



**GEOTECHNICAL &
GEOENVIRONMENTAL CONSULTANCY**

A PHENNA GROUP COMPANY

Lamington Group

**12-16 Piccadilly,
Manchester**
*Supplementary Geoenvironmental
Review*

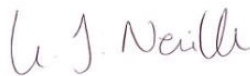
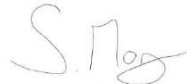
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EXECUTIVE SUMMARY

Card Geotechnics Limited (CGL) has been commissioned by Price & Myers LLP on behalf of Lamington Group (“the Client”) to provide a review of existing desk-based studies, updated desk-study searches & disclosure reports, ground investigation records and other available records as part of its development on the site known as 12-16 Piccadilly, Manchester. The proposed development plans include the construction of a new 34-storey aparthotel including a double storey basement.

In summary, between the 1800s and mid-1900s, the site was occupied by various structures, including a *wire works* and *banks*. The southern half is shown to have been cleared in the late 1980s, however a Grade II listed bank remains in the northern part of the site. The surrounding area has been occupied by numerous commercial and industrial premises including factories, infirmaries and wharfs (associated with the existing canal).

The ground conditions encountered during the previous investigation were generally in accordance with anticipated geology and comprised a variable thickness of Made Ground, underlain by superficial Glacial Till deposits, which are in-turn underlain by the Chester Formation (a Principal Aquifer).

Results of previous soil chemical testing have been re-compared to CGLs current assessment criteria, which have recorded elevated concentrations of arsenic, lead and PAHs compared to the Generic Assessment Criteria (GAC) for an assumed ‘residential without plant uptake’ site end use. Whilst not recorded in laboratory tests, possible asbestos containing materials (ACMs) were also recorded on exploratory hole logs. There is limited information available to enable a ground gas and controlled waters risk assessment, and further work is likely to be required.

Based on the findings of the previous works, additional ground investigation, monitoring, testing and assessment is required to adequately assess the geoenvironmental risks at the site. At this stage, subject to the findings of additional investigation.

The remediation measures should be considered subject to further assessment as part of further ground investigations/assessments and/or a Remediation Strategy.

1. INTRODUCTION

1.1 Introduction

Card Geotechnics Limited (CGL) has been commissioned by Price & Myers LLP on behalf of Lamington Group (“the Client”) to provide a review of existing desk-based studies, updated desk-study searches & disclosure reports, ground investigation records and other available records as part of its development on the site known as 12-16 Piccadilly, Manchester. This report presents the following:

-  A review of desk-based searches including historical maps and environmental disclosure report (2024 data) to identify geotechnical and geoenvironmental hazards and associated risks based on the Phase I Desk Study for the site, new-desk based searches and reports, and publicly available data.
-  A review of the previous ground investigations at the site and nearby development sites, including details on the ground conditions and laboratory testing data.
-  A revised source-pathway-receptor generic quantitative risk assessment based on the findings of the desk study and previously completed investigation works.
-  Geoenvironmental recommendations for soil and groundwater contamination, ground gas and material management and re-use.

The objectives of this report are to provide information to support a future planning application for the proposed redevelopment of the site.

1.2 Sources of Information

The following assessments and reports have been provided by the Client as part of this review. The reports have been used as supporting information in preparation of this summary report, and reference should be made to the original reports for full details of the assessments completed for the site.

Table 1. Summary of Existing Reports Completed for the Site

Author	Date	Report Title	Report Reference
Resource & Environmental Consultants Limited	March 2016	Phase I Geo-Environmental Site Assessment. 12 – 16 Piccadilly, Manchester M1 3AQ	101145P1R0
Resource & Environmental Consultants Limited	October 2013	Phase II Geo-Environmental Site Investigation – Preliminary Report. Yotel Piccadilly Manchester M1 3AQ	44934p2r0

The report relies upon information provided by others and upon the basis that this information is accurate. CGL has not independently verify the accuracy of information provided, and accordingly CGL cannot provide reliance on the data used.

2. SITE SETTING

2.1 Site Location

The site is located off Gore Street & Piccadilly, Manchester M1 3AQ. The grid reference for the approximate centre of the site is 384585, 398138. This site is bound by Piccadilly highway to the east; Gore Street to the south; Roby Street and a three-storey pub to the west; and Chatham Street to the north.

2.2 Site Description

The site is roughly square in shape and covers an area of approximately 0.07ha. The is roughly split into two halves; the northern half being occupied by an existing structure, and the southern half occupied by an undeveloped parcel of land.

The structure in the northern half of the site comprises a four to five-storey, historical, Grade II listed bank, which is understood to contain a single-storey brick-built cellar (i.e. up to six-storeys in total). With reference to available online imagery and information provided from online sources, the existing structure is currently derelict.

The southern half of the site comprises a flat, undeveloped parcel of land that is currently devoid of above-ground structures and covered entirely with broken and poor-quality bound-surfacing. Information from online imagery indicates that the site is currently fenced/hoarded, with overgrown vegetation and dense weeds present around the site margins (particularly along the south and east)

Previously, the southern area was occupied by a car park, covered entirely with bound surfacing. Information from *Google Streetview* dating back to 2008 shows the bound surfacing has generally been in a poor state of repair.

2.3 Proposed Development

The proposed development plans comprise the “*erection of a 34 storey building (land at no. 14-16 Piccadilly) and conversion of adjacent building (no.12 Piccadilly) (basement to fourth floor) to create an aparthotel, including a ground floor cafe (Use Class E (b)), first floor exhibition hall (Use Class F1) and a rooftop bar and restaurant (Use Class E (b)), and associated works*”. The proposals include a double storey basement (basement slab level at 40.46mOD vs ground floor slab level of 45.68mOD). The building will be bound to the west by an existing two-storey pub, and to the north by a four-storey historical Grade II listed bank, which contains a single-storey brick-built cellar. The development proposals indicate that the new structure will form boundary walls to the existing pub to the west, and

tie-into the existing Grade II listed bank structure. It is not known whether the pub contains a basement or cellar. Proposed development plans included in Appendix A.

3. DESK STUDY

3.1 Introduction

A Desk Study report was produced for the site by REC in 2013. However, given the date elapsed since production of the report, additional desk study searches have been carried out as part of this Report. Where relevant, information from the previous report has also been included. Supplementary desk study enquiry searches are included in Appendix B, Appendix C and Appendix D.

3.2 Site History

The historical development of the site has been traced from Ordnance Survey maps dating between 1872 and 2021 provided by Groundsure. The maps were produced on scales ranging from 1:500 to 1:10,560 and are presented in Appendix B. Details of the site history are summarised in Table 2.

Table 2. Summary of Onsite and Offsite Development

<i>Historical Feature</i>	<i>Area of Site</i>	<i>First Date Mapped</i>	<i>Last Date Mapped</i>	<i>Comments</i>
On Site				
Multiple properties	Across site	1851	1984	-
Wire works	Southwest	1851	1851	-
Bank	North	1891	-	-
Bank	Southeast	1931	1984	-
Off Site				
<i>Historical Feature</i>	<i>Approximate Distance and Direction from Site</i>	<i>First Date Mapped</i>	<i>Last Date Mapped</i>	<i>Comments</i>
Hotel and Public house	Western site boundary	1948	-	-
'House of Recovery'	40m west	1851	1851	-
Mill'd Lead and Patent Pipe Factory	50m southeast	1851	1851	-
Wharf and docklands	70m to 80m southeast	1851		Later shown as basin from 1967, canal covered
Timber yard	40m south	1851	1851	-
Canal	80m south	1851	-	Later partially covered
Tramway	10m east	1891	1951	-
Goods Station and Goods Shed/Railway Lines	110m southeast	1889	1965	Later built over
Infirmary	20m west	1922	1948	Later becoming a Hostel in 1948
Ruins	50m to 60m east	1948	1951	-
Warehouse and clothing factory	70m east	1951	2003	-

In summary, in 1851, the site was predominantly covered by structures, with the building in the southern part of the site shown as a wire works. By 1891, the existing (now derelict) bank structure is shown within the northern part of the site. The 1922 maps show the two buildings within the northwestern part of the site had been converted into a single building, and by 1931, the building in

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the centre of the site had been replaced by two separate buildings. By 1948, the bank in the north-eastern corner had been extended to the west.

The buildings in the southern part of the site were demolished prior to the 1986-1990 maps, with the bank shown to have covered the northern half of the site by this time. There have been no significant changes to the site between 1990 maps and the current day.

3.3 Published Geology

Reference to the BGS online map viewer¹, BGS Geoindex and BGS Map Sheet 85 (Manchester) indicates that the site is underlain by superficial Glacial Till deposits, described by the BGS as typically comprising *“overconsolidated, deposited directly by and underneath a glacier without subsequent reworking by water from the glacier. It consists of a heterogenous mixture of clay, sand, gravel, and boulders varying widely in size and shape (diamicton)”*

The superficial deposits are underlain by solid strata of the Chester Pebble Beds Formation, typically comprising *“conglomerates and reddish brown, cross-bedded, pebbly sandstones with subordinate beds of red-brown mudstone. The conglomerates have a reddish-brown sandy matrix and consist mainly of pebbles of brown or purple quartzite, with quartz conglomerate and vein quartz.”*

Geological faults are shown approximately 114m to the northeast/east of the site, trending northwest southeast.

The site is situated approximately 700m to the south-east of a buried (superficial deposit-filled) channel or valley.

3.4 Unpublished Geology

There are several historical BGS boreholes located within 250m of the site, typically recording firm to very stiff sandy gravelly clays with boulders to depths of between 11.8m (32.7mOD) to 13.8m (31.1mOD), underlain by very dense clayey sands (weathered sandstone). Water has been recorded in these boreholes at depths of approximately 12.45m.

3.4.1 Nearby Investigation Data

The following sources of information have been obtained alongside the REC reports findings to supplement the geotechnical information, as listed in Table 3 below.

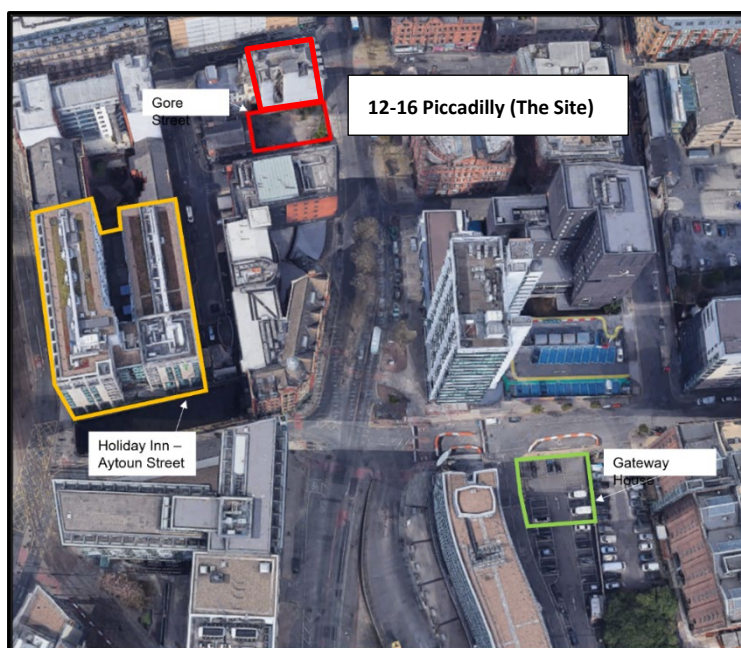
¹ <https://www.bgs.ac.uk/map-viewers/geoindex-onshore/>
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Table 3. Nearby Investigations

Author	Title	Date Published	Location	Distance from site	Source
CGL	Gateway House, Manchester. Preliminary Geoenvironmental Desk Study and Interpretive Report	2015	Gateway House	130m	CGL Internal Project Archive
GEA	Holliday Inn – Aytoun Street, Manchester. Site Investigation Letter Report Summary	2017	Holiday Inn - Aytoun Street	45m	https://www.manchester.gov.uk/planning (Accessed April 2023)
Ian Black Consulting Ltd/GEA	Aytoun Street, Manchester. Geo-environmental Site Assessment	2013	Holiday Inn - Aytoun Street (pre-construction)	45m	https://www.manchester.gov.uk/planning (Accessed April 2023)

A location plan is attached showing the relative position of the above sites to the Site, see Plate 1 below.

Plate 1. Location of Nearby Investigation Sites



3.5 Mining

The potential risk of mining has been assessed from the Environmental Disclosure Report, included in Appendix C, which indicates mining and ground workings have not been identified within the site or vicinity of the site.

3.6 Coal Mining

A Coal Authority Mining Report procured for the site states that “*We consider the property to be acceptably free from coal mining related risk. No further action is required with regards to past coal mining.*”. A copy of the Report is included in Appendix D.

3.7 Radon

With reference to the Environmental Disclosure Report, included in Appendix C, the site is situated within an area where less than 1% of properties are affected by radon. On this basis, radon protection measures are not required in new structures.

3.8 Hydrogeology and Hydrology

The closest recorded watercourse to the site is situated approximately 71m to the southeast, listed as the 'Rochdale Canal'. This is likely to be a lined surface water feature and unlikely to be in hydraulic connectivity with surrounding perched and/ or groundwater.

The site is not situated within an area recorded to be within an area at risk of flooding from rivers or sea. There is a negligible risk of surface water flooding, and low risk of groundwater flooding, on-site.

The Environment Agency (EA) classifies the Glacial Till as a Secondary (Undifferentiated) Aquifer, these are strata described by the EA as *"previously been designated as both minor and nonaquifer in different locations due to the variable characteristics of the rock type"*. The Chester Formation is a designated Principal Aquifer, these are strata described as *"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"*.

With reference to the Environmental Disclosure Report included in Appendix C, there are no active groundwater abstractions within 1km of the site.

3.9 Nearby Assets and Infrastructure

With reference to previous reports, the following assets and infrastructure are indicated in the vicinity of the site:

-  Low pressure gas main running along Gore Street, Roby Street and Chatham Street.
-  Public sewers and water mains running along the roads on all sides of the site; and,
-  Electricity cables running along all the site boundaries with the pavement.

In addition, the existing Grade II listed bank structure contains a single-storey brick cellar. It is not known whether the adjoining pub contains a basement or cellar.

These sensitive constraints may warrant detailed ground movement and impact assessments in due course, due to possible ground deformations associated with the proposed development.

With reference to the Environmental Disclosure Report, included in Appendix C, railway and infrastructure are not recorded beneath the site, however, railway lines (Metrolink) are shown 81m to the southwest.

3.10 Environmental Disclosures

The Environmental Disclosure Report was obtained to provide updated information on the environmental setting of the site and assist in identifying possible sources of ground contamination on and off-site. A summary of the pertinent points is set out below, and the full report is included in Appendix C.

-  Historical industrial land uses within 250m of the site include the infirmary, wharfs, warehouses, sidings, goods sheds, works, railway land, mills, pits and ground workings.
-  Three historical unspecified tanks are recorded within 250m of the site, the closest being 162m to the northeast, mapped in 1891.
-  A single historical energy feature is listed as being within 250m of the site, recorded as an electrical substation 191m to the northwest, listed between 1986 and 1995.
-  Historical petrol stations are not listed within 250m of the site. There are thirteen records of historical garages within 250m, the closest being a garage dated between 1948 and 1971, situated 105m to the south.
-  There are no historical or active licensed landfills, waste sites or waste exemptions located within 250m of the site.
-  Current industrial land uses recorded within 250m of the site include electrical substations (16m to the south), commercial premises, railway land and moorings.
-  There are no sites designated as contaminated land, COMAH sites, sites with Part A or B activities, radioactive sites or sites recording List 1 dangerous substances within 250m of the site.
-  A single pollution incident is reported within 250m of the site, listed as an incident occurring in 2022, 186m to the northwest of the site that had no impact to air and water, and minor impact to land.

 With reference to Historic England's Map Search² the existing bank structure in the northern part of the site is Grade II listed.

3.11 Unexploded Ordnance

As described in Section 3.2, ruins are shown on 1948 maps within the nearby area to the site.

Information obtained from the *Manchester Christmas Blitz Map* shown a bomb strike occurred on Gore Street.

With reference to Zetica online risk mapping, the site is situated within an area of 'Moderate' bomb risk. It will therefore be necessary to carry out a UXO Threat Assessment in accordance with CIRIA C681³.

² Historic England. *Map Search*. [Search the List - Map Search | Historic England](#) [Accessed February 2024]

³ CIRIA (2009). Unexploded ordnance (UXO) A guide for the construction industry (C681)

4. PRELIMINARY RISK ASSESSMENT

4.1 Introduction

Given the time elapsed since the previous Desk Study and Interpretative Report, revised searches have been carried out by CGL. An updated preliminary risk assessment has been carried out, which is included below.

4.2 Preliminary Risk Assessment

Historical contamination of land may present harm to human health and the environment. Current UK legislation stipulates that the risk associated with potential land contamination is assessed and remediated, if necessary. Under the Town and Country Planning Act 1990 (as amended), potential land contamination is a "material planning consideration" together with the National Planning Policy Framework (revised July 2021), which means that a planning authority must consider contamination when they prepare development plans or consider individual applications for planning permission. It is the responsibility of the developer to carry out the remediation where it is required and satisfy the Local Authority that the remediation has been carried out as agreed.

Additionally, Part 2A of the Environmental Protection Act 1990 requires that a significant source-pathway-receptor linkage exists to determine a site as contaminated land. This means that there has to be a contaminant present, a receptor that could be harmed by this contaminant, and a pathway linking the two. Part 2A deals with the contamination risk from a site in its current use, however, the planning system requires that the proposed use is considered. Where remediation is carried out under the planning system, it should be ensured that the site is in such a condition that it would still not meet the definition of contaminated land under Part 2A.

A Preliminary Risk Assessment and Preliminary Conceptual Site Model (CSM) has been produced by CGL based on information and data from recent desk-study searches, together with information contained within the previous Desk Study and is discussed within the following sections. Reference should be made to the original report for full details of the desk study assessment.

4.3 Preliminary Conceptual Site Model

A preliminary CSM has been compiled for the site to identify the potential sources of contamination and the associated potential contaminant linkages, for an assumed residential without plant uptake end use.

4.3.1 Sources

Potential contamination sources include:

-  Made Ground: Anticipated across the site associated with historical development and former structures. Made Ground is likely to include historical construction & demolition materials, which may be a source of hydrocarbons (TPH), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), metals and asbestos. Putrescible materials (if present) within Made Ground may also be a source of ground gases.
-  Leaks and spills of fuels and oils associated with former car park: may be a source of TPH, VOC, PAHs.
-  Historical contaminative industry within 100m of the site associated with commercial activity may pose a risk of mobile contaminants and particulate contamination (airborne particulates).

4.3.2 Pathways

The following potential pathways have been identified by CGL, which are applicable to the site's intended development for residential use with a double-storey basement. Current development plans indicate that the proposed basement will be excavated across the entirety of the southern half of the site, likely resulting in removal of all Made Ground. However, Made Ground may still remain beneath or around the existing bank structure.

-  Horizontal and vertical migration of dissolved phase contaminants through potentially permeable soils and (principally through Made Ground and superficial deposits).
-  Migration of dissolved phase contaminants along engineered preferential pathways (e.g. foundations, underground services, pipes and drainage pathways).
-  Direct contact with contaminated soils during construction works.
-  Human uptake pathways appropriate to the proposed development (depending on final proposed development plans): (a) dust ingestion, (b) dermal contact with dust, (c) dust and vapour inhalation; and
-  Vertical and lateral migration of volatile vapours and ground gases.

4.3.3 Receptors

The following potential receptors have been identified:

-  Groundwater residing in the Secondary Aquifer and/or underlying Principal Aquifer
-  Subsurface infrastructure (e.g. utilities, foundations).
-  Construction and maintenance workers.
-  Off-site residents and public; and
-  Final end users of the site (assumed to be residential and commercial site users).

4.4 Preliminary Qualitative Risk Assessment

A preliminary qualitative risk assessment has been undertaken based on the findings of the conceptual site model and the potential pollutant linkages that may exist at the site in accordance with Land Contamination Risk Management guidance⁴. Using criteria broadly based on those presented in CIRIA Report C552⁵, the magnitude of the risk associated with potential pollutant linkages has then been assessed and is summarised in Table 4. The risk assessment methodology is presented in Appendix E.

⁴ <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>

⁵ CIRIA. 2001. *Contaminated Land Risk Assessment. A guide to good practice*. C552.

Table 4. Preliminary Qualitative Risk Assessment.

Potential Source/Medium	Potential Exposure Route	Potential Receptor	Severity	Probability	Risk Rating	Comments
Explosive/ asphyxiating gases/vapours from underlying soils (Made Ground) and potential on and off-site sources.	Migration of ground gases through the surface via permeable soils and drainage & services	Internal building spaces & future occupiers	Severe	Low likelihood	Moderate	Risks to construction workers can be mitigated through use of PPE and construction mitigation measures.
		Construction workers	Severe	Low likelihood	Moderate	
Made Ground or reworked material containing contaminants such as hydrocarbons, PAHs, metals and asbestos; from historical land use, and petrol/fuel leaks from car parking	Direct contact	Construction and maintenance workers	Minor	Likely	Low	Unlikely for future site end users to come into contact with Made Ground, given that proposed basement will cover entirety of site footprint.
		Future site users	Medium	Unlikely	Low	
	Dermal contact and inhalation of dust and/ inhalation of asbestos fibres	Construction and maintenance workers	Medium	Low likelihood	Moderate/ low	
		Off-site residents and public	Medium	Low likelihood	Moderate/ low	
	Inhalation of vapours (TPH, VOCs)	Construction and maintenance workers	Medium	Low likelihood	Moderate/ low	
		Future site users	Medium	Low likelihood	Moderate/ low	
		Off-site residents and public	Medium	Low likelihood	Moderate/ low	
	Horizontal and vertical migration of leachate, migration of contamination along engineered pathways, direct contact.	Secondary Aquifer	Medium	Low likelihood	Moderate/ low	
		Principal Aquifer	Medium	Low likelihood	Moderate/ low	
		Rochdale Canal (surface waters)	Medium	Low likelihood	Low	
	Horizontal and vertical migration of leachate, direct contact.	Subsurface infrastructure	Mild	Likely	Moderate/Low	
	Root uptake, fauna uptake pathways.	Flora and fauna	Minor	Unlikely	Low	
Contaminants such as hydrocarbons, PCBs, PAHs, metals and asbestos; due to off-site historical and current sources.	Migration of contaminants from off-site sources onto underlying site	Future site users	Medium	Low Likelihood	Moderate/Low	Given that canal will be lined Planting not present within areas of Made Ground, all planting to be within raised planters above hardstanding
		Construction workers	Mild ^a	Low likelihood	Low	
		On-site buildings and structures	Medium	Low likelihood	Moderate/Low	

Notes: Minor severity rating for construction workers based on C552 description (See 'presence of contamination at concentrations which require the use of personal protective equipment during site work'.

5. GROUND INVESTIGATION

5.1 General

A ground investigation was previously completed by REC in 2013. The investigation report and data has been provided in PDF format; an assessment of the data contained in the report has been carried out by CGL.

It should be noted that the investigation data is limited, and there is limited information available on the sampling methodologies, practices and standards used.. CGL has not independently verify the accuracy of information provided, and accordingly CGL cannot provide reliance on the data used.

5.2 REC (2013) Investigation

A ground investigation was carried out by REC in September 2013, comprising the following:

-  Eight windowless sample boreholes (WS101 to WS108) to depths of between 0.7m and 4.0m, five of which were installed with ground gas monitoring wells up to 2.5m depth.
-  Three rotary boreholes (RB101 to RB103) to depths of between 18m and 31.5m.
-  Three foundation inspection pits (FP102, FP103 and FP104).

Borehole record RB102 was not included within the Report.

The locations are shown in the report included in Appendix F.

In-situ Standard Penetration Tests were carried out in windowless sample boreholes, with tests also carried out in rotary boreholes however, as described in Section 3.2, the levels of tests are not provided in the rotary borehole logs. Further discussion is provided in Section 6

The exploratory hole records are presented within the existing report, included in Appendix F.

5.3 Monitoring

Five boreholes (WS102, WS103, WS104, WS107 and WS108) were installed with ground gas and groundwater monitoring standpipes.

A single monitoring visit was carried out in October 2013. Results of the monitoring are presented within the existing report, included in Appendix F.

5.4 Chemical Testing

The soil analysis was carried out by Scientific Analysis Laboratories (SAL) Ltd, and included the following contaminants, as described within the previous report (included in Appendix F).

-  Metals,
-  pH, total sulphate, water soluble sulphate (2:1 extract)
-  sulphide
-  cyanide
-  phenols
-  total and speciated polycyclic aromatic hydrocarbons (PAHs)
-  asbestos
-  organic carbon and
-  total and speciated petroleum hydrocarbon (TPH).

6. GROUND AND GROUNDWATER CONDITIONS

6.1 Summary

A summary of the ground conditions recorded during the previous investigation is summarised in Table 5 below. The ground conditions were generally comparable to the published geological records, recording Made Ground underlain by Glacial Till deposits and the Chester Formation at depth.

Table 5. Strata Recorded by 2013 Investigation

Strata	Depth to Top (m)	Maximum Thickness
Asphalt	0.0	0.2
Concrete	0.0 to 2.8	>0.26
Made Ground - Loose fine to medium dark brown/black gravelly sand with cobbles. Gravel is fine to coarse angular to sub-angular of brick, concrete, ash, clinker, metal and wood. Cobbles are angular to subangular of brick and concrete	0.15	4.0
Made Ground - Very loose to medium dense brown/orange sandy gravel. Gravel is fine to coarse angular to sub-angular of brick, concrete, sandstone and coal	0.06 to 0.08	3.17
High strength very stiff brown gravelly CLAY. Gravel is fine to medium angular to sub-rounded of coal, sandstone and mudstone	3.0	1.0
High strength very stiff brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium sub-angular to sub-rounded of sandstone and coal	3.25	3.10
Brown CLAY/MARL	3.0 to 4.0	19.2
Weathered orange brown SANDSTONE	22.2	5.0
Orange Brown SANDSTONE	27.2 to 28.0	>4.3

Notes: Detail as reported by REC, CGL has not reinterpreted the borehole log data

6.2 Made Ground

Made Ground was encountered within each of the exploratory locations and proven to depths up to 4mbgl (borehole RB102). The strata were described as generally comprising *asphalt of concrete underlain by sandy gravel with frequent cobbles of brick and concrete*. The gravel component was recorded to comprise ash, glass, timber, plastic, clinker and occasional fragments of “*potential asbestos containing materials (cement bonded)*.”

A concrete slab, which the previous report presumed to be a former basement floor, was encountered across the central areas of the existing car park area at circa 2.50 – 2.60m bgl.

6.3 Glacial Till

The Glacial Till was recorded to depths up to 22.2mbgl and typically comprised very stiff, brown gravelly clay. The gravel component was described as sub-rounded of coal, sandstone and mudstone.

Soils described as ‘brown clay/marl’ were recorded at depths between 3mbgl and 4mbgl, with a maximum recorded thickness of 19.2mbgl.

6.4 Chester Formation

Soils described as weathered Chester Formation, comprising weathered orange-brown sandstone, were recorded below depths of 22.2mbgl. Orange-brown sandstone was recorded at depths below 27.2mbgl to 28mbgl.

6.5 Geotechnical Tests

A total of 24 SPTs were carried out in the windowless sample boreholes, including five in the Glacial Till and 19 in the Made Ground. SPT N values of between 1 and 50 were recorded in the Made Ground, with values of between 18 and 44 recorded in the Glacial Till deposits.

SPT results are shown on rotary borehole logs, however, it is not clear at what depth the tests were carried out at. The values shown on the logs indicate N value ranges of between 9 and 42, showing a general increase in value.

6.6 Water

A single water strike was recorded as a seepage in borehole WS101 at 2.8mbgl, indicated as perched water within the Made Ground. During subsequent monitoring visits, water was not recorded in the boreholes installed.

Water strikes were not recorded on rotary borehole logs; however, the boreholes were not installed with monitoring wells and therefore return monitoring of water levels could not be carried out.

6.7 Ground Gas Monitoring

Ground gas monitoring was carried out within five of the installed boreholes during a single monitoring visit on 14th October 2013 (1003mb pressure). Full details are provided in the original report included in Appendix F.

Table 6. Summary of Gas Monitoring

<i>Borehole Location</i>	<i>Well Response Zone (m bgl)</i>	<i>Flow Rate (l/hr)</i>	<i>O₂ (% volume in air)</i>	<i>CO₂ (% volume in air)</i>	<i>CH₄ (% volume in air)</i>
WS102	0.50 to 1.365	0.1	20.6	0.1	0.3
WS103	0.50 to 2.633	0.1	20.6	0.2	0.3
WS104	0.50 to 1.443	0.2	20.7	0.1	0.3
WS107	0.50 to 2.192	0.1	20.5	0.2	0.3
WS108	0.50 to 1.545	0.2	20.5	0.2	0.3

6.8 CGL Review of Investigation Data

During the CGL review, certain constraints have been identified within the REC ground investigation data. In these instances, information required for assessment is either not included or is reporting data which may not be in-line with current standards and/ or best practice.

1. Limited detail in Made Ground and Glacial Till/underlying solid strata.
2. No geotechnical laboratory testing.
3. Missing or misleading SPT data in rotary holes with no depths provided.
4. Rotary hole method is described as “open hole” which will not provide accurate details.
5. No groundwater monitoring within underlying Chester Formation
6. Limited chemical laboratory testing
7. Only a single ground gas monitoring visit completed.
8. Limited to no commentary on boulder prevalence within Glacial Till
9. No elevation, coordinates or rig energy ratio shown on exploratory holes.

In summary, CGL consider that the previous reports contained limited, and out-dated information on the ground conditions at the site, and further investigation, laboratory testing, monitoring and assessment will be required to assess the site in-line with current guidelines and best practice.

7. UPDATED CONTAMINATION ASSESSMENT

7.1 Introduction

Whilst a geoenvironmental assessment was carried out within the previous report, given the time elapsed since issue (October 2013), a revised assessment has been carried out in accordance with current guidance.

It should be noted that CGL has not validated the accuracy of the laboratory results, nor the sampling methodology or procedures used. Within this section, CGL is providing a review of the available information only and cannot provide reliance on the data used.

7.2 Contamination

This section of the report evaluates risks to potential receptors at the site from identified chemical contamination. Potential receptors have been identified with reference to the Part 2A regime and associated Defra guidance⁶. As part of the Part 2A regime, under the planning regime all receptors (humans, controlled waters, vegetation and buildings) have been considered if there is the potential for them to be adversely affected by exposure to contamination. CGL's approach and rationale to assessment criteria adoption for this site is presented in Table G1 of Appendix G.

7.3 Risk to Human Health

It is understood that the proposed development comprises the construction of a new 34-storey aparthotel including a double storey basement (basement SSL at 40.46mOD vs ground floor SSL of 45.68mOD). Current development plans do not indicate any areas highlighted for growing of vegetables/plants for human consumption and it has been assumed as part of this report that no plant uptake will occur within the new development.

On this basis, the laboratory test results have been compared against a Generic Assessment Criteria (GAC) that have been derived in-house by CGL for a "residential without plant uptake" land use category to assess the risks to human health from potential contamination present in soils. The results of the chemical assessment are presented in Table G2 of Appendix G.

⁶ DEFRA. (2012). *Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance*. Department for Environment, Food and Rural Affairs.
CGE/17149

7.4 Made Ground

A total of five soil samples of Made Ground were obtained from varying depths during the ground investigations and were analysed for a range of determinants. Within the Made Ground, elevated concentrations of arsenic, lead, and PAHs (naphthalene, benzo(b)fluoranthene, benzo(a)pyrene and dibenzo(a,h)anthracene) were recorded when compared against the applicable GAC (residential without plant uptake).

Within results from borehole WS107 at 0.4mbgl, naphthalene, a volatile compound, was recorded above the GAC (3.5mg/kg against GAC of 2.53mg/kg). Naphthalene is volatile compound, which may pose a risk of vapour inhalation within new structures. It should be noted, however, that the value has been compared against residual with plant uptake criteria against a conservative SOM value of 1%. It should be noted that the position of borehole WS107 is likely to be beneath a new structure and basement, and approximately 35% of the GAC is associated with soil exposure (with 65% of the GAC associated with indoor vapour inhalation). It is likely that the area of WS107 and much of the Made Ground at the site will be excavated as part of the proposed development.

A total of four samples of Made Ground were screened for asbestos and the testing did not record the presence of asbestos. However, it should be noted that “*potential asbestos containing materials (cement bonded)*” materials were recorded on exploratory hole logs, which may not have been sampled.

On the basis of the above assessment:

 The risk from the Made Ground to future site users is considered to be **Moderate/low**, based on the development proposals to excavate a double-storey basement, therefore removing much of the Made Ground. However, limited Made Ground may remain, particularly in areas that have not yet been investigated.

 The risk to offsite users is assessed to be **Moderate/low**.

 The risk to construction workers is considered to be **Moderate**, however, the risk can be mitigated by appropriate health and safety risk assessment and use of PPE.

7.5 Risk from Ground Gas

A single ground gas monitoring visit was carried out in 2013 as part of the previous investigation. Since that data, no further monitoring has been carried out, and therefore the existing data cannot be used

in accordance with current guidance⁷, and further monitoring will likely be necessary. Notwithstanding, a cursory assessment has been carried out based on the available information. The potential risk of ground gas was highlighted as part of the desk study information associated with the Made Ground present on site.

Whilst much of the Made Ground will be removed as part of the building proposals, limited Made Ground may remain, particularly in areas that have not yet been investigated (as the depth to Made Ground in other areas of the site).

7.5.1 RB17 Ground Gas Assessment

In accordance with CL:AIRE Research Bulletin 17 (RB17)⁸, an alternative approach to the assessment of the gassing potential of the Made Ground has been complete, based on the results of total organic carbon concentrations of the Made Ground materials at the site (the results of which are included in Appendix F).

Table 7. Assessment of TOC

Strata	TOC % Range [No of Samples]	RB17 Characteristic Situation
Made Ground	1% and 8.1% [2]	CS2*

*Based on TOC concentrations in Made Ground

The age of the Made Ground is unknown, however based on the historical maps the last major works completed at the site appear to be demolition of structures in the 1980s, therefore the Made Ground is likely to have been in-situ for some 40 to 50 years. The highest recorded TOC value for the Made Ground is 8% which corresponds to a CS2 'Low Risk' based on the RB17 assessment. This suggests that the Made Ground, as a source, has a "low" gassing potential as described in RB17.

7.5.2 Preliminary Gas Screening Value

To provide an indicative assessment of the gas readings previously recorded in 2013, the gas screening value (GSV) has been calculated, for the bulk gases, methane and carbon dioxide, using the following equation:

⁷ British Standard. (2019). Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings. BS8485:2015+A1:2019.

⁸ CL:AIRE (2012). A Pragmatic Approach to Ground Gas Risk Assessment. RB 17.

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

For this site, the “worst credible” approach is adopted for calculating the GSV, which is appropriate as the source of gas is defined (Made Ground up to 4m thick). The “worst credible” GSV is calculated by assessing the data from the return monitoring visit for each gas and adopting the highest GSV. The “worst credible” GSVs are presented below.

Table 8. Ground Gas Assessment

Gas	Peak Flow (l/hour)	Peak Concentration (%)	Steady State Concentration (%)	GSV	Characteristic Situation⁷
Carbon Dioxide	0.2	-	0.2	0.0004	CS1
Methane	0.2	0.3	-	0.0006	CS1

A semi quantitative assessment has been completed using the gas monitoring data to assess the ground gas regime at the site using the Characteristic Situation (CS)⁷.

Based on the concentrations and flow rates recorded during the single round of monitoring completed, the ground gas regime for the site is assessed to be CS1⁷ based on the calculated GSV. However, based on the absence of reliable data, and findings of the RB17 assessment, an increase to **CS2** may be considered at this stage, subject to the findings of further monitoring and assessments.

On the basis of the data available to date, risks from ground gases are considered to be **moderate**.

7.6 Risk to Controlled Waters

As a first tier of assessment, chemical testing results from soil leachate samples were directly compared to Environmental Quality Standards (EQS) and Drinking Water Values (DWV) for freshwater receptors. When compared against relevant criteria, exceedances of lead, copper, zinc and PAH were recorded.

Whilst the Chester Formation at depth is a designated Principal Aquifer, there is a significant thickness of overlying Glacial Till, described as being predominantly cohesive, which will provide an aquitard to vertical and lateral migration. The site is not situated within a groundwater Source Protection Zone, and the closest watercourse is the lined canal, some 70m from the site. As part of the proposed works, a double-storey basement will be excavated, therefore removing much of the Made Ground and therefore potential contaminant source.

Considering the low hydrological and hydrogeological sensitivity of the site, the thickness of Glacial Till beneath the site, the absence of grossly impacted soils, the recorded concentrations and historical setting of the site, and the proposed removal of much of the Made Ground for the proposed basement,

controlled waters Quantitative Risk Assessment is not considered necessary at this stage. However, based on the findings of the testing, it is recommended that further investigation and testing of soil leachate and groundwater within the underlying Chester Formation be carried out. In this regard, risks to Controlled Waters remain moderate/low until further assessment is carried out.

7.7 Risk to Plants and Vegetation

Risks to vegetation and plants are considered *very low* on the basis that all landscaping will be formed above structures/hardstanding, and vegetation or plants will have no contact with the underlying Made Ground.

7.8 Risks to Buildings and Infrastructure

7.8.1 Water Supply Pipes

Based upon the findings of the chemical analysis and with reference to the UK Water Industry Research Guidance⁹, the site is likely to be designated as “brownfield” and, therefore, barrier pipes are likely to be required if services are located in Made Ground. Notwithstanding, this report including the appendices should be submitted to the local water authority for review and to confirm requirements. On this basis the risk to buried water supply pipes from contamination within the near surface soils is considered to be **low to moderate**.

7.8.2 Sulfate and pH Conditions

Limited testing is available for sulphate conditions at the site, and further testing will be required in order to provide an appropriate assessment.

7.9 Revised Qualitative Risk Assessment

The preliminary qualitative risk assessment has been updated on the findings of the ground investigation and the potential pollutant linkages that may exist at the site in accordance with Land Contamination Risk Management guidance. Using criteria broadly based on those presented in CIRIA Report C552¹⁰, the magnitude of the risk associated with potential pollutant linkages has then been assessed and is summarised in Table 9.

⁹ UK Water Industry Research. 2010. *Guidance for the selection of water supply pipes to be used in brownfield sites*.

¹⁰ CIRIA. 2001. *Contaminated Land Risk Assessment. A guide to good practice*. C552.

Table 9. Revised Qualitative Risk Assessment.

Potential Source/Medium	Potential Exposure Route	Potential Receptor	Severity	Probability	Risk Rating	Comments
Explosive/ asphyxiating gases/vapours from underlying soils (Made Ground) and potential on and off-site sources.	Migration of ground gases through the surface via permeable soils and drainage & services	Internal building spaces & future occupiers	Severe	Low likelihood	Moderate	
		Construction workers	Severe	Low likelihood	Moderate	
Made Ground or reworked material containing contaminants such as hydrocarbons, PAHs, metals and asbestos; from historical land use, and petrol/fuel leaks from car parking	Direct contact	Construction and maintenance workers	Minor	Likely	Low	Risks to construction workers can be mitigated through use of PPE and construction mitigation measures. Unlikely for future site end users to come into contact with Made Ground, given that proposed basement will cover entirety of site footprint.
		Future site users	Medium	Unlikely	Low	
		Buildings and structures	Medium	Unlikely	Low	
	Dermal contact and inhalation of dust	Construction and maintenance workers	Medium	Low likelihood	Moderate/ low	
		Off-site residents and public	Medium	Low likelihood	Moderate/ low	
	Inhalation of vapours (TPH, VOCs)	Construction and maintenance workers	Medium	Low likelihood	Moderate/ low	
		Future site users	Medium	Unlikely	Low	
		Off-site residents and public	Medium	Low likelihood	Moderate/ low	
	Horizontal and vertical migration of leachate, migration of contamination along engineered pathways, direct contact.	Secondary Aquifer	Medium	Low likelihood	Moderate/ low	
		Principal Aquifer	Medium	Low likelihood	Moderate/ low	
		Rochdale Canal (surface waters)	Medium	Unlikely	Low	
	Horizontal and vertical migration of leachate, direct contact.	Subsurface infrastructure	Mild	Likely	Moderate/Low	
	Root uptake, fauna uptake pathways.	Flora and fauna	Minor	Unlikely	Low	
Contaminants such as hydrocarbons, PCBs, PAHs, metals and asbestos; due to off-site historical and current sources.	Migration of contaminants from off-site sources onto underlying site	Future site users	Medium	Unlikely	Low	Planting not present within areas of Made Ground, all planting to be within raised planters above hardstanding
		Construction workers	Mild ^a	Low likelihood	Low	
		On-site buildings and structures	Medium	Low likelihood	Moderate/Low	

Notes: Minor severity rating for construction workers based on C552 description (See 'presence of contamination at concentrations which require the use of personal protective equipment during site work'.

8. GEOENVIRONMENTAL RECOMMENDATIONS

8.1 General

The proposed development is to comprise the construction of a new 34-storey aparthotel including a double storey basement (basement SSL at 40.46mOD vs ground floor SSL of 45.68mOD). As such, the recommendations are based on the worst-case scenario of a '*residential without plant uptake*' end use. Other receptors, including controlled waters and off-site residents, have also been considered.

An assessment of material classification has not been carried out at this stage, based on the limited information available. Further investigation and assessment will be required so that an appropriate Remediation Strategy and material management plan can be implemented.

The identified remediation measures should be considered subject to further assessment as part of further ground investigations/assessments and/or a Remediation Strategy.

8.2 Relevant Contaminant Linkages (RCLs)

The relevant contaminant linkages in relation to the proposed development (RCL; those assessed as 'moderate' risk or higher) are summarised as follows:

Table 10. Relevant Contaminant Linkages (RCLs)

Contaminant Linkage	Source	Pathway	Receptor(s)
RCL1	Made Ground	Ingestion, inhalation and dermal contact.	Construction workers, offsite users & public
RCL2	Ground gases	Inhalation and accumulation in enclosed spaces	Future site users, construction workers, offsite users
RCL3	Made Ground (asbestos)	Inhalation of fibres	Construction workers, offsite users & public
RCL4 ^a	Sulphates within natural soils	Direct contact	Buildings and structures
RCL5 ^a	Made Ground	Direct contact	Water supply pipes
RCL6 ^a	Made Ground	Lateral and vertical migration	Principal Aquifer

a) **Note:** Not classified as Moderate Risk, however included within RCLs as mitigation measures will be required.

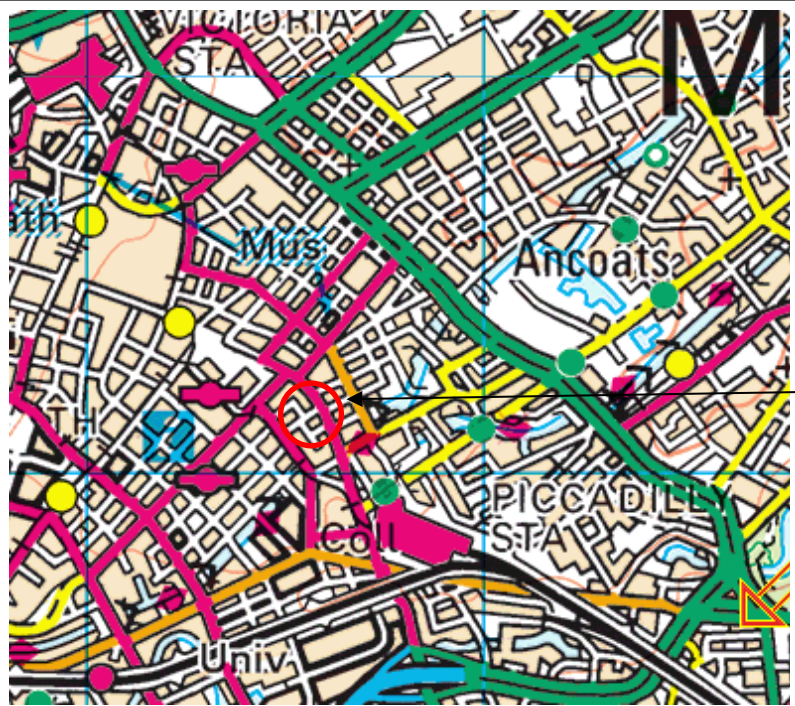
If, during the development of the site, materials are encountered that are not consistent with the findings of this investigation, then the adoption of further inspection and possible testing should be undertaken by a suitably qualified geoenvironmental engineer, to determine an appropriate course of action.

8.3 Additional Ground Investigation, Monitoring and Testing

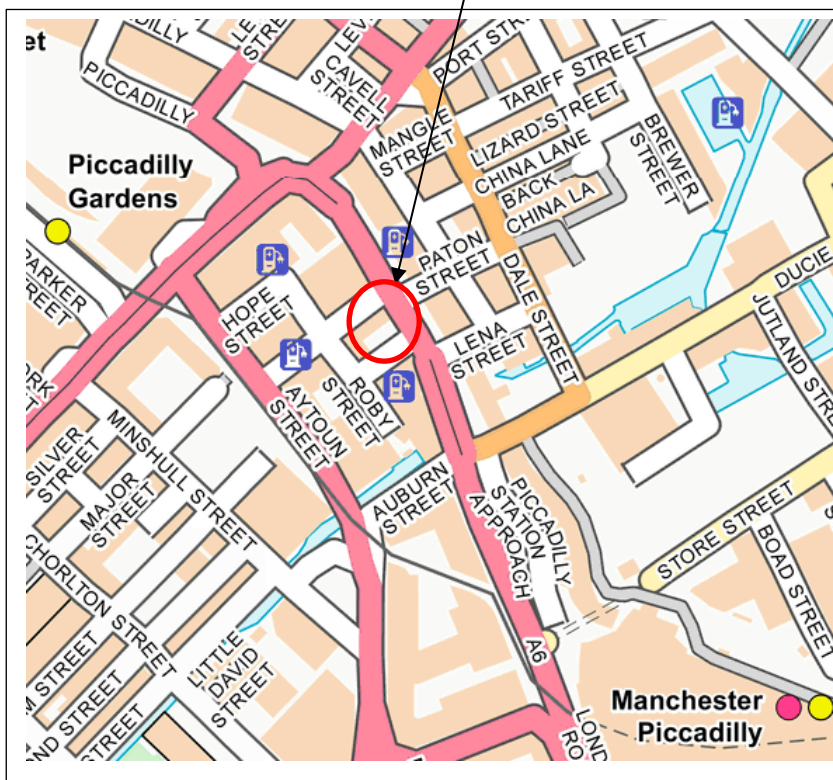
The investigation completed to date is over ten years old, and further works will be required to adequately characterise the geoenvironmental risks at the site, to refine the assessments and recommendations provided within this report. The following additional works are considered necessary:

1. Additional investigation locations to provide further coverage of the site.
2. Additional soil sampling across the site to enable up-to-date chemical laboratory testing for soil and soil leachate.
3. Recovery of groundwater samples from the Glacial Till/ Chester Formation.
4. A minimum of three further ground gas and groundwater monitoring visits in accordance with BS8485. Should elevated ground gas conditions be record, a further three visits would be recommended.

FIGURES



Site



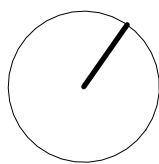
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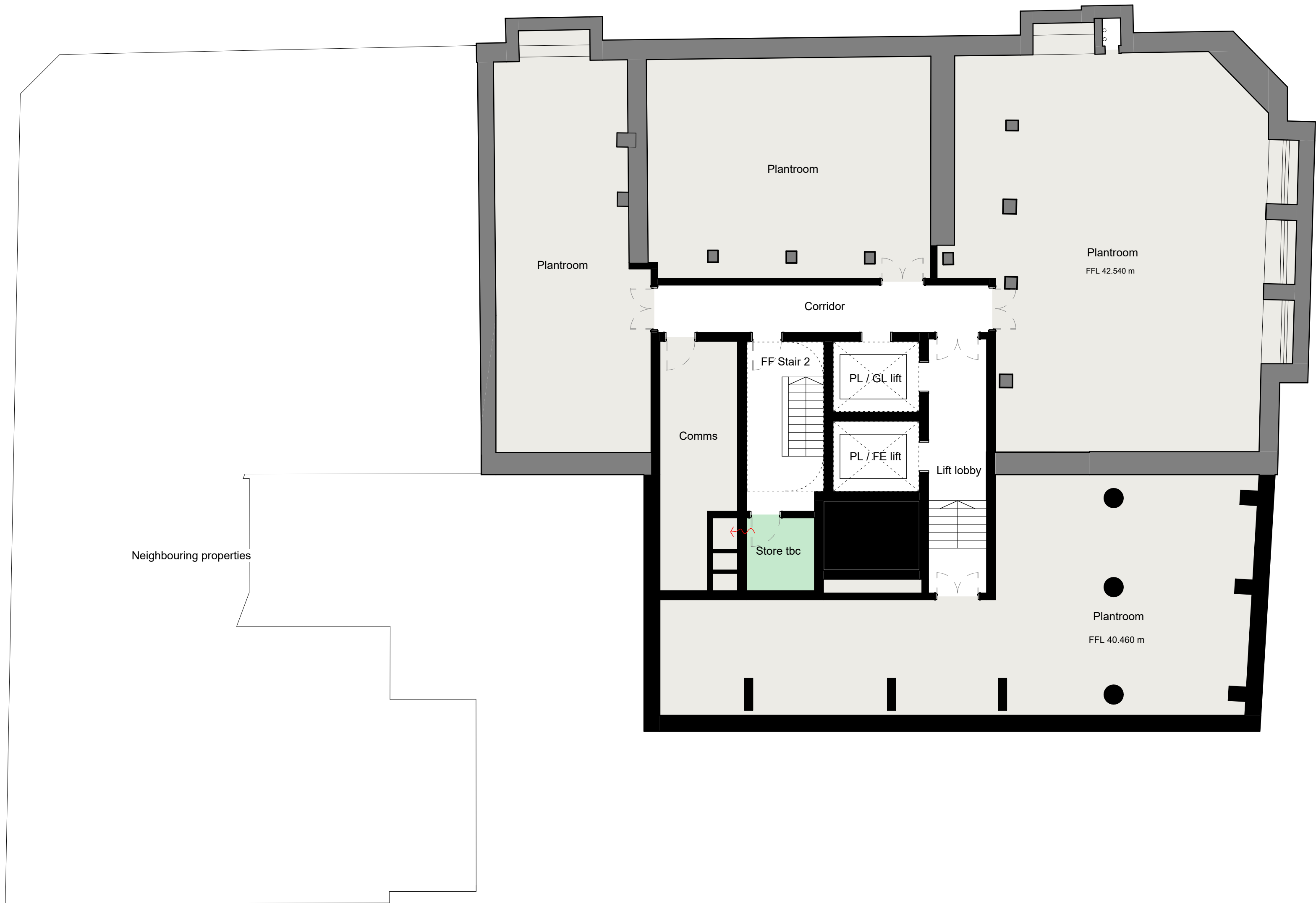
Client	Project	Job No
Lamington Group	12-16 Piccadilly, Manchester	CGE/17149
 GEOTECHNICAL & GEOENVIRONMENTAL CONSULTANCY <small>A PHENNA GROUP COMPANY</small>	Title	Figure 1
		Drafted by: ARA
		Checked by: KJN
		Approved by: SJM

APPENDIX A

Proposed Development Plans



- Room types
- Back of house
 - Core / circulation
 - Plant



Rev	Date	Revision	By	Chk
P01	230609	Issued for Planning	KC	JA

Notes

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Project Project No. 2211
room2 Homitel Manchester Piccadilly
Northside (Manchester Ltd)

Drawing Title
Planning
Basement floor plan

Drawing Number Revision/Suitability
HMP-BA-20-B01-DP-A-0 **P01 S2**

Scale @ A3 Scale @ A1 Revision Date
1:200 1 : 100 230609

YY MM DD



Rev	Date	Revision	By	Chk
P01	230609	Issued for Planning	KC	JA
P02	240426	Planning Addendum Draft	TR	JA
P03	240501	Planning Addendum Issue	SG	JA
P04	240606	Planning Update	SG	JA

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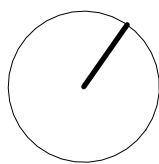
Project Project No. 2211
room2 Homotel Manchester
Piccadilly
 Northside (Manchester Ltd)

Drawing Title

Planning
Ground Floor Plan

Drawing Number	Revision/Suitability
HMP-BA-20-L00-DP-A-0	P04 S2

Scale @ A3	Scale @ A1	Revision Date
1:200	1 : 100	240606
		YY MM DD



- Room types
- Back of house
 - Core / circulation
 - Front of house
 - Plant



Rev	Date	Revision	By	Chk
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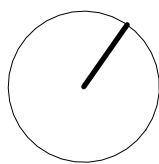
Project Project No. 2211
room2 Homotel Manchester Piccadilly
Northside (Manchester Ltd)

Drawing Title
Planning
Level 1 floor plan

Drawing Number Revision/Suitability
HMP-BA-20-L01-DP-A-0 P01 S2

Scale @ A3 Scale @ A1 Revision Date
1:200 1: 100 230609

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- Room types
- Back of house
 - Core / circulation
 - Hotel room
 - Plant



Rev	Date	Revision	By	Chk
P01	230609	Issued for Planning	KC	JA
P02	240426	Planning Addendum Draft	TR	JA
P03	240501	Planning Addendum Issue	SG	JA

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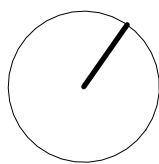
Project Project No. 2211
room2 Homotel Manchester Piccadilly
Northside (Manchester Ltd)

Drawing Title
Planning
Level 2 floor plan

Drawing Number Revision/Suitability
HMP-BA-20-L02-DP-A-0 P03 S2

Scale @ A3 Scale @ A1 Revision Date
1:200 1:100 240501

YY MM DD



- Room types
- Back of house
 - Core / circulation
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Rev	Date	Revision	By	Chk
P01	230609	Issued for Planning	KC	JA
P02	230623	Issued for Planning	KC	JA
P03	240426	Planning Addendum Draft	TR	JA
P04	240501	Planning Addendum Issue	SG	JA
P05	240708	Planning Addendum Update	SG	JA

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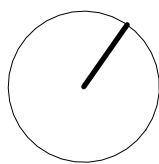
Project Project No. 2211
room2 Homotel Manchester Piccadilly
Northside (Manchester Ltd)

Drawing Title
Planning
Level 3 floor plan

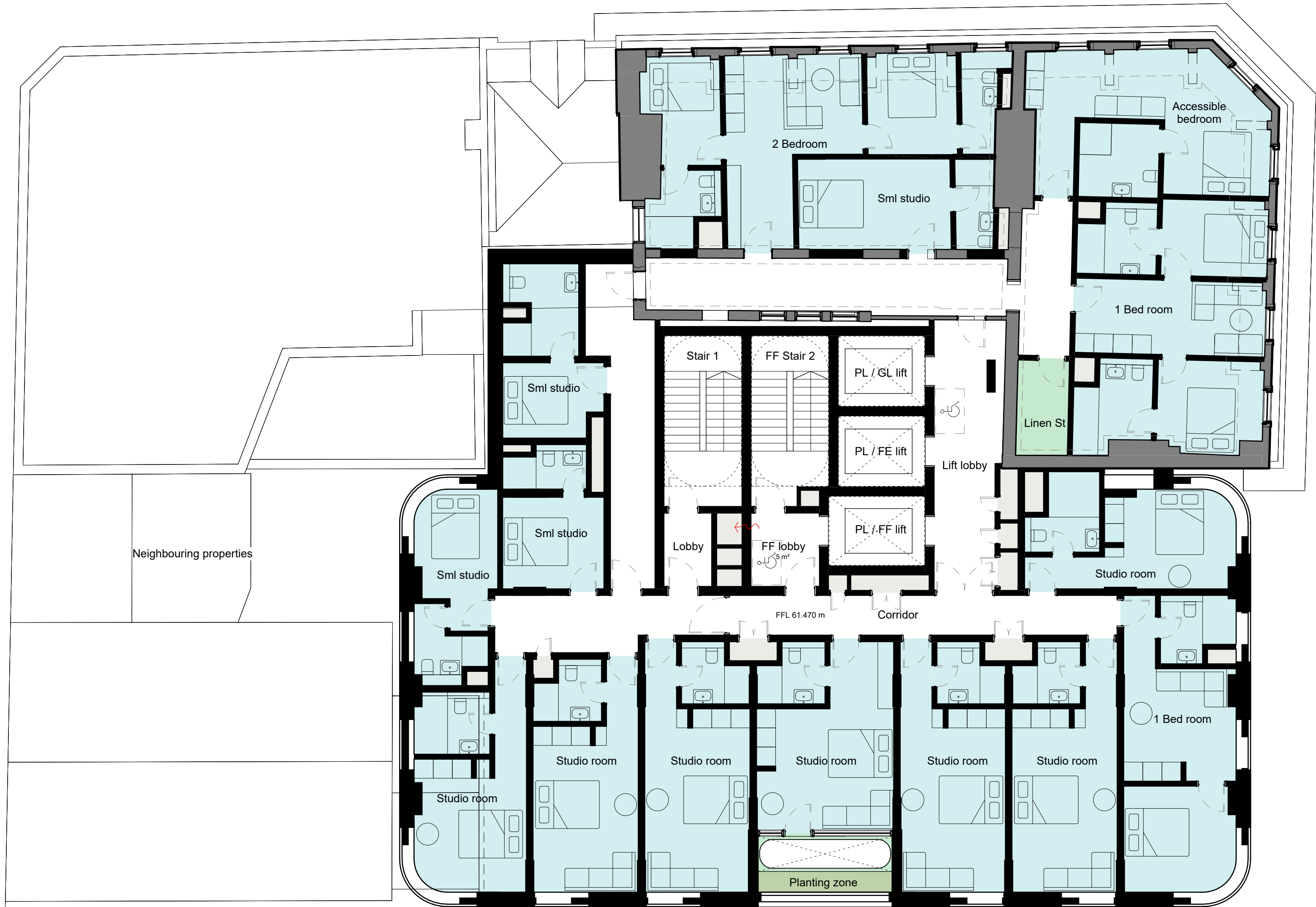
Drawing Number Revision/Suitability
HMP-BA-20-L03-DP-A-0 P05 S2

Scale @ A3 Scale @ A1 Revision Date
1:200 1:100 240708

YY MM DD



- Room types
- Back of house
 - Core / circulation
 - Hotel room
 - Plant



Rev	Date	Revision	By	Chk
P01	230609	Issued for Planning	KC	JA
P02	230623	Issued for Planning	KC	JA
P03	240426	Planning Addendum Draft	TR	JA
P04	240501	Planning Addendum Issue	SG	JA

Notes

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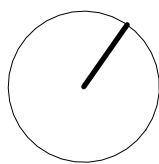
Project Project No. 2211
room2 Homotel Manchester Piccadilly
Northside (Manchester Ltd)

Drawing Title
Planning
Level 4 floor plan

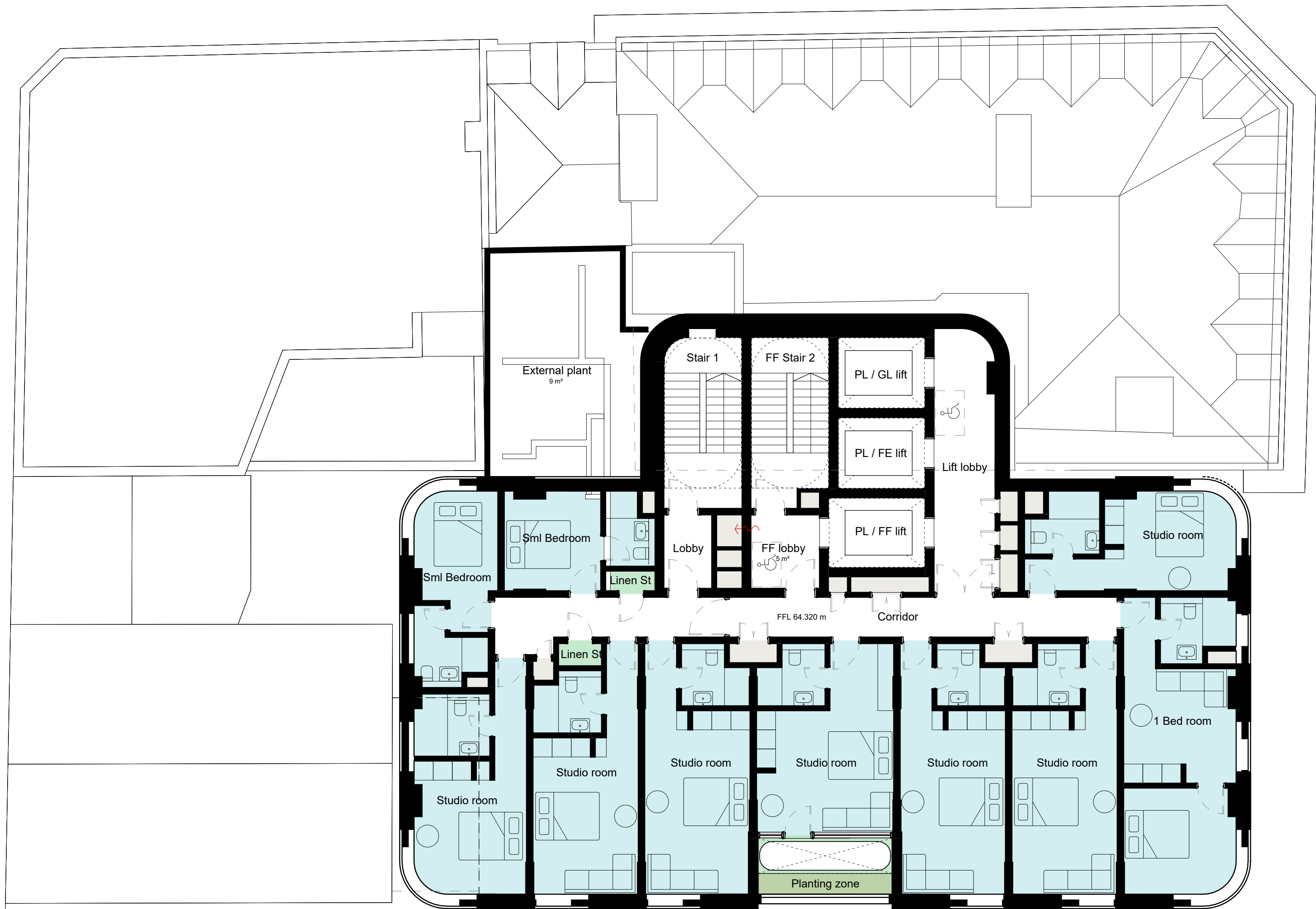
Drawing Number Revision/Suitability
HMP-BA-20-L04-DP-A-0 P04 S2

Scale @ A3 Scale @ A1 Revision Date
1:200 1:100 240501

YY MM DD



- Room types
- Back of house
 - Core / circulation
 - Hotel room
 - Plant



Rev	Date	Revision	By	Chk
P01	230609	Issued for Planning	KC	JA
P02	230623	Issued for Planning	KC	JA

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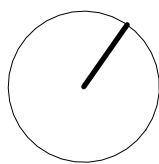
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room2 Homotel Manchester Piccadilly
Northside (Manchester Ltd)

Drawing Title
Planning
Level 5 floor plan

Drawing Number Revision/Suitability
HMP-BA-20-L05-DP-A-0 P02 S2

Scale @ A3 Scale @ A1 Revision Date
1:200 1:100 230623

YY MM DD



- Room types
- Back of house
 - Core / circulation
 - Hotel room
 - Plant



Rev	Date	Revision	By	Chk
P01	230609	Issued for Planning	KC	JA
P02	230623	Issued for Planning	KC	JA

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Project 2211
room2 Homotel Manchester Piccadilly
Northside (Manchester Ltd)

Drawing Title
Planning
Level 6-20 floor plans

Drawing Number
HMP-BA-20-L06-DP-A-0

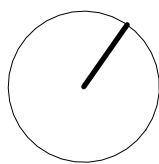
Revision/Suitability
P02 S2

Scale @ A3
1:200

Scale @ A1
1 : 100

Revision Date
230623

YY MM DD



- Room types
- Back of house
 - Core / circulation
 - Hotel room
 - Plant



Rev	Date	Revision	By	Chk
P01	230609	Issued for Planning	KC	JA
P02	230623	Issued for Planning	KC	JA

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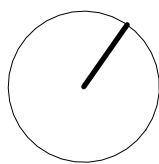
Project Project No. 2211
room2 Homotel Manchester Piccadilly
Northside (Manchester Ltd)

Drawing Title
Planning
Level 21-24 floor plans

Drawing Number Revision/Suitability
HMP-BA-20-L21-DP-A-0 P02 S2

Scale @ A3 Scale @ A1 Revision Date
1:200 1 : 100 230623

YY MM DD



- Room types
- Back of house
 - Core / circulation
 - Hotel room
 - Plant



Rev	Date	Revision	By	Chk
P01	230609	Issued for Planning	KC	JA
P02	230623	Issued for Planning	KC	JA

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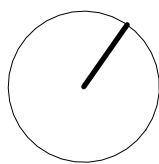
Project Project No. 2211
room2 Homotel Manchester Piccadilly
Northside (Manchester Ltd)

Drawing Title
Planning
Level 25-26 floor plans

Drawing Number Revision/Suitability
HMP-BA-20-L25-DP-A-0 P02 S2

Scale @ A3 Scale @ A1 Revision Date
1:200 1 : 100 230623

YY MM DD



Room types

- Back of house
- Core / circulation
- Plant



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P01	230609	Issued for Planning	KC	JA
P02	230623	Issued for Planning	KC	JA

Notes

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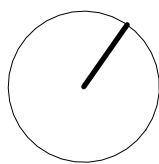
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room2 Homotel Manchester Piccadilly
Northside (Manchester Ltd)

Drawing Title
Planning
Level 27 floor plan

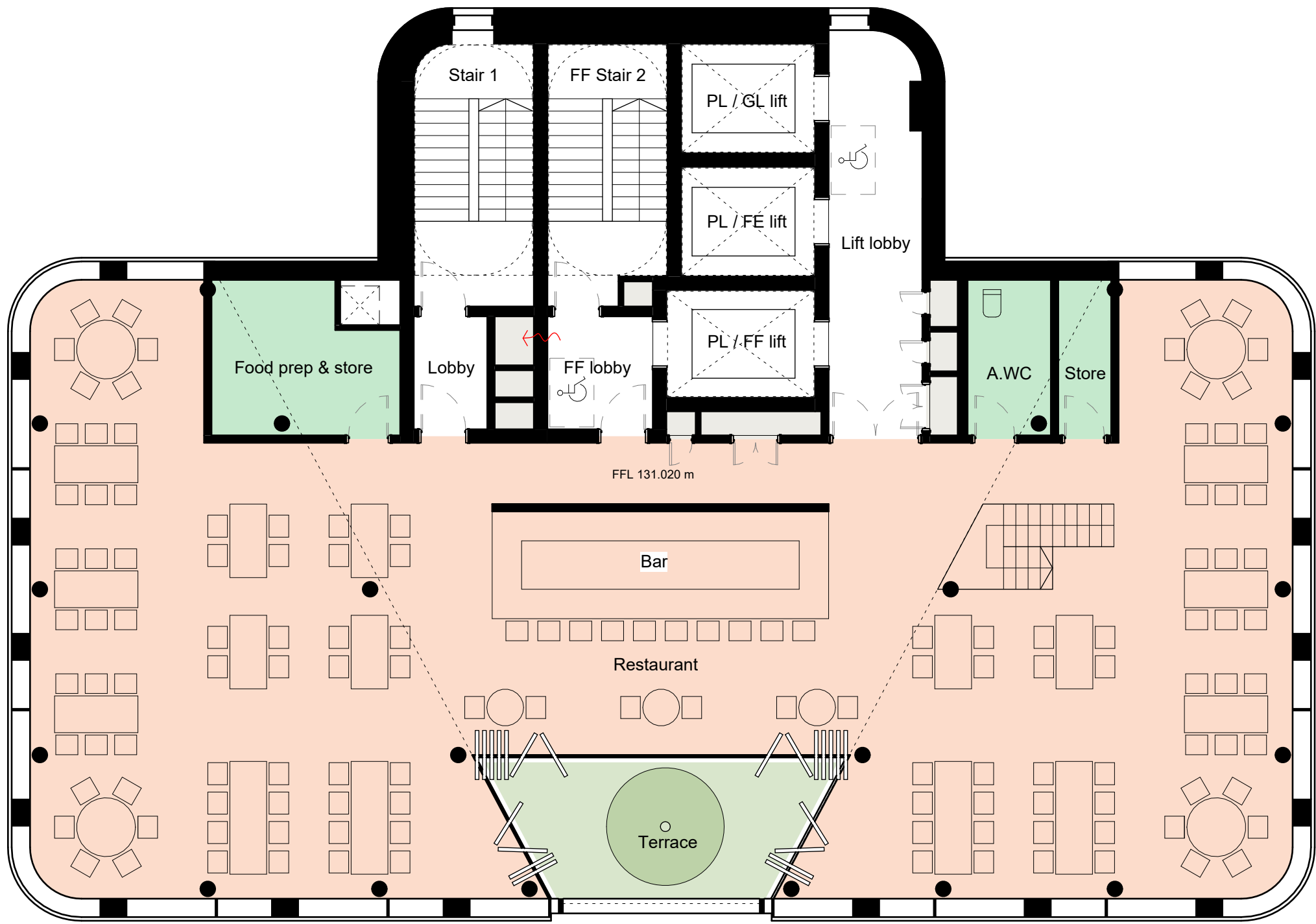
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HMP-BA-20-L27-DP-A-0 P02 S2

Scale @ A3 Scale @ A1 Revision Date
1:200 1:100 230623

YY MM DD



- Room types
- Back of house
 - Core / circulation
 - Plant
 - Retail / food / beverage



Rev	Date	Revision	By	Chk
P01	230609	Issued for Planning	KC	JA

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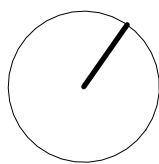
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room2 Homotel Manchester Piccadilly
Northside (Manchester Ltd)

Drawing Title
Planning
Level 28 floor plan

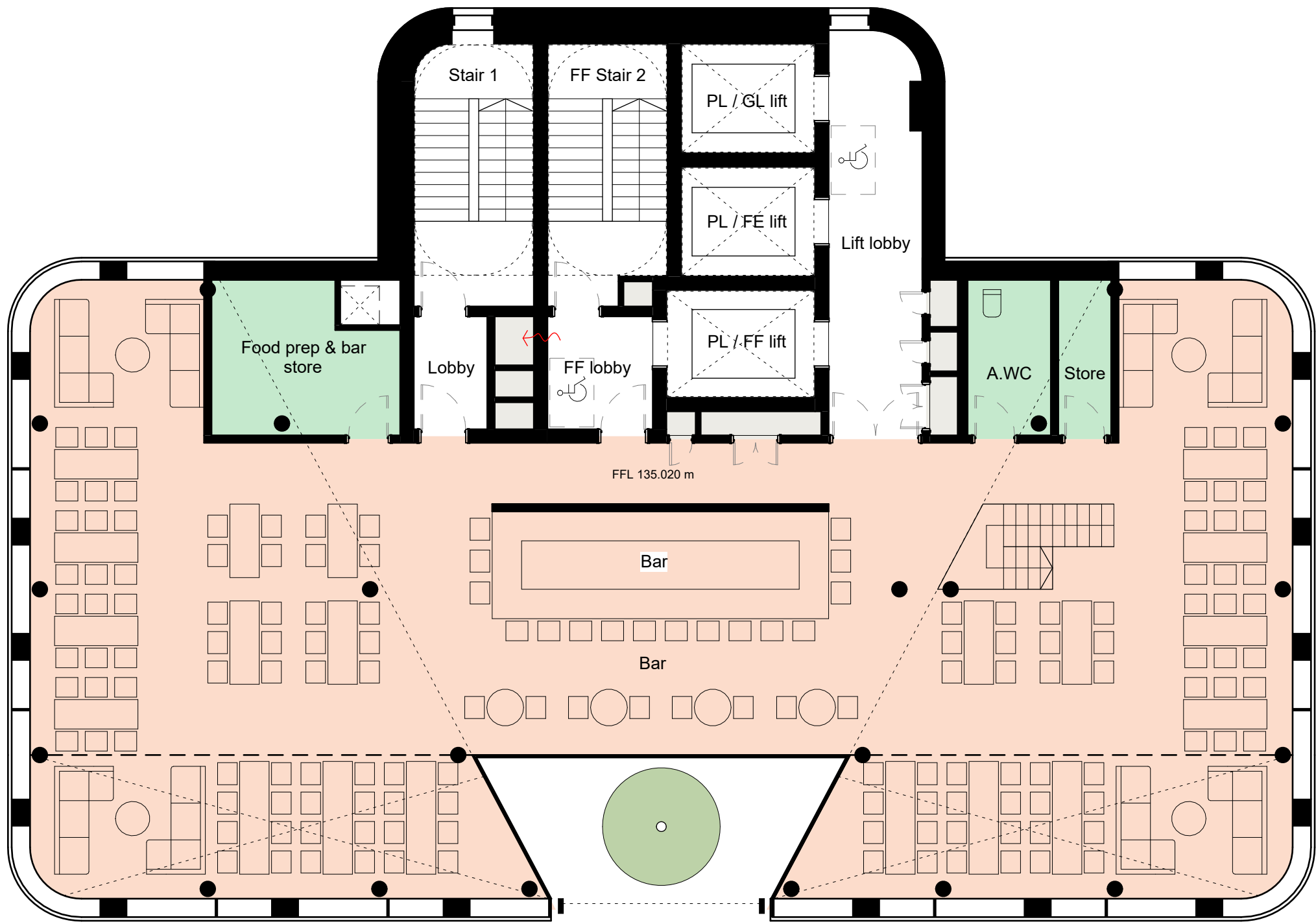
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HMP-BA-20-L28-DP-A-0 P01 S2

Scale @ A3 Scale @ A1 Revision Date
1:200 1:100 230609

YY MM DD



- Room types
- Back of house
 - Plant
 - Retail / food / beverage



Rev	Date	Revision	By	Chk
P01	230609	Issued for Planning	KC	JA

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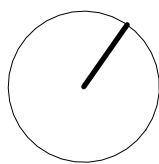
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room2 Homotel Manchester Piccadilly
Northside (Manchester Ltd)

Drawing Title
Planning
Level 29 floor plan

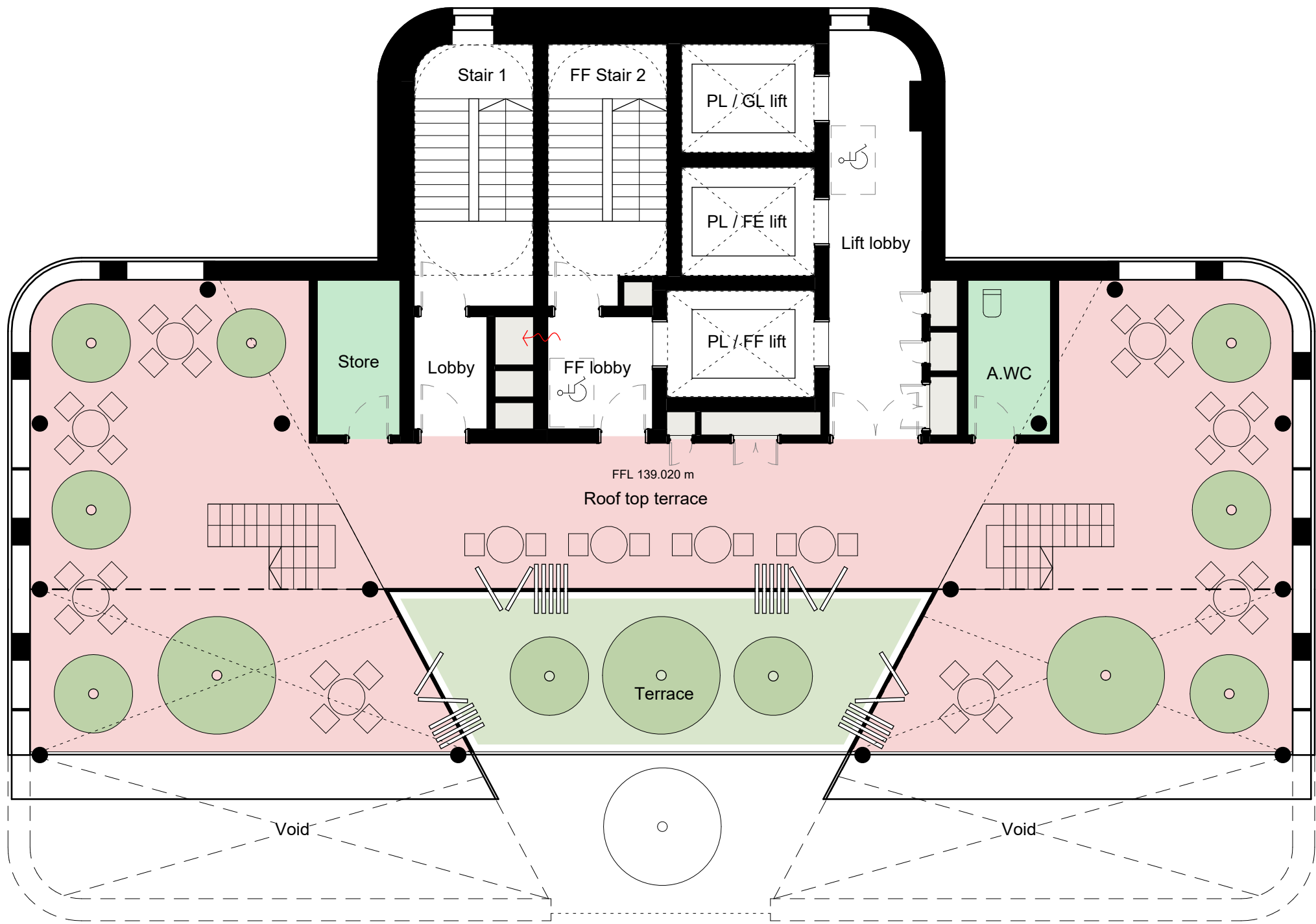
Drawing Number Revision/Suitability
HMP-BA-20-L29-DP-A-0 P01 S2

Scale @ A3 Scale @ A1 Revision Date
1:200 1:100 230609

YY MM DD



- Room types
- Back of house
 - Front of house
 - Plant



Rev	Date	Revision	By	Chk
P01	230609	Issued for Planning	KC	JA

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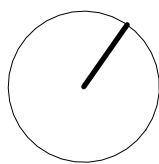
Project Project No. 2211
room2 Homotel Manchester Piccadilly
Northside (Manchester Ltd)

Drawing Title
Planning
Level 30 floor plan

Drawing Number Revision/Suitability
HMP-BA-20-L30-DP-A-0 P01 S2

Scale @ A3 Scale @ A1 Revision Date
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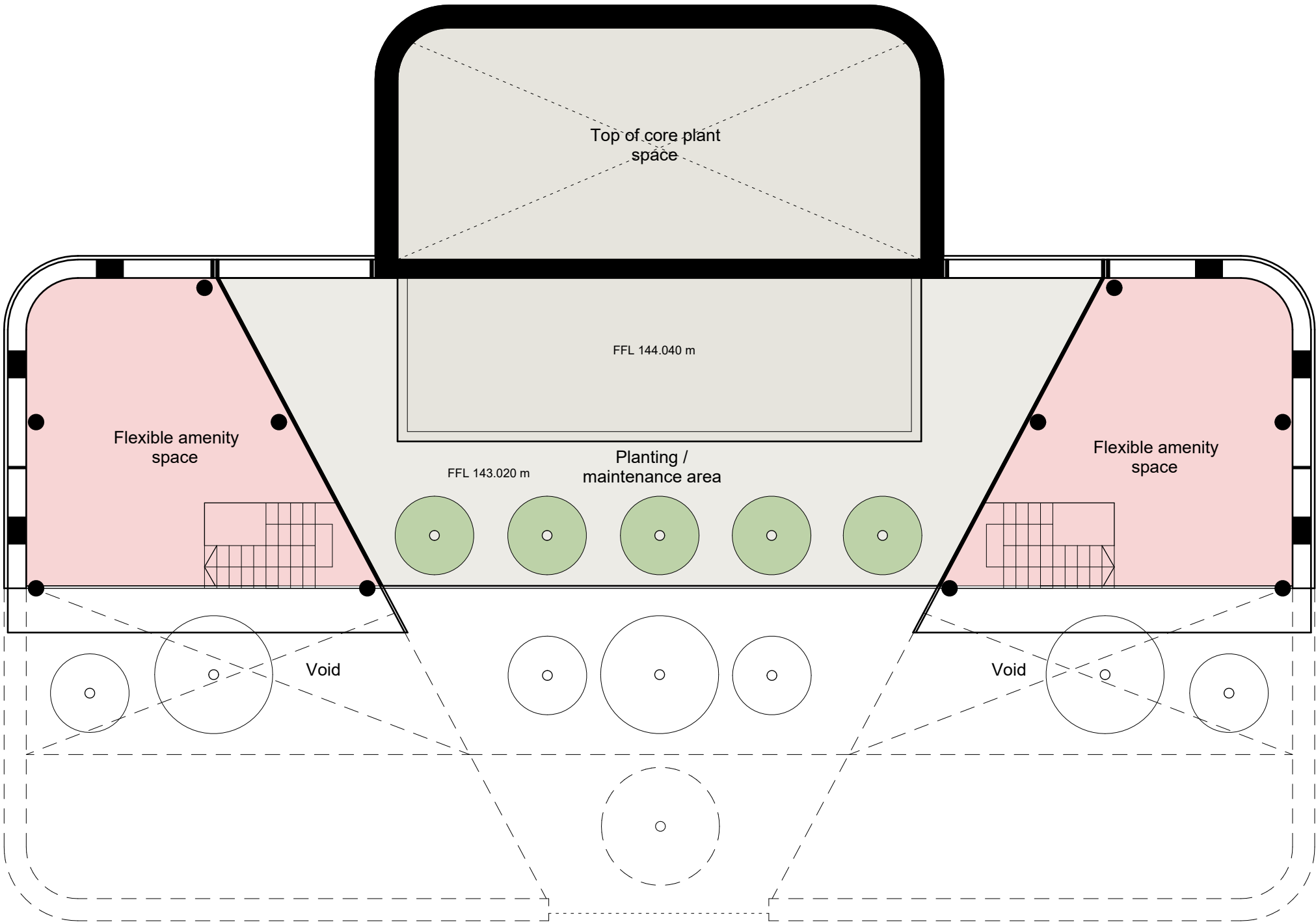
YY MM DD



Room types

Front of house

Plant



Rev	Date	Revision	By	Chk
P01	230609	Issued for Planning	KC	JA
P02	230623	Issued for Planning	KC	JA

Notes

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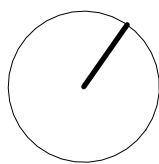
Project Project No. 2211
room2 Homotel Manchester Piccadilly
Northside (Manchester Ltd)

Drawing Title
Planning
Level 31 floor plan

Drawing Number Revision/Suitability
HMP-BA-20-L31-DP-A-0 **P02 S2**

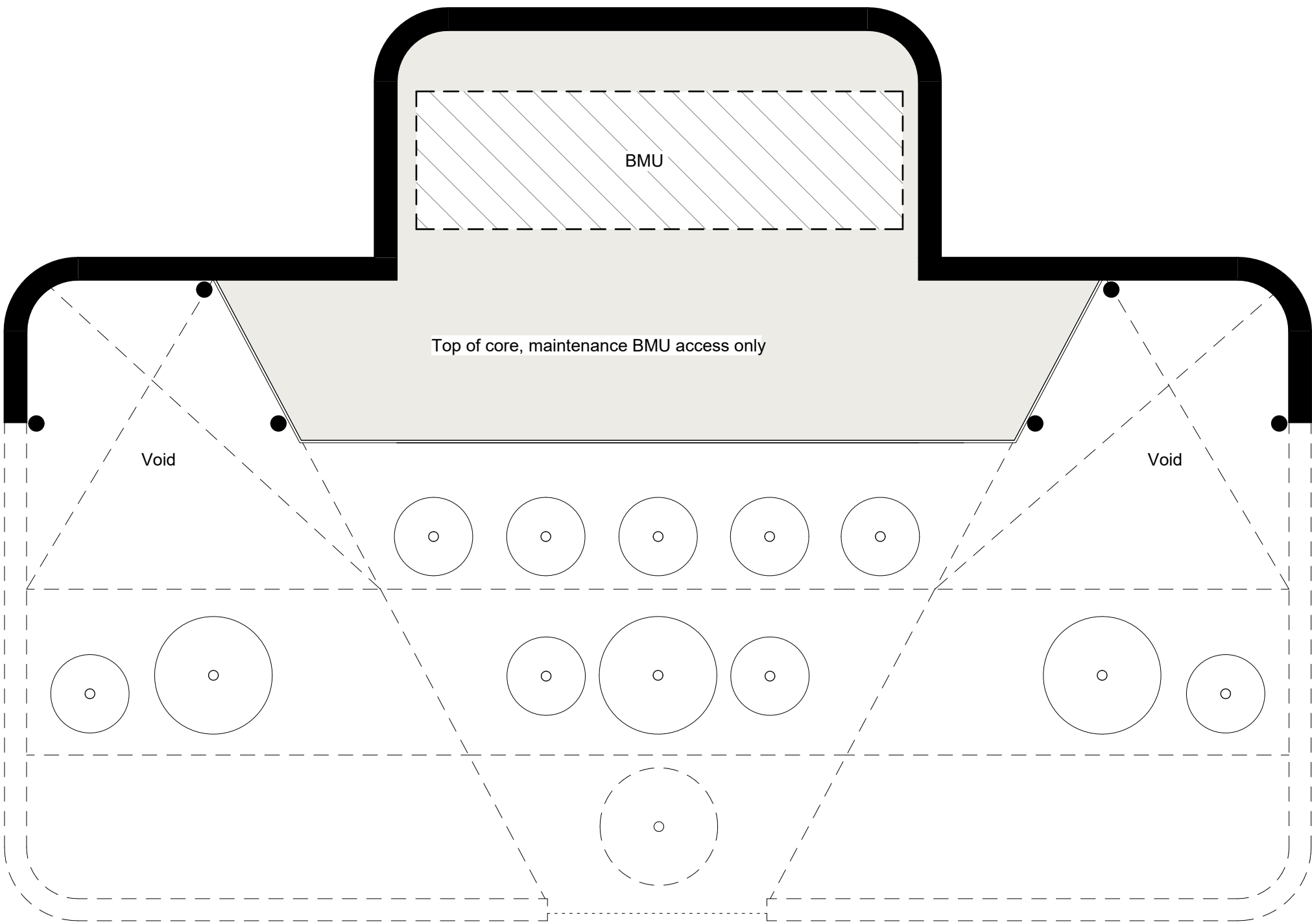
Scale @ A3 Scale @ A1 Revision Date
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YY MM DD



Room types

Plant



Rev	Date	Revision	By	Chk
P01	240426	Planning Addendum Draft	TR	JA
P02	240501	Planning Addendum Issue	SG	JA

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Northside (Manchester Ltd)

Drawing Title
Planning
Level 32 floor plan

Drawing Number Revision/Suitability
HMP-BA-20-L32-DP-A-0 **P02 S2**

Scale @ A3 Scale @ A1 Revision Date
1:200 1 : 100 240501

YY MM DD

APPENDIX B

Historical Maps

Site Details:

384585 , 398138

Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: 1056 Scale Town Plan

Map date: 1851

Scale: 1:1,056

Printed at: 1:1,056



Surveyed 1849
Revised N/A
Edition 1851
Copyright N/A
Levelled N/A



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Production date: 01 February 2024

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



Site Details:

384585 , 398138

Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: County Series

Map date: 1889-1893

Scale: 1:2,500

Printed at: 1:2,500



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

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

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

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



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Production date: 01 February 2024

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Site Details:

384585 , 398138

Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: County Series

Map date: 1908

Scale: 1:2,500

Printed at: 1:2,500



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

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

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

Surveyed 1891
Revised 1905
Edition 1908
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Site Details:

384585 , 398138

Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: County Series

Map date: 1922

Scale: 1:2,500

Printed at: 1:2,500



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

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

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

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



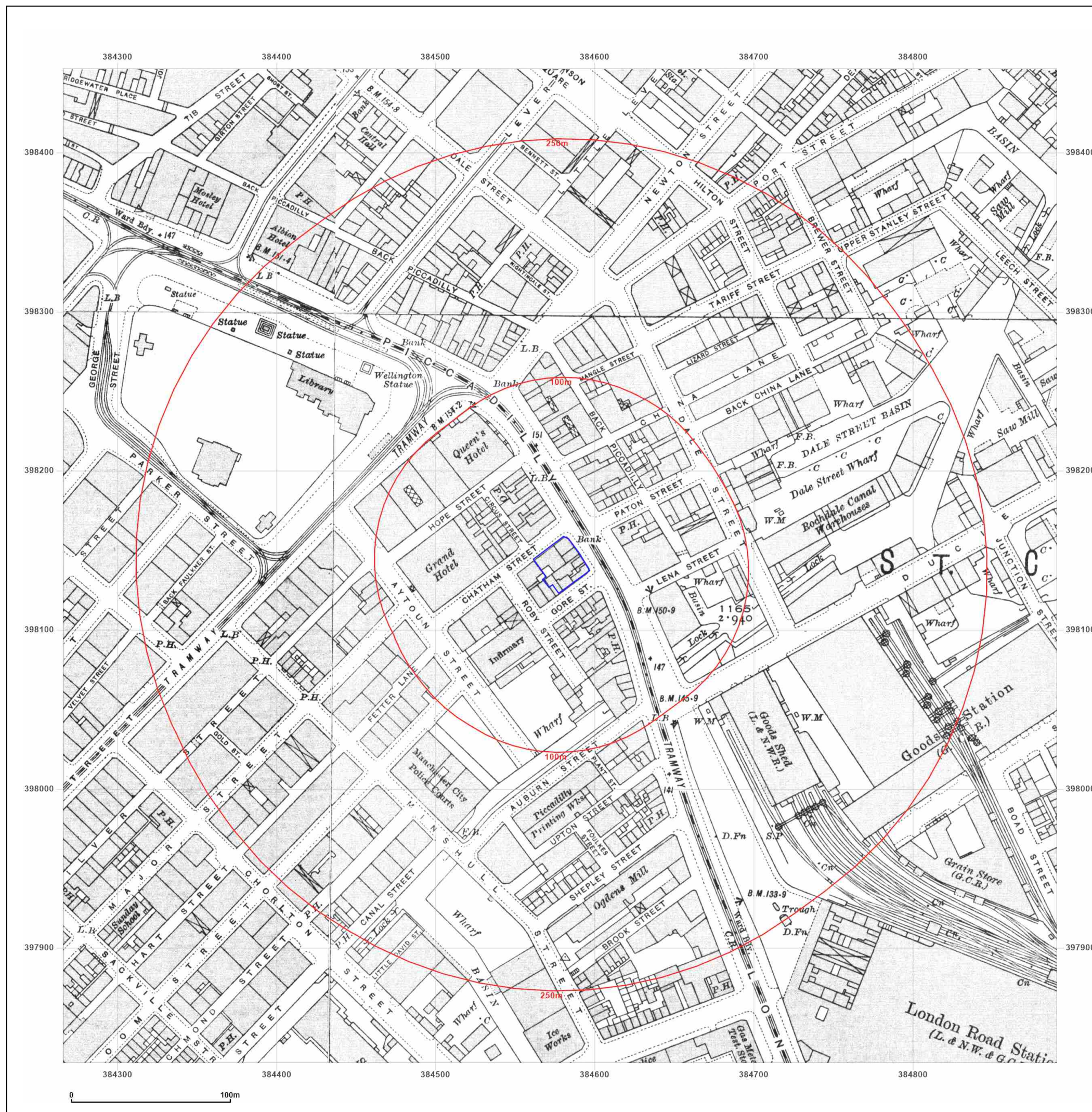
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Site Details:

384585 , 398138

Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: County Series

Map date: 1931-1933

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1873
 Revised 1933
 Edition N/A
 Copyright N/A
 Levelled 1927

Surveyed 1873
 Revised 1931
 Edition N/A
 Copyright N/A
 Levelled 1927

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

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



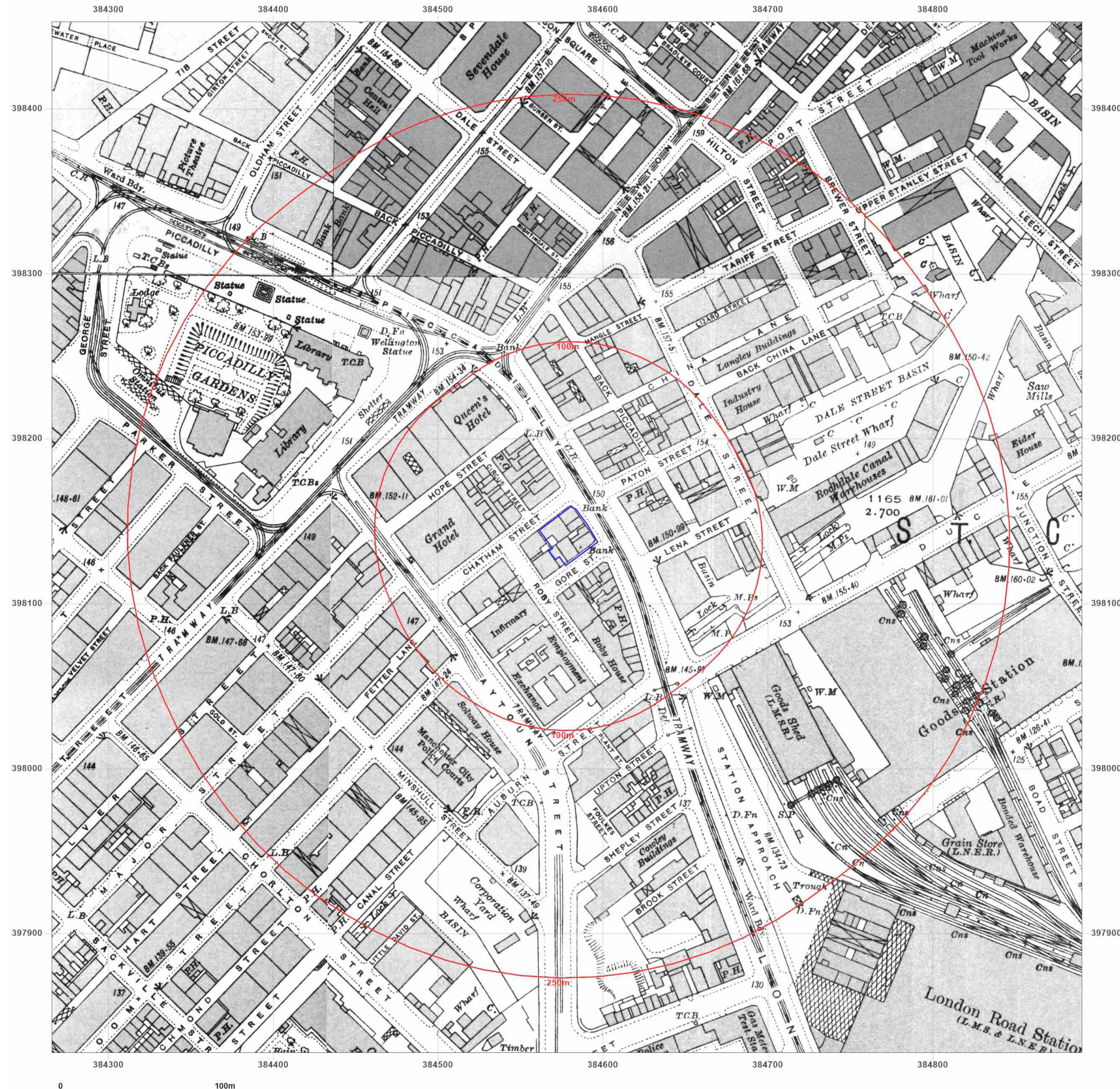
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Site Details:

384585 , 398138

Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: National Grid

Map date: 1948

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1948
 Revised 1948
 Edition N/A
 Copyright 1948
 Levelled 1929

Surveyed 1948
 Revised 1948
 Edition N/A
 Copyright 1948
 Levelled 1929

Surveyed 1948
 Revised 1948
 Edition N/A
 Copyright 1948
 Levelled 1929

Surveyed 1948
 Revised 1948
 Edition N/A
 Copyright 1948
 Levelled 1929



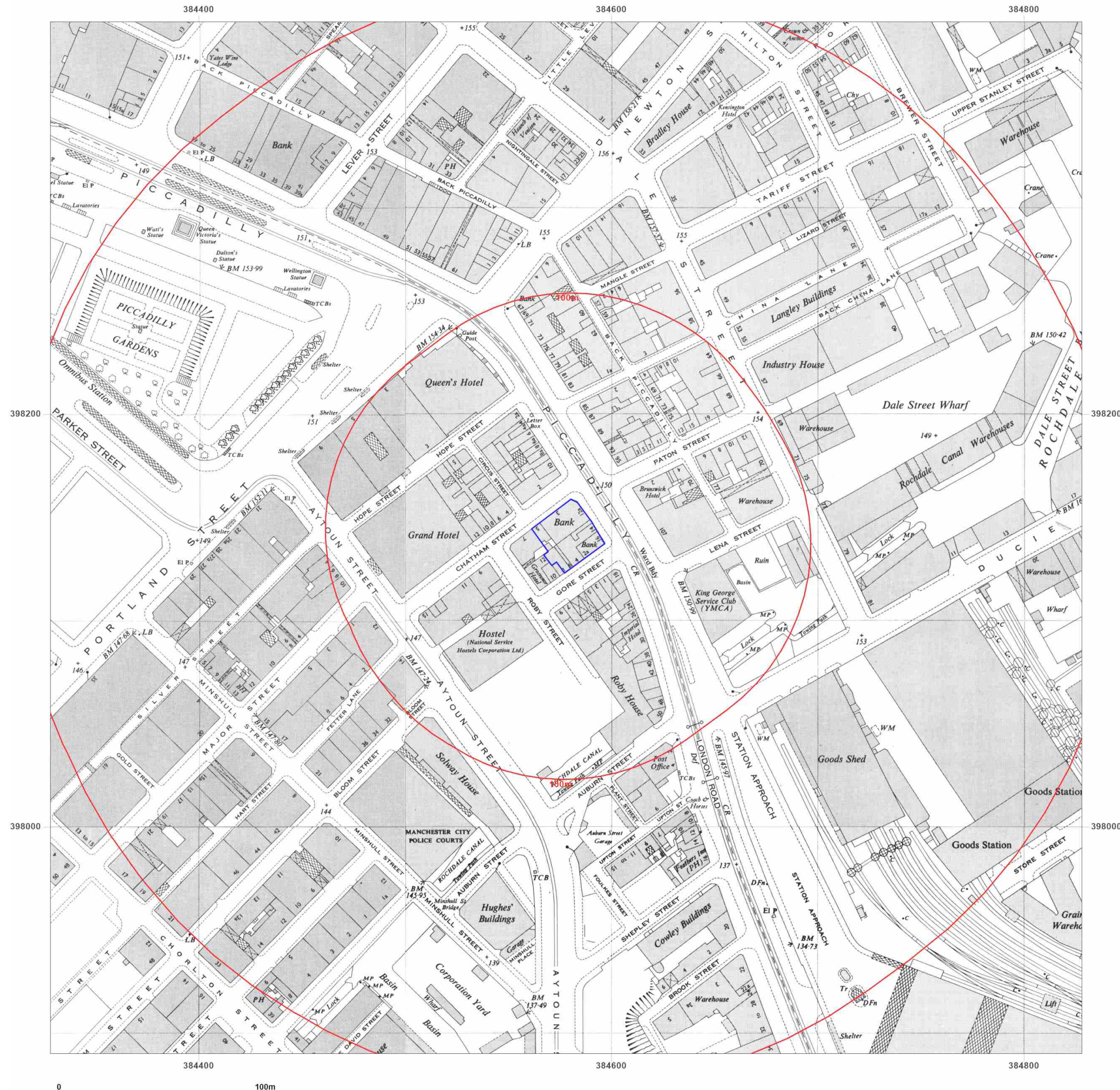
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Site Details:

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Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: National Grid

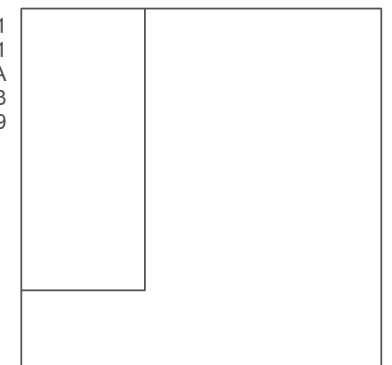
Map date: 1953

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1951
Revised 1951
Edition N/A
Copyright 1953
Levelled 1929



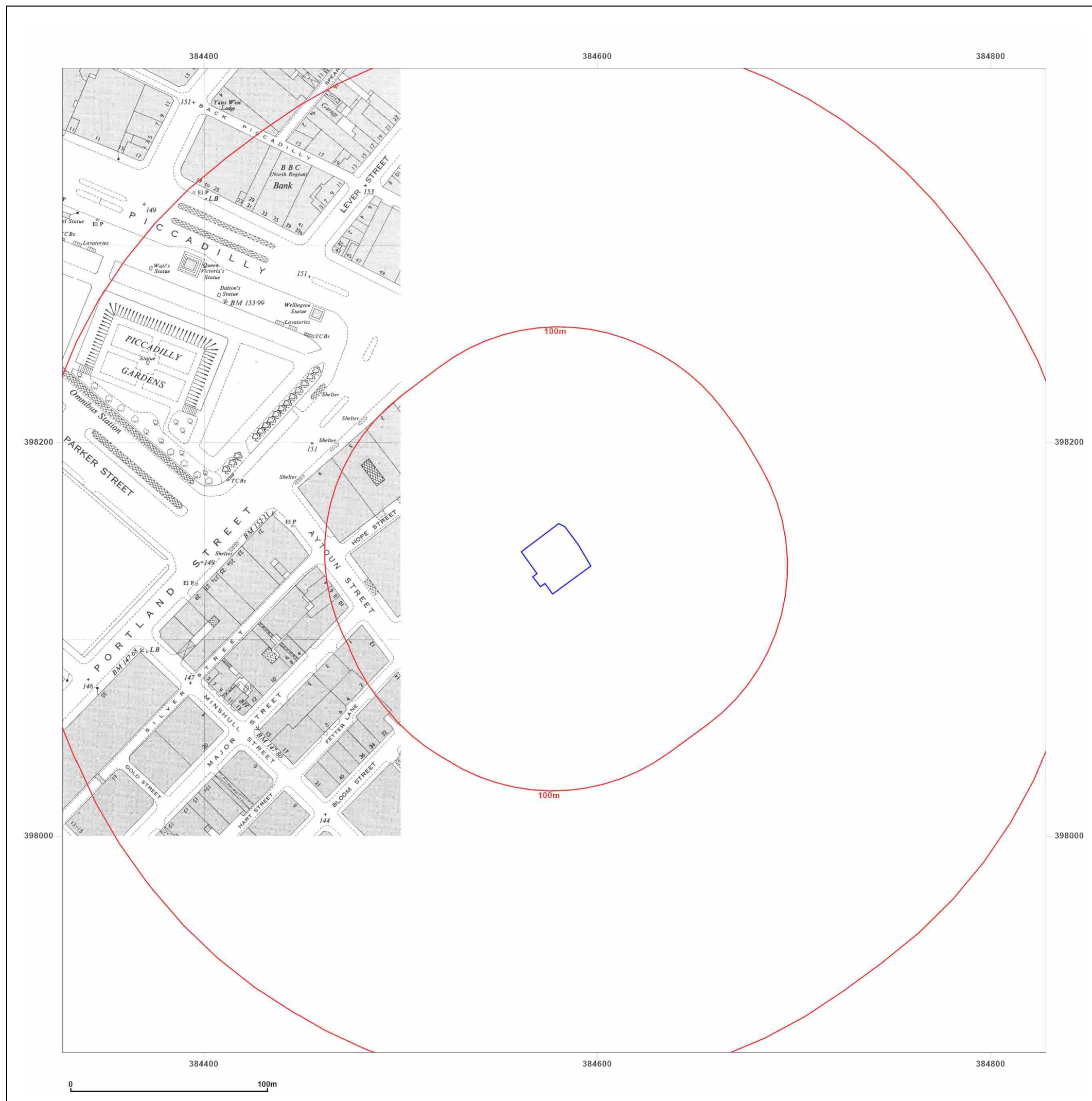
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Site Details:

384585 , 398138

Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: National Grid

Map date: 1950-1953

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1948
 Revised 1948
 Edition N/A
 Copyright 1954
 Levelled 1929

Surveyed 1948
 Revised 1948
 Edition N/A
 Copyright 1950
 Levelled 1929



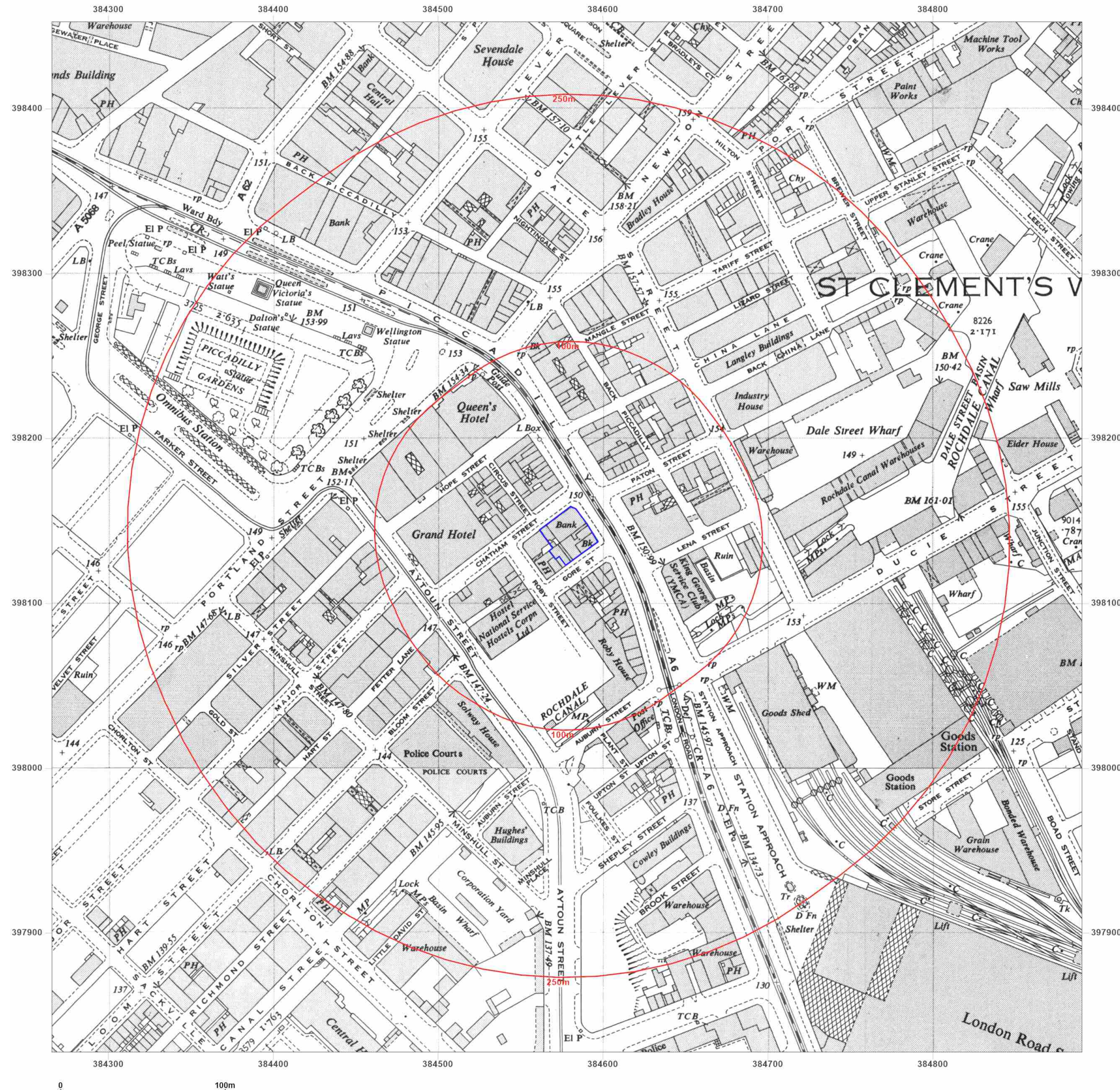
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Site Details:

384585 , 398138

Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: National Grid

Map date: 1951-1954

Scale: 1:1,250

Printed at: 1:2,000



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

Surveyed 1948
Revised 1953
Edition 1954
Copyright N/A
Levelled N/A

Surveyed 1953
Revised 1953
Edition N/A
Copyright 1952
Levelled 1929



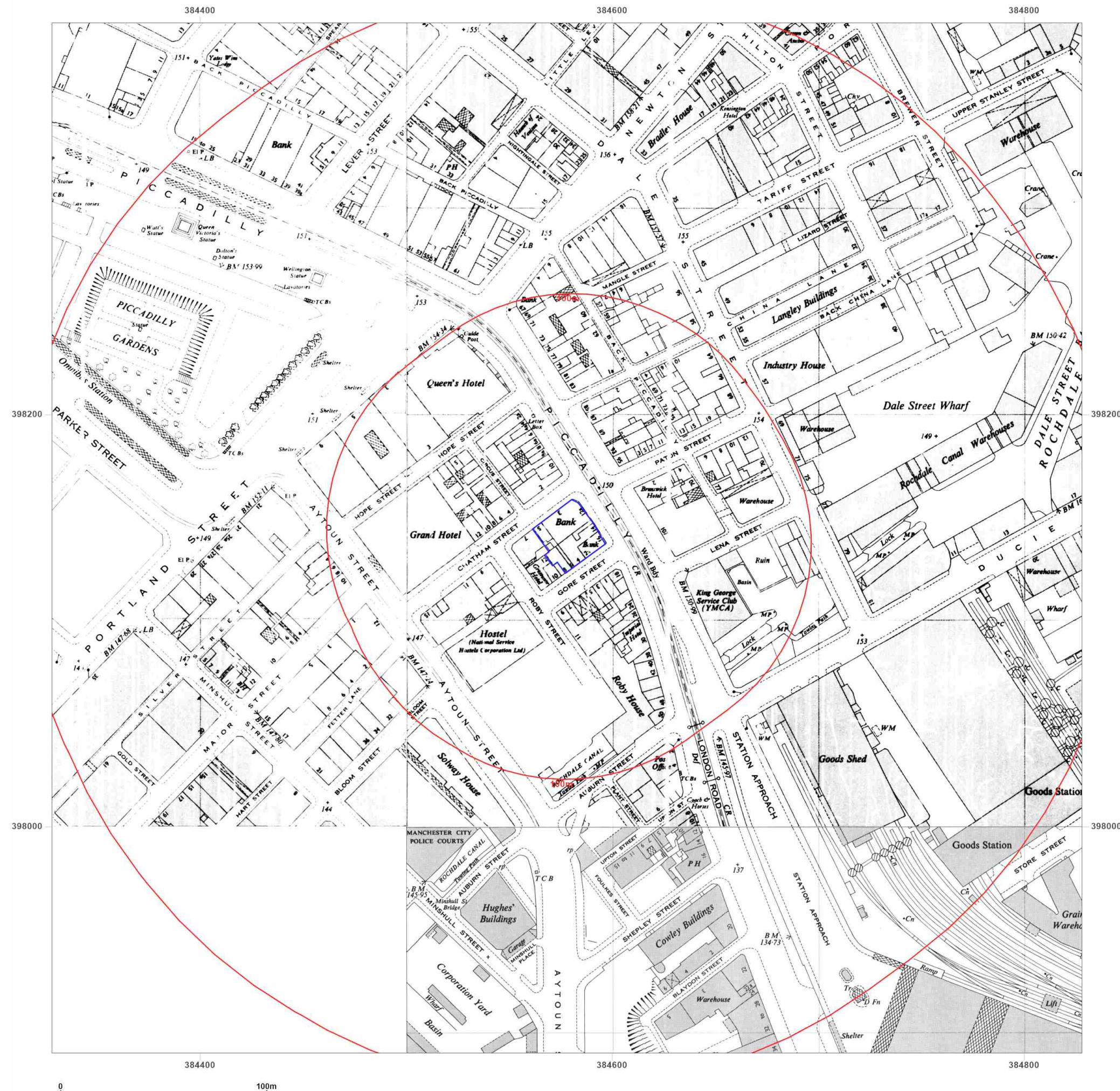
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Site Details:

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Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: National Grid

Map date: 1951-1954

Scale: 1:1,250

Printed at: 1:2,000



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

Surveyed 1948
Revised 1953
Edition 1954
Copyright N/A
Levelled N/A

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Revised N/A
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Site Details:

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Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: National Grid

Map date: 1953-1955

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1953
Revised 1953
Edition N/A
Copyright 1954
Levelled 1929

Surveyed 1953
Revised 1953
Edition N/A
Copyright N/A
Levelled 1929

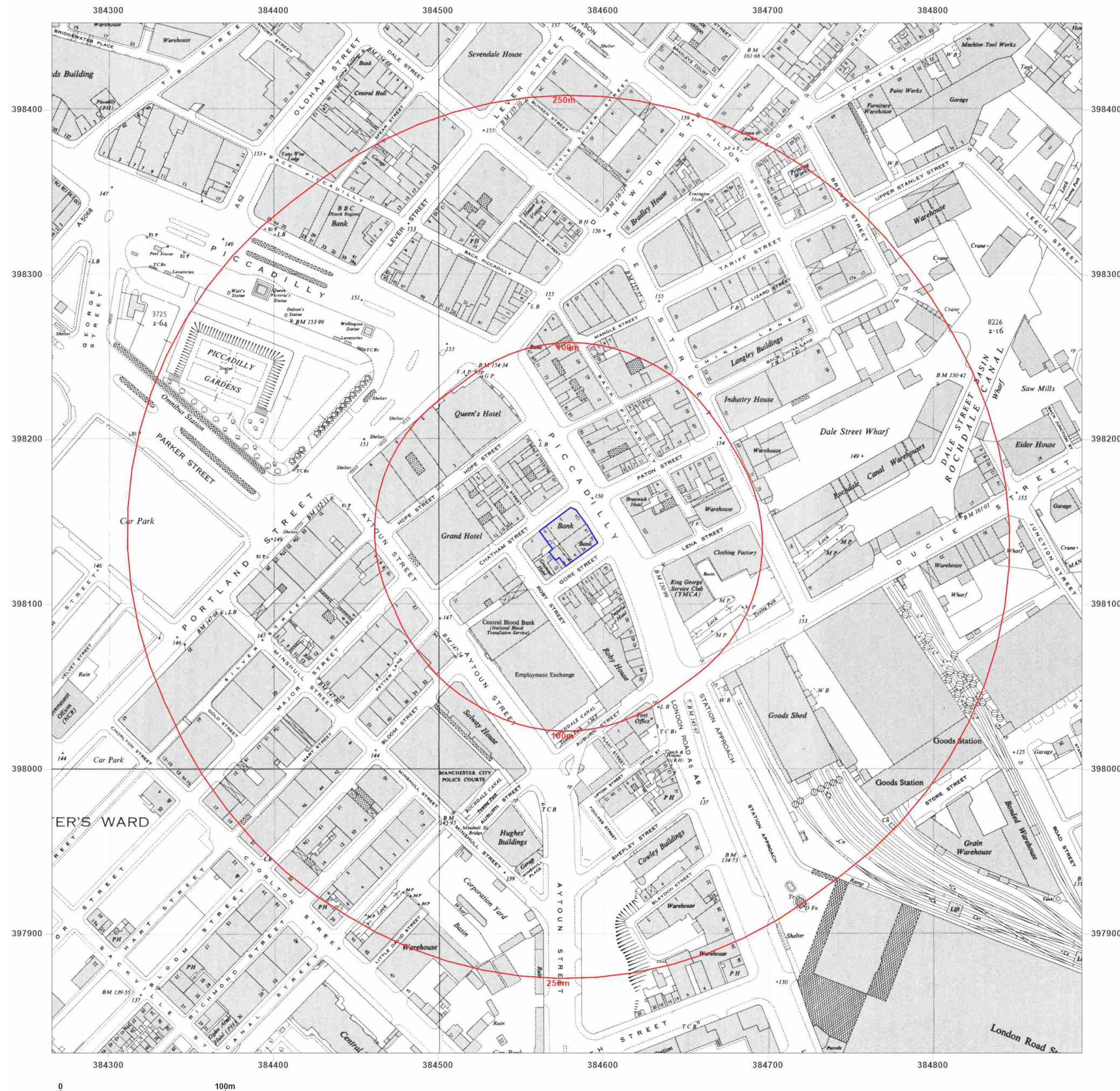


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Site Details:

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Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: National Grid

Map date: 1960-1964

Scale: 1:1,250

Printed at: 1:2,000



	Surveyed 1953 Revised 1953 Edition N/A Copyright 1960 Levelled 1929
Surveyed 1948 Revised 1963 Edition N/A Copyright 1964 Levelled 1958	Surveyed 1963 Revised 1963 Edition N/A Copyright 1964 Levelled 1959



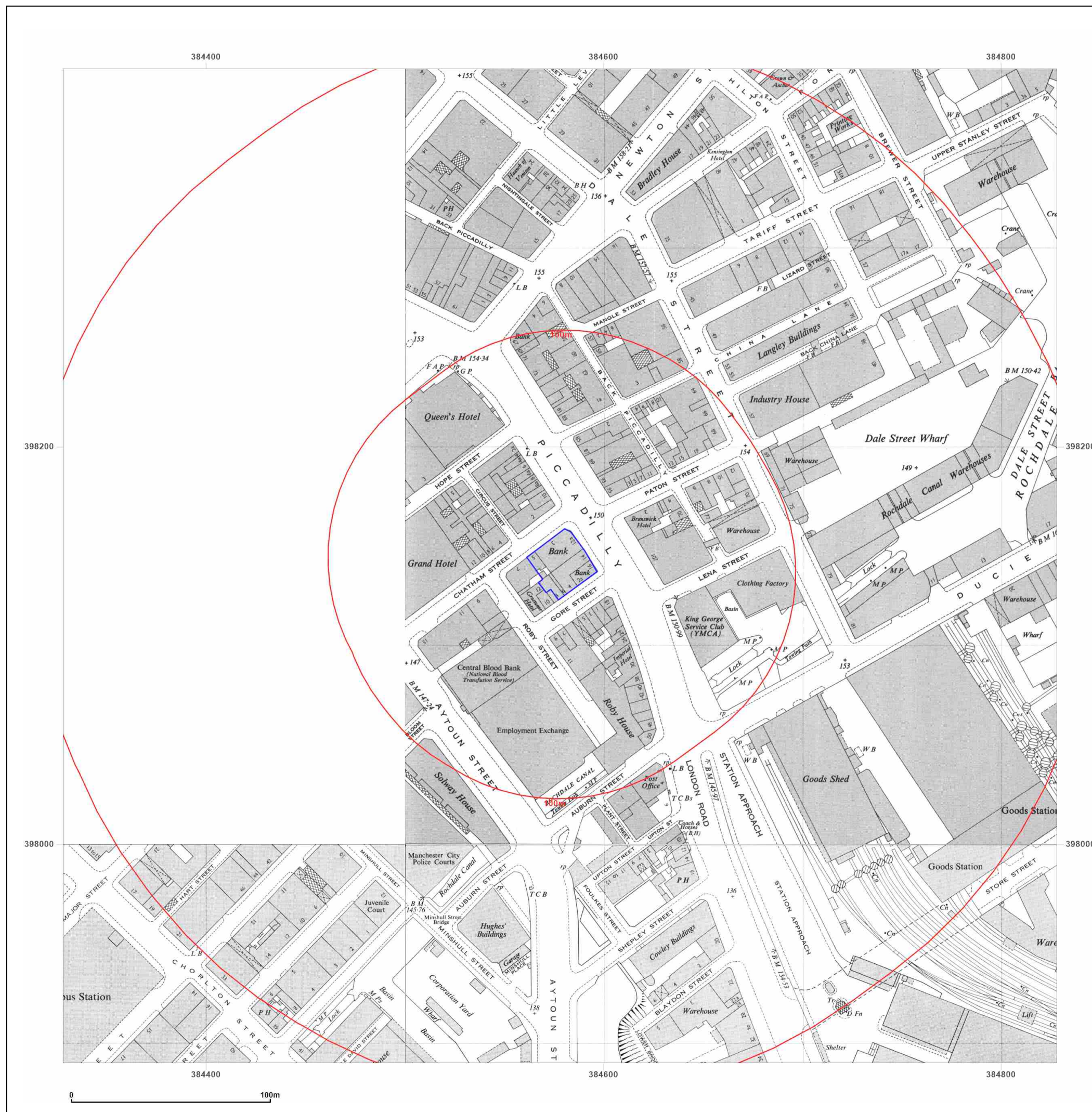
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Site Details:

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Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: National Grid

Map date: 1965-1968

Scale: 1:2,500

Printed at: 1:2,500



Surveyed N/A
Revised 1964
Edition N/A
Copyright 1965
Levelled 1959

Surveyed 1968
Revised 1968
Edition N/A
Copyright 1970
Levelled 1964



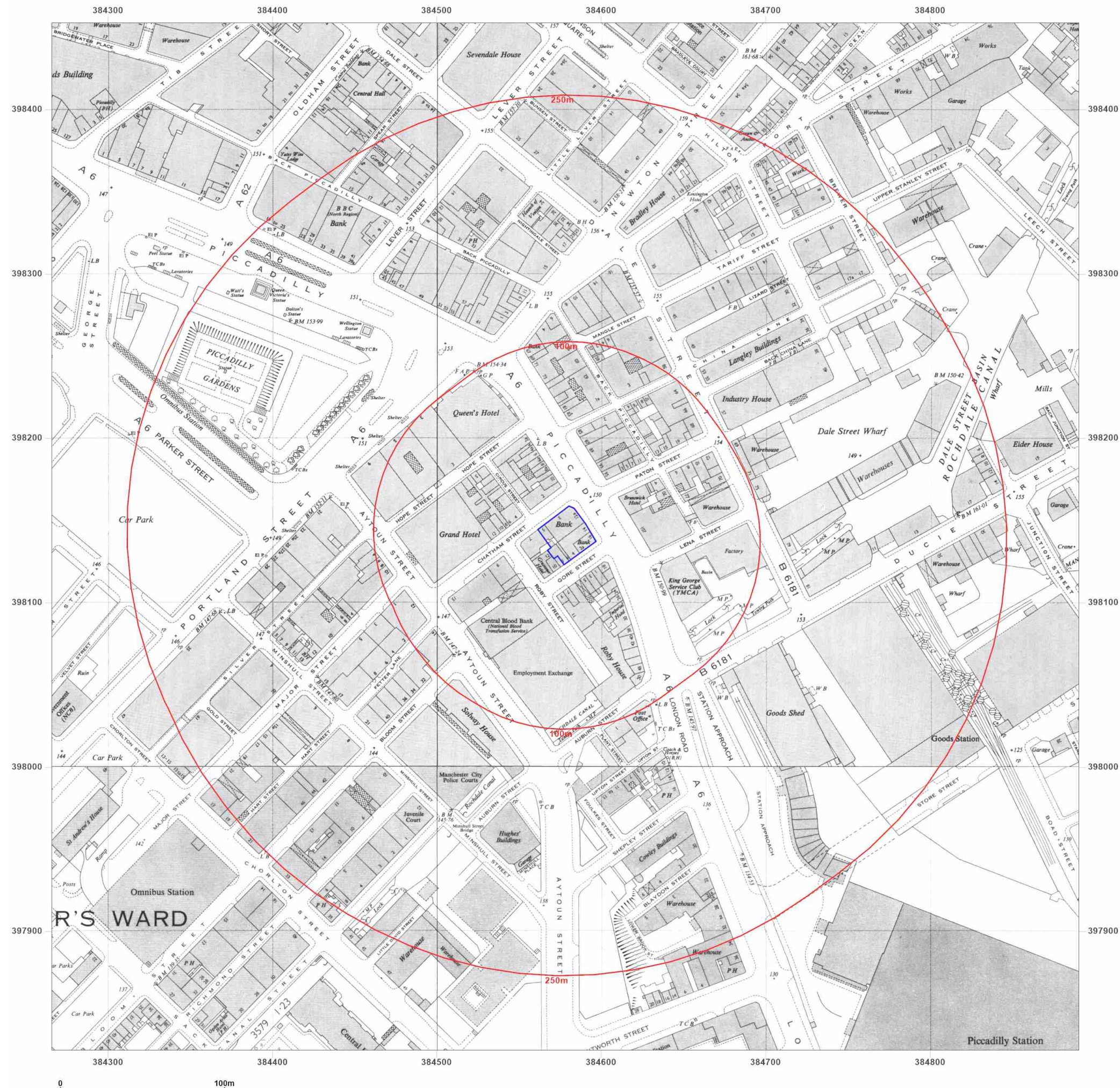
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Site Details:

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Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: National Grid

Map date: 1965-1969

Scale: 1:2,500

Printed at: 1:2,500



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

Surveyed 1963
Revised 1963
Edition N/A
Copyright 1965
Levelled 1959



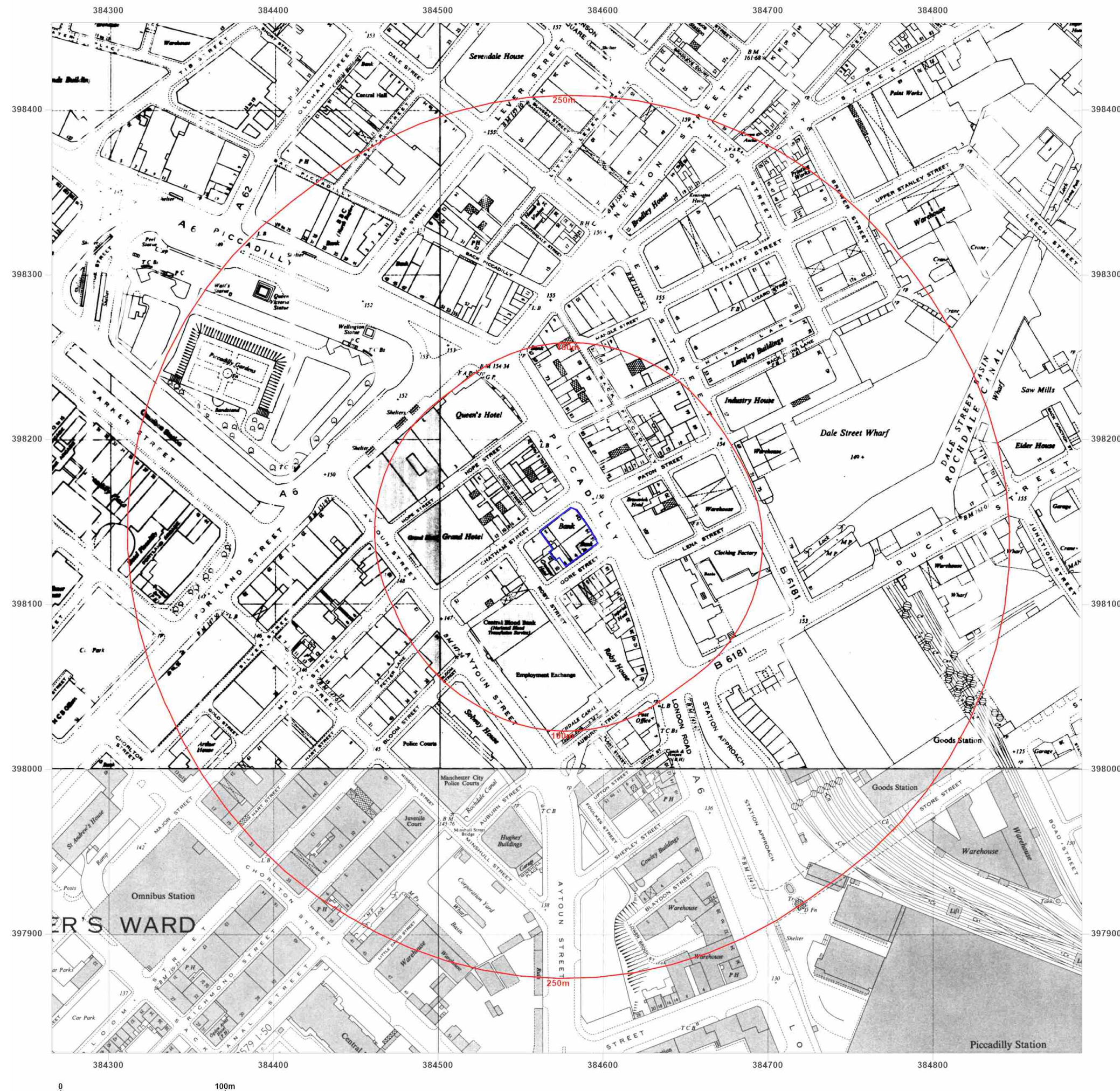
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Site Details:

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Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: National Grid

Map date: 1967-1970

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1967
Revised 1967
Edition N/A
Copyright 1969
Levelled 1964

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



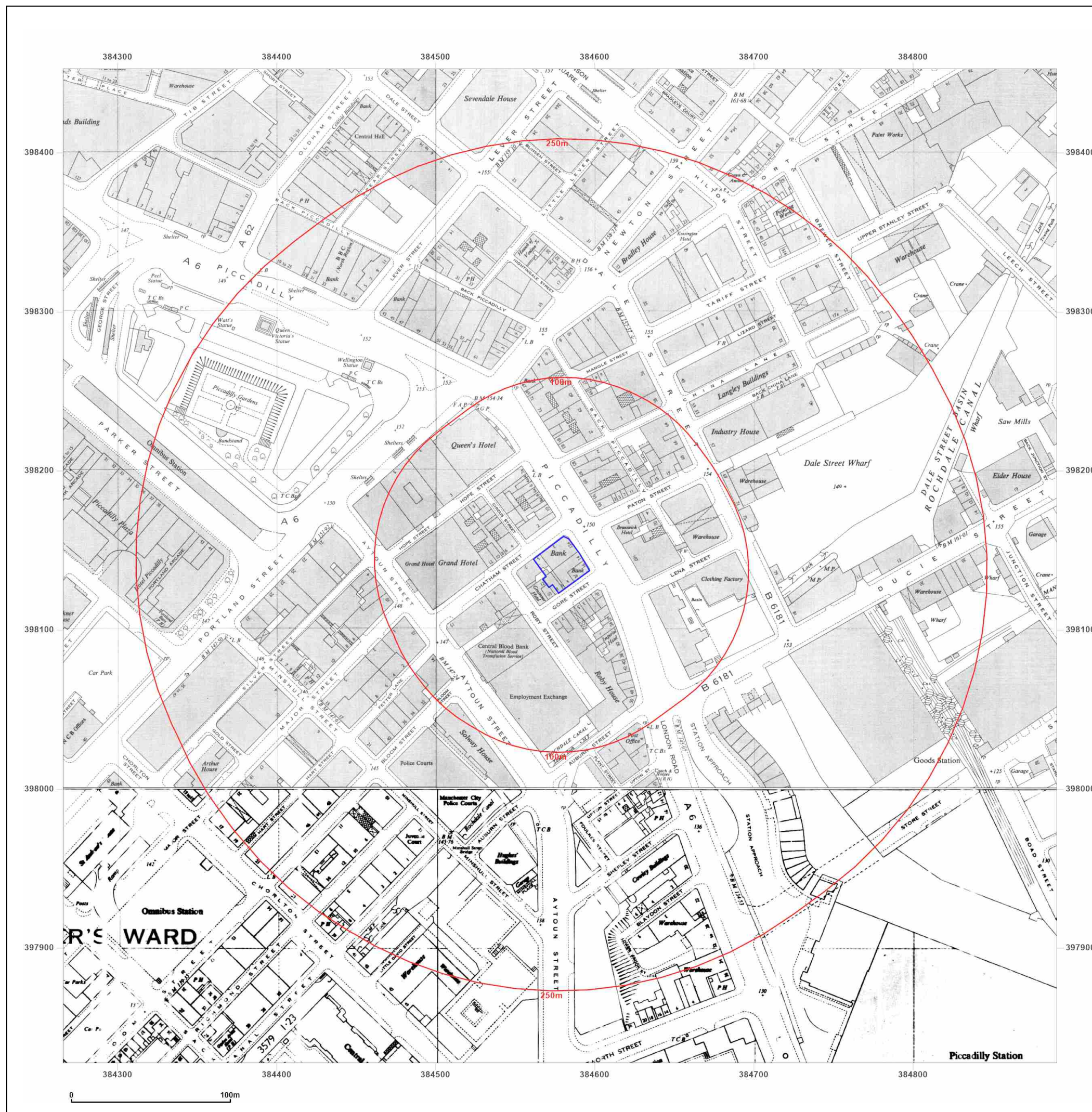
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Site Details:

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Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: National Grid

Map date: 1968-1971

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1948
Revised 1967
Edition N/A
Copyright 1968
Levelled 1964

Surveyed 1948
Revised 1970
Edition N/A
Copyright 1971
Levelled 1964

Surveyed 1948
Revised 1970
Edition N/A
Copyright 1971
Levelled 1964



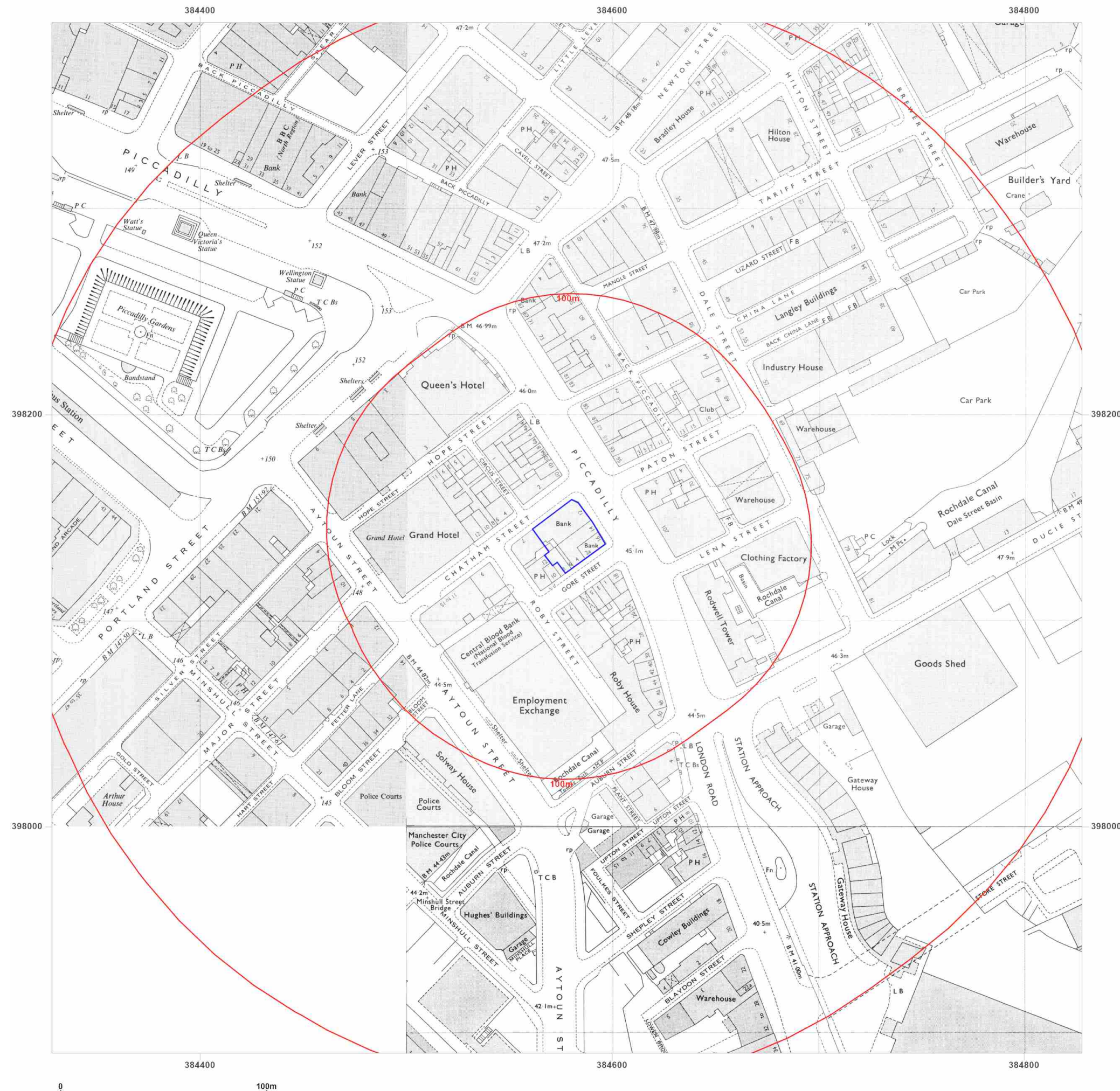
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Site Details:

384585 , 398138

Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: National Grid

Map date: 1971-1980

Scale: 1:1,250

Printed at: 1:2,000



Surveyed N/A
Revised N/A
Edition N/A
Copyright 1980
Levelled 1964

Surveyed 1948
Revised 1970
Edition N/A
Copyright 1971
Levelled 1964

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



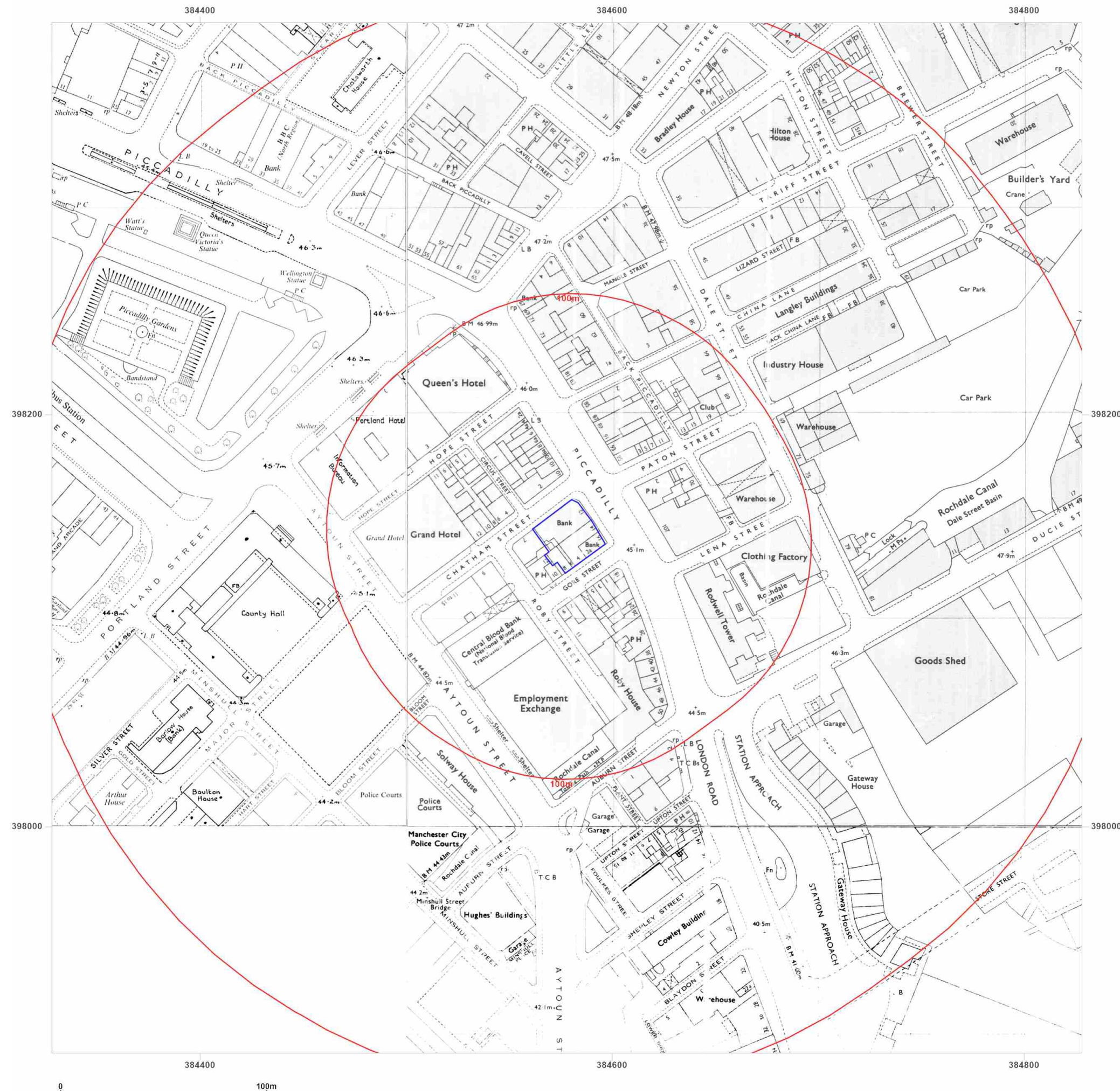
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Site Details:

384585 , 398138

Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: National Grid

Map date: 1984-1986

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1948
Revised 1985
Edition N/A
Copyright 1986
Levelled 1964

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

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1985
Levelled 1963

Surveyed 1964
Revised 1984
Edition N/A
Copyright 1984
Levelled 1964

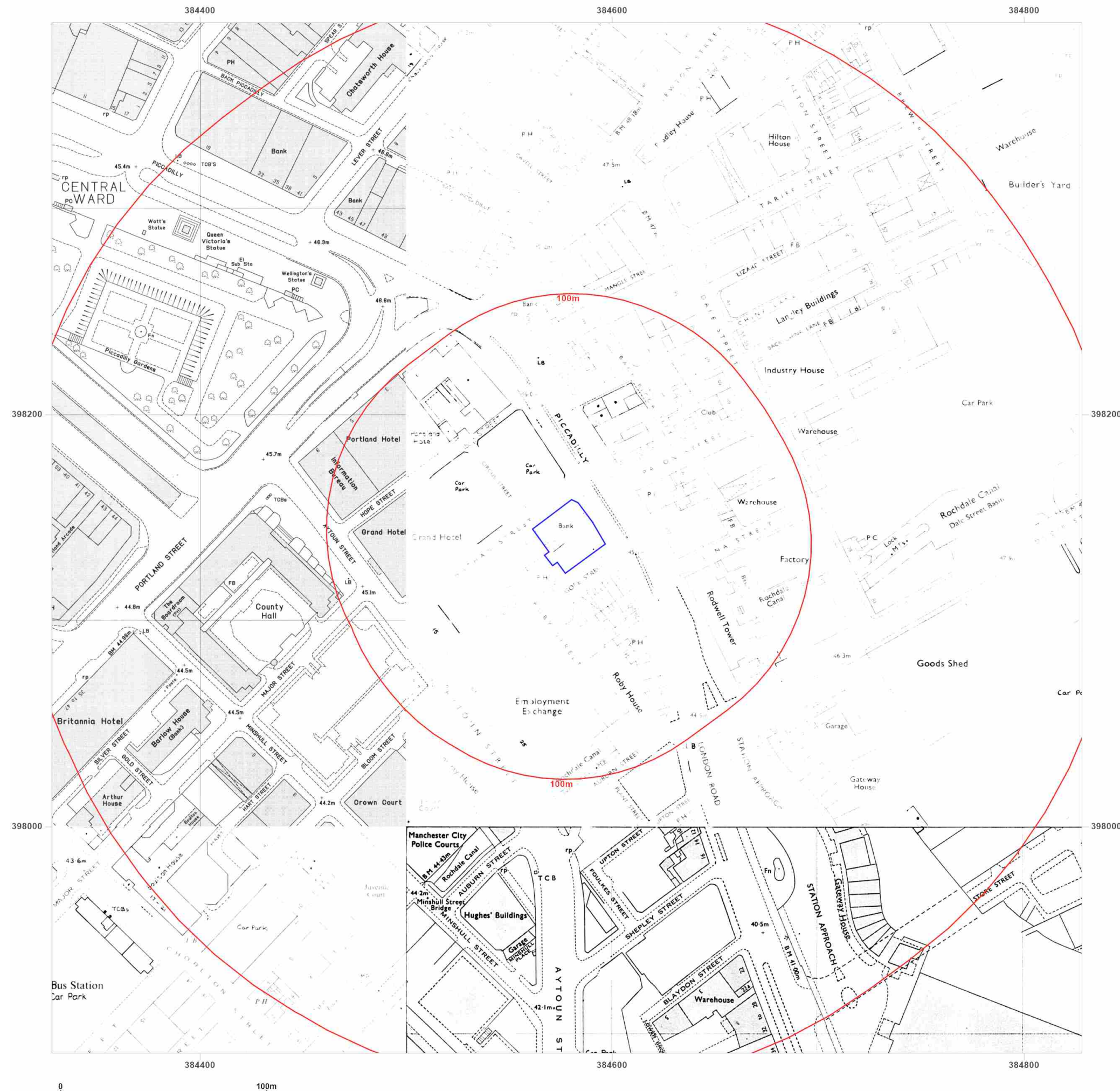


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Site Details:

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Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: National Grid

Map date: 1990-1992

Scale: 1:1,250

Printed at: 1:2,000



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

Surveyed 1963
Revised 1990
Edition N/A
Copyright 1990
Levelled 1963

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Revised 1990
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Surveyed 1992
Revised 1992
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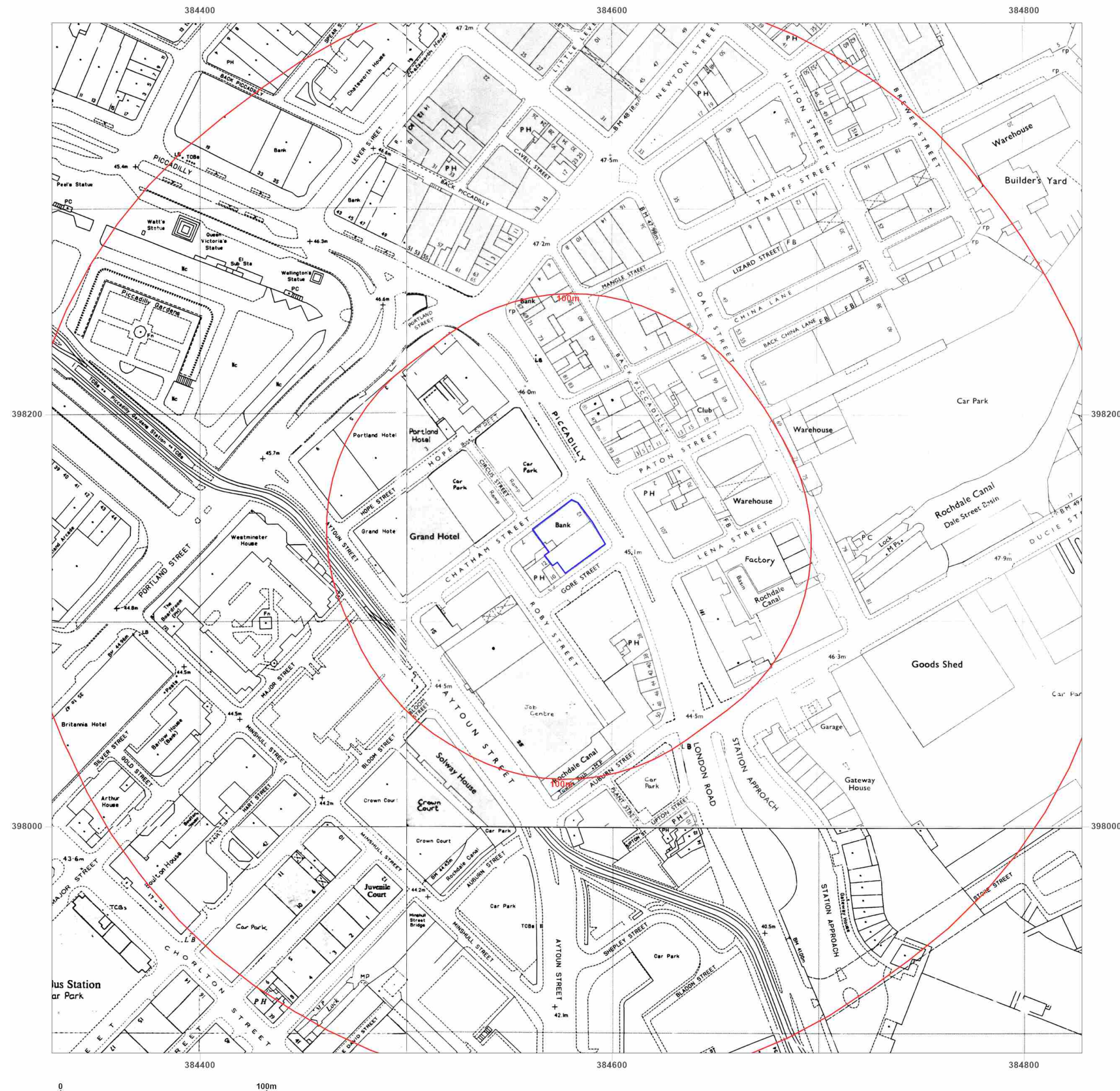
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Site Details:

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Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: National Grid

Map date: 1990-1995

Scale: 1:1,250

Printed at: 1:2,000



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Revised 1995
Edition N/A
Copyright 1995
Levelled N/A

Surveyed 1992
Revised 1992
Edition N/A
Copyright 1992
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Surveyed 1963
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Revised 1995
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Levelled N/A



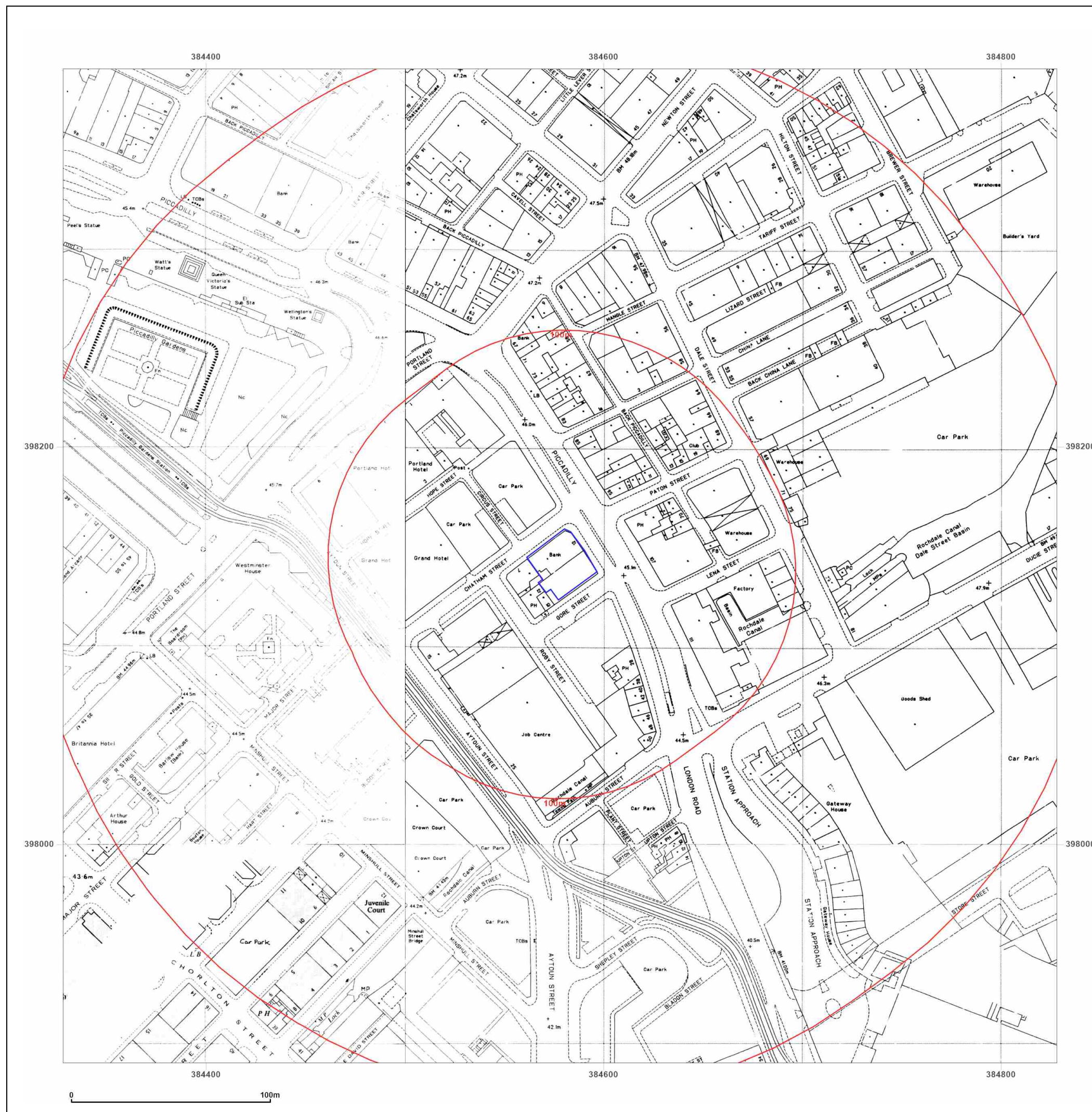
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Site Details:

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Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: National Grid

Map date: 1992-1995

Scale: 1:1,250

Printed at: 1:2,000



Surveyed N/A
Revised 1995
Edition N/A
Copyright 1995
Levelled N/A

Surveyed 1992
Revised 1992
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Copyright 1992
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Surveyed 1995
Revised 1995
Edition N/A
Copyright 1995
Levelled N/A



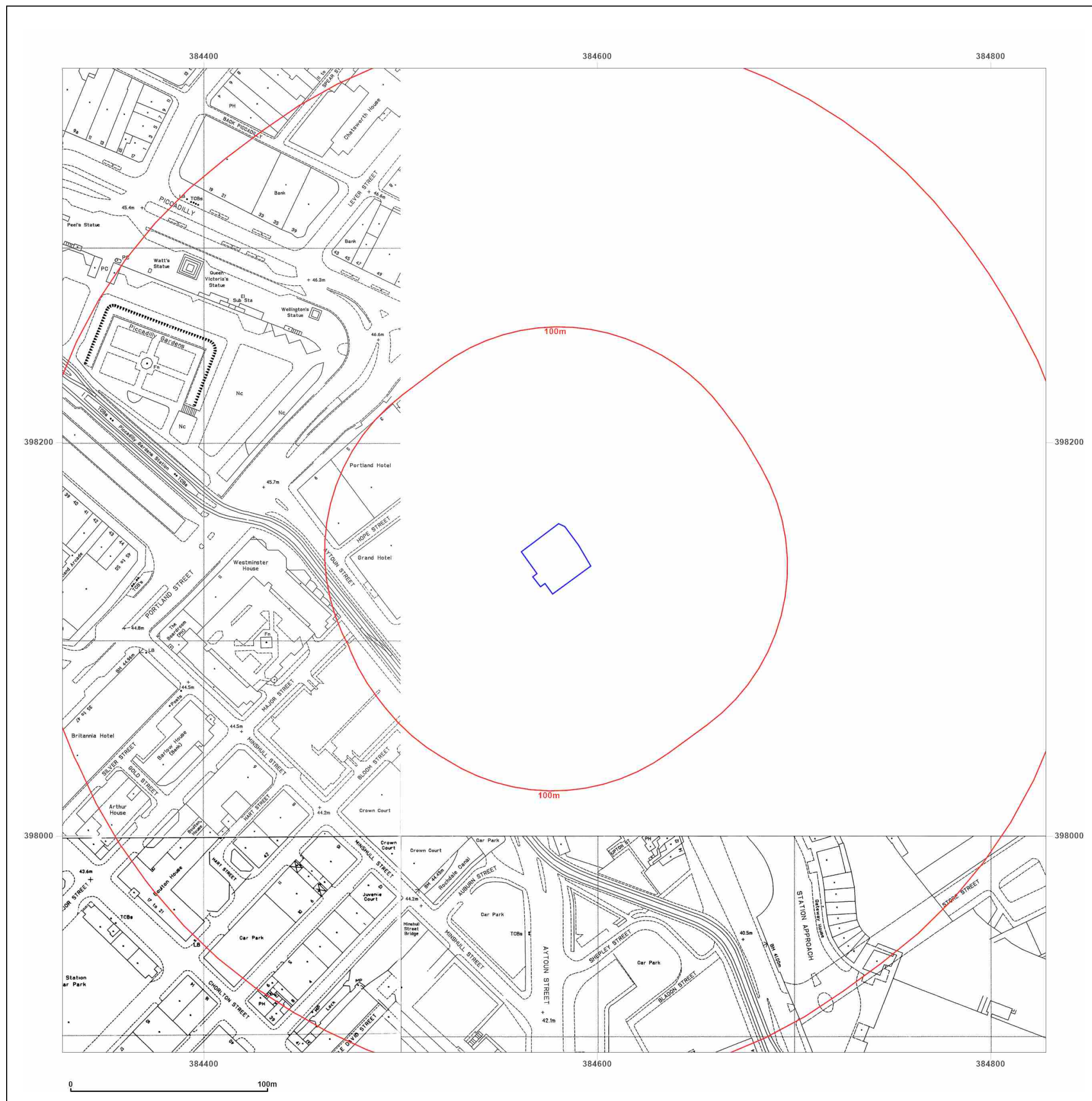
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Site Details:

384585 , 398138

Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250



2003



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Site Details:

384585 , 398138

Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: County Series

Map date: 1848

Scale: 1:10,560

Printed at: 1:10,560



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



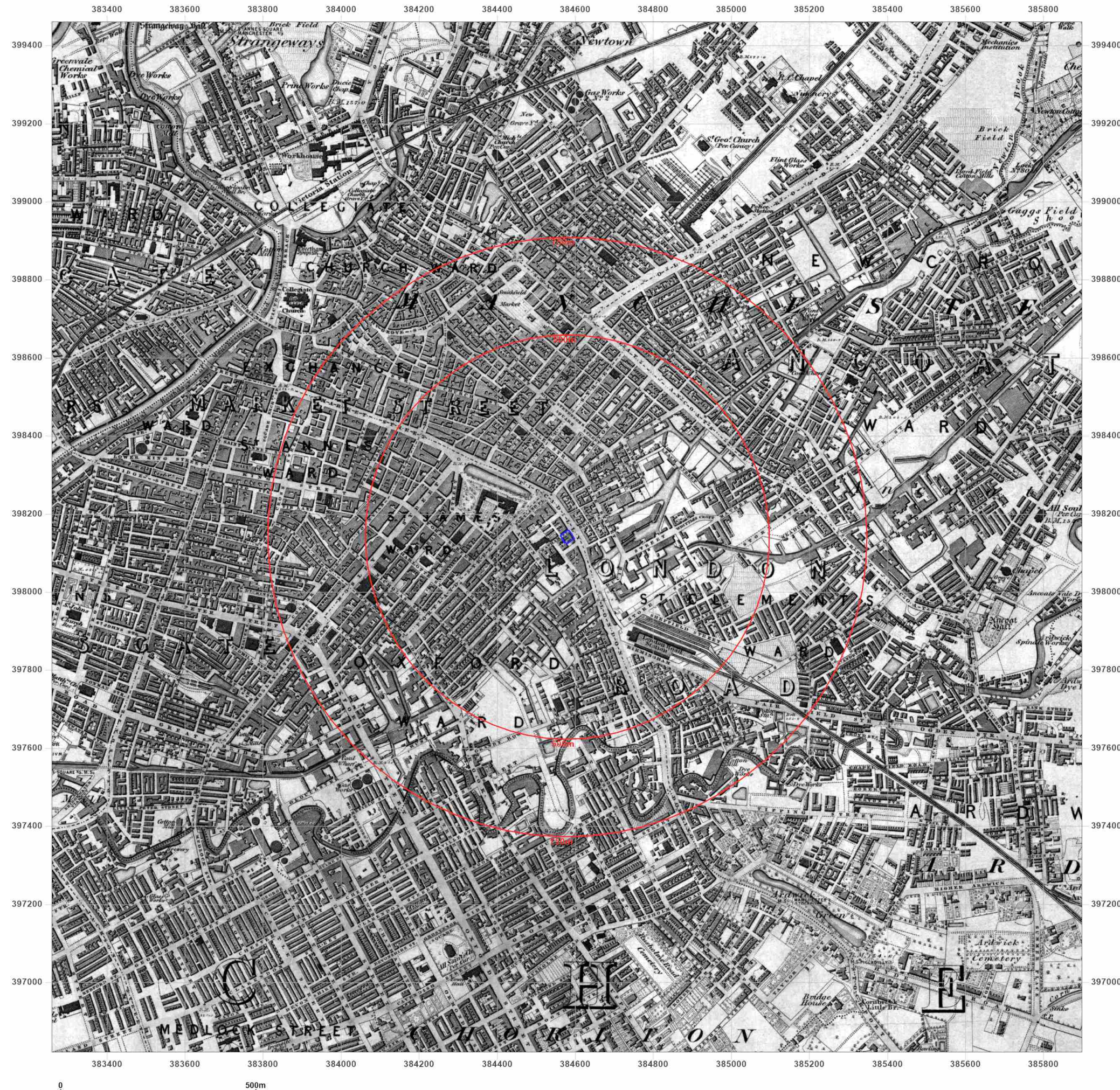
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Site Details:

384585 , 398138

Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: County Series

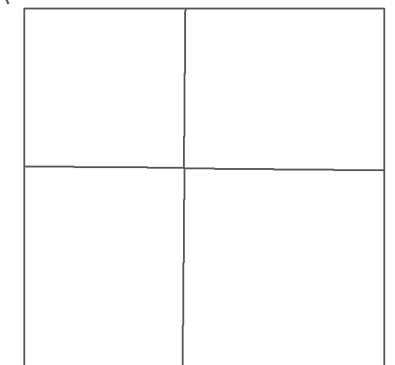
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Scale: 1:10,560

Printed at: 1:10,560



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Revised 1889
Edition 1894
Copyright N/A
Levelled N/A



Surveyed 1890
Revised 1890
Edition 1890
Copyright N/A
Levelled N/A

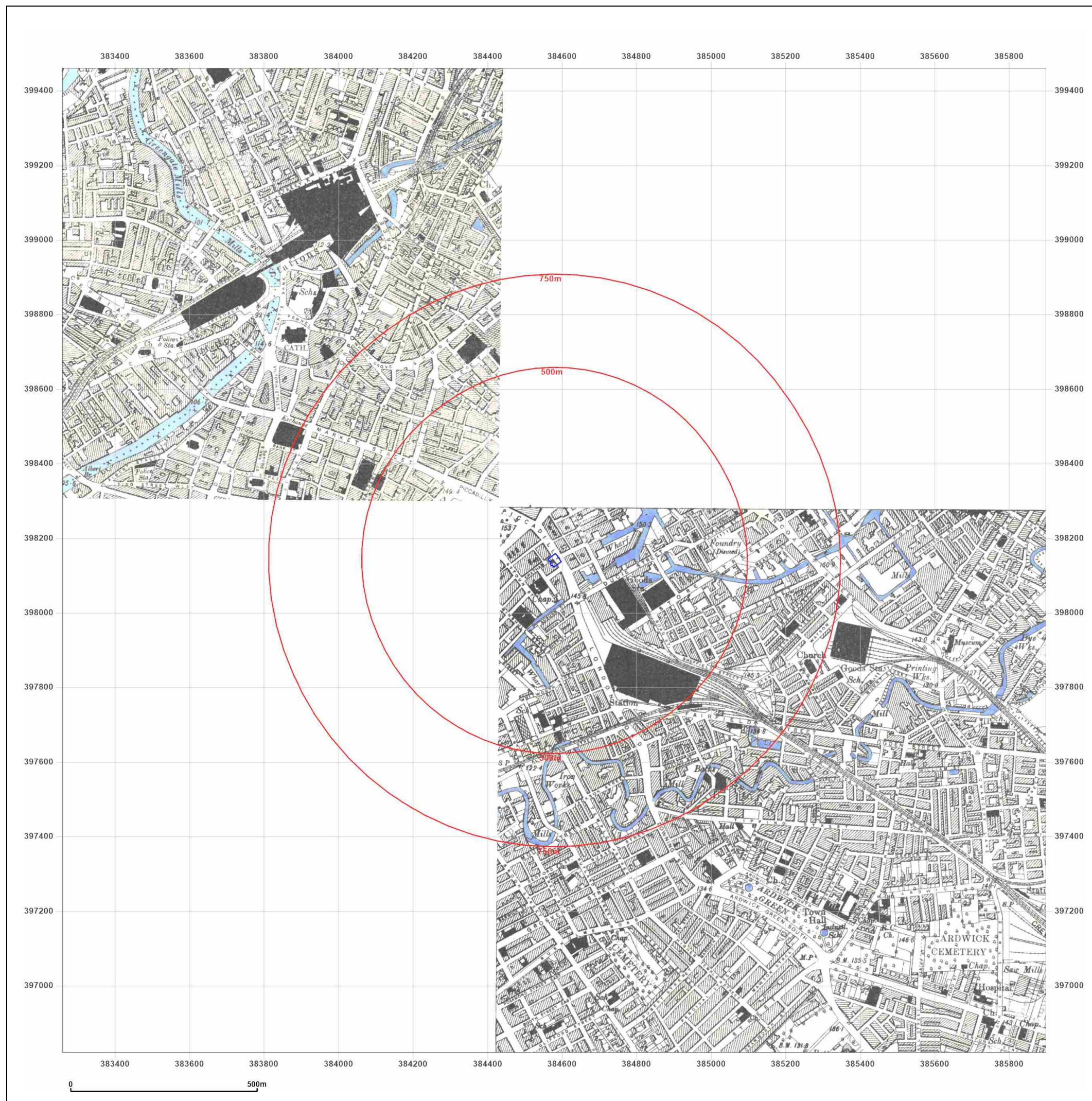


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Site Details:

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Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: County Series

Map date: 1905-1906

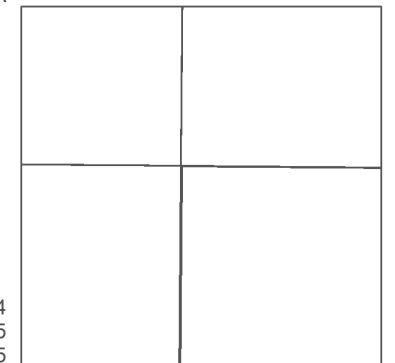
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Printed at: 1:10,560



Surveyed 1844
Revised 1906
Edition 1906
Copyright N/A
Levelled N/A

Surveyed 1844
Revised 1906
Edition 1906
Copyright N/A
Levelled N/A



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Revised 1905
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Copyright N/A
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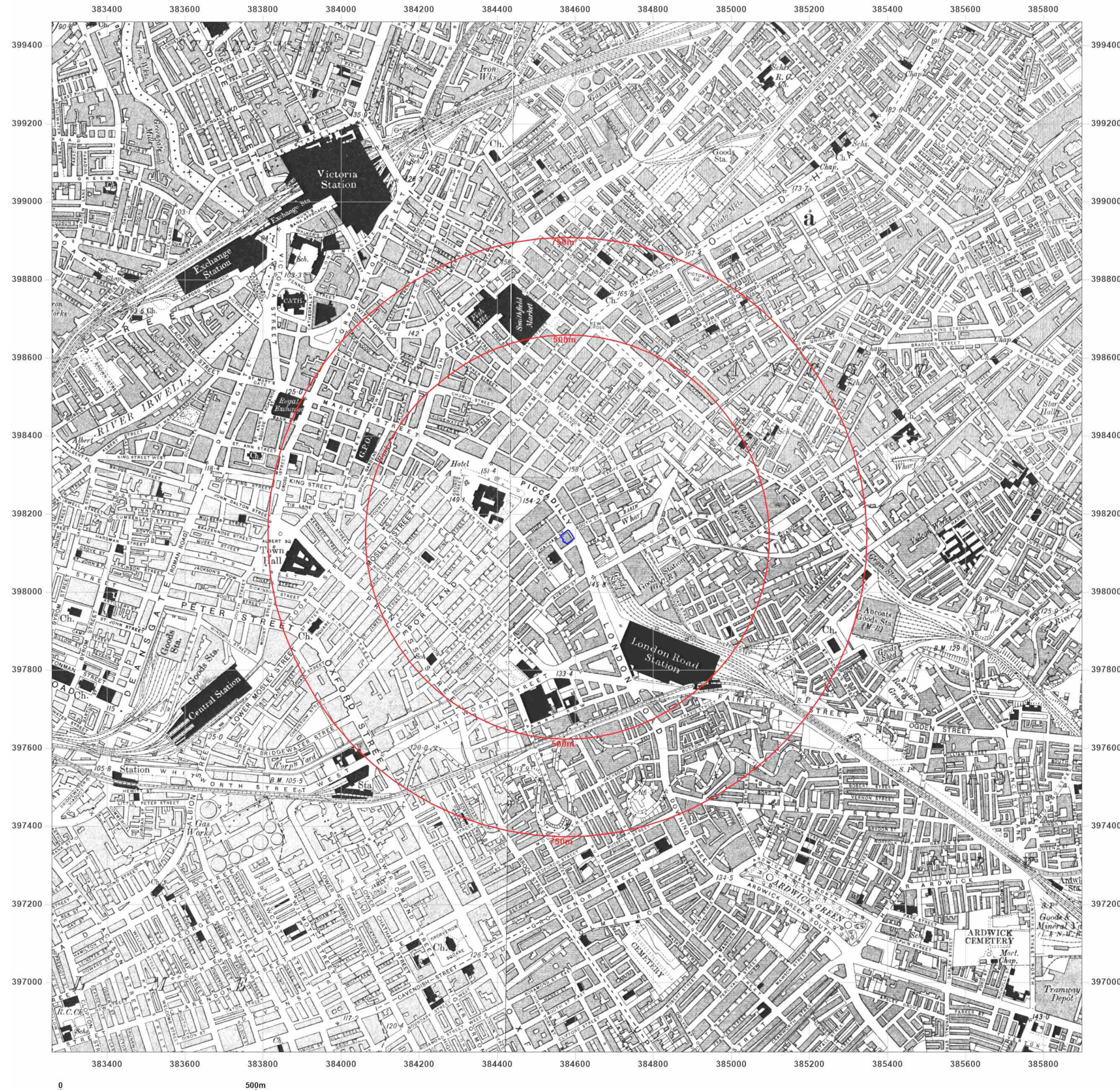
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Site Details:

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Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: County Series

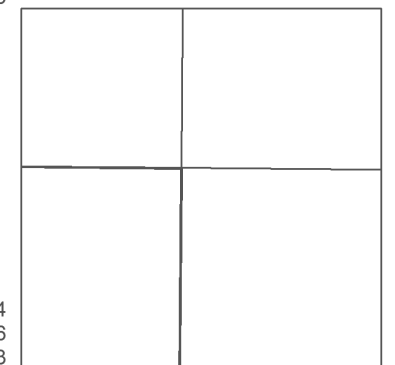
Map date: 1923

Scale: 1:10,560

Printed at: 1:10,560



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Revised 1916
Edition 1923
Copyright N/A
Levelled 1915



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

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

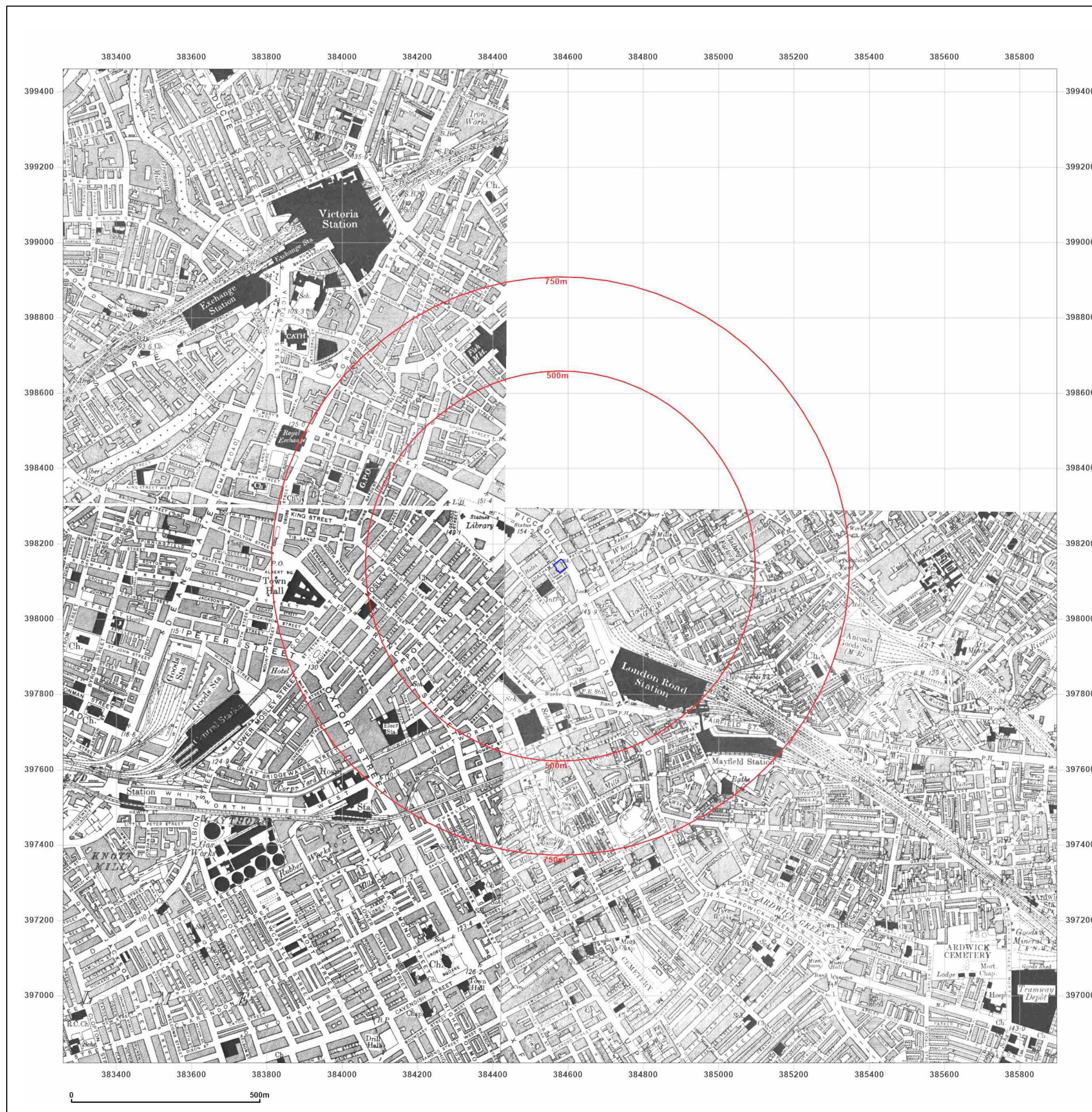


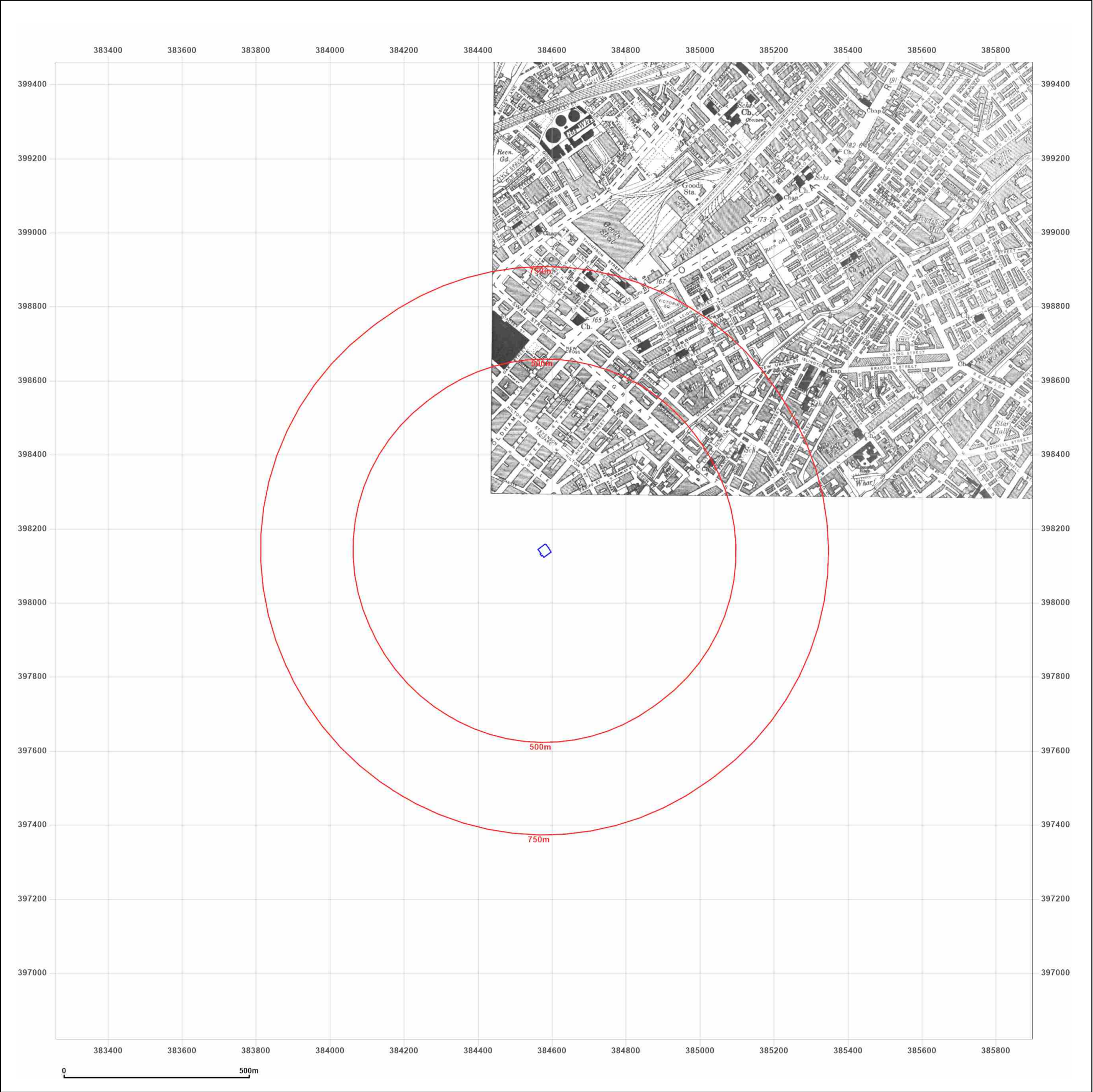
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Site Details:

384585 , 398138

Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: County Series
Map date: 1923
Scale: 1:10,560
Printed at: 1:10,560

N
W E
S

Surveyed 1844
Revised 1921
Edition 1923
Copyright N/A
Levelled 1906



Site Details:

384585 , 398138

Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: County Series

Map date: 1923

Scale: 1:10,560

Printed at: 1:10,560



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



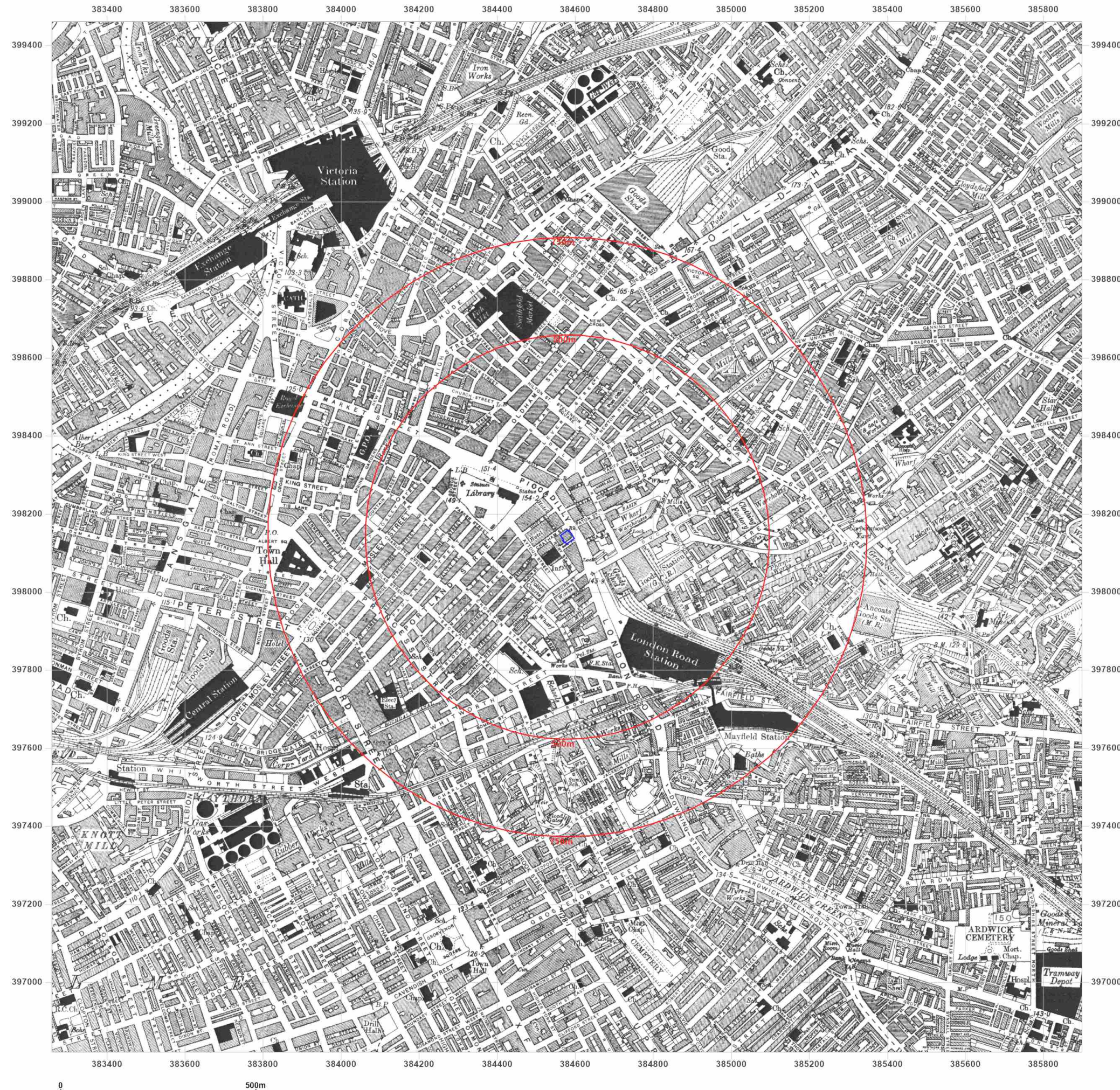
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Site Details:

384585 , 398138

Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: County Series

Map date: 1931-1934

Scale: 1:10,560

Printed at: 1:10,560

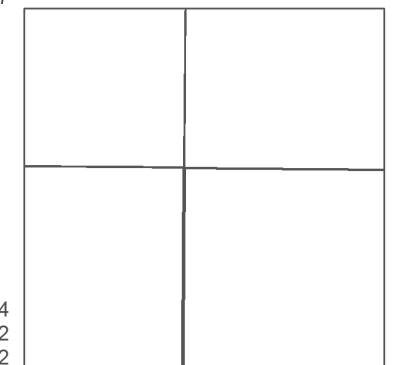


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Revised 1931
Edition 1931
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Surveyed 1844
Revised 1933
Edition 1933
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Surveyed 1844
Revised 1932
Edition 1932
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Revised 1934
Edition 1934
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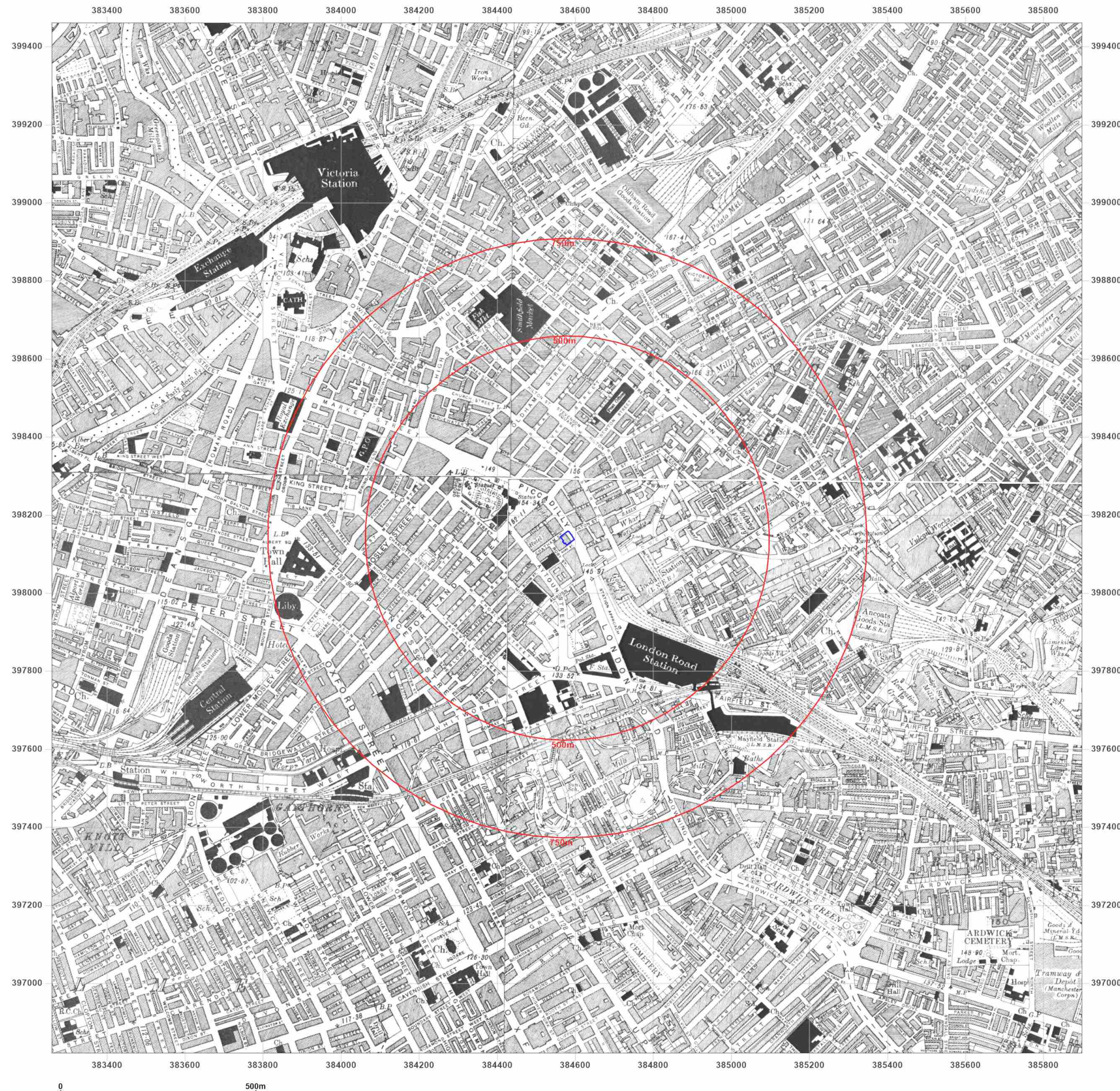
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Site Details:

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Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: County Series

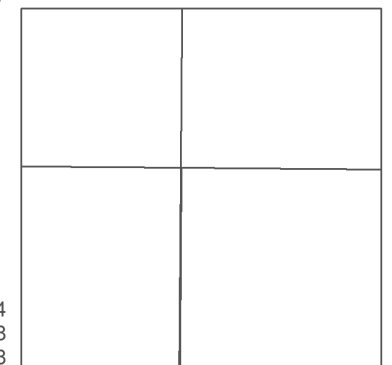
Map date: 1938

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1844
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Edition 1938
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Revised 1938
Edition 1938
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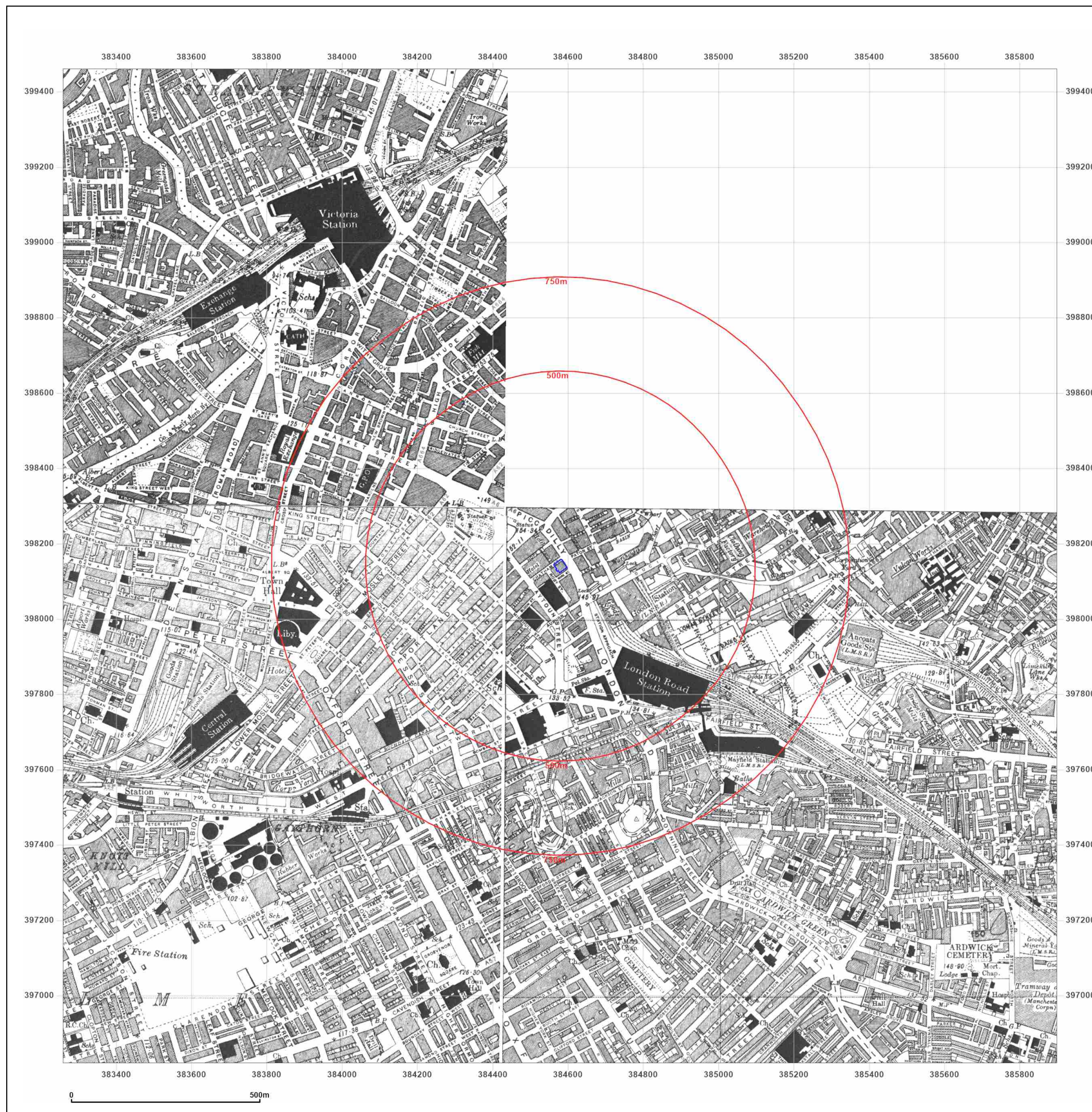


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Site Details:

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Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: County Series

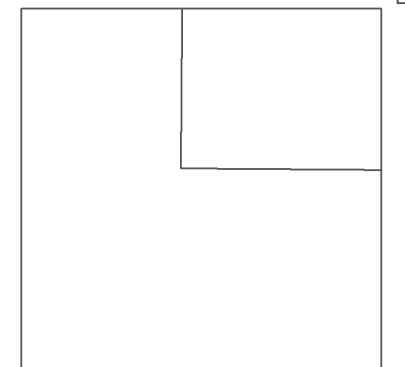
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Scale: 1:10,560

Printed at: 1:10,560



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



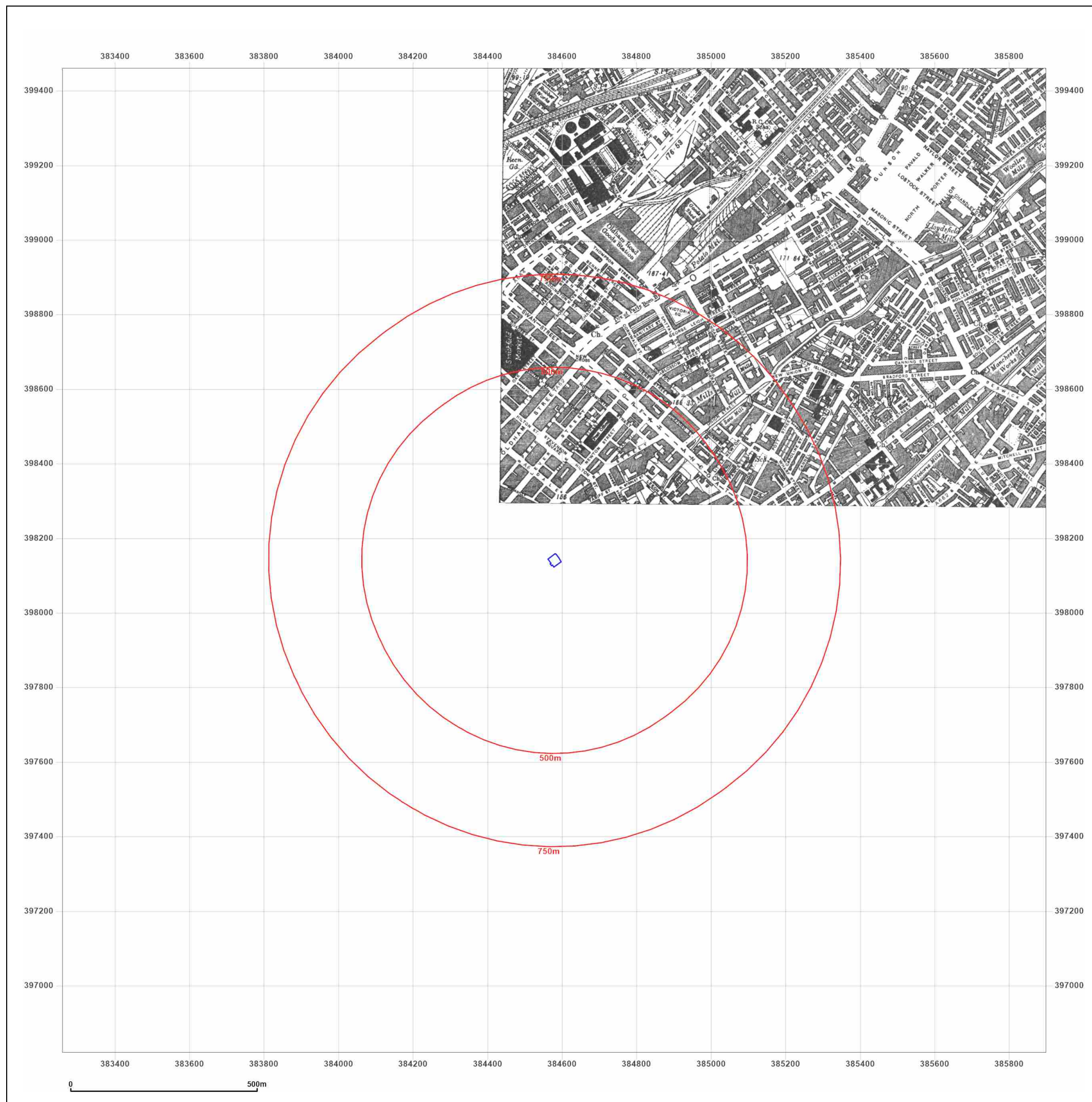
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Site Details:

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Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: Provisional

Map date: 1956

Scale: 1:10,560

Printed at: 1:10,560



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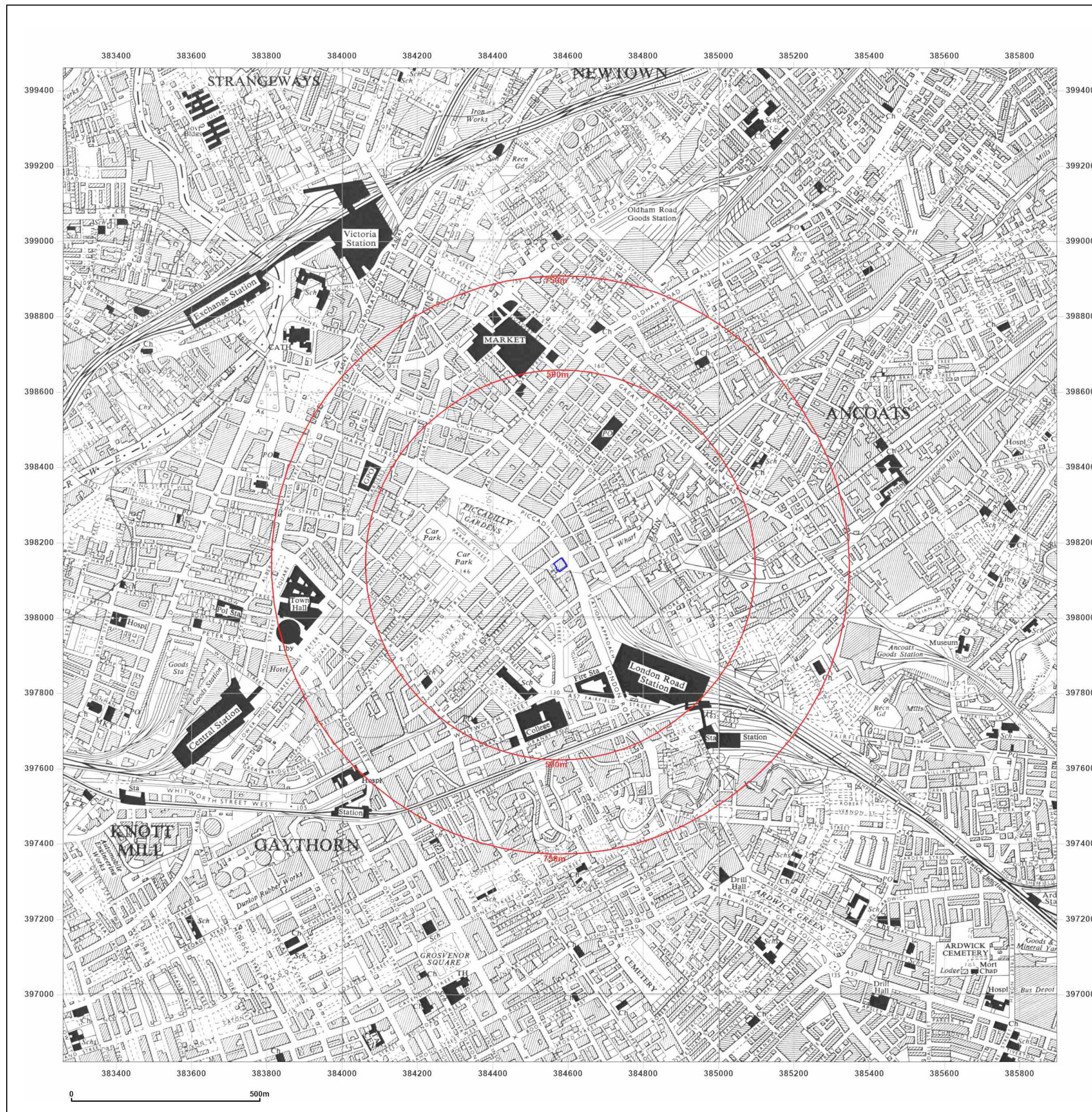
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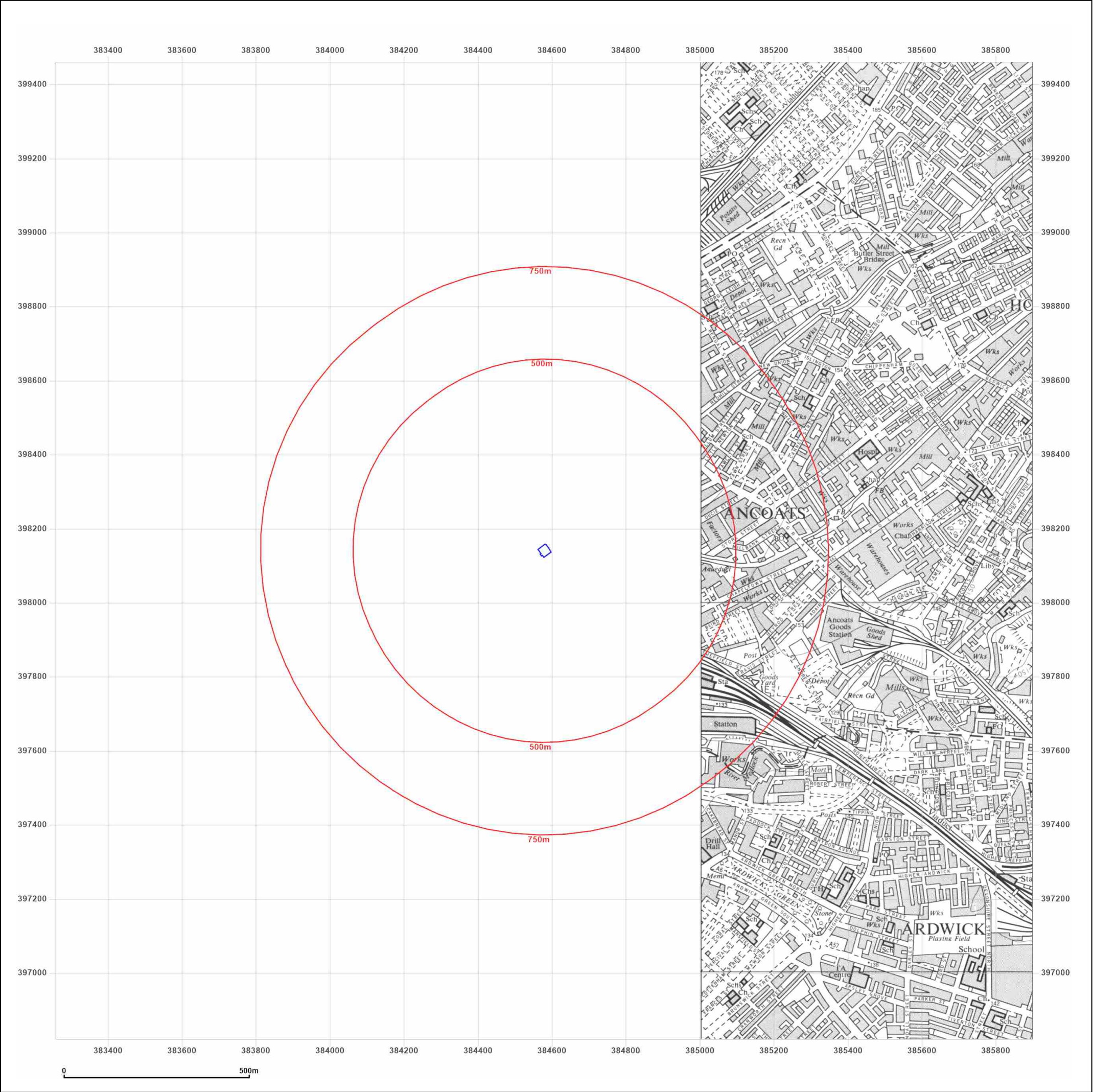


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Site Details:

384585 , 398138

Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

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

Surveyed 1968
Revised 1968
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Site Details:

384585 , 398138

Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: National Grid

Map date: 1972

Scale: 1:10,000

Printed at: 1:10,000



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Site Details:

384585 , 398138

Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: National Grid

Map date: 1980-1981

Scale: 1:10,000

Printed at: 1:10,000



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



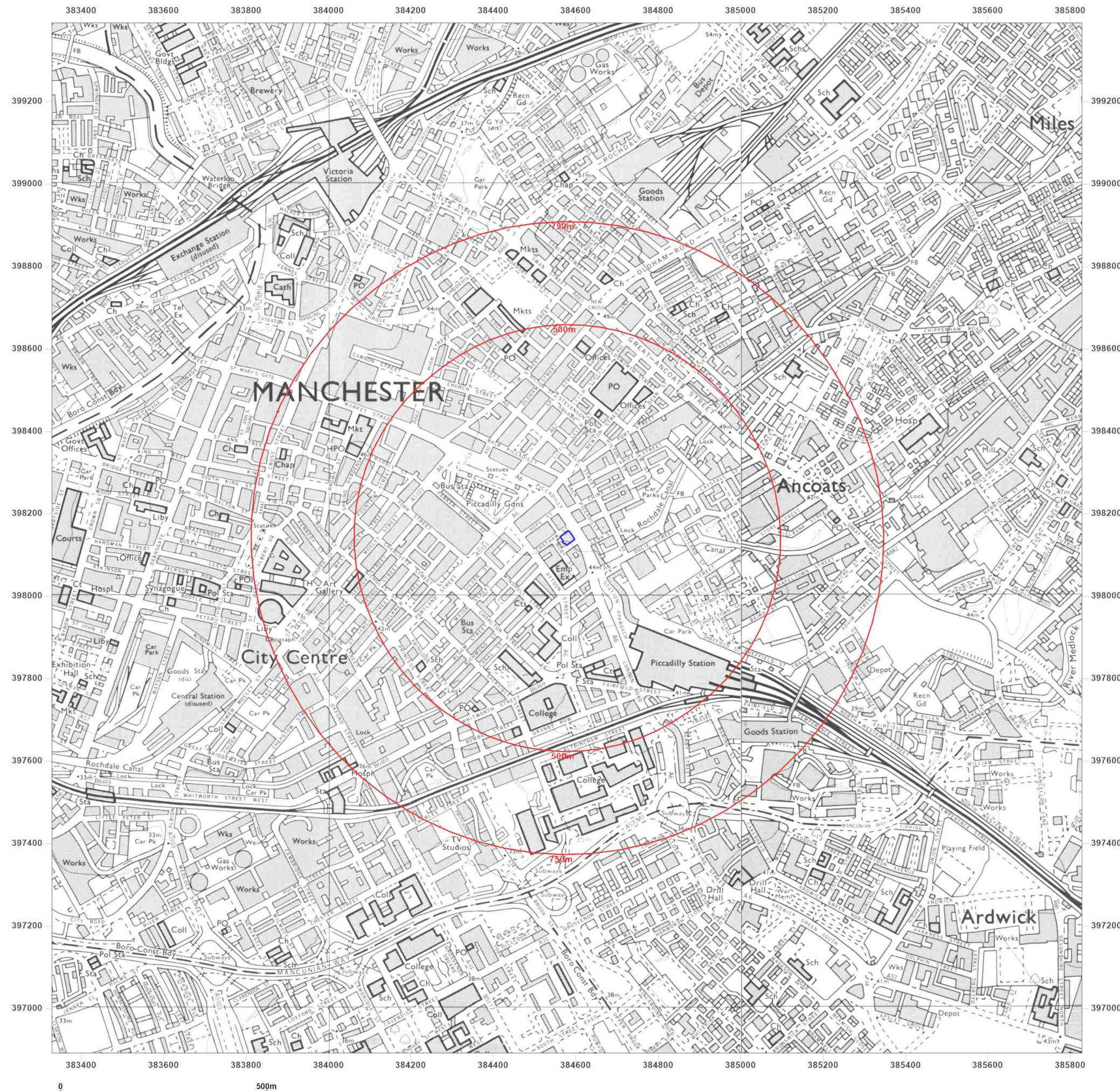
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Site Details:

384585 , 398138

Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: National Grid

Map date: 1985

Scale: 1:10,000

Printed at: 1:10,000



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Edition N/A
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Surveyed 1985
Revised 1985
Edition N/A
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Site Details:

384585 , 398138

Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: National Grid

Map date: 1988-1991

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1986
Revised 1988
Edition N/A
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Surveyed 1985
Revised 1991
Edition N/A
Copyright 1991
Levelled 1981



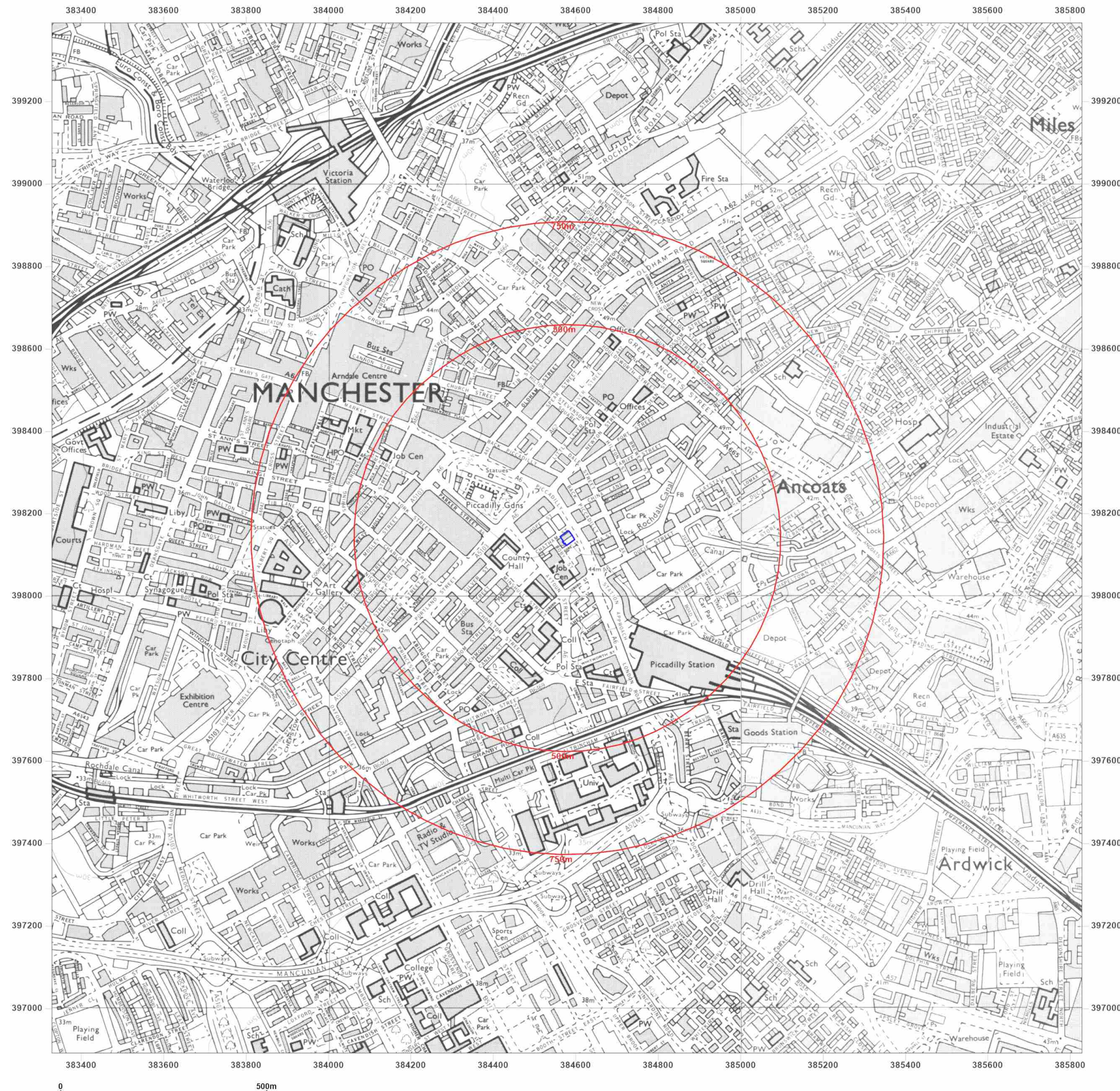
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Site Details:

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Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: National Grid

Map date: 1994

Scale: 1:10,000

Printed at: 1:10,000



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



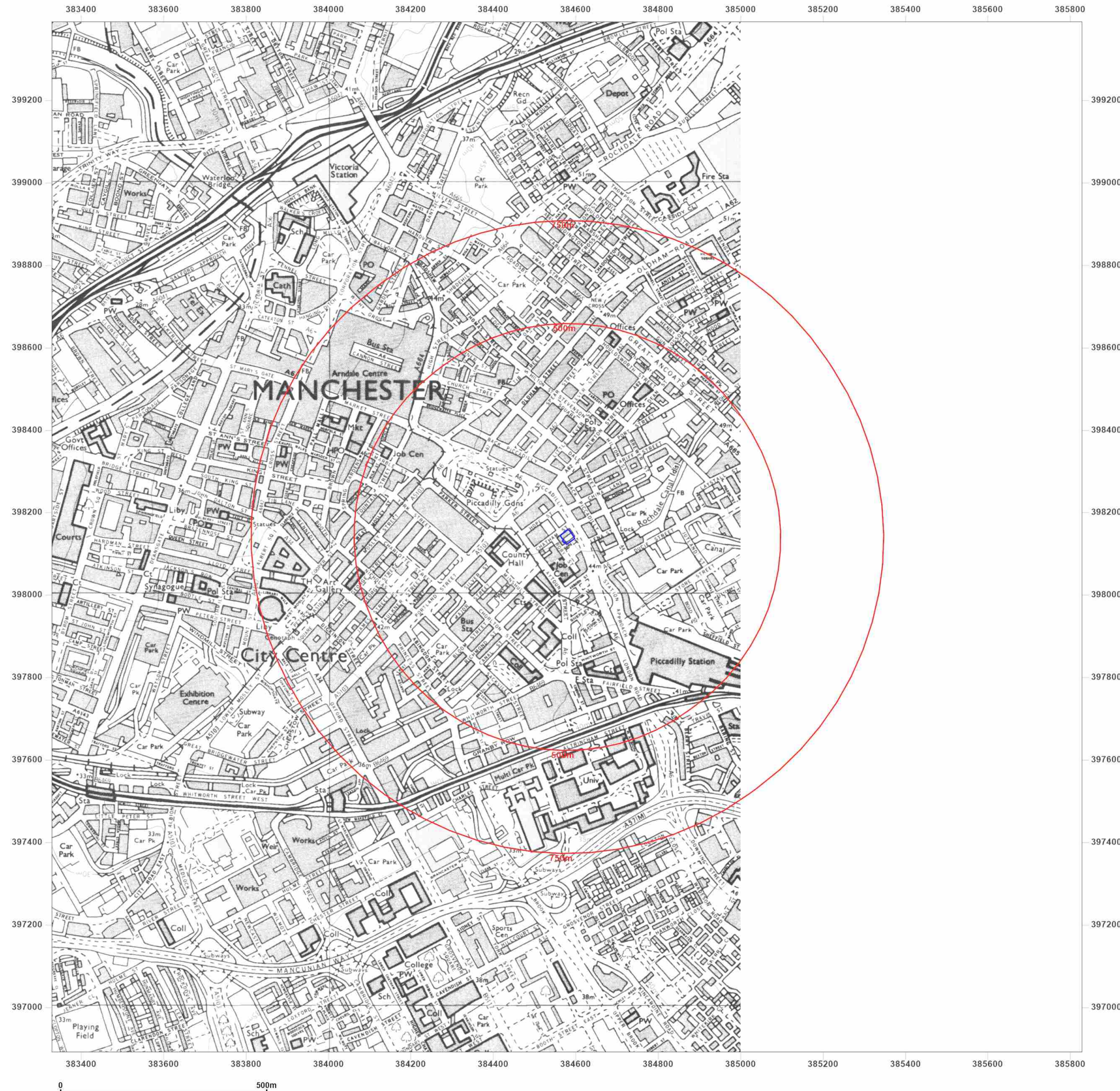
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Site Details:

384585 , 398138

Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: National Grid

Map date: 2001

Scale: 1:10,000

Printed at: 1:10,000



2001



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Site Details:

384585 , 398138

Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000



2010



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Site Details:

384585 , 398138

Client Ref: CGE17149
Report Ref: CGL01-3KZ-L3U-1RQ-OR8
Grid Ref: 384578, 398140

Map Name: National Grid

Map date: 2024

Scale: 1:10,000

Printed at: 1:10,000



2024



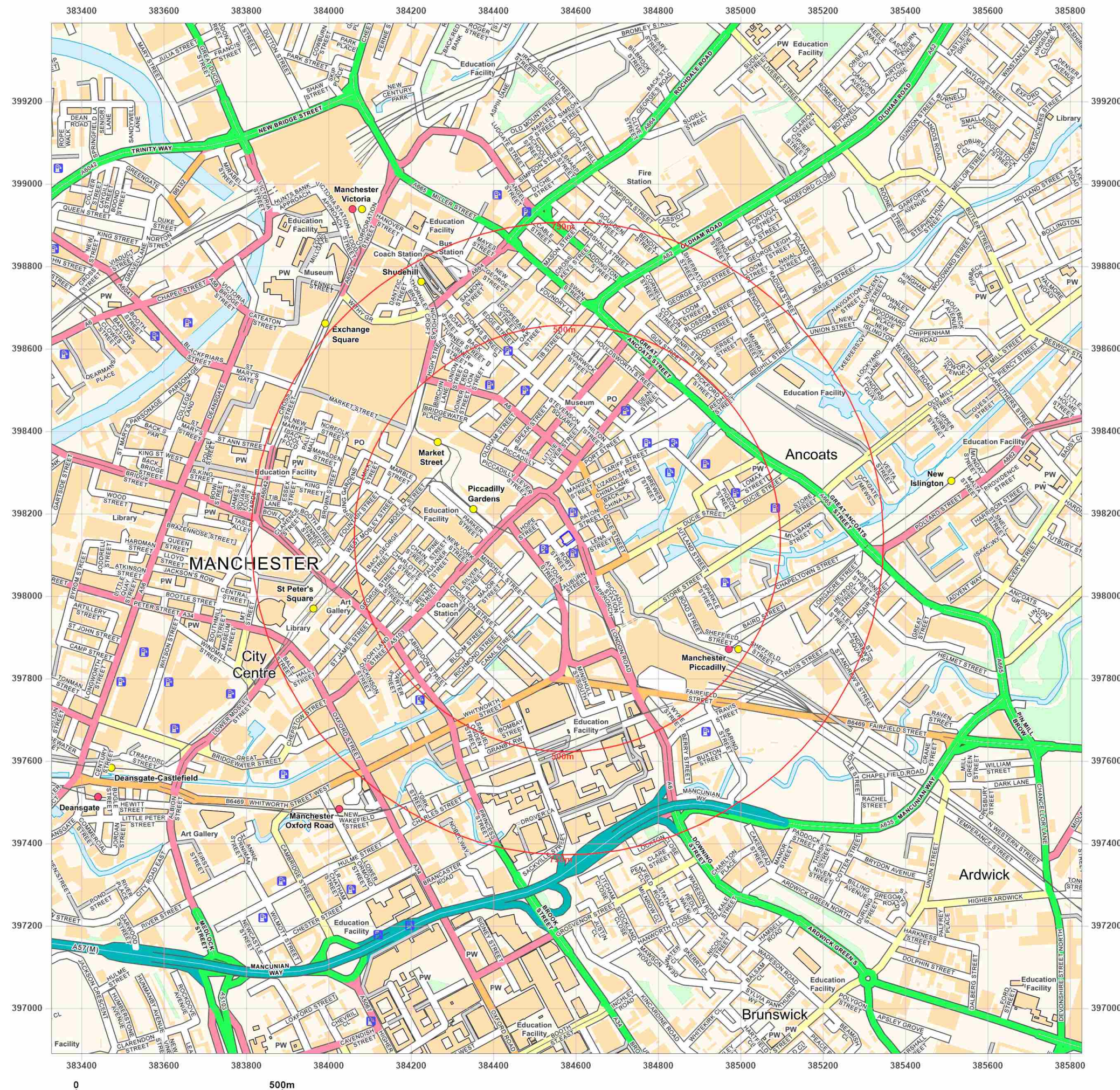
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APPENDIX C

Environmental and Geological Insight Reports

384585 , 398138,

Order Details

Date: 01/02/2024
Your ref: CGE17149
Our Ref: CGL01-CXA-OUY-Q72-YM5

Site Details

Location: 384588 398132
Area: 0.07 ha
Authority: [Manchester City Council](#) ↗



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Summary of findings

[p.2 >](#) **Aerial image**

[p.9 >](#)

OS MasterMap site plan

[p.14 >](#) groundsure.com/insightuserguide ↗

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	1	34	78	-
20 >	1.2 >	Historical tanks >	0	0	3	40	-
21 >	1.3 >	Historical energy features >	0	0	1	7	-
22 >	1.4 >	Historical petrol stations >	0	0	0	1	-
22 >	1.5 >	Historical garages >	0	0	13	33	-
24	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
25 >	2.1 >	Historical industrial land uses >	0	2	52	118	-
32 >	2.2 >	Historical tanks >	0	0	3	57	-
34 >	2.3 >	Historical energy features >	0	0	2	13	-
35 >	2.4 >	Historical petrol stations >	0	0	0	1	-
35 >	2.5 >	Historical garages >	0	0	20	61	-
Page	Section	Waste and landfill >	On site	0-50m	50-250m	250-500m	500-2000m
39	3.1	Active or recent landfill	0	0	0	0	-
39	3.2	Historical landfill (BGS records)	0	0	0	0	-
40	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
40	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
40 >	3.5 >	Historical waste sites >	0	0	0	6	-
41	3.6	Licensed waste sites	0	0	0	0	-
41 >	3.7 >	Waste exemptions >	0	0	0	8	-
Page	Section	Current industrial land use >	On site	0-50m	50-250m	250-500m	500-2000m
43 >	4.1 >	Recent industrial land uses >	0	5	26	-	-
46	4.2	Current or recent petrol stations	0	0	0	0	-
46	4.3	Electricity cables	0	0	0	0	-
46	4.4	Gas pipelines	0	0	0	0	-
46	4.5	Sites determined as Contaminated Land	0	0	0	0	-



46	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
47	4.7	Regulated explosive sites	0	0	0	0	-
47	4.8	Hazardous substance storage/usage	0	0	0	0	-
47	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
47	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
47 >	4.11 >	Licensed pollutant release (Part A(2)/B) >	0	0	0	3	-
48	4.12	Radioactive Substance Authorisations	0	0	0	0	-
48 >	4.13 >	Licensed Discharges to controlled waters >	0	0	3	13	-
51	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
51	4.15	Pollutant release to public sewer	0	0	0	0	-
51	4.16	List 1 Dangerous Substances	0	0	0	0	-
51	4.17	List 2 Dangerous Substances	0	0	0	0	-
51 >	4.18 >	Pollution Incidents (EA/NRW) >	0	0	1	1	-
52	4.19	Pollution inventory substances	0	0	0	0	-
52	4.20	Pollution inventory waste transfers	0	0	0	0	-
52	4.21	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	Hydrogeology >	On site	0-50m	50-250m	250-500m	500-2000m
53 >	5.1 >	Superficial aquifer >	Identified (within 500m)				
55 >	5.2 >	Bedrock aquifer >	Identified (within 500m)				
57 >	5.3 >	Groundwater vulnerability >	Identified (within 50m)				
58	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
58	5.5	Groundwater vulnerability- local information	None (within 0m)				
59 >	5.6 >	Groundwater abstractions >	0	0	0	4	53
74	5.7	Surface water abstractions	0	0	0	0	0
74 >	5.8 >	Potable abstractions >	0	0	0	0	10
77	5.9	Source Protection Zones	0	0	0	0	-
77	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	Hydrology >	On site	0-50m	50-250m	250-500m	500-2000m
78 >	6.1 >	Water Network (OS MasterMap) >	0	0	15	-	-



80 >	6.2 >	Surface water features >	0	0	7	-	-
80 >	6.3 >	WFD Surface water body catchments >	1	-	-	-	-
80 >	6.4 >	WFD Surface water bodies >	0	0	2	-	-
81 >	6.5 >	WFD Groundwater bodies >	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
82	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
82	7.2	Historical Flood Events	0	0	0	-	-
82	7.3	Flood Defences	0	0	0	-	-
83	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
83	7.5	Flood Storage Areas	0	0	0	-	-
84	7.6	Flood Zone 2	None (within 50m)				
84	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding >					
85 >	8.1 >	Surface water flooding >	1 in 30 year, 0.3m - 1.0m (within 50m)				
Page	Section	Groundwater flooding >					
87 >	9.1 >	Groundwater flooding >	Moderate (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
88	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
88	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
88	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
88	10.4	Special Protection Areas (SPA)	0	0	0	0	0
89	10.5	National Nature Reserves (NNR)	0	0	0	0	0
89	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
89	10.7	Designated Ancient Woodland	0	0	0	0	0
89	10.8	Biosphere Reserves	0	0	0	0	0
90	10.9	Forest Parks	0	0	0	0	0
90	10.10	Marine Conservation Zones	0	0	0	0	0
90	10.11	Green Belt	0	0	0	0	0
90	10.12	Proposed Ramsar sites	0	0	0	0	0



90	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
91	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
91	10.15	Nitrate Sensitive Areas	0	0	0	0	0
91 >	10.16 >	Nitrate Vulnerable Zones >	0	0	0	1	3
92 >	10.17 >	SSSI Impact Risk Zones >	1	-	-	-	-
93	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
94	11.1	World Heritage Sites	0	0	0	-	-
95	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
95	11.3	National Parks	0	0	0	-	-
95 >	11.4 >	Listed Buildings >	1	3	59	-	-
98 >	11.5 >	Conservation Areas >	0	1	0	-	-
98	11.6	Scheduled Ancient Monuments	0	0	0	-	-
99	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations >	On site	0-50m	50-250m	250-500m	500-2000m
100 >	12.1 >	Agricultural Land Classification >	Urban (within 250m)				
101	12.2	Open Access Land	0	0	0	-	-
101	12.3	Tree Felling Licences	0	0	0	-	-
101	12.4	Environmental Stewardship Schemes	0	0	0	-	-
101	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
102	13.1	Priority Habitat Inventory	0	0	0	-	-
102	13.2	Habitat Networks	0	0	0	-	-
102	13.3	Open Mosaic Habitat	0	0	0	-	-
102	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
103 >	14.1 >	10k Availability >	Identified (within 500m)				
104 >	14.2 >	Artificial and made ground (10k) >	0	0	2	1	-
105 >	14.3 >	Superficial geology (10k) >	1	0	0	1	-

106	14.4	Landslip (10k)	0	0	0	0	-
107 >	14.5 >	Bedrock geology (10k) >	1	0	1	2	-
108 >	14.6 >	Bedrock faults and other linear features (10k) >	0	0	1	2	-
Page	Section	Geology 1:50,000 scale >	On site	0-50m	50-250m	250-500m	500-2000m
109 >	15.1 >	50k Availability >	Identified (within 500m)				
110 >	15.2 >	Artificial and made ground (50k) >	0	0	1	0	-
111	15.3	Artificial ground permeability (50k)	0	0	-	-	-
112 >	15.4 >	Superficial geology (50k) >	1	0	0	0	-
113 >	15.5 >	Superficial permeability (50k) >	Identified (within 50m)				
113	15.6	Landslip (50k)	0	0	0	0	-
113	15.7	Landslip permeability (50k)	None (within 50m)				
114 >	15.8 >	Bedrock geology (50k) >	1	0	1	0	-
115 >	15.9 >	Bedrock permeability (50k) >	Identified (within 50m)				
115 >	15.10 >	Bedrock faults and other linear features (50k) >	0	0	1	1	-
Page	Section	Boreholes >	On site	0-50m	50-250m	250-500m	500-2000m
116 >	16.1 >	BGS Boreholes >	0	0	55	-	-
Page	Section	Natural ground subsidence >					
120 >	17.1 >	Shrink swell clays >	Very low (within 50m)				
121 >	17.2 >	Running sands >	Very low (within 50m)				
122 >	17.3 >	Compressible deposits >	Negligible (within 50m)				
123 >	17.4 >	Collapsible deposits >	Very low (within 50m)				
124 >	17.5 >	Landslides >	Low (within 50m)				
126 >	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
128	18.1	BritPits	0	0	0	0	-
129 >	18.2 >	Surface ground workings >	0	0	43	-	-
130	18.3	Underground workings	0	0	0	0	0
131	18.4	Underground mining extents	0	0	0	0	-
131	18.5	Historical Mineral Planning Areas	0	0	0	0	-

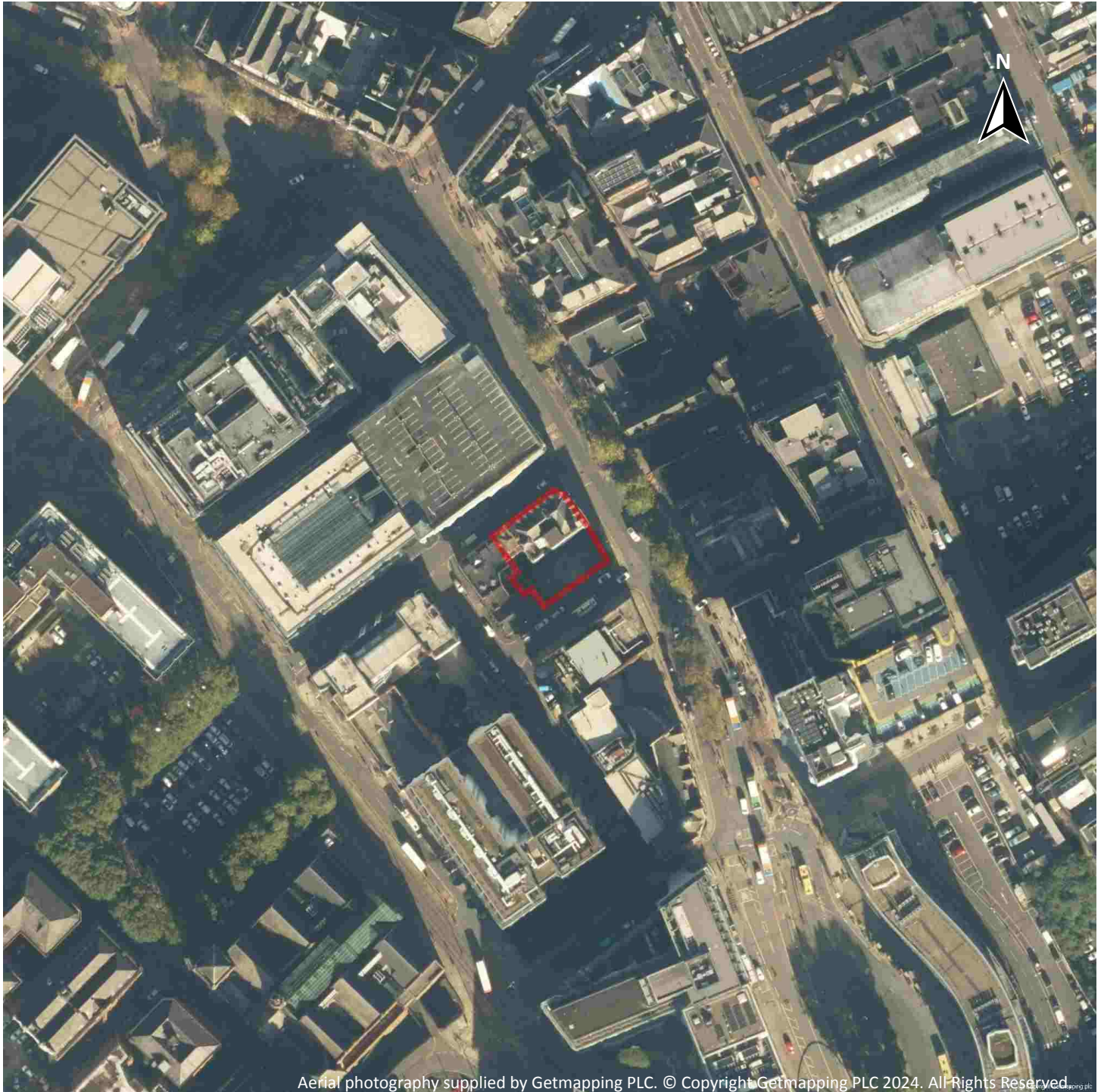


131	18.6	Non-coal mining	0	0	0	0	0
131 >	18.7 >	JPB mining areas >	Identified (within 0m)				
132	18.8	The Coal Authority non-coal mining	0	0	0	0	-
132	18.9	Researched mining	0	0	0	0	-
132	18.10	Mining record office plans	0	0	0	0	-
132	18.11	BGS mine plans	0	0	0	0	-
133 >	18.12 >	Coal mining >	Identified (within 0m)				
133	18.13	Brine areas	None (within 0m)				
133	18.14	Gypsum areas	None (within 0m)				
133	18.15	Tin mining	None (within 0m)				
133	18.16	Clay mining	None (within 0m)				
Page	Section	Ground cavities and sinkholes	On site	0-50m	50-250m	250-500m	500-2000m
134	19.1	Natural cavities	0	0	0	0	-
134	19.2	Mining cavities	0	0	0	0	0
134	19.3	Reported recent incidents	0	0	0	0	-
134	19.4	Historical incidents	0	0	0	0	-
135	19.5	National karst database	0	0	0	0	-
Page	Section	Radon >					
136 >	20.1 >	Radon >	Less than 1% (within 0m)				
Page	Section	Soil chemistry >	On site	0-50m	50-250m	250-500m	500-2000m
138 >	21.1 >	BGS Estimated Background Soil Chemistry >	1	0	-	-	-
138 >	21.2 >	BGS Estimated Urban Soil Chemistry >	1	5	-	-	-
139	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
140	22.1	Underground railways (London)	0	0	0	-	-
140	22.2	Underground railways (Non-London)	0	0	0	-	-
141	22.3	Railway tunnels	0	0	0	-	-
141 >	22.4 >	Historical railway and tunnel features >	0	0	37	-	-
142	22.5	Royal Mail tunnels	0	0	0	-	-



143	22.6	Historical railways	0	0	0	-	-
143 >	22.7 >	Railways >	0	0	12	-	-
143	22.8	Crossrail 1	0	0	0	0	-
144	22.9	Crossrail 2	0	0	0	0	-
144 >	22.10 >	HS2 >	0	0	0	3	-

Recent aerial photograph



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Capture Date: 18/10/2022

Site Area: 0.07ha



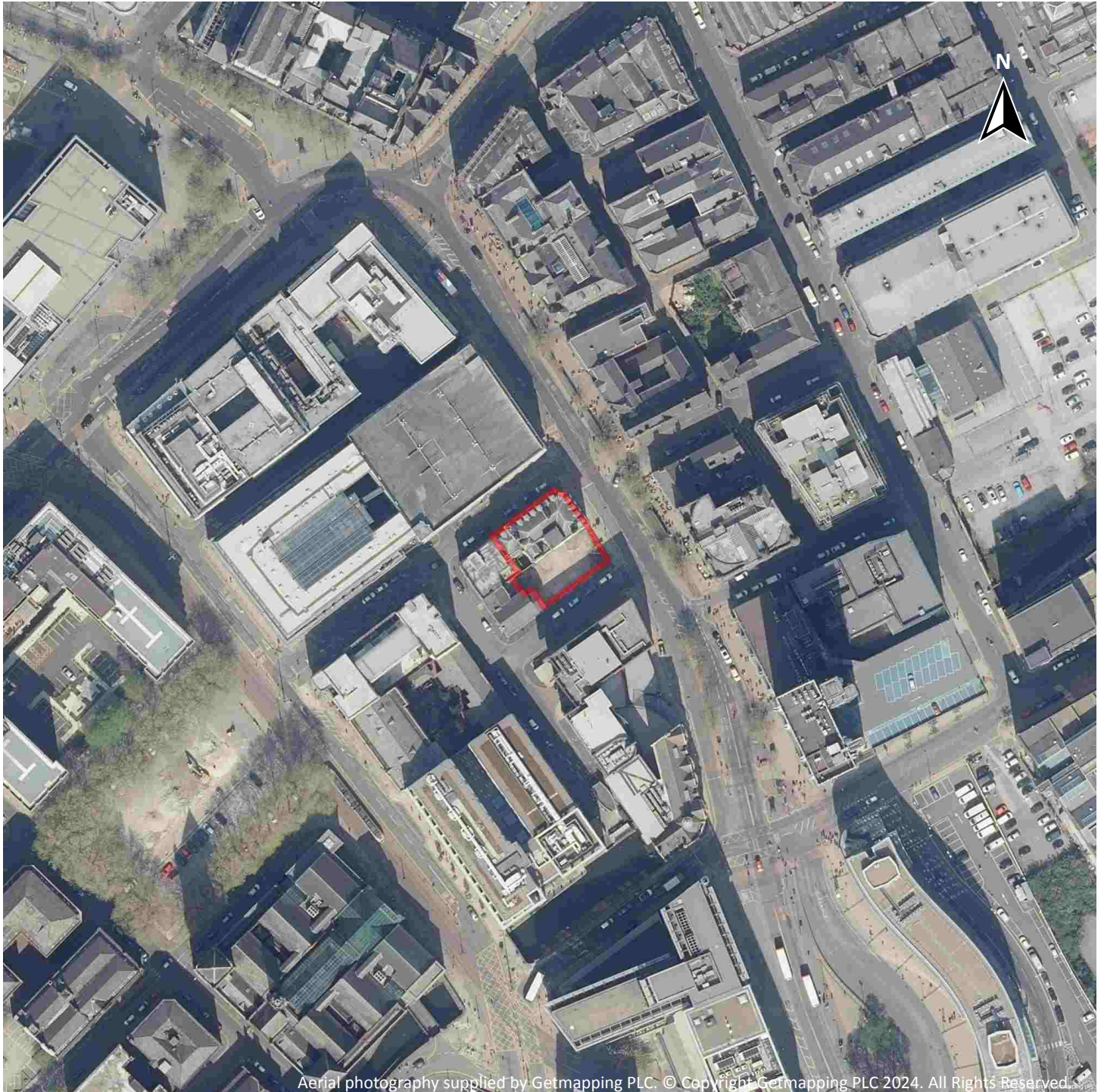
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01273 257 755

Date: 1 February 2024

Recent site history - 2019 aerial photograph



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Capture Date: 22/04/2019

Site Area: 0.07ha



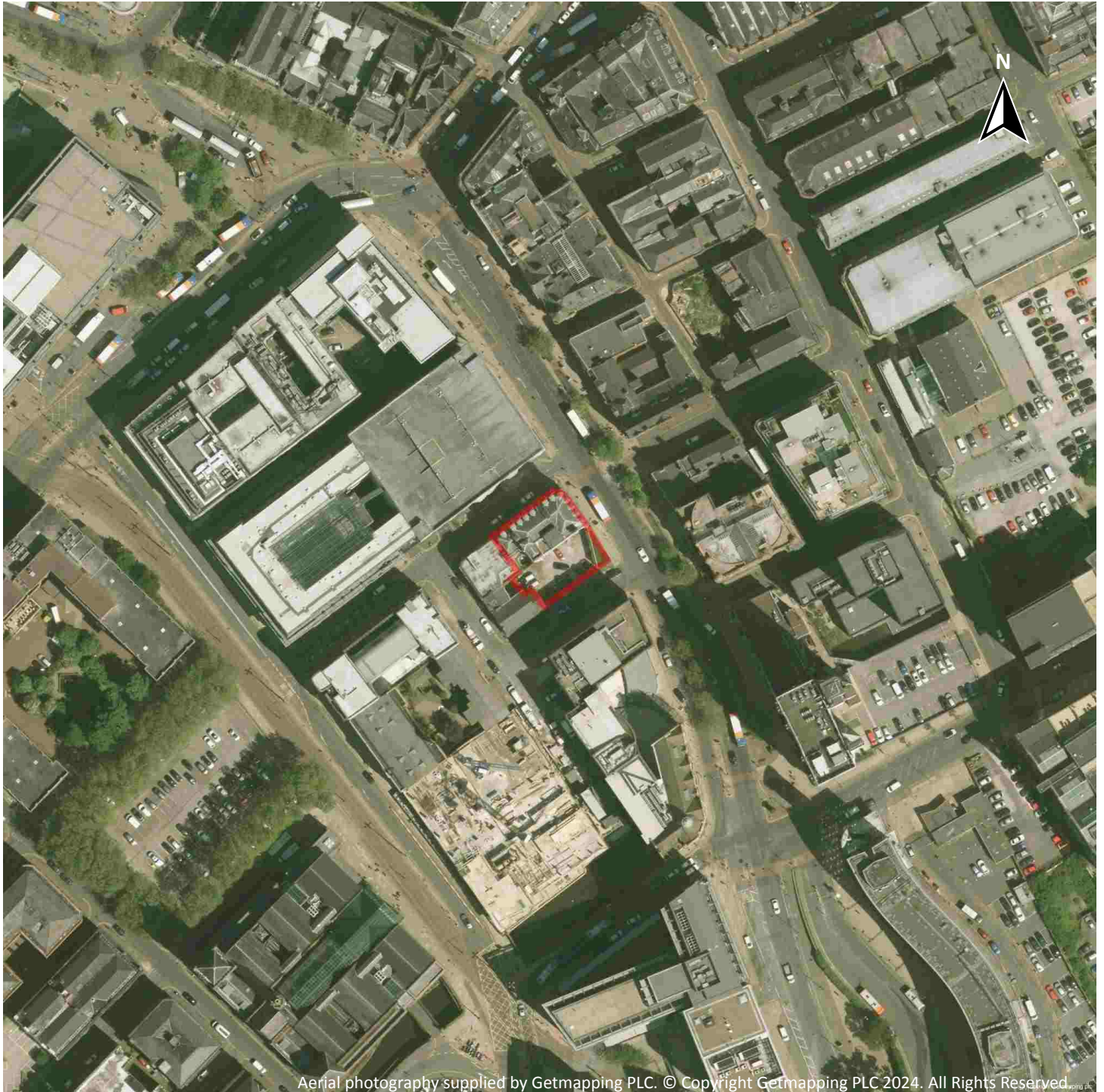
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Date: 1 February 2024

Recent site history - 2015 aerial photograph



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Capture Date: 11/06/2015

Site Area: 0.07ha



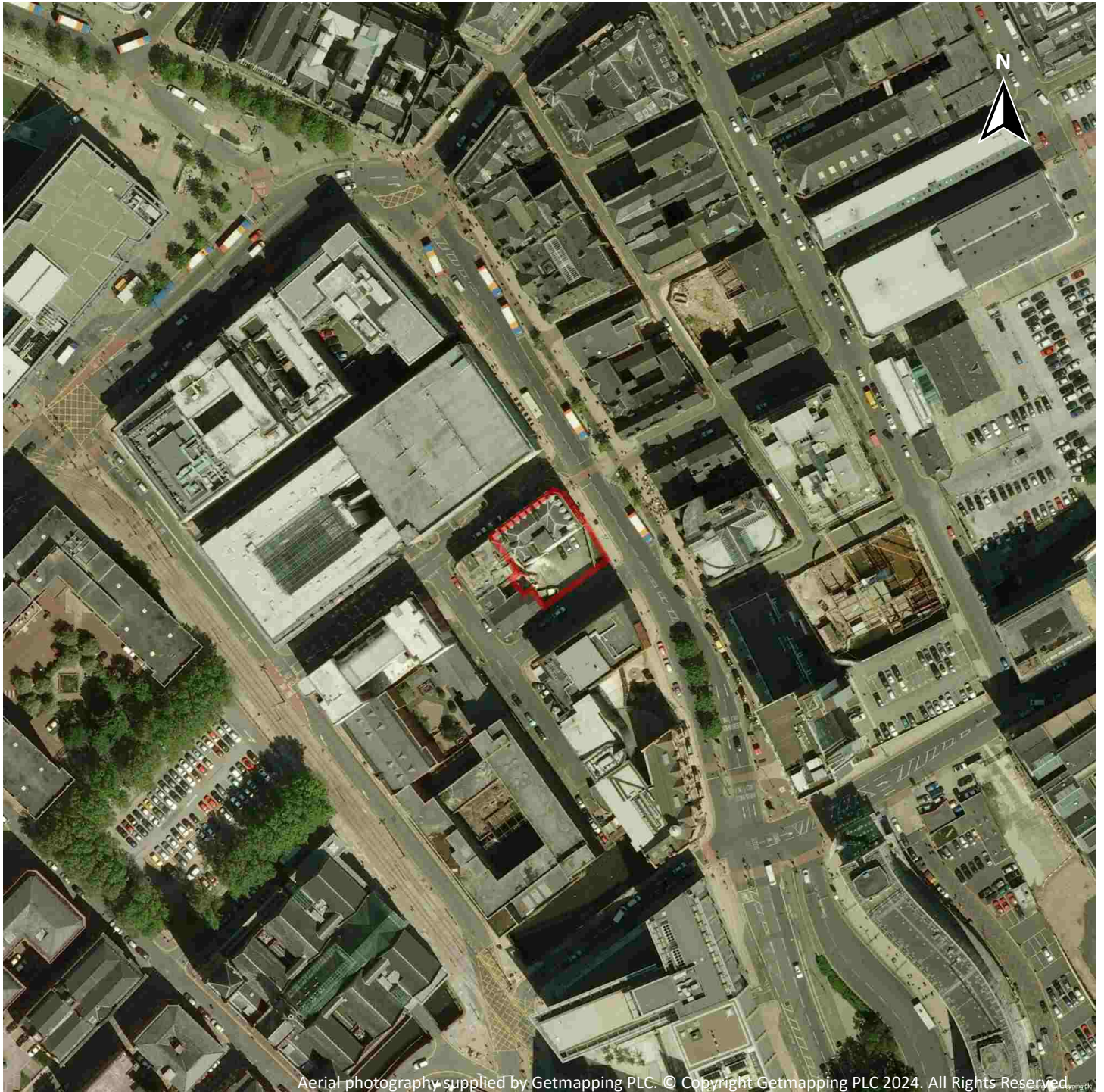
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01273 257 755

Date: 1 February 2024

Recent site history - 2009 aerial photograph



Capture Date: 02/06/2009

Site Area: 0.07ha



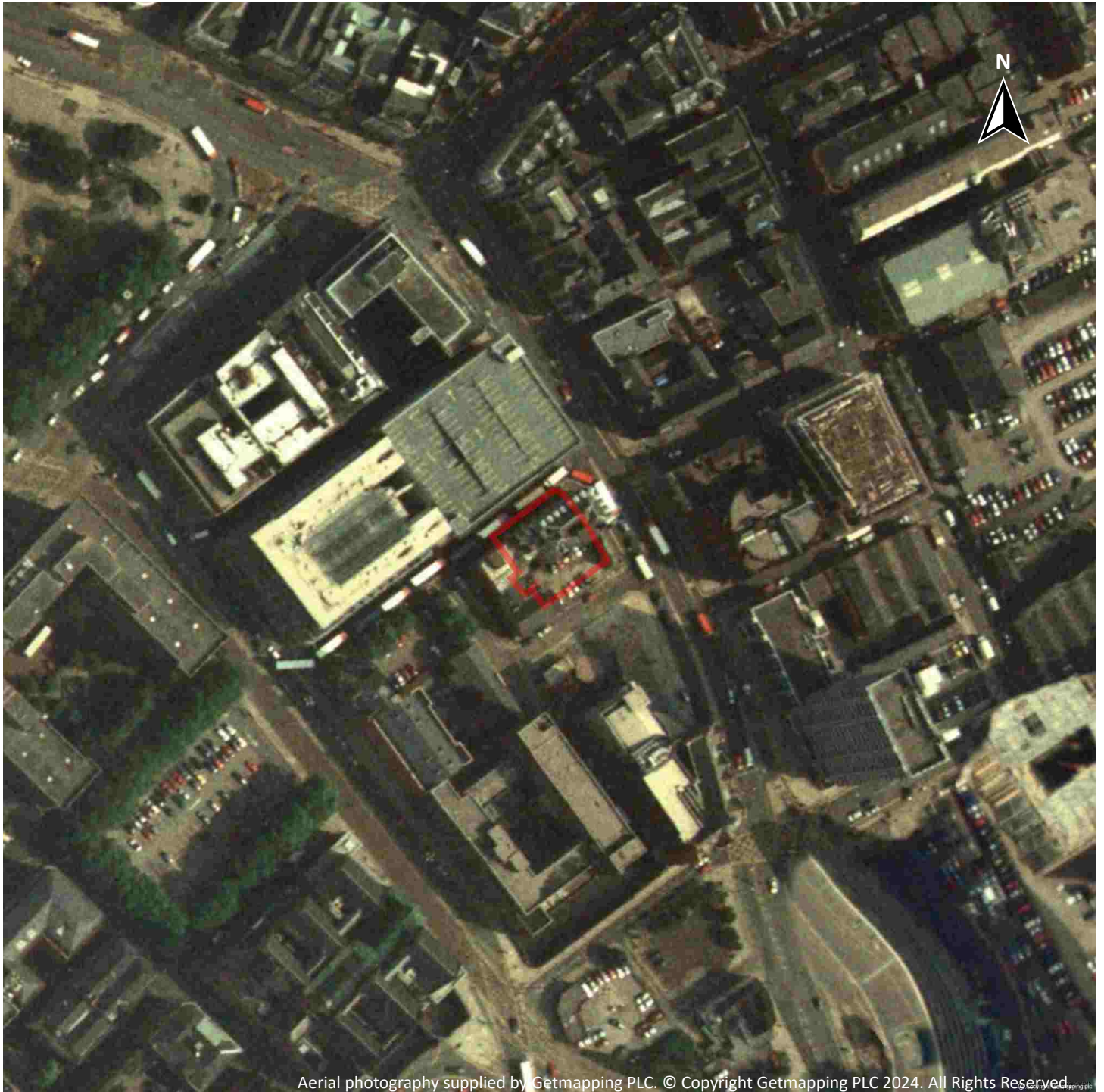
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Date: 1 February 2024

Recent site history - 2000 aerial photograph



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Capture Date: 27/06/2000

Site Area: 0.07ha



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OS MasterMap site plan



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Site Area: 0.07ha



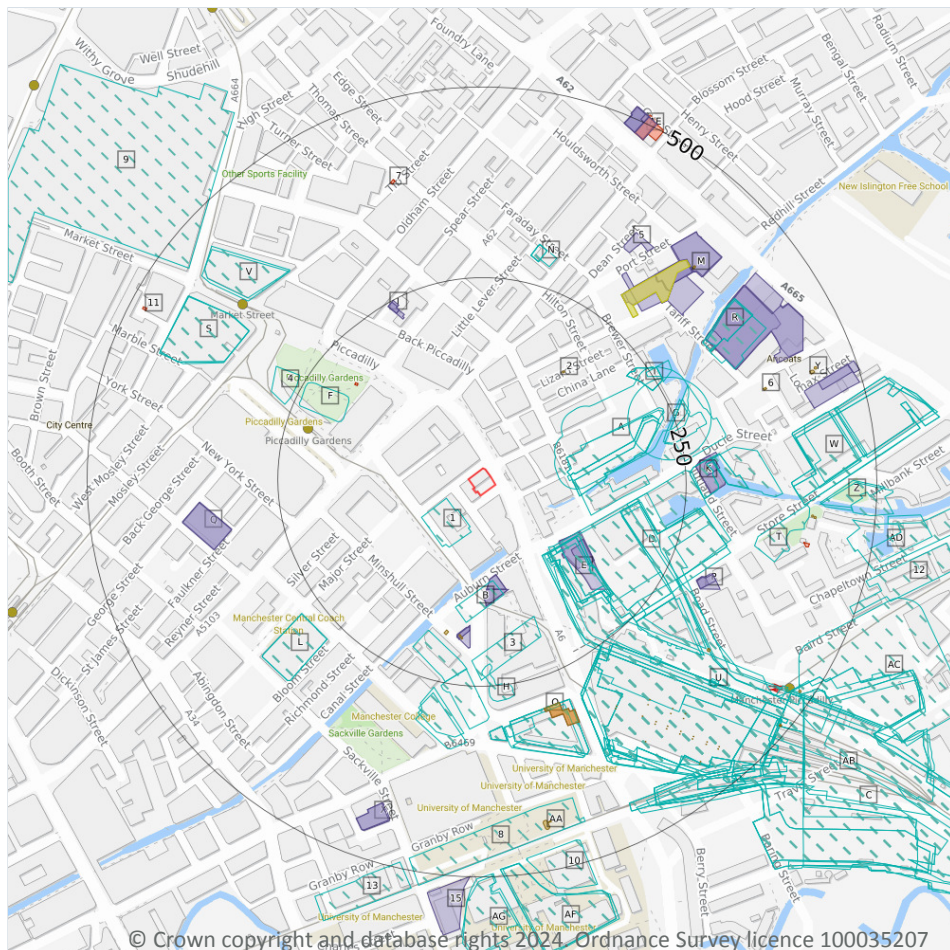
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Date: 1 February 2024

1 Past land use



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

1.1 Historical industrial land uses

Records within 500m

113

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
1	32m SW	Infirmary	1915 - 1923	975872



ID	Location	Land use	Dates present	Group ID
A	82m E	Unspecified Wharf	1956	971868
A	95m E	Unspecified Wharf	1890 - 1923	976213
A	96m E	Unspecified Wharf	1934	971276
A	99m E	Unspecified Warehouses	1915	933374
A	99m E	Unspecified Warehouses	1934 - 1938	964840
A	104m E	Unspecified Warehouse	1923	807197
C	107m SE	Railway Sidings	1956	950162
D	111m SE	Unspecified Commercial/Industrial	1956	796797
C	111m SE	Railway Sidings	1915	849007
C	111m SE	Railway Sidings	1934 - 1938	899923
E	112m SE	Goods Shed	1915	885654
E	112m SE	Goods Shed	1934 - 1938	924820
C	113m SE	Railway Sidings	1923	879517
B	113m S	Unspecified Works	1915 - 1923	898319
E	114m SE	Goods Shed	1905	923774
E	114m SE	Goods Shed	1923	979300
E	119m SE	Railway Building	1890	820433
D	125m SE	Goods Station	1890 - 1938	979048
C	132m SE	Railway Sidings	1890 - 1905	979002
3	173m S	Unspecified Mill	1915 - 1923	946972
F	182m NW	Unspecified Pit	1956	840494
B	189m S	Unspecified Wharf	1915 - 1923	848098
G	190m E	Unspecified Wharf	1923	869878
H	221m S	Unspecified Ground Workings	1934 - 1938	906423
I	222m NE	Unspecified Wharf	1934	875206
I	222m NE	Unspecified Wharf	1915	936033
I	222m NE	Unspecified Wharf	1938	991516
G	227m E	Unspecified Wharf	1934 - 1938	892116



ID	Location	Land use	Dates present	Group ID
H	228m S	Unspecified Works	1923	830436
G	228m E	Unspecified Mills	1915 - 1923	891864
G	239m E	Unspecified Wharf	1915	974633
I	244m NE	Unspecified Wharf	1923	851439
C	247m SE	Railway Sidings	1851	923729
C	249m SE	Railway Station	1956	935665
C	253m SE	Railway Stations	1915	887476
C	253m SE	Railway Stations	1934 - 1938	900032
K	256m E	Unspecified Wharf	1915	900362
K	256m E	Unspecified Wharf	1934 - 1938	933593
4	256m NW	Bus Station	1978	842917
C	257m SE	Railway Station	1923	941202
C	257m SE	Railway Station	1890 - 1905	959335
C	258m SE	Railway Building	1938	820435
C	258m SE	Grain Store	1915 - 1923	946860
H	259m S	Ice Works	1915	808540
C	259m SE	Railway Station	1851	942543
C	259m SE	Railway Station	1985 - 1994	890876
C	259m SE	Railway Station	1971	897274
C	259m SE	Railway Station	1978	897926
H	266m S	Unspecified Wharf	1890	826601
L	274m SW	Bus Station	1978	884077
L	274m SW	Bus Station	1985 - 1994	952978
N	278m N	Police Station	1985 - 1994	882735
N	281m N	Police Station	1971	967676
N	281m N	Police Station	1978	984168
K	286m E	Unspecified Wharf	1923	938827
O	290m S	Police Station	1934 - 1938	903287



ID	Location	Land use	Dates present	Group ID
O	291m S	Fire Station	1985 - 1994	864327
O	291m S	Fire Station	1978	872224
O	291m S	Fire Station	1956 - 1971	924791
O	294m S	Fire Station	1934 - 1938	857211
O	298m S	Police Station	1915 - 1923	846961
O	304m S	Police Station	1985 - 1994	879174
O	304m S	Police Station	1971	907595
O	304m S	Police Station	1978	978804
C	305m SE	Railway Building	1905 - 1938	893315
O	324m S	Fire Engine Station	1915 - 1923	869627
R	329m NE	Sawmill	1921	895554
R	329m NE	Sawmill	1933 - 1938	936555
R	331m NE	Sawmills	1923	813168
S	347m NW	Unspecified Commercial/Industrial	1938	873846
S	347m NW	Unspecified Commercial/Industrial	1931	885632
S	347m NW	Unspecified Commercial/Industrial	1916	924604
T	349m E	Unspecified Ground Workings	1851	800647
V	359m NW	Unspecified Commercial/Industrial	1938	796725
V	361m NW	Unspecified Ground Workings	1931	800625
U	380m SE	Railway Building	1934 - 1938	893266
U	381m SE	Railway Building	1905 - 1923	924355
C	383m SE	Railway Buildings	1923	833658
W	388m E	Clothing Factory	1934 - 1938	898959
W	388m E	Clothing Factory	1915	930283
W	390m E	Unspecified Disused Foundry	1890	794069
W	390m E	Clothing Foundry	1905	817104
W	397m E	Clothing Factory	1923	871590
W	411m E	Unspecified Factory	1968	821377



ID	Location	Land use	Dates present	Group ID
8	414m S	Unspecified Commercial/Industrial	1923	796723
Z	427m E	Unspecified Works	1915	830439
Z	427m E	Unspecified Workshop	1923	811070
C	446m SE	Railway Sidings	1994	844263
C	446m SE	Railway Sidings	1971	884730
AB	446m SE	Railway Sidings	1985 - 1988	878187
AB	446m SE	Railway Sidings	1978	900007
W	455m E	Unspecified Warehouse	1934 - 1938	871212
W	455m E	Unspecified Warehouse	1915	961707
AC	456m SE	Unspecified Depot	1991	962321
W	458m E	Unspecified Warehouse	1923	896333
9	459m NW	Bus Station	1985 - 1994	940823
AD	466m E	Unspecified Works	1923	970752
10	469m S	Unspecified Works	1915 - 1923	934829
C	469m SE	Railway Building	1985 - 1994	978063
C	469m SE	Railway Building	1978	955370
C	469m SE	Railway Building	1971	985873
AC	472m SE	Goods Yard	1934 - 1938	929364
AC	473m SE	Goods Yard	1915 - 1923	898838
AF	484m S	Unspecified Mills	1923	914258
AF	485m S	Unspecified Mills	1934 - 1938	854159
AF	485m S	Unspecified Mills	1915	967472
12	492m E	Unspecified Works	1968	830437
13	492m S	Unspecified Commercial/Industrial	1923	796719
14	492m SE	Railway Sidings	1968	889807
AG	496m S	Unspecified Works	1915 - 1923	954702
AD	499m E	Unspecified Works	1968	872464
AG	499m S	Iron Works	1890	822793

This data is sourced from Ordnance Survey / Groundsure.



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1.2 Historical tanks

Records within 500m

43

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 ungrouped 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	162m NE	Unspecified Tank	1891	115967
B	182m S	Unspecified Tank	1891	115912
B	184m S	Unspecified Tank	1891	115913
O	290m S	Gas Meter Testing Station	1948	120722
C	328m SE	Unspecified Tank	1891	115915
C	330m SE	Unspecified Tank	1891	115916
C	347m SE	Unspecified Tank	1891	115911
C	351m SE	Unspecified Tank	1891	115914
U	352m SE	Unspecified Tank	1948 - 1965	147696
C	358m SE	Unspecified Tank	1891	115922
6	373m E	Unspecified Tank	1953 - 1967	137797
C	374m SE	Unspecified Tank	1891	115918
C	375m SE	Unspecified Tank	1891	115924
C	376m SE	Unspecified Tank	1891	115923
C	377m SE	Unspecified Tank	1891	115917
M	379m NE	Unspecified Tank	1953 - 1965	148454
C	388m SE	Unspecified Tank	1891	115926
C	388m SE	Unspecified Tank	1891	115921
C	390m SE	Unspecified Tank	1891	115919
C	390m SE	Unspecified Tank	1891	115925
C	393m SE	Unspecified Tank	1891	115920



ID	Location	Land use	Dates present	Group ID
C	404m SE	Unspecified Tank	1891	115928
C	406m SE	Unspecified Tank	1891	115927
T	416m E	Unspecified Tank	1908	115909
C	420m SE	Unspecified Tank	1891	115932
T	420m E	Unspecified Tank	1889	132358
C	421m SE	Unspecified Tank	1891	115929
AA	434m S	Unspecified Tank	1952 - 1955	134489
C	436m SE	Unspecified Tank	1891	115933
AA	436m S	Unspecified Tank	1891	115938
C	438m SE	Unspecified Tank	1891	115931
Y	438m E	Unspecified Tank	1891	115978
Y	445m E	Unspecified Tank	1891	115977
C	451m SE	Unspecified Tank	1891	115930
C	451m SE	Unspecified Tank	1891	115934
C	453m SE	Unspecified Tank	1891	115935
C	453m SE	Unspecified Tank	1891	115936
C	481m SE	Unspecified Tank	1889	115910
C	488m SE	Unspecified Tank	1950	137983
C	488m SE	Unspecified Tank	1955	134554
C	488m SE	Unspecified Tank	1955	139148
C	489m SE	Unspecified Tank	1952	145936
C	489m SE	Unspecified Tank	1948	146075

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m

8

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 ungrouped 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
F	191m NW	Electricity Substation	1986 - 1995	72406
O	290m S	Gas Meter Testing Station	1948	63684
7	391m N	Electricity Substation	1980 - 1992	84709
T	412m E	Electricity Substation	1992 - 1997	71274
11	477m NW	Electricity Substation	1995	62186
AE	479m NE	Electricity Substation	1953 - 1984	66121
AE	479m NE	Electricity Substation	1988 - 1995	73444
AE	480m NE	Electricity Substation	1953	79102

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m

1

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 ungrouped 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
M	278m NE	Service Garage	1948	1532

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m

46

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
B	105m S	Garage	1971	23089
B	106m S	Garage	1948 - 1971	25009
E	111m SE	Garage	1971	20840
E	112m SE	Garage	1990	23753
B	123m S	Garage	1948	24212
B	123m S	Garage	1971	22467
E	131m SE	Garage	1971	21466
B	171m S	Garage	1948 - 1971	25857
B	172m S	Garage	1968 - 1984	24849
B	173m S	Garage	1955 - 1965	25421
J	222m NW	Garage	1953	21528
J	232m NW	Garage	1965	23515
J	233m NW	Garage	1953	25567
K	264m E	Garage	1971	22847
K	264m E	Garage	1953 - 1967	27482
K	275m E	Garage	1960	22202
K	275m E	Garage	1971	20877
M	278m NE	Service Garage	1948	20587
M	286m NE	Garage	1960	23455
M	286m NE	Garage	1965	21679
M	289m NE	Garage	1953	23454
P	292m SE	Garage	1971	22068
M	292m NE	Garage	1971	27039
P	292m SE	Garage	1953 - 1967	26856
P	293m SE	Garage	1971	23059
Q	317m W	Garage	1953 - 1965	27406



ID	Location	Land use	Dates present	Group ID
Q	318m W	Garage	1948 - 1953	24294
M	334m NE	Garage	1990	23312
R	334m NE	Garage	1990	22515
M	334m NE	Garage	1971	26371
R	335m NE	Garage	1971	27725
R	339m NE	Garage	1996	22785
5	341m NE	Garage	1971	27030
M	373m NE	Garage	1971 - 1990	25753
M	374m NE	Garage	1971	23646
X	423m S	Garage	1948 - 1968	26993
Y	423m E	Garage	1991 - 1992	24800
X	423m S	Garage	1985 - 1990	27728
Y	444m E	Garage	1997	22282
AE	479m NE	Garage	1965 - 1967	24701
AE	483m NE	Garage	1953	26539
AE	483m NE	Garage	1995	21222
AE	483m NE	Garage	1963	22668
AE	483m NE	Garage	1988	23595
Y	488m E	Garage	1948	21756
15	500m S	Garage	1952 - 1955	26338

This data is sourced from Ordnance Survey / Groundsure.

1.6 Historical military land

Records within 500m

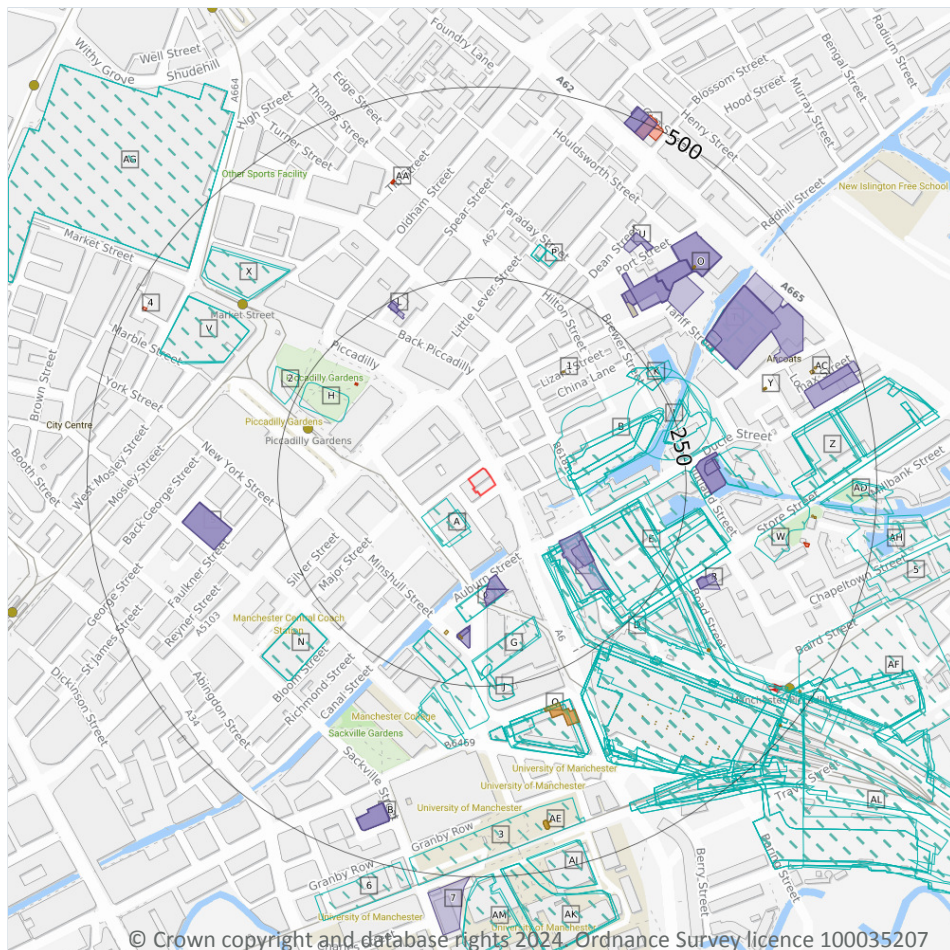
0

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



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

2.1 Historical industrial land uses

Records within 500m

172

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 25 >](#)

ID	Location	Land Use	Date	Group ID
A	32m SW	Infirmary	1915	975872
A	35m SW	Infirmary	1923	975872
B	82m E	Unspecified Wharf	1956	971868



ID	Location	Land Use	Date	Group ID
B	95m E	Unspecified Wharf	1905	976213
B	95m E	Unspecified Wharf	1890	976213
B	95m E	Unspecified Wharf	1923	976213
B	96m E	Unspecified Wharf	1934	971276
B	96m E	Unspecified Wharf	1915	976213
B	99m E	Unspecified Warehouses	1938	964840
B	99m E	Unspecified Warehouses	1934	964840
B	99m E	Unspecified Warehouses	1915	933374
B	104m E	Unspecified Warehouse	1923	807197
D	107m SE	Railway Sidings	1956	950162
E	111m SE	Unspecified Commercial/Industrial	1956	796797
D	111m SE	Railway Sidings	1938	899923
D	111m SE	Railway Sidings	1934	899923
D	111m SE	Railway Sidings	1915	849007
F	112m SE	Goods Shed	1938	924820
F	112m SE	Goods Shed	1934	924820
F	112m SE	Goods Shed	1915	885654
D	113m SE	Railway Sidings	1923	879517
C	113m S	Unspecified Works	1915	898319
C	113m S	Unspecified Works	1923	898319
F	114m SE	Goods Shed	1905	923774
F	114m SE	Goods Shed	1923	979300
F	119m SE	Railway Building	1890	820433
E	125m SE	Goods Station	1938	979048
E	125m SE	Goods Station	1934	979048
E	125m SE	Goods Station	1915	979048
D	132m SE	Railway Sidings	1905	979002
E	136m SE	Goods Station	1905	979048



ID	Location	Land Use	Date	Group ID
E	136m SE	Goods Station	1890	979048
E	136m SE	Goods Station	1923	979048
D	171m E	Railway Sidings	1890	979002
G	173m S	Unspecified Mill	1915	946972
G	173m S	Unspecified Mill	1923	946972
H	182m NW	Unspecified Pit	1956	840494
C	189m S	Unspecified Wharf	1923	848098
I	190m E	Unspecified Wharf	1923	869878
C	190m S	Unspecified Wharf	1915	848098
J	221m S	Unspecified Ground Workings	1938	906423
J	221m S	Unspecified Ground Workings	1934	906423
K	222m NE	Unspecified Wharf	1938	991516
K	222m NE	Unspecified Wharf	1934	875206
K	222m NE	Unspecified Wharf	1915	936033
I	227m E	Unspecified Wharf	1938	892116
I	227m E	Unspecified Wharf	1934	892116
J	228m S	Unspecified Works	1923	830436
I	228m E	Unspecified Mills	1923	891864
I	230m E	Unspecified Mills	1915	891864
I	239m E	Unspecified Wharf	1915	974633
K	244m NE	Unspecified Wharf	1923	851439
D	247m SE	Railway Sidings	1851	923729
D	249m SE	Railway Station	1956	935665
D	253m SE	Railway Stations	1938	900032
D	253m SE	Railway Stations	1934	900032
D	253m SE	Railway Stations	1915	887476
M	256m E	Unspecified Wharf	1938	933593
M	256m E	Unspecified Wharf	1934	933593



ID	Location	Land Use	Date	Group ID
M	256m E	Unspecified Wharf	1915	900362
2	256m NW	Bus Station	1978	842917
D	257m SE	Railway Station	1905	959335
D	257m SE	Railway Station	1890	959335
D	257m SE	Railway Station	1923	941202
D	258m SE	Railway Building	1938	820435
D	258m SE	Grain Store	1915	946860
J	259m S	Ice Works	1915	808540
D	259m SE	Railway Station	1851	942543
D	259m SE	Railway Station	1971	897274
D	259m SE	Railway Station	1988	890876
D	259m SE	Railway Station	1978	897926
D	259m SE	Railway Station	1985	890876
D	259m SE	Railway Station	1994	890876
D	260m SE	Grain Store	1923	946860
J	266m S	Unspecified Wharf	1890	826601
N	274m SW	Bus Station	1988	952978
N	274m SW	Bus Station	1978	884077
N	274m SW	Bus Station	1985	952978
N	274m SW	Bus Station	1994	952978
P	278m N	Police Station	1988	882735
P	278m N	Police Station	1994	882735
P	281m N	Police Station	1971	967676
P	281m N	Police Station	1978	984168
P	281m N	Police Station	1985	882735
M	286m E	Unspecified Wharf	1923	938827
Q	290m S	Police Station	1938	903287
Q	290m S	Police Station	1934	903287



ID	Location	Land Use	Date	Group ID
Q	291m S	Fire Station	1971	924791
Q	291m S	Fire Station	1956	924791
Q	291m S	Fire Station	1988	864327
Q	291m S	Fire Station	1978	872224
Q	291m S	Fire Station	1985	864327
Q	291m S	Fire Station	1994	864327
Q	294m S	Fire Station	1938	857211
Q	294m S	Fire Station	1934	857211
Q	298m S	Police Station	1923	846961
Q	299m S	Police Station	1915	846961
Q	304m S	Police Station	1971	907595
Q	304m S	Police Station	1988	879174
Q	304m S	Police Station	1978	978804
Q	304m S	Police Station	1985	879174
Q	304m S	Police Station	1994	879174
D	305m SE	Railway Building	1938	893315
D	305m SE	Railway Building	1934	893315
D	307m SE	Railway Building	1915	893315
D	307m SE	Railway Building	1905	893315
D	307m SE	Railway Building	1923	893315
Q	324m S	Fire Engine Station	1923	869627
Q	326m S	Fire Engine Station	1915	869627
T	329m NE	Sawmill	1921	895554
T	329m NE	Sawmill	1938	936555
T	329m NE	Sawmill	1933	936555
T	331m NE	Sawmills	1923	813168
V	347m NW	Unspecified Commercial/Industrial	1938	873846
V	347m NW	Unspecified Commercial/Industrial	1931	885632



ID	Location	Land Use	Date	Group ID
V	347m NW	Unspecified Commercial/Industrial	1916	924604
W	349m E	Unspecified Ground Workings	1851	800647
X	359m NW	Unspecified Commercial/Industrial	1938	796725
X	361m NW	Unspecified Ground Workings	1931	800625
D	380m SE	Railway Building	1938	893266
D	380m SE	Railway Building	1934	893266
D	381m SE	Railway Building	1915	924355
D	381m SE	Railway Building	1905	924355
D	381m SE	Railway Building	1923	924355
D	383m SE	Railway Buildings	1923	833658
Z	388m E	Clothing Factory	1938	898959
Z	388m E	Clothing Factory	1934	898959
Z	388m E	Clothing Factory	1915	930283
Z	390m E	Clothing Foundry	1905	817104
Z	390m E	Unspecified Disused Foundry	1890	794069
Z	397m E	Clothing Factory	1923	871590
Z	411m E	Unspecified Factory	1968	821377
3	414m S	Unspecified Commercial/Industrial	1923	796723
AD	427m E	Unspecified Works	1915	830439
AD	427m E	Unspecified Workshop	1923	811070
D	446m SE	Railway Sidings	1971	884730
D	446m SE	Railway Sidings	1988	878187
D	446m SE	Railway Sidings	1978	900007
D	446m SE	Railway Sidings	1985	878187
D	446m SE	Railway Sidings	1994	844263
Z	455m E	Unspecified Warehouse	1938	871212
Z	455m E	Unspecified Warehouse	1934	871212
Z	455m E	Unspecified Warehouse	1915	961707



ID	Location	Land Use	Date	Group ID
AF	456m SE	Unspecified Depot	1991	962321
Z	458m E	Unspecified Warehouse	1923	896333
AG	459m NW	Bus Station	1988	940823
AG	459m NW	Bus Station	1985	940823
AG	459m NW	Bus Station	1994	940823
AH	466m E	Unspecified Works	1923	970752
AI	469m S	Unspecified Works	1915	934829
D	469m SE	Railway Building	1971	985873
D	469m SE	Railway Building	1988	978063
D	469m SE	Railway Building	1978	955370
D	469m SE	Railway Building	1985	978063
D	469m SE	Railway Building	1994	978063
AI	470m S	Unspecified Works	1923	934829
AF	472m SE	Goods Yard	1938	929364
AF	472m SE	Goods Yard	1934	929364
AF	473m SE	Goods Yard	1915	898838
AF	475m SE	Goods Yard	1923	898838
AK	484m S	Unspecified Mills	1923	914258
AK	485m S	Unspecified Mills	1938	854159
AK	485m S	Unspecified Mills	1934	854159
AK	485m S	Unspecified Mills	1915	967472
5	492m E	Unspecified Works	1968	830437
6	492m S	Unspecified Commercial/Industrial	1923	796719
AL	492m SE	Railway Sidings	1956	950162
AL	492m SE	Railway Sidings	1968	889807
AM	496m S	Unspecified Works	1923	954702
AL	497m SE	Railway Sidings	1978	900007
AH	499m E	Unspecified Works	1968	872464



ID	Location	Land Use	Date	Group ID
AM	499m S	Iron Works	1890	822793

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	60
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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 25 >](#)

ID	Location	Land Use	Date	Group ID
1	162m NE	Unspecified Tank	1891	115967
C	182m S	Unspecified Tank	1891	115912
C	184m S	Unspecified Tank	1891	115913
Q	290m S	Gas Meter Testing Station	1948	120722
D	328m SE	Unspecified Tank	1891	115915
D	330m SE	Unspecified Tank	1891	115916
D	347m SE	Unspecified Tank	1891	115911
D	351m SE	Unspecified Tank	1891	115914
D	352m SE	Unspecified Tank	1955	147696
D	352m SE	Unspecified Tank	1964	147696
D	352m SE	Unspecified Tank	1952	147696
D	352m SE	Unspecified Tank	1948	147696
D	353m SE	Unspecified Tank	1965	147696
D	353m SE	Unspecified Tank	1965	147696
D	353m SE	Unspecified Tank	1950	147696
D	358m SE	Unspecified Tank	1891	115922
Y	373m E	Unspecified Tank	1960	137797
Y	373m E	Unspecified Tank	1953	137797
Y	373m E	Unspecified Tank	1965	137797



ID	Location	Land Use	Date	Group ID
Y	373m E	Unspecified Tank	1967	137797
Y	373m E	Unspecified Tank	1953	137797
Y	373m E	Unspecified Tank	1953	137797
D	374m SE	Unspecified Tank	1891	115918
D	375m SE	Unspecified Tank	1891	115924
D	376m SE	Unspecified Tank	1891	115923
D	377m SE	Unspecified Tank	1891	115917
O	379m NE	Unspecified Tank	1960	148454
O	380m NE	Unspecified Tank	1953	148454
O	380m NE	Unspecified Tank	1965	148454
O	380m NE	Unspecified Tank	1953	148454
D	388m SE	Unspecified Tank	1891	115926
D	388m SE	Unspecified Tank	1891	115921
D	390m SE	Unspecified Tank	1891	115919
D	390m SE	Unspecified Tank	1891	115925
D	393m SE	Unspecified Tank	1891	115920
D	404m SE	Unspecified Tank	1891	115928
D	406m SE	Unspecified Tank	1891	115927
W	416m E	Unspecified Tank	1908	115909
D	420m SE	Unspecified Tank	1891	115932
W	420m E	Unspecified Tank	1889	132358
W	420m E	Unspecified Tank	1889	132358
D	421m SE	Unspecified Tank	1891	115929
AE	434m S	Unspecified Tank	1955	134489
AE	434m S	Unspecified Tank	1955	134489
AE	434m S	Unspecified Tank	1952	134489
D	436m SE	Unspecified Tank	1891	115933
AE	436m S	Unspecified Tank	1891	115938



ID	Location	Land Use	Date	Group ID
D	438m SE	Unspecified Tank	1891	115931
AC	438m E	Unspecified Tank	1891	115978
AC	445m E	Unspecified Tank	1891	115977
D	451m SE	Unspecified Tank	1891	115930
D	451m SE	Unspecified Tank	1891	115934
D	453m SE	Unspecified Tank	1891	115935
D	453m SE	Unspecified Tank	1891	115936
D	481m SE	Unspecified Tank	1889	115910
D	488m SE	Unspecified Tank	1950	137983
D	488m SE	Unspecified Tank	1955	139148
D	488m SE	Unspecified Tank	1955	134554
D	489m SE	Unspecified Tank	1952	145936
D	489m SE	Unspecified Tank	1948	146075

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m

15

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 25 >](#)

ID	Location	Land Use	Date	Group ID
H	191m NW	Electricity Substation	1995	72406
H	191m NW	Electricity Substation	1986	72406
Q	290m S	Gas Meter Testing Station	1948	63684
AA	391m N	Electricity Substation	1986	84709
AA	391m N	Electricity Substation	1992	84709
AA	392m N	Electricity Substation	1980	84709
W	412m E	Electricity Substation	1997	71274



ID	Location	Land Use	Date	Group ID
W	412m E	Electricity Substation	1992	71274
4	477m NW	Electricity Substation	1995	62186
AJ	479m NE	Electricity Substation	1953	66121
AJ	479m NE	Electricity Substation	1988	73444
AJ	479m NE	Electricity Substation	1953	66121
AJ	480m NE	Electricity Substation	1953	79102
AJ	482m NE	Electricity Substation	1984	66121
AJ	486m NE	Electricity Substation	1995	73444

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m

1

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'.

Features are displayed on the Past land use - un-grouped map on [page 25 >](#)

ID	Location	Land Use	Date	Group ID
O	278m NE	Service Garage	1948	1532

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m

81

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 25 >](#)

ID	Location	Land Use	Date	Group ID
C	105m S	Garage	1971	23089
C	106m S	Garage	1971	25009



ID	Location	Land Use	Date	Group ID
C	106m S	Garage	1948	25009
F	111m SE	Garage	1971	20840
F	112m SE	Garage	1990	23753
C	123m S	Garage	1948	24212
C	123m S	Garage	1971	22467
F	131m SE	Garage	1971	21466
C	171m S	Garage	1964	25857
C	171m S	Garage	1971	25857
C	171m S	Garage	1952	25857
C	171m S	Garage	1948	25857
C	172m S	Garage	1984	24849
C	173m S	Garage	1955	25421
C	174m S	Garage	1968	24849
C	175m S	Garage	1965	25421
L	222m NW	Garage	1953	21528
L	232m NW	Garage	1965	23515
L	233m NW	Garage	1953	25567
L	233m NW	Garage	1953	25567
M	264m E	Garage	1971	22847
M	264m E	Garage	1953	27482
M	264m E	Garage	1953	27482
M	264m E	Garage	1953	27482
M	264m E	Garage	1965	27482
M	264m E	Garage	1967	27482
M	275m E	Garage	1960	22202
M	275m E	Garage	1971	20877
O	278m NE	Service Garage	1948	20587
O	286m NE	Garage	1960	23455



ID	Location	Land Use	Date	Group ID
O	286m NE	Garage	1965	21679
O	289m NE	Garage	1953	23454
R	292m SE	Garage	1971	22068
O	292m NE	Garage	1971	27039
R	292m SE	Garage	1960	26856
R	292m SE	Garage	1953	26856
R	292m SE	Garage	1953	26856
R	292m SE	Garage	1953	26856
R	292m SE	Garage	1965	26856
R	292m SE	Garage	1967	26856
O	292m NE	Garage	1971	27039
R	293m SE	Garage	1971	23059
S	317m W	Garage	1953	27406
S	317m W	Garage	1953	27406
S	317m W	Garage	1965	27406
S	318m W	Garage	1948	24294
S	318m W	Garage	1953	24294
O	334m NE	Garage	1990	23312
T	334m NE	Garage	1990	22515
O	334m NE	Garage	1971	26371
T	335m NE	Garage	1971	27725
O	335m NE	Garage	1971	26371
T	335m NE	Garage	1971	27725
T	339m NE	Garage	1996	22785
U	341m NE	Garage	1971	27030
U	355m NE	Garage	1971	27030
O	373m NE	Garage	1990	25753
O	374m NE	Garage	1971	25753



ID	Location	Land Use	Date	Group ID
O	374m NE	Garage	1971	23646
AB	423m S	Garage	1955	26993
AB	423m S	Garage	1968	26993
AB	423m S	Garage	1950	26993
AB	423m S	Garage	1964	26993
AB	423m S	Garage	1948	26993
AC	423m E	Garage	1991	24800
AC	423m E	Garage	1992	24800
AB	423m S	Garage	1990	27728
AB	423m S	Garage	1990	27728
AB	423m S	Garage	1985	27728
AB	423m S	Garage	1965	26993
AB	423m S	Garage	1965	26993
AC	444m E	Garage	1997	22282
AJ	479m NE	Garage	1965	24701
AJ	479m NE	Garage	1967	24701
AJ	483m NE	Garage	1953	26539
AJ	483m NE	Garage	1995	21222
AJ	483m NE	Garage	1963	22668
AJ	483m NE	Garage	1988	23595
AJ	484m NE	Garage	1953	26539
AC	488m E	Garage	1948	21756
7	500m S	Garage	1955	26338

This data is sourced from Ordnance Survey / Groundsure.



3 Waste and landfill



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

3.1 Active or recent landfill

Records within 500m

0

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

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

3.2 Historical landfill (BGS records)

Records within 500m

0

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

This data is sourced from the British Geological Survey.



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**6**

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

Features are displayed on the Waste and landfill map on [page 39 >](#)

ID	Location	Address	Further Details	Date
B	406m E	Site Address: N/A	Type of Site: Waste Paper Mills Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1932
B	419m E	Site Address: N/A	Type of Site: Waste Paper Mills Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1931
E	488m E	Site Address: N/A	Type of Site: Scrap Metal Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1978

ID	Location	Address	Further Details	Date
E	488m E	Site Address: N/A	Type of Site: Scrap Metal Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1955
E	488m E	Site Address: N/A	Type of Site: Scrap Metal Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1980
E	489m E	Site Address: N/A	Type of Site: Scrap Metal Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1967

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

3.6 Licensed waste sites

Records within 500m	0
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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	8
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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 39 >](#)

ID	Location	Site	Reference	Category	Sub-Category	Description
A	366m E	Hale Motorway Maintenance Compound, Wilmslow Road Roundabout, Hale, Altrincham, WA15 8XL	WEX303269	Storing waste exemption	Not on a Farm	Storage of waste in a secure place

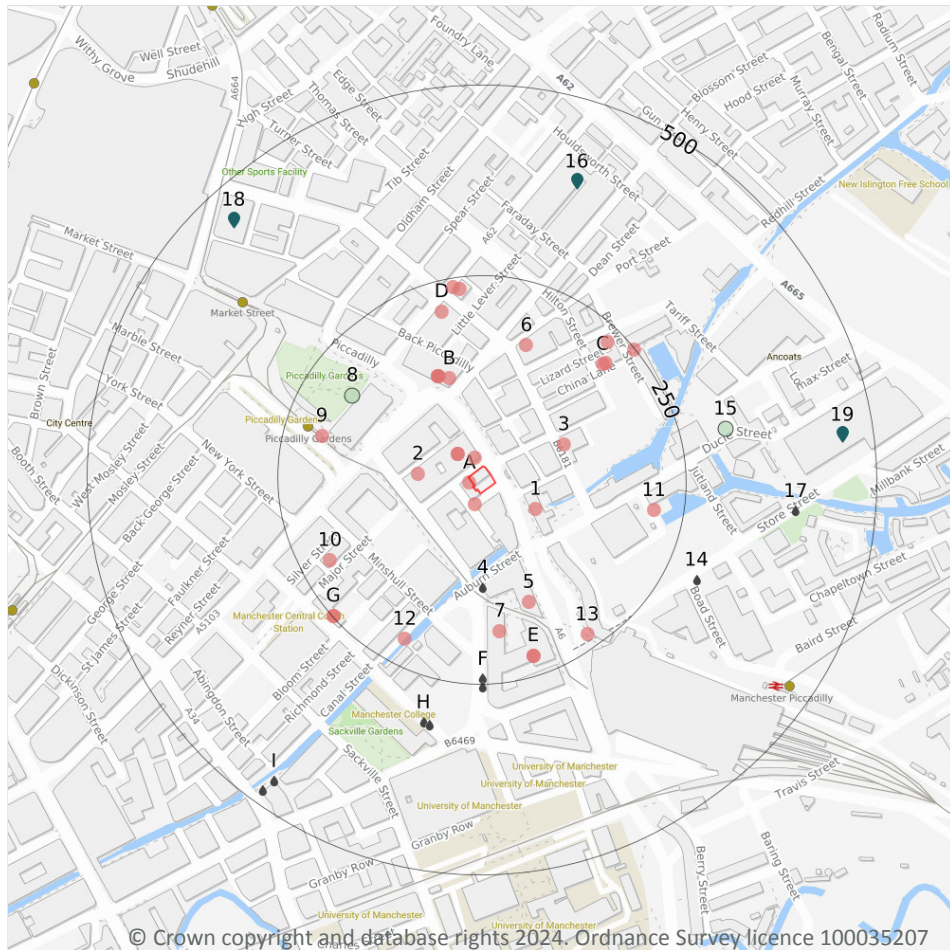


ID	Location	Site	Reference	Category	Sub-Category	Description
A	366m E	Hale Motorway Maintenance Compound, Wilmslow Road Roundabout, Hale, Altrincham, WA15 8XL	WEX303269	Storing waste exemption	Not on a Farm	Storage of waste in secure containers
A	366m E	M56 JUNCTION 6, WILMSLOW ROAD, RINGWAY, ALTRINCHAM, WA15 8XL	WEX302364	Treating waste exemption	Not on a Farm	Treatment of waste aerosol cans
1	384m S	Michael Smith Building, Dover Street, Manchester, M13 9PL	WEX086269	Treating waste exemption	Not on a farm	Treatment of kitchen waste in a wormery
C	414m NE	-	WEX007769	Using waste exemption	Not on a farm	Use of waste in construction
C	414m NE	-	WEX007769	Treating waste exemption	Not on a farm	Screening and blending of waste
D	465m W	11 York Street, York Street, Manchester, M2 2BE	WEX111733	Using waste exemption	Not on a farm	Use of waste in construction
D	465m W	11 York Street, York Street, Manchester, M2 2BE	WEX111733	Treating waste exemption	Not on a farm	Screening and blending of waste

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
- Licensed pollutant release (Part A(2)/B)
- Licensed Discharges to controlled waters
- Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m

31

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on [page 43](#) >

ID	Location	Company	Address	Activity	Category
A	3m W	Enterprise Rent-A-Car	7, Chatham Street, Manchester, Greater Manchester, M1 3AY	Vehicle Hire and Rental	Hire Services
A	15m N	Enterprise Rent-A-Car	Ground Floor, Car Park 1 Chatham Street, Manchester, Greater Manchester, M1 3AY	Vehicle Hire and Rental	Hire Services
A	16m S	Electricity Sub Station	Greater Manchester, M1	Electrical Features	Infrastructure and Facilities



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Date: 1 February 2024

ID	Location	Company	Address	Activity	Category
A	33m NW	Pure Electric	4-10, London Road, Manchester, Greater Manchester, M1 3AN	Electrical Equipment Repair and Servicing	Repair and Servicing
A	33m NW	Halfords	6-10, Piccadilly, Manchester, Greater Manchester, M1	Vehicle Parts and Accessories	Motoring
1	63m SE	Temperature Indicators	111, Piccadilly, Manchester, Greater Manchester, M1 2HY	Electronic Equipment	Industrial Products
2	66m W	Unified Theory of Everything	The Grand 1, Aytoun Street, Manchester, Greater Manchester, M1 3DA	Published Goods	Industrial Products
3	103m NE	Civic Engineers	Carvers Warehouse 77, Dale Street, Manchester, Greater Manchester, M1 2HG	Civil Engineers	Engineering Services
B	123m N	Ancient Egypt Magazine Ltd	1, Newton Street, Manchester, Greater Manchester, M1 1HW	Published Goods	Industrial Products
B	132m NW	Justice Fire & Security	59, Piccadilly, Manchester, Greater Manchester, M1 2AQ	Electronic Equipment	Industrial Products
B	132m NW	Lucas Products & Services	Fourth Floor 59, Piccadilly, Manchester, Greater Manchester, M1 2AQ	Office and Shop Equipment	Industrial Products
B	132m NW	Oil Colour Chemists Association	Fourth Floor 59, Piccadilly, Manchester, Greater Manchester, M1 2AQ	Adhesives and Sealants	Industrial Products
5	155m S	Sixt	2, Piccadilly Place, Manchester, Greater Manchester, M1 3BN	Vehicle Hire and Rental	Hire Services
6	169m N	Slack & Andrews Manufacturing Jewellers Ltd	Dale House 35, Dale Street, Manchester, Greater Manchester, M1 2HF	Jewellery, Gems, Clocks and Watches	Consumer Products
7	182m S	Sixt	4c, Piccadilly Place, Manchester, Greater Manchester, M1 3BN	Vehicle Hire and Rental	Hire Services
9	200m W	Piccadilly Gardens (Manchester Metrolink)	Greater Manchester, M1	Tram, Metro and Light Railway Stations and Stops	Public Transport, Stations and Infrastructure
C	205m NE	Cundall	Fourways House 57, Hilton Street, Manchester, Greater Manchester, M1 2EJ	Civil Engineers	Engineering Services



ID	Location	Company	Address	Activity	Category
C	209m NE	Oscillate Recordings	Fourways House 57, Hilton Street, Manchester, Greater Manchester, M1 2EJ	Recording Studios and Record Companies	IT, Advertising, Marketing and Media Services
D	210m N	Westlakes Engineering Ltd	20, Dale Street, Manchester, Greater Manchester, M1 1EZ	Structural Engineers	Engineering Services
10	211m SW	Print Chain	Barlow House 4, Minshull Street, Manchester, Greater Manchester, M1 3DZ	Published Goods	Industrial Products
11	211m E	Landing Stage	Greater Manchester, M1	Moorings and Unloading Facilities	Water
12	215m SW	Landing Stage	Greater Manchester, M1	Moorings and Unloading Facilities	Water
E	223m S	Arup	3, Piccadilly Place, Manchester, Greater Manchester, M1 3BN	Civil Engineers	Engineering Services
E	223m S	Global Commercial Projects Ltd	3, Piccadilly Place, Manchester, Greater Manchester, M1 3BN	Office and Shop Equipment	Industrial Products
C	229m NE	Basement Complex	18, Tariff Street, Manchester, Greater Manchester, M1 2FN	Saunas and Sunbeds	Consumer Products
13	232m SE	Electricity Sub Station	Greater Manchester, M1	Electrical Features	Infrastructure and Facilities
D	234m N	Print Pug	3b 22, Lever Street, Manchester, Greater Manchester, M1 1EA	Published Goods	Industrial Products
D	238m N	D M C	4th Floor 22 Lever Street, -, Manchester, Greater Manchester, M1 1EA	Radar and Telecommunications Equipment	Industrial Products
C	249m NE	Electricity Sub Station	Greater Manchester, M1	Electrical Features	Infrastructure and Facilities
G	249m SW	Broome & Wellington	Boulton House 17-21, Chorlton Street, Manchester, Greater Manchester, M1 3HY	Medical Equipment, Supplies and Pharmaceuticals	Industrial Products
G	249m SW	Newsco Insider Ltd	Eighth Floor Boulton House 17-21, Chorlton Street, Manchester, Greater Manchester, M1 3HY	Published Goods	Industrial Products

This data is sourced from Ordnance Survey.



4.2 Current or recent petrol stations

Records within 500m

0

Open, closed, under development and obsolete petrol stations.

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

3

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 43](#) >

ID	Location	Address	Details	
16	392m N	Express Printers Manchester Ltd, Hery Street, Ancoats, M60 4HB	Process: Coating Processes Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified
18	457m NW	Johnsons Cleaners UK Ltd, 24 High Street, City Centre, Manchester, M4 1QB	Process: Dry Cleaning Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified
19	458m E	Presbar Diecastings Ltd, Store Street, Piccadilly Village, Ancoats, Manchester, M1 2WD	Process: Non-ferrous Metal Foundry Processes Status: Historical Permit Permit Type: Part B	Enforcement: 2 Enforcement Notified Date of enforcement: 12/09/2013, 09/01/2014 Comment: Statutory noise nuisance

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m

0

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

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

4.13 Licensed Discharges to controlled waters

Records within 500m

16

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 43 >](#)

ID	Location	Address	Details	
4	123m S	AYTOUN ST/AUBURN ST, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0370 Permit Version: 1 Receiving Water: -	Status: SURRENDERED UNDER EPR 2010 Issue date: - Effective Date: 01/01/1995 Revocation Date: 27/03/2015
F	243m S	AYTOUN ST, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 016982630 Permit Version: 1 Receiving Water: SHOOTERS BROOK	Status: SURRENDERED UNDER EPR 2010 Issue date: - Effective Date: 30/09/1994 Revocation Date: 30/10/2018



ID	Location	Address	Details	
F	243m S	AYTOUN ST, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0318 Permit Version: 1 Receiving Water: SHOOTERS BROOK	Status: CONSENT REVOKED OR REVISED - NEW CONSENT ISSUED (37(1)) Issue date: - Effective Date: 01/01/1995 Revocation Date: 01/01/1995
F	253m S	MINSHULL ST/WHITWORTH ST, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0355 Permit Version: 1 Receiving Water: -	Status: SURRENDERED UNDER EPR 2010 Issue date: - Effective Date: 01/01/1995 Revocation Date: 18/07/2014
14	292m SE	STORE STREET, ANCOATS, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0371 Permit Version: 1 Receiving Water: -	Status: SURRENDERED UNDER EPR 2010 Issue date: - Effective Date: 01/01/1995 Revocation Date: 05/12/2014
H	309m S	CHORLTON STREET CSO 281J2, CHORLTON STREET, MANCHESTER, GREATER MANCHESTER, M1 3HW	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0162 Permit Version: 3 Receiving Water: DUKES TUNNEL	Status: VARIED UNDER EPR 2010 Issue date: 05/02/2016 Effective Date: 05/02/2016 Revocation Date: 10/04/2018
H	309m S	CHORLTON STREET CSO 281J2, CHORLTON STREET, MANCHESTER, GREATER MANCHESTER, M1 3HW	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0162 Permit Version: 4 Receiving Water: SHOOTERS BROOK TRIB RVR MEDLOC	Status: VARIED UNDER EPR 2010 Issue date: 11/04/2018 Effective Date: 11/04/2018 Revocation Date: -
H	310m S	CHORLTON STREET CSO 281J2, CHORLTON STREET, MANCHESTER, GREATER MANCHESTER, M1 3HW	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0162 Permit Version: 2 Receiving Water: DUKES TUNNEL	Status: VARIED UNDER EPR 2010 Issue date: 03/09/2010 Effective Date: 03/09/2010 Revocation Date: 04/02/2016
H	310m S	CHORLTON STREET CSO 281J2, CHORLTON STREET, MANCHESTER, GREATER MANCHESTER, M1 3HW	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0162 Permit Version: 1 Receiving Water: DUKES TUNNEL	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: - Effective Date: 01/01/1995 Revocation Date: 02/09/2010



ID	Location	Address	Details	
17	395m E	STORE STREET, ANCOATS, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 016982994 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: SURRENDERED UNDER EPR 2010 Issue date: - Effective Date: 23/06/1995 Revocation Date: 28/11/2022
I	464m SW	GSHP SERVING ORIGIN DEVELOPMENT, 56 PRINCESS STREET, MANCHESTER, M1 6JA	Effluent Type: TRADE DISCHARGES - COOLING WATER Permit Number: NPSWQD004449 Permit Version: 3 Receiving Water: GROUNDWATER	Status: SURRENDERED UNDER EPR 2010 Issue date: 28/10/2011 Effective Date: 01/04/2013 Revocation Date: 03/10/2014
I	464m SW	GSHP SERVING ORIGIN DEVELOPMENT, 56 PRINCESS STREET, MANCHESTER, M1 6JA	Effluent Type: TRADE DISCHARGES - COOLING WATER Permit Number: NPSWQD004449 Permit Version: 1 Receiving Water: GROUNDWATER	Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 05/03/2009 Effective Date: 01/04/2009 Revocation Date: 15/04/2009
I	464m SW	GSHP SERVING ORIGIN DEVELOPMENT, 56 PRINCESS STREET, MANCHESTER, M1 6JA	Effluent Type: TRADE DISCHARGES - COOLING WATER Permit Number: NPSWQD004449 Permit Version: 2 Receiving Water: GROUNDWATER	Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 16/04/2009 Effective Date: 16/04/2009 Revocation Date: 31/03/2013
I	482m SW	GSHP SERVING ORIGIN DEVELOPMENT, 56 PRINCESS STREET, MANCHESTER, M1 6JA	Effluent Type: TRADE DISCHARGES - COOLING WATER Permit Number: NPSWQD004449 Permit Version: 1 Receiving Water: GROUNDWATER	Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 05/03/2009 Effective Date: 01/04/2009 Revocation Date: 15/04/2009
I	482m SW	GSHP SERVING ORIGIN DEVELOPMENT, 56 PRINCESS STREET, MANCHESTER, M1 6JA	Effluent Type: TRADE DISCHARGES - COOLING WATER Permit Number: NPSWQD004449 Permit Version: 2 Receiving Water: GROUNDWATER	Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 16/04/2009 Effective Date: 16/04/2009 Revocation Date: 31/03/2013
I	482m SW	GSHP SERVING ORIGIN DEVELOPMENT, 56 PRINCESS STREET, MANCHESTER, M1 6JA	Effluent Type: TRADE DISCHARGES - COOLING WATER Permit Number: NPSWQD004449 Permit Version: 3 Receiving Water: GROUNDWATER	Status: SURRENDERED UNDER EPR 2010 Issue date: 28/10/2011 Effective Date: 01/04/2013 Revocation Date: 03/10/2014

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**2**

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

Features are displayed on the Current industrial land use map on [page 43](#) >

ID	Location	Details	
8	186m NW	Incident Date: 12/02/2002 Incident Identification: 57989 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
15	309m E	Incident Date: 22/02/2003 Incident Identification: 138638 Pollutant: Other Pollutant Pollutant Description: Other	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

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.

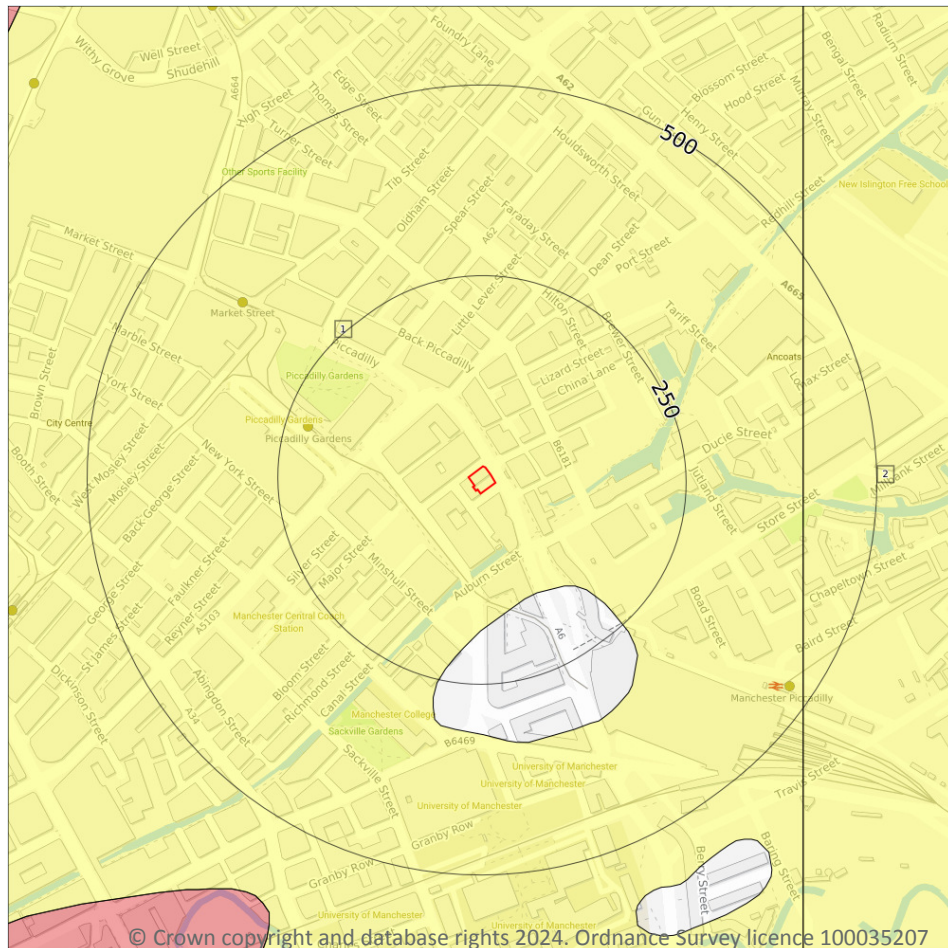
4.21 Pollution inventory radioactive waste

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



- Site Outline**
- Search buffers in metres (m)**
- Principal
 - Secondary A
 - Secondary B
 - Secondary Undifferentiated
 - Unproductive
 - Unknown

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 53](#) >

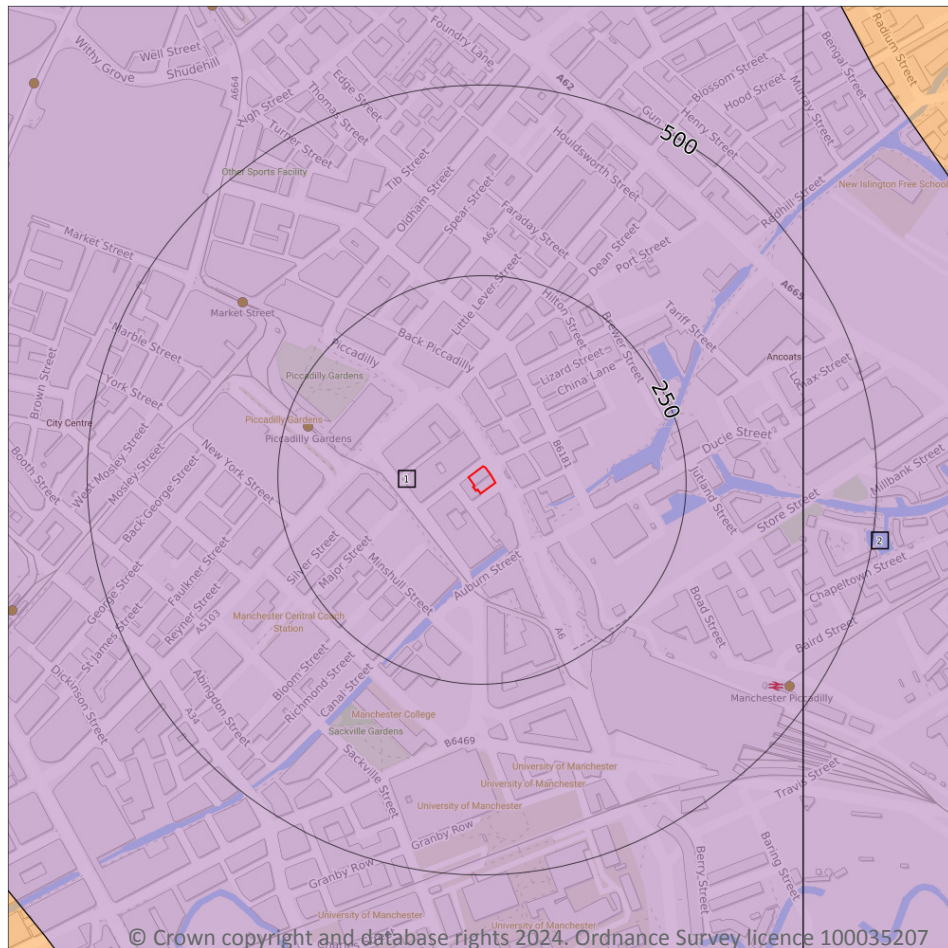
ID	Location	Designation	Description
1	On site	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
2	403m 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



- Site Outline
- Search buffers in metres (m)
- Principal
 - Secondary A
 - Secondary B
 - Secondary Undifferentiated
 - Unproductive

5.2 Bedrock aquifer

Records within 500m

2

Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on [page 55](#) >

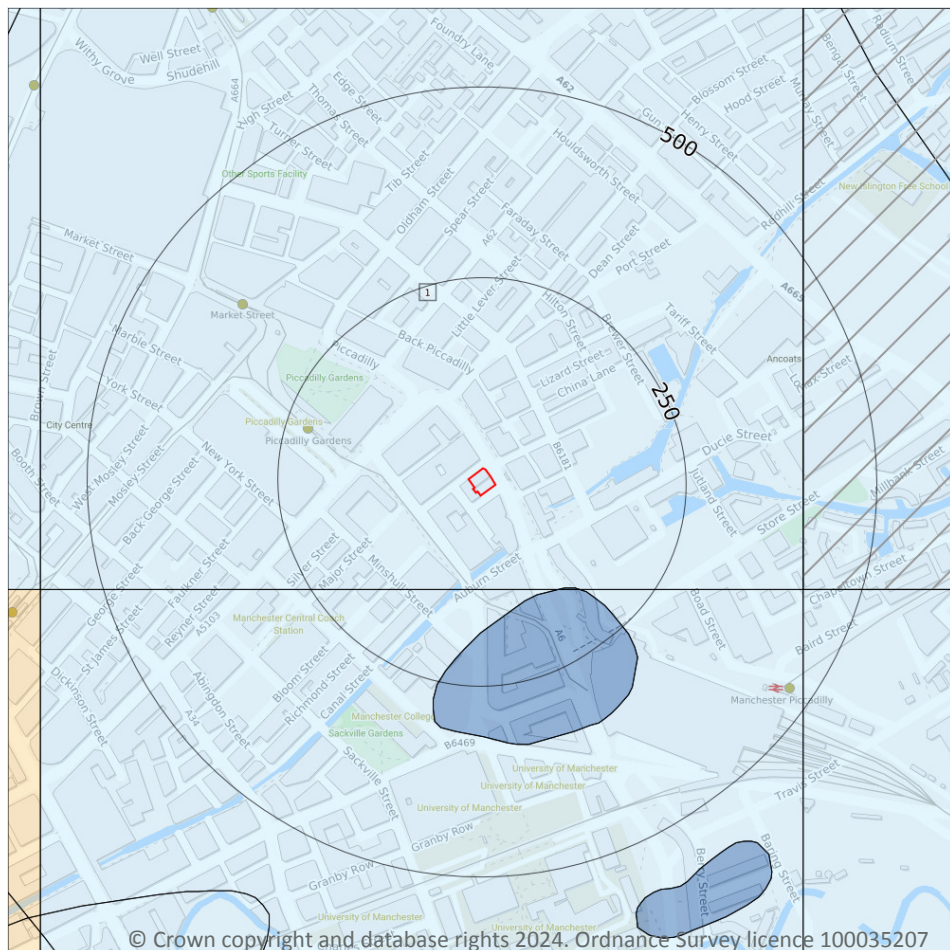
ID	Location	Designation	Description
1	On site	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers
2	403m E	Principal	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 57 >](#)



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: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Principal Flow mechanism: Well connected fractures

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.

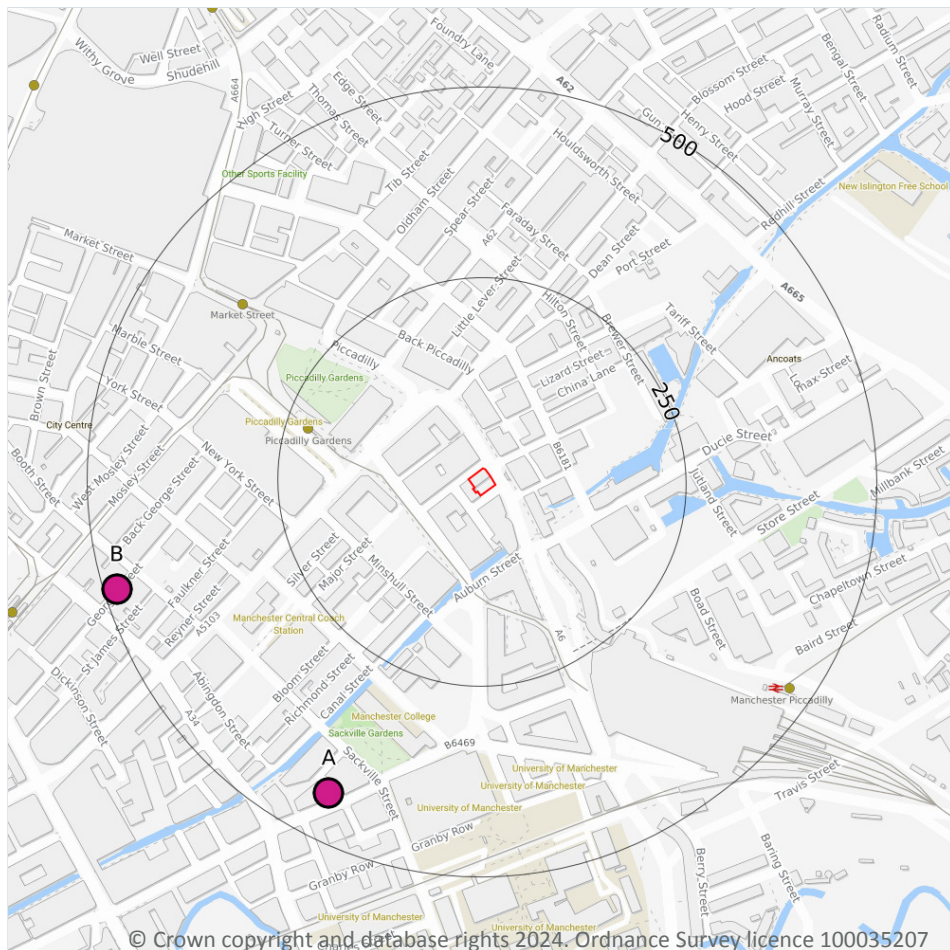
5.5 Groundwater vulnerability- local information

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



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

5.6 Groundwater abstractions

Records within 2000m

57

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 59 >](#)



ID	Location	Details	
A	438m SW	Status: Historical Licence No: NW0690006001 Details: Non-Evaporative Cooling Direct Source: Ground Water - North West Region Point: BOREHOLES AT ORIGIN DEVELOPMENTS, MANCHESTER Data Type: Point Name: West Contracting Easting: 384378 Northing: 397733	Annual Volume (m ³): 139128 Max Daily Volume (m ³): 1010 Original Application No: - Original Start Date: 19/01/2009 Expiry Date: 31/03/2015 Issue No: 1 Version Start Date: 19/01/2009 Version End Date: -
A	438m SW	Status: Historical Licence No: NW/069/0006/001 Details: Non-Evaporative Cooling Direct Source: Ground Water - North West Region Point: BOREHOLES AT ORIGIN DEVELOPMENTS, MANCHESTER Data Type: Point Name: West Contracting Easting: 384378 Northing: 397733	Annual Volume (m ³): 139128 Max Daily Volume (m ³): 1010 Original Application No: - Original Start Date: 19/01/2009 Expiry Date: 31/03/2015 Issue No: 1 Version Start Date: 19/01/2009 Version End Date: -
B	483m W	Status: Historical Licence No: 2569007069 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: "BOREHOLE AT GEORGE ST, MANCHESTER" Data Type: Point Name: BRITISH TELECOM Easting: 384100 Northing: 398000	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 27/01/1971 Expiry Date: - Issue No: 100 Version Start Date: 27/01/1971 Version End Date: -
B	483m W	Status: Historical Licence No: 2569007069 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT GEORGE ST, MANCHESTER Data Type: Point Name: BRITISH TELECOMMUNICATIONS PLC Easting: 384100 Northing: 398000	Annual Volume (m ³): 1100 Max Daily Volume (m ³): 860 Original Application No: - Original Start Date: 01/04/1984 Expiry Date: - Issue No: 100 Version Start Date: 01/04/2007 Version End Date: -



ID	Location	Details	
-	877m SE	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: -
-	877m SE	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: -
-	1024m NW	Status: Active Licence No: 2569007070 Details: General Cooling (Existing Licences Only) (High Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT DIAL HOUSE CHAPEL STREET SALFORD Data Type: Point Name: BRITISH TELECOMMUNICATIONS PLC Easting: 383700 Northing: 398700	Annual Volume (m ³): 45 Max Daily Volume (m ³): 30 Original Application No: 2333 Original Start Date: 27/01/1971 Expiry Date: - Issue No: 101 Version Start Date: 01/04/2007 Version End Date: -
-	1024m NW	Status: Historical Licence No: 2569007070 Details: General Cooling (Existing Licences Only) (High Loss) Direct Source: Ground Water - North West Region Point: "BOREHOLE AT DIAL HOUSE, CHAPEL ST, SALFORD" Data Type: Point Name: BRITISH TELECOM Easting: 383700 Northing: 398700	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 27/01/1971 Expiry Date: - Issue No: 100 Version Start Date: 27/01/1971 Version End Date: -



ID	Location	Details	
-	1024m NW	Status: Historical Licence No: 2569007070 Details: General Cooling (Existing Licences Only) (High Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT DIAL HOUSE, CHAPEL ST, SALFORD Data Type: Point Name: BRITISH TELECOMMUNICATIONS PLC Easting: 383700 Northing: 398700	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 27/01/1971 Expiry Date: - Issue No: 101 Version Start Date: 01/04/1984 Version End Date: -
-	1105m S	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: -
-	1105m S	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: -
-	1237m W	Status: Historical Licence No: 2569007089 Details: Non-Evaporative Cooling Direct Source: Ground Water - North West Region Point: 2 BOREHOLES AT GARTSIDE STREET MANCHESTER Data Type: Line Name: HER MAJESTY'S COURT SERVICE Easting: 383335 Northing: 398310	Annual Volume (m ³): 200000 Max Daily Volume (m ³): 1179 Original Application No: - Original Start Date: 26/01/2005 Expiry Date: 31/03/2011 Issue No: 2 Version Start Date: 10/07/2008 Version End Date: -



ID	Location	Details	
-	1281m NW	Status: Historical Licence No: 2569004023 Details: "Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services" Direct Source: Ground Water - North West Region Point: "BOREHOLE (NO 2) AT PREMISES, STRANGWAYS, MANCHESTER" Data Type: Point Name: INTERBREW UK LTD Easting: 383820 Northing: 399190	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 09/08/2000 Version End Date: -
-	1281m NW	Status: Historical Licence No: 2569004023 Details: Process water Direct Source: Ground Water - North West Region Point: "BOREHOLE (NO 2) AT PREMISES, STRANGWAYS, MANCHESTER" Data Type: Point Name: INTERBREW UK LTD Easting: 383820 Northing: 399190	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 09/08/2000 Version End Date: -
-	1281m NW	Status: Historical Licence No: 2569004023 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: BOREHOLE (NO 2) AT PREMISES, STRANGWAYS, MANCHESTER Data Type: Point Name: INTERBREW UK LTD Easting: 383820 Northing: 399190	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 01/01/2004 Version End Date: -
-	1281m NW	Status: Historical Licence No: 2569004023 Details: Process water Direct Source: Ground Water - North West Region Point: BOREHOLE (NO 2) AT PREMISES, STRANGWAYS, MANCHESTER Data Type: Point Name: INTERBREW UK LTD Easting: 383820 Northing: 399190	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 01/01/2004 Version End Date: -



ID	Location	Details	
-	1281m NW	Status: Historical Licence No: 2569004023 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: BOREHOLE NUMBER 2 AT PREMISES STRANGWAYS MANCHESTER Data Type: Point Name: INTERBREW UK LTD Easting: 383820 Northing: 399190	Annual Volume (m ³): 500000 Max Daily Volume (m ³): 2500 Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 01/01/2004 Version End Date: -
-	1281m NW	Status: Historical Licence No: 2569004023 Details: Process Water Direct Source: Ground Water - North West Region Point: BOREHOLE NUMBER 2 AT PREMISES STRANGWAYS MANCHESTER Data Type: Point Name: INTERBREW UK LTD Easting: 383820 Northing: 399190	Annual Volume (m ³): 500000 Max Daily Volume (m ³): 2500 Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 01/01/2004 Version End Date: -
-	1299m NW	Status: Historical Licence No: 2569004023 Details: "Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services" Direct Source: Ground Water - North West Region Point: "BOREHOLE (NO 3) AT PREMISES, STRANGWAYS, MANCHESTER" Data Type: Point Name: INTERBREW UK LTD Easting: 383830 Northing: 399220	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 09/08/2000 Version End Date: -
-	1299m NW	Status: Historical Licence No: 2569004023 Details: Process water Direct Source: Ground Water - North West Region Point: "BOREHOLE (NO 3) AT PREMISES, STRANGWAYS, MANCHESTER" Data Type: Point Name: INTERBREW UK LTD Easting: 383830 Northing: 399220	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 09/08/2000 Version End Date: -



ID	Location	Details	
-	1299m NW	Status: Historical Licence No: 2569004023 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: BOREHOLE (NO 3) AT PREMISES, STRANGWAYS, MANCHESTER Data Type: Point Name: INTERBREW UK LTD Easting: 383830 Northing: 399220	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 01/01/2004 Version End Date: -
-	1299m NW	Status: Historical Licence No: 2569004023 Details: Process water Direct Source: Ground Water - North West Region Point: BOREHOLE (NO 3) AT PREMISES, STRANGWAYS, MANCHESTER Data Type: Point Name: INTERBREW UK LTD Easting: 383830 Northing: 399220	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 01/01/2004 Version End Date: -
-	1299m NW	Status: Historical Licence No: 2569004023 Details: Process Water Direct Source: Ground Water - North West Region Point: BOREHOLE NUMBER 3 AT PREMISES STRANGWAYS MANCHESTER Data Type: Point Name: INTERBREW UK LTD Easting: 383830 Northing: 399220	Annual Volume (m ³): 500000 Max Daily Volume (m ³): 2500 Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 01/01/2004 Version End Date: -
-	1299m NW	Status: Historical Licence No: 2569004023 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: BOREHOLE NUMBER 3 AT PREMISES STRANGWAYS MANCHESTER Data Type: Point Name: INTERBREW UK LTD Easting: 383830 Northing: 399220	Annual Volume (m ³): 500000 Max Daily Volume (m ³): 2500 Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 01/01/2004 Version End Date: -



ID	Location	Details	
-	1312m NW	Status: Historical Licence No: 2569004023 Details: "Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services" Direct Source: Ground Water - North West Region Point: "BOREHOLE (NO 1) AT PREMISES, STRANGWAYS, MANCHESTER" Data Type: Point Name: INTERBREW UK LTD Easting: 383850 Northing: 399250	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 09/08/2000 Version End Date: -
-	1312m NW	Status: Historical Licence No: 2569004023 Details: Process water Direct Source: Ground Water - North West Region Point: "BOREHOLE (NO 1) AT PREMISES, STRANGWAYS, MANCHESTER" Data Type: Point Name: INTERBREW UK LTD Easting: 383850 Northing: 399250	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 09/08/2000 Version End Date: -
-	1312m NW	Status: Historical Licence No: 2569004023 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: BOREHOLE (NO 1) AT PREMISES, STRANGWAYS, MANCHESTER Data Type: Point Name: INTERBREW UK LTD Easting: 383850 Northing: 399250	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 01/01/2004 Version End Date: -
-	1312m NW	Status: Historical Licence No: 2569004023 Details: Process water Direct Source: Ground Water - North West Region Point: BOREHOLE (NO 1) AT PREMISES, STRANGWAYS, MANCHESTER Data Type: Point Name: INTERBREW UK LTD Easting: 383850 Northing: 399250	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 01/01/2004 Version End Date: -



ID	Location	Details	
-	1312m NW	Status: Historical Licence No: 2569004023 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: BOREHOLE NUMBER 1 AT PREMISES STRANGWAYS MANCHESTER Data Type: Point Name: INTERBREW UK LTD Easting: 383850 Northing: 399250	Annual Volume (m ³): 500000 Max Daily Volume (m ³): 2500 Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 01/01/2004 Version End Date: -
-	1312m NW	Status: Historical Licence No: 2569004023 Details: Process Water Direct Source: Ground Water - North West Region Point: BOREHOLE NUMBER 1 AT PREMISES STRANGWAYS MANCHESTER Data Type: Point Name: INTERBREW UK LTD Easting: 383850 Northing: 399250	Annual Volume (m ³): 500000 Max Daily Volume (m ³): 2500 Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 01/01/2004 Version End Date: -
-	1399m W	Status: Active Licence No: NW/069/0004/021 Details: Heat Pump Direct Source: Ground Water - North West Region Point: CHESTER FORMATION AT SCIENCE MUSEUM (A) Data Type: Point Name: Science Museum Group Easting: 383198 Northing: 397829	Annual Volume (m ³): 346000 Max Daily Volume (m ³): 1728 Original Application No: NPS/WR/035329 Original Start Date: 31/03/2023 Expiry Date: 31/03/2024 Issue No: 1 Version Start Date: 31/03/2023 Version End Date: -
-	1409m W	Status: Historical Licence No: NW/069/0004/019 Details: Transfer Between Sources (Post Water Act 2003) Direct Source: Ground Water - North West Region Point: ST JOHNS MANCHESTER Data Type: Poly4 Name: Manchester Quays Development (MGY) Ltd Easting: 383094 Northing: 398099	Annual Volume (m ³): 543120 Max Daily Volume (m ³): 1488 Original Application No: - Original Start Date: 13/09/2019 Expiry Date: 31/12/2020 Issue No: 1 Version Start Date: 13/09/2019 Version End Date: -



ID	Location	Details	
-	1449m W	Status: Active Licence No: NW/069/0004/021 Details: Heat Pump Direct Source: Ground Water - North West Region Point: CHESTER FORMATION AT SCIENCE MUSEUM (B) Data Type: Point Name: Science Museum Group Easting: 383143 Northing: 397845	Annual Volume (m ³): 346000 Max Daily Volume (m ³): 1728 Original Application No: NPS/WR/035329 Original Start Date: 31/03/2023 Expiry Date: 31/03/2024 Issue No: 1 Version Start Date: 31/03/2023 Version End Date: -
-	1597m SW	Status: Historical Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW11 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383204 Northing: 397298	Annual Volume (m ³): 260172 Max Daily Volume (m ³): 712.8 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -
-	1603m SW	Status: Historical Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW10 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383211 Northing: 397276	Annual Volume (m ³): 260172 Max Daily Volume (m ³): 712.8 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -
-	1604m N	Status: Active Licence No: 2569004011 Details: Process Water Direct Source: Ground Water - North West Region Point: BOREHOLE AT DERBY BREWERY, CHEETHAM, MANCHESTER 3 Data Type: Point Name: JOSEPH HOLT LTD Easting: 384085 Northing: 399685	Annual Volume (m ³): 75000 Max Daily Volume (m ³): 300 Original Application No: NPS/WR/037017 Original Start Date: 17/02/1966 Expiry Date: - Issue No: 101 Version Start Date: 29/06/2023 Version End Date: -



ID	Location	Details	
-	1605m SW	Status: Historical Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW9 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383223 Northing: 397253	Annual Volume (m ³): 260172 Max Daily Volume (m ³): 712.8 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -
-	1614m N	Status: Historical Licence No: 2569004011 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT DERBY BREWERY, CHEETHAM, MANCHESTER 3 Data Type: Point Name: JOSEPH HOLT LTD Easting: 384100 Northing: 399700	Annual Volume (m ³): 45460 Max Daily Volume (m ³): 181.84 Original Application No: 0423 Original Start Date: 17/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 17/02/1966 Version End Date: -
-	1614m N	Status: Historical Licence No: 2569004011 Details: Process Water Direct Source: Ground Water - North West Region Point: BOREHOLE AT DERBY BREWERY, CHEETHAM, MANCHESTER 3 Data Type: Point Name: JOSEPH HOLT LTD Easting: 384100 Northing: 399700	Annual Volume (m ³): 45460 Max Daily Volume (m ³): 181.84 Original Application No: 0423 Original Start Date: 17/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 17/02/1966 Version End Date: -
-	1614m N	Status: Historical Licence No: 2569004011 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: "BOREHOLE AT DERBY BREWERY, CHEETHAM, MANCHESTER 3" Data Type: Point Name: JOSEPH HOLT LTD Easting: 384100 Northing: 399700	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 17/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 17/02/1966 Version End Date: -



ID	Location	Details	
-	1614m N	Status: Historical Licence No: 2569004011 Details: Process water Direct Source: Ground Water - North West Region Point: "BOREHOLE AT DERBY BREWERY, CHEETHAM, MANCHESTER 3" Data Type: Point Name: JOSEPH HOLT LTD Easting: 384100 Northing: 399700	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 17/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 17/02/1966 Version End Date: -
-	1620m SW	Status: Historical Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW8 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383224 Northing: 397225	Annual Volume (m ³): 260172 Max Daily Volume (m ³): 712.8 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -
-	1624m SW	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: -
-	1624m SW	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: -



ID	Location	Details	
-	1638m SW	Status: Historical Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW6 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383171 Northing: 397275	Annual Volume (m ³): 260172 Max Daily Volume (m ³): 712.8 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -
-	1643m SW	Status: Historical Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW5 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383193 Northing: 397230	Annual Volume (m ³): 260172 Max Daily Volume (m ³): 712.8 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -
-	1666m SW	Status: Historical Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW7 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383184 Northing: 397203	Annual Volume (m ³): 260172 Max Daily Volume (m ³): 712.8 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -
-	1683m SW	Status: Historical Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW4 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383159 Northing: 397210	Annual Volume (m ³): 260172 Max Daily Volume (m ³): 712.8 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -



ID	Location	Details	
-	1695m SW	Status: Historical Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW3 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383140 Northing: 397217	Annual Volume (m ³): 260172 Max Daily Volume (m ³): 712.8 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -
-	1711m SW	Status: Historical Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW2 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383113 Northing: 397230	Annual Volume (m ³): 260172 Max Daily Volume (m ³): 712.8 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -
-	1725m SW	Status: Historical Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW1 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383085 Northing: 397249	Annual Volume (m ³): 260172 Max Daily Volume (m ³): 712.8 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -
-	1769m SE	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: -



ID	Location	Details	
-	1776m N	Status: Historical Licence No: 2569004021 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: BOREHOLE AT PREMISES, DERBY STREET, CHEETHAM, MANCHESTER Data Type: Point Name: LANCASHIRE DAIRIES LTD Easting: 383900 Northing: 399800	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 17/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/04/1993 Version End Date: -
-	1776m N	Status: Historical Licence No: 2569004021 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT PREMISES, DERBY STREET, CHEETHAM, MANCHESTER Data Type: Point Name: LANCASHIRE DAIRIES LTD Easting: 383900 Northing: 399800	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 17/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/04/1993 Version End Date: -
-	1867m W	Status: Active Licence No: NW/069/0004/022 Details: Dewatering Direct Source: Ground Water - North West Region Point: ABSTRACTION AREA AT TRINITY ISLANDS, MANCHESTER Data Type: Poly4 Name: Renaker Build Ltd Easting: 382705 Northing: 397822	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: NPS/WR/036441 Original Start Date: 05/09/2023 Expiry Date: 31/10/2024 Issue No: 1 Version Start Date: 05/09/2023 Version End Date: -
-	1986m N	Status: Active Licence No: 2569005015 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: B/HOLE, LITTLE GREEN WORKS, COLLYHURST RD, MANCHESTER 10 Data Type: Point Name: Packaging Products (Coatings) Ltd Easting: 385000 Northing: 400100	Annual Volume (m ³): 438689 Max Daily Volume (m ³): 1636.56 Original Application No: NPS/WR/006003 Original Start Date: 16/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 09/02/2011 Version End Date: -



ID	Location	Details	
-	1986m N	Status: Historical Licence No: 2569005015 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: "B/HOLE, LITTLE GREEN WORKS, COLLYHURST RD, MANCHESTER 10" Data Type: Point Name: PACKAGING PRODUCTS LTD Easting: 385000 Northing: 400100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 16/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 21/02/1995 Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m	0
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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	10
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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.

Features are displayed on the Abstractions and Source Protection Zones map on [page 59 >](#)

ID	Location	Details	
-	1281m NW	Status: Historical Licence No: 2569004023 Details: "Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services" Direct Source: Ground Water - North West Region Point: "BOREHOLE (NO 2) AT PREMISES, STRANGWAYS, MANCHESTER" Data Type: Point Name: INTERBREW UK LTD Easting: 383820 Northing: 399190	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 09/08/2000 Version End Date: -



ID	Location	Details	
-	1281m NW	Status: Historical Licence No: 2569004023 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: BOREHOLE (NO 2) AT PREMISES, STRANGWAYS, MANCHESTER Data Type: Point Name: INTERBREW UK LTD Easting: 383820 Northing: 399190	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 01/01/2004 Version End Date: -
-	1281m NW	Status: Historical Licence No: 2569004023 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: BOREHOLE NUMBER 2 AT PREMISES STRANGWAYS MANCHESTER Data Type: Point Name: INTERBREW UK LTD Easting: 383820 Northing: 399190	Annual Volume (m ³): 500000 Max Daily Volume (m ³): 2500 Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 01/01/2004 Version End Date: -
-	1299m NW	Status: Historical Licence No: 2569004023 Details: "Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services" Direct Source: Ground Water - North West Region Point: "BOREHOLE (NO 3) AT PREMISES, STRANGWAYS, MANCHESTER" Data Type: Point Name: INTERBREW UK LTD Easting: 383830 Northing: 399220	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 09/08/2000 Version End Date: -
-	1299m NW	Status: Historical Licence No: 2569004023 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: BOREHOLE (NO 3) AT PREMISES, STRANGWAYS, MANCHESTER Data Type: Point Name: INTERBREW UK LTD Easting: 383830 Northing: 399220	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 01/01/2004 Version End Date: -



ID	Location	Details	
-	1299m NW	Status: Historical Licence No: 2569004023 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: BOREHOLE NUMBER 3 AT PREMISES STRANGWAYS MANCHESTER Data Type: Point Name: INTERBREW UK LTD Easting: 383830 Northing: 399220	Annual Volume (m ³): 500000 Max Daily Volume (m ³): 2500 Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 01/01/2004 Version End Date: -
-	1312m NW	Status: Historical Licence No: 2569004023 Details: "Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services" Direct Source: Ground Water - North West Region Point: "BOREHOLE (NO 1) AT PREMISES, STRANGWAYS, MANCHESTER" Data Type: Point Name: INTERBREW UK LTD Easting: 383850 Northing: 399250	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 09/08/2000 Version End Date: -
-	1312m NW	Status: Historical Licence No: 2569004023 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: BOREHOLE (NO 1) AT PREMISES, STRANGWAYS, MANCHESTER Data Type: Point Name: INTERBREW UK LTD Easting: 383850 Northing: 399250	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 01/01/2004 Version End Date: -
-	1312m NW	Status: Historical Licence No: 2569004023 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: BOREHOLE NUMBER 1 AT PREMISES STRANGWAYS MANCHESTER Data Type: Point Name: INTERBREW UK LTD Easting: 383850 Northing: 399250	Annual Volume (m ³): 500000 Max Daily Volume (m ³): 2500 Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 01/01/2004 Version End Date: -



ID	Location	Details	
-	1776m N	Status: Historical Licence No: 2569004021 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: BOREHOLE AT PREMISES, DERBY STREET, CHEETHAM, MANCHESTER Data Type: Point Name: LANCASHIRE DAIRIES LTD Easting: 383900 Northing: 399800	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 17/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/04/1993 Version End Date: -

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

5.9 Source Protection Zones

Records within 500m	0
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Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

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

5.10 Source Protection Zones (confined aquifer)

Records within 500m	0
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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

15

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

Features are displayed on the Hydrology map on [page 78 >](#)

ID	Location	Type of water feature	Ground level	Permanence	Name
A	71m SE	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Rochdale Canal



ID	Location	Type of water feature	Ground level	Permanence	Name
C	78m S	Canal. A manmade watercourse for inland navigation.	On ground surface	Watercourse contains water year round (in normal circumstances)	Rochdale Canal
B	78m E	Canal. A manmade watercourse for inland navigation.	On ground surface	Watercourse contains water year round (in normal circumstances)	Rochdale Canal
C	105m S	Canal. A manmade watercourse for inland navigation.	On ground surface	Watercourse contains water year round (in normal circumstances)	Rochdale Canal
B	106m E	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Rochdale Canal
B	119m E	Canal. A manmade watercourse for inland navigation.	On ground surface	Watercourse contains water year round (in normal circumstances)	Rochdale Canal
C	122m S	Canal. A manmade watercourse for inland navigation.	On ground surface	Watercourse contains water year round (in normal circumstances)	Rochdale Canal
B	127m E	Lock or flight of locks. An enclosure in a canal or navigable river with gates and sluices at either end.	On ground surface	Watercourse contains water year round (in normal circumstances)	Rochdale Canal
4	135m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	147m E	Canal. A manmade watercourse for inland navigation.	On ground surface	Watercourse contains water year round (in normal circumstances)	Rochdale Canal
5	209m E	Canal. A manmade watercourse for inland navigation.	On ground surface	Watercourse contains water year round (in normal circumstances)	Ashton Canal
E	209m E	Canal. A manmade watercourse for inland navigation.	On ground surface	Watercourse contains water year round (in normal circumstances)	Rochdale Canal
C	224m SW	Lock or flight of locks. An enclosure in a canal or navigable river with gates and sluices at either end.	On ground surface	Watercourse contains water year round (in normal circumstances)	Rochdale Canal
7	240m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-



ID	Location	Type of water feature	Ground level	Permanence	Name
F	248m SW	Canal. A manmade watercourse for inland navigation.	On ground surface	Watercourse contains water year round (in normal circumstances)	Rochdale Canal

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m

7

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.

Features are displayed on the Hydrology map on [page 78 >](#)

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 78 >](#)

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
1	On site	River	Medlock (Lumb Brook to Irwell)	GB112069061152	Roch Irk Medlock	Irwell

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

6.4 WFD Surface water bodies

Records identified

3

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 78 >](#)

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
A	71m SE	Canal	Rochdale Canal, western section	GB71210517 ↗	Moderate	Fail	Moderate	2019
D	205m E	Canal	Ashton Canal and Peak Forest Canal, lower section	GB71210219 ↗	Moderate	Fail	Moderate	2019
-	627m SW	River	Medlock (Lumb Brook to Irwell)	GB112069061152 ↗	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
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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 78 >](#)

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
2	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
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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

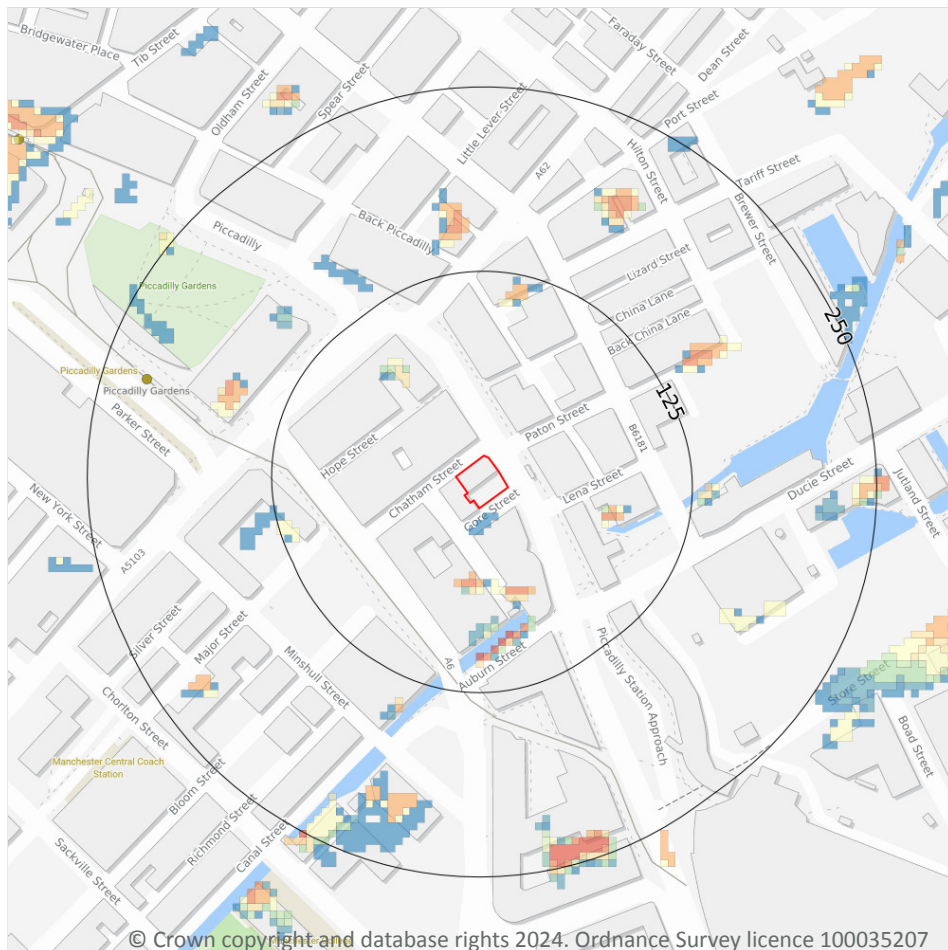
Records within 50m	0
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Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

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



8 Surface water flooding



— Site Outline

Search buffers in metres (m)

1 in 1000 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

8.1 Surface water flooding

Highest risk on site

Negligible

Highest risk within 50m

1 in 30 year, 0.3m - 1.0m

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.

Features are displayed on the Surface water flooding map on [page 85 >](#)

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.

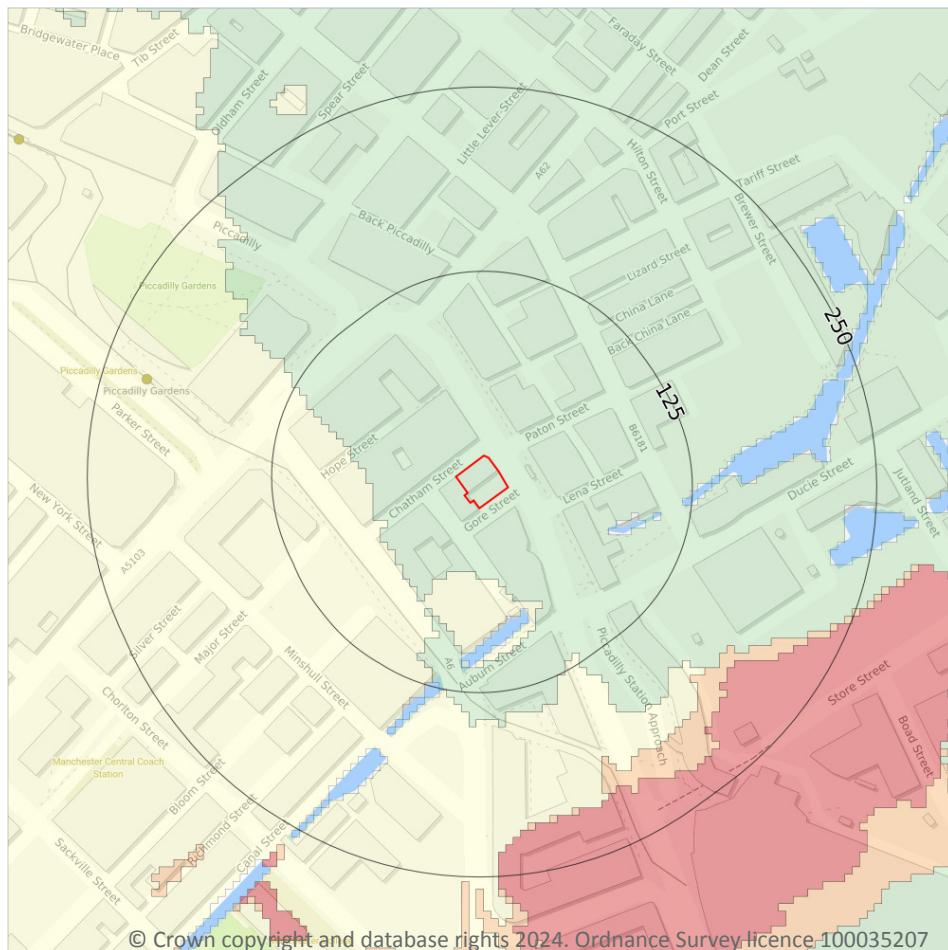
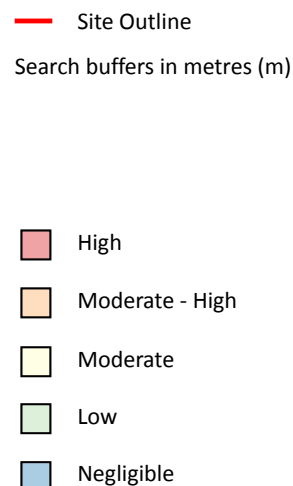
The table below shows the maximum flood depths for a range of return periods for the site.

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 Ambiantal Risk Analytics.



9 Groundwater flooding



9.1 Groundwater flooding

Highest risk on site

Low

Highest risk within 50m

Moderate

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

Features are displayed on the Groundwater flooding map on [page 87](#) >

This data is sourced from Ambiantal 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**4**

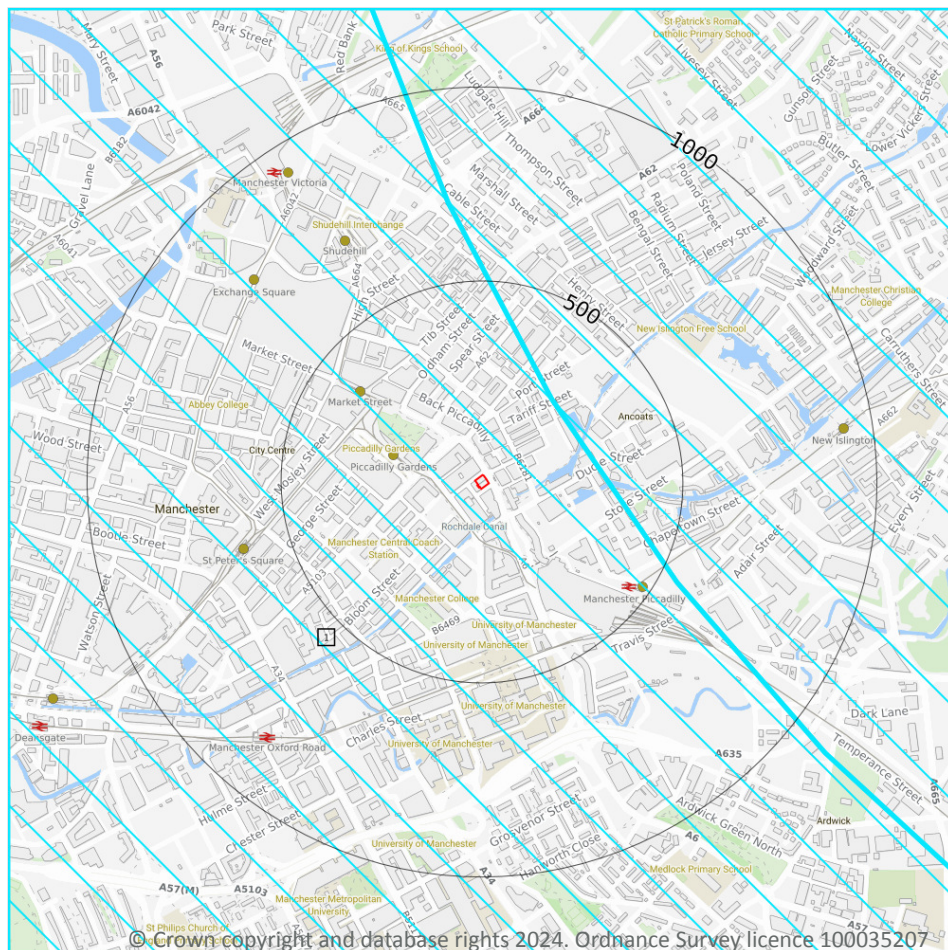
Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

Location	Name	Type	NVZ ID	Status
301m NW	River Irk (Moston Brook to River Irwell) NVZ	Surface Water	638	Existing
654m NW	River Irk (Moston Brook to River Irwell) NVZ	Surface Water	638	Existing
1072m NW	Irwell / Man. Ship Canal (Kearsley to Irlam Locks) NVZ	Surface Water	643	Existing
1519m N	Irwell / Man. Ship Canal (Kearsley to Irlam Locks) NVZ	Surface Water	643	Existing

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



SSSI Impact Zones and Units



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

10.17 SSSI Impact Risk Zones

Records on site

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 92 >](#)

ID	Location	Type of developments requiring consultation
1	On site	Air pollution - Livestock & poultry units with floorspace > 500m ² , slurry lagoons & digestate stores > 4000m ² . 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

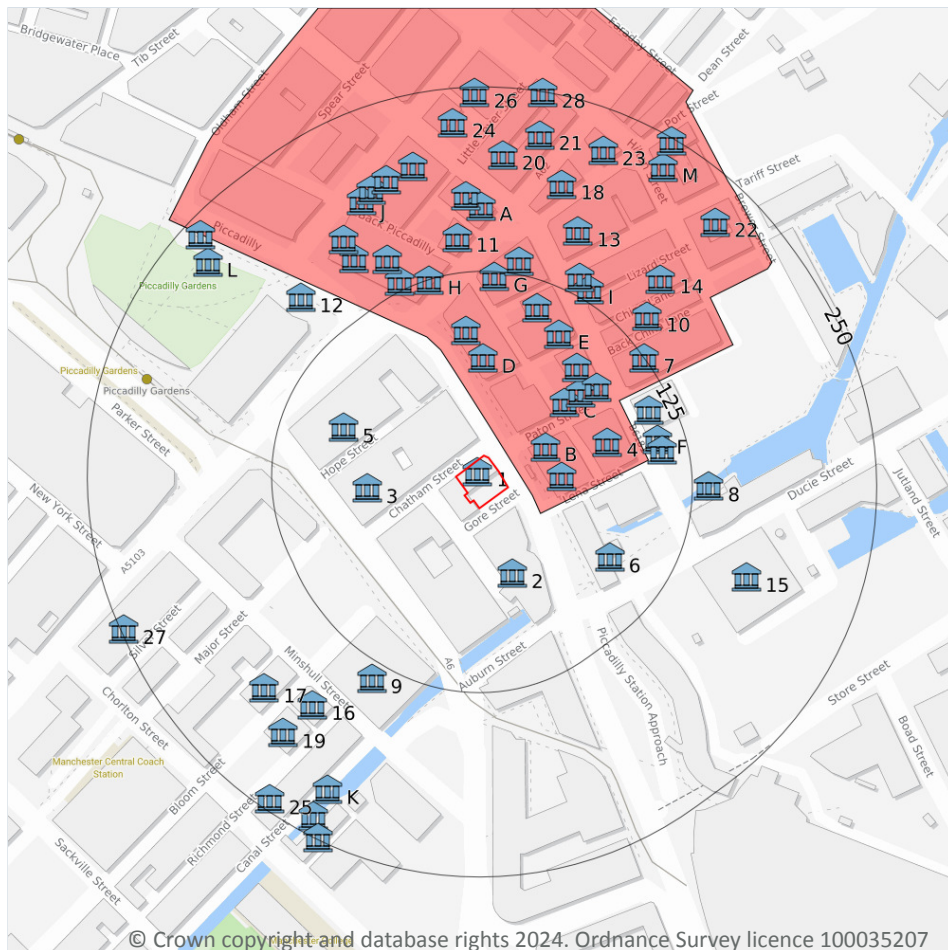
0

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



- 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

63

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 94 >](#)

ID	Location	Name	Grade	Reference Number	Listed date
1	On site	Barclays Bank	II	1246668	20/06/1988
B	36m NE	The Brunswick Hotel	II	1271113	03/10/1974
B	37m E	107, Piccadilly	II	1246944	03/10/1974
2	50m S	Joshua Hoyle Building, Including Roby House	II	1271127	17/07/1987
3	61m W	Grand Hotel	II	1197797	20/10/1987
C	64m NE	Numbers 13 And 15 And Attached Railings	II	1246661	06/06/1994



ID	Location	Name	Grade	Reference Number	Listed date
D	66m N	77-83, Piccadilly	II	1271232	20/06/1988
4	74m E	Former Horrocks, Crewdson And Company Warehouse	II	1200801	05/02/1990
C	76m NE	19, Paton Street	II	1271230	06/06/1994
5	83m W	The Portland Thistle Hotel	II	1246951	18/12/1963
6	84m SE	Rochdale Canal Lock Number 85, In Tunnel Between Piccadilly And Dale Street	II	1247480	06/06/1994
C	86m NE	64 And 66, Dale Street	II	1200843	06/06/1994
D	86m N	Halls Buildings	II	1271112	20/06/1988
C	88m NE	68, Dale Street	II	1282972	06/06/1994
E	96m NE	Eleska House	II	1200842	06/06/1994
E	106m N	56, Dale Street	II	1209799	06/06/1994
F	107m E	Rochdale Canal Company Office	II	1200844	06/06/1994
F	108m E	Entrance Archway And Lodge To Yard Of The Rochdale Canal Company	II	1200846	10/11/1972
F	109m NE	Dale Warehouse	II*	1200845	10/11/1972
G	122m N	8-12, Newton Street	II	1271450	06/06/1994
H	125m N	St Margarets Chambers	II	1246265	06/06/1994
7	125m NE	Industry House	II	1282971	06/06/1994
H	131m N	Clayton House, 59, Piccadilly And 61 Piccadilly	II	1246671	06/06/1994
I	133m NE	47, Dale Street	II	1209675	17/09/1992
G	134m N	14 And 16, Newton Street (See Details For Further Address Information)	II	1246266	06/06/1994
8	136m E	Rochdale Canal Lock Number 84 (Dale Street Lock)	II	1247557	06/06/1994
9	136m SW	City Police Courts	II*	1219894	03/10/1974
I	137m NE	45, Dale Street	II	1283061	06/06/1994
10	144m NE	Langley Buildings	II	1197773	06/06/1994
H	148m NW	Gardens Hotel And Shops	II	1246920	06/06/1994
11	149m N	Kingsley House	II	1271451	06/06/1994
H	160m NW	49 Piccadilly	II	1246670	06/06/1994
12	161m NW	Wellington Statue	II	1271115	03/10/1974



ID	Location	Name	Grade	Reference Number	Listed date
13	165m N	35, Dale Street	II	1209673	06/06/1994
14	168m NE	49 And 51, Dale Street (See Details For Further Address Information)	II	1292485	17/09/1992
A	169m N	Nos. 17-25, Newton Street, And Nos. 32 And 34, Dale Street	II	1246267	06/06/1994
15	173m E	London Warehouse	II	1217858	03/10/1974
16	174m SW	Minshull House	II	1197926	06/06/1994
H	175m NW	47 Piccadilly Including Warehouse Facing Back Piccadilly	II	1271231	06/06/1994
A	177m N	Nos. 24, 26, And 28, Dale Street	II	1209604	03/10/1974
17	188m SW	8, Minshull Street (See Details For Further Address Information)	II	1219858	06/06/1994
18	192m N	Bradley House	II	1197772	06/06/1994
J	192m NW	8, Lever Street	II	1219353	03/10/1974
J	196m N	10, Lever Street	II	1200802	03/10/1974
J	199m N	12 And 14, Lever Street	II	1219363	03/10/1974
19	201m SW	11, Bloom Street	II	1208005	06/06/1994
J	202m N	22, Dale Street	II	1283060	06/06/1994
20	205m N	29 And 31, Dale Street	II	1209666	06/06/1994
K	217m SW	Rochdale Canal Boundary Wall To Canal Between Chorlton Street And Minshull Street	II	1247478	06/06/1994
21	220m N	45 And 47, Newton Street	II	1246268	06/06/1994
22	222m NE	Fourways House	II	1380335	01/06/2000
23	222m N	Newton Buildings	II	1246388	20/06/1988
L	222m NW	Queen Victoria Monument	II	1246945	03/10/1974
24	227m N	25 And 27, Dale Street (See Details For Further Address Information)	II	1197771	06/06/1994
M	230m NE	45, 47 And 47a, Hilton Street	II	1218704	06/06/1994
K	237m SW	Rochdale Canal Lock Number 86, To East Of Chorlton Street	II	1247481	06/06/1994
L	239m NW	Watt Statue	II	1246946	03/10/1974
25	243m SW	9, Richmond Street	II	1247476	06/06/1994
26	246m N	Watts Brothers	II	1200803	06/06/1994



ID	Location	Name	Grade	Reference Number	Listed date
27	248m W	Britannia Hotel	II*	1246952	25/02/1952
M	248m NE	50-62, Port Street	II	1271062	20/06/1988
K	248m SW	Mintierna House	II	1197759	06/06/1994
28	249m N	49, Newton Street (See Details For Further Address Information)	II	1271452	06/06/1994

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

11.5 Conservation Areas

Records within 250m	1
----------------------------	----------

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.

Features are displayed on the Visual and cultural designations map on [page 94 >](#)

ID	Location	Name	District	Date of designation
A	11m NE	Stevenson Square	Manchester	01/02/1987

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

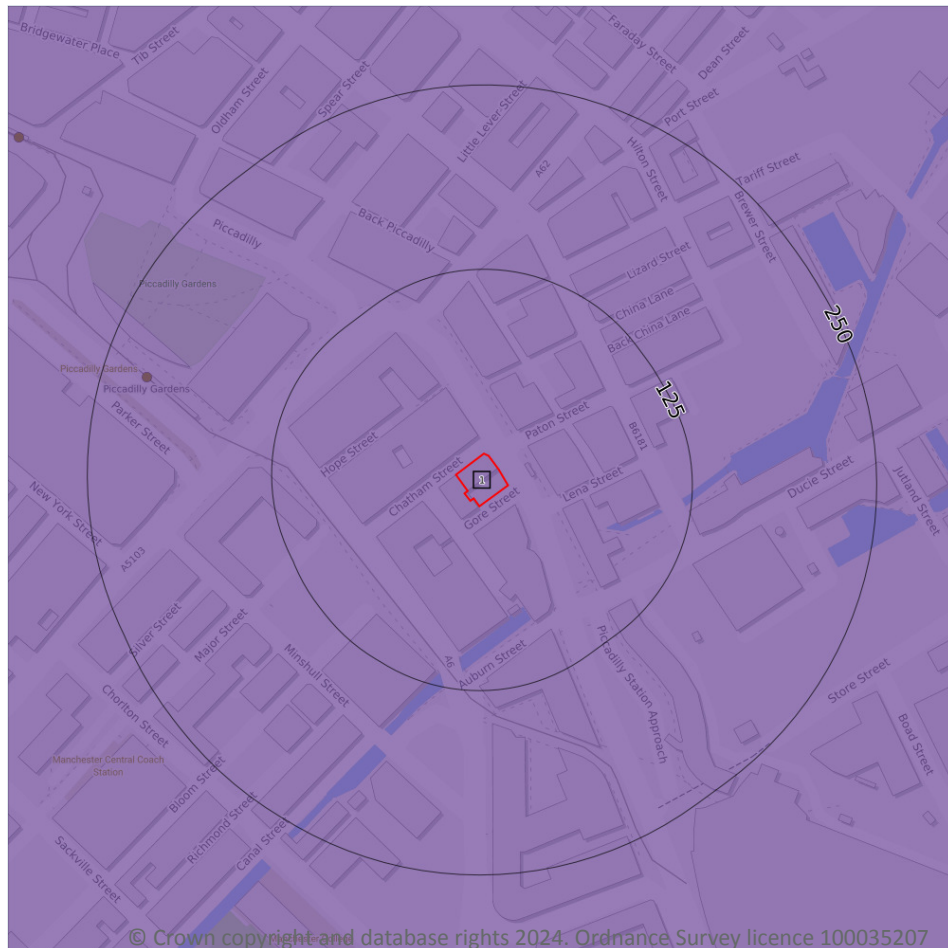
0

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 100](#) >

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

13.1 Priority Habitat Inventory

Records within 250m

0

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

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 103](#) >

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	No coverage	SJ89NW
2	403m E	Full	Full	Full	Full	SJ89NE

This data is sourced from the British Geological Survey.



Contact us with any questions at:

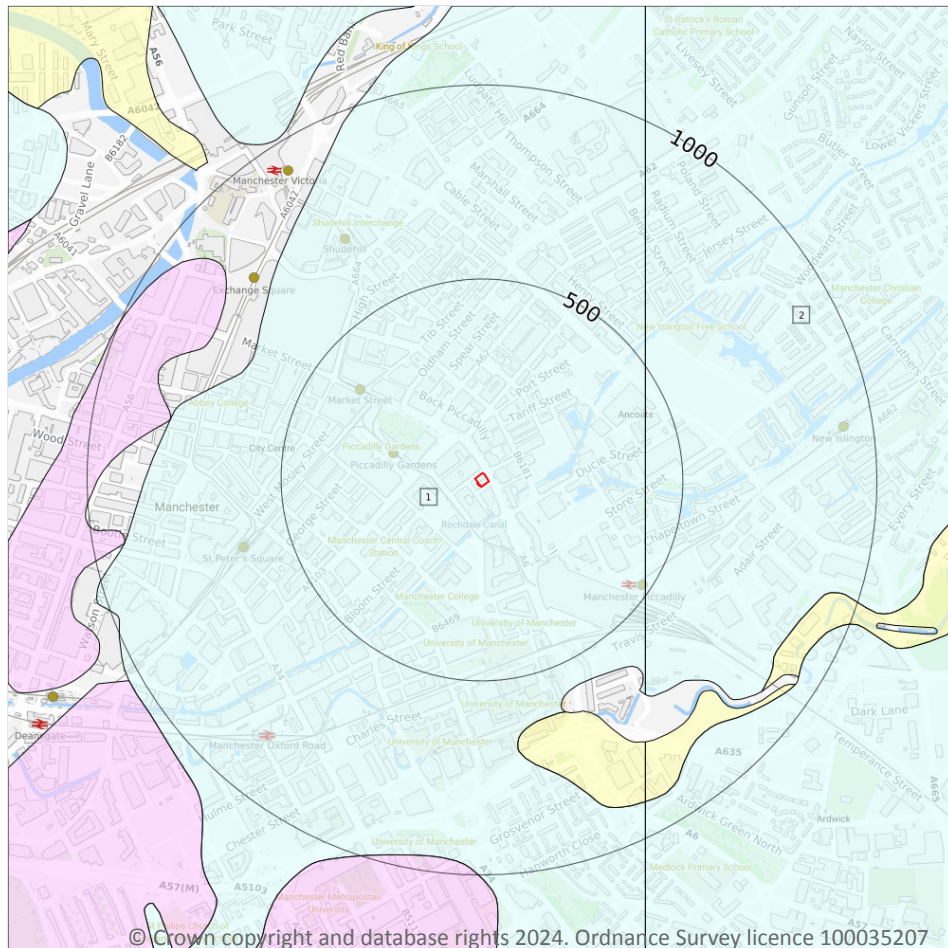
info@groundsure.com ↗

01273 257 755

Date: 1 February 2024

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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 105 >](#)

ID	Location	LEX Code	Description	Rock description
1	On site	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton
2	403m E	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton

This data is sourced from the British Geological Survey.



14.4 Landslip (10k)

Records within 500m

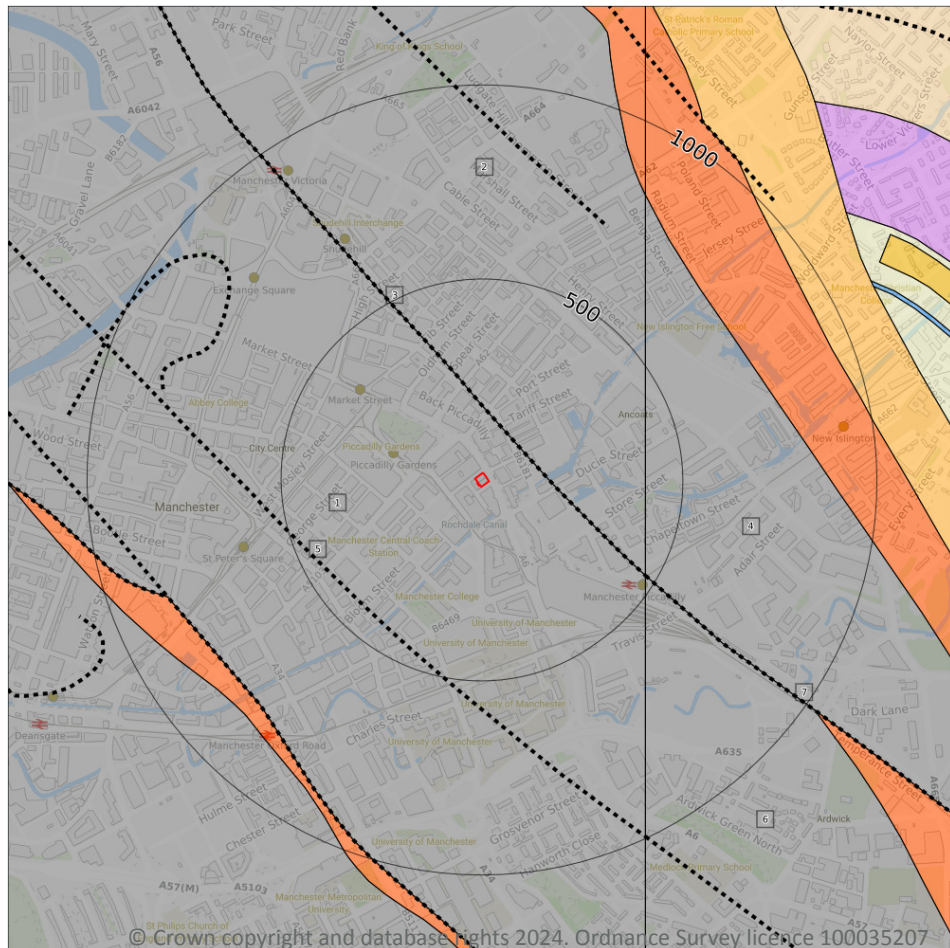
0

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

4

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

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

ID	Location	LEX Code	Description	Rock age
1	On site	CPB-SDST	Chester Pebble Beds Formation - Sandstone	Early Triassic Epoch
2	114m NE	CPB-SDST	Chester Pebble Beds Formation - Sandstone	Early Triassic Epoch
4	403m E	CPB-SDST	Chester Pebble Beds Formation - Sandstone	Early Triassic Epoch
6	471m SE	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

3

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.

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

ID	Location	Category	Description
3	114m NE	FAULT	Normal fault, inferred; crossmarks on downthrow side
5	429m SW	FAULT	Normal fault, inferred; crossmarks on downthrow side
7	471m SE	FAULT	Normal fault, inferred; crossmarks on downthrow side

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.

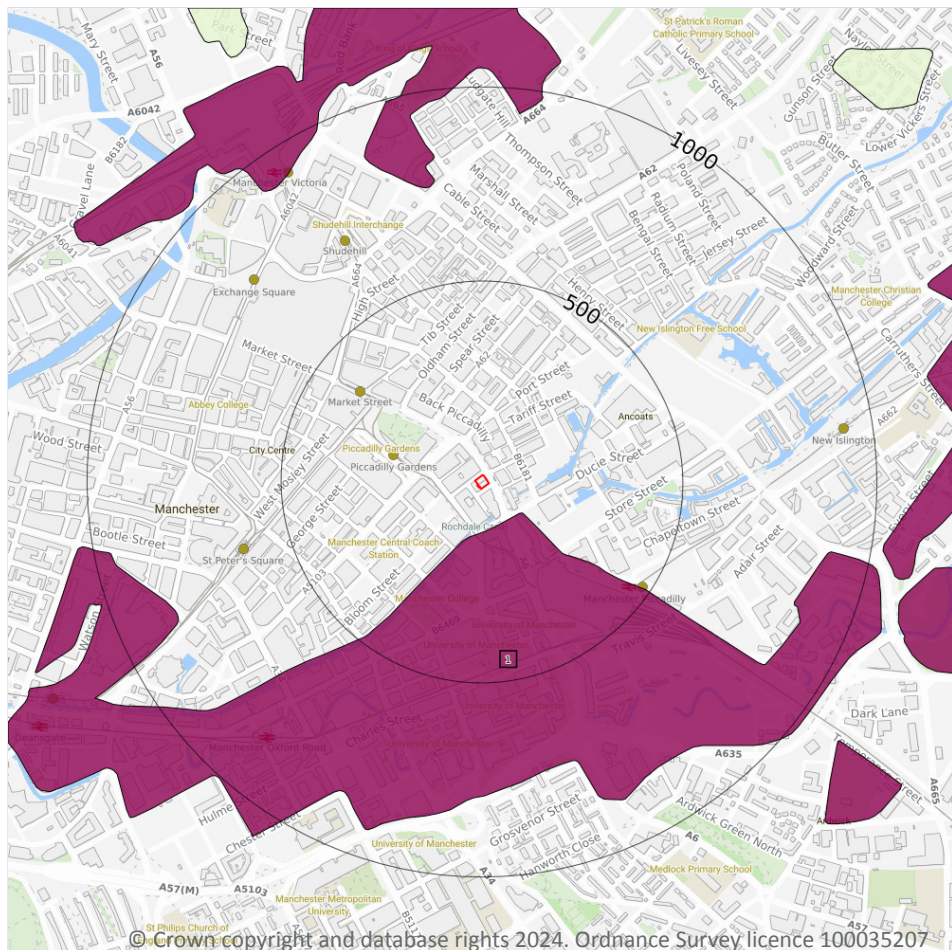
Features are displayed on the Geology 1:50,000 scale - Availability map on [page 109](#) >

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



— Site Outline
Search buffers in metres (m)

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

15.2 Artificial and made ground (50k)

Records within 500m

1

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.

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on [page 110](#) >

ID	Location	LEX Code	Description	Rock description
1	103m SE	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.



15.3 Artificial ground permeability (50k)

Records within 50m

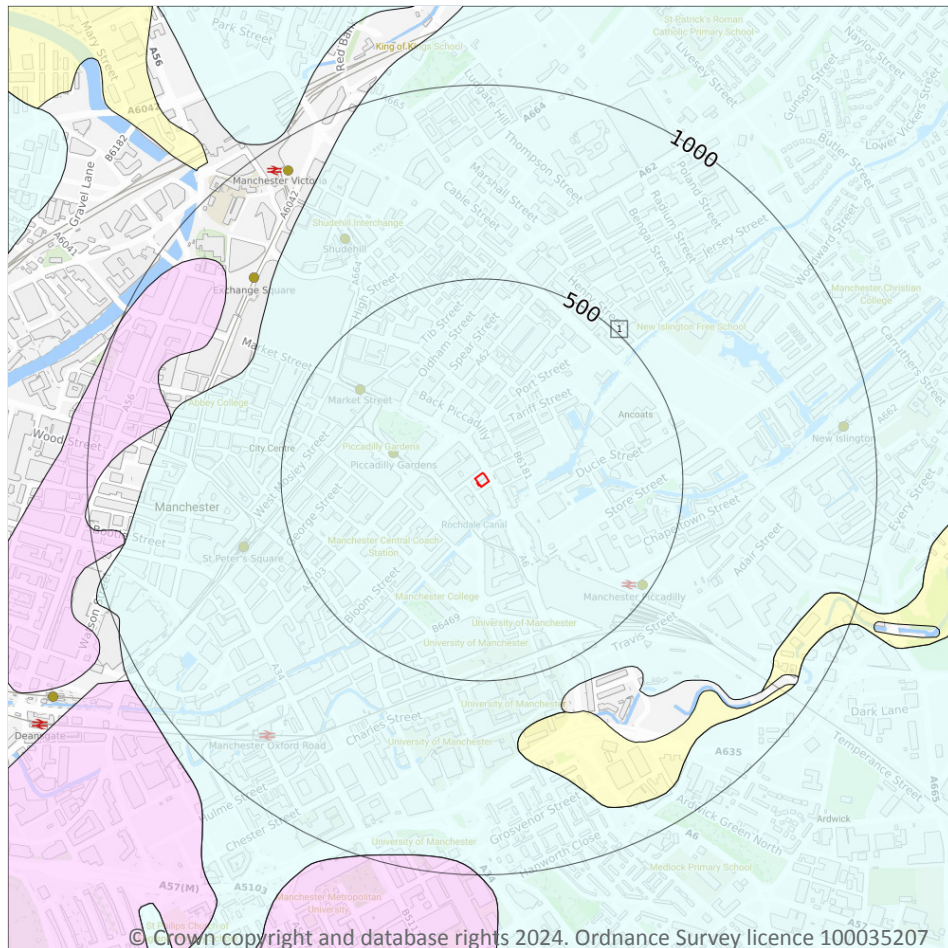
0

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 112](#) >

ID	Location	LEX Code	Description	Rock description
1	On site	TILLD-DMTN	TILL, DEVANSIAN	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)

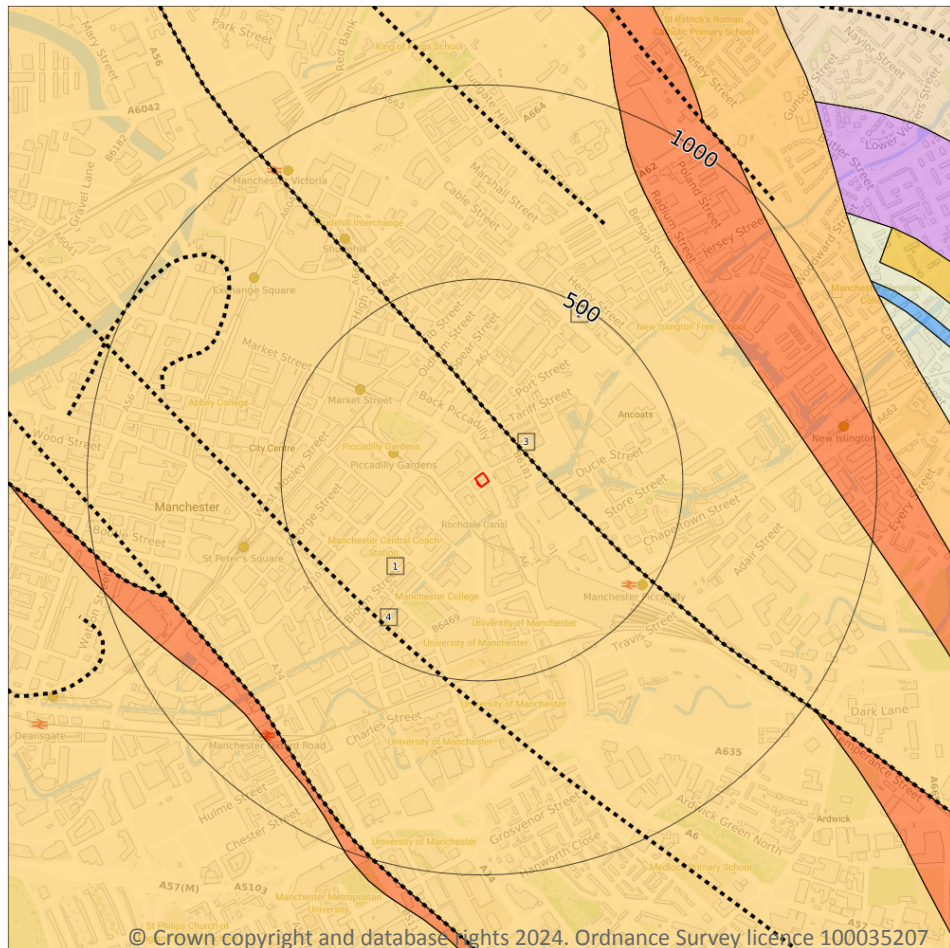
Records within 50m**0**

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

2

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 114](#) >

ID	Location	LEX Code	Description	Rock age
1	On site	CHES-SDST	CHESTER FORMATION - SANDSTONE	OLENEKIAN
2	114m NE	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

2

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.

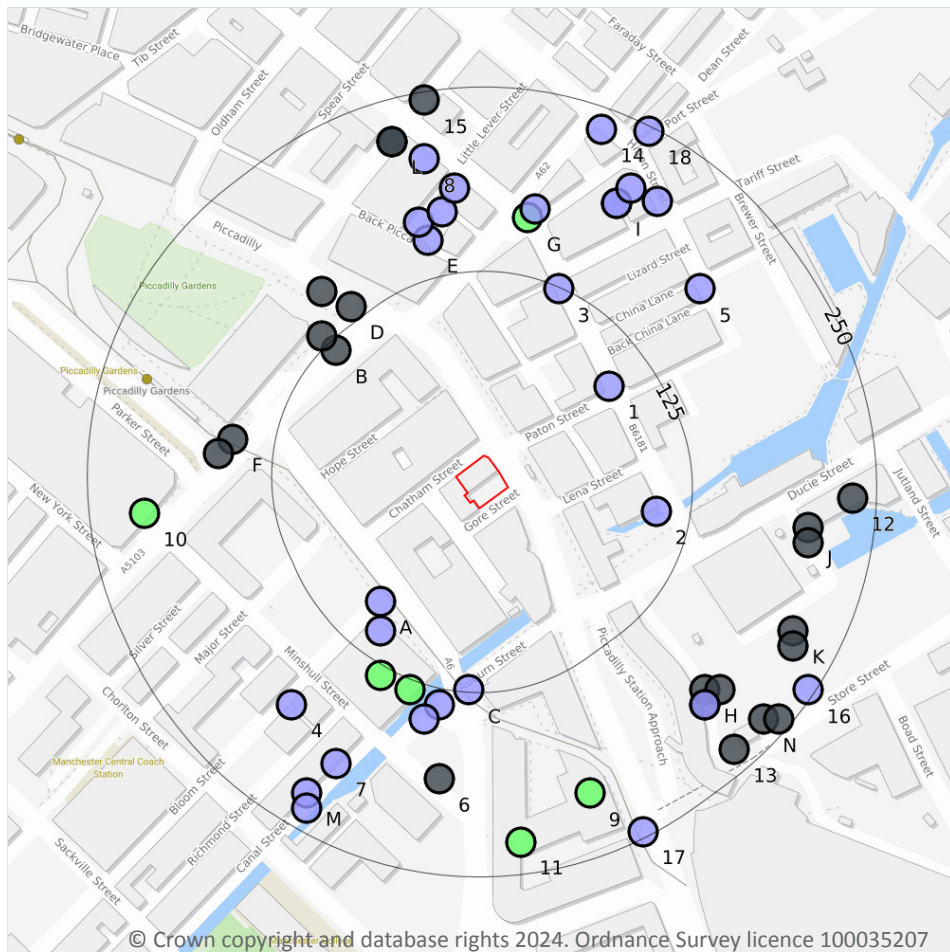
Features are displayed on the Geology 1:50,000 scale - Bedrock map on [page 114 >](#)

ID	Location	Category	Description
3	114m NE	FAULT	Fault, inferred
4	429m SW	FAULT	Fault, inferred

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

55

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 116](#) >

ID	Location	Grid reference	Name	Length	Confidential	Web link
A	91m SW	384510 398060	BLOOM STREET/ABINGDON STREET 1	8.0	N	1045703 ↗
1	95m NE	384665 398206	PORT STREET HILTON STREET DALE STREET STAGE II SEWER REPLACEMENT SCHEME 9	6.5	N	15637500 ↗



ID	Location	Grid reference	Name	Length	Confidential	Web link
2	102m E	384697 398121	PORT STREET HILTON STREET DALE STREET STAGE II SEWER REPLACEMENT SCHEME 10	6.0	N	15637501 ↗
A	106m SW	384510 398040	MANCHESTER FGC/3235. 1	10.0	N	1042544 ↗
B	118m NW	384480 398230	PORTLAND STREET 7	-	Y	N/A
C	123m S	384570 398000	AYTOUN STREET MANCHESTER BH1	4.0	N	1045729 ↗
3	124m N	384631 398272	PORT STREET HILTON STREET DALE STREET STAGE II SEWER REPLACEMENT SCHEME 8	0.6	N	15637499 ↗
C	132m SW	384510 398010	MANCHESTER FGC/3235. 2	18.0	N	1042545 ↗
C	132m S	384530 398000	MANCHESTER FGC/3235. 3	15.0	N	1042546 ↗
B	132m NW	384470 398240	PICADILLY GARDENS TP4	-	Y	N/A
D	135m NW	384490 398260	PICADILLY GARDENS TP3	-	Y	N/A
C	136m S	384550 397990	AYTOUN STREET MANCHESTER BH2	5.1	N	1045730 ↗
C	148m S	384540 397980	AYTOUN STREET MANCHESTER BH3	2.4	N	1045731 ↗
E	151m N	384542 398305	GRAND HOTEL BACK PICCADILLY 1	4.0	N	20241354 ↗
F	153m W	384410 398170	PORTLAND STREET 6	-	Y	N/A
D	155m NW	384470 398270	PICADILLY GARDENS TP2	-	Y	N/A
F	162m W	384400 398160	PICADILLY GARDENS TP5	-	Y	N/A
G	164m N	384610 398320	CITY CENTRE - PHASE 2 36	29.0	N	1043534 ↗
E	164m N	384536 398317	GRAND HOTEL BACK PICCADILLY 2	4.0	N	20241357 ↗
E	168m N	384552 398324	GRAND HOTEL BACK PICCADILLY 3	4.0	N	20241358 ↗
G	171m N	384615 398326	PORT STREET HILTON STREET DALE STREET STAGE II SEWER REPLACEMENT SCHEME 1	7.2	N	15637492 ↗
E	182m N	384560 398340	DALE STREET/STEVENSON SQUARE/NEWTON STREET 4	5.0	N	13468813 ↗



ID	Location	Grid reference	Name	Length	Confidential	Web link
4	183m SW	384450 397990	BLOOM STREET/ABINGDON STREET 2	8.0	N	1045704 ↗
5	184m NE	384727 398272	PORT STREET HILTON STREET DALE STREET STAGE II SEWER REPLACEMENT SCHEME 7	5.2	N	15637498 ↗
6	185m S	384550 397940	MINSHULL STREET MAIN DRAINAGE	-	Y	N/A
H	191m SE	384730 398000	MANCHESTER INTERNATIONAL TRADE CENTRE TT 10	-	Y	N/A
I	193m NE	384670 398330	HILTON STREET MANCHESTER 1	4.57	N	1045735 ↗
I	193m NE	384670 398330	HILTON STREET MANCHESTER 3	1.52	N	1045737 ↗
7	199m SW	384480 397950	CANAL STREET SEWER RENEWAL SCHEME 1	5.5	N	1045627 ↗
H	199m SE	384740 398000	MANCHESTER INTERNATIONAL TRADE CENTRE 1	-	Y	N/A
H	199m SE	384730 397990	MANCHESTER INTERNATIONAL TRADE CENTRE TP 8/8A	-	Y	N/A
H	199m SE	384730 397990	STORE STREET MANCHESTER 2	7.0	N	15992209 ↗
8	205m N	384540 398360	DALE STREET/STEVENSON SQUARE/NEWTON STREET 5	5.5	N	13468814 ↗
J	205m E	384800 398110	MANCHESTER INTERNATIONAL TRADE CENTRE TP 2	-	Y	N/A
I	207m NE	384680 398340	HILTON STREET MANCHESTER 2	4.57	N	1045736 ↗
J	207m E	384800 398100	MANCHESTER INTERNATIONAL TRADE CENTRE 6	-	Y	N/A
9	207m S	384652 397930	MANCHESTER CORP. NEAR LONDON ROAD STATION	10.06	N	1042145 ↗
I	208m NE	384698 398331	PORT STREET HILTON STREET DALE STREET STAGE II SEWER REPLACEMENT SCHEME 6	5.5	N	15637496 ↗
10	213m W	384350 398120	CITY CENTRE - PHASE 2 37	19.49	N	1043535 ↗
K	217m SE	384790 398040	MANCHESTER INTERNATIONAL TRADE CENTRE 2	-	Y	N/A
K	221m SE	384790 398030	MANCHESTER INTERNATIONAL TRADE CENTRE TT 12	-	Y	N/A
L	222m N	384518 398372	LEVER STREET 4	-	Y	N/A

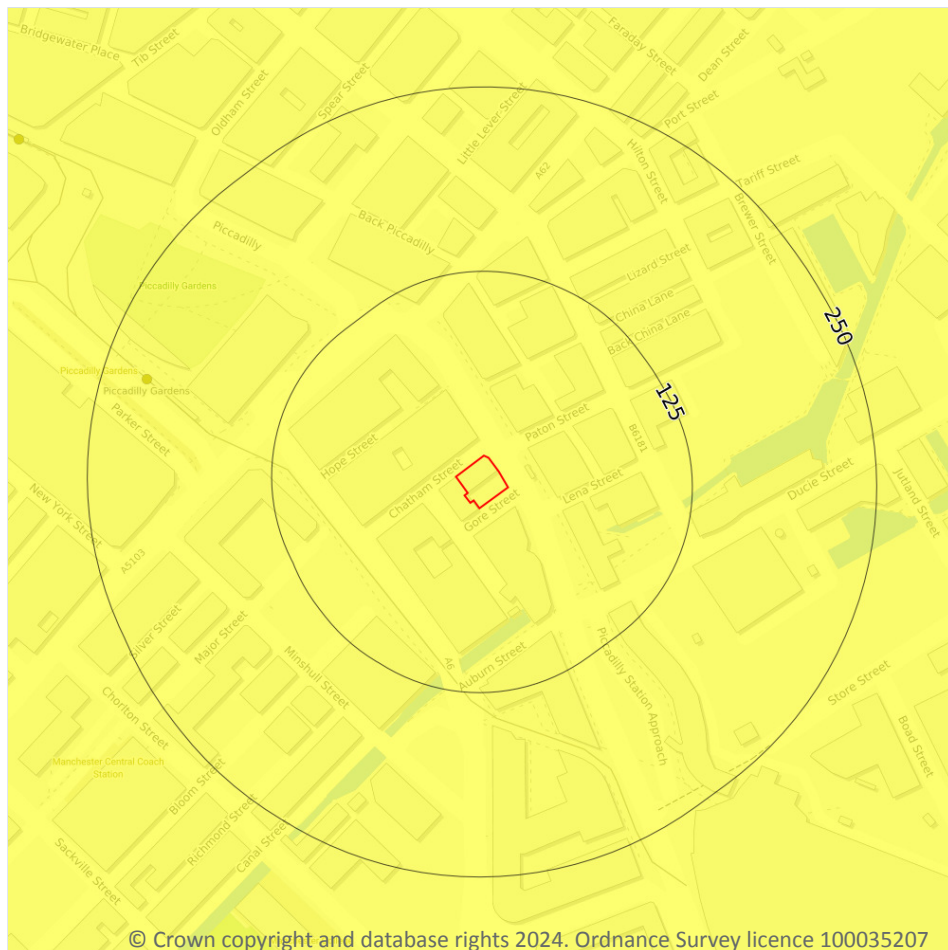


ID	Location	Grid reference	Name	Length	Confidential	Web link
L	222m N	384518 398372	LEVER STREET 4A	-	Y	N/A
M	226m SW	384460 397930	CANAL STREET SEWER RENEWAL SCHEME 6	4.0	N	1045638 ↗
11	228m S	384605 397897	AYTOUN STREET MULTI-STOREY CAR PARK. 1-4	10.97	N	1042480 ↗
12	234m E	384830 398130	MANCHESTER INTERNATIONAL TRADE CENTRE TP 1	-	Y	N/A
N	234m SE	384770 397980	MANCHESTER INTERNATIONAL TRADE CENTRE 5	-	Y	N/A
13	235m SE	384750 397960	MANCHESTER INTERNATIONAL TRADE CENTRE TP 9	-	Y	N/A
M	235m SW	384460 397920	CANAL STREET SEWER RENEWAL SCHEME 5	4.2	N	1045637 ↗
14	235m N	384660 398380	DALE STREET/STEVENSON SQUARE/NEWTON STREET 3	6.3	N	13468812 ↗
N	242m SE	384780 397980	MANCHESTER INTERNATIONAL TRADE CENTRE TT 3	-	Y	N/A
15	245m N	384540 398400	LEVER STREET 3	-	Y	N/A
16	245m SE	384800 398000	STORE STREET MANCHESTER 3	9.0	N	15992210 ↗
17	246m SE	384688 397904	MANCHESTER CORP. NEAR LONDON ROAD STATION	8.84	N	1042144 ↗
18	247m NE	384692 398379	PORT STREET HILTON STREET DALE STREET STAGE II SEWER REPLACEMENT SCHEME 2	6.5	N	15637493 ↗

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

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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).

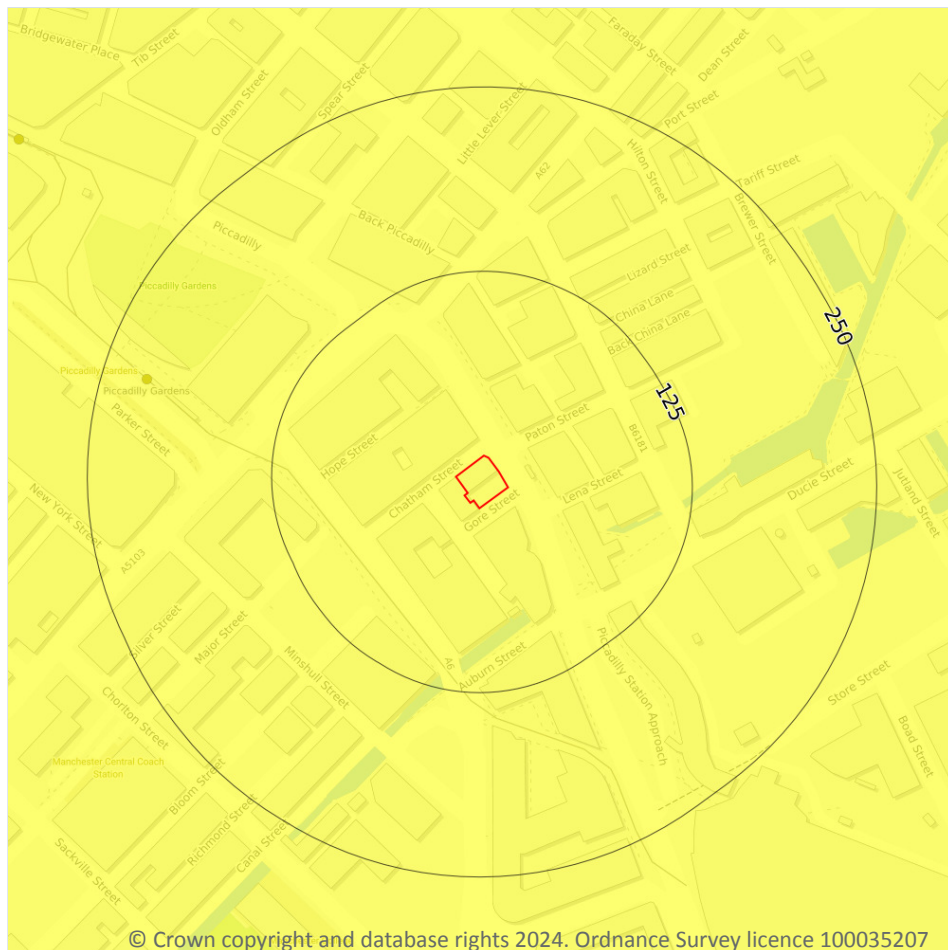
Features are displayed on the Natural ground subsidence - Shrink swell clays map on [page 120 >](#)

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

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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.

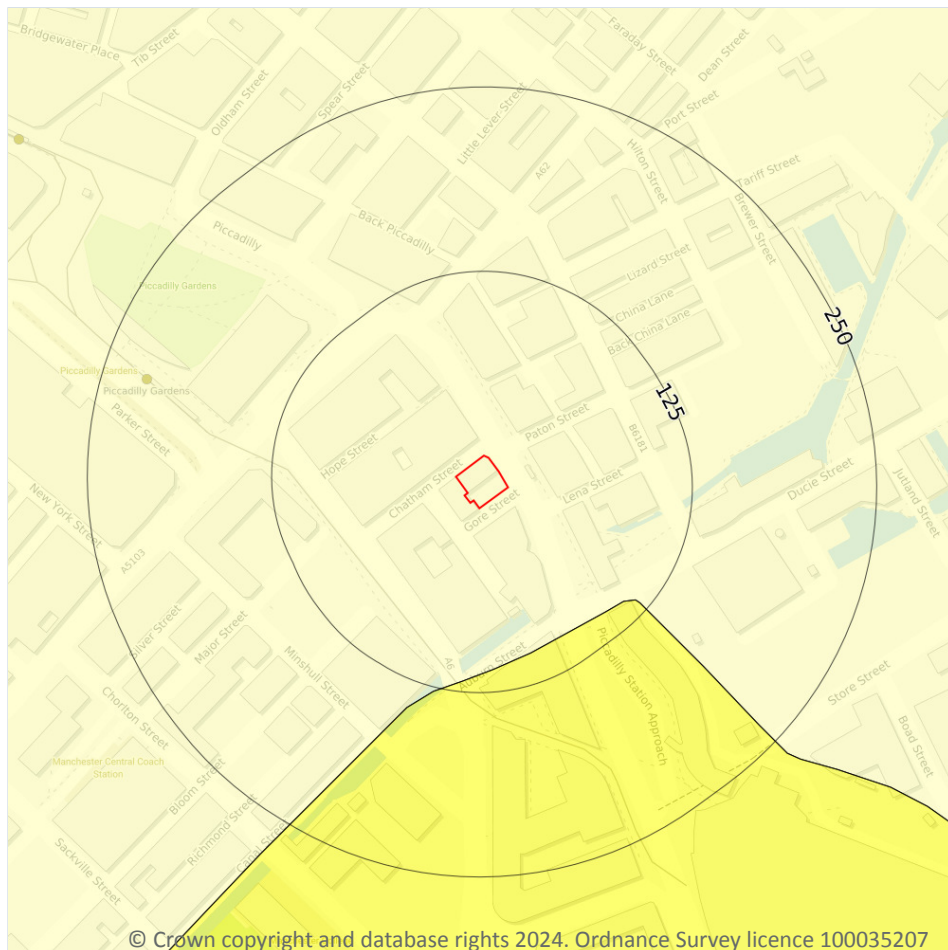
Features are displayed on the Natural ground subsidence - Running sands map on [page 121](#) >

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.

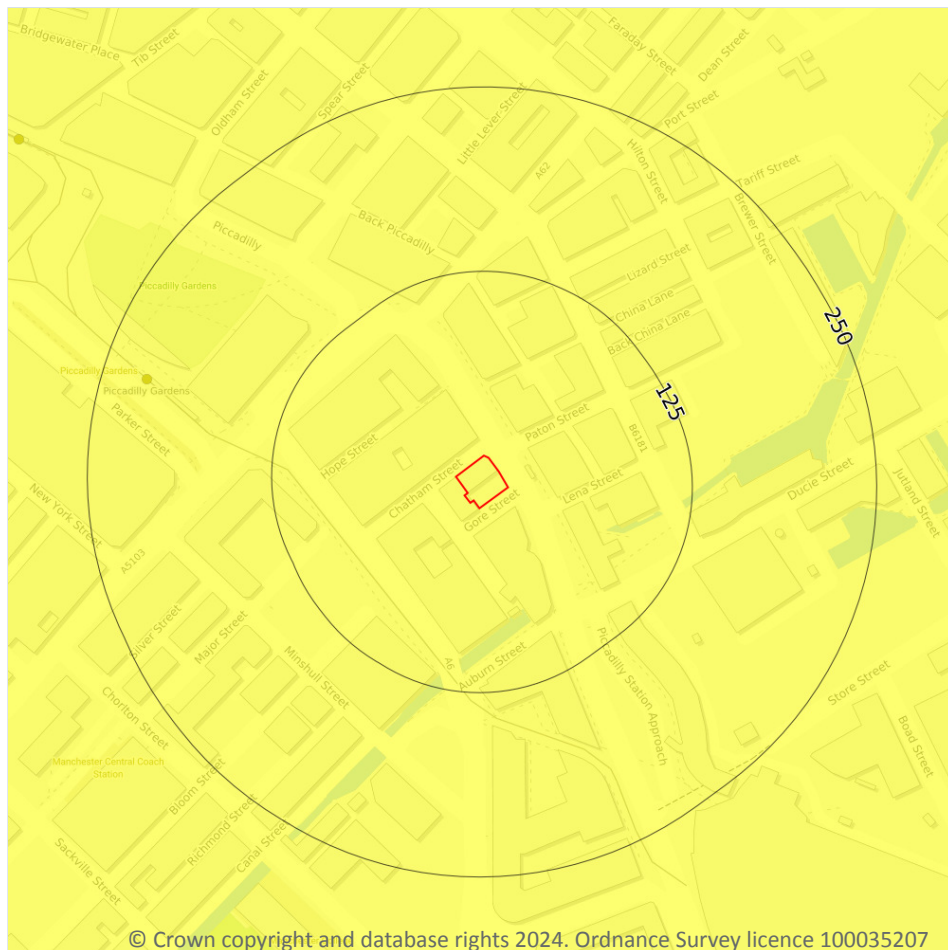
Features are displayed on the Natural ground subsidence - Compressible deposits map on [page 122 >](#)

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

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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.

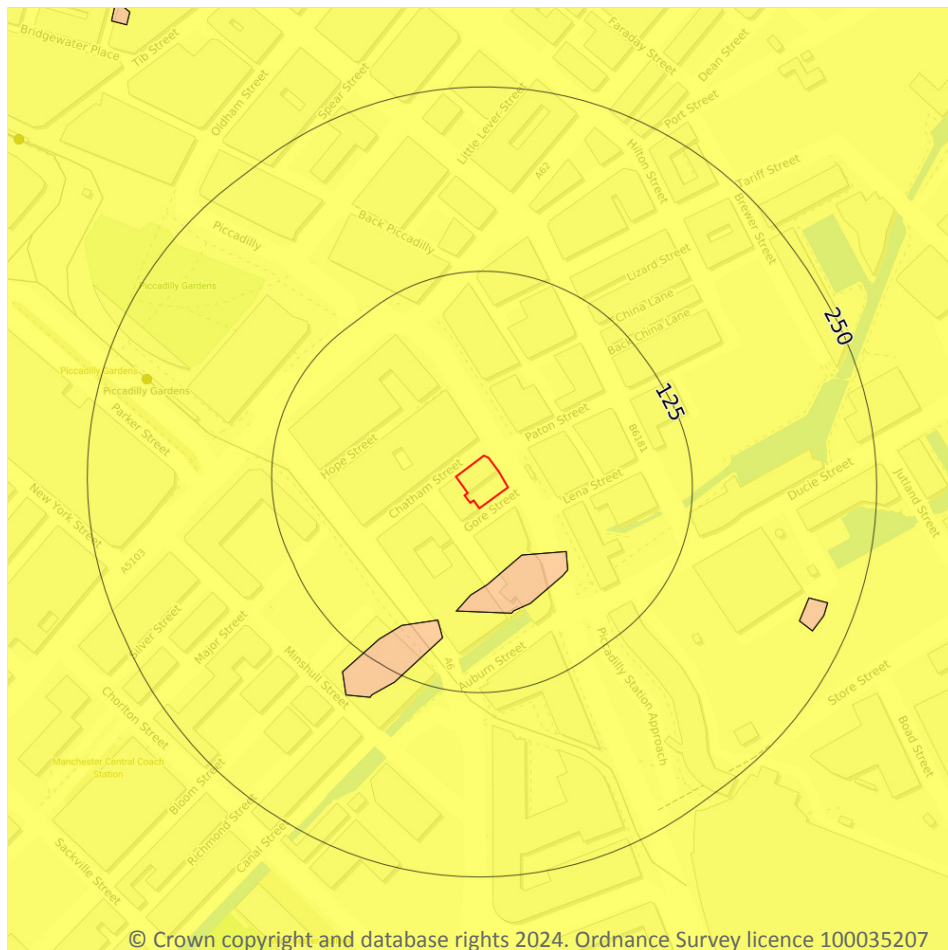
Features are displayed on the Natural ground subsidence - Collapsible deposits map on [page 123 >](#)

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

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17.5 Landslides

Records within 50m

2

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 124](#) >

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.

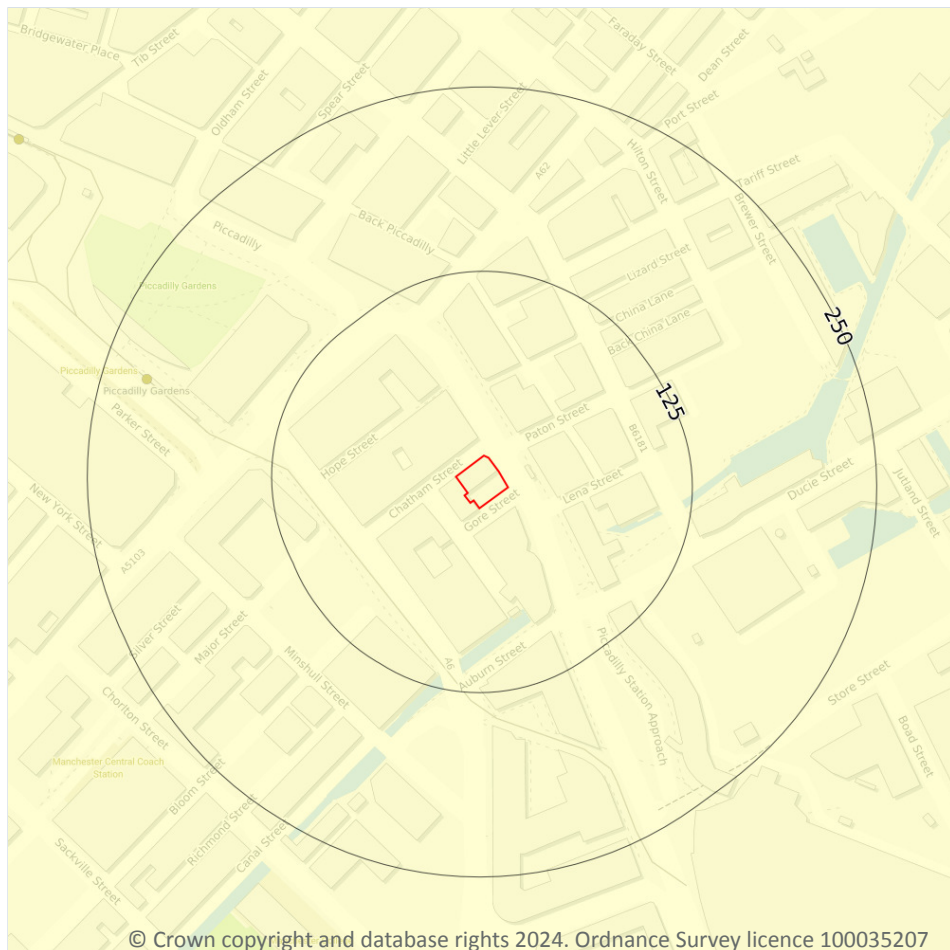


Location	Hazard rating	Details
43m SE	Low	Slope instability problems may be present or anticipated. Site investigation should consider specifically the slope stability of the site.

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

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17.6 Ground dissolution of soluble rocks

Records within 50m

1

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

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

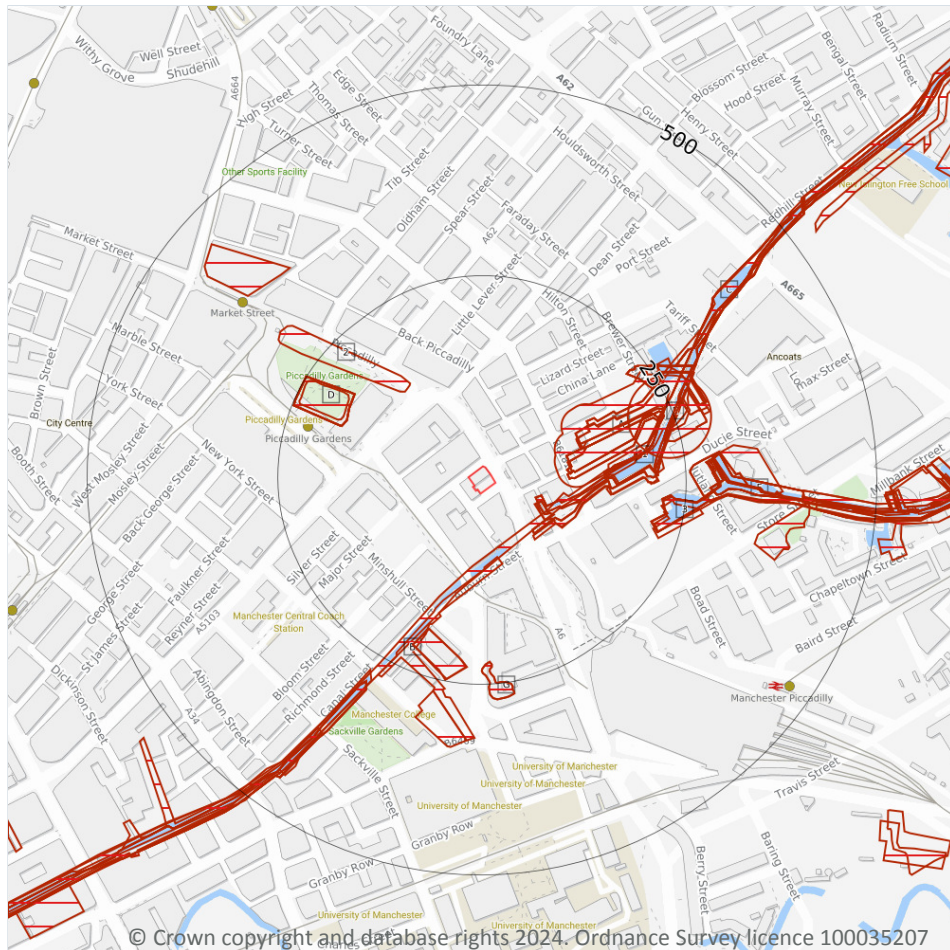
Location	Hazard rating	Details
On site	Negligible	Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.



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

43

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 128 >](#)

ID	Location	Land Use	Year of mapping	Mapping scale
A	56m E	Canal	1938	1:10560
A	56m E	Canal	1934	1:10560
A	56m E	Canal	1915	1:10560
A	58m SE	Water Body	1905	1:10560
A	60m SE	Canal	1890	1:10560
1	70m SE	Canal	1956	1:10560
A	82m E	Unspecified Wharf	1956	1:10560
B	86m S	Ponds	1890	1:10560
A	95m E	Unspecified Wharf	1923	1:10560
A	95m E	Unspecified Wharf	1905	1:10560
A	95m E	Unspecified Wharf	1890	1:10560
A	96m E	Unspecified Wharf	1934	1:10560
A	96m E	Unspecified Wharf	1915	1:10560
2	140m NW	Pond	1851	1:10560
C	144m E	Canal	1971	1:10000
C	144m E	Canal	1988	1:10000
C	144m E	Canal	1978	1:10000
C	144m E	Canal	1985	1:10000
C	144m E	Canal	1994	1:10000
D	176m NW	Pond	1971	1:10000
D	176m NW	Pond	1988	1:10000
D	176m NW	Pond	1978	1:10000
D	176m NW	Pond	1985	1:10000



ID	Location	Land Use	Year of mapping	Mapping scale
D	176m NW	Pond	1994	1:10000
D	182m NW	Unspecified Pit	1956	1:10560
B	189m S	Unspecified Wharf	1923	1:10560
E	190m E	Unspecified Wharf	1923	1:10560
B	190m S	Unspecified Wharf	1915	1:10560
F	211m E	Canal	1938	1:10560
F	211m E	Canal	1934	1:10560
F	211m E	Canal	1915	1:10560
F	211m E	Water Body	1890	1:10560
3	215m E	Pond	1905	1:10560
F	215m E	Canal	1923	1:10560
G	221m S	Unspecified Ground Workings	1938	1:10560
G	221m S	Unspecified Ground Workings	1934	1:10560
C	222m NE	Unspecified Wharf	1938	1:10560
C	222m NE	Unspecified Wharf	1934	1:10560
C	222m NE	Unspecified Wharf	1915	1:10560
E	227m E	Unspecified Wharf	1938	1:10560
E	227m E	Unspecified Wharf	1934	1:10560
E	239m E	Unspecified Wharf	1915	1:10560
C	244m NE	Unspecified Wharf	1923	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	In addition to being located inside an area where The Coal Authority have information on coal mining activities, Johnson Poole & Bloomer (JPB) have information such as mining plans and maps held within their archive of mining activities that have occurred within 1km of this property which may supplement this information. 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	1
-----------------	---

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

Location	Details
On site	The site is located within a coal mining area as defined by the Coal Authority. A Consultants Coal Mining Report is recommended to further assess coal mining issues at the site. This can be ordered directly through Groundsure or your preferred search provider.

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.

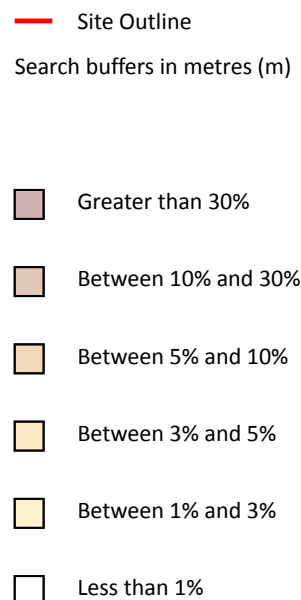
This data is sourced from the British Geological Survey.



20 Radon



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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 136 >](#)

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 km². 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 km²; 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

6

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 km²).

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	8	1.4	51	35	0.4	53	25	13	5
3m E	14	2.5	39	27	0.5	75	28	21	4
23m S	12	2.1	64	44	0.3	62	25	17	5
32m SE	15	2.6	41	28	0.5	73	27	20	4
41m N	6	1	43	30	0.4	47	26	11	5
46m N	12	2.1	41	28	0.4	70	27	19	5

This data is sourced from the British Geological Survey.



21.3 BGS Measured Urban Soil Chemistry

Records within 50m

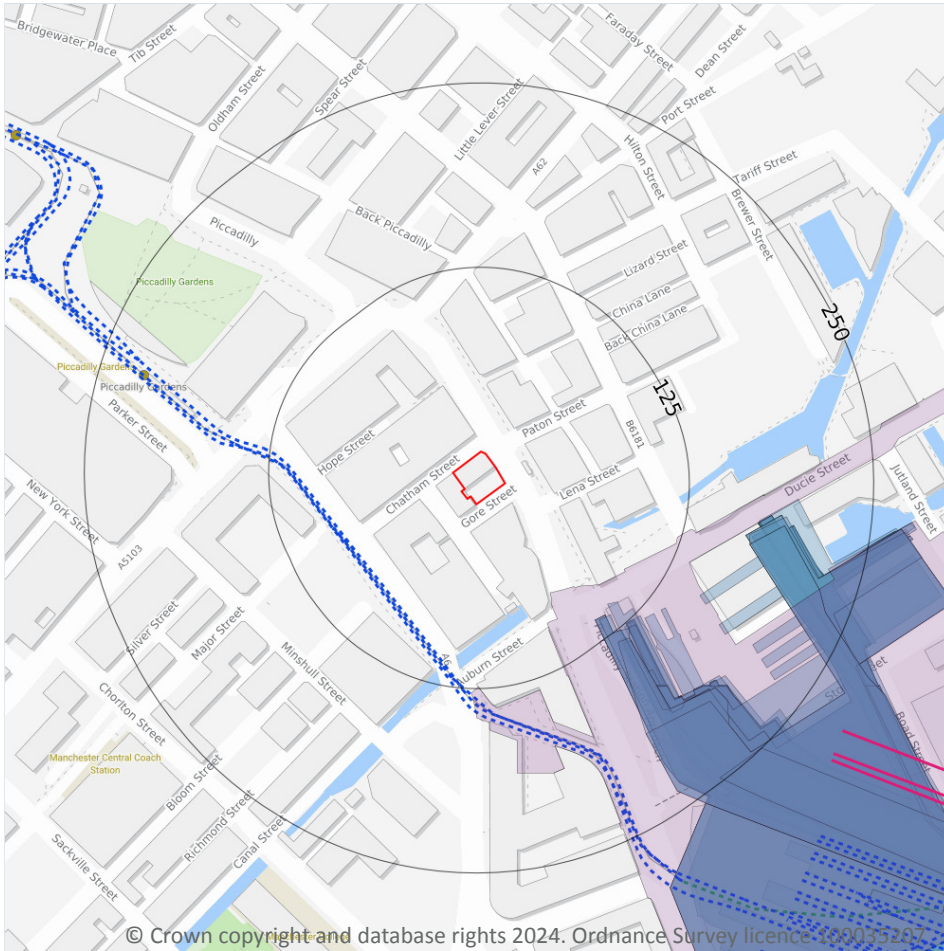
0

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 km².

This data is sourced from the British Geological Survey.



22 Railway infrastructure and projects



- Site Outline
- Search buffers in metres (m)**
- C1 Crossrail 1 Stations
- Crossrail 1 Route
- C2 Crossrail 2 Stations
- Crossrail 2 Route
- Crossrail 2 Worksites
- Crossrail 2 Safeguarding
- Crossrail 2 Headhouses
- Railway stations
- Active railways
- Active tunnels
- Abandoned railways
- Historic railways
- Historic tunnels
- Underground stations
- Underground Lines
- Royal Mail tunnels
- HS2 optimised route
- HS2 Stations
- HS2 Depots
- HS2 Surface Safeguarding
- HS2 Subsurface Safeguarding

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

37

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.

Features are displayed on the Railway infrastructure and projects map on [page 140 >](#)

Location	Land Use	Year of mapping	Mapping scale
107m SE	Railway Sidings	1956	10560
111m SE	Railway Sidings	1938	10560
111m SE	Railway Sidings	1934	10560
111m SE	Railway Sidings	1915	10560
113m SE	Railway Sidings	1923	10560
126m SE	Railway Sidings	1953	2500
126m SE	Railway Sidings	1965	2500
126m SE	Railway	1889	-
126m SE	Railway Sidings	1960	1250
127m SE	Railway Sidings	1891	500
129m SE	Railway Sidings	1953	2500
129m SE	Railway Sidings	1948	1250
132m SE	Railway Sidings	1932	2500
132m SE	Railway Sidings	1905	10560
135m SE	Railway Sidings	1889	2500
135m SE	Railway Sidings	1908	2500
135m SE	Railway Sidings	1922	2500



Location	Land Use	Year of mapping	Mapping scale
152m SE	Railway Sidings	1891	500
171m SE	Railway Sidings	1950	2500
171m SE	Railway Sidings	1955	2500
171m E	Railway Sidings	1890	10560
171m SE	Railway Sidings	1965	2500
172m SE	Railway Sidings	1948	1250
172m SE	Railway Sidings	1952	1250
172m SE	Railway Sidings	1964	1250
174m E	Railway Sidings	1967	2500
174m E	Railway Sidings	1953	2500
174m E	Railway Sidings	1965	2500
175m E	Railway Sidings	1960	1250
177m E	Railway Sidings	1948	1250
194m SE	Railway Sidings	1948	1250
194m SE	Railway Sidings	1960	1250
194m SE	Railway Sidings	1965	2500
194m SE	Railway Sidings	1953	2500
195m SE	Railway Sidings	1953	2500
246m SE	Railway Sidings	1891	500
247m SE	Railway Sidings	1851	10560

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**12**

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways. Features are displayed on the Railway infrastructure and projects map on [page 140 >](#)

Location	Name	Type
81m SW	Metrolink	light_rail
83m SW	Metrolink	tram
83m SW	Not given	Multi Track
85m SW		light_rail
112m S	Not given	Multi Track
119m S	Not given	Multi Track
126m S		light_rail
130m W	Metrolink	light_rail
138m S		light_rail
150m W	Not given	Multi Track
225m W		light_rail
225m W		light_rail

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**3**

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.

Features are displayed on the Railway infrastructure and projects map on [page 140 >](#)

Location	Track Type	Speed (mph)	Speed (km/h)	Status
284m SE	Bridge/Viaduct	50mph	80kph	Section is scheduled for cancellation
289m SE	Bridge/Viaduct	50mph	80kph	Section is scheduled for cancellation
290m SE	Bridge/Viaduct	50mph	80kph	Section is scheduled for cancellation

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> ↗.

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: www.groundsure.com/terms-and-conditions-april-2023/ ↗.



APPENDIX D

Coal Authority Mining Report

384585 , 398138,

Professional opinion

Inc. integrated mine entry interpretive assessment



Site plan



Search results

	1. Past underground coal mining Not identified		9. Coal mining subsidence claims Not identified
	2. Present underground coal mining Not identified		10. Mine gas emissions Not identified
	3. Future underground coal mining Not identified		11. Emergency Call Out incidents Not identified
	4. Mine entries Not identified		12. Withdrawal of support Not identified
	5. Coal mining geology Not identified		13. Working facilities orders Not identified
	6. Past opencast coal mining Not identified		14. Payments to copyhold owners Not identified
	7. Present opencast coal mining Not identified		Cheshire Brine Not identified
	8. Future opencast coal mining Not identified		



Coal mining (CON29M) assessment

We consider the property to be acceptably free from coal mining related risk. No further action is required with regards to past coal mining.

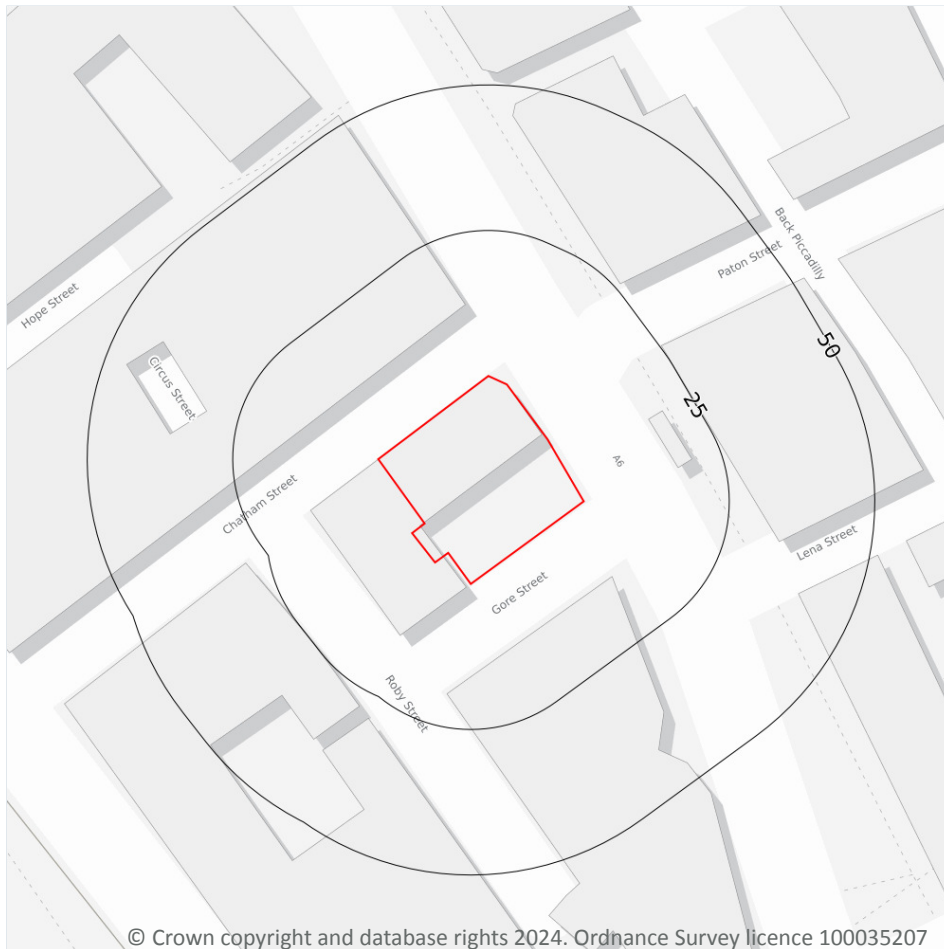


Coal mining

CON29M reports are a requirement for conveyancing and are recommended throughout the official Coal Mining Reporting Area. This is the area within which it is deemed prudent to clarify the risk presented by coal mining, using the questions laid out in the Law Society's CON29M form. The need for a CON29M does not always translate to an identification of risk, and reports will often be assessed as free from risk or 'Passed' even though they are within the official Coal Mining Reporting Area.



Coal mining (CON29M)



- Site Outline
- Search buffers in metres (m)
- Mine entries
 - Adits
 - Shafts
 - Calculated 'zone of influence'
- Subsidence claims
 - Awaiting decision
 - Rejected
 - Admitted
 - Deferred
 - Settled
 - Withdrawn
- Probable shallow coal mine workings
- Coal outcrops
- Past shallow coal mine workings

Coal mining (CON29M)

The map above shows relevant, mappable hazards identified that could constitute a risk to the property. It does not necessarily show all features or potential issues identified in this report. Further details of any features shown indicating the location of Mine Entries or Subsidence Claims can be found in the relevant sections of this report (4 and 9 respectively).

Responses to the Law Society CON29M Coal Mining search enquiries are produced using official Coal Authority data and the expert interpretation of Groundsure. This report is prepared in accordance with The Law Society CON29M (2018) Guidance Notes. Additional interpretation and calculation of mine entry zones of influence has also been carried out by Groundsure using Coal Authority and British Geological Survey data.

Please read this report carefully, and in particular any sections flagged with an amber 'i'.


[Back to Summary](#)

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

Ref: CGL01-9XP-V4Q-4N8-ZVG
 Your ref: CGE17149
 Grid ref: 384588 398132

**The Law Society**

These enquiries are The Law Society CON29M (2018) Coal Mining search enquiries and are used with permission of The Law Society. The Law Society CON29M Coal Mining search enquiries are protected by copyright owned by The Law Society of 113 Chancery Lane, London WC2A 1PL. The Law Society has no responsibility for information provided in response to CON29M (2018) Coal Mining search enquiries within this report or otherwise.

1. Past underground coal mining



Is the property within the zone of likely physical influence on the surface of past underground coal workings?

- The property does not lie within the potential zone of influence of any recorded underground coal workings.

2. Present underground coal mining



Is the property within the zone of likely physical influence on the surface of present underground coal workings?

- The property does not lie within the boundary of an underground site from which coal is being removed by underground methods.

3. Future underground coal mining



(a) Is the property within any geographical area for which the Coal Authority is determining whether to grant a licence to remove coal by underground methods?

- The property does not lie within the boundary of an underground site for which the Coal Authority is determining whether to grant a licence to remove coal by underground methods.

(b) Is the property within any geographical area for which a licence to remove coal by underground methods has been granted?

- The property does not lie within the boundary of an underground site for which a licence to remove coal by underground methods has been granted.

(c) Is the property within the zone of likely physical influence on the surface of planned future underground coal workings?

- The property does not lie within the zone of likely physical influence on the surface of planned future underground workings.

(d) Has any notice of proposals relating to underground coal mining operations been given under section 46 of

[Back to Summary](#)

Contact us with any questions at:
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the Coal Mining Subsidence Act 1991?

- No notices have been given under Section 46 of the Coal Mining Subsidence Act 1991 stating that the land is at risk of subsidence.

4. Mine entries



Are there any shafts and adits or other entries to underground coal mine workings within the property or within 20 metres of the boundary of the property?

- No coal mine entries are recorded to lie within 20 metres of the property.

5. Coal mining geology



Is there any record of any fault or other line of weakness due to coal mining at the surface within the boundary of the property that has made the property unstable?

- No damage arising from geological faults or other lines of weakness activated by coal mining are recorded within the property.

6. Past opencast coal mining



Is the property situated within the geographical boundary of an opencast site from which coal has been removed in the past by opencast methods?

- The property does not lie within the boundary of an opencast site from which coal was removed by opencast methods.

7. Present opencast coal mining



Is the property within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods?

- The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

8. Future opencast coal mining



(a) Is the property within 800 metres of the boundary of an opencast site for which the Coal Authority are determining whether to grant a licence to remove coal by opencast methods?



- The property does not lie within 800 metres of the boundary of an opencast site for which the Coal Authority are determining whether to grant a licence to remove coal by opencast methods.

(b) Is the property within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted?

- The property does not lie within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

9. Coal mining subsidence claims



(a) Has any damage notice or claim for alleged coal mining subsidence damage to the property been given, made or pursued since 31st October 1994?

- We have no evidence of a damage notice or subsidence claim for the property or within 50m of the property since 31st October 1994.

(b) In respect of any such notice or claim has the responsible person given notice agreeing that there is a remedial obligation or otherwise accepted that a claim would lie against them?

- Not applicable.

(c) In respect of any such notice or acceptance has the remedial obligation or claim been discharged?

- Not applicable.

(d) Does any current "Stop Notice" delaying the start of remedial works or repairs affect the property?

- There are no current Stop Notices delaying the start of remedial works or repairs to the property.

(e) Has any request been made under Section 33 of the 1991 Act to execute preventive works before coal is worked, which would prevent the occurrence or reduce the extent of subsidence damage to any buildings, structures or works and, if yes, has any person withheld consent or failed to comply with any such request to execute preventive works?

- There is no record of a request that has been made to carry out preventive works before coal is worked under Section 33 of the Coal Mining Subsidence Act 1991.

NB. Records of damage notices or subsidence claims before 31st October 1994 are excluded from The Coal Authority data from which this search is compiled.

10. Mine gas emissions



Does the Coal Authority have record of any mine gas emission within the boundary of the property being reported that subsequently required action by the Authority to mitigate the effects of the mine gas emission?

- No mine gas emissions are recorded within the boundary of the property.



11. Emergency Surface Hazard Call Out incidents



Have the Coal Authority carried out any work on or within the boundaries of the property following a report of an alleged hazard related to coal mining under the Authority's Emergency Surface Hazard Call Out procedures?

- **No Emergency Surface Hazard Call Out procedures are recorded against the property.**

12. Withdrawal of support



(a) Does the land lie within a geographical area in respect of which a notice of entitlement to withdraw support has been published?

- **The property does not lie in an area where the right to withdraw support has been granted.**

(b) Does the land lie within a geographical area in respect of which a revocation notice has been given under section 41 of the Coal Industry Act 1994?

- **The property does not lie within a geographical area in which a revocation notice has been given under section 41 of the Coal Industry Act 1994.**

13. Working facilities orders



Is the property within a geographical area subject to an order in respect of the working of coal under the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof?

- **The property is not in an area where a court order has been issued.**

14. Payments to owners of former copyhold land



(a) Has any relevant notice, which may affect the property, been given?

- **The property does not lie within former copyholder land.**

(b) If yes, has any notice of retained interests in coal and coal mines been given?

- **No notices of retained interests in coal and coal mines been given.**

(c) If yes, has any acceptance notice or rejection notice been served?

- **No acceptance or rejection notices have been served.**

(d) If any such acceptance notice has been served, has any compensation been paid to a claimant?

- **No compensation has been paid to a claimant.**



CON29M notes and guidance

This report is prepared in accordance with [The Law Society Guidance Notes 2018](#); under which all replies to these enquiries are made. Groundsure's Terms and Conditions are applicable at the time the report was produced.

Property owners have the benefit of statutory protection (under the Coal Mining Subsidence Act 1991). This contains provision for the making good, to the reasonable satisfaction of the owner, of physical damage from disused coal mine workings including disused coal mine entries. A leaflet setting out the rights and obligations of either the Coal Authority or other responsible persons under the 1991 Act can be obtained by telephoning 0345 762 6848. Further information can be found on their website:

www.groundstability.com ↗.

The Coal Authority, regardless of responsibility and in conjunction with other public bodies, provide an emergency call out facility in coalfield areas to assess the public safety implications of mining features (including disused mine entries).

The Coal Authority emergency telephone number at all times is 01623 646333.

Responses to The Law Society CON29M (2018) Coal Mining Search enquiries and associated findings and recommendations relating to coal mining risk have been provided by Groundsure Ltd. Groundsure Ltd have additionally provided information relating to the Cheshire Brine Compensation Area, and have compiled all information into this report.

Queries should be made of Groundsure Ltd on 01273 257 755, or via email: info@groundsure.com ↗.

CON29M report limitations

This CON29M (2018) Coal Mining Report has been carried out with reference to all available official Coal Authority licensed data, an extensive collection of abandoned mine plans, maps and records. From this material, we have endeavoured to provide as accurate a report as possible. Any and all analysis and interpretation of licensed Coal Authority data in this report is made by Groundsure

The information provided in this report by Groundsure Ltd has been compiled in response to The Law Society CON29M (2018) Coal Mining search enquiries. The scope of the assessment is limited to interpretation of past, present and future extraction of coal, and does not consider the impact from non-coal mining hazards and/or natural ground stability hazards. The Law Society's Guidance Notes 2018 recommends separate enquiries to the appropriate sources are made with regard to other minerals.

The Report is created by a remote investigation and reviews only information provided by the client (address and site location boundaries) and from the databases of publicly available and/or licensable information that enable a desk-based assessment of the Site. The Report does not include a Site Investigation, nor does Groundsure Ltd make additional specific information requests of the regulatory authorities for any relevant information they may hold.

This report is concerned solely with the Site searched and should not be used in connection with nearby properties, as only known coal mining features that could potentially have a direct influence upon the Site searched are considered relevant; other features present in the general area may have been omitted for ease of reference.

This report is confidential to the client, the client's legal advisor and the client's Mortgage lender, as defined in the Groundsure terms & conditions, and as such may be used by them for conveyancing or related purposes. Groundsure has no liability toward any person or organisation not party to commissioning this report. This report or any part of it is not permitted to be reproduced, copied, altered or in any other way distributed by any other person or organisation.

Additional mine entry assessment is based on and limited to the data supplied by the Coal Authority at the time of production. In order to determine whether a property is within the likely zone of influence of a disused coal mine entry the following is considered: the actual or plotted position of the mine entry, its known or assumed diameter and the thickness of superficial deposits above rockhead. Where these figures are not known, assumptions based on established estimations have been made.





CON29M report licensing

This report contains Data provided by the Coal Authority. Any and all analysis and interpretation of Coal Authority Data in this report is made by Groundsure Limited 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 Limited prior to any re-use. Due to data collection methods and processing time, there may be a period of up to 2 weeks between the Coal Authority updating their data and it appearing within the Groundsure report.

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This report may contain plans and records held by the Coal Authority and made publicly available at the time of inspection which may include British Geological Survey and Ordnance Survey data.



Conveyancing Information Executive and our terms & conditions

IMPORTANT CONSUMER PROTECTION INFORMATION

This search has been produced by Groundsure Ltd, Nile House, Nile Street, Brighton, BN1 1HW. Tel: 01273 257 755. Email: info@groundsure.com ↗. Groundsure adheres to the Conveyancing Information Executive Standards.

The Standards

- Conveyancing Information Executive Members shall act in a professional and honest manner at all times in line with the Conveyancing Information Executive Standards and carry out the delivery of the Search with integrity and due care and skill.
- Compliance with the Conveyancing Information Executive Standards will be a condition within the Conveyancing Information Executive Member's Terms and Conditions.
- Conveyancing Information Executive Members will promote the benefits of and deliver the Search to the agreed standards and in the best interests of the customer and associated parties.

Complaints Advice

If you have a query or complaint about your search, you should raise it directly with the search firm, and if appropriate ask for any complaint to be considered under their formal internal complaints procedure.

If you remain dissatisfied with the firm's final response, after your complaint has been formally considered, or if the firm has exceeded the response timescales, you may refer your complaint for consideration under The Property Ombudsman scheme (TPOs). The Ombudsman can award up to £5,000 to you if the Ombudsman finds that you have suffered actual financial loss and/or aggravation, distress or inconvenience as a result of your search provider failing to keep to the Standards.

Please note that all queries or complaints regarding your search should be directed to your search provider in the first instance, not to TPOs.

COMPLAINTS PROCEDURE: If you want to make a complaint, we will:

- acknowledge it within 5 working days of receipt
- normally deal with it fully and provide a final response, in writing, within 20 working days of receipt
- liaise, at your request, with anyone acting formally on your behalf

Complaints should be sent to:

Operations Director, Groundsure Ltd, Nile House, Nile Street, Brighton, BN1 1HW. Tel: 01273 257 755. Email: info@groundsure.com

↗ If you are not satisfied with our final response, or if we exceed the response timescales, you may refer the complaint to The Property Ombudsman scheme (TPOs): Tel: 01722 333306, E-mail: admin@tpos.co.uk ↗ We will co-operate fully with the Ombudsman during an investigation and comply with their final decision.

Groundsure's Terms and Conditions can be viewed online at this link: www.groundsure.com/terms-and-conditions-april-2023/ ↗

Important consumer protection information

All of the advice and reports that Groundsure produces are covered by a comprehensive Remediation Contribution policy to ensure customers are protected, see www.groundsure.com/remediation ↗ for full details.

Data providers

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



Coal Mining Report Insurance Policy



Coal Mining Report Insurance Policy

The Schedule

Policy Number: The Reference contained in the **Coal Mining Search Report**

Premium: £1.40 inclusive of Insurance Premium Tax at 12%

Property: The property which is the subject of the **Coal Mining Search Report**

Limit of Indemnity: £100,000 increasing by 10% compound per annum on each anniversary of and for the first 10 years following the **Commencement Date**

Commencement Date: The date of the **Coal Mining Search Report**

You/Your:

1. A purchaser of the **Property**
2. A lender providing a **Mortgage** in connection with a purchase of the **Property**
3. A lender providing a **Mortgage** by way of a re-mortgage of the **Property**

Definitions

Where a word is defined below or in the schedule it shall carry the same meaning wherever it appears in bold text in this policy

Insured Use: The continued use of the **Property** as a single house or flat or a single commercial premises

Market Value: The value as determined by a surveyor appointed by agreement between **You** and **Us** or (in default of agreement) the President for the time being of the Royal Institution of Chartered Surveyors

Mortgage: A mortgage or charge secured on the **Property** by an institutional mortgage lender

Coal Mining Search Report: The coal mining search report attached to this policy

Search: An official search comprising a search in form CON29M (2018) being mining searches relating to coal and brine in the area in which the **Property** is situated

We/Our/Us:

Zurich Insurance plc. A public limited company incorporated in Ireland. Registration No. 13460. Registered Office: Zurich House, Ballsbridge Park, Dublin 4, Ireland. UK Branch registered in England and Wales Registration No. BR7985. UK Branch Head Office: The Zurich Centre, 3000 Parkway, Whiteley, Fareham, Hampshire PO15 7JZ.

Zurich Insurance plc is authorised by the Central Bank of Ireland and authorised and subject to limited regulation by the Financial Conduct Authority. Details about the extent of our authorisation by the Financial Conduct Authority are available from us on request. Our FCA Firm Reference Number is 203093.

Communications may be monitored or recorded to improve our service and for security and regulatory purposes.

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Your Policy

This is a legal document and should be kept in a safe place.

This policy is an agreement between **You** and **Us** and cover is provided subject to the payment of the **Premium**.

You must read this policy and its conditions, exclusions, schedule and any endorsements as one contract. Please read all of them to make sure that they provide the cover **You** require. If they do not, please contact **Us** or **Your** insurance adviser who arranged the policy for **You**.

When **You** take out and make changes to the cover provided by this policy, **You** must take reasonable care to ensure that **You** accurately answer any questions which **We** ask of **You** and that any information **You** give **Us** is accurate. If **You** are taking out this policy for purposes which are mainly related to **Your** trade, business or profession, **You** must also let **Us** know about all facts which are material to **Our** decision to provide **You** with insurance. Failure to meet these obligations could result in this policy being invalidated, a claim not being paid, or an additional premium being charged.

Fair presentation of the risk

a) At inception of this policy and also whenever changes are made to it at **Your** request **You** must:

- i) where **You** have taken out this policy for purposes which are wholly or mainly related to **Your** trade, business or profession, disclose to **Us** all material facts in a clear and accessible manner and not misrepresent any material facts, and
- ii) where **You** have taken out this policy for purposes which are wholly or mainly unrelated to **Your** trade, business or profession, take reasonable care not to misrepresent any material facts.

b) If **You** do not comply with clause a) of this condition **We** may:

- i) avoid this policy which means that **We** will treat it as if it had never existed and refuse all claims where any non-disclosure or misrepresentation by **You** is proven by **Us** to be deliberate or reckless in which case **We** will not return the premium paid by **You**; and
- ii) recover from **You** any amount **We** have already paid for any claims including costs or expenses **We** have incurred.

c) If **You** do not comply with clause a) of this condition and the non-disclosure or misrepresentation is not deliberate or reckless this policy may be affected in one or more of the following ways depending on what **We** would have done if **We** had known about the facts which **You** failed to disclose or misrepresented:

- i) if **We** would not have provided **You** with any cover **We** will have the option to:
 1. avoid the policy which means that **We** will treat it as if it had never existed and repay the premium paid; and
 2. recover from **You** any amount **We** have already paid for any claims including costs or expenses **We** have incurred
- ii) if **We** would have applied different terms to the cover **We** will have the option to treat this policy as if those different terms apply. **We** may recover any payments made by **Us** on claims which have already been paid to the extent that such claims would not have been payable had such additional terms been applied
- iii) if **We** would have charged **You** a higher premium for providing the cover **We** will charge **You** the additional premium which **You** must pay in full.

d) If any insured person, other than **You**, is responsible for a misrepresentation or failure to make a fair presentation of the risk, **We** will invoke the remedies available to **Us** under this condition as against that particular person as if a separate insurance contract had been issued to them leaving the remainder of the policy unaffected.

NB: For the purposes of the duty of disclosure stated in paragraphs a) i) and ii) above the content of the **Coal Mining Search Report** will be deemed to satisfy **Your** disclosure obligations.

Cover

1. **You** are in the process of purchasing the **Property** relying on the **Coal Mining Search Report** and/or
2. **You** (being a lender) have agreed to provide a **Mortgage** in connection with **Your** borrower's purchase or re-mortgage of the **Property** relying on the **Coal Mining Search Report**.

We will pay the following losses sustained by **You** arising out of the **Property** being affected by any matter which would have been revealed by a **Search** had one been carried out on the date of the **Coal Mining Search Report** but which was not revealed by the **Coal Mining Search Report**:



1. any reduction in **Market Value** of the **Property** calculated at the date **You** become aware of the matter(s) and/or loss in connection with a **Mortgage** as a result of such reduction.
2. all other costs and expenses including out of court settlement costs incurred by **Us** or by **You** with **Our** prior written agreement.

Waiver of Breach of Policy Condition

We will not exercise **Our** right to avoid **Our** liability to **You** in respect of loss where **You** have inadvertently breached any term or condition of the policy provided that such breach does not prejudice **Our** rights and remedies under the policy or otherwise directly or indirectly result in or increase the amount of any loss.

Protection for Mortgagees and Successors in Title

We will not avoid **Our** liability to make a payment to **You** solely because another person breaches the terms and conditions of this policy, provided such breach was not committed on **Your** behalf or with **Your** agreement, and **We** will invoke the remedies available to **Us** under the Policy as against that other person as if a separate insurance contract had been issued to them leaving the remainder of the policy unaffected.

Joint Insured

Any party insured under this policy standing in the relation of parent company, subsidiary company, associated company, branch office or joint venture partner to each other will be deemed to be joint insured for the purposes of this policy and jointly liable and responsible for any breach of any terms and conditions of this policy. If there is any inconsistency between this clause and any other term of this policy, this clause shall prevail.

Exclusions

We will not pay for any:

1. amount in excess of the **Limit of Indemnity**.
2. loss which would be recoverable under a household buildings insurance policy.
3. loss arising from any matter that **You** were aware of at the **Commencement Date**.
4. loss if the **Property** is used for any purpose other than the **Insured Use**.

Claims Conditions and How to Claim

1. **You** must:

- i) give **Us** written notice as soon as possible of any potential or actual claim or any circumstances likely to result in a claim. Please provide the policy number, **Your** name, the full address of the **Property** and a brief description of the incident that has occurred. Notifications should be sent to: Speciality Lines Claims Team, Zurich Insurance, 8th Floor, 70 Mark Lane, London, EC3R 7NQ. Email: claims@uk.zurich.com ↗, Enquiry line: telephone 0207 648 3523
- ii) pass all court documents and/or other communications to **Us** as soon as possible after receipt
- iii) not deal with, make any admission of liability or attempt to settle a claim without **Our** prior written agreement.
- iv) agree to and carry out at **Our** expense all things necessary to minimise any loss.
- v) provide all information and assistance that **We** may require to help defend and settle the claim.

2. **We** are entitled to:

- i) decide how to settle or defend a claim and may carry out proceedings in the name of any person insured under this policy, including proceedings for recovering any claim.
- ii) pay to **You** at any time, an amount equal to the **Limit of Indemnity** or any lower amount for which the claim can be settled, after deduction of any sum already paid. **We** may then give up control of and have no further liability in connection with the claim.

3. If **We** admit liability for a claim but there is a dispute as to the amount to be paid the dispute will be referred to an arbitrator. The arbitrator will be appointed jointly by **You** and **Us** in accordance with the law at the time. **You** may not take any legal action against **Us** over the dispute before the arbitrator has reached a decision.

4. If **You** or anyone acting on Your behalf:



- a) makes a fraudulent or exaggerated claim under this policy; or
- b) uses fraudulent means or devices including the submission of false or forged documents in support of a claim whether or not the claim is itself genuine; or
- c) makes a false statement in support of a claim whether or not the claim is itself genuine; or
- d) submits a claim under this policy for loss or damage which **You** or anyone acting on **Your** behalf or in connivance with **You** deliberately caused; or
- e) realises after submitting what **You** reasonably believed was a genuine claim under this policy and then fails to tell **Us** that **You** have not suffered any loss or damage; or
- f) suppresses information which **You** know would otherwise enable **Us** to refuse to pay a claim under this policy

We will be entitled to refuse to pay the whole of the claim and recover any sums that **We** have already paid in respect of the claim.

If any fraud is perpetrated by or on behalf of an insured person and not on behalf of **You** this condition should be read as if it applies only to that insured person's claim and references to this policy should be read as if they were references to the cover effected for that person alone and not to the policy as a whole.

5. If any claim is covered by any other insurance, **We** will not pay for more than **Our** share of that claim.

6. The most **We** will pay for any loss (or all losses in the aggregate), including costs and expenses agreed by **Us** is the **Limit of Indemnity**. Once **We** have paid a loss or losses equal to the amount of the **Limit of Indemnity**, **We** will have no further liability under this policy.

General Conditions

1. Neither **You** (nor anyone acting on **Your** behalf) must disclose the existence of this policy to any other party except **Your** legal and other professional advisers, prospective purchasers, lessees and tenants of the **Property**, their respective mortgagees, legal and other professional advisers.
2. In the UK the law allows both **You** and **Us** to choose the law applicable to the contract. This contract will be subject to the relevant law of England and Wales, Scotland, Northern Ireland, the Isle of Man or the Channel Islands depending upon the Property address stated in the Schedule. If there is any dispute as to which law applies it will be English law. The parties agree to submit to the exclusive jurisdiction of the English courts.
3. Notwithstanding any other terms of this policy **We** will be deemed not to provide cover nor will **We** make any payment or provide any service or benefit to **You** or any other party to the extent that such cover, payment, service, benefit and/or any business or activity of **Yours** would violate any applicable trade or economic sanctions law or regulation.

Cancellation Clause

If **You** have taken out this policy for purposes which are wholly or mainly unrelated to **Your** trade, business or profession, **You** may cancel this policy within 14 days of receiving the policy by writing to **Us** and in such event **We** may, at **Our** discretion, charge **You** for the time that **You** have been on cover. Any refund will be made to the party who paid the premium. If **You** do cancel, **You** may be in breach of the terms of **Your** mortgage or the terms of the contract for the sale of **Your** property. If **You** are in doubt, **You** may wish to seek legal advice prior to cancellation.

Fair Processing and Complaints Procedure

Our Complaints Procedure

Our commitment to customer service

We are committed to providing a high level of customer service. If you feel we have not delivered this, we would welcome the opportunity to put things right for you.

Who to contact in the first instance

Many concerns can be resolved straight away. Therefore in the first instance, please get in touch with your usual contact at Zurich or your broker or insurance intermediary, as they will generally be able to provide you with a prompt response to your satisfaction.

Contact details will be provided on correspondence that we or our representatives have sent you.

Many complaints can be resolved within a few days of receipt

If we can resolve your complaint to your satisfaction within the first few days of receipt, we will do so. Otherwise, we will keep you



updated with progress and will provide you with our decision as quickly as possible.

Next steps if you are still unhappy

If you are not happy with the outcome of your complaint, you may be able to ask the Financial Ombudsman Service to review your case.

We will let you know if we believe the ombudsman service can consider your complaint when we provide you with our decision. The service they provide is free and impartial, but you would need to contact them within 6 months of the date of our decision.

More information about the ombudsman and the type of complaints they can review is available via their website www.financial-ombudsman.org.uk ↗.

You can also contact them as follows:

Post: Financial Ombudsman Service, Exchange Tower, London, E14 9SR

Telephone: 08000 234567 (free on mobile phones and landlines)

Email: complaint.info@financial-ombudsman.org.uk ↗

If the Financial Ombudsman Service is unable to consider your complaint, you may wish to obtain advice from the Citizens Advice Bureau or seek legal advice.

The Financial Services Compensation Scheme (FSCS)

We are covered by the Financial Services Compensation Scheme (FSCS) which means that you may be entitled to compensation if we are unable to meet our obligations to you. Further information is available on www.fscs.org.uk ↗ or by contacting the FSCS directly on 0800 678 1100.

How we use your information

Who controls your personal information

This notice tells you how Zurich Insurance plc ('Zurich'), as data controller, will deal with your personal information. Where Zurich introduces you to a company outside the group, that company will tell you how your personal information will be used.

You can ask for further information about our use of your personal information or complain about its use in the first instance, by contacting our Data Protection Officer at: Zurich Insurance Group, Tri-centre 1, Newbridge Square, Swindon, SN1 1HN or by emailing the Data Protection Officer at GBZ.General.Data.Protection@uk.zurich.com ↗.

If you have any concerns regarding our processing of your personal information, or are not satisfied with our handling of any request by you in relation to your rights, you also have the right to make a complaint to the Information Commissioner's Office. Their address is: First Contact Team, Information Commissioner's Office, Wycliffe House, Water Lane, Wilmslow, SK9 5AF.

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APPENDIX E

CGL Risk Assessment Methodology

CGL Risk Assessment Methodology

The following risk Assessment methodology is based on CIRIA C552 (2001) Contaminated Land Risk Assessment – A Guide to Good Practice¹, in order to quantify potential risk via risk estimation and risk evaluation, which can be adopted at the Phase I stage. This will then determine an overall risk category which can be used to identify likely actions. This methodology uses qualitative descriptors and therefore is a qualitative approach and is undertaken for each potential pollution linkage (source-pathway-receptor) identified for the site in accordance with Contaminated Land Reports 6² and 11³.

The methodology requires the classification of:

- The magnitude of the consequence (severity) of a risk occurring, and
- The magnitude of the probability (likelihood) of a risk occurring.

The potential consequences of contamination risks occurring at this site are classified in accordance with Table 1 below, which is adapted from the CIRIA guidance¹.

Table 1. Classifications of Consequence ratings

Classification	Definition of Consequence	Examples
Severe	Short-term (acute) risks to human health. Short-term (acute) risk of pollution of sensitive water resource or ecosystem. Catastrophic damage to crops/buildings/property/infrastructure, including off-site soils.	High concentration of cyanide on the surface of an informal recreation area Major spillage of contaminants from site into controlled waters Explosion causing building collapse
Medium	Long-term (chronic) risks to human health Long-term (chronic) pollution of sensitive water resource Significant change in an ecosystem/contamination of off-site soils	Concentrations of a contaminant from site exceeding the generic or site specific assessment criteria Leaching of contaminants from a site into a major or minor aquifer Death of a species within a designated nature reserve
Mild	Pollution of non-sensitive water resource Significant damage to crops/ buildings/property/infrastructure Damage to an ecosystem or sensitive buildings/structures/services	Pollution of a non-classified groundwater Damage to a building rendering it unsafe to occupy (e.g. foundation damage resulting in instability)
Minor	Easily preventable non-permanent health effects Harm, although not necessarily significant harm, which may result in financial loss or expenditure to resolve Easily repairable effects of damage to buildings/structures/services	Presence of contamination at concentrations which require the use of personal protective equipment during site work Loss of plants in a landscaping scheme/dischouration of concrete

¹ CIRIA, (2001). *Contaminated Land Risk Assessment. A Guide to Good Practice*. CIRIA C552.

² M.J. Carter Associates, (1995). *Prioritisation and Categorisation Procedure for Sites Which May Be Contaminated*. Contaminated Land Report 6. Department of the Environment. C

³ Environment Agency, (2004). *Model Procedures for the Management of Land Contamination*. Contaminated Land Report 11.

The potential probability of the risks being realised are classified in accordance with the ratings set out in Table 2 which are adapted from the CIRIA guidance¹. It should be noted that where a pollutant linkage has not been identified the likelihood is considered to be zero.

Table 2. Classifications of probability ratings

Classification	Definition
High likelihood	There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable in the long term, or there is evidence at the receptor that an event has occurred
Likely	There is a pollution linkage and all the elements are present and in the right place which means that it is probable that an event will occur. Circumstances are such that an 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 that even over a longer period such an event would take place and is less likely in the short term.
Unlikely	There is a pollutant linkage but circumstances are such that it is improbable that an event would occur even in the very long term

In accordance with C552 the risk classification for each pollution linkage are classified in accordance with the matrix for consequence and probability set out in Table 3. The definitions for the risk classifications are presented in Table 4.

Table 3. Risk classification matrix

		Consequence			
		Severe	Medium	Mild	Minor
Probability	High likelihood	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

Table 4. Risk classification definitions

Classification	Definition
Very High	There is a high probability that severe harm could arise to a designated receptor from the identified hazard or there is evidence that severe harm is currently happening. This risk, if realised, is likely to result in substantial liability. Urgent investigation (if not already undertaken) and remediation are likely to be required.
High	Harm is likely to arise to a designated receptor from the identified hazard. Realisation of the risk is likely to result in substantial liability. Urgent investigation (if not already undertaken) and remediation are likely to be required.
Moderate	It is possible that harm could arise to a designated receptor from the identified hazard. However, it is either relatively unlikely that such harm would be severe or if any harm were to occur it is more likely that the harm would be relatively mild. Urgent investigation (if not already undertaken) is normally required to clarify the potential risk and to determine the potential liability. Some remedial works may be required in the longer term.
Low	It is possible that harm could arise to a designated receptor from the identified hazard, but it is considered 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 designated receptor from the identified hazard. In the event of such harm being realised it is not likely to be severe.

APPENDIX F

2013 Ground Investigation Report

PHASE II GEO-ENVIRONMENTAL SITE INVESTIGATION – PRELIMINARY REPORT

**Yotel
Piccadilly
Manchester
M1 3AQ**

**REC Report: 44934p2r0
Issued: October 2013**

Prepared for:



QUALITY ASSURANCE

Issue/revision	Issue 1	Revision 1	Revision 2
Remarks	Prelim 1		
Date	October 2013		
Prepared by	Mikolaj Jakuc		
Qualifications	BSc (Hons), PGDip, FGS		
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Project number	44934		
<div>Doc. Ref – QR4A-3</div> <div>Issued – August 2013</div> <div>By – A Edgar</div>			

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EXECUTIVE SUMMARY

Site Address	Yotel, Piccadilly, Manchester, M1 3AQ
Grid Reference	384580, 398141
Site Area	0.07ha
Current Site Use	The subject site comprises a four storey late Georgian-style stone constructed commercial building named the 'Union Bank of Manchester'. The engraving at the top of the building dates the construction of the building to 1836. The area to the rear of the building is surfaced in bit macadam and is currently used as a car park accessed off Gore Street.
Environmental Setting	<p>Drift – Till, Devensian (glacial clays)</p> <p>Bedrock – Sherwood Sandstone Group</p> <p>Groundwater – Principal Aquifer</p> <p>Flood Risk – Unaffected by flooding from rivers.</p> <p>Compressible Ground and Subsidence Hazards – No hazard. No special precautions with regard to foundations anticipate</p> <p>Ecology – Trees, ponds, hedges, invasive, habitat</p>
Site History	Historical maps indicate that the site has been extensively developed and re-developed over the past 150 years as is typical for a city centre site. It is expected that the previous on-site buildings would have had a commercial use rather than an industrial use. The site has remained in its current form since circa 1980's.
Hazardous Installations and Development Constraints	None identified
Utility Locations	<p>The location of services close to the site are as follows:</p> <ul style="list-style-type: none">  Low pressure gas main running along Gore Street, Roby Street and Chatham Street;  Public sewers and water mains running along the roads on all sides of the site; and,  Electricity cables running along all the site boundaries with the pavement.
Landfill Sites & Ground Gases	<p>Made Ground deposits associated with the construction of former and current site buildings and adjacent buildings has been identified as a possible source of hazardous ground gases beneath the site.</p> <p>There are no landfills within a 500m radius of the site.</p>
Radon	Unaffected – no special precautions required.
Coal Mining / Land Stability	The site is located in an area which was historically mined for coal; however, the site is underlain by a substantial layer of sandstone (Sherwood sandstone Group) and it is expected that any mine workings would be at depth beneath the site posing an insignificant risk of subsidence.

Intrusive Ground Investigation

<p>Ground Conditions</p>	<p>Made Ground</p> <p>Made Ground was encountered within all of the exploratory locations typically comprising asphalt of concrete underlain by sandy gravel with frequent cobbles of brick and concrete. Gravels also comprised ash, glass, timber, plastic, clinker and occasional fragments of potential asbestos containing materials (cement bonded). Made Ground was encountered to a maximum proven depth of 4.00m bgl (RB102). Due to the nature of the material and obstructions encountered the majority of the boreholes were unable to reach the proposed completion depths. A concrete slab (presumed to be a former basement floor) was encountered across the central areas of the existing car park area at circa 2.50 – 2.60m bgl.</p> <p>Only one hand excavated foundation inspection pit could be completed to a viable depth, this was located outside on the southern facing wall of the existing building. The remaining locations were positioned within the basement area of the former bank building. The trial pits were all terminated due to the significant thickness and strength of the concrete.</p> <p>Drift</p> <p>Superficial drift deposits were proven in two window sample boreholes, WS101, WS104 and all of the rotary percussive boreholes. Drift deposits generally comprised high strength very stiff brown gravelly CLAY. Gravel is fine to medium angular to sub-rounded of coal, sandstone and mudstone to a maximum proven depth of 22.20m bgl.</p> <p>Solid Geology</p> <p>Weak weathered sandstone bedrock was encountered within RB102 and 103 at circa 22.20m bgl. Core runs were advanced within the material however recovery of the bedrock was unsuccessful when coring with both air and water methods due to the weak and highly weathered nature of the rock. Drilling became more competent typical of less fractured sandstone at circa 27.00m bgl.</p> <p>Ground Water</p> <p>During the ground investigation, a slow seepage of groundwater was encountered in WS101 at a depth of 2.80m bgl; this is considered a shallow perched aquifer confined by the former basement structure. Subsequent monitoring of groundwater indicated that all the wells were dry for their full depth.</p>
---------------------------------	---

Tier 1 Contaminated Land Risk Assessment

<p>Human Health</p>	<p>For the purposes of the Tier 1 assessment REC have compared the laboratory test data directly to the relevant Tier 1 GAC value for the protection of human health. The results of this direct comparison indicates that Benzo(a)Pyrene is above the threshold within WS107. Elevated lead concentrations were identified within WS103 and WS107.</p>
<p>Controlled Waters</p>	<p>The Tier I controlled water assessment identifies that there is unlikely to be a significant impact due to the lack of a significant source.</p>
<p>Eco-toxic</p>	<p>No significant concentrations of potentially eco-toxic contaminants have been identified.</p>
<p>Ground Gas</p>	<p>Characteristic Situation 1 – Pending remaining gas assessment visits</p>

Potable Water Infrastructure	No issues identified.
Geotechnical Assessment	
Underground Obstructions	Relic foundations associated with former and existing building across much of the site will need to be removed to facilitate the installation of any proposed infrastructure, building foundations and services.
Allowable Bearing Capacity	>3000kN/m2 at 27.50m bgl cored a minimum 3m into competent sandstone bedrock.
Foundation Options	End bearing CFA Piles to be designed by a specialist contractor.
Sulphate Assessment	Sulphate Class DS-1, (ACEC) AC-1s
Waste Classification	Likely to be Stable non-Reactive Non-Hazardous
Developed Conceptual Site Model (CSM)	
<p>In the case of lead and Benzo(a)Pyrene the exposure pathway is dermal contact and ingestion. Due to the nature of the development the pathway will be broken as the proposed hotel will cover the entire area of the site thus capping the identified elevated determinants; however careful consideration should be taken during the design of the piles proposed to support the structure to prevent a pathway into the underlying Principal Aquifer.</p> <p>The ground gas assessment indicates a low risk to future site users.</p>	
Recommendations	
<p>It is recommended that a Materials Management Plan (MMP) be developed to ensure a development led solution that ensures this material is retained on-site or exported to a donor site through the CL:AIRE Protocol.</p> <p>Due to the strength and thickness of the concrete slab in the basement area of the former bank building it is recommended that concrete cores are advanced using an electric rig to obtain information on the existing floor construction.</p>	

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APPENDICES

Appendix I Limitations

Appendix II Glossary

Appendix III Drawings

Drawing No 44934p2r0/001 – Site Location Plan

Drawing No 44934p2r0/002 – Existing Site Plan

Drawing No 44934p2r0/003 – Proposed Development Plan

Drawing No 44934p2r0/004 – Historical Features Plan

Drawing No 44934p2r0/005 – Exploratory Hole Location Plan

Drawing No 44934p2r0/006 – Depth Of Made Ground

Drawing No 44934p2r0/007 – Constraints Plan

Drawing No 44934p2r0/008 – FP102 Foundation Detail

Appendix IV Photographs

Appendix V REC Exploratory Hole Logs

Appendix VI Chemical Testing Results

Appendix VII Origin of Generic Assessment Criteria

A CD containing all relevant environmental database information, historical & geological mapping and a complete PDF version of this report is attached to hard copy of the report.

1.0 INTRODUCTION

1.1 Background

Resource and Environmental Consultants (REC) Ltd have been commissioned by Russells Construction to undertake a Phase II Intrusive Investigation at the proposed site of Yotel, Piccadilly, Manchester, M1 3AQ.

The Scope of Work (SoW) consisted of an intrusive Ground Investigation, comprising eight Window Sample (WS) probeholes, five of which have been completed as environmental monitoring wells, three rotary boreholes and three foundation pits (one outside the building and two inside the building's basement area).

REC has previously undertaken a Phase I GeoEnvironmental Desk Study (43934p1r0) dated July 2013; the desk study assessment informed the development of the Initial Conceptual Site Model (ICSM) which was used to prepare the proposed scope of intrusive investigation works. This report should be read in conjunction with the Phase I Desk Study.

1.2 Proposed Development

The client intends to redevelop the site for a commercial end use, comprising a 19 storey high-rise hotel and refurbishment of the existing listed Georgian building. A draft layout for the site is shown on Drawing No 44934p2r0-003 in Appendix III.

1.3 Objectives

The objectives of the geo-environmental investigation are to:

- Undertake a preliminary stage of investigation and analysis to provide an overview of conditions identified;
- Assess the implications of any potential environmental risks, liabilities and development constraints associated with the site in relation to the future use of the site and in relation to off-site receptors;
- Assess the geotechnical information and provide preliminary recommendations in relation to foundations, pavement construction and floor slabs;
- Provide recommendations regarding future works required.

1.4 Limitations

The limitations of this report are presented in Appendix I.

1.5 Confidentiality

REC has prepared this report solely for the use of the Client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from REC; a charge may be levied against such approval.

2.0 SITE INVESTIGATION

2.1 Desk Study Information

Site Description

The subject site is approximately rectangular in shape and is located in the Piccadilly area of Manchester city centre. The site is bound by adopted roads on all sides as follows: Piccadilly to the east; Chatham Street to the north; Roby Street to the west and Gore Street to the south. Adjacent site uses include: a hotel and public house to the east; multi-storey car park to the north; hotel to the south and YMCA training centre / public house to the west.

The subject site comprises a four storey late Georgian-style stone constructed commercial building named the 'Union Bank of Manchester'. The engraving at the top of the building dates the construction of the building to 1836. It is anticipated that the building may have previously had basements, although no evidence was observed during the site walkover. The area to the rear of the building is surfaced in bit macadam and is currently used as a car park accessed off Gore Street. The site area is topographically flat and entirely surfaced in hard standing. The on-site property is currently unoccupied.

Development History

Historical maps indicate that the site has been extensively developed and re-developed over the past 150 years as is typical for a city centre site. It is expected that the previous on-site buildings would have had a commercial use rather than an industrial use. The site has remained in its current form since circa 1980's.

Coal Mining

The site is located in an area which was historically mined for coal; however, the site is underlain by a substantial layer of sandstone (Sherwood sandstone Group) and it is expected that any mine workings would be at depth beneath the site posing an insignificant risk of subsidence.

Initial Conceptual Site Model

As the site has never had any previous industrial land-use it is expected that there are no significant contaminant sources. However, consideration may need to be given to the presence of Made Ground associated with the construction of the former and current buildings and external hard-standing areas. Made Ground may give rise to contaminants such as toxic heavy metals, sulphates, PAHs, asbestos and hydrocarbons, along with the potential for the generation of hazard ground gases (methane and carbon dioxide). Based on the conceptual site model and current site use, the site is considered to represent a **moderate to high** risk in terms of contaminated land liabilities.

Salient site features are presented on the Site Plan (Drawing No 44934p2/002) in Appendix III, in addition, the Historical Features Plan is presented as Drawing No 44934p2/004.

Potential contamination sources have been identified from the desk study and these are listed in Table 2.1 below:

Table 2.1 Summary of Potential Contaminant Sources

Potential Source	Potential Contaminants	Potential Impact
Made Ground across the site	Metals and hydrocarbons	Groundwater and human health

All acronyms used within this report are defined in the Glossary presented in Appendix II.

2.2 Site Investigation

2.2.1 General

A ground investigation has been designed based on the findings of the desk study with exploratory holes advanced to target specific potential contaminant sources summarised in Table 2.1. Rotary boreholes were also advanced to provide information geotechnical conditions across the site to enable a pragmatic and cost effective foundation solution for the site. In addition, foundation pits were advanced to assess base of the existing building. The investigation has also been used to collect geotechnical information to assist in the design and construction of the development.

Exploratory fieldwork was completed on the 30th September 2013. The works are summarised in Table 2.2.

Table 2.2 Summary of Fieldwork

Potential Source/Rationale	Location Hole	Type	Maximum Depth (m bgl)	Monitoring Wells Response Zone
Ground Gas/Site coverage	WS101	Windowless sampler probehole	4.00	N/A
Ground Gas/Site coverage	WS102	Windowless sampler probehole	1.50	0.5m – 1.50m
Ground Gas/Site coverage	WS103	Windowless sampler probehole	2.50	0.50m - 2.50m
Ground Gas/Site coverage	WS104	Windowless sampler probehole	6.35	0.50m – 1.50m
Ground Gas/Site coverage	WS105	Windowless sampler probehole	2.80	N/A
Ground Gas/Site coverage	WS106	Windowless sampler probehole	0.70	N/A
Ground Gas/Site coverage	WS107	Windowless sampler probehole	2.50	0.50m – 2.00m
Ground Gas/Site coverage	WS108	Windowless sampler probehole	2.80	0.50m – 1.50m
Shallow mine workings	RB101	Rotary borehole	18.00	N/A
Shallow mine workings	RB102	Rotary borehole	29.50	N/A
Shallow mine workings	RB103	Rotary borehole	31.50	N/A
Foundation Inspection	FP102	Foundation pit	1.20	N/A
Foundation Inspection	FP103	Foundation pit	0.26	N/A
Foundation Inspection	FP104	Foundation pit	0.12	N/A

Notes

m bgl – metres below ground level.

The window sample probeholes were designed to provide geotechnical information and confirm the findings of the Initial Conceptual Site Model (ICSM). Dual purpose monitoring wells were installed in five no window sample holes. The ground conditions encountered and details of monitoring well response zones are indicated on the logs which are provided in Appendix V.

Three rotary open hole boreholes were advanced to depths ranging from 18.00 to 31.50m bgl, to investigate the geotechnical properties of the ground conditions and identify competent sandstone bedrock to facilitate a safe and cost effective piling design.

Foundation pits were excavated to inspect the existing building's foundations. The ground conditions encountered and foundations are indicated on the logs which are provided in Appendix V. The existing foundation constructions are presented within Appendix III.

Return visits were made to monitor installations for groundwater level and gas concentrations. Groundwater was not encountered during the investigation; therefore samples were subject to leachate analysis.

Soil samples destined for chemical analysis were collected at regular intervals in appropriate sampling containers. All samples were subsequently stored in cooled boxes prior to submission to analytical laboratory.

All samples were collected using appropriate PPE and sampling equipment that was cleaned at each sampling location. A detailed copy of REC Ltd sampling methodology, QA procedures and laboratory chain of custody forms can be provided upon request.

2.2.2 In-Situ Standard Penetration Testing (SPT)

In-situ geotechnical testing was conducted using the Standard Penetration Test (SPT) and where the ground is granular, a 60° cone (SPT(C)) was used instead of the sampling tube. The testing was conducted using the Cone Penetration Test (CPT). The results are shown in the probehole logs in Appendix V with interpretation tables presented in Table 3.1 and discussed in Section 3.0.

2.3 Laboratory Analysis

Selected soil samples were submitted for a range of chemical analysis comprising, metals, pH, total sulphate, water soluble sulphate (2:1 extract), sulphide, cyanide, phenols, total and speciated poly-aromatic hydrocarbons (PAHs), asbestos, organic carbon and total and speciated petroleum hydrocarbon (TPH).

Scientific Analysis Laboratories (SAL) Ltd of Manchester undertook the analytical work and the testing results are included in Appendix VI and discussed in Section 4.0.

3.0 GROUND AND GROUNDWATER CONDITIONS

3.1 Ground Conditions

3.1.1 Summary of Ground Conditions

The ground investigation generally confirms the published geology and identifies the strata set out in Table 3.1 below:

Table 3.1 Summary of Strata

Strata	Typical Description	Min Depth to Top of Strata (m)	Max Depth to Top of Strata (m)	Max Thickness (m)
Made Ground	Asphalt	0.00	0.00	0.20
Made Ground	Concrete	0.00	2.80	>0.26
Made Ground	Loose fine to medium dark brown/black gravelly sand with cobbles. Gravel is fine to coarse angular to sub-angular of brick, concrete, ash, clinker, metal and wood. Cobbles are angular to sub-angular of brick and concrete.	0.15	0.15	4.00
Made Ground	Very loose to medium dense brown/orange sandy gravel. Gravel is fine to coarse angular to sub-angular of brick, concrete, sandstone and coal.	0.06	0.08	3.17
Gravelly CLAY	High strength very stiff brown gravelly CLAY. Gravel is fine to medium angular to sub-rounded of coal, sandstone and mudstone.	3.00	3.00	1.00
Sandy gravelly CLAY	High strength very stiff brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium sub-angular to sub-rounded of sandstone and coal.	3.25	3.25	3.10
CLAY	Brown CLAY/MARL	3.00	4.00	19.20
Weathered SANDSTONE	Weathered orange brown SANDSTONE	22.2	22.2	5.00
SANDSTONE	Orange Brown SANDSTONE	27.2	28.00	>4.3

3.1.2 Made Ground

Made Ground was encountered within all of the exploratory locations typically comprising asphalt of concrete underlain by sandy gravel with frequent cobbles of brick and concrete. Gravels also comprised ash, glass, timber, plastic, clinker and occasional fragments of potential asbestos containing materials (cement bonded). Made Ground was encountered to a maximum proven depth of 4.00m bgl (RB102). Due to the nature of the material and obstructions encountered the majority of the boreholes were unable to reach the proposed completion depths. A concrete slab (presumed to be a former basement floor) was encountered across the central areas of the existing car park area at circa 2.50 – 2.60m bgl.

Only one hand excavated foundation inspection pit was able to be advanced to depth which was located outside on the southern facing wall of the existing building. The remaining

locations were positioned within the basement area of the former bank building. The trial pits were all terminated due to the thickness and strength of the concrete.

3.1.3 Drift Deposits

Superficial drift deposits were proven in two window sample boreholes, WS101, WS104 and all of the rotary boreholes. Drift deposits generally comprised high strength very stiff brown gravelly CLAY. Gravel is fine to medium angular to sub-rounded of coal, sandstone and mudstone to a maximum proven depth of 22.20m bgl.

3.1.4 Solid Geology

Weak weathered sandstone bedrock was encountered within RB102 and 103 at 22.20m bgl. Core runs were advanced within the material however recovery of the bedrock was unsuccessful when coring with both air and water methods. Drilling became more competent typical of less fractured sandstone at circa 27.00m bgl.

3.1.5 Soil Consistency

Results of the Standard Penetration Tests, including undrained shear strengths derived from SPTs are included on Table 3.2.

Table 3.2 Standard/Cone Penetration Test Results

Boreholes	Depth (m bgl) (i)	Material Field Description	CPT/SPT "N" Value	Corrected "N" Value (N ₁) ₆₀	Terzaghi & Peck Relative Density (Sands)	Eurocode Soil strength	Consistency (BS5930)	Terzaghi & Peck Approximate Undrained Shear Strength (kN/m ²)
WS101	1.00-1.45	Gravelly sand	6	6.05	Loose	N/A	N/A	N/A
	2.00-2.45	Gravelly sand	7	6.39	Loose	N/A	N/A	N/A
	3.00-3.45	Gravelly CLAY	29	25.22	N/A	High strength	Very stiff	126.10
WS102	1.00-1.45	Sandy gravel	11	11.09	Medium dense	N/A	N/A	N/A
	2.00-2.45	Sandy gravel	50	45.68	Dense	N/A	N/A	N/A
	2.45-2.90	Sandy gravel	50	44.52	Dense	N/A	N/A	N/A
WS103	1.00-1.45	Gravelly sand	7	7.06	Loose	N/A	N/A	N/A
	2.00-2.45	Gravelly sand	7	6.39	Loose	N/A	N/A	N/A
WS104	1.00-1.45	Gravelly sand	2	2.02	Very loose	N/A	N/A	N/A
	2.00-2.45	Gravelly sand	12	10.96	Medium dense	N/A	N/A	N/A
	3.00-3.45	Gravelly sand	22	19.13	Medium dense	N/A	N/A	N/A
	4.00-4.35	Slightly sandy slightly gravelly CLAY	18	15.21	N/A	High strength	Very stiff	76.04
	5.00-5.45	Slightly sandy slightly gravelly CLAY	29	24.06	N/A	High strength	Very stiff	120.30
	5.45-5.90	Slightly sandy slightly gravelly CLAY	33	27.22	N/A	High strength	Very stiff	136.08
	5.90-6.35	Slightly sandy slightly gravelly CLAY	44	36.11	N/A	Very high strength	Very stiff	180.55
WS105	1.00-1.45	Sandy gravel	4	4.03	Loose	N/A	N/A	N/A
	1.45-1.90	Sandy gravel	18	17.19	Medium dense	N/A	N/A	N/A
	1.90-2.35	Sandy gravel	16	14.72	Medium dense	N/A	N/A	N/A
	2.35-2.80	Sandy gravel	50	44.75	Dense	N/A	N/A	N/A
WS107	1.00-1.45	Gravelly sand	5	5.04	Loose	N/A	N/A	N/A
	2.00-2.45	Gravelly sand	3	2.74	Very loose	N/A	N/A	N/A
	2.60-2.95	Gravelly sand	50	44.20	Dense	N/A	N/A	N/A
WS108	1.00-1.45	Gravelly sand	3	3.02	Very loose	N/A	N/A	N/A
	2.00-2.45	Gravelly sand	1	0,91	Very loose	N/A	N/A	N/A

3.1.6 pH and Sulphate

Chemical analyses for pH and soluble sulphate content contained in Appendix VI (summarised below in Table 3.3), shows that the soils at the site generally meet Class DS-1, Aggressive Chemical Environment for Concrete Classification (ACEC) AC-1s in accordance with BRE Special Digest 1 (2005).

Elevated sulphate concentrations meeting Class DS-2 were noted in WS103 within the Made Ground deposits at 1.20mbgl. This is considered to be due to the high brick content identified within the fine gravels in this area.

Table 3.3 Summary of pH and Sulphate Data

Location	Depth (m)	SO ₄ in 2:1 water / soil (g/l)	pH Value
WS101	3.40	0.2	8.1
WS103	1.20	1.2	7.8
WS107	0.40	<0.1	8.4
WS102	1.00	<0.1	8.3
WS104	3.50	0.1	8.0

3.2 Groundwater Conditions

A single Groundwater strike was encountered as seepage in WS101 at 2.80m bgl. The depth of the seepages and the depth to which groundwater rose are shown on the exploratory hole records and summarised in Table 3.4 below:

Table 3.4 Summary Groundwater Strikes

Location	Depth to strike (m)	Depth to standing water (m)	Notes
WS101	2.80	N/A	Perched in Made Ground

Monitoring was undertaken using an electronic dip meter and interface probe to record the depth to groundwater and the thickness of any free phase hydrocarbon product, if present.

3.3 Ground Gas

Concentrations of methane (CH₄), carbon dioxide (CO₂) and Oxygen (O₂) were measured using an infra red gas analyser (GA2000) calibrated to a reference standard (before and after each survey) and gas flow rates were measured using an attached flow pod.

Gas measurements were recorded for a minimum of sixty seconds at each location, at which point the maximum concentration of CH₄ and CO₂ together with the lowest concentration of O₂ were recorded. The results of the ground gas monitoring are presented in Table 3.5 overleaf.

Table 3.5 Summary of Ground Gas and Groundwater Monitoring Results

Well	Date	CH ₄ Initial %v/v	CH ₄ Steady %v/v	CH ₄ GSV l/hr	CO ₂ Initial %v/v	CO ₂ Steady %v/v	CO ₂ GSV l/hr	O ₂ %v/v	Atmos(mb)	Atmos. Dynamic	Flow (l/hr)	Response Zone (mbgl)	Depth to Base (mbgl)	Depth to Water (mbgl)
WS102	14/10/2013	0.3	0.3	0.0003	0.1	0.1	0.0001	20.6	1003	Falling	0.1	0.50-1.50	1.365	DRY
WS103	14/10/2013	0.3	0.3	0.0003	0.2	0.2	0.0002	20.6	1003	Falling	0.1	0.50-2.50	2.633	DRY
WS104	14/10/2013	0.3	0.3	0.0003	0.1	0.1	0.0001	20.7	1003	Falling	0.1	0.50-1.50	1.443	DRY
WS107	14/10/2013	0.3	0.3	0.0003	0.2	0.2	0.0002	20.5	1003	Falling	0.1	0.50-2.00	2.192	DRY
WS108	14/10/2013	0.3	0.3	0.0006	0.2	0.2	0.0004	20.5	1003	Falling	0.2	0.50-1.50	1.545	DRY

4.0 TIER 1 QUALITATIVE CONTAMINATED LAND RISK ASSESSMENT

REC has undertaken a Tier 1 qualitative risk assessment to determine if any potential contaminants within the underlying soils and groundwater pose an unacceptable level of risk to the identified receptors.

4.1 Human Health Risk Assessment

At a Tier 1 stage the long term (chronic) human health toxicity of the soil has been assessed by comparing the on-site concentrations of organic and inorganic compounds with reference values published by the EA (Contaminated Land Exposure Assessment (CLEA) Soil Guideline Values (SGV)) and where absent, Generic Assessment Criteria (GACs) published by LQM/CIEH (2nd edition).

The results of this comparison have been summarised within Table 4.1 (overleaf).

Table 4.1 Summary of Inorganic and Hydrocarbon Toxicity Assessment for a Commercial End Use

Determinand	Units	GAC ^{V3}	n	MC	Loc. of Ex	Pathway	Assessment
Arsenic	mg/kg	640	5	49	NA	1	No Further Action
Cadmium	mg/kg	230	5	<1	NA	1	No Further Action
Chromium (VI)	mg/kg	35	5	<1	NA	1	No Further Action
Lead ⁽ⁱⁱⁱ⁾	mg/kg	590	5	710	WS103 & WS107	1	Further Assessment
Mercury	mg/kg	410	5	1	NA	2	No Further Action
Nickel	mg/kg	1800	5	34	NA	1	No Further Action
Selenium	mg/kg	13000	5	<3	NA	1	No Further Action
Copper ⁽ⁱⁱ⁾	mg/kg	71700	5	140	NA	1	No Further Action
Zinc ⁽ⁱⁱ⁾	mg/kg	665000	5	320	NA	1	No Further Action
Cyanide - Total	mg/kg	16200	5	<1	NA	1	No Further Action
Phenols - Total.	mg/kg	1100000	5	<1	NA	1	No Further Action
Naphthalene	mg/kg	200	5	3.5	NA	2	No Further Action
Acenaphthylene	mg/kg	84000	5	0.07	NA	3	No Further Action
Acenaphthene	mg/kg	85000	5	12	NA	1	No Further Action
Fluorene	mg/kg	64000	5	8.6	NA	1	No Further Action
Phenanthrene	mg/kg	22000	5	49	NA	3	No Further Action
Anthracene	mg/kg	530000	5	14	NA	3	No Further Action
Fluoranthene	mg/kg	23000	5	58	NA	3	No Further Action
Pyrene	mg/kg	54000	5	50	NA	3	No Further Action
Benzo(a)Anthracene	mg/kg	90	5	28	NA	3	No Further Action
Chrysene	mg/kg	140	5	27	NA	3	No Further Action
Benzo(b/k)Fluoranthene ⁽ⁱ⁾	mg/kg	100	5	48	NA	3	No Further Action
Benzo(a)Pyrene	mg/kg	14	5	29	WS107	3	Further Assessment
Indeno(123-cd)Pyrene	mg/kg	60	5	15	NA	3	No Further Action
Dibenzo(a,h)Anthracene	mg/kg	13	5	4.1	NA	3	No Further Action
Benzo(ghi)Perylene	mg/kg	650	5	12	NA	3	No Further Action
TPH C ₅ -C ₆ (aliphatic)*	mg/kg	3400	5	<0.10	NA	2	No Further Action
TPH C ₆ -C ₈ (aliphatic)*	mg/kg	8300	5	<0.10	NA	2	No Further Action
TPH C ₈ -C ₁₀ (aliphatic)*	mg/kg	2100	5	<0.10	NA	2	No Further Action
TPH C ₁₀ -C ₁₂ (aliphatic)*	mg/kg	10000	5	<10	NA	2	No Further Action
TPH C ₁₂ -C ₁₆ (aromatic)*	mg/kg	36000	5	58	NA	1	No Further Action
TPH C ₁₆ -C ₂₁ (aromatic)*	mg/kg	28000	5	350	NA	1	No Further Action
TPH C ₂₁ -C ₃₅ (aromatic)*	mg/kg	28000	5	1600	NA	1	No Further Action

Notes

Main Exposure Pathways: 1 = Soil Ingestion, 2 = Vapour Inhalation (indoor), 3 = Dermal Contact & Ingestion, 4 = Dust Inhalation.

Abbreviations: GAC = General Assessment Criteria, n = number of samples, ME = Maximum Exceedance concentration; Loc of Ex = Location of Exceedances

* The Tier 1 GAC for the hydrocarbon fraction is derived from the CIEH assessment for petroleum hydrocarbons Criteria Working Group (CWG) for both aliphatic and aromatic compounds. REC has utilised the Tier 1 values for aliphatic compounds for the volatile and semi volatile fractions (C₅-C₁₂) and the Tier 1 values for aromatic compound for the non volatile fractions (C₁₂-C₃₅). The comparison of a total (aliphatic/aromatic) compounds to an individual fraction is considered to be a conservative approach and satisfactory for the protection of human health.

(i) Benzo (b) Fluoranthene (100mg/kg) Benzo (k) Fluoranthene (140mg/kg)

Referring to Table 4.1, the results of the direct comparison show that screening values have been exceeded for the following determinands:

- Lead (WS103 – 1.20 bgl and WS107 0.40m bgl); and,
- Benzo(a)Pyrene. (WS103 – 1.20m bgl)

It can be seen from the distribution of the results that the elevated concentrations were not widespread. The elevated concentrations were recorded in two discrete areas and therefore are considered to represent two hotspots; WS103 and WS107.

In the case of lead and Benzo(a)Pyrene the exposure pathway is dermal contact and ingestion. Due to the nature of the development the pathway will be broken as the proposed hotel will cover the entire area of the site thus capping the identified elevated determinands; however careful consideration should be taken during the design of the piles proposed to support the structure to prevent a pathway into the underlying Principal Aquifer.

Due to the type of construction it is likely that the circa 4.0m of Made Ground will be removed and processed prior to the construction phase. If the material is removed from site all construction workers should be appropriately inducted to ensure that the correct PPE is used to mitigate the potential risks.

If a screening process is completed on site during the enabling a Materials Management Plan will need to be undertaken for the site. The Materials Management Plan (MMP) is a document designed in accordance with the Development Industry Code of Practice (COP) "The Definition of Waste", published by Contaminated Land: Application in Real Environments (CL:AIRE). The COP relates to the re-use of chemically and geotechnically suitable materials where a definitive need has been established as part of the development process.

Asbestos was not identified in any of the soil samples submitted for screening analysis.

4.2 Controlled Waters

The site has been shown to be directly underlain by impermeable glacial boulder clay which would negate the migration of any contamination into the underlying Principal Aquifer (Sherwood Sandstone). Therefore, it is considered that the Aquifer would be at a **low** risk from any on-site contamination. A Tier I risk assessment has been undertaken with concentrations of determinands compared with the relevant thresholds. These are presented in Table 4.2.

Table 4.2 Comparison of Groundwater Analysis with Tier 1 Screening Levels

Determinand	Units	EQS ^(V1)	Drinking Water Threshold	n	MC	No of Ex	Loc of Ex	Assessment
Inorganics								
Arsenic	µg/l	50	10	3	2.4	NA	NA	No Further Action
Cadmium	µg/l	5	5	3	0.03	NA	NA	No Further Action
Chromium	µg/l	2	50	3	2	NA	NA	No Further Action
Copper	µg/l	5	2000	3	26	NA	NA	No Further Action
Cyanide	µg/l	-	50	3	<50	NA	NA	No Further Action
Lead	µg/l	4	10	3	2.7	NA	NA	No Further Action
Mercury	µg/l	1	1	3	<0.05	NA	NA	No Further Action
Nickel	µg/l	8	20	3	3	NA	NA	No Further Action
Selenium	µg/l	-	10	3	1.0	NA	NA	No Further Action
Sulphate	mg/l	400	250	3	68	NA	NA	No Further Action
Zinc	µg/l	30	5000	3	15	NA	NA	No Further Action
pH	-	6-9	-	3	8.9	NA	NA	No Further Action
Organics								
PAH (total)	µg/l	-	0.1	3	0.36	3	WS101, 103 & 104	Further Assessment
Napthalene	µg/l	10	-	3	0.05	NA	N/A	No Further Action
Benzo(a)pyrene	µg/l	0.05	0.01	3	0.01	1	WS104	Further Assessment
benzo[b/k]fluoranthene	µg/l	0.03	-	3	0.03	1	WS103	Further Assessment
benzo[g,h,i]perylene&indeno(1,2,3-cd)pyrene	µg/l	0.02	-	3	0.03	1	WS103	Further Assessment
TPH C5-C6	µg/l	-	10	3	<10	NA	NA	No Further Action
TPH C6-C8	µg/l	-	10	3	<10	NA	NA	No Further Action
TPH C8-C10 DW	µg/l	-	10	3	<10	NA	NA	No Further Action
TPH C10-C12 DW	µg/l	-	10	3	<10	NA	NA	No Further Action
TPH C12-C16 DW	µg/l	-	10	3	<10	NA	NA	No Further Action
TPH C16-C21 DW	µg/l	-	10	3	<10	NA	NA	No Further Action
TPH C21-C35	µg/l	-	10	3	<10	NA	NA	No Further Action

Referring to Table 4.2 above, the results of this direct comparison indicates that marginal exceedances of benzo(b/k)fluoranthene and Indeno(1,2,3-cd)pyrene were recorded in the leachate sample from WS103 when compared to Environmental Quality Standards. A slight exceedance of PAH (total) was recorded in WS101, WS103 and WS104 when compared to the drinking water threshold. Exceedances of Benzo(a)pyrene (WS104) and benzo[b/k]fluoranthene (WS103) were detected. The marginal exceedances are likely to be a result of the extraction methodology used during the analytical stages. Leachate analysis will provide an exaggerated level of determinants. It is therefore in REC's opinion that the site posed no unacceptable risk to controlled waters.

4.3 Ground Gas

The potential impact on the development from ground gases has been assessed with reference to standards and guidelines published in CIRIA Report 665 (*Assessing risks posed by hazardous ground gases to buildings*, 2007). However, it is recommended that the full ground gas assessment and recommended protection measures are agreed with the local authority prior to their adoption on-site. Furthermore, all protection measures adopted should be validated by a suitably qualified engineer.

The Phase I report and subsequent ground investigation has identified the following potential sources of ground gas:

- Made Ground across the site from historical developments and demolition of former buildings.

During the monitoring visits completed to date, no significantly elevated concentrations of methane were recorded within any of the probeholes. A maximum concentration of 0.20%v/v of carbon dioxide was recorded in all of the monitoring installations, this was also associated with low flow rates of less than 0.1litres/hr.

To date monitoring was undertaken during periods with high atmospheric pressure of more than 1000mb. It is proposed to collect point sampling data in periods of low (preferably falling) atmospheric pressure during future monitoring visits.

In accordance with the methodology outlined with the CIRIA publication C665, REC have utilised the results of the ground gas monitoring surveys to calculate a tentative Gas Screening Value (GSV). The maximum GSV calculated for methane was 0.0004l/hr and for carbon dioxide was 0.0006l/hr (WS108).

The GSV has been compared to the criteria outlined with CIRIA C665 to determine the level of risk to the proposed development and to ensure the appropriate remedial options are incorporated into any future building design in this area.

CIRIA C665 states that the maximum GSV for carbon dioxide and methane is <0.07 l/hr for Characteristic Situation 1 and therefore the site would fall into this bracket.

This is an interim assessment based on preliminary ground gas readings, the final classification will be supplied as an addendum to this report on completion of the remaining monitoring visits.

4.4 Conceptual Model

Following the completion of the intrusive site investigation, chemical analysis and risk assessment the conceptual model shown in Table 4.3 has been prepared for the site.

Table 4.3 Conceptual Model

Source	Exposure Pathway	Potential Receptor	Probability of Exposure	Discussion of Pollutant Linkage
Human Health				
Lead	Ingestion	Future site users	Low	The site will be completely covered by hard standing, thus removing the pathway;
		Construction workers	Low	Appropriate PPE and health and safety procedures will be implemented during the construction works to ensure there is no unacceptable risk to the construction workers.
Benzo(a)Pyrene.	Ingestion and dermal	Future site users	Low	The site will be completely covered by hard standing, thus removing the pathway;
		Construction workers	Low	Appropriate PPE and health and safety procedures will be implemented during the construction works to ensure there is no unacceptable risk to the construction workers.
Controlled Water				
REC does not consider that the elevated PAH's and metals within the soils will pose an unacceptable risk to the controlled water receptors.				

5.0 GEOTECHNICAL ASSESSMENT

5.1 Proposed Development

It is understood that the proposed development will comprise a 19 storey hotel; with associated infrastructure. It is understood that the proposed loadings are 3000kN/m². As a part of the development, the listed building adjacent to the proposed location of the high rise building will be refurbished and become associated with the hotel.

Given the nature of the proposed development it is considered that the structure meets the criteria of Geotechnical Category 1 of Euro Code 7.

5.2 Summary of Ground Conditions

Ground conditions identified at the site are summarised in Table 5.1 below:

Table 5.1 Summary of Ground Conditions

Strata	Typical Description	Min Depth to Top of Strata (m)	Max Depth to Top of Strata (m)	Max Thickness (m)
Made Ground	Asphalt	0.00	0.00	0.20
Made Ground	Concrete	0.00	2.80	>0.26
Made Ground	Loose fine to medium dark brown/black gravelly sand with cobbles. Gravel is fine to coarse angular to sub-angular of brick, concrete, ash, clinker, metal and wood. Cobbles are angular to sub-angular of brick and concrete.	0.15	0.15	4.00
Made Ground	Very loose to medium dense brown/orange sandy gravel. Gravel is fine to coarse angular to sub-angular of brick, concrete, sandstone and coal.	0.06	0.08	3.17
Gravelly CLAY	High strength very stiff brown gravelly CLAY. Gravel is fine to medium angular to sub-rounded of coal, sandstone and mudstone.	3.00	3.00	1.00
Sandy gravelly CLAY	High strength very stiff brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium sub-angular to sub-rounded of sandstone and coal.	3.25	3.25	3.10
CLAY	Brown CLAY/MARL	3.00	4.00	19.20
Weathered SANDSTONE	Weathered orange brown SANDSTONE	22.2	22.2	5.00
SANDSTONE	Orange Brown SANDSTONE	27.2	28.00	>4.3

5.3 Site Preparation

The site should be cleared and any vegetation below areas of proposed development stripped in accordance with Series 200 of the Specification for Highway Works. This should include:

- Redundant services should be sealed off and grubbed out and replaced with suitable compacted engineered fill; and,
- Buried structures and old foundations have been encountered on site. These should be excavated from below the proposed development foot print with the resulting void backfilled.

5.4 Foundation Conditions and Bearing Capacity

General

It is considered that the Made Ground and Clays are not suitable for a founding material due to the loadings that are required for the complex construction. The proposed hotel will therefore be subject to a piled foundation solution.

Pile design should be undertaken by a specialist contractor to allow them to reduce the factor of safety based on their extensive pile testing data.

Obstructions were encountered within the Made Ground comprising large concrete cobbles, metal obstructions and timber. As previously mentioned a concrete slab was encountered at circa 2.50m bgl across the majority of the existing car parking area.

Weathered weak sandstone was encountered within the two deep rotary boreholes at 22.20m bgl. Competent drilling was identified at circa 27.50m bgl. Due to the lack of recovery from the core barrel, it is recommended that the piles are socketed a minimum 3.00m into the competent sandstone.

5.5 Ground Floor Slabs

Due to the presence of substantial thickness' of Made Ground across the site is considered that ground bearing floor slabs, whilst viable, will require detailed design to accommodate variability of the formation and account for differential settlement.

As piles are to be used, this could be extended to the floor slab to improve formation conditions and reduce the risk of damage from settlement. However, it may be more reliable to opt for suspended floor slabs.

Where suspended floor slabs are employed ventilation of the under floor void will be required to address condensation issues. This would also assist in the mitigation of potential gas ingress issues.

5.6 Drainage

The presence of substantial depths of Made Ground across the site may result in settlement. It is therefore recommended that drain runs are designed using steeper gradients and flexible joints to allow for some differential settlement.

5.7 Concrete Durability

Based upon the results of the chemical analyses summarised in Table 3.3 it is considered that subsurface concrete can be designed in accordance with Design Sulphate Class DS-1, Aggressive Chemical Environment for Concrete Classification (ACEC) AC-1s in accordance with the recommendations provided in BRE Special Digest 1 (2005).

Elevated sulphate concentrations meeting Class DS-2 were noted in WS103 within the Made Ground deposits at 1.20mbgl. This is considered to be due to the high brick content identified within the fine gravels in this area.

5.8 Excavations

Site observations indicated that excavations should be feasible in the near surface with normal plant, however obstructions were identified in the near surface including former foundations and former floor slabs. It is anticipated that any obstructions will be grubbed out during the reduced level dig for the sub structure works.

Due to the variability of the Made Ground it is considered that all excavations are supported or battered back in accordance with guidance contained in CIRIA R97. A single groundwater seepage was noted in WS101 at 2.80m bgl, however, this was minor and it considered that conventional sump pumping should be adequate after periods of heavy rain.

5.9 Re-Use of Materials

Consideration has been given to the potential re-use of site won arisings from substructure works as an engineered fill. The soils have been assessed using the following:

- Physical description of the soils encountered (variability and organic content);
- Guidance given in HA44/91;

Based on this it is considered that soils are suitable for re-use as a general engineered fill in accordance with Class 2A of the Specification for Highway Works.

5.10 Minerals

The site is located in an area which was historically mined for coal; however, the site is underlain by a substantial layer of sandstone (Sherwood sandstone Group) and it is expected that any mine workings would be at depth beneath the site posing an insignificant risk of subsidence.

5.11 Further Works

The following additional works may be required:

- REC engineer to inspect the ground conditions beneath the existing buildings post-demolition of the rear elevation of the bank;
- Enabling works for removal of relict foundations; and,
- Preparation of a Material Management Plan (MMP) regarding the safe and legally compliant re-use of site won materials; and,

Materials Management Plan (MMP)

The Materials Management Plan (MMP) is a document designed in accordance with the Development Industry Code of Practice (COP) "The Definition of Waste", published by Contaminated Land: Application in Real Environments (CL:AIRE). The COP relates to the re-use of chemically and geotechnically suitable materials where a definitive need has been established as part of the development process.

5.12 Construction Activity and Inspection

The following activities and inspections should be incorporated in to the site works:

- Excavations where access is required should be subject to a risk assessment from a competent person and where appropriate mitigation measures such as benching back the sides or use of support systems in accordance with CIRIA R97 utilised;

- It is considered that de-watering may be required, especially following periods of heavy rainfall. Removal of surface water and water within trenches should be possible with conventional sump pumping. Discharge of any water should be agreed with the relevant regulatory body and be undertaken under a trade effluent discharge, where required;
- Where access to confined spaces is required appropriate mitigation measures should be addressed within the Construction Stage Health and Safety Plan. Particular account should be taken of the gas results;
- The presence of potential contamination and mitigation measures should be addressed as part of the Construction Stage Health and Safety Plan and should include measures to design out the risks, reduce their impact and finally the use of Personnel Protective Equipment (PPE).

6.0 CONCLUSIONS & RECOMMENDATIONS

Geotechnical Assessment

The proposed hotel will therefore be subject to a piled foundation solution.

Pile design should be undertaken by a specialist contractor to allow them to reduce the factor of safety based on their extensive pile testing data.

Obstructions were encountered within the Made Ground comprising large concrete cobbles, metal obstructions and timber. As previously mentioned a concrete slab was encountered at circa 2.50m bgl across the majority of the existing car parking area.

Weathered weak sandstone was encountered within the two deep rotary boreholes at 22.20m bgl. Competent drilling was identified at circa 27.50m bgl. Due to the lack of recovery from the core barrel, it is recommended that the piles are socketed a minimum 3.00m into the competent sandstone.

Revised Conceptual Site Model

In the case of lead and Benzo(a)Pyrene the exposure pathway is dermal contact and ingestion. Due to the nature of the development the pathway will be broken as the proposed hotel will cover the entire area of the site thus capping the identified elevated determinants; however careful consideration should be taken during the design of the piles proposed to support the structure to prevent a pathway into the underlying Principal Aquifer.

It is in REC's opinion that the site posed no unacceptable risk to controlled waters. The marginal exceedances are likely to be a result of the extraction methodology used during the analytical stages. Leachate analysis will provide an exaggerated level of determinants.

The ground gas assessment indicates a low risk to future site users.

Recommendations

It is recommended that a Materials Management Plan (MMP) be developed to ensure a development led solution that ensures this material is retained on-site or exported to a donor site through the CL:AIRE Protocol.

Due to the strength and thickness of the concrete slab in the basement area of the former bank building it is recommended that concrete cores are advanced using an electric rig to obtain information on the existing floor construction.

END OF REPORT

**APPENDIX I
LIMITATIONS**

APPENDIX I LIMITATIONS

1. This report and its findings should be considered in relation to the terms of reference and objectives agreed between REC Ltd and the Client as indicated in Section 1.2.
 2. For the work, reliance has been placed on publicly available data obtained from the sources identified. The information is not necessarily exhaustive and further information relevant to the site may be available from other sources. When using the information it has been assumed it is correct. No attempt has been made to verify the information.
 3. This report has been produced in accordance with current UK policy and legislative requirements for land and groundwater contamination which are enforced by the local authority and the Environment Agency. Liabilities associated with land contamination are complex and requires advice from legal professionals.
 4. During the site walkover reasonable effort has been made to obtain an overview of the site conditions. However, during the site walkover no attempt has been made to enter areas of the site that are unsafe or present a risk to health and safety, are locked, barricaded, overgrown, or the location of the area has not been made known or accessible.
 5. Access considerations, the presence of services and the activities being carried out on the site limited the locations where sampling locations could be installed and the techniques that could be used.
 6. In addition to the above REC Ltd note that when investigating, or developing, potentially contaminated land it is important to recognise that sub-surface conditions may vary spatially and also with time. The absence of certain ground, ground gas, and contamination or groundwater conditions at the positions tested is not a guarantee that such conditions do not exist anywhere across the site. Due to the presence of existing buildings and structures access could not be obtained to all areas. Additional contamination may be identified following the removal of the buildings or hard standing.
 7. Site sensitivity assessments have been made based on available information at the time of writing and are ultimately for the decision of the regulatory authorities.
 8. Where mention has been made to the identification of Japanese Knotweed and other invasive plant species and asbestos or asbestos-containing materials this is for indicative purposes only and do not constitute or replace full and proper surveys.
 9. The executive summary, conclusions and recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon without considering the context of the report in full.
 10. This report presents an interpretation of the geotechnical information established by excavation, observation and testing. Whilst every effort is made in interpretative reporting to assess the soil conditions over the Site it should be noted that natural strata vary from point to point and that man made deposits are subject to an even greater diversity. Groundwater conditions are dependent on seasonal and other factors. Consequently there may be conditions present not revealed by this investigation.
 11. REC can not be held responsible for any use of the report or its contents for any purpose other than that for which it was prepared. The copyright in this report and other plans and documents prepared by REC is owned by them and no such plans or documents may be reproduced, published or adapted without written consent. Complete copies of this may, however, be made and distributed by the client as is expected in dealing with matters related to its commission. Should the client pass copies of the report to other parties for information, the whole report should be copied, but no professional liability or warranties shall be extended to other parties by REC in this connection without their explicit written agreement there to by REC.
 12. Rather, this investigation has been undertaken to provide a preliminary characterisation of the existing sub-surface geotechnical characteristics and make up and the findings of this study are our best interpretation of the data collected, within the scope of work and agreed budget. New information, revised practices or changes in legislation may necessitate the re-interpretation of the report, in whole or in part.
 13. This investigation has been undertaken to reasonably characterise existing sub-surface conditions and the findings of this study are our best interpretation of the data collected, within the scope of work and agreed budget. New information, revised practices or changes in legislation may necessitate the re-interpretation of the report, in whole or in part.
-

APPENDIX II
GLOSSARY

TERMS

AST	Above Ground Storage Tank
BGS	British Geological Survey
BSI	British Standards Institute
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CIEH	Chartered Institute of Environmental Health
CIRIA	Construction Industry Research Association
CLEA	Contaminated Land Exposure Assessment
CSM	Conceptual Site Model
DNAPL	Dense Non-Aqueous Phase Liquid (chlorinated solvents, PCB)
DWS	Drinking Water Standard
EA	Environment Agency
EQS	Environmental Quality Standard
GAC	General Assessment Criteria
GL	Ground Level
GSV	Gas Screening Value
HCV	Health Criteria Value
ICSM	Initial Conceptual Site Model
LNAPL	Light Non-Aqueous Phase Liquid (petrol, diesel, kerosene)
ND	Not Detected
LMRL	Lower Method Reporting Limit
NR	Not Recorded
PAH	Poly Aromatic Hydrocarbon
PCB	Poly-Chlorinated Biphenyl
PID	Photo Ionisation Detector
QA	Quality Assurance
SGV	Soil Guideline Value
SPH	Separate Phase Hydrocarbon
Sp.TPH (CWG)	Total Petroleum Hydrocarbon (Criteria Working Group)
SPT	Standard Penetration Test
SVOC	Semi Volatile Organic Compound
UST	Underground Storage Tank
VCCs	Vibro Concrete Columns
VOC	Volatile Organic Compound
WTE	Water Table Elevation

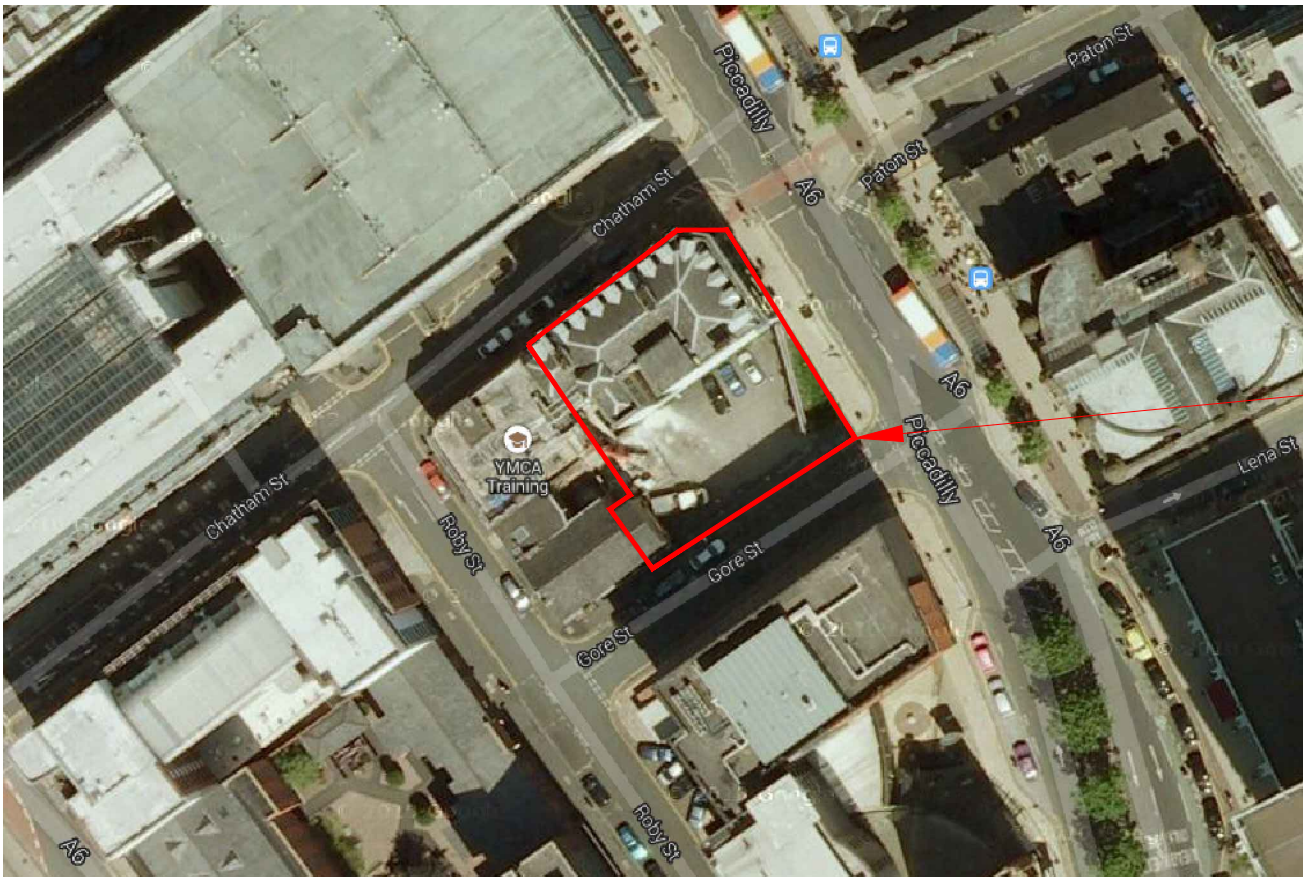
UNITS

m	Metres
km	Kilometres
%	Percent
%v/v	Percent volume in air
mb	Milli Bars (atmospheric pressure)
l/hr	Litres per hour
µg/l	Micrograms per Litre (parts per billion)
ppb	Parts Per Billion
mg/kg	Milligrams per kilogram (parts per million)
ppm	Parts Per Million

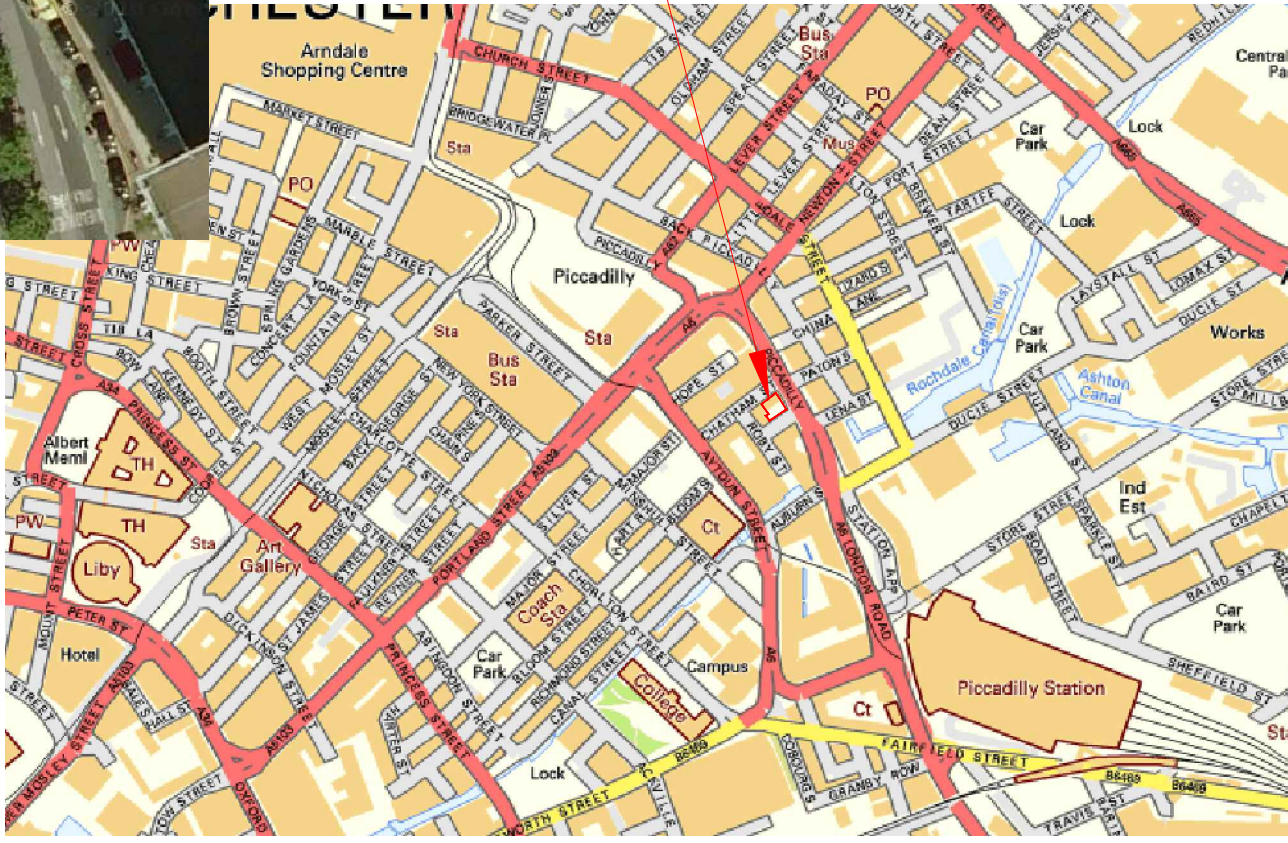


mg/m ³	Milligram per metre cubed
m bgl	Metres Below Ground Level
m bcl	Metre Below Cover Level
mAOD	Metres Above Ordnance Datum (sea level)
kN/m ²	Kilo Newtons per metre squared
µm	Micro metre

APPENDIX III
FIGURES



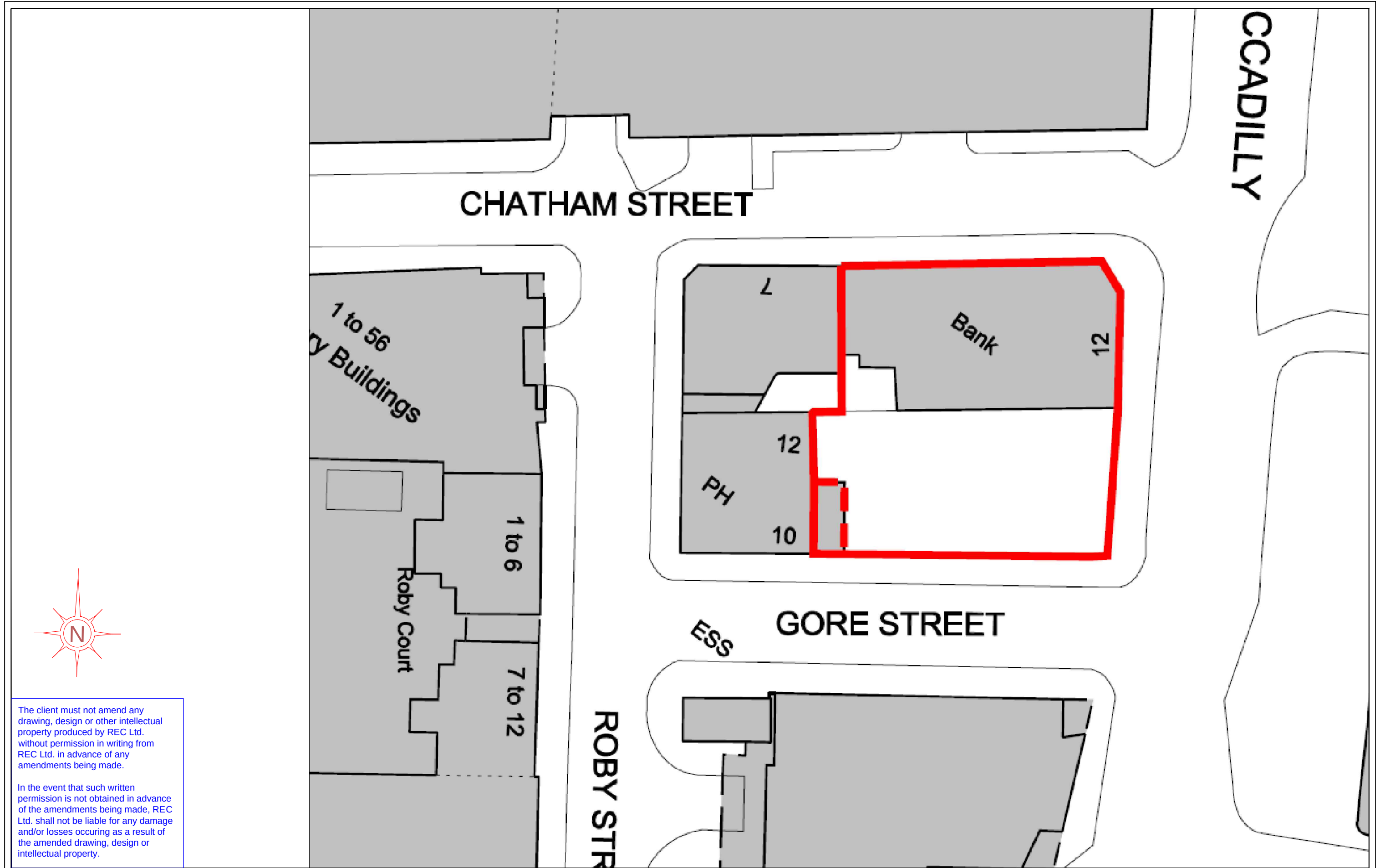
Site Location



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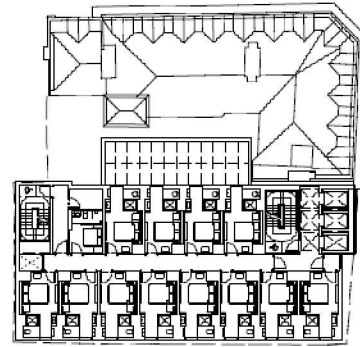
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 Resource & Environmental Consultants Ltd Osprey House, Pacific Quay Manchester, M50 2UE Tel: 0161 868 1300 Fax: 0161 868 1301 E-mail: sales@rec ltd.co.uk Website: www.rec ltd.co.uk	Job Title: Yotel, Piccadilly, Manchester	Client: Russells Construction	Job No: 44934	Notes:	Drawing Title: 44934p1r0-001 Site Location Plan
			Drawn by: R. Willoughby		
			Approved by: M. Dyer		
			Scale: Not To Scale		

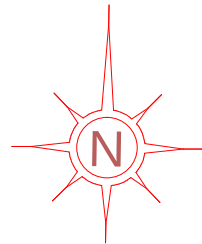
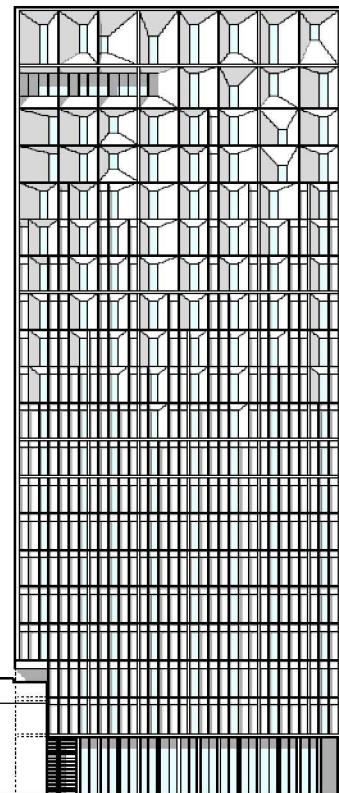


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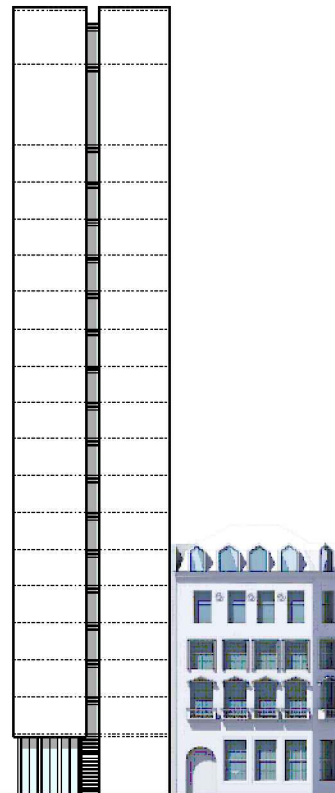
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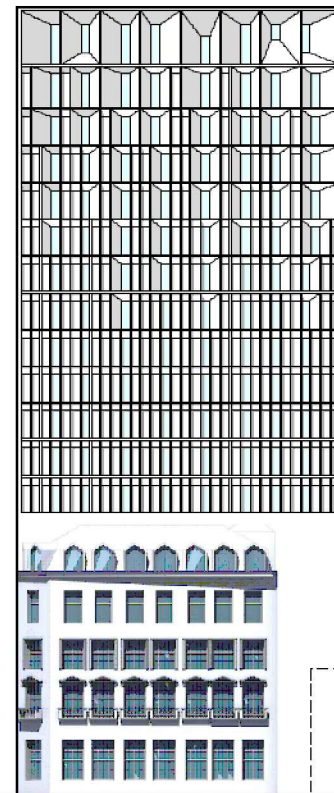
proposed typical upper floor plan



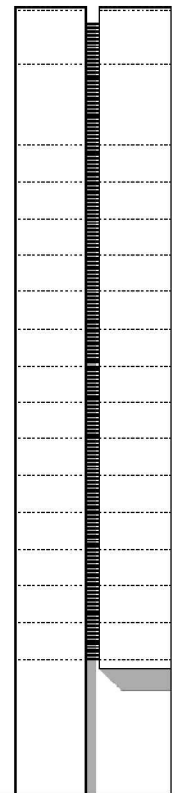
proposed south-east elevation



proposed north-east elevation



proposed north-west elevation



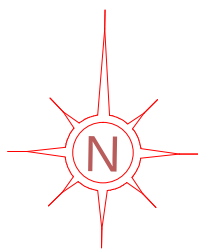
proposed south-west elevation

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Key

- Added approximately 1922
- Demolished approximately 1922
- Added approximately 1931
- Demolished approximately 1931
- Added approximately 1948
- Demolished approximately 1948
- Demolished circa 1986



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Job Title:

Yotel, Piccadilly,
Manchester

Client:

Russells
Construction

Job No: 44934

Drawn by: R. Willoughby

Approved by: M. Dyer

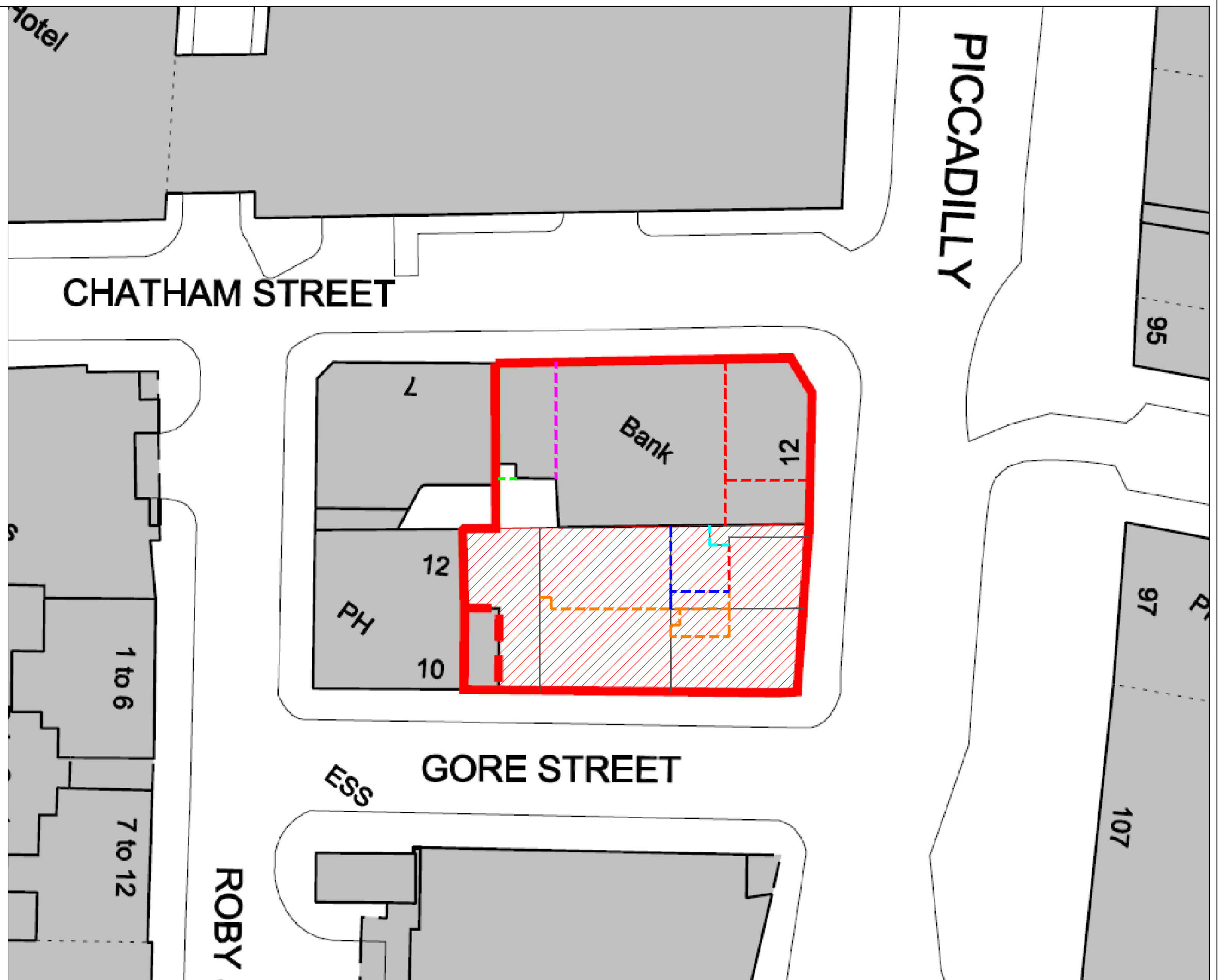
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15-07-13

Notes:

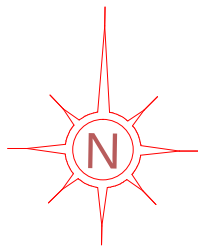
Drawing Title:

44934p1r0-004
Historical Features
Plan



Key

- WS101 Approximate Window Sample
Probehole Location
- FP101 Approximate Foundation
Pit Location
- FP101(ND) Approximate Foundation
Pit Location (Not Done)
- RB101 Approximate Rotary Borehole
Location



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Manchester

Client:

Job No: 44934

Drawn by: R. Willoughby

Approved by: M. Dyer

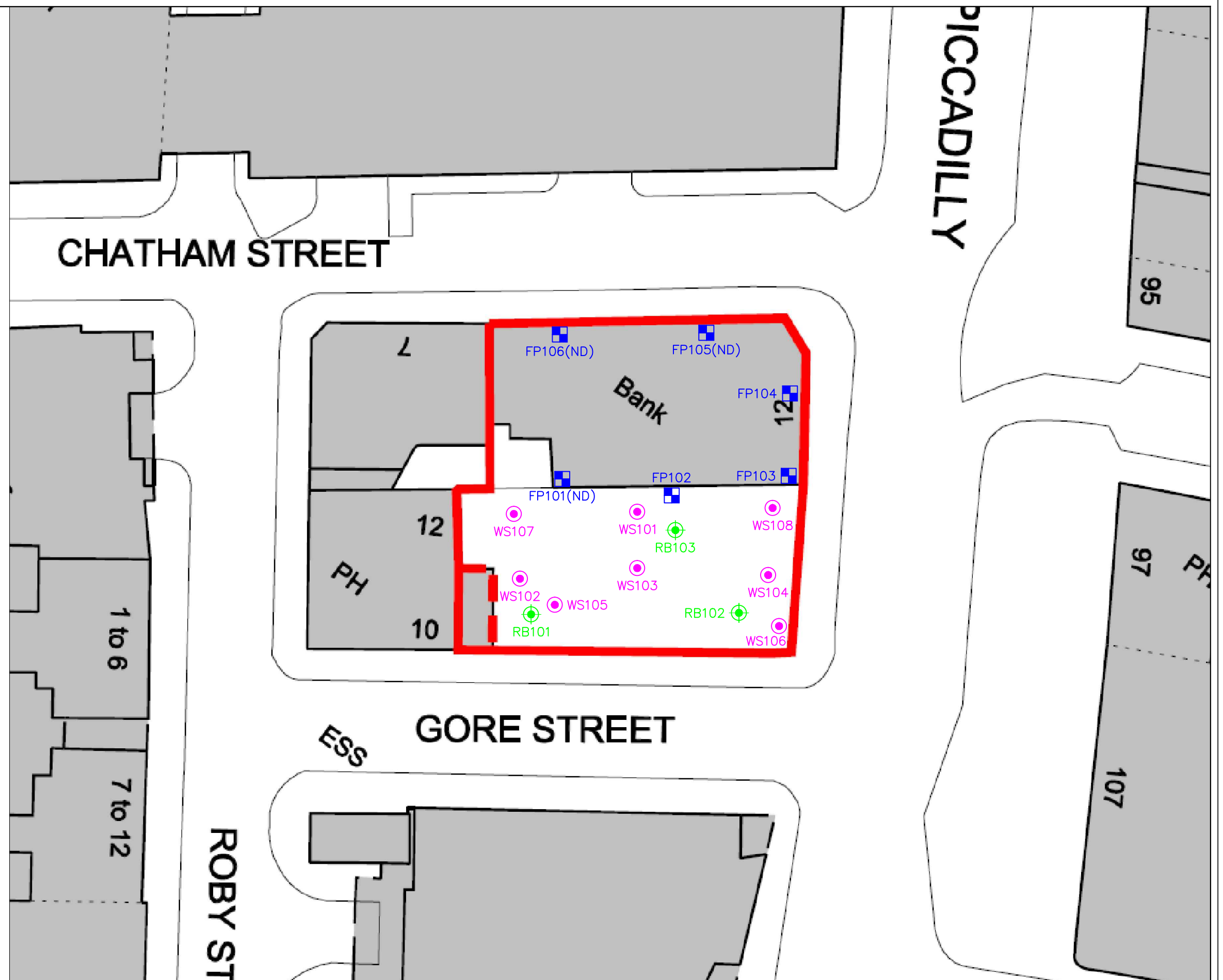
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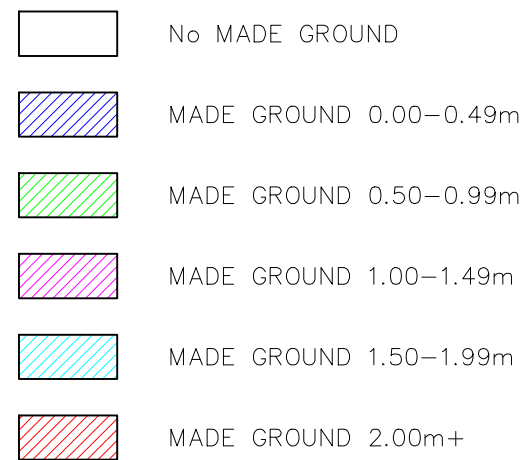
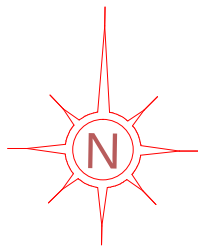
Notes:

Drawing Title:

44934p1r0-005
Exploratory Hole
Location Plan



Key



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Manchester

Client:

Russells
Construction

Job No: 44934

Drawn by: R. Willoughby

Approved by: M. Dyer

Scale: Not To Scale

DATE:
04-10-13

Notes:

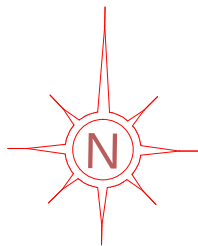
Drawing Title:

44934p1r0-006
Depth of Made
Ground Plan



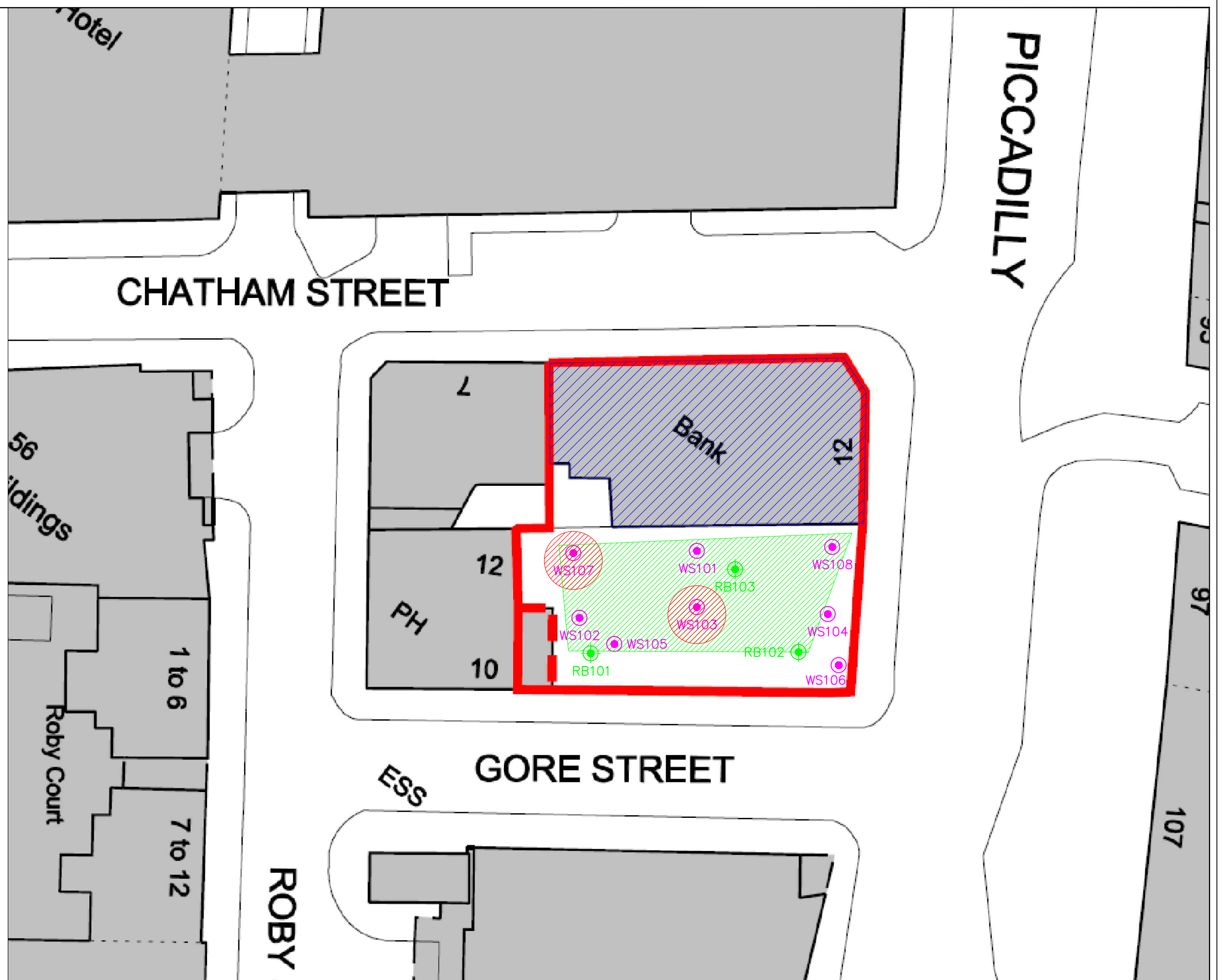
Key

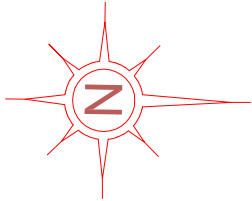
- Unable to penetrate concrete slab due to thickness & Strength
- Concrete Slab, Possible basement floor identified
- Elevated Lead Concentrations Identified



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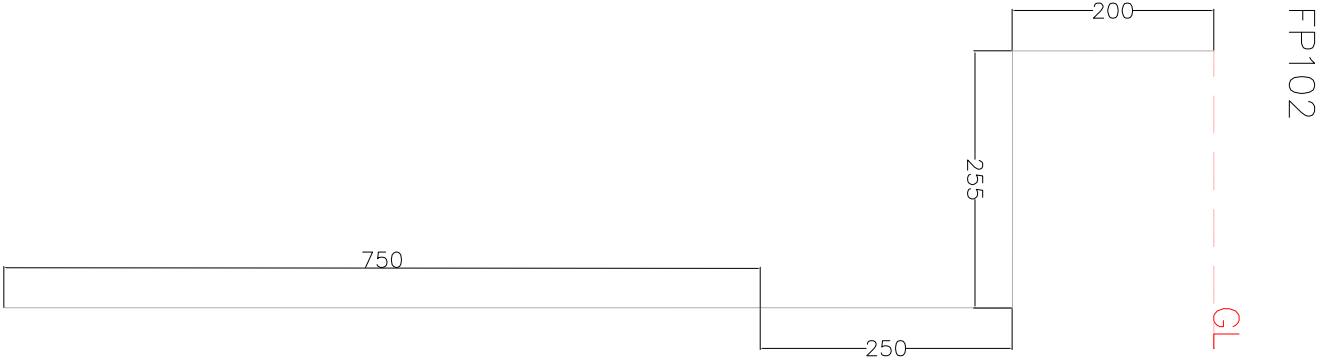
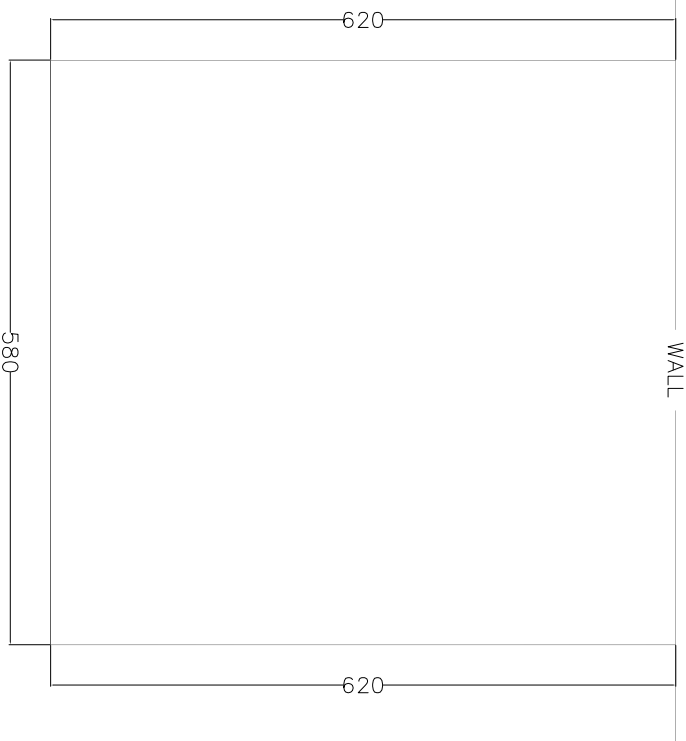
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FP102

0.00 – 0.20m: Tarmac (MADE GROUND)
0.20 – 1.20m: Fine to medium black, gravelly sand with cobbles. Gravel is fine to coarse, angular to sub-angular of brick, concrete, ash, clinker, metal, glass & plastic. Cobbles are angular to sub-angular of brick.



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Website: www.recld.co.uk

Job Title:

Yotel
Piccadilly, Manchester

Client:



Job No: 44934

14-10-13

Drawn By: K. Doolan

Approved By: M. Dyer

Scale: 1:7.5 @ A3

Notes:

Drawing Title:

44934p1r0-008
Foundation Pit Detail
(FP102)

APPENDIX IV
PHOTOGRPAHS

APPENDIX IV PHOTOGRAPHS

PLATE 1 – CAR PARK AREA TO REAR OF ON-SITE BUILDING (EASTERN SIDE)



PLATE 2 – CAR PARK TO REAR OF ON-SITE BUILDING (WESTERN SIDE)



PLATE 3 – FP103



PLATE 4 – FP103



APPENDIX V
REC EXPLORATORY LOGS

Trial Pit Record

Trial Pit Number: FP102

Project Number: 44934

Contract Name: Yotel, Gore Street

Client: Russells Construction

Engineer: M. Jakuc

Date Started: 26/09/2013

Date Completed: 26/09/2013

Elevation AOD (m): N/A

Co-ordinates: N/A

Excavation Method: Hand excavated



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SUBSURFACE PROFILE

SAMPLES AND IN-SITU TESTING

Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	Water Level (mbgl)	P.I.D (ppm)					Field / Laboratory Testing
							0	25	50	75	100	
		MADE GROUND: Asphalt.	0.20									
1.0		MADE GROUND: Fine to medium black gravelly sand with cobbles. Gravel is fine to coarse angular to sub-angular of brick, concrete, ash, metal, glass and plastic. Cobbles are angular to sub-angular of brick.	1.20	ES	0.50							
2.0		Complete at 1.20m bgl.										
3.0												
4.0												
5.0												
6.0												

Key

B. Bulk (Bag)

W. Water

U100. 100mm Undisturbed

U38. 38mm Undisturbed Sample

SPT. Standard Penetration Test

D. Disturbed

G. Amber Glass Jar / Bottle

CPT. Cone Penetration Test

U100. Blows (Recovery mm)

V. 40ml Glass Vial

T. Plastic Tub

N. 'N' Value

HV. Hand Shear Vane

PID. Photo Ionisation Detector

ES. Environmental Sample

Notes

Dimensions: 400 x 400 x 1200

Services: Prior to excavation the trial pit location was scanned with a Cable Avoidance Tool (CAT).

Stability: Stable

Groundwater: None encountered

Date: 07/10/2013

Status: Final

Trial Pit Record

Trial Pit Number: FP103

Project Number: 44934

Contract Name: Yotel, Gore Street

Client: Russells Construction

Engineer: M. Jakuc

Date Started: 26/09/2013

Date Completed: 26/09/2013

Elevation AOD (m): N/A

Co-ordinates: N/A

Excavation Method: Hand excavated



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SUBSURFACE PROFILE

SAMPLES AND IN-SITU TESTING

Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	Water Level (mbgl)	P.I.D (ppm)					Field / Laboratory Testing
							0	25	50	75	100	
		MADE GROUND: Re-inforced concrete.	0.26									
1.0		Terminated at 0.26m bgl due to refusal.										
2.0												
3.0												
4.0												
5.0												
6.0												

Key

B. Bulk (Bag)

W. Water

U100. 100mm Undisturbed

U38. 38mm Undisturbed Sample

SPT. Standard Penetration Test

D. Disturbed

G. Amber Glass Jar / Bottle

CPT. Cone Penetration Test

U100. Blows (Recovery mm)

V. 40ml Glass Vial

T. Plastic Tub

N. 'N' Value

HV. Hand Shear Vane

PID. Photo Ionisation Detector

ES. Environmental Sample

Notes

Dimensions: 450 x 400 x 260

Services: Prior to excavation the trial pit location was scanned with a Cable Avoidance Tool (CAT).

Stability: Stable

Groundwater: None encountered

Date: 07/10/2013

Status: Final

Trial Pit Record

Trial Pit Number: FP104

Project Number: 44934

Contract Name: Yotel, Gore Street

Client: Russells Construction

Engineer: M. Jakuc

Date Started: 26/09/2013

Date Completed: 26/09/2013

Elevation AOD (m): N/A

Co-ordinates: N/A

Excavation Method: Hand excavated



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SUBSURFACE PROFILE

SAMPLES AND IN-SITU TESTING

Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	Water Level (mbgl)	P.I.D (ppm)					Field / Laboratory Testing
							0	25	50	75	100	
		MADE GROUND: Re-inforced concrete.	0.12									
1.0		Terminated at 0.12m bgl due to refusal.										
2.0												
3.0												
4.0												
5.0												
6.0												

Key

B. Bulk (Bag)

W. Water

U100. 100mm Undisturbed

U38. 38mm Undisturbed Sample

SPT. Standard Penetration Test

D. Disturbed

G. Amber Glass Jar / Bottle

CPT. Cone Penetration Test

U100. Blows (Recovery mm)

V. 40ml Glass Vial

T. Plastic Tub

N. 'N' Value

HV. Hand Shear Vane

PID. Photo Ionisation Detector

ES. Environmental Sample

Notes

Dimensions: 300 x 400 x 1200

Services: Prior to excavation the trial pit location was scanned with a Cable Avoidance Tool (CAT).

Stability: Stable

Groundwater: None encountered

Date: 07/10/2013

Status: Final

Borehole Record - Open Hole Log

Borehole Number: RB101

Project Number: 44934

Contract Name: Yotel, Gore Street

Client: Russells Construction

Engineer: M. Jakuc

Date Started: 26/09/2013

Date Completed: 26/09/2013

Elevation AOD (m): N/A

Co-ordinates: N/A

Drilling Equipment: Klemm Rig



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Depth (mbgl)	Legend	Description of Strata	Depth of Strata (mbgl)	Field Notes / Insitu Testing / Sampling	Groundwater	Monitoring Installation / Backfill
1.0		MADE GROUND: Fine to medium dark brown/black gravelly sand with cobbles. Gravel is fine to coarse angular to sub-angular of brick, concrete and ash. Cobbles are angular to sub-angular of brick and concrete.				
2.0						
3.0						
4.0			4.0			
5.0		Brown gravelly CLAY.				
6.0						
7.0						
8.0						
9.0			9.0			
9.0		SANDSTONE.				
10.0		Core 9.00-10.50 m bgl 100% recovery				

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed
SPT. Standard Penetration Test

D. Disturbed
G. Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial

T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
1. Driller's Description

Notes

Chiselling: N/A
Services: Prior to drilling the borehole location was scanned with a Cable Avoidance Tool (C.A.T).
Addition of water: None added
Casing diameter: 152mm

Date: 07/10/2013

Status: Final

Borehole Record - Open Hole Log

Borehole Number: RB101

Project Number: 44934

Contract Name: Yotel, Gore Street

Client: Russells Construction

Engineer: M. Jakuc

Date Started: 26/09/2013

Date Completed: 26/09/2013

Elevation AOD (m): N/A

Co-ordinates: N/A

Drilling Equipment: Klemm Rig



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Depth (mbgl)	Legend	Description of Strata	Depth of Strata (mbgl)	Field Notes / Insitu Testing / Sampling	Groundwater	Monitoring Installation / Backfill
		Brown gravelly CLAY.				
			10.5			
11.0		SANDSTONE.				
		Core 10.50-12.00 100% recovery				
		Brown gravelly CLAY.				
12.0						
13.0						
14.0						
15.0						
16.0						
17.0						
18.0			18.0			
		Complete at 18.00m bgl.				
19.0						
20.0						

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed
SPT. Standard Penetration Test

D. Disturbed
G. Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial

T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
1. Driller's Description

Notes

Chiselling: N/A
Services: Prior to drilling the borehole location was scanned with a Cable Avoidance Tool (C.A.T).
Addition of water: None added
Casing diameter: 152mm

Date: 07/10/2013

Status: Final

Borehole Record - Open Hole Log

Borehole Number: RB101

Project Number: 44934

Contract Name: Yotel, Gore Street

Client: Russells Construction

Engineer: M. Jakuc

Date Started: 27/09/2013

Date Completed: 27/09/2013

Elevation AOD (m): N/A

Co-ordinates: N/A

Drilling Equipment: Klemm Rig



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Depth (mbgl)	Legend	Description of Strata	Depth of Strata (mbgl)	Field Notes / Insitu Testing / Sampling	Groundwater	Monitoring Installation / Backfill
1.0		MADE GROUND: Fine to medium dark brown/black gravelly sand with cobbles. Gravel is fine to coarse angular to sub-angular of brick, concrete and ash. Cobbles are angular to sub-angular of brick and concrete.				
2.0			2.8			
3.0		MADE GROUND: Concrete.	3.1			
4.0		Brown gravelly CLAY. Core run - 18.00 - 19.50 100% recovery		SPT - 4/3/2/4/4/4 N= 14 SPT - 6/8/8/7/8/8 N= 31 SPT - 7/9/9/9/10/10 N= 38 SPT - 7/5/5/6/8/7 N= 26 SPT - 9/9/10/12/11/10 N= 43		
5.0						
6.0						
7.0						
8.0						

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed
SPT. Standard Penetration Test

D. Disturbed
G. Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial

T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
1. Driller's Description

Notes

Chiselling: N/A
Services: Prior to drilling the borehole location was scanned with a Cable Avoidance Tool (C.A.T).
Addition of water: Water Flush
Casing diameter: 152mm

Date: 07/10/2013
Status: Final

REC
Resource & Environmental Consultants

Date Started: 27/09/2013

Date Completed: 27/09/2013

Elevation AOD (m): N/A

Co-ordinates: N/A

Drilling Equipment: Klemm Rig

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[illegible]

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed
SPT. Standard Penetration Test

D. Disturbed
G. Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial

T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
1. Driller's Description

Notes

Chiselling: N/A
Services: Prior to drilling the borehole location was scanned with a Cable Avoidance Tool (C.A.T).
Addition of water: Water Flush
Casing diameter: 152mm

Date: 07/10/2013
Status: Final

Borehole Record - Open Hole Log

Borehole Number: RB101

Project Number: 44934

Contract Name: Yotel, Gore Street

Client: Russells Construction

Engineer: M. Jakuc

Date Started: 27/09/2013

Date Completed: 27/09/2013

Elevation AOD (m): N/A

Co-ordinates: N/A

Drilling Equipment: Klemm Rig



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Depth (mbgl)	Legend	Description of Strata	Depth of Strata (mbgl)	Field Notes / Insitu Testing / Sampling	Groundwater	Monitoring Installation / Backfill
17.0		Brown gravelly CLAY.				
18.0		Brown MARL. Core run 22.50 - 24.00 no recovery	18.0			
19.0						
20.0						
21.0						
22.0			22.2			
23.0						
24.0						

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed
SPT. Standard Penetration Test

D. Disturbed
G. Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial

T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
1. Driller's Description

Notes

Chiselling: N/A
Services: Prior to drilling the borehole location was scanned with a Cable Avoidance Tool (C.A.T).
Addition of water: Water Flush
Casing diameter: 152mm

Date: 07/10/2013

Status: Final

Borehole Record - Open Hole Log

Borehole Number: RB101

Project Number: 44934

Contract Name: Yotel, Gore Street

Client: Russells Construction

Engineer: M. Jakuc

Date Started: 27/09/2013

Date Completed: 27/09/2013

Elevation AOD (m): N/A

Co-ordinates: N/A

Drilling Equipment: Klemm Rig



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Depth (mbgl)	Legend	Description of Strata	Depth of Strata (mbgl)	Field Notes / Insitu Testing / Sampling	Groundwater	Monitoring Installation / Backfill
25.0		Weathered orange/brown SANDSTONE/Rock sand. Core run 24.00 - 25.50 no recovery				
26.0		Core run 28.00 - 29.50 no recovery.				
27.0						
28.0						
29.0			29.5			
30.0		Complete at 29.50m bgl.				
31.0						
32.0						

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed
SPT. Standard Penetration Test

D. Disturbed
G. Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial

T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
1. Driller's Description

Notes

Chiselling: N/A
Services: Prior to drilling the borehole location was scanned with a Cable Avoidance Tool (C.A.T).
Addition of water: Water Flush
Casing diameter: 152mm

Date: 07/10/2013

Status: Final

Borehole Record - Open Hole Log

Borehole Number: RB103

Project Number: 44934

Contract Name: Yotel, Gore Street

Client: Russells Construction

Engineer: M. Jakuc

Date Started: 01/10/2013

Date Completed: 01/10/2013

Elevation AOD (m): N/A

Co-ordinates: N/A

Drilling Equipment: Klemm Rig



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Depth (mbgl)	Legend	Description of Strata	Depth of Strata (mbgl)	Field Notes / Insitu Testing / Sampling	Groundwater	Monitoring Installation / Backfill
1.0		MADE GROUND: Fine to medium dark brown/black gravelly sand with cobbles. Gravel is fine to coarse angular to sub-angular of brick, concrete and ash. Cobbles are angular to sub-angular of brick and concrete.				
2.0						
3.0			3.0			
4.0		Brown gravelly CLAY.				
5.0						
6.0				SPT - 2/2/2/2/3/2 N= 9		
7.0				SPT - 3/3/3/3/4/3 N= 13		
				SPT - 4/3/4/3/4/4 N= 15		
				SPT - 4/4/4/4/4/5 N= 17		
				SPT - 6/6/6/8/8/8 N= 30		
8.0				SPT - 10/10/9/10/11/12 N= 42		

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed
SPT. Standard Penetration Test

D. Disturbed
G. Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial

T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
1. Driller's Description

Notes

Chiselling: N/A
Services: Prior to drilling the borehole location was scanned with a Cable Avoidance Tool (C.A.T).
Addition of water: None added
Casing diameter: 152mm

Date: 07/10/2013

Status: Final

Borehole Record - Open Hole Log

Borehole Number: RB103

Project Number: 44934

Contract Name: Yotel, Gore Street

Client: Russells Construction

Engineer: M. Jakuc

Date Started: 01/10/2013

Date Completed: 01/10/2013

Elevation AOD (m): N/A

Co-ordinates: N/A

Drilling Equipment: Klemm Rig



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Depth (mbgl)	Legend	Description of Strata	Depth of Strata (mbgl)	Field Notes / Insitu Testing / Sampling	Groundwater	Monitoring Installation / Backfill
9.0		Brown gravelly CLAY.				
10.0						
11.0						
12.0						
13.0						
14.0						
15.0			15.0			
16.0		Boulder CLAY/MARL.				

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed
SPT. Standard Penetration Test

D. Disturbed
G. Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial

T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
1. Driller's Description

Notes

Chiselling: N/A
Services: Prior to drilling the borehole location was scanned with a Cable Avoidance Tool (C.A.T).
Addition of water: None added
Casing diameter: 152mm

Date: 07/10/2013
Status: Final

Borehole Record - Open Hole Log

Borehole Number: RB103

Project Number: 44934

Contract Name: Yotel, Gore Street

Client: Russells Construction

Engineer: M. Jakuc

Date Started: 01/10/2013

Date Completed: 01/10/2013

Elevation AOD (m): N/A

Co-ordinates: N/A

Drilling Equipment: Klemm Rig



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Depth (mbgl)	Legend	Description of Strata	Depth of Strata (mbgl)	Field Notes / Insitu Testing / Sampling	Groundwater	Monitoring Installation / Backfill
17.0		Boulder CLAY/MARL.				
18.0						
19.0						
20.0						
21.0						
22.0			22.2			
23.0						
24.0						

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed
SPT. Standard Penetration Test

D. Disturbed
G. Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial

T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
1. Driller's Description

Notes

Chiselling: N/A
Services: Prior to drilling the borehole location was scanned with a Cable Avoidance Tool (C.A.T).
Addition of water: None added
Casing diameter: 152mm

Date: 07/10/2013

Status: Final

Borehole Record - Open Hole Log

Borehole Number: RB103

Project Number: 44934

Contract Name: Yotel, Gore Street

Client: Russells Construction

Engineer: M. Jakuc

Date Started: 01/10/2013

Date Completed: 01/10/2013

Elevation AOD (m): N/A

Co-ordinates: N/A

Drilling Equipment: Klemm Rig



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Depth (mbgl)	Legend	Description of Strata	Depth of Strata (mbgl)	Field Notes / Insitu Testing / Sampling	Groundwater	Monitoring Installation / Backfill
25.0		Orange/brown SANDSTONE. Weak orange/brown SANDSTONE/Rock sand. Core run 22.50 - 24.00 no recovery				
26.0						
27.0						
28.0						
29.0						
30.0		Core run 30.00 - 31.50 no recovery				
31.0						
			31.5			
32.0		Complete at 31.50m bgl.				

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed
SPT. Standard Penetration Test

D. Disturbed
G. Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial

T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
1. Driller's Description

Notes

Chiselling: N/A

Services: Prior to drilling the borehole location was scanned with a Cable Avoidance Tool (C.A.T).

Addition of water: None added

Casing diameter: 152mm

Date: 07/10/2013

Status: Final

Borehole Record - Window Sample

Probehole Number: WS101

Project Number: 44934

Contract Name: Yotel, Gore Street

Client: Russells Construction

Engineer: M. Jakuc

Date Started: 26/09/2013

Date Completed: 26/09/2013

Elevation AOD (m): N/A

Co-ordinates: N/A

Drilling Equipment: Mini tracked window sampler rig



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SUBSURFACE PROFILE

SAMPLES AND IN-SITU TESTING

Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	In-Situ Testing SPT / U100	Water Level (mbgl)	Monitoring Installation / Backfill
		MADE GROUND: Tarmac.	0.15					
		MADE GROUND: Loose fine to medium dark brown/black gravelly sand with cobbles. Gravel is fine to coarse angular to sub-angular of brick, concrete, ash, clinker, metal and wood. Cobbles are angular to sub-angular of brick and concrete.		B ES	0.20-0.70 0.30			
1.0				SPT	1.00-1.45	2/1/2/1/2/1 N= 6		
2.0				ES SPT	2.00 2.00-2.45	1/1/2/2/1/2 N= 7		
		MADE GROUND: Loose fine to medium brown slightly clayey gravelly sand with cobbles. Gravel is fine to coarse angular to sub-rounded of sandstone, brick, asbestos and fabric. Cobbles are angular to sub-angular of brick.	2.60					
3.0			3.00	ES SPT	2.80 3.00-3.45	4/4/5/6/8/10 N= 29		
		High strength very stiff brown gravelly CLAY. Gravel is fine to medium angular to sub-rounded of coal, sandstone and mudstone.		ES T	3.40 3.50-4.00			
4.0		Terminated at 4.00m bgl (unable to advance casing).	4.00					
5.0								
6.0								

Key

B. Bulk (Bag)

W. Water

U100. 100mm Undisturbed

U38. 38mm Undisturbed Sample

SPT. Standard Penetration Test

D. Disturbed

G. Amber Glass Jar / Bottle

CPT. Cone Penetration Test

U100. Blows (Recovery mm)

V. 40ml Glass Vial

T. Plastic Tub

N. 'N' Value

HV. Hand Shear Vane

PID. Photo Ionisation Detector

ES. Environmental Sample

Notes

Groundwater: Groundwater encountered at 2.80m bgl

Services: Prior to drilling the location was scanned with a cable avoidance tool (CAT).

Addition of water: None added

Casing diameter: 110mm

Date logged: 07/10/2013

Status: Final

Borehole Record - Window Sample

Probehole Number: WS102

Project Number: 44934

Contract Name: Yotel, Gore Street

Client: Russells Construction

Engineer: M. Jakuc

Date Started: 26/09/2013

Date Completed: 26/09/2013

Elevation AOD (m): N/A

Co-ordinates: N/A

Drilling Equipment: Mini tracked window sampler rig



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SUBSURFACE PROFILE

SAMPLES AND IN-SITU TESTING

Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	In-Situ Testing SPT / U100	Water Level (mbgl)	Monitoring Installation / Backfill
1.0		MADE GROUND: Asphalt.						
		MADE GROUND: Yellow/brown sandy gravel. Gravel is fine to coarse angular to sub-angular of concrete and limestone.	0.90	SPT	1.00-1.45	3/1/2/3/3 N= 11		
2.0		MADE GROUND: Medium dense dark brown/orange sandy gravel. Gravel is fine to coarse angular to sub-angular of brick, concrete, ash and sandstone.	2.45	SPT SPT	2.00-2.45 2.45-2.90	0/1/3/2/4/41 N= 50 25/50 for 0mm		
3.0		Terminated at 2.45m bgl due to refusal.						
4.0								
5.0								
6.0								
7.0								
8.0								

Key

B. Bulk (Bag)

W. Water

U100. 100mm Undisturbed

U38. 38mm Undisturbed Sample

SPT. Standard Penetration Test

D. Disturbed

G. Amber Glass Jar / Bottle

CPT. Cone Penetration Test

U100. Blows (Recovery mm)

V. 40ml Glass Vial

T. Plastic Tub

N. 'N' Value

HV. Hand Shear Vane

PID. Photo Ionisation Detector

ES. Environmental Sample

Notes

Groundwater: None encountered

Services: Prior to drilling the location was scanned with a cable avoidance tool (CAT).

Addition of water: None added

Casing diameter: 110mm

Date logged: 07/10/2013

Status: Final

Borehole Record - Window Sample

Probehole Number: WS103

Project Number: 44934

Contract Name: Yotel, Gore Street

Client: Russells Construction

Engineer: M. Jakuc

Date Started: 26/09/2013

Date Completed: 26/09/2013

Elevation AOD (m): N/A

Co-ordinates: N/A

Drilling Equipment: Mini tracked window sampler rig



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SUBSURFACE PROFILE

SAMPLES AND IN-SITU TESTING

Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	In-Situ Testing SPT / U100	Water Level (mbgl)	Monitoring Installation / Backfill
		MADE GROUND: Tarmac.	0.15					
1.0		MADE GROUND: Loose fine to medium dark brown/black gravelly sand with cobbles. Gravel is fine to coarse angular to sub-angular of brick, concrete, ash, clinker, metal, wood, asbestos and slate. Cobbles are angular to sub-angular of brick and concrete.		ES	0.40			
				SPT	1.00-1.45	1/1/2/2/1/2 N= 7		
				ES	1.20			
2.0				SPT	2.00-2.45	2/1/1/2/2/2 N= 7		
			2.50					
3.0		Terminated at 2.50m bgl due to a refusal on concrete obstruction.						
4.0								
5.0								
6.0								

Key

B. Bulk (Bag)

W. Water

U100. 100mm Undisturbed

U38. 38mm Undisturbed Sample

SPT. Standard Penetration Test

D. Disturbed

G. Amber Glass Jar / Bottle

CPT. Cone Penetration Test

U100. Blows (Recovery mm)

V. 40ml Glass Vial

T. Plastic Tub

N. 'N' Value

HV. Hand Shear Vane

PID. Photo Ionisation Detector

ES. Environmental Sample

Notes

Groundwater: None encountered

Services: Prior to drilling the location was scanned with a cable avoidance tool (CAT).

Addition of water: None added

Casing diameter: 110mm

Date logged: 07/10/2013

Status: Final

Borehole Record - Window Sample

Probehole Number: WS104

Project Number: 44934

Contract Name: Yotel, Gore Street

Client: Russells Construction

Engineer: M. Jakuc

Date Started: 26/09/2013

Date Completed: 26/09/2013

Elevation AOD (m): N/A

Co-ordinates: N/A

Drilling Equipment: Mini tracked window sampler rig



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SUBSURFACE PROFILE

SAMPLES AND IN-SITU TESTING

Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	In-Situ Testing SPT / U100	Water Level (mbgl)	Monitoring Installation / Backfill
0.0		MADE GROUND: Asphalt.						
1.0		MADE GROUND: Very loose to medium dense brown/orange sandy gravel. Gravel is fine to coarse angular to sub-angular of brick, concrete, sandstone and coal.		ES	0.80			
				SPT	1.00-1.45	3/3/2/0/0/0 N= 2		
2.0				ES	1.50			
				SPT	2.00-2.45	0/2/3/3/3/3 N= 12		
3.0			3.25	SPT	3.00-3.45	12/7/6/6/5/5 N= 22		
4.0		High strength very stiff brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium sub-angular to sub-rounded of sandstone and coal.		ES	3.50			
				SPT	4.00-4.45	5/3/3/4/5/6 N= 18		
5.0				SPT	5.00-5.45	5/6/7/7/7/8 N= 29		
				SPT	5.45-5.90	7/9/7/7/8/11 N= 33		
6.0			6.35	SPT	5.90-6.35	10/9/10/10/12/12 N= 44		
7.0		Complete at 6.35m bgl.						
8.0								

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed Sample
SPT. Standard Penetration Test

D. Disturbed
G. Amber Glass Jar / Bottle
CPT. Cone Penetration Test
U100. Blows (Recovery mm)
V. 40ml Glass Vial

T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo Ionisation Detector
ES. Environmental Sample

Notes

Groundwater: None encountered
Services: Prior to drilling the location was scanned with a cable avoidance tool (CAT).
Addition of water: None added
Casing diameter: 110mm

Date logged: 07/10/2013
Status: Final

Borehole Record - Window Sample

Probehole Number: WS105

Project Number: 44934

Contract Name: Yotel, Gore Street

Client: Russels Construction

Engineer: M. Jakuc

Date Started: 26/09/2013

Date Completed: 26/09/2013

Elevation AOD (m): N/A

Co-ordinates: N/A

Drilling Equipment: Mini tracked window sampler rig



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SUBSURFACE PROFILE

SAMPLES AND IN-SITU TESTING

Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	In-Situ Testing SPT / U100	Water Level (mbgl)	Monitoring Installation / Backfill
		MADE GROUND: Asphalt.						
1.0		MADE GROUND: Loose to medium dense black/brown sandy ashy gravel. Gravel is fine to medium angular to sub-angular of brick, concrete and coal.		ES	0.50			
				SPT	1.00-1.45	1/2/1/1/1 N= 4		
				SPT	1.45-1.90	10/13/7/4/4/3 N= 18		
2.0				SPT	1.90-2.35	3/3/4/4/4 N= 16		
				SPT	2.35-2.80	1/1/26/24 for 19mm		
			2.80					
3.0		Terminated at 2.80m bgl due to refusal on concrete obstruction.		SPT				
4.0								
5.0								
6.0								

Key

B. Bulk (Bag)

W. Water

U100. 100mm Undisturbed

U38. 38mm Undisturbed Sample

SPT. Standard Penetration Test

D. Disturbed

G. Amber Glass Jar / Bottle

CPT. Cone Penetration Test

U100. Blows (Recovery mm)

V. 40ml Glass Vial

T. Plastic Tub

N. 'N' Value

HV. Hand Shear Vane

PID. Photo Ionisation Detector

ES. Environmental Sample

Notes

Groundwater: None encountered

Services: Prior to drilling the location was scanned with a cable avoidance tool (CAT).

Addition of water: None added

Casing diameter: 110mm

Date logged: 07/10/2013

Status: Final

Borehole Record - Window Sample

Probehole Number: WS106

Project Number: 44934

Contract Name: Yotel, Gore Street

Client: Russells Construction

Engineer: M. Jakuc

Date Started: 26/09/2013

Date Completed: 26/09/2013

Elevation AOD (m): N/A

Co-ordinates: N/A

Drilling Equipment: Mini tracked window sampler rig



Osprey House
Pacific Quay
Broadway
Manchester, M50 2UE
Tel: 0161 868 1300 / Fax: 0161 868 1301
www.recltd.co.uk

SUBSURFACE PROFILE

SAMPLES AND IN-SITU TESTING

Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	In-Situ Testing SPT / U100	Water Level (mbgl)	Monitoring Installation / Backfill
		MADE GROUND: Asphalt.						
		MADE GROUND: Black/brown sandy ashy gravel. Gravel is fine to medium angular to sub-angular of brick, concrete and coal.	0.70					
1.0								
2.0								
3.0								
4.0								
5.0								
6.0								

Terminated at 0.70m bgl due to services.

Key

B. Bulk (Bag)

W. Water

U100. 100mm Undisturbed

U38. 38mm Undisturbed Sample

SPT. Standard Penetration Test

D. Disturbed

G. Amber Glass Jar / Bottle

CPT. Cone Penetration Test

U100. Blows (Recovery mm)

V. 40ml Glass Vial

T. Plastic Tub

N. 'N' Value

HV. Hand Shear Vane

PID. Photo Ionisation Detector

ES. Environmental Sample

Notes

Groundwater: None encountered

Services: Prior to drilling the location was scanned with a cable avoidance tool (CAT).

Addition of water: None added

Casing diameter: 110mm

Date logged: 07/10/2013

Status: Final

Borehole Record - Window Sample

Probehole Number: WS107

Project Number: 44934

Contract Name: Yotel, Gore Street

Client: Russells Construction

Engineer: M. Jakuc

Date Started: 26/09/2013

Date Completed: 26/09/2013

Elevation AOD (m): N/A

Co-ordinates: N/A

Drilling Equipment: Mini tracked window sampler rig



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SUBSURFACE PROFILE

SAMPLES AND IN-SITU TESTING

Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	In-Situ Testing SPT / U100	Water Level (mbgl)	Monitoring Installation / Backfill
0.0		MADE GROUND: Loose to dense fine to medium dark brown/black gravelly sand with cobbles. Gravel is fine to coarse angular to sub-angular of brick, concrete, slate, metal and glass. Cobbles are angular to sub-angular of brick.		B	0.20-0.90			
0.40				ES	0.40			
1.0				SPT	1.00-1.45	1/1/1/2/1/1 N= 5		
1.10				ES	1.10			
2.0				SPT	2.00-2.45	1/0/1//0/1/1 N= 3		
2.50			2.50	SPT	2.60-2.95	25/40mm for 50/70mm		
3.0		Terminated at 2.50m bgl due to refusal on concrete obstruction.						
4.0								
5.0								
6.0								

Key

B. Bulk (Bag)

W. Water

U100. 100mm Undisturbed

U38. 38mm Undisturbed Sample

SPT. Standard Penetration Test

D. Disturbed

G. Amber Glass Jar / Bottle

CPT. Cone Penetration Test

U100. Blows (Recovery mm)

V. 40ml Glass Vial

T. Plastic Tub

N. 'N' Value

HV. Hand Shear Vane

PID. Photo Ionisation Detector

ES. Environmental Sample

Notes

Groundwater: None encountered

Services: Prior to drilling the location was scanned with a cable avoidance tool (CAT).

Addition of water: None added

Casing diameter: 110mm

Date logged: 07/10/2013

Status: Final

Borehole Record - Window Sample

Probehole Number: WS108

Project Number: 44934

Contract Name: Yotel, Gore Street

Client: Russells Construction

Engineer: M. Jakuc

Date Started: 26/09/2013

Date Completed: 26/09/2013

Elevation AOD (m): N/A

Co-ordinates: N/A

Drilling Equipment: Mini tracked window sampler rig



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SUBSURFACE PROFILE

SAMPLES AND IN-SITU TESTING

Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	In-Situ Testing SPT / U100	Water Level (mbgl)	Monitoring Installation / Backfill
		MADE GROUND: Tarmac.	0.15					
		MADE GROUND: Very loose fine to medium dark brown gravelly sand with cobbles. Gravel is fine to coarse angular to sub-angular of brick, concrete, slate, asbestos, metal and glass. Cobbles are angular to sub-angular of brick.		ES B	0.30 0.30-1.00			
1.0				SPT ES	1.00-1.45 1.20	1/1/1/0/1/1 N= 3		
2.0				SPT	2.00-2.45	0/0/0/0/0/0 N= 0		
			2.80					
3.0		Terminated at 2.80m bgl due to collapse and unable to advance casing.						
4.0								
5.0								
6.0								

Key

B. Bulk (Bag)

W. Water

U100. 100mm Undisturbed

U38. 38mm Undisturbed Sample

SPT. Standard Penetration Test

D. Disturbed

G. Amber Glass Jar / Bottle

CPT. Cone Penetration Test

U100. Blows (Recovery mm)

V. 40ml Glass Vial

T. Plastic Tub

N. 'N' Value

HV. Hand Shear Vane

PID. Photo Ionisation Detector

ES. Environmental Sample

Notes

Groundwater: None encountered

Services: Prior to drilling the location was scanned with a cable avoidance tool (CAT).

Addition of water: None added

Casing diameter: 110mm

Date logged: 07/10/2013

Status: Final

APPENDIX VI
CHEMICAL TESTING



Scientific Analysis Laboratories is a
limited company registered in England and
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Hadfield House, Hadfield Street, Manchester M16 9FE

Scientific Analysis Laboratories Ltd

Certificate of Analysis

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

Report Number: 353222-2

Date of Report: 10-Oct-2013

Customer: Resource Environmental Consultants Ltd
Osprey House
Pacific Quay
Broadway
Salford
M50 2UE

Customer Contact: Mr Dan Cox

Customer Job Reference: 44934

Customer Site Reference: Yotel, Manchester

Date Job Received at SAL: 30-Sep-2013

Date Analysis Started: 07-Oct-2013

Date Analysis Completed: 10-Oct-2013

The results reported relate to samples received in the laboratory
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with SAL SOPs
All results have been reviewed in accordance with QP22



1549

Report checked
and authorised by :
Annie Hennis
Project Manager

Issued by :
Annie Hennis
Project Manager

SAL Reference: 353222 Project Site: Yotel, Manchester Customer Reference: 44934 Soil Analysed as Soil REC Ltd 002S									
SAL Reference				353222 003	353222 006	353222 009	353222 011	353222 014	
Customer Sample Reference				WS101 3.40	WS103 1.20	WS107 0.40	WS102 1.00	WS104 3.50	
Date Sampled				27-SEP-2013	27-SEP-2013	27-SEP-2013	30-SEP-2013	30-SEP-2013	
Determinand	Method	Test Sample	LOD	Units					
Arsenic	T6	AR	1	mg/kg	10	20	49	4	7
Cadmium	T6	AR	1	mg/kg	<1	<1	<1	<1	<1
Chromium	T6	AR	1	mg/kg	28	17	25	19	29
Lead	T6	AR	1	mg/kg	48	710	660	34	18
Mercury	T6	AR	1	mg/kg	<1	<1	1	<1	<1
Selenium	T6	AR	3	mg/kg	<3	<3	<3	<3	<3
Copper	T6	AR	1	mg/kg	25	90	140	16	25
Nickel	T6	AR	1	mg/kg	32	21	31	19	34
Zinc	T6	AR	1	mg/kg	75	320	300	80	63
pH	T7	AR			8.1	7.8	8.4	8.3	8.0
SO4(Total)	T6	AR	0.01	%	0.11	1.8	0.40	0.05	0.07
SO4(2:1)	T6	AR	0.1	g/l	0.2	1.2	<0.1	<0.1	0.1
Cyanide(Total)	T4	AR	1	mg/kg	(IS) -	<1	<1	<1	<1
Phenols(Mono)	T4	AR	1	mg/kg	(IS) -	<1	<1	<1	<1
Chromium VI	T6	AR	1	mg/kg	<1	<1	<1	<1	<1

SAL Reference: 353222							
Project Site: Yotel, Manchester							
Customer Reference: 44934							
Leachate		Analysed as Water					
REC Ltd 002W							
SAL Reference				353222 003	353222 006	353222 014	
Customer Sample Reference				WS101 3.40	WS103 1.20	WS104 3.50	
Date Sampled				27-SEP-2013	27-SEP-2013	30-SEP-2013	
Determinand	Method	Test Sample	LOD	Units			
As (Dissolved)	T281	10:1	0.2	µg/l	0.7	2.4	0.5
Cd (Dissolved)	T281	10:1	0.02	µg/l	<0.02	0.02	0.03
Cr (Dissolved)	T281	10:1	1	µg/l	2	2	2
Pb (Dissolved)	T281	10:1	0.3	µg/l	1.0	2.7	16
Hg (Dissolved)	T281	10:1	0.05	µg/l	<0.05	<0.05	<0.05
Se (Dissolved)	T281	10:1	0.5	µg/l	0.8	1.0	0.8
Cu (Dissolved)	T281	10:1	0.5	µg/l	2.2	2.1	26
Ni (Dissolved)	T281	10:1	1	µg/l	<1	3	<1
Zn (Dissolved)	T281	10:1	2	µg/l	3	5	15
pH	T7	10:1			8.9	8.4	8.5
Cyanide(Total)	T4	10:1	50	µg/l	<50	<50	<50
Phenols(Mono)	T4	10:1	100	µg/l	<100	<100	<100
Chromium VI	T686	10:1	3	µg/l	<3	<3	<3
Sulphate	T686	10:1	500	µg/l	5900	68000	4100

SAL Reference: 353222							
Project Site: Yotel, Manchester							
Customer Reference: 44934							
Leachate				Analysed as Water			
REC Suite C (Banded TPH C5-C35)							
SAL Reference				353222 003	353222 006	353222 014	
Customer Sample Reference				WS101 3.40	WS103 1.20	WS104 3.50	
Date Sampled				27-SEP-2013	27-SEP-2013	30-SEP-2013	
Determinand	Method	Test Sample	LOD	Units			
TPH (C5-C6)	T215	10:1	10	µg/l	<10	<10	<10
TPH (C6-C8)	T215	10:1	10	µg/l	<10	<10	<10
TPH (C8-C10) DW	T215	10:1	10	µg/l	<10	<10	<10
TPH (C10-C12) DW	T81	10:1	10	µg/l	<10	<10	<10
TPH (C12-C16) DW	T81	10:1	10	µg/l	<10	<10	<10
TPH (C16-C21) DW	T81	10:1	10	µg/l	<10	<10	<10
TPH (C21-C35) DW	T81	10:1	10	µg/l	<10	<10	<10

SAL Reference: 353222									
Project Site: Yotel, Manchester									
Customer Reference: 44934									
Soil					Analysed as Soil				
REC Suite C (Banded TPH C5-C35)									
SAL Reference				353222 003	353222 006	353222 009	353222 011	353222 014	
Customer Sample Reference				WS101 3.40	WS103 1.20	WS107 0.40	WS102 1.00	WS104 3.50	
Date Sampled				27-SEP-2013	27-SEP-2013	27-SEP-2013	30-SEP-2013	30-SEP-2013	
Determinand	Method	Test Sample	LOD	Units					
TPH (C5-C6)	T54	AR	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
TPH (C6-C8)	T54	AR	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
TPH (C8-C10)	T54	AR	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
TPH (C10-C12)	T8	AR	1	mg/kg	<1	⁽⁹⁾ <10	⁽⁹⁾ <10	⁽⁹⁾ <10	<1
TPH (C12-C16)	T8	AR	1	mg/kg	<1	⁽⁹⁾ <10	58	36	<1
TPH (C16-C21)	T8	AR	1	mg/kg	<1	69	350	300	<1
TPH (C21-C35)	T8	AR	1	mg/ka	1	920	1500	1600	2

SAL Reference: 353222										
Project Site: Yotel, Manchester										
Customer Reference: 44934										
Soil					Analysed as Soil					
Miscellaneous										
SAL Reference					353222 003	353222 006	353222 009	353222 011	353222 014	
Customer Sample Reference					WS101 3.40	WS103 1.20	WS107 0.40	WS102 1.00	WS104 3.50	
Date Sampled					27-SEP-2013	27-SEP-2013	27-SEP-2013	30-SEP-2013	30-SEP-2013	
Determinand		Method	Test Sample	LOD	Units					
Asbestos ID		T27	AR			N.D.	N.D.	N.D.	N.D.	-
Total Organic Carbon		T21	AR	0.1	%	-	-	8.1	-	1.0

Index to symbols used in 353222-2

Value	Description
10:1	Leachate
AR	As Received
N.D.	Not Detected
9	LOD raised due to dilution of sample
IS	Insufficient Sample
S	Analysis was subcontracted
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

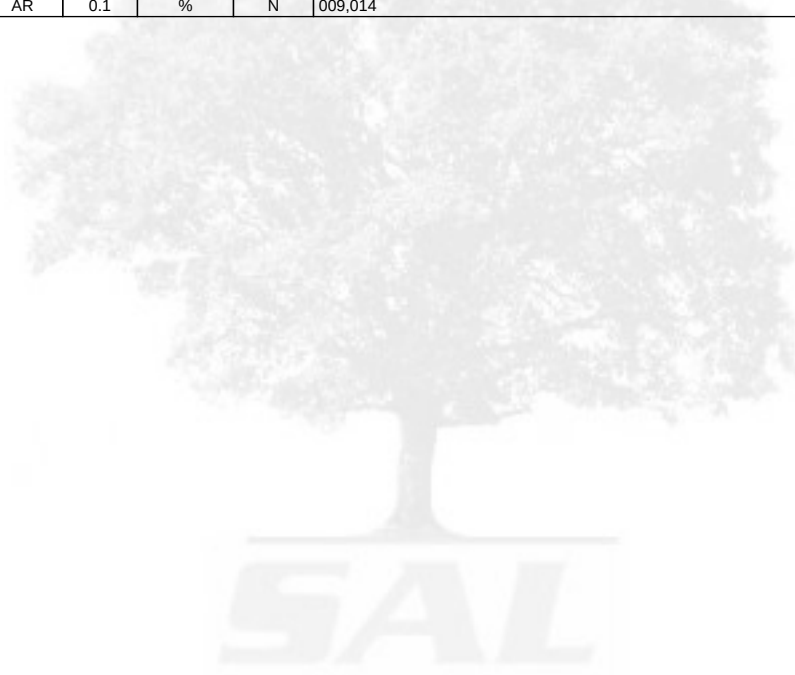
Method Index

Value	Description
T81	GC/FID (LV)
T215	GC/MS (Headspace)(LV)
T21	OX/IR
T6	ICP/OES
T7	Probe
T4	Colorimetry
T27	PLM
T686	Discrete Analyser
T54	GC/MS (Headspace)
T8	GC/FID
T281	ICP/MS (Filtered)
T149	GC/MS (SIR)

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Arsenic	T6	AR	1	mg/kg	U	003,006,009,011,014
Cadmium	T6	AR	1	mg/kg	U	003,006,009,011,014
Chromium	T6	AR	1	mg/kg	U	003,006,009,011,014
Lead	T6	AR	1	mg/kg	U	003,006,009,011,014
Mercury	T6	AR	1	mg/kg	U	003,006,009,011,014
Selenium	T6	AR	3	mg/kg	U	003,006,009,011,014
Copper	T6	AR	1	mg/kg	U	003,006,009,011,014
Nickel	T6	AR	1	mg/kg	U	003,006,009,011,014
Zinc	T6	AR	1	mg/kg	U	003,006,009,011,014
pH	T7	AR			U	003,006,009,011,014
SO4(Total)	T6	AR	0.01	%	N	003,006,009,011,014
SO4(2:1)	T6	AR	0.1	g/l	N	003,006,009,011,014
Cyanide(Total)	T4	AR	1	mg/kg	U	003,006,009,011,014
Phenols(Mono)	T4	AR	1	mg/kg	U	003,006,009,011,014
Chromium VI	T6	AR	1	mg/kg	N	003,006,009,011,014
As (Dissolved)	T281	10:1	0.2	µg/l	U	003,006,014
Cd (Dissolved)	T281	10:1	0.02	µg/l	U	003,006,014
Cr (Dissolved)	T281	10:1	1	µg/l	U	003,006,014
Pb (Dissolved)	T281	10:1	0.3	µg/l	U	003,006,014
Hg (Dissolved)	T281	10:1	0.05	µg/l	U	003,006,014
Se (Dissolved)	T281	10:1	0.5	µg/l	U	003,006,014
Cu (Dissolved)	T281	10:1	0.5	µg/l	U	003,006,014
Ni (Dissolved)	T281	10:1	1	µg/l	U	003,006,014
Zn (Dissolved)	T281	10:1	2	µg/l	U	003,006,014
pH	T7	10:1			U	003,006,014
Cyanide(Total)	T4	10:1	50	µg/l	U	003,006,014
Phenols(Mono)	T4	10:1	100	µg/l	U	003,006,014
Chromium VI	T686	10:1	3	µg/l	U	003,006,014
Sulphate	T686	10:1	500	µg/l	U	003,006,014
Naphthalene	T149	AR	0.01	mg/kg	U	003,006,009,011,014
Acenaphthylene	T149	AR	0.01	mg/kg	U	003,006,009,011,014
Acenaphthene	T149	AR	0.01	mg/kg	U	003,006,009,011,014
Fluorene	T149	AR	0.01	mg/kg	U	003,006,009,011,014
Phenanthrene	T149	AR	0.01	mg/kg	U	003,006,009,011,014
Anthracene	T149	AR	0.01	mg/kg	U	003,006,009,011,014
Fluoranthene	T149	AR	0.01	mg/kg	U	003,006,009,011,014
Pyrene	T149	AR	0.01	mg/kg	U	003,006,009,011,014
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	U	003,006,009,011,014
Chrysene	T149	AR	0.01	mg/kg	U	003,006,009,011,014
Benzo(b/k)Fluoranthene	T149	AR	0.01	mg/kg	U	003,006,009,011,014
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	U	003,006,009,011,014
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	U	003,006,009,011,014
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	U	003,006,009,011,014
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	U	003,006,009,011,014
PAH(total)	T149	AR	0.01	mg/kg	U	003,006,009,011,014
Naphthalene	T149	10:1	0.01	µg/l	U	003,006,014
Acenaphthylene	T149	10:1	0.01	µg/l	U	003,006,014
Acenaphthene	T149	10:1	0.01	µg/l	U	003,006,014
Fluorene	T149	10:1	0.01	µg/l	U	003,006,014
Phenanthrene	T149	10:1	0.01	µg/l	U	003,006,014

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Anthracene	T149	10:1	0.01	µg/l	U	003,006,014
Fluoranthene	T149	10:1	0.01	µg/l	U	003,006,014
Pyrene	T149	10:1	0.01	µg/l	U	003,006,014
Benzo(a)Anthracene	T149	10:1	0.01	µg/l	U	003,006,014
Chrysene	T149	10:1	0.01	µg/l	U	003,006,014
Benzo(b/k)Fluoranthene	T149	10:1	0.01	µg/l	U	003,006,014
Benzo(a)Pyrene	T149	10:1	0.01	µg/l	U	003,006,014
Indeno(123-cd)Pyrene	T149	10:1	0.01	µg/l	U	003,006,014
Dibenzo(ah)Anthracene	T149	10:1	0.01	µg/l	U	003,006,014
Benzo(ghi)Perylene	T149	10:1	0.01	µg/l	U	003,006,014
PAH(total)	T149	10:1	0.01	µg/l	U	003,006,014
TPH (C5-C6)	T215	10:1	10	µg/l	N	003,006,014
TPH (C6-C8)	T215	10:1	10	µg/l	N	003,006,014
TPH (C8-C10) DW	T215	10:1	10	µg/l	N	003,006,014
TPH (C10-C12) DW	T81	10:1	10	µg/l	U	003,006,014
TPH (C12-C16) DW	T81	10:1	10	µg/l	U	003,006,014
TPH (C16-C21) DW	T81	10:1	10	µg/l	U	003,006,014
TPH (C21-C35) DW	T81	10:1	10	µg/l	U	003,006,014
TPH (C5-C6)	T54	AR	0.10	mg/kg	N	003,006,009,011,014
TPH (C6-C8)	T54	AR	0.10	mg/kg	N	003,006,009,011,014
TPH (C8-C10)	T54	AR	0.10	mg/kg	N	003,006,009,011,014
TPH (C10-C12)	T8	AR	1	mg/kg	U	003,006,009,011,014
TPH (C12-C16)	T8	AR	1	mg/kg	U	003,006,009,011,014
TPH (C16-C21)	T8	AR	1	mg/kg	U	003,006,009,011,014
TPH (C21-C35)	T8	AR	1	mg/kg	U	003,006,009,011,014
Asbestos ID	T27	AR			SU	003,006,009,011
Total Organic Carbon	T21	AR	0.1	%	N	009,014



APPENDIX VII
ORIGIN OF TIER I VALUES

APPENDIX VIII ORIGIN OF TIER I VALUES

ORIGIN OF REC TIER I VALUES

Constituent	Origin of Risk Assessment Value
Arsenic	2009 SGV
Cadmium	LQM CIEH 2 nd Edition 2009
Chromium	LQM CIEH 2 nd Edition 2009
Lead	Residential Half 2003 EA SGV based on planned target blood lead level reduction to 5µg/l. Commercial Calculated using commercial exposure equation within lead SGV 2003 with revised input data from HPA and taking proposed blood lead levels into account.
Mercury	2009 SGV
Nickel	2009 SGV
Selenium	Soil guideline value, DEFRA/Environment Agency
Copper	LQM CIEH 2 nd Edition 2009
Zinc	LQM CIEH 2 nd Edition 2009
Cyanide - Total	CLEA 1.06 Derived Value
Phenols - Total.	LQM CIEH 2 nd Edition 2009 – 1% SOM
Naphthalene	General Assessment Criteria (GAC) developed by CIEH / LQM the using CLEA 1-06 with supporting data from SR3, SR7 and existing Tox report where applicable. 1% SOM
Acenaphthylene	
Acenaphthene	
Fluorene	
Phenanthrene	
Anthracene	
Fluoranthene	
Pyrene	
Benzo(a)Anthracene ⁽ⁱ⁾	
Chrysene	
Benzo(b/k)Fluoranthene ⁽ⁱⁱⁱ⁾	
Benzo(a)Pyrene	
Indeno(123-cd)Pyrene	
Dibenzo(a,h)Anthracene	
Benzo(ghi)Perylene	
TPH C ₅ -C ₆ (aliphatic)	
TPH C ₆ -C ₈ (aliphatic)	
TPH C ₈ -C ₁₀ (aliphatic)	
TPH C ₁₀ -C ₁₂ (aliphatic)	
TPH C ₁₂ -C ₁₆ (aromatic)	
TPH C ₁₆ -C ₂₁ (aromatic)	
TPH C ₂₁ -C ₃₅ (aromatic)	

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- Feasibility Studies
- Ground Source Heat Pumps Installation
- Air Source Heat Pump Installation
- System Design and Maintenance
- Solar Photovoltaic (PV) Systems
- Combined Heat and Power Systems



- Sound Insulation Testing
- Noise at Work Assessment
- Development Related Noise / Vibration
- Environmental Noise / Vibration



- Phase 1 Habitat Surveys
- Invasive Species
- Legally Protected Species Surveys
- Mitigation Schemes
- Ecological Impact Assessment (EclA)
- BREEAM & Code 4 Sustainable Homes
- Habitat Management Plans
- Management planning and targeted Biodiversity Action Plan survey
- Environmental Impact Assessment



- Asbestos Management Surveys
- Demolition/Refurbishment Surveys
- Analysis of Asbestos in Soils and Bulk Samples
- Air Testing for Clearances and Reassurance
- Legionella Risk Assessment



- Flood Risk & Consequence Assessment
- Strategic Flood Risk Assessment (SFRA)
- EIA Technical Chapters
- Assessment of Flood Levels
- Hydrology & Hydrogeology
- Flood Defence Structures
- Drainage Systems (SUDS) Design
- Mitigation Measures
- Soakaway Tests



- Air Quality Impact
- Odour Assessment
- Dispersion Modelling
- Stack Emission Testing
- Pollution Monitoring



- Geotechnical Investigation & Assessment
- Contaminated Land Investigation & Assessment
- Waste Management
- Groundwater Testing
- Environmental Impact Assessment



- Health, Safety & Environmental Management Systems
- Divestment / Acquisition Due Diligence Services
- Environment Permit Application & Support
- Compliance Auditing
- Carbon Reporting
- Waste Minimisation

APPENDIX G

Chemical Assessment

ASSESSMENT CRITERIA

Table G1 below sets out CGL's rationale for generic assessment criteria (GAC) adoption in order to evaluate risks posed to potential receptors at the site from identified chemical contamination. Potential receptors have been identified with reference to the Part IIA regime and associated DEFRA guidance. As with the Part IIA regime, under the planning regime all receptors (humans, controlled waters, ecology, crops/livestock and buildings) have been considered if there is the potential for them to be adversely affected by exposure to contamination. The results of the assessment for the site are then presented in Tables G2 and G3 of this appendix.

Table G1. Rationale for Assessment Criteria Adoption

Source / Media	CGL's Approach & Rationale
<i>Risks to Human Health (long-term chronic risks)</i>	
Soil contaminants	<ul style="list-style-type: none"> Laboratory test results have been compared against Generic Assessment Criteria (GACs) derived in-house by CGL using the Contaminated Land Exposure Assessment (CLEA) model and version 1.071 of the CLEA software. Where Soil Guideline Values (SGVs) have been published previously by the Environment Agency, the CGL GACs have updated these based on current exposure parameters (e.g. updated inhalation rates). The GACs have been generated assuming a sandy loam soil type and a Soil Organic Material of 1% for the Made Ground (measured range 1 – 8.1) and 1% In the event impacts are identified on a site above the GAC level for arsenic, cadmium, chromium VI or benzo(a)pyrene, the results have been compared to the applicable Category 4 Screening Level (C4SL) published by DEFRA to further assess risks. The exception to the above relates to lead. The SGV for lead has been withdrawn and the C4SL for lead is used by CGL directly as a first tier of assessment. The CGL GACs represent conservative screening criteria (set at acceptable or minimal risk) and have generally been calculated using the default parameters for the standard land use scenarios set out in the CLEA technical report and toxicological inputs in line with the requirements of Science Report SC050021/SR2 and, in the case of petroleum hydrocarbons, Science Report P5-080/TR3. Where a CGL GAC has not been derived alternative assessment criteria will be sourced from current commercially-available sources (including international standards where no suitable UK assessment criteria exists). Concentrations of cyanide above the laboratory reporting limit are assessed against a Soil Screening Value (SSV) developed by Atkins. Atkins have based this assessment criteria on acute exposure to a 0 to 6 year old child. It is noted that the British Geological Survey has published background levels for a number of organic and inorganic constituents. In the event that the C4SL or a GAC is found to be exceeded, the risk may still be considered to be low, unlikely to meet the definition of contaminated land under Part IIA and potentially suitable for use from a development perspective, if the contaminant concentrations are below local background levels, assuming no other contributing factors. At this time an authoritative GAC is not available for asbestos fibres in soil. A positive identification of asbestos fibres in a soil sample by the laboratory is considered sufficient to warrant additional assessment of risks. Laboratory identification and quantification by microscopy may be required subject to source of material.
Radon	<ul style="list-style-type: none"> Risks from the radon content of soil gas are evaluated in accordance with BRE (2011).
<i>Risks to Controlled Waters</i>	
Soil contaminants	<ul style="list-style-type: none"> Results from any eluted liquids have been directly compared to Environmental Quality Standards (EQS) and Drinking Water Values (DWV) as an initial screen of water quality. These are considered to be conservative screening criteria.
Sulfate & pH conditions	<ul style="list-style-type: none"> The evaluation of risks to buried concrete has followed the guidance and criteria produced by BRE (2005).

Table G2. Data assessment summary - potential soil risks to human health				
Land Use Category:	Residential without homegrown produce		SOM:	1.00%
Stratum:	[MADE GROUND]		No. Samples	5
Determinand	GAC mg/kg	Min recorded (mg/kg)	Max recorded (mg/kg)	No. Samples exceeding GAC
Arsenic	30	4	49	1
Cadmium	85.3	<1	<1	0
Chromium (III)	887	17	29	0
Chromium (VI)	5.75	<1	<1	0
Copper	7130	16	140	0
Lead (note E)	310	18	710	2
Mercury	75.3	<1	1	0
Nickel	182	19	34	0
Selenium	596	0	0	0
Vanadium	651	NR	NR	N/A
Zinc	40400	63	320	0
Total Phenols (note C)	1180	<1	<1	0
Total Cyanide (note D)	34	<1	<1	0
Aromatic EC5-7	0.448	<0.1	<0.1	0
Aromatic EC7-8	1010	<0.1	<0.1	0
Aromatic EC8-10	30.1	<0.1	<0.1	0
Aromatic EC10-12	159	<1	<10	0
Aromatic EC12-16	758	<1	<10	0
Aromatic EC16-21	1940	<1	350	0
Aromatic EC21-35	1940	1	1600	0
Naphthalene	2.53	<0.01	3.5	1
Acenaphthylene	2060	<0.01	0.07	0
Acenaphthene	2120	<0.01	12	0
Fluorene	2170	<0.01	8.6	0
Phenanthrene	1360	<0.01	49	0
Anthracene	27400	<0.01	14	0
Fluoranthene	1500	<0.01	58	0
Pyrene	3600	<0.01	50	0
Benzo(a)Anthracene	12.4	<0.01	28	0
Chrysene	30.7	<0.01	27	0
Benzo(b)fluoranthene	4	<0.01	48	1
Benzo(k)fluoranthene	106			0
Benzo(a)Pyrene	3.19	<0.01	29	1
Indeno(1,2,3,cd)pyrene	45.2	<0.01	15	0
Dibenzo(a,h)anthracene	0.33	<0.01	4.1	1
Benzo(g,h,i)perylene	357	<0.01	12	0
Asbestos in Soils	(Number of samples in which Asbestos detected)			0
Notes:				
A. Data collected by REC as part of 2013 investigation. CGL cannot verify the accuracy and relevance of the data.				
B. TPH (Banded) Results only - aromatic GAC values adopted				
C. GAC relates to phenol (C6H5OH) only.				
D. Cyanide GAC based on acute exposure of 0-6 year old child (Atkins value).				
E. Published C4SL.				

Table G3. Data assessment summary – potential risk to controlled waters (soil leachate) - Freshwater

Contaminant	Freshwater EQS ¹ (µg/l)	EC Drinking Water Value (µg/l)	Measured range (min) (µg/l)	Measured range (max) (µg/l)	No. of samples exceeding EQS	No. of samples exceeding Drinking Water Value
Arsenic	50	10	0.50	2.40	0	0
Cadmium	0.08 - 0.25 ²	5	<0.02	0.03	0	0
Chromium VI	3.4	50 ³	2.00	2.00	0	0
Chromium III	4.7	50 ³	<3	<3	0	0
Lead	1.2	10	1.00	16.00	2	1
Mercury	0.07	1	<0.05	<0.05	0	0
Selenium	* ⁴	10	0.80	1.00	0	0
Copper	1 ⁵	2,000	2.10	26.00	3	0
Nickel	4 ⁵	20	<1	3.00	0	0
Zinc	10.9 ^{5,6}	(5,000) ⁷	3.00	15.00	1	0
Phenols	7.7	(0.5) ⁷	<100	<100	TBC ¹⁰	TBC ¹⁰
Free Cyanide	1	50 ⁸	<50	<50	TBC ¹⁰	TBC ¹⁰
Sulphate (mg/l)	*	250	4	68	-	0
TPH	*	(10) ⁷	<10	<10	-	0
PAH	*	0.1 ⁹	0.06	0.36	-	1
Anthracene	0.1	*	<0.01	0.01	0	-
Benzo(a)pyrene	0.02	0.01	<0.01	0.01	0	0
Fluoranthene	0.1	*	<0.01	0.03	0	-
Naphthalene	2	*	<0.01	0.05	0	-
pH	6.0 - 9.0	6.5 - 10.0	8.4	8.9	0	0

¹ Annual Averages prescribed within The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.

² EQS varies with water hardness where range given. Evaluated against appropriate band.

³ This value relates to total chromium.

⁴ * = No values defined or given.

⁵ Screened against the bioavailable fraction of the dissolved concentration of copper, nickel and zinc. "bioavailable" means the fraction of the dissolved concentration of zinc, nickel and copper likely to result in toxic effects as determined using the UKTAG Metal Bioavailability Assessment Tool. However, for this project, Bioavailable Concentration cannot be assessed as hardness not reported. Further assessment required.

⁶ 10.9 µg/l bioavailable plus ambient background concentration (µg/l) dissolved. Ambient background concentrations for dissolved zinc in freshwaters in England and Wales to be used in conjunction with item 6.

⁷ Concentration formerly prescribed within the Water Supply (Water Quality) Regulations 1989.

⁸ Drinking water standard based on total cyanide.

⁹ Sum concentration of 4 PAH comprising benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene and indeno(1,2,3-cd)pyrene.

¹⁰ Cannot be assessed as laboratory LoD exceeds EQS and DWV values. Further assessment required.