

# Coal Mining Risk Assessment

**For development at:** Land adjacent to Min y Gors, Heol-y-Graig,  
Cwmafan, Port Talbot, SA12 9YD

**For proposal:** Single residential property

## Assessment Summary

|                          |                                |
|--------------------------|--------------------------------|
| Assessment Result        | MEDIUM RISK                    |
| Recommended Further Work | INTRUSIVE GROUND INVESTIGATION |

The Coal Authority works to resolve the impacts of mining by growing its expertise, innovation, organisational capability and efficiency.

It manages the effects of past coal mining, including subsidence damage claims which are not the responsibility of licensed coal mine operators and is an executive non-departmental public body, sponsored by the Department of Business, Energy and Industrial Strategy. This report is valid for 90 days.

#### Limit of liability

This report is provided for the applicant and is in respect of the property identified on its face. Any conclusions or recommendations made are those based on information obtained for the report and our current knowledge and practices. The information and data set out in this report is based on information provided by or obtained from third parties which is held by the Coal Authority. Any limitations of the data are identified within the report. The Coal Authority does not accept liability for the accuracy of third party data. Should new data or information become available these results, conclusions and recommendations may require amending. The Authority is not and cannot be liable for any harm, loss or damage of whatever nature, including consequential loss, occasioned to any third party by the inaccuracy of the information set out in this report and any person seeking to rely upon it should if necessary undertake their own investigations and professional advice. The report should only be used in the stated context.

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*Any advice provided in this report does not prejudice our position as a statutory consultee.*

| Version | Compiled | Checked | Date       |
|---------|----------|---------|------------|
| 1.1     | HB       | PB      | 30/07/2020 |

## Section 1 – Description of site and proposed development

### a) Site location and Description

The Coal Authority has been commissioned to prepare a Coal Mining Risk Assessment Report for a proposed development at Land adjacent to Min y Gors, Heol-y-Graig, Cwmafan, Port Talbot, SA12 9YD (see Figure 1), in order to provide the Local Planning Authority with information on coal mining and an assessment of its impact on land stability.

The approximate site centre co-ordinates are E278632, N192923. The proposed development area requires access via Heol-y-Graig. The site has an approximate elevation of 68-78m AOD.

**Figure 1: Site location plan**



## b) Description and layout of proposed development

The Coal Authority understands that the developer plans to construct a single residential dwelling, with associated driveway and parking (see Appendix A).

## c) Scope of coal mining risk assessment

The purpose of this Coal Mining Risk Assessment Report is to:

- Present a desk-based review of all available information on the coal mining issues which are relevant to the application site.
- Use that information to identify and assess the risks to the proposed development from coal mining legacy, including the cumulative impact of issues.
- Set out appropriate mitigation measures to address the coal mining legacy issues affecting the site, including any necessary remedial works and/or demonstrate how coal mining issues have influenced the proposed development.
- Demonstrate to the Local Planning Authority that the application site is, or can be made, safe and stable to meet the requirements of national planning policy with regard to development on unstable land.

Any works that intersect coal mine workings, mine entries or coal seams may have implications for mine gas, spontaneous combustion and surface collapse. Coal Authority permission is required prior to any such works taking place. Further detailed advice can be provided upon request.

The Coal Authority's adopted policies regarding building over or close to mine entries and managing gas risks can be viewed at:

[www.gov.uk/government/publications/building-on-or-within-the-influencing-distance-of-mine-entries](http://www.gov.uk/government/publications/building-on-or-within-the-influencing-distance-of-mine-entries)

[www.gov.uk/government/publications/guidance-on-managing-the-risk-of-hazardous-gases](http://www.gov.uk/government/publications/guidance-on-managing-the-risk-of-hazardous-gases)

## Section 2 – Sources of information used to inform this report

| Source reviewed      | Yes | No | Remarks                                                                        |
|----------------------|-----|----|--------------------------------------------------------------------------------|
| Coal mining report   | X   |    | Consultants Coal Mining Report (Appendix B)                                    |
| Other mining records | X   |    | Abandonment plans – SWR2093 'Cwmavon Colliery', 2680 'Cwmavon/Finery Colliery' |
| Geological plans     | X   |    | OS Geological Sheet SS79SE (1970)                                              |
| BGS Boreholes        | X   |    | SD79SE455-458, SS79SE454                                                       |
| Other                | X   |    | BGS GeoIndex                                                                   |

The above information sources have been used to provide an assessment of the potential mining risk within the remainder of the report.

## Section 3 – Identification and assessment of site specific coal mining related risks

The Coal Authority's search of its detailed coal mining information identifies the following site specific coal mining legacy risks to the site.

| Coal mining issue                                       | Reported |    | Risk assessment |                                                                                                                     |
|---------------------------------------------------------|----------|----|-----------------|---------------------------------------------------------------------------------------------------------------------|
|                                                         | Yes      | No | Rating          | Comment                                                                                                             |
| a) Underground coal mining (recorded at shallow depths) |          | X  | Low risk        | Recorded workings at depth                                                                                          |
| b) Underground coal mining (probable at shallow depths) |          | X  | Medium risk     | Outcrop of coal seam reported within the site which may have been worked                                            |
| c) Mine entries (shafts and adits)                      | X        |    | Low risk        | One adit (278193-075) recorded within 100m but not considered to pose a risk                                        |
| d) Coal mining geology (faults and fissures)            |          | X  | Low risk        | None recorded                                                                                                       |
| e) Record of past mine gas emissions or potential       |          | X  | Medium risk     | All mine workings pose a potential gas risk which should be considered in any future investigations and development |
| f) Recorded coal mining surface hazard                  |          | X  | Low risk        | None recorded                                                                                                       |
| g) Surface mining (opencast workings)                   |          | X  | Low risk        | None recorded                                                                                                       |

A desk based study of the coal mining information has been used to risk assess the coal mining features above. A summary of the risk posed by these features is summarised after thorough analysis of the information sources. Comment on each specific coal mining issue follows below:

### a) Underground Coal Mining (recorded at shallow depths)

Coal mining at depths shallower than 30m beneath ground level can typically pose challenges to ground stability at the surface. The magnitude of this effect depends upon the exact depth of any workings, the thickness of competent rock cover and the extraction thickness of any coal mine workings.

The Coal Authority Consultants Coal Mining Report in Appendix B states that the development site is not in an area of recorded shallow coal mine workings. The Consultants Report indicates that seven seams of coal have been worked beneath, or within proximity of, the proposed development site at depths of 88-208m bgl, with extraction thicknesses of up to 3.55m and last worked in 1900. The shallowest local seam to be worked is the Two Foot Nine seam, worked to the south of the property at 88m bgl, with an extraction thickness of 1.22m and last worked in 1900. The Two Foot Nine seam is also the shallowest seam recorded to have been worked beneath the proposed development at 122m bgl, with an extraction thickness of 1.22m and last worked in 1870.

The OS Geological Sheet SS79SE (1970) shows the Finery (Two Foot Nine) seam to outcrop approximately 140m south of the proposed development, orientated approximately east-west. A local dip of 40°NNE is recorded, which based on the outcrop position relative to the site would suggest the Finery seam to be present at approximately 117m below rockhead at the development site (not including any local changes in rockhead elevation, in the order of 10-12m between site and outcrop, although it is not known what proportion of this elevation change can be attributed to superficial thickness variation). Levels for workings close to the site on abandonment plan SWR2093 indicate the seam to be at approximately 150ft (45m) BOD (123m bgl) in the area of the proposed development site.

Abandonment plan 2680 records the Finery seam to consist of a roof horizon of unknown thickness, 4in (0.10m) shale, 2ft 6in (0.76m) coal and 3ft (0.91m) bastard fireclay (latter three horizons totalling 1.77m).

Due to the depth and extraction thickness of the Finery (Two Foot Nine) seam in the region of the proposed development, sufficient competent rock cover is considered likely to exist above this seam and accordingly the risk to the proposed development is considered to be low.

#### b) Underground coal mining (probable at shallow depths)

Areas of probable shallow coal mine workings are identified as part of the Development High Risk Area for which no recorded plan exists, but where it is likely that workable coal at shallow depths has been mined before records were kept. The data has been estimated from available mining records by qualified mining surveyors. Since 1872 there has been a law that requires all coal mine operators to deposit working plans of the mine with the government following the cessation of operations. Prior to this date the plans were often destroyed or kept in private ownership.

Where the extraction of coal has occurred there is the potential for voids to remain long after mining has ceased. The depth of workings generally dictates the length of time that significant voids may remain, but other factors including the size of mine roof supports and the competency of overlying strata can influence the time for natural consolidation to occur. Waste material produced during mining was sometimes used to backfill abandoned sections of mine workings, therefore reducing the volume of open cavities or

voids that remain. The method of backfilling workings is typically not recorded and cannot be relied upon as a satisfactory form of remediation.

The Coal Authority Consultants Coal Mining Report in Appendix B states that the development site is not in an area of probable shallow coal mine workings. The Consultants Report does however show an unnamed seam to outcrop within the site boundary in the approximate position of the proposed building footprint, orientated approximately east-west and to be of workable thickness.

In contrast to the Consultants Report, the OS Geological Sheet SS79SE (1970) does not record any seams outcropping within the development site; the closest seam to the south of the site is the Finery seam (discussed in 3a above), while the closest outcrop to the north of the site is the Upper Cockshot seam, located 35m north of the site and orientated east-west. Two further seams are recorded to exist beneath the Finery and Upper Cockshot on the generalised vertical section (GVS) – the Balling seam and an unnamed seam – however both seams are recorded to be thin and only one outcrop is shown on the plan, located approximately 700m southeast of the proposed development and indicated to be laterally discontinuous (it is not clear if this represents the Balling or unnamed seam).

The current BGS 1:50,000 mapping also records a seam to outcrop to the north of the site, again orientated east-west however only approximately 1m north of the site boundary. The 2011 1:50,000 Swansea geological sheet confirms this outcrop to the Upper Cockshot seam.

Based on the local rate of dip and the locations of the outcrops on the two source plans above, it could be considered that no shallow coal seams are likely to exist beneath the development site. However, it is understood from the Coal Authority's Mining Information team that the source for the outcrop reported in the Consultants Report is a former British Coal rationalised plan. Whilst the position of this outcrop is at odds with the other information sources above, the Mining Information team advise that without further information to disprove the findings of the rationalised plan they cannot discount the presence of this seam outcrop within the site. It is understood that this seam is recorded on the rationalised plan to have been worked elsewhere in the local area. Based on the rate of dip of 40°NNE discussed in section 3a above, it is considered possible that the seam may be present from at or close to rockhead, up to depths of approximately 36m below rockhead at the very northern extent of the development site boundary. On this basis, the presence of unrecorded shallow mine workings, from outcrop, in this seam cannot be discounted and the risk to the proposed development from this seam is considered to be medium.

### c) Mine entries (shafts and adits)

The Coal Authority Consultants Coal Mining Report in Appendix B shows one mine entry is recorded within 100m of the development site.

This adit (ref 278193-075) is recorded to be located 84m north of the proposed development. The adit's position would appear to be accurately known, owing to remedial works recorded for the mine entry dating to 2002. The adit is orientated approximately NNE, away from the development. Accordingly the adit is not considered likely to influence the development and the risk to the proposed development from recorded mine entries is considered to be low.

The development site sits within a historical mining area and therefore there is a residual risk of unrecorded mine entries to be present on site. All site operatives should be made aware of this potential risk and a watching brief should be maintained during site works.

#### d) Coal mining geology (Faults and fissures)

The development site sits upon the South Wales Middle Coal Measures Formation. The closest BGS borehole records to the site (SD79SE455-458, located approximately 410-470m southwest of the proposed development) record deposits of colliery shale and boulder clay to depths of up to 14m bgl, however rockhead is not proved in these boreholes. Borehole SS79SE454 located 530m southeast of the development records made ground and clay deposits to a depth of 11m bgl, overlying mudstone rockhead. Local ground conditions at the development site may vary.

No faults, fissures or break lines are known to affect the development site.

#### e) Record of past mine gas emissions or potential

No seam mentioned in this report is recorded as being prone to spontaneous combustion.

There are no recorded past gas emissions recorded in the surrounding area, however, coal seams and coal mine workings pose a potential gas risk which should be considered in any future investigations and development. At development sites with shallow coal workings, probable shallow coal mine workings, or pathway features such as mine entries and geological disturbances on or nearby the site, the Coal Authority recommends that a more detailed gas risk assessment to be undertaken in accordance with relevant guidance.

#### f) Recorded coal mining surface hazard

None recorded.

#### g) Surface mining (opencast workings)

None recorded.

## Section 4 – Proposed mitigation strategy

### a) Site investigation and/or remediation

Due to the potential for unrecorded shallow mine workings in an unnamed coal seam at or close to rockhead beneath the development, an intrusive site investigation will be required to prove the condition of, or sufficient competent cover above, this seam.

The site investigations will need to be carried out by a competent contractor, taking into account the findings of this report. The results should be interpreted by a qualified and competent person so that an appropriate remedial strategy can be developed.

Guidance on drilling or piling through coal can be found at:

[www.gov.uk/government/publications/guidance-on-managing-the-risk-of-hazardous-gases](http://www.gov.uk/government/publications/guidance-on-managing-the-risk-of-hazardous-gases)

Due to the difficulties in identifying coal related gas hazards, it may be prudent to consider completing a gas risk assessment for the development site. This may recommend basic gas protection measures within the foundation design, which are resistant to permanent gases (carbon dioxide, methane, carbon monoxide) and comparable to that suggested in BR211, as commonly used to protect against radon in residential properties.

Where development is proposed over areas of coal or past coal workings at shallow depth, developers should consider wherever possible removing any remnant shallow coal. This will enable the ground to be stabilised and remove a hazard prior to construction of any foundations associated with the development. Prior extraction of surface coal requires an Incidental Coal Agreement from the Coal Authority. Further information can be found at:

[www.gov.uk/get-a-licence-for-coal-mining](http://www.gov.uk/get-a-licence-for-coal-mining)

Concrete, cements and renders may be susceptible to attack from elevated levels of sulfates in the ground. The Building Research Establishment reports that most cases of sulfate attack occur in and adjacent to coal field areas and related industrial centres. It would be prudent for the issue of sulfate attack to be considered during the foundation design to ensure they comply with the Building Regulations 2010.

You may also wish to refer to the Construction Industry Research and Information Association (CIRIA) publication Special Publication 32 "Construction over Abandoned Mine Workings".

#### b) Coal Authority permit

Any intrusive activities, including initial site investigation boreholes and any subsequent treatment of coal mine workings/coal mine entries for ground stability purposes require the prior written permission of the Coal Authority. Application forms for Coal Authority permission and further guidance on this matter can be obtained from the Coal Authority's website at:

[www.gov.uk/get-a-permit-to-deal-with-a-coal-mine-on-your-property](http://www.gov.uk/get-a-permit-to-deal-with-a-coal-mine-on-your-property)

Follow on services can be requested using the details in the contacts section.

## Section 5 – Conclusions

This report has identified that the proposed development site may have been subject to past shallow coal mining activity, namely unrecorded shallow mine workings in an unnamed seam. The risk to the site from legacy mining features is medium.

Nevertheless, subject to the undertaking of appropriate site investigations and any potential necessary remedial measures as outlined in Section 4a of this report, the Coal Authority considers that the site may be made safe and stable for future development and the risk to the development reduced to low. The recorded coal mining legacy issues present within the site do not pose any particular implications for the layout of the proposed development.

The Coal Authority advises the developer undertake a detailed Gas Risk Assessment where proposed development occurs over shallow coal reserves as is the case here.

## Section 6 – Contacts

### **Planning and Local Authority Liaison Service**

Tel: 01623 637 119

Email: [planningconsultation@coal.gov.uk](mailto:planningconsultation@coal.gov.uk)

Website: [www.gov.uk/planning-applications-coal-mining-risk-assessments](http://www.gov.uk/planning-applications-coal-mining-risk-assessments)

### **Surface Hazards Emergency Service**

Tel: 01623 646 333 (open 24 hours a day, 7 days a week)

24-hour number for reporting public safety hazards and incidents associated with coal mining

### **Mining Reports Service**

To purchase site specific coal mining information go to our website;

[www.groundstability.com](http://www.groundstability.com)

### **Licensing and Permitting Service**

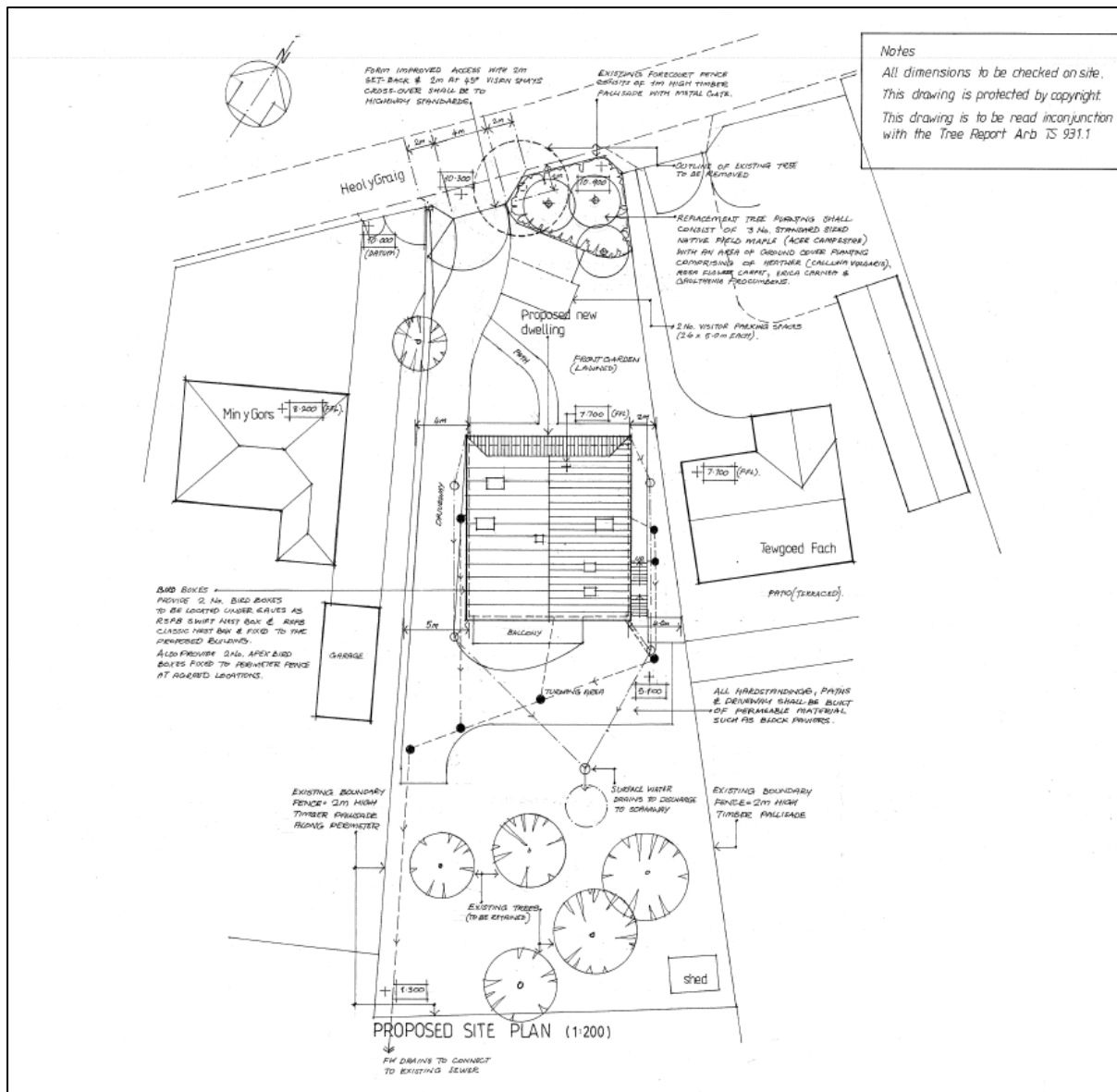
Email: [permissions@coal.gov.uk](mailto:permissions@coal.gov.uk)

Tel: 01623 637 320

For permission to enter or disturb coal mine entries and coal seams.

## Section 7 – Appendices

### Appendix A – Plan showing proposed development layout



## Appendix B – Non-Residential Coal Mining Consultants Report



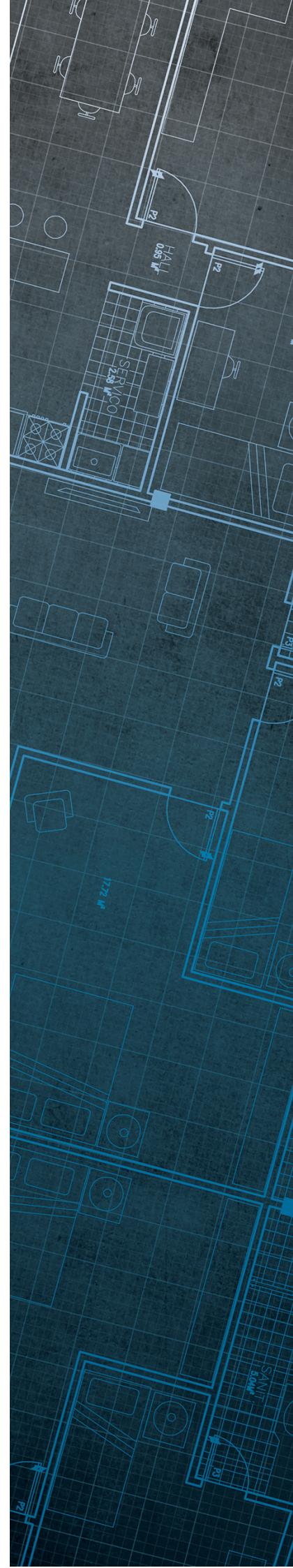
The Coal  
Authority

# Consultants Coal Mining Report

Plot Adjacent To Min-y-gors  
Heol Y Graig  
Cwmavon  
Neath Port Talbot  
SA12 9YD

|                        |              |
|------------------------|--------------|
| Date of enquiry:       | 30 July 2020 |
| Date enquiry received: | 30 July 2020 |
| Issue date:            | 30 July 2020 |

|                 |                |
|-----------------|----------------|
| Our reference:  | 71006440634001 |
| 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

THE COAL AUTHORITY

### Enquiry address

Plot Adjacent To Min-y-gors  
Heol Y Graig  
Cwmavon  
Neath Port Talbot  
SA12 9YD

### How to contact us

0345 762 6848 (UK)  
+44 (0)1623 637 000 (International)

200 Lichfield Lane  
Mansfield  
Nottinghamshire  
NG18 4RG

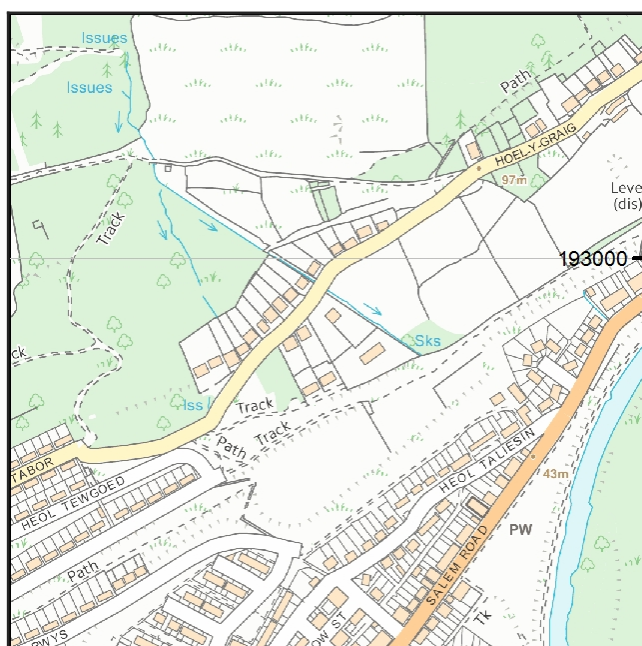
[www.groundstability.com](http://www.groundstability.com)

 @coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /thecoalauthority



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  | TWO FOOT NINE            | Coal    | 4XRX                     | 88        | South                | 25.9                                  | North                           | 122                       | 1900            |
| unnamed  | 2FT NINE MID LEAF        | Coal    | 4XQW                     | 102       | South-West           | 18.4                                  | N/A                             | 76                        | 1900            |
| unnamed  | TWO FOOT NINE            | Coal    | 4XRW                     | 122       | Beneath Property     | 28.6                                  | North                           | 122                       | 1870            |
| FINERY   | UPPER FOUR FOOT          | Coal    | 4XQN                     | 140       | Beneath Property     | 27.8                                  | North                           | 124                       | 1862            |
| MEADOW   | SIX FOOT                 | Coal    | 4XR3                     | 187       | Beneath Property     | 36.3                                  | North                           | 355                       | 1873            |
| MEADOW   | LOWER NINE FOOT TOP LEAF | Coal    | 4XRG                     | 192       | South                | 22.4                                  | North                           | 169                       | 1863            |
| unnamed  | FOUR FOOT                | Coal    | 4H17                     | 201       | North-West           | 27.9                                  | North                           | 124                       | 1862            |
| MEADOW   | RED VEIN                 | Coal    | 4XRB                     | 208       | South                | 30.9                                  | North                           | 30                        | 1870            |

## 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       | 278193-075 | 278612 193038  | Following reports that this adit was open and inhabited by badgers a 300mm pipe with an earth floor was placed into the entrance and the surrounding area collapsed onto the pipe so allowing access for the badgers. These works were carried out by JMC Mining Services in August 2002 on behalf of the Coal Authority | Coal    |                      |

### Abandoned mine plan catalogue numbers

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

|         |         |        |
|---------|---------|--------|
| 10962   | SWR2093 | R14549 |
| SWR2009 | SWR2012 | 2680   |
| SW2437  | PO0     | R12069 |

**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 |
|-----------|---------|---------------|-------------------------|----------------------|--------------------|
| UNNAMED   | Coal    | Yes           | Within                  | N/A                  | 89                 |

### Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

### Opencast mines

None recorded within 500 metres of the enquiry boundary.

### Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

## Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

### Site investigations

None recorded within 50 metres of the enquiry boundary.

### Remediated sites

None recorded within 50 metres of the enquiry boundary.

### Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

### Mine gas

None recorded within 500 metres of the enquiry boundary.

### Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

## Section 3 – Licensing and future mining activity

### Future underground mining

None recorded.

### Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

### Court orders

None recorded.

### Section 46 notices

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

### Withdrawal of support notices

The property is in an area where a notice to withdraw support was given in 1946.

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.

### 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](mailto: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](mailto: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.

The map highlights any specific surface or subsurface features within or near to the boundary of the site.

