

**COAL MINING RISK ASSESSMENT OF 153 PARK LANE,
KNYPERSLEY, STAFFORDSHIRE, ST8 7PN**

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CONTENTS

1	INTRODUCTION	1
1.1	Site Location and Description	1
1.2	Scope of Coal Mining Risk Assessment	1
2	SOURCES OF INFORMATION	1
3	SITE GEOLOGY	2
4	IDENTIFICATION AND ASSESSMENT OF SITE SPECIFIC COAL MINING RISK	2
4.1	Summary of Potential Risks	2
4.2	Assessment of Mineral Instability.....	2
4.2.1	Underground Coal Workings.....	2
4.2.2	Mine Entries	3
4.3	Assessment of Mine Gas Risk.....	3
5	MITIGATION STRATEGY PROPOSED	3
6	REFERENCES	5

APPENDICES

1	DRAWINGS
	E217-102 SITE LOCATION PLAN
2	COAL AUTHORITY REPORT
3	NOTES ON LIMITATIONS

COAL MINING RISK ASSESSMENT OF 153 PARK LANE, KNYPERSLEY, STAFFORDSHIRE, ST8 7PN

1 INTRODUCTION

1.1 Site Location and Description

The 0.1 ha site at approximate National Grid Reference 389400E, 356515N, is located at 153 Park Lane on the eastern edge of Knypersley, Staffordshire, as shown on **Drawing 3443OD01**. It is proposed to develop the site with a residential property however, there are currently no development layout plans available.

The site slopes generally to the west at an elevation of around 232 m AOD and is currently a residential property with garden, car parking and access.

1.2 Scope of Coal Mining Risk Assessment

FWS Consultants Ltd (FWS) have been commissioned to prepare a Coal Mining Risk Assessment Report of the proposed development site, in order to provide the Local Planning Authority with information on coal mining and an assessment of its potential impact on land stability.

The Coal Mining Risk Assessment has been undertaken in accordance with the principles of current guidance including the Coal Authority's guidance document "Risk Based Approach to Development Management - Resources for Developers Version 3" (2014) (Ref. 1) and CIRIA "SP32 Construction over Abandoned Mine Workings" (2002) (Ref. 2).

The purpose of the Coal Mining Risk Assessment Report is to:-

- present a desk based review of available information on the coal mining issues that 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 issues; and,
- 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.

2 SOURCES OF INFORMATION

This report is based on the current information of past mining activities relevant to the site. The following sources of information have been used:-

- a site specific Coal Mining Report 9 April 2018 from the Coal Authority **(Appendix 2)**;
- BGS Sheet SJ85NE, 1:10,000 scale geological map;
- Coal Authority interactive website.

3 SITE GEOLOGY

The BGS Geological Map shows the superficial deposits comprise glacial till (sandy gravelly clays or clayey sands) of unknown thickness (assumed between 5 to 10 m) overlying Pennine Lower Coal Measures comprising interbedded sandstones, siltstones, mudstone, and coal which dip up to 25° to the west. Rock head is at approximately 222 to 227 m AOD (5 to 10 m bgl).

4 IDENTIFICATION AND ASSESSMENT OF SITE SPECIFIC COAL MINING RISK

4.1 Summary of Potential Risks

The table below summarises the potential risks associated with coal mining legacy for the proposed development site identified from the available sources of information.

Coal Mining Issue	Yes	No	Summary Records
Underground coal mining (recorded at shallow depth)		✓	The Coal Mining Report indicates that the site is not within an area that could be affected by past underground mining. However, the Coal Authority believes that there is coal at or close to the surface that may have been worked in the past. The property is not in the likely zone of influence of present underground coal workings.
Underground coal mining (probable at shallow depth)	✓		The site may be within the zone of influence from ancient (unrecorded) workings in one coal seam at shallow to 30 m depth.
Mine entries (shaft or adits)		✓	There are no reported mine entries on or within 20 m of the site.
Structural geology		✓	There are no geological structures within 350 m of the site.
Record of past mine gas emissions or potential		✓	There is no record of a mine gas emission requiring action by the Coal Authority within the boundary of the site. Due to possible unrecorded workings beneath the site, mine gas may be present and pose a risk to the development.
Recorded coal mining surface hazard		✓	The Coal Authority has no records of a subsidence claim within 50 m of the property boundary or any request to carry out preventative works before coal is worked under the Coal Authority Subsidence Act 1991. The site has not been subject to remedial works by, or on behalf of, the Coal Authority under its Emergency Surface Hazard Call Out Procedure.
Surface mining (opencast workings)		✓	The site is not located within the boundary of a historical opencast site and does not lie within 200 m of a current opencast site or 800 m of a known future opencast site.

4.2 Assessment of Mineral Instability

The principal factors influencing mineral instability for this site are summarised below.

4.2.1 Underground Coal Workings

Surface settlement above areas of total coal extraction (goaf) is typically rapid and can generally be assumed to be complete after a certain period. Settlement above pillar and stall workings, or old roadways, can be sudden and abrupt; and can occur long after abandonment, sometimes creating surface features known as crown-holes. It is generally considered that a cover of competent rock strata equivalent to ten times the height of the working provides adequate protection against crown-hole development (Ref. 2). Less rock cover can be adequate in certain circumstances (e.g. if the rock cover is particularly strong). Drift deposits give less protection than competent rock, and depending on the nature of the drift material (e.g. whether stiff boulder clay or running sand) considerably more cover may be needed to minimise the risk of

surface ground movement. Where mining is identified within seams of less than 1 m thickness, it has been assumed that to accommodate for roadways the minimum worked height will be 1 m, otherwise the working height is assumed to be the seam thickness unless otherwise identified.

Seam Name	Seam Description	Workings	Assessment of Risk
Unnamed Coal	This discontinuous seam, if present, is shown to outcrop around 20 m to the east of the site and is estimated to be at an elevation of around 227 m AOD (5 m bgl) below the site. This seam is assumed to be thin at 0.1 to 0.5 m thick.	There are no recorded workings in this seam, and on the basis of its reported thin nature it is unlikely to have been considered as of workable thickness. As such, there is a low likelihood of unrecorded workings in this seam.	On the basis that this seam is less than 0.5 m thick and is unlikely to have been worked, unrecorded workings are not considered to present an instability risk to the development.
Crabtree Coal	This seam is shown to outcrop 125 m to the east of the site, dipping at around 25° to the west. It is recorded at an elevation of 212 m AOD (20 m bgl) and is 0.9 to 1 m thick.	There are no recorded workings in this seam, however, unrecorded workings are possible of around 1.0 m total thickness.	The cover of competent rock strata (> 10 m) is greater than ten times the height of the possible workings. As such, recorded workings in this seam will not present a risk of mineral instability to the proposed development.
Two feet Coal	This seam is shown to outcrop 225 m to the east of the site, dipping at around 25° to the west. It is recorded at an elevation of 205 m AOD (27 m bgl) and is 0.6 m thick.	There are no recorded workings in this seam, however, unrecorded workings are possible of around 1.0 m total thickness.	The cover of competent rock strata between this seam and the overlying Crabtree Coal seam is in the order of ten times the combined height of the possible workings in both seams. As such, recorded workings in this seam will not present a significant risk of mineral instability to the proposed development due to cumulative collapse of unrecorded workings in the Crabtree and Two Feet coal seams.

4.2.2 Mine Entries

The Coal Authority has reported that there are no known mine entries on or within 20 m of the site boundary.

4.3 Assessment of Mine Gas Risk

Based on the Coal Authority report (Appendix 2) and the geological information reviewed, it is considered that unrecorded mine workings may exist below the site within the Crabtree or Two Feet coals at depths of 20 m and 27 m respectively. On the basis that the site is underlain by 5 m to 10 m of low permeability glacial clays, it is considered that there is a low likelihood of gas emissions from unrecorded workings at such a depth from migrating through the rock strata and these low permeable clay soils and accumulating within the building. As such mine gas emissions are considered to present a low risk of harm to the proposed residential development.

5 MITIGATION STRATEGY PROPOSED

From the Coal Authority records and geological information available, it is considered that unrecorded workings present a low risk of mineral instability to the proposed development. As such, no mine stabilisation measures are considered necessary.

On the basis that the site is underlain by 5 m to 10 m of low permeability glacial clays and that the shallowest unrecorded working may be present at a depth of 20 m bgl, it is considered that there is a low risk of mine gas emission to the proposed residential development and no gas protection measures will be warranted.



C M MILLER
ASSOCIATE DIRECTOR



R IZATT LOWRY
DIRECTOR

6 REFERENCES

- 1 Coal Authority, 2014, Risk Based Approach to Development Management Resources for Developers, Version 3.
- 2 CIRIA, 2002, SP32 Construction over Abandoned Mine Workings.
- 3 BGS Map SJ85NE, 1968, 1:10,560

APPENDIX 1

DRAWINGS

APPENDIX 2

COAL AUTHORITY REPORT



The Coal
Authority

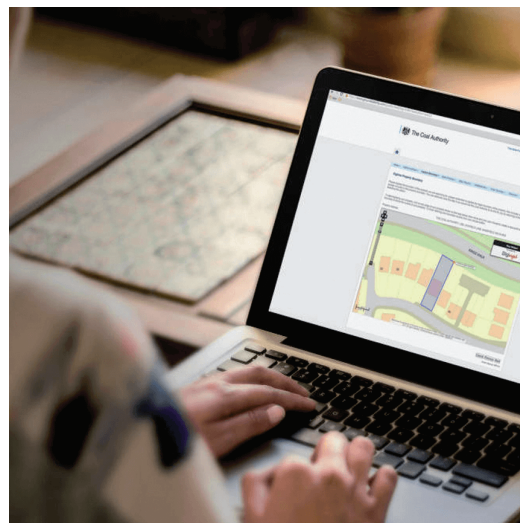
Resolving the **impacts** of mining

CON29M Non-Residential Mining Report

153, PARK LANE
KNYPERSLEY
STOKE-ON-TRENT
STAFFORDSHIRE

Date of enquiry: 09 April 2018
Date enquiry received: 09 April 2018
Issue date: 09 April 2018

Our reference: 51001824523001
Your reference: 162041603_1 |



CON29M Non-Residential Mining Report

This report is based on, and limited to, the records held by the Coal Authority and the Cheshire Brine Subsidence Compensation Board's records, at the time we answer the search.

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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	No
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
15	Information from the Cheshire Brine Subsidence Compensation Board	No

For detailed findings, please go to page 4.

Detailed findings

1. Past underground coal mining

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

However the property is in an area where the Coal Authority believe there is coal at or close to the surface. This coal may have been worked at some time in the past. The potential presence of coal workings at or close to the surface should be considered prior to any site works or future development activity. Your attention is drawn to the Comments on the Coal Authority information section of the report.

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 plans to grant a licence to remove coal using 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.

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 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.

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 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.

15. Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

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

Information provided by the Coal Authority in this report is compiled in response to the Law Society's Con29M Coal Mining and Brine Subsidence Claim enquiries. The said enquiries are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL. Please note that Brine Subsidence Claim enquiries are only relevant for England and Wales. This report is prepared in accordance with the Law Society's Guidance Notes 2006, the User Guide 2006 and the Coal Authority and Cheshire Brine Board's Terms and Conditions applicable at the time the report was produced.

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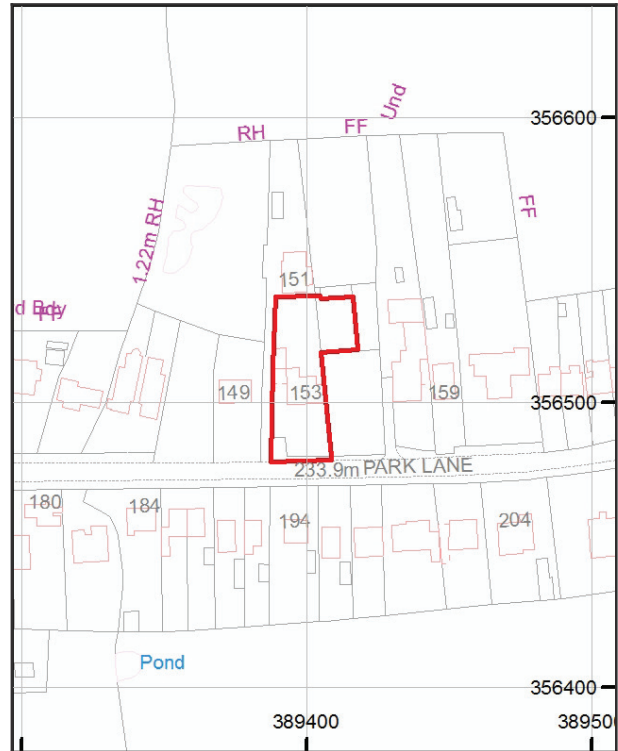
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Enquiry boundary

Key

Approximate position of enquiry boundary shown



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APPENDIX 3

NOTES ON LIMITATIONS

NOTES ON LIMITATIONS

- 1** FWS Consultants Ltd (“FWS”) has prepared this report solely for the use of the client and/or his agent (the “Client”) on the basis of exchange(s) of written proposals and instructions, and FWS accepts no responsibility or liability:-

 - a) for use of this report by any party other than the person for whom it was commissioned, or;
 - b) for the consequences of the report being used for any purpose other than that for which FWS was instructed to prepare it.

Should any third party wish to use or rely upon the contents of the report, written approval from FWS must be sought.
- 2** All information supplied by the Client, the Client’s staff and professional advisers, local authorities, other statutory bodies, investigation agencies and publicly accessible databases, shall be provided to FWS in writing, and is accepted as being correct unless otherwise specified in writing by the discloser of the information.
- 3** The conclusions and recommendations in this report represent the professional opinions of FWS derived from currently accepted industry practices, and through the exercising of reasonable skill and care to be expected of a professional geosciences and environmental consultancy of similar size and experience. The assessments and judgments given in this report are directed by and limited to both the finite data on which they are based and the proposed works to which they are addressed.
- 4** Environmental and geotechnical desk studies comprise a study of available information obtained from various identified sources, authorities and parties. The information reviewed cannot be exhaustive and has been accepted in good faith as providing representative and true data pertaining to site conditions. For clarity, no independent verification of this data is carried out by FWS and it is accepted at face value. Any identified risks in desk study reports are perceived risks based on the information available at the time. Actual risks can only be assessed after carrying out a thorough physical investigation of the site that serves to validate such identified risks.
- 5** Data acquisition during site investigations is subject to the limitations of the methods of investigation used, site conditions and access constraints. Exploratory holes undertaken during fieldwork, particularly boreholes and/or trial pits, investigate a small volume of ground in relation to the size of the site and thus can only provide an indication of site conditions. The opinions provided and recommendations given in this report are based on the desk study information and ground conditions apparent at the site of each of the exploratory holes. There may be ground conditions elsewhere onsite that have not been disclosed by the investigation and which therefore have not been taken into account in this report. FWS will take all due care and make commentary on the adequacy of data collection and therefore the ability to highlight the presence or otherwise of exceptional conditions.
- 6** Owing to the natural variation of the systems that are being investigated, and the anthropological impact similarly changing through time, the findings and opinions in this report are relevant to the dates of the site works and should not be relied upon to represent conditions after a reasonable passing of time. Site conditions will change over time due to natural variations and human activities. The comments made on groundwater, surface water and soil gas conditions are based on observations made at the time that the site work was carried out. It should be noted that these conditions will vary owing to seasonal, tidal and meteorological effects. Variation in the types and concentrations of contaminants and variations in their flow paths may occur due to seasonal water table fluctuations, past disposal practices, the passage of time, or subsequent developments or activities on the site or adjacent area.
- 7** The scope of the investigation, as agreed between FWS and the Client, was undertaken based on the specific development proposals of the Client and may be inappropriate to another form of development or scheme.
- 8** The opinions expressed in this report regarding contamination, geotechnical and/or waste assessments are based on simple statistical analysis and comparison with available guidance values. No liability can be accepted for the retrospective effects of any changes or amendments to these values.