

COAL MINING RISK ASSESSMENT (CMRA) - FOR PROPOSED DEVELOPMENT AT 71 PILLEY GREEN, PILLEY, BARNESLEY S75 3AB

Introduction

Planning permission is being sought for a substitute dwelling at the above named site, the location of which can be seen on the attached plan No. 00275/A in Appendix 1. The site is centred around national grid reference E: 433551 / N: 400431. 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 MBC 2023/0168

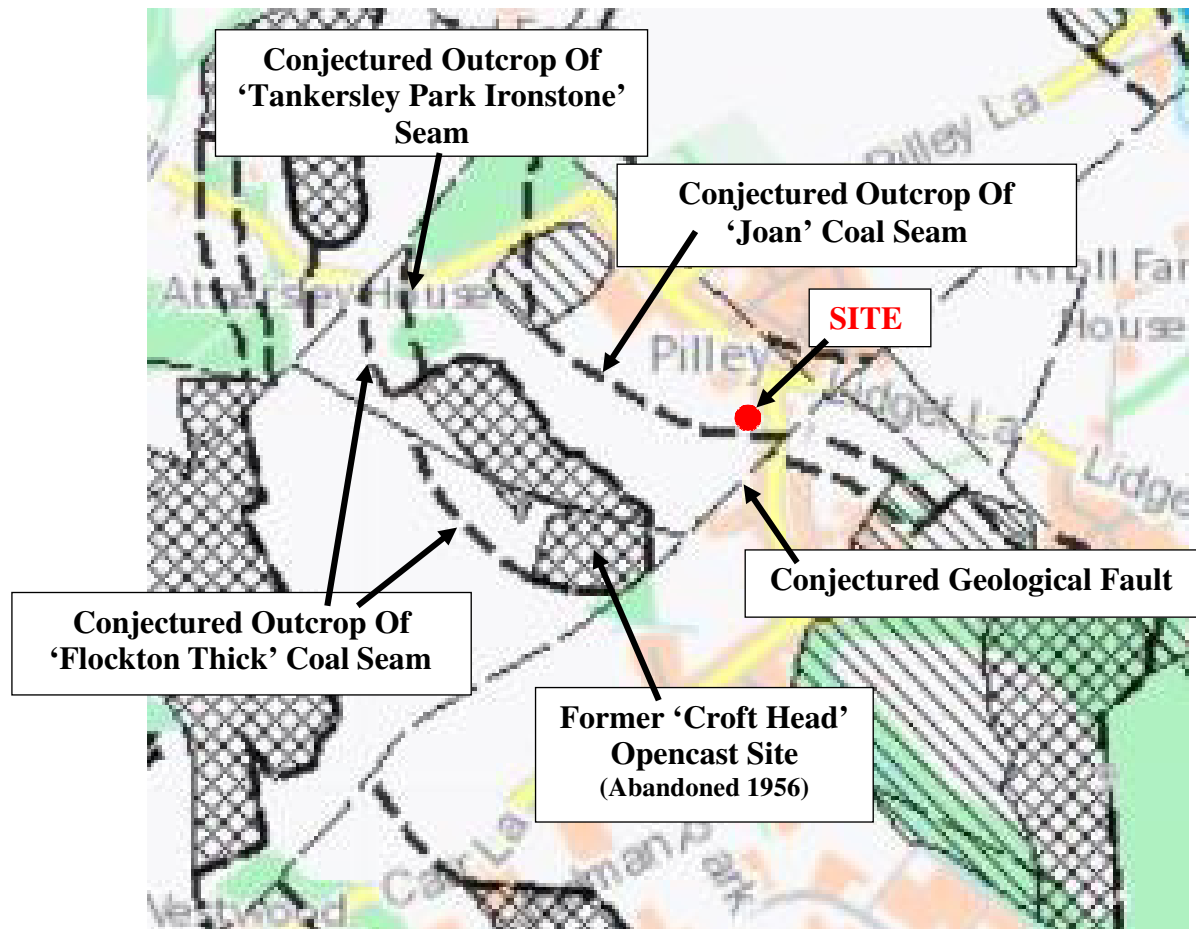
Scope of the Coal Mining Risk Assessment

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.

Surface Geology (inc. any superficial deposits)

Records indicate the site to be located on sandstones, shales and mudstones of the Middle Coal Measure series from the Carboniferous formation. No superficial deposits are indicated in the vicinity of the site itself. Strata will dip beneath the land to the ENE in this vicinity at a steady rate of around 1 in 12 (5°). A summary of the surface geology is illustrated on the image below which is an extract from the BGS Onshore Interactive Viewer:



Fault Planes or Fissures

A geological fault is conjectured to the south-east, although this is shown to be over 70m away from the proposed site of the dwelling development. Although no fissuring of sandstone bedrock is known in the vicinity, the likelihood of natural fissures that could have been opened out by the past deep coal mining in the area should not be precluded.

Coal Seam Outcrops

As outlined on the extract image above from the BGS Onshore Interactive Viewer, the 'Joan' coal seam (of around 500mm thickness) is conjectured to outcrop in the south/southwestern extremity of the site. At the current development position, the proposed dwelling is around 60m away from the conjectured outcrop and given the lay of the land (around 5m in gained height from the coal outcrop position) this would make for the Joan coal to be estimated at over 10m deep.

The outcrop position of the 'Tankersley Park Ironstone' seam and 'Flockton Thick' coal seam is shown over 270m away to the south-west as indicated. The Tankersley Park Ironstone will lie at over 25m deep beneath the site, with the Flockton Thick seam over 30m deep

Made Ground

No made ground is indicated beneath the site.

Opencast Coal Workings.

No opencast coal operations are known within the site itself. The former 'Croft Head' opencast is located over 150m away to the south-west, as illustrated on the above image. This site worked the Tankersley Park Ironstone and Flockton coal seam until 1956 when the operations were abandoned. These operations proved the Flockton coal as 1.76m in thickness (but which included two dirt bands of 200mm and 450mm).

The former 'Rockley 1 & 2' opencast site (abandoned in 1953) worked the Joan coal seam some 1km away to the NNW of the site. These operations proved the Joan coal seam as 500mm in thickness at that location.

Underground Coal Workings - Deep

Deep coal mining (over 50m deep) has taken place beneath the site in various coal seams, all settlement from which will be long complete. As no coalfields now exist, the site should remain stable from the deep coal mining perspective for the foreseeable future.

Underground Coal Workings - Shallow

No known shallow workings are recorded in the Joan coal seam in this vicinity. Such workings are not well known in the area as a whole due to its limited thickness. Also, given the anticipated depth it is very likely that the seam is too deep for any uncharted workings to cause a stability issue in any case (i.e more than 10 times the seam thickness of natural strata beneath formation level); provided that depth to bedrock/formation level is not substantial.

No known workings are shown beneath the site in the Tankersley Park Ironstone seam, anticipated to lie beneath the site at over 25m deep. Any old historic workings of this would be anticipated as 'bell pit' style workings, which are quite well known in the wider area as a whole.

No underground workings are known in the Flockton Thick coal seam beneath the site and any illicit workings would be considered to be too deep to affect stability in any case.

Mine Entries

No mine entries are known within 20m of the site itself. A slight potential will exist however for old historic 'bell pit' shafts being encountered which there are no records - considering the relatively shallow ironstone seam. Grey circular areas of fill material within bedrock/natural ground would be an indication of such.

Fugitive Gases

As far as we are aware, no evidence of coal mining related fugitive gas emissions are known within 250m of the site. Given the information the likelihood of such risks would be considered as low, unless any old mine entries are present to create a credible pathway.

Historical Records

According to the historical records, no nearby indications of any mining or quarrying activities are noted within the site itself.

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

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) N/A
Intrusive Site Investigation of Coal Seam / Mines of Coal (given nature of proposals).	(Required / Recommended / Unnecessary)** N/A
Advised critical depth beneath foundation level to investigate considering geology and nature of the shallow coal/s*	N/A

Key:

* *The critical depth is calculated according to Ciria C758D 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 :*

<i>Required</i>	<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>
<i>Recommended</i>	<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>
<i>Unnecessary</i>	<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

Information sources:

- *British Geological Survey Map Sheet SE 30 SW 1980 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 **Shallow Coal Mining** position (relatively low risk) combined with nature/scale of development (single level non-residential/stable), no intrusive mining investigation would be thought necessary – providing depth to bedrock/formation level is not excessive (over 3m). Usual foundations could therefore be considered; taking into account however the following conclusions.
- 3) The possibility of old 'bell pit' shafts being present however would be a more tangible risk. It would be recommended therefore that the footprint of the proposed development area (and just outside) should be 'scraped' of surface soils and any made ground to expose natural ground in order to discount the presence of such a feature. The general rule of thumb for stability is that no building or structure should be sited within 45° from where the shaft side intersects rockhead. If such a feature is encountered then the Coal Authority should be first consulted (although they may not be liable should it be purely related to ironstone).
- 4) A watching brief should be employed during future grounds works for any signs of fissured sandstone bedrock that may require treatment/stabilisation works prior to the installation of foundations.

- 5) Mitigation measures are unlikely to be required with regard to fugitive mine gases; unless a mine shaft is encountered in which case further considerations, investigations and/or monitoring would be recommended.

Note: should there be any uncertainty of actual conditions during future ground works Lyons CMC or indeed the Coal Authority themselves can be further consulted for on site assessment if necessary.

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, mines of coal or associated mine entries will need the prior consent of the Coal Authority via their permitting procedure.

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 C758D "Abandoned mine workings manual." 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.

Appendix 1 – Location Plan No. 00275/A

(Not To Scale)

Site centred at O.S. 433551 / 400431

