

Oaktree Development Ltd
Unit 3
Wath Road
Elsecar
Barnsley
S74 8HJ

CAPE SITE SERVICES
COAL MINING & GEOTECHNICAL
CONSULTANCY

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

Date: 30th August 2022
Your ref: (S74 8HJ)
My Ref: SI 00218

FOR THE ATTENTION OF MRS M. MARSHALL

Dear Sir/Madam,

**COAL MINING RISK INTERPRETATION REPORT – FOLLOWING THE SITE
INVESTIGATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT UNIT 3, WATH ROAD,
ELSECAR, BARNSELEY S74 8HJ.**

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 of 5 boreholes, the location of which is outlined on plan no. 00218/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
- Geological faulting/unstable bedrock
- 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 between 3 to 6 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.

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. 00218/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: 25324 – as attached for reference in appendix 5.5.

Considering the geological/mining details and our CMRA report (ref: CMRA 00218 dated 12th September 2019) boreholes were decided to be taken into firm strata at the base of the Kents Thick 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

Boreholes proved between 1.4m to 3.5m of fill material across the site, presumably from the past industry in the area – in this case very likely to be associated with cuttings from the adjacent Elsecar Canal. Boreholes 1 and 4 encountered clay with mudstone and sandstone traces of 1m and 2.2m thickness respectively. All holes (except borehole 3) proved very soft (possibly weathered) sandstones/mudstones to circa 8.5m deep across the site. An intact coal seam of circa 1.1m thickness was then encountered at depths ranging from 9.2m deep to 11m deep across the site. At such thickness this coal appears consistent with being the Kents Thick seam; no other (Kents Thin) coal seam was experienced at a shallower depth.

No signs of underground shallow workings or unstable ground were encountered at any of the five borehole locations, with water flush maintained throughout drilling. No fugitive gases were detected at any point during the drilling operations.

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

4. CONCLUSIONS AND RECOMMENDATIONS

- 1) Although the Kents Thick coal seam lies within an influencing depth of the proposed development, the five boreholes undertaken have proved stable ground conditions in the areas investigated. At such a relatively shallow depth and given the findings/maintenance of flush, it is unlikely that historic underground mining has taken place. However, appropriate foundation designs will need to consider the fill material across the site along with the soft bedrock beneath.
- 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 findings the risk of such to impact on development is considered low.
- 4) No geological faulting was inferred from the investigation and no indications of any coal being present close to the surface was evident.

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

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

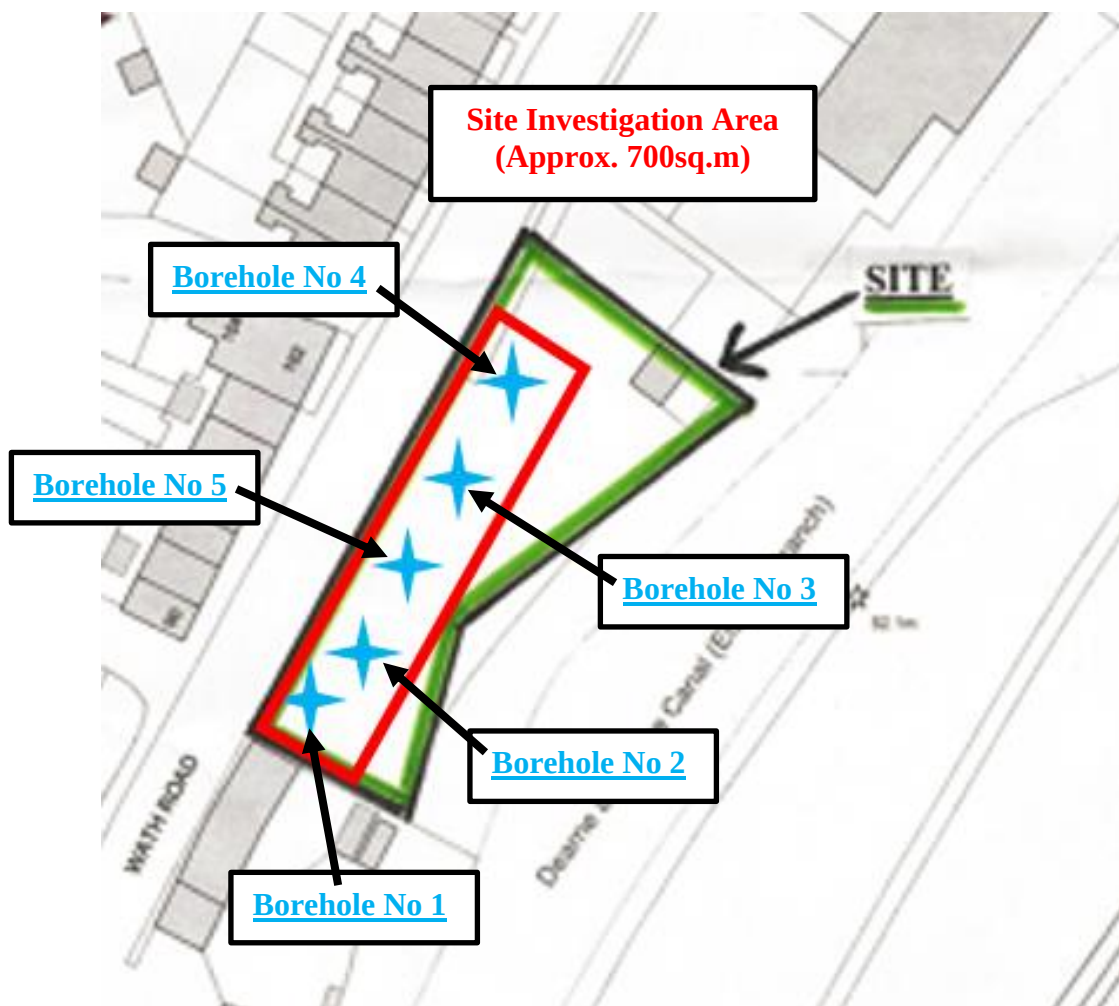
5.1 References

- 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. 00218/B

**LAND AT UNIT 3, WATH ROAD,
ELSECAR, BARNSLEY S74 8HJ.**

**Site Investigation
Borehole Location Plan
(NTS)**



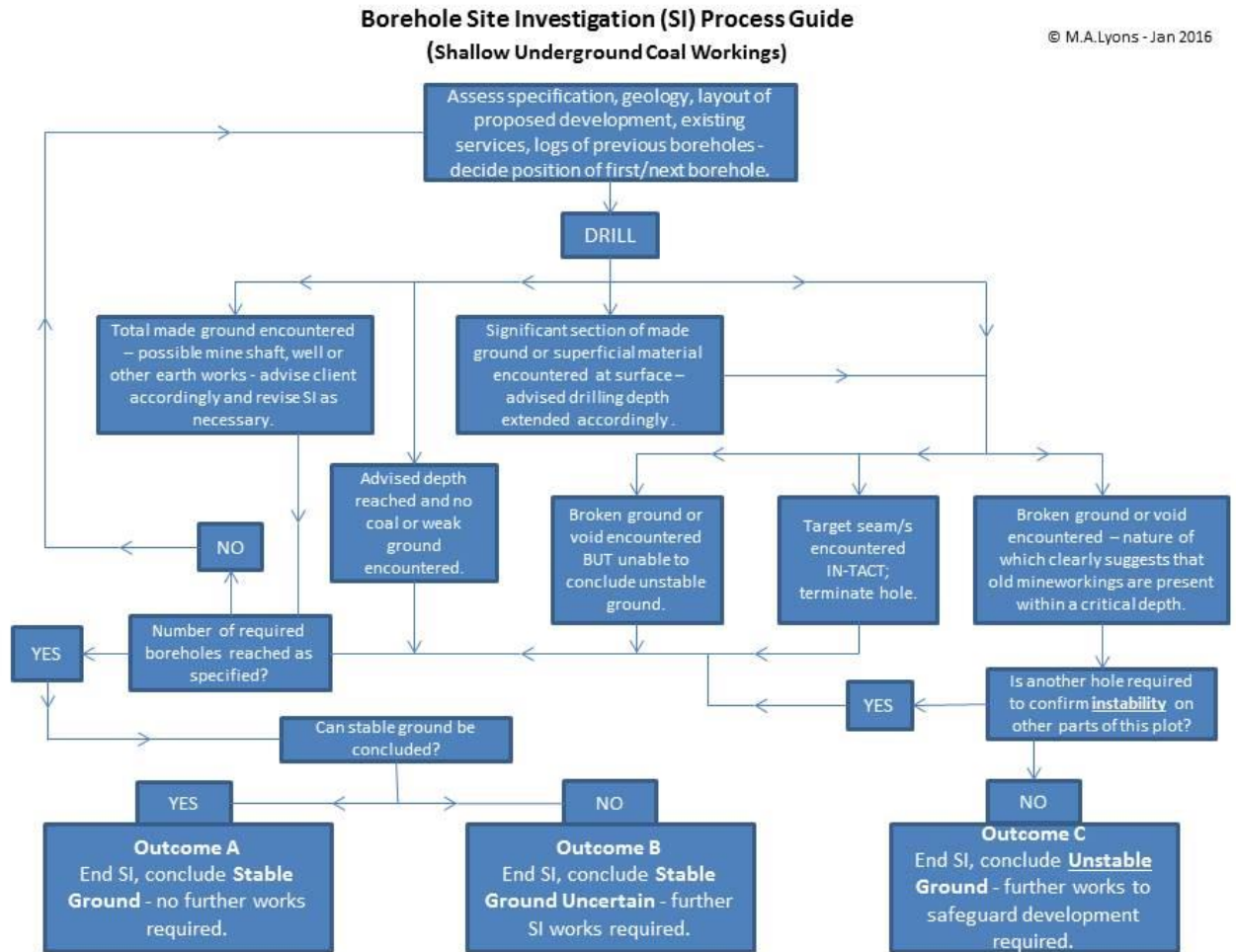
5.3 Drilling log sheets

Client: Mark Lyons	Site: Land at Unit 3 Wath Road, Elsecar, Barnsley, S74 8HJ		Cape Site Services unit 2, rear of Castle Buildings Carlton Road, Barnsley, S71 3HX	
Date: 08-09/08/22	Method: water flush	Permit No: 25324		
Driller: Ian Wiles			Driller Assistant: richard hawkins, Simon Fish	
Drillers Signature:			Page No:	

Measurements In Meters

BH No:	FROM	TO	THICKNESS	DESCRIPTION
1				
	0	3.5	3.5	Fill
	3.5	4.5	1	Clay brown with traces of mustone and sandstone
	4.5	8.5	4	Sandstone brown very soft
	8.5	9.4	0.9	mudstone dark grey
	9.4	10.4	1	Coal
	10.4	11	0.6	Mudstone Grey
	11	13	2	Sandstone Grey
2				
	0	3.5	3.5	Fill
	3.5	9.2	5.7	Sandstone brown very soft
	9.2	10.4	1.2	Coal
	10.4	11	0.6	Mudstone Grey
3				
	0	1.5	1.5	Fill
	1.5	8.4	6.9	Mudstone Grey
	8.4	8.5	0.1	Coal trace
	8.5	10.3	1.8	Mudstone Grey
	10.3	11.3	1	Coal
	11.3	11.8	0.5	Mudstone Grey
	11.8	13	1.2	Sandstone Grey
4				
	0	1.8	1.8	Fill
	1.8	4	2.2	Clay brown mudstone traces
	4	8	4	Sandstone brown very soft
	8	9	1	Sandstone Brown
	9	11	2	Mudstone Grey
	11	12	1	Coal
	12	12.5	0.5	Mudstone Grey
5				
	0	1.4	1.4	Fill
	1.4	3	1.6	Mudstone Grey
	3	9.6	6.6	Sandstone brown very soft
	9.6	9.9	0.3	Mudstone Grey
	9.9	11	1.1	Coal
	11	12	1	Mudstone Grey

5.4 Site Investigation Process



5.5 Coal Authority Permit



The Coal
Authority

Permit to Enter or Disturb Coal Authority Interests

Permit 25324

Name and Address of Permit Holder:

Oaktree Developments Ltd
50 Hoyland Road
Hoyland Common
Barnsley
S74 0PB

Site Location:

Land At
Unit 3 Wath Road
Elsecar
Barnsley
S74 8HA

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

Ground investigations by six boreholes to 30m to determine ground conditions

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: Paul Hobson Granted Date: 25 July 2022

For and on behalf of The Coal Authority

Nominated Representative: Paul Hobson, Permitting Manager;

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

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