



GEO-ENVIRONMENTAL AUDIT

PHASE 1 PRELIMINARY RISK ASSESSMENT

PHASE 2 SITE INVESTIGATIONS

PHASE 3 REMEDIATION STATEMENT

PROPOSED COMMERCIAL & RESIDENTIAL DEVELOPMENT
LAND BETWEEN 40-48 DRAKE STREET
ROCHDALE
OL16 1NU

Author: Daniel Slattery
Client: Cassel & Fletcher
Reference: rep-tjba-C&S-40-48 drake st-Phs1_2_3Env-260225.docx

Revision	Date	Reason
0	Feb 2025	Original to address planning condition.

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1. PHASE 1 - PRELIMINARY RISK ASSESSMENT.

1.1. Introduction.

T. J. Booth Associates have been appointed by Cassel & Fletcher to compile a report on a phase 1 preliminary risk assessment (PRA), existing phase 2 site investigations, and to provide a phase 3 remediation statement as required by the report findings for a site between 40-48 Drake Street, Rochdale.

The Application Site formerly comprised buildings which fronted Drake Street, but were demolished circa late 2000s/early 2010s.

In recent years there have been proposals for Rochdale Boroughwide Housing (RBH), who wanted to turn the Site (land between 40-48 Drake Street) & adjacent buildings (Nos. 38-40) into a mixed commercial and residential use. As part of the proposals, RBH employed Carley Daines & Partners Ltd (CDP), to undertake a phase 2 geo-environmental report, ref: Phase 2 Geo-Environmental Investigation and Assessment/18-B-12366/Drake Street.

As part of the assessment, CDP noted that no preliminary risk assessment had been undertaken, and undertook intrusive investigations (boreholes/trial holes & soil sampling subcontracted to Mini Soil Surveys Ltd), and based the risk assessment on a commercial end use.

Recently the land between Nos. 40-48 Drake Street has been acquired by Cassel & Fletcher for development. A new planning application was submitted under application No. 24/00143/FUL, for the: 'Construction of a 6 storey building comprising 34no. apartments (C3 use) and a commercial unit (Class E) at ground floor level'.

On the decision notice, a planning condition was added for environmental assessment of the Site, as follows:

- 4 No development (other than works of site preparation) shall take place until an investigation and risk assessment (in addition to any assessment provided with the planning application) has been submitted to and approved in writing by the Local Planning Authority. The assessment shall investigate the nature and extent of any contamination on the site (whether or not it originates on the site). The assessment shall be undertaken by competent persons and a written report of the findings submitted to and approved in writing by the Local Planning Authority before any development takes place.

The submitted report shall include:

- i) a survey of the extent, scale and nature of contamination
- ii) an assessment of the potential risks to:
 - o human health,
 - o property (existing or proposed) including buildings, crops, livestock, pets, woodland, and service lines and pipes,
 - o adjoining land,
 - o groundwaters and surface waters,
 - o ecological systems,
 - o archaeological sites and ancient monuments;
- iii) where unacceptable risks are identified, an appraisal of remedial options and proposal of the preferred option(s) to form a remediation strategy for the site.

The development shall thereafter be carried out in full accordance with the duly approved remediation strategy thereafter. Prior to the first use or occupation of the approved development, a verification report shall be submitted to and approved in writing by the Local Planning Authority.

This report will address the above planning condition, including reassessment of the Site to include a phase 1 PRA using current environmental databases, and to provide a phase 2 contamination assessment using the existing site investigation information obtained by CDP. As the proposed development includes residential apartments, assessment will to residential standards.

This report provides a desk-based study & intrusive ground investigation based on current UK guidance for environmental investigation within the construction industry. Principal to the assessment is the potential for contamination pollutant linkages via the Land Contamination Risk Management (LCRM) source-pathway-receptor methodology. Assessment of potential pollution linkages is primarily undertaken in strict accordance with BS 5930:2015, BS 10175:2011+A2:2017, CIRIA C665, and BS 8485:2015+A1:2019 et al.

1.2. Proposed Development.

The Site comprises of a rectangular plot nominally 30m x 13m on the corner of Drake Street & Nelson Street.

It is proposed to erect a 6-storey building encompassing the entire site footprint.

The ground floor/front half of the proposed building will comprise a retail unit, with the rear half comprising residential apartments and associated lobby, stairwell, lifts, bin store & plant room. The upper floors will all comprise further residential apartments. Refer to Proposed Plan in the Appendix.

1.3. Historic Maps.

DATE	ON-SITE	OFF-SITE/SURROUNDING AREA
c1851	The site is occupied by 3No terraced buildings fronting Drake Street with additional buildings to the rear of this fronting Nelson Street. There appears to be a small yard nominally central to the buildings.	The wider area comprises commercial buildings, generally terraced and assumed to be used as shops with some other uses such as public houses/chapels noted. Additional lager buildings or mills are located in the local area such as smithies, timber yards, iron works & cotton mills etc all within close distance. Globe iron & Brass works is noted to the south side of Nelson Street.
c1892	No change.	No overall change locally. Some minor development to the west associated with Packer Street, King Street & around the Town Hall.
c1910	Maps suggest the buildings fronting Drake Street were demolished and rebuilt.	Globe works to the south now partly demolished, and remaining buildings noted as disused.
c1930	Additional buildings or extensions to on-site buildings.	Surrounding buildings replacing the older demolished works appear to be more amenity based rather than industrial such as billiard halls, technical schools, and dance halls etc.
c1959	Buildings now shown encompassing almost the entire site, albeit a small yard to the northwest side.	Changes to the wider area include further deindustrialisation of the town centre.
c1978	No change.	No change.
c1987	No change.	No change.
c1992	No change.	Further redevelopment of the town centre. No particular industrial uses noted.
2000	No change.	No change.
2012	No change.	Redevelopment of part of the town centre to the northeast
2019	By now the site buildings have been demolished and the site is vacant.	No change.

1.4. Present Day Maps.

Site boundaries, outlines of structures and buildings:	Present day maps show a vacant plot of land. The Site is unmade grass/shrub land awaiting development. Nelson Street adjacent the site has been pedestrianised and is no connected via road link to Drake Street. The site remains surrounded by development.
Ground contours, natural drainage features:	A topographic survey was previously undertaken by others. The Site slopes to the northeast corner, and has levels as follows: Southwest corner 128.75. Northeast corner 125.89. In the wider area overall topography falls to the north.

Watercourses:	River Roch approximately 150m north.
Below ground obstructions:	None noted on current maps/plans.

1.5. Geology.

Superficial geology:	Devensian glaciofluvial deposits (sand & gravel).
Bedrock geology:	Pennine Lower Coal Measures Formation - Mudstone, Siltstone and Sandstone.
Coal seams:	No coal seams underlie the site at shallow depth.

1.6. Boreholes Records.

No relevant boreholes in close proximity to the site boundaries.

1.7. Groundsure Environmental Data.

1.7.1. Historical Industrial Sites.

Historical industrial land uses:	0 records noted on-site. 2 records within a 0-50m radius – relating to the former Globe Iron & Brass works to the southwest. Various past industrial uses over 100m from the Site boundaries.
Historical tanks:	The closest is 296m northeast.
Historical energy features:	0 records noted on-site. 2 records within a 0-50m radius – relating to an electricity substation at the former Globe Iron & Brass works 36/37m to the southwest. Next closest is 83m north.
Historical petrol stations:	0 records noted within 500m.
Historical garages:	63 records within 500m, but all over 145m from the Site boundaries.
Historical military land:	0 records.
Potentially infilled land:	1 record noted on-site – relates to an on-site pond infilled c1890. 4 records within a 0-50m radius - relates to off-site ponds infilled 1851-1890. 35 records within a 51-250m radius.

1.7.2. Waste & Landfill.

Active or recent landfill:	0 records within 500m.
Historical landfill (BGS):	0 records within 500m.
Historical landfill (LPA/mapping records):	0 records within 500m.
Historical landfill (EA/NRW records):	0 records within 500m.
Historical waste sites:	11 records within 500m. Closest is 255m east.
Licensed waste sites:	0 records within 500m.
Waste exemptions:	57 records within 500m. Closest is 97m southeast.

1.7.3. Current Industrial Land Use.

Recent industrial land uses:	30 records within 250m. Closest is 36m southwest relating to an electricity substation.
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Current or recent petrol stations:	1 record 450m east.
Sites determined as contaminated land:	0 records within 500m.
Control of major accident hazards (COMAH):	1 record 484m west.
Regulated explosive sites:	0 records within 500m.
Licensed industrial activities (Part A(1)):	3 records within 500m. The closest is 253m west.
Licensed pollutant release (Part A(2)/B):	6 records within 500m. The closest is 286m east.
Pollution Incidents (EA/NRW):	11 records within 500m. The closest is 326m west.

1.7.4. Hydrogeology & Hydrology.

Superficial aquifer:	Secondary A. Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.
Bedrock aquifer:	Secondary A. Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.
Groundwater vulnerability:	Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer
Source protection zone:	Not within a Source Protection Zone.
Groundwater abstraction licenses:	3 records within 1.1km west relating to industrial process water abstraction at the same site.
Surface water abstraction licences:	14 records within 2km. Closest is 97m northeast relating to commercial abstraction.
Potable water abstraction licences:	0 records noted within 2km.
Source protection zones:	0 records noted within 500m.

1.7.5. Natural Ground Subsidence.

Potential for shrinking or swelling clay ground stability hazards:	Negligible.
Potential for running sand ground stability hazards:	Very low risk.
Potential for compressible ground stability hazards:	Negligible.
Potential for collapsible ground stability hazards:	Very low risk.
Potential for landslide ground stability hazards:	Very low risk.
Potential for ground dissolution stability hazards:	Negligible.

1.7.6. Radon.

Estimated properties affected:	Less than 1%.
Radon protection measures required:	None.

1.8. Coal Authority.

Mine Shafts, Pits, Adits/Entries:	No coal entries within 20m of the site boundaries.
Past Recorded Underground Mining.	No recorded workings noted beneath the Site.
Present/Future Underground Mining.	Not known to be a risk.
Unrecorded Probable/Potential Shallow Underground Workings:	Not known to be a risk.
Past/Present/Future Surface Mining/Opencast:	None noted locally.
Mining Geology and Subsidence:	Not noted.
Hazards and Mine Gas:	Unknown.
Development High Risk Area:	The Site is not within a Development High Risk Area.
Abandonment Plan Data:	Not required.

1.9. Site Reconnaissance (February 2025).

A recent site walkover has been undertaken to assess if there has been any change on site, since site investigations in 2019.

Details of existing structures:	Since the site investigation work c2019, no major changes appear to have occurred to the Site. It has recently been stripped of vegetation and general littering, but there was no evidence of contaminative materials other than the potential for made ground noted on the surface. The general site surface was unmade, and consisted of silty topsoil mixed with sand gravel and cobbles. The gravel and cobble elements comprised brick, MOT, concrete, mortars/plasters, glass, and slate. There were some plastics & timber noted across the surface as well as general littering; which had been scraped into a stockpile. The site was surrounded by heras fencing.
Adjacent properties:	The Site shares a boundary with No.40 Drake Street. The remaining boundary to all sides is with adjacent highways/pavements. Property in the local area generally comprises terraced or larger detached buildings used as general shops/commercial uses.
Water levels, directions of flow and rates in rivers:	The closest watercourse is the River Roch nominally 150m to the north, and at lower elevation to the Site.
Old mine or quarry workings:	None noted.
Obvious/immediate hazards to health/safety:	None noted.
Areas of discoloured soil, polluted water, vegetation, and significant odours:	Unmade areas of the site comprised relict historic building materials mixed with residual site soil. Although no specific point source contamination was noted, made ground can often include metals, PAH and asbestos.

1.10. Identification of Source-Pathway-Receptor.

1.10.1. Environmental Summary.

The historic site assessment has shown no specific contaminative uses that would have contributed significant contamination into the ground. The site was historically occupied by buildings assumed predominantly used as retail establishments throughout its lifetime c1850-2012.

The full site footprint had mostly been covered with the buildings.

The main issues surrounding contamination are from demolition materials/made ground and potentially infill of former cellars.

Site reconnaissance noted made ground generally to the site. The made ground appears to be comprise of general fill, likely building rubble in a sand/silt matrix.

Fill of this type generally comprises metals, PAH, and asbestos.

There is a substation nominally 40m southwest, but generally PCBs are not mobile in the soil environment and are not considered to be a risk.

No sources of ground gas or landfills noted.

1.10.2. Potential Contaminant Sources.

CURRENT SOURCE/S	ORIGINAL ASSOCIATED SOURCE	CONTAMINANT/S
General existing Site soil/made ground.	Demolition of historic buildings, and associated minor made ground.	Metals, PAHs, sulphates, asbestos.

1.10.3. Potential Pathways.

The potential pathways to/from the Development Site include (not an exhaustive list but a summary of the main points):

PATHWAY	MEDIA
Soil and dust ingestion	Soil and indoor dust
Consumption of home-grown fruit and vegetables	Produce
Skin contact (indoors)	Indoor dust
Skin contact (outdoors)	Soil
Inhalation of dust (indoors)	Air
Inhalation of dust (outdoors)	Air
Vapours (indoors)	Air
Vapours (outdoors)	Air

1.10.4. Potential Receptors.

Construction phase workforce.

Residents as the proposed end users.

Controlled waters: aquifers.

1.11. Preliminary Conceptual Model.

POLLUTANT RISK IDENTIFIER	SOURCE	CONTAMINANT TYPE	PATHWAY	RECEPTOR	POLLUTION LINKAGE	CONSEQUENCE	PROBABILITY	RISK
PL1	General contaminants in upper site soil/made ground, and effects on humans/animals /ecology as a receptor.	Metals, PAHs, inorganics, organics, asbestos.	Direct ingestion, aerial ingestion, dermal contact, drinking water. Crops.	Primarily human - Site construction operatives & future residential Site occupants. Pets. Ecological systems.	There is a potential pollutant linkage with made ground noted on the site walkover. Made ground was noted to comprise building rubble, which is a likely source of metals, PAH, and asbestos.	Medium.	High likelihood.	High risk.
PL2	Potential for mortars/plasters and associated effects on concrete.	Sulphates.	Contact with underground structures.	Building structures /concrete.	There is a potential pollutant linkage with made ground noted on the site walkover. Made ground was noted to comprise building rubble, which is a likely source of sulphates.	Medium.	High likelihood.	High risk.
PL3	Potential historic use of hazardous PSRAS chemicals & effects on PE water pipes.	Hydrocarbons, BTEX & MTBE, VOCs/SVOCs, phenols, cresols and chlorinated phenols.	Contact with water pipes/services.	Water pipes/services & human/pet end users.	No specific sources noted. Site has never been used for industrial purposes.	Medium.	Low likelihood.	Moderate to low risk.
PL4	Hydrocarbon contaminants in upper site soil/made ground, and effects on groundwater or watercourses as a receptor.	Potential hydrocarbons.	Groundwater via potential leaching and transport of potential contaminants.	Underlying aquifer or watercourse as a receptor.	No credible pollutant linkage. No specific sources noted. Site has never been used for industrial purposes. The aquifers beneath the site are Secondary A, which are not used for drinking, there are no abstractions locally, and the closest watercourse is approximately 500m distant.	Mild.	Low likelihood.	Low risk.
PL5	Geological ground gas from coal seams/workings.	CH ₄ , CO ₂ , other trace gases.	Diffusion through soil, substructures, aerial inhalation.	Human - future residential Site occupants. Explosion, suffocation.	No credible pollutant linkage.	Mild.	Unlikely.	Very low risk.

PL6	Geological ground gas, radon sources in Namurian deposits.	Rn.	Diffusion through soil, substructures, aerial inhalation.	Human - future Site residential occupants.	No credible pollutant linkage. The Groundsure data report is based on a refined site-specific risk analysis which has identified that the property is within a lower probability radon area (<1% of homes estimated to be at or above the action level). No radon protection measures are required.	Mild.	Unlikely.	Very low risk.
PL7	Anthropogenic ground gas from historic/present landfill, infilled mill ponds.	CH ₄ , CO ₂ , other trace gases.	Diffusion through soil, substructures, aerial inhalation.	Human - future Site residential occupants. Explosion, suffocation.	No specific sources noted.	Medium.	Unlikely.	Low risk.
PL8	Anthropogenic ground gas sources from alluvium.	CH ₄ , CO ₂ .	Diffusion through soil, substructures, aerial inhalation.	Human - future Site residential occupants. Explosion, suffocation.	No alluvial deposits noted beneath the Site. Source missing, no pollutant linkage.	Mild.	Unlikely.	Very low risk.

2. PHASE 2 – SITE INVESTIGATIONS & ASSESSMENT.

2.1. Site Investigations.

2.1.1. Mini Soil Surveys Ltd, 26.06.2019.

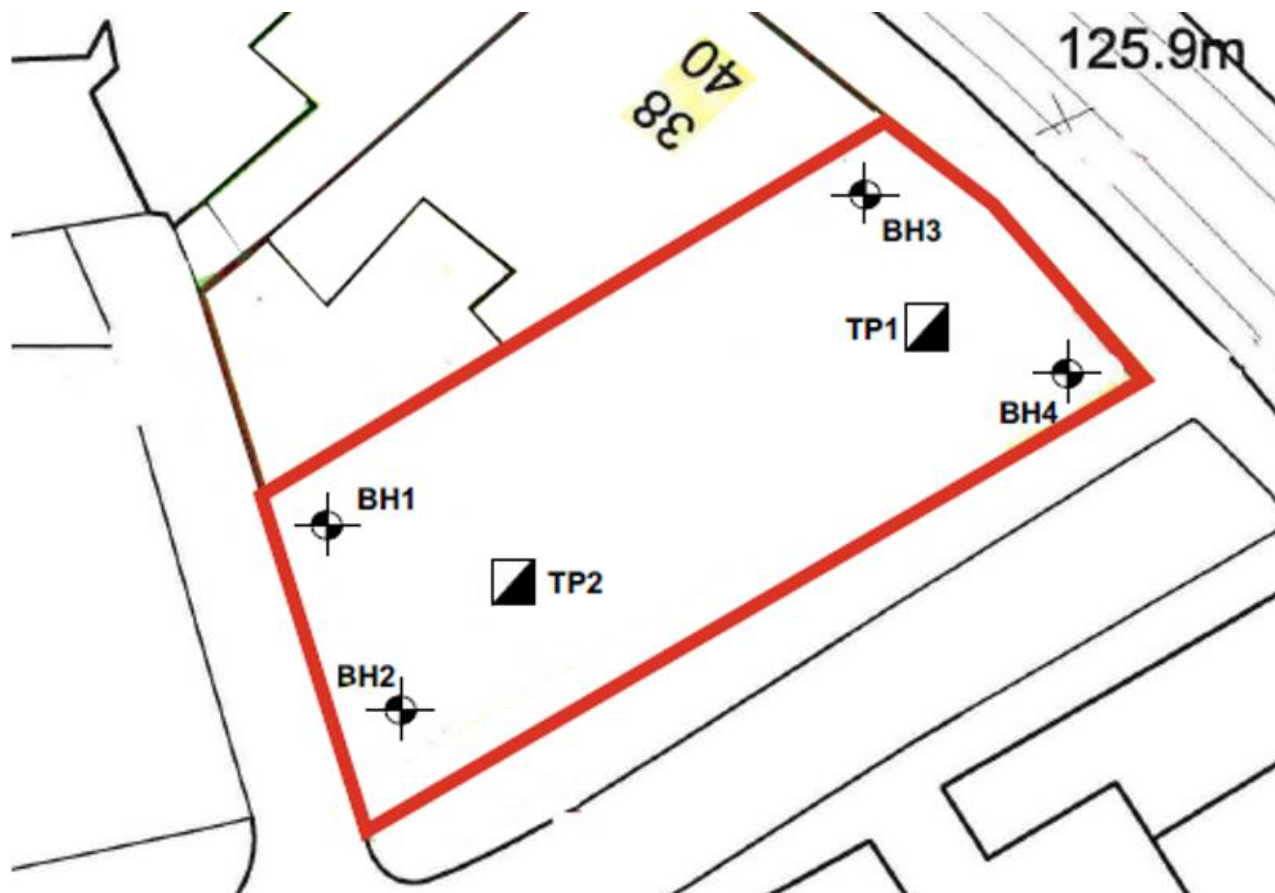
Site investigations have been previously undertaken by Carley Daines & Partners Ltd (CDP) subcontracted to Mini Soil Surveys Ltd on 26th June 2019.

The original investigation comprised the following:

- 4No. mini boreholes (BHs1-4).
- 2No. trial holes (TPs1-2)

Soil sampling was also undertaken.

An excerpt Mini Soil Surveys Ltd Site Investigation Plan is given below (refer to full plan in Appendix):



Since the investigations, no further use of the Site has occurred, and no new contaminants are considered to have been introduced.

This report will reassess the existing site investigation information against the new proposed end use, with reassessment to current residential regulations/guidance.

Soil samples were taken nominally of the upper 1-2m of made ground as encountered, sealed in appropriate containers, amber jars & vials where appropriate, and sent to Concept Life Sciences Ltd to be tested for a range of common contaminants.

2.1.2. Ground Conditions.

2.1.2.1. Made Ground.

The upper Site subsoil comprised MADE GROUND, generally between 2-4m deep over the Site. The MADE GROUND comprised sand, ash, brick, sandstone, concrete, cinders, glass & slate.

Soil sampling was undertaken in the MADE GROUND profile at varying depths

2.1.2.2. Superficials.

Below the MADE GROUND was a glaciofluvial SAND deposit, generally medium dense with some gravel and rare reworked coal.

2.1.2.3. Bedrock.

Not encountered.

2.2. Final Risk Assessment.**2.2.1. Human Health Risk.****2.2.1.1. Shallow soil contamination.**

The samples results have been assessed by TJ Booth Associates to common threshold comparison data for a residential end usage in the following order: Defra Category 4 Screening Levels (C4SLs) > LQM/CIEH (S4ULs) > EIC/AGS/CL:AIRE 2010.

Testing of made ground revealed contaminant levels above residential threshold values with elevated levels of the following contaminants of concern, (refer to testing certificates, and full analysis spreadsheets in the Appendix):

Trial Hole/Soil Sample	Made ground horizon	Mitigation/Action
BH1	Lead.	FURTHER ACTION
BH3	Lead, sulphate.	FURTHER ACTION
BH4	Lead, sulphate.	FURTHER ACTION
TH1	Lead, sulphate.	FURTHER ACTION
TH2	Sulphate.	FURTHER ACTION

Due to above elevated levels noted, existing upper made ground is considered mildly contaminated with metals above residential threshold levels.

2.2.1.2. Ground Gas Risk.**2.2.1.2.1. Historic landfill sites.**

No pollutant linkage identified.

No landfill sites in the local area.

2.2.1.2.2. On-site refuse tips/infilled ponds/infilled land.

No pollutant linkage identified.

None noted in the local area.

2.2.1.2.3. Radon.

No pollutant linkage identified.

Radon was noted at <1% affected households. No protective measures required.

2.2.1.2.4. Alluvium.

No pollutant linkage identified.

No alluvium in the local area.

2.2.1.3. Buildings & services.**2.2.1.3.1. Water pipes.**

The proposed site building is to be situated within the whole site footprint, and thus water pipes routed to it will not encounter site subsoils/made ground.

No credible risk is attributed to this source.

2.2.1.3.2. Sulphate.

Although total sulphate was encountered at very high levels (DS5), soluble sulphate risk was noted at DS2/AC2. It is the soluble/leachable sulphate that is of risk to concrete/foundations, which should be considered by designers.

2.2.2. Controlled Waters Risk.

Where soil leachate or ground/surface water sampling is undertaken, samples are assessed by TJ Booth Associates to common threshold comparison data. Groundwater samples are generally compared against the drinking water standards (UK DWI 2016 & WHO 2022), and Environment Quality Standards for Freshwater (EQS). Surface water samples are primarily compared against the against the EQS.

2.2.2.1. Groundwater.

The only consideration for controlled waters risk is groundwater contamination, potentially of the aquifers beneath the Site.

The superficial aquifer designation based on BGS geology mapping is as a Secondary A aquifer for both bedrock and superficial aquifers.

General contamination at the Site is low. Only lead & sulphate were noted in the upper made ground profile. Mobile contamination was absent from the Site, so the risk is considered low.

There are no potable water abstractions within 2km of the site.

Another mitigating factor is the proposed building footprint will cover the entire site, restricting percolation, and further reducing the risk of leaching potential.

The risk to aquifers is considered to be low.

2.2.2.2. Watercourses.

No watercourses local to the site.

Risk is considered as low due to the lack of receptor (only distant watercourses), as per the preliminary risk assessment.

2.3. Final Conceptual Model.

POLLUTANT RISK IDENTIFIER	SOURCE	CONTAMINANT TYPE	PATHWAY	RECEPTOR	POLLUTION LINKAGE	CONSEQUENCE	PROBABILITY	RISK	MITIGATION PROPOSED
PL1	General contaminants in upper site soil/made ground, and effects on humans/animals/ecology as a receptor.	Metals.	Direct ingestion, aerial ingestion, dermal contact, drinking water. Crops.	Primarily human - Site construction operatives & future residential Site occupants. Pets. Ecological systems.	There is a potential pollutant linkage with metals noted in shallow soil sampling.	Medium.	High likelihood.	High risk.	NO REMEDIATION REQUIRED. AS THE FOOTPRINT OF THE SITE WILL BE TAKEN UP BY THE PROPOSED BUILDING, THE PATHWAY IS REMOVED MITIGATING THE POLLUTANT LINKAGE.
PL2	Potential for mortars/plasters and associated effects on concrete.	Sulphates.	Contact with underground structures.	Building structures /concrete.	Sulphate was recorded as DS2 AC2 in 4 out of 6 samples. Although risk to site users is low, the designers should be aware of the risk of sulphate.	Medium.	Likely.	Moderate risk.	NO REMEDIATION REQUIRED TO SITE USERS, BUT WILL NEED TO BE CONSIDERED IN THE BUILDING DESIGN.
PL3	Potential historic use of hazardous PSRAS chemicals & effects on PE water pipes.	Hydrocarbons, BTEX & MTBE, VOCs/SVOCs, phenols, cresols and chlorinated phenols.	Contact with water pipes/services.	Water pipes/services & human/pet end users.	No particular source noted. Due to the building taking up the site footprint, any water pipes will not be routed through site made ground.	Medium.	Unlikely.	Low risk.	NO REMEDIATION REQUIRED. AS THE FOOTPRINT OF THE SITE WILL BE TAKEN UP BY THE PROPOSED BUILDING, THE PATHWAY IS REMOVED MITIGATING THE POTENTIAL POLLUTANT LINKAGE.
PL4	Hydrocarbon contaminants in upper site soil/made ground, and effects on groundwater or watercourses as a receptor.	Potential hydrocarbons.	Groundwater via potential leaching and transport of potential contaminants.	Underlying aquifer or watercourse as a receptor.	No source noted. Pollutant linkage mitigated.	Mild.	Unlikely.	Very low risk.	NO REMEDIATION REQUIRED.

3. PHASE 3 - REMEDIATION STATEMENT.

3.1. Basic Site Details.

Full details included in the Phase 1 & 2 PRA/Site Investigation Introduction & subsequent sections.

3.2. Site & Remedial Objectives.

Due to the mitigation offered by the building taking up the entire site footprint, there are no remedial objectives with regard to human contamination risk.

HOWEVER, there is an elevated sulphate risk which should be considered in the design of foundations etc.

3.3. Conceptual Model (Final) & Relevant Pollution Linkages.

Site investigations undertaken as part of the Phase 2, comprised soil sampling, with areas of made ground noted.

2 pollutant linkage from the Phase 2 site investigation was confirmed in the ground investigation:

- PL1: General contaminants in upper site soil/made ground, and effects on humans/animals/ecology as a receptor. This pollutant linkage is considered mitigated by the building design & lack of outdoor areas.
- PL2: Potential for mortars/plasters and associated effects on concrete.

3.4. Recommended Remediation/Notes.

No specific remediation required due to the lack of risk to the end user.

However, designers to use suitable protection against sulphate attack.

3.5. Verification (Phase 4 requirements).

Not considered necessary.

3.6. Additional Notes.

Before any further work is undertaken, this report should be submitted to and agreed by the Local Planning Authority Contaminated Land Department/Building Control Department as necessary.

We trust that the above clear, but should you require further advice please contact the undersigned.

Signed.....



D.S. Slattery BSc (Hons).

T J Booth Associates.

Authorised...



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

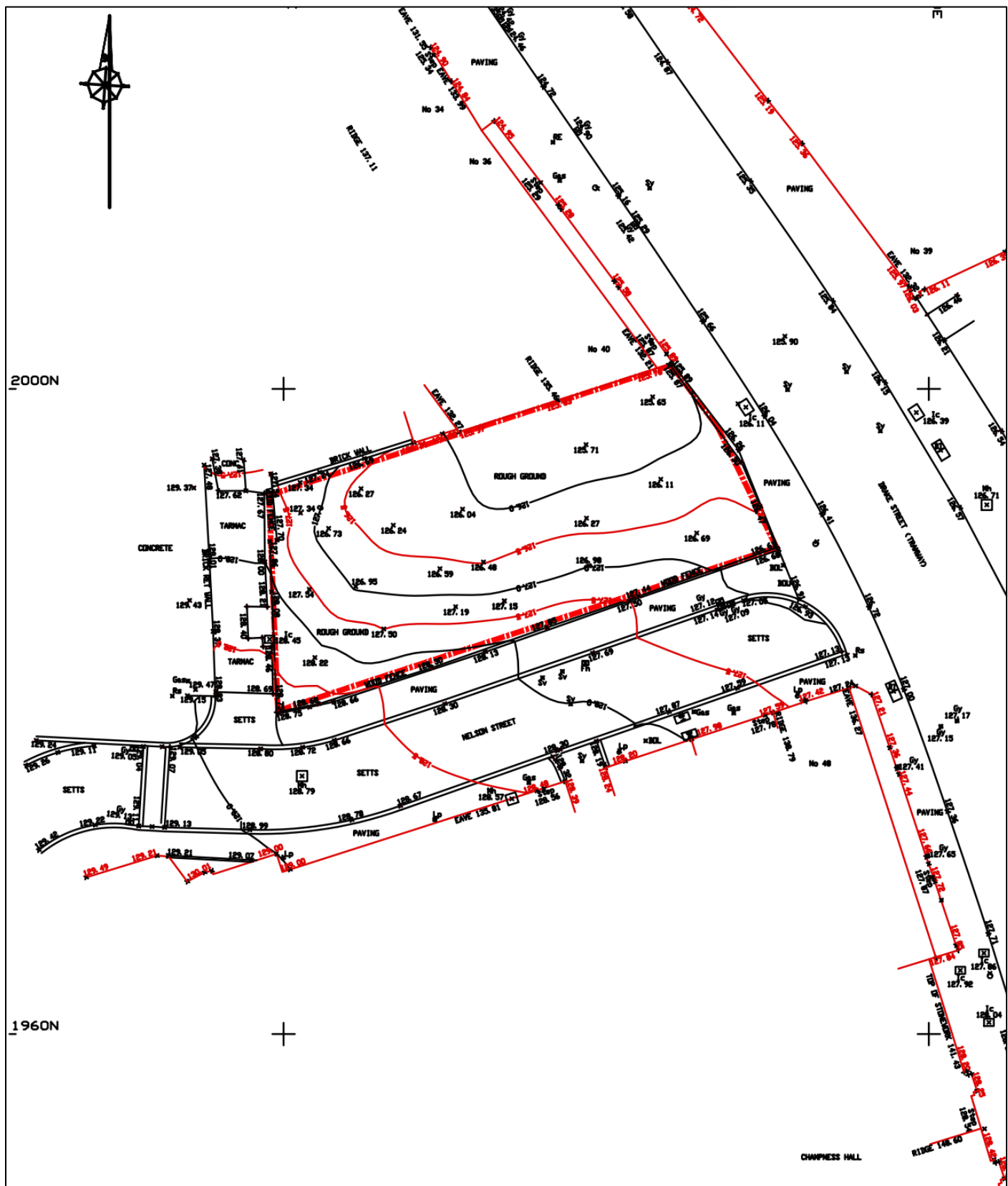
T J Booth Associates.

5. APPENDIX A: FIGURES.

5.1. Location Plan.

42 TO 46 DRAKE STREET ROCHDALE

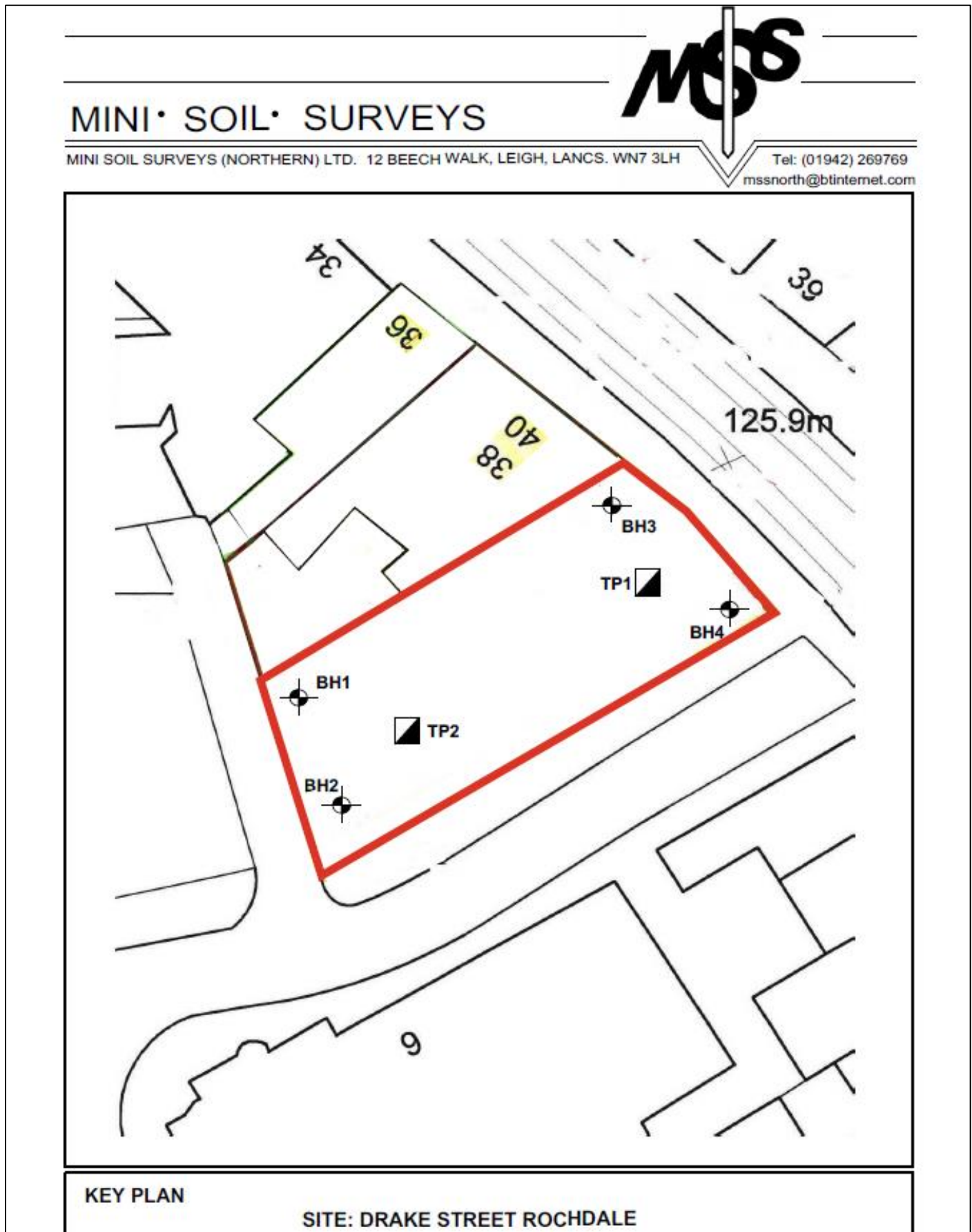




5.3. Proposed Development.



5.4. Site Investigation Plan (Carley Daines & Partners Ltd/Mini Soil Surveys Ltd).



5.5. Site Investigation Logs (Carley Daines & Partners Ltd/Mini Soil Surveys Ltd).

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0.00 _____ Vegetation over dark brown ashy sand and topsoil with bricks, concrete fragments, gravel and cinder. 1000 _____ Disturbed sample 0.2 - 0.8m <u>TRIAL PIT 1</u>		0.00 _____ Vegetation over dark brown ashy sand with bricks, concrete fragments, gravel and cinder. 1000 _____ Disturbed sample 0.2 - 0.8m <u>TRIAL PIT 2</u>
TRIAL PITS	SITE: DRAKE STREET ROCHDALE	

MINI ■ SOIL ■ SURVEYS**MINI SOIL SURVEYS NORTHERN LTD.**

12 Beech Walk Leigh Lancs. WN7 3LH



01942 269769

mssnorth@btinternet.com

Site:- DRAKE STREET ROCHDALE

Job No. NTH 2481

Date:- 26/6/19

BH No.1

Description	Depth	Leg	Test/ Depth	Value
Vegetation over brown sandy ashy brick and concrete rubble with some mixed gravel. MADE GROUND,			0.3 DS	
Loose brown occasionally dark brown fine to medium SAND. Possible made ground.	0.70		1.0 DS 1.2 SPT N = 8	
Loose becoming medium dense fine to medium SAND. Becoming gravelly at depth. Rare black coal fragments below 2.6m.	1.80		2.0 DS 2.4 SPT N = 9 3.6 SPT N = 13 4.8 SPT N = 16 6.0 SPT N = 30	
	6.40			

SPT @ 1.2m 1/2/2,2,2,2 @ 2.4m 1/2/2,3,2,2 @ 3.6m 3/3/3,3,3,4 @ 4.8m 3/4/3,4,4,5
@ 6.0m 6/7/7,8,7,8

Water encountered and standing on completion at 2.7m.

Key: SPT (standard penetration test). SV (shear vane). DS (disturbed sample). U38 (38mm undisturbed sample).

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01942 269769

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Site:- DRAKE STREET ROCHDALE

Job No. NTH 2481

Date:- 26/6/19

BH No.2

Description	Depth	Leg	Test/ Depth	Value
Vegetation over dark brown sand with topsoil, mixed gravel and many brick and concrete fragments. MADE GROUND. Brick aggregate concrete 3.5- 3.9m. Possible cellar floor.			0.3 DS	
			1.0 DS	
			1.2 SPT N = 12	
			2.4 SPT N = 12	
			3.6 SPT N = 46	
Medium dense dark grey/brown ashy sand with some brick fragments. MADE GROUND.	3.90			
Loose becoming medium dense brown fine to medium SAND with rare mixed gravel.	4.30		4.8 SPT N = 18	
			6.0 SPT N = 24	
	7.00			

SPT @ 1.2m 4/6/4,3,3,2 @ 2.4m 3/2/4,3,2,3 @ 3.6m 4/5/4,9,15,18 @ 4.8m 4/4/4,5,4,5
@ 6.0m 5/6/6,5,6,7

Water encountered and standing on completion at 3.9m.

Key: SPT (standard penetration test). SV (shear vane). DS (disturbed sample). U38 (38mm undisturbed sample).

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Site:- DRAKE STREET ROCHDALE

Job No. NTH 2481

Date:- 26/6/19

BH No.3

Description	Depth	Leg	Test/ Depth	Value
Very dense vegetation over very loose becoming loose dark brown sand with topsoil, brick and concrete rubble, cinder, sandstone fragments and some roof slate fragments. MADE GROUND.			0.2 DS	
			1.2 SPT N = 4	
			1.8 SPT N = 10	
			2.0 DS	
			2.4 SPT N = 14	
Medium dense wet light brown/brown fine to medium SAND.	2.10		3.6 SPT N = 18	
			4.8 SPT N = 19	
			6.0 SPT N = 24	
	7.00			

SPT @ 1.2m 1/0/1,1,1,1 @ 1.8m 1/4/3,2,2,3 @ 2.4m 3/3/3,4,3,4 @ 3.6m 4/5/4,5,4,5
 @ 4.8m 4/4/4,4,5,6 @ 6.0m 6/5/6,6,6,6

Water encountered and standing on completion at 2.1m.

Key: SPT (standard penetration test). SV (shear vane). DS (disturbed sample). U38 (38mm undisturbed sample).

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Site:- DRAKE STREET ROCHDALE

Job No. NTH 2481

Date:- 26/6/19

BH No.4

Description	Depth	Leg	Test/ Depth	Value
Very dense vegetation over loose occasionally very loose dark brown sand, ash and brick rubble with sandstone, concrete, cinder, gravel and some glass fragments. MADE GROUND.			0.2 DS	
			1.0 DS	
			1.2 SPT N = 5	
			1.8 SPT N = 8	
			2.4 SPT N = 9	
Medium dense wet light brown/brown fine to medium SAND.	3.30		3.5 DS	
			3.6 SPT N = 16	
			4.8 SPT N = 28	
			5.4 SPT N = 30	
	6.00			

SPT @ 1.2m 1/3/2,1,1,1 @ 1.8m 1/0/1,5,1,1 @ 2.4m 2/1/3,3,2,1 @ 3.6m 3/4/4,4,4,4
 @ 4.8m 7/6/7,7,7,7 @ 5.4m 7/8/7,8,7,8

Water encountered and standing on completion at 3.3m.

Key: SPT (standard penetration test). SV (shear vane). DS (disturbed sample). U38 (38mm undisturbed sample).

5.6. TJBA Soil Analysis.

CLIENT/SITE:		Land between 40-48 Drake Street, Rochdale						
SAMPLE TYPE:		SOILS						
SAMPLING DATE:		26.06.2019						
Contaminant		No	Max	Mean	t 95	RESIDENTIAL (with or without plant uptake)		
						Pass/Fail		Comment
METAL	Arsenic	6	16	12.1667	15.75	37	PASS	
METAL	Cadmium	6	1	1	1	22	PASS	
METAL	Chromium as Cr(III)	6	17	13.33	16.75	910	PASS	
METAL	Copper	6	110	61.6667	102.5	2400	PASS	
METAL	Lead	6	380	261.667	365	200	FURTHER ACTION	BH1, BH3, BH4, TH1
METAL	Mercury (inorganic)	6	1	1	1	40	PASS	
METAL	Nickel	6	18	14.6667	18	130	PASS	
METAL	Selenium	6	3	3	3	250	PASS	
METAL	Zinc as Zn	6	340	182.5	330	3700	PASS	
INORGANIC	Sulphate (Total) as SO4	6	6.1	1.36833	4.8	0.24	FURTHER ACTION	BH3, BH4, TP1, TP2
INORGANIC	Sulphate (Water Soluble) SO4	6	1500	916.667	1500	500	FURTHER ACTION	BH3, BH4, TP1, TP2. All DS2/AC2
INORGANIC	pH	6	10	8.5	9.625	6 to 8	ALKALINE	pH 7.7-10
INORGANIC	Asbestos Identification	6	0	0	0	0	PASS	
ORGANIC	SOM	6	6	6	6			
PAH	acenaphthene	6	0.4	0.15	0.325	1100	PASS	
PAH	acenaphthylene	6	0.1	0.1	0.1	920	PASS	
PAH	anthracene	6	0.6	0.18333	0.475	11000	PASS	
PAH	benzo[a]anthracene	6	1.1	0.45	0.95	13	PASS	
PAH	benzo[a]pyrene (BaP)	6	1	0.43333	0.875	5	PASS	
PAH	benzo[b]fluoranthene	6	1.7	0.78333	1.525	3.7	PASS	
PAH	benzo[g,h,i]perylene	6	0.6	0.31667	0.55	350	PASS	
PAH	benzo[k]fluoranthene	6	1.7	0.78333	1.525	100	PASS	
PAH	chrysene	6	1.2	0.5	1.05	27	PASS	
PAH	dibenz[ah]anthracene	6	0.2	0.11667	0.175	0.3	PASS	
PAH	fluoranthene	6	2.4	0.88333	2.075	890	PASS	
PAH	fluorene	6	0.3	0.13333	0.25	860	PASS	
PAH	indeno[123-cd]pyrene	6	0.5	0.26667	0.45	41	PASS	
PAH	naphthalene	6	0.2	0.13333	0.2	13	PASS	
PAH	phenanthrene	6	2.5	0.73333	2.05	440	PASS	
PAH	pyrene	6	2.3	0.85	1.95	2000	PASS	
FUEL	aliphatic EC 8-10	6	1	1	1	150	PASS	
FUEL	aliphatic EC 10-12	6	1	1	1	760	PASS	
FUEL	aliphatic EC 12-16	6	3	1.5	2.75	4300	PASS	
FUEL	aliphatic EC 16-35	6	109	67.3333	106.25	110000	PASS	
FUEL	aromatic EC 8-10	6	1	1	1	190	PASS	
FUEL	aromatic EC 10-12	6	1	1	1	380	PASS	
FUEL	aromatic EC 12-16	6	3	1.5	2.75	660	PASS	
FUEL	aromatic EC 16-21	6	11	7.16667	11	930	PASS	
FUEL	aromatic EC 21-35	6	100	60.1667	96.75	1700	PASS	
Comments Key								
Asbestos: A=amosite (brown), CH=chrysotile (white), CR=crocidolite (blue)								

5.7. Certificates (Carley Daines & Partners Ltd/Mini Soil Surveys Ltd).



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Concept Life Sciences Analytical & Development
Services Limited registered in England and
Wales (No 2514788)

Concept Life Sciences

Certificate of Analysis

Hadfield House
Hadfield Street
Cornbrook
Manchester
M16 9FE
Tel : 0161 874 2400
Fax : 0161 874 2468

Report Number: 833137-1

Date of Report: 18-Jul-2019

Customer: Carley Daines and Partners
11 Bridgewater Road
Walkden
Worsley
Manchester
M28 3JE

Customer Contact: Mr Chris Carley

Customer Job Reference:

Customer Site Reference: DRAKE ST, ROCHDALE

Date Job Received at Concept: 08-Jul-2019

Date Analysis Started: 09-Jul-2019

Date Analysis Completed: 18-Jul-2019

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Customers are responsible for information provided where, if incorrect, it could affect the validity of the results.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs

All results have been reviewed in accordance with QMSection 15 of the Concept Life Sciences, Analytical Services Quality Manual



1549

Report checked
and authorised by :
Toni Morris
Customer Service Advisor

Issued by :
Toni Morris
Customer Service Advisor

Concept Reference: 833137 Project Site: DRAKE ST, ROCHDALE Customer Reference:									
Soil Heavy Metals(9)									
Analysed as Soil									
Concept Reference					833137 001	833137 002	833137 003	833137 004	833137 005
Customer Sample Reference					BH1	BH2	BH3	BH4	TP1
Date Sampled					26-JUN-2019	26-JUN-2019	26-JUN-2019	26-JUN-2019	26-JUN-2019
Determinand	Method	Test Sample	LOD	Units					
Arsenic	T6	A40	1	mg/kg	10	14	8	16	15
Cadmium	T6	A40	1	mg/kg	<1	<1	<1	<1	<1
Chromium	T6	A40	1	mg/kg	11	15	9	17	16
Copper	T6	A40	1	mg/kg	110	80	35	60	49
Lead	T6	A40	1	mg/kg	320	190	220	380	320
Mercury	T6	A40	1	mg/kg	1	<1	<1	<1	<1
Nickel	T6	A40	1	mg/kg	17	18	8	18	13
Selenium	T6	A40	3	mg/kg	<3	<3	<3	<3	<3
Zinc	T6	A40	1	mg/kg	110	140	110	340	300

Concept Reference: 833137 Project Site: DRAKE ST, ROCHDALE Customer Reference:					
Soil Heavy Metals(9)					
Analysed as Soil					
Concept Reference					833137 006
Customer Sample Reference					TP2
Date Sampled					26-JUN-2019
Determinand	Method	Test Sample	LOD	Units	
Arsenic	T6	A40	1	mg/kg	10
Cadmium	T6	A40	1	mg/kg	<1
Chromium	T6	A40	1	mg/kg	12
Copper	T6	A40	1	mg/kg	36
Lead	T6	A40	1	mg/kg	140
Mercury	T6	A40	1	mg/kg	<1
Nickel	T6	A40	1	mg/kg	14
Selenium	T6	A40	3	mg/kg	<3
Zinc	T6	A40	1	mg/kg	95

Concept Reference: 833137 Project Site: DRAKE ST, ROCHDALE Customer Reference:									
Soil pH and Sulphate									
Analysed as Soil									
Concept Reference					833137 001	833137 002	833137 003	833137 004	833137 005
Customer Sample Reference					BH1	BH2	BH3	BH4	TP1
Date Sampled					26-JUN-2019	26-JUN-2019	26-JUN-2019	26-JUN-2019	26-JUN-2019
Determinand	Method	Test Sample	LOD	Units					
pH	T7	A40			8.5	8.4	8.1	8.3	7.7
SO ₄ (Total)	T6	A40	0.01	%	0.09	0.18	0.25	0.69	6.1
SO ₄ (2:1)	T6	AR	0.1	g/l	<0.1	0.4	0.6	1.4	1.5

Concept Reference: 833137

Project Site: DRAKE ST, ROCHDALE

Customer Reference:

Soil

Analysed as Soil

Total Petroleum Hydrocarbons Banded (C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)

Concept Reference				833137 001	833137 002	833137 003	833137 004	833137 005
Customer Sample Reference				BH1	BH2	BH3	BH4	TP1
Date Sampled				26-JUN-2019	26-JUN-2019	26-JUN-2019	26-JUN-2019	26-JUN-2019
Determinand	Method	Test Sample	LOD	Units				
TPH (C8-C10)	T8	M105	1	mg/kg	<1 ⁽¹³⁾	<1 ⁽¹³⁾	<1 ⁽¹³⁾	<1 ⁽¹³⁾
TPH (C10-C12)	T8	M105	1	mg/kg	<1 ⁽¹³⁾	<1 ⁽¹³⁾	<1 ⁽¹³⁾	<1 ⁽¹³⁾
TPH (C12-C16)	T8	M105	1	mg/kg	<1 ⁽¹³⁾	2 ⁽¹³⁾	3 ⁽¹³⁾	1 ⁽¹³⁾
TPH (C16-C21)	T8	M105	1	mg/kg	4 ⁽¹³⁾	4 ⁽¹³⁾	11 ⁽¹³⁾	9 ⁽¹³⁾
TPH (C21-C35)	T8	M105	1	mg/ka	17 ⁽¹³⁾	42 ⁽¹³⁾	83 ⁽¹³⁾	100 ⁽¹³⁾
							100 ⁽¹³⁾	87 ⁽¹³⁾

Concept Reference: 833137 Project Site: DRAKE ST, ROCHDALE Customer Reference: Soil Analysed as Soil Total and Speciated USEPA16 PAH									
Concept Reference					833137 001	833137 002	833137 003	833137 004	833137 005
Customer Sample Reference					BH1	BH2	BH3	BH4	TP1
Date Sampled					26-JUN-2019	26-JUN-2019	26-JUN-2019	26-JUN-2019	26-JUN-2019
Determinand	Method	Test Sample	LOD	Units					
Naphthalene	T16	AR	0.1	mg/kg	0.2	0.2	0.1	<0.1	0.1
Acenaphthylene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	T16	AR	0.1	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	T16	AR	0.1	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	T16	AR	0.1	mg/kg	0.7	0.1	0.4	0.3	0.4
Anthracene	T16	AR	0.1	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	T16	AR	0.1	mg/kg	1.1	0.1	0.6	0.5	0.6
Pyrene	T16	AR	0.1	mg/kg	0.9	0.1	0.8	0.5	0.5
Benzo(a)Anthracene	T16	AR	0.1	mg/kg	0.5	<0.1	0.4	0.3	0.3
Chrysene	T16	AR	0.1	mg/kg	0.6	<0.1	0.5	0.3	0.3
Benzo(b/k)Fluoranthene	T16	AR	0.1	mg/kg	1.0	0.1	0.8	0.6	0.5
Benzo(a)Pyrene	T16	AR	0.1	mg/kg	0.5	<0.1	0.4	0.3	0.3
Indeno(123-cd)Pyrene	T16	AR	0.1	mg/kg	0.3	<0.1	0.3	0.2	0.2
Dibenzo(ah)Anthracene	T16	AR	0.1	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)Perylene	T16	AR	0.1	mg/kg	0.4	<0.1	0.3	0.3	0.2
PAH(total)	T16	AR	0.1	mg/kg	6.6	0.7	4.5	3.2	3.3

Concept Reference: 833137 Project Site: DRAKE ST, ROCHDALE Customer Reference: Soil Analysed as Soil Total and Speciated USEPA16 PAH					
Concept Reference					833137 006
Customer Sample Reference					TP2
Date Sampled					26-JUN-2019
Determinand	Method	Test Sample	LOD	Units	
Naphthalene	T16	AR	0.1	mg/kg	0.1
Acenaphthylene	T16	AR	0.1	mg/kg	<0.1
Acenaphthene	T16	AR	0.1	mg/kg	0.4
Fluorene	T16	AR	0.1	mg/kg	0.3
Phenanthrene	T16	AR	0.1	mg/kg	2.5
Anthracene	T16	AR	0.1	mg/kg	0.6
Fluoranthene	T16	AR	0.1	mg/kg	2.4
Pyrene	T16	AR	0.1	mg/kg	2.3
Benzo(a)Anthracene	T16	AR	0.1	mg/kg	1.1
Chrysene	T16	AR	0.1	mg/kg	1.2
Benzo(b/k)Fluoranthene	T16	AR	0.1	mg/kg	1.7
Benzo(a)Pyrene	T16	AR	0.1	mg/kg	1.0
Indeno(123-cd)Pyrene	T16	AR	0.1	mg/kg	0.5
Dibenzo(ah)Anthracene	T16	AR	0.1	mg/kg	0.2
Benzo(ghi)Perylene	T16	AR	0.1	mg/kg	0.6
PAH(total)	T16	AR	0.1	mg/kg	15

Concept Reference: 833137					
Project Site: DRAKE ST, ROCHDALE					
Customer Reference:					
Soil		Analysed as Soil			
Miscellaneous					
Concept Reference					833137 006
Customer Sample Reference					TP2
Date Sampled					26-JUN-2019
Determinand	Method	Test Sample	LOD	Units	
Asbestos ID	T27	A40			Asbestos not detected

Value	Description
A40	Assisted dried < 40C
AR	As Received
M105	Analysis conducted on an "as received" aliquot. Results are reported on a dry weight basis where moisture content was determined by assisted drying of sample at 105C
13	Results have been blank corrected.
S	Analysis was subcontracted
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Asbestos testing was subcontracted.
These samples have been analysed exceeding recommended holding times of 11 days for pH testing and 14 days for TPHs and PAHs. It is possible therefore that the results provided may be compromised.

Value	Description
T27	PLM
T8	GC/FID
T16	GC/MS
T6	ICP/OES
T7	Probe

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Naphthalene	T16	AR	0.1	mg/kg	U	001-006
Acenaphthylene	T16	AR	0.1	mg/kg	U	001-006
Acenaphthene	T16	AR	0.1	mg/kg	U	001-006
Fluorene	T16	AR	0.1	mg/kg	U	001-006
Phenanthrene	T16	AR	0.1	mg/kg	U	001-006
Anthracene	T16	AR	0.1	mg/kg	U	001-006
Fluoranthene	T16	AR	0.1	mg/kg	U	001-006

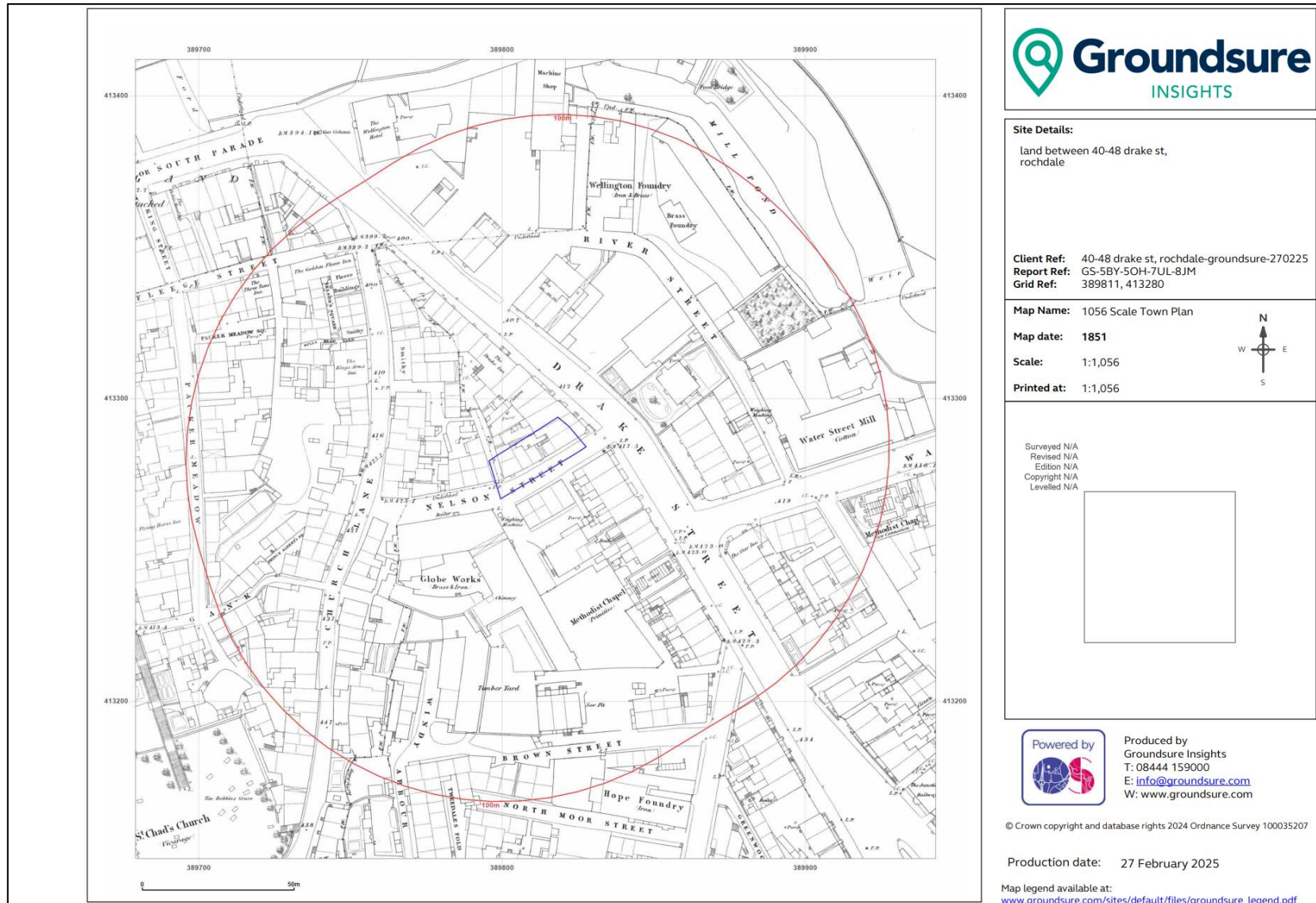
Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Pyrene	T16	AR	0.1	mg/kg	U	001-006
Benzo(a)Anthracene	T16	AR	0.1	mg/kg	U	001-006
Chrysene	T16	AR	0.1	mg/kg	U	001-006
Benzo(b/k)Fluoranthene	T16	AR	0.1	mg/kg	U	001-006
Benzo(a)Pyrene	T16	AR	0.1	mg/kg	U	001-006
Indeno(123-cd)Pyrene	T16	AR	0.1	mg/kg	U	001-006
Dibenzo(ah)Anthracene	T16	AR	0.1	mg/kg	U	001-006
Benzo(ghi)Perylene	T16	AR	0.1	mg/kg	U	001-006
PAH(total)	T16	AR	0.1	mg/kg	U	001-006
Asbestos ID	T27	A40			SU	001-006
TPH (C8-C10)	T8	M105	1	mg/kg	N	001-006
TPH (C10-C12)	T8	M105	1	mg/kg	U	001-006
TPH (C12-C16)	T8	M105	1	mg/kg	U	001-006
TPH (C16-C21)	T8	M105	1	mg/kg	U	001-006
TPH (C21-C35)	T8	M105	1	mg/kg	U	001-006
Arsenic	T6	A40	1	mg/kg	U	001-006
Cadmium	T6	A40	1	mg/kg	U	001-006
Chromium	T6	A40	1	mg/kg	U	001-006
Copper	T6	A40	1	mg/kg	U	001-006
Lead	T6	A40	1	mg/kg	U	001-006
Mercury	T6	A40	1	mg/kg	U	001-006
Nickel	T6	A40	1	mg/kg	U	001-006
Selenium	T6	A40	3	mg/kg	U	001-006
Zinc	T6	A40	1	mg/kg	U	001-006
pH	T7	A40			U	001-006
SO4(Total)	T6	A40	0.01	%	N	001-006
SO4(2:1)	T6	AR	0.1	g/l	N	001-006

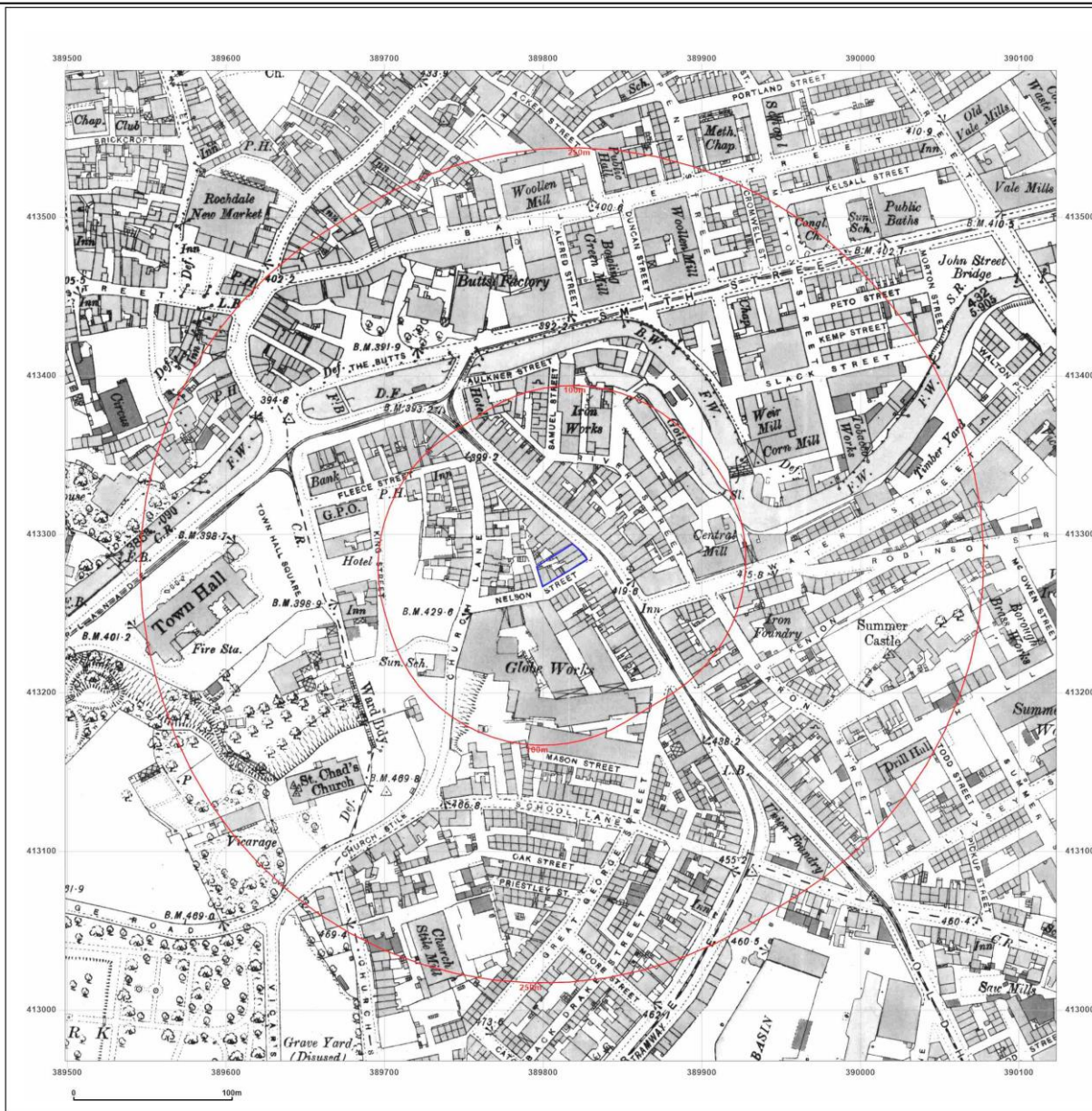
6. APPENDIX B: SITE WALKOVER PHOTOS FEB 2025.





7. APPENDIX C: GROUNDsure INSIGHTS.





Site Details:

land between 40-48 drake st,
rochdale

Client Ref: 40-48 drake st, rochdale-groundsurre-270225
Report Ref: GS-5BY-5OH-7UL-8JM
Grid Ref: 389811, 413280

Map Name: County Series

Map date: 1891

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1891
Revised 1891
Edition N/A
Copyright N/A
Levelled N/A



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Production date: 27 February 2025

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

land between 40-48 drake st,
rochdale

Client Ref: 40-48 drake st, rochdale-groundsurre-270225
Report Ref: GS-5BY-5OH-7UL-8JM
Grid Ref: 389811, 413280

Map Name: County Series Town Plan

Map date: 1892

Scale: 1:500

Printed at: 1:1,000



Surveyed 1892
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 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1892
 Revised N/A
 Edition N/A
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 Levelled N/A

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 Edition N/A
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 Levelled N/A

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 Revised N/A
 Edition N/A
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 Levelled N/A

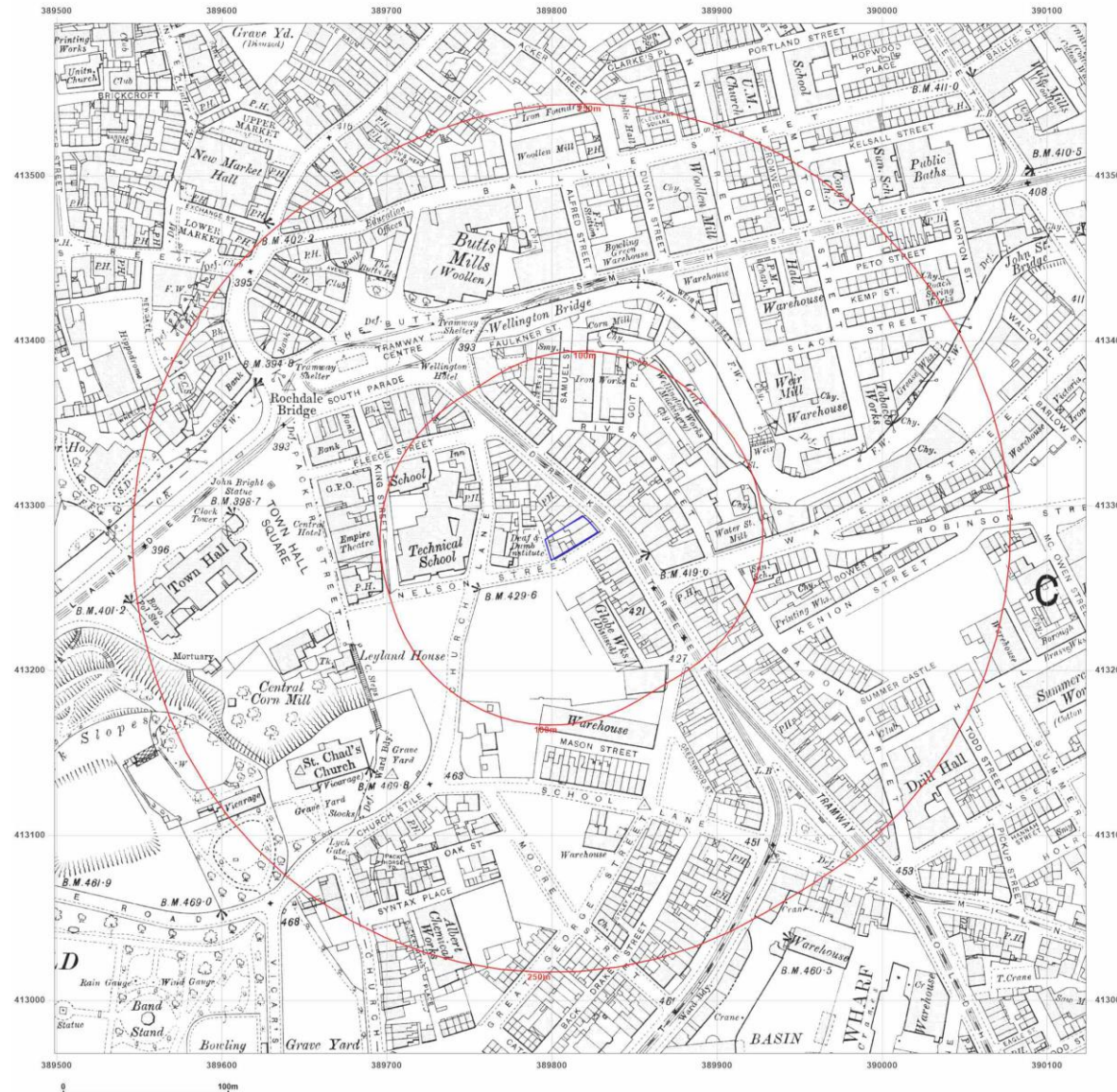


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Production date: 27 February 2025

Map legend available at:
www.groundsure.com/sites/default/files/groundsurre_legend.pdf



Site Details:

land between 40-48 drake st,
rochdale

Client Ref: 40-48 drake st, rochdale-groundsre-270225
Report Ref: GS-SBY-50H-7UL-8JM
Grid Ref: 389811, 413280

Map Name: County Series

Map date: 1910

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1910
 Revised 1910
 Edition N/A
 Copyright N/A
 Levelled N/A

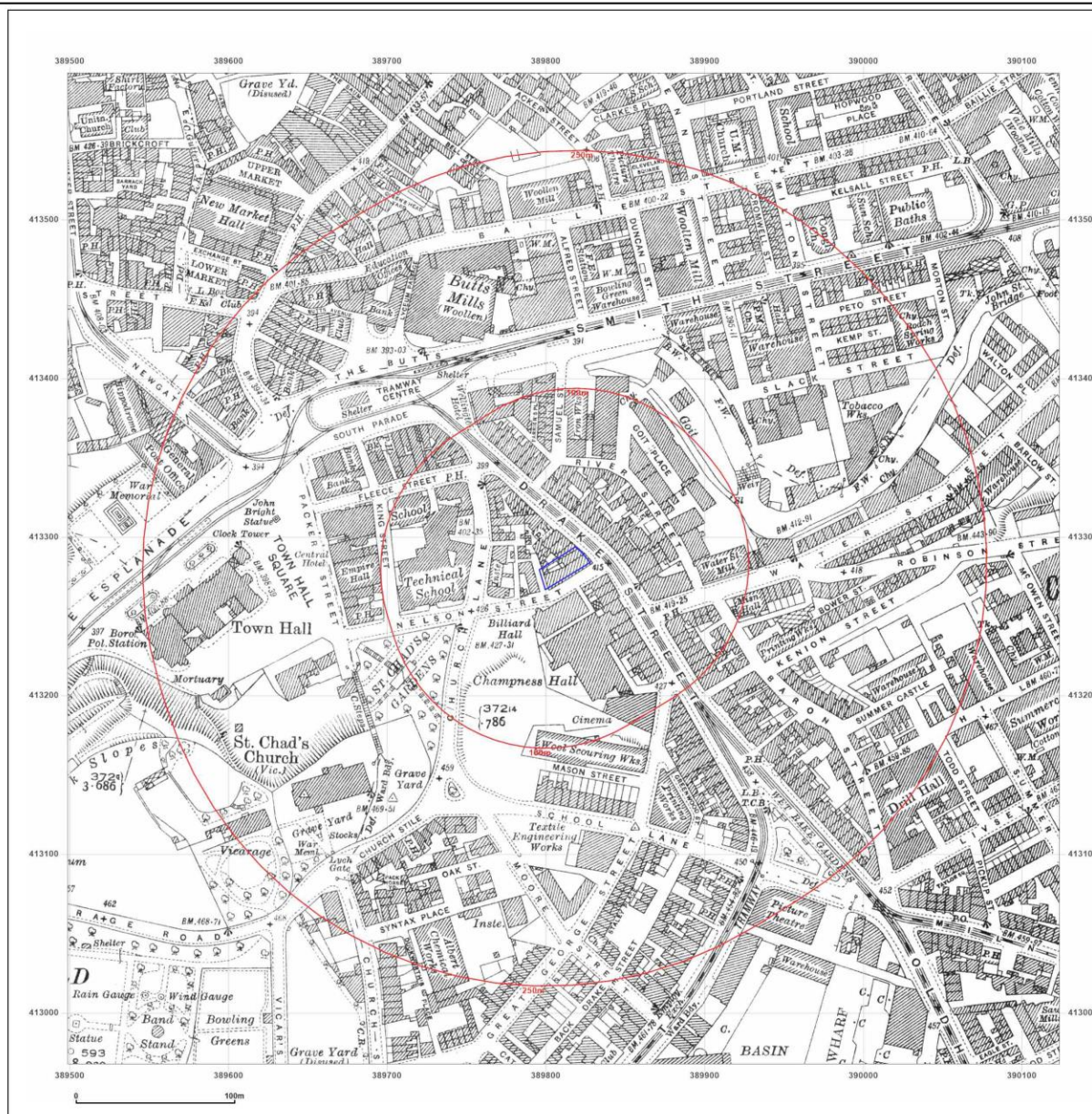


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Site Details:

land between 40-48 drake st,
rochdale

Client Ref: 40-48 drake st, rochdale-groundsurre-270225
Report Ref: GS-5BY-5OH-7UL-8JM
Grid Ref: 389811, 413280

Map Name: County Series

Map date: 1930

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1930
Revised 1930
Edition N/A
Copyright N/A
Levelled N/A

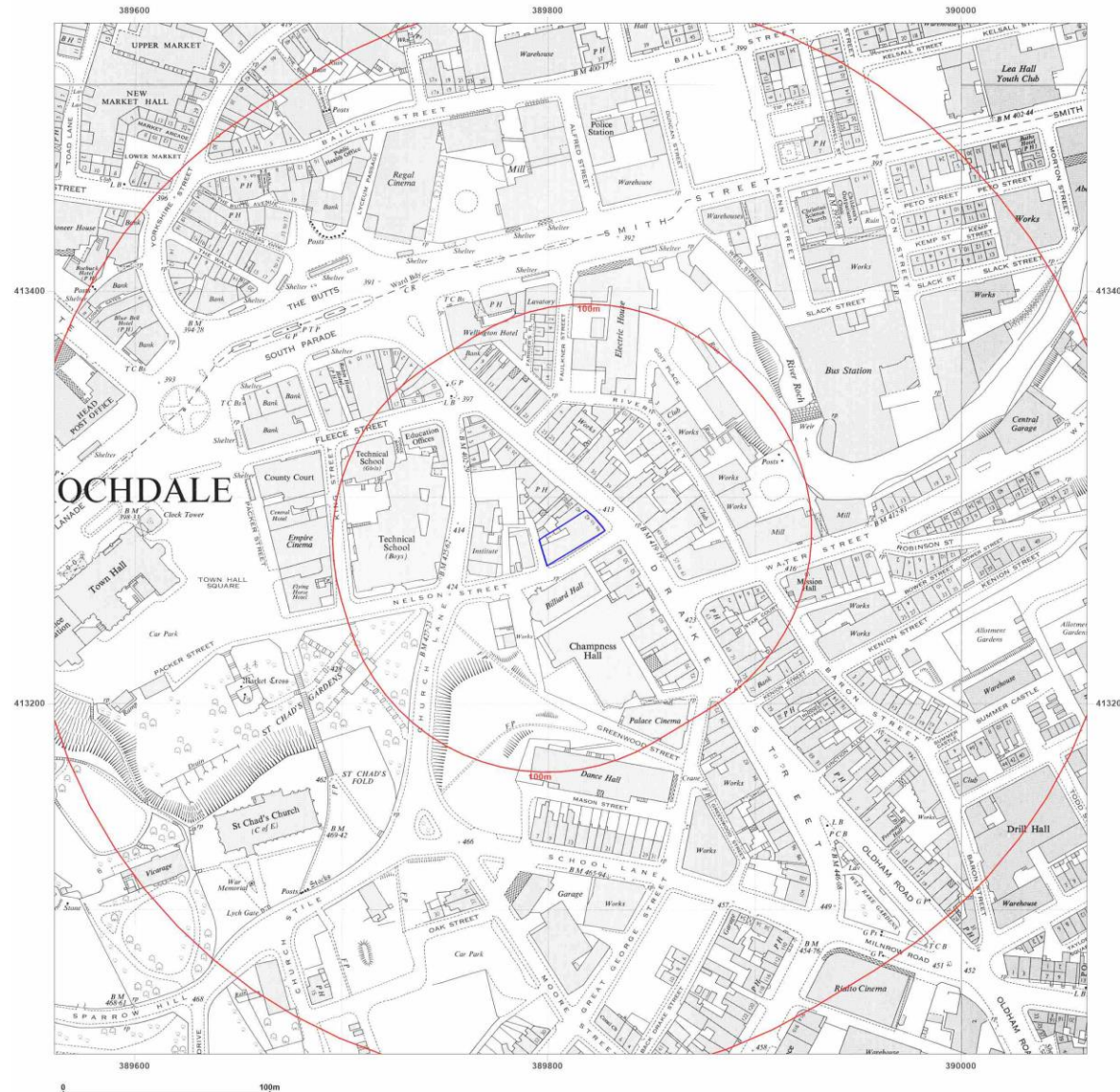


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Site Details:

land between 40-48 drake st,
rochdale

Client Ref: 40-48 drake st, rochdale-groundsure-270225
Report Ref: GS-5BY-5OH-7UL-8JM
Grid Ref: 389811, 413280

Map Name: National Grid

Map date: 1957-1959

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1959
Revised 1959
Edition N/A
Copyright 1959
Levelled 1956

Surveyed 1957
Revised 1957
Edition N/A
Copyright N/A
Levelled 1928

Surveyed 1959
Revised 1959
Edition N/A
Copyright 1959
Levelled 1956

Surveyed 1957
Revised 1957
Edition N/A
Copyright N/A
Levelled 1928

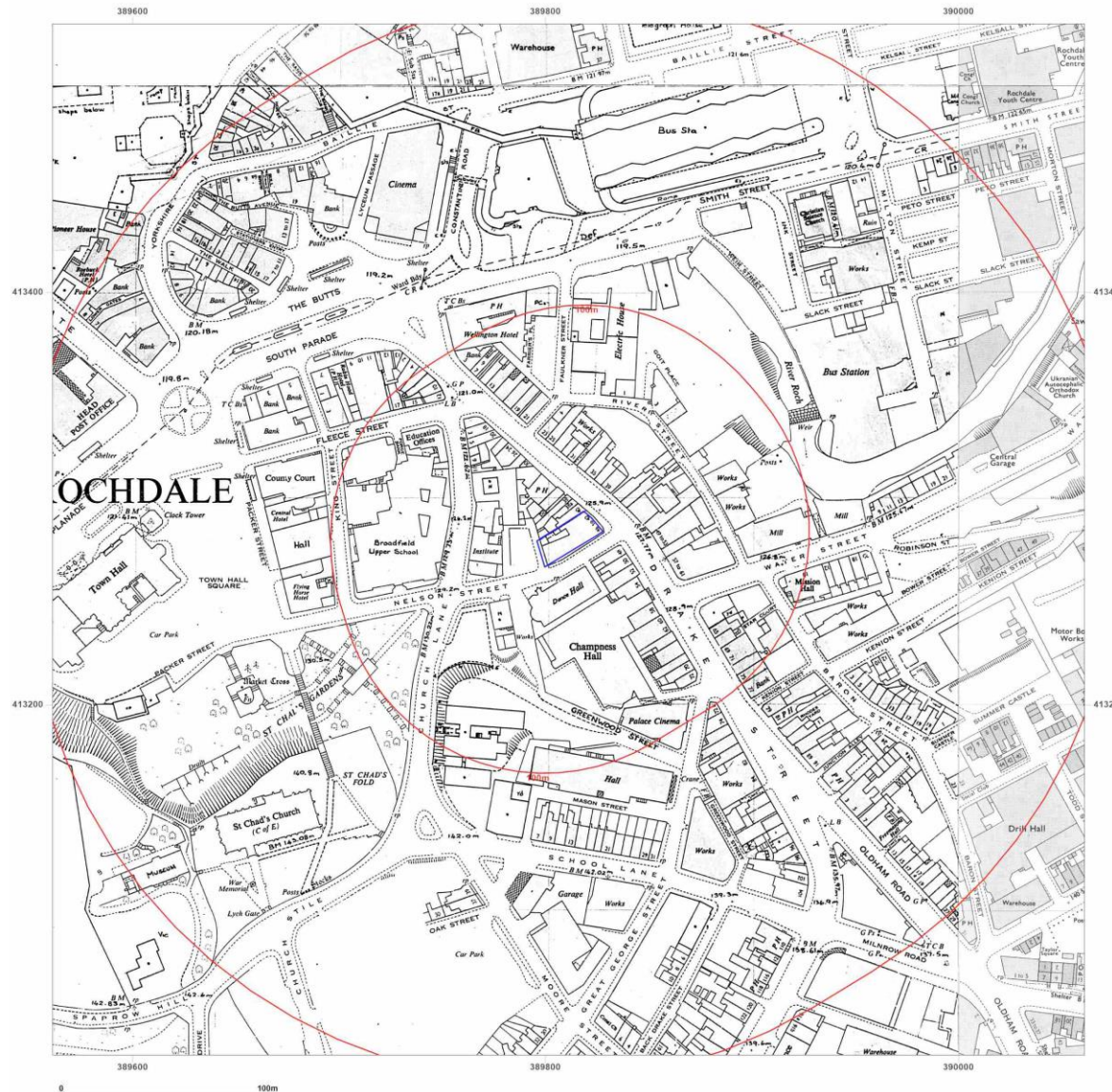


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Site Details:

land between 40-48 drake st,
rochdale

Client Ref: 40-48 drake st, rochdale-groundsurre-270225
Report Ref: GS-5BY-5OH-7UL-8JM
Grid Ref: 389811, 413280

Map Name: National Grid

Map date: 1975-1978

Scale: 1:1,250

Printed at: 1:2,000



Surveyed N/A
 Revised N/A
 Edition N/A
 Copyright 1977
 Levelled 1956

Surveyed 1957
 Revised 1974
 Edition N/A
 Copyright 1975
 Levelled 1962

Surveyed 1978
 Revised 1978
 Edition N/A
 Copyright 1978
 Levelled N/A

Surveyed 1957
 Revised 1974
 Edition N/A
 Copyright 1975
 Levelled 1962

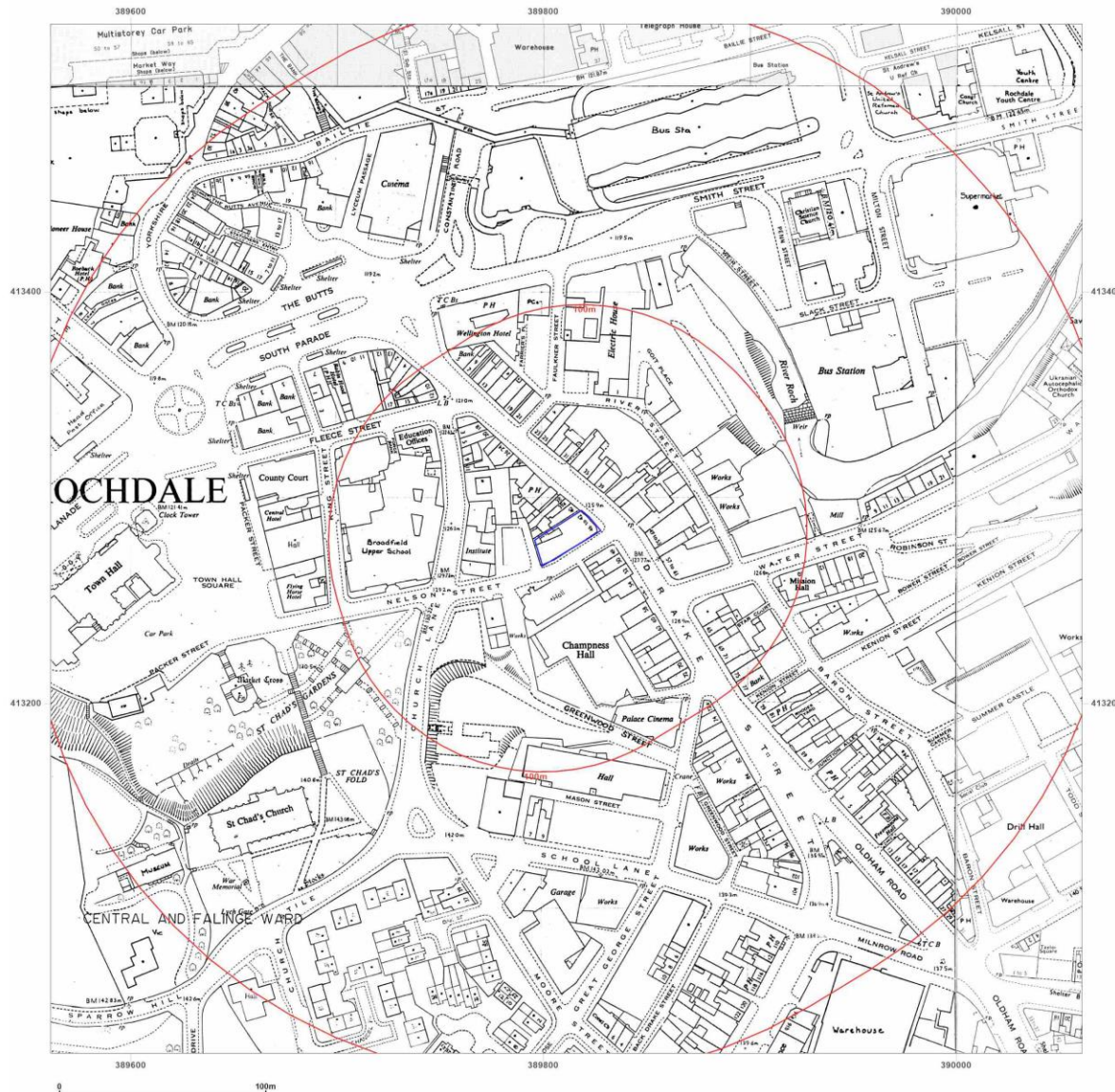


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Site Details:

land between 40-48 drake st,
rochdale

Client Ref: 40-48 drake st, rochdale-groundsure-270225
Report Ref: GS-5BY-5OH-7UL-8JM
Grid Ref: 389811, 413280

Map Name: National Grid

Map date: 1984-1987

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1958
 Revised 1984
 Edition N/A
 Copyright 1985
 Levelled 1958

Surveyed 1962
 Revised 1984
 Edition N/A
 Copyright 1984
 Levelled 1962

Surveyed 1962
 Revised 1987
 Edition N/A
 Copyright 1987
 Levelled 1962

Surveyed 1962
 Revised 1986
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 Copyright 1986
 Levelled 1962

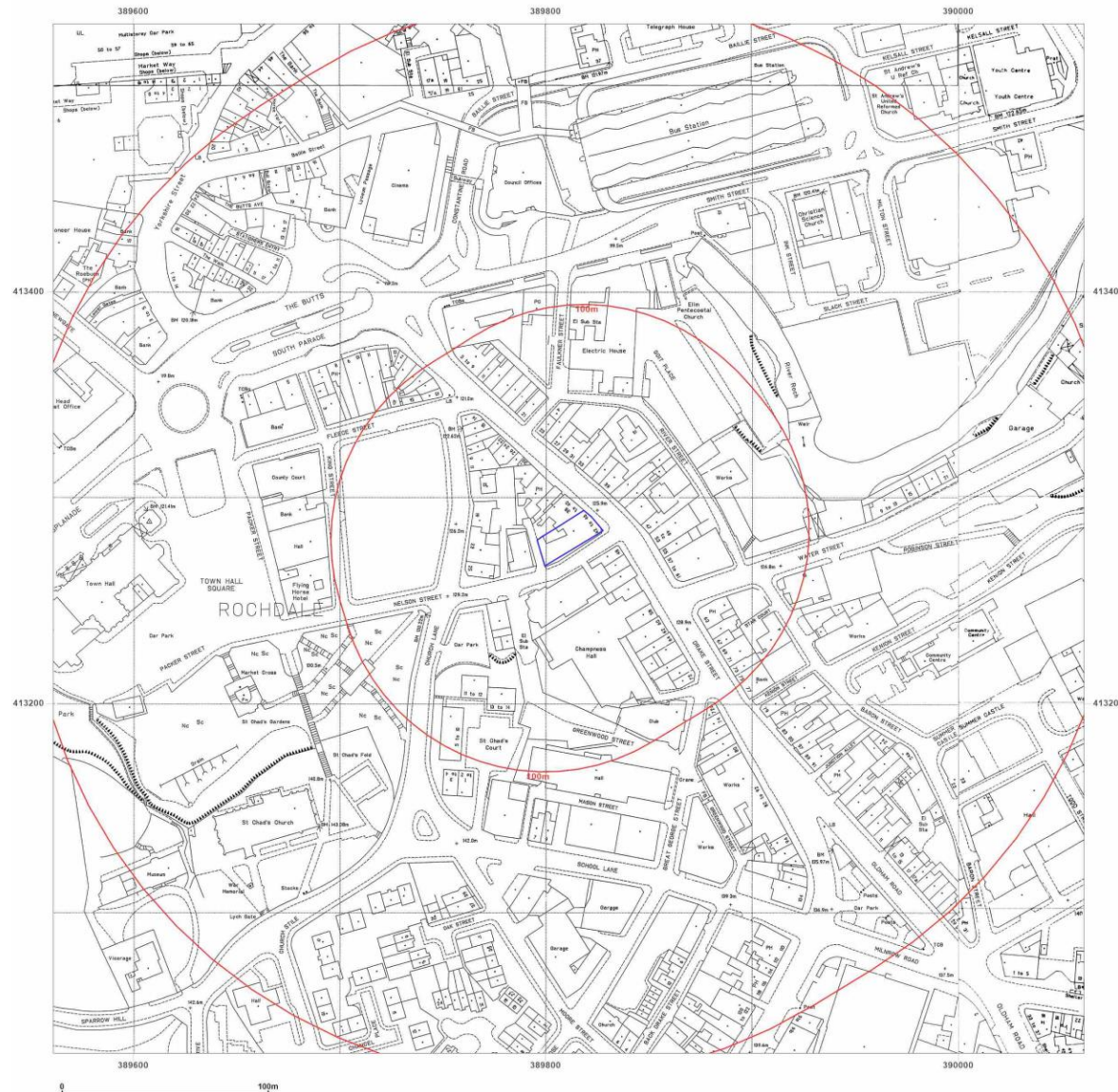


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**Site Details:**

land between 40-48 drake st,
rochdale

Client Ref: 40-48 drake st, rochdale-groundsurre-270225
Report Ref: GS-5BY-5OH-7UL-8JM
Grid Ref: 389811, 413280

Map Name: National Grid

Map date: 1993-1995

Scale: 1:1,250

Printed at: 1:2,000



Surveyed N/A
 Revised N/A
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1993
 Revised N/A
 Edition N/A
 Copyright 1993
 Levelled N/A

Surveyed 1994
 Revised 1994
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1995
 Revised N/A
 Edition N/A
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Site Details:

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rochdale

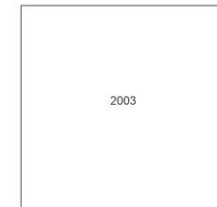
Client Ref: 40-48 drake st, rochdale-groundsurre-270225
Report Ref: GS-5BY-5OH-7UL-8JM
Grid Ref: 389811, 413280

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250



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land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

Recent site history - 2000 aerial photograph



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Capture Date: 19/06/2000

Site Area: 0.04ha



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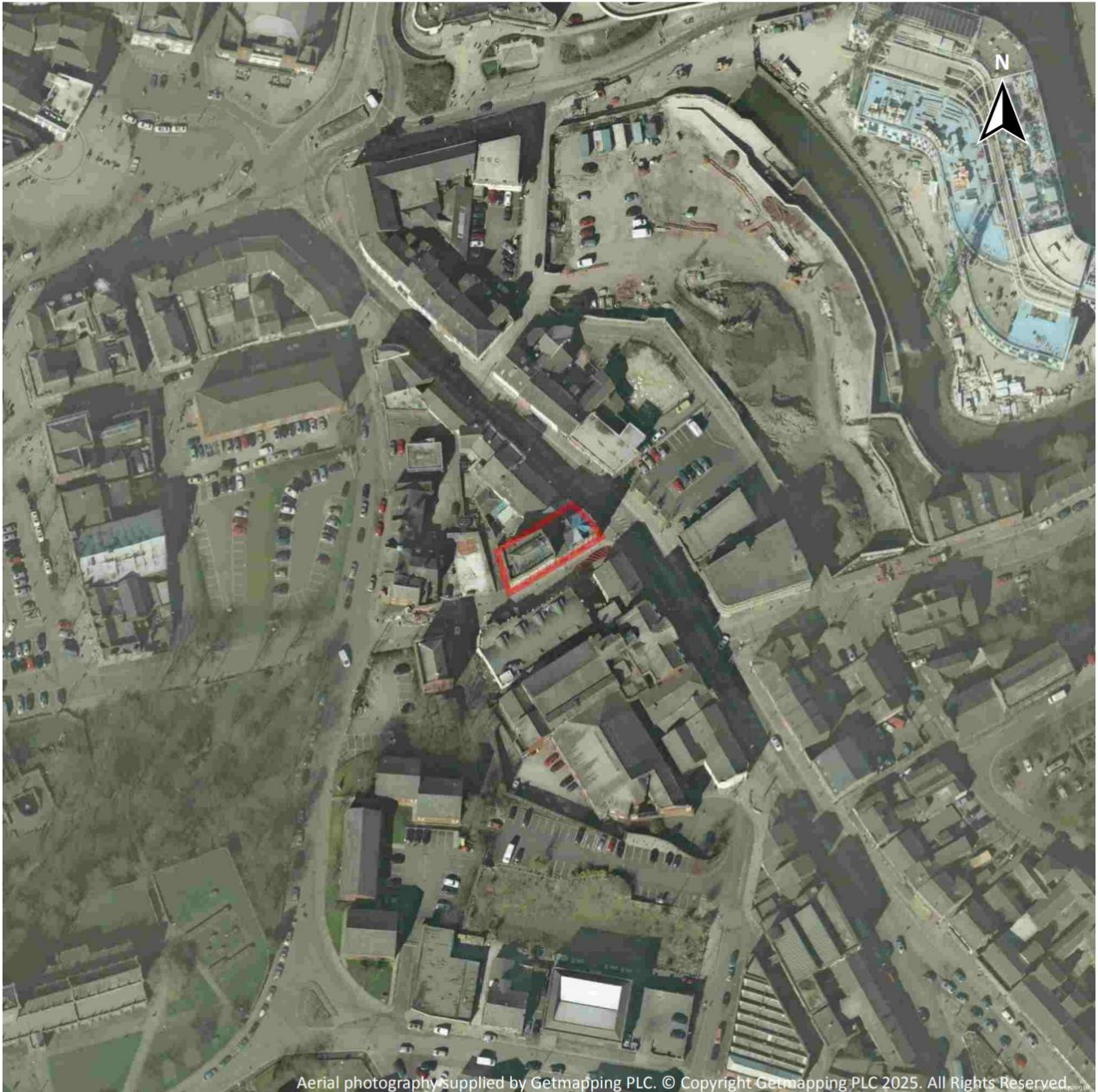
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

Recent site history - 2012 aerial photograph



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Capture Date: 26/03/2012

Site Area: 0.04ha



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land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

Recent site history - 2019 aerial photograph



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Capture Date: 23/05/2019

Site Area: 0.04ha



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land between 40-48 drake st, rochdale

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Recent aerial photograph



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Capture Date: 07/04/2023

Site Area: 0.04ha



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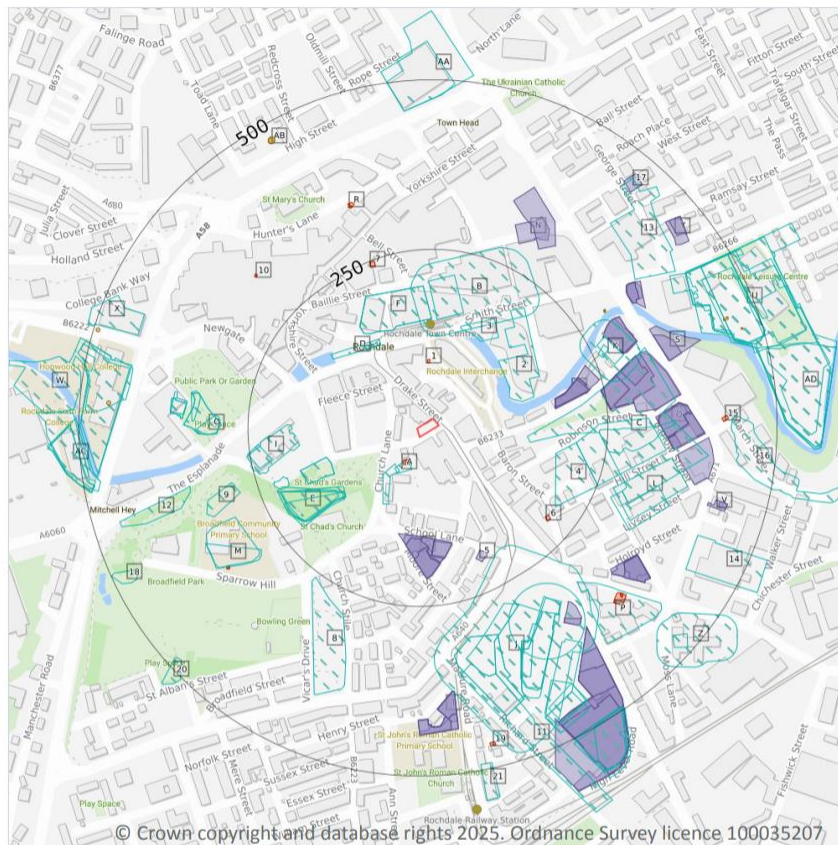
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

1 Past land use



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical tanks
- Historical energy features
- Historical garages

1.1 Historical industrial land uses

Records within 500m

89

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on [page 15 >](#)

ID	Location	Land use	Dates present	Group ID
A	42m SW	Unspecified Heap	1928 - 1938	790575



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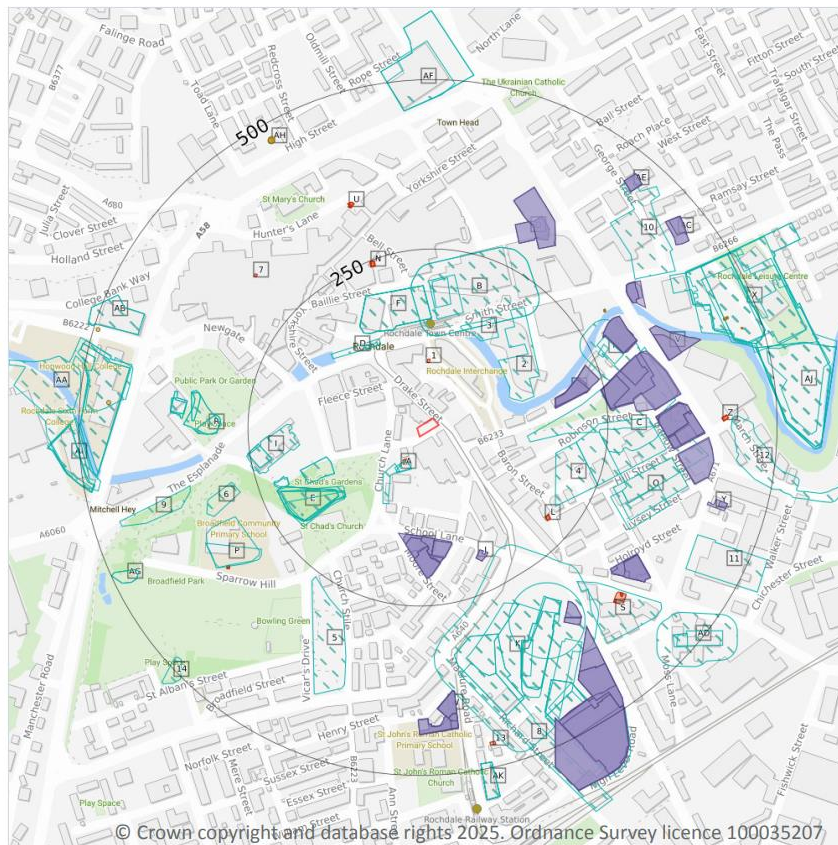
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

2 Past land use - un-grouped



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical tanks
- Historical energy features
- Historical garages

2.1 Historical industrial land uses

Records within 500m

117

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on [page 24](#) >

ID	Location	Land Use	Date	Group ID
A	42m SW	Unspecified Heap	1928	790575
A	42m SW	Unspecified Heap	1938	790575
A	54m SW	Unspecified Ground Workings	1968	660711



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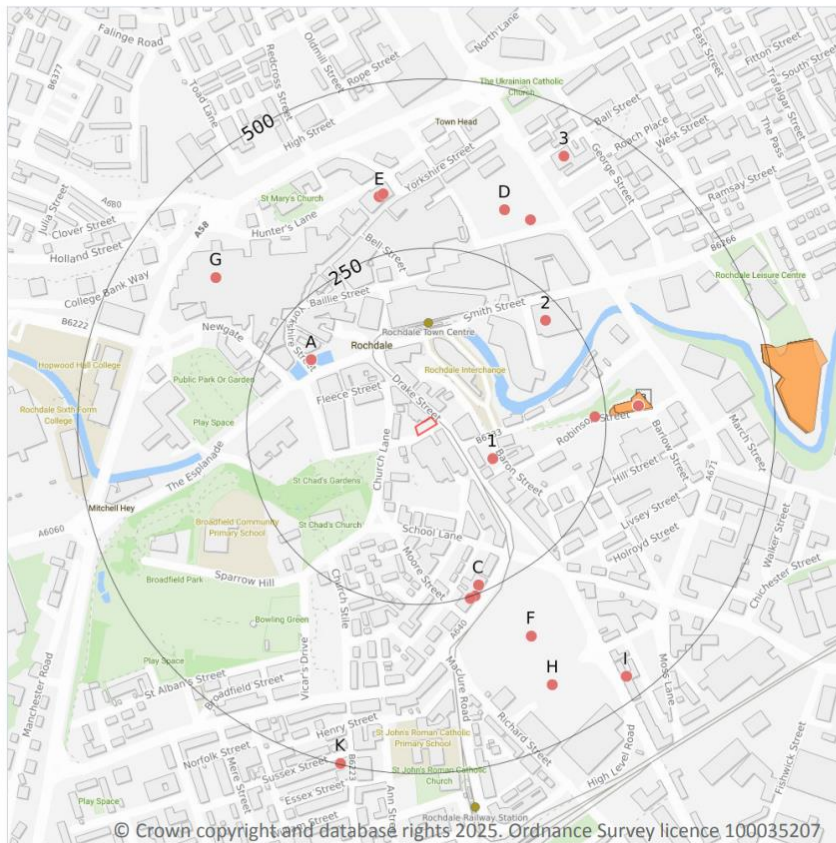
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

3 Waste and landfill



- Site Outline
- Search buffers in metres (m)
- Historical waste sites
- Waste exemptions

3.1 Active or recent landfill

Records within 500m

0

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.2 Historical landfill (BGS records)

Records within 500m

0

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.



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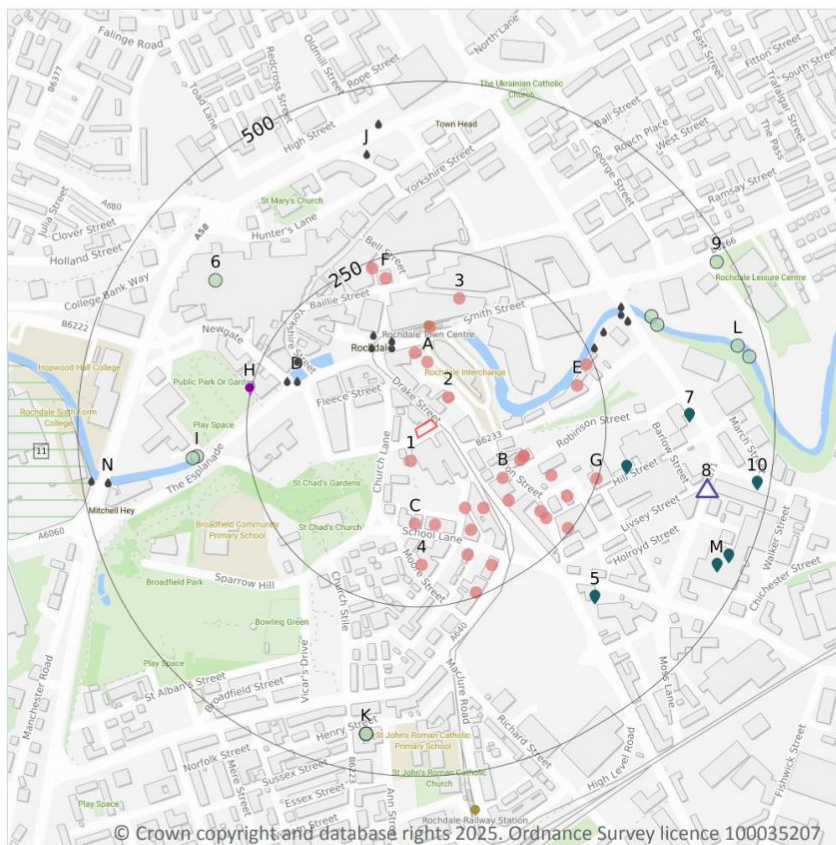
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

4 Current industrial land use



- Site Outline
- Search buffers in metres (m)
- Recent industrial land uses
- ▲ Current or recent petrol stations
- Control of Major Accident Hazards
- Part A(1) industrial activities
- Licensed pollutant release (Part A(2)/B)
- Licensed Discharges to controlled waters
- Pollution Incidents (EA/NRW)
- Pollution inventory substances
- Pollution inventory waste transfers

4.1 Recent industrial land uses

Records within 250m

30

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on [page 44 >](#)

ID	Location	Company	Address	Activity	Category
1	36m SW	Electricity Sub Station	Greater Manchester, OL16	Electrical Features	Infrastructure and Facilities
2	42m NE	Rochdale Shopmobility	Shopmobility, 12, River Street, Rochdale, Greater Manchester, OL16	Disability and Mobility Equipment	Consumer Products



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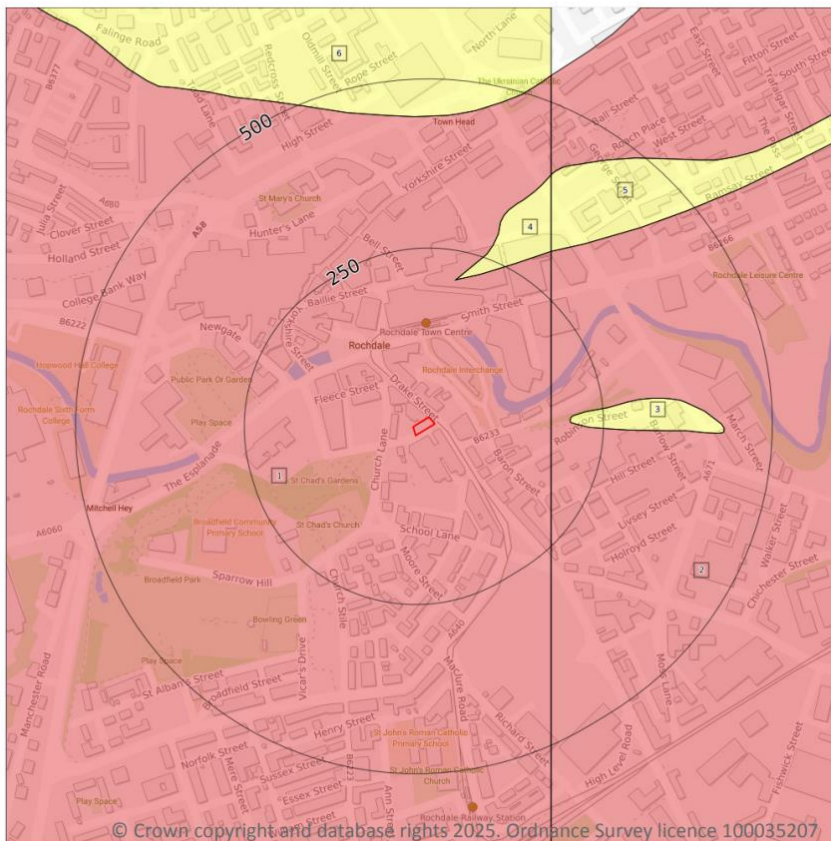
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

5 Hydrogeology - Superficial aquifer



— Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive
- Unknown

5.1 Superficial aquifer

Records within 500m

6

Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on [page 62](#) >

ID	Location	Designation	Description
1	On site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	172m E	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers



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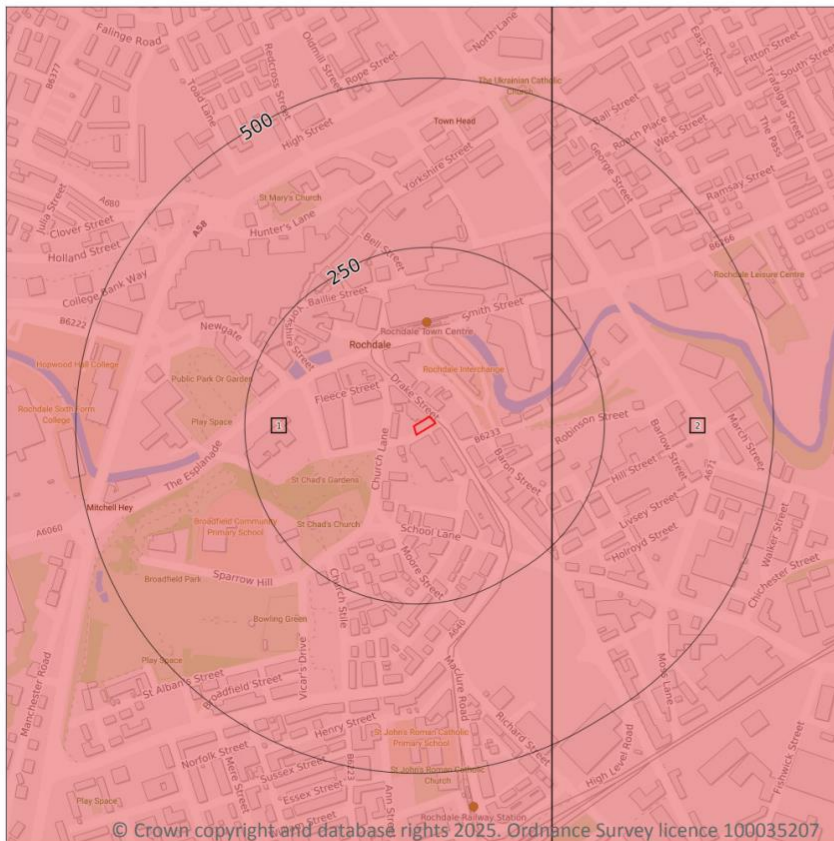
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

Bedrock aquifer



— Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive

5.2 Bedrock aquifer

Records within 500m

2

Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on [page 64](#) >

ID	Location	Designation	Description
1	On site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	172m E	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers



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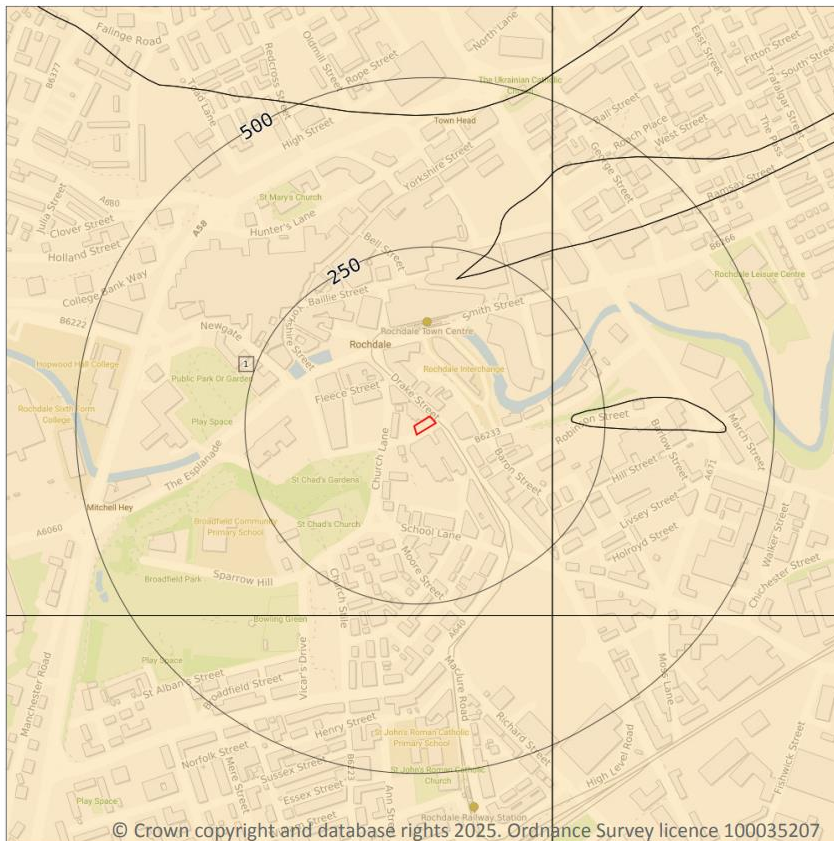
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

Groundwater vulnerability



— Site Outline

Search buffers in metres (m)

Superficial vulnerability

- Principal superficial aquifer, high vulnerability
- Secondary superficial aquifer, high vulnerability
- Principal superficial aquifer, medium vulnerability
- Secondary superficial aquifer, medium vulnerability
- Principal superficial aquifer, low vulnerability
- Secondary superficial aquifer, low vulnerability

Bedrock vulnerability

- Principal bedrock aquifer, high vulnerability
- Secondary bedrock aquifer, high vulnerability
- Principal bedrock aquifer, medium vulnerability
- Secondary bedrock aquifer, medium vulnerability
- Principal bedrock aquifer, low vulnerability
- Secondary bedrock aquifer, low vulnerability

Other information

- Unproductive aquifer
- Soluble rock risk
- Local information

5.3 Groundwater vulnerability

Records within 50m

1

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Features are displayed on the Groundwater vulnerability map on [page 66 >](#)



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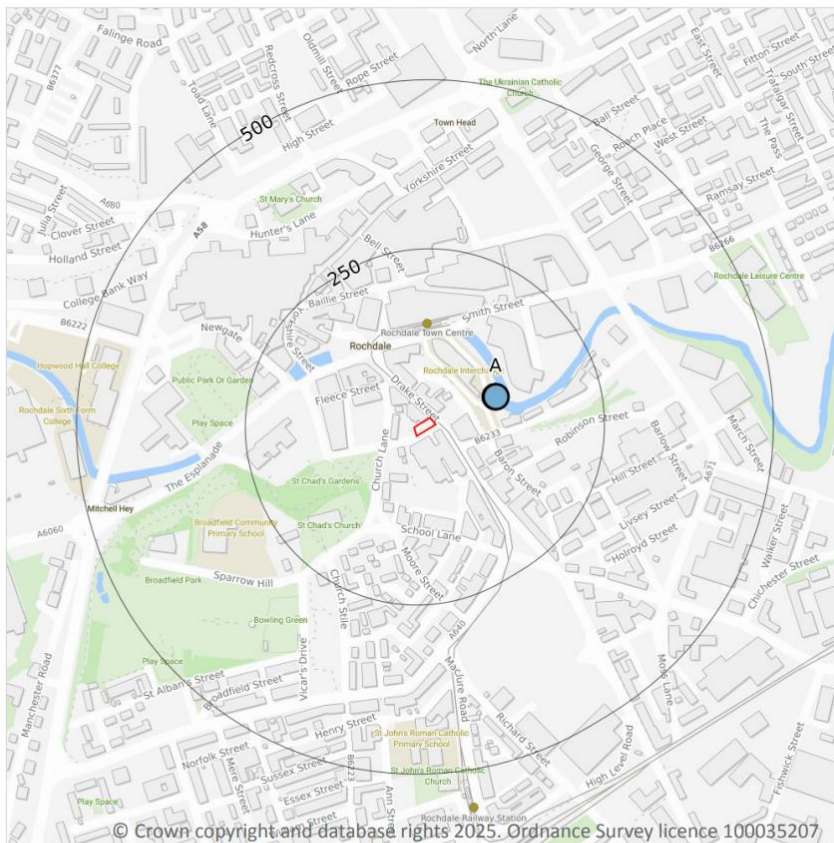
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

Abstractions and Source Protection Zones



— Site Outline

Search buffers in metres (m)

- Source Protection Zone 1
Inner catchment
- Source Protection Zone 2
Outer catchment
- Source Protection Zone 3
Total catchment
- Source Protection Zone 4
Zone of Special Interest
- Source Protection Zone 1c
Inner catchment - confined aquifer
- Source Protection Zone 2c
Outer catchment - confined aquifer
- Source Protection Zone 3c
Total catchment - confined aquifer
- Drinking water abstraction licences
Polygon features
- Drinking water abstraction licences
Linear features
- Groundwater abstraction licence (point)
- Groundwater abstraction licence (area)
- Groundwater abstraction licence (linear)
- Surface Water Abstractions (point)
- Surface Water Abstractions (area)
- Surface Water Abstractions (linear)

5.6 Groundwater abstractions

Records within 2000m

3

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on [page 68](#) >



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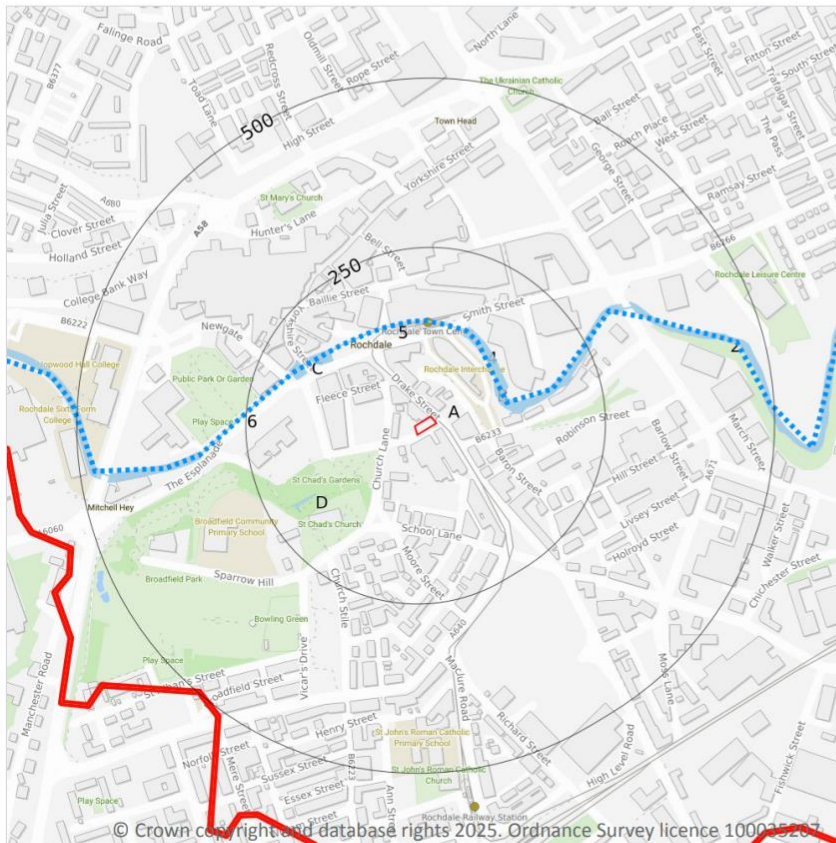
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

6 Hydrology



- Site Outline
- Search buffers in metres (m)
- Water Network (OS MasterMap)
- Surface water features (wider than 5m)
- Surface water features (narrower than 5m)
- ⋯ WFD River, canal and surface water transfer water bodies
- WFD Lake water bodies
- WFD Transitional and coastal water bodies
- WFD Surface water body catchments boundaries
- WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m

20

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

Features are displayed on the Hydrology map on [page 75 >](#)

ID	Location	Type of water feature	Ground level	Permanence	Name
B	97m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	River Roch



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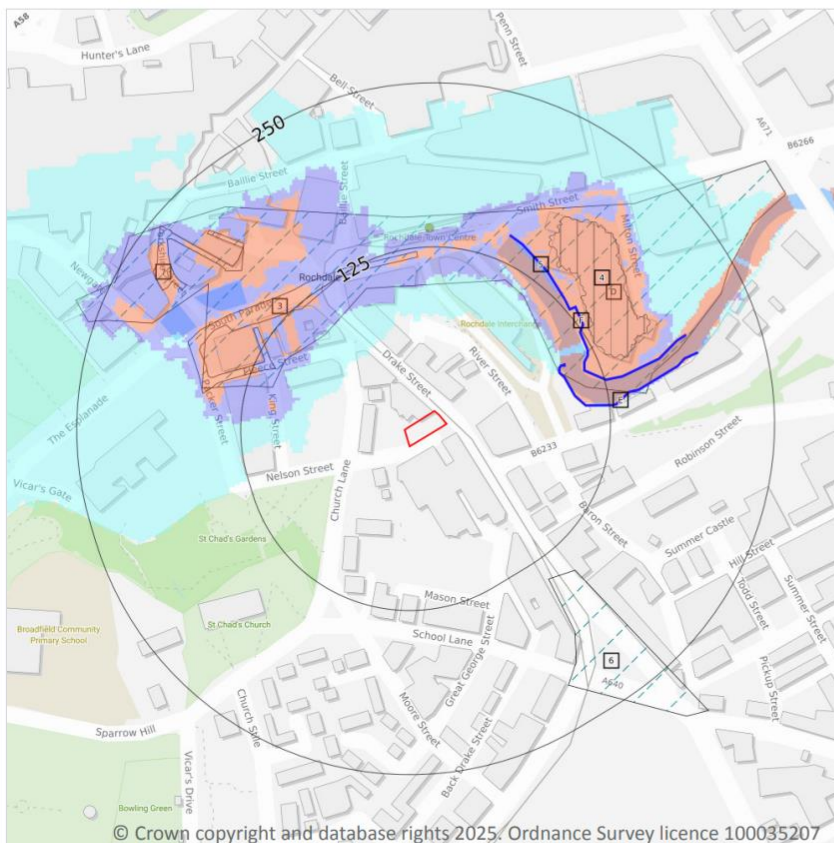
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

7 River and coastal flooding



— Site Outline

Search buffers in metres (m)

River and coastal flooding:

High

Medium

Low

Very Low

Historical Flood Events

Areas Used for Flood Storage

Areas Benefiting from Flood Defences

— Flood Defences

7.1 Risk of flooding from rivers and the sea

Records within 50m

0

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m within the Risk of Flooding from Rivers and Sea (RoFRaS)/Flood Risk Assessment Wales (FRAW) models. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition. The risk categories for RoFRaS for rivers and the sea and FRAW for rivers are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance). The risk categories for FRAW for the sea are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 200 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 200 chance) or High (greater than or equal to 1 in 30 chance).

This data is sourced from the Environment Agency and Natural Resources Wales.



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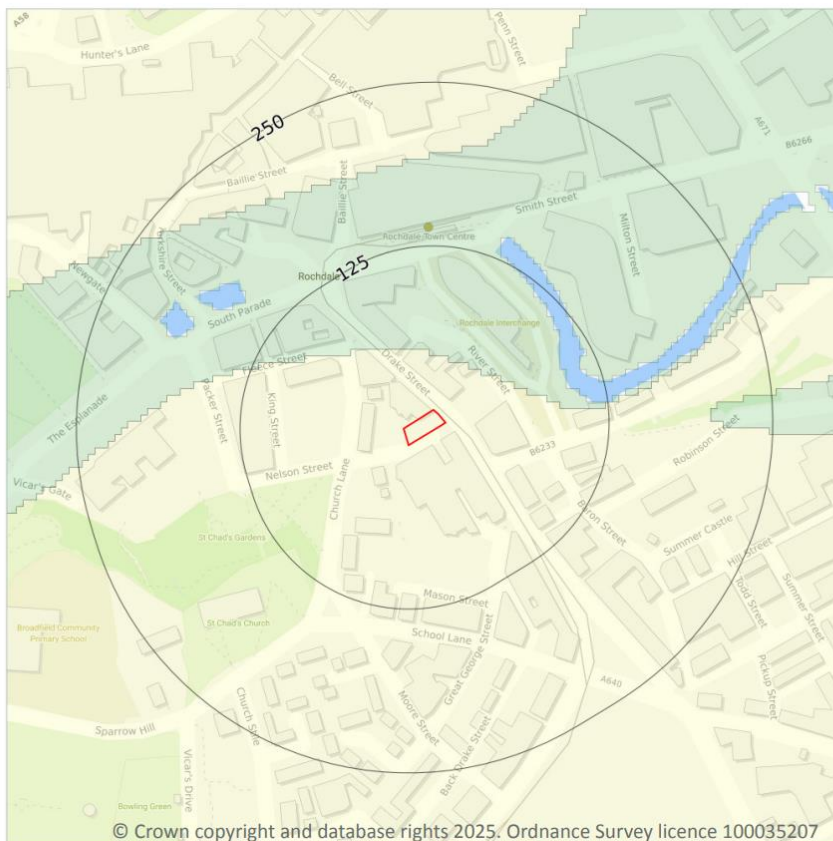
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

9 Groundwater flooding



— Site Outline
Search buffers in metres (m)

- High
- Moderate - High
- Moderate
- Low
- Negligible

9.1 Groundwater flooding

Highest risk on site

Moderate

Highest risk within 50m

Moderate

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on [page 84 >](#)

This data is sourced from Ambiantal Risk Analytics.



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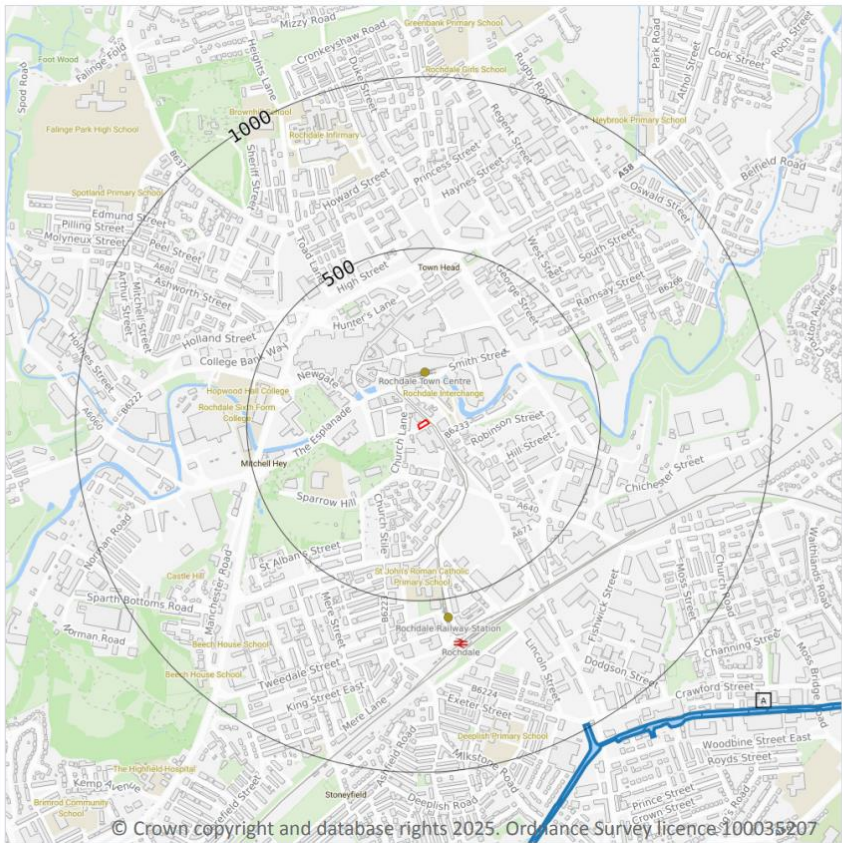
84



land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N
Your ref: 40-48 drake st, rochdale-groundsure-270225
Grid ref: 389810 413281

10 Environmental designations



Site Outline

Search buffers in metres (m)

Sites of Special Scientific Interest (SSSI)

Special Areas of Conservation (SAC)

Green Belt

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	4
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Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

Features are displayed on the Environmental designations map on [page 85 >](#)

ID	Location	Name	Data source
A	988m SE	Rochdale Canal	Natural England



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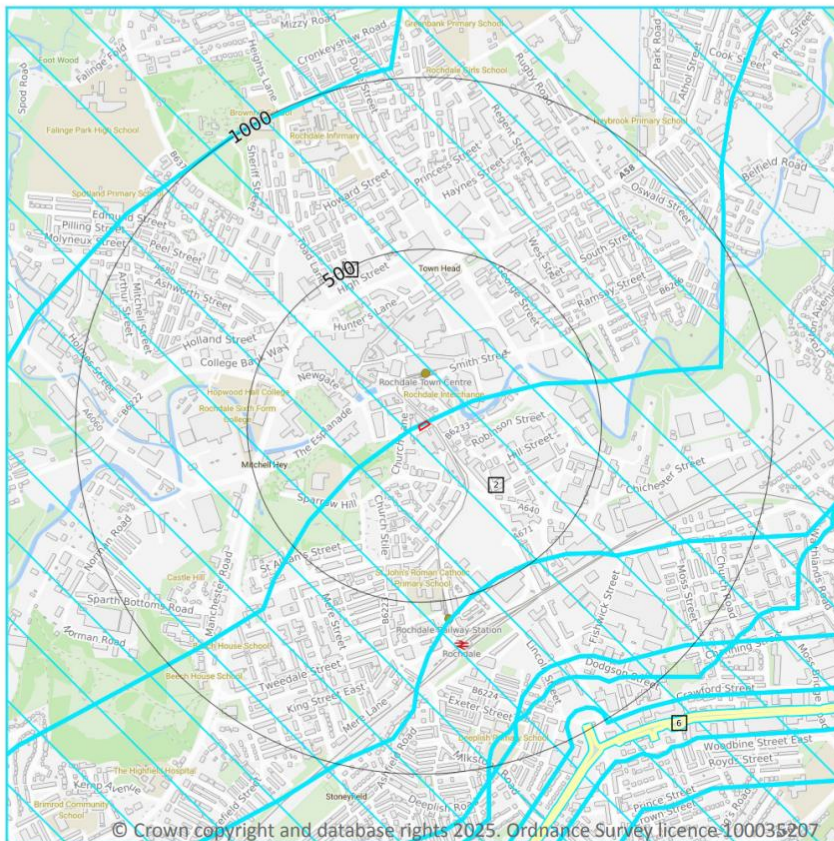
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

SSSI Impact Zones and Units



- Site Outline
- Search buffers in metres (m)
- SSSI Impact Risk Zones
- SSSI Units
- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

10.17 SSSI Impact Risk Zones

Records on site

2

Developed to allow rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

Features are displayed on the SSSI Impact Zones and Units map on [page 91](#) >



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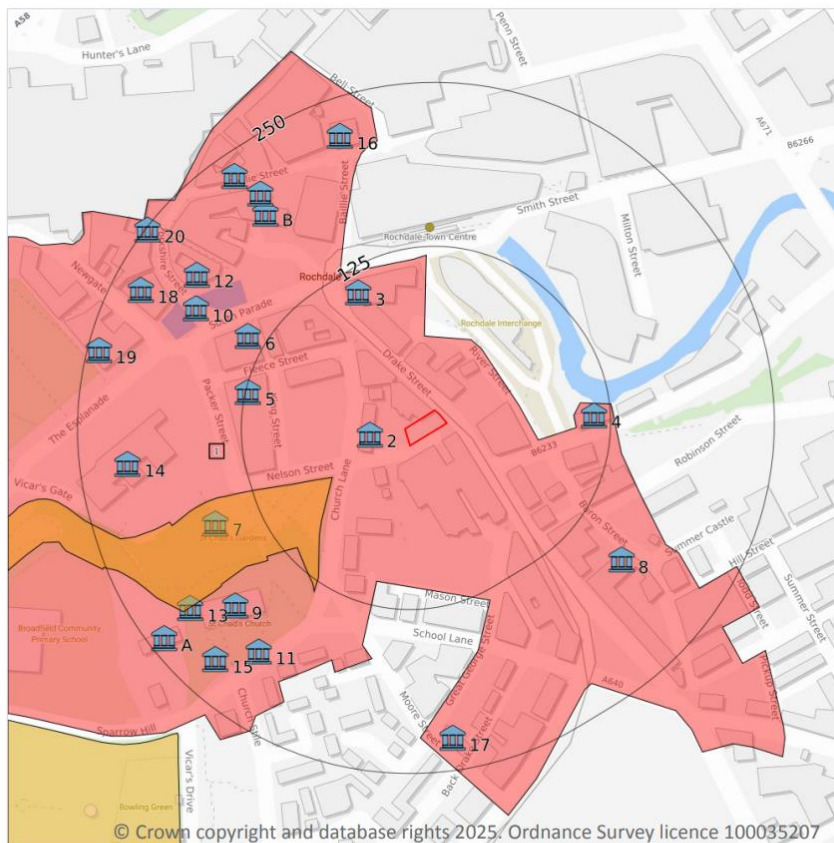
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

11 Visual and cultural designations



- Site Outline
- Search buffers in metres (m)
- Listed buildings
- Conservation areas
- Conservation areas - no data
- National Parks
- Areas of Outstanding Natural Beauty
- Registered parks and gardens
- Scheduled Monuments
- World Heritage Sites

11.1 World Heritage Sites

Records within 250m

0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.



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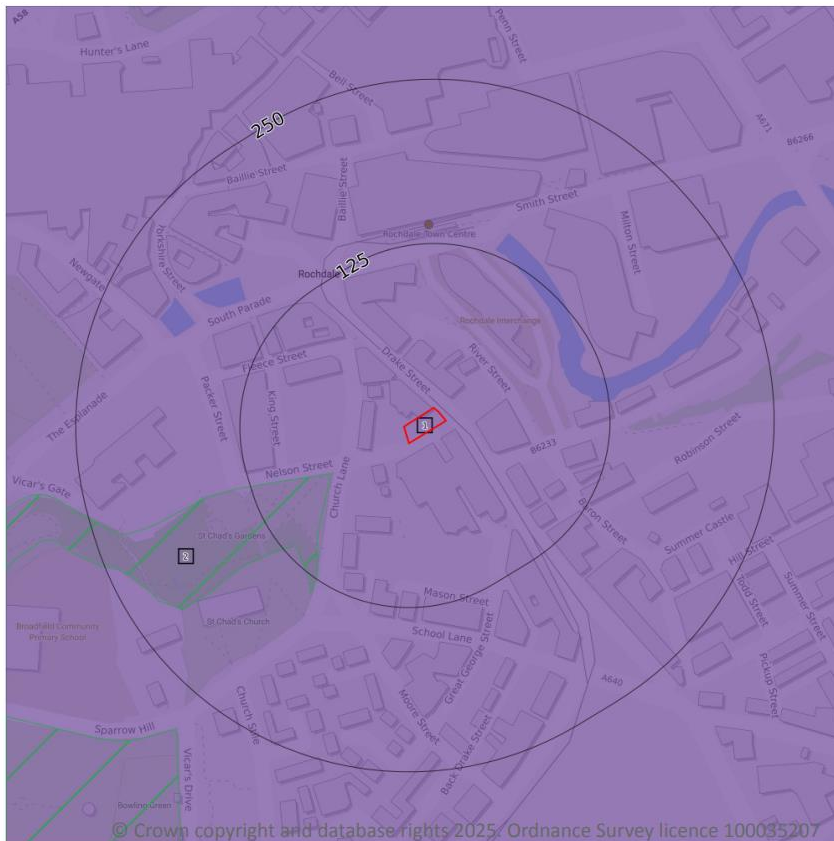
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

12 Agricultural designations



- Site Outline
- Search buffers in metres (m)
- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Non-agricultural land
- Urban land
- Exclusion land
- Tree felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m

1

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on [page 99](#) >

ID	Location	Classification	Description
1	On site	Urban	Non-agricultural/no quality assigned

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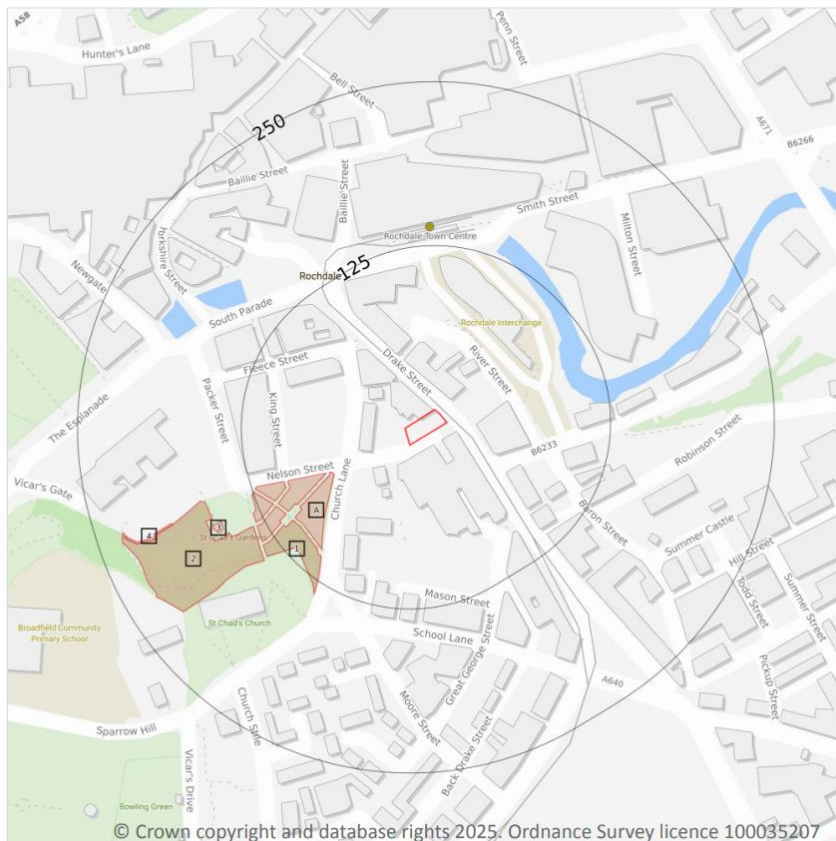
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

13 Habitat designations



— Site Outline

Search buffers in metres (m)

Priority Habitat Inventory

Open Mosaic Habitat

Limestone Pavement Orders

Habitat Networks

Primary Habitat

Restorable Habitat

Associated Habitats

Habitat Restoration-Creation

Network Enhancement Zone 1

Network Enhancement Zone 2

13.1 Priority Habitat Inventory

Records within 250m

9

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

Features are displayed on the Habitat designations map on [page 101](#) >

ID	Location	Main Habitat	Other habitats
A	62m SW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
A	68m SW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
A	100m W	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
1	104m SW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)



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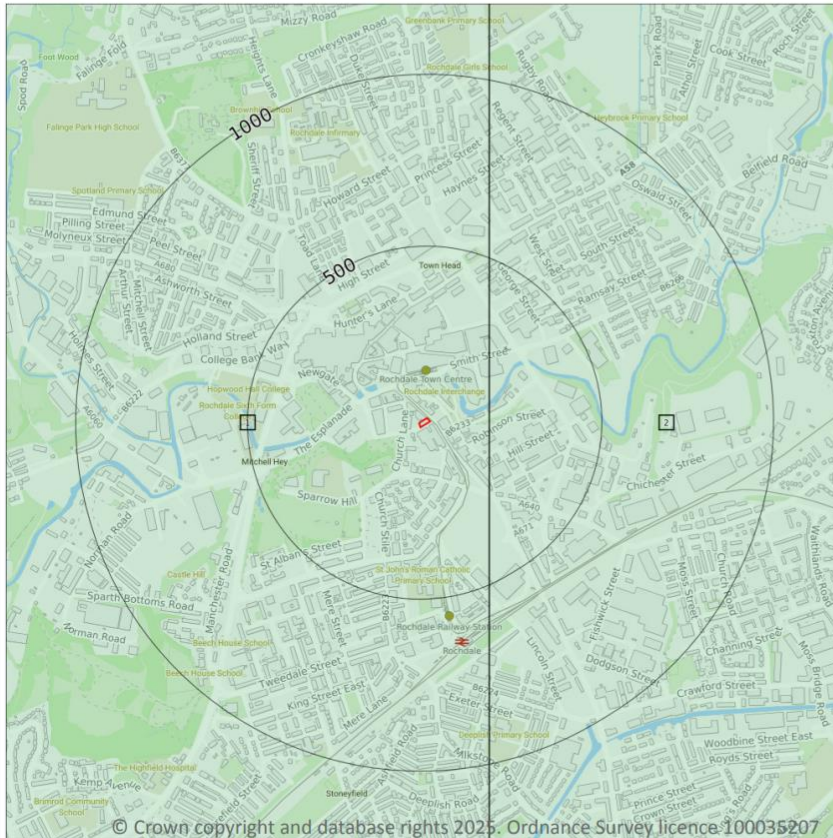
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

14 Geology 1:10,000 scale - Availability



- Site Outline
- Search buffers in metres (m)
- Full coverage
 - Partial coverage
 - No coverage

14.1 10k Availability

Records within 500m

2

An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on [page 103](#) >

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	Full	SD81SE
2	172m E	Full	Full	Full	Full	SD91SW

This data is sourced from the British Geological Survey.



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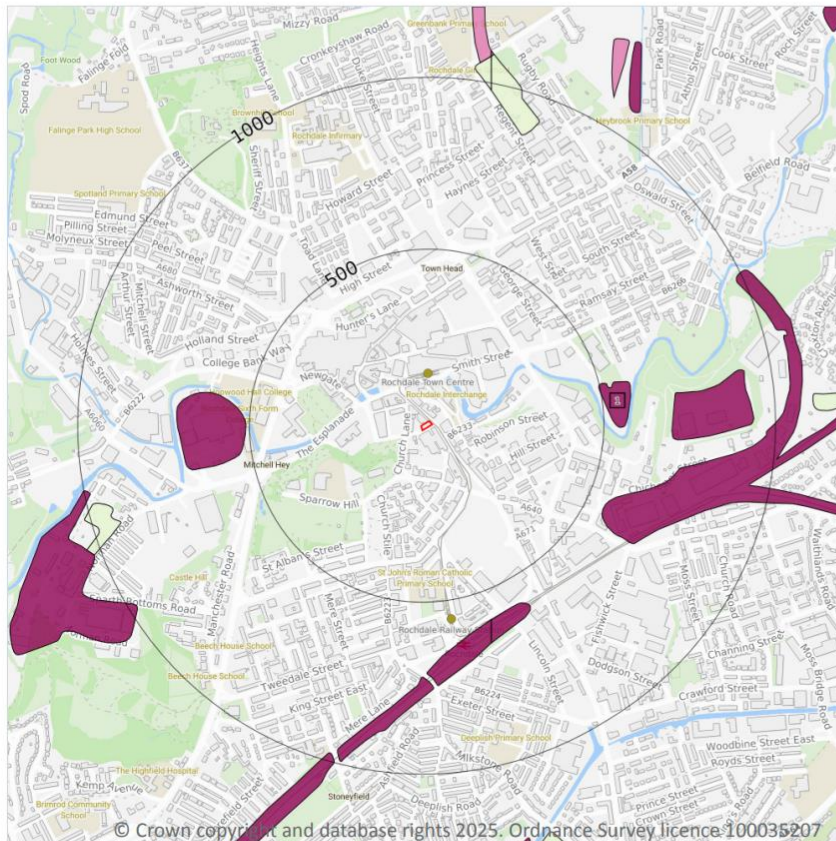
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

Geology 1:10,000 scale - Artificial and made ground



— Site Outline

Search buffers in metres (m)

- Reclaimed ground
- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

14.2 Artificial and made ground (10k)

Records within 500m

1

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on [page 104](#) >

ID	Location	LEX Code	Description	Rock description
1	497m E	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

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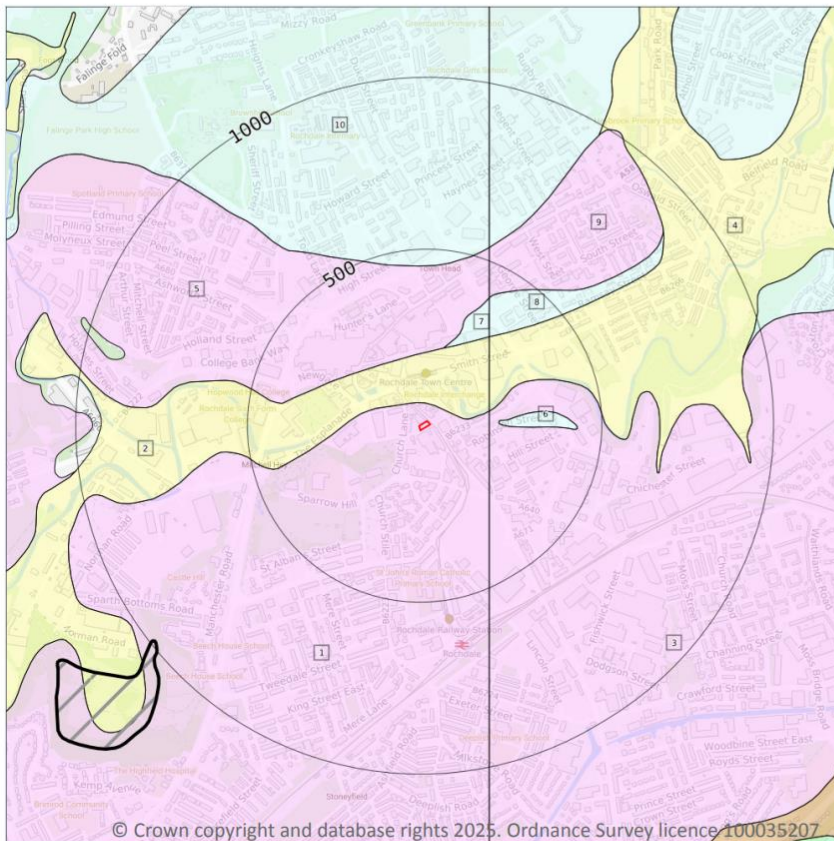
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

Geology 1:10,000 scale - Superficial



- Site Outline
- Search buffers in metres (m)
- Landslip (10k)
- Superficial geology (10k)
Please see table for more details.

14.3 Superficial geology (10k)

Records within 500m

10

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:10,000 scale - Superficial map on [page 105 >](#)

ID	Location	LEX Code	Description	Rock description
1	On site	GFDUD-XSV	Glaciofluvial Deposits, Devensian - Sand And Gravel	Sand And Gravel
2	50m N	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel
3	172m E	GFDUD-XSV	Glaciofluvial Deposits, Devensian - Sand And Gravel	Sand And Gravel
4	177m E	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel



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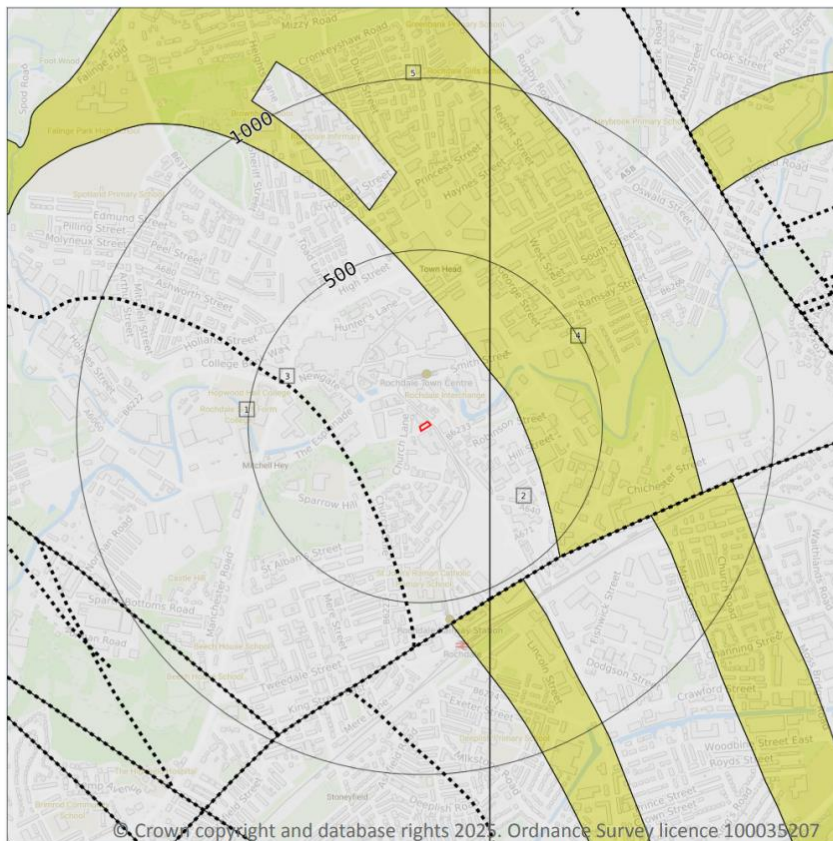
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

Geology 1:10,000 scale - Bedrock



— Site Outline

Search buffers in metres (m)

.... Bedrock faults and other linear features (10k)

Bedrock geology (10k)
Please see table for more details.

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14.5 Bedrock geology (10k)

Records within 500m

4

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on [page 107](#) >

ID	Location	LEX Code	Description	Rock age
1	On site	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
2	172m E	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
4	232m NE	OL-SDST	Old Lawrence Rock - Sandstone	Langsettian Sub-age



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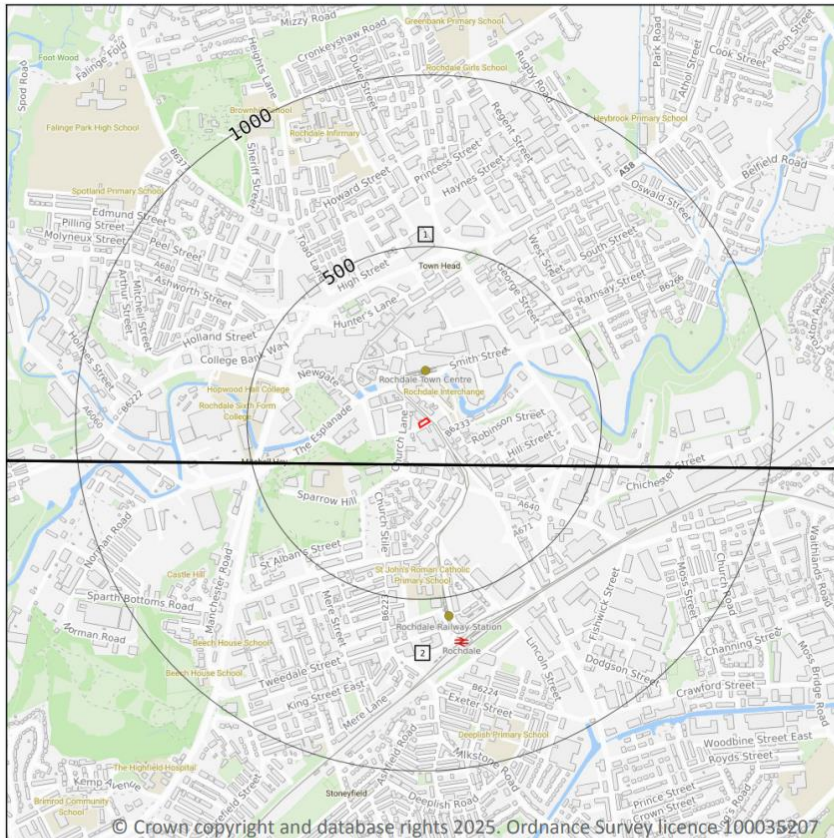
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

15 Geology 1:50,000 scale - Availability



- Site Outline
- Search buffers in metres (m)
- ☐ Geological map tile

15.1 50k Availability

Records within 500m

2

An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on [page 109](#) >

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	No coverage	Full	Full	Full	EW076_rochdale_v4
2	108m S	No coverage	Full	Full	No coverage	EW085_manchester_v4

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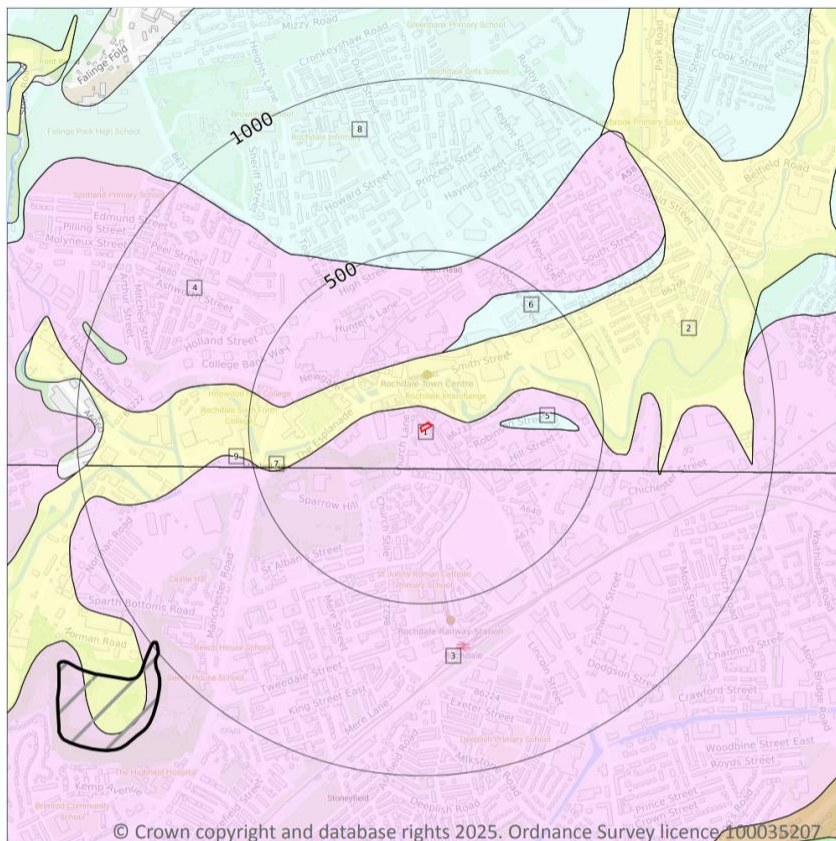
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

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Geology 1:50,000 scale - Superficial



— Site Outline

Search buffers in metres (m)

Landslip (50k)

Superficial geology (50k)
Please see table for more details.

15.4 Superficial geology (50k)

Records within 500m

9

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:50,000 scale - Superficial map on [page 111](#) >

ID	Location	LEX Code	Description	Rock description
1	On site	GFDUD-XSV	GLACIOFLUVIAL DEPOSITS, DEVENSIAN	SAND AND GRAVEL
2	41m N	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
3	108m S	GFDUD-XSV	GLACIOFLUVIAL DEPOSITS, DEVENSIAN	SAND AND GRAVEL
4	189m N	GFDUD-XSV	GLACIOFLUVIAL DEPOSITS, DEVENSIAN	SAND AND GRAVEL



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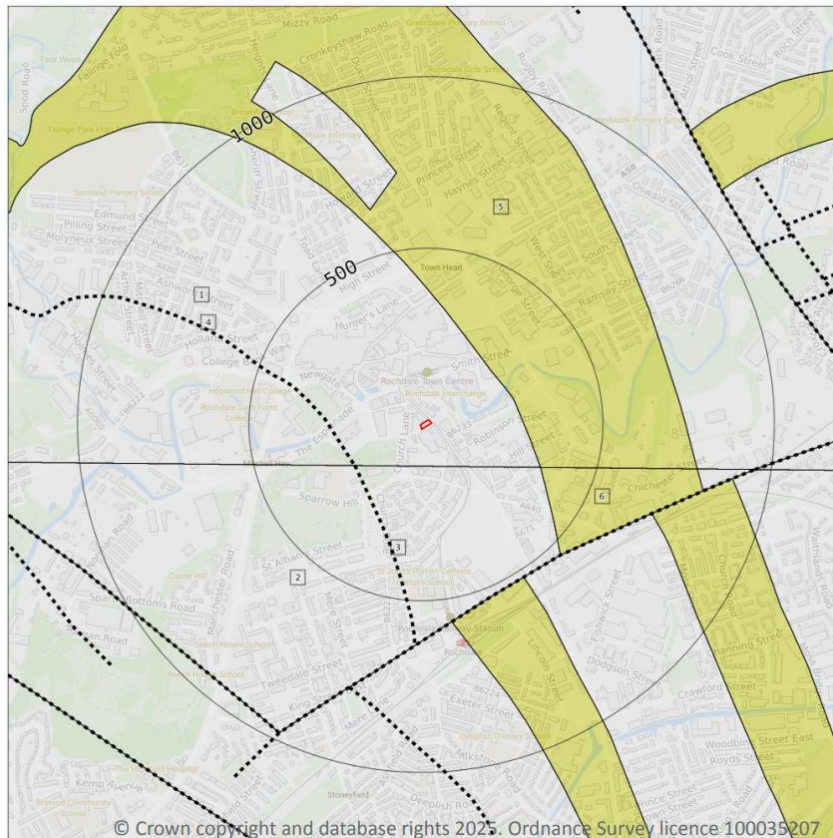
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

Geology 1:50,000 scale - Bedrock



— Site Outline

Search buffers in metres (m)

.... Bedrock faults and other linear features (50k)

Bedrock geology (50k)

Please see table for more details.

15.8 Bedrock geology (50k)

Records within 500m

4

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on [page 113](#) >

ID	Location	LEX Code	Description	Rock age
1	On site	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
2	108m S	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
5	232m NE	OL-SDST	OLD LAWRENCE ROCK - SANDSTONE	WESTPHALIAN



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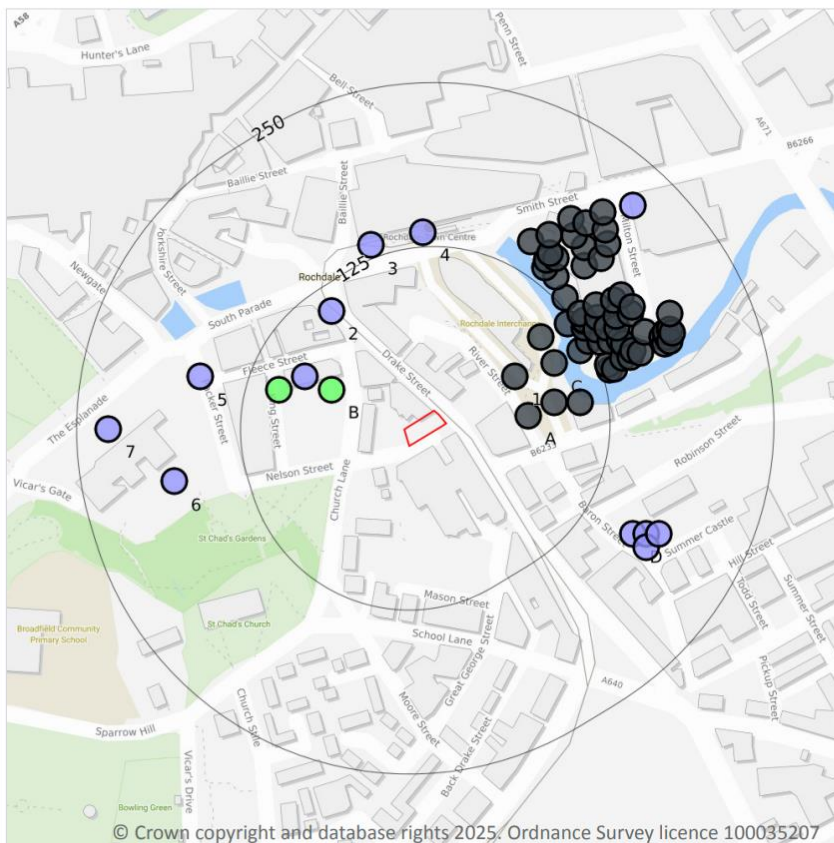
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

16 Boreholes



Site Outline

Search buffers in metres (m)

- Confidential
- 0 - 10m
- 10 - 30m
- 30m+
- Unknown

16.1 BGS Boreholes

Records within 250m

74

The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

Features are displayed on the Boreholes map on [page 115](#) >

ID	Location	Grid reference	Name	Length	Confidential	Web link
A	63m E	389890 413290	ROCHDALE LEISURE CENTRE 9	-	Y	N/A
1	64m NE	389880 413320	ROCHDALE LEISURE CENTRE 8	-	Y	N/A
B	64m W	389740 413310	FLEECE STREET ROCHDALE BH3	15.0	N	30255 ↗

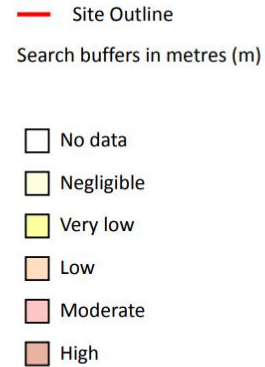
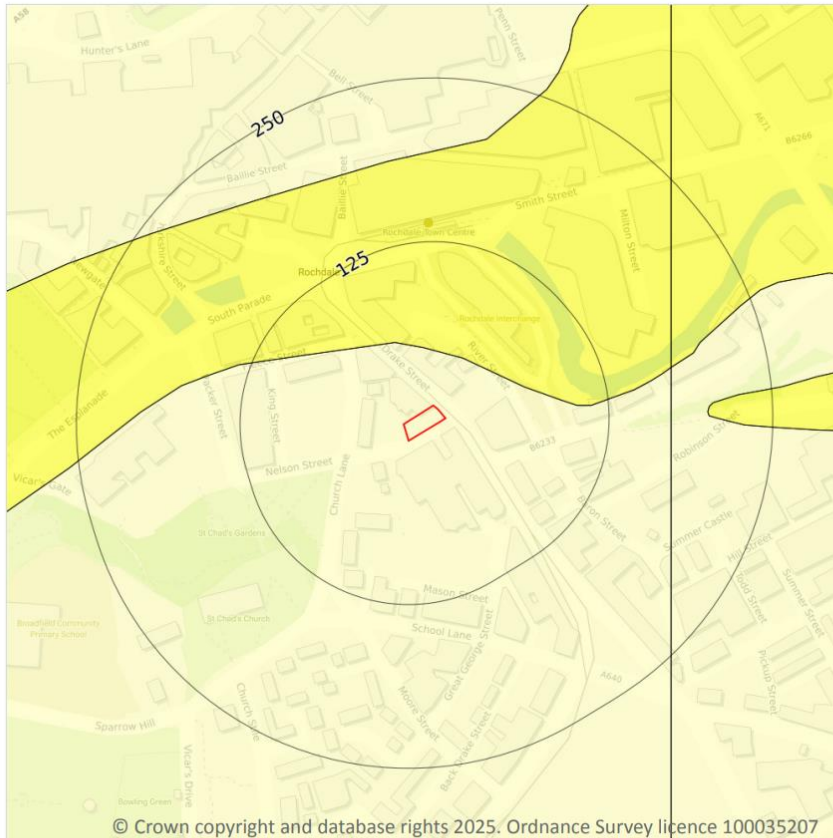


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17 Natural ground subsidence - Shrink swell clays



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17.1 Shrink swell clays

Records within 50m

2

The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

Features are displayed on the Natural ground subsidence - Shrink swell clays map on [page 119](#) >

Location	Hazard rating	Details
On site	Negligible	Ground conditions predominantly non-plastic.
41m N	Very low	Ground conditions predominantly low plasticity.

This data is sourced from the British Geological Survey.





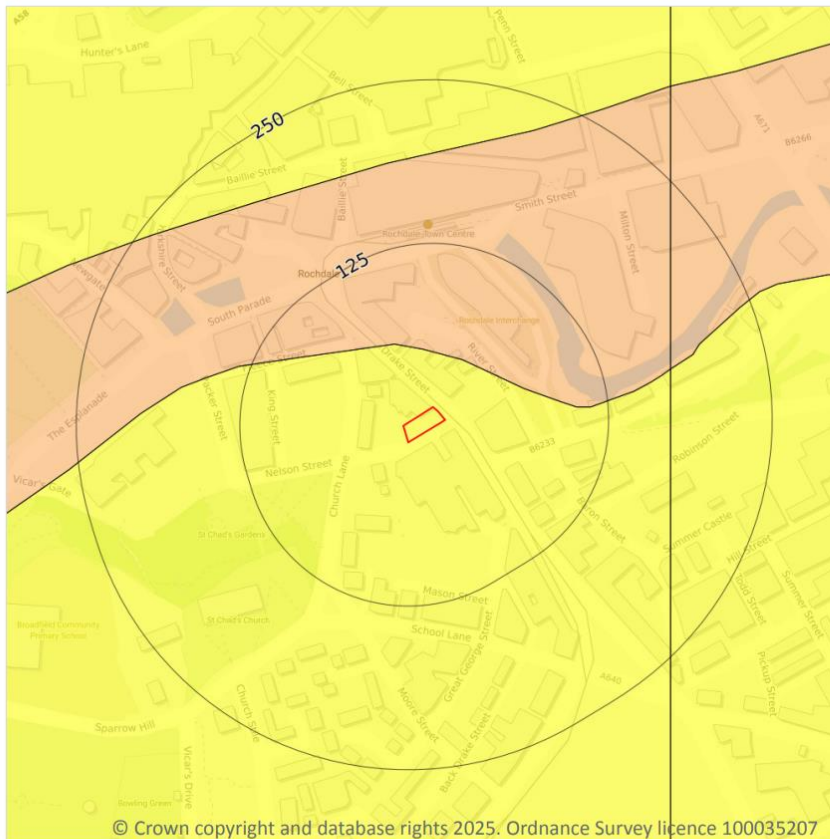
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

Natural ground subsidence - Running sands



— Site Outline

Search buffers in metres (m)

- ☐ No data
- ☐ Negligible
- ☐ Very low
- ☐ Low
- ☐ Moderate
- ☐ High

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17.2 Running sands

Records within 50m

2

The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on [page 120](#) >

Location	Hazard rating	Details
On site	Very low	Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.



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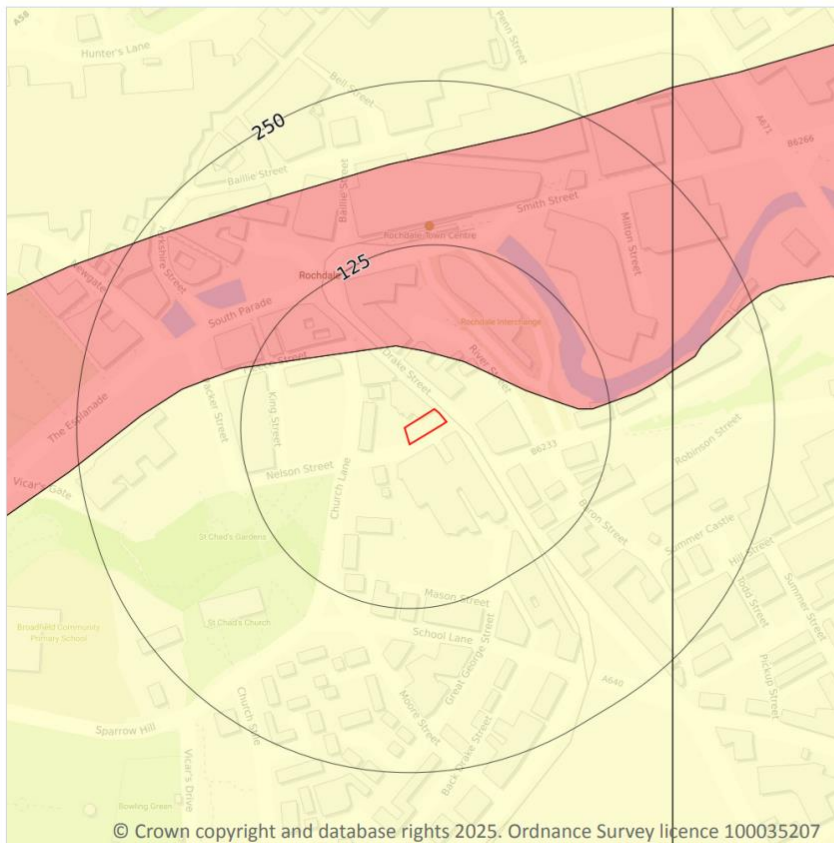
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

Natural ground subsidence - Compressible deposits



— Site Outline
Search buffers in metres (m)

- ☐ No data
- ☐ Negligible
- ☐ Very low
- ☐ Low
- ☐ Moderate
- ☐ High

17.3 Compressible deposits

Records within 50m

2

The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on [page 122](#) >

Location	Hazard rating	Details
On site	Negligible	Compressible strata are not thought to occur.
41m N	Moderate	Compressibility and uneven settlement hazards are probably present. Land use should consider specifically the compressibility and variability of the site.



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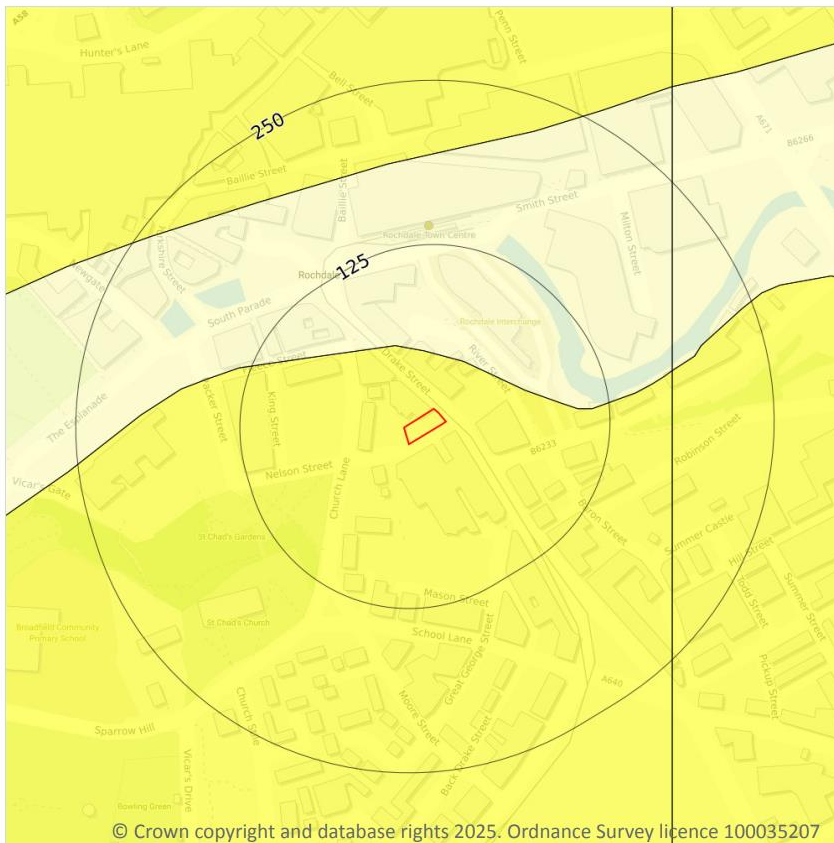
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

Natural ground subsidence - Collapsible deposits



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☒ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

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17.4 Collapsible deposits

Records within 50m

2

The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on [page 124](#) >

Location	Hazard rating	Details
On site	Very low	Deposits with potential to collapse when loaded and saturated are unlikely to be present.
41m N	Negligible	Deposits with potential to collapse when loaded and saturated are believed not to be present.

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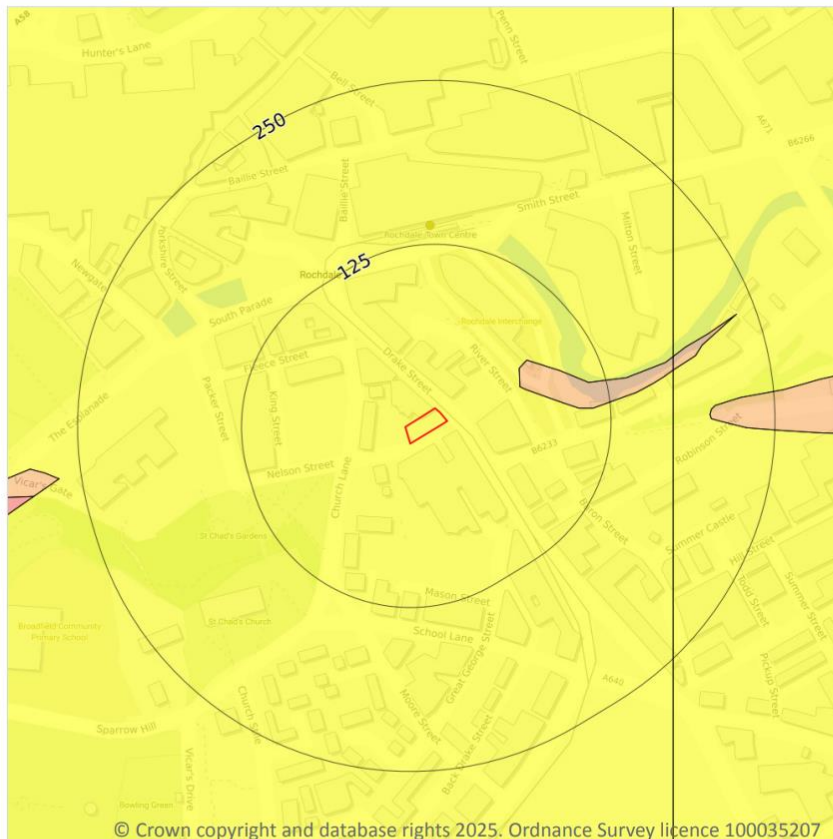
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

Natural ground subsidence - Landslides



— Site Outline

Search buffers in metres (m)

- ☐ No data
- ☐ Negligible
- ☒ Very low
- ☐ Low
- ☐ Moderate
- ☐ High

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17.5 Landslides

Records within 50m

1

The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on [page 125 >](#)

Location	Hazard rating	Details
On site	Very low	Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.

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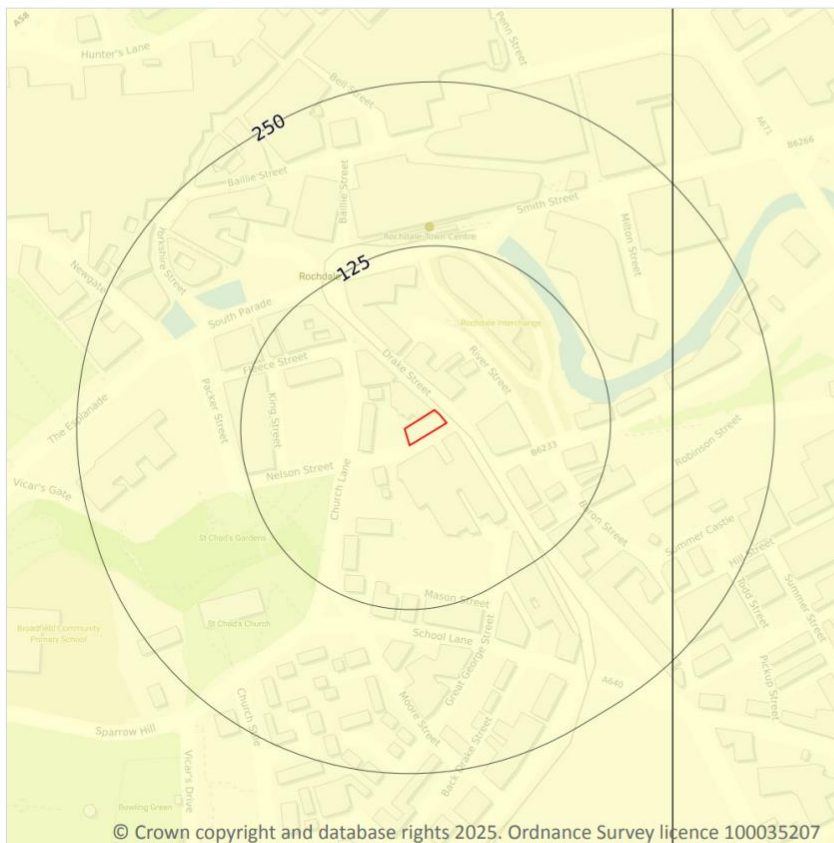
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

Natural ground subsidence - Ground dissolution of soluble rocks



— Site Outline
Search buffers in metres (m)

- ☐ No data
- ☐ Negligible
- ☐ Very low
- ☐ Low
- ☐ Moderate
- ☐ High

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17.6 Ground dissolution of soluble rocks

Records within 50m

1

The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on [page 126](#) >

Location	Hazard rating	Details
On site	Negligible	Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.



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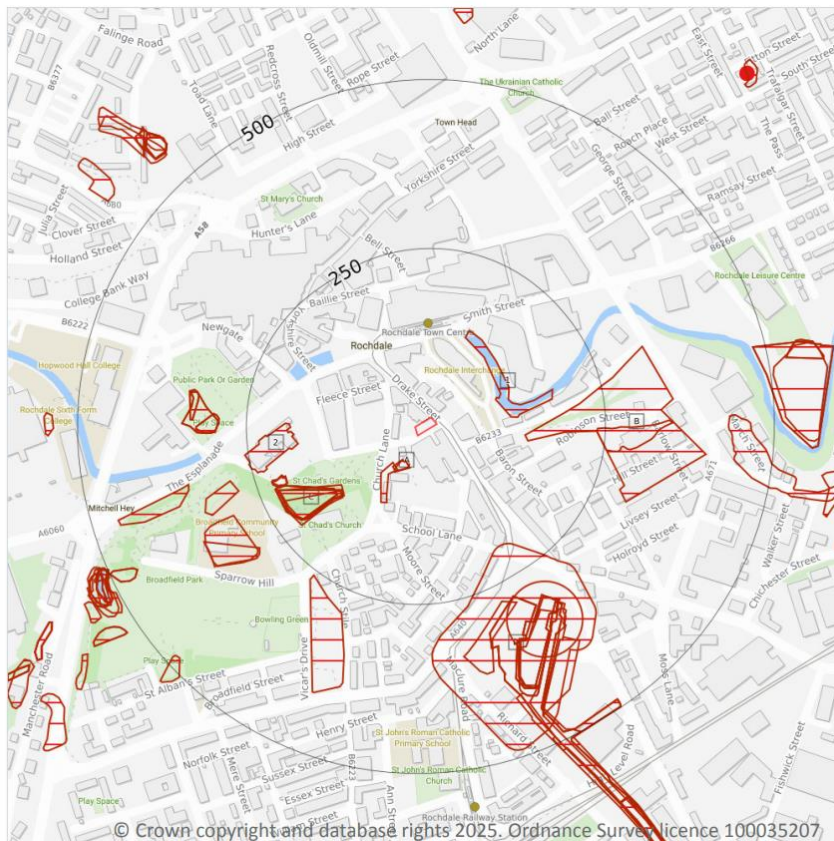
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

18 Mining and ground workings



— Site Outline

Search buffers in metres (m)

● BritPits

▨ Surface ground workings

▨ Underground workings

▨ Underground mining extents

▨ Historical mineral planning areas

▨ TCA non-coal mining

Non Coal Mining

▨ Sporadic underground mining of restricted extent possible

▨ Localised small scale underground mining possible

▨ Small scale mining possible

▨ Underground mining known or likely within or in close proximity

▨ Underground mining known within or in very close proximity

18.1 BritPits

Records within 500m

0

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

This data is sourced from the British Geological Survey.



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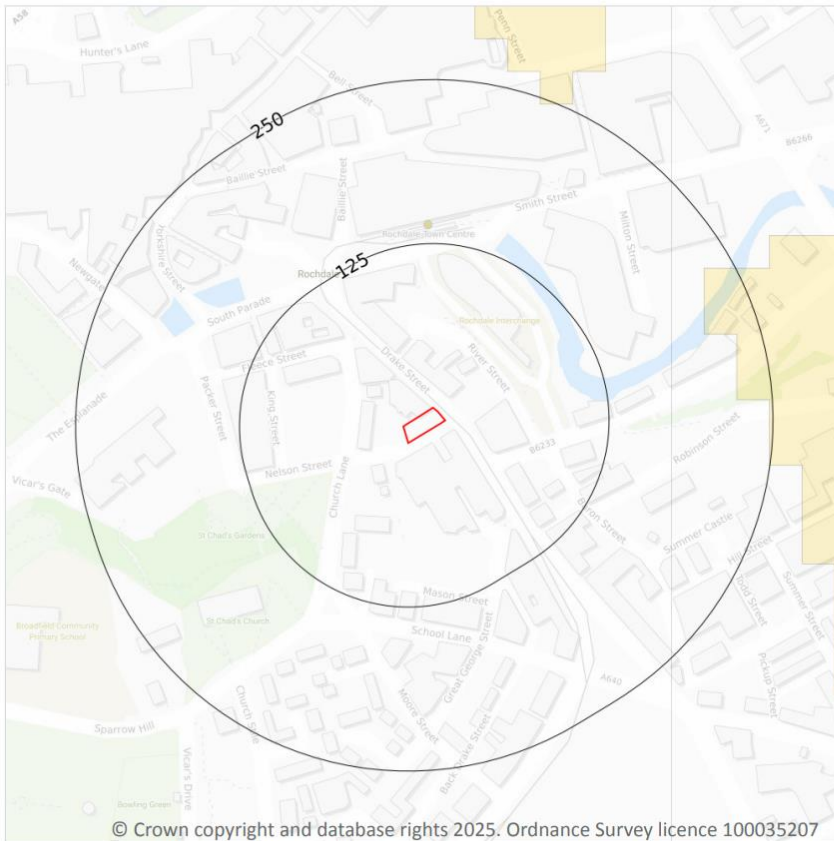
land between 40-48 drake st, rochdale

Ref: GS-TAP-JG4-FV9-53N

Your ref: 40-48 drake st, rochdale-groundsure-270225

Grid ref: 389810 413281

20 Radon



— Site Outline

Search buffers in metres (m)

- Greater than 30%
- Between 10% and 30%
- Between 5% and 10%
- Between 3% and 5%
- Between 1% and 3%
- Less than 1%

20.1 Radon

Records on site

1

The Radon Potential data classifies areas based on their likelihood of a property having a radon level at or above the Action Level in Great Britain. The dataset is intended for use at 1:50,000 scale and was derived from both geological assessments and indoor radon measurements (more than 560,000 records). A minimum 50m buffer should be considered when searching the maps, as the smallest detectable feature at this scale is 50m. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain (1:100,000 scale).

Features are displayed on the Radon map on [page 135 >](#)

Location	Estimated properties affected	Radon Protection Measures required
On site	Less than 1%	None



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22 Railway infrastructure and projects



22.1 Underground railways (London)

Records within 250m

0

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

22.2 Underground railways (Non-London)

Records within 250m

0

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.



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