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Consulting Engineers

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Report

Coal Mining Risk Assessment

Project: Site at Station Lane,
Heckmondwike.
WF16 0NF

Client: Mr Declan Colleran

Reference: B23668-JNP-11-00-RP-1000

Date: October 2019

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DOCUMENT CONTROL SHEET

Coal Mining Risk Assessment

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FOR AND ON BEHALF OF JNP GROUP

Date: 30 October 2019

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1 INTRODUCTION

- 1.1.1 **jnp group** was instructed by Edward Gribbin on behalf of Declan Colleran to undertake a Coal Mining Risk Assessment of the site at Station Lane, Heckmondwike, WF16 0NF (National Grid Reference 421450, 422890) (hereinafter referred to as 'the site'). The site location is shown in Appendix A.
- 1.1.2 This report is confidential and has been prepared solely for the benefit of Declan Colleran and parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from **jnp group**; a charge may be levied against such approval. **jnp group** accepts no responsibility or liability for the consequences of this document being used for any purpose or project other than for which it was commissioned, and this document to any third party with whom an agreement has not been executed.
- 1.1.3 This report has been prepared following information gathered on 30 October 2019. **jnp group** warrants the accuracy of this report up to and including that date. Additional information, improved practices or changes in legislation may necessitate this report having to be reviewed in whole or in part after that date. If necessary, this report should be referred back to **jnp group** for re-assessment and, if necessary, re-appraisal.

1.2 Site Location and Description

- 1.2.1 The site is located in the south-west of the town of Heckmondwike, alongside the Spen River. Heckmondwike is located approximately 9 km north-east of Huddersfield town centre, West Yorkshire.
- 1.2.2 The site can be approximately centred at National Grid Reference: 421450, 422890.
- 1.2.3 This report covers the areas outlined in red on the plans presented in the current site plan in Appendix A. The site is irregularly shaped, consisting of two halves, both of which are undeveloped. The northern half has been part of an agricultural field and the southern half has been used as a car park which is covered with hardstanding.
- 1.2.4 The proposed development comprises the construction of one new, large building with an access road surrounded with hardstanding. The proposed site layout is also shown in Appendix A.
- 1.2.5 Level data available on the Google Earth website and current Ordnance Survey (OS) maps indicate the topography on-site to be relatively flat at approximately 55 m above Ordnance Datum (aOD). The immediate surrounding area displays little elevation change although there is a gradual elevation increase towards the south-west which begins approximately 120 m south.

1.3 Scope of the Coal Mining Risk Assessment

- 1.3.1 The purpose of this Coal Mining Risk Assessment Report is to:
-  Present a desk-based review of all available information on the coal mining issues which are relevant to the site;
 -  Use that information to identify and assess the risks to the proposed redevelopment from the coal mining legacy, including the cumulative impact of issues;
 -  Set out appropriate mitigation measures to address the coal mining legacy issues affecting the site, including any necessary remedial works and/or demonstrate how coal mining issues have influenced the proposed redevelopment; and
 -  Demonstrate to the Local Planning Authority that the application site is, or can be made, safe and stable to meet the requirements of the National Planning Policy with regard to development on unstable land.

1.4 Sources of Information

1.4.1 The following sources of information have been obtained and used as the basis for the coal mining issues' risk assessment. Reports/extracts are appended where relevant.

-  An up-to-date, site-specific Consultants Coal Mining Report (Appendix B) from the Coal Authority;
-  Reference to <http://mapapps2.bgs.ac.uk/coalauthority/home.html> the Coal Authority Interactive Map Viewer accessed 30 October 2019;
-  Geological information obtained from the British Geological Survey (BGS) including:
 - GeoIndex (<http://mapapps.bgs.ac.uk/geologyofbritain/home.html?>);
 - the 1:50,000 BGS Maps Series, Solid and Drift Edition (Huddersfield Sheet 77); and
-  Reference to old-maps at <https://www.old-maps.co.uk> accessed 30 October 2019.

2 SUMMARY OF FINDINGS

2.1 Geological Setting

- 2.1.1 Examination of the published BGS data for the site and surrounding area shows that the site is not identified as being underlain by currently recorded artificial ground. Hardstanding is however evident at the surface of the southern half of the site.
- 2.1.2 Superficial deposits of alluvium are indicated to be present throughout the site (the site is located next to the Spen River). Alluvium is described by the BGS as *"clay, silt, sand and gravel. It is the unconsolidated detrital material deposited by a river, stream or other body of running water as a sorted or semi-sorted sediment"*.
- 2.1.3 The site is underlain by strata of the Pennine Lower Coal Measures (Westphalian A). The BGS describes the Lower Coal Measures as: *"sandstone, very fine to fine grained interbedded with mudstone and siltstone; subordinate seatearth, ironstone, marine bands and coal"*.
- 2.1.4 Several faults cross the local area in north-west to south-east and north-east to south-west orientations. The closest (north-east to south-west orientation) is indicated to pass within or close to the north of the site.
- 2.1.5 At least two coal seams are indicated to outcrop within 250 m of the site. There are however discrepancies between the 1:50,000 BGS map and the Coal Authority Interactive Map regarding which coal seams outcrop close to the site. The 1:50,000 BGS map indicates three coal seams within 250 m and the Coal Authority map indicates only two.
- 2.1.6 The nearest seam is interpreted to be the Blocking Coal (0.2 m to 1.7 m thick across the region) and is inferred on both maps. The closest point of the outcropping seam is indicated to be within or adjacent to the eastern boundary of the site.
- 2.1.7 The geological maps indicate the strata to dip gently towards the south-east. The site is therefore situated on rocks which are stratigraphically older than the outcropping coal seam and so the seam does not pass underneath the site.
- 2.1.8 Nevertheless, coal seams which are older than the Blocking Coal, such as the Top Lousey Coal (0 to 0.8 m thick in the region) and Trub Coal (0 to 0.5 m thick) as indicated by the 'vertical section' on the

1:50,000 BGS map, will be located beneath the Blocking Coal, and subsequently will exist/ have existed underneath the site.

- 2.1.9 The angle of the dip of the Top Lousey Coal is not indicated in mapping within the nearby vicinity of the site, therefore a depth is not known; however due to its close proximity to the site it is likely to be shallow.
- 2.1.10 The BGS holds one record of a historical borehole which was formed adjacent to the southern corner of the site. Three additional records of a trial pit and two boreholes formed within 120 m south-east are also available. The records generally describe a layer of Made Ground from the surface to approximately 1.5 m bgl, underlain by clays to approximately 3.7 m bgl, very weathered sandstone (or completely weathered to sand and gravel) to 6.25 m bgl, and weathered mudstone (or completely weathered to clay) to the base of each borehole. The base of the closest borehole was at 7.9 m bgl. 'Traces of coal' from 3.0 to 3.5 m bgl were recorded in the borehole located 65 m south-east which could be the weathered Blocking Coal. The borehole records are included within Appendix C.
- 2.1.11 The 1:50,000 BGS map and the Coal Authority Interactive Map display the outcropping coal seam to have slightly different geometries. As a result, the three additional boreholes are indicated to have been located south-west (stratigraphically older and therefore below) of the outcropping coal seam on the 1:50,000 BGS map, but east (stratigraphically younger and therefore above) of the outcropping seam on the Coal Authority Interactive Map. The exact locations of the outcrop and the potentially worked seam intersected in the exploratory holes are therefore uncertain.

2.2 Coal Authority Mining Report

- 2.2.1 A Coal Authority report (Appendix B) commissioned for the site indicates the following beneath or at the site:
-  There are records of past underground mining. These include mining of the Black Bed Coal at depths between 168 m and 223 m bgl, and of the Better Bed Coal at depths between 224 m and 256 m bgl;
 -  Probable unrecorded shallow workings;
 -  No spine roadways recorded at shallow depths;
 -  No recorded mine entries (or within 100 m of the site);
 -  No coal outcrops;
 -  No faults, fissures or break-lines are recorded at the site;
 -  No recorded opencast coal mines (or within 500 m of the site);
 -  No recorded Coal Authority managed tips (or within 500 m of the site);
 -  There are no records of coal mining subsidence claims (or within 50 m of the site) since 1994;
 -  There are no recorded incidents of mine gas emissions or mine water treatment schemes (or within 500 m of the site);
 -  No Section 46 Notices (stating that the land is at risk of subsidence) have been given.
- 2.2.2 Six catalogue numbers have been provided for abandoned mine plans which cross or fill the site boundary. Further information may therefore be acquired. The numbers are as follows: 6957, FGB709, FGB607, 4832, PO0, 5879.

2.3 Coal Authority Interactive Map Viewer

2.3.1 Reference to the Coal Authority Interactive Map Viewer confirms the foregoing, together with the following:

-  The site is within an area of 'underground workings' and adjacent to an area of 'probable workings';
-  The closest 'mine entry' to the site is located 140 m south-west.

2.4 Historical Plans and Records

2.4.1 Historical maps indicate the site to have remained undeveloped since at least 1854/1855 (the oldest reviewed map).

2.4.2 The local area has had many industrial uses such as smithies, dye works and woollen mills. Although several mills were present from at least 1854/1855, the majority of the industrial buildings were constructed before the next map surveyed in 1894.

2.4.3 Coal pits and a number of quarries (some denoted as sandstone quarries) were indicated in the local area on the map from 1854/1855 only. The closest coal features were two collieries located 90 m north and 300 m east, and a coal pit denoted 280 m east. An unspecified 'quarry' was depicted 405 m south-east from 1922 until 1956 when it became denoted as an 'old quarry'.

3 IDENTIFICATION AND ASSESSMENT OF SITE-SPECIFIC COAL MINING RISKS

- 3.1.1 The following table summarises the potential risks associated with coal mining legacy for the proposed development site, identified from the sources listed above.

Coal Mining Issue	Yes	No	Risk Assessment
Underground coal mining (recorded at moderate depths)	✓		Yes
Underground coal mining (probable at shallow depths)	✓		Yes
Mine entries in close proximity	✓		Yes
Coal mining geology (faults, fissures break-lines)		✓	No
Record of past mine gas emissions		✓	No
Recorded coal mining surface hazard		✓	No
Surface mining (opencast workings)	✓		Yes

- 3.1.2 There are records of coal workings beneath the site at substantial depths (168 m to 256 m bgl) and expected workings at shallow depths, as indicated by the Coal Authority Report and a review of the Coal Authority Interactive Map and BGS geological maps. Workings are interpreted to be of coal seams older and below the Blocking Coal.
- 3.1.3 Given that large industrial buildings had been constructed in the local area, and coal mining features were no longer denoted or depicted by 1894, it is considered highly unlikely that shallow coal has been mined in the area since their construction.
- 3.1.4 Considering the number of deeper mines recorded at the site, it however cannot be discounted that the coal seams older than the Blocking Coal may have previously been extracted.
- 3.1.5 As faults prevent older seams from outcropping at the surface, it is difficult to determine the depth at which they may occur beneath the site. Therefore, it is uncertain whether there is a risk of 'crown-hole' surface collapse or mining subsidence resulting from any workings within the seams.
- 3.1.6 We are not aware of any information to indicate that treatment of shallow workings was undertaken beneath the subject site.

4 MITIGATION STRATEGY PROPOSED

- 4.1.1 Further investigation is required, to comprise rotary drillhole formation to investigate for evidence of unrecorded shallow coal workings beneath the site. If such work proves no evidence of any workings, no further action would then be needed.
- 4.1.2 However, if such work confirms the existence of shallow workings, then depending on the depths, condition, and extent of such workings, treatment may be required to mitigate risks of mining subsidence affecting the proposed development.

5 THE COAL AUTHORITY PERMISSION

- 5.1.1 Prior written permission from The Coal Authority is required for any intrusive activities which will disturb or enter any coal seams, coal mine workings or coal mine entries (shafts and adits). Further information on The Coal Authority's permissions process can be found at:

www.coal.gov.uk/services/permissions/index.cfm

- 5.1.2 Such permission has not been requested at this stage.

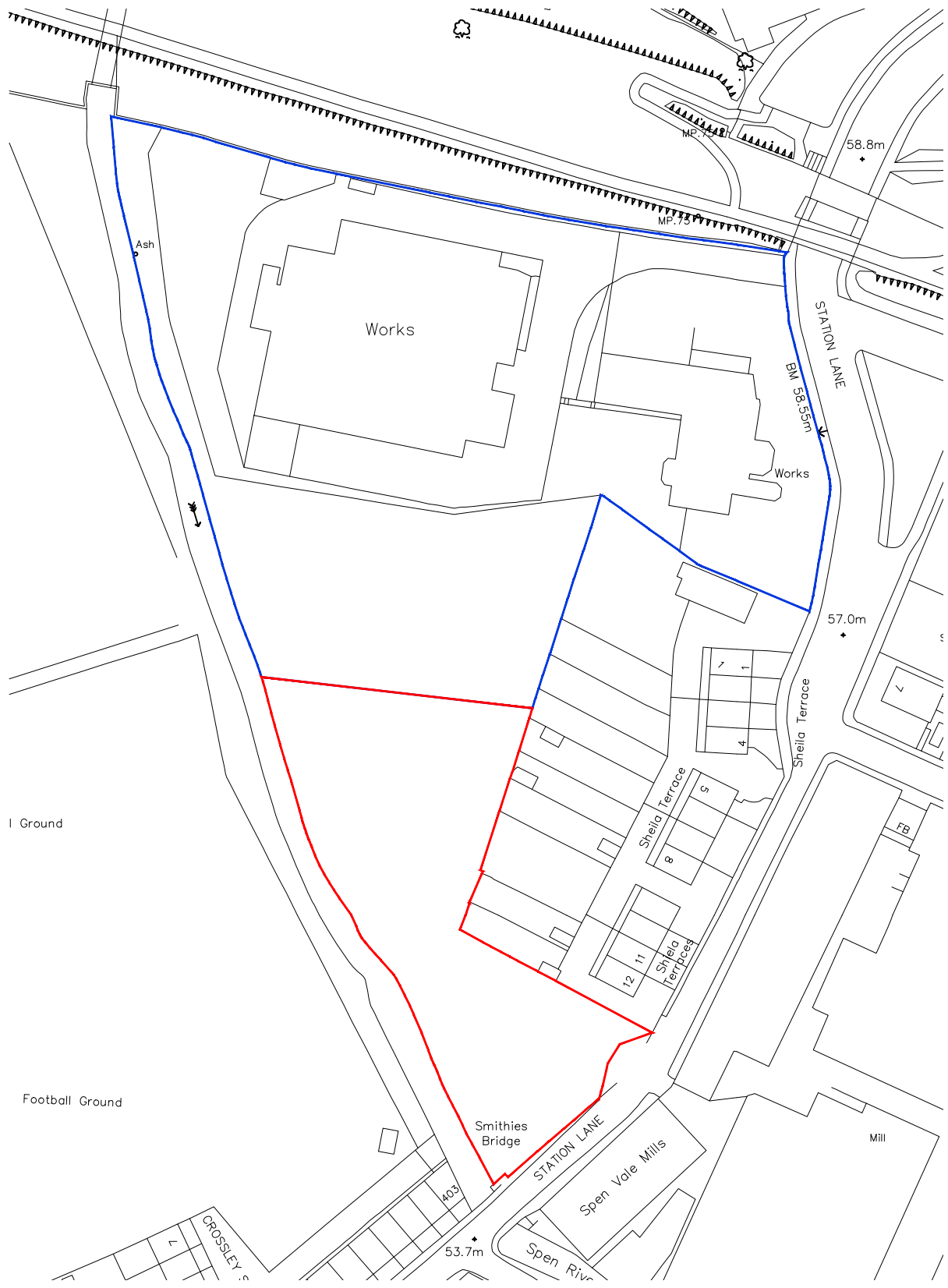
6 CONCLUSIONS AND RECOMMENDATIONS

- 6.1.1 There are records of coal workings beneath the site at substantial depths (168 m to 256 m bgl).
- 6.1.2 The Coal Authority Report and Interactive Map as well as BGS borehole records suggest that coal workings may be located at shallow depths beneath the site. In addition, BGS maps indicate the potential for multiple shallow coal seams beneath the site, although their depths cannot be predicted at this stage. Workings are interpreted to be of coal seams older and below the Blocking Coal.
- 6.1.3 The Blocking Coal (0.2 m to 1.7 m thick across the region) outcrops within or adjacent to the north-eastern corner of the site. The Top Lousey Coal and Trub Coal Seams are anticipated to be present beneath the site; their exact depth cannot be determined from mapping.
- 6.1.4 As the depth below ground level of the potential coal seams are unknown, the risk of collapse of associated workings and hence ground movements or mining subsidence cannot be assessed.
- 6.1.5 It is considered unlikely that coal has been mined at shallow depths beneath the site since the surrounding industrial buildings were developed (by 1894). The potential for near-surface coal extraction having occurred prior to construction however cannot be discounted.
- 6.1.6 We are not aware of any information to indicate that treatment of shallow workings was undertaken beneath the subject site prior to or as part of the surrounding developments.
- 6.1.7 Further site-specific investigations would mitigate, or at least enable better estimation of the associated risks. The following is recommended:
-  A programme of rotary drilling (using water as a flushing medium) at the site to determine the presence / absence of the coal seams (if they are present then the thicknesses and depths of the seams will also be recorded). The investigation will also investigate for evidence of shallow workings. These would likely need to be advanced to depths of up to 25 – 30 m bgl.
 -  From the findings of such work, the need or otherwise for further treatment can be determined, and associated costs estimated.
 -  As indicated above, any such works to investigate for coal workings at the subject site will need to be undertaken under permit from the Coal Authority.

Appendix A

Current and Proposed Site Layout Plans





REVISION	DESCRIPTION	DATE	STATUS	PROJECT TITLE
-	-	-	PLANNING DRAWING	STATION LANE
-	-	-	ORANGE DESIGN STUDIO. ARCHITECTURAL PRACTICE	DRAWING TITLE
-	-	-		LOCATION PLAN
-	-	-	hello@orangedesignstudio.co.uk 59A, Huddersfield Road, Mirfield, WF14 8AA orangedesignstudio.co.uk 01924 650930 COPYRIGHT © ORANGE DESIGN STUDIO LIMITED	SCALE
-	-	-		1:1250
-	-	-		DRAWN
-	-	-		EG
-	-	-	MR D COLLARAN	CHECKED
-	-	-		JH
-	-	-		PROJECT REFERENCE
-	-	-		ODS 258
-	-	-		PAPER SIZE
-	-	-		A4
-	-	-		DWG NUMBER
-	-	-		(EX)001
-	-	-		DATE
-	-	-		12/06/19
-	-	-		REVISION
-	-	-		/



2019 TOP 3 ARCHITECTS IN KIRKLEES ★★★★ THREE BEST RATED Best of houzz 2018 SERVICE	REVISION	DESCRIPTION	DATE	STATUS	PROJECT TITLE			
		-	-	PLANNING DRAWING	STATION LANE			
		-	-	ORANGE DESIGN STUDIO. ARCHITECTURAL PRACTICE	DRAWING TITLE			
		-	-		BLOCK PLAN			
		-	-		SCALE	DRAWN	CHECKED	PROJECT REFERENCE
		-	-	hello@orangedesignstudio.co.uk 59A, Huddersfield Road, Mirfield, WF14 8AA orangedesignstudio.co.uk 01924 650930 COPYRIGHT © ORANGE DESIGN STUDIO LIMITED	1:500	EG	JH	ODS 248
		-	-		PAPER SIZE	DWG NUMBER	DATE	REVISION
		-	-		A3	(20)002	12/06/19	/
		-	-		CLIENT			
		-	-		MR D COLLERAN			

Appendix B

Coal Authority Report



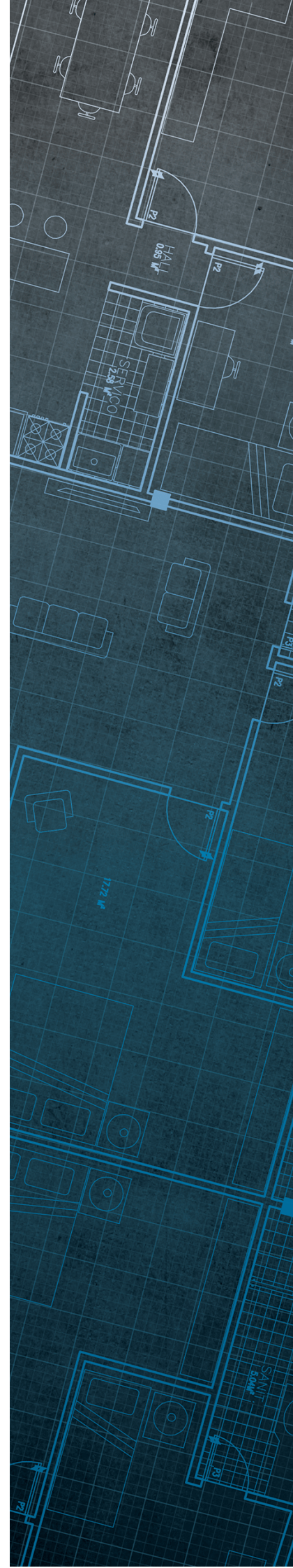


The Coal
Authority

Consultants Coal Mining Report

Site At
Station Lane
Heckmondwike
Kirklees
WF16 0NF

Date of enquiry:	18 September 2019
Date enquiry received:	18 September 2019
Issue date:	18 September 2019
Our reference:	51002170758001
Your reference:	B23669 (PO:G295)



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

Sophie Ludlam

Enquiry address

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Station Lane
Heckmondwike
Kirklees
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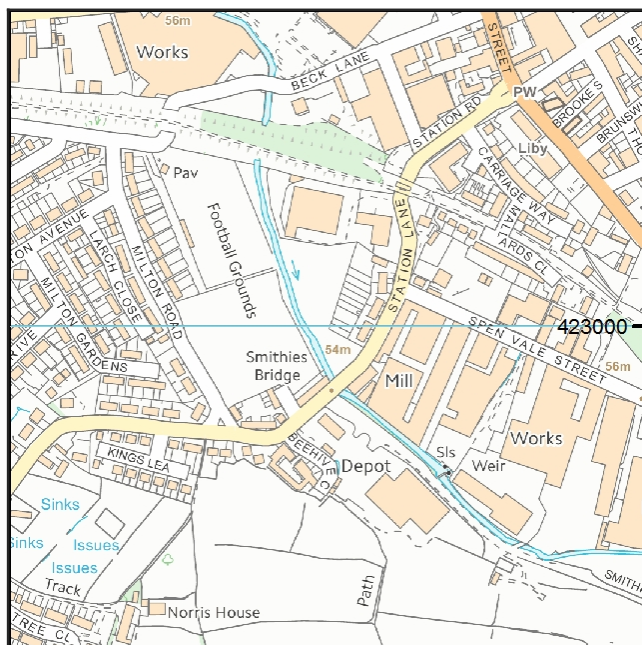
www.groundstability.com

 @coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /thecoalauthority



Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	BLACK BED	Coal	62W9	168	Beneath Property	4.1	North-East	77	1905
unnamed	BLACK BED	Coal	6HF1	218	North-West	5.0	East	77	1912
unnamed	BLACK BED	Coal	6HF2	223	Beneath Property	5.0	East	69	1905
unnamed	BETTER BED	Coal	62WC	224	West	2.9	South-East	48	1914
unnamed	BETTER BED	Coal	6I02	256	North-West	5.0	East	48	1919

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:

6957	FGB709	FGB607
4832	PO0	5879

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

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

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

Site investigations

None recorded within 50 metres of the enquiry boundary.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

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

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining

None recorded.

Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

Court orders

None recorded.

Section 46 notices

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

Withdrawal of support notices

The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Section 4 – Further information

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.

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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Appendix C

BGS Borehole Records



BORE : No. AND LOCATION	DEPTH		SOIL DESCRIPTION <i>SE 22 SW 173</i>	SAMPLES	
	From	To		Depth	Test and Result
BOREHOLE 2 28/29.4.77 Cable percussion 53.67m A.O.D.	G.L.	1.70	MADE GROUND comprising: ashes, topsoil, sandstone fragments, firm brown clay.	G.L.- 0.40	Fm 23
	1.70	3.20		0.40- 1.70	Fm 22
			Soft, becoming very soft, brown becoming brown and grey mottled very sandy silty CLAY, with occasional friable sandstone fragments. Occasionally changes to clayey silty fine SAND.	1.70- 2.20	Fm 27 BD 1.74 Cu 40 Au 4 N 26 PL NP
				2.20- 2.70	Fm 27 BD 1.74 Cu 40 Au 4 N 26 PL NP
				2.70- 3.20	Fm 33 BD 1.78 Cu 18 Au 0 N 36 PL 22 LL 41
				3.20- 3.65	Fm 33 N 27
				3.65- 4.35	Inspection only
				4.35- 4.80	Fm 9.5 N 29
				4.80- 4.95	Inspection only
				4.95- 5.40	Fm 10 N 55
					/Cont.....

BOREHOLE No. AND LOCATION	DEPTH		SOIL DESCRIPTION SE22SW - 173	SAMPLES	
	From	To		Depth	Test and Result
BE. 2 cont.	6.20	-	Highly weathered grey weak silty MUDSTONE (6.20 to 7.00m is weathered to soft grey silty clay).	5.40-5.75	F _u 13
				5.75	Inspection only
				5.75-6.20	F _u 14 N 44
				7.00-7.45	F _u 9.5
				7.45-7.90	F _u 7.4 N 93
				3.70 (Water sample)	S ₀ 17 pH 7.9
	7.90		END OF BOREHOLE Cased (150mm) to 6.60m		
<u>Water Record</u>					

Date	Time	Casing depth (m)	B.H. depth (m)	Standing Water depth (m)	Depth Struck (m)	Level rose to (m)	Elapsed time (mins)	Remarks
28.4.77	am	1.50	1.70	-	-	-	-	Moist
"	-	2.50	3.65	3.20	3.20	-	-	Struck during S.P.T.
"	-	"	"	Water added for water balance				
"	5.00pm	3.90	4.80	3.95	-	-	-	End of working day
29.4.77	am	"	"	3.70	-	-	-	Start of Working day
"				Water balance maintained to completion of borehole				
"				Standing water level on completion was not recorded.				

Smithies Bridge

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BORE HOLE No. AND LOCATION	DEPTH (m)		SOIL DESCRIPTION SE22SW 175	SAMPLES	
	From	To		Depth	Test and Result
Trial Pit 1B 6.5.77 Hand digging to 1.30m, Hand augering from 1.30m to 2.40m 53.40m A.O.D.	G.L.	0.10	CARRIAGEWAY CONSTRUCTION		
	0.10	1.30	MADE GROUND comprising :- 250mm flaggy sandstone pitching and traces of ashes and brick, 200mm dense black fine ashes, 300mm dense brown cobble size down angular sandstone fragments with some sandy clay and worms, 250mm dense brown clinker and black fine ashes, 200mm dense brown cobble size down angular sandstone fragments and some sandy clay.		
	1.30	1.55	Firm brown and grey mottled sandy silty CLAY, with some gravel size sandstone and mudstone inclusions. (Possibly MADE GROUND)	1.30- 1.50	Fr 19 BD 2.06 Cu 70 Su 0 □ 19 PL 22 LL 37
	1.55	-	Very soft rusty brown very silty sandy CLAY, or sandy clayey SILT, with traces of gravel size sandstone and mudstone inclusions, and occasional cobble and boulder size sandstone fragments.	1.60 2.00- 2.40	Fr 29 PL 24 LL 44 Fr 34 BD 1.88 Cu 10 Su 0 □ 33 PL 24 LL 40
	2.40		END OF TRIAL PIT/BOREHOLE Further progress impracticable due to water ingress and cobbles.		
<u>Water Records</u>					
	0.55		Slight seepage, possibly leakage from adjacent foul sewer		
	1.50 and 2.00		Top water level, and bed level in Spen River		
	1.80-2.40		Continuous water entry		
	1.83		Standing water level on completion of hand augering		

BOREHOLE No. AND LOCATION	DEPTH (m)		SOIL DESCRIPTION	SAMPLES		
	From	To		Depth	Test and Result	
BOREHOLE 1A 26/27.4.77 Cable percussion. 53.40m A.O.D.	G.L.	1.45	MADE GROUND comprising: dense ashes, sandstone cobbles, broken brick, and stiff grey clay.	1.00	Fm	18
				1.00	Fm	20
				-1.45	N	35
	1.45	3.85	Very soft light brown and grey mottled slightly organic very silty sandy CLAY.	1.45	Fm	30
				-1.60	Fm	31
				1.60	BD	1.91
				-2.10	Cu	14
					Øu	0
					m	31
					PL	21
					LL	36
				<u>PR</u>	<u>Nv</u>	<u>Cv</u>
				0-14	-	2.8
				14-27	1.19	1.4
				27-54	0.79	2.0
				54-107	0.41	3.0
				107-214	0.25	3.8
				214-429	0.14	5.7
				2.10	Fm	32
				2.10	Fm	33
				-2.60	BD	1.91
					Cu	10
					Øu	0
					m	32
					PL	21
					LL	36
				<u>PR</u>	<u>Nv</u>	<u>Cv</u>
				0-14	-	0.8
				14-27	1.30	0.7
				27-54	0.81	1.1
				54-107	0.45	1.3
				107-214	0.26	2.2
				214-429	0.14	3.2
				2.65	Fm	32
				2.65	Fm	33
				-2.75		
				2.75	Fm	33
				-3.20	BD	1.81
					CuR	7
					ØuR	0
					m	34
					PL	24
					LL	40

Smithies Bridge

BOREHOLE No. AND LOCATION	DEPTH		SOIL DESCRIPTION SEDSW 174	SAMPLES		
	From	To		Depth	Test and Result	
BOREHOLE 1A 26/27.4.77 Cable Percussion /continued				PR	Mv.R	Cv.R
				0-14	-	2.0
				14-27	1.05	1.3
				27-54	0.64	2.1
				54-107	0.41	3.4
				107-214	0.26	3.7
				214-429	0.14	5.3
				3.20	Fm	38
				-3.25		
			Traces of coal from 3.00 to 3.50 m	3.25	Fm	30
				-3.70	PL	24
					LL	33
			Traces of sand and gravel from 3.50 to 3.85 m.	3.70	Fm	35
				-3.85		
	3.85	5.60	Completely weathered brown medium to coarse grained weak SANDSTONE: comprising angular sandstone fragments in a waterlogged matrix of sandy clay or clayey sand.	3.85	Inspection only	
				4.15	Fm	12
				4.60	F	45
				4.60	Inspection only	
				-5.30		
	5.60	-	Very stiff light grey friable slightly clayey SILT, with siltstone partings. (Completely weathered SILTSTONE or MUDSTONE).	5.30	Fm	14
				-5.80	HD	2.23
					Cub	200
					Sub	0
					m	14
				5.80	Fm	12
					PL	19
					LL	30
	6.25		END OF BOREHOLE Cased (150mm) to 5.30 m	5.80	Fm	9.7
				-6.25	N	45
				3.00	SO ₃	16
				(water sample)	pH	6.4

Smithies Bridge

BOREHOLE No. AND LOCATION	DEPTH		SOIL DESCRIPTION				SAMPLES	
	From	To	SE22SW 174				Depth	Test and Result
BH. 1A cont.			<u>Water Record</u>					
Date	Time	Casing depth (m)	B.H. depth (m)	Standing water depth (m)	Depth struck (m)	Level rose to (m)	Elapsed time (mins)	Remarks
26.4.77	am.	Nil	1.45	-	-	-	-	Moist
"	-	1.50	2.65	-	2.65	-	-	Trace
"	-	2.65	3.50	-	3.50	3.00	Not recorded	Strong water entry
"	4.30pm	"	3.85	3.00	-	-	-	End of working day
27.4.77	am.	"	"	2.75	-	-	-	Start of working day
"	"	4.00	4.15	Water added to G.L. for water balance			-	
"	Noon	4.00	4.60	G.L.	-	G.L.	Nil	Water added to G.L.
"	12.05pm	"	"	-	-	0.9	5	(W.L. falling during lunch break)
"	12.30pm	"	"	-	-	2.1	30	
"	12.45pm	"	"	-	-	2.1	45	
"	12.45	"	"	G.L.	-	-	-	Water balance restored
Standing water level on completion was not recorded								

Warristhorpe Lane, Liversedge
Smithies Bridge

BORF HOLE No. AND LOCATION	DEPTH		SOIL DESCRIPTION	SAMPLES	
	From	To		Depth	Test and Result
BOREHOLE 1 v	0	0.13	Grass and topsoil overlying ashes (MADE GROUND).	TRIAL PIT TO 0.80	
25/30 11.76 Cable percuss- ion	0.13	0.33	Sandstone flag vitching (MADE GROUND).		
53.40 m A.O.D.	0.33	0.90	MADE GROUND comprising black ash and broken sandstone with occasional fragments of brick.		
	0.90	1.20	Highly and completely weathered grey green weak and friable MUDSTONE. (Probably MADE GROUND).	0.95- 0.95- 1.35	Fm 11 Fm 36 LL 46 PL 25 PI 21 Cu b 24 m 34
	1.20	1.80	Moderately compact grey green slightly sandy clayey SILT, with abundant organic material.	1.35- 1.40 1.55- 2.00	Fm 34 Fm 37 LL 38 PL 21 PI 17 Cu b 19 m 34
	1.80	3.10	Soft light brown structureless very sandy CLAY with many small brown weakly cemented sand pockets. Becoming light blue grey and gravelly at base.	2.00- 2.05 2.85- 3.10	Fm 34 Fm 30
	3.10	5.10	Medium dense to dense brown very clayey gravelly SAND and very clayey sandy GRAVEL. Clay forming matrix in places, occasional cobbles. (Completely weathered SANDSTONE).	3.15 3.25- 3.70 3.70- 3.80 3.80- 4.25 4.40- 4.85	Fm 26 Fm 14 BD 2.15 DD 1.82 m 19 Fm 13 Fm 15 E 27 Fm 24
			Some moderately weathered yellow sandstone.		
/Continued					

Horriethorpe Lane, Liversedge
Smithies Bridge

BOREHOLE No. AND LOCATION	DEPTH		SOIL DESCRIPTION <i>SEN SW 172</i>	SAMPLES	
	From	To		Depth	Test and Result
Borehole 1 (Continued)	5.10	-	Stiff becoming very stiff light grey structureless silty CLAY. Fresh sandstone cobbles and pocket of brown very clayey sand at top. (Completely weathered MUDSTONE). Clay becoming slightly cemented, to weak mudstone from 5.80m. END OF BOREHOLE Cased (150 mm) to 6.0 m. <u>WATER RECORD</u>	5.10	Mo 19
				5.20-	Fm 17
				5.65	LL 45
					PL 23
					PI 22
					Cu 105
					m 18
				5.65-	Fm 14
				5.75	
				5.8-	Fm 9
				6.25	N 94
				7.3-	Fm 7
				7.6	
				7.6	Fm 7
7.7-	Fm 6				
8.15	N 106				
	8.15	END OF BOREHOLE			
		Cased (150 mm) to 6.0 m.			
		<u>WATER RECORD</u>			
	Date and Time	Depth of B.H. (m)	Depth of Casing (m)	Depth to Water (m)	
	<u>25.11.76</u>				
	-	3.80	2.60	Struck 3.80	
	15 mins	"	"	3.10	
	15.30	3.80	2.60	3.10	
	<u>29.11.76</u>				
	09.00	3.80	2.60	2.80	
	16.30	8.15	6.00	6.50	
	<u>30.11.76</u>				
	10.00	8.15	6.00	2.80	



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