

Mr R. Agus
Office One
34 Victoria Road
Barnsley
S70 2BU

**CAPE SITE SERVICES
COAL MINING & GEOTECHNICAL
CONSULTANCY**

Web: www.cape-site.co.uk
Email: cape-site@btconnect.com
Tel: 01226 725050

Date: 3rd January 2023
Your ref: (S75 3AR)
My Ref: SI 00292

FOR THE ATTENTION OF ROB AGUS

Dear Sir,

**COAL MINING RISK INTERPRETATION REPORT – FOLLOWING THE SITE
INVESTIGATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT THE FORMER GATE
INN, CHAPEL ROAD, PILLEY, BARNSELY S75 3AR**

I am pleased to supply the following report for the above named project and trust that this satisfies your requirements. Please do not hesitate to contact myself at any time for further clarification or advice.

Yours Sincerely,

M Lyons

M. Lyons
Consultant Mining Engineer
BSci CSci MIMMM

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1. Introduction

Planning permission is being considered for residential development at the above location subject to the mining legacy risks been fully realised and mitigated from on site, if necessary. Cape Site Services has now undertaken this work via an intrusive site investigation on the 14th December 2022 consisting of 3 boreholes, the location of which is outlined on plan no. 00292/B – as attached and illustrated in appendix 5.2.

2. Scope of the Report

The mining legacy risks to the development are as follows:

- Instability from shallow coal workings (including potential ironstone workings)
- Uncharted mine entries
- Fugitive gas emissions

As such, these risks need to be properly determined to ensure sound stability for the development. A borehole investigation consisting of 3 holes was deemed a reasonable level of investigation in the outset regarding potential void migration given the scale and nature of development combined with the available geological and mining information. A watching brief would also be implemented for any signs of mine entries.

It should be noted that this investigation is focused mainly on determining stability from potential shallow historic coal workings and will only provide limited information regarding the risks of uncharted mine entries. A good level of detail should be obtained to provide a more informed opinion as to fugitive gas risks.

Considering the geological/mining details and CMRA report (ref: CMRA 00292 by myself dated 14th April 2022) boreholes were decided to be taken to a minimum of 30m deep to check the nature of the Joan coal seam and to 40m to check the nature of the Flockton seam if required (ie if void migration interaction with higher workings in any coal seam or ironstone were suspected).

3. Site Investigation

3.1 Methodology

Prior to the intrusive site investigation, a search for utilities was undertaken both via online data providers and physically on site using a Cable Avoidance Tool (CAT). Boreholes were marked out with tape measure from boundary lines as illustrated on plan no. 00292/B outlined in appendix 5.2. As part of the mine entry watching brief, a pre survey was undertaken with no visible evidence of any uncharted mine entries. The process for the intrusive coal seam investigation is outlined via the system chart in appendix 5.4.

An investigation utilising a tracked Baretta Rotary Drill Rig equipped with 2m long 100mm diameter drill rods was deemed appropriate in this instance along with water flush technique to analyse returns and minimise any risks associated with mine gas emissions and spontaneous combustion. Gas monitoring equipment would be employed during works for risks associated with Methane, Carbon Monoxide, Oxygen and Carbon Dioxide. Any boreholes emitting a dangerous level of methane would be terminated and sealed immediately. All holes to be filled and sealed as soon as possible with bentonite upon termination. Prior agreement had been secured for these works from the Coal Authority -permit ref: 25964 – as attached for reference in appendix 5.5.

The works were to be supervised by the Drilling Engineers Mr. S. Fish and Mr I. Wiles, and overseen by the Principal Engineer Mr. M. Lyons.

3.2 Interpretation of Findings

All holes proved a similar section of strata with 300mm of topsoil over 1.7m to 2.0m of sandy silty brown clay with sandstone gravels. Firm silty sandstone and then mudstone was then encountered above an in-tact coal seam of 0.5m thickness at 19.5m deep in BH1, 19.4m deep in BH2 and 19.2m deep in BH3. This is considered to be the Joan coal seam which matches precisely to that anticipated from the CMRA. Silty grey mudstone was then encountered below this to 30m deep with no further signs of any coal seams. As no instability was noted in the Joan coal seam or any other zones that could have related to potential ironstone bands, drilling to greater depths was considered unnecessary.

Water flush was maintained throughout drilling with no fugitive gases detected.

The logs appear to match well at a similar elevation which would infer no signs of any geological faulting between the borehole locations.

Given the findings of the three boreholes no further holes were deemed necessary.

4. CONCLUSIONS AND RECOMMENDATIONS

- 1) Given the findings it is considered that the Joan coal seam will be at a depth that will not give rise to mining instability issues be it worked or otherwise; according to best practice guidance outlined in CIRIA C758D 'Abandoned Mine Working Manual'. As such no further works or considerations regarding shallow coal and/or coal mining workings will be necessary for the development.
- 2) Usual foundations designs can be considered with the appointed building control officer/department; taking into account the silty clay deposits as identified.

- 3) No signs of any mine entries were observed during the investigation. Watching briefs are always prudent however during future ground works for any associated signs of either an old mine shaft or adit; particularly considering that the site is located in an area known for historic ironstone bell pits in the wider vicinity. The Coal Authority should be notified where any such feature is suspected.

This report and future development proposals should be submitted to the regulators for their approval prior to any works taking place.

I trust that this satisfies your requirements, however please do not hesitate to contact myself at any time for further clarification or advice.

Yours Sincerely,



M. Lyons
Consultant Mining Engineer
BSc CSci MIMMM

Enc.

THIS SITE INVESTIGATION INTERPRETATIVE REPORT IS BASED ON AND LIMITED TO THE INFORMATION IN MY RECORD AT THE TIME THE ENQUIRY IS ANSWERED. It is based on my professional opinion in line with the guidelines set out in CIRIA Special Publication 32 - "Construction Over Abandoned Mine Workings." The opinion may be overruled by Government Authorities based on other information not in my record. Further site investigations may be undertaken which would supersede the factual findings of this investigation. Copyright in this report belongs to M.A.Lyons. All rights are reserved and unauthorised use is prohibited. Copyright is not transferred to external parties by possession of this report, however, those for whom the report is compiled have the right to use it. If any unauthorised third party comes into possession of this report, they rely upon it entirely at their own risk and the author does not owe them any Duty of Care or Skill.

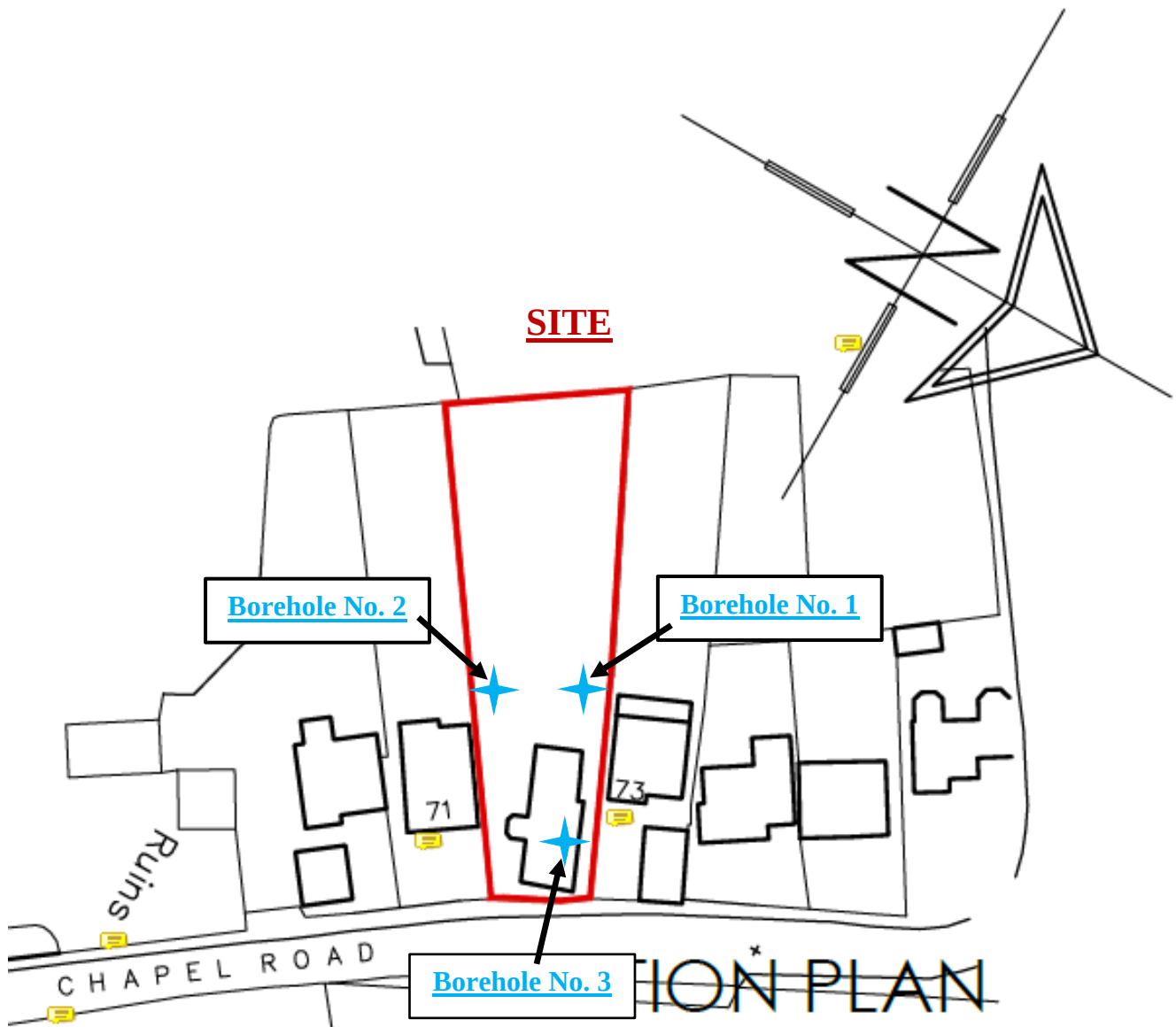
5 Appendix

5.1 References

- 5.1.1 CIRIA C758D 'Abandoned mine workings manual'.
- 5.1.2 British Standards Institution: BS 5930:2015 'Code of practice for ground investigations' BSI 2015.
- 5.1.3 British Standards Institution: BS EN ISO 14688-1: 2002 + A1 2013 'Geotechnical Investigation and Testing - Identification and Classification of Soil - Part 1 - Identification and Description. BSI 2013.
- 5.1.4 British Standards Institution: BS EN ISO 14689-1: 2003 'Geotechnical Investigation and Testing – Identification and Classification of Rock – Part 1 – Identification and Description. BSI 2003. Incorporating Corrigendum No. 1 February 2007.
- 5.1.5 British Standards Institution: BS 10175 'The Investigation of Potentially Contaminated Sites. Codes of Practice'. BSI 2011+A1 2013.
- 5.1.6 British Standards Institution: BS EN ISO 22476-3: 2005 + A1 2011 'Geological Investigating and Testing. Field Testing. Standard Penetration Test'.
- 5.1.7 British Standard 1377:1990 Parts 1-9 'Methods of Test for Soils for Civil Engineering Purposes'.

5.2 Borehole Location Plan No. 00292/B

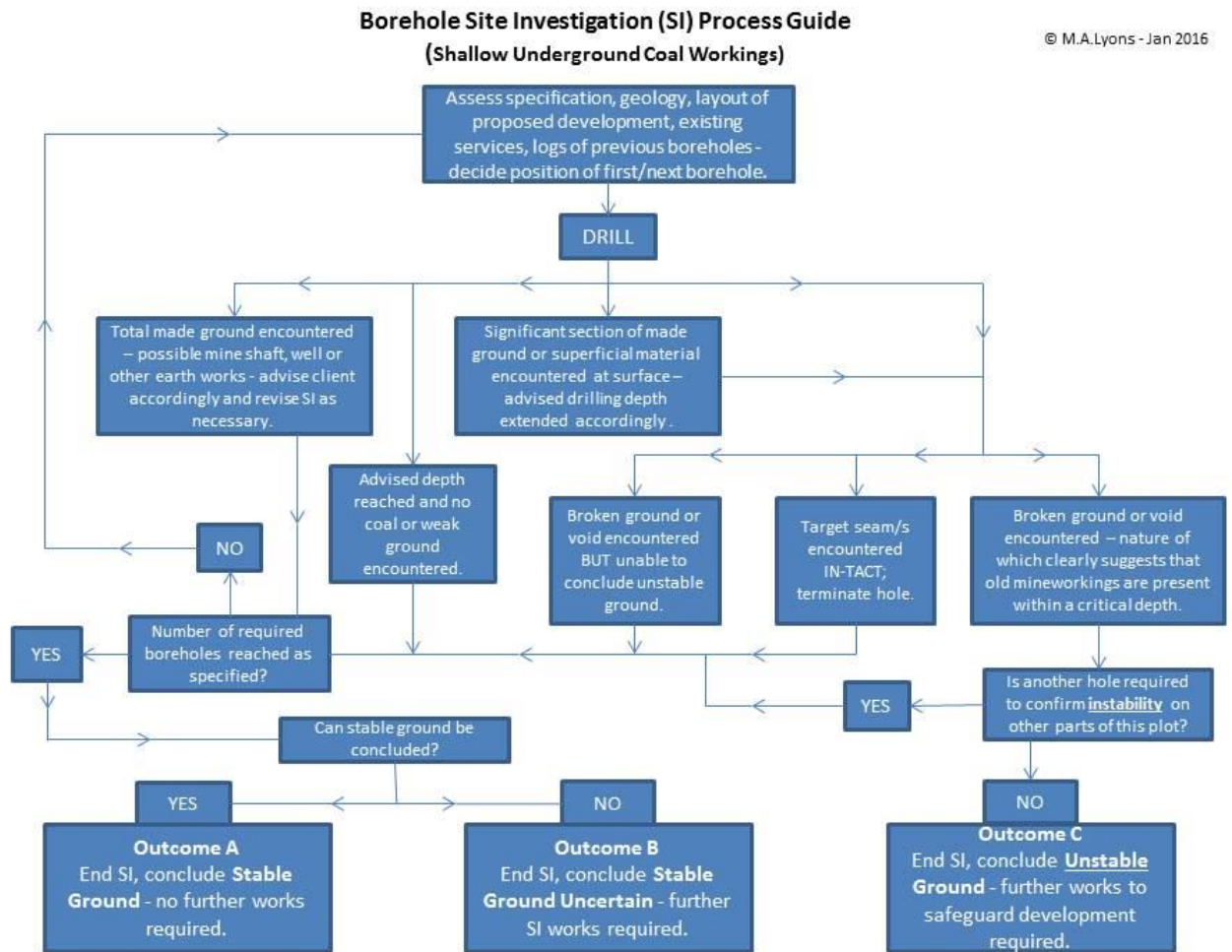
LAND AT FORMER GATE INN, CHAPEL
ROAD, PILLEY, BARNSELEY S75 3AR



5.3 Drilling log sheets

Client: Rob Agus	Site: Laand at Gate inn, Chapel road, Pilley, Barnsley, S75 3AR		Cape Site Services unit 2, rear of Castle Buildings Carlton Road, Barnsley, S71 3HX	
Date: 14/12/22	Method: water flush	Permit No: 25964		
Driller: Ian Wiles			Driller Assistant: richard hawkins, Simon Fish	
Drillers Signature:			Page No:	
Measurements In Meters				
BH No:	FROM	TO	THICKNESS	DESCRIPTION
1				
	0	0.3	0.3	Top Soil
	0.3	2	1.7	Silty sandy clay brown with sandstone gravels
	2	8.5	6.5	Silty sandstone brown with mudstone bands
	8.5	16.5	8	Silty mudstone grey
	16.5	19.5	3	Silty mudstone dark grey
	19.5	20	0.5	Coal
	20	30	10	Silty Mudstone grey with sandstone bands
2				
	0	0.3	0.3	Top Soil
	0.3	1.9	1.6	Silty clay brown with sandstone gravels
	1.9	8.2	6.3	Silty sandstone brown with mudstone bands
	8.2	16.3	8.1	Silty mudstone grey
	16.3	19.4	3.1	Silty mudstone dark grey
	19.4	19.9	0.5	Coal
	19.9	30	10.1	Silty Mudstone grey
3				
	0	0.3	0.3	Top soil
	0.3	1.7	1.4	Silty clay brown with Sandstone gravels
	1.7	8.1	6.4	Silty sandstone brown with Mudstone bands
	8.1	16.2	8.1	Silty mudstone grey
	16.2	19.2	3	Silty mudstone dark grey
	19.2	19.7	0.5	Coal
	19.7	30	10.3	Silty mudstone grey

5.4 Site Investigation Process



5.5 Coal Authority Permit



The Coal
Authority

Permit to Enter or Disturb Coal Authority Interests

Permit 25964

Name and Address of Permit Holder:

*Developments By Boutique
50 Hoyland Road
Hoyland Common
Barnsley
S74 0PB*

Site Location:

*Land At
Gate Inn
Chapel Road
Pilley
Barnsley
S75 3AR*

This certificate hereby grants the above named Permit Holder a Permit to carry out:-

Ground investigation by three boreholes to 40m

within the Authority's interests at the identified site location above as shown on the Grant Permit Boundary (overleaf) for the period of **12 months** from the granted date shown below. *The granting of this Permit does not constitute advice given by the Authority in relation to the proposed operations. It is the Permit Holder's responsibility to obtain appropriate health, safety, environmental, technical and legal advice.*

Conditions:

- *Manned entry (i.e.) into mine entries/workings) is strictly prohibited.*
- *Water flush*
- *Gas Monitoring CO, CH₄, CO₂, O₂, H₂S at borehole and rig*
- *Operators undertaking the work must be in possession of this certificate and the Permit boundary plan at the time of works*
- *Appropriate borehole sealing without delay and to withstand site level changes*

Signed: Richard Morson Granted Date: 7/12/2022

For and on behalf of The Coal Authority

*Nominated Representative: Richard Morson, Permitting Manager;
The Coal Authority, Permitting Office, 200 Lichfield Lane, Mansfield, Notts, NG18 4RG
Tel: 01623 637450; E-Mail: permissions@coal.gov.uk*