



RHONDDA
GEOTECHNICAL
SERVICES

COAL MINING RISK ASSESSMENT
M.T.C.B.C. PLANNING APP. P/22/0088

PROPOSED RESIDENTIAL DEVELOPMENT
WINCHFAWR ROAD
WINCHFAWR
MERTHYR TYDFIL
CF48 1RD

13/02/2023

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COAL MINING RISK ASSESSMENT

1. INTRODUCTION

This Coal Mining Risk Assessment (henceforth C.M.R.A.) has been produced for Mrs Diane Smith to support planning application P/22/0088 to Merthyr Tydfil County Borough Council. The application is for new detached residential property at Winchfawr Road, Merthyr Tydfil. Some representative plans are included in Appendix 1 of this report. 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.

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 probable 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 ensure 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 302285, 206265 and is at an elevation of approximately 330m A.O.D. The plot is an irregular polygon, averaging 27m x 32m. The site covers an area of approximately 0.08 hectare. There are no surface watercourses. The site location and site boundary can be seen overleaf in Figures 1 and 2.

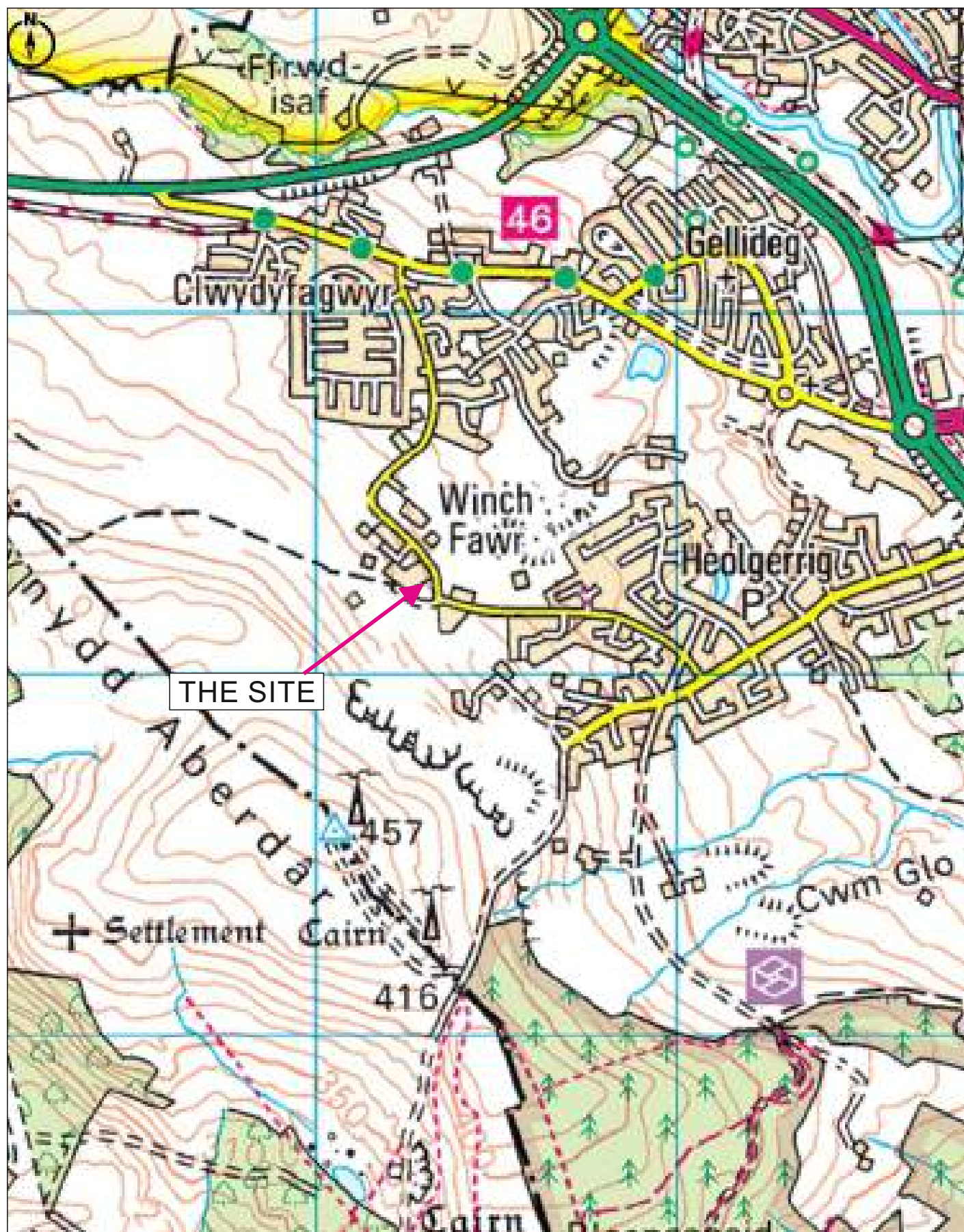


FIGURE 1
SITE LOCATION

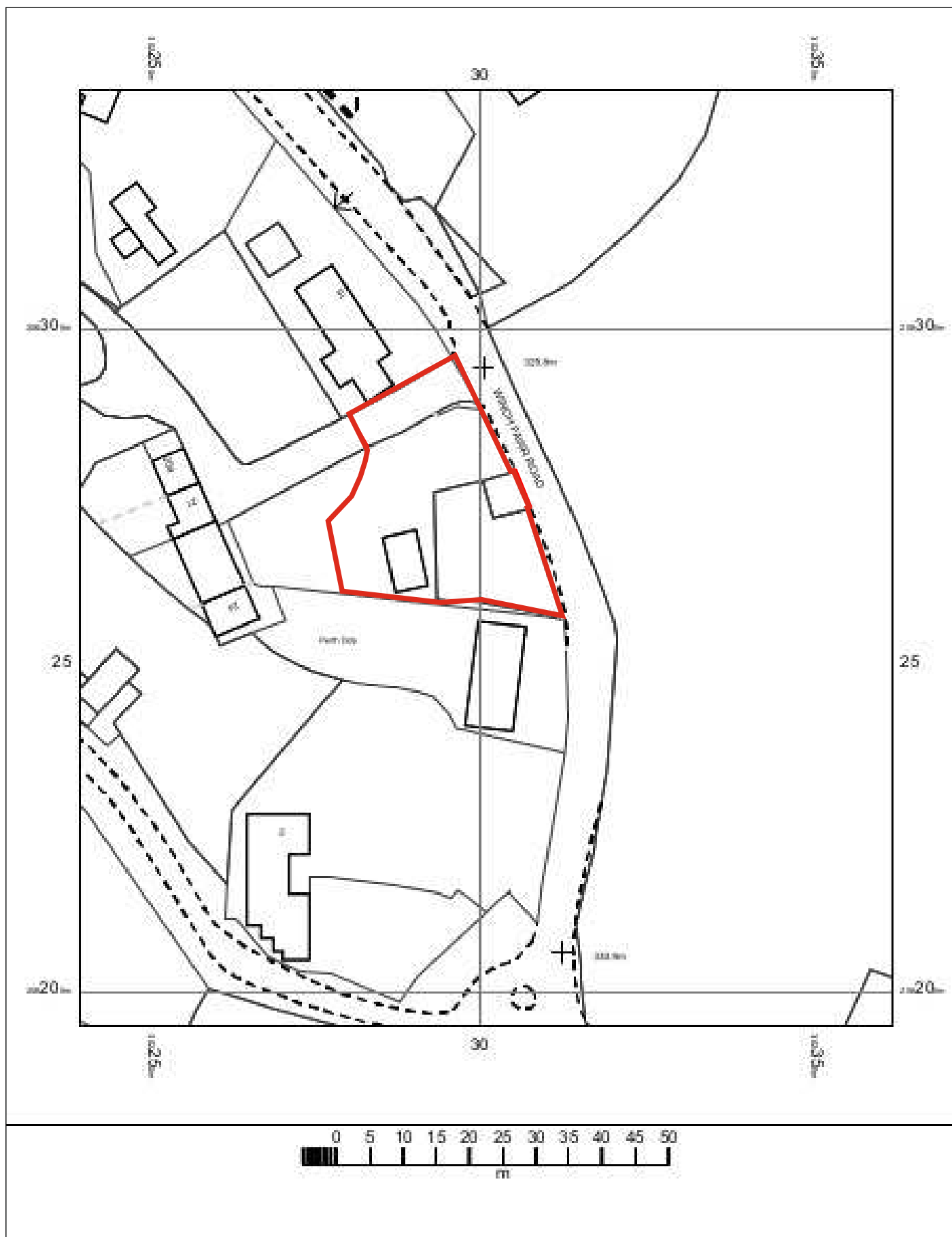


FIGURE 2
SITE BOUNDARY IN RED.

2. SOURCES OF INFORMATION

- a) Coal Authority Consultants Report ref MR-51003330748001.
 - b) The C.A. interactive viewer.
 - c) The 6" to the mile Geological Survey sheet SO 00NW (1957 revision) and GLAM 11NE (1921 revision).
 - d) The Memoirs of the Geological Survey of The South Wales Coalfield, Part V, The Country around Merthyr Tydfil (1st, 2nd and 3rd editions of 1904, 1932 and 1988) and other mining archive sources.
 - e) British Coal Development Plan 07/D/SO/00NW.
 - f) Historical Ordnance Survey Maps, Old County Series Sheet Glamorgan XI NE (1876 revision) at 1:10,560 scale and Glamorgan XI.4 (1919 revision) at 1:2500 scale.
- 2a) The Consultants Report states that there is recorded underground mining of coal in two seams beneath the site. These are at 18m and 50m depth. The deeper workings are in the Lower Seven Foot Bottom Leaf with an extraction thickness of 1.60m and last worked in 1902 The shallower workings are in the Bute Seam with an extraction thickness of 1.52m and last worked in 1951. 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 nine recorded mine entries within 100m of the site boundary. Seven of these are adits and two are shafts. The report contains the reference numbers of nine abandonment plans which may supposedly be of relevance to the risk assessment. These were examined and none were found to relate to the Bute Seam. It was decided not to pay for a search as it appeared from the outset that an intrusive investigation would be inevitable. A coal seam outcrop is marked running through the site on the Summary of Findings map. The report names this as the Lower Nine Foot Top Leaf. North of this is a second outcrop which the report identifies as the Lower Nine Foot and Bute. These are actually two separate seams. There are no faults fissures or breaklines recorded. There is recorded opencast mining marked on the SoF map. This is 240m 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 is no planned future underground mining 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. 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 (green hatched area). The outcrop pattern north and south 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. The closest three outcrops to the site have been labelled with their seam codes. The seam codes are ascending to the southwest. This could mean the strata is dipping to the southwest, the topography is rising to the southwest or a combination of both. A seam outcrop crosses the site as in Figure 3. This has the seam code SW0311. The closest outcrop north of the site is SW0291. Both codes in the C.A. Seam Code Directory correspond to the curious seam names in the Consultants Report. A third outcrop has had the seam code SW0271 added in Figure 5. This is the Bute Seam.

Four mine entries north of the site have been highlighted. They are all adits with additional information in the database. Two are shown in Figure 3. 302206-051 is the No.8 Level (Level is the South Wales Term for a sub-horizontal mine entrance and will be used from this point as the term adit is usually reserved for metalliferous mines). It has an orientation of 236°. 302206-050 is the D. Lewis Level and also has an orientation of 236°. Two other mine entrances have been highlighted. They are 302206-009 and 302206-042. These are the No.1 Bute Level and No.2 Bute Level with orientations of 208° and 210° respectively. All four levels are associated with the Bute outcrop and are orientated toward the site. This would indicate they could be associated with the recorded workings in the Bute Seam.

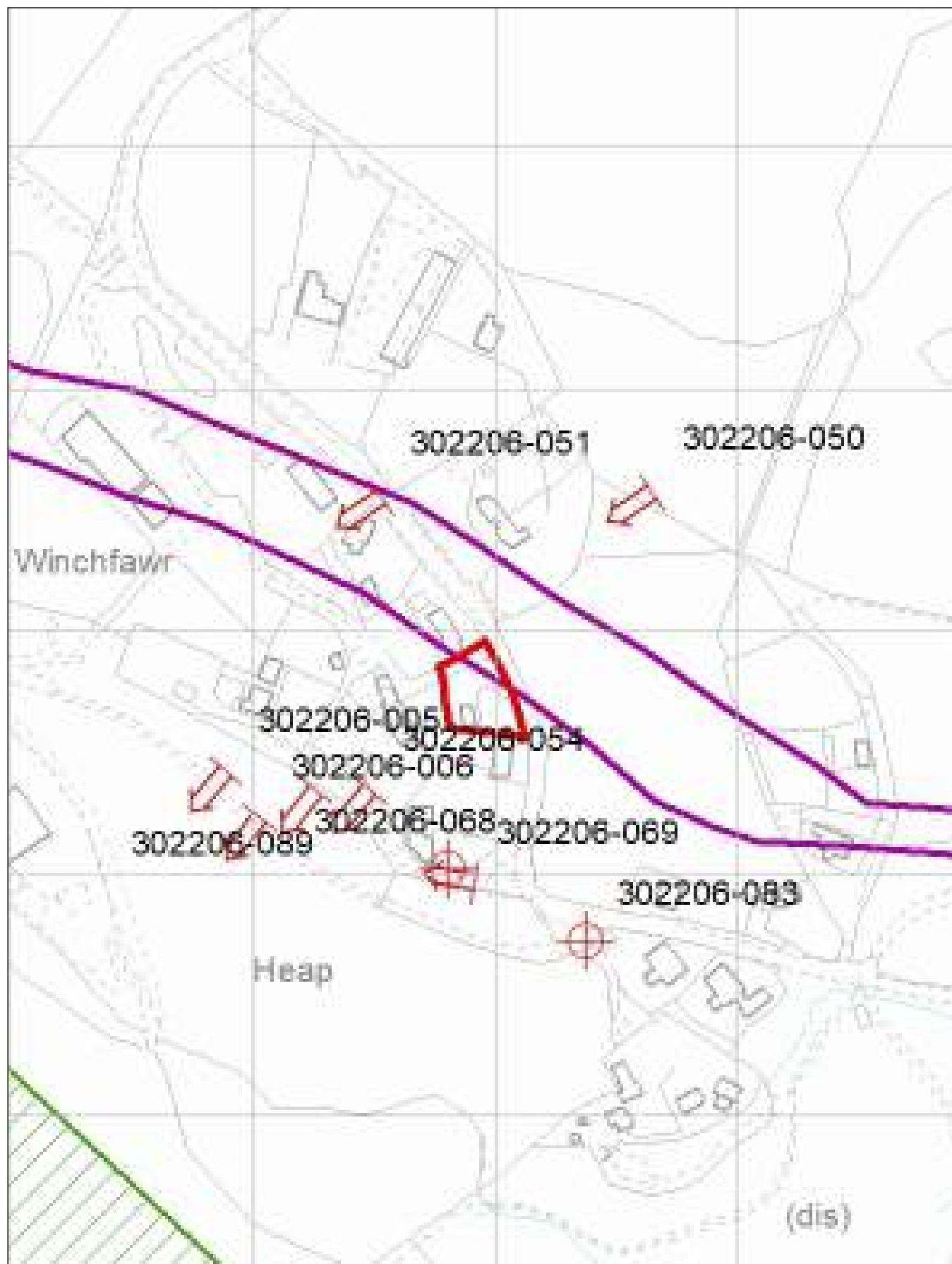


FIGURE 3
EXTRACT OF THE SUMMARY OF FINDINGS
MAP FROM THE C.A. CONSULTANTS REPORT

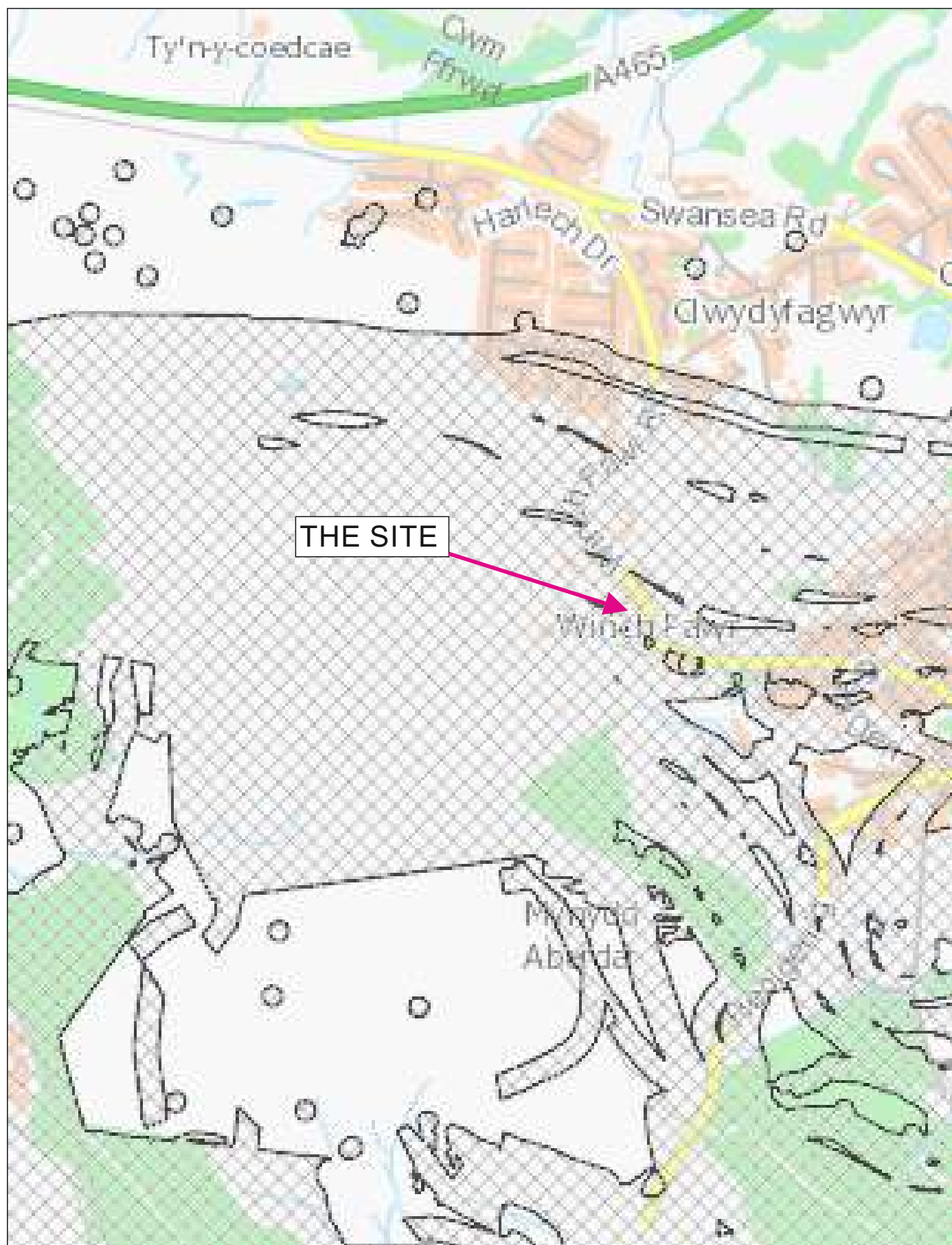


FIGURE 4
COAL AUTHORITY INTERACTIVE VIEWER.
GREY HATCHED AREAS ARE DEVELOPMENT HIGH RISK.

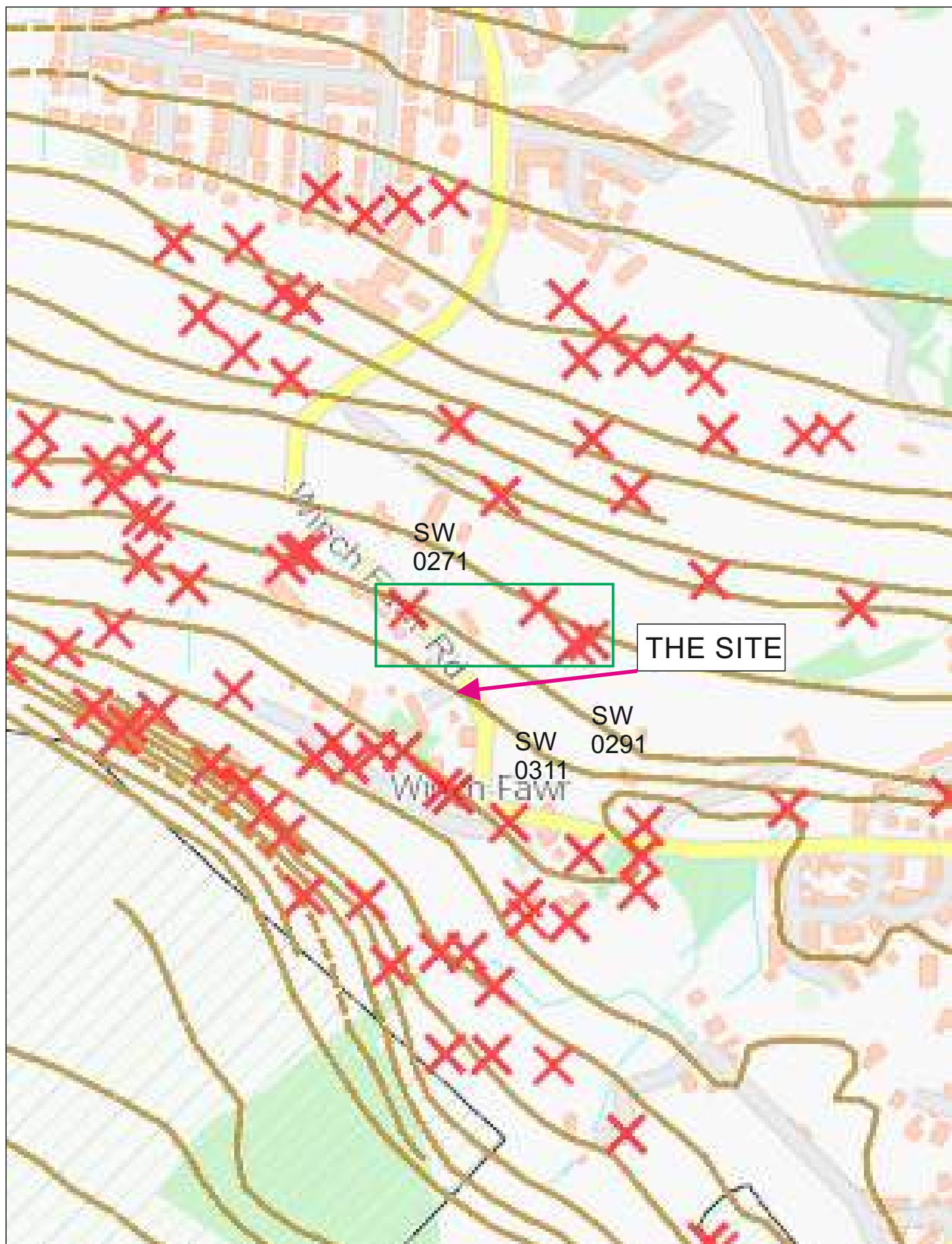


FIGURE 5

C.A. VIEWER, MINING DATA WINDOW. RED CROSSES ARE MINE ENTRIES. BROWN LINES ARE SEAM OUTCROPS.

2c,d and e) The six inch to the mile Geological Survey sheet SO 00NW covers the area around the site. An extract of the map has been reproduced as Figure 6A overleaf. Figure 6B is from the 1921 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 NW-SE cross hatching represent Made Ground from very extensive surface mining of Ironstone and Coal. The debris from this can be seen on the underlying base map. This is better seen in Figure 6B which has an older base map. Southwest of the site in Figure 6A is an area of SW-NE hatching. This represents opencast mining. The broad outcrop pattern is similar to Figure 5 but with fewer outcrops. This is because the Survey usually only shows the most important seams to avoid overcomplicating the map. In contrast, many of the outcrops on the C.A. Viewer are thin and unworkable. North of the site the entire Lower Coal Measures are exposed from the basal Garw Seam to the Amman Marine Band which marks the junction with the Middle Coal Measures. Only four coal seam outcrops are shown in the entire Lower Coal Measures. The Memoirs make it clear that there are other closely spaced coal seams underground with splits and recombination giving quite a complicated picture. There is a measured dip 35° along strike from the site. Further northwest is a second measured dip of 12° . This is a considerable difference over a relatively short distance. Strata dip is going to have a very important bearing on depth of seams below the site.

The site is shown underlain by the Middle Coal Measures. The Bute Seam is shown as a solid line. The Nine Foot is also shown as a solid line west and east of the site but in the vicinity of the site it is dashed. This means the outcrop is conjectural, not proven. Both seams occupy positions similar to those shown in Figure 5. It is evident the Bute and Nine Foot (if present) will underlie the site at shallow depth. The arrow symbols are levels corresponding to some of those shown in Figure 5.

The British Coal Rationalised Plan was a large project mainly concerned with estimating coal reserves and land usage for planning opencast mining. The primary source of information was the Geological Survey together with input from geological observations made by N.C.B./B.C. geologists on working opencast sites. The standard of seam logging is very high and extremely complex. The Rationalised Plan is in turn the primary source for the Interactive Viewer. When this was digitalised the sheer complexity of the information led to frequent mistakes and differences between the C.A. digital data, the Rationalised Plan and the original Geological Survey maps. In these situations, it is best to go back to the original source. There is little conflict here. 07/D/SO/00NW differs little from the Geological Survey and the Interactive Viewer. The plan does show two levels at the position of the Bute Levels. The B.C.R.P. is always more comprehensive than the Survey on mine entries. The outcrop pattern is also similar. The B.C.R.P. shows the Nine Foot as one conjectural outcrop with four seam codes. It is this fact that has led to the bizarre seam nomenclature in the Consultants Report and on the Interactive Viewer. The stratigraphic notes regarding the Nine Foot Group show it to be extremely variable with a total thickness from 12"- 126" (0.3m-3.2m) in up to six leaves. Both the Geological Survey and the B.C.R.P. seem to agree that the seam is of poor quality in the vicinity of the site.

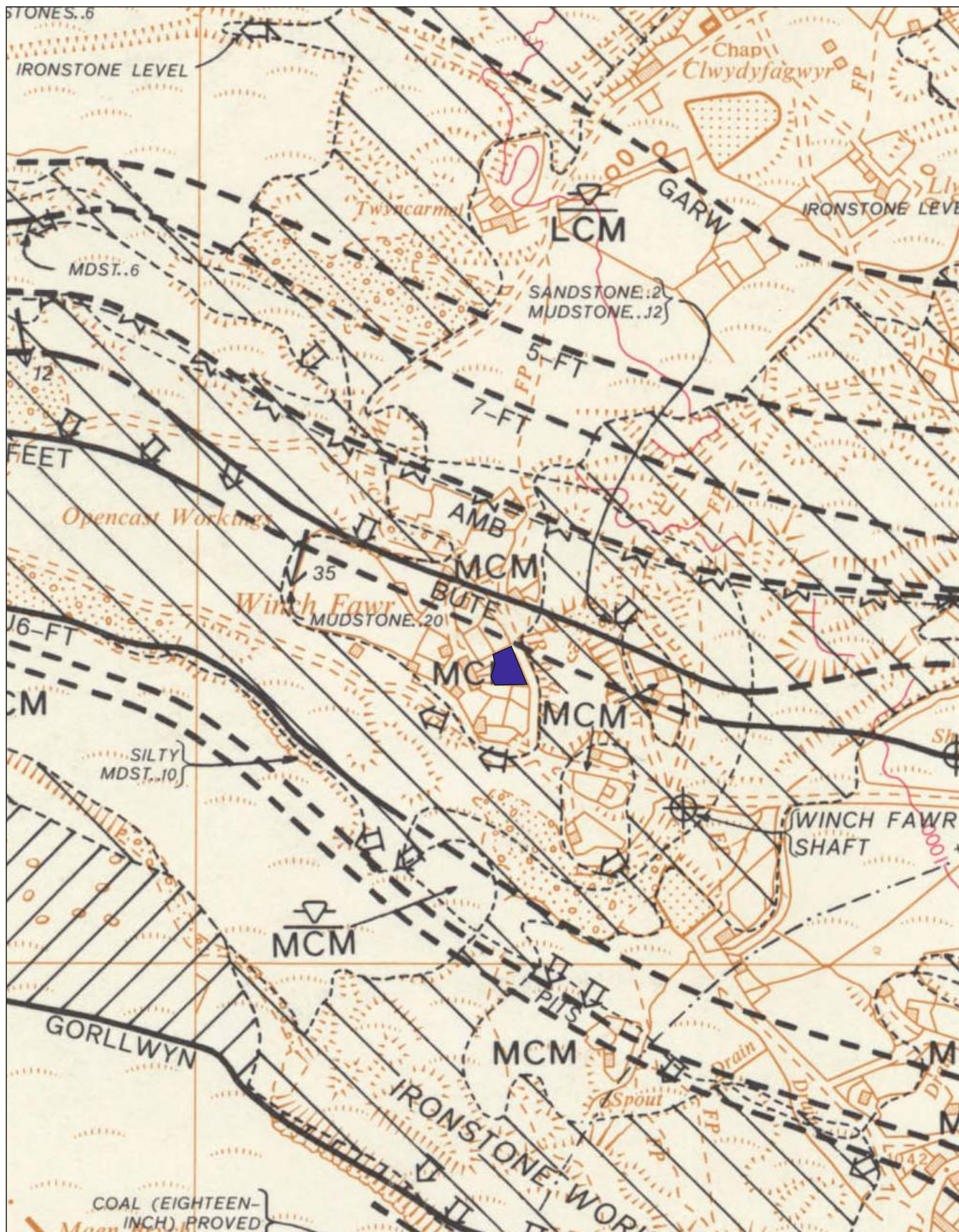


FIGURE 6A
EXTRACT OF GEOLOGICAL SURVEY SHEET SO 00NW.
THE SITE IS HIGHLIGHTED IN BLUE.

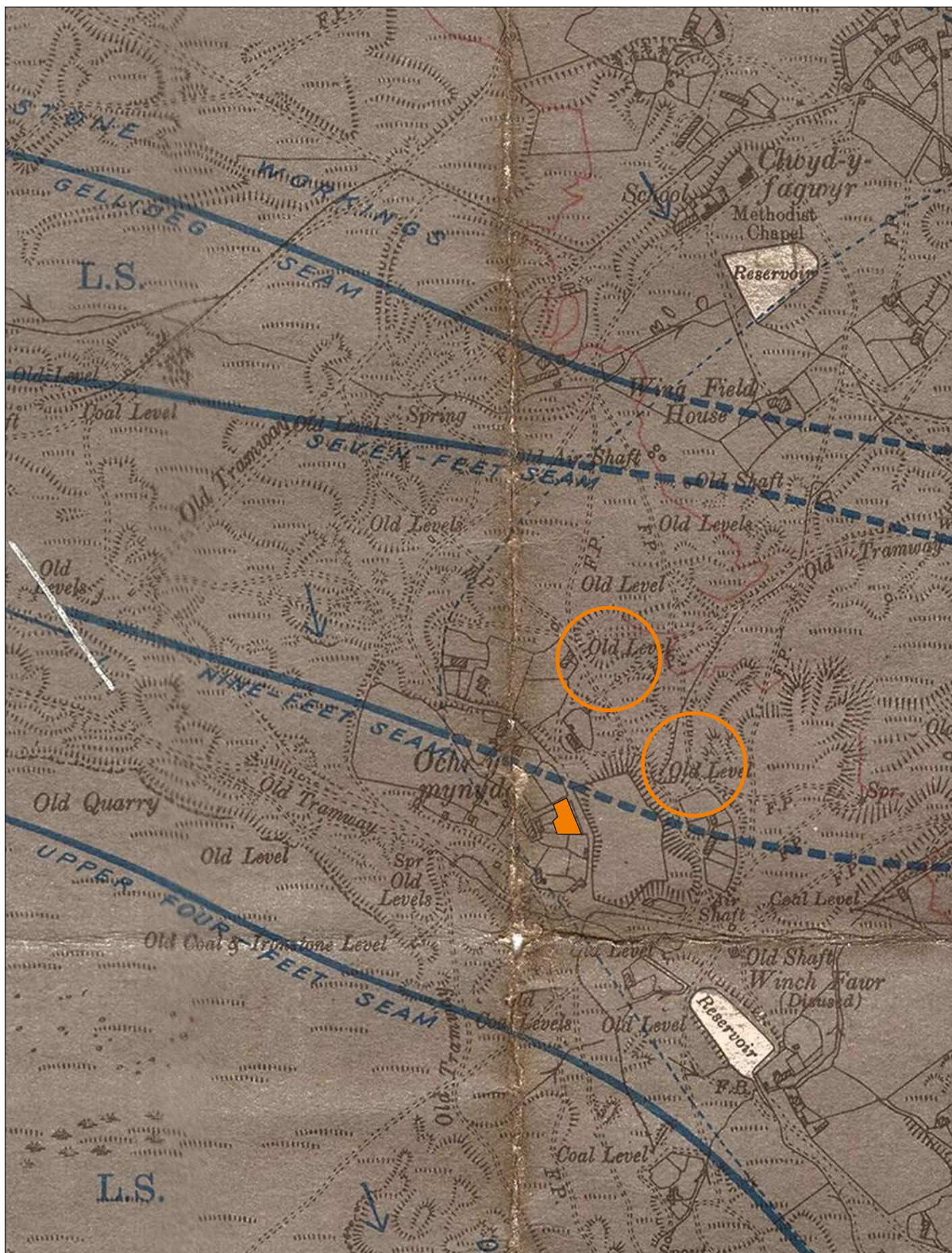


FIGURE 6B
EXTRACT OF GEOLOGICAL SURVEY SHEET GLAM 11NE (1921).
THE SITE IS HIGHLIGHTED IN ORANGE.

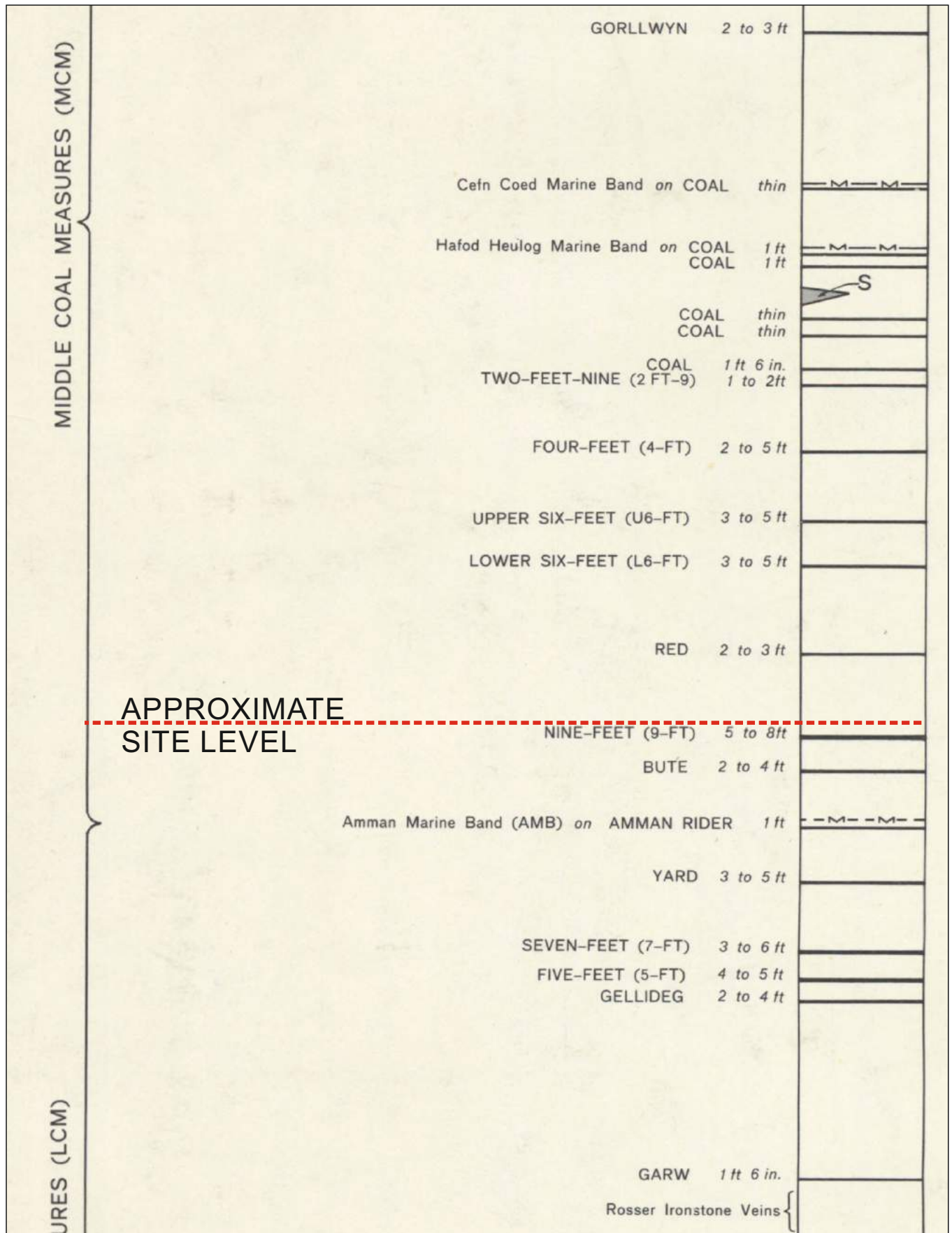


FIGURE 7
SECTION OF THE STRATIGRAPHIC COLUMN FROM SO 00NW.
THE APPROXIMATE SITE LEVEL IS MARKED.

2f) 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 1885 map the area around the site is being intensively exploited by shallow mining. It is noticeable that most of the mining is labelled as ironstone, with coal production being of secondary importance. Ironstone was the primary mining target to supply the voracious Merthyr Ironworks, which at the time were the largest in the world. Figure 8 is from the 1919 revision at 1:2500 scale. and shows the area as an industrial wasteland in severe decline. The closest "old level" seen due east of the site is in the location of the No1 and No.2 Bute Levels and at this scale it is easier to appreciate the proximity to the site.

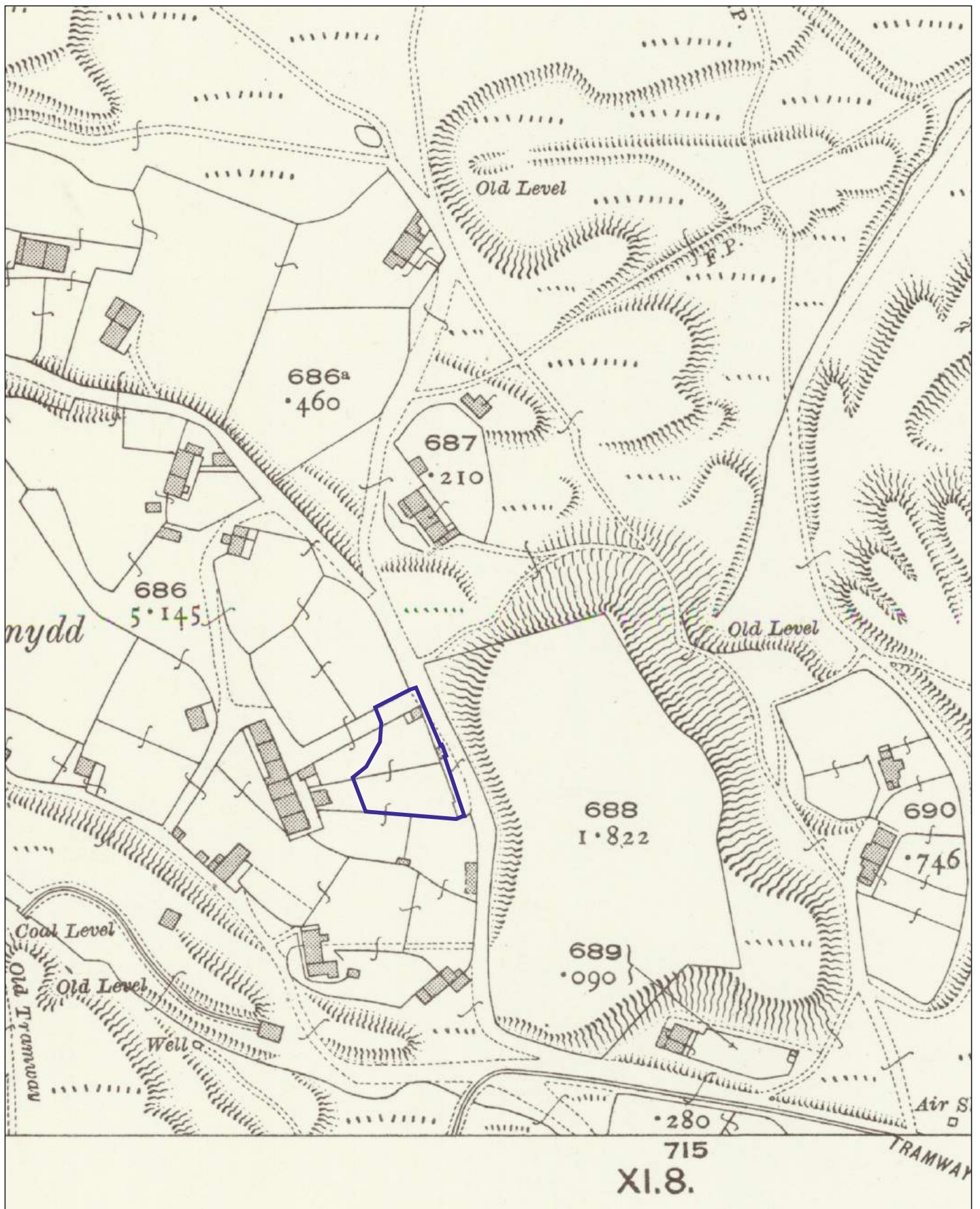


FIGURE 8
THE SITE IN 1919 ON 1:2500 ORDNANCE SURVEY.

COAL MINING ISSUE		YES	NO	R.A?
SHALLOW RECORDED WORKINGS		X		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 only one major issue requires a risk assessment for this site. That is the presence of shallow recorded workings under, or very close to the site. If coal workings are found to underlie all or part of the site, then the issue of risk from mine gases should also be addressed in detail.

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

- a) If there are unrecorded workings beneath the site, they would have to be in the Nine Foot group which probably outcrops beneath the site. Intensive mining in the area long pre-dates the legal requirement to keep mine plans. There are no signs of the seam being worked on the historical O.S. The possible reason for this is that the seam is locally thin with multiple dirt partings. With many richer seams both above and below the site it is possible it was simply ignored.
- b) There are multiple known mine entries close the site. The majority of these are higher stratigraphically and topographically than the site. They will have no influence on ground stability at the site. Neither of the two levels below the site are close enough to affect ground stability at the site.
- 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 comments see above regarding coal workings.

- e) There has been extensive surface mining (opencast) within 240m 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 coal seams beneath the site. This information has presumably been obtained from mine plans given the twentieth century dates. The deeper workings in the Seven Foot Seam date from 1902 with an extraction thickness of 1.60m. If the 50m depth is correct, then these will not pose a threat to ground stability at the site. The workings in the Bute Seam are much shallower. The Consultants Report places them 18m below the site. No mine plans have been examined by the author during the preparation of this risk assessment, so the following is speculation. The 1952 date would suggest that accurately surveyed plans are extant. Since the level suspected of being the entry to these workings was mapped as "old" in 1919 it is possible the level was reopened. The later mining could have involved pillar removal "on retreat". This was a common practice and would almost certainly have caused total areal collapse of the workings.

4. 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 the recorded workings in the Bute Seam. These are likely to be approximately 20m deep. It is likely that flush will be lost in the workings. If this is not the case, it would be desirable to drill at least one borehole to 40m to confirm the recorded workings in the Seven Foot are at a safe depth.

5. CONCLUSION

This risk assessment has presented evidence from comprehensive research that there is a residual risk to ground stability posed by coal mining legacy issues at the site. There are recorded shallow workings beneath the site. These may not necessarily pose a threat to ground stability as they may well have already collapsed. This would prevent further void migration. This fact will need to be established by an intrusive site investigation. The risk from mine gases to any

potential development will have to be assessed in the light of the findings from the intrusive investigation.

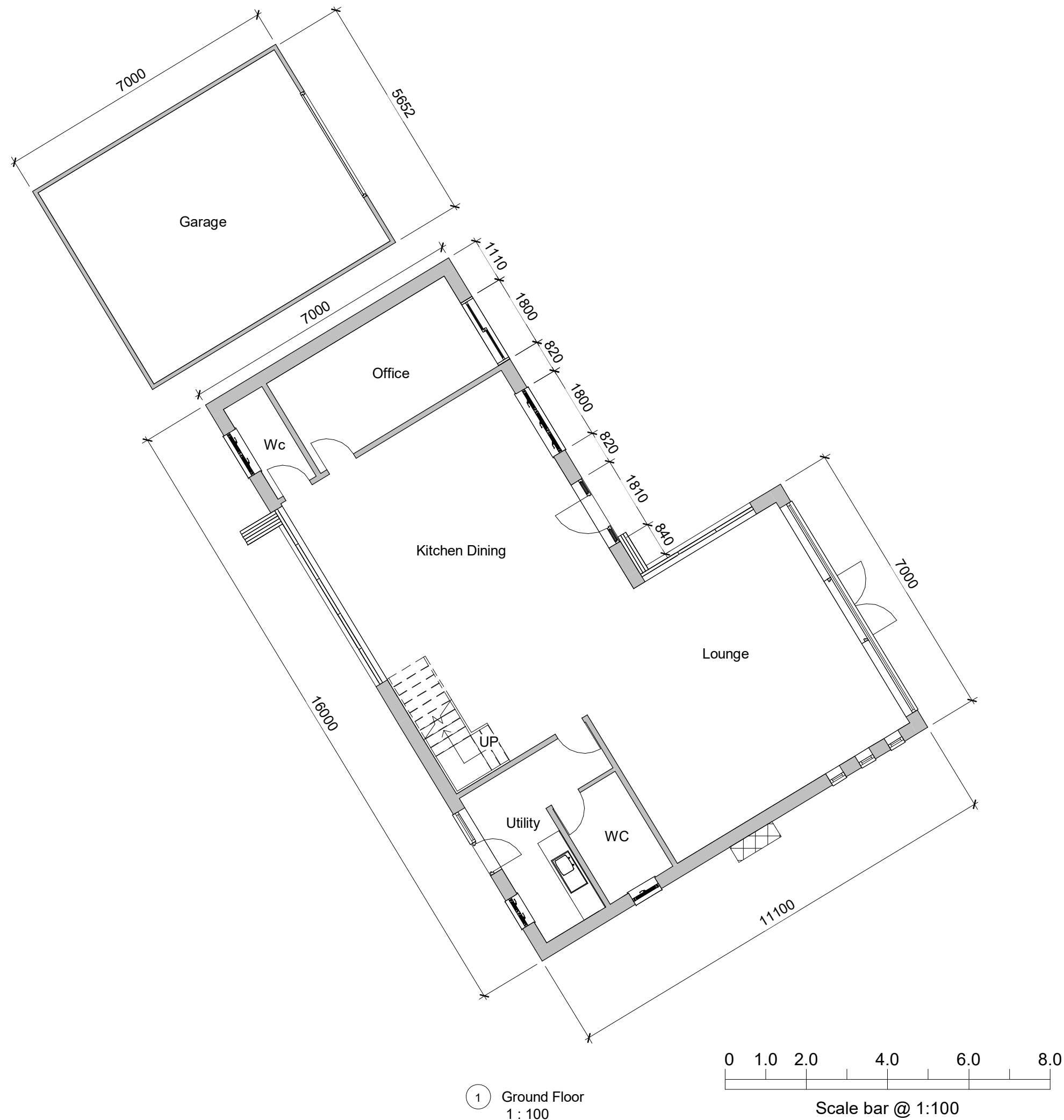
There is no reason for the Coal Authority to object to planning permission being granted for the proposed development providing an intrusive investigation and Validation Report is a condition of planning. Any ground engineering or specialist foundations necessary to remove any threat of ground instability at the site will be informed by the results of the investigation and cannot be speculated on at present.

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

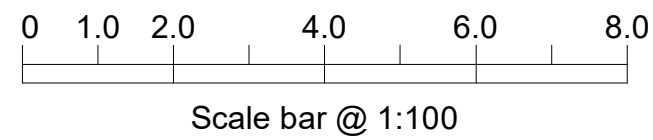
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APPENDIX 1

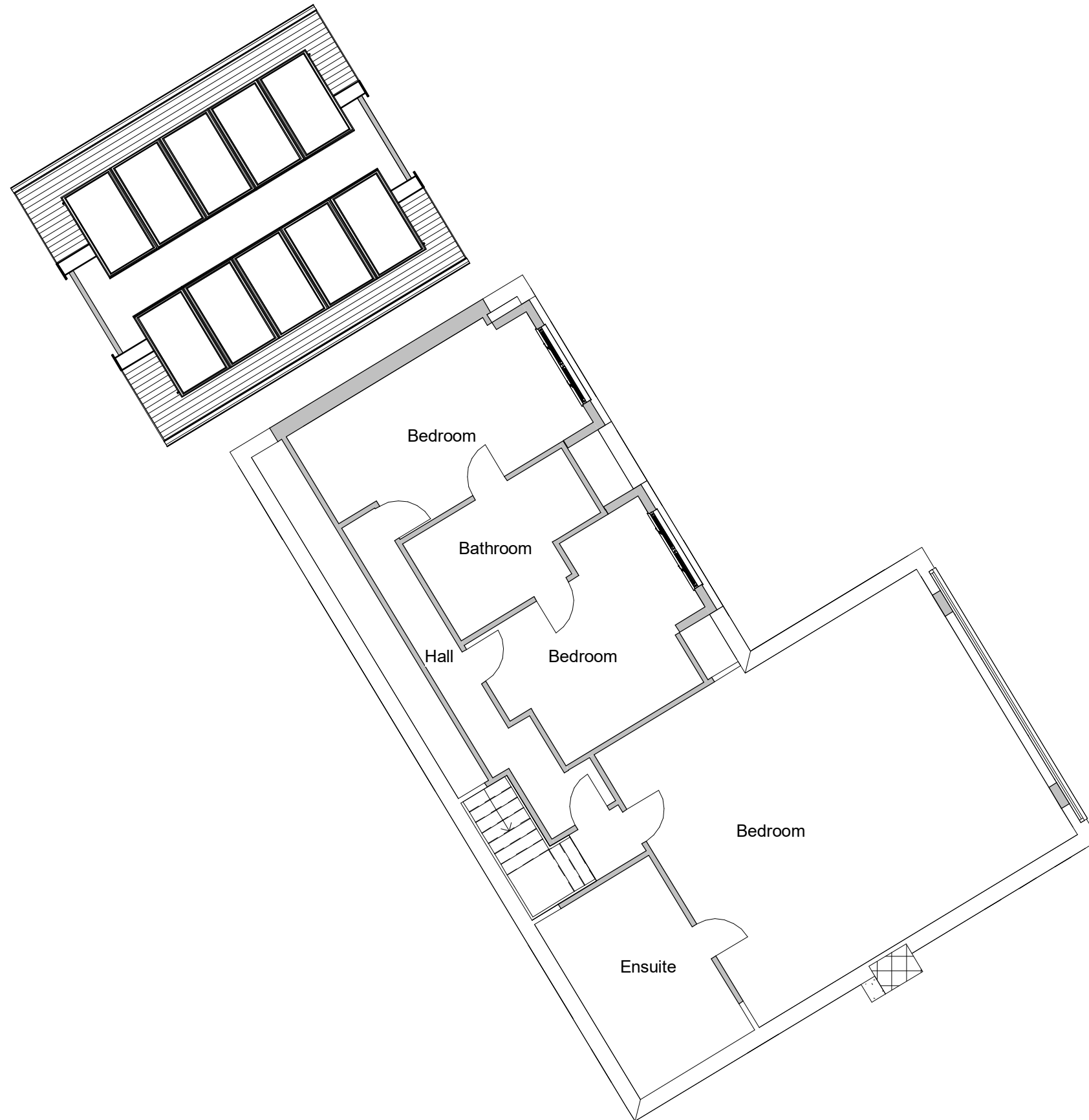
REPRESENTATIVE SITE PLANS



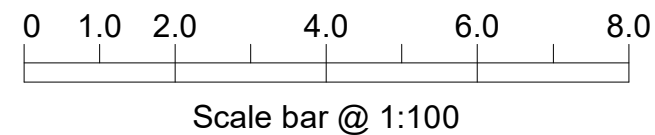
1 Ground Floor
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PURPOSE OF ISSUE Planning Approval	DRAWAING NUMBER WF-01	
PROJECT New Dwelling with Detached Garage		
SHEET Ground Floor Plan		
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Checked by JH	Drawn by PH	Scale (@ A3) 1 : 100
Rev No	Description	Date
A	Issue	30/11/2022



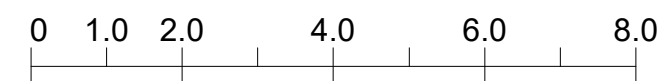
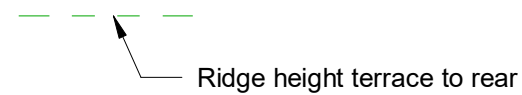
1 First Floor Plan
1 : 100



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Front Elevation



Scale bar @ 1:100

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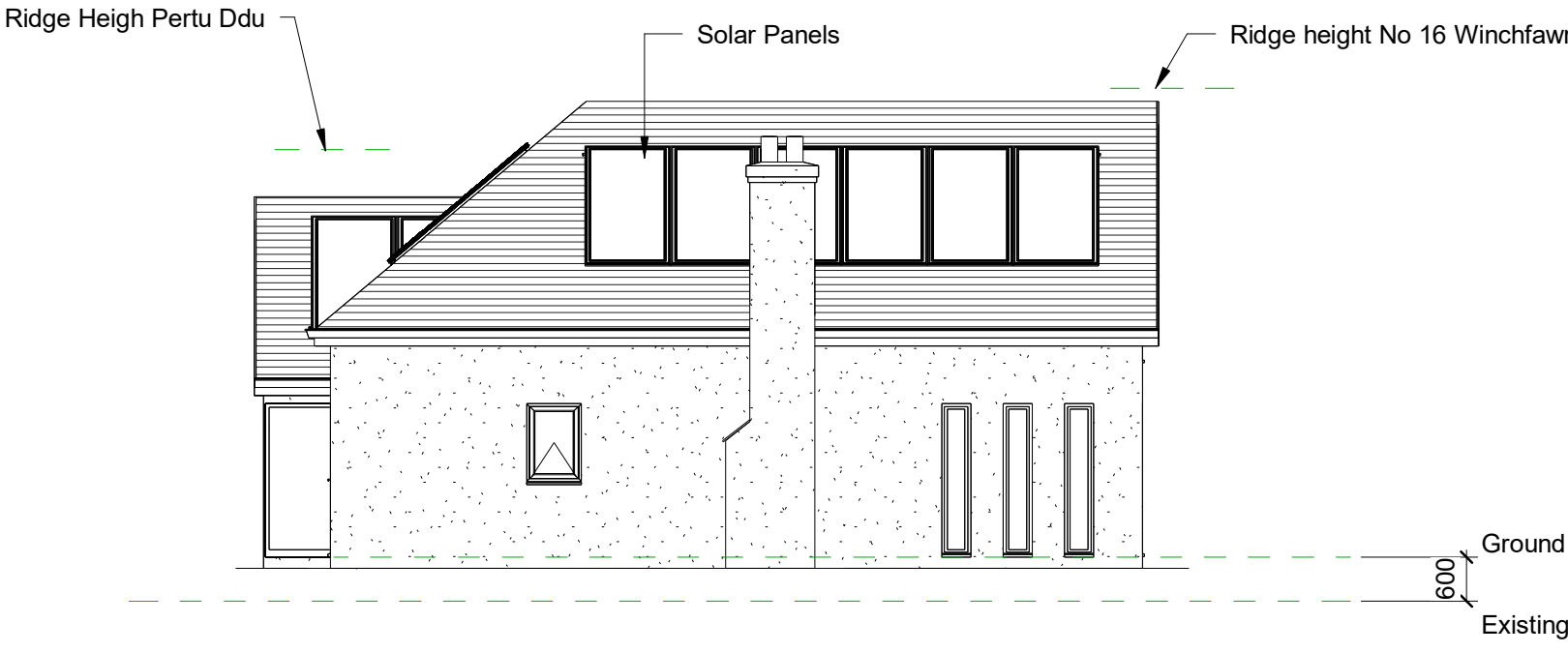
SHEET
Front & Rear Elevations

Address	Land off, Winch Fawr Road, Merthyr Tydfil. CF48 1RD
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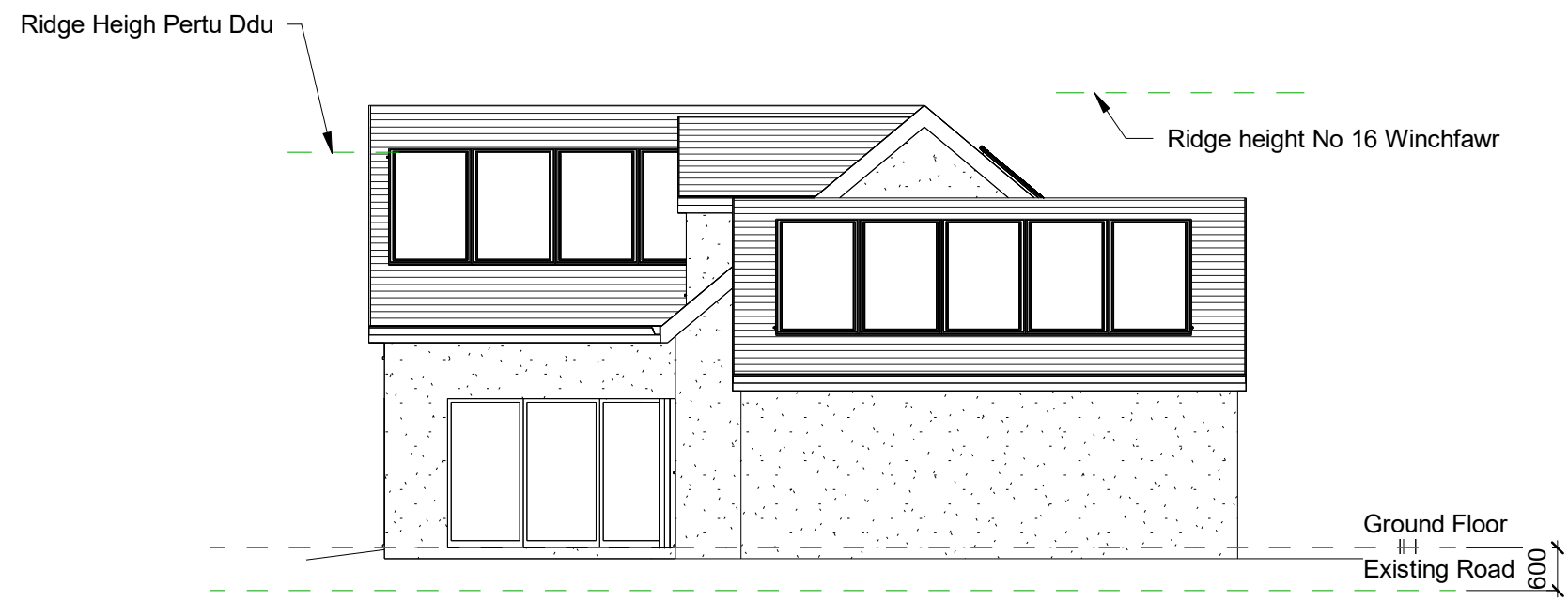
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JH	PH	1 : 100

Rev No	Description	Date
A	Issue	30/11/2022

Rear Elevation

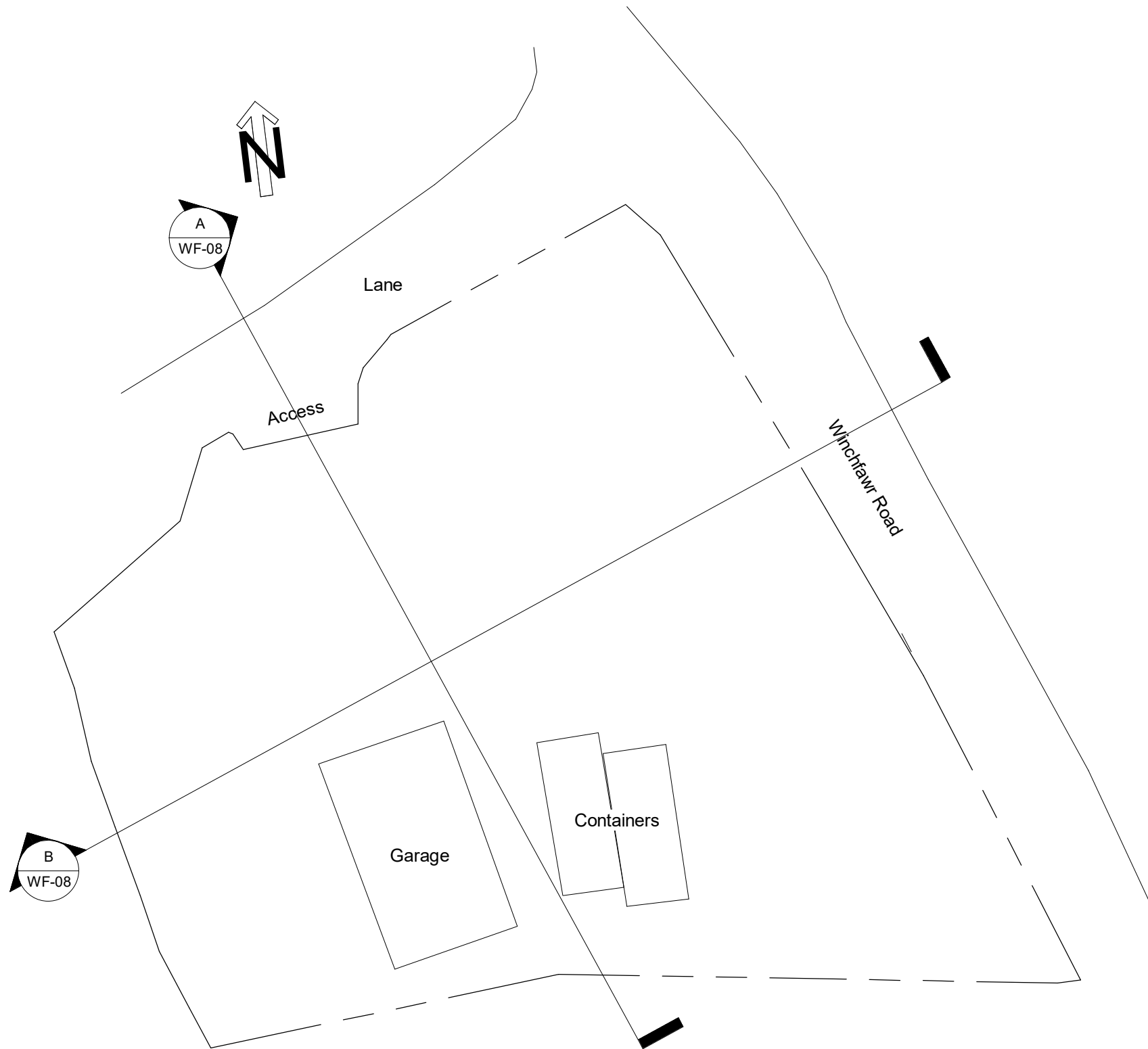


Side One Elevation



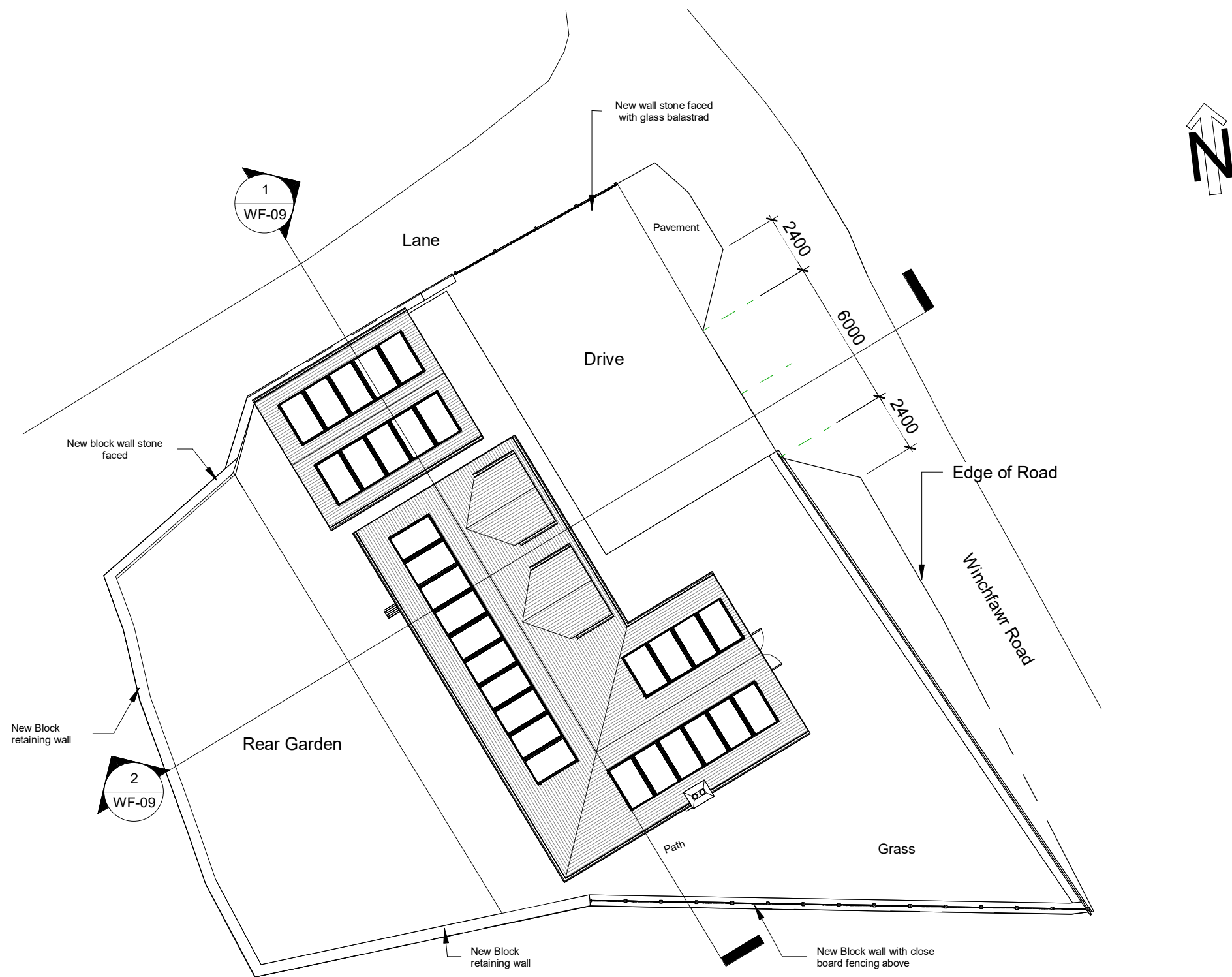
Side Two Elevation

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Rev No	Description	Date
A	Issue	30/11/2022

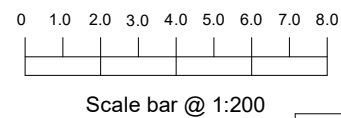


Existing Site Plan

PROJECT New Dwelling with Detached Garage		SHEET Existing Site Plan		
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Proposed Site Plan



PROJECT	SHEET
New Dwelling with Detached Garage	Proposed Site Plans
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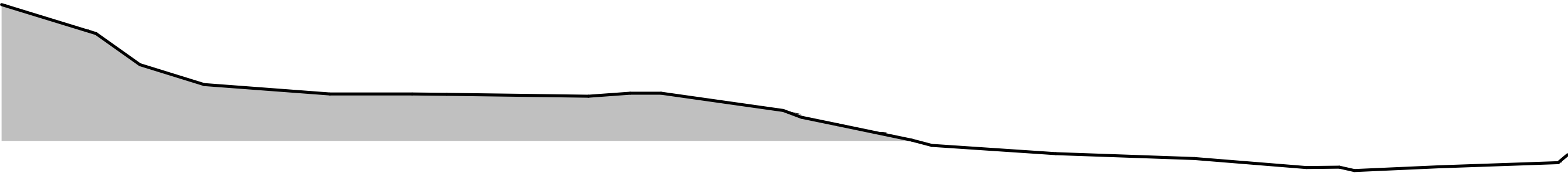
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Planning Approval


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WF-06

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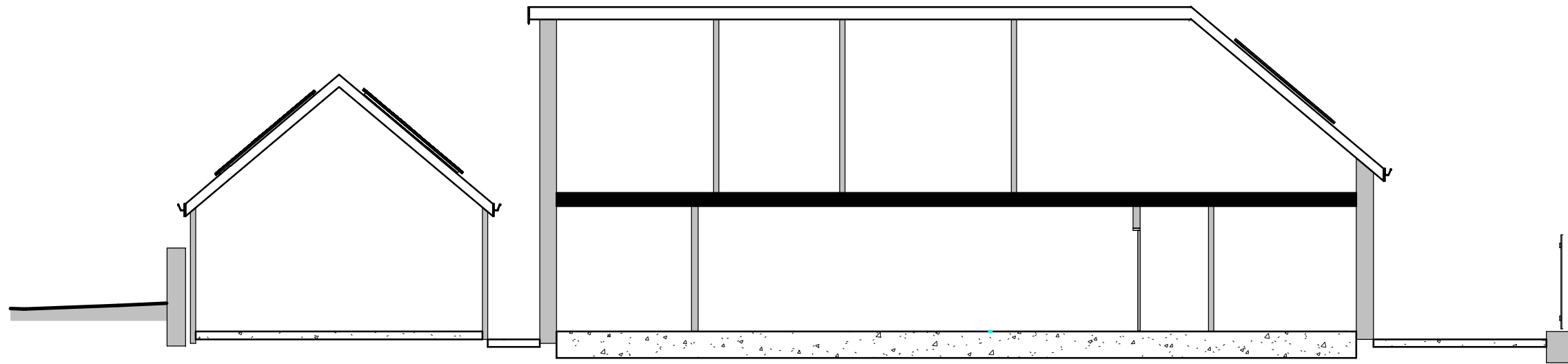


Existing Section A

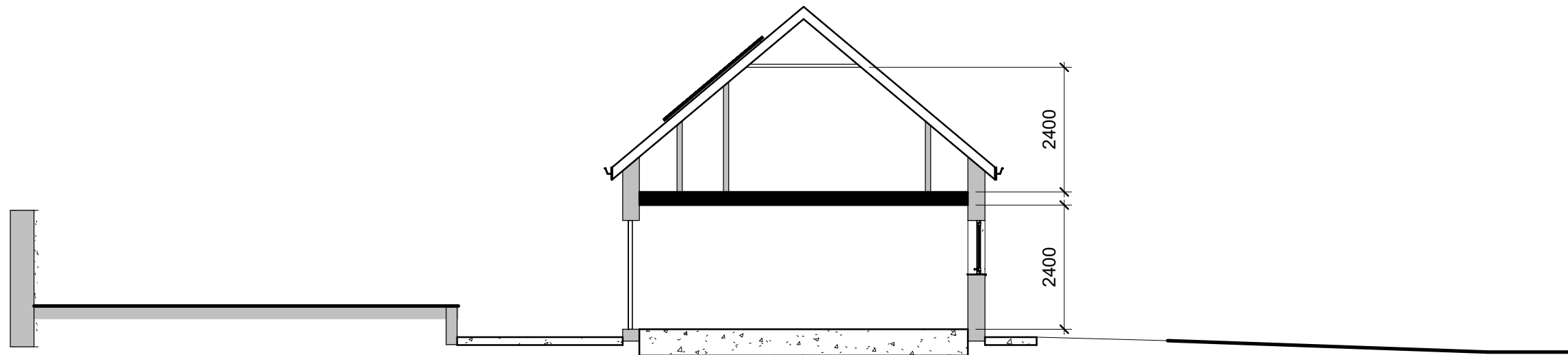


Existing Section B

PROJECT New Dwelling with Detached Garage		SHEET Existing Sections		
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PURPOSE OF ISSUE	DRWAING NUMBER			
Planning Approval	WF-08			



Proposed Section 1



Proposed Section 2

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PURPOSE OF ISSUE Planning Approval	DRWAING NUMBER WF-09			



PROJECT
New Dwelling with Detached Garage
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PURPOSE OF ISSUE
Planning Approval



DRWAING NUMBER
WF-10

Checked by JH		Drawn by PH	Scale (@ A3)
Rev No	Description		Date
A	Issue		30/11/2022

APPENDIX 2
COAL AUTHORITY
CONSULTANTS REPORT
WINCHFAWR ROAD
MERTHYR TYDFIL



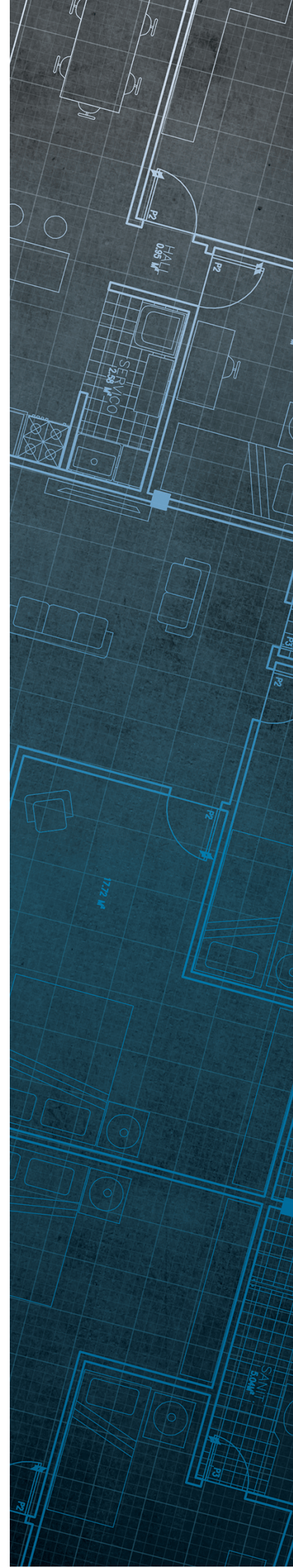
The Coal
Authority

Consultants Coal Mining Report

Land At
Winchfawr Road
Heolgerrig
Merthyr Tydfil
Merthyr Tydfil
CF48 1RD

Date of enquiry:	17 December 2022
Date enquiry received:	17 December 2022
Issue date:	17 December 2022

Our reference:	51003330748001
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

Land At
Winchfawr Road
Heolgerrig
Merthyr Tydfil
Merthyr Tydfil
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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	BUTE	Coal	4BX8	18	Beneath Property	6.9	South	152	1951
unnamed	LOWER 7FT BOTTOM LEAF	Coal	4BXC	50	Beneath Property	3.8	South	160	1902

Probable unrecorded shallow workings

None.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Adit	302206-005	302188 206241		Coal	
Adit	302206-006	302202 206222		Coal	
Adit	302206-050	302364 206357		Coal	
Adit	302206-051	302252 206355		Coal	
Adit	302206-054	302247 206233		Coal	
Shaft	302206-068	302281 206201		Coal	
Adit	302206-069	302291 206196		Coal	
Shaft	302206-083	302338 206172		Coal	
Adit	302206-089	302225 206233		Coal	

Abandoned mine plan catalogue numbers

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

SWR3141	SW1034	SWR1978
SWR3140	14241	SWR3137
SWR3138	8695	SW147

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

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

Outcrops

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
LOWER 9FT AND BUTE	Coal	Yes	31.6	North-East	123
LOWER NINE FOOT TOP LEAF	Coal	Yes	Within	N/A	121

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.