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22156/R1	January 2023
Project	TY DYSGU, DOWLAIS – COAL MINING RISK ASSESSMENT
Client	Merthyr County Council

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1.0 INTRODUCTION

1.1 Instruction

Spectrum Geo Services (SGS) were commissioned by Merthyr Council, to complete a Coal Mining Risk Assessment (CMRA) for a site at Ty Dysgu, Dowlais, CF48 3HW.

1.2 Introduction

This Coal Mining Risk Assessment (henceforth C.M.R.A.) has been produced for Merthyr Council. As part of a broader site investigation for a new development at the Dowlais Primary School site. Some possible building positions are included in Appendix 1 of this report, but these may be subject to change depending on the results of the site investigation. The site falls within a Coal Authority Development High Risk Area. With such a classification the C.A. would become statutory consultees for any future planning application and a C.M.R.A. will be needed to validate the application.

Robert Griffiths BSc. (Hons), MSc., F.G.S. of Spectrum Geo Services Ltd. has been commissioned as the competent person to prepare a C.M.R.A. of the proposed development site. The purpose of this is to provide the L.P.A. with information on possible underground mining and an assessment of its impact on the ground stability of the site. The purpose of this C.M.R.A. is to gather all the available information and use it to identify any mining risks and then to quantify them. It will then suggest, if necessary, any mitigation measures to satisfy the L.P.A. that the site is, or can be made safe and stable in line with national guidelines. This will be done in line with the template and recommendations of the C.A. document Guidance for Welsh L.P.A.s (version 4, 2017).

The site is centred on grid reference 306910, 207870 and is at an elevation of approximately 310m A.O.D. The plot is an irregular polygon, measuring a maximum of 150m x 75m. The site covers an area of approximately 0.9 hectare. There are no surface watercourses. The site location and site boundary can be seen overleaf in Figures 1 and 2.

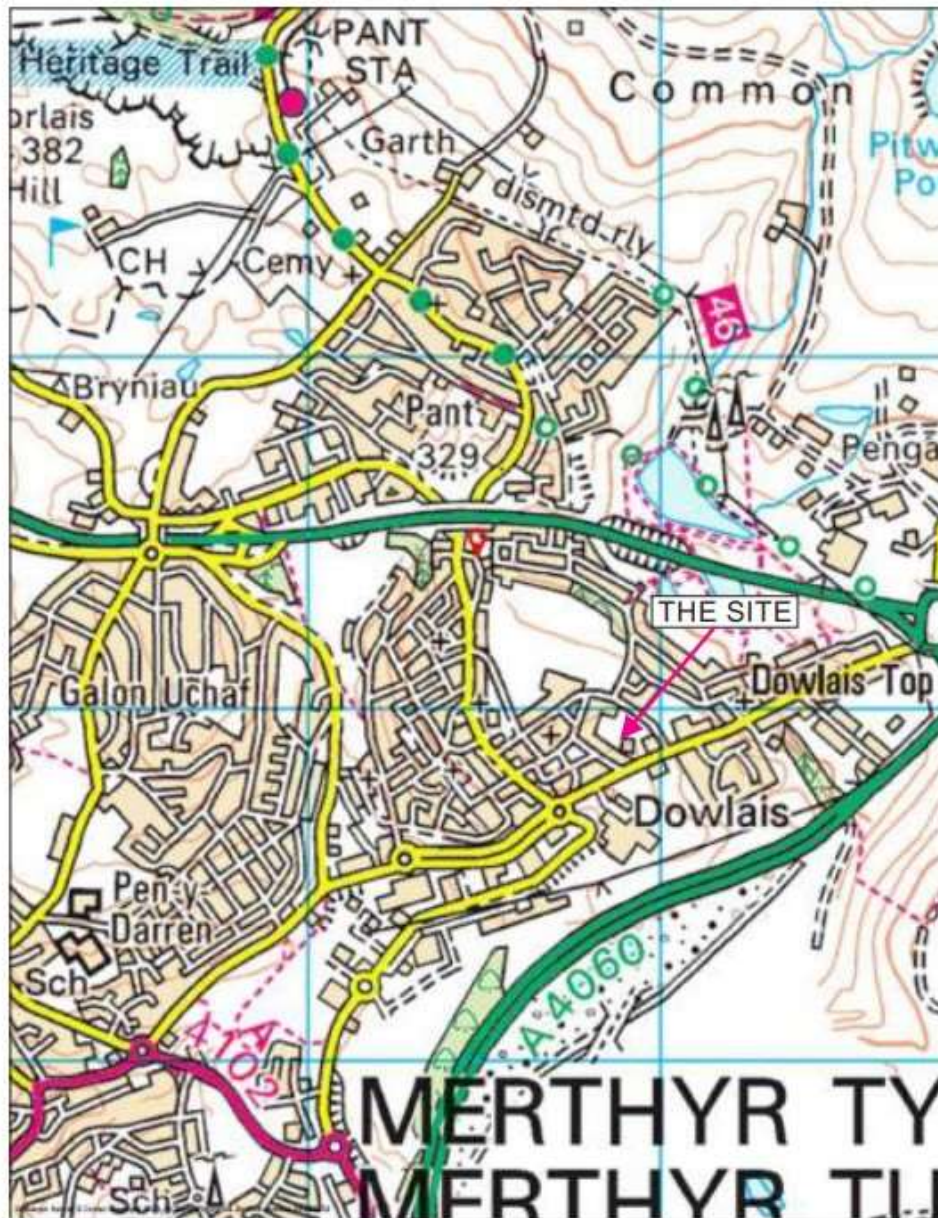


FIGURE 1
SITE LOCATION



FIGURE 2
SITE BOUNDARY IN RED

1.3 Scope of Works

The requirements of a Coal Mining Risk Assessment are described within the Coal Authority document PLN65, as such:

The Coal Authority considers that a Coal Mining Risk Assessment Report should comprise three key stages:

Stage 1:

Obtain coal mining information for the development site

Stage 2:

Use the information to identify what risk coal mining poses to the development

Stage 3:

Identify how coal mining issues have influenced the proposed development and any other mitigation required

STAGE 1: OBTAIN COAL MINING INFORMATION

The Coal Mining Risk Assessment Report must be based on up-to-date coal mining/geological information.

STAGE 2: IDENTIFY WHAT RISKS COAL MINING POSES TO THE PROPOSED DEVELOPMENT

The Coal Authority would expect an assessment of the site-specific coal mining information, and the identification of any risk to the proposed development, to include consideration of the **cumulative impact** of the following issues:

Are there **recorded coal mine entries** within the site or within 20 metres of the site boundary? Is the proposed development in the likely zone of influence of **past underground coal mining**? Is the proposed development in the likely zone of influence of any **present underground coal workings**?

Is the proposed development within the likely zone of influence of **underground coal workings at shallow depth** (depths of less than 30m)?^{[L]_{SEP}} Is there a possibility of **unrecorded shallow mine workings and/or mine entries**?^{[L]_{SEP}} Is there a record of **mine gas** emissions within the site boundary?

Is the proposed development in an area for which the Coal Authority is determining or has granted a **license to remove coal** by underground methods?^{[L]_{SEP}} Are there known **faults or other lines of weakness** due to coal mining at the site?^{[L]_{SEP}} Has the site been subject to remedial works by, or on behalf of, the Coal Authority under its **surface hazard** call out procedures?

Is the proposed development within the boundary of a **surface mining/ opencast site from which coal has been removed** by surface mining/ opencast methods?^[SEP] Is the proposed development within 200 metres of a **surface mining/ opencast site from which coal is being removed**?

STAGE 3: IDENTIFY HOW COAL MINING ISSUES HAVE INFLUENCED THE PROPOSED DEVELOPMENT AND WHETHER ANY OTHER MITIGATION MEASURES ARE REQUIRED

The Coal Mining Risk Assessment Report should conclude by identifying how any coal mining issues have influenced the proposed development – for example through influencing the design and layout of the proposal by identifying areas where built development should not take place owing to the presence of coal mining features, such as mine entries.

The Coal Mining Risk Assessment Report should also identify any other mitigation/treatment/remediation measures that are necessary to ensure that the development is not subject to land instability or other public safety risks associated with former coal mining activities. This could include, for example, the need to incorporate gas proof membranes within buildings and/or the need to treat shallow coal mine workings to ensure stability of land prior to development.

NOTE

Any intrusive activities which intersect, disturb or enter any coal seams, coal mine workings or coal mine entries (shafts and adits) require the prior written permission of the Coal Authority.

The Coal Mining Risk Assessment Report should note whether Coal Authority permission has been obtained/will be required for any site investigation and/or mitigation works.

1.4 Limitations

This report is limited to a review of information contained within a Coal Authority Mining Report, published geological data, and a search of information regarding historic boreholes in the vicinity.

2.0 SOURCES OF INFORMATION

- a) Coal Authority Consultants Report ref MR-51003331273001.
- b) The C.A. interactive viewer.
- c) The 6" to the mile Geological Survey sheet SO 00NE (1957 revision).
- d) The Memoirs of the Geological Survey of The South Wales Coalfield, Part V, The Country around Merthyr Tydfil (1 st, 2nd and 3rd editions of 1904, 1932 and 1988) and other mining archive sources.
- e) British Coal Development Plan 07/D/SO/00NE.
- f) Mine Abandonment Plans SWR2509 and SWR2510 parts A-C.
- g) Historical Ordnance Survey Map, Old County Series Sheet Glamorgan VI SW (1901 revision) at 1:10,560 scale'
- 2a) The Consultants Report states that there is recorded underground mining of two Ironstone veins beneath the site. These are at 1m and 17m depth. This claim will be taken at face value for the moment. The workings are supposedly in the Rosser and Bottom Vein Ironstones with extraction thicknesses of 1.27m and 1.0m respectively. Both were last worked in 1878. The report goes on to say the C.A. believe there are no shallow unrecorded workings and no shallow spine roadways beneath the site. The report then states that there are no recorded mine entries within 100m of the site boundary. The report contains the reference numbers of six abandonment plans which may be of relevance to the risk assessment. These will be examined later in the report. A coal seam outcrop is marked running through the site on the Summary of Findings map. The report names this as the Garw Vein. There are no faults fissures or breaklines recorded. There is recorded opencast mining marked on the SoF map. This is 270m away from the site at the nearest approach.

In Section 2 the report states there have been no site investigations and there are no recorded surface hazards that have required remedial action within 50m. The C.A. have not received any damage notices or subsidence claims for any property within 50m since October 1994 (i.e. since the formation of the C.A. to take liability for legacy mining issues). There are no records of gas emissions requiring action within 500m. Section 3 states there are no future underground workings or licensing for any. There are no Section 46 notices or withdrawal of support notices. An extract of the Summary of Findings map is reproduced in Figure 3. All these facts will feed into the later quantitative risk assessment.

Section 4 recommends technical advice on further investigation should be obtained as part of the risk assessment. The Consultants Report is attached as Appendix 2.

2b) The C.A. interactive viewer contains a vast amount of information from various sources particularly on the mining data window. This always includes material not contained in the Consultants Report but which can be important to a fuller understanding of the geology and mining. An extract from the planning window can be seen in Figure 4. Almost the entire site lies within a huge block of Development High Risk. From its unbroken appearance it would appear to be an area of suspected shallow workings, closely spaced outcrops, opencast mining or a combination of all three. The small isolated circular areas are 20m exclusion zones around mine entrances outside the Development High Risk Zone.

In order to fully understand why sites have a high risk status it is informative to study the Coal Mining Data window. This window is far superior to the planning window as it is at a larger scale. There are multiple datasets which can be turned on and off. An extract from the Mining Data Window is reproduced as Figure 5 overleaf. For clarity only three sets of data are turned on in Figure 5- seam outcrops, mine entries and opencast mining. The outcrop pattern southeast of the site is regular and tightly spaced. The interactive viewer shows no topography or geological faulting, which can make interpretation difficult without other sources of information. A seam outcrop crosses the site as in Figure 3. This has the seam code SW0101. This is the Garw Vein in the C.A. Seam Code Directory, the same name as in the Consultants Report. A small selection of other outcrops have had the seam codes added in Figure 5. The seam codes are ascending to the southeast. This could mean the strata is dipping to the southeast, the topography is rising to the southeast or a combination of both. The identities of the seams are not important as they cannot underlie the site and hence can have no effect on ground stability. The four mine entries northeast of the site are all shafts with little more information in the database other than one is an old ironstone shaft. The siting of one shaft on the Garw outcrop is purely coincidental. If it was connected with mining of the Garw Vein it would be an adit. Before leaving the interactive viewer, it is worth noting the number of closely spaced seam outcrops within the opencast boundary making this form of mining attractive even after

extensive underground mining.

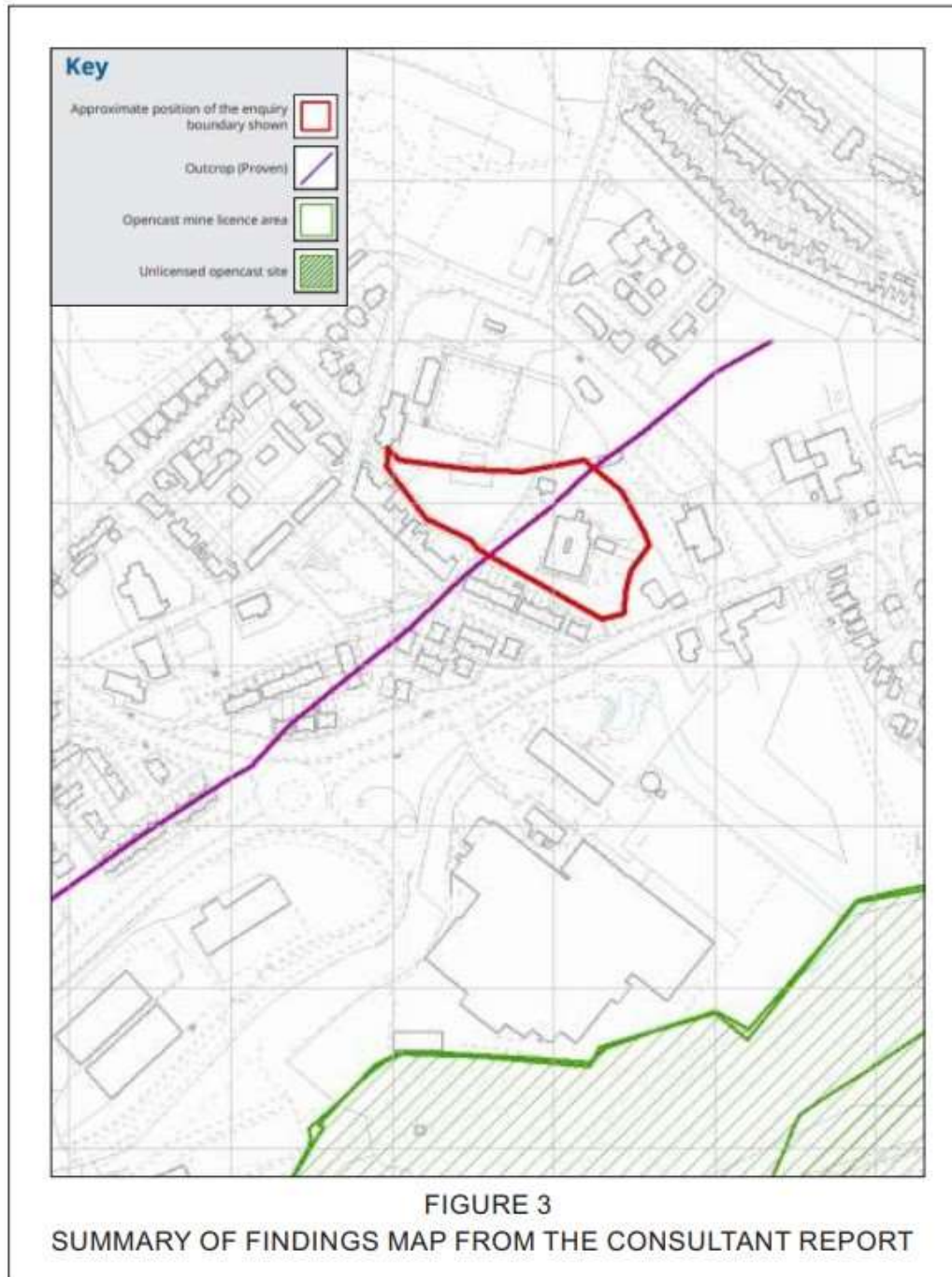




FIGURE 4
COAL AUTHORITY INTERACTIVE VIEWER, PLANNING WINDOW.
GREY HATCHED AREAS ARE DEVELOPMENT HIGH RISK.



FIGURE 5

C.A. VIEWER, MINING DATA WINDOW. RED CROSSES ARE MINE ENTRIES. BROWN LINES ARE COAL SEAM OUTCROPS. GREEN HATCHING IS OPENCAST. THE SITE IS HIGHLIGHTED IN BLUE

2c,d and e) The six inch to the mile Geological Survey sheet SO 00NE covers the area around the site. An extract of the map has been reproduced as Figure 6A overleaf. Figure 6B is from the 1922 Survey Sheet based on the Old County Series base map. A section of the stratigraphic column from the later map is shown in Figure 7 with the approximate site level marked. It is always very useful to study the survey sheets in conjunction with the Memoirs. Used together, the six-inch survey sheets and the Memoirs are an invaluable source of much detailed geological information on the area. Much of this has been obtained from mining records. Due to the very high economic importance of the area, extensive government funded geological surveys have been carried out in the past. These were completed in 1845, 1899 and 1954 respectively. Very little information on historical coal mining in the area is missing.

In Figure 6A the large areas of cross hatching represent Made Ground from very extensive surface mining of Ironstone and Coal. In contrast to Figure 5, only one coal seam outcrop is shown in the entire Lower Coal Measures. This is the Gellideg. The reason for this is simplicity. The area had been covered in spoil and industrial infrastructure for over 130 years at the time of the map revision (1967- 68). The Memoirs make it clear that there are other closely spaced coal seams underground including the Five Foot, Seven Foot, Lower Four Foot and Yard. Measured dips of 7o -10o are all to the southeast as was inferred from the C.A. data. This dip is further confirmed by underground contours in the Nine Foot seam south of the extract shown in Figure 6A. This means all these coal seams are irrelevant to the risk assessment.

The Garw Seam is the lowest economic coal in the South Wales Coalfield. The C.A. reference to the Garw Vein is unhelpful and confusing as there is an Ironstone vein with the same name just above the coal. The Ironstone was formerly much more important than the coal. Although the Garw Seam has been extensively worked elsewhere, it was unimportant in the Merthyr area because of the wealth of superior coalseams above it. The seam thickness is given as 1'3" (0.38m) at Dowlais in the 2nd edition of the Memoirs. These state "the coal is generally too thin to be worked at present". The outcrop is not shown in Figure 6A for the reasons given previously. Figure 6B is from the 1922 map. The abbreviations F.R. and L.S. stand for Farewell Rock and Lower (Coal) Series. The boundary between the two is marked running through the site. The significance of this is that in the first edition of the Memoirs it is stated that the base of the Coal Measures is drawn as the Ironstones beneath the Garw Seam. These are the Rosser Veins (ref. Figure 7). The map is thus inferring the outcrop of the Rosser Veins and the Garw Seam runs through the site, although at the time the natural ground was already deeply buried so this is conjectural at best. The most recent edition of the Memoirs describes the sequence from the M5 Marine Band to the Garw Seam thus "numerous clay ironstone bands were formerly worked in the Merthyr Tydfil area as The Rosser Veins". The 2nd edition contains the best description of the Rosser Veins at Dowlais. This is presumably taken from old mine records, as by 1932 exploitation of the Ironstone had long since ended. The Rosser

Veins are unknown to the east and west of the heads of the Rhymney, Taff and Cynon Valleys. At Dowlais they reach their maximum development. The veins are described as covering 25'10" (7.9m) of shale immediately above the Farewell Rock. The Farewell Rock is an instantly recognisable Gannister. It was so named because it marked the base of anything of economic value. The veins range in thickness from 2"-10" (50mm-250mm). No further details are given.

The British Coal Development Plan is the origin of the outcrop data on the Interactive Viewer. Figure 8 is an extract from this. The Garw Seam outcrop is shown running through the site and is marked as conjectural due to the fact there is no physical evidence remaining of its existence.

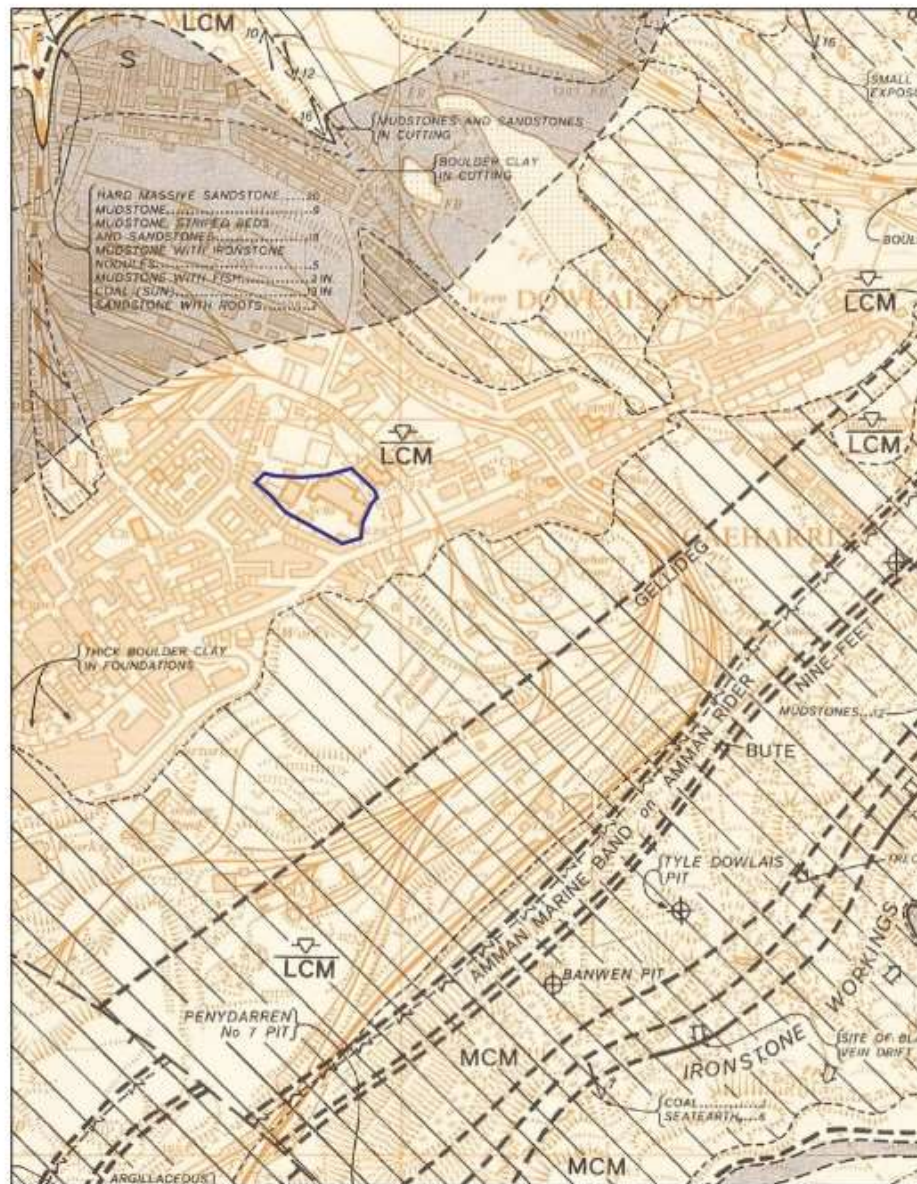
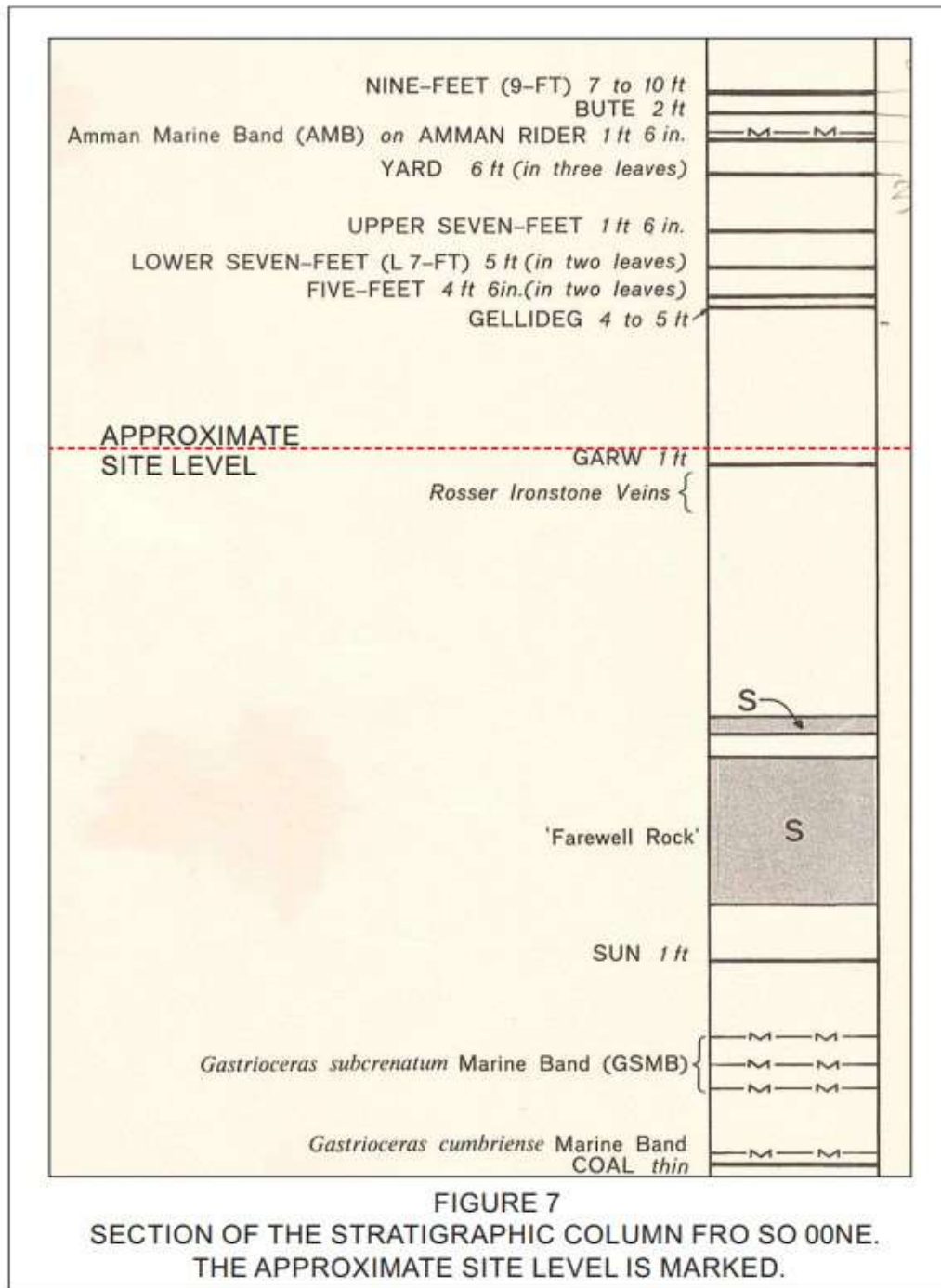
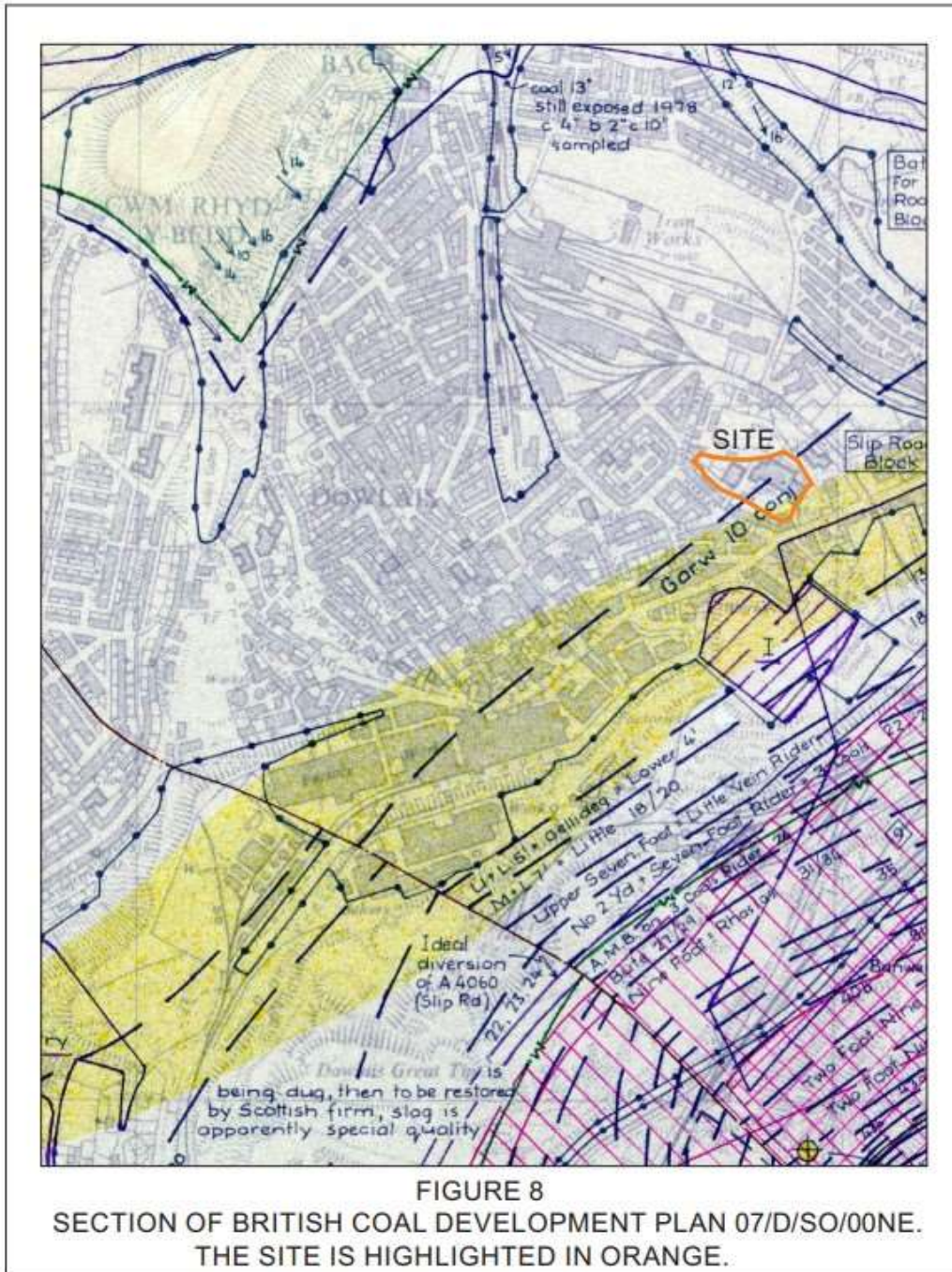


FIGURE 6A
SECTION OF GEOLOGICAL SURVEY SHEET SO 00NE.
THE SITE IS HIGHLIGHTED IN BLUE.



FIGURE 6B
SECTION OF THE 1922 GLAM 6SE GEOLOGICAL SURVEY SHEET.
THE SITE IS HIGHLIGHTED.





2f) The Consultants Report listed six mine plans which supposedly intersected some or all of the enquiry boundary. On checking the Abandoned Mines Catalogue four of these were coal mine plans from seams other than the Garw and so could have no influence on the site. Two of the plans listed (SWR2509 and SWR2510) are of Ironstone Workings in the Dowlais Area. There are also as many as a hundred other plans of Ironstone workings. The value of these plans to a risk assessment is limited. They mainly show underground roadways and water drainage levels. The surface features shown are very limited and in many cases are very hard to link to the present day built environment. Figure 9 is an example. This is a small section of one of the three sheets of SWR2509. This shows roadways in fifteen different Ironstone Veins but does not show the extent of any workings in these veins. The Lumpy Vein is another name for the Garw Ironstone Vein.

2g) Historical Ordnance Survey maps can prove invaluable in looking for evidence of coal mining activity. Since the first County Series maps were produced in the 1870's nearly all mining features have been recorded, even if they were considered "old" at that time. This is particularly true of the 1:1250 and 1:2500 scale maps. On the earliest 1874 map the area around the site is already covered with a mixture of industry and housing. Figure 10 is from the 1901 revision and shows a large school building on the site. The map is included to show the proximity of the Ivor Ironworks to the site. Just off the map margin to the south is the equally large Dowlais Ironworks. It is hard not to conclude that all Ironstone deposits in the area would have been previously exploited to supply these voracious enterprises.

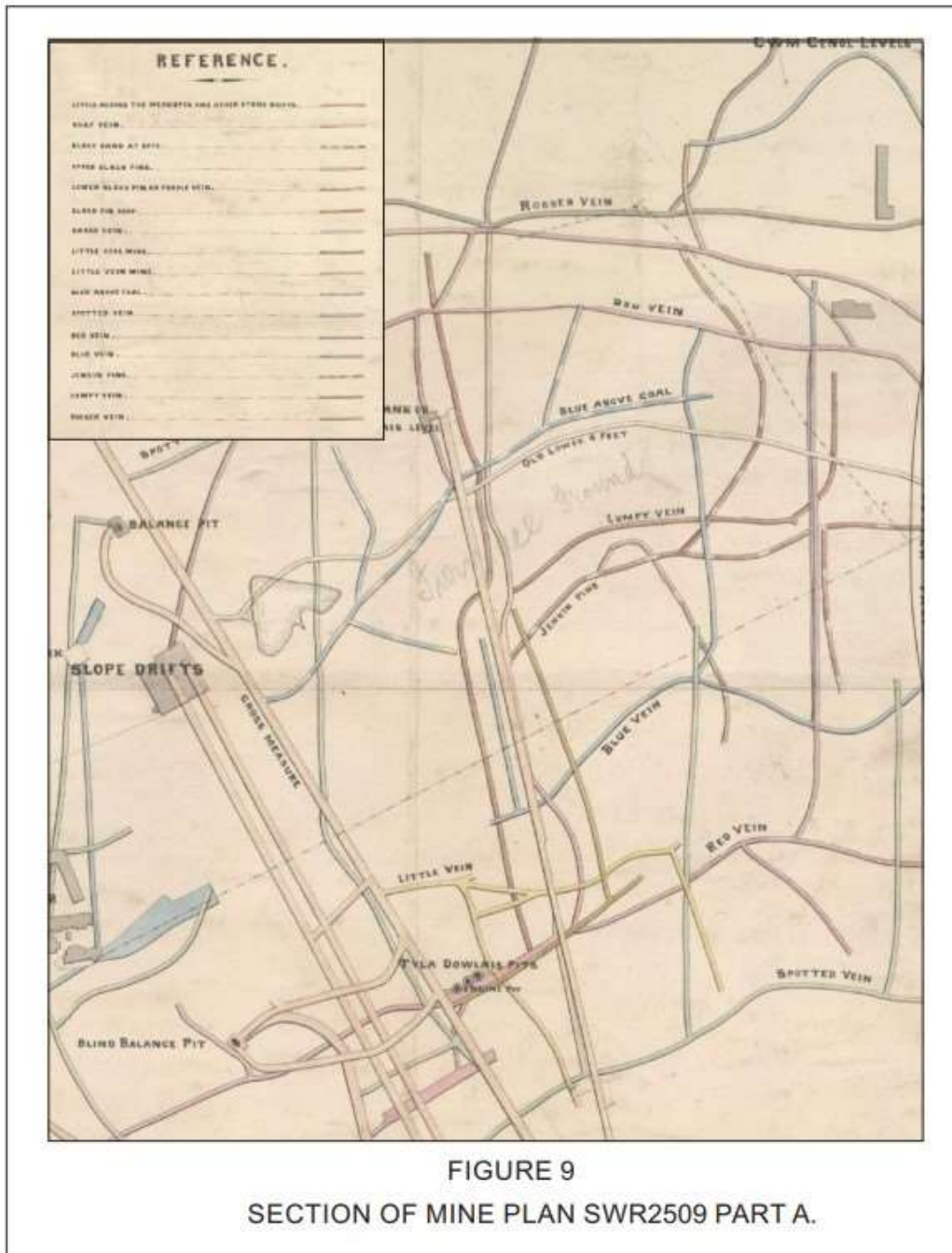




FIGURE 10
THE SITE ON THE 1901 1:2500 O.S.

COAL MINING ISSUE		YES	NO	R.A?
SHALLOW RECORDED WORKINGS			X	
SHALLOW UNRECORDED WORKINGS		X		X
MINE ENTRIES			X	
FISSURES			X	
GAS EMISSIONS		X		X
SURFACE HAZARDS			X	
SURFACE MINING			X	
FUTURE MINING LICENSE			X	

3.0 SITE SPECIFIC COAL MINING RISKS

From the table above it can be seen that only one major issue requires a risk assessment for this site. That is the presence of shallow unrecorded workings under, or very close to the site. If coal workings are found to underlie part of the site (as opposed to ironstone workings) then the issue of risk from mine gases should also be addressed.

To first briefly deal with the issues marked NO on the table:-

- a) It is probable there are records of workings in the Rosser Ironstone Veins beneath the site. This has proved hard to substantiate due to the sheer volume and standards of existing records. The information in the Consultants Report is presumably based on mine plans. There are no known records of workings in the Garw Coal Seam.
- b) There are no known mine entries close the site, but there is a possibility of unrecorded entrances. This issue can be treated jointly with the issue of possible unrecorded workings.
- c) The consultants report lists no fissures, faults or breaklines.
- d) The C.A. report states there have been no recorded gas emissions within the area surrounding the site but see above regarding coal workings.
- e) There has been extensive surface mining (opencast) within 300m of the site in the past. This was carried out by the N.C.B./ British Coal under well regulated conditions.

The mining was topographically and stratigraphically higher than the site. It has been reinstated and will have no effect on ground stability at the site.

f) There are no licenses for future mining in existence.

The Consultants Report states there are underground workings in two veins of Ironstone beneath the site. Given the industrial history of the area and the underlying geology, this is totally believable. The source for the depths given in the report is unknown. The Rosser Veins may well outcrop beneath the site but the depth of 1m given for workings in the Rosser Vein is very unusual. It is inconceivable that workings that shallow could still exist under the site. The depth of 17m to the Bottom Vein workings is more believable. The extraction thicknesses given are 1.27m and 1m respectively. Again, the basis for these figures is unknown. Ironstone workings differ significantly from coal workings in the fact that the mineral being sought was very thin compared to workable coal seams. Mining Ironstone required the removal of large amounts of waste material. In a 1m-1.5m high working as much as 95% of the working face was waste. To remove this to the surface would involve a huge amount of labour and would be completely uneconomic. Instead the Ironstone was removed and the waste placed behind the working face. This process was known as backstowing. Although not an engineered backfill, this has the effect of drastically reducing subsidence and void migration when compared to shallow coal mining. This process would almost certainly been followed beneath the site.

4.0 MITIGATION STRATEGY.

The only way to establish the stability of the site beyond doubt is to carry out an intrusive site investigation. This would need to comprise of rotary boreholes drilled under the Coal Authority's permit system. The design of the investigation should be done by a suitably qualified and experienced person. The depth of the boreholes will be controlled by site conditions. The object being to drill to beneath the lowest of the Rosser Veins. This is likely to be between 20m-30m deep. The change from argillaceous strata to a strong quartzitic sandstone should be easily recognisable beneath the lowest Ironstone Vein.

5.0 CONCLUSIONS

This risk assessment has presented evidence from comprehensive research that there is a residual risk to ground stability at the site. It is unlikely that this is posed by coal mining legacy issues at the site, but more likely by Ironstone Mining. There is a definite risk of very shallow workings beneath the site. These may not necessarily pose a threat to ground stability as they may well have already collapsed. This fact will need to be established by an intrusive site investigation. There is no reason for the Coal Authority to object to planning permission being granted for the proposed development providing an intrusive investigation and Validation Report is a condition of planning. Any ground engineering or specialist foundations necessary to remove any threat of ground instability at the site will be informed by the results of the investigation and cannot be speculated on at present.

APPENDIX 1

Coal Authority Consultants Coal Mining Report

APPENDIX 2

Development Plans



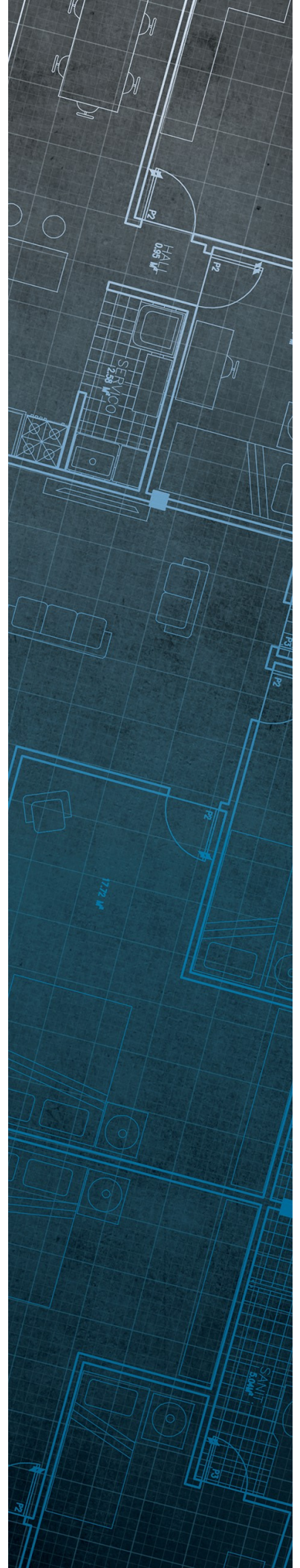
The Coal
Authority

Consultants Coal Mining Report

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Date of enquiry:	21 December 2022
Date enquiry received:	21 December 2022
Issue date:	21 December 2022

Our reference:	51003331273001
Your reference:	



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.

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Approximate position of property



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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	ROSSER IRONSTONE	Ironstone	4E5J	1	Beneath Property	4.8	South-East	127	1878
unnamed	BOTTOM VEIN IRONSTONE	Ironstone	4E5I	17	Beneath Property	4.8	South-East	100	1878

Probable unrecorded shallow workings

None.

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:

SWR2509	SWR3106	SWR3043
SWR2510	6862	SWR1612

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
GARW VEIN	Coal	Yes	Within	N/A	233

Geological faults, fissures and breaklines

No faults, fissures or breaklines 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 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.

