



COAL MINING RISK ASSESSMENT

**PROPOSED COMMERCIAL DEVELOPMENT
RAINSHORE HOUSE
OVERTOWN LANE
NORDEN
ROCHDALE
OL12 7TQ**

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Client: Mr & Mrs Whiteside

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Revision	Date	Reason
0	July 2024	Original to support planning application.

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1 Introduction & Site Overview.

T. J. Booth Associates have been appointed by Mr & Mrs Whiteside to undertake a Coal Mining Risk Assessment (CMRA) to the above Site.

A planning application has recently been submitted for a change of use application relating to the following:

Application No. 24/00568/FUL. Change of use of dwelling house (Use Class C3) into Special Education Needs School (Use Class F1 (a)); demolition of outbuilding; erection of new single storey classroom building together with alterations to existing access and car park and the installation of multi-use games area and fencing.

As part of the planning application process, the LPA have indicated the Site is within a coal mining development high risk area, and have requested a coal mining risk assessment be undertaken.

T J Booth Associates were subsequently employed to undertake a Coal Mining Risk Assessment.

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

1.1 BGS Geology.

Superficial Geology:

The Site is underlain by glacial clay. However, it is nominally on the boundary of the deposit, which thickens to the south and thins to the northwest, with the area 50m northwest of the Site and beyond shown to have no cover.

The data suggests the deposit beneath the Site is relatively thin.

Refer to inset plan for overview.

Full geological detailed 1:10000 plans in Appendix.



Bedrock Geology:

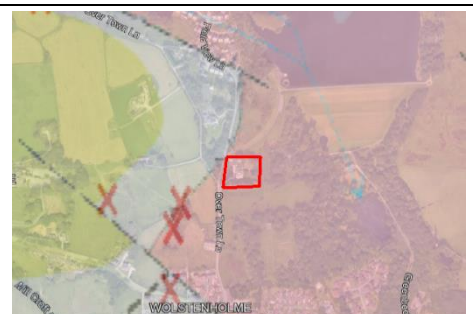
The Site is underlain by Namurian Rough Rock (sandstone), the boundary between this and the younger Carboniferous Coal Measures being close to the northwest Site corner.

Stratigraphic dip is around 5deg southwest.

The Six Inch coal seam sits at the top of the deposit and so outcrops above the Site stratigraphy, and poses no risk to the development.

However, there is a seam within the Rough Rock named the Sand Rock Coal which will sit below the Site at relatively shallow depth (<30m) within the sandstone.

Analysis of the geological maps, considering strike/dip and outcrop positions, concludes that the Sand Rock Coal seam lies approximately 12m below the development building.



2 Environmental Database Search.

2.1 Historic Maps.

DATE	Notable features
c1850s	Rainshore House not noted on historic plans. Coal shafts noted 145m SW/190m SW which appear to target the Six Inch Coal to the west of the Site, and others 285m WSW/300m SSW which target coal seams in the Carboniferous Coal Measures also to the west.
c1890s	Rainshore House not noted on historic plans. Coal shafts/colloeries no longer shown on maps.
c1910s	Rainshore House not noted on historic plans. No new coal mining features in the local area.
c1920s	Rainshore House not noted on historic plans. No new coal mining features in the local area.
c1940	Rainshore House now noted. No new coal mining features in the local area.

2.2 BGS Borehole Records.

Boreholes in the local/wider area suggest there has been extensive local mining of the Sand Rock Coal seam, and that there is approximately 15m between the top of the Rough Rock, and the Sand Rock Coal seam.

2.3 Private Borehole Records.

TJBA have undertaken boreholes for developments historically in the wider local area, which also sit above the Rough Rock and Sand Rock Coal.

For those developments, workings/voids were noted in the Sand Rock Coal 1m thick. The Rough Rock comprised a sandstone with no mudstone noted.

2.4 Coal Authority (Consultants Report).

Past Recorded Underground Mining.	There are no past recorded underground workings beneath the Application Site.
Unrecorded Probable/Potential Shallow Underground Workings:	There report suggests there are probable unrecorded shallow workings.
Spine Roadways.	None noted.
Mine Shafts, Pits, Adits/Entries:	There is one coal shaft noted in the report, ref: 385415-004; with no treatment or conveyancing details.
Abandonment Plans:	There is an abandonment plan as follows: PO0, NW160, 16820.

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

Source Of Risk.	Comment.	Development Risk.
Coal Pits/Shafts/Adits.	There are coal pits in the local area but none within a proximity of the Site that would cause risk to the development.	NO RISK
Recorded Workings.	None beneath the Application Site.	NO RISK
Probable Shallow Workings.	The Coal Authority data has identified that there are probable shallow coal working beneath the Application Site. Borehole records in the local area suggest there is approximately 15m between the top of the Rough Rock and the Sand Rock Coal seam.	RISK NOTED

	Analysis of geological maps with known topographic data at the Site suggests the seam lies approximately 12m below the proposed development building. Due to the position of the Application Site within the stratigraphy, the 12m estimate appears to be accurate.	
Opencast Workings.	No past or future opencast workings noted locally.	NO RISK
Mine Gas or subsidence.	No evidence of local events.	NO RISK

4 Mitigation Strategy Proposed.

It is unlikely that abandonment plan data would add any new information. Data the Coal Authority holds on known workings, would likely have been recorded in the 'Recorded Workings' part of the Coal Authority Consultants Report.

Without further data on the depth of the seam, risk assessment of the current dataset can offer potential mitigating factors as follows:

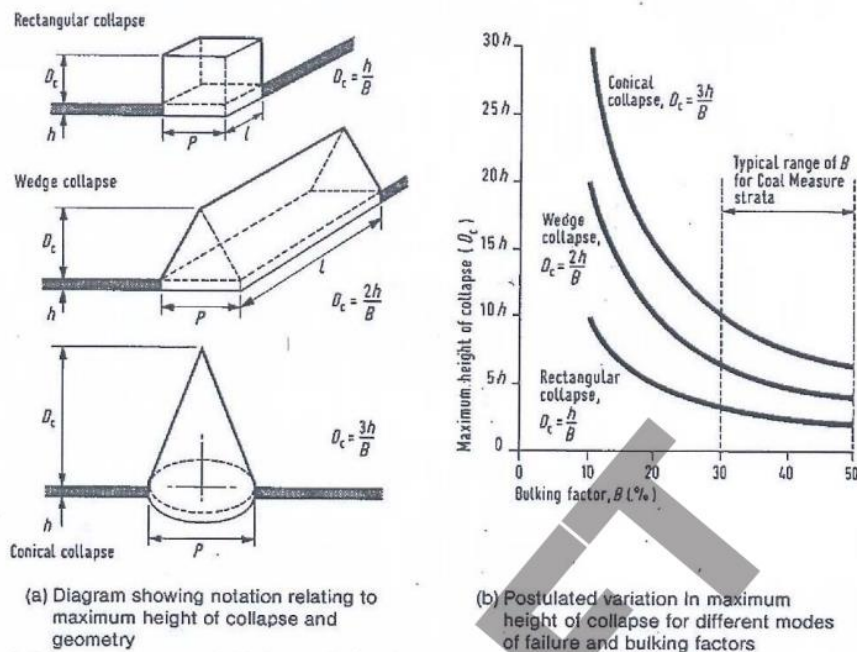
- Agreement from the Coal Authority to use Ciria C758 void migration & bulking factors as a way of mitigation.

Ciria C758 retains estimation of the void migration as a means of mitigation for smaller developments. Figure 5.4 'Type and estimation of void migration', details potential type of void migration mechanisms from rectangular (best case) to conical (worst-case), and for certain rock types where bulking factors arrest the upward migration of voids. It particularly notes the bulking factors for typical ranges of Coal Measures (which are made up of both mudstone & sandstone), and the range thorough percentage of bulking factors from 30-50% (ie, more mudstone dominated to more sandstone dominated).

Given the Rough Rock is a known massive sandstone with little mudstone, as well as TJ Booth Associates having local evidence of this from past drilling, we can assume that the Rough Rock beneath the Site has a bulking factor of at least between the middle (conservative) to top end of the bulking factors for Coal Measures (40-50%), and is actually more likely to be at the top end (50%).

If we assume a 1m void space (which is standard in the local borough, obtained from numerous coal investigations on like mines/seams), the potential migration for a worst-case conical collapse can be given for the following bulking factors (conservative – 40%, and likely – 50%):

Conservative conical collapse	$D_c = 3h/B$	$= 1 \times 3 / 0.4$	$= 7.5m$
Likely conical collapse migration	$D_c = 3h/B$	$= 1 \times 3 / 0.5$	$= 6.0m$



The depth to the Sand Rock seam is estimated at approximately 12m. The depth of competent strata, (ie with reduction of glacial clay considered), is likely to be around 10m. With a worst case conservative conical collapse of 7.5m suggests potential/probable workings as noted by the Coal Authority would not affect the development.

- Ciria C758 allows for the use of foundation design to span potential void migration.

5 Conclusions & Recommendations.

The Coal Mining Risk Assessment desk study has found that there is a potential risk to the development from shallow mining only. However, analysis of maps, topography, potential workings and void migration, suggest that the seam is deep enough that potential workings would not affect the development.

There are also options with foundation design, which can be designed specifically to mitigate the risk if not accepted by the Coal Authority.

Due to the potential mitigating factors, the development is classed as low risk which should not stop the granting of planning permission in this instance, subject to Coal Authority agreement.

This report should be submitted to the LPA as part of the planning application process.

Signed.....



D.S. Slattery BSc (Hons).

T J Booth Associates.

Authorised...

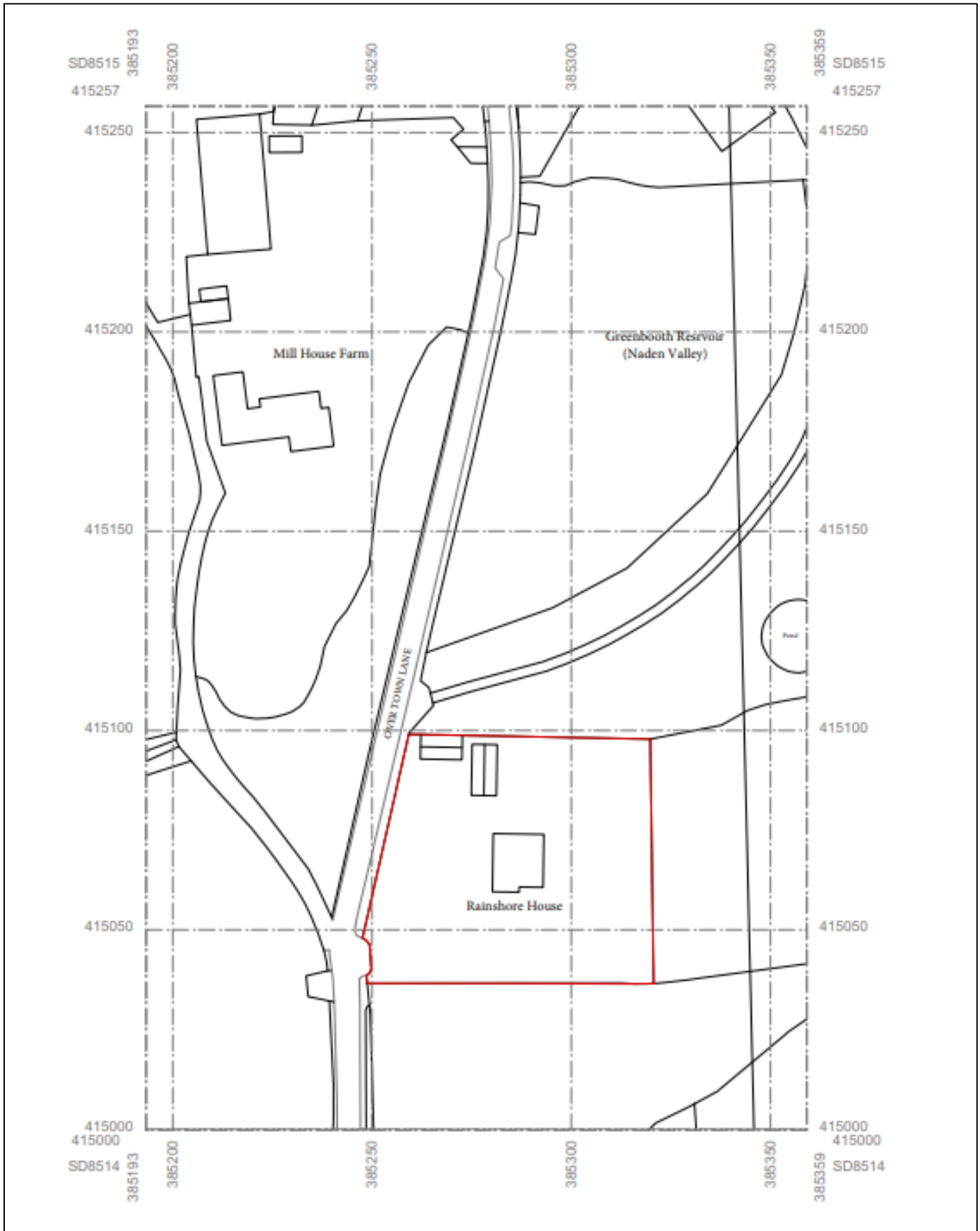


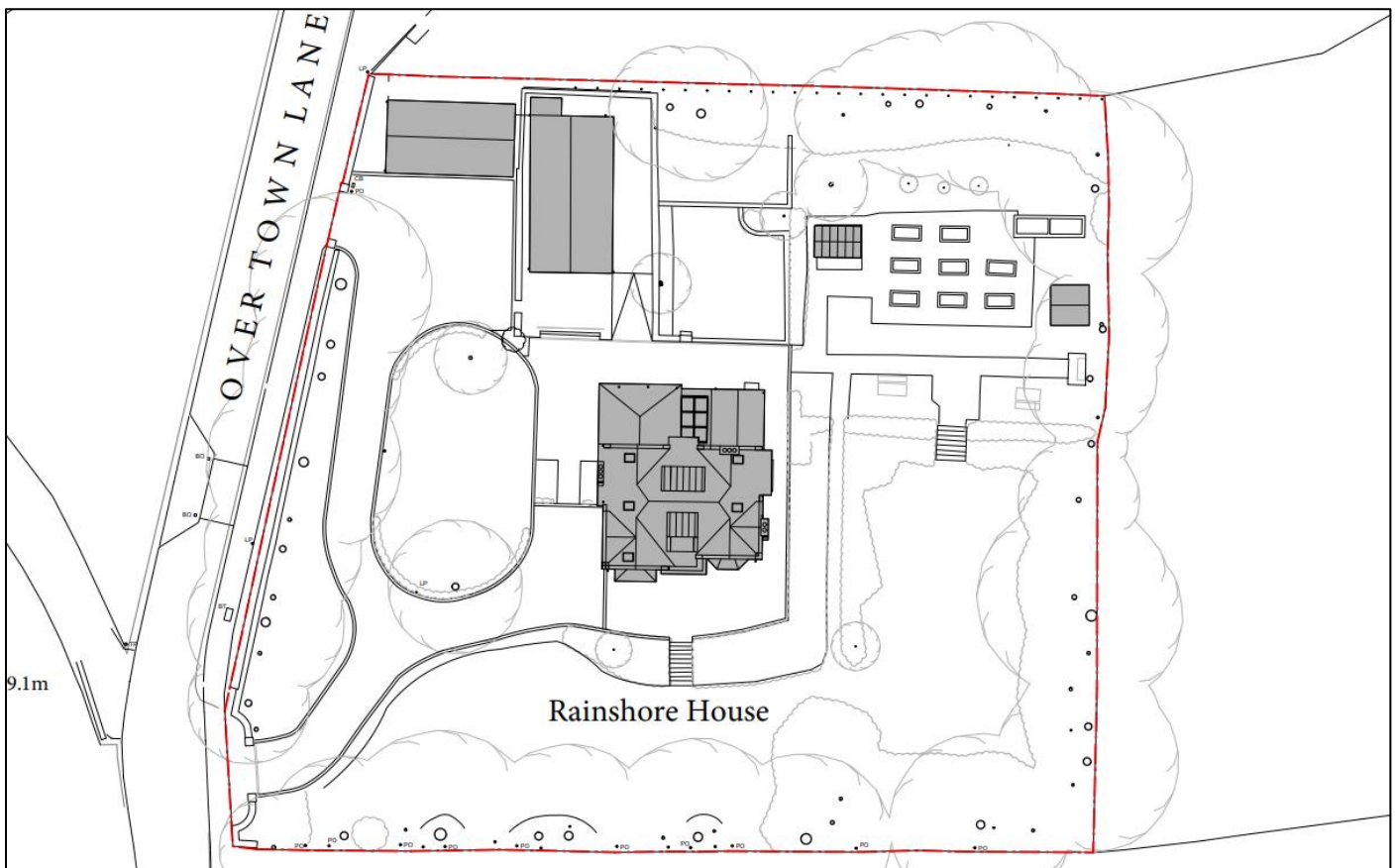
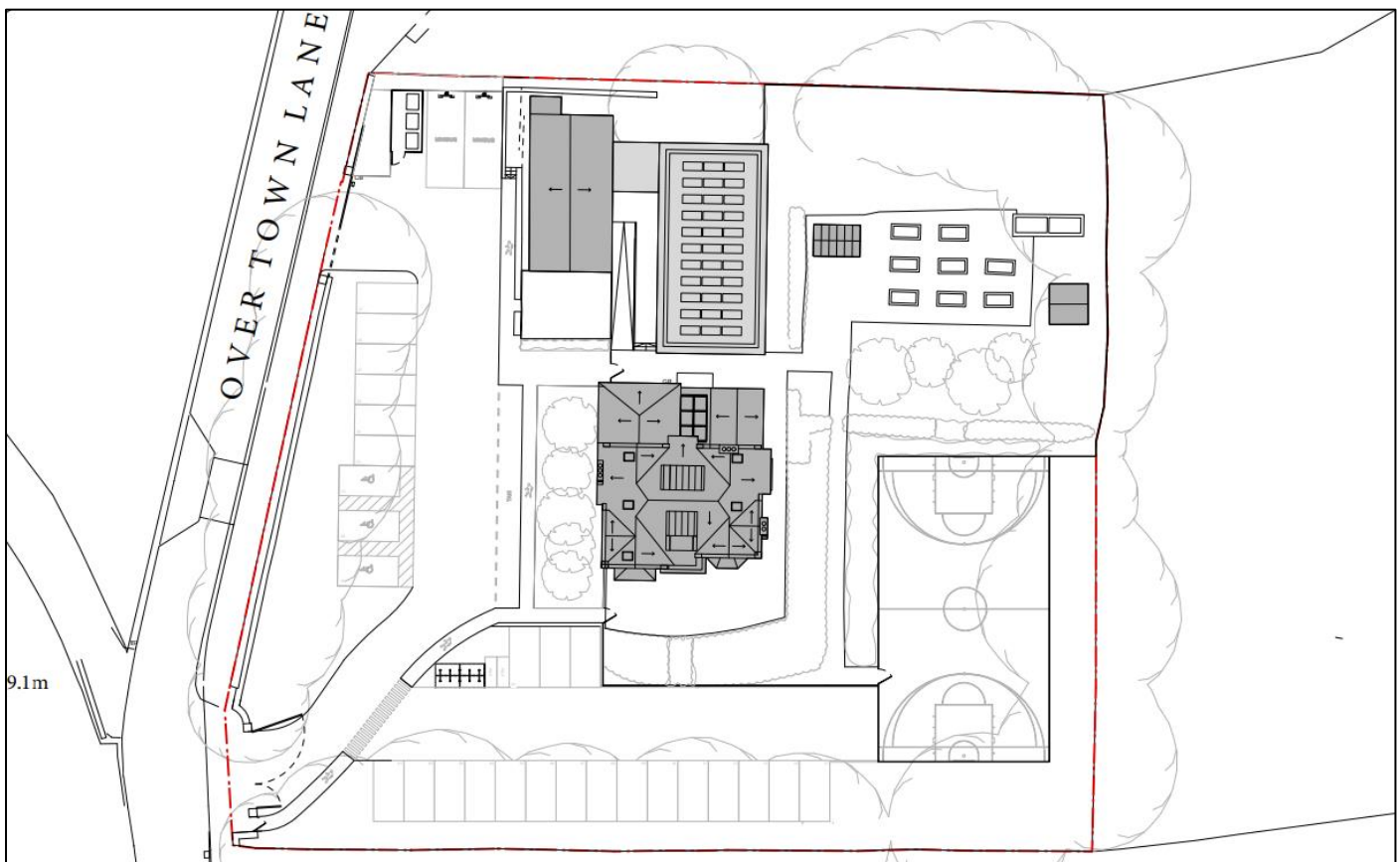
T J Booth BSc (Hons), C. Eng. C. Env.

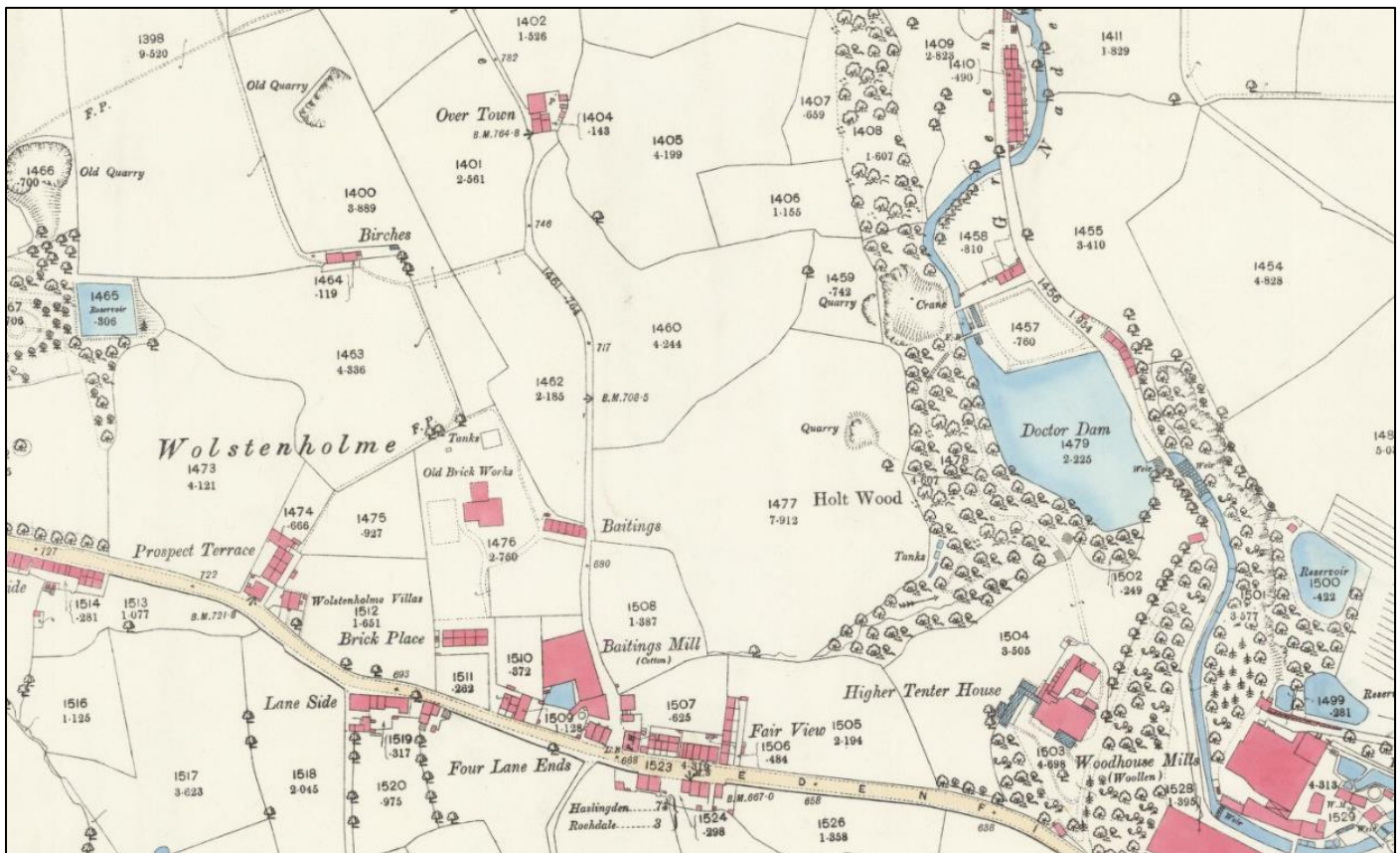
T J Booth Associates.

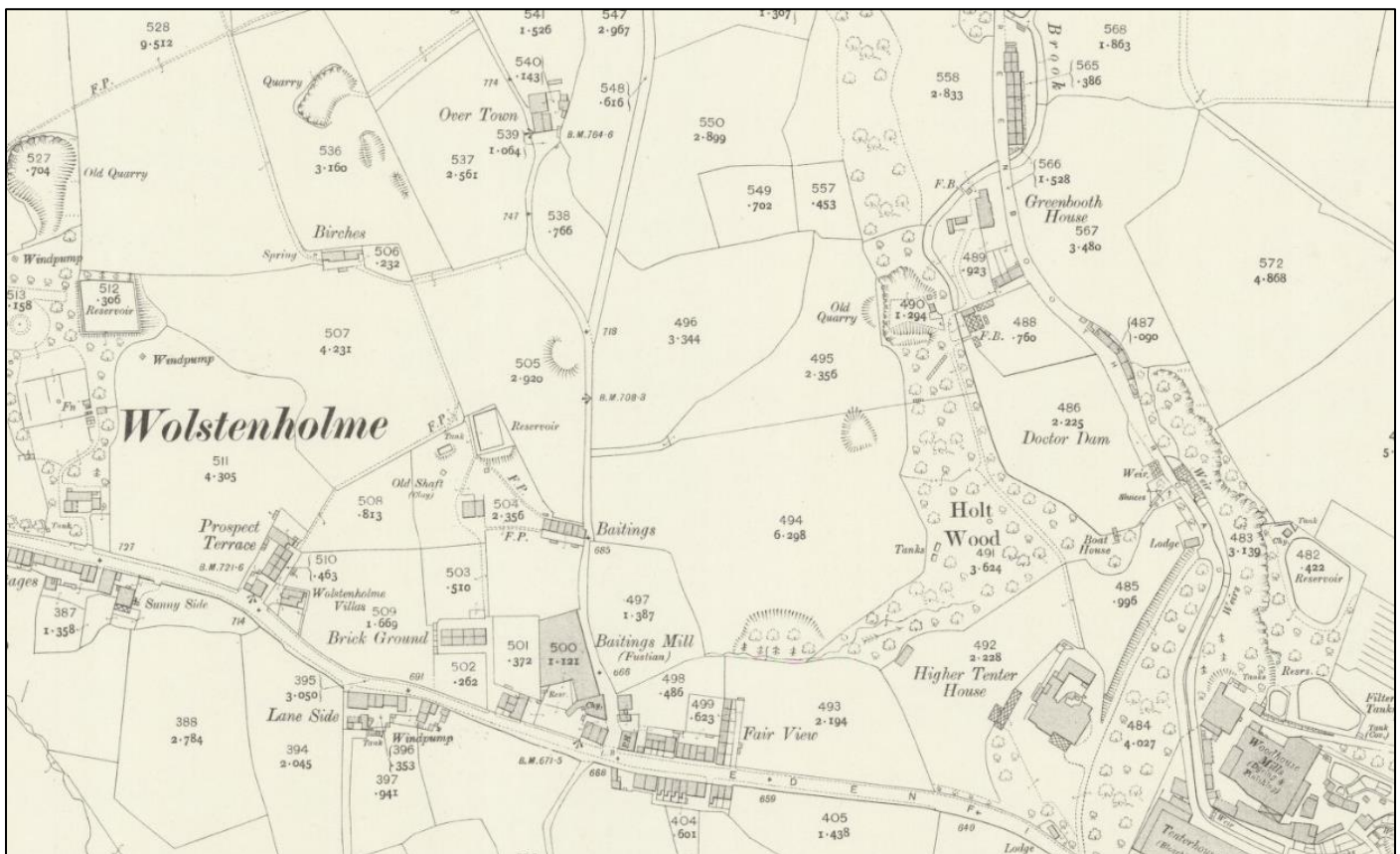
6 Appendix.

6.1 Location Plan.

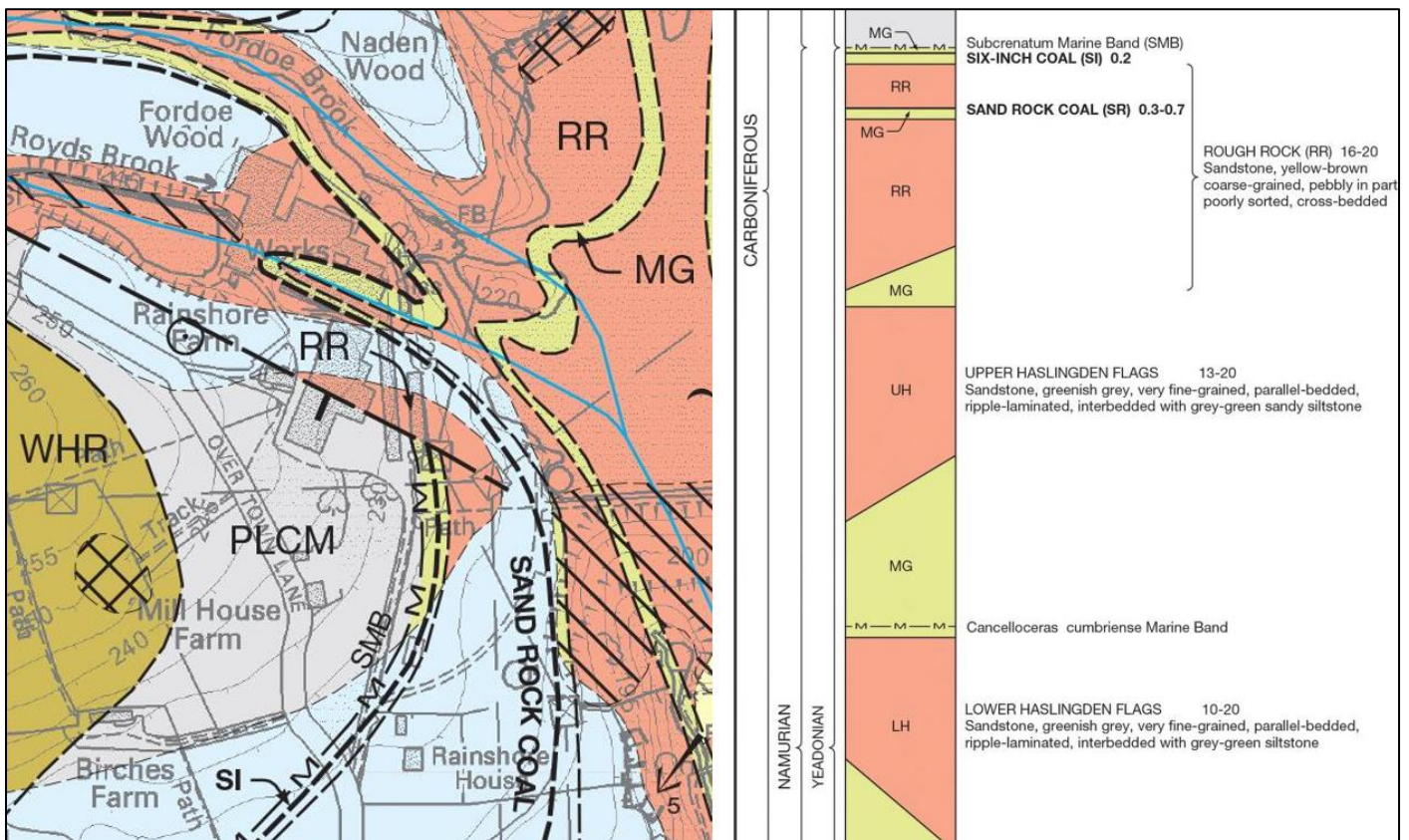


6.2 Existing Plan.**6.3 Proposed Plan.**

6.4 Historic c1850s OS Plan.**6.5 Historic 1890s OS Plan.**

6.6 Historic c1910s OS Plan.**6.7 Historic c1930s OS Plan.**

6.8 BGS Combined Geology.



6.9 Coal Authority Report.



The Coal
Authority

Consultants Coal Mining Report

Rainshore House
Over Town Lane
Rochdale
Rochdale
OL12 7TQ

Date of enquiry: 17 July 2024
Date enquiry received: 17 July 2024
Issue date: 17 July 2024

Our reference: 51003437797001
Your reference: rainshore hse-CA-170724



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

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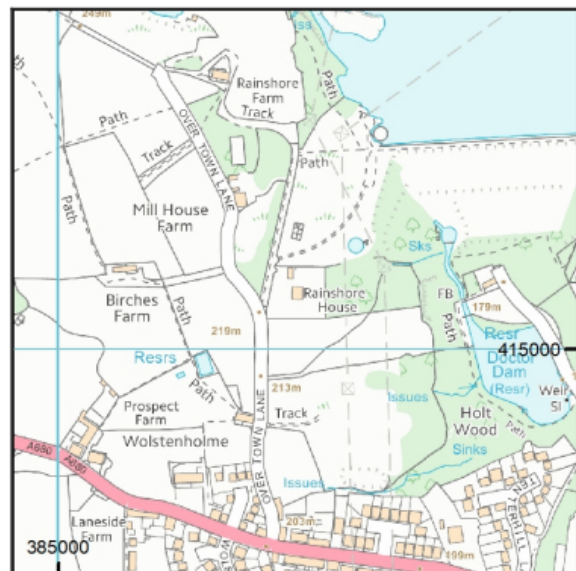
www.groundstability.com

 @coalauthority

 /company/the-coal-authority

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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

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Shaft	385415-004	385162 415005		Coal	

Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

PO0	NW160	16820
0		

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.

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.

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. 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.

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.