



The Coal
Authority

Minor Development Risk Report

For development land at:

Ball Green Farm, Gorseley Bank, Norton, Stoke on Trent, ST6 8AR

For proposal:

Detached agricultural building

Assessment Summary

Assessment Result	LOW RISK
Recommended Further Work	ADVISORY GAS RISK ASSESSMENT

The Coal Authority works to resolve the impacts of mining by growing its expertise, innovation, organisational capability and efficiency.

It manages the effects of past coal mining, including subsidence damage claims which are not the responsibility of licensed coal mine operators and is an executive non-departmental public body, sponsored by the Department of Business, Energy and Industrial Strategy. This report is valid for 90 days.

Limit of liability

This report is provided for the applicant and is in respect of the property identified on its face. Any conclusions or recommendations made are those based on information obtained for the report and our current knowledge and practices. The information and data set out in this report is based on information provided by or obtained from third parties which is held by the Coal Authority. Any limitations of the data are identified within the report. The Coal Authority does not accept liability for the accuracy of third party data. Should new data or information become available these results, conclusions and recommendations may require amending. The Authority is not and cannot be liable for any harm, loss or damage of whatever nature, including consequential loss, occasioned to any third party by the inaccuracy of the information set out in this report and any person seeking to rely upon it should if necessary undertake their own investigations and professional advice. The report should only be used in the stated context.

Copyright

Copyright in materials supplied is owned by the Coal Authority. You may not copy or adapt this publication, or provide it to a third party, without first obtaining the Coal Authority's permission © The Coal Authority 2017. All rights reserved.

Maps and diagrams that use topography based on Ordnance Survey mapping contains Ordnance Survey data © Crown copyright and database right 2011.

Any advice provided in this report does not prejudice our position as a statutory consultee.

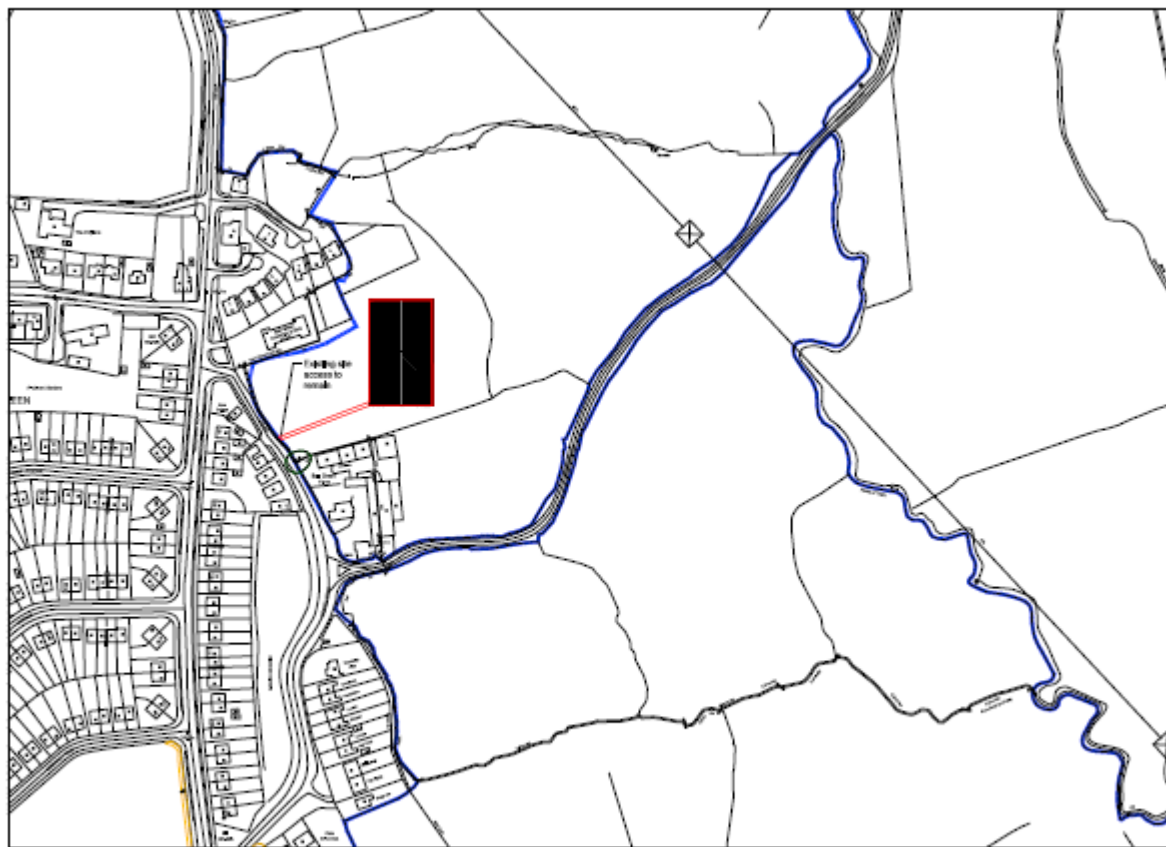
Version	Compiled	Checked	Date
1.1	SW	JW	6/3/18

Section 1 – Description of site and proposed development

a) Site location and Description

The Coal Authority has been commissioned to prepare a Coal Mining Risk Assessment Report for a proposed development on land at Ball Green Farm, Norton (see Figure 1), in order to provide the Local Planning Authority with information on coal mining and an assessment of its impact on land stability.

The approximate site centre co-ordinates are 389295E 352800N. The proposed development area requires access via Gorsey Bank. Site topography slopes downwards to the east with the site elevation between 180-175m AOD.



SITE LOCATION PLAN
SCALE 1:1250

Figure 1. Site location plan.

b) Description and layout of proposed development

The Coal Authority understands that the developer plans to construct a detached agricultural building (see Appendix A).

c) Scope of 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 necessary remedial works and/or demonstrate how coal mining issues have influenced the proposed development.
- 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.

Any works that intersect coal mine workings, mine entries or coal seams may have implications for mine gas, spontaneous combustion and surface collapse. Coal Authority permission is required prior to any such works taking place. Further detailed advice can be provided upon request.

The Coal Authority's adopted policies regarding building over or close to mine entries and managing gas risks can be viewed at:

www.gov.uk/government/publications/building-on-or-within-the-influencing-distance-of-mine-entries

www.gov.uk/government/publications/guidance-on-managing-the-risk-of-hazardous-gases

Section 2 – Sources of information used to inform this report

Source reviewed	Yes	No	Remarks
Coal mining report	X		Non-Residential Coal Mining Consultants Report (see Appendix B)
Other mining records	X		Abandonment plans – WM154/215/743/178/900 & 16988/89/85
Historic OS plans		X	
Geological plans	X		OS geological sheets SJ85SE – 1955 & 1976
BGS Boreholes	X		SJ85SE1237-39; SJ85SE1382 Laura pit
Other	X		BGS geology viewer

The above information sources have been used to provide an assessment of the potential mining risk within the remainder of the report.

Section 3 – Identification and assessment of site specific coal mining related risks

The Coal Authority's search of its detailed coal mining information identifies the following site specific coal mining legacy risks to the site.

Coal mining issue	Yes	No	Risk assessment	
			Rating	Comment
a) Underground coal mining (recorded at shallow depths)		X	Low risk	None recorded
b) Underground coal mining (probable at shallow depths)	X		Low risk	Sufficient cover over probable shallow mine workings
c) Mine entries (shafts and adits)		X	Low risk	None recorded
d) Coal mining geology (faults and fissures)		X	Low risk	None recorded
e) Record of past mine gas emissions or potential	X		Low risk	All mine workings pose a potential gas risk which should be considered in any future investigations and development.
f) Recorded coal mining surface hazard		X	Low risk	None recorded
g) Surface mining (opencast workings)		X	Low risk	None recorded

A desk based study of the coal mining information has been used to risk assess the coal mining features above. A summary of the risk posed by these features is summarised after analysis of the information sources by an experienced Coal Authority Mining Engineer. Comment on each specific coal mining issue follows below:

a) Underground Coal Mining (recorded at shallow depths)

Coal mining at depths shallower than 30m beneath ground level can typically pose challenges to ground stability at the surface. The magnitude of this effect depends upon the exact depth of any workings, the thickness of competent rock cover and the extraction thickness of any coal mine workings.

The Coal Authority Coal Mining Consultant's Report in Appendix B shows that the development site is not in an area of recorded shallow coal mine workings.

Workings in deeper seams are not recorded beneath the site.

b) Underground coal mining (probable at shallow depths)

Areas of probable shallow coal mine workings have been identified as part of the Development High Risk Area for which no recorded plan exists, but where it is likely that workable coal at shallow depths has been mined before records were kept. The data has been estimated from available mining records by qualified mining surveyors. Since 1872 there has been a law that requires all coal mine operators to deposit working plans of the mine with the government following the cessation of operations; however, prior to this date the plans were often destroyed or kept in private ownership.

The Coal Authority Coal Mining Consultant's Report in Appendix B shows that the development site is in an area of probable shallow coal mine workings. It also reports a coal seam outcrop 26m to the north east of the development site boundary with a -5m change in elevation.

Examination of the local OS Geological Plan SJ85SE shows that this seam is the Banbury seam (aka Seven Feet Banbury seam). A conjectured outcrop strikes north west to south east dipping at a rate of 25 degrees to the south west underneath the development site. The seam is at its shallowest to the north eastern corner of the development site. The OS Geological Plan shows that this seam is between 1.2-2.1m thick. Examination of BGS borehole SJ85SE1382 800m to the NW shows the seam is comprised of two leaves separated by a thin dirt band, with a total seam thickness of approximately 2.1m. Furthermore, the borehole records that the seam is overlain by a significant thickness of strong grey sandstone, the Banbury rock. Using the information above it can be determined that 17m of competent cover to rock head would exist over the seam to the shallowest part of the development site. Abandonment plans from workings in this seam to the north show that the extraction thickness locally in the Banbury seam is 1.5m. It is considered that there is sufficient cover to ensure ground stability at the site. Examination of the relevant abandonment plans shows no recorded workings beneath the development site.

After a review of the available evidence it is considered that former mine workings beneath the site are considered possible rather than probable.

Where the extraction of coal has occurred there is the potential for voids to remain long after mining has ceased. The depth of workings generally dictates the length of time that significant voids may remain, but other factors including the size of mine roof supports and competency of overlying strata can influence the time for natural consolidation to occur. Waste material produced during mining was sometimes used to backfill abandoned sections of mine workings, therefore reducing the volume of open

cavities or voids that remain. The method of backfilling workings is typically not recorded and cannot be relied upon as a satisfactory form of remediation.

c) Mine entries (shafts and adits)

The Coal Authority Coal Mining Consultant's Report in Appendix B shows no mine entries are recorded within 100m of the development site. The development site sits within a historical mining area and therefore there is a residual risk of unrecorded mine entries to be present on site. All site operatives should be made aware of this potential risk and a watching brief should be maintained during site works.

d) Coal mining geology (Faults and fissures)

The development site sits upon the Pennine Middle coal measures, consisting of coal, sandstones, siltstones and mudstones. Surficial deposits consist of made ground and thin clays shown in BGS boreholes SJ85SE1237-39, 250m to the northwest, with a typical thickness of 1-4m in the local area.

No faults, fissures or break lines are recorded beneath the site.

No seams mentioned in this report are known to be prone to spontaneous combustion.

e) Record of past mine gas emissions or potential

There are no recorded past gas emissions recorded in the surrounding area, however disturbed coal seams and coal mine workings pose a potential gas risk which should be considered in any future investigations and development. At development sites with shallow coal workings, probable shallow coal mine workings, or pathway features such as mine entries and geological disturbances on or nearby the site, the Coal Authority recommends that a more detailed gas risk assessment to be undertaken in accordance with relevant guidance.

f) Recorded coal mining surface hazard

None recorded.

g) Surface mining (opencast workings)

None recorded.

Section 4 – Proposed mitigation strategy

a) **Site investigation and/or remediation**

After a thorough desk based review of the available evidence, it has been identified that although probable shallow mine workings exist beneath the site, sufficient cover exists so that they should not affect ground stability. Accordingly, an intrusive site investigation will not be required.

Due to the difficulties in identifying coal related gas hazards, it may be prudent to undertake a gas risk assessment. This may identify the need for basic gas protection measures within the foundation design, which are resistant to permanent gases (carbon dioxide, methane, carbon monoxide) and comparable to that suggested in BR211, as commonly used to protect against radon in residential properties.

Although it is unlikely that coal will be encountered at the site, should coal seams be found, at or near the depth of the development's foundations, they may pose a risk of spontaneous combustion if exposed to air or may act as pathways for ground gases to reach the development. A competent engineer should be consulted if coal is encountered in, or adjacent to, the foundations of the proposed development.

Concrete, cements and renders may be susceptible to attack from elevated levels of Sulfates in the ground. The Building Research Establishment reports that most cases of Sulfate attack occur in and adjacent to coal field areas and related industrial centres. It would be prudent for the issue of Sulfate attack to be considered during the foundation design to ensure they comply with the Building Regulations 2010.

You may also wish to refer to the Construction Industry Research and Information Association (CIRIA) publication Special Publication 32 "Construction over Abandoned Mine Workings".

Section 5 – Conclusions

This report has identified that the site may be subject to probable underground mine workings, however, sufficient cover exists beneath the site that they should not affect ground stability. The risk to the site from legacy mining features is low. The Coal Authority considers that the site may be made safe and stable for future development.

The recorded coal mining legacy issues present within the site do not pose any particular implications for the layout of the proposed development.

Section 6 – Contacts

Site Investigation and Remediation Services for Developers

Tel: 0345 7626848

To get advice on cost and design solutions for development.

Planning and Local Authority Liaison Service

Tel: 01623 637 119

Email: planningconsultation@coal.gov.uk

Website: www.gov.uk/planning-applications-coal-mining-risk-assessments

Surface Hazards Emergency Service

Tel: 01623 646 333 (open 24 hours a day, 7 days a week)

24-hour number for reporting public safety hazards and incidents associated with coal mining

Mining Reports Service

To purchase site specific coal mining information go to our website;

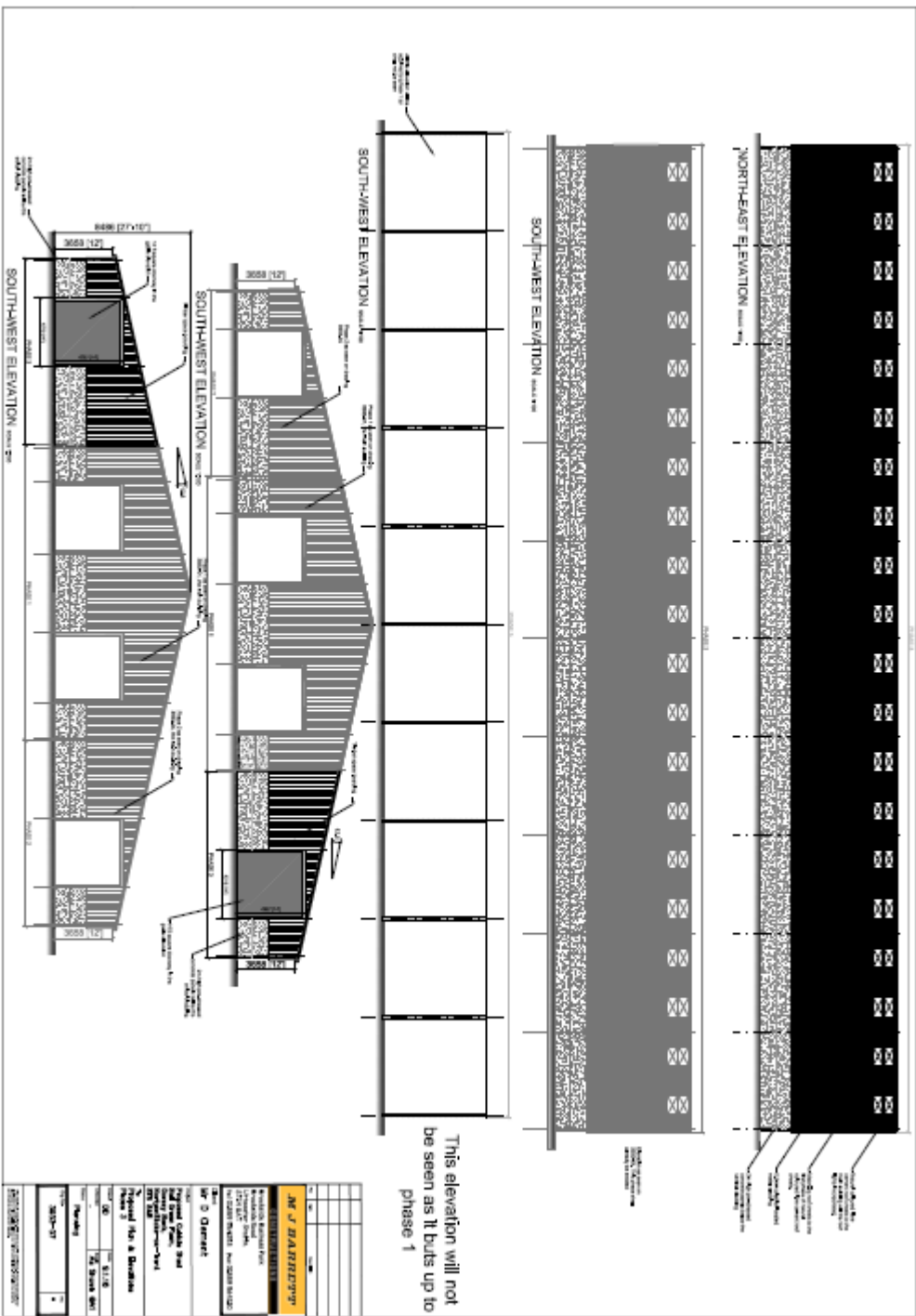
www.groundstability.com

Licensing and Permitting Service

Email: permissions@coal.gov.uk

Tel: 01623 637 320

For permission to enter or disturb coal mine entries and coal seams.



This elevation will not be seen as it butts up to phase 1

M. J. BARRETT	
ARCHITECT	
1000 W. 10th Street, Suite 100	
Portland, Oregon 97204	
Tel: 503.222.1111	
Fax: 503.222.1112	
www.mjbarrett.com	
Project: Central Station	
Phase: Phase 1	
Drawing: Architectural Elevation	
Date: 10/15/2010	
Scale: 1/8" = 1'-0"	
Sheet: AE-101	
Total Sheets: 101	

Appendix B – Non-Residential Coal Mining Consultants Report