



COAL MINING RISK ASSESSMENT FOR HOPWOOD HALL COLLEGE, ROCHDALE

TE1880-TE-00-XX-RP-GE-003-V01

VERSION 1.0

06 FEBRUARY 2025

FINAL

Prepared for:

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Willmott Dixon Construction Ltd

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DOCUMENT CONTROL

Report No. :	TE1880-TE-00-XX-RP-GE-003-V01
Report Status:	FINAL
Version No.:	1.0
Project Engineer:	Alex Preston
Date of Issue:	06/02/2025

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Version No.	Description of Issue / Revision	Date of Issue	Author	Reviewed By	Approved By
1.0	FINAL	06/02/2025	Alex Preston	Adrian Read	Sean Lee



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EXECUTIVE SUMMARY

Introduction	Tier Environmental was commissioned by Willmott Dixon Construction Ltd to undertake a Coal Mining Risk Assessment of Hopwood Hall College. The purpose of the investigation was to determine the risk posed by historic coal mining to the future development.
Proposed land use	It is proposed that the site will be developed with a new educational building. Areas of proposed soft landscaping are located in the northwest, northeast and southeast parts of the site.
Site location and surrounding land uses	The site is located at Hopwood Hall College, Rochdale Campus, St Mary's Gate, Rochdale OL12 6RY. The site is set within a mixed commercial and residential area, with Rochdale Town centre located approximately 500m northeast of the site.
Coal Mining	It is considered that the following coal mining activities present potential constraints to the proposed development: • Moderate / High risk of unrecorded shallow mine workings; • Moderate risk of unrecorded mine entries; and, • Low risk associated with the unrecorded opencast coal workings.
Recommendations	Tier Environmental consider that depth the moderate / high risk posed by the potential shallow mineworkings and the shallow position of the Arley Mine Coal Seam underlying the site, that there is a risk of unacceptable differential settlements that could affect the development. Due to this, the building, attenuation and drainage corridors will require stabilisation via proof grouting. The full extent of these works will be detailed within a specification to be produced by Tier in due course.



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1. INTRODUCTION

Tier Environmental was commissioned by Willmott Dixon Construction Ltd to undertake a Coal Mining Risk Assessment for Hopwood Hall College, located at Hopwood Hall College, Rochdale Campus, St Mary's Gate, Rochdale OL12 6RY (the "site").

1.1. Proposed Development

Under current proposals the development will comprise the partial demolition of the existing college buildings in the east of the site, with construction of the new proposed 4 No. storey college building in the north, a water tank and small ancillary building in the centre, and a substation in the northwest of the site. The remainder of the site will comprise car parking and soft landscaped areas, as presented in Appendix A.

1.2. Previous Reports

Tier Environmental have been produced the following reports in relation to the site:

- Preliminary Risk Assessment Report For Hopwood Hall College, Rochdale (Report ref: TE1880-TE-00-XX-RP-GE-001-V01 dated January 30th, 2025)
- Ground Investigation Report for Hopwood Hall, College, Rochdale (Report ref: TE1880-TE-00-XX-RP-002-V01 dated 5th February 2025)

In addition the following third party reports have been obtained by Tier Environmental; however, no reliance can be sought on information contained within this report and so have been reviewed for information purposes only:

- Waterman – Coal Mining Risk Assessment (Report reference: WIE19085-100-R-5.1.3-CMRA Dated October 2022).

1.3. Objectives

Taking into account the proposed development of the site, the objectives of this appraisal were:

- To evaluate whether past mining or other extractive industries could have an influence on the site.
- To review previous pertinent third-party reports;
- Present a desk-based review of all available information on the coal mining issues which are relevant to the site;
- Use that information to identify and assess the risks to the proposed development from coal mining legacy, including the cumulative impact of issues;
- Specify any exploratory works that will need to be undertaken to inform the development proposal within the coalfield area; and,
- Specify any mitigation measures and permits that may be required.

Where possible, this report was designed to meet the requirements of all relevant current guidance, including the Coal Authority (CA) publication Risk Based Approach to Development Management: Guidance for Developers (version 4, 2017). Where appropriate, any additional exploratory works required to meet relevant planning guidance have been outlined.



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1.4. Assumptions

The following assumptions are made in this report:

- It is assumed that ground levels will not change significantly from those described in this report or as shown on proposed development drawings. If this is not the case, then amendments to the recommendations made in this report may be required.
- The ground investigation has been designed with due consideration of known or suspected constraints (including underground services and access constraints).
- Any references to observations of suspected asbestos-containing materials are for information only and should be verified by a suitably qualified asbestos specialist and/or confirmed by laboratory analysis.
- The use of the term 'Topsoil' within this report is based on a visual identification only and that these materials have not been classified in accordance with BS3882:2015.
- The comments and opinions presented in this report are based on the findings of the desk study and a review of third-party information performed by Tier Environmental and the results of tests carried out within one or more laboratories. There may be other conditions prevailing on the site which have not been revealed by this investigation, and which have not been taken into account by this report.
- Responsibility cannot be accepted for any conditions not revealed by this investigation. Any diagram or opinion on the possible configuration of the findings is conjectural and given for guidance only. Confirmation of intermediate ground conditions should be undertaken if deemed necessary.

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Since commencement of this report and associated data collection, the Coal Authority has been renamed the Mining Remediation Authority. However, reference has been made to the Coal Authority throughout due to the assessment commencing prior to this change in name.



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2. SITE DETAILS AND DESCRIPTION

Table 2.1 Current Site Overview.

Site name	Hopwood Hall College
Site address	Hopwood Hall College, Rochdale Campus, St Mary's Gate, Rochdale OL12 6RY. A site location plan is included as Drawing No. TE1880-TE-00-XX-DR-GE-001-V01 within Appendix A.
National Grid Reference (NGR)	389299 413363
Approximate site area	1.75 ha
Site shape	The site is approximately triangular in shape
Current land use on the site	The site currently comprises a college with a building of several storeys (including a basement/undercroft) present in the east of the site, and an asphalt surfaced car park across the majority of the remainder of the site and a drop off lane present along the northern and western boundaries. It is understood that an interceptor is present in the northeastern corner of the car park/drop off lane. Metal fencing around 2m height is present at the northern and western extent of the car park, with a brick retaining wall of between approx. 1.00m and 2.00m height present at the northern boundary of the drop off lane, marking the site boundary with College Road. A second brick retaining wall is present at the south of the car park, separating the car park from the river embankment which lies approx. 1.00m to 2.00m below the car park. No cracks or visible signs of stress were visible on either of the retaining walls. Limited soft landscaped areas are present, including a small, sloped grass verge in the northwest of the site, a grassed embankment between the car park/college buildings and the river in the south of the site, and as a grassed terraced area to the northeast of the building, which steps down to the basement floor level. The basement/undercroft area is accessible from the car park and is understood to comprise storage, waste disposal areas (bins/skips) and a plant room. The plant room contains the heating infrastructure for the building, including 2 no. oil tanks, both of which are understood to no longer be used with one understood to have been emptied via tanker (but not decommissioned) in the past couple of years. These oil tanks are present within a separate concrete bunded room, only accessible via locked ladder access. From the limited viewpoint accessible during the walkover, no spills or leakages were observed. An electric substation is present in the northeast of the site, to the northwest of the existing college building. Underground services are known to be present beneath the site, including electricity, gas, water and drainage. There is limited surface water drainage around the car park area, observed only to be present at the car park boundaries. Vehicular access for deliveries and disabled parking is present from College Road close to the centre north of the site, leading to the drop off lane, a small parking area and the basement/undercroft access. An access road for the main car park is present in the northwest of the site, with a smaller car park present to the west of this access road. This smaller car park is understood to be let out and was not accessible during the ground investigation. During college opening hours, pedestrian access is freely available. A hedge of approximately 1m height is present surrounding the northeastern soft landscaped area, with limited shrubs present elsewhere around site. Mature trees are present in the far northwest of the site, surrounding the smaller car park (it is understood that development is to be undertaken in this area). It should be noted that the car park in the northwest of the site and the terraced soft landscaping in the east of the site was not accessible during the walkover and are unlikely to be accessible for any ground investigation.
Surrounding land uses	The site is set within a mixed commercial and residential area, with Rochdale Town centre located approximately 500m northeast of the site.
General topography and ground levels	The main car park area of the site is generally level at around 119m AOD. However, College Road to the north of the site lies between approx. the same level as the site in the northeast (120m AOD) rising to around 1.0m higher than the site in the northwest (120m AOD), separated from the site by a brick retaining wall. Similarly, in the south of the site the highest level of the grassed banks of the River Roch lies between 0.5m to 1.00m below the car park level at around 118m AOD, separated by a brick retaining wall. Site levels between the existing building and St. Mary's Gate also vary, with grassed terraces leading from road level (120m AOD) in the northeast to 116m AOD in the centre east and back up to 120m AOD in the southeast. Again, a brick and concrete retaining wall was present at the site boundary (this area was not accessible during the walkover).

An aerial photograph (from the Groundsure report) of the site and site boundary is shown below.



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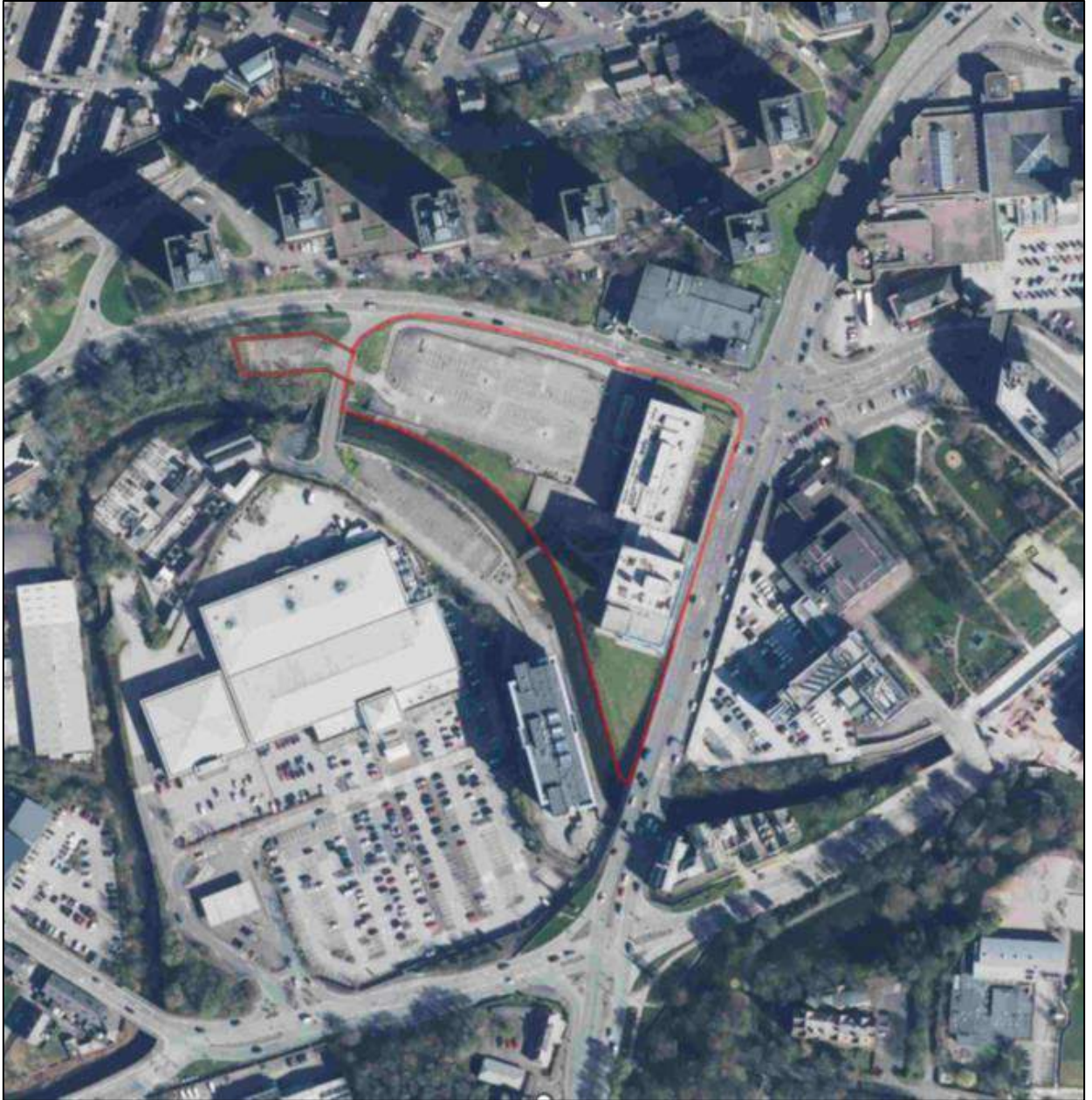
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Figure 2-1 Recent Aerial Photograph from Groundsure





3. SOURCES OF INFORMATION

3.1. Information Reviewed

The assessment is based upon the following sources of information:

- British Geological Survey (BGS): 1:50,00 map, Sheet 76 Rochdale;
- British Geological Survey (BGS): 1:10,560 map, Lancashire 88NE;
- British Geological Survey (BGS) map Rochdale Sheet SD81SE (1:10,000) (2007);
- Coal Authority Mining Report - ref: 51003459604001;
- Coal Authority Mine Abandonment Plans - Catalogue NW1178_999999;
- R. G. Crofts, 2010 Geology of the Rochdale District: A Brief Explanation of the Geological Map Sheet 76 Rochdale;
- BGS borehole records;
- Coal Authority Interactive Map Viewer; and,
- Historic Ordnance Survey plans.

3.2. Limitations of Information

It did not become a legal requirement to deposit coal mining abandonment plans until the 1870s and this requirement was not duly enforced until sometime after. Many coal seams were mined before the requirement to record abandonment plans and some seams worked following the introduction of the requirement may have poor or incomplete records. As such, it should be assumed that where coal seams were accessible, they may have been worked even if no formal records of those workings exist. These seams may also have associated unrecorded shafts and entries. In addition, bell pits have been used to exploit near surface resources since prehistoric times until the early 20th century. There are generally no records of these features, which can present a risk of catastrophic settlement. Opencast mining was not widespread until around the time of the Second World War, therefore records of these workings are generally good in comparison to those for older underground workings.

It should also be noted that the interpretation of the mining abandonment plans generally required rotation and resizing to place them in OS grid. Small errors and inaccuracies are possible when undertaking this process and the location of any features extracted/interpreted from these plans should be considered conceptual until proven by exploratory works prior to development. Furthermore, there may have been errors in the original drafting of these abandonment plans.

Where the Coal Authority has records on the location of abandoned mine entries, it is common for the true location of a mine entry to lie more than 10m from that which is stated and there are instances where an entry's actual location has been found over 30m from its recorded location.



4. PREVIOUS INVESTIGATION FINDINGS

4.1. Coal Mining Risk Assessment, Rochdale Sixth Form College, Rochdale (Ref:WIE19085-100-R-5.1.3-CMRA) by Waterman Dated October 2022.

This report was produced to support the development of new six-storey teaching block together with associated infrastructure and soft landscaped areas, south of the River Roch. The site that this report pertains to is approximately 25m south of the site.

Waterman recorded the site was shown to be underlain by Alluvium, predominantly comprising clay, silt, sand and gravels. It was anticipated that the Alluvium is underlain by a layer of Glaciofluvial deposits comprised of sand and gravels. The underlying bedrock was recorded by Waterman as the Pennine Lower Coal Measures comprising interbedded grey mudstone, siltstone and pale grey sandstone, commonly with mudstones containing marine fossils in the lower part, and more numerous and thicker coal seams in the upper part. No coal seam subcrops were recorded within the site boundary, however the Coal Authorities' online mapping tool indicates that the Arley Coal subcrops approximately 150m from the site's northeastern boundary. No geological faults were noted within the site boundary. 1 No. fault was inferred within 500m of the site, which was a normal fault approx. 109m to the northeast, trending northwest southeast.

A Coal Consultants Report was obtained for the purpose of the Waterman investigation (ref: 51003311848001). The report is summarised below:

- The Coal Authority have confirmed that there was no past mining recorded on site.
- No probable unrecorded shallow workings, spine roadways at shallow depths or mine entries are noted within 100m of the site.
- The following Abandoned Mine Plan Catalogues are of relevance to the site:
 - 16820.
- No outcrops faults, fissures or breaklines recorded.
- No opencast sites within 500m.
- No remediated sites within 50m of the site.
- The Coal Authority has not received a damage notice or claim for the subject property within 50m of the enquiry boundary.

A third-party Ground Investigation Report produced by White Young Green (WYG) was reviewed by Waterman. The investigation included the drilling of 4 No. window sample holes to between 0.6m bgl and 4.45m bgl, 1 No. cable percussion borehole to 9.69m bgl and 1 No. rotary open hole to 30m bgl.

Ground conditions were found to comprise up to 2m of Made Ground, approximately 1.5m of alluvium, up to 4.7m of Glacial Deposits and Bedrock from between 8.1m bgl and 8.5m bgl. The report notes a band of sandstone between 10.8m and 12.0m bgl; below this band the Pennine Lower Coal Measures were recorded as weak to strong thinly laminated interbedded fine and medium micaceous sandstone and very fine mudstone. The report also notes that 'no coals seams were identified within the depths investigated'. The Made Ground was found to be variable in composition but was generally granular in nature. WS7, in the southeastern corner of the Site, was terminated at 0.6m bgl as a concrete obstruction was encountered. The hole was moved, however, WS7A also encountered a concrete obstruction at 0.6m bgl.

The Alluvium is described as very soft brown, grey sandy gravelly Clay. Glacial Deposits comprising Glaciofluvial Deposits (Sand and Gravel) of brown, grey silty sandy Gravel or grey Sand were encountered in all holes, other than the rotary open hole. Glacial Till
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was encountered in all holes below the Glaciofluvial Deposits and generally comprised brown slightly gravelly sandy Clay. The ground conditions encountered were generally in accordance with those anticipated from a review of the geological maps.

Groundwater strikes were recorded at variable depths (0.4m bgl to 16.9m bgl) during the ground investigation, within the Made Ground, Alluvium and Pennine Lower Coal Measures. Monitoring standpipes were installed in the Alluvium, with groundwater levels of between 1.03m bgl and 2.72m bgl being recorded at the south-eastern end of the site during the monitoring period. It is considered likely that there is a continuous groundwater body present within the Alluvium and Glacial Deposits at shallow depths beneath the site, and a deeper groundwater body within the Pennine Lower Coal Measures.

Waterman state "Based on the regional dip and differences in topography between the subcrop (130mAOD) and the site (118mAOD), located 150m to the south-west, the seam is expected to have been washed out and replaced by the superficial deposits recorded on the geological mapping, and hence are not recorded beneath the site".

Waterman concludes that whilst the site is not within a Coal Authority High Risk Development Area, one is located immediately to the north-east of the Site. The Coal Authority Consultants Coal Mining Report notes the site is not located in an area with probable unrecorded mine workings and with a combination of BGS mapping, historical borehole data and on-site ground investigation records it is considered unlikely that the site is underlain by any coal seams at depths that have the potential to impact the proposed development. Considering all information reviewed in undertaking this study, the risk to the development associated with potential shallow mine workings is currently assessed as very low, and it is considered that further works are not required to further explore the potential for coal seams underlying the site.

4.2. Tier Preliminary Risk Assessment (report ref: TE1880-TE-00-XX-RP-GE-001-V01)

Introduction	Tier Environmental was commissioned by Wilmott Dixon Construction Ltd to undertake a desk study and Phase I Preliminary Risk Assessment of the proposed educational development at Hopwood Hall College, Rochdale. The purpose of this investigation was to establish land use history and review the available information to determine the geoenvironmental setting of the site and develop a preliminary conceptual site model with due consideration of potential soil and groundwater contamination, hazardous ground gases and mining.
Proposed land use	It is proposed that the site will be developed with a new educational building. Areas of proposed soft landscaping are located in the northwest, northeast and southeast parts of the site.
Site location and surrounding land uses	The site is located at Hopwood Hall College, Rochdale Campus, St Mary's Gate, Rochdale OL12 6RY. The site is set within a mixed commercial and residential area, with Rochdale Town centre located approximately 500m northeast of the site.
Site history	Historically the River Roch meandered through the centre of the site, with a weir present close to the centre west of the site. Excavation/building up/stockpiling of materials is shown on its northwestern bank at several points in history. The remainder of the site has historically been occupied by a large mill (including a pump) in the east of the site, and several smaller mills and dyeworks (including a tank) in the west of the site at extending offsite beyond the site boundaries. Holland Street and presumed residential properties (which may have contained basements) were mapped in the northeastern corner of the site. By the 1960s the mill in the east of the site had been replaced with Rochdale Technical College, although some of the smaller mills/works were still shown in the northwest of the site at this time, alongside allotment gardens. By the late 1960s/early 1970s the River Roch had been diverted along the southern boundary of the site, with the former watercourse on site infilled. Embankments are shown along the watercourse at the southern site boundary, suggesting site levels may have been raised. Allotments and buildings in the northwest of the site were demolished during this time, with a large building labelled as Rochdale College now present across the majority of the west and centre of the site, and additional college buildings shown in the southeast of the site and an access road and car park created in the northwestern corner of the site. Holland Street was rerouted to the north of the site and renamed as Bury Street and later College Road, with the buildings alongside it demolished. The large college building in the west and centre of the site is last shown in 2008, by 2012 this and the smaller buildings in the southeast of the site have been demolished. The west/centre of the site was resurfaced for car parking (it is understood the concrete floor slab was left in situ beneath the asphalt) and the southeastern area was soft landscaped. The immediate surrounding area predominantly comprised industrial/commercial land uses including mills and dyeworks, a cattle market, warehouses, unnamed works, with some terraced residential properties. The majority of the surrounding industry was demolished by the 1960s to 1980s, with an embankment and high rise residential constructed from 10m to the north of the site (potentially on built up land) and possible raising of levels shown in the



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	former cattle market area approx. 20m east of the site during the 1970s. By 2000, the former cricket ground and industry to the south of the river was replaced with a supermarket and associated petrol station.
Geology, hydrogeology and hydrology	Made Ground has been recorded to depths of between 0.95m and 6.80m bgl (the deeper Made Ground being recorded within the former infilled watercourse) within a previous third-party ground investigation. Superficial Deposits comprising Alluvium (Secondary A aquifer) are recorded in the north of the site, with Glaciofluvial deposits (Secondary A aquifer) recorded across the remainder of the site. The solid geology is recorded as the Pennine Lower Coal Measures (Secondary A aquifer). There are no Source Protection Zones, potable, non-potable or surface water abstractions recorded within 250m of the site. The nearest surface water feature is the River Roch located beyond the southern site boundary, with the River Spodden also located 209m southwest of the site. No further surface water features are located within 250m of the site. Groundwater flow is anticipated to be towards the southwest based on surrounding topography and the presence of the River Roch. There is understood to be limited surface water drainage in the form of ACO drains at the main car park perimeters, with an interceptor located in the northeast of the car park. The controlled waters sensitivity is regarded as being moderate/high.
Mining and quarrying	The Coal Mining Risk Assessment should be referred to for further details of the risk of coal mining to the site. There is evidence of other extractive industries within 250m of the site. Further ground investigation should be targeted to investigate the risk to the site from mining and quarrying both on site and within the surrounding area.
Previous investigations	A previous third-party ground investigation has been undertaken for the site. However it is understood that reliance on these reports cannot be assumed, and therefore these reports have been referred to for information purposes only.
Further works	Further proposed works include; • Trial pitting within 1 no. soft landscaped area to investigate shallow ground conditions and enable the performance of soak away testing and falling head testing within boreholes elsewhere on site to enable infiltration testing. • Window sample drilling and installation of shallow monitoring wells for gas and groundwater (if encountered) monitoring purposes and to facilitate soil sampling for environmental and geotechnical testing. • In situ geotechnical testing to assist with foundation design and recommendations; • Geoenvironmental chemical testing on selected soil samples for metals, pH, speciated PAH, speciated TPH, phenol, SVOC/SVOC, PCBs, glycol, sulphate, TOC and asbestos screens in order to assess potential risks to human health based on historical land uses on and within close proximity to the site and to assist with basic waste characterisation. • Geoenvironmental chemical testing on selected asphalt samples to assess the potential risk to human health from coal tar potentially present within the exiting asphalt surfacing across site.

4.3. Tier Ground Investigation Report (report ref: TE1880-TE-00-XX-RP-GE-002-V01)

Introduction	Tier Environmental was commissioned by Willmott Dixon to undertake a Ground Investigation of Hopwood Hall College, Rochdale Campus, St Mary's Gate, Rochdale OL12 6RY. The purpose of the investigation was to determine the nature and extent of soil, bedrock and groundwater beneath the site for the purposes of environmental and geotechnical assessment.
Access Constraints	Some areas of the site were not accessible due to pre-existing site activities, buildings or safe access. Nevertheless, it is considered that the ground investigation works have provided good coverage of the site so as to characterise the ground conditions in key areas which are due to be redeveloped.
Proposed land use	Under current proposals the development will comprise the partial demolition of the existing college buildings in the east of the site, with construction of the new proposed 4 No. storey college building in the north, a water tank and small ancillary building in the centre, and a substation in the northwest of the site. The remainder of the site will comprise car parking and soft landscaped areas.
Surrounding land uses	The site is set within a mixed commercial and residential area, with Rochdale Town centre located approximately 500m northeast of the site.
Site history	The River Roch once ran through the site, with a weir near the centre-west and occasional stockpiling on its northwestern bank. A large mill (with pump) stood in the east; smaller mills and dyeworks (with tank) were in the west. Holland Street and possible residences (with basements) lay in the northeast. By the 1960s, Rochdale Technical College replaced the large mill, while some smaller mills/works remained in the northwest. During late 1960s/early 1970s, the river was diverted south, site levels were raised, and a large college complex was built, later demolished by 2012 and replaced by parking and landscaping. Nearby land was predominantly industrial/commercial (mills, dyeworks, cattle market), with some terraced housing. By the 1960s–1980s, most industries were demolished, replaced by an embankment and high-rise residential to the north and possible ground raising east. By 2000, the former cricket ground and industrial areas south of the river were redeveloped into a supermarket and petrol station.



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Mining and quarrying	Tier Environmental has prepared a separate Coal Mining Risk Assessment should be referred to for further details of the risk of coal mining to the site. Tier Environmental consider that due to the moderate / high risk posed by the potential shallow mineworkings and the shallow position of the Arley Mine Coal Seam underlying the site there is a risk of unacceptable differential settlements that could affect the development. Due to this the building footprint, drainage/attenuation and service corridors will require stabilisation via proof grouting. The full extent of these works will be detailed within a specification to be produced by Tier in due course.
Previous investigations	A previous third-party ground investigation has been undertaken for the site. However it is understood that reliance on these reports cannot be assumed, and therefore these reports have been referred to for information purposes only.
Fieldwork	Window Sample Boreholes (26 No.) to depths between 0.43 m to 5.45 m bgl. To confirm shallow ground conditions, perform in situ geotechnical tests, obtain soil samples for geotechnical/geoenvironmental analysis, and install shallow gas/groundwater monitoring wells. Falling head tests were carried out in selected locations. Cable Percussion Boreholes (5 No.) to depths between 4.20 m to 7.59 m bgl. To confirm deeper ground conditions, carry out in situ geotechnical tests, collect soil samples for geotechnical/geoenvironmental parameters, and install deep gas/groundwater monitoring wells. Rotary Boreholes (7 No.) to depths between 0.30 m to 40.00 m bgl. To investigate deeper ground conditions, conduct in situ geotechnical tests, undertake rock sampling, assess potential coal mine workings, and install deep gas/groundwater monitoring wells. Hand Dug Pits (4 No.) to depths between 0.86 m to 1.52 m bgl to determine the extent and condition of existing retaining wall foundations. Soakaway Pit (1 No.) to 1.98 m bgl To perform targeted infiltration testing.
Ground conditions	Hardstanding Hardstanding comprising asphalt was encountered in the car park, access road, and footpaths across the site to depths between 0.05m and 0.35m bgl. A concrete slab was encountered across the footprint of the former building which occupied the present-day car park, comprising thicknesses between 0.21m and 0.47m. Made Ground Made Ground has been reported to a maximum depth of 6.50m bgl and was found to be thickest towards the southwest and central west of the site within the former infilled watercourse. Made Ground was found to comprise both granular and cohesive deposits, with a layer of suspected Pulverised Fuel Ash (PFA) identified across the site, thickest beneath the former building footprint within the present-day car park area. Other anthropogenic materials encountered within the Made Ground include brick, concrete, sandstone, limestone, clinker/slag, plastic, metal, glass, timber, and occasional rebar. Superficial Deposits The Made Ground was found to be underlain by superficial deposits in some instances, comprising Alluvium (clay) and Glaciofluvial Deposits (silty sand). Bedrock The Made Ground and superficial deposits were found to be underlain at depths between 3.30m and 6.50m bgl by bedrock of the Pennine Lower Coal Measures, found to comprise mudstone with interbedded sandstone and siltstone. Coal Coal was reported at depths between 6m and 40m bgl within rotary boreholes, with evidence of probable workings within the Arley Mine seam. Specific coal seams encountered include: - RH101: 30.30m to 30.80m bgl (0.50m thick, hard coal) - CP104/RH102: 34.20m to 34.40m bgl (0.20m thick, possible coal/shale) - RH103: 16.80m to 17.00m bgl (0.20m thick, coal flash), 29.00m to 29.30m bgl (0.20m thick, hard coal)
Groundwater	Shallow groundwater has been monitored across the site at depths between 0.10m and 3.97m bgl and a separate deeper confined, locally artesian, groundwater body has been reported within the deep sandstone bands at RH101 and RH103C (sandstone bands present from depths of 28.50m bgl and 32.00m bgl). The head of water reported during one groundwater monitoring visit at RH103C was reported as 0.04m.
Ground stability	Given the nature and depth of the Made Ground, excavations should be assumed to be unstable.
Foundations and floor slabs	It is understood that a CFA piled solution will be implemented at the site with preliminary consideration of socketing Circa 5m into the bedrock; however, the final design of the piles will be subject to a specialist piling contractor and due consideration will need to be made with respect to the probable shallow coal mining workings encountered. To obviate any significant damaging settlements we would recommend using a suspended floor slab with intermediate support designed on the same basis as the main foundations where the spans are too large for economical single suspended slab design. Ground bearing floor slabs may be suitable subject to a turnover, proof rolling and confirmatory testing of the Made Ground.



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Further works

It is recommended that further works are conducted to confirm that the former concrete slab associated with the building is not tied into the riverside retaining wall.

It is recommended that further soil sampling and human health risk assessment is conducted post-demolition in the vicinity of the proposed contoured landscaped area in the east of the site.

It is recommended that an asbestos Detailed Quantitative Risk Assessment is carried out for the asbestos concentrations reported at the site. If this is not carried out or if a potential risk is identified following any future risk assessment, then a remediation strategy will be required for a clean cover system at the site.

It is recommended that an Asbestos Management Plan is prepared for the site.

A final 2 No. gas monitoring visits are proposed, and the ground gas risk assessment shall be updated upon receipt of this information.

Tier considers that due to the moderate / high risk posed by the potential shallow mineworkings and the shallow position of the Arley Mine Coal Seam underlying the site there is a risk of unacceptable differential settlements that could affect the development. Due to this the **building footprint, drainage/attenuation and service corridors** will require stabilisation via proof grouting. The full extent of these works will be detailed within a specification to be produced by Tier in due course.

It is recommended that further detailed consideration of asphalt is conducted to determine potential re-use opportunities and further refine the waste classification.

An earthworks specification is recommended that taken into consideration any proposed re-use / earthworks of the PFA materials which may degrade in inclement weather.



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5. GEOLOGY

The published geological maps of the area show the site to be underlain by Alluvium (clay, silt, sand and gravel) in the north, with the majority of the site shown to be underlain by Glaciofluvial Deposits (Devensian, sand and gravel). These deposits are likely to be underlain by Glacial Till in turn. No records of artificial ground are shown as present on mapping. However, due to the history of development across the site, Made Ground deposits are to be expected.

Third party logs from the 2021 Geotechnics ground investigation record asphalt surfacing (typically 0.15m thickness) with a limestone subbase recorded to between 0.37m and 0.60m bgl. This was underlain by further granular Made Ground (comprising either silty gravelly sand or sandy gravel) over cohesive Made Ground (comprising sandy silt or sandy gravelly clay) to depths of between 0.95m and 6.80m bgl. Where the base of the Made Ground was encountered, natural ground comprised Alluvium of sandy gravelly silt to depths of between 2.00m and 3.00m bgl in the north of the site, and Glaciofluvial Deposits comprising sand or gravel to depths of between 2.00m to 4.45m bgl elsewhere. Glacial Till comprising sandy gravelly clay was encountered from 3.00m to 4.40m bgl within CP01A in the northwest.

The borehole records in the far south of the site record the superficial deposits to comprise brown sand over sand and coarse gravel to 3.84m bgl, underlain by further fine to coarse sand and gravel to the base of the borehole at 6.10m bgl within borehole record SD81SE181, and firm red brown boulder clay and soft laminated red brown clay to the base of the borehole at 6.10m within borehole record SD81SE182.

Bedrock comprises the Pennine Lower Coal Measures consisting of a sequence of mudstones, siltstones and sandstones, locally with horizons of coal. Generally the mudstone comprises dark grey fissile organic rich fine-grained sediments. Within the previous third-party ground investigation, the Pennine Lower Coal Measures were encountered from depths of between 3.70m and 6.80m bgl, comprising extremely weak to very weak dark grey siltstone, recovered as gravel.

5.1. Structural Geology

Faulting

The wider Rochdale region contains multiple faults trending in a northwest to southeast direction. There are no faults shown directly underlying the site, the closest fault is located approximately 1.25km to the southwest. None are recorded within the immediate vicinity of the site; however, it is considered likely that further smaller faults are present. Faulting is therefore not considered to present any potential significant risk to the development. On the British Geological Survey (BGS): 1:10,560 map, Lancashire 88NE the position and depth of the fault within mineworkings within the Arley Mine Seam is shown.

Bedrock Inclination

Based on the Memoirs of the Geologic Survey of Great Britain for the Rochdale District (1911), the strata are recorded as having a slight inclination to the southwest and west regionally. Abandonment plans and BGS maps show the strata on-site as generally dipping to the west, with an inclination of between approximately 3° and 5°.

5.2. Stratigraphy

The following section lists the main stratigraphic features present beneath the site from youngest to oldest, with emphasis on features pertinent to this Coal Mining Risk Assessment.



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Arley Mine

The Arley Mine, is present within the vicinity of the site. The seam is recorded as subcropping 30m northeast of the site with a WNW-ENE strike. The seam is not recorded as worked in this vicinity; however it is recorded as worked southwest of the site. The seam is recorded at 2 feet (0.61 m) thick. The average thickness throughout the wider coalfield was 3 feet (0.91 m) to 4 feet (1.2 m). It is recorded in the geological memoirs as producing excellent quality coal for coking, house and steam coal. The Arley Mine was worked throughout the coalfield and around Tyldesley was a hot mine.

Figure 5-1 Coal Authority Plan Showing Outcrop of Arley Mine Seam



The coal from the Arley Mine is considered to be of economic importance in the area and has been extensively worked across the wider region. The Coal Authority do not record the Arley Mine Seam as having a history of spontaneous combustion.

Dib Hole Coal

BGS 1:10,000 Scale mapping identifies the Dib Hole Coal underlying the site below the Arley Mine Seam. The seam has a recorded thickness of 0.1m. The Dib Hole Coal is a thin impersistent seam that is of no economic importance. Its significance lies in its association with the Dib Hole Marine Band and the top of the Grenoside Sandstone Cycle (Chisholm, 1990).



6. REVIEW OF RECORDS

6.1. Ordnance Survey Plans

A detailed review of ordnance survey plans has been undertaken within the Preliminary Risk Assessment for the site (Report Ref: TE1880-TE-00-XX-RP-GE-001-V01 dated 30th January 2025).

The 1851 OS plan at 1:10,560 scale shows the site to be close to surrounding mining features however no features are observed within the site boundary. Table 4.2 within the PRA lists all evidence of extraction on or within 250 m of the site. The wider Rochdale area has been mined from between the 17th and 20th centuries. A review of historic and BGS maps indicates that at least 3 No. collieries and further multiple quarries and brickfields were present within 1km of the site.

6.2. BGS Mapping Records

Figure 6-1 BGS 1:00,000 Map SD81SE





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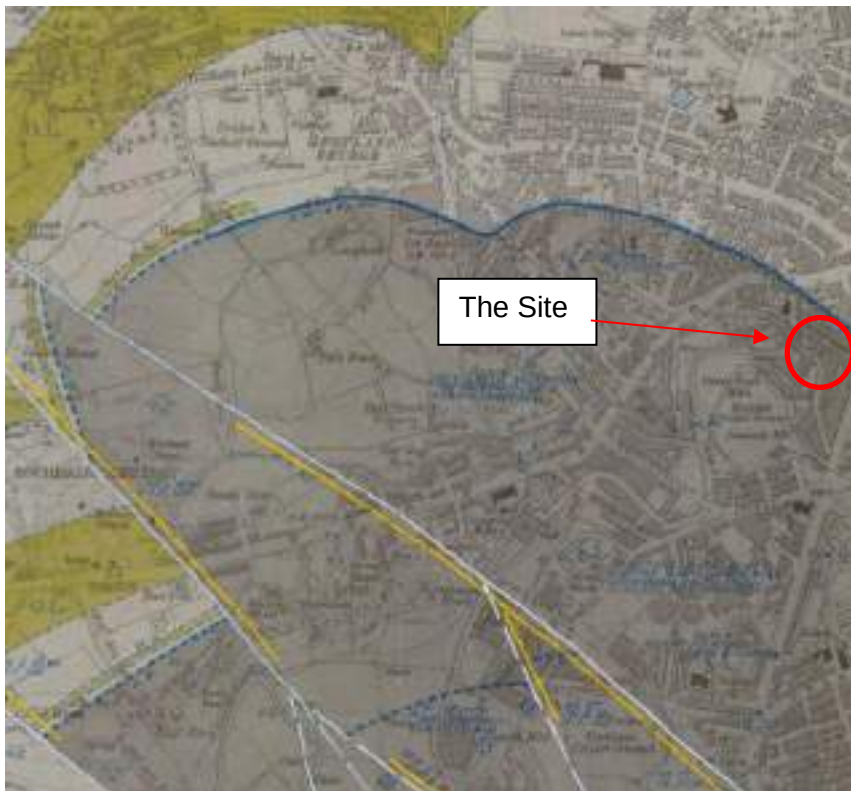
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Figure 6-2 BGS 1:50,000 Map Rochdale



Figure 6-3 BGS 1:10,560 County Series Lancashire 88NE 1911





6.3. BGS Borehole Records

SD81SE14

Borehole SD81SE14 (located 750m SW of the Arley coal seam subcrop) records the Arley Seam at a depth of 45.11m bgl, with a seam thickness of 600mm. Using spot levels from the 1:10,000 BGS map an approximate level for the borehole of 124mAOD and the level of the subcrop from recorded levels across the site of 117mAOD gives the Arley Seam a regional dip of 3 or 4 degrees to the south-west.

SD81SE21

Borehole SD81SE21 is located slightly north of the inferred Arley Seam subcrop and records the succession below the Arley Seam as 13.41m of superficial drift deposits underlain by siltstone and mudstone beds, of the Pennine Lower Coal Mine Succession, down to a depth of 45.26m, onto 8.23m of micaceous siltstones and sandstones thought to represent the Riddle Scout Rock. The borehole log terminates at 64.77m bgl with no coal seams recorded within the succession.

6.4. Coal Authority / Mining Remediation Authority Records

Tier obtained a Consultants Coal Mining Report (Ref. 51003459604001, located within Appendix C). Extracts of this report are provided below.

Past Underground Mining

The Coal Authority stated that there is no past mining recorded within the site boundary. However, probable unrecorded shallow workings may be present beneath the site. No spine roadways are recorded at shallow depth.

Subcrops

The Arley Seam is shown to subcrop 31m northeast of the site with a bearing of 126°, the seam is recorded as having a workable thickness. The proximity of this subcrops increases the likelihood of unrecorded shallow mine workings and unrecorded mine entries in the vicinity of the site.

Mine Entries

No mine entries are recorded within 100 metres of the site. The closest mine shafts are a series of 3 No. shafts associated with Leach Colliery located approximately 380m southwest of the site with references 388413-004, 388413-005 and 388413-006. No further details are provided within Coal Authority records or on BGS records relating to these mine entries.

Opencast Mines

The Coal Authority records, and historical Ordnance Survey plans do not show any opencast coal mines within 500 metres of the site boundary. However, due to the presence of coal outcrops within the site area and the historic quarries and brickfields in the vicinity of the site, the presence of unrecorded opencast mines is still considered possible.



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Mine Abandonment Plans

Coal Authority searches have identified 1 No. mine abandonment plan that relates to workings potentially present underlying the site, plan 16820. Following additional discussions with the Coal Authority it was determined that this plan relates to the wider area and is not relevant to this site. However, during discussions a second abandonment plan associated with Leach Colliery 380m southwest of the site was uncovered, plan NW1178. This abandonment plan was procured from the Coal Authority and shows a total of 7 No. tunnels orientated in the direction of the northeast towards the site that state they are connected to "old workings". This indicates further unrecorded workings are present in the direction of the site or at the least in between the area shown on the plan and the site. The shallow mine workings abandonment plan is provided in Appendix D.

Based on a review of the abandonment plan, the following points are considered pertinent:

- Coal Authority abandonment plan No. NW1178 shows the Arley Seam has been worked via the room and pillar extraction method;
- A total of 3 No. shafts are shown on the plan and these are assumed to relate to mine entries 388413-004, 388413-005 and 388413-006. A roadway is shown extending from the shafts in a roughly southeasterly - north-westerly direction;
- This seam was extracted as part of the Leach Colliery and mining of this seam undertaken in 1808; and,
- Dependent upon depth to bedrock this seam is anticipated to have around 30m of bedrock cover, in the vicinity of the abandonment plan;

A drawing overlaying the current site layout with the abandonment plans has been produced and is contained within Appendix A as TE1880-TE-00-XX-DW-GE-014-V01.

Investigation and Remedial Works

No site investigations were recorded within 50m of the enquiry boundary.

A search on the planning portal did not yield any useful information or previous reports.

No remedial works are recorded by the Coal Authority within 50m of the Site and it is not stated whether a drilling and grouting exercise was undertaken for the current college structures.

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 Management Schemes and Emissions

The Coal Authority does not have any records of mine gas management schemes within 500m of the site.

The Coal Authority has no record of mines gas emission requiring action.



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Mine Water Treatment Schemes

The Coal Authority does not have any records of mine water treatment schemes within 500m of the site.

Licensing and Future Mining Activity

The Coal Authority does not have any records pertaining to any planned future underground mining, coal mining licences, court orders, Section 47 notices (stating that the land is at risk of subsidence) or payments to owners of former copyhold land.



7. INTRUSIVE INVESTIGATIONS

7.1. General

The Coal Authority records indicate that a total of 1 No. coal seam is outcropping in the vicinity of the site, 30m northeast with a WNW-ESE strike. It is considered that the risk of unrecorded shallow coal mining subsidence relating to this coal seam is moderate, with the potential of having an influence at surface for the proposed development.

To mitigate this risk, a series of 3 No. rotary boreholes were undertaken, to a maximum depth of 40m bgl, to identify the nature and extent of any unrecorded shallow coal mining. For the purpose of this investigation, these boreholes were taken to a minimum depth of 40m below ground level in line with industry best practice and providing in excess of 10x seam thickness of bedrock cover, should any worked seams be present in excess of that depth.

The ground investigation was targeted using the proposed layout and prevailing geological conditions underlying the site. All boreholes were drilled beneath the proposed building footprint as this are considered to be the most sensitive receptor to ground instability.

7.2. Coal Seams Encountered

A summary of the encountered intact coal seams encountered during all the known investigations for the site is given in Table 7.1.

Table 7-1 Summary of Observed Coal Seams

Borehole ID	Depth of Top Coal Seam (m AOD)	Depth of Base Coal Seam (m AOD)	Thickness (m)	Observations/ Descriptions
RH101	89.22	88.72	0.5	Hard COAL
RH102 / CP104	85.44	85.24	0.2	Possible COAL / SHALE
RH103C	102.42	102.22	0.2	COAL Flash
RH103C	90.22	89.92	0.3	Hard COAL

7.3. Evidence of Potential Shallow Mineworkings

A summary of the evidence of potential shallow mineworkings is presented in Table 7.2

Table 7-2 Summary of Evidenced of Mineworkings

Borehole ID	Depth of Evidence (m AOD)	Observations / Drillers Notes
RH101	114.72-114.82	60% Flush return
RH101	110.52	Loss of flush
RH101	113.17-11.67	No flush return
RH101	105.20-101.22	Between no flush return and 10% flush return
RH101	85.02-84.52	Lost flush
RH101	99.72-99.52	Weak flush



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RH103C	111.33-11.53	No recovery
RH103C	110.53-104.53	50% to 60% flush returns
RH103C	84.52-83.42	Lost flush. Easy drilling
RH102/CP104	110.64-103.14	50% flush return
RH103	113.22-112.98	Brownish grey, GRAVEL of sandstone(within bedrock) Lost flush)
RH103	112.72-112.71	Loss of flush. Core barrel stuck and loss of drill bit (possible cast iron obstruction)
RH103A	113.22-112.72	Loss of flush, drilling rods dropped by 0.50m bgl, core barrel sticking on possible cast iron. (Possible void)

7.4. Surface Subsidence

No evidence of surface subsidence was observed at the site.

7.5. Opencast Workings

During investigations, no evidence of opencast workings has been identified. Localised unrecorded opencast workings may have occurred in the vicinity of the subcrop of the Arley Mine Seam.

7.6. Unrecorded Mine Entries

During investigations, no unrecorded mine shafts have been identified. However, due to the outcropping coal seam, it is considered possible that unrecorded mine entries (bells pits, shafts or adits) are present at the site.

7.7. Gas and Minewaters

During site works no emissions of ground gas or minewaters was recorded.



8. COAL MINING RISK ASSESSMENT

Based on the available information, the following possible hazards are shown to be potentially present and have been considered in detail:

- Subcropping Coal Seam;
- Unrecorded Shallow Coal Mineworkings;
- Unrecorded Mine Entries; and,
- Unrecorded Opencast Workings.

Detailed consideration has been given to the severity of these hazards and is discussed below. For risk posed by mine gases reference should be made to the Tier Ground Investigation Report (Report Ref: TE1880-TE-00-XX-RP-GE-003-V01), mine gas will not be considered further within this document.

8.1. Arley Mine Seam

The Arley Mine Coal Seam outcrops 30m northeast of the site and is recorded as dipping towards the south-west and west with an average dip of 3-4 °. Therefore, the coal seam is present at slightly greater depths in the south and southwest of the site. It is considered that approximately 85m - 100m southwest of the inferred outcrop seam location that there would be sufficient depth of overburden/bedrock to mitigate the risk from any workings within the seam. The increased dip of coal is shown on drawing TE1880-TE-00-XX-DR-GE-016-V01 within Appendix A and represented below. It is noted that the Arley Mine Coal Seam only presents a potential risk to the development risk if it has been worked, however, as it is shallow, recorded as having a good quality of coal, is present in a workable thickness, is located in a wider area that historically underwent extensive coal mining and is recorded as being worked southwest of the site, it is considered likely / possible that the seam was worked underneath the site.

Figure 8-1 Depth of Arley Mine Throughout the Site





8.2. Unrecorded Mineworkings

Historical unrecorded underground coal workings are potentially present based on evidence described within Table 7.2 and discussed within Section 8.1 above. The abandonment plans that relate to workings within the Arley Mine Seam indicate that the workings have been mined predominantly by the room and pillar method over 200 hundred years ago. When assessing the impact of risk associated with underground workings, it has been assumed that with the overburden pressure and the weakness of pillars formed from coal, that pillar failures in mines of this age are likely to have occurred by present times.

CIRIA Special Publication 32 (1984) and CIRIA C758D outlines that voids relating to coal extraction are unlikely to migrate more than 10 times seam thickness in bedrock. Whilst this 'rule of thumb' may be considered over-cautious in most circumstances, given the near impossibility in gathering enough data for numerical modeling techniques, it has been decided that it provides a reasonable assurance against surface subsidence at the site. When applying this method, the seam thickness has only been compared to bedrock cover. This assessment is designed to be conservative as an initial screen and may be revised with the findings of an exploratory investigation.

Table 7.2 above details the potential evidence for potential unrecorded mineworkings underlying the site. When these depths are compared against the expected depths of the Arley Mine Seam presented on drawing TE1880-TE-00-XX-DR-GE-016-V01 within Appendix A and Figure 8.1, it appears that in multiple locations the depths are similar. This indicates further that the evidence encountered is representative of mineworkings. Furthermore, the solid coal recovered was not as anticipated, implying the coal could have historically been removed.

Due to the nature of different types of evidence encountered (voids, loss of flush and weak strata) it is presumed that some of the encountered workings are collapsed whilst some are still intact. The presence of collapsed workings is expected given the workings are likely from pre 1820 (>200 years old). It is considered that the risk of unacceptable differential settlement is high in these areas.

As detailed in Table 7.2 above, there have been multiple observations within RH101, RH102, RH103, RH103A and RH103C indicate it is likely/possible, that there are shallow mineworkings present underlying the site. Due to the high risk associated with shallow mineworkings from crown hole collapse and large differential settlements, a precautionary approach must be undertaken if the presence of shallow mineworkings cannot be categorically ruled out. Taking into account the similar depth that the features were observed in the boreholes, the varying thickness and depth that coal was encountered in each borehole, the suspected metal obstruction within the bedrock, the void/drop in drill rods, the loss of flush, the areas of no recovery and very poor recovery, the similarity with assumed coal depths and evidence of workings, the highly fractured nature of this rock horizon and the shallow recorded coal seams, it is considered more likely than not that there are shallow unrecorded mineworkings present underlying the site.

As a precautionary measure to avoid unacceptable total and differential settlements affecting the proposed development, it is therefore recommended that the building footprint and drainage/attenuation corridors are stabilised by a series of drilling and grouting. These stabilisation works will be outlined in a Specification for the Stabilisation of Shallow Mineworkings document and submitted to the Coal Authority for approval for the necessary permit.

Local geological thickening, faulting and folding cannot be discounted so a risk remains of additional unrecorded coal seams underlying the site and therefore further potential unrecorded workings.



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8.3. Unrecorded Mine Entries

There are no mine entries recorded within 100m of the site. The closest recorded mine entries lay 380m southwest of the site; no records of treatment or capping of these features are held by the Coal Authority.

Due to the shallow depth of the coal seam and potential mineworkings present underlying the site, the risk of further unrecorded mine entries remain.

All mine shafts that remain untreated should be assumed to have a high risk of collapse, especially older shafts. Furthermore, even infilled shafts may have been incorrectly stabilised and should be identified during the exploratory works. At a minimum, attempts should be made to identify the shaft prior to development. Furthermore, due to the history of coal mining in the wider area, it is considered that there is a moderate risk of unrecorded shafts being present within the site boundary, as such:

- The developer should be aware of the risk of unrecorded shafts being present and be aware that any shaft found could result in construction delays, treatment (infilling and capping) and/or modifications to the intended layout.
- Inspections of all attenuation and service excavations should be undertaken where possible.

8.4. Opencast Mining

There are no records of any opencast mining at the site. Due to the vicinity of the site adjacent to the river and the fact that the potential workings have been identified beneath rockhead it is considered unlikely that the site has been opencast at any time in the past, however due to the assumed shallow depth of the coal seam a low risk remains.



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Issue	Hazard	Site Affected (Yes/No) (Detail where appropriate)	Consequences (Where appropriate)	Recommended Mitigation Measures (Where appropriate)
Are there any recorded coal mine entries within the site or within 20m of the site boundary?	Catastrophic collapse of mine entry leading to ground instability or voids at the ground surface. Settlement of the ground surface above/adjacent to the mine entry. Mine gas emissions.	No	N/A	N/A
Is there a possibility of unrecorded mine entries?	Ground subsidence. Ground instability, loss of ground, generation of crown holes. Catastrophic collapse of mine entry leading to ground instability or voids at the ground surface. Settlement of the ground surface above/adjacent to the mine entry. Mine gas emissions.	Yes	Catastrophic ground loss above and in the vicinity of the mine entry.	Exploratory works and/ or treatment works should anticipate unrecorded mine entries within the site's boundaries. If encountered, the locations should be accurately recorded, and they should be treated according to the condition of the entry and proposed end use. All excavations should be inspected for the potential presence of unrecorded mine entries. The potential for unrecorded mine entries to be present should be considered by all parties involved with intrusive works on site. Appropriate methods of working should be adopted. Appropriate contingency plans should be prepared in the event that an unrecorded mine entry is located.
Is the proposed development in the likely zone of influence of any present unrecorded underground mine workings?	Ground subsidence. Ground instability, loss of ground, generation of crown holes.	Potentially yes	Ground subsidence associated with unrecorded shallow underground mining may result in ground instability and damage to property, new structures and infrastructure. Harm to human health, injury or death of maintenance operatives or construction workers using the site.	A series of proof grout stabilisation works should be undertaken to mitigate the risks posed by unrecorded shallow mineworkings.



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Issue	Hazard	Site Affected (Yes/No) (Detail where appropriate)	Consequences (Where appropriate)	Recommended Mitigation Measures (Where appropriate)
Is the proposed development within the likely zone of influence of recorded underground workings at shallow depth (depths of less than 30m below rockhead)?	Ground subsidence. Ground instability, loss of ground, generation of crown holes.	No recorded workings underlying the site	N/A	N/A
Is the proposed development in the likely zone of influence of past deep underground mining?	Ground subsidence. Ground instability.	No recorded workings underlying the site	N/A	N/A
Is there a record of mine gas emissions within the site boundary?	Mixtures of noxious or explosive gases reaching the ground surface via superficial deposits, faulted/broken strata or poorly filled mine entries and entering structures, services, confined spaces, etc, when an explosive or asphyxiating hazard may be generated.	There are no records by the Coal Authority; however, the presence of potential shallow coal workings, means there is a risk of ground gas emissions within the site.	Harm to human health, injury or death of construction workers and site maintenance personnel. Damage to property and infrastructure.	A Mine Gas Risk Assessment has been included within the Tier Ground Investigation Report (report ref:TE1880-TE-00-XX-RP-GE-003-V01).
Is the proposed development in an area for which the Coal Authority is determining or has granted a license to remove coal by underground methods?	Ground subsidence. Ground instability.	No	N/A	N/A
Are there known faults or other lines of weakness (e.g. fissures) due to mining at the site?	Ground subsidence. Mixtures of noxious or explosive gases reaching the ground surface via faulted/broken strata and entering buildings, structures, confined spaces etc, when an explosive or asphyxiating hazard may be generated. Stepped rockhead profiles where there has been subsidence across faults, impacting settlement of proposed structures.	No	N/A	N/A
Is there a risk of spontaneous combustion?	Spontaneous combustion of opencast backfills materials if they include significant volumes of coal.	No	N/A	N/A
Has the site been subject to remedial works by, or on behalf of, the Coal	Ground subsidence.	No	N/A	N/A



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Issue	Hazard	Site Affected (Yes/No) (Detail where appropriate)	Consequences (Where appropriate)	Recommended Mitigation Measures (Where appropriate)
Authority under its surface hazard call out procedures?	Thick deposits of backfill may provide for a ground gas source and/or migration pathway.			
Is the proposed development within the boundary of a surface mining/opencast site from which minerals have been removed by surface mining/opencast methods?	Ground subsidence. Mixtures of noxious or explosive gases reaching the ground surface via superficial deposits, faulted/broken strata or poorly filled mine entries and entering structures, confined spaces etc, when an explosive or asphyxiating hazard may be generated.	No	N/A	N/A
Is the proposed development within 200m of a surface mining/opencast site from which minerals are being removed?	Development constraints associated with environment/noise/dust.	No	N/A	N/A
Assessment of Cumulative Impact Coal Mining Issues: The site is situated within a development high risk area, with an outcropping coal seam that passes at shallow depth under the site, unrecorded workings and unrecorded mine entries should be anticipated. Coal seams of workable thickness are known to be present at shallow depth underlying the site. The potential presence of workings within these seams and the associated ground stability hazard is therefore considered to present a moderate / high risk to future development in parts of the site. There are no records of mine gas emissions requiring action by the Coal Authority within the boundary of the property. Good engineering practice developed for mining areas should be applied at all stages of the development. The sensitivity of the proposed development and any mitigating factors are, however, recommended to be considered in regard to the identified potential risks presented by the mining issues at the site. The following investigation/mitigation actions are therefore identified: - The risks associated with potential shallow unrecorded mine workings should be mitigated by the design and implementation of a programme of mine working stabilisation by drilling and pressure grouting. - The potential for unrecorded mine entries that may exist on the site should be considered by all parties involved with any intrusive works on-site. Risks associated with unrecorded mine entries should also be considered during any construction work on site and appropriate methods of working and management should be adopted. Prior to carrying out any works which may intersect, disturb or enter any coal seams, coal mine workings or mine entries (within the ownership of the Coal Authority), the written permission of the Coal Authority shall be obtained (www.coal.gov.uk/services/permissions/index.cfm). N/A = Not Applicable				



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8.5. Conclusions

It is considered that the following coal mining activities present potential constraints to the proposed development:

- **Moderate / High risk** of unrecorded shallow mine workings;
- **Moderate risk** of unrecorded mine entries; and,
- **Low risk** associated with the unrecorded opencast coal workings.



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9. CONCLUSIONS AND RECOMMENDATIONS

9.1. Conclusions

It is considered that the following coal mining activities present potential constraints to the proposed development:

- **Moderate / High risk** of unrecorded shallow mine workings;
- **Moderate risk** of unrecorded mine entries; and,
- **Low risk** associated with the unrecorded opencast coal workings.

9.2. Recommendations

Tier Environmental consider that depth the moderate / high risk posed by the potential shallow mineworkings and the shallow position of the Arley Mine Coal Seam underlying the site, that there is a risk of unacceptable differential settlements that could affect the development. Due to this, the building, attenuation and drainage corridors will require stabilisation via proof grouting. The full extent of these works will be detailed within a specification to be produced by Tier in due course.



10. PERMITS AND RESTRICTIONS

When developing in areas at risk from coal mining, it is important to ensure that Coal Authority permission has been obtained for all aspects of the works. Failure to gain permission from the Coal Authority and/or failure to undertake the proposed development in line with their standards could result in lenders refusing to release funds, or the developer having to provide a security fee against future damage claims. It is also critical that any unidentified mining features encountered during the development are reported, as failure to do so may result in a Stop Notice being served on the works.

10.1. Investigation Permits

A Coal Authority permit needs to be obtained for further intrusive drilling works which will disturb or enter any coal seams or mine workings beneath the Site. Applications for a permit require:

- A plan showing the area applied for and the position of any proposed works or exploratory holes.
- An appropriate risk assessment for the works.

Each permit will require a fee, payable in advance and the Coal Authority have a determination period of at least four weeks for any permits. This should be factored into the timing of any investigation.

10.2. Treatment Works

Several bodies may need to be approached prior to the treatment of the mineworkings. There are particular regulatory requirements of the Coal Authority and Environment Agency that are applicable to remediating, or the consequential effect of treating mine workings. For instance, the Environment Agency has a regulatory policy where grouting may affect groundwater and formal permissions and consultations may be required for the works. These permissions will be informed by the findings of the intrusive site investigations to be undertaken prior to any development and are likely to be required to discharge relevant planning condition(s).

The Coal Authority will need to be consulted to issue a permit for which an appropriate risk assessment will need to be provided for the works. In certain cases, security for liabilities, such as default on the treatment of shafts and the grouting of old mine workings, may be required.

Where the outcome of treatment will result in liability transfer to a third party (i.e. roads to be adopted by the local authority), then their agreement to the scheme of treatment must be obtained.

On completion of treatment works, a validation report is required to be submitted to the Coal Authority in such detail as the Coal Authority requires. This information will then be available in any future Coal Authority report produced for the Site.

10.3. Development within the Influencing Distance of a Mine Entry

The Coal Authority states that building over or within the influencing distance of a mine entry will only be permissible when:

- Expert advice allows a suitable engineering design to be developed and agreed to take account of all the relevant safety and environmental risk factors including gas and mine-water.
- The Coal Authority will not be responsible for financial, or maintenance liabilities associated with the design and implementation of the works.



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- Appropriate engineering precautions are taken to safeguard the safety of the public and any structure during and following the completion of the works.
- Approval for the works is obtained from The Coal Authority Permissions Service which will also monitor the implementation of the works to ensure public safety.



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11.REGULATORY APPROVALS

The conclusions and recommendations presented above are considered reasonable based on the findings of the site investigation. However, these cannot be guaranteed to gain regulatory approval and, therefore, the report should be passed to the appropriate regulatory authorities and/or other organisations for their comment and approval prior to undertaking any works on site.

It is recommended that conditions placed on any planning permission are discharged prior to commencement of site works.



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13.GLOSSARY OF TERMS

ACEC	Aggressive Chemical Environment for Concrete (classification)
aOD	Above Ordnance Datum
bgl	Below ground level
BGS	British Geological Survey
BRE	Building Research Establishment
CBR	California Bearing Ratio (test)
COMAH	Control of Major Accident Hazards (regulations)
Designated location	Site (and the ecosystem on that site) protected under national or international legislation. A potential ecological receptor to be considered as part of the assessment of land contamination. Example designated locations include SSSIs (q.v.), SACs (q.v.), national nature reserves, Ramsar sites and bird special protection areas.
DQA	Data Quality Assessment
DQO	Data Quality Objective
DQRA	Detailed Quantitative Risk Assessment
DWS	Drinking Water Standard
EQS	Environmental Quality Standard
GAC	Generic Assessment Criterion
GQA	General Quality Assessment (Environment Agency)
GSV	Gas Screening Value
HCV	Health Criteria Value
IPPC	Integrated Pollution Prevention and Control (regulations)
K _{ow}	Octanol-water partition coefficient
LEL	Lower Explosive Limit
LL	Liquid Limit
LoD	Limit of Detection (analytical)
LoQ	Limit of Quantification (analytical)
Mean Value Test	Statistical test (described in the CIEH Guidance) to estimate the mean value of a normally distributed population of data at a given level of confidence. Normally for contaminated land assessment, the 95th percentile (referred to as the 95%UCL or US95) is applied as a reasonable but conservative estimate of the mean concentration for comparison with the relevant assessment criteria.
Maximum Value Test	Statistical test (described in the CIEH Guidance) to identify whether an elevated concentration within a normally distributed data set forms part of the underlying population from which it has been sampled or whether it is an outlier (such as a localised area of contamination) that merits further consideration.
MC	Moisture Content
NGR	National Grid Reference
NIHHS	Notification of Installations Handling Hazardous Substances (regulations)
OS	Ordnance Survey
PI	Plasticity Index
PID	Photoionisation Detector
PL	Plastic Limit
ppm	Parts per million
ppmv	Parts per million by volume
QA	Quality Assurance
QC	Quality Control
SAC	Special Area of Conservation
SOM	Soil Organic Matter



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SPT	Standard Penetration Test
SPZ	Source Protection Zone
SSAC	Site-Specific Assessment Criterion
SSSI	Site of Special Scientific Interest
SVOC	Semi-Volatile Organic Compound
TEF	Toxicity Equivalent Factor
TPH	Total Petroleum Hydrocarbons
TWA	Time Weighted Average
US95	95 th percentile estimate of the true mean value of a data population (also known as 95%UCL).
VOC	Volatile Organic Compound

APPENDIX A - DRAWINGS



Contract Number:	TE1880
Contract:	Hopwood Hall College, Rochdale
Client:	Wilmott Dixon Construction

Site Location Plan



Site

Scale	NTS	
Drawn by	SE	Approved AR
Drawing Number	TE1880-TE-00-XX-DR-GE-001-V01	



DO NOT SCALE

TIER

CONSULT GROUP

NOTES

APPROXIMATE LOCATION AND DEPTH OF COAL SEAM

PROPOSED TRIAL PIT LOCATION

PROPOSED WINDOW SAMPLE LOCATION

PROPOSED ROTARY BOREHOLE LOCATION

PROPOSED CABLE PERCUSSION LOCATION

WS01

PREVIOUS GEOTECHNICS WINDOW SAMPLE BOREHOLE (AUG 2021)

CP03

PREVIOUS GEOTECHNICS CABLE PERCUSSION BOREHOLE (AUG 2021)

DRAWING IS ASSUMING A BEDROCK INCLINATION OF 5°

P1	22/11/2024	CS	ISSUED FOR INFORMATION	AP	AP
REV	DATE	BY	DESCRIPTION	CHK	APD

DRAWING STATUS:

INFORMATION

TIER

CONSULT GROUP

Tier Environmental Ltd.

Unit 5 Office Village

Sandpiper Court

Chester Business Park

Chester | CH4

9QZ

t: 01925 818 388

CLIENT:

WILLMOTT DIXON

PROJECT:

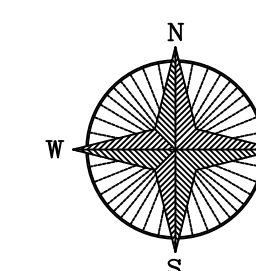
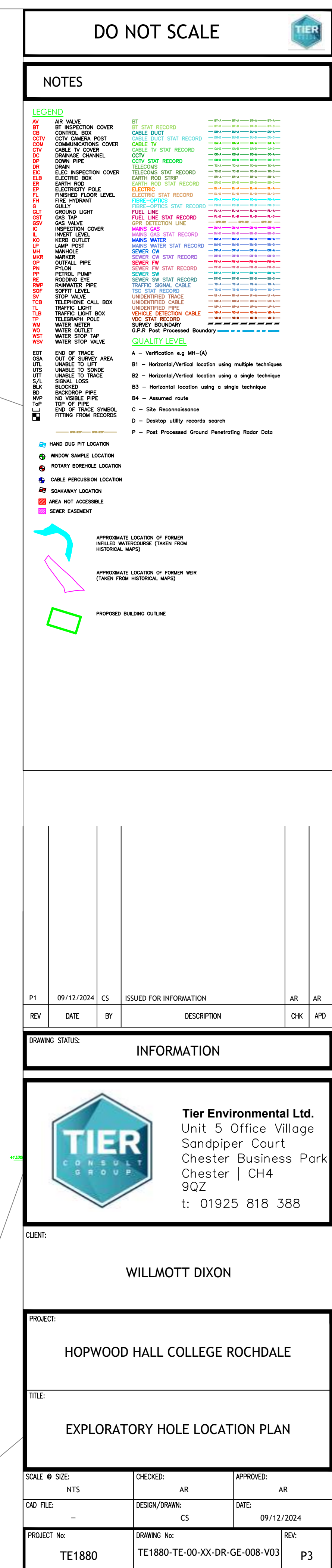
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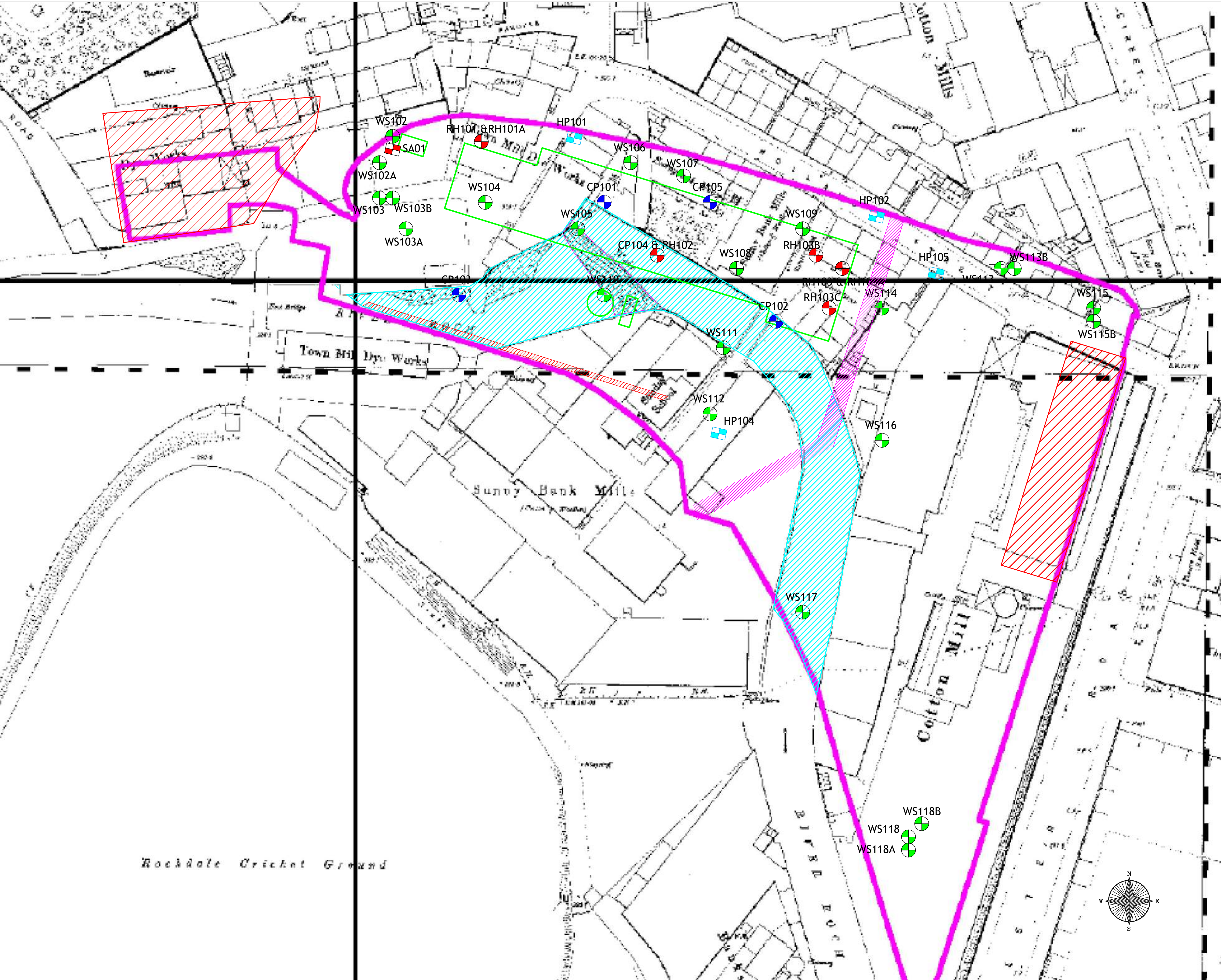
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APPROXIMATE LOCATION AND DEPTH OF COAL SEAM - 5° DIP

SCALE	SIZE	CHECKED	AP	APPROVED	AP
CAD FILE	NTS	DESIGN/DRAWN	CS	DATE	22/11/2024

PROJECT No:	DRAWING No:	REV:
TE1880	TE1880-TE-00-XX-DR-GE-007-V01	P1





DO NOT SCALE

NOTES

HAND DUG PIT LOCATION

WINDOW SAMPLE LOCATION

ROTARY BOREHOLE LOCATION

CABLE PERCUSSION LOCATION

SOAKAWAY LOCATION

AREA NOT ACCESSIBLE

SEWER EASEMENT

APPROXIMATE LOCATION OF FORMER INFILLED WATERCOURSE (TAKEN FROM HISTORICAL MAPS)

APPROXIMATE LOCATION OF FORMER WEIR (TAKEN FROM HISTORICAL MAPS)

PROPOSED BUILDING OUTLINE

13/12/2024

CS

HISTORIC MAP ADDED

AR

AR

09/12/2024

CS

ISSUED FOR INFORMATION

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DESCRIPTION

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t: 01925 818 388

CLIENT:

WILLMOTT DIXON

PROJECT:

HOPWOOD HALL COLLEGE ROCHDALE

TITLE:

EXPLORATORY HOLE LOCATION PLAN

SCALE: SIZE: NTS

CHECKED: AR

APPROVED: AR

CAD FILE: -

DESIGN/DRAWN: CS

DATE: 09/12/2024

PROJECT No: TE1880

DRAWING No: TE1880-TE-00-XX-DR-GE-008-V04

REV: p4



NOTES

- PROPOSED TRIAL PIT LOCATION
- PROPOSED WINDOW SAMPLE LOCATION
- PROPOSED ROTARY BOREHOLE LOCATION
- PROPOSED CABLE PERCUSSION LOCATION

- WS01 PREVIOUS GEOTECHNICS WINDOW SAMPLE BOREHOLE (AUG 2021)
- CP03 PREVIOUS GEOTECHNICS CABLE PERCUSSION BOREHOLE (AUG 2021)

- APPROXIMATE LOCATION OF FORMER INFILLED WATERCOURSE (TAKEN FROM HISTORICAL MAPS)
- APPROXIMATE LOCATION OF FORMER WEIR (TAKEN FROM HISTORICAL MAPS)
- PROPOSED BUILDING OUTLINE

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REV	DATE	BY	DESCRIPTION	CHK	APD

DRAWING STATUS: INFORMATION



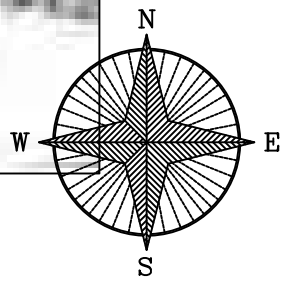
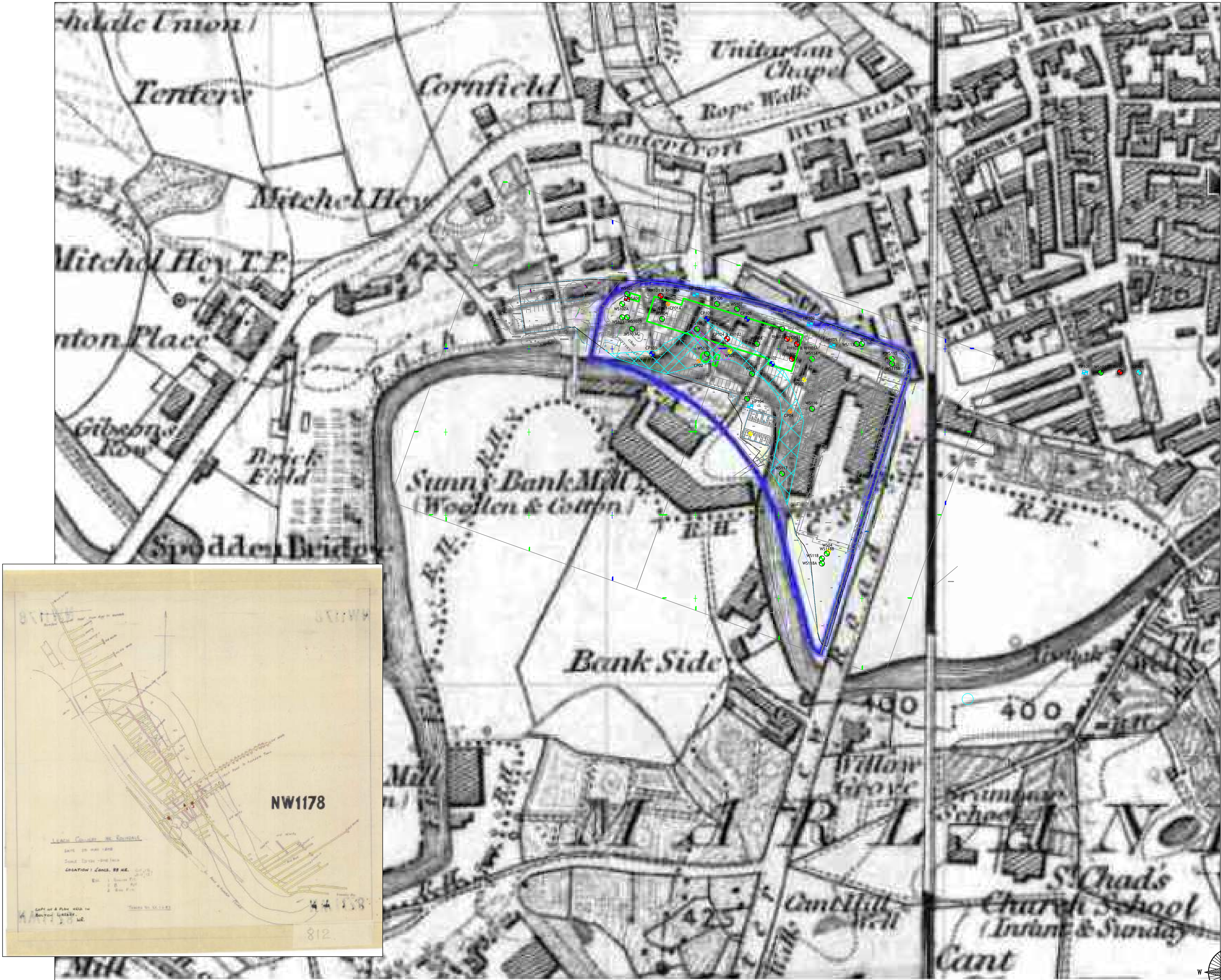
Tier Environmental Ltd.
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t: 01925 818 388

CLIENT:
WILLMOTT DIXON

PROJECT:
HOPWOOD HALL COLLEGE ROCHDALE

TITLE:
LOCATION PLAN WITH ABANDONMENT PLAN

SCALE & SIZE:	CHECKED:	APPROVED:
NTS	AP	AP
CAD FILE:	DESIGN/DRAWN:	DATE:
-	CS	04.02.2025
PROJECT No:	DRAWING No:	REV:
TE1880	TE1880-TE-00-XX-DR-GE-014-V01	P1





DO NOT SCALE

TIER

CONSULT GROUP

NOTES

APPROXIMATE LOCATION AND DEPTH OF COAL SEAM

PROPOSED TRIAL PIT LOCATION

PROPOSED WINDOW SAMPLE LOCATION

PROPOSED ROTARY BOREHOLE LOCATION

PROPOSED CABLE PERCUSSION LOCATION

WS01

PREVIOUS GEOTECHNICS WINDOW SAMPLE BOREHOLE (AUG 2021)

CP03

PREVIOUS GEOTECHNICS CABLE PERCUSSION BOREHOLE (AUG 2021)

DRAWING IS ASSUMING A BEDROCK INCLINATION OF 4°

P1

22/11/2024

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ISSUED FOR INFORMATION

AP

AP

REV

DATE

BY

DESCRIPTION

CHK

APD

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INFORMATION

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t: 01925 818 388

CLIENT:

WILLMOTT DIXON

PROJECT:

HOPWOOD HALL COLLEGE ROCHDALE

TITLE:

APPROXIMATE LOCATION AND DEPTH OF COAL SEAM - 4° DIP

SCALE

SIZE

NTS

CHECKED

AP

APPROVED

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CAD FILE

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DESIGN/DRAWN

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DATE

22/11/2024

PROJECT No:

TE1880

DRAWING No:

TE1880-TE-00-XX-DR-GE-016-V01

REV:

P1

APPENDIX B – BGS BOREHOLE LOGS

Geological Survey and Museum		Section 14	
887 1283		14	
Road to S. 1/4 Sec. 14, T. 14 N., R. 14 E., S. 14		14	
Folio		14	
County		14	
Geo. Map		14	
Description		Thickness	
71/55/5 (N.C.)		Feet	
Thin to thick		Feet <td data-kind="ghost"></td>	
Very sandstone		54	
Sandy mudstone, sub-lenticular		(17-96)	
Sandy shale, pale-yellow			
Sandy mudstone			
Mudstone, sub-lenticular			
Sandstone, pale yellow			
Shale (thin)			
Sandy mudstone, pale yellow			
Heavy mudstone			
Sandy mudstone, sub-lenticular			
Sandy mudstone			
Thin to thick			
Sandy mudstone, sub-lenticular			
Sandy mudstone, slightly micaceous			
Mudstone, sandy, (thin) with here			
Sandy shale, mudstone, (thin)			
do. (very thick)			
Sandy shale, mudstone (1/2 sandy shale)			
Sandy mudstone, sub-lenticular			
Thin to thick			
Mudstone, sub-lenticular			
Sandy shale, sandy, (thin) with here			
Thin to thick			
Sandy shale, mudstone			
Mudstone, sub-lenticular, (thin) with here			
Thin to thick			
Sandy shale, mudstone			
Mudstone, sub-lenticular, (thin) with here			
Thin to thick			
Sandy shale, mudstone			
Mudstone, sub-lenticular, (thin) with here			
Thin to thick			
Sandy shale, mudstone			
Mudstone, sub-lenticular, (thin) with here			
Thin to thick			
Sandy shale, mudstone			
Mudstone, sub-lenticular, (thin) with here			
Thin to thick			
Sandy shale, mudstone			
Mudstone, sub-lenticular, (thin) with here			
Thin to thick			
Sandy shale, mudstone			
Mudstone, sub-lenticular, (thin) with here			
Thin to thick			
Sandy shale, mudstone			
Mudstone, sub-lenticular, (thin) with here			
Thin to thick			
Sandy shale, mudstone			
Mudstone, sub-lenticular, (thin) with here			
Thin to thick			
Sandy shale, mudstone			
Mudstone, sub-lenticular, (thin) with here			
Thin to thick			
Sandy shale, mudstone			
Mudstone, sub-lenticular, (thin) with here			
Thin to thick			
Sandy shale, mudstone			
Mudstone, sub-lenticular, (thin) with here			
Thin to thick			
Sandy shale, mudstone			

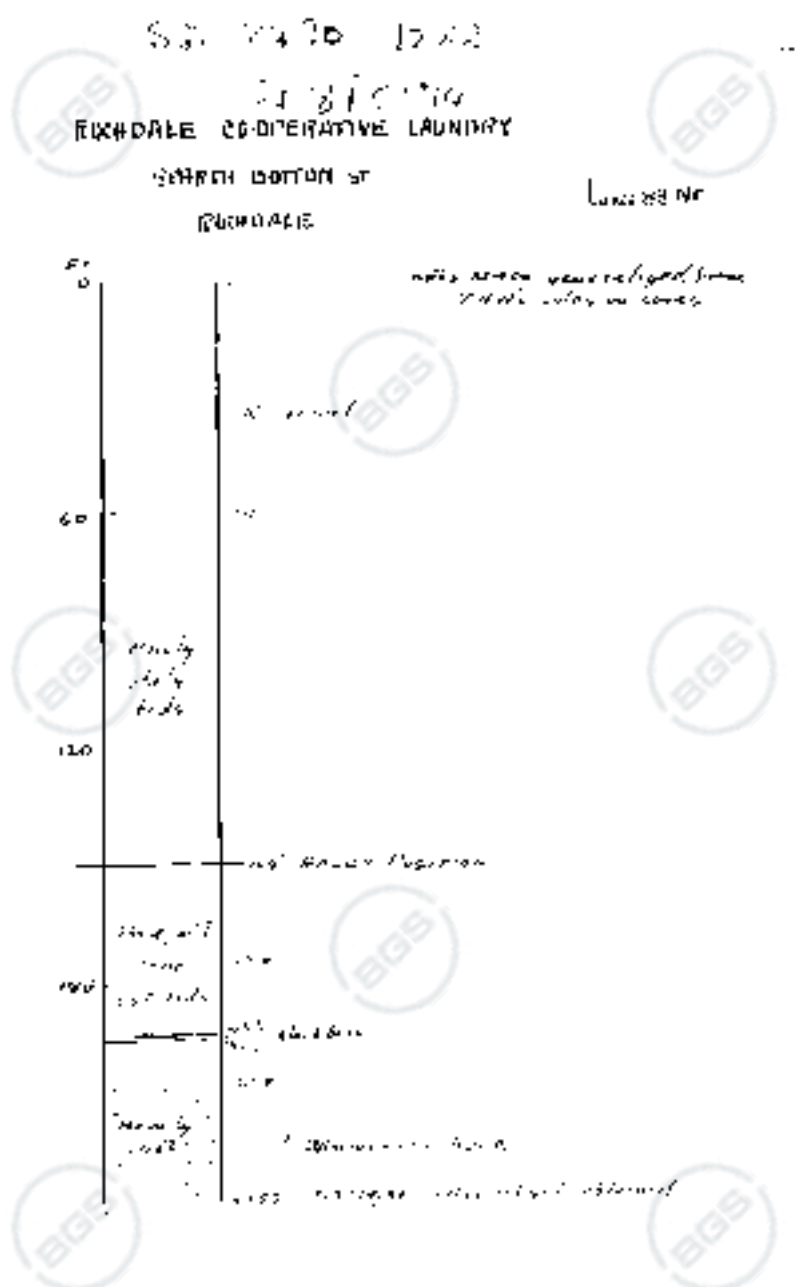
Geological

GEOLOGICAL SURVEY AND MINEING BORING AND SHAFTS.

4 2

REF ID: A66141

[illegible]





County LANCASHIRE
Shp 88 NE
One inch map 85
Surveyed by

Date
GEOLOGICAL SURVEY
LONDON, S.W.

ROCHDALE CO-OPERATIVE LAUNDRY 11



B.H.

GEOLOGICAL SURVEY AND MINISTRY. BORROWHOLE AND TESTS.

SDEH/51

2.

Rothwell Crag Quarry

Folio

County

1

8 in. Map

Description.	THICKNESS.		DEPTH.	
	Feet.	Inches.	Feet.	Inches.
Dark bluish-grey mudstone	1	12		
Dark (dark blue)	2		14	5
Dark blue	2			
Dark bluish grey	1		20	5
Dark grey micaceous mudstone	1	6		
Upper mudstone, bluish grey	1	6		
V. dark grey micaceous mudstone	1	6		
Pale grey bluish mudstone	1	6		
Pale grey, bluish micaceous fine-grained	1	6		
Dark grey micaceous shale	1	6		
V. dark grey micaceous mudstone, medium grain	1	6		
Dark bluish grey, fine-grained micaceous fine-grained	1	6		
Dark micaceous shale	1	6		
Dark grey bluish shale & bluish mudstone	1	6		
Micaceous mudstone & shale, bluish-grey	1	6		
			23	5
			24	5

With all the above

d c6

39
GEOLOGICAL SURVEY OF GREAT BRITAIN
RECORD OF SHAFT OR BORE FOR MINERALS

Name of Shaft or Bore given by Geological Survey:

(For Survey use only)
6-inch Map Registered No.

SD 81 SE 21

Name and Number given by owner:

Wimpey's Pl. No. 9 Rockdale Des. Site

Nat. Grid Reference

8923 1350

For whom made

Wimpey's

Town or Village

Rockdale

County

Exact site

Dist. from Ref. SD 8923 1349

Attach a tracing from a map, or a sketch map, if possible.

Purpose for which made To detect old workings in Arley

Ground Level at shaft bore relative to O.D.

If not ground level give (1) D. of beginning of shaft bore

Made by Dr. David Dillingham

Date of sinking 1962

Information from Cons. seen at site

Date received 21-11-62

Examined by Dr. David Dillingham

SPECIMEN NUMBERS AND ADDITIONAL NOTES

Arley not found in bore but Donbale Foss found below at 91-121/6

(For Survey use only)

Stratigraphical Classification

DESCRIPTION OF STRATA

Thickness

Depth

Ft.

in.

Ft.

In.

See attached sheet.

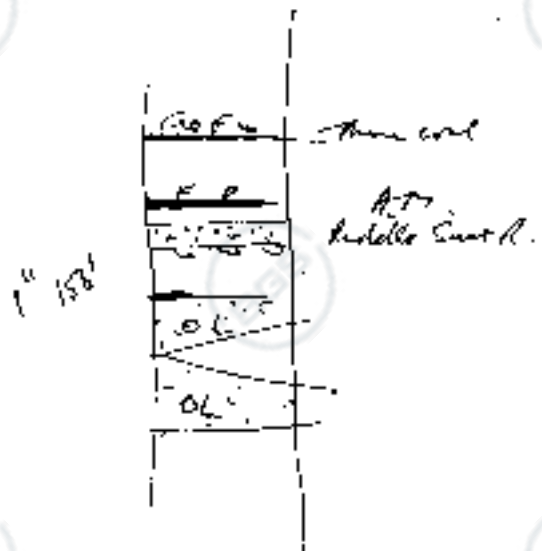
65

+

d c6



No 9 SD 815E 21 SD 8923 1349
 No 11 SD 815E 22 SD 8917 1350







APPENDIX C – COAL AUTHORITY CONSULTANT’S REPORT



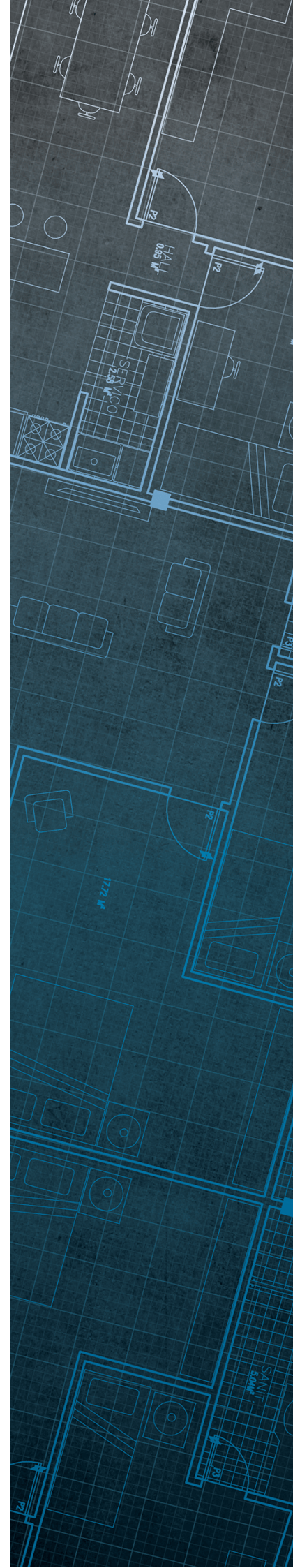
The Coal
Authority

Consultants Coal Mining Report

Hopwood Hall College Rochdale
Campus, St Marys Gate, Rochdale
Greater Manchester
OL12 6R

Date of enquiry:	28 October 2024
Date enquiry received:	28 October 2024
Issue date:	28 October 2024

Our reference:	51003459604001
Your reference:	GS-Z9P-DHX-8MF-EKP



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

GROUNDSURE LIMITED

Enquiry address

Hopwood Hall College Rochdale Campus, St Marys
Gate, Rochdale
Greater Manchester
OL12 6R



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

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
ARLEY	Coal	Yes	31.4	North-East	126
ARLEY	Coal	Yes	31.2	North-East	300

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.

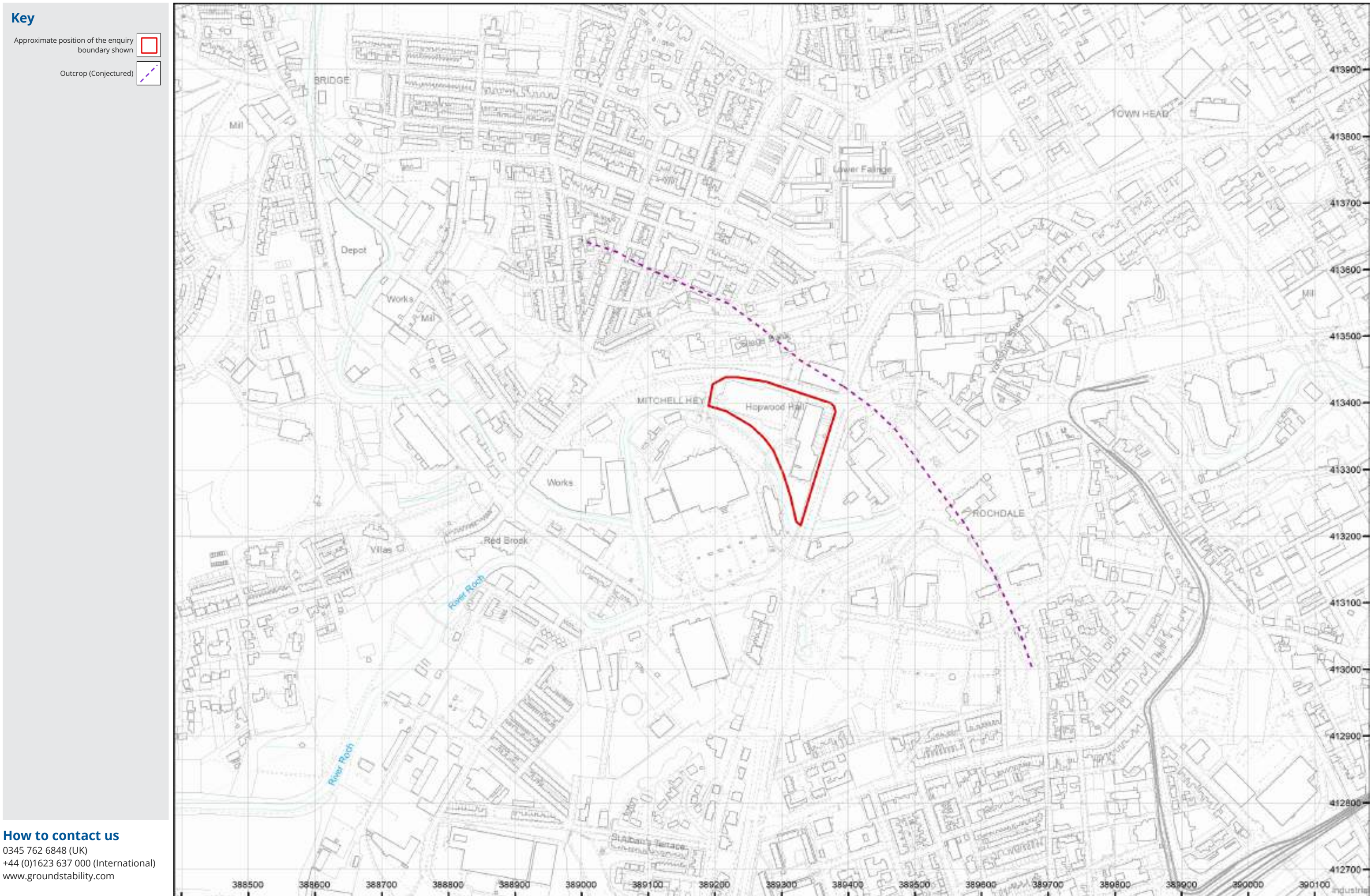
Withdrawal of support notices

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.

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



APPENDIX D – ABANDONMENT PLANS

Drive to far
Barnford Road From Bury to Rochdale

working
working in
old Works
old Works

from when later old works

old Works
Rail Road to Rochdale Town

NW1178

LEACH COLLIERY NE. ROCHDALE

DATE 20 MAY 1808

SCALE 20 YDS - ONE INCH

LOCATION: Lancs. 88 NE. C11/12;
D11/12.

REF. 1 ENGINE PIT.
2 B PIT
3 BYS PIT.

COPY OF A PLAN HELD IN
BOLTON LIBRARY.
WR.

TRACED BY K.K. 1-4-83

812