

**Environmental
Geotechnical
Specialists**



REPORT

job number	site address
date	
written by	
checked by	issued by

Rogers Geotechnical Services Ltd

Telephone 0843 50 666 87 **Fax** 0843 51 599 30

Email enquiries@rogersgeotech.co.uk

www.rogersgeotech.co.uk

Offices 1 & 2, Barncliffe Business Park, Near Bank, Shelley,
Huddersfield, West Yorkshire HD8 8LU.

GEO-TECH-NI-CAL
ENV-I-RON-MEN-TAL





Contents

		Page
1.	Introduction	1
2.	Geological Desk Study	1
	2.1 British Geological Survey Map Viewer	1
	2.2 Coal Authority Mines Report	3
	2.3 Geological Survey Borehole Records	3
3.	Risk Assessment	4
4.	Conclusions	4

Appendices

1.	Site Plan
2.	Coal Authority Report
3.	BGS Borehole Records

Report on a Coal Mining Risk Assessment

Location: **Rowling House**
Cawthorne, Barnsley, S75 4AF

For: Abbey Masterbach Ltd

Consultants: M Booth Design Ltd

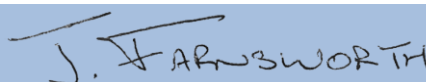
Report No. J3706/16/EDS

Report date: December 2016

For and on behalf of **Rogers Geotechnical Services Ltd**



C. E. Mason BSc FGS
Graduate Geotechnical Engineer



James Farnsworth BEng FGS
Senior Geotechnical Engineer

1. Introduction

It is understood that as part of the planning application at the site, a Coal Mining Risk Assessment has been requested by the planning authority. Consequently, a desktop study was commissioned in order to assess the risk to the development from coal mining. This report presents the findings of the study.

2. Geological Desk Study

The geological desk study has been undertaken using the following sources of information.

- British Geological Survey map sheet¹.
- British Geological Survey *Geology of Britain Viewer*².
- Coal Authority Report³.
- British Geological Survey *Borehole Records*⁴.

2.1 British Geological Survey Maps and Viewer

The appropriate map sheet for the site and the geology viewer has been examined and the following table presents the indicated geology:

¹ Sources: British Geological Survey (NERC) Map Sheet 87 ; Barnsley Solid and Drift Editions

² Sources: British Geological Survey (NERC) *Geology of Britain Viewer* [*online resource from www.bgs.ac.uk*]

³ Coal Authority Reference: 5100134644001 dated 6th December 2016.

⁴ Sources: British Geological Survey (NERC) *Borehole Records* [*online resource from <http://www.bgs.ac.uk/>*]

Table 1: Geological Data for the Site

Strata Type	Strata Name ⁵	Previous Name ⁶	Description ⁶
Superficial Geology			None recorded.
Solid Geology	Pennine Lower Coal Measures Formation	Lower Coal Measures Formation	Interbedded grey mudstone, siltstone and pale grey sandstone, commonly with mudstones containing marine fossils in the lower part, and more numerous and thicker coal seams in the upper part.
	Penistone Flags	-	A named sandstone member of the Pennine Lower Coal Measures Formation.

There are no dip indicators relevant to the site (i.e. within 500m of the site or within the same fault block) on the geological map. However, taking into account the structure of the regional geology and outcrop patterns, it can be anticipated that the solid geology within the local area dips at shallow angles towards the northeast. In addition, the site is situated within a heavily faulted area, with a general regional fault trend pattern of north-west/ south-east.

There is one notable coal seam observed within the local area that has potential to be present below the site; this seam is summarised as follows.

Table 2: Summary of coal seams within the vicinity of the site.

Seam Name	Seam thickness ^{5*}	Outcrop distance from site ⁵	Anticipated depth below site
Cumberworth Thin Coal	0.0 – 0.20	119m NW	Within 10.0m depth

*All distances are given as approximations only. It should be noted that coal seam thicknesses vary over relatively short distances

Due to the nature of the faulting within the area, the seam of coal located 119m NW of the site remains unnamed on mapping data. However, taking into account the outcrop pattern of the seams within the local area, the generalised vertical section and the topography (sloping east), it may be assumed that this seam represents the Cumberworth Thin Coal. The seam is anticipated to be present within the top 10.0m of the site surface.

It should be noted that there are some significant differences between the 1976 version of the BGS map sheet for the area (along with the Coal Authority Interactive Map), and the contemporary data. On the 1976 map sheet⁷ an inferred, unnamed coal seam is shown to outcrop with a radial pattern around the site, however, is not present on the 2008 map. In general terms, the most recent data has been given greater credence as it most likely represents a revised understanding of the geological conditions

In addition, there are no other coal seams shown to outcrop within 500m of the site. However, again considering the generalised vertical section, there remains the possibility that additional subordinate coal seams associated with the Penistone Flags will be present within 30m of the site surface. These seams are anticipated to be discontinuous in nature and of limited economic value. In addition, due to the nature of the faulting within the area, there remains the possibility that there may be further subordinate and/or discontinuous seams within 30m bgl.

⁵ Sources: British Geological Survey (NERC) Map Sheets 87; Barnsley; Solid and Drift Edition, and Geology of Britain Viewer [online resource from www.bgs.ac.uk]

⁶ Sources: British Geological Survey (NERC) Lexicon of Named Rock Units [online resource from www.bgs.ac.uk]

⁷ Sources: British Geological Survey (NERC) Map Sheets 87; Barnsley; Solid and Drift Edition, 1976, Geology of Britain Viewer [online resource from www.bgs.ac.uk]

2.2 Coal Authority Mines Report

As part of this study a Non-residential Coal Authority Mining Report has been obtained. The report is presented as Appendix 2 and for the purposes of discussion has been summarised below:

Table 3: Summary of the Non-residential Coal Authority Mining Report

Has the search report highlighted evidence or potential of:			
Ref	Mining Feature	Yes/No	Comments
1	Underground Coal Mining: Past	Yes	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	Underground Coal Mining: Present	No	The property is not within a surface area that could be affected by present underground mining.
3	Underground Coal Mining: Future	Yes	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	Yes	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	No	
6	Opencast Coal Mining: Past	No	
7	Opencast Coal Mining: Present	No	
8	Opencast Coal Mining: Future	No	
9	Coal Mining Subsidence	No	
10	Mine Gas	No	
11	Hazards Related to Coal Mining	No	
12	Withdrawal of Support	No	Please refer to CON29M (51001289417001) for further information.

2.3 Geological Survey Borehole Records

The British Geological Survey (NERC) keeps borehole records from across Britain which is available for public viewing through their website⁷. As part of this study, the records in the area around the site have been reviewed in order to assist in establishing the geological conditions.

Unfortunately there was no borehole data within the vicinity of the site that was available for public viewing. Other borehole scans were available at a greater distance from the site (within other fault

blocks), however, these were felt to be of limited value to the study as they are not anticipated to present comparable ground conditions to those below the surface of the site.

3. Risk Assessment

The risk to the stability of the proposed residential development has been evaluated from the data obtained and with reference to the following ratings and definitions:

- Low - The possibility of instability is unlikely therefore no further action is necessary.
- Moderate - The possibility of instability is likely and further investigation or remedial action may be required.
- High - The possibility of instability is highly likely and further investigation or remedial action will be necessary.

Table 5: Development specific risk assessment

Item	Risk of Instability	Coal Seam(s) Considered	Risk Rating
1	Shallow coal seams	Cumberworth Thin Coal	Moderate
2	Coal workings at depth	The property is not within a surface area that could be affected by past underground mining.	Low

On the basis of all of the information provided above, one notable coal seam is anticipated to be present within 30m of the surface of the site. Whilst this seam may be of limited thickness, the possibility of the seam being worked below the site cannot be ruled out. Historic mining activity is evident in the nearby area, and therefore it is considered that if coal was known to be close to ground level it could have been removed illicitly via shallow mining methods with relative ease.

It may be noted that guidance available from both the NHBC and the CIRIA publication, SP32 - *construction over abandoned mine workings*, suggests that competent overburden thickness above a coal seam should be greater than 10 times the thickness of a seam plus seam thickness in order that the collapse of workings would pose a low risk to surface structures.

On this basis, assuming a maximum thickness of the coal seam to be 0.20m, 2.20m of competent overburden is required to prevent the risk of instability posed by the presence of any illicit workings. As this seam is anticipated within the top 10.0m of the site surface, and the thickness of the most upper weathered fraction of rockhead is unknown, a moderate risk rating has been placed on the seam, and further investigation is recommended to prove or disprove the presence of illicit mining activity.

In regard to deeper mining which could affect the site, the property is not within a surface area that could be affected by past underground mining. Therefore, there is considered to be a low risk of instability at the site due workings at depth.

4. Conclusions

In light of the potential risks of instability at the site from the working of shallow coal at the site, it cannot be recommended that development takes place without further investigation to conclusively

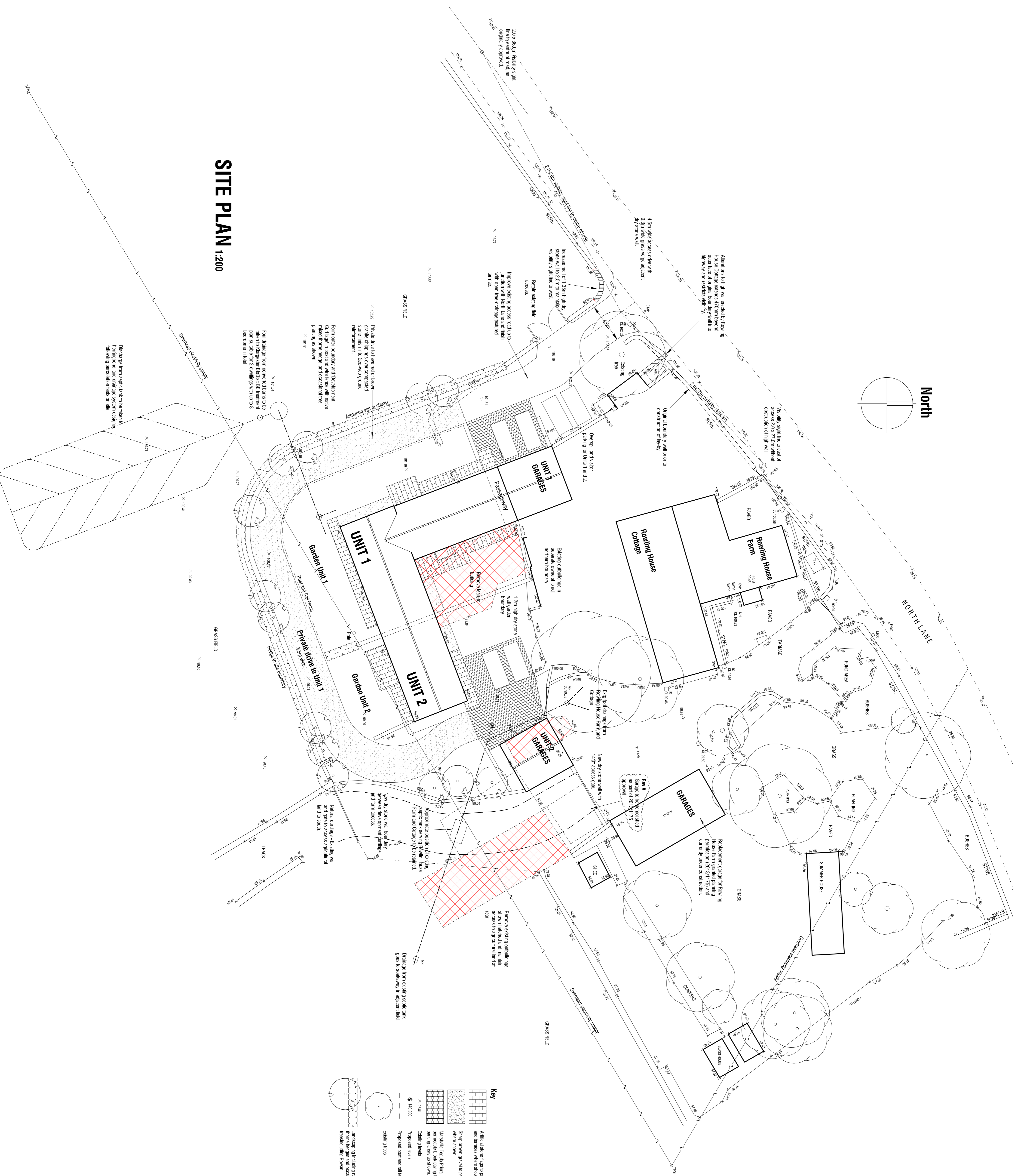
determine the presence of such workings. This work should include physical drilling methods to explore the ground conditions.

General practice is to undertake rotary openhole boreholes at three locations across the site to mitigate against the potential for drilling through intact columns associated with pillar and stall workings. Furthermore, it is normal to investigate the ground to 30m below ground level; any workings below this depth are unlikely to result in significant instability. However, in this case, the risk of instability is due to shallow workings, therefore, drilling to these depths may not be necessary and the objective should be to ensure that the shallow seams are un-worked or have sufficient competent cover. It may therefore be possible, in the first instance, to undertake one borehole to 30m below the top of the rockhead, with the remaining boreholes proving the depth and continuity of the coal seam. In any event, it is considered that approval should be sought with the Local Authority as to the efficacy of this approach.

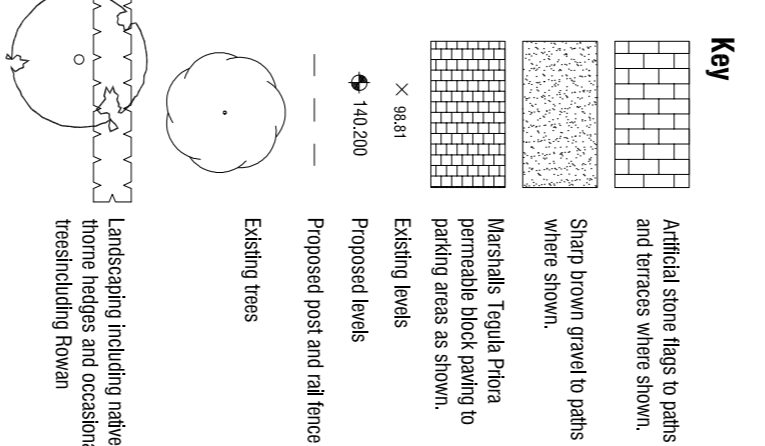
It is of note that Rogers Geotechnical Services would be happy to assist in any further intrusive investigation that may be required.

Appendix 1

Site Plan



SITE PLAN 1:200



ROWLING HOUSE FARM BARN
NORTH LANE
CAWTHORNE
BARNESLEY

PROPOSALS

SITE PLAN

mboothdesign
 architectural design and building consultants

11 Cowley Walk, Barnsley S72 2JU
 T: 01226 282628
 M: 07789 888300
 E: info@mboothdesign.co.uk

Scale 1:200 Drawn IAB

Date JUNE 2015 Ref. 12.15

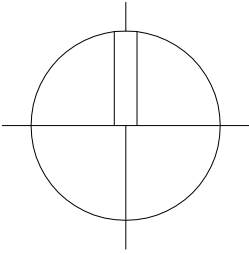
Drawn No. P1 Rev. B

0mm	25mm	50mm	100mm
0cm	2.5cm	5cm	10cm

8 30.12.2015 - Add additional details of existing access with proposed alterations/improvements. Indicate position of obstruction erected by Rowling House Cottage.
A 23.06.2015 - Clarify building to be removed as part of earlier planning consent ref 2013/1175.

Copyright reserved. All drawings to be used only for the project stated. No part of this drawing may be reproduced without the written permission of the author.

North



NORTH LANE

Rowling House Farm

Rowling House Cottage

Garage

Proposed Garage

UNIT 2

UNIT 1

FIELD

FIELD

A-B-C-D
Post and rail
boundary fence

D-E-F Dry stone
boundary wall

10.35m

B

10.35m

10m Radii

1.0m

C

boundary fence

Pole

1.0m

D

9.5m

9.5m

11.0m

E

12.0m

F

Rev A 24.08.2016

**PROPOSED DEVELOPMENT
ROWLING HOUSE FARM
NORTH LANE
CAWTHORNE
BARNSELY**

TRANSFER PLAN 02

Scale 1:500

Date Aug 2016

Ref 12.15

Drwg No TP02 Rev A

 **mboothdesign**

architectural design and building consultants

Fairfield House
Berneslai Close Barnsley
S70 2FL

T: 01226 286256

M: 07881898300

E: mark@mboothdesign.co.uk

Appendix 2

Coal Authority Report



The Coal
Authority

Resolving the **impacts** of mining

CON29M Non-Residential Mining Report

RAWLING HOUSE
NORTH LANE
CAWTHORNE
BARNESLEY
BARNESLEY
S75 4AF

Date of enquiry: 15 November 2016
Date enquiry received: 15 November 2016
Issue date: 15 November 2016

Our reference: 51001289417001
Your reference: J3607/16/EDS



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.

Client name

ROGERS GEOTECHNICAL SERVICES LTD

Enquiry address

RAWLING HOUSE, NORTH LANE, CAWTHORNE,
BARNSELY, BARNSELY, S75 4AF


How to contact us


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

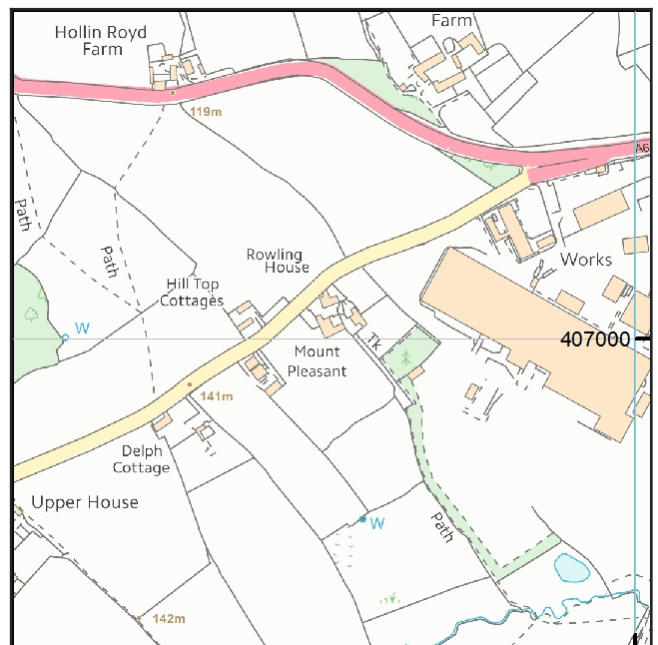
200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

 /company/the-coal-authority

 /thecoalauthority

 /coalauthority



Approximate position of property



Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right 2016. All rights reserved.

Ordnance Survey Licence number: 100020315

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
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.

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, 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 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

The Coal Authority own the copyright in this report and the information used is protected by our database right.

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.

Disclaimer

The Coal Authority owns the copyright in this report and the information used to produce this report is protected by our database rights. All rights are reserved and unauthorised use is prohibited. If we provide a report for you, this does not mean that copyright and any other rights will pass to you. However, you can use the report for your own purposes.

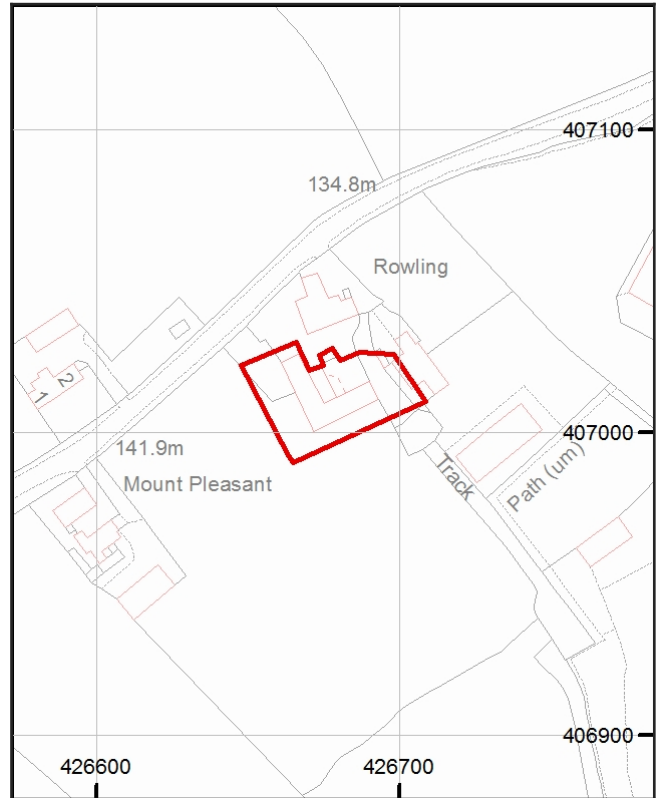
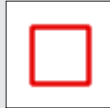
Alternative formats

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

Enquiry boundary

Key

Approximate position of enquiry boundary shown




How to contact us

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

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

 /company/the-coal-authority

 /thecoalauthority

 /coalauthority



Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right 2016. All rights reserved.

Ordnance Survey Licence number: 100020315

VAT receipt

Issued by	The Coal Authority 200 Lichfield Lane Mansfield Nottinghamshire NG18 4RG
Tax point date	15 November 2016
Issued to	ROGERS GEOTECHNICAL SERVICES LTD BARNCLIFFE MILLS NEAR BANK SHELLEY HUDDERSFIELD KIRKLEES HD8 8LU
Property search for	RAWLING HOUSE NORTH LANE CAWTHORNE BARNSELY BARNSELY S75 4AF
Reference number	51001289417001
Date of issue	15 November 2016
Cost	£77.00
VAT @ 20%	£15.40
Total received	£92.40
VAT registration	598 5850 68