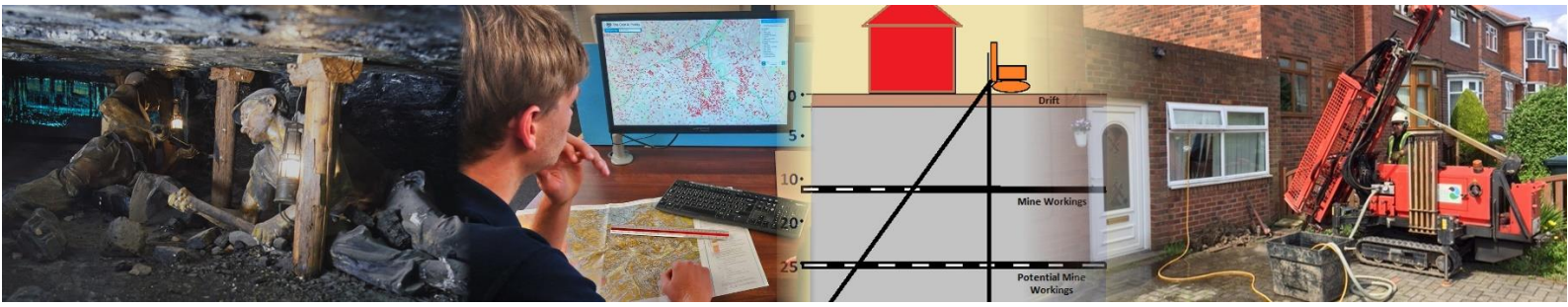
GEOLOGICAL
GEOTECHNICAL
GEOENVIRONMENTAL
CONSULTANCY
DRILLING & DATA ACQUISITION



GEOINVESTIGATE LIMITED
Coal Mining Risk Assessment (CMRA)

LOCATION	Healey Farm, Healey Lane, Dewsbury WF12 0NT
ISSUE DATE	April 2025
FOR	Ruth Woodcock
CLIENT REF.	
OUR REF.	G25118

Prepared by

Redacted

Jonathan Bell BSc (Hons), MSc, FGS
Geotechnical Engineer

Checked by

Redacted

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 E 422977, N 416978 with a rough ground height of 147m AOD.

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

The site is currently occupied by farmland belonging to the Healey Farm adjacent to the south of the development boundary. A site image is provided in Appendix B. It is proposed to construct a large, agricultural cattle shed and small yard extension as per the development plans in Appendix C.

1.2 Historical Maps

A desk study of limited available historical OS maps shows in the earliest maps of 1830-1880 the site was undeveloped with marked buildings, presumably a historical version of Healey Farm, to the east of the present-day farm. A sandstone quarry is noted some 70m east of the development area, as well as an "Old Coal Pit" and a marked mineshaft roughly 80m southeast of the site which directly underlies some of the existing cattle shed structures of Healey Farm.

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

1.3 Anticipated Geology

The location of the property is shown on the extract of British Geological Survey (BGS) 1:50,000 Solid and Drift geology map (Sheet 77, Huddersfield) and the 1:10,000 Solid and Drift geology map (Sheet SE21NW) presented in Appendix D. These maps show the site to be underlain by little to no superficial deposits, with mudstone/siltstone/sandstone bedrock of the Pennine Lower Coal Measures Formation at or near to the surface.

Outcrops of multiple named coal seams are shown on the map extracts to the north and east of site, namely the New Hards/Middleton Main Coal (NH/MM) some 50m northwest of the site, and the 1st Brown Metal Coal (1BM) some 60m north/northeast of the site.

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

Unfortunately, no BGS borehole records exist within a close distance to the site. However, more distant borehole logs in geologically similar areas suggest there to be roughly 1m of superficial soil cover followed by siltstone and shale bedrock. BGS borehole logs SE21NW6 and SE21NW7 some 675m southwest and 420m northwest respectively, both log some coal fragments recovered from 38m below ground level (bgl) which have been thought noted to belong to the Better Bed Coal.

1.4 Mine Workings & Mine Shafts

The CA report in Appendix A identifies 8 levels of past recorded underground mining beneath the site, the most recent being in 1964 at 191m depth, and the shallowest recorded workings being at 32m depth in 1835.

The CA report also 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 CA identify 3 named coal outcrops within 50m of the site boundary; the Low Fenton, the Middleton Little, and the Parkgate Coal; with the Low Fenton and the Middleton Little being within the proposed development area. According to the CA, these coal seams are all workable.

In Geoinvestigate's opinion the possible presence of unrecorded mine working within very shallow and shallow depth beneath the proposed new building poses a significant surface ground stability risk requiring further intrusive site investigation.

The CA report also identifies 8 adits and 3 mine shafts within 100m of the site boundary with them all either being treated to an unknown specification, or the details of their treatment are unknown. These 8 adits all lie some 40-50m northwest of the development area and have a southeast bearing, therefore placing all of them potentially under the site. The 3 mine shafts lie southeast of the site and are each too distant to have any influence over the proposed cattle shed.

Several areas of unlicensed opencast mining are shown within 500m of the site boundary mainly to the south and west of site but are too distant to be of any significance to the proposed development.

1.5 Geological Faults Fissures & Breaklines

The geological mapping and the CA report identify several inferred and known faults both in close proximity and in the surrounding area of the development boundary. The "Summary of Findings" map provided in the CA report shows one fault to run almost directly under the eastern boundary of the site in a northeast-southwest direction.

1.6 Mine Gas

According to the CA report no mine gas incidents or remediation have 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.

In addition, increased mine gas risk may be attributable to coal seams with a history of spontaneous combustion, natural or artificial pathways providing routes for gas migration eg 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 mine workings. However, the risk may be less as there has been no reported mine gas incident at this locality.

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	**YES**	
Probable unrecorded shallow workings	**M**	Drilling to enable further assessment
Outcrop	**M**	Drilling to enable further assessment
Spine roadways at shallow depth	**NONE**	
Mine entries	**YES**	Drilling to enable further assessment
Geological faults, fissures and breaklines	**YES**	Drilling to enable further assessment
Mine gas	**M**	Drilling to enable further assessment
Opencast mines within 500m	**YES**	Too distant to be of significance
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 and possible mine gas risks to the proposed development identified in this CMRA **can be mitigated by routine engineering solutions.**

Assessed risk level – High, Medium Low. NONE

3. CMRA OUTCOME & RECOMMENDATIONS

This CMRA has identified increased risk to the proposed development from possible shallow mine workings as well as perhaps mine gas. Drilling investigation is required to further assess both risks. However as both risks 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.

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 and may provide further indication of mine gas risk.

However, if the drilling investigation encounters shallow mine working longer term gas monitoring in specially installed gas wells may be required to further assess the ground gas risk.

Alternatively, longer term gas monitoring may be avoidable if the installation of precautionary gas protection measures are included in the design of the new buildings in line with "Characteristic Situation 2" (CS2) based upon the CIRIA 665 (revised) report – "Assessing the risks posed by hazardous ground gases to buildings". However, agreement will be required from the Local Planning Authority for this alternative proposal.

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 10th April 2025 ref. 51003491245001
B. Site Image
C. Proposed Development
D. Geology Map Extracts
E. BGS Borehole Record

APPENDIX A
COAL MINING REPORT

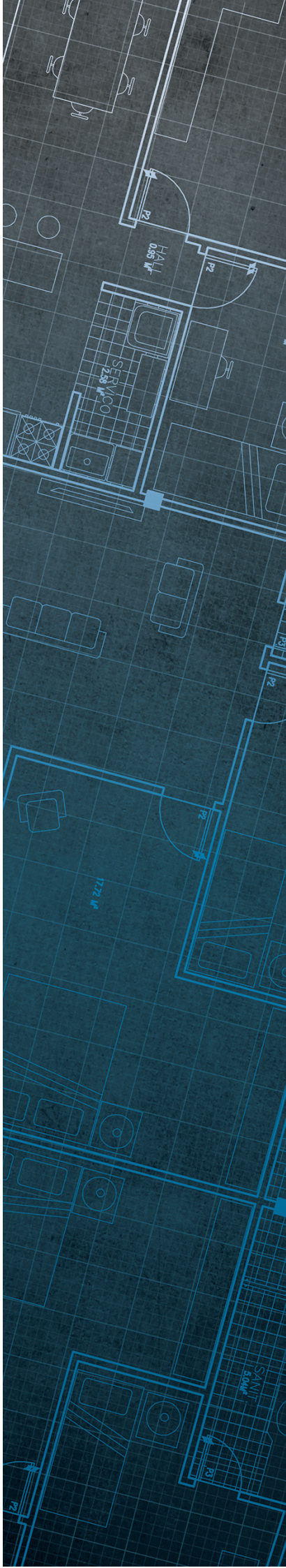
The Coal Authority

Consultants

Coal Mining Report

Healey Farm
Healey Lane
Dewsbury
WF12 0NT

Date of enquiry:	**10 April 2025**
Date enquiry received:	**10 April 2025**
Issue date:	**10 April 2025**
Our reference:	**51003491245001**
Your reference:	**G25118**



Consultants

Coal Mining Report

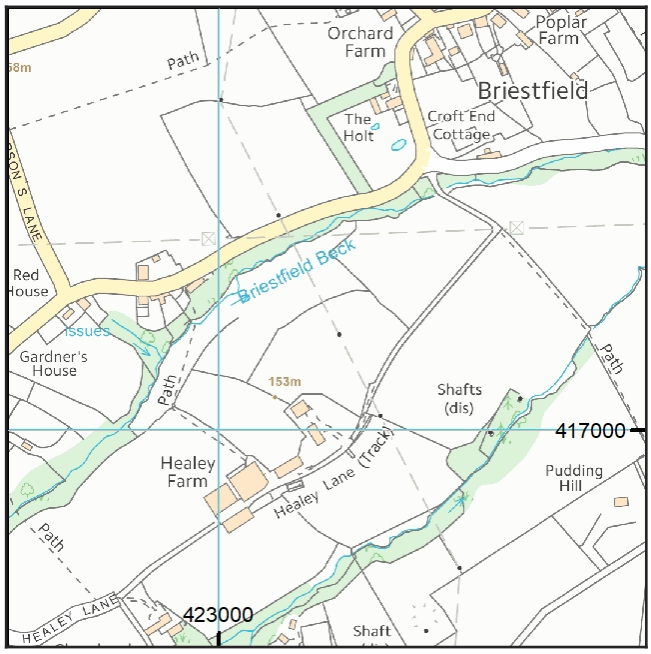
This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

GEOINVESTIGATE

Enquiry address

Healey Farm
Healey Lane
Dewsbury
WF12 0NT



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

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/thecoalauthority

Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	WHEATLEY LIME	Coal	6O4J	32	Beneath Property	1.6	South-East	82	1835
unnamed	WHEATLEY LIME	Coal	608G	38	North-West	1.6	South-East	82	1910
unnamed	MIDDLETON MAIN	Coal	608D	47	Beneath Property	2.1	East	109	1876
unnamed	WHEATLEY LIME	Coal	608I	66	Beneath Property	1.8	South-East	82	1960
unnamed	SILKSTONE	Coal	6O4N	66	Beneath Property	2.8	South-East	61	1930
unnamed	WHEATLEY LIME	Coal	6O4K	67	Beneath Property	2.0	North	82	1959
unnamed	SILKSTONE	Coal	608V	73	North	3.4	South-East	51	1928
unnamed	TOP BEESTON	Coal	6O4O	113	Beneath Property	2.2	North-East	84	1969
unnamed	TOP BEESTON	Coal	608Y	137	Beneath Property	2.9	South-East	97	1973
unnamed	BLACK BED	Coal	6O4Q	191	Beneath Property	2.5	East	61	1964
unnamed	BLACK BED	Coal	6092	194	North	2.6	South-East	63	1970

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
Adit	422416-020	422874 416971	Treatment details unknown.*	Coal	
Adit	422416-025	422892 416974	Treatment details unknown.*	Coal	
Adit	422416-026	422885 416973	Treatment details unknown.*	Coal	
Adit	422416-027	422858 416945	Treatment details unknown.*	Coal	
Adit	422417-029	422958 417062	Treatment details unknown.*	Coal	
Adit	422417-036	422935 417019	has been filled to an unknown specification.	Coal	
Adit	422417-046	422950 417026	Treatment details unknown.*	Coal	
Adit	422417-047	422925 417003	Treatment details unknown.*	Coal	
Shaft	423416-002	423126 416866	has been filled to an unknown specification.	Coal	
Shaft	423416-012	423023 416902	has been filled to an unknown specification.	Coal	
Shaft	423416-016	423204 416911	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 entries were 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:

11868	1042	NE776
FGB259	PO0	NE777
3360	NE477	13070

Our records show we have more plans than those shown above which could affect the enquiry boundary.

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
LOW FENTON	Coal	Yes	11.0	South-East	82
LOW FENTON	Coal	Yes	Within	N/A	332
MIDDLETON LITTLE	Coal	Yes	Within	N/A	252
PARKGATE	Coal	Yes	38.2	South	262

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

Please refer to the “Summary of findings” map (on separate sheet) for details of any opencast areas 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 in an area where a notice to withdraw support was given in 1944.

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

The following potential risks have been identified and as part of your risk assessment should be investigated further.

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.

Development advice

The site is within an area of historical coal mining activity. Should you require advice and/or support on understanding the mining legacy, its risks to your development or what next steps you need to take, please contact us.

For further information on specific site or ground investigations in relation to any issues raised in Section 4, please call us on 0345 762 6848 or email us at groundstability@coal.gov.uk.

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.

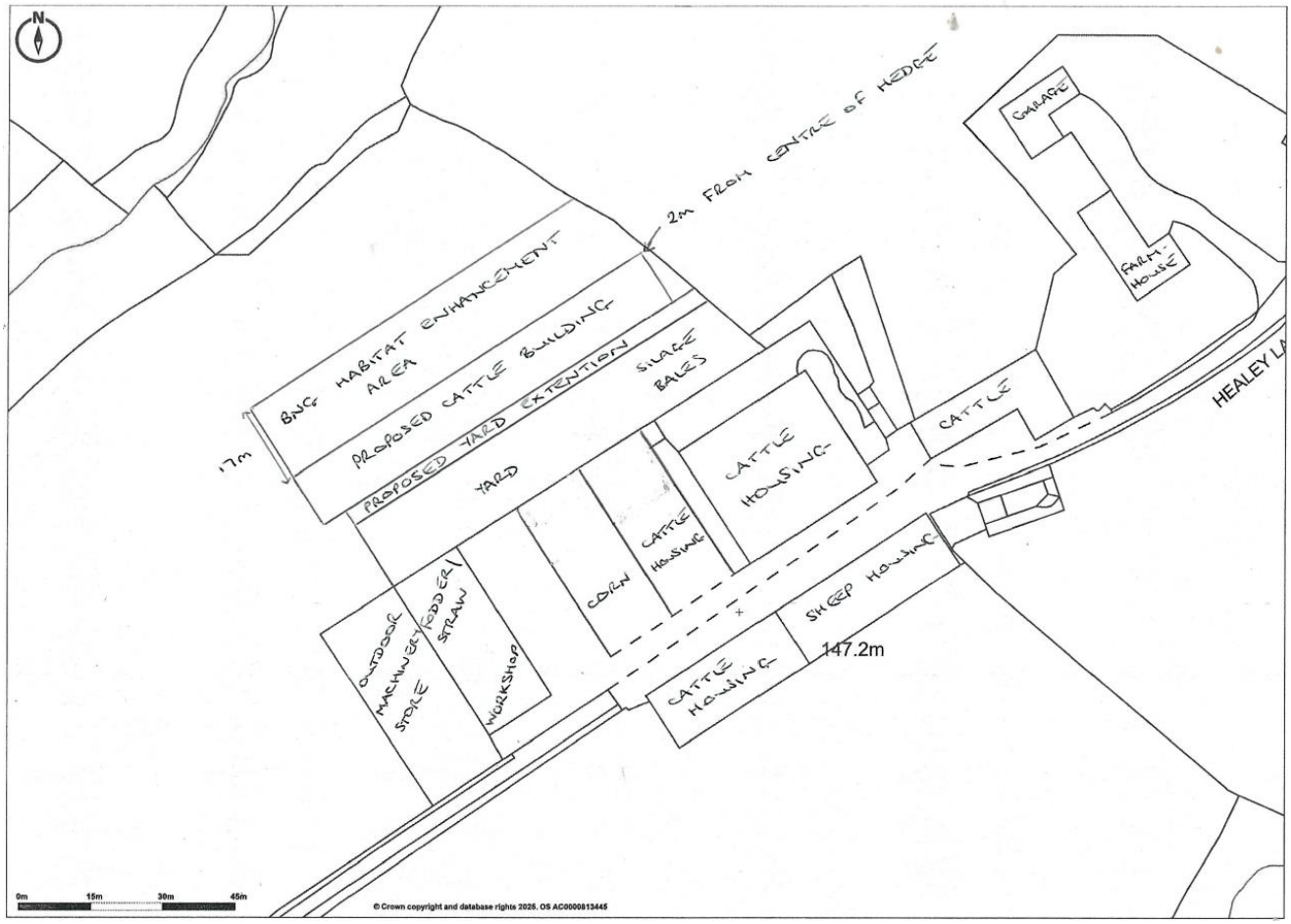
Withdrawal of support notices
Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

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.

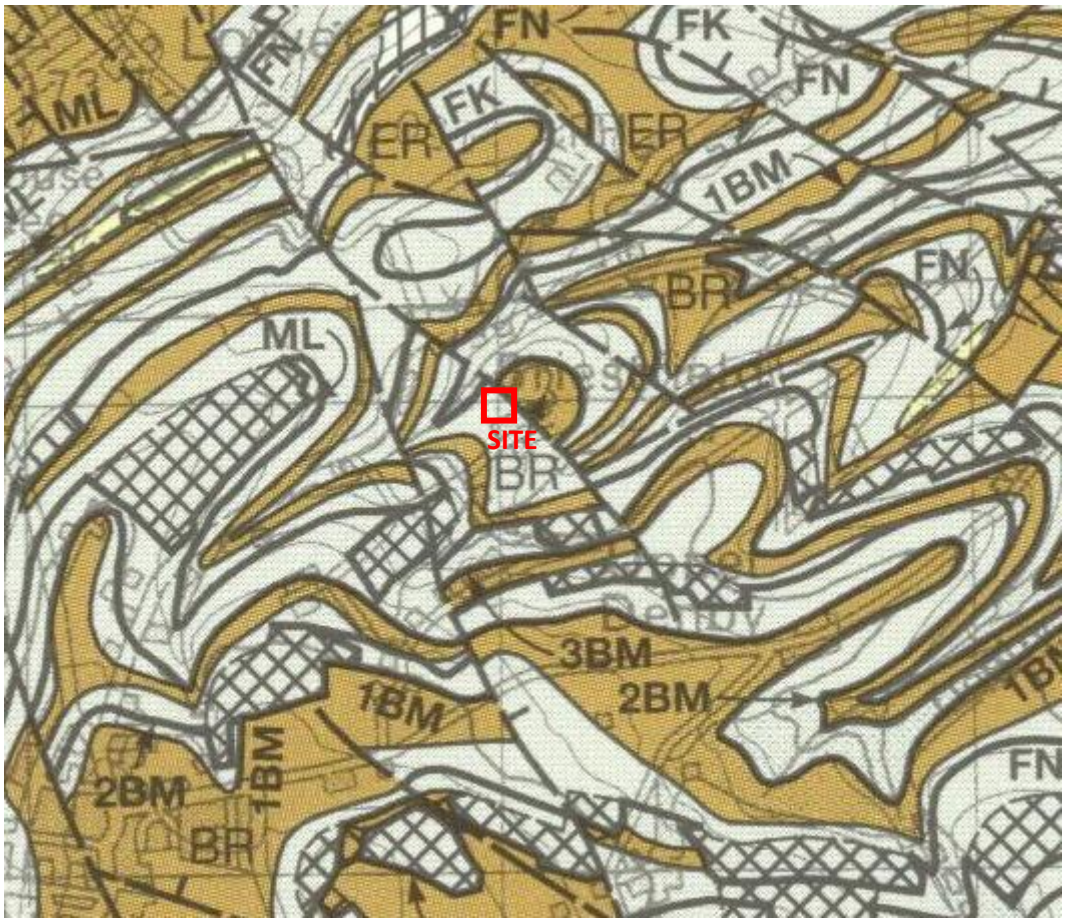
APPENDIX B
SITE IMAGE

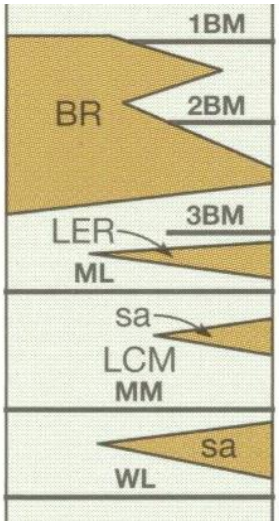
APPENDIX C
PROPOSED DEVELOPMENT

M Worsley, Proposed Cattle Building at Healey Farm, Healey Lane, Briestfield, Dewsbury, WS12 0NT
Block Plan 1:1250 @ A4 April 2025



APPENDIX D
GEOLOGY MAP EXTRACTS





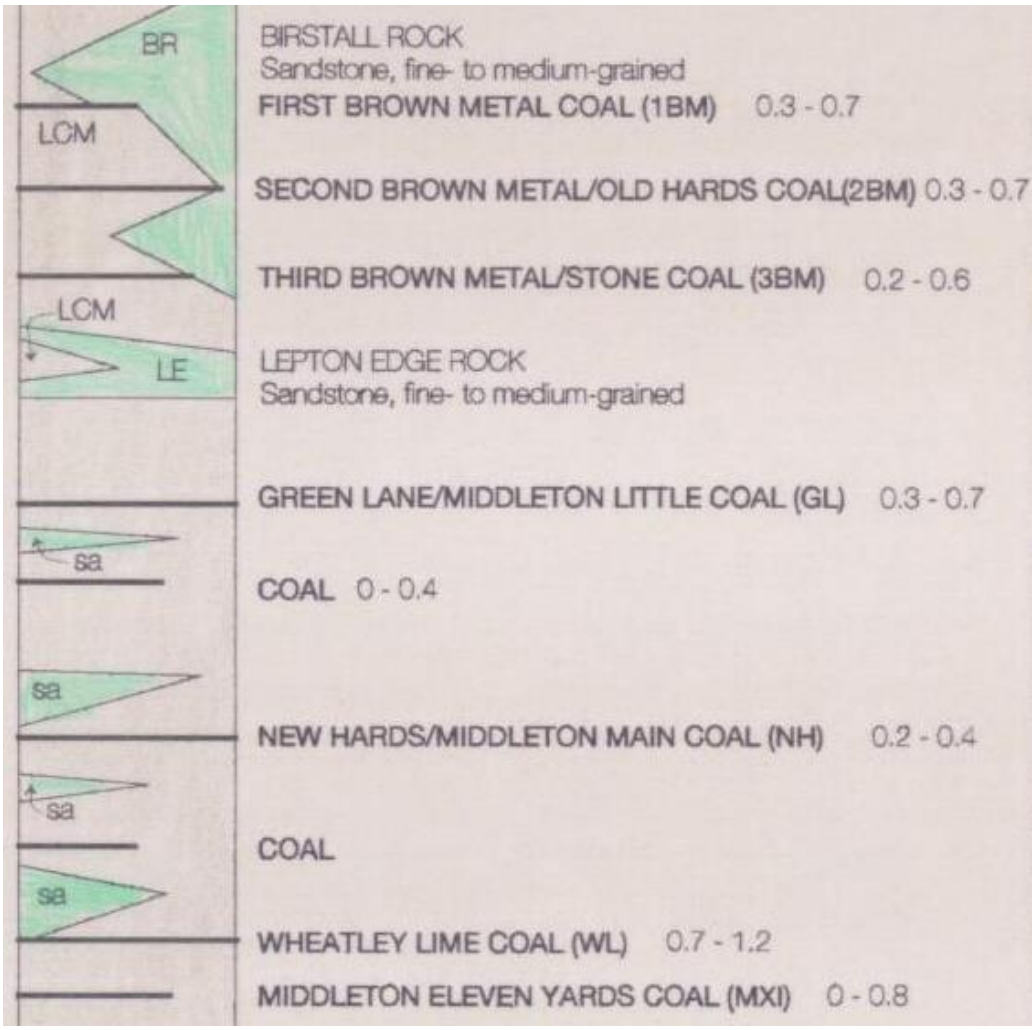
TENTATIVE SITE ELEVATION

FIRST BROWN METAL COAL (1BM) 0 to 0.8 m
BIRSTALL ROCK (0 to 45 m)
SECOND BROWN METAL COAL (2BM) 0 to 1.0 m

THIRD BROWN METAL COAL (3BM) 0 to 0.8 m
LEPTON EDGE ROCK (0 to 10 m)
MIDDLETON LITTLE COAL (ML) 0.2 to 0.9 m

MIDDLETON MAIN COAL (MM) 0.2 to 1.8 m

WHEATLEY LIME COAL (WL) 0.4 to 1.2 m



TENTATIVE SITE ELEVATION

APPENDIX E
BGS BOREHOLE RECORD

SE 21 NW/6 16 SE21NW/16

SHUTTLE EYE COLLIERY No. 1 Underground Borehole

1-in. Geological map: 77

6-in. map: Yorks. 247 S.W.

Site: Lat. 53° 38' 37" Long. 1° 39' 30" N.G.R.44/226164

Borehole commenced at the floor of the BLACK BED seam at 136.58 ft. below O.D.

Borers: N.C.B. Date: 1958.

Cores examined by R. F. Goossens.

	Description of Strata.	Thickness. Ft.	In.	Depth. Ft.	In.
	No core taken	0·53	1	1	90·53
	Hard grey clunch with rootlets and ironstone nodules	0·46	1	3	30·99
	Grey siltstone with scattered rootlets	0·38	1	4	61·37
	Banded siltstone	2·36	7	12	33·73
	Grey shale with ironstone bands and Planolites	1·45	4	17	05·18
	Dark grey shale with mussels	0·05	2	17	25·23
	Grey shale with mussels	0·18	7	17	96·41
	Dark grey shale with mussels	0·08	3	18	05·49
	Grey silty shale	0·15	6	18	65·64
	Grey siltstone	1·14	3	22	36·78
	Banded siltstone	0·84	9	25	07·62
	Grey shale with ironstone bands	0·97	2	28	26·59
	Ironstone with cone-in-cone structure	0·25	10	29	08·84
	Grey silty shale with ironstone	2·13	7	36	010·97
	Banded siltstone	1·52	5	41	012·50
	Grey silty shale	0·93	0	44	013·41
	Grey shale with ironstone bands and Planolites	2·36	7	51	915·77
	Banded siltstone	1·75	9	57	617·53
	Grey shale	0·38	1	58	917·91
	Banded siltstone	2·67	8	67	620·57
	Grey siltstone	1·83	6	73	622·40
	Grey shale with ironstone bands	1·48	6	80	024·38
	Dark grey shale	0·30	1	81	024·69
	Black silty shale with fish remains	0·38	1	82	325·07
	Hard grey clunch with rootlets and ironstone nodules	0·30	1	83	325·37
	Banded sandstone	0·76	2	85	926·14
	Banded siltstone	2·82	9	95	028·96
	Grey siltstone	1·52	5	100	030·48
	Grey silty shale with Planolites	2·13	7	107	032·61
	Grey shale	3·35	11	118	035·97
	Dark grey shale occasional mussels	1·83	6	124	037·80
	Black shale with Planolites and fish remains	1·04	3	127	538·64
	Canneloid shale	0·03	1	127	638·66
BETTER BED	(COAL 0·20 8") (Dirt 0·08 3") (COAL 0·10 4") (Dirt 0·03 1") (COAL 0·05 2") Few fragments recovered of Borers section	0·46	1	129	039·32
	Hard carbonaceous clunch	0·16	7	129	739·45
	Grey clunch	0·13	5	130	039·62
	Carbonaceous clunch	0·10	4	130	439·72
	Hard grey clunch with ironstone nodules	1·12	8	134	040·84
	Grey siltstone	1·01	4	137	441·86

SE 21 NW/7

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SE 21 NW/E7

SHUTTLE EYE COLLIERY No. 2 Underground Borehole

1-in. Geological map: 77

6-in. map: Yorks. 247 S.W.

Site: Lat. 53° 38' 56" Long. 1° 39' 30"
N.G.R. 44/226170

Borehole commenced at the floor of the BLACK BED seam at 115 ft. below O.D.

Borers: N.C.B. Date: 1958.

Cores examined by R. F. Goossens.

	Description of Strata.	Thickness. Ft.	In.	Depth. Ft.	In.	
	No core taken	0·30	1 0	1	0	0·30
	Hard grey clunch with rootlets	0·61	2 0	3	0	0·91
	Grey siltstone	0·30	1 0	4	0	1·22
	Grey shale with scattered Planolites	2·82	9 3	13	3	4·04
	Dark grey shale with mussels	0·38	1 3	14	6	4·42
	Grey silty shale	0·46	1 6	16	0	4·88
	Grey siltstone	0·76	2 6	18	6	5·64
	Grey silty shale	0·61	2 0	20	6	6·25
	Grey siltstone	0·76	2 6	23	0	7·01
	Grey shale with ironstone bands	2·51	8 3	31	3	9·53
	Grey siltstone	1·68	5 6	36	9	11·20
	Grey shale with ironstone bands	2·90	9 6	46	3	14·10
	Banded siltstone	3·58	11 9	58	0	17·68
	Grey silty shale	0·38	1 3	59	3	18·06
	Banded siltstone	1·14	3 9	63	0	19·20
	Grey siltstone	0·76	2 6	65	6	19·96
	Grey silty shale	0·38	1 3	66	9	20·35
	Grey siltstone	0·61	2 0	68	9	20·96
	Grey silty shale	0·61	2 0	70	9	21·56
	Grey shale with ironstone bands	2·06	6 9	77	6	23·62
	Dark grey shale	0·33	1 1	78	7	23·90
	Black silty shale with fish remains	0·36	1 2	79	9	24·31
	Hard grey clunch with rootlets	0·53	1 9	81	6	24·84
	Grey siltstone	0·28	11	82	5	25·12
	Banded sandstone	0·48	1 7	84	0	25·60
	Grey siltstone	2·97	9 9	93	9	28·58
	Grey silty shale with scattered Planolites in lower part	3·58	11 9	105	6	32·16
	Grey shale with ironstone bands	3·81	12 6	118	0	35·97
	Dark grey shale with occasional Planolites	0·61	2 0	120	0	36·58
	Black shale, scattered Planolites and fish remains	1·09	3 7	123	7	37·67
BETTER BED	COAL (a few fragments recovered borers thickness)	0·38	5	124	10	38·05
	Black clunch	0·15	6	125	4	38·20
	Dark grey clunch	0·36	1 2	126	6	38·56
	Hard grey clunch with rootlets and ironstone nodules	0·53	1 9	128	3	39·09
	Grey siltstone to bottom of hole	0·76	2 6	130	9	39·85

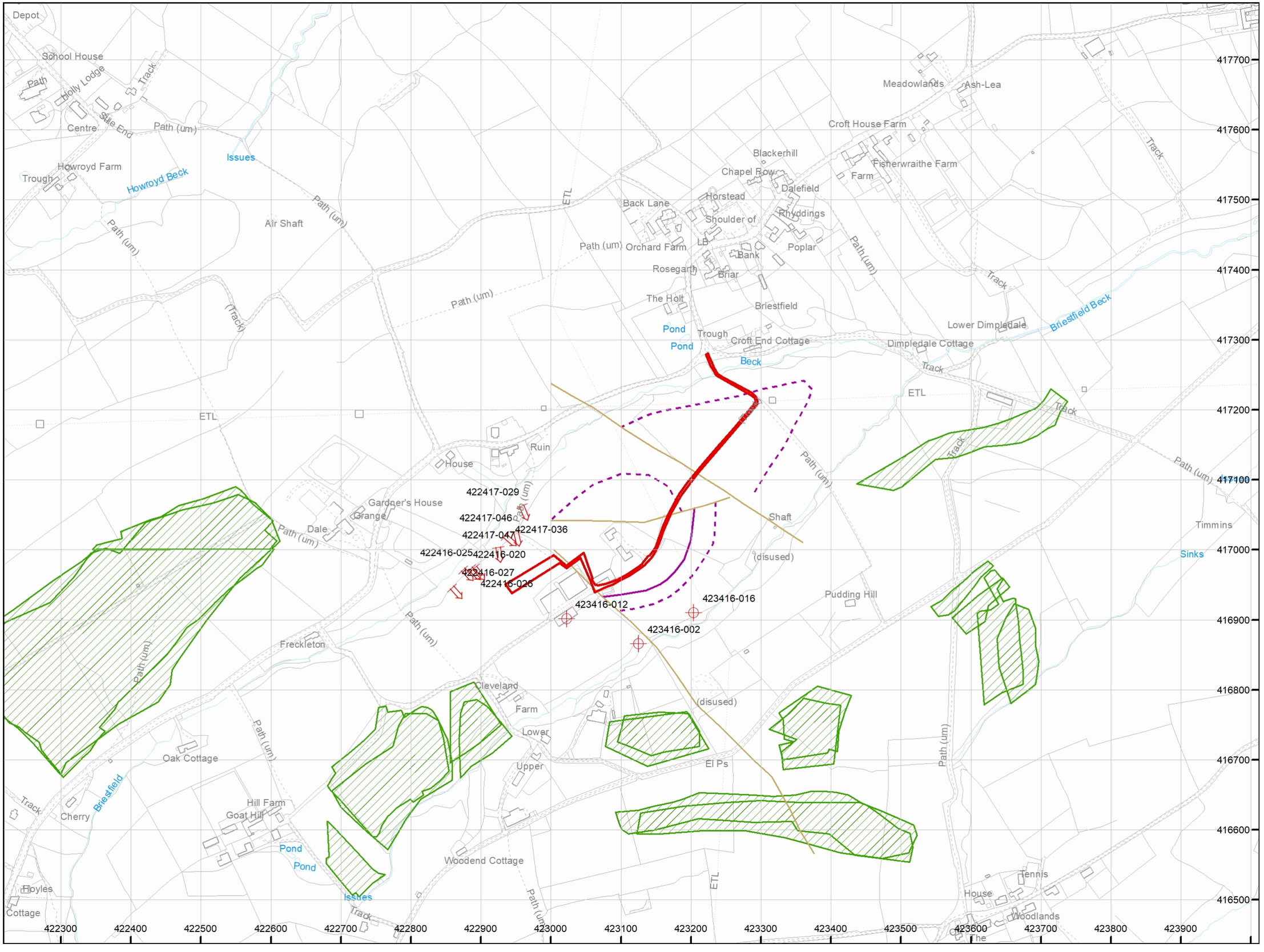
The Coal Authority

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
- Disused adit
- Outcrop (Proven)
- Outcrop (Conjectured)
- Geological faults
- Unlicensed opencast site



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