Environmental
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Specialists

RGS

COAL MINING
RISK ASSESSMENT
REPORT

job number	C4483/24/E/6850
date	09.07.24
site address	Site of Former Perseverance House St Andrew's Road Huddersfield HD1 6RZ
written by	R.A. Palmer
checked by	I. Sakoor
issued by	R.A. Palmer

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Report on a Coal Mining Risk Assessment

Location:	Site of Former Perseverance House St Andrew's Road, Huddersfield, West Yorkshire HD1 6RZ
For:	Arrow Commercial Centre (Huddersfield) Ltd
Consultants:	Northern Design Partnership
Report No.	C4483/24/E/6850 Report date: July 2024

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

Rob Palmer MSc FGS ACIEH Engineering Director	**Imran Sakoor** BEng FGS Geo-environmental Engineer

1. Introduction

It is understood that as part of the planning application at the site, a Coal Mining Risk Assessment has been requested by the planning authority. Consequently, a desktop study was commissioned in order to assess the risk to the development from coal mining. This report presents the findings of the study.

2. Geological Desk Study

The geological desk study has been undertaken using the following sources of information.

- British Geological Survey (BGS) map sheet[1].
- British Geological Survey *Geology of Britain Viewer*[2].
- Coal Authority Consultants Coal Mining Report[3].
- British Geological Survey *Borehole Records*[4].

[1] Sources: British Geological Survey (NERC) Map Sheet 77; Huddersfield Solid and Drift Editions
[2] Sources: British Geological Survey (NERC) Geology of Britain Viewer [*online resource from www.bgs.ac.uk*]
[3] Coal Authority Reference: 51003433874001 dated 27th June 2024.
[4] Sources: British Geological Survey (NERC) Borehole Records [*online resource from* http://www.bgs.ac.uk//]

2.1 British Geological Survey Maps and Viewer

The appropriate map sheet for the site and the geology viewer has been examined and the following table presents the indicated geology:

Table 1: Geological Data for the Site

Strata Type	Strata Name[5]	Parent Unit[6]	Description
Superficial Geology	Alluvium	-	Soft to firm, normally consolidated, compressible silty clay, but can contain layers of silt, sand, peat and basal gravel. A stronger, desiccated surface zone may be present
Solid Geology	Soft Bed Flags	Pennine Lower Coal Measures Formation	The Soft Bed Flags are generally fine-grained, thinly-bedded and cross-bedded to flaggy sandstone interbedded with mudstone.

There are no dip indicators relevant to the site (i.e. within 500m of the site or within the same fault block) on the geological map. However, taking into account the structure of the regional geology and outcrop patterns, it can be anticipated that the solid geology within the local area dips at shallow angles of less than 5° towards the east.

The site to be developed is situated upon superficial alluvial deposits, associated with the River Colne. RGS have completed site investigation in the area previously and found these deposits to range between 10m and 15m in thickness. Head deposits are indiciated to outcrop east of the site, but it is unlikely that these shall encroach on to the site itself.

There are two coal seams that are shown to subcrop beneath the superficial deposits 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[7]	Outcrop Distance from Site	Anticipated Depth
Hard Bed Coal (HB)	Up to 0.6m	45m W	15m (below surface) 5m to 10m (below rockhead)
Middle Band Coal (MB)	Thin (<0.3m)	230m W	25m (below surface) 15m to 20m (below rockhead)

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

The Hard Bed and Middle Band Coal seams are indicated to subcrop beneath the head deposits to the east of the site. Taking into account the regional structural geology and the topography of the area, it is anticipated that both these seams may be present at a depth of less than 30m below the base of the superficial deposits.

[5] Sources: British Geological Survey (NERC) Map Sheets 77; Huddersfield; Solid and Drift Edition
[6] Sources: British Geological Survey (NERC) Lexicon of Named Rock Units [*online resource from www.bgs.ac.uk*]
[7] Sources: British Geological Survey (NERC) 1:10000 Map Sheets SE11NW & SE11NE; Solid and Drift Edition

2.2 Coal Authority Mines Report

As part of this study a Coal Authority Consultants Coal Mining Report has been obtained. The report is presented as Appendix 2 and for the purposes of discussion has been summarised below:

Table 3: Summary of the Consultant's Coal Mining Report

Has the report highlighted evidence or potential of:		
Mining Feature	**Yes/No**	**Comments**
Underground Coal Mining	No	No past mining recorded.
Probable Unrecorded Shallow Workings	No	None.
Spine Roadways at Shallow Depth	No	No spine roadway recorded at shallow depth.
Mine Entries	No	None recorded within 100m of the enquiry boundary.
Abandoned mine plans	No	None available.
Outcrops	Yes	Halifax Hard (Hard Bed) 33m W.
Geological Faults	No	No faults, fissures or breaklines recorded.
Opencast Mines	No	None recorded within 500 metres of the enquiry boundary.
Coal Authority Managed Tips	No	None recorded within 500 metres of the enquiry boundary.
Site Investigations	No	None recorded within 50 metres of the enquiry boundary
Remediated Sites	No	None recorded within 50 metres of the enquiry boundary.
Coal Mining Subsidence	No	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 31st 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	No	None recorded within 500 metres of the enquiry boundary.
Mine Water Treatment Schemes	No	None recorded within 500 metres of the enquiry boundary.
Future underground mining	No	For further information please see section 3 of the Consultant's Coal Mining Report.
Coal mining licensing	No	
Court orders	No	
Section 46 notices	No	
Withdrawal of support notices	No	
Payments to owners of former copyhold land	No	

3. Risk Assessment

The risk to the stability of the proposed residential development has been evaluated from the data obtained and with reference to the following ratings and definitions:

Low - The possibility of instability is unlikely therefore no further action is necessary.

Moderate - The possibility of instability is likely and further investigation or remedial action may be required.

High - The possibility of instability is highly likely and further investigation or remedial action will be necessary.

Table 4: Development Specific Risk Assessment

Item	Risk attributed to	Feature(s) Considered	Risk Rating
3.1	Shallow coal workings	Hard Bed Coal (HB)	Low
		Middle Band Coal (MB)	Low
3.2	Coal workings at depth	The Coal Authority report indicates that the property is not within a surface area that could affected by past underground mining.	Low
3.3	Mine gas	Shallow coal workings	Low

4. Conclusions

This risk assessment has revealed that economically workable coal is unlikely to be present at or within 30m depth of the base of the superficial deposits. Indeed, the Coal Authority does not indicate the site to be present in a high risk development zone.

Furthermore, the Coal Authority hold no records of known workings beneath the site, therefore, any workings present beneath the site would have occurred from illicit methods. However, the site is likely to be underlain by water bearing strata; alluvium comprising gravels, cobbles and boulders, with hydraulic continuity with the alluvium. Therefore, it is highly unlikely that mining would have been undertaken by illicit methods as significant pumping would have been required to allow underground mining. In view of this, it is not considered necessary to undertake any further investigation or specific construction methods to reduce the risk of instability within the development at the site.

Appendix 1

Site Plan

IF IN ANY DOUBT PLEASE ASK THE ARCHITECT FOR CLARIFICATION.

DO NOT SCALE FROM DRAWING. ALL DIMENSIONS TO BE CHECKED ON SITE

THE COPYRIGHT FOR THESE DRAWINGS REMAINS THE PROPERTY OF THE ARCHITECT. THEY MUST NOT BE REPRODUCED IN ANY WAY WITHOUT THE ARCHITECTS PRIOR WRITTEN CONSENT.

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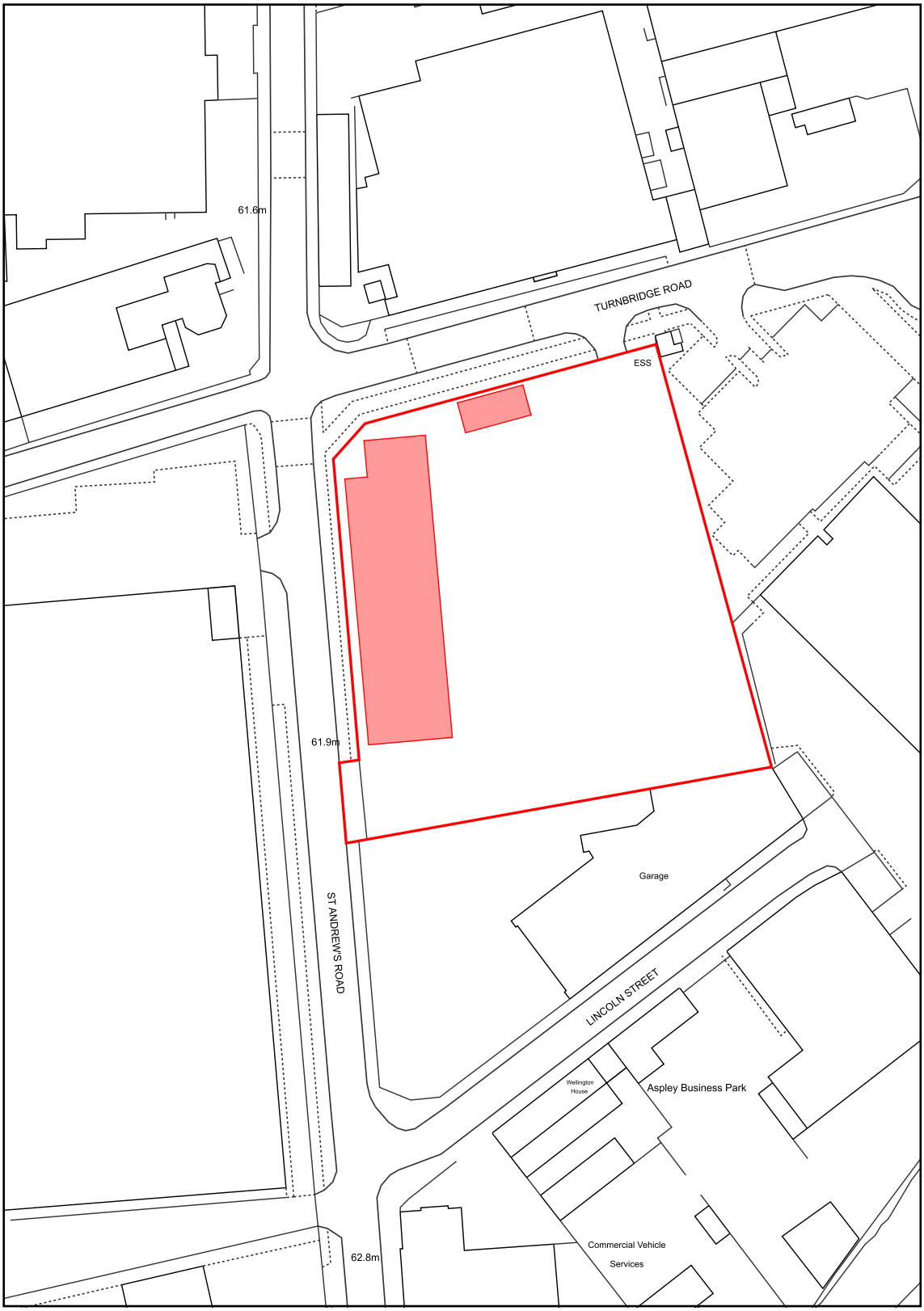
client	ARROW SELF DRIVE
project	NEW PREMISES ST ANDREWS ROAD HUDDERSFIELD HD1 6RZ
drawing	SITE PLAN

revision	notes	date	drawn
*	*	*	*

scale :	1:200 AT A1	02.24	PB

project no.	drawing no.	revision
2322	01	



Metres
0 5 10 20 30 40 50

Map Information
Scale: 1: 1250
Date: 07/05/2024
Reference: Arrow
Order No: 4441752

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Appendix 2

Coal Authority Report

The Coal Authority

Consultants

Coal Mining Report

Arrow Commercial Centre
St Andrew'S Road
Huddersfield
HD1 6RZ

Date of enquiry:	**27 June 2024**
Date enquiry received:	**27 June 2024**
Issue date:	**27 June 2024**
Our reference:	**51003433874001**
Your reference:	**C/4483/24/E/6850**

Consultants

Coal Mining Report

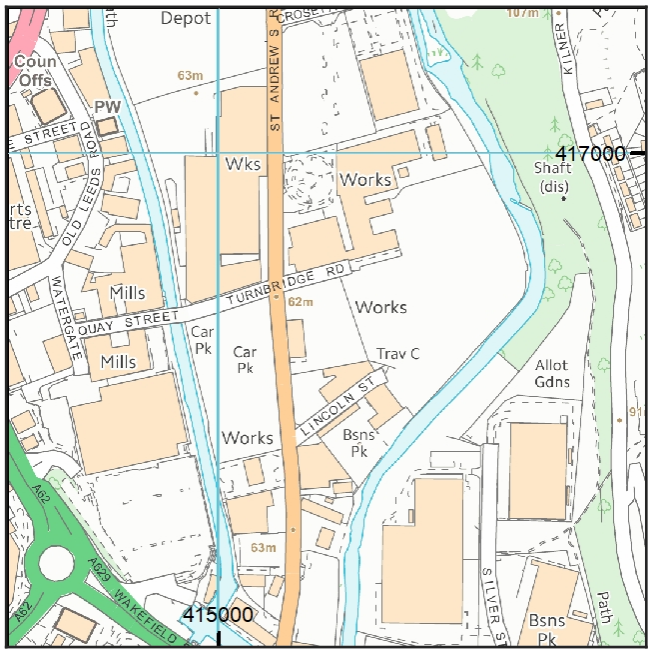
This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

ROGERS GEOTECHNICAL SERVICES LTD

Enquiry address

Arrow Commercial Centre
St Andrew'S Road
Huddersfield
HD1 6RZ



Approximate position of property

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@coalauthority
/company/the-coal-authority
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/thecoalauthority

Section 1 – Mining activity and geology

Past underground mining
No past mining recorded.

Probable unrecorded shallow workings
None.

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
None available.

Outcrops

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
HALIFAX HARD	Coal	Yes	32.3	West	191

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.

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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.

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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.

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Section 4 – Further information

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

Future development

If development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply specialist engineering practice required for former mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or coal mines without first obtaining the permission of the Coal Authority.

MINE GAS: Please note, if there are no recorded instances of mine gas within 500m of the enquiry boundary, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded. Developers should be aware that the investigation of coal seams, mine workings or mine entries may have the potential to generate and/or displace underground gases. Associated risks both to the development site and any neighbouring land or properties should be fully considered when undertaking any ground works. The need for effective measures to prevent gases migrating onto any land or into any properties, either during investigation or remediation work, or after development must also be assessed and properly addressed. In these instances, the Coal Authority recommends that a more detailed Gas Risk Assessment is undertaken by a competent assessor.

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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.

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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. Please note, if there are no recorded instances of mine gas reported, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded.

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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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The Coal Authority

Summary of findings

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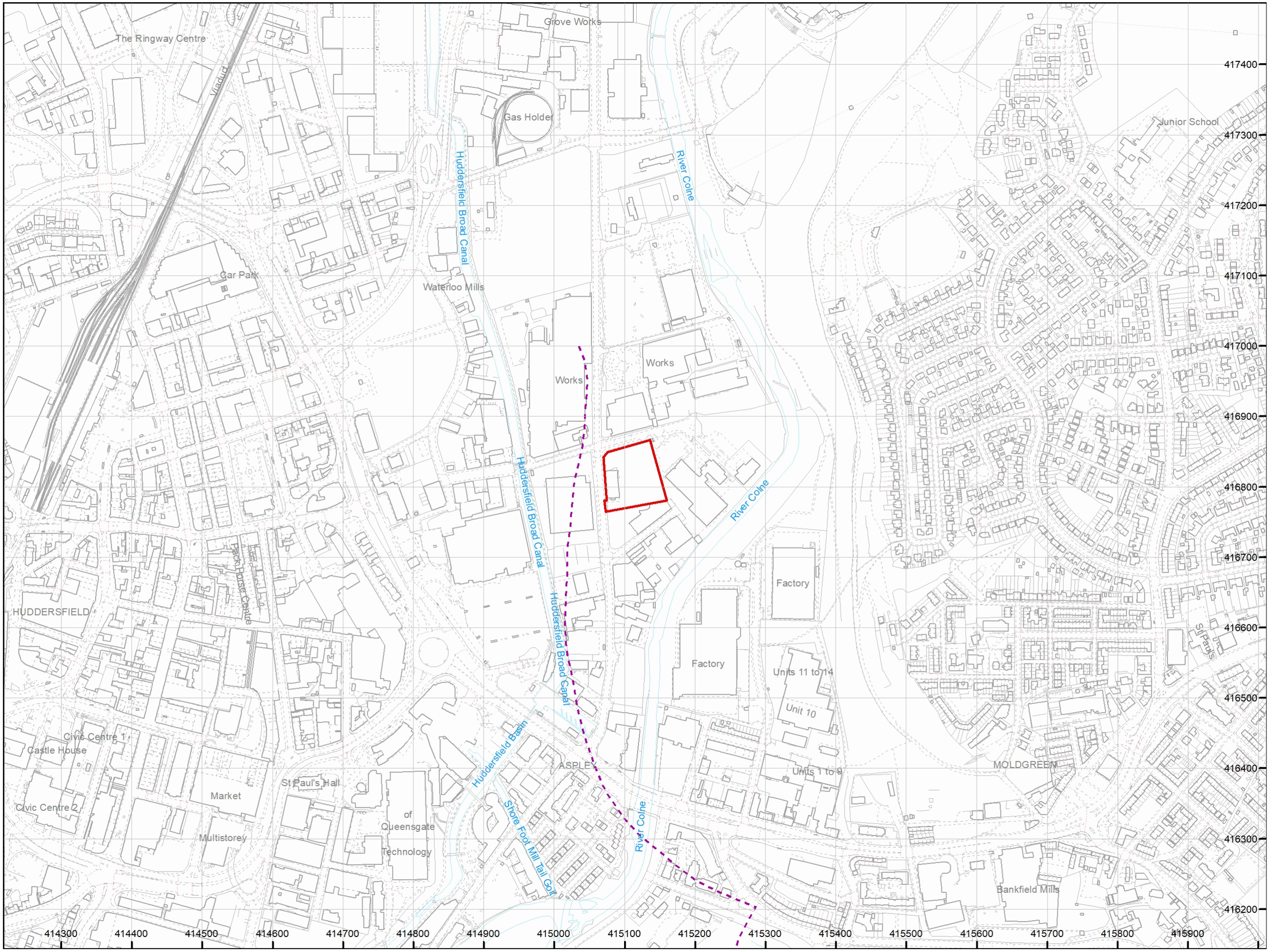
The map highlights any specific surface or subsurface features within or near to the boundary of the site.

Key

Approximate position of the enquiry boundary shown

Outcrop (Conjectured)



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