

EARTH ENVIRONMENTAL
& GEOTECHNICAL

Coal Mining Risk Assessment Report

141 High Street

Staple Hill

Bristol

BS16 5HQ

Report Ref: B3412/23

November 2023

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**EARTH ENVIRONMENTAL
& GEOTECHNICAL**

COAL MINING RISK ASSESSMENT

141 HIGH STREET

STAPLE HILL

BRISTOL

BS16 5HQ

FOR

YELLOW GIRAFFE

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Report No. B3412/23

November 2023

Report Title:	141 High Street, Staple Hill, Bristol, BS16 5HQ Coal Mining Risk Assessment
Report Reference:	B3412/23/CMRA
Client:	Yellow Giraffe
Issue Date:	29th November 2023
Drafted By:	I. Smith
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Authorised By:	S. Leat

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1.0 INTRODUCTION

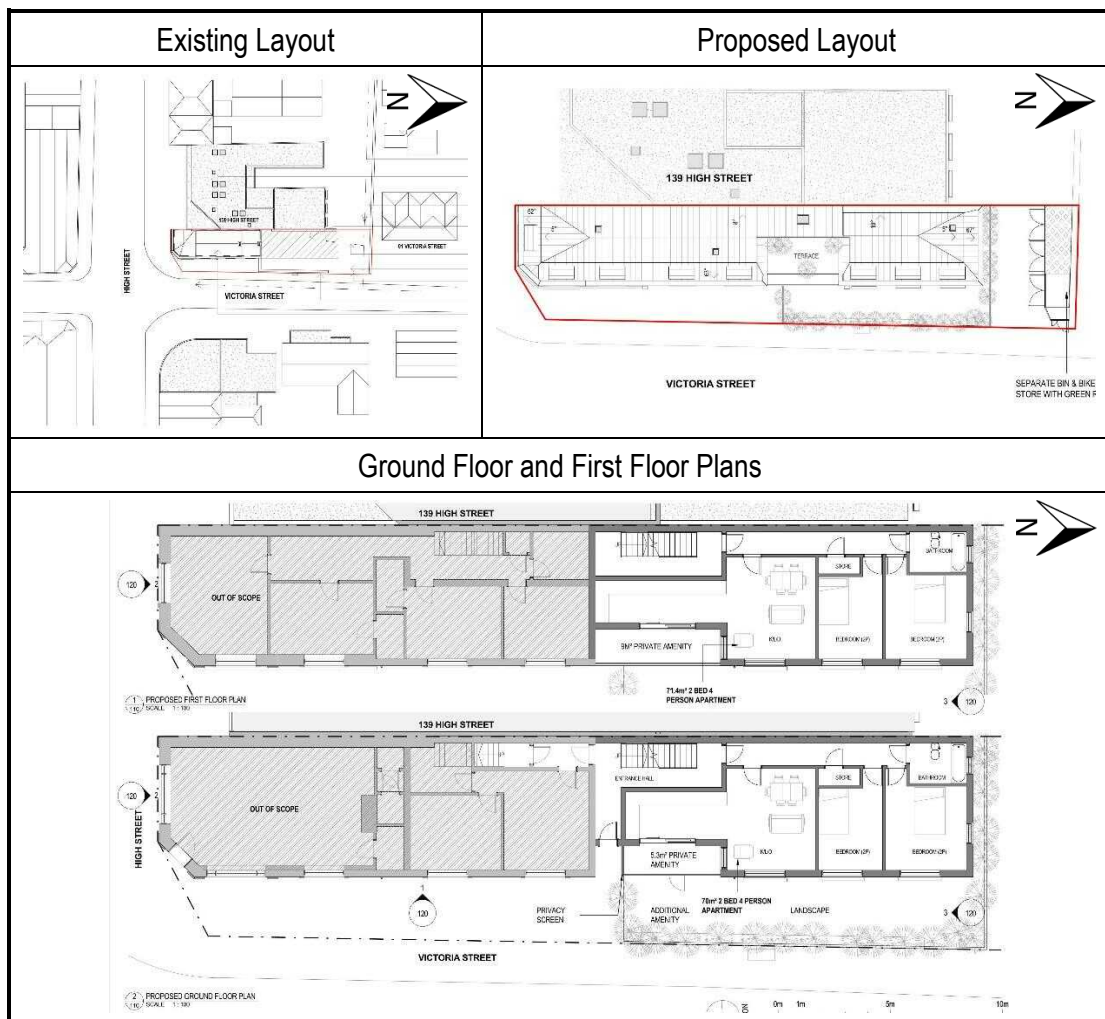
Appointment

- 1.1 Earth Environmental & Geotechnical (Southern) Ltd was commissioned by Cryer & Coe Architects, acting on behalf of Yellow Giraffe (the 'Client'), to undertake a Coal Mining Risk Assessment for a proposed development in Staple Hill, Bristol.
- 1.2 A Coal Mining Risk Assessment is required to support a planning application and to assist with the site design process.

Proposed Development

- 1.3 It is proposed to construct a new 3 storey side extension to an existing commercial/residential building to accommodate 3no. apartments as well as a roof alteration to the existing building to create an additional apartment.
- 1.4 Details of the proposed development are shown in Figure 1 below.

Figure 1 – Proposed Development Layout Details



Objective

- 1.5 The purpose of the Coal Mining Risk Assessment is to collate available geological, mining and historical data in order to assess the potential for the site to be affected by underground mining. This report has been drafted in accordance with the Coal Authority Coal Mining Risk Assessment Template, January 2011.

Sources of Information

- 1.6 The Coal Mining Risk Assessment comprises of a review of the following information sources:
- Online British Geological Survey maps and data.
 - Coal Authority Report reference 51003392045001 dated 28th November 2023.
 - Coal Authority Interactive Map Viewer.
 - British Geological Survey online borehole records.
 - Google Earth imagery.
 - Geology of the Bristol District, London HMSO 1993.
 - 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.
 - Construction over abandoned mineworkings, CIRIA Special Publication 32, 2002.
 - Abandoned Mineworkings, CIRIA 758.

2.0 SITE LOCATION AND DESCRIPTION

2.1 The site is located at 141 High Street in Staple Hill, Bristol at National Grid Reference 364892 175950 with a nearest post code of BS16 5HQ. The site and surrounding area are shown in Figure 2 below.

Figure 2 – Aerial Photograph Showing Site Location and Surrounding Area



2.2 The site is bounded to the north by residential development, to the east by Victoria Street, to the South by High Street and to the west by commercial/residential development.

2.3 At the time of writing this report, the site was occupied by mixed retail/commercial and residential development with a car park to the rear.

2.4 A general site photograph is presented in Figure 3 overleaf.

Figure 3 – General Site Photograph (taken from High Street Looking N)

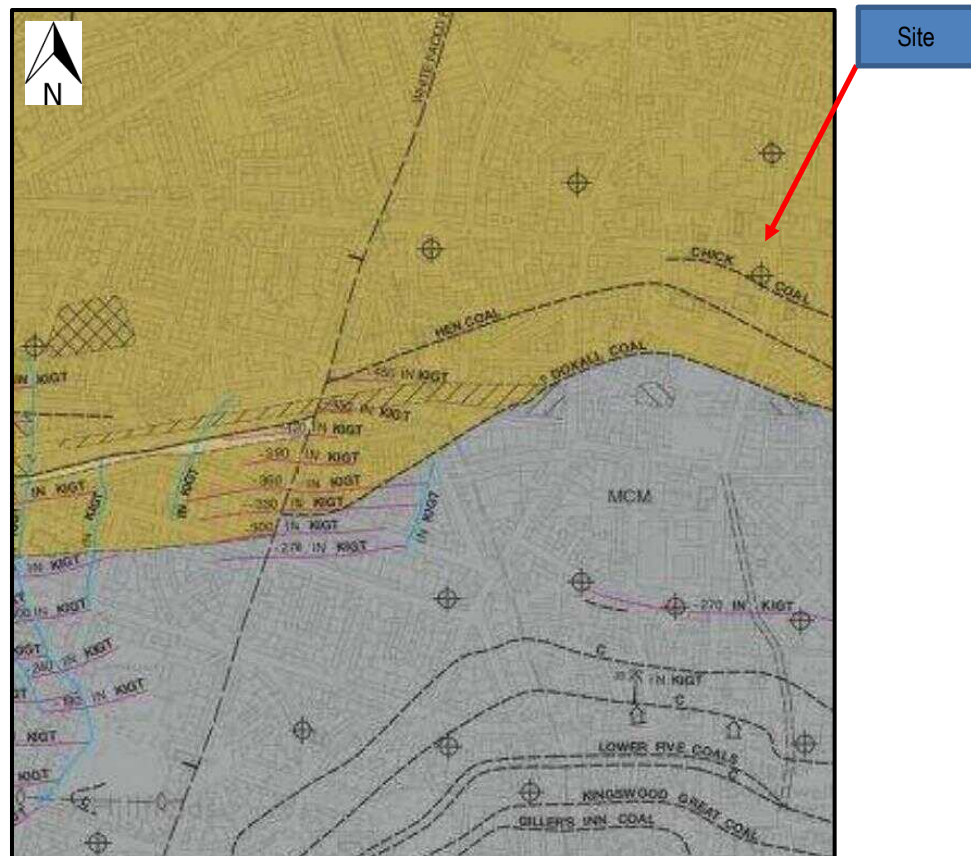


3.0 ASSESSMENT OF DATA

Geological Information

- 3.1 The geology of the site has been determined from acquisition of geological maps for the area and examination of Coal Authority records.
- 3.2 The British Geological Survey (BGS) map and online maps shows that the site is not located on or near an area of infilled land.
- 3.3 The site is directly underlain by the Downend Member of Carboniferous Age. The Downend Member is described as sandstone with conglomerate and pebbly sandstone with sporadic mudstone beds. Some workable coal seams are also present. The sandstone is typically a coarse grained lithic arenite.
- 3.4 An extract from the geological map of the area is shown in Figure 4 below.

Figure 4 – Geological Map Extract

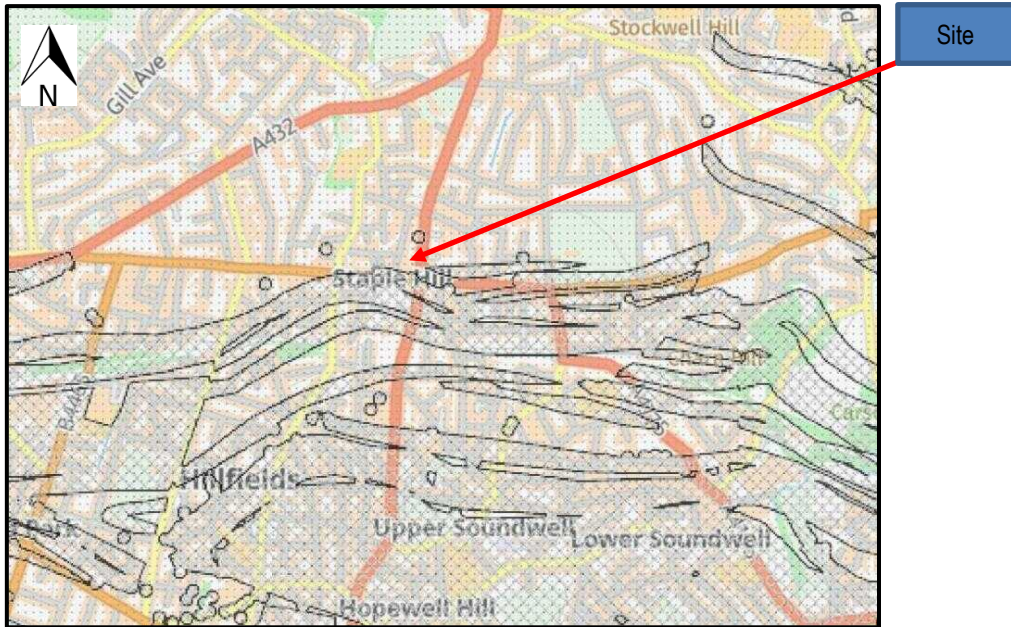


- 3.5 There is a historical BGS borehole record located 175m northwest of the site, reference ST67NW57. The records included in this BGS entry indicate bedrock is anything between 1.5m and 8m below existing ground level, depending on thickness of fill and weathered bedrock.
- 3.6 There are no geological faults or other linear features located on or close to the site.
- 3.7 There is a shaft located to the south of the site, which is discussed in more detail in the following section.

Coal Authority Records

- 3.8 A Coal Authority Mining Report has been acquired for the site and is included in Appendix 1.
- 3.9 The shallowest recorded underground working is the Fig Seam located at 233m below the site, dipping at 55° to the north and with an extraction thickness of 0.9m, last worked in 1899.
- 3.10 The Coal Authority do not have any records of unrecorded shallow depth coal mine workings beneath the site.
- 3.11 Examination of the Coal Authority online interactive map viewer indicates the site is not located within a Development High Risk Area (DHRA) associated with unrecorded shallow workings. This area is shown immediately to the south of the site, as shown in Figure 5 below.

Figure 5 – Drawing Showing Site Location and Development High Risk (Hatched) Area



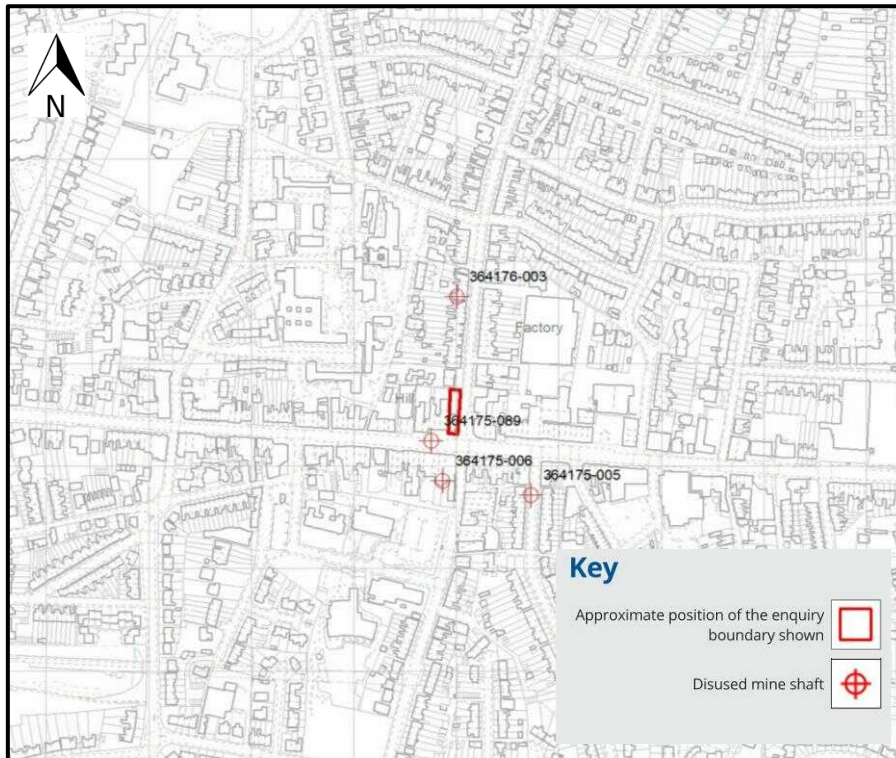
- 3.12 The site is not within a surface area that could be affected by present or future-planned underground mining.
- 3.13 There are 4 recorded mine entries close to the site, the details of which are summarised in Table 1 below.

Table 1 – Summary of Mine Entries

Entry Type	Reference	NGR	Distance from Site	Treatment Details
Shaft	364175-005	364973 175871	114m SE	Unknown
Shaft	364175-006	364887 175885	65m S	Unknown
Shaft	364175-089	364876 175924	30m SW	Unknown
Shaft	364175-003	364901 176065	115m N	Unknown

- 3.14 The locations of the mine shafts are shown in Figure 6 overleaf.

Figure 6 – Mine Shaft Locations



- 3.15 There are no records of subsidence within 50m of the site since 31st October 1994, caused by coal mine workings. There is no record of any request having been made to carry out preventive works before coal is worked.
- 3.16 The Coal Authority has no record of mine gas emissions within 500m 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 invariably, 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 works and mine entries resulting in build-up 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 mineworkings.

Summary of Risk

- 4.7 The site is in a surface area that could be affected by underground mining in one seam of coal at 233mbgl, last worked in 1899. These are considered at a sufficient depth as to not affect development at the surface.
- 4.8 The site is not located within a Development High Risk Area, associated with unrecorded shallow depth mine workings.
- 4.1 The closest recorded mine entry is located 30m to the southwest of the site. It should be noted that Coal Authority records have a departure of 10m in any one direction of these type of features due to historical inaccuracies in plotting locations and transferring data. Taking the potential departure distance into account, it is considered the shafts are at a sufficient distance from the site as to not affect the site itself.
- 4.2 Table 2 below summarises the potential risks associated with coal mining legacy for the proposed development site, identified from the above sources of information.

Table 1 – Summary of Potential Risks Associated with Coal Mining Legacy

Coal Mining Issue	Yes	No	Risk Assessment
Underground coal mining (recorded at shallow depths)		N	Low
Underground coal mining (probable at shallow depths)		N	Low
Coal Outcrops		N	Low
Mine entries (shafts and adits)		N	Low
Coal mining geology (fissures)		N	Low
Record of past mine gas emissions		N	Low
Recorded coal mining surface hazard		N	Low
Surface mining (opencast workings)		N	Low

Proposed Mitigation Strategy

- 4.3 Based on the findings of this report, further mitigation works are not required.

APPENDIX 1

COAL AUTHORITY MINING REPORT



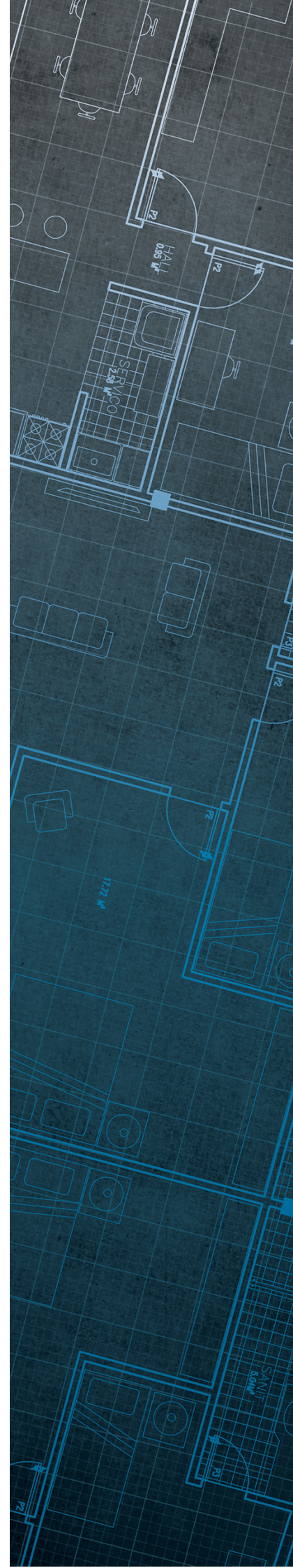
The Coal
Authority

Consultants Coal Mining Report

141 High Street
Staple Hill
South Gloucestershire
BS16 5HQ

Date of enquiry: 28 November 2023
Date enquiry received: 28 November 2023
Issue date: 28 November 2023

Our reference: 51003392045001
Your reference: B3412



Consultants

Coal Mining Report

This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

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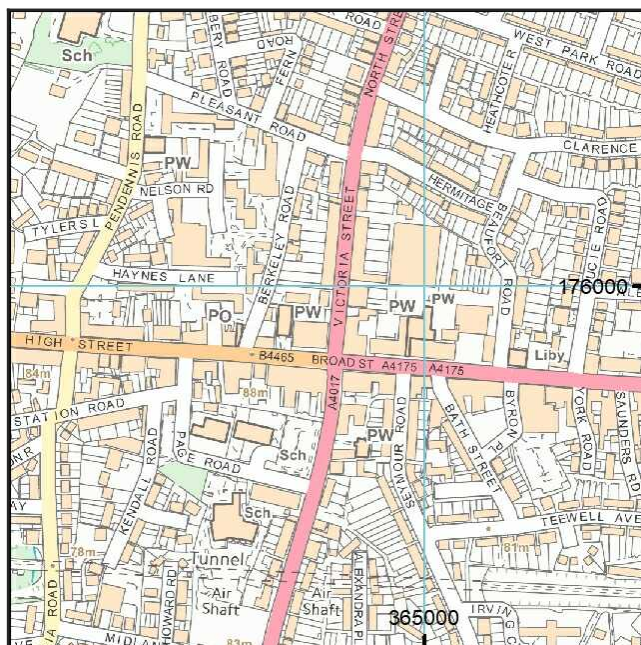
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Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	FIG	Coal	3BV5	233	Beneath Property	55.0	North	90	1899

Probable unrecorded shallow workings

None.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Shaft	364175-005	364973 175871		Coal	
Shaft	364175-006	364887 175885		Coal	
Shaft	364175-089	364876 175924		Coal	
Shaft	364176-003	364901 176065		Coal	

Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

17639		
-------	--	--

Please contact us on 0345 762 6848 to determine the exact abandoned mine plans you require based on your needs.

Outcrops

No outcrops recorded.

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations

None recorded within 50 metres of the enquiry boundary.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining

None recorded.

Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

Court orders

None recorded.

Section 46 notices

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

Withdrawal of support notices

The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Section 4 – Further information

The following potential risks have been identified and as part of your risk assessment should be investigated further.

Future development

If development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply specialist engineering practice required for former mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or coal mines without first obtaining the permission of the Coal Authority.

MINE GAS: Please note, if there are no recorded instances of mine gas within 500m of the enquiry boundary, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded. Developers should be aware that the investigation of coal seams, mine workings or mine entries may have the potential to generate and/or displace underground gases. Associated risks both to the development site and any neighbouring land or properties should be fully considered when undertaking any ground works. The need for effective measures to prevent gases migrating onto any land or into any properties, either during investigation or remediation work, or after development must also be assessed and properly addressed. In these instances, the Coal Authority recommends that a more detailed Gas Risk Assessment is undertaken by a competent assessor.

Development advice

The site is within an area of historical coal mining activity. Should you require advice and/or support on understanding the mining legacy, its risks to your development or what next steps you need to take, please contact us.

For further information on specific site or ground investigations in relation to any issues raised in Section 4, please call us on 0345 762 6848 or email us at groundstability@coal.gov.uk.

Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk**.

Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

Opencast mines

Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

Coal Authority managed tips

Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

Site investigations

Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

Remediated sites

Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

Coal mining subsidence

Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

Mine gas

Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission. Please note, if there are no recorded instances of mine gas reported, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded.

Mine water treatment schemes

Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

Future underground mining

Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

Coal mining licensing

Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

Court orders

Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

Section 46 notices

Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

Withdrawal of support notices



Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

Payment to owners of former copyhold land

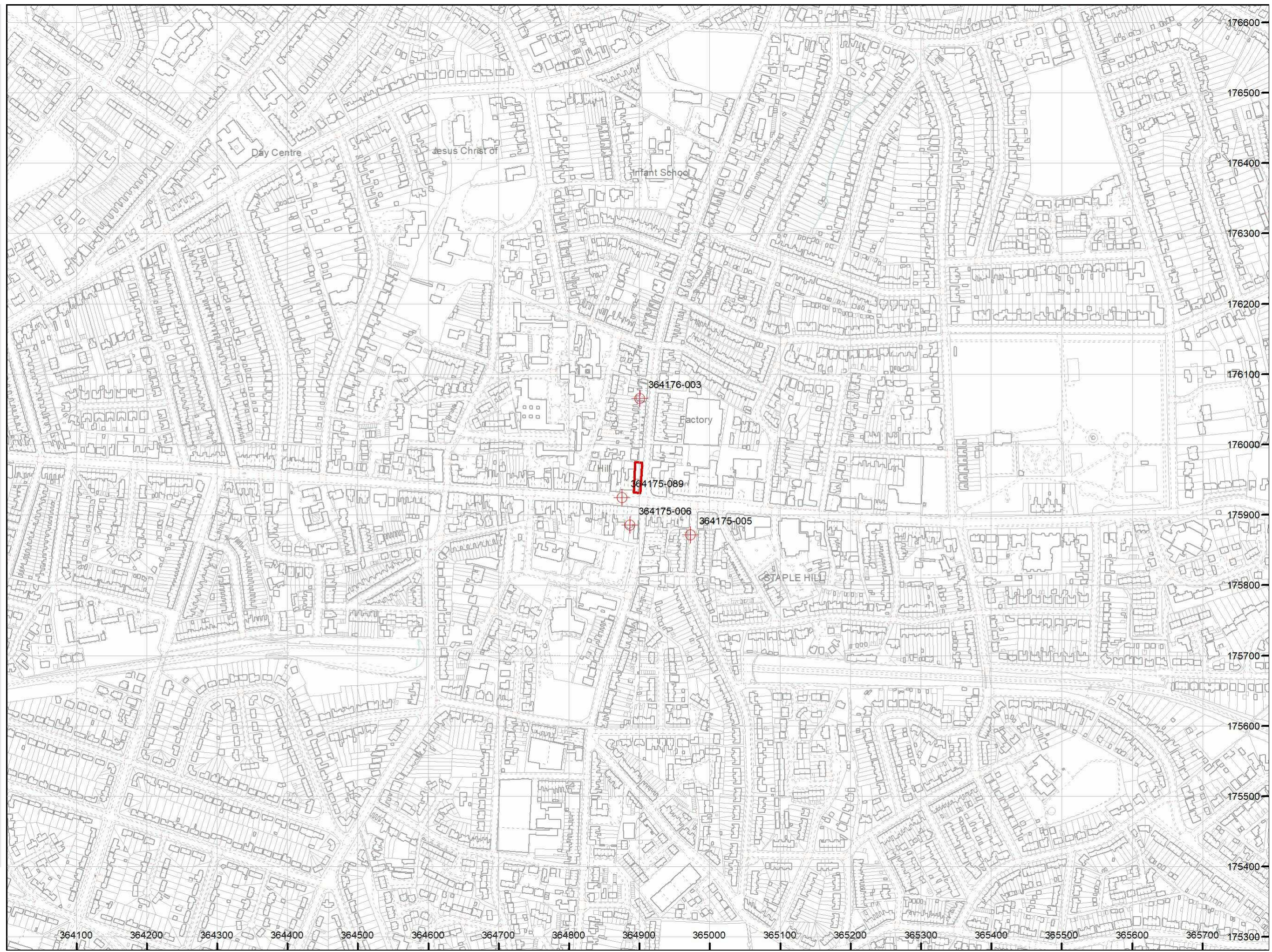
Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

The map highlights any specific surface or subsurface features within or near to the boundary of the site.

Key

- Approximate position of the enquiry boundary shown 
- Disused mine shaft 

How to contact us
0345 762 6848 (UK)
+44 (0)1623 637 000 (International)
www.groundstability.com



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.

Other than that, expressly contained in the above paragraph, Earth Environmental & Geotechnical Ltd provides no other representation or warranty whether express or implied, is made in relation to the services. Unless otherwise agreed this report has been prepared exclusively for the use and reliance of the client in accordance with generally accepted consulting practices and for the intended purposes as stated in the agreement under which this work was completed. This report may not be relied upon, or transferred to, by any other party without the written agreement of a Director of Earth Environmental & Geotechnical Ltd.

If a third party relies on this report, it does so wholly at its own and sole risk and Earth Environmental & Geotechnical Ltd disclaims any liability to such parties.

It is Earth Environmental & Geotechnical Ltd understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was an important factor in determining the scope and level of the services. Should the purpose for which the report is used, or the proposed use of the site change, this report will no longer be valid and any further use of, or reliance upon the report in those circumstances by the client without Earth Environmental & Geotechnical Ltd review and advice shall be at the client's sole and own risk.

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.

The observations and conclusions described in this report are based solely upon the services that were provided pursuant to the agreement between the client and Earth Environmental & Geotechnical Ltd. Earth Environmental & Geotechnical Ltd has not performed any observations, investigations, studies or testing not specifically set out or mentioned within this report.

Earth Environmental & Geotechnical Ltd is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, Earth Environmental & Geotechnical Ltd did not seek to evaluate the presence on or off the site of electromagnetic fields, lead paint, radon gas or other radioactive materials.

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.

No responsibility can be accepted for errors within third party items presented in this report. Further Earth Environmental & Geotechnical Ltd was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the services. Earth Environmental & Geotechnical Ltd is not liable for any inaccurate information, misrepresentation of data or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to Earth Environmental & Geotechnical Ltd and including the doing of any independent investigation of the information provided to Earth Environmental & Geotechnical Ltd save as otherwise provided in the terms of the contract between the client and Earth Environmental & Geotechnical Ltd.

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.