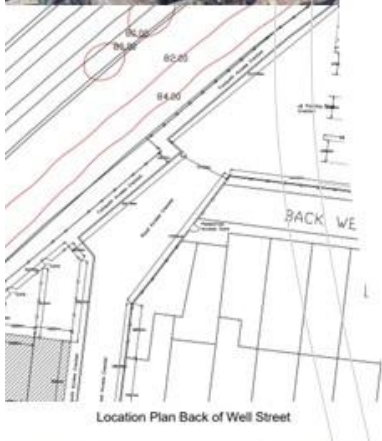




EARTH ENVIRONMENTAL
& GEOTECHNICAL

Coal Mining Risk Assessment

Back of Wells Street

Bury

February 2023

On behalf of

Lorraine Howarth

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COAL MINING RISK ASSESSMENT

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Report No. A5346/23/CMRA/V1

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Client:	Lorraine Howarth	
Issue Date:	28th February 2023	
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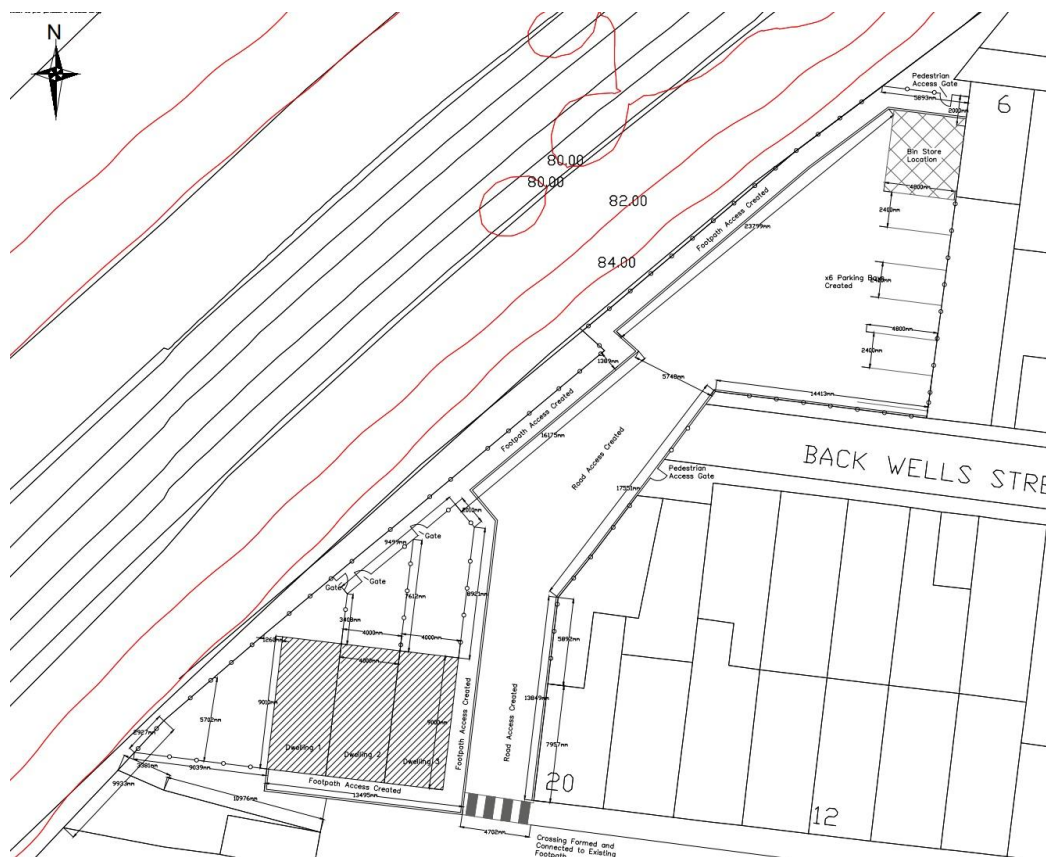
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1.0 INTRODUCTION

Appointment

- 1.1 Earth Environmental & Geotechnical Ltd have been commissioned by Lorraine Howarth (the Client), to undertake a Coal Mining Risk Assessment for a proposed new residential development.
- 1.2 It is understood that the Client wishes to develop vacant land to the rear of Back Wells Street, Bury.

Figure 1 Development Layout Plan



- 1.3 Vehicle access will be gained from Wells Street to the south of the site.
- 1.4 This Coal Mining Risk Assessment is required to accompany an outline planning application (68809) to Bury Metropolitan Council.

Scope of Work

- 1.5 Present a desk-based review of available information on the coal mining issues which are relevant to the site.
- 1.6 Use that information to identify and assess the risks to the proposed development from the coal mining legacy, including the cumulative impact of issues.

- 1.7 Set out appropriate mitigation measures to address the coal mining legacy issues affecting the site, including necessary remedial works and/or demonstrate how coal mining issues have influenced the proposed development.
- 1.8 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.
- 1.9 This report has been drafted in accordance with the Coal Authority (CA) Guidance Risk Based Approach to Development Management, Version 4, 2017.

Sources of Information

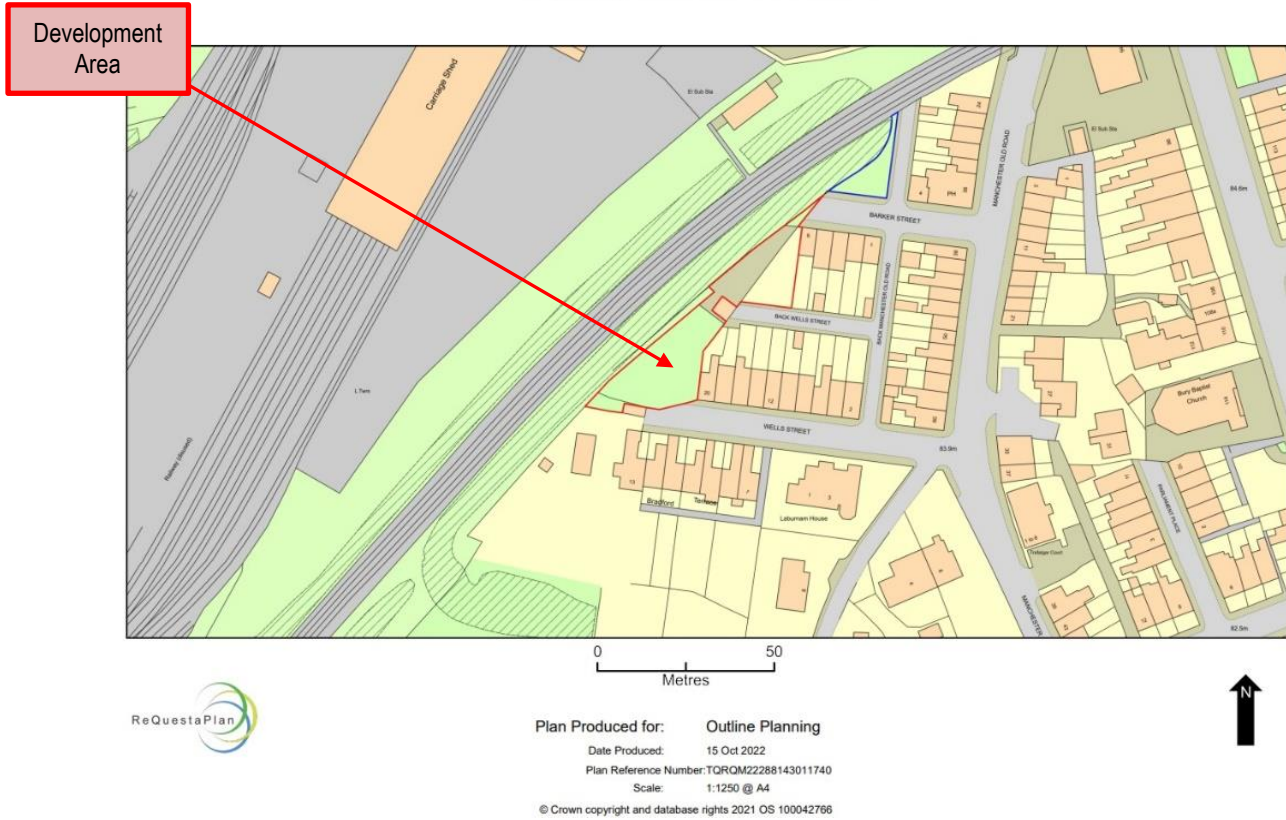
- 1.10 The Coal Mining Risk Assessment compiles a review of the following information sources:
- British Geological Survey of England, Sheet 85, Manchester, 1/50,000, 2010 edition.
 - British Geological Survey of England, SD81SW, 1/10,000, 2003 edition.
 - Coal Authority Interactive Map Viewer.
 - Coal Authority Mining Report.
 - British Geological Survey online borehole records.
 - Google Earth imagery.
 - Online Historical Ordnance Survey maps.
 - Site Investigations in Areas of Mining Subsidence, FG Bell, 1975.
 - The threat of abandoned mines on the stability of urban areas, Barry Clarke, IAEG2006 Paper Number 379, The Geological Society of London, 2006.
 - The collapse of shallow coal mine workings, Durham theses, Durham University, Garrard, 1981.
 - Construction over abandoned mineworking's, CIRIA Special Publication 32, 2002.
 - Abandoned Mineworking's Manual, CIRIA 2019.
 - Bury Metropolitan Council planning portal.

2.0 SITE LOCATION AND DESCRIPTION

- 2.1 The site is located in Bury approximately 900m south of Bury town centre. The approximate National Grid Reference for the centre of the site is SD80022 10068 with the closest postcode being BL9 0TX.
- 2.2 The application site is an existing piece of land currently not in use for any purpose situated within a residential area to the west of Wells Street, Back Wells Street and in Bury, as shown on in Figure 2 overleaf.
- 2.3 The land has been vacant/unused for more than 15 years.
- 2.4 The site is of irregular shape and totals approximately 1,111 sq m (0.3 acres). The proposed development would introduce a new access road formed off the western end of Wells Street. A new public footpath would be formed, connecting the properties with foot traffic and waste disposal access to Back Wells Street and Barker street.
- 2.5 The site is located in Bury and it is subdivided in 3 no. triangular shaped parcels having several access points from Wells Street, Black Wells Street, Barker Street and Back Manchester Old Road.
- 2.6 The site has been unused for a number of years, and it is mostly inaccessible due to dense vegetation.
- 2.7 During a walkover survey in October 2022 there were rubbish bags, an old bench, and plant pots, and other equipment from old greenhouses that used to be on-site.
- 2.8 There was a derelict garage at the end of Black Wells Street, which approximately marks the boundary between parcels 1 and 2. Boundaries are made of a combination of chain link and mesh security fence, and wooden panels.
- 2.9 The site is bounded by a tramway line along the northwest, and residential properties and streets to the south and east.
- 2.10 The site is gently sloping towards the southwest with an approximate mean elevation of 86m.
- 2.11 Land use in the surrounding area is mixed residential and light industrial.

Figure 2 Site Location Plan

Location Plan Back of Well Street



3.0 ASSESSMENT OF DATA

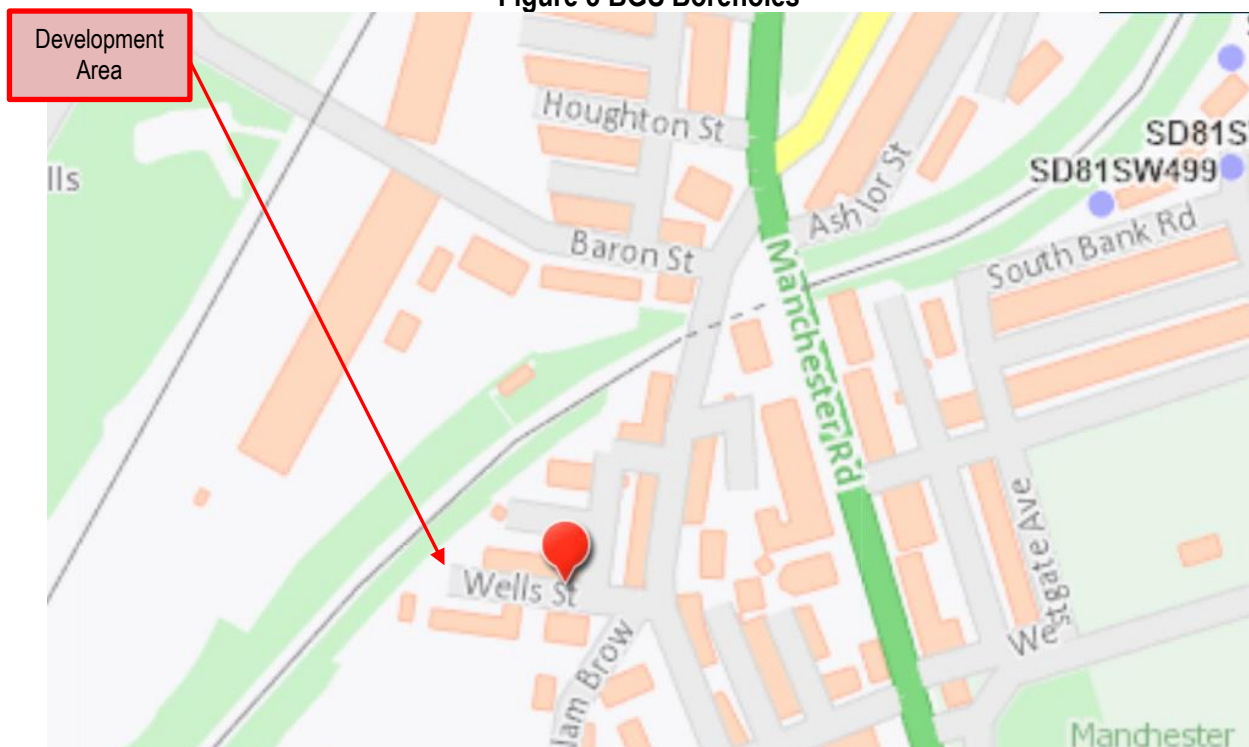
Geological Information

- 3.1 The geology of the site has been determined from geological maps for the area and examination of Coal Authority (CA) records.

British Geological Survey Published Data Assessment

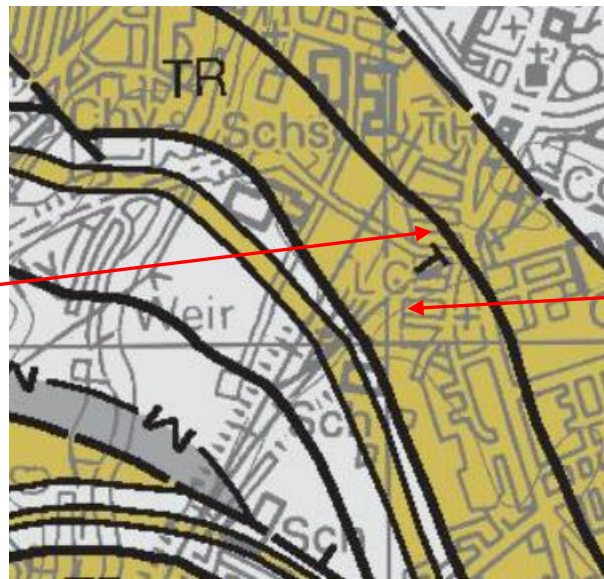
- 3.2 The site is underlain by superficial deposits of Devensian Glaciofluvial deposits consisting of sand and gravel.
- 3.3 The solid geology beneath the site is shown to be the Trencherbone Rock sandstone of the Pennine Lower Coal Measures Formation. The formation mainly consists of interbedded grey mudstone, siltstone, and pale grey sandstone, commonly with mudstones containing marine fossils in the lower part, and more numerous and thicker coal seams in the upper part.
- 3.4 There are limited BGS borehole records (Figure 3) that allow for further assessment of the local geology or shallow coal mining regime. The nearest borehole SD81SW499 reveals sandstone at 4.75m to the base of the borehole at 5m.

Figure 3 BGS Boreholes



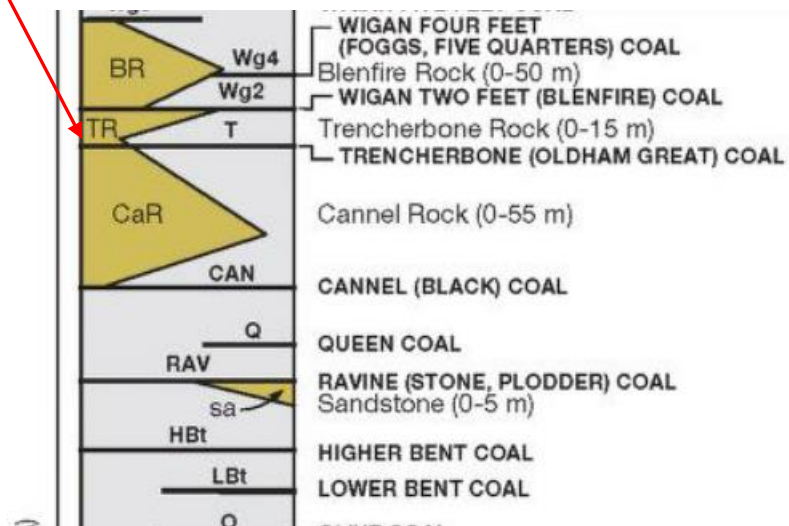
- 3.5 An extract from the most recently published geological map (1:50,000) showing the approximate site location and key local geological features are presented in Figure 4.
- 3.6 The Trencherbone (Oldham Great) coal seam is inferred to outcrop to the north east of the site.
- 3.7 The regional dip of the area is to the south west.

Figure 4 Geology Map Extract



Trencherbone
coal seam
outcrop

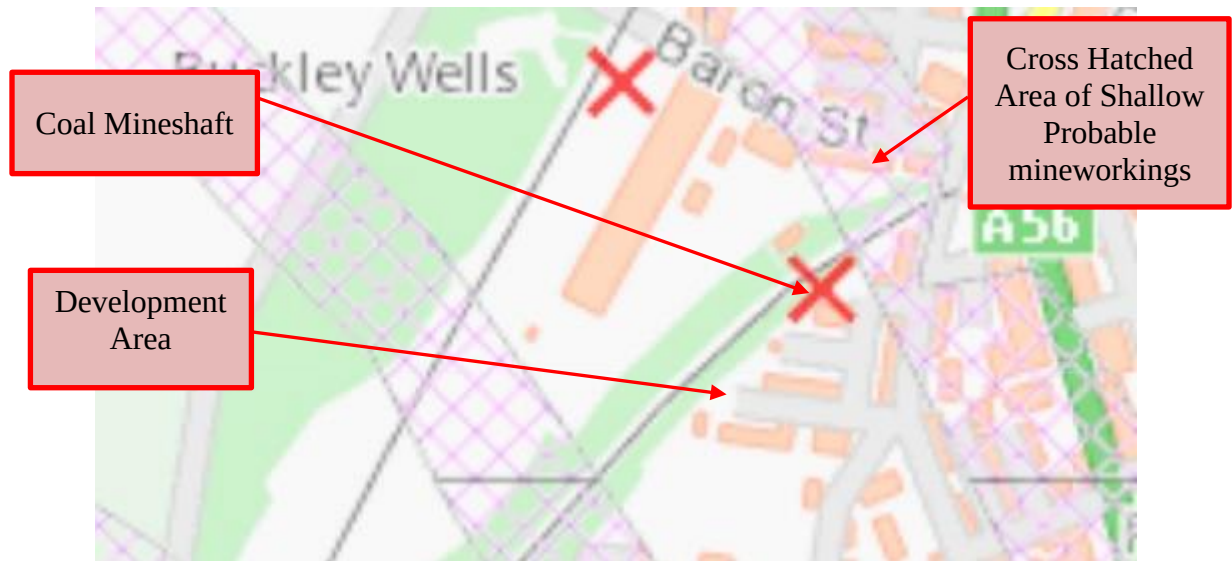
Site Area



Coal Authority Records

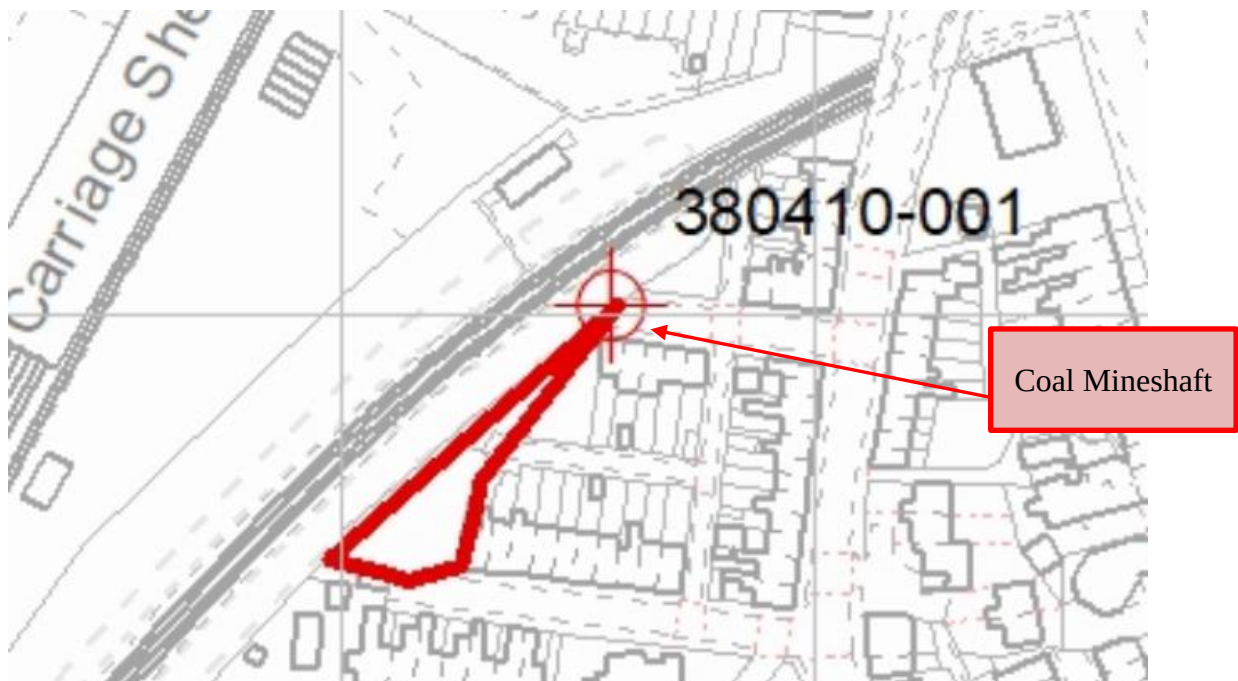
- 3.8 Reference to the Coal Authority Online Interactive viewer shows the site to be NOT located within a Development High Risk Area or within an area of Probable Shallow Coal Mine Workings.

Figure 5 Coal Authority Interactive Map Extract



- 3.9 A Coal Authority Mining Report has been acquired for the site and reveals that there are no proven records of past underground mine workings beneath the site.
- 3.10 There is one mine entry (380410-001) at grid reference 380058 410101, on the northern boundary of the site. The abandoned coal mine shaft has a departure (positional accuracy) of 10m, which is shown in Figure 6.

Figure 6 Coal Authority Mining Report Extract



- 3.11 There are no records of geological faults.

- 3.12 There are no records of any managed tips, remediated sites, or areas of coal mining subsidence within 50m of the site.

4.0 COAL MINING RISK ASSESSMENT

Scope of Coal Mining Risk Assessment

- 4.1 Objectives of the coal mining risk assessment are to provide a desk-based assessment of available geological and mining information relating to the site (and wider area) and to use this information so as to identify risks present to the development from the legacy of mining.
- 4.2 As part of the risk assessment, potential mitigation measures (if required) should be considered, including any necessary remedial works.
- 4.3 The outcome of the risk assessment should demonstrate to the Local Authority that the proposed development is or can be made safe (and stable) to meet the requirements of the National Planning Policy Framework (NPPF).

Data Limitations

- 4.4 It should be appreciated that it did not become a legal requirement to deposit coal mining abandonment plans until the 1870's and that this requirement was not rigorously enforced for some time after. Many shallow coal seams were worked prior to the introduction of first edition Ordnance Survey Maps and information on these workings is often not available. Therefore, if coal seams were accessible then there is the potential that they could have been worked by formal or informal means.
- 4.5 It is also possible that if unrecorded workings are present then unrecorded mine entries may be present.

Coal Mining Risks

- 4.6 The risks associated with coal mining are as follows:
- Collapse of relict workings beneath buildings causing damage to the building fabric and infrastructure.
 - Migration of mine gases from old mine workings and mine entries resulting in accumulation of flammable and asphyxiating gases in confined areas.
 - Consolidation of relict workings and overlying strata causing structural defects in building fabric and infrastructure.
 - Failure of mine entries causing loss of ground beneath building and external areas.
 - Spontaneous combustion of old mine workings.

Conclusions

- 4.7 The site area does not lie within a Coal Authority Development High Risk Area.
- 4.8 There is an abandoned mineshaft at the northern boundary of the site. This mine shaft is located within an area of a proposed bin store. Records suggest a 10m positional accuracy for the untreated coal mine shaft.

Proposed Mitigation Strategy

- 4.9 There is no risk to the development from shallow coal mining activity beneath the development area.
- 4.10 There is however a coal mineshaft located at the northern boundary of the site. Due to historical cartographic practices this may not be present on the site.
- 4.11 During construction activities there should be a watching brief in the event that a mine shaft is exposed. If it is found it will need to be capped and potentially infilled.
- 4.12 This report should allow for planning permission to be granted with relevant conditions.

APPENDIX 1

COAL AUTHORITY MINING REPORT

APPENDIX 2

REPORT LIMITATIONS

REPORT LIMITATIONS

This contract was completed by Earth Environmental & Geotechnical Ltd on the basis of a defined programme and scope of works and terms and conditions agreed with the client. This report was compiled with all reasonable skill, and care, bearing in mind the project objectives, the agreed scope of works, the prevailing site conditions, the budget, and staff resources allocated to the project.

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The report was written in 2023 and should be read in light of any subsequent changes in legislation, statutory requirements and industry best practices. Ground conditions can also change over time and further investigations or assessment should be made if there is any significant delay in acting on the findings of this report. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of Earth Environmental & Geotechnical Ltd. In the absence of such written advice of Earth Environmental & Geotechnical Ltd, reliance on the report in the future shall be at the client's own and sole risk. Should Earth Environmental & Geotechnical Ltd be requested to review the report in the future, Earth Environmental & Geotechnical Ltd shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between Earth Environmental & Geotechnical Ltd and the client.

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The services are based upon Earth Environmental & Geotechnical Ltd observations of existing physical conditions at the site gained from a walkover survey of the site together with Earth Environmental & Geotechnical Ltd interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The findings and recommendations contained in this report are based in part upon information provided by third parties, and whilst Earth Environmental & Geotechnical Ltd have no reason to doubt the accuracy and that it has been provided in full from those it was requested from, the items relied on have not been verified.

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Where field investigations have been carried out these have been restricted to a level of detail required to achieve the stated objectives of the work. Ground conditions can also be variable and as investigation excavations only allow examination of the ground at discrete locations. The potential exists for ground conditions to be encountered which are different to those considered in this report. The extent of the limited area depends on the soil and groundwater conditions, together with the position of any current structures and underground facilities and natural and other activities on site. In addition, chemical analysis was carried out for a limited number of parameters [as stipulated in the contract between the client and Earth Environmental & Geotechnical Ltd] based on an understanding of the available operational and historical information, and it should not be inferred that other chemical species are not present.

The groundwater conditions entered on the exploratory hole records are those observed at the time of investigation. The normal speed of investigation usually does not permit the recording of an equilibrium water level for any one water strike. Moreover, groundwater levels are subject to seasonal variation or changes in local drainage conditions and higher groundwater levels may occur at other times of the year than were recorded during this investigation.

Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan but is (are) used to present the general relative locations of features on, and surrounding, the site.