

**Environmental
Geotechnical
Specialists**



COAL RISK ASSESSMENT

job number	date
site address	
written by	checked by
issued by	

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GEO-TECH-NICAL
ENVIRONMENTAL



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Report on a Coal Mining Risk Assessment

Location:	Coniston Farm Coniston Avenue, Staincross, Barnsley, S75 5BB		
For:	Mrs S. & Mr R. Senior		
Consultants:	Fox Architecture and Design		
Report No.	C1132/20/E/1779	Report date:	March 2021

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

Hattie Henshall BSc, FGS
Graduate Engineer

Steve Rogers CEng CGeol MICE MCIHT FGS
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 sheet¹.
- British Geological Survey *Geology of Britain Viewer*².
- Coal Authority Consultants Coal Mining Report³.
- British Geological Survey *Borehole Records*⁴.

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:

¹ Sources: British Geological Survey (NERC) Map Sheet 87; Barnsley 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: 51001405643001 dated 7th April 2017.

⁴ Sources: British Geological Survey (NERC) Borehole Records [*online resource from <http://www.bgs.ac.uk/>*]

**Table 1: Geological Data for the Site**

Strata Type	Strata Name ⁵	Previous Name ⁶	Description ⁶
Superficial Geology	None indicated to underlie the site.		
Solid Geology	Pennine Middle Coal Measures Formation	Grey Measures of Yorkshire and Nottinghamshire	Interbedded mudstone, siltstone and pale grey sandstone containing fossils and coal. Both the sandstone and mudstone of this formation underlie the site.

The site is situated upon the Pennine Middle Coal Measures Formation. There are no dip indicators close to the site (i.e. within 500m of the site) on the geological map. However, taking into account a dip indicator 1,447m from the site, which is located on the same fault block, and the structure of the regional geology and the outcrop patterns in the local area, it can be anticipated that the solid geology dips at shallow angles (around 3°) towards the north-east.

It is indicated that the site overlies both sandstone and mudstone beds of the Pennine Middle Coal Measures Formation. It should be appreciated that in the south-east of the site, there is a north-east trending fault. As a result, the geology beneath the north-west and south-east sections of the site may vary slightly, and there is potential for the rock close to the fault plane to be weaker or more fractured. There are also 4 further faults within 250m of the site: 20m SW, 47m SE, 149m SE and 237m W. However, these faults are less likely to affect the site.

There is one coal seam that is shown to outcrop within the local area. The seam is 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
Abdy (Winter) Coal Seam	0.0 – 1.9m	On site	At or near to surface.

*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 Abdy (Winter) Coal Seam is anticipated to be present at depths of less than 30m below the surface of the site.

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:

⁵ Sources: British Geological Survey (NERC) Map Sheets 87; Barnsley; 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]

**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	The property is in a surface area that could be affected by underground mining in 9 seams of coal between 100m and 481m depth and worked between 1878 and 1987.
2	Probable Unrecorded Shallow Workings	Yes	Probable unrecorded shallow workings.
3	Spine Roadways at Shallow Depth	No	No spine roadway recorded at shallow depth.
4	Mine Entries	No	None recorded within 100m of the enquiry boundary.
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	2 outcrops of the Abdy (Winter) Coal on site.
7	Geological Faults	No	No faults, fissures or breaklines recorded.
8	Opencast Mines	No	Both licensed and unlicensed opencast sites within 500m of the site boundary.
9	Coal Authority Managed Tips	No	None recorded within 500 metres of the enquiry boundary.
10	Site Investigations	No	None recorded within 50 metres of the enquiry boundary
11	Remediated Sites	No	None recorded within 50 metres of the enquiry boundary.
12	Coal Mining Subsidence	No	There are 3 claims 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.
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	None recorded.
16	Coal mining licensing	No	None recorded within 200 metres of the enquiry boundary.
17	Court orders	No	None recorded.
18	Section 46 notices	No	No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.
19	Withdrawal of support notices	Yes	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.
20	Payments to owners of former copyhold land	No	The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

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 website⁷. 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, there were no borehole scans available on site or within 200m of the site, however, there was one borehole 718m NNE from the site which was within the same fault block as the site. This borehole, SE31SW104, has been summarised in Table 4. The borehole is located geologically



above the Abdy (Winter) coal seam, which is therefore present within borehole SE31SW104 at greater depths.

Table 4: BGS Borehole Records

Borehole	Approx. Distance from Site	Depth of borehole (m)	Notable features* ^A
SE31SW104	718m NNE	560.83m	<ul style="list-style-type: none"> Coal (Abdy “Winter”) – 65.05m depth (1.19m thickness) Coal (Stanley Main “Black Bands”) – 71.38m depth (0.36m thickness) Coal (Stanley Main “Lime Coal”) – 80.82m depth (0.46m thickness) Coal (Stanley Main “Beamshaw”) – 91.01m depth (0.79m thickness) Coal (Kent’s Thin) – 103.33m depth (0.53m thickness) Coal (Kent’s Thick) – 122.38m depth (0.69m thickness) Coal (Barnsley Rider) – 170.66m depth (0.742m thickness) Coal (Barnsley) – 191.85m depth (3.12m thickness) Coal (Top Haigh Moor) – 256.93m depth (0.89m thickness) Coal (Low Haigh Moor) – 266.47m depth (0.71m thickness) Coal (Lidget) – 294.79m depth (0.79m thickness)
<p>^{*A} Coal seams were present in borehole SE31SW104 above the Abdy coal seam, at shallow depths (<30m below rockhead) and below the Lidget coal seam (>300m), but these have not been included in Table 4 as they are not relevant to the site.</p>			

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 5: Development Specific Risk Assessment

Item	Risk attributed to	Coal Seam(s) Considered* ^B	Risk Rating
3.1	Shallow coal workings (<30m below rockhead)	<ul style="list-style-type: none"> Abdy (Winter) Coal (A) Top Beamshaw (Kilnhurst) (TBE) Also known as Upper Stanley Main Coal 	Moderate to High
		<ul style="list-style-type: none"> Split into “Black Bands” and “Lime Coal” Low Beamshaw (LBE) 	Moderate to High



		<ul style="list-style-type: none"> Also known as Stanley Main “Main Coal” 	
		<ul style="list-style-type: none"> Kent’s Thin (KN) 	
3.2	Coal workings at depth (>50m below rockhead)	<ul style="list-style-type: none"> Kent’s Thick (KK) Split into Upper (UKK) and Lower (LKK) Barnsley Rider (BR) Barnsley Coal (B) Top Haigh Moor Coal (TH) Lidgett Coal (L) Fenton Coal (F) Low Fenton Coal Middleton Main Coal (MM) Wheatley Lime Coal (WL) Whinmoor Coal (W) 	Low to Moderate
3.3	Mine gas	Shallow coal workings	Moderate
3.4	Mine shafts	No recorded shafts on site	Low

*^B Coal seams with recorded workings on site highlighted in bold.

3.1 Risks Posed by Shallow Coal Workings

On the basis of all of the information provided above, at least 4 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 recorded on site and in the nearby area, and therefore it is considered that if coal was known to be close to ground level it could have also been removed illicitly via shallow mining methods with relative ease. There is a moderate to high risk associated with historic bell pit mining, commonly used to mine shallow coal seams, which would have to be investigated to be either proved or disproved on site.

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 6: Required Thickness of Competent Overburden

Seam Name	Seam thickness* ^C	Anticipated depth below site* ^D	Required thickness of competent overburden.
Abdy (Winter) Coal (A)	1.19m	At surface	13.1m
Top Beamshaw Coal (TBE)	Split into: “Black Bands”	0.36m	6.33m
(also known as “Kilnhurst Coal” and “Upper Stanley Main Coal”)	“Lime Coal”	0.46m	15.77m
Low Beamshaw (LBE)	0.79m	25.96m	8.7m



(also known as "Stanley Main" "Main Coal")			
Kent's Thin (KN)	0.53m	38.28m	5.9m
Kent's Thick (KK)			
(split into Upper (UKK) and Lower (LKK))	0.69m	57.33m	7.6m
Barnsley Rider (BR)	0.74m	105.61m	8.2m

*C All thicknesses taken from borehole SE31SW104.

*D Depths have been calculated based on depths in borehole SE31SW104, therefore both thicknesses and depths of coal seams on site are only approximations based on this information and may vary from the above.

Based on the above information, it is considered that there will not be a sufficient thickness of competent overburden above the shallowest seams (up to 30m depth below rockhead, as defined by the Coal Authority), particularly when considering the Abdy (Winter) coal seam. This coal seam is anticipated to outcrop on the site, and is approx. 1.19m in thickness (according to borehole SE31SW104). The required thickness of the overburden would be 13.1m, but due to the shallow depth of this seam, the overburden is not expected to achieve the required thickness. Therefore, a moderate to high risk rating has been placed on this seam.

In order to prevent the risk of instability posed by the presence of any illicit workings, the required thickness of the overburden for the other shallow depth coal seams has been calculated. It is considered that there may not be a sufficient thickness of competent overburden for some of these seams. Therefore, a moderate to high risk rating has been placed on these seams, and further investigation is recommended to prove or disprove the presence of illicit mining activity. It is strongly recommended that the true thicknesses and depths of the seams are investigated to validate this opinion.

3.2 Risks Posed by Coal Workings at Depth

In regard to deeper mining which could affect the site, the property is situated above several deep coal seams (greater than 50m depth below rockhead, as defined by the Coal Authority) which are recorded to have been worked. Please see the Consultant's Coal Mining Report for further detail.

3.3 Risks Posed by Mine Gas

This assessment has identified that there have been shallow mine workings and is potential for illicit workings beneath the proposed development. Whilst the Consultants Coal Mining Report has not reported any incidents of mine gas within the vicinity of the development, shallow mining activity represents a credible source of ground gas. As such, a moderate risk rating has been assigned, and further assessment may be required.

Should evidence of workings be proven via further intrusive works, it is strongly recommended that a detailed gas risk assessment is undertaken in accordance with relevant guidance. The risk assessment should take into consideration the current site conditions, and should be subject to reassessment after the formulation and/or completion of any remedial measures and proposed foundation solution. These documents should be prepared by a suitably experienced and qualified specialist. In a scenario where gas monitoring has not been considered, suitable gas protection measures may be required. It should be appreciated that such measures could be designed in accordance with BS8485: 2015 +A1: 2019: *Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings*. It should be noted that in any



event, the above will need to be agreed with the local authority prior to construction, as they are the final arbiters on these matters.

With respect to deep mine workings, it is considered that these workings usually have a limited number of entries and connections, with the entries usually having been filled and seamed with gas tight plugs and connections securely stopped off. As such, it is typical that these mines represent a low risk of mines gas.

3.4 Risks Posed by Mine Shafts

There are no recorded mine shafts on site or within the immediate area (i.e. within 200m).

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.

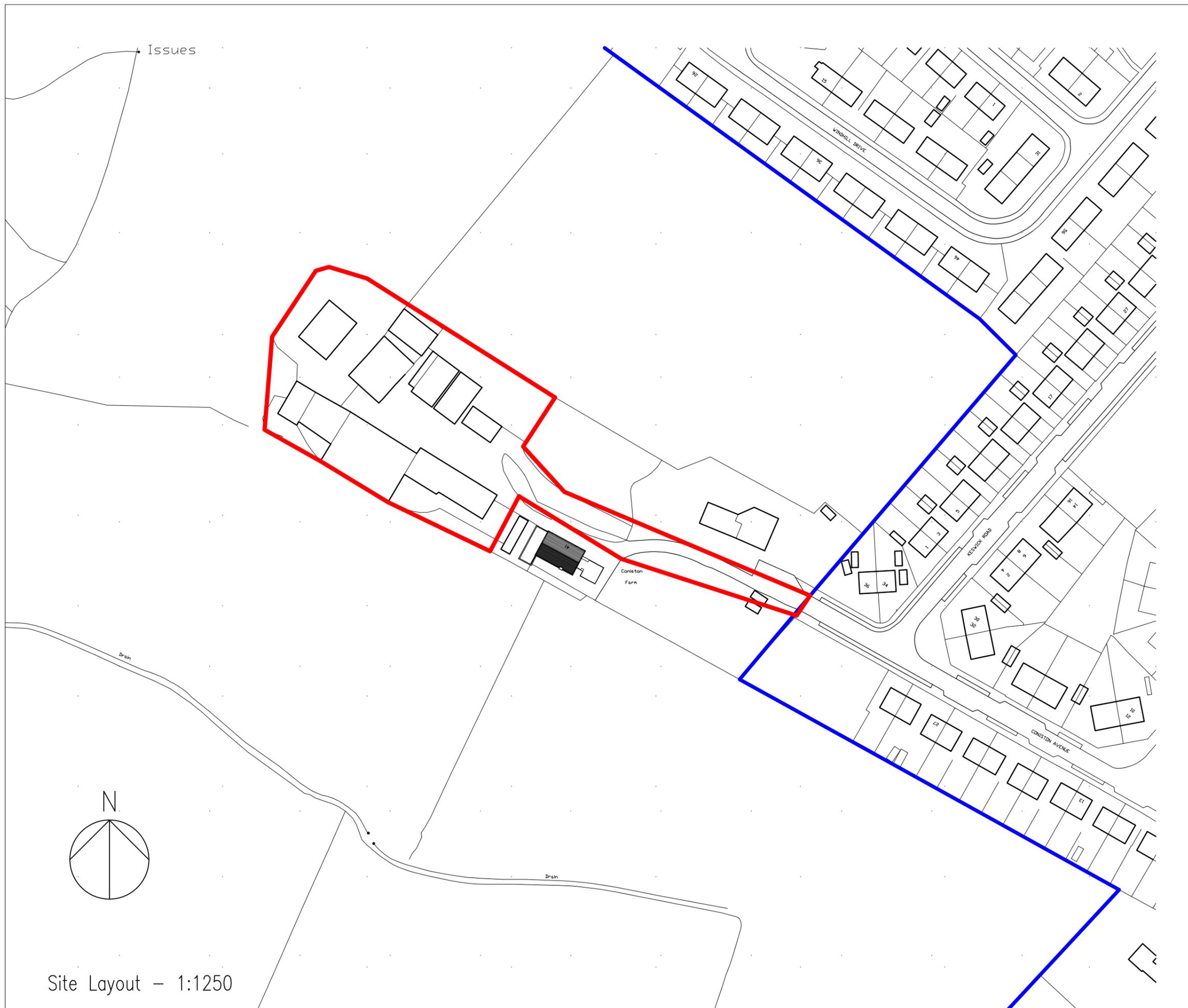
General practice is to undertake rotary openhole boreholes at three locations across the site to mitigate against the potential for drilling through intact columns associated with pillar and stall workings. Furthermore, it is normal to investigate the ground to 30m below ground level; any workings below this depth are unlikely to result in significant instability. However, in this case, the risk of instability is predominantly 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 remaining boreholes proving the depth and continuity of the coal seams. In any event, it is considered that approval should be sought with the Local Authority as to the efficacy of this approach.

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



Appendix 1

Site Plan



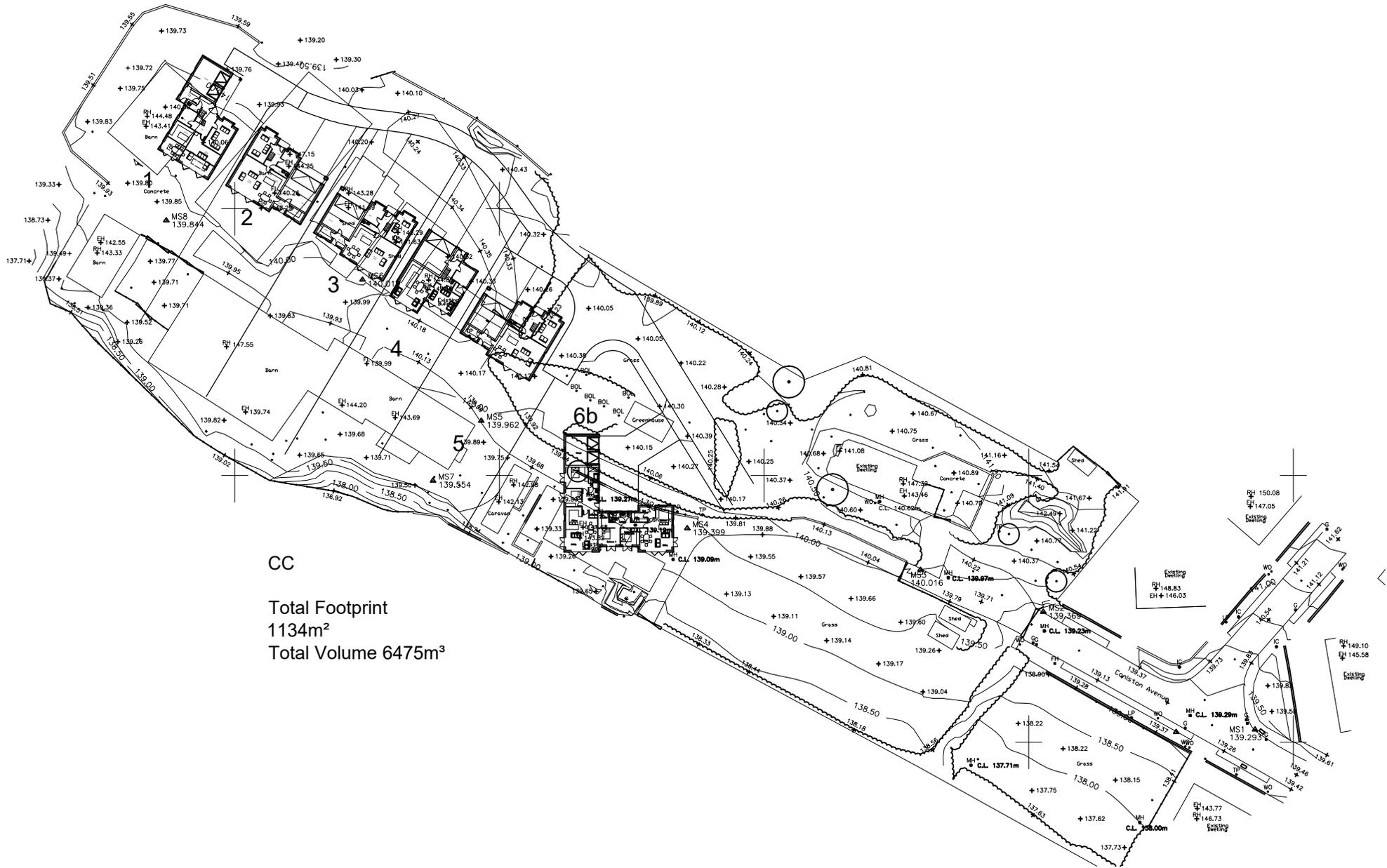
NOTES
 DO NOT SCALE FROM THIS DRAWING.
 It is the Contractor's responsibility to check all governing dimensions and verify all dimensions on site before commencing any work or making any shop drawings. This drawing is to be read in conjunction with schedules of work, specifications, bills of quantities and other relevant information. Any discrepancies are to be reported to the Project Architect.
 Work and materials are to be in accordance with the Building Regulations and to comply with the relevant British Standards. This drawing is copyright of Mark Brotherton Ltd and should not be reproduced in whole or part without their written permission.

Rev.	Date:	Notes:
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Client: Mrs S Senior	
Project: Coniston Farm Staincross	
Drawing: Existing Site Location	
Date: Aug 2017	Scale: 1:1250 @ A3
Drawing No: 1237/100	Rev:

Site Layout - 1:1250



CC

Total Footprint
 1134m²
 Total Volume 6475m³



Appendix 2

Coal Authority Report



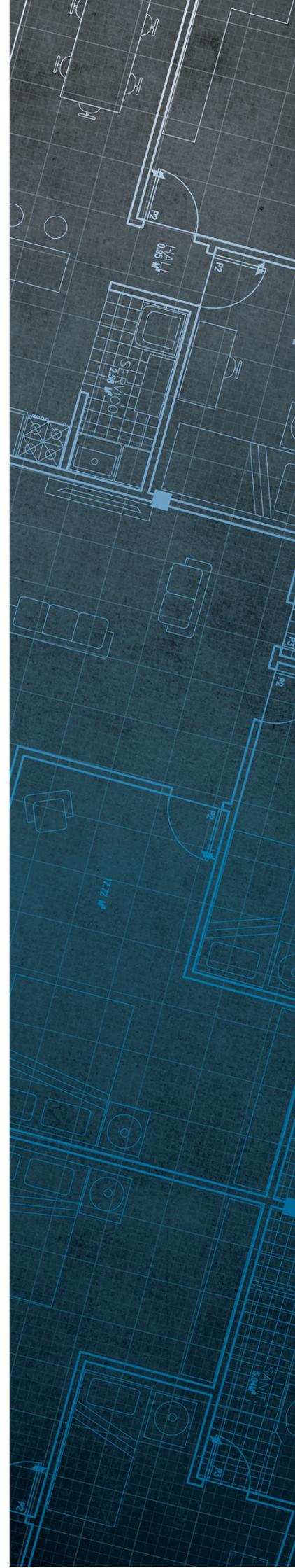
The Coal
Authority

Consultants Coal Mining Report

Coniston Farm
Coniston Avenue
Staincross
Barnsley
S75 5BB

Date of enquiry: 11 March 2021
Date enquiry received: 11 March 2021
Issue date: 11 March 2021

Our reference: 51002404065001
Your reference: C/1132/20/E/1779



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

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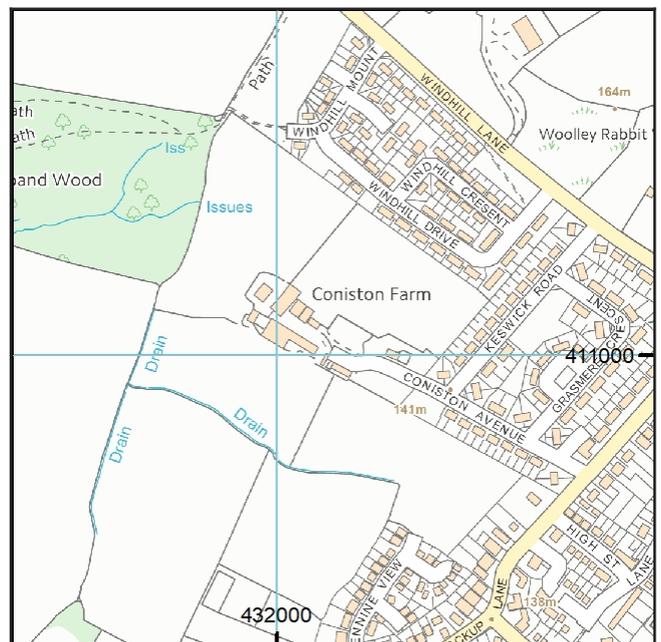
www.groundstability.com

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 /thecoalauthority



Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	BARNSLEY	Coal	6J4R	100	South-West	4.7	North-East	294	1878
unnamed	BARNSLEY	Coal	6Y42	113	Beneath Property	5.0	North	294	1886
unnamed	BARNSLEY	Coal	6YTD	123	Beneath Property	4.8	North-East	314	1870
unnamed	BARNSLEY	Coal	6IF3	127	Beneath Property	3.4	North-East	314	1869
unnamed	TOP HAIGH MOOR	Coal	6J4U	166	South-West	6.9	North-East	102	1965
unnamed	TOP HAIGH MOOR	Coal	6J4V	174	West	6.9	North-East	102	1968
unnamed	TOP HAIGH MOOR	Coal	6IFD	188	Beneath Property	3.3	North-East	97	1960
unnamed	TOP HAIGH MOOR	Coal	6Y62	189	Beneath Property	4.8	North	104	1960
unnamed	LOW HAIGH MOOR	Coal	6J51	191	South-West	6.4	North-East	71	1956
unnamed	TOP HAIGH MOOR	Coal	6YTH	192	Beneath Property	4.8	North-East	102	1970
unnamed	LOW HAIGH MOOR	Coal	6YB2	192	Beneath Property	4.1	North-East	69	1960
unnamed	LOW HAIGH MOOR	Coal	6YTK	194	Beneath Property	3.7	North-East	74	1960
unnamed	LOW HAIGH MOOR	Coal	6IF9	196	Beneath Property	3.1	North-East	97	1961
unnamed	LIDGETT	Coal	6J54	220	South-West	6.1	North-East	82	1951
unnamed	LIDGETT	Coal	6IFH	225	North	3.3	North-East	80	1951
unnamed	LIDGETT	Coal	6Y33	226	Beneath Property	4.2	North	76	1951
unnamed	LIDGETT	Coal	6IFI	227	Beneath Property	3.6	North-East	80	1952
unnamed	LIDGETT	Coal	6YTI	228	Beneath Property	4.2	North-East	84	1953
unnamed	FENTON	Coal	6Y53	321	Beneath Property	5.0	North-East	206	1961
unnamed	FENTON	Coal	6J5C	327	South-West	7.1	North-East	205	1953
unnamed	FENTON	Coal	6YTL	337	Beneath Property	4.8	North-East	221	1960
unnamed	LOW FENTON	Coal	6IFJ	337	Beneath Property	4.3	North-East	180	1960

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	6Y3B	368	Beneath Property	5.1	North-East	128	1975
unnamed	MIDDLETON MAIN	Coal	6IFL	370	Beneath Property	4.3	North-East	107	1975
unnamed	MIDDLETON MAIN	Coal	6J5O	371	South-West	7.8	North	145	1975
unnamed	MIDDLETON MAIN	Coal	6YTL	381	Beneath Property	5.6	North-East	180	1960
unnamed	WHEATLEY LIME	Coal	6Y24	391	Beneath Property	5.8	North	79	1942
unnamed	WHEATLEY LIME	Coal	6J5N	393	South-West	6.8	North-East	91	1945
unnamed	WHEATLEY LIME	Coal	6IFM	393	Beneath Property	3.7	North-East	86	1941
unnamed	WHEATLEY LIME	Coal	6YTN	401	Beneath Property	4.9	North-East	86	1939
WOOLLEY	WHINMOOR	Coal	Z01	466	South-East	5.9	North-East	140	1985
WOOLLEY	WHINMOOR	Coal	Z02	475	Beneath Property	5.9	North-East	134	1987
WOOLLEY/REDBROOK	WHINMOOR	Coal	Z02	481	Beneath Property	3.2	East	136	1987

Probable unrecorded shallow workings

Yes.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

None recorded within 100 metres of the enquiry boundary.

Abandoned mine plan catalogue numbers

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

GCR248	7389	2281
NE158	NE1025	7649
NE1034	NE378	NE816

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

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

Outcrops

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
WINTER	Coal	Yes	Within	N/A	172
WINTER	Coal	Yes	Within	N/A	276

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

Please refer to the "Summary of findings" map (on separate sheet) for details of any opencast areas within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

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

Site investigations

None recorded within 50 metres of the enquiry boundary.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

A damage notice or claim for alleged subsidence damage was made in April 1998 for 38 CONISTON AVENUE, DARTON, BARNESLEY, SOUTH YORKSHIRE, S75 5BB. However, the claim was rejected.

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

A damage notice or claim for alleged subsidence damage was made in February 1998 for FIELDS OS 0004 0082 8883 LAND ADJ CONISTON AVENUE, DARTON, BARNESLEY, SOUTH YORKSHIRE, S75 5BB. However, the claim was rejected.

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.

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.

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.

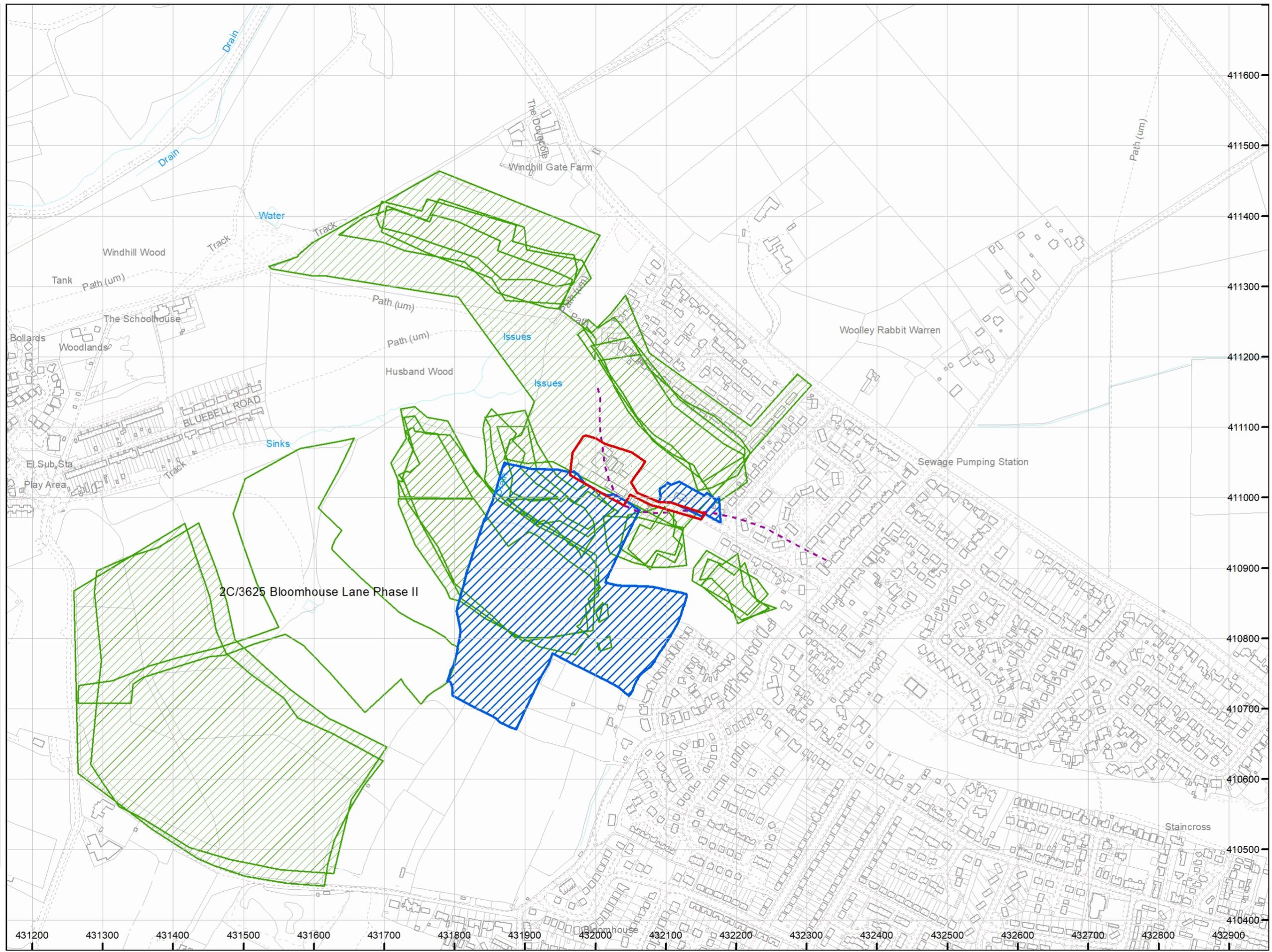
Payment to owners of former copyhold land

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.

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 
- Outcrop (Conjectured) 
- Opencast mine licence area 
- Unlicensed opencast site 
- Coal claim 



How to contact us
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Appendix 3

BGS Borehole Records

SE 31 SW / 104

8-inch Map

 B/N
Regd. No

Township 262 SW

(County, Sheet and Qtr.)

SE 31 SW

(Nat. Grid, Sheet and Qtr.)

Attach tracing from a map or sketch map if possible

 SECTION OF **WOOLLEY COLLIERY** Wheatley Road Shaft

 PURPOSE **Coal Mining**

 EXACT SITE **O.E. N.G.R. SE/32214/11715**
N.C.R. N.G.R. 44/3211/214715

 LEVEL AT WHICH shaft bore drift COMMENCED RELATIVE TO O.D. **164.42**
539.43 ft.

 DATE OF SINKING OR BORING **1959-61**

 SINKER OR BORER **Cementation Co. Ltd.**

GEOLOGICAL CLASSIFICATION

NATURE OF STRATA

THICKNESS

DEPTH

FEET

IN.

FEET

IN.

WOOLLEY EDGE ROCK	Made ground	4.85	15	11	154.8511
	Clay	1.19	3	11	196.0410
	Sandstone rag	3.51	11	6	319.55.4
	Pale brown sandstone	4.78	15	8	471.433.0
	Soft brown sandstone, medium to coarse-grained	1.83	6	0	531.615.0
	Soft brown sandstone, coarse-grained, scattered pebbles and plant remains	2.44	8	0	611.659.0
	Soft light brown sandstone, medium to coarse-grained	1.83	6	0	672.042.0
	Brown sandstone, coarse-grained	1.83	6	0	732.25.0
	Light brown and grey sandstone medium to coarse-grained	5.18	17	0	902.43.0
	Grey shale with ironstone bands	1.37	4	6	928.80.6
MELTONFIELD (= WOODFOOT)	Dark grey shale with ironstone bands	0.63	2	1	962.94.7
	Inferior COAL 0.10 4"				
	Dark grey clunch with coal streaks 0.20 8"	1.19	3	11	1003.063.6
	COAL 0.81 2'-8"				
	Dark grey clunch 0.03 1"				
	COAL 0.05 2"				
	Grey clunch with rootlets and ironstone nodules	1.4	3	9	1043.178.3
	Grey siltstone with scattered rootlets	1.4	3	9	1003.22.0
	Banded siltstone	3.4	12	0	1203.458.0
	Fine pale grey sandstone	1.18	6	2	1263.842.2
TWO FOOT MELTONFIELD TWO FOOT	Grey shale	0.86	2	10	1293.92.0
	Black silty shale with muscels	2.38	7	6	1354.146.8
	Black silty shale with Lingula	0.03	1		1384.168.9
	COAL 0.53 1'	9			1384.21.6
	Hard grey clunch with rootlets	1.87	4	6	1434.25.0
	Banded siltstone	1.22	4	0	1474.48.0
	Grey sandstone	2.59	8	6	1584.74.0
	Banded siltstone	1.52	5	0	1604.92.6
	Banded sandstone	1.43	6	0	1665.075.6
	Banded siltstone	0.61	2	0	1685.36.6
TWO FOOT	Grey shale	0.91	3	0	1715.44.6
	Dark grey shale	0.43	1	5	1725.711
	Ironstone	0.05	2		1735.75.1
	Grey clunch with rootlets	0.15	0		1735.91.7
	Dark shaly clunch with coal streaks	0.23	9		1745.94.4
	Banded sandstone	0.66	2	2	1755.50.6
	Banded siltstone	3.85	11	0	1875.715.6
	Grey siltstone	0.91	3	0	1905.80.6
	Banded siltstone	0.30	1	0	1915.837.6
	Grey shale with ironstone bands	2.44	8	0	1996.51.6
Dark grey shale	3.45	10	0	2096.84.6	

SECTION OF WOOLLEY COLLIERY Wheatley Food Shaft

6-inch Map
Yorks. 262 SF

B/M

SE 31 SW

104

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS		DEPTH	
		FEET	IN.	FEET	IN.
WINTER	COAL	0.762'	6"		
	Soft carbonaceous clunch	0.05	2"		
	COAL with 1" dirt band	0.03	3"	119	3
	Soft dark grey clunch	0.10	4"	11	21365
	Inferior COAL	0.05	2"	05	5
	Grey clunch	0.15	6	21365	2011
	Hard grey clunch with rootlets	0.762	6	21665	96.5
STANLEY MAIN "BLACK BANDS"	Grey siltstone	4.39	14	1	23070
	Grey shale	0.01	2	0	23270
	Dark grey shale with rootlets	0.15	6	23371	02.0
	COAL	0.36	1	2	23471
	Grey clunch with rootlets	0.66	2	10	23772
	Grey siltstone with scattered plant debris	7.47	24	6	26179
	Dark grey shale with plants	0.66	2	2	26380
STANLEY MAIN "LIME COAL"	COAL	0.39	1'-3 1/2"		
	Dark grey clunch with coal streaks	0.46	1	6	26580
	Inferior COAL	0.03	1"		
		0.04	1 1/2"		
	Hard grey clunch with rootlets	0.56	1	10	26781
	Dark shaly clunch with coal streaks	0.15	7	26781	56.7
	Grey clunch with rootlets	0.30	1	0	26881
	Pale grey sandstone	0.43	1	5	27082
	Grey siltstone	0.46	1	6	27182
	Banded sandstone	0.30	1	0	27283
	Grey siltstone	2.44	8	0	27083
	Banded siltstone	0.46	1	6	27285
	Banded sandstone	0.18	7	27286	13.7
	Banded siltstone	1.19	3	11	26687
	Grey siltstone	0.30	1	0	26787
	Grey shale with ironstone bands	2.54	8	4	26988
	Dark grey shale	0.05	2	2	26988
STANLEY MAIN "MAIN COAL" = BEAMSHAW	COAL	0.79	2	7	29891
	Dark grey clunch with rootlets	0.10	4	29891	11.11
	Dark shaly clunch with coal streaks	0.23	9	29991	36.8
	Grey clunch with rootlets	0.15	6	30091	49.2
	Dark grey shaly clunch	0.10	4	30091	59.6
	Grey clunch with rootlets	0.61	2	0	30292
	Grey siltstone with plants	4.72	4	0	30693
	Banded siltstone	1.52	5	0	31194
	Banded sandstone	0.30	1	0	31295
	Pale grey sandstone	7.54	24	9	337102
	COAL	0.53	1	9	339103
	Hard grey clunch with rootlets	0.46	1	6	340103
	Banded sandstone with rootlets	0.61	2	0	342104
	Banded siltstone with rootlets	1.22	4	0	346105
	Grey siltstone	0.30	1	0	347105
	Banded sandstone	0.61	2	0	349106
	Grey sandstone	0.56	1	10	351107
Carbonaceous shale with coal streaks	0.08	3	351107	16.7	
Hard grey clunch with rootlets	0.69	1	11	353108	
Banded sandstone	0.30	1	0	354108	
Banded siltstone with rootlets at top	1.22	4	0	358109	
Pale grey sandstone	1.22	4	0	362110	
Banded siltstone	0.30	1	0	363110	
Grey shale	0.91	3	0	366111	
Banded sandstone	1.52	5	0	371112	
Banded siltstone	0.61	2	0	373113	
Grey shale with ironstone bands	2.29	7	6	301116	
Dark grey shale with ironstone bands	0.63	2	1	303116	
Black shale with mussels	0.08	3	383	116	
COAL	0.05	2	383	116	
Grey clunch with rootlets	0.224	0	387	118	

/cont'd

SECTION OF WOOLLEY COLLIERY Wheatley Wood Shaft

8-inch Map
Yorks. 262 SW

B/W

SE 31 SW

104

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS		DEPTH	
		FEET	IN.	FEET	IN.
KENT'S THICK	Dark grey siltstone with rootlets and scattered plant remains	3.35	11	0	398 121 46 6
	Dark grey shale	0.23		9	399 121 49 3
	COAL, inferior at top	0.69	2	3	401 122 28 6
	Dark grey clunch with rootlets	0.30	1	0	402 122 68 6
	Grey clunch with rootlets	1.22	4	0	406 122 90 6
	Grey siltstone with scattered rootlets and plant remains	5.0	20	0	426 130 0 6
	Banded siltstone	3.05	10	0	436 133 05 6
	Grey siltstone	0.61	2	0	438 133 45 6
	Banded siltstone	0.91	3	0	441 134 57 6
	Grey siltstone	1.52	5	0	446 136 59 6
	Dark grey shale with ironstone bands and scattered mussels	1.07	3	6	450 137 16 0
	Black shale with mussels	0.08		3	450 137 24 3
	COAL	0.03		10	451 137 49 1
	Grey clunch with rootlets	0.43	1	5	452 137 52 6
	Grey siltstone with rootlets	0.46	1	6	454 138 38 0
	Grey shale	1.68	5	6	459 140 06 6
	Dark grey shale with mussels and <i>Spirorbis</i>	0.37	4	6	464 141 53 0
	Grey silty shale	1.07	3	6	467 142 49 6
	Grey shale with mussels	0.91	3	0	470 143 41 6
	Dark grey shale with mussels and <i>Spirorbis</i>	0.91	3	0	473 144 37 6
Grey siltstone with scattered rootlets	4.07	13	6	477 145 39 0	
Banded siltstone	2.29	7	6	484 147 45 6	
Grey siltstone with scattered mussels at 485 ft. 147.83	0.61	2	0	486 148 29 6	
Grey clunch with rootlets	0.76	2	6	489 149 05 0	
Grey siltstone with plant remains at bottom	0.59	8	6	497 150 44 6	
Grey shale with plant remains	0.22	4	0	501 151 58 6	
Grey siltstone	0.61	2	0	503 153 7 6	
Banded siltstone	0.30	1	0	504 153 17 6	
Fine grey sandstone, hard and well cemented in lower part	0.61	2	0	506 154 28 6	
Banded siltstone	3.96	13	0	519 158 24 6	
Grey siltstone	0.61	2	0	521 158 35 6	
Banded siltstone	0.30	1	0	522 159 26 6	
Grey siltstone	0.61	2	0	524 159 57 6	
Banded siltstone	1.22	4	0	528 160 09 6	
Grey shale with ironstone bands and with occasional " <i>Estheria</i> " at 545 ft. 166.12	5.18	17	0	545 160 27 6	
Dark grey shale with ironstone bands and scattered small mussels at 547 ft. 166.73	2.74	9	0	554 169 01 6	
Black shale	0.56	2	9	557 169 58 3	
Dark shaly clunch with coal streaks	0.08		3	557 169 93 6	
Inferior COAL	0.20	8"			
COAL	0.33	1'-1"			
Soft shaly clunch with rootlets	0.15	6"			
COAL	0.05	2"			
Dark grey shaly clunch with rootlets and plant remains	0.33	1		561 170 99 0	
Hard grey clunch with rootlets	0.46	1	6	562 171 45 6	
Grey siltstone with plant remains	6.71	22	0	564 178 16 6	
Banded sandstone	2.74	9	0	593 180 90 6	
Grey siltstone	1.22	4	0	597 182 12 6	
Banded siltstone	0.61	2	0	599 182 73 6	
Grey siltstone with ironstone bands	1.53	6	0	605 184 54 6	
Grey shale with ironstone bands and nodules, and plant remains	3.66	12	0	617 188 21 6	
Dark grey shale with plant remains	0.51	1	8	619 188 72 2	
COAL	1.32	4'-4"			
Dark grey shaly clunch with plant remains	0.38	1'-3"			
COAL	1.42	4'-8"			
Grey clunch with rootlets	0.41	1	4	630 192 25 9	
Inferior COAL	0.05		2	630 192 11	
				192 30	

/cont'd

SECTION OF WOOLLEY COLLIERY Wheatley Wood Shaft

6-inch Map
Yorks. 262 SW

B/M

SE 31 SW

104

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS		DEPTH			
		FEET	IN.	FEET	IN.		
	Hard grey clunch with rootlets	0.63	2	1	633	102	96.0
	Banded sandstone	0.46	1	6	634	103	96.6
	Banded siltstone	0.30	1	0	635	103	70.6
	Grey siltstone	1.52	5	0	640	105	2.6
	Grey shale with ironstone bands	2.40	2	6	650	108	12.0
	Dark grey shale	0.76	2	6	652	108	36.6
	Dark grey shaly clunch with plant remains	0.07	3	6	656	109	35.0
	Dark grey silty shale with ironstone nodules and rootlets	0.76	2	6	658	109	7.6
	Black shale with ironstone bands and scattered mussels	0.30	1	0	659	109	6.6
	Grey shale	0.30	1	0	660	109	37.6
	Ironstone	0.05	2	2	660	109	37.8
	COAL	0.23	9	9	661	109	60.5
	Grey clunch with rootlets	0.48	1	7	663	109	69.0
	Grey siltstone with rootlets and plant remains	2.40	2	6	672	109	96.6
	Grey shale	0.76	2	6	675	109	76.0
	Grey siltstone with plant remains	1.68	5	6	680	109	41.6
	Dark grey siltstone with plant remains	2.17	8	11	689	110	44.5
	COAL	0.10	4	4	689	110	76.9
	Grey clunch with rootlets	0.69	2	3	692	110	92.9
	Grey siltstone with plant remains	0.46	1	6	692	110	33.6
	Grey shale with ironstone bands and occasional mussels and Spirorbis	1.53	6	0	699	110	3.6
	Dark grey silty shale with mussels	0.15	6	0	700	110	36.0
	Grey silty shale	3.35	11	0	711	110	71.0
	Grey shale with ironstone bands and occasional mussels	1.62	5	4	716	110	36.4
	Black shale with mussels	0.20	8	8	717	110	54.0
	Grey shale	0.30	1	0	718	110	88.0
	COAL	0.30	1'-0"				
	Dark grey shaly clunch	0.13	5"				
	COAL	0.18	7"				
	Stone clunch with rootlets	1.07	3	6	723	110	36.6
	Banded siltstone	0.12	0	0	727	110	76.6
	Grey siltstone with ironstone bands	0.30	1	0	728	110	6.6
	Banded siltstone	0.61	2	0	730	110	66.6
	Grey silty shale	0.30	1	0	731	110	96.6
	Banded siltstone	0.30	1	0	732	110	27.6
	Grey shale with mussels	1.52	5	0	737	110	79.6
	Dark grey shale with mussels	0.20	8	8	738	110	99.2
	COAL	0.25	10"				
	Grey shaly clunch with rootlets and plants	0.20	8"				
	COAL	0.05	2"				
	Grey shaly clunch with rootlets and plants	0.20	8	8	740	110	16.6
	Hard grey clunch with rootlets	0.46	1	6	742	110	66.0
	Banded sandstone	0.61	2	0	744	110	110.0
	Grey siltstone with plants	0.46	1	6	745	110	23.6
	Banded sandstone	0.61	2	0	747	110	96.6
	Grey shale	0.61	2	0	749	110	46.6
	Banded sandstone	0.30	1	0	750	110	75.6
	Grey shale with ironstone bands and scattered mussels	1.22	4	0	754	110	97.6
	Dark grey shale with mussels	0.96	3	2	757	110	76.8
	Inferior COAL	0.13	5"				
	Grey clunch with rootlets	0.18	7"				
	Inferior COAL	0.05	2"				
	Grey clunch with rootlets	1.73	5	8	762	110	41.6
	Grey siltstone with ironstone nodules and scattered plants	9.30	30	6	763	110	71.0
	Banded siltstone	3.20	10	6	803	110	9.6
	Banded sandstone	0.41	3	0	806	110	86.6
	Banded siltstone	1.83	6	0	812	110	65.9
	Fine grey sandstone	1.52	5	0	815	110	56.6
	Banded siltstone	/cont'd	0.30	0	816	110	67.6

HAIGH MOOR
ROCK (78')

SECTION OF WOOLLEY COLLIERY Wheatley Wood Shaft

8-inch Map

S/W

York, 262 SW

SEC 31 SW

104

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS		DEPTH	
		FEET	IN.	FEET	IN.
HAIGH MOOR ROCK (78')	Pale grey sandstone	0.30	1	0	817248.17.6
	Banded sandstone	0.61	2	0	819248.18.6
	Banded siltstone	1.22	4	0	823248.19.6
TOP HAIGH MOOR	Pale grey sandstone	5.03	16	6	840248.20.0
	COAL	0.36	1 ¹ / ₂ "		
	Grey shaly clunch	0.95	3"		
	COAL	0.46	1 ¹ / ₂ "		
	Grey shaly clunch with rootlets	0.15		6	843248.21.5
	Hard grey clunch with rootlets	0.93		1	846248.22.6
	Grey siltstone	0.61	2	0	848248.23.6
	Grey shale with shell fragments	0.61	2	0	850248.24.6
	Banded sandstone	0.91	3	0	853248.25.6
	Banded siltstone	0.31	1	0	857248.26.6
	Grey siltstone	3.51	11	6	866248.27.0
LOW HAIGH MOOR	Grey shale with ironstone nodules	1.82	5	11	871248.28.1
	COAL	0.71	2	4	874248.29.3
	Black shaly clunch with plant remains	0.15		6	874248.29.9
	Hard grey clunch with rootlets	1.91	6	3	881248.30.0
	COAL	0.95		2	881248.30.2
	Hard grey clunch with rootlets	0.25		10	882248.30.0
	Grey siltstone with ironstone bands	2.13	7	0	889248.31.0
	Black shale with muscels and <i>Spirorbis</i> and with thin band of shelly ironstone	0.10		4	889248.31.2
	Hard grey clunch with rootlets	0.51	1	8	891248.31.0
	Pale grey sandstone with scattered rootlets	0.40		6	892248.31.6
	Grey siltstone with ironstone nodules	0.30	1	0	893248.31.6
Pale grey sandstone with plant remains	0.30	1	0	894248.31.6	
Grey siltstone with ironstone bands and plant remains	2.59	8	6	903248.32.0	
Banded sandstone	0.66	1	6	904248.32.6	
Grey siltstone	0.61	2	0	906248.32.6	
Banded siltstone	3.40	11	2	917248.33.8	
COAL	0.23		11	918248.33.7	
Grey clunch with rootlets	0.23	1	5	920248.34.0	
Grey siltstone with scattered rootlets	0.66	1	6	921248.34.6	
Banded siltstone	0.61	2	0	923248.34.6	
Grey siltstone	0.30	1	0	924248.34.6	
Grey shale with ironstone bands and muscels	0.91	3	0	927248.35.0	
Grey siltstone	0.61	2	0	929248.35.6	
Grey shale with ironstone bands and muscels	5.75	19	0	948248.36.6	
Black shale with muscels and <i>Spirorbis</i>	0.30	1	0	949248.36.6	
Black silty shale with plant remains in lower part	0.51	1	8	951248.37.2	
COAL	0.13		5	951248.37.7	
Grey clunch with rootlets	0.74	2	5	954248.38.0	
Inferior COAL	0.15		6	954248.38.6	
Grey clunch with rootlets and plants	1.07	3	6	956248.39.0	
Grey shale with ironstone nodules and plants	2.01	6	7	964248.40.2	
LIDGETT	COAL	0.06	3"		
	Dark grey shaly clunch	0.06	1 ¹ / ₂ "		
	COAL	0.67	2 ¹ / ₂ "		
	Dark grey clunch with plants	0.41	1	4	966248.40.6
	Hard grey clunch with rootlets and ironstone nodules	0.61	2	0	970248.41.6
	Dark grey shaly clunch with muscels	0.15		6	971248.42.0
	Inferior COAL and ironstone	0.10		4	971248.42.4
	Black shale with ironstone bands and shell fragments	0.97	3	2	974248.43.6
	Dark grey shale with ironstone bands and muscels	0.61	2	0	976248.44.6
	Grey siltstone	1.37	4	6	981248.45.0
	Black shale with muscels	0.23		9	981248.45.9
COAL	0.10	4"			
Dark shaly clunch	0.08	3"			
Inferior COAL	0.10	4"			