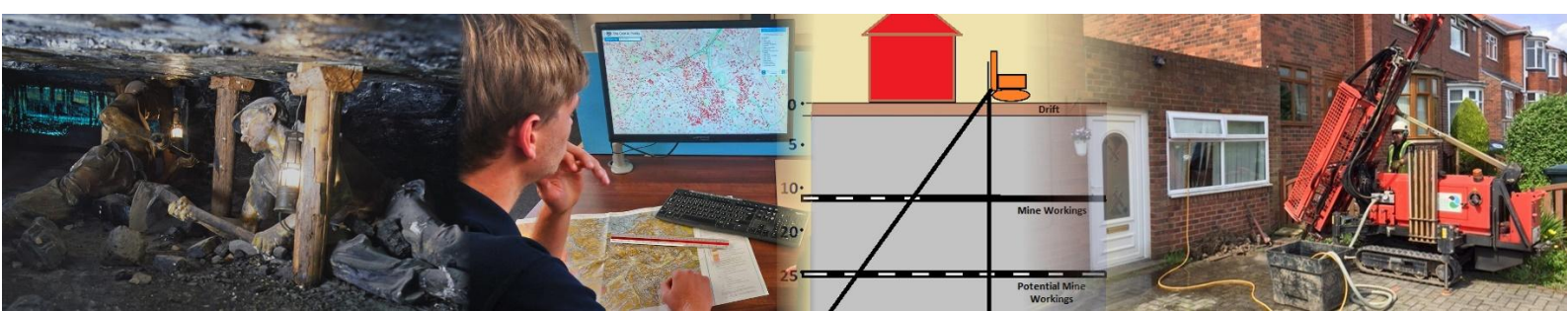




GEOLOGICAL
GEOTECHNICAL
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DRILLING & DATA ACQUISITION



GEOINVESTIGATE LIMITED

Coal Mining Risk Assessment (CMRA)

LOCATION	Gunthwaite Hall Farm, Gunthwaite Lane, Penistone, Sheffield, S36 7GE
ISSUE DATE	14 th August 2026
FOR	R P & M Emmott & Sons
CLIENT REF.	
OUR REF.	G26251

Prepared by

A handwritten signature in black ink, appearing to read "Jon Jones".

Jonathan Jones BSc (Hons),
Assistant Geotechnical Engineer

Checked by

A handwritten signature in black ink, appearing to read "Ross Nicolson".

Ross Nicolson BSc (Hons) MSc (Eng) CEng MIMMM
Principal Geotechnical Engineer

1. CMRA INTRODUCTION & COAL MINING HAZARDS

1.1 Site Location and Description

The approximate centre of the site lies at E423611, N406528 with surface ground height around 200m AOD.

The boundary shown in RED on the Coal Authority (CA) report provided in Appendix A corresponds with the planning application area.

The site currently comprises a small area of land to the south of an existing commercial fishing pond and west of existing farm buildings within the larger Gunthwaite Hall Farm complex. An existing long farm track links the farm to Gunthwaite Lane to the north. A site image is provided in Appendix B. It is proposed to construct a new lagoon near the existing fishing pond as per the development plan in Appendix C.

1.2 Historical Maps

A desk study of the available historical Ordnance Survey mapping indicates the site has continuously been part of the Gunthwaite Hall Estate's grounds throughout the period of historical mapping dating from 1830. The earliest available mapping (c.1830-1880) identifies Denby Colliery to the distant north of the site including a shaft and coal pit while sandstone quarries are recorded closer to the site. However, no reference is made on the maps to coal mining, collieries, mine shaft or spoil heaps in the vicinity of the lagoon or the farm.

No evidence of other surface mining activity, clay, sand or gravel pitting or stone quarrying is recorded on the historical maps within or immediately adjacent to the site.

In Geoinvestigates opinion the absence of mapped historical surface mining features at this locality suggest underground coal mining activity is unlikely to be present within the proposed lagoon development area.

1.3 Anticipated Geology

The location of the property is shown on the extract of British Geological Survey (BGS) 1:10,000 Solid and Drift geology map (Sheet SE20NW) presented in Appendix D. The older 1:10,560 BGS mapping sheet of 1933 (Yorkshire 273 NE) is also included in Appendix D. Both maps together with information from the BGS's online GeoIndex platform, indicate the site to be underlain by little to no thickness of superficial deposits with Pennine Lower Coal Measures Formation bedrock lying at or near surface comprising mudstones, siltstones, and sandstones with subordinate minor coal horizons. A north-south trending geological fault is recorded immediately to the east of the proposed development area, which is situated on the downthrown side of the fault. The presence of the Whinmoor Coal on the east side of the fault suggests there is appreciable vertical displacement of the bedrock geology across the fault.

The geology map shows outcrop of the Lower Penistone Coal (LPC)/aka Penistone Green Coal underlying the proposed lagoon development area likely within very shallow depth (i.e. < 10m). The coal is up to 0.5m thick and may dip 3° NE. The geology map also shows the LPC coal outcropping beneath the far north end of the existing access track approaching Gunthwaite Lane where this coal may also be found within very shallow depth. However, this coal may be absent or disturbed due to the presence of a geological fault at the north end of the track.

The tentative elevation of the site relative to the vertical geology column is shown below the map.

The 1933 geology map records a mine adit and an 8.2m deep mine shaft (possible bell pit working) to the distant (approx. 480m) north of the site presumably associated with the nearby presence of Whinmoor Coal outcrop. The map identifies "Open Works"/presumed surface working of the Whinmoor Coal at this northern location and surface mining of the Thin Coal ("Thin Worked") to the west of it though there is no reference to historical surface working near the proposed lagoon.

Four nearby 4 BGS water well borehole logs SE20NW/9, 50, 54 & 63 located on the east side of the farm and the geological fault sunk to depths between 30.50m to 68.50m record no intersection of coal or mine workings. However,

because the holes are located on the east side of the fault the ground conditions here may be different to the west side of the fault where the lagoon is located. Log SE20NW/9 is provided in Appendix E.

1.4 Mine Workings & Mine Shafts

The CA report in Appendix A does not identify any levels of past recorded underground mining beneath the site.

However, the CA report places the site in an area of probable shallow coal mine workings. The CA define Probable Unrecorded Shallow Workings as *“Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface”* (i.e., less than 30m).

The Coal Authority (CA) mapping identifies outcrops of the Penistone Low and Black Bed coal seams within the site boundary, with the Penistone Low Coal occurring beneath the proposed lagoon. According to the CA both coals are workable.

As discussed in section 1.2 of this CMRA given the absence at the site of surface coal mining features on the historical OS maps and the relatively minor economic importance of the Penistone Coal Geoinvestigate considers that coal mining activity is unlikely to be present in this horizon beneath the lagoon. However, it is known that the Penistone Coal was sporadically worked in the wider area of the Gunthwaite Valley mostly via crop workings, shallow bell pits, and day holes (horizontal adits) driven straight into the hillsides rather than deep industrial shafts therefore the risk remains that the lagoon may perhaps be underlain by workings. In Geoinvestigate's opinion because of historical mining uncertainty limited intrusive ground investigation is required to further assess the ground stability risk to the lagoon from mining. However, no investigation of the existing farm access track to the north is considered necessary though it is also potentially underlain by the Penistone Coal.

Encouragingly the CA report does not identify any known mine shafts within 100m of the site boundary.

1.5 Geological Faults Fissures & Breaklines

The geological mapping and the CA report identify a north-south trending fault nearby to the east of the proposed lagoon development area but not beneath it.

1.6 Mine Gas

According to the CA report no mine gas incident or remediation has been recorded within 500m of the enquiry boundary and typically on the UK coalfields mine gas risk to surface development is low. Circumstances where gas risk increases include proximity (typically < 50m) to mine entries (adits and shafts), proximity to recorded mine gas incidents, where development is located above or adjacent to very shallow and shallow (< 30m) unflooded mine workings or roadway tunnels, coal seams with a history of spontaneous combustion, natural or artificial pathways providing routes for gas migration e.g. permeable soil cover, pathways created by geological faults, mining induced breaklines/fractures, collapsed mine roof strata, mining subsidence, mining sinkholes/crown holes and unsealed boreholes.

This CMRA has indicated that conditions may exist at this site increasing mine gas risk namely the possible presence of very shallow coal outcrop together with possible very shallow mine workings. However, in Geoinvestigate's opinion because the lagoon is an open-air facility the risk from mine gas is negligible. Additionally there has been no reported mine gas incident at this locality and typically on the UK's coalfields surface mine gas is rarely a problem.

2. RISK ASSESSMENT OF SITE-SPECIFIC COAL MINING ISSUES

The risk assessment methodology adopted in this section is based on CA publication RISK BASED APPROACH TO DEVELOPMENT MANAGEMENT - GUIDANCE FOR DEVELOPERS Version 3, 2014 and Version 4 - 2017. The template contained therein is broadly adopted in the table below with amendments made by Geoinvestigate Limited. The factual information it is based on, is derived mostly from the CA Consultants Coal Mining Report and additional desk study information including available historical maps, geological maps & memoirs, BGS boreholes, online articles etc.

It is not an exhaustive desk study review. Therefore, if new information is released or found in the future, this CMRA may require updating.

The table also provides advice on next step mitigation and the likely planning decision.

RISK ASSESSMENT & MITIGATION		
Coal Mining Issues/Hazards	Risk	Next Step Mitigation
Past underground coal mining	NONE	
Probable unrecorded shallow workings	L M	Drilling to enable further assessment
Outcrop	L M	Drilling to enable further assessment
Spine roadways at shallow depth	NONE	
Mine entries	NONE	
Geological faults, fissures and breaklines	L M	Drilling to enable further assessment
Mine gas	NONE	
Opencast mines within 500m	NONE	
Coal mining subsidence claims within 50m	NONE	
Site investigations within 50m	NONE	
Likely Planning Decision	Yes/No	Reason
Is planning permission likely to be given with respect to coal mining legacy issues CONDITIONAL upon carrying out further intrusive investigation leading to possible building design mitigation at a future date but before construction begins?	Yes	Yes. Because the site is NOT impacted by known mine entry proximity hazard and the site-specific ground stability risk to the proposed development identified in this CMRA from historic mining can be mitigated by routine engineering solutions and if required thereafter by routine engineering solutions.

Assessed risk level – High, Medium Low, NONE

3. CMRA OUTCOME & RECOMMENDATIONS

This CMRA has identified possible increased risk to the proposed lagoon development from possible shallow mine workings. Drilling investigation is required at the lagoon to further assess this risk. However, as the risk can be mitigated by routine engineering solutions **planning permission should not in our opinion be withheld with respect to coal mining legacy issues** providing further intrusive investigation is carried out at a future date and the permission is **CONDITIONED** accordingly.

In Geoinvestigate's opinion a minimum of 2 or 3 rotary open boreholes without core sample recovery should be made at the site to depths up to 30m (but not necessarily reaching 30m) to establish bedrock depth and mine workings depth (if any) beneath the site. Boreholes should be located adjacent to the lagoon and not within its footprint.

A Coal Authority Permit needs to be obtained (ahead of) further intrusive exploratory drilling. As per the table below Water Drill Flush to be used when drilling. The permit application must state **WATER ONLY DRILL FLUSH** for the safety of the public and drill crew. **Failure to do so may result in prosecution by the HSE and a hefty fine.**

Risks for Different Drilling Scenarios					
Air flush	Mist flush	Foam flush	Water flush	Mud flush	Additional controls
HIGH	HIGH / MED'M	HIGH / MED'M	LOW	LOW	- Monitoring at rig and other open holes. - Seal boreholes

Boreholes must be sealed on completion.

Gas monitoring **MUST** be carried out during drilling.

WHAT TO DO NEXT? Obtain quotes for the intrusive site investigation works. The cost of the SI works should be a **“lump sum” fixed price**. Geoinvestigate can provide advice and assistance with helping you find suitable site investigation & drilling contractors. Call us on 01642 713779 or email enquiries@geoinvestigate.co.uk.

Appendices:

- A. CA Consultants Coal Mining Report issued 30th July 2026 ref. 51003585687001
- B. Site Image
- C. Proposed Development
- D. Geology Map Extracts
- E. BGS Borehole Record

APPENDIX A
COAL MINING REPORT



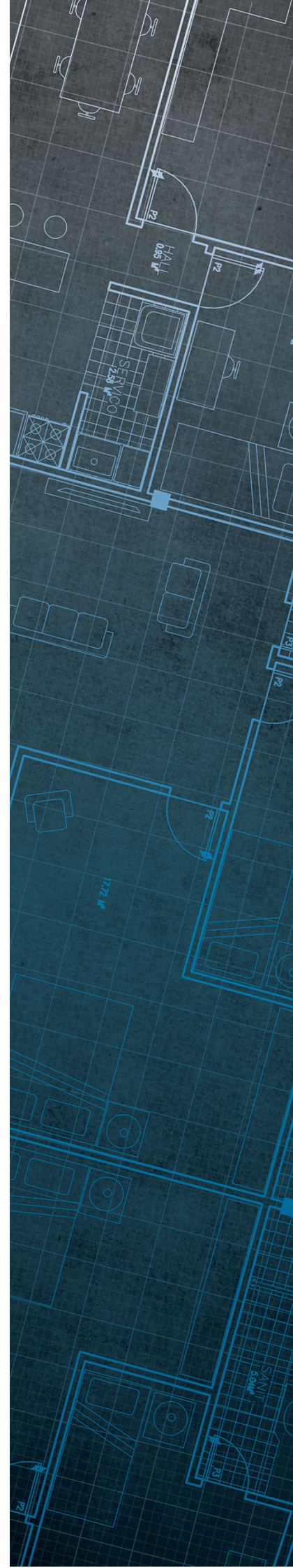
The Coal
Authority

Consultants Coal Mining Report

Gunthwaite Hall Farm
Gunthwaite Lane
Gunthwaite
Barnsley
Barnsley
S36 7GE

Date of enquiry: 30 July 2026
Date enquiry received: 30 July 2026
Issue date: 30 July 2026

Our reference: 51003585687001
Your reference: G26251



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

GEOINVESTIGATE

Enquiry address

Gunthwaite Hall Farm
Gunthwaite Lane
Gunthwaite
Barnsley
Barnsley
S36 7GE

How to contact us

0345 762 6848 (UK)
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Mansfield
Nottinghamshire
NG18 4RG

reports@miningremediation.gov.uk



Approximate position of property



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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

None recorded within 100 metres of the enquiry boundary.

Abandoned mine plan catalogue numbers

None available.

Outcrops

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
BLACK BED	Coal	Yes	Within	N/A	277
PENISTONE LOW	Coal	Yes	Within	N/A	287

Geological faults, fissures and breaklines

Please refer to the 'Summary of findings' map (on separate sheet) for details of any geological faults, fissures or breaklines either within or intersecting the enquiry boundary.

Faults under or close to the property 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 **email us at reports@miningremediation.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.

Key



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+44 (0)1623 637 000 (International)
reports@miningremediation.gov.uk

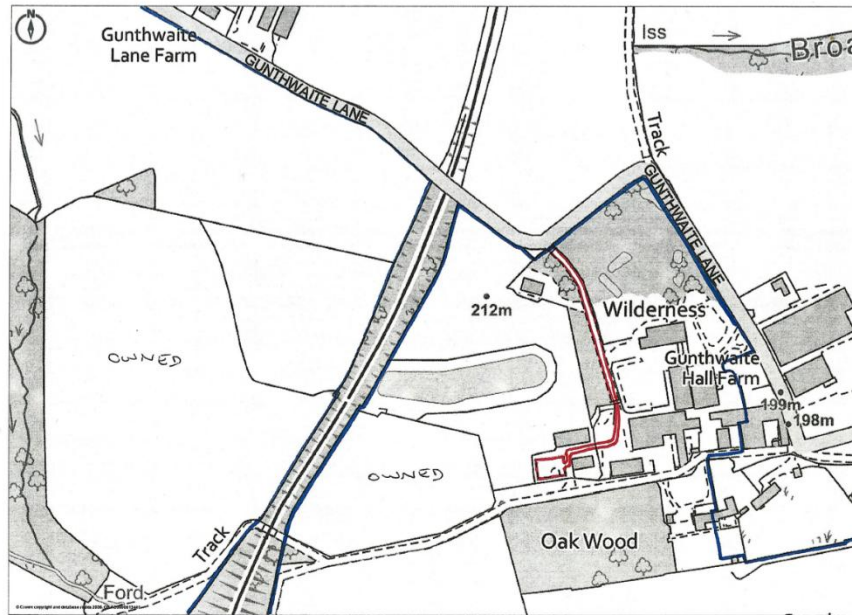
APPENDIX B SITE IMAGE



APPENDIX C

PROPOSED DEVELOPMENT

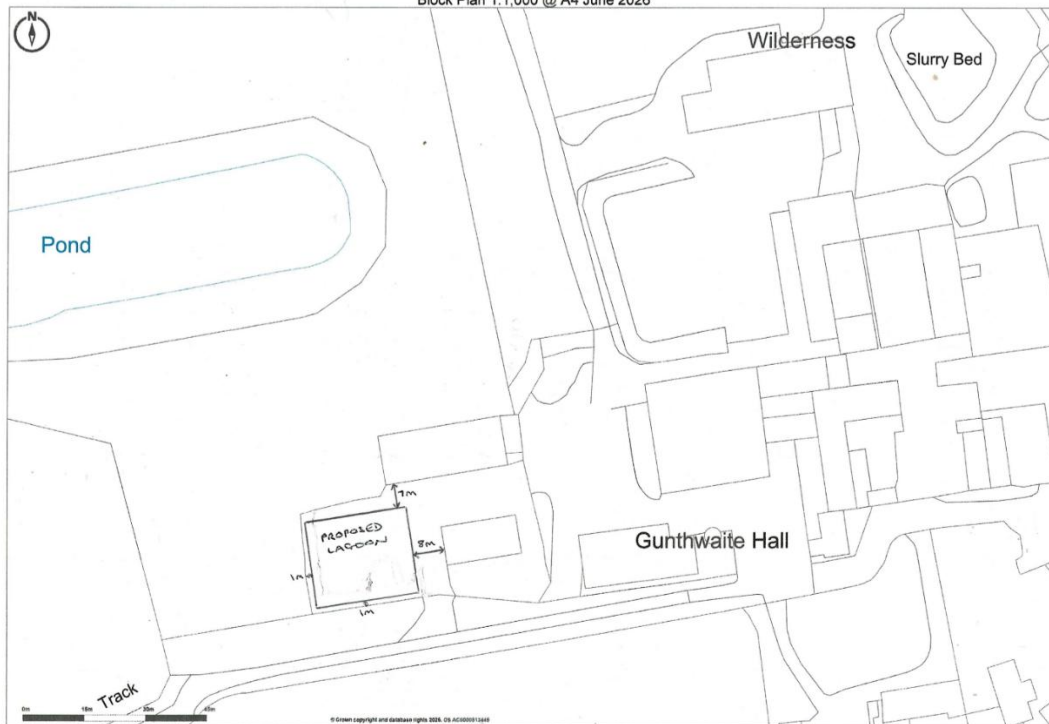
RP+M Emmott+Sons, Gunthwaite Hall, Gunthwaite Lane, Penistone, Sheffield, S36 7GE
Location Plan 1:3,500 @ A4 June 2026



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Printed Scale: 1:3,500. Paper Size: A4

RP+M Emmott Sons, Proposed Slurry Lagoon at Gunthwaite Hall, Gunthwaite Lane, Penistone, Sheffield, S36 7GE
Block Plan 1:1,000 @ A4 June 2026



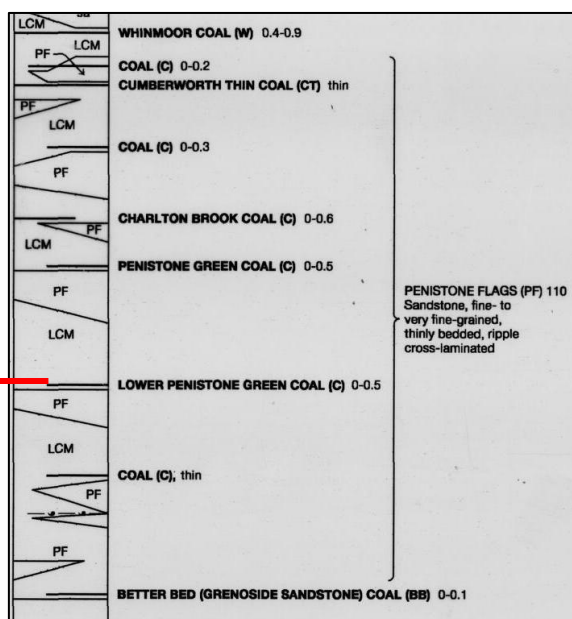
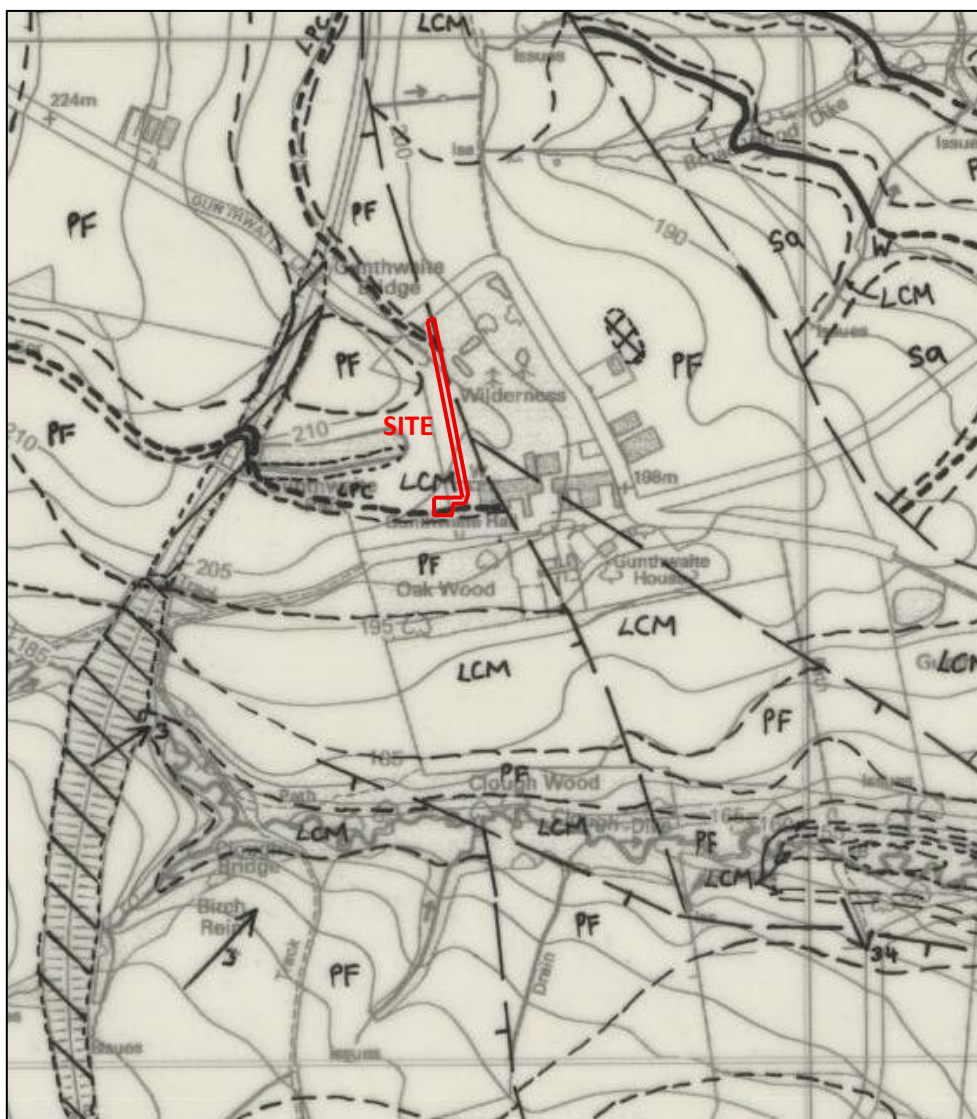
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APPENDIX D

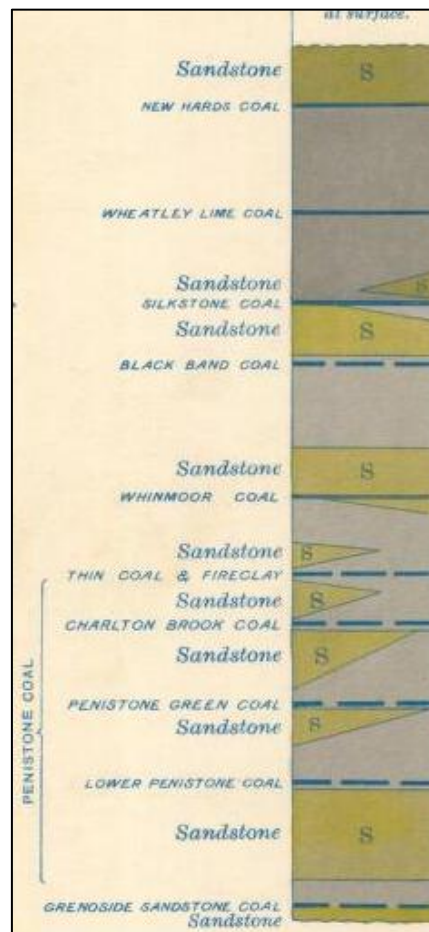
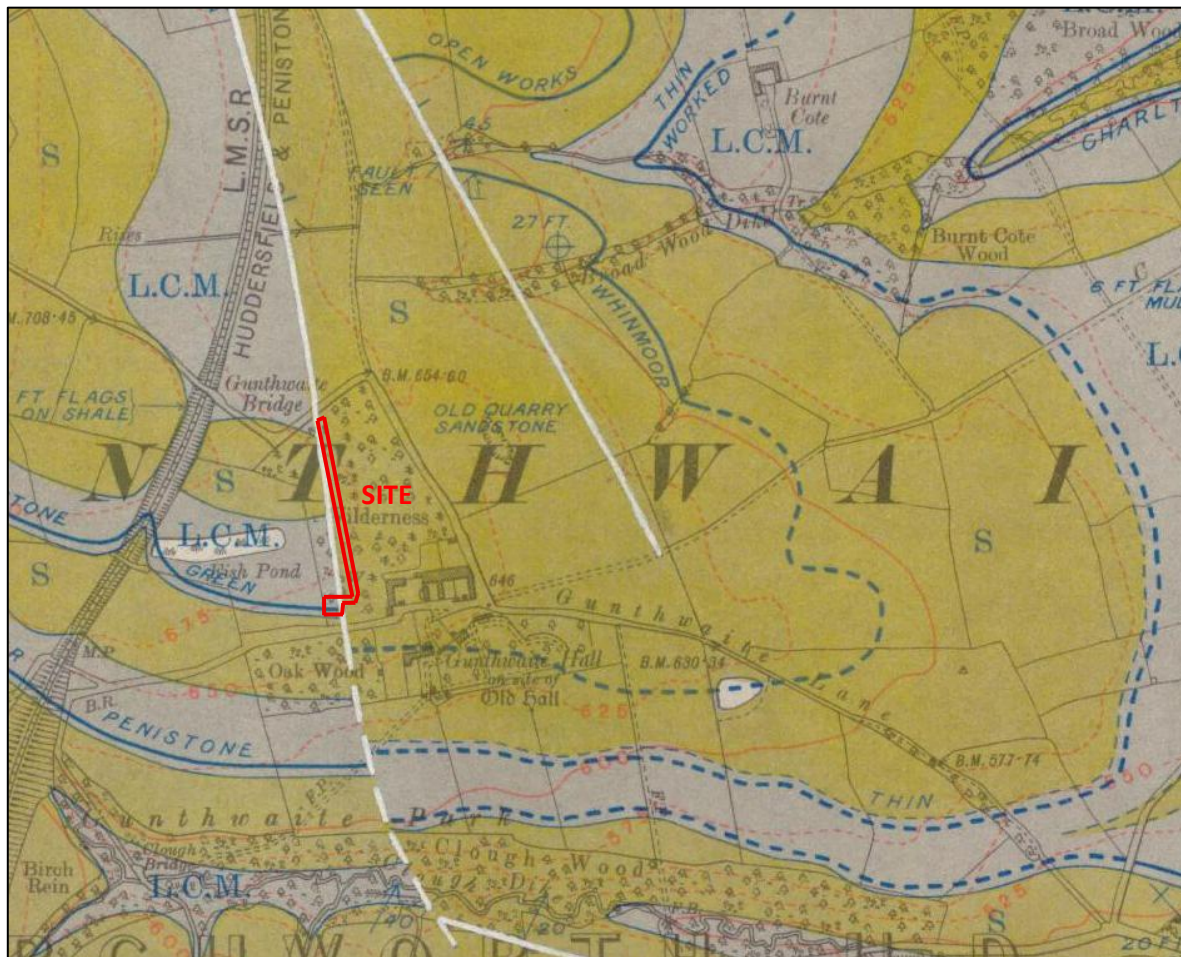
GEOLOGY MAP EXTRACTS

SHEET SE20NW:



TENTATIVE SITE
ELEVATION BASED ON
NEWER BGS MAPPING

SHEET YORKSHIRE 273 NE:



TENTATIVE SITE
ELEVATION BASED ON
OLDER BGS MAPPING

BGS ID: 56255 : BGS Reference: SE20NW9
British National Grid (27700) : 423761,406576

Contact BGS: ngdc@bgs.ac.uk