

**Environmental
Geotechnical
Specialists**



COAL INVESTIGATION

job number C337/20/E/1956	date 10.06.21
site address 48 Stile Common Road	
Newsome	
Huddersfield	
HD4 6DE	
written by R.A. Palmer	checked by C.E. Mason
issued by R.A. Palmer	

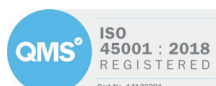
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GEOTECHNICAL
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Report on a Coal Investigation

Location: 48 Stile Common Road
Newsome, Huddersfield HD4 6DE

For: Jellie Properties

Report No. C337/20/E/1956

Report date: June 2021

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

Redacted

Rob Palmer MSc FGS ACIEH
Senior Geo-environmental Engineer

Charlotte Mason BSc FGS
Geo-environmental Engineer

1. Introduction

It is understood that the site is to be developed by the construction of a detached property. As part of the planning process a site investigation has been undertaken to establish if coal workings are present beneath the area of the proposed works. This report presents the data obtained and discusses the ground conditions in relation to the proposed development.

2. Limitations

The recommendations made and opinions expressed in this report are based on the ground conditions revealed by the site works, together with an assessment of the site and of the laboratory test results. Whilst opinions may be expressed relating to sub-soil conditions in parts of the site not investigated, for example between trialpit and borehole positions, these are for guidance only and no liability can be accepted for their accuracy.

This report has been prepared in accordance with our understanding of current best practice. However, new information or legislation, or changes to best practice may necessitate revision of the report after the date of issue.



3. Preliminary Desk Study

The following information has been considered during the works.

- Appraisal of available on-line British Geological Survey and Coal Authority data.
- Review of the Coal Mining Risk assessment undertaken by RGS.

4. Fieldworks

4.1 Acquisition of Coal Authority Permit

In order to undertake this investigation, it was necessary to obtain permission to enter or disturb Coal Authority interests. This permission was granted on the 16th of December 2020 as permit reference number 21138, which is presented in Appendix 1 to this report. In accordance with the joint Coal Authority and Health and Safety Executive positioning statement, and under the requirements of the permit, the works were undertaken employing water flush drilling techniques with gas monitoring of the boreholes during the fieldworks.

4.2 Aborted Works

It should be appreciated that prior to visiting the site, the client demolished the property and lowered the surface of the site to the elevation of Stile Common Road. In doing this, clay and shale became evident at the site surface. The exact date of the demolition and excavation is not known, however it is anticipated that this was during early March 2021.

A rotary drilling rig was initially mobilised to site on the 19th of April 2021. However, upon arrival, it became immediately apparent that depressions and holes had appeared at the surface toward the rear of the site. As such, an engineer visited the site and determined that shallow mine workings may be prevalent and it was more than likely that in some locations, the materials forming the roofs of such workings had been subject to collapse. In view of the unknown thickness and extent of such workings, the rotary boreholes were aborted at this stage and the client notified.

4.3 Machine Excavated Trialpits

In order to investigate the surface depressions and holes, a 5-tonne mini-excavator was mobilised to site on the 18th of May 2021. Upon arriving at site, it was noted that another hole had opened up towards the centre of the site. It was possible to push a 3m length of timber into the sides of this hole.

Given the stability concerns, trialpitting commenced from the roadside at TP01. Once solid ground (in this instance coal) was revealed within the base of an excavation, that position of land was deemed to be stable enough for the machine to be located upon. As such, trialpits were excavated in a series of linear trends. As solid ground was proven, or where mine works and subsequent voiding appeared to



be absent, the machine would continue to move along the linear trend until such workings were revealed.

The positions of the trialpits are located upon a plan in Appendix 2. Moreover, trialpit logs and associated photographs can be found within Appendix 3. The soils exposed in the trialpits were logged on site in general accordance with BS5930: 2015 +A1: 2020.

Once excavations were completed, the trialpits were carefully re-instated with the arisings. Whilst every care was taken during the infilling process, including compacting of the infill at regular intervals with the back acting arm of the excavator, it should be appreciated that some mounding of the surface may have resulted. Moreover, the infilled soils may be subjected to settlement over time, such that a depression in the surface may also occur. In addition, these works may have exacerbated instability of the shallow workings, thus additional holes may appear at the surface. Therefore, the locations of any pits undertaken in this investigation, in addition to the estimated areas of shallow workings, should be immediately conveyed to the current and future site users, as the depressions associated with the pits may present a high risk to site operations and users.

4.4 Rotary Open-hole Boreholes

Once a solid area of ground had been proven, the rotary drilling rig was remobilised to site. A solitary rotary borehole was undertaken on the 26th and 27th of May 2021 in accordance with the instruction to proceed issued by the client. These works were required in order assess what shallow workings may be present beneath the site. Given the risks associated with surface instability due to the presence of shallow workings, it was evident prior to mobilising the rotary rig that three boreholes would not currently be possible due to the potential for site wide instability.

The boreholes were sunk using a Comacchio 205 rotary drilling rig using rotary open-hole drilling techniques and employing 130mm diameter drag and tricone roller bits. Where necessary, 140mm diameter casing was temporarily installed through the overburden to support the bore. The investigation was undertaken using water flush drilling techniques in accordance with the Coal Authority and Health and Safety Executive positioning statement. Drill chippings brought to surface in the flush returns were inspected by the driller on a screen, which forms part of the re-circulation tanks. The borehole positions are shown on the site plan, which is presented in Appendix 2 and the strata conditions are presented on the borehole records in Appendix 4.

With reference to the Coal Mining Risk Assessment, recorded workings were indicated to be present at depths of 33m (Soft Bed Coal). Moreover, it was also determined that two coal seams and possible associated workings could be present at depths of 5m to 7m (Hard Bed) and 15m to 17m (Middle Band Coal). As such, it was necessary to ensure at least one borehole position was drilled to 30m depth, possibly deeper to confirm the presence of workings at depth within the Soft Bed Coal, as this could then confirm the sequence above. Indeed, taking into consideration that the site levels had been reduced prior to visiting the site, the workings identified within the trialpits are deemed to represent illicit workings within the Hard Bed Coal.

It should be noted that a standpipe was installed within RO1, given the presence of shallow workings. Moreover, the operatives wore a gas alarm system throughout the works.



5. Geological Appraisal

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 ¹	Previous Name ²	Description ³
Superficial Geology	None recorded	-	-
Solid Geology	Pennine Lower Coal Measures Formation	-	Interbedded grey mudstone, siltstone and pale grey sandstone, commonly with mudstones containing marine fossils in the lower part, and more numerous and thicker coal seams in the upper part.

On the geological map, there is one dip indicator relevant to the site (i.e. within 500m of the site or within the same fault block) that suggests the solid geology beneath the site dips 4° to the east. In addition, the Consultants Coal Mining Report makes reference to a dip of 2° within the units beneath the site.

There are three local 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
Hard Bed Coal	0.1 – 0.8m	100m NW	Within 7m
Middle Band Coal	0 – 0.6m	215m NW	Within 17m
Soft Bed Coal	0 – 0.8m	330m NW	Around 30m bgl.

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

The Hard Bed Coal (aka Halifax Hard) is commonly around 0.6m in thickness and was worked, together with its underlying seatearth in various locations around the Huddersfield area close to outcrop. The coal extracted is recorded to have been utilised as engine and household coal. Given its close proximity to the site surface, it was estimated that underground shallow workings could be present; the section above suggests this to be true.

¹ Sources: British Geological Survey (NERC) Map Sheets 77; Huddersfield; Solid and Drift Edition, and Geology of Britain Viewer [online resource from www.bgs.ac.uk]

² Sources: British Geological Survey (NERC) Lexicon of Named Rock Units [online resource from www.bgs.ac.uk]



Beneath the Hard Bed Coal is the Middle Band Coal, which is recorded to be present throughout the area, albeit is usually too thin to be viable for economic extraction. The Soft Bed Coal (aka Halifax Soft) is the lowest coal seam within the district. This seam is known to have been extracted beneath the site in the 19th Century by shallow mining and is often underlain by a seam of fireclay which was also commonly removed. The Consultants Mining Report indicated the workings associated with this seam to be 0.51m in thickness, and last worked in 1900 at a depth of 33m.

6. Strata Conditions

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

Table 3: Generalised strata profile

Depth to base (m)	Strata type	Positions strata was revealed	Groundwater strikes (m)
1.0	CLAY	All	None
2.0	VOID (Workings in Hard Bed) ~1.0m thickness	TP02, 07, 09, 10	Yes
2.0	COAL (Intact Hard Bed) ~ 1.0m thickness	RO1	None
6.3	SANDSTONE	RO1	None
30.6	MUDSTONE	RO1	None
31.2	VOID (Workings in Soft Bed) ~ 0.6m thickness	RO1	None

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

During this investigation, after initially encountering approximately 1.0m of clay, voiding and/or intact coal was revealed site wide to 2.0m. As previously discussed, this coal and associated workings are anticipated to represent the Hard Bed Coal. The extent of the shallow voiding is highlighted on a site plan in Appendix 1.

Below this stratum, competent layers of the Pennine Lower Coal Measures Formation were revealed; sandstone to 6.3m followed by mudstone to 30.6m. At 30.6m depth, a distinct void was then recorded to 31.2m. It is anticipated that this voiding is associated with workings within the Soft Bed Coal. It should be noted that drilling continued beyond this depth to 32.5m. Drilling resistance was noted to the base of the borehole, however no drill flush was returned to surface due to the voiding above, therefore the nature of the rock beyond the void is indeterminable.

Upon receiving the results from this borehole, and taking into consideration the findings of the trialpitting exercise and coal risk assessment, it was determined that sufficient information had been obtained from the solitary borehole. The recorded workings had been confirmed at depth. Moreover, the Middle Band Coal was revealed to be absent beneath the site, or possibly very thin.

Groundwater was observed in the voids revealed within the trialpits. This is anticipated to represent surface water. However, no groundwater strikes were recorded within RO1 during drilling. Nonetheless, it is possible that the use of water flushing techniques may have masked the presence of any water strikes within the other borehole locations. In any event, it should be appreciated that groundwater levels are subject to seasonal variation or changes in local drainage conditions.



7. Standpipe Monitoring

The standpipe installed in RO1 was monitored between the 4th of June 2021. The results of the gas monitoring undertaken to date are tabulated below:

Table 4: Gas Monitoring								
Location	Date	CH ₄ (%)	CO ₂ (%)	O ₂ (%)	Flow (l/h)	Barometric Pressure (mb)	Water Level (m)	Standpipe Depth (m)
RO1	04.06.21	0.0	0.1	20.9	0.1	1012↑	-	2.0

↑ - rising pressure ↓ - falling pressure ↔ -steady pressure

This work was undertaken using a Geotechnical Instruments (UK) Ltd. GA5000 (serial No G503524) which was last calibrated on the 5th May 2021.

8. Discussion of Ground Conditions

On the basis of all of the information provided above it is noted that there are coal seams and associated workings present at shallow depths beneath the site. Such workings have been found within both the Hard Bed and Soft Bed Coal seams. Nonetheless, the Middle Band Coal seam appears to be absent beneath the site. This absence is associated with this seam being laterally impersistent and of poor quality; no evidence of workings associated with this seam have been detected.

It should be noted that during the fieldworks phase, the personal protective gas alarms did not signal. In addition, the results of the gas monitoring conducted after the drilling phase suggest that there is a low risk of gasses associated within mine workings being present below the proposed development. However, further monitoring will be undertaken and the client shall be advised should conditions significantly change.

9. Risk Assessment

In light of the findings of this investigation, the risk to the proposed development is considered 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 of Instability	Coal Seam(s) Considered	Risk Rating
1	Shallow coal workings	Hard Bed Coal	High
2		Middle Band Coal	Low
3		Soft Bed Coal	Low
4	Mine gas	Named above	Low

In view of all the information obtained in this investigation, it is considered that there is a high to risk of ground movement as a consequence of coal workings beneath the site. Indeed, evidence of surface depressions and holes have already been highlighted at the site surface. However, it is anticipated that such instability will be related to the very shallow workings associated with Hard Bed Coal. Therefore, some remedial measures will be required to mitigate against surface instability.

Nonetheless, given the limited thickness of workings associated with the Soft Bed Coal, and also considering the significant cover present above the voiding at depth, it is not anticipated that stability of the surface would be affected should collapse occur within these workings. As such, it is considered that there is a low risk to surface instability from workings at depth. Moreover, the Middle Band Coal appears to be absent beneath the site, thus again is considered to represent a low risk to the development.

9.1 Remediation

In view of the above, remedial measures will be required. Normal practice would be to undertake grouting. However, given the very shallow depth of the workings encountered within the trial pits, it is anticipated that it will be more cost effective and practical to excavate the workings and reinstate with a suitably compacted material.

In the first instance, discussions should be held with the Coal Authority to the efficacy of this approach. The entirety of the site will have to be subject to excavation to the underside of the workings, which will result in the excavation of intact coal. The Coal Authority may suggest that the coal is sold for re-use. However, it would be necessary to establish the calorific value of the coal in order to determine the quality of the coal to any prospective buyer.

It should be appreciated that the coal workings were found to extend off site, i.e. voids extended laterally to the neighbouring property. As such, where voids are revealed at site the boundaries, it may be prudent to construct a suitable plug, possibly with concrete and stone blocks.

Once the coal and underside of the workings are reached, the excavation would then be filled with approved and compacted granular material such that a raft foundation could be constructed at shallow depth. In principal this method of construction is considered viable, provided that:



- Testing of the source material (grading and dry density moisture content relationship) be undertaken to assess its suitability. It may be possible to use site won materials.
- The excavation faces are battered to a slope not exceeding 45°.
- The formation level is subject to compaction using a suitable vibratory roller.
- A suitable granular fill is brought up and compacted in layers not exceeding say 300mm.
- Each layer is subject to insitu density testing to ensure that it has been adequately compacted.

If the works are undertaken with due diligence then it is considered that settlement of the completed structure will be well within tolerable limits.

If the excavations are required to stand open for any period of time then a blinding layer of lean-mix concrete should be placed in the excavation bases. This expedient will reduce softening or loosening of the sub-grade due to the ingress of surface water.

Given that water was found to be present within some of the trialpits, it is possible that seepages of water could enter the excavation. In this event it is possible that such seepages could be controlled using a simple form of de-watering. Such a system could include the excavation of sumps from which the water could be pumped. However, it would be prudent to excavate some deep trialpits at the time the works are to start in order to establish if groundwater is likely to represent a significant issue during construction.

It is re-iterated that the stability of the excavation faces cannot be guaranteed thus temporary support to the excavation faces or battering the faces to a safe slope angle will be required. Under no circumstances should operatives be allowed to enter unsupported excavations.

In order to complete the above, an approach will need to be submitted to the Coal Authority and appropriate permits may need to be obtained in order to complete the works, particularly if coal is to be removed. Moreover, a report will need to be undertaken by a suitably qualified engineer in order to validate the works. The works will need to include regular site visits to inspect the base of the workings and to inspect the nature and compaction of the engineered fill. This will likely be outlined within a planning condition.

It should be noted that Rogers Geotechnical Services would be happy to assist with the above where possible.



10. References

- British Standards Institution (2015 +A1: 2020) BS 5930: *Code of practice for ground investigations*, B.S.I., London.
- Healy, P. and Head, J., 1984. *Construction over abandoned mine workings*. London: Construction Industry Research and Information Association [for] Directorate of Civil Engineering Services, Property Services Agency, Dept. of the Environment.
- Parry, D. and Chiverrell, C., 2019. *Abandoned mine workings manual*. London: CIRIA.
- British Geological Survey (NERC) (2021), BGS, Keyworth.
 - Geology of Britain Viewer:
(http://maps.bgs.ac.uk/geologyviewer_google/googleviewer.html)
 - Borehole Scans:
(<http://www.bgs.ac.uk/data/boreholescans/>)
 - Lexicon of Named Rock Units:
(<http://www.bgs.ac.uk/lexicon/>)



Appendix 1

Coal Authority Permit



The Coal
Authority

Permit to Enter or Disturb Coal Authority Interests

Permit 21138

Name and Address of Permit Holder:

*Jellie Properties Ltd
C/o - Phoenix Textiles Ltd
Spring Grove Mills
Clayton West
Huddersfield
HD8 9HH*

Site Location:

*48 Stile Common Road
Newsome
HD4 6DE*

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

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

Conditions:

- *Water flush*
- *Gas Monitoring CO, CH₄, CO₂, O₂, H₂S at borehole and rig*
- *Operators undertaking the work must be in possession of this certificate and the Permit boundary plan at the time of works*
- *Appropriate borehole sealing without delay and to withstand site level changes*

Signed: Michael Amirtash Granted Date: 16th December 2020

For and on behalf of The Coal Authority

Nominated Representative: Michael Amirtash, Permitting Manager;

The Coal Authority, Permitting Office, 200 Lichfield Lane, Mansfield, Notts, NG18 4RG

Tel: 01623 637450; E-Mail: permissions@coal.gov.uk



Appendix 2

Site Plan



The Coal
Authority

Granted Permit Boundary

Permit Ref: 21138

Permit Boundary:



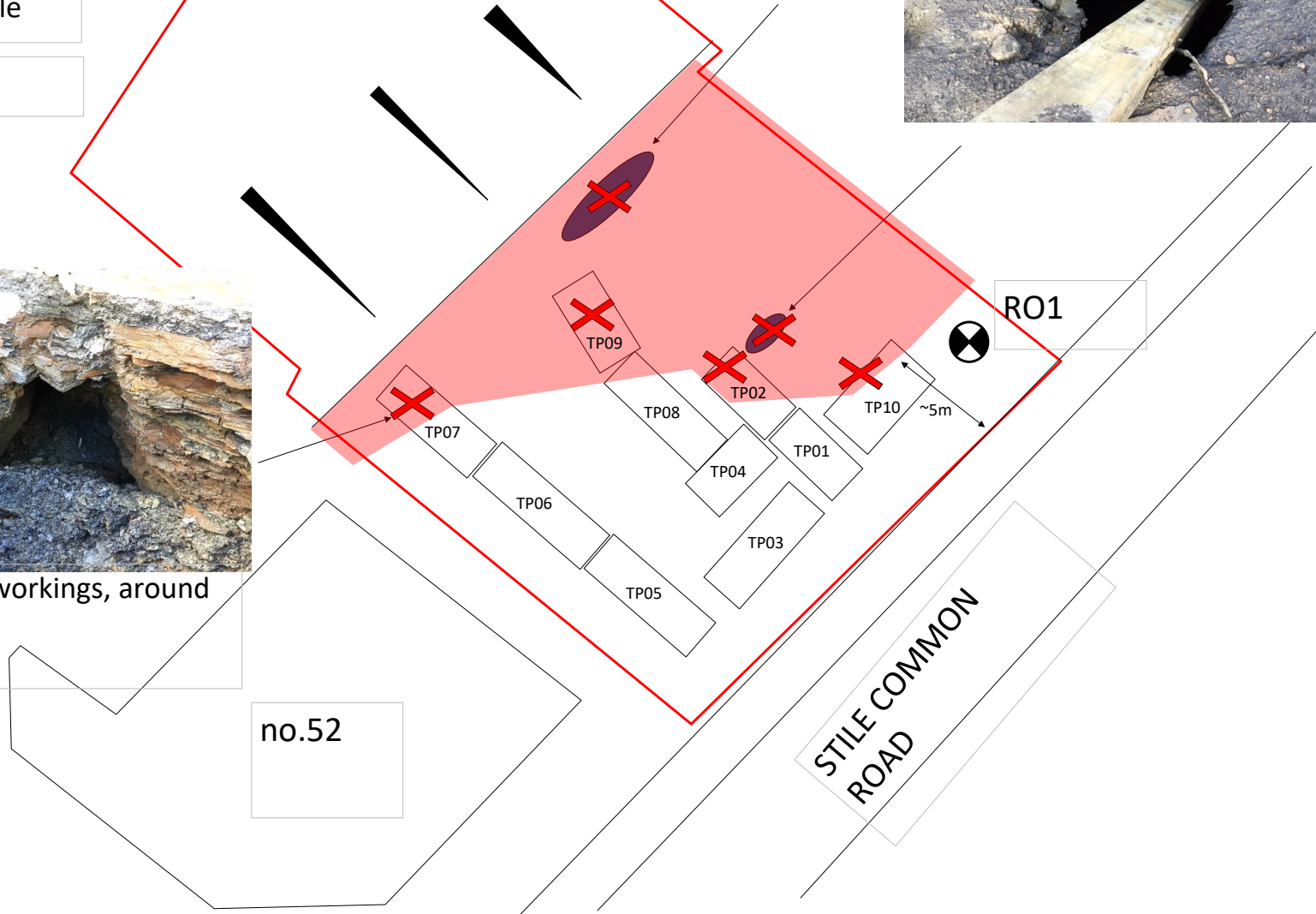
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Photos showing ground conditions upon arrival at site. Roofs had begun to collapse.



Shallow mine workings, around 1m depth.



Notes:

Not to scale.
Investigation positions are approximated from site notes.

Environmental
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Telephone: 0843 50 66 87
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Client:

Jellie Properties Ltd

Job Number:

C337/20/E/1956

Project Details:

Stile Common Road, Newsome

Scale: Not to scale - reference only





Appendix 3

Trialpit Records



Photo 1: Upon arrival at site. Timber went approximately 2.5m to 3m into the hole before refusal.



Photo 3: Example showing coal workings (flooded) at TP02 in comparison to solid ground at TP04.



Photo 2: Hole had opened in the centre of site prior to site investigation.



Photo 4: Coal workings present at TP02.



Rogers Geotechnical Services Ltd

Offices 1 & 2, Barncliffe Business Park,
Near Bank, Shelley,
Huddersfield,

Job No:

C377/20/E/1956

Site:

48 Stile Common Road

Client:

Jellie Properties Ltd





Photo 5: Intact coal at TP03.



Photo 6: Intact coal at TP05.



Photo 7: Workings identified at TP07. Extend off-site beneath no.52.



Photo 8: Coal workings identified at TP09.



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Near Bank, Shelley,
Huddersfield,

Job No:

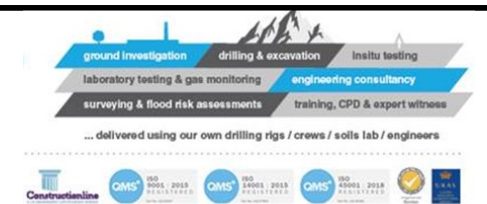
C377/20/E/1956

Site:

48 Stile Common Road

Client:

Jellie Properties Ltd





Trial Pit Log

Trialpit No

TP01

Sheet 1 of 1

Project Name: 48 Stile Common Road

Project No.
C337/20/E/1956Co-ords: -
Level:Date
13/05/2021

Location: Newsome, Huddersfield HD4 6DE

Dimensions (m): 0.6

Scale
1:50

Client: Adrian Mosley

Depth
1.50Logged
RAP

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
							Brown and orangish brown CLAY.	
				1.00			Extremely weak thinly laminated MUDSTONE.	1
				1.20			COAL	
				1.50			End of pit at 1.50 m	
								2
								3
								4
								5
								6
								7
								8
								9
								10

Remarks:

Stability:





Trial Pit Log

Trialpit No

TP02

Sheet 1 of 1

Project Name: 48 Stile Common Road

Project No.
C337/20/E/1956Co-ords: -
Level:Date
13/05/2021

Location: Newsome, Huddersfield HD4 6DE

Dimensions (m): 0.6

Scale
1:50

Client: Adrian Mosley

Depth
1.90Logged
RAP

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.50			Brown and orangish brown CLAY.	
				0.80			Extremely weak thinly laminated MUDSTONE in places.	
							VOID.	1
				1.90			End of pit at 1.90 m	2
								3
								4
								5
								6
								7
								8
								9
								10

Remarks:

Stability:





Trial Pit Log

Trialpit No

TP03

Sheet 1 of 1

Project Name: 48 Stile Common Road

Project No.
C337/20/E/1956Co-ords: -
Level:Date
13/05/2021

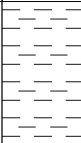
Location: Newsome, Huddersfield HD4 6DE

Dimensions
(m):Depth
1.60

0.6

Scale
1:50Logged
RAP

Client: Adrian Mosley

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				1.00			Brown and orangish brown CLAY.	
				1.55			Extremely weak thinly laminated MUDSTONE.	1
				1.60			COAL.	
							End of pit at 1.60 m	2
								3
								4
								5
								6
								7
								8
								9
								10

Remarks:

Stability:





Trial Pit Log

Trialpit No

TP04

Sheet 1 of 1

Project Name: 48 Stile Common Road

Project No.
C337/20/E/1956Co-ords: -
Level:Date
13/05/2021

Location: Newsome, Huddersfield HD4 6DE

Dimensions
(m):Depth
1.60

0.6

Scale
1:50Logged
RAP

Client: Adrian Mosley

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				1.00			Brown and orangish brown CLAY.	
				1.55			Extremely weak thinly laminated MUDSTONE.	1
				1.60			COAL.	
							End of pit at 1.60 m	2
								3
								4
								5
								6
								7
								8
								9
								10

Remarks:

Stability:





Trial Pit Log

Trialpit No

TP05

Sheet 1 of 1

Project Name: 48 Stile Common Road

Project No.
C337/20/E/1956Co-ords: -
Level:Date
13/05/2021

Location: Newsome, Huddersfield HD4 6DE

Dimensions
(m):Depth
1.60

0.6

Scale
1:50Logged
RAP

Client: Adrian Mosley

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				1.00			Brown and orangish brown CLAY.	
				1.50			Extremely weak thinly laminated MUDSTONE.	1
				1.60			COAL.	
							End of pit at 1.60 m	2
								3
								4
								5
								6
								7
								8
								9
								10

Remarks:

Stability:





Trial Pit Log

Trialpit No

TP06

Sheet 1 of 1

Project Name: 48 Stile Common Road

Project No.
C337/20/E/1956Co-ords: -
Level:Date
13/05/2021

Location: Newsome, Huddersfield HD4 6DE

Dimensions
(m):Depth
1.60

0.6

Scale
1:50Logged
RAP

Client: Adrian Mosley

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				1.00			Brown and orangish brown CLAY.	
				1.50			Extremely weak thinly laminated MUDSTONE.	1
				1.60			COAL.	
							End of pit at 1.60 m	2
								3
								4
								5
								6
								7
								8
								9
								10

Remarks:

Stability:





Trial Pit Log

Trialpit No

TP07

Sheet 1 of 1

Project Name: 48 Stile Common Road

Project No.
C337/20/E/1956Co-ords: -
Level:Date
13/05/2021

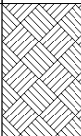
Location: Newsome, Huddersfield HD4 6DE

Dimensions
(m):Depth
2.00

0.6

Scale
1:50Logged
RAP

Client: Adrian Mosley

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.90			Brown and orangish brown CLAY.	
							VOID.	1
				2.00			End of pit at 2.00 m	2
								3
								4
								5
								6
								7
								8
								9
								10

Remarks:

Stability:





Trial Pit Log

Trialpit No

TP08

Sheet 1 of 1

Project Name: 48 Stile Common Road

Project No.
C337/20/E/1956Co-ords: -
Level:Date
13/05/2021

Location: Newsome, Huddersfield HD4 6DE

Dimensions
(m):Depth
1.55

0.6

Scale
1:50Logged
RAP

Client: Adrian Mosley

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				1.00			Brown and orangish brown CLAY.	
				1.50			Extremely weak thinly laminated MUDSTONE.	1
				1.55			COAL	
							End of pit at 1.55 m	2
								3
								4
								5
								6
								7
								8
								9
								10

Remarks:

Stability:





Trial Pit Log

Trialpit No

TP09

Sheet 1 of 1

Project Name: 48 Stile Common Road

Project No.
C337/20/E/1956Co-ords: -
Level:Date
13/05/2021

Location: Newsome, Huddersfield HD4 6DE

Dimensions
(m):Depth
2.00

0.6

Scale
1:50Logged
RAP

Client: Adrian Mosley

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.50			Brown and orangish brown CLAY.	
							VOID	1
				2.00			End of pit at 2.00 m	2
								3
								4
								5
								6
								7
								8
								9
								10

Remarks:

Stability:





Trial Pit Log

Trialpit No

TP10

Sheet 1 of 1

Project Name: 48 Stile Common Road

Project No.
C337/20/E/1956

Co-ords: -
Level:

Date
13/05/2021

Location: Newsome, Huddersfield HD4 6DE

Dimensions
(m):

Depth
2.00

0.6



Scale
1:50

Logged
RAP

Client: Adrian Mosley

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				1.00			Brown and orangish brown CLAY.	
				2.00			VOID and Extremely weak thinly laminated MUDSTONE. Edge of the workings was revealed within this pit. Solid ground on northern side (position of RO1).	1
							End of pit at 2.00 m	2
								3
								4
								5
								6
								7
								8
								9
								10

Remarks:

Stability:





Appendix 4

Rotary Borehole Records



Borehole Log

Borehole No.

R01

Sheet 1 of 4

Project Name: 48 Stile Common Road

Project No.
C337/20/E/1956

Co-ords:

Hole Type
RO

Location: Newsome, Huddersfield HD4 6DE

Level:

Scale
1:50

Client: Adrian Mosley

Dates: 26/05/2021

Logged By
DvG

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								CLAY (Driller's notes).	
					1.00			COAL (Driller's notes).	1
					2.00			Iron-rich SANDSTONE (Driller's notes).	2
					2.40			SANDSTONE (Driller's notes).	
								Fractured rock.	3
									4
									5
									6
					6.30			6m: Very hard lens.	
								MUDSTONE (Driller's notes).	7
									8
									9
									10
								Continued on Next Sheet	

Remarks

Standpipe installed to 2m. Casing to 3m. Collecting water to for drilling flush - 0.5 hours.





Borehole Log

Borehole No.

R01

Sheet 3 of 4

Project Name: 48 Stile Common Road

Project No.
C337/20/E/1956

Co-ords:

Hole Type
RO

Location: Newsome, Huddersfield HD4 6DE

Level:

Scale
1:50

Client: Adrian Mosley

Dates: 26/05/2021

Logged By
DvG

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
									21
									22
									23
									24
									25
									26
									27
									28
									29
									30

Continued on Next Sheet

Remarks

Standpipe installed to 2m. Casing to 3m. Collecting water to for drilling flush - 0.5 hours.





Borehole Log

Borehole No.

R01

Sheet 4 of 4

Project Name: 48 Stile Common Road

Project No.
C337/20/E/1956

Co-ords:

Hole Type
RO

Location: Newsome, Huddersfield HD4 6DE

Level:

Scale
1:50

Client: Adrian Mosley

Dates: 26/05/2021

Logged By
DvG

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					30.60				
					31.20			VOID - 0.6m thickness (Driller's notes).	31
								Drilled with resistance but no flush returns due to above void - intact rock (Driller's notes).	32
					32.50			End of Borehole at 32.50m	33
									34
									35
									36
									37
									38
									39
									40

Remarks

Standpipe installed to 2m. Casing to 3m. Collecting water to for drilling flush - 0.5 hours.

