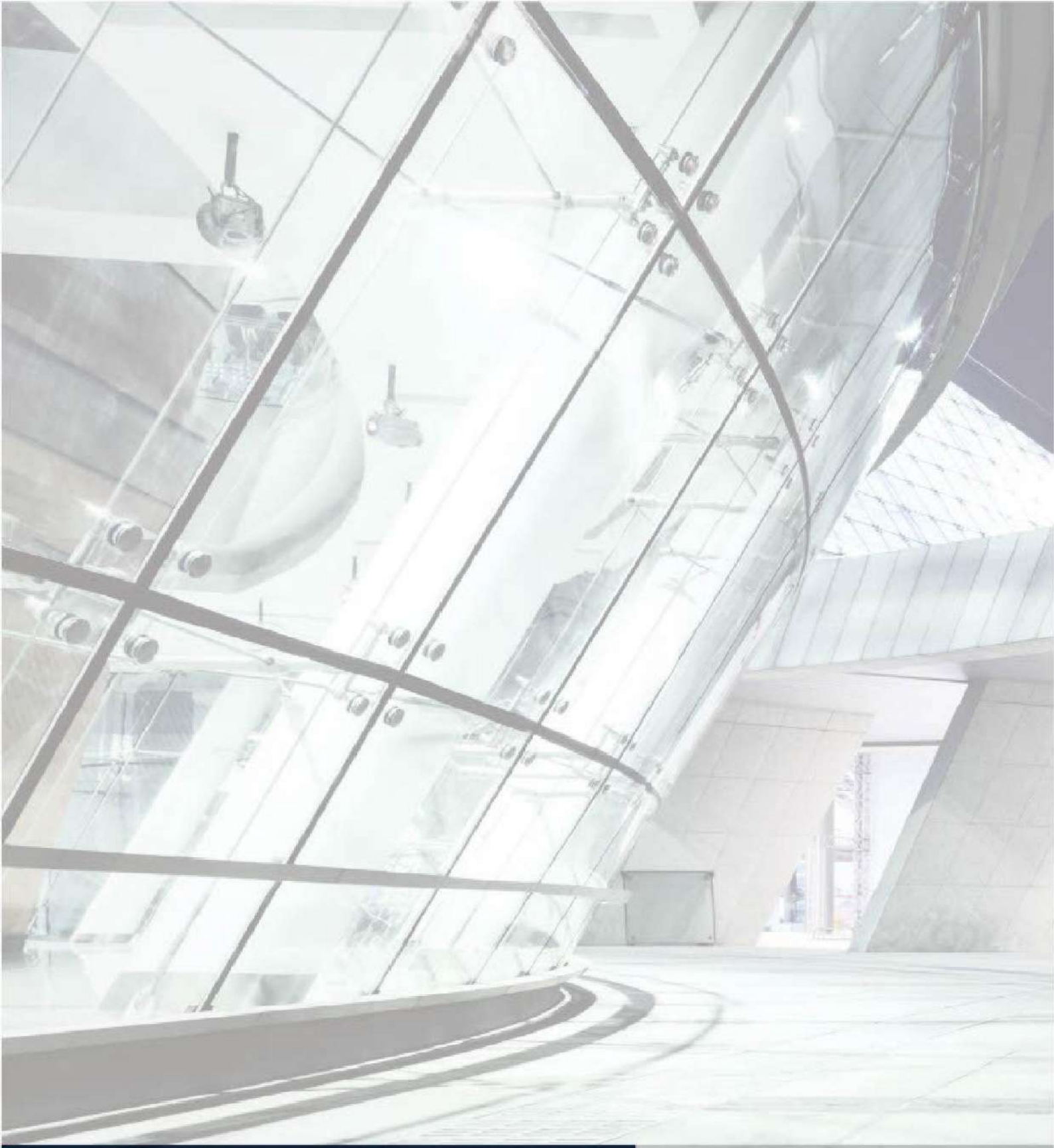


GROUNDTECH
CONSULTING

MOSS LANE EAST, MANCHESTER

GEO-ENVIRONMENTAL APPRAISAL

BRENNAN CONSULT

APRIL 2025

Document Control Form		
PROJECT	*MOSS LANE EAST, MANCHESTER*	
REPORT NAME	*GEO-ENVIRONMENTAL APPRAISAL*	
REPORT REFERENCE	*GRO-24108-5252*	
STATUS	*FINAL*	
ISSUE DATE	*12 JULY 2024*	
REVISION	*1.1*	*21 MARCH 2025*
	1.2	*10 APRIL 2025*
CLIENT	*CHESHIRE HOMES RESIDENTIAL*	
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SUMMARY

Site Details	
Site Location	*The site is located circa 2.5km South of Manchester City Centre and is centred on National Grid Reference 384633, 395674.*
Site Area	*The site is almost square in shape, approximately 0.17ha in area, and the site is level.* *A three-storey apartment building occupies the majority of the site and is located centrally. Outbuildings are located to the west and associated with the residential building.* *Hardstanding surfacing in the form of concrete encompasses the existing development and tarmac surfaces the south west area used as a car park. The south east is an area of soft landscaping comprised of grassy topsoil.*
Preliminary Risk Assessment	
History	*Residential dwellings have been located on site since 1890 with converted to create Claremont Court occurring by 2003.* *The historical maps showed Moss Grove Farm c.150m west, ponds c.80m west and c.95m north present from 1849. Other significant developments surrounding the site included the development of Whitworth Park and the associated paddling pool which is now no longer present.* *The area directly surrounding the west, east and south of site has been increasingly developed for residential purposes.*
Geology/Hydrogeology	*The superficial deposits are indicated to be Glacial Till (Secondary Undifferentiated Aquifer) and the bedrock is the Chester Sandston Formation (Principal Aquifer).* *The site lies upon Source Protection Zone (Zone III), there are no potable groundwater abstractions within 2km of the site.* *The nearest watercourse of significance is River Irwell situated 2.7km west of site.*
Environmental Setting	*Five authorised processes have occurred within 250m to 500m. The nearest process is 258m east relating to the recovery of petrol vapours.* *There are no landfill sites within 500m of site.* *Three discharge consents were granted with all located 226m north east relating to the discharge of sewage.* *Four Petrol Filling Stations (PFS) have been recorded within 500m of site, the closest active petrol station is 458m east. The closest obsolete petrol station was 52m east.* *Six current industrial land uses have been recorded with the closest being 26m north for an electricity substation.*
Human Health	*The risk to human health is considered to be Low to Moderate.*

Pollution Linkage (PL) Assessment	Controlled Waters	*The risk is considered to be Low as no significant sources of mobile contamination have been identified and cohesive superficial deposits inhibiting migration.*
	Permanent Ground Gas	*A Moderate to Low risk of ground gas is considered to exist. Ponds that have been located to the west and north east of site may be potential sources of ground gas depending upon the cohesive nature of the backfill.*
Ground Model		
Made Ground Soils		*Made Ground was encountered as firm brown sandy gravelly Clay with minor constituents of brick, sandstone, mudstone and concrete from depths of between 0.15m begl to 1.6m begl.*
Natural Soils		*Firm grey brown sandy Clay was encountered in all exploratory holes from 0.75m to a depth of 3.0m begl.* *Stiff brownish grey gravelly Clay with minor constituents of sandstone was encountered in all exploratory holes from 0.45m to 9.7m begl.*
Bedrock		*Bedrock consisting of extremely weak reddish brown Sandstone was encountered in both cable percussive boreholes and was recovered as gravelly fine to coarse Sand from 9.5m to 11.0m begl.*
Groundwater		*A groundwater seepage was encountered during the investigation local to WS03 at 1.0m begl.*
Ground Engineering Assessment		
Foundations		*The most suitable foundations for the proposed development are considered to be piles driven into the sandstone bedrock at a depth of 10.5m begl. Traditional shallow foundations are not considered feasible due to the high loadings associated with the proposed development and proposed partial basement.* *A preliminary foundation design has been created for the proposed development and an allowable load of 425kN has been calculated for a pile solution.* *Heave precautions are required when foundations are in influence of trees.*
Highways		*CBR values of 2 to 3% are likely to be achieved in undisturbed natural cohesive soils for pavement design purposes, unless proven otherwise by in-situ testing at sub-base level by a specialist geotechnical engineer. CBR values of less than 2.5% are to be achieve for the Made Ground. As a minimum the subgrade should be proof rolled prior to construction.*
SuDS		*Soil percolation testing was undertaken in the south east of site. SuDS drainage is not considered a feasible solution due to the cohesive superficial deposits and poor drainage properties.*
Constraints		*High loadings are anticipated associated with the five story apartment which will inhibit the use of shallow foundations.* *The demolition of the existing building will require all below ground substructures and hard surfacing to be grubbed up during the enabling works.*

	A basement is suspected to exist beneath the current development with a ground level window covered by wooden boards identified during the Ground Investigation. *A watching brief should be undertaken during the enabling works to confirm the ground conditions beneath the existing building are consistent with the surrounding area.*
GQRA and Revised (PL) Assessment	
Human Health	*The risk to human health is considered to be Moderate to Low as elevated concentrations of PAHs were recorded local to WS03. No asbestos was identified by the laboratory testing and no visual or olfactory evidence of contamination was noted during the investigation.* *The majority of site will be covered by hardsurfacing which will effectively act as a cover system. A 450mm cover system should be placed in soft landscaping areas.*
Controlled Waters	*The risk to controlled waters is considered to be Low.*
Permanent Ground Gas	*Interim results have classified the site in Characteristic Situation 1 and no gas or radon measures are required. These recommendations are subject to completion of the final monitoring visit. Currently, the risk is considered to be Low.*
Final Appraisal	

The following further work is required to progress the site to the construction phase:

- *Completion of gas monitoring programme*
- *Issue gas assessment*
- *Demolition Asbestos survey*
- *Inspection beneath existing building post demolition*
- *Detailed Foundation design*
- *Confirmation of recommendations made in this appraisal with regulators*

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Plans

Plan Reference	*Revision*	*Title*
GRO-24108-P01	-	*Project Location Plan*
GRO-24108-P02	-	*Preliminary Findings and Constraints Plan*
GRO-24108-P03	-	*Illustrative Preliminary Conceptual Site Model (CSM)*
GRO-24108-P04	-	*Exploratory Hole Location Plan*
GRO-24108-P05	-	*Generalised Ground Model*
GRO-24108-P06	-	*Contamination Plan*
GRO-24108-P07	-	*Revised Illustrative Conceptual Site Model (CSM)*

1.0 INTRODUCTION

1.1 Project Objectives

Groundtech Consulting Limited have been instructed by Brennan Consulting to undertake a Geo-Environmental Appraisal for a site at Moss Lane East in Manchester.

The objectives of the Preliminary Risk Assessment were to establish the sites environmental and geotechnical background in order to generate a Conceptual Site Model to identify any potential constraints and linkages which may affect the redevelopment of the site.

A main investigation was undertaken in accordance with BS 5930:2020, BS 10175:2017, BS 8576:2013 and Eurocode 7 to revise the CSM and quantify the level of risk identified in the PRA. The Appraisal has been prepared in accordance with current UK Legislation including National Planning Policy Framework and MCC Policy EN18 relating to contaminated land and ground stability.

The report has been undertaken in accordance with current LCRM risk assessment guidance.

1.2 Proposed Development

The proposed development is to demolish the existing residential building (410 – 418 Moss Lane East) and construct a new part five, part three storey purpose built student accommodation for 132 No. studio apartments. Associated landscaping, servicing, cycle and car parking and other works will all be included.



Proposed Development

1.3 Limitations

This Preliminary Risk Assessment is based on information obtained from a number of sources, and the information is assumed to be correct.

Other conditions may exist on the site that have not been taken into account in this assessment as they are outside the scope of works. Groundtech Consulting are not responsible for these circumstances that are not outlined in the report.

The assessment has been prepared for the exclusive use of the client. No third parties may rely on or reproduce the contents of the report without the written permission of Groundtech Consulting Limited. If any unauthorised third party comes into possession of the report they rely on it at their own risk and Groundtech Consulting Limited will not be obliged to provide a duty of care.

2.0 SITE SETTING

2.1 Location

The site is located circa 2.5km South of Manchester City Centre, as shown on the Project Location Plan *GRO-24108-P01.* The site is approximately centred on National Grid Reference 384633, 395674.



Project Location

Access to the site is gained off Acomb Street to the west of site.

2.2 Site Description

The site is almost square in shape and approximately 0.17 hectares in area. The topography of the site is level throughout prepared for the current residential end use and sits on a level circa 0.5m to 1.0m higher than the surrounding area.

Site Features

An existing three-storey residential apartment building occupies the majority of the site and is located in the centre north. Two small outbuildings are situated in the north western end of site, used as a workshop and a toilet facility associated with the current residential apartment use.

The site is surfaced by a mixture of hardstanding and soft landscaping with concrete encompassing the current residential apartment building. Tarmac surfaces the south western area of site which has been developed into a car park for residents. Soft landscaping in the form of a small rectangular garden is present in the south east of site, surfaced with maintained grass.

Two large steel storage containers are located at the far south of the car park on site which is utilised as a bin storage area, the use of the storage containers is unknown.

Evidence of an existing basement in the western area of the current development is noted in the form of a historic window covered by wooden panelling.

Site Boundaries and Surrounding Area

Brick walls surround the northern, eastern and western boundaries of site with a masonry stone wall present along the south. The brick wall is lower (circa 0.5m) in the north with openings and a metal electric gate is present providing an entrance for users of the building. Additionally, an electric gate is present at the western perimeter of site to access the car park.

The site is surrounded by following features/land uses:

- *North* - *Moss Lane East and Manchester Academy*
- *East* - *Residential apartment building and car park*
- *South* - *Residential terraced housing*
- *West* - *Acomb street and a car park associated with residential apartments*

Site photographs are presented in *Appendix 2* and relevant features are recorded on the Preliminary Development Constraints Plan *GRO-24108-P02.*

3.0 ENVIRONMENTAL SETTING

3.1 Site History

Available historical maps have been obtained, a list of dates and scale are listed in the table below:

Scale	Date
1:500	*1891*
1:1,056/1:1,250	*1848, 1949, 1950, 1951, 1990, 1992, 1994, 2003*
1:2,500	*1893, 1908, 1922, 1933, 1950, 1951*
1:10,000/10,560	*1848, 1890, 1896, 1905, 1923, 1934, 1938, 1956, 1968, 1972, 1980, 1985, 1994, 2001, 2010, 2024*

The plans were examined and potential issues have been identified and summarised in the table below:

Date	Site	Surrounding Area
1848	*Site occupied by an undeveloped field.*	***Moss Grove Farm c.50m west.*** *Pond c.80m east and c.95m north.* *Fields present immediately south and surrounding area is generally agricultural with occasional residential buildings.*
1890/92	*Four terraced houses constructed with associated gardens and outbuildings to the south.* *Outbuildings indicated in south western garden and eastern area includes possible* ***greenhouses.***	*Housing present immediately north, east and west of site.* *Agricultural fields remain to the south.* *Pond c.80m east and c.95m north no longer indicated, possibly* ***backfilled.*** *Pond indicated c.110m south west.*
1889/93	*No significant change.*	*Bowling green c.170m south west.*
1905	*No significant change.*	*Whitworth Park and associated pond c.70m north west.* *Residential development immediately south encompassing entire surrounding area.* *Pond c.100m south west* ***backfilled.***
1908	*Greenhouse in west no longer indicated.*	*Tramway indicated on Moss Lane East.*
1933	*No significant change.*	*Moss Grove Farm no longer present.* *Surrounding area predominantly residential.*
1980/83	*No significant change.*	*Housing directly north demolished and land use generally changing to commercial with public house and club constructed.* *Water feature at Whitworth Park no longer present, possibly* ***infilled.***
1988/90	*Greenhouse in east to longer indicated.* *Gardens no longer indicated in south, indicating possible change in use to apartments.*	*No significant change.*
2003	*'Claremont Court' is present on site.*	*Telephone cell box c.50m east.*
2010	*No significant change.*	*Educational facility with associated recreational grounds c.100m north*
2024	*Residential apartment buildings with car parking and small soft landscaping area.*	***Electricity substation*** *c.26m north associated with Manchester Academy. Surrounding areas generally residential.*

The historical plans are presented in *Appendix 3*.

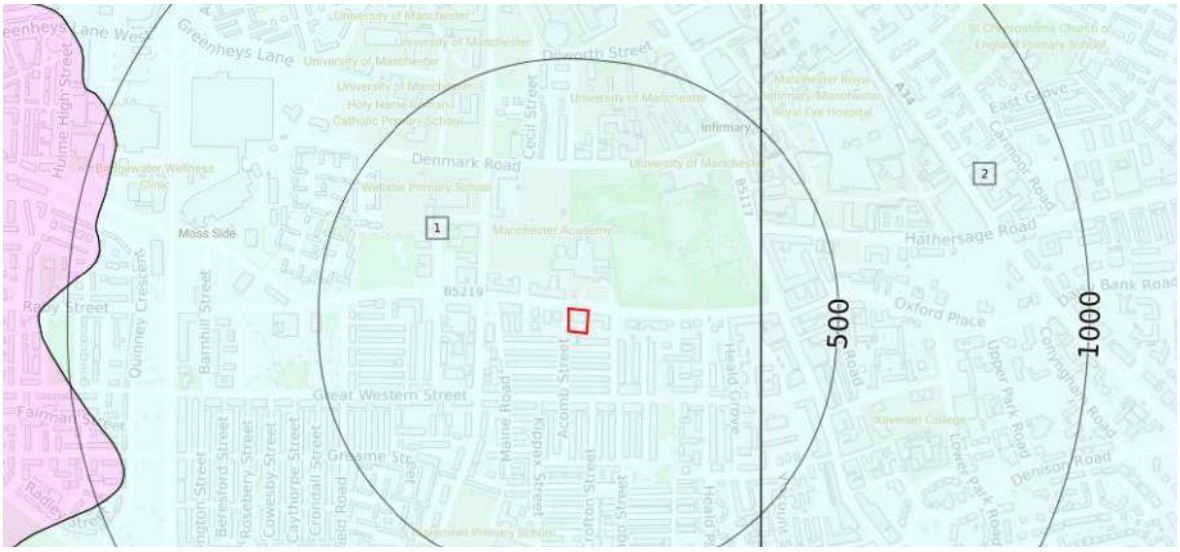
3.2 Geology

The following British Geological Survey (BGS) records and other available information were inspected to accurately determine the geology underlying the site:

- *1:50,000 Scale Geological sheet 85, Manchester - Bedrock and Superficial*
- *1:50,000 Scale Geological sheet 85, Manchester - Bedrock*
- *BGS Records*

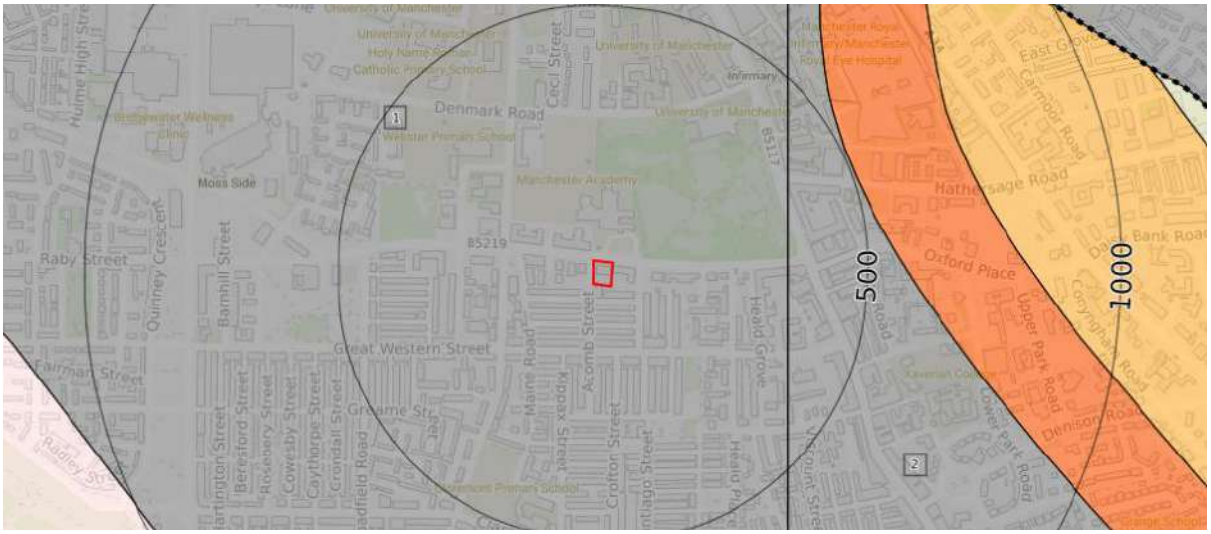
Made Ground
BGS records indicate that no Made Ground is anticipated underneath site, however is anticipated based on previous development and site levels higher than surrounding area.

Superficial Deposits
The site is indicated to be underlain by Devensian Till, this strata characteristically comprises gravelly, sand and predominantly clay.



Geological Map – Superficial Deposits

Solid Geology
The bedrock is anticipated to be Chester Sandstone Formation.



Geological Map – Solid Geology

No faults are shown on or within an influencing distance of the site.

BGS Records
All of the BGS records within 250m of the site are not publicly available, the nearest available record is circa 400m east of site and would not be reflective of ground conditions beneath the site.

3.3 Hydrogeology

The superficial deposits in this area are classified by the Environment Agency as a Secondary Undifferentiated Aquifer (Strata which have both minor and non aquifers in varying locations due to differing characteristics of rock type). The Secondary Undifferentiated Aquifer is classified as having a low leaching potential.

The bedrock is classified as a Principal Aquifer (Bedrock of high intergranular/fracture permeability, typically providing a high level of water storage and may support water supply or river base flow on a strategic scale).

The site is indicated to lie in a Source Protection Zone, Zone III, Total Catchment (the area needed to support the discharge from the protected groundwater source) for a groundwater abstraction well. The potable groundwater abstraction well in this instance is located greater than 2km from site.

There are eight groundwater abstractions are located within 1km of site, three of which are active. All of the identified groundwater abstractions within 1.km of site are associated with general cooling and process water at a Brewery, with an indicated annual volume of 227,000m^3.

3.4 Hydrology

There are no watercourses identified within 1km of site, the River Irwell is located 2.7km north west of site which has an overall rating of moderate and chemical rating of fail.

No surface water abstractions have been recorded.

Environment Agency information indicates that the site is outside a flood risk zone and is not at risk of flooding.

3.5 Environmental Consultations

A request has been submitted to the Contaminated Land Officer at Manchester City Council for information pertaining to the site. A summary of the relevant findings will be forwarded on receipt.

An environmental consultation has been conducted through Groundsure, which accesses British Geological Survey and Environment Agency databases. The complete EnviroInsight Report can be found in *Appendix 4*, a summary of the more relevant points are presented in the table below.

Record	<250m	250 – 500m	Description
Authorised Processes	-	5	*Five Part B authorisations for pollutant releases have been granted all to the east of site. The closest authorisation is 288m east and is a historic permit relating to petrol vapour recovery.*
Pollution Incidents	-	-	*No pollution incidents have been recorded within 500m of site.*
Landfill and Waste Treatment	-	3	*No recent or active landfill sides were recorded within 500m. Three waste exemptions have been recorded relating to the treatment and use of waste, the nearest waste exemption is 305m north west for the sorting and de-naturing of controlled drugs for disposal.*
Discharge Consents	3	-	*Three discharge consents have been granted within 250m of site all situated 226m north east relating to sewage discharge from sewer storm overflow.*
Petrol Filling Stations	2	2	*The closest active petrol station is 458m east.* *An obsolete petrol station is noted 52m east.*
Current industrial Uses	6	-	*Six current land uses have been recorded within 250m of site. The closest electrical feature is 26m north and is an electricity substation. A distribution and haulage land use is recorded 163m south west.*

3.6 Radon

The new radon map launched by UKHSA in December 2022 has been examined which defines areas requiring radon protective measures. The probability is less than 1% and Moss Lane East is not an area requiring radon precautions in foundations in accordance with BRE Report 211 'Radon – Guidance on protective measures for new dwellings' 2015 Edition.

The radon data in the Groundsure report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland and confirms the radon maps that less than 1% of properties are affected by radon. The dataset is intended for use at a 1:50,000 scale and was derived from both geological assessments and indoor radon measurements (more than 560,000). 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).

4.0 CONCEPTUAL SITE MODEL AND RISK ASSESSMENT

4.1 Introduction

The potential level of risk posed by contaminants in soil and/or groundwater will be influenced by the type and concentration of the contamination at source, the likelihood of exposure occurring, the potential pollution linkages and the likely chronic or acute effects on the receptors.

A contaminant is defined as a substance that has the potential to cause harm, a risk is considered to exist if such a substance is present at sufficient concentrations to cause harm and if a pathway is present a receptor could be exposed to the contaminant.

Section 4.0 compiles the information from the previous sections to assemble a Conceptual Site Model to inform the risk assessment process. The potential sources identified on the site and off the site that are within influencing distance are assessed to determine if pollution linkages exist and an unacceptable risk is posed to human health and controlled waters. The assessment has been carried out on a qualitative basis and aims to produce a complete and comprehensive Preliminary Conceptual Site Model, the potential pollution linkages are displayed on *GRO-24108-P03* Illustrative Preliminary CSM.

Three potential types of impacts exist for a site and all three need to be considered in the qualitative preliminary risk assessment:

- *Impacts from sources on the subject site*
- *Impacts to the surrounding area from the subject site*
- *Impacts to the subject site from the surrounding area*

4.2 Potential Contamination Sources

Onsite Sources and Associated Contaminants of Concern (CoC)
From the information obtained during the preliminary risk assessment, limited onsite sources of contamination have been encountered.

A greenhouse was located to the south west and is a potential source of products used on a small scale.

Made Ground is anticipated due to the construction and redevelopment of the apartment building and associated outbuildings in the east and south and raising of site levels. Contaminants of Concern associated with Made Ground include heavy metals, speciated Polycyclic Aromatic Hydrocarbons (PAHs), asbestos and permanent ground gas.

Offsite Sources and Associated Contaminants of Concern (CoC)
Multiple offsite sources of contaminations have been identified by the desk-based consultations which may affect the site for its intended residential end use and include the following:

- *Electric substation 25m north*
- *Moss Grove Farm c.50m west*
- *Pond possibly backfilled c.80m east*
- *Obsolete petrol station c.52m east*

The electricity substation may be a source of PolyChlorinated Biphenyls (PCBs) depending on the age of the transformers.

Moss Grove Farm may be a source of stored substances including fuels, herbicides and pesticides.

The infilled ponds are considered to be sources of permanent ground gases such as carbon dioxide and methane, if backfilled.

Contaminants of Concern associated with the obsolete petrol station may include metals, fuel derived hydrocarbons (TPH CWG) and Volatile Organic Compounds (VOCs).

4.3 Pollution Linkages

The definition of a pollution linkage is a medium which allows a contaminant to impact a receptor. Potential pollution linkages have been recognized for the residential development from the identified contamination sources that exist.

At this stage the contaminants identified above are considered to potentially pose an unacceptable risk human health and controlled waters through the following pollution linkages:

- *Direct soil and dust ingestion.*
- *Dermal contact with soil both indoor and outdoors.*
- *Indoor air inhalation from soil and vapour.*
- *Outdoor inhalation of soil and vapour.*
- *Migration and accumulation of ground gas into internal spaces.*
- *Impaction of groundwater from soil contamination (diffuse and point).*
- *Impaction of groundwater from groundwater plume.*
- *Migration of soil and groundwater contamination impacting surface waters.*

4.4 Receptors

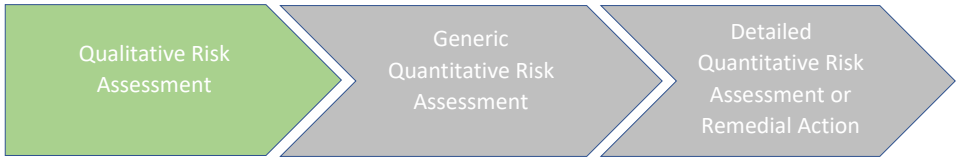
Receptors generally fall into the categories of human health or controlled waters within the river basin system. The recognized receptors are listed below:

- *Site end users*
- *Adjacent site users*
- *Principal bedrock aquifer*
- *Clean potable water supply pipe*

4.5 Preliminary Conceptual Site Model (CSM)

The factual information obtained from the consultations and summarised in Section 2.0 and 3.0 has been used to compile a Preliminary CSM. Using Source-Pathway-Receptor assessment criteria that is applicable in the UK, a risk assessment has been completed to determine if a plausible pollution linkage exists between the identified contaminants and receptors. The risk classification has been estimated in accordance with the CIRIA C552 assessment criteria outlined in *Appendix 5*.

Human Health Pollution Linkage Assessment



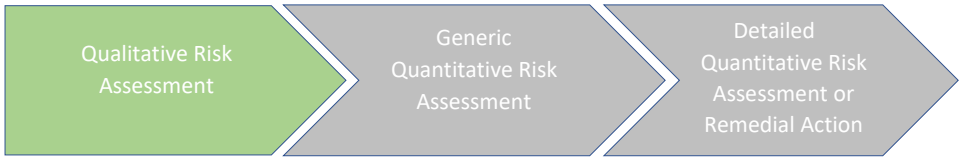
- The table below represents the first stage in the land quality risk assessment process - **the Qualitative Risk Assessment**.
- In order for a development site to be deemed 'suitable for use' the level of risk needs to be reduced to an acceptable level - low to negligible risk. The purpose of each stage of risk assessment is to establish if there is a requirement for additional stages of assessment in order to have sufficient confidence to support a risk characterisation or remedial action.

Conceptual Site Model					*Qualitative Risk Assessment*	
PL	Potential Source	Pollution Linkage	Likelihood	Consequence/ Severity	Risk Rating	*Rationale and Action*
PL1	Contaminated Soils	Ingestion of soil and dust. Dermal contact with soil.	Unlikely to Low Likelihood	Medium	Moderate to Low	*Pollution Linkage 1 refers to proposed site users coming into contact with contaminated soils on the site.* *The existing residential dwellings have always occupied the site and site levels have been raised to form the current use. In addition, the outbuildings that have been historically present on site have since been demolished. Made Ground may therefore be present beneath the site which could be contaminated with heavy metals, speciated PAHs and asbestos.* *An electricity substation is located 26m north of site and is a potential source of PolyChlorinated Biphenyls (PCBs). Given the date of construction, it is unlikely that PCBs were used in the transformers. Furthermore, due to the relative immobility of PCBs and the small volume used they are unlikely to have impacted the site.* *All the remaining sources of contamination are present at significant distance from site to allow for attenuation.*

Conceptual Site Model						*Qualitative Risk Assessment*
PL	Potential Source	Pollution Linkage	Likelihood	Consequence/ Severity	Risk Rating	*Rationale and Action*
						The proposed development is of residential end use comprising of an apartment building with a partial basement. The majority of the site will therefore encompass a hardstanding cover. However, proposed development plans indicate areas of soft landscaping are set to be incorporated into the development in the south east. A pollution linkage is therefore considered to exist between contaminated Made Ground soils beneath the site and site end users.
PL2	Contaminated Soils	Inhalation of vapour.	Unlikely	Medium to Severe	Low	*Vapours have potential to migrate into confined spaces within the proposed development.* *No sources of volatiles have been identified onsite or within the vicinity of the site and a plausible pollution linkage does not exist.*
PL3	Contaminated Soils	Inhalation of soil dust by adjacent site users.	Unlikely	Medium	Low	*Residential receptors surround the southern, eastern and western section of site.* *No significant sources of mobile contamination have been identified on site through the PRA and the surrounding land use is similar to site, therefore a viable pollution linkage is not considered to exist.*

Conceptual Site Model						*Qualitative Risk Assessment*
PL	Potential Source	Pollution Linkage	Likelihood	Consequence/ Severity	Risk Rating	*Rationale and Action*
PL4	Contaminated Soils	Attacking potable water supply pipe.	Unlikely	Medium	Low	*Pollution Linkage 4 refers to the possible contaminants permeating potable water pipes and consumption by the future site end users of the tainted water supply.* *Made Ground of significant thickness is not anticipated beneath the site and is therefore not likely to be present at installation depth.* *A local water company risk assessment is required prior to construction to advise on the level of protection required for the potable water supply. At present, a risk has not been identified.*
PL5	Ground Gas	Migration and accumulation of ground gas in internal spaces.	Likely	Medium to Severe	Moderate to Low	*Shallow Made Ground is likely present beneath the site due to the historical presence of residential buildings and associated outbuildings.* *The potentially backfilled from approximately 80m east are potential sources of ground gas depending on the nature of the backfill.* *The site and surrounding area is indicated to be underlain by cohesive Glacial Till deposits which will restrict the lateral migration of permanent ground gases.* *Based on the identified sources in the surrounding area, an intrusive Ground Investigation comprising the installation of ground gas monitoring wells is recommended to confirm the gas risk.* *The site is not within an area requiring Radon precautions within foundations.*

Controlled Waters Pollution Linkage Assessment



- The table below represents the first stage in the land quality risk assessment process – **Qualitative Risk Assessment**.
- In order for a development site to be deemed 'suitable for use' the level of risk needs to be reduced to an acceptable level - low to negligible risk. The purpose of each stage of risk assessment is to establish if there is a requirement for additional stages of assessment in order to have sufficient confidence to support a risk characterisation or remedial action.

Conceptual Site Model					*Qualitative Risk Assessment*	
PL	Potential source	Pollution linkage	Likelihood	Severity	Level of risk	*Rationale*
PL6	Contaminated Soils	Impaction of groundwater from soil contamination (diffuse and point). Impaction of groundwater from groundwater plume.	Unlikely	Medium	*Low*	*Historically, the site has been utilised as residential housing with associated outbuildings and greenhouses present to the immediate east and south. No significant sources of mobile contamination have been identified onsite.* *Geological maps indicate that the site is underlain by Devensian Till (Secondary Undifferentiated) and the bedrock is the Chester Sandstone Formation (Principal Aquifer).* *The site is in a total catchment Source Protection Zone on site and there are no potable water abstractions within 2km.* *No significant sources of mobile contamination have been identified by the PRA and the anticipated significant impermeable superficial deposits will restrict the downwards migration of any contaminants of concern into the groundwater present within the bedrock.* *No plausible pollution linkage has been identified.*

Conceptual Site Model						*Qualitative Risk Assessment*
PL	Potential source	Pollution linkage	Likelihood	Severity	Level of risk	*Rationale*
PL7	Contaminated Soils	Migration of soil and groundwater contamination impacting surface waters.	Unlikely	Medium	Low	*The nearest named watercourse is the River Irwell 2.70km north west of site.* *No significant sources of mobile contamination have been identified on site and significant attenuation distance is anticipated between the site and receptor.* *No risk to surface waters is considered to exist.*

5.0 SCOPE OF INVESTIGATION AND RATIONALE

5.1 Project Objectives

The aim of the fieldwork was to:

Determine the stratification beneath the site
Maintain watching brief for visual and olfactory evidence of contamination
Obtain samples using methodology in current guidance for contamination testing
Identify realistic pollution linkages to groundwater
Obtain relevant geotechnical parameters for preliminary foundation design to address both ULS and SLS conditions
Determine if targeted supplementary investigation in areas of concern is required and for remedial design
Install monitoring standpipes for gas monitoring
Assess the identified pollution linkages in the CSM

5.2 Scope of Works

The following scope of works was completed between the dates of the 30th May and 31st May 2024.

- *6 No. Window Samples (WS01 to WS06) were advanced to a maximum depth of 3.6m begl*
- *2 No. Cable percussive boreholes (CP01 and CP02) were drilled to a maximum depth of 11.0m begl*
- *Soil percolation testing was undertaken at location SuDS1 at a depth of 2.0m begl*

The exploratory hole locations are presented on Groundtech Plan *GRO-24108-P04* and the exploratory hole logs are in *Appendix 6*.

The exploratory holes were positioned to establish the stratification beneath the site and target any areas of concern as summarised in the table below:

Location	Target Rationale
CP01 to CP02, WS02 to WS04, WS06	*Proposed Residential Apartment Building*
CP02, WS03, WS05	*Former greenhouses*
SuDS1	*Proposed SuDS drainage location*
WS01, WS02	*General Coverage*

The exploratory holes were logged by a suitably experienced geo-environmental engineer in general accordance with the following current guidance:

- *BS 5930 'Code of Practice for Site Investigations' 2020*
- *BS EN 14688-1:2002 'Geotechnical Investigation and Testing – Identification and classification of soil'*
- *BS EN ISO 14689:2002 "Geotechnical investigation and testing – Identification and classification of rock"*

5.3 Soil Sampling

During the intrusive investigation, representative samples were taken at regular intervals, changes of strata and where evidence of contamination existed. Laboratory analysis was scheduled on the samples obtained.

The samples obtained are summarised in the table below:

Soil Sample	Number
Environmental Sample	*36*
Disturbed Sample	*39*
Undisturbed U100 Sample	*4*

The samples have been obtained in accordance with current environmental and geotechnical guidance. The sampling plan has been designed obtain samples from all required strata using the correct methodology.

Disturbed samples of soil for geo-environmental testing were placed in the correct sampling containers as required by the laboratory in accordance with their MCERTS and UKAS Accreditation. Transportation was arranged in a timely manner and the samples were at the correct temperature

The sample locations and depths are recorded on the exploratory logs.

5.4 Laboratory Testing

To inform the Generic Quantitative Risk Assessment, the following geo-environmental testing was scheduled to assess the risk from contamination on the site. The testing is based on the potential sources identified in the PRA and observations during the Ground Investigation.

Contaminant of Concern (CoC)	Matrix	Number
Arsenic, cadmium, chromium (total and hexavalent), copper, lead, mercury, nickel, selenium, zinc, sulphate and pH.	*Soil*	*5*
Asbestos Screening	*Soil*	*5*

The Geo-Environmental Laboratory Testing Results are presented in *Appendix 7*.

Representative disturbed samples were obtained for all soil types encountered. Selected samples were scheduled for testing at an approved laboratory in accordance with BS 1377 'Method of Test for Soils for Civil Engineering Purposes' 1990. The following tests were scheduled:

British Standard	Test Method	Number
Part 2	*Water Content*	*6*
Part 2	*Plasticity Index Analysis*	*6*
Part 3	*Water Soluble Sulphate*	*4*
Part 3	*pH Value*	*4*
Part 7	*Determination of Undrained Shear Strength in Triaxial Compression*	*4*

The Geotechnical Laboratory Testing Results are presented in *Appendix 8*.

5.5 Gas Monitoring

Gas monitoring installations were constructed in the boreholes. The standpipes consisted of high-density polyethylene (HDPE) pipe - a bentonite seal was placed around the plain pipe and a clean gravel pack was placed around the slotted pipe. A summary of the installation construction is presented in the table below:

Location	Depth	Response Zone (m bgl)	Targeted Strata	Reason
WS01	*3.00*	*1.00 – 3.00*	*Made Ground, Natural Clay*	*Ground Gas*
WS03	*3.00*	*1.00 – 3.00*	*Made Ground, Natural Clay*	*Ground Gas*
WS06	*3.00*	*1.00 – 3.00*	*Made Ground, Natural Clay*	*Ground Gas*

Permanent gas and flow rate monitoring was carried out using GFM 436 infrared gas monitor with integral electronic flow analyser. The measurements taken are listed below:

- *Oxygen (O_2), carbon dioxide (CO_2) and methane (CH_4) as the percentage volume in air (%v/v)*
- *Hydrogen sulphide (H_2S) and carbon monoxide (CO) as the percentage volume in air (%v/v)*
- *Lower Explosive Limit (%LEL) of methane*
- *Atmospheric and borehole pressure, including pressure trend*
- *Flow measurements (l/hr)*
- *Weather and ground surface conditions*

Both peak and steady state conditions were monitored to understand the behaviour of the permanent ground gas, the steady state conditions were recorded by allowing the gas monitor to run for a minimum of 3 minutes or steady state was reached.

Interim permanent gas and groundwater monitoring results are presented in *Appendix 9*.

6.0 GROUND MODEL

6.1 Made Ground

Made Ground was encountered in all exploratory holes during the investigation to a maximum depth of 1.6m begl. The surfacing of site consisted of three main populations as described below:

1. *Tarmac in all exploratory holes located within the car park at the rear of the site in WS03, WS04, WS06 and CP02 to a maximum depth of 0.2m begl*

2. *Concrete surfacing along the footpaths surrounding the existing buildings in CP01 and WS01 to a maximum depth of 0.25m begl*

3. *Grass over brown sandy gravelly topsoil in SuDS1, WS02 and WS05 to a maximum depth of 0.3m begl*

One main Made Ground population was encountered beneath the surfacing during the investigation comprising firm brown sandy gravelly clay with minor constituents of brick, sandstone, mudstone and concrete in all exploratory holes from depths of between 0.15m and 0.3m begl to between 0.45m and 1.6m begl.



Exploratory Hole Location Plan

6.2 Natural Ground

The natural strata encountered generally confirmed the published geological records. Two main natural stratification encountered during the investigation and are described below:

1. *Firm grey brown sandy Clay in all exploratory holes from between 0.5m and 1.35m begl to depths of between 1.8m and 3.0m begl*

2. *Stiff brownish gravelly Clay with minor constituents of sandstone in exploratory holes from depths of 0.45m to 3.0m to between 3.0m and 9.5m begl*

6.3 Bedrock

Extremely weak reddish brown Sandstone bedrock recovered as gravelly sand was recorded in CP01 and CP02 from a depth of 9.5m to depths of between 10.5m and 11.0m begl respectively.

6.4 Groundwater

A groundwater seepage was encountered in sand lenses of the natural firm clay deposits of WS03 at 1.0m begl.

6.5 Watching Brief

A watching brief was maintained during the Ground Investigation for visual and olfactory evidence of contamination.

No evidence of visual or olfactory contamination was noted during the Ground Investigation.

6.6 Excavation/Borehole Stability

No evidence of spalling or collapse was noted during excavation of the trial pit. Furthermore, borehole instability was not noted during the drilling of the holes.

6.7 Excavation/Borehole Progress

Slow progress while excavating the trial pit and advancing cable percussive boreholes through the soils was not experienced. In the sandstone bedrock encountered from 9.5m begl, one hour of chiselling was carried out in both exploratory holes from depths of between 10.0m and 10.5m begl to maximum depths of 10.5m and 11.0m begl.

Window sample boreholes recorded SPT refusals in the stiff gravelly Clay in all boreholes at depths of between 3.0m and 3.7m begl.

7.0 GROUND ENGINEERING

7.1 Geotechnical Testing Results

Comparison of water content and the value of 0.4 times the Liquid Limit in accordance with BRE Digest 412 'Desiccation in Clay Soils' suggests significant desiccation has taken place when 0.4 times the Liquid Limit is greater than the actual water measured water content. This is a rudimentary method but also a good guide.

Results of the plasticity testing and the volume change potential of the Clay is summarised in the table below:

Reference	Depth (m)	Modified PI	Volume Change Potential	Desiccated
WS01	*2.00*	*36.26*	*Medium*	*No*
WS02	*2.00*	*58.00*	*High*	*No*
WS03	*1.00*	*38.22*	*Medium*	*No*
WS04	*1.00*	*25.81*	*Medium*	*No*
WS05	*2.00*	*25.22*	*Medium*	*Yes*
CP02	*1.00*	*28.71*	*Medium*	*No*

The high plasticity in WS02 is considered to be due to the close proximity to the existing trees.

Quick undrained triaxial testing was undertaken on four samples of the natural clay encountered beneath the site, a summary of the results is provided below.

Reference	Depth (m)	Shear Strength (Cu)
CP01	*3.00*	*64 kPa*
CP01	*8.00*	*73 kPa*
CP02	*1.20*	*41 kPa*
CP02	*5.00*	*186 kPa*

7.2 Assessment Background

The ground engineering investigation has been undertaken to formulate an accurate ground model in order to undertake preliminary foundation design. The ground model has been constructed with a moderate to high level of confidence, the ground model has evolved from the information obtained by the PRA.

Background

Historical maps indicate the site has been occupied by residential housing since 1890 and were later indicated to be residential apartments by 1988 and remain to date. The surrounding area has also generally consisted of residential developments with the exception of the northern area whereby Whitworth Pond, Academy and commercial land uses are indicated.

Evidence of a basement is present in the western section of the existing building.

Ground Conditions

Made Ground was encountered in all exploratory holes beneath the surfacing to a maximum depth of 1.6m begl and was cohesive in nature comprising brown sandy gravelly Clay with minor constituents of sandstone, mudstone, concrete and brick. The underlying natural strata comprised firm brown sandy Clay and stiff gravelly Clay to a maximum depth of 9.5m begl. Weathered Sandstone bedrock was identified beneath the natural strata to hole termination depths.

A groundwater seepage was encountered at 1.0m begl in WS03, in a sand lense of the natural firm Clay.

Limitations

The main limitation is the potential existing building and associated basement. Foundations should be grubbed up with associated substructure after the current building has been demolished. The existing building is not indicated to be adjoining surrounding buildings.

High loadings anticipated with the three to five-storey apartment building which will likely preclude the use of shallow foundation solutions. If piles are considered, the risk from vibration during the installation of driven piles to the close distance of neighbouring residential buildings should be assessed, alternative piling techniques such as bored piles should be considered.

An asbestos survey would also be required prior to demolition and any asbestos containing materials stripped prior to demolition.

A watching brief during the enabling works following demolition to see if ground conditions change would be recommended.

7.3 Geotechnical Parameters

The geotechnical test results have been evaluated to derive geotechnical parameters for the soils underlying the site. A generalised ground model *GRO-24108-P06* is presented in *Appendix 10* to provide a generalised ground model for the site. The generalised ground model shows the trend of SPT and depth within each strata encountered during the investigation.

Characterization of the geotechnical parameters above has been undertaken to select a characteristic value, which is a cautious estimate of the value affecting the occurrence of the limit state. The characteristic values have been calculated based on empirical rules and through direct laboratory measurement. The characteristic values are provided below:

Stratum	Parameter	Selected Characteristic Value
Firm Low Strength Clay	*Undrained Shear Strength*	*41kPa*
Firm Medium Strength Clay	*Undrained Shear Strength*	*64kPa*
High Strength Stiff Clay	*Undrained Shear Strength*	*73kPa*
Sandstone Bedrock	*Drained Angle of Friction*	*39°*

7.4 Preliminary Foundation Design

Traditional shallow foundations are not anticipated to be a viable option due to the anticipated loadings of the proposed development, the possible presence of an existing basement and inclusion of partial basement as part of the proposed building.

7.4.1 Pile Foundation Solution

The most suitable foundations for the proposed development are considered to be pile foundations end bearing in the Sandstone bedrock. The pile material should be suitable to allow for hard driving through the stiff Clay.

The piles will transfer loads through all Made Ground and cohesive deposits. At this stage loadings are not available, pile caps and reinforced ring beam should be constructed to span between piles and support loadings from walls.

Design by Calculation

Preliminary design by calculation has been carried out using due skill and care using the global factor of safety method. EC7 compliant calculations can be undertaken using partial factors when the permanent and variable loads are available.

The preliminary design by calculation is based on the following ground model of CP01, presented in begl:

- *Made Ground* - *1.6m*
- *Firm to stiff Clay* - *3.0m*
- *Stiff Clay* - *9.7m*
- *Sandstone bedrock* - *10.5m*

The allowable load is presented in the table below, additional calculation can be provided for different diameters if required.

Pile Type	Length (m)	Diameter	Allowable Load (kN)
Driven	*10.5*	*300mm*	*425*

The above pile lengths allow for the pile to penetrate 1m into the end bearing strata to satisfy twice the diameter of the pile requirement. Based on the allowable loads in the table above, the safe working load of the concrete/steel pile may dictate the design.

An appropriate working platform should be constructed in accordance with BR470 guidance. The risk from vibration to adjacent residential properties should be considered when selecting the type of pile and the installation method. There are options to reduce the vibration if required, such as bottom driven or small diameter steel piles and this should be discussed with a piling contractor. Alternative Continuous Flight Auger (CFA) piles could be installed which is a low vibration installation method.

Design Validation

The piling type, length, depth of reinforcement and design should be discussed with a specialist piling contractor. They can then undertake the detailed design including drawings and specifications to provide fitness for purpose design.

Due to the number of stories proposed and anticipated loads, static load testing is likely to be required by the warranty provider to validate the design by calculation.

The ground conditions and the below ground construction indicate downdrag will not be an issue and has not been taken into consideration in the preliminary design.

The piling works should be carried out in accordance with Execution Standard BS EN 12699:2015 'Execution of special geotechnical works. Displacement piles'. If driven piles are the preferred installation method, they will be driven to set using pile driving formulae in accordance with Eurocode 7. The piling works should be carried out in accordance with Execution Standard EN 1536 for Bored Piles if CFA piles are preferred.

7.4.2 Partial Basement

A partial basement is proposed as part of the proposed development. The proposed basement should be tanked to the worst case characteristic groundwater level or ground level to prevent the ingress of groundwater. The construction of the basement is not confirmed at this stage, however it is likely to be a reinforced concrete semi-gravity structure or similar tied into the slab.

Further details of the basement construction are required to provide advice.

Construction Recommendations

The recommendations in this appraisal are preliminary and the detailed design should be developed in advance and during the construction phase. If the ground conditions or groundwater regime encountered during the construction phase differ significantly to the conditions encountered during the Ground Investigation, work should cease and Groundtech Consulting contacted for further advice.

During the construction phase, supervision by a suitably qualified geotechnical engineer should be on a continuous basis to check the design assumptions are correct and construction conforms to design in accordance with EC7. Supervision should include inspections, Control Ground Investigations and monitoring by a suitably qualified geotechnical engineer.

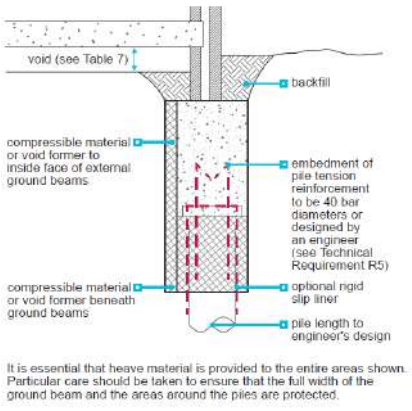
7.5 Building Near Trees

Where foundation excavations encounter cohesive strata in the vicinity of existing, proposed or recently removed trees, foundations should be adjusted in full accordance with NHBC Standards Chapter 4.2. Several young trees are present immediately east of site and in the north of site.

The clay is of a moderate volume change potential. All foundations should be deepened below roots of greater than 5mm diameter during excavations for footings.

A survey of all trees and hedges on the site and within 30m of the site boundary should be undertaken to identify tree species, locations and heights. This information will be required in order to assess the effects of trees on the cohesive strata.

A typical example of heave precautions for piled foundations has been taken from appropriate guidance is displayed below:



Typical example of heave precautions for a piled foundation.

7.6 Floor Slabs

If required ground bearing floor slabs may generally be adopted at the site provided that once finished levels have been established, less than 600mm of suitable, appropriately compacted granular material exists beneath the slab.

The floor slab for the basement should form part of the basement structure to provide stability and resistance against uplift.

7.7 Construction

The trial pits indicate that instability of excavations is not anticipated provided they are not exposed to adverse weather conditions for any substantial period of time. Instability of the Made Ground is a possibility and should be considered in the groundworks method statements.

A watching brief is recommended post demolition to confirm ground conditions underneath the existing building.

The presence of concrete surfacing encompassing the present structure should be considered during the enabling stage of the development. Heavy plant may be required locally across the site to break out any obstructions encountered. The existing apartment building is to be demolished, all below ground substructure and hardsurfacing should be grubbed up as part of the enabling works.

A suspected basement may exist beneath the west section of the current structure on site and will require breaking out and grubbing up.

A groundwater seepage observed in one location, a watching brief in place during demolition and construction of basement to confirm groundwater regime and inform the detailed design.

7.8 Concrete Classification

Made Ground
Water soluble sulphate testing was undertaken on five samples of the Made Ground. The range of soluble sulphate (SO_4) recorded is 11mg/l to 144mgl/l. Associated pH values ranged between 8.1 and 7.2 indicating slightly acidic conditions.

For a dataset containing five to nine results, the mean of the highest two soluble sulphates is taken as the characteristic value along with the mean of the lowest two pH results. For the Made Ground, the selected sulphate value is 121mg/l and the pH value is 7.25.

Natural Strata
Water soluble sulphate testing was undertaken on four samples of the natural strata. The range of soluble sulphate (SO_4) recorded is 109mgl/l to 12mg/l. Associated pH values ranged between 8.6 and 7.7 indicating slightly acidic conditions.

For a dataset containing less then five results, the highest soluble sulphate is taken as the characteristic value along with the lowest pH results. For the natural strata, the characteristic soluble sulphate is 109mg/l and the pH value is 7.7.

The groundwater regime is considered to be static based on the cohesive deposits encountered below the site.

The results of laboratory pH and sulphate content indicate that ACEC Class AC-1s and sulphate class DS-1 conditions prevail in accordance with BRE Special Digest 1 "Concrete in aggressive ground" 2005. The specific concrete mixes (the Design Concrete Class) to be used on site will be determined by the site specific concrete requirements in terms of the durability and structural performance. These are assessed in terms of the Structural Performance Level (SPL) and any need for Additional Protective Measures (APM) detailed in Part D of BRE Special Digest 1 with further guidance in Pt E and F.

7.9 Highway Design

CBR values of 2 to 3% are likely to be achieved in undisturbed natural cohesive soils for pavement design purposes, unless proven otherwise by in-situ testing at sub-base level by a specialist geotechnical engineer. As a minimum the subgrade should be proof rolled prior to construction. Some reengineering of the subgrade may be required prior to highway construction to achieve the required design CBR value.

Untreated Made Ground should be assumed to have a CBR value of <2.5%, unless proven otherwise. Highways Agency document HD25 'Interim Advice Note 73/06 Revision 1' (2009) states that where a subgrade has a CBR value lower than 2.5%, it is considered unsuitable support for a pavement foundation since it would tend to deform under construction traffic, and must be improved.

The soils are considered to frost susceptible due to the fines content, highway construction should be a minimum thickness of 450mm to mitigate against the risk.

7.10 Sustainable Urban Drainage System (SuDS)

The use of SuDS drainage in the natural ground is not feasible at the site due to the presence of cohesive soils which are capable of low soil infiltration rates.

Soil percolation testing was undertaken in SuDS1 in general accordance with BRE 365 from 2.0m begl in the natural Clay strata during the investigation.

Location	Test No.	Dimensions	Stability	Soil Infiltration Rate (m/sec)
SuDS1	*1*	*1700 (L) x 450 (W) x 2000 (D)*	*Stable*	*1.42×10^{-7}*
SuDS1	*2*	*1700 (L) x 450 (W) x 2000 (D)*	*Stable*	*8.90×10^{-8}*
SuDS1	*3*	*1700 (L) x 450 (W) x 2000 (D)*	*Stable*	*1.43×10^{-7}*

The tests indicated that the ground conditions are not BRE 365 compliant and the drainage properties of the soils at the location and depth tested are poor due to the cohesive nature of the Clay.

The soil percolation testing results are presented in *Appendix 11*.

8.0 LAND QUALITY

8.1 Geo-Environmental Testing Results - Soils

Samples of Made Ground have been tested for a range of relevant Contaminants of Concern. In accordance with LCRM, a Generic Quantitative Risk Assessment (GQRA) has been undertaken to determine the significance of the concentrations as derived through Geo-Environmental testing.

The GQRA process comprises the comparison of the actual concentrations measured on site with Generic Assessment Criteria (GACs) for the protection of human health.

The GACs used for the assessment of soil concentrations have been derived using the CLEA model. The GACs used are listed below:

- *Soil Guideline Values (SGVs) which demonstrate minimal risk.*
- *LQM/CIEH S4ULs which use the same toxicological data as the SGVs but different exposure criteria.*
- *C4SLs which demonstrate low risk.*

In deriving the GACs for use on Brownfield sites we have assumed a 1% Soil Organic Matter, unless the results indicate otherwise.

The proposed end-use for the site is a residential development a new apartment building with an associated basement. We have therefore undertaken the GQRA on the basis that the proposed development site falls under the Residential (without Plant Uptake) land-use scenario as defined in SR3 (EA, 2009b).

The strata or sources of contamination targeted by the laboratory testing scheduled is summarised in the table below:

Strata/Sources of Contamination	Number of Samples Tested	Locations
Cohesive Made Ground	*4*	*CP01, SuDS1, WS01, WS02, WS03*
Historic Greenhouse	*1*	*WS03*

A summary of the Geo-Environmental Testing results is presented below and the GQRA screening values are presented in *Appendix 12*:

Metals				
Contaminant	Range (mg/kg)	Screening value (mg/kg)	Exceedances	Locations
Arsenic	*4.4-22.0*	40	-	-
Cadmium	*<0.2*	85	-	-
Chromium	*20.0-31.0*	910	-	-
Hexavalent Chromium	*<1.8*	21	-	-
Copper	*15-58*	7100	-	-
Lead	*25-150*	310	-	-
Mercury	*0.3-0.7*	1.2	-	-
Nickel	*12.0-27.0*	180	-	-
Selenium	*<1*	430	-	-
Zinc	*44-140*	40000	-	-
Polycyclic Aromatic Hydrocarbons (PAHs)				

Contaminant	Range (mg/kg)	Screening value (mg/kg)	Exceedances	Locations
Naphthalene	*<0.05-2.1*	*15*	-	-
Acenaphthylene	*<0.05-5.2*	*2900*	-	-
Acenaphthene	*<0.05-2.0*	*3000*	-	-
Fluorene	*<0.05-8.7*	*2800*	-	-
Phenanthrene	*0.21-45.0*	*1300*	-	-
Anthracene	*<0.05-12.0*	*31000*	-	-
Fluoranthene	*0.16-43.0*	*1500*	-	-
Pyrene	*0.19-38*	*3700*	-	-
Benzo(a)anthracene	*0.1-20.0*	*11*	*1*	*WS03 at 0.45m*
Chrysene	*0.1-19.0*	*30*	-	-
Benzo(b)fluoranthene	*0.09-20.0*	*3.9*	*1*	*WS03 at 0.45m*
Benzo(k)fluoranthene	*<0.05-6.4*	*110*	-	-
Benzo(a)pyrene	*<0.07-17.0*	*3.2*	*1*	*WS03 at 0.45m*
Indeno(123cd) pyrene	*<0.07-17.0*	*45*	-	-
Dibenzo(ah)anthracene	*<0.05-1.9*	*0.31*	*1*	*WS03 at 0.45m*
Benzo(ghi)perylene	*<0.05-7.0*	*360*	-	-
Asbestos Screen				
Position	Depth (m bgl)	Result	Quantification	
WS01	*0.15*	*None Detected*	*n/a*	
WS02	*0.20*	*None Detected*	*n/a*	
WS03	*0.10*	*None Detected*	*n/a*	
SuDS01	*0.40*	*None Detected*	*n/a*	
BH01	*0.50*	*None Detected*	*n/a*	

8.2 Generic Quantitative Risk Assessment - Soils

Made Ground has been encountered beneath the site to a maximum depth of 1.6m begl associated with the construction of the existing apartment buildings, associated outbuildings and greenhouses and raising of site levels. The Made Ground generally consisted of brown sandy gravelly clay with minor constituents of brick, mudstone, concrete and sandstone.

No visual or olfactory evidence of contamination was noted during the investigation.

Metals

Based on the site being developed with residential apartments, no elevated concentrations of heavy metals were recorded above the relevant screening values.

Speciated Polycyclic Aromatic Hydrocarbons (PAHs)

Elevated concentrations of Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene and Benzo(a)pyrene have been recorded up to five times the relevant screening value in the cohesive Made Ground population at WS03 in the south western section of the site.

The elevated concentrations are significant and are likely associated with fertiliser use in the former greenhouse located in the south west. No other elevated concentrations of PAHs have been detected in any of the other samples tested.

Asbestos
Five samples of cohesive Made Ground were tested for asbestos and no fibres were detected in any of the samples tested.

A contamination plan is presented on *GRO-24108-P06.*

8.3 Permanent Ground Gases

To date, three monitoring visits have been carried out at the site between 6th June and 11th July 2024. A further three visits are scheduled to be carried out at the site.

No methane concentrations were recorded in any boreholes. Concentrations of carbon dioxide (CO_2) were recorded up to a maximum level of 2.1%v/v and the associated oxygen concentrations were recorded at a minimum level of 18.0%v/v.

No positive gas flow rates have been detected.

The atmospheric pressure ranged between 1009mb and 1013mb and the monitoring visits have been undertaken during a period of falling atmospheric pressure.

Groundwater was encountered at depths of between 0.53m to 0.87m bgl in WS03 and 1.02m to 2.15m bgl WS01. The groundwater was consistently above the response zone in WS03 due to the poor drainage properties of the surrounding strata. Groundwater was encountered in WS06 on the final visit at the top of the well.

Characterisation of the Gas Screening Value (GSV)
Based on the results recorded, in accordance with BS 8485:2019 and CIRIA Report C665 - the risk to the site from ground gases has been assessed by converting the results to gas screening values (GSVs), calculated by multiplying the typical maximum gas concentrations with the recorded maximum positive flow rates. In addition, individual "hazardous gas flow rates" (Qhg) have been derived for each monitoring event.

GSV (l/hr) = max borehole flow rate (l/hr) x max gas concentration (%)

For this interim assessment, the maximum recorded concentration of carbon dioxide of 2.1%v/v has been used together with the maximum flow rate of to calculate the GSV. As no flow rates have been detected, the limit of detection of the gas analyser of 0.1l/hr has been used to calculate the GSV.

Carbon Dioxide GSV = 0.021 (2.1%) x 0.1 = 0.0021 l/hr

In order to assess the ground gas regime beneath the site and the need to incorporate ground gas precautions, guidance was taken from BS 8485:2019. Based on the site being developed residential apartments, the Wilson and Card method has been used to carry out the assessment.

When considering the results, in accordance with BS 8485:2019 (Modified Wilson and Card Classification), it can be seen that the GSV values for methane and carbon dioxide correspond with CS1 criteria (GSV of less than 0.07l/hr). Furthermore, the carbon dioxide concentrations recorded during the initial visits fall below the assessment criteria of 5% v/v indication CS1 conditions prevail. The source of the concentrations of

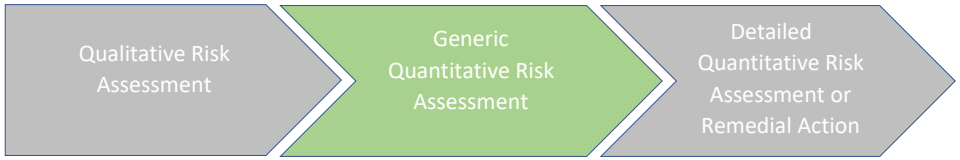
carbon dioxide is considered to be the general Made Ground conditions at the site. The above recommendations will be confirmed in a gas addendum upon completion of the gas monitoring programme.

The site is not in an area where radon precaution measures are required in foundations.

8.4 Revised Pollution Linkage Assessment

The CSM has been revised based on the Ground Investigation and testing using Source-Pathway-Receptor assessment criteria that is applicable in the UK, a risk assessment has been completed to determine if a plausible pollution linkage exists between the identified contaminants and receptors. A revised illustrative CSM has been produced referenced *GRO-24108-P07*.

Human Health Pollution Linkage Assessment



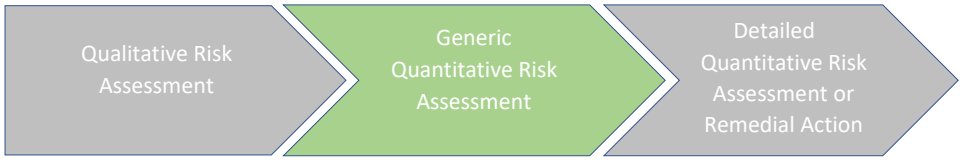
- The table below represents the second stage in the land quality risk assessment process - **the Generic Quantitative Risk Assessment**.
- In order for a development site to be deemed 'suitable for use' the level of risk needs to be reduced to an acceptable level - low to negligible risk. The purpose of each stage of risk assessment is to establish if there is a requirement for additional stages of assessment in order to have sufficient confidence to support a risk characterisation or remedial action.

Conceptual Site Model					*Generic Quantitative Risk Assessment*	
PL	Potential Source	Pollution Linkage	Likelihood	Consequence/ Severity	Risk Rating	*Rationale and Action*
PL1	Contaminated Soils	Ingestion of soil and dust. Dermal contact with soil.	Low Likelihood to Likely	Medium	Moderate to Low	*Historically, residential dwellings turned apartments with associated greenhouses and buildings were located on site.* *Limited Made Ground of sandy gravelly Clay with inert minor constituents of concrete, brick, sandstone and mudstone was encountered in all exploratory holes to 1.6m begl.* *Geo-environmental testing has indicated that there are no elevations of heavy metals recorded or no detectable concentrations of asbestos present. However, elevations of PAHs have been recorded locally to WS03 in the cohesive Made Ground in the south western area of site. No visual or olfactory evidence of contamination was noted.* *It is evident that offsite sources of contamination, such as PCBs associated with the substation 26m north have not migrated and impacted the site.* *The site is to be predominantly covered in hardsurfacing which will break the linkage to end site users. Where soft landscaping is present, a pollution linkage exists.*

Conceptual Site Model						*Generic Quantitative Risk Assessment*
PL	Potential Source	Pollution Linkage	Likelihood	Consequence/ Severity	Risk Rating	*Rationale and Action*
PL2	Contaminated Soils	Inhalation of vapour.	Unlikely	Medium to Severe	Low	*No visual or olfactory evidence of hydrocarbon or volatile contamination was noted during the investigation and no sources were identified through the PRA.* *A viable pollution linkage is not considered to exist.*
PL3	Contaminated Soils	Inhalation of soil dust by adjacent site users.	Unlikely	Medium	Low	*No mobile contamination has been identified by the Ground Investigation and environmental testing.* *As a source has not been identified, no pollution linkage exists.*
PL4	Contaminated Soils	Attacking potable water supply pipe.	Unlikely	Medium	Low	*Made Ground is present beneath the site to a maximum depth of 1.6m begl and is therefore present at installation depth. No organic contamination has been recorded beneath the site through laboratory testing.* *It is recommended that proposed potable water supply pipes are installed within the natural ground where possible. A local water company risk assessment should be undertaken to confirm selection of water supply pipe when the route of the pipe is known.* *A source or plausible pollution linkage has not been identified.*

Conceptual Site Model						*Generic Quantitative Risk Assessment*
PL	Potential Source	Pollution Linkage	Likelihood	Consequence/ Severity	Risk Rating	*Rationale and Action*
PL5	Ground Gas	Migration and accumulation of ground gas in internal spaces.	Likely	Medium to Severe	Low	*Made Ground is present beneath the site is of a maximum depth of 1.6mb begl, no concentrations of methane were detected, detectable levels of CO_2 of up to 2.1% v/v were recorded.* *Interim gas monitoring results place the site in CS1 and gas precaution measures will not be required for the site. This will be confirmed or otherwise on completion of the monitoring. The basement is to be tanked which will mitigate the migration of gases into the building.* *The site is not within an area requiring Radon precautions within foundations.*

Controlled Waters Pollution Linkage Assessment



- The table below represents the second stage in the land quality risk assessment process – **Generic Quantitative Risk Assessment**.
- In order for a development site to be deemed 'suitable for use' the level of risk needs to be reduced to an acceptable level - low to negligible risk. The purpose of each stage of risk assessment is to establish if there is a requirement for additional stages of assessment in order to have sufficient confidence to support a risk characterisation or remedial action.

Conceptual Site Model					*Generic Quantitative Risk Assessment*	
PL	Potential source	Pollution linkage	Likelihood	Severity	Level of risk	*Rationale*
PL6	Contaminated Soils	Impaction of groundwater from soil contamination (diffuse and point). Impaction of groundwater from groundwater plume.	Unlikely	Medium	*Low*	*Historically, the site has been utilised as an apartment building with associated greenhouses located to the south west and north east of site. No significant sources of mobile contamination have been identified onsite.* *The site is in a total catchment Source Protection Zone on site, however there are no potable water abstractions within 2km. The bedrock is the Chester Sandstone Formation (Principal Aquifer).* *Made Ground was encountered beneath the site to a maximum depth of 1.6m begl and generally comprised sandy gravelly Clay with minor constituents of brick, sandstone, concrete and mudstone. No mobile contamination has been recorded beneath the site and a significant thickness of impermeable Clay has been recorded during the Ground Investigation that will act as an aquitard.* *The proposed development is residential end use and will have a new drainage system installed which will considerably reduce infiltration and leaching of potential contaminants.*

Conceptual Site Model						*Generic Quantitative Risk Assessment*
PL	Potential source	Pollution linkage	Likelihood	Severity	Level of risk	*Rationale*
					Low	*No plausible pollution linkage has been identified.*
PL7	Contaminated Soils	Migration of soil and groundwater contamination impacting surface waters.	Unlikely	Medium		*This pollution linkage relates to migration of contaminated soils and groundwater impacting River Irwell located c.2.7km north west and nearby watercourses.* *No significant sources of mobile contamination have been identified on site and the receptor is considered to be a significant distance from site to allow for natural attenuation.* *No pollution linkage or risk to surface waters is considered to exist.*

8.5 Outline Remedial Strategy

Soils

Made Ground was encountered beneath the site to a maximum depth of 1.6m begl. Elevated levels of speciated PAHs have been identified in the shallow cohesive Made Ground locally to WS03 in the south western area of site. The proposed development is residential end use comprising a new apartment building with an associated garden in the south east.

The majority of the site will be covered with hardsurfacing and will effectively act as a cover system. Where soft landscaping is proposed, a cover system of 450mm should be placed including a minimum of 150mm of topsoil. The suitability and depth of the cover system should be validated in accordance with YALPAG.

Testing of the existing topsoil is recommended to determine if it is chemically suitable for reuse as part of the proposed development in areas of soft landscaping. The topsoil should be stripped and stockpiled separated from the other arisings.

Controlled Waters

No mobile contamination was noted during the Ground Investigation and remediation in relation to controlled waters is not required.

Ground Gas

Ground gas monitoring indicates that the site is CS1, the level of protection will be confirmed by the final assessment. The site is not in an area requiring radon protection measures.

Watching Brief and Regulatory Compliance

A watching brief should be in place during ground works and construction including following the demolition of the existing building. If previously unidentified contamination is encountered, work should cease in that area and Groundtech Consulting contacted for advice.

Regulatory compliance should be obtained pre-commencement to avoid delays during the construction phase which will have cost implications.

8.6 Asbestos in Soils

Asbestos was not detected in the five samples of cohesive Made Ground tested and specific control measures are not required.

8.7 Health and Safety - Construction and Ground Workers

During the reclamation and construction phases of the site development it will be necessary to protect the health and safety of site personnel. The risk to construction and ground workers is assessed in the table below:

PL Ref	Potential Source	Pollution Linkage	Likelihood	Severity	Level of Risk
PL8	*Made Ground*	*Ingestion, direct contact, inhalation of dusts.*	*Low Likelihood to Likely*	*Medium*	*Low to Moderate*

No visual or olfactory evidence of contamination was noted during the site investigation and no asbestos has been recorded. Made Ground has been encountered and elevated concentrations of speciated PAHs were

recorded locally to WS03. Site workers should be made aware of the risk through site indication, health and safety talks and the relevant information should be made available on noticeboards.

General guidance on these matters is given in the Health and Safety Executive (HSE) document "Protection of Workers and the General Public during the Redevelopment of Contaminated Land". In summary, the following measures are suggested to provide a minimum level of protection:

- *All ground workers should be issued with the relevant protective clothing, footwear and gloves. These protective items should not be removed from the site and personnel should be instructed as to why and how they are to be used.*
- *Hand-washing and boot-washing facilities should be provided.*
- *Care should be taken to minimise the potential for off-site migration of contamination by the provision of dust suppression control and wheel cleaning equipment during the construction works.*
- *Good practices relating to personal hygiene should be adopted on the site.*
- *The contractor shall satisfy the Health and Safety Executive with regard to any other matters concerning the health, safety and welfare of persons on the site.*

8.8 Waste Classification by Assessment

We have reviewed the testing results and inputted them into the HazWasteOnline model which allows users to code and classify waste as defined in the EWC (European Waste Catalogue 2002) based on EC Regulation 1272/2008 on the Classification, labelling and packaging of substances and mixtures (CLP) and latest Environment Agency guidance (WM3 "Guidance on the classification and assessment of waste (1st edition 2015)-Technical Guidance").

This is a useful tool as waste producers have the legal responsibility to classify any waste they produce.

Five samples were tested to assess whether they contained any contaminants in the hazardous range when screened against assessment criteria within WM3. The results are in the Waste Classification Report presented in *Appendix 13*.

Based on the assessment tool the Mafe Ground has been classified as *Non-Hazardous*. Total testing was not undertaken on the natural soils and are assumed to also be *Non-Hazardous*. It is anticipated that a significant volume of excavated material from existing basement excavation will be disposed of site.

Asbestos has not been detected by the testing and therefore falls beneath the hazardous threshold of 0.1%.

8.9 Waste Acceptance Criteria (WAC) Results

Waste Acceptance Criteria (WAC) testing was outside the scope of this investigation and the guidance given below is general.

The Landfill Directive (Directive 1999/31/EC on the landfilling of waste) led to the establishment of a methodology for classifying wastes. Wastes can only be accepted at a landfill if they meet the relevant Waste Acceptance Criteria (WAC) for that type of landfill. There are three different WAC, these are for:

- *Inert waste*
- *Non-Hazardous waste*
- *Hazardous waste*

Wastes should first be classified based on their total concentrations as detailed in the previous section. WAC testing is then required if the end disposal route is a landfill.

The possibility of automatic inert classification of the natural soils should be explored in accordance with Section 4.3 of the EA guidance document. The Council Decision includes a list of wastes in Section 2.1.1 of the document that are assumed to be inert and therefore acceptable at a landfill for inert waste without testing, this is the case if:

- *They are single stream waste of a single waste type (although different waste types from the list may be accepted together if they are from a single source)*
  and
- *There is no suspicion of material or substances such as metals, asbestos, plastics, chemicals, etc to an extent which increases the risk associated with the waste sufficiently to justify contamination and they do not contain other their disposal in other classes of landfill.*

If any organic contaminated material is encountered during the construction phase, it is possible that this may be classified as hazardous and testing should be undertaken at that time.

Materials should segregated and where necessary sufficient time is allowed to further classify the material properly, including discussion with landfill sites and waste transfer stations to find the best disposal route. It is recommended that where possible that the soils could be recycled at a suitable local waste treatment plant or transfer station rather than a landfill disposal route.

The reuse of soils on the site this should be done in accordance with the CL:AIRE "Development Industry Code of Practice for the Definition of Waste" (CL:AIRE CoP). Any re-use scheme should be designed to minimise disposal costs.

After a cut and fill balance plan/volume calculation has been carried out, a U1 and T5 exemption could be registered. This will allow the use of the following soils without a waste permit or under Dow CoP MMP:

- *1,000 tonnes (c. 600m^3) of non-hazardous soil*
- *5,000 tonnes (c. 3,000m^3) of natural sand and gravels.*
- *50,000 tonnes (c. 25,000m^3) of bituminous material to be used in roadways.*
- *5,000 tonnes (c. 3,000m^3) of crushed concrete/stone.*

9.0 FINAL APPRAISAL

9.1 Land Quality

The site and surrounding area have historically been residential. Greenhouses were located in the south west and east of site with residential apartments located on site from 1890. Residential land use has increasingly developed to the west south and north of site. Currently an electricity substation is present circa 26m north of site.

Based on the site being developed with an apartment building, laboratory testing indicated elevated concentrations of speciated PAHs local to WS03, hardsurfacing of the proposed development will act as a cover system. A cover system of 450mm should be placed in proposed soft landscaping areas.

A source of volatiles has not been identified on the site and no visual or olfactory evidence of contamination was noted, the risk from vapours is considered to be *Low*.

Significant mobile contamination has not been encountered as part of the Ground Investigation and the risk to controlled waters is *Low.*

Interim gas monitoring results has classified the site as CS1 and no ground gas precautions are necessary. Additionally, the location of the site means no radon precautions are required. Furthermore, the basement is to be tanked which will mitigate the migration of gases.

The waste classification testing indicates that the Made Ground are *Non-Hazardous*, natural soils are also likely to be *Non-Hazardous*.

9.2 Ground Engineering

The most suitable foundation for the proposed development at Moss Lane East is considered to be piles driven into the weathered bedrock deposits at 10m begl. A safe allowable load of 425kN has been calculated for a pile of 300mm diameter. Heave precautions will be required because of the moderate volume change potential of the clay tested.

A potential existing basement was noted during the investigation and will require grubbing up as part of the enabling works during construction. Additionally, a partial basement is included in the proposed development. The proposed basement is recommended to be tanked and designed to prevent resistance against uplift.

Soil percolation testing was undertaken in SuDS1 and testing results highlighted poor infiltrations rates due to the cohesive nature of the shallow soils encountered. Therefore, SuDS drainage is not considered a feasible option for the site.

A groundbearing floor slab should be adopted for the proposed basement.

The results of laboratory pH and sulphate content indicate that ACEC Class AC-1s and sulphate class DS-1.

9.3 Required Further Work

The following further work is considered necessary to progress the site to construction phase:

Completion of gas monitoring programme
Issue gas assessment
Demolition Asbestos survey
Inspection beneath existing building post demolition
Detailed Foundation design
Confirmation of recommendations made in this appraisal with regulators

10.0 RELEVANT INDUSTRY REFERENCES

British Standards Institution. *Investigation of Potentially Contaminated sites - code of practice*. BS 10175:2017.

British Standards Institution '*Code of Practice for Site Investigations*' BS 5930:2020

British Standards Institution "*Geotechnical investigation and testing – Identification and classification of soil*" BS EN ISO 14688:2002.

British Standards Institution "*Geotechnical investigation and testing – Identification and classification of rock*" BS EN ISO 14689:2002.

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BRE Special Digest 1: "*Concrete in Aggressive Ground*" 3rd Ed 2005.

CIRIA 552 "Contaminated Land Risk Assessment – A guide to good practice" 2001.

CIRIA C665 "Assessing Risks Posed by Hazardous Ground Gases to Buildings" 2007.

Wilson & Card "*Proposed method classifying gassing sites*" Ground Engineering 1999.

Card & Steve Wilson in "*A pragmatic approach to ground gas risk assessment for the 21st Century*" - CIRIA/Environmental Protection UK Ground gas seminar 2011

BS 8576:2013 '*Guidance on investigations for ground gas – Permanent gases and Volatile Organic Compounds (VOCs)'*

BS 8485:2015 '*Code of practise for the design of protective measures for methane and carbon dioxide ground gases for new buildings'*

The Hazardous Waste (England) Regulations 2005.

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Department of the Environment, 1994, CLR Report No 3 'Documentary research on Industrial Sites'.

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Environmental Quality Standards.

UK Drinking Water Standards: Water Supply (Water Quality) Regulations 1989 (SI 1989/1147) and Water Supply (Water Quality) Regulations

UKWIR Report 10/WM/03/21 2010 "Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites"

Health & Safety Executive, 1991. 'Protection of Workers & the General Public during the Development of Contaminated Land'.

Environment Agency & NHBC, 2000. R&D Publication 66. Guidance for the Safe Development of Housing on Land Affected by Contamination.

Environment Agency "Guidance on the classification and assessment of waste (1st edition 2015) Technical Guidance WM3"

NHBC Standards 2024

CL:AIRE "*The Definition of Waste: Development Industry Code of Practice*" Version 2 March 2011.

CIRIA "*Asbestos in soil and made ground: a guide to understanding and managing risks*" C733 2014

Control of Asbestos Regulations (CAR) 2012

Harris, M R, Herbert, S. M, Smith, M A 'Remedial Treatment for Contaminated Land' (twelve volumes), special publications 101-112, CIRIA 1996.

Department of the Environment. 1995. Industry Profiles - 48 separate publications available from The Stationery Office, London

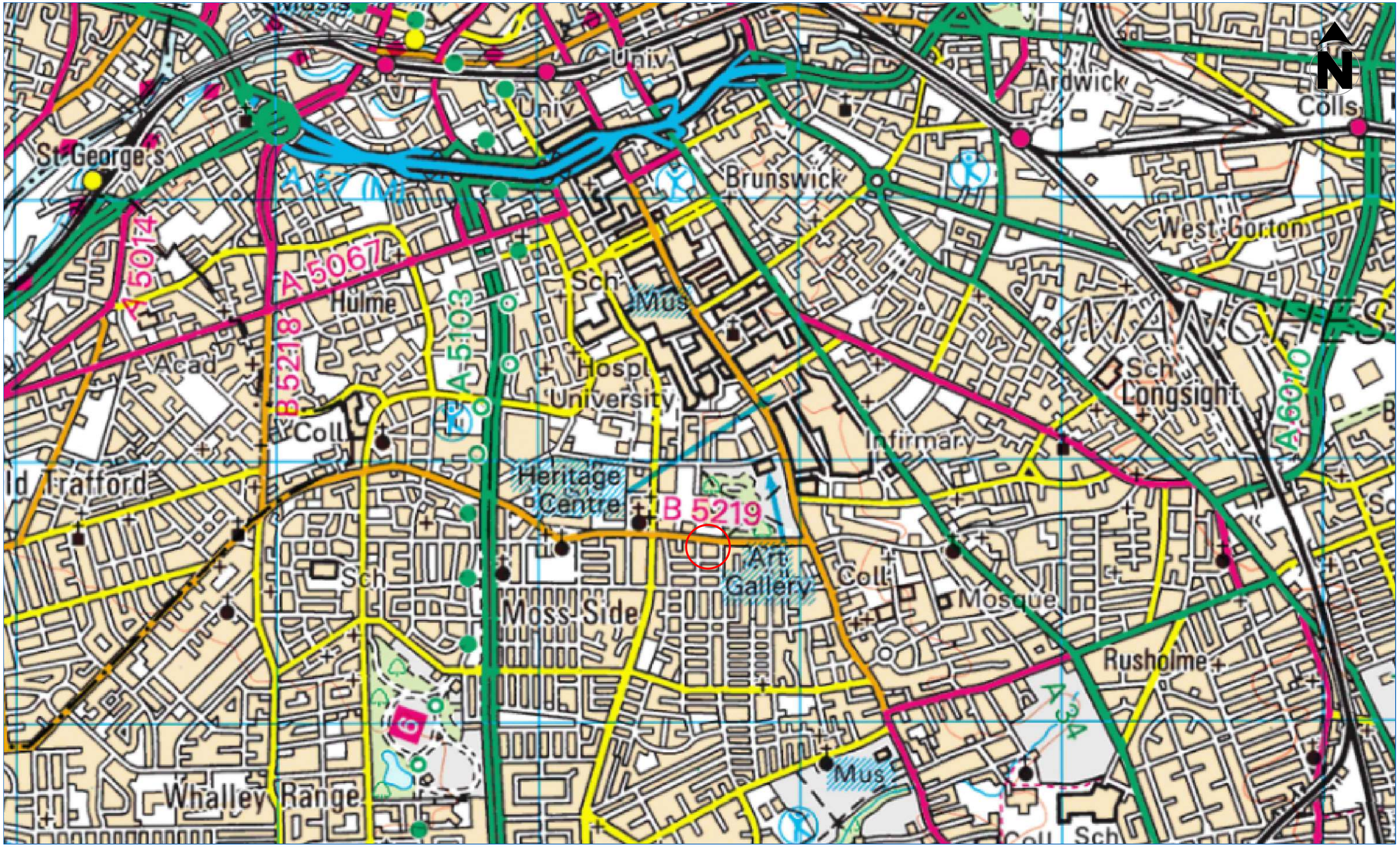
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APPENDIX 1 - Plans



GROUNDTECH CONSULTING

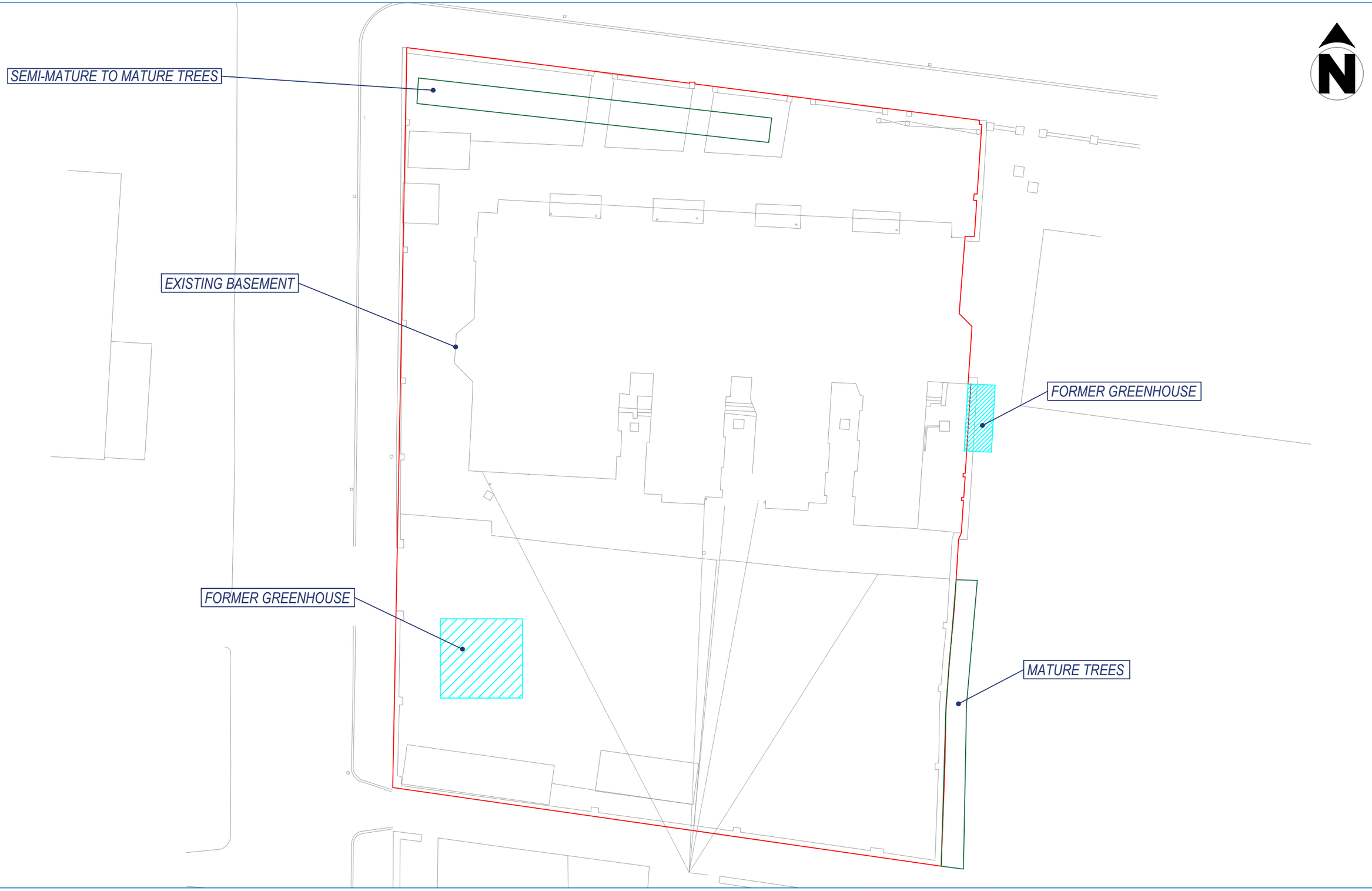
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PROJECT TITLE	MOSS LANE EAST MANCHESTER
PLAN TITLE	PROJECTION LOCATION PLAN
DATE	JUNE 2024
SCALE	NTS
PLAN NUMBER	GRO-24108-P01

Rev.	Details	Date

Status	
Preliminary	
Draft	
Issued	●
For Comment	
Approved	

Notes

○ Site Location



GROUNDTECH CONSULTING

CLIENT	CHESHIRE HOMES
PROJECT TITLE	MOSS LANE EAST MANCHESTER
PLAN TITLE	PRELIMINARY FINDINGS AND CONSTRAINTS PLAN
DATE	JUNE 2024
SCALE	NTS
PLAN NUMBER	GRO-24108-P02

Rev.	Details	Date

Status	
Preliminary	
Draft	
Issued	●
For Comment	
Approved	

Notes

Approximate site boundary

SOURCES
A. Contaminated soils / Made Ground.
B. Ground gas.

POLLUTION LINKAGES
P1. Ingestion of soil and dust.
P2. Inhalation of vapour.
P3. Inhalation of soil dust by adjacent site users.
P4. Attacking of potable water supply pipe.
P5. Migration and accumulation of ground gas in internal places.
P6. Impaction of groundwater from soil contamination.
P7. Migration of soil and groundwater contamination impacting surface waters.

RECEPTORS
W. River Irwell c.2.7km north west.
X. Groundwater within the Principal Aquifer.
Z. Adjacent site users.



GROUNDTECH CONSULTING

CLIENT	CHESHIRE HOMES
PROJECT TITLE	MOSS LANE EAST MANCHESTER
PLAN TITLE	PRELIMINARY ILLUSTRATIVE CSM
DATE	JULY 2024
SCALE	NTS
PLAN NUMBER	GRO-24108-P03

Rev.	Details	Date

Status	
Preliminary	
Draft	
Issued	●
For Comment	
Approved	

Notes



GROUNDTECH CONSULTING	CLIENT: CHESHIRE HOMES	DATE: MAY 2024
	PROJECT TITLE: MOSS LANE EAST	SCALE: NTS
	PLAN TITLE: EXPLORATORY HOLE LOCATION PLAN	PLAN NUMBER: GRO-24108-P04

Rev.	Details	Date

Status	
Preliminary	
Draft	
Issued	●
For Comment	
Approved	

Notes

- CABLE PERCUSSIVE BOREHOLE LOCATIONS
- WINDOW SAMPLE BOREHOLE LOCATIONS
- SOIL PERCOLATION TEST LOCATION

SOURCES
A. Contaminated soils / Made Ground.
B. Ground gas.

POLLUTION LINKAGES
P1. Ingestion of soil and dust.
P2. Inhalation of vapour.
P3. Inhalation of soil dust by adjacent site users.
P4. Attacking of potable water supply pipe.
P5. Migration and accumulation of ground gas in internal places.
P6. Impaction of groundwater from soil contamination.
P7. Migration of soil and groundwater contamination impacting surface waters.

RECEPTORS
W. River Irwell c.2.7km north west.
X. Groundwater within the underlying Principal Aquifer.
Y. Site end users.
Z. Adjacent site users.



GROUNDTECH CONSULTING

CLIENT	BRENNAN CONSULTING
PROJECT TITLE	MOSS LANE EAST MANCHESTER
PLAN TITLE	ILLUSTRATIVE REVISED CSM
DATE	JULY 2024
SCALE	NTS
PLAN NUMBER	GRO-24108-P06

Rev.	Details	Date

Status	
Preliminary	
Draft	
Issued	●
For Comment	
Approved	

Notes



WS03 - 0.45m bgl (MG: Cohesive)
Benzo(b)flouranthene - 20mg/kg
Benzo(a)anthracene - 20mg/kg
Dibenzo(ah)anthracene - 1.9mg/kg
Benzo(a)pyrene - 17mg/kg

GROUNDTECH CONSULTING

CLIENT	CHESHIRE HOMES
PROJECT TITLE	MOSS LANE EAST
PLAN TITLE	CONTAMINATION PLAN

DATE	SCALE	PLAN NUMBER
JUNE 2024	NTS	GRO-24108-P07

Rev.	Details	Date

Status	
Preliminary	
Draft	
Issued	●
For Comment	
Approved	

Notes

- CABLE PERCUSSIVE BOREHOLE LOCATIONS
- WINDOW SAMPLE BOREHOLE LOCATIONS
- SOIL PERCOLATION TEST LOCATION

APPENDIX 2 - Site Photographs



Photograph 1 – Storage containers at rear of site.



Photograph 2 – Soft landscaping in south eastern section of site. Young trees behind.



Photograph 3 – Western end of site. Evidence of basement to right.

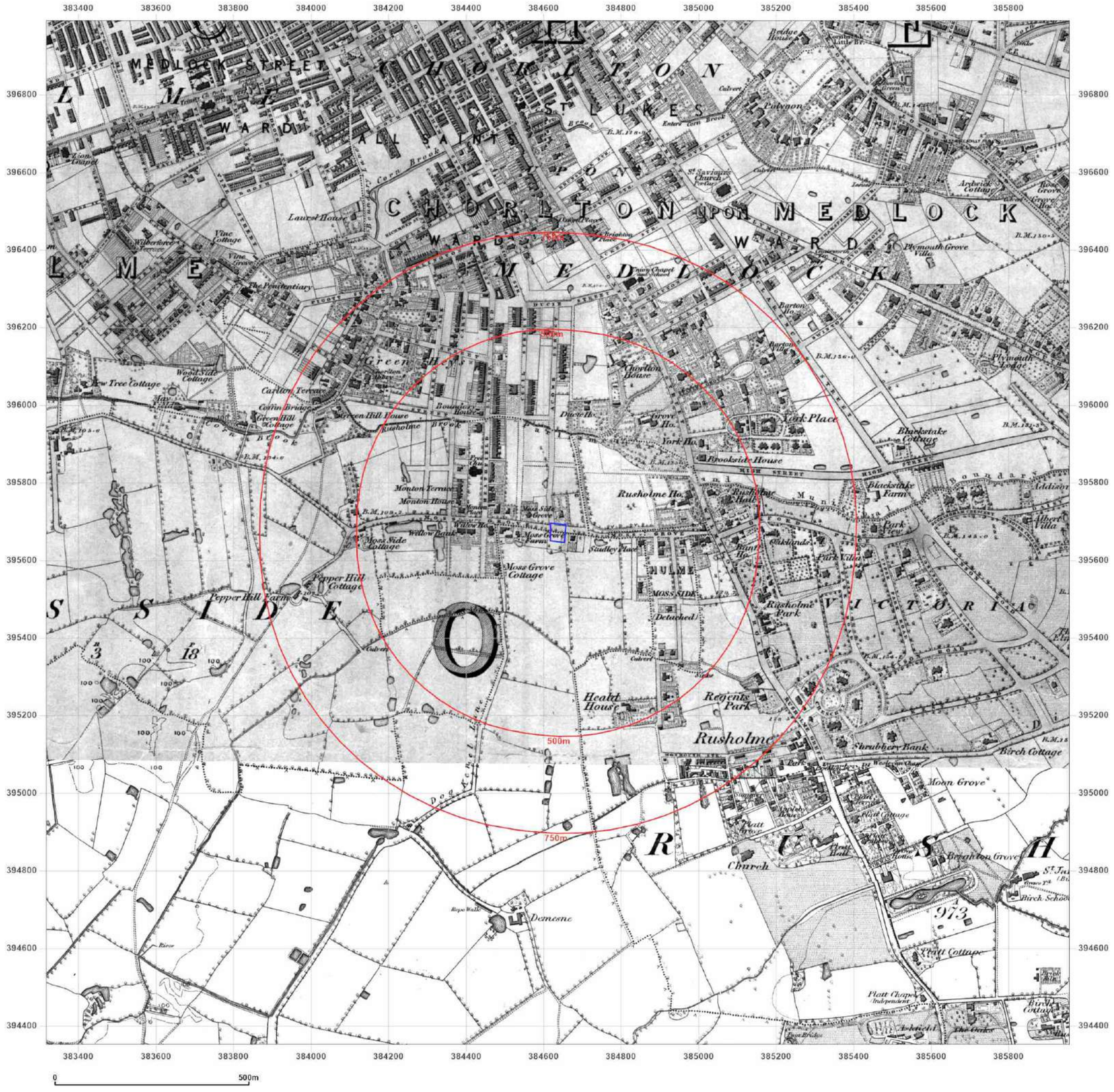


Photograph 4 – Trees at front (north) of site.



Photograph 5 – Rear of residential apartment.

APPENDIX 3 - Historical Plans



EMAPSITE™

Site Details:

unspecified

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Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

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Map date: **1848-1849**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1845
Revised N/A
Edition 1848
Copyright N/A
Levelled N/A

Surveyed 1845
Revised 1849
Edition 1849
Copyright N/A
Levelled N/A

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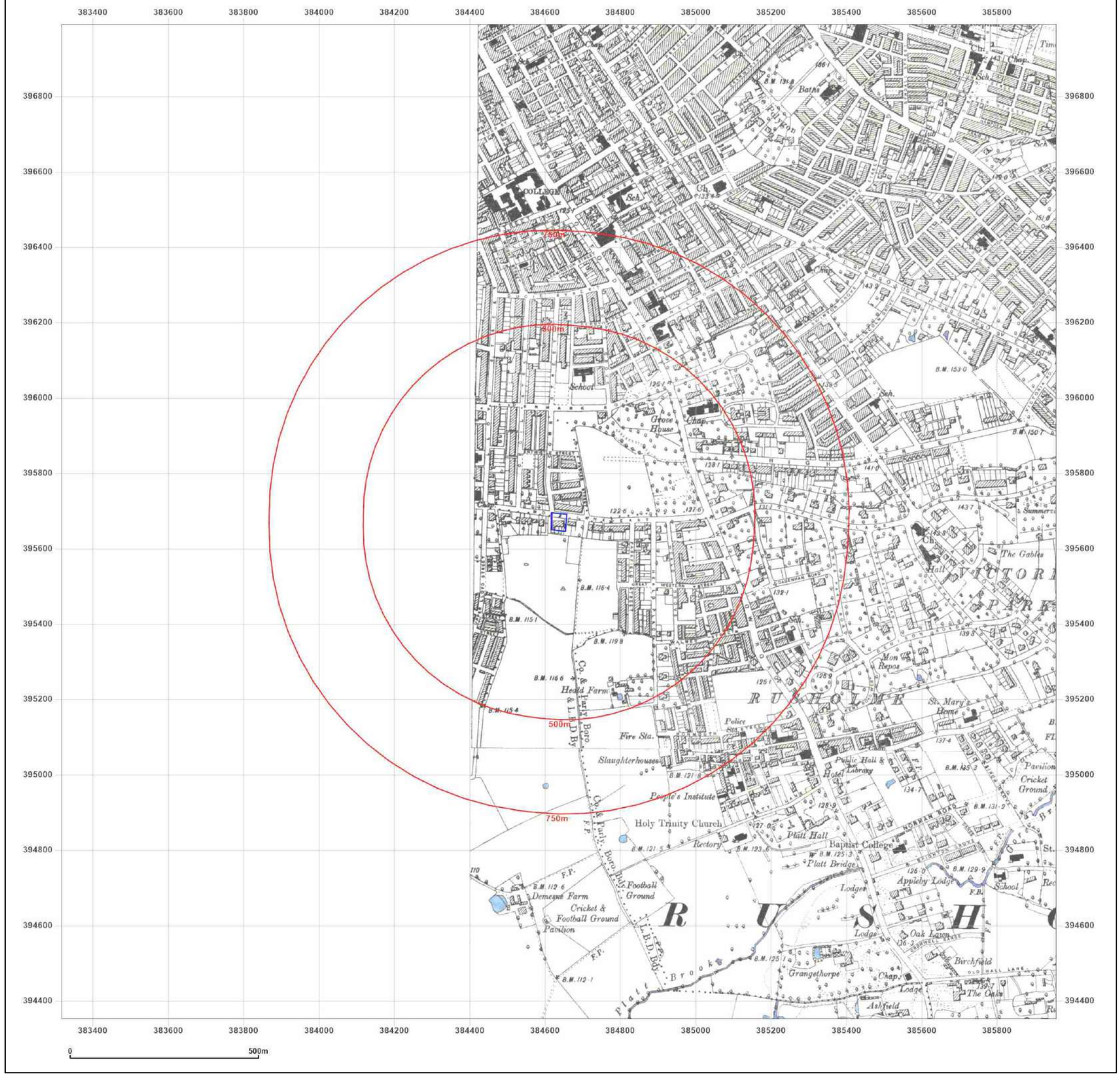
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Production date: 17 May 2024

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



EMAPSITE™

Site Details:

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Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

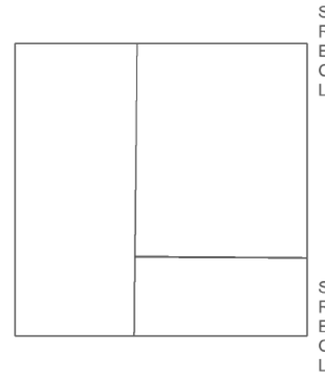
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Map date: **1890-1892**

Scale: 1:10,560

Printed at: 1:10,560

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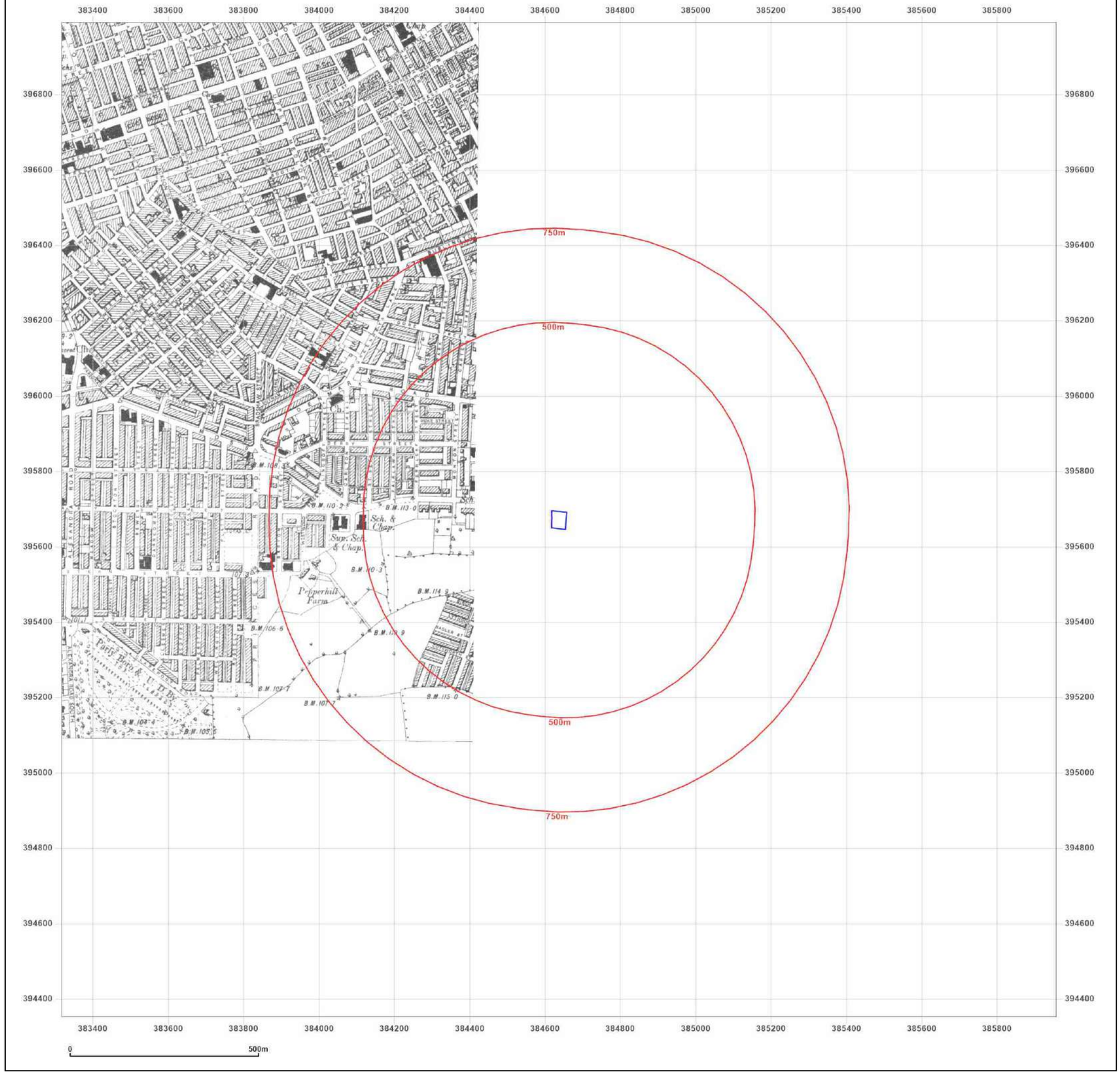
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Map legend available at:
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EMAPSITE™

Site Details:

unspecified

Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: County Series

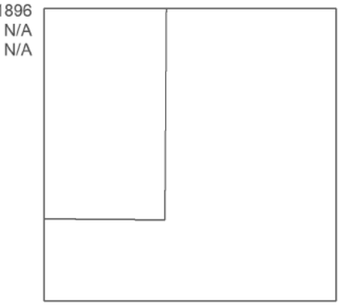
Map date: **1896**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1894
Revised 1896
Edition 1896
Copyright N/A
Levelled N/A



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EMAPSITE™

Site Details:

unspecified

Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: County Series

Map date: **1905**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1844
Revised 1905
Edition 1905
Copyright N/A
Levelled N/A

Surveyed 1844
Revised 1905
Edition 1905
Copyright N/A
Levelled N/A

Surveyed 1892
Revised 1905
Edition 1905
Copyright N/A
Levelled N/A

Surveyed 1892
Revised 1905
Edition 1905
Copyright N/A
Levelled N/A

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Site Details:

unspecified

Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: County Series

Map date: **1923**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1844
Revised 1916
Edition 1923
Copyright N/A
Levelled 1915

Surveyed 1844
Revised 1915
Edition 1923
Copyright N/A
Levelled 1915

Surveyed 1844
Revised 1916
Edition 1923
Copyright N/A
Levelled 1915

Surveyed 1844
Revised 1916
Edition 1923
Copyright N/A
Levelled 1915

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Site Details:

unspecified

Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: County Series

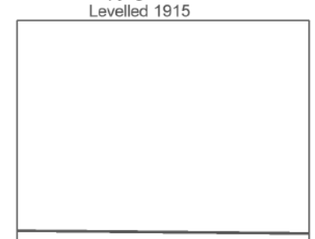
Map date: **1923**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1844
Revised 1916
Edition 1923
Copyright N/A
Levelled 1915



Surveyed 1844
Revised 1916
Edition 1923
Copyright N/A
Levelled 1915

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Site Details:

unspecified

Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: County Series

Map date: **1932-1934**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1844
Revised 1932
Edition 1932
Copyright N/A
Levelled 1927

Surveyed 1844
Revised 1934
Edition 1934
Copyright N/A
Levelled 1927

Surveyed 1844
Revised 1934
Edition 1934
Copyright N/A
Levelled 1927

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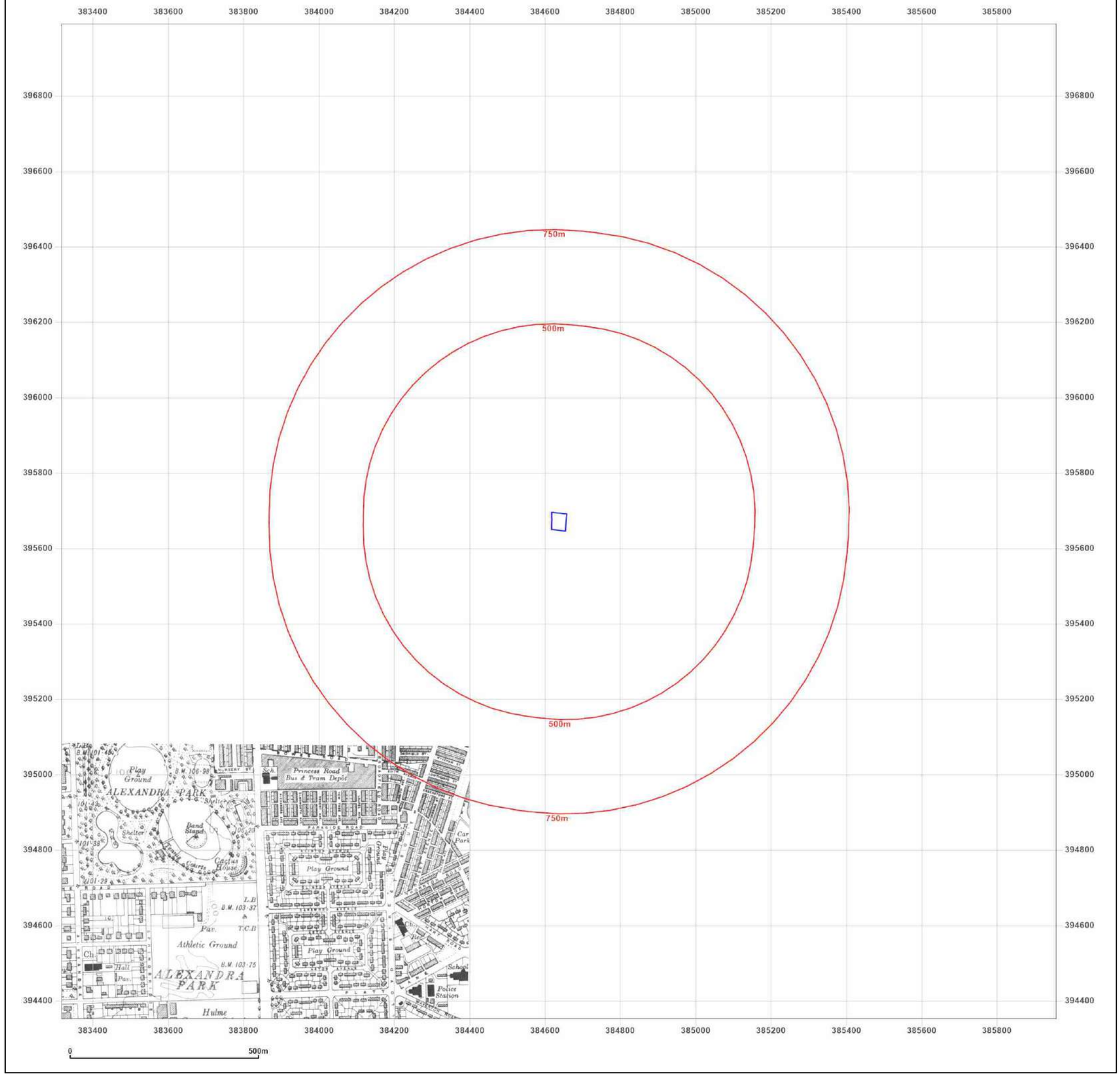
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Site Details:

unspecified

Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: County Series

Map date: **1934**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S



Surveyed 1844
Revised 1934
Edition 1934
Copyright N/A
Levelled 1927

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Site Details:

unspecified

Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1844 Revised 1938 Edition 1938 Copyright N/A Levelled 1927	Surveyed 1844 Revised 1938 Edition 1938 Copyright N/A Levelled 1927
Surveyed 1844 Revised 1938 Edition 1938 Copyright N/A Levelled 1927	Surveyed 1844 Revised 1938 Edition 1938 Copyright N/A Levelled 1927

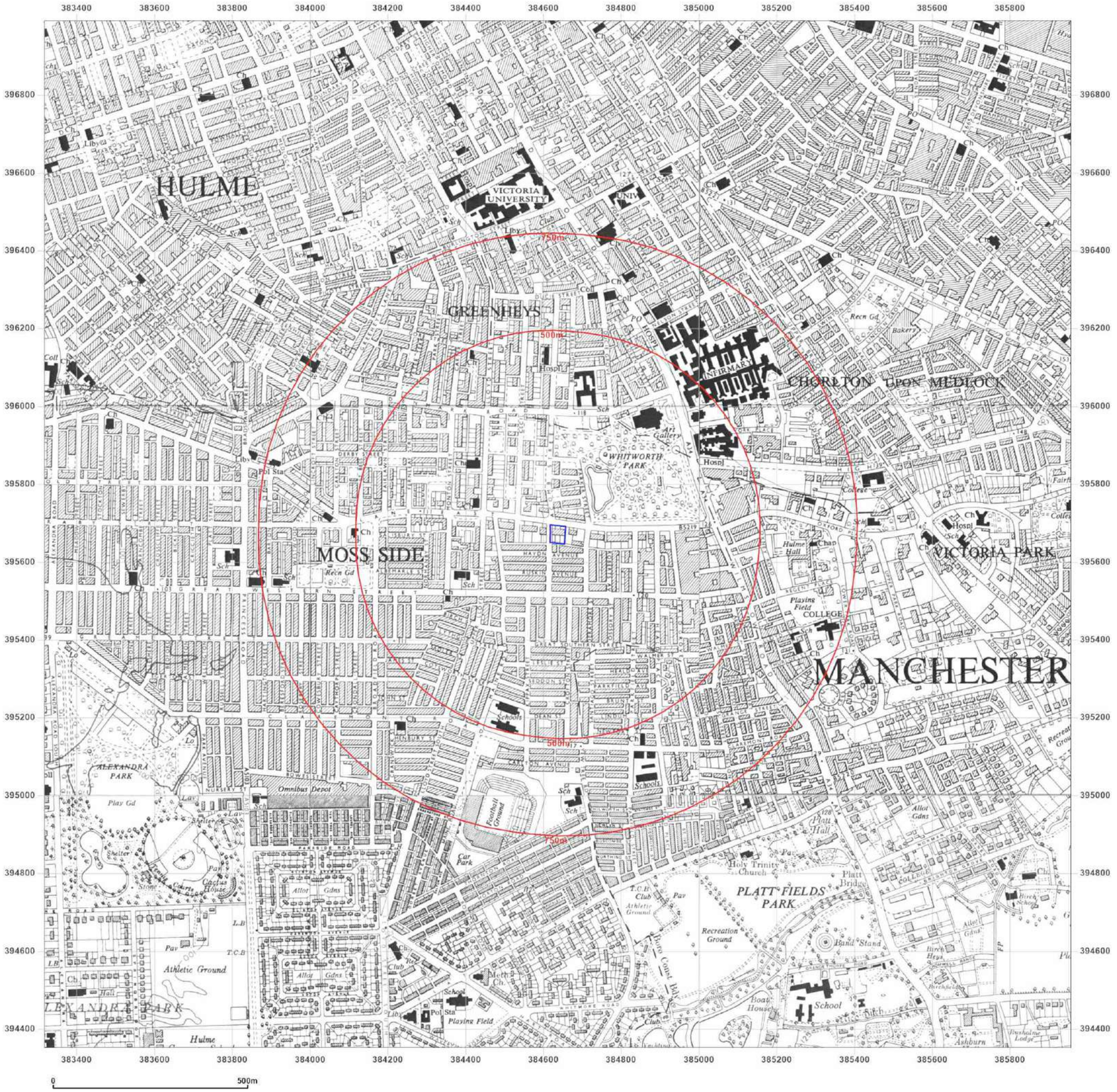
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Site Details:

unspecified

Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: Provisional
Map date: **1955-1956**
Scale: 1:10,560
Printed at: 1:10,560

N
W E
S

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

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

Surveyed N/A
Revised 1955
Edition N/A
Copyright 1955
Levelled N/A

Surveyed N/A
Revised 1955
Edition N/A
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Levelled N/A

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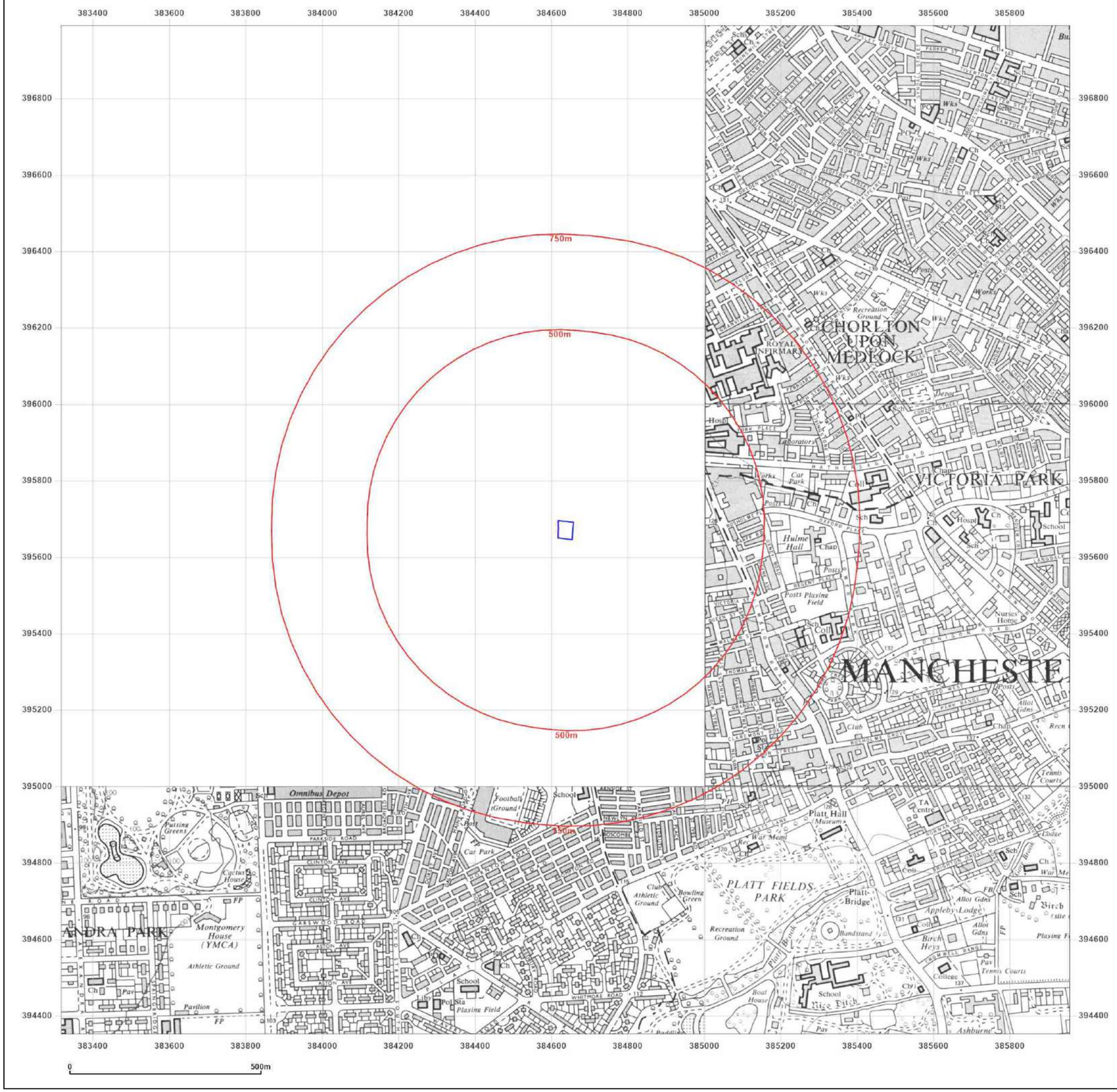
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Site Details:

unspecified

Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: Provisional
Map date: **1965-1968**
Scale: 1:10,560
Printed at: 1:10,560

N
W E
S

Surveyed 1968
Revised 1968
Edition N/A
Copyright 1968
Levelled N/A

Surveyed 1966
Revised 1966
Edition N/A
Copyright 1966
Levelled N/A

Surveyed 1965
Revised 1965
Edition N/A
Copyright 1965
Levelled N/A

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Site Details:

unspecified

Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: National Grid

Map date: **1972-1976**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
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Surveyed 1971
Revised 1972
Edition N/A
Copyright 1972
Levelled 1972

Surveyed 1974
Revised 1975
Edition N/A
Copyright 1976
Levelled 1964

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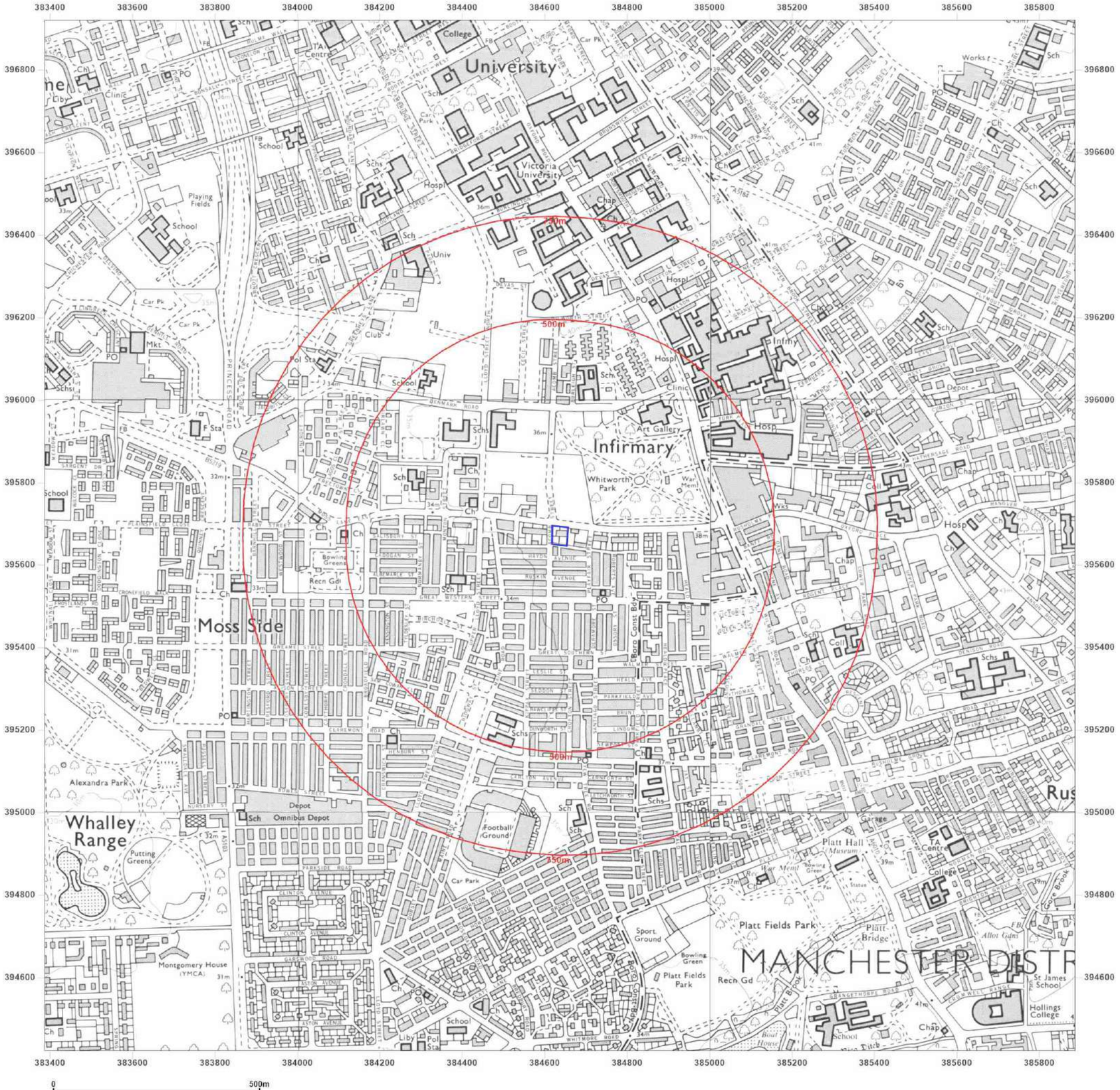
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Site Details:

unspecified

Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: National Grid

Map date: **1980-1983**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
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Surveyed 1976
Revised 1980
Edition N/A
Copyright 1980
Levelled 1976

Surveyed 1976
Revised 1980
Edition N/A
Copyright 1981
Levelled 1976

Surveyed 1977
Revised 1981
Edition N/A
Copyright 1981
Levelled 1976

Surveyed 1981
Revised 1983
Edition N/A
Copyright 1983
Levelled 1981

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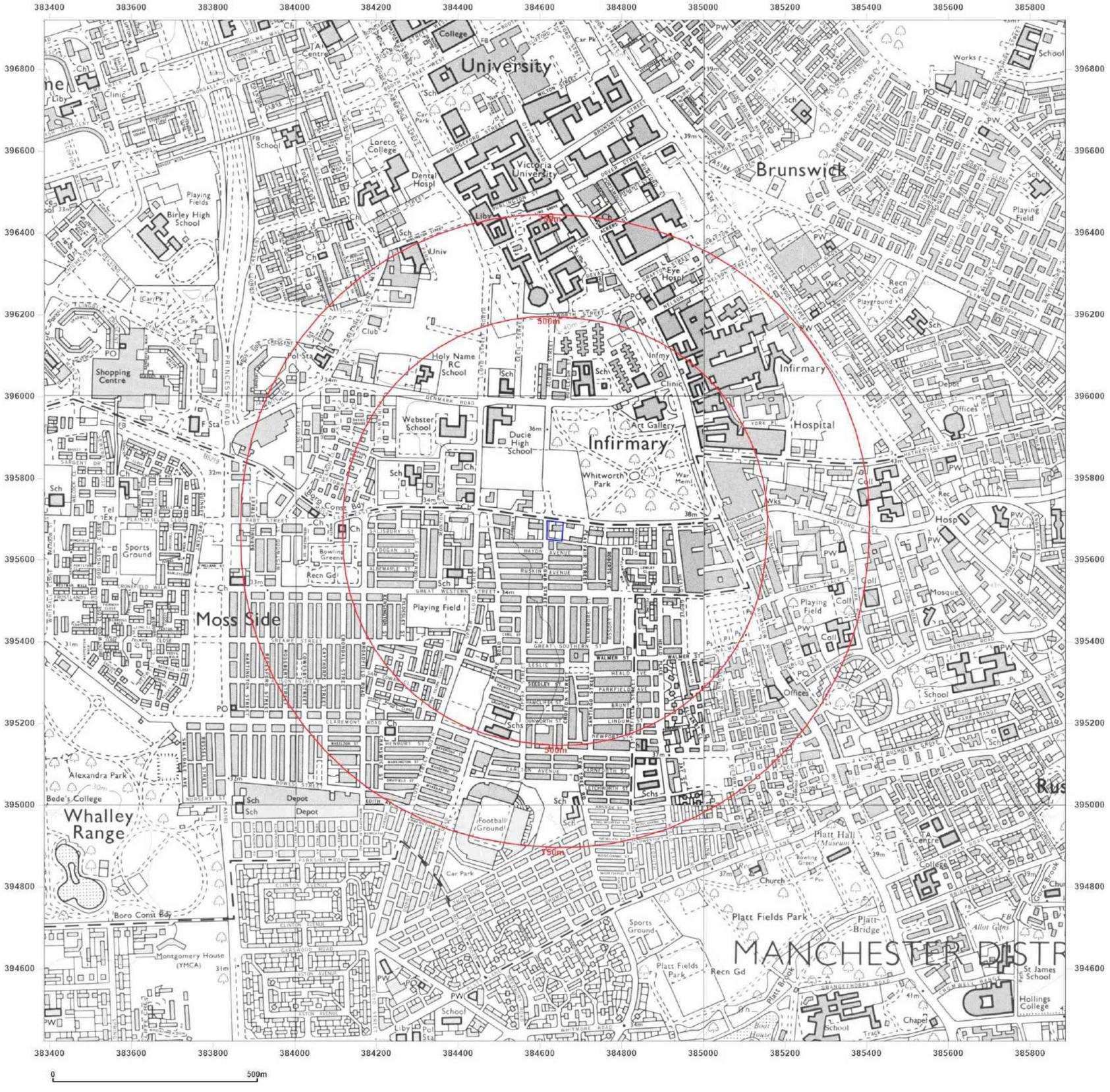
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Site Details:

unspecified

Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: National Grid

Map date: **1985-1989**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
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Surveyed 1983
Revised 1985
Edition N/A
Copyright 1985
Levelled 1981

Surveyed 1985
Revised 1985
Edition N/A
Copyright 1985
Levelled 1981

Surveyed 1985
Revised 1988
Edition N/A
Copyright 1988
Levelled 1981

Surveyed 1986
Revised 1989
Edition N/A
Copyright 1989
Levelled 1981

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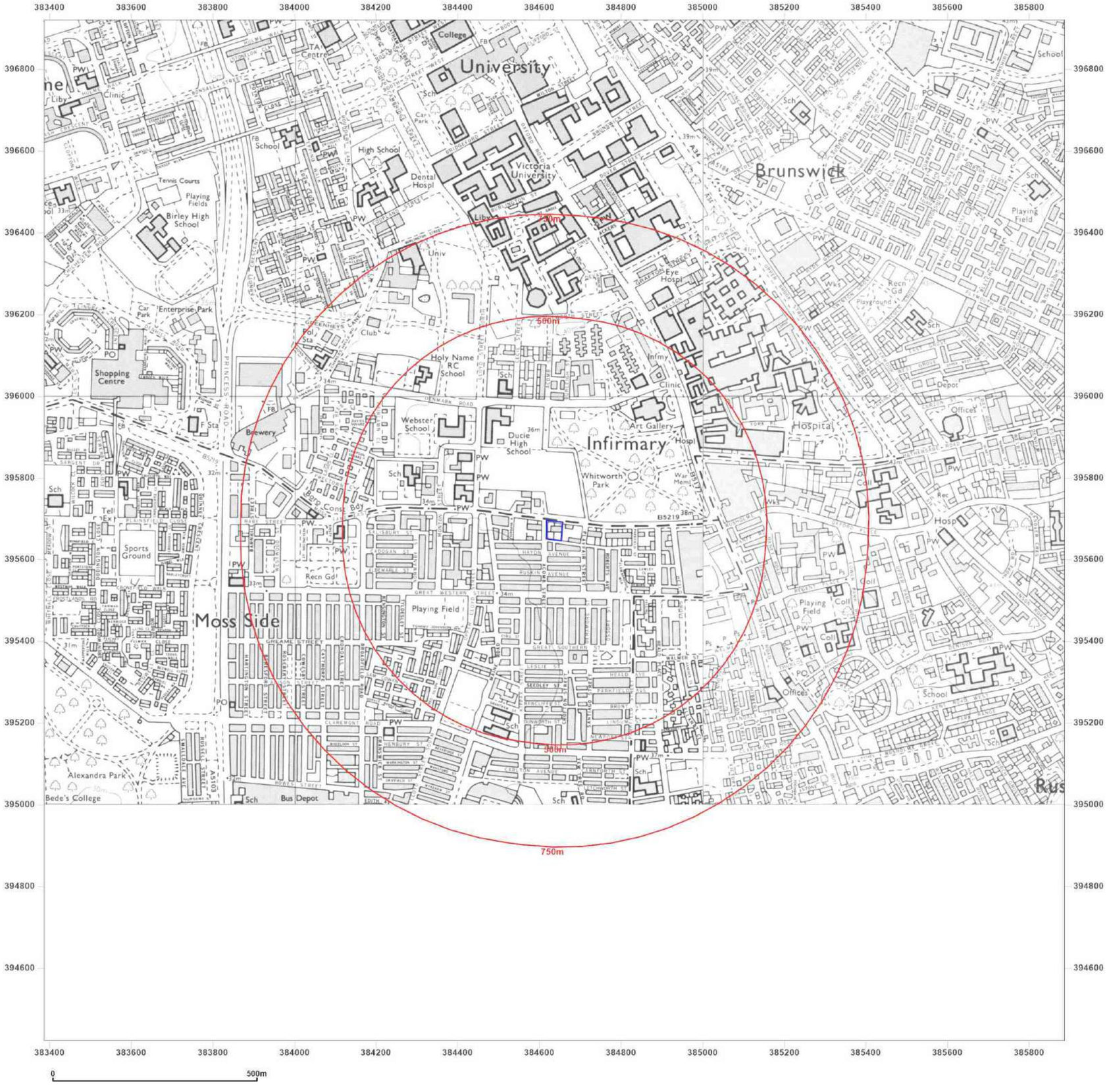
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Site Details:

unspecified

Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: National Grid

Map date: **1988-1991**

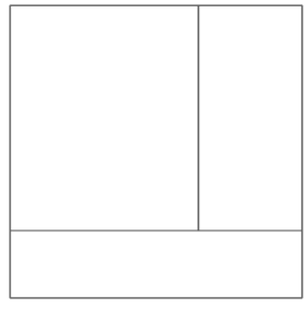
Scale: 1:10,000

Printed at: 1:10,000

N
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Surveyed 1986
Revised 1988
Edition N/A
Copyright 1988
Levelled 1981

Surveyed 1985
Revised 1991
Edition N/A
Copyright 1991
Levelled 1981



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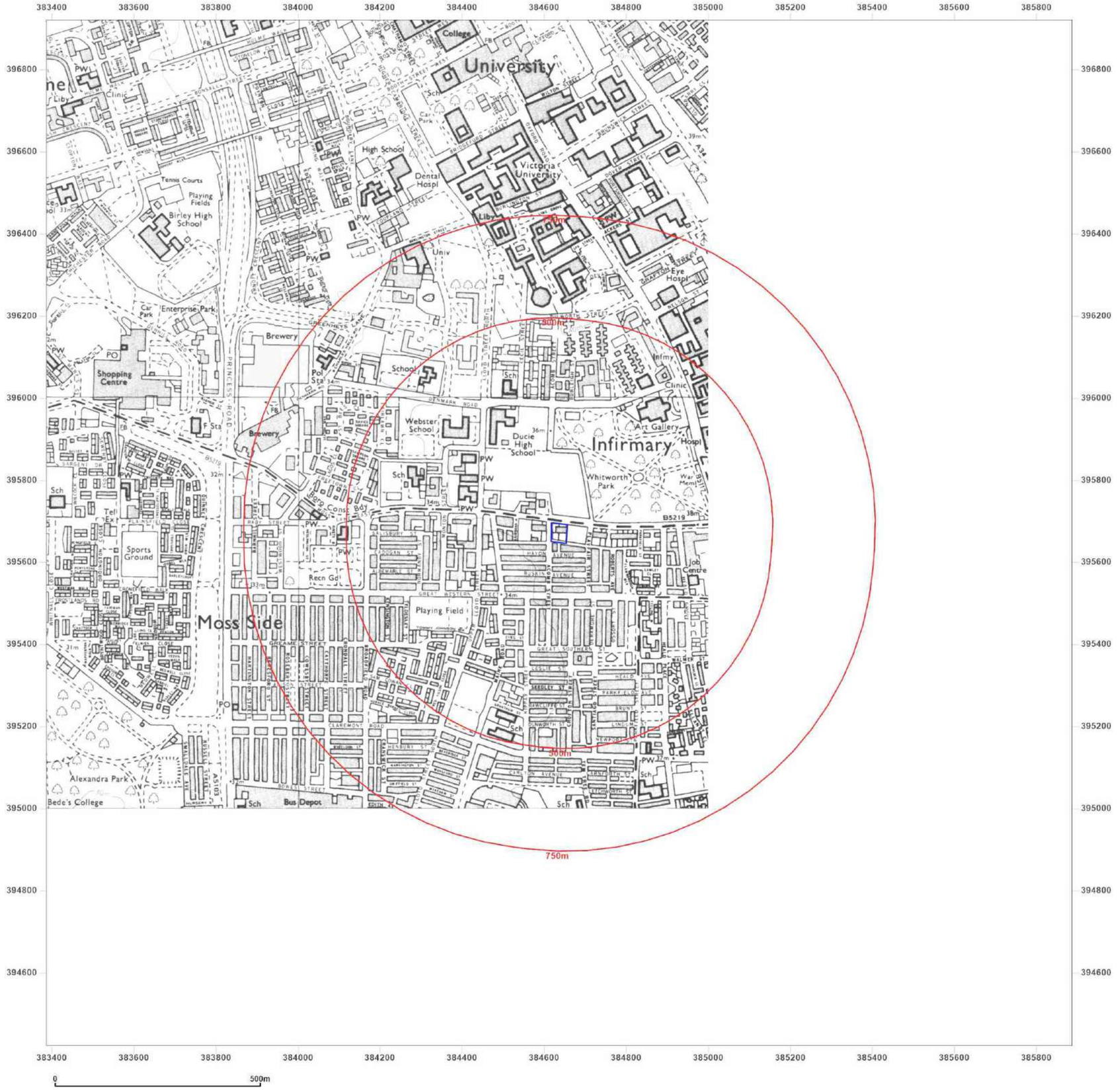
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Site Details:

unspecified

Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: National Grid

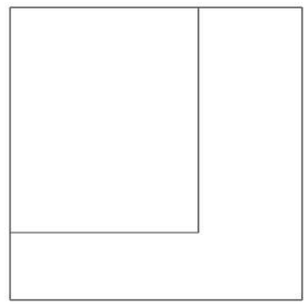
Map date: **1994**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
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Surveyed 1986
Revised 1994
Edition N/A
Copyright 1994
Levelled 1981



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Site Details:

unspecified

Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: National Grid

Map date: **2001**

Scale: 1:10,000

Printed at: 1:10,000

N
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2001

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Site Details:

unspecified

Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: National Grid
Map date: **2010**
Scale: 1:10,000
Printed at: 1:10,000

N
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2010

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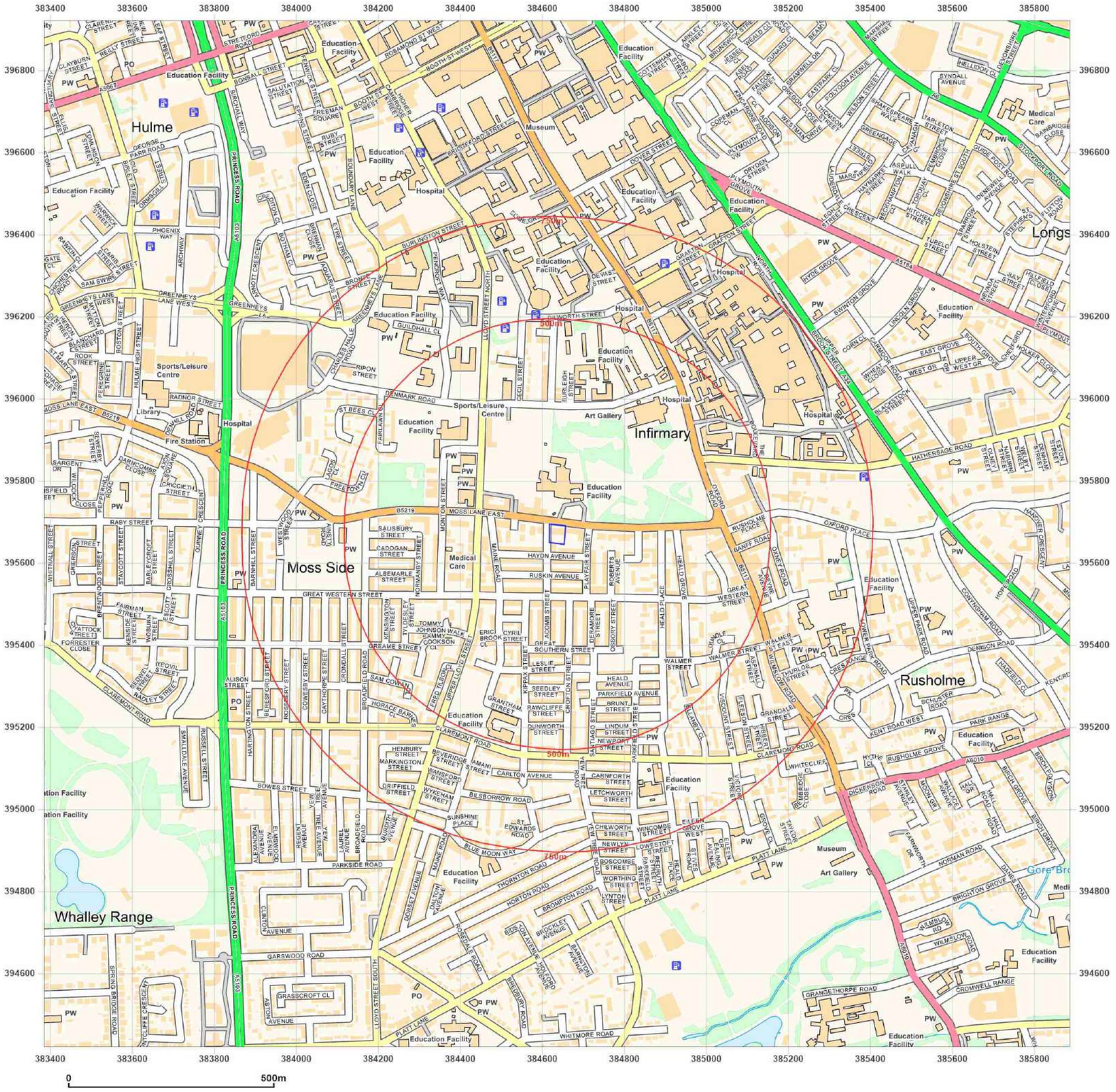
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Site Details:

unspecified

Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: National Grid

Map date: **2024**

Scale: 1:10,000

Printed at: 1:10,000

N
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2024

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EMAPSITE™

Site Details:

unspecified

Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: 1056 Scale Town Plan

Map date: **1848**

Scale: 1:1,056

Printed at: 1:1,056

N
W E
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Surveyed N/A
Revised N/A
Edition 1848
Copyright N/A
Levelled N/A

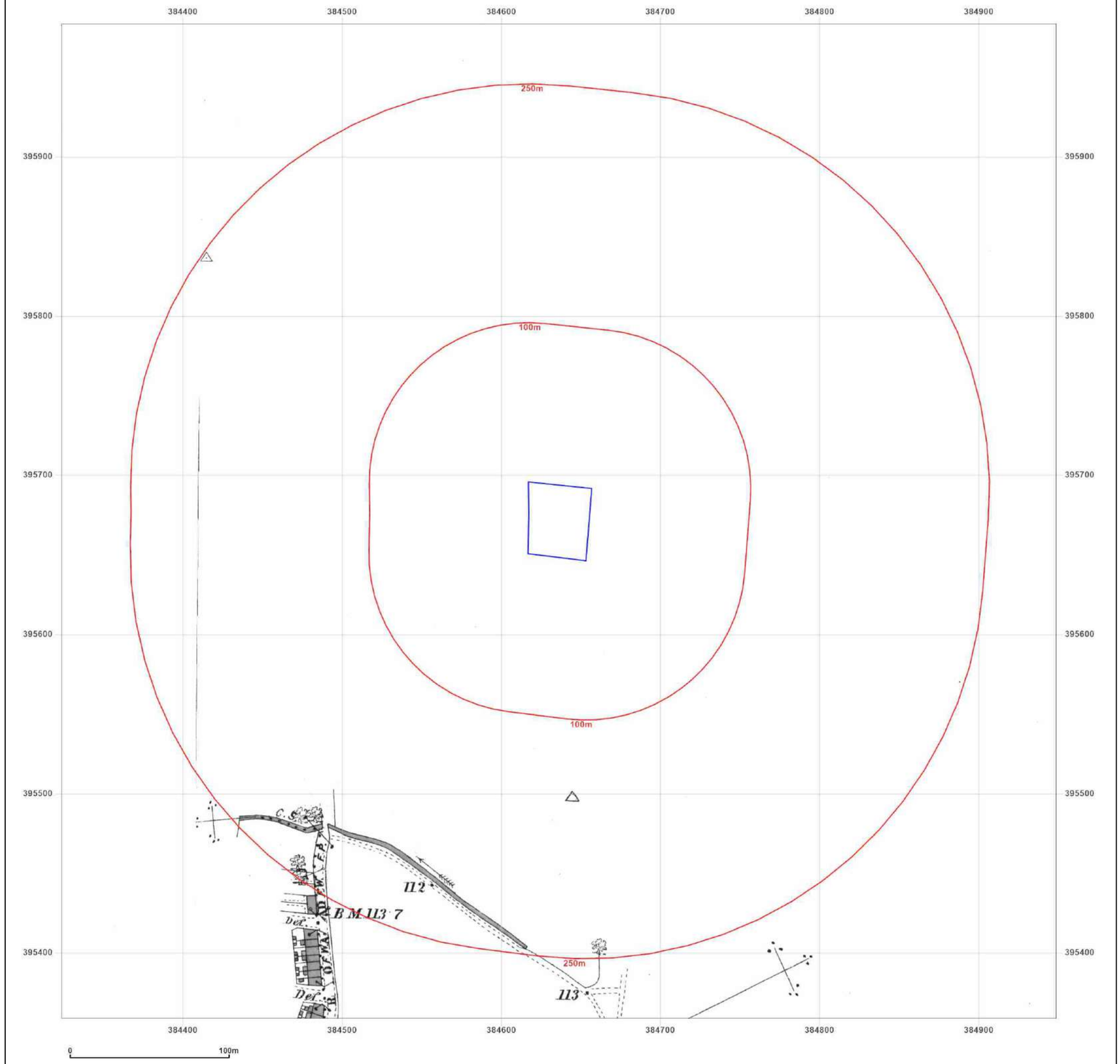
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Site Details:

unspecified

Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

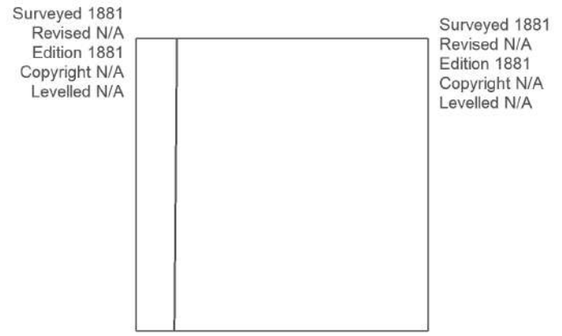
Map Name: County Series

Map date: **1881**

Scale: 1:2,500

Printed at: 1:2,500

N
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Site Details:

unspecified

Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: County Series Town Plan

Map date: **1891**

Scale: 1:500

Printed at: 1:1,000

N
W E
S

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

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

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Site Details:

unspecified

Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: County Series

Map date: **1889-1893**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1889
Revised N/A
Edition 1889
Copyright N/A
Levelled N/A

Surveyed 1893
Revised N/A
Edition 1893
Copyright N/A
Levelled N/A

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Site Details:

unspecified

Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: County Series

Map date: **1908**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1891
Revised 1905
Edition 1908
Copyright N/A
Levelled N/A

Surveyed 1891
Revised 1905
Edition 1908
Copyright N/A
Levelled N/A

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Site Details:

unspecified

Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: County Series

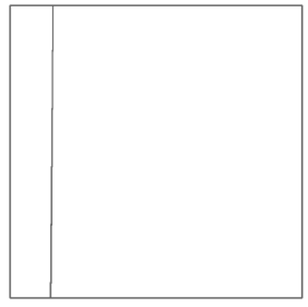
Map date: **1922**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
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Surveyed 1922
Revised 1916
Edition 1922
Copyright N/A
Levelled 1915



Surveyed 1922
Revised 1916
Edition 1922
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EMAPSITE™

Site Details:

unspecified

Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: County Series

Map date: **1932-1933**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed 1873
Revised 1932
Edition N/A
Copyright N/A
Levelled 1927

Surveyed 1873
Revised 1933
Edition N/A
Copyright N/A
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Site Details:

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Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: National Grid

Map date: **1949-1950**

Scale: 1:1,250

Printed at: 1:2,000

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Surveyed 1950 Revised 1950 Edition N/A Copyright N/A Levelled 1927	Surveyed 1949 Revised 1949 Edition N/A Copyright N/A Levelled 1928
Surveyed 1949 Revised 1949 Edition N/A Copyright N/A Levelled 1927	Surveyed 1950 Revised 1950 Edition N/A Copyright N/A Levelled 1928

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Site Details:

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Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: National Grid

Map date: **1950**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
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Site Details:

unspecified

Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: National Grid

Map date: **1950-1951**

Scale: 1:1,250

Printed at: 1:2,000

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Surveyed 1951 Revised 1951 Edition N/A Copyright N/A Levelled 1927	Surveyed N/A Revised N/A Edition N/A Copyright N/A Levelled N/A
Surveyed N/A Revised N/A Edition N/A Copyright N/A Levelled N/A	Surveyed 1951 Revised 1951 Edition N/A Copyright N/A Levelled 1928

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Site Details:

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Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: National Grid

Map date: **1951**

Scale: 1:1,250

Printed at: 1:2,000

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Revised 1951
Edition N/A
Copyright N/A
Levelled 1928

Surveyed 1951
Revised 1951
Edition N/A
Copyright N/A
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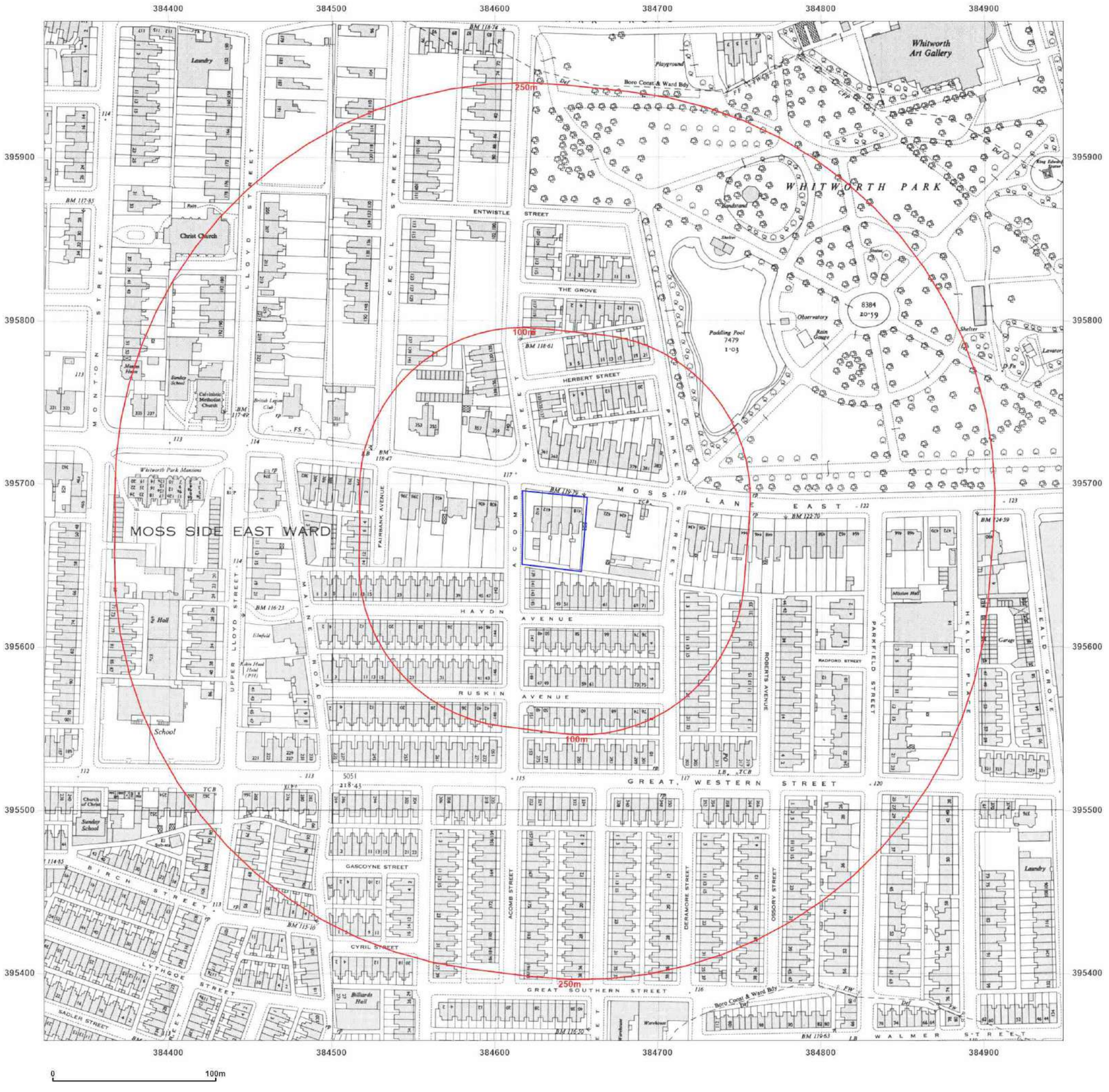
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Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: National Grid

Map date: **1951**

Scale: 1:2,500

Printed at: 1:2,500

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Edition 1955
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Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: National Grid

Map date: **1988-1990**

Scale: 1:1,250

Printed at: 1:2,000

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Surveyed 1949 Revised 1990 Edition N/A Copyright 1982 Levelled 1958	~~Surveyed 1950~~ Revised 1981 Edition N/A Copyright 1988 Levelled 1958

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Site Details:

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Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: National Grid

Map date: **1990-1992**

Scale: 1:1,250

Printed at: 1:2,000

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Surveyed N/A Revised N/A Edition N/A Copyright 1992 Levelled N/A	Surveyed N/A Revised N/A Edition N/A Copyright 1992 Levelled N/A
Surveyed N/A Revised N/A Edition N/A Copyright 1992 Levelled N/A	Surveyed N/A Revised N/A Edition N/A Copyright N/A Levelled N/A

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Site Details:

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Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: National Grid

Map date: **1992-1994**

Scale: 1:1,250

Printed at: 1:2,000

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Surveyed 1992 Revised 1992 Edition N/A Copyright N/A Levelled N/A	Surveyed N/A Revised N/A Edition N/A Copyright 1994 Levelled N/A
Surveyed 1992 Revised 1992 Edition N/A Copyright N/A Levelled N/A	Surveyed N/A Revised N/A Edition N/A Copyright 1992 Levelled N/A

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Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: National Grid

Map date: **1993-1994**

Scale: 1:1,250

Printed at: 1:2,000

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Revised 1994
Edition N/A
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~~Surveyed N/A~~
Revised N/A
Edition N/A
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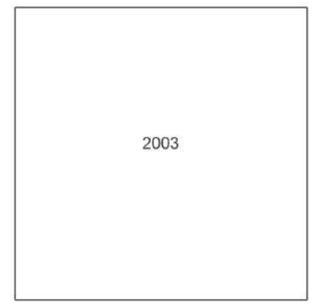
Site Details:

unspecified

Client Ref: EMS_945402_1173484
Report Ref: EMS-945402_1202291
Grid Ref: 384636, 395671

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

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Production date: 17 May 2024

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APPENDIX 4 - Groundsure Report

Groundsure
LOCATION INTELLIGENCE

Enviro+Geo
Insight

unspecified

Order Details

Date: 17/05/2024

Your ref: EMS_945402_1173484

Our Ref: EMS-945402_1202292

Site Details

Location: 384635 395671

Area: 0.17 ha

Authority: Manchester City Council ↗



Summary of findings p. 2 >

OS MasterMap site plan p.14 >

Aerial image p. 9 >

Insight User Guide ↗

Contact us with any questions at:
info@groundsure.com ↗
01273 257 755

Certified B Corporation

Summary of findings

Page	Section	Past land use >	On site	0-50m	50-250m	250-500m	500-2000m
15 >	1.1 >	Historical industrial land uses >	0	0	6	32	-
17 >	1.2 >	Historical tanks >	0	0	0	6	-
18 >	1.3 >	Historical energy features >	0	0	0	10	-
18	1.4	Historical petrol stations	0	0	0	0	-
19 >	1.5 >	Historical garages >	0	0	2	17	-
20	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped >	On site	0-50m	50-250m	250-500m	500-2000m
21 >	2.1 >	Historical industrial land uses >	0	0	8	50	-
24 >	2.2 >	Historical tanks >	0	0	0	11	-
24 >	2.3 >	Historical energy features >	0	0	0	22	-
25	2.4	Historical petrol stations	0	0	0	0	-
26 >	2.5 >	Historical garages >	0	0	3	26	-
Page	Section	Waste and landfill >	On site	0-50m	50-250m	250-500m	500-2000m
28	3.1	Active or recent landfill	0	0	0	0	-
28	3.2	Historical landfill (BGS records)	0	0	0	0	-
29	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
29	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
29	3.5	Historical waste sites	0	0	0	0	-
29	3.6	Licensed waste sites	0	0	0	0	-
29 >	3.7 >	Waste exemptions >	0	0	0	3	-
Page	Section	Current industrial land use >	On site	0-50m	50-250m	250-500m	500-2000m
31 >	4.1 >	Recent industrial land uses >	0	1	5	-	-
32 >	4.2 >	Current or recent petrol stations >	0	0	2	2	-
32	4.3	Electricity cables	0	0	0	0	-
33	4.4	Gas pipelines	0	0	0	0	-
33	4.5	Sites determined as Contaminated Land	0	0	0	0	-

33	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
33	4.7	Regulated explosive sites	0	0	0	0	-
33	4.8	Hazardous substance storage/usage	0	0	0	0	-
34	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
34	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
34 >	**4.11 >**	**Licensed pollutant release (Part A(2)/B) >**	0	0	0	5	-
35 >	**4.12 >**	**Radioactive Substance Authorisations >**	0	0	0	6	-
36 >	**4.13 >**	**Licensed Discharges to controlled waters >**	0	0	3	0	-
37	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
37	4.15	Pollutant release to public sewer	0	0	0	0	-
37	4.16	List 1 Dangerous Substances	0	0	0	0	-
37	4.17	List 2 Dangerous Substances	0	0	0	0	-
37	4.18	Pollution Incidents (EA/NRW)	0	0	0	0	-
38	4.19	Pollution inventory substances	0	0	0	0	-
38	4.20	Pollution inventory waste transfers	0	0	0	0	-
38	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	**Hydrogeology >**	On site	0-50m	50-250m	250-500m	500-2000m
39 >	**5.1 >**	**Superficial aquifer >**	Identified (within 500m)				
41 >	**5.2 >**	**Bedrock aquifer >**	Identified (within 500m)				
43 >	**5.3 >**	**Groundwater vulnerability >**	Identified (within 50m)				
44	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
44	5.5	Groundwater vulnerability- local information	None (within 0m)				
45 >	**5.6 >**	**Groundwater abstractions >**	0	0	0	0	19
50	5.7	Surface water abstractions	0	0	0	0	0
51	5.8	Potable abstractions	0	0	0	0	0
51 >	**5.9 >**	**Source Protection Zones >**	1	0	0	0	-
51	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	**Hydrology >**	On site	0-50m	50-250m	250-500m	500-2000m
52	6.1	Water Network (OS MasterMap)	0	0	0	-	-

52	6.2	Surface water features	0	0	0	-	-
53 >	6.3 >	WFD Surface water body catchments >	1	-	-	-	-
53 >	6.4 >	WFD Surface water bodies >	0	0	0	-	-
54 >	6.5 >	WFD Groundwater bodies >	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
55	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
55	7.2	Historical Flood Events	0	0	0	-	-
55	7.3	Flood Defences	0	0	0	-	-
56	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
56	7.5	Flood Storage Areas	0	0	0	-	-
57	7.6	Flood Zone 2	None (within 50m)				
57	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
58	8.1	Surface water flooding	Negligible (within 50m)				
Page	Section	Groundwater flooding >					
59 >	9.1 >	Groundwater flooding >	Moderate-High (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
60	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
60	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
60	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
60	10.4	Special Protection Areas (SPA)	0	0	0	0	0
61	10.5	National Nature Reserves (NNR)	0	0	0	0	0
61	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
61	10.7	Designated Ancient Woodland	0	0	0	0	0
61	10.8	Biosphere Reserves	0	0	0	0	0
62	10.9	Forest Parks	0	0	0	0	0
62	10.10	Marine Conservation Zones	0	0	0	0	0
62	10.11	Green Belt	0	0	0	0	0
62	10.12	Proposed Ramsar sites	0	0	0	0	0

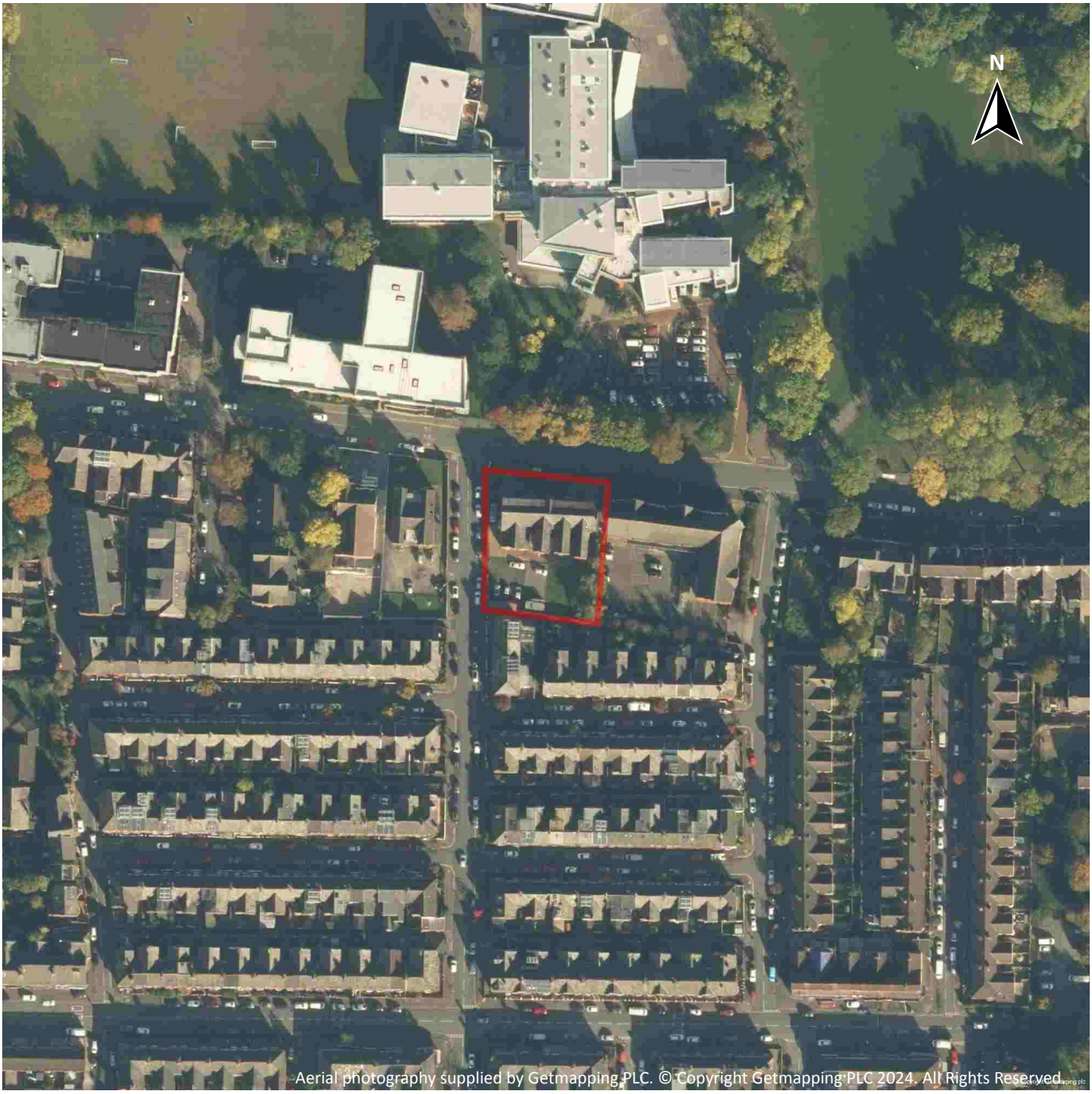
62	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
63	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
63	10.15	Nitrate Sensitive Areas	0	0	0	0	0
63	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
64 >	10.17 >	SSSI Impact Risk Zones >	1	-	-	-	-
65	10.18	SSSI Units	0	0	0	0	0
Page	Section	**Visual and cultural designations** >	On site	0-50m	50-250m	250-500m	500-2000m
66	11.1	World Heritage Sites	0	0	0	-	-
67	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
67	11.3	National Parks	0	0	0	-	-
67 >	11.4 >	Listed Buildings >	0	0	3	-	-
68	11.5	Conservation Areas	0	0	0	-	-
68	11.6	Scheduled Ancient Monuments	0	0	0	-	-
68	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	**Agricultural designations** >	On site	0-50m	50-250m	250-500m	500-2000m
69 >	12.1 >	Agricultural Land Classification >	Urban (within 250m)				
70	12.2	Open Access Land	0	0	0	-	-
70	12.3	Tree Felling Licences	0	0	0	-	-
70	12.4	Environmental Stewardship Schemes	0	0	0	-	-
70	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	**Habitat designations** >	On site	0-50m	50-250m	250-500m	500-2000m
71 >	13.1 >	Priority Habitat Inventory >	0	0	9	-	-
72	13.2	Habitat Networks	0	0	0	-	-
72	13.3	Open Mosaic Habitat	0	0	0	-	-
72	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	**Geology 1:10,000 scale** >	On site	0-50m	50-250m	250-500m	500-2000m
73 >	14.1 >	10k Availability >	Identified (within 500m)				
74 >	14.2 >	Artificial and made ground (10k) >	0	0	3	4	-
76 >	14.3 >	Superficial geology (10k) >	1	0	0	1	-

77	14.4	Landslip (10k)	0	0	0	0	-
78 >	14.5 >	Bedrock geology (10k) >	1	0	0	1	-
79	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale >	On site	0-50m	50-250m	250-500m	500-2000m
80 >	15.1 >	50k Availability >	Identified (within 500m)				
81	15.2	Artificial and made ground (50k)	0	0	0	0	-
81	15.3	Artificial ground permeability (50k)	0	0	-	-	-
82 >	15.4 >	Superficial geology (50k) >	1	0	0	0	-
83 >	15.5 >	Superficial permeability (50k) >	Identified (within 50m)				
83	15.6	Landslip (50k)	0	0	0	0	-
83	15.7	Landslip permeability (50k)	None (within 50m)				
84 >	15.8 >	Bedrock geology (50k) >	1	0	0	0	-
85 >	15.9 >	Bedrock permeability (50k) >	Identified (within 50m)				
85	15.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	Boreholes >	On site	0-50m	50-250m	250-500m	500-2000m
86 >	16.1 >	BGS Boreholes >	2	7	44	-	-
Page	Section	Natural ground subsidence >					
89 >	17.1 >	Shrink swell clays >	Very low (within 50m)				
90 >	17.2 >	Running sands >	Very low (within 50m)				
91 >	17.3 >	Compressible deposits >	Negligible (within 50m)				
92 >	17.4 >	Collapsible deposits >	Very low (within 50m)				
93 >	17.5 >	Landslides >	Very low (within 50m)				
94 >	17.6 >	Ground dissolution of soluble rocks >	Negligible (within 50m)				
Page	Section	Mining and ground workings >	On site	0-50m	50-250m	250-500m	500-2000m
96	18.1	BritPits	0	0	0	0	-
97 >	18.2 >	Surface ground workings >	0	0	7	-	-
97	18.3	Underground workings	0	0	0	0	0
97	18.4	Underground mining extents	0	0	0	0	-
98	18.5	Historical Mineral Planning Areas	0	0	0	0	-

98	18.6	Non-coal mining	0	0	0	0	0
98 >	**18.7 >**	**JPB mining areas >**	Identified (within 0m)				
98	18.8	The Coal Authority non-coal mining	0	0	0	0	-
99	18.9	Researched mining	0	0	0	0	-
99	18.10	Mining record office plans	0	0	0	0	-
99	18.11	BGS mine plans	0	0	0	0	-
99	18.12	Coal mining	None (within 0m)				
99	18.13	Brine areas	None (within 0m)				
100	18.14	Gypsum areas	None (within 0m)				
100	18.15	Tin mining	None (within 0m)				
100	18.16	Clay mining	None (within 0m)				
Page	Section	Ground cavities and sinkholes	On site	0-50m	50-250m	250-500m	500-2000m
101	19.1	Natural cavities	0	0	0	0	-
101	19.2	Mining cavities	0	0	0	0	0
101	19.3	Reported recent incidents	0	0	0	0	-
101	19.4	Historical incidents	0	0	0	0	-
102	19.5	National karst database	0	0	0	0	-
Page	Section	**Radon >**					
103 >	**20.1 >**	**Radon >**	Less than 1% (within 0m)				
Page	Section	**Soil chemistry >**	On site	0-50m	50-250m	250-500m	500-2000m
105 >	**21.1 >**	**BGS Estimated Background Soil Chemistry >**	1	0	-	-	-
105 >	**21.2 >**	**BGS Estimated Urban Soil Chemistry >**	1	6	-	-	-
106	21.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
107	22.1	Underground railways (London)	0	0	0	-	-
107	22.2	Underground railways (Non-London)	0	0	0	-	-
107	22.3	Railway tunnels	0	0	0	-	-
107	22.4	Historical railway and tunnel features	0	0	0	-	-
107	22.5	Royal Mail tunnels	0	0	0	-	-

108	22.6	Historical railways	0	0	0	-	-
108	22.7	Railways	0	0	0	-	-
108	22.8	Crossrail 1	0	0	0	0	-
108	22.9	Crossrail 2	0	0	0	0	-
108	22.10	HS2	0	0	0	0	-

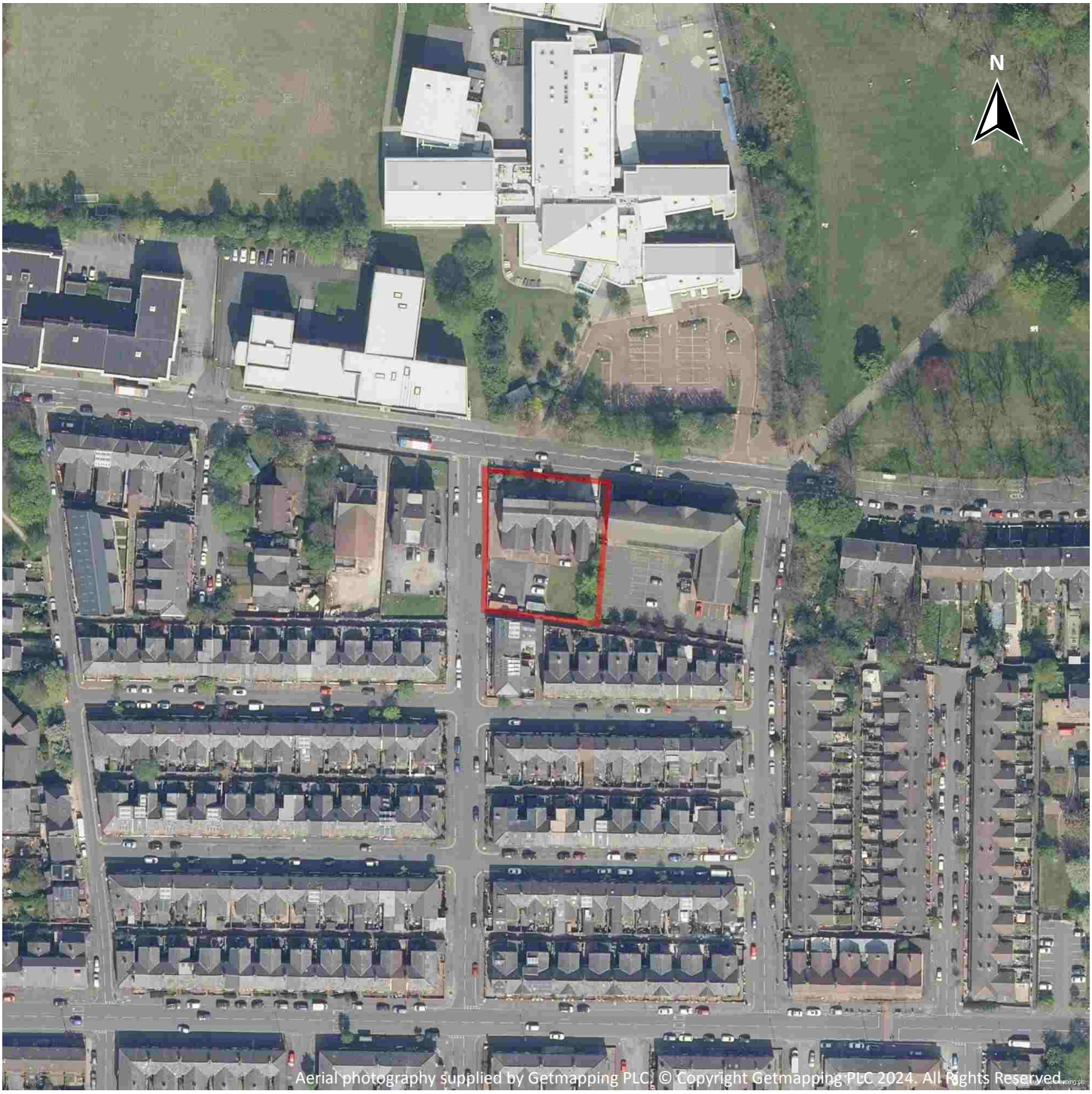
Recent aerial photograph



Capture Date: 18/10/2022

Site Area: 0.17ha

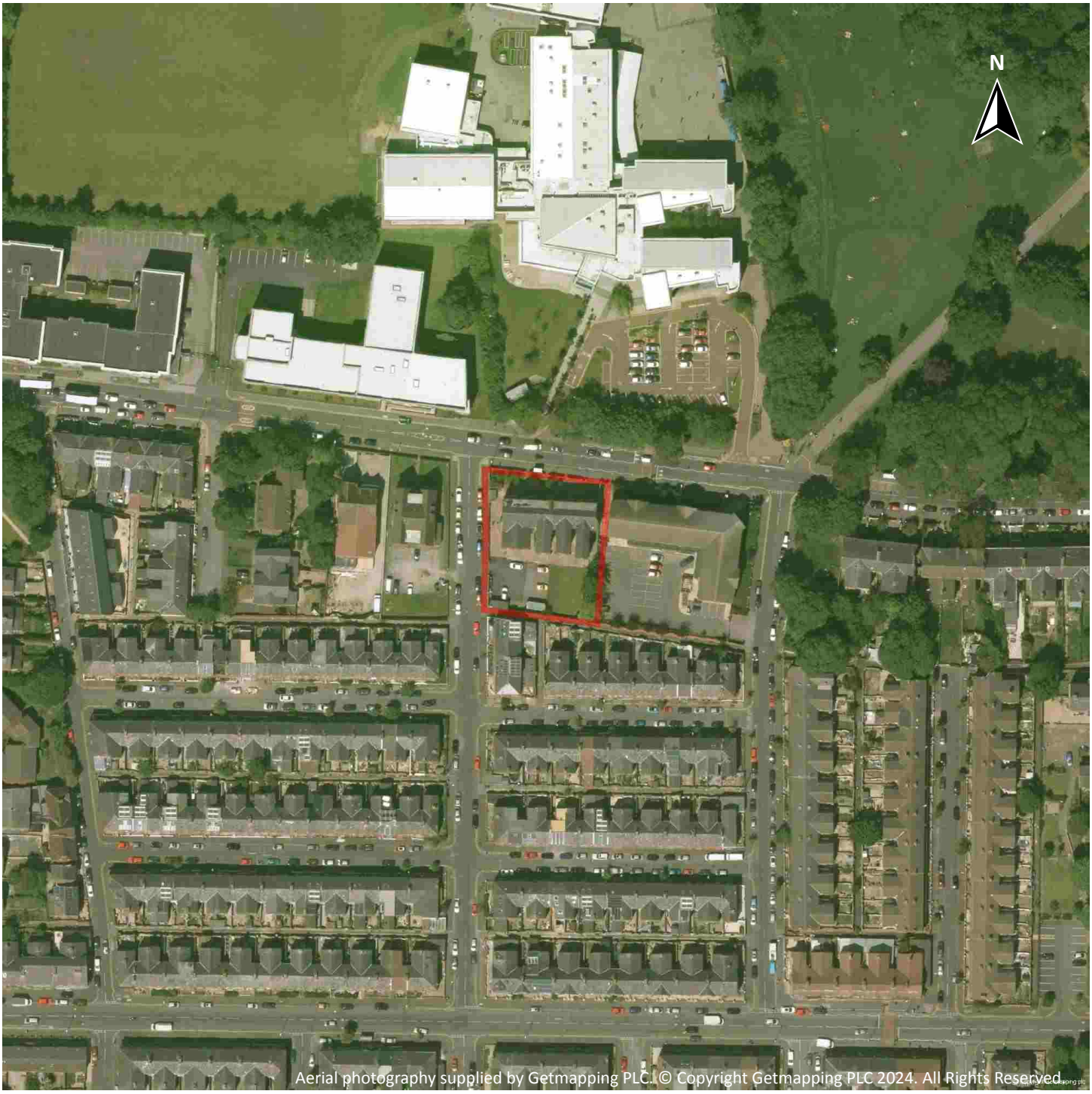
Recent site history - 2019 aerial photograph



Capture Date: 22/04/2019

Site Area: 0.17ha

Recent site history - 2015 aerial photograph



Capture Date: 11/06/2015

Site Area: 0.17ha

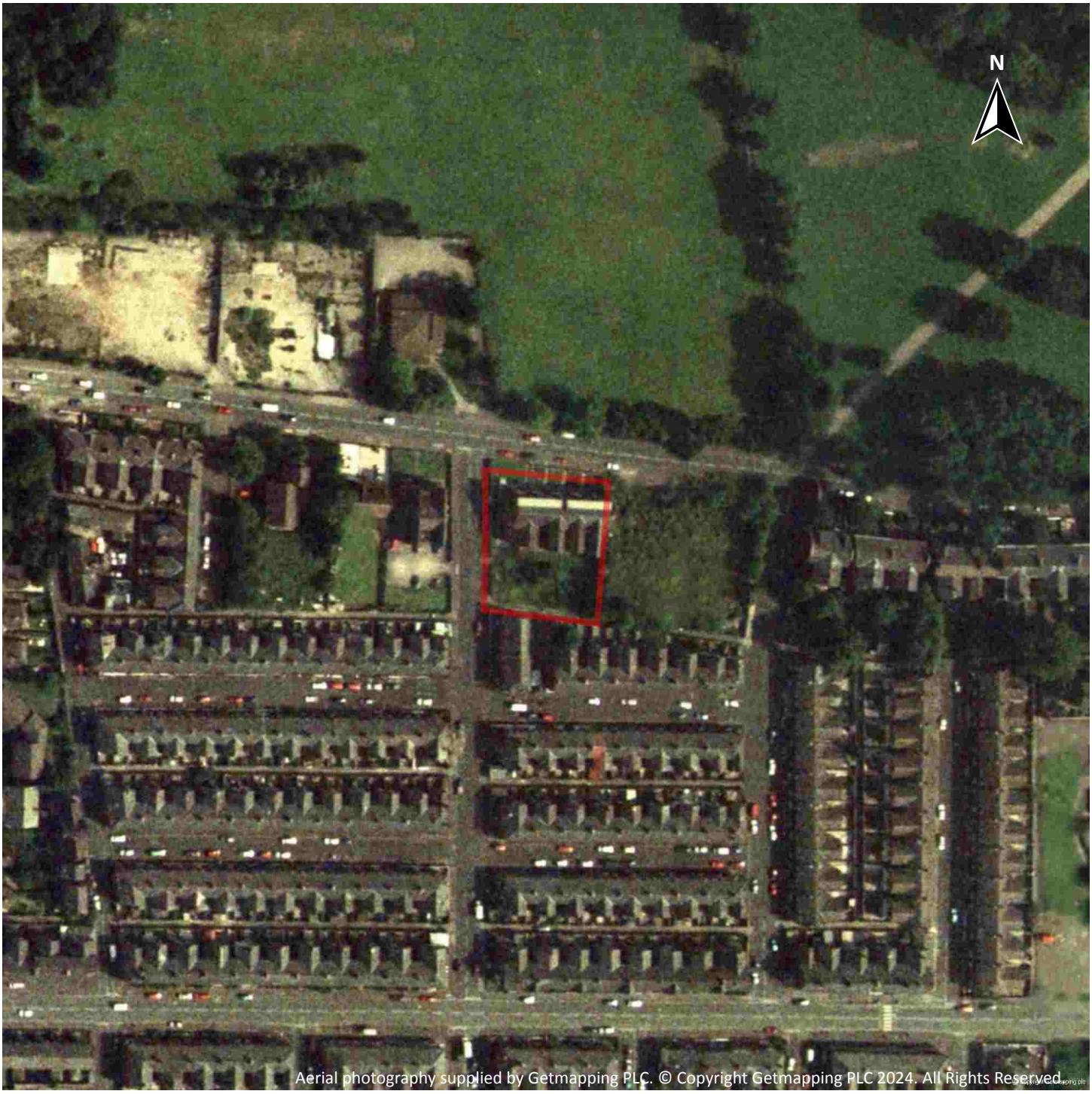
Recent site history - 2009 aerial photograph



Capture Date: 02/06/2009

Site Area: 0.17ha

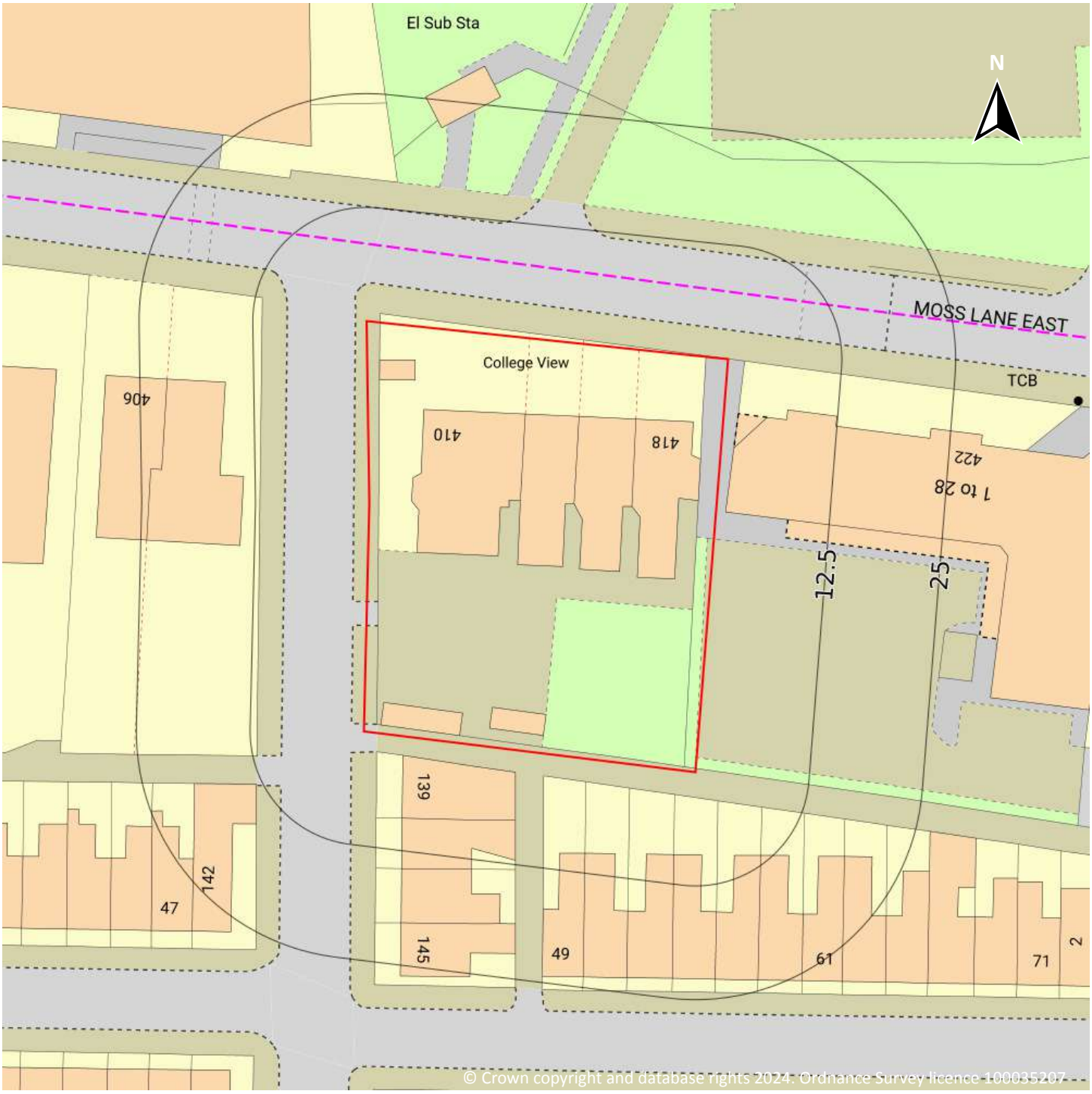
Recent site history - 2000 aerial photograph



Capture Date: 27/06/2000

Site Area: 0.17ha

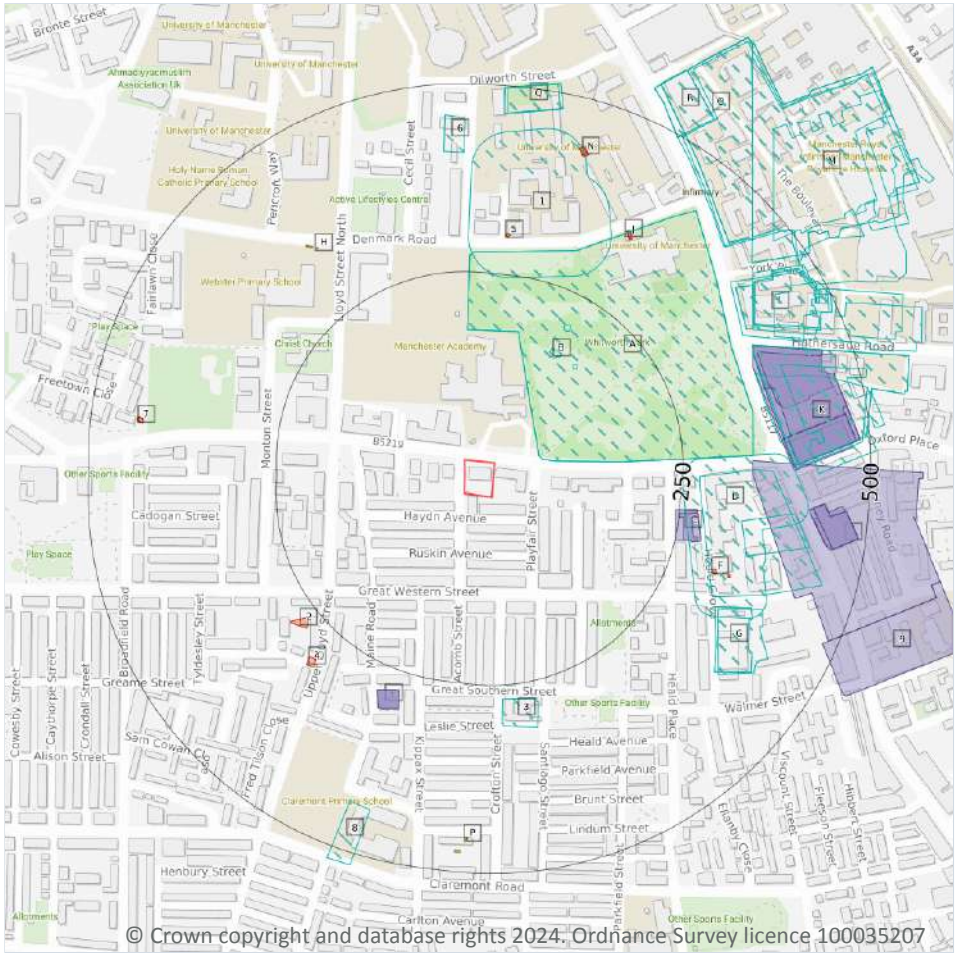
OS MasterMap site plan



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Site Area: 0.17ha

1 Past land use



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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	38

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	60m E	Infirmary	1978	923267

ID	Location	Land use	Dates present	Group ID
A	60m E	Infirmary	1985 - 1994	924246
B	161m NE	Boat House	1923	817498
B	163m NE	Boat House	1915	817499
B	200m NE	Unspecified Tank	1915	825229
1	247m N	Infirmary	1971	934544
D	251m E	Unspecified Factory	1915 - 1923	966705
3	269m S	Unspecified Works	1915 - 1923	932469
D	273m E	Unspecified Commercial/Industrial	1934	796894
G	331m SE	Laundry	1915	898301
G	331m SE	Laundry	1934 - 1938	913000
D	334m E	Depository	1923	797964
G	336m SE	Laundry	1923	945072
K	366m E	Quilt Works	1934 - 1938	903276
L	371m NE	Hospital	1915 - 1938	922359
K	373m E	Unspecified Works	1978	844768
K	373m E	Unspecified Works	1968	922782
L	379m NE	Hospital	1994	848052
L	379m NE	Hospital	1988	902319
L	386m NE	Hospital	1956	868737
L	390m NE	Hospital	1968	862009
L	392m NE	Hospital	1978	898101
K	401m E	Unspecified Works	1985 - 1991	913859
6	408m N	Hospital	1956	834384
L	408m NE	Hospital	1985 - 1991	847961
M	419m NE	Infirmary	1915 - 1994	973639
M	420m NE	Infirmary	1923	860268
O	428m NE	Hospital	1978	981247
O	428m NE	Hospital	1956 - 1971	990416

ID	Location	Land use	Dates present	Group ID
M	433m NE	Infirmary	1956 - 1968	888104
M	433m NE	Infirmary	1978	909767
8	435m S	Laundry	1923	798080
Q	463m N	Laundry	1934 - 1938	852808
Q	463m N	Laundry	1915	903308
Q	464m N	Laundry	1923	923957
M	473m NE	Infirmary	1985	985912
R	497m NE	Eye Hospital	1915	879519
R	497m NE	Eye Hospital	1934 - 1938	972231

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	**6**

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 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
H	341m NW	Unspecified Tank	1951	115793
H	347m NW	Unspecified Tank	1950 - 1951	137128
P	453m S	Unspecified Tank	1951	129569
P	454m S	Unspecified Tank	1950	122957
P	454m S	Unspecified Tank	1951	129136
P	471m S	Unspecified Tank	1950 - 1951	144812

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	10

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 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
2	265m SW	Electricity Substation	1949 - 1951	84629
4	295m SW	Electricity Substation	1982 - 1992	67967
5	301m N	Electricity Substation	1989 - 1994	73602
F	309m E	Electricity Substation	1994	62145
F	330m E	Electricity Substation	1994	62146
J	347m NE	Electricity Substation	1989	79645
J	348m NE	Electricity Substation	1994	83254
N	424m N	Electricity Substation	1980 - 1998	65163
N	425m N	Electricity Substation	1987	67118
7	430m W	Electricity Substation	1976 - 1992	72056

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	0

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 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'.

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	19

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 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
C	245m E	Garage	1949 - 1951	25684
C	249m E	Garage	1951	20799
E	275m S	Garage	1982	23410
E	275m S	Garage	1987 - 1988	25992
E	276m S	Garage	1993	21281
I	343m E	Garage	1991	23943
K	366m E	Garage	1986 - 1991	24354
K	372m E	Motor Repair Works	1950 - 1970	25959
K	372m E	Motor Repair Works	1950	20969
K	378m E	Garage	1993	21659
K	383m E	Garage	1986 - 1991	25010
K	386m E	Motor Repair Works	1950	22993
K	386m E	Motor Repair Works	1933	20732
K	391m E	Motor Repair Works	1950 - 1970	25458
K	391m E	Garage	1993	23678
I	422m E	Garage	1991	24608
I	427m E	Garage	1986 - 1993	24309
I	428m E	Garage	1970	23123
9	481m SE	Garage	1991	22885

This data is sourced from Ordnance Survey / Groundsure.

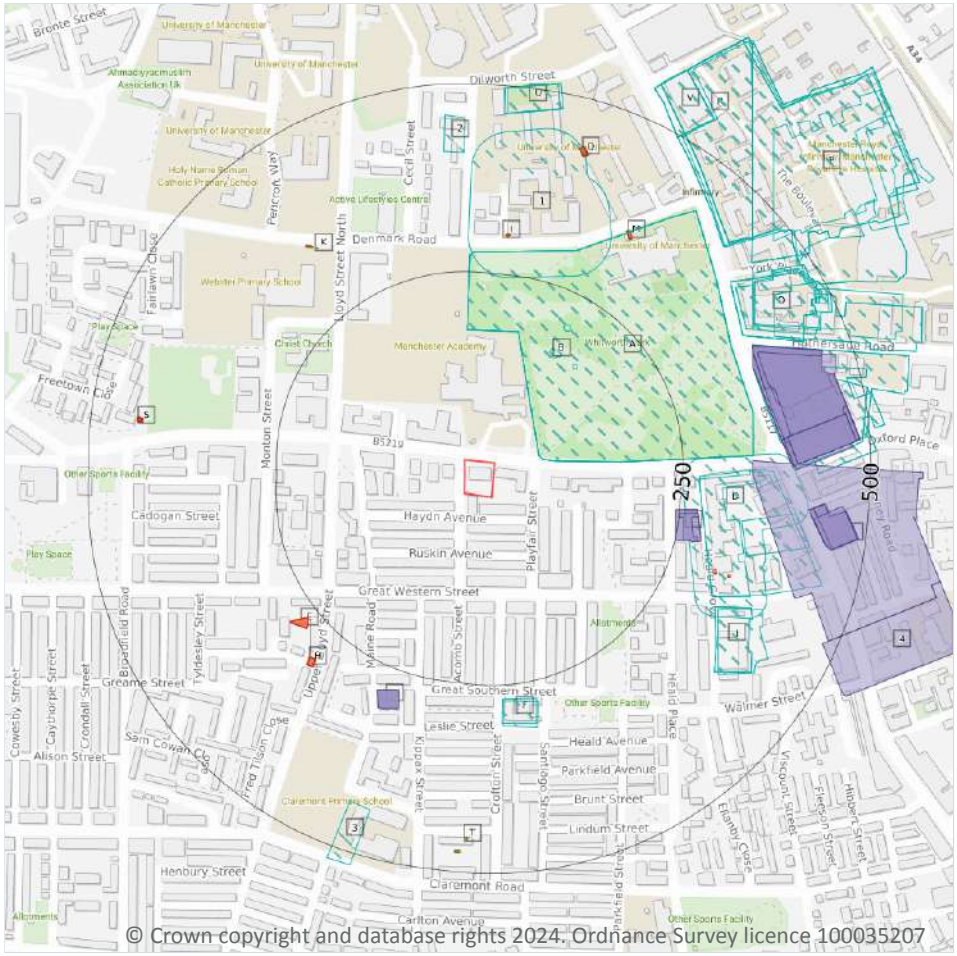
1.6 Historical military land

Records within 500m	0

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

This data is sourced from Ordnance Survey / Groundsure / other sources.

2 Past land use - un-grouped



2.1 Historical industrial land uses

Records within 500m	58

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 21 >**

ID	Location	Land Use	Date	Group ID
A	60m E	Infirmary	1988	924246
A	60m E	Infirmary	1978	923267
A	60m E	Infirmary	1985	924246

ID	Location	Land Use	Date	Group ID
A	60m E	Infirmary	1994	924246
B	161m NE	Boat House	1923	817498
B	163m NE	Boat House	1915	817499
B	200m NE	Unspecified Tank	1915	825229
1	247m N	Infirmary	1971	934544
D	251m E	Unspecified Factory	1923	966705
F	269m S	Unspecified Works	1915	932469
F	271m S	Unspecified Works	1923	932469
D	272m E	Unspecified Factory	1915	966705
D	273m E	Unspecified Commercial/Industrial	1934	796894
J	331m SE	Laundry	1938	913000
J	331m SE	Laundry	1934	913000
J	331m SE	Laundry	1915	898301
D	334m E	Depository	1923	797964
J	336m SE	Laundry	1923	945072
N	366m E	Quilt Works	1938	903276
N	366m E	Quilt Works	1934	903276
O	371m NE	Hospital	1938	922359
O	371m NE	Hospital	1934	922359
O	371m NE	Hospital	1915	922359
O	371m NE	Hospital	1923	922359
N	373m E	Unspecified Works	1978	844768
N	373m E	Unspecified Works	1968	922782
O	379m NE	Hospital	1988	902319
O	379m NE	Hospital	1994	848052
O	386m NE	Hospital	1956	868737
O	390m NE	Hospital	1968	862009
O	392m NE	Hospital	1978	898101

ID	Location	Land Use	Date	Group ID
N	401m E	Unspecified Works	1985	913859
N	401m E	Unspecified Works	1991	913859
2	408m N	Hospital	1956	834384
O	408m NE	Hospital	1985	847961
O	408m NE	Hospital	1991	847961
P	419m NE	Infirmary	1938	973639
P	419m NE	Infirmary	1934	973639
P	419m NE	Infirmary	1915	973639
P	420m NE	Infirmary	1923	860268
R	428m NE	Hospital	1971	990416
R	428m NE	Hospital	1956	990416
R	428m NE	Infirmary	1988	973639
R	428m NE	Hospital	1978	981247
R	428m NE	Infirmary	1985	973639
R	428m NE	Infirmary	1994	973639
P	433m NE	Infirmary	1956	888104
P	433m NE	Infirmary	1978	909767
P	433m NE	Infirmary	1968	888104
3	435m S	Laundry	1923	798080
U	463m N	Laundry	1938	852808
U	463m N	Laundry	1934	852808
U	463m N	Laundry	1915	903308
U	464m N	Laundry	1923	923957
P	473m NE	Infirmary	1985	985912
V	497m NE	Eye Hospital	1938	972231
V	497m NE	Eye Hospital	1934	972231
V	497m NE	Eye Hospital	1915	879519

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	11

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 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 21 >**

ID	Location	Land Use	Date	Group ID
K	341m NW	Unspecified Tank	1951	115793
K	347m NW	Unspecified Tank	1950	137128
K	347m NW	Unspecified Tank	1951	137128
K	347m NW	Unspecified Tank	1950	137128
T	453m S	Unspecified Tank	1951	129569
T	454m S	Unspecified Tank	1950	122957
T	454m S	Unspecified Tank	1951	129136
T	471m S	Unspecified Tank	1950	144812
T	471m S	Unspecified Tank	1951	144812
T	471m S	Unspecified Tank	1951	144812
T	471m S	Unspecified Tank	1950	144812

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	22

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 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 21 >**

ID	Location	Land Use	Date	Group ID
E	265m SW	Electricity Substation	1951	84629
E	265m SW	Electricity Substation	1950	84629
E	265m SW	Electricity Substation	1951	84629

ID	Location	Land Use	Date	Group ID
E	265m SW	Electricity Substation	1949	84629
H	295m SW	Electricity Substation	1982	67967
H	296m SW	Electricity Substation	1992	67967
H	296m SW	Electricity Substation	1982	67967
I	301m N	Electricity Substation	1989	73602
I	301m N	Electricity Substation	1994	73602
D	309m E	Electricity Substation	1994	62145
D	330m E	Electricity Substation	1994	62146
M	347m NE	Electricity Substation	1989	79645
M	348m NE	Electricity Substation	1994	83254
Q	424m N	Electricity Substation	1994	65163
Q	424m N	Electricity Substation	1993	65163
Q	424m N	Electricity Substation	1998	65163
Q	425m N	Electricity Substation	1980	65163
Q	425m N	Electricity Substation	1987	67118
S	430m W	Electricity Substation	1992	72056
S	431m W	Electricity Substation	1976	72056
S	432m W	Electricity Substation	1984	72056
S	432m W	Electricity Substation	1989	72056

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	**0**

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 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'.

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m	29

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 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'.

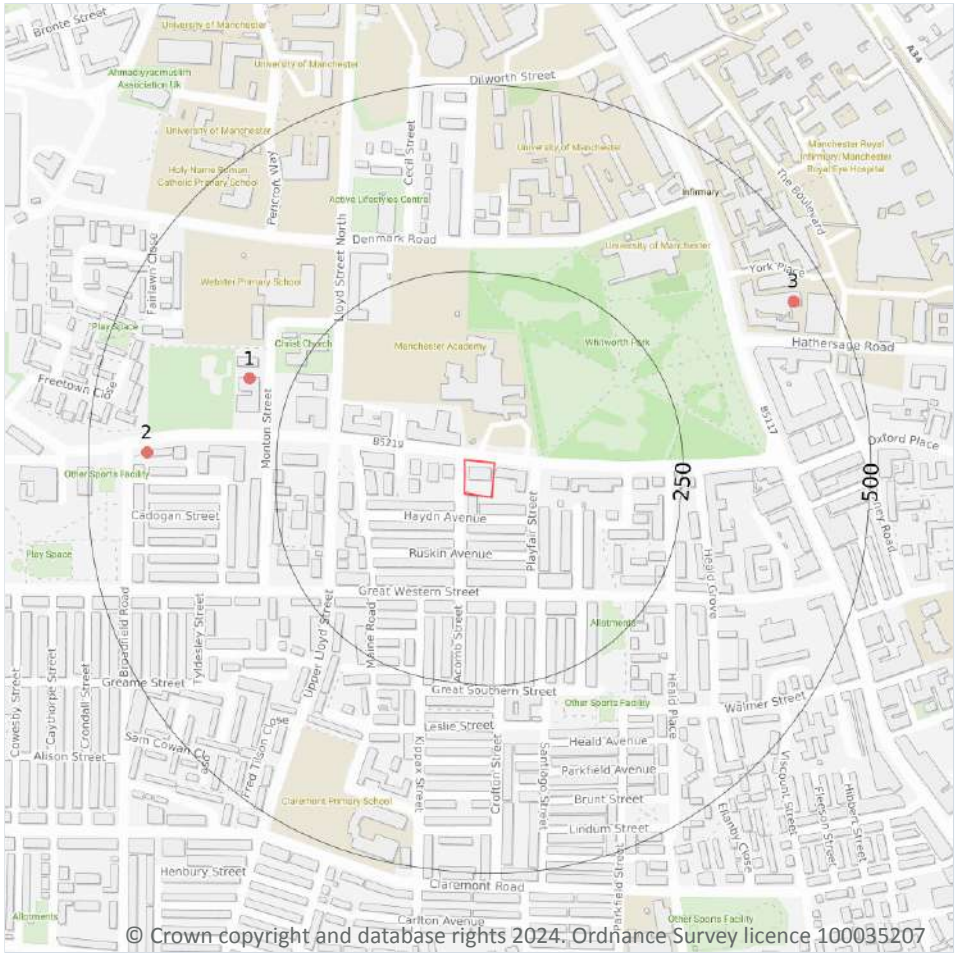
Features are displayed on the Past land use - un-grouped map on **page 21 >**

ID	Location	Land Use	Date	Group ID
C	245m E	Garage	1951	25684
C	245m E	Garage	1949	25684
C	249m E	Garage	1951	20799
G	275m S	Garage	1982	23410
G	275m S	Garage	1987	25992
G	275m S	Garage	1988	25992
G	276m S	Garage	1993	21281
L	343m E	Garage	1991	23943
N	366m E	Garage	1986	24354
N	366m E	Garage	1991	24354
N	366m E	Garage	1991	24354
N	372m E	Motor Repair Works	1950	25959
N	372m E	Motor Repair Works	1950	20969
N	372m E	Motor Repair Works	1970	25959
N	378m E	Garage	1993	21659
N	383m E	Garage	1986	25010
N	383m E	Garage	1991	25010
N	383m E	Garage	1991	25010
N	386m E	Motor Repair Works	1950	22993
N	386m E	Motor Repair Works	1933	20732
N	391m E	Motor Repair Works	1950	25458
N	391m E	Motor Repair Works	1970	25458
N	391m E	Garage	1993	23678

ID	Location	Land Use	Date	Group ID
L	422m E	Garage	1991	24608
L	422m E	Garage	1991	24608
L	427m E	Garage	1993	24309
L	428m E	Garage	1970	23123
L	429m E	Garage	1986	24309
4	481m SE	Garage	1991	22885

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill



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.

3.3 Historical landfill (LA/mapping records)

Records within 500m	0

Landfill sites identified from Local Authority records and high detail historical mapping.

This data is sourced from the Ordnance Survey/Groundsure and Local Authority records.

3.4 Historical landfill (EA/NRW records)

Records within 500m	0

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

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

3.5 Historical waste sites

Records within 500m	0

Waste site records derived from Local Authority planning records and high detail historical mapping.

This data is sourced from Ordnance Survey/Groundsure and Local Authority records.

3.6 Licensed waste sites

Records within 500m	0

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

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

3.7 Waste exemptions

Records within 500m	3

Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

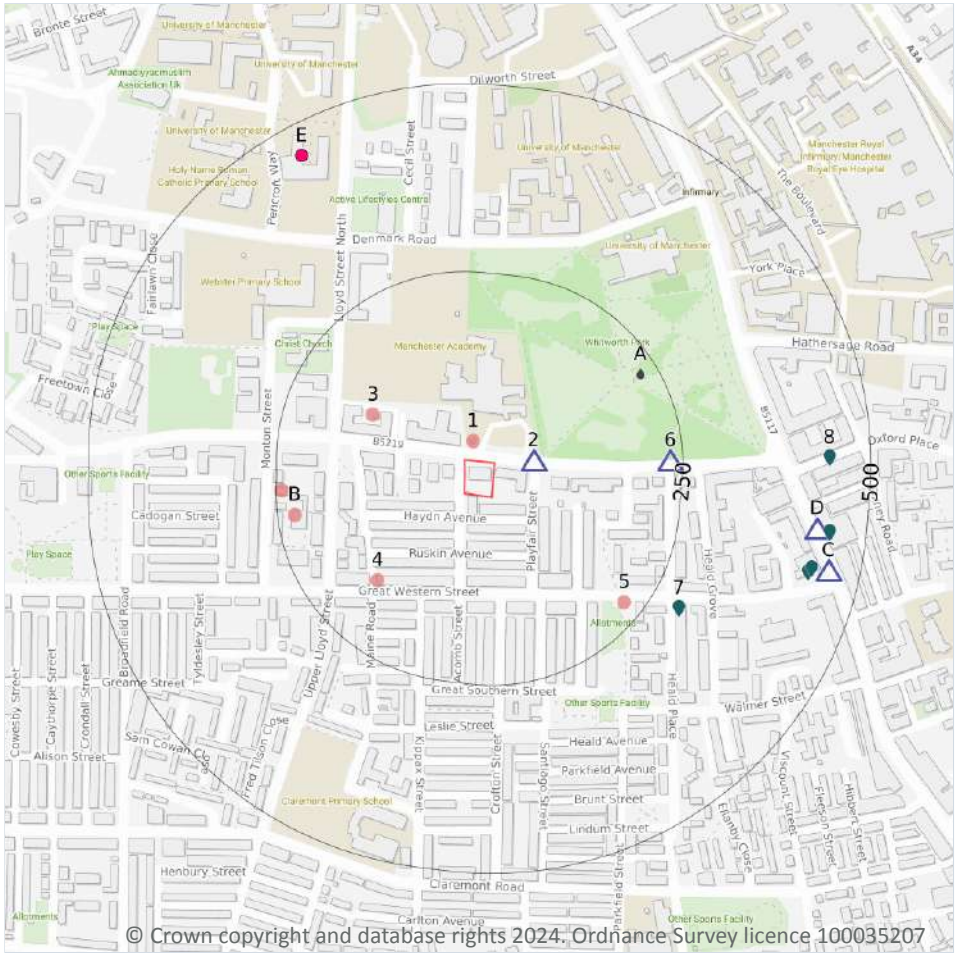
Features are displayed on the Waste and landfill map on **page 28 >**

ID	Location	Site	Reference	Category	Sub-Category	Description
1	305m NW	-	WEX264732	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal

ID	Location	Site	Reference	Category	Sub-Category	Description
2	423m W	324, MOSS LANE EAST, MANCHESTER, M14 4LZ	WEX376643	Using waste exemption	Not on a farm	Use of waste in construction
3	451m NE	ST. MARYS HOSPITAL, HATHERSAGE ROAD, MANCHESTER, M13 0JH	WEX132662	Using waste exemption	Not on a farm	Use of waste in construction

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

4 Current industrial land use



Site Outline

Search buffers in metres (m)

Recent industrial land uses

Current or recent petrol stations

Licensed pollutant release (Part A(2)/B)

Radioactive Substance Authorisations

Licensed Discharges to controlled waters

4.1 Recent industrial land uses

Records within 250m	6

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 31 >**

ID	Location	Company	Address	Activity	Category
1	26m N	Electricity Sub Station	Greater Manchester, M14	Electrical Features	Infrastructure and Facilities
3	136m NW	Electricity Sub Station	Greater Manchester, M14	Electrical Features	Infrastructure and Facilities

ID	Location	Company	Address	Activity	Category
4	163m SW	Caribbean Style Agency	235, Great Western Street, Manchester, Greater Manchester, M14 4LQ	Distribution and Haulage	Transport, Storage and Delivery
5	225m SE	Electricity Sub Station	Greater Manchester, M14	Electrical Features	Infrastructure and Facilities
B	227m W	A & Co Shutters	Monton Street Trading Estate 69-69a, Monton Street, Manchester, Greater Manchester, M14 4LS	General Construction Supplies	Industrial Products
B	243m W	Greenheys M O T Station	Unit 4 Monton Street, Monton Trading Estate, Manchester, Greater Manchester, M14 4LS	Vehicle Repair, Testing and Servicing	Repair and Servicing

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	**4**

Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 31 >**

ID	Location	Company	Address	LPG	Status
2	52m E	OBSOLETE	353, Moss Lane East, Manchester, Greater Manchester, M14 4PY	Not Applicable	Obsolete
6	234m E	OBSOLETE	490, Moss Lane East, Heald Place, Rusholme, Manchester, Greater Manchester, M14 4PA	Not Applicable	Obsolete
D	434m E	OBSOLETE	25-33, Wilmslow Road, Rusholme, Manchester, Greater Manchester, M14 5TB	Not Applicable	Obsolete
C	458m E	SHELL	10, Wilmslow Road, Rusholme, Manchester, Greater Manchester, M14 5TQ	No	Open

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	**0**

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m	0

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m	0

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m	0

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	0

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

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

4.10 Licensed industrial activities (Part A(1))

Records within 500m	0

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

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

4.11 Licensed pollutant release (Part A(2)/B)

Records within 500m	5

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

Features are displayed on the Current industrial land use map on **page 31 >**

ID	Location	Address	Details	
7	288m SE	Save, Moss Lane East, M14 4PA	Process: Petrol Vapour Recovery Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified
C	430m E	Moss Side Service Station, Wilmslow Road, Rusholme, M14 5AQ	Process: Unloading of Petrol into Storage at Service Stations Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified
C	434m E	Rusholme Service Station, 10 Wilmslow Road, M14 5AQ	Process: Unloading of Petrol into Storage at Service Stations Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified
8	444m E	Green Bros Ltd, Condor Wks, Rusholme Place, M14 5GB	Process: Coating Processes Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified

ID	Location	Address	Details	
D	450m E	Rusholme Serv Stn, Wilmslow Rd, M14 5TB	Process: Petrol Vapour Recovery Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m **6**

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

Features are displayed on the Current industrial land use map on **page 31 >**

ID	Location	Address	Details	
E	458m NW	Medeval Ltd, Skelton House,manchester Science Park,lloyd Street North, Manchester, Greater Manchester, M15 6SH	Operator: Medeval Ltd Type: Keeping And Use Of Radioactive Materials (was Rsa60 Section 1). Permission number: AC8533 Date of approval: 31/03/1991	Effective from: 31/03/1991 Last date of update: 01/01/2015 Status: Superseded By Variation
E	458m NW	Medeval Ltd, Skelton House,manchester Science Park,lloyd Street North, Manchester, Greater Manchester, M15 6SH	Operator: Medeval Ltd Type: Keeping And Use Of Radioactive Materials (was Rsa60 Section 1). Permission number: AC8533 Date of approval: 12/05/2006	Effective from: 12/05/2006 Last date of update: 01/01/2015 Status: Revoked/cancelled
E	458m NW	Medeval Ltd, Skelton House, Manchester Science Park, Lloyd Street North, Manchester, Greater Manchester, M15 6SH	Operator: Medeval Ltd Type: Disposal Of Radioactive Waste (was Rsa60 Section 6). Permission number: AC8525 Date of approval: 31/03/1991	Effective from: 31/03/1991 Last date of update: 01/01/2015 Status: Superseded By Variation
E	458m NW	Medeval Ltd, Skelton House, Manchester Science Park, Lloyd Street North, Manchester, Greater Manchester, M15 6SH	Operator: Medeval Ltd Type: Disposal Of Radioactive Waste (was Rsa60 Section 6). Permission number: AC8525 Date of approval: 01/12/2003	Effective from: 01/01/2004 Last date of update: 01/01/2015 Status: Superseded By Variation
E	458m NW	Cyprotex Discovery Ltd, Skelton House, Manchester Science Park, Lloyd Street North, Manchester, Greater Manchester, M15 6SH	Operator: Cyprotex Discovery Ltd Type: Disposal Of Radioactive Waste (was Rsa60 Section 6). Permission number: BL8023 Date of approval: 04/10/2001	Effective from: 01/11/2001 Last date of update: 01/01/2015 Status: Superseded By Variation

ID	Location	Address	Details	
E	458m NW	Skelton House, Manchester Science Park, Lloyd Street North, Manchester, M15 6SH	Operator: Icon Development Solutions Limited Type: Disposal Of Radioactive Waste (was Rsa60 Section 6). Permission number: BY5455 Date of approval: 12/05/2006	Effective from: - Last date of update: 01/01/2020 Status: Surrendered

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

4.13 Licensed Discharges to controlled waters

Records within 500m **3**

Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991.

Features are displayed on the Current industrial land use map on **page 31 >**

ID	Location	Address	Details	
A	226m NE	OXFORD ROAD CSO, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 016982917 Permit Version: 2 Receiving Water: MALKIN BROOK TRIB CORN BK	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 11/05/1995 Revocation Date: 07/11/1995
A	226m NE	OXFORD ROAD CSO, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 016982917 Permit Version: 3 Receiving Water: MALKIN BROOK TRIB CORN BK	Status: REVOKED - UNSPECIFIED Issue date: 08/11/1995 Effective Date: 08/11/1995 Revocation Date: 13/07/2005
A	226m NE	OXFORD ROAD CSO, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 016982917 Permit Version: 1 Receiving Water: MALKIN BROOK TRIB CORN BK	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 01/01/1995 Revocation Date: 10/05/1995

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

4.14 Pollutant release to surface waters (Red List)

Records within 500m	0

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

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

4.15 Pollutant release to public sewer

Records within 500m	0

Discharges of Special Category Effluents to the public sewer.

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

4.16 List 1 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

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

4.17 List 2 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

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

4.18 Pollution Incidents (EA/NRW)

Records within 500m	0

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

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

4.19 Pollution inventory substances

Records within 500m	0

The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.20 Pollution inventory waste transfers

Records within 500m	0

The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

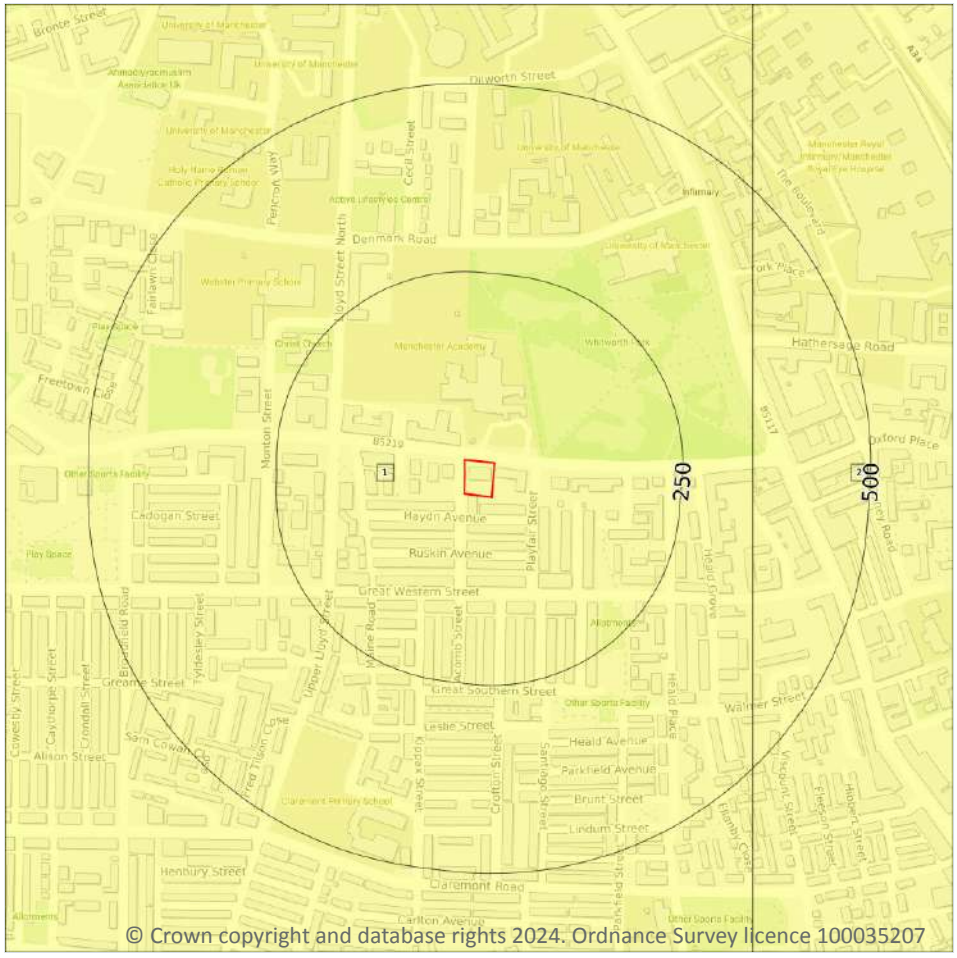
4.21 Pollution inventory radioactive waste

Records within 500m	0

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

5 Hydrogeology - Superficial aquifer



5.1 Superficial aquifer

Records within 500m	2

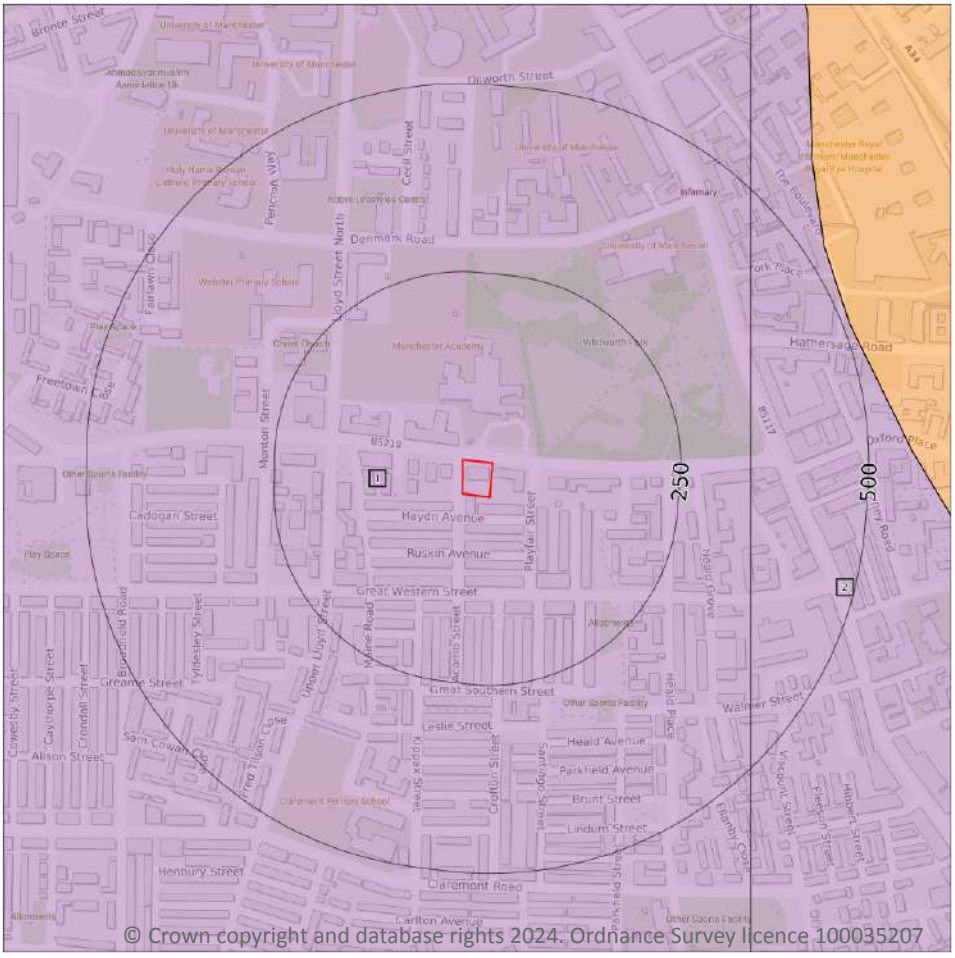
Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on **page 39 >**

ID	Location	Designation	Description
1	**On site**	**Secondary Undifferentiated**	**Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type**
2	343m E	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Bedrock aquifer



5.2 Bedrock aquifer

Records within 500m	2

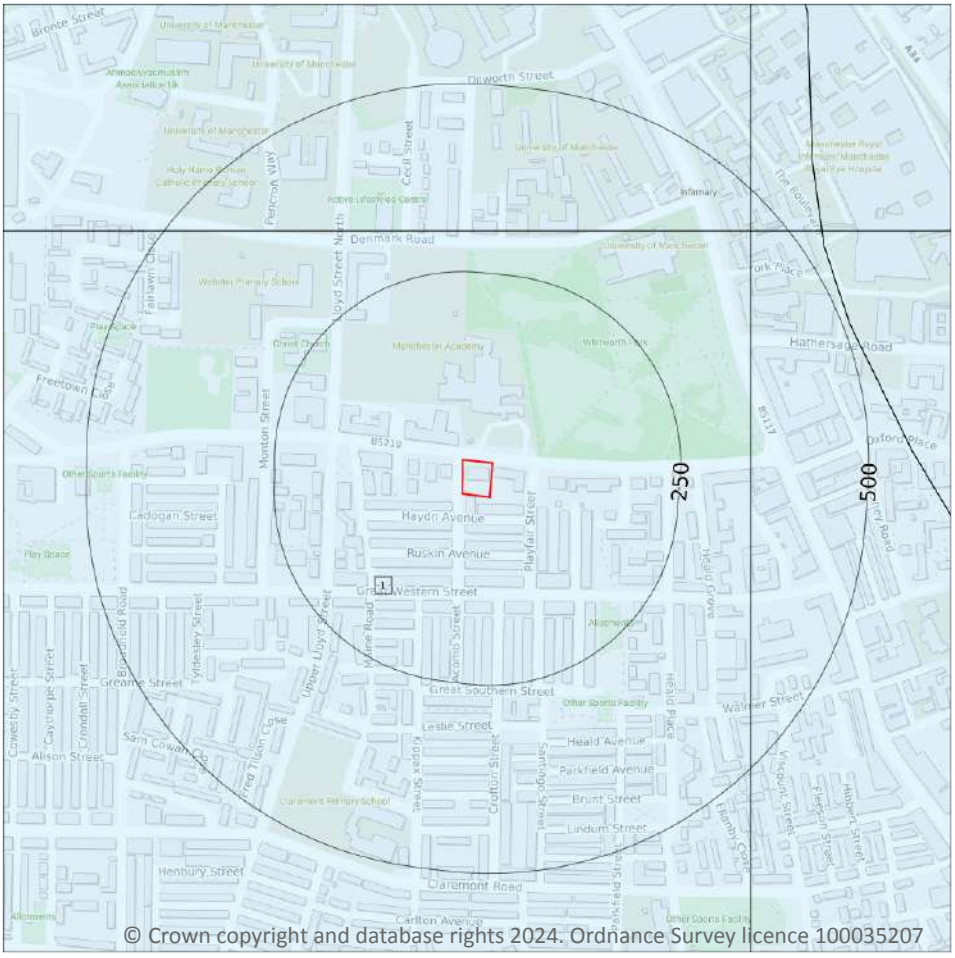
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 41 >**

ID	Location	Designation	Description
1	**On site**	**Principal**	**Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers**
2	343m E	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

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 43 >**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	**Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: Low Infiltration value: <40% Dilution value: 300-550mm/year**	**Vulnerability: Low Aquifer type: Secondary Thickness: 3-10m Patchiness value: >90% Recharge potential: Low**	**Vulnerability: Low Aquifer type: Principal Flow mechanism: Mixed**

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

5.4 Groundwater vulnerability- soluble rock risk

Records on site	0

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

This data is sourced from the British Geological Survey and the Environment Agency.

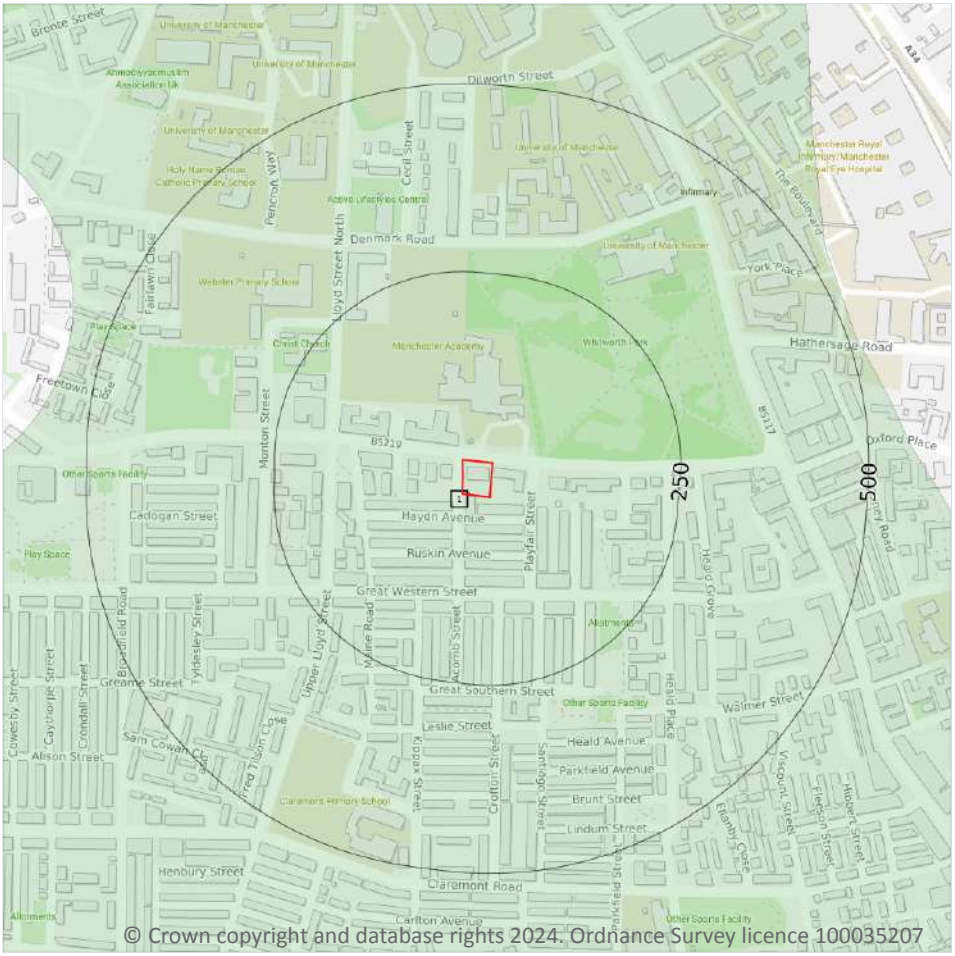
5.5 Groundwater vulnerability- local information

Records on site	0

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk ↗.

This data is sourced from the British Geological Survey and the Environment Agency.

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
- 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	19

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 45 >**

ID	Location	Details	
-	745m W	Status: Historical Licence No: 2569007007 Details: Process water Direct Source: Ground Water - North West Region Point: "BOREHOLE AT PREMISES, MOSS SIDE, MANCHESTER" Data Type: Point Name: SCOTTISH COURAGE BREWING LTD Easting: 383900 Northing: 395900	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 15/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 16/08/1995 Version End Date: -
-	745m W	Status: Historical Licence No: 2569007007 Details: General Cooling (Existing Licences Only) (High Loss) Direct Source: Ground Water - North West Region Point: "BOREHOLE AT PREMISES, MOSS SIDE, MANCHESTER" Data Type: Point Name: SCOTTISH COURAGE BREWING LTD Easting: 383900 Northing: 395900	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 15/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 16/08/1995 Version End Date: -
-	745m W	Status: Historical Licence No: 2569007007 Details: General Cooling (Existing Licences Only) (High Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT PREMISES, MOSS SIDE, MANCHESTER Data Type: Point Name: SCOTTISH COURAGE BREWING LTD Easting: 383900 Northing: 395900	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 15/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 31/12/2003 Version End Date: -
-	745m W	Status: Historical Licence No: 2569007007 Details: Process water Direct Source: Ground Water - North West Region Point: BOREHOLE AT PREMISES, MOSS SIDE, MANCHESTER Data Type: Point Name: SCOTTISH COURAGE BREWING LTD Easting: 383900 Northing: 395900	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 15/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 31/12/2003 Version End Date: -

ID	Location	Details	
-	745m W	Status: Historical Licence No: 2569007007 Details: General Cooling (Existing Licences Only) (High Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT PREMISES MOSS SIDE MANCHESTER Data Type: Point Name: Heineken UK Ltd Easting: 383900 Northing: 395900	Annual Volume (m^3): 227000 Max Daily Volume (m^3): 900 Original Application No: - Original Start Date: 15/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 23/11/2009 Version End Date: -
-	745m W	Status: Historical Licence No: 2569007007 Details: Process Water Direct Source: Ground Water - North West Region Point: BOREHOLE AT PREMISES MOSS SIDE MANCHESTER Data Type: Point Name: Heineken UK Ltd Easting: 383900 Northing: 395900	Annual Volume (m^3): 227000 Max Daily Volume (m^3): 900 Original Application No: - Original Start Date: 15/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 23/11/2009 Version End Date: -
-	781m W	Status: Active Licence No: 2569007007 Details: General Cooling (Existing Licences Only) (High Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT PREMISES MOSS SIDE MANCHESTER Data Type: Point Name: Heineken UK Ltd Easting: 383865 Northing: 395909	Annual Volume (m^3): 227000 Max Daily Volume (m^3): 900 Original Application No: NPS/WR/015793 Original Start Date: 15/02/1966 Expiry Date: - Issue No: 103 Version Start Date: 08/05/2014 Version End Date: -
-	781m W	Status: Active Licence No: 2569007007 Details: Process Water Direct Source: Ground Water - North West Region Point: BOREHOLE AT PREMISES MOSS SIDE MANCHESTER Data Type: Point Name: Heineken UK Ltd Easting: 383865 Northing: 395909	Annual Volume (m^3): 227000 Max Daily Volume (m^3): 900 Original Application No: NPS/WR/015793 Original Start Date: 15/02/1966 Expiry Date: - Issue No: 103 Version Start Date: 08/05/2014 Version End Date: -

ID	Location	Details	
-	1384m NW	Status: Active Licence No: NW/069/0004/003 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT MANCHESTER METROPOLITAN UNIVERSITY Data Type: Point Name: Manchester Metropolitan University Easting: 383715 Northing: 396746	Annual Volume (m^3): 274115 Max Daily Volume (m^3): 751 Original Application No: NPS/WR/008077 Original Start Date: 20/09/2013 Expiry Date: 31/03/2027 Issue No: 1 Version Start Date: 01/01/2015 Version End Date: -
-	1384m NW	Status: Active Licence No: NW/069/0004/003 Details: Heat Pump Direct Source: Ground Water - North West Region Point: BOREHOLE AT MANCHESTER METROPOLITAN UNIVERSITY Data Type: Point Name: Manchester Metropolitan University Easting: 383715 Northing: 396746	Annual Volume (m^3): 274115 Max Daily Volume (m^3): 751 Original Application No: NPS/WR/008077 Original Start Date: 20/09/2013 Expiry Date: 31/03/2027 Issue No: 1 Version Start Date: 01/01/2015 Version End Date: -
-	1405m W	Status: Historical Licence No: 2569007009 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: "BOREHOLE AT PREMISES, MOSS LANE WEST MANCHESTER" Data Type: Point Name: HYDES BREWERY LTD Easting: 383220 Northing: 395850	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 21/02/1966 Expiry Date: - Issue No: 101 Version Start Date: 07/10/2000 Version End Date: -
-	1405m W	Status: Historical Licence No: 2569007009 Details: Process water Direct Source: Ground Water - North West Region Point: "BOREHOLE AT PREMISES, MOSS LANE WEST MANCHESTER" Data Type: Point Name: HYDES BREWERY LTD Easting: 383220 Northing: 395850	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 21/02/1966 Expiry Date: - Issue No: 101 Version Start Date: 07/10/2000 Version End Date: -

ID	Location	Details	
-	1405m W	Status: Historical Licence No: 2569007009 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT PREMISES, MOSS LANE WEST MANCHESTER Data Type: Point Name: HYDES BREWERY LTD Easting: 383220 Northing: 395850	Annual Volume (m^3): 66826.2 Max Daily Volume (m^3): 372.772 Original Application No: - Original Start Date: 21/02/1966 Expiry Date: - Issue No: 101 Version Start Date: 07/10/2000 Version End Date: -
-	1405m W	Status: Historical Licence No: 2569007009 Details: Process Water Direct Source: Ground Water - North West Region Point: BOREHOLE AT PREMISES, MOSS LANE WEST MANCHESTER Data Type: Point Name: HYDES BREWERY LTD Easting: 383220 Northing: 395850	Annual Volume (m^3): 66826.2 Max Daily Volume (m^3): 372.772 Original Application No: - Original Start Date: 21/02/1966 Expiry Date: - Issue No: 103 Version Start Date: 19/07/2018 Version End Date: -
-	1461m N	Status: Active Licence No: NW/069/0006/003 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE 1 AT LOWER CHATHAM STREET Data Type: Point Name: Manchester Metropolitan University Easting: 384180 Northing: 397091	Annual Volume (m^3): 283240 Max Daily Volume (m^3): 1532 Original Application No: NPS/WR/015264 Original Start Date: 04/04/2014 Expiry Date: 31/03/2027 Issue No: 2 Version Start Date: 04/04/2014 Version End Date: -
-	1461m N	Status: Active Licence No: NW/069/0006/003 Details: Heat Pump Direct Source: Ground Water - North West Region Point: BOREHOLE 1 AT LOWER CHATHAM STREET Data Type: Point Name: Manchester Metropolitan University Easting: 384180 Northing: 397091	Annual Volume (m^3): 283240 Max Daily Volume (m^3): 1532 Original Application No: NPS/WR/015264 Original Start Date: 04/04/2014 Expiry Date: 31/03/2027 Issue No: 2 Version Start Date: 04/04/2014 Version End Date: -

ID	Location	Details	
-	1495m NE	Status: Historical Licence No: NW/069/0004/005 Details: Heat Pump Direct Source: Ground Water - North West Region Point: AREA OF ABSTRACTION - LOWER CARBONIFEROUS LIMESTONE Data Type: Poly4 Name: G T Energy UK Limited Easting: 385729 Northing: 396778	Annual Volume (m^3): 2049840 Max Daily Volume (m^3): 8640 Original Application No: - Original Start Date: 17/01/2013 Expiry Date: 16/01/2037 Issue No: 2 Version Start Date: 11/06/2013 Version End Date: -
-	1938m N	Status: Historical Licence No: 2569006001 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: "BOREHOLE AT PREMISES, BROADIE ST, ARDWICK, MANCHESTER" Data Type: Point Name: MOSELEY RUBBER CO LTD Easting: 385240 Northing: 397540	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 08/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 08/02/1966 Version End Date: -
-	1938m N	Status: Historical Licence No: 2569006001 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT PREMISES, BROADIE ST, ARDWICK, MANCHESTER Data Type: Point Name: MOSELEY RUBBER CO LTD Easting: 385240 Northing: 397540	Annual Volume (m^3): 331858 Max Daily Volume (m^3): 909.2 Original Application No: - Original Start Date: 08/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 08/02/1966 Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m	**0**

Licensed surface water 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, a stretch of watercourse or a larger area.

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

5.8 Potable abstractions

Records within 2000m	0

Licensed potable water 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, a stretch of watercourse or a larger area.

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

5.9 Source Protection Zones

Records within 500m	1

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

Features are displayed on the Abstractions and Source Protection Zones map on **page 45 >**

ID	Location	Type	Description
1	**On site**	**3**	**Total catchment**

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

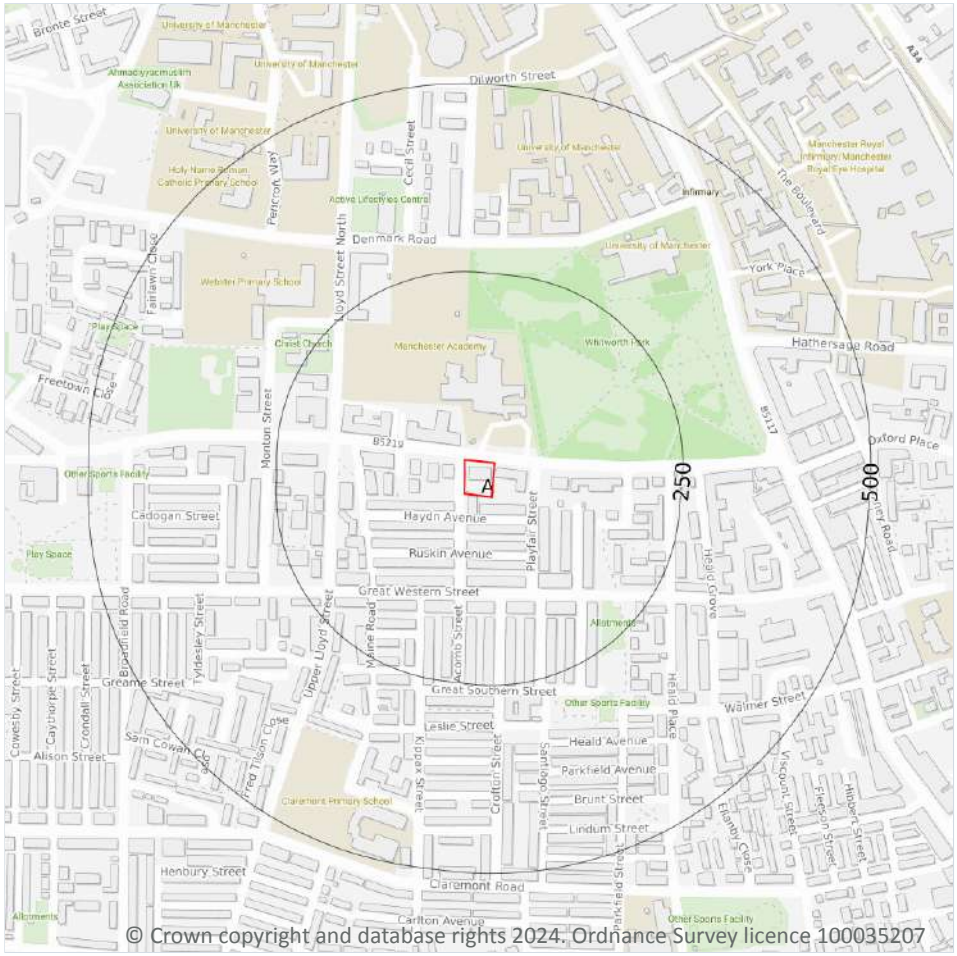
5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

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

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	0

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

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	0

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	1

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on **page 52 >**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
A	**On site**	**River**	**Irwell / Manchester Ship Canal (Irk to confluence with Upper Mers**	**GB112069061452**	**Croal Irwell**	**Irwell**

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

6.4 WFD Surface water bodies

Records identified	1

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each water body listed.

Features are displayed on the Hydrology map on **page 52 >**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	2699m NW	River	Irwell / Manchester Ship Canal (Irk to confluence with Upper Mers	GB112069061452 ↗	Moderate	Fail	Moderate	2019

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

6.5 WFD Groundwater bodies

Records on site	1

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

Features are displayed on the Hydrology map on **page 52 >**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
A	**On site**	**Manchester and East Cheshire Permo-Triassic Sandstone Aquifers**	**GB41201G101100** ↗	**Poor**	**Poor**	**Poor**	**2019**

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

7 River and coastal flooding

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.

7.2 Historical Flood Events

Records within 250m	0

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

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

7.3 Flood Defences

Records within 250m	0

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

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

7.4 Areas Benefiting from Flood Defences

Records within 250m	0

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

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

7.5 Flood Storage Areas

Records within 250m	0

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

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

River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m	0

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

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

7.7 Flood Zone 3

Records within 50m	0

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

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

8 Surface water flooding

8.1 Surface water flooding

Highest risk on site	**Negligible**
Highest risk within 50m	**Negligible**

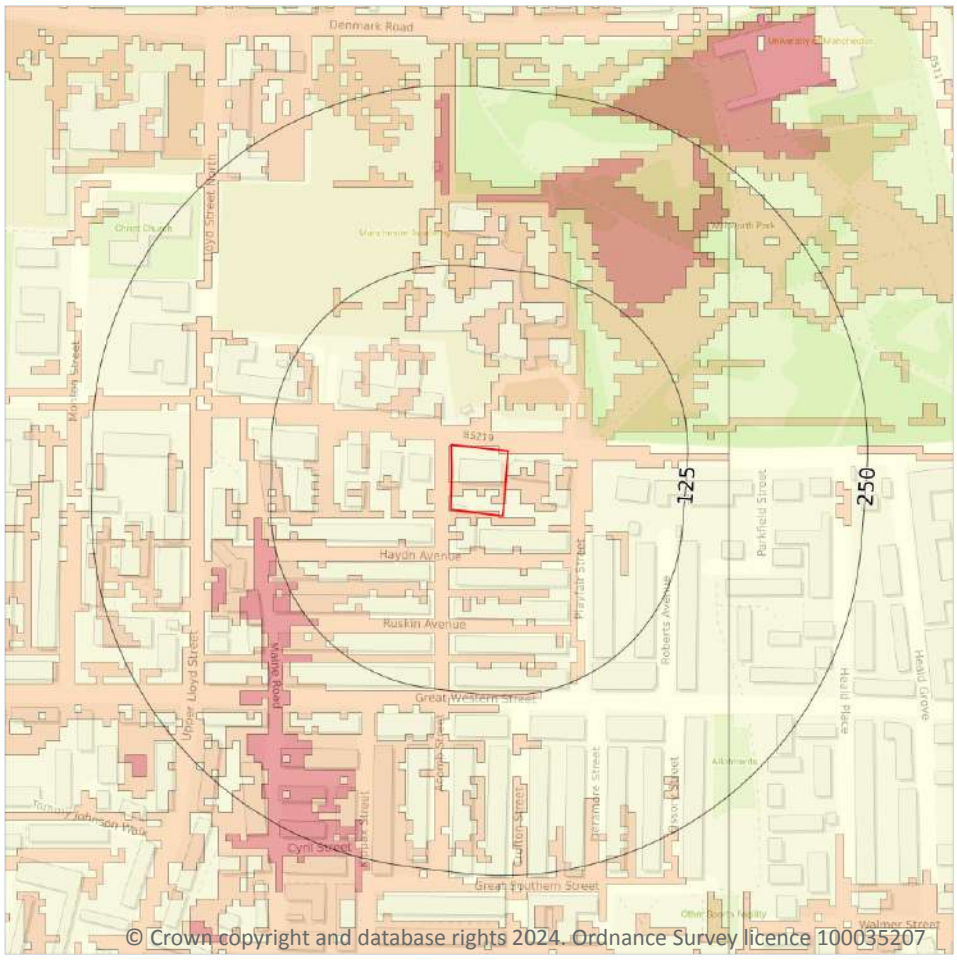
Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site. The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Negligible
1 in 250 year	Negligible
1 in 100 year	Negligible
1 in 30 year	Negligible

This data is sourced from Ambiental Risk Analytics.

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-High**
Highest risk within 50m	**Moderate-High**

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 59 >**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	0

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.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	0

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.3 Special Areas of Conservation (SAC)

Records within 2000m	0

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.4 Special Protection Areas (SPA)

Records within 2000m	0

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.5 National Nature Reserves (NNR)

Records within 2000m	0

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.6 Local Nature Reserves (LNR)

Records within 2000m	0

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.7 Designated Ancient Woodland

Records within 2000m	0

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.8 Biosphere Reserves

Records within 2000m	0

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.9 Forest Parks

Records within 2000m	0

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m	0

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.11 Green Belt

Records within 2000m	0

Areas designated to prevent urban sprawl by keeping land permanently open.

This data is sourced from the Ministry of Housing, Communities and Local Government.

10.12 Proposed Ramsar sites

Records within 2000m	0

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m	0

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

This data is sourced from Natural England and Natural Resources Wales.

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m	0

Special Protection Areas (SPAs) are areas designated (or 'classified') under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m	0

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

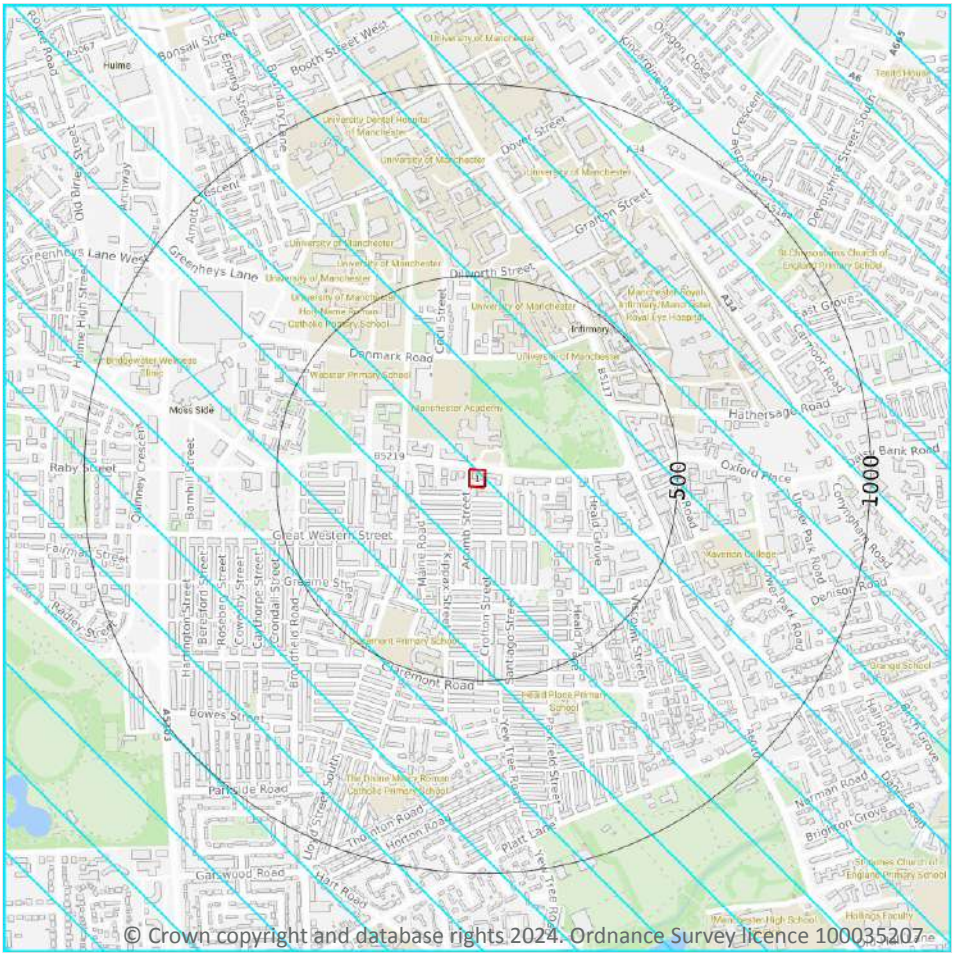
10.16 Nitrate Vulnerable Zones

Records within 2000m	0

Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

This data is sourced from Natural England and Natural Resources Wales.

SSSI Impact Zones and Units



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10.17 SSSI Impact Risk Zones

Records on site	1

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 64 >**

ID	Location	Type of developments requiring consultation
1	On site	**Air pollution - Livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 4000m². Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.**

This data is sourced from Natural England.

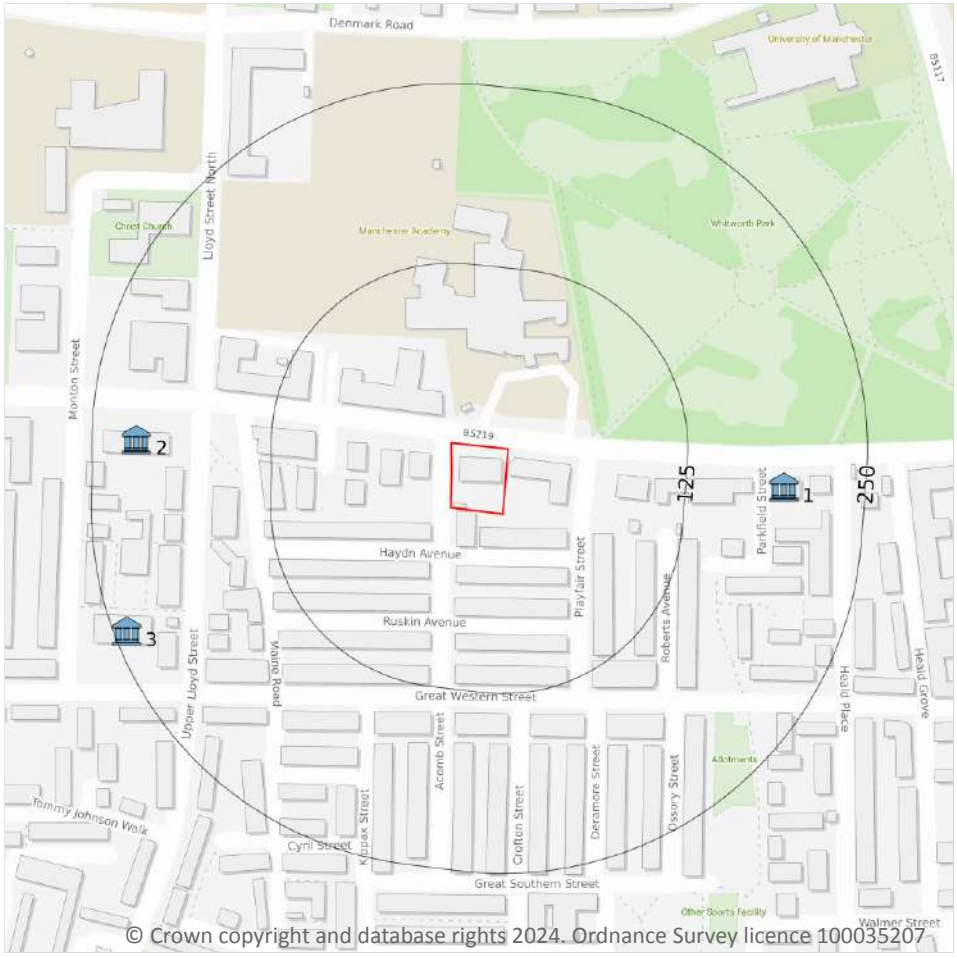
10.18 SSSI Units

Records within 2000m	0

Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

This data is sourced from Natural England and Natural Resources Wales.

11 Visual and cultural designations



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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.

11.2 Area of Outstanding Natural Beauty

Records within 250m	0

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.3 National Parks

Records within 250m	0

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.

11.4 Listed Buildings

Records within 250m	3

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.

Features are displayed on the Visual and cultural designations map on **page 66 >**

ID	Location	Name	Grade	Reference Number	Listed date
1	193m E	466 And 468, Moss Lane East	II	1197931	03/10/1974
2	219m W	Whitworth Park Mansions	II	1220231	03/10/1974
3	241m SW	Greenhayes Centre	II	1254691	06/06/1994

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

11.5 Conservation Areas

Records within 250m	0

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.

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

11.6 Scheduled Ancient Monuments

Records within 250m	0

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

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

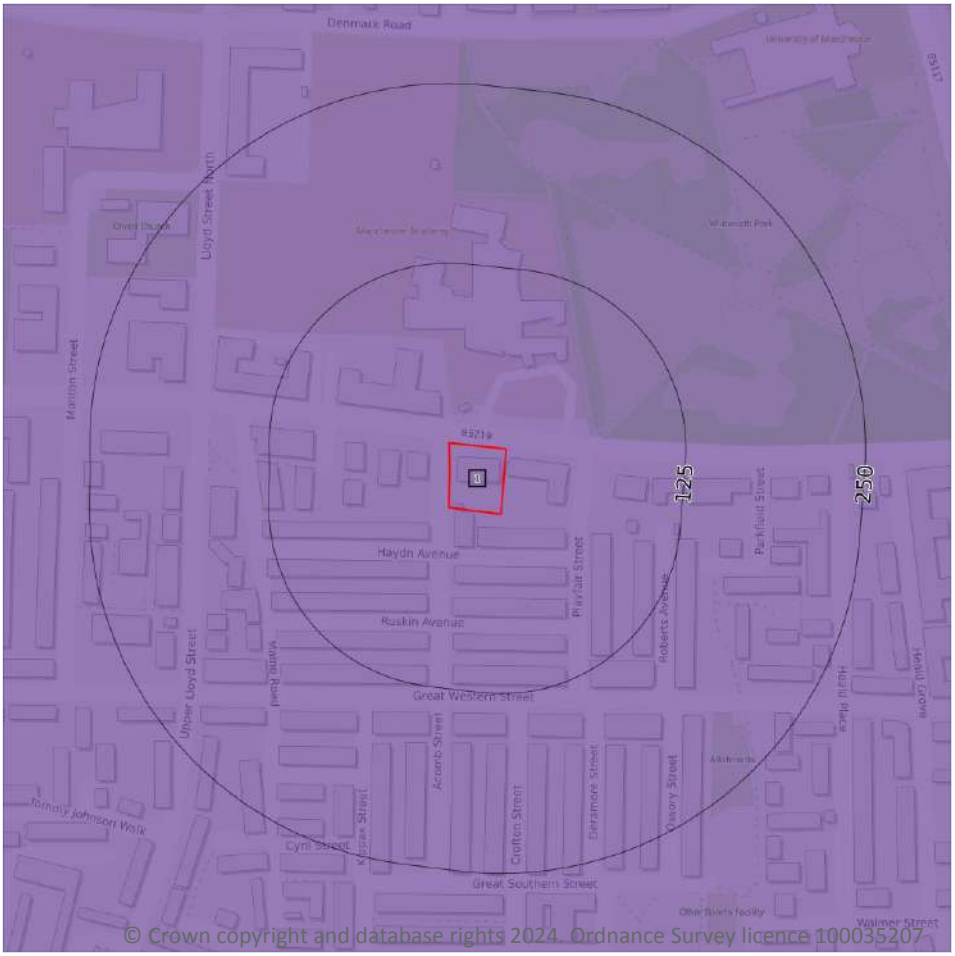
11.7 Registered Parks and Gardens

Records within 250m	0

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

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

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 69 >**

ID	Location	Classification	Description
1	**On site**	**Urban**	-

This data is sourced from Natural England.

12.2 Open Access Land

Records within 250m	0

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

This data is sourced from Natural England and Natural Resources Wales.

12.3 Tree Felling Licences

Records within 250m	0

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	0

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. The schemes identified may be historical schemes that have now expired, or may still be active.

This data is sourced from Natural England.

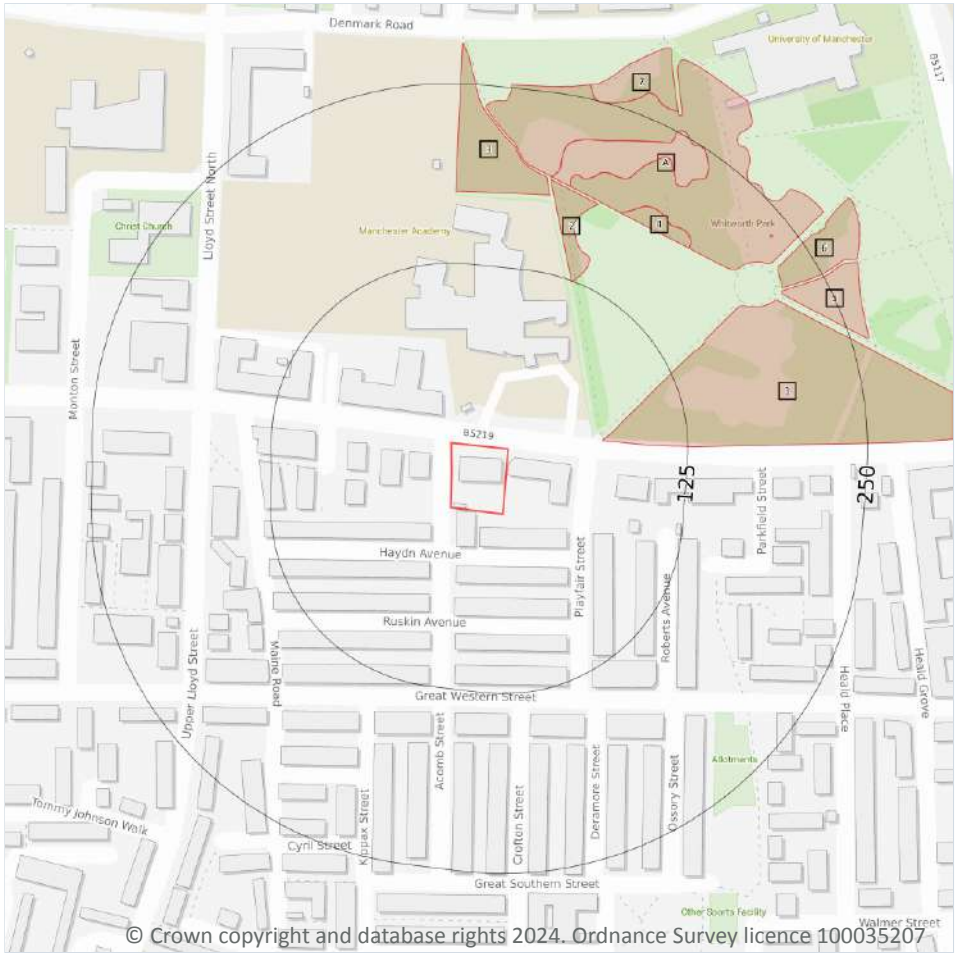
12.5 Countryside Stewardship Schemes

Records within 250m	0

Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

This data is sourced from Natural England.

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 71 >**

ID	Location	Main Habitat	Other habitats
1	66m E	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
2	124m NE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
3	175m N	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
4	182m NE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

ID	Location	Main Habitat	Other habitats
A	182m NE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
A	187m N	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
5	219m NE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
6	221m NE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
7	250m N	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	**0**

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m	**0**

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

This data is sourced from Natural England.

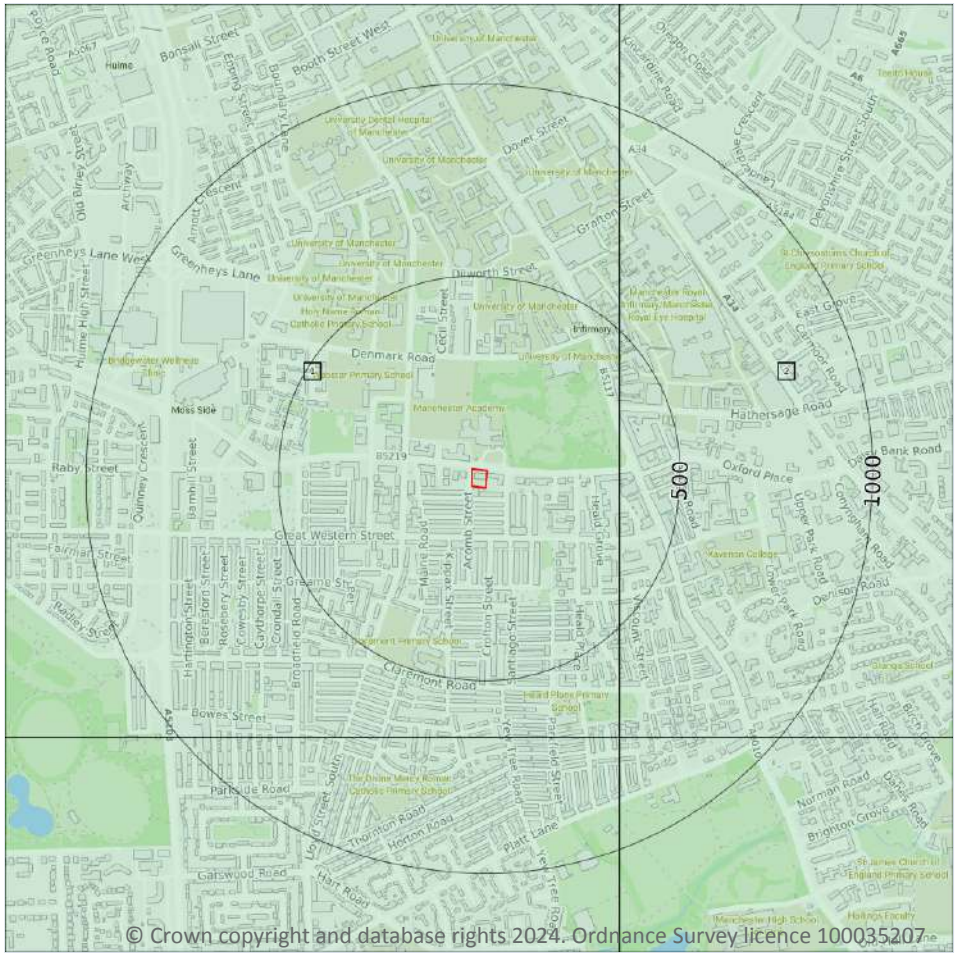
13.4 Limestone Pavement Orders

Records within 250m	**0**

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.

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

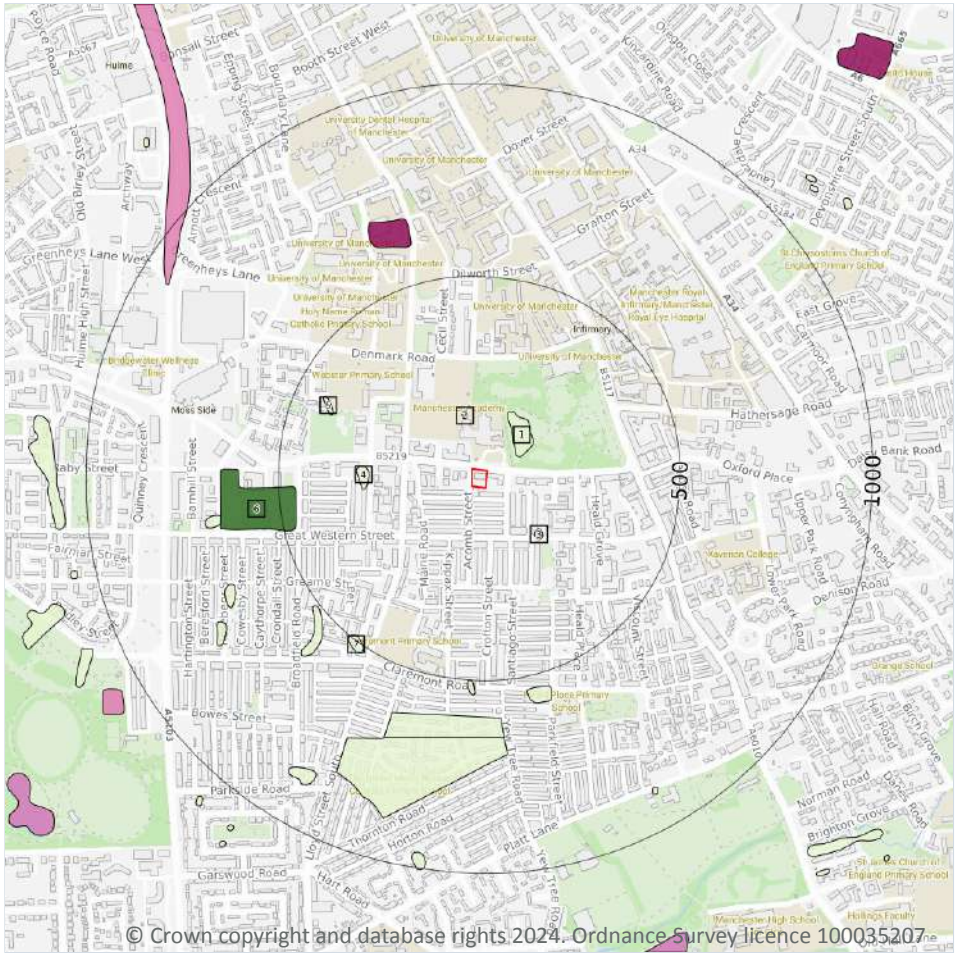
An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 73 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**No coverage**	**SJ89NW**
2	343m E	Full	Full	Full	Full	SJ89NE

This data is sourced from the British Geological Survey.

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 **7**

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.

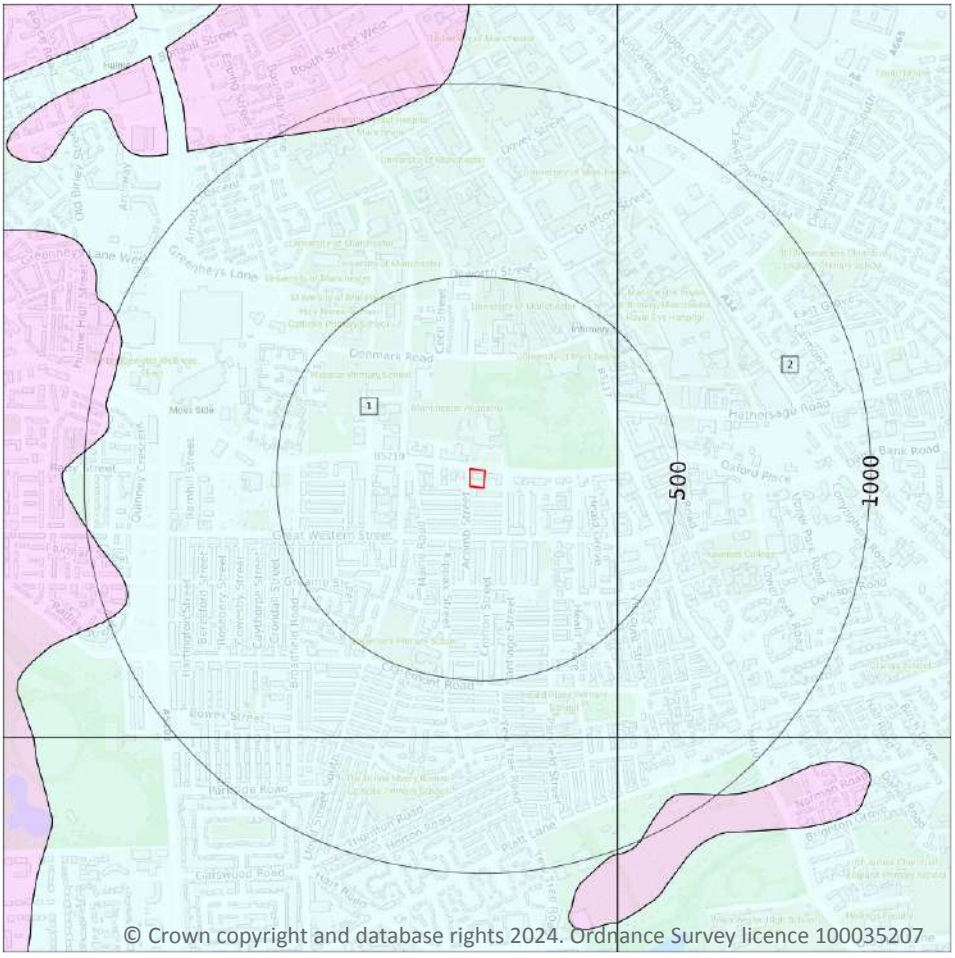
Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 74 >**

ID	Location	LEX Code	Description	Rock description
1	86m NE	WMGR-ARTDP	Infilled Ground	Artificial Deposit
2	129m N	WMGR-ARTDP	Infilled Ground	Artificial Deposit
3	171m SE	WMGR-ARTDP	Infilled Ground	Artificial Deposit
4	267m W	WMGR-ARTDP	Infilled Ground	Artificial Deposit

ID	Location	LEX Code	Description	Rock description
5	388m NW	WMGR-ARTDP	Infilled Ground	Artificial Deposit
6	457m W	LSGR-ARTDP	Landscaped Ground (Undivided)	Artificial Deposit
7	489m SW	WMGR-ARTDP	Infilled Ground	Artificial Deposit

This data is sourced from the British Geological Survey.

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 **2**

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 76 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**TILLD-DMTN**	**Till, Devensian - Diamicton**	**Diamicton**
2	343m E	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton

This data is sourced from the British Geological Survey.

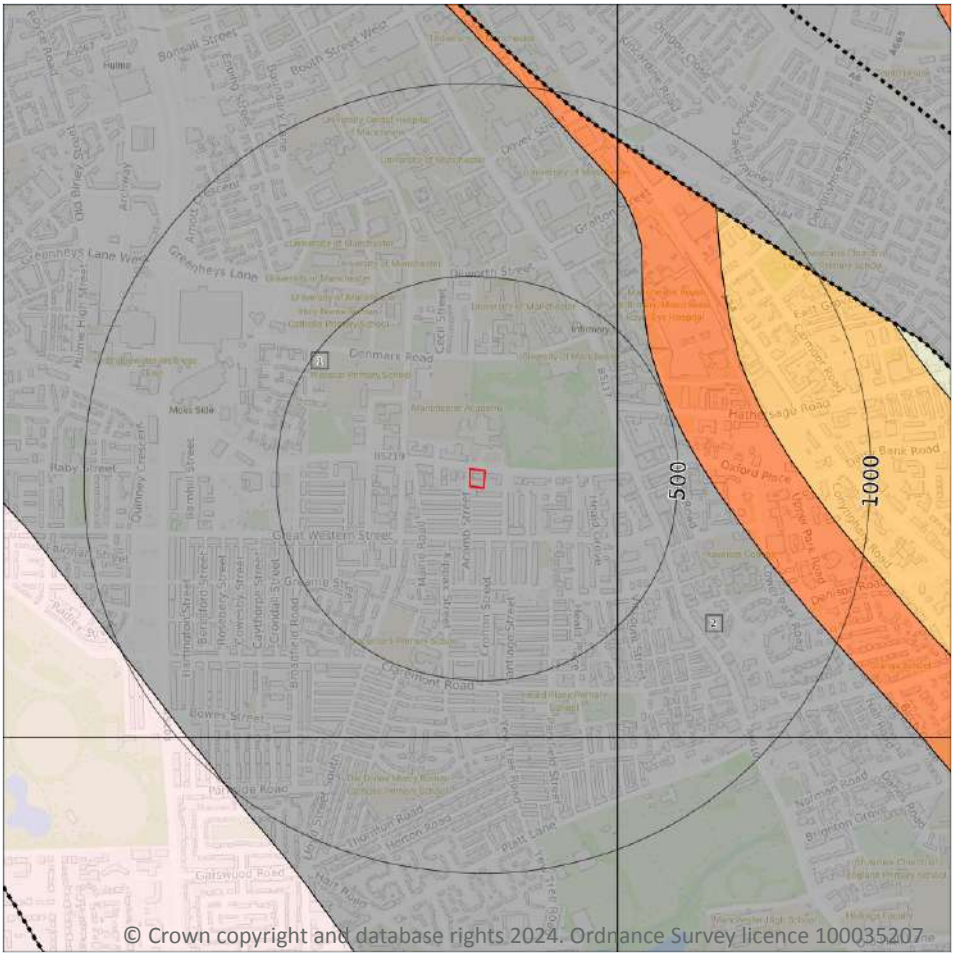
14.4 Landslip (10k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

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.

14.5 Bedrock geology (10k)

Records within 500m **2**

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 78 >**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**CPB-SDST**	**Chester Pebble Beds Formation - Sandstone**	**Early Triassic Epoch**
2	343m E	CPB-SDST	Chester Pebble Beds Formation - Sandstone	Early Triassic Epoch

This data is sourced from the British Geological Survey.

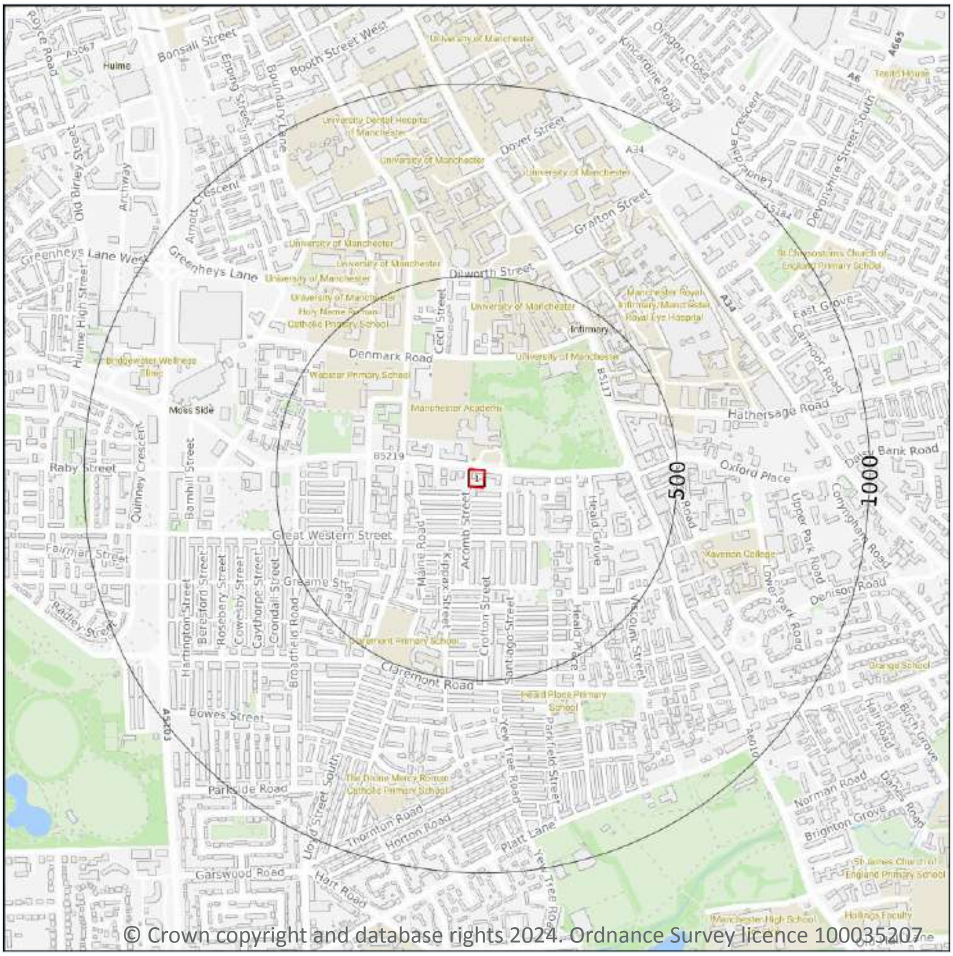
14.6 Bedrock faults and other linear features (10k)

Records within 500m	0

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.

15 Geology 1:50,000 scale - Availability



Site Outline

Search buffers in metres (m)

Geological map tile

15.1 50k Availability

Records within 500m	1

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 80 >

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	No coverage	Full	Full	No coverage	EW085_manchester_v4

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Artificial and made ground

15.2 Artificial and made ground (50k)

Records within 500m	0

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

This data is sourced from the British Geological Survey.

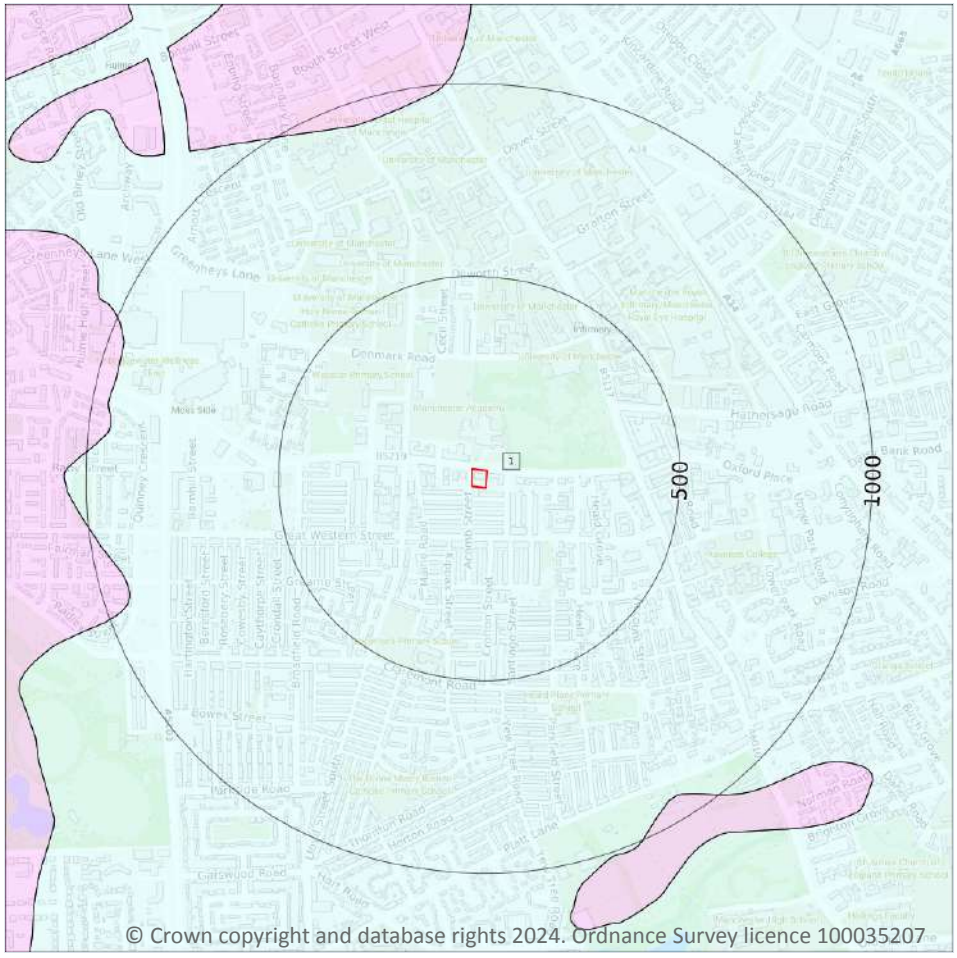
15.3 Artificial ground permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

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	1

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 82 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**TILLD-DMTN**	**TILL, DEVENSIAN**	**DIAMICTON**

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	1

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Mixed**	**High**	**Low**

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

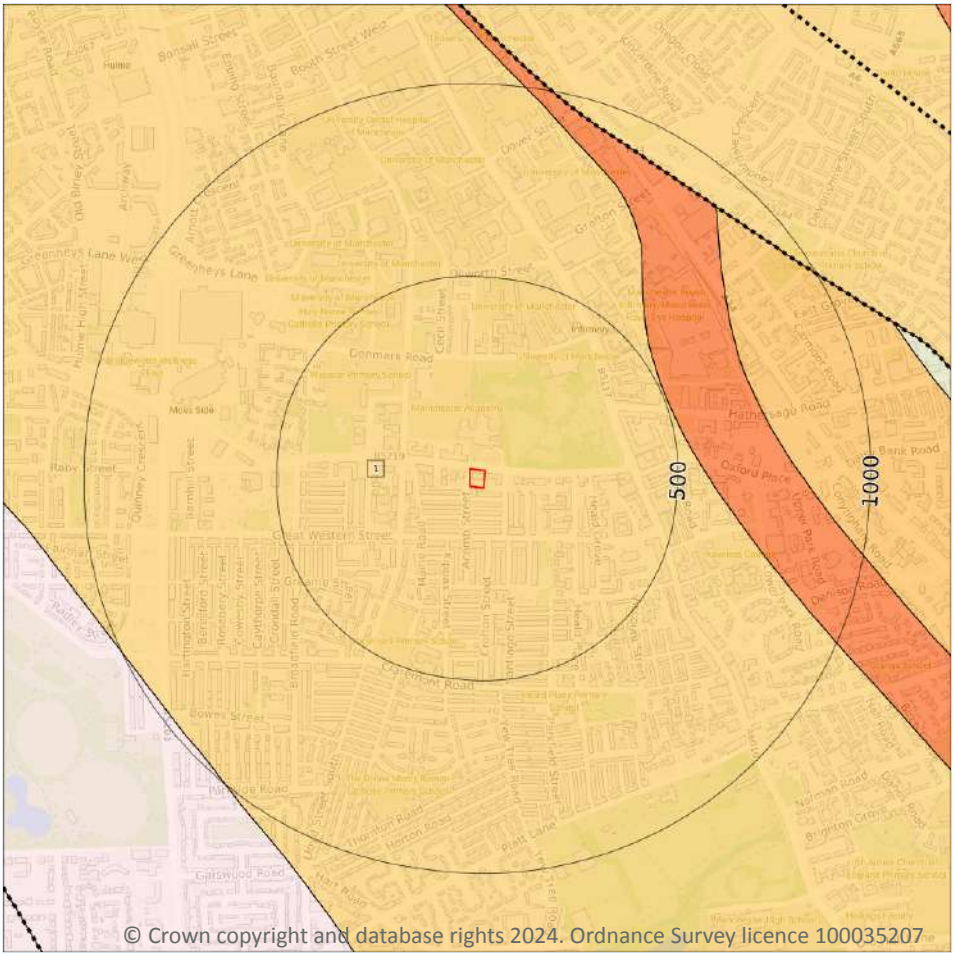
15.7 Landslip permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

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 **1**

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 84 >**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**CHES-SDST**	**CHESTER FORMATION - SANDSTONE**	**OLENEKIAN**

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	1

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Mixed**	**High**	**Moderate**

This data is sourced from the British Geological Survey.

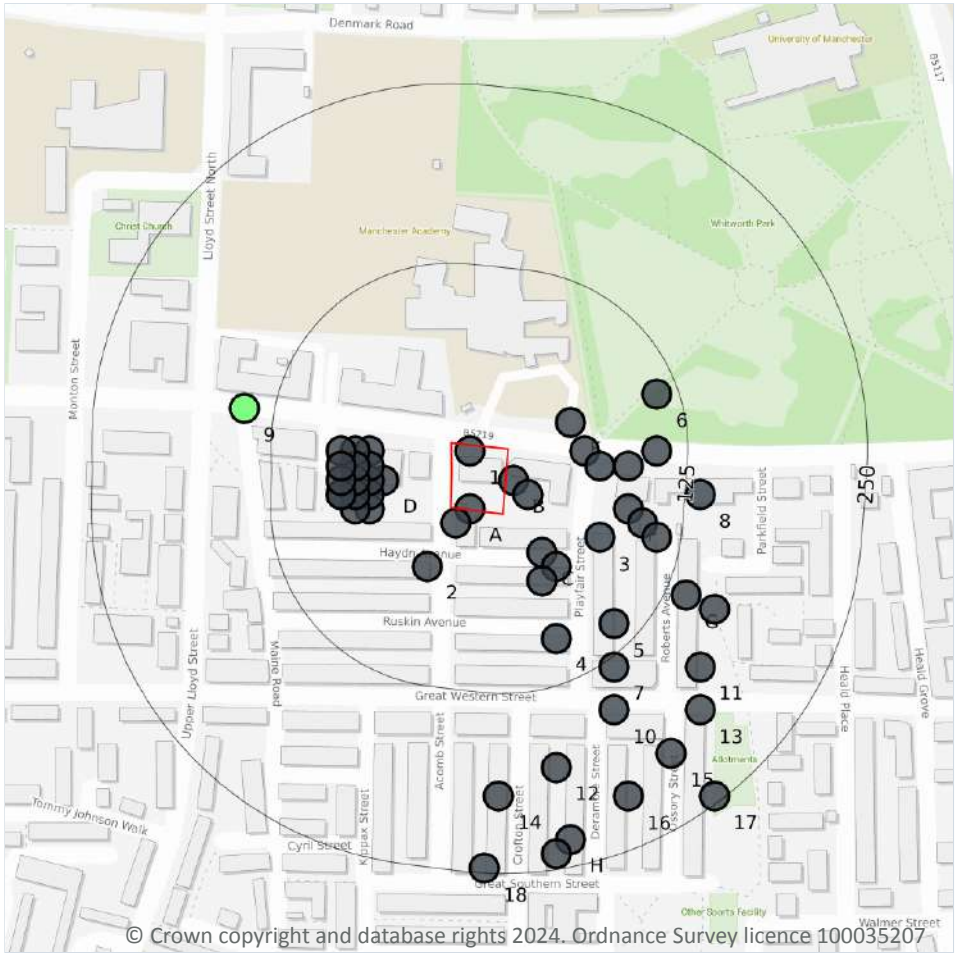
15.10 Bedrock faults and other linear features (50k)

Records within 500m	0

Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.

16 Boreholes



Site Outline

Search buffers in metres (m)

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

16.1 BGS Boreholes

Records within 250m	53

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 86 >**

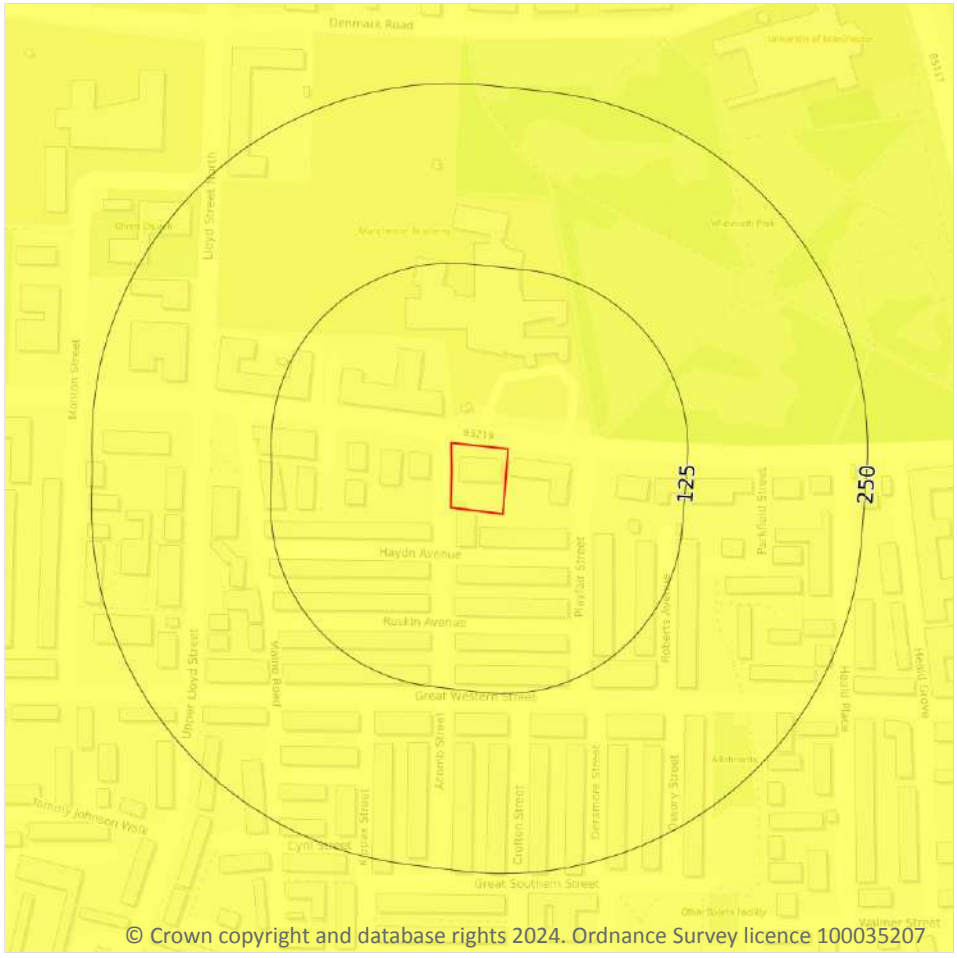
ID	Location	Grid reference	Name	Length	Confidential	Web link
1	**On site**	**384630 395690**	**BIRLEY FIELDS HULME 2**	**-**	**Y**	**N/A**
A	**On site**	**384630 395650**	**BIRLEY FIELDS HULME 22**	**-**	**Y**	**N/A**
B	5m E	384660 395670	BIRLEY FIELDS HULME 23	-	Y	N/A

ID	Location	Grid reference	Name	Length	Confidential	Web link
A	10m SW	384620 395640	BIRLEY FIELDS HULME TP 1	-	Y	N/A
B	16m E	384670 395660	BIRLEY FIELDS HULME TP 2	-	Y	N/A
C	38m SE	384680 395620	BIRLEY FIELDS HULME 6	-	Y	N/A
2	44m SW	384600 395610	BIRLEY FIELDS HULME 5	-	Y	N/A
D	47m W	384570 395670	BIRLEY FIELDS HULME 1	-	Y	N/A
E	47m NE	384700 395710	BIRLEY FIELDS HULME 3	-	Y	N/A
C	52m SE	384690 395610	BIRLEY FIELDS HULME 6A	-	Y	N/A
E	54m E	384710 395690	BIRLEY FIELDS HULME 24	-	Y	N/A
C	54m SE	384680 395600	BIRLEY FIELDS HULME TP 8	-	Y	N/A
D	57m W	384560 395650	MOSS LANE EAST MANCHESTER TP15	-	Y	N/A
D	57m W	384560 395660	MOSS LANE EAST MANCHESTER TP14	-	Y	N/A
D	57m W	384560 395690	MOSS LANE EAST MANCHESTER TP11	-	Y	N/A
D	57m W	384560 395670	MOSS LANE EAST MANCHESTER TP13	-	Y	N/A
D	57m W	384560 395680	MOSS LANE EAST MANCHESTER TP12	-	Y	N/A
E	64m E	384720 395680	BIRLEY FIELDS HULME TP 3	-	Y	N/A
D	67m W	384550 395650	MOSS LANE EAST MANCHESTER TP10	-	Y	N/A
D	67m W	384550 395660	MOSS LANE EAST MANCHESTER TP9	-	Y	N/A
D	67m W	384550 395690	MOSS LANE EAST MANCHESTER TP6	-	Y	N/A
D	67m W	384550 395670	MOSS LANE EAST MANCHESTER TP8	-	Y	N/A
D	67m W	384550 395680	MOSS LANE EAST MANCHESTER TP7	-	Y	N/A
3	69m SE	384720 395630	BIRLEY FIELDS HULME TP 7	-	Y	N/A
D	77m W	384540 395660	MOSS LANE EAST MANCHESTER TP4	-	Y	N/A
D	77m W	384540 395660	MOSS LANE EAST MANCHESTER TP5	-	Y	N/A
D	77m W	384540 395690	MOSS LANE EAST MANCHESTER TP1	-	Y	N/A
D	77m W	384540 395670	MOSS LANE EAST MANCHESTER TP3	-	Y	N/A
D	77m W	384540 395680	MOSS LANE EAST MANCHESTER TP2	-	Y	N/A
E	84m E	384740 395680	BIRLEY FIELDS HULME TP 4	-	Y	N/A
F	87m E	384740 395650	BIRLEY FIELDS HULME 7A	-	Y	N/A

ID	Location	Grid reference	Name	Length	Confidential	Web link
4	94m SE	384690 395560	BIRLEY FIELDS HULME 9	-	Y	N/A
F	97m E	384750 395640	BIRLEY FIELDS HULME 7	-	Y	N/A
E	103m E	384760 395690	BIRLEY FIELDS HULME TP 5	-	Y	N/A
F	108m E	384760 395630	BIRLEY FIELDS HULME TP 6	-	Y	N/A
5	108m SE	384730 395570	BIRLEY FIELDS HULME 10	-	Y	N/A
6	110m NE	384760 395730	BIRLEY FIELDS HULME 4	-	Y	N/A
7	131m SE	384730 395540	BIRLEY FIELDS HULME TP 11	-	Y	N/A
8	136m E	384790 395660	BIRLEY FIELDS HULME 8	-	Y	N/A
G	139m SE	384780 395590	BIRLEY FIELDS HULME TP 9	-	Y	N/A
9	146m W	384473 395720	MANCHESTER CORP. MOSS LANE EAST	10.67	N	1042289 ↗
10	157m SE	384730 395510	BIRLEY FIELDS HULME 12	-	Y	N/A
G	161m SE	384800 395580	BIRLEY FIELDS HULME 11	-	Y	N/A
11	173m SE	384790 395540	BIRLEY FIELDS HULME TP 10	-	Y	N/A
12	180m S	384690 395470	BIRLEY FIELDS HULME TP 15	-	Y	N/A
13	193m SE	384790 395510	BIRLEY FIELDS HULME 13	-	Y	N/A
14	196m S	384650 395450	BIRLEY FIELDS HULME 14	-	Y	N/A
15	203m SE	384770 395480	BIRLEY FIELDS HULME TP 12	-	Y	N/A
16	215m SE	384740 395450	BIRLEY FIELDS HULME 15	-	Y	N/A
H	231m S	384700 395420	BIRLEY FIELDS HULME TP 16	-	Y	N/A
H	239m S	384690 395410	BIRLEY FIELDS HULME 21	-	Y	N/A
17	245m SE	384800 395450	BIRLEY FIELDS HULME 16	-	Y	N/A
18	247m S	384640 395400	BIRLEY FIELDS HULME TP 14	-	Y	N/A

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



Site Outline

Search buffers in metres (m)

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

17.1 Shrink swell clays

Records within 50m	1

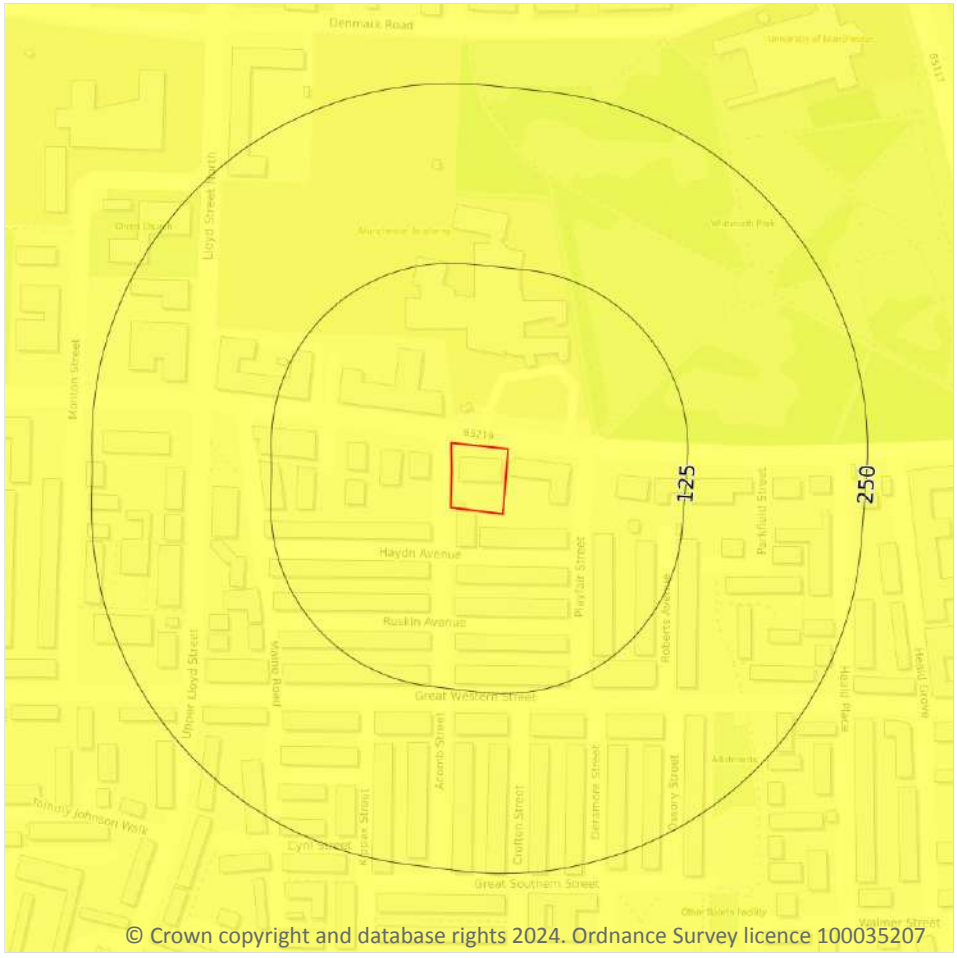
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 89 >**

Location	Hazard rating	Details
On site	**Very low**	**Ground conditions predominantly low plasticity.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

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

17.2 Running sands

Records within 50m	1

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 90 >**

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.**

This data is sourced from the British Geological Survey.

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	1

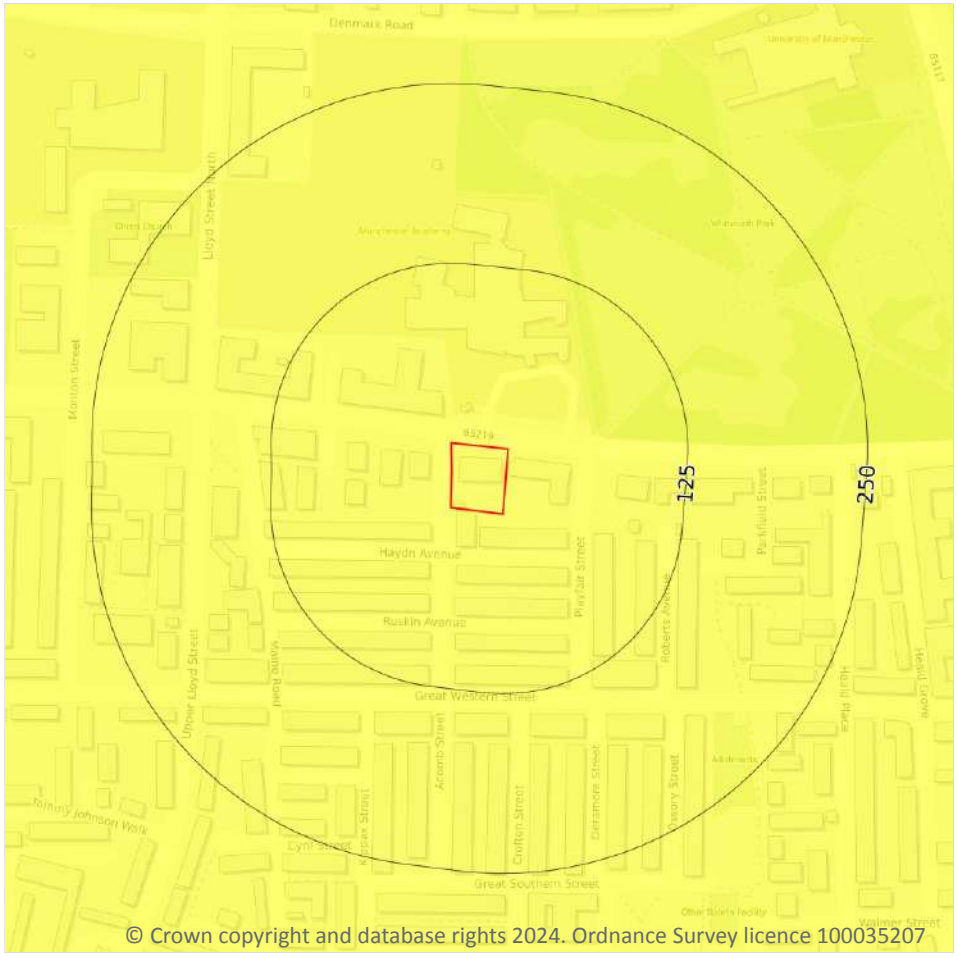
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 91 >**

Location	Hazard rating	Details
On site	**Negligible**	**Compressible strata are not thought to occur.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



Site Outline

Search buffers in metres (m)

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

17.4 Collapsible deposits

Records within 50m	1

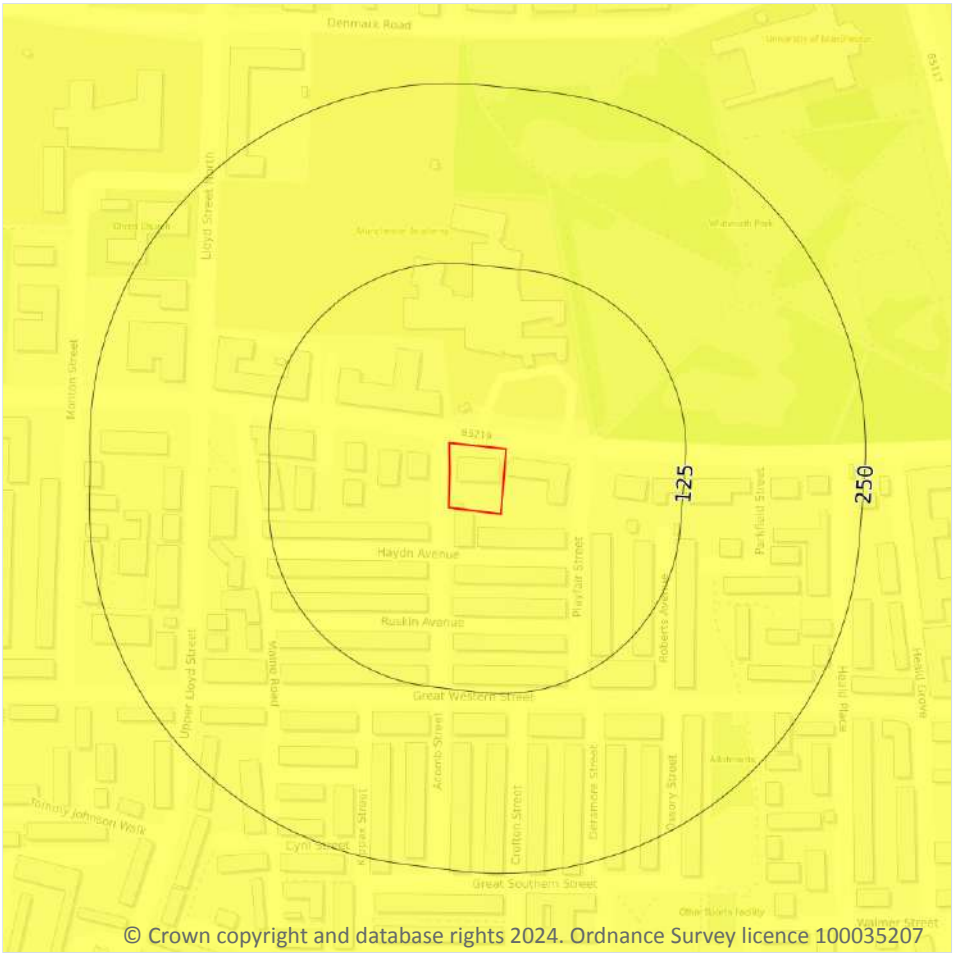
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 92 >**

Location	Hazard rating	Details
On site	**Very low**	**Deposits with potential to collapse when loaded and saturated are unlikely to be present.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

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

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 93 >**

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.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks



Site Outline

Search buffers in metres (m)

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

17.6 Ground dissolution of soluble rocks

Records within 50m	1

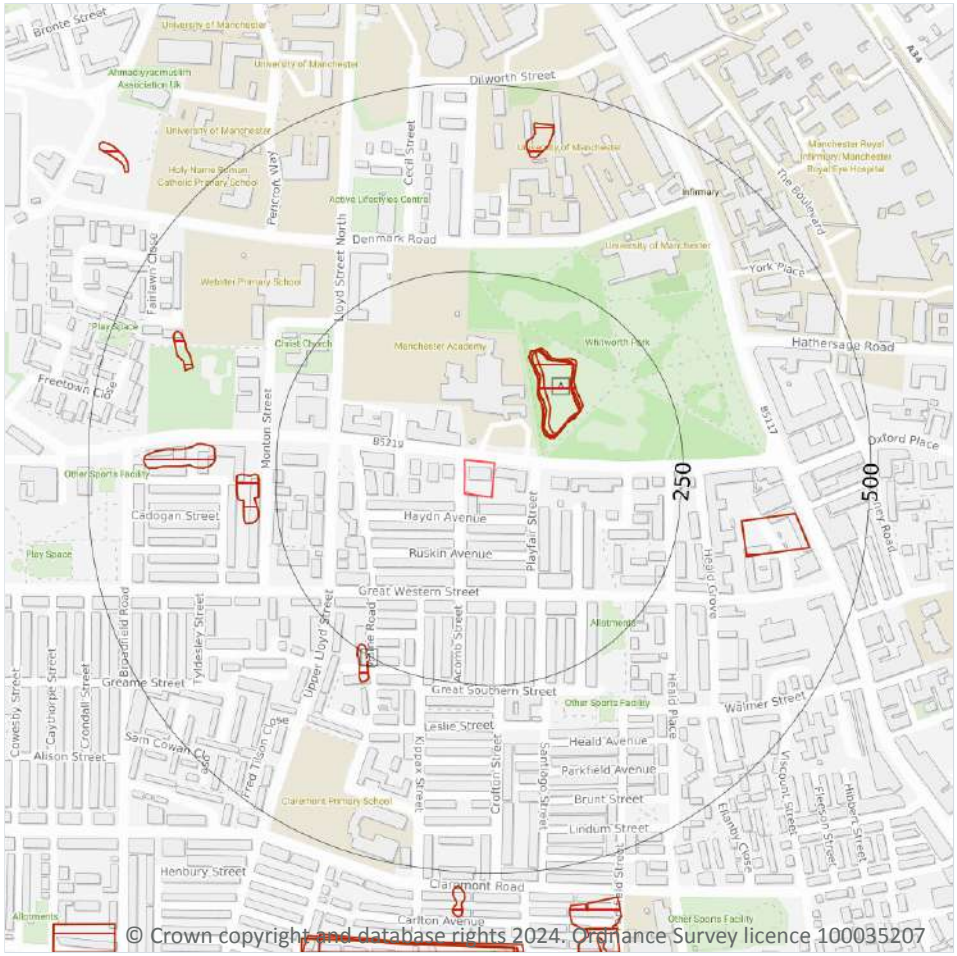
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 94 >**

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.**

This data is sourced from the British Geological Survey.

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.

18.2 Surface ground workings

Records within 250m	7

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining and ground workings map on **page 96 >**

ID	Location	Land Use	Year of mapping	Mapping scale
A	76m NE	Pond	1938	1:10560
A	76m NE	Pond	1934	1:10560
A	76m NE	Pond	1915	1:10560
A	80m NE	Pond	1905	1:10560
A	80m NE	Pond	1923	1:10560
A	87m NE	Pond	1956	1:10560
1	242m SW	Pond	1851	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.3 Underground workings

Records within 1000m	0

Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground mining extents

Records within 500m	0

This data identifies underground mine workings that could present a potential risk, including adits and seam workings. These features have been identified from BGS Geological mapping and mine plans sourced from the BGS and various collections and sources.

This data is sourced from Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	0

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	0

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

This data is sourced from the British Geological Survey.

18.7 JPB mining areas

Records on site	1

Areas which could be affected by former coal and other mining. This data includes some mine plans unavailable to the Coal Authority.

Location	Details
On site	**Whilst outside of an area where The Coal Authority have information on coal mining activities, Johnson Poole & Bloomer (JPB) may have information such as mining plans and maps held within their archive that have occurred within 1km of this property. Please note, the plans held by JPB may also relate to non-mining records. Further details and a quote for services (if appropriate) can be obtained by emailing this report to enquiries.gs@jpb.co.uk ↗.**

This data is sourced from Johnson Poole and Bloomer.

18.8 The Coal Authority non-coal mining

Records within 500m	0

This data provides an indication of the potential zone of influence of recorded underground non-coal mining workings. Any and all analysis and interpretation of Coal Authority Data in this report is made by Groundsure, and is in no way supported, endorsed or authorised by the Coal Authority. The use of the data is restricted to the terms and provisions contained in this report. Data reproduced in this report may be the copyright of the Coal Authority and permission should be sought from Groundsure prior to any re-use.

This data is sourced from The Coal Authority.

18.9 Researched mining

Records within 500m	0

This data indicates areas of potential mining identified from alternative or archival sources, including; BGS Geological paper maps, Lidar data, aerial photographs (from World War II onwards), archaeological data services, websites, Tithe maps, and various text/plans from collected books and reports. Some of this data is approximate and Groundsure have interpreted the resultant risk area and, where possible, specific areas of risk have been captured.

This data is sourced from Groundsure.

18.10 Mining record office plans

Records within 500m	0

This dataset is representative of Mining Record Office and/or plan extents held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.11 BGS mine plans

Records within 500m	0

This dataset is representative of BGS mine plans held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.12 Coal mining

Records on site	0

Areas which could be affected by past, current or future coal mining.

This data is sourced from the Coal Authority.

18.13 Brine areas

Records on site	0

The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

This data is sourced from the Cheshire Brine Subsidence Compensation Board.

18.14 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.15 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

18.16 Clay mining

Records on site	0

Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).

19 Ground cavities and sinkholes

19.1 Natural cavities

Records within 500m	0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Stantec UK Ltd.

19.2 Mining cavities

Records within 1000m	0

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Stantec UK Ltd.

19.3 Reported recent incidents

Records within 500m	0

This data identifies sinkhole information gathered from media reports and Groundsure's own records. This data goes back to 2014 and includes relative accuracy ratings for each event and links to the original data sources. The data is updated on a regular basis and should not be considered a comprehensive catalogue of all sinkhole events. The absence of data in this database does not mean a sinkhole definitely has not occurred during this time.

This data is sourced from Groundsure.

19.4 Historical incidents

Records within 500m	0

This dataset comprises an extract of 1:10,560, 1:10,000, 1:2,500 and 1:1,250 scale historical Ordnance Survey maps held by Groundsure, dating back to the 1840s. It shows shakeholes, deneholes and other 'holes' as noted on these maps. Dene holes are medieval chalk extraction pits, usually comprising a narrow shaft with a number of chambers at the base of the shaft. Shakeholes are an alternative name for suffusion sinkholes, most commonly found in the limestone landscapes of North Yorkshire but also extensively noted around the Brecon Beacons National Park.

Not all 'holes' noted on Ordnance Survey mapping will necessarily be present within this dataset.

This data is sourced from Groundsure.

19.5 National karst database

Records within 500m	0

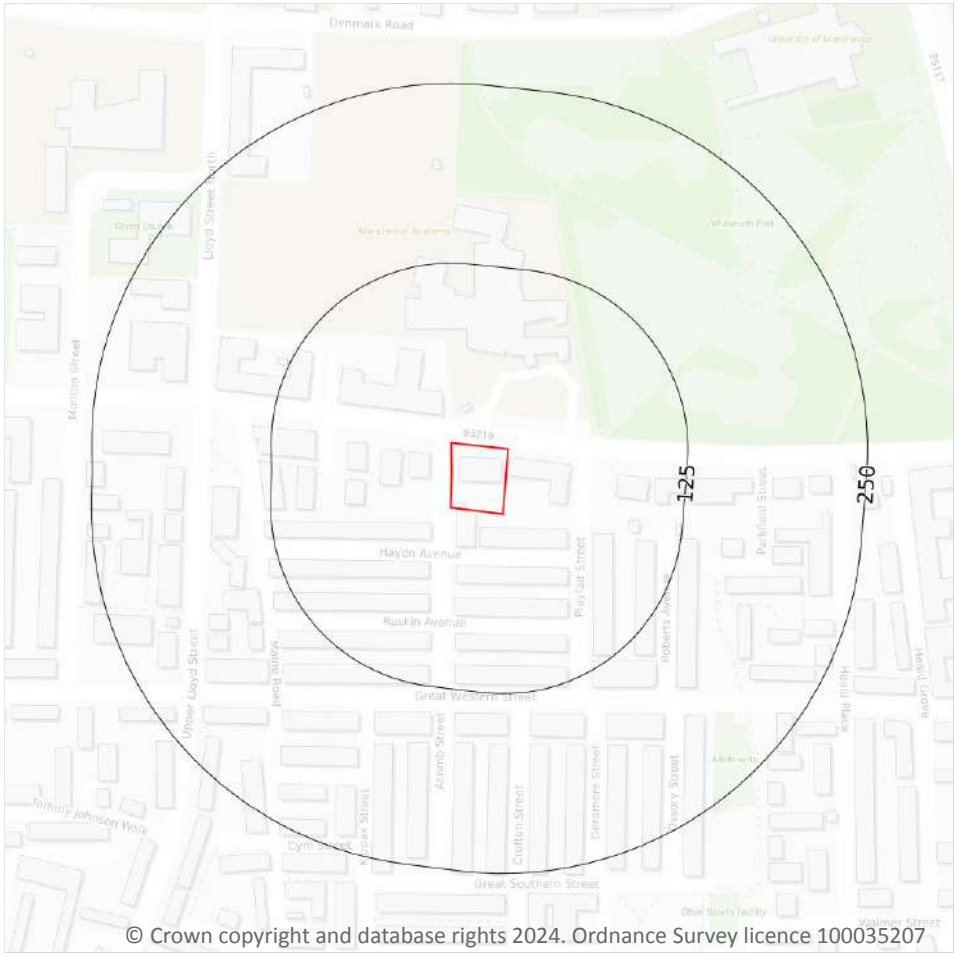
This is a comprehensive database of national karst information gathered from a wide range of sources. BGS have collected data on five main types of karst feature: Sinkholes, stream links, caves, springs, and incidences of associated damage to buildings, roads, bridges and other engineered works.

Since the database was set up in 2002 data covering most of the evaporite karst areas of the UK have now been added, along with data covering about 60% of the Chalk, and 35% of the Carboniferous Limestone outcrops. Many of the classic upland karst areas have yet to be included. Recorded so far are: Over 800 caves, 1300 stream sinks, 5600 springs, 10,000 sinkholes.

The database is not yet complete, and not all records have been verified. The absence of data does not mean that karst features are not present at a site. A reliability rating is included with each record.

This data is sourced from the British Geological Survey.

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 103 >**

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

This data is sourced from the British Geological Survey and UK Health Security Agency.

21 Soil chemistry

21.1 BGS Estimated Background Soil Chemistry

Records within 50m	1

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km^2. In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km^2; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**15 - 25 mg/kg**	**No data**	**100 - 200 mg/kg**	**60 - 120 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**30 - 45 mg/kg**

This data is sourced from the British Geological Survey.

21.2 BGS Estimated Urban Soil Chemistry

Records within 50m	7

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km^2).

Location	Arsenic (mg/kg)	Bioaccessible Arsenic (mg/kg)	Lead (mg/kg)	Bioaccessible Lead (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Nickel (mg/kg)	Tin (mg/kg)
On site	**21**	**3.7**	**106**	**73**	**0.7**	**78**	**44**	**27**	**12**
4m NW	25	4.4	108	74	0.7	83	43	30	11
17m SW	20	3.5	135	93	0.7	76	45	27	14
17m NW	20	3.5	112	77	0.6	69	43	27	13
43m E	25	4.4	107	74	0.7	89	42	29	11
44m NE	27	4.7	125	86	0.7	82	45	31	12
46m S	20	3.5	108	74	0.7	81	43	26	11

This data is sourced from the British Geological Survey.

21.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km^2.

This data is sourced from the British Geological Survey.

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.

This data is sourced from publicly available information by Groundsure.

22.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

22.4 Historical railway and tunnel features

Records within 250m	0

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

This data is sourced from Ordnance Survey/Groundsure.

22.5 Royal Mail tunnels

Records within 250m	0

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.

This data is sourced from Groundsure/the Postal Museum.

22.6 Historical railways

Records within 250m	0

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

This data is sourced from OpenStreetMap.

22.7 Railways

Records within 250m	0

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways.

This data is sourced from Ordnance Survey and OpenStreetMap.

22.8 Crossrail 1

Records within 500m	0

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

22.9 Crossrail 2

Records within 500m	0

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

22.10 HS2

Records within 500m	0

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 ltd.

Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see https://www.groundsure.com/sources-reference ↗.

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APPENDIX 5 - CIRIA C552 Risk Assessment Methodology

Contaminated Land Risk Assessment

Contaminated Land Risk Assessment is a technique that identifies and considers the associated risk, determines whether the risks are significant and whether action needs to be taken. The four main stages of risk assessment are:

Hazard Identification ⇨ Hazard Assessment ⇨ Risk Estimation ⇨ Risk Evaluation

LCRM outlines the framework to be followed for risk assessment in the UK. The framework is designed to be consistent with UK legislation and policies including planning. The starting point of the risk assessment is to identify the context of the problem and the objectives of the process.

Formulating and developing a conceptual model for the site is an important requirement of risk assessment, this supports the identification and assessment of pollutant linkages. Development of the conceptual model forms the main part of preliminary risk assessment, and the model is subsequently refined or revised as more information and understanding is obtained through the risk assessment process.

Risk is a combination of the likelihood of an event occurring and the magnitude of its consequences. Therefore, both the likelihood and the consequences of an event must be taken into account when assessing risk.

The risk assessment process needs to take into account the degree of confidence required in decisions. Identification of uncertainties is an essential step in risk assessment.

The likelihood of an event is classified on a four-point system using the following terms and definitions from CIRIA C552:

- High likelihood: There is a pollution linkage and an event appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution;

- Likely: There is a pollution linkage and all the elements are present and in the right place, which means it is probable that an event will occur. Circumstances are such that the event is not inevitable, but possible in the short term and likely over the long term;

- Low likelihood: There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain even over a longer period such event would take place, and is less likely in the short term;

- Unlikely: There is a pollution linkage but circumstances are such that it is improbable the event would occur even in the long term.

The severity is also classified using a system based on CIRIA C552. The terms and definitions are:

- Severe: Short term (acute) risk to human health likely to result in 'significant harm' as defined by the Environment Protection Act 1990, Part IIA. Short-term risk of pollution of sensitive water resources. Catastrophic damage to buildings or property. A short-term risk to a particular ecosystem or organism forming part of that ecosystem (note definition of ecosystem in 'Draft Circular on Contaminated Land', DETR 2000);
  Examples – High concentrations of contaminant on surface of recreation area, major spillage of contaminants from site into controlled waters, explosion causing building to collapse;

- Medium: Chronic damage to human health ('significant harm' as defined in DETR 2000). Pollution of sensitive water resources. A significant change in a particular ecosystem or organism forming part of that ecosystem (note definition of ecosystem in 'Draft Circular on Contaminated Land', DETR 2000);
  Examples - Concentrations of contaminants exceed the generic assessment criteria, leaching of contaminants from a site to a Principal or Secondary Aquifer, death of species within a designated nature reserve;

- Mild: Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services ('significant harm' as defined in 'Draft Circular on Contaminated Land', DETR 2000). Damage to sensitive buildings, structures, services or the environment;
  Examples – Pollution of non-classified groundwater or damage to buildings rendering it unsafe to occupy.

- Minor: harm, not necessarily significant harm, which may result in financial loss or expenditure to resolve. Non-permanent health effects to human health (easily prevented by use of personal protective clothing etc). Easily repairable effects of damage to buildings, structures and services.
  Examples – Presence of contaminants at such concentrations PPE is required during site work, loss of plants in landscaping scheme or discolouration of concrete.

Once the likelihood and severity have been determined, a risk category can be assigned using the table below.

		Consequences			
		Severe	Medium	Mild	Minor
Probability	Highly likely	Very high	High	Moderate	Moderate/low
	Likely	High	Moderate	Moderate/low	Low
	Low likelihood	Moderate	Moderate/low	Low	Very low
	Unlikely	Moderate/low	Low	Very Low	Very low

Definitions of the risk categories obtained from the above table are as follows together with an assessment of the further work that might be required:

- Very high: There is a high probability that severe harm could arise to a designated receptor from an identified hazard or there is evidence that severe harm is currently happening. This risk, if realised, could result in substantial liability. Urgent investigation and remediation are likely to be required;

- High: Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation is required and remedial works may be necessary in the short term and are likely over the longer term;

- Moderate: It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it would be more likely to be relatively mild. Investigation is normally required to clarify the risk and determine the liability. Some remedial works may be required in the longer term;

- Low: It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild;

- Very Low: There is a low possibility that harm could arise to a receptor. In the event of such harm being realised, it is not likely to be severe.

APPENDIX 6 - Exploratory Hole Logs

Borehole Log

GROUNDTECH CONSULTING

Borehole No. **CP01**

Sheet 1 of 2

Project Name: MOSS LANE EAST	Project No. GRO-24108	Co-ords: -	Hole Type CP
Location: MANCHESTER		Level:	Scale 1:50
Client: CHESHIRE HOMES RESIDENTIAL		Dates: 30/05/2024 -	Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.25			MADE GROUND: Grey concrete.
		0.50	D					MADE GROUND: Brown slightly sandy gravelly clay. Gravel is angular to subangular fine to coarse of mixed lithologies including brick and sandstone. Sand is fine to coarse.
		0.50	ES					
		1.00	ES					
		1.20	D					
		1.20		N=8 (1,1/2,2,2,2)				
					1.60			Firm dark brown slightly sandy gravelly CLAY. Gravel is angular to subangular fine to coarse sandstone. Sand is fine to coarse.
		2.00	D					
		2.00	ES					
		2.00		N=16 (2,3/3,4,4,5)				
		3.00 - 3.45	U		3.00			Medium Strength greyish brown gravelly CLAY. Gravel is angular to subangular fine to coarse sandstone.
		3.50	D					
		4.00	D					
		4.00		N=29 (4,5/5,6,8,10)				
		5.00 - 5.45	U					
		5.50	D					
		6.50	D					
		6.50		N=43 (6,7/7,10,12,14)				
		8.00 - 8.45	U					
		8.50	D					
		9.50	D					
		9.50		N=37 (5,6/7,7,10,13)	9.70			Extremely weak reddish brown SANDSTONE
								Continued on next sheet

Remarks

1. Location cleared of services using CAT scanner. 2. Hand dug inspection pit to 1.20m bgl. 3. No groundwater encountered. 4. Borehole terminated at 11.00m due to SPT refusal in bedrock. 5. Chiselling for 60 minutes from 10.50m to 11.00m bgl. 6. Borehole backfilled with arisings.

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **CP01** Sheet 2 of 2

Project Name: MOSS LANE EAST	Project No. GRO-24108	Co-ords: -	Hole Type CP
Location: MANCHESTER		Level:	Scale 1:50
Client: CHESHIRE HOMES RESIDENTIAL		Dates: 30/05/2024 -	Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		10.50 10.50 10.80	D	N=50 (25 for 75mm/50 for 40mm) N=50 (25 for 40mm/50 for 30mm)	11.00			residually weathered recovered as gravelly fine to coarse sand. Gravel is angular to subangular fine to coarse. End of borehole at 11.00 m

Remarks

1. Location cleared of services using CAT scanner. 2. Hand dug inspection pit to 1.20m bgl. 3. No groundwater encountered. 4. Borehole terminated at 11.00m due to SPT refusal in bedrock. 5. Chiselling for 60 minutes from 10.50m to 11.00m bgl. 6. Borehole backfilled with arisings.

Borehole Log

GROUNDTECH CONSULTING

Borehole No. **CP02**

Sheet 1 of 2

Project Name: MOSS LANE EAST	Project No. GRO-24108	Co-ords: -	Hole Type CP
Location: MANCHESTER		Level:	Scale 1:50
Client: CHESHIRE HOMES RESIDENTIAL		Dates: 31/05/2024 -	Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.15			MADE GROUND: Dark grey tarmac.
		0.30	D					MADE GROUND: Dark brown slightly sandy gravelly lay. Gravel is angular to subangular fine to coarse of mixed lithologies including brick and sandstone. Sand is fine to coarse.
		0.50	D					
		0.50	ES		0.80			
		1.00	D					Low strength dark brown slightly sandy CLAY. Sand is fine to coarse.
		1.00	ES					
		1.20	ES					
		1.20 - 1.65	U					
		2.00	D					
		2.00		N=23 (3,4/5,6,6,6)				
		3.00 - 3.45	U		3.00			Very high strength greyish brown gravelly CLAY. Gravel is angular to subangular fine to coarse sandstone.
		3.50	U					
		4.00	U					
		4.00		N=40 (4,6/8,10,10,12)				
		5.00 - 5.45	U					
		5.50	U					
		6.50	U					
		6.50		N=32 (4,5/6,7,8,11)				
		8.00	U					
		8.00		N=23 (3,3/4,6,6,7)				
		9.50	U		9.50			Extremely weak reddish brown SANDSTONE residually weathered recovered as gravelly fine to coarse sand. Gravel is angular to subangular
		9.50		N=50 (6,12/50 for 200mm)				

Continued on next sheet

Remarks

1. Location cleared of services using CAT scanner. 2. Hand dug inspection pit to 1.20m bgl. 3. No groundwater encountered. 4. Borehole terminated at 11.00m due to SPT refusal in bedrock. 5. Chiselling for 60 minutes from 10.00m to 10.50m bgl. 6. Borehole backfilled with arisings.

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **CP02** Sheet 2 of 2

Project Name: MOSS LANE EAST	Project No. GRO-24108	Co-ords: -	Hole Type CP
Location: MANCHESTER		Level:	Scale 1:50
Client: CHESHIRE HOMES RESIDENTIAL		Dates: 31/05/2024 -	Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		10.50 10.50	U	N=50 (25 for 70mm/50 for 40mm)	10.50			fine to coarse. End of borehole at 10.50 m

11 12 13 14 15 16 17 18 19 20

Remarks

1. Location cleared of services using CAT scanner. 2. Hand dug inspection pit to 1.20m bgl. 3. No groundwater encountered. 4. Borehole terminated at 11.00m due to SPT refusal in bedrock. 5. Chiselling for 60 minutes from 10.00m to 10.50m bgl. 6. Borehole backfilled with arisings.

GROUNDTECH CONSULTING

Trial Pit Log

Trialpit No
SuDS01
Sheet 1 of 1

Project Name: MOSS LANE EAST	Project No. GRO-24108	Co-ords: - Level:	Date 30/05/2024
Location: MANCHESTER		Dimensions (m): Depth 2.00 — 2 × 0.45	Scale 1:25
Client: CHESHIRE HOMES RESIDENTIAL			Logged HM

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	ES		0.20			MADE GROUND: Grass over brown sandy gravelly topsoil. Gravel is angular to subangular fine to coarse of mixed lithologies including brick, concrete and mudstone.
	0.40	ES		0.45			MADE GROUND: Firm Brown gravelly Clay. Gravel is angular to subangular fine to coarse of mixed lithologies including brick and sandstone.
	1.50	ES					Stiff brown gravelly CLAY. Gravel is angular to subangular fine to coarse sandstone.
				2.00			End of pit at 2.00 m

1
2
3
4
5

Remarks: 1. Location cleared of services using handheld CAT scanner. 2. No groundwater encountered. 3. Soil percolation test undertaken at 2.00m bgl. 4. Trial pit backfilled with arisings.

Stability: Stable.

GROUNDTECH CONSULTING

Borehole Log

Borehole No.
WS01
Sheet 1 of 1

Project Name: MOSS LANE EAST	Project No. GRO-24108	Co-ords: -	Hole Type WS
Location: MANCHESTER		Level:	Scale 1:25
Client: CHESHIRE HOMES RESIDENTIAL		Dates: 31/05/2024 -	Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.25			MADE GROUND: Grey concrete.
		0.50	ES					MADE GROUND: Firm brown sandy gravelly Clay. Gravel is angular to subangular fine to coarse of mixed lithologies including brick, limestone and sandstone. Sand is fine to coarse.
		1.00	D					
		1.20		N=6 (1,0/1,1,2,2)				
		1.40	ES		1.35			Firm grey slightly sandy CLAY. Sand is fine to coarse.
		2.00	D					
		2.00		N=22 (3,3/5,5,5,7)				
		2.40	ES					
		3.00	D		3.00			Stiff brownish grey gravelly CLAY. Gravel is angular to subangular fine to coarse sandstone.
		3.00		N=38 (4,5/6,7,10,15)				
		3.50	D					
		3.70		N=50 (8,11/50 for 275mm)	3.60			End of borehole at 3.60 m

Remarks
1. Location cleared of services using CAT scanner. 2. Hand dug inspection pit to 1.20m bgl. 3. No groundwater encountered. 4. Borehole terminated at 3.60m due to SPT refusal. 5. Monitoring standpipe installed to 3.0m bgl (1.00m slotted, 2.00m plain).

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **WS02**

Sheet 1 of 1

Project Name: MOSS LANE EAST	Project No. GRO-24108	Co-ords: -	Hole Type WS
Location: MANCHESTER		Level:	Scale 1:25
Client: CHESHIRE HOMES RESIDENTIAL		Dates: 31/05/2024 -	Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.30			MADE GROUND: Grass over brown sandy topsoil. Sand is fine to coarse.
		0.60	ES					MADE GROUND: Firm reddish brown sandy gravelly clay. Gravel is angular to subangular fine to coarse of mixed lithologies including brick and sandstone. Sand is medium to coarse.
		1.00	D					
		1.20		N=9 (1,1/1,1,2,5)	1.25			
		1.30	ES					Firm dark brown sandy CLAY. Sand is fine to coarse.
		2.00	D					
		2.00	ES					
		2.00		N=18 (1,2/3,4,5,6)	2.25			Stiff brownish grey gravelly CLAY. Gravel is angular to subangular fine to coarse sandstone.
		3.00	D		3.00			End of borehole at 3.00 m
		3.00	ES					
		3.00		N=50 (6,8/50 for 285mm)				

1 2 3 4 5

Remarks

1. Location cleared of services using CAT scanner. 2. Hand dug inspection pit to 1.20m bgl. 3. No groundwater encountered. 4. Borehole terminated due to SPT refusal. 5. Borehole backfilled with arisings.

Borehole Log

GROUNDTECH CONSULTING

Borehole No. **WS03**

Sheet 1 of 1

Project Name: MOSS LANE EAST	Project No. GRO-24108	Co-ords: -	Hole Type WS
Location: MANCHESTER		Level:	Scale 1:25
Client: CHESHIRE HOMES RESIDENTIAL		Dates: 31/05/2024 -	Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.15			MADE GROUND: Dark grey tarmac.
		0.45	ES					MADE GROUND: Dark brown slightly sandy gravelly Clay. Gravel is angular to subangular fine to coarse of mixed lithologies including brick, concrete and sandstone. Sand is fine to coarse.
		0.90	ES		0.80			Firm dark brown slightly sandy CLAY. Sand is fine to coarse.
		1.00	D					
		1.00	ES					
		1.20		N=10 (1,1/1,2,3,4)				
		2.00	D		2.00			Stiff brownish grey gravelly CLAY. Gravel is angular to subangular fine to coarse sandstone.
		2.00	ES					
		2.00		N=29 (5,5/6,6,8,9)				
		3.00	D		3.00			End of borehole at 3.00 m
		3.00	ES					
		3.00		N=50 (5,8/50 for 285mm)				

1 2 3 4 5

Remarks

1. Location cleared of services using CAT scanner. 2. Hand dug inspection pit excavated to 1.20m bgl. 3. Groundwater seepage at 1.00m bgl. 4. Borehole terminated due to SPT refusal. 5. Monitoring standpipe installed to 3.0m bgl (1.00m slotted, 2.00m plain).

Borehole Log

GROUNDTECH CONSULTING

Borehole No. **WS04**

Sheet 1 of 1

Project Name: MOSS LANE EAST	Project No. GRO-24108	Co-ords: -	Hole Type WS
Location: MANCHESTER		Level:	Scale 1:25
Client: CHESHIRE HOMES RESIDENTIAL		Dates: 31/05/2024 -	Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20			MADE GROUND: Dark grey tarmac.
		0.50	ES					MADE GROUND: Dark brown slightly sandy gravelly lay. Gravel is angular to subangular fine to coarse of mixed lithologies including brick, concrete and sandstone. Sand is fine to coarse.
		0.80	ES		0.75			Firm dark brown slightly sandy CLAY. Sand is fine to coarse.
		1.00	D					
		1.20		N=10 (1,1/2,2,3,3)				
		2.00 2.00	D ES		2.10			Stiff brownish grey gravelly CLAY. Gravel is angular to subangular fine to coarse sandstone.
		2.00		N=19 (2,2/3,4,5,7)				
		3.00 3.00	D ES		3.00			End of borehole at 3.00 m
		3.00		N=50 (7,8/10,13,14,13)				

1
2
3
4
5

Remarks

1. Location cleared of services using CAT scanner. 2. Hand dug inspection pit to 1.20m bgl. 3. No groundwater encountered. 4. Borehole terminated due to SPT refusal. 5. Borehole backfilled with arisings.

Borehole Log

GROUNDTECH CONSULTING

Borehole No. **WS05**

Sheet 1 of 1

Project Name: MOSS LANE EAST	Project No. GRO-24108	Co-ords: -	Hole Type WS
Location: MANCHESTER		Level:	Scale 1:25
Client: CHESHIRE HOMES RESIDENTIAL		Dates: 31/05/2024 -	Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.30			MADE GROUND: Grass over brown sandy gravelly topsoil. Gravel is angular to subangular fine to coarse of mixed lithologies including brick, sandstone and chert. Sand is fine to coarse.
		0.60	ES					MADE GROUND: Dark brown slightly sandy gravelly Clay. Gravel is angular to subangular fine to coarse of mixed lithologies including brick and sandstone. Sand is fine to coarse.
		1.00	D					
					1.10			
		1.20		N=11 (2,1/3,3,2,3)				Firm dark brown slightly sandy gravelly CLAY. Gravel is angular to subangular fine to coarse sandstone. Sand is fine to coarse. No longer sand at 1.9m bgl.
		1.30	ES					
		2.00	D					
		2.00	ES					
		2.00		N=24 (3,3/5,5,6,8)				
		3.00	D					
		3.00	ES					
		3.00		N=40 (4,5/8,8,11,13)				
		3.70		N=50 (10,12/50 for 275mm)	3.70			End of borehole at 3.70 m

1 2 3 4 5

Remarks

1. Location cleared of services using CAT scanner. 2. Hand dug inspection pit to 1.20m bgl. 3. No groundwater encountered. 4. Borehole terminated due to SPT refusal. 5. Borehole backfilled with arisings.

GROUNDTECH CONSULTING

Borehole Log

Borehole No.
WS06
Sheet 1 of 1

Project Name: MOSS LANE EAST	Project No. GRO-24108	Co-ords: -	Hole Type WS
Location: MANCHESTER		Level:	Scale 1:25
Client: CHESHIRE HOMES RESIDENTIAL		Dates: 31/05/2024 -	Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20			MADE GROUND: Dark grey armac.
		0.50	ES					MADE GROUND: Dark brown slightly sandy gravelly lay. Gravel is angular to subangular fine to coarse of mixed lithologies including brick and sandstone. Sand is fine to coarse.
		0.90	ES		0.85			
		1.00	D					Firm dark brown slightly sandy CLAY. Sand is fine to coarse.
		1.20		N=13 (2,1/3,3,3,4)				
					1.80			Stiff brownish grey gravelly CLAY. Gravel is angular to subangular fine to coarse sandstone.
		2.00	D					
		2.00		N=24 (3,5/4,6,6,8)				
		2.30	ES					
		3.00	D		3.00			End of borehole at 3.00 m
		3.00		N=50 (7,8/50 for 285mm)				

1
2
3
4
5

Remarks
1. Location cleared of services using CAT scanner. 2. Hand dug inspection pit to 1.20m bgl. 3. No groundwater encountered. 4. Borehole terminated due to SPT refusal. 5. Monitoring standpipe installed to 3.0m bgl(1.00m slotted, 2.00m plain).

APPENDIX 7 - Geo-Environmental Testing Results

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First Floor, Lloyd House
Oxford Court
Greenfold Way
WN7 3XJ

t: 07449819886

e: hm@groundtechconsulting.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 24-023169

Project / Site name:	Moss Lane East	**Samples received on:**	03/06/2024
Your job number:	GRO 24108	**Samples instructed on/ Analysis started on:**	04/06/2024
Your order number:		**Analysis completed by:**	13/06/2024
Report Issue Number:	1	**Report issued on:**	13/06/2024
Samples Analysed:	5 soil samples		

[redacted]

Signed: _____

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 24-023169
Project / Site name: Moss Lane East

Lab Sample Number				217479	217480	217481	217482	217483
Sample Reference				BH1	SuDS01	WS01	WS03	WS02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.40	0.50	0.45	0.60
Date Sampled				30/05/2024	30/05/2024	31/05/2024	31/05/2024	31/05/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	17	16	16	17	14
Total mass of sample received	kg	0.1	NONE	0.9	1.4	1.3	1.2	1.3
Asbestos								
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	IZJ	IZJ	IZJ	IZJ	IZJ
General Inorganics								
pH (L099)	pH Units	N/A	MCERTS	8.1	7.2	8	7.3	7.8
Total Sulphate as SO_4	mg/kg	50	MCERTS	630	300	520	500	240
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	290	21	200	180	110
Water Soluble SO_4 16hr extraction (2:1)	mg/l	1.25	MCERTS	144	10.5	98	88.1	57.3
Organic Matter (automated)	%	0.1	MCERTS	2.9	2.7	1.9	4.7	1.7
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	0.08	< 0.05	0.1	2.1	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.14	< 0.05	0.07	5.2	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.15	< 0.05	0.53	2	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.17	< 0.05	0.36	8.7	0.14
Phenanthrene	mg/kg	0.05	MCERTS	1.9	0.21	4.2	45	0.55
Anthracene	mg/kg	0.05	MCERTS	0.4	< 0.05	0.81	12	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	2.5	0.28	5.8	43	0.16
Pyrene	mg/kg	0.05	MCERTS	2.4	0.26	5.6	38	0.19
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.2	0.13	2.3	20	0.1
Chrysene	mg/kg	0.05	MCERTS	1.3	0.15	2.9	19	0.1
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	1.1	0.12	2.5	20	0.09
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.55	0.09	1.1	6.4	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.1	0.13	2.3	17	0.07
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.48	0.07	1.1	6.9	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.15	< 0.05	0.25	1.9	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.61	0.1	1.4	7	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	14.1	1.54	31.4	256	1.41
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	16	14	13	22	4.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	U/S *U/S	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	25	20	22	31	20
Copper (aqua regia extractable)	mg/kg	1	MCERTS	53	38	34	58	15
Lead (aqua regia extractable)	mg/kg	1	MCERTS	150	98	100	150	25
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.7	0.4	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	27	21	23	27	12
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	74	95	68	140	44

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 24-023169
Project / Site name: Moss Lane East

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
217479	BH1	None Supplied	0.5	Brown clay and loam with gravel
217480	SuDS01	None Supplied	0.4	Brown clay and sand with gravel and vegetation
217481	WS01	None Supplied	0.5	Brown clay and sand with gravel and vegetation
217482	WS03	None Supplied	0.45	Brown clay and loam with gravel
217483	WS02	None Supplied	0.6	Brown clay and sand with gravel and vegetation

Analytical Report Number : 24-023169
Project / Site name: Moss Lane East

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

*U/S - Unsuitable for analysis due to sample matrix.

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Analytical Report Number : 24-027816

Project / Site name:	Moos Lane East	**Samples received on:**	27.06.2024
Your job number:	GRO 241008	**Samples instructed on/ Analysis started on:**	27.06.2024
Your order number:		**Analysis completed by:**	03.07.2024
Report Issue Number:	1	**Report issued on:**	03.07.2024
Samples Analysed:	4 soil samples		

Signed: [redacted]

Rafał Szczepańczyk
Technical Reviewer
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 24-027816
Project / Site name: Moos Lane East

Lab Sample Number				241606	241607	241608	241609
Sample Reference				CP01	CP02	WS04	WS01
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				9.50	5.00	1.00	3.50
Date Sampled				30/05/2024	31/05/2024	31/05/2024	31/05/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	13	9.3	15	6.8
Total mass of sample received	kg	0.1	NONE	0.9	0.8	1.1	1.7
General Inorganics							
pH (L099)	pH Units	N/A	MCERTS	8.5	8.6	7.7	8.6
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	220	110	23	51
Water Soluble SO_4 16hr extraction (2:1)	mg/l	1.25	MCERTS	109	54.1	11.5	25.3

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 24-027816
Project / Site name: Moos Lane East

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
241606	CP01	None Supplied	9.5	Brown clay and sand
241607	CP02	None Supplied	5	Brown clay and sand with gravel
241608	WS04	None Supplied	1	Brown clay and sand
241609	WS01	None Supplied	3.5	Brown clay and sand with gravel

Analytical Report Number : 24-027816
Project / Site name: Moos Lane East

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

Sample Deviation Report

Analytical Report Number : 24-027816
Project / Site name: Moos Lane East

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
CP01	N/A	S	241606	c	pH in soil (automated)	L099	c

APPENDIX 8 - Geotechnical Testing Results

LABORATORY REPORT

Contract Number: PSL24/3957

Report Date: 05 July 2024

Client's Reference: GRO-24108

Client Name: Groundtech Consulting
First Floor
Lloyd House
Orford Court
Greenfold Way
WN7 3XJ

For the attention of: Hugo Mackdermott

Contract Title: Moss Lane East

Date Received: 5/6/2024
Date Commenced: 5/6/2024
Date Completed: 5/7/2024

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Managing Director)
R Berriman (Associate Director)
S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)
S Eyre (Senior Technical Coordinator)
T Watkins (Senior Technician)

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awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
WS02		D	2.00		Brown CLAY with some organic material.
WS05		D	2.00		Brown slightly gravelly sandy CLAY.
WS01		D	2.00		Brown slightly gravelly slightly sandy CLAY.
CP02		D	1.00		Brown slightly gravelly sandy CLAY.
WS04		D	1.00		Brown gravelly sandy CLAY.
WS03		D	1.00		Brown slightly gravelly slightly sandy CLAY.
CP01		U	3.00	3.45	Firm brown sandy CLAY.
CP01		U	8.00	8.45	Firm brown slightly gravelly very sandy CLAY.
CP02		U	1.20	1.65	Firm brown mottled grey slightly gravelly sandy CLAY.
CP02		U	5.00	5.45	Very stiff brown slightly gravelly sandy CLAY.

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
WS02		D	2.00		44			95	37	58	100	Extremely High Plasticity CE
WS05		D	2.00		18			48	22	26	97	Intermediate Plasticity CI
WS01		D	2.00		31			68	31	37	98	High Plasticity CH
CP02		D	1.00		23			52	23	29	99	High Plasticity CH
WS04		D	1.00		37			52	23	29	89	High Plasticity CH
WS03		D	1.00		40			68	29	39	98	High Plasticity CH

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Moss Lane East

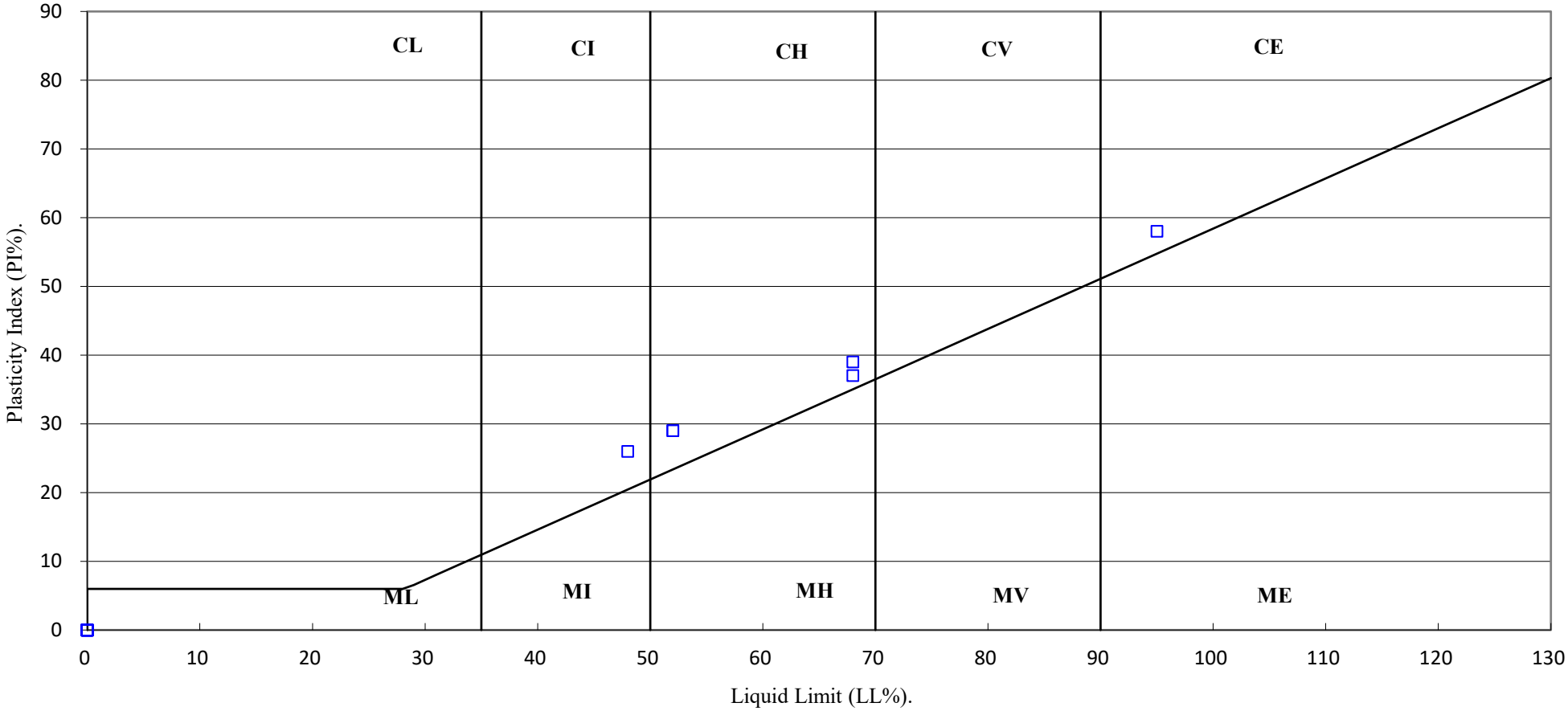
Contract No:

PSL24/3957

Client Ref:

GRO-24108

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



UKAS TESTING 4043 / PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY	**Moss Lane East**	**Contract No:** PSL24/3957 **Client Ref:** GRO-24108

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

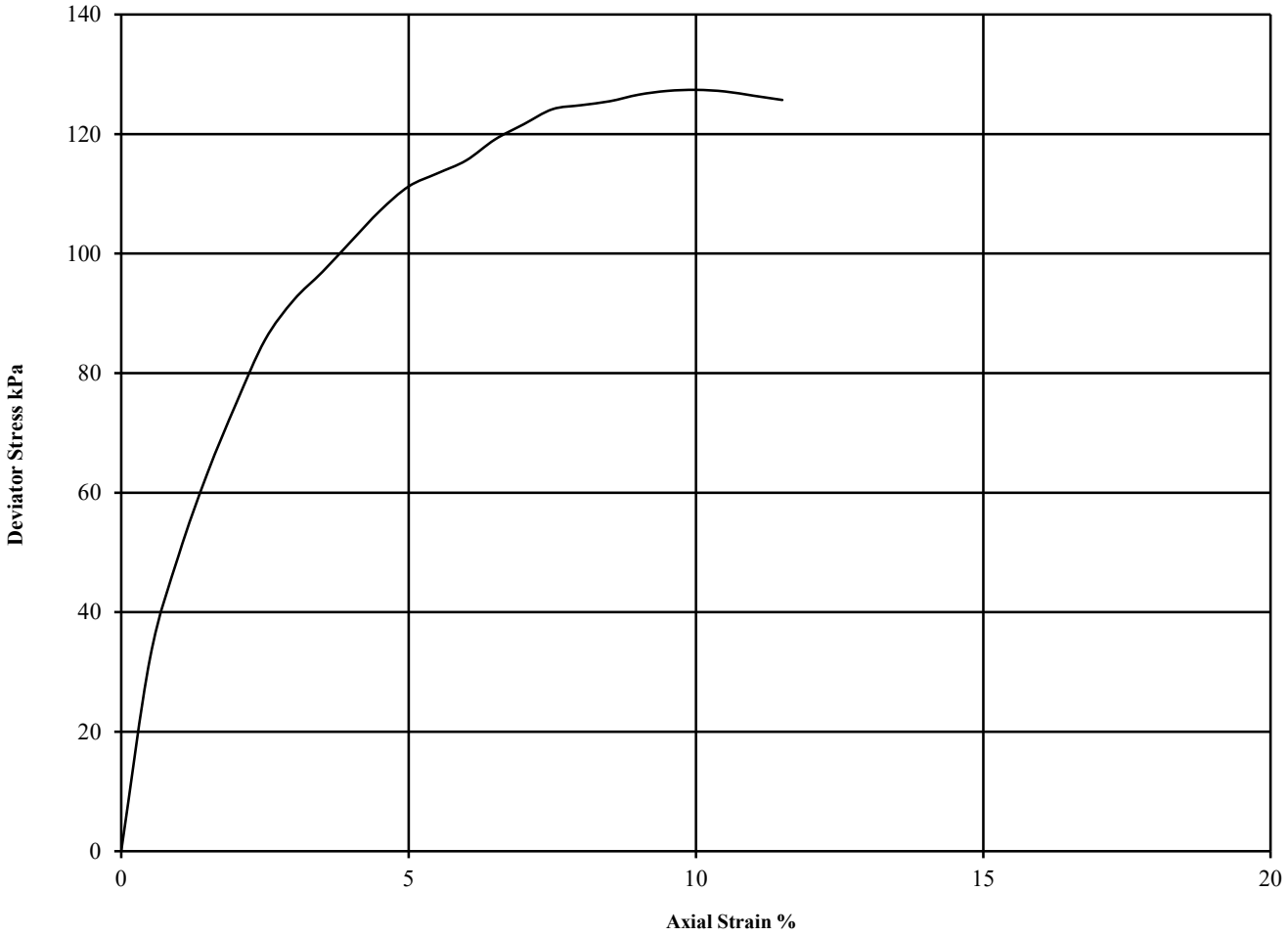
WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number: CP01 **Top Depth (m):** 3.00

Sample Number: **Base Depth (m):** 3.45

Sample Type U



Diameter (mm):		102	Height (mm):		204	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.35
1	25	2.01	1.61	60	127	64	10.0	Plastic	See summary of soil descriptions

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Moss Lane East

Contract No: PSL24/3957

Client Ref: GRO-24108

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

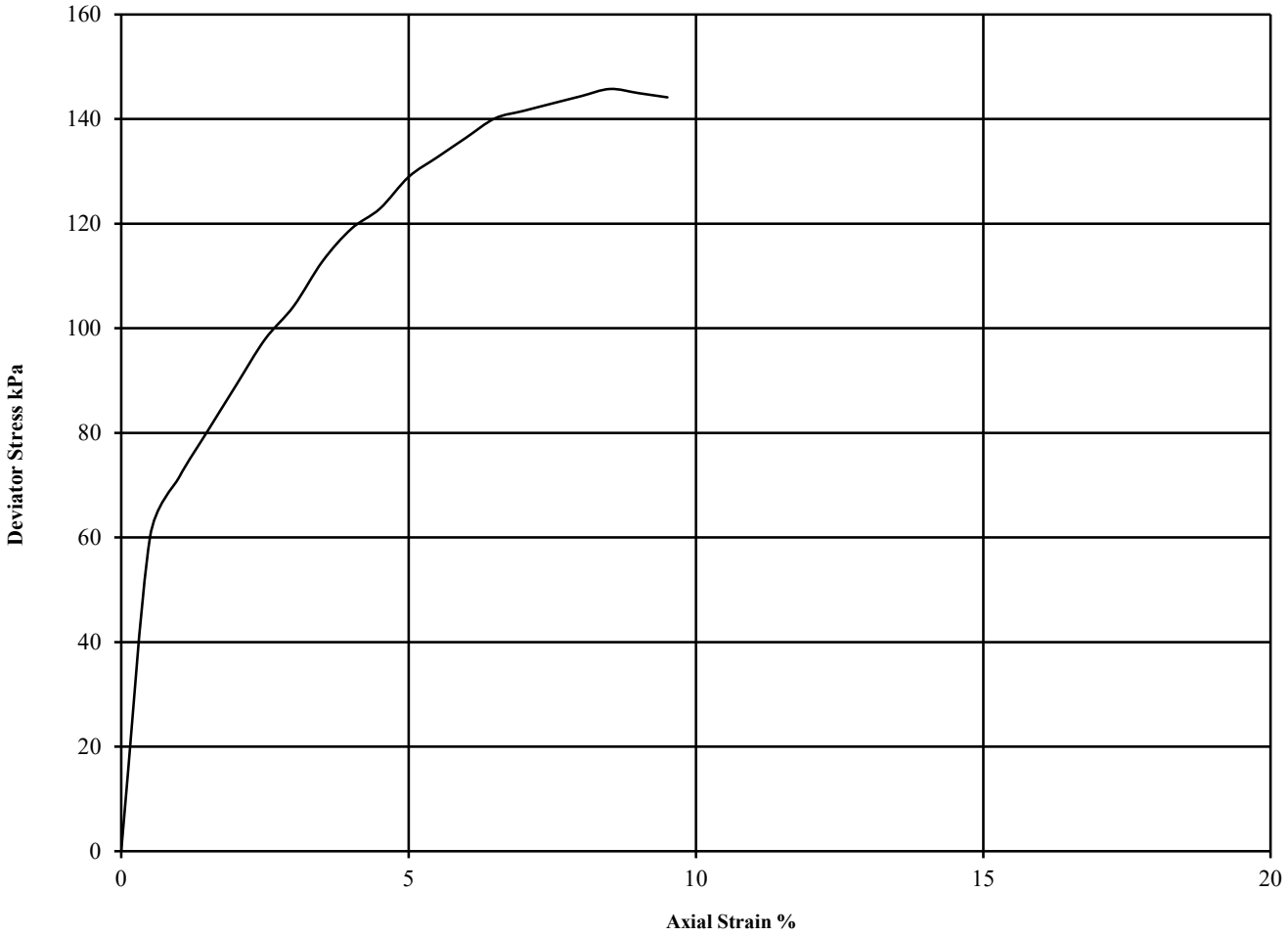
WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number: CP01 **Top Depth (m):** 8.00

Sample Number: **Base Depth (m):** 8.45

Sample Type U



Diameter (mm):		38	Height (mm):		76	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.88
1	14	2.18	1.91	160	146	73	8.5	Plastic	38mm due to insufficient material

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Moss Lane East

Contract No: PSL24/3957

Client Ref: GRO-24108

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

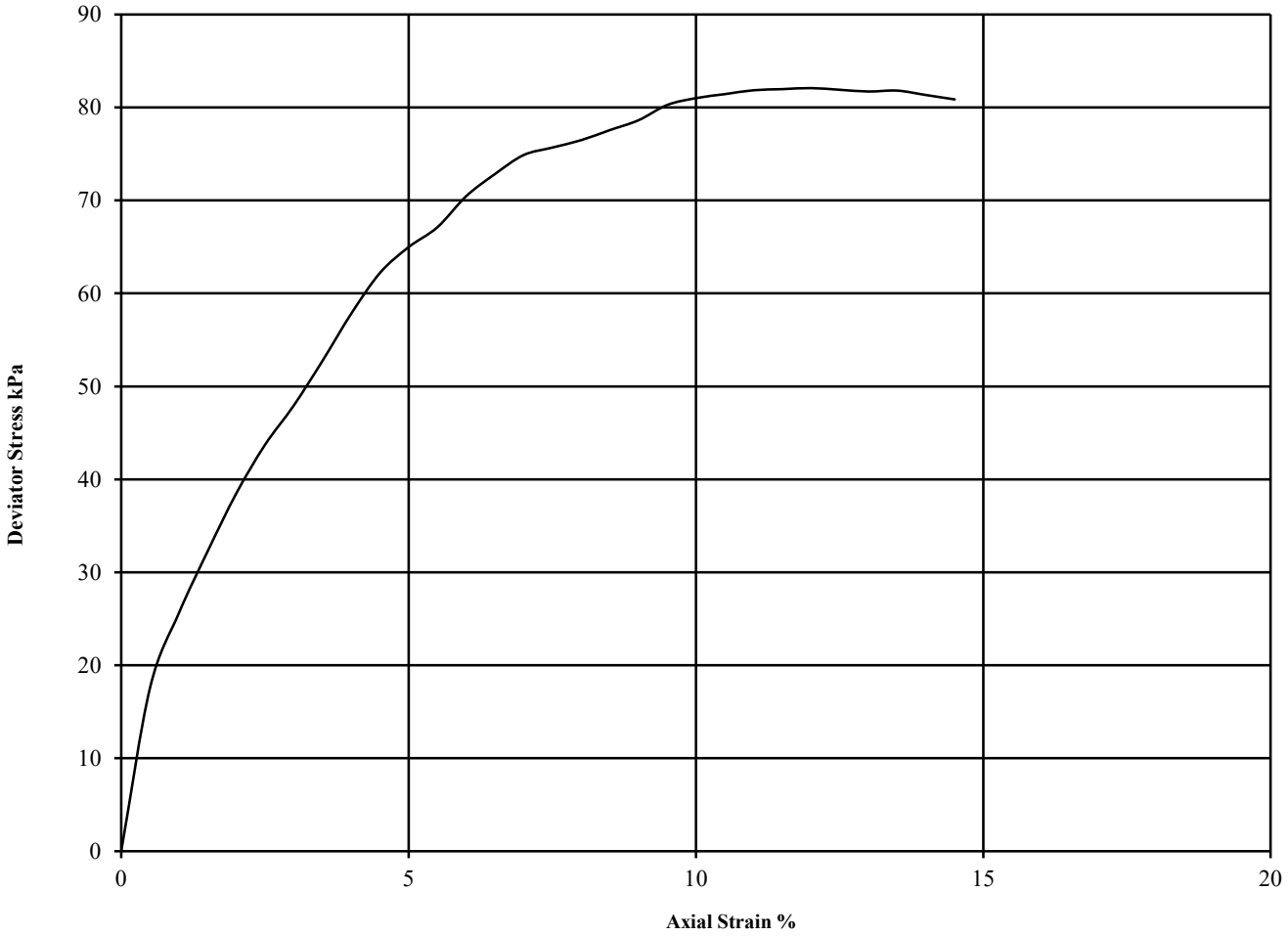
WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number: CP02 **Top Depth (m):** 1.20

Sample Number: **Base Depth (m):** 1.65

Sample Type U



Diameter (mm):		102	Height (mm):		204	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.35
1	19	2.01	1.69	24	82	41	12.0	Plastic	See summary of soil descriptions

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Moss Lane East

Contract No: PSL24/3957

Client Ref: GRO-24108

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

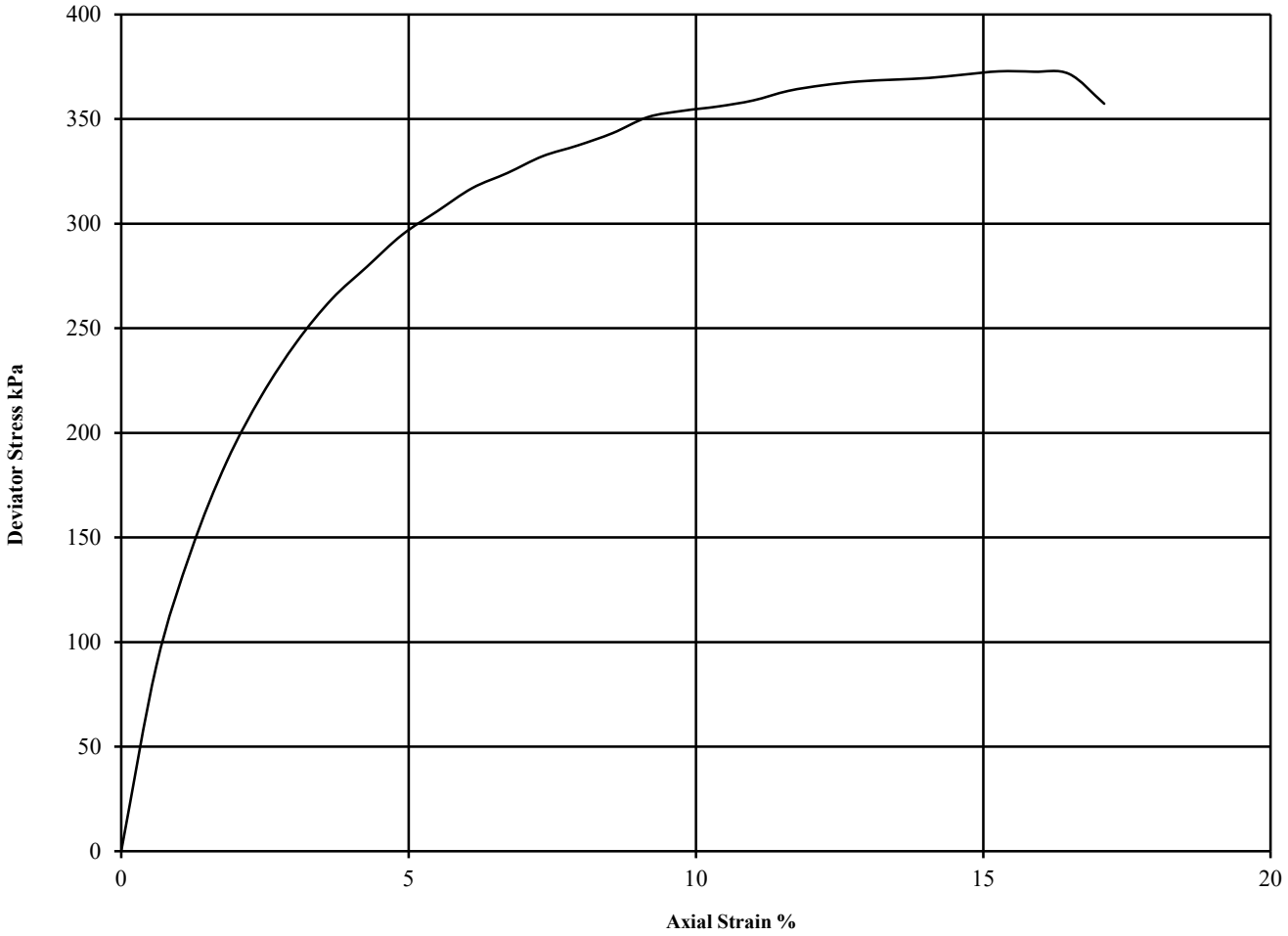
WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number: CP02 **Top Depth (m):** 5.00

Sample Number: **Base Depth (m):** 5.45

Sample Type U



Diameter (mm):		102	Height (mm):		167	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.34
1	12	2.25	2.01	100	373	186	15.3	Brittle	See summary of soil descriptions

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Moss Lane East

Contract No: PSL24/3957

Client Ref: GRO-24108

APPENDIX 9 - Interim Ground Gas Monitoring Results

PERMANENT GROUND GAS MONITORING FORM

GROUNDTECH CONSULTING

SITE NAME:	*MOSS LANE EAST*					***ENGINEER:***	*Georgia Barnes*						
CLIENT:	*CHESHIRE HOMES RESIDENTIAL*					***DATE:***	*07/05/2024*						
JOB NO:	*GRO-24108*												
Pressure Trend:	*Falling*	***Weather:***	*Sunny*			***Equipment:***	*GFM 436*						

Ambient:	O_2 (%v/v)	CH_4 (%v/v)	CO_2 (%v/v)	LEL	H_2S (ppm)	CO (ppm)
Start	21.2	0.0	0.0	0.0	0.0	0.0
Finish	21.2	0.0	0.0	0.0	0.0	0.0

BH Ref.	Gas Flow Rate (l/hr)		Borehole Pressure (mb)	Methane (%v/v)			Carbon Dioxide (%v/v)		Oxygen (%v/v)		Hydrogen Sulphide (ppm)		Carbon Monoxide (ppm)		Q_{hg} CO_2 (l/hr)	Q_{hg} CH_4 (l/hr)	Atmos Press (mb)	PID (ppm)	Sheen (Y/N)	LNAPL (Y/N)	DNAPL (Y/N)	Depth to Water (m bgl)
	Peak	Steady		Peak	Steady	LEL	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady								
WS01	0.0	0.0	0.00	0.0	0.0	0.0	0.2	0.2	20.4	20.4	0.0	0.0	0.0	0.0	0.0002	0.0000	1009	-	N	N/A	N/A	2.09
WS03	0.0	0.0	0.00	0.0	0.0	0.0	0.6	0.3	20.9	20.6	0.0	0.0	0.0	0.0	0.0006	0.0000	1011	-	N	N/A	N/A	0.54
WS06	0.0	0.0	0.00	0.0	0.0	0.0	1.2	1.1	20.5	20.4	0.0	0.0	0.0	0.0	0.0012	0.0000	1010	-	N	N/A	N/A	NGW
Notes:																						

PERMANENT GROUND GAS MONITORING FORM

GROUNDTECH CONSULTING

SITE NAME:		*MOSS LANE EAST*				***ENGINEER:***		*William Sandiford Mitchell*					
CLIENT:		*CHESHIRE HOMES RESIDENTIAL*				***DATE:***		*24/06/2024*					
JOB NO:		*GRO-24108*											
Pressure Trend:		*Steady*	***Weather:***		*Overcast*		***Equipment:***		*GFM 436*				

Ambient:	O_2 (%v/v)	CH_4 (%v/v)	CO_2 (%v/v)	LEL	H_2S (ppm)	CO (ppm)
Start	20.6	0.0	0.0	0.0	0.0	0.0
Finish	20.6	0.0	0.0	0.0	0.0	0.0

BH Ref.	Gas Flow Rate (l/hr)		Borehole Pressure (mb)	Methane (%v/v)			Carbon Dioxide (%v/v)		Oxygen (%v/v)		Hydrogen Sulphide (ppm)		Carbon Monoxide (ppm)		Q_{hg} CO_2 (l/hr)	Q_{hg} CH_4 (l/hr)	Atmos Press (mb)	PID (ppm)	Sheen (Y/N)	LNAPL (Y/N)	DNAPL (Y/N)	Depth to Water (m bgl)
	Peak	Steady		Peak	Steady	LEL	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady								
WS01	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	19.5	19.1	0.0	0.0	0.0	0.0	0.0000	0.0000	1011	-	N	N/A	N/A	2.15
WS03	0.0	0.0	0.00	0.0	0.0	0.0	0.4	0.4	19.8	19.6	0.0	0.0	0.0	0.0	0.0004	0.0000	1011	-	N	N/A	N/A	0.87
WS06	0.0	0.0	0.00	0.0	0.0	0.0	1.4	1.0	19.4	19.3	0.0	0.0	0.0	0.0	0.0014	0.0000	1011	-	N	N/A	N/A	NGW
Notes:																						

PERMANENT GROUND GAS MONITORING FORM

GROUNDTECH CONSULTING

SITE NAME:		*MOSS LANE EAST*				***ENGINEER:***		*William Sandiford Mitchell*					
CLIENT:		*CHESHIRE HOMES RESIDENTIAL*				***DATE:***		*11/07/2024*					
JOB NO:		*GRO-24108*											
Pressure Trend:		*Falling*	***Weather:***	*Raining*			***Equipment:***	*GFM 436*					

Ambient:	**O_2 (%v/v)**	**CH_4 (%v/v)**	**CO_2 (%v/v)**	**LEL**	**H_2S (ppm)**	**CO (ppm)**
Start	20.7	0.0	0.0	0.0	0.0	0.0
Finish	20.7	0.0	0.0	0.0	0.0	0.0

BH Ref.	Gas Flow Rate (l/hr)		Borehole Pressure (mb)	Methane (%v/v)			Carbon Dioxide (%v/v)		Oxygen (%v/v)		Hydrogen Sulphide (ppm)		Carbon Monoxide (ppm)		Q_{hg} CO_2 (l/hr)	Q_{hg} CH_4 (l/hr)	Atmos Press (mb)	PID (ppm)	Sheen (Y/N)	LNAPL (Y/N)	DNAPL (Y/N)	Depth to Water (m bgl)
	Peak	Steady		Peak	Steady	LEL	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady								
WS01	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	19.5	19.8	0.0	0.0	0.0	0.0	0.0000	0.0000	1013	-	N	N/A	N/A	1.02
WS03	0.0	0.0	0.00	0.0	0.0	0.0	2.1	1.9	18.3	18.0	0.0	0.0	0.0	0.0	0.0021	0.0000	1013	-	N	N/A	N/A	0.53
WS06	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.05

Notes: N/A -Flooded Gas Reading not possible.

PERMANENT GROUND GAS MONITORING FORM

GROUNDTECH CONSULTING

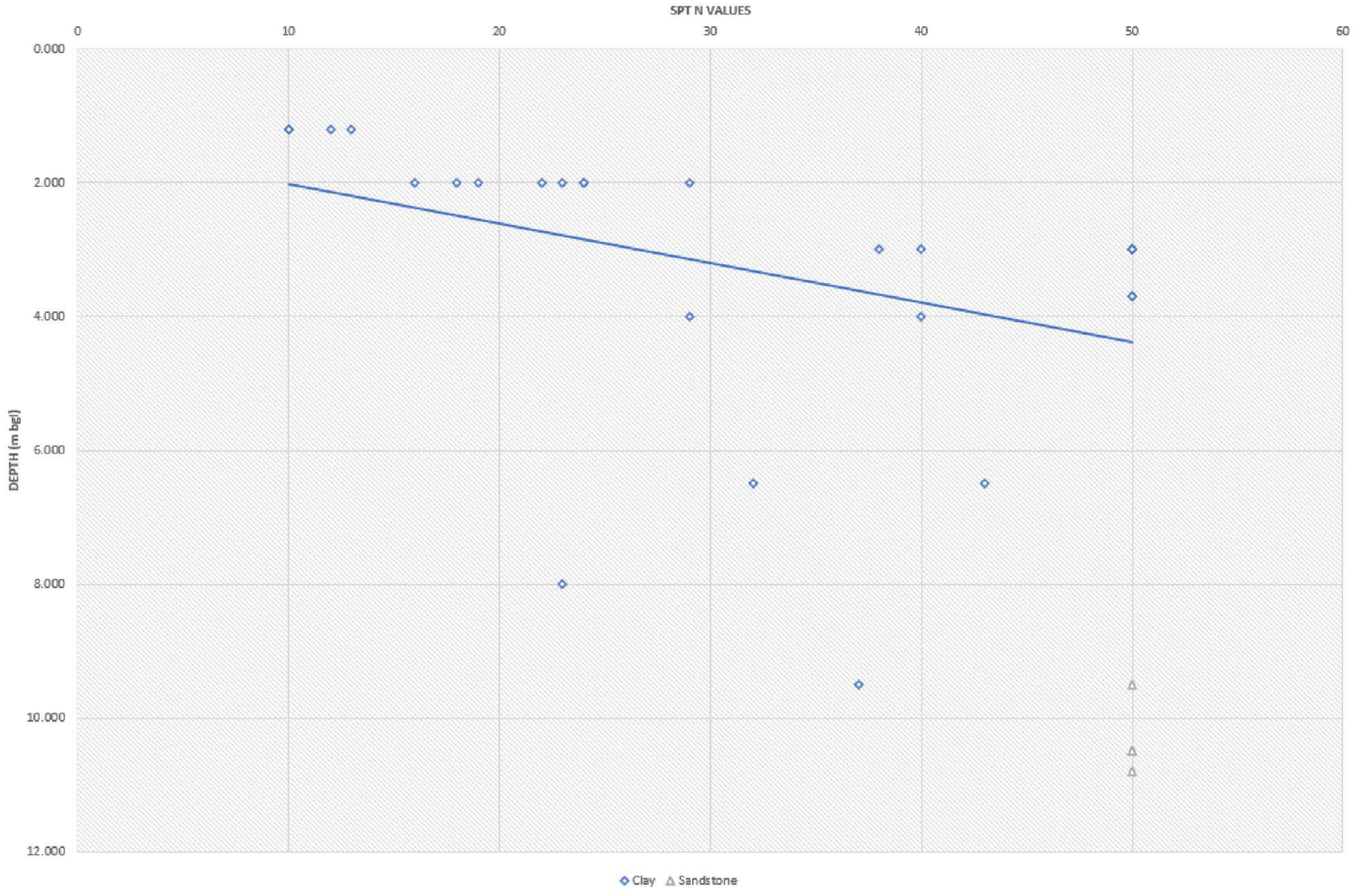
SITE NAME:	*MOSS LANE EAST*					***ENGINEER:***	*Georgia Barnes*						
CLIENT:	*CHESHIRE HOMES RESIDENTIAL*					***DATE:***	*31/07/2024*						
JOB NO:	*GRO-24108*												
Pressure Trend:	*Falling*	***Weather:***	*Sunny*			***Equipment:***	*GFM 436*						

Ambient:	**O_2 (%v/v)**	**CH_4 (%v/v)**	**CO_2 (%v/v)**	**LEL**	**H_2S (ppm)**	**CO (ppm)**
Start	20.6	0.0	0.0	0.0	0.0	0.0
Finish	20.6	0.0	0.0	0.0	0.0	0.0

BH Ref.	Gas Flow Rate (l/hr)		Borehole Pressure (mb)	Methane (%v/v)			Carbon Dioxide (%v/v)		Oxygen (%v/v)		Hydrogen Sulphide (ppm)		Carbon Monoxide (ppm)		Q_{hg} CO_2 (l/hr)	Q_{hg} CH_4 (l/hr)	Atmos Press (mb)	PID (ppm)	Sheen (Y/N)	LNAPL (Y/N)	DNAPL (Y/N)	Depth to Water (m bgl)
	Peak	Steady		Peak	Steady	LEL	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady								
WS01	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	20.7	20.7	0.0	0.0	0.0	0.0	0.0000	0.0000	1011	-	N	N/A	N/A	1.45
WS03	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
WS06	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	20.8	20.8	0.0	0.0	0.0	10.0	0.0000	0.0000	1010	-	N	N/A	N/A	0.83

Notes: Hole WS03 covered by car, owner of car could not be located to move.

APPENDIX 10 - Generalised Ground Model



GROUNDTECH CONSULTING

CLIENT	BRENNAN CONSULTING
PROJECT TITLE	MOSS LANE EAST MANCHESTER
PLAN TITLE	GENERALISED GROUND MODEL
DATE	JUNE 2024
SCALE	NTS
PLAN NUMBER	GRO-24108-P05

Rev.	Details	Date

Status	
Preliminary	
Draft	
Issued	●
For Comment	
Approved	

Notes

APPENDIX 11 - Soil Percolation Testing Results

MOSS LANE EAST MANCHESTER
GRO-24108
BRENNAN CONSULTING LIMITED

SOIL PERCOLATION TEST

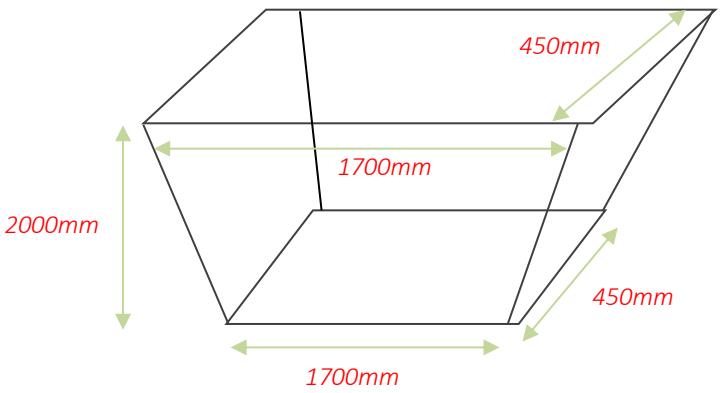
Date of Test: 30/05/2024

POSITION: SuDS1
TEST 1

Weather: Sunny, clear

Engineer: *H Mackdermott*
Checked: *L Harrison*

Trial Pit Measurements



Pit Depth (mm):	2000
Pit Details:	Open with no stone filling
Groundwater Level:	NGW

Test Data

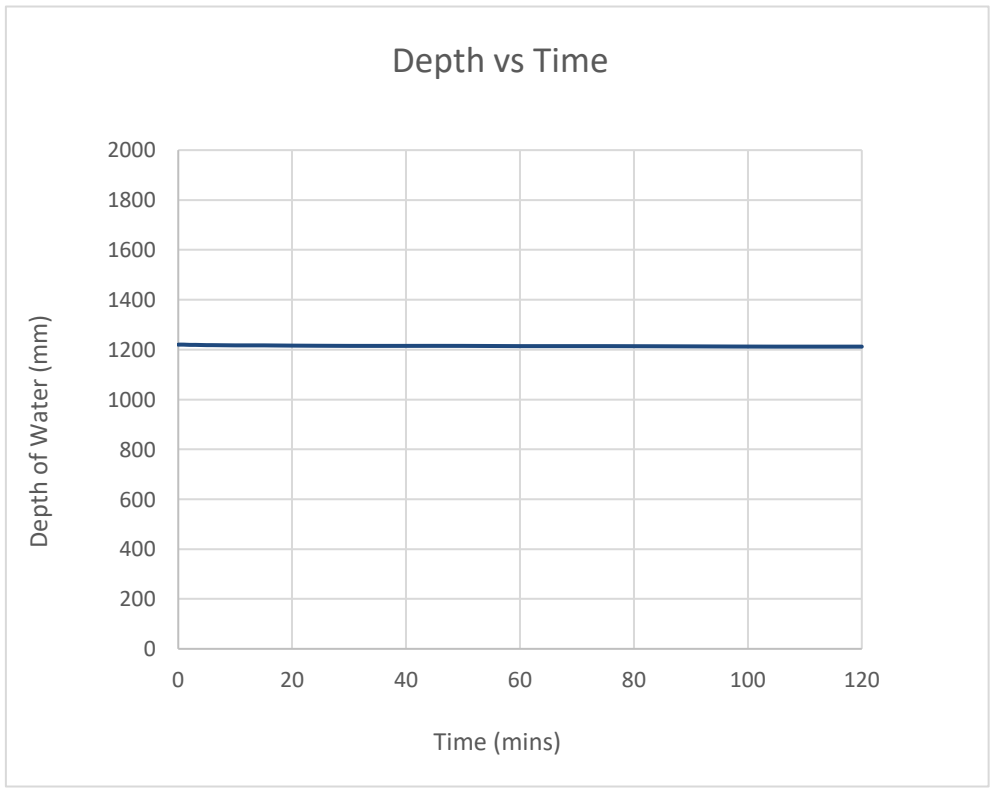
Time Elapsed (mins)	Depth to Water Level (mm)
0	780
1	780
2	781
3	781
5	782
6	782
10	783
15	783
20	784
30	785
40	785
50	785
60	786
75	786
90	787
105	788
120	788

MOSS LANE EAST MANCHESTER
GRO-24108
BRENNAN CONSULTING LIMITED

Sheet 2 of 2

SOIL PERCOLATION TEST

POSITION: SuDS1
TEST 1



Volume of Pit (m^3)	1.53
Void Ratio of Infill	1
Volume of Infill (m^3)	N/A
Volume of Water in Pit (m^3)	0.9333

Compliancy Check:

Water Level at 75% effective depth (mm)	915
Water Level at 25% effective depth (mm)	305

Test not BRE 365 compliant with BRE 365 - insufficient time to drain past 25% effective depth

Soil Infiltration Rate Calculation

Water Level 1	1220
Water Level 2	1212
Time to Drain from Level 1 to Level 2 (mins)	120
Volume of water discharged (m^3)	0.00612
Discharge Area (m^2)	5.9938
Soil Infiltration Rate (m/min)	8.5088E-06
Soil Infiltration Rate (m/sec)	***1.42E-07***

MOSS LANE EAST MANCHESTER
GRO-24108
BRENNAN CONSULTING LIMITED

SOIL PERCOLATION TEST

Sheet 1 of 2

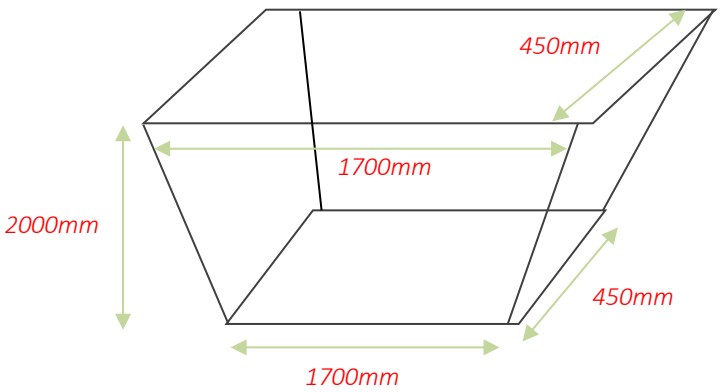
Date of Test: 30/05/2024

POSITION: SuDS1
TEST 2

Weather: Sunny, clear

Engineer: *H Mackdermott*
Checked: *L Harrison*

Trial Pit Measurements



Pit Depth (mm):	2000
Pit Details:	Open with no stone filling
Groundwater Level:	NGW

Test Data

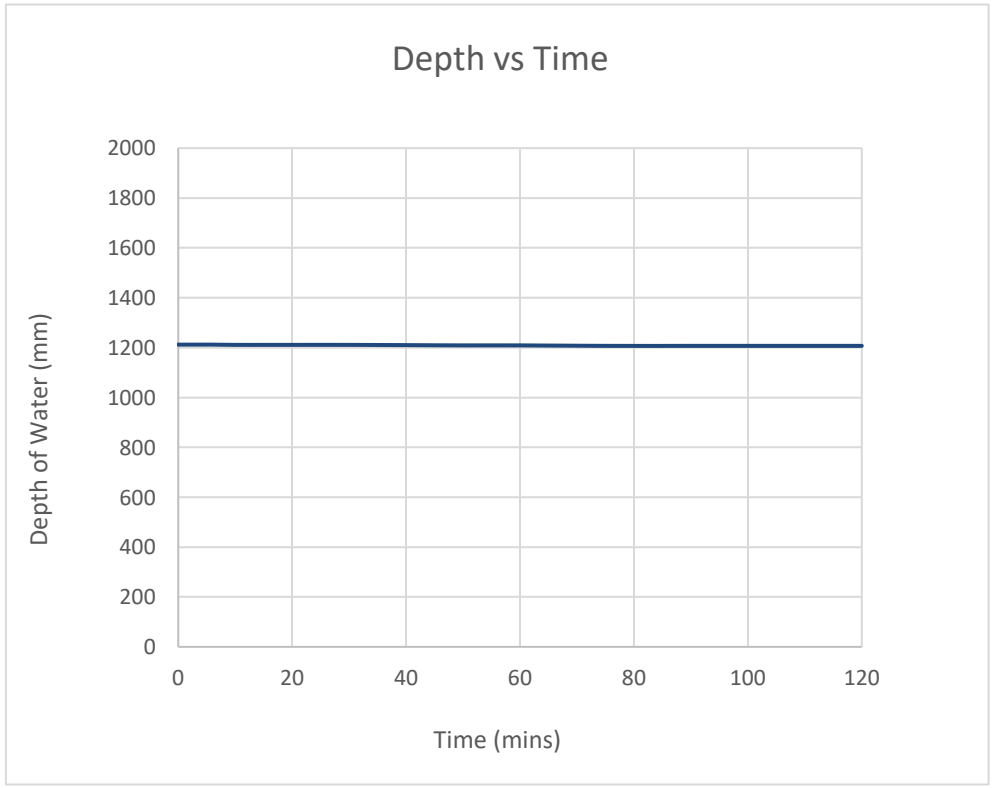
Time Elapsed (mins)	Depth to Water Level (mm)
0	788
1	788
2	788
3	788
5	788
6	788
10	789
15	789
20	789
30	789
40	790
50	791
60	791
75	793
90	793
105	793
120	793

MOSS LANE EAST MANCHESTER
GRO-24108
BRENNAN CONSULTING LIMITED

SOIL PERCOLATION TEST

Sheet 2 of 2

POSITION: SuDS1
TEST 2



Volume of Pit (m^3)	1.53
Void Ratio of Infill	1
Volume of Infill (m^3)	N/A
Volume of Water in Pit (m^3)	0.92718

Compliancy Check:

Water Level at 75% effective depth (mm)	909
Water Level at 25% effective depth (mm)	303

Test not BRE 365 compliant with BRE 365 - insufficient time to drain past 25% effective depth

Soil Infiltration Rate Calculation

Water Level 1	1212
Water Level 2	1207
Time to Drain from Level 1 to Level 2 (mins)	120
Volume of water discharged (m^3)	0.003825
Discharge Area (m^2)	5.96585
Soil Infiltration Rate (m/min)	5.3429E-06
Soil Infiltration Rate (m/sec)	***8.90E-08***

MOSS LANE EAST MANCHESTER
GRO-24108
BRENNAN CONSULTING LIMITED

SOIL PERCOLATION TEST

Sheet 1 of 2

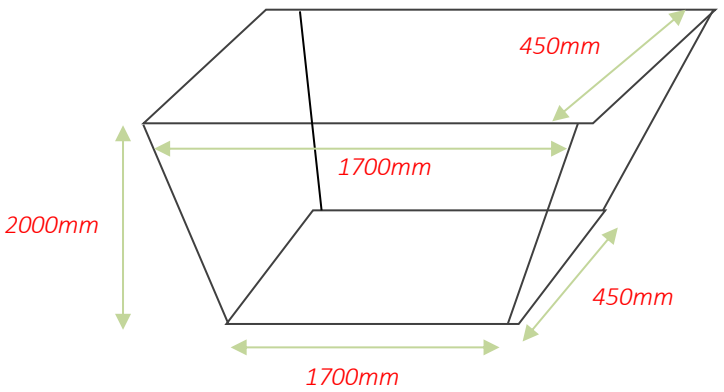
Date of Test: 30/05/2024

POSITION: SuDS1
TEST 3

Weather: Sunny, clear

Engineer: *H Mackdermott*
Checked: *L Harrison*

Trial Pit Measurements



Pit Depth (mm):	2000
Pit Details:	Open with no stone filling
Groundwater Level:	NGW

Test Data

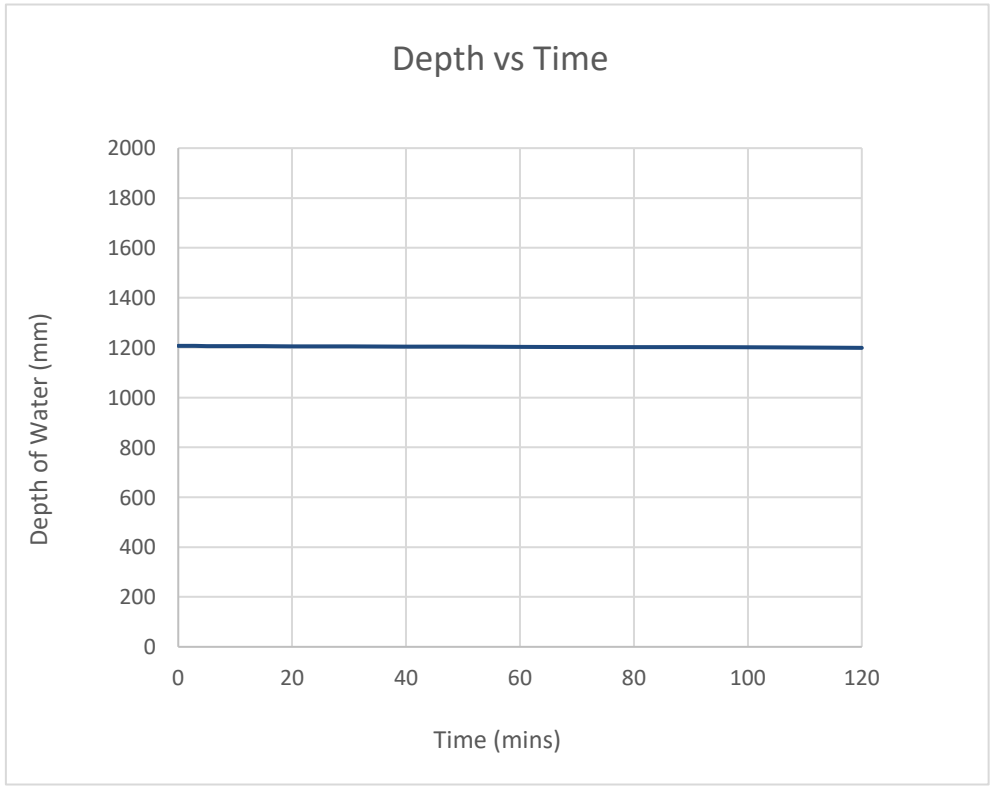
Time Elapsed (mins)	Depth to Water Level (mm)
0	793
1	793
2	793
3	793
5	794
6	794
10	794
15	794
20	795
30	795
40	796
50	796
60	797
75	798
90	798
105	799
120	801

MOSS LANE EAST MANCHESTER
GRO-24108
BRENNAN CONSULTING LIMITED

Sheet 2 of 2

SOIL PERCOLATION TEST

POSITION: SuDS1
TEST 3



Volume of Pit (m^3)	1.53
Void Ratio of Infill	1
Volume of Infill (m^3)	N/A
Volume of Water in Pit (m^3)	0.923355

Compliancy Check:

Water Level at 75% effective depth (mm)	905.25
Water Level at 25% effective depth (mm)	301.75

Test not BRE 365 compliant with BRE 365 - insufficient time to drain past 25% effective depth

Soil Infiltration Rate Calculation

Water Level 1	1207
Water Level 2	1199
Time to Drain from Level 1 to Level 2 (mins)	120
Volume of water discharged (m^3)	0.00612
Discharge Area (m^2)	5.9379
Soil Infiltration Rate (m/min)	8.5889E-06
Soil Infiltration Rate (m/sec)	***1.43E-07***

APPENDIX 12 - Residential Screening Values (Without Plant Uptake)

Generic Assessment Criteria (GAC)

Proposed End Use	Unit	Residential with Plant Uptake			Residential without plant uptake			Source
SOM	%	1	2.5	6	1	2.5	6	
Arsenic	*mg/kg*	*37*	*37*	*37*	*40*	*46*	*40*	*LQM S4ULs*
Beryllium	*mg/kg*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*LQM S4ULs*
Boron (water soluble)	*mg/kg*	*290*	*290*	*290*	*11000*	*11000*	*11000*	*LQM S4ULs*
Cadmium	*mg/kg*	*11*	*11*	*11*	*85*	*85*	*85*	*LQM S4ULs*
Chromium (Total)	*mg/kg*	*910*	*910*	*910*	*910*	*910*	*910*	*LQM S4ULs*
Chromium (VI)	*mg/kg*	*6*	*6*	*6*	*6*	*6*	*6*	*LQM S4ULs*
Copper	*mg/kg*	*2400*	*2400*	*2400*	*7100*	*7100*	*7100*	*LQM S4ULs*
Lead	*mg/kg*	*200*	*200*	*200*	*310*	*310*	*310*	*DEFRA C4SLs*
Mercury	*mg/kg*	*1.2*	*1.2*	*1.2*	*1.2*	*1.2*	*1.2*	*LQM S4ULs*
Nickel	*mg/kg*	*180*	*180*	*180*	*180*	*180*	*180*	*LQM S4ULs*
Selenium	*mg/kg*	*250*	*250*	*250*	*430*	*430*	*430*	*LQM S4ULs*
Vanadium	*mg/kg*	*410*	*410*	*410*	*1200*	*1200*	*1200*	*LQM S4ULs*
Zinc	*mg/kg*	*3700*	*3700*	*3700*	*40000*	*40000*	*40000*	*LQM S4ULs*
Aliphatic EC 5 - 6	*mg/kg*	*42*	*78*	*160*	*42*	*78*	*160*	*LQM S4ULs*
Aliphatic EC 6 - 8	*mg/kg*	*100*	*230*	*530*	*100*	*230*	*530*	*LQM S4ULs*
Aliphatic EC 8 - 10	*mg/kg*	*27*	*65*	*150*	*27*	*65*	*150*	*LQM S4ULs*
Aliphatic EC 10 - 12	*mg/kg*	*130 (48) vap*	*330 (118) vap*	*760 (283) vap*	*130 (48) vap*	*330 (118) vap*	*770 (283) vap*	*LQM S4ULs*
Aliphatic EC 12 - 16	*mg/kg*	*1100 (24) sol*	*2400 (59) sol*	*4300 (142) sol*	*1100 (24) sol*	*2400 (59) sol*	*4400 (142) sol*	*LQM S4ULs*
Aliphatic EC 16 - 35	*mg/kg*	*65000 (8.48) f,sol*	*92000 (21) f,sol*	*110000 f*	*65000 (8.48) f,sol*	*92000 (21) f,sol*	*110000 f*	*LQM S4ULs*
Aliphatic EC 35 - 44	*mg/kg*	*65000 (8.48) f,sol*	*92000 (21) f,sol*	*110000 f*	*65000*	*92000 (21) f,sol*	*110000 f*	*LQM S4ULs*
Aromatic EC 5 - 7	*mg/kg*	*70*	*140*	*300*	*370*	*690*	*1400*	*LQM S4ULs*
Aromatic EC 7 - 8	*mg/kg*	*130*	*290*	*660*	*860*	*1800*	*3900*	*LQM S4ULs*
Aromatic EC 8 - 10	*mg/kg*	*34*	*83*	*190*	*47*	*110*	*270*	*LQM S4ULs*
Aromatic EC 10 - 12	*mg/kg*	*74*	*180*	*380*	*250*	*590*	*1200*	*LQM S4ULs*
Aromatic EC 12 -16	*mg/kg*	*140*	*330*	*660*	*1800*	*2300*	*2500*	*LQM S4ULs*
Aromatic EC 16 - 21	*mg/kg*	*260 f*	*540 f*	*930 f*	*1900*	*1900*	*1900*	*LQM S4ULs*
Aromatic EC 21 - 35	*mg/kg*	*1100 f*	*1500 f*	*1700 f*	*1900*	*1900*	*1900*	*LQM S4ULs*
Aromatic EC 35 - 44	*mg/kg*	*1100 f*	*1500 f*	*1700 f*	*1900*	*1900*	*1900*	*LQM S4ULs*
Benzene	*mg/kg*	*0.087*	*0.17*	*0.37*	*0.38*	*0.7*	*1.4*	*LQM S4ULs*
Toluene	*mg/kg*	*130*	*290*	*660*	*880*	*1900*	*3900*	*LQM S4ULs*
Ethyl Benzene	*mg/kg*	*47*	*110*	*260*	*83*	*190*	*440*	*LQM S4ULs*
Xylene - o	*mg/kg*	*60*	*140*	*330*	*88*	*210*	*480*	*LQM S4ULs*
Xylene - m	*mg/kg*	*59*	*140*	*320*	*82*	*190*	*450*	*LQM S4ULs*
Xylene - p	*mg/kg*	*56*	*130*	*310*	*79*	*180*	*430*	*LQM S4ULs*
MTBE (methyl tert-butyl ether)	*mg/kg*	*49*	*84*	*160*	-	-	-	*CL:AIRE 2010*
Acenaphthene	*mg/kg*	*210*	*510*	*1100*	*3000*	*4700*	*6000*	*LQM SAULs*
Acenaphthylene	*mg/kg*	*170*	*420*	*920*	*2900*	*4600*	*6000*	*LQM S4ULs*
Anthracene	*mg/kg*	*2400*	*5400*	*11000*	*31000*	*35000*	*37000*	*LQM S4ULs*
Benzo(a)anthracene	*mg/kg*	*7.2*	*11*	*13*	*11*	*14*	*15*	*LQM S4ULs*
Benzo(a)pyrene	*mg/kg*	*2.2*	*2.7*	*3*	*3.2*	*3.2*	*3.2*	*LQM S4ULs*
Benzo(b)fluoranthene	*mg/kg*	*2.6*	*3.3*	*3.7*	*3.9*	*4*	*4*	*LQM S4ULs*
Benzo(ghi)perylene	*mg/kg*	*320*	*340*	*350*	*360*	*360*	*360*	*LQM S4ULs*
Benzo(k)fluoranthene	*mg/kg*	*77*	*93*	*100*	*110*	*110*	*110*	*LQM S4ULs*
Chrysene	*mg/kg*	*15*	*22*	*27*	*30*	*31*	*32*	*LQM S4ULs*
Dibenzo(ah)anthracene	*mg/kg*	*0.24*	*0.28*	*0.3*	*0.31*	*0.32*	*0.32*	*LQM S4ULs*
Fluoranthene	*mg/kg*	*280*	*560*	*890*	*1500*	*1600*	*1600*	*LQM S4ULs*
Fluorene	*mg/kg*	*170*	*400*	*860*	*2800*	*3800*	*4500*	*LQM S4ULs*
Indeno(123-cd)pyrene	*mg/kg*	*27*	*36*	*41*	*45*	*46*	*46*	*LQM S4ULs*
Naphthalene	*mg/kg*	*15*	*36*	*85*	*15*	*36*	*85*	*LQM S4ULs*
Phenanthrene	*mg/kg*	*95*	*220*	*440*	*1300*	*1500*	*1500*	*LQM S4ULs*
Pyrene	*mg/kg*	*620*	*1200*	*2000*	*3700*	*3800*	*3800*	*LQM S4ULs*

Generic Assessment Criteria (GAC)							GROUNDTECH CONSULTING	
Proposed End Use	Unit	Residential with Plant Uptake			Residential without plant uptake			Source
SOM	%	1	2.5	6	1	2.5	6	
Phenols	*mg/kg*	*280*	*550*	*1100*	*750*	*1300*	*2300*	*LQM S4ULs*
Chlorophenols	*mg/kg*	*0.87* [g]	*2*	*4.5*	-			*LQM S4ULs*
Pentachlorophenol	*mg/kg*	*0.22*	*0.52*	*1.2*	-			*LQM S4ULs*
Carbon disulphide	*mg/kg*	*0.14*	*0.29*	*0.62*	-			*LQM S4ULs*
Hexachlorobutadiene	*mg/kg*	*0.29*	*0.7*	*1.6*	-			*LQM S4ULs*
1,1,1,2 Tetrachloroethane	*mg/kg*	*1.6*	*3.4*	*7.5*	-			*LQM S4ULs*
1,1,1 Trichloroethane	*mg/kg*	*8.8*	*18*	*39*	-			*LQM S4ULs*
Trichloroethene	*mg/kg*	*0.016*	*0.034*	*0.075*	-			*LQM S4ULs*
Tetrachoromethane (Carbon Tetrachloride)	*mg/kg*	*0.026*	*0.056*	*0.13*	-			*LQM S4ULs*
1,2-Dichloroethane	*mg/kg*	*0.0071*	*0.011*	*0.019*	-			*LQM S4ULs*
Chloroethene (Vinyl chloride)	*mg/kg*	*0.00064*	*0.00087*	*0.0014*	-			*LQM S4ULs*
Trichloromethane (Chloroform)	*mg/kg*	*0.91*	*1.7*	*3.4*	-			*LQM S4ULs*
Tetrachloroethene	*mg/kg*	*0.18*	*0.39*	*0.9*	-			*LQM S4ULs*
Hexachlorobenzene	*mg/kg*	*1.8 (0.2)* [vap]	*3.3 (0.5)* [vap]	*4.9*	-			*LQM S4ULs*
Pentachlorobenzene	*mg/kg*	*5.8*	*12*	*22*	-			*LQM S4ULs*
1,2,4,5-Tetrachlorobenzene	*mg/kg*	*0.33*	*0.77*	*1.6*	-			*LQM S4ULs*
1,2,3,5-Tetrachlorobenzene	*mg/kg*	*0.66*	*1.69*	*3.7*	-			*LQM S4ULs*
1,2,3,4-Tetrachlorobenzene	*mg/kg*	*15*	*36*	*78*	-			*LQM S4ULs*
1,3,5-Trichlorobenzene	*mg/kg*	*0.33*	*0.81*	*1.9*	-			*LQM S4ULs*
1,2,4-Trichlorobenzene	*mg/kg*	*2.6*	*6.4*	*15*	-			*LQM S4ULs*
1,2,3-Trichlorobenzene	*mg/kg*	*1.5*	*3.6*	*8.6*	-			*LQM S4ULs*
1,4-dichlorobenzene	*mg/kg*	*61* [f]	*150* [f]	*350* [f]	-			*LQM S4ULs*
1,3-dichlorobenzene	*mg/kg*	*0.4*	*1*	*2.3*	-			*LQM S4ULs*
1,2-Dichlorobenzene	*mg/kg*	*23*	*55*	*130*	-			*LQM S4ULs*
Chlorobenzene	*mg/kg*	*0.46*	*1*	*2.4*	-			*LQM S4ULs*
Gamma-Hexachlorocyclohexanes	*mg/kg*	*0.06*	*0.14*	*0.33*	-			*LQM S4ULs*
Beta-Hexachlorocyclohexane	*mg/kg*	*0.085*	*0.2*	*0.46*	-			*LQM S4ULs*
Alpaha - Hexachlorocyclohexane	*mg/kg*	*0.23*	*0.55*	*1.2*	-			*LQM S4ULs*
Beta -Endosulfan	*mg/kg*	*7*	*17*	*39*	-			*LQM S4ULs*
Alpha-Endosulfan	*mg/kg*	*7.4*	*18*	*41*	-			*LQM S4ULs*
Dichlorvos	*mg/kg*	*0.032*	*0.066*	*0.14*	-			*LQM S4ULs*
Atrazine	*mg/kg*	*3.3*	*7.6*	*17.4*	-			*LQM S4ULs*
Dieldrin	*mg/kg*	*0.97*	*2*	*3.5*	-			*LQM S4ULs*
Aldrin	*mg/kg*	*5.7*	*6.6*	*7.1*	-			*LQM S4ULs*
HMX	*mg/kg*	*5.7*	*13*	*26*	-			*LQM S4ULs*
2,4,6-Trinitrotoulene	*mg/kg*	*1.6*	*3.7*	*8.1*	-			*LQM S4ULs*
RDX	*mg/kg*	*120*	*250*	*540*	-			*LQM S4ULs*

[sol] S4UL exceeds the solubility saturation limit (which is presented in brackets)

[vap] S4ULS presented exceeds the vapour saturation limit, which is presented in brackets

[f] For naphthalene, the S4UL is based on a comparison of inhalation exposure with the TDI_{inhal} for localised affects

[f] S4UL based on comparison of inhalation exposure with inhalation TDI for localised effects

[dir] S4ULs based on a threshold protecive direct skin contact with phenol (guideline in brackets based on health effects following long term exposure provided for illustation only

APPENDIX 13 - Waste Classification Report

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

a) understand the origin of the waste
b) select the correct List of Waste code(s)
c) confirm that the list of determinands, results and sampling plan are fit for purpose
d) select and justify the chosen metal species (Appendix B)
e) correctly apply moisture correction and other available corrections
f) add the meta data for their user-defined substances (Appendix A)
g) check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

PJM9E-QAQE9-ANA41

Job name

24-023169_HWOL

Description/Comments

Project

GRO-24108

Site

MOSS LANE EAST, MANCHESTER

Classified by

Name:
Luke Harrison
Date:
25 Jul 2024 12:41 GMT
Telephone:

Company:
Groundtech Consulting Limited
First Floor, Lloyd House, Orford Court, Greenfold Way, WN7 3XJ

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification: -

Course	Date
Hazardous Waste Classification	-

Purpose of classification

2 - Material Characterisation

Address of the waste

Moss Lane East, Manchester **Post Code** M14 4PQ

SIC for the process giving rise to the waste

Description of industry/producer giving rise to the waste

GI

Description of the specific process, sub-process and/or activity that created the waste

Residential development

Description of the waste

Cohesive Made Ground

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	BH1--30052024-0.50		Non Hazardous		3
2	SuDS01--30052024-0.40		Non Hazardous		5
3	WS01--31052024-0.50		Non Hazardous		7
4	WS03--31052024-0.45		Non Hazardous		9
5	WS02--31052024-0.60		Non Hazardous		11

Related documents

#	Name	Description
1	24-023169_HWOL.hwol	i2 Analytical .hwol file used to populate the Job
2	Example waste stream template for contaminated soils	waste stream template used to create this Job

Report

Created by: Luke Harrison

Created date: 25 Jul 2024 12:41 GMT

Appendices	Page
Appendix A: Classifier defined and non EU CLP determinands	13
Appendix B: Rationale for selection of metal species	14
Appendix C: Version	14

Classification of sample: BH1--30052024-0.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH1--30052024-0.50
Moisture content:
17%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 17% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		16	mg/kg	1.32	17.534	mg/kg	0.00175 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2	mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		<**LOD**
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		25	mg/kg	1.462	36.539	mg/kg	0.00365 %		
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8	mg/kg	2.27	<4.086	mg/kg	<0.000409 %		<**LOD**
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		53	mg/kg	1.126	49.528	mg/kg	0.00495 %	✓	
6	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	150	mg/kg	1.56	194.197	mg/kg	0.0124 %	✓	
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.7	mg/kg	1.353	0.786	mg/kg	0.0000786 %	✓	
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		27	mg/kg	2.976	66.698	mg/kg	0.00667 %	✓	
9	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
10	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		74	mg/kg	2.774	170.388	mg/kg	0.017 %	✓	
11	pH			PH		8.1	pH		8.1	pH	8.1 pH		
12	naphthalene	601-052-00-2	202-049-5	91-20-3		0.08	mg/kg		0.0664	mg/kg	0.00000664 %	✓	
13	acenaphthylene		205-917-1	208-96-8		0.14	mg/kg		0.116	mg/kg	0.0000116 %	✓	
14	acenaphthene		201-469-6	83-32-9		0.15	mg/kg		0.125	mg/kg	0.0000124 %	✓	
15	fluorene		201-695-5	86-73-7		0.17	mg/kg		0.141	mg/kg	0.0000141 %	✓	
16	phenanthrene		201-581-5	85-01-8		1.9	mg/kg		1.577	mg/kg	0.000158 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
17	●	anthracene				0.4	mg/kg		0.332	mg/kg	0.0000332 %	✓	
			204-371-1	120-12-7									
18	●	fluoranthene				2.5	mg/kg		2.075	mg/kg	0.000208 %	✓	
			205-912-4	206-44-0									
19	●	pyrene				2.4	mg/kg		1.992	mg/kg	0.000199 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				1.2	mg/kg		0.996	mg/kg	0.0000996 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				1.3	mg/kg		1.079	mg/kg	0.000108 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				1.1	mg/kg		0.913	mg/kg	0.0000913 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				0.55	mg/kg		0.457	mg/kg	0.0000457 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				1.1	mg/kg		0.913	mg/kg	0.0000913 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25	●	indeno[123-cd]pyrene				0.48	mg/kg		0.398	mg/kg	0.0000398 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				0.15	mg/kg		0.125	mg/kg	0.0000124 %	✓	
		601-041-00-2	200-181-8	53-70-3									
27	●	benzo[ghi]perylene				0.61	mg/kg		0.506	mg/kg	0.0000506 %	✓	
			205-883-8	191-24-2									
										Total:	0.0485 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: SuDS01--30052024-0.40

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
SuDS01--30052024-0.40
Moisture content:
16%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 16% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		14	mg/kg	1.32	15.527	mg/kg	0.00155 %	✓	
2		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2	mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		<**LOD**
3		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		20	mg/kg	1.462	29.231	mg/kg	0.00292 %		
4		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8	mg/kg	2.27	<4.086	mg/kg	<0.000409 %		<**LOD**
5		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		38	mg/kg	1.126	35.938	mg/kg	0.00359 %	✓	
6		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	98	mg/kg	1.56	128.404	mg/kg	0.00823 %	✓	
7		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.4	mg/kg	1.353	0.455	mg/kg	0.0000455 %	✓	
8		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		21	mg/kg	2.976	52.501	mg/kg	0.00525 %	✓	
9		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
10		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		95	mg/kg	2.774	221.377	mg/kg	0.0221 %	✓	
11		pH			PH		7.2	pH		7.2	pH	7.2 pH		
12		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
13		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
14		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
15		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
16		phenanthrene		201-581-5	85-01-8		0.21	mg/kg		0.176	mg/kg	0.0000176 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
17	●	anthracene	204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
18	●	fluoranthene	205-912-4	206-44-0		0.28	mg/kg		0.235	mg/kg	0.0000235 %	✓	
19	●	pyrene	204-927-3	129-00-0		0.26	mg/kg		0.218	mg/kg	0.0000218 %	✓	
20		benzo[a]anthracene	200-280-6	56-55-3		0.13	mg/kg		0.109	mg/kg	0.0000109 %	✓	
		601-033-00-9											
21		chrysene	205-923-4	218-01-9		0.15	mg/kg		0.126	mg/kg	0.0000126 %	✓	
		601-048-00-0											
22		benzo[b]fluoranthene	205-911-9	205-99-2		0.12	mg/kg		0.101	mg/kg	0.0000101 %	✓	
		601-034-00-4											
23		benzo[k]fluoranthene	205-916-6	207-08-9		0.09	mg/kg		0.0756	mg/kg	0.00000756 %	✓	
		601-036-00-5											
24		benzo[a]pyrene; benzo[def]chrysene	200-028-5	50-32-8		0.13	mg/kg		0.109	mg/kg	0.0000109 %	✓	
		601-032-00-3											
25	●	indeno[123-cd]pyrene	205-893-2	193-39-5		0.07	mg/kg		0.0588	mg/kg	0.00000588 %	✓	
26		dibenz[a,h]anthracene	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-041-00-2											
27	●	benzo[ghi]perylene	205-883-8	191-24-2		0.1	mg/kg		0.084	mg/kg	0.0000084 %	✓	
										Total:	0.0446 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS01--31052024-0.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS01--31052024-0.50
Moisture content:
16%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 16% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		13	mg/kg	1.32	14.418	mg/kg	0.00144 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2	mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		<**LOD**
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		22	mg/kg	1.462	32.154	mg/kg	0.00322 %		
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8	mg/kg	2.27	<4.086	mg/kg	<0.000409 %		<**LOD**
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		34	mg/kg	1.126	32.155	mg/kg	0.00322 %	✓	
6	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	100	mg/kg	1.56	131.024	mg/kg	0.0084 %	✓	
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		23	mg/kg	2.976	57.501	mg/kg	0.00575 %	✓	
9	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
10	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		68	mg/kg	2.774	158.459	mg/kg	0.0158 %	✓	
11	pH			PH		8	pH		8	pH	8pH		
12	naphthalene	601-052-00-2	202-049-5	91-20-3		0.1	mg/kg		0.084	mg/kg	0.0000084 %	✓	
13	acenaphthylene		205-917-1	208-96-8		0.07	mg/kg		0.0588	mg/kg	0.00000588 %	✓	
14	acenaphthene		201-469-6	83-32-9		0.53	mg/kg		0.445	mg/kg	0.0000445 %	✓	
15	fluorene		201-695-5	86-73-7		0.36	mg/kg		0.302	mg/kg	0.0000302 %	✓	
16	phenanthrene		201-581-5	85-01-8		4.2	mg/kg		3.528	mg/kg	0.000353 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
17	●	anthracene	204-371-1	120-12-7		0.81	mg/kg		0.68	mg/kg	0.000068 %	✓	
18	●	fluoranthene	205-912-4	206-44-0		5.8	mg/kg		4.872	mg/kg	0.000487 %	✓	
19	●	pyrene	204-927-3	129-00-0		5.6	mg/kg		4.704	mg/kg	0.00047 %	✓	
20		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	2.3	mg/kg		1.932	mg/kg	0.000193 %	✓	
21		chrysene	601-048-00-0	205-923-4	218-01-9	2.9	mg/kg		2.436	mg/kg	0.000244 %	✓	
22		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	2.5	mg/kg		2.1	mg/kg	0.00021 %	✓	
23		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	1.1	mg/kg		0.924	mg/kg	0.0000924 %	✓	
24		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	2.3	mg/kg		1.932	mg/kg	0.000193 %	✓	
25	●	indeno[123-cd]pyrene	205-893-2	193-39-5		1.1	mg/kg		0.924	mg/kg	0.0000924 %	✓	
26		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	0.25	mg/kg		0.21	mg/kg	0.000021 %	✓	
27	●	benzo[ghi]perylene	205-883-8	191-24-2		1.4	mg/kg		1.176	mg/kg	0.000118 %	✓	
										Total:	0.0412 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS03--31052024-0.45

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS03--31052024-0.45
Moisture content:
17%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 17% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		22	mg/kg	1.32	24.109	mg/kg	0.00241 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2	mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		<**LOD**
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		31	mg/kg	1.462	45.308	mg/kg	0.00453 %		
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<		2.27	<		<		**ND**
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		58	mg/kg	1.126	54.2	mg/kg	0.00542 %	✓	
6	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	150	mg/kg	1.56	194.197	mg/kg	0.0124 %	✓	
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		27	mg/kg	2.976	66.698	mg/kg	0.00667 %	✓	
9	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
10	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		140	mg/kg	2.774	322.356	mg/kg	0.0322 %	✓	
11	pH			PH		7.3	pH		7.3	pH	7.3 pH		
12	naphthalene	601-052-00-2	202-049-5	91-20-3		2.1	mg/kg		1.743	mg/kg	0.000174 %	✓	
13	acenaphthylene		205-917-1	208-96-8		5.2	mg/kg		4.316	mg/kg	0.000432 %	✓	
14	acenaphthene		201-469-6	83-32-9		2	mg/kg		1.66	mg/kg	0.000166 %	✓	
15	fluorene		201-695-5	86-73-7		8.7	mg/kg		7.221	mg/kg	0.000722 %	✓	
16	phenanthrene		201-581-5	85-01-8		45	mg/kg		37.35	mg/kg	0.00374 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
17	●	anthracene	204-371-1	120-12-7		12	mg/kg		9.96	mg/kg	0.000996 %	✓	
18	●	fluoranthene	205-912-4	206-44-0		43	mg/kg		35.69	mg/kg	0.00357 %	✓	
19	●	pyrene	204-927-3	129-00-0		38	mg/kg		31.54	mg/kg	0.00315 %	✓	
20		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	20	mg/kg		16.6	mg/kg	0.00166 %	✓	
21		chrysene	601-048-00-0	205-923-4	218-01-9	19	mg/kg		15.77	mg/kg	0.00158 %	✓	
22		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	20	mg/kg		16.6	mg/kg	0.00166 %	✓	
23		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	6.4	mg/kg		5.312	mg/kg	0.000531 %	✓	
24		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	17	mg/kg		14.11	mg/kg	0.00141 %	✓	
25	●	indeno[123-cd]pyrene	205-893-2	193-39-5		6.9	mg/kg		5.727	mg/kg	0.000573 %	✓	
26		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	1.9	mg/kg		1.577	mg/kg	0.000158 %	✓	
27	●	benzo[ghi]perylene	205-883-8	191-24-2		7	mg/kg		5.81	mg/kg	0.000581 %	✓	
										Total:	0.0851 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS02--31052024-0.60

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS02--31052024-0.60
Moisture content:
14%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 14% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		4.4	mg/kg	1.32	4.996	mg/kg	0.0005 %	✓	
2	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2	mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		<**LOD**
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		20	mg/kg	1.462	29.231	mg/kg	0.00292 %		
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8	mg/kg	2.27	<4.086	mg/kg	<0.000409 %		<**LOD**
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		15	mg/kg	1.126	14.524	mg/kg	0.00145 %	✓	
6	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	25	mg/kg	1.56	33.536	mg/kg	0.00215 %	✓	
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		12	mg/kg	2.976	30.715	mg/kg	0.00307 %	✓	
9	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
10	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		44	mg/kg	2.774	104.974	mg/kg	0.0105 %	✓	
11	pH			PH		7.8	pH		7.8	pH	7.8 pH		
12	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
13	acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
14	acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
15	fluorene		201-695-5	86-73-7		0.14	mg/kg		0.12	mg/kg	0.000012 %	✓	
16	phenanthrene		201-581-5	85-01-8		0.55	mg/kg		0.473	mg/kg	0.0000473 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
17	●	anthracene	204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
18	●	fluoranthene	205-912-4	206-44-0		0.16	mg/kg		0.138	mg/kg	0.0000138 %	✓	
19	●	pyrene	204-927-3	129-00-0		0.19	mg/kg		0.163	mg/kg	0.0000163 %	✓	
20		benzo[a]anthracene	200-280-6	56-55-3		0.1	mg/kg		0.086	mg/kg	0.0000086 %	✓	
		601-033-00-9											
21		chrysene	205-923-4	218-01-9		0.1	mg/kg		0.086	mg/kg	0.0000086 %	✓	
		601-048-00-0											
22		benzo[b]fluoranthene	205-911-9	205-99-2		0.09	mg/kg		0.0774	mg/kg	0.00000774 %	✓	
		601-034-00-4											
23		benzo[k]fluoranthene	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-036-00-5											
24		benzo[a]pyrene; benzo[def]chrysene	200-028-5	50-32-8		0.07	mg/kg		0.0602	mg/kg	0.00000602 %	✓	
		601-032-00-3											
25	●	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
26		dibenz[a,h]anthracene	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-041-00-2											
27	●	benzo[ghi]perylene	205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
										Total:	0.0215 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Appendix A: Classifier defined and non EU CLP determinands

- **chromium(III) oxide (worst case)** (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from C&L Inventory Database
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H332 , Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Resp. Sens. 1; H334 , Skin Sens. 1; H317 , Repr. 1B; H360FD , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **pH** (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

- **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H330 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

- **acenaphthene** (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Aquatic Chronic 2; H411

- **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Skin Irrit. 2; H315

- **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2; H351

- **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic. Industrial sources include: smelting; main precursor to other arsenic compounds (edit as required)

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. (edit as required) Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history (edit as required)

chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass (edit as required)

chromium in chromium(VI) compounds {chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex}

Worst case species based on hazard statements/molecular weight (edit as required)

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. (edit as required) Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected. (edit as required)

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

selenium {nickel selenate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

zinc {zinc chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.1, May 2018
HazWasteOnline Classification Engine Version: 2024.158.6092.11254 (06 Jun 2024)
HazWasteOnline Database: 2024.158.6092.11254 (06 Jun 2024)

This classification utilises the following guidance and legislation:
WM3 v1.1 - Waste Classification - 1st Edition v1.1 - May 2018
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2019 - UK: 2019 No. 720 of 27th March 2019
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020
17th ATP - Regulation (EU) 2021/849 of 11 March 2021

APPENDIX 14 - Contaminated Land Legislative Background

Legislative Background

Environmental liabilities and risks have been evaluated in terms of a source -pathway - target relationship in accordance with the approach set out in:

- The 1995 Environment Act;
- The Contaminated Land (England) Regulations 2000;
- The DETR circular 02/2000 Environmental Protection Act 1990: Part IIA Contaminated Land.

Contaminated land is defined within the legislative framework as land which is in such condition by reason of substances in, on or under the land that:

1) Significant harm is being caused or there is a significant possibility of such harm being caused;
2) Significant pollution of controlled waters is being or is likely to be caused.

The potential for harm is based on the presence of three factors:

- **Source** - substances that are potential contaminants or pollutants that may cause harm;
- **Pathway** - a potential route by which contaminants can move from the source to the receptor;
- **Receptor** - a receptor that may be harmed, for example the water environment, humans and water.

Where a source, pathway and target are all present a pollutant linkage exists and there is potential for harm to be caused. The presence of a source does not automatically imply that a contamination problem exists, since contamination must be defined in terms of pollutant linkages and unacceptable risk of harm. The nature and importance of both pathways and receptors are site specific and will vary according to the intended end use of the site, its characteristics and its surroundings.

The key principle which supports the SPR approach is 'suitable for use' criteria. This requires remedial action only where contamination is considered to pose unacceptable actual or potential risks to health or the environment and, taking into account the proposed use of the site.

Relevant Guidance Documents

This report has been prepared in accordance with the list of guidance below however the list is not exhaustive:

- LCRM – Model Procedures;
- Contamination and Environmental Matters - Their implications for Property Professionals (2nd Edition RICS Nov 2003);
- Brownfields – Managing the development of previously developed land – A client's guide, CIRIA 2002;
- DEFRA and Environment Agency publications CLR7 – 10, supported by the TOX guides and SGV guides, dated March 2002;
- DETR Circular 02/2000, Contaminated Land: Implementation of Part IIA of the Environmental Protection Act 1990;
- Environment Agency technical advice to third parties on Pollution of Controlled Waters for Part IIA of the EPA1990, May 2002;

Relevant Legislative Documents

The following is a non-exhaustive list of legislative framework documents that has been considered in the production of this report:

- The Environment Act (1995);
- The Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance (2012);
- The Environment Protection Act (1990);
- The Contaminated Land (England) Act (2000);
- Contaminated Land (England) Regulations (2012);
- The Water Resources Act (1991);
- The Pollution Prevention and Control (England and Wales) Regulations (2000);
- The Landfill Regulations (England and Wales) Regulations (2002);
- The Landfill (England and Wales) (Amendment) Regulations (2004);
- Health and Safety at Work Act;

APPENDIX 15 - Limitations

Limitations

This report (Report) forms part of the Services and if applicable Additional Services undertaken by Groundtech Consulting Ltd pursuant to a written contract (Agreement) which contains detailed provisions including express limitations of the liability of Groundtech Consulting Ltd.

This Report was prepared using reasonable skill and care as stated in the Agreement for the purpose including intended end use stated by the Client (Purpose) and the liability of Groundtech Consulting Ltd in respect of the form and content of this Report is no greater than its liability under the Agreement. All records, measurements notes, or any other data (Data) obtained by or for the benefit of the Consultant were obtained at a specific point in time and it may not be assumed by the Client or any person relying on this Report that the Data will remain unaffected by the passage of time, the seasons, weather conditions, changes in the water table or the carrying out and completion of works at the Site.

Unless otherwise agreed this Report has been prepared exclusively for the use and reliance of the Client and may not be relied upon, by any other party except as provided for in the Agreement. A third party who relies on this Report, does so at their own and sole risk and Groundtech Consulting Ltd has no liability to such parties.

Groundtech Consulting Ltd that this Report is to be used for the Purpose. The Purpose was instrumental in determining the scope and of the Services provided. If the Purpose should change, the Client may not be able to rely on the Report without the separate agreement of Groundtech Consulting Ltd.

Since the Report was written, later changes in legislation, statutory requirements and industry best practices have not been considered and this should be allowed for. Ground conditions can also change (see below) and should be investigated if there is any significant delay in acting on the findings of this Report. The period of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the Report inaccurate or unreliable. The information and conclusions in this Report should not be relied upon in the future without written confirmation from Groundtech Consulting Ltd that it is safe to do so.

The observations and conclusions outlined in this Report are based exclusively on the services that were provided as set out in the agreement between the client and Groundtech Consulting Ltd.

Groundtech Consulting Ltd is not liable for the existence of any condition, the discovery of which would require additional investigation outside the agreed scope of works or core competency. The Report is based upon Groundtech Consulting Ltd's observations of existing physical conditions at the Site gained from site reconnaissance together with interpretation of information including documentation, obtained from third parties and from the Client on the history and usage of the Site. The findings and recommendations contained in this Report are based in part upon information provided by third parties, and Groundtech Consulting Ltd have relied upon such information assuming it to be correct.

Groundtech Consulting Ltd accepts no responsibility for errors or inaccuracies in third party information presented in this Report. Groundtech Consulting Ltd was not authorised to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the Services or Additional Services. Groundtech Consulting Ltd is not liable for any inaccurate information, misrepresentation of data or conclusions, which may inform the scope of investigation undertaken by Groundtech Consulting Ltd and forms the contract with the client.

Where field investigations have been carried out these have been restricted to a level of detail required to achieve the stated objectives of the work. Ground conditions may also vary due to the ground's heterogeneous properties and because investigation exploratory locations only allow examination of the ground at discrete locations. The potential exists for ground conditions to be encountered which are different to those considered in this Report, particularly between exploratory holes. The extent of the limited area depends on the soil and groundwater conditions, together with other constraints such as the position of any existing structures and underground utilities. If so stipulated in the Agreement, geo-environmental testing was carried out for a limited number of parameters based on an understanding of the available operational and historical information, and it should not be inferred that other chemical species are not present.

Any groundwater conditions entered on the exploratory hole records are those observed at the time of investigation. The groundwater level often has not had time to reach equilibrium and a monitoring period is required. Furthermore, groundwater levels are subject to seasonal variation or changes in local drainage conditions and groundwater levels may occur at other times of the year which are higher than were recorded during this investigation.

Any site drawings provided in this Report are preliminary and used to present the general relative locations of features on, and surrounding, the Site.

