



Coal Mining Risk Assessment

Project Name: McDonalds, Barnsley

Location: Old Mill Lane, Barnsley

Client: Glanville Group Ltd

Project ID: JN1796

Report Date: 21st July 2023

Report Issue: 1

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For and on behalf of Southern Testing Laboratories Limited

DOCUMENT HISTORY AND STATUS

Issue No.	Date	Purpose or Status	Author	Check / Review
1	21.07 .23	Final Report	ADM	JK/CN

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A INTRODUCTION

1 Authority

Our authority for carrying out this work is contained in a project order form from Howard Dowell of Glanville Group Ltd, dated 30th June 2023.

2 Location

The site is located to the south-east of ASDA supermarket in Barnsley and is accessed from Canal Way. The approximate National Grid Reference of the site is SE 34930 07160. The site location is indicated on Figure 1 within Appendix A.

3 Proposed Construction

It is proposed to extend a McDonald's restaurant as per the design drawings provided C7 Architects Ltd: P21-050-0464-300, dated 10th March 2022.

4 Object

This is a Coal Mining Risk Assessment only. No intrusive investigation has been carried out to date.

The object of this investigation was to review the historic and coteremporary use of the site and coal mining legacy, based on desk study information only.

5 Scope

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 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 Barnsley Metropolitan Borough Council that the application site is, or can be made, safe and stable to meet the requirement of national planning policy with regard to development on unstable land.

This report presents our desk based coal mining risk assessment findings and our interpretation of this data only. A wider desk study or any intrusive investigation was outside the requested scope of works.

B SOURCES OF INFORMATION USED TO INFORM IN THIS REPORT

- British Geological Survey Map 1:50,000 scale sheets No. 87 Barnsley
 - Solid & Drift (2008)
- BGS Geological Map (2005) 1:10,000 SE30NW
- BGS Geology of Barnsley District 'a brief explanation of the geological map sheet 87 Barnsley (2007).
- British Geological Survey online mapping.
- British Geological Survey Borehole Records Archive.
- Historic Ordnance Survey mapping of the area.
- A review of the Coal Authority's interactive viewer.

- Consultants Coal Mining Report (ref 51003365156001 5th July 2023).

6 Geology (1:50,000 Maps)

The British Geological Survey Map No 87 (Barnsley) indicates that the site geology consists of Pennine Middle Coal Measures. A coal seam is shown outcropping a short distance to the south, which is inferred to be the Kent's Thin Coal, which lies at the base of the Kent's Rock. Both of these lie stratigraphically above the site.

The next coal seam, which would lie below the site, would be the Kent's Thick Coal.

There is a normal fault indicated to the NE of the site – trending NW-SE and downthrown to the NE.

6.1 Pennine Middle Coal Measures

These deposits generally consist of interbedded grey mudstone, siltstone, pale grey sandstone and commonly coal seams, with a bed of mudstone containing marine fossils at the base, and several such marine fossil bearing mudstones in the upper half of the unit.

7 Detailed Geological Mapping & Interpretation

A review of the 1:10,000 geological map, Barnsley (SE30NW), indicates that there are no geological faults present on site. The Kent's Thin Coal seam outcrops approximately 30m to the south/south-west. In the local region, a north-east stratigraphical dip of 4° is recorded, which would infer the Kent's Thick Coal seam would be around 17-19m below the site accounting for the topographical change in levels. The Generalised Vertical Section infers the following sequence below the site.

Strata	Approx Thickness (m)
Pennine Middle Coal Measures	10m
Kent's Thick Coal	0.3-2.6m
Pennine Middle Coal Measures	60m
Barnsley Rock	20m
Barnsley Coal	0.0-3.9m

7.1 Historical Borehole Records

A search of historic exploratory hole records, from the online British Geological Survey database, revealed one record within the near vicinity of this site. The record is summarised below.

BH Reference	Final Depth (mbgl)	Distance from site (m) & Direction	Remarks
SE30NW/21	118m	50m NE	SE30NW/21: Recorded the Kents Thick Coal from 17.0-17.9m (0.9m thick). An unnamed coal seam from 88m to 88.6m (0.6m thick). Unnamed coal seam from 61m to 61.6m (0.6m Thick) Void space named as the Barnsley Coal seam 86.6m to 89.9m (3.3m thick)

The borehole shows Kent's Rock near the surface, with the Kent's Thin Coal noted as faulted out at the base. Below this are coal measures, with the Kent's Thick noted at around 56 foot or 17m bgl (3 foot thick), and present/not obviously worked. Several unnamed seams are recorded below this, above the conjectured Barnsley Coal at around 290 feet or 88m bgl, shown as potentially absent or worked.

8 Historical Maps

The first OS mapping, dated 1855, shows the site as partially developed with Old Mill Lane along the southern boundary. At this scale, it is difficult to discern any more detail on site. Some 400m to the west Honey Well Mount Colliery exists, 300m to the SE is Mount Osbourne Colliery.

By 1893 the eastern part of the site was now part of the wider Dearne Paper Works. Lime kilns are shown just off-site to the south-west. A tannery was located to the north-east; a Bleach works was located to the north-west, and Old Mill Gas Works further to the north. The collieries are no longer shown.

The 1906 map showed the Paper Works building extended further onto site, covering the majority of it. It had also expanded off-site. The Lime Kilns were no longer shown to the south-west. The surrounding area had changed little, although the Bleach works was also no longer shown. By 1931, the Paper Works had expanded further onto site with "tanks" annotated centrally. By the 1960's the Paper Works was annotated as a 'Mill' (a 'Paper Mill on subsequent maps), and a building covered most of the site.

The site remained unchanged until the 1989 map, by which time the paper works had been demolished and the site was now a car park for a superstore to the north, with cutting around the southern and western boundaries. It remained a car park until the 1999 map, by which time the McDonalds restaurant had been constructed.

9 The Coal Authority's Interactive Map Viewer

The Coal Authorities interactive view shows the following.

Coal Authority Category	Yes/No
Mine Entry close to site	N
Development High Risk Area	Y
Surface Mining (past and current)	N
Past shallow coal mine workings	N
Probable shallow coal mine workings	Y
Coal Outcrop on site	N
Coal Outcrop close to site	Y
Coal Mining Reporting Area	Y

10 Consultants Coal Mining Report

The full report (ref 51003365156001), is included within Appendix B, with a summary of the salient points presented below.

Mining Activity & Geology	
Past underground mining record	Yes: see section 10.1 below.
Probable unrecorded shallow workings	Yes
Spine Roadways at shallow depth	No
Mine Entry	None Recorded within 100m
Abandoned mine plan catalogue numbers	FGB9, CT83, 1019A, CT53, CT52, FGB464, 1659, 13840, PO0
Outcrops	Kent's Thin
Geological faults, fissures and breaklines	None recorded.
Opencast mines (within 500m)	No
Coal Authority Managed Tips within 500m	None recorded within 500m
Investigation or Remedial Activity	
Site investigation	None recorded within 50m.
Remediated sites	None recorded within 50m.
Coal mining subsidence	No damage notice of claim for the site or any property within 50m of the site since 1994. No current stop notices delaying remedial works or repairs to property.
Mine gas	None recorded within 500m.
Mine water treatment schemes	None recorded within 500m.
Licencing & Future Mining Activity	
Future underground mining	None recorded.
Coal mining licencing	None recorded within 200m.
Court orders	None recorded.
Section 46 notices	No notices have been given, stating that the land is at risk of subsidence.
Withdrawal of support notice's.	The property is in an area where notices to withdraw support were given in 1952 and 1982. 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.

10.1 Recorded Underground Coal Mining

Seam	Depth (m)	Direction to working	Extraction thickness (cm)	Year last mined
Barnsley (Honeywell Colliery)	93m	Beneath Property	274	1852
Barnsley (Unnamed)	102m	South-east	188	1868
Barnsley (Unnamed)	112m	North	274	1849

These recorded seams are not considered a risk to the site, due to the depth of the workings.

C IDENTIFICATION & ASSESSMENT OF SITE SPECIFIC COAL MINING

The table below summarises the potential risks associated with coal mining legacy for the proposed development on site, identified from the various sources listed above.

11 Risk Assessment

Coal Mining Issues	Potential Risk	Risk Assessment
Underground coal mining (recorded at shallow depths)	No	None recorded with the Consultants Mining Report. The shallowest recorded worked seam is the Barnsley Seam at a depth of 93m, which is not considered a risk of causing ground instability at the surface. The Local archive borehole shows that the Kent's Thick below the site as intact, not having been worked.
Underground coal mining (probable at shallow depths)	No	See above. None recorded by the coal authority.
Mine entries (shafts and adits)	No	None recorded within 100m of the site.
Coal mining geology (fissures)	No	Not recorded on Coal Authority data.
Record of past mine gas emissions or potential	No	Not recorded on Coal Authority data.
Recorded coal mining surface hazard	No	Not recorded on Coal Authority data.
Surface mining (opencast workings)	No	None recorded on Coal Authority data.

D MITIGATION STRATEGY

12 Discussion & Recommendations

On the basis of the published records, and information obtained from the Coal Authority, the risk from historic coal mining is considered to be low. There is no direct evidence that the Kent's Thick Coal has been mined below the site, based on the archive boreholes and the Coal Authorities own records (shallowest recorded mining below the site is 93m bgl - Barnsley Coal Seam).

This local archive borehole records indicate that the Kent's Thick Coal seam was encountered at a depth of around 17m bgl, with a thickness of 0.9m. This concurs with the conjectured depth taken from the BGS 1:10,000 map. The mechanism of roof collapse involves progressive upward migration of a void until it is either choked by the spalled roof debris, or reaches the surface as a crown hole. However, even though there is no strong evidence of working, given the depth and thickness of the seam, the site would still not be considered at risk from mining instability at surface.

In the light of the desk study information, and minor under eaves push-out of the McDonalds, the proposed construction is considered to be low risk.

Coal Mining Issues	Potential Risk	Investigation Work
Underground coal mining (recorded at shallow depths)	No	N/A
Underground coal mining (probable at shallow depths)	No	
Mine entries (shafts and adits)	No	N/A
Coal mining geology (fissures)	No	N/A
Record of past mine gas emissions or potential	No	N/A
Recorded coal mining surface hazard	No	N/A
Surface mining (opencast workings)	No	N/A

E CONCLUSIONS

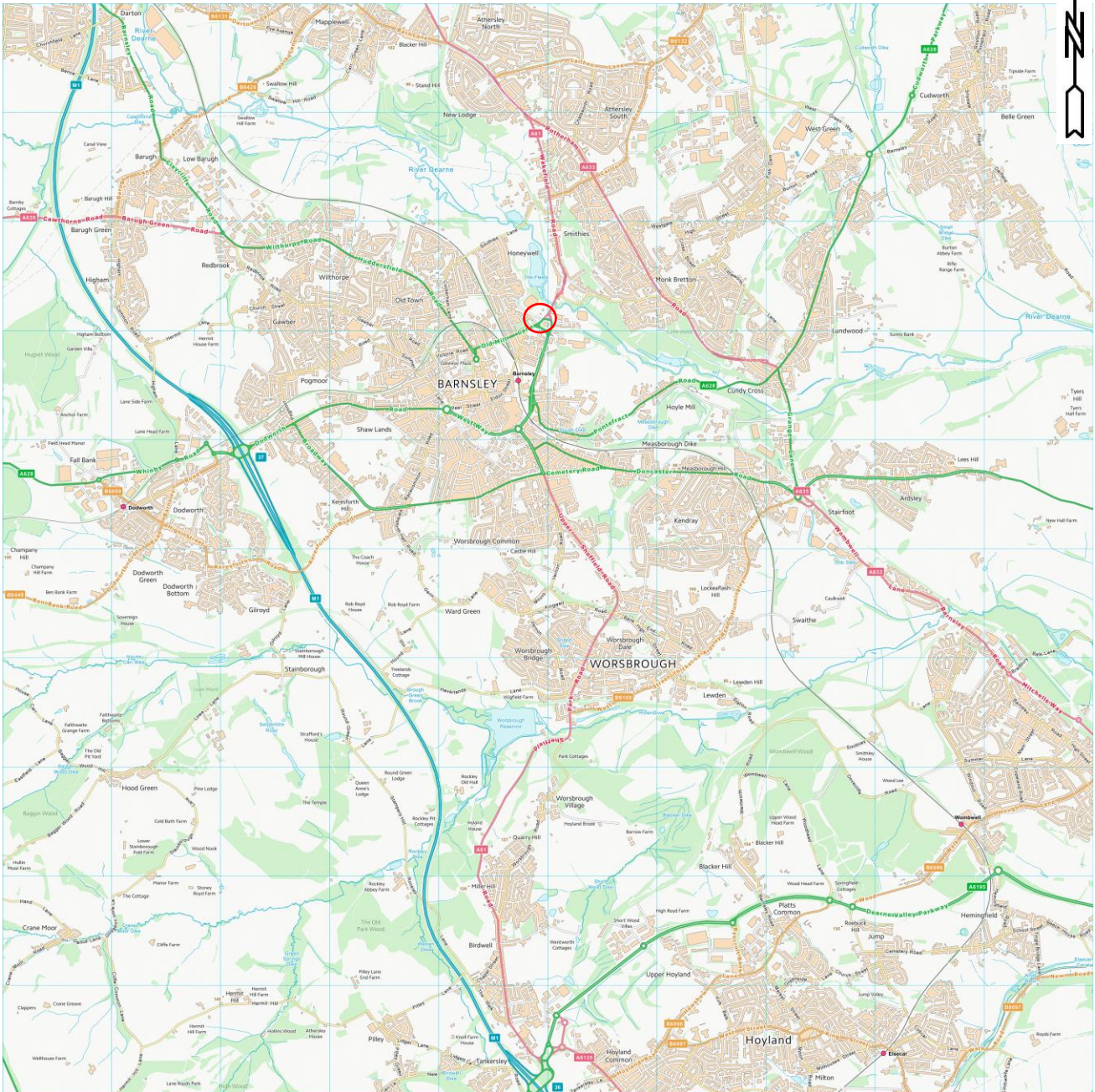
Based upon the finding of this desk study, and the small size of the proposed under eaves extension, no further assessment of the historical Coal Mining risk is considered necessary.



APPENDIX A

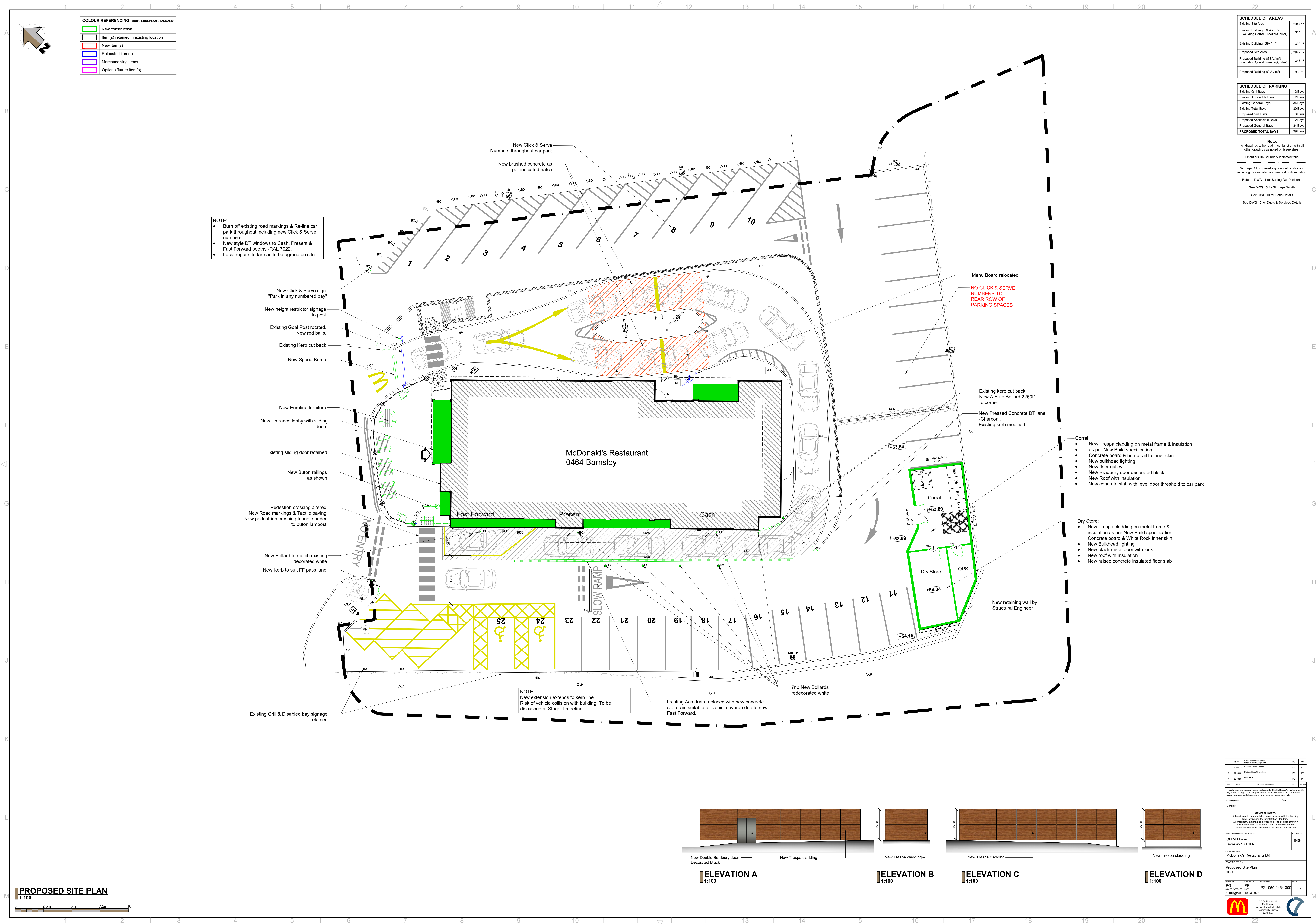
Site Plans & BGS Borehole Logs

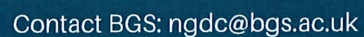




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Site:	McDonalds, Barnsley	Project ID	JN1796
Figure 1	Site Location Plan	Date:	07/07/23







Southern Testing
Environmental & Geotechnical

ST Consult
Environmental & Geotechnical

A collage of six images related to mining and geotechnical testing. Top left: A large white pipe. Top middle: A sieve containing gravel. Top right: A pressure gauge. Middle left: A worker in a high-visibility vest. Middle right: A red mining machine. Bottom right: A person using a tool on a rock sample.

APPENDIX B

Consultants Coal Mining Report

B



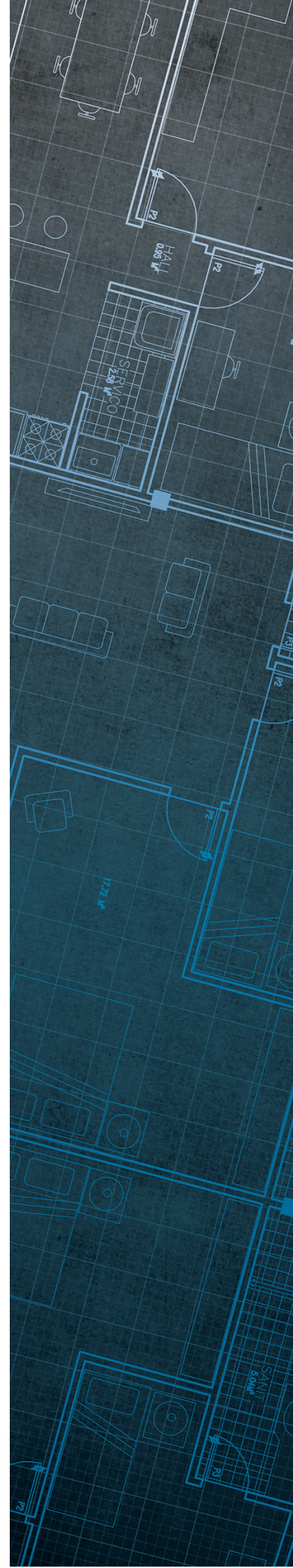
The Coal
Authority

Consultants Coal Mining Report

Mcdonalds
Canal Way
Honeywell
Barnsely
South Yorkshire
S71 1 LP

Date of enquiry: 5 July 2023
Date enquiry received: 5 July 2023
Issue date: 5 July 2023

Our reference: 51003365156001
Your reference: 313756538_2



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

NLIS Hub

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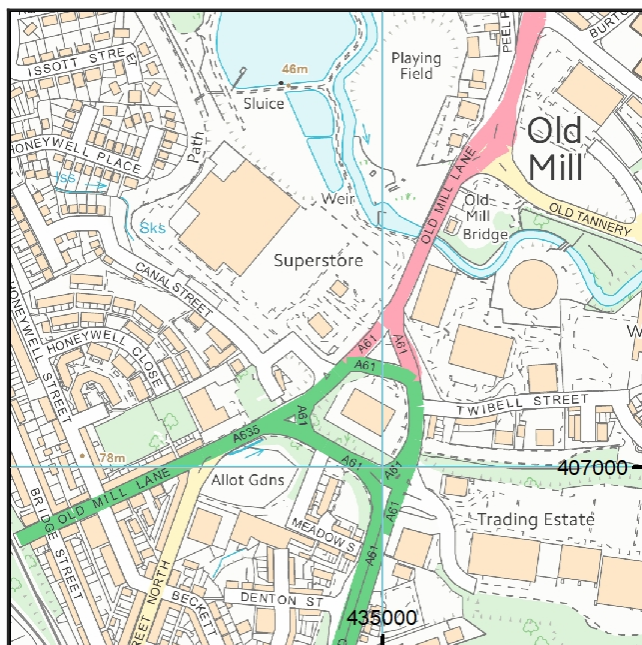
www.groundstability.com

 @coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /thecoalauthority



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
HONEYWELL	BARNLEY	Coal	650H	93	Beneath Property	2.2	East	274	1852
unnamed	BARNLEY	Coal	650F	102	South-East	6.2	East	188	1868
unnamed	BARNLEY	Coal	650G	112	North	3.9	North-East	274	1849

Probable unrecorded shallow workings

Yes.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

None recorded within 100 metres of the enquiry boundary.

Abandoned mine plan catalogue numbers

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

FGB9	CT83	1019A
CT53	CT52	FGB464
1659	13840	PO0

Our records show we have more plans than those shown above which could affect the enquiry boundary.

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

Outcrops

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
KENTS THIN	Coal	Yes	Within	N/A	72

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

Please refer to the "Summary of findings" map (on separate sheet) for details of any opencast areas 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 in an area where notices to withdraw support were given in 1952 and 1982.

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.

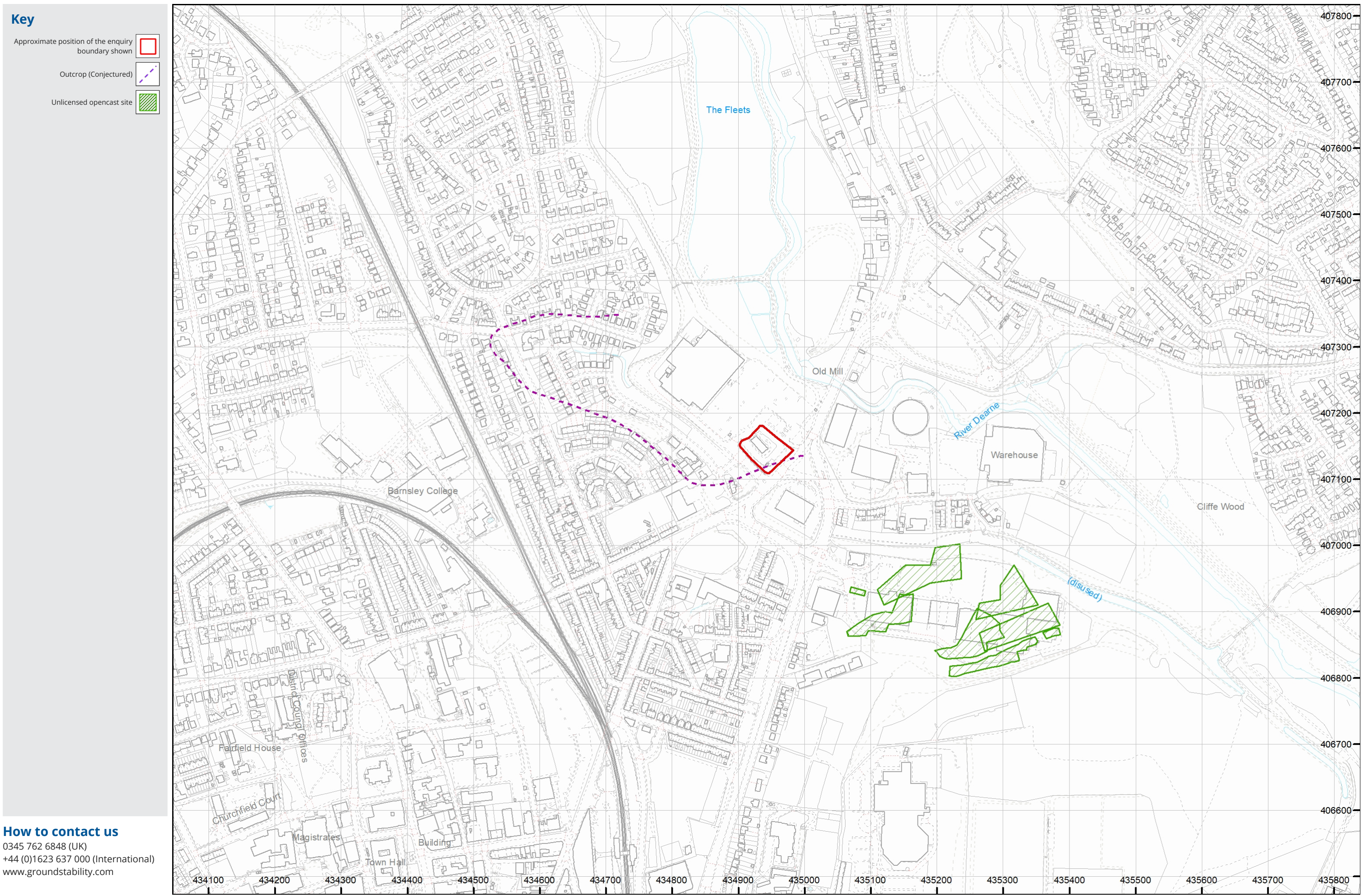
Withdrawal of support notices

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.



APPENDIX C

Historical Mapping

