Proposed Development

Eastfield Road, Shepley

Reference	*KR*/GEODS/G25025
Client Name	Banks Group
Date	August 2025
Version	1**Error! No sequence specified.**

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CONFIDENTIALITY STATEMENT

This report is addressed to and may be relied upon by the following:

Banks Group

This Preliminary Investigation [desk study and site reconnaissance] report has been prepared for the sole use and reliance of the above-named parties. This report shall not be relied upon or transferred to any other parties without the express written authorisation of RWO Group. No responsibility will be accepted where this report is used, either in its entirety or in part, by any other party.

The Preliminary Investigation includes an assessment of third party information which could include; a Landmark Envirocheck report, consultation with the local Authority, preliminary unexploded ordnance [UXO] risk assessment prepared by Zetica Ltd, and online information including Multi-Agency Geographic Information for the Countryside [MAGIC], the Environment Agency [EA], the Coal Authority [CA] and the British Geological Survey (BGS) and others.

Where a site visit / walkover survey has been undertaken by RWO as part of this GEODS, RWO can only report features present at the site at the time of the visit. RWO cannot be held responsible for any feature/land use etc. associated with the site which may have been present either prior to or following the site visit. RWO cannot and does not guarantee the authenticity or reliability of third-party information it has relied upon.

This report has been produced in general accordance with the current relevant guidance and practice as set out within British Standard BS10175:2011 +A2:2017 – Investigation of potentially contaminated sites, BS EN ISO 21365:2020 – Soil quality – Conceptual site models for potentially contaminated sites, CIRIA C552 – Contaminated land risk assessment – A guide to good practice, the Environmental Agency [EA] Land Contamination Risk Management [LCRM] web pages and the National Planning Policy Framework [NPPF]. This report presents and interprets the factual information reviewed during this investigation and presents a Preliminary Conceptual Site Model [PCSM] from which ground-related hazards and risks have been assessed.

It has been assumed in the production of this report that ground levels will not change significantly from existing. If this is not the case, then amendments to the recommendations made in this report may be required.

Where the report refers to; the potential presence of invasive / toxic plants [such as Japanese knotweed, Himalayan Balsam etc], any other ecological related matter, archaeology or asbestos-containing materials, such observations are for information only and should be verified by a suitably qualified expert.

DOCUMENT HISTORY

VERSION	PURPOSE/DESCRIPTION	DATE
1	First Issue	August 2025

1.0 EXECUTIVE SUMMARY

RWO Associates Ltd were commissioned by Banks Group to provide a Preliminary Geoenvironmental Investigation of the site prior to its developed with residential dwellings; a proposed layout is not currently available. RWO's investigation included a review of desk study data and site walkover survey.

The site is located off Eastfield Road, Shepley, approximately 3.5km west of Skelmanthorpe town centre (NGR SE 230105). The site occupies an area of 4.58 hectares (11.3 acres) and predominantly comprises undeveloped agricultural land with some farm buildings in the central area.

A summary of salient geoenvironmental issues is provided in the table below.

Issue	Remarks
Made Ground	No made ground is recorded to be present on-site. However, some localised made ground may be present notably within the central area of the site where the farm buildings are present.
Natural Ground	The BGS GeoIndex Onshore map indicates that the site is not underlain by superficial deposits. The bedrock geology beneath site is recorded by BGS as the Pennine Lower Coal Measures Formation with Grenoside Sandstone in the northwest, undifferentiated Coal Measures in the centre and Penistone Flags mapped in the south/southeast of the site.
Contamination Linkages	The overall risk to current/future site users is **low** and the overall risk to constructions workers is **low** due to the limited potential contamination sources (localised made ground), with topsoil anticipated across the majority of the site although further investigation is recommended. The risk to groundwater is thought to be **low** due to the limited sources of potential contamination. However, due to the proximity of the nearby groundwater abstraction borehole, it is recommended a hydrological assessment is undertaken prior to any intrusive or development works on site.
Hazardous Gas	Historical plans indicate a number of areas of infilled land (quarry, coal pits, possible reservoir etc) within 250m of the site which may have the potential for gas generation/migration. In addition, 'springs' have been recorded within the site boundary which may contain organic material.
Mining & Quarrying	Based on the geological setting of the site and information provided by the MRA and the site is considered at risk from possible unrecorded shallow workings and further investigations works are required.
Anticipated Foundations	The bedrock geology is likely to be suitable for shallow strip foundations. However, if any low strength superficial/residual soils or deep made ground are present then alternative foundation options may be required. Further investigation is recommended to determine foundation options, the level of mining related risk and the nature of any mitigation requirements.
Groundwater & Excavations	Shallow perched groundwater may be encountered within excavations. Plant capable of breaking and excavating 'bedrock' maybe required for deeper excavations.

Issue	Remarks
Flooding	The site is not at risk from flooding, however it is recommended that a flood risk assessment is obtained for the site.

Some further work is required, most notably:

- A hydrological assessment for the site to determine the possible risk to the deeper groundwater below the site, notably with regard to the nearby abstraction borehole.

Subject to the findings of the above assessment:

- Programme of window sampling and/or trial pitting to investigate shallow ground conditions, allowing for in situ testing and to obtain soil samples for subsequent chemical and geotechnical tests.
- Shallow Mining Investigation using Rotary Open-hole Boreholes.
- Installation of monitoring wells within selected boreholes.
- A programme of ground Gas and Groundwater level monitoring
- Chemical and Geotechnical laboratory testing of soil samples collected on site.
- A contaminated land risk assessment and derivation of a Conceptual Site Model.
- Provision of recommendations for remediation of mining and/or ground contamination as required.
- Foundation recommendations.

2.0 INTRODUCTION

RWO Associates Ltd (RWO) was instructed by Banks Group (the Client) to undertake a Preliminary Geoenvironmental Investigation of land off Eastfield Road Shepley, prior to its proposed development comprising the construction of new residential properties and associated infrastructure.

This Preliminary Geoenvironmental Investigation is required to support planning, identify potential geotechnical and environmental issues affecting the site and, if necessary, design a suitable Phase II Ground Investigation.

General notes and limitations relevant to all geoenvironmental ground investigations are described in the aforementioned limitations statement which should be read in conjunction with this report.

The primary objectives of this Preliminary Investigation are to:

- Provide information on past and current uses of the site and surrounding area and the nature of any hazards and physical constraints.
- Identify current and likely future receptors, potential sources of contamination and likely pathways and any features of immediate concern, including those that could be introduced in the future.
- Identify any aspect of the site requiring immediate attention (e.g. hazardous substances accessible to trespassers or likely to be dispersed by wind or water).
- Provide information on the geology, mining history, geochemistry, soil, hydrogeology and hydrology of the site.
- Provide basic advice on ecological, unexploded ordnance (UXO) or archaeological considerations (although advice on such issues should always be sought from a specialist in each specific field).
- Identify potentially different sub-areas (zones) of a site, based on differing ground conditions, potential contamination, mining and past, present and future uses etc.
- Produce preliminary risk assessment and initial conceptual model for the site.
- Provide data to assist in the design of potential subsequent intrusive ground investigations and to give an early indication of possible remedial requirements.
- Provide information relevant to worker health and safety and to the protection of the environment during field investigations.
- Identify the need to involve regulatory bodies prior to intrusive investigation.

3.0 THE SITE

SITE LOCATION AND FEATURES

Information on the proposed development location is presented in the table below.

Detail	Remarks
Location	Eastfield Road, Shepley, HD8 8HB
NGR	SE197096
Site Area	c. 5.0 (Ha)
Known services	At present, no utility plans have been provided for the site. The Envirocheck report does not record any gas pipelines or underground electricity cables on site; however, overhead electricity cables were evident during the site walkover.

A Site Location Plan is presented as Figure 1 in Appendix A to this report.

The site is located to the east of Shepley village and comprises agricultural fields with an access track entering from the northern boundary to the central area of the site where farm buildings and some silo tanks are present. The site has an approximate area of 5.0 Ha.

A review of Google Earth information indicates that the site generally falls in a northeasterly direction with levels varying between c. 209m in the western corner to c. 195m AOD in the northern corner.

PROPOSED DEVELOPMENT

A proposed development layout is not currently available, however it is understood that the site is being considered for development with residential properties.

4.0 SITE HISTORY

In order to investigate the development history and previous land uses at the site and immediate surrounding land, site centred extracts from Ordnance Survey (OS) plans dating back to 1851 were examined. These plans are presented in Appendix B to this report.

The Table below provides a summary of the salient points relating to the history of the site with respect to the proposed end use. It is not the intention of this report to describe in detail all the changes that have occurred on or adjacent to the site. Significant former uses/operations are highlighted in bold text for ease of reference.

Date(s)	Site	Surrounding Land
1851-54	Undeveloped fields.	**Old Coal Pit** c. 100m east. Sandstone **quarries** c. 150m north and c. 500m east. Shepley village with associated amenities is shown c. 200m to the north/northwest Huddersfield and Sheffield Junction **Railway** c. 450m north.
1893-1984	No significant changes. **Springs** noted in northeast of the site.	Old Coal Pit to east is no longer shown. Victoria **Mill** (woollen) is adjacent to northeastern boundary of the site with associated **reservoirs** to the northeast and southeast. The **quarry** to the north is no longer evident (infilled?). Small **gas works** noted c. 325m to the north. **Railway line** to north now labelled as the Huddersfield and Penistone Line.
1906-1933	No significant changes. **Springs** no longer labelled.	c. 1932-33 war memorial c. 47m southwest Sandstone **quarry** to the east is no longer shown (infilled?) A school is now shown c. 150m west. Additional large building shown to northeast of Victoria **Mill.** **'Tanks'** shown c. 150m to c. 200m to northeast. **Saw Mill** shown c. 350m to the north.
1948-1955	No significant changes.	No significant changes.
1959-1960	No significant changes.	**Reservoir** to northeast no longer shown (infilled or covered?). Recreation Ground shown adjacent to southwestern boundary.
1969	No significant changes.	Former **reservoir** immediately southeast is now labelled as a pond. A **sub-station** is shown within Victoria **Mills**. Building northeast of Victoria **Mills** is labelled as Eastfield **Mills**.
1970-1984	No significant changes.	Housing shown to the immediate north and northwest. **Saw Mill** and **Gas Works** to north no longer labelled
1992-1999	**Track** indicated from north to centre of the site with 2 no. **farm buildings** and 'silos' (grain?) now shown.	**Mills** to the northeast appear to be commercial premises.
2003-2009	No significant changes.	No significant changes.
2013-2016	3 no. farm buildings now recorded.	No significant changes.
2024	Additional **silos** are present adjacent to the farm buildings.	No significant changes.

5.0 GEOLOGICAL AND ENVIRONMENTAL SETTING

GEOLOGY, MINING & QUARRYING

Sources of Information	BGS Online Geology of Britain viewer and BGS GeoIndex. BGS Lexicon of Named Rock Units. Mining Remediation Authority (MRA) Interactive Map Viewer. Coal Authority (now MRA) Consultant Mining Report Ref: 51003510739001 dated 9th July 2025 Envirocheck Report, Ref. 380914366_1, dated 08th July 2025, enclosed within Appendix B. UK Radon Maps (www.ukradon.org)
Made Ground	No made ground is shown to be present on-site, however due to the presence of farm buildings and farming activities localised areas of made ground may be present.
Superficial Geology	No superficial deposits are shown to be present across the site.
Solid Geology	The site is mapped to be underlain by Grenoside Sandstone in the northwest, undifferentiated Coal Measures in the centre and Penistone Flags in the south/southeast. All bedrock units are part of the Pennine Lower Coal Measures (PLCM) parent unit which comprise 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.
Linear Features	No faults, fissures or break lines. Coal outcrop within the centre/northeast of the site.
Mining and Quarrying	Mining: According to the MR's Interactive Map Viewer the site is within an area where a coal mining report should be obtained. Therefore, a Consultants Coal Mining Report has been obtained the contents of which are discussed below. The Interactive Map Viewer shows that the southeastern half of the site is within a 'development high risk' area due to a coal crop trending NE-SW through the site centre, with 'probable shallow working' noted to the southeast of the outcrop. A mine entry is recorded c. 90m east. The Envirocheck report states that the site is in an area which may be affected by coal mining activities. No man-made mining cavities or natural cavities are recorded in the Envirocheck. Quarrying: There are 4 no. BGS recorded mineral sites within 500m of the site. The closest been 74m east named Healey House Pit.

MRA Consultants Mining Report	The MRA Consultants Mining report for the site indicates (**significant findings in bold**); • No past mining underground mining is recorded beneath the site. • **The possibility of probable unrecorded shallow workings.** • No spine roadways at shallow depths. • **A mine entry, Ref 419409-001 approximately 90m east of the site. The details of any treatment are unknown.** • **Outcrop of the Crow seam through the centre of the site trending NE-SW, reported to be of workable thickness.** • No faults, fissures or breaklines are recorded. • No opencast mines or Coal Authority managed tips recorded within 500m of site. • No site investigations or remediation sites within 50m of site. • No damage notices or claims within 50m of the site since 31st October 1994, no current stop notices, and no requests to carry out preventive works. • No mine gas or mine water treatment schemes recorded within 500m of site. • No future mining licences recorded within 200m of site. • No court orders and no section 46 notices for the site. • Not in an area where a notice to withdraw support has been given.
Ground Stability Hazards	The ground stability hazards and associated risk listed within the site area are as follows: • Collapsible Ground – very low • Compressible Ground – no hazard • Ground Dissolution – no hazard • Landslides – very low • Running Sand – no hazard • Shrinking/Swelling of Clay – no hazard

BGS Boreholes	A number of historical borehole logs are shown to be held by the BGS around the site, brief details of some of these are provided below: **SE10NE20** located c. 20m to the northeast of site shows fill to 2mbgl, brown sandstone to 17mbgl, black shale to 36.50mbgl, grey mudstone with sand bands to 49.80mbgl and grey sandstone to 72.50mbgl. **SE20NE21** located c. 20m north of site shows fill to 0.30mbgl, brown sandstone to 15.80mbgl, black shale to 28.60mbgl, grey sandstone to 36.00mbgl, grey mudstone with sandstone bands to 48.30mbgl, grey sandstone to 77.00mbgl and grey mudstone to 83.00mbgl. **SE20NW39** located c. 200m southeast of site shows topsoil to 0.30mbgl, clay with sandstone bands to 2.80mbgl, grey mudstone to 8.00mbgl, sandstone to 14.60mbgl, grey mudstone with sandstone bands to 28.30mbgl, sandstone to 29.60mbgl, grey mudstone with sandstone bands to 37.50mbgl, black shale to 40.20mbgl, interbedded grey mudstone with sandstone bands, sandstone and black shale to 140mbgl. **SE20NW66** located c. 420m southeast shows topsoil to 0.30mbgl, clay to 1.80mbgl, mudstone/sandstone/shales to 12.30mbgl, coal to 12.90 (0.6m thick), mudstone/shale to 50.2mbgl, coal to 50.50m (0.3m thick), and mudstone/sandstone/shales to the base of the borehole at 129.5mbgl. **SE10NE24** located c. 500m south of site shows soil and clay to 4.20mbgl, grey mudstone to 43.08mbgl, interbedded sandstone, mudstone and siltstone to 304.56mbgl.
Radon	From Envirocheck the site is located within a low probability Radon Affected Area where no radon gas protective measures are required. The ukradon website indicates that the site is located within a 1km grid square where the maximum radon potential is 1-3% In accordance with the Health and Safety at Work etc Act 1974 and The Management of Health and Safety at Work Regulations 1999, employers are required to undertake risk assessment for potential exposure to radon gas in the following scenarios: • all below ground workplaces in the UK; and • all workplaces located in radon Affected Areas Further information can be provided by the Health and Safety Executive (HSE).

HYDROGEOLOGY & HYDROLOGY

Hydrogeology	The solid geology beneath site is classified as a Secondary A Aquifer, defined as permeable layers that can support local water supplies, and may form an important source of base flow to rivers. Groundwater vulnerability (combined) is designated as 'high' (Productive Bedrock Aquifer; No Superficial Aquifer)
Water Abstractions	18 No. within 250m of the site. • 17 No. relate to groundwater abstraction all associated with Eastfield Mills, The Knowle, Shepley (operator Penmoor UK Ltd for Food & Drink: Bottling Water). • 1 No. relates to surface water abstraction associated with Eastfield Mills, Shepley (operator J. Selwyn Smith Ltd for General Industrial).
SPZ	The site is situated within Zone 1 (inner protection zone) of a SPZ associated with groundwater abstraction at Eastfield Mills to the northeast of the site.
Water Network Lines/Surface Water Features	32 No. within 250m the majority relating to minor surface water features

LANDFILL, WASTE MANAGEMENT ACTIVITY AND INFILLED GROUND

Records regarding landfill, waste management activity, and infilled ground within 250m of the site are shown in the table below.

Record Type	No. Records Located on Site	No. Records within 250m of Site
BGS Recorded Landfill Sites	None	None
Historical Landfill Sites	None	None
Integrated Pollution Control Registered Waste Sites	None	None
Licenced Waste Management Facilities	None	None
Local Authority Recorded Landfill Sites	None	None
Registered Landfill Sites	None	None
Registered Waste Transfer Sites	None	None
Registered Waste Treatment or Disposal Sites	None	None
Potentially Infilled Land (Non-Water)	None	3 No. - recorded c. 67m east and c. 176m southeast associated with former coal pits and c. 194m northwest associated with former quarry.
Potentially Infilled Land (Water)	None	None

INDUSTRIAL LAND USE

Records of industrial land uses within 250m of the site are shown in the table below.

Record Type	No. Records Located On Site	No. Records within 250m of Site
Contemporary Trade Directory Entries	None	4 No. – closest recorded c. 69m northeast with classification noted as lighting manufacturers.
Current Petrol or Fuel Sites	None	None
Historic Petrol or Fuel Sites	None	None
Garage Services or Related Records	None	None
National Grid High Voltage Underground Electricity Transmission Cables	None	None
National Grid high-pressure Gas Transmission Pipelines	None	None
Historic Railways	None	None
Current/Active Railways	None	None

ENVIRONMENTAL PERMITS, INCIDENTS AND REGISTERS

The Envirocheck Report includes records of environmental permits, incidents, and registers within 250m of the site, which are summarised in the table below.

Record Type	No. Records Located On Site	No. Records within 250m of Site
Contaminated Land Register Entries & Notices	None	None
Discharge Consents	None	2 No. – closest c. 20m west associated with a septic tank at Shepley Outfitters, Football Club, Kirklees; receiving water noted as 'land adjacent to proposed changing room'.
Prosecutions Relating to Controlled Waters	None	None
Enforcement and Prohibition Notices	None	None
Integrated Pollution Controls (IPCs)	None	None
Integrated Pollution Prevention Controls (IPPCs)	None	None
Local Authority Integrated Pollution Prevention and Control	None	None

Record Type	No. Records Located On Site	No. Records within 250m of Site
Local Authority Pollution Prevention and Control	None	1 No. – c. 232m north relating to Shepley Coach Works; PG6/34 Respraying of road vehicles.
Local Authority Pollution Prevention and Control Enforcements	None	None
Pollution Incidents to Controlled Waters	None	None
Prosecutions Relating to Authorised Processes	None	None
Registered Radioactive Substances	None	None
Substantiated Pollution Incident Register Entries	None	1 No. – c. 239m west; Category 2 Significant I (Water Impact). Pollutant not identified.
Water Industry Act Referrals	None	None
Control of Major Accident Hazard Sites (COMAH)	None	None
Explosive Sites	None	None
Notification of Installations Handling Hazardous Substances (NIHHS)	None	None
Planning Hazardous Substance Consents	None	None
Planning Hazardous Substance Enforcements	None	None

ENVIRONMENTALLY SENSITIVE SITES

The Envirocheck Report includes records of environmentally sensitive sites located within 250m of the site, which are summarised below.

Record Type	No. Records Located On Site	No. Records within 250m of Site
Ancient Woodlands	None	1 No. – Yew Tree Wood c. 209m east
Adopted Green Belt Area	1 No. – Kirklees Metropolitan Borough Council; adopted March 1999.	None
Unadopted Green Belt Area	1 No. – Kirklees Metropolitan Borough Council; submission draft April 2017	None
Area of Outstanding Natural Beauty (AONB)	None	None

Record Type	No. Records Located On Site	No. Records within 250m of Site
Designated Environmentally Sensitive Areas	None	None
Forest Parks	None	None
Local Nature Reserves (LNR)	None	None
Marine Nature Reserves (MNR)	None	None
National Nature Reserves (NNR)	None	None
National Parks (NP)	None	None
Nitrate Sensitive Zones (NSZ)	None	None
Nitrate Vulnerable Zones (NVZ)	None	None
RAMSAR Sites	None	None
Sites of Special Scientific Interest (SSSI)	None	None
Special Areas of Conservation (SAC)	None	None
Special Protection Areas (SPA)	None	None
World Heritage Sites	None	None

POTENTIAL FLOOD RISK

A detailed assessment of flood risk is outside the scope of the report, however the Envirocheck Report identifies specific information for the site and surrounding area with regard to flood risk. This information is listed below:

- There is limited potential for Groundwater Flooding to occur.
- The site is not at risk from flooding from rivers or sea
- There are no flood defences, areas benefitting from flood defences or flood water storage areas within 500m of the site.

ASBESTOS

It is considered possible that any structures within the site boundary could contain asbestos and an ACM survey would be recommended should they be disturbed as part of the development works. There is always the possibility that asbestos fibres may also be present in any made ground beneath the site and/or the possibility that asbestos was used historically in any buildings on site.

Prior to any works occurring on-site, it is recommended that site soils are tested for the presence of asbestos. Should any structures need to be disturbed as part of these works, then it is recommended that a demolition/refurbishment ACM survey is undertaken.

UNEXPLODED ORDNANCE (UXO)

A UXO Bombing Density Map has been obtained from Zetica Ltd. This indicates that the site is in a Low bombing density area, with respect to WWII UXO. The Risk Map is presented as Appendix C.

It should be noted that the Zetica Maps present bombing density in a given area and do not comprise a UXO Risk Assessment. As other sources of UXO exist and bombing density maps do not cover all sources of UXO, it is recommended that at the very least a preliminary UXO assessment is undertaken by a specialist.

ECOLOGY AND INVASIVE/TOXIC SPECIES

A detailed ecological assessment falls outside of the scope of this report, and therefore if detailed ecological advice is required, a specialist ecological consultant should be contacted for further advice. During the walkover survey no toxic/invasive plant species were observed. However, this should be verified by a suitably qualified expert.

ARCHAEOLOGY AND OTHER DESIGNATIONS

An archaeological assessment falls outside of the scope of this report and therefore if detailed archaeological advice is required, a suitably qualified expert should be contacted for further advice.

6.0 PREVIOUS INVESTIGATIONS

RWO Group have not been made aware of any previous investigations on or within the near vicinity of the site.

7.0 SITE WALKOVER

A site walkover was undertaken on 9th July 2025.

Access to the site is from Eastfield Road via a private access track to the farm buildings located within the central area of the site.

Out with the farm buildings noted above, the remainder of the site comprises agricultural fields. There are overhead electricity cables running on a southwest/northeast alignment through the northern portion of the fields. The fields are separated by either hedgerows with some semi-mature shrubs/vegetation trees. Some farm machinery was noted around the farm buildings.

The Site Features Plan which includes photographs taken during the site walkover is presented as Figure 2 in Appendix A.

8.0 PRELIMINARY CONTAMINATION RISK ASSESSMENT

The following paragraphs outline a Preliminary Risk Assessment (PRA) for the site based on the above desk study information.

Figure 3, attached in Appendix A to this report, presents the Preliminary Conceptual Model (PCM) which considers the Source-Pathway-Receptor linkages present alongside the probability, consequence and risk level as defined RWO's Risk Assessment and Conceptual Site Model processes as presented in Appendix D, to establish if there is the potential for unacceptable risk.

The PCM considers whether a plausible pollution linkage is potentially present and provides a preliminary qualitative assessment of risk based on the information currently available. Where a possible linkage is identified, it does not necessarily mean that a significant risk exists but indicates that further information is required through appropriate site investigation to test and refine the conceptual site model. Set out below are all identified potential contamination sources, pathways and receptors associated for the site in the context of the proposed residential end use.

Potential Sources

Potential sources comprise;

- Localised made ground associated with the existing farm buildings and storage of farm machinery ((heavy metals, PAHs, TPH (fuels/oils), sulphates, asbestos)
- Potential for hazardous ground gas production/migration from historic infilled land within 250m to the site, possible natural organic soils associated with historic springs and possible unrecorded shallow coal mine workings.

Potential Pathways:

The following pathways have been considered for the potential construction and operational stages of the proposed development:

- Direct Ingestion
- Dermal Contact
- Inhalation of dust/volatiles/gas
- Vertical/lateral migration of leachable contaminants and ground gas.
- Plant uptake/consumption

Potential Receptors:

The following receptors have been considered for the construction and operational stages of the proposed development:

- Site End Users
- Construction Workers
- Adjacent Users
- Controlled Waters – Secondary A Aquifer (bedrock)
- Vegetation
- Buildings

9.0 CONCLUSIONS AND RECOMMENDATIONS

SUMMARY

The site consists of agricultural fields with some farm buildings situated centrally, and is located on the east of Shepley village, approximately 3.5km west of Skelmanthorpe town centre

No made ground is shown on the site, and the site is mapped within an area being absent of superficial deposits. The solid geology is mapped as the Pennine Lower Coal Measures with Grenoside Sandstone in the northwest, undifferentiated Coal Measures in the centre and Penistone Flags mapped in the south/southeast. A coal seam is conjectured to sub-crop below the central area of the site dipping to the southeast.

The overall risk to current/future site users and construction workers is low due to the limited sources and pathways. The risk to groundwater is considered to be low due to the limited potential contamination sources; however, a hydrological assessment for the site should be undertaken to determine possible risk to the deeper groundwater below the site notably with regard to the nearby abstraction borehole.

FLOODING

The site is not considered to be at risk of flooding. Given the size/area of the site and proposed development it is recommended that a site-specific flood risk assessment (FRA) is undertaken.

MINING & QUARRYING

Based on the geological setting of the site and information provided by the MRA, the site is considered at potential risk from unrecorded coal mining activities. Further intrusive investigation is required to investigate the presence of shallow mine workings

CONTAMINATION

It is recommended that in advance of any future development of the site, or other activities which could disturb soils and increase the potential for a contaminant linkage, an intrusive ground investigation is undertaken to assess possible presence of soil and groundwater contamination notably in/around the central area of the site where the existing farm buildings are situated, and how, if present, it could affect receptors.

FOUNDATIONS

The BGS GeoIndex Onshore map indicates that the site is not underlain by superficial deposits. The bedrock geology beneath site is recorded by BGS as the Pennine Lower Coal Measures Formation, with Grenoside Sandstone mapped in the northwest, undifferentiated Coal Measures in the centre and Penistone Flags mapped in the south/southeast.

No artificial/made ground is recorded on the site; however, localised made ground should be anticipated notably within the central area of the site where the existing farm buildings are present.

The bedrock geology is likely to be suitable for shallow strip foundations. However, if any initial low strength superficial/residual soils or deep made ground are present, then alternative foundations options may be required.

Further investigation is recommended to determine foundation options, the level of mining related risk and the nature of any mitigation requirements

OTHER GEOTECHNICAL CONSIDERATIONS

Possible shallow outcrop of coal at, or close, to founding depths which may need further assessment and/or removal/isolating.

UTILITIES

There are no high-pressure gas distribution underground pipelines or high voltage electric distribution cables within 250m of the site. There are overhead electricity cables crossing the site.

HAZARDOUS GROUND GASES

The site is considered to be at a potential risk from hazardous ground gas protection migration associated with historic areas of infilled land (quarry, coal pits, possible reservoir etc) within 250m of the site, the presence of 'springs' which have been recorded within the site boundary which may contain organic material and possible shallow unrecorded shallow coal mine workings below the site. Consequently, a programme of gas monitoring is recommended

The site does not lie within an area in which specific precautions to protect against radon gas are required.

ECOLOGY AND INVASIVE SPECIES

During the site walkover no evidence of potential invasive species were noted.

An ecological survey is outside the scope of work for this Preliminary Appraisal and it is recommended that an appropriately qualified specialist is contacted for further advice.

ARCHAEOLOGY

An archaeological survey is outside the scope of work for this Preliminary Appraisal and it is recommended that an appropriately qualified specialist is contacted for further advice.

UNEXPLODED ORDNANCE

A UXO Bombing Density Map has been obtained from Zetica Ltd. This indicates that the site is in a Low bombing density area, with respect to WWII UXO.

It should be noted that the Zetica Maps present bombing density in a given area and do not comprise a UXO Risk Assessment. As other sources of UXO exist and bombing density maps do not cover all sources of UXO, it is recommended that at the very least a preliminary UXO assessment is undertaken by a specialist.

RECOMMENDED OUTLINE SCOPE OF INTRUSIVE GROUND INVESTIGATION

Prior to any intrusive ground investigation works, it is recommended that a hydrological assessment is undertaken to determine any possible risk to the deeper groundwater below the site notably with regard to the nearby abstraction borehole.

Subject to the findings of the above assessment, intrusive investigations are likely to include:

- Window sampling and/or trial pitting to investigate shallow ground conditions, undertake in situ geotechnical testing and obtain soil samples for laboratory analysis.
- Shallow Mining Investigation using Rotary Open-hole Boreholes.
- Installation of monitoring wells within selected boreholes.
- A programme of ground Gas and Groundwater level monitoring
- Laboratory analysis of soil samples for geotechnical parameters, e.g., plastic/liquid limits, undrained shear strength and compressibility characteristics.
- Laboratory analysis of soil, and if necessary, groundwater and surface water, samples for heavy metals, pH, sulphates, organic contaminants, micro-organisms, and asbestos.
- Soakaway tests (if soakaways are to be considered).
- Production of a Phase 2 Geoenvironmental report.

RWO
August 2025

APPENDIX A: DRAWINGS

LEGEND

N

Site Location

RWO	**TITLE:** Site Location Plan Eastfield Road, Shepley	**CLIENT:** Banks Group	**PROJECT NO:** G25025	**APPROVED BY:** CR	**DATE:** 14/07/2025
			FIGURE NO: 1	**DRAWN BY:** KR	**SCALE:** NTS

Looking south down access track

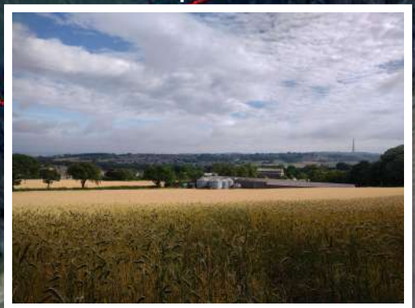
Looking north east towards Shepley Spring Ltd

Electricity cables looking west from the central access track

Electricity cables looking east from the central access track

Looking roughly north between the farm buildings

Farm machinery and silos



Looking north east across the site towards the farm buildings

Looking at the pond just outside the south eastern boundary

RWO	**TITLE:** Site Features Plan Eastfield Road, Shepley	**CLIENT:** Banks Group	**LEGEND:** Site Boundary	**APPROVED BY:** CR	**DRAWN BY:** KR	**PROJECT NO:** G25025
				DATE: 15/07/2025	**FIGURE NO:** 2	**SCALE:** NTS

KEY

SOURCES

1. Localised made ground
2. Possible natural organic soils
3. Coal Seams
4. Historic infilled land (<250m) including historic mill & sub-station

PATHWAYS

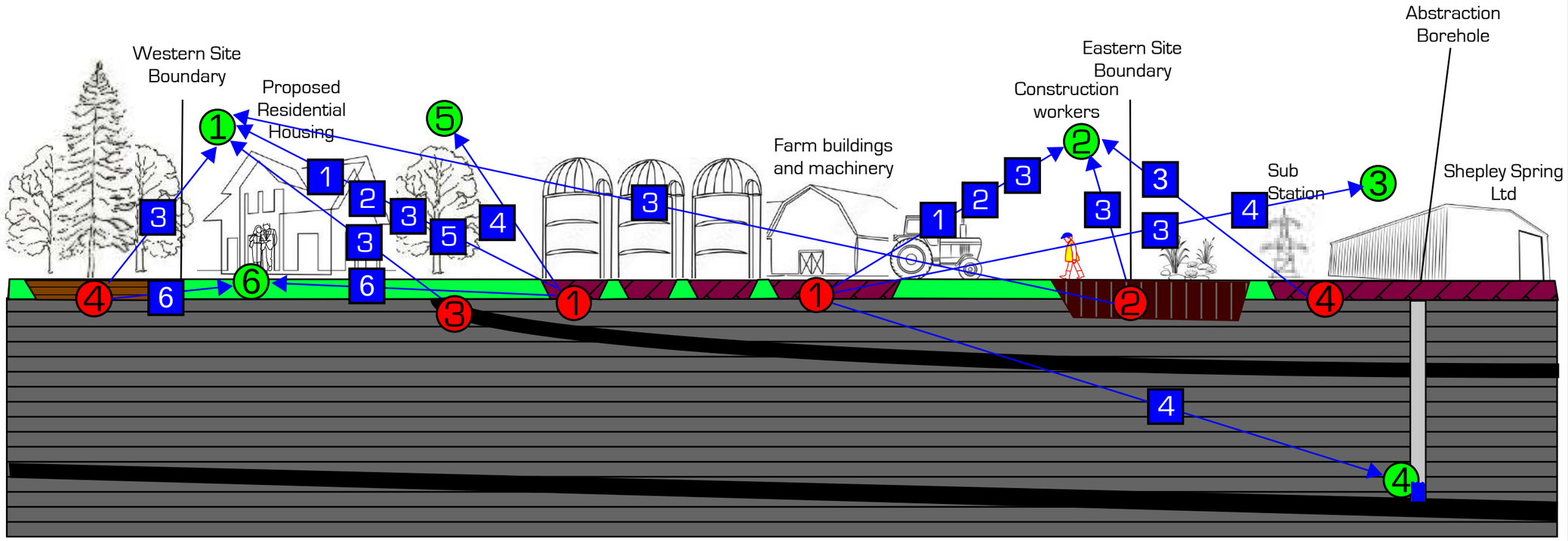
1. Direct ingestion
2. Dermal contact
3. Inhalation of dust/volatiles/gas
4. Vertical/lateral migration of leachable contaminants
5. Plant uptake / consumption
6. Direct contact

RECEPTORS

1. End users - residents / public
2. Construction workers
3. Adjacent users
4. Controlled waters - Secondary A Bedrock Aquifer
5. Vegetation
6. Buried structures

GEOLOGY

- Topsoil
- Made Ground
- Pennine Lower Coal Measures
- Coal Seam
- Possible natural organic soils
- Historic infilled ground



Source(s)	Pathway(s)	Receptor(s)	Probability	Consequence	Risk	Comments
1 Localised made ground: Inorganics, natural organics (Heavy Metals, PAHs, PCBs and localised TPHs), asbestos	1 2 3 5	1	Low	Moderate	Low	Only localised made ground associated around farming buildings.
	1 2 3	2	Moderate	Moderate	Moderate	Use of PPE/RPE will lower risk further.
	3 4	3	Low	Mild	Very Low	Suppression of soils dust during construction will lower risk further.
	4	4	Moderate	Moderate	Low	Deeper groundwater within aquifer. **Hydrological assessment to be undertaken to confirm/establish risk level.**
	4	5	Low	Low	Low	Vegetation may be adversely affected by phototoxic contaminants although minimal sources (localised made ground) anticipated.
	6	6	Low	Moderate	Low	Only localised made ground associated around farming buildings.
4 Historic infilled made ground including adjacent mills and sub-station (PCBs, PAHs, BTEX, MTBE, heavy metals, hydrocarbons)	3	1	Low	Low	Low	Gas monitoring recommended to confirm risk level.
	3	2	Low	Low	Low	Higher risk in excavations. Use of PPE/RPE will lower the risk.
	4	6	Low	Low	Low	Migration limited due to distance from site and limited/negligible low permeable superficial deposits.
2 3 Possible organic soils and shallow coal seams/workings	3	1	Low	Moderate	Low	Gas monitoring recommended to confirm risk level.
	3	2	Low	Moderate	Low	Higher risk in excavations. Use of PPE/RPE will lower the risk.
	6	6	Low	Moderate	Low	Any shallow coal in close proximity to buried structures/foundations may need removing/isolating

RWO

TITLE: Conceptual Site Model

CLIENT: Banks Group

PROJECT NAME: Eastfield Road, Shepley

PROJECT NO:	FIGURE NO:
G25025	3
DRAWN BY: KR	**APPROVED BY:** PB
SCALE: NTS	

APPENDIX B: LANDMARK ENVIROCHECK & COAL AUTHORITY MINING REPORT

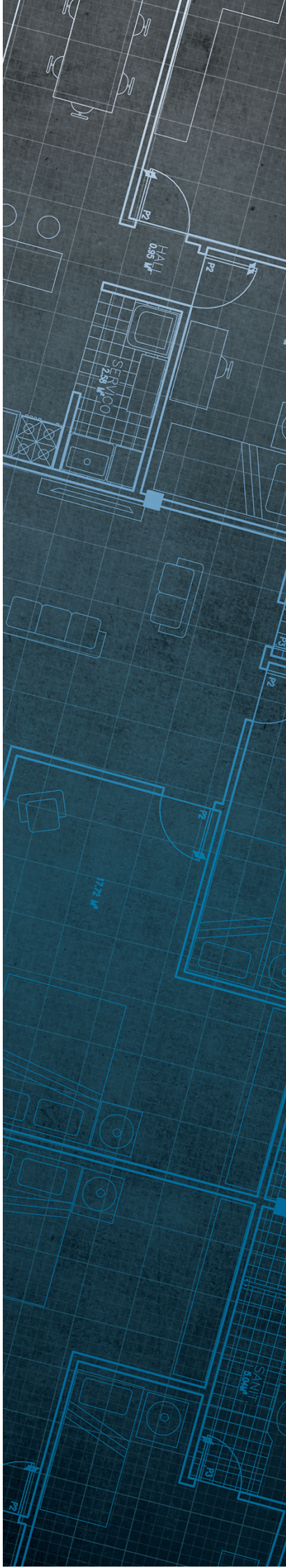
The Coal Authority

Consultants

Coal Mining Report

1 Eastfield
Shepley
Huddersfield
Kirklees
HD8 8HB

Date of enquiry:	**9 July 2025**
Date enquiry received:	**9 July 2025**
Issue date:	**9 July 2025**
Our reference:	**51003510739001**
Your reference:	**G25025**



Consultants
Coal Mining Report

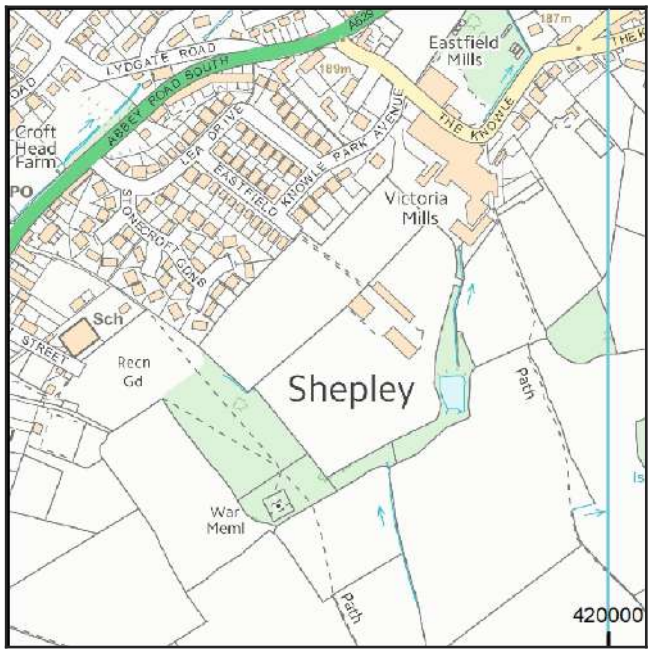
This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

RWO ASSOCIATES (GEOTECHNICAL) LTD

Enquiry address

1 Eastfield
Shepley
Huddersfield
Kirklees
HD8 8HB



Approximate position of property

How to contact us

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

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

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

Section 1 – Mining activity and geology

Past underground mining
No past mining recorded.

Probable unrecorded shallow workings
Yes.

Spine roadways at shallow depth
No spine roadway recorded at shallow depth.

Mine entries

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Shaft	419409-001	419913 409671	Treatment details unknown.*	Coal	

*For your information, before the coal industry was nationalised in 1947, there was no requirement for a mine operator to record mine entry treatment details when a mine was abandoned. Therefore, it is not unusual for us to have no treatment details for many of the 176,000 recorded mine entries on our database. Despite this lack of information, please be assured that the fact we have no treatment recorded does not necessarily mean that the mine entry was left untreated when abandoned.

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

PO0		

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

Outcrops

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
CROW	Coal	Yes	Within	N/A	57
CROW	Coal	Yes	Within	N/A	90

Geological faults, fissures and breaklines
No faults, fissures or breaklines recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

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

Site investigations
None recorded within 50 metres of the enquiry boundary.

Remediated sites
None recorded within 50 metres of the enquiry boundary.

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

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

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

Mine gas
None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes
None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining
None recorded.

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

Court orders
None recorded.

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

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

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

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

Section 4 – Further information

Based on the responses in this report, no further information has been highlighted.

Future development

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

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

Section 5 – Data definitions

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

Past underground coal mining

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

Probable unrecorded shallow workings

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

Spine roadways at shallow depth

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

Mine entries

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

Abandoned mine plan catalogue numbers

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

Outcrops

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

Geological faults, fissures and breaklines

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

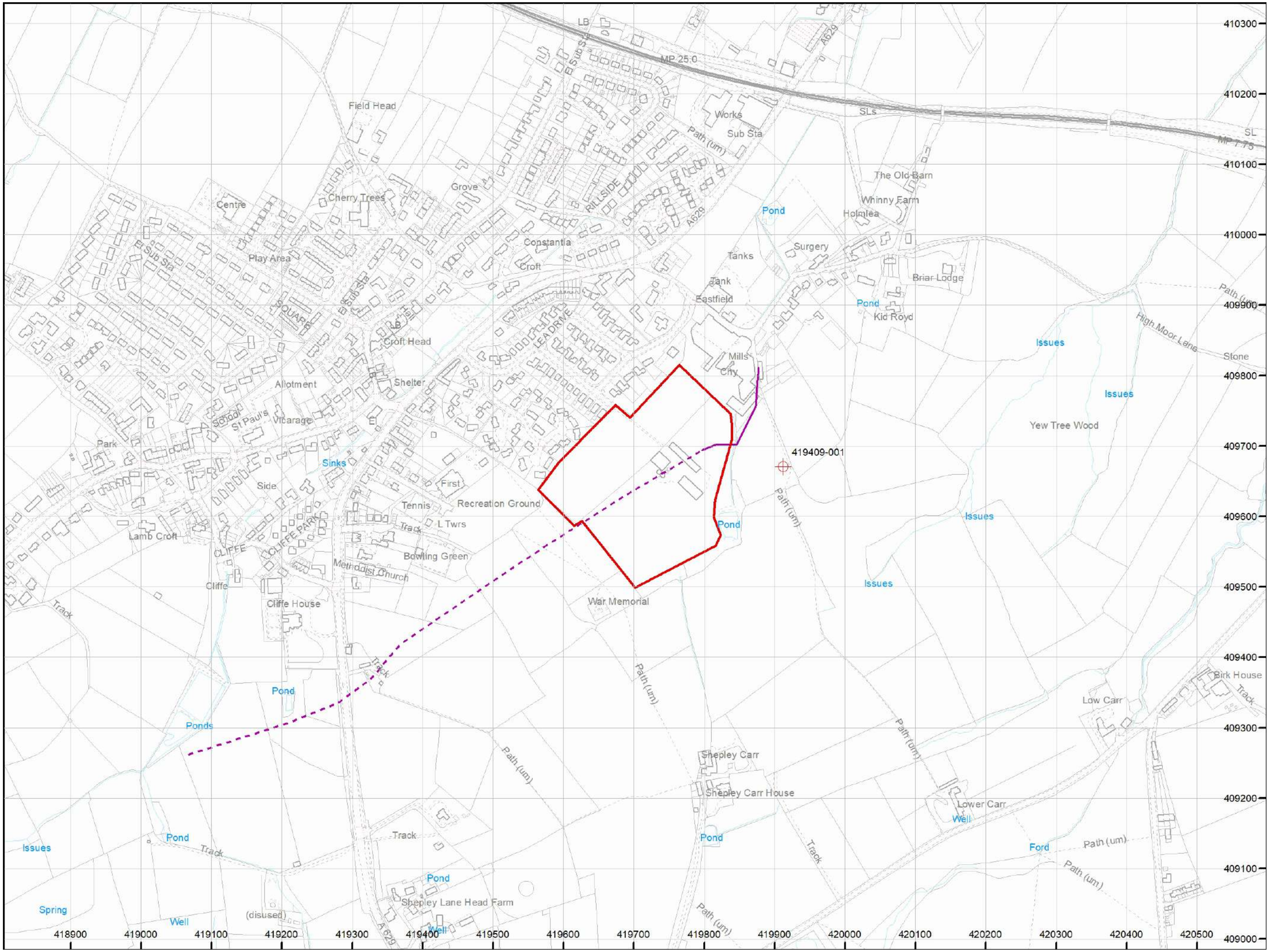
The Coal Authority

Summary of findings

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

Key

- Approximate position of the enquiry boundary shown
- Disused mine shaft
- Outcrop (Proven)
- Outcrop (Conjectured)



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

APPENDIX C: UXO RISK MAP

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 419739,409670

This map principally indicates a hazard from Unexploded Bombs (UXB) due to WWII bombardment. Other sources of Unexploded Ordnance (UXO) may be present. It should be noted that this map does not represent UXO risk and should not be reported as such when reproduced.

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

Miltary | **Industry** | **UXO find** | **Other**

Transport | **Docks** | **Luftwaffe targets**

Utilities | **Bombing decoy** | **Airfields**

How to use your Unexploded Bomb (UXB) risk map?

This map indicates the potential for UXBs to be present because of World War Two (WWII) bombing. It can be incorporated into a technical report, such as a Phase 1 Desk Study, or similar document as an indication of the potential for UXO encounter on a Site. Other sources of UXO may also be indicated, although note that these are not comprehensive and more detailed research is required to confirm their presence.

What if my Site is in a moderate or high density area?

We typically recommend that a detailed UXO desk study and risk assessment is undertaken for sites in an area with a moderate or high bombing density.
Additionally, if your site is in close proximity to a strategic target, military establishment, airfield or bombing decoy, then additional detailed research is recommended.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirm that there is a low potential for UXO to be present on your site, then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

If you are unsure whether other sources of UXO may be present, you can request one of our pre-desk study assessments (PDSA) by emailing a site boundary and location to pdsa@zetica.com.

You should never plan site work or undertake a risk assessment using these maps alone. More detail is required, to include an assessment of the likelihood of a source of UXO hazard from other military activity not reflected on these maps.

If I have any questions, who do I contact?

tel: +44 (0) 1993 886682 **email:** uxo@zetica.com **web:** www.zeticauxo.com

The information in this UXB risk map is derived from a range of sources and should be used with the accompanying notes on our website.

APPENDIX D: RWO RISK ASSESSMENT & CSM PROCESS

RWO'S RISK ASSESSMENT AND CONCEPTUAL SITE MODEL PROCESS

The following pages outline RWO Associates Ltd's (RWO's) approach to the Risk Assessment (RA) and derivation of Conceptual Site Models (CSMs) processes for sites in general compliance with in various guidance documents and standards which includes: BS10175:2011+A2:2017 - Investigation of potentially contaminated sites, BS EN ISO 21365:2020 – Soil quality – Conceptual site models for potentially contaminated sites, CIRIA C552 - Contaminated land risk assessment - A guide to good practice, the Environmental Agency (EA) Land Contamination Risk Management (LCRM) web pages and the National Planning Policy Framework (NPPF).

The Preliminary (desk study) and Revised (post intrusive ground investigation) Conceptual Site Models (CSMs) consider the Source(hazard)-Pathway-Receptor linkages present alongside the probability, consequence and risk level as defined within the tables below to establish if there is the potential for unacceptable risk.

Identification of potential contaminant linkages process

Identify potential site specific sources, pathways and receptors (S-P-R).

A contaminant linkage must be present for there to be a S-P-R relationship. Without a linkage, there is not a risk – even if a contaminant is present.

Conceptual Site Models (CSMs)

The information collected from the desk study and/or from intrusive ground investigation is used to develop the conceptual site model.

A conceptual site model is a representation of the characteristics of the site. It shows the possible relationships between contaminant sources, pathways and receptors.

The conceptual site model can be presented in different ways, such as a:

- written description of the site;
- tabular or matrix description/assessment: or; and
- drawing or other diagrammatic illustration.

One or more of these formats may be used or combined.

CSMs will show:

- contaminant linkages – presence and relationship between contaminants, preferential pathways and receptors;
- the subsurface – geology and hydrogeology; and
- more detailed information as it becomes available such as complex flow regimes and solute transport mechanisms.

CSMs can also determine and show:

- what risks (high, moderate or low) may result from the identified contaminant linkages;

- uncertainties and gaps in information and any further assessment needed to address them; and
- Any requirement for remediation.

RISK DEFINITIONS

The following tables define consequences to receptors, probability and the risk matrix process.

Consequence to Receptors

Consequence	Human Health	Controlled Waters	Buildings
Severe	Acute risk to the human health likely to result in significant and/or permanent harm.	Sensitive controlled water pollution ongoing, or just about to occur with potential for irreversible effect.	Catastrophic damage to buildings / property.
Moderate	Chronic permanent impact on human health	Gradual pollution of sensitive controlled water	Degradation of materials
Mild	Chronic short-term impact on human health	Gradual pollution of low sensitivity Controlled water.	Some noticeable change, but non-structural

Probability Definitions

Probability	Explanation
High	Definitive evidence of source, pathway and receptor.
Moderate	Suspected source, pathway, receptor.
Low	No evidence of source, pathway, receptor.

Risk Assessment Matrix

	Severe Consequence	Moderate Consequence	Mild Consequence
High Probability	Very High Risk	High Risk	Moderate Risk
Moderate Probability	High Risk	Moderate Risk	Low Risk
Low Probability	Moderate Risk	Low Risk	Very Low Risk

Risk Matrix Definitions

Matrix Assessment	Explanation
Very High Risk	Severe consequence source, high likelihood of source, pathway and receptor linkage.
High	Moderate source, definitive evidence of source, pathway and receptor linkage; or Severe consequence source, moderate likelihood of source, pathway and receptor linkage.
Moderate	Severe consequence source, low likelihood of source, pathway and receptor linkage; Moderate consequence source, moderate likelihood of source, pathway and receptor linkage; or Mild consequence source, high likelihood of source, pathway and receptor linkage.

Matrix Assessment	Explanation
Low	Moderate source, no evidence of source, pathway, receptor linkage; or Mild source with suspected source, pathway, receptor linkage.
Very Low Risk	No significant source, no evidence of source, pathway, receptor linkage

RWO

Civil
Structures
Geoenvironmental

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