



COAL MINING RISK ASSESSMENT

**PROPOSED RESIDENTIAL DEVELOPMENT
GROVE ROAD
MIDDLETON
M24 2LZ**

Author: Daniel Slattery

Client: Mr Vrajitoru

Doc Ref: rep-tjba-vrajitoru-grove rd-CMRA-110726.docx

Revision	Date	Reason
0	July 2026	Original for planning.

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1 Introduction & Site Overview.

T. J. Booth Associates have been appointed by Mr Vrajitoru to compile a coal mining risk assessment (CMRA), to a vacant plot of land off Grove Road, Middleton.

The proposal is for a single block of residential apartments.

A planning application has not yet been submitted, and so there are no planning conditions to address.

The site is within a designated development high risk area as defined by the Mining Remediation Authority.

The purpose of the report is to assess the potential coal mining legacy local to the proposed residential development, and to put forward recommendations based on current best practice for approval by the LPA/Coal Authority.

2 Environmental Database Search.

2.1 Historic Maps.

Date	Notable features
c1851	The closest coal mining feature is an old shaft approximately 300m southeast of the site associated with Tonge Colliery approximately 500m southeast. There are also coal pits noted nominally 750m northeast of the site.
c1893	The nearest feature (old coal pit) is 230m southwest. The Tonge colliery old shaft 300m southeast is still shown. No other features noted within a 500m radius of the site.
1910s-1970s	No features noted.

2.2 BGS Geology.

Superficial geology:	The site is within an area of sand and gravel glacial cover.
Bedrock geology:	The site is underlain by Carboniferous Westphalian Coal Measures. There is a fault approximately 10m south dipping to the southwest.
Coal seams:	There is a coal seam approximately 95m southwest, dipping southwest. The closest coal seams are as follows: 140m southeast (faulted out beneath the site). 120m south (faulted out beneath the site). No relevant seams to the north dipping beneath the site.

2.3 BGS Boreholes Records.

Closest BH is 150m west, and indicates the following stratigraphy:

0.00m – 3.65m	Glacial Clay.
3.65m – 10.97m	Interbedded mudstone & sandstone (general coal measures).
10.97m – 14.32m	Hard brown sandstone.
14.32m – 49.07m	Interbedded mudstone & sandstone (general coal measures).
49.07m – 68.73m	Hard grey sandstone.
68.73m – 78.02m	Interbedded mudstone & sandstone (general coal measures).

2.4 Mining Remediation Authority.**2.4.1 Mining activity & geology.**

Past underground mining:	There are no recorded underground workings beneath the site.
Probable unrecorded shallow workings:	Probable shallow workings are noted beneath the site.
Spine roadways at shallow depth:	Not known to be a risk.
Mine entries:	None close to the site boundaries.
Abandoned mine plan catalogue numbers:	N/A.
Outcrops:	The Mining Remediation Authority suggests there is a conjectured coal seam ending on the convergence of the access road and Dale Road to the east of the site.
Geological faults, fissures and break lines:	Not shown.
Development high risk areas:	The site is classified as being within a high-risk area.

2.5 Planning Records.**2.5.1 147 Jubilee Road, Middleton.**

There was a planning application for No.147 Jubilee Road which is 20m east of the current Application Site.

The application was for a residential apartment block, similar to the current proposal.

As part of the application, and coal mining risk assessment and investigation was undertaken by GeoInvestigate Ltd, refer to site investigation report in the Appendix, ref: Rotary Borehole Site Investigation Report, G17402, dated October 2017.

Two rotary boreholes (RH1 & RH2) were undertaken to the front and rear of the site.

The investigations recorded the following stratigraphy:

Rotary BH RH1

0.00m – 3.20m	Brown drift.
3.20m – 8.50m	Siltstone with sandstone inclusions.
8.50m – 16.20m	Sandstone.
16.20m – 30.00m	Mudstone with sandstone inclusions.

Rotary BH RH2

0.00m – 3.20m	Brown drift.
3.20m – 8.30m	Siltstone with sandstone inclusions.
8.30m – 15.70m	Fractures/faulted sandstone.
15.70m – 30.00m	Mudstone with sandstone inclusions.

The conclusions of the report were that the fault noted on the BGS maps was encountered in BH R2, and that coal seams were not present at shallow depth beneath the site. There were no voids, cavities or broken ground associated with the presence of mine workings in either hole. The risk was considered mitigate due to the absence of coal seams underlying the site.

3 Identification & Assessment of Site-Specific Coal Mining Risks.

Source of Risk	Comment	Development Risk	
Recorded Workings.	There are no recorded workings beneath the site or local area.	LOW RISK	NO FURTHER ASSESSMENT
Probable Shallow Workings.	There site is within a designated 'development high risk area' associated with potential seams in the local area which are not shown on current BGS maps, but appear to be associated with historic mapping which has since been updated. It is this data	LOW RISK	NO FURTHER ASSESSMENT

	which seems to be the basis for the Mining Remediation Authority position. However, local boreholes on a neighbouring site 20m east from the proposed development have recorded no seams down to a depth of 30m. There is a local fault running through the area, and the two boreholes record stratigraphy either side of the fault, with RH1 not encountering the fault, and RH2 encountering it at approximately 15m. The neighbouring site is at the same location within the local stratigraphy as the Application Site. There is also a historic borehole 150m west on the downthrown block which has recorded no coal seams to 78m.		
Opencast Workings.	No past or future opencast workings noted locally.	LOW RISK	NO FURTHER ASSESSMENT
Coal Pits/Shfts/Adits.	No pits/shafts/adits noted within influencing distance of the Site.	LOW RISK	NO FURTHER ASSESSMENT
Mine Gas or subsidence.	No evidence of local events or shaft local to the site.	LOW RISK	NO FURTHER ASSESSMENT

4 Mitigation Strategy Proposed.

Not required.

The data search indicates the risk is already mitigated, and that shallow seams do not underlie the Application Site.

5 Conclusions & Recommendations.

Development at the Application Site is considered safe from coal mining legacy issues.

No further assessment or investigation is proposed.

This report should be approved by the Coal Authority prior to development.

Signed.....  .

D.S. Slattery BSc (Hons).

T J Booth Associates.

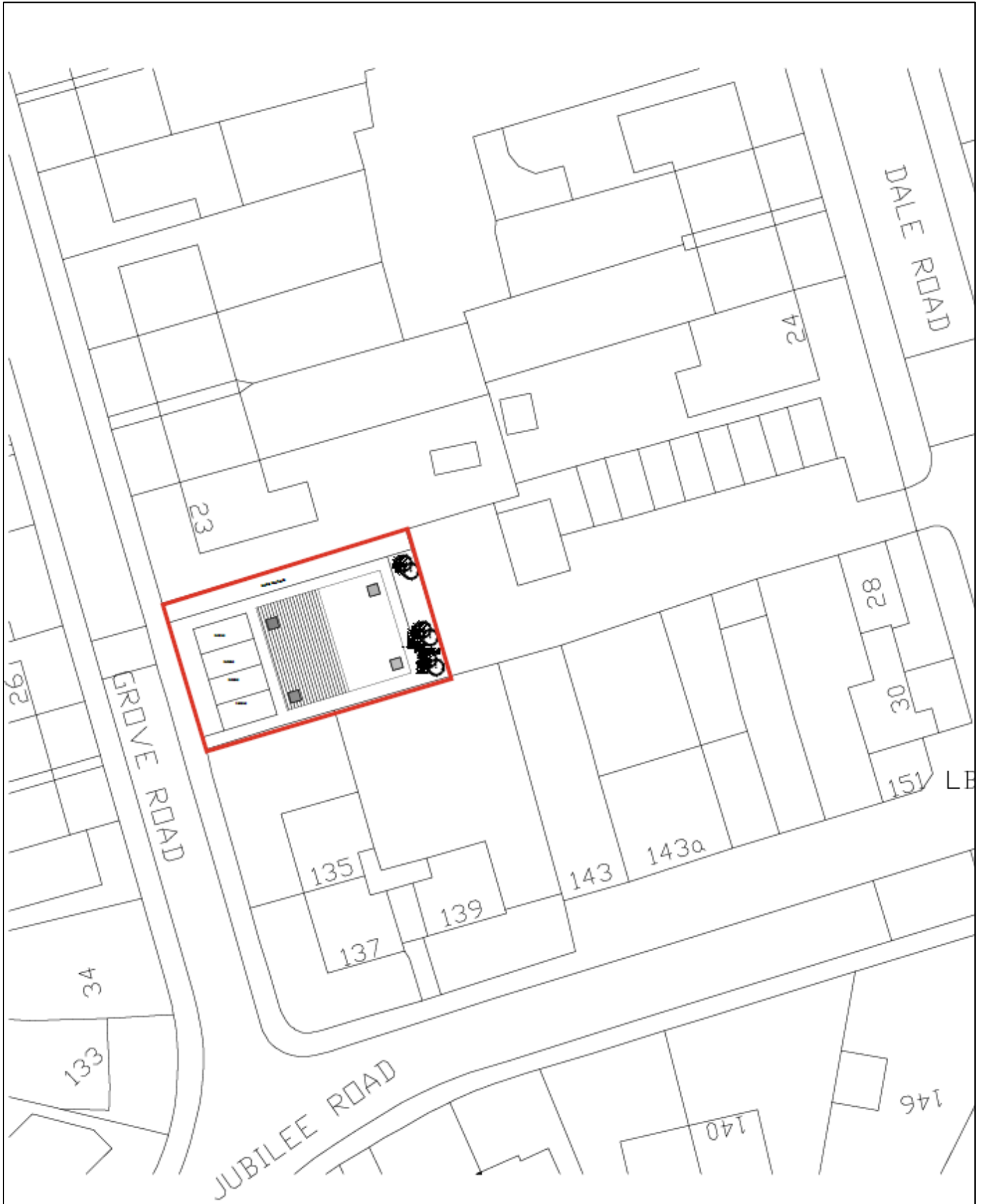
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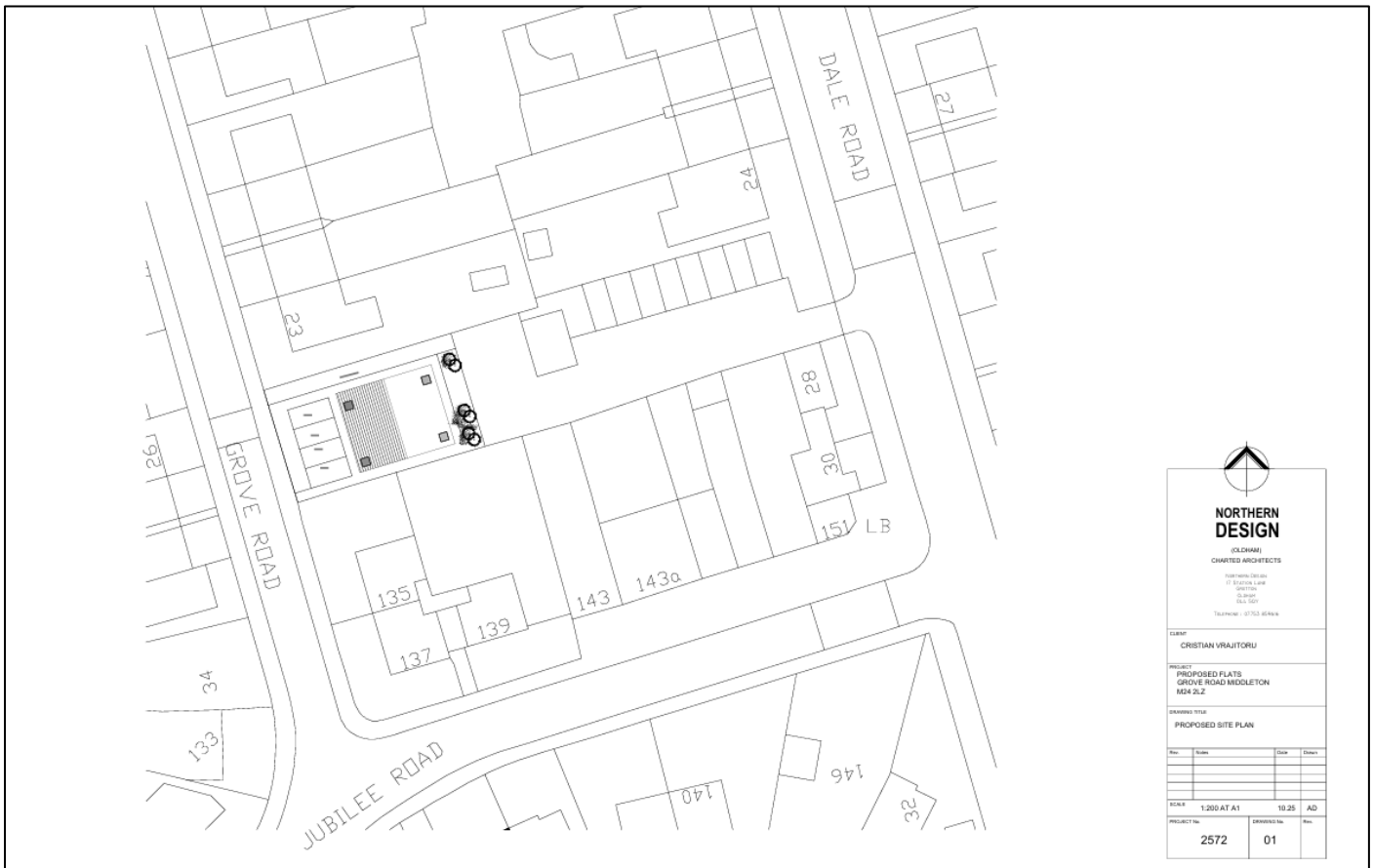
T J Booth BSc (Hons), C. Eng. C. Env.

T J Booth Associates.

6 Appendix.

6.1 Location Plan.



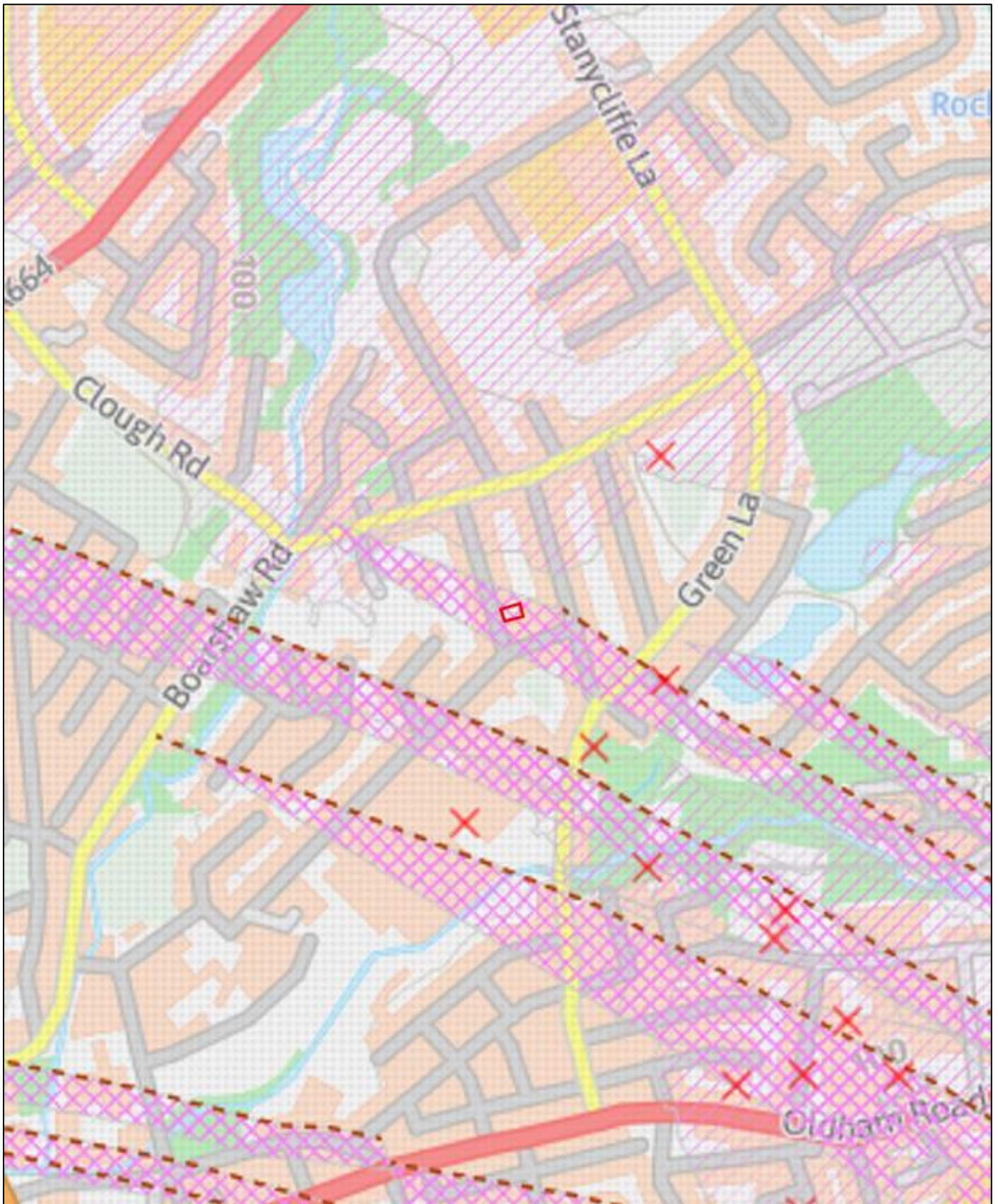


6.3 BGS Solid Geology.



6.4 BGS Drift Geology.



6.5 Coal Authority Interactive Map.

6.6 GeoInvestigate Rotary Borehole Site Investigation Report, G17402, dated October 2017.



GEOLOGICAL
GEOTECHNICAL
GEOENVIRONMENTAL
DATA ACQUISITION
CONSULTANCY



Rotary Borehole Site Investigation Report

LOCATION	Proposed Development, 147 Jubilee Road, Middleton, Rochdale M24 2LY
ISSUE DATE	October 2017
FOR	Rachael Levy
CLIENT REF.	
OUR REF.	G17402

Prepared by

Stuart Howe BSc(Hons) FGS
Engineering Geologist

Checked by

Ross Nicolson BSc(Hons) MSc(Eng) CEng MIMM
Principal Geotechnical Engineer

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1. Introduction

In accordance with your instruction, Geoinvestigate Ltd carried out an intrusive rotary borehole site investigation on a vacant plot of land on Jubilee Road, Middleton, Rochdale.

It is proposed to infill the gap between two buildings with a new building. National Grid Reference SDE 87872 06581 denotes the approximate centre of the site.

The purpose of this investigation was to investigate the site for the possible presence of shallow abandoned underground coal mine workings beneath the site. Therefore this investigation is limited to this aspect only.

A possible shallow or near surface mining risk at the site had been identified in a mining report provided by the Coal Authority and subsequent Coal Mining Risk Assessment carried out by Ross Nicolson of Geoinvestigate report number G17356. This is discussed in section 2 below.

2. Coal Authority Mining Report

The Coal Authority (CA) and excerpts of the Geoinvestigate reports are provided in Appendix 2.

The main findings of the reports are;

There are **no known mine entries** within 20metres of the boundary of the property, however there is a warning by the CA that additional/hidden mine entries could exist in the local area.

The property is within the likely zone of influence from workings on the surface from past underground workings. Also, the property is in an area where the Coal Authority **believe there is coal at or close to the surface.** (and that) This coal may have been worked in the past.

The 2017 report (by Geoinvestigate) concluded that the site may be underlain at shallow depth by the Plodder coal seam noted to outcrop some 20m to the North East of the site dipping beneath the site at shallow depth, followed by the Higher Bent (HBt) coal seam and the Lower Bent (LBt) coal seam with the Arley coal seam at depth.

The report concluded that *'a site investigation should take place to assess the presence of shallow coal mining at the site'* therefore it was considered that drilling should be carried out at the site to try and ascertain if any workings were present within the shallow coal seams.

In light of the possible presence of shallow coal workings below the site, the Client commissioned Geoinvestigate to carry out a borehole investigation to evaluate this possible hazard to the development.

3. Scope of Intrusive Investigation

3.1 Scope of Works

In line with the following borehole drilling investigation was carried out at the site to establish if abandoned coal mine-workings were present in the underlying strata;

- The sinking of two (2) boreholes (RH1 and RH2) to a depth of 30m with supervision of the drilling works by a qualified geotechnical engineer. The boreholes were rapidly driven to depth using Geoinvestigate's proprietary new high speed Microdrilling system.
- Provision of an interpretative report including site plan and borehole logs.

Microdrill's small volume water injection system offers a safer method of investigating coal mine workings minimising the risk of combustion or explosion of coal and mine gases and the migration of hazardous gases into nearby buildings.

Gas monitoring was carried out during drilling to measure concentrations of Oxygen O² and potentially toxic and explosive levels of Carbon dioxide CO², Methane CH⁴ & Carbon Monoxide CO in the ground.

The ground conditions encountered in the boreholes (as described by the driller) are shown on the borehole logs provided in Appendix 1.

The current report focuses only on the mining situation beneath the site. It does not deal with the condition of the surface drift layer (made ground and natural soils) which cover the site.

3.2 Drilling Technique

The condition of the ground with regard to strength and rock type was assessed by the drillers using the variations in drilling progress, drilling flush pressure, "feel", and the nature of the arisings (drill debris) returned to surface in the water flush and whether the flush itself was returned. No rock cores were recovered from the boreholes.

The primary purpose of the boreholes in this investigation was to identify variations in rock strength and rock type and to highlight possible geotechnical hazards such as voids or broken / weak strata which might indicate abandoned mine workings or upward void migration.

4. Encountered Ground Conditions

4.1 RH1 and RH2

The boreholes encountered overburden to a depth of 3.20m underlain by siltstone with sandstone inclusions to depths of 8.30m and 8.50m. In RH1 solid sandstone was then noted with RH2 encountering fractured sandstone likely indicative of a fault line shown (on the BGS mapping) to run directly beneath the site. Below this mudstone with sandstone inclusions was encountered to a depth of 30.00m where the boreholes terminated.

No hazardous gas concentrations were noted from readings taken from the boreholes during drilling.

No broken ground or voids were encountered in the boreholes.

Water flush was lost below depths of 3.20m in both boreholes.

5 Review of Ground Conditions.

The boreholes suggest that the drift deposits extend to a depth of 3.20m below which siltstone with sandstone inclusions was encountered. RH1 noted solid sandstone between the depths of 8.50m and 16.20m with RH2 encountering fractured sandstone between similar depths. Below this mudstone with sandstone inclusions was found to a depth in excess of 30.00m

The possible geological fault found in RH2 between the depths of 8.30m and 15.70m could have caused the coal to be "faulted out" given that no coal seams were present from 3.20m and the base of the boreholes at 30.00m. However, it is more likely that, due to the absence of coal in RH1 where no possible faulting was observed, that no coal seams were present at shallow depths at the site.

No voids, cavities or broken ground indicative of the presence of mine workings were encountered in the boreholes and as such workings are not expected to occur below the site within the 30.00m depth of the borehole investigation.

Given the above, together with the information from the previous CMRA, carried out by Geoinvestigate it has been concluded that although previous information suggests that the named coal seams above have been worked in the locality, no evidence of working was shown in the boreholes drilled.

6 Conclusions

At the positions drilled, no mine workings were encountered at shallow depth below the site between rock head which commences at a depth around 3.20m and the base of the boreholes at 30.00m.

In conclusion, the drilling has confirmed that no special foundations or ground treatments would be required to mitigate the risk to the site in terms of subsidence, or collapse due to the sites past coal mining legacy.

END OF REPORT

Rotary Borehole Investigation, Proposed Development, 147 Jubilee Road, Middleton, Rochdale M24 2LY G17402



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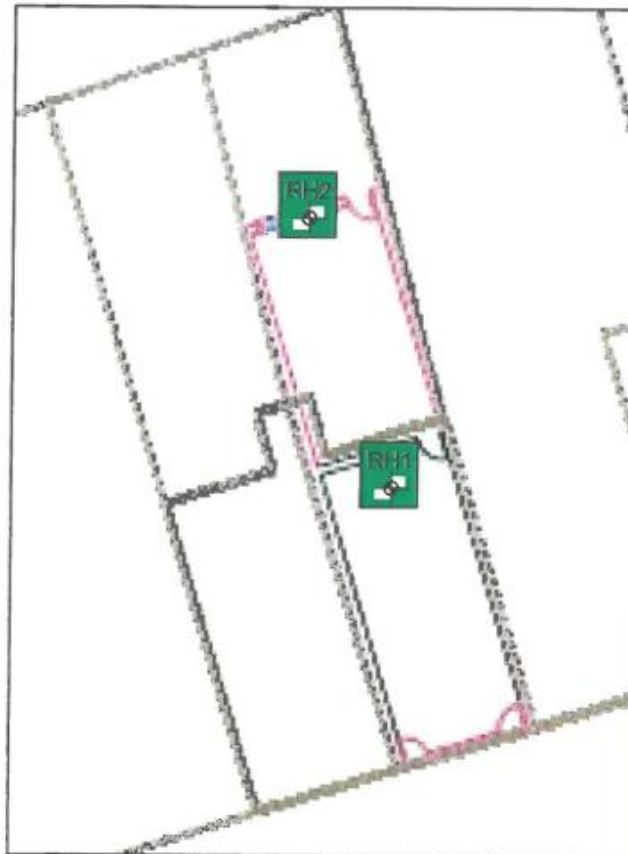
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APPENDIX 1
Site Plan & Borehole Logs

GEOINVESTIGATE Ltd.

OUR REF: G17402	YOUR REF:	SITE PLAN (NOT TO SCALE)
DATE: 16/10/17	LOCATION: 147 Jubilee Road, Middleton, Rochdale M24 2LY	



GEOINVESTIGATE Ltd.

Your Ref.

Our Ref. G17402

RH No.1 Sheet No. 1 of 2

Location: 147 Jubilee Road, Middleton, Rochdale, M24 2LY

DATE: 16-10-17

Depth (m)	Description of Strata	Thickness	Legend	Gas Well	Sample	Test Type Result	Flush	Depth to Water	Depth (m)
3.20	Brown DRIFT	3200					Lost return at 3.20m		2.50
8.50	SILTSTONE, SANDSTONE inclusions	5300							5.00
									7.50
									10.00
16.2	SANDSTONE	7700							12.50
									15.00
									17.50
30.0	MUDSTONE, SANDSTONE inclusions	13800							20.00
									22.50
									25.00

Remarks: Casing to 1.00m

Microdrill rotary open hole borehole to 30.00m

No cores recovered from borehole

No gas detected from borehole on completion

Lost flush at 3.20m. No voids encountered.

Key:

 Slotted Pipe
 Plain Pipe
 Bentonite
 Gravel Filter

O Disturbed sample

Cv Shear vane

W Water sample

S Standard Penetration Test

C Cone Penetration Test

RH1

GEOINVESTIGATE Ltd.

Your Ref.

Our Ref. G17402

RH No.1 Sheet No. 2 of 2

Location: 147 Jubilee Road, Middleton, Rochdale, M24 2LY

DATE: 16-10-17

Depth (m)	Description of Strata	Thick- ness	Legend	Gas Well	Sample	Test Type Result	Flush	Depth to Water	Depth (m)
	MUDSTONE, SANDSTONE inclusions	13800							27.50
30.0									30.00
	Rotary hole terminated at 30.00m								

Remarks: Casing to 1.00m

Microdrill rotary open hole borehole to 30m

No cores recovered from borehole

No gas detected from borehole on completion

Flush lost at 3.20m. No voids encountered.

Key:

 Slotted Pipe
 Plain Pipe
 Bentonite
 Gravel Filter

O Disturbed sample

Cv Shear vane

W Water sample

S Standard Penetration Test

C Cone Penetration Test

RH1

GEOINVESTIGATE Ltd.

Your Ref.

Our Ref. G17402

RH No.2 Sheet No. 1 of 2

Location: 147 Jubilee Road, Middleton, Rochdale, M24 2LY

DATE: 16/10/17

Depth (m)	Description of Strata	Thickness	Legend	Gas Well	Sample	Test Type Result	Flush	Depth to Water	Depth (m)
3.20	Brown DRIFT	3200					Lost return at 3.20m		2.50
8.30	SILTSTONE, SANDSTONE inclusions	5100							5.00
									7.50
15.7	Fractured / faulted SANDSTONE	7400							10.00
									12.50
									15.00
30.0	MUDSTONE, SANDSTONE inclusions	14300							17.50
									20.00
									22.50
									25.00

Remarks: Casing to 1.00m

Microdrill rotary open hole borehole to 30.00m

No cores recovered from borehole

No gas detected from borehole on completion

Lost flush at 3.20m. No voids encountered.

Key:

 Slotted Pipe
 Plain Pipe
 Bentonite
 Gravel Filter

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

RH2

GEOINVESTIGATE Ltd.

Your Ref.

Our Ref. G17402

RH No.2 Sheet No. 2 of 2

Location: 147 Jubilee Road, Middleton, Rochdale, M24 2LY

DATE: 16-10-17

Depth (m)	Description of Strata	Thick- ness	Legend	Gas Well	Sample	Test Type Result	Flush	Depth to Water	Depth (m)
30.0	MUDSTONE, SANDSTONE inclusions	14300							27.50
	Rotary hole terminated at 30.00m								30.00

Remarks: Casing to 1.00m

Microdrill rotary open hole borehole to 30m

No cores recovered from borehole

No gas detected from borehole on completion

Flush lost at 3.20m. No voids encountered.

Key:

 Slotted Pipe
 Plain Pipe
 Bentonite
 Gravel Filter

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

RH2