



Dicken Green Mill, Rochdale

Desk-Based Coal Mining Risk Assessment

Job Number
LKC251701

Report Date
May 2026

Client
MCI Developments Ltd



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Ground Investigation | Land Remediation | Project Management



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DOCUMENT QUALITY ASSURANCE

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Report Title	Desk Based Coal Mining Risk Assessment
Job Number	LKC251701
Client	MCI Developments Ltd

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Written By	Alex Evans / Hannah Moss		
Approved By	Colin Wardle / Catherine Baranek		

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It should be noted this report pertains solely to potential ground stability issues relating to potential shallow mining within the proposed planning boundary only.

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1. Introduction

LK Consult Ltd (LKC) has been commissioned by MCI Developments Ltd, to carry out a Desk Based Coal Mining Risk Assessment (CMRA) for Dicken Green Mill, Rochdale.

A Coal Mining Risk Assessment Report is required for a planning application within a designated 'Coal Mining Development High Risk Area'. 'Coal Mining Development High Risk Areas' are areas, based upon Mining Remediation Authority records, where the potential land instability and other safety risks associated with former coal mining activities are likely to be greatest. They include, for example, areas of known or suspected shallow coal mining, recorded mine entries and areas of former surface mining.

This assessment is based upon guidance provided by the Mining Remediation Authority¹ and comprises a review of available desk-based information.

The scope of this Coal Mining Risk Assessment (as per Mining Remediation Authority guidance) is to:

- Present a desk-based review of all available information on the coal mining issues which are relevant to the application site;
- Use the above information to identify and assess the risks to the proposed development from coal mining legacy, including the cumulative impact of issues;
- Set out appropriate mitigation measures to address the coal mining legacy issues affecting the site, including any necessary remedial works and/or demonstrate how coal mining issues have influenced the proposed development; and,
- Demonstrate to the Local Planning Authority that the application site is, or can be made, safe and stable to meet the requirements of national planning policy regarding development on unstable land.

A summary of the site details is presented in Table 1-1. Figure 1 indicates the site location and boundary plan. Figure 2 indicates the proposed development.

Location	End of Greenfield Lane, Queensway, between Iceland Foods to the north-east and Dicken Green residential housing estate to the south-west. Centred at approximate National Grid Reference 390070E, 411890N.
Area	1.4Ha.
Topography	149 metres Above Ordnance Datum (AOD). Site is undulating with a steep slope down to the access route in the east. Steep slope down towards Rochdale Canal.
Current Site Use	Vacant land with concrete floor slabs from former mill / works building, concrete and tarmacadam car parking and live Electricity Substation.
Proposed Development	Residential development, access, parking, landscaping and associated works.

Table 1-1: Summary of site details.

2. Review of Information

2.1. Information Sources

LKC have obtained and reviewed information from the following sources, which is summarised in Section 2:

- Review of Published BGS Geological Mapping including:
 - Lancashire Sheet 89 NW, Published 1864 and 1929, Scale 1:10,560.
 - Sheet 85 Manchester Bedrock, Published 1975, Scale 1:50,000.
 - Sheet 85 Manchester Bedrock, Published 2010, Scale 1:50,000.
 - Digital Geology, dated 2007, Scale 1:10,000 (Appendix A).
- Geology of the Manchester district, a brief explanation of the geological map Sheet 85 Manchester.
- Mining Remediation Authority Consultants Coal Mining Report (Appendix B).
- Mining Remediation Authority Interactive Map Viewer².
- Mining Remediation Authority List of Combustible Coal Seams³.
- Historical BGS boreholes within the site vicinity⁴ (Appendix C).
- Historical Mapping (Appendix D).

2.1.1. Artificial

Worked Ground (Undivided) in the north-west of site.

Infilled ground present in the south-west of site, and immediately adjacent to the eastern site boundary.

2.1.2. Superficial

Devensian Glaciofluvial Deposits (Sand and Gravel).

2.1.3. Bedrock

The bedrock is mapped as the Pennine Lower Coal Measures Formation (Mudstone, Siltstone and Sandstone). The strata in the general area and within the same fault block dips to the southeast at 11°.

A coal seam is shown to outcrop across the centre of the site on 1:10,000 scale digital geology dated 2007, orientated approximately north-east to south-west. This seam is anticipated to be the Arley Coal based on 2010 edition 1:50,000 sheet mapping and noted to be 0.90-2.00m thick on the associated vertical section. It is likely to be present at rockhead in the centre of site, and assuming a dip of 11° towards the southeast, the seam is expected to be at a shallow depth of approximately 10metres below rockhead at the western site boundary assuming the BGS mapped position is accurate.

Mining Remediation Authority data shows the outcrop further to the east on site compared to BGS mapping.

Extracts from geological mapping (Sheet 85 1:50,000 scaled mapping dated 2010 and 1975) are shown on Plate 2-1.

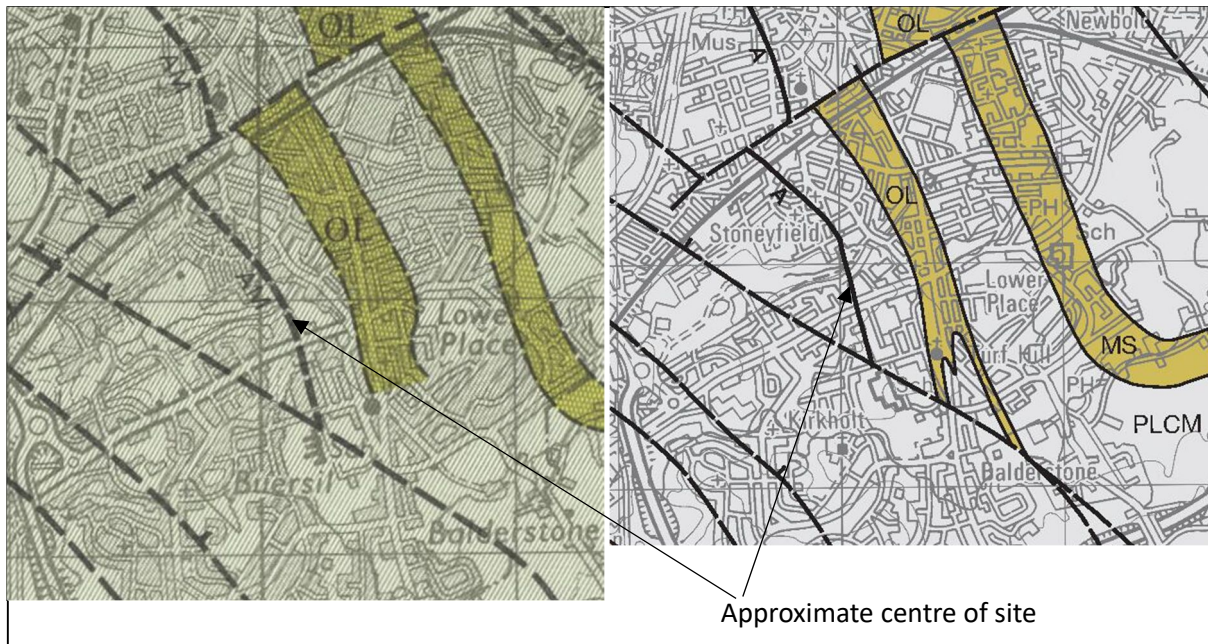


Plate 2-1: Extracts from geological mapping. 1975 1:50,000 sheet mapping (left); 2010 1:50,000 sheet mapping (right). Not to scale.

Sheet 85 explanatory notes provide additional information on the coal seams within the Manchester Area and this information is summarised in Table 2-1. The table shows the anticipated shallowest coal seam below the site (Cannel) and the coal seams below this in age order. It should be noted that not all coal seams may be present below the site due to geological variation.

Coal Seam (alternative names)	Thickness (m)	Type of Workings
Smith (Bottom Neddy, Three Quarters)	0.0-1.7	Deep mined and crop working.
Arley	0.9-2.0	Deep mined, crop working, and surface mined.
Dib Hole	0.0-0.1	Not worked.
Pasture	0.1-1.2	Crop working.
Cemetery	0.0-0.4	Crop working.
Union	0.8-1.6	Deep mined and crop working.
Cannel	0.0-0.9	Deep mined and crop working.
Upper Mountain	0.0-1.1	Deep mined and crop working.

Table 2-1: Extract from the Geology of Manchester district explanatory notes.

2.2. Mining Remediation Authority Consultants Coal Mining Report

The consultants coal mining report is summarised in Table 2-2.

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 (within 100m)	None recorded within 100m of the enquiry boundary.
Abandoned mine plan catalogue numbers	None available.
Outcrops	Yes: see Plate 2-3.
Geological faults, fissures and breaklines	No faults, fissures or breaklines recorded.
Opencast mines	None recorded within 500m of the enquiry boundary.
Mining Remediation Authority managed tips	None recorded within 500m of the enquiry boundary.
Investigative or Remedial Activity	
Site investigations	None recorded within 50m of the enquiry boundary.
Remediated sites	None recorded within 50m of the enquiry boundary.
Coal mining subsidence	Not received a damage notice or claim for the subject property, or any property within 50m, since 1994. No current Stop Notice delaying remedial works or repairs to property. Not aware of any request made to carry out preventative works before coal is worked.
Mine gas	None recorded within 500m of the enquiry boundary.
Mine water treatment schemes	None recorded within 500m of the enquiry boundary.
Licensing and Future Mining Activity	
Future underground mining	None recorded.
Coal mining licensing	None recorded within 200m of the enquiry boundary.
Court Orders	None recorded.
Section 46 notices	No notices have been given, stating that the land is at risk of subsidence.
Withdrawal of support notices	Not in an area where a notice to withdraw support has been given or where a notice has been given cancelling the entitlement to withdraw support.
Payments to owners of former copyhold land	Not in an area where a relevant notice has been published.

Table 2-2: Summary of Mining Remediation Authority Consultants Coal Mining Report.

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
ARLEY	Coal	Yes	Within	N/A	344

Plate 2-3: Extract from Mining Remediation Authority Report showing outcrops.

Plate 2-4 shows an extract of the plan provided with the Mining Remediation Authority Consultants Coal Mining Report.

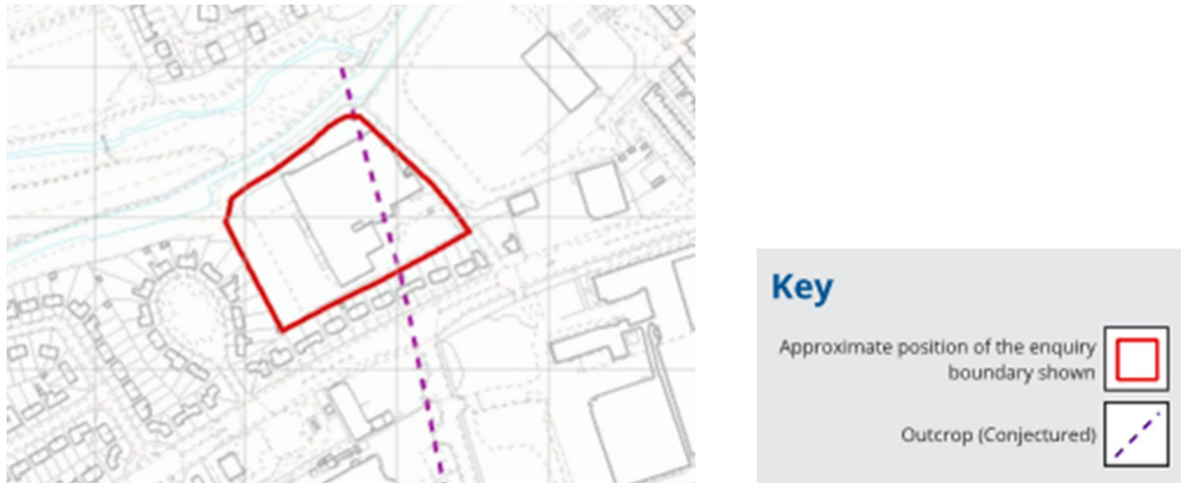


Plate 2-4: Extract from Mining Remediation Authority Consultants Coal Mining Report – Summary of Findings showing outcrops.

2.3. Mining Remediation Authority Interactive Mapping

Plate 2-5 shows the development high risk areas.

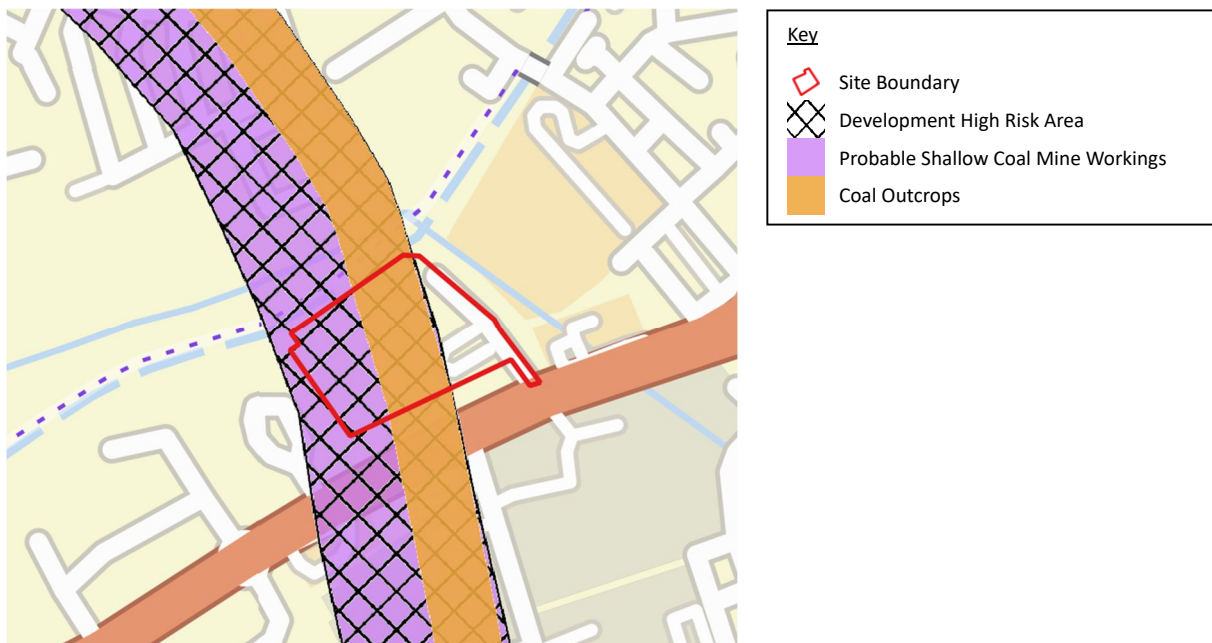


Plate 2-5: Development High Risk Area.

The site is within a Development High Risk Area, with the following features identified:

- Probable Shallow Coal Mine Workings – majority of the site with the exception of a rectangular area of land in the east.
- Coal outcrops – running north-south through the centre of the site.

2.4. Combustible Coal Seams

Some coal seams have been known to suffer from occurrences of spontaneous combustion and are consequently regarded as at 'high risk' of succumbing to spontaneous combustion when being entered, worked, or disturbed. The Mining Remediation Authority have produced a list of seams for different areas of the UK.

None of the coal seams listed are expected at shallow depth below the site. However, if roof coal has been left, this could also pose a risk.

2.5. Historical BGS Logs

9no. cable percussion boreholes were drilled in 1985 on land to the southeast of the site. Logs are provided in Appendix C. A summary of the logs is provided below in Table 2-3.

BGS BH Reference	Approximate Distance / Direction from Site (m)	Thickness of Made Ground (m)	Thickness of superficial deposits (m)	Depth to bedrock (mbgl)	Depth to Coal (mbgl) / Thickness of Rock Cover (m)	Coal Seam Name / Thickness (m)
SD91SW105	47m SE	0.7	>12.0	N/A	N/A	N/A
SD91SW106	62m SE	5.4	>12.0	N/A	N/A	N/A
SD91SW107	66m S	5.7	>12.0	N/A	N/A	N/A
SD91SW104	67m SE	1.3	>12.0	N/A	N/A	N/A
SD91SW102	90m SE	3.1	>12.0	N/A	N/A	N/A
SD91SW108	93m S	6.3	>12.0	N/A	N/A	N/A
SD91SW103	98m SE	1.5	>12.0	N/A	N/A	N/A
SD91SW109	116m S	3.5	>12.0	N/A	N/A	N/A coal traces

Table 2-3: List of nearby BGS Borehole (BH) Logs and Pertinent Information.

2.6. Historical Mapping

Available historical mapping (Appendix D) has not identified any significant coal mining features within influencing distance. However, the adjacent Rochdale Canal was constructed in 1798-1799 (prior to the earliest mapping) and it is possible undocumented coal mining may have occurred along the Arley seam during construction, running below the site.

3. Coal Mining Risk Assessment

Table 3-1 below summarises the potential risks associated with coal mining legacy for the proposed development site.

Coal Mining Issue	Potential Risk	Risk Assessment
Underground coal mining (recorded at shallow depths)	X	No recorded shallow underground workings below the site. No further assessment required.
Underground coal mining (probable at shallow depths)	✓	Probable underground shallow workings recorded by the Mining Remediation Authority. Based on information provided by the Mining Remediation authority and geological mapping the Arley seam is anticipated to be present at shallow depth below the site (>50m below rockhead). Further coal seams may also be present. If shallow coal seams have been worked, they could pose a risk of ground instability at the site surface. Investigation work recommended and a watching brief during groundworks.
Mine entries (shafts / adits)	?	No recorded mine entries within influencing distance of the site. However, there is also a risk of unrecorded mine entries as the site is within a coal mining area. No specific investigation work is advised. However, a watching brief should be undertaken during any intrusive investigation work and groundworks to check for any signs of unrecorded mine entries.
Coal mining geology (geological faults, fissures and breaklines)	X	Not recorded on Mining Remediation Authority data. No further assessment required.
Record of past mine gas emissions	?	Not recorded on Mining Remediation Authority data. However, shallow potentially worked coal seams may be present below the site, which have the potential to be a source of ground gas. Investigation work recommended. This should include monitoring during any intrusive mining investigation. In addition, either precautionary gas protection measures of gas monitoring in line with CIRIA 655v may be required depending on the outcome of the mining investigation.
Recorded coal mining surface hazard	X	No recorded coal mining surface hazard.
Surface mining (opencast workings)	X	No recorded surface mining (opencast workings).

Table 3-1: Potential Coal Mining Risks.

Notes:

✓ = Risk identified, X = No risk identified, ? = Possible risk identified.

4. Conclusions and Recommendations

4.1. Summary

Based upon the available information, LKC have identified potential shallow coal mining risks which are summarised in Table 4-1.

Coal Mining Issue	Potential Risk
Underground coal mining (recorded at shallow depths)	X
Underground coal mining (probable at shallow depths)	✓
Mine entries (shafts / adits)	?
Coal mining geology (fissures)	X
Record of past mine gas emissions	?
Recorded coal mining surface hazard	X
Surface mining (opencast workings)	X

Table 4-1: Summary of coal mining potential risks.

4.2. Site Investigation Recommendations

Considering the available information and guidance given in CIRIA C758⁶, LKC consider that intrusive investigation work should be carried out to confirm the risk associated with coal mining. The intrusive investigation works should be designed by a suitably qualified mining engineer; these works are likely to include the options detailed in Table 4-2.

Coal Mining Issue	Investigation Work
Underground coal mining (recorded at shallow depths)	N/A
Underground coal mining (probable at shallow depths)	Rotary drilling across the site to confirm the depth to coal seams, the thickness of seams, signs of workings and evidence of treatment work. Watching brief during groundworks to check for any signs of mining related ground instability (see Section 4.3 below).
Mine entries (shafts / adits)	No specific investigation work required. However, watching brief during intrusive investigation work and groundworks to check for any signs of mine entries (see Section 4.3 below).
Coal mining geology (fissures)	N/A
Record of past mine gas emissions	Gas monitoring during mining investigation (rotary drilling). Depending on findings of mining investigation, possible precautionary gas protection measures or gas monitoring in line with CIRIA 665 ⁷ .
Recorded coal mining surface hazard	N/A
Surface mining (opencast workings)	N/A

Table 4-2: Summary of investigation requirements.

Investigation work should be carried out in line with CIRIA C758⁸ and Mining Remediation Authority guidance.

A Mining Remediation Authority Permit⁹ is required for intrusive activities which will disturb or enter any coal seams, coal mine workings or coal mine entries (shafts and adits).

4.3. Watching Brief

A watching brief is recommended in all coal mining areas. This could be undertaken by experienced site staff on low-risk sites or by a suitably qualified coal mining engineer or consultant on high-risk sites. This site is considered to be a low risk at this stage as no mining has been recorded on site. However, this may need to be revised following the findings of the mining investigation.

The watching brief should cover the period in which any earthworks, reduce level dig or foundation excavation works are being undertaken. Particular care should be taken to identify any potential features which may indicate the presence of shallow coal mining hazards.

Such hazards may include, but not limited to, features such as unexplained depressions or voids, outcropping coal seams, localised areas of deep made ground (which could represent backfilled areas of coal mining related ground subsidence, crown holes or mine entries), or unexpected man-made items at depth (e.g., brickwork, concrete, timber, or steelwork).

Mine entries may manifest during excavation works as circular, square, or rectangular areas of deep Made Ground (typically several metres in size) set against the natural strata (e.g., Glacial Till or weathered rock). Mine shafts may also be covered with a large, thick concrete cap.

If any of the above features are identified during the course of the development works, then work should be stopped to allow the mining engineer / consultant to assess them and if necessary, design further or additional investigation and / or remediation works.

4.4. Mitigation Measures

Depending on the findings of the mining investigation, mitigation measures may be required. Table 4-3 provides possible mitigation options.

Coal Mining Issue	Mitigation Measures
Underground coal mining (recorded at shallow depths)	N/A
Underground coal mining (probable at shallow depths)	Move structures to 'safe' areas of the site. Stabilisation of the ground (i.e., grouting) and suitable foundations to be implemented.
Mine entries (shafts / adits)	N/A
Coal mining geology (fissures)	N/A
Record of past mine gas emissions	Gas protection measures.
Recorded coal mining surface hazard	N/A
Surface mining (opencast workings)	N/A

Table 4-3: Summary of potential mitigation measures.

4.5. Conclusions and Safe Development

At this stage the possibility for shallow workings can only be ascertained from site investigation; however, LKC consider that the site could be safely developed with regards to shallow mining subject to an appropriate site investigation and, if required, appropriate mitigation measures which may include some of those measures as detailed above.

Therefore, LKC consider the study site should be capable of being made safe and stable to meet the requirements of national planning policy with regard to development on unstable land.

Figures



Client: MCI Developments Ltd				Title: Site Location & Boundary Plan		 LK CONSULT			
Site: Dicken Green Mill, Rochdale				Scale (see scale bar): 1:20,000 & 1:1,500 @ A4					
Job No.: LKC251701		Drawn By: FP	Checked By: RP	Drawn: Mar 2026				Figure: 1	Revision:

Appendix A – Geological Mapping

Geology 1:10,000 Maps Legends

Artificial Ground and Landslip

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	WGR	Worked Ground (Undivided)	Void	Holocene - Holocene
	WMGR	Infilled Ground	Artificial Deposit	Holocene - Holocene
	MGR	Made Ground (Undivided)	Artificial Deposit	Holocene - Holocene
	SLIP	Landslide Deposit	Unknown/Unclassified Entry	Quaternary - Quaternary

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	ALV	Alluvium	Clay, Silt, Sand and Gravel	Flandrian - Pleistocene
	GFDUD	Glaciofluvial Deposits, Devensian	Sand and Gravel	Devensian - Ipswichian
	HMGDD	Hummocky (Moundy) Glacial Deposits, Devensian	Diamicton	Devensian - Ipswichian
	TILLD	Till, Devensian	Diamicton	Devensian - Ipswichian
	PEAT	Peat	Peat [Unlithified Deposits Coding Scheme]	Quaternary - Ryazanian
	HEAD	Head	Clay, Silt, Sand and Gravel	Quaternary - Ryazanian

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	PLCM	Pennine Lower Coal Measures Formation	Mudstone, Siltstone and Sandstone	Langsettian - Langsettian
	OL	Old Lawrence Rock	Sandstone	Langsettian - Langsettian
	MLRS	Milnrow Sandstone	Sandstone	Langsettian - Langsettian
	Rock			
	Fault			



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Geology 1:10,000 Maps

This report contains geological map extracts taken from the BGS Digital Geological map of Great Britain at 1:10,000 scale and is designed for users carrying out preliminary site assessments who require geological maps for the area around a site. This mapping may be more up to date than previously published paper maps.

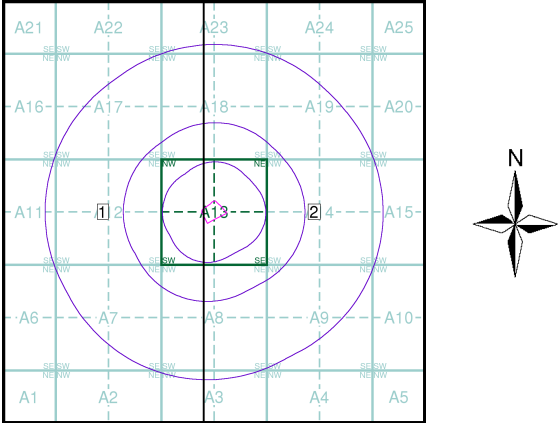
The various geological layers - artificial and landslip deposits, superficial geology and solid (bedrock) geology are displayed in separate maps, but superimposed on the final 'Combined Surface Geology' map. All map legends feature on this page.

Please Note: Not all of the layers have complete nationwide coverage, so availability of data for relevant map sheets is indicated below.

Geology 1:10,000 Maps Coverage

Map ID:	1	Map ID:	2
Map Name:	SD81SE	Map Name:	SD91SW
Map Date:	2007	Map Date:	2007
Bedrock Geology:	Available	Bedrock Geology:	Available
Superficial Geology:	Available	Superficial Geology:	Available
Artificial Geology:	Available	Artificial Geology:	Available
Faults:	Available	Faults:	Available
Landslip:	Available	Landslip:	Available
Rock Segments:	Available	Rock Segments:	Available

Geology 1:10,000 Maps - Slice A



Order Details

Order Number:	389249356_1_1
Customer Ref:	LKC251701
National Grid Reference:	390060, 411890
Slice:	A
Site Area (Ha):	1.26
Search Buffer (m):	1000

Site Details

Unit 1, Dicken Green Mill, Greenfield Lane, ROCHDALE, OL11 2LD



Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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Artificial Ground and Landslip

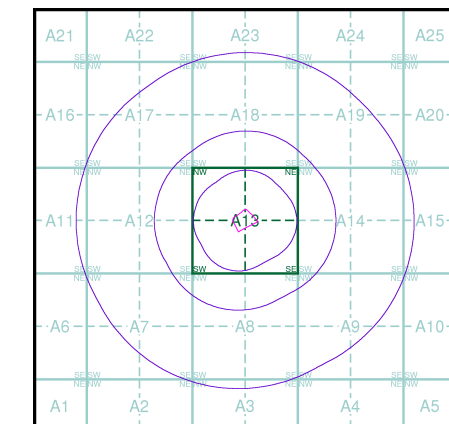
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions and unstable ground.

Artificial ground includes:

- Made ground - man-made deposits such as embankments and spoil heaps on the natural ground surface.
- Worked ground - areas where the ground has been cut away such as quarries and road cuttings.
- Infilled ground - areas where the ground has been cut away then wholly or partially backfilled.
- Landscaped ground - areas where the surface has been reshaped.
- Disturbed ground - areas of ill-defined shallow or near surface mineral workings where it is impracticable to map made and worked ground separately.

Mass movement (landslip) deposits on BGS geological maps are primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground. The dataset also includes founded strata, where the ground has collapsed due to subsidence.

Artificial Ground and Landslip Map - Slice A



Order Details

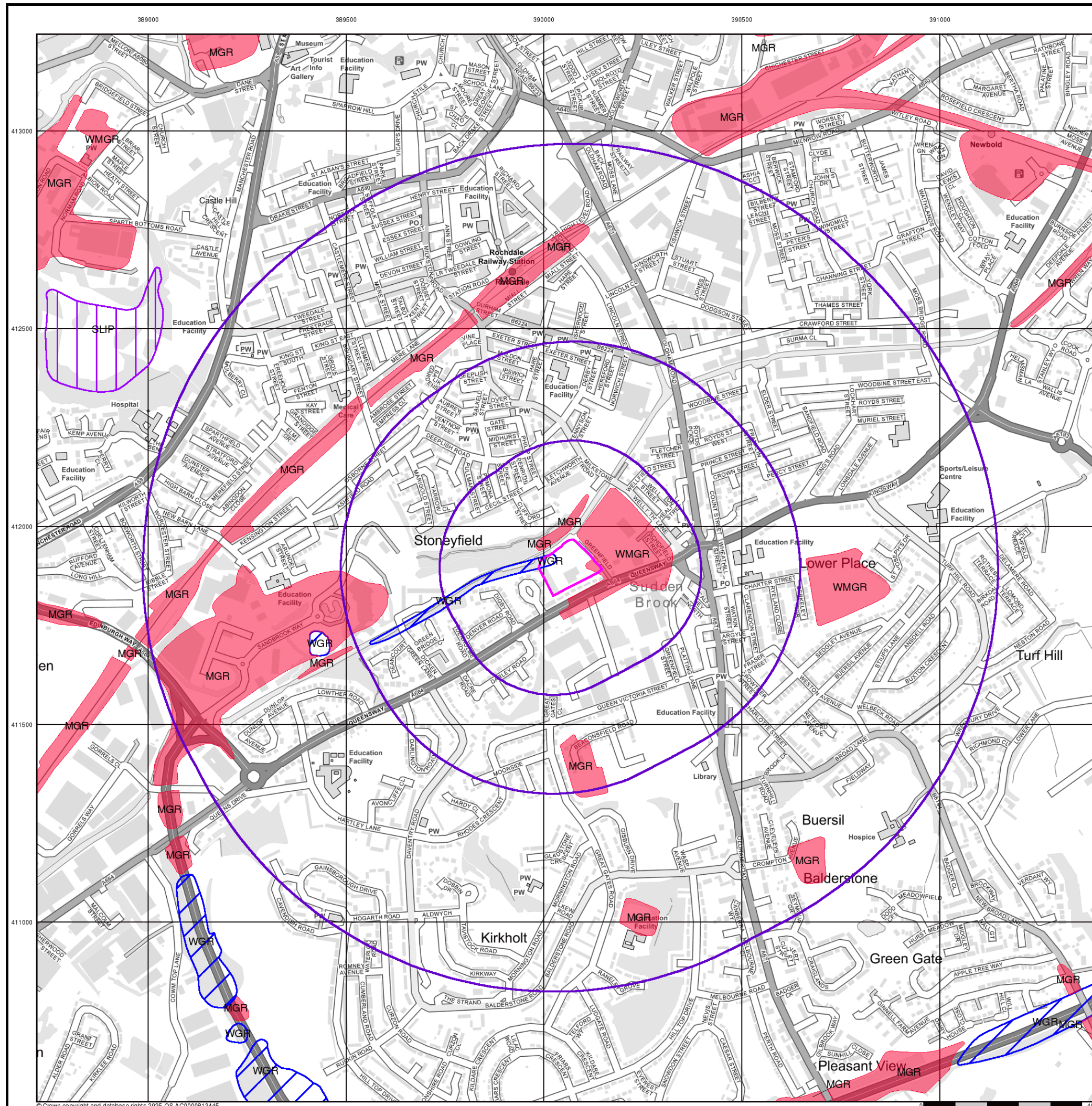
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Customer Ref: LKC251701
National Grid Reference: 390060, 411890
Slice: A
Site Area (Ha): 1.26
Search Buffer (m): 1000

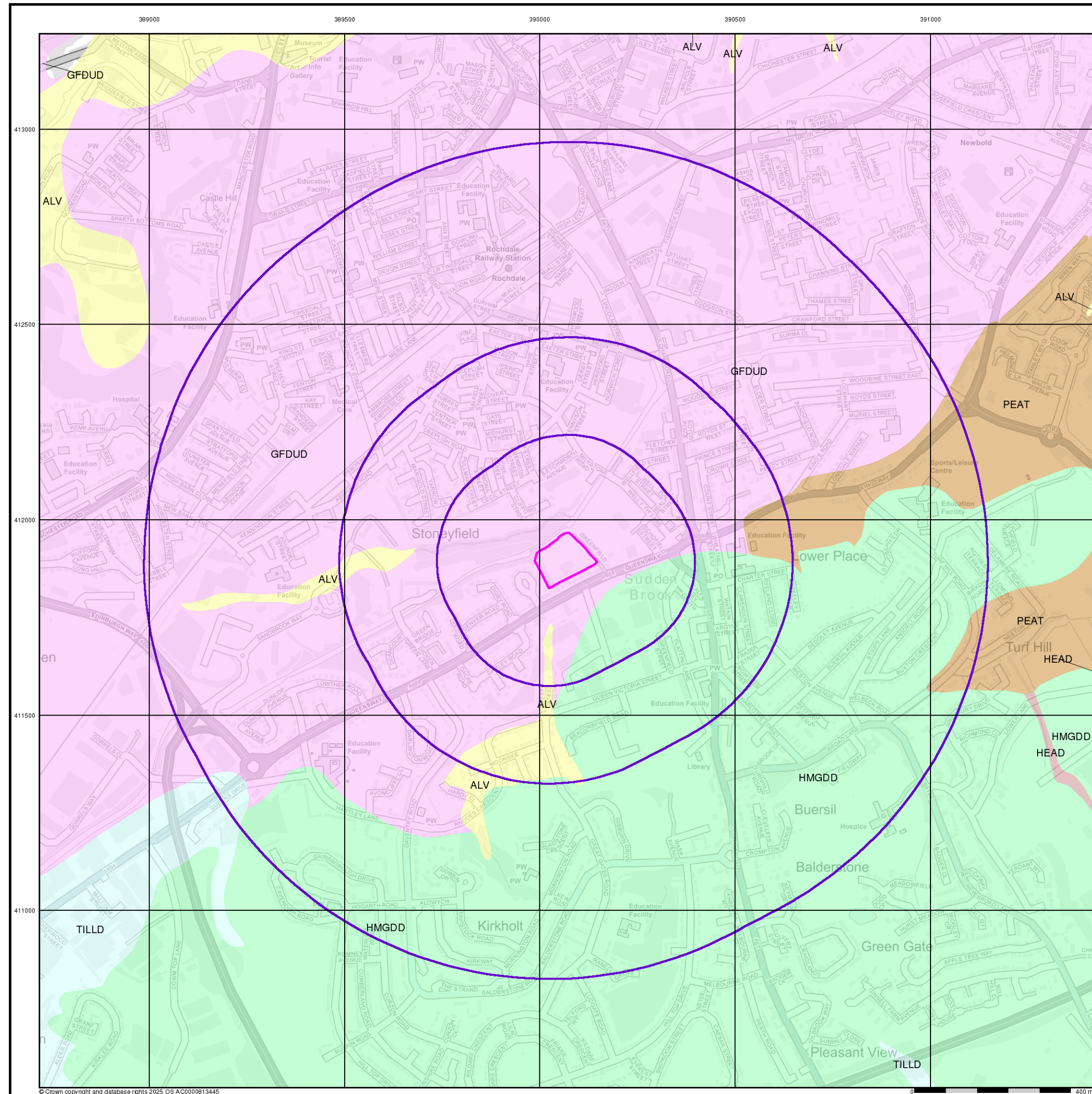
Site Details

Unit 1, Dicken Green Mill, Greenfield Lane, ROCHDALE, OL11 2LD

Landmark
INFORMATION GROUP

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Fax: 0844 844 9951
Web: www.envirocheck.co.uk





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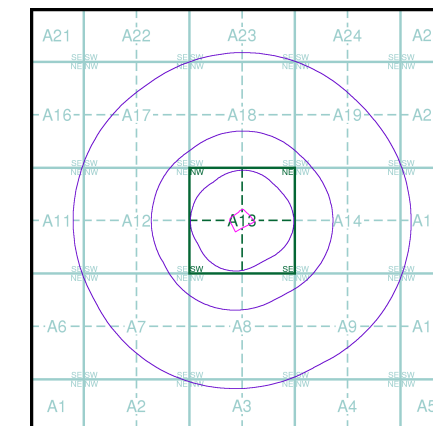
Superficial Geology

BGS 1:10,000 Superficial Deposits are the youngest geological deposits formed during the most recent period of geological time, which extends back about 1.8 million years from the present.

They rest on older deposits or rocks referred to as Bedrock. This dataset contains Superficial deposits that are of natural origin and 'in place'. Other superficial strata may be held in the Mass Movement dataset where they have been moved, or in the Artificial Ground dataset where they are of man-made origin.

Most of these Superficial deposits are unconsolidated sediments such as gravel, sand, silt and clay, and onshore they form relatively thin, often discontinuous patches or larger spreads.

Superficial Geology Map - Slice A



Order Details

Order Number: 389249356_1_1
Customer Ref: LKC251701
National Grid Reference: 390060, 411890
Slice: A
Site Area (Ha): 1.26
Search Buffer (m): 1000

Site Details

Unit 1, Dicken Green Mill, Greenfield Lane, ROCHDALE, OL11 2LD



Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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Bedrock and Faults

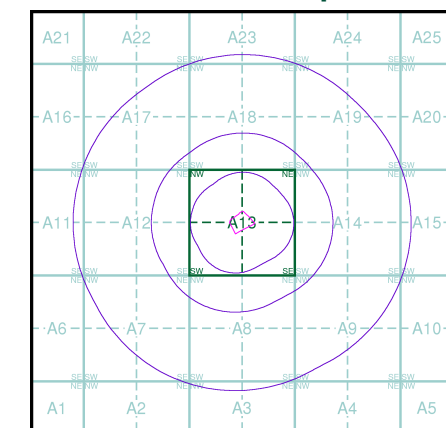
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 1.8 million years ago.

The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

The BGS Faults and Rock Segments dataset includes geological faults and thin beds mapped as lines such as coal seams and mineral veins. These are not restricted by age and could relate to features of any of the 1:10,000 geology datasets.

Bedrock and Faults Map - Slice A



Order Details

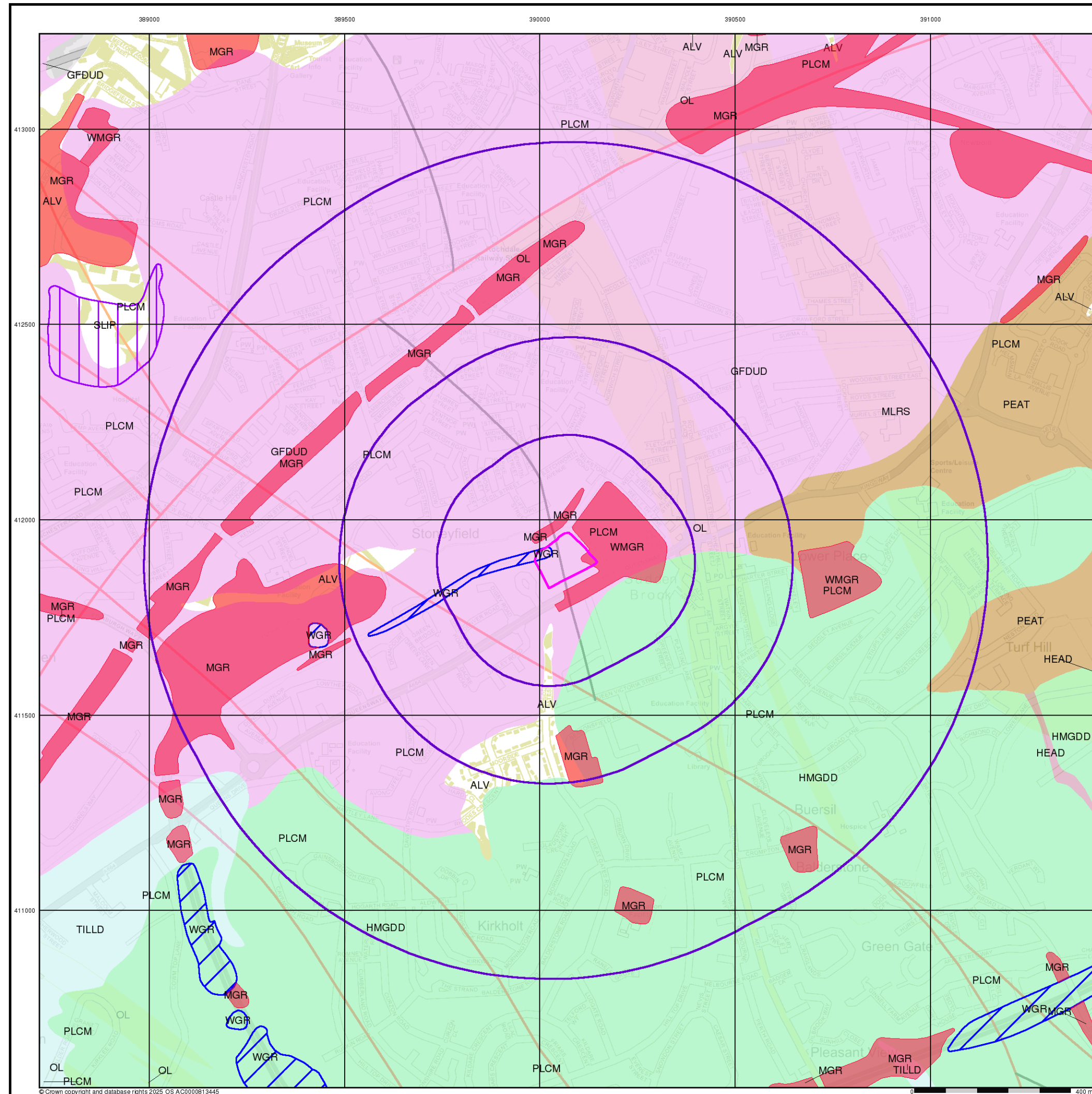
Order Number: 389249356_1_1
Customer Ref: LKC251701
National Grid Reference: 390060, 411890
Slice: A
Site Area (Ha): 1.26
Search Buffer (m): 1000

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Landmark
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Web: www.envirocheck.co.uk



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Combined Surface Geology

The Combined Surface Geology map combines all the previous maps into one combined geological overview of your site.

Please consult the legends to the previous maps to interpret the Combined "Surface Geology" map.

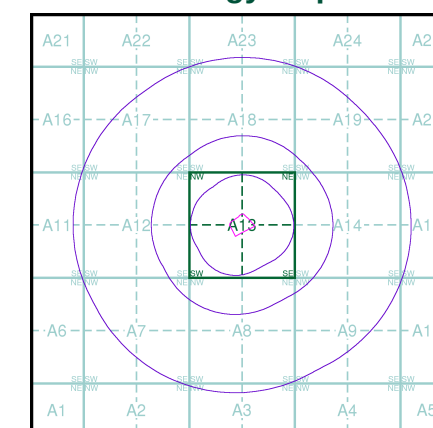
Additional Information

More information on 1:10,000 Geological mapping and explanations of rock classifications can be found on the BGS website. Using the LEX Codes in this report, further descriptions of rock types can be obtained by interrogating the 'BGS Lexicon of Named Rock Units'. This database can be accessed by following the 'Information and Data' link on the BGS website.

Contact

British Geological Survey
Kingsley Dunham Centre
Keyworth
Nottingham
NG12 5GG
Telephone: 0115 936 3143
Fax: 0115 936 3276
email: enquiries@bgs.ac.uk
website: www.bgs.ac.uk

Combined Geology Map - Slice A



Order Details

Order Number: 389249356_1_1
Customer Ref: LKC251701
National Grid Reference: 390060, 411890
Slice: A
Site Area (Ha): 1.26
Search Buffer (m): 1000

Site Details

Unit 1, Dicken Green Mill, Greenfield Lane, ROCHDALE, OL11 2LD

Landmark
INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

Geology 1:50,000 Maps Legends

Artificial Ground and Landslip

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	WMGR	Infilled Ground	Artificial Deposit	Not Supplied - Holocene
	MGR	Made Ground (Undivided)	Artificial Deposit	Not Supplied - Holocene
	SLIP	Landslide Deposit	Unknown/Unclassified Entry	Not Supplied - Quaternary

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
		Rock Segments		
		Faults		

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	ALV	Alluvium	Clay, Silt, Sand and Gravel	Not Supplied - Holocene
	GFDUD	Glaciofluvial Deposits, Devensian	Sand and Gravel	Not Supplied - Devensian
	HMGDD	Hummocky (Moundy) Glacial Deposits, Devensian	Diamicton	Not Supplied - Devensian
	TILLD	Till, Devensian	Diamicton	Not Supplied - Devensian
	GFSDD	Glaciofluvial Sheet Deposits, Devensian	Sand and Gravel	Not Supplied - Devensian
	PEAT	Peat	Peat	Not Supplied - Quaternary
	HEAD	Head	Clay, Silt, Sand and Gravel	Not Supplied - Quaternary
	LDE	Lacustrine Deposits	Clay	Not Supplied - Quaternary

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	PLCM	Pennine Lower Coal Measures Formation	Mudstone, Siltstone and Sandstone	Not Supplied - Westphalian
	OL	Old Lawrence Rock	Sandstone	Not Supplied - Westphalian
	MLRS	Milnrow Sandstone	Sandstone	Not Supplied - Westphalian
	RSC	Riddle Scout Rock	Sandstone	Not Supplied - Westphalian
	RYSA	Royley Sandstone	Sandstone	Not Supplied - Westphalian
	DF	Darwen Flags	Sandstone	Not Supplied - Westphalian



LK CONSULT

Geology 1:50,000 Maps

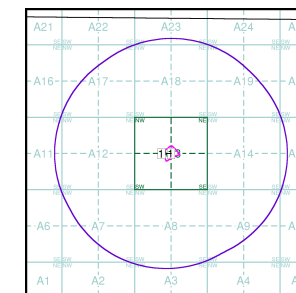
This report contains geological map extracts taken from the BGS Digital Geological map of Great Britain at 1:50,000 scale and is designed for users carrying out preliminary site assessments who require geological maps for the area around the site. This mapping may be more up to date than previously published paper maps.

The various geological layers - artificial and landslip deposits, superficial geology and solid (bedrock) geology are displayed in separate maps, but superimposed on the final 'Combined Surface Geology' map. All map legends feature on this page. Not all layers have complete nationwide coverage, so availability of data for relevant map sheets is indicated below.

Geology 1:50,000 Maps Coverage

Map ID: 1
Map Sheet No: 085
Map Name: Manchester
Map Date: 2010
Bedrock Geology: Available
Superficial Geology: Not Available
Artificial Geology: Not Available
Faults: Not Supplied
Landslip: Not Available
Rock Segments: Not Supplied

Geology 1:50,000 Maps - Slice A



Order Details:

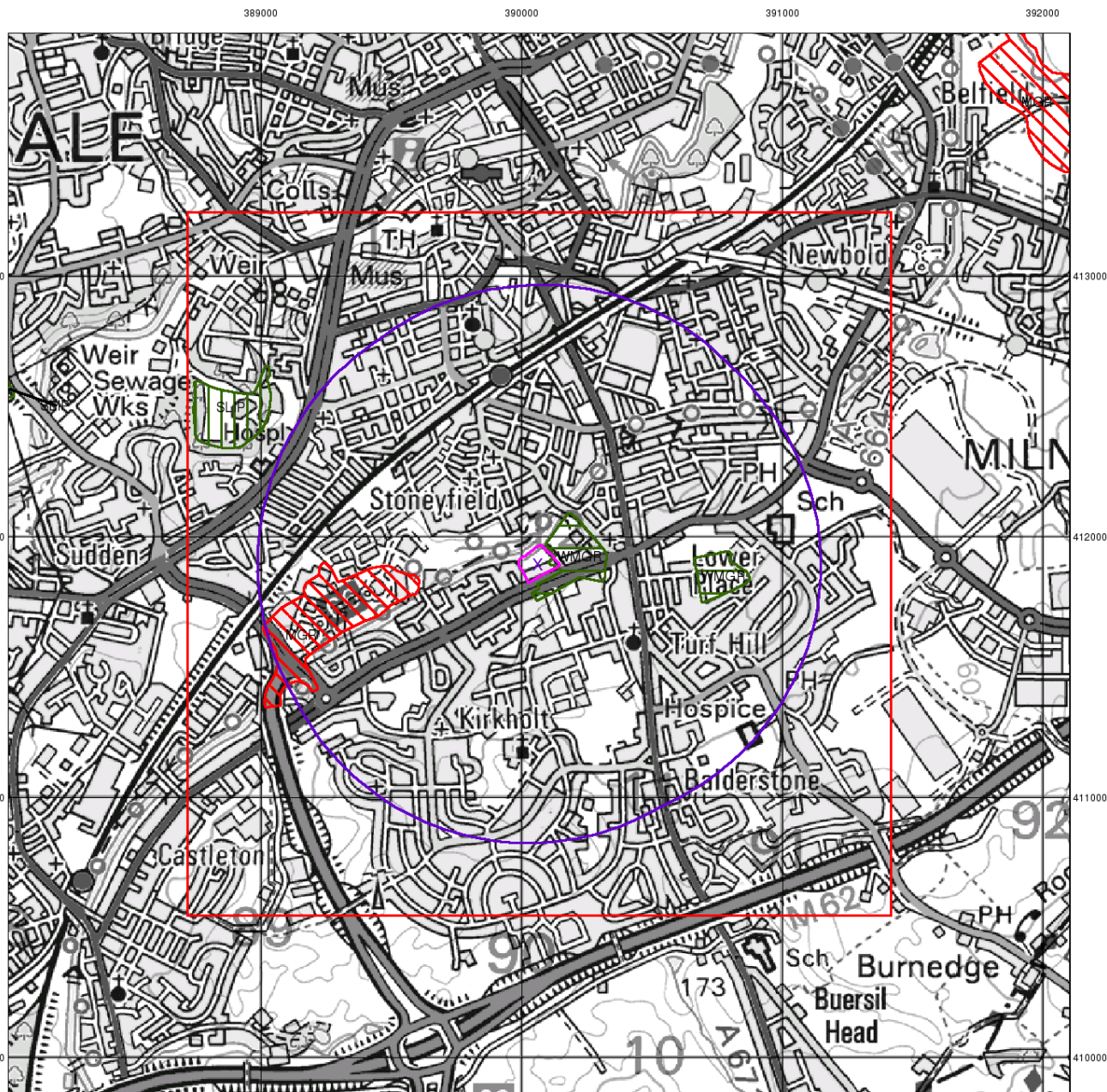
Order Number: 389249356_1_1
Customer Reference: LKC251701
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Search Buffer (m): 1000

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Artificial Ground and Landslip

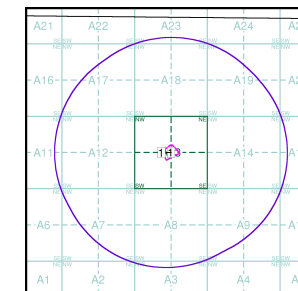
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions and unstable ground.

Artificial ground includes:

- Made ground - man-made deposits such as embankments and spoil heaps on the natural ground surface.
- Worked ground - areas where the ground has been cut away such as quarries and road cuttings.
- Infilled ground - areas where the ground has been cut away then wholly or partially backfilled.
- Landscaped ground - areas where the surface has been reshaped.
- Disturbed ground - areas of ill-defined shallow or near surface mineral workings where it is impracticable to map made and worked ground separately.

Mass movement (landslip) deposits on BGS geological maps are primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground. The dataset also includes foundered strata, where the ground has collapsed due to subsidence.

Artificial Ground and Landslip Map - Slice A



Order Details:

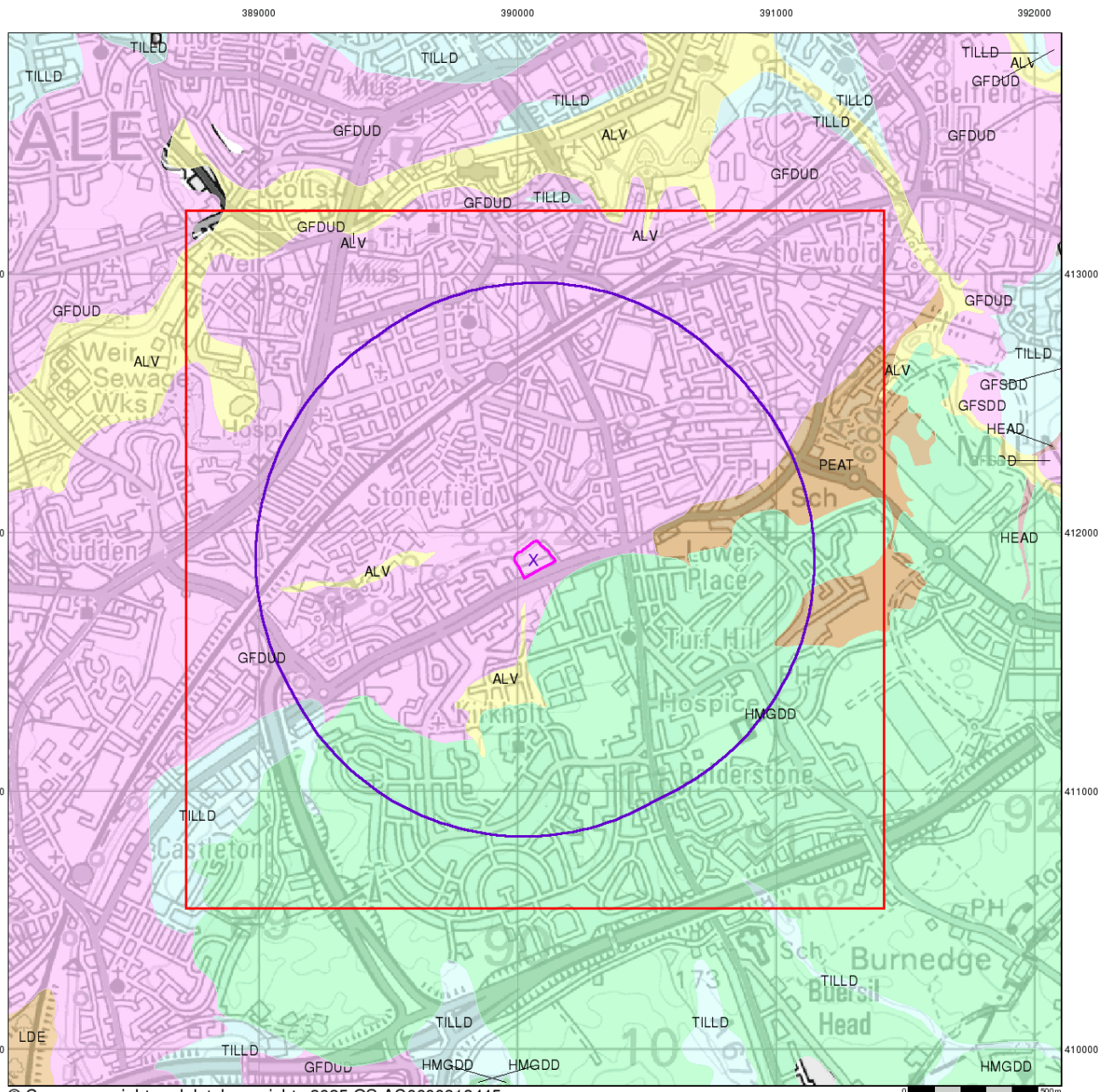
Order Number: 389249356_1_1
Customer Reference: LKC251701
National Grid Reference: 390060, 411890
Slice: A
Site Area (Ha): 1.26
Search Buffer (m): 1000

Site Details:

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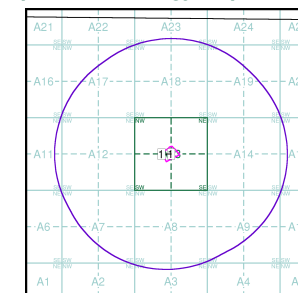
Superficial Geology

Superficial Deposits are the youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 1.8 million years from the present.

They rest on older deposits or rocks referred to as Bedrock. This dataset contains Superficial deposits that are of natural origin and 'in place'. Other superficial strata may be held in the Mass Movement dataset where they have been moved, or in the Artificial Ground dataset where they are of man-made origin.

Most of these Superficial deposits are unconsolidated sediments such as gravel, sand, silt and clay, and onshore they form relatively thin, often discontinuous patches or larger spreads.

Superficial Geology Map - Slice A



Order Details:

Order Number: 389249356 1_1
 Customer Reference: LKC251701
 National Grid Reference: 390060, 411890
 Slice: A
 Site Area (Ha): 1.26
 Search Buffer (m): 1000

Site Details:

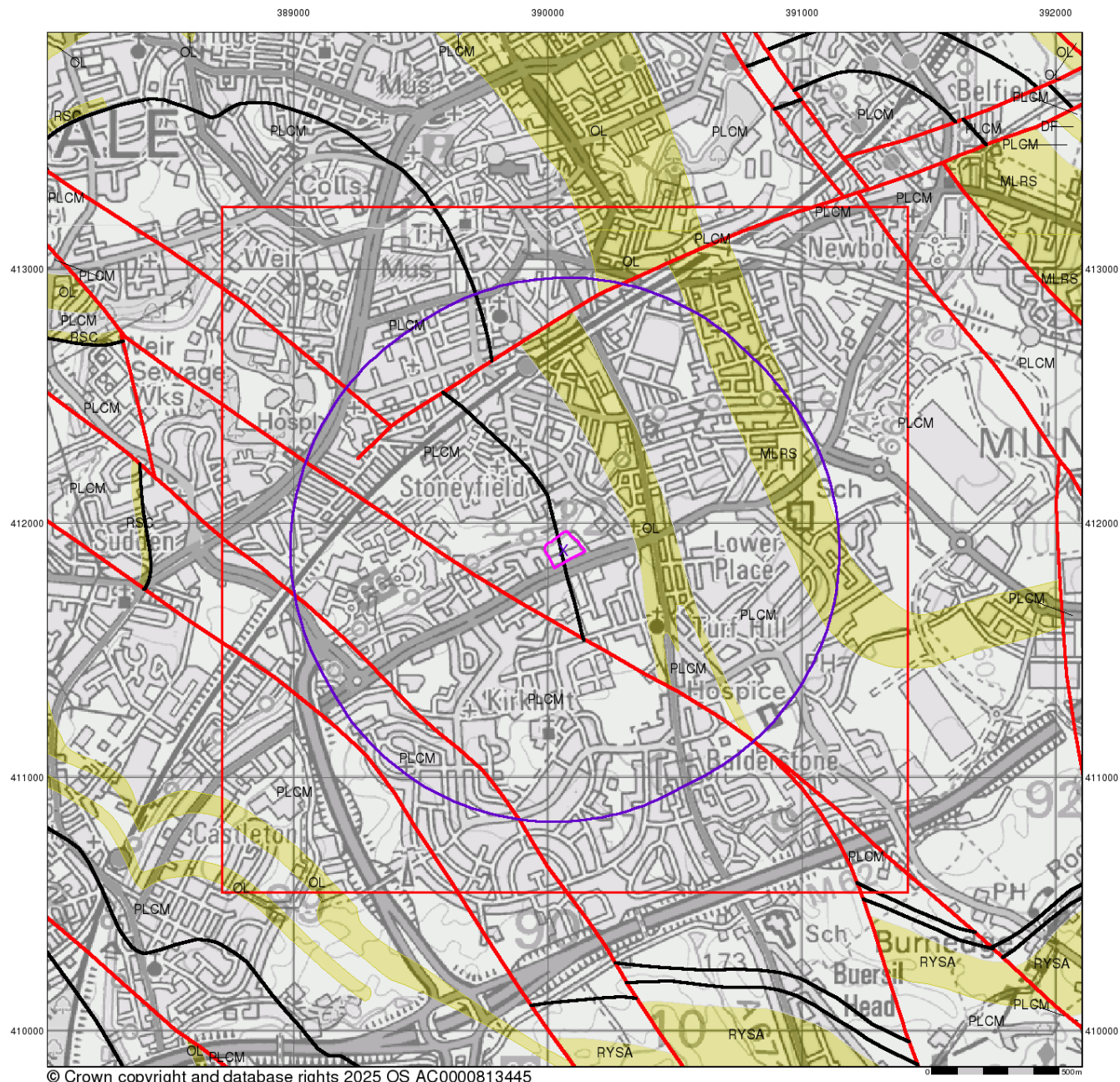
Unit 1, Dicken Green Mill, Greenfield Lane, ROCHDALE, OL11 2LD

Landmark
 INFORMATION GROUP

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 Fax: 0844 844 9951
 Web: www.ernirocheck.co.uk

v15.0 03-Nov-2025

Page 3 of 5



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LK CONSULT

Bedrock and Faults

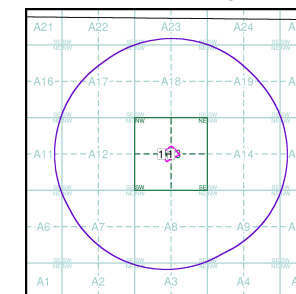
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 1.8 million years ago.

The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

The BGS Faults and Rock Segments dataset includes geological faults (e.g. normal, thrust), and thin beds mapped as lines (e.g. coal seam, gypsum bed). Some of these are linked to other particular 1:50,000 Geology datasets, for example, coal seams are part of the bedrock sequence, most faults and mineral veins primarily affect the bedrock but cut across the strata and post date its deposition.

Bedrock and Faults Map - Slice A



Order Details:

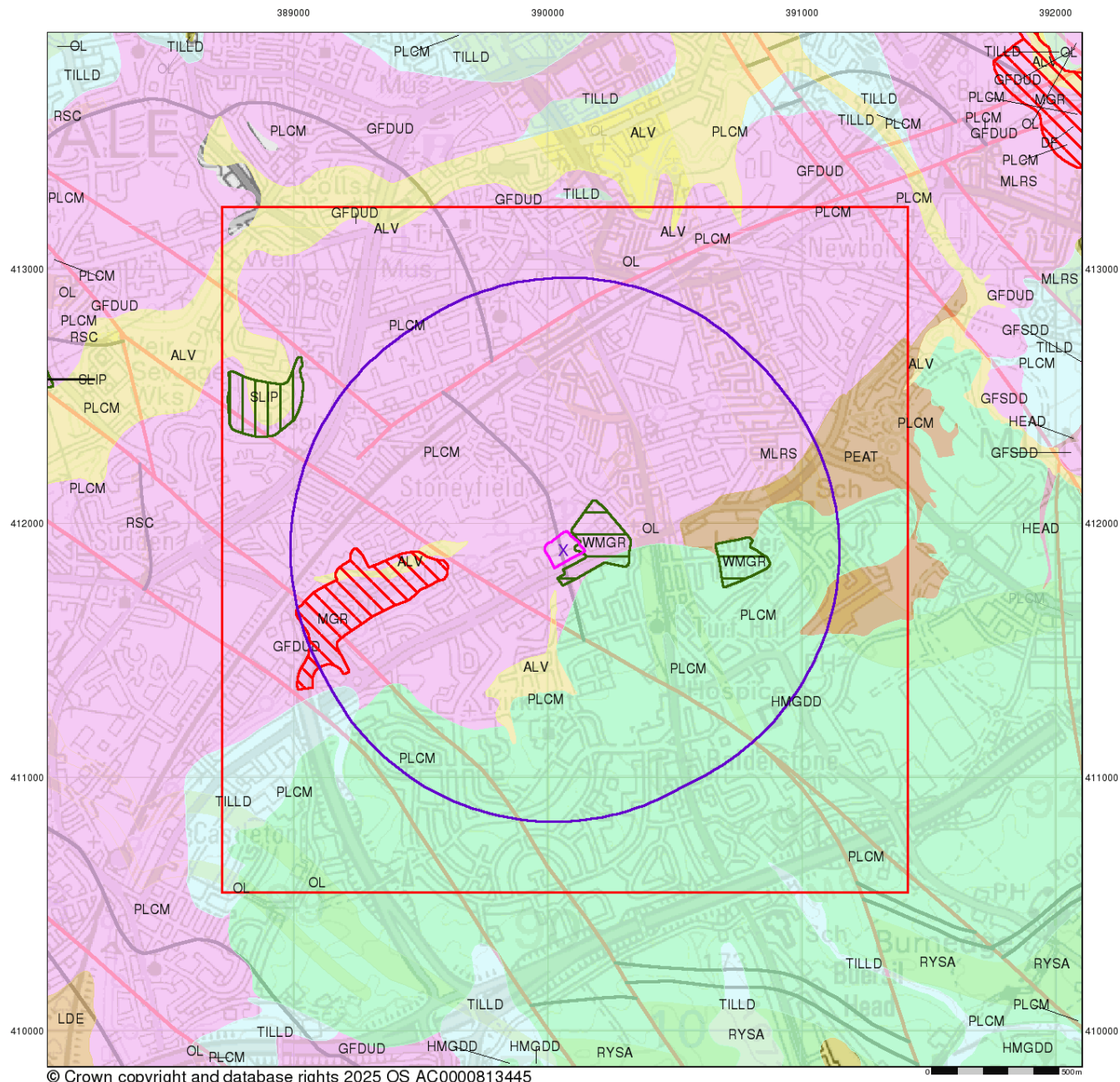
Order Number: 389249356 1_1
 Customer Reference: LKC251701
 National Grid Reference: 390060, 411890
 Slice: A
 Site Area (Ha): 1.26
 Search Buffer (m): 1000

Site Details:

Unit 1, Dicken Green Mill, Greenfield Lane, ROCHDALE, OL11 2LD

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Combined Surface Geology

The Combined Surface Geology map combines all the previous maps into one combined geological overview of your site.

Please consult the legends to the previous maps to interpret the Combined "Surface Geology" map.

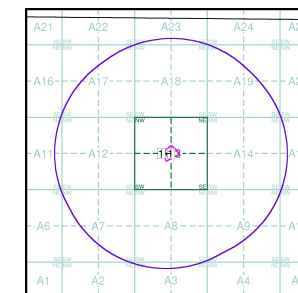
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email: enquiries@bgs.ac.uk
website: www.bgs.ac.uk

Combined Geology Map - Slice A



Order Details:

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National Grid Reference: 390060, 411890
Slice: A
Site Area (Ha): 1.26
Search Buffer (m): 1000

Site Details:

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Landmark
INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

Appendix B – Mining Remediation Authority Consultants Report

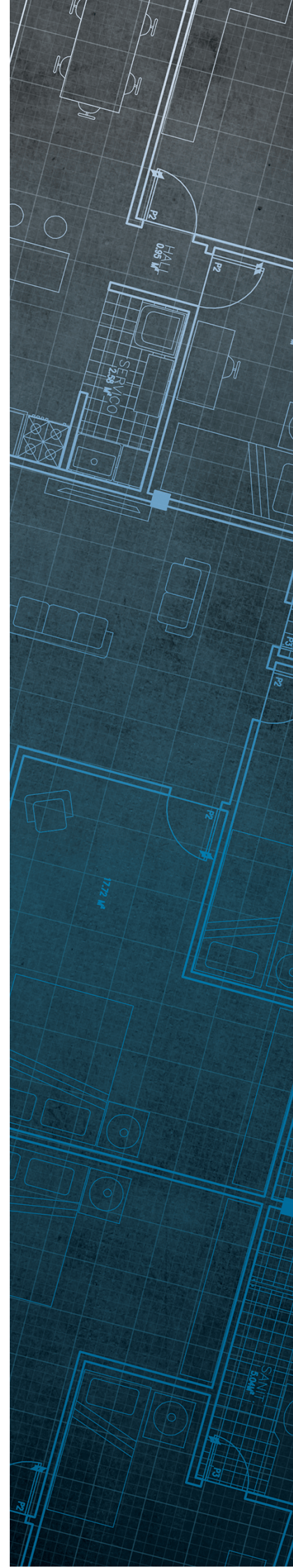


The Coal
Authority

Consultants Coal Mining Report

Unit 1, Dicken Green Mill
Greenfield Lane
Rochdale
Lancashire

Date of enquiry:	3 November 2025
Date enquiry received:	3 November 2025
Issue date:	3 November 2025
Our reference:	51003535581001
Your reference:	389249356_2



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

NLIS Hub

Enquiry address

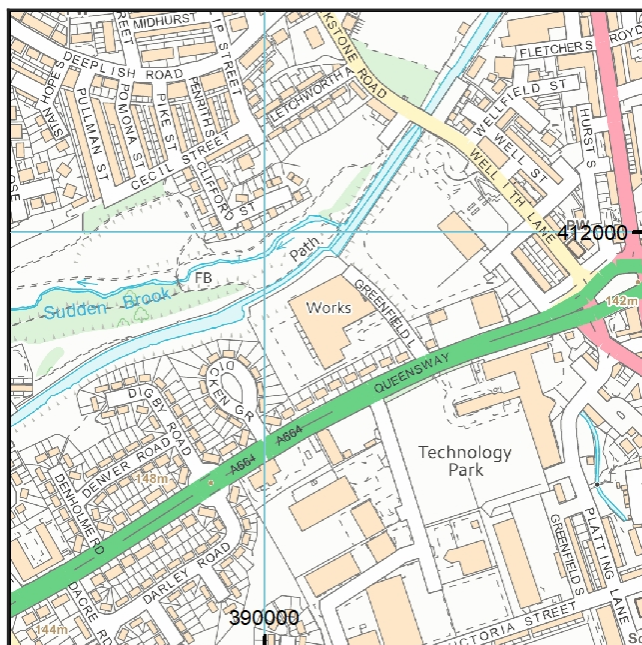
Unit 1, Dicken Green Mill
Greenfield Lane
Rochdale
Lancashire

How to contact us

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

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

reports@miningremediation.gov.uk



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

None available.

Outcrops

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
ARLEY	Coal	Yes	Within	N/A	344

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 **email us at reports@miningremediation.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.

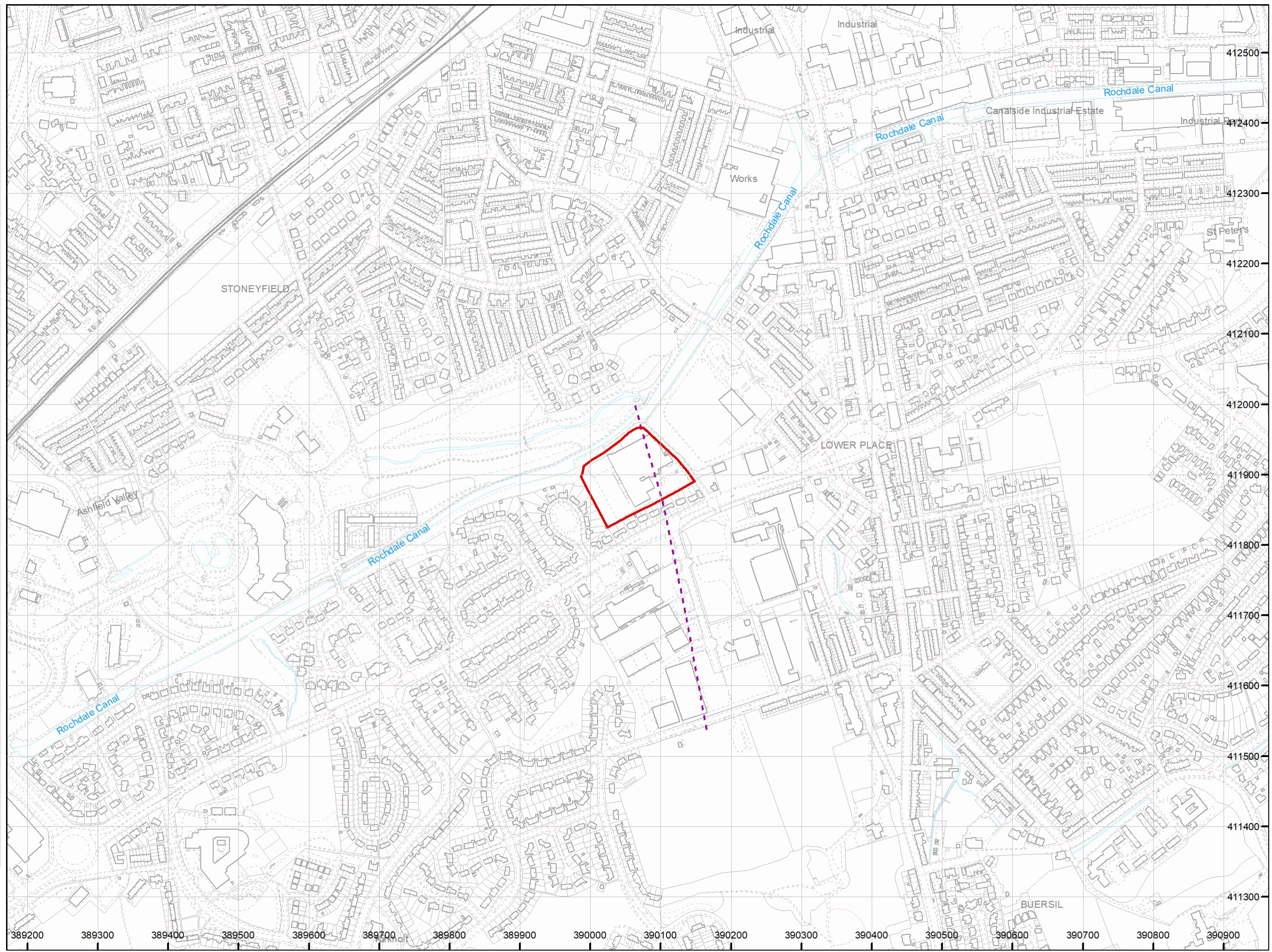
The map highlights any specific surface or subsurface features within or near to the boundary of the site.

Key

Approximate position of the enquiry boundary shown 

Outcrop (Conjectured) 

How to contact us
0345 762 6848 (UK)
+44 (0)1623 637 000 (International)
reports@miningremediation.gov.uk



Appendix C – BGS Borehole Data



Norwest Holst Soil Engineering Ltd.						Borehole No. 4	
Contract No. F5786		BOREHOLE LOG		9017 1182		Sheet 1 of 2	
Location Green Mill, Queensway		Client Rochdale Metropolitan Borough		Chainage		Ground Level m.A.O.D.	
Method of Boring Percussion		5091SW 105		Date 28/5/83 - 31/5/83		Diameter of Borehole 150 mm	

Description of Strata	Legend	Depth Below G.L. (m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/R.Q.D. %	Daily Progress
MADE GROUND: Brick rubble, clay stones etc.		0.70					
Medium dense brown slightly clayey medium SAND and medium to coarse GRAVEL.		2.90			1.00 2.10	10 11	
Medium dense brown fine to medium SAND with some gravel.		7.00			3.20 4.30 5.40 6.40	12 11 10 12	
Medium dense brown medium SAND and medium to coarse GRAVEL.		9.00			7.50 8.60	17 14	
Medium dense brown medium SAND and medium to coarse GRAVEL with occasional cobbles.					9.70	14	

Type of Sample	Remarks (Observations of Ground Water etc.)
Is S.P.T. Undisturbed Ic C.P.T. Vane O Jar Water ● Bulk Piezometer	Water struck at 9.80 m. Level rose after 20 mins to 7.60 m.



BGS ID: 35228 : BGS Reference: SD91SW105
British National Grid (27700) : 390170,411820

Contact BGS: ngdc@bgs.ac.uk



Norwest Holst Soil Engineering Ltd.							Borehole No.
BOREHOLE LOG 9010 1180							5
Contract No. F5786		Location Green Mill, Queensway		Sheet 1 of 2			
Client Rochdale Metropolitan Borough		Chainage		Ground Level		m.A.O.D.	
Method of Boring Percussion		SD 91 SW 106		Date 3/6/83			
Diameter of Borehole 150mm							
Description of Strata	Legend	Depth Below G.L. (m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/R.Q.D.%	Daily Progress
MADE GROUND: Loose ash, brick rubble, hardcore etc.					0.50	7	
		2.50			1.50	7	
MADE GROUND: Loose dark brown and and gravel.					2.50	5	
		3.70			3.50	5	
MADE GROUND: Loose black ash. gravel etc.					4.60	5	
		5.40			5.80	13	
Medium dense brown clayey medium SAND and GRAVEL.					6.90	20	
		8.20			7.90	22	
Dense brown medium SAND and medium to coarse GRAVEL with occasional cobbles.					9.00	35	

Type of Sample	Remarks (Observations of Ground Water etc.)
☒ S.P.T. ☐ Undisturbed ☒ C.P.T. ☐ Vane ☐ Jar ☐ Water ☐ Bulk ☐ Piezometer	Borehole dry.

Norwest Holst Soil Engineering Ltd.

Borehole No.

5

Contract No. E5786

BOREHOLE LOG

Location Green Mill, Queensway

Sheet 2 of 2

Client Rochdale Metropolitan Borough

Chainage

Method of Boring Percussion

SD91SW/106

Ground Level m.A.O.D.

Diameter of Borehole 150mm

Date 3/6/83

Description of Strata

Legend

Depth
Below
G.L. (m)

O.D.
Level
(m)

Casing
Depth at
Sampling

Sampling
and
Coring

"N"/
R.Q.D. %

Daily
Progress

Dense brown medium SAND and medium to coarse GRAVEL with occasional cobbles.

12.00

10.00

40

11.00

27

Type of Sample

Remarks (Observations of Ground Water etc.)

S.P.T. Undisturbed

C.P.T. Vane

Jar Water

Bulk Piezometer



Norwest Holst Soil Engineering Ltd.							Borehole No. 6	
Contract No. F5786		BOREHOLE LOG		9007 1178				
Location Green Mill, Queensway				Sheet 1 of 2				
Client Rochdale Metropolitan Borough				Chainage				
Method of Boring Percussion		SD 91 SW 107		Ground Level		m.A.O.D.		
Diameter of Borehole 150mm				Date 1/6/83				
Description of Strata	Legend	Depth Below G.L. (m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/R.Q.D. %	Daily Progress	
MADE GROUND: Loose black ash, brick rubble etc.					0.50	5		
					1.60	6		
					2.80	5		
					3.90	6		
					5.00	5		
		5.70						
Medium dense brown medium SAND and medium to coarse GRAVEL.					6.00	20		
					7.00	12		
Medium dense to dense brown fine to medium SAND with occasional gravel and thin silty organic partings.					8.00	38		
					9.10	23		
		9.30						
Medium dense brown medium SAND and medium to coarse GRAVEL with occasional cobbles.								

Type of Sample	Remarks (Observations of Ground Water etc.)
☒ S.P.T. ☐ Undisturbed ☒ C.P.T. ☒ Vane ☐ Jar ☐ Water ☒ Bulk ☐ Piezometer	Borehole dry.

[illegible]