

BROWN STREET LITTLEBOROUGH

DESK BASED COAL MINING RISK ASSESSMENT

Job Number: LKC 21 1470
Date: October 2022
Client: Casey Group Ltd



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Report Title	Desk Based Coal Mining Risk Assessment		
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It should be noted this report pertains solely to potential ground stability issues relating to potential shallow mining within the proposed planning boundary only.

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Appendix A: Coal Authority Consultants Coal Mining Report

1 Introduction

1.1 Background

LK Consult (LKC) has been commissioned by Casey Group Ltd to provide a Desk Based Coal Mining Risk Assessment Report for Brown Street, Littleborough. The report is required in support of a planning application to develop the site for residential use.

A Coal Mining Risk Assessment Report is required for a planning application within a designated 'Coal Mining Development High Risk Area'. 'Coal Mining Development High Risk Areas' are areas, based upon Coal Authority records, where the potential land instability and other safety risks associated with former coal mining activities are likely to be greatest. They include, for example, areas of known or suspected shallow coal mining, recorded mine entries and areas of former surface mining.

This assessment is based upon guidance provided by the Coal Authority¹ and comprises a review of available desk-based information.

The scope of this Coal Mining Risk Assessment (as per Coal Authority guidance) is to:

- Present a desk-based review of all available information on the coal mining issues which are relevant to the application site.
- Use the above 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.

1.2 Site Details

A summary of the site details is presented in Table 1-1. Figure 1 indicates the site location and boundary. Figure 2 indicates the proposed development.

Location	Land to the west of Brown Street, Littleborough. Centred at approximate National Grid Reference 393520E 416420N.
Approximate Area	4,000m ² .
Topography	150 metres Above Ordnance Datum (AOD). East and south of the site are approximately level, while the topography falls from south to north on the western part of the site, with an approximate difference of 3m in level.
Current Land Use	<u>Site</u> Commercial units, storage units, shipping containers and woodland. <u>Surrounding Area</u> Residential to the northeast, east and south. Public Open Space to the north. Commercial to the west.
Proposed Development	Residential apartments including soft landscaping and car parking.

Table 1-1: Summary of the site details.

¹Risk Based Approach to Development Management. Guidance for Developers. Version 4 2017.

2 Review of Information

2.1 Information Sources

LKC have obtained and reviewed information from the following sources, which is summarised in Section 2:

- Review of Published BGS Geological Mapping including:
 - Sheet 76 Rochdale Solid, Published 1971, Scale 1:63,360.
 - Sheet 76 Rochdale Bedrock, Published 2008, Scale 1:50,000.
 - Sheet 76 Rochdale Bedrock and Superficial, Published 2008, Scale 1:50,000.
 - Digital Geology, Scale 1:50,000.
- Geology of the Manchester district, a brief explanation of the geological map Sheet 76 Rochdale.
- Coal Authority Consultants Coal Mining Report (Appendix A).
- Coal Authority Interactive Map Viewer².
- Coal Authority List of Combustible Coal Seams³.
- Historical BGS boreholes within the site vicinity⁴.
- Geo-Assist Ltd - Phase 1 Desk Study and Preliminary Contaminated Land Risk Assessment for Brown Street, Littleborough, ref: 6039/UNF V1.00 PCLRA, dated Feb 2020.
- LKC - Phase 2 Geo-Environmental Investigation, Risk Assessment and Remediation Strategy, ref: LKC 21 1470-01, dated: January 2022.

2.2 Geological Mapping

Artificial

No BGS recorded artificial deposits are recorded on site.

Superficial

The superficial geology is mapped as Alluvium Fan Deposits (sand and gravel) across the majority of the site. Devensian Till (Diamicton) is recorded in the west and Head (Diamicton) in the northwest.

The site lies at the northern margin of a buried (superficial deposit-filled) channel or valley (valley orientated southwest-northeast).

Bedrock

The bedrock is mapped as the Pennine Lower Coal Measures Formation (Mudstone, Siltstone and Sandstone). Digital mapping shows coal seams to outcrop 70m north and 25m south of the site.

There is extensive faulting in the wider area and the dip of the strata varies considerably.

Sheet mapping names the coal seam to the north as the Bassey Coal and the sandstone north of the Bassey Coal is named as the Woodhead Hill Rock. Based on the sequence of strata mapped (younger strata to the south), it is assumed that the

² <http://mapapps2.bgs.ac.uk/coalauthority/home.html>

³ <https://www.gov.uk/government/publications/coal-seams-with-a-history-of-spontaneous-combustion>

⁴ <http://mapapps2.bgs.ac.uk/geoindex/home.html>

strata is dipping to the southeast. The dip of the strata is not known. The Bassey Coal is expected to dip below the site.

Based on the stratigraphic sequence the coal seam to the south of the site (assumed to dip away from the site) is expected to be the Lower Foot (Little) Coal or the Lower Mountain Coal.

Plate 2-1 shows extracts from digital and sheet mapping.

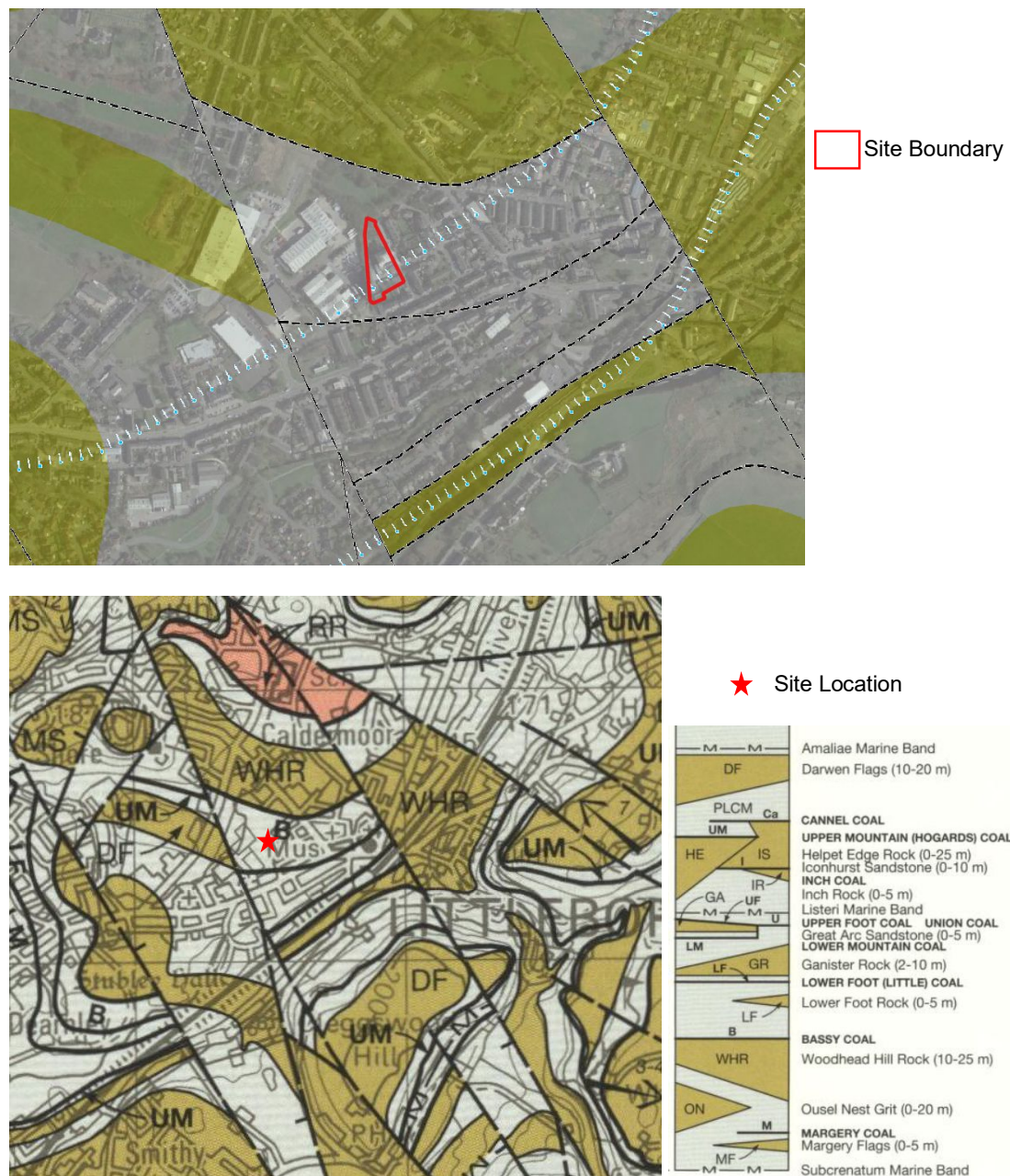


Plate 2-1: Extract from Digital Mapping (top) and Sheet 76 Rochdale Bedrock 2008 (bottom).

Sheet 76 explanatory notes provide additional information on the coal seams within the Rochdale Area. The Bassey Coal is indicated to be 0.0-1.2m thick and working methods include mine and crop workings. An extract is provided in Plate 2-2 showing the Bassey Coal and other local coal seams.

Pasture Coal	P	0.1–1.2	Crop working
Cemetery Coal	Cm	0.0–0.4	Crop working
Union Coal	U	0.8–1.6	Mine, crop and opencast working
Cannel Coal	Ca	0.0–0.9	Mine, crop and opencast working
Upper Mountain Coal (Top Bed; Old Robin; Hogards)	UM	0.0–1.1	Mine, crop and opencast working
Inch Coal	I	0.0–0.5	Mine and crop working
Upper Foot Coal (Bullion)	UF	0.0–0.7	Mine and crop working
Lower Mountain Coal (Yard)	LM	0.0–1.3	Mine, crop and opencast working
Lower Foot Coal (Little)	LF	0.0–0.8	Mine and crop working
Bassy Coal (Shale Bed)	B	0.0–1.2	Mine and crop working
Margery Coal	M	0.0–0.2	Not worked

Plate 2-2: Extract from Explanatory Notes for Sheet 76 Rochdale.

2.3 Coal Authority Consultants Coal Mining Report

The consultants coal mining report is summarised in Table 2-1.

Mining Activity and Geology	
Past underground mining	No past mining recorded.
Probable unrecorded shallow workings	None.
Spine roadways at shallow depth	No spine roadway recorded at shallow depth.
Mine entries (within 100m)	None recorded within 100m of the enquiry boundary.
Abandoned mine plan catalogue numbers	16820.
Outcrops	Yes: see Plate 2-3.
Geological faults, fissures and breaklines	No faults, fissures or breaklines recorded.
Opencast mines	None recorded within 500m of the enquiry boundary.
Coal Authority managed tips	None recorded within 500m of the enquiry boundary.
Investigative or Remedial Activity	
Site investigations	None recorded within 50m of the enquiry boundary.
Remediated sites	None recorded within 50m of the enquiry boundary.
Coal mining subsidence	Not received a damage notice or claim for the subject property, or any property within 50m, since 1994. No current Stop Notice delaying remedial works or repairs to property. Not aware of any request made to carry out preventative works before coal is worked.
Mine gas	None recorded within 500m of the enquiry boundary.
Mine water treatment schemes	None recorded within 500m of the enquiry boundary.
Licensing and Future Mining Activity	
Future underground mining	None recorded.
Coal mining licensing	None recorded within 200m of the enquiry boundary.
Court Orders	None recorded.
Section 46 notices	No notices have been given, stating that the land is at risk of subsidence.
Withdrawal of support notices	Not in an area where a notice to withdraw support has been given or where a notice has been given cancelling the entitlement to withdraw support.
Payments to owners of former copyhold land	Not in an area where a relevant notice has been published.

Table 2-1: Summary of Coal Authority Consultants Coal Mining Report.

Plate 2-3 shows the coal outcrops. This is defined by the Coal Authority as ‘*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 50m 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.*’

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
LOWER FOOT	Coal	Yes	6.4	North-East	119
LOWER MOUNTAIN	Coal	Yes	Within	N/A	101

Plate 2-3: Extract from Coal Authority Report showing outcrops.

Plate 2-4 shows an extract of the plan provided with the Coal Authority Consultants Coal Mining Report.

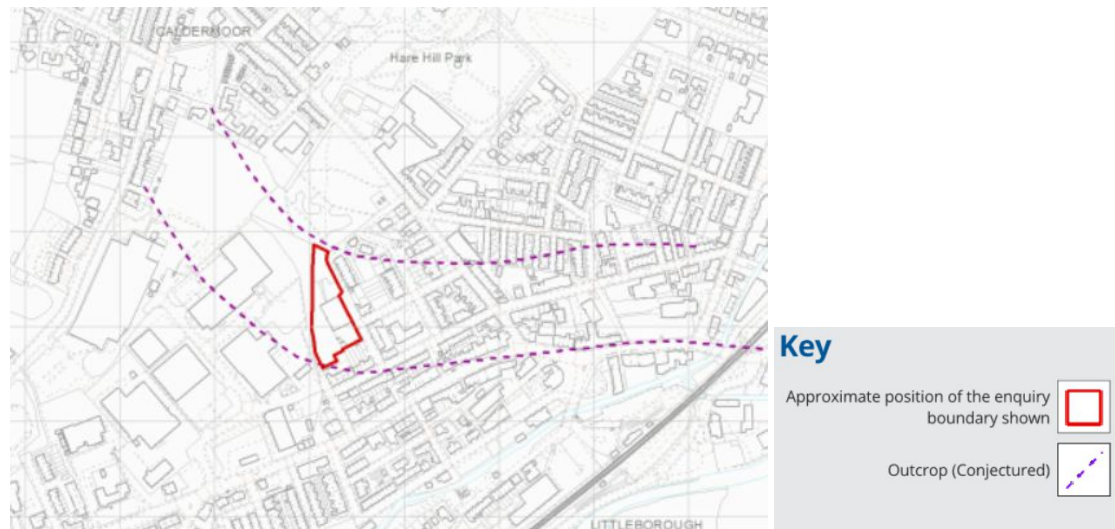


Plate 2-4: Extract from Coal Authority Consultants Coal Mining Report – Summary of Findings.

The coal outcrops noted on the Coal Authority Consultants report are closer to the site compared to the available BGS data. There are also differences in the names of the coal seams with the Lower Mountain named to the north compared to the Bassey on BGS data.

2.4 Coal Authority Interactive Mapping

Plate 2-5 shows the development high risk areas.

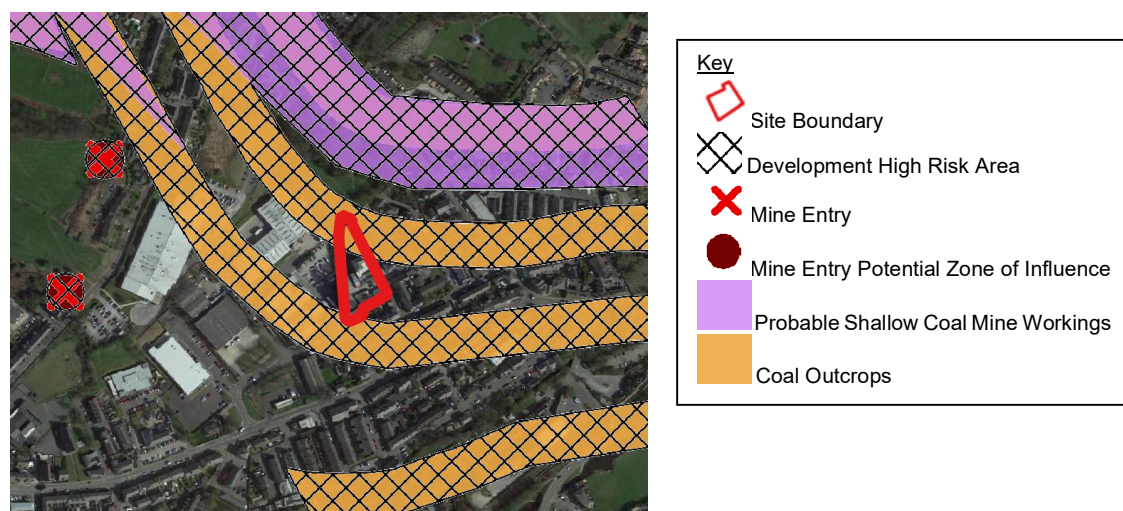


Plate 2-5: Development High Risk Area.

The north and south of the site are within a Development High Risk Area, associated with 'Coal Outcrops'. The coal outcrops are not identified as probable shallow coal mine workings, suggesting the risk of workings may be lower.

It should be noted that the coal outcrops noted on Coal Authority data are significantly different to the available BGS data. Plate 2-6 shows the coal outcrops noted on Coal Authority data versus the coal outcrops noted on BGS digital 1:50,000 mapping (linear data).

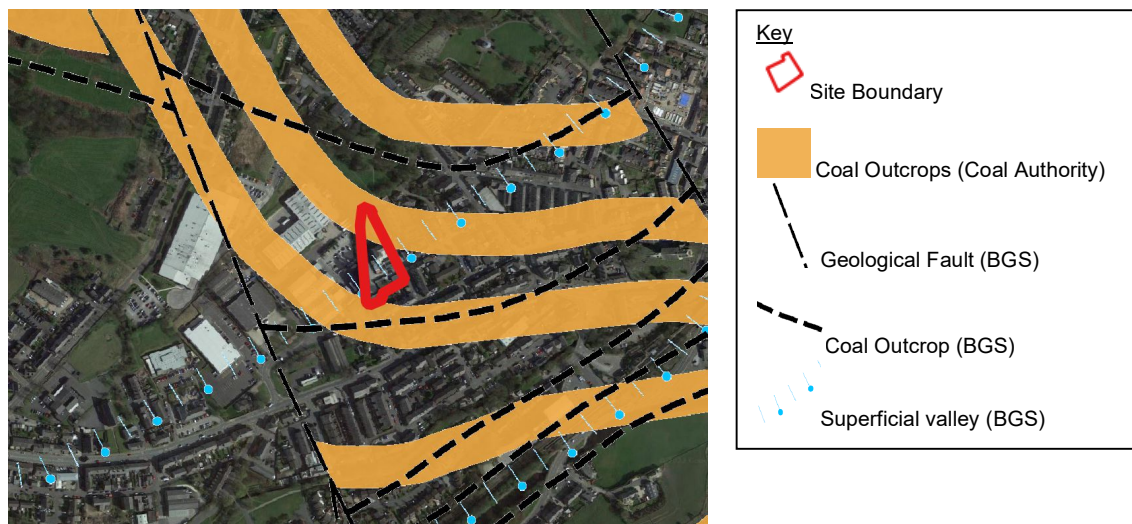


Plate 2-6: Coal Authority Coal Outcrop data and BGS Linear data.

2.5 Combustible Coal Seams

Some coal seams have been known to suffer from occurrences of spontaneous combustion and are consequently regarded as at 'high risk' of succumbing to spontaneous combustion when being entered, worked or disturbed. The Coal Authority have produced a list of seams for different areas of the UK.

None of the coal seams listed are expected at shallow depth below the site. However, if roof coal has been left, this could also pose a risk.

2.6 Historical BGS Logs

Extracts from relevant BGS historical boreholes are shown below.

The logs show the superficial to be 8.8-30m thick, becoming thicker to the south which is assumed to be associated with the superficial/glacial valley recorded on BGS data.

Ref: SD91NW203⁵ 110m northwest of site:

Description of Strata	Thickness (m)	Depth (m)
CLAY BRICK AND CONCRETE FILL	4.5	4.5
BROWN SAND	4.5	9.0
SLIGHTLY RED SANDSTONE WITH TRACES OF COAL	18	27.0
HARD MUDSTONE WITH TRACES OF COAL	32.5	59.5
COAL	0.6	60.1
MUDSTONE WITH SOME COAL	11.6	71.7
MUDSTONE WITH QUARTZ	3.3	75.0

Ref: SD91NW7⁶ 110m southwest of site:

Ec 1529 18/9/29

NATURE OF STRATA (and any additional remarks).	THICKNESS		DEPTH		THICKNESS		DEPTH	
	Feet.	Inches.	Feet.	Inches.	metric	metric	metric	metric
Made ground	12	6	12	6	3	81	3	81
Grey sand and gravel	2	3	14	9	0	69	4	50
Sand and gravel	14	9	29	6	4	49	8	99
Clay and sand	2	6	32	-	0	76	9	75
Gravel with boulders	7	6	39	6	2	29	12	04
Sand and gravel	3	6	43	-	1	07	13	11
Red sand and gravel	7	-	50	-	1	23	15	24
Grey sand and gravel	23	3	73	3	7	09	22	33
Red sand	6	9	80	-	2	05	24	38
Sand gravel and boulders	32	3	112	3	9	83	34	21
Clay gravel and boulders	9	3	121	6	2	82	37	03
Grey shale	14	6	136	-	4	42	41	45
Black shale	6	6	142	6	1	98	43	43
Hard shale	2	-	143	6	0	31	43	74
Shale	5	6	146	6	0	61	44	35
Black shale	5	-	151	-	1	68	46	03
Black shale and coal	16	-	156	-	1	52	47	55
Black shale and nodules	28	-	172	-	4	88	52	43
Hard black shale	3	-	200	-	8	53	60	96
Coal	3	-	203	-	0	91	61	87
Black shale	3	-	206	-	0	91	62	79
Hard grey gritstone	5	6	211	6	1	68	64	47
Grey grits	-	6	212	-	0	15	64	62
Hard grey gritstone	6	-	218	-	1	83	66	45
Grey grit	4	-	222	-	1	22	67	67
Grey grit	70	-	292	-	21	33	89	00
Hard grey grit	1	-	293	-	0	31	89	31
Grey grit	33	6	326	6	10	21	99	52

Ref: SD91NW53⁷ 190m west of site:

Geological Classification	Description of Strata	Thickness	Depth
		metres FEET.	metres FEET.
Till (undifferentiated)	CLAY	8	2.4
	GRAVEL	6	4.3
	SAND	15	8.8
	MUDSTONE	44	22.2
	SHALE	25	29.8
	MINE WORKINGS.	5	40.3
	SHALE	22	47.0
Lower Coal Measures	SANDSTONE	125	75.1
			250
A. Howard			76.20m

11/12/97

⁵ http://scans.bgs.ac.uk/sobi_scans/boreholes/20947541/images/20947539.html

⁶ http://scans.bgs.ac.uk/sobi_scans/boreholes/34815/images/10050618.html

⁷ http://scans.bgs.ac.uk/sobi_scans/boreholes/34861/images/10050689.html

2.7 Historical Mapping

The report undertaken by Geo-Assist Ltd did not record any mining features on site or within influencing distance of the site.

2.8 Previous Investigation Work

Ground conditions encountered during the site investigation work on site (undertaken by LKC) are summarised below:

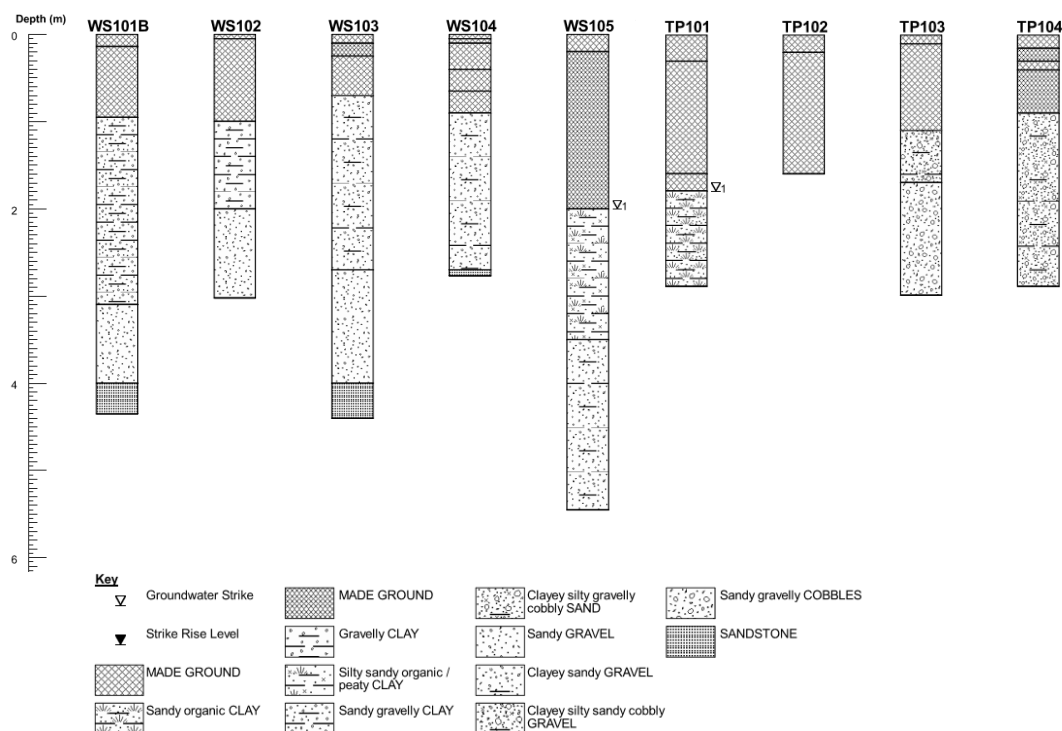


Plate 2-7: Summary sections from Phase 2 Investigation.

The report indicates that probable bedrock was encountered at 2.77-4.40mbgl in WS101B-WS104. Bedrock was not encountered in WS105 (drilled to 5.45mbgl) and TP101-TP104 (max excavation to 3.0mbgl).

Gas monitoring recorded methane at <0.1%v/v and maximum carbon dioxide at 6.6%v/v. The site was classified as Characteristic Situation 2 and gas protection measures recommended, in line with CIRIA 655⁸.

⁸ CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings". CIRIA C665.

3 Coal Mining Risk Assessment

Table 3-1 below summarises the potential risks associated with coal mining legacy for the proposed development site.

Coal Mining Issue	Potential Risk	Risk Assessment
Underground coal mining (recorded at shallow depths)	X	No recorded shallow underground workings below the site.
Underground coal mining (probable at shallow depths) /Coal Outcrops	?	Although probable underground shallow workings are not recorded by the Coal Authority, Coal Outcrops are noted at the northern boundary and in the south of the site. Strata is assumed to dip to the southeast. There are some discrepancies between the Coal Authority data and BGS data, including the location and name of the coal outcrops. Possible coal seams present at shallow depth could include the Bassey and / or the Lower Foot in the north and the Lower Mountain and / or the Lower Foot in the south. All these coal seams are considered workable with methods of workings in the Rochdale area as mine workings (all), crop workings (all) and opencast workings (Lower Mountain). As the Coal Authority does not indicate probable workings associated with the coal outcrops, this would suggest the risk of instability associated with underground workings is lower. This could be associated with the infilled glacial valley noted to the south and extending partially into the site. BGS logs in the wider area show depth to bedrock to vary between 8.8mbgl and 30mbgl. Investigation work undertaken on the site identified probable bedrock at 2.77-4.40mbgl. Based on the above, LKC considers there is a risk of shallow coal seams below the site which may have been worked in the past. There is not considered to be sufficient superficial cover to reduce the likelihood of workings or to reduce the risk of ground instability affecting the ground surface. Investigation work is recommended to confirm the ground conditions below the site and further assess the risk of shallow underground workings.
Mine entries (shafts / adits)	?	No recorded mine entries within influencing distance of the site. However, there is also a risk of unrecorded mine entries as the site is within a coal mining area. No specific investigation work is advised. However, a watching brief should be undertaken during any intrusive investigation work and groundworks to check for any signs of unrecorded mine entries.
Coal mining geology (geological faults, fissures and breaklines)	X	Not recorded on Coal Authority data.
Record of past mine gas emissions	?	Not recorded on Coal Authority data. However, shallow potentially worked coal seams may be present below the site, which have the potential to be a source of ground gas. Monitoring should be undertaken during intrusive mining investigation. Gas protection measures in line with Characteristic Situation 2 recommended (CIRIA 655 ⁹).
Recorded coal mining surface hazard	X	No recorded coal mining surface hazard.
Surface mining (opencast workings)	X	No recorded surface mining (opencast workings).

Table 3-1: Potential Coal Mining Risks. **Notes:** ✓ = Risk identified; X = No risk identified; ? = Possible risk identified

⁹ CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings". CIRIA C665.

4 Conclusions and Recommendations

Summary

Based upon the available information, LKC have identified potential shallow coal mining risks which are summarised in Table 4-1.

Coal Mining Issue	Potential Risk
Underground coal mining (recorded at shallow depths)	X
Underground coal mining (probable at shallow depths) / Coal Outcrops	?
Mine entries (shafts / adits)	?
Coal mining geology (fissures)	X
Record of past mine gas emissions	?
Recorded coal mining surface hazard	X
Surface mining (opencast workings)	X

Table 4-1: Summary of coal mining potential risks.

Site Investigation Recommendations

Considering the available information and guidance given in CIRIA C758¹⁰, LKC consider that intrusive investigation work should be carried out to confirm the risk associated with coal mining. The intrusive investigation works should be designed by a suitably qualified mining engineer; these works are likely to include the options detailed in Table 4-2.

Coal Mining Issue	Investigation Work
Underground coal mining (recorded at shallow depths)	N/A
Underground coal mining (probable at shallow depths) / Coal Outcrops	Rotary drilling across the site to confirm the depth to coal seam, the thickness of seams and any signs of workings. Watching brief during groundworks to check for any signs of mining related ground instability (see below).
Mine entries (shafts / adits)	No specific investigation work required. However, watching brief during intrusive investigation work and groundworks to check for any signs of mine entries (see below).
Coal mining geology (fissures)	N/A
Record of past mine gas emissions	Gas monitoring during mining investigation (rotary drilling). Gas protection measures in line with Characteristic Situation 2 recommended (CIRIA 655 ¹¹).
Recorded coal mining surface hazard	N/A
Surface mining (opencast workings)	N/A

Table 4-2: Summary of investigation requirements.

Investigation work should be carried out in line with CIRIA C758¹² and Coal Authority guidance.

A Coal Authority Permit¹³ is required for intrusive activities which will disturb or enter any coal seams, coal mine workings or coal mine entries (shafts and adits).

¹⁰ CIRIA (2019). "Abandoned Mine Workings Manual". CIRIA C758

¹¹ CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings". CIRIA C665.

¹² CIRIA (2019). "Abandoned Mine Workings Manual". CIRIA C758

¹³ <https://www.gov.uk/get-a-permit-to-deal-with-a-coal-mine-on-your-property>

Watching Brief

A watching brief is recommended in all coal mining areas. This could be undertaken by experienced site staff on low-risk sites or by a suitably qualified coal mining engineer or consultant on high risk sites. This site is considered to be a low risk at this stage as no mining has been recorded on site. However, this may need to be revised following the findings of the mining investigation.

The watching brief should cover the period in which any earthworks, reduce level dig or foundation excavation works are being undertaken. Particular care should be taken to identify any potential features which may indicate the presence of shallow coal mining hazards.

Such hazards may include, but not limited to, features such as unexplained depressions or voids, outcropping coal seams, localised areas of deep made ground (which could represent backfilled areas of coal mining related ground subsidence, crown holes or mine entries), or unexpected man-made items at depth (e.g. brickwork, concrete, timber or steelwork).

Mine entries may manifest during excavation works as circular, square or rectangular areas of deep Made Ground (typically several metres in size) set against the natural strata (e.g. Glacial Till or weathered rock). Mine shafts may also be covered with a large, thick concrete cap.

If any of the above features are identified during the course of the development works then work should be stopped to allow the mining engineer / consultant to assess them and if necessary design further or additional investigation and / or remediation works.

Mitigation Measures

Depending on the findings of the mining investigation, mitigation measures may be required. Table 4-3 provides possible mitigation options.

Coal Mining Issue	Mitigation Measures
Underground coal mining (recorded at shallow depths)	N/A
Underground coal mining (probable at shallow depths)	Move structures to 'safe' areas of the site. Stabilisation of the ground (i.e. grouting) and suitable foundations to be implemented.
Mine entries (shafts / adits)	Move structures to 'safe' areas of the site. Treat mine entry (backfill, cap). Follow The Coal Authority's 'Policy for Building Over or Within The Influencing Distance of A Mine Entry' ¹⁴ .
Coal mining geology (fissures)	N/A
Record of past mine gas emissions	Gas protection measures.
Recorded coal mining surface hazard	N/A
Surface mining (opencast workings)	N/A

Table 4-3: Summary of potential mitigation measures.

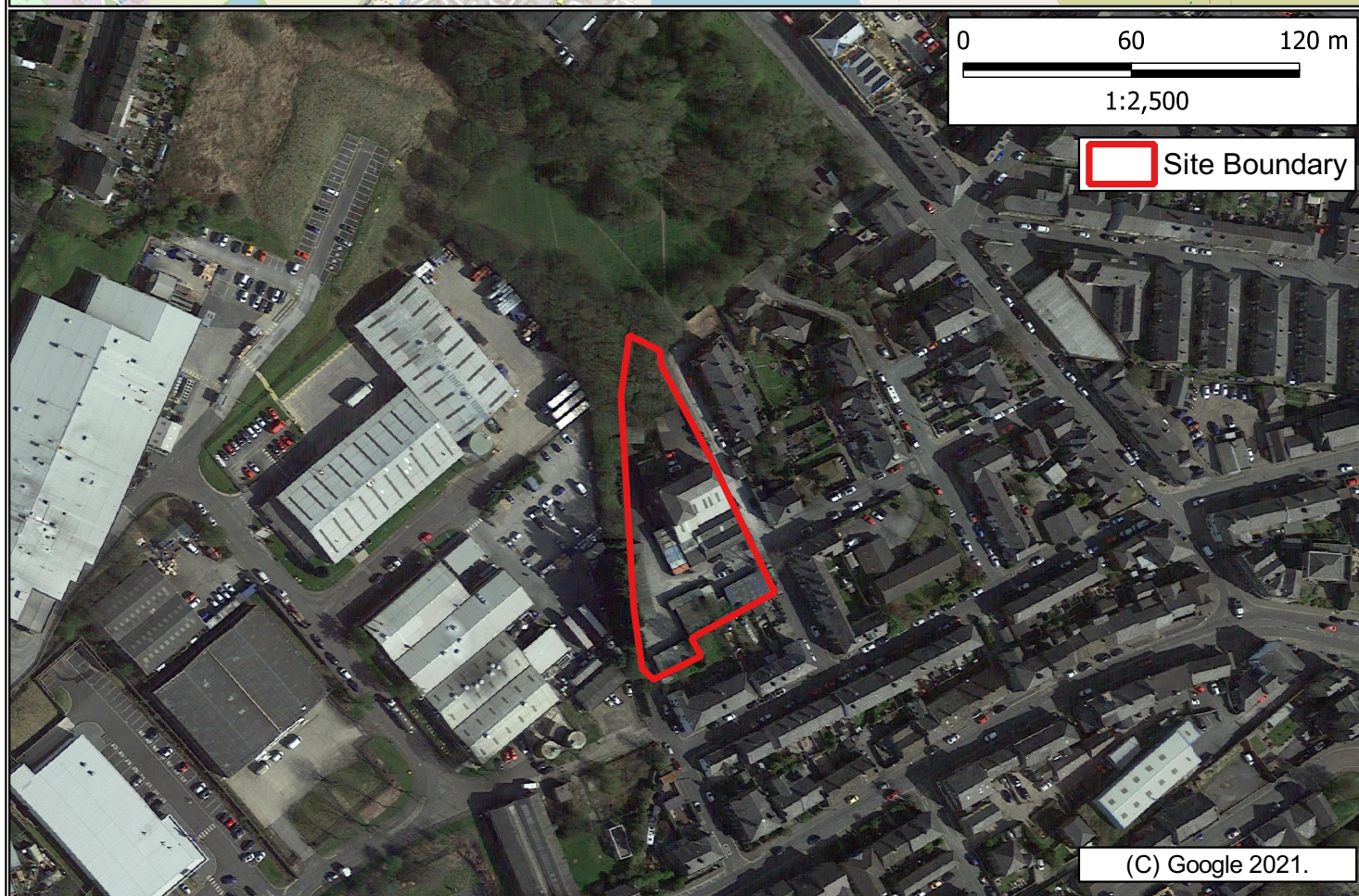
¹⁴ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/363064/policy-for-building-over-or-within-the-influencing.pdf

Conclusions and Safe Development

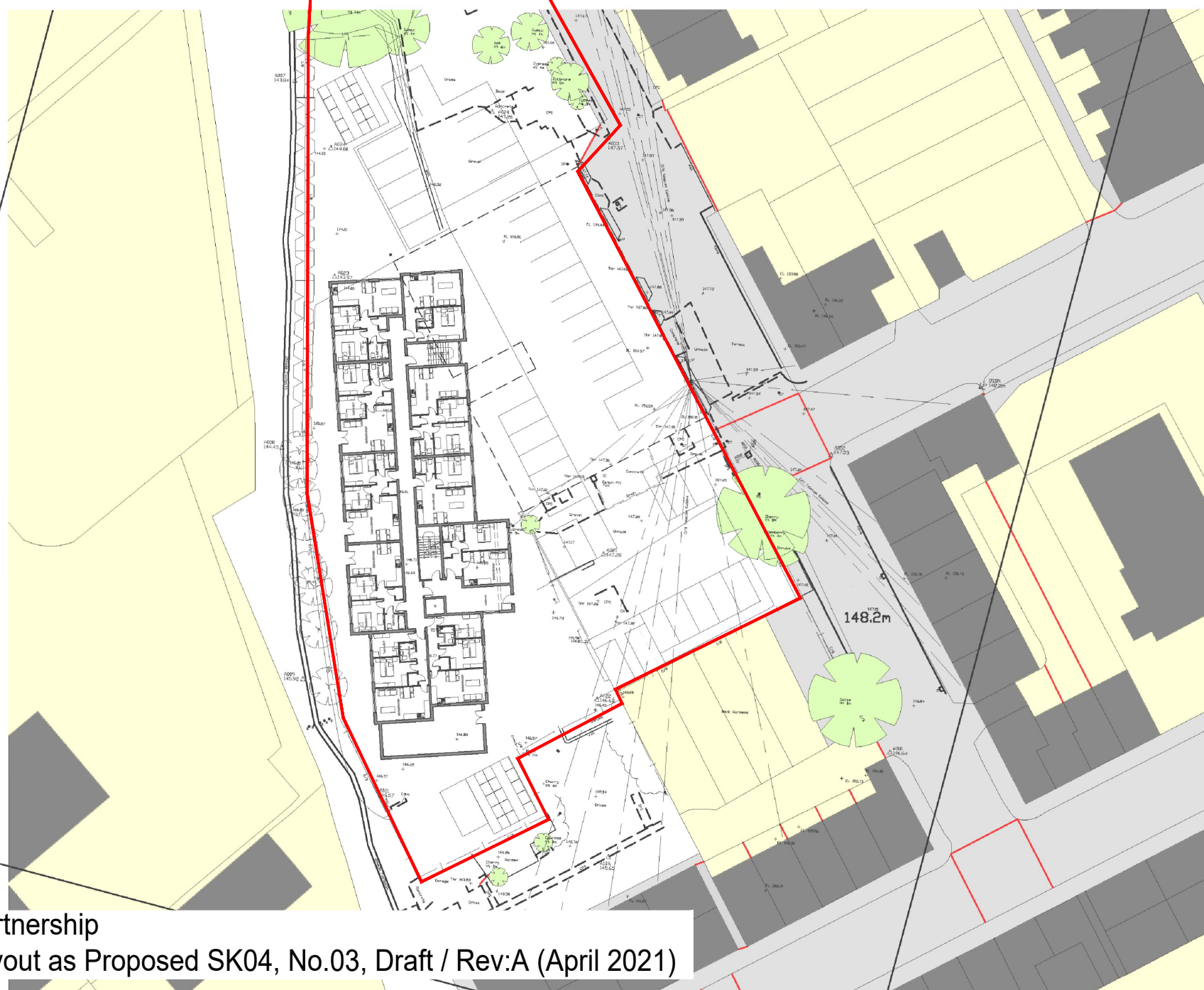
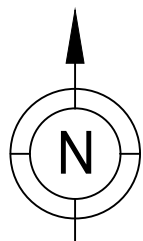
At this stage the possibility for shallow workings can only be ascertained from site investigation; however, LKC consider that the site could be safely developed with regards to shallow mining subject to an appropriate site investigation and, if required, appropriate mitigation measures which may include some of those measures as detailed above.

Therefore, LKC consider the study site should be capable of being made safe and stable to meet the requirements of national planning policy with regard to development on unstable land.

Figures



Client: Casey Group Ltd				Title: Site Location & Boundary Plan			
Site: Brown Street, Littleborough				Scale (see scale bar): 1:25,000 & 1:2,000 @ A4			
Job No.: LKC 21 1470	Drawn By: AC¹	Checked By: BS	Drawn: September 2021	Figure: 1	Revision:		



Extract from: CJP Partnership
Drawing Ref: Site Layout as Proposed SK04, No.03, Draft / Rev:A (April 2021)

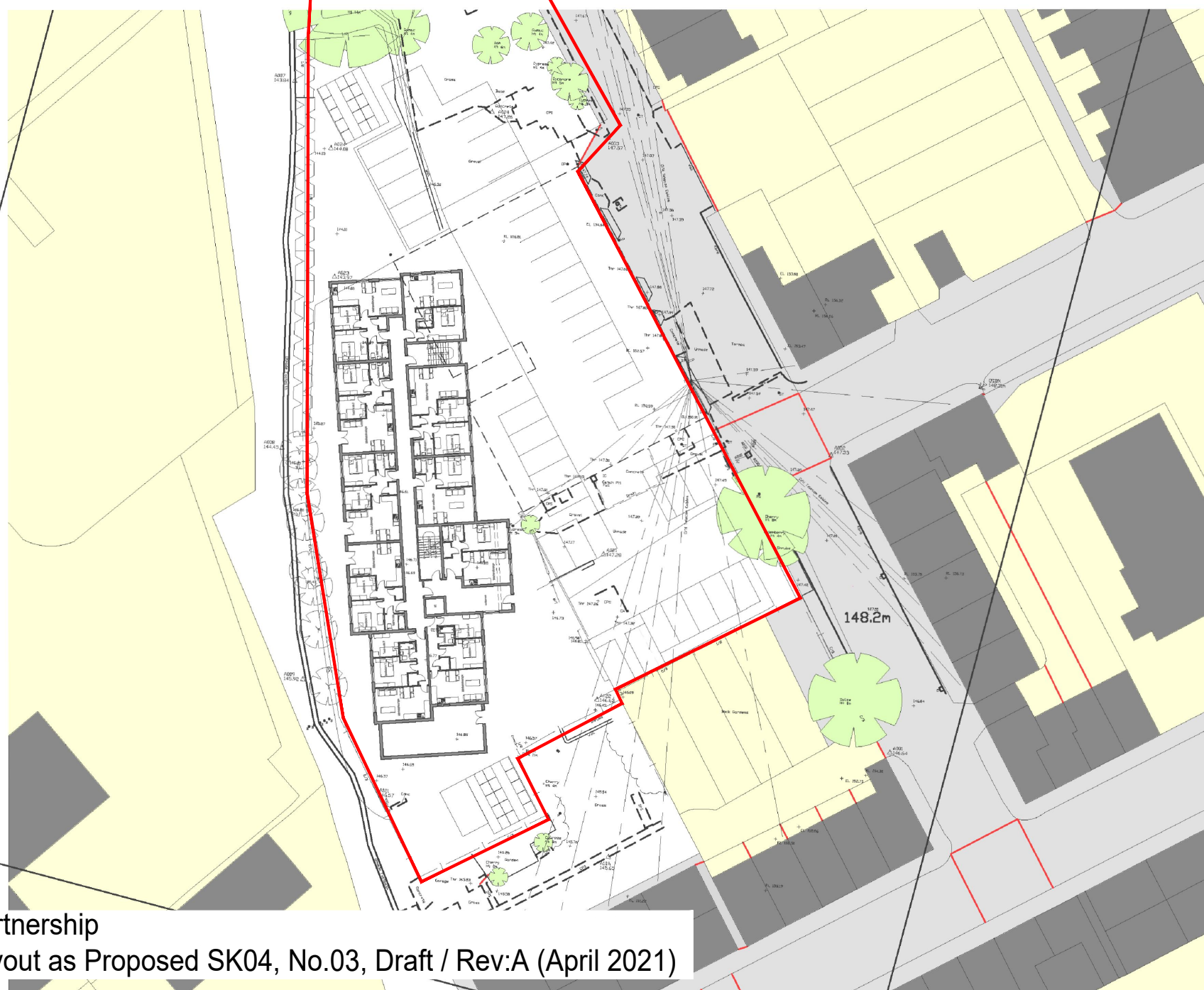
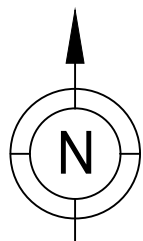
KEY



Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing includes information provided to LK Consult Ltd by others, LK Consult Ltd gives no warranty, representation or assurance as to the accuracy of such information.



Client: NJA Pension Scheme			
Site: Brown Street, Littleborough			
Title: Proposed Site Use			
Job No.: LKC 21 1470	Scale (See Scale Bar): See Scale Bar	Figure: 2	Revision:
Drawn By: AC	Checked By: BR	Drawn: Sep 2021	



Extract from: CJP Partnership
Drawing Ref: Site Layout as Proposed SK04, No.03, Draft / Rev:A (April 2021)

KEY



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Client: NJA Pension Scheme			
Site: Brown Street, Littleborough			
Title: Proposed Site Use			
Job No.: LKC 21 1470	Scale (See Scale Bar): See Scale Bar	Figure: 2	Revision:
Drawn By: AC	Checked By: BR	Drawn: Sep 2021	

Appendix A

Coal Authority Consultants Coal Mining Report



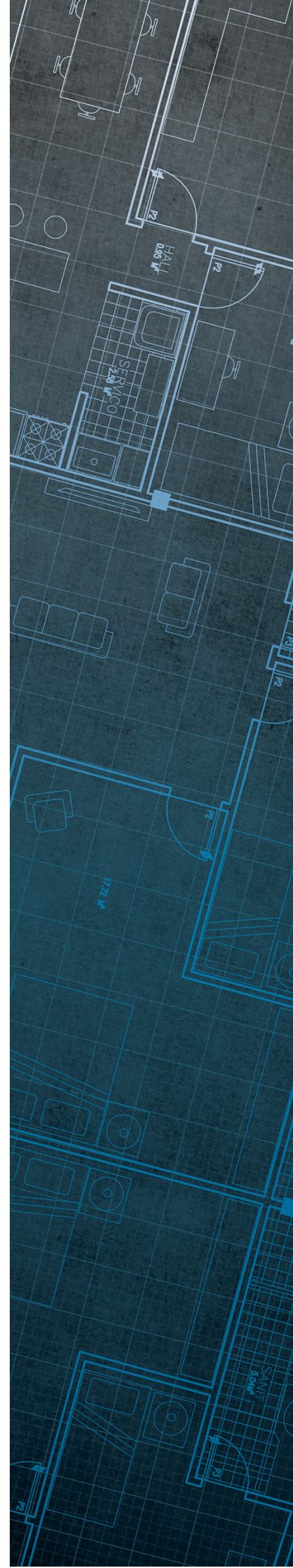
The Coal
Authority

Consultants Coal Mining Report

1 Brown Street
Littleborough
Rochdale
OL15 8BW

Date of enquiry:	22 September 2022
Date enquiry received:	22 September 2022
Issue date:	22 September 2022

Our reference:	51003313121001
Your reference:	LKC 21 1470



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

The LK Group

Enquiry address

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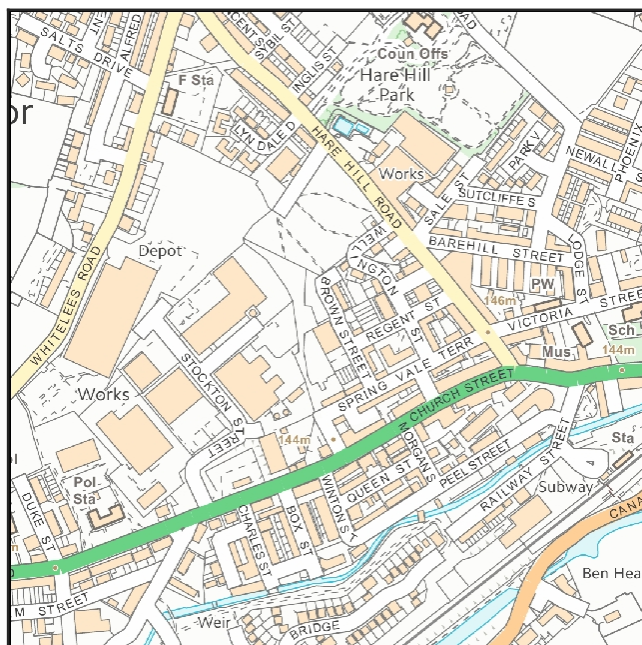
www.groundstability.com

 @coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /thecoalauthority



Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

No past mining recorded.

Probable unrecorded shallow workings

None.

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:

16820		
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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
LOWER FOOT	Coal	Yes	6.4	North-East	119
LOWER MOUNTAIN	Coal	Yes	Within	N/A	101

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

Based on the responses in this report, no further information has been highlighted.

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.

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.

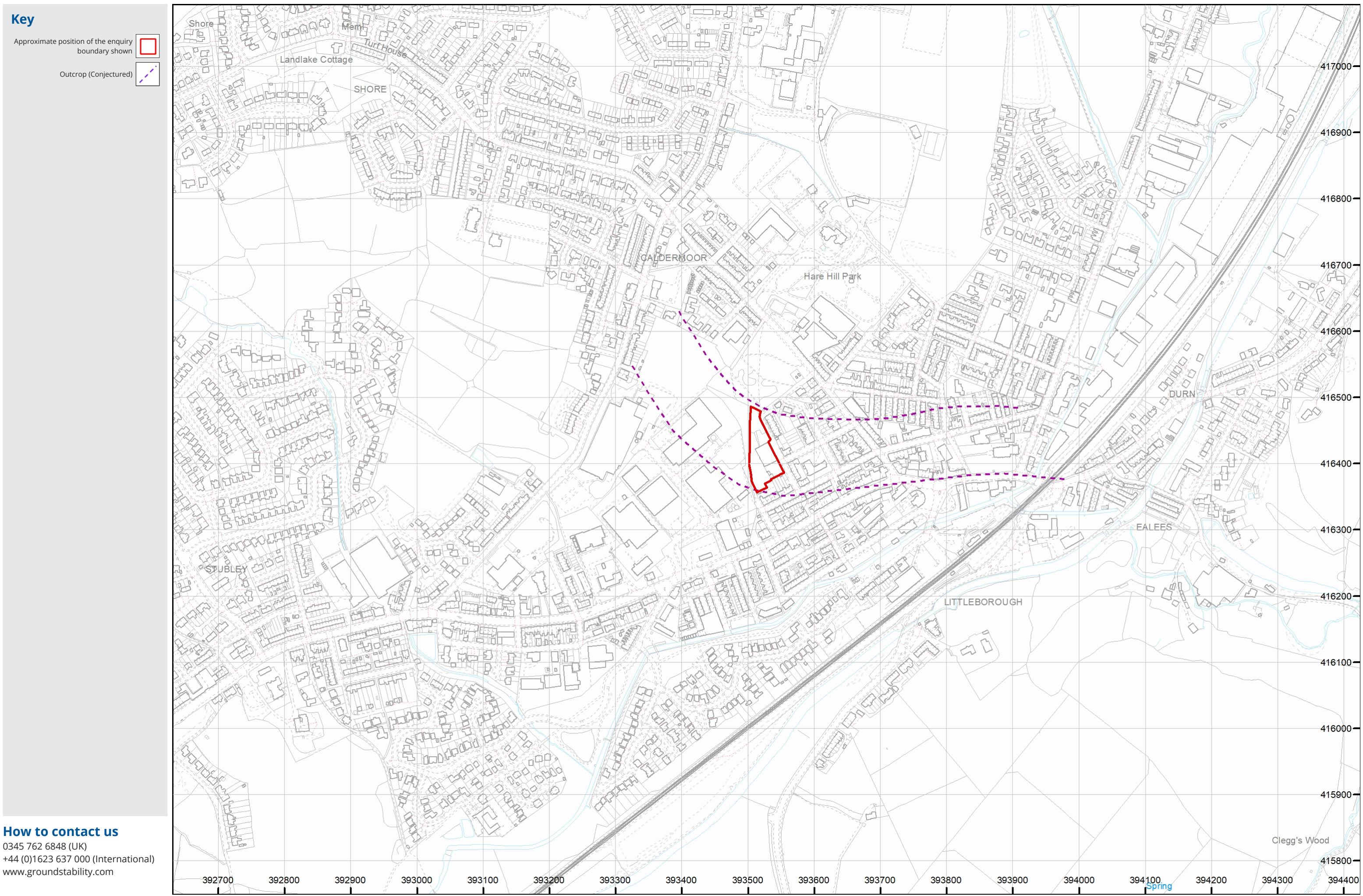
Withdrawal of support notices

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.



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