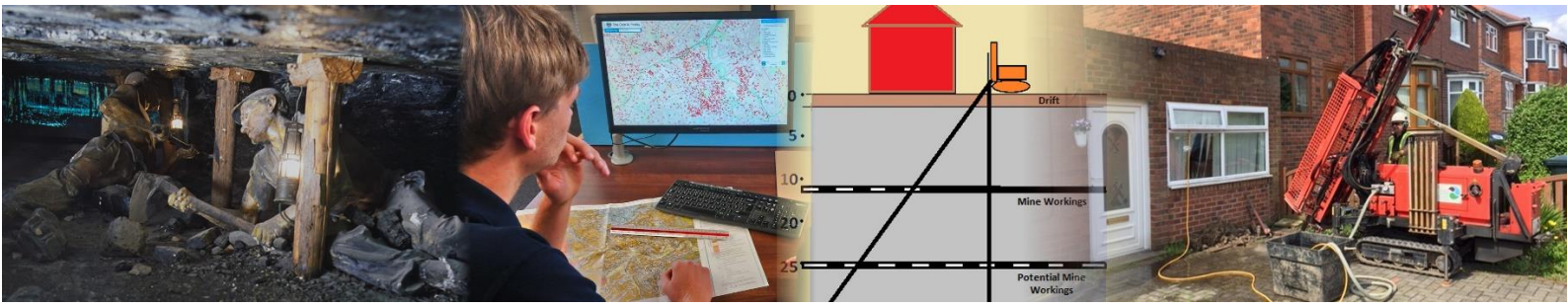
GEOLOGICAL
GEOTECHNICAL
GEOENVIRONMENTAL
CONSULTANCY
DRILLING & DATA ACQUISITION



GEOINVESTIGATE LIMITED
Coal Mining Risk Assessment (CMRA)

LOCATION	Industrial Unit on Smithies Moor Rise, Batley, WF17 8AX
ISSUE DATE	9th December 2024
FOR	Zafran Javed
CLIENT REF.	
OUR REF.	G24349

Prepared by

Kris Rodway BSc (Hons) MIEnvSc
Senior GeoEnvironmental Engineer

Checked by

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 422609, 425596 with ground height around 85mAOD.

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 an industrial unit and office in the east and parking hardstanding in the west. Site images are provided in Appendix B. It is proposed to carry out a building and roof infill extension of the existing unit on the east side of the property incorporating the existing front office block into the building as per the development plan provided in Appendix C.

1.2 Historical Maps

A desk study of limited available historical OS maps shows the site to be undeveloped open space/farmland between 1830 to 1880 with a beck/stream to the north of the property. Coal Pits and sandstone quarries are shown in the surrounding area but not within the site or immediately adjacent to it. By 1888-1915, the site is next to several small and large mills. The existing building/shed within the site was erected post-1965.

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 property.

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) and 1:10560 map sheet SE22NW both presented in Appendix D. The mapping indicates the site to be directly underlain by the Pennine Lower Coal Measures Formation comprising Mudstone, Siltstone and Sandstone including subordinate named coal horizons. No superficial deposits are recorded, and bedrock may lie at or near surface though the 1:20560 map suggests an unknown thickness of infilled ground may underlain the building extension.

No coal outcrops are recorded within the development area. Outcrop of the Flockton Thin Coal (FN) is shown nearby to the south of the property, while outcrop of the 1st Brown Metal (1BM) and 2nd Brown Metal (2BM) Coals occur to the west of the site.

A geological fault lies close to or passes beneath the proposed building extension at the west end of the existing building. The bedrock strata are downthrown on the east side of the fault.

The tentative elevation of the site relative to the vertical geology column is shown in Appendix D.

BGS log SE22NW/624 on the downthrown eastern side of the fault presented in Appendix E, records superficial deposits / bedrock depth of 4.88m, with an unnamed coal at 50.90m. In Geoinvestigate's opinion, if underground mine workings occur in this coal on the east side of the building extension, it lies too deep to impact surface ground stability.

However, no borehole information is available on the upthrown west side of the fault beneath the west side of the building extension. Notwithstanding, as the geology mapping indicates the bedrock on this side is Birstall Rock then according to the geology column the 1BM or 2BM Coal horizons and underground workings in them (if present) may lie within very shallow or shallow depth below the new extension. This however is speculation.

Owing to uncertainty about the coal mining geology under the new building extension and the possible presence of shallow mine workings, it is Geoinvestigates opinion that limited further intrusive drilling investigation is required beneath the new building extension to further enable the mine working hazard to be assessed beneath this end of the building.

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).

Section 1.3 of this CMRA report has identified a possible very shallow and/or shallow unrecorded underground mine working hazard beneath the new extension. The increased risk to the development is highlighted by the extract of CA online interactive mapping provided in Appendix F. According to this information the site falls within development high risk area (DHRA) and an area of probable shallow mine working hazard.

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

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 does not identify any fissures, or breaklines within the site or within influencing distance of it.

However, the CA report does show a geological fault line lying under or close to the proposed building extension. While most faults are stable and do not move, very occasionally faults in combination with underlying mine workings can give rise to minor creep movement at the surface. However, there is no evidence that such fault related movement has occurred at this locality.

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. 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 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 mine workings, with no/ limited thickness of superficial deposits, and a geological fault crossing the site. However, the risk may be reduced 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	**NONE**	
Probable unrecorded shallow workings	**M**	Drilling to enable further assessment
Outcrop	**NONE**	
Spine roadways at shallow depth	**NONE**	
Mine entries	**NONE**	
Geological faults, fissures and breaklines	**M**	Drilling to enable further assessment
Mine gas	**M**	Drilling to enable further assessment
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**	The site is NOT impacted by known mine entry proximity hazards and the site-specific ground stability and possible mine gas risks to the proposed development identified in this CMRA **can be mitigated by further intrusive site investigation and if required thereafter 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 and a geological fault. Drilling investigation is required to further assess these 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 need for core sample recovery) should be sunk 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.

Limited further shallow geotechnical and geotechnical investigation may also be required to enable foundation design and to check the ground for the presence of contamination and for waste disposal classification.

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 3rd December 2024 ref. 51003466672001
B. Site Images
C. Proposed Development
D. Geology Map Extracts
E. CA online information
F. BGS Borehole Record

APPENDIX B
COAL MINING REPORT

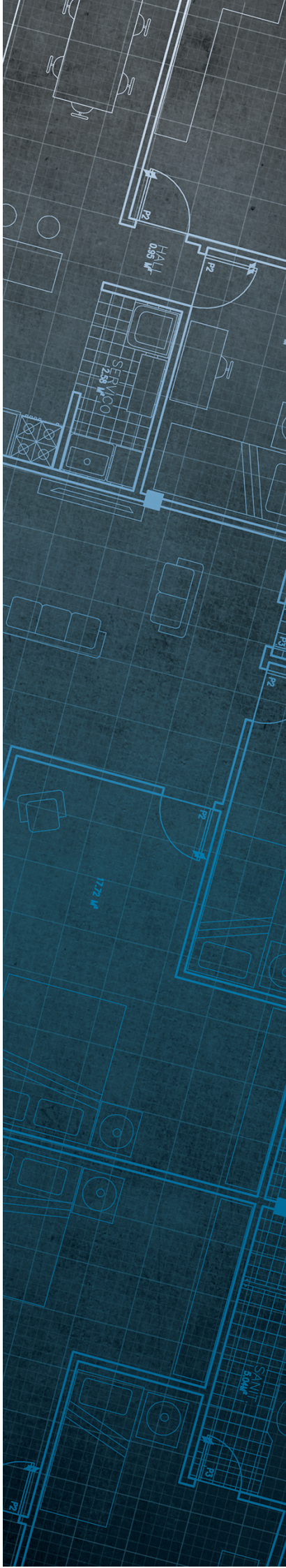
The Coal Authority

Consultants

Coal Mining Report

Smithies Moor Rise
Birstall
Batley
Kirklees
WF17 8AX

Date of enquiry:	**2 December 2024**
Date enquiry received:	**2 December 2024**
Issue date:	**2 December 2024**
Our reference:	**51003466672001**
Your reference:	**G24349-KR**



Consultants

Coal Mining Report

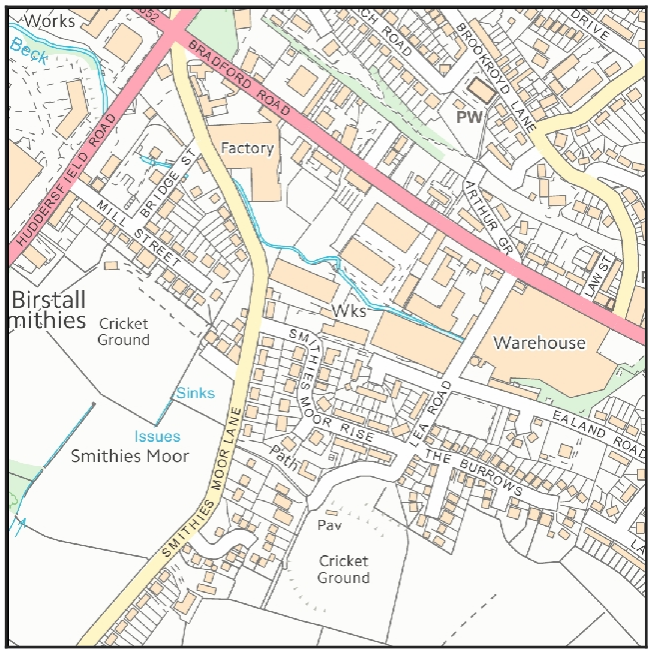
This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

GEOINVESTIGATE

Enquiry address

Smithies Moor Rise
Birstall
Batley
Kirklees
WF17 8AX



Approximate position of property

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How to contact us

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Mansfield
Nottinghamshire
NG18 4RG

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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	BLACK BED	Coal	62NB	230	West	2.4	South-East	66	1921

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

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

8420	12673	8068
FGB759	FGB428	FGB419

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

Outcrops

No outcrops recorded.

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.

Fault 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

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.

The Coal Authority

Summary of findings

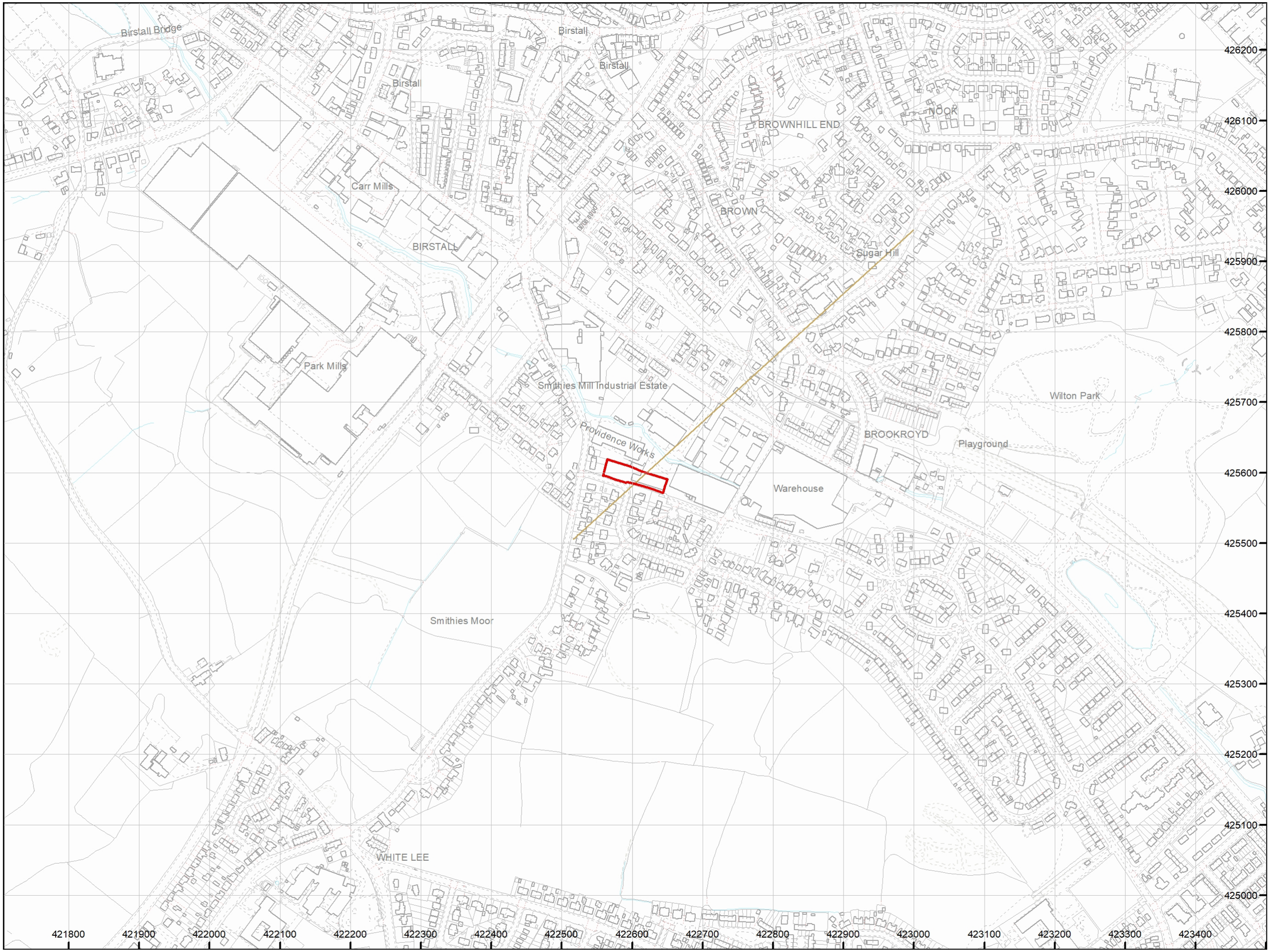
Map data

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

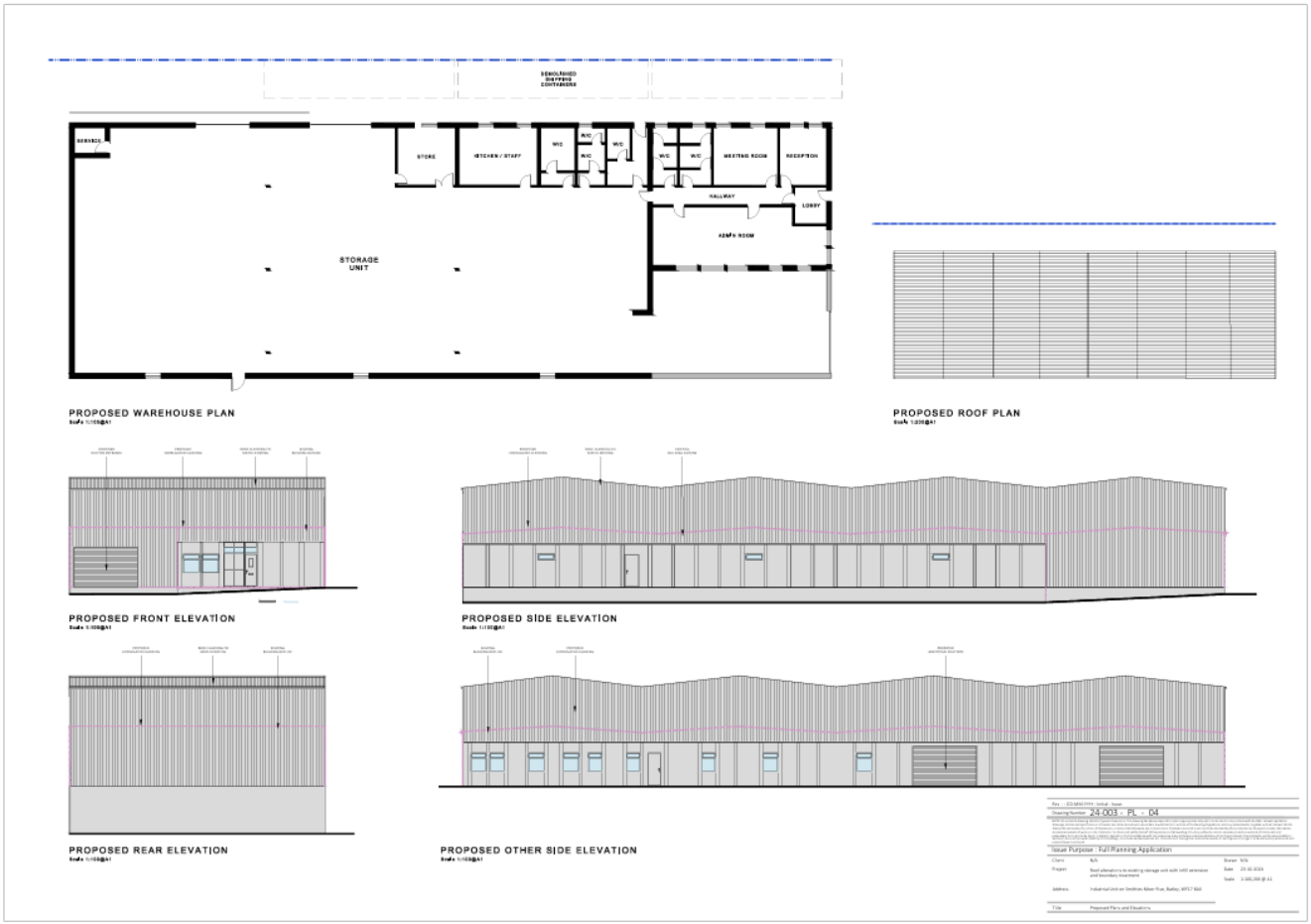
Geological faults



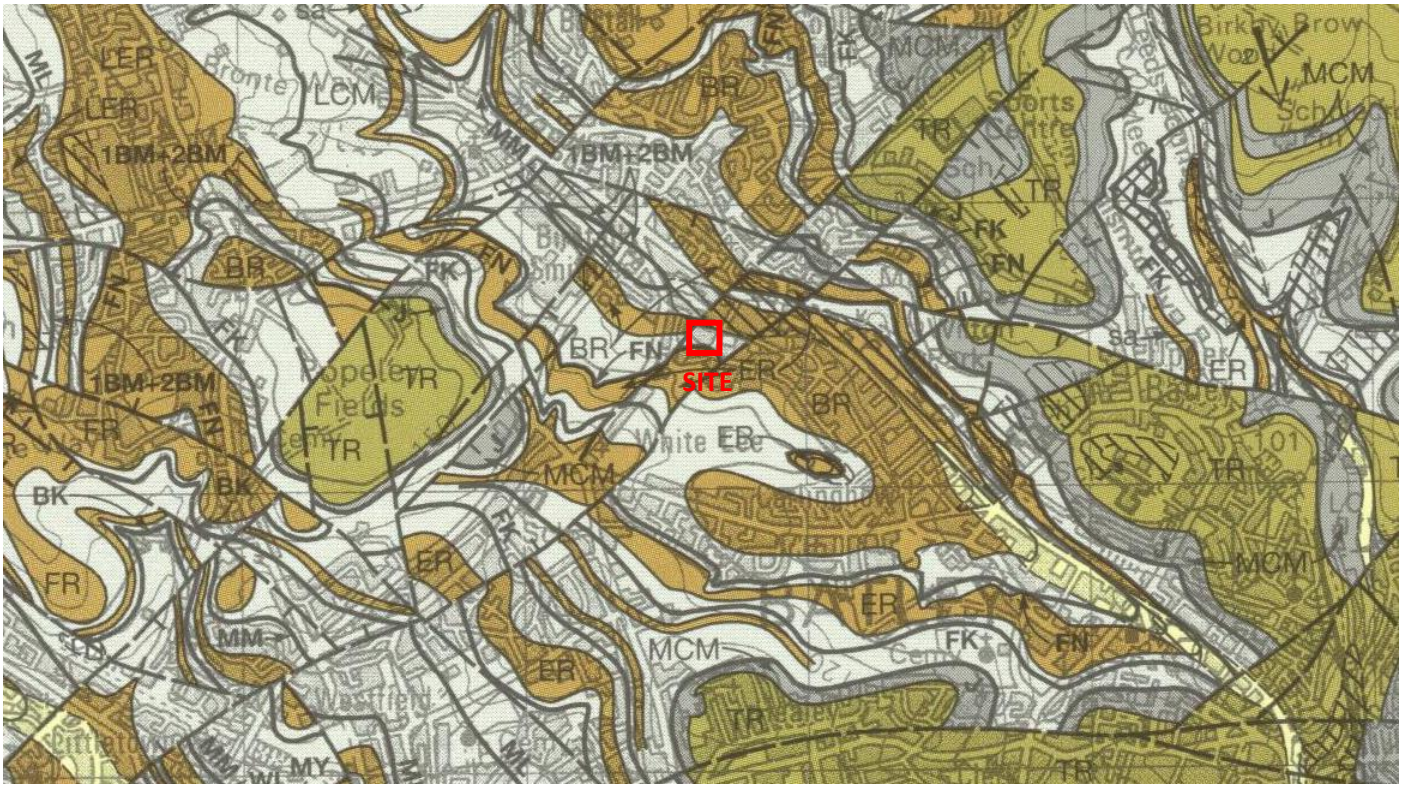
How to contact us
0345 762 6848 (UK)
+44 (0)1623 637 000 (International)
www.groundstability.com

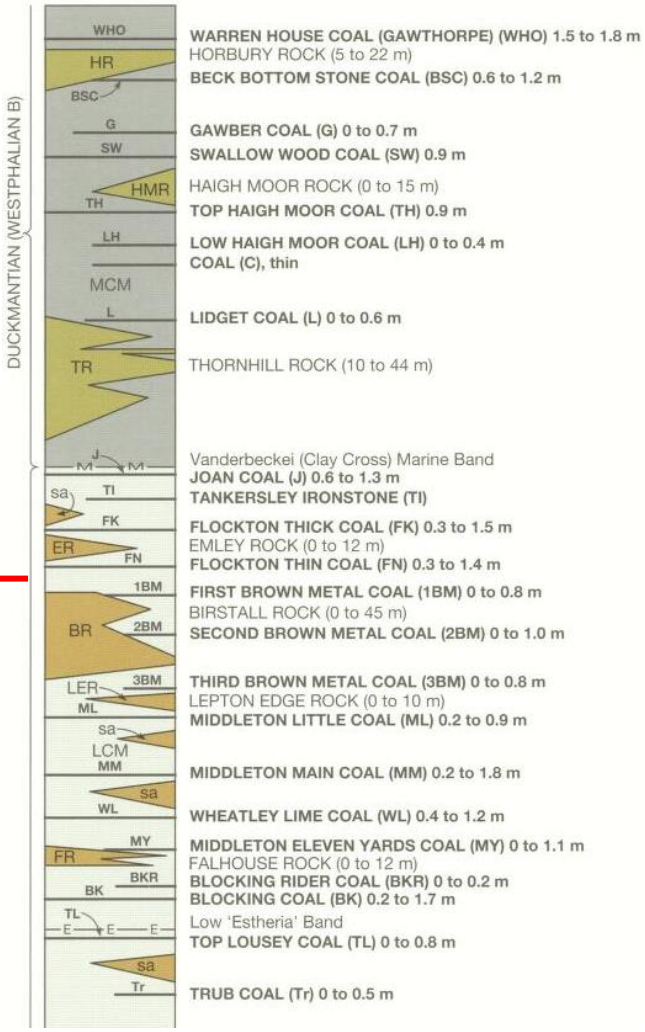
APPENDIX B
SITE IMAGES

APPENDIX C
PROPOSED DEVELOPMENT



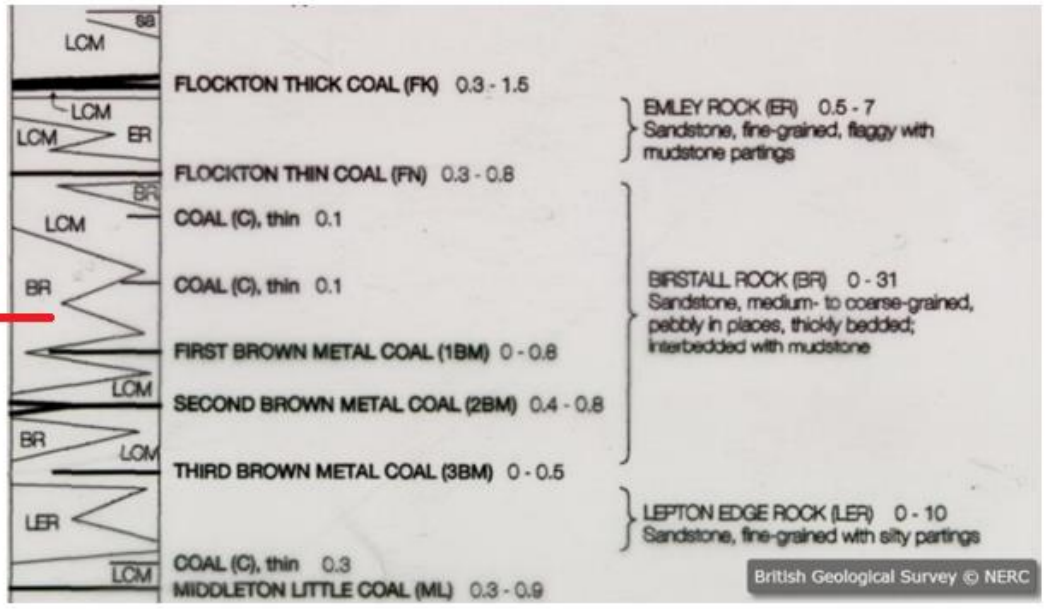
APPENDIX D
GEOLOGY MAP EXTRACTS



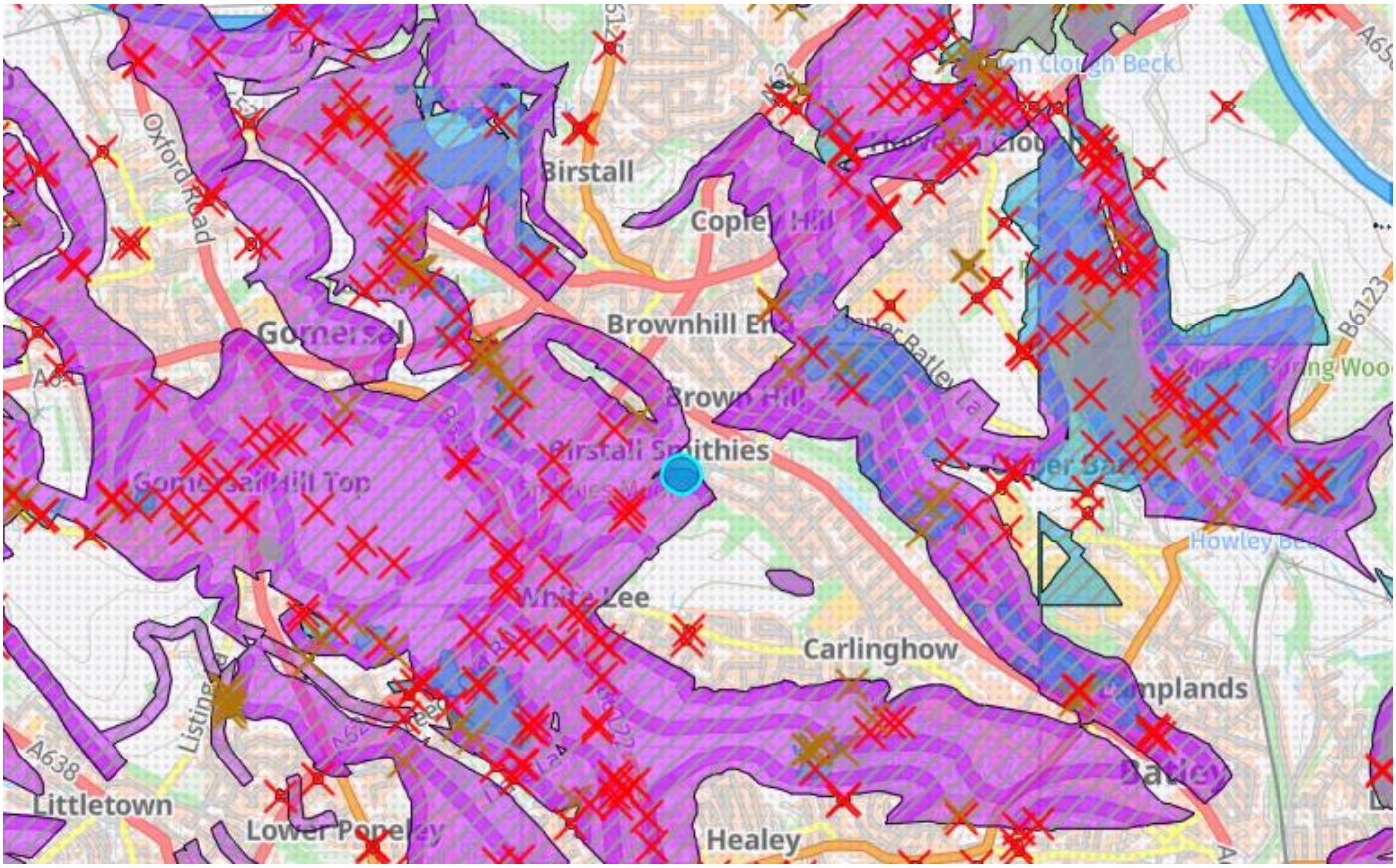


TENTATIVE SITE ELEVATION?

West side of fault ?



APPENDIX F
CA ONLINE INTERACTIVE MAPPING



Site

Mine Entry

Development High Risk Area

Past Shallow Coal Mine Workings

Shaft

Adit

Probable Shallow Coal Mine Workings

Coal Outcrops

APPENDIX F
BGS BOREHOLE RECORD

SE22/21 B 77

RECORD OF WELL (SHAFT OR BORE)

1" N.S. 77 SE
1" O.S.
Grid Ref.

At R. Dewhurst & Co. SE2268 2559

Town or Village Batley County Yorks. W.R. Six-inch (map)

(4) Exact site

in parish of (title)

Level of ground surface above sea-level (O.D.) ft. If well starts below ground surface, state how far ft.

Shaft ft., diameter ft. Bore ft. Diameter of bore: at top ins.; at bottom ins.

Details of permanent lining tubes (internal diameters preferred) 32'6" x 18" from 3" down; 821' x 15" from 2 ft down. 725' x 10" from 2' down.

Water struck at depths of (feet)

Rest-level of water below / above top of well feet. Suction at feet. Yield on hours' / days' test gallons per (with pump of capacity g.p.h.); depressing water level to feet below top. Time of recovery hrs. Amount normally pumped daily g.p.h. for hours.

Quality (attach copy of analysis if available)

Sunk by C. Isler & Co for Mr. R. Dewhurst & Co. Date of well 13/1/31

Information from C. Isler

(For Survey use only) GEOLOGICAL CLASSIFICATION.	NATURE OF STRATA (and any additional remarks).	THICKNESS Feet.	THICKNESS Inches.	DEPTH Feet.	DEPTH Inches.
	Top soil	1	–	1	
	Clay & stones	15	–	16	
	Soft shale.	13	–	29	
	Hard shale.	5	–	34	
	Soft shale.	4	–	38	
	Stone.	18	–	56	
	Soft shale.	14	–	70	
	Hard shale.	40	–	110	
	Stone.	28	–	138	
	Shale with shells.	17	–	155	
	Coal.	2	–	157	
	Soft coal.	29	–	186	
	Stone.	2	–	188	
	Shaley stone.	38	–	226	
	Coal.	3	–	229	
	Shaley stone.	61	–	290	
	Fire clay.	21	–	311	
	Stone.	6	–	317	
	Shale.	37	–	354	
	Stone.	18	–	372	
	Shale.	3	–	375	
	Stone	5	–	380	
	Coal	1		381	
	Shale.	31		412	
	Coal.	1		413	
	Stone.	8		421	
	Shale	9		430	
	Stone	1		441	
	Shale	28		469	
	Stone	4		473	
	Shale	3		476	
	Stone	3		479	

Hard Coal Measures

NM 27/1/32

Geological Survey and Museum, South Kensington, London, S.W.7.

For Survey use only

Date received	G.S.M. Office File No.	Site marked on 1" map (see symbol)
NOV 1939		