Environmental
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Specialists



GEOTECHNICAL ENVIRONMENTAL

COAL RISK ASSESSMENT

job number C1371/21/E/2161	date 28.01.21

site address
Woolrow Farm
Roydhouse
Shelley
Huddersfield HD8 8LR

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

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Report on a Coal Mining Risk Assessment

Location:	Woolrow Farm Roydhouse, Shelley, Huddersfield HD8 8LR		
For:	Woolrow Farm Ltd		
Report No.	C1371/21/E/2161	Report date:	January 2021

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

Redacted

Rob Palmer MSc FGS ACIEH
Senior Geo-environmental Engineer

Redacted

Charlotte Mason BSc FGS
Geo-environmental Engineer

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].
- Rotary Borehole Site Investigation Report – G20135 by GeoInvestigate.

[1] Sources: British Geological Survey (NERC) Map Sheet 86; Glossop 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: 51002355109001 dated 19th January 2021.
[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]
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.

The site is indicated to be underlain by undifferentiated strata of the Pennine Lower Coal Measures Formation; interbedded mudstones, siltstone and sandstones. There is a geological fault a short distance to the west of the proposed buildings that intersects the proposed access route on to site.

It should be noted that on the geological map, dip indicators relevant to the site (i.e. within 500m of the site or within the same fault block) that suggests the solid geology in the local are dips 4° to the east and south-east, thereby suggesting that strata should become progressively younger to the east. Notwithstanding this, it should be appreciated that the Falhouse Rock, a named sandstone member of the formation, is indicated to outcrop approximately 80m to the south-east of the site. With reference to the generalised vertical section (GVS) on the geological map, this named sandstone member is indicated to be older than the strata beneath the site.

The site is situated on the limb of a hill that slopes down to the south-east and south. As such, it is considered that this topography has produced the outcrop pattern on the geological map. Consequently, it is anticipated that the Falhouse Rock will be present beneath the site.

There are two coal seams that are shown to outcrop within the local 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
Wheatley Lime Coal	0.5m to 0.9m	80m NW	Not present
Blocking (Silkstone) Coal	0.1m to 1.2m	180m SE	15m to 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 Blocking Coal is anticipated to be present at depths of less than 30m below the surface of the site.

[5] Sources: British Geological Survey (NERC) Map Sheets 86; Glossop; 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	Silkstone (Blocking) Coal – 12m depth with an extraction thickness of 0.48m, last mined in 1925. It should be appreciated that the Coal Authority online interactive map viewer[7] suggests that such workings were limited to the western side of the fault discussed within section 2.1 and, on the eastern side of the fault, were limited to the south of the development area. As such, underground workings were not recorded to progress beneath the proposed building footprint.
2	Probable Unrecorded Shallow Workings	Yes	This could relate to the above workings extending beyond the areas of which they were mapped.
3	Spine Roadways at Shallow Depth	No	No spine roadway recorded at shallow depth.
4	Mine Entries	Yes	7 mine entries recorded within 100m of the enquiry boundary. Most notable is adit 421412-035, the entry of which is recorded to be present approximately 45m south of the site with a north-north-eastern orientation. Interestingly, this adit appears to be present on the western side of the fault zone and follows the orientation of the fault into the hillside.
5	Abandoned mine plans	Yes	Plans of abandoned mine workings below the site are suggested to be available by the Coal Authority.
6	Outcrops	Yes	Silkstone Wheatley Lime
7	Geological Faults	Yes	As recorded on the geological map.
8	Opencast Mines	Yes	Opencast workings recorded to the south of the site.
9	Coal Authority Managed Tips	No	None recorded within 500 metres of the enquiry boundary.
10	Site Investigations	Yes	Site investigation completed a short distance to the north of the proposed buildings (Geoinvestigation report).
11	Remediated Sites	Yes	46.8m North-west.
12	Coal Mining Subsidence	Yes	A damage notice or claim for alleged subsidence damage was made in April 1997 for FIELD OS 9011 WOOLROW FARM, SHELLEY, HUDDERSFIELD, WEST YORKSHIRE, HD8 8LR. The claim was settled by repairs to the value of £545.00. There is no current Stop Notice delaying the start of remedial works or repairs to the property. There is a further 1 claim within 50 metres of the property boundary that do not match the property address. These are shown on the enquiry boundary plot. 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 51002355109001).
16	Coal mining licensing	No	
17	Court orders	No	
18	Section 46 notices	No	
19	Withdrawal of support notices	No	
20	Payments to owners of former copyhold land	No	

[7] Sources: Coal Authority Interactive Map Viewer [*online resource from http://mapapps2.bgs.ac.uk/coalauthority/home.html*]

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.

Based upon records provided by the British Geological Survey (NERC) the following table has been produced as a summary for the most applicable features of note in relation to this study, the logs of the boreholes are presented as Appendix 3:

Table 4: Notable Geological Features

Borehole	Approx. Distance from Site	Depth of borehole (m)	Notable Features
SE21SW149	130m E	100m	Coal (Intact) – 4.5m (0.2m thickness). Coal (Intact) – 13m (0.5m thickness). Coal (Intact) – 21.4m (0.4m thickness).

The above borehole has indicated three notable coal seams present within 30m of the ground surface within the local area. Based on the available geological data, it is anticipated that the seam at 13m may represent the Blocking Coal seam. However, it anticipated that the other two seams represent unnamed intermittent 'thin' coal seams. It should be appreciated that this borehole was sunk upon the outcrop of the Falhouse Rock, thus the Blocking Coal seam was present at depths slightly shallower than those outlined within Table 2 above.

In addition to the British Geological Survey, borehole data has been supplied from a site investigation that was undertaken by GeoInvestigate upon a site present a short distance to the north of the proposed building area. It should be noted that that site was also predominantly situated on the western side of the fault discussed within section 2.1. The boreholes are presented within Appendix 3, along with the associated site plan. The following table summarises the findings of that investigation:

Table 5: Notable Geological Features

Borehole	Depth of borehole	Notable Features
RH1	30m	Sandstone commenced 2.1m bgl – 10.3m thickness. Void present at 13.4m bgl – 0.6m thickness.
RH2	30m	Sandstone commenced at 8.6m bgl – 8.8m thickness, Coal present at 23.9m bgl – 0.4m thickness.
RH3	30m	Sandstone commenced at 8.7m bgl– 10.9m thickness, Coal present at 19.6m bgl – 0.4m thickness.
RH4	30m	Sandstone commenced at 9.6m bgl – 11.9m thickness, Coal present at 21.5m bgl – 0.2m thickness.
RH5	30m	Sandstone commenced at 11.2m bgl – 12.2m thickness with mudstone in lower section.

The site investigation identified coal workings within the most western borehole, at a depth of 13.4m. However, no such workings were recorded within the remainder of the boreholes. Indeed, coal was found to be present within boreholes RH2 to RH3 at much deeper depths of 19.6m to 23.9m. The site investigation report concluded that the shallower worked coal within RH1 is attributed to the presence of a fault between RH1 and the remainder of the boreholes. Indeed, this

appears to correlate with the recorded workings on the Coal Authority website – as discussed within Table 3 above. Moreover, the site investigation report concluded that whilst coal workings were discovered on the western side of the site and fault, the workings identified were present at a depth and were of a limited thickness such that were they subject to collapse, sufficient cover was in place whereby the risk of surface instability was deemed to be low. Therefore, it was concluded that no preventative or remedial measures were required.

In addition to the above, it is noted that significant thicknesses of sandstone were recorded within all of the boreholes. It is anticipated that this stratum is representative of the Falhouse Rock; a named sandstone member of the Pennine Lower Coal Measures Formation. It is deemed that this sandstone unit would indeed be classed as 'competent cover'.

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 6: Development Specific Risk Assessment

Item	Risk of Instability	Coal Seam(s) & Features Considered	Risk Rating
1	Shallow coal seams	Blocking (Silkstone) Coal	Low
2	Mine entries	Adit 421412-035	Low

On the basis of all of the information provided above, one coal seam is anticipated to be present within 30m of the surface at the site. Whilst this seam may be of limited thickness, it Is evident that the seam has been worked within the immediate vicinity of the site with recorded workings noted and boreholes sunk to prove such workings exist. Moreover, 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, therefore presenting the possibility of unrecorded workings too.

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, taking the maximum recorded/proven worked thickness of the coal seam, and assuming a worst case scenario whereby part of the development may be situated on the western side of the fault, the table below suggests the thickness of competent overburden required above the seam to mitigate instability at the surface.

Table 7: Required Thickness of Competent Overburden			
Seam Name	**Seam/Working thickness**	**Anticipated depth below site**	**Required thickness of competent overburden.**
Blocking Coal	0.6m	12m	6.6m

Based on the above information obtained from the British Geological Survey, Coal Authority and GeoInvestigate site investigation report, it is considered that there will be a sufficient thickness of competent overburden above the coal seam in order to prevent the risk of instability posed by the presence of any illicit workings. Therefore, a low risk rating has been assigned to the Blocking Coal seam and no further investigation or action is required.

In regard to the recorded mine entries, it is apparent that these entries are positioned on the western side of the fault or present at such a distance whereby if the extended beneath the development area they'd underlie the site at significant depths. It is unlikely that the entries will have crossed the fault, due to the significant depth in variable thickness between the coal seam on either side of the fault. As such, it is considered that these entries are unlikely to affect the site.

4. Conclusions

The available data would suggest that the possibility of instability is unlikely. Therefore, it is deemed that no further action is necessary. As such, this assessment should be forwarded on to the local authority and Coal Authority for review.

Appendix 1

Site Plan

iDprojects

SITE PLAN
AS PROPOSED

PROPOSED AGRICULTURAL BUILDING
WOOLROW FARM, ROYDHOUSE, SHELLEY, HD8 8LR
DWG No. 470–A02 rev––
SCALE 1:500@A3 NOVEMBER 2020

REV	DATE	ITEM	AUTH

TP

PROPOSED
CAR PARKING

Office

+225.60

Silos

Woolrow
Farmhouse

EXISTING CALF NURSERY
790m²

225.25+

25000

LINE OF PUBLIC
RIGHT OF WAY

223.65+

EXISTING MATERNITY UNIT
1670m²

223.65+

20000

MINIMUM DISTANCE
FOR PASSIVE
INFECTION CONTROL

222.00+

PROPOSED YOUNG STOCK UNIT
998m²

15000

222.00+

66500

N

Appendix 2

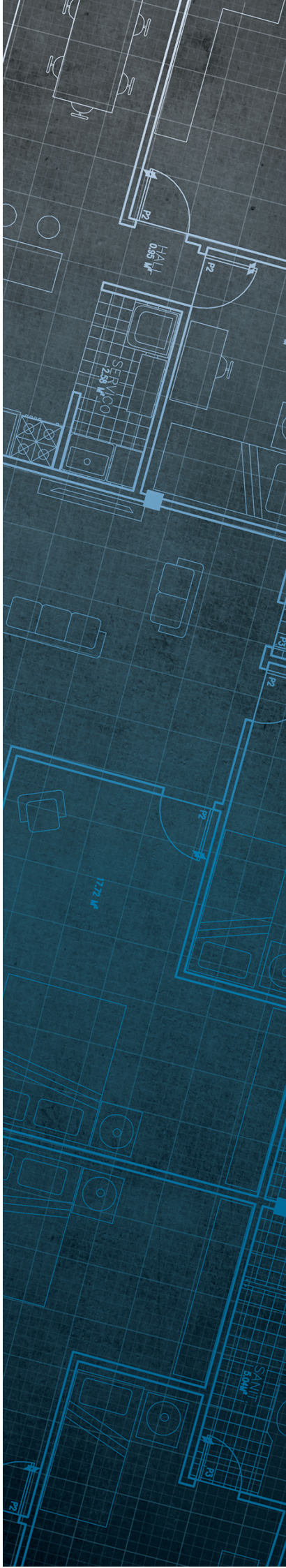
Coal Authority Report

The Coal Authority

Consultants

Coal Mining Report

10 Woolrow Farm
Roydhouse
Drinker Lane
Shelley
Huddersfield
Kirklees
HD8 8LR



Date of enquiry:	**19 January 2021**
Date enquiry received:	**19 January 2021**
Issue date:	**19 January 2021**
Our reference:	**51002355109001**
Your reference:	**C1371/21/E/2161**

Consultants

Coal Mining Report

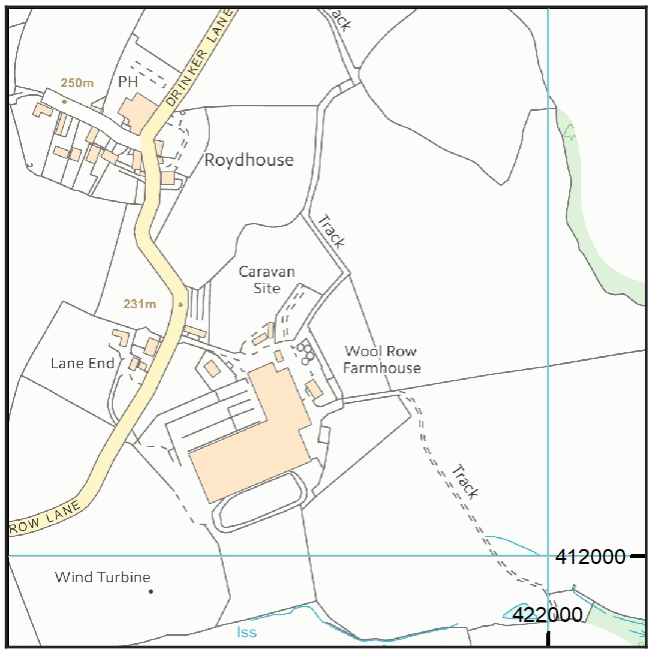
This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

ROGERS GEOTECHNICAL SERVICES LTD

Enquiry address

10 Woolrow Farm
Roydhouse
Drinker Lane
Shelley
Huddersfield
Kirklees
HD8 8LR



Approximate position of property

Map data

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Mansfield
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NG18 4RG

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/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	SILKSTONE	Coal	6NF6	12	Beneath Property	3.1	North-East	48	1925

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	421412-020	421761 412381		Coal	
Shaft	421412-022	421792 412150		Coal	
Shaft	421412-023	421815 412143		Coal	
Adit	421412-025	421736 412084		Coal	
Adit	421412-026	421856 412098		Coal	
Adit	421412-027	421899 412086		Coal	
Adit	421412-035	421808 412149		Coal	

Abandoned mine plan catalogue numbers

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

8528	SY219	GCR292
FGB320	5820	10255
PO0	13499	

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
SILKSTONE	Coal	Yes	15.0	South	72
WHEATLEY LIME	Coal	Yes	Within	N/A	54

Geological faults, fissures and breaklines

Please refer to the 'Summary of findings' map (on separate sheet) for details of any geological faults, fissures or breaklines either within or intersecting the enquiry boundary.

Faults under or close to the property 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.

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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
Within	N/A

See Section 4 for further information.

Remediated sites

Distance to site remediation (m)	Direction
46.8	North-West

See Section 4 for further information.

Coal mining subsidence

A damage notice or claim for alleged subsidence damage was made in April 1997 for FIELD OS 9011 WOOLROW FARM, SHELLEY, HUDDERSFIELD, WEST YORKSHIRE, HD8 8LR. The claim was settled by repairs to the value of £545.00.

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

There are a further 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.

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.

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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.

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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.

Remediated sites

The site is within an area of previous interest. It is close to where the Coal Authority has investigated and where necessary remediated mine entries and/or shallow coal mine workings following specific reported hazards.

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

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.

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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.

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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.

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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	19 January 2021
Issued to	ROGERS GEOTECHNICAL SERVICES LTD BARNCLIFFE MILLS NEAR BANK SHELLEY HUDDERSFIELD KIRKLEES HD8 8LU
Property search for	10 WOOLROW FARM ROYDHOUSE DRINKER LANE SHELLEY HUDDERSFIELD KIRKLEES HD8 8LR
Reference number	51002355109001
Date of issue	19 January 2021
Cost	£112.13
VAT @ 20%	£22.43
Total received	£134.56
VAT registration	598 5850 68

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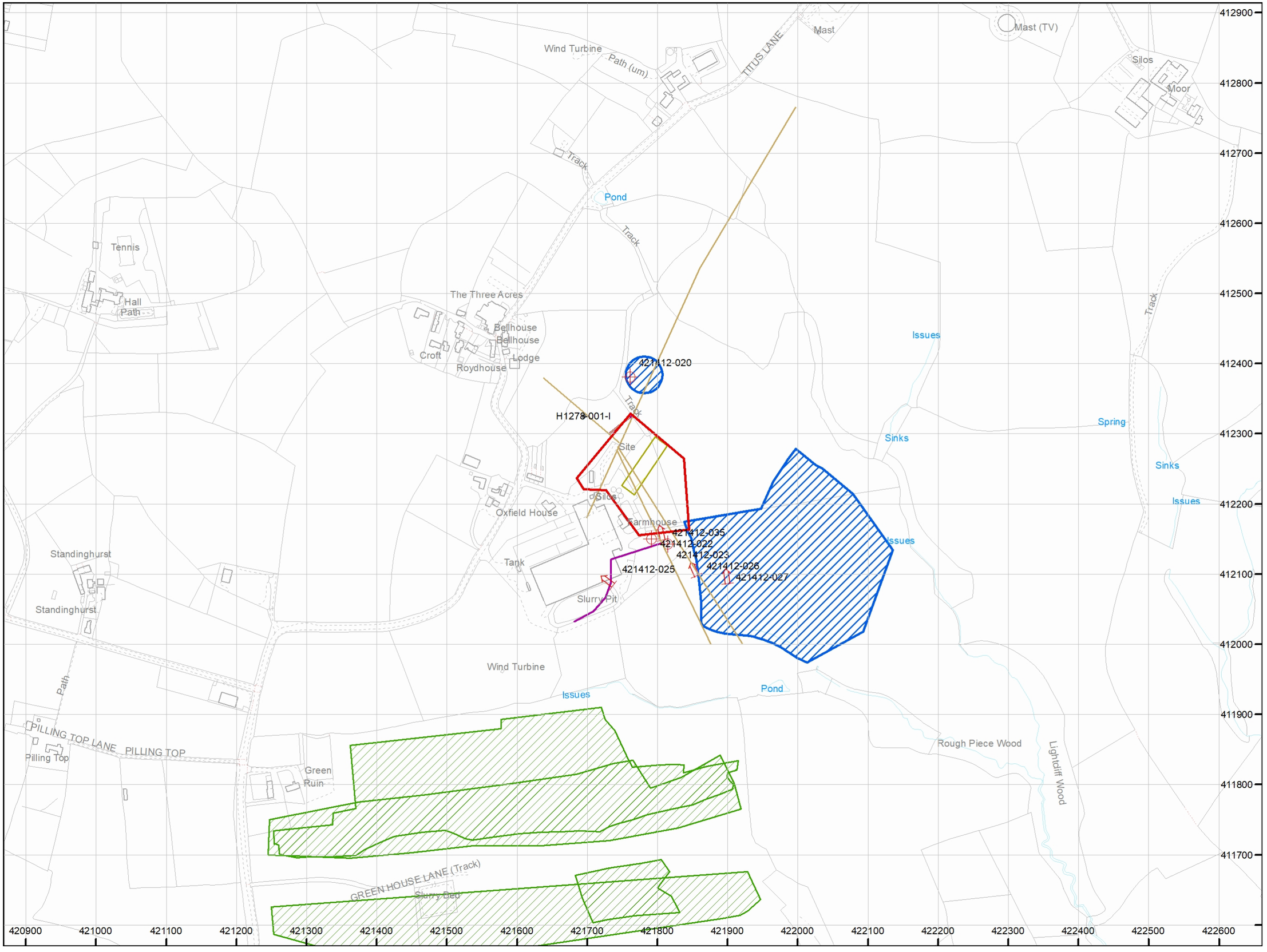
Summary of findings

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Map data

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
- Disused adit
- Outcrop (Proven)
- Geological faults
- Unlicensed opencast site
- Site investigations
- Remediated sites
- Coal claim



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

Appendix 3

Borehole Records

D Strata log

Geological classification (BGS only)	Description of strata	Thickness m	Depth (to base of strata) m
	FILL	1-10	1-10
	CLAY	0-60	1-70
	GREY MUDSTONE	0-80	2-50
	SANDSTONE	1-80	4-30
	COAL	0-20	4-50
	SANDSTONE	8-00	12-50
	COAL	0-50	13-00
	GREY MUDSTONE	3-80	16-80
	SANDSTONE	4-20	21-00
	COAL	0-40	21-40
	SANDSTONE	2-60	24-00
	GREY MUDSTONE	20-00	44-00
	SANDSTONE	8-10	52-10
	GREY MUDSTONE	2-90	55-00
	SANDSTONE	17-20	72-20
	GREY MUDSTONE, SANDSTONE BANDS	11-10	83-30
	SANDSTONE	16-70	100-00
	GREY MUDSTONE	1-00	101-00
	(continue on separate page if necessary)		
	Other comments (for example, gas encountered, saline water intercepted)		

E Completing this form

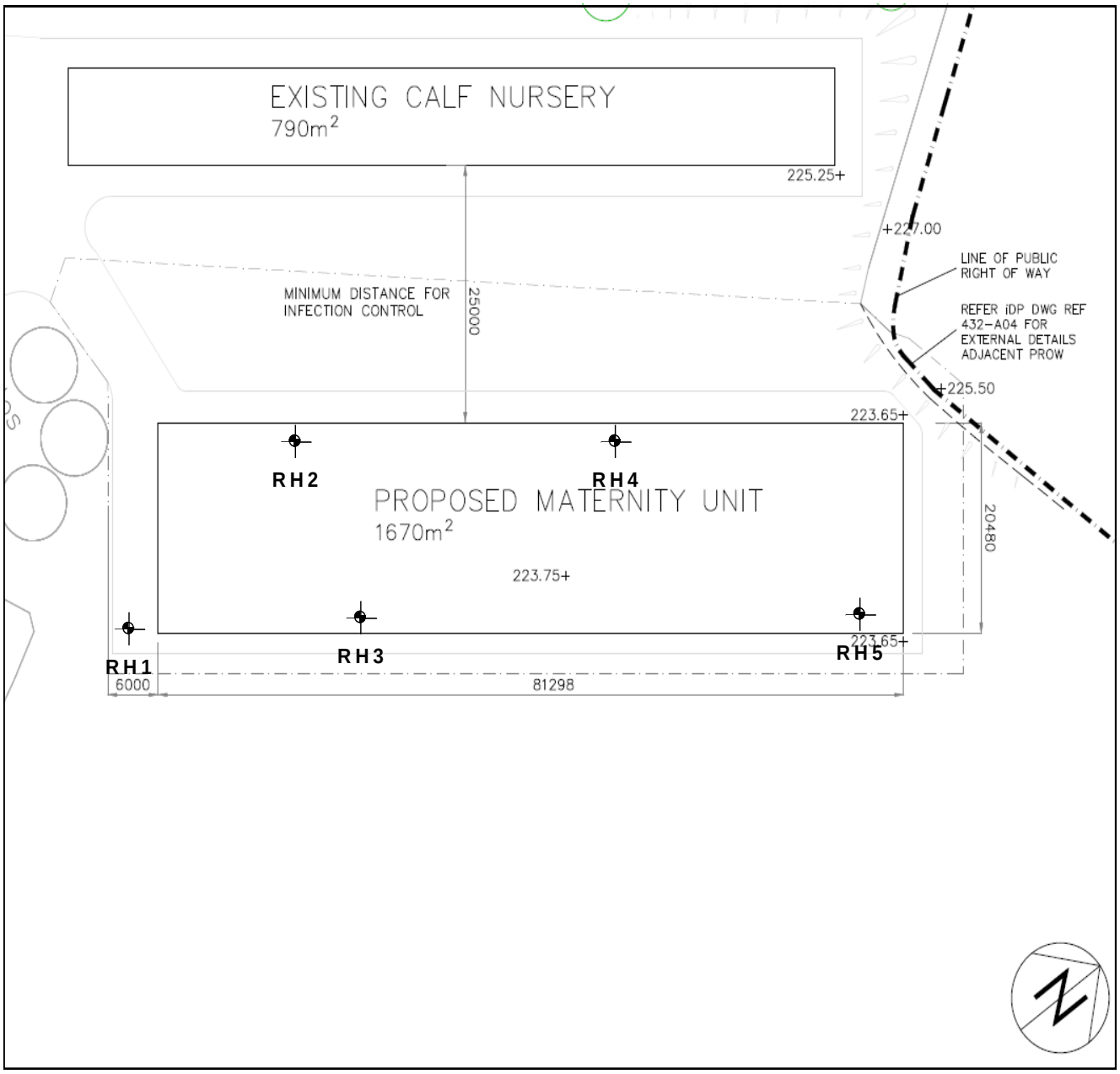
How long did it take you to fill in this form? _____

For Official use only

Date received (DD/MM/YYYY)	File	Consent number	BGS reference number
Accession number	**Wellmaster number**	**SOBI number**	**NGR**
LIC NO	**Purpose**		**EA reference number**
Copy number	**Entered by**		

GEOINVESTIGATE Ltd.

OUR REF: G20135	YOUR REF:	SITE PLAN (NOT TO SCALE)
DATE:03&04/06/20	LOCATION: Woolrow Farm, Shelley, Huddersfield HD8 8LR	



GEOINVESTIGATE Ltd.

Your Ref. **Our Ref**. G20135 **RH No.1** **Sheet No. 1 of 2**

Location: Woolrow Farm, Shelley, Huddersfield HD8 8LA **DATE**: 03/06/20

Depth (m)	Description of Strata	Thick -ness	Legend	Gas Well	Sample	Test Type Result	Flush	Depth to Water	Depth (m)
2.10	Dark brown DRIFT. Becoming brown from 0.60m	2100							
12.4	Orangish brown SANDSTONE	10300							2.50 5.00 7.50 10.00
13.4	Light grey SILTSTONE with mudstone inclusions	1000					Flush lost below 13.4m		12.50
14.0	VOID	600							
14.3	MUDSTONE	300							
17.9	SANDSTONE	3600							15.00 17.50
	SILTSTONE and SANDSTONE Borehole continued on sheet 2	8500							20.00 22.50 25.00

Remarks: Casing to 1.50m
Microdrill rotary open hole borehole to 30m
No cores recovered from borehole
No hazardous gas detected from borehole on completion
Full flush returned to 13.4m

Key:
Slotted Pipe
Plain Pipe
Bentonite
Gravel Filter

O Disturbed sample
Cv Shear vane
W Water sample
S Standard Penetration Test
C Cone Penetration Test

RH1

GEOINVESTIGATE Ltd.

Your Ref. **Our Ref**. G20135 **RH No.1** **Sheet No. 2 of 2**

Location: Woolrow Farm, Shelley, Huddersfield HD8 8LA **DATE**: 03/06/20

Depth (m)	Description of Strata	Thick -ness	Legend	Gas Well	Sample	Test Type Result	Flush	Depth to Water	Depth (m)
26.4	SILTSTONE and SANDSTONE	8500							
	MUDSTONE	4600							27.50
30.0									30.00
	Borehole terminated at 30.0m								

Remarks: Casing to 1.50m
Microdrill rotary open hole borehole to 30m
No cores recovered from borehole
No hazardous gas detected from borehole on completion
Full flush returned to 13.4m

Key:
Slotted Pipe
Plain Pipe
Bentonite
Gravel Filter

O Disturbed sample
Cv Shear vane
W Water sample
S Standard Penetration Test
C Cone Penetration Test

RH1

GEOINVESTIGATE Ltd.

Your Ref. **Our Ref**. G20135 **RH No.2** **Sheet No. 1 of 2**

Location: Woolrow Farm, Shelley, Huddersfield HD8 8LA **DATE**: 03/06/20

Depth (m)	Description of Strata	Thick -ness	Legend	Gas Well	Sample	Test Type Result	Flush	Depth to Water	Depth (m)
2.50	TURF / dark brown DRIFT.	2500							2.50
8.60	Grey and dark grey MUDSTONE	6100							5.00 7.50
17.4	Light grey SANDSTONE	8800							10.00 12.50 15.00 17.50
23.5	Grey SILTSTONE with mudstone inclusions	6100							20.00 22.50
23.9	Intact COAL	400							
	Light grey SILTSTONE with occasional siltstone and mudstone inclusions	6100							25.00

Remarks: Casing to 1.50m

Microdrill rotary open hole borehole to 30m

No cores recovered from borehole

No hazardous gas detected from borehole on completion

Full flush returned. No voids encountered.

Key:

- Slotted Pipe
- Plain Pipe
- Bentonite
- Gravel Filter

O Disturbed sample

Cv Shear vane

W Water sample

S Standard Penetration Test

C Cone Penetration Test

RH2

GEOINVESTIGATE Ltd.

Your Ref. **Our Ref**. G20135 **RH No.2 Sheet No. 2 of 2**

Location: Woolrow Farm, Shelley, Huddersfield HD8 8LA **DATE**: 03/06/20

Depth (m)	Description of Strata	Thick -ness	Legend	Gas Well	Sample	Test Type Result	Flush	Depth to Water	Depth (m)
	Light grey SILTSTONE with occasional siltstone and mudstone inclusions	6100							27.50
30.0									30.00
	Borehole terminated at 30.0m								

Remarks: Casing to 1.50m
Microdrill rotary open hole borehole to 30m
No cores recovered from borehole
No hazardous gas detected from borehole on completion
Full flush returned. No voids encountered.

Key:
Slotted Pipe
Plain Pipe
Bentonite
Gravel Filter

O Disturbed sample
Cv Shear vane
W Water sample
S Standard Penetration Test
C Cone Penetration Test

RH2

GEOINVESTIGATE Ltd.

Your Ref. **Our Ref**. G20135 **RH No.3 Sheet No. 1 of 2**

Location: Woolrow Farm, Shelley, Huddersfield HD8 8LA **DATE**: 04/06/20

Depth (m)	Description of Strata	Thick -ness	Legend	Gas Well	Sample	Test Type Result	Flush	Depth to Water	Depth (m)
2.20	Dark brown DRIFT	2200							
8.70	Grey MUDSTONE	6500							2.50 5.00 7.50
19.6	Light grey SANDSTONE	10900							10.00 12.50 15.00 17.50
19.8	Intact COAL	400							20.00
	Brown SILTSTONE with sandstone inclusions Borehole continued on sheet 2	10400							22.50 25.00

Remarks: Casing to 1.50m
Microdrill rotary open hole borehole to 30m
No cores recovered from borehole
No hazardous gas detected from borehole on completion
Full flush returned. No voids encountered.

Key:
Slotted Pipe
Plain Pipe
Bentonite
Gravel Filter

O Disturbed sample
Cv Shear vane
W Water sample
S Standard Penetration Test
C Cone Penetration Test

RH3

GEOINVESTIGATE Ltd.

Your Ref. **Our Ref**. G20135 **RH No.3 Sheet No. 2 of 2**

Location: Woolrow Farm, Shelley, Huddersfield HD8 8LA **DATE**: 04/06/20

Depth (m)	Description of Strata	Thick -ness	Legend	Gas Well	Sample	Test Type Result	Flush	Depth to Water	Depth (m)
	Brown SILTSTONE with sandstone inclusions	10400							27.50
30.0									30.00
	Borehole terminated at 30.0m								

Remarks: Casing to 3.00m
Microdrill rotary open hole borehole to 33m
No cores recovered from borehole
No gas detected from borehole on completion
Full flush returned. No voids encountered.

Key:
Slotted Pipe
Plain Pipe
Bentonite
Gravel Filter

O Disturbed sample
Cv Shear vane
W Water sample
S Standard Penetration Test
C Cone Penetration Test

RH3

GEOINVESTIGATE Ltd.

Your Ref. **Our Ref**. G20135 **RH No.4** **Sheet No. 1 of 2**

Location: Woolrow Farm, Shelley, Huddersfield HD8 8LA **DATE**: 04/06/20

Depth (m)	Description of Strata	Thick -ness	Legend	Gas Well	Sample	Test Type Result	Flush	Depth to Water	Depth (m)
2.10	Dark brown DRIFT	2100							
9.60	Grey MUDSTONE	7500							2.50 5.00 7.50
21.5	Light grey and brown SANDSTONE	11900							10.00 12.50 15.00 17.50 20.00
21.7	Intact COAL	200							
	Light brown and grey SILTSTONE with mudstone inclusions Borehole continued on sheet 2	83000							22.50 25.00

Remarks: Casing to 1.50m
Microdrill rotary open hole borehole to 30m
No cores recovered from borehole
No hazardous gas detected from borehole on completion
Full flush returned. No voids encountered.

Key:
Slotted Pipe
Plain Pipe
Bentonite
Gravel Filter

O Disturbed sample
Cv Shear vane
W Water sample
S Standard Penetration Test
C Cone Penetration Test

RH4

GEOINVESTIGATE Ltd.

Your Ref. **Our Ref**. G20135 **RH No.4 Sheet No. 2 of 2**

Location: Woolrow Farm, Shelley, Huddersfield HD8 8LA **DATE**: 04/06/20

Depth (m)	Description of Strata	Thick -ness	Legend	Gas Well	Sample	Test Type Result	Flush	Depth to Water	Depth (m)
	Light brown and grey SILTSTONE with mudstone inclusions	83000							27.50
30.0									30.00
	Borehole terminated at 30.0m								

Remarks: Casing to 1.50m
Microdrill rotary open hole borehole to 30m
No cores recovered from borehole
No hazardous gas detected from borehole on completion
Full flush returned. No voids encountered.

Key:
Slotted Pipe
Plain Pipe
Bentonite
Gravel Filter

O Disturbed sample
Cv Shear vane
W Water sample
S Standard Penetration Test
C Cone Penetration Test

RH4

GEOINVESTIGATE Ltd.

Your Ref. **Our Ref**. G20135 **RH No.5 Sheet No. 1 of 2**

Location: Woolrow Farm, Shelley, Huddersfield HD8 8LA **DATE**: 03/06/20

Depth (m)	Description of Strata	Thick -ness	Legend	Gas Well	Sample	Test Type Result	Flush	Depth to Water	Depth (m)
1.90	Dark brown DRIFT	1900							
11.2	Dark grey MUDSTONE with sandstone inlcusions	9300							2.50 5.00 7.50 10.00
23.4	Light grey SANDSTONE Mudstone inclusions from 19.6m	12200					Intermittent flush below 15.1m		12.50 15.00 17.50 20.00 22.50
	Light brown and grey SILTSTONE with mudstone inclusions Borehole continued on sheet 2	6600							25.00

Remarks: Casing to 1.50m
Microdrill rotary open hole borehole to 30m
No cores recovered from borehole
No hazardous gas detected from borehole on completion
Intermittent flush below 15.1m. No voids encountered.

Key:
Slotted Pipe
Plain Pipe
Bentonite
Gravel Filter

O Disturbed sample
Cv Shear vane
W Water sample
S Standard Penetration Test
C Cone Penetration Test

RH5

GEOINVESTIGATE Ltd.

Your Ref. **Our Ref**. G20135 **RH No.5 Sheet No. 2 of 2**

Location: Woolrow Farm, Shelley, Huddersfield HD8 8LA **DATE**: 03/06/20

Depth (m)	Description of Strata	Thick -ness	Legend	Gas Well	Sample	Test Type Result	Flush	Depth to Water	Depth (m)
	Light brown and grey SILTSTONE with mudstone inclusions	6600							27.50
30.0									30.00
	Borehole terminated at 30.0m								

Remarks: Casing to 1.50m
Microdrill rotary open hole borehole to 30m
No cores recovered from borehole
No hazardous gas detected from borehole on completion
Intermittent flush below 15.1m. No voids encountered.

Key:
Slotted Pipe
Plain Pipe
Bentonite
Gravel Filter

O Disturbed sample
Cv Shear vane
W Water sample
S Standard Penetration Test
C Cone Penetration Test

RH5