

# Appendix 11.4 Mining Risk Assessment

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<b>Mining Risk Assessment – Hagshaw Hill Wind Farm Repowering, South Lanarkshire</b>				
<b>Sources of information:</b>				
Coal Authority Consultant’s Report Ref51001960642001 dated 2 November 2018				
Wardell Armstrong LLP archive records				
Published British Geological Survey geological mapping – BGS GeoIndex website for solid and superficial deposits details at 1:50,000 scale and borehole logs				
Coal Authority web-based interactive map viewer.				
Issue	Hazard	Site Affected (Yes/No) (Detail – where appropriate)	Consequences (where appropriate)	Recommended Mitigation Measures (where appropriate)
1. Are there any recorded coal mine entries within the site or within 100m of the site boundary?	<ul style="list-style-type: none"> <li>Catastrophic collapse of mine entry leading to ground instability or voids at the ground surface.</li> <li>Settlement of the ground surface above/adjacent to the mine entry.</li> <li>Generation of crown holes at the ground surface.</li> <li>Mines gas emissions</li> </ul>	<b>No:</b> No mine shafts are recorded in or within 100m of the access road on the CA’s Interactive Map website, and as confirmed by the CA Consultant’s Mining Report	N/A	N/A
2. Is the proposed development in the likely zone of influence of past deep underground mining?	<ul style="list-style-type: none"> <li>Ground subsidence.</li> <li>Ground instability.</li> </ul>	<b>No:</b> No deep mining is recorded under the site area on the CA’s Interactive Map website, and as confirmed by the CA Consultant’s Mining Report	N/A	N/A.
3. Is the proposed development in the likely zone of influence of any present underground mine workings?	<ul style="list-style-type: none"> <li>Ground subsidence.</li> <li>Ground instability, loss of ground, generation of crown holes.</li> </ul>	<b>No</b>	N/A	N/A
4. Is the proposed development within the likely zone of influence of recorded underground workings at shallow depth (depths of less than 30m)?	<ul style="list-style-type: none"> <li>Ground subsidence.</li> <li>Ground instability, loss of ground, generation of crown holes.</li> </ul>	<b>No:</b> There are no recorded shallow mine workings beneath the site area, according to the CA’s Interactive Map website, and as confirmed by the CA Consultant’s Mining Report	N/A	N/A

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Issue	Hazard	Site Affected (Yes/No) (Detail – where appropriate)	Consequences (where appropriate)	Recommended Mitigation Measures (where appropriate)
5. Is there a possibility of unrecorded shallow mine workings and/or mine entries?	<ul style="list-style-type: none"> <li>• Ground subsidence.</li> <li>• Ground instability, loss of ground, generation of crown holes.</li> <li>• Catastrophic collapse of mine entry leading to ground instability or voids at the ground surface.</li> <li>• Settlement of the ground surface above/adjacent to the mine entry.</li> <li>• Mine gas emissions</li> </ul>	<p><b>Mine workings</b> <b>No:</b> Most of the access road sits on the strata of the Passage Group, which, in this coalfield, has no workable coal seams. For the small section at the southern end which may be on strata of the Lower Coal Measures, the BGS and the Coal Authority interactive maps show no coal outcrops anywhere near the access road.</p> <p><b>Mine entries</b> <b>No:</b> The presence of unrecorded mine entries can never be ruled out entirely, but as most of the access road is on Passage Group Strata, the risk is very small</p>	N/A	<p><b>Shallow mine workings:</b> N/A.</p> <p><b>Mine entries:</b> The risk of the presence of unrecorded mine entries along the access road is very low, however, any earthworks along the road should proceed with due care, and any anomalies encountered should be reported to a competent qualified engineer for further assessment.</p>
6. Is there a record of mine gas emissions within the site boundary?	<ul style="list-style-type: none"> <li>• Mixtures of noxious of explosive gases reaching the ground surface via superficial deposits, faulted/broken strata or poorly filled mine entries and entering structures, confined spaces etc, when an explosive or asphyxiating hazard may be generated.</li> </ul>	<b>No:</b> The Coal Authority has no record of any gas emissions requiring action within the site or with 500m of the site.	N/A	N/A

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Coal Authority web-based interactive map viewer.				
Issue	Hazard	Site Affected (Yes/No) (Detail – where appropriate)	Consequences (where appropriate)	Recommended Mitigation Measures (where appropriate)
7. Is the proposed development in an area for which the Coal Authority is determining or has granted a licence to remove coal by underground methods?	<ul style="list-style-type: none"> <li>• Ground subsidence.</li> <li>• Ground instability.</li> </ul>	<b>No</b>	N/A	N/A
8. Are there known faults or other lines of weakness (eg. fissures) due to mining at the site?	<ul style="list-style-type: none"> <li>• Ground subsidence.</li> <li>• Mixtures of noxious of explosive gases reaching the ground surface via faulted/broken strata and entering buildings, structures, confined spaces etc, when an explosive or asphyxiating hazard may be generated.</li> <li>• Stepped rockhead profiles where there has been subsidence across faults, impacting settlement. Of proposed structures.</li> </ul>	<b>No</b>	N/A	N/A
9. Has the site been subject to remedial works by, or on behalf of, the Coal Authority under its surface hazard call out procedures?	<ul style="list-style-type: none"> <li>• Indication of past and potential future subsidence issues on site.</li> </ul>	<b>No</b>	N/A	N/A
10. Is the proposed development within the boundary of a surface mining/opencast site from which minerals have been removed by surface mining/opencast methods?	<ul style="list-style-type: none"> <li>• Potential of a ground gas source and/or migration pathway. Potential settlement problems.</li> </ul>	<b>Yes:</b> The alignment of the access road was used to service the former Dalquhandy Opencast Coal Site and is therefore included within the opencast	N/A	N/A

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Issue	Hazard	Site Affected (Yes/No) (Detail – where appropriate)	Consequences (where appropriate)	Recommended Mitigation Measures (where appropriate)
		mine site licence area; however, no opencast mining was undertaken along the line of the road.		
11. Is the proposed development within 200m of a surface mining/opencast site from which minerals are being removed?	<ul style="list-style-type: none"> <li>Development constraints associated with environment/noise/dust</li> </ul>	<b>No.</b> All opencast sites in this area are either closed or are undergoing restoration works	N/A	N/A

**Mining Risk Assessment – Hagshaw Hill Wind Farm Repowering, South Lanarkshire**

**Sources of information:**

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Coal Authority web-based interactive map viewer.

**Assessment of Cumulative Impact of Mining Issues:**

The only section of the site that falls within a development high risk area identified by the Coal Authority is the access road to the site.

No past underground mining has been identified along the line of the access road to Hagshaw Hill Wind Farm.

The alignment of the road was used for access to the former Dalquhandy Opencast Coal Site. Although it falls within the licence area for the opencast site and has therefore been included within the development high risk area, the road does not fall within an area of coal extraction and there are no implications with regards to ground stability.

There is a very low risk of the presence of unrecorded mine entries being present along the alignment of the road. Should any anomalous feature consistent with a mine entry be identified during construction earthworks, then a qualified competent engineer shall be contacted to investigate further. Following this, it may be necessary to design and implement stabilisation works in accordance with guidance contained within CIRA SP32.

Prior to carrying out any works which may intersect, disturb or enter any coal seams, coal mine workings or mine entries (within the ownership of the Coal Authority), the written permission of the Coal Authority shall be obtained ([www.coal.gov.uk/services/permissions/index.cfm](http://www.coal.gov.uk/services/permissions/index.cfm)).

N/A = Not Applicable

Prepared by



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Approved by



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**Associate Director, Wardell Armstrong LLP**



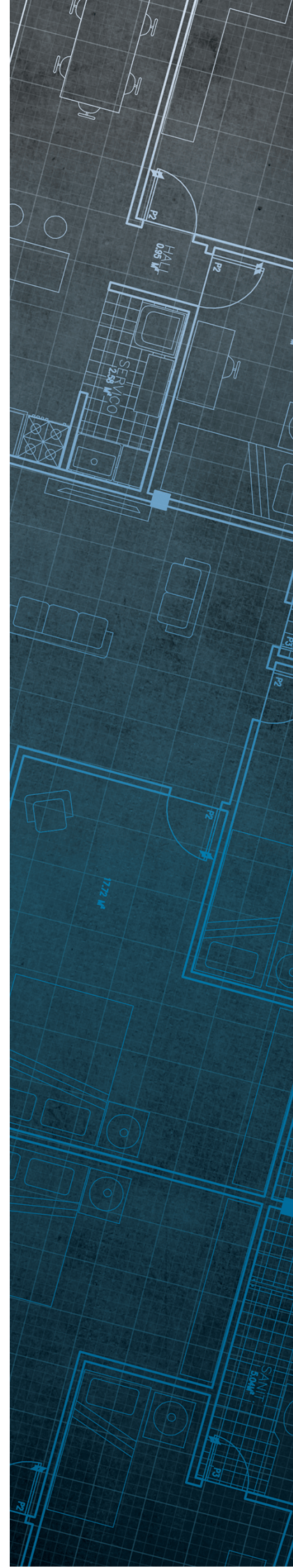
The Coal  
Authority

# Consultants Coal Mining Report

Hagshaw Hill Windfarm Access Road  
South Lanarkshire

Date of enquiry: 2 November 2018  
Date enquiry received: 2 November 2018  
Issue date: 2 November 2018

Our reference: 51001960642001  
Your reference: ED12669





# 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

Wardell Armstrong LLP

## Enquiry address

Hagshaw Hill Windfarm Access Road  
South Lanarkshire

## How to contact us

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

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Mansfield  
Nottinghamshire  
NG18 4RG

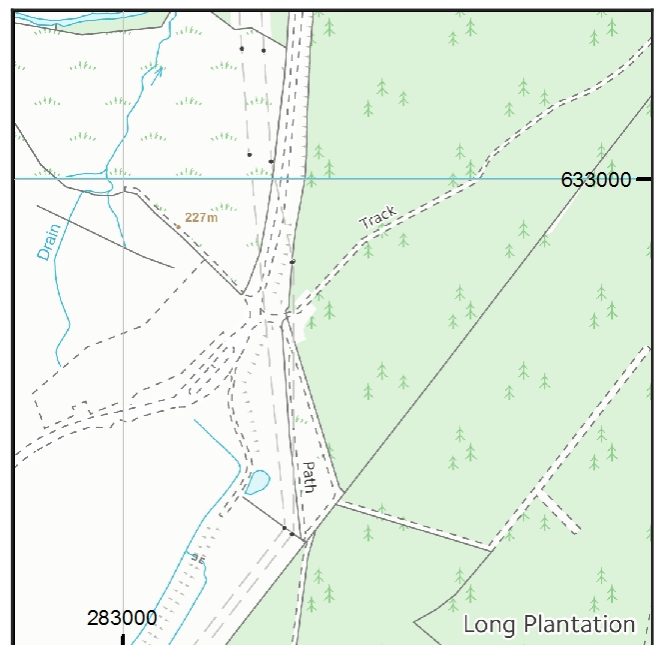
[www.groundstability.com](http://www.groundstability.com)

 @coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /thecoalauthority



Approximate position of property



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# Section 1 – Mining activity and geology

## Past underground mining

No past mining recorded.

## Probable unrecorded shallow workings

None.

## Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

## Mine entries

None recorded within 100 metres of the enquiry boundary.

## Abandoned mine plan catalogue numbers

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

S1210	S1193	S4227
S338	S1654	18349
OM15171		

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

## Outcrops

No outcrops recorded.

## Geological faults, fissures and breaklines

Please refer to the 'Summary of findings' map (on separate sheet) for details of any geological faults, fissures or breaklines either within or intersecting the enquiry boundary.

Fault under or close to the property recorded.

## Opencast mines

Please refer to the "Summary of findings" map (on separate sheet) for details of any opencast areas within 500 metres of the enquiry boundary.

## Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

## Section 2 – Investigative or remedial activity

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

### Site investigations

None recorded within 50 metres of the enquiry boundary.

### Remediated sites

None recorded within 50 metres of the enquiry boundary.

### Coal mining subsidence

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

Status	Licence type	Distance (m)	Direction
Past	Opencast	Within	N/A

See Section 4 for further information.

### 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 1965.

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.

### **Coal mining licensing**

The report has highlighted that the site is close to a Coal Authority license area for coal mining operations. Please contact us if you require further information.

**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.



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## VAT receipt

<b>Issued by</b>	The Coal Authority 200 Lichfield Lane Mansfield Nottinghamshire NG18 4RG
<b>Tax point date</b>	02 November 2018
<b>Issued to</b>	WARDELL ARMSTRONG LLP GREAT MICHAEL HOUSE SUITE 2/3 14 LINKS PLACE EDINBURGH EH6 7EZ
<b>Property search for</b>	HAGSHAW HILL WINDFARM ACCESS ROAD SOUTH LANARKSHIRE
<b>Reference number</b>	51001960642001
<b>Date of issue</b>	02 November 2018
<b>Cost</b>	£106.79
<b>VAT @ 20%</b>	£21.36
<b>Total received</b>	£128.15
<b>VAT registration</b>	598 5850 68

