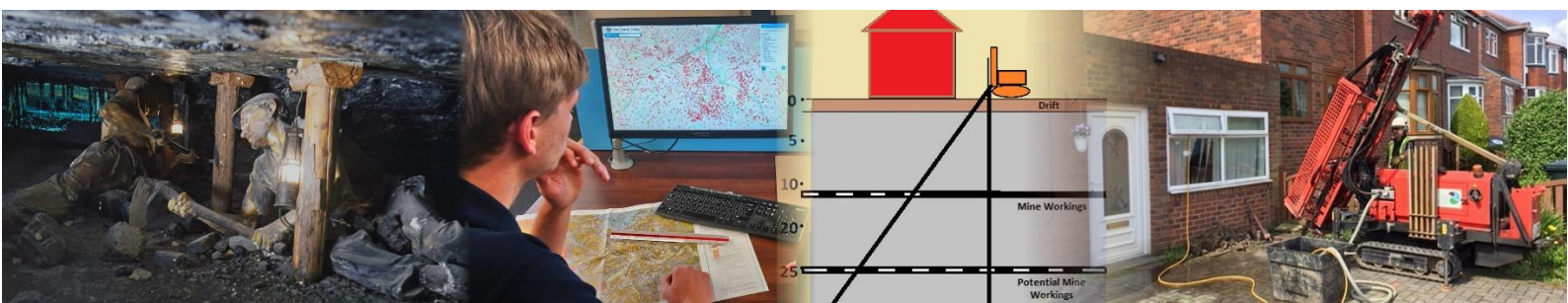




GEOLOGICAL
GEOTECHNICAL
GEOENVIRONMENTAL
CONSULTANCY
DRILLING & DATA ACQUISITION



GEOINVESTIGATE LIMITED

Coal Mining Risk Assessment (CMRA)

LOCATION	23 Meadway, Bury BL9 9TY
ISSUE DATE	11 October 2022
FOR	SAC Developments
CLIENT REF.	
OUR REF.	G22420

Prepared by

A handwritten signature in black ink, appearing to read "Thomas Goldring".

Thomas Goldring MGeol (Hons) FGS
Geoenvironmental Engineer

Checked by

A handwritten signature in black ink, appearing to read "f. morgan".

Fay Morgan MGeol (Hons) FGS
Senior Geoenvironmental Engineer

SUMMARY FINDINGS

OUTCOME MITIGATION REQUIRED (YES/NO?)

YES. The proposed development is possibly underlain by up to 1 level of shallow coal seam, with possible unrecorded underground mine workings, with the potential (if present) to significantly impact surface ground stability within the proposed building area.

Whether unrecorded workings will impact the development depends on superficial/bedrock depth, mine working (if any) depth and rock cover thickness. Intrusive ground investigation is therefore required to establish these parameters within the site.

Notwithstanding, on the basis of the CMRA work to date, we are of the opinion that the mining stability and mine gas risks posed by the strata beneath this site from coal mining legacy can be mitigated by routinely adopted measures and should not preclude planning permission being registered in the interim with regard to coal mining legacy issues conditional upon the work being carried out at a later date.

Furthermore, owing to the expected presence weak and variable superficial/drift deposits at the site including soft organic clay fill additional limited shallower geotechnical and geoenvironmental site investigation is likely to be required to enable foundation design and to check for the presence of ground contamination and hazardous ground gases.

WHAT TO DO NEXT

Obtain quotes for the intrusive site investigation works (if considered appropriate). The cost of the SI works should be a **"lump sum" fixed price**. Geoinvestigate can provide advice and assistance with helping you find suitable site investigation & drilling contractors. Call us on 01642 713779 or email enquiries@geoinvestigate.co.uk.

1. CMRA INTRODUCTION

Site Location and Description:

The approximate centre of this site is at National Grid Reference 380777 E, 408657 N with elevation about 70m OD. The site comprises a reasonably flat grassy/lawned platform on the west bank of the River Roch perhaps stepping down to a lower terrace approaching the river to the east. A mature woodland belt is present on the east side of the property in close proximity to the proposed building development. The development is close to several dwellings established post 1990.

The boundary shown in RED on the Coal Authority (CA) report provided in Appendix A corresponds with the planning application area. A site image is provided in Appendix B.

Proposed Development:

It is proposed to erect two new detached two-storey dwellings with detached garages on the property. A development plan is provided in Appendix C.

Historical Development:

The OS map record from 1851 shows the site is partly occupied by field/undeveloped land on the west bank of the River Roch. A Goit (a small artificial channel carrying water) is present along its eastern boundary. Subsequently this channel was infilled. No coal mining related features are recorded on the historical maps within the site or in the nearby surrounding area.

Save for the appearance of allotment gardens within the site prior to 1954 and the erection of the adjacent post 1990s housing (Nos 15 to 23) on Meadway Road the site has remained largely undeveloped.

Anticipated Geology:

The British Geological Survey (BGS) 1:50,000 scale map for the area (Sheet 85, Manchester) shows the site to be underlain by superficial/drift materials comprising River Terrace Deposits (Sand and Gravel) to the west and Alluvium (Clay, Silt, Sand and Gravel) to the east. This is then underlain by the Trencherbone Rock (mostly Sandstone) bedrock of the Pennine Lower Coal Measures the latter comprising mudstone, siltstone, sandstone, and interbedded coal seam of varying thickness.

The location of the site is shown on the extract of BGS solid geology map presented in Appendix D. The tentative elevation of the site relative to the vertical geology column is shown below the map. The superficial/soil horizon above the solid geology bedrock is not shown on the column.

The logs of BGS boreholes SD80NW144 and SD80NW145 located near to the proposed the development are provided in Appendix E. These short holes record drift to 6.7m and 5.3m followed by mudstone/sandstone bedrock > 8.2m depth but no coal horizons. The upper drift horizon is weak and variable including soft clay fill underlain by natural medium dense sand and gravel at 3.8m and 2m with stiff Glacial Till aka Boulder Clay below this.

Regrettably there are no BGS boreholes within the site or in the surrounding locality providing information on the coal mining geology below 8.2m depth.

Risk Methodology Applied: This document and the risk assessment methodology adopted herein is based on CA publication RISK BASED APPROACH TO DEVELOPMENT MANAGEMENT - GUIDANCE FOR DEVELOPERS Version 3, 2014 and Version 4 - 2017. The template contained therein is adopted with minor amendments made by Geoinvestigate Limited.

2. ASSESSMENT OF SITE-SPECIFIC COAL MINING ISSUES

The table below summarises the potential risks associated with coal mining legacy for the proposed development site, identified from list sources of information.

Coal Mining Issues	Yes	No	Risk Assessment/Remarks
Past underground coal mining		No	2.1.1
Probable unrecorded shallow workings	Yes		2.1.2
Spine roadways at shallow depth		No	
Mine entries		No	
Outcrop		No	
Geological faults, fissures and breaklines		No	
Opencast Mines		No	
Coal Mining Subsidence		No	
Mine Gas		No	2.1.3
Site investigations		No	

Note: For those coal mining issues above identified as "Yes" or highlighted "YELLOW" a more detailed discussion and assessment are made of the risks to the application site and the proposed development.

2.1 DETAILED DISCUSSION & ASSESSMENT RESPONSE

2.1.1 Past Underground Mining

According to the Coal Authority report in Appendix A, no recorded/past underground mine working occurs beneath the property.

However, according to the CAs online interactive map service the site does falls in an area identified as a 'Probable Unrecorded Shallow Workings'. Although no recorded workings have been identified, it is plausible that unrecorded workings may be present beneath the site which could significantly impact the proposed development.

2.1.2 Probable Unrecorded Shallow Workings

According to the CA report the site falls within a zone of probable unrecorded shallow workings. The CA define Probable Unrecorded Shallow Workings as "Areas where the Coal Authority believes there to be unrecorded coal working that exist at or close to the surface" (i.e., less than 30m).

The vertical geology column in Appendix D indicates that the Trencherbone coal seam may occur beneath the site within shallow (< 30m) depth beneath the proposed building development.

BGS publication 'UK Coal Resources for New Exploitation Technologies' Final Report CR/04/015N, page 174 gives a thickness of 2.91m to 3.58m for the Trencherbone Coal.

Projection of the Trencherbone Coal outcrop (lying some 100m to the northeast of the site) at a dip of 9.5 degrees south (based on distant CA online interactive map information) places this horizon and any unrecorded working within it at a depth of 12m below rockhead and perhaps 19m or so below surface in the proposed building area taking account of nearby borehole drift depth. This however, this is speculation.

In our opinion unrecorded working within shallow depth in the Trencherbone Coal could pose a significant surface ground stability hazard to new buildings on this site. Because of this drilling is required to establish the depth and nature of the working (if any) in this horizon below the development area.

2.1.3 Mine Gas

No mine gas incident or remediation is recorded within 500m of the proposed development and typically, in the UK mine gas is Low risk. Notwithstanding, given the possible presence of shallow mine working beneath the proposed development area and the serious nature of mine gas it is recommended that the risk is raised to **MODERATE** to until indicated otherwise by gas testing during drilling.

3. SUMMARY AND OUTCOME

This CMRA has identified the possible presence of one level of coal seam with possible unrecorded mine working within shallow depth beneath the proposed building development.

In our opinion, whether shallow mine working poses a significant risk to the development cannot be properly assessed without additional information namely superficial depth, coal seam depth and mine working (if any) depth and rock cover thickness at this locality. In our opinion exploratory drilling is required to obtain this information and enable further assessment of the risks posed by shallow mine working at this locality.

Gas monitoring must be carried out during drilling.

Furthermore, in this instance owing to the expected presence weak and variable superficial/drift deposits at the site including soft organic clay fill additional limited shallower geotechnical and geoenvironmental site investigation is likely to be required to enable foundation design and to check for the presence of ground contamination and hazardous ground gases.

4. MITIGATION STRATEGY PROPOSED AND CONCLUSION

To properly determine the coal mining risk at this site it is proposed to drill 2 or 3 boreholes at the property to target depths up to 30m (but not necessarily needed to 30m depending on ground conditions encountered) to locate shallow coal seams and mine working (if any) below the new development as well as establishing superficial and bedrock depth.

Depending on the outcome of the initial drilling works additional holes may or may not be required.

Gas monitoring **MUST** be carried out during drilling.

Owing to the expected presence of weak and variable superficial/drift deposits at the site including soft organic clay fill additional limited shallower geotechnical and geoenvironmental site investigation is likely to be required to enable foundation design and to check for the presence of ground contamination and hazardous ground gases.

Risks for Different Drilling Scenarios					
Air flush	Mist flush	Foam flush	Water flush	Mud flush	Additional controls
HIGH	HIGH / MED'M	HIGH / MED'M	LOW	LOW	- Monitoring at rig and other open holes. - Seal boreholes

A Coal Authority Permit needs to be obtained (ahead of) further intrusive exploratory drilling. Water Drill Flush to be used when drilling. The permit application must state **WATER ONLY DRILL FLUSH** for the safety of the public and drill crew.

On the basis of the CMRA work to date, we are of the opinion that the mining stability and mine gas risks posed by the strata beneath this site from coal mining legacy can be mitigated by routinely adopted measures and should not preclude planning permission being registered with regard to coal mining legacy issues.

In conclusion we see no reason why Planning Permission should not be granted in the interim with respect to coal mining legacy issues and that these works form a condition on the planning approval.

Appendices:

- A. CA Consultants Coal Mining Report issued 6 October 2022 ref.51003316267001.
- B. Site Image
- C. Development Plan
- D. Extracts of BGS Geology Map, Sheet 85 – Manchester at 1:50000 scale
- E. BGS Borehole Logs

APPENDIX A
COAL AUTHORITY REPORT

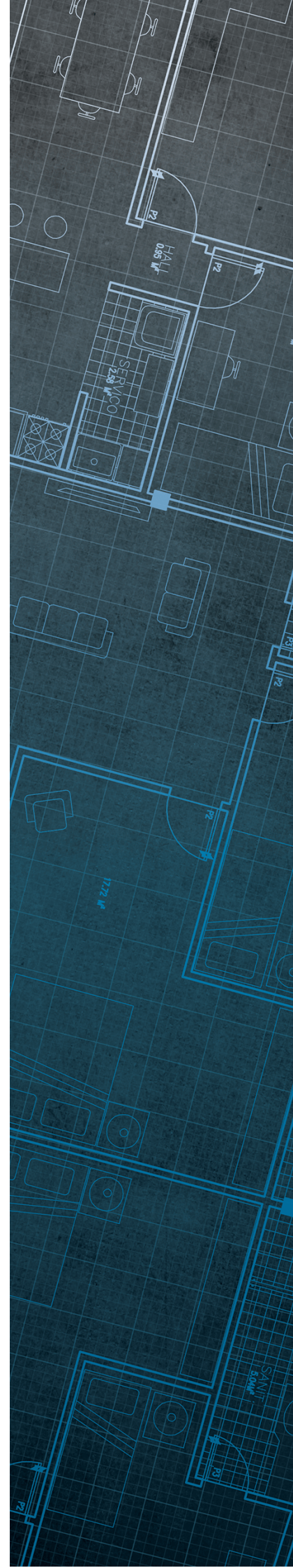


The Coal
Authority

Consultants Coal Mining Report

23 Meadway
Bury
BL9 9TY

Date of enquiry:	6 October 2022
Date enquiry received:	6 October 2022
Issue date:	6 October 2022
Our reference:	51003316267001
Your reference:	G22420



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

GEOINVESTIGATE

Enquiry address

23 Meadway
Bury
BL9 9TY

How to contact us

0345 762 6848 (UK)
+44 (0)1623 637 000 (International)

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

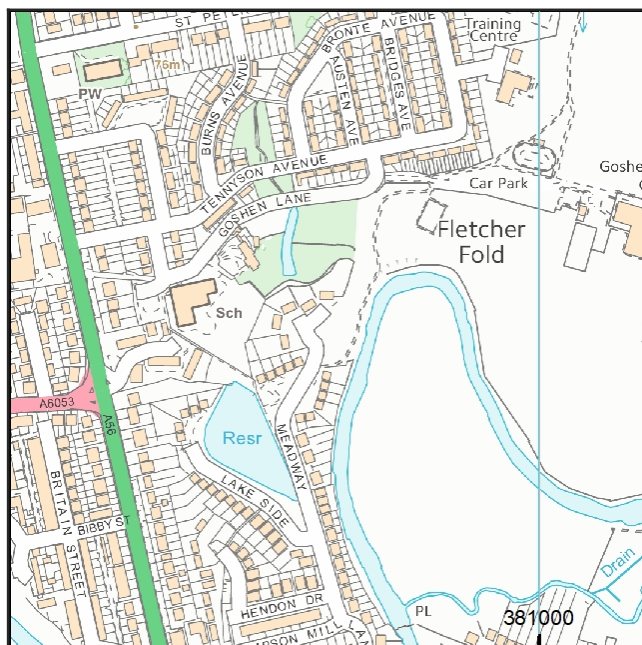
www.groundstability.com

 @coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /thecoalauthority



Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

No past mining recorded.

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:

16820		
-------	--	--

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

Based on the responses in this report, no further information has been highlighted.

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.

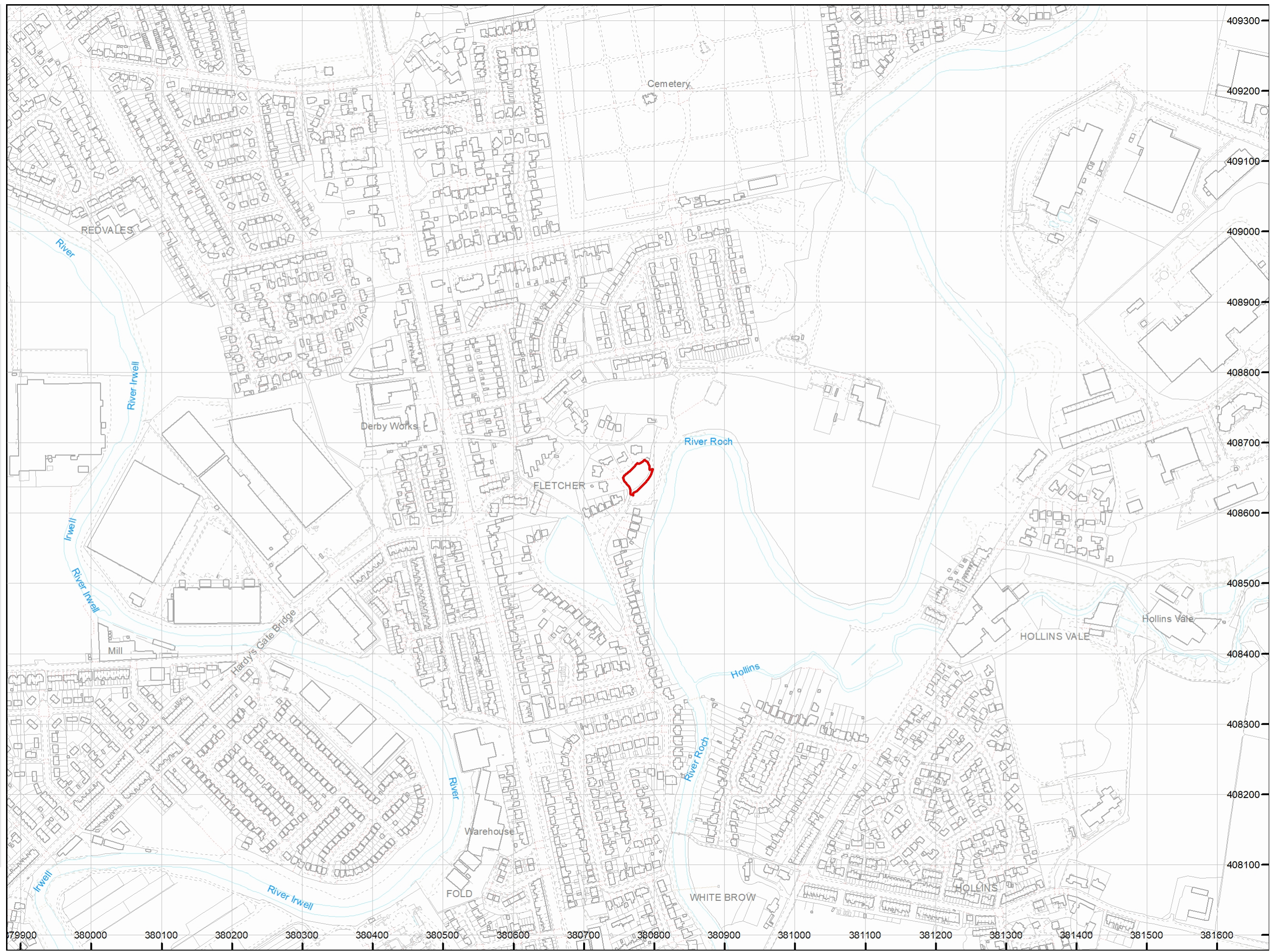
The map highlights any specific surface or subsurface features within or near to the boundary of the site.

Key

Approximate position of the enquiry boundary shown 

How to contact us

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



APPENDIX B

SITE IMAGE



APPENDIX C
PROPOSED DEVELOPMENT PLAN



general notes:
do not scale the drawing.
all dimensions to be checked on site prior to commencement of work and any discrepancy shall be immediately reported and resolved prior to work commencing.
this drawing is to be read in conjunction with all relevant drawings and specifications relating to the job whether or not indicated on the drawing.
copyright reserved to clover architectural design limited and this drawing may not be used or reproduced without prior written consent.

- denotes lawned area
- denotes flags
- denotes tegular setts
- denotes protected sewer
- denotes trees to be removed
- denotes new access
- denotes new trees
- denotes new planting

G	17.06.20	MS	ROOF LAYOUTS AMENDED
F	16.60.20	MS	GARAGE TOP PLOT 2 RELOCATED
E	10.06.20	MS	ROOF LIGHTS OMITTED
D	10.06.20	MS	LAYOUT AMENDED
C	28.04.20	MS	BOUNDARY TREATMENTS ADDED
B	27.04.20	MS	HOUSE TYPE AMENDED
A	21.04.20	MS	EASEMENT SHOWN, GARAGE TO PLOT 1 REPOSITIONED

Rev Date By Description

clover
architectural design

9 clover drive, freckleton, preston, lancashire pr4 1tg
tel: 07773 014899 email info@clover-design.co.uk

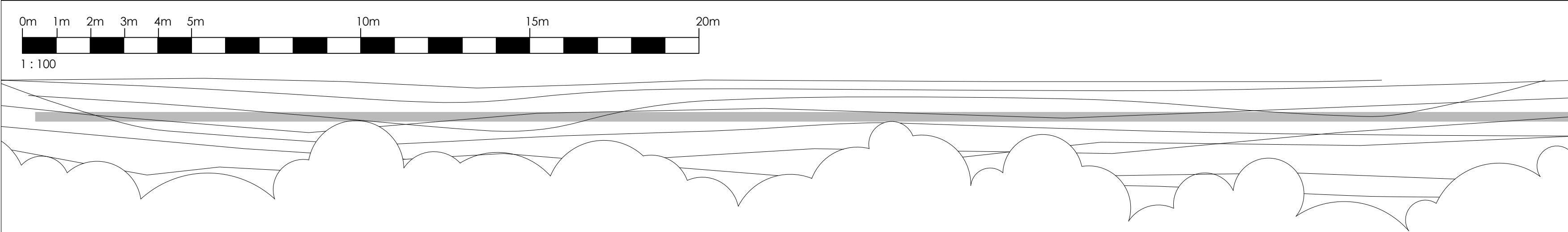
Client:
G
23 Meadway
Bury

Project:
Proposed development
Land Adj 23 Meadway
Bury

Drawing Title:
Proposed Site Layout

Drawn: MS	Checked: DB	Scale: 1:250	Date: Nov 16
Job No: 16-047	Drawing No: 1103	Rev: G	

PROPOSED SITE LAYOUT



general notes:
do not scale the drawing.
all dimensions to be checked on site prior to commencement of work and any
discrepancy shall be immediately reported and resolved prior to work commencing.
this drawing is to be read in conjunction with all relevant drawings and
specifications relating to the job whether or not indicated on the drawing.
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be used or reproduced without prior written consent.



E	17.06.20	MS	PIKE SHOWN ABOVE BEDROOM WINDOW.
D	16.06.20	MS	STONE SILLS AND HEADS OMITTED, SOLDIER COURSE HEADS ADDED.
C	16.06.20	MS	HEIGHT AND ROOF PITCH AMENDED
B	10.06.20	MS	SECOND FLOOR OMITTED
A	10.06.20	MS	UPDATED TO SUIT REVISED LAYOUT, SCALE AMENDED TO 1:100

Rev.

Date

By

Description



9 clover drive, freckleton, preston, lancashire pr4 1tg
tel: 07773 014899 email info@clover-design.co.uk

Client:
Mr Graham Philips
23 Meadway
Bury

Project:
Proposed Housing Development
Land adjacent 23 Meadway
Bury

Drawing Title:
Proposed Street Scene

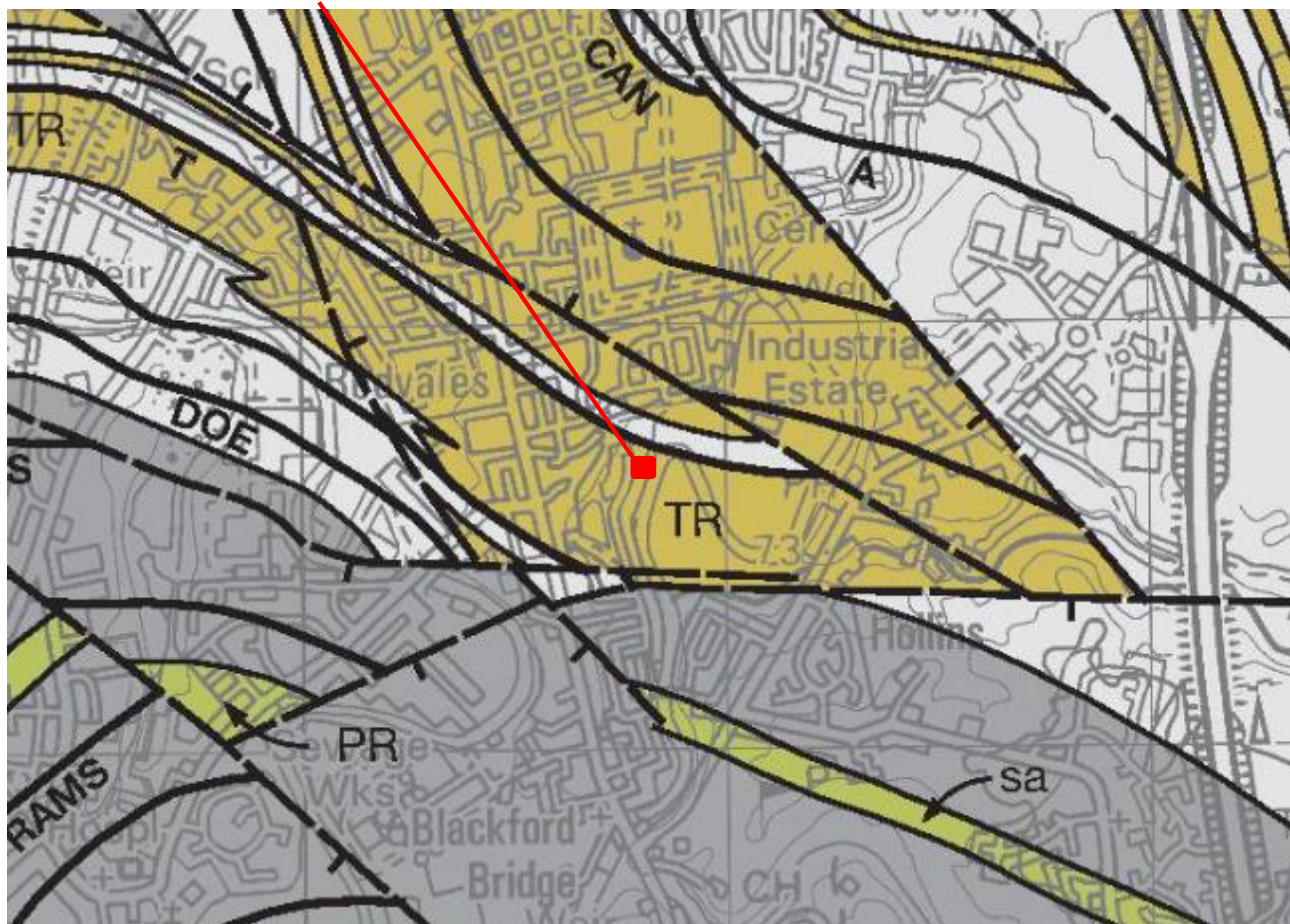
PROPOSED STREET SCENE

Drawn: MS	Checked:	Scale: 1:100	Date: June 20
Job No: 16-047	Drawing No: 1109	Rev: E	

APPENDIX D

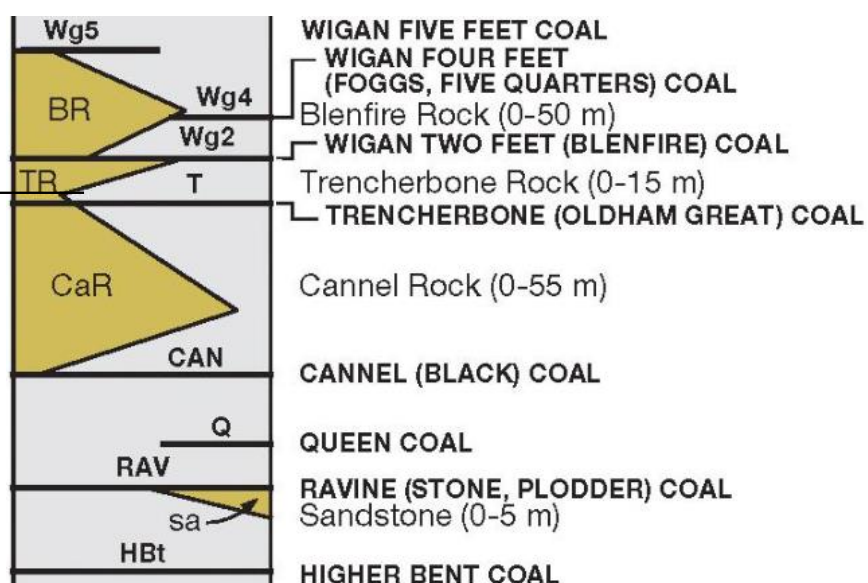
EXTRACTS OF BGS GEOLOGY MAP

APPROXIMATE
SITE LOCATION



Tentative elevation of site
relative to vertical
geology section

?

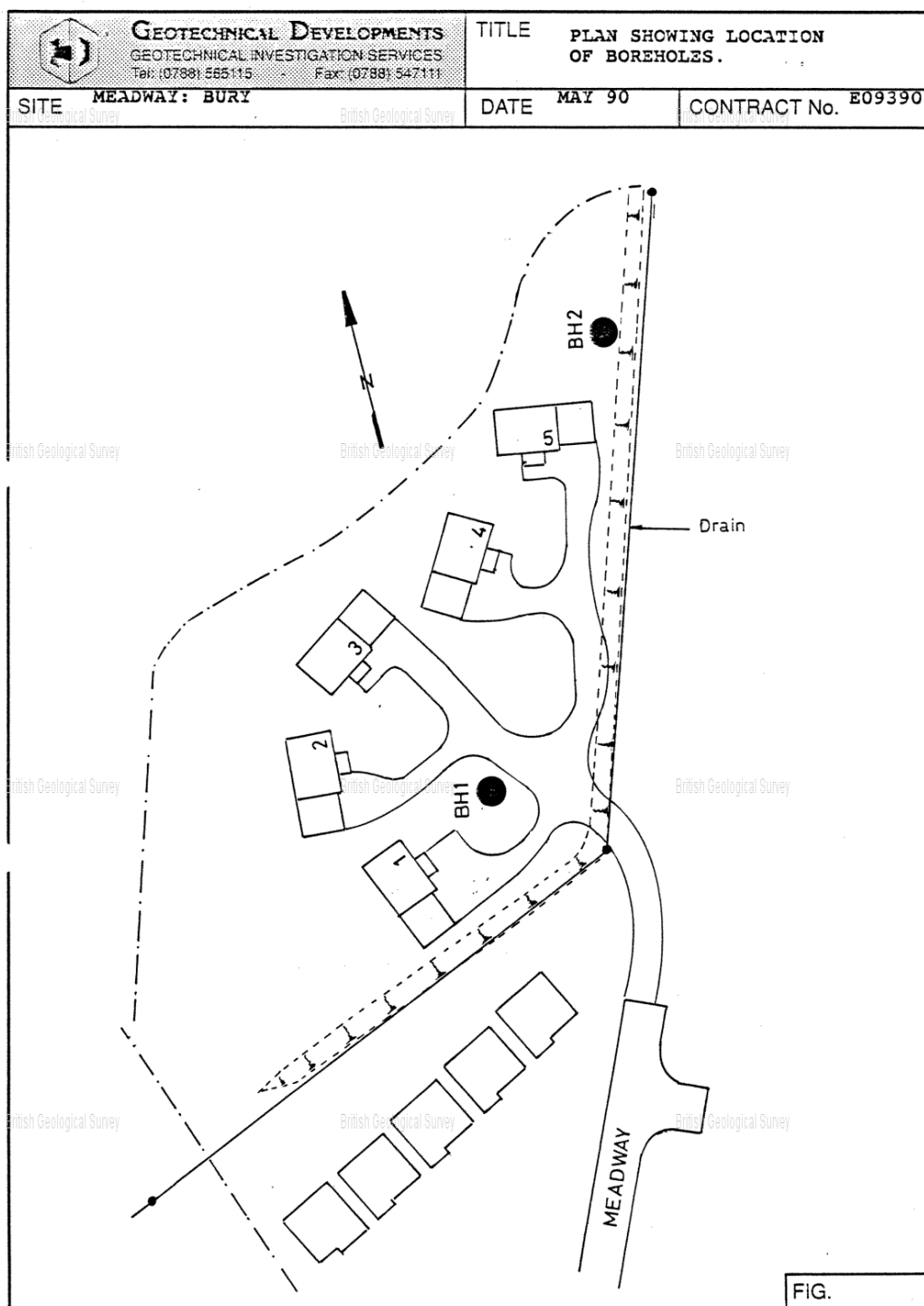


APPENDIX E

BGS BOREHOLE LOGS

SD 80 NW/144-145

DATA SHEET



MY 275112 D

SD 80 NW/144

 GEOTECHNICAL DEVELOPMENTS GEOTECHNICAL INVESTIGATION SERVICES Telephone (0788) 565115. Fax (0788) 547111.						BORE-HOLE LOG	
						Borehole 1	
						Sheet 1 of 1	
Method Shell & Auger.		Date 19/04/90 - 19/04/90		Site MEADWAY: BURY			
Dia mm 150		Coord		Ground Level m.OD		Client G C McDONALD AND PARTNERS	
Soil Samples/Tests		Water & Progress	OD Level m.	Depth m.	Description of Strata	Legend	
Type/Test	Depth m.						
B1	0.30 - 1.80			0.30	CONCRETE SLAB (0.30)		
C1 N=9	0.55 - 1.00				Very soft becoming firm mixture of dark grey sandy silty CLAY and loose becoming medium dense grey SAND and GRAVEL with brick fragments. (FILL) (2.40)		
C2 N=22	1.55 - 2.00						
B2	1.80 - 2.75						
C3 N=11	2.55 - 3.00			2.70	Soft to firm becoming firm mottled red/ orange brown /grey weakly laminated very silty CLAY with fine sand partings and organic flecks. (ALLUVIUM) (0.30)		
B3	2.75 - 3.00				Medium dense orange brown SAND AND GRAVEL. (ALLUVIAL SAND AND GRAVEL) (0.55)		
U1 (33)	3.05 - 3.50				Soft grey brown silty organic CLAY. (ALLUVIUM) (0.25)		
W1	3.35	STRIKE at 3.35m rose to 2.9m sealed out at 3.6m		3.50	Medium dense well graded orange brown angular to subrounded quartzite, granite and volcanic gravels in a silty fine to coarse sand matrix. (GLACIAL SAND AND GRAVEL) (1.80)		
U2 (10*)	3.55 - 4.00			3.55			
B4	3.55 - 3.80			3.80			
S4 N=16	4.05 - 4.50						
B5	3.85 - 5.30	STRIKE at 3.8m rose to 2.8m sealed out at 5.7m					
C5 N=28	5.05 - 5.50			5.60	Stiff dark grey fine gravelly very silty CLAY with partings of grey fine silty sand and grey volcanic well rounded fine to medium gravels. (GLACIAL TILL) (1.10)		
B6	5.30 - 5.60						
S6 N=28	5.65 - 6.10						
D1	6.10 - 6.70			6.70	Weak grey mauve highly fissured SANDSTONE/ MUDSTONE (0.60) (WESTPHALIAN A - COAL MEASURES)		
U3 (101)	6.75 - 7.20				Weak to moderately weak weathered purple grey MUDSTONE / SILTSTONE with some silty clay developments. (0.90) (WESTPHALIAN A - COAL MEASURES)		
S7 N=60*	7.30 - 7.45			7.30	"Trencherbone Rock"		
B7	7.30 - 8.20						
S8 N=128*	8.05 - 8.20			8.20			
Remarks Water strike at 3.35m and 3.8m, rose to 2.9m and 2.8m respectively. After casing pulled water rose to 2.6m bgl Chiselling from 6.7 to 8.2m took 2 hours U100 at 3.35m, no recovery Spt at 7.3 and 8.05m abandoned after 150mm seating blows						Logged by JCE Scale 1:50 End Casing Depth m. 5.70 Job No. E09390	
Sample/Test key: U () U100 sample (blows) D () Disturbed sample B () Bulk sample W () Water sample						Penetration Tests S () Standard (N value) C () Cone (N value) * Blows and penetration when 300mm not	



GEOTECHNICAL DEVELOPMENTS

GEOTECHNICAL INVESTIGATION SERVICES

Telephone (0788) 565115. Fax (0788) 547111.

8073 0873

SD 80NW/1145

BOREHOLE LOG

Borehole 2

Sheet 1 of 1

Method		Date		Site		
Shell & Auger.		20/04/90 - 20/04/90		MEADWAY: BURY		
Dia mm		Coord		Client		
		Ground Level m.00		G C McDONALD AND PARTNERS		
Soil Samples/Tests		Water & Progress	OD Level m.	Depth m.	Description of Strata	Legend
Type/Test	Depth m.					
B1	0.00 - 0.60	STRIKE at 2.05m rose to 1.9m		0.60	Soft to firm organic dark grey sandy very silty CLAY with gravels and much reed and grass material. (FILL) (0.60)	XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX
S1 N=5	0.60 - 1.05				Loose orange brown fine clayey silty SAND with some fine rootlets (1.40)	
D1	1.30				becoming firm to stiff mottled orange brown / dark grey sandy very silty CLAY with occasional brick fragments and plant debris.	
U1 (18*)	1.60 - 2.05					
B2	1.60 - 2.00					
C2 N=22	2.05 - 2.50				Medium dense orange brown SAND AND GRAVEL. (2.00)	
B3	2.00 - 3.50					
C3 N=31	3.05 - 3.50					
U2 (51)	4.05 - 4.50				Stiff brown sandy silty CLAY with some gravels (GLACIAL TILL) (1.30)	
D2	5.00					
S4 N=52	5.75 - 6.20					
				5.30	Moderately weak purple grey MUDSTONE/ fine micaceous SANDSTONE (0.90)	-X- -X- -X- -X- -X- -X- -X- -X- -X- -X-
				4.20	(WESTPHALIAN A - COAL MEASURES)	
					"Trencherbone Rock"	
Remarks					Logged by	
Water encountered at 2.05m, rose to 1.9m after 20 mins, after casing pulled rose to 2.05m bgl Chiselling from 2.0 to 4.0m took 0.75hours and at 5.3 to 5.75m took 0.75hours U100 at 1.6m no recovery					JCE	
					Scale	
					1:50	
					End Casing Depth	
					m. 4.10	
					Job No.	
					E09390	
Sample/Test key:					Penetration Tests	
U () U100 sample (blows)					S () Standard (N value)	
D Disturbed sample					C () Cone (N value)	
B Bulk sample					* Blows and penetration	
W Water sample					when 300mm not	
- Progress & Day					achieved	