

Mrs Marian Sarkar
195 Barnsley Road
Platts Common
Barnsley
S74 0QT

LYONS CMC
COAL MINING & GEOTECHNICAL
CONSULTANCY
Web: www.lyonscmc.co.uk
Email: mark@lyonscmc.co.uk
Mob: 07887555580

Date: 16th April 2018
Your ref: (S74 0QT).
My Ref: CMRA 00199

FOR THE ATTENTION OF MARIAN SARKAR

Dear Madam,

COAL MINING RISK ASSESSMENT (CMRA) - FOR PROPOSED RESIDENTIAL DEVELOPMENT AT 195 BARNSELEY ROAD, PLATTS COMMON, BARNSELEY S74 0QT.

Introduction

Outline planning permission is being sought for the development of a detached dwelling at the above named site, the location of which can be seen on the attached plan No. 00199.A. 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 planning application to Barnsley Local Authority.

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 (SE 30 SE)

Surface Geology (inc. any superficial deposits)

Records indicate the site to be located on the Abdy Rock Sandstone of the Middle Coal Measure series from the Carboniferous formation. No superficial deposits are indicated in the vicinity and therefore depth to bedrock is uncertain. The sandstone bedrock may contain natural fissures that may have been opened out by the past deep mining operations as detailed below.

Coal Seam Outcrops

According to the latest geological information, the conjectured outcrop of the 'Abdy' coal seam (also known as the 'Winter' coal seam) is conjectured to outcrop some 80m to the west of the site as indicated on plan. According to nearby abandoned mine records (as detailed below) this coal is known to be around 800mm in thickness in these parts.

The strata is anticipated to dip to the east at around 1 in 10 (6°), therefore if the conjectured outcrop position of the Abdy coal seam is accurate, and considering the lay of the land it is likely to be at around 8 to 10 meters deep beneath the site itself.

Made Ground

No areas of made ground are indicated in the vicinity of the site and according to available historical information no indications of any past mining or quarrying is shown within the site, although more recent opencast coal operations are known close to the east as detailed below.

Fault Planes or Fissures

A geological fault is conjectured to pass through the north-eastern part of the site, trending in a north-west to south-easterly direction. This fault throws the strata down to the north-east.

Abandoned Mines Records

Opencast Coal Workings.

The Woodhead Lane Opencast site worked the Meltonfield Coal Seam beneath the land to the east of the site. The operations did not extend to within the boundary therefore little implications from this would be anticipated for the proposals.

Underground Coal Workings - Deep

Deep coal mining has taken place beneath this location in various coal seams, the latest being in the Low Fenton coal seam at around 370m deep in 1970 from the former Hoyland Silkstone Colliery. All associated settlement will be long complete and as no coalfields now exist, the site should remain stable from the deep coal mining subsidence aspect for the foreseeable future.

Underground Coal Workings - Shallow

There are no known shallow workings of the Abdy coal seam beneath the site, but considering it has been worked quite widely in the past in the surrounding vicinity there will be some potential for more historic, unrecorded workings being present. In such a case, any old mining voids that remain could migrate to the surface and compromise surface stability. According to nearby shaft section details no other workable coal seams are anticipated to be within an influencing distance below the Abdy coal seam.

The closest information of underground workings in the Abdy coal seam are the Blacker Common Opencast Workings some 600m NNW of the site.

In line with current guidelines for development over potential shallow coal workings (CIRLA Special Publication 32), a general rule of thumb of ten times the seam thickness of competent strata between the top of the seam and the base of development foundations is required to conclude sound stability whether the coal is worked or otherwise. In this instance it is possible that there is enough cover above the Abdy seam for the site to be considered as stable should there be any historic mining voids.

Mine Entries

No mine entries are known on the site itself or within 20m of the boundary. A slight potential will exist however for mine entries of which there are no records considering the likely presence of relatively shallow workable coal.

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 the shallow workable coal and considering the potentially fissured/faulted sandstone bedrock.

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
Mine entries (shafts and adits)	Moderate
Geological faulting	Moderate to High
Geological fissures	Moderate to High
Fugitive gas emissions	Moderate
Surface mining (opencast workings)	Moderate to Low
Aggressive ground	Low
Coal exposed / near foundation level	Low

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

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*	10m

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	<i>Intrusive Site Investigation required of the shallow coal/s and/or mine entries to determine any necessary stabilisation works for the given development.</i>
Recommended	<i>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.</i>
Unnecessary	<i>Intrusive Site Investigation deemed unnecessary – given geological/mining information.</i>

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 ‘incidental’ 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 a limited borehole site investigation should be undertake to check whether the Abdy seam is firstly within critical depth of affect surface stability, and if so to determine any possible old workings that may compromise proposed foundations.

As with all such operations, the investigation will evolve depending on the findings of each borehole taking place. The attached 'Recommended Site Investigation Process' illustrates a competent procedure. Given the nature of the proposals, between 2 and 5 boreholes would be thought appropriate to ultimately determine the position. The first two holes should be sunk on the western side of the proposed development where the coal is most likely to be encountered, and if discovered within critical depth then a further 2 holes on each corner of the proposed footprint and one within would be prudent to lessen the likelihood of drilling through coal pillars rather than mining voids. If no coal is encountered then just the two holes to 10m (below expected foundation base level) would be necessary.

3. To facilitate any future site investigations of shallow coal a permit from the Coal Authority should first be obtained to intersect/disturb their interests.
4. The nature of bedrock should be investigated for any signs of geological faulting or fissuring. Treatment works and/or suitably strengthened foundations may be required.
5. A watching brief should be employed during any future grounds works for any signs of unrecorded mine entries. A site scrape or trenching to natural ground is the most effective procedure to check for such features; the Coal Authority (as owners) should be notified immediately if any are suspected.
6. Considering the anticipated shallow workable coal and potentially faulted or fissured sandstone bedrock all usual safety precautions should be employed regarding possible fugitive gases in any deep excavation work taking place. Mitigation measures may also be required within foundation design, such as a methane membrane.

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.

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

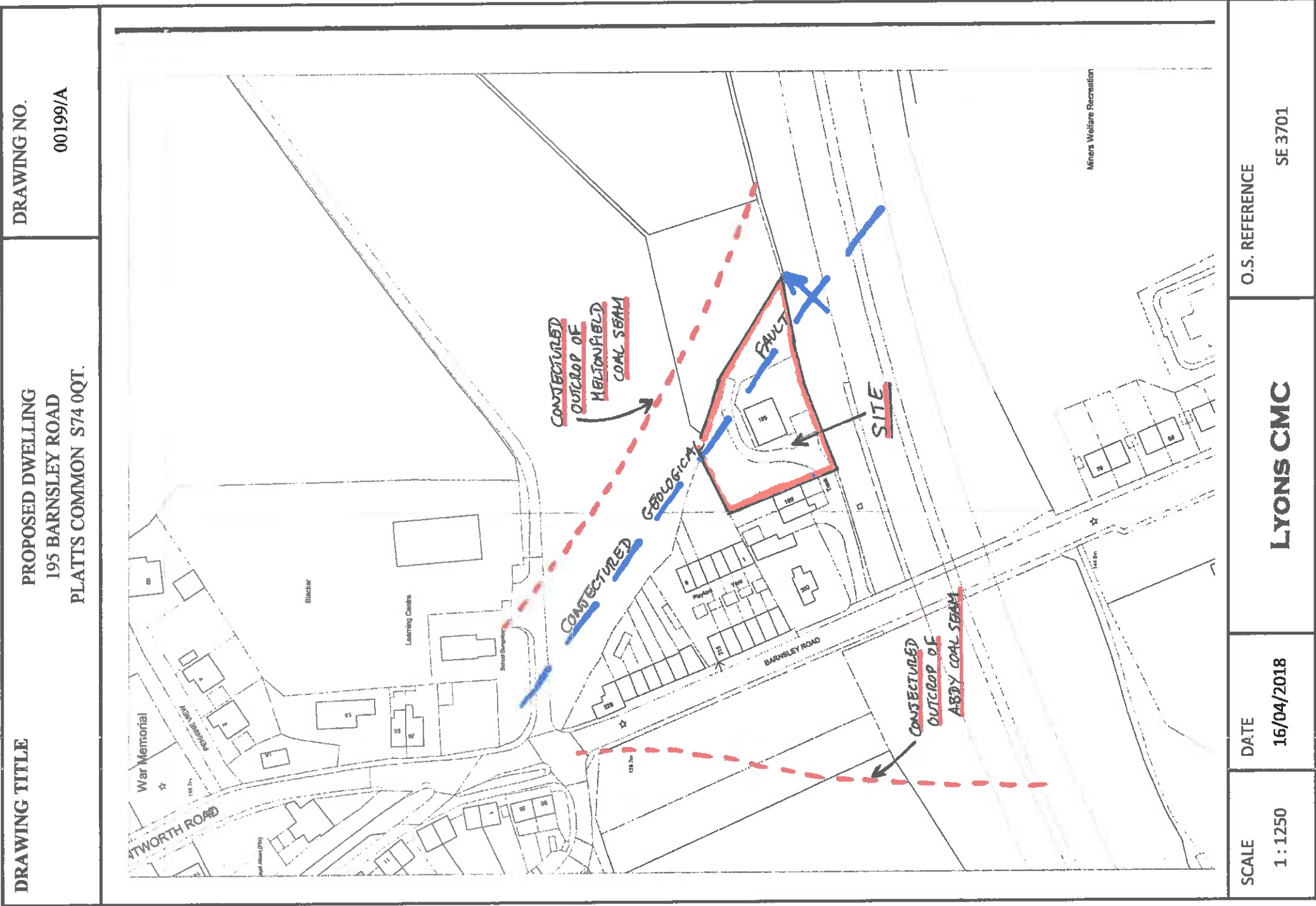
Yours Sincerely,

M Lyons

M. Lyons
Consultant Mining Engineer
BSc CS&I 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.



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

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