

Report No. BC/MB/12.18.04.

Mining Risk Assessment: Land at Blaendowlais, Dowlais Top, Merthyr Tydfil.

Prepared on behalf of:

***Land Adjacent to, 1a
Blaen Dowlais,
Dowlais, Merthyr
Tydfil, CF48 3RB.***

By:



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Mining Risk Assessment: Land at Blaendowlais, Dowlais Top, Merthyr Tydfil.

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List of Plans

Drawing No:		Scale:
<i>BC/MB/12.18.04.01.</i>	<i>General Location Plan.</i>	<i>1:50,000.</i>
<i>BC/MB/12.18.04.02.</i>	<i>Geology Plan.</i>	<i>1:10,560.</i>
<i>BC/MB/12.18.04.03.</i>	<i>Detailed Location Plan.</i>	<i>1:750.</i>

Appendix

Copy of The Coal Authority's Report, reference no. 51001986507001.

Mining Risk Assessment: Land at Blaendowlais, Dowlais Top, Merthyr Tydfil.

1 Introduction

This report has been prepared on behalf of our client:

*Merthyr Tydfil County Borough Council,
The Civic Centre,
Castle Street
Merthyr Tydfil,
CF47 8AN*

and relates to land at Blaendowlais, where it is proposed to develop the land for housing. This report discusses the geology and mining history of the Site and the immediately surrounding area as they may affect the construction of the proposed dwellings and thereby assesses the mining risk to the proposed development. Recommendations are made for site investigation to examine the soils on the Site and the risk from shallow mine workings.

The following sources of data were used in the compilation of this report:

- i) Research of published geological records;*
- ii) Research of mining records held at The Coal Authority's archive in Mansfield;*
- iii) The findings of The Coal Authority's report, reference no. 51001986507001;*
- iv) Research of The Coal Authority's interactive map, accessed on the 14th December 2018;*
- v) Research of Public Health England's interactive Radon map and*
- vi) the archive records of Blandford Consulting.*

The findings of this report are necessarily based upon the data used in its compilation and may be amended in the future in the light of additional material information. The report must only be used in its entirety for its stated purpose.

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2 Brief Description of the Site

The parcel of land that is the subject of this report ('the Site') is located at the north-eastern margins of Merthyr Tydfil in the district of Dowlais Top and is approximately 3.2 km north-east of the centre of the town (see Figure 1 and *General Location Plan, drawing no. BC/MB/12.18.04.01*). The Site is located on southerly facing slopes and is at an approximate elevation of 345m aod: it is irregular in outline and occupies an area of 0.037 hectares (see *Detailed Location Plan, drawing no. BC/MB/12.18.04.03*); it is located on a disused railway bed close to the junction of Blaendowlais with High Street. The Site lies within a mixed residential area where houses and bungalows are primarily arranged in terraces.

Figure 1
Aerial View of Site



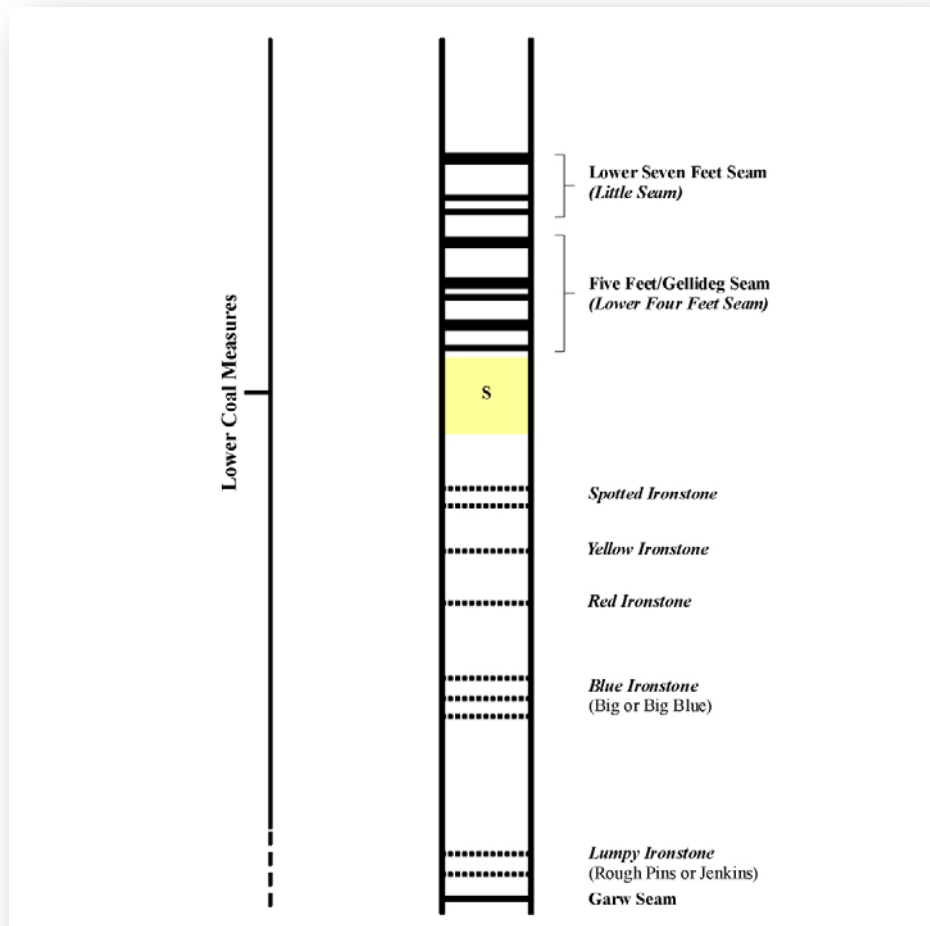
3 Geology of the Site

The Site is situated at the northern margin of the South Wales Coalfield and is underlain at shallow depths with strata assigned to the Lower Coal Measures, a sub-division of the Upper

/Cont....

Carboniferous Period. The published geological sheet for the area at a 1:10,560 scale, SO 00 NE, shows the inferred position of the outcrop of the Five Feet/Gellideg Seam (identified on the geology plan as the Gellideg and known locally as the Lower Four Feet Seam) to be present approximately 50m south-east of the Site (see *Geology Plan, drawing no. BC/MB/12.18.04.02*). The inferred outcrops of this and other coal seams follow a north-easterly trend along the slopes of the upper valley side. The regional dip of the coal measures in this area is 1 in 12 towards the south-west such that the Gellideg Seam does not underlie the Site.

Figure 1
Part of the Stratigraphic Column.
 Scale: Not to Scale.



Beneath the Gellideg Seam in the geological sequence are a series of five ironstone veins, the Garw Coal Seam and then the Rosser Ironstones (see Figure 2, Part of the Stratigraphic Column); this group of measures underlie the Site at shallow depths.

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The measures of the South Wales Coalfield have been affected by large normal faults, frequently referred to as 'cross faults'. In the Dowlais area these faults have a sinuous trace at the surface and an average trend towards the north-west. Published geological information shows that no such large fault affects the Site.

The published geological sheet shows the Site to be covered with Made Ground which might be the product of the extensive coal mining activities that took place across the area or alternatively may be associated with the former railway line. The published geological sheet also shows that the Site is not affected by landslip conditions.

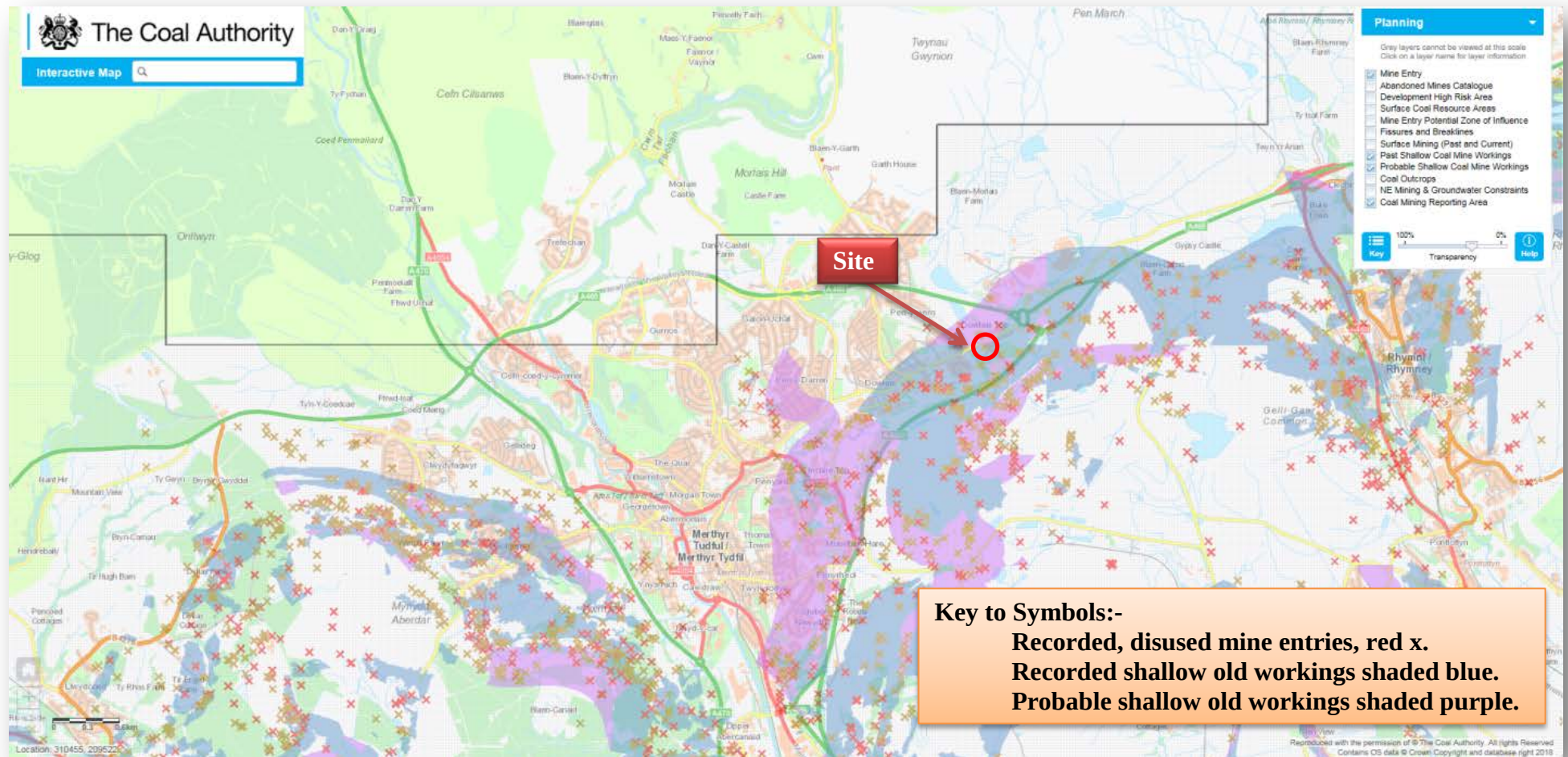
4 Mining History

The general area has experienced extensive underground mining operations for coal and for ironstone dating back at least to the very earliest part of the nineteenth century. The workings were prosecuted from a number of adits driven into the valley sides at or near the outcrops of coal seams and ironstone veins and were supplemented with many shafts, principally to act as a source of air. Our searches identified that the Site could be affected by shallow mine workings in one coal seam; mining of the seam ceased in 1834. Mining records indicate that five ironstone veins have been mined within influencing distance of the Site; they are at depths of between Shallow (<30m) and 90m. Underground mining of the ironstones ceased in 1878. Currently, the Ffos-y-fran Opencast Coal Site is operating to the east of the Site; the two are approximately 300m apart at their closest.

Our searches found no record of a disused shaft or adit within the confines of the Site, a situation confirmed by The Coal Authority *report no. 51001986507001*. The risk of unrecorded air shafts being present cannot be entirely discounted. The Site has not been part of an opencast coal site, and there have been no opencast mining operations close enough to the Site to affect the structural integrity of the proposed development. There are no operating collieries within influencing distance of the Site.

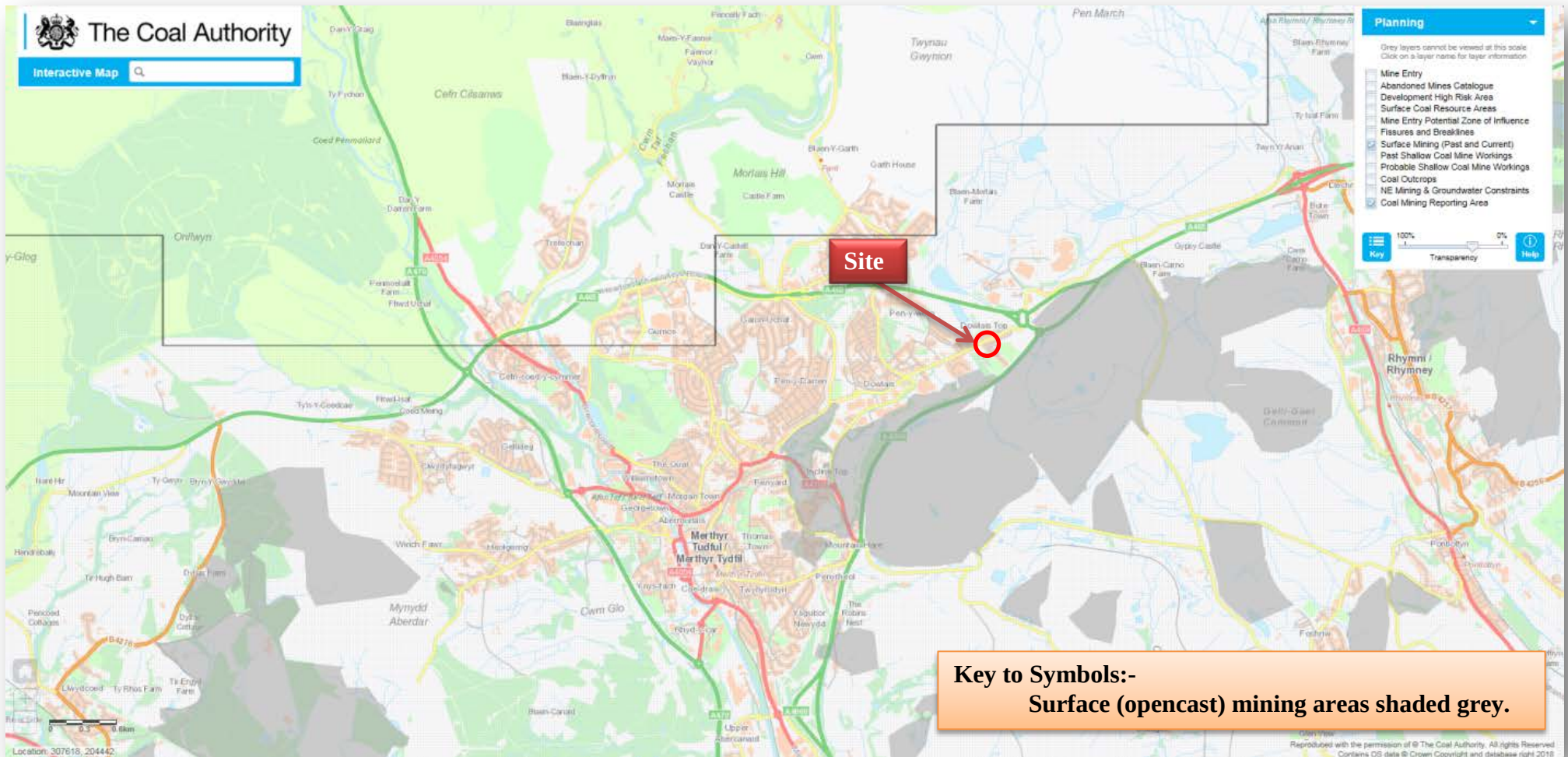
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Figure 3
Print-out of The Coal Authority's Interactive Map
(Accessed 12th December 2018)



/Cont....

Figure 4
Print-out of The Coal Authority's Interactive Map
(Accessed 12th December 2018)



/Cont....

5 Mine Gases

When coal seams are disturbed during mining operations methane can be released and can collect with other mine gases in the mining voids left by the operations. In certain circumstances mine gases can accumulate within buildings and cause fire or explosion or can result in asphyxiation. There are no shallow mine workings beneath the Site that could act as a source of mine gases. A number of studies of the old workings across South Wales and dating back to the mid to late twentieth century have shown that there is little risk from mine gases. This may be as a result of the nature of the coal seams or because the shallow old workings have vented most of the mine gases to atmosphere or is as a result of the combination of the two. The Coal Authority has no record of an emission of mine gas at the Site that has required action.

6 Radon Gas

An assessment of the risk from Radon gas has been carried out by accessing Public Health England's interactive Radon map. The map identifies that the Site lies within an area that is affected by Radon gas with a 3-5% probability that the Site will be above the action level. If this were to be confirmed the appropriate response for building control purposes would be that BASIC Radon protection measures should be included in the dwellings.

7 Risk Assessment: Discussion and Recommendations

7.1 Solid Geology

There are no issues relating to the solid geology of the Site that would affect the structural integrity of the proposed development and no further action is required in this respect.

7.2 Mining History

7.2.1 *Shallow Mine Workings*

The locality has experienced extensive mining operations for both coal and ironstone. The Site is at risk from shallow mine workings on one coal seam and

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at least one ironstone vein. Other old workings are present in the locality, but are at depths that are too deep to pose a risk to the proposed development. It is recommended that a programme of exploration boreholes are drilled on the Site with a view to determining the depth and nature of any shallow mine workings that may be present.

Otherwise, there are no active mines in the locality, deep mines or opencast mines, that would affect the structural integrity of the proposed development and the Site has not been part of an opencast coal site.

7.2.2 Mine Entries

Our searches found no record of disused mine entries within the bounds of the Site or within 20m of its boundary. The potential for an unrecorded air shaft or adit to be present cannot be entirely dismissed as a result of the mining history of the area. If anything unusual is observed during construction works then the work should be stopped immediately and advice should be sought from a suitably experienced Chartered Geologist or from The Coal Authority.

7.2.3 Mine Gases

The risk to the development from mine gases is low but it would be prudent to monitor the recommended boreholes for the presence of mine gases.

7.2.4 Made Ground

A detailed assessment of soils conditions is outside the scope of this report. However, it is noted that the published geological sheet for the area indicates the presence of Made Ground across the Site; the Made Ground may be colliery spoil or fill used in the construction of the former railway bed. Ground investigation should be carried out to assess the soil conditions prevailing on the Site in order to inform the choice of foundation options. If Made Ground is encountered it may be classified as 'waste', in which case an assessment of the risk from contamination should be included in the ground investigation.

/Cont...

The ground investigation to examine the soils on the Site should be designed and supervised by a Chartered Geologist or Chartered Geotechnical Engineer.

7.3 Radon Gas

Public Health England's interactive Radon map identifies that the Site lies within an area that is affected by Radon gas with a 3-5% probability that the Site will be above the action level. If this were to be confirmed the appropriate response for building control purposes would be that BASIC Radon protection measures should be included in the dwellings. When the layout for the Site has been completed a GeoReport report should be obtained from the British Geological Society.

7.4 Summary of Risk Assessment

There is no risk to the proposed development from the solid geology of the locality. There is a significant risk to the development from shallow mine workings in one coal seam and at least one ironstone vein. The presence of a disused mine entry is considered to be very low. Made Ground likely to be present, colliery spoil or fill from the construction of the former railway bed. There is a risk from Radon gas.

7.5 Summary of Recommendations

A programme of exploration boreholes should be drilled on the Site in order to examine in greater detail the risk from shallow mine workings; the boreholes should be monitored for the presence of mine gases. The boreholes should be designed and supervised by a Chartered Geologist and will require a permit from The Coal Authority.

If any unusual feature that might indicate the presence of a disused mine entry is encountered during excavation works on the Site the work must be stopped immediately and advice sought from a suitable experienced Chartered Geologist or from The Coal Authority.

/Cont....

Ground investigation should be undertaken in order to assess the soil conditions prevailing on the Site to inform the foundation options and to assess the risk from contaminants that may be present.

7.6 Foundation Options

In so far as the solid geology of the Site is concerned no particular measures need be included in the design and construction of the foundations of the proposed dwellings.

The findings of the recommended borehole investigation and ground investigation will be needed to inform the appropriate choice of foundation options.



**Dr Malcolm Blandford,
Chartered Geologist.**

Report Date: 15th December 2018.

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PLANS



*The Enterprise Centre,
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Pentrebach,
Merthyr Tydfil,
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CF48 4DR.*

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Geologists Working With The Environment...

Study on Land at Blaendowlais, Dowlais, Merthyr Tydfil.

General Location Plan.

Plan Scale: 1:50,000.

Key to Symbols:



Approximate Position of Site.

Note:

North is at top of plan.

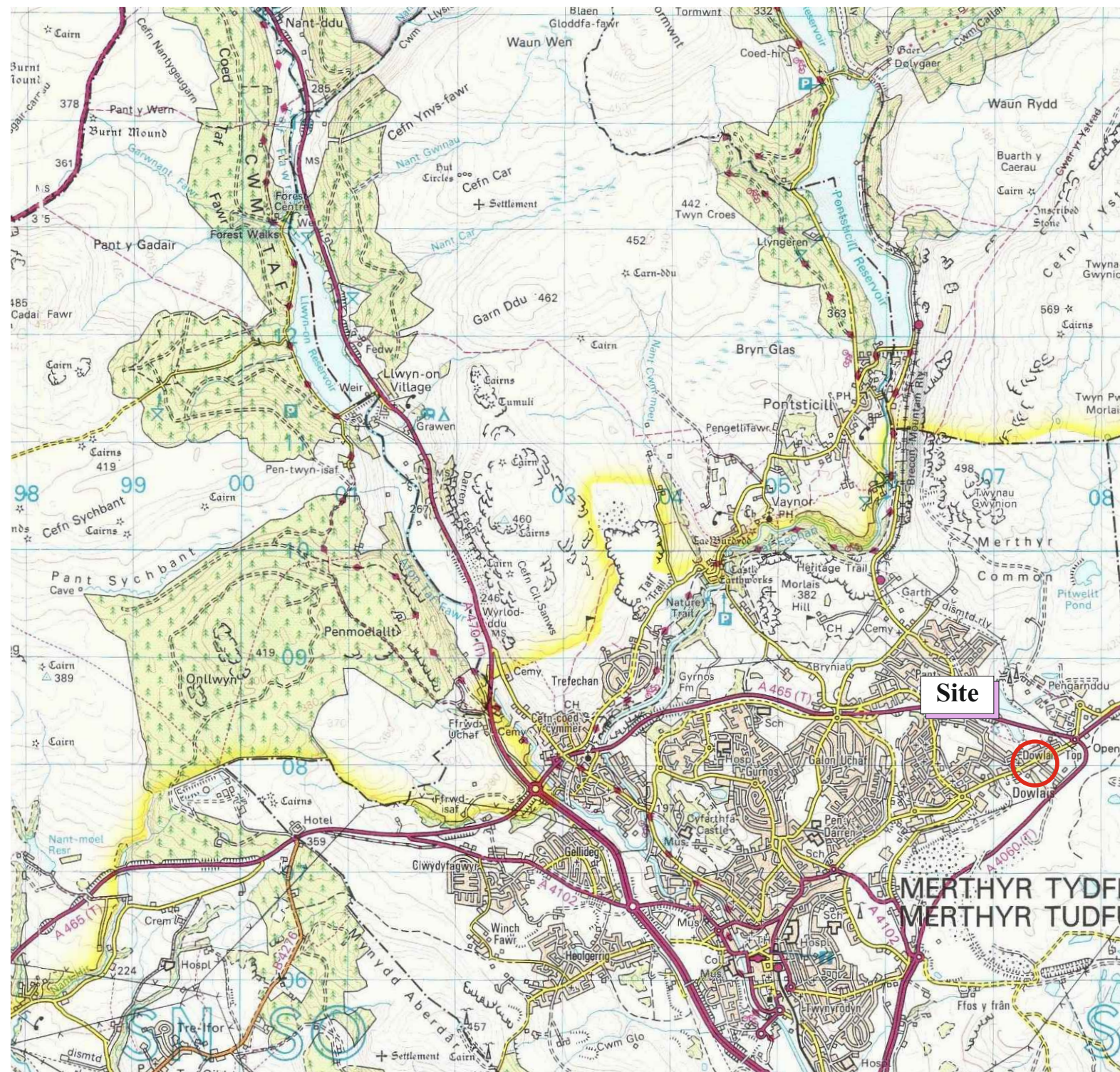
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Drawing No: BC/MB/12.18.04.01.



Study on Land at Blaendowlais, Dowlais, Merthyr Tydfil.

Geology Plan.

Plan Scale: 1:10,560.

Key to Symbols:



Approximate Position of Site.

Note:

North is at top of plan.

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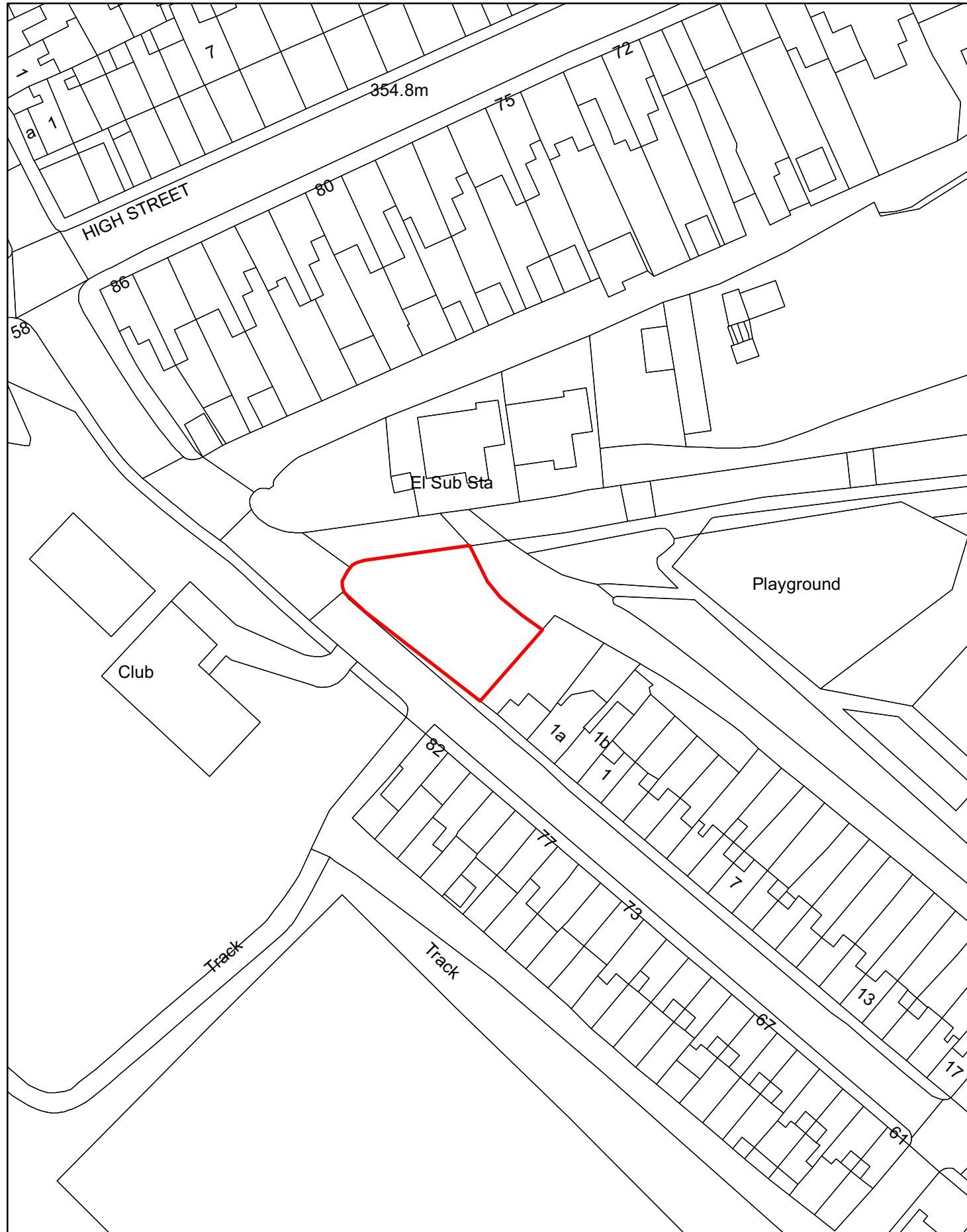
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Drawing No: BC/MB/12.18.04.02.

Geologists Working With The Environment.....





Study on Land at Blaendowlais, Dowlais, Merthyr Tydfil.

Detailed Location Plan.

Plan Scale: 1:750.

Key to Symbols:

 **Approximate Site Boundary.**

Note:

*Drawing extracted from document
provided by Client.*

*Plan for identification only, do not
take measurements from this plan.*

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Drawing No: BC/MB/12.18.04.03.

APPENDIX

**COPY OF COAL AUTHORITY'S
REPORT, REF NO:
51001986507001**



*The Enterprise Centre,
Merthyr Industrial Park,
Pentrebach,
Merthyr Tydfil,
South Wales,
CF48 4DR.*

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Geologists Working With The Environment...



The Coal
Authority

Resolving the **impacts** of mining

CON29M Non-Residential Mining Report

1A BLAEN DOWLAIS
DOWLAIS
MERTHYR TYDFIL
CF48 3RB

Date of enquiry: 14 December 2018
Date enquiry received: 14 December 2018
Issue date: 14 December 2018

Our reference: 51001986507001
Your reference: BC/MB/12.18.03



CON29M Non-Residential Mining Report

This report is based on, and limited to, the records held by the Coal Authority, at the time we answer the search.

Client name

Blandford Consulting

Enquiry address

1A BLAEN DOWLAIS, DOWLAIS, MERTHYR TYDFIL,
CF48 3RB

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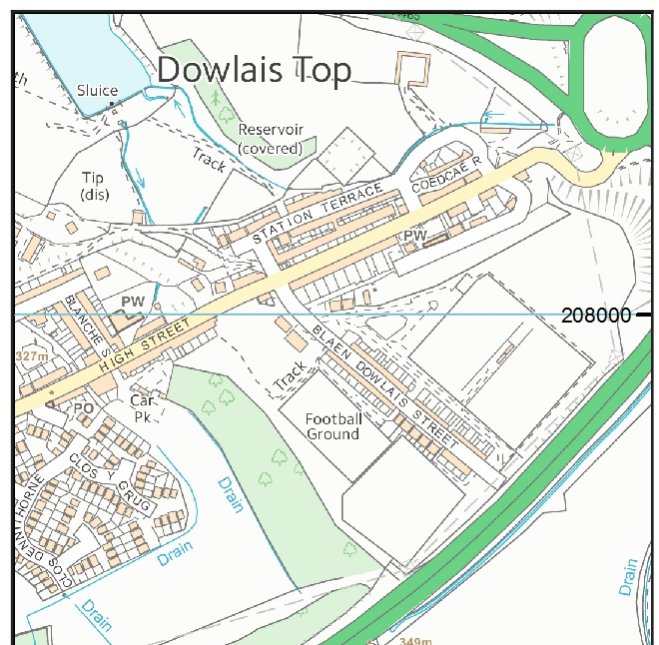
200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

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Approximate position of property



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Summary

Has the search report highlighted evidence or potential of		
1	Past underground coal mining	Yes
2	Present underground coal mining	No
3	Future underground coal mining	Yes
4	Mine entries	Yes
5	Coal mining geology	No
6	Past opencast coal mining	No
7	Present opencast coal mining	No
8	Future opencast coal mining	No
9	Coal mining subsidence	No
10	Mine gas	No
11	Hazards related to coal mining	No
12	Withdrawal of support	No
13	Working facilities order	No
14	Payments to owners of former copyhold land	No

For detailed findings, please go to page 4.

Detailed findings

1. Past underground coal mining

The property is in a surface area that could be affected by underground mining in 1 seam of coal at shallow depth, and last worked in 1834.

The property is in a surface area that could be affected by underground mining in 5 seams of ironstone at shallow to 90m depth, and last worked in 1878.

2. Present underground coal mining

The property is not within a surface area that could be affected by present underground mining.

3. Future underground coal mining

The property is not in an area where the Coal Authority has received an application for, and is currently considering whether to grant a licence to remove or work coal by underground methods.

The property is not in an area where a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area likely to be affected from any planned future underground coal mining.

However, reserves of coal exist in the local area which could be worked at some time in the future.

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

4. Mine entries

There are no known coal mine entries within, or within 20 metres of, the boundary of the property.

There may however be mine entries/additional mine entries in the local area which the Coal Authority has no knowledge of.

5. Coal mining geology

The Coal Authority is not aware of any damage due to geological faults or other lines of weakness that have been affected by coal mining.

6. Past opencast coal mining

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

7. Present opencast coal mining

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

8. Future opencast coal mining

There are no licence requests outstanding to remove coal by opencast methods within 800 metres of the boundary.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

9. 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.

10. Mine gas

The Coal Authority has no record of a mine gas emission requiring action.

11. Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Coal Authority, under its Emergency Surface Hazard Call Out procedures.

12. Withdrawal of support

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.

13. Working facilities order

The property is not in an area where an order has been made, under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

14. 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.

Comments on the Coal Authority information

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In view of the mining circumstances a prudent developer would seek appropriate technical advice before any works are undertaken.

Therefore 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 good engineering practice developed for mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or mines of coal without the permission of the Coal Authority. Developers should be aware that the investigation of coal seams/former mines of coal may have the potential to generate and/or displace underground gases and these risks both under and adjacent to the development should be fully considered in developing any proposals. The need for effective measures to prevent gases entering into public properties either during investigation or after development also needs to be assessed and properly addressed. This is necessary due to the public safety implications of any development in these circumstances.

Additional remarks

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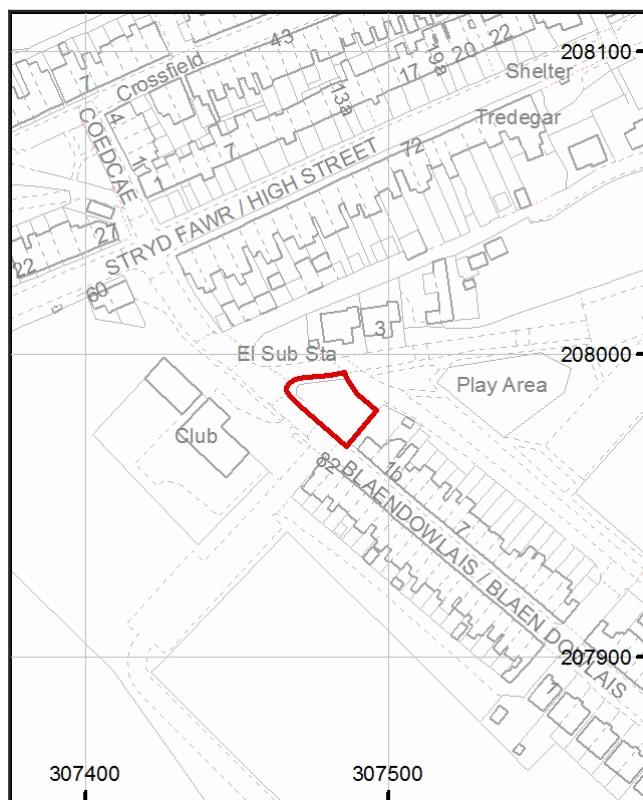
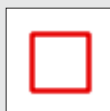
Alternative formats

If you would like this report in an alternative format, please contact our communications team.

Enquiry boundary

Key

Approximate position of enquiry boundary shown



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Property search for	1A BLAEN DOWLAIS DOWLAIS MERTHYR TYDFIL CF48 3RB
Reference number	51001986507001
Date of issue	14 December 2018
Cost	£81.43
VAT @ 20%	£16.29
Total received	£97.72
VAT registration	598 5850 68