

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

LYONS CMC
COAL MINING & GEOTECHNICAL
CONSULTANCY

Date: 24th January 2024
Your ref: (S75 1PG)
My Ref: SI 00326

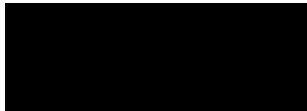
FOR THE ATTENTION OF MR ROB AGUS & DEVELOPMENTS BY BOUTIQUE

Dear Sirs,

**COAL MINING RISK INTERPRETATION REPORT – FOLLOWING THE SITE
INVESTIGATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT LAND ADJACENT
362 HIGHAM COMMON ROAD, HIGHAM, BARNSELEY S75 1PG**

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
Consultant Mining Engineer
BSci CSci MIMMM

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1. Introduction

Planning permission is being considered for the development of a detached dwelling 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 of 3 boreholes, the location of which is outlined on plan no. 00326/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 underground coal 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.

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. 00326/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 Beretta Rotary Drill Rig equipped with 2m long 75mm diameter drill rods was deemed appropriate in this instance along with water flush techniques 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. Prior agreement had been

secured for these works from the Coal Authority -permit ref: 27667 – as attached for reference in appendix 5.5.

Considering the geological/mining details and our CMRA report (ref: CMRA 00326 dated 29th September 2023) boreholes were decided to be taken to the base of the second seam (Low Haigh Moor seam) or to 30m if not encountered.

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 boreholes proved clay to between 2m to 2.5m deep, beneath 0.4m of fill in BH1. Silty grey mudstone bedrock was proved beneath the clay with what is believed to be the ‘Top Haigh Moor’ coal seam, circa 1.3m thick, at 5.3m deep in BH1, 6.3m deep in BH2 and 6.7m deep in BH3. Further grey silty mudstones and sandstones were then proved beneath the top coal seam to what is believed to be the ‘Low Haigh Moor’ coal seam, circa 0.7m thick, at 13.5m deep in BH1 and 14.3m deep in BH2 – with the coal described as relatively weak with loss of flush encountered, although firm drilling noted in both. Borehole no. 3 had to be terminated due to lack of water supply, although firm drilling was noted to 12.5m deep.

No signs of underground shallow workings or unstable ground were encountered at any of the three borehole locations. Had the holes travelled through coal pillars associated with historic shallow pillar and stall type mining of the top coal seam, we would have expected an element of loss of flush from the weakening of lateral support to the strata through settlement and weathering. No fugitive gases were detected at any point during the drilling operations.

The logs appear to match well considering the slight slope across the site westwards which would infer no signs of any geological faulting between the borehole locations.

4. CONCLUSIONS AND RECOMMENDATIONS

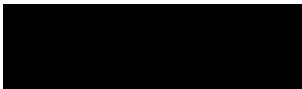
- 1) Although the Top Haigh Moor coal seam lies within an influencing depth of the proposed development, the three boreholes undertaken have proved stable ground conditions in the areas investigated across the proposed footprint area – given current designs/layouts. At such a relatively shallow depth and given the findings/maintenance of flush at the top seam horizon, it is unlikely that historic underground mining has taken place. Similarly, although water flush was lost within the bottom seam horizon (anticipated as the Low Haigh Moor seam; possibly due to opened out bedding planes) firm drilling suggested no associated workings. As such the risk of shallow mining instability is considered low. Having said this it would be prudent to offer an element of strengthened foundations (such as strengthened strip footings with two layers of mesh for example), in order to accommodate any residual slight risks within areas not covered by this investigation. Regulators should be consulted for their agreement of any such proposals prior to development taking place.

- 2) No signs of any mine entries were observed during the investigation, however slight risks are always present within the exposed coalfield for discovering such features. Watching briefs would be prudent during future ground works for any associated signs of either an old mine shaft or adit. The Coal Authority should be notified where any such feature is suspected.
- 3) No fugitive gases were encountered, and given the clay deposits and findings the risk of such to impact on development is considered low. Nevertheless, a period of gas monitoring could be undertaken to better determine any requirements (given the presence of shallow workable coal), or indeed a methane membrane utilised in any case as precautionary mitigation for any residual risks.

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 C758D – “Abandoned Mine Working Manual.” 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.

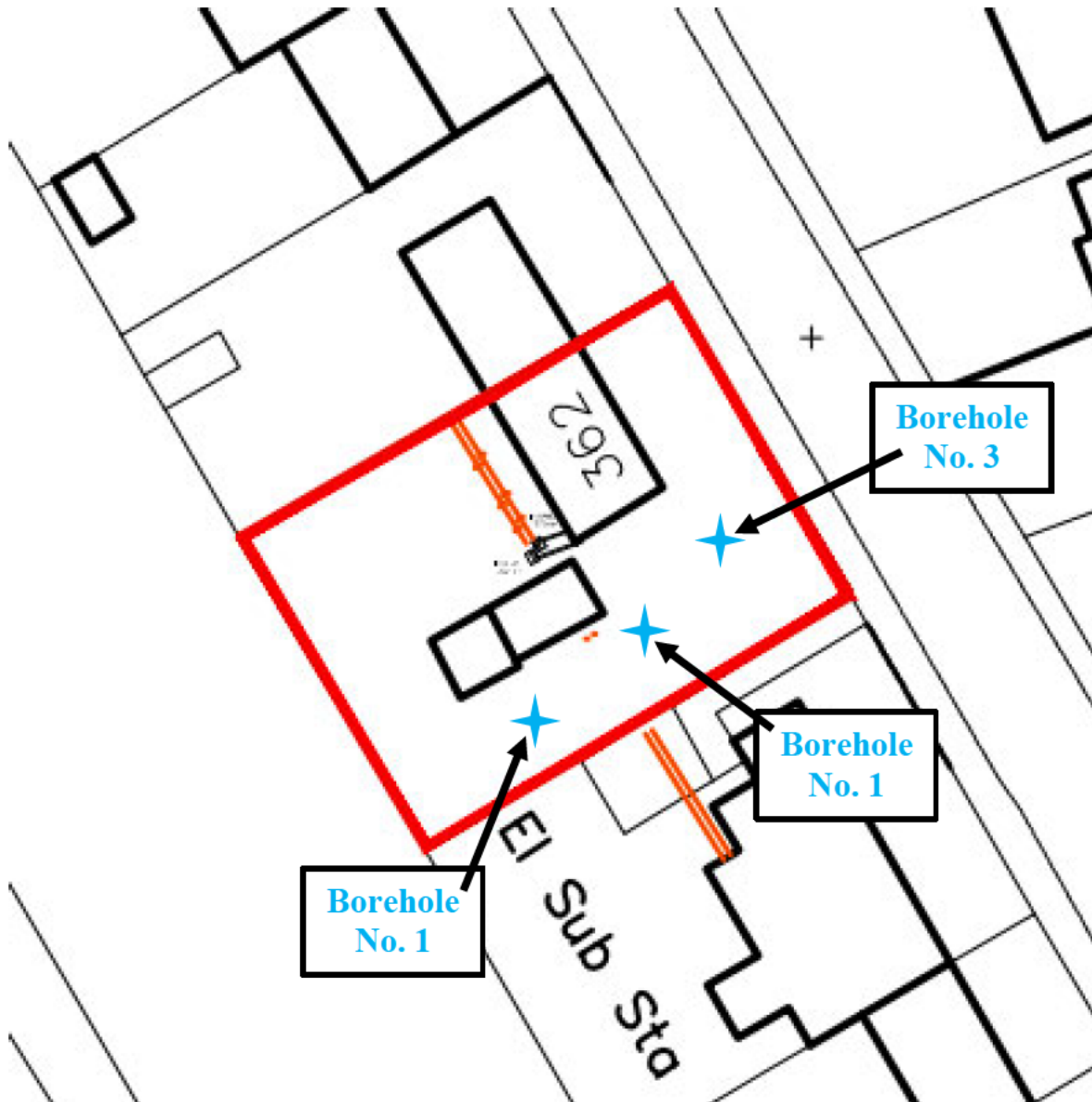
5 Appendix

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. 00326/B

LAND ADJACENT 362 HIGHAM
COMMON ROAD, HIGHAM,
BARNSELY S75 1PG
Site Investigation
Borehole Location Plan
(NTS)



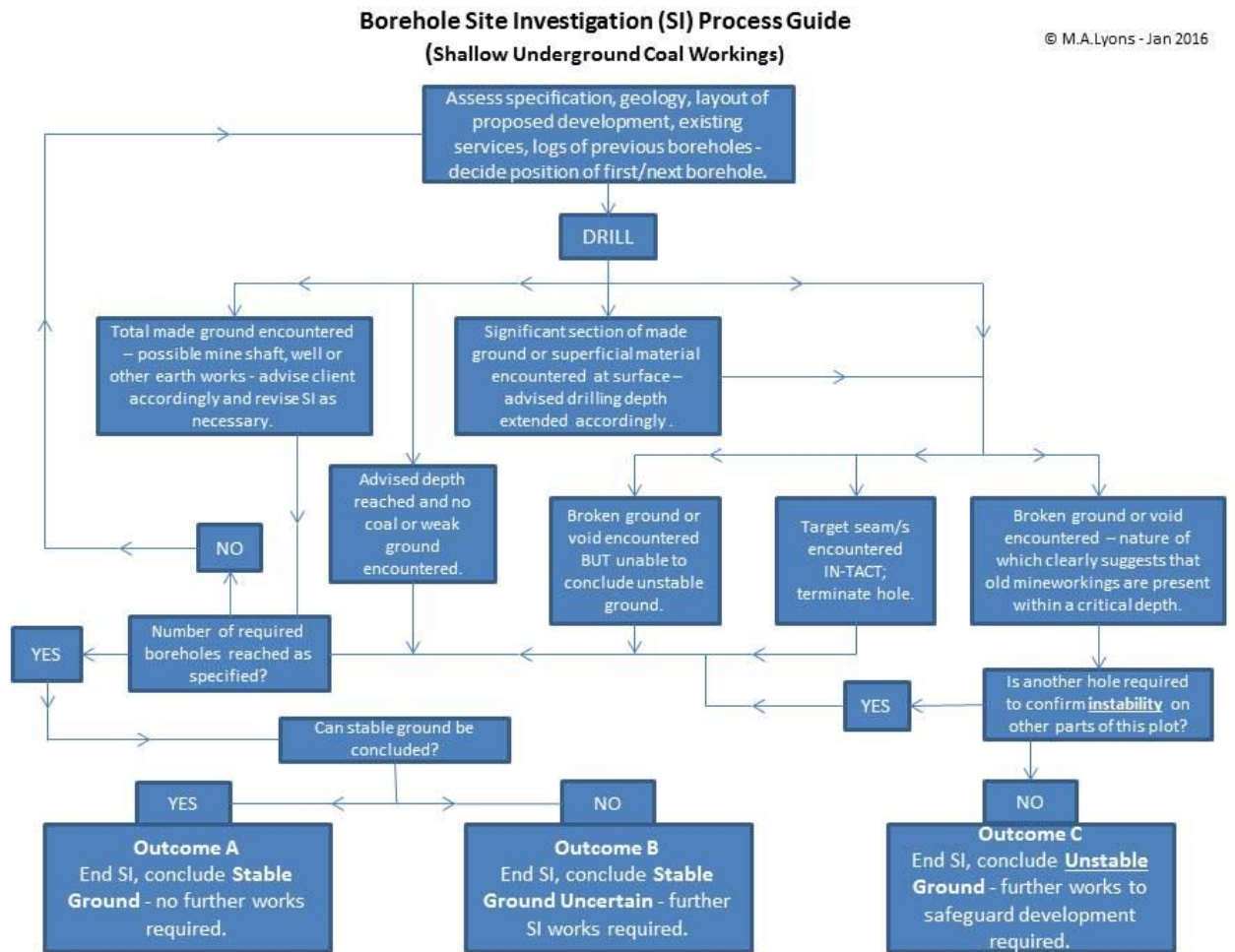
5.3 Drilling log sheets

Client: Dev. By Boutique	Site: Land Adj 362 Higham Common Road, Barnsley. S75 1PG		Cape Site Services unit 2, rear of Castle Buildings Carlton Road, Barnsley, S71 3HX	
Date: 19/01/2024	Method: water flush	Permit No: 27667		
Driller: Ian Wiles			Driller Assistant: Richard Hawkins, Simon Fish	
			Page No: 1	

Measurements In Meters

BH No:	FROM	TO	THICKNESS	DESCRIPTION
1				
	0	0.4	0.4	Fill
	0.4	1	0.6	Clay yellow orange brown
	1	2	1	Clay grey silty
	2	5.3	3.3	Mudstone grey silty
	5.3	6.7	1.4	Coal
	6.7	8.5	1.8	Mudstone grey silty
	8.5	10.1	1.6	Sandstone grey silty
	10.1	12.5	2.4	Sandstone grey brown silty mix
	12.5	13.5	1	Mudstone grey silty
	13.5	14.2	0.7	Coal solid but weak Lost water lost returns
	14.2	15	0.8	Solid Mudstone grey on bit
2				
	0	2.5	2.5	Clay brown orange
	2.5	6.3	3.8	Mudstone grey silty
	6.3	7.6	1.3	Coal
	7.6	9.5	1.9	Mudstone grey silty
	9.5	11	1.5	Sandstone grey silty
	11	13.4	2.4	Sandstone grey brown silty mix
	13.4	14.3	0.9	Mudstone grey silty some water loss
	14.3	15	0.7	Coal solid but weak Lost water lost returns
	15	17	2	Solid Mudstone grey on bit
3				
	0	2.3	2.3	Clay brown orange
	2.3	6.7	4.4	Mudstone grey silty
	6.7	8	1.3	Coal
	8	9.8	1.8	Mudstone grey silty
	9.8	11.4	1.6	Sandstone grey silty some waterloss
	11.4	12.5	1.1	Sandstone grey brown silty mix Lost water none left on site

5.4 Site Investigation Process



5.5 Coal Authority Permit



The Coal
Authority

Permit to Enter or Disturb Coal Authority Interests

Permit 27667

Name and Address of Permit Holder:

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

Site Location:

*Land Adj
362 Higham Common Road
Higham
Barnsley
S75 1PG*

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

Ground investigation by five boreholes to 25m

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: Helen Day Granted Date: 11/01/2024

For and on behalf of The Coal Authority

Nominated Representative: Helen Day, Permitting Manager;

The Coal Authority, Permitting Office, 200 Lichfield Lane, Mansfield, Notts, NG18 4RG

Tel: 01623 637450; E-Mail: permissions@coal.gov.uk