Contaminated Land Appraisals
Brownfield Remediation Solutions
Site Investigation Services
Earthworks Design and Control
Flood Risk Assessments

Mr Paul Stapleton
Geo2 Remediation Ltd
Coniston House
Louisa Street
Idle
Bradford
BD10 8NE

18th August 2023

Ref C593/01/ATS

Dear Paul,

Ref: Shallow Mining Investigation on land at Thorncliffe Farm Shop, Westfield Lane, Emley Moor.

1. Introduction

On the instructions of Geo2 Remediation Ltd, G&M Consulting Ltd have carried out an intrusive mining investigation on land at Thorncliffe Farm Shop, Westfield Lane, Emley Moor, West Yorkshire. The work was carried out in support of a planning application associated with the further development of the existing site facilities with a single new pie production building; the proposed layout of which is shown on the drawing presented in Attachment A of this report.

The investigation work was undertaken to provide information on the underlying ground conditions and assess the likelihood of historical shallow mine workings affecting the site. G&M Consulting Ltd (G&M) was present on site during the fieldwork, and this report presents the findings of the investigation.

The site as a whole has been subject to a coal mining risk assessment (CMRA) and a historical intrusive mining investigation has been undertaken in support of a previous planning application associated with the site, both of which were undertaken by Rogers Geotechnical Services Ltd, details of which are summarised in Section 2 of this report; a copy of the CMRA is presented in Attachment B of this report. A review of the Coal Authority (CA) Interactive Map (http:/mapaps2.bgs.co.uk/coalauthority/home.html), shows the site to lie within a '*development high risk* area'.

The site is located to the south of Westfield Lane, approximately 1.5 km west of the village of Emily, approximately 9 km south-east of Huddersfield town centre, West Yorkshire and is centred at National Grid Reference SE 229 132. The area, of the proposed new building, is rectangular in shape, approximately 15 m by 6 m, with the long axis aligned north-east to south-west. This area of the site, which sits in the western part of the site as a whole, is a mix of tarmac and gravel and currently houses two cargo-style containers, which are used as part of the adjacent farm shop; these buildings are noted to be sited within a larger area used for car parking for the farm shop.

The Chestnuts
Brackenhill Road, East Lound,
Haxey, Doncaster. DN9 2LR
Registered in England No. 5806528
VAT No. 772 3112 51

Tel: 01427 752788
Mob: 07743 319788
Mob: 07718 122766
Email: Enquiries@soilexperts.co.uk
Website: www.soilexperts.co.uk

The comments and opinions presented in this report are based on the findings of a review of available information and ground conditions encountered during the intrusive investigation work. There may be other conditions prevailing on the site which have not been disclosed by this investigation and which have not been taken into account by this report. Responsibility cannot be accepted for conditions not revealed by the investigation. Any diagram or opinion of the possible configuration of ground conditions between exploratory holes is conjectural and given for guidance only and confirmation of intermediate ground conditions should be considered if deemed necessary.

2. Background Information

The historical information presented below, was submitted in support of a previous proposed extension to the existing farm shop on site. The proposed new pie production building in the current approval is located approximately 50 m to the west of the previous submission.

CMRA

The CMRA prepared by Rogers Geotechnical Services Ltd (RGSL) should be read in conjunction with this report. A summary of the conclusions from the CMRA are as follows:

The appropriate map sheet for the site and the geology viewer has been examined and the following table presents the indicated geology:

Table 1: Geological Data for the Site

Strata Type	Strata Name[5]	Previous Name[6]	Description[3]
Artificial Ground	Made ground	-	Non listed to be present directly beneath the proposed development, however, a deposit of made ground encroaches the land boundary of Thorncliffe Farm shop. This deposit is anticipated to represent unlicensed opencast coal workings.
Superficial Geology	None recorded	-	-
Solid Geology	Pennine Lower Coal Measures Formation	Lower Coal Measures	Interbedded grey mudstone, siltstone and pale grey sandstone, commonly with mudstones containing marine fossils in the lower part, and more numerous and thicker coal seams in the upper part.

On the geological map, there is one dip indicator relevant to the site (i.e. within 500m of the site or within the same fault block) that suggests the solid geology beneath the site dips 3° to the east.

There is one coal seam that is shown to outcrop within the local area. However, the trajectory of the outcrop appears to have been altered due to unlicensed opencast workings of this seam. Moreover, the generalised vertical section (GVS) on the published geological map suggests that there may also be other seams present close to the site surface, the surface outcrops of which may have been removed by faulting in the area. These seams are summarised as follows:

Table 2: Summary of Coal Seams Within the Vicinity of the Site.

Seam Name	Seam thickness[5]*	Outcrop distance from site[5]*	Anticipated depth below site
Third Brown Metal Coal	0.0 – 0.8m	50m W	Within 10m
Middleton Little Coal	0.2 – 0.9m	Doesn't outcrop	Within 20m

*All distances are given as approximations only. It should be noted that coal seam thicknesses vary over relatively short distances

In light of the above and taking into account the regional structural geology and the topography of the area, the Third Brown Metal and Middleton Little Coal seams are anticipated to be present at depths of less than 30m below the surface of the site.

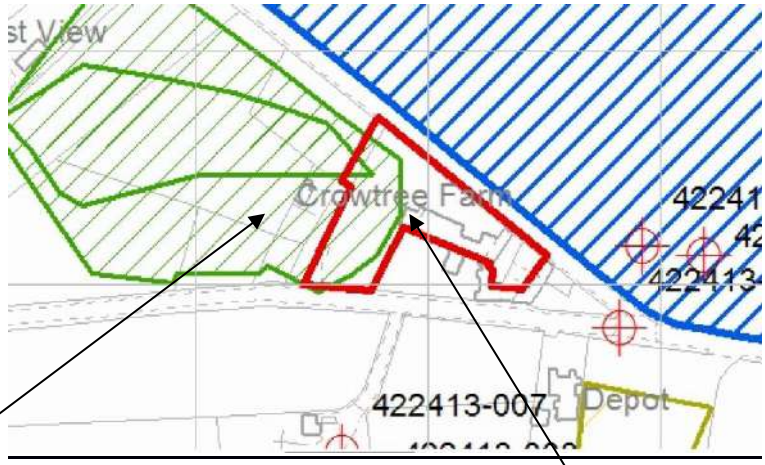
Based on the above information, it is possible that there could be a sufficient thickness of competent overburden above the above mentioned seams, such that the overburden should prevent the risk of instability posed by the presence of any illicit workings.

Nevertheless, the available data indicates that the Third Brown Metal Coal could have been extracted by opencast methods within 50m west of the proposed development, indicating that this seam is likely to be present at relatively shallow depth within the area. As such, it is possible that this seam could have been extracted from small scale open-cast workings, bell pits or day-holes beneath the proposed development. However, if the seams have been worked via underground mining methods, the actual extraction thickness, and subsequent voiding, may be significant in comparison to the seam thickness.

As such, it is strongly recommended that the true thicknesses and depths of the Third Brown Metal Coal and the Middleton Little Coal seams are investigated. Therefore a moderate risk rating has been placed on these seams, and further investigation is recommended to prove or disprove the presence of illicit mining activity.

In regard to deeper mining which could affect the site, whilst the property is within a surface area that could be affected by past underground mining, due to the time passed since withdraw of support was undertaken, the risks posed by ground movement attributed to these workings is limited.

Within the above referenced CMRA, the summary of findings drawing, provided by the CA, indicates the presence of a historical area of unlicenced opencasting immediately adjacent to the western boundary of the new build, see below;



Area of Unlicenced opencast site

Location of proposed new building

Previous Intrusive Investigation

Following on from the preparation of the CMRA, an intrusive ground investigation was undertaken by RGSL. The fieldwork comprised two rotary open-hole boreholes, drilled to a maximum depth of 30 m below ground level (bgl). The following points were recorded in the investigation report, issued following completion of the fieldwork;

In accordance with the geology of the area, the succession has been shown to include the following:

Table 3: Generalised strata profile

Depth to base (m)	Strata type	Positions strata was revealed	Groundwater strikes (m)
0.1	Brick Sets	All	None
2 – 2.5	Yellow and grey CLAY (Residual Soils)	All	None
23 – 30m	INTERBEDDED light and dark grey MUDSTONES with 2 notable Coal seams (detailed below) (Pennine Lower Coal Measures Formation)	All	None

'+' Denotes that the strata extended below the termination depth of the investigated positions, thus the extent of the deposit is only proven to the depths indicated.

Within the Pennine Lower Coal Measures, the following notable horizons were recorded.

Table 4: Notable Horizons

Feature	Depth (m)		Thickness (m)	Positions encountered
	Top	Bottom		
Dark grey MUDSTONE with traces of COAL	11	11.4	0.4	BH1
Dark grey MUDSTONE with traces of COAL	11	12.5	2.5	BH2
COAL (Intact)	20.2	20.7	0.5	BH1
COAL (Intact)	20.8	21	0.2	BH2

This investigation has identified that beneath the brick sets, the site is capped with yellow and grey clays that spans to depths ranging between 2m and 2.5m below ground level (bgl). This stratum is anticipated to represent the upper most weathered fraction of the Pennine Lower Coal Measures formation, as indicated by the geological data for the site. Casing was installed to 3m and 3.5m within BH1 and BH2 respectively to support the hole. Below this stratum, competent layers of the Pennine Lower Coal Measures Formation were revealed to a depth of 30m, predominantly comprising interbedded horizons of light and dark grey mudstones.

Within the Pennine Lower Coal Measures, traces of coal were observed in association with dark grey mudstone at a depth of 11m in both boreholes. It is reasoned that this feature represents an inferior, poor quality coal seam. Based on the geological appraisal, the thickness and depth, this feature is consistent with the Third Brown Metal Coal.

A cyclothem of interbedded light and dark grey mudstone was present between the upper seam and a lower seam. Within both boreholes, at depths of between 20m – 21m, a second coal seam was intersected that ranged in thickness between 0.2m and 0.5m. The seam was noted to be intact; no evidence of voided, brecciated or broken ground was encountered within the seam or surrounding horizons. Based on the available published geology, this seam is anticipated to represent the Middleton Little Coal Seam.

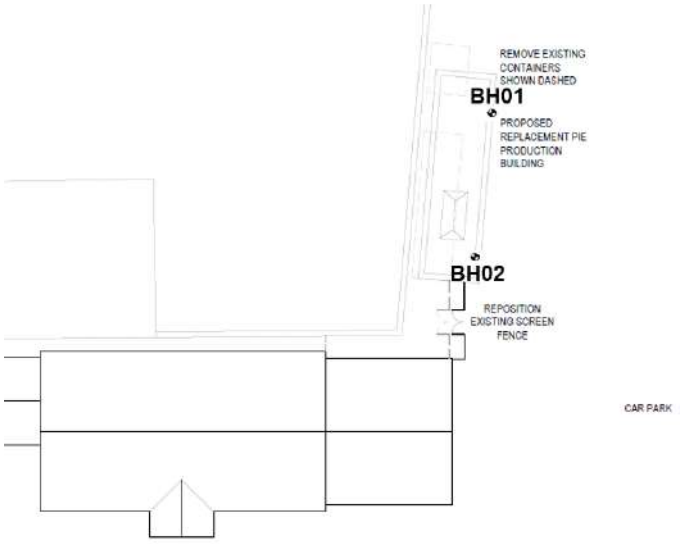
3. Fieldwork

The fieldwork was carried out on the 8th August 2023. Two rotary open-holes, referenced BH01 and BH02 were both drilled to a depth of 30 m below ground level (bgl), to allow logging of the soils and solid strata through examination of flush returns and rate of penetration of the drill bit. Drilling was initially progressed using 150mm diameter augers through the superficial soils, and a casing set into the underlying bedrock, to aid flush returns.

The drilling works were undertaken by Cape using a Beretta T25 tracked rotary drilling rig and carried out under the Terms and Conditions of the Coal Authority Permission No 26985, a copy of which is presented in Attachment C of this report.

Drilling was undertaken using water flush. In accordance with the CA permission, the boreholes were monitored for gases during their advancement. The boreholes were backfilled on completion.

The locations of the exploratory holes are shown below.



4. Ground Conditions

The driller records 'Tarmac and fill hardcore' in both boreholes to 0.4 m bgl, underlain by a 'clay brown grey' to 2.7 m and 2.3 m bgl in BH01 and BH02 respectively, which was further underlain by 'a 0.1 m to 0.2m thick ''coal/mudstone black mix'.

The superficial deposits are underlain in both boreholes by a sequence of mudstones and occasional sandstone to depths of between 7.5 m and 7.9 m bgl, respectively. A coal seam was encountered beneath this sequence as follows;

Borehole No	Coal (m) (Thickness)	Drillers Description
BH01	7.5 – 8.2 (700 mm)	'dirty coal'
BH02	7.9 – 8.6 (700 mm)	'dirty coal'

The coal was underlain in both of the boreholes by a '*mudstone grey silty*' (drillers description) to depths of between 9.3 m and 10.0 m bgl. These mudstones were underlain by '*sandstone grey silty with odd mudstone*

bands' (drillers description), which were encountered between 16.5 m and 16.9 m bgl, in BH01 and BH02, respectively. A further coal seam was encountered beneath this sandstone as follows;

Borehole No	Coal (m) (Thickness)	Drillers Description
BH01	16.5 – 17.3 (800 mm)	'coal'
BH02	16.9 – 17.7 (800 mm)	'dirty coal'

The coal was underlain by a '*mudstone grey silty'* (drillers description) to depths of between 19.0 and 19.5 m bgl, respectively and further underlain by '*sandstone grey silty with odd mudstone bands'* (drillers description), to the base of each borehole.

Based on the geological records and CMRA, it is considered that the shallow seam of coal is likely to be the 3rd Brown Metal coal, noted in the CMRA, to be '*within 10 m'*, depth beneath the site, such that the coal, encountered between 16.5 m and 16.9 m bgl, is likely to be the Middleton Little coal (this was anticipated *'within 20 m'*, depth beneath the site in the CMRA). Based on the geological records it is anticipated that the next seam, the Middleton Main coal, is likely to be at a depth of between 30-35m bgl. This seam was not encountered in this investigation.

The exploratory hole records are presented in Attachment D of this report.

During the drilling, monitoring of methane, carbon monoxide, hydrogen sulphide and oxygen was undertaken at the borehole surface. No significant concentrations of methane, carbon monoxide or hydrogen sulphide were recorded, as detailed on the attached logs no gases were noted during drilling.

5. Conclusions/Recommendations

On the instructions of Geo2 Remediation Ltd, G&M Consulting Ltd have carried out an intrusive mining investigation on land at Thorncliffe Farm Shop, Westfield Lane, Emley Moor, West Yorkshire. The work was carried out in support of a planning application associated with a single new pie production building.

The drilling works were carried out in accordance with the CA permission 26985.

Given the relatively small size of the proposed new building, it is considered that two boreholes were sufficient to assess the likelihood of shallow workings beneath the site.

No evidence of voided or soft strata, broken ground or loss of flush was noted during the drilling of the boreholes.

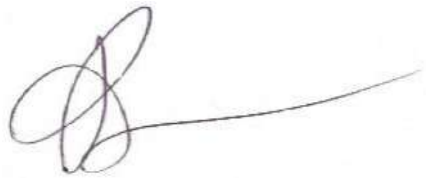
One seam of intact coal, 700mm thick, was recorded in both of the boreholes between 7.5 m and 7.9 m bgl, within a bedrock sequence of sandstone and mudstones. This seam was described by the driller as 'dirty coal', which may be indicative of a poor quality coal. A second seam of coal, 800mm thick, was encountered in both holes, between 16.5 m and 16.9 m bgl. In BH02, the driller described the seam as 'dirty coal', again possibly indicating a poor quality coal. Based on the published geological records for the area, it is considered that the shallower seam represents the 3rd Brown Metal coal and the deeper seam, the Middleton Little coal.

Based on the evidence of the two boreholes drilled it does not appear that the site is adversely affected by shallow mine workings within the seams of coal encountered at the locations drilled.

However, in consideration of the fact that historical unlicenced opencasting is shown immediately adjacent to the western boundary of the new build, it is recommended that a watching brief is maintained during the development work, and that all surfaces exposed during construction of the foundations or areas external to the new build, are examined by a suitably qualified person, for evidence of such activity. If evidence of backfilled opencast is encountered within influencing distance of the foundations, work should immediately cease and the Coal Authority notified and the advice of geotechnical specialists sought.

We trust this report and the attachments meet with your approval and are sufficient for your present needs. Your client should submit this document to the local authority for their comment/approval prior to undertaking any development work.

Yours sincerely

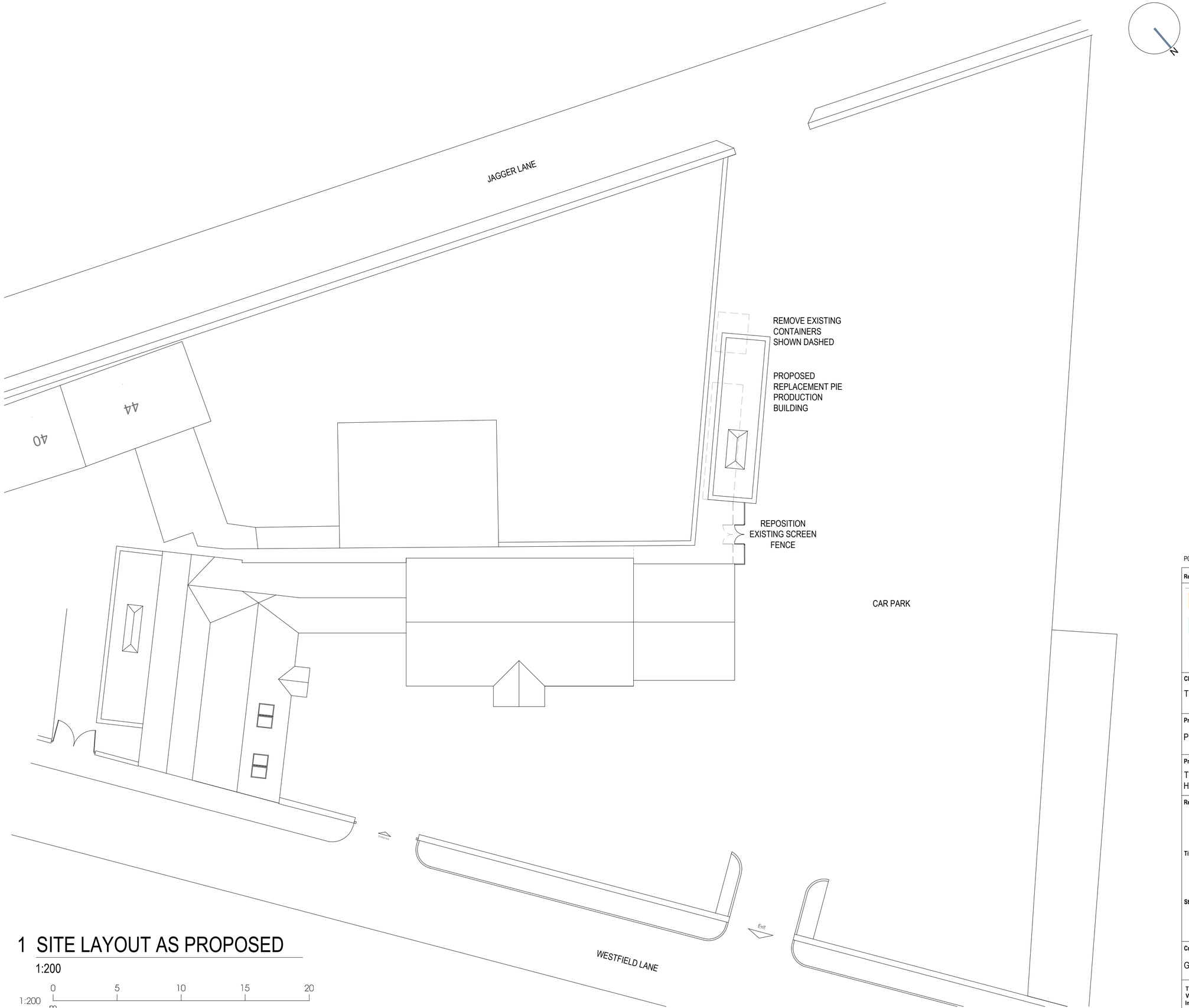


Andrew Swinbourne
For and on behalf of **G&M Consulting Ltd**

Attachments

ATTACHMENT A

DRAWINGS



1 SITE LAYOUT AS PROPOSED

1:200

1:200 0 5 10 15 20 m

Rev:	Date:	Description:	By:	Auth:
P01	23.08.22	Preliminary Issue	GW	JR

Farrar Bamforth Architecture

A: 51 Trinity Street
Huddersfield
HD1 4DN
T: 01484 424 008
F: 01484 512 305
E: design@farrarbamforth.co.uk
W: www.farrarbamforth.co.uk

Client:
THORNCLIFFE FARM SHOP

Project Name:
PROPOSED REPLACEMENT PIE PRODUCTION BUILDING

Project Address:
THORNCLIFFE FARM SHOP, 1 WEST FIELD LANE, EMLEY MOOR, HUDDERSFIELD

Reference:

Project	Originator	Functional	Spatial	Form	Discipline	Number
22C01	FBA	ZZ	XX	DR	A	0701

Title:
SITE LAYOUT AS PROPOSED

Status:

Code	Description	Revision: Code
S0	WORK IN PROGRESS	P01

Created By:	Authorised By:	Date:	Scale at A2:
GW	JR	AUG 22	1:200

ATTACHMENT B

CMRA

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GEOTECHNICAL ENVIRONMENTAL

COAL RISK ASSESSMENT

job number	date
C129/19/E/210	24.09.19

site address
Thorncliffe Farm Shop
1 Westfield Lane
Emley Moor
HD8 9SZ

written by	checked by
R.A. Palmer	C.E. Mason

issued by
R.A. Palmer

Rogers Geotechnical Services Ltd
Telephone 0843 50 666 87 Fax 0843 51 599 30
Email enquiries@rogersgeotech.co.uk
www.rogersgeotech.co.uk
Offices 1 & 2, Barncliffe Business Park, Near Bank, Shelley,
Huddersfield, West Yorkshire HD8 8LU.

Environmental Geotechnical Specialists

Contents

Appendices

Environmental Geotechnical Specialists

Report on a Coal Mining Risk Assessment

Location:	Thorncliffe Farm Shop, 1 Westfield Lane, Emley Moor, Huddersfield HD8 9SZ		
For:	Farrar Bamforth Associates Ltd		
Report No.	C129/19/E/210	Report date:	September 2019

For and on behalf of **Rogers Geotechnical Services Ltd**

redacted

Rob Palmer MSc FGS ACIredaH
Senior Geo-environmental Engineer

Steve Rogers CEng CGeol MICE MCIHT FGS ACIEH
Technical Director

1. Introduction

It is understood that as part of the planning application at the site, a Coal Mining Risk Assessment has been requested by the planning authority. Consequently, a desktop study was commissioned in order to assess the risk to the development from coal mining. This report presents the findings of the study.

2. Geological Desk Study

The geological desk study has been undertaken using the following sources of information.

- British Geological Survey map sheet[1].
- British Geological Survey *Geology of Britain Viewer*[2].
- Coal Authority Consultants Coal Mining Report[3].
- British Geological Survey *Borehole Records*[4].

[1] Sources: British Geological Survey (NERC) Map Sheet 77 ; Huddersfield Solid and Drift Editions
[2] Sources: British Geological Survey (NERC) Geology of Britain Viewer [*online resource from www.bgs.ac.uk*]
[3] Coal Authority Reference: 51002175931001 dated 18th September 2019.
[4] Sources: British Geological Survey (NERC) Borehole Records [*online resource from* http://www.bgs.ac.uk//]

2.1 British Geological Survey Maps and Viewer

The appropriate map sheet for the site and the geology viewer has been examined and the following table presents the indicated geology:

Table 1: Geological Data for the Site

Strata Type	Strata Name[5]	Previous Name[6]	Description[3]
Artificial Ground	Made ground	-	Non listed to be present directly beneath the proposed development, however, a deposit of made ground encroaches the land boundary of Thorncliffe Farm shop. This deposit is anticipated to represent unlicensed opencast coal workings.
Superficial Geology	None recorded	-	-
Solid Geology	Pennine Lower Coal Measures Formation	Lower Coal Measures	Interbedded grey mudstone, siltstone and pale grey sandstone, commonly with mudstones containing marine fossils in the lower part, and more numerous and thicker coal seams in the upper part.

On the geological map, there is one dip indicator relevant to the site (i.e. within 500m of the site or within the same fault block) that suggests the solid geology beneath the site dips 3° to the east.

There is one coal seam that is shown to outcrop within the local area. However, the trajectory of the outcrop appears to have been altered due to unlicensed opencast workings of this seam. Moreover, the generalised vertical section (GVS) on the published geological map suggests that there may also be other seams present close to the site surface, the surface outcrops of which may have been removed by faulting in the area. These seams are summarised as follows:

Table 2: Summary of Coal Seams Within the Vicinity of the Site.

Seam Name	Seam thickness[5]*	Outcrop distance from site[5]*	Anticipated depth below site
Third Brown Metal Coal	0.0 – 0.8m	50m W	Within 10m
Milddleton Little Coal	0.2 – 0.9m	Doesn't outcrop	Within 20m

*All distances are given as approximations only. It should be noted that coal seam thicknesses vary over relatively short distances

In light of the above and taking into account the regional structural geology and the topography of the area, the Third Brown Metal and Middleton Little Coal seams are anticipated to be present at depths of less than 30m below the surface of the site.

[5] Sources: British Geological Survey (NERC) Map Sheets 77; Huddersfield; Solid and Drift Edition, and Geology of Britain Viewer [*online resource from www.bgs.ac.uk*]
[6] Sources: British Geological Survey (NERC) Lexicon of Named Rock Units [*online resource from www.bgs.ac.uk*]

2.2 Coal Authority Mines Report

As part of this study a Coal Authority Consultants Coal Mining Report has been obtained. The report is presented as Appendix 2 and for the purposes of discussion has been summarised below:

Table 3: Summary of the Consultant's Coal Mining Report

Has the report highlighted evidence or potential of:			
Ref	**Mining Feature**	**Yes/No**	**Comments**
1	Underground Coal Mining	Yes	Middleton Main – 40m depth – Beneath site – 0.58m thickness – last worked 1885. Wheatley Lime – 76m depth – Beneath site – 0.82m thickness – last worked 1903.
2	Probable Unrecorded Shallow Workings	Yes	-
3	Spine Roadways at Shallow Depth	No	No spine roadway recorded at shallow depth.
4	Mine Entries	Yes	422413-007 – Shaft – Treated in 1986. 422413-008 – Shaft – Treated in 1986. 422413-010 – Shaft – No treatment details. 422413-028 – Shaft – No treatment details. 423413-001 – Shaft – No treatment details.
5	Abandoned mine plans	Yes	Plans of abandoned mine workings below the site are suggested to be available by the Coal Authority.
6	Outcrops	No	No outcrops recorded within the development site.
7	Geological Faults	No	No faults, fissures or breaklines recorded.
8	Opencast Mines	Yes	An unlicensed opencast coal site encroaches the landownership of Thorncliffe Farm shop, however, does not span beneath the proposed development. Please refer to the 'summary of findings' map within the Coal Authority Report.
9	Coal Authority Managed Tips	No	None recorded within 500 metres of the enquiry boundary.
10	Site Investigations	Yes	Site investigation undertaken approx. 50m to the south-east of the site.
11	Remediated Sites	No	None recorded within 50 metres of the enquiry boundary.
12	Coal Mining Subsidence	Yes	The Coal Authority has received one claim within 50 metres of the enquiry boundary, since 31st 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.
13	Mine Gas	No	None recorded within 500 metres of the enquiry boundary.
14	Mine Water Treatment Schemes	No	None recorded within 500 metres of the enquiry boundary.
15	Future underground mining	No	For further information please see section 3 of the Consultant's Coal Mining Report (ref 51002175931001).
16	Coal mining licensing	No	
17	Court orders	No	
18	Section 46 notices	No	
19	Withdrawal of support notices	Yes	The property is in an area where notice to withdraw support was given in 1982.

2.3 Geological Survey Borehole Records

The British Geological Survey (NERC) keeps borehole records from across Britain which are available for public viewing through their website[7]. As part of this study, the records in the area around the site have been reviewed in order to assist in establishing the geological conditions.

Unfortunately in this instance, there are no borehole scans available within the vicinity of the site that will assist with this assessment. Whilst there are borehole scans present within 500m to the north, south and east of the site, these boreholes are situated on outcrops stratigraphically below the Third Brown Metal and Middleton Little Coal seams. Therefore, these seams are not present within these boreholes. Furthermore, other borehole scans are available at a greater distance to the site within other faulted blocks. However, these are not anticipated to represent comparable ground conditions to those anticipated to be present below the site.

3. Risk Assessment

The risk to the stability of the proposed residential development has been evaluated from the data obtained and with reference to the following ratings and definitions:

Low - The possibility of instability is unlikely therefore no further action is necessary.

Moderate - The possibility of instability is likely and further investigation or remedial action may be required.

High - The possibility of instability is highly likely and further investigation or remedial action will be necessary.

Table 4: Development Specific Risk Assessment

Item	Risk of Instability	Coal Seams and Features Considered	Risk Rating
1	Shallow coal seams	Third Brown Metal Coal	Moderate
		Middleton Little Coal	Moderate
2	Coal workings at depth	Whilst the Coal Authority report indicates that there are past underground workings at depth, the collapse of such features are not anticipated to affect the stability of the surface.	Low
3	Mine entries	5 mine shafts detailed on the 'summary of findings' map are all at a distance where they will not have adverse effects on the development.	Low

On the basis of all of the information provided above, two coal seams are anticipated to be present within 30m of the surface at the site. Whilst these seams may be of limited thickness, the possibility of these seams being worked below the site cannot be ruled out. Historic coal mining activity is evident in the nearby area, and therefore it is considered that if coal was known to be close to ground level it could have been removed illicitly via shallow mining methods with relative ease.

It may be noted that guidance available from both the NHBC and the CIRIA publication, SP32 - *construction over abandoned mine workings,* suggests that competent overburden thickness above a coal seam should be greater than 10 times the thickness of a seam plus seam thickness in order that the collapse of workings would pose a low risk to surface structures.

On this basis, assuming a maximum thickness of the coal seams, the table below suggests the thickness of competent overburden required above each seam to mitigate instability at the surface.

Table 5: Required Thickness of Competent Overburden			
Seam Name	**Seam thickness**	**Anticipated depth below site**	**Required thickness of competent overburden.**
Third Brown Metal Coal	0.0 – 0.8m	10m	8.8m
Middleton Little Coal	0.2 – 0.9m	20m	9.9m

Based on the above information, it is possible that there could be a sufficient thickness of competent overburden above the above mentioned seams, such that the overburden should prevent the risk of instability posed by the presence of any illicit workings.

Nevertheless, the available data indicates that the Third Brown Metal Coal could have been extracted by opencast methods within 50m west of the proposed development, indicating that this seam is likely to be present at relatively shallow depth within the area. As such, it is possible that this seam could have been extracted from small scale open-cast workings, bell pits or day-holes beneath the proposed development. However, if the seams have been worked via underground mining methods, the actual extraction thickness, and subsequent voiding, may be significant in comparison to the seam thickness.

As such, it is strongly recommended that the true thicknesses and depths of the Third Brown Metal Coal and the Middleton Little Coal seams are investigated. Therefore a moderate risk rating has been placed on these seams, and further investigation is recommended to prove or disprove the presence of illicit mining activity.

In regard to deeper mining which could affect the site, whilst the property is within a surface area that could be affected by past underground mining, due to the time passed since withdraw of support was undertaken, the risks posed by ground movement attributed to these workings is limited.

4. Conclusions

In light of the potential risks of instability at the site from the working of shallow coal, it cannot be recommended that development takes place without further investigation to conclusively determine the presence of such workings. This work should include physical drilling methods to explore the ground conditions.

General practice is to undertake rotary openhole boreholes at three locations across the site to mitigate against the potential for drilling through intact columns associated with pillar and stall workings. However, in this instance, given the relatively small size of the development, it is anticipated that two boreholes should be sufficient.

It is normal to investigate the ground to 30m below ground level; any workings below this depth are unlikely to result in significant instability. However, in this case, the risk of instability is due to shallow workings, therefore, drilling to these depths may not be necessary and the objective should be to ensure that the shallow seams are un-worked or have sufficient competent cover. It may therefore be possible, in the first instance, to undertake one borehole to 30m below the top of the rockhead, with the second borehole proving the depth and continuity of the coal seam(s). In any event, it is considered that approval should be sought with the Local Authority as to the efficacy of this approach.

In addition it is recommended that careful inspections take place during the development. Should any evidence for day-holes, bell pits or open-cast workings become apparent, works should be halted and the advice of geotechnical specialists sought.

It is of note that Rogers Geotechnical Services would be happy to assist in any further intrusive investigation that may be required.

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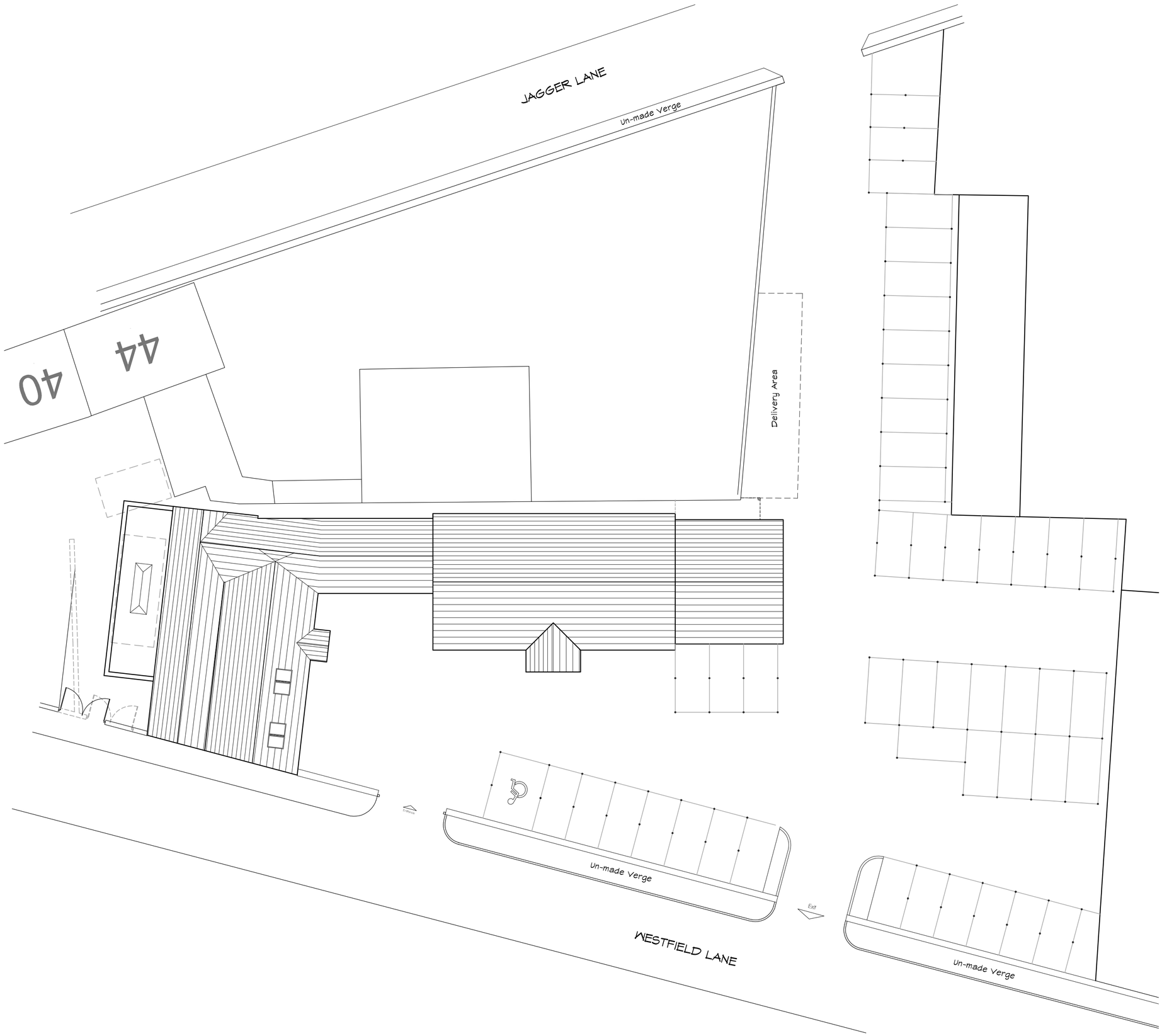
Appendix 1

Site Plan


Shaft 422413-010
Shaft 422413-028
Westfield Ln
agger Ln
Google Earth
© 2018 Google
N
90 m



Rev	Description	Date	By	Rvw
P02	Client amendments	26.04.19	MC	JR
P01	Preliminary Issue	24.04.19	MC	JR

Proposed Kitchen Extension

at Thorncliffe Farm Shop
1 West Field Lane
Emley Moor
Huddersfield

for Thorncliffe Farm Shop

Farrar Bamforth Associates Ltd.
Chartered Architectural Technologists

51 Trinity Street, Huddersfield, HD1 4DN
Tel. (01484) 424008 Fax: (01484) 512305
E-mail: design@farrarbamforth.co.uk
Website: www.farrarbamforth.co.uk

Site Layout Plan as Proposed

Project	Originator	Zone	Level	Type	Role	Number	Revision
18C31	FBA	ZZ	XX	DR	A	0701	P02

Drawn	Date	Suitability	Revision Status	Scale at A2
MC	Apr 19	S2	Preliminary	1 : 200

Environmental Geotechnical Specialists

RGS

Appendix 2

Coal Authority Report

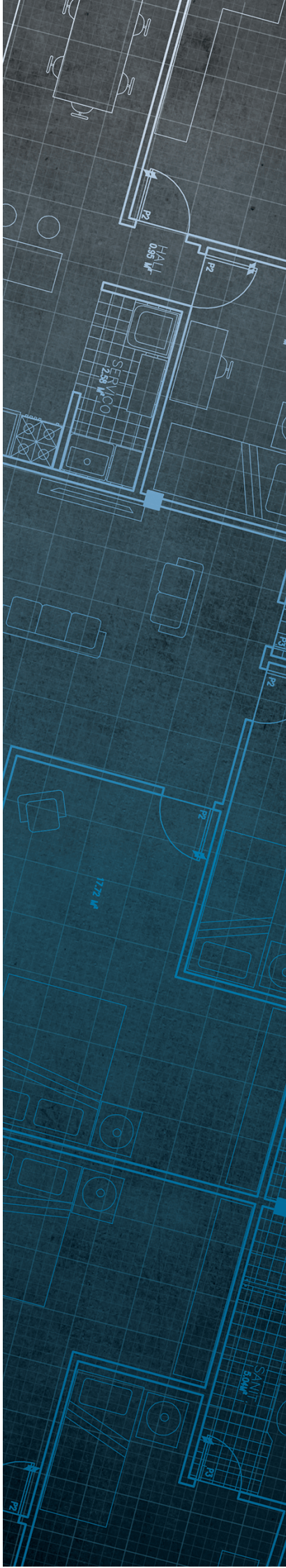
The Coal Authority

Consultants

Coal Mining Report

Thorncliffe Farm Shop
1 Westfield Lane
Emley Moor
Huddersfield
Kirklees
HD8 9SZ

Date of enquiry:	**18 September 2019**
Date enquiry received:	**18 September 2019**
Issue date:	**18 September 2019**
Our reference:	**51002175931001**
Your reference:	**C129/19/E/210**



Consultants
Coal Mining Report

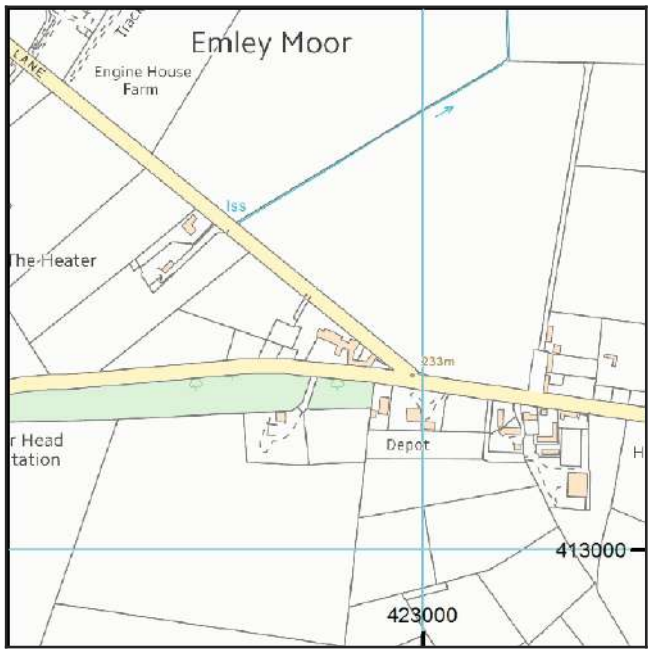
This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

ROGERS GEOTECHNICAL SERVICES LTD

Enquiry address

Thorncliffe Farm Shop
1 Westfield Lane
Emley Moor
Huddersfield
Kirklees
HD8 9SZ



Approximate position of property

How to contact us

0345 762 6848 (UK)
+44 (0)1623 637 000 (International)

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

@coalauthority
/company/the-coal-authority
/thecoalauthority
/thecoalauthority

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	MIDDLETON MAIN	Coal	62X6	40	Beneath Property	2.6	North-East	58	1885
UNAMED	WHEATLEY LIME	Coal	62X9	76	Beneath Property	2.8	North-East	82	1903

Probable unrecorded shallow workings

Yes.

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	422413-007	422864 413128	was filled in March 1986	Coal	
Shaft	422413-008	422877 413107	was filled in March 1986	Coal	
Shaft	422413-010	422993 413217		Coal	
Shaft	422413-028	422983 413182		Coal	
Shaft	423413-001	423019 413213		Coal	

Abandoned mine plan catalogue numbers

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

NE766	NE622	NE950
R3	NE897	BE42
6837	14072	6069

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
No outcrops recorded.

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

Distance to site investigation (m)	Direction
48.6	South-East

See Section 4 for further information.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

There are 1 claim(s) within 50 metres of the property boundary that do not match the property address. These are shown on the enquiry boundary plot.

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.

If further subsidence damage claims information is required, please visit www.groundstability.com.

See Section 4 for further information.

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 a notice to withdraw support was given in 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.

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.

Site investigations

The site is within an area of previous interest. It is close to where the Coal Authority has received information relating to past site investigations.

The site requires further investigation and may influence how you approach your risk assessment.

Coal mining subsidence

The site is within an area of previous interest. It is close to where the Coal Authority or licensed mine operator has investigated and where necessary remediated issues relating to coal mining subsidence.

The site requires further investigation and may influence your risk assessment. We recommend that you order the appropriate **Coal Authority Subsidence Claims Report**, which will include more information about the hazard.

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.

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.

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VAT receipt

Issued by	The Coal Authority 200 Lichfield Lane Mansfield Nottinghamshire NG18 4RG
Tax point date	18 September 2019
Issued to	ROGERS GEOTECHNICAL SERVICES LTD BARNCLIFFE MILLS NEAR BANK SHELLEY HUDDERSFIELD KIRKLEES HD8 8LU
Property search for	THORNCLIFFE FARM SHOP 1 WESTFIELD LANE EMLEY MOOR HUDDERSFIELD KIRKLEES HD8 9SZ
Reference number	51002175931001
Date of issue	18 September 2019
Cost	£112.13
VAT @ 20%	£22.43
Total received	£134.56
VAT registration	598 5850 68

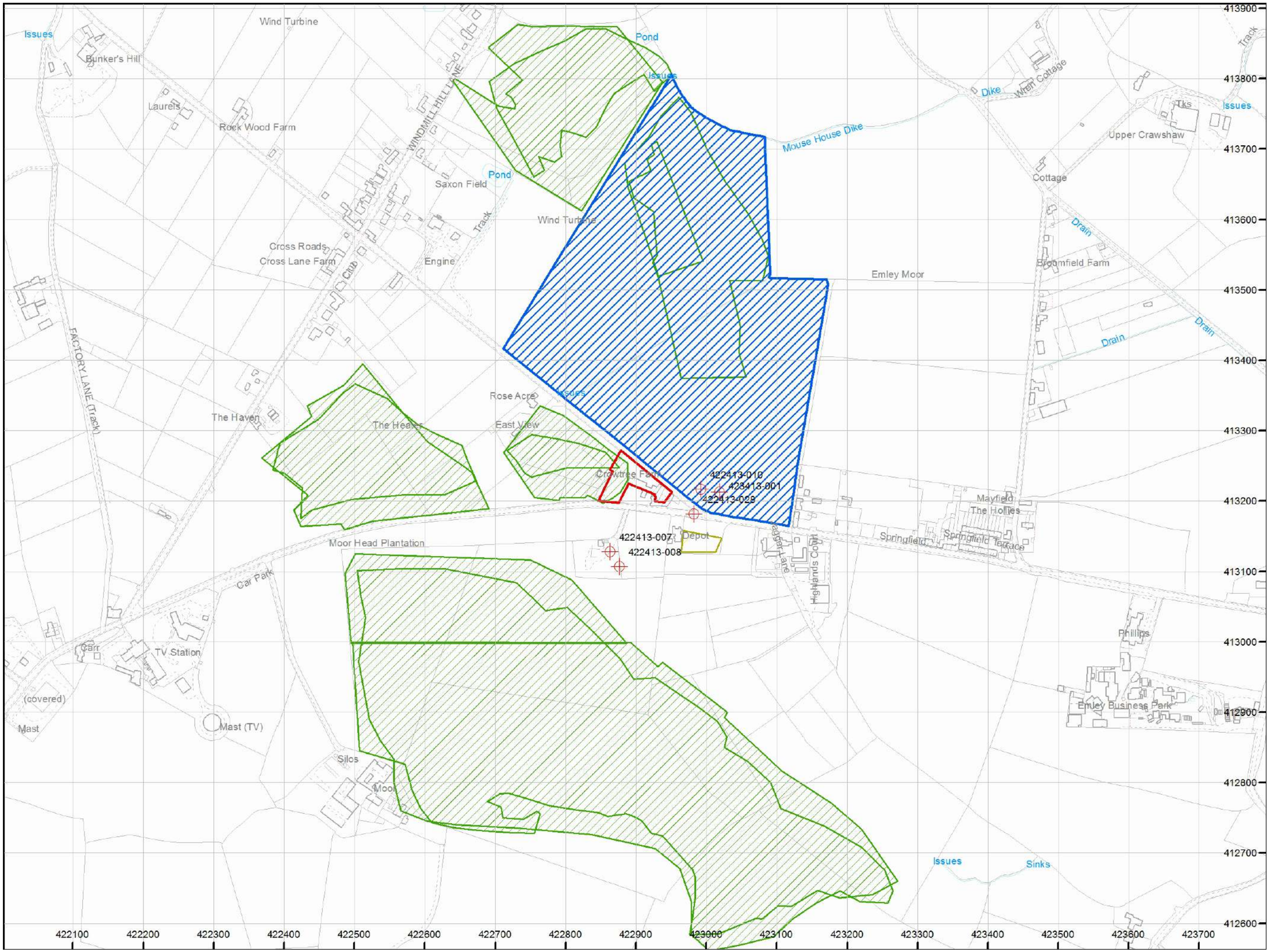
The Coal Authority

Summary of findings

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
- Unlicensed opencast site
- Site investigations
- Coal claim



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

ATTACHMENT C

COAL AUTHORITY PERMIT

The Coal Authority

Permit to Enter or Disturb Coal Authority Interests

Permit 26985

Name and Address of Permit Holder:

Thorncliffe Farm Shop
1 Westfield Lane
Emily Moor
Huddersfield
HD8 9SZ

Site Location:

Thorncliffe Farm Shop
1 Westfield Lane
Emily Moor
Huddersfield
HD8 9SZ

This certificate hereby grants the above named Permit Holder a Permit to carry out:-

Ground investigation by three boreholes to 30m within the Authority's interests at the identified site location above as shown on the Grant Permit Boundary (overleaf) for the period of **12 months** from the granted date shown below. *The granting of this Permit does not constitute advice given by the Authority in relation to the proposed operations. It is the Permit Holder's responsibility to obtain appropriate health, safety, environmental, technical and legal advice.*

Conditions:

- *Manned entry (i.e.) into mine entries/workings) is strictly prohibited.*
- *Water flush*
- *Gas Monitoring CO, CH_4, CO_2, O_2, H_2S at borehole and rig*
- *Operators undertaking the work must be in possession of this certificate and the Permit boundary plan at the time of works*
- *Appropriate borehole sealing without delay and to withstand site level changes*

Signed: Richard Morson Granted Date: ***18/07/23***

For and on behalf of The Coal Authority

Nominated Representative: Richard Morson, Permitting Manager;
The Coal Authority, Permitting Office, 200 Lichfield Lane, Mansfield, Notts, NG18 4RG
Tel: 01623 637450; E-Mail: permissions@coal.gov.uk

The Coal Authority

Granted Permit Boundary

Permit Ref: 26985

Permit Boundary:

ATTACHMENT D

DRILLING RECORDS

Client: Geo 2 Remediation	Site: Thorncliffe Farm Shop 1 Westfield Lane, Emly Moor, Huddersfield. HD8 9SZ		Cape Site Services unit 2, rear of Castle Buildings Carlton Road, Barnsley, S71 3HX
Date: 08/08/2023	Method: water flush	Permit No: 26985	
Driller: Ian Wiles		Driller Assistant: Richard Hawkins, Simon Fish	
		Page No: 1of 1	

Measurements In Meters				
BH No:	FROM	TO	THICKNESS	DESCRIPTION
1				
	0	0.2	0.2	Tarmac
	0.2	0.4	0.2	Fill hardcore
	0.4	2.7	2.3	Clay brown grey with odd coal & black mudstone fragments
	2.7	2.9	0.2	Coal mudstone black mix
	2.9	3.5	0.6	Mudstone grey brown soft silty
	3.5	4.5	1	Sandstone brown soft
	4.5	7.5	3	Mudstone grey silty
	7.5	8.2	0.7	Coal Dirty
	8.2	9.3	1.1	Mudstone Grey Silty
	9.3	16.5	7.2	Sandstone grey silty odd mudstone bands
	16.5	17.3	0.8	Coal
	17.3	19	1.7	Mudstone grey silty
	19	30	11	Sandstone grey silty odd mudstone bands
				Cased to 2m No gases recorded
2				
	0	0.2	0.2	Tarmac
	0.2	0.4	0.2	Fill hardcore
	0.4	2.3	1.9	Clay brown grey
	2.3	2.4	0.1	Coal mudstone black mix
	2.4	4	1.6	Mudstone grey brown soft silty mix odd coal trace
	4	5.3	1.3	Sandstone brown soft with some mudstone
	5.3	7.9	2.6	Mudstone grey silty
	7.9	8.6	0.7	Coal Dirty
	8.6	10	1.4	Mustone Grey Silty
	10	16.9	6.9	Sandstone grey silty odd mudstone bands
	16.9	17.7	0.8	Coal dirty
	17.7	19.5	1.8	Mudstone grey silty
	19.5	30	10.5	Sandstone grey silty odd mudstone bands
				Cased to 1.5m No gases recorded