

COAL MINING RISK ASSESSMENT
NEATH PORT TALBOT C.B.C.
PLANNING APP. P2020/1055

12 HEOL Y GLYN
GLYNNEATH
NEATH
SA11 5AU

14/09/2021

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COAL MINING RISK ASSESSMENT

1. INTRODUCTION

This Coal Mining Risk Assessment (henceforth C.M.R.A.) has been produced on the instruction of Mr Ryan Stuckey in support of a planning application to Neath Port Talbot C.B.C. (henceforth N.P.T.). The application is for the construction of a single detached residential property. The proposed site is at Heol y Glyn, Glynneath. Some representative drawings of the proposed development are included in Appendix 1. The site is within a Development High Risk Area. This fact has been communicated to the applicant and his agent by N.P.T. The reason for the high risk classification is the presence of a nearby coal seam outcrop. Therefore the possibility of shallow coal mine workings associated with this outcrop needs to be assessed. With a Development High Risk classification the C.A. become statutory consultees for the application and a C.M.R.A. needs to be produced to validate the application.

Richard Davies BSc. (Hons), MSc., F.G.S. of Rhondda Geotechnical Services 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 coal 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 coal 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 288420, 206950 and is at an elevation of 77m A.O.D. The application site (as opposed to land ownership) is rectangular averaging 26m x 10m (0.026 Ha). There are no surface watercourses within the site boundary. The site location and site boundary can be seen overleaf in Figures 1 and 2.

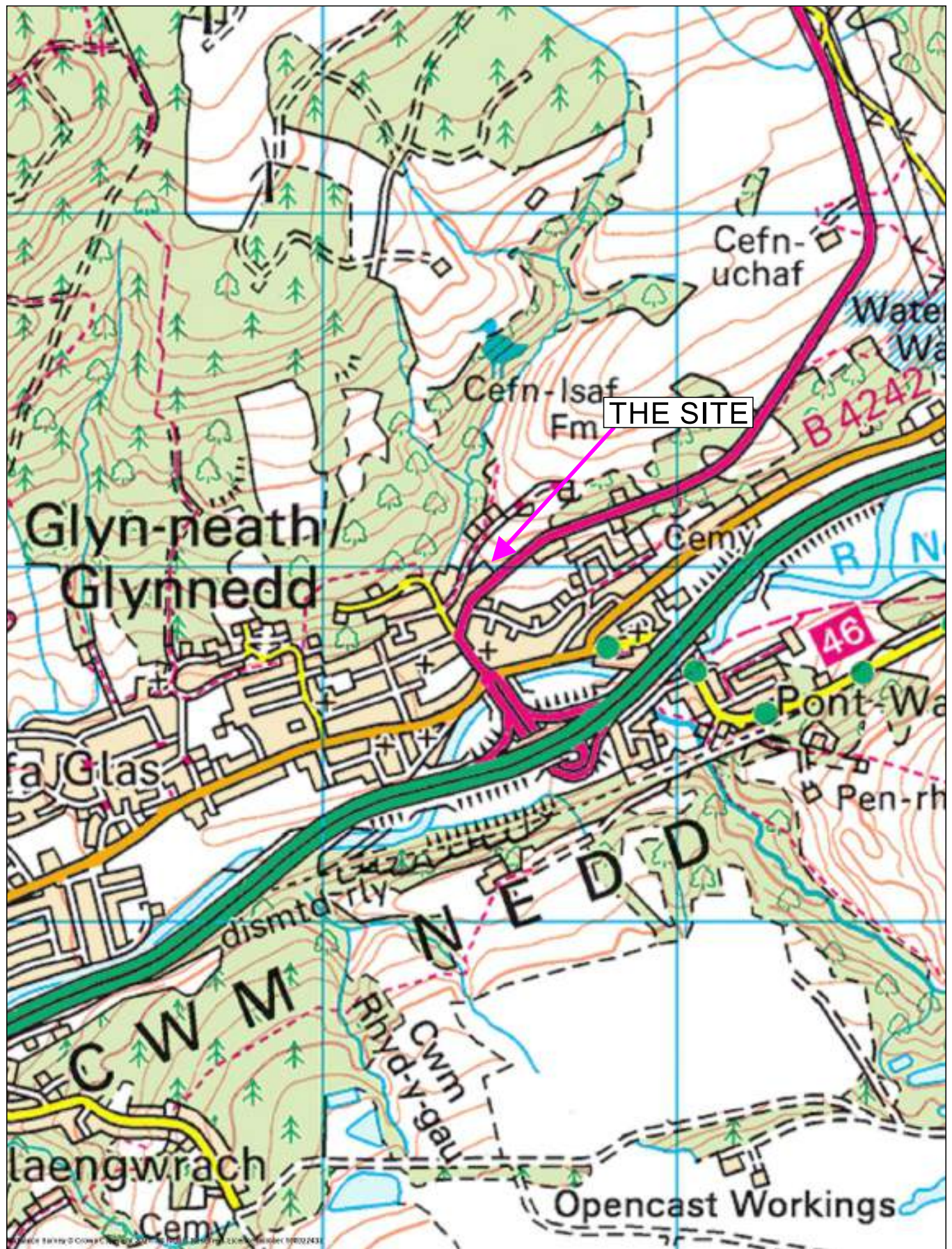


FIGURE 1
SITE LOCATION PLAN

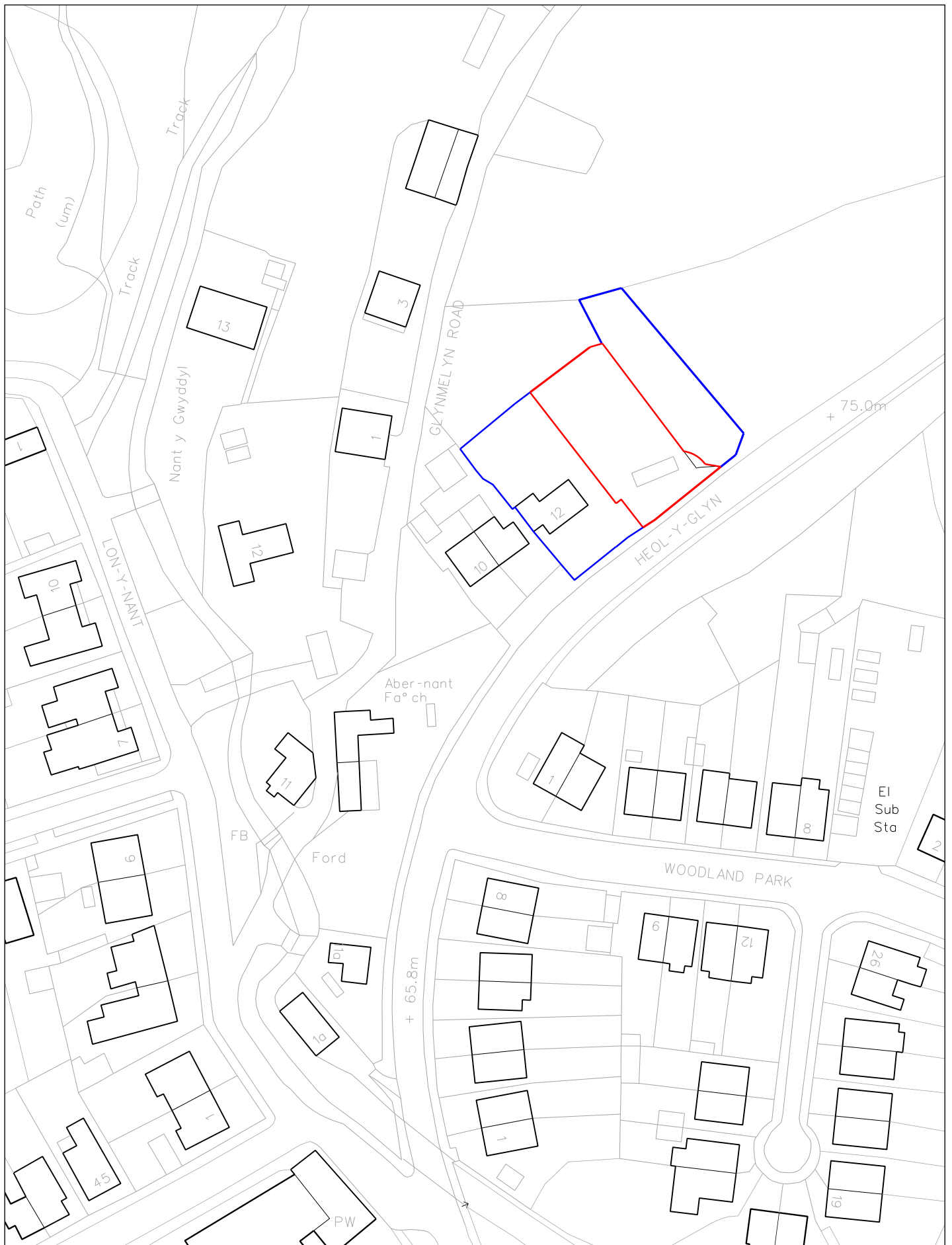


FIGURE 2
THE SITE BOUNDARY HIGHLIGHTED IN RED

2. SOURCES OF INFORMATION

- a) Coal Authority Consultants Report ref. MR-51002634267001
- b) The C.A. interactive viewer.
- c) The 6" to the mile Geological Survey sheet SN 80NE (1966 resurvey, pub. 1982).
- d) The Memoirs of the Geological Survey of The South Wales Coalfield, part V, The country around Merthyr Tydfil (third edition, 1988) and other mining archive sources.
- e) Large scale 1:2500 O.S. map Glamorgan X.2 1914 revision.

2a) The Consultants Report states that there is no recorded underground mining of coal beneath the site, or within a zone of influence of the site. This is an unusual situation within the boundaries of the South Wales Coalfield. The reason for this will become apparent in later sections.

The report goes on to say the C.A. believe there are no shallow unrecorded workings or shallow spine roadways beneath the site and no mine entries within 100m of the boundary of the site. These are all adits. The solitary Abandoned Mine Plan Catalogue number has been checked. This refers to several levels across the other side of the Neath Valley and has no relevance to this risk assessment.

An extract of the Summary of Findings map is shown in Figure 3. A single coal seam is shown outcropping close to, or within the western margin of the site on the S.o.F map. This is the Garw Seam. This seam is assessed as workable in the report. No mine entries mentioned in the report but disused levels and pits can be seen northwest of the site on the O.S. base map. A fault is marked running through the site. There are opencast workings to the north encroaching within 320m of the site.

In section 2 the report records no site investigations and no surface hazards that have required remedial action within 50m of the site boundary. The C.A. has received no damage notices or subsidence claims for properties 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 of the site boundary.

Section 3 states there is no licensing for present or future coal mining within 200m. There are no Section 46 notices, no Withdrawal of Support Notices and no Section 41 notices.

In Section 4 the Consultants Report goes on to state that no potential risks have been identified that should be investigated further.

All these facts will be fed into the later quantitative risk assessment. The Consultants Report is attached in Appendix 2.

2b) The C.A. interactive viewer contains a vast amount of information from various sources particularly on the mining data window. An extract from the planning window can be seen in Figure 4. North and south of the site are very large areas of Development High Risk. These are reinstated opencast sites. A linear area of high risk runs directly through the site. From its appearance this would appear to be a buffer zone covering a coal seam outcrop. The isolated small circular areas seen in Figure 4 are 20m exclusion zones around mine entrances not connected to outcrops.

In order to fully understand why a site has 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. Information that can be obtained on the viewer (but is not in the Consultants Report) includes the exact orientation of adits, and any further information held on any mine entries, including names and depths. Seam outcrops further afield from the site can also help in the interpretation of the regional geology.

An extract from the Mining Data Window is reproduced as Figure 5 overleaf. For clarity only two sets of data are turned on in Figure 5- seam outcrops and mine entries. The brown lines are coal seam outcrops. The outcrop running very close to the site has a distinctive shape. The Interactive Viewer does not show strata dip or topography. Nonetheless it would appear from the course of the Nant y Gwyddyl that the shape of the outcrop is not controlled by topography. The seam has the code SW0101. The C.A. seam directory names it as the Garw Vein, as does the Consultants Report. North of the site are two additional seams with the codes SW0081 and SW0091. Both are unnamed in the directory.

The red crosses are mine entries. There are none within the site boundary but many north of the site, the closest being 150m away. The contrast between the site and the surroundings with the area to the north is immediately noticeable.

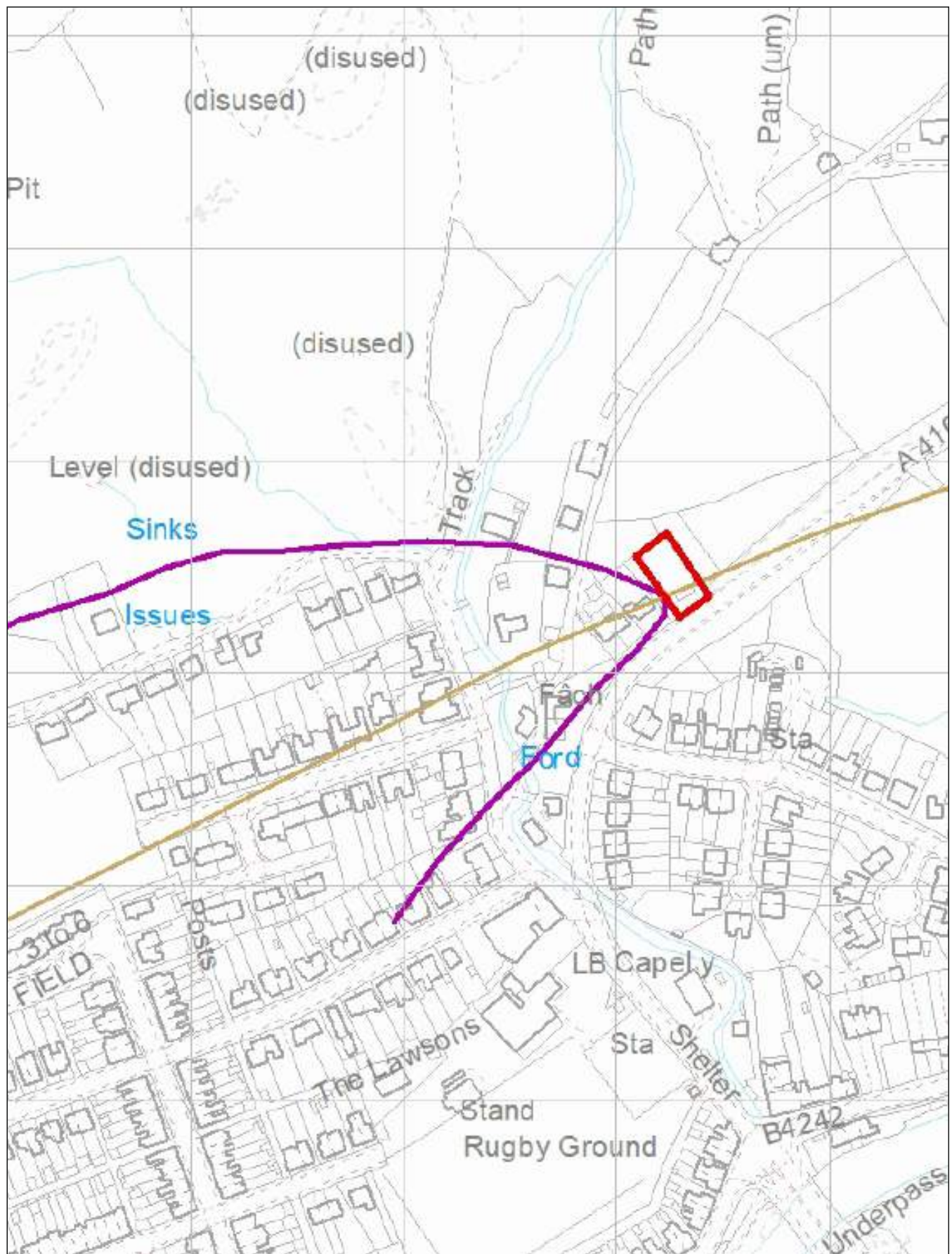


FIGURE 3

SUMMARY OF FINDINGS MAP WITH THE COAL SEAM OUTCROP MARKED BY THE PURPLE LINE. THE GOLD LINE IS A FAULT

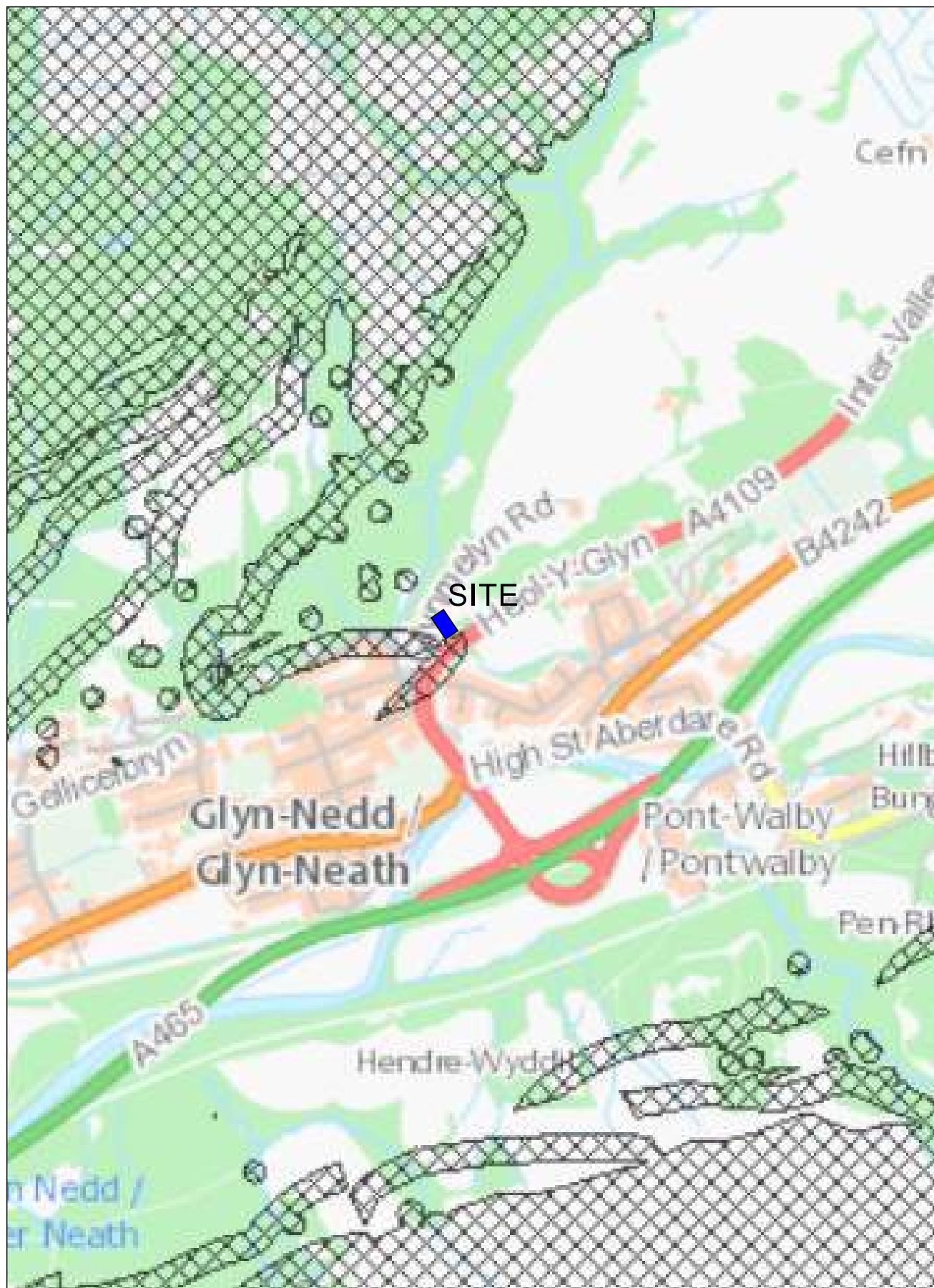


FIGURE 4

COAL AUTHORITY INTERACTIVE VIEWER, PLANNING WINDOW.
 THE BLACK HATCHED AREAS ARE DEVELOPMENT HIGH RISK.
 THE SITE IS HIGHLIGHTED IN BLUE.



FIGURE 5

C.A. VIEWER, MINING DATA WINDOW. THE BROWN LINES ARE SEAM OUTCROPS, RED CROSSES ARE MINE ENTRIES. SEAM CODES HAVE BEEN ADDED. THE SITE IS SHOWN IN BLUE.

2c and d) The six-inch to the mile Geological Survey sheet SN 80NE covers the area around the site. An extract of the sheet has been reproduced as Figure 6 overleaf. A section of the stratigraphic column from the survey sheet is shown in Figure 7 with the approximate site level marked. The map shows the strata dips at between 10° and 35° to the northwest. 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 high economic importance of the area, extensive government funded geological surveys were carried out in the past. These were completed in 1845, 1900 and 1953 respectively.

The Survey Sheet shows that the site is underlain by bedrock of the Lower Coal Measures. In South Wales the Lower Coal Measures are predominantly argillaceous with mineable coal seams, many of which were economically important in the past. It is noticeable that in Figure 6 the seam outcrop patterns do not resemble those in Figure 5. The outcrop of the Gnapiog (the local name for the Garw seam) runs well to the north of the site and is uncomplicated by tight folds as shown on the C.A. data. The detailed annotations on the Survey Sheet make it clear that the geology is based on extensive field mapping. Of particular importance are the fish and mussel beds recorded in exposures in the valley of Nant Gwyddyl. These are important stratigraphic markers below the Garw Seam. The Garw Seam is the lowest workable coal seam in South Wales. The Memoirs describe the seam as between 0.2m-0.6m in the Neath Valley and state that it has not been extensively worked. In Figure 6 multiple levels (adits) are shown by arrow symbols, both on the outcrop and well above it. There is also “patching” recorded near to the northern margin of the extract. Patching was surface mining carried out by hand. It is probable that both the surface and underground mining was for ironstone, and is unconnected with the Garw Seam. The seam is only 3” (75mm) thick in an exposure to the north of the site (circled). There is a second circled exposure in a waterfall where there is no coal at all. The horizon is identified by the mudstone with mussels beneath the position where the coal should be. The Memoirs record that there are extensive tabular and nodular Ironstones between the Garw and Gellideg seams which were formerly worked from patchworks and shallow mines. The outcrop of the Gellideg can be seen in the northwest of Figure 6.

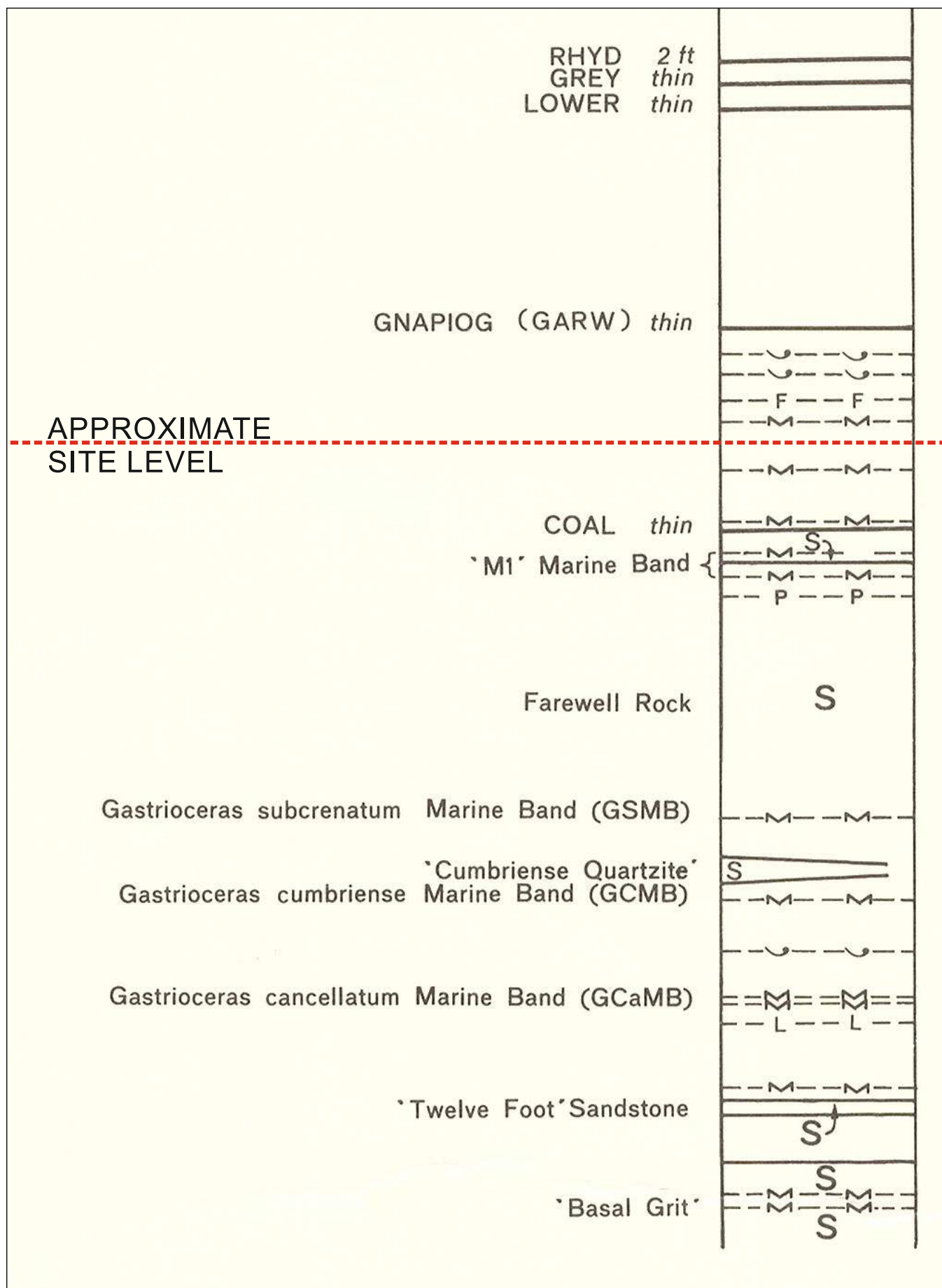


FIGURE 7
SECTION OF THE STRATIGRAPHIC COLUMN FROM SN 80NE.
THE APPROXIMATE SITE LEVEL IS SHOWN.

2e) 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. Figure 8A is an extract of the 1:2500 Ordnance Survey map, 1914 revision. The site and surroundings have undergone tremendous changes from 1914 to the present day, in particular extensive opencast coal mining. For this reason, georeferencing was used to position the site accurately on the historic O.S. Figure 8B shows the 1914 1:2500 map georeferenced onto a modern aerial photo. The map shows no mining activity in close proximity the site boundary, just undeveloped fields and woodland. The fact that no mining features are seen near the site is not conclusive proof that none exist. However historic O.S. maps are useful additional lines of evidence for a mining risk assessment. The contrast with the land to the northwest of the site is striking. There are extensive spoil heaps and features labelled "old coal Levels" or "old coal pit". There is a working colliery, Rock Colliery connected by tramway to coal screens near the valley floor. The boundary between the mining area and the unmined area is the Nant Gwyddyl. As was seen in Figure 6 this runs parallel to the outcrop of the Garw seam, the base of the coal measures.

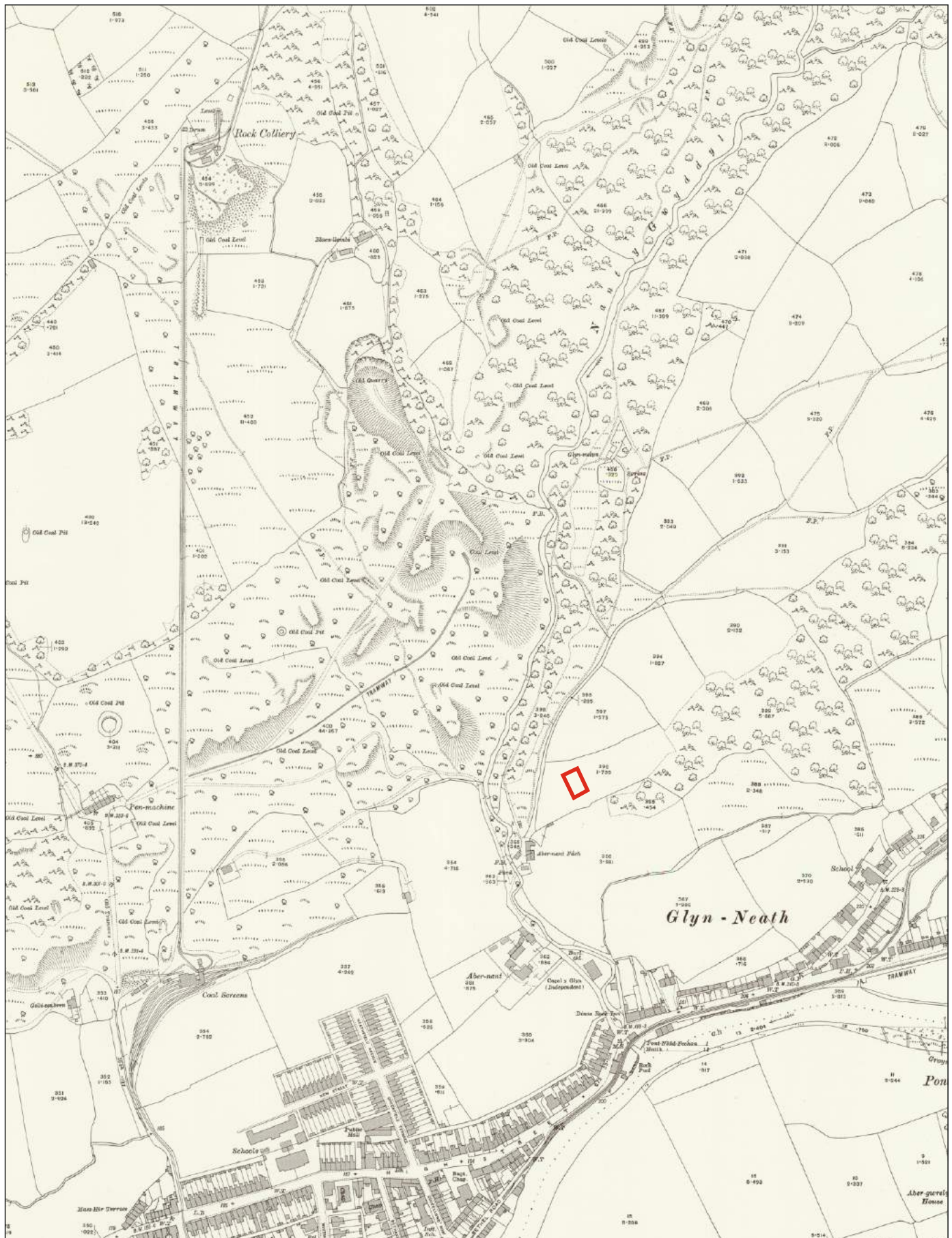


FIGURE 8A
O.S. 1:2500, 1914 REVISION SHOWING THE CONTRAST IN MINING
FEATURES WEST OF THE NANT Y GWYDDYL WITH THE EAST
WHERE THE SITE LOCATION IS HIGHLIGHTED IN RED

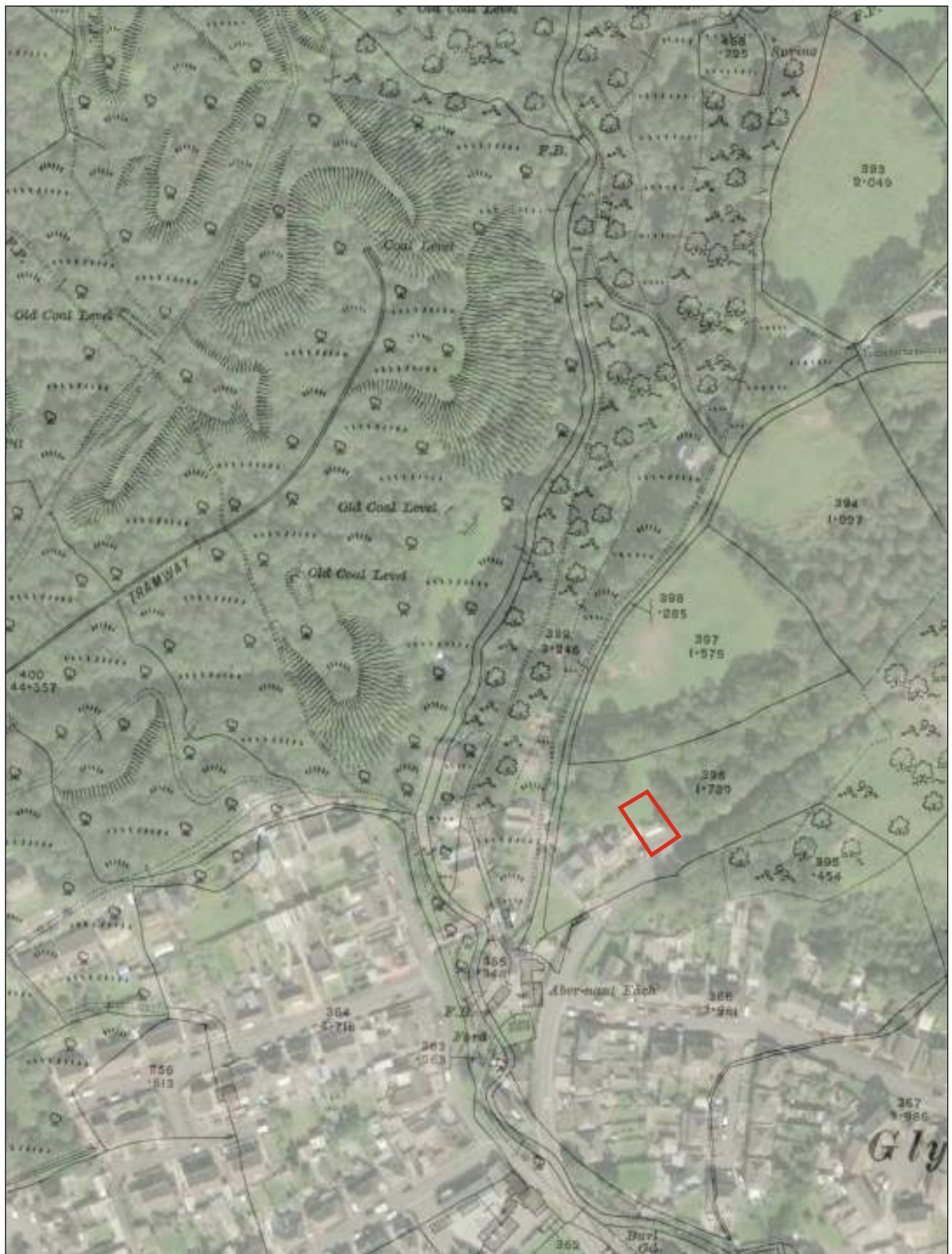


FIGURE 8B
THE 1914 1:2500 O.S. GEOREFERENCED ON A MODERN
AERIAL PHOTOGRAPH. THE SITE IS OUTLINED IN RED.

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. SITE SPECIFIC COAL MINING RISKS

From the table above it can be seen that two issues require a risk assessment for this site. These are the possibility of unrecorded shallow workings under the site, and a more detailed look at the risk from mine gases. *The gas issue would only require an assessment if a risk from shallow workings was established.* To first briefly deal with the issues marked NO on the table:-

- 1) The Consultants Report states there are no recorded shallow workings underlying the site. There is no recorded mining at any depth.
- 2) There has been surface mining (opencast) within 500m of the site in the past, but this is much too far away to cause instability at the site.
- 3) There have been no subsidence claims or surface hazards recorded within 50m of the site.
- 4) There are no records of faults, fissures or breaklines affecting the site in the Geological Survey. A fault is shown running through the site on the SoF map in Figure 3. Fault reactivation by mechanised longwall mining was a well-recognised phenomenon in South Wales. Since there is no mining below the site the risk can be discounted even if the fault actually exists.

The sole reason for the Development High Risk rating is the supposed outcrop of the Garw Seam. Not only is the seam too thin to work near the site, it does not outcrop where the C.A. data places it. The origin of the C.A. data is unknown. On the other hand, the Geological Survey data is based on comprehensive field mapping and can be relied on to be accurate in the vicinity of the site. The site is stratigraphically and topographically below the lowest workable coal. Therefore it can be safely concluded that there is no risk from shallow mining, and also no risk from mine gases.

4. MITIGATION STRATEGY

It is not proposed to offer any specific location or engineering mitigation strategy. The reason for this is that there is no possibility of ground instability caused by coal mining legacy issues at the site.

5. CONCLUSION

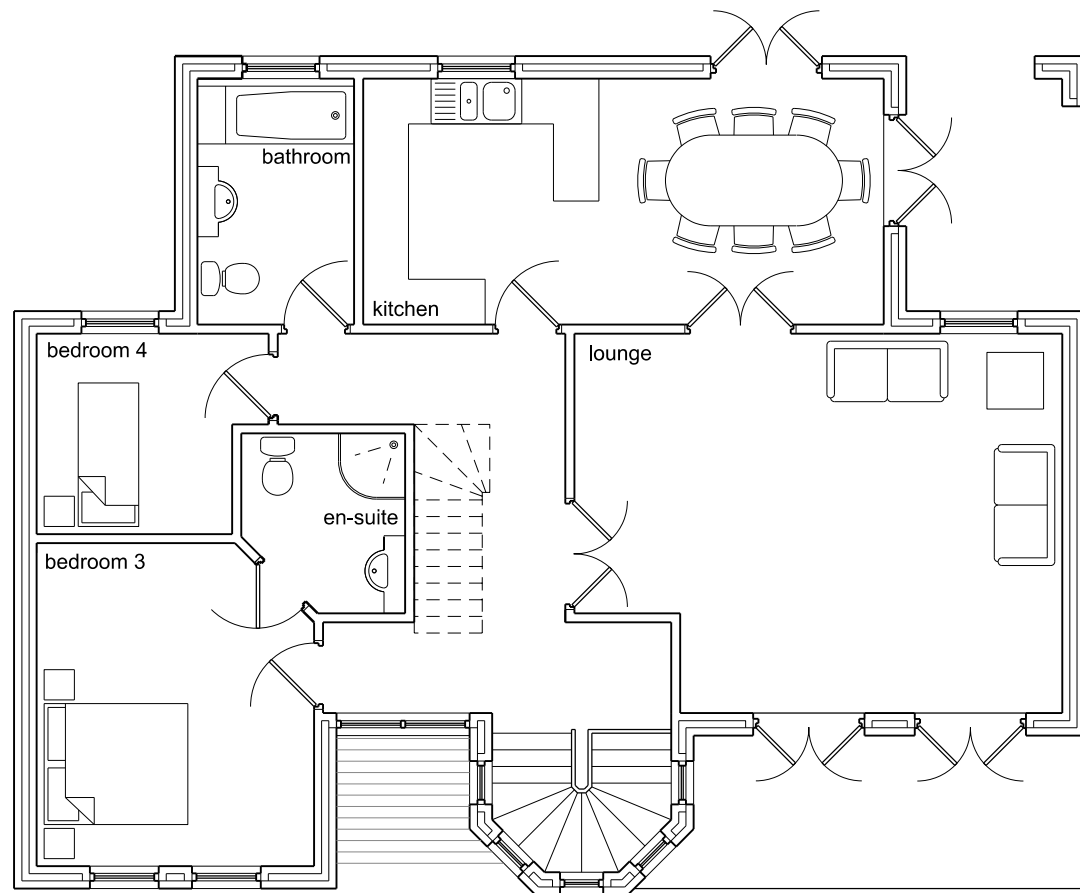
This risk assessment has presented abundant evidence from comprehensive research that there is no risk to the proposed development from ground stability issues caused by coal mining legacy issues beneath the site. In particular, the risk from shallow unrecorded workings under the proposed development has been thoroughly examined and discounted. Material from the Geological Survey has led to the conclusion there are no workable coal seams beneath the site. This is supported by historical O.S. mapping. It would appear that the C.A. data is incorrect and the origin of the data unknown. Therefore there is no reason for the C.A. to object to the planning application in its current form.

Richard Davies BSc. (Hons), MSc., F.G.S.

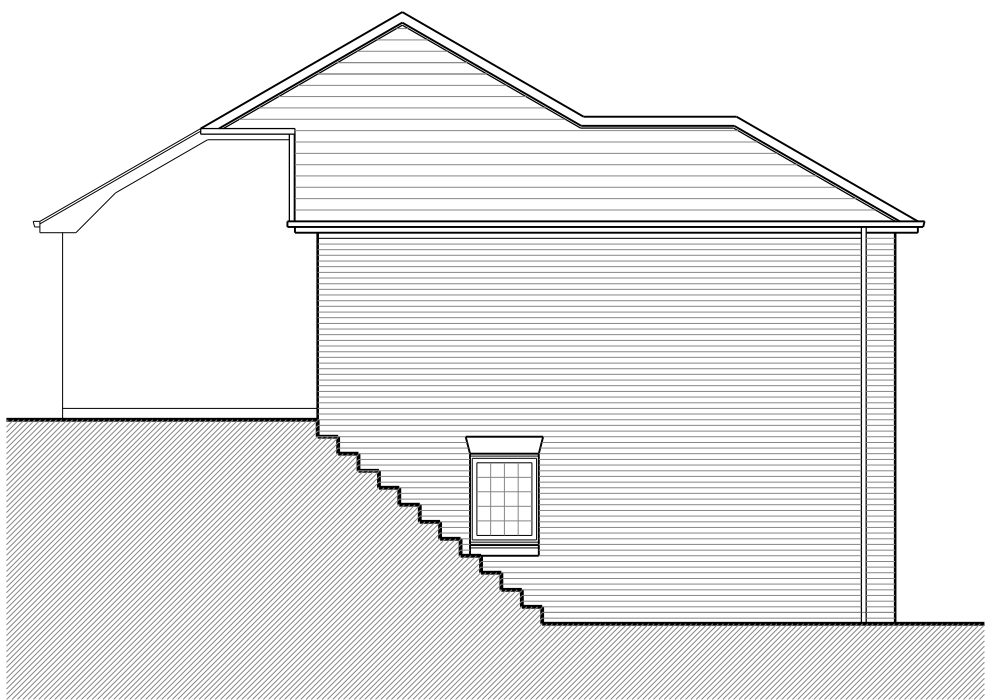
14/09/2021

APPENDIX 1

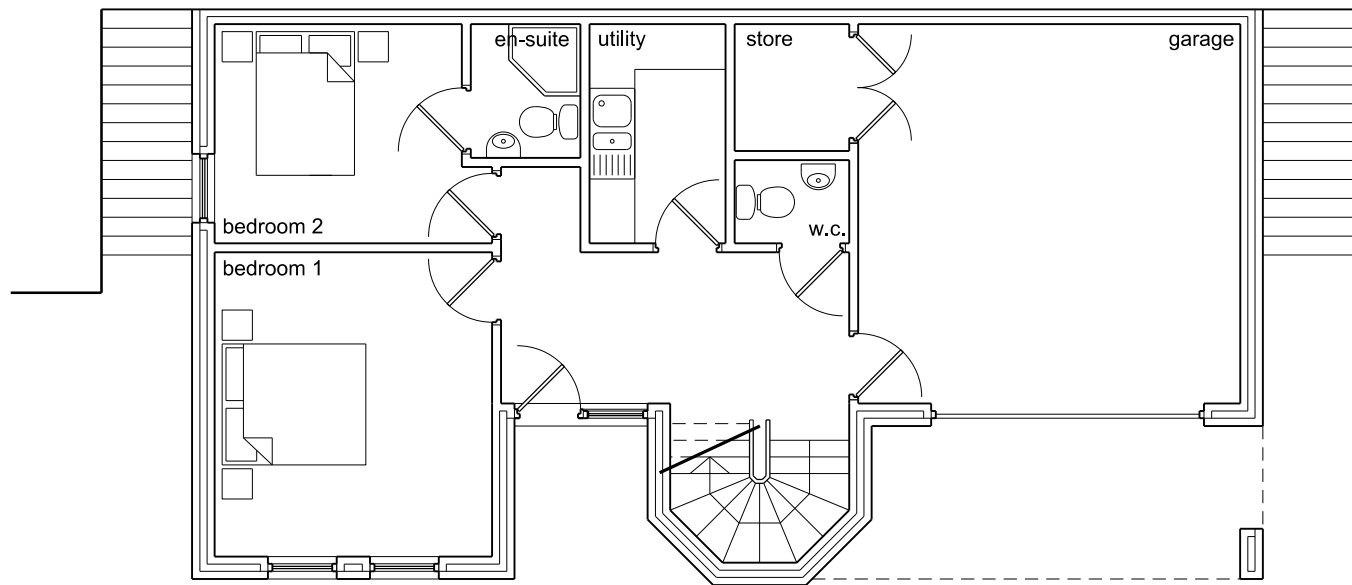
REPRESENTATIVE PLANS OF THE DEVELOPMENT



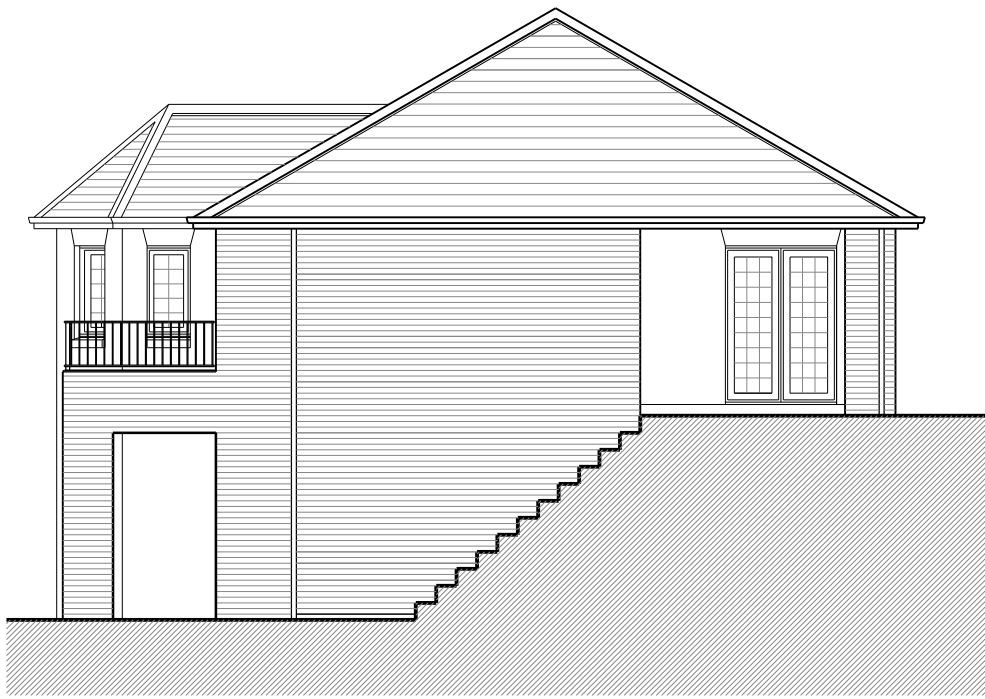
PROPOSED FIRST FLOOR PLAN



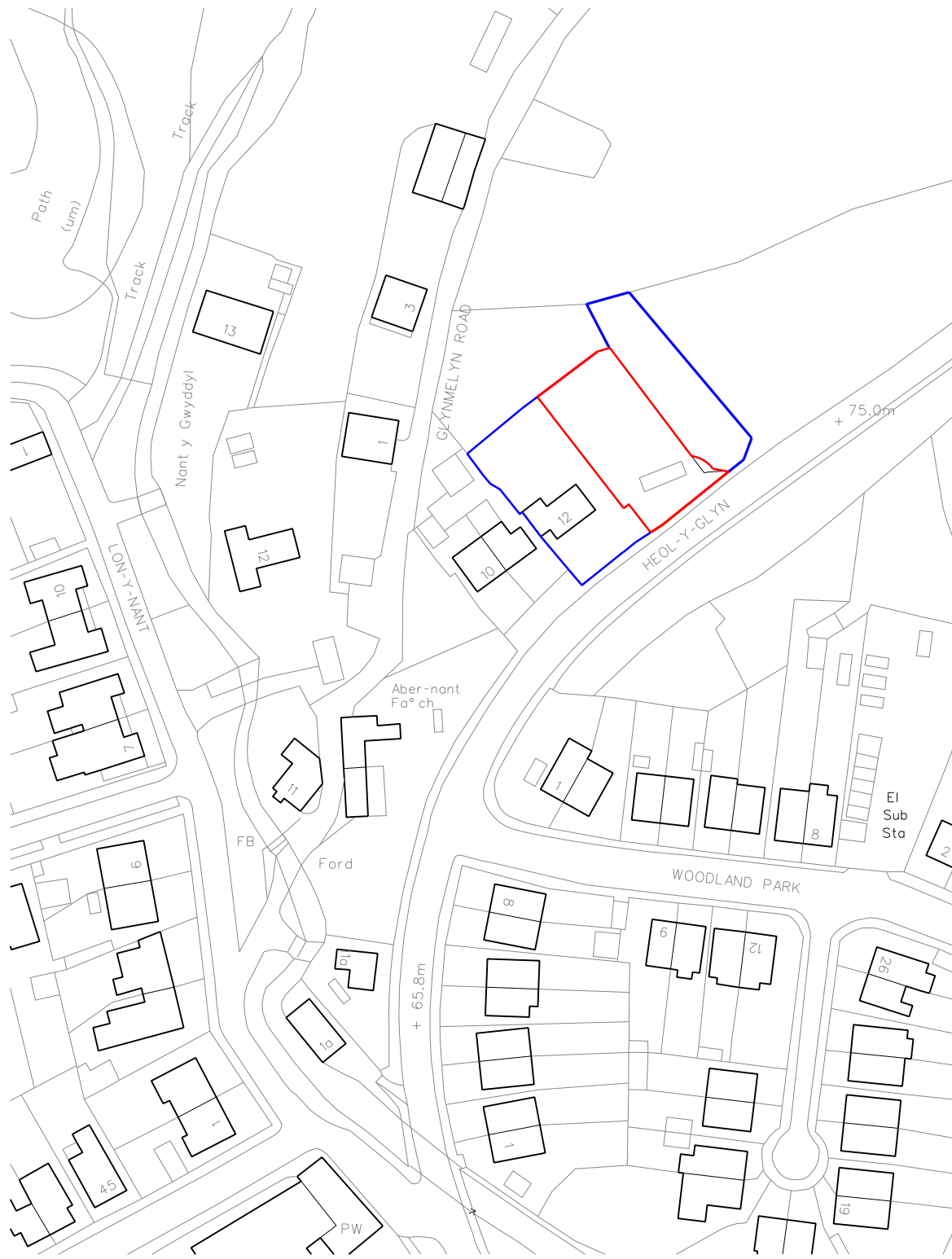
PROPOSED SIDE ELEVATION



PROPOSED GROUND FLOOR PLAN



PROPOSED SIDE ELEVATION



SITE LOCATION PLAN _
scale 1:1250



PROPOSED FRONT ELEVATION



PROPOSED REAR ELEVATION

revisions
REVISION c/c / 22-11-10
01 amendment to site location plan red and blue line.

project
**PROPOSED NEW DWELLING
AT LAND ADJACENT TO 12
HEOL-Y-GLYN , GLYN-NEATH**

title
**PROPOSED FLOOR PLANS &
ELEVATION
SITE LOCATION PLAN**

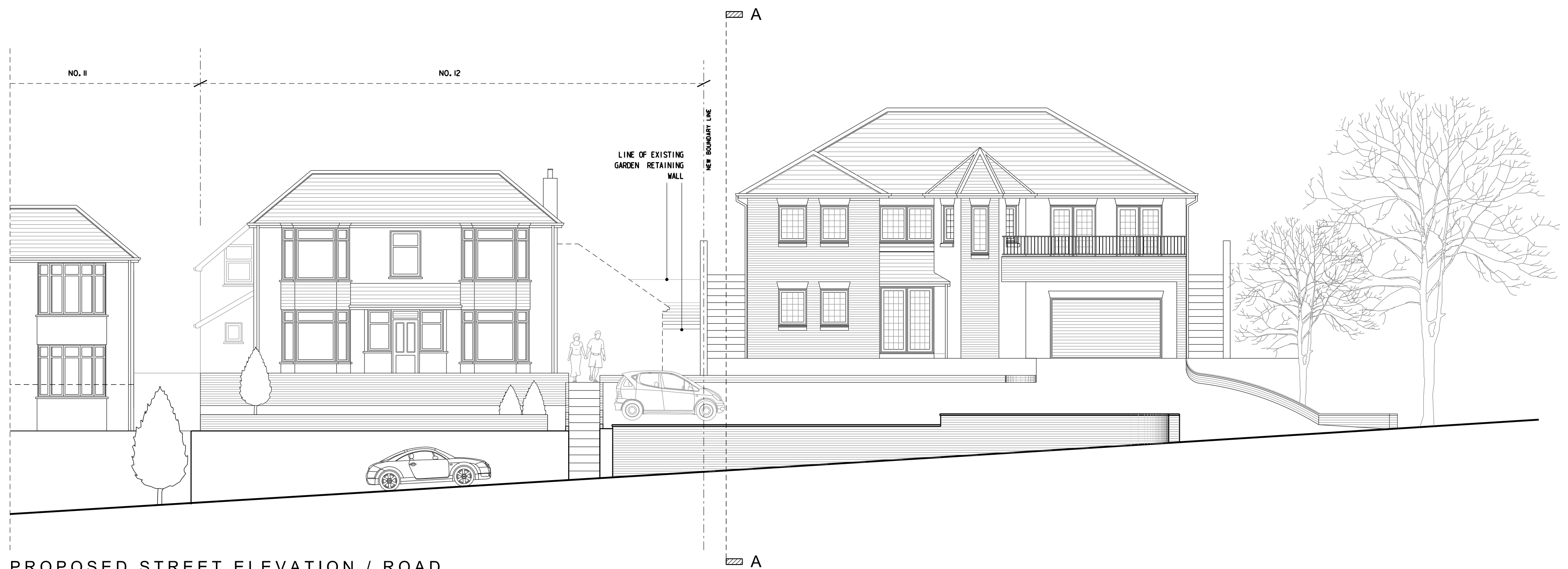
date	scale	drawn by
12.10.10	1:100 / 1:1250	SN

drawing number
09/2010/PL/004C

client.
Mr. J. Jackson

ALLAN STUCKEY
architects
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PROPOSED STREET ELEVATION / ROAD
SECTION

revisions
REVISION A / 12-10-10
01 amendment to front column to accommodate
car parking spaces.

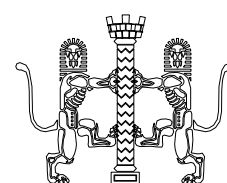
project

title
PROPOSED STREET
ELEVATION / ROAD SECTION

date 12.10.10	scale 1:100 on A2	drawn by SN
drawing number 09/2010/006A		

PROPOSED NEW DWELLING
AT LAND ADJACENT TO 12
HEOL-Y-GLYN, GLYN-NEATH

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APPENDIX 2

COAL AUTHORITY CONSULTANTS REPORT



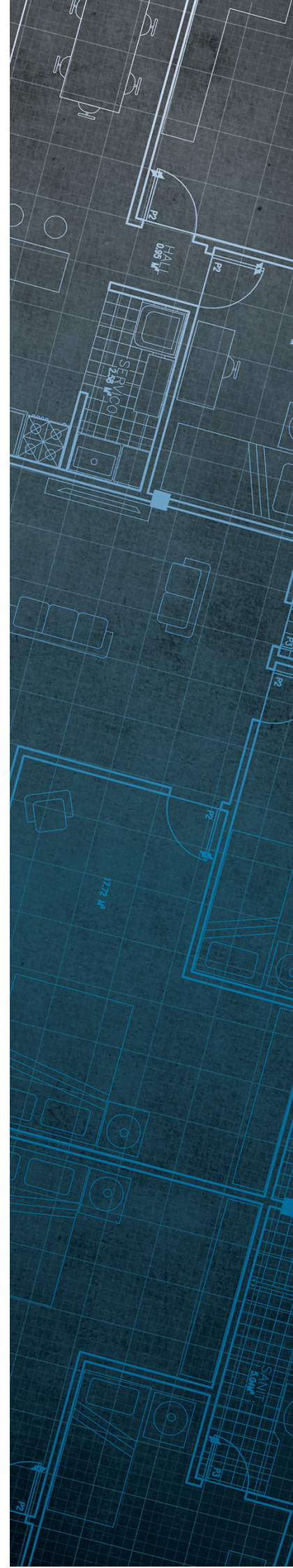
The Coal
Authority

Consultants Coal Mining Report

12 Heol Y Glyn
Glynneath
Neath Port Talbot
SA11 5AU

Date of enquiry:	26 August 2021
Date enquiry received:	26 August 2021
Issue date:	26 August 2021

Our reference:	51002634267001
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.

Client name

Richard Davies

Enquiry address

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Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

No past mining recorded.

Probable unrecorded shallow workings

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:

SWR3723		
---------	--	--

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	1.4	South-West	9
GARW VEIN	Coal	Yes	Within	N/A	292

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

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

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

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.

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.