipated that comparable ground conditions are likely.	Made Ground in its current condition is unlikely to be suitable as a founding strata without treatment. Any unsuitable material may have to be excavated and replaced with suitable granular fill.
Topsoil	Varying thicknesses of topsoil are anticipated to be present on site. Significant volumes may therefore be generated as part of the site strip.	Depending on the quality of the topsoil, it may be possible to sell this material as a commodity or reuse it on another area of the site.
Preliminary Foundation Solution	The depth of the potential colliery fill needs to be assessed before a potential foundation solution is proposed.	A Coal Mining Risk Assessment (CMRA) and ground investigation will be required to quantify the depth to bedrock and assess any implications related to previous mining activities. Shallow spread foundations may not be a viable option depending on ground conditions.
Buried Obstructions	Given the historical use of the site, buried obstructions could potentially exist within the colliery fill, if encountered.	During the site preparation works, buried obstructions (if any) will need to be removed as far as practical from the ground.
Trees	Mature trees form part of West Wood which is present along the western boundary of the site. Sporadic semi-mature trees are present across the entire site. If tree root systems are present within cohesive soils, they could potentially create a shrink/swell issue for foundations in close proximity.	Depending on the volume change potential of the shallow soils, foundations in close proximity to new or existing trees may need to be locally deepened beyond the zone of influence of tree roots. Planting or removal of trees or shrubs near to buildings may require further advice about potential effects and management.
Shrinking and Swelling Clays	Given the presence of trees and the anticipated underlying cohesive soils,	It is recommended that a ground investigation confirm the volume

Potential Constraint / Opportunity	Explanation	Potential Mitigation Options
	these may be prone to soil volume change potential and desiccation, especially with the presence of dense vegetation.	change potential of the soils and where necessary foundations and planting regimes incorporate shrink/ heave protection measures.
Coal Mining and Mineral Extraction	The CA have identified the site to be in an area that could have been affected by underground mining of four seams of coal and one seam of ironstone at shallow depth. Six mine entries have also been identified to be within the site boundary or within 20 metres. Further information is presented in Section 3.0 and within the Coal Authority Mining Report (Appendix 4).	A detailed CMRA will be required to accurately identify the potential risks and constraints associated with the site. The final development scheme will have to take into consideration the locations of mine shafts, which if identified, may require treatment.
Earthworks	The site appears to be relatively flat in nature. Significant earthworks are unlikely to be required.	Should groundworks be required, geotechnical testing should seek to clarify the properties of soils on-site, and to determine their potential for re-use.
Drainage and Soakaways	Based on the anticipated ground conditions, a soakaway drainage solution may be suitable within more granular fractions of the underlying strata.	Soakaway feasibility will need to be assessed during a ground investigation.
Ground Dissolution Hazards	The GroundSure® GeolInsight report indicates the following ground stability hazards relating to the site: Very low risk: shrink-swell clays, landslides, running sand and collapsible deposits; Negligible risk: Soluble rocks. Moderate Risk: Compressible ground.	Ground conditions should be assessed during a ground investigation to delineate any risk associated with compressible ground.
UXO	Information from the UXO Regional Bomb Map of South Yorkshire identifies the Site to be located in a no bomb risk area.	No further action is required.

7 PRELIMINARY ENVIRONMENTAL RISK ASSESSMENT

Introduction

- 7.1 The risk posed by any contaminants in soil or groundwater will depend on the nature of the hazard, the probability of exposure, the pathway by which exposure occurs, and the likely effects on the receptors. A contaminant is defined as a substance that has the potential to cause harm, while a risk is considered to exist if such a substance is present in sufficient concentration to cause harm and a pathway exists for a receptor to be exposed to the substance.
- 7.2 The following sections discuss all the identified potential on and off site sources, pathways and receptors in the context of the proposed development and plausible pollutant linkages which may represent a risk to identified receptors such as human health and/or controlled waters from the data gained from the desk study. At this stage the assessment is qualitative and aimed to determine all pollutant linkages, irrespective of significance or allowing for uncertainty.
- 7.3 Three impact potentials exist for any given site, these are:
- The site impacting upon itself;
 - The site impacting on its surroundings; and
 - The surroundings impacting on the site.
- 7.4 All three impacts need to be considered in a risk assessment.
- 7.5 A Source, Pathway, Receptor analysis has been undertaken for the site based on the information provided in the preceding sections. This is presented as **Table 5** and further information about the risk classification scheme is included within **Appendix 6**.
- 7.6 **Sources (S);** These are potential or known sources of contamination that may relate to a former land use or present site feature or process (e.g. fuel storage tanks).
- 7.7 **Pathways (P);** A pathway is defined as a mechanism or route by which a contaminant comes into contact with, or otherwise affects a receptor. Pathways by which the identified receptors may be impacted upon in the context of the proposed development.
- 7.8 **Receptors (R);** Receptors are defined as people, living organisms, ecological systems, controlled waters, atmosphere, structures and utilities that could be adversely affected by contaminant(s).

Table 5 Preliminary Conceptual Site Model

Source	Pathway	Receptor	Con	Prob	Risk	Mitigation/Investigation
S1: On site: Made Ground and colliery fill from infilling of ponds, workings and former mining activities. Potential source of ACMs, lubricating oils, petroleum hydrocarbons, heavy metals, possible PAH and ground gas including carbon dioxide and methane.	P1: Direct contact, incidental ingestion and inhalation of particulates.	R1: Construction/services personnel	Md	Lw	M/L	It is recommended that a ground investigation be completed to assess the potential risks to human health.
		R2: Future site users	Mi	Lw	L	In the context of the proposed warehouse use of the site, it is considered likely that hard standing will be present on site, thereby reducing the possibility for future site users to be impacted by any contamination, if present. Landscaped areas are likely to be present and the possibility for users to be exposed to contaminated materials (if present) via dermal contact, ingestion and/or inhalation of fugitive soil particulates cannot be discounted, however, the risk can be largely mitigated by appropriate cover soils. The exposure to construction workers/services personnel can be mitigated by utilising appropriate PPE and maintaining good hygiene practices.
	P2: Vertical migration and lateral contaminants in the soil leachate.	R3: Underlying Secondary A Aquifer within the Pennine Lower Coal Measures	Mi	Lw	L	Due to building and hardstand cover associated with the proposed development the leaching potential will be significantly reduced. Given the absence of significant controlled waters in close proximity to the site, it is unlikely that the proposed development will detrimentally impact upon them.
		R5: Storrs Dike	Mi	Lw	L	
	P3: Direct contact.	R6: Water utility pipes	Md	Lw	M/L	Any contaminants, particularly hydrocarbon compounds in the shallow soils could impact utility pipes and/or foundations.
		R7: Buried structures/foundations.	Md	Lw	M/L	A ground investigation and subsequent laboratory analysis should be undertaken to inform the design of new services and foundations, where required.

	P4: Migration and accumulation of ground gasses in enclosed spaces leading to asphyxiation (carbon dioxide) or explosion (methane).	R1: Future site users	Sv	Lw	M	Migration of gases through sandstone horizons and through fractured coal and mudstone within the Coal Measures, from on-site and off-site sources is considered to pose a moderate risk to human health. A programme of gas monitoring should be completed in accordance with CIRIA guidance to assess the potential for ground gas generation migrating from on and off site sources and ingress into any new buildings. Gas protection measures may be required in all new buildings, consisting of a combination of floor slab, ventilation and gas impermeable membranes.
S2: Off site: mobile contaminants associated with collieries, historical mining activity, quarrying, opencast mining, railway infrastructure, air ventilation shafts, gasometer, ESSs, PFS, Sewage works, and depots.	P4: Migration and accumulation of ground gasses in enclosed spaces leading to asphyxiation (carbon dioxide) or explosion (methane).	R1: Future site users	Sv	UI	M/L	A programme of gas monitoring should be completed to assess the potential for ground gas generation and ingress into any new buildings. Gas protection measures may be required in all new buildings, consisting of a combination of floor slab, ventilation and gas impermeable membranes.
Potential Contaminants may include solvents, heavy metals, petroleum hydrocarbons, acids and alkalis, oils, PCBs, ACMs, lubricating oils and PAH.	P5: Leaching of soluble contamination into groundwater and lateral migration towards Site.	R3: Underlying Secondary A Aquifer within the Pennine Lower Coal Measures	Mi	Lw	L	Given the developments and industrial activities present in the surrounding area the potential for minor contamination exist. However, no controlled waters are in close proximity to the site. An intrusive ground investigation should be undertaken to assess the chemical properties of the soils and groundwater (if present) environment beneath the site.
VH = Very High, H = High, M = Moderate, M/L = Moderate/Low, L = Low, VL = Very Low KEY: Sv = Severe, Md = Medium, Mi = Mild, Mr = Minor Hi = High, Li = Likely, Lw = Low Likelihood, UI = Unlikely						

Pollutant Linkage Assessment Summary

When considered in the context of the conceptual site model and the historical activities that have taken place (infilled land, mining activities, railway infrastructure, industrial activity, collieries etc.), the proposed development is considered to pose a **MODERATE risk** to human health. It is considered that the main driver for the risk rating for human health is the potential for ground gasses to be present underlying the site from the historical mining activities which have taken place on site and in the surrounding area.

The risk posed to controlled waters is predominantly considered to be **LOW** due to limited amount of controlled waters in the surrounding area and the underlying geology of the PLCMF.

Ground investigation is recommended for general site coverage purposes, to assess the underlying ground conditions and to inform foundation design and if required the need for remediation or mitigation measures prior to the development of the site.

8 ENVIRONMENTAL LIABILITY ASSESSMENT AND DEVELOPMENT CONSTRAINTS

- 8.1 Under statutory guidance for definition of contaminated land site may be classified into 4 categories. Categories 1 and 2 would meet the definition of contaminated land and categories 3 and 4 would not meet the definition.
- 8.2 It is considered that the site would fall within Category 3 based on the historical mining activity which has occurred on site and in close proximity to the site, in addition to the infilled land which is present across the site.
- 8.3 The contaminated land regime has implications for those who cause or knowingly permit land to be contaminated, or who own or occupy land that is contaminated. Contaminated land is defined in Section 78A(2) of Part IIA of the Environmental Protection Act 1990 as:
- a) *Significant harm is being caused or there is a significant possibility of such harm being caused; or*
 - b) *Pollution of controlled waters is being or is likely to be, caused."*
- 8.4 Harm is defined in Section 78(4) of the Environmental Protection Act 1990 as:
- "Harm to the health of living organisms or other interference with ecological systems of which they form part and, in the case of man, includes harm to property."*
- 8.5 Once an area of land has been identified as contaminated land, appropriate persons will be identified as being responsible for the cost of cleaning up the land by the enforcing authority. The appropriate person will be liable for all or part of the remediation of the land. Two classes of appropriate person have been identified:
- Class A appropriate persons are those who cause or knowingly permit the pollutants to be in, on or under the land.
 - Class B appropriate persons are the owners(s) or occupier(s) of the land.
- 8.6 Where no Class A appropriate persons can be identified, then Class B appropriate persons may become liable.
- 8.7 Based on the information available regarding the site, the potential for Statutory Authority action based on "*pollution of controlled water*" or "*significant harm*" as defined by Part IIA of the Environmental Protection Act 1990 is considered to be **Low** based on the potential for on-site contamination and the Secondary A Aquifer underlying the site.

Third Party Liability

- 8.8 Comment on the severity of off-site migration onto the site and whether liability exist.
- 8.9 Based on the information contained in this report, it is the opinion of BWB that the potential for legal action by surrounding landowners, based on the potential for contamination to migrate off-site, is considered to be **Moderate** to **Low** when considering the historic mining activity present on site (ground gas) and the infilled land.

Public Relations

- 8.10 The likelihood of public relations being tarnished due to contamination issues at the site are considered to be **Low**.

Development Implications

- 8.11 Depths of the infilled ponds/reservoirs need to be assessed and the Made Ground or colliery fill used to backfill will require both chemical and geotechnical sampling to determine feasibility of reuse on site. Basic remedial protection measures comprising capping and basic gas protection measures may be required with removal of contaminated soils (if present), if spills and leaks are identified to have occurred.
- 8.12 The stockpile will need to be assessed for potential reuse on site or appropriate removal from site.
- 8.13 A CMRA will need to be undertaken to appropriately assess the remaining coal seams on site and in close proximity to the site. Following the CMRA and where/if coal measures are present, it may be necessary to undertake probing works to determine the presence and extent of any underground workings and requirement for treatment works. The development layout will also have to take account of former mine shafts, which may require treatment, if identified.

9 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 9.1 The site has historically been utilised for mining activities including ironstone and potentially coal. It is currently however a square parcel of scrubland, woodland and dense vegetation that is being utilised by dog walkers.
- 9.2 Ground conditions are expected to comprise topsoil overlying the bedrock geology of the PLCMF. However, given the historical use of the site and borehole records in close proximity, Made Ground and colliery fill is expected to be present in the positions of historic ponds/reservoirs and workings across the site.
- 9.3 The PLCMF is classified by the EA as a Secondary A Aquifer.
- 9.4 Based on the information contained within this report and with due regard to the proposed development on Site it is the opinion of BWB that the Site represents a **Moderate** risk with respect to human health and a **Low** risk to controlled waters, with the risk to human health principally associated with the potential for elevated hazardous ground gas concentrations generated from former mining workings and activities.

Geotechnical

- 9.5 Removal of existing trees could lead to potential heave issues to the proposed development.
- 9.6 Shallow spread foundations may not be a viable option depending on ground conditions. However, a CMRA and ground investigation will be required to quantify the depth to bedrock and assess any implications related to previous mining activities.

Recommendations

- 9.7 A detailed CMRA will be required to assess the potential risks to the development from historical mining activity including indicated mine entries.
- 9.8 A preliminary ground investigation is recommended to assess the chemical and geotechnical properties of the underlying ground conditions. Assessment will indicate the mitigation measures likely to be required during construction of the proposed development and suitability of the ground for certain foundation solutions.
- 9.9 The investigation should also facilitate the installation of monitoring wells and a hazardous ground gas risk assessment given the historic mining activity on site and in the surrounding area.

10 REFERENCES

1. British Standards Institute, (BSI), BS 8485:2015, Code of Practice for the characterization and remediation from ground gas in affected developments
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3. British Standards Institute, (BSI), BS 10175:2011+A1:2013, Investigation of Contaminated Sites – Code of Practice
4. British Standards Institute, (BSI), BS5930:2015) Code of practice for ground investigations
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11. Construction Industry Research and Information Association (CIRIA). 2007, Report C665, Assessing Risk Posed by on Hazardous Ground Gases to Buildings
12. Department for Communities and Local Government (DCLG), 2012, National Planning Policy Framework.
13. Department for Environment Food and Rural Affairs (DEFRA), 2012, Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance.
14. Environment Agency report CLR11 'Model Procedures for the Management of Land Contamination'.
15. Environment Agency 2008, Updated technical background to the CLEA model Science Report – SC050021/SR3
16. Environment Agency 2008, Human health toxicological assessment of contaminants in soil Science Report – SC050021/SR2
17. Environment Agency 2009, CLEA Software (Version 1.05) Handbook Better Regulation Science Programme Science report: SC050021/SR4

-
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 19. Environment Agency, 2006, Remedial Targets Methodology, Hydrogeological Risk Assessment for Land Contamination
 20. Health and Safety Executive (HSE) 'Protection of workers and the general public during the Development of Contaminated Land (1991).
- NHBC Guidance for the Safe Development of Housing on Land Affected by Contamination, R&D Publication 66: 2008

DRAWINGS

DRAWING 1
SITE LAYOUT PLAN



Station Name	Eastings (m)	Northings (m)	Height (m)
BWB01	433574.989	399232.294	158.182
BWB02	433554.220	399223.660	158.276
BWB03	433467.159	399167.617	159.181

- Notes**
- Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
 - This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
 - All dimensions in metres unless noted otherwise. All levels in metres unless noted otherwise.
 - Any discrepancies noted on site are to be reported to the engineer immediately.
 - No scale factor has been applied to this survey, therefore the os coordinates are to be treated as arbitrary. Please refer to survey station information below for on site control establishment.
 - All coordinates and height data relate to OSGB36(15). Control stations are coordinated by means of GPS receiving real time corrections via OS smart net.
 - All manhole data is collected from ground level therefore discrepancies may occur. More accurate data is only achievable via confined space entry.
 - OS license number: 100022432

Legend

	OS Buildings		Contour Lines
	Surveyed Buildings		Inspection Chamber
	Building		Flow direction and pipe diameter
	Wall		Station and Name
	Kerb Channel Line		Monitoring Borehole
	Top of Kerb		Tree / Bush / Sapling
	Top of Surface		Area of Vegetation/ Extent of Tree Canopy
	Bottom of Bank		Hedge
	Canopy / Overhang		Body of Water
	Line Marking		Body of Water from OS
	Centre Line		Spot Level
	Watercourse		Assumed Surface
	Centre Line		Water Drainage Line
	Barrier		Surface Water Drainage Line
	Fence		
	Gate		
	Overhead Powerline		
	Overhead Utilities		

AP Anchor Point
BG Back Gully
BO Bollard
BS Bus Stop
BT British Telecom
C Crest
CL Cover Level
CMP Cable Marker
CCTVSecurity Camera
CTV Cable TV
DC Drainage
DK Drop Kerb
DP Down Pipe
Elec Electric
EP Electricity Post
ER Earth Rod
FH Fire Hydrant
FL Floodlight
FBW Fence Barbed Wire
FCB Fence Closed Board
FCL Fence Chain Link
FEL Fence Electric
FMP Fence Metal Panel
FMR Fence Metal Railing
FOB Fence Open Board
CPW Fence Post & Wire
FSP Fence Steel Palisade
FWM Fence Wire Mesh
FFL Finished Floor Level
FP Flagpole
Gas Gas
GV Gas Valve
GY Gully
HT Height
IC Inspection Chamber
IFL Internal Floor Level
IL Invert Level (as a reduced level)
LB Litter Bin
LP Lamp Post
MH Manhole
Mkr Service Marker
PB Post Box
PT Post
RE Rodding Eye
SP Sign Post
ST Stop Tap
SV Stop Valve
TCB Telephone
Call Box
THL Threshold Level
TL Traffic Light
TP Telegraph Post
TS Traffic Signal
UTS Unable to Survey
WL Water Level
WM Water Meter
WO Wash Out

P1	05.04.17	First Issue	PT	RTR
Rev	Date	Details of issue / revision	Drw	Rev

Issues & Revisions

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☐ Nottingham | 0115 924 1100
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Client
RULA Developments Ltd

Project Title
Land off Maple Road Tankersley

Drawing Title
Existing Site Layout Plan

Drawn:	P.TAYLOR	Reviewed:	R.ROBINSON
BWB Ref:	LDH2179	Date:	05.04.17
Scale:	A1: 1:500		

Drawing Status
Information

Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
MRT-BWB-00-EN-DR-0001	S2	P1

APPENDICES

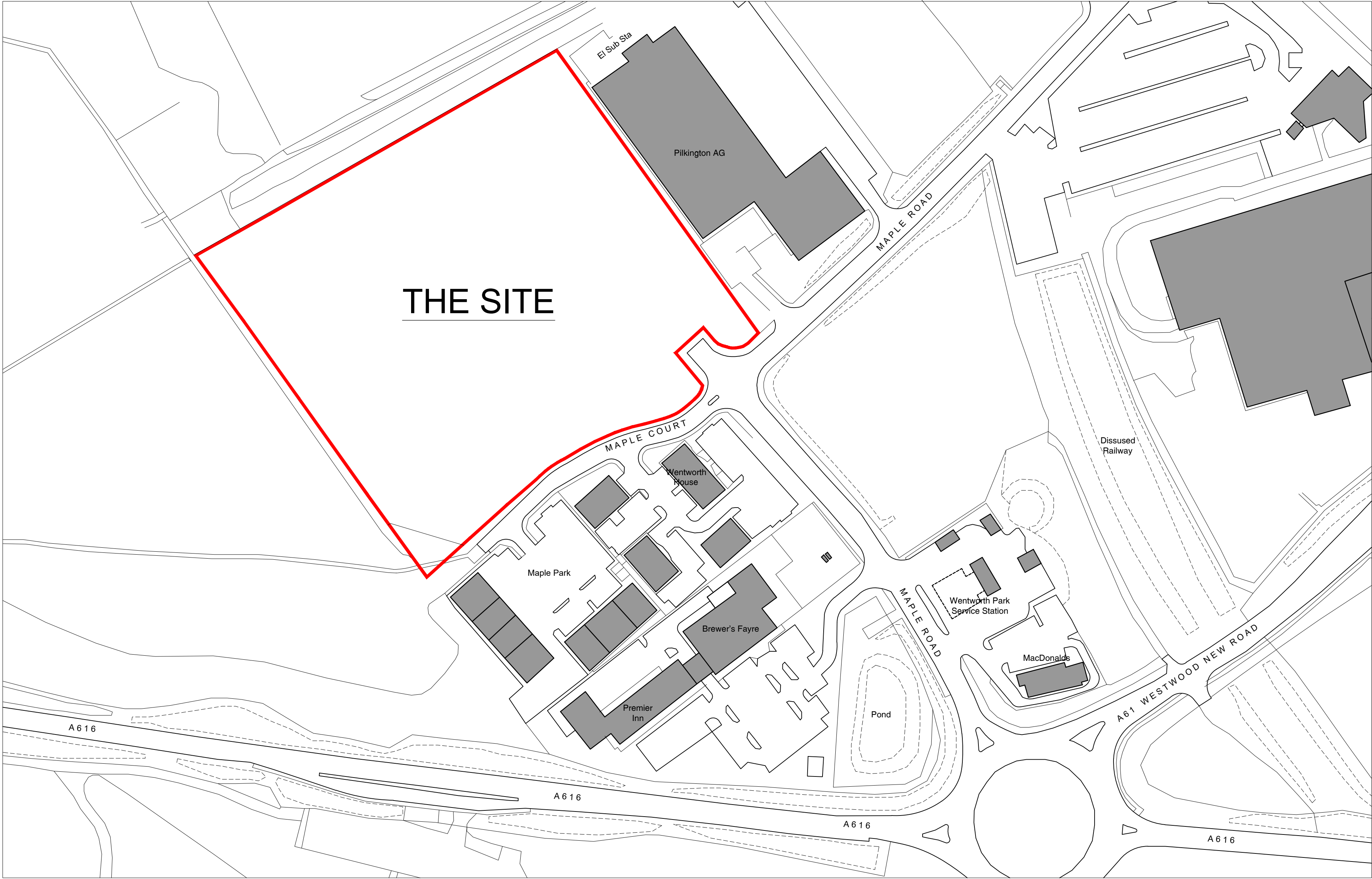
APPENDIX 1

PROPOSED DEVELOPMENT MASTERPLAN

notes

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client

Company Shop /
Rula Developments Ltd

project

Proposed Development
Maple Road
Tankersley
South Yorkshire

drawing

SITE LOCATION PLAN

scale 1:1250 @ A1 drawn rpw

checked spp date 28.04.17

no

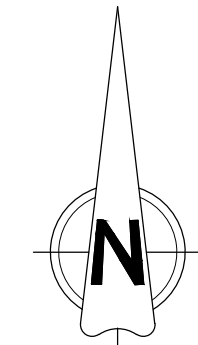
6157 - 015
PLANNING



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Schedule of Accommodation
All areas are approximate gross internal

Distribution Centre	13,563 sq.m.	146,000 sq.ft.
Two Storey Offices	372 sq.m.	4,000 sq.ft.
Total	13,935 sq.m.	150,000 sq.ft.
Parking	93 no. car spaces	
Total Gross Site Area	3.10 ha.	7.66 acres approx.

no.	date	revision	by
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client

Company Shop /
Rula Developments Ltd

project

Proposed Development
Maple Road
Tankersley
South Yorkshire

drawing

Indicative Site Layout Plan

scale 1:500 @ A1 drawn rpw

checked spp date 28.04.17

no

6157 - 016
PLANNING

APPENDIX 2

SITE PHOTOGRAPHS

Project Number: LDH2179
Project Name: Land off Maple Road, Tankersley
Site Photographs



Photo 1 - View west along the bund situated along the southern boundary of the site.



Photo 2 - North-westerly view of the bund at the southern boundary of the site and the site entrance in the corner of the image. Litter is prominent in this area.

Project Number: LDH2179
Project Name: Land off Maple Road, Tankersley
Site Photographs



Photo 3 - Easterly view of a gap created within the bund at the south of the site. Utilised predominantly by dog walkers.



Photo 4 - View north of the eastern half of the site. Long grass and undulating ground is prominent in this area.

Project Number: LDH2179
Project Name: Land off Maple Road, Tankersley
Site Photographs



Photo 5 - North-easterly view of the hedgerow and fenced perimeter of the site. Pilkington AG is present directly east of the site.



Photo 6 - Southerly view of the stockpile present in the north of the site.

Project Number: LDH2179
Project Name: Land off Maple Road, Tankersley
Site Photographs



Photo 7 - North-easterly view of the northern fenced perimeter. The Mercedes Benz UK Ltd depot is positioned behind the tree line.



Photo 8 - Southerly view across the site, sporadic semi-mature trees are positioned across the site. The office blocks are visible at the southern boundary.

Project Number: LDH2179
Project Name: Land off Maple Road, Tankersley
Site Photographs



Photo 9 - Westerly view of the north western corner of the site. Large areas of thorn bushes are present. West Wood runs parallel to the western boundary.



Photo 10 - Southerly view of the western boundary of the site. Dense vegetation and mature trees are present within West Wood.

Project Number: LDH2179
Project Name: Land off Maple Road, Tankersley
Site Photographs



Photo 11 - A south westerly view of West Wood. A footpath is present throughout the woodland and is a common path for dog walkers.



Photo 12 - South-westerly view of the bund positioned along the southern boundary. Large amounts of litter are present. Office blocks are located beyond Maple Road.

Project Number: LDH2179
Project Name: Land off Maple Road, Tankersley
Site Photographs



Photo 13 - Several burnt piece of timber along the southern boundary of the site.



Photo 14 - Cars are currently parked in the indent along the southern boundary and probable access point.

APPENDIX 3

HISTORICAL ORDNANCE SURVEY MAPPING

Site Details:

A SHADE GREENER LTD,
STERLING HOUSE, MAPLE
COURT, BARNSELY, S75 3DP

Client Ref: POR010132
Report Ref: HMD-214-3776043
Grid Ref: 433467, 399284

Map Name: County Series

Map date: 1893

Scale: 1:2,500

Printed at: 1:2,500



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

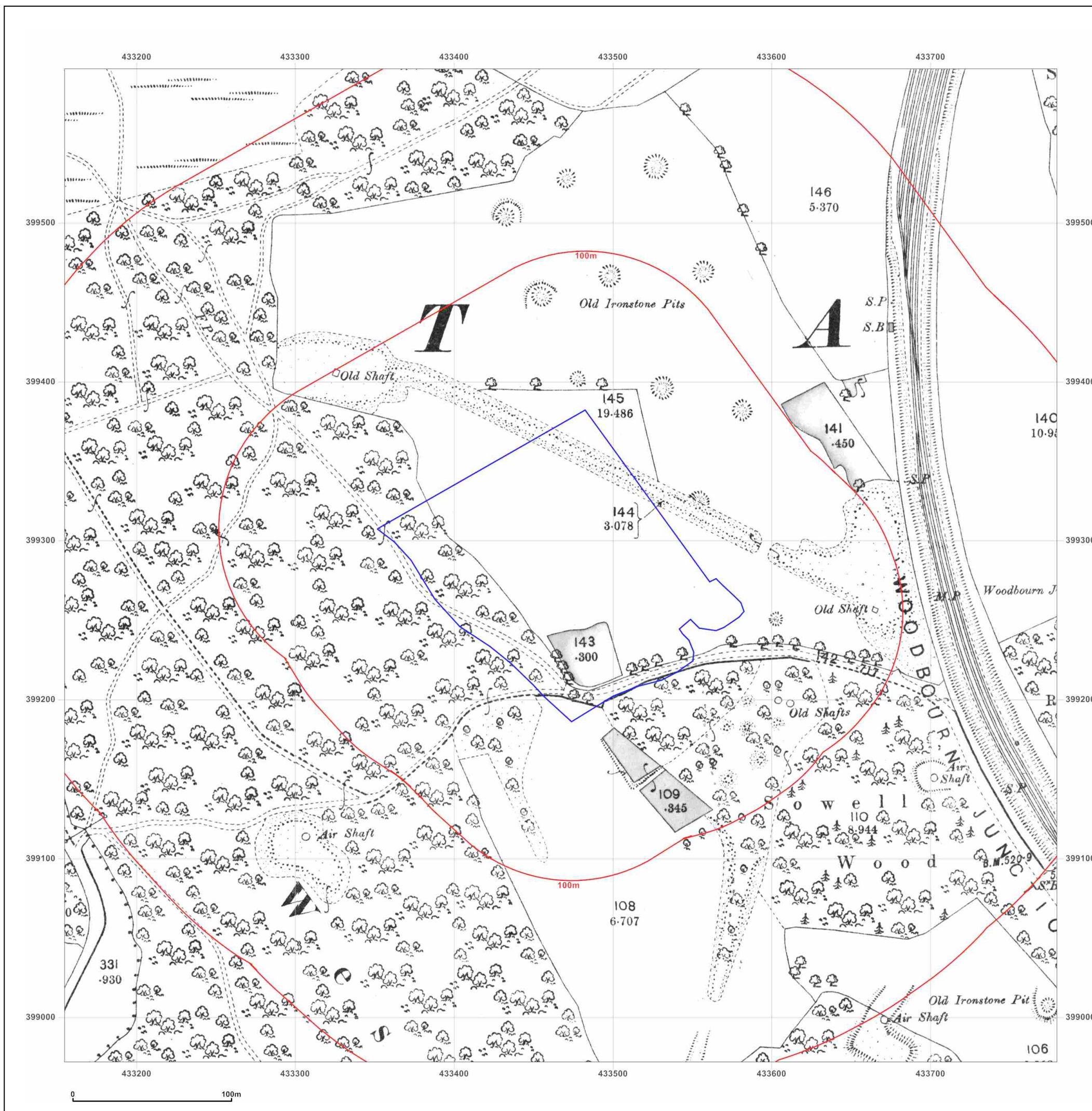


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Client Ref: POR010132
Report Ref: HMD-214-3776043
Grid Ref: 433467, 399284

Map Name: County Series

Map date: 1905

Scale: 1:2,500

Printed at: 1:2,500



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

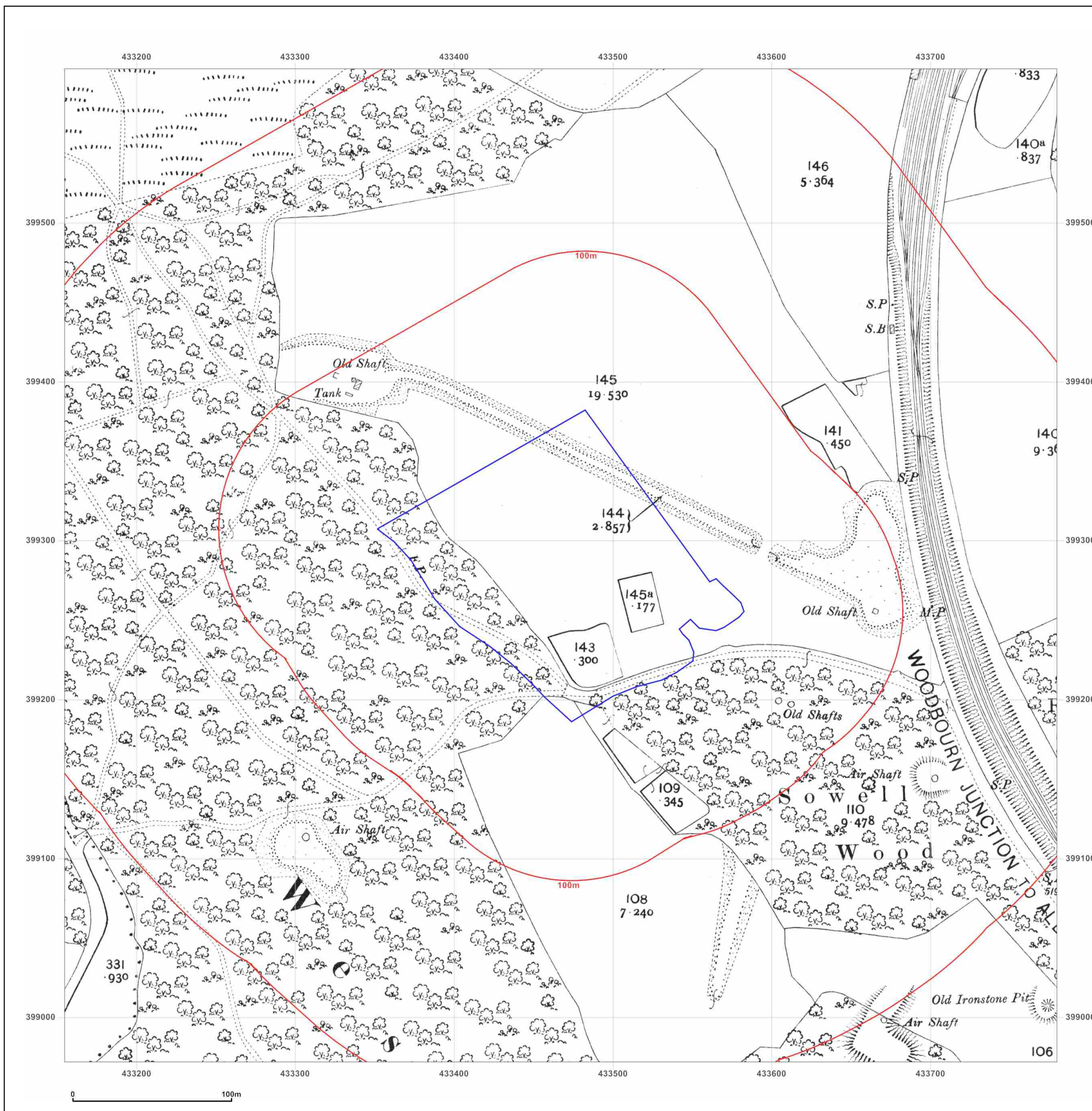


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Client Ref: POR010132
Report Ref: HMD-214-3776043
Grid Ref: 433467, 399284

Map Name: County Series

Map date: 1931

Scale: 1:2,500

Printed at: 1:2,500



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

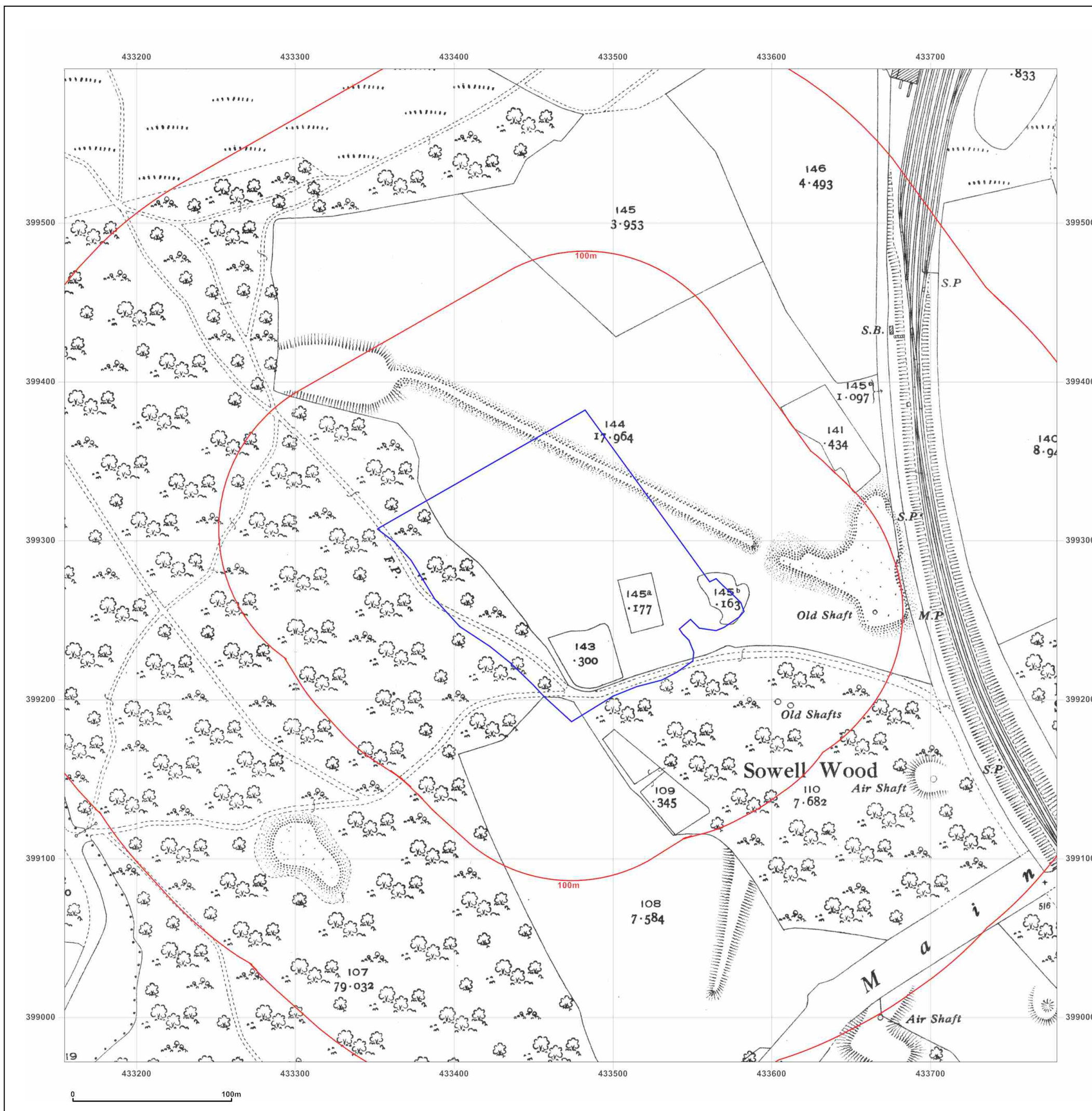


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Client Ref: POR010132
Report Ref: HMD-214-3776043
Grid Ref: 433467, 399284

Map Name: National Grid

Map date: 1956

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1956
Revised 1956
Edition N/A
Copyright N/A
Levelled 1930

Surveyed 1956
Revised 1956
Edition N/A
Copyright N/A
Levelled 1930

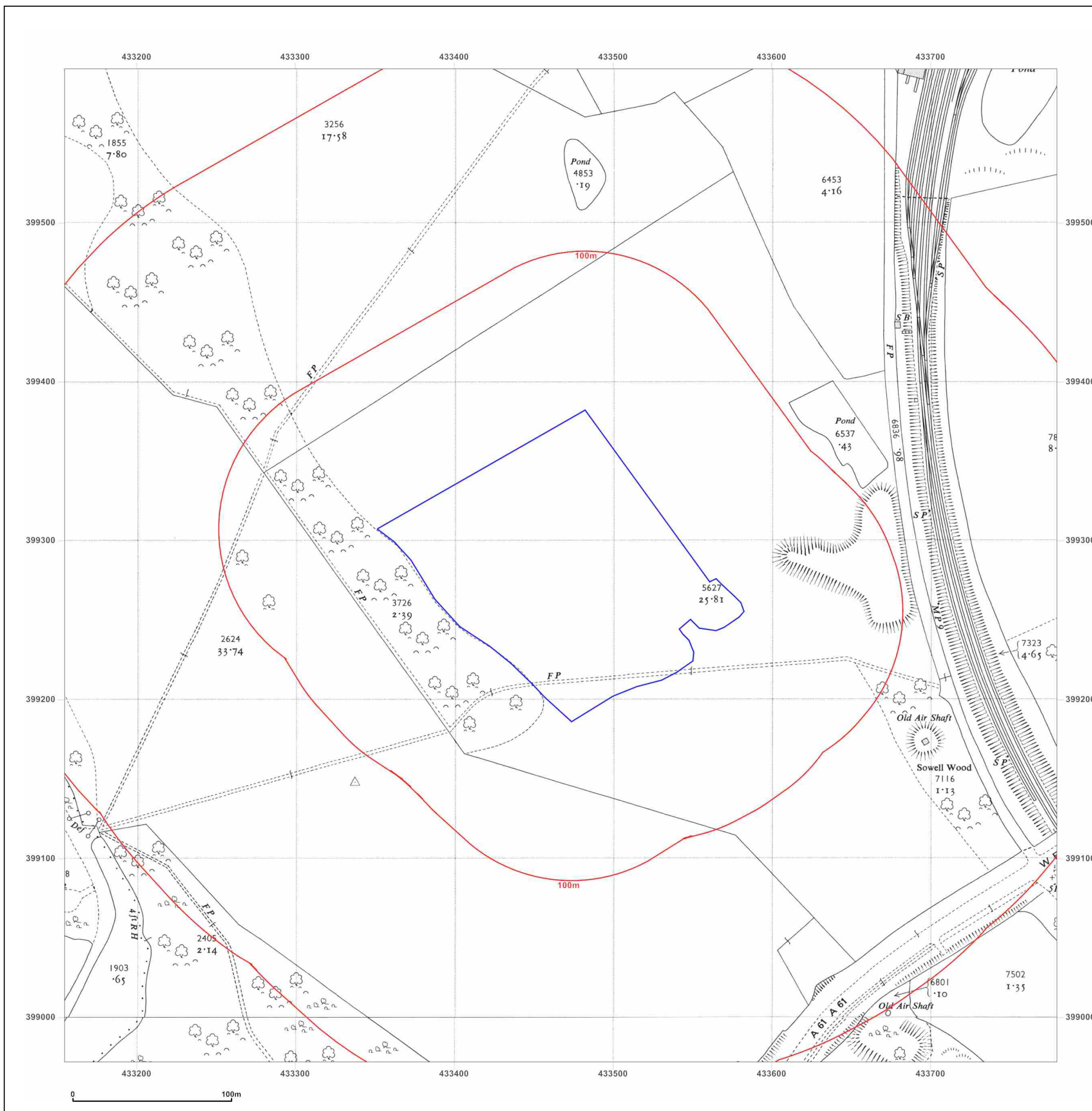


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Client Ref: POR010132
Report Ref: HMD-214-3776043
Grid Ref: 433467, 399284

Map Name: National Grid

Map date: 1981

Scale: 1:2,500

Printed at: 1:2,500



Surveyed N/A
Revised N/A
Edition N/A
Copyright 1981
Levelled 1963

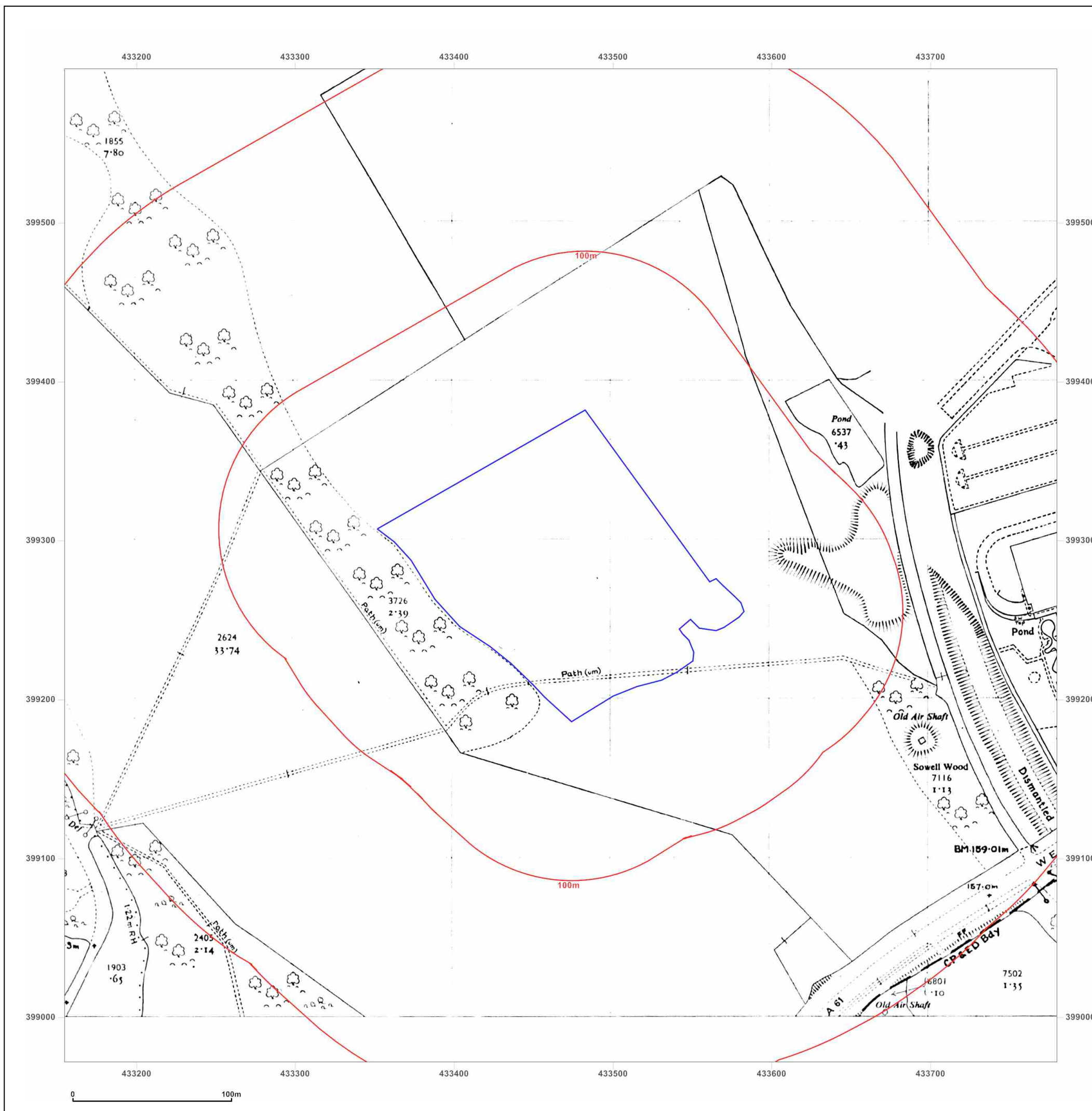


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Client Ref: POR010132
Report Ref: HMD-214-3776043
Grid Ref: 433467, 399284

Map Name: National Grid

Map date: 1984-1989

Scale: 1:2,500

Printed at: 1:2,500



Surveyed N/A
Revised 1989
Edition N/A
Copyright 1991
Levelled N/A

Surveyed 1963
Revised 1984
Edition N/A
Copyright 1984
Levelled 1963

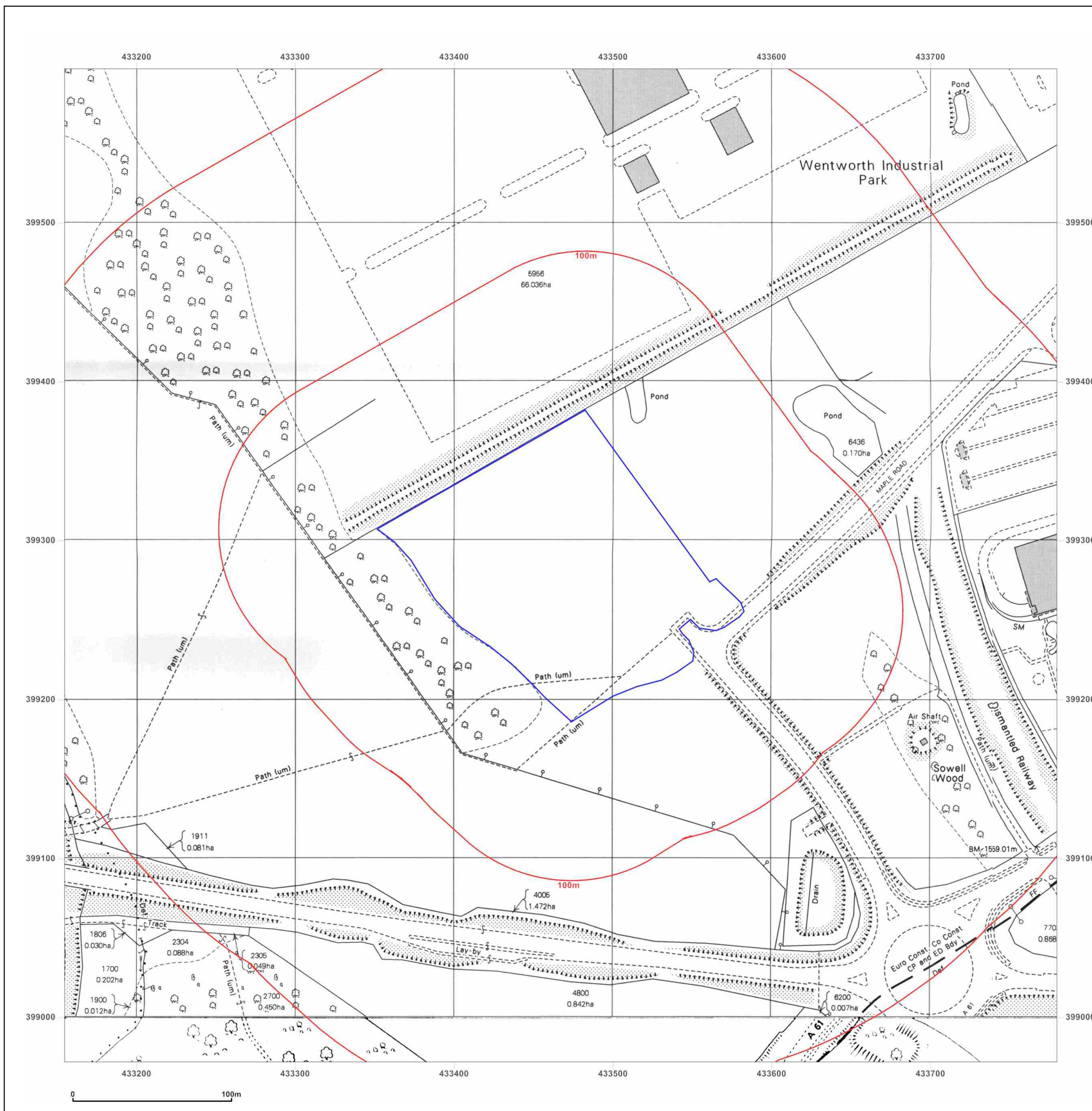


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Client Ref: POR010132
Report Ref: HMD-214-3776043
Grid Ref: 433467, 399284

Map Name: National Grid

Map date: 1990-1993

Scale: 1:2,500

Printed at: 1:2,500



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

Surveyed 1963
Revised 1990
Edition N/A
Copyright 1990
Levelled 1963



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Client Ref: POR010132
Report Ref: HMD-214-3776043
Grid Ref: 433467, 399284

Map Name: County Series

Map date: 1855

Scale: 1:10,560

Printed at: 1:10,560



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

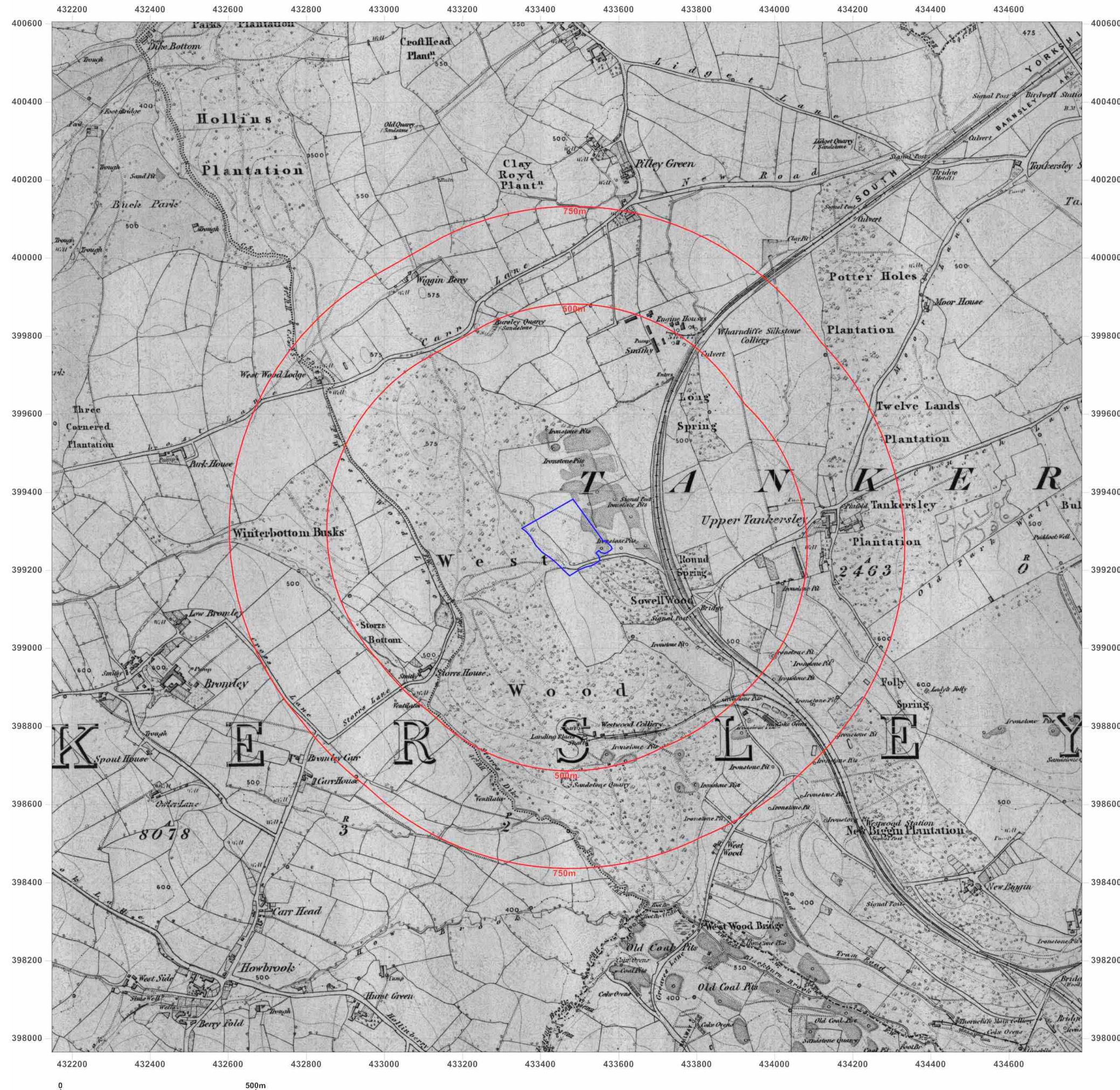


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Client Ref: POR010132
Report Ref: HMD-214-3776043
Grid Ref: 433467, 399284

Map Name: County Series

Map date: 1903

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1891
Revised 1903
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1891
Revised 1903
Edition 1903
Copyright N/A
Levelled N/A

Surveyed 1891
Revised 1903
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1891
Revised 1903
Edition 1903
Copyright N/A
Levelled N/A

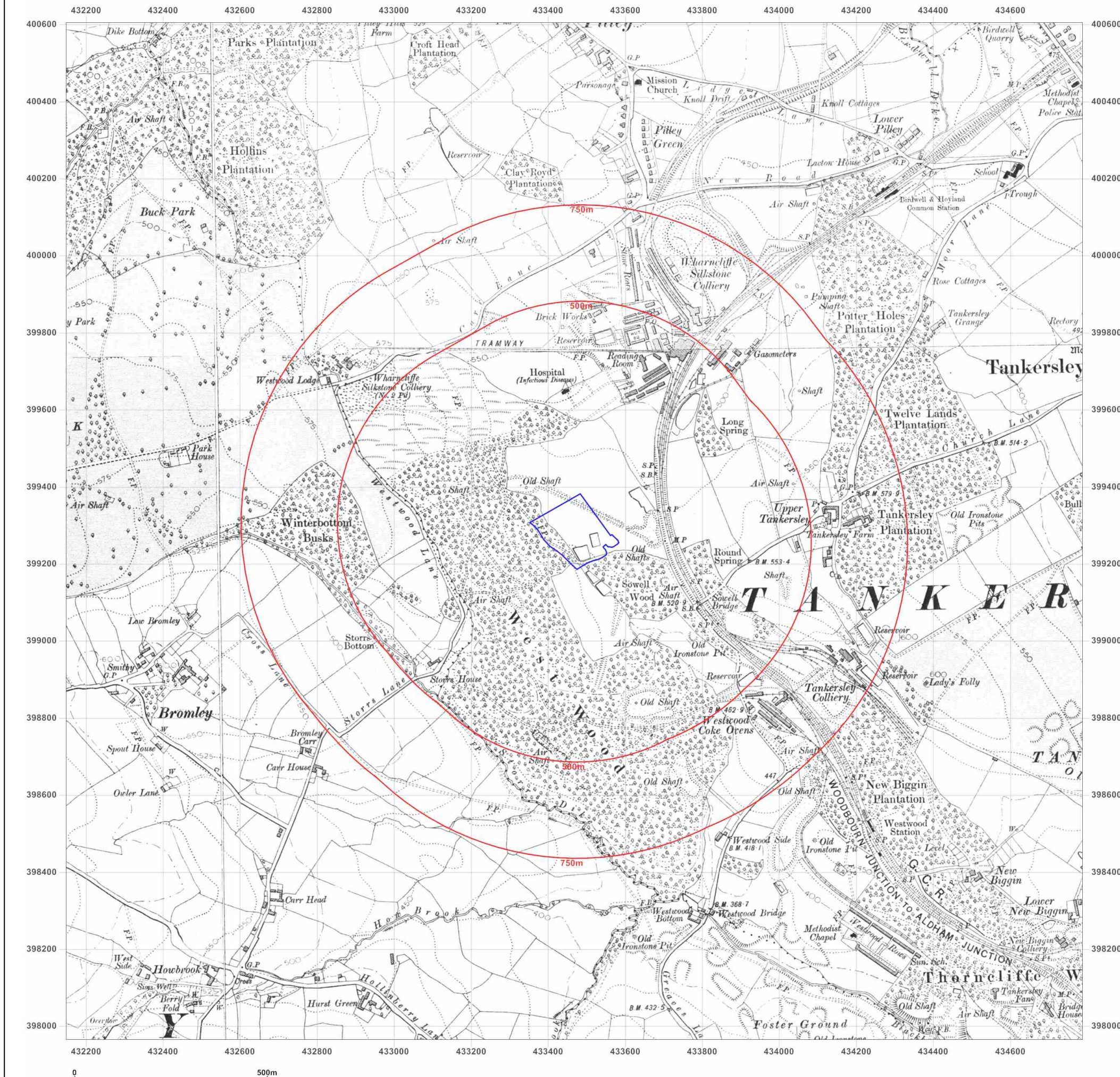


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Client Ref: POR010132
Report Ref: HMD-214-3776043
Grid Ref: 433467, 399284

Map Name: County Series

Map date: 1929-1932

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1851
Revised 1932
Edition N/A
Copyright N/A
Levelled N/A

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

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

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

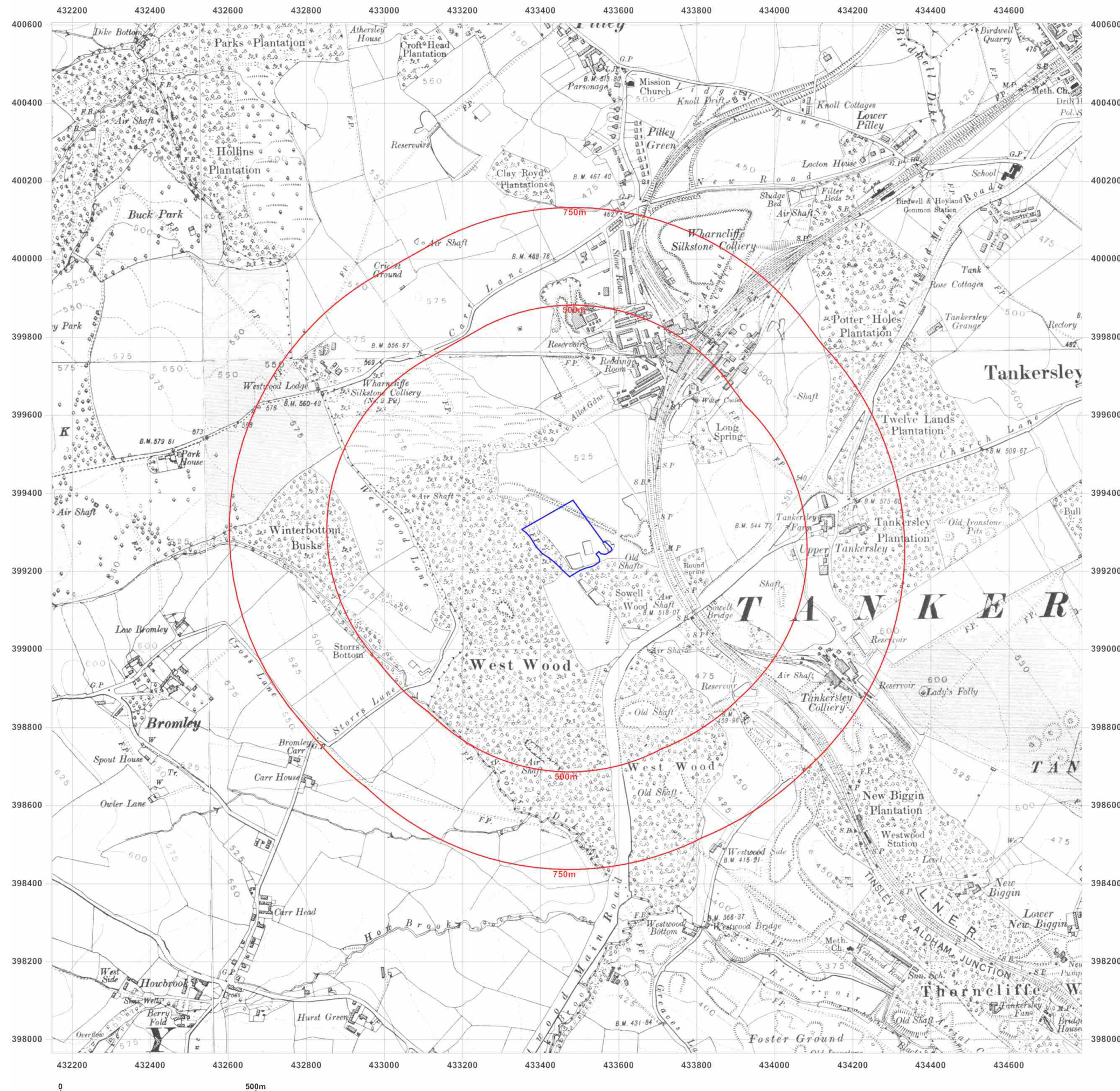


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Client Ref: POR010132
Report Ref: HMD-214-3776043
Grid Ref: 433467, 399284

Map Name: County Series

Map date: 1938

Scale: 1:10,560

Printed at: 1:10,560



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

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

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

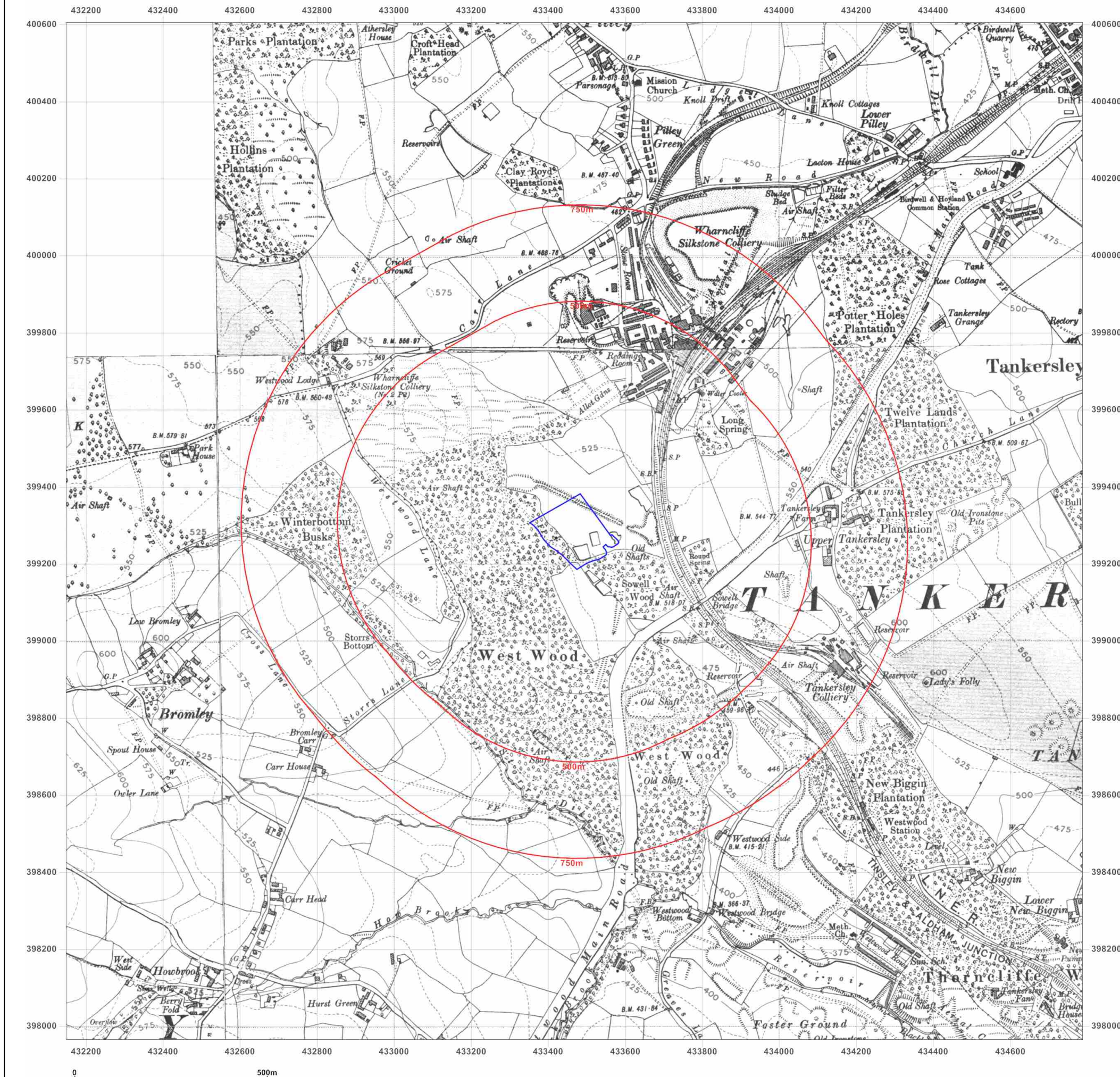


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Grid Ref: 433467, 399284

Map Name: County Series

Map date: 1948

Scale: 1:10,560

Printed at: 1:10,560



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

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

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

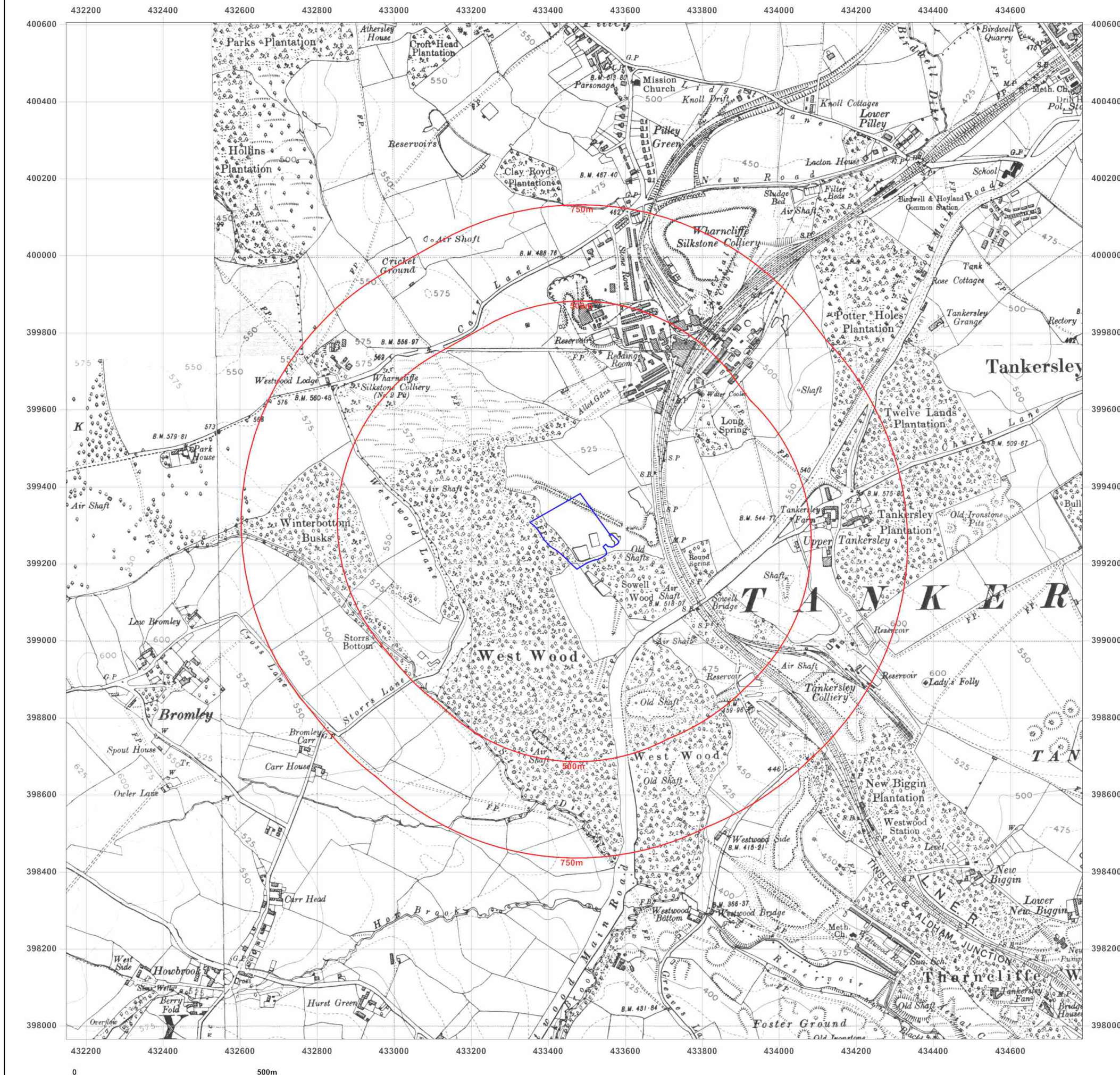


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Report Ref: HMD-214-3776043
Grid Ref: 433467, 399284

Map Name: Provisional

Map date: 1951-1956

Scale: 1:10,560

Printed at: 1:10,560



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

Surveyed 1951
Revised 1951
Edition N/A
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Client Ref: POR010132
Report Ref: HMD-214-3776043
Grid Ref: 433467, 399284

Map Name: Provisional

Map date: 1965-1966

Scale: 1:10,560

Printed at: 1:10,560



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

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

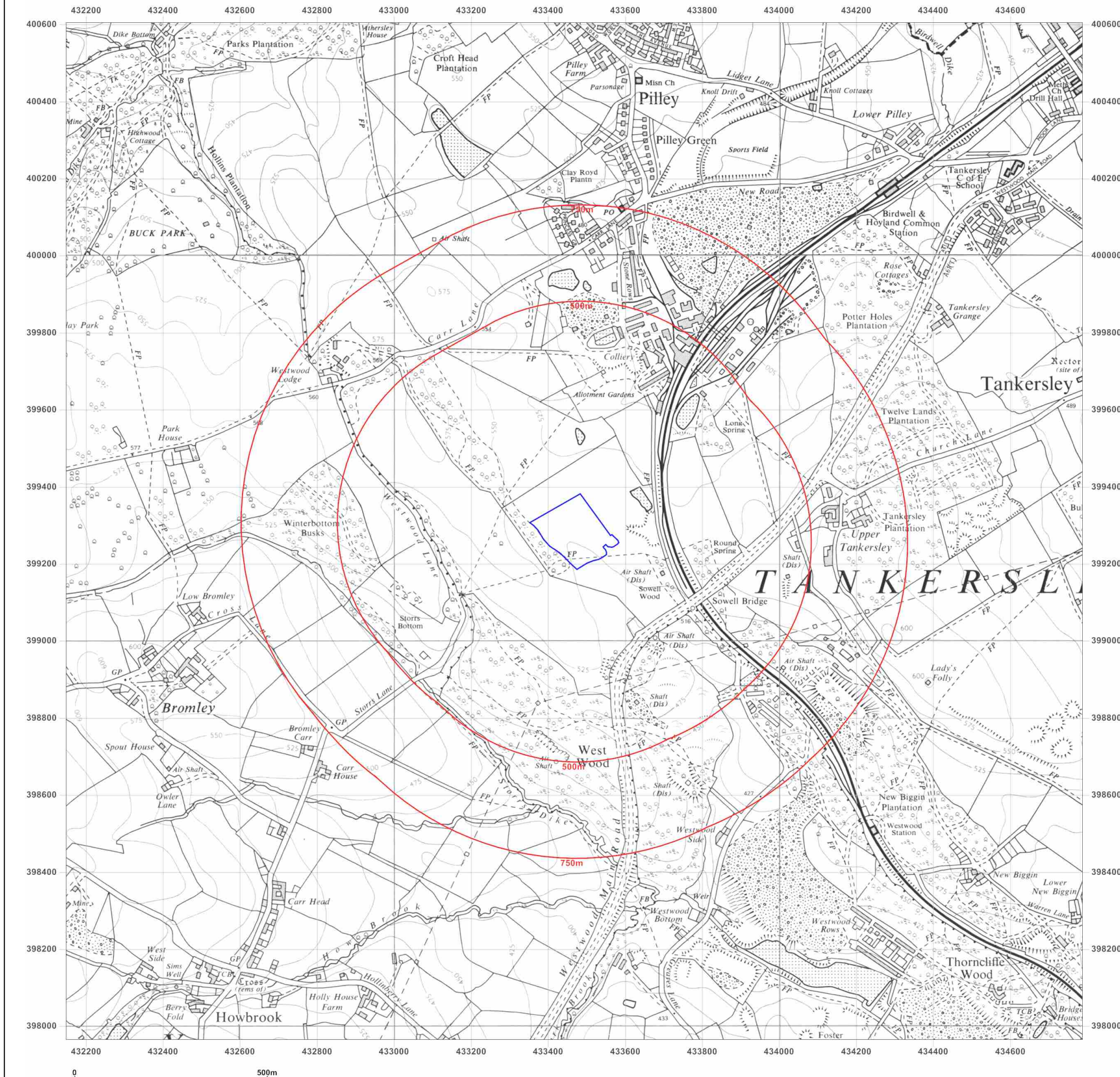


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Client Ref: POR010132
Report Ref: HMD-214-3776043
Grid Ref: 433467, 399284

Map Name: National Grid

Map date: 1977-1980

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1973
Revised 1977
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1980
Revised 1980
Edition N/A
Copyright N/A
Levelled N/A

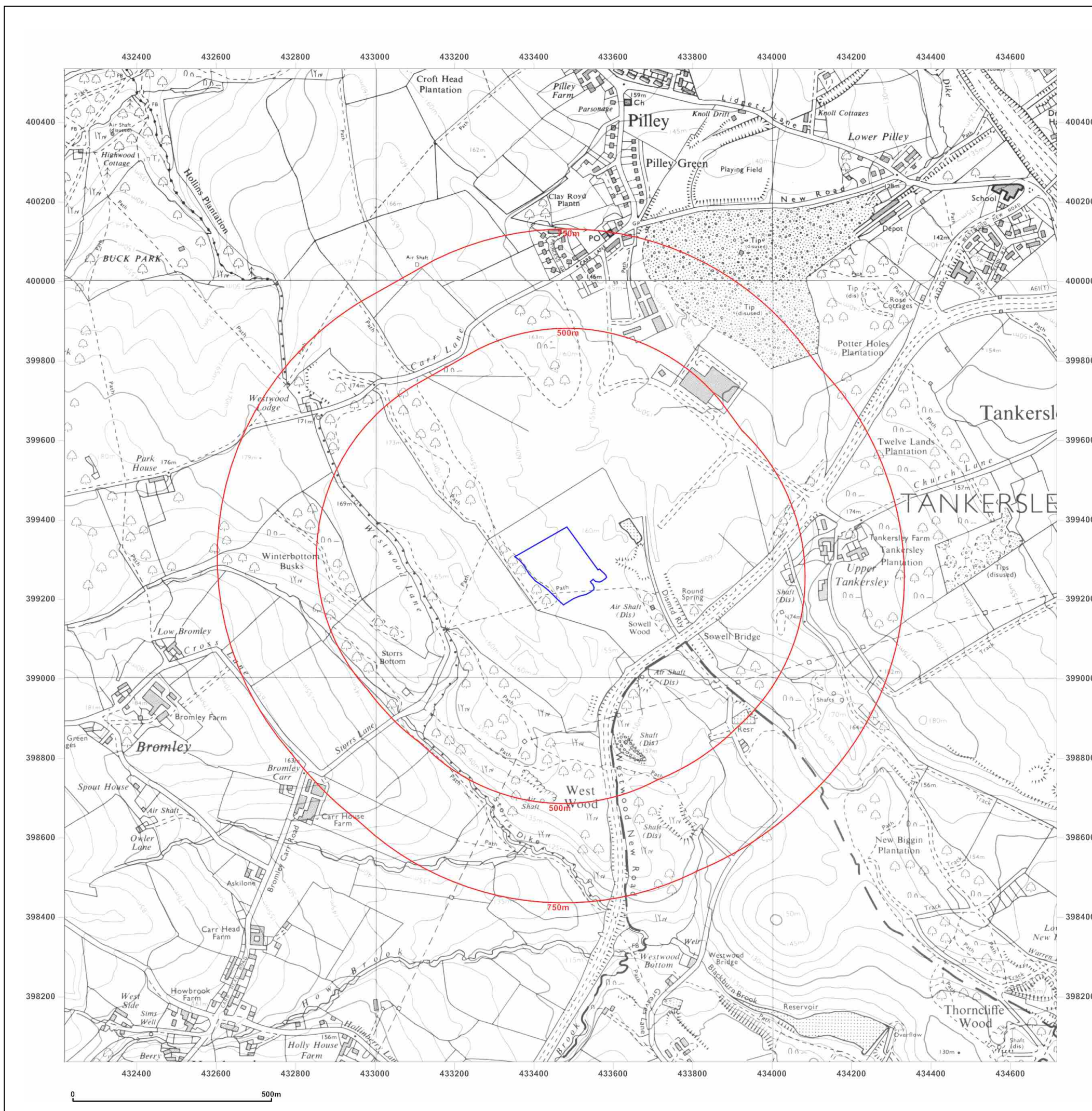


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Client Ref: POR010132
Report Ref: HMD-214-3776043
Grid Ref: 433467, 399284

Map Name: National Grid

Map date: 1992

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1991
Revised 1992
Edition N/A
Copyright N/A
Levelled N/A

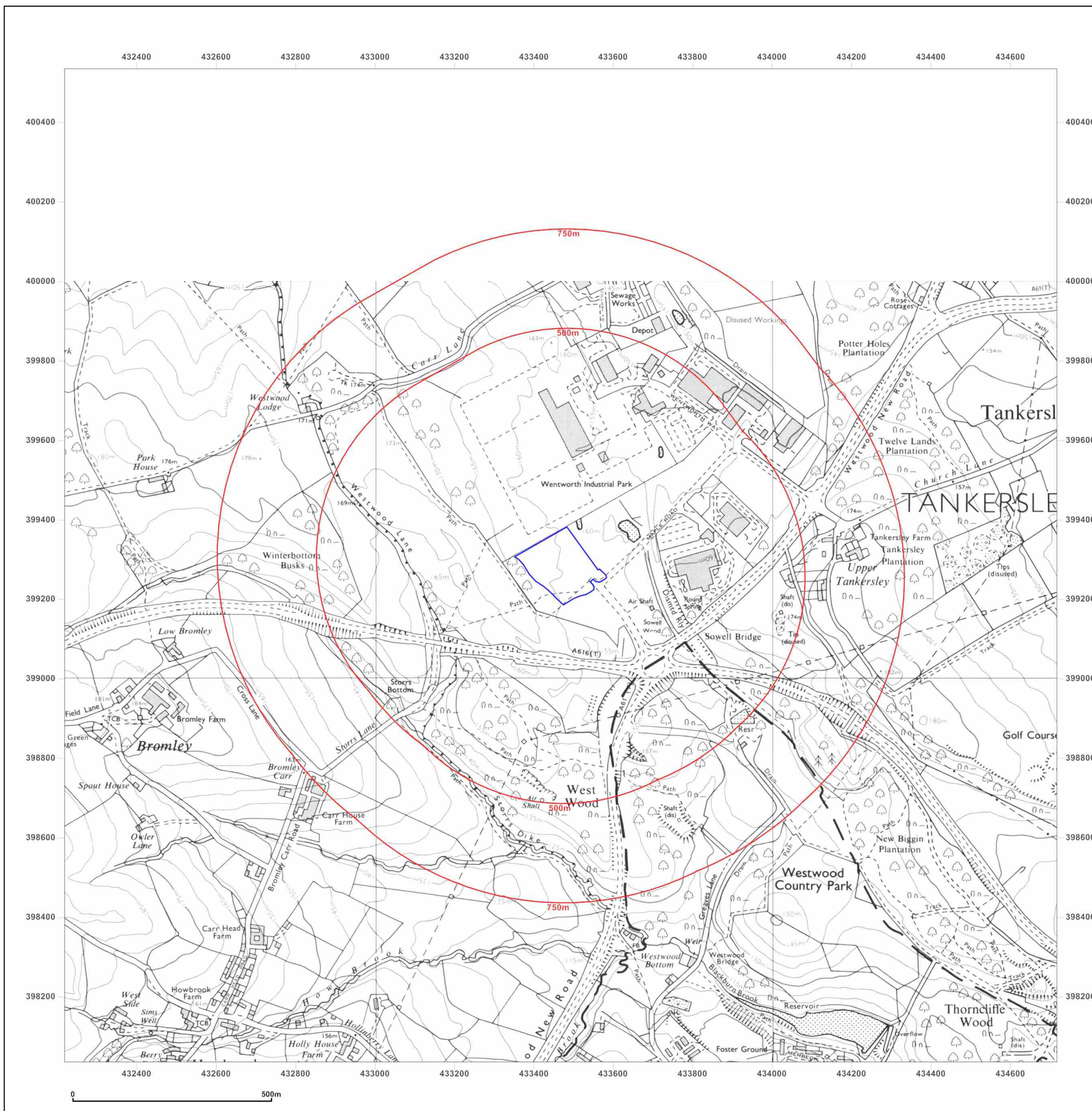


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Client Ref: POR010132
Report Ref: HMD-214-3776043
Grid Ref: 433467, 399284

Map Name: 1:10,000 Raster

Map date: 2002

Scale: 1:10,000

Printed at: 1:10,000



2002



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Client Ref: POR010132
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Grid Ref: 433467, 399284

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000



2010



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Report Ref: HMD-214-3776043
Grid Ref: 433467, 399284

Map Name: National Grid

Map date: 2014

Scale: 1:10,000

Printed at: 1:10,000



2014

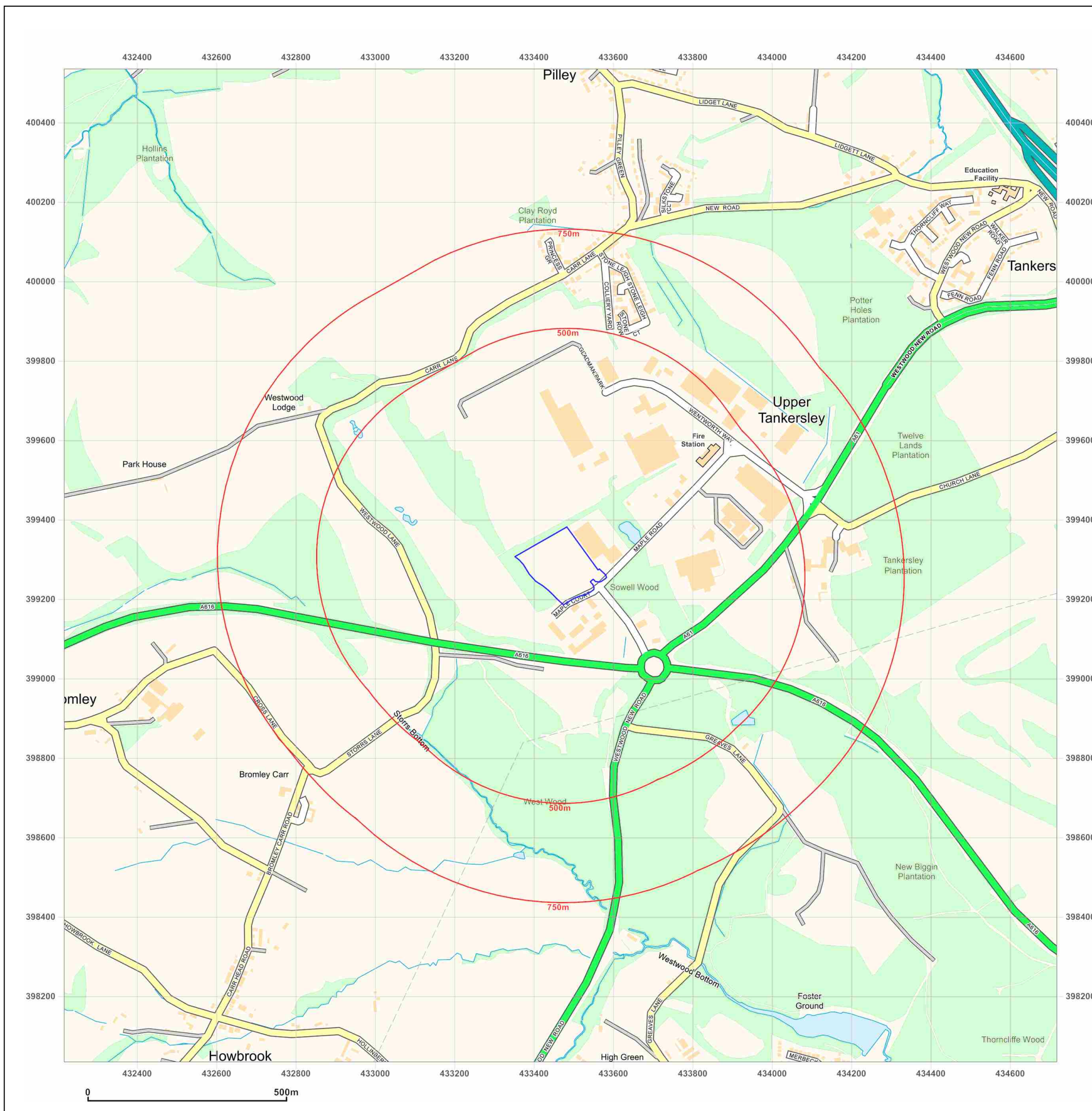


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APPENDIX 4

GROUNDSURE® REPORT



BWB Consulting Limited

5th Floor, Waterfront House, Station Street,
Nottingham, NG2 3DQ

Groundsure
Reference:

HMD-214-3776041

Your Reference: POR010132

Report Date 3 Apr 2017

Report Delivery Method: Email - pdf

Groundsure Enviro Insight

Address: A SHADE GREENER LTD, STERLING HOUSE, MAPLE COURT, BARNSELY, S75 3DP

Dear Sir/ Madam,

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

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

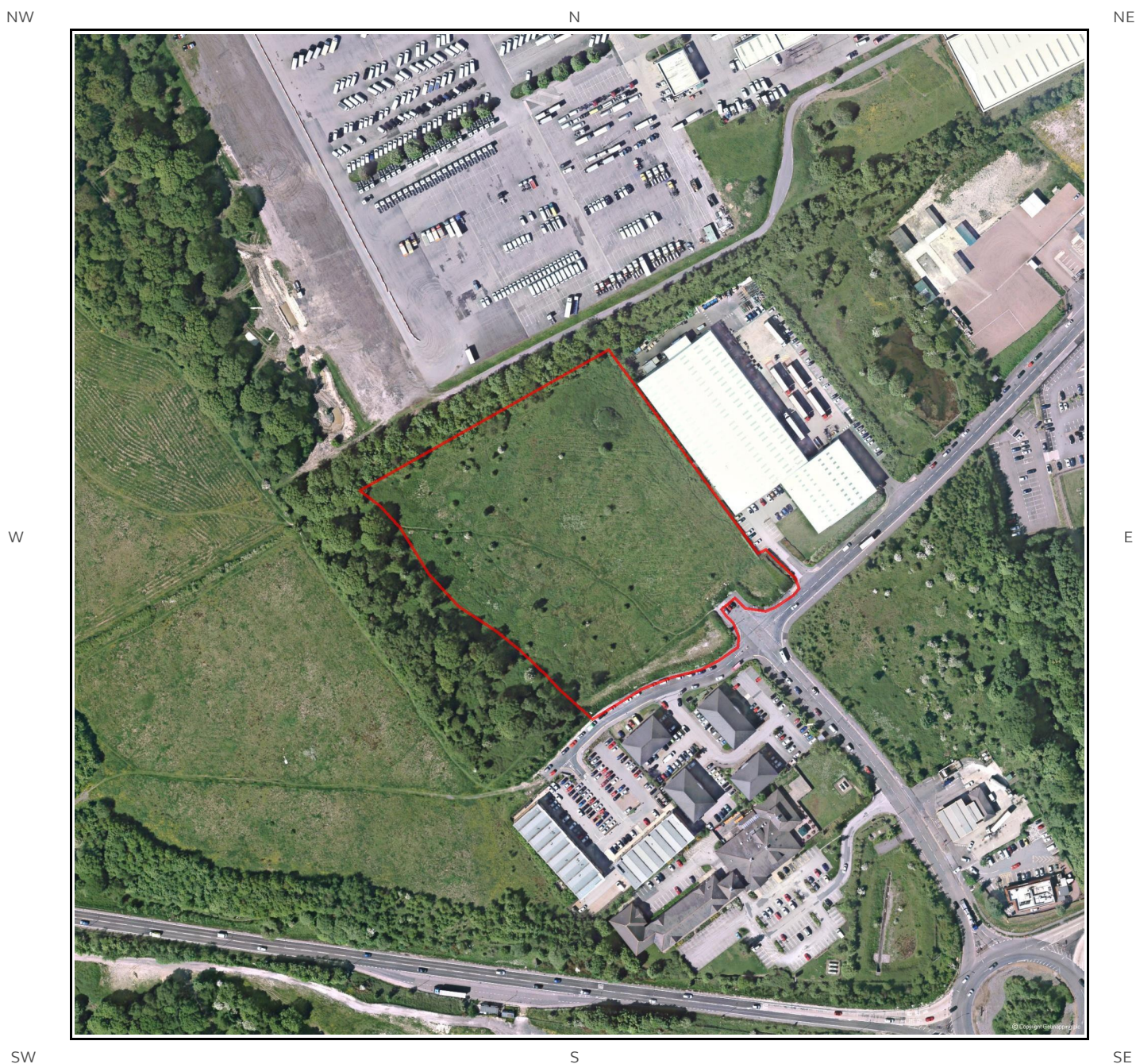
Yours faithfully,

Managing Director
Groundsure Limited

Enc.
Groundsure Enviroinsight

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Address: A SHADE GREENER LTD, STERLING HOUSE, MAPLE COURT, BARNSELY, S75 3DP
Date: 3 Apr 2017
Reference: HMD-214-3776041
Client: BWB Consulting Limited



Aerial Photograph Capture date: 07-Jun-2013
Grid Reference: 433473,399284
Site Size: 2.31ha

Report Reference: HMD-214-3776041
Client Reference: POR010132

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Overview of Findings

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1.2 Additional Information – Historical Tank Database	0	0	0	5
1.3 Additional Information – Historical Energy Features Database	0	0	0	0
1.4 Additional Information – Historical Petrol and Fuel Site Database	0	0	0	0
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	0	0	0	0
1.6 Potentially Infilled Land	13	10	78	119

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

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

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	2	5	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	1	0
4.3 National Grid Underground Electricity Cables	0	0	0	0
4.4 National Grid Gas Transmission Pipelines	0	0	0	0

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

Section 6: Hydrogeology and Hydrology	0-500m					
6.1 Are there any records of Strata Classification in the Superficial Geology within 500m of the study site?	No					
6.2 Are there any records of Strata Classification in the Bedrock Geology within 500m of the study site?	Yes					
	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	1	1
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	1
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	1	0	0	1	Not searched	Not searched

Section 6: Hydrogeology and Hydrology	0-500m					
	On-site	0-50m	51-250	251-500	501-1000	1000-1500
6.9 Is there any Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site?	No	No	No	No	No	No
6.10 Detailed River Network entries within 500m of the site	0	0	0	3	Not searched	Not searched
6.11 Surface water features within 250m of the study site	No	No	Yes	Not searched	Not searched	Not searched

Section 7: Flooding						
7.1 Are there any Environment Agency Zone 2 floodplains within 250m of the study site?	No					
7.2 Are there any Environment Agency/Natural Resources Wales Zone 3 floodplains within 250m of the study site	No					
7.3 What is the Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site?	Very Low					
7.4 Are there any Flood Defences within 250m of the study site?	No					
7.5 Are there any areas benefiting from Flood Defences within 250m of the study site?	No					
7.6 Are there any areas used for Flood Storage within 250m of the study site?	No					
7.7 What is the maximum BGS Groundwater Flooding susceptibility within 50m of the study site?	Limited potential					
7.8 What is the BGS confidence rating for the Groundwater Flooding susceptibility areas?	Low					

Section 8: Designated Environmentally Sensitive Sites	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	0
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
8.6 Records of Ancient Woodlands	0	0	4	2	0	18
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	1	0
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0

Section 8: Designated Environmentally Sensitive Sites	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
8.11 Records of National Parks	0	0	0	0	0	0
8.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
8.13 Records of Nitrate Vulnerable Zones	2	0	0	0	1	0
8.14 Records of Green Belt land	0	1	0	1	1	1

Section 9: Natural Hazards

9.1 What is the maximum risk of natural ground subsidence?	Moderate
9.1.1 What is the maximum Shrink-Swell hazard rating identified on the study site?	Very Low
9.1.2 What is the maximum Landslides hazard rating identified on the study site?	Very Low
9.1.3 What is the maximum Soluble Rocks hazard rating identified on the study site?	Negligible
9.1.4 What is the maximum Compressible Ground hazard rating identified on the study site?	Moderate
9.1.5 What is the maximum Collapsible Rocks hazard rating identified on the study site?	Very Low
9.1.6 What is the maximum Running Sand hazard rating identified on the study site?	Very Low
9.2 Radon	
9.2.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.
9.2.2 Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary.

Section 10: Mining

10.1 Are there any coal mining areas within 75m of the study site?	Yes
10.2 Are there any Non-Coal Mining areas within 50m of the study site boundary?	Yes
10.3 Are there any brine affected areas within 75m of the study site?	No

Using this report

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

1. Historical Industrial Sites

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

2. Environmental Permits, Incidents and Registers

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

3. Landfills and Other Waste Sites

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

4. Current Land Uses

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

5. Geology

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

6. Hydrogeology and Hydrology

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

7. Flooding

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

8. Designated Environmentally Sensitive Sites

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

9. Natural Hazards

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

10. Mining

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

11. Contacts

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

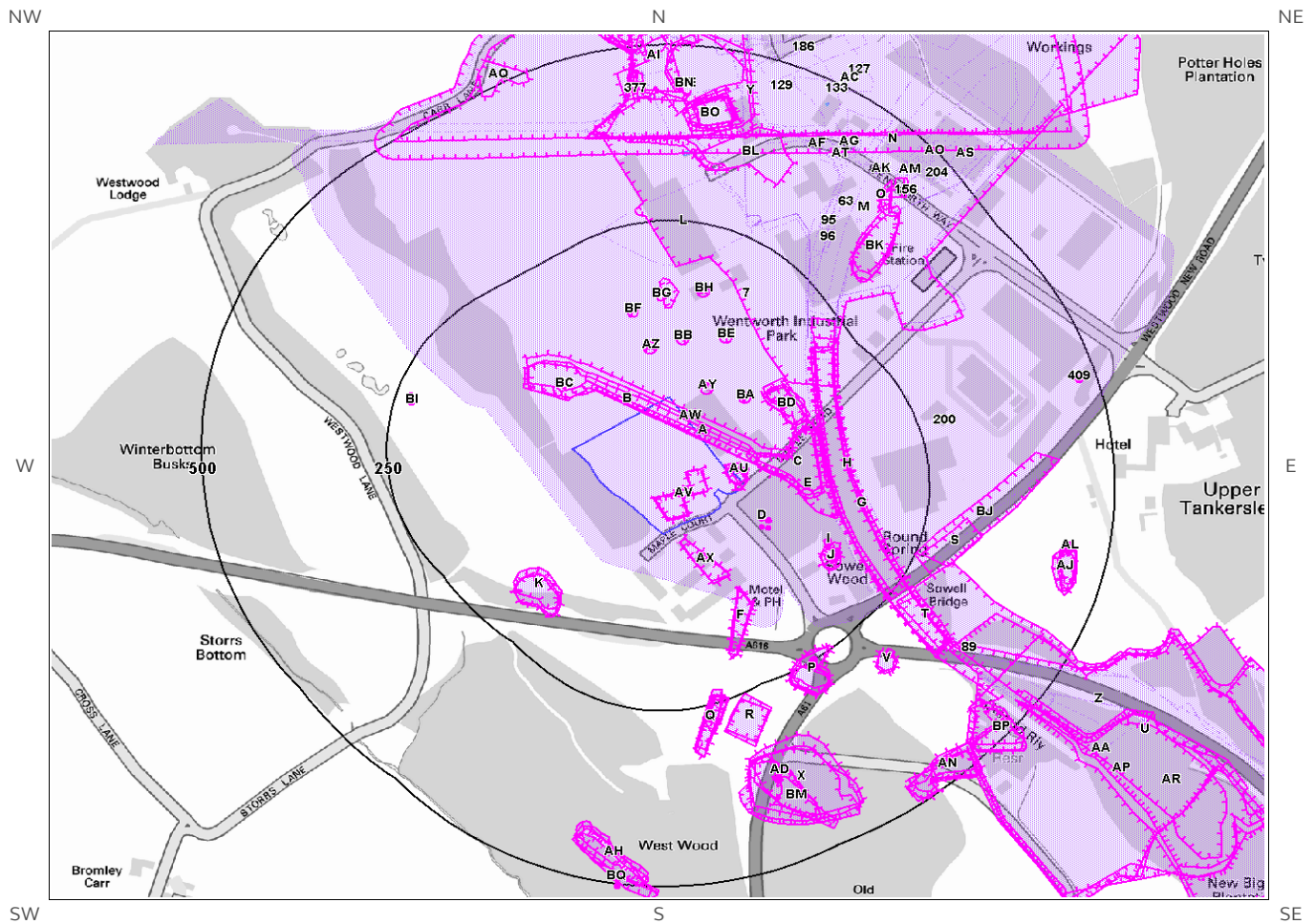
Note: Maps

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

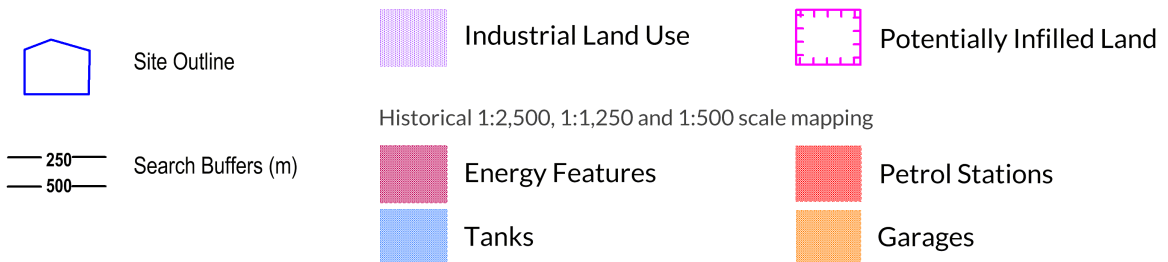
Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as "Not Shown".

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

1. Historical Land Use



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



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

1. Historical Industrial Sites

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

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

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 199

ID	Distance [m]	Direction	Use	Date
1AW	0	On Site	Refuse Heap	1951
2A	0	On Site	Refuse Heap	1938
3A	0	On Site	Refuse Heap	1903
4B	0	On Site	Unspecified Heap	1948
5A	0	On Site	Refuse Heap	1891
6B	0	On Site	Unspecified Heap	1948
7	0	On Site	Industrial Park	1992
8C	30	NE	Refuse Heap	1948
9C	30	NE	Refuse Heap	1948
10C	33	NE	Unspecified Heap	1966
11C	33	NE	Unspecified Heap	1980
12AY	39	NE	Unspecified Pit	1891
13D	49	SE	Unspecified Old Shafts	1951
14D	55	SE	Unspecified Old Shafts	1951
15D	58	SE	Unspecified Old Shafts	1938
16D	58	SE	Unspecified Old Shafts	1903
17D	64	SE	Unspecified Old Shaft	1938
18D	64	SE	Unspecified Old Shafts	1903
19AZ	66	N	Unspecified Pit	1891
20BA	74	NE	Unspecified Pit	1891
21BB	76	N	Unspecified Pit	1891
22BC	79	NW	Unspecified Old Shaft	1903
23E	82	E	Unspecified Old Shaft	1948
24E	82	E	Unspecified Old Shaft	1948
25E	83	E	Unspecified Old Shafts	1951
26AM	102	E	Railway Sidings	1966
27BE	106	NE	Unspecified Pit	1891
28F	110	SE	Unspecified Heap	1951
29F	113	SE	Unspecified Heap	1938
30F	113	S	Unspecified Heap	1948
31F	113	S	Unspecified Heap	1948
32G	114	E	Cuttings	1938
33G	114	E	Cuttings	1903
34G	116	E	Cuttings	1948

35H	117	E	Cuttings	1891
36H	119	E	Cuttings	1951
37BF	123	N	Unspecified Pit	1891
38I	133	SE	Disused Air Shaft	1966
39I	133	SE	Disused Air Shaft	1980
40BG	137	N	Unspecified Pit	1891
41I	138	SE	Unspecified Heap	1951
42J	140	SE	Unspecified Heap	1938
43J	140	SE	Unspecified Heap	1903
44K	141	SW	Refuse Heap	1951
45AT	142	NE	Colliery	1966
46J	142	SE	Unspecified Heap	1948
47J	142	SE	Unspecified Heap	1948
48BH	148	N	Unspecified Pit	1891
49K	149	SW	Refuse Heap	1938
50K	149	SW	Refuse Heap	1891
51K	149	SW	Refuse Heap	1903
52K	151	SW	Refuse Heap	1948
53K	151	SW	Refuse Heap	1948
54M	186	NE	Railway Sidings	1948
55L	187	N	Hospital	1891
56L	187	N	Infectious Diseases Hospital	1903
57M	198	NE	Railway Sidings	1938
58O	198	NE	Railway Sidings	1903
59N	200	NE	Railway Sidings	1966
60N	200	NE	Unspecified Commercial/Industrial	1951
61N	200	NE	Railway Sidings	1951
62BI	224	W	Unspecified Shaft	1903
63	226	NE	Railway Sidings	1891
64O	229	NE	Unspecified Commercial/Industrial	1948
65Q	230	S	Unspecified Heap	1951
66P	235	SE	Unspecified Heap	1903
67P	235	SE	Unspecified Heap	1938
68P	235	SE	Unspecified Heap	1891
69Q	238	S	Unspecified Pit	1992
70Q	238	S	Unspecified Pit	1980
71Q	239	S	Unspecified Pit	1903
72Q	239	S	Unspecified Pit	1938
73P	239	SE	Unspecified Heap	1951
74Q	240	S	Unspecified Pit	1948
75Q	240	S	Unspecified Pit	1948
76Q	240	S	Unspecified Pit	1966
77P	245	SE	Disused Air Shaft	1980
78P	245	SE	Disused Air Shaft	1966

79P	247	SE	Unspecified Heap	1948
80P	247	SE	Unspecified Heap	1948
81P	249	SE	Unspecified Heap	1966
82P	249	SE	Unspecified Heap	1980
83BJ	250	SE	Cuttings	1951
84R	251	SE	Cuttings	1980
85R	255	SE	Cuttings	1966
86S	259	E	Cuttings	1966
87S	259	E	Cuttings	1992
88S	259	E	Cuttings	1980
89	263	SE	Railway Sidings	1951
90T	263	SE	Cuttings	1951
91T	265	SE	Cuttings	1891
92U	272	SE	Colliery	1951
93U	272	SE	Unspecified Commercial/Industrial	1966
94Z	281	SE	Railway Sidings	1948
95	285	NE	Railway Buildings	1938
96	292	NE	Railway Building	1903
97V	296	SE	Old Ironstone Pit	1903
98V	296	SE	Unspecified Heap	1891
99V	296	SE	Unspecified Heap	1938
100V	297	SE	Unspecified Ground Workings	1948
101V	297	SE	Unspecified Ground Workings	1948
102V	302	SE	Unspecified Pit	1951
103BL	325	N	Unspecified Heap	1966
104W	327	N	Unspecified Ground Workings	1938
105W	327	N	Unspecified Ground Workings	1891
106W	327	N	Unspecified Ground Workings	1903
107X	333	SE	Refuse Heap	1951
108X	341	S	Refuse Heap	1948
109X	341	S	Refuse Heap	1948
110X	342	S	Refuse Heap	1966
111X	342	S	Refuse Heap	1903
112X	342	S	Refuse Heap	1891
113X	342	S	Refuse Heap	1938
114Y	345	N	Colliery	1938
115Y	345	N	Colliery	1903
116X	348	S	Refuse Heap	1980
117M	353	NE	Railway Building	1938
118M	353	NE	Railway Building	1903
119AP	355	SE	Colliery	1938
120Z	355	SE	Railway Sidings	1938

121AA	361	SE	Colliery	1903
122AA	361	SE	Colliery	1891
123AB	365	SE	Railway Sidings	1891
124AB	365	SE	Railway Sidings	1903
125AC	367	N	Colliery	1948
126AC	367	N	Colliery	1948
127	367	N	Railway Sidings	1948
128AD	370	SE	Unspecified Old Shaft	1951
129	370	N	Railway Sidings	1903
130BN	370	N	Brick Works	1903
131AC	370	N	Railway Sidings	1938
132AD	370	SE	Unspecified Disused Shaft	1966
133	370	N	Tramway Sidings	1891
134Y	370	N	Colliery	1891
135AE	370	N	Brick Field	1891
136AD	376	SE	Unspecified Disused Shaft	1980
137AD	376	SE	Unspecified Old Shaft	1938
138AD	376	SE	Unspecified Old Shaft	1903
139AD	378	SE	Unspecified Old Shaft	1948
140AD	378	SE	Unspecified Old Shaft	1948
141BM	379	SE	Unspecified Heap	1992
142AF	401	NE	Railway Building	1903
143AG	402	NE	Railway Buildings	1938
144AE	402	N	Refuse Heap	1966
145AF	405	NE	Railway Buildings	1891
146O	405	NE	Railway Building	1938
147AG	406	NE	Railway Buildings	1903
148AK	418	NE	Railway Building	1938
149AH	420	S	Unspecified Quarry	1966
150AH	420	S	Unspecified Quarry	1951
151AH	420	S	Unspecified Quarry	1992
152AH	420	S	Unspecified Quarry	1980
153AI	421	N	Refuse Heap	1948
154AI	421	N	Refuse Heap	1948
155AI	423	N	Refuse Heap	1938
156	424	NE	Railway Building	1938
157AH	427	S	Unspecified Quarry	1948
158AJ	428	E	Refuse Heap	1938
159AJ	428	E	Refuse Heap	1903
160AH	429	S	Unspecified Quarry	1938
161AH	429	S	Unspecified Quarry	1903
162AI	434	N	Refuse Heap	1951
163AJ	435	E	Unspecified Heap	1948
164AJ	435	E	Unspecified Heap	1948
165AJ	436	E	Unspecified Heap	1966
166AJ	436	E	Unspecified Heap	1951

167AJ	437	E	Unspecified Disused Tip	1992
168AA	437	SE	Colliery	1948
169AA	437	SE	Colliery	1948
170AH	439	S	Unspecified Quarry	1891
171AK	440	NE	Railway Building	1903
172AL	442	E	Unspecified Disused Shaft	1966
173AL	442	E	Unspecified Disused Shaft	1992
174AL	442	E	Unspecified Disused Shaft	1980
175AL	443	E	Unspecified Shaft	1903
176AL	443	E	Unspecified Shaft	1938
177AL	444	E	Unspecified Shaft	1948
178AL	444	E	Unspecified Shaft	1948
179AL	444	E	Unspecified Shaft	1951
180AO	448	NE	Railway Building	1938
181AM	459	NE	Unspecified Commercial/Industrial	1980
182AN	459	SE	Refuse Heap	1951
183AN	464	SE	Refuse Heap	1938
184AN	466	SE	Refuse Heaps	1948
185AN	466	SE	Refuse Heaps	1948
186	467	N	Unspecified Depot	1992
187AO	468	NE	Railway Building	1903
188AR	469	SE	Refuse Heap	1951
189AN	469	SE	Refuse Heap	1903
190AN	469	SE	Refuse Heap	1891
191AP	475	SE	Refuse Heap	1948
192AP	475	SE	Refuse Heap	1948
193AI	486	N	Refuse Heap	1903
194AQ	487	NW	Unspecified Pit	1903
195AQ	487	NW	Unspecified Pit	1891
196AR	487	SE	Refuse Heap	1938
197AP	487	SE	Refuse Heap	1891
198AS	494	NE	Railway Buildings	1903
199AS	494	NE	Railway Buildings	1938

1.2 Additional Information – Historical Tank Database

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

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

5

ID	Distance (m)	Direction	Use	Date
200	283	E	Unspecified Tank	1963

201W	342	N	Unspecified Tank	1989
202W	344	N	Unspecified Tank	1996
203AT	464	NE	Unspecified Tank	1893
204	476	NE	Unspecified Tank	1956

1.3 Additional Information – Historical Energy Features Database

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

Records of historical energy features within 500m of the search boundary: 0

Database searched and no data found.

1.4 Additional Information – Historical Petrol and Fuel Site Database

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

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

Database searched and no data found.

1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database

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

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

Database searched and no data found.

1.6 Potentially Infilled Land

Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 220

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

ID	Distance(m)	Direction	Use	Date
205AU	0	On Site	Pond	1951
206AU	0	On Site	Pond	1948
207AU	0	On Site	Pond	1938
208A	0	On Site	Refuse Heap	1891
209A	0	On Site	Refuse Heap	1903

210A	0	On Site	Refuse Heap	1938
211AV	0	On Site	Ponds	1948
212AV	0	On Site	Ponds	1903
213AV	0	On Site	Ponds	1938
214AW	0	On Site	Refuse Heap	1951
215AV	0	On Site	Pond	1891
216B	0	On Site	Unspecified Heap	1948
217B	0	On Site	Unspecified Heap	1948
218AX	19	SE	Pond	1903
219AX	19	SE	Pond	1938
220AX	19	SE	Pond	1891
221AX	20	SE	Ponds	1948
222C	30	NE	Refuse Heap	1948
223C	30	NE	Refuse Heap	1948
224C	33	NE	Unspecified Heap	1980
225C	33	NE	Unspecified Heap	1966
226AY	39	NE	Unspecified Pit	1891
227D	49	SE	Unspecified Old Shafts	1951
228D	55	SE	Unspecified Old Shafts	1951
229D	58	SE	Unspecified Old Shafts	1938
230D	58	SE	Unspecified Old Shafts	1903
231D	64	SE	Unspecified Old Shafts	1903
232D	64	SE	Unspecified Old Shaft	1938
233AZ	66	N	Unspecified Pit	1891
234BA	74	NE	Unspecified Pit	1891
235BB	76	N	Unspecified Pit	1891
236BC	79	NW	Unspecified Old Shaft	1903
237E	82	E	Unspecified Old Shaft	1948
238E	82	E	Unspecified Old Shaft	1948
239E	83	E	Unspecified Old Shafts	1951
240BD	100	NE	Pond	1948
241BD	101	NE	Pond	1903
242BD	101	NE	Pond	1938
243BD	101	NE	Pond	1891
244BD	104	NE	Pond	1992
245BE	106	NE	Unspecified Pit	1891
246BD	106	NE	Pond	1980
247BD	106	NE	Pond	1951
248BD	106	NE	Pond	1966
249F	110	SE	Unspecified Heap	1951
250F	113	SE	Unspecified Heap	1938
251F	113	S	Unspecified Heap	1948
252F	113	S	Unspecified Heap	1948
253G	114	E	Cuttings	1938
254G	114	E	Cuttings	1903
255G	116	E	Cuttings	1948

256H	117	E	Cuttings	1891
257H	119	E	Cuttings	1951
258BF	123	N	Unspecified Pit	1891
259BG	126	N	Pond	1966
260I	133	SE	Disused Air Shaft	1980
261I	133	SE	Air Shaft	1992
262I	133	SE	Disused Air Shaft	1966
263BG	137	N	Unspecified Pit	1891
264I	138	SE	Unspecified Heap	1951
265J	140	SE	Unspecified Heap	1903
266J	140	SE	Unspecified Heap	1938
267K	141	SW	Refuse Heap	1951
268AT	142	NE	Colliery	1966
269J	142	SE	Unspecified Heap	1948
270J	142	SE	Unspecified Heap	1948
271BH	148	N	Unspecified Pit	1891
272K	149	SW	Refuse Heap	1938
273K	149	SW	Refuse Heap	1891
274K	149	SW	Refuse Heap	1903
275K	151	SW	Refuse Heap	1948
276K	151	SW	Refuse Heap	1948
277I	154	SE	Air Shaft	1951
278J	157	SE	Air Shaft	1938
279J	157	SE	Air Shaft	1903
280K	159	SW	Air Shaft	1903
281J	160	SE	Air Shaft	1948
282BI	224	W	Unspecified Shaft	1903
283BI	225	W	Air Shaft	1948
284BI	226	W	Air Shaft	1938
285BI	228	W	Air Shaft	1951
286Q	230	S	Unspecified Heap	1951
287P	235	SE	Unspecified Heap	1938
288P	235	SE	Unspecified Heap	1891
289P	235	SE	Unspecified Heap	1903
290Q	238	S	Unspecified Pit	1980
291Q	238	S	Unspecified Pit	1992
292Q	239	S	Unspecified Pit	1903
293Q	239	S	Unspecified Pit	1938
294P	239	SE	Unspecified Heap	1951
295Q	240	S	Unspecified Pit	1948
296Q	240	S	Unspecified Pit	1948
297Q	240	S	Unspecified Pit	1966
298P	245	SE	Disused Air Shaft	1980
299P	245	SE	Disused Air Shaft	1966
300P	247	SE	Unspecified Heap	1948
301P	247	SE	Unspecified Heap	1948

302P	248	SE	Air Shaft	1951
303P	249	SE	Unspecified Heap	1966
304P	249	SE	Unspecified Heap	1980
305BJ	250	SE	Cuttings	1951
306R	251	SE	Cuttings	1980
307P	251	SE	Air Shaft	1938
308P	253	SE	Air Shaft	1903
309P	255	SE	Air Shaft	1948
310R	255	SE	Cuttings	1966
311S	259	E	Cuttings	1966
312S	259	E	Cuttings	1992
313S	259	E	Cuttings	1980
314T	263	SE	Cuttings	1951
315T	265	SE	Cuttings	1891
316U	272	SE	Colliery	1951
317V	296	SE	Unspecified Heap	1891
318V	296	SE	Old Ironstone Pit	1903
319V	296	SE	Unspecified Heap	1938
320V	297	SE	Unspecified Ground Workings	1948
321V	297	SE	Unspecified Ground Workings	1948
322V	302	SE	Unspecified Pit	1951
323BK	303	NE	Pond	1938
324BK	303	NE	Pond	1903
325BK	305	NE	Ponds	1948
326BK	312	NE	Pond	1951
327BK	312	NE	Ponds	1966
328BL	325	N	Unspecified Heap	1966
329W	327	N	Unspecified Ground Workings	1903
330W	327	N	Unspecified Ground Workings	1938
331W	327	N	Unspecified Ground Workings	1891
332X	333	SE	Refuse Heap	1951
333BM	341	S	Refuse Heap	1948
334X	341	S	Refuse Heap	1948
335X	342	S	Refuse Heap	1966
336X	342	S	Refuse Heap	1891
337X	342	S	Refuse Heap	1938
338X	342	S	Refuse Heap	1903
339Y	345	N	Colliery	1903
340Y	345	N	Colliery	1938
341X	348	S	Refuse Heap	1980
342AP	355	SE	Colliery	1938
343AA	361	SE	Colliery	1903

344AA	361	SE	Colliery	1891
345AC	367	N	Colliery	1948
346AC	367	N	Colliery	1948
347AD	370	SE	Unspecified Old Shaft	1951
348BN	370	N	Brick Works	1903
349AD	370	SE	Unspecified Disused Shaft	1966
350Y	370	N	Colliery	1891
351AE	370	N	Brick Field	1891
352X	376	SE	Unspecified Disused Shaft	1980
353AD	376	SE	Unspecified Old Shaft	1938
354AD	376	SE	Unspecified Old Shaft	1903
355AD	378	SE	Unspecified Old Shaft	1948
356AD	378	SE	Unspecified Old Shaft	1948
357BO	378	N	Reservoir	1948
358BM	379	SE	Unspecified Heap	1992
359BO	384	N	Reservoir	1891
360BO	388	N	Reservoir	1938
361BO	388	N	Reservoir	1903
362BO	389	N	Reservoir	1951
363O	389	NE	Ponds	1903
364AE	402	N	Refuse Heap	1966
365AH	420	S	Unspecified Quarry	1992
366AH	420	S	Unspecified Quarry	1980
367AH	420	S	Unspecified Quarry	1951
368AH	420	S	Unspecified Quarry	1966
369AI	421	N	Refuse Heap	1948
370AI	421	N	Refuse Heap	1948
371AI	423	N	Refuse Heap	1938
372AH	427	S	Unspecified Quarry	1948
373AJ	428	E	Refuse Heap	1938
374AJ	428	E	Refuse Heap	1903
375AH	429	S	Unspecified Quarry	1903
376AH	429	S	Unspecified Quarry	1938
377	433	N	Reservoir	1938
378AI	434	N	Refuse Heap	1951
379AJ	435	E	Unspecified Heap	1948
380AJ	435	E	Unspecified Heap	1948
381AL	436	E	Unspecified Heap	1951
382AL	436	E	Unspecified Heap	1966
383AJ	437	E	Unspecified Disused Tip	1992
384AA	437	SE	Colliery	1948
385AA	437	SE	Colliery	1948
386AH	439	S	Unspecified Quarry	1891
387BP	440	SE	Pond	1966
388BP	440	SE	Reservoir	1992
389BP	440	SE	Reservoir	1980

390BP	440	SE	Reservoir	1951
391AL	442	E	Unspecified Disused Shaft	1992
392AL	442	E	Unspecified Disused Shaft	1966
393AL	442	E	Unspecified Disused Shaft	1980
394AL	443	E	Unspecified Shaft	1938
395AL	443	E	Unspecified Shaft	1903
396AL	444	E	Unspecified Shaft	1948
397AL	444	E	Unspecified Shaft	1948
398AL	444	E	Unspecified Shaft	1951
399BP	455	SE	Reservoir	1891
400BP	455	SE	Reservoir	1903
401BP	455	SE	Reservoir	1938
402AN	459	SE	Refuse Heap	1951
403AN	464	SE	Refuse Heap	1938
404AN	466	SE	Refuse Heaps	1948
405AN	466	SE	Refuse Heaps	1948
406AR	469	SE	Refuse Heap	1951
407AN	469	SE	Refuse Heap	1891
408AN	469	SE	Refuse Heap	1903
409	472	E	Air Shaft	1903
410AP	475	SE	Refuse Heap	1948
411AP	475	SE	Refuse Heap	1948
412BP	477	SE	Reservoir	1948
413AI	486	N	Refuse Heap	1903
414AQ	487	NW	Unspecified Pit	1903
415AQ	487	NW	Unspecified Pit	1891
416AP	487	SE	Refuse Heap	1891
417AR	487	SE	Refuse Heap	1938
418BQ	490	S	Air Shaft	1992
419BQ	490	S	Air Shaft	1966
420BQ	490	S	Air Shaft	1980
421BQ	490	S	Air Shaft	1951
422BQ	499	S	Air Shaft	1948
423BQ	500	S	Air Shaft	1903
424BQ	500	S	Air Shaft	1938

2. Environmental Permits, Incidents and Registers Map



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

2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

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

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

3

The following Part A(2) and Part B Activities are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details
3	146	SE	433675 399142	Address: A Y & Y Patel (Dewsbury) Limited, Maple Road, Tankersley, Barnsley, S75 3DL Process: Unloading of Petrol into Storage at Service Stations Status: Current Permit Permit Type: Part B Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
4	152	N	433518 399530	Address: Mercedes Benz (UK) Ltd, Wentworth Way, Tankersley, Barnsley, S75 3DH Process: Respraying of Road Vehicles Status: Historical Permit Permit Type: Part B Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified
5	245	N	433536 399664	Address: Mercedes Benz (UK) Ltd, Wentworth Way, Tankersley, Barnsley, S75 3DH Process: Respraying of Road Vehicles Status: Current Permit Permit Type: Part B Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified

2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

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

2

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

ID	Distance (m)	Direction	NGR	Details
1	181	SE	433630 399060	Address: SPS MAPLE ROAD, WENTWORTH PARK, TANKERSLEY Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: WRA7300 Permit Version: 1 Receiving Water: TRIB OF BLACKBURN BROOK Status: NEW CONSENT, BY APPLICATION (WRA 91, SECTION 88) Issue date: 05/02/1997 Effective Date: 05-Feb-1997 Revocation Date: -

ID	Distance (m)	Direction	NGR	Details
2	194	SE	433700 399100	Address: DISCHARGE TO TRIB OF BLACKBURN BROO, K FROM:WENTWORTH OPENCAST COAL S, ITE. Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: WA6402 Permit Version: 1 Receiving Water: - Status: REVOKED - UNSPECIFIED Issue date: 19/06/1991 Effective Date: 19-Jun-1991 Revocation Date: 04/06/1992

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

0

Database searched and no data found.

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

0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

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

1

The following COMAH & NIHHS Authorisation records provided by the Health and Safety Executive are represented as polygons or buffered points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	Company	Address	Operational Status	Tier
6	448	NE	Mercedes Benz (uk) Ltd	Mercedes Benz (uk) Ltd, Wentworth Industrial Park, Tankersley, Barnsley, S75 3DH	Historical NIHHS Site	-

2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

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

0

Database searched and no data found.

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

0

Database searched and no data found.

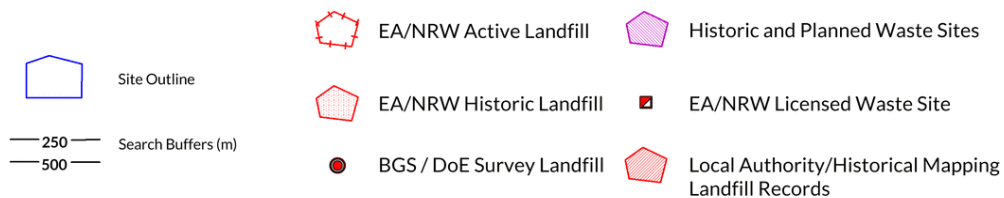
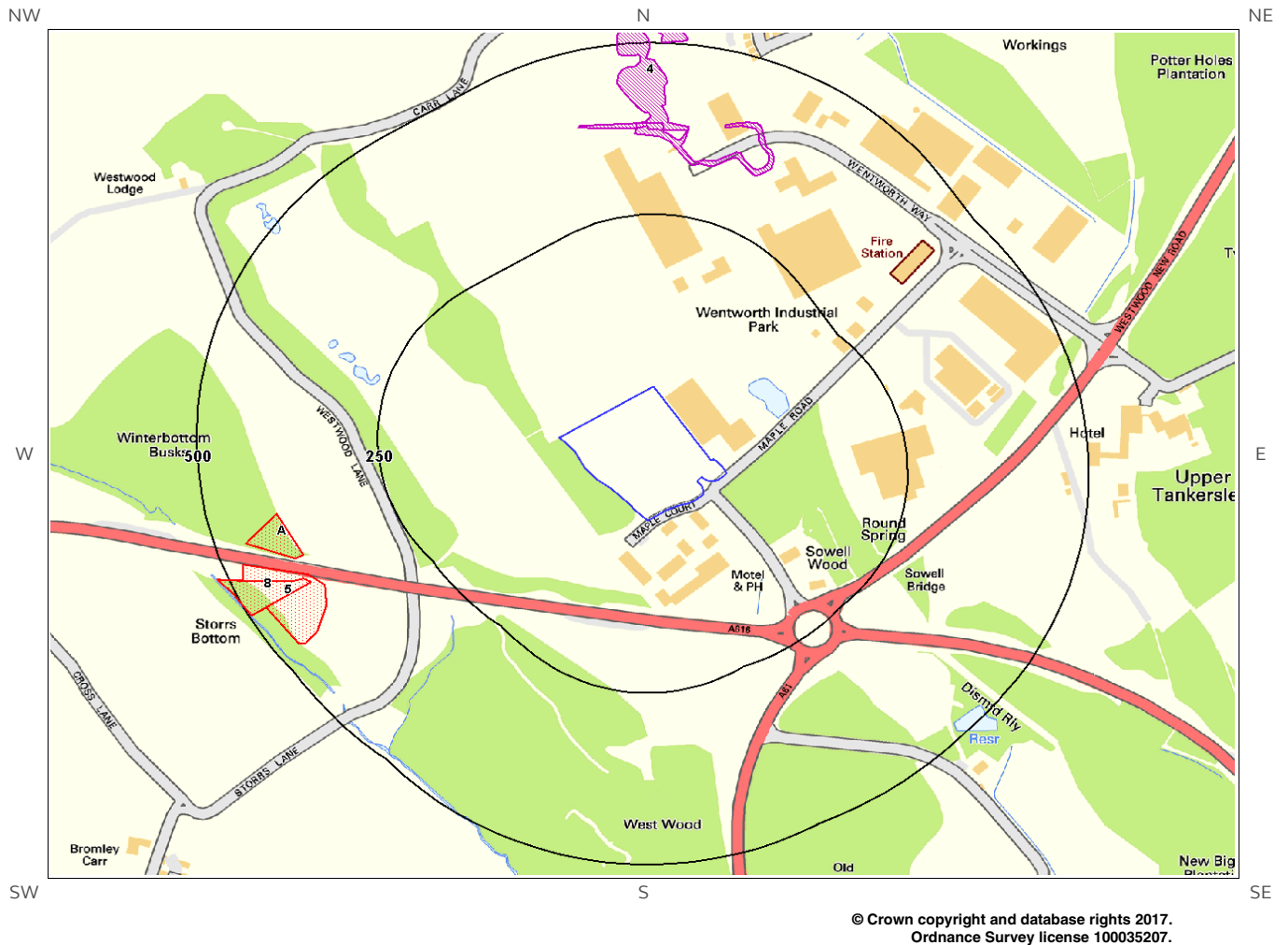
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

How many records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site?

0

Database searched and no data found.

3. Landfill and Other Waste Sites Map



3. Landfill and Other Waste Sites

3.1 Landfill Sites

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

0

Database searched and no data found.

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

9

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

ID	Distance (m)	Direction	NGR	Details	
5	388	SW	432900 399000	Site Address: Bromley Farm, Bromley, Near Sheffield Waste Licence: Yes Site Reference: WD20 B555, 4400/B555 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 06-May-1987 Licence Surrendered: 08-Dec-1993 Licence Holder Address: Hooton, South Wirral, Cheshire Operator: Wharncliffe Estates Licence Holder: Alfred McAlpine Construction Limited First Recorded: 06-May-1987 Last Recorded: 31-Dec-1987
6A	392	SW	432900 399000	Site Address: Bromley Farm, Bromley, Near Sheffield Waste Licence: Yes Site Reference: WD20 B555, 4400/B555 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 06-May-1987 Licence Surrendered: 08-Dec-1993 Licence Holder Address: Hooton, South Wirral, Cheshire Operator: Wharncliffe Estates Licence Holder: Alfred McAlpine Construction Limited First Recorded: 06-May-1987 Last Recorded: 31-Dec-1987
7A	392	SW	432900 399100	Site Address: Bromley Farm, Bromley, Near Sheffield Waste Licence: - Site Reference: 4400/(27) Waste Type: - Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: - Last Recorded: -

ID	Distance (m)	Direction	NGR	Details	
8	402	SW	432900 399100	Site Address: Bromley Farm, Bromley, Near Sheffield Waste Licence: - Site Reference: 4400/(27) Waste Type: - Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: - Last Recorded: -
Not shown	826	SE	434500 398700	Site Address: Tankersley Park Golf Club, High Green, Sheffield Waste Licence: Yes Site Reference: WD20 B518, 4400/B518 Waste Type: Inert, Commercial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 17-Apr-1986 Licence Surrendered: Licence Holder Address: High Green, Sheffield Operator: - Licence Holder: Yankersley investments Limited First Recorded: - Last Recorded: -
Not shown	976	S	433800 398100	Site Address: Greaves Lane Tip, High Green, Sheffield, South Yorkshire Waste Licence: - Site Reference: 4400/(1), WD 553 Waste Type: Commercial, Household, Liquid, sludge Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: Wortley Rural District Council Licence Holder: Sheffield CC First Recorded: 31-Dec-1924 Last Recorded: 31-Dec-1977
Not shown	1024	S	433700 398100	Site Address: Land at Lowfields, High Green, Sheffield Waste Licence: Yes Site Reference: (129)B, 4400/S3, 4400/ (129) Waste Type: Inert, Commercial, Household, Liquid, sludge Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 22-Nov-1977 Licence Surrendered: 31-Dec-1980 Licence Holder Address: Terminal 3, 3B2 Swindon, Stonehill Green, Westlea, Swindon Operator: - Licence Holder: P.R.O.B.E. Limited First Recorded: 31-Dec-1924 Last Recorded: 31-Dec-1979
Not shown	1274	SE	434400 398000	Site Address: Westwood Tip, High Green, Sheffield, South Yorkshire Waste Licence: - Site Reference: - Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: Messrs Newton Chambers and Company Limited Licence Holder: - First Recorded: 31-Dec-1920 Last Recorded: 31-Dec-1972
Not shown	1382	SE	434800 398300	Site Address: Golf Course, Warren Lane, Tankersley Waste Licence: Yes Site Reference: 4400/B533, WD20/B533 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 14-Aug-1986 Licence Surrendered: 08-Dec-1987 Licence Holder Address: - Operator: McAlpine Construction Limited Licence Holder: Alfred McAlpine First Recorded: 14-Aug-1986 Last Recorded: 08-Dec-1987

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

2

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

ID	Distance (m)	Direction	NGR	Details	
Not shown	1074	SE	433900.0 398200.0	Address: Greaves Lane Tip, High Green, Sheffield BGS Number: 1716.0	Risk: No risk to aquifer Waste Type: N/A

ID	Distance (m)	Direction	NGR	Details
Not shown	1490	SE	434400.0 398000.0	Address: Westwood Tip, High Green, Sheffield BGS Number: 2011.0 Risk: No risk to aquifer Waste Type: N/A

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

0

Database searched and no data found.

3.2 Other Waste Sites

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

2

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

ID	Distance (m)	Direction	NGR	Details
3	327	N	433518 399727	Type of Site: Ground Workings and Refuse Heap Site Address: N/A Planning Application Reference: N/A Date: 1956 Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
4	373	N	433454 399845	Type of Site: Ground Workings and Refuse Heap Site Address: N/A Planning Application Reference: N/A Date: 1905 Further Details: N/A Data Source: Historic Mapping Data Type: Polygon

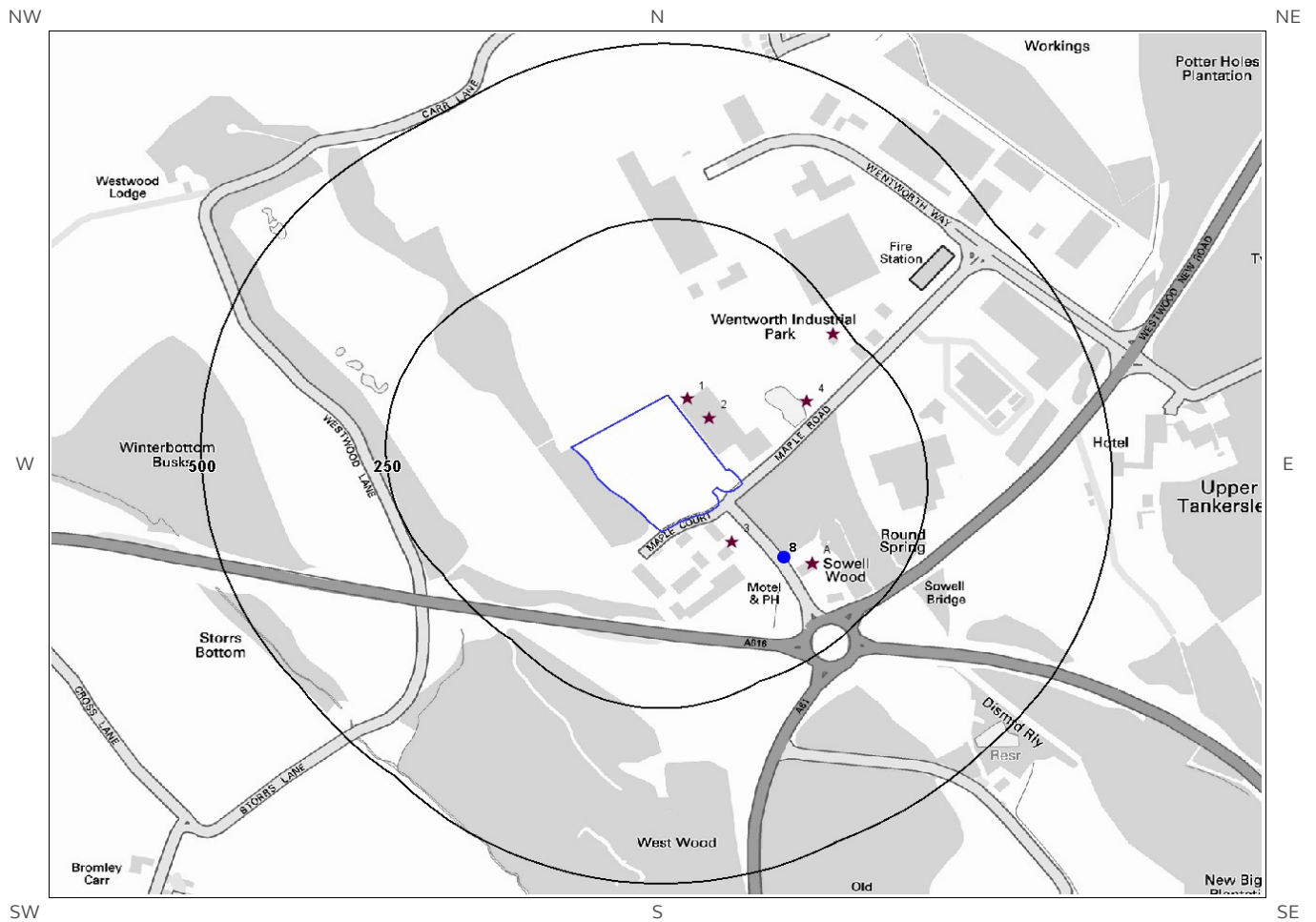
3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site:

4

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

ID	Distance (m)	Direction	NGR	Details
Not shown	1024	S	433750 398200	Site Address: Greaves Lane, High Green, Sheffield, S Yorks Type: Household Waste Amenity Site Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ONY013 EPR reference: - Operator: Onyx Sheffield Ltd Waste Management licence No: 61625 Annual Tonnage: 0.0 Issue Date: 15/07/1993 Effective Date: 15/11/2002 Modified: 18/11/2002 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Greaves Lane Recycling Centre Correspondence Address: Sheffield Science Park, 2, Howard Street, Sheffield, South Yorkshire, S1 1LX
Not shown	1024	S	433750 398200	Site Address: Land/ Premises At, Greaves Lane, High Green, Sheffield, South Yorkshire, S35 4GR Type: Household Waste Amenity Site Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ONY013 EPR reference: EA/EPR/PP3198ZP/V005 Operator: Veolia E S Sheffield Ltd Waste Management licence No: 61625 Annual Tonnage: 24999.0 Issue Date: 15/07/1993 Effective Date: 15/11/2002 Modified: 24/05/2010 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Greaves Lane Recycling Centre Correspondence Address: -
Not shown	1024	S	433750 398200	Site Address: Greaves Lane, High Green, Sheffield, S Yorks Type: Household Waste Amenity Site Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ONY013 EPR reference: - Operator: Onyx Sheffield Ltd Waste Management licence No: 61625 Annual Tonnage: 0.0 Issue Date: 15/07/1993 Effective Date: 15/11/2002 Modified: 18/11/2002 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Greaves Lane Recycling Centre Correspondence Address: Sheffield Science Park, 2, Howard Street, Sheffield, South Yorkshire, S1 1LX
Not shown	1024	S	433750 398200	Site Address: Greaves Lane, High Green, Sheffield, South Yorkshire, S35 4GR Type: Household Waste Amenity Site Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ONY013 EPR reference: - Operator: Veolia Es Sheffield Ltd Waste Management licence No: 61625 Annual Tonnage: 24999.0 Issue Date: 7/15/1993 Effective Date: 11/15/2002 Modified: 11/18/2002 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Greaves Lane Recycling Centre Correspondence Address: Norwood Ind Est, Ellisons Road, Sheffield, South Yorkshire, S21 2DR

4. Current Land Use Map



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4. Current Land Uses

4.1 Current Industrial Data

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

7

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	18	NE	Electricity Sub Station	433508 399378	Electricity Sub Station, S75	Electrical Features	Infrastructure and Facilities
2	26	NE	Pilkington	433537 399350	Pilkington, Maple Road, Tankersley, Barnsley, S75 3DL	Glass	Industrial Products
3	52	SE	Electricity Sub Station	433568 399174	Electricity Sub Station, S75	Electrical Features	Infrastructure and Facilities
4	143	NE	Electricity Sub Station	433669 399374	Electricity Sub Station, S75	Electrical Features	Infrastructure and Facilities
5A	146	SE	Shell - Wentworth Park Service Station	433676 399143	Shell - Wentworth Park Service Station, Maple Road, Tankersley, Barnsley, S75 3DL	Petrol and Fuel Stations	Road and Rail
6A	146	SE	Wentworth Park Service Station	433677 399143	Wentworth Park Service Station, Maple Road, Tankersley, Barnsley, S75 3DL	Petrol and Fuel Stations	Road and Rail
7	231	NE	Wentworth Industrial Park	433704 399470	Wentworth Industrial Park, S75	Business Parks and Industrial Estates	Industrial Features

4.2 Petrol and Fuel Sites

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

1

The following petrol or fuel site records provided by Catalist are represented as points on the Current Land Use map:

ID	Distance (m)	Direction	NGR	Company	Address	LPG	Status
8	114	SE	433638 399151	Shell	Wentworth Park Service Station, Maple Road, Maple Road, A61, Tankersley, Barnsley, South Yorkshire, S75 3DL	Yes	Open

4.3 National Grid High Voltage Underground Electricity Transmission Cables

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

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

0

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

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

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

0

Database searched and no data found.

5. Geology

5.1 Artificial Ground and Made Ground

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

Lex Code	Description	Rock Type
WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT

5.2 Superficial Ground and Drift Geology

Database searched and no data found.

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

5.3 Bedrock and Solid Geology

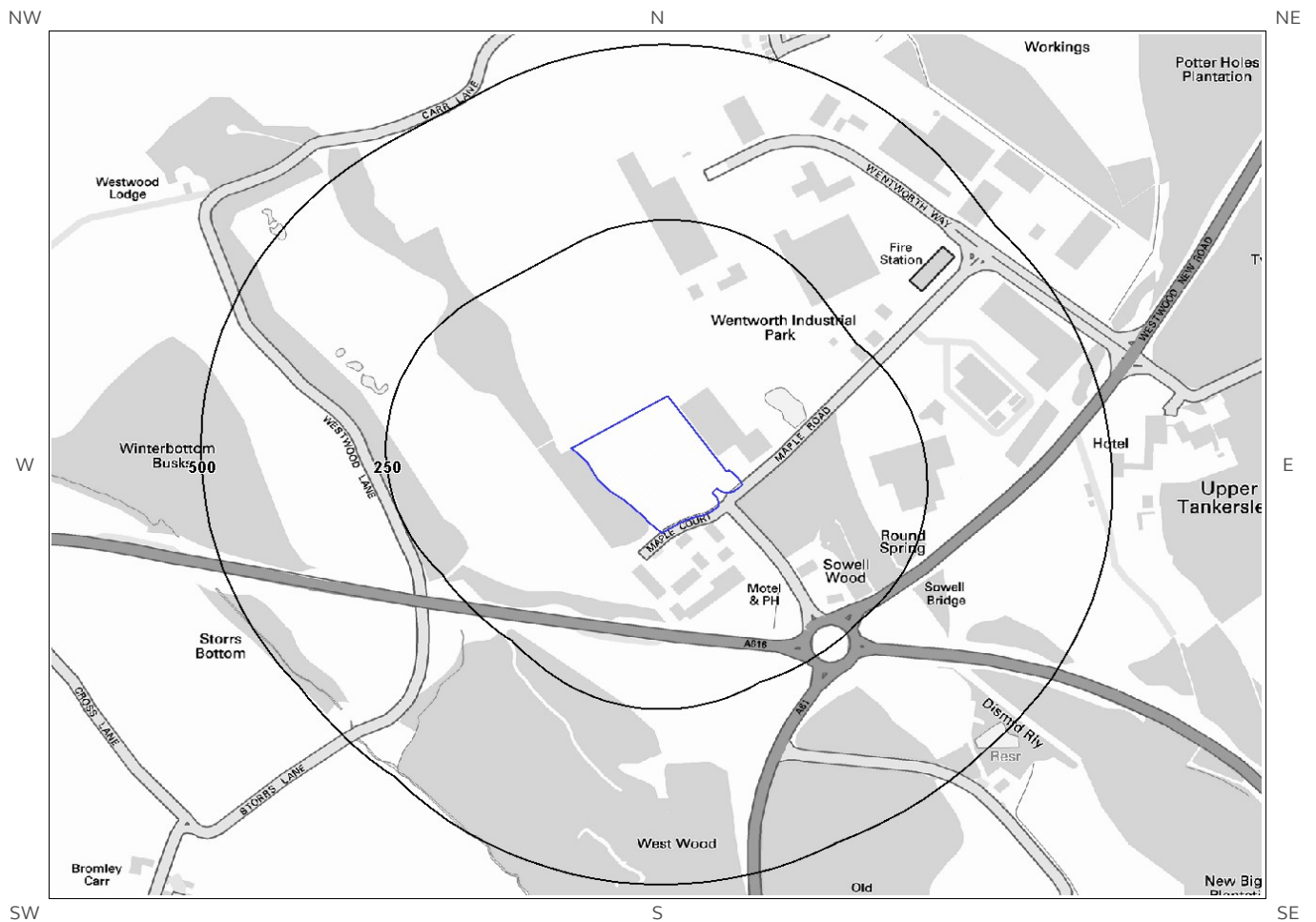
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION	MUDSTONE, SILTSTONE AND SANDSTONE

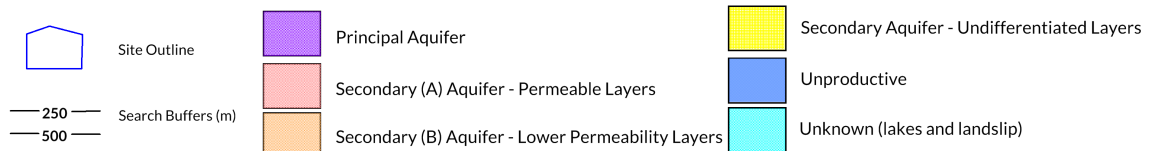
(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

6 Hydrogeology and Hydrology

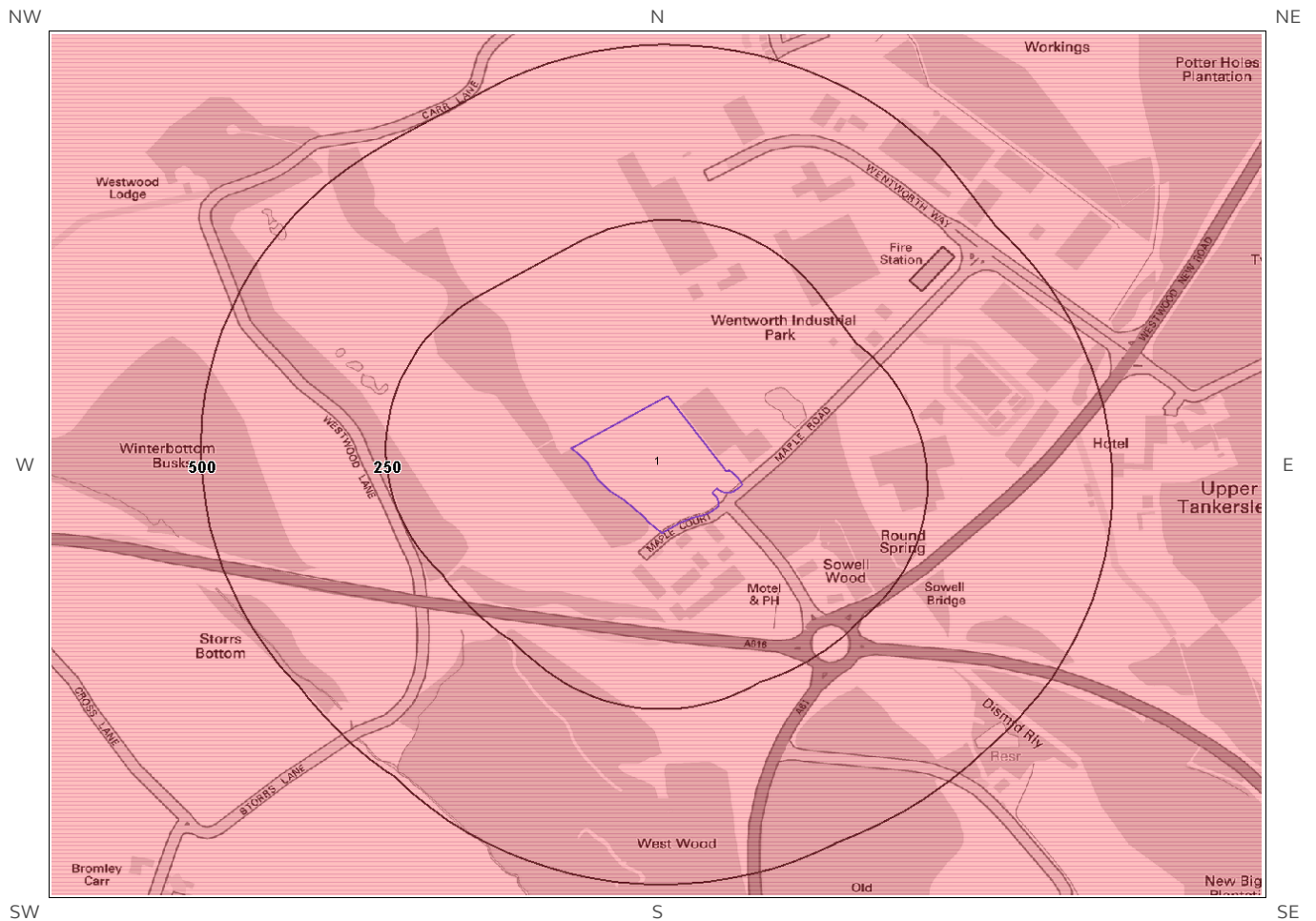
6a. Aquifer Within Superficial Geology



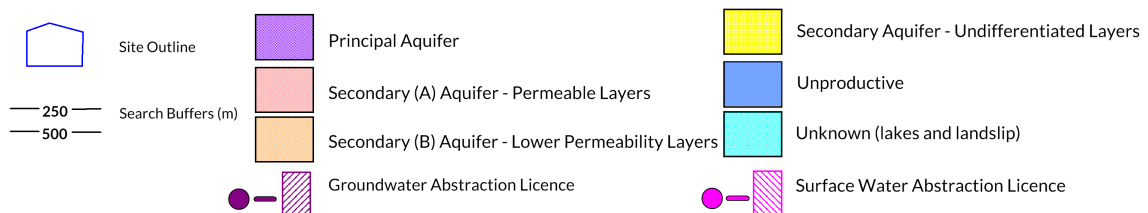
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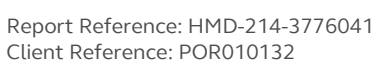
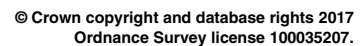


6b. Aquifer Within Bedrock Geology and Abstraction Licenses

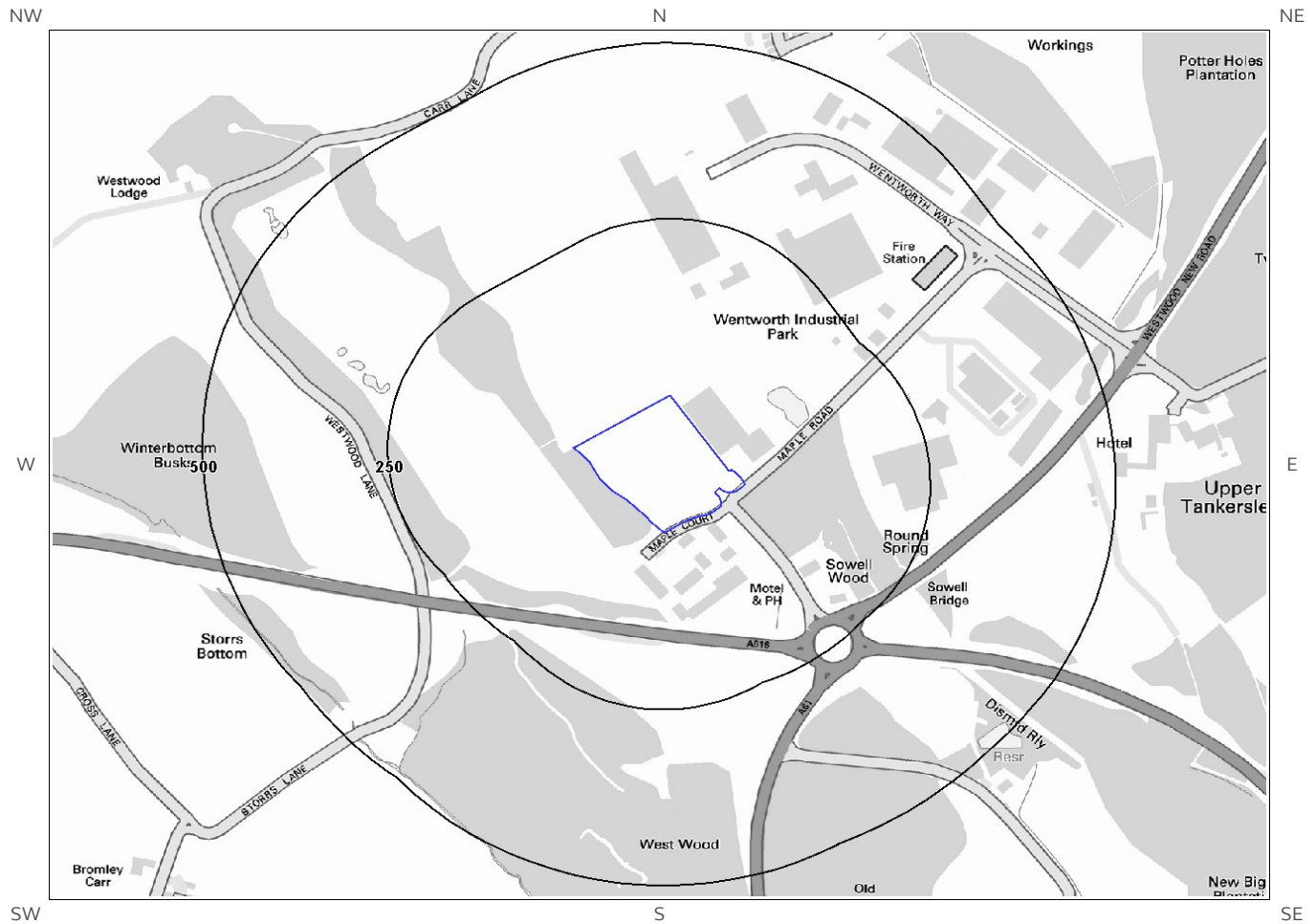


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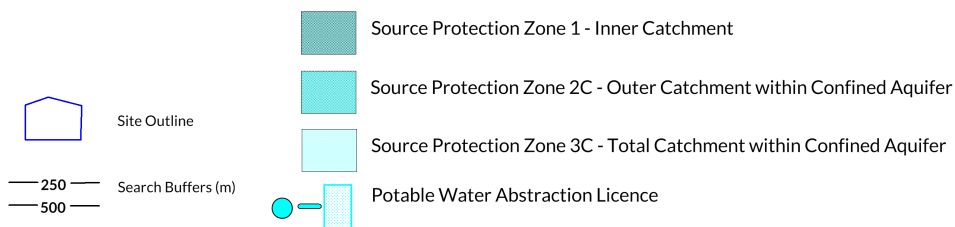




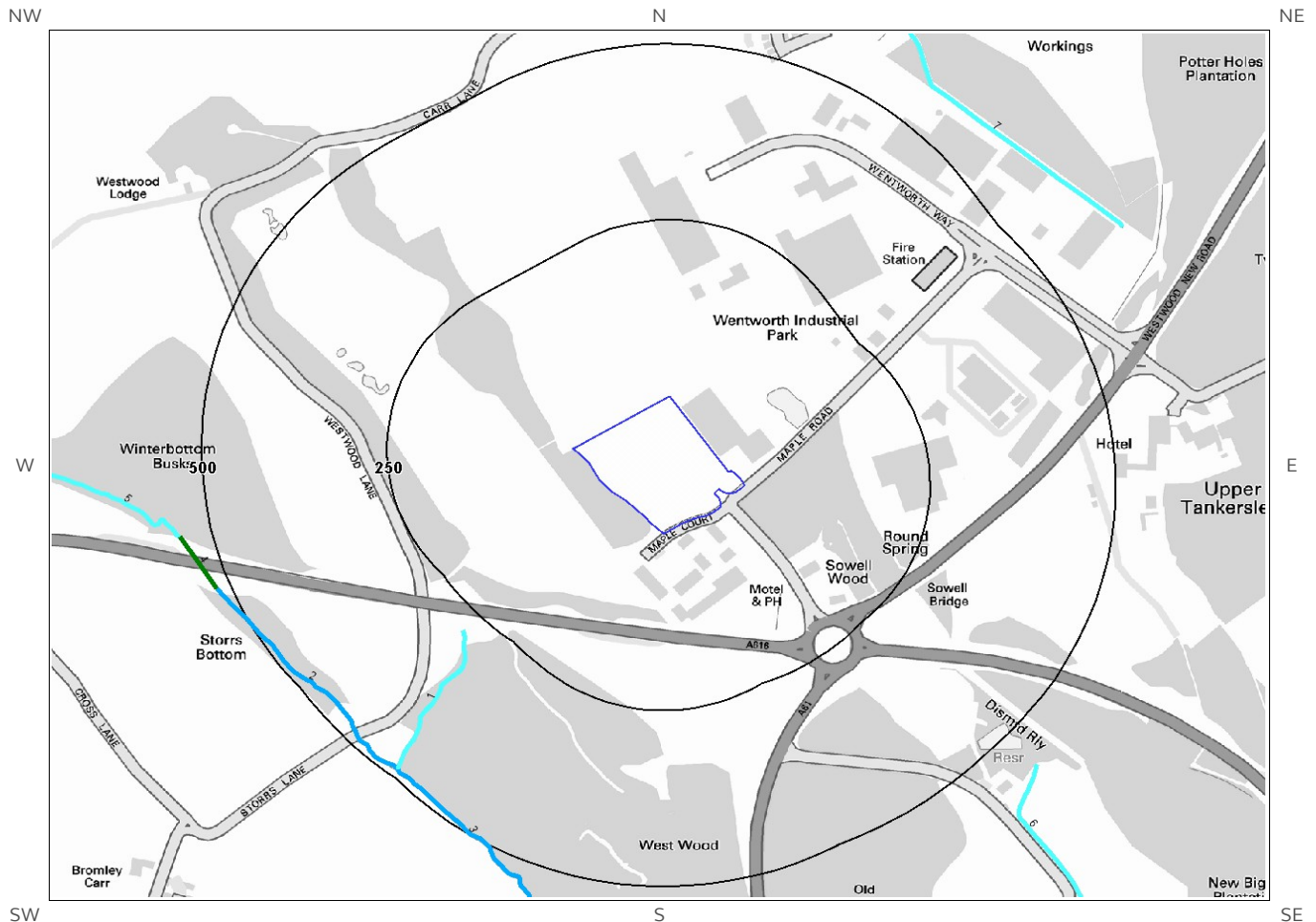
6d. Hydrogeology – Source Protection Zones within confined aquifer



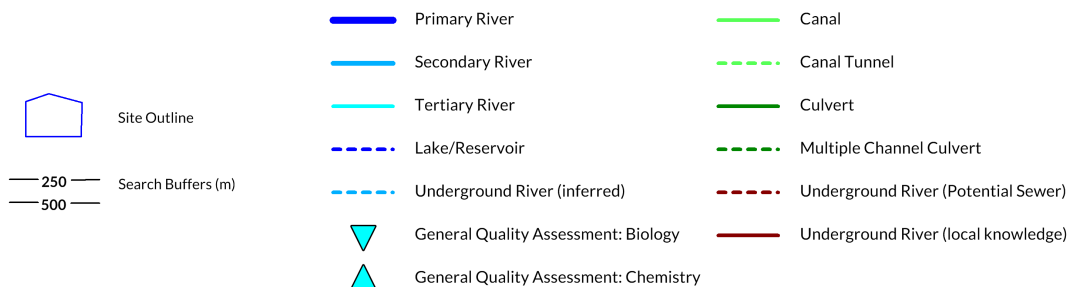
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6e. Hydrology – Detailed River Network and River Quality



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6. Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

Are there records of strata classification within the superficial geology at or in proximity to the property? No

Database searched and no data found.

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

6.2 Aquifer within Bedrock Deposits

Are there records of strata classification within the bedrock geology at or in proximity to the property? Yes

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

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

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

6.3 Groundwater Abstraction Licences

Are there any Groundwater Abstraction Licences within 2000m of the study site? Yes

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

ID	Distance (m)	Direction	NGR	Details
Not shown	807	W	432600 399600	Status: Historical Licence No: 03/28/20/0057 Details: General Farming & Domestic Direct Source: Groundwater Midlands Region Point: Red House Farm, Ratcliffe Culey - Well Data Type: Point Name: MESSRS J D & G G HUNT Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 13/1/1966 Expiry Date: - Issue No: 100 Version Start Date: 8/6/1994 Version End Date:

ID	Distance (m)	Direction	NGR	Details
Not shown	1340	SW	432870 397990	Status: Historical Licence No: 2/27/08/132 Details: General Farming & Domestic Direct Source: Groundwaters Point: Borehole-coal Measures-holly House Farm Data Type: Point Name: FIRTH Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: 08061 Original Start Date: 26/6/2003 Expiry Date: 31/3/2017 Issue No: 1 Version Start Date: 26/6/2003 Version End Date:

6.4 Surface Water Abstraction Licences

Are there any Surface Water Abstraction Licences within 2000m of the study site? Yes

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

ID	Distance (m)	Direction	NGR	Details
Not shown	1690	SE	434600 397900	Status: Active Licence No: 2/27/06/042 Details: General Use Relating To Secondary Category (Low Loss) Direct Source: Surface Water Point: Devil's Bridge Pond - Thorncliffe Data Type: Point Name: SPIRE SHEFFIELD LTD Annual Volume (m³): 18184 Max Daily Volume (m³): 545.53 Application No: 836(1) Original Start Date: 17/3/1966 Expiry Date: - Issue No: 101 Version Start Date: 30/9/1999 Version End Date:

6.5 Potable Water Abstraction Licences

Are there any Potable Water Abstraction Licences within 2000m of the study site? No

Database searched and no data found.

6.6 Source Protection Zones

Are there any Source Protection Zones within 500m of the study site? No

Database searched and no data found.

6.7 Source Protection Zones within Confined Aquifer

Are there any Source Protection Zones within the Confined Aquifer within 500m of the study site? No

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

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

Is there any Environment Agency/Natural Resources Wales information on groundwater vulnerability and soil leaching potential within 500m of the study site? Yes

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Minor Aquifer/Low Leaching Potential	L	Soils in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants.
456	SE	Minor Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.

6.9 River Quality

Is there any Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site? No

6.9.1 Biological Quality:

Database searched and no data found.

6.9.2 Chemical Quality:

Database searched and no data found.

6.10 Detailed River Network

Are there any Detailed River Network entries within 500m of the study site?

Yes

The following Detailed River Network records are represented on the Hydrology Map (6e):

ID	Distance (m)	Direction	Details
1	280	SW	River Name: - Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
2	475	SW	River Name: - Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined
3	486	SW	River Name: Storrs Dike Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined

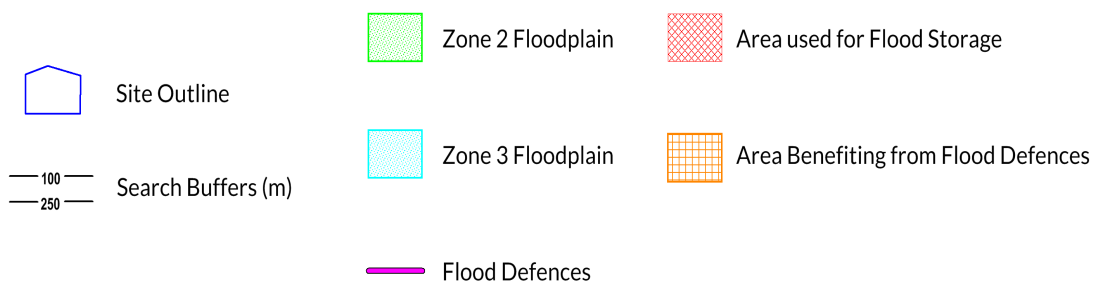
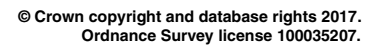
6.11 Surface Water Features

Are there any surface water features within 250m of the study site?

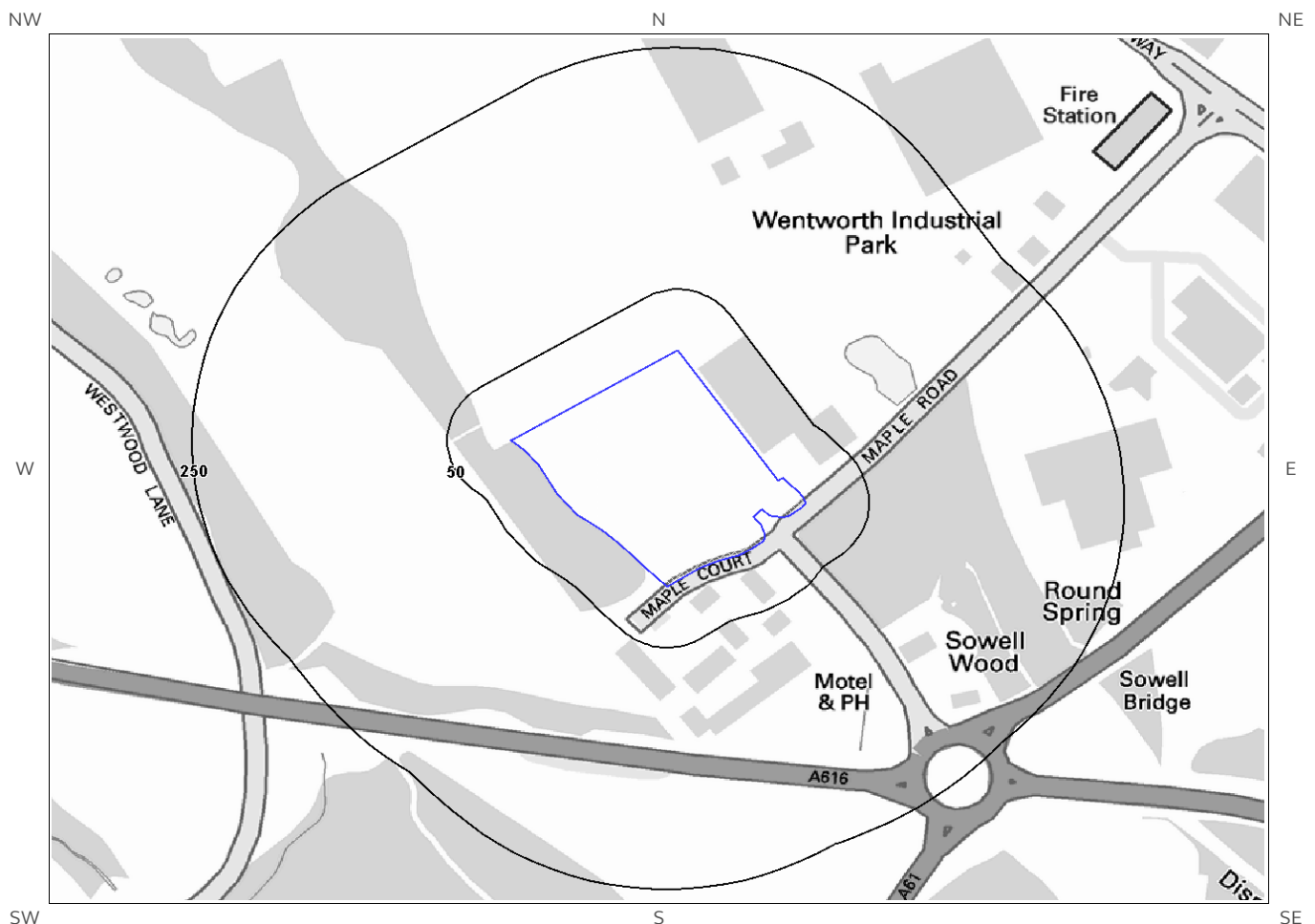
Yes

The following surface water records are not represented on mapping:

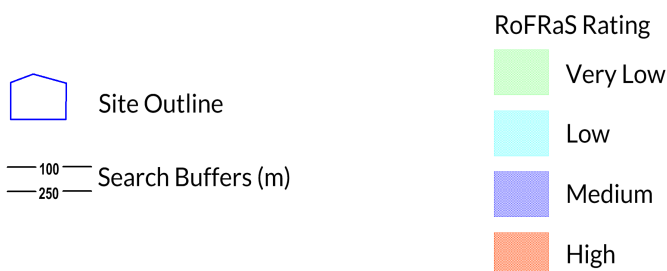
Distance (m)	Direction
103	NE
145	SE



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



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7 Flooding

7.1 River and Coastal Zone 2 Flooding

Is the site within 250m of an Environment Agency/Natural Resources Wales Zone 2 floodplain? No

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

Database searched and no data found.

7.2 River and Coastal Zone 3 Flooding

Is the site within 250m of an Environment Agency/Natural Resources Wales Zone 3 floodplain? No

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

Database searched and no data found.

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

What is the highest risk of flooding onsite? Very Low

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

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

7.4 Flood Defences

Are there any Flood Defences within 250m of the study site? No
Database searched and no data found.

7.5 Areas benefiting from Flood Defences

Are there any areas benefiting from Flood Defences within 250m of the study site? No

7.6 Areas benefiting from Flood Storage

Are there any areas used for Flood Storage within 250m of the study site?

No

7.7 Groundwater Flooding Susceptibility Areas

7.7.1 Are there any British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site? Yes

Does this relate to Clearwater Flooding or Superficial Deposits Flooding?

Clearwater Flooding

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

7.7.2 What is the highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions?

Limited potential

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

7.8 Groundwater Flooding Confidence Areas

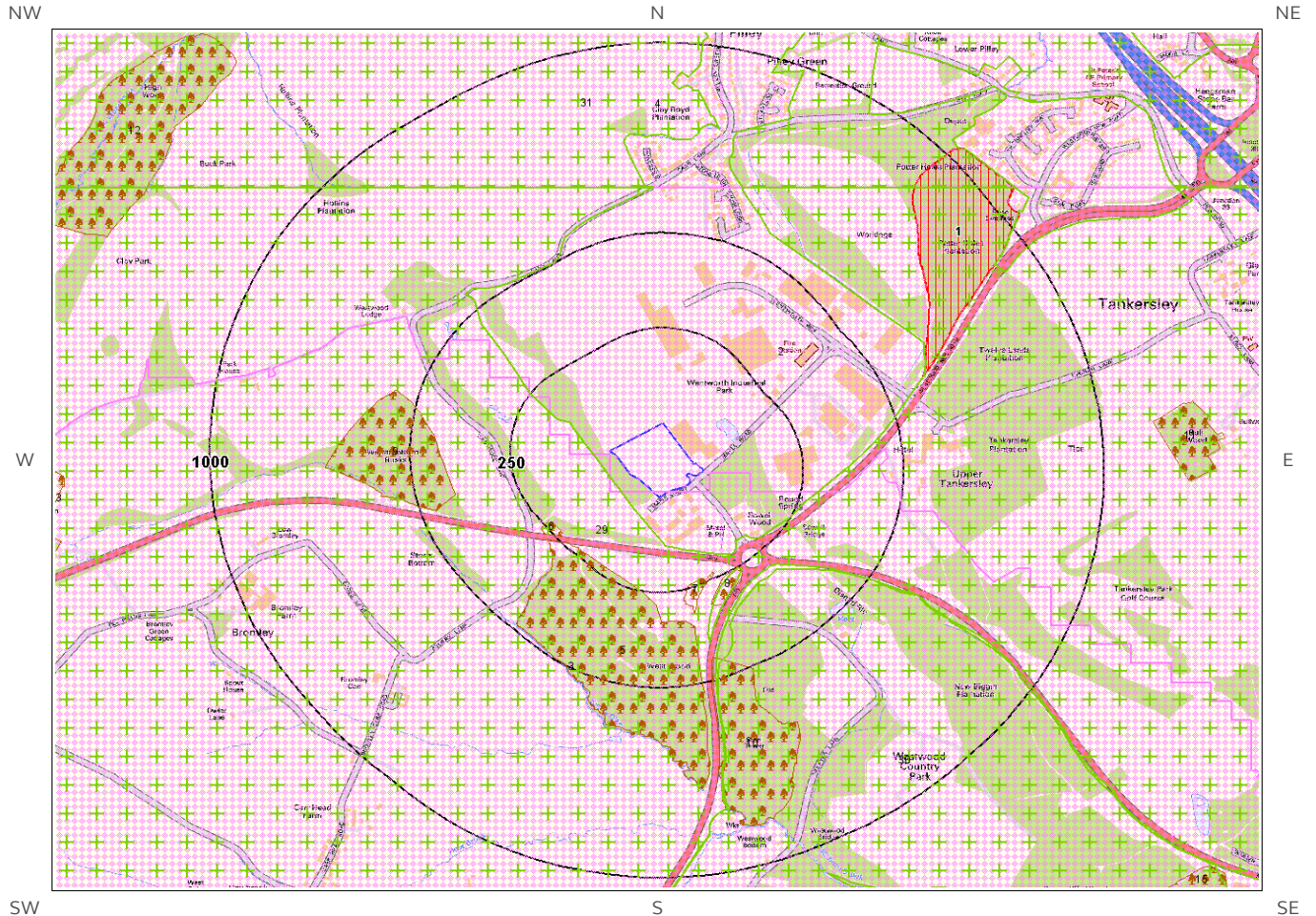
What is the British Geological Survey confidence rating in this result?

Low

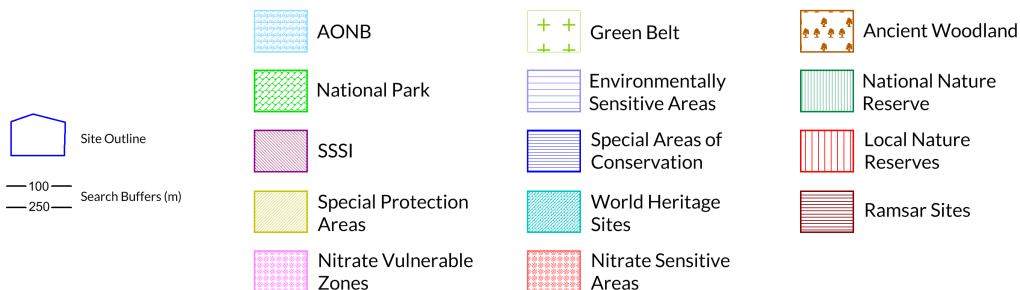
Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

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

8. Designated Environmentally Sensitive Sites Map



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8. Designated Environmentally Sensitive Sites

Presence of Designated Environmentally Sensitive Sites within 2000m of the study site? Yes

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

24

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

ID	Distance (m)	Direction	Ancient Woodland Name	Data Source
5	226	SW	UNKNOWN	Ancient and Semi-Natural Woodland
6	230	SW	UNKNOWN	Ancient and Semi-Natural Woodland
7	234	S	UNKNOWN	Ancient and Semi-Natural Woodland
8	247	SE	UNKNOWN	Ancient and Semi-Natural Woodland
9	403	W	UNKNOWN	Ancient and Semi-Natural Woodland
10	439	S	UNKNOWN	Ancient and Semi-Natural Woodland
11	1130	E	UNKNOWN	Ancient and Semi-Natural Woodland
12	1346	NW	UNKNOWN	Ancient and Semi-Natural Woodland
13	1365	W	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1446	W	UNKNOWN	Ancient Replanted Woodland
15	1593	SE	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1684	NW	UNKNOWN	Ancient Replanted Woodland
Not shown	1743	NW	UNKNOWN	Ancient Replanted Woodland
Not shown	1751	NW	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1757	N	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1765	NW	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1770	N	UNKNOWN	Ancient Replanted Woodland
Not shown	1816	SW	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1821	SW	UNKNOWN	Ancient Replanted Woodland
Not shown	1884	N	UNKNOWN	Ancient Replanted Woodland
Not shown	1917	N	UNKNOWN	Ancient Replanted Woodland
Not shown	1936	N	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1950	SW	UNKNOWN	Ancient Replanted Woodland
Not shown	1987	W	UNKNOWN	Ancient Replanted Woodland

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

1

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

ID	Distance (m)	Direction	LNR Name	Data Source
1	603	NE	Potter Holes Plantation	Natural England

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

3

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

ID	Distance (m)	Direction	NVZ Name	Data Source
2	0	On Site	Existing	DEFRA
3	0	On Site	Existing	DEFRA
4	618	N	Existing	DEFRA

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

4

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ID	Distance	Direction	Green Belt Name	Local Authority Name
29	39	SW	Liverpool, Manchester and West Yorks Greenbelt	Barnsley District (B)
30	312	SE	Liverpool, Manchester and West Yorks Greenbelt	Sheffield District (B)
31	618	N	Liverpool, Manchester and West Yorks Greenbelt	Barnsley District (B)
Not shown	1921	S	Liverpool, Manchester and West Yorks Greenbelt	Sheffield District (B)

9. Natural Hazards Findings

9.1 Detailed BGS GeoSure Data

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

9.1.1 Shrink Swell

What is the maximum Shrink-Swell* hazard rating identified on the study site? Very Low

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

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

9.1.2 Landslides

What is the maximum Landslide* hazard rating identified on the study site? Very Low

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

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

9.1.3 Soluble Rocks

What is the maximum Soluble Rocks* hazard rating identified on the study site? Negligible

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

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

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

9.1.4 Compressible Ground

What is the maximum Compressible Ground* hazard rating identified on the study site? Moderate

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

Hazard
Significant potential for compressibility problems. Avoid large differential loadings of ground. Do not drain or de-water ground near the property without technical advice. For new build consider possibility of compressible ground in ground investigation, construction and building design. Consider effects of groundwater changes. Extra construction costs are likely. For existing property possible increase in insurance risk from compressibility, especially if water conditions or loading of the ground change significantly.

9.1.5 Collapsible Rocks

What is the maximum Collapsible Rocks* hazard rating identified on the study site? Very Low

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

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

9.1.6 Running Sand

What is the maximum Running Sand** hazard rating identified on the study site? Very Low

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

Hazard
Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

9.2 Radon

9.2.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

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

9.2.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing

ones as described in publication BR211 by the Building Research Establishment?

No radon protective measures are necessary.

10. Mining

10.1 Coal Mining

Are there any coal mining areas within 75m of the study site?

Yes

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

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

10.2 Non-Coal Mining

Are there any Non-Coal Mining areas within 50m of the study site boundary?

Yes

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

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

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

10.3 Brine Affected Areas

Are there any brine affected areas within 75m of the study site?

No

Guidance: No Guidance Required.

Contact Details

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info@groundsure.com



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

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Hampshire RG27 8NW
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Reference:

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Report Date 3 Apr 2017

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Groundsure Geo Insight

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Dear Sir/ Madam,

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

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

Yours faithfully,



Managing Director
Groundsure Limited

Enc.
Groundsure Geo Insight

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Overview of Findings

The Groundsure Geo Insight provides high quality geo-environmental information that allows geo-environmental professionals and their clients to make informed decisions and be forewarned of potential ground instability problems that may affect the ground investigation, foundation design and possibly remediation options that could lead to possible additional costs.

The report is based on the BGS 1:50,000 and 1:10,000 Digital Geological Map of Great Britain, BGS Geosure data; BRITPITS database; Non-coal mining data and Borehole Records, Coal Authority data including brine extraction areas, PBA non-coal mining and natural cavities database, Johnson Poole and Bloomer mining data and Groundsure's unique database including historical surface ground and underground workings.

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

Section 1: Geology 1:10,000 Scale

1.1 Artificial Ground	1.1 Is there any Artificial Ground/ Made Ground present beneath the study site at 1:10,000 scale?	Yes
1.2 Superficial Geology and Landslips	1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site at 1:10,000 scale?*	No
	1.2.2 Are there any records of landslide within 500m of the study site boundary at 1:10,000 scale?	No
1.3 Bedrock, Solid Geology and Faults	1.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	1.3.2 Are there any records of faults within 500m of the study site boundary at 1:10,000 scale?	Yes

Section 2: Geology 1:50,000 Scale

2.1 Artificial Ground	2.1.1 Is there any Artificial Ground/ Made Ground present beneath the study site?	Yes
	2.1.2 Are there any records relating to permeability of artificial ground within the study site*boundary?	Yes
2.2 Superficial Geology and Landslips	2.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?*	No
	2.2.2 Are there any records of permeability of superficial ground within 500m of the study site?	No
	2.2.3 Are there any records of landslide within 500m of the study site boundary?	No
	2.2.4 Are there any records relating to permeability of landslips within the study site* boundary?	No

Section 2: Geology 1:50,000 Scale

2.3 Bedrock, Solid Geology and Faults

2.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.

2.3.2 Are there any records relating to permeability of bedrock ground within the study site boundary?

Yes

2.3.3 Are there any records of faults within 500m of the study site boundary?

Yes

Section 3: Radon

3. Radon

3.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?

The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

3.2 Radon Protection

No radon protective measures are necessary.

Section 4: Ground Workings

	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	9	6	42	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	1	21	25	49
4.3 Current Ground Workings	1	0	8	8	37

Section 5: Mining, Extraction & Natural Cavities

	On-site	0-50m	51-250	251-500	501-1000
5.1 Historical Mining	0	1	21	26	54
5.2 Coal Mining	1	0	0	0	0
5.3 Johnson Poole and Bloomer Mining Area	0	0	0	0	0
5.4 Non-Coal Mining*	2	0	0	1	4
5.5 Non-Coal Mining Cavities	0	0	0	0	0
5.5 Natural Cavities	0	0	0	0	0

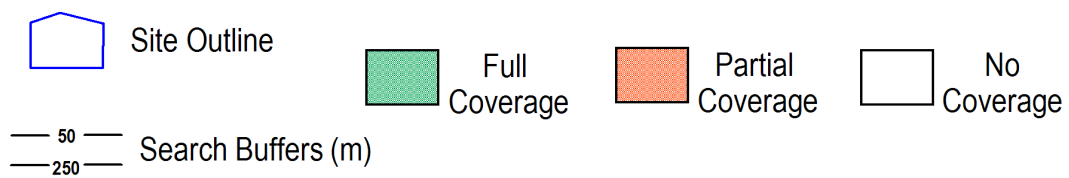
Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Tin Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0
Section 6: Natural Ground Subsidence	On-site				
6.1 Shrink-Swell Clay	Very Low				
6.2 Landslides	Very Low				
6.3 Ground Dissolution of Soluble Rocks	Negligible				
6.4 Compressible Deposits	Moderate				
6.5 Collapsible Deposits	Very Low				
6.5 Running Sand	Very Low				
Section 7: Borehole Records	On-site	0-50m	51-250		
7 BGS Recorded Boreholes	0	19	50		
Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250		
8 Records of Background Soil Chemistry	2	3	0		
Section 9: Railways and Tunnels	On-site	0-50m	51-250	250-500	
9.1 Tunnels	0	0	0	Not Searched	
9.2 Historical Railway and Tunnel Features	0	0	8	Not Searched	
9.3 Historical Railways	0	0	1	Not Searched	
9.4 Active Railways	0	0	0	Not Searched	
9.5 Railway Projects	0	0	0	0	

1:10,000 Scale Availability



1_10,000 Availability Legend

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Availability of 1:10,000 Scale Geology Mapping

The following information represents the availability of the key components of the 1:10,000 scale geological data.

ID	Distance	Artificial Coverage	Superficial Coverage	Bedrock Coverage	Mass Movement Coverage
1	0.0	Some deposits are mapped	Full	Full	No coverage
2	618.0	Some deposits are mapped	Full	Full	Some deposits are mapped
N3	1418.0	Some deposits are mapped	Full	Full	Some deposits are mapped
N4	1600.0	Some deposits are mapped	Full	Full	Some deposits are mapped

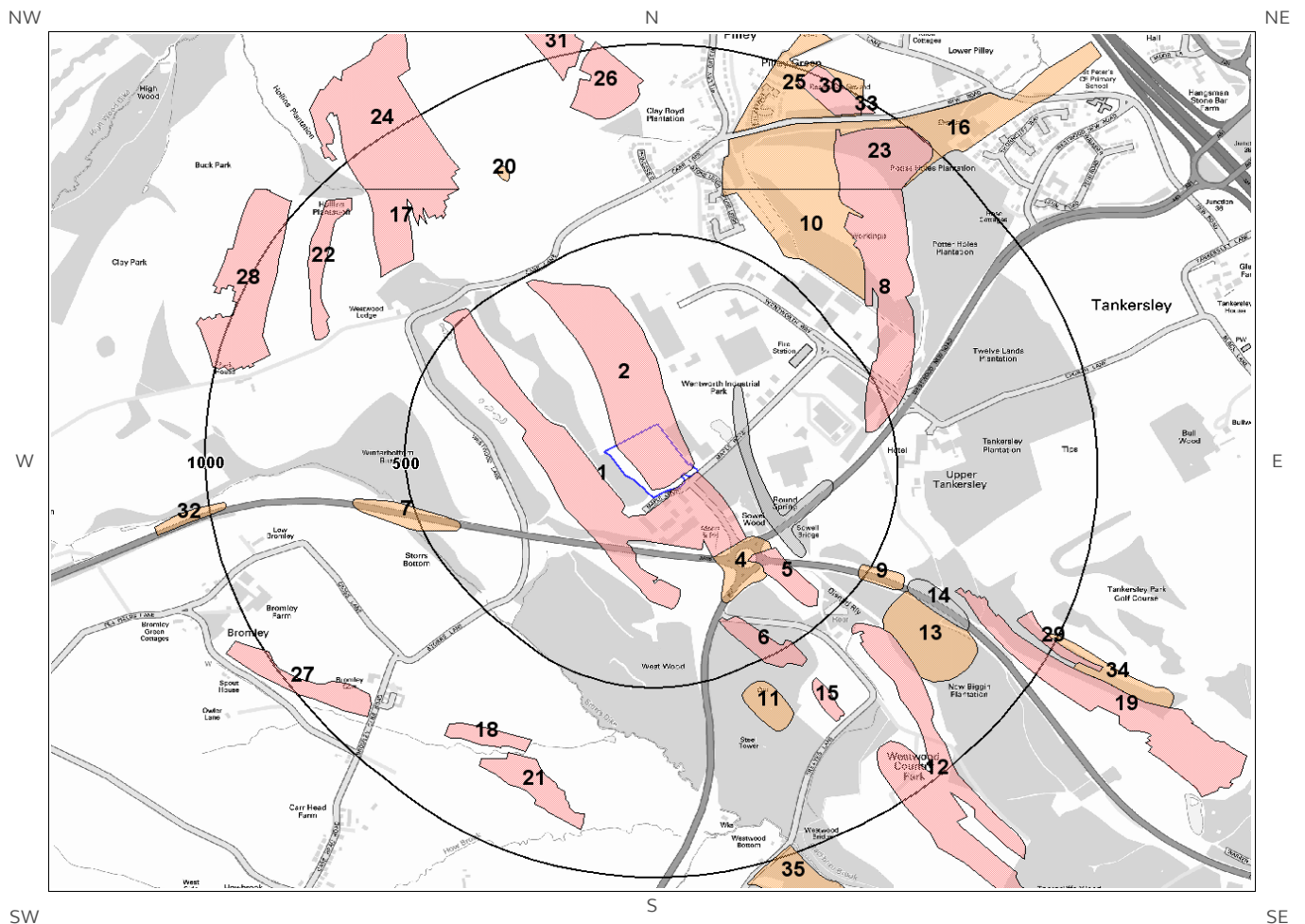
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not all themes are mapped or available on every map sheet. Therefore a coverage layer showing the availability of the four themes is presented above.

The definitions of coverage are as follows:

Geology	Full Coverage	Partial Coverage	No Coverage
Bedrock	The whole tile has been mapped	Some but not all the tile has been mapped	No coverage
Superficial	The whole tile has been mapped	Some but not all of the tile has been mapped	No coverage
Artificial	Some deposits are mapped on this tile	-	No deposits are mapped
Mass Movement	Some deposits are mapped on this tile	-	No coverage

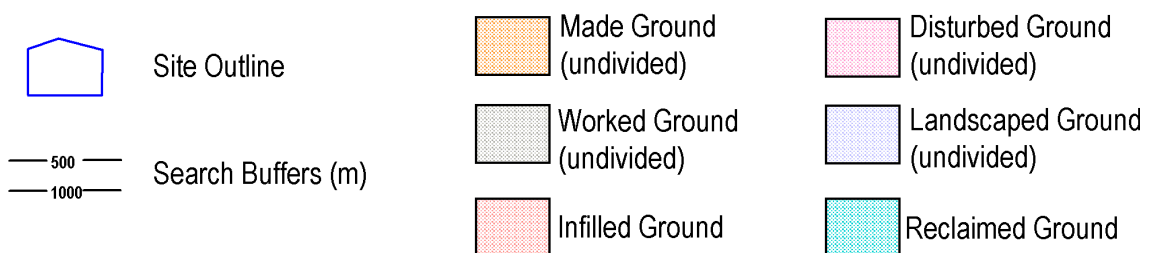
1 Geology (1:10,000 scale).

1.1 Artificial Ground Map (1:10,000 scale)



Artificial Ground Legend

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1. Geology 1:10,000 scale

1.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

Are there any records of Artificial/ Made Ground within 500m of the study site boundary at 1:10,000 scale? Yes

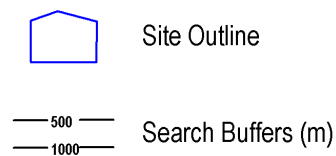
ID	Distance	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	WMGR-ARTDP	Infilled Ground	Artificial Deposit
2	0.0	On Site	WMGR-ARTDP	Infilled Ground	Artificial Deposit
3	119.0	E	WGR-VOID	Worked Ground (Undivided)	Void
4	202.0	SE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
5	253.0	SE	WMGR-ARTDP	Infilled Ground	Artificial Deposit
6	356.0	SE	WMGR-ARTDP	Infilled Ground	Artificial Deposit
7	409.0	SW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
8	433.0	E	WMGR-ARTDP	Infilled Ground	Artificial Deposit
9	478.0	SE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

1.2 Superficial Deposits and Landslips Map (1:10,000 scale)



Artificial Ground Legend

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1.2 Superficial Deposits and Landslips

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping

1.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary at 1:10,000 scale? No

Database searched and no data found.

1.2.2 Landslip

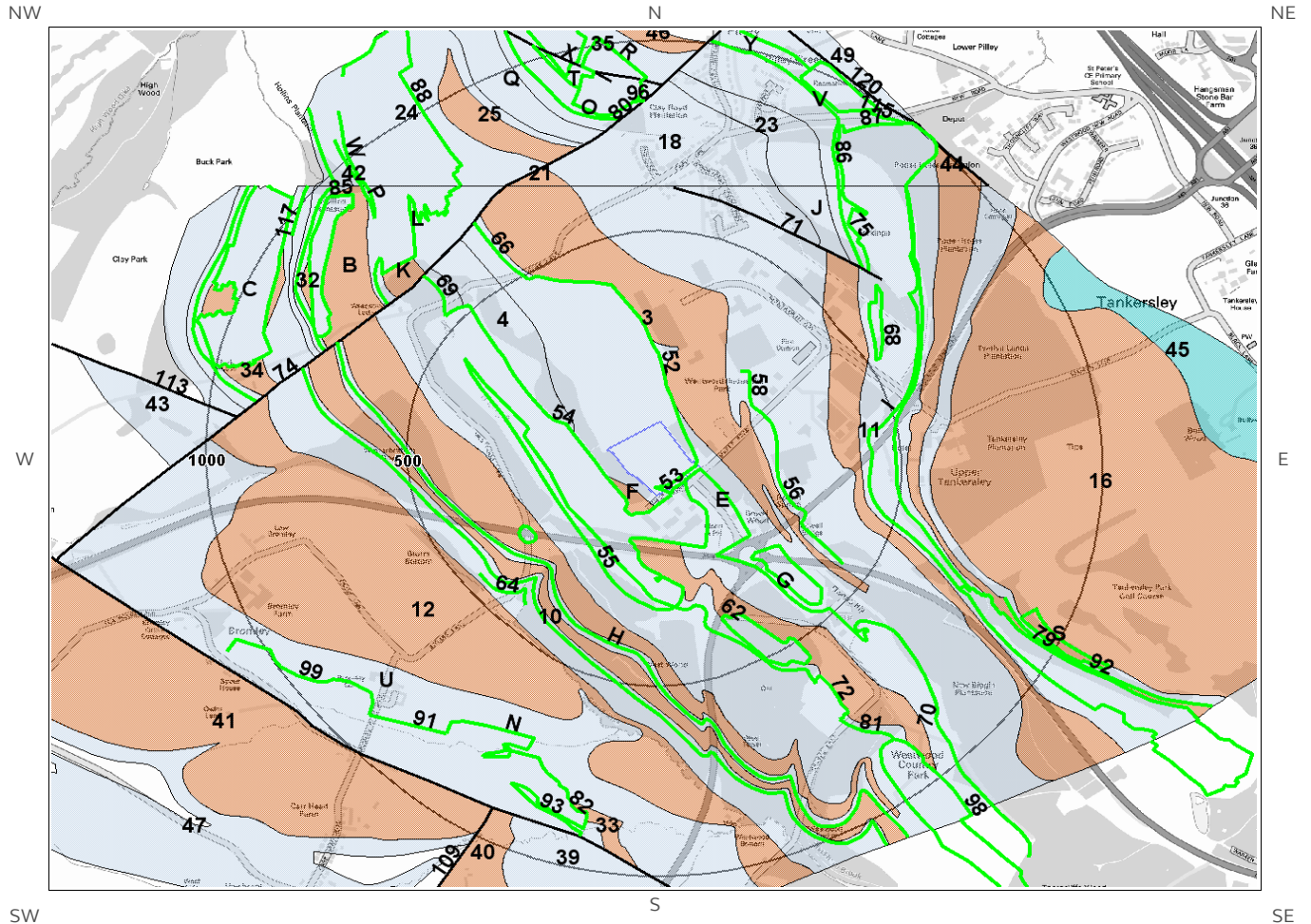
Are there any records of Landslip within 500m of the study site boundary at 1:10,000 scale? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:10,000 scale

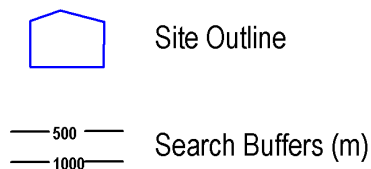
This Geology shows the main components as discrete layers, these are: Artificial / Made Ground, Superficial / Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

1.3 Bedrock and Faults Map (1:10,000 scale)



Bedrock and Faults Legend

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1.3 Bedrock and Faults

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

1.3.1 Bedrock/ Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary at 1:10,000 scale.

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1E	0.0	On Site	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
2F	24.0	SW	PKR-SDST	Parkgate Rock - Sandstone	Langsettian Sub-age
3	50.0	NE	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
4	98.0	NW	PKR-SDST	Parkgate Rock - Sandstone	Langsettian Sub-age
5	115.0	S	PKR-SDST	Parkgate Rock - Sandstone	Langsettian Sub-age
6A	255.0	SW	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
7A	280.0	SW	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
8	321.0	SW	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
9	330.0	E	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
10	340.0	SW	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
11	399.0	E	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
12	467.0	SW	SR-SDST	Silkestone Rock - Sandstone	Langsettian Sub-age

1.3.2 Faults

Are there any records of Faults within 500m of the study site boundary at 1:10,000 scale? Yes

ID	Distance (m)	Direction	Category Description	Feature Description
50E	0.0	On Site	ROCK	Coal seam, observed
51F	0.0	On Site	ROCK	Coal seam, observed
52	0.0	On Site	ROCK	Coal seam, observed
53	0.0	On Site	ROCK	Coal seam, observed
54	15.0	S	ROCK	Coal seam, observed
55	178.0	SW	ROCK	Coal seam, inferred
56	191.0	E	ROCK	Coal seam, inferred
57G	203.0	SE	ROCK	Coal seam, inferred
58	207.0	NE	ROCK	Coal seam, observed
59G	253.0	SE	ROCK	Coal seam, observed
60A	280.0	SW	ROCK	Coal seam, inferred

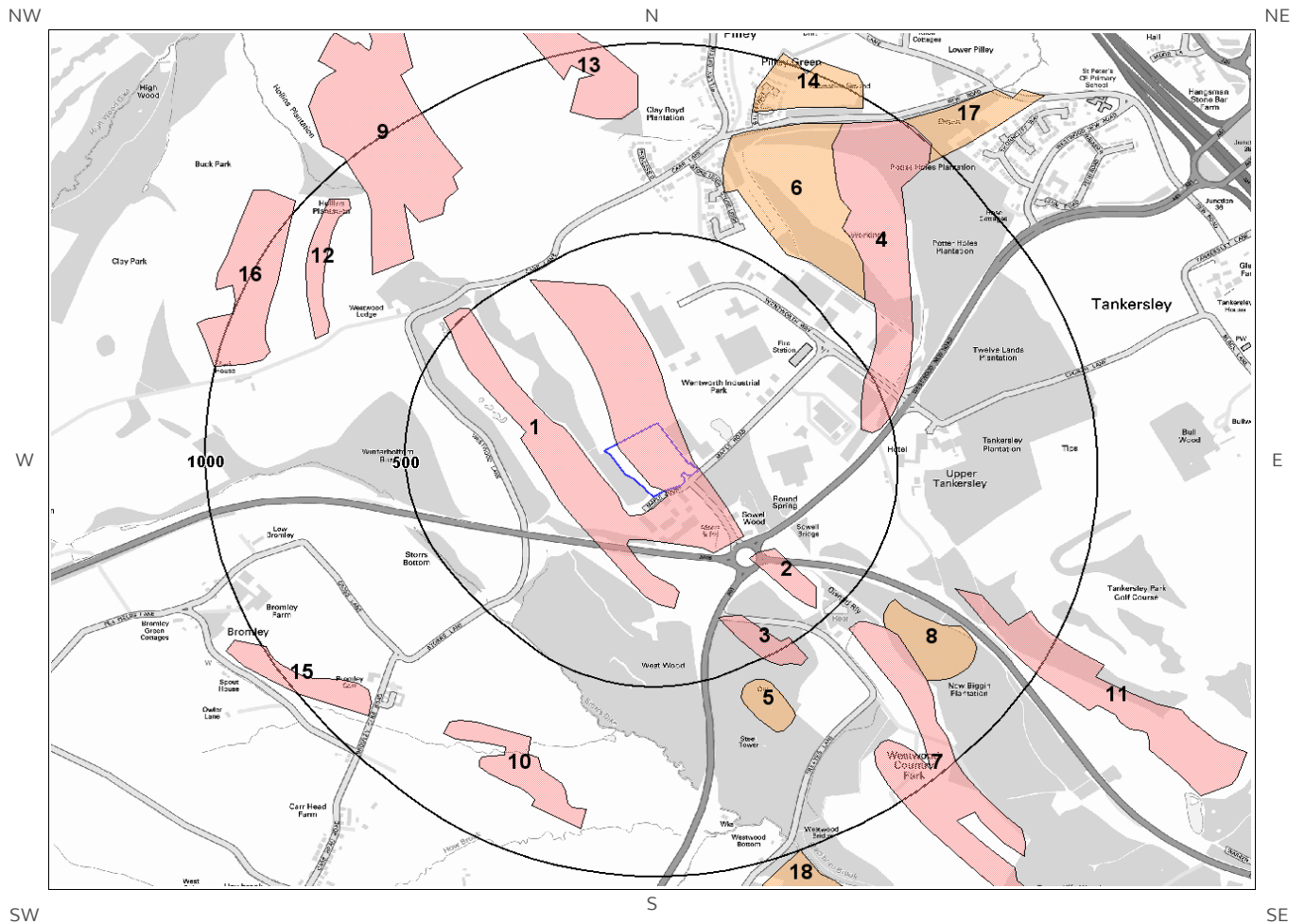
ID	Distance (m)	Direction	Category Description	Feature Description
61H	314.0	SW	ROCK	Coal seam, inferred
62	356.0	SE	ROCK	Coal seam, observed
63H	358.0	SW	ROCK	Coal seam, inferred
64	397.0	SW	ROCK	Coal seam, inferred
65I	422.0	E	ROCK	Coal seam, inferred
66	485.0	NW	ROCK	Coal seam, inferred
67I	487.0	E	ROCK	Ironstone bed, inferred

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of great Britain at 1:10,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/ Solid Geology and linear features such as Faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

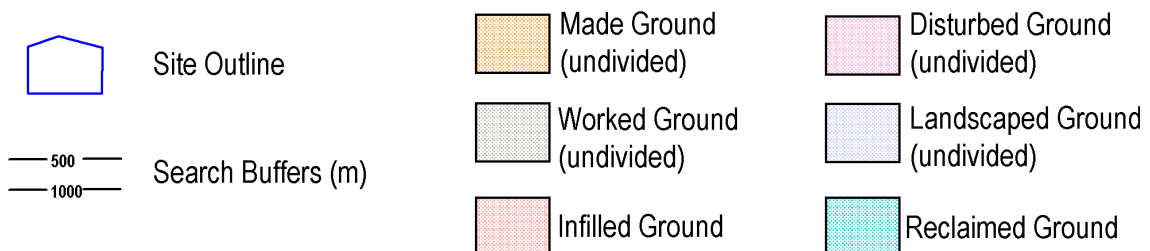
2 Geology 1:50,000 Scale

2.1 Artificial Ground Map



Ground Workings Legend

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2. Geology 1:50,000 scale

2.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 087

2.1.1 Artificial/ Made Ground

Are there any records of Artificial/ Made Ground within 500m of the study site boundary? Yes

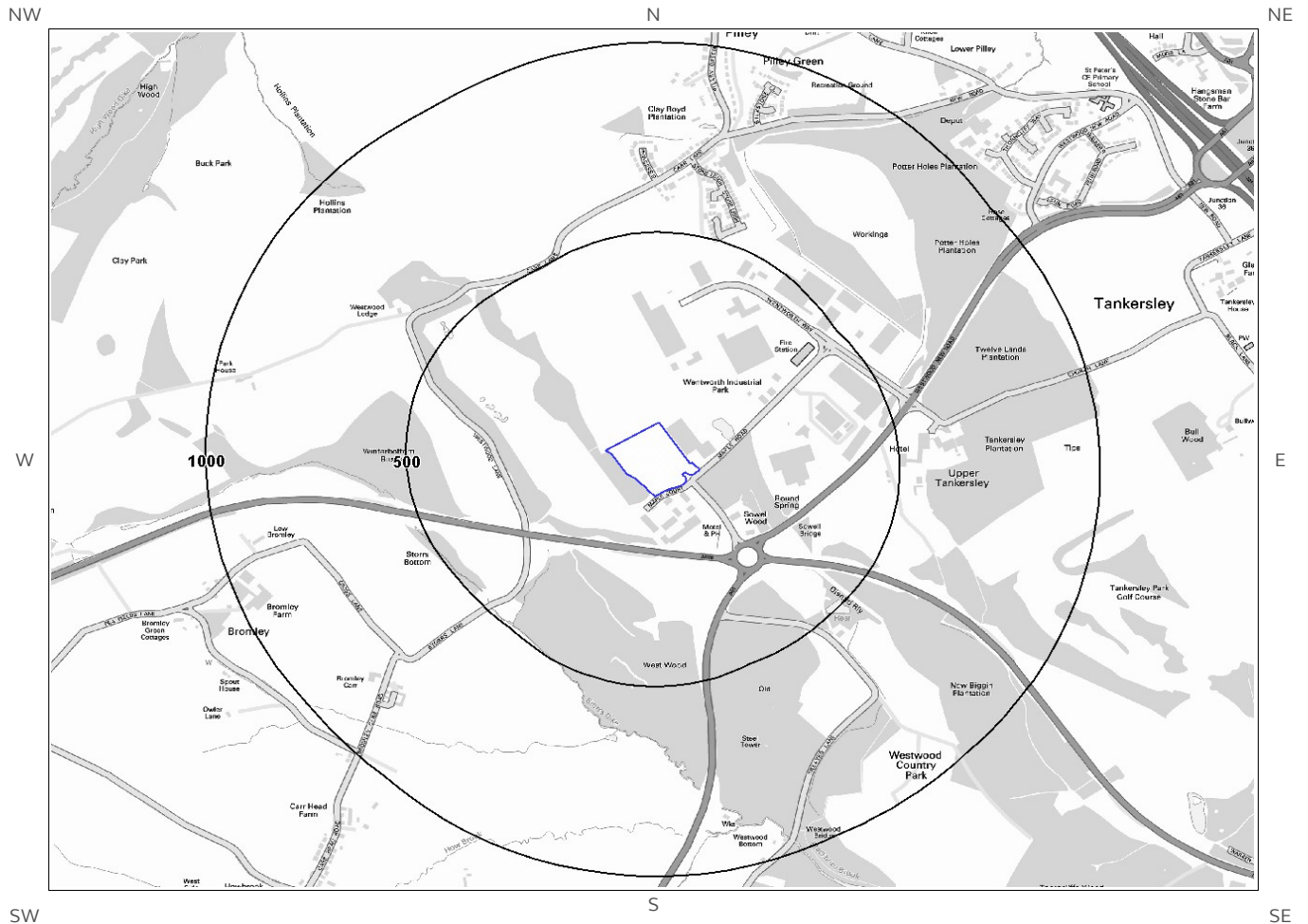
ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
2	256.0	SE	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
3	358.0	SE	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
4	424.0	E	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT

2.1.2 Permeability of Artificial Ground

Are there any records relating to permeability of artificial ground within the study site boundary? Yes

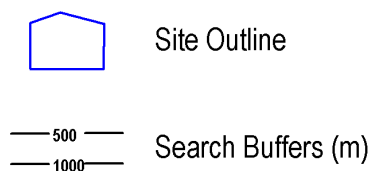
Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Mixed	Very High	Low

2.2 Superficial Deposits and Landslips Map (1:50,000 scale)



Ground Workings Legend

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2.2 Superficial Deposits and Landslips

2.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary? No

Database searched and no data found.

2.2.2 Permeability of Superficial Ground

Are there any records relating to permeability of superficial ground within the study site boundary? No

Database searched and no data found.

2.2.3 Landslip

Are there any records of Landslip within 500m of the study site boundary? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

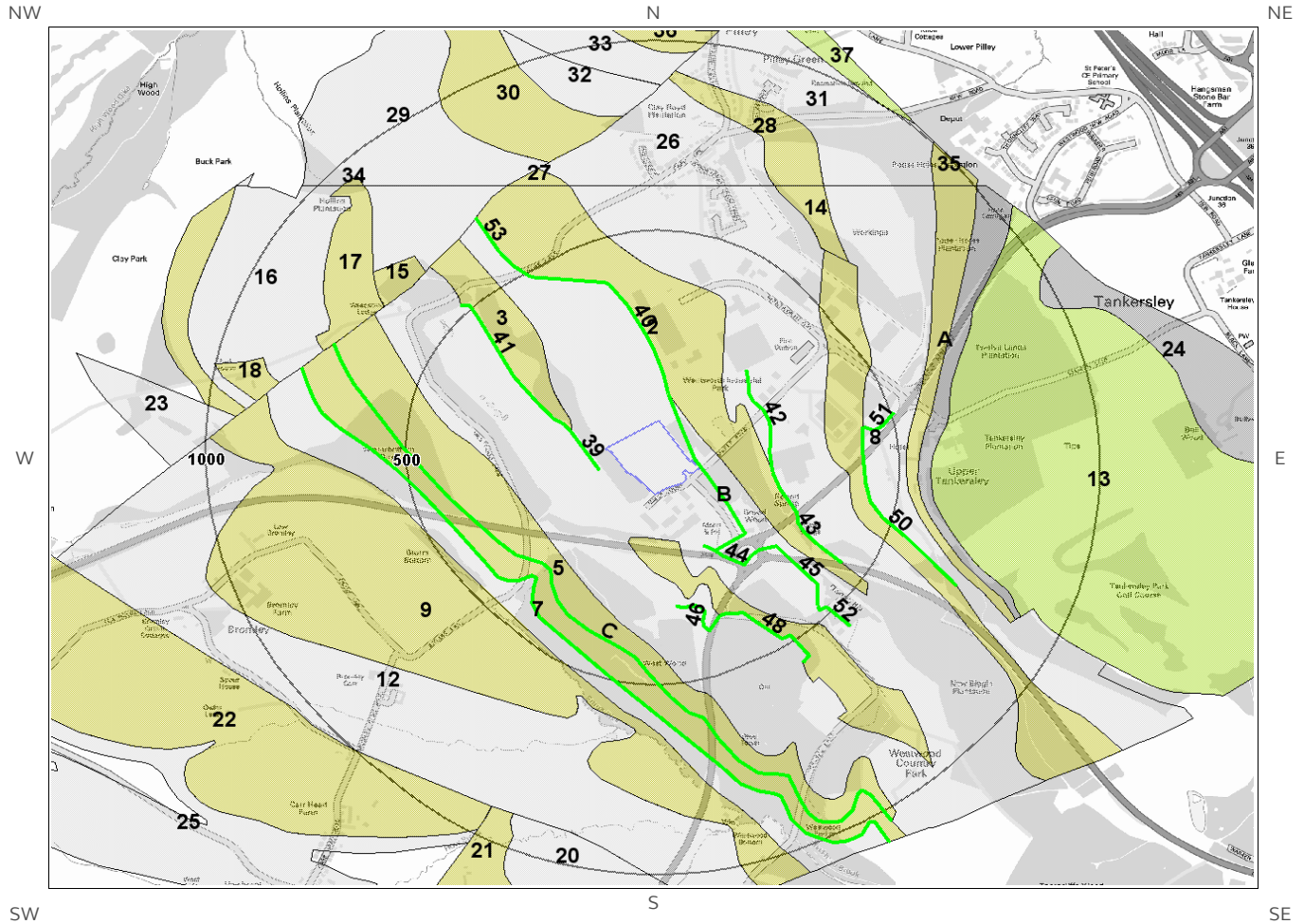
This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground, Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2.2.4 Landslip Permeability

Are there any records relating to permeability of landslips within the study site boundary? No

Database searched and no data found.

2.3 Bedrock and Faults Map (1:50,000 scale)

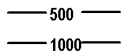


Ground Workings Legend

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Site Outline



Search Buffers (m)

2.3 Bedrock, Solid Geology & Faults

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 087

2.3.1 Bedrock/Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary:

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
1B	0.0	On Site	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
2	56.0	NE	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
3	99.0	NW	PKR-SDST	PARKGATE ROCK - SANDSTONE	WESTPHALIAN
4	114.0	S	PKR-SDST	PARKGATE ROCK - SANDSTONE	WESTPHALIAN
5	255.0	SW	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
6	323.0	E	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
7	359.0	SW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
8	411.0	E	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
9	470.0	SW	SR-SDST	SILKSTONE ROCK - SANDSTONE	WESTPHALIAN

2.3.2 Permeability of Bedrock Ground

Are there any records relating to permeability of bedrock ground within the study site boundary? Yes

Distance	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Fracture	High	Low

2.3.3 Faults

Are there any records of Faults within 500m of the study site boundary? Yes

ID	Distance	Direction	Category Description	Feature Description
38B	4.0	NE	ROCK	Coal seam, inferred
39	47.0	SW	ROCK	Coal seam, inferred
40	74.0	N	ROCK	Coal seam, inferred
41	99.0	NW	ROCK	Coal seam, inferred
42	180.0	E	ROCK	Coal seam, inferred
43	183.0	E	ROCK	Coal seam, inferred
44	196.0	SE	ROCK	Coal seam, inferred

ID	Distance	Direction	Category Description	Feature Description
45	256.0	SE	ROCK	Coal seam, inferred
46	298.0	S	ROCK	Coal seam, inferred
47C	320.0	SW	ROCK	Coal seam, inferred
48	358.0	SE	ROCK	Coal seam, inferred
49C	359.0	SW	ROCK	Coal seam, inferred
50	411.0	E	ROCK	Coal seam, inferred
51	424.0	E	ROCK	Ironstone bed, observed
52	466.0	SE	ROCK	Coal seam, inferred
53	486.0	NW	ROCK	Coal seam, inferred

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/Solid Geology and linear features such as Faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nation wide coverage.

3 Radon Data

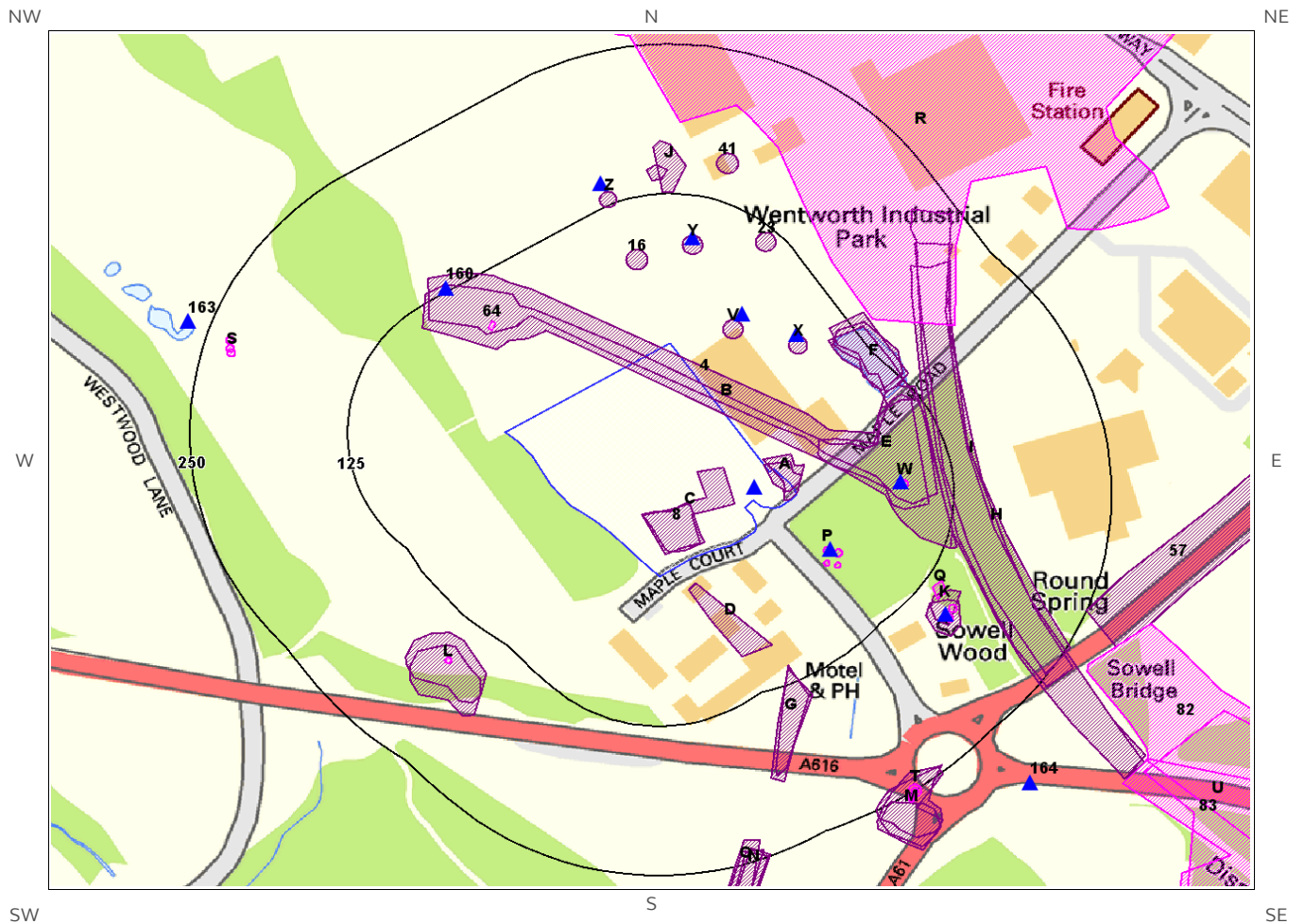
3.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

3.2 Radon Protection

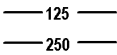
Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

4 Ground Workings Map



Ground Workings Legend

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- | | | | |
|---|--------------------|---|----------------------------------|
|  | Site Outline |  | Historic Surface Ground Workings |
|  | Search Buffers (m) |  | Historic Underground Workings |
| | |  | Current Ground Workings |

4 Ground Workings

4.1 Historical Surface Ground Working Features derived from Historical Mapping

This dataset is based on Groundsure's unique Historical Land Use Database derived from 1:10,560 and 1:10,000 scale historical mapping

Are there any Historical Surface Ground Working Features within 250m of the study site boundary? Yes

ID	Distance (m)	Direction	NGR	Use	Date
1A	0.0	On Site	433572 399267	Pond	1938
2A	0.0	On Site	433572 399273	Pond	1951
3C	0.0	On Site	433497 399242	Ponds	1938
4	0.0	On Site	433520 399345	Refuse Heap	1951
5B	0.0	On Site	433546 399320	Refuse Heap	1903
6B	0.0	On Site	433546 399320	Refuse Heap	1938
7B	0.0	On Site	433546 399320	Refuse Heap	1891
8	0.0	On Site	433485 399227	Pond	1891
9C	0.0	On Site	433497 399242	Ponds	1903
10D	19.0	SE	433530 399150	Pond	1938
11D	19.0	SE	433530 399150	Pond	1891
12D	19.0	SE	433530 399150	Pond	1903
13E	33.0	NE	433643 399291	Unspecified Heap	1966
14E	33.0	NE	433643 399291	Unspecified Heap	1980
15V	39.0	NE	433532 399393	Unspecified Pit	1891
16	66.0	N	433456 399452	Unspecified Pit	1891
17X	74.0	NE	433584 399380	Unspecified Pit	1891
18Y	76.0	N	433500 399464	Unspecified Pit	1891
19F	101.0	NE	433643 399362	Pond	1938
20F	101.0	NE	433643 399362	Pond	1903
21F	101.0	NE	433643 399362	Pond	1891

ID	Distance (m)	Direction	NGR	Use	Date
22F	104.0	NE	433639 399371	Pond	1992
23	106.0	NE	433558 399467	Unspecified Pit	1891
24F	106.0	NE	433640 399373	Pond	1966
25F	106.0	NE	433640 399373	Pond	1951
26F	106.0	NE	433640 399373	Pond	1980
27G	110.0	SE	433579 399066	Unspecified Heap	1951
28G	113.0	SE	433579 399062	Unspecified Heap	1938
29H	114.0	E	433720 399241	Cuttings	1938
30H	114.0	E	433720 399241	Cuttings	1903
31I	117.0	E	433706 399294	Cuttings	1891
32I	119.0	E	433712 399285	Cuttings	1951
33Z	123.0	N	433433 399502	Unspecified Pit	1891
34J	126.0	N	433482 399530	Pond	1966
35J	137.0	N	433472 399525	Unspecified Pit	1891
36K	138.0	SE	433700 399160	Unspecified Heap	1951
37K	140.0	SE	433699 399152	Unspecified Heap	1938
38K	140.0	SE	433699 399152	Unspecified Heap	1903
39L	141.0	SW	433305 399110	Refuse Heap	1951
40R	142.0	NE	433741 399700	Colliery	1966
41	148.0	N	433528 399532	Unspecified Pit	1891
42L	149.0	SW	433304 399099	Refuse Heap	1938
43L	149.0	SW	433304 399099	Refuse Heap	1903
44L	149.0	SW	433304 399099	Refuse Heap	1891
45O	230.0	S	433536 398923	Unspecified Heap	1951
46M	235.0	SE	433672 398993	Unspecified Heap	1903
47M	235.0	SE	433672 398993	Unspecified Heap	1891
48M	235.0	SE	433672 398993	Unspecified Heap	1938
49N	238.0	S	433548 398938	Unspecified Pit	1992
50N	238.0	S	433548 398938	Unspecified Pit	1980

ID	Distance (m)	Direction	NGR	Use	Date
51O	239.0	S	433536 398914	Unspecified Pit	1938
52O	239.0	S	433536 398914	Unspecified Pit	1903
53M	239.0	SE	433672 398999	Unspecified Heap	1951
54N	240.0	S	433546 398929	Unspecified Pit	1966
55M	249.0	SE	433673 398979	Unspecified Heap	1966
56M	249.0	SE	433673 398979	Unspecified Heap	1980
57	250.0	SE	433910 399215	Cuttings	1951

4.2 Historical Underground Working Features derived from Historical Mapping

This data is derived from the Groundsure unique Historical Land Use Database. It contains data derived from 1:10,000 and 1:10,560 historical Ordnance Survey Mapping and includes some natural topographical features (Shake Holes for example) as well as manmade features that may have implications for ground stability. Underground and mining features have been identified from surface features such as shafts. The distance that these extend underground is not shown.

Are there any Historical Underground Working Features within 1000m of the study site boundary? Yes

The following Historical Underground Working Features are provided by Groundsure:

ID	Distance (m)	Direction	NGR	Use	Date
58P	49.0	SE	433607 399209	Unspecified Old Shafts	1951
59P	55.0	SE	433616 399206	Unspecified Old Shafts	1951
60P	58.0	SE	433607 399198	Unspecified Old Shafts	1903
61P	58.0	SE	433607 399198	Unspecified Old Shafts	1938
62P	64.0	SE	433615 399196	Unspecified Old Shafts	1903
63P	64.0	SE	433615 399196	Unspecified Old Shaft	1938
64	79.0	NW	433341 399396	Unspecified Old Shaft	1903
65W	83.0	E	433668 399264	Unspecified Old Shafts	1951
66Q	133.0	SE	433696 399176	Disused Air Shaft	1966
67Q	133.0	SE	433696 399176	Air Shaft	1992
68Q	133.0	SE	433696 399176	Disused Air Shaft	1980
69R	142.0	NE	433741 399700	Colliery	1966
70K	154.0	SE	433707 399160	Air Shaft	1951

ID	Distance (m)	Direction	NGR	Use	Date
71K	157.0	SE	433704 399152	Air Shaft	1903
72K	157.0	SE	433704 399152	Air Shaft	1938
73L	159.0	SW	433307 399116	Air Shaft	1903
74S	224.0	W	433134 399374	Unspecified Shaft	1903
75S	226.0	W	433134 399377	Air Shaft	1938
76S	228.0	W	433133 399384	Air Shaft	1951
77T	245.0	SE	433676 399007	Disused Air Shaft	1966
78T	245.0	SE	433676 399007	Disused Air Shaft	1980
79T	248.0	SE	433676 399007	Air Shaft	1951
80T	251.0	SE	433673 399001	Air Shaft	1938
81T	253.0	SE	433674 399000	Air Shaft	1903
82	272.0	SE	434140 398881	Colliery	1951
83	355.0	SE	434109 398832	Colliery	1938
84U	361.0	SE	434111 398892	Colliery	1891
85U	361.0	SE	434111 398892	Colliery	1903
Not shown	370.0	SE	433629 398847	Unspecified Old Shaft	1951
Not shown	370.0	SE	433628 398841	Unspecified Disused Shaft	1966
Not shown	370.0	N	433596 399957	Colliery	1891
Not shown	376.0	SE	433631 398839	Unspecified Disused Shaft	1980
Not shown	376.0	SE	433626 398838	Unspecified Old Shaft	1903
Not shown	376.0	SE	433626 398838	Unspecified Old Shaft	1938
Not shown	442.0	E	434021 399167	Unspecified Disused Shaft	1980
Not shown	442.0	E	434021 399167	Unspecified Disused Shaft	1966
Not shown	442.0	E	434021 399167	Unspecified Disused Shaft	1992
Not shown	443.0	E	434018 399161	Unspecified Shaft	1938
Not shown	443.0	E	434018 399161	Unspecified Shaft	1903
Not shown	444.0	E	434021 399173	Unspecified Shaft	1951
Not shown	472.0	E	434034 399407	Air Shaft	1903
Not shown	490.0	S	433411 398697	Air Shaft	1966

ID	Distance (m)	Direction	NGR	Use	Date
Not shown	490.0	S	433411 398697	Air Shaft	1951
Not shown	490.0	S	433411 398697	Air Shaft	1992
Not shown	490.0	S	433411 398697	Air Shaft	1980
Not shown	500.0	S	433412 398687	Air Shaft	1903
Not shown	500.0	S	433412 398687	Air Shaft	1938
Not shown	530.0	SE	434003 398928	Air Shaft	1951
Not shown	531.0	NW	432874 399774	Colliery	1903
Not shown	531.0	SE	434009 398929	Disused Air Shaft	1966
Not shown	532.0	NW	432873 399777	Colliery	1938
Not shown	537.0	NW	432919 399750	Colliery	1951
Not shown	557.0	NW	432915 399712	Colliery	1891
Not shown	557.0	NW	432915 399712	Colliery	1903
Not shown	557.0	NW	432915 399712	Colliery	1938
Not shown	606.0	NE	434050 399648	Air Shaft	1903
Not shown	606.0	NE	434050 399648	Unspecified Shaft	1938
Not shown	610.0	S	433760 398644	Unspecified Old Shaft	1951
Not shown	615.0	NE	434052 399660	Unspecified Shaft	1951
Not shown	615.0	S	433763 398638	Unspecified Disused Shaft	1980
Not shown	615.0	S	433763 398638	Unspecified Disused Shaft	1992
Not shown	617.0	SE	433760 398636	Unspecified Old Shaft	1938
Not shown	619.0	S	433762 398630	Unspecified Disused Shaft	1966
Not shown	620.0	SE	433759 398633	Unspecified Old Shaft	1903
Not shown	638.0	N	433989 400132	Colliery	1951
Not shown	638.0	SE	434155 398962	Unspecified Shafts	1980
Not shown	654.0	SE	434136 398901	Air Shaft	1938
Not shown	665.0	SE	434176 398946	Unspecified Shafts	1980
Not shown	727.0	SE	434055 398697	Air Shaft	1903
Not shown	754.0	NW	433102 400037	Air Shaft	1938
Not shown	754.0	NW	433102 400037	Air Shaft	1903

ID	Distance (m)	Direction	NGR	Use	Date
Not shown	755.0	NW	433106 400042	Air Shaft	1977
Not shown	755.0	NW	433106 400042	Air Shaft	1965
Not shown	755.0	NW	433106 400042	Air Shaft	1951
Not shown	772.0	NE	434069 399893	Pumping Shaft	1903
Not shown	822.0	SE	434078 398592	Unspecified Old Shaft	1903
Not shown	828.0	E	434516 399318	Old Ironstone Pits	1903
Not shown	828.0	E	434516 399318	Old Ironstone Pits	1938
Not shown	835.0	E	434431 399341	Old Ironstone Pits	1951
Not shown	849.0	E	434466 399253	Old Ironstone Pits	1951
Not shown	852.0	E	434449 399301	Old Ironstone Pits	1951
Not shown	898.0	E	434490 399325	Old Ironstone Pits	1951
Not shown	907.0	S	433652 398278	Old Ironstone Pits	1938
Not shown	907.0	S	433652 398278	Old Ironstone Pits	1903
Not shown	922.0	E	434518 399286	Old Ironstone Pits	1951
Not shown	934.0	E	434530 399356	Old Ironstone Pits	1951
Not shown	958.0	S	433623 398231	Old Ironstone Pits	1938
Not shown	961.0	E	434556 399310	Old Ironstone Pits	1951
Not shown	962.0	S	433728 398228	Old Ironstone Pits	1938
Not shown	962.0	NE	434089 400133	Air Shaft	1938
Not shown	962.0	NE	434089 400133	Air Shaft	1903
Not shown	975.0	E	434578 399396	Old Ironstone Pits	1951
Not shown	988.0	N	433834 400365	Drift	1938
Not shown	989.0	N	433806 400362	Unspecified Drift	1903
Not shown	1000.0	S	433852 398156	Old Ironstone Pits	1903
Not shown	1000.0	S	433852 398156	Old Ironstone Pits	1938

4.3 Current Ground Workings

This dataset is derived from the BGS BRITPITS database covering active; inactive mines; quarries; oil wells; gas wells and mineral wharves; and rail deposits throughout the British Isles.

Are there any BGS Current Ground Workings within 1000m of the study site boundary? Yes

The following Current Ground Workings information is provided by British Geological Survey:

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
154A	0.0	On Site	433549 399261	Ironstone	Sowell Wood Ironstone Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
155P	52.0	SE	433609 399209	Coal, Deep	Sowell Pit	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
156V	60.0	NE	433539 399406	Ironstone	West Wood Ironstone Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
157W	83.0	E	433665 399266	Ironstone	Sowell Wood Ironstone Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
158X	85.0	NE	433582 399389	Ironstone	West Wood Ironstone Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
159Y	90.0	N	433500 399470	Ironstone	West Wood Ironstone Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
160	128.0	NW	433304 399428	Coal, Deep	Balance Pit	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
161Z	144.0	NW	433427 399515	Ironstone	West Wood Ironstone Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
162K	155.0	SE	433700 399155	Coal, Deep	Catnob Pit	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
163	268.0	W	433100 399400	Coal, Surface Mined	Wentworth Industrial Estate OCCS	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

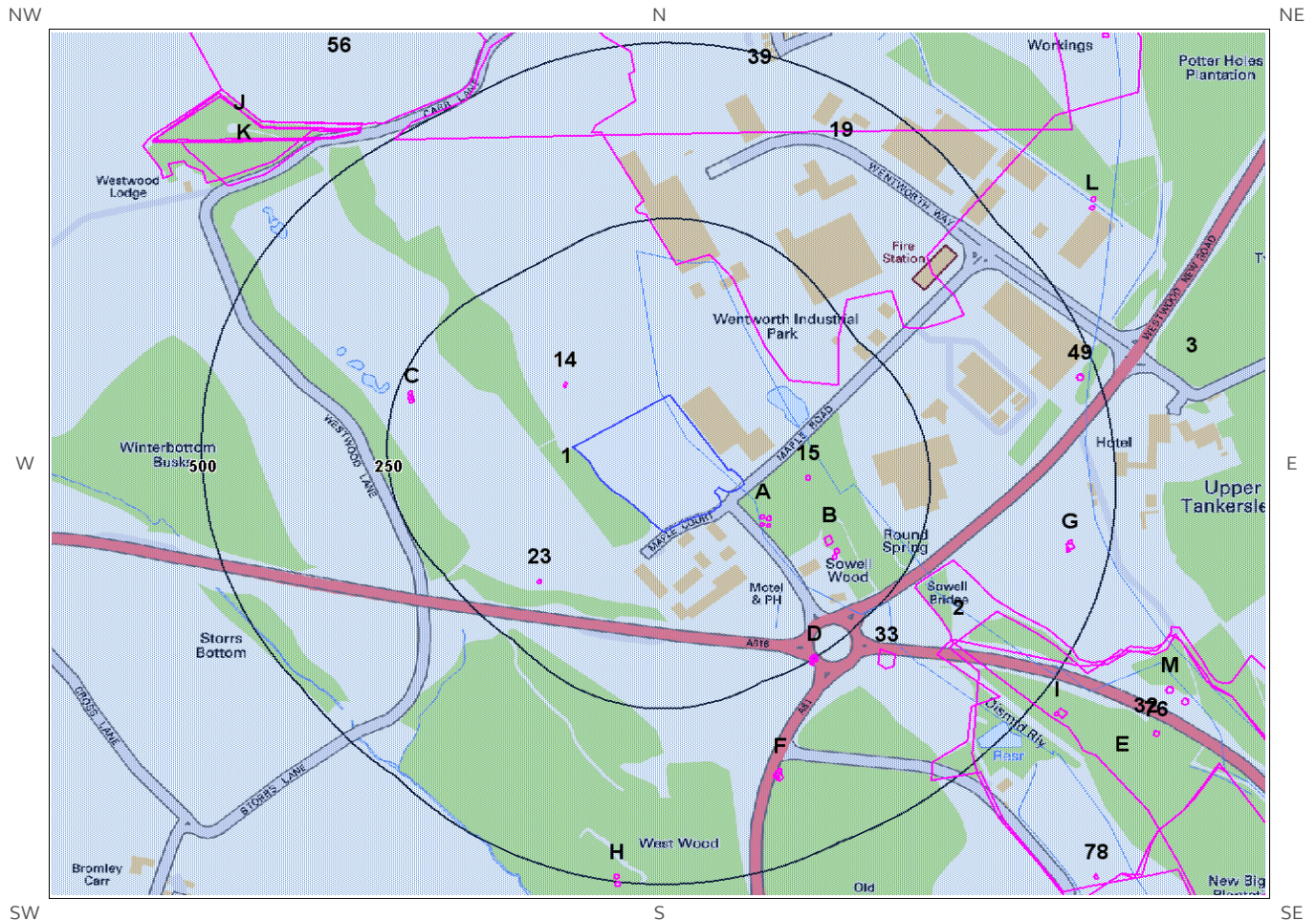
ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
164	302.0	SE	433767 399014	Ironstone	West Wood Ironstone Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	405.0	S	433502 398782	Coal, Deep	Westwood Colliery	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	459.0	S	433564 398736	Ironstone	West Wood Ironstone Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	463.0	S	433405 398728	Sandstone	West Wood	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	474.0	NE	433733 399785	Coal, Deep	Wharnccliffe Silkstone Colliery, No. 4 Shaft	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	487.0	NE	433761 399782	Coal, Deep	Wharnccliffe Silkstone Colliery, No. 1 Shaft	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	492.0	SE	433995 398987	Ironstone	Tankersley Ironstone Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	506.0	NW	433252 399833	Sandstone	Bursley	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	509.0	NE	433744 399819	Coal, Deep	Wharnccliffe Silkstone Colliery, No. 3 Shaft	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	522.0	S	433461 398664	Sandstone	Westwood	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	526.0	SE	433753 398736	Ironstone	West Wood Ironstone Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	527.0	SE	433993 398926	Ironstone	Tankersley Ironstone Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	532.0	NE	433775 399826	Coal, Deep	Wharnccliffe Silkstone Colliery Shaft	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	535.0	N	433454 399917	Clay & Shale	Tankersley Brick Works	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	536.0	NE	433791 399821	Coal, Deep	Wharncliffe Silkstone Colliery Shaft	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	561.0	SE	433905 398790	Ironstone	West Wood Ironstone Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	602.0	SE	433751 398652	Ironstone	West Wood Ironstone Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	614.0	SE	433796 398659	Ironstone	West Wood Ironstone Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	631.0	SE	434141 398963	Coal, Deep	Tankersley Colliery	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	640.0	NW	432873 399733	Coal, Deep	Silkstone Colliery No 2 Pit	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	641.0	SE	434088 398861	Ironstone	West Wood Ironstone Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	684.0	SE	433993 398703	Ironstone	West Wood Ironstone Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	724.0	SE	433876 398576	Ironstone	West Wood Ironstone Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	740.0	SE	434148 398778	Ironstone	West Wood Ironstone Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	748.0	SE	434096 398711	Ironstone	West Wood Ironstone Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	760.0	NW	433102 400040	Coal, Deep	Wiggin Berry Air Shaft	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	763.0	SE	433986 398598	Ironstone	West Wood Ironstone Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	790.0	SE	434068 398628	Ironstone	West Wood Ironstone Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	824.0	NE	433993 400029	Clay & Shale	Potter Holes Clay Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	860.0	E	434439 399330	Ironstone	Tankersley Plantation Ironstone Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	873.0	SE	434121 398564	Ironstone	West Wood Ironstone Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	886.0	E	434468 399272	Ironstone	Tankersley Plantation Ironstone Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	892.0	N	433358 400266	Coal, Surface Mined	Crofthead OCCS	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	898.0	S	433633 398302	Coal, Deep	Foster Ground Coal Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	947.0	S	433624 398251	Coal, Deep	Foster Ground Coal Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	960.0	NW	432708 400020	Coal, Deep	Buck Park Bell Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	961.0	NE	434085 400131	Coal, Deep	Lacton House Drift Mine Air Shaft	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	968.0	E	434548 399318	Ironstone	Tankersley Plantation Ironstone Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	971.0	NE	433913 400253	Coal, Surface Mined	Lacton House OCCS	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	980.0	NW	432866 400159	Coal, Surface Mined	Hollins OCCS	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	992.0	NW	432740 400088	Coal, Surface Mined	Athersley House OCCS	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	992.0	NE	434356 399879	Coal, Deep	Potter Holes Bell Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	994.0	NE	434219 400049	Coal, Deep	Potter Holes Bell Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	994.0	E	434568 399383	Ironstone	Tankersley Plantation Ironstone Pits	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased

5 Mining, Extraction & Natural Cavities Map



Mining, Extraction and Natural Cavities Legend

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5 Mining, Extraction & Natural Cavities

5.1 Historical Mining

This dataset is derived from Groundsure unique Historical Land-use Database that are indicative of mining or extraction activities.

Are there any Historical Mining areas within 1000m of the study site boundary? Yes

The following Historical Mining information is provided by Groundsure:

ID	Distance (m)	Direction	NGR	Details	Date
8A	49.0	SE	433607 399209	Unspecified Old Shafts	1951
9A	55.0	SE	433616 399206	Unspecified Old Shafts	1951
10A	58.0	SE	433607 399198	Unspecified Old Shafts	1903
11A	58.0	SE	433607 399198	Unspecified Old Shafts	1938
12A	64.0	SE	433615 399196	Unspecified Old Shafts	1903
13A	64.0	SE	433615 399196	Unspecified Old Shaft	1938
14	79.0	NW	433341 399396	Unspecified Old Shaft	1903
15	83.0	E	433668 399264	Unspecified Old Shafts	1951
16B	133.0	SE	433696 399176	Disused Air Shaft	1966
17B	133.0	SE	433696 399176	Air Shaft	1992
18B	133.0	SE	433696 399176	Disused Air Shaft	1980
19	142.0	NE	433741 399700	Colliery	1966
20B	154.0	SE	433707 399160	Air Shaft	1951
21B	157.0	SE	433704 399152	Air Shaft	1938
22B	157.0	SE	433704 399152	Air Shaft	1903
23	159.0	SW	433307 399116	Air Shaft	1903
24C	224.0	W	433134 399374	Unspecified Shaft	1903
25C	226.0	W	433134 399377	Air Shaft	1938
26C	228.0	W	433133 399384	Air Shaft	1951
27D	245.0	SE	433676 399007	Disused Air Shaft	1966

ID	Distance (m)	Direction	NGR	Details	Date
28D	245.0	SE	433676 399007	Disused Air Shaft	1980
29D	248.0	SE	433676 399007	Air Shaft	1951
30D	251.0	SE	433673 399001	Air Shaft	1938
31D	253.0	SE	433674 399000	Air Shaft	1903
32	272.0	SE	434140 398881	Colliery	1951
33	296.0	SE	433774 399006	Old Ironstone Pit	1903
34E	355.0	SE	434109 398832	Colliery	1938
35E	361.0	SE	434111 398892	Colliery	1891
36E	361.0	SE	434111 398892	Colliery	1903
37F	370.0	SE	433629 398847	Unspecified Old Shaft	1951
38F	370.0	SE	433628 398841	Unspecified Disused Shaft	1966
39	370.0	N	433596 399957	Colliery	1891
40F	376.0	SE	433631 398839	Unspecified Disused Shaft	1980
41F	376.0	SE	433626 398838	Unspecified Old Shaft	1903
42F	376.0	SE	433626 398838	Unspecified Old Shaft	1938
43G	442.0	E	434021 399167	Unspecified Disused Shaft	1966
44G	442.0	E	434021 399167	Unspecified Disused Shaft	1980
45G	442.0	E	434021 399167	Unspecified Disused Shaft	1992
46G	443.0	E	434018 399161	Unspecified Shaft	1903
47G	443.0	E	434018 399161	Unspecified Shaft	1938
48G	444.0	E	434021 399173	Unspecified Shaft	1951
49	472.0	E	434034 399407	Air Shaft	1903
50H	490.0	S	433411 398697	Air Shaft	1951
51H	490.0	S	433411 398697	Air Shaft	1966
52H	490.0	S	433411 398697	Air Shaft	1992
53H	490.0	S	433411 398697	Air Shaft	1980
54H	500.0	S	433412 398687	Air Shaft	1903
55H	500.0	S	433412 398687	Air Shaft	1938

ID	Distance (m)	Direction	NGR	Details	Date
56	515.0	NW	433009 399884	Opencast Mining	1951
57I	530.0	SE	434003 398928	Air Shaft	1951
58J	531.0	NW	432874 399774	Colliery	1903
59I	531.0	SE	434009 398929	Disused Air Shaft	1966
60J	532.0	NW	432873 399777	Colliery	1938
61J	537.0	NW	432919 399750	Colliery	1951
62K	557.0	NW	432915 399712	Colliery	1903
63K	557.0	NW	432915 399712	Colliery	1891
64K	557.0	NW	432915 399712	Colliery	1938
65L	606.0	NE	434050 399648	Unspecified Shaft	1938
66L	606.0	NE	434050 399648	Air Shaft	1903
Not shown	610.0	S	433760 398644	Unspecified Old Shaft	1951
68L	615.0	NE	434052 399660	Unspecified Shaft	1951
Not shown	615.0	S	433763 398638	Unspecified Disused Shaft	1992
Not shown	615.0	S	433763 398638	Unspecified Disused Shaft	1980
Not shown	617.0	SE	433760 398636	Unspecified Old Shaft	1938
Not shown	619.0	S	433762 398630	Unspecified Disused Shaft	1966
Not shown	620.0	SE	433759 398633	Unspecified Old Shaft	1903
Not shown	638.0	N	433989 400132	Colliery	1951
75M	638.0	SE	434155 398962	Unspecified Shafts	1980
76	654.0	SE	434136 398901	Air Shaft	1938
77M	665.0	SE	434176 398946	Unspecified Shafts	1980
78	727.0	SE	434055 398697	Air Shaft	1903
Not shown	754.0	NW	433102 400037	Air Shaft	1938
Not shown	754.0	NW	433102 400037	Air Shaft	1903
Not shown	755.0	NW	433106 400042	Air Shaft	1965
Not shown	755.0	NW	433106 400042	Air Shaft	1977
Not shown	755.0	NW	433106 400042	Air Shaft	1951

ID	Distance (m)	Direction	NGR	Details	Date
84	772.0	NE	434069 399893	Pumping Shaft	1903
Not shown	822.0	SE	434078 398592	Unspecified Old Shaft	1903
Not shown	828.0	E	434516 399318	Old Ironstone Pits	1903
Not shown	828.0	E	434516 399318	Old Ironstone Pits	1938
Not shown	835.0	E	434431 399341	Old Ironstone Pits	1951
Not shown	849.0	E	434466 399253	Old Ironstone Pits	1951
Not shown	852.0	E	434449 399301	Old Ironstone Pits	1951
Not shown	898.0	E	434490 399325	Old Ironstone Pits	1951
Not shown	907.0	S	433652 398278	Old Ironstone Pits	1938
Not shown	907.0	S	433652 398278	Old Ironstone Pits	1903
Not shown	910.0	SE	434092 398481	Old Ironstone Pit	1938
Not shown	910.0	SE	434092 398481	Old Ironstone Pit	1903
Not shown	922.0	E	434518 399286	Old Ironstone Pits	1951
Not shown	934.0	E	434530 399356	Old Ironstone Pits	1951
Not shown	958.0	S	433623 398231	Old Ironstone Pits	1938
Not shown	958.0	S	433623 398231	Old Ironstone Pit	1903
Not shown	961.0	E	434556 399310	Old Ironstone Pits	1951
Not shown	962.0	S	433728 398228	Old Ironstone Pits	1938
Not shown	962.0	S	433728 398228	Old Ironstone Pit	1903
Not shown	962.0	NE	434089 400133	Air Shaft	1938
Not shown	962.0	NE	434089 400133	Air Shaft	1903
Not shown	975.0	E	434578 399396	Old Ironstone Pits	1951
Not shown	988.0	N	433834 400365	Drift	1938
Not shown	989.0	N	433806 400362	Unspecified Drift	1903
Not shown	1000.0	S	433852 398156	Old Ironstone Pits	1938
Not shown	1000.0	S	433852 398156	Old Ironstone Pits	1903

5.2 Coal Mining

This dataset provides information as to whether the study site lies within a known coal mining affected area as defined by the coal authority.

Are there any Coal Mining areas within 1000m of the study site boundary? Yes

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

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

5.3 Johnson Poole and Bloomer

This dataset provides information as to whether the study site lies within an area where JPB hold information relating to mining.

Are there any JPB Mining areas within 1000m of the study site boundary? No

The following information provided by JPB is not represented on mapping: Database searched and no data found.

5.4 Non-Coal Mining

This dataset provides information as to whether the study site lies within an area which may have been subject to non-coal historic mining.

Are there any Non-Coal Mining areas within 1000m of the study site boundary? Yes

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

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
1	0.0	On Site	Sheffield Area	Vein Mineral/Iron ore	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
2	0.0	On Site	Not available	Ironstone (bedded)	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
3	462.0	E	Not available	Iron Ore (Bedded)	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
Not shown	618.0	N	Sheffield Area	Vein Mineral/Iron ore	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
Not shown	686.0	SE	Not available	Ironstone (bedded)	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
Not shown	834.0	S	Not available	Ironstone (bedded)	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
Not shown	853.0	NE	Not available	Iron Ore (Bedded)	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered

5.5 Non-Coal Mining Cavities

This dataset provides information from the Peter Brett Associates (PBA) mining cavities database (compiled for the national study entitled “Review of mining instability in Great Britain, 1990” PBA has also continued adding to this database) on mineral extraction by mining.

Are there any Non-Coal Mining cavities within 1000m of the study site boundary? No

Database searched and no data found.

5.6 Natural Cavities

This dataset provides information based on Peter Brett Associates natural cavities database.

Are there any Natural Cavities within 1000m of the study site boundary? No

Database searched and no data found.

5.7 Brine Extraction

This data provides information from the Coal Authority issued on behalf of the Cheshire Brine Subsidence Compensation Board.

Are there any Brine Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.8 Gypsum Extraction

This dataset provides information on Gypsum extraction from British Gypsum records.

Are there any Gypsum Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.9 Tin Mining

This dataset provides information on tin mining areas and is derived from tin mining records. This search is based upon postcode information to a sector level..

Are there any Tin Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.10 Clay Mining

This dataset provides information on Kaolin and Ball Clay mining from relevant mining records.

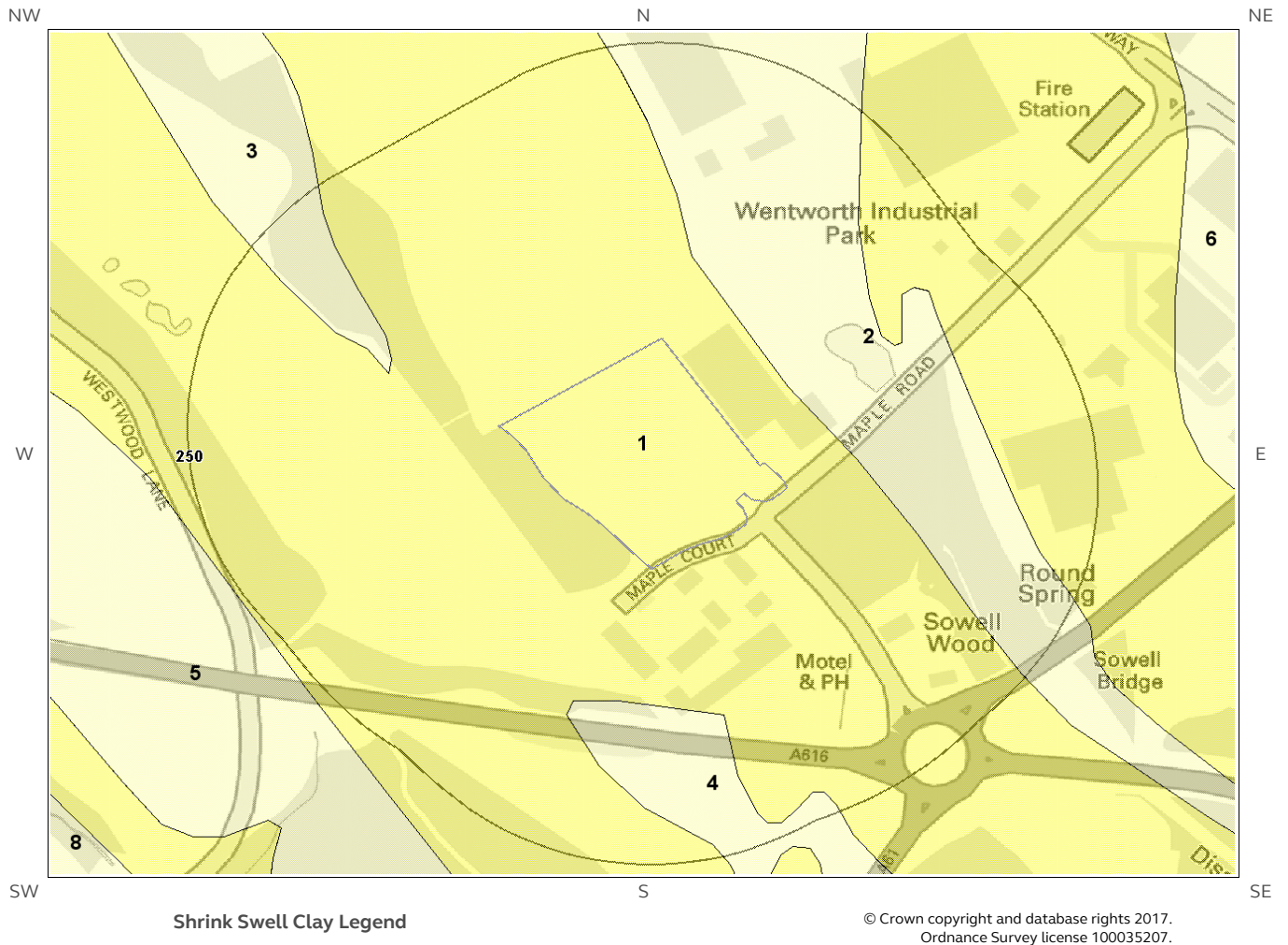
Are there any Clay Mining areas within 1000m of the study site boundary?

No

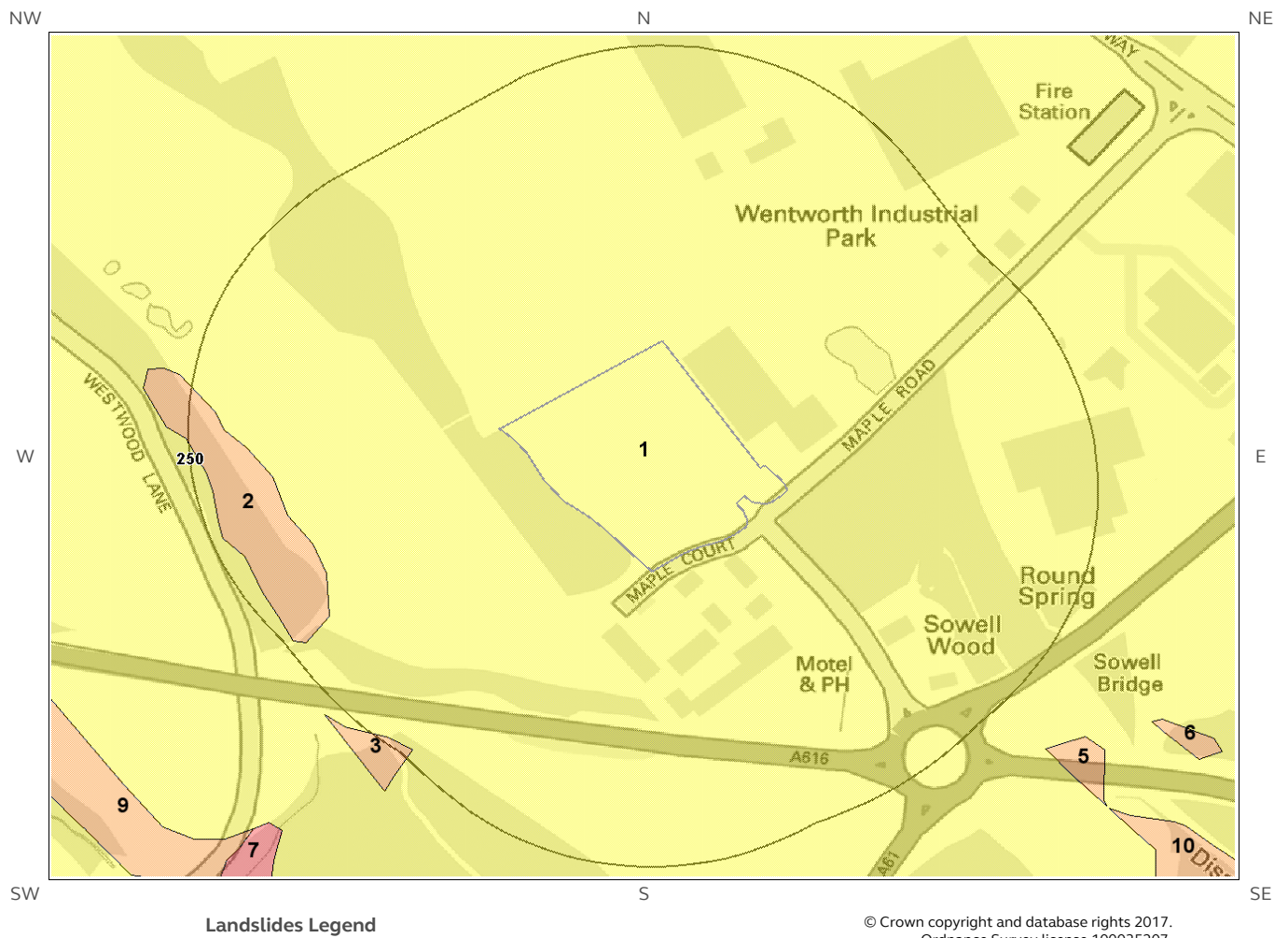
Database searched and no data found.

6 Natural Ground Subsidence

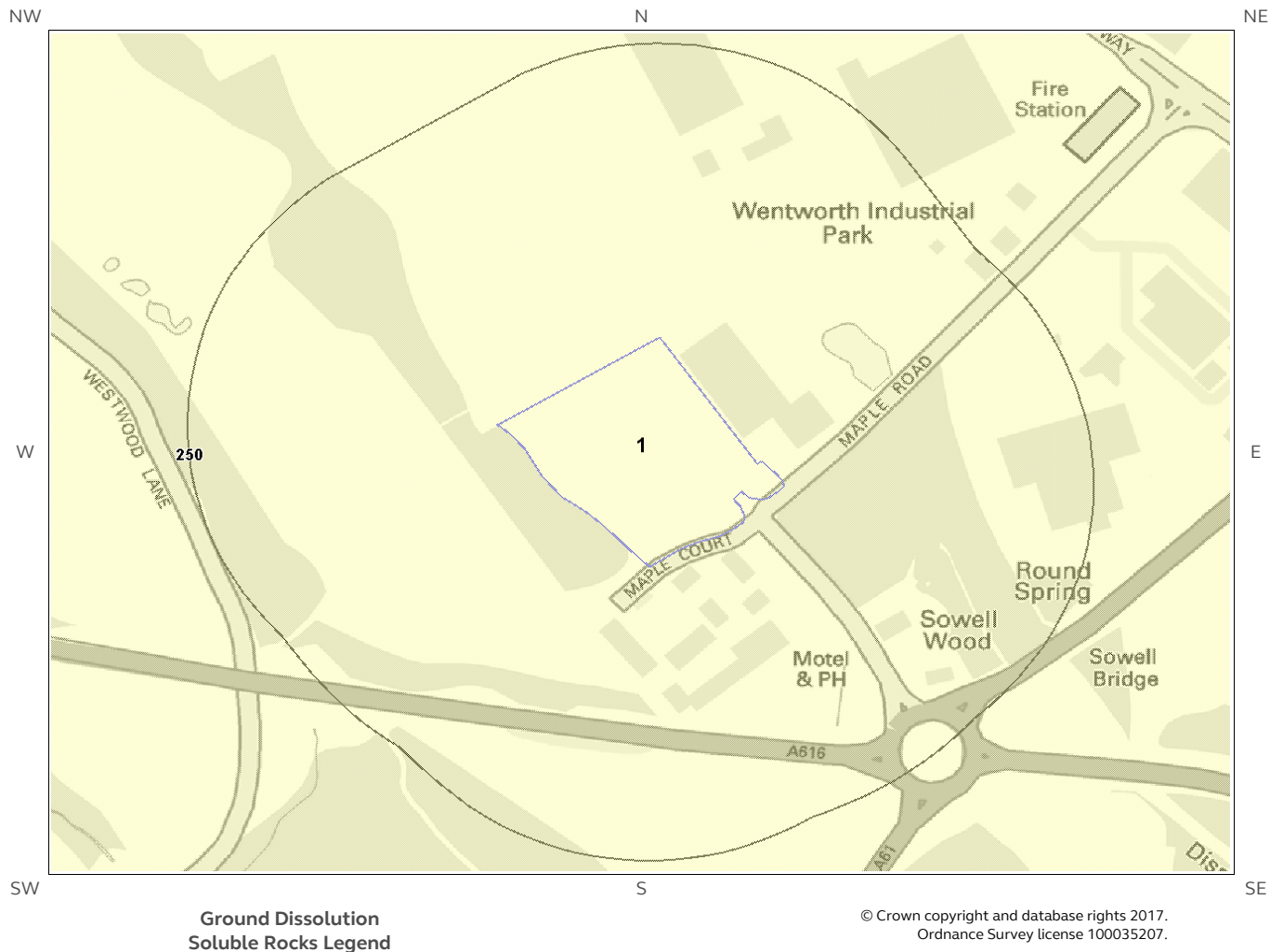
6.1 Shrink-Swell Clay Map



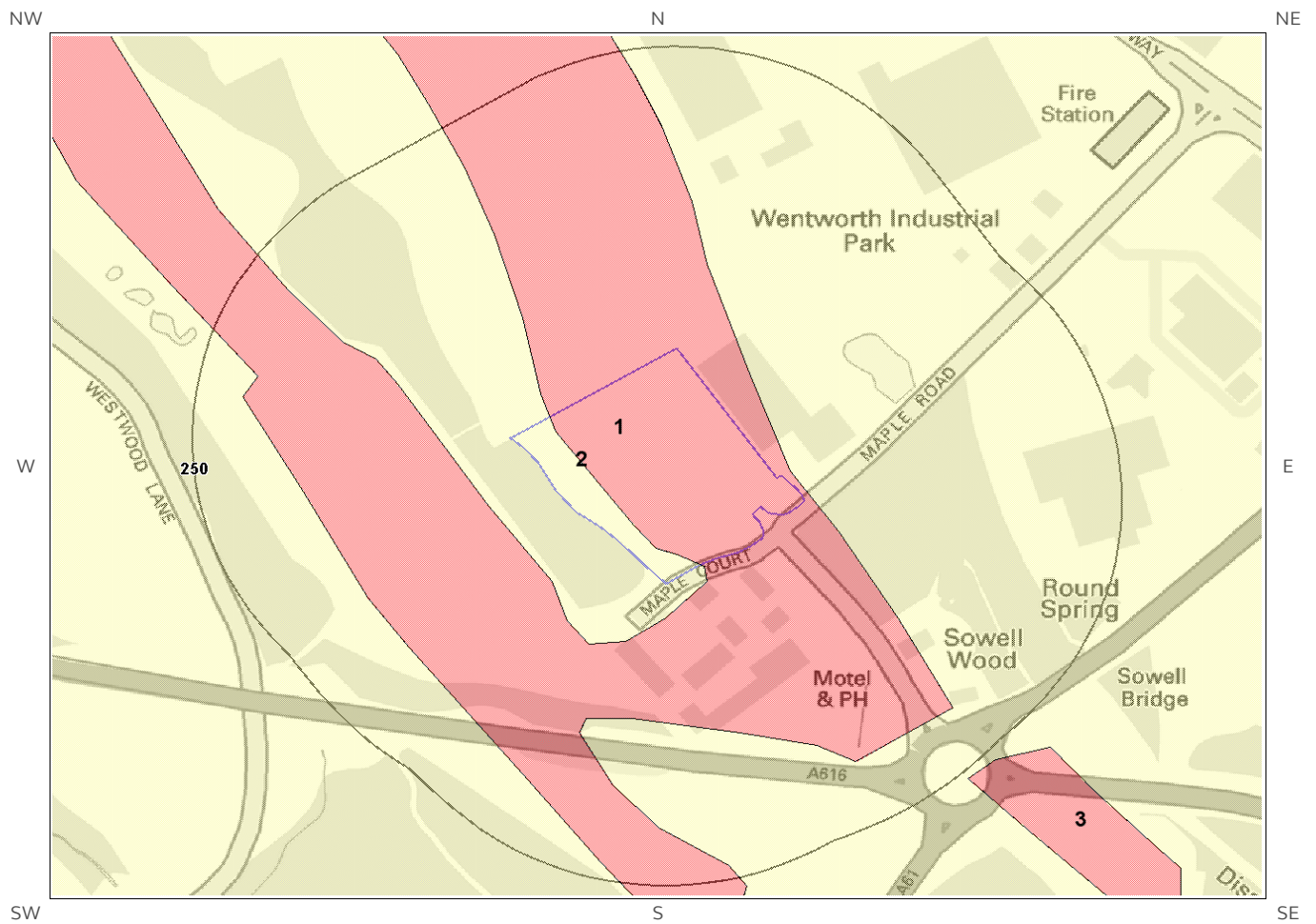
6.2 Landslides Map



6.3 Ground Dissolution of Soluble Rocks Map



6.4 Compressible Deposits Map

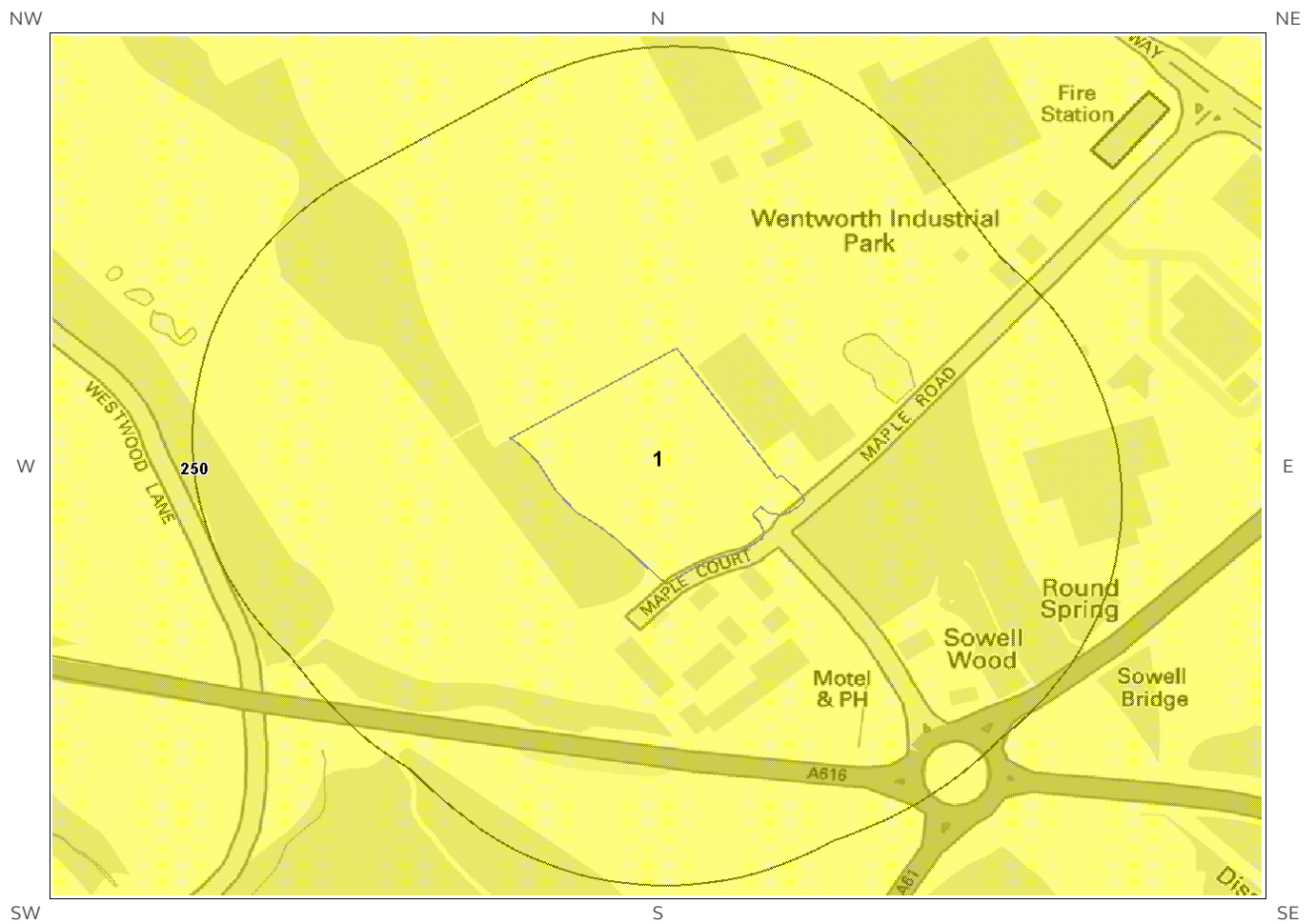


Compressible Deposits Legend

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6.5 Collapsible Deposits Map

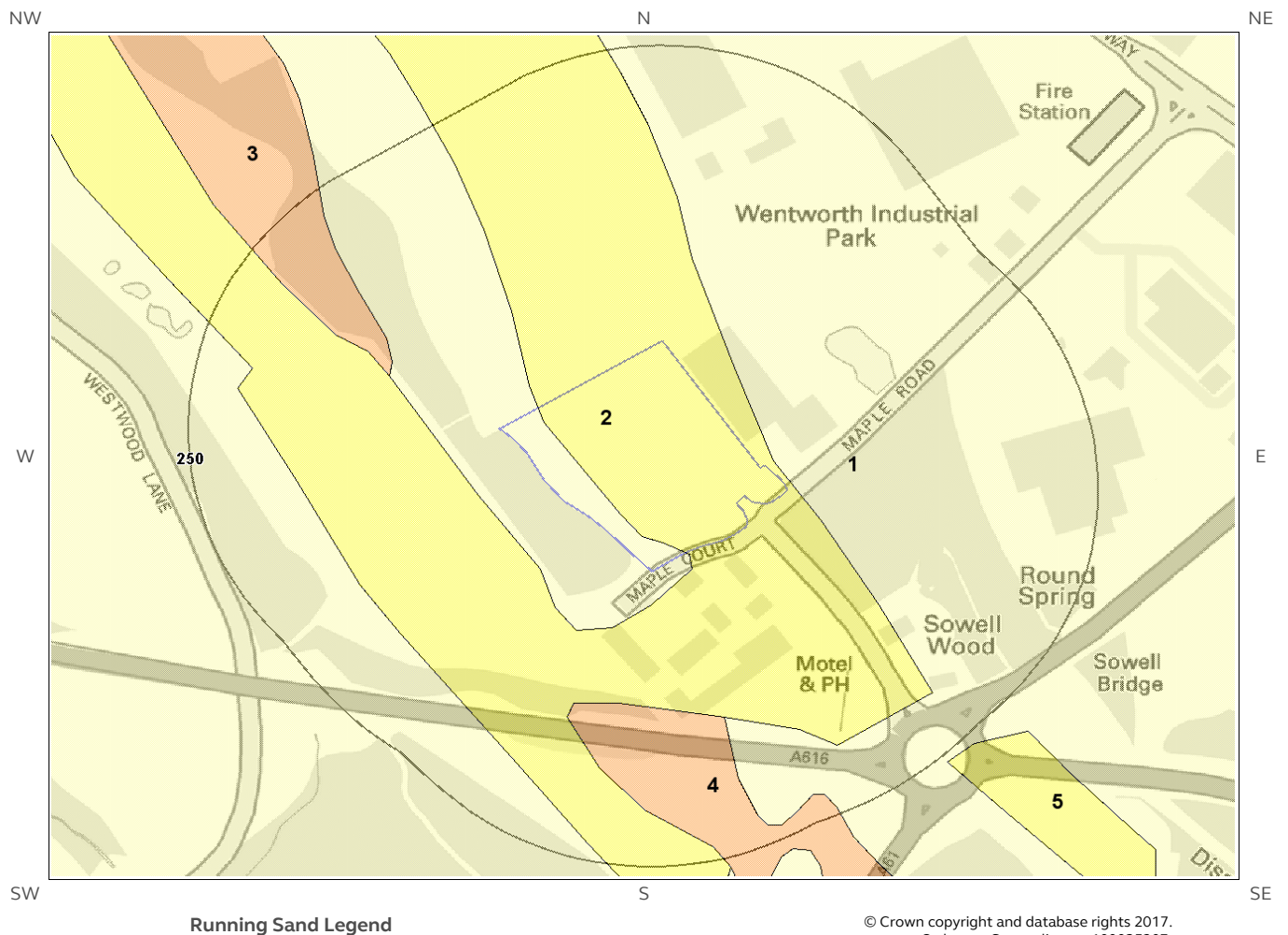


Collapsible Deposits Legend

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6.6 Running Sand Map



6 Natural Ground Subsidence

The National Ground Subsidence rating is obtained through the 6 natural ground stability hazard datasets, which are supplied by the British Geological Survey (BGS).

The following GeoSure data represented on the mapping is derived from the BGS Digital Geological map of Great Britain at 1:50,000 scale.

What is the maximum hazard rating of natural subsidence within the study site** boundary? Moderate

6.1 Shrink-Swell Clays

The following Shrink Swell information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.

6.2 Landslides

The following Landslides information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

6.3 Ground Dissolution of Soluble Rocks

The following Ground Dissolution information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

* This includes an automatically generated 50m buffer zone around the site

6.4 Compressible Deposits

The following Compressible Deposits information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Moderate	Significant potential for compressibility problems. Avoid large differential loadings of ground. Do not drain or de-water ground near the property without technical advice. For new build - consider possibility of compressible ground in ground investigation, construction and building design. Consider effects of groundwater changes. Extra construction costs are likely. For existing property - possible increase in insurance risk from compressibility, especially if water conditions or loading of the ground change significantly.
2	0.0	On Site	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

6.5 Collapsible Deposits

The following Collapsible Rocks information provided by the British Geological Survey:

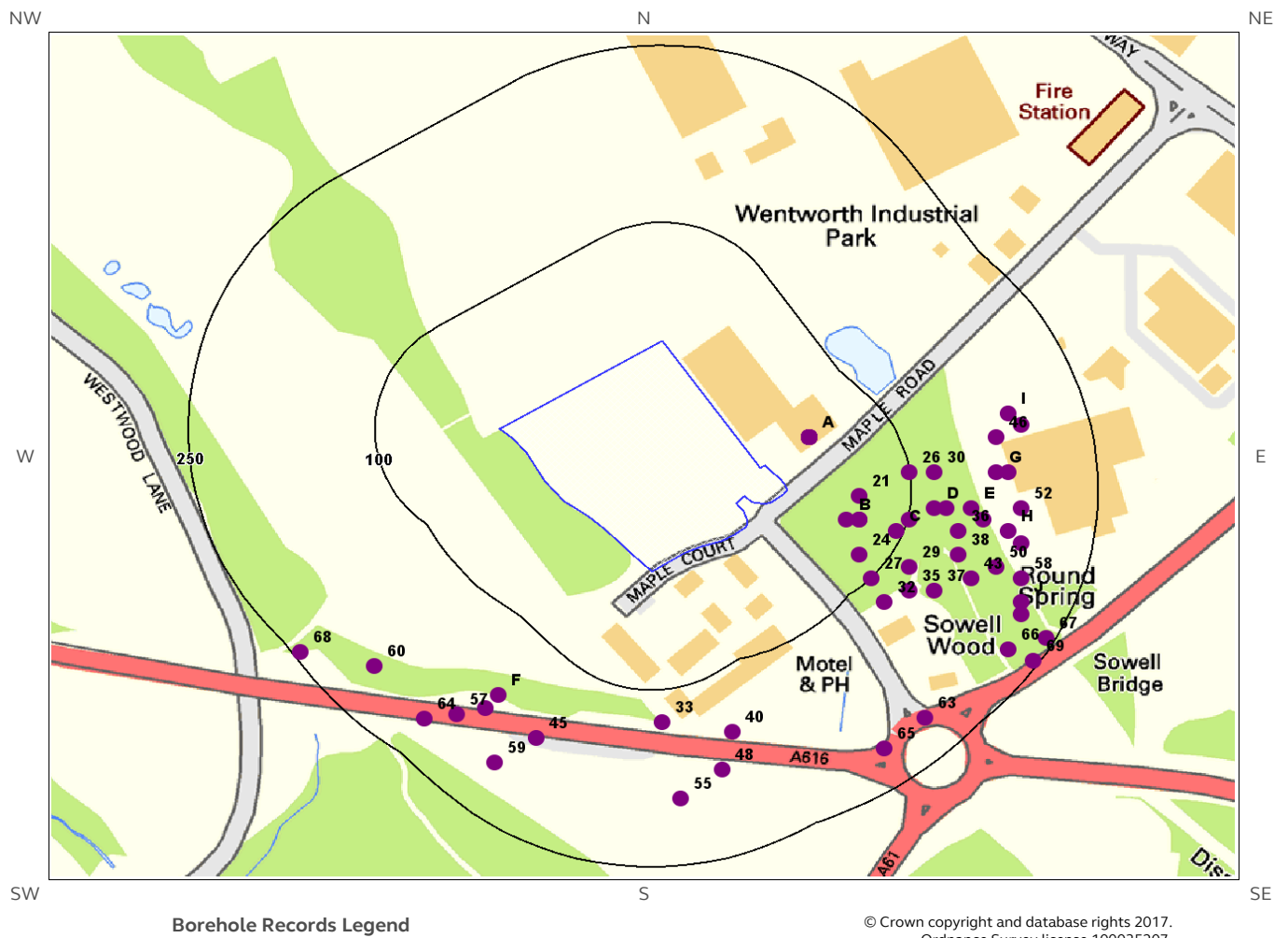
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

6.6 Running Sands

The following Running Sands information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for running sand identified. No special actions required to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.
2	0.0	On Site	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

7 Borehole Records Map



7 Borehole Records

The systematic analysis of data extracted from the BGS Borehole Records database provides the following information.

Records of boreholes within 250m of the study site boundary:

69

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1A	42.0	NE	433600 399300	SK39NW127	30.0	WENTWORTH INDUST' PARK P2
2A	42.0	NE	433600 399300	SK39NW126	25.0	WENTWORTH INDUST' PARK P1
3A	42.0	NE	433600 399300	SK39NW123	11.0	WENTWORTH INDUST' PARK 2
4A	42.0	NE	433600 399300	SK39NW120	2.0	WENTWORTH INDUST' PARK TP T11
5A	42.0	NE	433600 399300	SK39NW116	4.0	WENTWORTH INDUST' PARK TP T7
6A	42.0	NE	433600 399300	SK39NW113	3.0	WENTWORTH INDUST' PARK TP T4
7A	42.0	NE	433600 399300	SK39NW110	1.0	WENTWORTH INDUST' PARK TP T1
8A	42.0	NE	433600 399300	SK39NW122	5.0	WENTWORTH INDUST' PARK 1
9A	42.0	NE	433600 399300	SK39NW114	3.0	WENTWORTH INDUST' PARK TP T5
10A	42.0	NE	433600 399300	SK39NW117	4.0	WENTWORTH INDUST' PARK TP T8
11A	42.0	NE	433600 399300	SK39NW115	2.0	WENTWORTH INDUST' PARK TP T6
12A	42.0	NE	433600 399300	SK39NW128	31.0	WENTWORTH INDUST' PARK P3
13A	42.0	NE	433600 399300	SK39NW121	2.0	WENTWORTH INDUST' PARK TP T12
14A	42.0	NE	433600 399300	SK39NW124	9.0	WENTWORTH INDUST' PARK 3
15A	42.0	NE	433600 399300	SK39NW119	3.0	WENTWORTH INDUST' PARK TP T10
16A	42.0	NE	433600 399300	SK39NW112	3.0	WENTWORTH INDUST' PARK TP T3
17A	42.0	NE	433600 399300	SK39NW125	10.0	WENTWORTH INDUST' PARK 4
18A	42.0	NE	433600 399300	SK39NW111	3.0	WENTWORTH INDUST' PARK TP T2
19A	42.0	NE	433600 399300	SK39NW118	1.0	WENTWORTH INDUST' PARK TP T9
20B	54.0	SE	433630 399230	SK39NW267	4.0	TANKERSLEY,SHEFFIELD TT 4A
21	58.0	E	433640 399250	SK39NW254	3.0	TANKERSLEY,SHEFFIELD TP 5
22B	63.0	SE	433640 399230	SK39NW238	7.0	TANKERSLEY,SHEFFIELD 1

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
23B	63.0	SE	433640 399230	SK39NW268	1.0	TANKERSLEY,SHEFFIELD TT 4B
24	80.0	SE	433640 399200	SK39NW251	3.0	TANKERSLEY,SHEFFIELD TP 2
25C	95.0	E	433670 399220	SK39NW253	3.0	TANKERSLEY,SHEFFIELD TP 4
26	99.0	E	433680 399270	SK39NW257	3.0	TANKERSLEY,SHEFFIELD TP 8
27	101.0	SE	433650 399180	SK39NW250	3.0	TANKERSLEY,SHEFFIELD TP 1
28C	101.0	E	433680 399230	SK39NW240	21.0	TANKERSLEY,SHEFFIELD 3
29	118.0	SE	433680 399190	SK39NW252	3.0	TANKERSLEY,SHEFFIELD TP 3
30	119.0	E	433700 399270	SK39NW242	40.0	TANKERSLEY,SHEFFIELD 5
31D	119.0	E	433700 399240	SK39NW256	3.0	TANKERSLEY,SHEFFIELD TP 7
32	122.0	SE	433660 399160	SK39NW265	4.0	TANKERSLEY,SHEFFIELD TT 1A
33	128.0	S	433482 399058	SK39NW61	17.82	A616 WORTLEY TO M1 BH622
34D	129.0	E	433710 399240	SK39NW271	4.0	TANKERSLEY,SHEFFIELD TT 9
35	130.0	SE	433680 399170	SK39NW266	3.0	TANKERSLEY,SHEFFIELD TT 1B
36	142.0	E	433720 399220	SK39NW270	3.0	TANKERSLEY,SHEFFIELD TT 7
37	146.0	SE	433700 399170	SK39NW239	23.0	TANKERSLEY,SHEFFIELD 2
38	148.0	E	433720 399200	SK39NW241	24.0	TANKERSLEY,SHEFFIELD 4
39E	149.0	E	433730 399240	SK39NW243	45.0	TANKERSLEY,SHEFFIELD 6
40	151.0	SE	433538 399050	SK39NW64	16.85	A616 WORTLEY TO M1 BH624
41E	160.0	E	433740 399230	SK39NW258	3.0	TANKERSLEY,SHEFFIELD TP 9
42F	161.0	SW	433350 399081	SK39NW59	15.0	A616 WORTLEY TO M1 BH621
43	166.0	SE	433730 399180	SK39NW255	3.0	TANKERSLEY,SHEFFIELD TP 6
44G	168.0	E	433750 399270	SK39NW260	3.0	TANKERSLEY,SHEFFIELD TP 11
45	169.0	SW	433381 399045	SK39NW60	3.3	A616 WORTLEY TO M1 TP715
46	173.0	E	433750 399300	SK39NW273	4.0	TANKERSLEY,SHEFFIELD TT 12
47F	176.0	SW	433340 399070	SK39NW57	3.7	A616 WORTLEY TO M1 TP748
48	177.0	S	433530 399018	SK39NW63	1.7	A616 WORTLEY TO M1 TP716
49G	178.0	E	433760 399270	SK39NW248	45.0	TANKERSLEY,SHEFFIELD 11
50	180.0	E	433750 399190	SK39NW269	3.0	TANKERSLEY,SHEFFIELD TT 6
51H	181.0	E	433760 399220	SK39NW247	48.0	TANKERSLEY,SHEFFIELD 10

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
52	188.0	E	433770 399240	SK39NW272	5.0	TANKERSLEY,SHEFFIELD TT 11
53I	189.0	E	433760 399320	SK39NW249	39.0	TANKERSLEY,SHEFFIELD 12
54H	193.0	E	433770 399210	SK39NW263	3.0	TANKERSLEY,SHEFFIELD TP 15
55	194.0	S	433497 398994	SK39NW62	16.38	A616 WORTLEY TO M1 BH623
56I	195.0	E	433770 399310	SK39NW264	3.0	TANKERSLEY,SHEFFIELD TP 16
57	195.0	SW	433317 399065	SK39NW56	4.3	A616 WORTLEY TO M1 TP747
58	202.0	E	433770 399180	SK39NW246	47.0	TANKERSLEY,SHEFFIELD 9
59	206.0	SW	433347 399024	SK39NW58	10.0	A616 WORTLEY TO M1 BH620
60	207.0	SW	433251 399106	SK39NW54	3.5	A616 WORTLEY TO M1 TP714
61J	211.0	SE	433770 399160	SK39NW262	4.0	TANKERSLEY,SHEFFIELD TP 14
62J	215.0	SE	433770 399150	SK39NW245	45.0	TANKERSLEY,SHEFFIELD 8
63	216.0	SE	433693 399062	SK39NW68	1.4	A616 WORTLEY TO M1 TP739
64	216.0	SW	433291 399061	SK39NW55	3.8	A616 WORTLEY TO M1 TP749
65	217.0	SE	433660 399036	SK39NW65	10.0	A616 WORTLEY TO M1 BH625
66	224.0	SE	433760 399120	SK39NW259	3.0	TANKERSLEY,SHEFFIELD TP 10
67	243.0	SE	433790 399130	SK39NW261	4.0	TANKERSLEY,SHEFFIELD TP 13
68	244.0	SW	433191 399118	SK39NW53	20.23	A616 WORTLEY TO M1 BH619
69	246.0	SE	433780 399110	SK39NW244	42.0	TANKERSLEY,SHEFFIELD 7

The borehole records are available using the hyperlinks below: Please note that if the donor of the borehole record has requested the information be held as commercial-in-confidence, the additional data will be held separately by the BGS and a formal request must be made for its release.

#1A: scans.bgs.ac.uk/sobi_scans/boreholes/215612
#2A: scans.bgs.ac.uk/sobi_scans/boreholes/215611
#3A: scans.bgs.ac.uk/sobi_scans/boreholes/215608
#4A: scans.bgs.ac.uk/sobi_scans/boreholes/215605
#5A: scans.bgs.ac.uk/sobi_scans/boreholes/215601
#6A: scans.bgs.ac.uk/sobi_scans/boreholes/215598
#7A: scans.bgs.ac.uk/sobi_scans/boreholes/215595
#8A: scans.bgs.ac.uk/sobi_scans/boreholes/215607
#9A: scans.bgs.ac.uk/sobi_scans/boreholes/215599
#10A: scans.bgs.ac.uk/sobi_scans/boreholes/215602
#11A: scans.bgs.ac.uk/sobi_scans/boreholes/215600
#12A: scans.bgs.ac.uk/sobi_scans/boreholes/215613
#13A: scans.bgs.ac.uk/sobi_scans/boreholes/215606
#14A: scans.bgs.ac.uk/sobi_scans/boreholes/215609
#15A: scans.bgs.ac.uk/sobi_scans/boreholes/215604
#16A: scans.bgs.ac.uk/sobi_scans/boreholes/215597
#17A: scans.bgs.ac.uk/sobi_scans/boreholes/215610
#18A: scans.bgs.ac.uk/sobi_scans/boreholes/215596
#19A: scans.bgs.ac.uk/sobi_scans/boreholes/215603
#20B: scans.bgs.ac.uk/sobi_scans/boreholes/215752
#21: scans.bgs.ac.uk/sobi_scans/boreholes/215739
#22B: scans.bgs.ac.uk/sobi_scans/boreholes/215723
#23B: scans.bgs.ac.uk/sobi_scans/boreholes/215753
#24: scans.bgs.ac.uk/sobi_scans/boreholes/215736
#25C: scans.bgs.ac.uk/sobi_scans/boreholes/215738
#26: scans.bgs.ac.uk/sobi_scans/boreholes/215742
#27: scans.bgs.ac.uk/sobi_scans/boreholes/215735
#28C: scans.bgs.ac.uk/sobi_scans/boreholes/215725
#29: scans.bgs.ac.uk/sobi_scans/boreholes/215737
#30: scans.bgs.ac.uk/sobi_scans/boreholes/215727
#31D: scans.bgs.ac.uk/sobi_scans/boreholes/215741
#32: scans.bgs.ac.uk/sobi_scans/boreholes/215750
#33: scans.bgs.ac.uk/sobi_scans/boreholes/215546
#34D: scans.bgs.ac.uk/sobi_scans/boreholes/215756
#35: scans.bgs.ac.uk/sobi_scans/boreholes/215751
#36: scans.bgs.ac.uk/sobi_scans/boreholes/215755
#37: scans.bgs.ac.uk/sobi_scans/boreholes/215724
#38: scans.bgs.ac.uk/sobi_scans/boreholes/215726
#39E: scans.bgs.ac.uk/sobi_scans/boreholes/215728
#40: scans.bgs.ac.uk/sobi_scans/boreholes/215549
#41E: scans.bgs.ac.uk/sobi_scans/boreholes/215743
#42F: scans.bgs.ac.uk/sobi_scans/boreholes/215544
#43: scans.bgs.ac.uk/sobi_scans/boreholes/215740
#44G: scans.bgs.ac.uk/sobi_scans/boreholes/215745
#45: scans.bgs.ac.uk/sobi_scans/boreholes/215545
#46: scans.bgs.ac.uk/sobi_scans/boreholes/215758
#47F: scans.bgs.ac.uk/sobi_scans/boreholes/215542
#48: scans.bgs.ac.uk/sobi_scans/boreholes/215548
#49G: scans.bgs.ac.uk/sobi_scans/boreholes/215733
#50: scans.bgs.ac.uk/sobi_scans/boreholes/215754
#51H: scans.bgs.ac.uk/sobi_scans/boreholes/215732
#52: scans.bgs.ac.uk/sobi_scans/boreholes/215757
#53I: scans.bgs.ac.uk/sobi_scans/boreholes/215734
#54H: scans.bgs.ac.uk/sobi_scans/boreholes/215748
#55: scans.bgs.ac.uk/sobi_scans/boreholes/215547
#56I: scans.bgs.ac.uk/sobi_scans/boreholes/215749

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#68: scans.bgs.ac.uk/sobi_scans/boreholes/215538
#69: scans.bgs.ac.uk/sobi_scans/boreholes/215729

8 Estimated Background Soil Chemistry

Records of background estimated soil chemistry within 250m of the study site boundary:

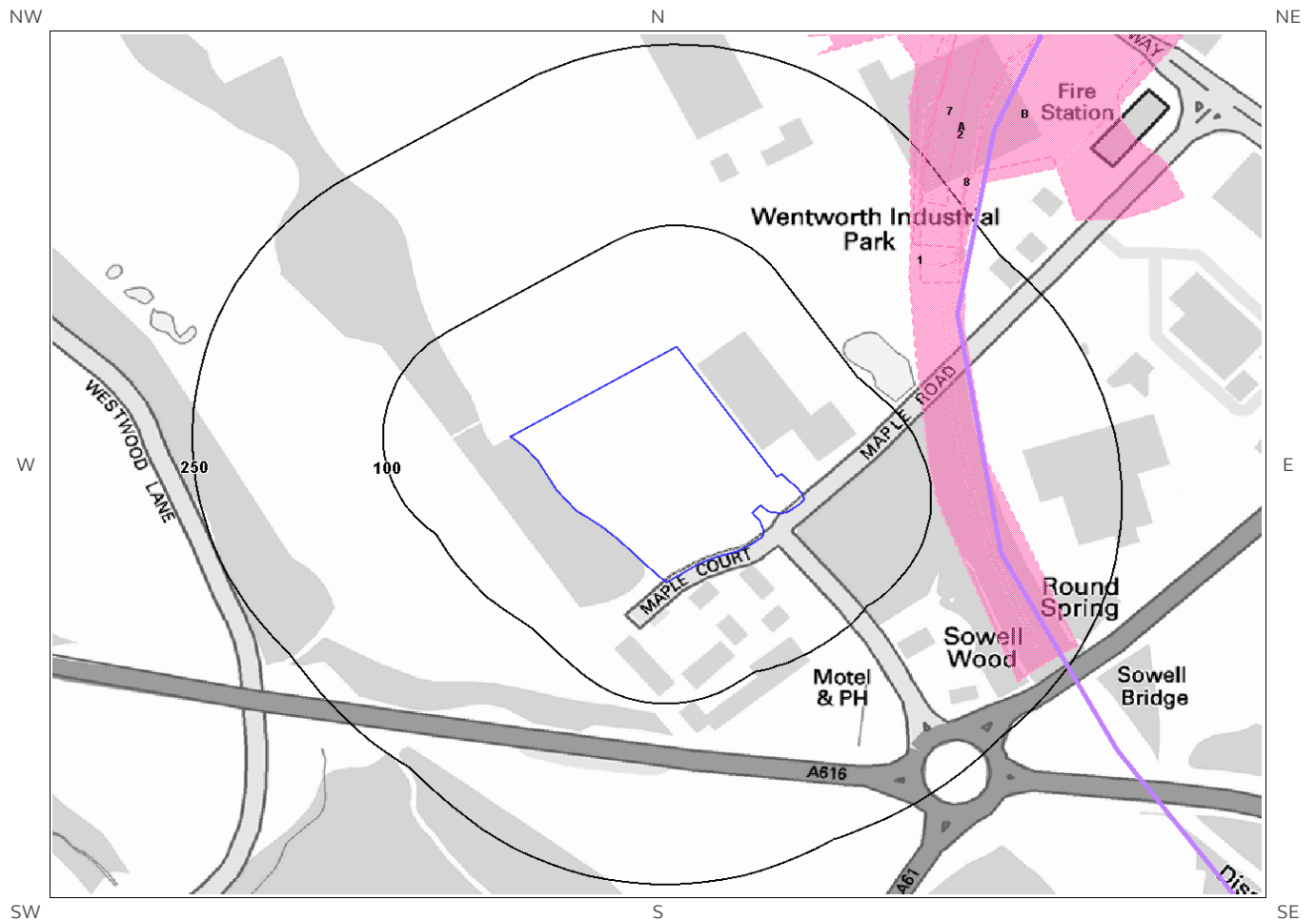
5

For further information on how this data is calculated and limitations upon its use, please see the Groundsure Geo Insight User Guide, available on request.

Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
25.0	NE	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
39.0	NE	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
42.0	SW	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg

*As this data is based upon underlying 1:50,000 scale geological information, a 50m buffer has been added to the search radius.

9 Railways and Tunnels Map



Railways and Tunnels Legend

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	Site Outline		Underground or Partially Underground Railway / Subway System		Railway Track (OpenStreetMap)
	Search Buffers (m)		Railway Tunnel (OS Mapping)		High Speed 2
			Abandoned or Dismantled Railway (OpenStreetMap)		High Speed 2 Revised Proposed Route
			Railway Track (OS Mapping)		Crossrail 1
					Railway and/or Tunnel Feature from Historical Mapping

9 Railways and Tunnels

9.1 Tunnels

This data is derived from OpenStreetMap and provides information on the possible locations of underground railway systems in the UK - the London Underground, the Tyne & Wear Metro and the Glasgow Subway.

Have any underground railway lines been identified within the study site boundary? No

Have any underground railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels Map.

This data is derived from Ordnance Survey mapping and provides information on the possible locations of railway tunnels forming part of the UK overground railway network.

Have any other railway tunnels been identified within the site boundary? No

Have any other railway tunnels been identified within 250m of the site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels Map.

9.2 Historical Railway and Tunnel Features

This data is derived from Groundsure's unique Historical Land-use Database and contains features relating to tunnels, railway tracks or associated works that have been identified from historical Ordnance Survey mapping.

Have any historical railway or tunnel features been identified within the study site boundary? No

Have any historical railway or tunnel features been identified within 250m of the study site boundary? Yes

ID	Distance (m)	Direction	NGR	Details	Date
1	102	E	433732 399554	Railway Sidings	1966
8	127	E	433705 399568	Railway Sidings	1956
2	186	NE	433713 399597	Railway Sidings	1948
3A	198	NE	433713 399595	Railway Sidings	1903
4A	198	NE	433713 399595	Railway Sidings	1938
5B	200	NE	433767 399725	Railway Sidings	1966

ID	Distance (m)	Direction	NGR	Details	Date
6B	200	NE	433767 399725	Railway Sidings	1951
7	226	NE	433700 399591	Railway Sidings	1891

Any records that have been identified are represented on the Railways and Tunnels Map.

9.3 Historical Railways

This data is derived from OpenStreetMap and provides information on the possible alignments of abandoned or dismantled railway lines in proximity to the study site.

Have any historical railway lines been identified within the study site boundary? No

Have any historical railway lines been identified within 250m of the study site boundary? Yes

Distance (m)	Direction	Status
145	E	Historical

Multiple sections of the same track may be listed in the detail above

Any records that have been identified are represented on the Railways and Tunnels Map.

9.4 Active Railways

These datasets are derived from Ordnance Survey mapping and OpenStreetMap and provide information on the possible locations of active railway lines in proximity to the study site.

Have any active railway lines been identified within the study site boundary? No

Have any active railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Multiple sections of the same track may be listed in the detail above

Any records that have been identified are represented on the Railways and Tunnels Map.

9.5 Railway Projects

These datasets provide information on the location of large scale railway projects High Speed 2 and Crossrail 1 .

Is the study site within 5km of the route of the High Speed 2 rail project? Yes

Is the study site within 500m of the route of the Crossrail 1 rail project? No

Further information on proximity to these routes, the project construction status and associated works can be obtained through the purchase of a Groundsure HS2 and Crossrail 1 Report.

The route data has been digitised from publicly available maps by Groundsure. The route as provided relates to the Crossrail 1 project only, and does not include any details of the Crossrail 2 project, as final details of the route for Crossrail 2 are still under consultation.

Please note that this assessment takes account of both the original Phase 2b proposed route and the amended route proposed in 2016. As the Phase 2b route is still under consultation, Groundsure are providing information on both options until the final route is formally confirmed. Practitioners should take account of this uncertainty when advising clients.

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info@groundsure.com



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Web: www.bgs.ac.uk



BGS Geological Hazards Reports and general geological enquiries

British Gypsum

British Gypsum Ltd
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The Coal Authority

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Tel: 0345 7626 848
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Standard Terms and Conditions

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<https://www.groundsure.com/terms-and-conditions-sept-2016/>

APPENDIX 5

COAL AUTHORITY MINING REPORT



The Coal
Authority

Resolving the **impacts** of mining

CON29M Non-Residential Mining Report

A SHADE GREENER LTD
STERLING HOUSE
MAPLE COURT
BARNLEY
SOUTH YORKSHIRE
S75



Date of enquiry:	04 April 2017
Date enquiry received:	04 April 2017
Issue date:	04 April 2017

Our reference:	51001404489001
Your reference:	HMD-214-3776044

CON29M Non-Residential Mining Report

This report is based on, and limited to, the records held by the Coal Authority and the Cheshire Brine Subsidence Compensation Board's records, at the time we answer the search.

Client name

GROUNDSURE LIMITED

Enquiry address

A SHADE GREENER LTD, STERLING HOUSE, MAPLE COURT, BARNSELY, SOUTH YORKSHIRE, S75

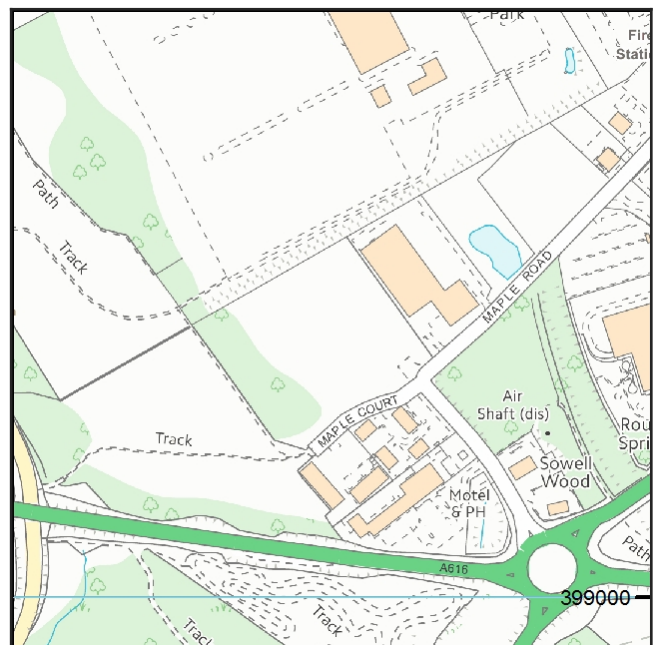
How to contact us

0345 762 6848 (UK)
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Nottinghamshire
NG18 4RG

www.groundstability.com

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



Approximate position of property



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Summary

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

Further recommended reports
Mine entry interpretive report
Mine entry plan and data sheets

For detailed findings, please go to page 4.

Detailed findings

1. Past underground coal mining

The property is in a surface area that could be affected by underground mining in 4 seams of coal at shallow to 180m depth, and last worked in 1920.

The property is in a surface area that could be affected by underground mining in 1 seam of ironstone at shallow depth, and last worked in 1841.

2. Present underground coal mining

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

3. Future underground coal mining

The property is not in an area where the Coal Authority has plans to grant a licence to remove coal using underground methods.

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

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

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

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

4. Mine entries

Within, or within 20 metres of, the boundary of the property there are 6 mine entries, the approximate positions of which are shown on the enquiry boundary plot.

Our records disclose the following information:

433399-038. Has been filled to an unknown specification.

433399-037. Has been filled to an unknown specification.

433399-021. Has been excavated by opencast mining.

433399-047. Has been excavated by opencast mining.

433399-035. Has been filled to an unknown specification.

433399-036. Has been filled to an unknown specification.

There may however be mine entries/additional mine entries in the local area which the Coal Authority has no knowledge of.

For an additional fee, the Coal Authority can provide a Mine Entry Interpretive Report. The report will provide a separate assessment for the mine entry/entries referred to in this report. It gives an opinion on the likelihood of mining subsidence damage caused from ground movement as a consequence of the mine entry/entries. It also gives details of the remedies available for subsidence damage where the mine entry was sunk in connection with coal mining.

Please note that it may not be possible to produce a report if the main building to the property cannot be identified from Coal Authority plans (ie for development sites and new build).

For further advice on how to order this additional information please visit www.groundstability.com.

5. Coal mining geology

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

6. Past opencast coal mining

The property is within the boundary of an opencast site from which coal has been removed by opencast methods.

7. Present opencast coal mining

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

8. Future opencast coal mining

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

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

9. Coal mining subsidence

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

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

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

10. Mine gas

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

11. Hazards related to coal mining

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

12. Withdrawal of support

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

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

13. Working facilities order

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

14. Payments to owners of former copyhold land

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

15. Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

Comments on the Coal Authority information

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

The boundary plot shows the approximate location of the disused mine entry/entries referred to in this report. For reasons of clarity, mine entry symbols may not be drawn to the same scale as the plan.

Property owners have the benefit of statutory protection (under the Coal Mining Subsidence Act 1991*). This contains provision for the making good, to the reasonable satisfaction of the owner, of physical damage from disused coal mine workings including disused coal mine entries. A leaflet setting out the rights and obligations of either the Coal Authority or other responsible persons under the 1991 Act can be obtained by visiting www.groundstability.com.

If you wish to discuss the relevance of any of the information contained in this report, you should seek the advice of a qualified mining engineer or surveyor. If you or your advisor wish to examine the source plans from which the information has been taken, these are available to view, free of charge, at our Head Office in Mansfield. To book an appointment please ring 01623 637225. Should you or your advisor wish to carry out a physical investigation that may enter, disturb or interfere with any disused mine entry, prior permission of the owner must be sought. For coal mine entries, the owner will normally be the Coal Authority.

The Coal Authority, regardless of responsibility and in conjunction with other public bodies, provide an emergency call out facility in coalfield areas to assess the public safety implications of mining features (including disused mine entries). Our emergency telephone number is 01623 646333.

*Note, this Act does not apply where coal was worked or gotten by virtue of the grant of a gale in the Forest of Dean, or any other part of the Hundred of St. Briavels in the county of Gloucester.

In view of the mining circumstances a prudent developer would seek appropriate technical advice before any works are undertaken.

Therefore if development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before

beginning work on site. All proposals should apply good engineering practice developed for mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or mines of coal without the permission of the Coal Authority. Developers should be aware that the investigation of coal seams/former mines of coal may have the potential to generate and/or displace underground gases and these risks both under and adjacent to the development should be fully considered in developing any proposals. The need for effective measures to prevent gases entering into public properties either during investigation or after development also needs to be assessed and properly addressed. This is necessary due to the public safety implications of any development in these circumstances.

Additional remarks

Information provided by the Coal Authority in this report is compiled in response to the Law Society's Con29M Coal Mining and Brine Subsidence Claim enquiries. The said enquiries are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL. Please note that Brine Subsidence Claim enquiries are only relevant for England and Wales. This report is prepared in accordance with the Law Society's Guidance Notes 2006, the User Guide 2006 and the Coal Authority and Cheshire Brine Board's Terms and Conditions applicable at the time the report was produced.

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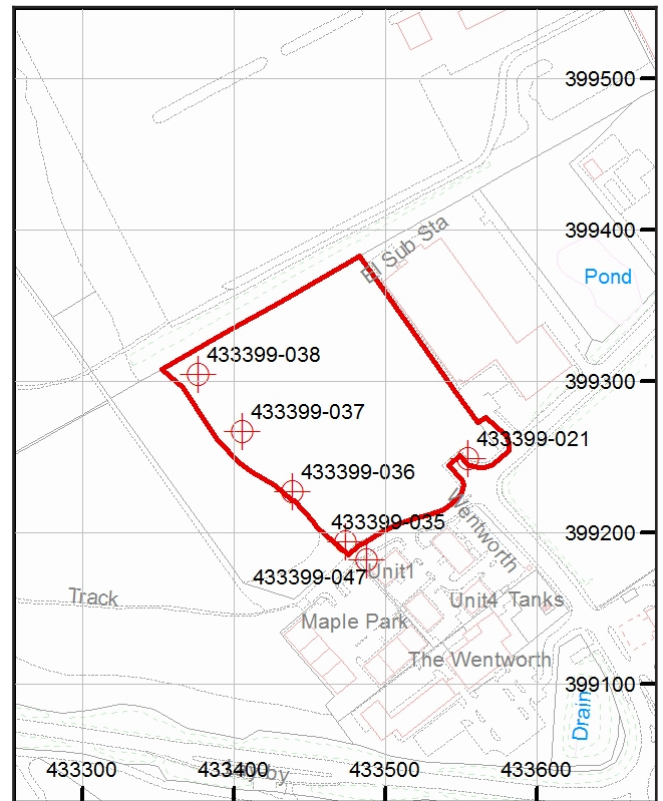
Enquiry boundary

Key

Approximate position of enquiry boundary shown



Disused mineshaft



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APPENDIX 6

CIRIA RISK CLASSIFICATION SCHEME

BWB RISK ASSESSMENT CLASSIFICATION (AFTER CIRIA REPORT C552, CONTAMINATED LAND RISK ASSESSMENT: A GUIDE TO GOOD PRACTICE, 2001)

CIRIA Report C552, Contaminated Land Risk Assessment A Guide to Good Practice, 2001 sets out a methodology for estimating risk. The methodology for risk evaluation is a qualitative method for interpreting the output for the risk estimation stage of the assessment. It involves the classification of the:

- Magnitude of the potential consequence (severity) of risk occurring
- Magnitude of the probability (likelihood) of the risk occurring

The classification of consequence and probability are set out in table A1 and A2 below

Table A1 Classification of Consequence

Classification	Definition	Examples
Severe (Sv)	Short term (acute) risk to human health likely to result in "significant harm" as defined by the Environment protection Act 1990, Part IIA. Short term risk of pollution of controlled waters. Catastrophic damage to buildings/property. A short-term risk to a particular ecosystem, or organism forming part of such ecosystem	High concentrations of cyanide on the surface of an informal recreation area Major spillage of contaminants from site into controlled water. Explosion causing building collapse (can also equate to a short term human health risk if buildings are occupied.)
Medium (Md)	Chronic damage to Human Health ("significant harm"). Pollution of controlled waters. A significant change in a particular ecosystem, or organism forming part of such ecosystem.	Concentrations of contaminants from site exceeding generic or site specific screening criteria Leaching of contaminants into a major or minor aquifer. Death of species within a designated nature reserve.
Mild (Mi)	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services. Damage to sensitive buildings/structures/services or the environment	Pollution of non-classified groundwater Damage to building rendering it unsafe to occupy. (e.g. foundation damage resulting in instability)
Minor (Mr)	Harm, although not necessarily significant harm, which may result in a financial loss, or expenditure to resolve. Non-permanent health effects to human health (easily prevented by measures such as protective clothing etc). Easily reparable effects of damage to buildings, structures and services	The presence of contaminants at such concentration that protective equipment is required during site works. The loss of plants in a landscaping scheme. Discolouration of concrete.

The classification of consequence does not take into account the probability of the consequence being realised. Therefore there may be more than one consequence for a particular pollutant linkage. Both a severe and medium classification can result in death. Severe relates to short term (acute) risk while medium relates to long term (chronic) risk. Mild relates to significant harm but to less sensitive receptors. Minor classification relates to harm which is not significant but could have a financial cost.

Table A2 Classification of Probability

Classification	Definition
High likelihood (Hi)	There is a pollutant linkage and an event that either appears very likely in the short term and almost inevitable in the long term, or there is evidence at the receptor or harm or pollution
Likely (Li)	There is a pollutant 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 (Lw)	There is a pollutant linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place and is less likely in the short term.
Unlikely (UI)	There is a pollutant linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

The classification gives a guide as to the severity and consequence of identified risk when compared with other risk presented on the site. It should be noted that if a risk is identified it cannot be classified as “no risk” but as “very low risk”. Differing stakeholders may have a different view on the acceptability of a risk.

Once the consequence and probability have been classified these can be compared using a matrix (Table A3) to identify an overall risk category. These categories and the actions required are categorised in Table A4

Table A3 Risk Evaluation Matrix

		Consequence			
		Severe (Sv)	Medium (Md)	Mild (Mi)	Minor (Mr)
Probability	High likelihood (Hi)	Very high risk (VH)	High Risk (H)	Moderate Risk (M)	Mod/low risk (M/L)
	Likely (Li)	High risk (H)	Moderate risk (M)	Mod/low risk (M/L)	Low risk (L)
	Low likelihood (Lw)	Moderate risk (M)	Mod/low risk (M/L)	Low risk (L)	Very low risk (VL)
	Unlikely (UI)	Mod/low risk (M/L)	Low risk (L)	Very low risk (VL)	Very low risk (VL)

Table A4 Risk Categorisations

Very high risk (VH)	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.
High risk (H)	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short-term and are likely over the longer-term.
Moderate risk (M)	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.
Low risk (L)	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.
Very low risk (VL)	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.

Reference

Rudland, D J, Lancefield, R M, Mayell, P N; 2001; Contaminated land Risk Assessment. A guide to Good Practice; CIRIA Report C552.

BWB



VPS
25

1990 - 2015

www.bwbconsulting.com