CAPE SITE SERVICES
COAL MINING & GEOTECHNICAL CONSULTANCY
Web: www.cape-site.co.uk
Email: cape-site@btconnect.com
Tel: 01226 725050

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

Date: 12th September 2019
Your ref: (S74 8HJ).
My Ref: CMRA 00218

FOR THE ATTENTION OF ROBERT AGUS

Dear Sir,

COAL MINING RISK ASSESSMENT (CMRA) - FOR PROPOSED RESIDENTAIL DEVELOPMENT AT UNIT 3, WATH ROAD, ELSECAR, BARNSLEY S74 8HJ.

Introduction

Residential development is being considered at the above named site, the location of which can be seen on the attached Plan No. 00218/A. The site is centred around national grid reference E: 438780 / N: 400264. A Coal Mining Risk Assessment is required for the proposals, in order to competently address the mining legacy for the site and determine what impact this may have had upon the land. The assessment is intended to be included as a supporting document to a future Barnsley MBC planning application.

Scope of the Coal Mining Risk Assessment

The purpose of this Coal Mining Risk Assessment Report is to:

- Present a desk-based review of all available information on the coal mining issues which 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 of issues;
- Set out appropriate mitigation measures to address the coal mining legacy issues affecting the site, including any further works that may be necessary; 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.

British Geological Survey Information

Surface Geology (inc. any superficial deposits)

Records indicate the site to be located on sandstone of the Middle Coal Measure series from the Carboniferous formation. No superficial deposits are indicated in this vicinity. Strata is shown to dip to the north-east at around 1 in 12 in this vicinity.

Coal Seam Outcrops

The 'Kents Thin' coal seam is conjectured to outcrop some 30m to the north which will dip away clear of the site. Records indicate that this specific coal is of around 0.60m in section. As this position is based on conjecture there will be a possibility that the seam could outcrop further southwards in which case it may be encountered at or very close to the surface.

The 'Kents Thick' coal seam is conjectured to outcrop some 50m away to the south which will dip beneath the site at estimated depth of between 5m to 15m should the conjectured position be accurate. Records indicate this coal to be of up to 1.20m in section.

Made Ground

No made ground is indicated in the vicinity on BGS plans, although given the historical detail it appears that some may be encountered that is associated with an embankment for the adjacent Dearne & Dove (Elsecar) Canal. There will be a slight potential for some made ground that could be attributed to historic localised 'digging out' of shallow coal of which there are no records.

Fault Planes or Fissures

No geological faulting is known or conjectured within 100m of the site. The sandstone bedrock may contain natural fissures that could have been opened out by past deep coal mining settlement.

Abandoned Mines Records

Opencast Coal Workings.

None known within 250m of site.

Underground Coal Workings - Deep

Deep coal mining (over 50m deep) has taken place beneath this area in several coal seams in the past; all associated settlement will be long complete and as no coalfields now exist, the site should remain stable from the deep coal mining perspective for the foreseeable future.

Underground Coal Workings - Shallow

Although no workings are known beneath this land in the Kents Thick coal seam, it is known to have been worked around 1km away to the east at the former 'Elsecar Main Colliery' at around 50m deep at that location. The abandonment plans from those workings during the early 1980's show a seam thickness of up to 1.2m.

No coal seams are anticipated beneath the Kents Thick seam that would interact and affect surface stability from a shallow mining aspect.

Mine Entries

No mine entries are known within 20m of the site, the closest recorded are around 40m away to the east which formed the 'Simon Wood' Colliery that worked the Barnsley coal seam at around 80m deep. These should not affect the property, however given the nature of the anticipated shallow coal seam in this vicinity the likelihood of discovering other mine entries of which there are no records should not be ruled out.

Fugitive Gases

As far as we are aware, no evidence of coal mining related fugitive gas emissions are known within 250m of the site. However, there will be some risk for associated gases in relation to any exposed coal if encountered during ground works, and/or should any shallow coal workings be proved.

Historical Records

According to the historical OS sheets for this area past structures may be encountered that could be associated with the former 'Meadow Row' or Elsecar Mill that was present in this area. No evidence of any quarries are apparent, although it appears that some made ground may be within the land that could be associated with an embankment for the adjacent Dearne & Dove, or Elsecar Canal.

Coal Mining Risk Assessment
(based on the above).

Coal Seam / Coal Mining Issue	Risk Assessment (VeryHigh/High/Moderate/Low/VeryLow)
Underground coal mining (at shallow depths)	**Moderate to High**
Mine entries (shafts and adits)	**Moderate to Low**
Geological faulting	**Low**
Geological fissures	**Moderate**
Fugitive gas emissions	**Low to Moderate**
Surface mining (opencast workings)	**Low**
Aggressive ground	**Moderate**
Coal exposed / near foundation level	**Moderate to High**

Defined Risk Assessment
(Where 'Underground Coal Mining' above = Very High to Moderate)

Extent of known underground mining in this/these shallow coal seam/s in the wider vicinity	(Extensive / Much / Occasional / None Known) **Much**
Intrusive Site Investigation of Coal Seam / Mines of Coal (given nature of proposals).	(Required / Recommended / Unnecessary)** **Required**
Advised critical depth beneath foundation level to investigate considering geology and nature of the shallow coal/s*	**15m** **(one hole to 30m if no coal encountered)**

Key:

** The critical depth is calculated according to Ciria Publication 32 guidance which details that for the land to be regarded as stable from any voided mineworkings, then a suitable section of competent rock cover above the workings should be proved that is equal or greater than ten times the 'in-tact' coal seam thickness. The advised critical depth to investigate to in this report takes into account the available geological information, any nearby mining records and may include a contingency for the seam to be of a slightly greater thickness than anticipated. Due care and diligence should be employed on-site to ensure that sound information is gathered of the in-tact seam thickness, particularly if concluding that old workings are outside the critical depth of affecting stability for the proposed development.*

** *Where :*

Required	*Intrusive Site Investigation* ***required*** *of the shallow coal/s and/or mine entries to determine any necessary stabilisation works for the given development.*
Recommended	*Intrusive Site investigation* ***recommended*** *– given a lower level of risk in relation to the nature of proposed development some proposals may reduce the risk to an acceptable level via suitable design considerations.*
Unnecessary	*Intrusive Site Investigation deemed* ***unnecessary*** *– given geological/mining information.*

Coal Authority

Prior written permission from The Coal Authority is required for intrusive activities which will disturb or enter any coal seams, coal mine workings or coal mine entries (shafts and adits). Further information on The Coal Authority's permissions process can be found at: www.coal.gov.uk/services/permissions/index.cfm

Note: permission is not usually required for minimal coal that is encountered in excavations for foundations for example.

Information sources:

- *British Geological Survey Map Sheet ST 67 SW 1955 Edition*
- *British Geological Survey – Geology Of Britain Viewer*
- *Coal Authority Interactive Viewer and Mine Abandonment Plans*
- *Historical Mapping – old-maps.co.uk*

CONCLUSIONS

1) The site can be regarded as stable from the **Deep Coal Mining** perspective, and as no coal fields now remain this position should continue for the foreseeable future.

2) Given the level of risk from the **Shallow Coal Mining** perspective is MODERATE to HIGH, an intrusive investigation would be deemed necessary for the proposed development. Considering the size of the site and depending on the scale of development between 3 and 6 boreholes would be thought adequate to determine the position, unless actual findings show a degree of uncertainty in which case more may be required. The holes should check the depth and nature of Kents Thick coal seam and possibly the Kents Thin coal seam if encountered close to the surface. The annex system chart indicates the recommended procedure for such works. As outlined, if any voids are encountered that calculate to be within an influencing depth beneath likely formation levels then further works may be required to stabilise the land. Conversely, if the seam is either in-tact or too deep then no further works would be recommended. Note: prior permission from the Coal Authority will be required to undertake the investigation.

3) A watching brief should be employed during the future grounds works for any signs of shallow coal and/or any historic spoil associated with historic digging out of former shallow coal – this may require treatment works to stabilise and/or foundations designed accordingly. If coal is encountered it should be removed and blinded off to help prevent spontaneous combustions risks.

4) Although a relatively low risk, any uncharted mine entries encountered should be reported to the Coal Authority (as owners) for their comments on what further operations may be necessary to safeguard the development. Note: prior permission from the Coal Authority would be required to investigate or treat a coal mine entry.

5) Future works and foundation designs may need to consider the possibility and implications of any made ground present on site; in which case boreholes of the site investigation may need extending to some degree to greater depths.

6) Considering the potential for shallow coal, usual safety precautions should be employed regarding possible fugitive gases in any deep excavation work taking place. Mitigation measures, such as a methane membrane and/or positive ventilation, may also be required within foundation designs if any shallow coal workings are determined and/or if any coal is encountered/removed within excavations.

A suitably qualified and competent professional should be employed to use this report to determine the conditions on site, and ultimately advise on what action, if any, is necessary to safeguard the development. It should be noted that any future works to investigate any coal seam or associated mine entries will need the prior consent of the Coal Authority.

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

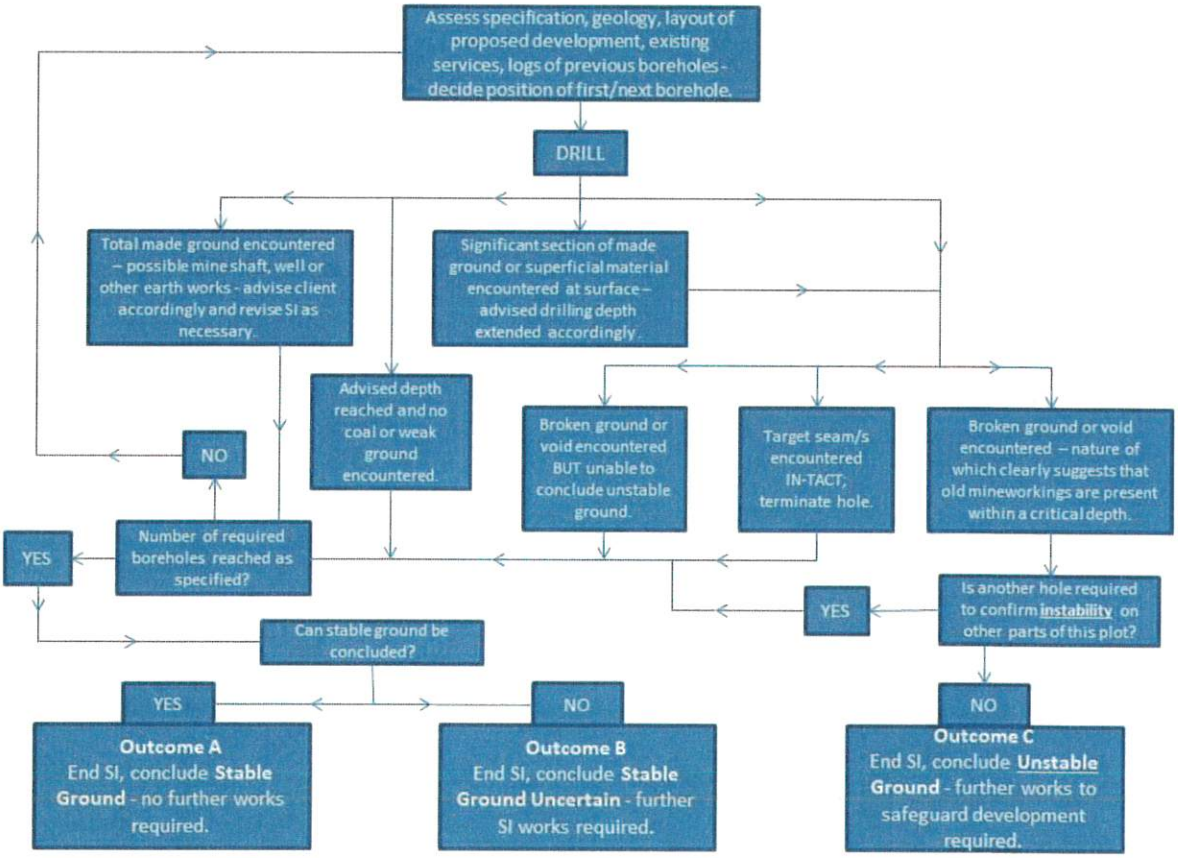
M. Lyons
Consultant Mining Engineer
BSc CSci MIMMM
Enc.

THIS COAL MINING RISK ASSESSMENT 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 decisions based on other information not in my record. If a site investigation is recommended then this risk assessment will be superseded by the factual findings of that investigation. All site investigation work should be carried out by a competent professional from which independent conclusions and recommendations for safe development should be provided. It should be noted that: no operation should be undertaken that intersects, disturbs or interferes with any coal or mines of coal without the permission of the Coal Authority. The investigation of coal seams/former mines of coal may have the potential to generate and/or displace underground gases; these risks both under and adjacent the site should be fully considered in any proposals both for personnel and public safety. Copyright in this CMRA 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.

Annex:

Borehole Site Investigation (SI) Process Guide
(Shallow Underground Coal Workings)

© M.A.Lyons - Jan 2016



Plan No. 00218.A
CMRA – Land At Unit 3, Wath Road, Elsecar, BARNSLEY S74 8HJ.

Scale – 1 : 1250 (image @A4)

