Lovell Partnerships

Desk Study and Ground Investigation Report

For

Miles Platting Area 7.5B, Manchester

May 2022

REPORT NO: 22LPL087/DSGI

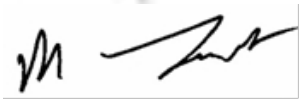
- *Desk Studies and Site Walkovers*
- *Intrusive Contaminated Land Investigations*
- *Geotechnical Appraisals and Ground Investigations*
- *Landfill Gas Assessments and Remedial Design*
- *Remediation Design and Implementation*
- *Remediation Project Management and Supervision*
- *Site Abnormal Assessments (Foundations and Contaminated Land)*

GEOTECHNICAL - CONTAMINATED LAND - FLOOD RISK

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DOCUMENT ISSUE RECORD

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BETTS GEO
CONSULTING ENGINEERS

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1 EXECUTIVE SUMMARY

Note – The following summary is not exhaustive and is to be used for guidance purposes only. The full report should be consulted for full details.

1. Site Location

The site is located at Sabden Close, Manchester, M40 7AR. The coordinates on the British National Grid CRS are 386210, 399079. The proposed site is approximately 0.66 hectares in total.

2. Site Description

On Site

Site forms part of the wider parcel 7.5 and is roughly square in plan form and is currently utilised as public open space with short amenity grass and numerous trees. Sabden Close traverses the south portion of site from a spur from Stracey Street with connecting footpath to Varley Street, most of the length is blocked with bollards and sandstone blocks. Miles Platting development advertisement signs are located in the southwest corner of site with the majority of site enclosed by grassed earth bunds approx. 1m in height. A brick built electricity substation is located on the north-easter side of site with site levels being generally flat except for the enclosing bunds. Site is bounded to the South by Bradford Road, to the west by Varley Street, to the north by Sandal Street and to the east by Stracey Street and Sabden Close. The surrounding land uses are residential to the west, north and east with commercial/light industrial to the south with a gas holder frame beyond.

3. Proposed Development

The proposed development consists of houses, public open space and associated infrastructure.

4. Site History

The earliest available map of site is the 1848 1:10,560 map which shows site as vacant ground with Shooters Brook running through it from east to west. No further major changes occur onsite until the 1891 1:500 map when the site is mainly covered by terrace housing and two roads.

No further major changes occur onsite until the 1963-1968 1:1,250 map when there are less terrace houses on site and there is a building called Sandal Court in the northwest of site. No further major changes occur onsite until the 2003 1:1,250 map when Sandal Court is no longer present.

No further major changes occur onsite until the 2022 1:10,000 map when all of site is shown as vacant. No further major changes occur onsite to present.

5. Published Geology

The BGS map shows the geology (1:10,000) beneath the site as the following:

- **Drift –** Till - Devensian
- **Solid – 99**% of site Pennine Upper Coal Measures Formation – **Mudstone, Siltstone & Sandstone. South-west Corner** – Openshaw Sandstone – **Sandstone**.

Based on the previous use and the site walkover there is artificial ground on site.

Radon

The site lies within a low-risk area of radon where less than 1% of homes are estimated to be above the action level, therefore **no radon protection measures are required for new dwellings or extensions**.

6. Hydrogeology and Hydrology

- The superficial deposits of the Till are designated as a Secondary Undifferentiated aquifer.
- The bedrock deposits of the Pennine Upper Coal Measures are designated as a Secondary A aquifer with the Openshaw Sandstone deposits designated as a Secondary A aquifer.
- The site does not lie within a Groundwater Source Protection as defined by the Environment Agency.
- There are no licenced water abstractions within 500m of site.
- The Ashton Canal is 166 m south of site.

7. Summary of Environmental Data

Possible Contamination Sources:

- **Current Site Use** – Public Open Space – Significant Risk; Unlikely

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- **Historical Site Use** – Residential – Onsite – Significant Risk; Possible
- **Former Brook** – Onsite – Significant Risk; Unlikely
- **Electricity Substation** – 5m E – Significant Risk; Unlikely
- **Historic Brickfield & Brick Kiln** – 56 / 59m SE / E – Significant Risk; Unlikely
- **Hazardous Substance / Storage / Usage** – 33m SE – Significant Risk; Possible (Localised)
- **Chimney** – 68m SE – Significant Risk; Unlikely
- **Gas Works** – 35m SE – Significant Risk; Possible (Localised)
- **Raising Works / Gas Stove Works** – 40m E – Significant Risk; Unlikely

Pathways and Receptors

- **Aquifers** – Below Site – Significant Risk; Possible (Localised)
- **Site End Users** – Onsite – Significant Risk; Possible

In this qualitative risk assessment, a generally **Low – Moderate (Localised)** risk for contamination and ground gas exists onsite. SI is required to confirm the risk potential and design remedial actions where necessary.

8. Scope of Betts Investigation

The preliminary fieldwork was carried out on the 22nd February 2021 and comprised of the following:

The fieldwork was carried out on the 22nd April 2022 and comprised the following:

- 11 No. window samples which were only excavated as hand dug pits to depths of between 0.15 and 0.8 m bgl due to the presence of obstructions and services
- 8 No. shallow hand pits on the grassed enclosure bunds around the perimeter of the site
- Chemical analysis (Metals, PAH's, asbestos and TPH's) of 14 No. samples (8 No. samples from the bunds and 6 No. samples from the window samples).

Further investigation was undertaken on 16th to 18th May 2022 and comprised the following:

- 3 No. cable percussive boreholes extending to between 5.0mbgl (CP1 & CP2) and 15mbgl (CP3).
- Chemical analysis (Metals, PAH's, asbestos and TPH's) of 6 No. samples.
- Geotechnical analyses (Atterberg, pH and 2:1 sulphate) of 6 No. samples.

The exploratory hole positions were selected and set out by Betts Geo Environmental Ltd (BGE) as shown on the Exploratory Hole Location Plan in Appendix E.

9. Ground Conditions Encountered

Ground conditions typically comprised of topsoil containing anthropogenic materials underlain by Made Ground overlying Glacial Till. The Made Ground is generally described as granular sands and gravels with some clayey and silty properties and the sands / gravels were noted to be of tarmac, brick, limestone, sandstone and concrete encountered to a maximum depth of 1.7mbgl. Glacial Till was encountered within all cable percussive boreholes generally described as firm brown mottled blue grey slightly sandy CLAY to a maximum depth of 3.5mbgl overlying stiff brown slightly sandy slightly gravelly CLAY becoming very stiff to hard below 10.5m proven to 15mbgl.

Groundwater Fieldwork

No groundwater was encountered during the fieldwork.

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10. Contamination Assessment and Remedial Actions

There are exceedances for lead and arsenic within some of the samples from the topsoil / Made Ground and the Made Ground samples. The lead exceedance for WS2 can be discounted as it is only a very minor exceedance of 1 mg/kg. There are also no exceedances for BaP when comparing the values to the C4SL thresholds. The exceedances which cannot be discounted are at bund sample 1, bund sample 7 and WS3B for lead and arsenic.

If site levels allow this material is to remain in place, a 600mm cover system will be required across site. This requirement may be removed if the soil is removed. Betts are not aware at the time of reporting whether the bunds will remain on site. Due to the presence of anthropogenic materials within the bund and the exceedances mentioned above, the material would not be suitable for re-use on site as topsoil.

Groundwater and Aquifer Risk

No groundwater was encountered during the fieldwork or follow-on monitoring therefore the risk to groundwater is deemed to be negligible and the presence of cohesive glacial till deposits will limit lateral and vertical contaminant spread.

11. Off-Site Disposal of Surplus Soil

It is recommended that the results of the contamination testing (including the history of the site) be presented to the proposed landfills to obtain their acceptance of the information to date. However, further testing maybe required to fully assess the waste classification of the soils requiring offsite disposal.

- Segregation of the Made Ground and Natural Strata should be possible given the chemical analysis and very different visual identification. If moved to other sites for use, it is proposed to use the results of the contamination testing to determine if it is deemed suitable for re-use as topsoil or subsoil.

12. Foundations

Given the depth of stiff clay overburden, depth of rock and lack of any workings despite the extensive work undertaken the risk from coal workings on site is deemed to be low. Unless excessive pile lengths are anticipated no additional work is required. Piling contractors should be made aware of this and pile design adjusted accordingly.

Site geology can generally be described as approx.. 1 - 2m of MADE GROUND comprising either concrete or dense granular sand/gravel over firm brown slightly sandy CLAY becoming very stiff to hard below circa 8mbgl.

Due to the likely requirement for grubbing out of relic concrete structures, these areas will likely require trench fill or piled foundations. The following allowable bearing pressure can be assumed on dry natural undisturbed materials described below;

- Firm to Stiff CLAYS – 100-125 kN/m^2
- Very stiff to Hard CLAYS – 150 kN/m^2

It is important to note that shallow groundwater may reduce bearing capacities by half when found in conjunction with granular soils. Groundwater monitoring has not encountered shallow groundwater across the site however this variability should be allowed for.

Care is required during the planning stage to ensure site levels are kept high and foundation excavation depths kept to a minimum to prevent encountering groundwater. It is advised that roadways and drainage is installed first to lower the groundwater potential. Localised deepening of foundations will also be required where former foundations are located.

A plot by plot foundation zoning plan should be undertaken when proposed levels are made available. Foundations should be excavated wholly on one stratum. Should proposed foundations span different strata, trenching and stepping of foundations and/or nominal reinforcement will be required.

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Calculations on the allowable bearing capacity indicate settlements of less than 25mm for a square pad using the above bearing capacity.

13. Concrete Design

It is considered for concrete design purposes that a brownfield site and mobile groundwater conditions are applicable and the results are summarised below:

Concrete Classification – Vicinity of Bund sample 1, Bund sample 7, WS2 & CP2	
Design Sulphate Class	DS-2
ACEC Class	AC-2

Concrete Classification – Rest of site	
Design Sulphate Class	DS-1
ACEC Class	AC-1

14. Heave / Shrinkage Potential

The results of Atterberg Tests are awaited, once received this report will be updated.

15. Ground Floor Construction

- Shrinkable soils are not generally present at shallow depth however it is recommended that suspended floor construction (e.g. either in-situ RC slabs or block and beam flooring) is adopted in accordance with NHBC guidance.

16. Control of Groundwater

Groundwater was not encountered during the investigation works or follow-on monitoring. Provision of pumping / shuttering should be allowed for. It is good practice to have such equipment on standby in case of seasonal / abnormal weather conditions. An allowance for dewatering by a competent contractor is advised for and drainage/buried services. There may be the possibility of sub artesian water below the glacial tills encountered on site.

Should sewers / excavations deeper than the boreholes / trial pits undertaken be required, further SI will be needed.

17. Highway

- According to the criteria of Highways Agency HD 25/95 Volume 7 Section 2 Part 2 HD 25/94, a CBR value of circa 3% on the sands is anticipated, however confirming in-situ CBR's should be undertaken once final formation levels are available. Placement of geotextiles within the areas of roads / parking could also be designed to minimise the subgrade thickness.

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2 SITE DESCRIPTION

2.1 Introduction

This investigation was carried out on the instruction of Lovell Partnerships. The purpose of the work was to carry out a Desk Study to provide preliminary geotechnical and contamination risk assessment information to support a planning application for proposed residential development. The site red edge can be seen below;



The proposed site development is provided below:



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2.2 Site Location

The site is located at Sabden Close, Manchester, M40 7AR. The coordinates on the British National Grid CRS are 386210, 399079. The proposed site is approximately 0.66 hectares in total. See Site Location Plan in Appendix A.

2.3 Site Description

2.3.1 On Site

Site was visited on 22nd April 2022 and the following description outlines the main features identified onsite.

Site forms part of the wider parcel 7.5 and is roughly square in plan form and is currently utilised as public open space with short amenity grass and numerous trees. Sabden Close traverses the south portion of site from a spur from Stracey Street with connecting footpath to Varley Street, most of the length is blocked with bollards and sandstone blocks. Miles Platting development advertisement signs are located in the southwest corner of site with the majority of site enclosed by grassed earth bunds approx. 1m in height. A brick built electricity substation is located on the north-easter side of site with site levels being generally flat except for the enclosing bunds. Site is bounded to the South by Bradford Road, to the west by Varley Street, to the north by Sandal Street and to the east by Stracey Street and Sabden Close. The surrounding land uses are residential to the west, north and east with commercial/light industrial to the south with a gas holder frame beyond.

2.3.2 Surrounding Area

Surrounding land uses for the site are as follows:

- **North** – 0m – 200m N is residential housing, 300 m N is surface water (Rochdale Canal) running south west to north east, 300 – 500 m N is industrial area, 200 m N is Educational Facility
- **East** – 0m – 500m E is residential housing.
- **South** – Directly south is Bradford Road, 0 – 200 m south is a circular gas frame, 200 m S is Ashton Canal, 300 m S is River Medlock, 200 – 500 m SW is residential housing and industrial / commerical buildings
- **West** – 0m – 500m W is residential housing, directly W is an electrical substation

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3 SITE HISTORY

3.1 Site History from Ordnance Survey Maps

A search of available historic maps was undertaken to establish the land use history of the site. Extracts of the maps are discussed below and can be found in full in Appendix B of this report. All maps are Ordnance Survey unless otherwise stated. All distances quoted on OS maps are taken from the site boundary, which is marked on the map.

3.2 Summary of Site History

3.2.1 On Site

The earliest available map of site is the 1848 1:10,560 map which shows site as vacant ground with Shooters Brook running through it from east to west. An extract of this map is shown below;

1848 1:10,560 Map



No further major changes occur onsite until the 1891 1:500 map when the site is mainly covered by terrace housing and two roads. An extract of this map is shown below;

1891 1:500 Map



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No further major changes occur onsite until the 1963-1968 1:1,250 map when there are less terrace houses on site and there is a building called Sandal Court in the northwest of site. An extract of this map is shown below;

1963-1968 1:1,250 Map



No further major changes occur onsite until the 2003 1:1,250 map when Sandal Court is no longer present An extract of this map is shown below;

2003 1:1,250 Map



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No further major changes occur onsite until the 2022 1:10,000 map when all of site is shown as vacant. An extract of this map is shown below;

2022:10,000 Map



No further major changes occur onsite to present.

3.2.2 Surrounding Area

The following table summarises the significant changes in historical use surrounding the site:

Date First Shown	Land Uses
1848	200 – 500 m N, E and S – coal pits, no longer labelled by 1891 50 m SW – Brick Kiln and Brick Field, no longer labelled by 1891 300 m N – chemical works, no longer labelled by 1956 200 m SW – Quakens Brook 350 – 500 m SW – Reservoir, no longer present by 1891 250 m NW – Rope Walk, no longer present by 1891
1891	300 m N – canal later labelled as Rochdale Canal – still present today but labelled as disused by 1988 100 – 450 m SE – Gas Works, gas holder locations have moved by 1934 and there is only 2 by 1956, by 1988 the gas works buildings to the east of the viaduct is no longer present 250 m E – Brick Works, becomes a pit by 1906 250 m N – surface water features, no longer present by 1906 0 – 500 m N & W – residential housing 250 m SE – railway line / viaduct
1906	200 m SW – Raising Works, no longer present by 1923 200 m N – school, still present today 0 – 250 m E – residential housing, expands to 500 m by 1923
1923	300 m NW – Woollen Mill and Victoria Mills, labelled as warehouse by 1985
	No other significant changes

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4 UNEXPLODED ORDNANCE

Zetica Ltd were commissioned by Betts Geo Environmental to carry out a SiteSafe Unexploded Ordnance (UXO) Desk Study for an area of approximately 50.3 hectares (ha) which represented the wider Miles Platting development area.

Figure UXO hazard zone plan of the Site

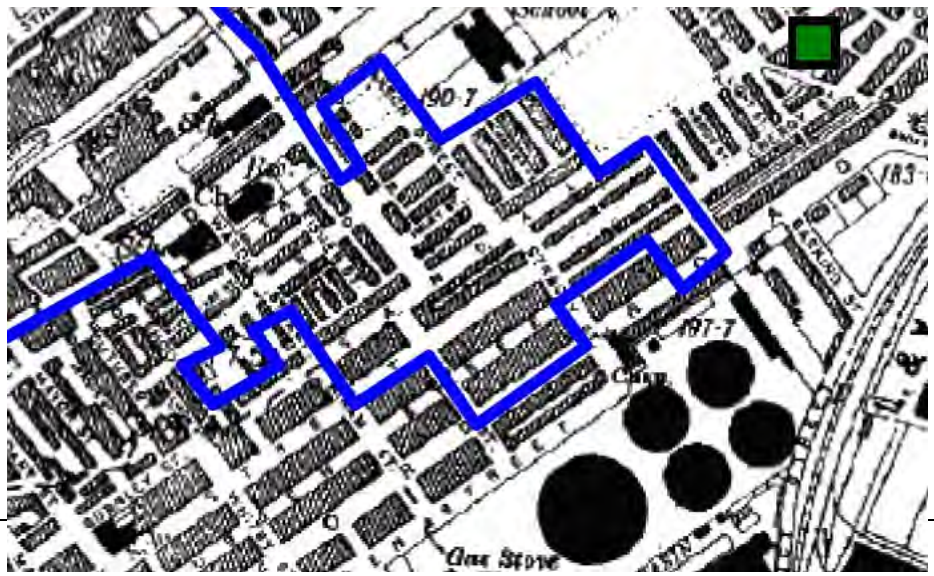


Source: Bing Maps *Not to Scale*

Legend					
	Very Low		Low		Moderate
	High		Very High		Site boundary

As can be seen on the above, the Miles Platting Area 7.5B site is located within a 'Low Risk' area.

The mapping below indicates areas where bomb strikes have been recorded around the site. With the site being industrial/residential, any strikes/damage are likely to have been recorded. It should be noted that two HE bomb strikes have not been identified in close proximity to the site.



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It is considered prudent to ensure that all staff have an awareness of the UXO hazard through the Site induction process and toolbox talks. This will ensure that appropriate action is taken in the event that a suspect item is uncovered.

The full report should be consulted, this is available in appendix C.

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5 GEOLOGY

The following section details the published and available geological data available for the site and the surrounding area. All data is taken from the Groundsure Data report located in Appendix C unless otherwise stated. This report should be referred to for full details.

5.1 Published Geology

The documented geology of the site is summarised on the British Geological Survey map principally, with further site-specific details detailed below.

Geology	Artificial Ground & Land Slip	Drift	Solid
1:10,000	None Recorded*	**Till**, Devensian - Diamicton	**99% of Site** – Pennine Upper Coal Measure Formation **– Mudstone, Siltstone & Sandstone, South west corner –** Openshaw Sandstone **– sandstone**

*Due to the site's development history the presence of artificial ground cannot be discounted despite none being recorded.

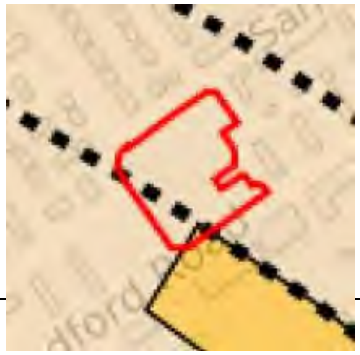
Superficial Geology

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



Bedrock Geology

ID	Location	LEX Code	Description	Rock age
1	On site	PUCM-MDSS	Pennine Upper Coal Measures Formation - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
3	On site	OPS-SDST	Openshaw Sandstone - Sandstone	Bolsovian Sub-age



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5.1.1 Linear Features

There is one (1 No.) recorded linear feature for on site and comprises a coal seam (dotted black line above). There are a further 2 No. coal seams within 250 m of site which are 41 m NE and 187 m NE.

5.1.2 Historic Borehole Records

There are 4 No. records of historic records on site, all of the logs are confidential.

5.2 Geological Features

Several ground workings have been noted on and within 250 m of site, further details are provided in the sections below.

5.2.1 BritPits

There is one record of BritPits within 250 m of site, an extract is provided below:

ID	Location	Details	Description
A	140m S	Name: Glenden Hall Brick Field Address: Miles Platting, MANCHESTER, Lancashire Commodity: Clay & Shale Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

5.2.2 Surface Ground Workings

There are 34 No. records of surface workings within 250 m of site. An extract of the surface workings within 150 m can be found below:

ID	Location	Land Use	Year of mapping	Mapping scale
A	56m SE	Brick Field	1851	1:10560
1	59m S	Brick Kilns	1851	1:10560
B	86m E	Unspecified Pit	1938	1:10560
B	86m E	Unspecified Pit	1933	1:10560
A	129m S	Pond	1851	1:10560
B	129m SE	Unspecified Pit	1938	1:10560
B	129m SE	Unspecified Pit	1933	1:10560
C	136m NE	Brick Works	1891	1:10560
2	149m NE	Coal Pits	1851	1:10560

The workings form 150 – 250 m can be found in the Groundsure Report.

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5.2.3 Non-coal mining

ID	Location	Name	Commodity	Class	Likelihood
6	246m SW	Not available	Vein Mineral	A	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered

There was one record for non-coal mining within 250 m of site. An extract is provided below:

5.2.4 Coal Mining

The site falls within the coal mining reporting area therefore a full Consultants Coal Mining Report was gained from The Coal Authority. Extract of main findings below, the full report can be seen in Appendix C.

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	BRADFORD THREE QUARTERS	Coal	35DB	39	Beneath Property	18.3	South-West	120	1900
unnamed	YARD	Coal	35CQ	106	North-East	18.4	South-West	100	1900
unnamed	BRADFORD FOUR FEET	Coal	35CS	117	South	18.4	South-West	120	1760
unnamed	BRADFORD FOUR FEET	Coal	35CU	118	Beneath Property	18.4	South-West	120	1900
unnamed	PARKER	Coal	35BL	349	North-East	18.0	South-West	80	1935
unnamed	PARKER	Coal	35BQ	541	Beneath Property	22.5	South	80	1935
unnamed	PARKER	Coal	35BP	542	South-East	18.0	South-West	80	1935
unnamed	PARKER	Coal	35BO	561	South	18.0	South-West	80	1935
unnamed	ROGER	Coal	35AY	662	North-East	16.1	South-West	180	1961
unnamed	CROMBOUKE	Coal	359J	674	East	16.0	South-West	120	1933
unnamed	ROGER	Coal	35AT	692	East	16.9	South-West	170	1956
unnamed	ROGER	Coal	35AU	713	East	18.7	South-West	170	1956
unnamed	CROMBOUKE	Coal	359H	733	East	17.4	South-West	120	1913
unnamed	ROGER	Coal	35AV	785	East	19.4	South-West	170	1956
unnamed	ROGER	Coal	35B2	800	North-West	21.6	South	180	1965
unnamed	CROMBOUKE	Coal	359F	819	Beneath Property	21.0	South-West	120	1924
unnamed	ROGER	Coal	35AZ	836	Beneath Property	20.8	South-West	180	1957
unnamed	CROMBOUKE	Coal	359E	836	Beneath Property	16.5	South-West	120	1932
unnamed	ROGER	Coal	35B0	894	South-West	19.0	South-West	180	1961
unnamed	ROGER	Coal	35B1	967	South-East	17.5	South-West	180	1958

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Probable unrecorded shallow workings
Yes.

Spine roadways at shallow depth
No spine roadway recorded at shallow depth.

Mine entries

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Shaft	386399 014	386359 399047		Coal	

Abandoned mine plan catalogue numbers
The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

11471	NW643	NW1171
NW1172	0	NW1170
NW437	NW645	PO0

Our records show we have more plans than those shown above which could affect the enquiry boundary.

Please contact us on 0345 762 6848 to determine the exact abandoned mine plans you require based on your needs.

Outcrops

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
OPENSHAW	Coal	Yes	Within	N/A	120

Geological faults, fissures and breaklines
No faults, fissures or breaklines recorded.

Opencast mines
None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips
None recorded within 500 metres of the enquiry boundary.

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations

Distance to site investigation (m)	Direction
47.6	East
10.1	North East
10.5	West
10.4	North

See Section 4 for further information.

Remediated sites
None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence
The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas
None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes
None recorded within 500 metres of the enquiry boundary.

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Future underground mining
None recorded.

Coal mining licensing
None recorded within 200 metres of the enquiry boundary.

Court orders
None recorded.

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

Withdrawal of support notices
The property is in an area where a notice to withdraw support was given in 1955.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

Payments to owners of former copyhold land
The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

In summary the Coal Authority Report shows there is an outcrop on site and that shallow ground workings are probable and there is a mine shaft.

Capita Symonds Structures (Capita) carried out coal investigations across the adjacent Miles Platting parcels (7.4 and 7.5A). The report which discusses the investigation is as follows:

- Capita Symonds Structures, Drilling and Grouting Completion Report, Cells 7.4 and 7.5A, Miles Platting, 22nd December 2010, Report ref: SS/015587
- Pages 14 – 21 of Capita Symonds Structures, Phase II Geo-environmental Investigation and Assessment, Cells 7.4 and 7.5A, Miles Platting, March 2008, Report ref: SS/015587-7.4&7.5a-P1GEIA

An extract summarising each of the reports is provided below:

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9.3.1 Evidence of mine workings, believed to be of the Charlotte Mine coal seam, was encountered beneath the southwestern sections of both sites.

9.3.2 From the data obtained, there is not indicated to be sufficient rock cover above the coal seams/areas of broken ground for mining-related collapses to "choke" before reaching the drift/rock interface. Therefore, in order to prevent future problems of mining-related subsidence/ground movements, treatment of these mine workings is recommended prior to re-development, to consist of consolidation drilling and grouting at both sites.

9.3.3 Drilling and grouting would need to be undertaken on a grid basis, with suitable spacing between grout holes (3-6m?), which would probably need to extend to depths in the order of 30m b.g.l. This treatment would be required southwest of the subcrop of the Charlotte Mine, but may not be required to northeast of it as the next named seam is the Bradford Three-Quarters Mine coal seam (reported seam thickness 0.50m) some 40m+ below the Charlotte Mine. Given the expected depth and thickness of the Bradford Three-Quarters Mine coal seam, there is considered to be sufficient rock cover to prevent a risk of significant subsidence at the surface in the event of collapse of associated mine workings.

9.3.4 Therefore, the treatment programme would need to include some "exploratory" work to determine where the Charlotte Mine coal seam subcrops, and if there is a need for any such treatment to the NE of this sub-crop. Furthermore, angled drilling may be needed along parts of the site boundaries, to enable treatment for a suitable easement beyond the site boundaries. This may require permission from affected adjacent land-owners. The Coal Authority requires that permission is obtained for the treatment of mine workings/mine shafts.

9.3.5 In addition to the mine workings, the Coal Authority has indicated the existence of a mine shaft (reference "008" on plan in the Mining Report, included in Appendix B), located about 11-12m beyond the boundary of Site 7.5a (back of footpath adjoining Saxon Street). The location indicated on the Mining Report plan is stated to be "approximate", and there could be other mine entries. Therefore, a section of Site 7.5a in the vicinity of the indicated mine shaft needs to be investigated to determine if it is located on the site.

9.3.6 The mine shaft investigation would consist of the formation of rotary drillholes on a grid basis, to cover an area of about 3.5m by 30m, at 1.5m centres (presumed three rows with 21 holes in each row), along the northeastern section of Site 7.5a nearest to the indicated location of the mine shaft. As rockhead is indicated to be at depths of 18-20m b.g.l., such drillholes would need to extend to depths of about 21m (i.e. 2-3m below rockhead).

9.3.7 If the mine shaft is found to exist at the site, it would need to be suitably investigated to determine its depth, diameter and nature of infill, and then treated and capped prior to redevelopment of the affected area of the site.

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5.4	MINESHAFT INVESTIGATION
5.4.1	All 63 drillholes encountered the drift-rock interface at a consistent depth (about 13m bgl). On this basis, there is no evidence that the mine entry is located within the subject site area.
5.4.2	Therefore, as the mine entry is indicated to lie outside of the subject site, no further action is to be taken to locate/treat it, to provide protection to development at the subject site.
5.4.3	It would be the responsibility of the Coal Authority to remediate the former coal mine entry, if it were to collapse/subside at some stage in the future.
5.5	DRILLING AND GROUTING
5.5.1	A grid of some 177 drillholes was formed across the site for the investigation/treatment of workings within the Charlotte Mine coal seam. Within this grid, the drift-rock interface was typically encountered at depths of 19-21m bgl. Within the Westphalian strata, one or locally two horizons of coal/workings were encountered; these are conjectured to represent the Charlotte Mine coal seam. Above both horizons of coal/workings, the overlying roof strata comprised mudstone and/or siltstone (but with little/no recorded sandstone horizons).
5.5.2	Evidence of coal extraction was encountered in parts (soft ground or similar) but no voids, flush loss, or substantial thicknesses of broken ground were encountered/recorded during drillhole formation.
5.5.3	The apparent absence of open voids/open workings associated with the Charlotte Mine seam beneath the site was confirmed by the lack of substantial grout takes, during the grouting operations; not one hole was found to have grout takes in excess of 0.125 tonnes, roughly equivalent to each drillhole's volume.
5.5.4	Grout sample tests have confirmed the injected grout to have reached the required minimum strength.
5.6	CONCLUSIONS
5.6.1	The works undertaken have confirmed that the Charlotte Mine coal seam has been mined beneath the site, but there is no evidence of residual voids or open workings, and grout takes have been very low. This has essentially confirmed the lack of substantial residual mining voids, and the activities will have stabilised/consolidated the site further, with the result that risk of shallow-mining related subsidence upon the proposed development can be discounted.
5.6.2	The investigation works have not identified/encountered the recorded mine entry within the subject site area. Therefore, as it is indicated to lie outside of the subject site, no further action is to be taken to locate/treat it, to protect the proposed redevelopment.

A report has previously been produced by Betts Geo for an adjacent site at Varley Street, Miles Platting. The report reference is provided below:

- Betts Geo, Ground Investigation Report, Area 7 – Varley Street, Miles Platting, December 2013, Report No. 13LPL017/GI

38 boreholes were drilled to a maximum depth of 30m across the site (see annotated sketch provided by Van Elle.

Drilling records were maintained throughout the process and in summary comprised:

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- Overburden comprising of firm to stiff clays with sand and gravel bands to depths of up to 22m
- No Solid Coal or workings were encountered in any of the boreholes
- No broken ground or voids were encountered

As such it was considered that the site is at a negligible risk from shallow coal mining and no precautionary measures are required.

Van Elle produced the following documents in which the below extract has been taken from:

- Ref Van Elle Job no 134810 Factual Report: Varley Street, Manchester 28.2.2014
- Ref Van Elle Drilling / Grout Logs dated 7th and 20th of January 2014

An extract of the exploratory hole location plan has been provided below. The drawing shows details of the areas previously drilled and grouted as per the Capita reports above. The Miles Platting Area 7.5B is outlined on the drawing extract.

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The Charlotte Mine seam is relatively thin at 600mm thick according to published geological information and is recorded to dip to the south west at an angle of 16-18 degrees, as such getting deeper beneath the site from east to west.

All of the previous reports from adjacent sites (up dip / shallower anticipated coal) have been investigated extensively by a significant amount of closely spaced boreholes with grout takes purely being filling the hole anulus (no evidence of workings or voids).

Boreholes drilling adjacent to the northern boundary (NKC BH1 and BH8 as part of the Betts Varley Street

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report) showed stiff clay from 9.5-12.5m a stiff clay to rockhead at 20.5 and 22m begl and continued to prove rockhead to a depth of 30m. In these holes no coal or evidence of workings was identified.

Given the depth of stiff clay overburden, depth of rock and lack of any workings despite the extensive work undertaken the risk from coal workings on site is deemed to be low. Unless excessive pile lengths are anticipated no additional work is required. Piling contractors should be made aware of this and pile design adjusted accordingly.

5.2.5 Radon

The site lies within a low-risk area of radon where less than 1% of homes are estimated to be above the action level, therefore **no radon protection measures are required for new dwellings or extensions**.

5.3 Hydrogeological and Hydrological Features

The table below summarises the presence/absence of any hydrological licences and incidents within 500m of the proposed site. If entries are present within 250m, further details are provided in the relevant subsection below;

Data Type	On Site	0 – 250m	250 – 500m
Hydrogeology & Hydrology			
Licensed Discharge Consents	-	-	6
Pollutant Release to Surface Waters (Red List Discharge Consents)	-	-	-
Groundwater Abstraction Licences	-	-	-
Surface Water Abstraction Licences	-	-	-
Potable Water Abstraction Licences	-	-	-
Source Protection Zones	-	-	-
Groundwater Vulnerability & Soil Leaching Potential	Identified within 50 m of site		
Surface Water Features	-	2	Not Searched

5.3.1 Hydrogeology

- The superficial deposits of the Till are designated as a Secondary Undifferentiated aquifer.
- The bedrock deposits of the Pennine Upper Coal Measures are designated as a Secondary A aquifer with the Openshaw Sandstone deposits designated as a Secondary A aquifer.
- The site does not lie within a Groundwater Source Protection as defined by the Environment Agency.
- There are no licenced water abstractions within 500m of site.
- The Ashton Canal is 166 m south of site.

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6 ENVIRONMENTAL DATA

The following section details environmental data available for the site and the surrounding area. Full details can be found in the Groundsure Report by located in Appendix C.

The table below summarises the presence/absence of any waste, hazardous substance sites of industrial land uses within 500m of the proposed site. If entries are present within 250m, further details are provided in the relevant section below.

Data Type	On Site	0 – 250m	250 – 500m
Current Industrial Land Use			
Historic Integrated Pollution Control Authorisations	-	2	-
Part A (2) & Part B Activities and Enforcements	-	-	3
Licensed Pollutant Release (Part A (2)/B)	-	-	3
Radioactive Substances Authorisations	-	-	-
Hazardous Substance Storage / Usage	-	2	2
EA/NRW Pollution Incidents	-	10	7
Control of Major Accident Hazards (COMAH)	-	1	1
Electricity Cables	-	-	-
Gas Pipelines	-	-	-
Recent Industrial Land Uses	-	8	-
Current or recent petrol stations	-	-	-
Waste and Landfill			
Active or recent landfill (EA/NRW)	-	-	-
Historic Landfill (LA)	-	-	-
Historic Landfill (BGS)	-	-	-
Historic Landfill (EA/ NRW)	-	3	-
Historical Waste Sites (LA / OS records)	-	7	26
Waste Exemptions	-	14	20
Licenced Waste Sites (EA / NRW)	-	3	5
Past Land Use			
Historical Industrial Land Uses	-	78	143
Historical Tanks	-	67	289
Historical Energy Features	-	27	22
Historical Petrol Stations	-	-	-
Historical Garages	-	-	2
Historical Military Land	-	-	-

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Environmental Designations			
Sites of Special Scientific Interest (SSSI)	-	-	-
National Nature Reserves (NNR)	-	-	-
Special Areas of Conservation (SAC)	-	-	-
Special Protection Areas (SPA)	-	-	-
Areas of Outstanding Natural Beauty (AONB)	-	-	-
National Parks	-	-	-
Green Belt Land	-	-	-
Nitrate Vulnerable Zones	-	-	-

6.1 Current Industrial Land Use

6.1.1 Historic Integrated Pollution Control Authorisations

There is one record for historic integrated pollution control authorisations within 250 m of site. Extract below:

ID	Location	Details	
A	110m SE	Application reference number: 059225/HSC/NORTH2/00 Application status: Historical Consent Application date: 11/05/2000 Address: Land At Gleden Street, Bradford, WF17 6HY	Details: Continuation Of Hazardous Substances Consent For Storage Of Gas Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified

6.1.2 Hazardous Substance Storage / Usage

There are 2 No. records for hazardous substance storage / usage within 250 m of site. Extract below:

ID	Location	Details	
A	33m SE	Application reference number: No Details Application status: Historical Consent Application date: No Details Address: National Grid Gas PLC, Bradford Road Holder Station (West), Bradford Road, Miles Platting, Manchester, Greater Manchester, England, M40 7AS	Details: No Details Enforcement: No Details Date of enforcement: No Details Comment: No Details
A	110m SE	Application reference number: 059225/HSC/NORTH2/00 Application status: Historical Consent Application date: 11/05/2000 Address: Land At Gleden Street, Bradford, WF17 6HY	Details: Continuation Of Hazardous Substances Consent For Storage Of Gas Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified

6.1.3 EA / NRW Pollution Incidents

There are 10 No. records for pollution incidents within 250 m of site. The nearest pollution incident is 166 m N of site which had minor / low impact. See Groundsure report for further details.

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6.1.4 Control of Major Accident Hazards (COMAH)

There is 1 No. record of Control of Major Accident Hazards (COMAH) within 250 m of site. The pollution incident was 205 m NW and related to Degussa which was a chemical company.

6.1.5 Recent Industrial Land Uses

There are 8 No. records of recent industrial land uses within 250 m of the site. Extract provided below:

ID	Location	Company	Address	Activity	Category
1	5m SE	Electricity Sub Station	Greater Manchester, M40	Electrical Features	Infrastructure and Facilities
A	68m SE	Chimney	Greater Manchester, M40	Chimneys	Industrial Features
A	108m SE	Gas Holder Station	Greater Manchester, M40	Gas Features	Infrastructure and Facilities
2	117m W	Electricity Sub Station	Greater Manchester, M40	Electrical Features	Infrastructure and Facilities
3	120m SE	Tank	Greater Manchester, M40	Tanks (Generic)	Industrial Features
4	157m E	F Dunn & Sons	222a, Bradford Road, Manchester, Greater Manchester, M40 7BT	Vehicle Repair, Testing and Servicing	Repair and Servicing
6	188m E	Mast	Greater Manchester, M40	Telecommunications Features	Infrastructure and Facilities
C	211m NW	Tank	Greater Manchester, M40	Tanks (Generic)	Industrial Features

6.2 Waste and Landfill

6.2.1 Historical Landfill (EA / NRW)

There are 3 No. records for historic EA / NRW landfills within 250 of the site. Extract below:

ID	Location	Details		
1	160m SE	Site Address: New Viaduct Street, Greater Manchester Licence Holder Address: -	Waste Licence: - Site Reference: F045 Waste Type: - Environmental Permitting Regulations (Waste) Reference: - Licence Issue: - Licence Surrender: -	Operator: - Licence Holder: - First Recorded - Last Recorded: -
A	172m S	Site Address: Bradford Road - Cambrian Street Depot, Greater Manchester Licence Holder Address: -	Waste Licence: Yes Site Reference: F044, RD/LIC/381/84 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 10/10/1985 Licence Surrender: 09/03/1993	Operator: - Licence Holder: Regional Surveyore (North West Gas) First Recorded 31/12/1985 Last Recorded: 31/12/1990
2	215m E	Site Address: Bradford Road Works, Bradeley Hall Road, Haslington, Crewe, Cheshire Licence Holder Address: Welman House, Altrincham, Cheshire	Waste Licence: Yes Site Reference: RD/LIC/180/79, GDO F058, 0381 Waste Type: Inert, Industrial, Special Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 07/12/1979 Licence Surrender: 14/12/1983	Operator: - Licence Holder: North West Gas First Recorded 07/12/1979 Last Recorded: 01/12/1983

6.2.2 Historical Waste Sites

There are 7 No. records for the historical waste sites within 250 m of site. Extract is provided below:

ID	Location	Address	Further Details	Date
A	172m S	Site Address: N/A	Type of Site: Corporation Refuse Destructor Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1948
A	172m S	Site Address: N/A	Type of Site: Refuse Destructor Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1955
B	174m S	Site Address: N/A	Type of Site: Scrap Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1986
B	179m S	Site Address: N/A	Type of Site: Scrap Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1988
B	180m S	Site Address: N/A	Type of Site: Scrap Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1992
B	180m S	Site Address: N/A	Type of Site: Scrap Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1986
A	235m SE	Site Address: N/A	Type of Site: Refuse Destructor Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1958

6.2.3 Licenced Waste Sites

There are 3 No. records for licenced waste sites within 250 m of site. Extract below:

ID	Location	Details		
B	225m S	Site Name: D Race & Sons Site Address: Upper Helena Street, Manchester, M40 7EQ Correspondence Address: -	Type of Site: Metal Recycling Site (mixed MRS's) Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: DRS001 EPR reference: EA/EPR/MP3992CS/S002 Operator: Race Dennis Waste Management licence No: 53429 Annual Tonnage: 5000	Issue Date: 18/11/1999 Effective Date: - Modified: - Surrendered Date: Jun 14 2004 12:00AM Expiry Date: - Cancelled Date: - Status: Surrendered

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B	249m S	Site Name: Upper Helena Street Site Address: - Correspondence Address: Bradley Hall Farm, Rhodes Green, Middleton, Manchester, M24 4SL	Type of Site: Household, Commercial & Industrial Waste T Stn Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: WAR001 EPR reference: - Operator: Warrender David Waste Management licence No: 50069 Annual Tonnage: 0	Issue Date: 16/05/2001 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued
B	249m S	Site Name: Upper Helena Street Site Address: - Correspondence Address: Bradley Hall Farm, Rhodes Green, Middleton, Manchester, M24 4SL	Type of Site: Household, Commercial & Industrial Waste T Stn Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WAR001 EPR reference: - Operator: Warrender David Waste Management licence No: 50069 Annual Tonnage: 0	Issue Date: 16/05/2001 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued

6.3 Past Land Use

6.3.1 Historical Industrial Land Uses

There are 78 No. records for historical industrial land uses within 250 m of site. These relate to gas works, raising works, gas stove works, unspecified industrial /commercial, brick field, brick kiln, brick works, gasometers, unspecified tanks, unspecified pits, coal pit, sanitary works, railway sidings, unspecified works, unspecified ground workings, chemical works, alum works, canal works, disused canal, oil works and unspecified works. Extract below shows the records within 100 m:

ID	Location	Land use	Dates present	Group ID
B	35m SE	Gas Works	1985 - 1991	895751
B	40m E	Raising Works	1906	806704
B	40m E	Gas Stove Works	1921 - 1923	899437
B	40m E	Unspecified Commercial/Industrial	1933 - 1938	909305
B	40m E	Unspecified Commercial/Industrial	1891	917862
B	50m SE	Gas Work	1978	814479
B	54m SE	Unspecified Works	1968	830458
B	54m SE	Unspecified Commercial/Industrial	1956	916012
B	55m E	Unspecified Commercial/Industrial	1851	881841
B	56m SE	Brick Field	1851	817949
1	59m S	Brick Kilns	1851	827898
B	64m SE	Gasometer	1923	809783
B	64m SE	Unspecified Tank	1906 - 1921	974232

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B	65m SE	Gasometers	1978	916494
B	65m SE	Unspecified Tanks	1956 - 1968	922346
B	65m SE	Unspecified Tank	1891	916313
B	70m SE	Unspecified Tank	1906	918029
B	70m SE	Unspecified Tank	1933 - 1938	938620
B	70m SE	Gasometer	1921 - 1923	941154
B	74m SE	Gasometers	1991	983680
B	74m SE	Gasometer	1985	979918
B	79m S	Gasometer	1985	850148
B	81m S	Unspecified Tank	1933 - 1938	889468
B	86m E	Unspecified Pit	1933 - 1938	988822
B	89m E	Gasometer	1923	809781
B	89m E	Unspecified Tank	1906 - 1921	854180
B	93m E	Unspecified Tank	1891	940326

6.3.2 Historical Tanks

There are 67 No. entries for historical tanks within 250m of site. Extract showing the records within 100 m below;

ID	Location	Land use	Dates present	Group ID
B	42m E	Gas Works	1893	123389
B	45m E	Gas Holder Station	1991 - 1995	128430
C	45m E	Gas Works	1908 - 1922	144191
B	53m SE	Gas Holder Station	1986 - 1989	143674
B	54m SE	Gas Works	1979	124342
B	54m SE	Gas Holder Station	1992	124051
B	58m SE	Gasometers	1893 - 1922	146932
B	61m SE	Gasometer	1891	108530
B	66m SE	Gasometers	1979	108903
B	66m SE	Unspecified Tank	1948 - 1955	139971
B	66m SE	Gas Holder	1986 - 1989	149177
B	68m SE	Unspecified Tank	1958	145921
B	68m SE	Gasholder	1992	120428
B	74m SE	Unspecified Tank	1931	128987
B	74m SE	Gasometer	1908 - 1922	144489
B	76m S	Gas Holder	1986 - 1989	140988
B	76m S	Unspecified Tank	1948 - 1955	147701
B	76m S	Unspecified Tank	1958	123472
B	76m S	Gasholder	1992	120429
B	83m S	Unspecified Tank	1931	148893
B	87m E	Gasometer	1891	108531

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See the Groundsure report for entries >100 m from site.

6.3.3 Historical Energy Features

There are 27 No. entries for historical energy features within 250m of site. Extract below;

ID	Location	Land use	Dates present	Group ID
A	2m SE	Electricity Substation	1991 - 1995	74979
A	4m NE	Electricity Substation	1968 - 1984	74990
B	42m E	Gas Works	1893	80210
B	44m E	Corporation Gas Works	1891	79203
B	45m E	Gas Holder Station	1991 - 1995	83257
C	45m E	Gas Works	1908 - 1922	77534
B	53m SE	Gas Holder Station	1986 - 1989	65294
B	54m SE	Gas Works	1979	64728
B	54m SE	Gas Holder Station	1992	79718
B	58m SE	Gasometers	1893 - 1922	78993
B	61m SE	Gasometer	1891	59723
B	66m SE	Gasometers	1979	63338
B	66m SE	Gas Holder	1986 - 1989	77108
B	68m SE	Gasholder	1992	63416
B	74m SE	Gasometer	1908 - 1922	70420
B	76m S	Gas Holder	1986 - 1989	74103
B	76m S	Gasholder	1992	63417
B	87m E	Gasometer	1891	59724
B	113m SE	Gasometer	1891	59722
2	113m W	Electricity Substation	1968 - 1995	82234
B	126m E	Gas Works	1949	66752
B	138m NE	Gas Works	1948 - 1970	74752
B	141m NE	Gas Works	1984	71264
C	186m E	Gas Works	1948 - 1970	85321
H	208m NW	Electricity Substation	1948 - 1995	78253
H	210m NW	Electricity Substation	1984 - 1991	69820
C	224m SE	Gas Works	1891	73418

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7 SUMMARY OF ENVIRONMENTAL SENSITIVITY

The following section is a review of the environmentally sensitivity of the site as discussed in Sections 2 - 5. Significant potential risks are discussed in the following subsections and will then be evaluated as part of the Site Conceptual Model in Section 7.

Sources are defined as where pollution comes from, pathways are a route in which the pollution travels and receptors are anything affected by a pollutant. Further details on Source-Pathway-Receptor methodology can be found in Appendix D.

The table in section 6.1 focuses on significant site-specific sources, pathways and receptors. More 'generic' pathways and receptors (such as site end uses) will be covered as part of the full Site Conceptual Model in Section 7.

7.1 Sources

Source	Distance/ Direction	Details	Significant Risk
Current Site Use – Public Open Space	Onsite	No ongoing contaminative process anticipated from current land use. No significant widespread contamination anticipated from current land use.	**Unlikely**
Historical Site Use – Residential	Onsite	Two phases of residential housing have existed onsite, the first was industrial revolution high density terraced houses later replaced with lower density terraced housing in the 1960 – 2000s. Both phases present potential contamination in the form of asbestos, heavy metals and hydrocarbons.	**Possible**
Former Brook	Onsite	The earliest OS maps shows Shooters Brook onsite. This was no longer present by 1891 and could have been backfilled with Made Ground. Due to age of backfill it is unlikely to be a source of contamination.	**Unlikely**
Electricity Substation	5 m E	Possible source of PCBs however likely replaced after legislation banning PCB use coupled with low mobility in the environment reduces risk to site. This asset is maintained therefore a risk to the site from the asset is unlikely.	**Unlikely**
Historic Brickfield and Brick Kiln	56 / 59 m SE / S	Formerly there was a brickfield and brick kiln <60 m S/SE of site which is a potential source of contamination. Due to the presence of cohesive deposits and the distance from site it is unlikely that any potential contamination could laterally migrate onto site.	**Unlikely**
Hazardous substance storage / usage	33 m SE	There was a record for hazardous substance storage / usage and the licence was held by the National Grid. No further details are provided but it is thought this relates to the gas works, see below for further details.	**Possible (localised)**
Chimney	68 m SE	There are records of a chimney 68 m SE which is assumed to relate to the gas works, see below for further details. Due to the presence of cohesive deposits and the distance from site it is unlikely that any potential contamination could laterally migrate onto site.	**Unlikely**

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Gas works	35 m SE	There is a gas works >35m SE of site which has become smaller over time. The gas works is no longer in operation. The gas works (including chimney and hazardous substance storage / usage mentioned above) is a potential source of contamination. The possible contaminants of concern are ammoniacal liquors, coal tar and spent oxide foul lime. Due to the presence of cohesive deposits and the distance from site it reduces the likelihood that any potential contamination could laterally migrate onto site. Due to the potential amount of contamination from the gas works there is still a possibility for contamination migration.	**Possible (localised)**
Raising Works / gas stove works	40 m E	The 1906 map shows a raising works 40 m east which becomes a gas stove works in 1923 and are both a potential source of Made Ground and contamination. These are no longer labelled by 1934. Due to the age of the potential contamination and the presence of cohesive deposits, it is unlikely that there is a risk to site.	**Unlikely**

7.2 Pathways and Receptors

Pathways and Receptors	Distance/ Direction	Details	Significant Risk
Aquifers	Below Site	The bedrock aquifers are Secondary A Aquifers. Potential for contamination to leach into the bedrock aquifer is deemed to be low due to depth of cohesive superficial deposits. SI to confirm.	**Low**
Site End Users	On Site	Site end use residential presenting a sensitive receptor and there are potential sources of localised contamination onsite.	**Possible**

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8 INITIAL CONTAMINATION CONCEPTUAL MODEL

For details on how the conceptual model is evaluated please refer to Appendix D.

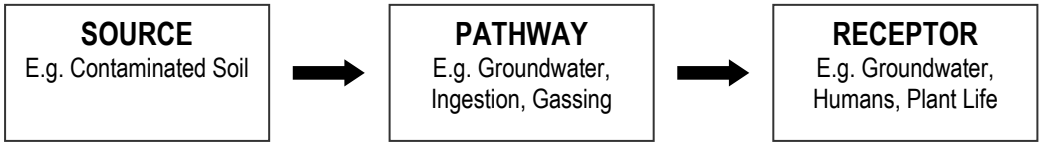
This section of the report aims to identify land which could potentially be affected by contamination, such that it could affect the value or re-use of the land, or such that mitigation would be required for certain proposed end uses of the land.

Potential contamination sources and environmentally sensitive receptors have been discussed in Section 6. Potentially significant risks are evaluated as part of the subsequent sub-sections.

8.1 Source-Pathway-Receptor-Linkages

The risk assessment uses a 'Source-Pathway-Receptor' methodology for assessing whether a source of contamination could potentially lead to harmful consequences. This means that there needs to be a pollutant linkage from source to receptor for harm to be caused, this linkage consisting of; a source of pollution; a pathway for the pollutant to move along; a receptor that is affected by the pollutant.

The current potential risks to site arising from various Source-Pathway-Receptor linkages are assessed below. A risk may be considered significant if all three of the stages are present and therefore providing a pollution linkage. The various sources, pathways and receptors are considered separately. The assessment is based on the future use, which is understood to be residential with home-grown produce.



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Type of Contamination	Potential Sources	Potential Pathway	Potential Receptors	Pollution Linkage	Comment	Estimated Level of Risk
Ground Gas	Historical residential housing Hazardous Substance Storage / Usage Gas Works	Inhalation of Vapours	Construction/ Maintenance Workers	**Potentially Active**	Former residential housing onsite, nearby hazardous waste storage / use and former gas works are potential sources of Made Ground and therefore ground gas. Ground gas monitoring likely to be required.	**Moderate**
		Vapours Penetrating Unprotected Buildings	Future Site Users	**Potentially Active**	Made ground anticipated across site from demolition materials from former site uses and nearby site uses, potential ongoing ground gas risk. The cohesive superficial deposits will limit ground gas migration on site. Site investigation will determine any potential sources of ground gas. Ground gas monitoring results can be used to determine ground gas risk.	**Moderate**
Surface and Near Surface Contaminants Within Soils	Historical residential housing Hazardous Substance Storage / Usage Gas Works	Ingestion, Inhalation, Dermal Contact	Current Site Users	**Potentially Active**	Localised hotspots of contamination anticipated from former site use and nearby historic site uses. Migration of contamination from offsite sources unlikely due to low permeability of superficial till. Site currently vacant / public open space.	**Low**
			Construction Workers	**Potentially Active**	Localised hotspots of contamination anticipated from former site use and nearby historic site uses. Migration of contamination from offsite sources unlikely due to low permeability of superficial till. Site currently vacant / public open space. Suitable PPE to protect workers.	**Low – Moderate (Localised)**
			Future Site Users	**Potentially Active**	Localised hotspots of contamination anticipated from former site use and nearby historic site uses. Migration of contamination from offsite sources unlikely due to low permeability of superficial till. Site currently vacant / public open space. Future site use is residential with home grown produce therefore is a high sensitivity proposed site end use.	**Moderate (Localised)**
			Adjacent Land Users	**Potentially Active**	Localised hotspots of contamination anticipated from former site use and nearby historic site uses. Migration of contamination from offsite sources unlikely due to low permeability of superficial till. Site currently vacant. Surrounding land use is residential and commercial / industrial.	**Low – Moderate**
		Direct Contact	Structures	**Potentially Active**	Localised hotspots of contamination anticipated from former site use and nearby historic site uses. No significant widespread contamination anticipated.	**Low – Moderate**
		Absorption in Root Zone	Plants	**Potentially Active**	Potential for localised hot spots of contamination. Future site use is residential with home grown produce therefore is a high sensitivity proposed site end use.	**Moderate (Localised)**
Mobile Contaminants, Leachables e.g. from Pollution Sources Adjacent to Site/On Site	Historical residential housing Hazardous Substance Storage / Usage Gas Works	Leaching into Groundwater	Groundwater	**Potentially Active**	Permeability designation of the bedrock geology is Secondary A overlain by cohesive Till. Site does not lie within protection zone and there are no water abstractions within 250m of site.	**Low**
		Off-site Migration in Groundwater	Abstractions	**Potentially Active**	There are no groundwater abstractions identified within 250m of site. Site does not lie within Groundwater Source Protection Zone. Localised hot spots of contamination onsite anticipated.	**Low**
			Controlled Waters	**Potentially Active**	No surface water features identified within 250m of site. Low permeability till deposits will limit vertical and lateral contamination spread. No widespread significant contamination anticipated onsite.	**Low**

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Type of Contamination	Potential Sources	Potential Pathway	Potential Receptors	Pollution Linkage	Comment	Estimated Level of Risk
Organic and Inorganic Contaminants Within Soils / Groundwater	Historical residential housing Hazardous Substance Storage / Usage Gas Works	Potable Water Supply Pipes	Utilities Workers	**Potentially Active**	Possible localised hotspots of contamination from former site uses. Migration of contamination from offsite sources unlikely due to low permeability of superficial till. Requirement for UU Assessment is anticipated.	**Low – Moderate (Localised)**

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8.2 Contamination Summary

In this qualitative risk assessment, a generally **Low – Moderate (Localised)** risk for contamination and ground gas exists onsite. SI is required to confirm the risk potential and design remedial actions where necessary.

8.3 Geotechnical Constraints

- Possible service easements – liaison with utility providers advised. Electrical substation directly offsite to the east.
- Potential deep made ground.
- Potential breaking out of relic basements/foundations – anticipated.

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9 FIELDWORK

9.1 Objectives of the Ground Investigation

The objectives of the intrusive ground investigation will be to:

- Clarify the 'Initial Contamination Conceptual Model'.
- Clarify the initial risk assessment.
- Benchmark the contamination status of the site.
- Provide data for the design of any remedial works that may be required.
- Provide a geotechnical appraisal for the site.

9.2 Fieldwork Scope

9.2.1 Betts Geo April 2022

The fieldwork was carried out on the 22nd April 2022 and comprised the following:

- 11 No. window samples which were only excavated as hand dug pits to depths of between 0.15 and 0.8 m bgl due to the presence of obstructions and services
- 8 No. shallow hand pits on the grassed enclosure bunds around the perimeter of the site
- Chemical analysis (Metals, PAH's, asbestos and TPH's) of 14 No. samples (8 No. samples from the bunds and 6 No. samples from the window samples).

Further investigation was undertaken on 16th to 18th May 2022 and comprised the following:

- 3 No. cable percussive boreholes extending to between 5.0mbgl (CP1 & CP2) and 15mbgl (CP3).
- Chemical analysis (Metals, PAH's, asbestos and TPH's) of 6 No. samples.
- Geotechnical analyses (Atterberg, pH and 2:1 sulphate) of 6 No. samples.

The exploratory hole positions were selected and set out by Betts Geo Environmental Ltd (BGE) as shown on the Exploratory Hole Location Plan in Appendix E.

A vast number of services are present on-site and the exploratory hole positions were located to avoid any known services. Prior to any intrusive works, each location was checked for services using a cable avoidance tool (CAT) and review of statutory service plans. The CAT checks showed potential services in a lot of the locations.

There was also a lot of concrete obstructions or very dense demolition rubble which meant that the window sample holes could not progress past hand pit depth.

Further investigation will be required in order to get sufficient coverage across the site.

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10 GROUND CONDITIONS

10.1 General

The exploratory holes were logged by an Engineer in general in accordance with the recommendations of BS5930:2015. Detailed descriptions, together with relevant comments, are given in the Exploratory Hole Logs included in Appendix E.

10.2 Ground Conditions Summary

Ground conditions typically comprised of topsoil containing anthropogenic materials underlain by Made Ground overlying Glacial Till. The Made Ground is generally described as granular sands and gravels with some clayey and silty properties and the sands / gravels were noted to be of tarmac, brick, limestone, sandstone and concrete encountered to a maximum depth of 1.7mbgl. Glacial Till was encountered within all cable percussive boreholes generally described as firm brown mottled blue grey slightly sandy CLAY to a maximum depth of 3.5mbgl overlying stiff brown slightly sandy slightly gravelly CLAY becoming very stiff to hard below 10.5m proven to 15mbgl. There were a larger number of obstructions noted during the works.

Logs for the bunds have not been provided however, the material was generally described as a topsoil containing gravel of limestone, brick and concrete. The topsoil was thought to have been imported.

The full logs should be consulted in conjunction with this summary.

10.2.1 Topsoil

Topsoil was encountered in all locations to a maximum depth of 0.2 m bgl and was generally described as dark brown sandy clay with rootlets.

10.2.2 Made Ground

There is Made Ground present across the site beneath the topsoil (unless there were obstructions) and has generally been described as below:

- Very dense brown sands and gravels of fine to coarse angular tarmac, brick, limestone and sandstone.
- Dense brown slightly clayey very sandy gravel of fine to coarse angular concrete, brick and sandstone.
- Loose to medium grey brown / dark brown slightly silty fine to coarse sand. Gravel of fine to medium angular brick and sandstone.

Obstructions are noted in section 10.4.

10.2.3 Glacial Till

Glacial till in the form of brown clay was encountered within all cable percussive boreholes generally described as firm brown slightly sandy clay with occasional gravel and blue grey mottling at some locations

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and occasional laminations of fine brown sand/silt. This strata became very stiff to hard below 8.7m in CP3 with numerous SPT refusals below this depth to 15mbgl.

10.3 Visual and Olfactory Contamination

No visual and/or olfactory evidence of contamination, other than the Made Ground identified above.

10.4 Obstructions

The following obstructions were noted.

Exploratory Hole	Depth (m bgl)	Strata	Remark
WS1A	0.4	Made Ground	Very dense – unable to progress hand pit
WS1B	0.3	Made Ground	Very dense – unable to progress hand pit
WS1C	0.2	Made Ground	Very dense – unable to progress hand pit
WS2	0.35	Made Ground	Very dense – unable to progress hand pit
WS3A	0.8	Made Ground	Concrete slab
WS3B	0.7	Made Ground	Concrete slab
WS4A	0.15	Made Ground	Concrete slab
WS4B	0.35	Made Ground	Concrete slab
WS4C	0.2	Made Ground	Concrete boulder
WS5A	0.2	Made Ground	Concrete slab
WS5B	0.3	Made Ground	Very dense – unable to progress hand pit
CP1	0.3 – 1.3	Concrete	Chiselled – slow progress
CP2	0.2 – 1.7	Concrete	Chiselled – slow progress

10.5 Groundwater – Fieldwork

No groundwater was noted during the investigation.

10.6 Groundwater – Post-Field Work Monitoring

The table below indicates groundwater encountered during the monitoring post fieldwork (1/6 visits has been undertaken);

Exploratory Hole	Depth to Water (mbgl)		Borehole Depth (mbgl)	
	Min	Max	Min	Max
CP1	Dry	Dry	2.85	2.85
CP2	Dry	Dry	2.92	2.92
CP3	Dry	Dry	2.90	2.90

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11 LABORATORY TESTING

11.1 General

An assessment of potential determinants associated with the current/former site uses has been undertaken. Determinants originating from the current/former site uses may include metals, polycyclic aromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPHs) and asbestos. A general suite of testing should detect most potential contaminants. The laboratory testing results can be found in Appendix F.

Test	No. of Tests	Description
pH Values	26	Determination of pH (using Cyberscan pH meter).
Sulphate - Soluble 2:1 Extract	26	Dionex.
Arsenic, Cadmium, Chromium VI, Chromium III, Total Chromium, Lead, Mercury, Selenium, Copper, Nickel, Complex and Free Cyanide and Zinc.	20	Soil samples were analysed in accordance with UKAS/MCERTS standards Inductively coupled plasma atomic emission spectroscopy (ICP-OES)
Speciated Polycyclic Aromatic Hydrocarbons (PAH),	20	Determination of Polycyclic Aromatic Hydrocarbons by GC-MS. End/end extraction using DCM on as received sample. In house method modified USEPA 8270. Include coronene if required.
TPH CWG	20	TPH CWG (Aliphatics C5-6,>6-8,>8-10,>10-12,>12-16,>16-21,>2-35) (aromatics >C5-7,>7-8,>8-10,>10-12,>12-16,>16-21,>21-35) C5-8 fractions by Headspace GC-MS (003S). C8-35 fractions on as received sample extracted with hexane/acetone, aliphatic/aromatic splits run by GC-FID (005S), banded as listed above.
GRO/BTEX/MTBE by GC-FID (C5-10; C10-C12)	20	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12).
Organic Matter	20	Determination of Organic Matter by combustion.
Asbestos Screen	20	Visual Screening for Fibres.
Atterberg Limits	6	BS1377 Part 2. 1990, 4.3,5.3,5.4

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12 CONTAMINATION ASSESSMENT

12.1 General

Contaminants of concern recorded at concentrations above relevant screening values are summarised below. For ease of description, the identification of contaminant sources and possible re-use of material, Topsoil, Made Ground, Natural Strata and Groundwater will be dealt with in separate sub-headings in this section of the report where required.

Our assessment is based on the following assumptions:

- The proposed site end use in of a high-risk rating (residential housing with gardens). For analysis purposes, 'residential with home grown produce' is deemed most appropriate end use.
- The superficial deposits are classed as Secondary Undifferentiated Aquifer (Low permeability).
- The bedrock deposits are classed as Secondary A Aquifers (Moderate permeability).
- It is deemed that some statistical analysis is appropriate. Where sample data numbers are low and/or targeted, each determinant result is reviewed further as an individual result as opposed to an average across the site.
- Site history has indicated a **Moderate - High** risk of contamination.
- Statistical analysis of the chemical test results has been undertaken in general accordance with Environment Agency 2009 SGV Guidance and AtRisk 2017 using the combined assessment criterion given by CLEA (Note: all SSVs for EA derivation are for a SOM of 6%, in line with Environment Agency Report SC050021/SR4 – this figure is deemed representative as an average value for a sandy loam soil). AtRisk 2017 are used to the nearest SOM percentage deemed appropriate.
- No free product was noted within the exploratory holes.
- Following the withdrawal of CLR 7-10 Guidance documents by the Environment Agency, statistical analysis has been undertaken in accordance with the CIEH/CL:AIRE 'Guidance on Comparing Soil Contamination Data with a Critical Concentration' (May 2008). As such, the use of the mean value test alone is not considered.

A full risk assessment is detailed within Section 10 of this report.

12.2 Soils Contamination Summary

12.2.1 Topsoil

The bund around the site was sampled as topsoil and the sample from WS5A was also topsoil. The screening of these results against the AtRisk2017 values for residential with home grown produce shows that there are exceedances for lead and benzo(a)pyrene (BaP). The exceedances have been listed below:

- Lead (200 mg/kg): Bund sample 1 (240 mg/kg) and Bund sample 7 (518 mg/kg)
- BaP (1.51 / 2.05 mg/kg): Bund sample 4 (2.47mg/kg) and Bund sample 7 (2.56 mg/kg)

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The exceedances for BaP were against the relevant thresholds for 6% Soil Organic Matter (SOM). When compared to the C4SL value of 4.95 mg/kg there are no exceedances.

12.2.2 Made Ground

There are exceedances for the samples of Made Ground when screening of these results against the AtRisk2017 values for residential with home grown produce. The following exceedances were noted:

- Lead (200 mg/kg): WS2 (201 mg/kg) and WS3B (388 mg/kg)
- Arsenic (32 mg/kg): WS3B (47 mg/kg)
- BaP (1.51 / 2.05 mg/kg): WS3A (2.85 mg/kg)

The exceedances for BaP were against the relevant thresholds for 1% / 6% Soil Organic Matter (SOM). When compared to the C4SL value of 4.95 mg/kg there are no exceedances.

The arsenic C4SL value is 37 mg/kg however, the result from WS3B is still above this value.

No asbestos was noted in any of the samples.

Further risk assessment is therefore required for this determinant and is discussed further in Section 13.2 below.

12.2.3 Natural Strata – Glacial Till

No exceedances were identified for the determinants tested for in any of the samples taken from natural strata.

12.3 Groundwater Contamination

Based on the lack of significant contamination observed within the site soils and lack of observed groundwater, the risk to controlled waters is lowered.

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13 ENVIRONMENTAL RISK ASSESSMENT

13.1 General

This section assesses likely risks to the identified receptors, arising from potential contamination sources. It provides a final qualitative assessment of the risks involved, indicating whether (where appropriate) any immediate action is required to mitigate certain risks.

In assessing the risk qualitatively, it is appropriate to use the methods outlined in the CIRIA document C552, "Contaminated Land Risk Assessment a Guide to Good Practice". It uses a classification of risk based on the magnitude of the potential consequence or severity or risk occurring, compared with the magnitude of the probability or likelihood of the risk occurring. These are indicated on the attached tables in Appendix D.

The superficial deposits are classed as a Secondary Undifferentiated Aquifer (Low permeability) and the bedrock deposits are classed as Secondary A Aquifers (Moderate permeability). With respect to human health, the proposed end use (residential with home grown produce) is of high sensitivity. Therefore, the site's environmental setting is considered to be of a **Moderate to High** environmental sensitivity. Transient risks to construction workers can be addressed by the adoption of appropriate health and safety measures (see Section 13.2), therefore, the primary residual risks that require assessment are Site End Users. The following sections are split into soils and groundwater for clarity.

13.2 Assessment of Contamination Analytical Results

Soils

There are exceedances for lead, arsenic and BaP within some of the samples from the topsoil / Made Ground and the Made Ground samples.

The lead exceedance for WS2 can be discounted as it is only a very minor exceedance of 1 mg/kg. There are also no exceedances for BaP when comparing the values to the C4SL thresholds.

The exceedances which cannot be discounted are at bund sample 1, bund sample 7 and WS3B for lead and arsenic.

If site levels allow this material is to remain in place, a 600mm cover system will be required across site. This requirement may be removed if the soil is removed. Betts are not aware at the time of reporting whether the bunds will remain on site. Due to the presence of anthropogenic materials within the bund and the exceedances mentioned above, the material would not be suitable for re-use on site as topsoil.

Groundwater and Aquifer Risk

No groundwater was encountered during the fieldwork or follow-on monitoring therefore the risk to groundwater is deemed to be negligible and the presence of cohesive glacial till deposits will limit lateral and vertical contaminant spread.

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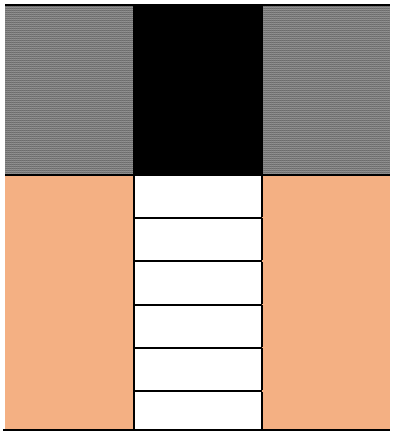
14 PRELIMINARY GROUND GAS RISK ASSESSMENT

14.1 Ground Gas Requirements – Radon

The site lies within a low-risk area of radon where less than 1% of homes are estimated to be above the action level, therefore **no radon protection measures are required for new dwellings or extensions**.

14.2 Ground Gas Assessment (Ongoing)

Three (3 No) boreholes were all installed to a maximum depth of 3.00mbgl. A typical installation is shown below;



14.2.1 Summary of Results

Gas monitoring is ongoing (1/6 visits complete) and the initial results are summarised below (see Appendix G for full results);

Borehole Number	Peak Methane (%)	Peak Carbon Dioxide (%)	Lowest Oxygen (%)	Atmospheric Pressure Low (mB)	Peak Flow (l/hr)	Other gasses	MAX GSV CH_4	MAX GSV CO_2	No. of Visits
CP1	0.30	0.10	21.30	1013	0.0	1 CO	0.000	0.000	1/6
CP2	0.20	0.10	21.30	1013	0.0	1 CO	0.000	0.000	1/6
CP3	0.20	0.20	21.30	1013	0.0	1 CO	0.000	0.000	1/6

14.2.2 Guidance

Three recent publications are used for ground gas risk assessment:

- 'Guidance on Evaluation of Development Proposals on Sites Where Methane and Carbon Dioxide are Present', Report Edition No.04 March 2007 NHBC – designed for use with low rise residential properties.

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- CIRIA C665 'Assessing risks posed by hazardous ground gases for buildings' 2007 - for high rise residential / flats.
- BS8485:2015 'Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings'.

Further details / accompanying notes for the following gas risk assessment are enclosed in Appendix H. The proposed development at the site is Residential.

14.2.3 Ground Gas Summary

No significant ground gas has been encountered on site to date however further ground gas monitoring visits are required. The following ground gas recommendation is preliminary subject to the completion of the ground gas monitoring programme and this is likely to be revised.

The recommended ground gas protection measures are given below;

Site Area	Site Classification	Recommended Ground Gas Protection Measures
Whole of Site	Green / CS1	No specialist ground gas protection measures required.

For the purposes of pricing it would be prudent to allow for ground gas protection to Amber 1 / CS2 grade across site until the ground gas monitoring programme has been completed and the above gas assessment updated.

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15 REVISED CONCEPTUAL SITE MODEL

15.1 General

The Initial Conceptual Site Model has been amended in light of data obtained during the ground investigation.

15.2 Final Conceptual Site Model

This section reassesses likely risks to the identified receptors, arising from potential contamination sources. It provides a final qualitative assessment of the risks involved, indicating whether (where appropriate) any immediate action is required to mitigate certain risks. It also discusses (where appropriate) what longer term measures or remedial works may be required in the future if the site were to be developed. A formal Part 2A detailed inspection has been completed for the adjacent landfill area - the site hasn't been determined as Contaminated Land at present but it is intended to record a risk summary statement in the Public Register of Contaminated Land to explain the condition of the site and the intention for voluntary remediation to take place. As such this final conceptual model is undertaken on the site at the date of issue and will require updating subject to this determination.

Target (Receptor)	Potential Source-Pathway Linkage	Remedial Action Required (where appropriate)	Est. Degree of Risk to Target Following Remedial Action Where Necessary
Site End Users	Inhalation of soil gases, odours or dust.	Ground gas monitoring ongoing. Assume Amber 1 gas protection until monitoring has been complete.	Low
Site End Users	Ingestion of, and skin contact with, contaminated soil.	Lead and arsenic encountered during SI works, 600mm cover system across the site due to extensive made ground.	Low
Site End Users	Ingestion of contaminants in vegetables etc. or in soils adhering to vegetables, etc	Lead and arsenic encountered during SI works, 600mm cover system across the site due to extensive made ground.	Low
Construction/ Maintenance Workers	Inhalation of soil gases, odours or dust.	PPE and appropriate handwashing facilities to be provided to ground workers. Toolbox talks and watching brief for any unforeseen contamination may be required.	Low (assumed basic PPE is used)
Construction/ Maintenance Workers	Ingestion of, and skin contact with, contaminated soil	PPE and appropriate handwashing facilities to be provided to ground workers. Toolbox talks and watching brief for any unforeseen contamination may be required.	Low (assumed basic PPE is used)
Plants	Adverse effects on growth caused by presence of phytotoxic contaminants in soil	Lead and arsenic encountered during SI works, 600mm cover system across the site due to extensive made ground.	Low
Buildings and Structures	Flow of ground gas into buildings. Asphyxiation, toxicity, explosion and fire hazards	Ground gas monitoring ongoing. Assume Amber 1 gas protection until monitoring has been complete.	N/A
Foundations	Sulphate attack of foundations	Foundations to be designed as per section 17.4.	Low
Water Supplies	Hydrocarbons penetrating plastic water	United Utilities pipeline risk assessment	Low

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	supply pipes.	required.	
Groundwater	Migration of soluble contaminants into groundwater on or off site	Groundwater testing is recommended if significant contamination and there is shallow groundwater present on site.	Low
Surface Water	Migration of soluble contaminants and/or direct run-off of contaminants	Risk is anticipated to be lowered due to cohesive superficial deposits across site. Groundwater testing recommended in boreholes if significant contamination encountered and shallow groundwater.	Low

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16 OUTLINE STRATEGY FOR REDUCTION / REMEDIATION STRATEGY

16.1 General

The following section details any recommendations to reduce risk on site and recommends remedial actions (as per the previous sections of this report). For clarity, the section is split into sub-sections as per the conceptual site model (Section 12).

16.2 Construction / Maintenance Workers

Significant contamination was not encountered on site. The following recommendations should be adhere to during site works in the interest of good practice:

- Site workers should wear gloves, boots and overalls and wash their hands before eating, drinking and smoking. Excessive dust generation should be avoided.
- It is recommended that during all excavations adequate ventilation should be maintained. If man entry into excavations is required, gas monitoring should be carried out as a precaution.
- If areas of suspected contamination are found then a suitably qualified person should undertake appropriate sampling, testing and further risk assessment.
- No asbestos was encountered on site however vigilance should be adhered, and any suspected asbestos should be notified and a suitably qualified person appointed to inspect.

16.3 Site-End Users

Based on the site investigation works, there was some significant contamination encountered for lead and arsenic. Due to the small size of the site and extensive made ground across site it is deemed that a clean cover system comprising the following will be required within rear gardens across site to protect site end users;-

- 150mm clean and inert topsoil (anticipated to be imported) over
- 450mm clean and inter subsoil (anticipated to be imported)

16.4 Ground Gas Protection Measures

Ground gas monitoring is ongoing, assume protection to Amber 1 / CS2 grade until completion of the gas monitoring and update of the above ground gas assessment.

16.5 Ground Water / Aquifer

No groundwater was encountered during the fieldwork or follow-on monitoring therefore the risk to groundwater is deemed to be negligible and the presence of cohesive glacial till deposits will limit lateral and vertical contaminant spread.

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16.6 Off-Site Disposal of Soils

The handling, re-use or disposal of waste is regulated by the Environment Agency. Any material excavated on-site may be classified as waste and it is the responsibility of the holder of a material to form their own view on whether or not it is waste. One of the ways this can be achieved is set out in the Development Industry Code of Practice (CoP; Ref. 13). This builds on the Environment Agency guidance document Definition of waste: developing greenfield and brownfield sites (2006). The Agency will take into account the use of the CoP in deciding whether to regulate materials as waste. If materials are dealt with in accordance with the CoP, the Agency considers that those materials are unlikely to be waste at the point when they are to be used for the purpose of land development.

All material proposed for off-site disposal (e.g. during future construction works) should be given a proper description and waste classification assessment as required by the Environmental Protection Duty of Care Regulations (Ref. 14), and in accordance with WM3 and the Environment Agency Technical Guidance on the assessment and classification of Hazardous Waste.

It is recommended that the results of the contamination testing (including the history of the site) be presented to the proposed landfills to obtain their acceptance of the information to date. However, further testing maybe required to fully assess the waste classification of the soils requiring offsite disposal.

Segregation of the Topsoil, Made Ground and Natural Strata should be possible given the chemical analysis and very different visual identification. If moved to other sites for use, it is proposed to use the results of the contamination testing to determine if it is deemed suitable for re-use as topsoil or subsoil.

If there is the need to remove soil / Made Ground off-site it is recommended that the number of results required may not have been met using the sampling density requirements given in the Environment Agency (EA) *Waste Sampling and Testing for Disposal to Landfill 2013*. Additional samples of segregated soils whilst in stockpiles may be required before waste classification assessment can be carried out. A minimum of five (5 No.) samples of heterogenous material are required for offsite disposal.

Once an adequate number of samples have been analysed then the results of the chemical analysis will need to be assessed in order to classify the materials as non-hazardous or hazardous. The waste classification of soils is carried out in line with the *Guidance on the classification and assessment of waste (1st edition v1.1), Technical Guidance WM3*, published by the EA, SEPA, NIEA and NRW. Betts Geo can provide a cost for the testing of any additional samples and a waste classification report, if materials will be disposed of offsite.

If the materials are classified as non-hazardous then the materials will not require any further assessment, unless there is possibility of disposal at an inert landfill. In order to dispose of material at an inert landfill the material must meet certain criteria physically and the leachable contamination must be below the inert Waste Acceptance Criteria (WAC) thresholds. WAC (single stage leachate, unless requested otherwise) analysis will therefore need to be carried out on the material. Due to time constraints or the availability of storage on site it may be advised to dispose of the material at a non-hazardous landfill, to allow materials to

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be removed from site quickly.

If the waste classification determines that there is hazardous material to be disposed of then hazardous WAC testing must be carried out on the material before it can be removed from site. This will determine whether the material requires treatment before being disposed at a hazardous landfill. Any exceedances of the hazardous WAC thresholds will need to be discussed with the receiving landfill.

The hazardous waste threshold for asbestos is 0.1% or any materials which contain visible asbestos containing materials. Asbestos was identified on site with quantification values greater than the hazardous waste threshold. Materials which are chemically non-hazardous but hazardous with respect to asbestos can potentially be disposed of at a non-hazardous landfill within a Stable Non-Reactive Hazardous (SNRW) cell.

Further information about disposal of soils offsite is provided in Appendix I.

16.7 Piped Drinking Water Supplies

The use of Protect-A-Line is anticipated, a pipeline assessment should be undertaken to confirm.

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17 GEOTECHNICAL ASSESSMENT

17.1 Introduction

It is understood that the proposed development will consist of the construction of low-rise residential properties with associated private gardens, associated infrastructure, public open space and new highway. Specific loadings have not been provided; however, it is anticipated that associated foundation loadings will be low. Furthermore, no site levels have been provided, however, it is anticipated that they will tie in with existing housing.

17.2 Site Preparation and Excavation

Due to the presence of the bund around the outside of the site, there may need to be removed and made level with the rest of the site.

Following breaking out of any obstructions, excavations of shallow soils should not present any difficulty for conventional plant and equipment.

Topsoil and any unsuitable Made Ground should be removed from beneath all proposed buildings and hard standing areas.

All excavations should be planned, and due consideration should be given to providing temporary support or suitable battering. Excavations should be regularly inspected by a competent person to ensure continued safety. Further advice on the safety of excavations is given in Health and Safety in Construction. Shallow (<1.20mbgl) excavations for service trenches should be straight forward however, could be complicated by variable Made Ground on site.

Excavation in close proximity to any existing services will need to ensure that the excavation walls are stable or appropriately battered to a safe angle, temporary slope stability works may be required in any deep excavations. General care and due diligence is in excavations in close proximity to the services located on site.

17.3 Control of Groundwater

Groundwater was not encountered during the investigation works or follow-on monitoring. Provision of pumping / shuttering should be allowed for. It is good practice to have such equipment on standby in case of seasonal / abnormal weather conditions. An allowance for dewatering by a competent contractor is advised for and drainage/buried services. There may be the possibility of sub artesian water below the glacial tills encountered on site.

Should sewers / excavations deeper than the boreholes / trial pits undertaken be required, further SI will be needed.

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17.4 Foundation Recommendations

Given the depth of stiff clay overburden, depth of rock and lack of any workings despite the extensive work undertaken the risk from coal workings on site is deemed to be low. Unless excessive pile lengths are anticipated no additional work is required. Piling contractors should be made aware of this and pile design adjusted accordingly.

Site geology can generally be described as approx.. 1 - 2m of MADE GROUND comprising either concrete or dense granular sand/gravel over firm brown slightly sandy CLAY becoming very stiff to hard below circa 8mbgl.

Due to the likely requirement for grubbing out of relic concrete structures, these areas will likely require trench fill or piled foundations. The following allowable bearing pressure can be assumed on dry natural undisturbed materials described below;

- Firm to Stiff CLAYS – 100-125 kN/m^2
- Very stiff to Hard CLAYS – 150 kN/m^2

It is important to note that shallow groundwater may reduce bearing capacities by half when found in conjunction with granular soils. Groundwater monitoring has not encountered shallow groundwater across the site however this variability should be allowed for.

Care is required during the planning stage to ensure site levels are kept high and foundation excavation depths kept to a minimum to prevent encountering groundwater. It is advised that roadways and drainage is installed first to lower the groundwater potential. Localised deepening of foundations will also be required where former foundations are located.

A plot by plot foundation zoning plan should be undertaken when proposed levels are made available. Foundations should be excavated wholly on one stratum. Should proposed foundations span different strata, trenching and stepping of foundations and/or nominal reinforcement will be required.

Calculations on the allowable bearing capacity indicate settlements of less than 25mm for a square pad using the above bearing capacity.

17.5 Ground Floor Construction

Shrinkable soils are not generally present at shallow depth (due to Made Ground on site) however it is recommended that suspended floor construction (e.g. either in-situ RC slabs or block and beam flooring) is adopted in accordance with NHBC guidance.

17.6 Heave / Shrinkage Potential

The results of Atterberg Tests are awaited, once received this report will be updated.

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17.7 Highway

According to the criteria of Highways Agency HD 25/95 Volume 7 Section 2 Part 2 HD 25/94, a CBR value of circa 3% on the clay/sand is anticipated, however confirming in-situ CBR's should be undertaken. Placement of geotextiles within the areas of roads / parking could also be designed to minimise the subgrade thickness.

17.8 Protection of Buried Concrete

It is considered for concrete design purposes that a brownfield site and mobile groundwater conditions are applicable and the results are summarised below:

Concrete Classification – Vicinity of Bund sample 1, Bund sample 7, WS2 & CP2	
Design Sulphate Class	DS-2
ACEC Class	AC-2

Concrete Classification – Rest of site	
Design Sulphate Class	DS-1
ACEC Class	AC-1

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18 REFERENCES

18.1 *Capita Symonds Structures, Drilling and Grouting Completion Report, Cells 7.4 and 7.5A, Miles Platting, 22nd December 2010, Report ref: SS/015587*

18.2 Ref Van Elle Job no 134810 Factual Report: Varley Street, Manchester 28.2.2014

18.3 Ref Van Elle Drilling / Grout Logs dated 7th and 20th of January 2014

18.4 *BS 5930:2015 Code of Practice for Ground Investigation.*

18.5 Investigation of Potentially contaminated sites BS10175:2011 +A1:2013.

18.6 BS8576:2013 Guidance on investigations for ground gas.

18.7 R & D Publication CLR 8 (March 2002) Assessment of Risks to Human Health from Land Contamination: An Overview of the Development of Soil Guideline Values and Related Research. Environment Agency.

18.8 R & D Publication CLR 10 (March 2002) The Contaminated Land Exposure Assessment Model (CLEA): Technical basis and algorithms. Environment Agency.

18.9 Contaminated Land Risk Assessment; a Guide to Good Practice; CIRIA C552: 2001.

18.10 BRE 211 Radon: guidance on protective measures for new buildings (including supplementary advice for extensions, conversions and refurbishment) (2007 edition).

18.11 Assessment of risks to human health from land contamination: an overview of the development of guideline values and related research. EA, 2002.

18.12 Health and Safety in Construction, HSG150, HSE, 1996.

18.13 Baker W (1987), Investigation Strategy - lecture at City of Birmingham Development Department Symposium on Methane Generating Sites, 9 December 1987, Industrial Research Laboratories, Birmingham.

18.14 NHBC Standards, Chapter 4.2, 2017 Building Near Trees.

18.15 'Guidance on Evaluation of Development Proposals on Sites Where Methane and Carbon Dioxide are Present', Report Edition No.04 March 2007 NHBC – designed for use with low rise residential properties.

18.16 CIRIA C665 'Assessing risks posed by hazardous ground gases for buildings' 2007 - for high rise residential / flats.

18.17 BS8485:2015 'Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings'.

18.18 BRE 414 'Protective measures for housing on gas-contaminated land' Roger Johnson, Parkman Environment 2001.

18.19 BS 8500-2:2015+A1:2016 'Concrete British Standard to BS EN 206. Specification for constituent materials and concrete'.

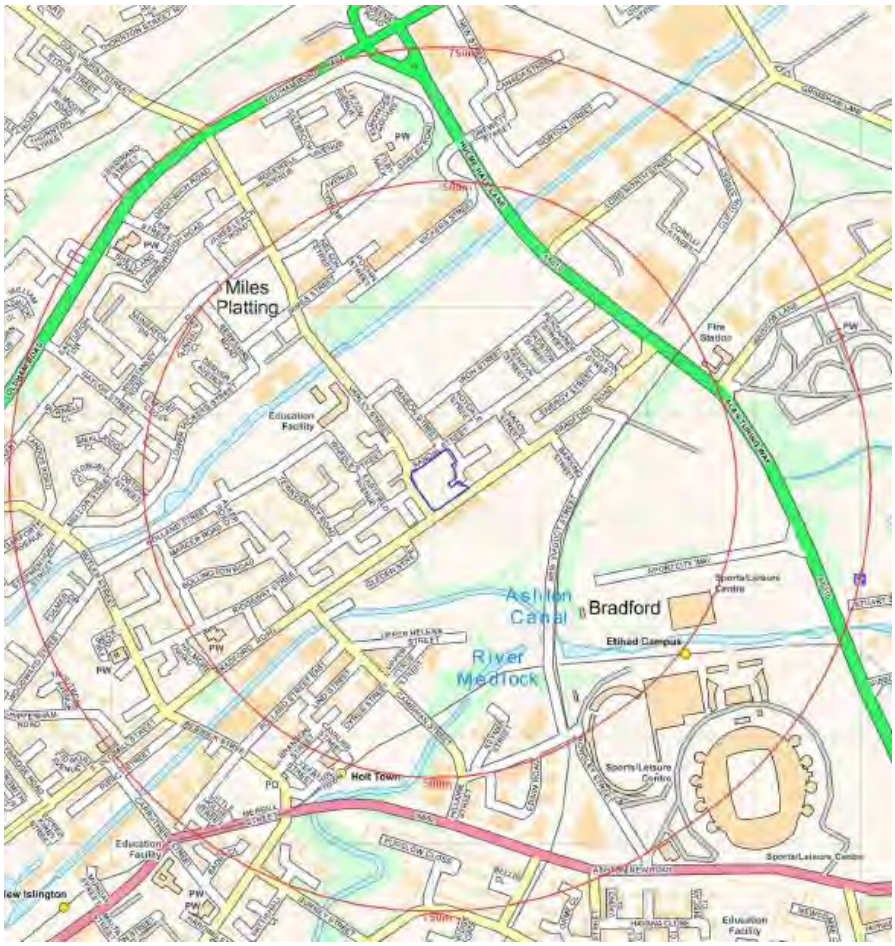
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18.20 CLR11 ‘Model Procedures for the Management of Land Contamination’ DEFRA 2004.

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APPENDIX A

ii) Site Location Plan



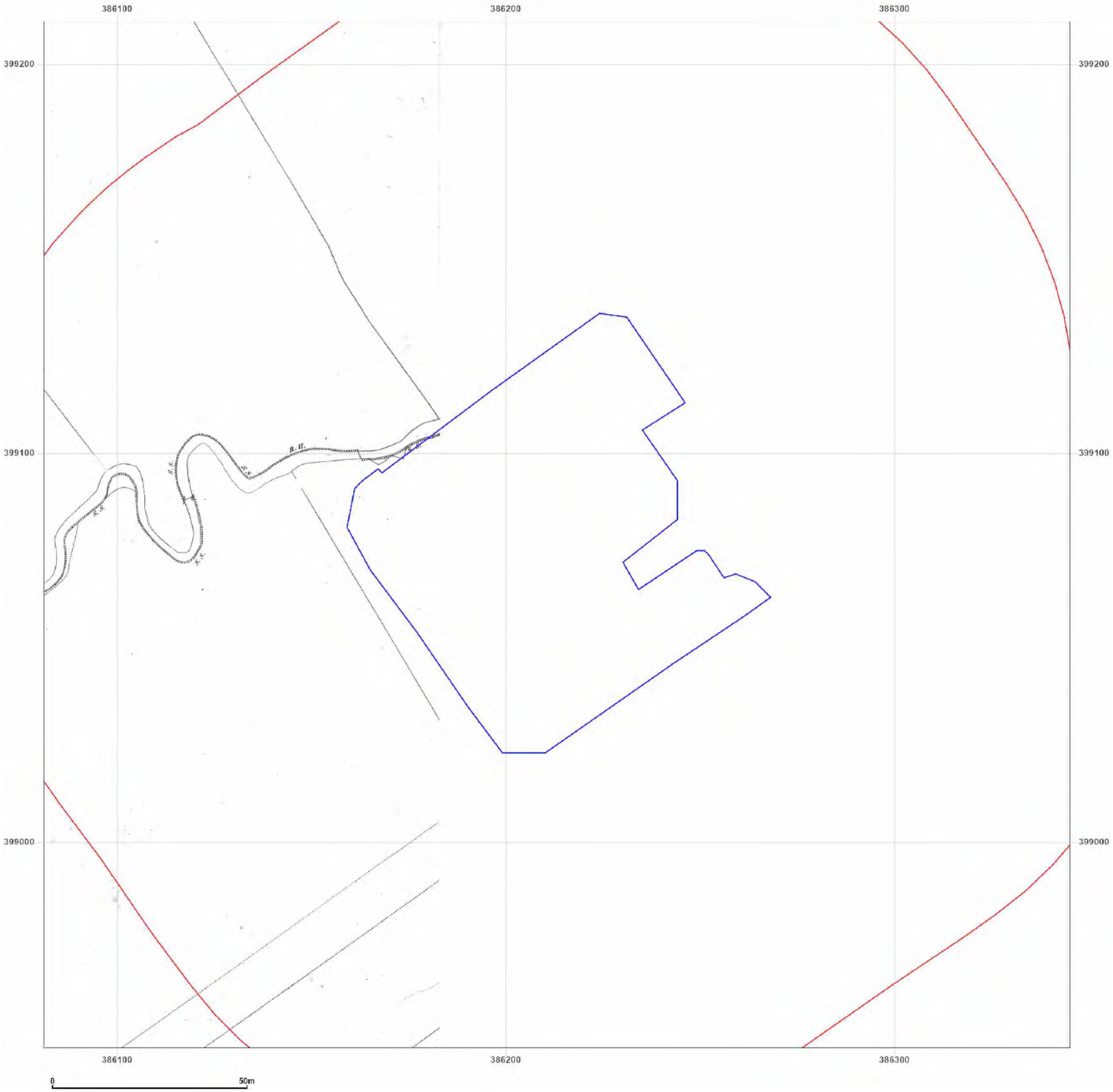
The site is located at Sabden Close, Manchester, M40 7AR. The coordinates on the British National Grid CRS are 386210, 399079. The proposed site is approximately 0.66 hectares in total.

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APPENDIX B

ii) Historical Mapping

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Groundsure INSIGHTS

Site Details:

Miles Platting, Area 7.5B, M40 7AR

Client Ref: 21LPL087_-_BG4580
Report Ref: GS-8644045
Grid Ref: 386213, 399079

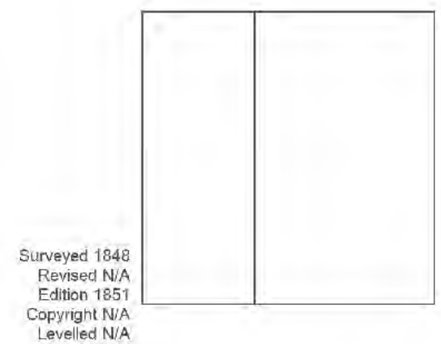
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Map date: **1851**

Scale: 1:1,056

Printed at: 1:1,056

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Groundsure INSIGHTS

Site Details:

Miles Platting, Area 7.5B, M40 7AR

Client Ref: 21LPL087_-_BG4580
Report Ref: GS-8644045
Grid Ref: 386213, 399079

Map Name: County Series Town Plan

Map date: **1891**

Scale: 1:500

Printed at: 1:1,000

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Edition 1891
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Site Details:

Miles Platting, Area 7.5B, M40 7AR

Client Ref: 21LPL087_-_BG4580
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Map date: **1893**

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Printed at: 1:2,500

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Edition 1893
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Site Details:

Miles Platting, Area 7.5B, M40 7AR

Client Ref: 21LPL087_-_BG4580
Report Ref: GS-8644045
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Surveyed 1891
Revised 1905
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Copyright N/A
Levelled N/A

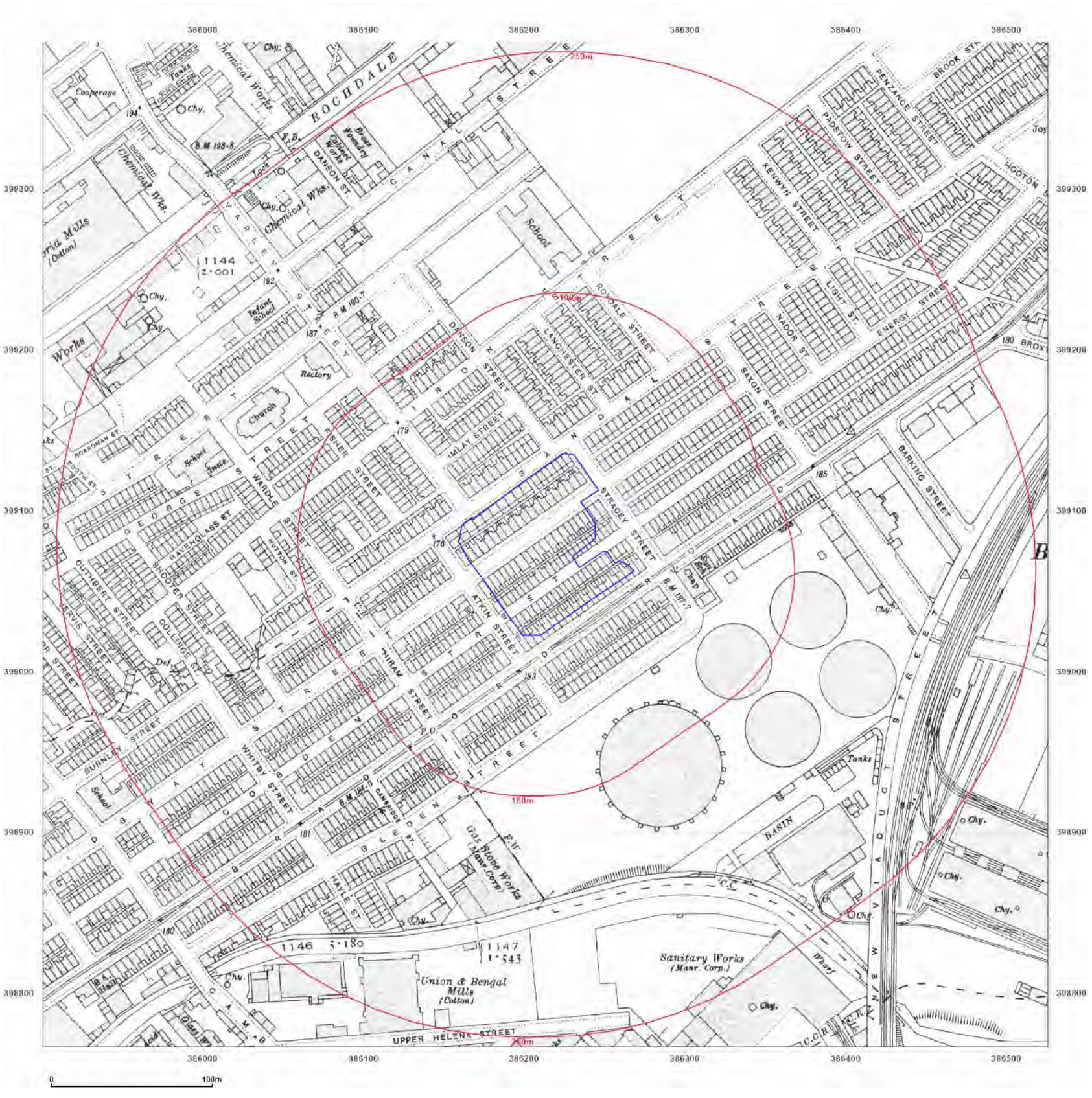
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Client Ref: 21LPL087_-_BG4580
Report Ref: GS-8644045
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Edition 1922
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Levelled 1915

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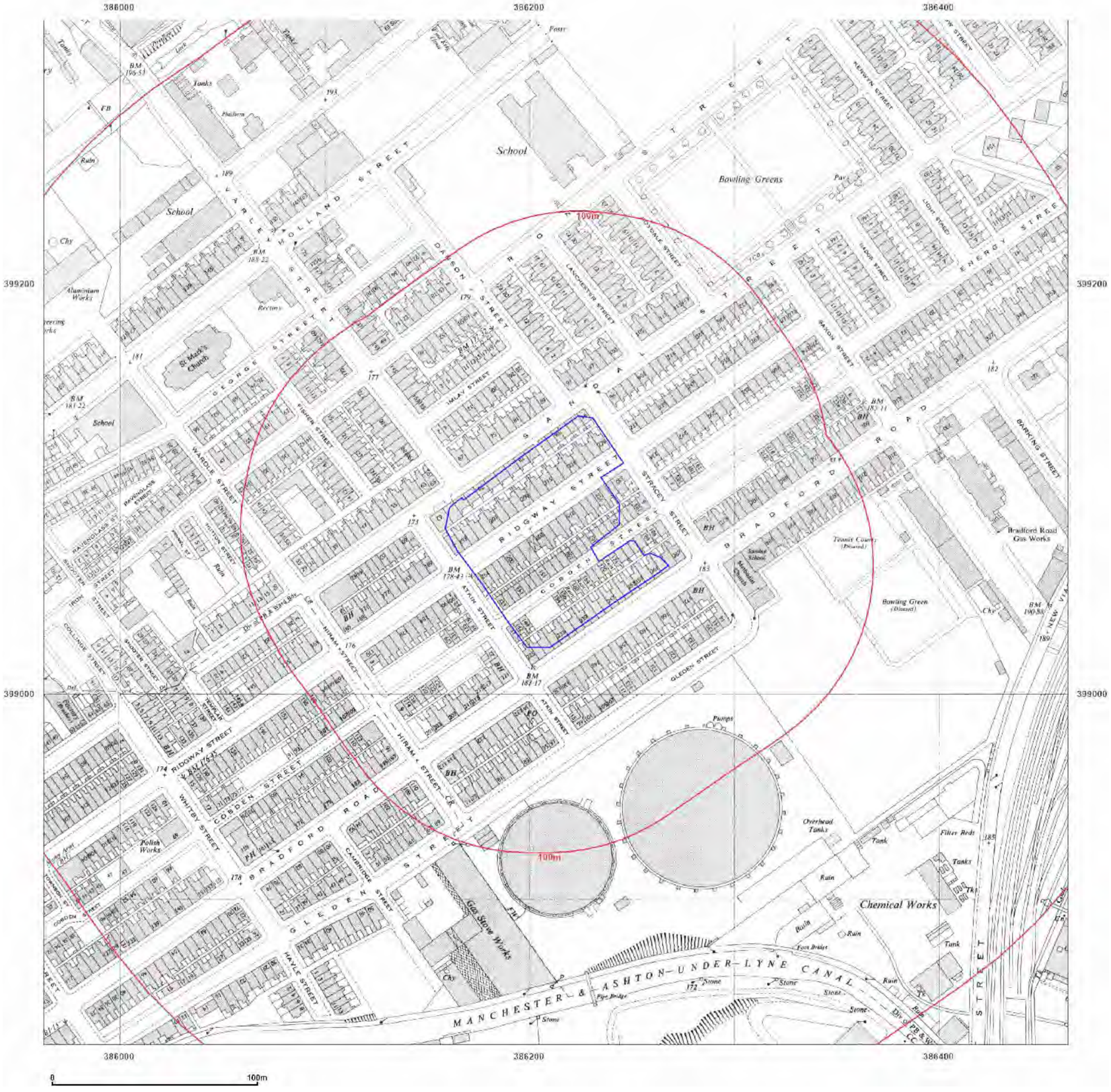
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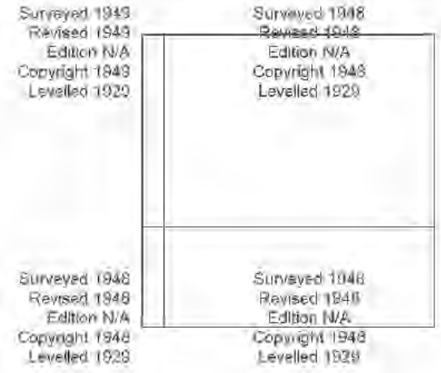
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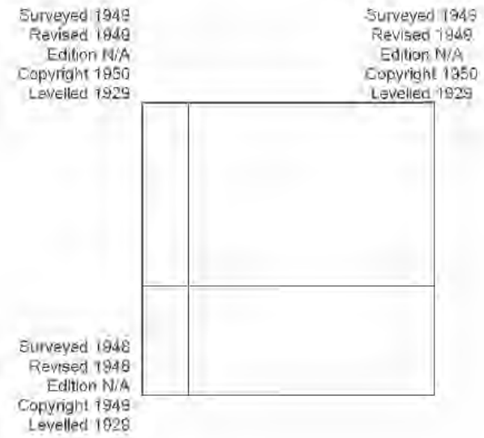
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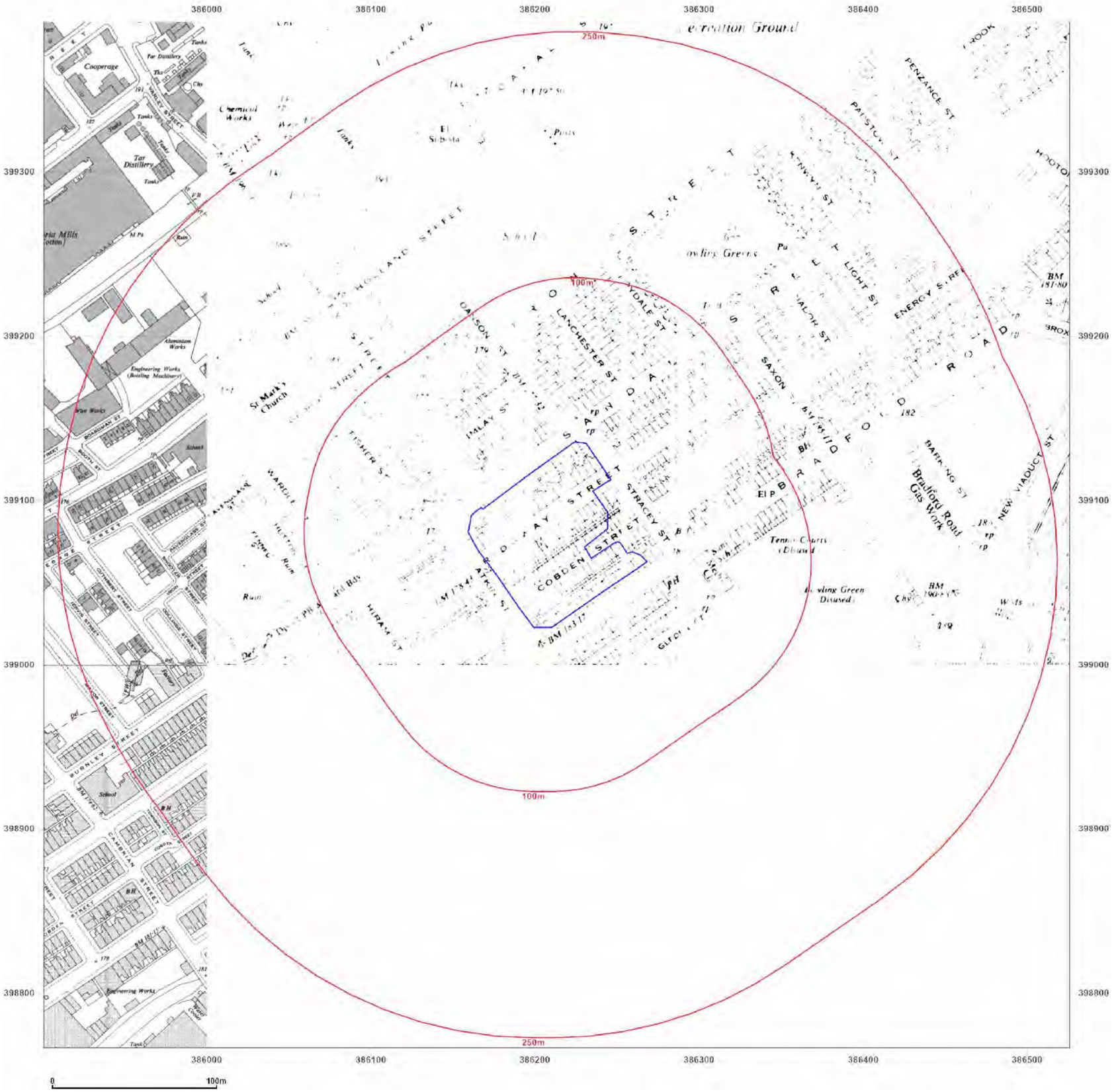
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Surveyed 1952
Revised 1952
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Copyright 1953
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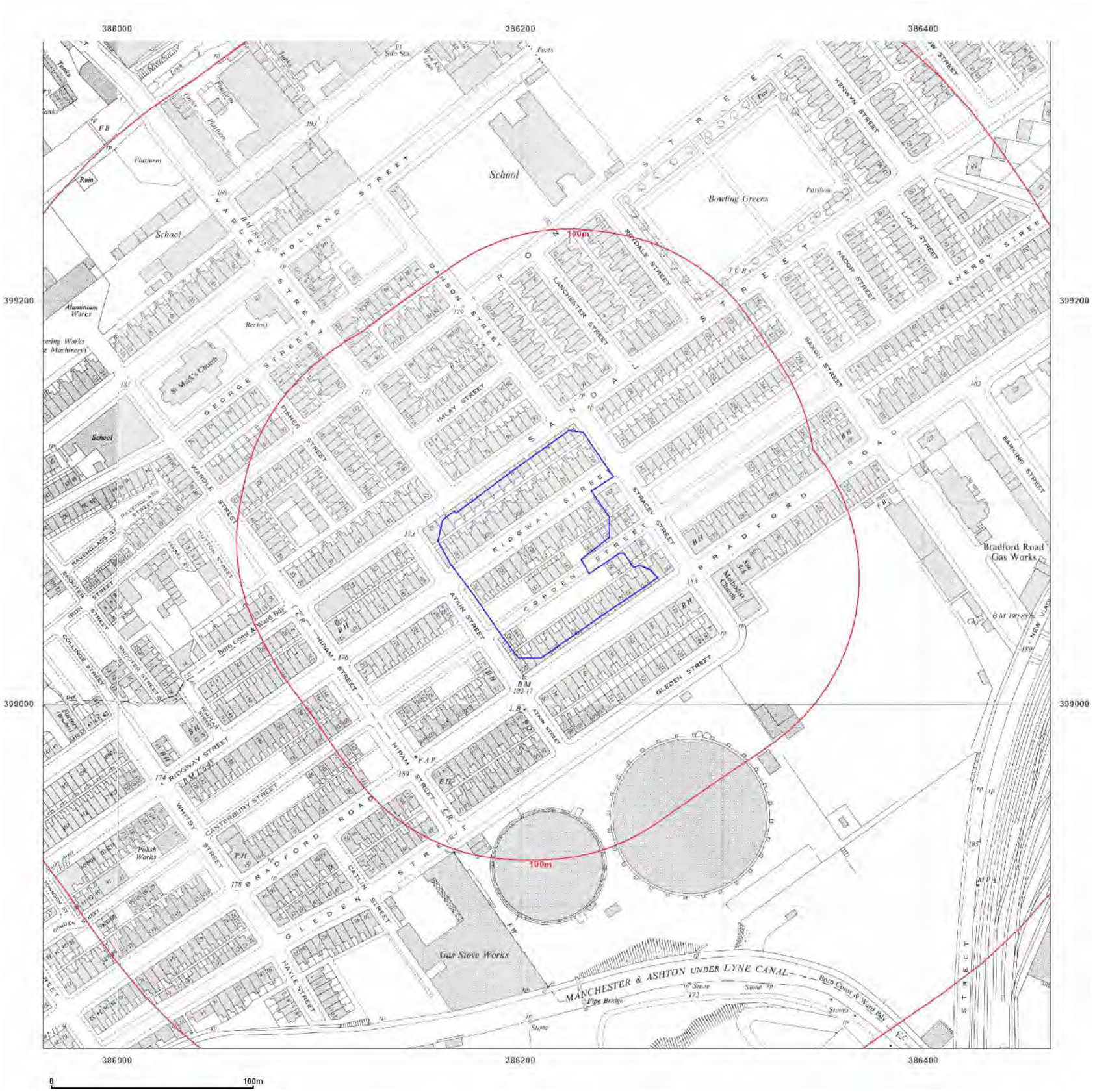
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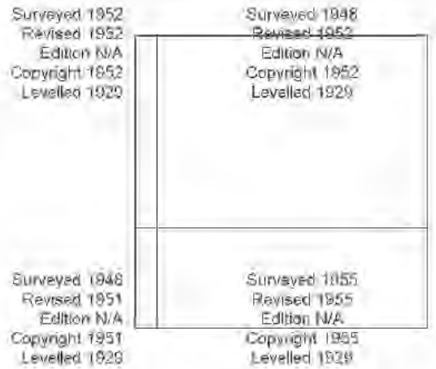
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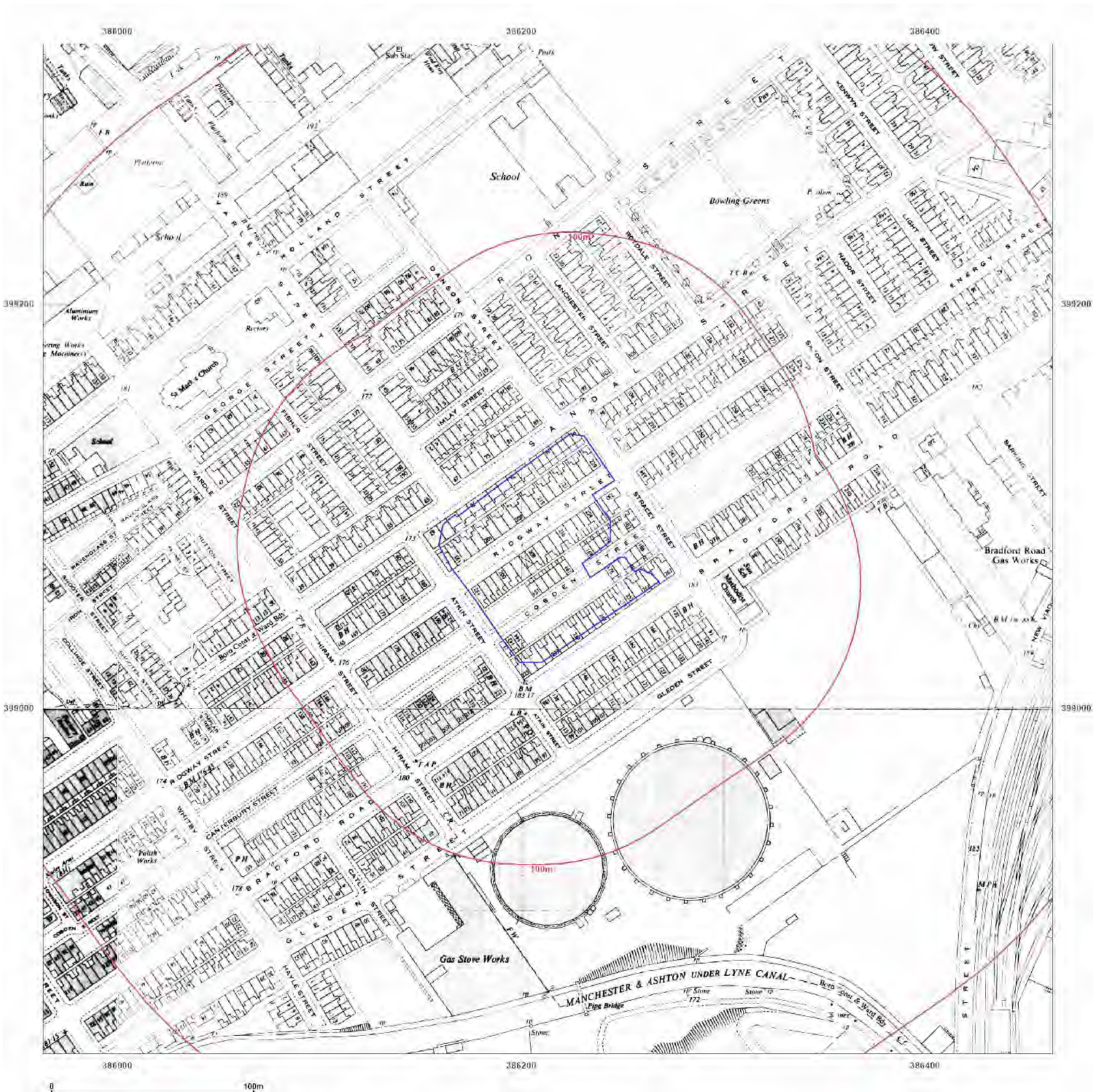
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Client Ref: 21LPL087_-_BG4580
Report Ref: GS-8644045
Grid Ref: 386213, 399079

Map Name: National Grid

Map date: **1953-1956**

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Revised N/A
Edition N/A
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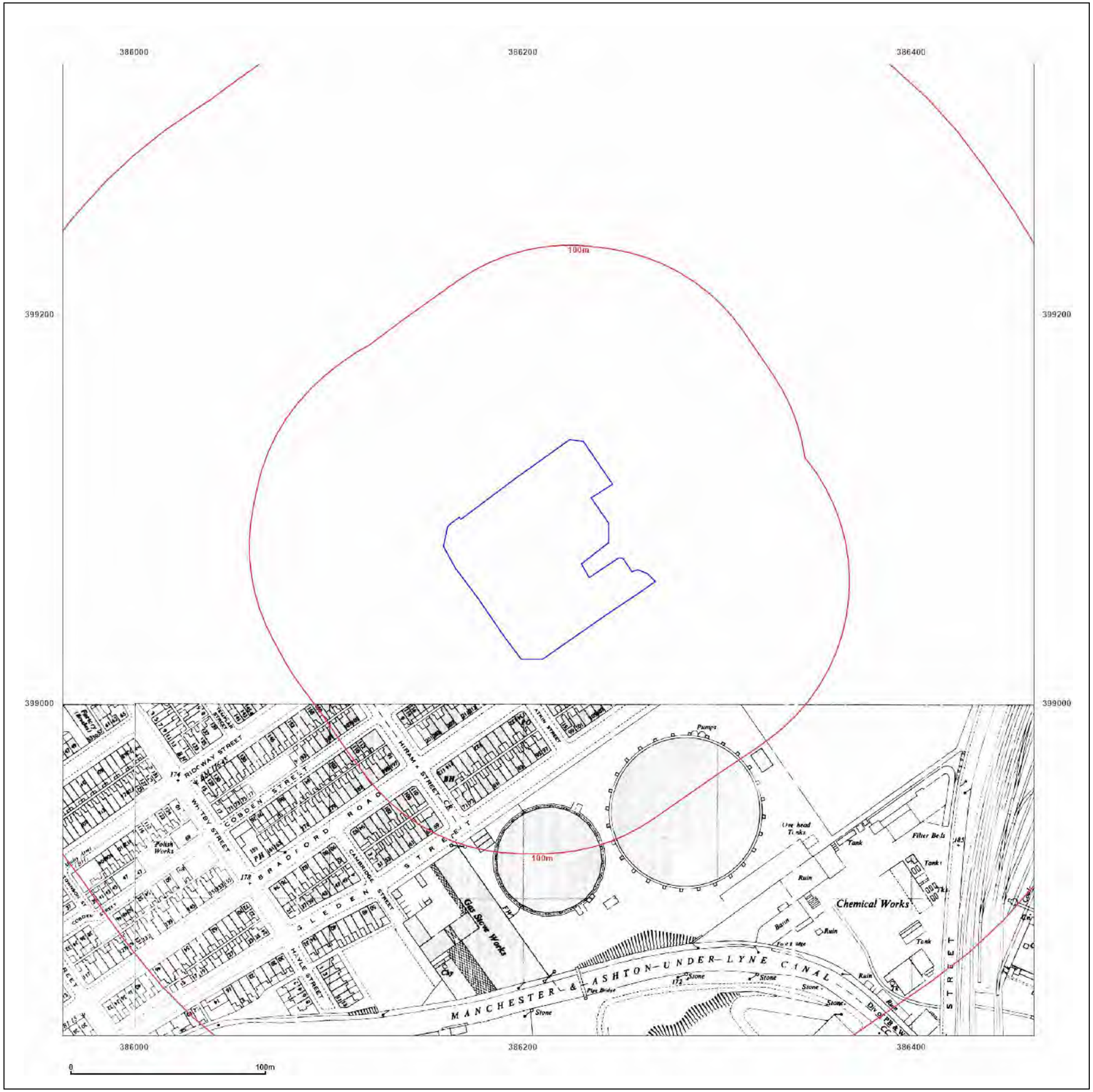
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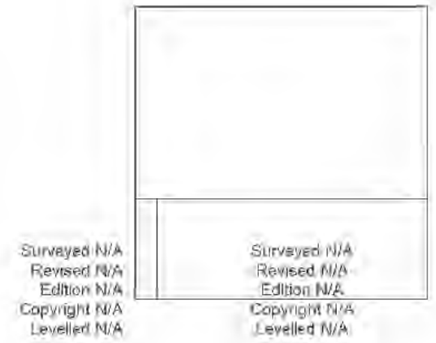
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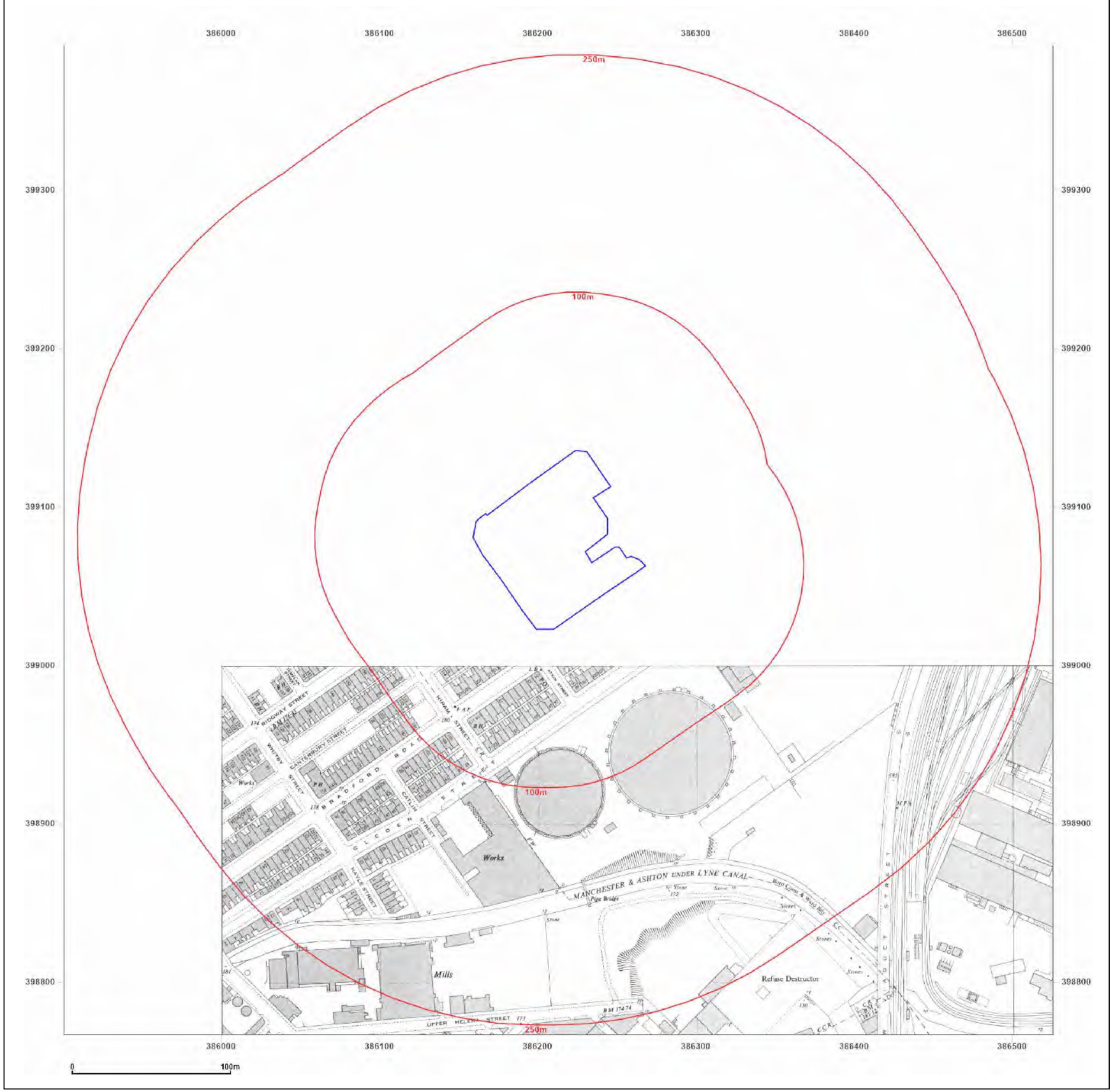
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Site Details:

Miles Platting, Area 7.5B, M40 7AR

Client Ref: 21LPL087_-_BG4580
Report Ref: GS-8644045
Grid Ref: 386213, 399079

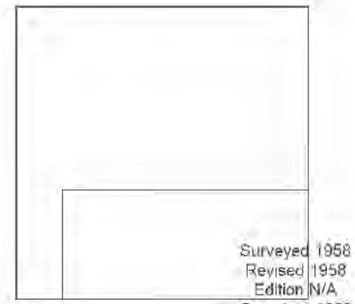
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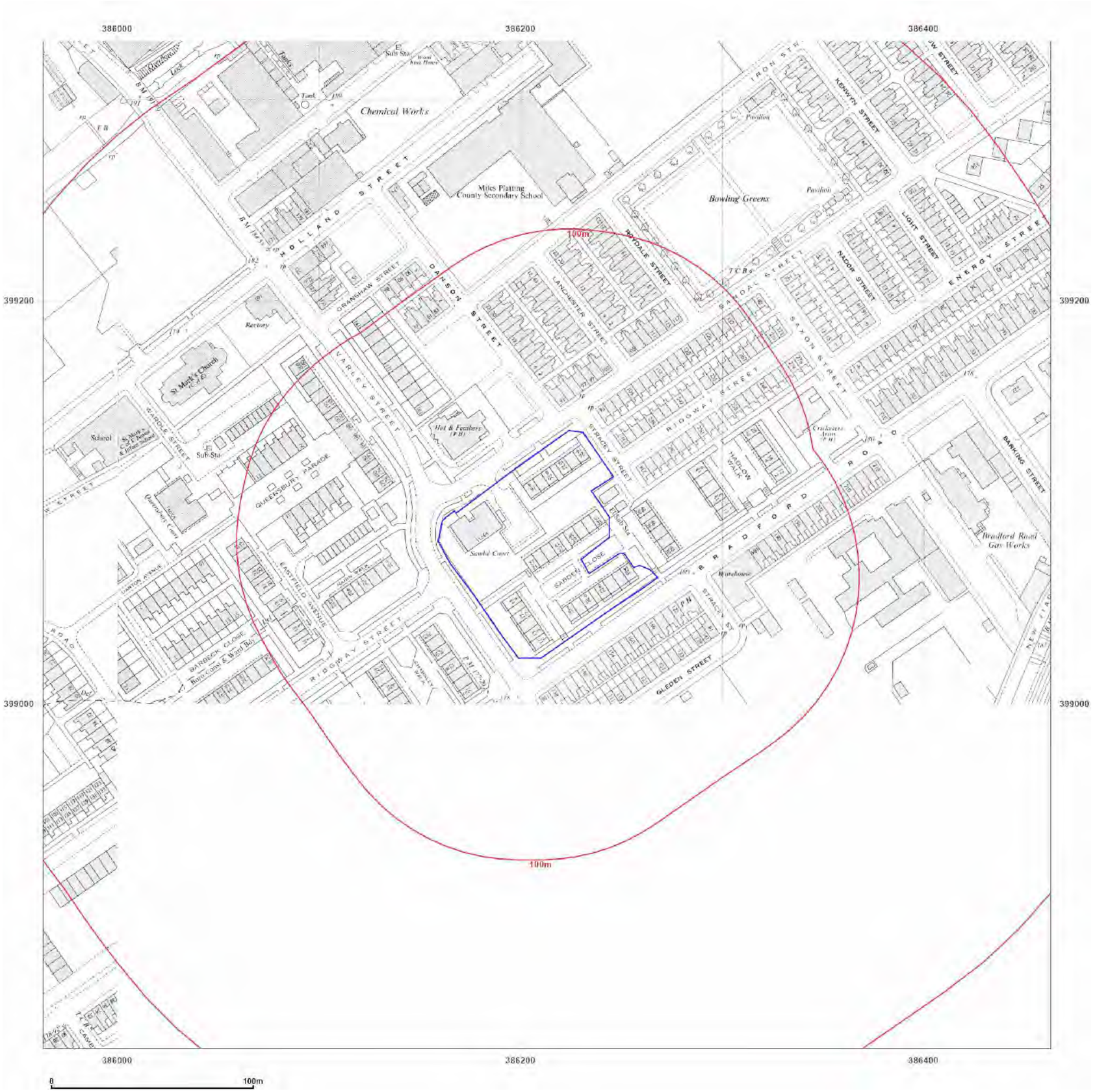
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Site Details:

Miles Platting, Area 7.5B, M40 7AR

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Report Ref: GS-8644045
Grid Ref: 386213, 399079

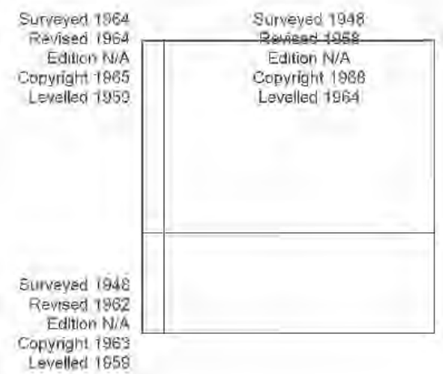
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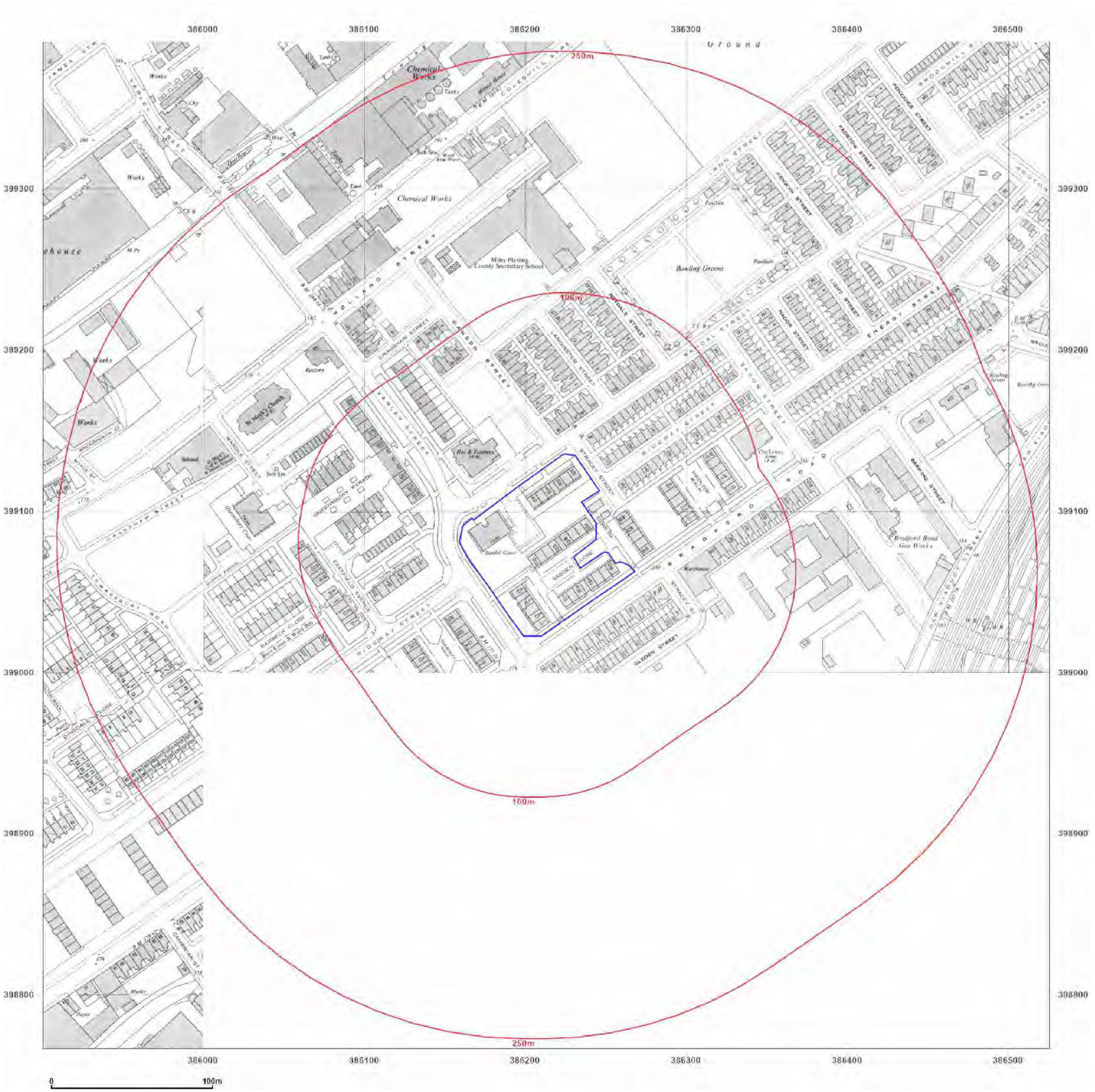
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Site Details:

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Report Ref: GS-8644045
Grid Ref: 386213, 399079

Map Name: National Grid

Map date: **1965-1970**

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Printed at: 1:2,500

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Revised 1964
Edition N/A
Copyright 1966
Levelled 1964

Surveyed N/A
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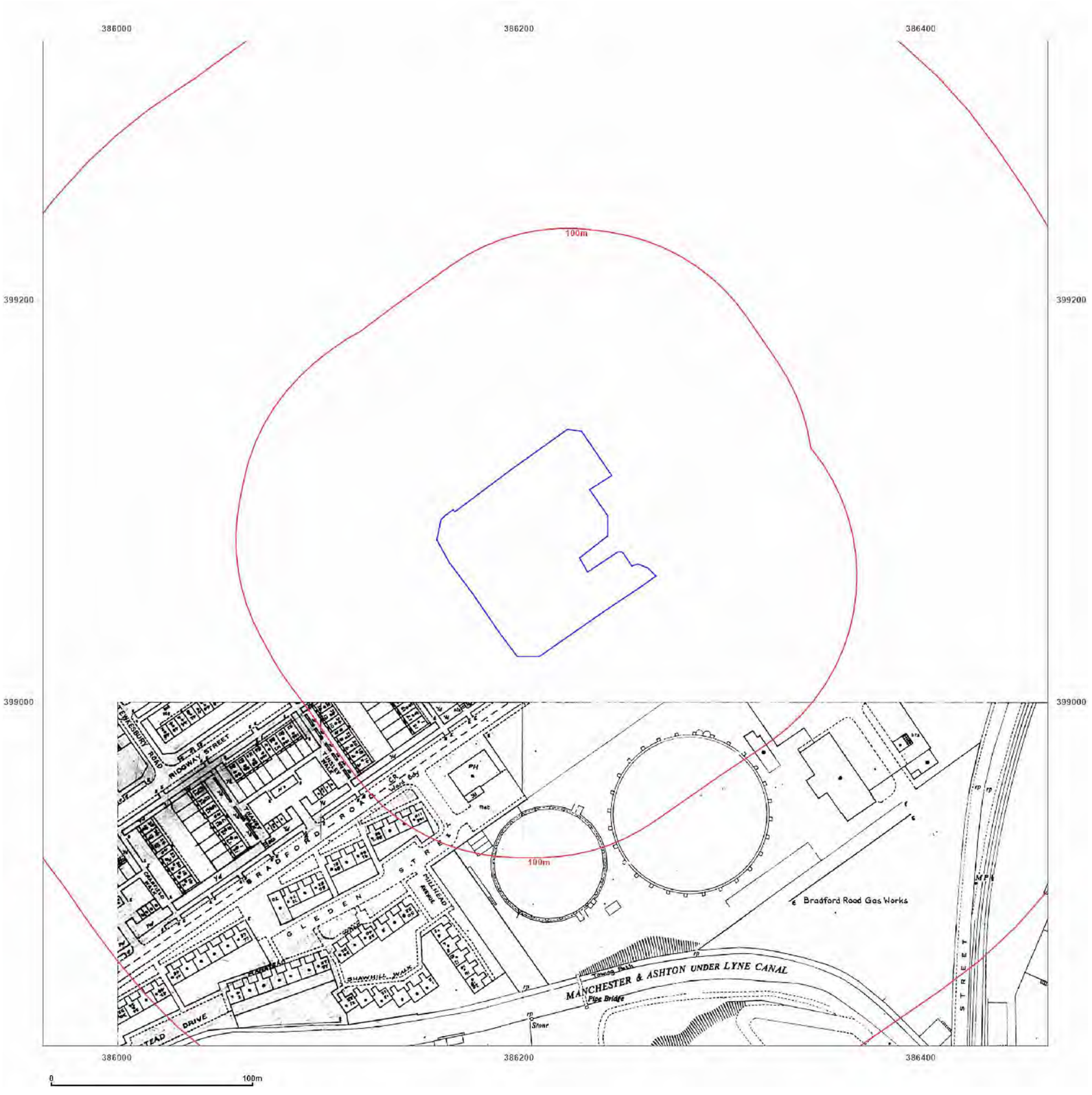
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Site Details:

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Client Ref: 21LPL087_-_BG4580
Report Ref: GS-8644045
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Map Name: National Grid

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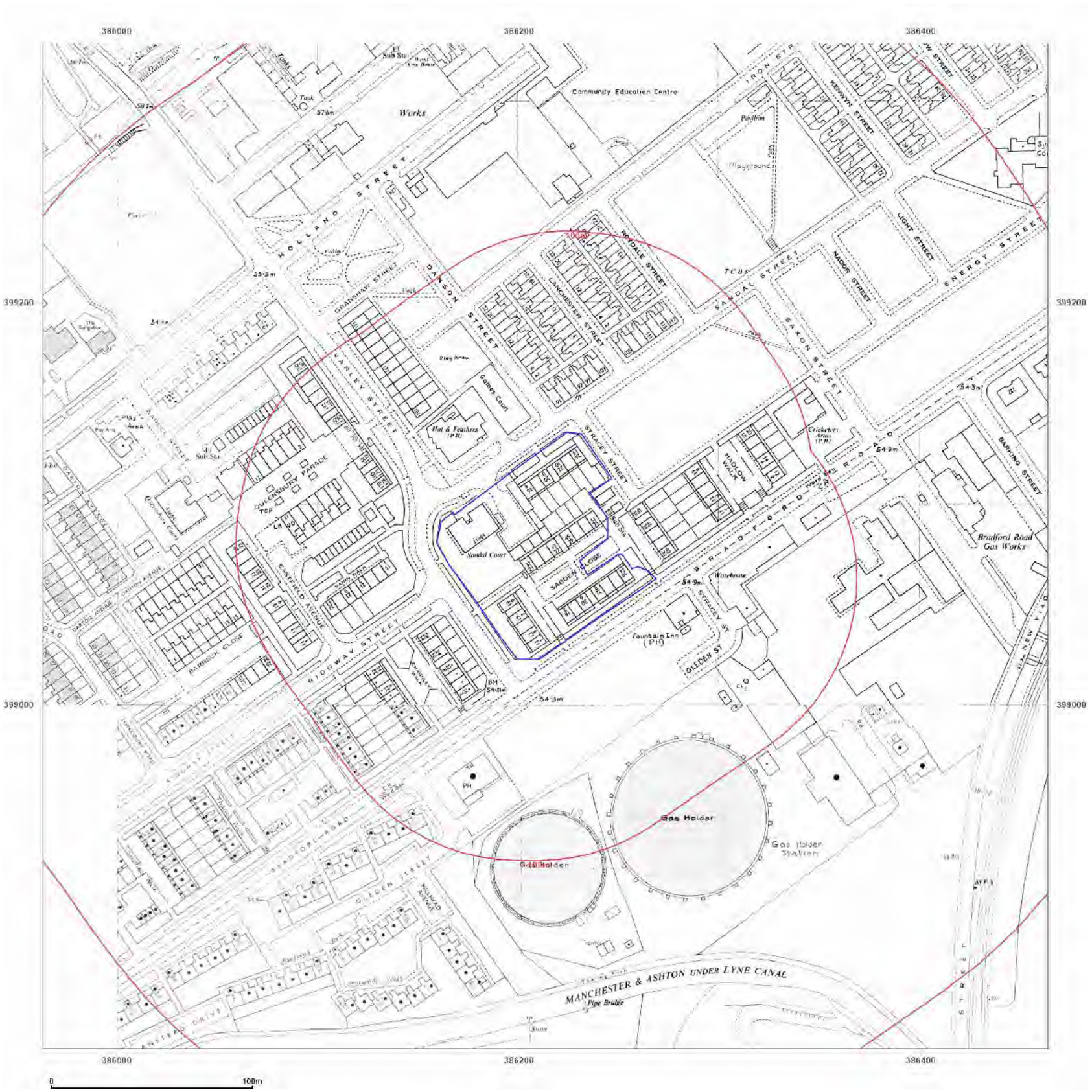
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Groundsure INSIGHTS

Site Details:

Miles Platting, Area 7.5B, M40 7AR

Client Ref: 21LPL087_-_BG4580
Report Ref: GS-8644045
Grid Ref: 386213, 399079

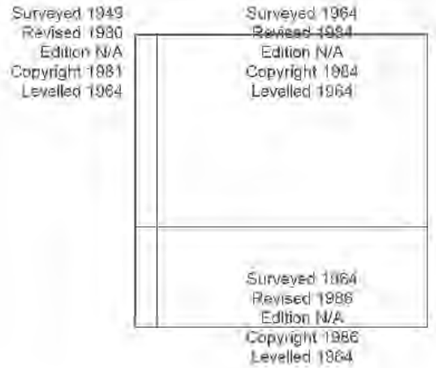
Map Name: National Grid

Map date: **1981-1986**

Scale: 1:1,250

Printed at: 1:2,000

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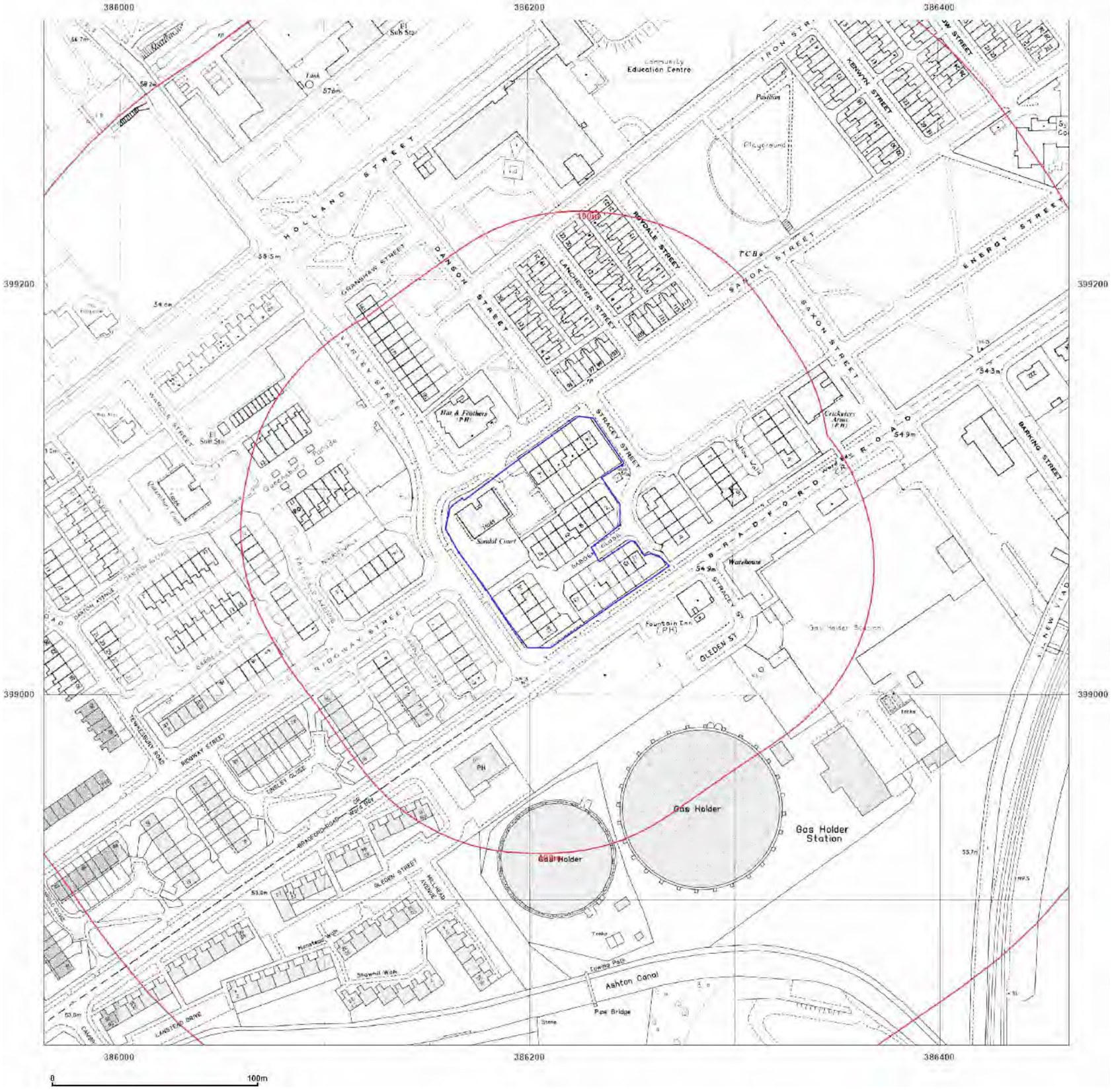
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Groundsure INSIGHTS

Site Details:

Miles Platting, Area 7.5B, M40 7AR

Client Ref: 21LPL087_-_BG4580
Report Ref: GS-8644045
Grid Ref: 386213, 399079

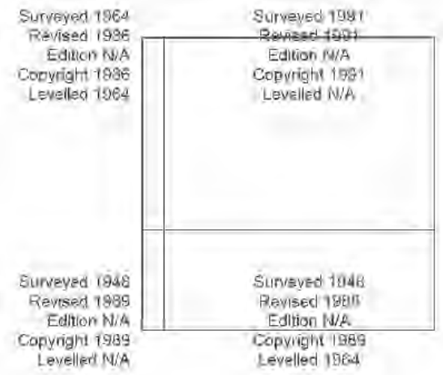
Map Name: National Grid

Map date: **1986-1991**

Scale: 1:1,250

Printed at: 1:2,000

N
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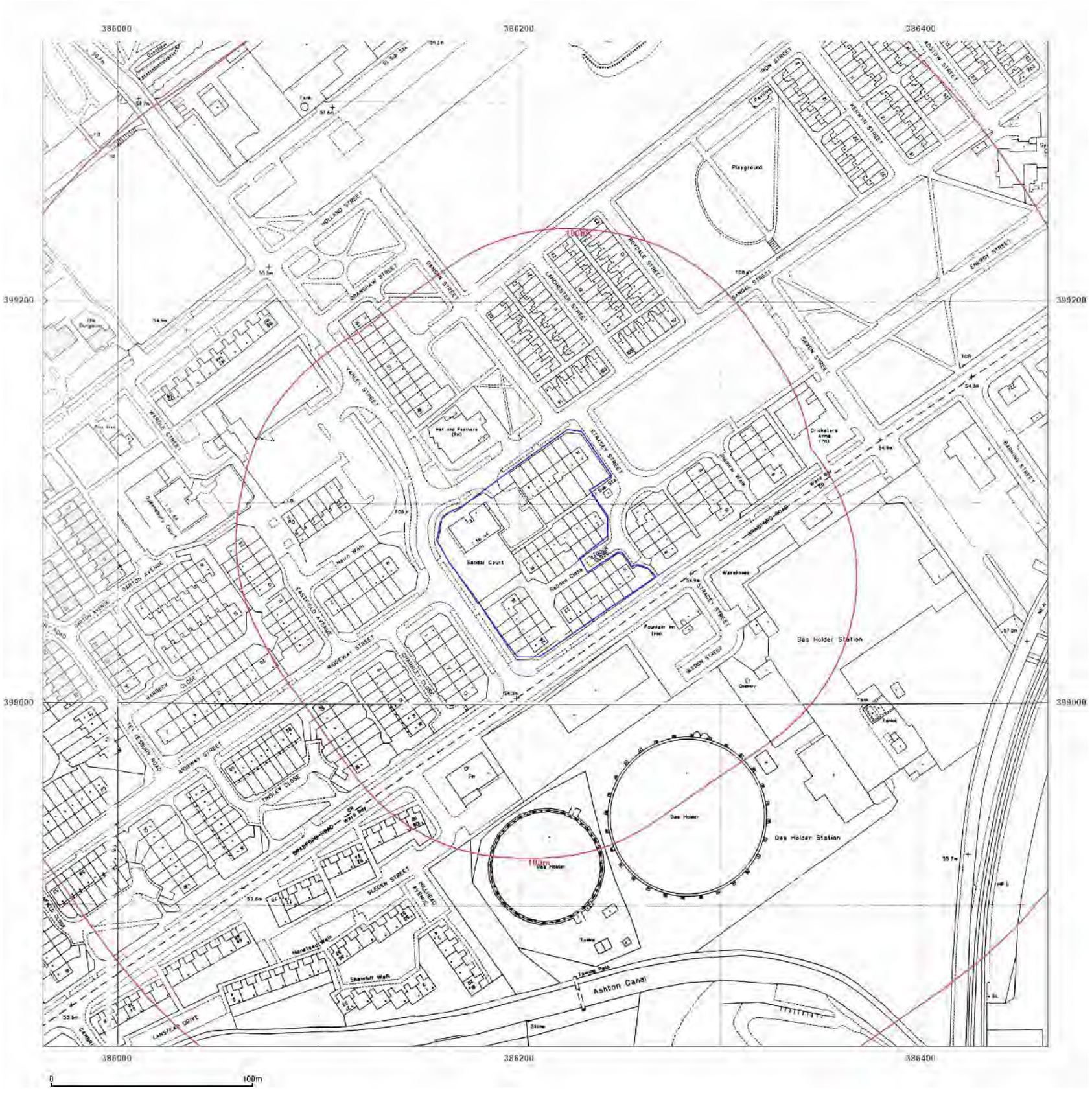
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Groundsure INSIGHTS

Site Details:

Miles Platting, Area 7.5B, M40 7AR

Client Ref: 21LPL087_-_BG4580
Report Ref: GS-8644045
Grid Ref: 386213, 399079

Map Name: National Grid

Map date: **1988-1992**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed 1949
Revised 1967
Edition N/A
Copyright 1968
Levelled 1964

Surveyed 1982
Revised 1992
Edition N/A
Copyright 1992
Levelled N/A

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

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

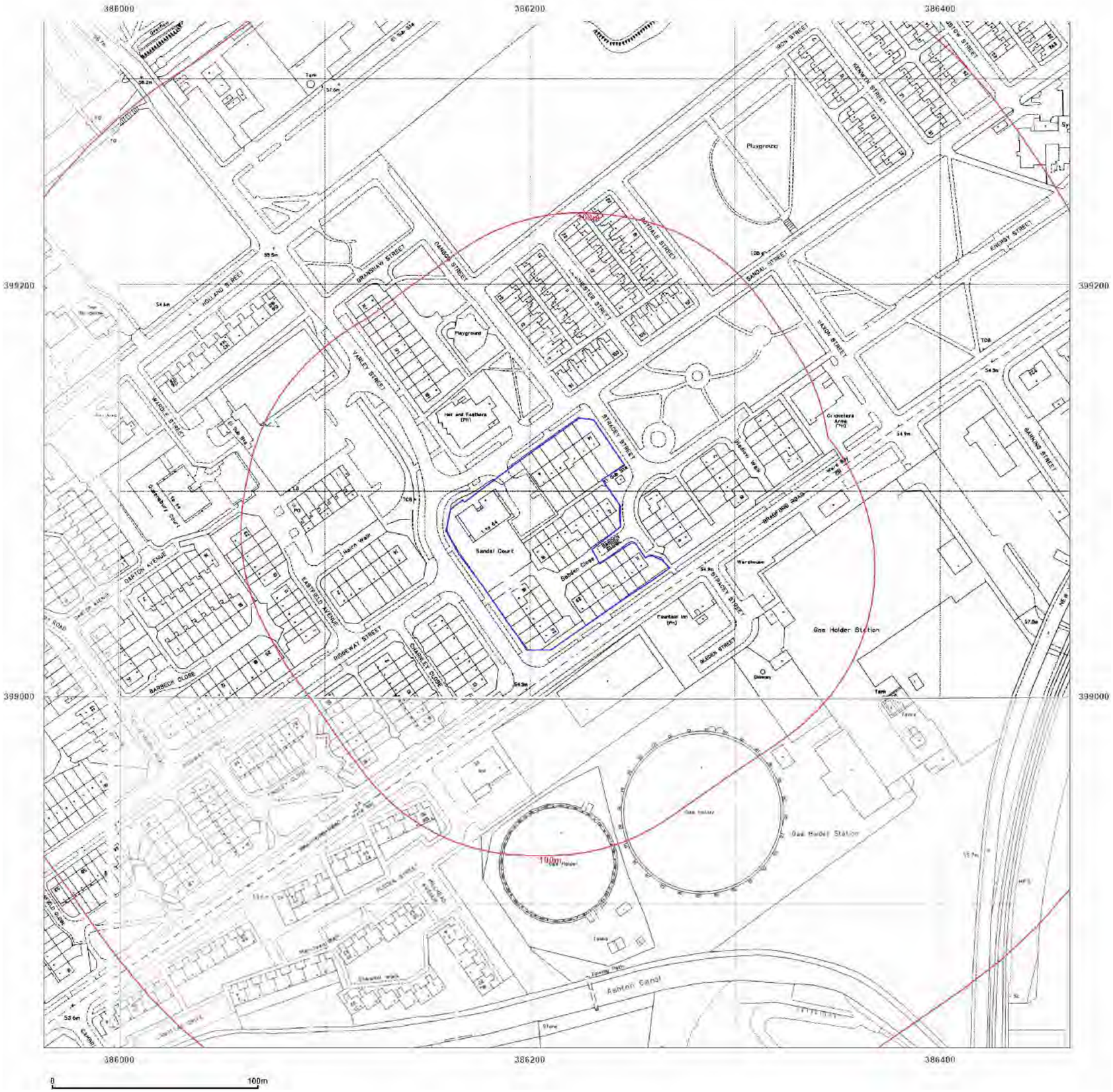
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Groundsure INSIGHTS

Site Details:

Miles Platting, Area 7.5B, M40 7AR

Client Ref: 21LPL087_-_BG4580
Report Ref: GS-8644045
Grid Ref: 386213, 399079

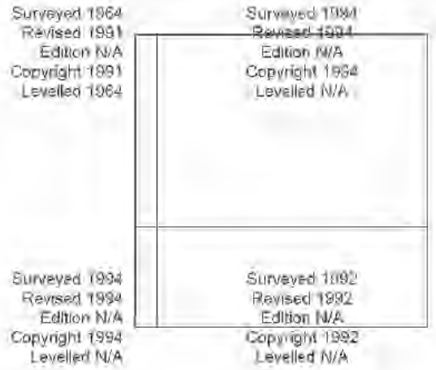
Map Name: National Grid

Map date: **1991-1994**

Scale: 1:1,250

Printed at: 1:2,000

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Groundsure INSIGHTS

Site Details:

Miles Platting, Area 7.5B, M40 7AR

Client Ref: 21LPL087_-_BG4580
Report Ref: GS-8644045
Grid Ref: 386213, 399079

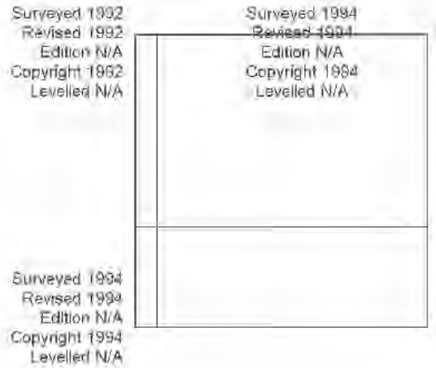
Map Name: National Grid

Map date: **1992-1994**

Scale: 1:1,250

Printed at: 1:2,000

N
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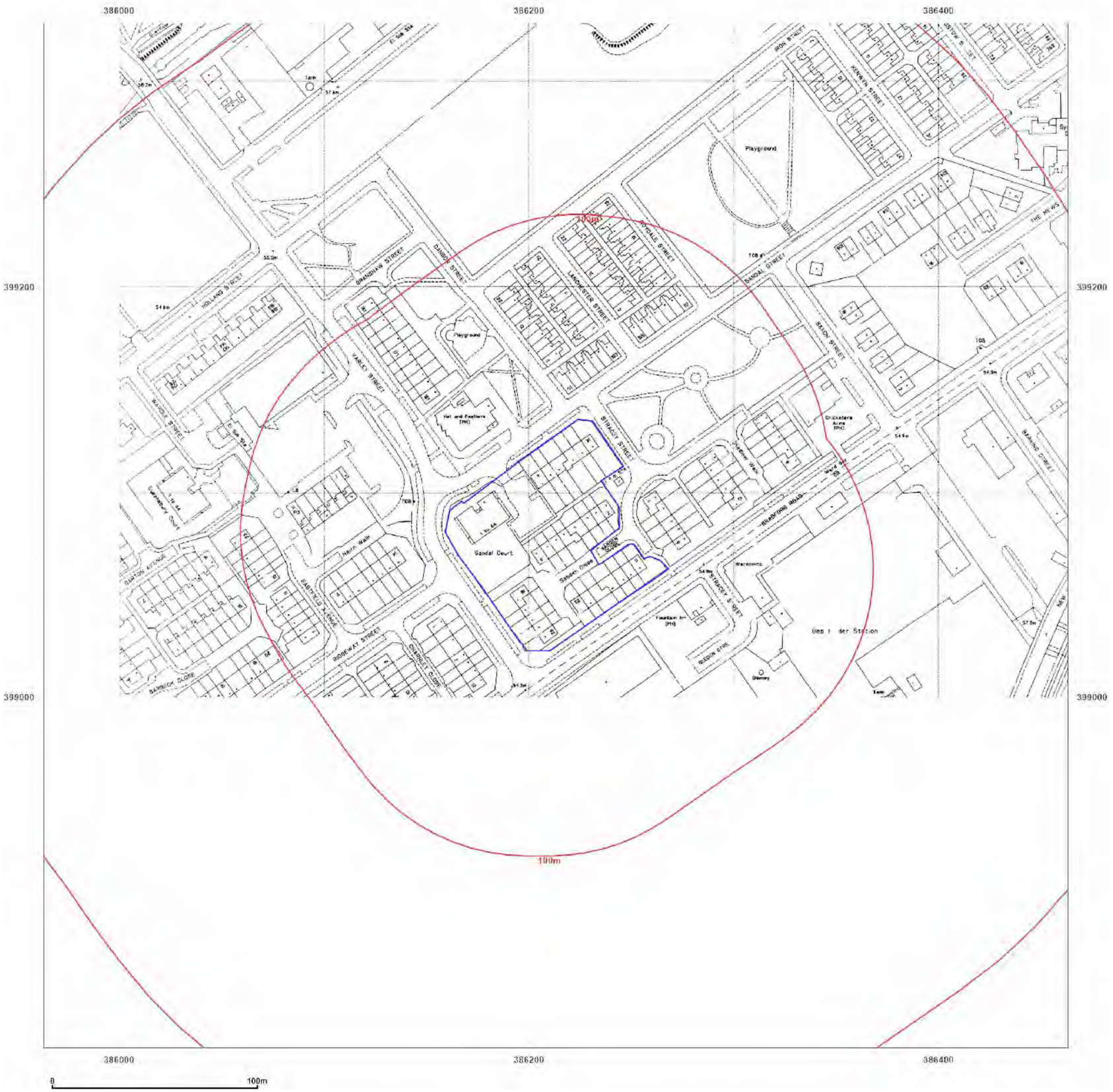
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Groundsure INSIGHTS

Site Details:

Miles Platting, Area 7.5B, M40 7AR

Client Ref: 21LPL087_-_BG4580
Report Ref: GS-8644045
Grid Ref: 386213, 399079

Map Name: National Grid

Map date: **1995**

Scale: 1:1,250

Printed at: 1:2,000

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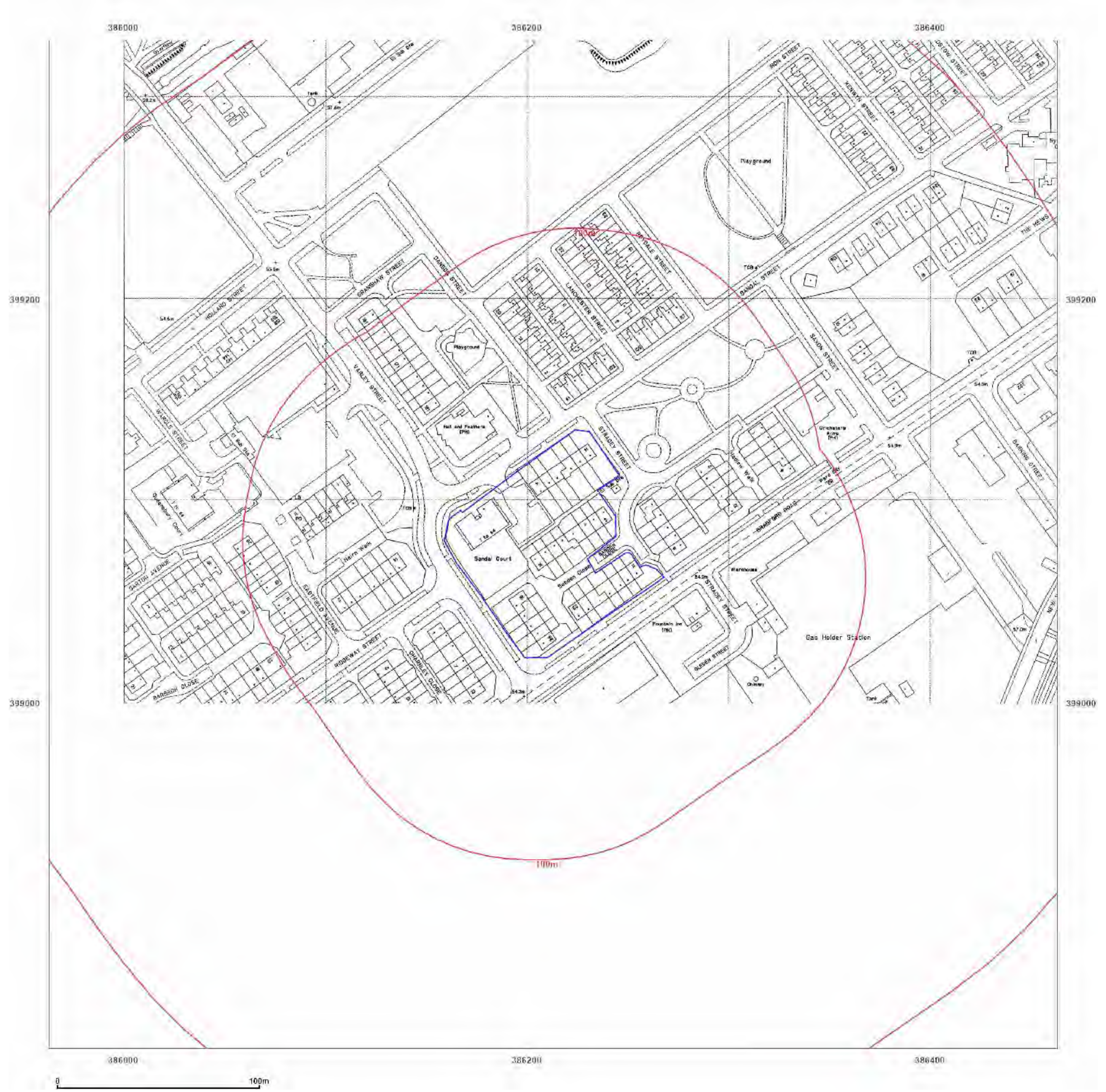
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Site Details:

Miles Platting, Area 7.5B, M40 7AR

Client Ref: 21LPL087_-_BG4580
Report Ref: GS-8644045
Grid Ref: 386213, 399079

Map Name: National Grid

Map date: **1995**

Scale: 1:1,250

Printed at: 1:2,000

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

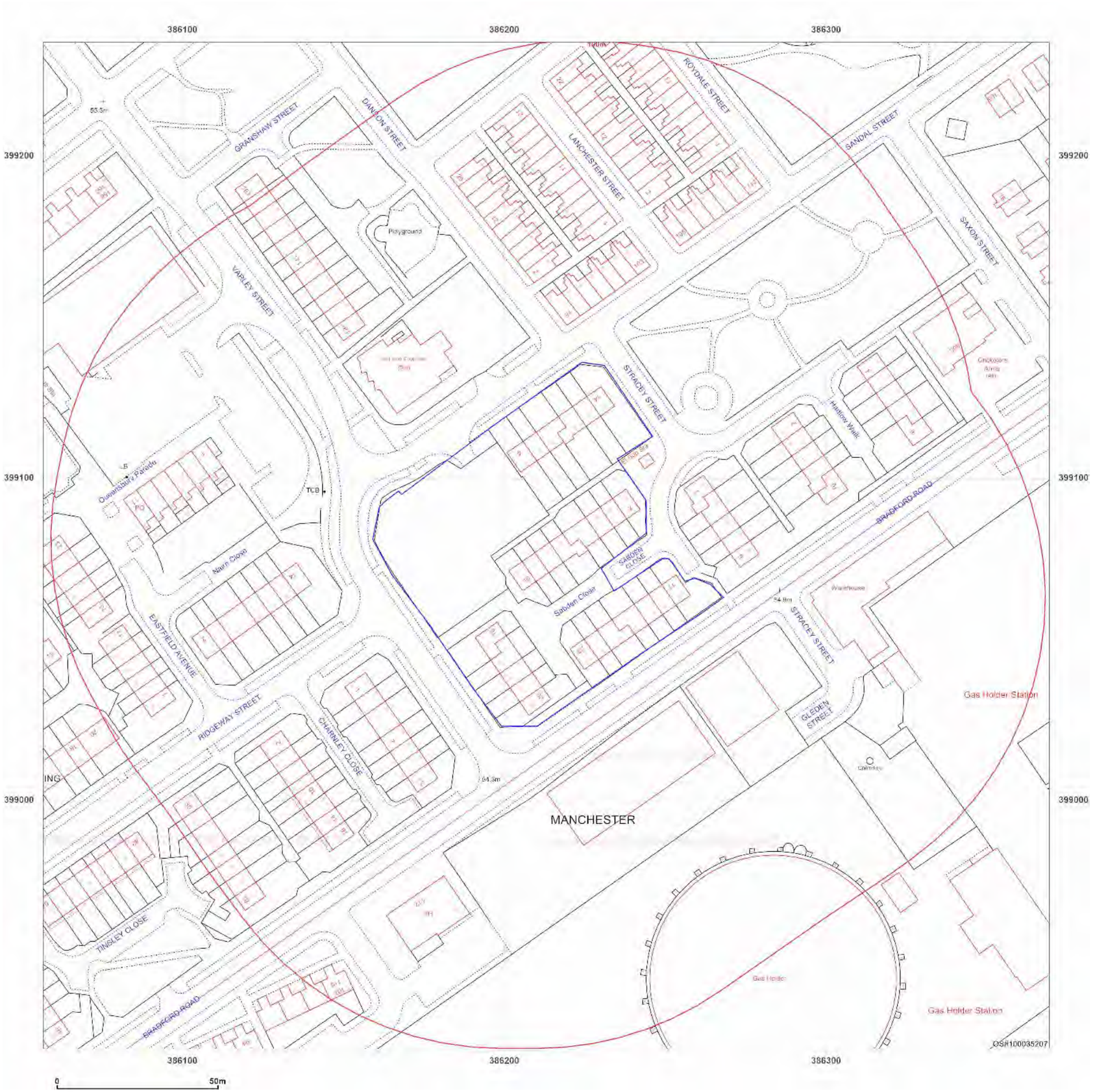
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Groundsure INSIGHTS

Site Details:

Miles Platting, Area 7.5B, M40 7AR

Client Ref: 21LPL087_-_BG4580
Report Ref: GS-8644045
Grid Ref: 386213, 399079

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

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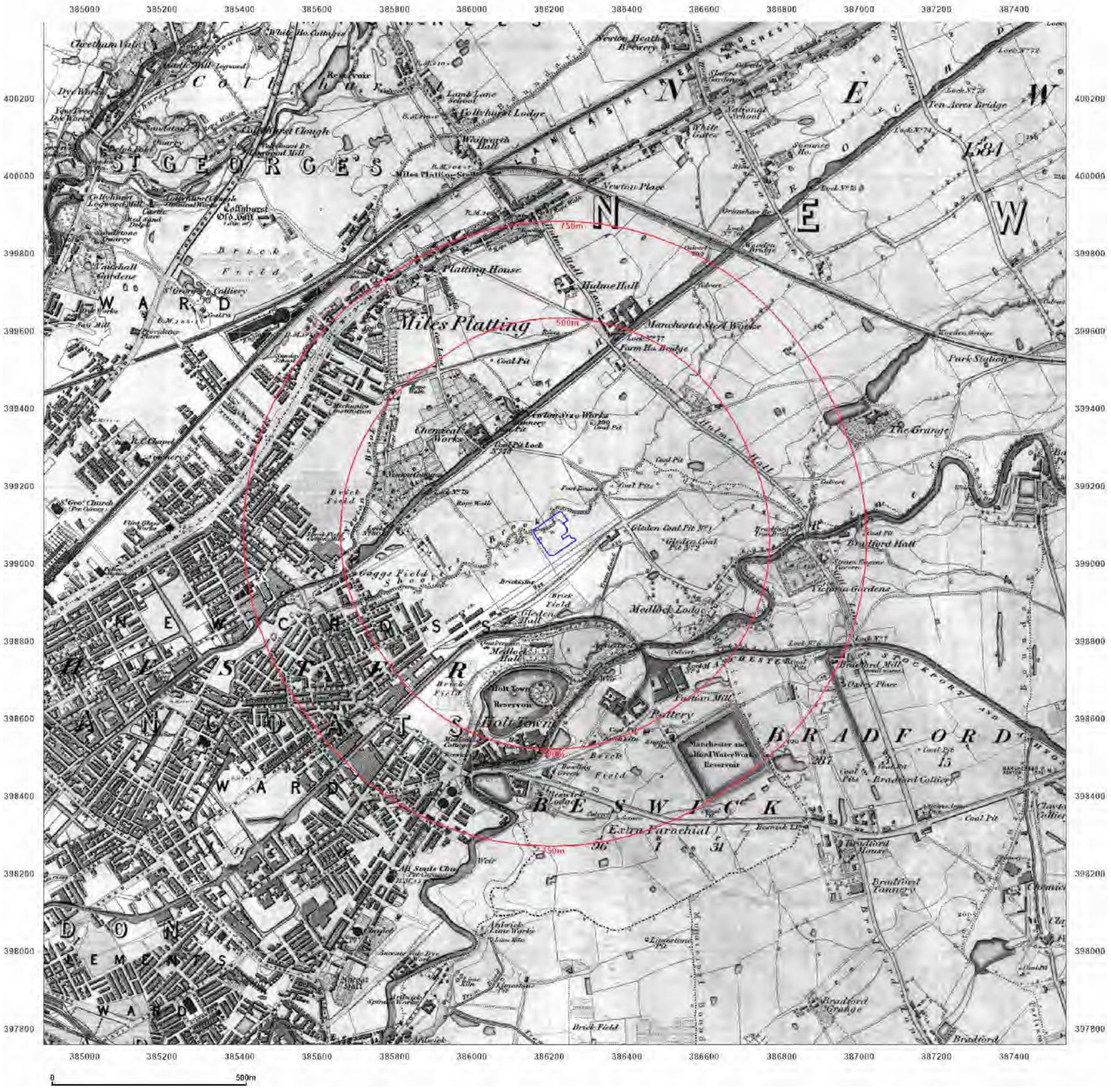
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Groundsure INSIGHTS

Site Details:

Miles Platting, Area 7.5B, M40 7AR

Client Ref: 21LPL087_-_BG4580
Report Ref: GS-8644045
Grid Ref: 386213, 399079

Map Name: County Series

Map date: **1848**

Scale: 1:10,560

Printed at: 1:10,560

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

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Groundsure INSIGHTS

Site Details:

Miles Platting, Area 7.5B, M40 7AR

Client Ref: 21LPL087_-_BG4580
Report Ref: GS-8644045
Grid Ref: 386213, 399079

Map Name: County Series

Map date: **1890-1891**

Scale: 1:10,560

Printed at: 1:10,560

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

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

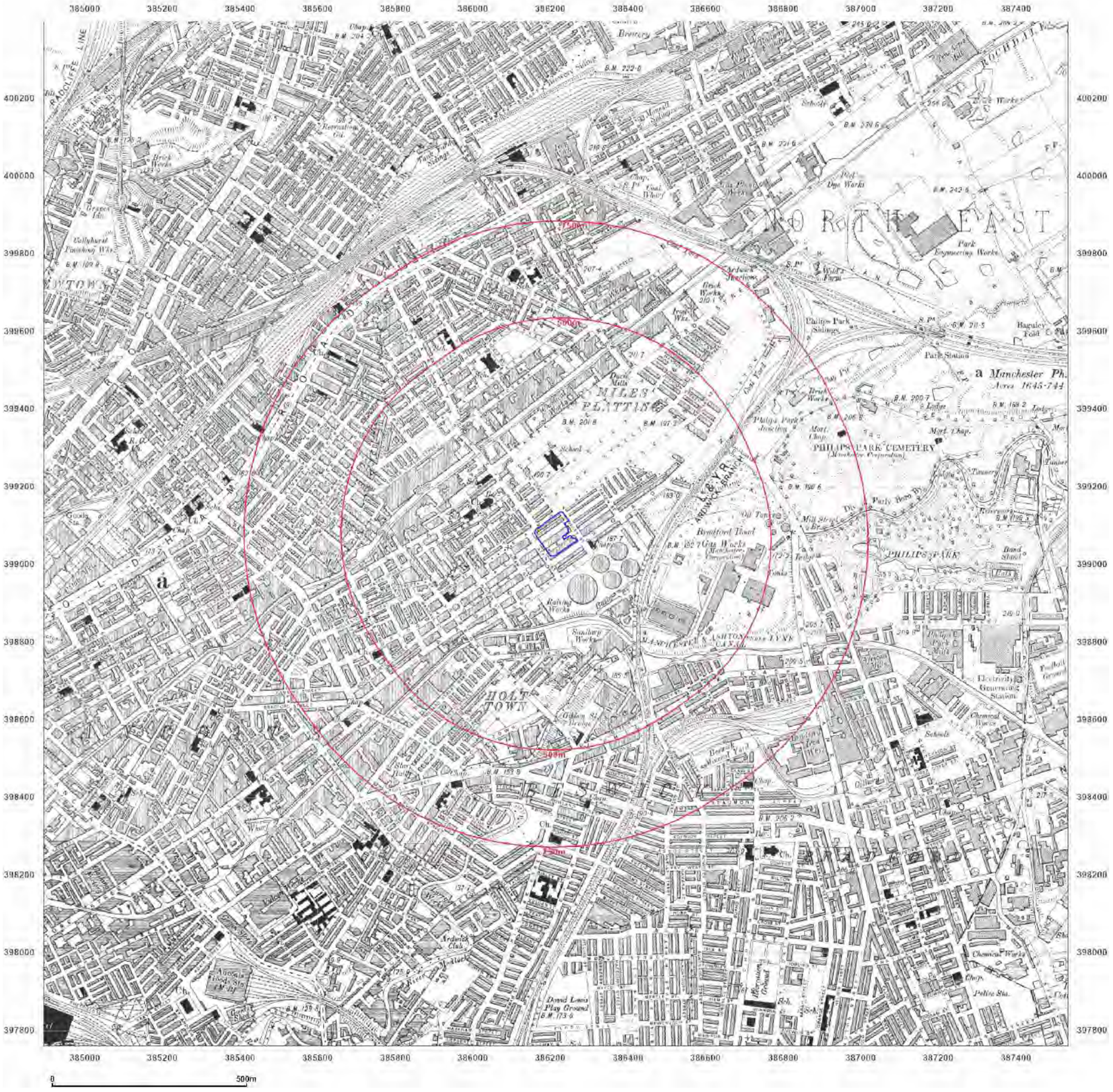
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Groundsure INSIGHTS

Site Details:

Miles Platting, Area 7.5B, M40 7AR

Client Ref: 21LPL087_-_BG4580
Report Ref: GS-8644045
Grid Ref: 386213, 399079

Map Name: County Series

Map date: **1905-1906**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1844
Revised 1905
Edition 1906
Copyright N/A
Levelled N/A

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

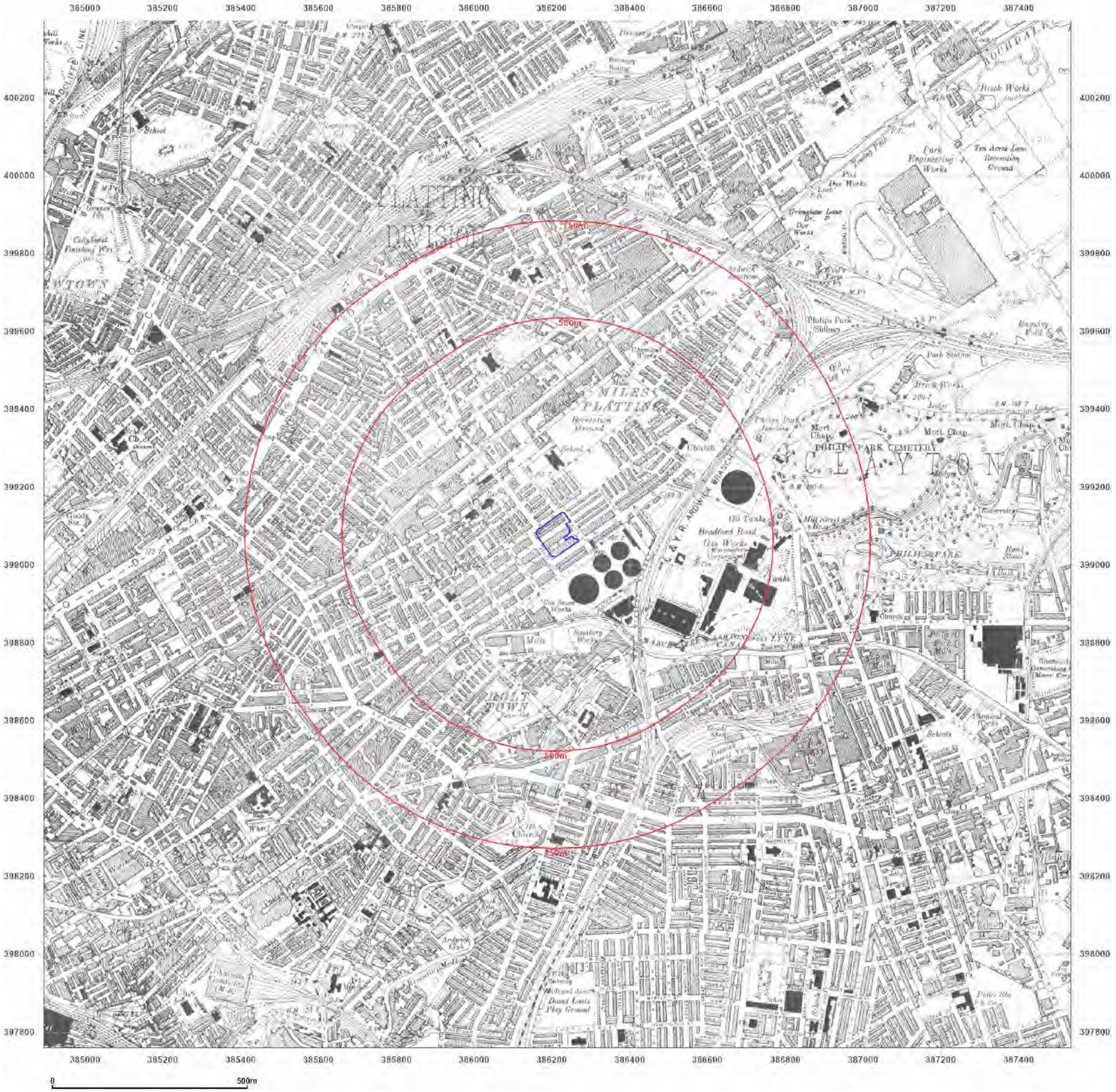
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Groundsure INSIGHTS

Site Details:

Miles Platting, Area 7.5B, M40 7AR

Client Ref: 21LPL087_-_BG4580
Report Ref: GS-8644045
Grid Ref: 386213, 399079

Map Name: County Series

Map date: **1923**

Scale: 1:10,560

Printed at: 1:10,560

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

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

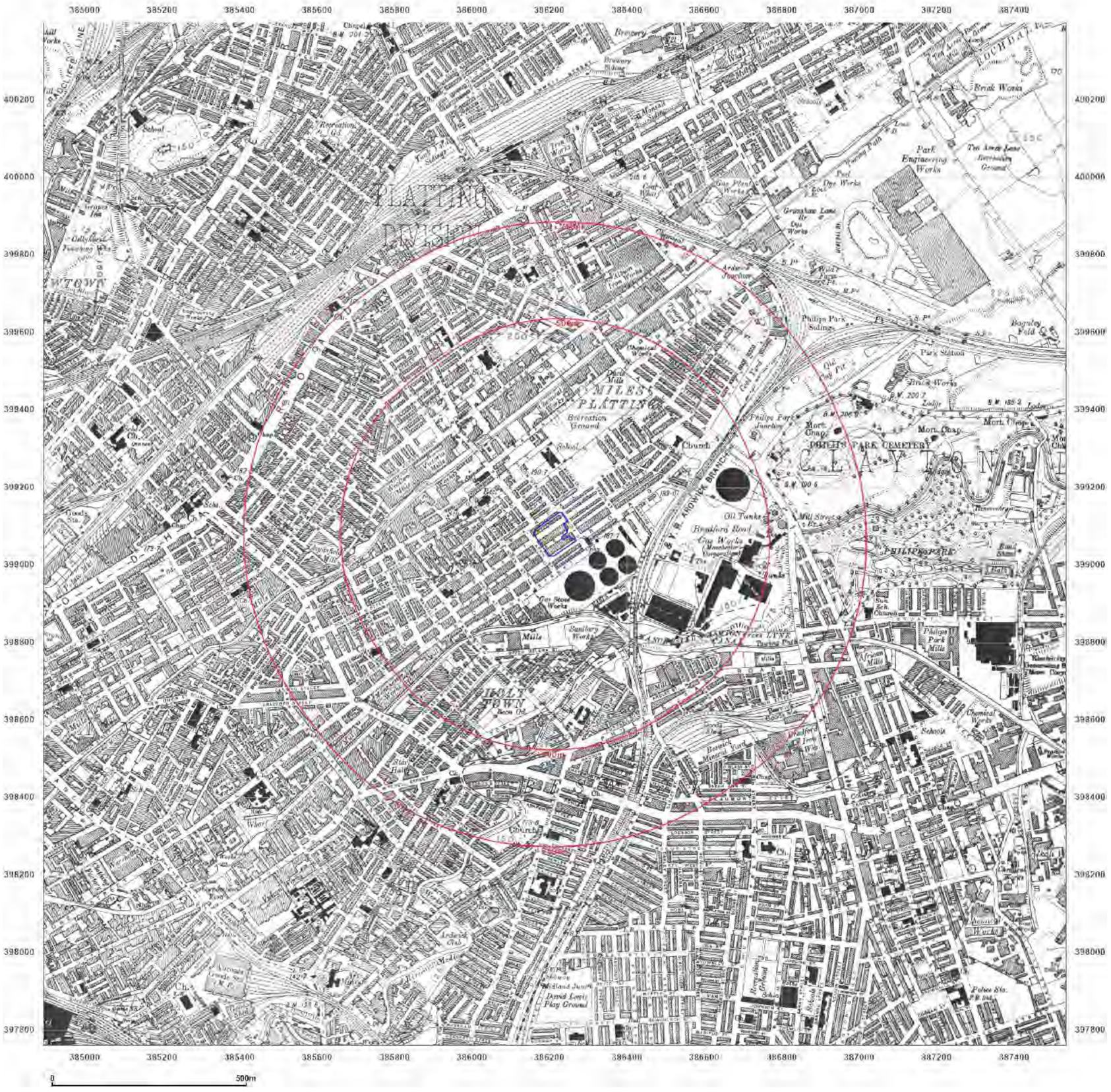
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Groundsure INSIGHTS

Site Details:

Miles Platting, Area 7.5B, M40 7AR

Client Ref: 21LPL087_-_BG4580
Report Ref: GS-8644045
Grid Ref: 386213, 399079

Map Name: County Series

Map date: **1923**

Scale: 1:10,560

Printed at: 1:10,560

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

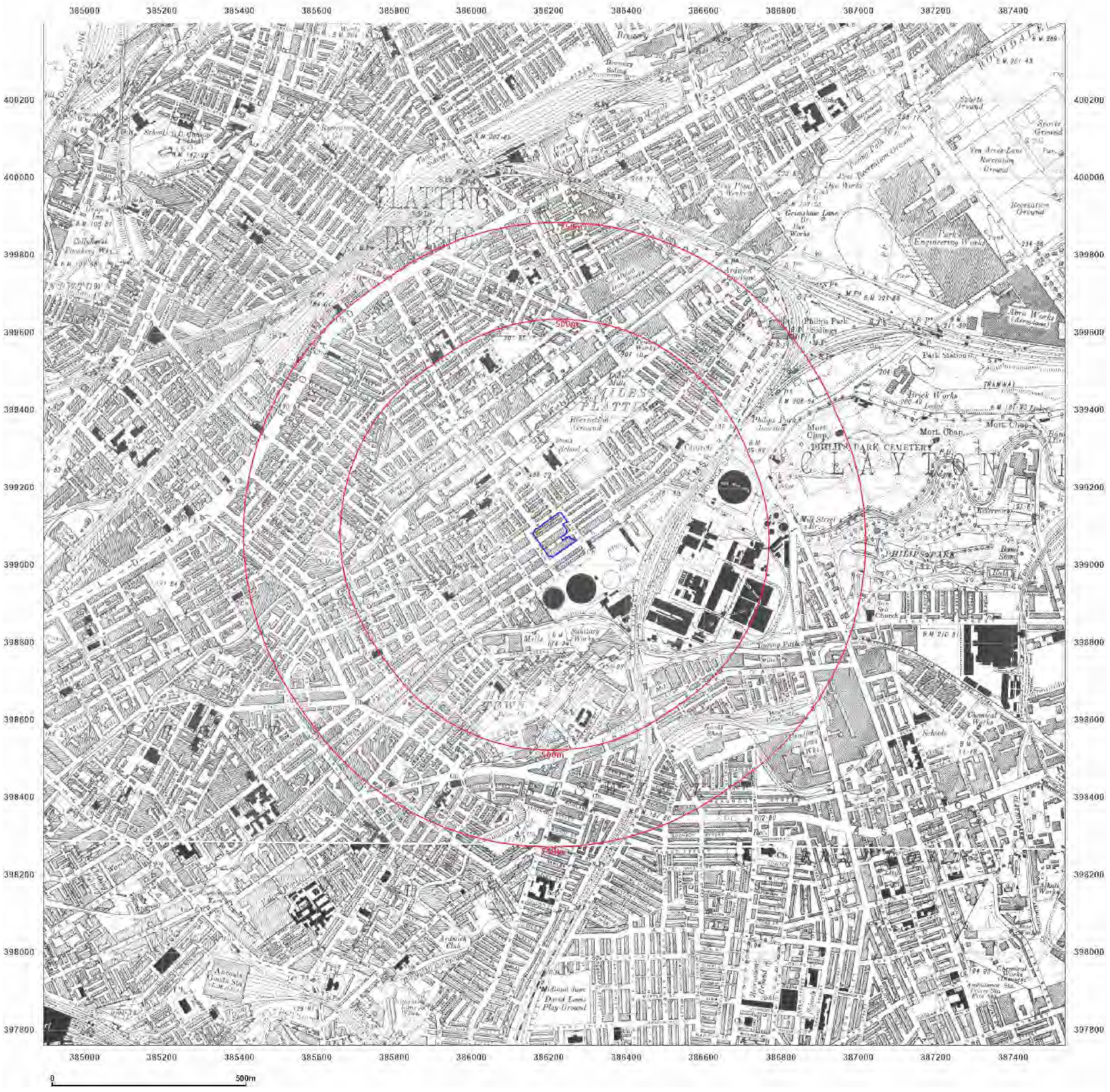
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Groundsure INSIGHTS

Site Details:

Miles Platting, Area 7.5B, M40 7AR

Client Ref: 21LPL087_-_BG4580
Report Ref: GS-8644045
Grid Ref: 386213, 399079

Map Name: County Series

Map date: **1933-1934**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1844
Revised 1933
Edition 1933
Copyright N/A
Levelled 1927

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

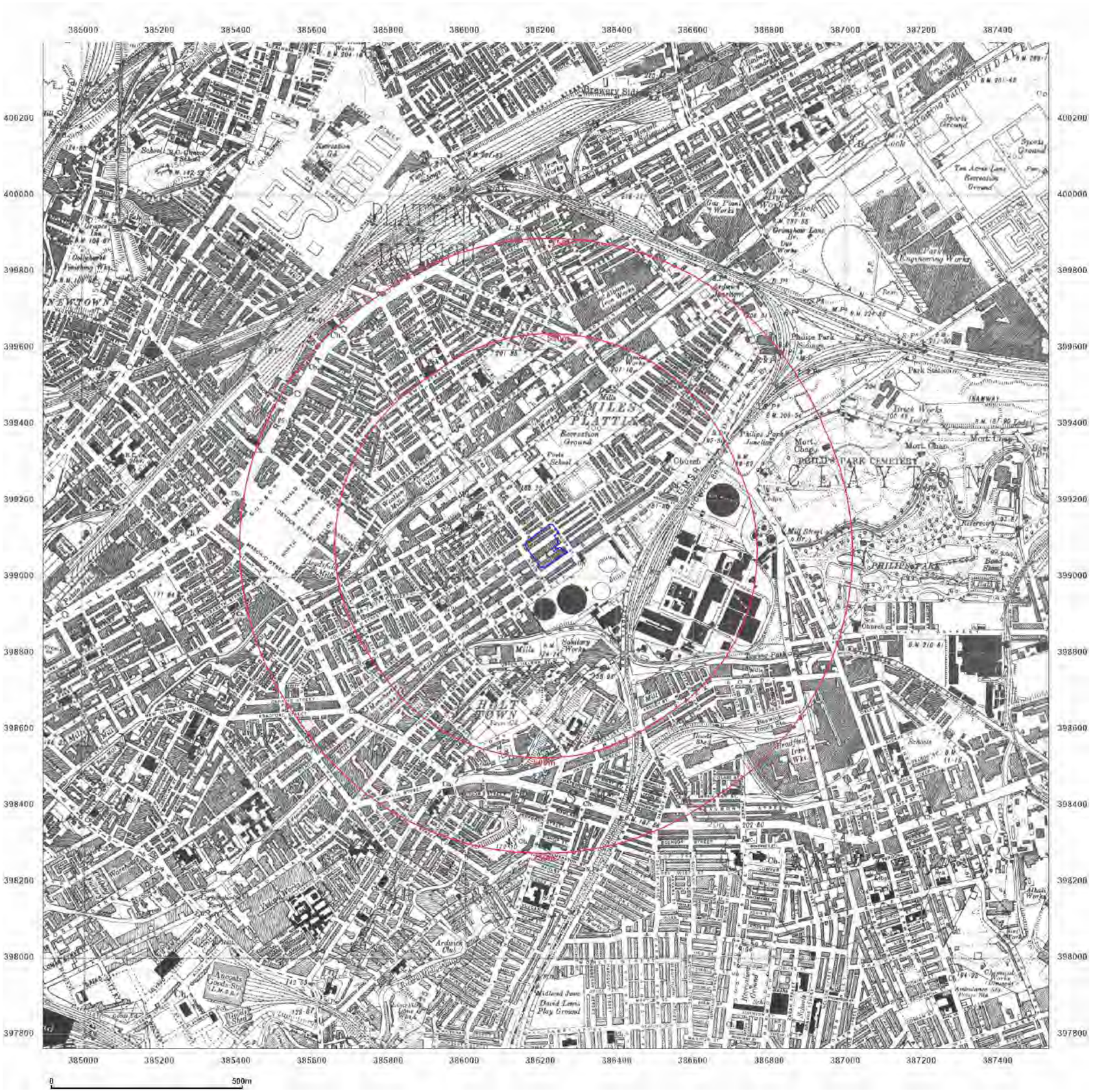
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Groundsure INSIGHTS

Site Details:

Miles Platting, Area 7.5B, M40 7AR

Client Ref: 21LPL087_-_BG4580
Report Ref: GS-8644045
Grid Ref: 386213, 399079

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

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

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

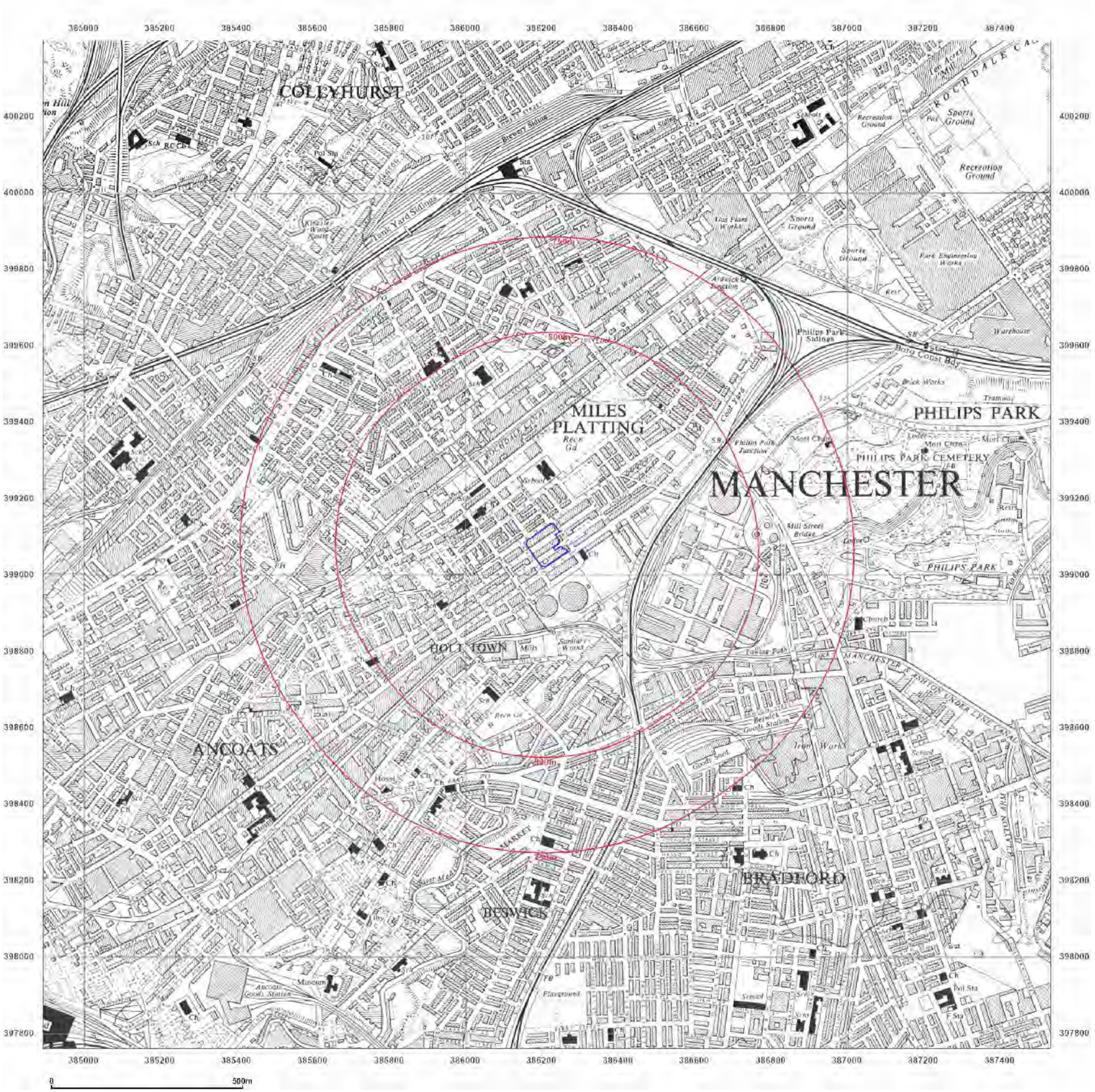
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Groundsure INSIGHTS

Site Details:

Miles Platting, Area 7.5B, M40 7AR

Client Ref: 21LPL087_-_BG4580
Report Ref: GS-8644045
Grid Ref: 386213, 399079

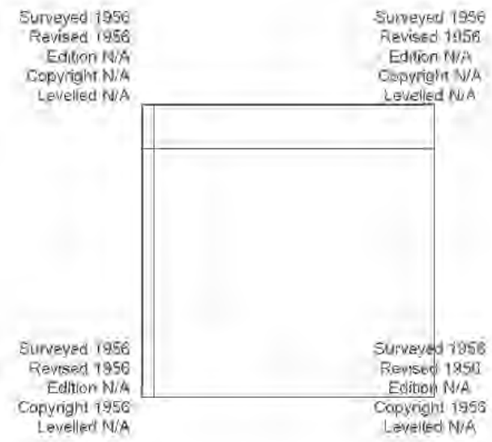
Map Name: Provisional

Map date: **1956**

Scale: 1:10,560

Printed at: 1:10,560

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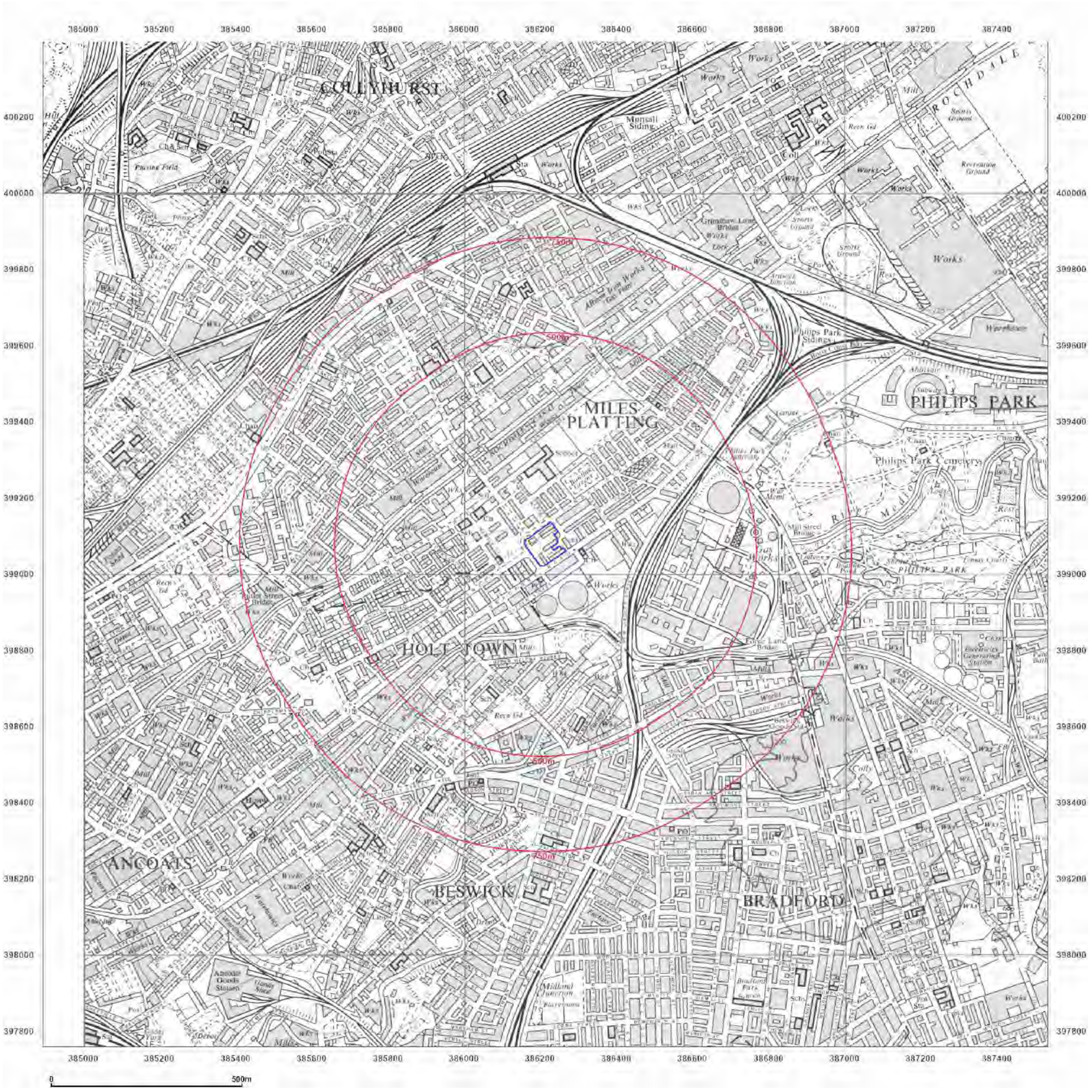
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Groundsure INSIGHTS

Site Details:

Miles Platting, Area 7.5B, M40 7AR

Client Ref: 21LPL087_-_BG4580
Report Ref: GS-8644045
Grid Ref: 386213, 399079

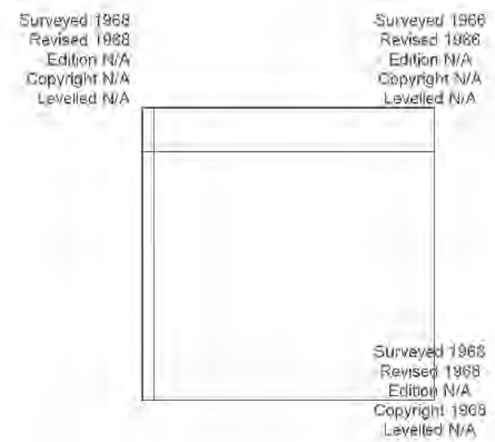
Map Name: Provisional

Map date: **1966-1968**

Scale: 1:10,560

Printed at: 1:10,560

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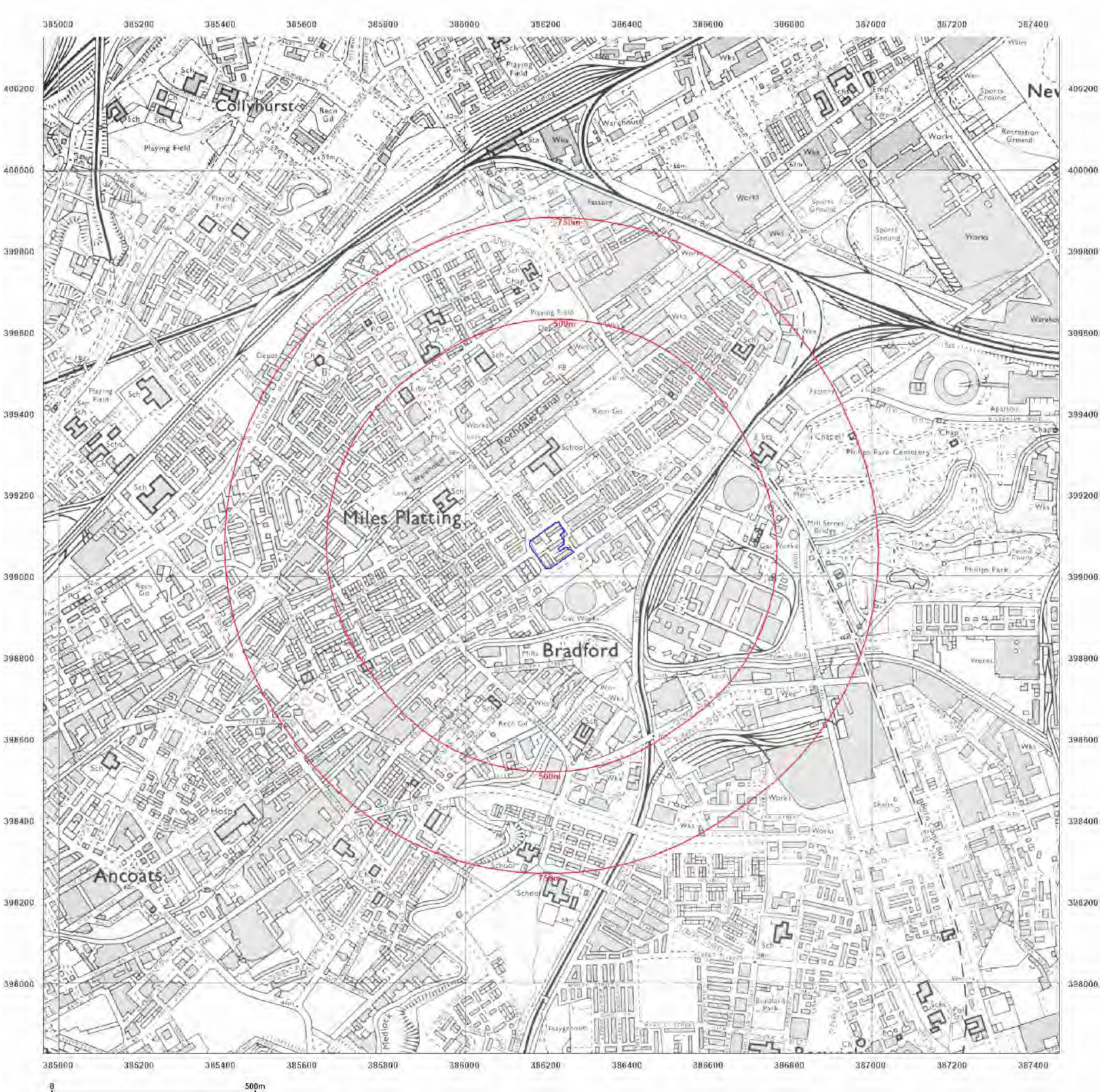
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Site Details:

Miles Platting, Area 7.5B, M40 7AR

Client Ref: 21LPL087_-_BG4580
Report Ref: GS-8644045
Grid Ref: 386213, 399079

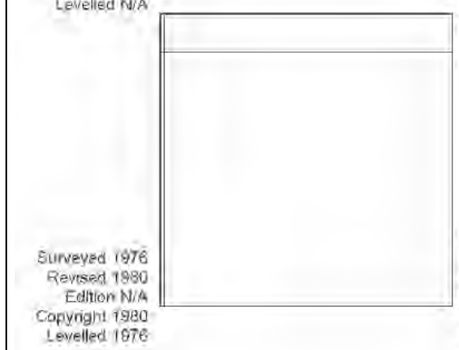
Map Name: National Grid

Map date: **1980-1985**

Scale: 1:10,000

Printed at: 1:10,000

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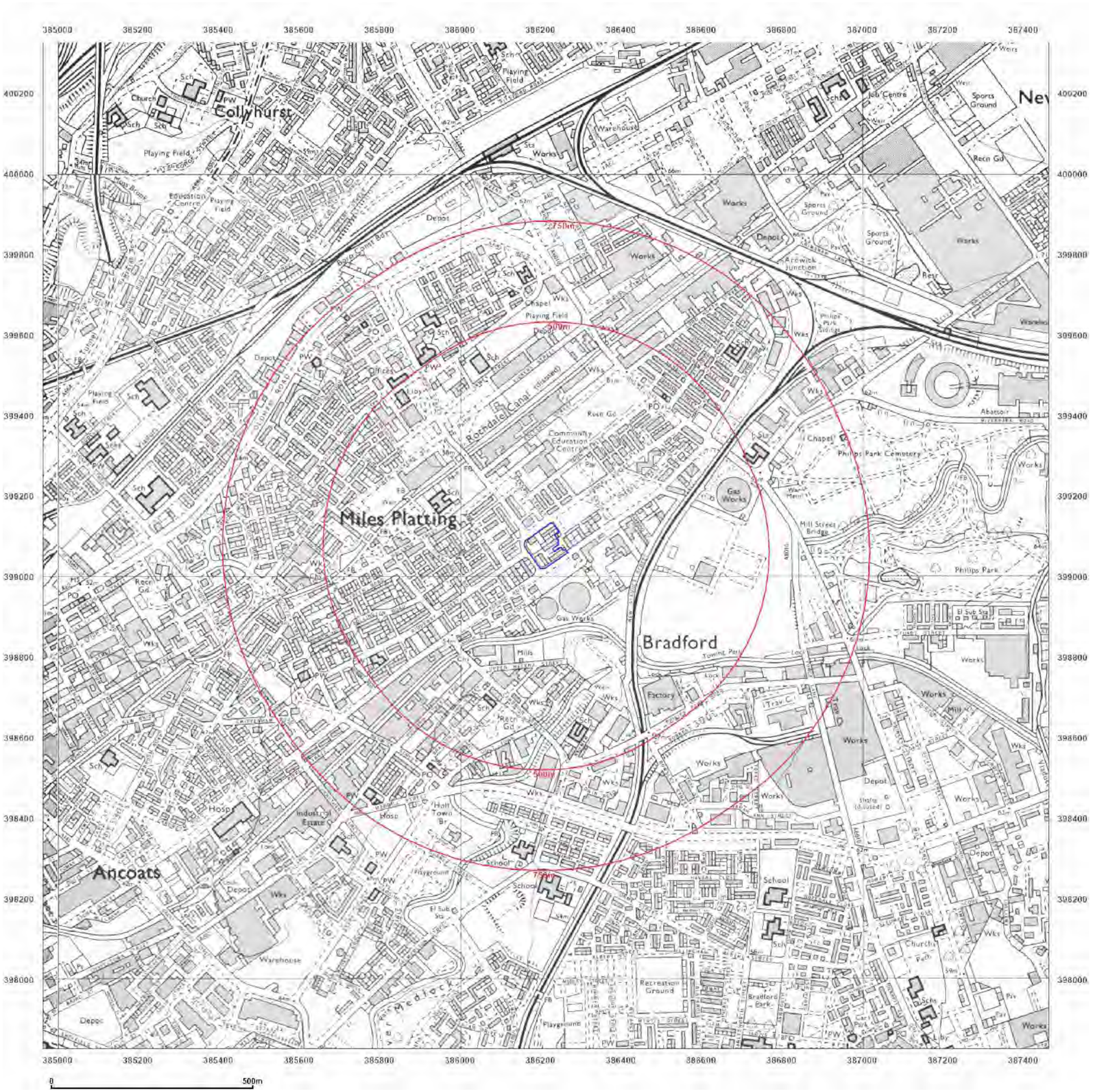
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Groundsure INSIGHTS

Site Details:

Miles Platting, Area 7.5B, M40 7AR

Client Ref: 21LPL087_-_BG4580
Report Ref: GS-8644045
Grid Ref: 386213, 399079

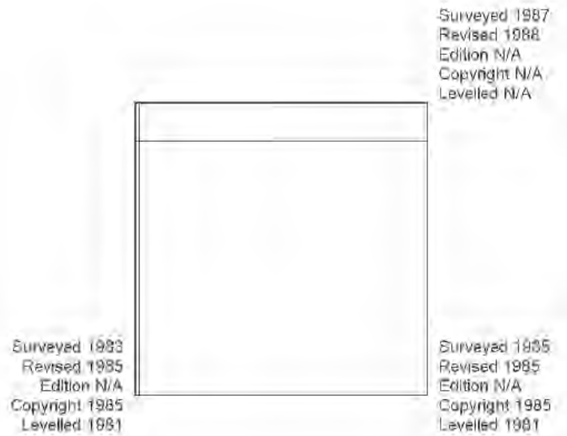
Map Name: National Grid

Map date: **1985-1988**

Scale: 1:10,000

Printed at: 1:10,000

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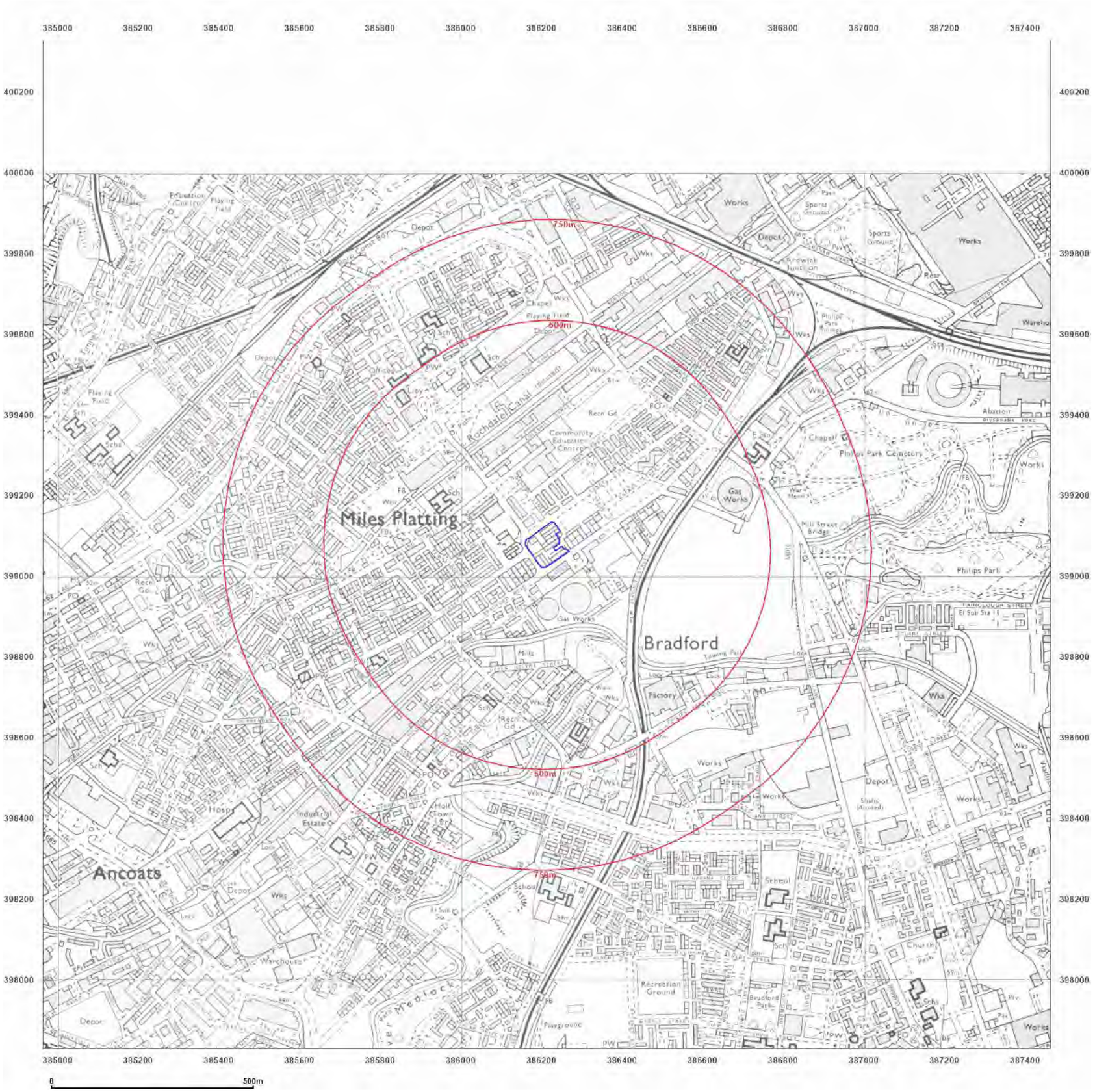
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Groundsure INSIGHTS

Site Details:

Miles Platting, Area 7.5B, M40 7AR

Client Ref: 21LPL087_-_BG4580
Report Ref: GS-8644045
Grid Ref: 386213, 399079

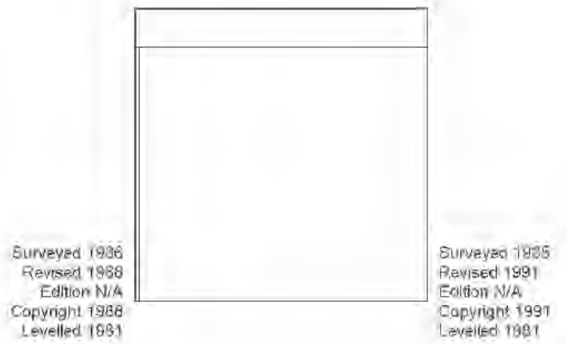
Map Name: National Grid

Map date: **1988-1991**

Scale: 1:10,000

Printed at: 1:10,000

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Groundsure INSIGHTS

Site Details:

Miles Platting, Area 7.5B, M40 7AR

Client Ref: 21LPL087_-_BG4580
Report Ref: GS-8644045
Grid Ref: 386213, 399079

Map Name: National Grid
Map date: 2001
Scale: 1:10,000
Printed at: 1:10,000

N
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2001

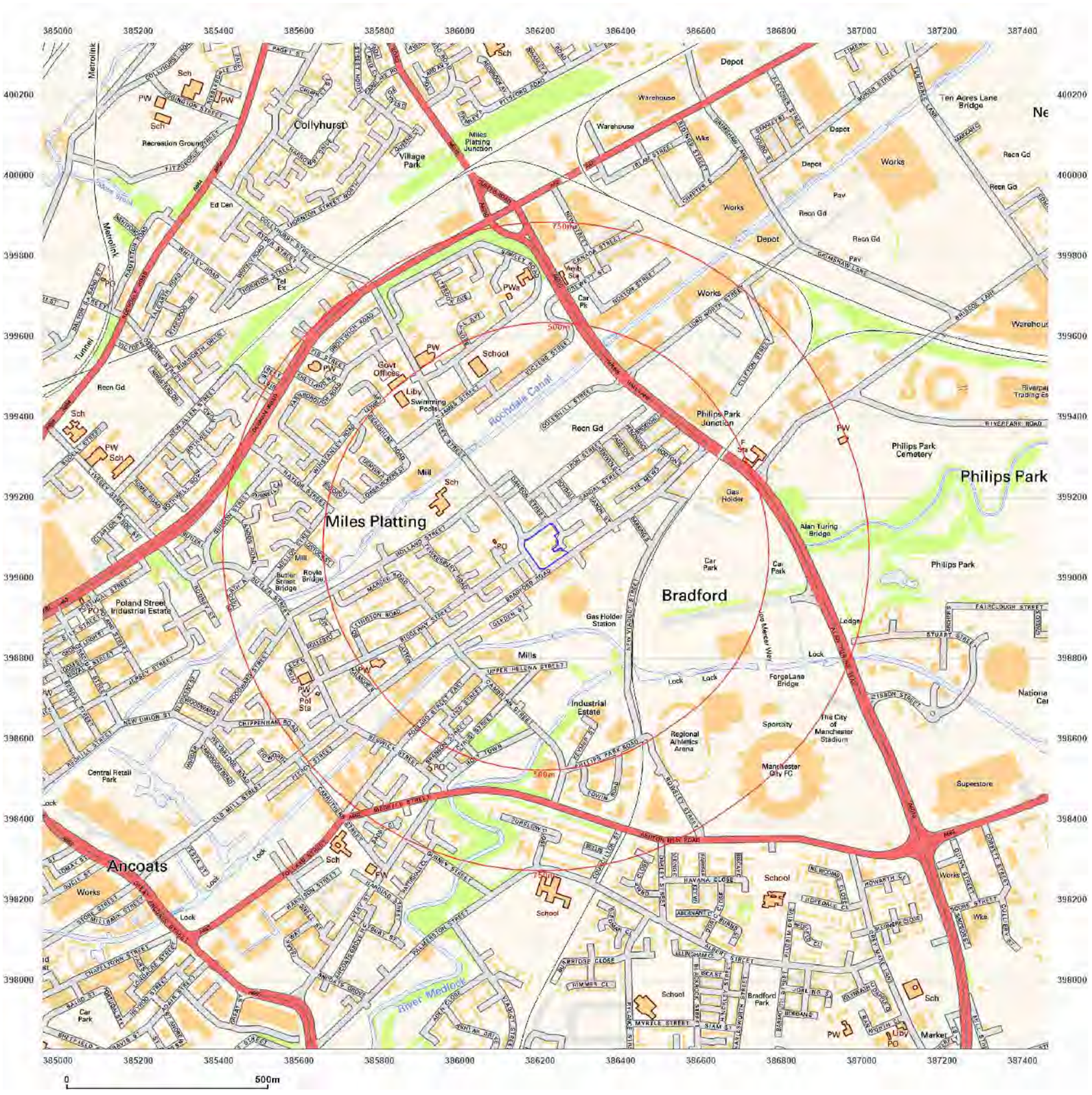
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Map Name: National Grid

Map date: **2010**

Scale: 1:10,000

Printed at: 1:10,000

N
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2010

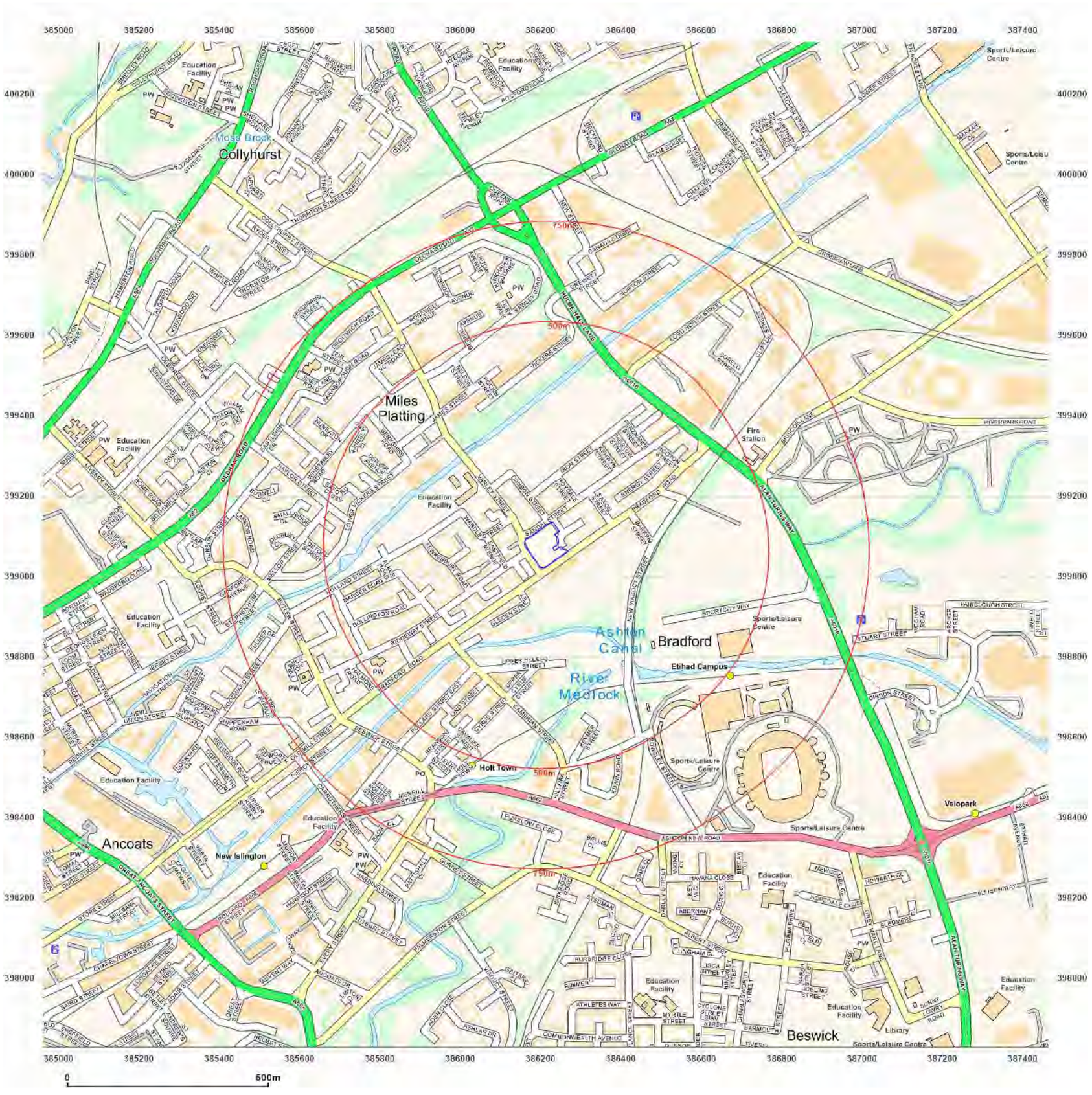
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Groundsure INSIGHTS

Site Details:

Miles Platting, Area 7.5B, M40 7AR

Client Ref: 21LPL087_-_BG4580
Report Ref: GS-8644045
Grid Ref: 386213, 399079

Map Name: National Grid
Map date: **2022**
Scale: 1:10,000
Printed at: 1:10,000

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2022

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APPENDIX C

iii) Groundsure Report

iv) Coal Authority Report

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Groundsure LOCATION INTELLIGENCE

Enviro+Geo Insight

Miles Platting, Area 7.5B, M40 7AR

Order Details

Date: 04/04/2022

Your ref: 21LPL087_-_BG4580

Our Ref: GS-8644047

Client: Beverley Lewis

Site Details

Location: 386210 399079

Area: 0.66 ha

Authority: Manchester City Council



Summary of findings p. 2

OS MasterMap site plan p.12

Aerial image p. 8

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Contact us with any questions at:
info@groundsure.com
08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
13	1.1	Historical industrial land uses	0	6	72	143	-
22	1.2	Historical tanks	0	3	64	289	-
35	1.3	Historical energy features	0	6	21	22	-
37	1.4	Historical petrol stations	0	0	0	0	-
37	1.5	Historical garages	0	0	0	2	-
37	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
38	2.1	Historical industrial land uses	0	8	102	220	-
50	2.2	Historical tanks	0	6	103	430	-
70	2.3	Historical energy features	0	13	46	45	-
74	2.4	Historical petrol stations	0	0	0	0	-
74	2.5	Historical garages	0	0	0	3	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
75	3.1	Active or recent landfill	0	0	0	0	-
75	3.2	Historical landfill (BGS records)	0	0	0	0	-
76	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
76	3.4	Historical landfill (EA/NRW records)	0	0	3	0	-
77	3.5	Historical waste sites	0	0	7	26	-
81	3.6	Licensed waste sites	0	0	3	5	-
83	3.7	Waste exemptions	0	0	14	20	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
87	4.1	Recent industrial land uses	0	1	7	-	-
88	4.2	Current or recent petrol stations	0	0	0	0	-
88	4.3	Electricity cables	0	0	0	0	-
88	4.4	Gas pipelines	0	0	0	0	-
88	4.5	Sites determined as Contaminated Land	0	0	0	0	-

89	4.6	Control of Major Accident Hazards (COMAH)	0	0	1	1	-
89	4.7	Regulated explosive sites	0	0	0	0	-
89	4.8	Hazardous substance storage/usage	0	1	1	2	-
90	4.9	Historical licensed industrial activities (IPC)	0	0	2	0	-
91	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
91	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	3	-
91	4.12	Radioactive Substance Authorisations	0	0	0	0	-
92	4.13	Licensed Discharges to controlled waters	0	0	0	6	-
93	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
93	4.15	Pollutant release to public sewer	0	0	0	0	-
93	4.16	List 1 Dangerous Substances	0	0	0	0	-
93	4.17	List 2 Dangerous Substances	0	0	0	1	-
94	4.18	Pollution Incidents (EA/NRW)	0	0	10	7	-
96	4.19	Pollution inventory substances	0	0	0	0	-
96	4.20	Pollution inventory waste transfers	0	0	0	0	-
96	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
97	5.1	Superficial aquifer	Identified (within 500m)				
98	5.2	Bedrock aquifer	Identified (within 500m)				
99	5.3	Groundwater vulnerability	Identified (within 50m)				
100	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
100	5.5	Groundwater vulnerability- local information	None (within 0m)				
101	5.6	Groundwater abstractions	0	0	0	0	27
108	5.7	Surface water abstractions	0	0	0	0	6
110	5.8	Potable abstractions	0	0	0	0	0
110	5.9	Source Protection Zones	0	0	0	0	-
110	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
111	6.1	Water Network (OS MasterMap)	0	0	1	-	-

112	**6.2**	**Surface water features**	0	0	2	-	-
112	**6.3**	**WFD Surface water body catchments**	1	-	-	-	-
112	**6.4**	**WFD Surface water bodies**	0	0	1	-	-
113	**6.5**	**WFD Groundwater bodies**	1	-	-	-	-

Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
114	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
114	7.2	Historical Flood Events	0	0	0	-	-
114	7.3	Flood Defences	0	0	0	-	-
115	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
115	7.5	Flood Storage Areas	0	0	0	-	-
116	7.6	Flood Zone 2	None (within 50m)				
116	7.7	Flood Zone 3	None (within 50m)				

Page	Section	Surface water flooding	
117	**8.1**	**Surface water flooding**	1 in 30 year, 0.3m - 1.0m (within 50m)

Page	Section	Groundwater flooding	
119	**9.1**	**Groundwater flooding**	High (within 50m)

Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
120	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
121	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
121	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
121	10.4	Special Protection Areas (SPA)	0	0	0	0	0
121	10.5	National Nature Reserves (NNR)	0	0	0	0	0
122	**10.6**	**Local Nature Reserves (LNR)**	0	0	0	0	1
122	10.7	Designated Ancient Woodland	0	0	0	0	0
122	10.8	Biosphere Reserves	0	0	0	0	0
122	10.9	Forest Parks	0	0	0	0	0
123	10.10	Marine Conservation Zones	0	0	0	0	0
123	**10.11**	**Green Belt**	0	0	0	0	1
123	10.12	Proposed Ramsar sites	0	0	0	0	0

123	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
124	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
124	10.15	Nitrate Sensitive Areas	0	0	0	0	0
124	**10.16**	**Nitrate Vulnerable Zones**	0	0	0	0	1
125	**10.17**	**SSSI Impact Risk Zones**	1	-	-	-	-
126	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
127	11.1	World Heritage Sites	0	0	0	-	-
127	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
127	11.3	National Parks	0	0	0	-	-
127	11.4	Listed Buildings	0	0	0	-	-
128	11.5	Conservation Areas	0	0	0	-	-
128	11.6	Scheduled Ancient Monuments	0	0	0	-	-
128	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
129	**12.1**	**Agricultural Land Classification**	Urban (within 250m)				
130	12.2	Open Access Land	0	0	0	-	-
130	**12.3**	**Tree Felling Licences**	0	0	1	-	-
130	12.4	Environmental Stewardship Schemes	0	0	0	-	-
130	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
131	13.1	Priority Habitat Inventory	0	0	0	-	-
131	13.2	Habitat Networks	0	0	0	-	-
132	**13.3**	**Open Mosaic Habitat**	0	0	5	-	-
132	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
133	**14.1**	**10k Availability**	Identified (within 500m)				
134	**14.2**	**Artificial and made ground (10k)**	0	1	1	4	-
136	**14.3**	**Superficial geology (10k)**	1	0	1	1	-

137	14.4	Landslip (10k)	0	0	0	0	-
138	14.5	Bedrock geology (10k)	2	0	1	0	-
139	14.6	Bedrock faults and other linear features (10k)	1	1	1	2	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
140	15.1	50k Availability	Identified (within 500m)				
141	15.2	Artificial and made ground (50k)	0	1	0	1	-
142	15.3	Artificial ground permeability (50k)	0	1	-	-	-
143	15.4	Superficial geology (50k)	1	0	1	0	-
144	15.5	Superficial permeability (50k)	Identified (within 50m)				
144	15.6	Landslip (50k)	0	0	0	0	-
144	15.7	Landslip permeability (50k)	None (within 50m)				
145	15.8	Bedrock geology (50k)	2	0	1	0	-
146	15.9	Bedrock permeability (50k)	Identified (within 50m)				
146	15.10	Bedrock faults and other linear features (50k)	2	1	1	1	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
147	16.1	BGS Boreholes	4	6	27	-	-
Page	Section	Natural ground subsidence					
150	17.1	Shrink swell clays	Very low (within 50m)				
151	17.2	Running sands	Very low (within 50m)				
152	17.3	Compressible deposits	Very low (within 50m)				
154	17.4	Collapsible deposits	Very low (within 50m)				
155	17.5	Landslides	Very low (within 50m)				
156	17.6	Ground dissolution of soluble rocks	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
158	18.1	Natural cavities	0	0	0	0	-
159	18.2	BritPits	0	0	1	2	-
159	18.3	Surface ground workings	0	0	34	-	-
161	18.4	Underground workings	0	0	0	0	4
161	18.5	Historical Mineral Planning Areas	0	0	0	0	-

162	**18.6**	**Non-coal mining**	0	0	1	0	1
162	18.7	Mining cavities	0	0	0	0	0
162	**18.8**	**JPB mining areas**	Identified (within 0m)				
163	**18.9**	**Coal mining**	Identified (within 0m)				
163	18.10	Brine areas	None (within 0m)				
163	18.11	Gypsum areas	None (within 0m)				
163	18.12	Tin mining	None (within 0m)				
164	18.13	Clay mining	None (within 0m)				

Page	Section	Radon	
165	**19.1**	**Radon**	Less than 1% (within 0m)

Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
166	**20.1**	**BGS Estimated Background Soil Chemistry**	2	3	-	-	-
166	**20.2**	**BGS Estimated Urban Soil Chemistry**	4	4	-	-	-
167	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-

Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
168	21.1	Underground railways (London)	0	0	0	-	-
168	21.2	Underground railways (Non-London)	0	0	0	-	-
169	21.3	Railway tunnels	0	0	0	-	-
169	**21.4**	**Historical railway and tunnel features**	0	0	29	-	-
170	21.5	Royal Mail tunnels	0	0	0	-	-
170	21.6	Historical railways	0	0	0	-	-
171	**21.7**	**Railways**	0	0	6	-	-
171	21.8	Crossrail 1	0	0	0	0	-
171	21.9	Crossrail 2	0	0	0	0	-
171	21.10	HS2	0	0	0	0	-

Recent aerial photograph



Capture Date: 22/04/2019

Site Area: 0.66ha

Recent site history - 2015 aerial photograph



Capture Date: 11/06/2015

Site Area: 0.66ha

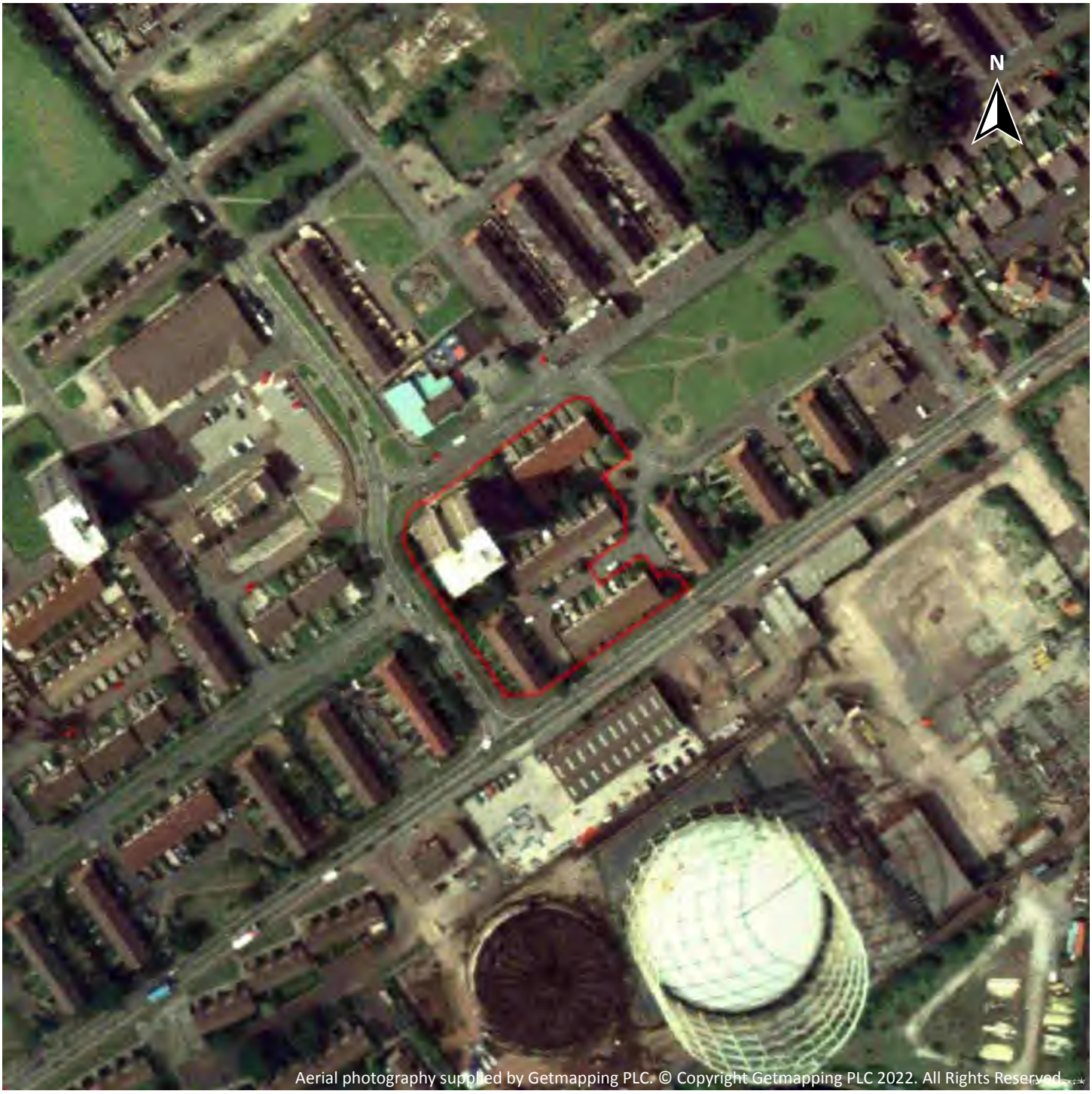
Recent site history - 2009 aerial photograph



Capture Date: 02/06/2009

Site Area: 0.66ha

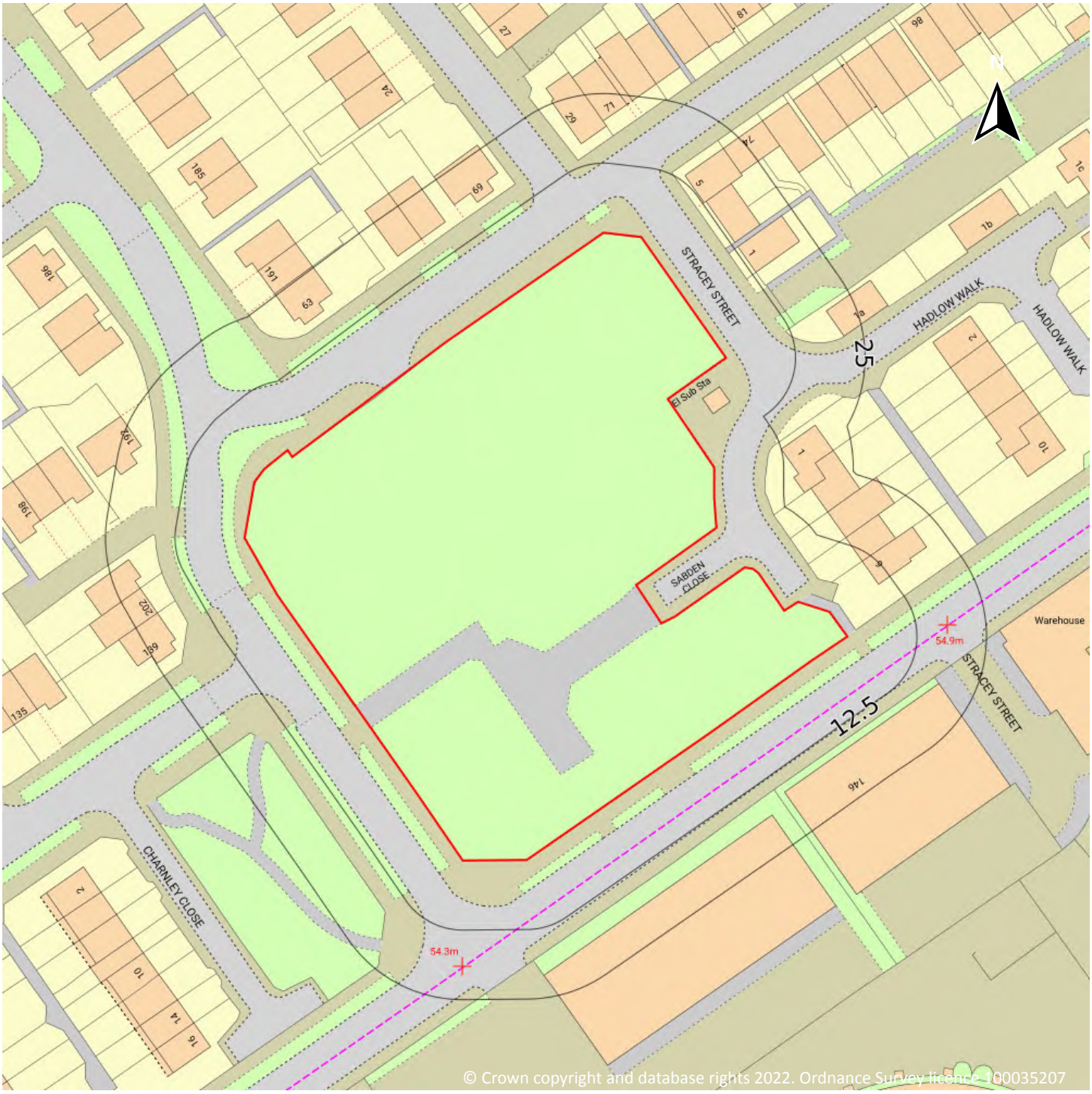
Recent site history - 2000 aerial photograph



Capture Date: 19/06/2000

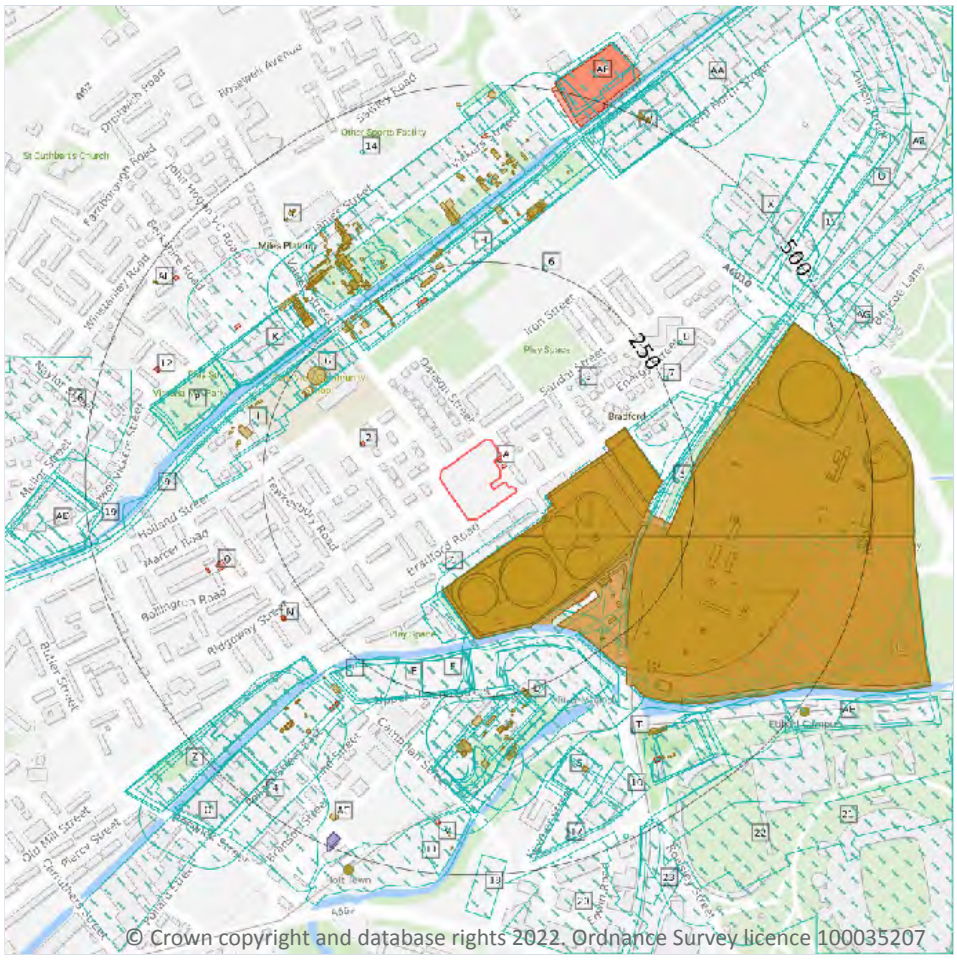
Site Area: 0.66ha

OS MasterMap site plan



Site Area: 0.66ha

1 Past land use



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical garages

1.1 Historical industrial land uses

Records within 500m	221

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 13**

ID	Location	Land use	Dates present	Group ID
B	35m SE	Gas Works	1985 - 1991	895751

ID	Location	Land use	Dates present	Group ID
B	40m E	Raising Works	1906	806704
B	40m E	Gas Stove Works	1921 - 1923	899437
B	40m E	Unspecified Commercial/Industrial	1933 - 1938	909305
B	40m E	Unspecified Commercial/Industrial	1891	917862
B	50m SE	Gas Work	1978	814479
B	54m SE	Unspecified Works	1968	830458
B	54m SE	Unspecified Commercial/Industrial	1956	916012
B	55m E	Unspecified Commercial/Industrial	1851	881841
B	56m SE	Brick Field	1851	817949
1	59m S	Brick Kilns	1851	827898
B	64m SE	Gasometer	1923	809783
B	64m SE	Unspecified Tank	1906 - 1921	974232
B	65m SE	Gasometers	1978	916494
B	65m SE	Unspecified Tanks	1956 - 1968	922346
B	65m SE	Unspecified Tank	1891	916313
B	70m SE	Unspecified Tank	1906	918029
B	70m SE	Unspecified Tank	1933 - 1938	938620
B	70m SE	Gasometer	1921 - 1923	941154
B	74m SE	Gasometers	1991	983680
B	74m SE	Gasometer	1985	979918
B	79m S	Gasometer	1985	850148
B	81m S	Unspecified Tank	1933 - 1938	889468
B	86m E	Unspecified Pit	1933 - 1938	988822
B	89m E	Gasometer	1923	809781
B	89m E	Unspecified Tank	1906 - 1921	854180
B	93m E	Unspecified Tank	1891	940326
B	113m SE	Gasometer	1923	809782
B	113m SE	Unspecified Tank	1906 - 1921	909386

ID	Location	Land use	Dates present	Group ID
B	113m SE	Unspecified Tank	1933 - 1938	927958
B	118m SE	Unspecified Tank	1891	927485
B	128m E	Coal Pit	1851	808504
B	129m SE	Unspecified Pit	1933 - 1938	883057
B	133m SE	Gasometer	1923	809785
B	133m SE	Unspecified Tank	1906 - 1921	850837
B	136m NE	Brick Works	1891	818774
B	136m SE	Unspecified Tank	1891	972082
D	138m S	Sanitary Works	1933	888668
D	138m S	Sanitary Works	1921	963542
B	144m NE	Unspecified Works	1968	830459
3	149m NE	Coal Pits	1851	802168
C	157m E	Gas Works	1891	874852
C	173m E	Railway Sidings	1978	974171
D	176m S	Sanitary Works	1956	876771
E	181m S	Unspecified Mills	1956	914363
F	182m S	Unspecified Mills	1985 - 1991	922374
F	182m S	Unspecified Mills	1968 - 1978	912751
C	184m E	Railway Sidings	1923	973770
B	186m NE	Unspecified Pit	1906	840536
E	187m S	Unspecified Mills	1923	989977
C	188m SE	Railway Sidings	1891	925215
D	188m S	Sanitary Works	1938	846336
D	188m S	Sanitary Works	1891 - 1906	971025
E	188m S	Unspecified Mills	1938	963506
E	188m S	Unspecified Mills	1921	966437
C	188m E	Railway Sidings	1906 - 1921	881262
C	188m E	Railway Sidings	1933 - 1938	898707

ID	Location	Land use	Dates present	Group ID
C	189m SE	Railway Sidings	1956 - 1968	982092
D	189m S	Sanitary Works	1923	954361
D	193m S	Unspecified Ground Workings	1968	800627
G	197m NW	Unspecified Works	1968	830461
H	197m NW	Unspecified Works	1985 - 1991	960938
I	199m NW	Alum Works	1923	795045
H	201m NW	Canal Works	1968	827846
G	203m NW	Unspecified Tank	1891	825282
C	210m E	Unspecified Commercial/Industrial	1968 - 1978	974281
C	211m E	Gas Works	1906 - 1923	932486
H	211m N	Chemical Works	1891 - 1938	886492
H	214m NW	Unspecified Commercial/Industrial	1891 - 1921	845585
H	214m NW	Unspecified Commercial/Industrial	1933 - 1938	911970
4	216m SW	Brick Field	1851	817950
I	220m NW	Unspecified Mill	1968	810297
5	222m E	Coal Pit	1851	808495
C	240m SE	Unspecified Commercial/Industrial	1956	951490
H	243m NW	Disused Canal	1991	849130
D	243m S	Unspecified Works	1978	890255
H	246m NW	Disused Canal	1985	2367192
C	247m SE	Unspecified Commercial/Industrial	1933 - 1938	894722
D	250m S	Unspecified Works	1985	987762
6	251m N	Coal Pit	1851	808502
D	251m S	Unspecified Works	1991	905493
7	252m NE	Coal Pits	1851	802167
D	254m SE	Unspecified Works	1968	878038
D	254m S	Oil Works	1921 - 1923	952223
K	262m NW	Unspecified Mills	1923	954804

ID	Location	Land use	Dates present	Group ID
K	264m NW	Unspecified Commercial/Industrial	1891	967860
K	264m NW	Unspecified Mills	1933 - 1938	850186
K	264m NW	Unspecified Mills	1921	911965
K	265m NW	Unspecified Mills	1956	966535
H	266m NW	Unspecified Commercial/Industrial	1923	882897
K	267m NW	Unspecified Warehouse	1968 - 1978	901335
L	269m SW	Chimney	1985 - 1991	959165
H	269m NW	Chemical Works	1851	834549
H	271m NW	Unspecified Works	1978	830460
H	275m NW	Tannery	1851	842300
H	278m NW	Size Works	1851	837943
M	281m E	Refuse Heap	1891	829115
H	288m NW	Coal Pit	1851	808501
K	290m NW	Unspecified Mill	1978	810295
D	293m S	Unspecified Commercial/Industrial	1923	796759
8	296m NE	Coal Pit	1851	808503
H	299m N	Unspecified Mills	1891 - 1938	852486
C	299m E	Unspecified Tanks	1921 - 1923	981777
L	300m SW	Unspecified Mill	1921	941996
L	300m SW	Unspecified Mill	1933 - 1938	974727
O	300m SW	Unspecified Commercial/Industrial	1956	899187
L	301m SW	Unspecified Mill	1923	926128
D	306m S	Unspecified Tank	1906 - 1921	879635
D	306m S	Unspecified Tank	1933 - 1938	882390
P	309m NW	Woollen Mills	1923	854310
D	311m S	Unspecified Tank	1906 - 1938	946622
P	311m NW	Unspecified Mill	1968	810296
O	312m SW	Unspecified Commercial/Industrial	1985 - 1991	918075

ID	Location	Land use	Dates present	Group ID
D	315m S	Unspecified Tank	1906 - 1938	973359
P	315m W	Woollen Mills	1933 - 1938	868272
P	315m W	Woollen Mills	1921	926005
D	318m S	Unspecified Tank	1923	953286
D	319m S	Unspecified Heap	1956 - 1968	875105
O	321m SW	Unspecified Mill	1938	920927
D	322m S	Unspecified Ground Workings	1906 - 1933	923784
D	322m S	Unspecified Ground Workings	1938	951822
D	324m S	Unspecified Tank	1938	937017
D	324m S	Unspecified Tank	1906	940002
D	327m S	Unspecified Tank	1923	920137
D	328m S	Unspecified Tank	1923	910877
R	343m E	Gas Works	1985 - 1991	991680
S	345m SE	Unspecified Works	1978	979217
S	347m SE	Unspecified Works	1985 - 1991	987383
D	347m S	Unspecified Ground Workings	1891	971049
S	355m S	Cotton Works	1891 - 1938	923167
S	358m S	Unspecified Factory	1968	821378
H	359m N	Unspecified Tank	1933 - 1938	849674
T	365m SE	Railway Building	1923	820486
R	383m E	Gasometer	1923	905212
T	384m SE	Unspecified Mill	1923	953219
R	386m E	Gasometer	1921	848231
R	386m E	Unspecified Tank	1933 - 1938	965896
T	388m SE	Fustian Mills	1851	806840
T	391m SE	Unspecified Mill	1891	929965
T	391m SE	Unspecified Mill	1933 - 1938	984374
R	391m E	Unspecified Tank	1956 - 1978	914907

ID	Location	Land use	Dates present	Group ID
T	392m SE	Unspecified Factory	1985 - 1991	955182
U	393m NE	Coal Yard	1891	932750
T	397m SE	Unspecified Mill	1968	968050
R	398m E	Gasometer	1991	887941
R	401m E	Gasometer	1985	920187
V	404m S	Unspecified Works	1968	830456
W	405m NE	Chemical Works	1921 - 1923	849220
10	406m SE	Pottery	1851	818634
11	407m S	Cotton Mills	1851	862251
W	410m NE	Unspecified Works	1891	927795
W	410m NE	Unspecified Works	1933 - 1938	934682
X	412m NE	Brick Works	1891	818772
J	415m E	Gas Work	1968 - 1978	945176
W	418m NE	Unspecified Mills	1968	808184
Z	420m SW	Unspecified Works	1923	939107
AA	422m NE	Unspecified Commercial/Industrial	1985	899281
X	424m NE	Unspecified Heaps	1891	831348
J	428m E	Gasometer	1968 - 1978	908225
H	428m N	Unspecified Depot	1978	882826
H	430m N	Unspecified Works	1978	830464
S	430m SE	Unspecified Works	1968	830457
H	432m N	Unspecified Depot	1985 - 1991	964426
13	436m SE	Unspecified Ground Workings	1906 - 1923	968041
14	437m NW	Coal Pit	1851	808497
15	442m NE	Coal Yard	1956 - 1968	918300
W	443m N	Unspecified Works	1968	898141
AB	443m NE	Railway Sidings	1891	978292
16	443m W	Brick Field	1851	817948

ID	Location	Land use	Dates present	Group ID
O	449m SW	Unspecified Works	1968	830455
AB	451m NE	Railway Sidings	1921 - 1923	875517
AD	454m W	Unspecified Mill	1906 - 1938	949515
O	455m SW	Unspecified Mill	1933	913105
O	455m SW	Unspecified Mill	1921	967711
J	456m E	Refuse Heap	1906	829125
Z	457m SW	Unspecified Works	1921	920682
Z	457m SW	Unspecified Works	1933 - 1938	936908
O	457m SW	Unspecified Mill	1923	912959
U	457m NE	Coal Yard	1906	956455
17	463m S	Brick Kiln	1851	811032
J	464m E	Unspecified Tanks	1923	815395
AE	470m N	Unspecified Works	1978	844931
AE	470m N	Unspecified Works	1985 - 1991	897604
18	472m S	Unspecified Works	1985 - 1991	975823
AG	474m E	Fire Station	1985 - 1991	981014
AD	476m W	Unspecified Works	1985	845311
AD	476m W	Unspecified Works	1991	935699
AH	477m SE	Unspecified Works	1891	830469
AD	477m W	Cotton Mills	1851	811451
AH	478m SE	Unspecified Mills	1938	983499
J	480m E	Oil Tanks	1923	889887
AE	480m N	Steel Works	1851	810022
20	481m SE	Brick Field	1851	817947
J	481m E	Gasometer	1968 - 1978	944402
J	482m E	Unspecified Tank	1933 - 1938	963475
J	482m E	Unspecified Tanks	1906 - 1923	989875
J	483m E	Unspecified Tanks	1968 - 1978	869704

ID	Location	Land use	Dates present	Group ID
J	483m E	Unspecified Tanks	1956	815394
21	485m SE	Colliery	1968	890493
J	486m E	Gasometer	1968 - 1978	884458
AB	486m NE	Railway Sidings	1991	880705
AB	486m NE	Railway Sidings	1968	975528
AB	486m NE	Railway Sidings	1956 - 1978	2367782
J	487m E	Oil Tanks	1906 - 1921	857954
J	487m E	Unspecified Tank	1933 - 1938	954554
Z	489m SW	Unspecified Works	1968	889764
J	490m E	Unspecified Tank	1933 - 1938	903443
J	490m E	Unspecified Tanks	1906 - 1923	959046
22	490m SE	Railway Sidings	1978	963771
S	491m SE	Coal Pit	1851	808496
J	491m E	Unspecified Tanks	1923	938396
J	493m E	Unspecified Tank	1933 - 1938	919997
J	493m E	Unspecified Tanks	1921	939998
S	494m SE	Cuttings	1956	850032
AG	494m E	Fire Station	1978	988929
AD	495m W	Unspecified Commercial/Industrial	1956	886609
J	497m E	Unspecified Tank	1933 - 1938	928492
J	497m E	Oil Tanks	1906 - 1921	931133
AA	498m NE	Timber Yard	1921 - 1923	932938
U	499m NE	Coal Yard	1921 - 1923	961633
23	499m SE	Cuttings	1891	966918

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	356

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
B	42m E	Gas Works	1893	123389
B	45m E	Gas Holder Station	1991 - 1995	128430
C	45m E	Gas Works	1908 - 1922	144191
B	53m SE	Gas Holder Station	1986 - 1989	143674
B	54m SE	Gas Works	1979	124342
B	54m SE	Gas Holder Station	1992	124051
B	58m SE	Gasometers	1893 - 1922	146932
B	61m SE	Gasometer	1891	108530
B	66m SE	Gasometers	1979	108903
B	66m SE	Unspecified Tank	1948 - 1955	139971
B	66m SE	Gas Holder	1986 - 1989	149177
B	68m SE	Unspecified Tank	1958	145921
B	68m SE	Gasholder	1992	120428
B	74m SE	Unspecified Tank	1931	128987
B	74m SE	Gasometer	1908 - 1922	144489
B	76m S	Gas Holder	1986 - 1989	140988
B	76m S	Unspecified Tank	1948 - 1955	147701
B	76m S	Unspecified Tank	1958	123472
B	76m S	Gasholder	1992	120429
B	83m S	Unspecified Tank	1931	148893
B	87m E	Gasometer	1891	108531

ID	Location	Land use	Dates present	Group ID
B	113m SE	Gasometer	1891	108529
B	114m SE	Unspecified Tank	1931	116055
B	124m SE	Tanks	1989	138546
B	124m SE	Tanks	1986 - 1992	136167
B	125m SE	Unspecified Tank	1991	137585
B	125m SE	Unspecified Tank	1994 - 1995	143443
B	126m E	Gas Works	1949	130918
B	138m NE	Gas Works	1948 - 1952	141387
B	141m NE	Gas Works	1984	140774
B	142m S	Tanks	1986 - 1992	144183
B	144m NE	Gas Works	1968 - 1970	146054
B	154m SE	Overhead Tanks	1948	120512
B	163m SE	Unspecified Tank	1948	116054
B	171m SE	Tanks	1922 - 1931	142950
B	175m SE	Tanks	1908	124443
C	186m E	Gas Works	1948 - 1949	140627
B	198m SE	Tanks	1948	106891
H	205m NW	Unspecified Tank	1968 - 1995	130732
G	209m NW	Unspecified Tank	1891 - 1893	125043
B	210m SE	Tanks	1948	106892
G	212m NW	Tanks	1891	106837
H	213m NW	Tanks	1949	124438
H	214m NW	Tanks	1948 - 1968	148215
G	214m NW	Tanks	1891	137698
G	218m NW	Tanks	1891	106834
G	218m NW	Tanks	1891	128159
J	219m E	Gas Works	1968 - 1970	130205
H	220m NW	Unspecified Tank	1891	116050

ID	Location	Land use	Dates present	Group ID
H	222m NW	Tanks	1970 - 1984	140679
H	223m NW	Unspecified Tank	1893	116049
B	223m SE	Unspecified Tank	1948	116053
C	224m SE	Gas Works	1891	135095
H	226m NW	Tanks	1949	106889
H	231m NW	Tanks	1908 - 1931	123297
H	232m N	Tanks	1948 - 1995	145173
H	232m N	Tanks	1968 - 1970	125396
H	235m NW	Tanks	1948 - 1952	130212
H	236m NW	Tanks	1891	139837
B	237m SE	Unspecified Tank	1908 - 1922	147259
B	238m SE	Unspecified Tank	1948	116051
H	240m NW	Unspecified Tank	1908 - 1931	122612
H	242m N	Unspecified Tank	1891	116056
D	245m S	Unspecified Tank	1891	116117
H	245m NW	Tanks	1949	106888
H	248m N	Unspecified Tank	1891	116058
D	250m S	Unspecified Tank	1891	116116
D	254m S	Unspecified Tank	1891	116114
H	262m N	Tanks	1984 - 1995	145222
H	268m N	Unspecified Tank	1952 - 1970	140771
D	268m S	Unspecified Tank	1948 - 1979	140187
H	268m N	Unspecified Tank	1891	116057
H	268m NW	Tanks	1948 - 1952	137067
C	270m SE	Unspecified Tank	1948	116052
H	270m NW	Unspecified Tank	1891	116060
H	271m NW	Tanks	1948 - 1952	135614
I	271m W	Tanks	1891	106835

ID	Location	Land use	Dates present	Group ID
D	271m S	Unspecified Tank	1931	116118
D	271m S	Unspecified Tank	1948 - 1955	125105
I	272m W	Tanks	1908 - 1922	136878
D	272m S	Unspecified Tank	1979	122787
H	273m NW	Tanks	1948 - 1952	132380
H	274m NW	Tanks	1949	144071
D	275m S	Tanks	1948	106809
H	276m NW	Unspecified Tank	1891	116061
H	276m NW	Tanks	1949	137232
H	276m NW	Tanks	1949 - 1952	138774
H	277m NW	Tanks	1952	134151
D	277m S	Unspecified Tank	1948 - 1979	144042
D	278m S	Unspecified Tank	1931	116119
H	278m NW	Tanks	1949	147814
H	278m NW	Unspecified Tank	1891	116036
H	278m NW	Unspecified Tank	1891	116035
H	278m NW	Unspecified Tank	1891	116048
H	278m NW	Tanks	1948 - 1952	145190
H	280m NW	Tanks	1948 - 1952	137933
H	280m NW	Tanks	1968 - 1970	140203
H	281m NW	Unspecified Tank	1891	116037
I	281m W	Tanks	1891	106833
H	283m NW	Tanks	1949	144435
H	284m NW	Tanks	1948 - 1952	145352
H	284m NW	Tanks	1931	132320
I	285m W	Unspecified Tank	1908 - 1922	140658
C	286m E	Tanks	1948	106894
H	286m NW	Tanks	1908	133401

ID	Location	Land use	Dates present	Group ID
H	286m NW	Tanks	1952	147025
D	287m S	Unspecified Tank	1986 - 1989	127783
H	288m NW	Unspecified Tank	1948	126964
H	288m NW	Unspecified Tank	1949	149300
I	289m W	Unspecified Tank	1893	116000
I	289m W	Tanks	1891	133988
H	289m NW	Unspecified Tank	1931	116062
H	289m NW	Tanks	1948 - 1952	148884
D	291m S	Tanks	1955	127968
D	291m S	Tanks	1948	128195
D	291m S	Tanks	1979	129820
D	292m S	Unspecified Tank	1908	116126
D	292m S	Tanks	1931	127904
D	293m S	Tanks	1979 - 1986	140447
D	293m S	Tanks	1948 - 1989	125836
H	294m NW	Tanks	1948 - 1952	130400
D	294m S	Tanks	1948 - 1955	134210
D	294m S	Tanks	1979	139173
C	294m SE	Tanks	1931	106897
H	295m NW	Unspecified Tank	1949	116059
L	298m SW	Tanks	1948 - 1958	128872
I	298m W	Tanks	1891	106832
I	299m W	Tanks	1891	106836
D	299m S	Unspecified Tank	1955	141710
D	299m S	Unspecified Tank	1948	147680
D	299m S	Unspecified Tank	1979	142816
L	300m SW	Unspecified Tank	1948	115996
C	301m SE	Unspecified Tank	1948	125740

ID	Location	Land use	Dates present	Group ID
C	302m SE	Tanks	1979	106893
C	302m E	Tanks	1922 - 1931	141453
H	302m NW	Tanks	1891	106869
H	302m NW	Tanks	1891 - 1931	141301
H	302m NW	Unspecified Tank	1893	116034
H	303m NW	Tanks	1949 - 1965	131420
D	303m S	Unspecified Tank	1931	116121
H	304m N	Unspecified Tank	1931	116063
H	304m NW	Tanks	1949 - 1952	133545
M	304m E	Unspecified Tank	1968 - 1970	129294
H	304m N	Tanks	1948 - 1952	136444
H	305m NW	Tanks	1949 - 1965	130055
H	305m N	Tanks	1970	138122
H	305m N	Tanks	1968	124562
H	305m N	Unspecified Tank	1893	116064
D	306m S	Tanks	1948 - 1979	134652
H	306m NW	Unspecified Tank	1968 - 1970	133800
C	307m SE	Tanks	1955 - 1979	143974
H	307m NW	Tanks	1949	133842
H	308m NW	Tanks	1948 - 1952	123284
H	308m NW	Unspecified Tank	1893	116038
H	308m N	Tanks	1968	128498
D	309m S	Tanks	1908	143683
C	310m E	Unspecified Tank	1949	116094
C	310m SE	Overhead Tanks	1948	120513
H	310m N	Tanks	1948 - 1952	142599
D	310m S	Unspecified Tank	1908	116120
D	310m S	Tanks	1922 - 1931	134829

ID	Location	Land use	Dates present	Group ID
H	311m NW	Unspecified Tank	1891	116033
H	311m NW	Tanks	1891	144312
C	311m E	Tanks	1948	106895
D	311m S	Unspecified Tank	1908	116125
D	312m S	Unspecified Tank	1891	116124
H	313m N	Unspecified Tank	1891	116076
H	313m N	Tanks	1948 - 1952	126669
H	313m NW	Unspecified Tank	1891	116040
H	314m NW	Tanks	1891	148519
C	315m SE	Tanks	1979	106890
H	315m NW	Tanks	1931	126236
H	315m NW	Tanks	1891	148395
H	316m NW	Unspecified Tank	1891	116047
H	316m NW	Tanks	1931	145778
H	316m N	Tanks	1984 - 1995	146894
H	316m NW	Tanks	1952	124574
H	317m NW	Tanks	1949	122597
H	317m NW	Tanks	1952	145731
H	317m NW	Tanks	1949 - 1952	139282
C	318m SE	Unspecified Tank	1891	147647
H	318m N	Unspecified Tank	1948 - 1952	135695
H	318m N	Tanks	1991	136943
H	319m N	Tanks	1994 - 1995	147290
H	319m NW	Tanks	1922	139430
H	319m NW	Tanks	1931	149145
H	320m NW	Unspecified Tank	1891	144380
D	321m S	Tanks	1908 - 1922	145285
H	321m NW	Unspecified Tank	1891	116039

ID	Location	Land use	Dates present	Group ID
D	322m S	Unspecified Tank	1891	116123
H	322m NW	Unspecified Tank	1891	144341
H	322m NW	Tanks	1949 - 1952	141690
H	323m NW	Unspecified Tank	1952	134249
C	325m SE	Unspecified Tank	1955 - 1958	140162
C	325m SE	Tanks	1948	106896
H	325m NW	Unspecified Tank	1931	139907
C	325m SE	Unspecified Tank	1979	141260
D	325m S	Unspecified Tank	1908	122777
H	327m NW	Tanks	1952	130043
H	327m N	Unspecified Tank	1922	116077
D	327m S	Unspecified Tank	1922 - 1931	138312
D	328m S	Unspecified Tank	1908 - 1931	127771
H	328m N	Tanks	1893 - 1908	128674
H	329m NW	Tanks	1891	138933
C	330m SE	Unspecified Tank	1948 - 1979	122403
H	330m NW	Tanks	1891	136918
C	330m SE	Tanks	1931 - 1948	132624
H	332m NW	Tanks	1931	145673
D	332m S	Tanks	1931	106806
H	332m NW	Tanks	1931	135216
H	332m N	Tanks	1891	136637
H	332m NW	Tanks	1908 - 1952	123317
H	334m NW	Tanks	1922 - 1952	130441
H	334m NW	Tanks	1949 - 1952	130724
H	334m N	Unspecified Tank	1948 - 1949	130784
H	334m NW	Tanks	1931	137654
H	335m NW	Tanks	1931	139327

ID	Location	Land use	Dates present	Group ID
H	336m NW	Tanks	1952	131174
H	336m NW	Tanks	1948	141183
D	338m S	Tanks	1948 - 1955	130116
H	339m NW	Tanks	1949	128217
H	339m NW	Unspecified Tank	1948 - 1952	141310
H	339m NW	Tanks	1931	106867
R	341m E	Gas Works	1984	126853
H	342m NW	Tanks	1949	127382
H	342m NW	Tanks	1931	142127
H	342m NW	Tanks	1922	106870
H	342m NW	Tanks	1948 - 1952	128019
H	344m NW	Tanks	1948 - 1952	127366
L	346m SW	Unspecified Tank	1951	140144
C	347m SE	Unspecified Tank	1891	116115
L	347m SW	Unspecified Tank	1965	133006
L	347m SW	Unspecified Tank	1967	148313
L	347m SW	Unspecified Tank	1963	147013
H	349m N	Tanks	1931	137824
L	351m SW	Unspecified Tank	1967	142226
L	351m SW	Unspecified Tank	1965	144329
L	351m SW	Unspecified Tank	1948	144440
L	351m SW	Unspecified Tank	1951	148157
L	352m SW	Unspecified Tank	1963	123225
L	352m SW	Unspecified Tank	1951	138273
L	352m SW	Unspecified Tank	1948	144363
H	354m NW	Tanks	1931	106871
H	354m NW	Tanks	1949	106866
H	356m NW	Tanks	1931	106872

ID	Location	Land use	Dates present	Group ID
L	356m SW	Unspecified Tank	1931	115987
H	356m N	Tanks	1948 - 1952	144147
L	358m SW	Unspecified Tank	1922	115986
C	358m SE	Unspecified Tank	1948	116095
C	359m SE	Tanks	1948	106898
H	359m N	Tanks	1968 - 1970	138136
C	360m SE	Unspecified Tank	1931	116099
H	360m N	Tanks	1931	142163
H	361m N	Tanks	1948 - 1952	124332
C	363m SE	Unspecified Tank	1948	116113
C	363m SE	Unspecified Tank	1891	116096
H	365m N	Tanks	1971	129083
H	365m N	Tanks	1955	130903
L	366m SW	Tanks	1948 - 1967	133797
H	366m NW	Tanks	1948 - 1952	145083
L	366m SW	Unspecified Tank	1965	115992
H	366m N	Unspecified Tank	1949 - 1970	133435
H	366m N	Unspecified Tank	1971	133046
H	368m N	Unspecified Tank	1949 - 1970	123860
L	369m SW	Unspecified Tank	1965	115993
H	369m N	Tanks	1949 - 1955	148273
L	370m SW	Unspecified Tank	1963 - 1967	138789
H	375m N	Tanks	1970	106874
H	375m N	Tanks	1949 - 1970	145402
H	376m N	Unspecified Tank	1955	116075
L	376m SW	Unspecified Tank	1951	124084
L	376m SW	Tanks	1948	129565
L	376m SW	Unspecified Tank	1965	143055

ID	Location	Land use	Dates present	Group ID
L	376m SW	Unspecified Tank	1967	143708
L	377m SW	Tanks	1948	129812
L	377m SW	Unspecified Tank	1963	136578
L	377m SW	Tanks	1951	145557
L	377m SW	Tanks	1948 - 1951	130642
L	377m SW	Unspecified Tank	1951 - 1967	132971
S	378m SE	Unspecified Tank	1989	116128
S	378m SE	Tanks	1992	106808
H	378m N	Unspecified Tank	1955	116074
L	382m SW	Tanks	1963 - 1989	122961
L	382m SW	Unspecified Tank	1965	115990
T	382m SE	Tanks	1948 - 1955	136522
L	382m SW	Unspecified Tank	1965	115988
H	383m N	Tanks	1955 - 1970	129863
T	384m SE	Tanks	1931	140274
L	386m SW	Unspecified Tank	1994	132278
L	387m SW	Unspecified Tank	1965	115989
L	387m SW	Unspecified Tank	1965	131919
H	387m N	Unspecified Tank	1908	116068
H	387m N	Tanks	1949	106887
H	388m N	Tanks	1949 - 1970	147836
H	389m N	Tanks	1955	147679
R	390m E	Gas Holder	1984	125049
R	390m E	Unspecified Tank	1931 - 1970	142901
R	390m E	Gasometer	1922	148952
H	391m N	Unspecified Tank	1893 - 1922	139658
R	391m E	Gasometer	1949	122835
R	391m E	Gasometer	1968	141629

ID	Location	Land use	Dates present	Group ID
R	392m E	Gas Holder	1995	137733
9	392m W	Unspecified Tank	1891	115998
L	394m SW	Unspecified Tank	1994	115991
H	395m N	Tanks	1949 - 1955	148171
H	397m N	Tanks	1955	106886
C	399m SE	Unspecified Tank	1891	116097
H	399m N	Tanks	1955	138763
H	401m N	Unspecified Tank	1970	116067
H	401m N	Unspecified Tank	1970	116069
H	401m N	Tanks	1949	122819
H	402m N	Tanks	1955	133408
C	405m SE	Unspecified Tank	1891	116098
H	406m N	Unspecified Tank	1891	116065
H	408m N	Tanks	1891	106873
H	413m N	Unspecified Tank	1891	116066
Y	413m NW	Unspecified Tank	1964 - 1965	149305
Y	416m NW	Unspecified Tank	1952	133760
T	423m SE	Unspecified Tank	1908	116129
H	424m N	Tanks	1891	106885
J	427m E	Unspecified Tank	1968 - 1970	133963
T	427m SE	Tank or Trough	1908	121466
T	428m SE	Unspecified Tank	1931	116127
J	431m E	Unspecified Tank	1968 - 1970	125026
J	436m E	Unspecified Tank	1970	116093
J	436m E	Tanks	1968	131109
V	442m S	Unspecified Tank	1891	116122
J	445m E	Tanks	1970	123034
J	447m E	Tanks	1970	141692

ID	Location	Land use	Dates present	Group ID
AC	453m SW	Unspecified Tank	1955 - 1958	147176
V	460m S	Unspecified Tank	1948 - 1955	138415
J	461m E	Tanks	1970	136413
J	462m E	Tanks	1922 - 1931	135092
H	470m N	Unspecified Tank	1908 - 1922	149215
J	474m E	Unspecified Tank	1931	116100
J	476m E	Tanks	1908 - 1931	136314
J	477m E	Tanks	1949	106929
19	479m W	Unspecified Tank	1891	115997
AF	480m NW	Tanks	1893	106868
H	481m N	Unspecified Tank	1990 - 1995	146806
J	484m E	Tanks	1948 - 1958	130892
J	485m E	Tanks	1949	106927
J	486m E	Tanks	1908 - 1931	147035
J	489m E	Oil Tanks	1922 - 1931	139394
J	490m E	Unspecified Tank	1968 - 1970	130437
J	491m E	Oil Tanks	1908	132831
J	491m E	Unspecified Tank	1968	116101
J	492m E	Unspecified Tank	1949	122692
W	495m NE	Tanks	1922	106884
J	496m E	Unspecified Tank	1968 - 1970	139876
J	497m E	Unspecified Tank	1955	116102
J	497m E	Tanks	1948	137971
J	498m E	Tanks	1949	106926
J	498m E	Tanks	1922 - 1931	148520
W	499m NE	Unspecified Tank	1893	148061
J	500m E	Tanks	1948	132522

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	49

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
A	2m SE	Electricity Substation	1991 - 1995	74979
A	4m NE	Electricity Substation	1968 - 1984	74990
B	42m E	Gas Works	1893	80210
B	44m E	Corporation Gas Works	1891	79203
B	45m E	Gas Holder Station	1991 - 1995	83257
C	45m E	Gas Works	1908 - 1922	77534
B	53m SE	Gas Holder Station	1986 - 1989	65294
B	54m SE	Gas Works	1979	64728
B	54m SE	Gas Holder Station	1992	79718
B	58m SE	Gasometers	1893 - 1922	78993
B	61m SE	Gasometer	1891	59723
B	66m SE	Gasometers	1979	63338
B	66m SE	Gas Holder	1986 - 1989	77108
B	68m SE	Gasholder	1992	63416
B	74m SE	Gasometer	1908 - 1922	70420
B	76m S	Gas Holder	1986 - 1989	74103
B	76m S	Gasholder	1992	63417
B	87m E	Gasometer	1891	59724
B	113m SE	Gasometer	1891	59722
2	113m W	Electricity Substation	1968 - 1995	82234
B	126m E	Gas Works	1949	66752

ID	Location	Land use	Dates present	Group ID
B	138m NE	Gas Works	1948 - 1970	74752
B	141m NE	Gas Works	1984	71264
C	186m E	Gas Works	1948 - 1970	85321
H	208m NW	Electricity Substation	1948 - 1995	78253
H	210m NW	Electricity Substation	1984 - 1991	69820
C	224m SE	Gas Works	1891	73418
N	289m SW	Electricity Substation	1967	69189
N	291m SW	Electricity Substation	1989	69614
N	291m SW	Electricity Substation	1994	64537
L	314m SW	Electricity Substation	1955 - 1992	70235
L	315m SW	Electricity Substation	1989	81416
H	317m NW	Gas Governor	1981	63605
Q	325m SW	Electricity Substation	1989 - 1994	72588
R	341m E	Gas Works	1984	71747
K	349m NW	Electricity Substation	1952	68454
Q	350m W	Electricity Substation	1967	62199
R	390m E	Gas Holder	1984	68164
R	390m E	Gasometer	1922 - 1949	76542
R	391m E	Gasometer	1968	75789
R	392m E	Gas Holder	1995	72614
T	419m SE	Electricity Substation	1989	83931
T	419m SE	Electricity Substation	1955 - 1992	65320
12	421m W	Electricity Substation	1981 - 1991	78781
V	421m S	Electricity Substation	1955	62198
H	423m N	Electricity Substation	1990 - 1995	68028
AE	458m N	Gas Plant Works	1931 - 1970	79660
AE	459m N	Gas Plant Iron Works	1949 - 1955	66060
AF	459m NW	Electricity Substation	1981 - 1991	84174

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	0

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	2

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 13**

ID	Location	Land use	Dates present	Group ID
AC	479m SW	Garage	1992	23945
AC	479m SW	Garage	1986 - 1989	25656

This data is sourced from Ordnance Survey / Groundsure.

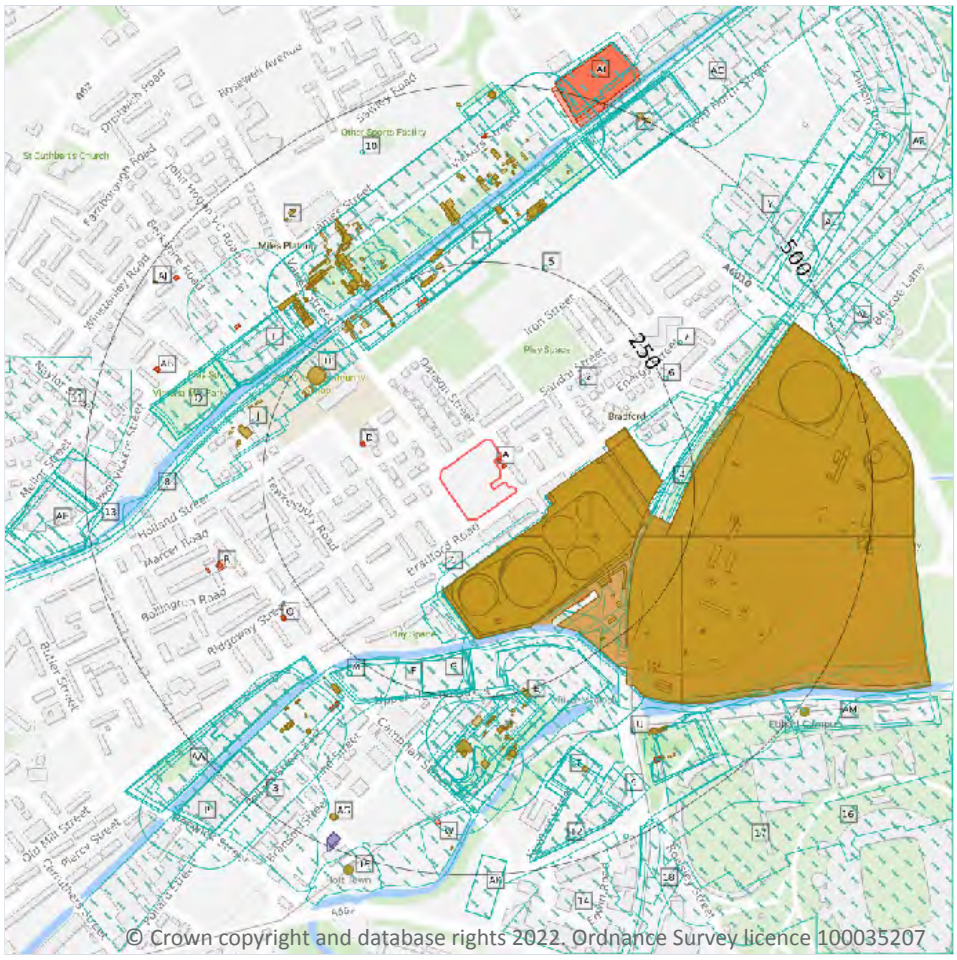
1.6 Historical military land

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 garages

2.1 Historical industrial land uses

Records within 500m	330

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 38**

ID	Location	Land Use	Date	Group ID
B	35m SE	Gas Works	1985	895751
B	40m E	Gas Stove Works	1921	899437
B	40m E	Raising Works	1906	806704

ID	Location	Land Use	Date	Group ID
B	40m E	Unspecified Commercial/Industrial	1891	917862
B	40m E	Unspecified Commercial/Industrial	1938	909305
B	40m E	Unspecified Commercial/Industrial	1933	909305
B	40m E	Gas Stove Works	1923	899437
B	50m SE	Gas Work	1978	814479
B	54m SE	Unspecified Commercial/Industrial	1956	916012
B	54m SE	Unspecified Works	1968	830458
B	55m E	Unspecified Commercial/Industrial	1851	881841
B	56m SE	Brick Field	1851	817949
1	59m S	Brick Kilns	1851	827898
B	60m SE	Gas Works	1991	895751
B	64m SE	Unspecified Tank	1921	974232
B	64m SE	Unspecified Tank	1906	974232
B	64m SE	Gasometer	1923	809783
B	65m SE	Unspecified Tanks	1956	922346
B	65m SE	Gasometers	1978	916494
B	65m SE	Unspecified Tanks	1968	922346
B	65m SE	Unspecified Tank	1891	916313
B	70m SE	Gasometer	1921	941154
B	70m SE	Unspecified Tank	1906	918029
B	70m SE	Unspecified Tank	1938	938620
B	70m SE	Unspecified Tank	1933	938620
B	70m SE	Gasometer	1923	941154
B	74m SE	Gasometers	1991	983680
B	74m SE	Gasometer	1985	979918
B	79m S	Gasometer	1985	850148
B	81m S	Unspecified Tank	1938	889468
B	81m S	Unspecified Tank	1933	889468

ID	Location	Land Use	Date	Group ID
B	86m E	Unspecified Pit	1938	988822
B	86m E	Unspecified Pit	1933	988822
B	89m E	Unspecified Tank	1921	854180
B	89m E	Unspecified Tank	1906	854180
B	89m E	Gasometer	1923	809781
B	93m E	Unspecified Tank	1891	940326
B	113m SE	Unspecified Tank	1921	909386
B	113m SE	Unspecified Tank	1906	909386
B	113m SE	Unspecified Tank	1938	927958
B	113m SE	Unspecified Tank	1933	927958
B	113m SE	Gasometer	1923	809782
B	118m SE	Unspecified Tank	1891	927485
B	128m E	Coal Pit	1851	808504
B	129m SE	Unspecified Pit	1938	883057
B	129m SE	Unspecified Pit	1933	883057
B	133m SE	Unspecified Tank	1921	850837
B	133m SE	Unspecified Tank	1906	850837
B	133m SE	Gasometer	1923	809785
B	136m NE	Brick Works	1891	818774
B	136m SE	Unspecified Tank	1891	972082
E	138m S	Sanitary Works	1933	888668
E	138m S	Sanitary Works	1921	963542
B	144m NE	Unspecified Works	1968	830459
2	149m NE	Coal Pits	1851	802168
C	157m E	Gas Works	1891	874852
C	173m E	Railway Sidings	1978	974171
E	176m S	Sanitary Works	1956	876771
F	181m S	Unspecified Mills	1956	914363

ID	Location	Land Use	Date	Group ID
G	182m S	Unspecified Mills	1985	922374
G	182m S	Unspecified Mills	1978	912751
G	182m S	Unspecified Mills	1991	922374
G	182m S	Unspecified Mills	1968	912751
C	184m E	Railway Sidings	1923	973770
B	186m NE	Unspecified Pit	1906	840536
F	187m S	Unspecified Mills	1923	989977
C	188m SE	Railway Sidings	1891	925215
E	188m S	Sanitary Works	1906	971025
E	188m S	Sanitary Works	1891	971025
E	188m S	Sanitary Works	1938	846336
F	188m S	Unspecified Mills	1921	966437
F	188m S	Unspecified Mills	1938	963506
C	188m E	Railway Sidings	1921	881262
C	188m E	Railway Sidings	1906	881262
C	188m E	Railway Sidings	1938	898707
C	188m E	Railway Sidings	1933	898707
C	189m SE	Railway Sidings	1968	982092
E	189m S	Sanitary Works	1923	954361
E	193m S	Unspecified Ground Workings	1968	800627
H	197m NW	Unspecified Works	1968	830461
I	197m NW	Unspecified Works	1985	960938
I	197m NW	Unspecified Works	1991	960938
J	199m NW	Alum Works	1923	795045
I	201m NW	Canal Works	1968	827846
H	203m NW	Unspecified Tank	1891	825282
C	206m E	Railway Sidings	1956	982092
C	210m E	Unspecified Commercial/Industrial	1978	974281

ID	Location	Land Use	Date	Group ID
C	211m E	Gas Works	1923	932486
I	211m N	Chemical Works	1921	886492
I	211m N	Chemical Works	1906	886492
I	211m N	Chemical Works	1891	886492
I	211m N	Chemical Works	1938	886492
I	211m N	Chemical Works	1933	886492
I	211m N	Chemical Works	1923	886492
I	214m NW	Unspecified Commercial/Industrial	1938	911970
I	214m NW	Unspecified Commercial/Industrial	1933	911970
I	214m NW	Unspecified Commercial/Industrial	1921	845585
I	214m NW	Unspecified Commercial/Industrial	1906	845585
I	214m NW	Unspecified Commercial/Industrial	1891	845585
3	216m SW	Brick Field	1851	817950
J	220m NW	Unspecified Mill	1968	810297
4	222m E	Coal Pit	1851	808495
C	240m SE	Unspecified Commercial/Industrial	1956	951490
I	243m NW	Disused Canal	1991	849130
E	243m S	Unspecified Works	1978	890255
I	246m NW	Disused Canal	1985	2367192
C	247m SE	Gas Works	1921	932486
C	247m SE	Gas Works	1906	932486
C	247m SE	Unspecified Commercial/Industrial	1938	894722
C	247m SE	Unspecified Commercial/Industrial	1933	894722
E	250m S	Unspecified Works	1985	987762
5	251m N	Coal Pit	1851	808502
E	251m S	Unspecified Works	1991	905493
C	251m SE	Unspecified Commercial/Industrial	1968	974281
6	252m NE	Coal Pits	1851	802167

ID	Location	Land Use	Date	Group ID
E	254m SE	Unspecified Works	1968	878038
E	254m S	Oil Works	1923	952223
E	256m S	Oil Works	1921	952223
L	262m NW	Unspecified Mills	1923	954804
L	264m NW	Unspecified Mills	1921	911965
L	264m NW	Unspecified Commercial/Industrial	1891	967860
L	264m NW	Unspecified Mills	1938	850186
L	264m NW	Unspecified Mills	1933	850186
L	265m NW	Unspecified Mills	1956	966535
I	266m NW	Unspecified Commercial/Industrial	1923	882897
L	267m NW	Unspecified Warehouse	1968	901335
M	269m SW	Chimney	1985	959165
M	269m SW	Chimney	1991	959165
I	269m NW	Chemical Works	1851	834549
I	271m NW	Unspecified Works	1978	830460
L	271m NW	Unspecified Warehouse	1978	901335
I	275m NW	Tannery	1851	842300
I	278m NW	Size Works	1851	837943
N	281m E	Refuse Heap	1891	829115
I	288m NW	Coal Pit	1851	808501
L	290m NW	Unspecified Mill	1978	810295
E	293m S	Unspecified Commercial/Industrial	1923	796759
7	296m NE	Coal Pit	1851	808503
I	299m N	Unspecified Mills	1921	852486
I	299m N	Unspecified Mills	1906	852486
I	299m N	Unspecified Mills	1891	852486
I	299m N	Unspecified Mills	1938	852486
I	299m N	Unspecified Mills	1933	852486

ID	Location	Land Use	Date	Group ID
I	299m N	Unspecified Mills	1923	852486
C	299m E	Unspecified Tanks	1923	981777
M	300m SW	Unspecified Mill	1921	941996
M	300m SW	Unspecified Mill	1938	974727
M	300m SW	Unspecified Mill	1933	974727
C	300m E	Unspecified Tanks	1921	981777
P	300m SW	Unspecified Commercial/Industrial	1956	899187
M	301m SW	Unspecified Mill	1923	926128
E	306m S	Unspecified Tank	1921	879635
E	306m S	Unspecified Tank	1906	879635
E	306m S	Unspecified Tank	1938	882390
E	306m S	Unspecified Tank	1933	882390
Q	309m NW	Woollen Mills	1923	854310
E	311m S	Unspecified Tank	1923	946622
Q	311m NW	Unspecified Mill	1968	810296
P	312m SW	Unspecified Commercial/Industrial	1985	918075
P	312m SW	Unspecified Commercial/Industrial	1991	918075
E	313m S	Unspecified Tank	1921	946622
E	313m S	Unspecified Tank	1906	946622
E	313m S	Unspecified Tank	1938	946622
E	313m S	Unspecified Tank	1933	946622
E	315m S	Unspecified Tank	1921	973359
E	315m S	Unspecified Tank	1906	973359
E	315m S	Unspecified Tank	1938	973359
E	315m S	Unspecified Tank	1933	973359
Q	315m W	Woollen Mills	1921	926005
Q	315m W	Unspecified Commercial/Industrial	1891	967860
Q	315m W	Woollen Mills	1938	868272

ID	Location	Land Use	Date	Group ID
Q	315m W	Woollen Mills	1933	868272
E	318m S	Unspecified Tank	1923	953286
E	319m S	Unspecified Tank	1923	973359
E	319m S	Unspecified Heap	1956	875105
E	319m S	Unspecified Heap	1968	875105
E	321m S	Unspecified Tank	1921	973359
E	321m S	Unspecified Tank	1906	973359
E	321m S	Unspecified Tank	1938	973359
E	321m S	Unspecified Tank	1933	973359
P	321m SW	Unspecified Mill	1938	920927
E	322m S	Unspecified Ground Workings	1938	951822
E	322m S	Unspecified Ground Workings	1933	923784
E	322m S	Unspecified Ground Workings	1921	923784
E	322m S	Unspecified Ground Workings	1906	923784
E	322m S	Unspecified Ground Workings	1923	923784
E	324m S	Unspecified Tank	1906	940002
E	324m S	Unspecified Tank	1938	937017
E	327m S	Unspecified Tank	1923	920137
E	328m S	Unspecified Tank	1923	910877
S	343m E	Gas Works	1985	991680
S	345m E	Gas Works	1991	991680
T	345m SE	Unspecified Works	1978	979217
T	347m SE	Unspecified Works	1985	987383
T	347m SE	Unspecified Works	1991	987383
E	347m S	Unspecified Ground Workings	1891	971049
T	355m S	Cotton Works	1921	923167
T	355m S	Cotton Works	1906	923167
T	355m S	Cotton Works	1891	923167

ID	Location	Land Use	Date	Group ID
T	355m S	Cotton Works	1938	923167
T	355m S	Cotton Works	1933	923167
T	355m S	Cotton Works	1923	923167
T	358m S	Unspecified Factory	1968	821378
I	359m N	Unspecified Tank	1938	849674
I	361m N	Unspecified Tank	1933	849674
U	365m SE	Railway Building	1923	820486
S	383m E	Gasometer	1923	905212
U	384m SE	Unspecified Mill	1923	953219
S	386m E	Gasometer	1921	848231
S	386m E	Unspecified Tank	1938	965896
S	386m E	Unspecified Tank	1933	965896
U	388m SE	Fustian Mills	1851	806840
U	391m SE	Unspecified Mill	1891	929965
U	391m SE	Unspecified Mill	1938	984374
U	391m SE	Unspecified Mill	1933	984374
S	391m E	Unspecified Tank	1956	914907
S	391m E	Unspecified Tank	1978	914907
S	391m E	Unspecified Tank	1968	914907
U	392m SE	Unspecified Factory	1985	955182
U	392m SE	Unspecified Factory	1991	955182
V	393m NE	Coal Yard	1891	932750
U	397m SE	Unspecified Mill	1968	968050
S	398m E	Gasometer	1991	887941
S	401m E	Gasometer	1985	920187
W	404m S	Unspecified Works	1968	830456
X	405m NE	Chemical Works	1923	849220
9	406m SE	Pottery	1851	818634

ID	Location	Land Use	Date	Group ID
W	407m S	Cotton Mills	1851	862251
X	410m NE	Unspecified Works	1891	927795
X	410m NE	Unspecified Works	1938	934682
X	410m NE	Unspecified Works	1933	934682
X	410m NE	Chemical Works	1921	849220
Y	412m NE	Brick Works	1891	818772
K	415m E	Gas Work	1978	945176
K	415m E	Gas Work	1968	945176
X	418m NE	Unspecified Mills	1968	808184
AA	420m SW	Unspecified Works	1923	939107
AC	422m NE	Unspecified Commercial/Industrial	1985	899281
Y	424m NE	Unspecified Heaps	1891	831348
K	428m E	Gasometer	1978	908225
K	428m E	Gasometer	1968	908225
I	428m N	Unspecified Depot	1978	882826
I	430m N	Unspecified Works	1978	830464
T	430m SE	Unspecified Works	1968	830457
I	432m N	Unspecified Depot	1985	964426
I	432m N	Unspecified Depot	1991	964426
AD	436m SE	Unspecified Ground Workings	1921	968041
AD	436m SE	Unspecified Ground Workings	1906	968041
AD	436m SE	Unspecified Ground Workings	1923	968041
10	437m NW	Coal Pit	1851	808497
AE	442m NE	Coal Yard	1956	918300
AE	442m NE	Coal Yard	1968	918300
X	443m N	Unspecified Works	1968	898141
AF	443m NE	Railway Sidings	1891	978292
11	443m W	Brick Field	1851	817948

ID	Location	Land Use	Date	Group ID
P	449m SW	Unspecified Works	1968	830455
AF	451m NE	Railway Sidings	1923	875517
AH	454m W	Unspecified Mill	1921	949515
AH	454m W	Unspecified Mill	1906	949515
AH	454m W	Unspecified Mill	1938	949515
AH	454m W	Unspecified Mill	1933	949515
AH	454m W	Unspecified Mill	1923	949515
P	455m SW	Unspecified Mill	1921	967711
P	455m SW	Unspecified Mill	1933	913105
K	456m E	Refuse Heap	1906	829125
AA	457m SW	Unspecified Works	1921	920682
AA	457m SW	Unspecified Works	1938	936908
AA	457m SW	Unspecified Works	1933	936908
P	457m SW	Unspecified Mill	1923	912959
V	457m NE	Coal Yard	1906	956455
12	463m S	Brick Kiln	1851	811032
K	464m E	Unspecified Tanks	1923	815395
AI	470m N	Unspecified Works	1985	897604
AI	470m N	Unspecified Works	1978	844931
AI	470m N	Unspecified Works	1991	897604
AK	472m S	Unspecified Works	1985	975823
AK	472m S	Unspecified Works	1991	975823
AL	474m E	Fire Station	1985	981014
AL	474m E	Fire Station	1991	981014
AH	476m W	Unspecified Works	1985	845311
AH	476m W	Unspecified Works	1991	935699
AM	477m SE	Unspecified Works	1891	830469
AH	477m W	Cotton Mills	1851	811451

ID	Location	Land Use	Date	Group ID
AM	478m SE	Unspecified Mills	1938	983499
K	480m E	Oil Tanks	1923	889887
AI	480m N	Steel Works	1851	810022
14	481m SE	Brick Field	1851	817947
K	481m E	Gasometer	1978	944402
K	481m E	Gasometer	1968	944402
K	482m E	Unspecified Tanks	1921	989875
K	482m E	Unspecified Tanks	1906	989875
K	482m E	Unspecified Tank	1938	963475
K	482m E	Unspecified Tank	1933	963475
K	482m E	Unspecified Tanks	1923	989875
K	483m E	Unspecified Tanks	1978	869704
K	483m E	Unspecified Tanks	1968	869704
K	483m E	Unspecified Tanks	1956	815394
15	484m S	Cotton Mills	1851	862251
16	485m SE	Colliery	1968	890493
K	486m E	Gasometer	1968	884458
AF	486m NE	Railway Sidings	1956	2367782
AF	486m NE	Railway Sidings	1991	880705
AF	486m NE	Railway Sidings	1968	975528
K	487m E	Oil Tanks	1921	857954
K	487m E	Oil Tanks	1906	857954
K	487m E	Unspecified Tank	1938	954554
K	487m E	Unspecified Tank	1933	954554
AA	489m SW	Unspecified Works	1968	889764
K	490m E	Unspecified Tanks	1921	959046
K	490m E	Unspecified Tanks	1906	959046
K	490m E	Unspecified Tank	1938	903443

ID	Location	Land Use	Date	Group ID
K	490m E	Unspecified Tank	1933	903443
K	490m E	Unspecified Tanks	1923	959046
17	490m SE	Railway Sidings	1978	963771
T	491m SE	Coal Pit	1851	808496
K	491m E	Unspecified Tanks	1923	938396
K	493m E	Unspecified Tanks	1921	939998
K	493m E	Unspecified Tank	1938	919997
K	493m E	Unspecified Tank	1933	919997
T	494m SE	Cuttings	1956	850032
AL	494m E	Fire Station	1978	988929
AH	495m W	Unspecified Commercial/Industrial	1956	886609
K	497m E	Oil Tanks	1921	931133
K	497m E	Oil Tanks	1906	931133
K	497m E	Unspecified Tank	1938	928492
K	497m E	Unspecified Tank	1933	928492
K	498m E	Gasometer	1978	884458
AC	498m NE	Timber Yard	1921	932938
V	499m NE	Coal Yard	1923	961633
18	499m SE	Cuttings	1891	966918

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**539**

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 38**

ID	Location	Land Use	Date	Group ID
B	42m E	Gas Works	1893	123389

ID	Location	Land Use	Date	Group ID
B	45m E	Gas Holder Station	1991	128430
C	45m E	Gas Works	1908	144191
C	46m E	Gas Works	1922	144191
B	46m E	Gas Holder Station	1995	128430
B	46m E	Gas Holder Station	1994	128430
B	53m SE	Gas Holder Station	1989	143674
B	53m SE	Gas Holder Station	1986	143674
B	54m SE	Gas Works	1979	124342
B	54m SE	Gas Holder Station	1992	124051
B	58m SE	Gasometers	1893	146932
B	58m SE	Gasometers	1908	146932
B	58m SE	Gasometers	1922	146932
B	61m SE	Gasometer	1891	108530
B	66m SE	Gasometers	1979	108903
B	66m SE	Unspecified Tank	1948	139971
B	66m SE	Gas Holder	1989	149177
B	66m SE	Unspecified Tank	1955	139971
B	68m SE	Unspecified Tank	1958	145921
B	68m SE	Gasholder	1992	120428
B	69m SE	Gas Holder	1986	149177
B	74m SE	Gasometer	1908	144489
B	74m SE	Gasometer	1922	144489
B	74m SE	Unspecified Tank	1931	128987
B	76m S	Unspecified Tank	1948	147701
B	76m S	Gas Holder	1989	140988
B	76m S	Unspecified Tank	1955	147701
B	76m S	Unspecified Tank	1958	123472
B	76m S	Gasholder	1992	120429

ID	Location	Land Use	Date	Group ID
B	77m S	Gas Holder	1986	140988
B	83m S	Unspecified Tank	1931	148893
B	87m E	Gasometer	1891	108531
B	113m SE	Gasometer	1891	108529
B	114m SE	Unspecified Tank	1931	116055
B	124m SE	Tanks	1989	138546
B	124m SE	Tanks	1986	136167
B	124m SE	Tanks	1992	136167
B	125m SE	Unspecified Tank	1995	143443
B	125m SE	Unspecified Tank	1994	143443
B	125m SE	Unspecified Tank	1991	137585
B	126m E	Gas Works	1949	130918
B	138m NE	Gas Works	1952	141387
B	138m NE	Gas Works	1948	141387
B	141m NE	Gas Works	1984	140774
B	142m S	Tanks	1989	144183
B	144m S	Tanks	1992	144183
B	144m S	Tanks	1986	144183
B	144m NE	Gas Works	1968	146054
B	144m NE	Gas Works	1970	146054
B	154m SE	Overhead Tanks	1948	120512
B	163m SE	Unspecified Tank	1948	116054
B	171m SE	Tanks	1922	142950
B	171m SE	Tanks	1931	142950
B	175m SE	Tanks	1908	124443
C	186m E	Gas Works	1948	140627
B	198m SE	Tanks	1948	106891
I	205m NW	Unspecified Tank	1970	130732

ID	Location	Land Use	Date	Group ID
I	206m NW	Unspecified Tank	1968	130732
I	206m NW	Unspecified Tank	1995	130732
I	206m NW	Unspecified Tank	1994	130732
I	206m NW	Unspecified Tank	1984	130732
I	206m NW	Unspecified Tank	1991	130732
H	209m NW	Unspecified Tank	1891	125043
H	210m NW	Unspecified Tank	1893	125043
B	210m SE	Tanks	1948	106892
H	212m NW	Tanks	1891	106837
I	213m NW	Tanks	1949	124438
I	214m NW	Tanks	1968	148215
I	214m NW	Tanks	1952	148215
I	214m NW	Tanks	1948	148215
H	214m NW	Tanks	1891	137698
H	218m NW	Tanks	1891	106834
H	218m NW	Tanks	1891	128159
K	219m E	Gas Works	1949	140627
K	219m E	Gas Works	1970	130205
I	220m NW	Unspecified Tank	1891	116050
I	222m NW	Tanks	1970	140679
I	223m NW	Unspecified Tank	1893	116049
I	223m NW	Tanks	1984	140679
B	223m SE	Unspecified Tank	1948	116053
C	224m SE	Gas Works	1891	135095
I	226m NW	Tanks	1949	106889
I	231m NW	Tanks	1908	123297
I	232m N	Tanks	1949	145173
I	232m N	Tanks	1970	125396

ID	Location	Land Use	Date	Group ID
I	232m N	Tanks	1984	145173
I	232m N	Tanks	1991	145173
I	232m N	Tanks	1995	145173
I	232m N	Tanks	1994	145173
I	232m N	Tanks	1968	125396
I	232m N	Tanks	1952	145173
I	232m N	Tanks	1948	145173
I	235m NW	Tanks	1931	123297
I	235m NW	Tanks	1949	130212
I	236m NW	Tanks	1952	130212
I	236m NW	Tanks	1948	130212
I	236m NW	Tanks	1891	139837
B	237m SE	Unspecified Tank	1908	147259
B	237m SE	Unspecified Tank	1922	147259
B	238m SE	Unspecified Tank	1948	116051
I	240m NW	Unspecified Tank	1908	122612
I	240m NW	Unspecified Tank	1922	122612
C	241m E	Gas Works	1948	140627
I	241m NW	Unspecified Tank	1931	122612
I	242m N	Unspecified Tank	1891	116056
E	245m S	Unspecified Tank	1891	116117
I	245m NW	Tanks	1949	106888
I	248m N	Unspecified Tank	1891	116058
E	250m S	Unspecified Tank	1891	116116
K	253m E	Gas Works	1968	130205
E	254m S	Unspecified Tank	1891	116114
I	262m N	Tanks	1984	145222
I	262m N	Tanks	1991	145222

ID	Location	Land Use	Date	Group ID
I	263m N	Tanks	1995	145222
I	263m N	Tanks	1994	145222
I	268m N	Unspecified Tank	1952	140771
E	268m S	Unspecified Tank	1948	140187
E	268m S	Unspecified Tank	1955	140187
I	268m N	Unspecified Tank	1968	140771
I	268m N	Unspecified Tank	1970	140771
I	268m N	Unspecified Tank	1891	116057
E	268m S	Unspecified Tank	1979	140187
I	268m NW	Tanks	1952	137067
I	268m NW	Tanks	1948	137067
C	270m SE	Unspecified Tank	1948	116052
I	270m NW	Unspecified Tank	1891	116060
I	271m NW	Tanks	1952	135614
I	271m NW	Tanks	1948	135614
J	271m W	Tanks	1891	106835
E	271m S	Unspecified Tank	1931	116118
E	271m S	Unspecified Tank	1948	125105
E	271m S	Unspecified Tank	1955	125105
J	272m W	Tanks	1908	136878
J	272m W	Tanks	1922	136878
E	272m S	Unspecified Tank	1979	122787
I	273m NW	Tanks	1952	132380
I	273m NW	Tanks	1948	132380
I	274m NW	Tanks	1949	144071
E	275m S	Tanks	1948	106809
I	276m NW	Unspecified Tank	1891	116061
I	276m NW	Tanks	1949	137232

ID	Location	Land Use	Date	Group ID
I	276m NW	Tanks	1952	138774
I	277m NW	Tanks	1952	134151
I	277m NW	Tanks	1949	138774
E	277m S	Unspecified Tank	1948	144042
E	277m S	Unspecified Tank	1955	144042
E	277m S	Unspecified Tank	1979	144042
E	278m S	Unspecified Tank	1931	116119
I	278m NW	Tanks	1949	147814
I	278m NW	Unspecified Tank	1891	116036
I	278m NW	Tanks	1952	145190
I	278m NW	Tanks	1948	145190
I	278m NW	Unspecified Tank	1891	116035
I	278m NW	Unspecified Tank	1891	116048
I	280m NW	Tanks	1952	137933
I	280m NW	Tanks	1948	137933
I	280m NW	Tanks	1949	137933
I	280m NW	Tanks	1970	140203
I	281m NW	Tanks	1968	140203
I	281m NW	Unspecified Tank	1891	116037
J	281m W	Tanks	1891	106833
I	283m NW	Tanks	1949	144435
I	284m NW	Tanks	1952	145352
I	284m NW	Tanks	1948	145352
I	284m NW	Tanks	1931	132320
J	285m W	Unspecified Tank	1908	140658
J	285m W	Unspecified Tank	1922	140658
C	286m E	Tanks	1948	106894
I	286m NW	Tanks	1908	133401

ID	Location	Land Use	Date	Group ID
I	286m NW	Tanks	1952	147025
E	287m S	Unspecified Tank	1989	127783
E	287m S	Unspecified Tank	1986	127783
I	288m NW	Unspecified Tank	1948	126964
I	288m NW	Unspecified Tank	1949	149300
J	289m W	Unspecified Tank	1893	116000
J	289m W	Tanks	1891	133988
I	289m NW	Unspecified Tank	1931	116062
I	289m NW	Tanks	1952	148884
I	289m NW	Tanks	1948	148884
E	291m S	Tanks	1948	128195
E	291m S	Tanks	1955	127968
E	291m S	Tanks	1979	129820
E	292m S	Unspecified Tank	1908	116126
E	292m S	Tanks	1931	127904
E	293m S	Tanks	1979	140447
E	293m S	Tanks	1986	140447
E	293m S	Tanks	1948	125836
E	293m S	Tanks	1989	125836
E	293m S	Tanks	1955	125836
I	294m NW	Tanks	1949	130400
I	294m NW	Tanks	1952	130400
I	294m NW	Tanks	1948	130400
E	294m S	Tanks	1948	134210
E	294m S	Tanks	1955	134210
E	294m S	Tanks	1979	139173
C	294m SE	Tanks	1931	106897
I	295m NW	Unspecified Tank	1949	116059

ID	Location	Land Use	Date	Group ID
M	298m SW	Tanks	1948	128872
M	298m SW	Tanks	1955	128872
J	298m W	Tanks	1891	106832
M	298m SW	Tanks	1958	128872
J	299m W	Tanks	1891	106836
E	299m S	Unspecified Tank	1948	147680
E	299m S	Unspecified Tank	1955	141710
E	299m S	Unspecified Tank	1979	142816
M	300m SW	Unspecified Tank	1948	115996
C	301m SE	Unspecified Tank	1948	125740
C	302m SE	Tanks	1979	106893
C	302m E	Tanks	1931	141453
I	302m NW	Tanks	1891	106869
I	302m NW	Tanks	1891	141301
I	302m NW	Unspecified Tank	1893	116034
I	303m NW	Tanks	1952	131420
E	303m S	Unspecified Tank	1931	116121
I	303m NW	Tanks	1931	141301
I	304m NW	Tanks	1952	131420
I	304m NW	Tanks	1965	131420
I	304m NW	Tanks	1949	131420
C	304m E	Tanks	1922	141453
I	304m N	Unspecified Tank	1931	116063
I	304m NW	Tanks	1952	133545
I	304m NW	Tanks	1949	133545
I	304m NW	Tanks	1964	131420
N	304m E	Unspecified Tank	1970	129294
I	304m N	Tanks	1952	136444

ID	Location	Land Use	Date	Group ID
I	304m N	Tanks	1948	136444
N	304m E	Unspecified Tank	1968	129294
I	305m NW	Tanks	1952	130055
I	305m NW	Tanks	1965	130055
I	305m NW	Tanks	1949	130055
I	305m N	Tanks	1970	138122
I	305m N	Tanks	1968	124562
I	305m N	Unspecified Tank	1893	116064
I	305m NW	Tanks	1964	130055
E	306m S	Tanks	1948	134652
E	306m S	Tanks	1955	134652
E	306m S	Tanks	1979	134652
I	306m NW	Unspecified Tank	1968	133800
I	307m NW	Unspecified Tank	1970	133800
C	307m SE	Tanks	1955	143974
I	307m NW	Tanks	1949	133842
C	308m SE	Tanks	1958	143974
I	308m NW	Tanks	1952	123284
I	308m NW	Tanks	1948	123284
I	308m NW	Unspecified Tank	1893	116038
I	308m N	Tanks	1968	128498
C	308m SE	Tanks	1979	143974
E	309m S	Tanks	1908	143683
C	310m E	Unspecified Tank	1949	116094
C	310m SE	Overhead Tanks	1948	120513
I	310m N	Tanks	1949	142599
E	310m S	Unspecified Tank	1908	116120
E	310m S	Tanks	1922	134829

ID	Location	Land Use	Date	Group ID
E	310m S	Tanks	1931	134829
I	310m N	Tanks	1952	142599
I	310m N	Tanks	1948	142599
I	311m NW	Unspecified Tank	1891	116033
I	311m NW	Tanks	1891	144312
C	311m E	Tanks	1948	106895
E	311m S	Unspecified Tank	1908	116125
E	312m S	Unspecified Tank	1891	116124
I	313m N	Unspecified Tank	1891	116076
I	313m N	Tanks	1952	126669
I	313m N	Tanks	1948	126669
I	313m NW	Unspecified Tank	1891	116040
I	314m NW	Tanks	1891	148519
C	315m SE	Tanks	1979	106890
I	315m NW	Tanks	1931	126236
I	315m NW	Tanks	1891	148395
I	316m NW	Unspecified Tank	1891	116047
I	316m NW	Tanks	1931	145778
I	316m N	Tanks	1984	146894
I	316m N	Tanks	1991	146894
I	316m NW	Tanks	1952	124574
I	317m NW	Tanks	1952	145731
I	317m NW	Tanks	1949	122597
I	317m NW	Tanks	1952	139282
I	317m NW	Tanks	1949	139282
I	317m NW	Tanks	1949	122597
I	317m NW	Tanks	1952	139282
I	317m NW	Tanks	1949	139282

ID	Location	Land Use	Date	Group ID
I	318m N	Tanks	1995	146894
I	318m N	Tanks	1994	146894
C	318m SE	Unspecified Tank	1891	147647
I	318m N	Unspecified Tank	1952	135695
I	318m N	Unspecified Tank	1948	135695
I	318m N	Unspecified Tank	1949	135695
I	318m N	Tanks	1991	136943
I	319m N	Tanks	1995	147290
I	319m N	Tanks	1994	147290
I	319m NW	Tanks	1922	139430
I	319m NW	Tanks	1931	149145
I	320m NW	Unspecified Tank	1891	144380
E	321m S	Tanks	1908	145285
E	321m S	Tanks	1922	145285
I	321m NW	Unspecified Tank	1891	116039
E	322m S	Unspecified Tank	1891	116123
I	322m NW	Unspecified Tank	1891	144341
I	322m NW	Tanks	1952	141690
I	322m NW	Tanks	1949	141690
I	323m NW	Unspecified Tank	1952	134249
C	325m SE	Unspecified Tank	1955	140162
C	325m SE	Tanks	1948	106896
I	325m NW	Unspecified Tank	1931	139907
C	325m SE	Unspecified Tank	1979	141260
C	325m SE	Unspecified Tank	1958	140162
E	325m S	Unspecified Tank	1908	122777
I	327m NW	Tanks	1952	130043
I	327m N	Unspecified Tank	1922	116077

ID	Location	Land Use	Date	Group ID
E	327m S	Unspecified Tank	1922	138312
E	327m S	Unspecified Tank	1931	138312
E	328m S	Unspecified Tank	1908	127771
E	328m S	Unspecified Tank	1922	127771
E	328m S	Unspecified Tank	1931	127771
I	328m N	Tanks	1893	128674
I	328m N	Tanks	1908	128674
I	329m NW	Tanks	1891	138933
C	330m SE	Unspecified Tank	1948	122403
C	330m SE	Unspecified Tank	1955	122403
I	330m NW	Tanks	1891	136918
C	330m SE	Unspecified Tank	1979	122403
C	330m SE	Tanks	1948	132624
I	332m NW	Tanks	1931	145673
E	332m S	Tanks	1931	106806
I	332m NW	Tanks	1931	135216
I	332m N	Tanks	1891	136637
I	332m NW	Tanks	1908	123317
I	332m NW	Tanks	1922	123317
C	333m SE	Tanks	1931	132624
I	334m NW	Tanks	1922	130441
I	334m NW	Tanks	1952	123317
I	334m NW	Tanks	1949	123317
I	334m NW	Tanks	1952	130724
I	334m NW	Tanks	1949	130724
I	334m NW	Tanks	1931	137654
I	334m N	Unspecified Tank	1949	130784
I	335m N	Unspecified Tank	1948	130784

ID	Location	Land Use	Date	Group ID
I	335m NW	Tanks	1931	139327
I	336m NW	Tanks	1952	131174
I	336m NW	Tanks	1948	141183
E	338m S	Tanks	1948	130116
E	338m S	Tanks	1955	130116
I	339m NW	Tanks	1949	128217
I	339m NW	Unspecified Tank	1949	141310
I	339m NW	Tanks	1952	130441
I	339m NW	Tanks	1948	130441
I	339m NW	Unspecified Tank	1952	141310
I	339m NW	Unspecified Tank	1948	141310
I	339m NW	Tanks	1931	106867
S	341m E	Gas Works	1984	126853
I	342m NW	Tanks	1949	127382
I	342m NW	Tanks	1931	142127
I	342m NW	Tanks	1922	106870
I	342m NW	Tanks	1952	128019
I	342m NW	Tanks	1948	128019
I	344m NW	Tanks	1952	127366
I	344m NW	Tanks	1948	127366
M	346m SW	Unspecified Tank	1951	140144
C	347m SE	Unspecified Tank	1891	116115
M	347m SW	Unspecified Tank	1965	133006
M	347m SW	Unspecified Tank	1967	148313
M	347m SW	Unspecified Tank	1963	147013
I	349m N	Tanks	1931	137824
M	351m SW	Unspecified Tank	1965	144329
M	351m SW	Unspecified Tank	1967	142226

ID	Location	Land Use	Date	Group ID
M	351m SW	Unspecified Tank	1951	148157
M	351m SW	Unspecified Tank	1948	144440
M	352m SW	Unspecified Tank	1951	138273
M	352m SW	Unspecified Tank	1963	123225
M	352m SW	Unspecified Tank	1948	144363
I	354m NW	Tanks	1931	106871
I	354m NW	Tanks	1949	106866
I	356m NW	Tanks	1931	106872
M	356m SW	Unspecified Tank	1931	115987
I	356m N	Tanks	1952	144147
I	356m N	Tanks	1948	144147
I	356m N	Tanks	1949	144147
M	358m SW	Unspecified Tank	1922	115986
C	358m SE	Unspecified Tank	1948	116095
C	359m SE	Tanks	1948	106898
I	359m N	Tanks	1968	138136
I	359m N	Tanks	1970	138136
C	360m SE	Unspecified Tank	1931	116099
I	360m N	Tanks	1931	142163
I	361m N	Tanks	1952	124332
I	361m N	Tanks	1948	124332
C	363m SE	Unspecified Tank	1948	116113
C	363m SE	Unspecified Tank	1891	116096
I	365m N	Tanks	1955	130903
I	365m N	Tanks	1971	129083
M	366m SW	Tanks	1967	133797
M	366m SW	Tanks	1951	133797
M	366m SW	Tanks	1948	133797

ID	Location	Land Use	Date	Group ID
I	366m NW	Tanks	1952	145083
I	366m NW	Tanks	1948	145083
M	366m SW	Tanks	1951	133797
M	366m SW	Tanks	1963	133797
M	366m SW	Tanks	1948	133797
M	366m SW	Unspecified Tank	1965	115992
I	366m N	Unspecified Tank	1949	133435
I	366m N	Unspecified Tank	1970	133435
I	366m N	Unspecified Tank	1971	133046
I	367m N	Unspecified Tank	1955	133435
I	368m N	Unspecified Tank	1949	123860
I	368m N	Unspecified Tank	1970	123860
I	368m N	Unspecified Tank	1955	123860
M	369m SW	Unspecified Tank	1965	115993
I	369m N	Tanks	1955	148273
I	370m N	Tanks	1949	148273
M	370m SW	Unspecified Tank	1965	138789
M	370m SW	Unspecified Tank	1967	138789
M	371m SW	Unspecified Tank	1963	138789
I	375m N	Tanks	1970	106874
I	375m N	Tanks	1949	145402
I	375m N	Tanks	1970	145402
I	376m N	Unspecified Tank	1955	116075
M	376m SW	Unspecified Tank	1965	143055
M	376m SW	Unspecified Tank	1967	143708
M	376m SW	Unspecified Tank	1951	124084
M	376m SW	Tanks	1948	129565
M	377m SW	Tanks	1951	145557

ID	Location	Land Use	Date	Group ID
M	377m SW	Unspecified Tank	1963	136578
M	377m SW	Tanks	1948	129812
M	377m SW	Unspecified Tank	1965	132971
M	377m SW	Unspecified Tank	1967	132971
M	377m SW	Unspecified Tank	1951	132971
M	377m SW	Tanks	1948	130642
M	377m SW	Tanks	1951	130642
M	377m SW	Unspecified Tank	1963	132971
M	377m SW	Tanks	1948	130642
T	378m SE	Unspecified Tank	1989	116128
T	378m SE	Tanks	1992	106808
I	378m N	Unspecified Tank	1955	116074
M	382m SW	Tanks	1967	122961
M	382m SW	Tanks	1967	122961
M	382m SW	Unspecified Tank	1965	115990
M	382m SW	Tanks	1963	122961
U	382m SE	Tanks	1948	136522
U	382m SE	Tanks	1955	136522
M	382m SW	Unspecified Tank	1965	115988
I	383m N	Tanks	1955	129863
I	383m N	Tanks	1970	129863
U	384m SE	Tanks	1931	140274
M	386m SW	Tanks	1989	122961
M	386m SW	Unspecified Tank	1994	132278
M	387m SW	Unspecified Tank	1965	131919
M	387m SW	Unspecified Tank	1965	115989
I	387m N	Unspecified Tank	1908	116068
I	387m N	Tanks	1949	106887

ID	Location	Land Use	Date	Group ID
I	388m N	Tanks	1949	147836
I	388m N	Tanks	1970	147836
I	389m N	Tanks	1955	147679
S	390m E	Gas Holder	1984	125049
S	390m E	Gasometer	1922	148952
S	390m E	Unspecified Tank	1931	142901
I	391m N	Unspecified Tank	1893	139658
I	391m N	Unspecified Tank	1922	139658
S	391m E	Gasometer	1949	122835
S	391m E	Unspecified Tank	1970	142901
S	391m E	Gasometer	1968	141629
S	392m E	Gas Holder	1995	137733
S	392m E	Gas Holder	1995	137733
8	392m W	Unspecified Tank	1891	115998
M	394m SW	Unspecified Tank	1994	115991
I	395m N	Tanks	1949	148171
I	396m N	Tanks	1955	148171
I	397m N	Tanks	1955	106886
C	399m SE	Unspecified Tank	1891	116097
I	399m N	Tanks	1955	138763
I	401m N	Unspecified Tank	1970	116069
I	401m N	Unspecified Tank	1970	116067
I	401m N	Tanks	1949	122819
I	402m N	Tanks	1955	133408
C	405m SE	Unspecified Tank	1891	116098
I	406m N	Unspecified Tank	1891	116065
I	408m N	Tanks	1891	106873
I	413m N	Unspecified Tank	1891	116066

ID	Location	Land Use	Date	Group ID
Z	413m NW	Unspecified Tank	1965	149305
Z	414m NW	Unspecified Tank	1964	149305
Z	416m NW	Unspecified Tank	1952	133760
Z	416m NW	Unspecified Tank	1952	133760
U	423m SE	Unspecified Tank	1908	116129
I	424m N	Tanks	1891	106885
K	427m E	Unspecified Tank	1968	133963
K	427m E	Unspecified Tank	1970	133963
U	427m SE	Tank or Trough	1908	121466
U	428m SE	Unspecified Tank	1931	116127
K	431m E	Unspecified Tank	1970	125026
K	431m E	Unspecified Tank	1968	125026
K	436m E	Unspecified Tank	1970	116093
K	436m E	Tanks	1968	131109
W	442m S	Unspecified Tank	1891	116122
K	445m E	Tanks	1970	123034
K	447m E	Tanks	1970	141692
AG	453m SW	Unspecified Tank	1958	147176
AG	454m SW	Unspecified Tank	1955	147176
W	460m S	Unspecified Tank	1948	138415
W	460m S	Unspecified Tank	1955	138415
K	461m E	Tanks	1970	136413
K	462m E	Tanks	1922	135092
K	462m E	Tanks	1931	135092
I	470m N	Unspecified Tank	1908	149215
I	470m N	Unspecified Tank	1922	149215
K	474m E	Unspecified Tank	1931	116100
K	476m E	Tanks	1908	136314

ID	Location	Land Use	Date	Group ID
K	476m E	Tanks	1922	136314
K	476m E	Tanks	1931	136314
K	477m E	Tanks	1949	106929
13	479m W	Unspecified Tank	1891	115997
AJ	480m NW	Tanks	1893	106868
I	481m N	Unspecified Tank	1995	146806
I	481m N	Unspecified Tank	1995	146806
I	481m N	Unspecified Tank	1990	146806
I	481m N	Unspecified Tank	1991	146806
K	484m E	Tanks	1958	130892
K	484m E	Tanks	1948	130892
K	484m E	Tanks	1955	130892
K	485m E	Tanks	1949	106927
K	486m E	Tanks	1908	147035
K	486m E	Tanks	1922	147035
K	486m E	Tanks	1931	147035
K	489m E	Oil Tanks	1922	139394
K	489m E	Oil Tanks	1931	139394
K	490m E	Unspecified Tank	1970	130437
K	490m E	Unspecified Tank	1968	130437
K	491m E	Oil Tanks	1908	132831
K	491m E	Unspecified Tank	1968	116101
K	492m E	Tanks	1949	130892
K	492m E	Unspecified Tank	1949	122692
X	495m NE	Tanks	1922	106884
K	496m E	Unspecified Tank	1968	139876
K	496m E	Unspecified Tank	1970	139876
K	497m E	Tanks	1948	137971

ID	Location	Land Use	Date	Group ID
K	497m E	Unspecified Tank	1955	116102
K	498m E	Tanks	1949	106926
K	498m E	Tanks	1922	148520
K	498m E	Tanks	1931	148520
X	499m NE	Unspecified Tank	1893	148061
K	500m E	Tanks	1948	132522

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**104**

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 38**

ID	Location	Land Use	Date	Group ID
A	2m SE	Electricity Substation	1991	74979
A	3m SE	Electricity Substation	1995	74979
A	3m SE	Electricity Substation	1994	74979
A	4m NE	Electricity Substation	1984	74990
A	5m NE	Electricity Substation	1970	74990
A	5m NE	Electricity Substation	1968	74990
B	42m E	Gas Works	1893	80210
B	44m E	Corporation Gas Works	1891	79203
B	45m E	Gas Holder Station	1991	83257
C	45m E	Gas Works	1908	77534
C	46m E	Gas Works	1922	77534
B	46m E	Gas Holder Station	1995	83257
B	46m E	Gas Holder Station	1994	83257
B	53m SE	Gas Holder Station	1989	65294

ID	Location	Land Use	Date	Group ID
B	53m SE	Gas Holder Station	1986	65294
B	54m SE	Gas Works	1979	64728
B	54m SE	Gas Holder Station	1992	79718
B	58m SE	Gasometers	1893	78993
B	58m SE	Gasometers	1908	78993
B	58m SE	Gasometers	1922	78993
B	61m SE	Gasometer	1891	59723
B	66m SE	Gasometers	1979	63338
B	66m SE	Gas Holder	1989	77108
B	68m SE	Gasholder	1992	63416
B	69m SE	Gas Holder	1986	77108
B	74m SE	Gasometer	1908	70420
B	74m SE	Gasometer	1922	70420
B	76m S	Gas Holder	1989	74103
B	76m S	Gasholder	1992	63417
B	77m S	Gas Holder	1986	74103
B	87m E	Gasometer	1891	59724
B	113m SE	Gasometer	1891	59722
D	113m W	Electricity Substation	1984	82234
D	113m W	Electricity Substation	1991	82234
D	114m W	Electricity Substation	1995	82234
D	114m W	Electricity Substation	1994	82234
D	114m W	Electricity Substation	1970	82234
D	114m W	Electricity Substation	1968	82234
B	126m E	Gas Works	1949	66752
B	138m NE	Gas Works	1952	74752
B	138m NE	Gas Works	1948	74752
B	141m NE	Gas Works	1984	71264

ID	Location	Land Use	Date	Group ID
B	144m NE	Gas Works	1968	74752
B	144m NE	Gas Works	1970	74752
B	155m SE	Corporation Gas Works	1891	79203
C	186m E	Gas Works	1948	85321
I	208m NW	Electricity Substation	1995	78253
I	208m NW	Electricity Substation	1994	78253
I	208m NW	Electricity Substation	1949	78253
I	208m NW	Electricity Substation	1970	78253
I	209m NW	Electricity Substation	1968	78253
I	209m NW	Electricity Substation	1952	78253
I	209m NW	Electricity Substation	1948	78253
I	210m NW	Electricity Substation	1984	69820
I	210m NW	Electricity Substation	1991	69820
K	219m E	Gas Works	1949	85321
K	219m E	Gas Works	1970	85321
C	224m SE	Gas Works	1891	73418
C	241m E	Gas Works	1948	85321
K	253m E	Gas Works	1968	85321
O	289m SW	Electricity Substation	1967	69189
O	289m SW	Electricity Substation	1967	69189
O	291m SW	Electricity Substation	1989	69614
O	291m SW	Electricity Substation	1994	64537
M	314m SW	Electricity Substation	1992	70235
M	315m SW	Electricity Substation	1979	70235
M	315m SW	Electricity Substation	1986	70235
M	315m SW	Electricity Substation	1989	81416
M	316m SW	Electricity Substation	1955	70235
I	317m NW	Gas Governor	1981	63605

ID	Location	Land Use	Date	Group ID
R	325m SW	Electricity Substation	1989	72588
R	330m W	Electricity Substation	1994	72588
S	341m E	Gas Works	1984	71747
L	349m NW	Electricity Substation	1952	68454
L	350m NW	Electricity Substation	1952	68454
R	350m W	Electricity Substation	1967	62199
S	390m E	Gas Holder	1984	68164
S	390m E	Gasometer	1922	76542
S	391m E	Gasometer	1949	76542
S	391m E	Gasometer	1968	75789
S	392m E	Gas Holder	1995	72614
S	392m E	Gas Holder	1995	72614
U	419m SE	Electricity Substation	1989	83931
U	419m SE	Electricity Substation	1979	65320
U	419m SE	Electricity Substation	1986	65320
U	419m SE	Electricity Substation	1992	65320
U	419m SE	Electricity Substation	1955	65320
AB	421m W	Electricity Substation	1986	78781
AB	421m W	Electricity Substation	1991	78781
W	421m S	Electricity Substation	1955	62198
AB	422m W	Electricity Substation	1981	78781
AB	422m W	Electricity Substation	1988	78781
I	423m N	Electricity Substation	1995	68028
I	423m N	Electricity Substation	1995	68028
I	424m N	Electricity Substation	1990	68028
I	424m N	Electricity Substation	1991	68028
AI	458m N	Gas Plant Works	1931	79660
AI	459m N	Gas Plant Iron Works	1955	66060

ID	Location	Land Use	Date	Group ID
AJ	459m NW	Electricity Substation	1986	84174
AJ	459m NW	Electricity Substation	1991	84174
AJ	460m NW	Electricity Substation	1981	84174
AJ	460m NW	Electricity Substation	1988	84174
AI	467m N	Gas Plant Iron Works	1949	66060
AI	467m N	Gas Plant Works	1970	79660

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	**0**

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m	**3**

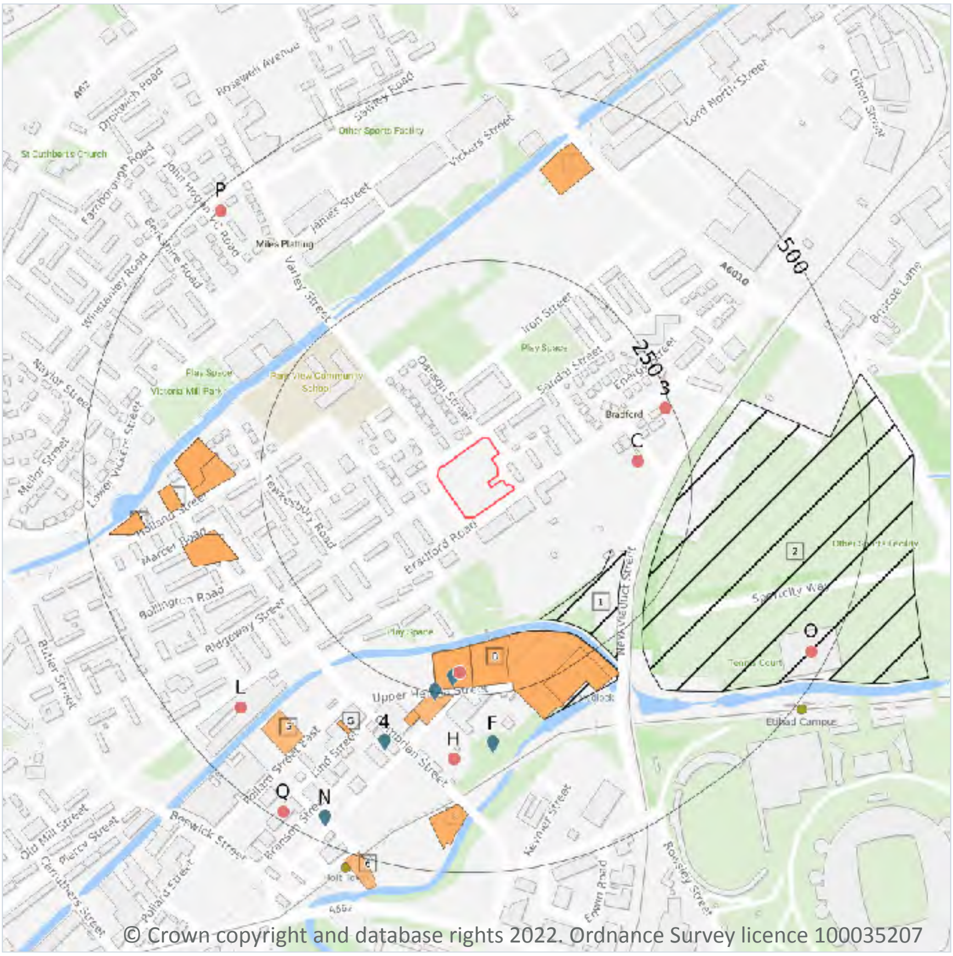
Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 38**

ID	Location	Land Use	Date	Group ID
AG	479m SW	Garage	1992	23945
AG	479m SW	Garage	1989	25656
AG	480m SW	Garage	1986	25656

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill



Site Outline

Search buffers in metres (m)

Historical landfill (EA/NRW)

Historical waste sites

Licensed 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	3

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.

Features are displayed on the Waste and landfill map on **page 75**

ID	Location	Details		
1	160m SE	Site Address: New Viaduct Street, Greater Manchester Licence Holder Address: -	Waste Licence: - Site Reference: F045 Waste Type: - Environmental Permitting Regulations (Waste) Reference: - Licence Issue: - Licence Surrender: -	Operator: - Licence Holder: - First Recorded - Last Recorded: -
A	172m S	Site Address: Bradford Road - Cambrian Street Depot, Greater Manchester Licence Holder Address: -	Waste Licence: Yes Site Reference: F044, RD/LIC/381/84 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 10/10/1985 Licence Surrender: 09/03/1993	Operator: - Licence Holder: Regional Surveyore (North West Gas) First Recorded 31/12/1985 Last Recorded: 31/12/1990
2	215m E	Site Address: Bradford Road Works, Bradeley Hall Road, Haslington, Crewe, Cheshire Licence Holder Address: Welman House, Altrincham, Cheshire	Waste Licence: Yes Site Reference: RD/LIC/180/79, GDO F058, 0381 Waste Type: Inert, Industrial, Special Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 07/12/1979 Licence Surrender: 14/12/1983	Operator: - Licence Holder: North West Gas First Recorded 07/12/1979 Last Recorded: 01/12/1983

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

3.5 Historical waste sites

Records within 500m	**33**

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 75**

ID	Location	Address	Further Details	Date
A	172m S	Site Address: N/A	Type of Site: Corporation Refuse Destructor Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1948
A	172m S	Site Address: N/A	Type of Site: Refuse Destructor Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1955
B	174m S	Site Address: N/A	Type of Site: Scrap Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1986
B	179m S	Site Address: N/A	Type of Site: Scrap Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1988
B	180m S	Site Address: N/A	Type of Site: Scrap Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1992
B	180m S	Site Address: N/A	Type of Site: Scrap Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1986
A	235m SE	Site Address: N/A	Type of Site: Refuse Destructor Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1958

ID	Location	Address	Further Details	Date
B	251m S	Site Address: N/A	Type of Site: Scrap Metal Works Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1979
B	280m S	Site Address: N/A	Type of Site: Scrap Metal Works Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1955
D	283m W	Site Address: N/A	Type of Site: Scrap Metal Depot Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1952
D	284m W	Site Address: N/A	Type of Site: Scrap Metal Depot Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1952
E	303m SW	Site Address: N/A	Type of Site: Scrap Metal Depot Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1951
E	303m SW	Site Address: N/A	Type of Site: Scrap Metal Depot Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1948
E	303m SW	Site Address: N/A	Type of Site: Scrap Metal Depot Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1951
E	303m SW	Site Address: N/A	Type of Site: Scrap Metal Depot Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1948
D	313m W	Site Address: N/A	Type of Site: Scrap Metal Depot Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1949

ID	Location	Address	Further Details	Date
D	314m W	Site Address: N/A	Type of Site: Scrap Metal Depot Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1949
E	320m W	Site Address: N/A	Type of Site: Scrap Metal Depot Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1949
G	335m SW	Site Address: N/A	Type of Site: Waste Paper Works Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1948
G	335m SW	Site Address: N/A	Type of Site: Waste Paper Works Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1955
I	357m N	Site Address: N/A	Type of Site: Waste & c. Mills Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1908
I	357m N	Site Address: N/A	Type of Site: Waste & c. Mills Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1922
J	361m W	Site Address: N/A	Type of Site: Scrap Metal Depot Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1952
J	361m W	Site Address: N/A	Type of Site: Scrap Metal Depot Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1952
J	361m W	Site Address: N/A	Type of Site: Scrap Metal Depot Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1949

ID	Location	Address	Further Details	Date
5	376m SW	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
K	403m S	Site Address: N/A	Type of Site: Scrap Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1988
K	403m S	Site Address: N/A	Type of Site: Scrap Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1992
M	417m W	Site Address: N/A	Type of Site: Scrap Metal Depot Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1952
M	417m W	Site Address: N/A	Type of Site: Scrap Metal Depot Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1949
M	417m W	Site Address: N/A	Type of Site: Scrap Metal Depot Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1952
M	417m W	Site Address: N/A	Type of Site: Scrap Metal Depot Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1949
6	493m S	Site Address: N/A	Type of Site: Scrap Metal Works Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1955

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

3.6 Licensed waste sites

Records within 500m	**8**

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

Features are displayed on the Waste and landfill map on **page 75**

ID	Location	Details		
B	225m S	Site Name: D Race & Sons Site Address: Upper Helena Street, Manchester, M40 7EQ Correspondence Address: -	Type of Site: Metal Recycling Site (mixed MRS's) Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: DRS001 EPR reference: EA/EPR/MP3992CS/S002 Operator: Race Dennis Waste Management licence No: 53429 Annual Tonnage: 5000	Issue Date: 18/11/1999 Effective Date: - Modified: - Surrendered Date: Jun 14 2004 12:00AM Expiry Date: - Cancelled Date: - Status: Surrendered
B	249m S	Site Name: Upper Helena Street Site Address: - Correspondence Address: Bradley Hall Farm, Rhodes Green, Middleton, Manchester, M24 4SL	Type of Site: Household, Commercial & Industrial Waste T Stn Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: WAR001 EPR reference: - Operator: Warrender David Waste Management licence No: 50069 Annual Tonnage: 0	Issue Date: 16/05/2001 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued
B	249m S	Site Name: Upper Helena Street Site Address: - Correspondence Address: Bradley Hall Farm, Rhodes Green, Middleton, Manchester, M24 4SL	Type of Site: Household, Commercial & Industrial Waste T Stn Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WAR001 EPR reference: - Operator: Warrender David Waste Management licence No: 50069 Annual Tonnage: 0	Issue Date: 16/05/2001 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued

ID	Location	Details		
F	319m S	Site Name: P Mc Guiness & Co Ltd Site Address: Holt Town Ind Est, Holt Town, Manchester, M40 7FQ Correspondence Address: -	Type of Site: Special Waste Transfer Station Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MPC001 EPR reference: EA/EPR/JP3892CY/S002 Operator: Mc Guinness & Co Ltd Waste Management licence No: 53629 Annual Tonnage: 50000	Issue Date: 03/11/1995 Effective Date: - Modified: - Surrendered Date: Jun 26 2002 12:00AM Expiry Date: - Cancelled Date: - Status: Surrendered
F	319m S	Site Name: P Mc Guiness & Co Ltd Site Address: Holt Town Ind Est, Holt Town, Manchester, M40 7FQ Correspondence Address: -	Type of Site: Special Waste Transfer Station Size: >= 25000 tonnes 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MPC001 EPR reference: EA/EPR/JP3892CY/S002 Operator: Mc Guinness & Co Ltd Waste Management licence No: 53629 Annual Tonnage: 50000	Issue Date: 03/11/1995 Effective Date: - Modified: - Surrendered Date: Jun 26 2002 12:00AM Expiry Date: - Cancelled Date: - Status: Surrendered
4	336m S	Site Name: Olympia Motor Services Site Address: Union Mill, 1, Cambrian Street, Ancoats, Manchester, M40 7EG Correspondence Address: -	Type of Site: ELV Facility Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: HUR001 EPR reference: EA/EPR/VP3594CG/A001 Operator: Hurstfield Paul Waste Management licence No: 50405 Annual Tonnage: 1040	Issue Date: 07/06/2005 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Expired
N	467m SW	Site Name: Lumns Lane, Clifton Junction, Swinton Site Address: - Correspondence Address: Central House, 299, Grimshaw Lane, Middleton, Manchester, M40 2AT	Type of Site: Household, Commercial & Industrial Waste T Stn Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ME001 EPR reference: - Operator: Murray Mills Conservation Ltd Waste Management licence No: 50069 Annual Tonnage: 0	Issue Date: 16/05/2001 Effective Date: 07/10/2004 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Transferred

ID	Location	Details		
N	467m SW	Site Name: Lumns Lane, Clifton Junction, Swinton Site Address: Upper Helena Street, Manchester, M40 7EQ Correspondence Address: -	Type of Site: Household, Commercial & Industrial Waste T Stn Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ME001 EPR reference: EA/EPR/VP3098CU/T002 Operator: Murray Mills Conservation Ltd Waste Management licence No: 50069 Annual Tonnage: 24999	Issue Date: 16/05/2001 Effective Date: 07/10/2004 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Expired

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

3.7 Waste exemptions

Records within 500m	**34**

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 75**

ID	Location	Site	Reference	Category	Sub-Category	Description
C	177m E	Apartment 10 7 Stillwater Drive Manchester Manchester M11 4TG	EPR/QF0301VL/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in secure containers
C	177m E	Apartment 10 7 Stillwater Drive Manchester Manchester M11 4TG	EPR/QF0301VL/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in a secure place
B	219m S	5f Upper Helena Street MANCHESTER M40 7EQ	EPR/KF0202MC/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in secure containers
B	219m S	5f Upper Helena Street MANCHESTER M40 7EQ	EPR/KF0202MC/A001	Treating waste exemption	Non-Agricultural Waste Only	Cleaning, washing, spraying or coating relevant waste

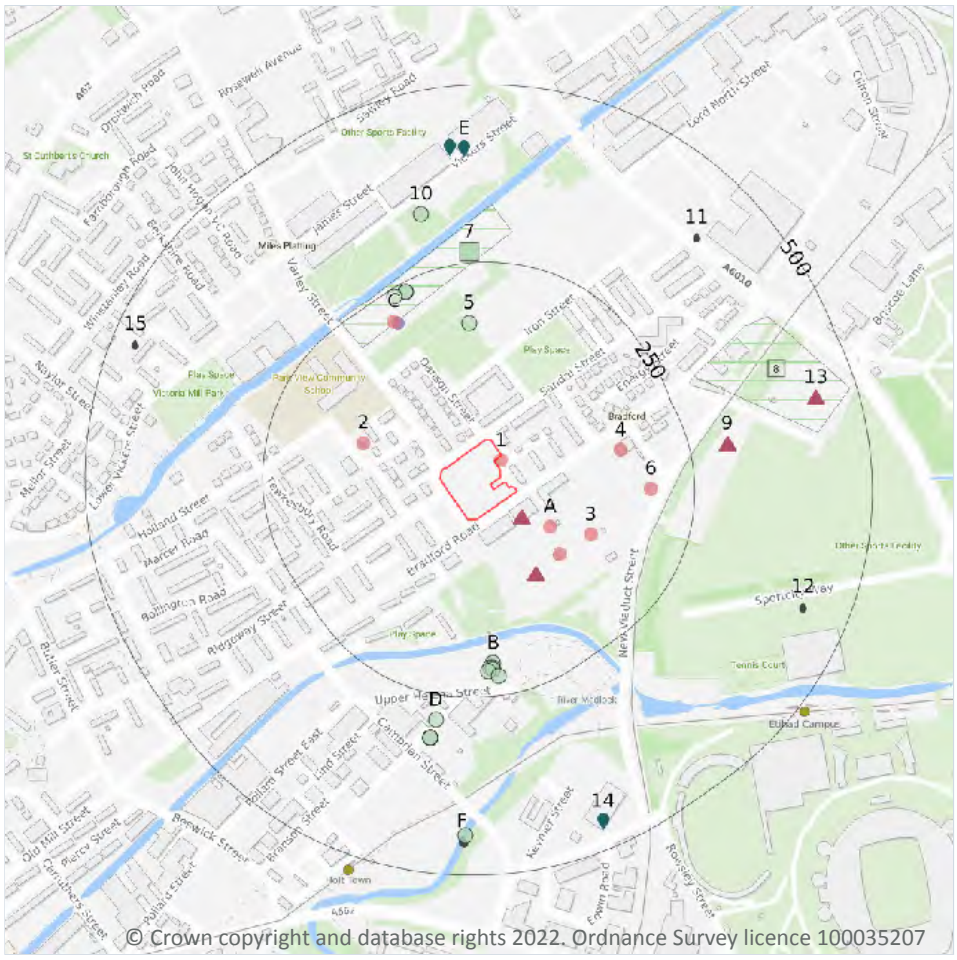
ID	Location	Site	Reference	Category	Sub-Category	Description
B	219m S	5f Upper Helena Street MANCHESTER M40 7EQ	EPR/KF0202MC/A001	Treating waste exemption	Non-Agricultural Waste Only	Sorting mixed waste
B	219m S	5f Upper Helena Street MANCHESTER M40 7EQ	EPR/KF0202MC/A001	Treating waste exemption	Non-Agricultural Waste Only	Manual treatment of waste
B	219m S	5f Upper Helena Street MANCHESTER M40 7EQ	EPR/KF0202MC/A001	Treating waste exemption	Non-Agricultural Waste Only	Preparatory treatments (baling, sorting, shredding etc)
B	219m S	5f Upper Helena Street MANCHESTER M40 7EQ	EPR/KF0202MC/A001	Treating waste exemption	Non-Agricultural Waste Only	Screening and blending of waste
B	219m S	5f Upper Helena Street MANCHESTER M40 7EQ	EPR/KF0202MC/A001	Treating waste exemption	Non-Agricultural Waste Only	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
B	219m S	5f Upper Helena Street MANCHESTER M40 7EQ	EPR/KF0202MC/A001	Treating waste exemption	Non-Agricultural Waste Only	Mechanical treatment of end-of-life tyres
B	219m S	5f Upper Helena Street MANCHESTER M40 7EQ	EPR/KF0202MC/A001	Treating waste exemption	Non-Agricultural Waste Only	Recovery of scrap metal
B	219m S	5f Upper Helena Street MANCHESTER M40 7EQ	EPR/KF0202MC/A001	Using waste exemption	Non-Agricultural Waste Only	Use of waste in construction
B	219m S	5f Upper Helena Street MANCHESTER M40 7EQ	EPR/KF0202MC/A001	Using waste exemption	Non-Agricultural Waste Only	Use of baled end-of-life tyres in construction
3	240m NE	manchester storage barking street manchester manchester m40 7bt	EPR/JF0204WB/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in a secure place

ID	Location	Site	Reference	Category	Sub-Category	Description
H	341m S	Yard 1a Hilton ind estate Cambrian street Manchester England M40 7eg	EPR/QF0433JP/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in secure containers
H	341m S	Yard 1a Hilton ind estate Cambrian street Manchester England M40 7eg	EPR/QF0433JP/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in a secure place
H	341m S	Yard 1a Hilton ind estate Cambrian street Manchester England M40 7eg	EPR/QF0433JP/A001	Treating waste exemption	Non-Agricultural Waste Only	Recovery of scrap metal
H	341m S	Yard 1a Hilton ind estate Cambrian street Manchester England M40 7eg	EPR/QF0433JP/A001	Using waste exemption	Non-Agricultural Waste Only	Use of depolluted end-of-life vehicles for vehicle parts
L	415m SW	Brunswick mill, Old mill yard, Manchester, M407ez	WEX168923	Treating waste exemption	Not on a farm	Screening and blending of waste
L	415m SW	Brunswick mill, Old mill yard, Manchester, M407ez	WEX168923	Storing waste exemption	Not on a farm	Storage of waste in a secure place
L	415m SW	Brunswick mill, Old mill yard, Manchester, M407ez	WEX168923	Treating waste exemption	Not on a farm	Sorting mixed waste
L	415m SW	Brunswick mill, Old mill yard, Manchester, M407ez	WEX168923	Using waste exemption	Not on a farm	Use of waste in construction
L	415m SW	Brunswick mill, Old mill yard, Manchester, M407ez	WEX168923	Using waste exemption	Not on a farm	Use of mulch
O	476m SE	BAM Project Office, CFG Campus, Off Gibbon Street / Alan Turing Way, Manchester, M11 3DU	WEX253830	Treating waste exemption	Not on a farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
O	476m SE	BAM Project Office, CFG Campus, Off Gibbon Street / Alan Turing Way, Manchester, M11 3DU	WEX253830	Using waste exemption	Not on a farm	Use of mulch
O	476m SE	-	WEX269478	Using waste exemption	Not on a farm	Use of waste in construction
P	477m NW	Worldwide waste Management Varley Street MANCHESTER M40 8EE	EPR/CF0604TQ/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in a secure place

ID	Location	Site	Reference	Category	Sub-Category	Description
P	477m NW	Worldwide waste Management Varley Street MANCHESTER M40 8EE	EPR/CF0604TQ/A001	Treating waste exemption	Non-Agricultural Waste Only	Sorting mixed waste
Q	488m SW	Manchester Joinery and Interiors Limited, Branson Street, Manchester, M40 7FJ	WEX212482	Disposing of waste exemption	Not on a farm	Disposal by incineration
Q	488m SW	Manchester Joinery and Interiors Limited, Branson Street, Manchester, M40 7FJ	WEX212482	Treating waste exemption	Not on a farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
Q	488m SW	Manchester Joinery and Interiors Limited, Branson Street, Manchester, M40 7FJ	WEX212482	Using waste exemption	Not on a farm	Burning of waste as a fuel in a small appliance
Q	488m SW	Fire Doors Manchester Limited, Branson Street, Manchester, M40 7FJ	WEX212646	Disposing of waste exemption	Not on a farm	Disposal by incineration
Q	488m SW	Fire Doors Manchester Limited, Branson Street, Manchester, M40 7FJ	WEX212646	Treating waste exemption	Not on a farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
Q	488m SW	Fire Doors Manchester Limited, Branson Street, Manchester, M40 7FJ	WEX212646	Using waste exemption	Not on a farm	Burning of waste as a fuel in a small appliance

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

Control of Major Accident Hazards

Hazardous substance storage/usage

Historical licensed industrial activities

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

Licensed Discharges to controlled waters

List 2 Dangerous Substances

Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m	8

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 87**

ID	Location	Company	Address	Activity	Category
1	5m SE	Electricity Sub Station	Greater Manchester, M40	Electrical Features	Infrastructure and Facilities
A	68m SE	Chimney	Greater Manchester, M40	Chimneys	Industrial Features
A	108m SE	Gas Holder Station	Greater Manchester, M40	Gas Features	Infrastructure and Facilities

ID	Location	Company	Address	Activity	Category
2	117m W	Electricity Sub Station	Greater Manchester, M40	Electrical Features	Infrastructure and Facilities
3	120m SE	Tank	Greater Manchester, M40	Tanks (Generic)	Industrial Features
4	157m E	F Dunn & Sons	222a, Bradford Road, Manchester, Greater Manchester, M40 7BT	Vehicle Repair, Testing and Servicing	Repair and Servicing
6	188m E	Mast	Greater Manchester, M40	Telecommunications Features	Infrastructure and Facilities
C	211m NW	Tank	Greater Manchester, M40	Tanks (Generic)	Industrial Features

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	**2**

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.

Features are displayed on the Current industrial land use map on **page 87**

ID	Location	Company	Address	Operational status	Tier
C	205m NW	Degussa Ltd	Degussa Ltd, Coleshill Street, Miles Platting, M10 7AA	Historical COMAH Site	-
8	292m NE	British Gas	British Gas, Bradford Road Holder Station, Bradford Road, Miles Platting, M10 7BL	Historical COMAH Site	-

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	**4**

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.

Features are displayed on the Current industrial land use map on **page 87**

ID	Location	Details	
A	33m SE	Application reference number: No Details Application status: Historical Consent Application date: No Details Address: National Grid Gas PLC, Bradford Road Holder Station (West), Bradford Road, Miles Platting, Manchester, Greater Manchester, England, M40 7AS	Details: No Details Enforcement: No Details Date of enforcement: No Details Comment: No Details

ID	Location	Details	
A	110m SE	Application reference number: 059225/HSC/NORTH2/00 Application status: Historical Consent Application date: 11/05/2000 Address: Land At Gleden Street, Bradford, WF17 6HY	Details: Continuation Of Hazardous Substances Consent For Storage Of Gas Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified
9	302m E	Application reference number: 059226/HSC/NORTH2/00 Application status: Historical Consent Application date: 11/07/2000 Address: Land Bounded By Alan Turing Way & New Viaduct Street, Bradford	Details: Continuation Of Hazardous Substances Consent For Storage Of Gas Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified
13	440m E	Application reference number: 000001/HSC/NORTH2/92 Application status: Historical Consent Application date: 01/10/1992 Address: National Grid Gas PLC, Bradford Road Holder Station (East), Bradford Road, Miles Platting, Manchester, Greater Manchester, England, M40 7BN	Details: Storage of low pressure gas. Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	**2**

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.

Features are displayed on the Current industrial land use map on **page 87**

ID	Location	Details	
C	205m NW	Operator: Degussa Ltd Address: Manox House, Coleshill Street, Manchester, Greater Manchester, M40 7AA Process: Inorganic Chemical Processes Permit Number: AO1292	Original Permit Number: IPCAPP Date Approved: 31-1-1995 Effective Date: 6-2-1995 Status: Superseded By Variation
C	205m NW	Operator: Degussa Ltd Address: Manox House, Coleshill Street, Manchester, Greater Manchester, M40 7AA Process: Inorganic Chemical Processes Permit Number: BC9682	Original Permit Number: IPCMINVAR Date Approved: 24-11-1998 Effective Date: 30-11-1998 Status: Revoked

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 87**

ID	Location	Address	Details	
E	411m N	Duo Plastics, Vickers Street, Miles Platting M10 8FA	Process: Printing Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified
E	413m N	Duo Plastics Ltd, Vickers Street, Miles Platting, M10 8FA	Process: Printing Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified
14	460m SE	J And F Brooks Ltd, Philips Park Road, Beswick, M11 3EJ	Process: Timber Manufacture Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m	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	**6**

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 87**

ID	Location	Address	Details	
11	406m NE	HULME HALL LANE OPP FALMO, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0260 Permit Version: 1 Receiving Water: SHOOTERS BROOK	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: - Effective Date: 01/01/1995 Revocation Date: -
12	434m E	BRADFORD RD GAS WORKS, OPPOSITE ELM STREET, BRADFORD, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 016982626 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: CONSENT REVOKED - DISCHARGE CEASED (WRA 91, SCHED 10 & 6) Issue date: - Effective Date: 30/09/1994 Revocation Date: 02/10/1998
F	452m S	MILL STREET BRADFORD MANCHESTER CSO, GIBBON STREET ALAN TURING WAY, BRADFORD, MANCHESTER, GREATER MANCHESTER, M11 3FF	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 016982733 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: - Effective Date: 30/09/1994 Revocation Date: 03/12/2019
F	452m S	MILL STREET BRADFORD MANCHESTER CSO, GIBBON STREET ALAN TURING WAY, BRADFORD, MANCHESTER, GREATER MANCHESTER, M11 3FF	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0320 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: CONSENT REVOKED OR REVISED - NEW CONSENT ISSUED (37(1)) Issue date: - Effective Date: 01/01/1995 Revocation Date: 01/01/1995
F	453m S	MILL STREET BRADFORD MANCHESTER CSO, GIBBON STREET ALAN TURING WAY, BRADFORD, MANCHESTER, GREATER MANCHESTER, M11 3FF	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 016982733 Permit Version: 2 Receiving Water: RIVER MEDLOCK VIA SWS	Status: VARIED UNDER EPR 2010 Issue date: 04/12/2019 Effective Date: 04/12/2019 Revocation Date: -
15	466m W	WINSTANLEY RD NURSERY, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0035 Permit Version: 1 Receiving Water: NEWTON BROOK	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: - Effective Date: 01/01/1995 Revocation Date: 14/11/1999

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	1

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.

Features are displayed on the Current industrial land use map on **page 87**

ID	Location	Name	Status	Receiving Water	Authorised Substances
7	266m N	Degussa Ltd, Manox House, Coleshill Street	Not Active	-	Cyanide

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

4.18 Pollution Incidents (EA/NRW)

Records within 500m	**17**

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 87**

ID	Location	Details	
5	166m N	Incident Date: 20/02/2002 Incident Identification: 67095 Pollutant: Organic Chemicals/Products Pollutant Description: Surfactants and Detergents	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
B	203m S	Incident Date: 03/08/2001 Incident Identification: 21821 Pollutant: General Biodegradable Materials and Wastes Pollutant Description: Other General Biodegradable Material or Waste	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 3 (Minor)
B	208m S	Incident Date: 28/06/2001 Incident Identification: 12020 Pollutant: Specific Waste Materials Pollutant Description: Commercial Waste	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 3 (Minor)
B	209m S	Incident Date: 25/06/2001 Incident Identification: 11433 Pollutant: Specific Waste Materials Pollutant Description: Commercial Waste	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 3 (Minor)
B	212m S	Incident Date: 27/06/2001 Incident Identification: 11933 Pollutant: Specific Waste Materials Pollutant Description: Commercial Waste	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 3 (Minor)
B	214m S	Incident Date: 04/07/2001 Incident Identification: 13774 Pollutant: General Biodegradable Materials and Wastes Pollutant Description: Other General Biodegradable Material or Waste	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 3 (Minor)
B	222m S	Incident Date: 18/07/2001 Incident Identification: 17447 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Smoke	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 3 (Minor)
C	236m NW	Incident Date: 03/10/2001 Incident Identification: 34438 Pollutant: Organic Chemicals/Products Pollutant Description: Surfactants and Detergents	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)

ID	Location	Details	
C	236m NW	Incident Date: 03/10/2001 Incident Identification: 34438 Pollutant: Organic Chemicals/Products Pollutant Description: Surfactants and Detergents	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
C	239m NW	Incident Date: 16/03/2001 Incident Identification: 425 Pollutant: Organic Chemicals/Products Pollutant Description: Surfactants and Detergents	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
D	285m S	Incident Date: 13/12/2002 Incident Identification: 125940 Pollutant: Specific Waste Materials Pollutant Description: Tyres	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
D	311m S	Incident Date: 02/04/2002 Incident Identification: 68166 Pollutant: Specific Waste Materials Pollutant Description: Tyres	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
D	311m S	Incident Date: 02/04/2002 Incident Identification: 68166 Pollutant: Specific Waste Materials Pollutant Description: Household Waste	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
D	311m S	Incident Date: 02/04/2002 Incident Identification: 68166 Pollutant: Specific Waste Materials Pollutant Description: Vehicles and Vehicle Parts	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
D	311m S	Incident Date: 02/04/2002 Incident Identification: 68166 Pollutant: Specific Waste Materials:Specific Waste Materials:Specific Waste Materials Pollutant Description: Household Waste:Tyres:Vehicles and Vehicle Parts	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
10	330m N	Incident Date: 18/09/2003 Incident Identification: 190845 Pollutant: Inert Materials and Wastes Pollutant Description: Construction and Demolition Materials and Wastes	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
F	443m S	Incident Date: 29/07/2002 Incident Identification: 95435 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified	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	1

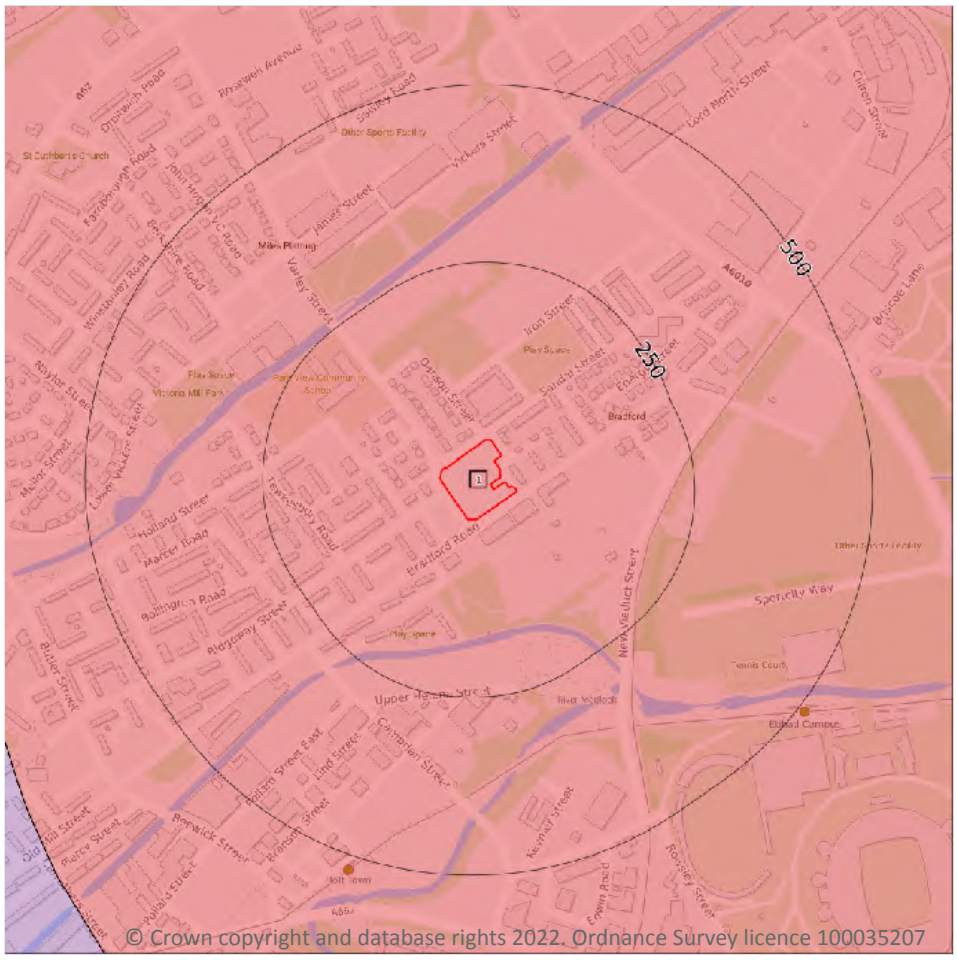
Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on **page 97**

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**

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	1

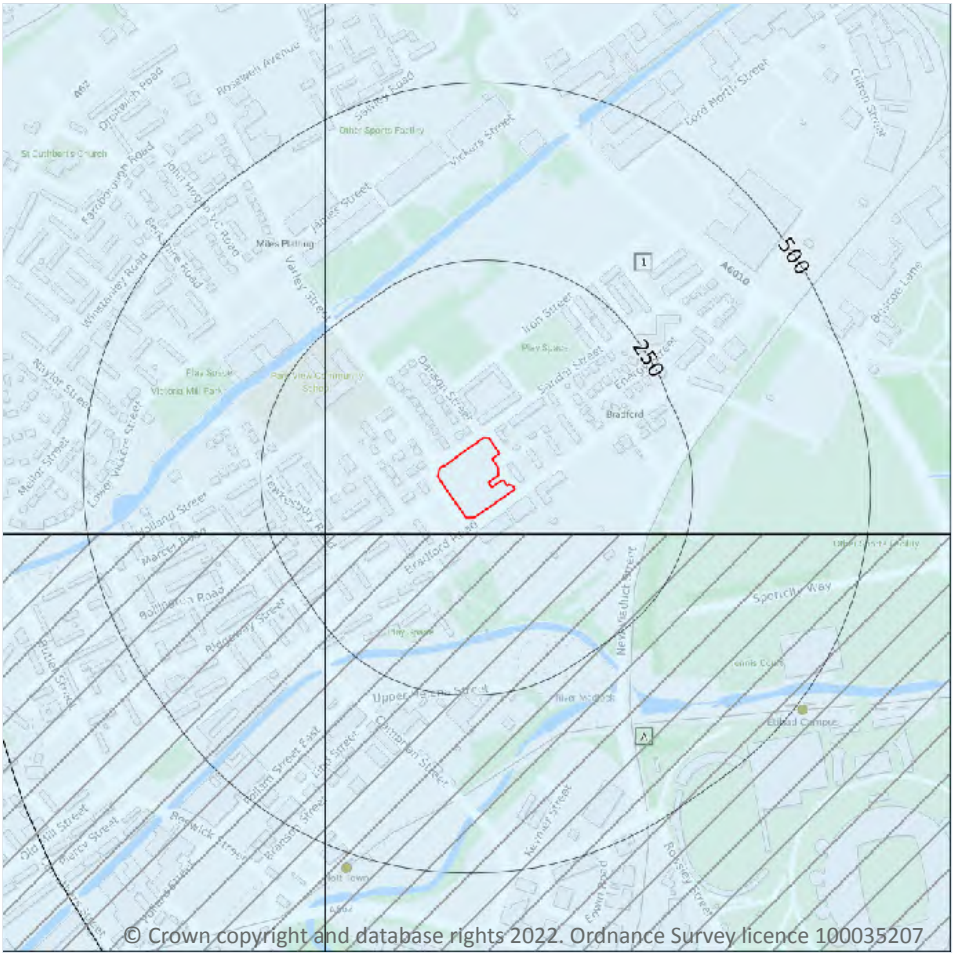
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 98**

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

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	2

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 99**

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: Medium**	**Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures**
A	22m S	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: Medium	Vulnerability: Low Aquifer type: Secondary 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
- 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	27

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 101**

ID	Location	Details	
-	728m NE	Status: Historical Licence No: 2569005061 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: "BOREHOLE AT NORTON STREET, MILES PLATTING, MANCHESTER" Data Type: Point Name: HANSON QUARRY PRODUCTS EUROPE LTD Easting: 386550 Northing: 399790	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 08/02/2000 Expiry Date: - Issue No: 2 Version Start Date: 01/07/2000 Version End Date: -
-	728m NE	Status: Active Licence No: 2569005061 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT NORTON STREET, MILES PLATTING, MANCHESTER Data Type: Point Name: HANSON QUARRY PRODUCTS EUROPE LIMITED Easting: 386550 Northing: 399790	Annual Volume (m^3): 33,000 Max Daily Volume (m^3): 125 Original Application No: NPS/WR/011609 Original Start Date: 08/02/2000 Expiry Date: - Issue No: 3 Version Start Date: 13/08/2012 Version End Date: -
-	1538m NW	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: -
-	1538m NW	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): 438,689 Max Daily Volume (m^3): 1,636.56 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	
-	1726m SE	Status: Historical Licence No: 2569006026 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: "BOREHOLE AT PREMISES, CLAYTON, MANCHESTER" Data Type: Point Name: CIBA SPECIALTY CHEMICALS PLC Easting: 387700 Northing: 398100	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 24/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 25/07/2000 Version End Date: -
-	1726m SE	Status: Historical Licence No: 2569006026 Details: Process water Direct Source: Ground Water - North West Region Point: "BOREHOLE AT PREMISES, CLAYTON, MANCHESTER" Data Type: Point Name: CIBA SPECIALTY CHEMICALS PLC Easting: 387700 Northing: 398100	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 24/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 25/07/2000 Version End Date: -
-	1726m SE	Status: Historical Licence No: 2569006026 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT PREMISES, CLAYTON, MANCHESTER Data Type: Point Name: CIBA SPECIALTY CHEMICALS PLC Easting: 387700 Northing: 398100	Annual Volume (m^3): 633962 Max Daily Volume (m^3): 2837 Original Application No: - Original Start Date: 24/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 25/07/2000 Version End Date: -
-	1726m SE	Status: Historical Licence No: 2569006026 Details: Process water Direct Source: Ground Water - North West Region Point: BOREHOLE AT PREMISES, CLAYTON, MANCHESTER Data Type: Point Name: CIBA SPECIALTY CHEMICALS PLC Easting: 387700 Northing: 398100	Annual Volume (m^3): 633962 Max Daily Volume (m^3): 2837 Original Application No: - Original Start Date: 24/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 25/07/2000 Version End Date: -

ID	Location	Details	
-	1733m SE	Status: Active Licence No: 2569006037 Details: Non-Evaporative Cooling Direct Source: Ground Water - North West Region Point: BOREHOLE 1 ON PREMISES AT CROFT STREET, CLAYTON, MANCHESTER Data Type: Point Name: Evonik Chemicals Ltd Easting: 387860 Northing: 398379	Annual Volume (m^3): 111,831.60 Max Daily Volume (m^3): 654.62 Original Application No: NPS/WR/035267 Original Start Date: 21/05/1985 Expiry Date: - Issue No: 104 Version Start Date: 19/04/2021 Version End Date: -
-	1733m SE	Status: Active Licence No: 2569006037 Details: Non-Evaporative Cooling Direct Source: Ground Water - North West Region Point: BOREHOLE 2 ON PREMISES AT CROFT STREET, CLAYTON, MANCHESTER Data Type: Point Name: Evonik Chemicals Ltd Easting: 387859 Northing: 398375	Annual Volume (m^3): 111,831.60 Max Daily Volume (m^3): 654.62 Original Application No: NPS/WR/035267 Original Start Date: 21/05/1985 Expiry Date: - Issue No: 104 Version Start Date: 19/04/2021 Version End Date: -
-	1749m SE	Status: Historical Licence No: NW/069/0006/005 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT OPENSHAW, WEST ASHTON Data Type: Point Name: MANCHESTER CITY FOOTBALL CLUB LIMITED Easting: 387681 Northing: 398032	Annual Volume (m^3): 266113 Max Daily Volume (m^3): 1000 Original Application No: - Original Start Date: 14/11/2012 Expiry Date: 31/03/2018 Issue No: 1 Version Start Date: 14/11/2012 Version End Date: -
-	1749m SE	Status: Historical Licence No: NW/069/0006/005 Details: Horticultural Watering Direct Source: Ground Water - North West Region Point: BOREHOLE AT OPENSHAW, WEST ASHTON Data Type: Point Name: MANCHESTER CITY FOOTBALL CLUB LIMITED Easting: 387681 Northing: 398032	Annual Volume (m^3): 266113 Max Daily Volume (m^3): 1000 Original Application No: - Original Start Date: 14/11/2012 Expiry Date: 31/03/2018 Issue No: 1 Version Start Date: 14/11/2012 Version End Date: -
-	1749m SE	Status: Historical Licence No: NW/069/0006/005 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE AT OPENSHAW, WEST ASHTON Data Type: Point Name: MANCHESTER CITY FOOTBALL CLUB LIMITED Easting: 387681 Northing: 398032	Annual Volume (m^3): 266113 Max Daily Volume (m^3): 1000 Original Application No: - Original Start Date: 14/11/2012 Expiry Date: 31/03/2018 Issue No: 1 Version Start Date: 14/11/2012 Version End Date: -

ID	Location	Details	
-	1749m SE	Status: Active Licence No: NW/069/0006/005/R01 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT OPENSHAW, WEST ASHTON Data Type: Point Name: MANCHESTER CITY FOOTBALL CLUB LIMITED Easting: 387681 Northing: 398032	Annual Volume (m^3): 221,650 Max Daily Volume (m^3): 1,000 Original Application No: NPS/WR/024168 Original Start Date: 01/04/2018 Expiry Date: 31/03/2024 Issue No: 1 Version Start Date: 01/04/2018 Version End Date: -
-	1749m SE	Status: Active Licence No: NW/069/0006/005/R01 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE AT OPENSHAW, WEST ASHTON Data Type: Point Name: MANCHESTER CITY FOOTBALL CLUB LIMITED Easting: 387681 Northing: 398032	Annual Volume (m^3): 221,650 Max Daily Volume (m^3): 1,000 Original Application No: NPS/WR/024168 Original Start Date: 01/04/2018 Expiry Date: 31/03/2024 Issue No: 1 Version Start Date: 01/04/2018 Version End Date: -
-	1761m E	Status: Historical Licence No: 2569006037 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: "BOREHOLES (2) ON PREMISES AT CROFT ST, CLAYTON, MANCHESTER" Data Type: Point Name: AIR PRODUCTS CHEMICALS LTD Easting: 387900 Northing: 398400	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 21/05/1985 Expiry Date: - Issue No: 100 Version Start Date: 01/07/1996 Version End Date: -
-	1761m E	Status: Historical Licence No: 2569006037 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: BOREHOLES (2) ON PREMISES AT CROFT ST, CLAYTON, MANCHESTER Data Type: Point Name: AIR PRODUCTS CHEMICALS LTD Easting: 387900 Northing: 398400	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 21/05/1985 Expiry Date: - Issue No: 100 Version Start Date: 01/07/1996 Version End Date: -

ID	Location	Details	
-	1761m E	Status: Historical Licence No: 2569006037 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: BOREHOLES X 2 ON PREMISES AT CROFT STREET CLAYTON MANCHESTER Data Type: Point Name: AIR PRODUCTS CHEMICALS LTD Easting: 387900 Northing: 398400	Annual Volume (m^3): 111832 Max Daily Volume (m^3): 654.624 Original Application No: - Original Start Date: 21/05/1985 Expiry Date: - Issue No: 100 Version Start Date: 01/07/1996 Version End Date: -
-	1765m SW	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: -
-	1765m SW	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: -
-	1926m SE	Status: Active Licence No: 2569006036 Details: Non-Evaporative Cooling Direct Source: Ground Water - North West Region Point: BOREHOLE ON PREMISES AT CLAYTON, MANCHESTER Data Type: Point Name: Evonik Chemicals Ltd Easting: 388027 Northing: 398277	Annual Volume (m^3): 372,772 Max Daily Volume (m^3): 3,600.50 Original Application No: NPS/WR/035265 Original Start Date: 21/05/1985 Expiry Date: - Issue No: 104 Version Start Date: 19/04/2021 Version End Date: -

ID	Location	Details	
-	1935m SE	Status: Historical Licence No: 2569006036 Details: Process water Direct Source: Ground Water - North West Region Point: "BOREHOLE ON PREMISES AT CLAYTON, MANCHESTER" Data Type: Point Name: AIR PRODUCTS CHEMICALS LTD Easting: 388000 Northing: 398200	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 21/05/1985 Expiry Date: - Issue No: 100 Version Start Date: 01/07/1996 Version End Date: -
-	1935m SE	Status: Historical Licence No: 2569006036 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: "BOREHOLE ON PREMISES AT CLAYTON, MANCHESTER" Data Type: Point Name: AIR PRODUCTS CHEMICALS LTD Easting: 388000 Northing: 398200	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 21/05/1985 Expiry Date: - Issue No: 100 Version Start Date: 01/07/1996 Version End Date: -
-	1935m SE	Status: Historical Licence No: 2569006036 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE ON PREMISES AT CLAYTON, MANCHESTER Data Type: Point Name: AIR PRODUCTS CHEMICALS LTD Easting: 388000 Northing: 398200	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 21/05/1985 Expiry Date: - Issue No: 100 Version Start Date: 01/07/1996 Version End Date: -
-	1935m SE	Status: Historical Licence No: 2569006036 Details: Process water Direct Source: Ground Water - North West Region Point: BOREHOLE ON PREMISES AT CLAYTON, MANCHESTER Data Type: Point Name: AIR PRODUCTS CHEMICALS LTD Easting: 388000 Northing: 398200	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 21/05/1985 Expiry Date: - Issue No: 100 Version Start Date: 01/07/1996 Version End Date: -

ID	Location	Details	
-	1935m SE	Status: Historical Licence No: 2569006036 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE ON PREMISES AT CLAYTON MANCHESTER Data Type: Point Name: AIR PRODUCTS CHEMICALS LTD Easting: 388000 Northing: 398200	Annual Volume (m^3): 372772 Max Daily Volume (m^3): 3600.5 Original Application No: - Original Start Date: 21/05/1985 Expiry Date: - Issue No: 100 Version Start Date: 01/07/1996 Version End Date: -
-	1935m SE	Status: Historical Licence No: 2569006036 Details: Process Water Direct Source: Ground Water - North West Region Point: BOREHOLE ON PREMISES AT CLAYTON MANCHESTER Data Type: Point Name: AIR PRODUCTS CHEMICALS LTD Easting: 388000 Northing: 398200	Annual Volume (m^3): 372772 Max Daily Volume (m^3): 3600.5 Original Application No: - Original Start Date: 21/05/1985 Expiry Date: - Issue No: 100 Version Start Date: 01/07/1996 Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m	**6**

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.

Features are displayed on the Abstractions and Source Protection Zones map on **page 101**

ID	Location	Details	
-	1488m SE	Status: Historical Licence No: 2569006996 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Surface, Non-Tidal - North West Region Point: ASHTON CANAL, MANCHESTER [VITACOM] Data Type: Point Name: BRITISH WATERWAYS Easting: 387600 Northing: 398400	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 01/04/1969 Expiry Date: - Issue No: 100 Version Start Date: 01/04/1969 Version End Date: -

ID	Location	Details	
-	1669m SE	Status: Historical Licence No: 2569006997 Details: Process water Direct Source: "Surface, Non-Tidal - North West Region" Point: "ASHTON CANAL, MANCHESTER [CLAYTON ANALINE]" Data Type: Point Name: BRITISH WATERWAYS Easting: 387800 Northing: 398400	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 01/04/1969 Expiry Date: - Issue No: 100 Version Start Date: 01/04/1969 Version End Date: -
-	1669m SE	Status: Historical Licence No: 2569006997 Details: Process water Direct Source: Surface, Non-Tidal - North West Region Point: ASHTON CANAL, MANCHESTER [CLAYTON ANALINE] Data Type: Point Name: BRITISH WATERWAYS BOARD Easting: 387800 Northing: 398400	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 01/04/1969 Expiry Date: - Issue No: 100 Version Start Date: 01/04/1969 Version End Date: -
-	1669m SE	Status: Active Licence No: 2569006997 Details: Process Water Direct Source: Surface, Non-Tidal - North West Region Point: ASHTON CANAL MANCHESTER CLAYTON ANALINE Data Type: Point Name: Canal and River Trust Easting: 387800 Northing: 398400	Annual Volume (m^3): 3,500,420 Max Daily Volume (m^3): 3,500,420 Original Application No: 1470 Original Start Date: 01/04/1969 Expiry Date: - Issue No: 100 Version Start Date: 01/04/1969 Version End Date: -
-	1984m SE	Status: Historical Licence No: 2569006995 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: "Surface, Non-Tidal - North West Region" Point: "ASHTON CANAL, MANCHESTER" Data Type: Point Name: BRITISH WATERWAYS Easting: 388100 Northing: 398300	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 01/04/1969 Expiry Date: - Issue No: 100 Version Start Date: 01/04/1969 Version End Date: -

ID	Location	Details	
-	1984m SE	Status: Historical Licence No: 2569006995 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Surface, Non-Tidal - North West Region Point: ASHTON CANAL, MANCHESTER Data Type: Point Name: Canal and River Trust Easting: 388100 Northing: 398300	Annual Volume (m^3): 68,190 Max Daily Volume (m^3): 68,190 Original Application No: - Original Start Date: 01/04/1969 Expiry Date: - Issue No: 100 Version Start Date: 01/04/1969 Version End Date: -

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

5.8 Potable abstractions

Records within 2000m	0

Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

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

5.9 Source Protection Zones

Records within 500m	0

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.

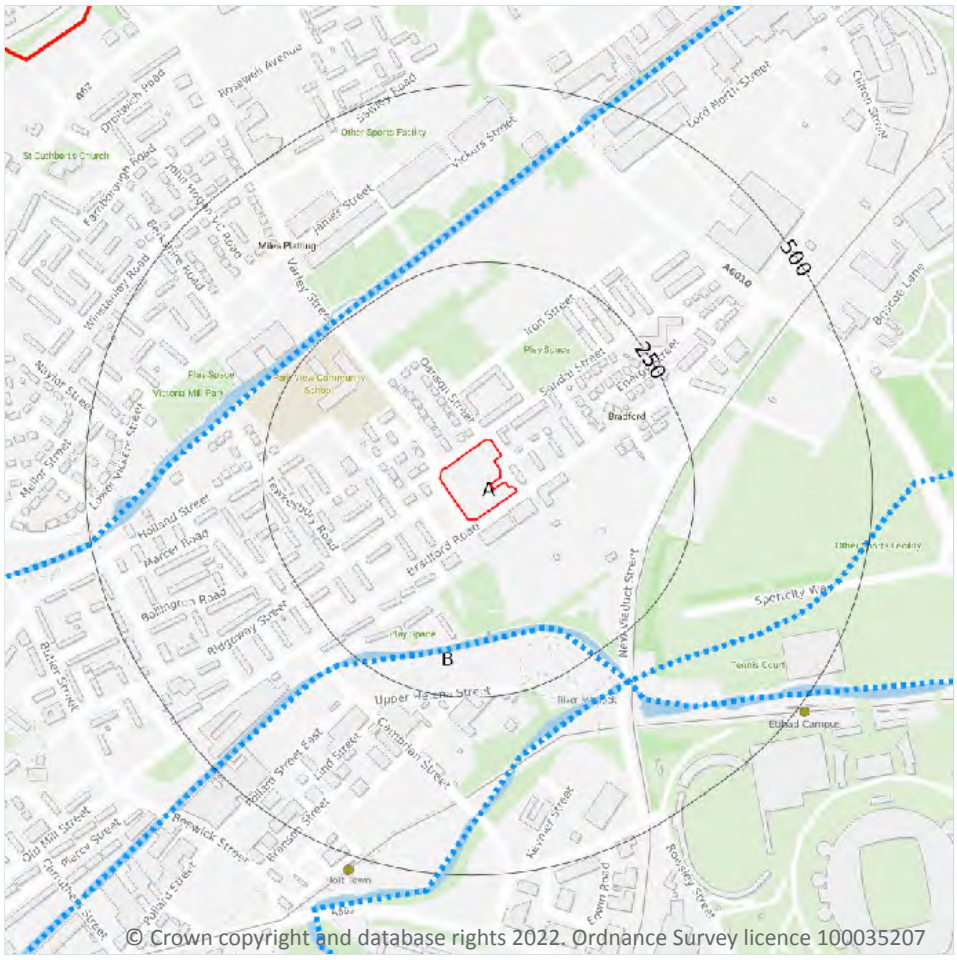
5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

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



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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	1

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 111**

ID	Location	Type of water feature	Ground level	Permanence	Name
B	166m S	Canal. A manmade watercourse for inland navigation.	On ground surface	Watercourse contains water year round (in normal circumstances)	Ashton Canal

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	2

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 111**

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 111**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
A	**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	2

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 111**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
B	169m S	Canal	Ashton Canal and Peak Forest Canal, lower section	GB71210219	Moderate	Fail	Moderate	2019
5	305m SE	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**

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 111**

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

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

7 River and coastal flooding

7.1 Risk of flooding from rivers and the sea

Records within 50m	0

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

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

7.2 Historical Flood Events

Records within 250m	0

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

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

7.3 Flood Defences

Records within 250m	0

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

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

7.4 Areas Benefiting from Flood Defences

Records within 250m	0

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

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

7.5 Flood Storage Areas

Records within 250m	0

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

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

River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m	0

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

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

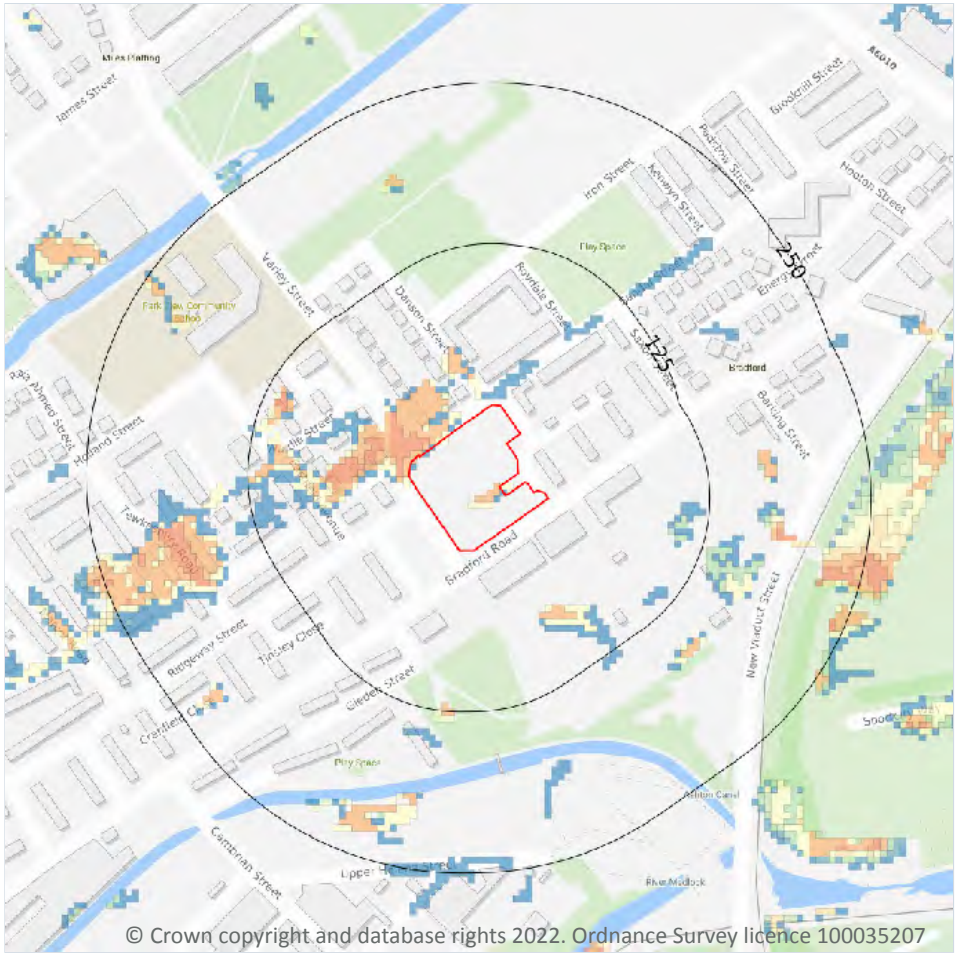
7.7 Flood Zone 3

Records within 50m	0

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

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

8 Surface water flooding



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	**1 in 30 year, 0.1m - 0.3m**
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 117**

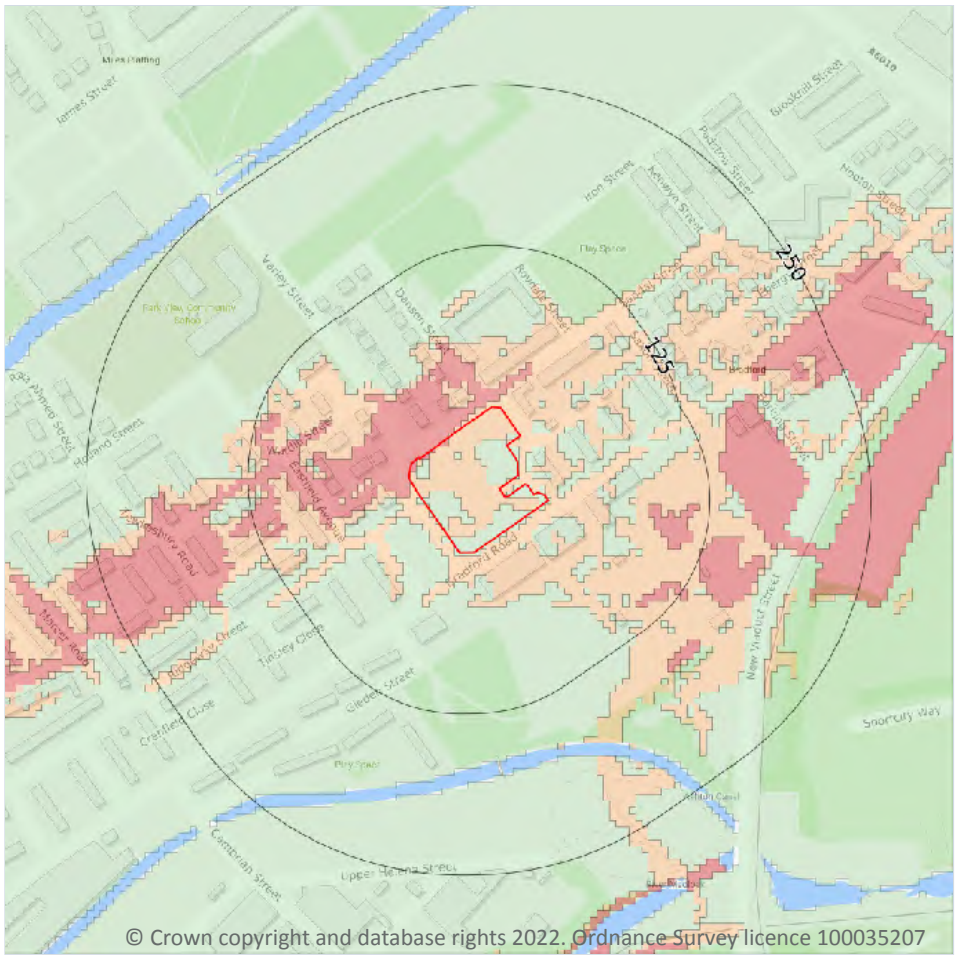
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

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	Between 0.3m and 1.0m
1 in 250 year	Between 0.1m and 0.3m
1 in 100 year	Between 0.1m and 0.3m
1 in 30 year	Between 0.1m and 0.3m

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding



Site Outline

Search buffers in metres (m)

High

Moderate - High

Moderate

Low

Negligible

9.1 Groundwater flooding

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

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

Features are displayed on the Groundwater flooding map on **page 119**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



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Site Outline

Search buffers in metres (m)

Local Nature Reserves (LNR)

Green Belt

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	1

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.

Features are displayed on the Environmental designations map on **page 120**

ID	Location	Name	Data source
-	1216m E	Clayton Vale	Natural England

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	1

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

Features are displayed on the Environmental designations map on **page 120**

ID	Location	Name	Local Authority name
-	1477m E	Merseyside and Greater Manchester	Manchester

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

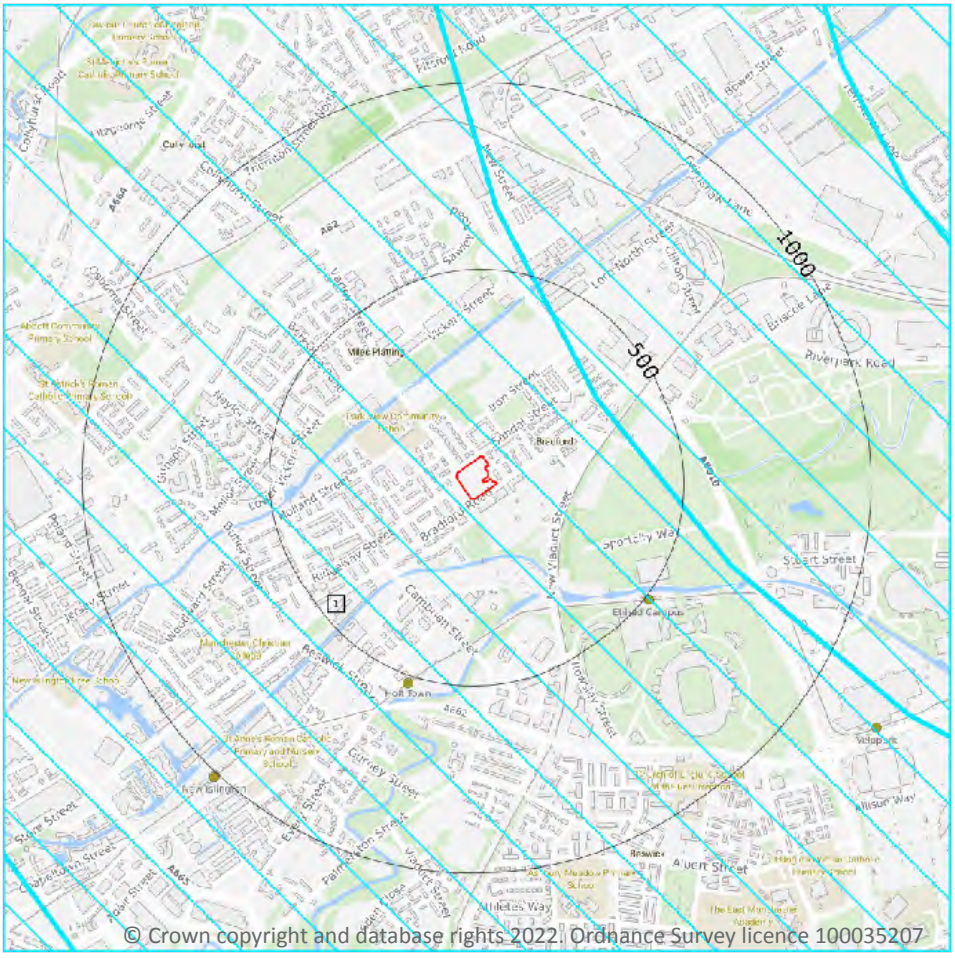
Records within 2000m	1

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
616m N	River Irk (Moston Brook to River Irwell) NVZ	Surface Water	638	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 125**

ID	Location	Type of developments requiring consultation
1	**On site**	**Infrastructure - Airports, helipads and other aviation proposals.** **Air pollution - Any industrial/agricultural development that could cause air pollution (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 750m², manure stores > 3500t).** **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

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	0

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.

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

11.5 Conservation Areas

Records within 250m	0

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

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

11.6 Scheduled Ancient Monuments

Records within 250m	0

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

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

11.7 Registered Parks and Gardens

Records within 250m	0

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

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

12 Agricultural designations



Site Outline

Search buffers in metres (m)

- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Non-agricultural land
- Urban land
- Exclusion land
- Tree felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m	1

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

Features are displayed on the Agricultural designations map on **page 129**

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	1

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.

Features are displayed on the Agricultural designations map on **page 129**

ID	Location	Description	Reference	Application date
2	86m NE	Selective Fell/Thin (Conditional)	010/10/12-13	11/06/2012

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	0

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

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m	0

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

This data is sourced from Natural England.

13 Habitat designations



Site Outline

Search buffers in metres (m)

Priority Habitat Inventory
Open Mosaic Habitat
Limestone Pavement Orders

Habitat Networks
Primary Habitat
Restorable Habitat
Associated Habitats
Habitat Restoration-Creation
Network Enhancement Zone 1
Network Enhancement Zone 2

13.1 Priority Habitat Inventory

Records within 250m	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	5

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.

Features are displayed on the Habitat designations map on **page 131**

ID	Location	Site reference	Identification confidence	Primary source	Secondary source	Tertiary source
1	53m SE	HLD_refs: EAHLD16497	Low	Environment Agency Historic Landfill Sites	UK Perspectives Aerial Photography	-
2	88m NW	NLUD Ref: 421500766	Low	National Land Use Database - Previously Developed Land	UK Perspectives Aerial Photography	-
3	160m NW	NLUD Ref: 421500766	Low	National Land Use Database - Previously Developed Land	UK Perspectives Aerial Photography	-
4	180m S	NLUD Ref: 421500831	Low	National Land Use Database - Previously Developed Land	UK Perspectives Aerial Photography	-
5	200m NW	NLUD Ref: 421500766	Low	National Land Use Database - Previously Developed Land	UK Perspectives Aerial Photography	-

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



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Site Outline
Search buffers in metres (m)

Full coverage
Partial coverage
No coverage

14.1 10k Availability

Records within 500m	1

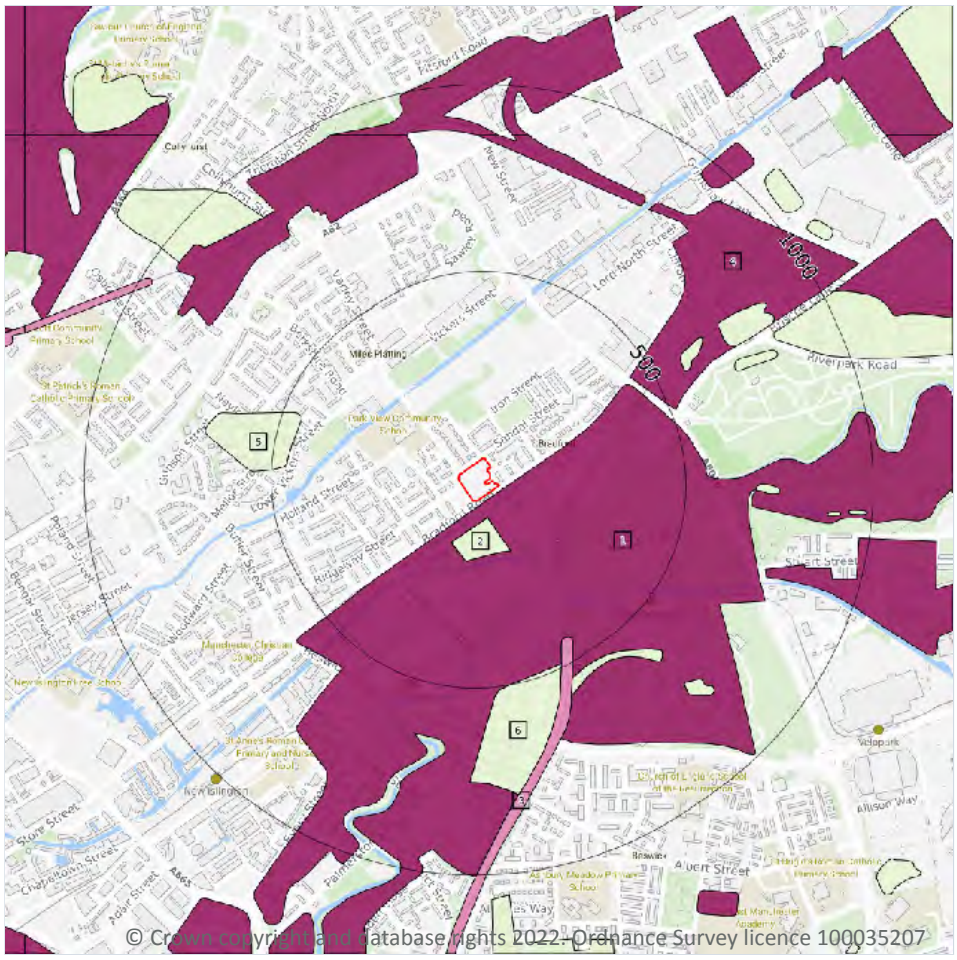
An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 133**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**SJ89NE**

This data is sourced from the British Geological Survey.

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



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Site Outline

Search buffers in metres (m)

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

14.2 Artificial and made ground (10k)

Records within 500m	6

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

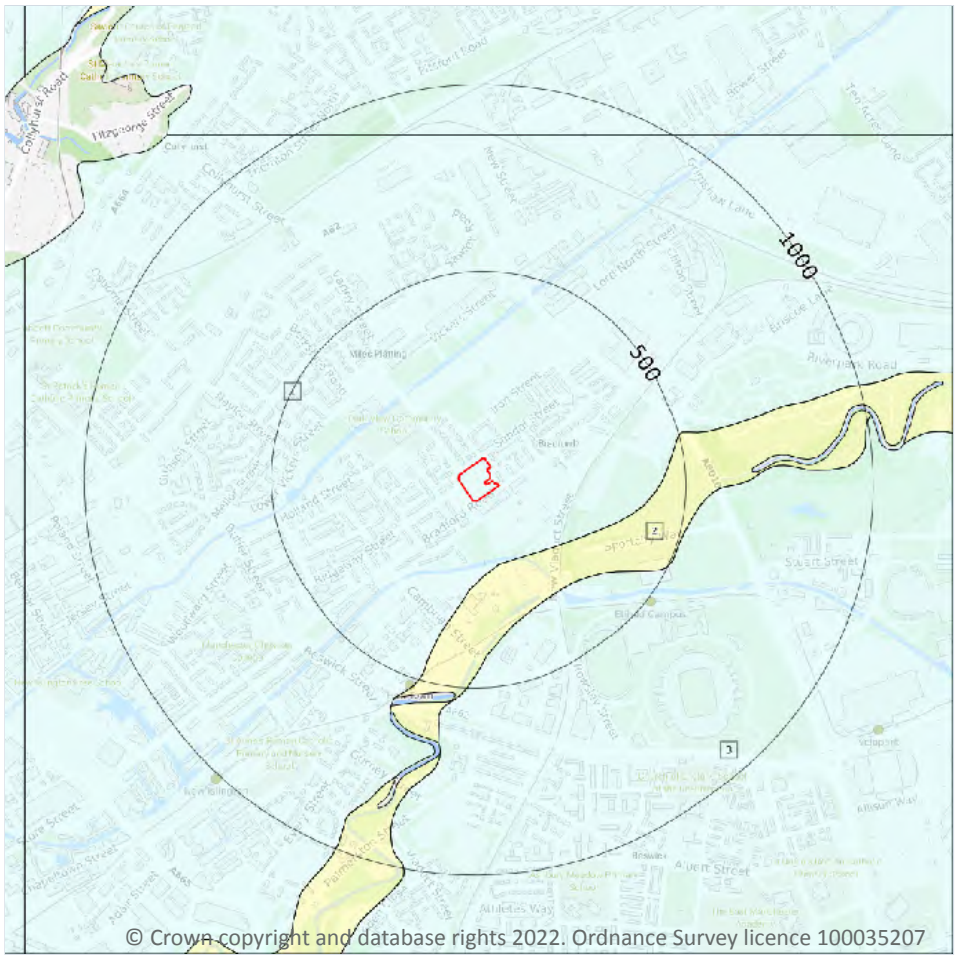
Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 134**

ID	Location	LEX Code	Description	Rock description
1	13m SE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
2	53m SE	WMGR-ARTDP	Infilled Ground	Artificial Deposit
3	434m SE	WGR-VOID	Worked Ground (Undivided)	Void
4	443m NE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

ID	Location	LEX Code	Description	Rock description
5	447m W	WMGR-ARTDP	Infilled Ground	Artificial Deposit
6	488m S	WMGR-ARTDP	Infilled Ground	Artificial Deposit

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (10k)

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

14.3 Superficial geology (10k)

Records within 500m **3**

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 136**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**TILLD-DMTN**	**Till, Devensian - Diamicton**	**Diamicton**
2	180m S	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel
3	321m SE	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton

This data is sourced from the British Geological Survey.

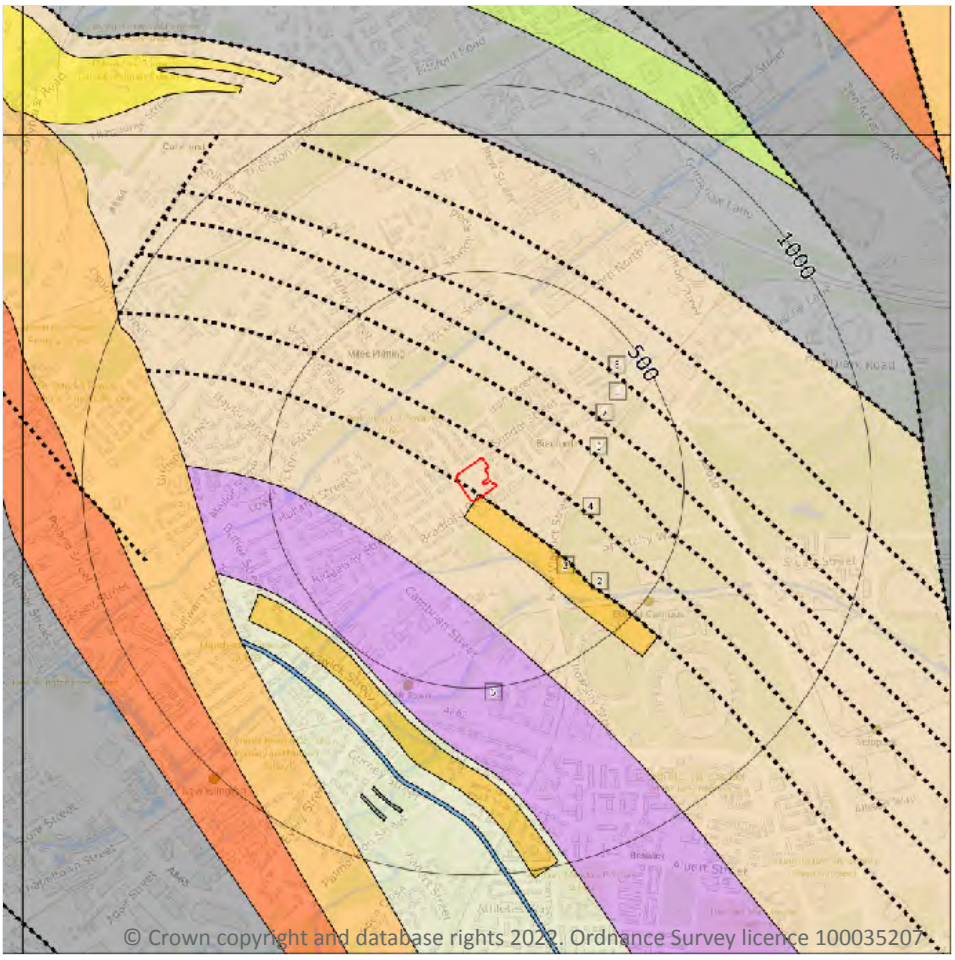
14.4 Landslip (10k)

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 **3**

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 138**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**PUCM-MDSS**	**Pennine Upper Coal Measures Formation - Mudstone, Siltstone And Sandstone**	**Westphalian D Sub-age - Bolsovian Sub-age**
3	**On site**	**OPS-SDST**	**Openshaw Sandstone - Sandstone**	**Bolsovian Sub-age**
6	227m SW	ETM-STMD	Etruria Formation - Sandstone And Mudstone	Westphalian Age

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m	**5**

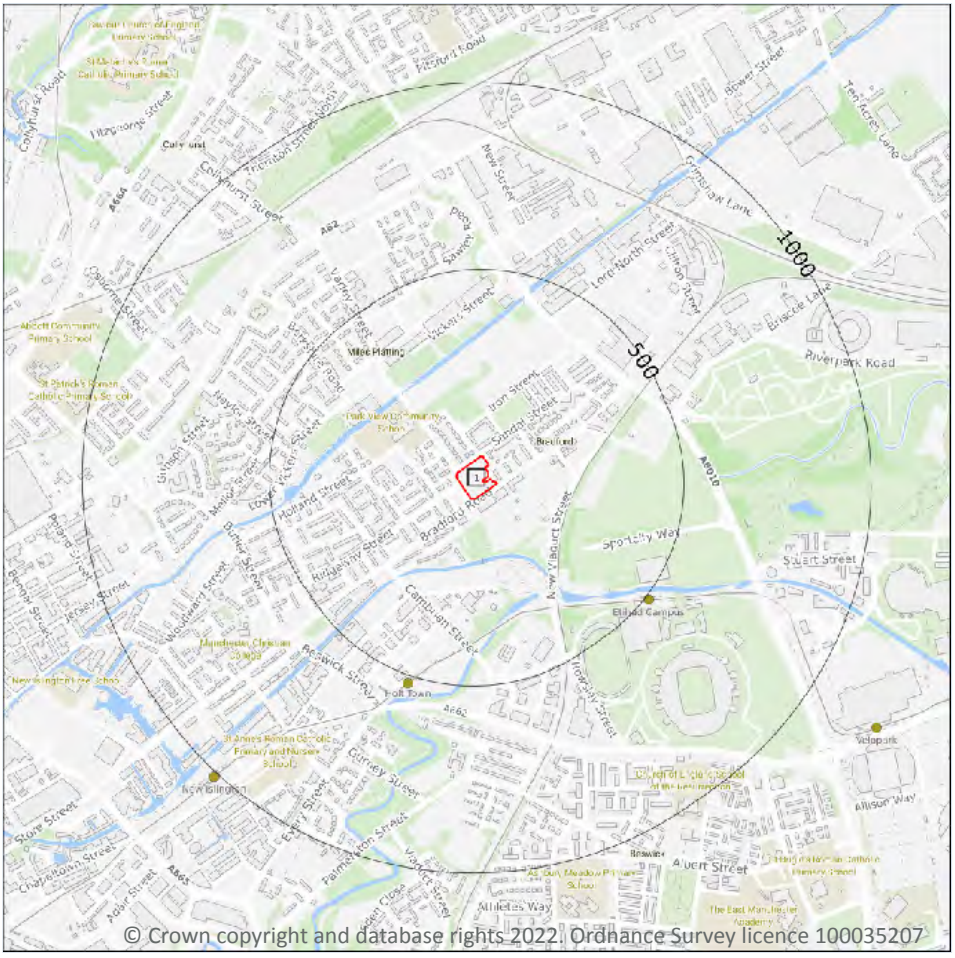
Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 138**

ID	Location	Category	Description
2	**On site**	**ROCK**	**Coal seam, inferred**
4	41m NE	ROCK	Coal seam, inferred
5	187m NE	ROCK	Coal seam, inferred
7	270m NE	ROCK	Coal seam, inferred
8	382m NE	ROCK	Coal seam, inferred

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

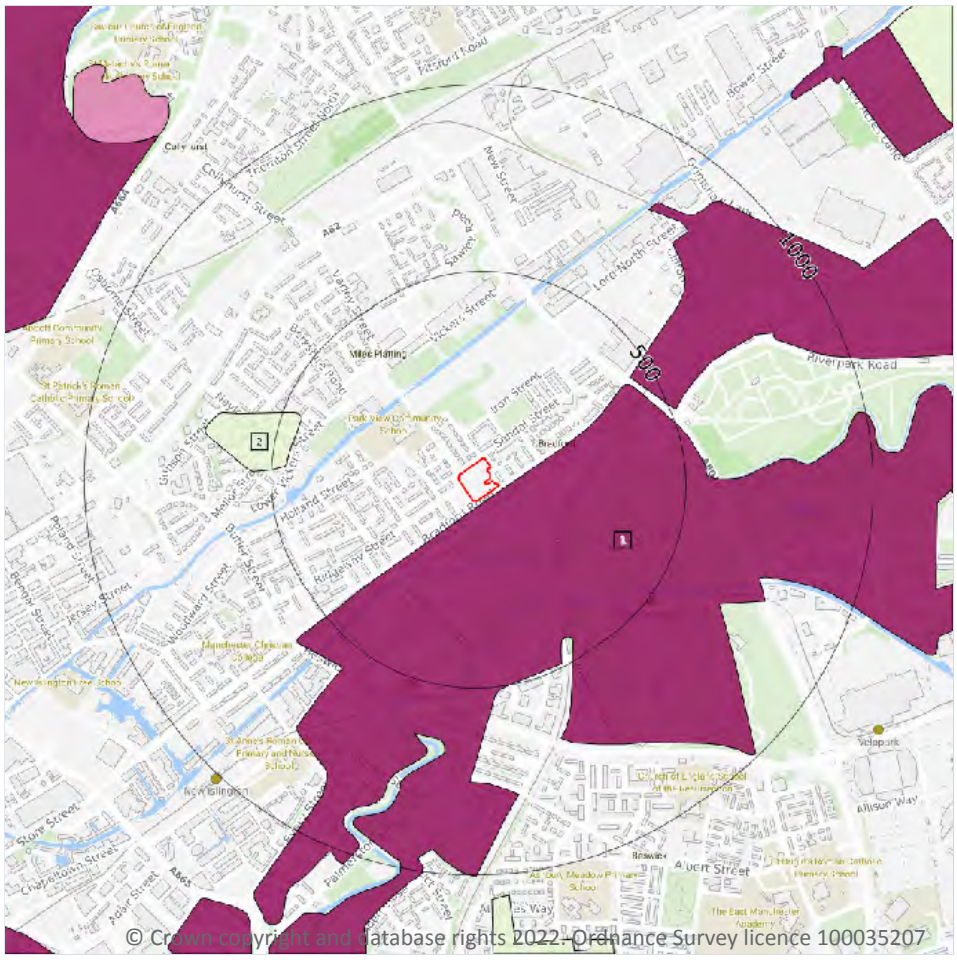
An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 140**

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



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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	2

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 141**

ID	Location	LEX Code	Description	Rock description
1	13m SE	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
2	447m W	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.

15.3 Artificial ground permeability (50k)

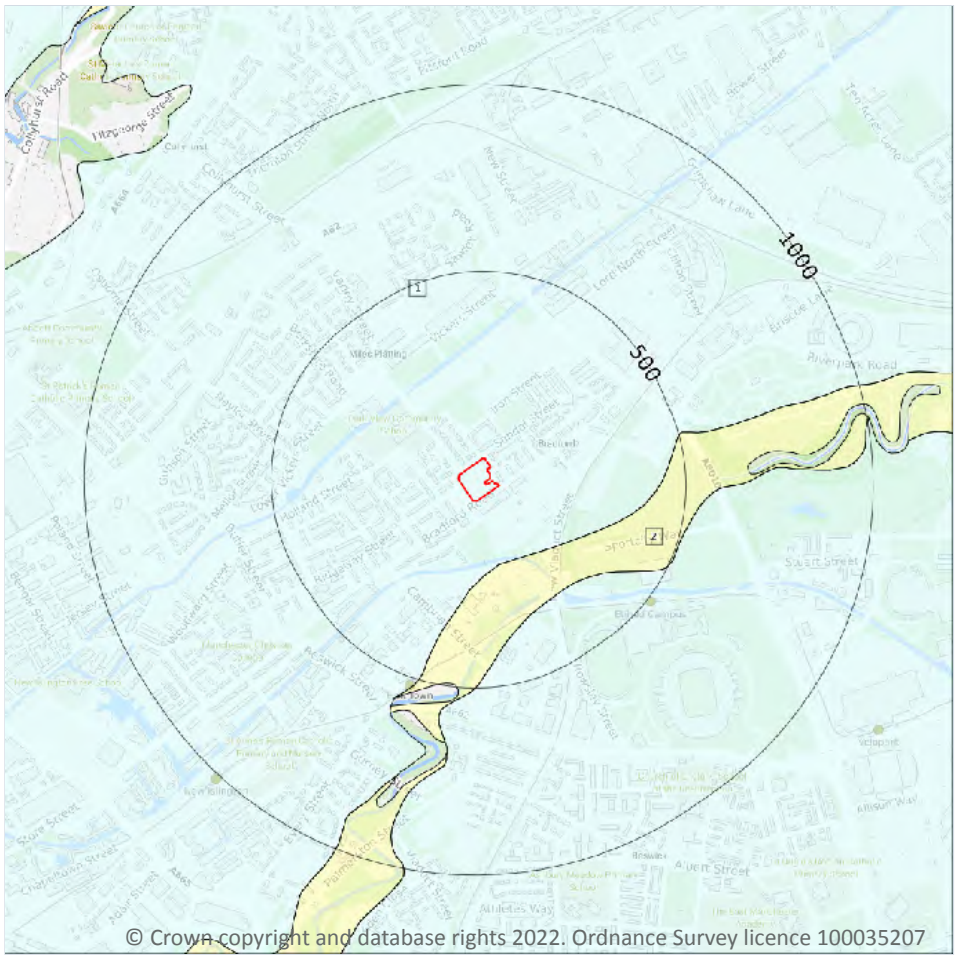
Records within 50m	1

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

Location	Flow type	Maximum permeability	Minimum permeability
13m E	Mixed	Very High	Low

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 **2**

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 143**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**TILLD-DMTN**	**TILL, DEVENSIAN**	**DIAMICTON**
2	181m S	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL

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.

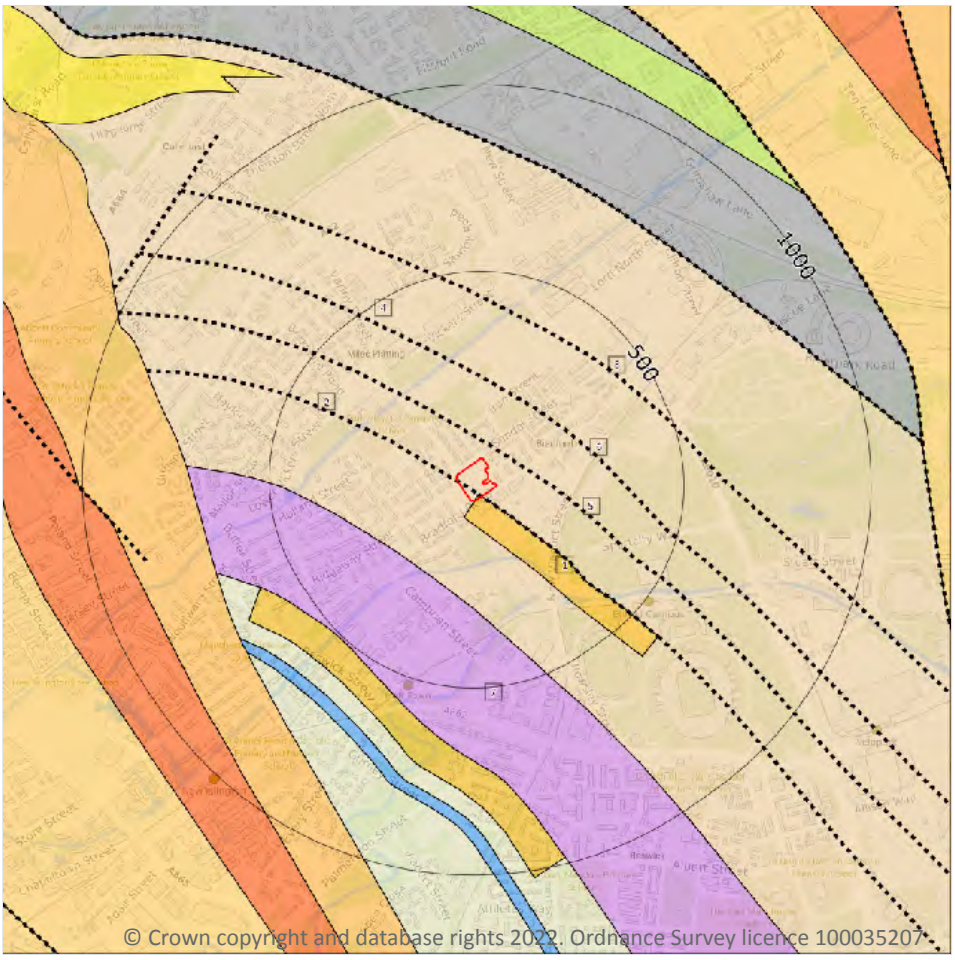
15.7 Landslip permeability (50k)

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 **3**

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 145**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**OPS-SDST**	**OPENSHAW SANDSTONE - SANDSTONE**	**WESTPHALIAN**
4	**On site**	**PUCM-MDSS**	**PENNINE UPPER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE**	**WESTPHALIAN**
7	227m SW	ETM-STMD	ETRURIA FORMATION - SANDSTONE AND MUDSTONE	WESTPHALIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	2

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	**Fracture**	**Moderate**	**Low**
On site	**Fracture**	**High**	**Moderate**

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m	5

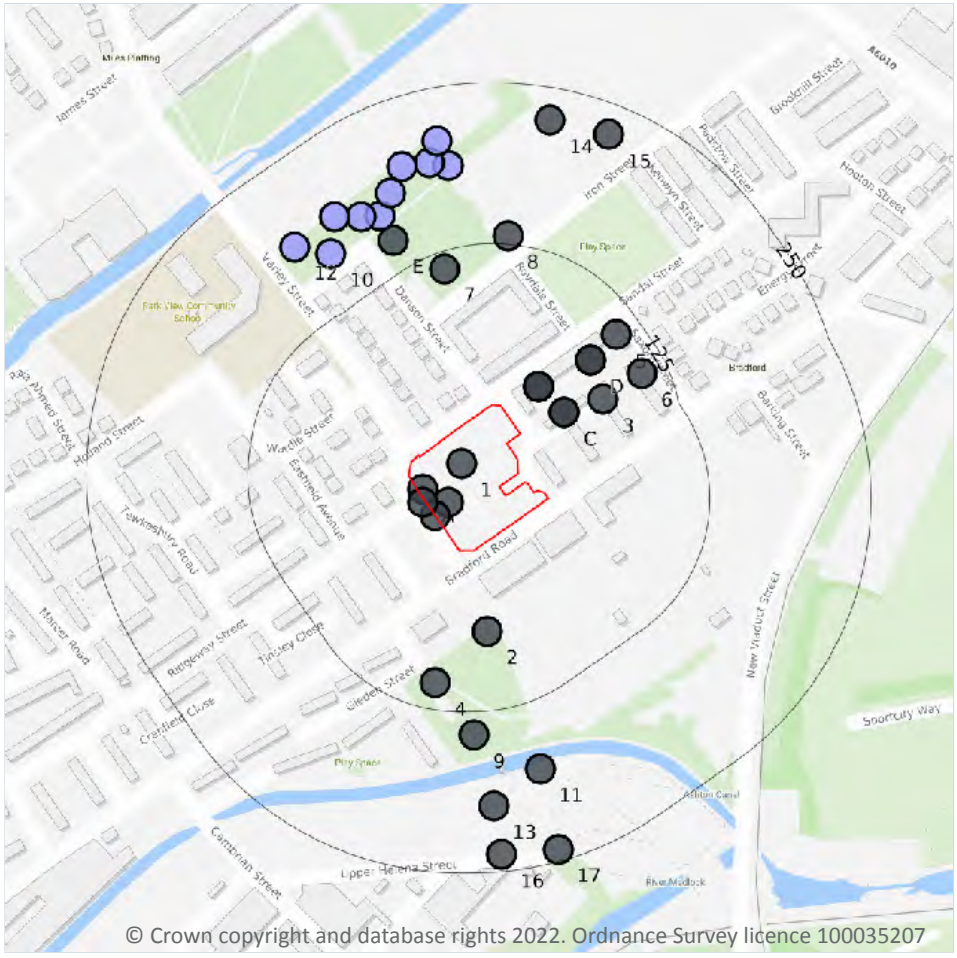
Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 145**

ID	Location	Category	Description
2	**On site**	**ROCK**	**Coal seam, inferred**
3	**On site**	**ROCK**	**Coal seam, inferred**
5	41m NE	ROCK	Coal seam, inferred
6	187m NE	ROCK	Coal seam, inferred
8	382m NE	ROCK	Coal seam, inferred

This data is sourced from the British Geological Survey.

16 Boreholes



16.1 BGS Boreholes

Records within 250m	37

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 147**

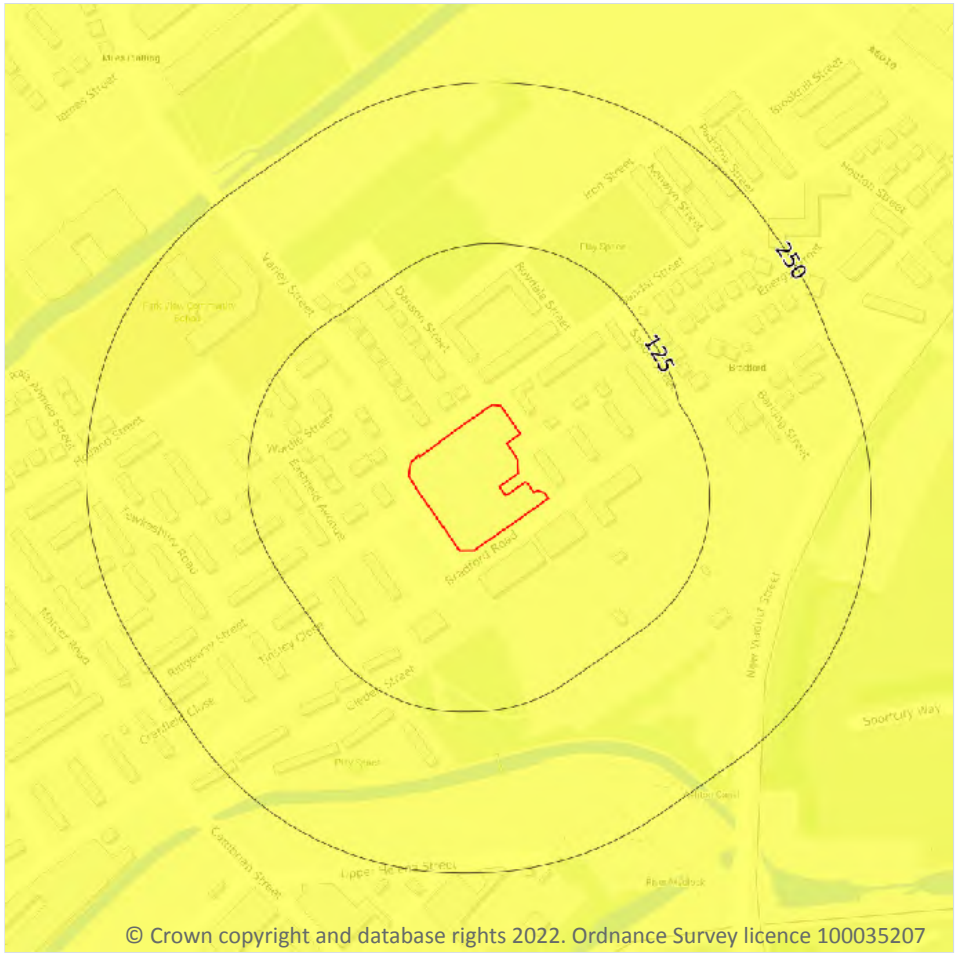
ID	Location	Grid reference	Name	Length	Confidential	Web link
1	**On site**	**386200 399090**	**SANDAL COURT AND SANDAL STREET ANCOATS MANCHESTER 102**	**-**	**Y**	**N/A**
A	**On site**	**386170 399070**	**SANDAL COURT AND SANDAL STREET ANCOATS MANCHESTER TP 102**	**-**	**Y**	**N/A**

ID	Location	Grid reference	Name	Length	Confidential	Web link
A	**On site**	**386190 399060**	**SANDAL COURT AND SANDAL STREET ANCOATS MANCHESTER TP 101**	**-**	**Y**	**N/A**
A	**On site**	**386180 399050**	**SANDAL COURT AND SANDAL STREET ANCOATS MANCHESTER 101**	**-**	**Y**	**N/A**
A	2m SW	386170 399060	SANDAL COURT AND SANDAL STREET ANCOATS MANCHESTER TP 102A	-	Y	N/A
B	33m NE	386260 399150	SANDAL COURT AND SANDAL STREET ANCOATS MANCHESTER TP 201	-	Y	N/A
B	33m NE	386260 399150	SANDAL COURT AND SANDAL STREET ANCOATS MANCHESTER 203	-	Y	N/A
B	33m NE	386260 399150	SANDAL COURT AND SANDAL STREET ANCOATS MANCHESTER TP 203	-	Y	N/A
C	38m NE	386280 399130	SANDAL COURT AND SANDAL STREET ANCOATS MANCHESTER 204	-	Y	N/A
C	38m NE	386280 399130	SANDAL COURT AND SANDAL STREET ANCOATS MANCHESTER TP 205	-	Y	N/A
2	64m S	386220 398960	SAXON STREET MANCHESTER A	-	Y	N/A
3	70m NE	386310 399140	SANDAL COURT AND SANDAL STREET ANCOATS MANCHESTER TP 204	-	Y	N/A
D	77m NE	386300 399170	SANDAL COURT AND SANDAL STREET ANCOATS MANCHESTER 201	-	Y	N/A
D	77m NE	386300 399170	SANDAL COURT AND SANDAL STREET ANCOATS MANCHESTER TP 202	-	Y	N/A
4	104m S	386180 398920	SAXON STREET MANCHESTER B	-	Y	N/A
5	105m NE	386320 399190	SANDAL COURT AND SANDAL STREET ANCOATS MANCHESTER 205	-	Y	N/A
6	105m NE	386340 399160	SANDAL COURT AND SANDAL STREET ANCOATS MANCHESTER 202	-	Y	N/A
7	112m N	386187 399241	Miles Platting BH5W02	-	Y	N/A
8	132m N	386236 399267	Miles Platting TP5W01	-	Y	N/A
9	143m S	386210 398880	SAXON STREET MANCHESTER C	-	Y	N/A
E	149m NW	386147 399263	Miles Platting TP5W02	-	Y	N/A
10	168m NW	386099 399253	COLESHILL STREET MANCHESTER 9	10.0	N	15637522
E	170m NW	386137 399282	COLESHILL STREET MANCHESTER 6	6.0	N	15637519

ID	Location	Grid reference	Name	Length	Confidential	Web link
11	177m S	386261 398853	HOLT TOWN B	-	Y	N/A
E	178m NW	386122 399281	COLESHILL STREET MANCHESTER 7	6.0	N	15637520
E	182m NW	386145 399300	COLESHILL STREET MANCHESTER 5	10.0	N	15637518
12	188m NW	386071 399258	COLESHILL STREET MANCHESTER 10	6.0	N	15637523
E	189m N	386190 399321	COLESHILL STREET MANCHESTER 2	10.0	N	15637515
E	189m NW	386102 399281	COLESHILL STREET MANCHESTER 8	6.0	N	15637521
E	194m N	386175 399323	COLESHILL STREET MANCHESTER 3	6.2	N	15637516
E	197m N	386154 399320	COLESHILL STREET MANCHESTER 4	6.0	N	15637517
13	198m S	386225 398825	HOLT TOWN A	-	Y	N/A
E	209m N	386181 399340	COLESHILL STREET MANCHESTER 1	6.1	N	15637514
14	225m N	386269 399356	Miles Platting BH5W01	-	Y	N/A
15	226m N	386314 399345	Miles Platting TP707	-	Y	N/A
16	237m S	386231 398787	HOLT TOWN C	-	Y	N/A
17	241m S	386275 398791	HOLT TOWN D	-	Y	N/A

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



Site Outline

Search buffers in metres (m)

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

17.1 Shrink swell clays

Records within 50m	1

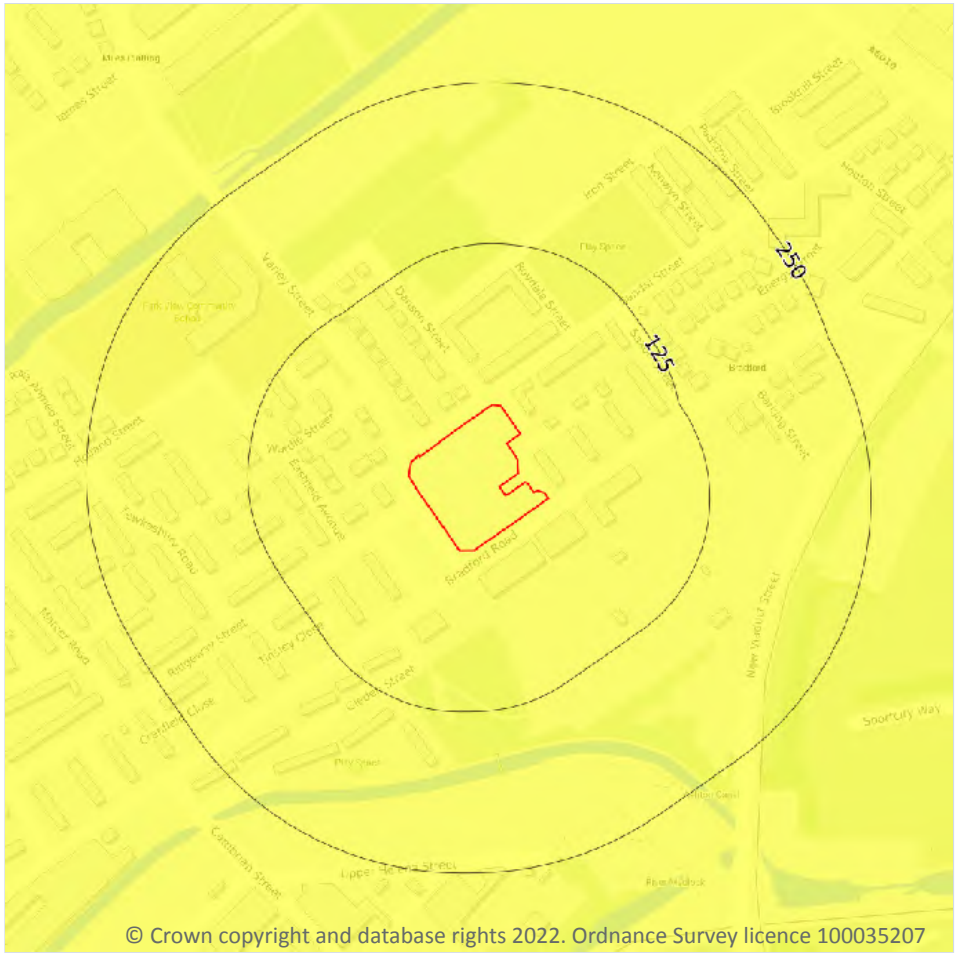
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 150**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

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

17.2 Running sands

Records within 50m	1

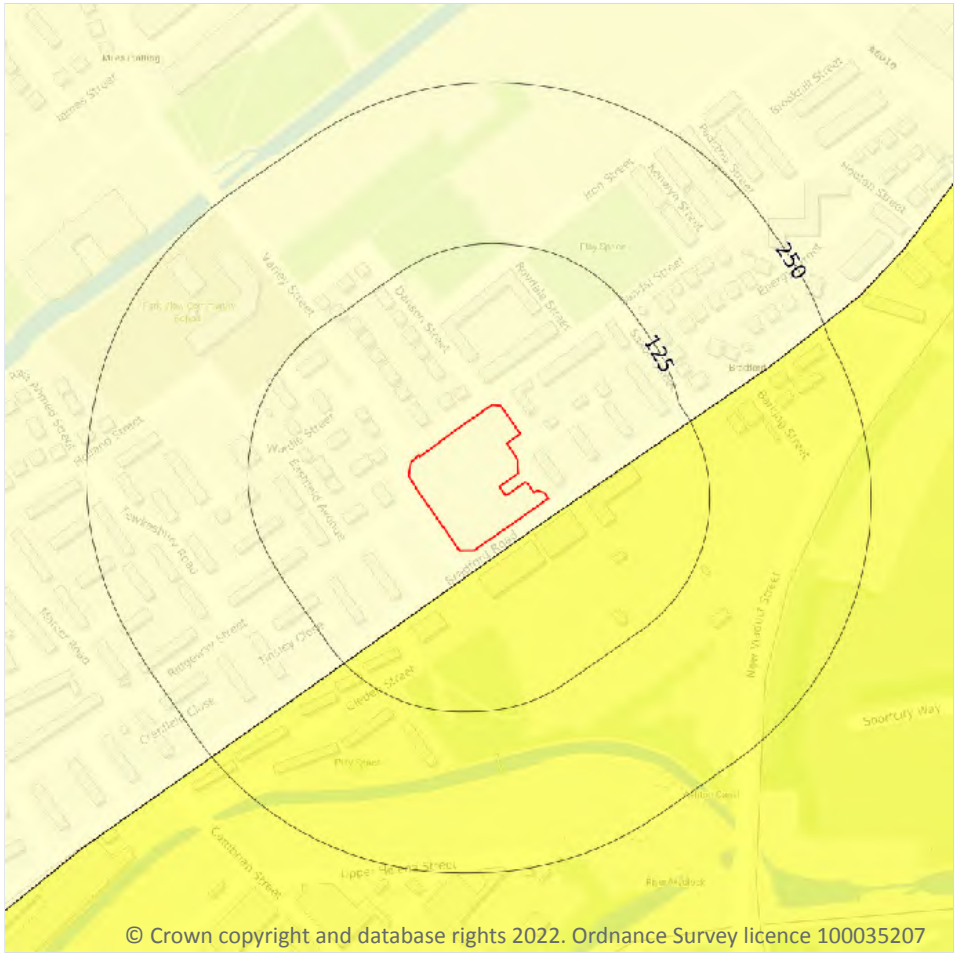
The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on **page 151**

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	2

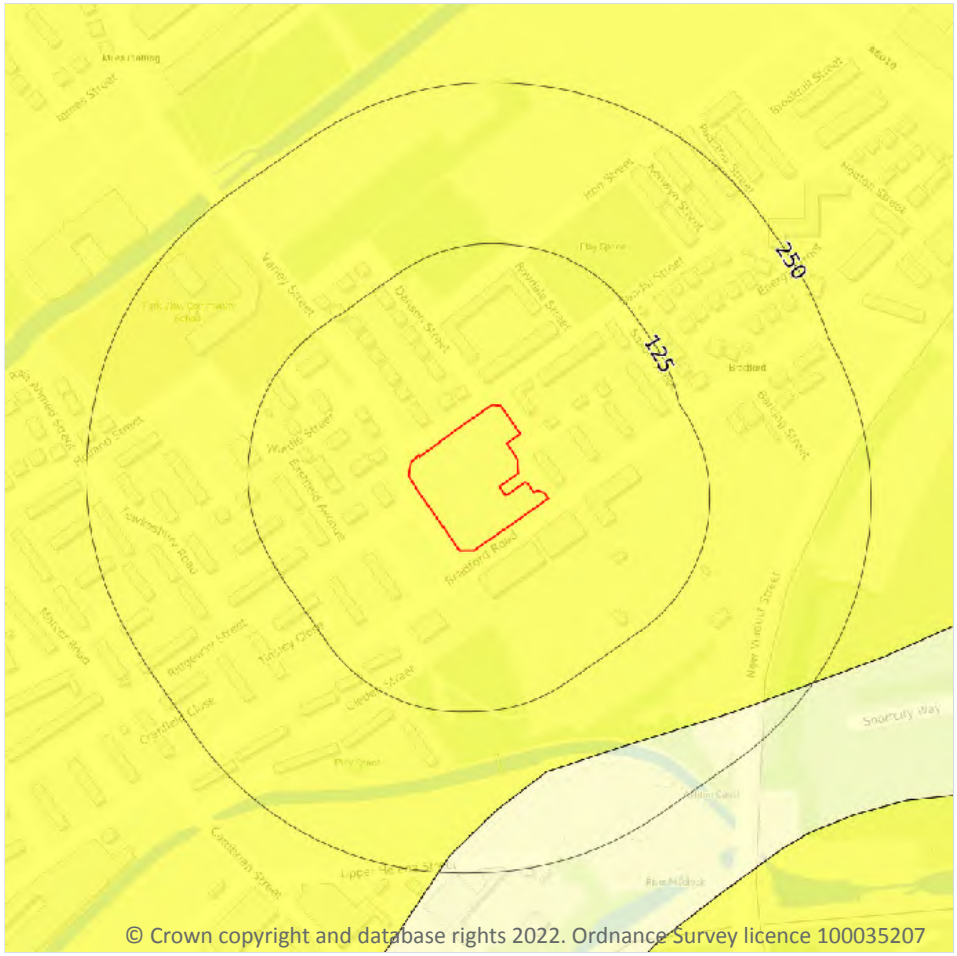
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 152**

Location	Hazard rating	Details
On site	**Negligible**	**Compressible strata are not thought to occur.**
13m SE	Very low	Compressibility and uneven settlement problems are not likely to be significant on the site for most land uses.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



Site Outline

Search buffers in metres (m)

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

17.4 Collapsible deposits

Records within 50m	1

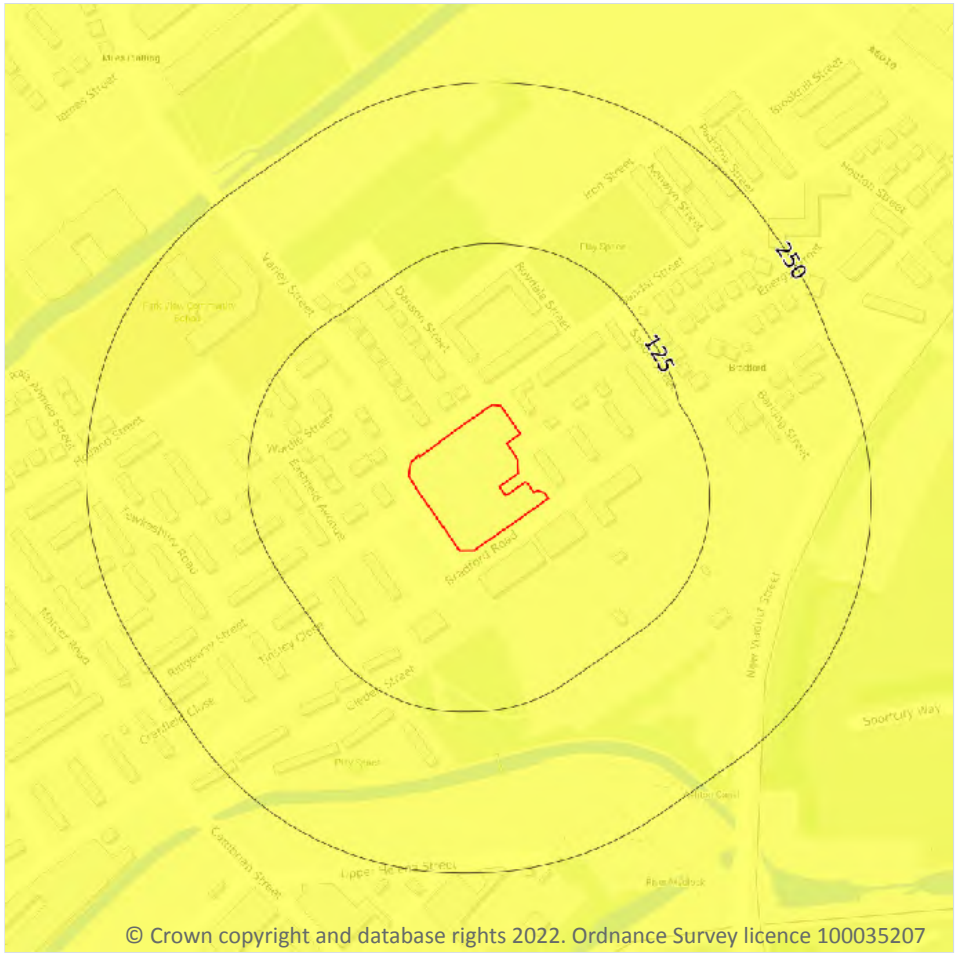
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 154**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

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

17.5 Landslides

Records within 50m	1

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

Features are displayed on the Natural ground subsidence - Landslides map on **page 155**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks



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17.6 Ground dissolution of soluble rocks

Records within 50m	1

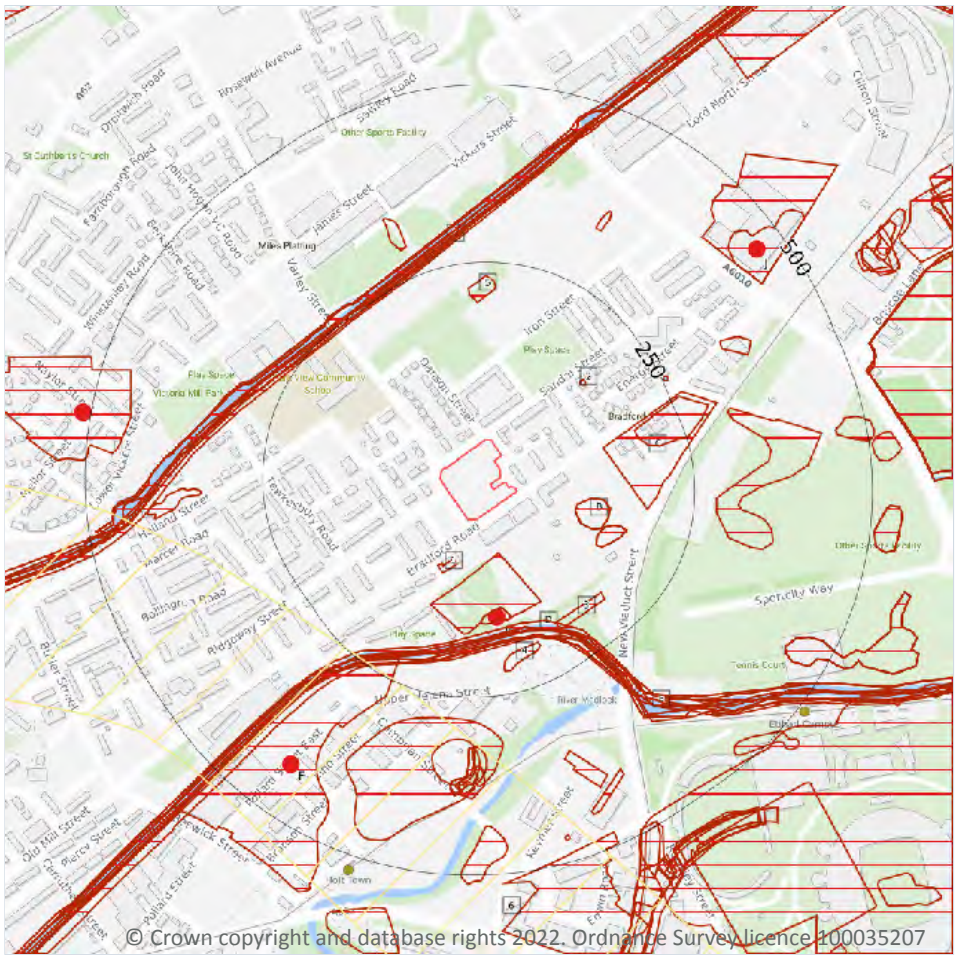
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 156**

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, ground workings and natural cavities



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Site Outline

Search buffers in metres (m)

- Natural cavities (Area)
- Natural cavities (Point)
- BritPits
- Surface ground workings
- Underground workings
- Historical Mineral Planning Areas
- Mining Cavities

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 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.

18.2 BritPits

Records within 500m	3

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.

Features are displayed on the Mining, ground workings and natural cavities map on **page 158**

ID	Location	Details	Description
A	140m S	Name: Glenden Hall Brick Field Address: Miles Platting, MANCHESTER, Lancashire Commodity: Clay & Shale Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
F	424m SW	Name: Holt Town Brick Field Address: Miles Platting, MANCHESTER, Lancashire Commodity: Clay & Shale Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
J	461m NE	Name: Miles Platting Brick Works Address: Miles Platting, MANCHESTER, Lancashire Commodity: Clay & Shale Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m	34

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, ground workings and natural cavities map on **page 158**

ID	Location	Land Use	Year of mapping	Mapping scale
A	56m SE	Brick Field	1851	1:10560
1	59m S	Brick Kilns	1851	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
B	86m E	Unspecified Pit	1938	1:10560
B	86m E	Unspecified Pit	1933	1:10560
A	129m S	Pond	1851	1:10560
B	129m SE	Unspecified Pit	1938	1:10560
B	129m SE	Unspecified Pit	1933	1:10560
C	136m NE	Brick Works	1891	1:10560
2	149m NE	Coal Pits	1851	1:10560
D	157m S	Canal	1985	1:10000
D	157m S	Canal	1978	1:10000
D	164m S	Canal	1938	1:10560
D	164m S	Canal	1933	1:10560
D	164m S	Canal	1921	1:10560
D	164m S	Canal	1906	1:10560
D	164m S	Canal	1891	1:10560
D	166m S	Canal	1923	1:10560
E	166m S	Canal	1968	1:10560
E	166m S	Canal	1956	1:10560
D	170m S	Canal	1991	1:10000
3	183m SE	Pond	1891	1:10560
C	186m NE	Unspecified Pit	1906	1:10560
4	193m S	Unspecified Ground Workings	1968	1:10560
5	193m N	Pond	1891	1:10560
F	216m SW	Brick Field	1851	1:10560
G	243m NW	Disused Canal	1991	1:10000
G	246m NW	Disused Canal	1985	1:10000
G	246m NW	Canal	1978	1:10000
G	250m NW	Canal	1938	1:10560
G	250m NW	Canal	1933	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
G	250m NW	Canal	1921	1:10560
G	250m NW	Canal	1906	1:10560
G	250m NW	Canal	1891	1:10560
G	250m NW	Canal	1923	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m	**4**

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

Features are displayed on the Mining, ground workings and natural cavities map on **page 158**

ID	Location	Land Use	Year of mapping	Mapping scale
-	890m SE	Colliery	1923	1:10560
-	891m SE	Colliery	1921	1:10560
-	891m SE	Colliery	1906	1:10560
-	993m SE	Unspecified Shafts	1978	1:10000

This is data is sourced from Ordnance Survey/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	2

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).

Features are displayed on the Mining, ground workings and natural cavities map on **page 158**

ID	Location	Name	Commodity	Class	Likelihood
6	246m SW	Not available	Vein Mineral	A	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered
-	730m S	Ardwick	Limestone - Ardwick	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered

This data is sourced from the British Geological Survey.

18.7 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.

18.8 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.

18.9 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.

18.10 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.

18.11 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

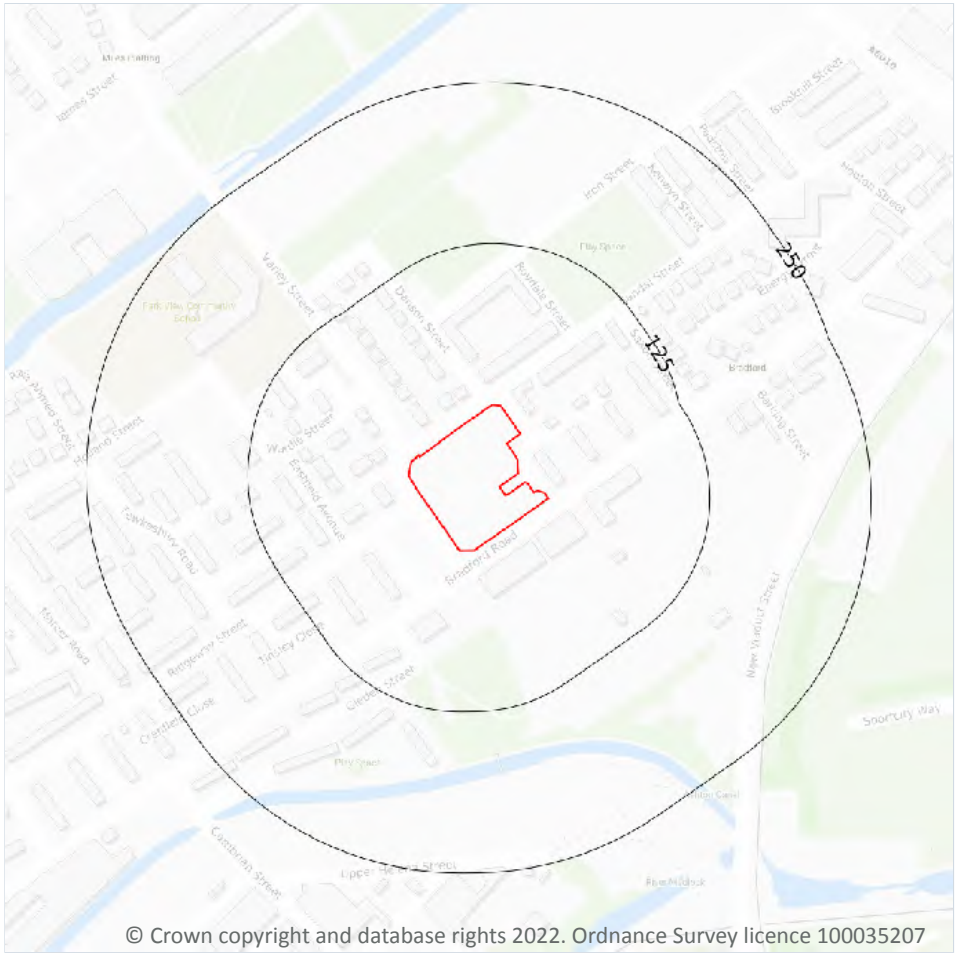
18.13 Clay mining

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 Radon



Site Outline

Search buffers in metres (m)

Greater than 30%

Between 10% and 30%

Between 5% and 10%

Between 3% and 5%

Between 1% and 3%

Less than 1%

19.1 Radon

Records on site	1

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households.

Features are displayed on the Radon map on **page 165**

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

This data is sourced from the British Geological Survey and Public Health England.

20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m **5**

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

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**15 - 25 mg/kg**	**No data**	**100 - 200 mg/kg**	**60 - 120 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**30 - 45 mg/kg**
On site	**15 - 25 mg/kg**	**No data**	**100 - 200 mg/kg**	**60 - 120 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
23m SE	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
33m S	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
41m SE	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.

20.2 BGS Estimated Urban Soil Chemistry

Records within 50m **8**

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

Location	Arsenic (mg/kg)	Bioaccessible Arsenic (mg/kg)	Lead (mg/kg)	Bioaccessible Lead (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Nickel (mg/kg)	Tin (mg/kg)
On site	**47**	**8.2**	**146**	**100**	**0.3**	**146**	**50**	**43**	**11**

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	**50**	**8.8**	**139**	**95**	**0.3**	**111**	**48**	**44**	**11**
On site	**51**	**8.9**	**45**	**31**	**0.3**	**132**	**23**	**44**	**4**
On site	**56**	**9.8**	**46**	**32**	**0.3**	**102**	**24**	**46**	**4**
23m SW	47	8.2	109	75	0.3	221	40	44	9
23m S	49	8.6	47	32	0.3	207	22	45	4
32m E	49	8.6	58	40	0.3	126	32	43	5
48m NE	52	9.1	54	37	0.3	101	31	43	5

This data is sourced from the British Geological Survey.

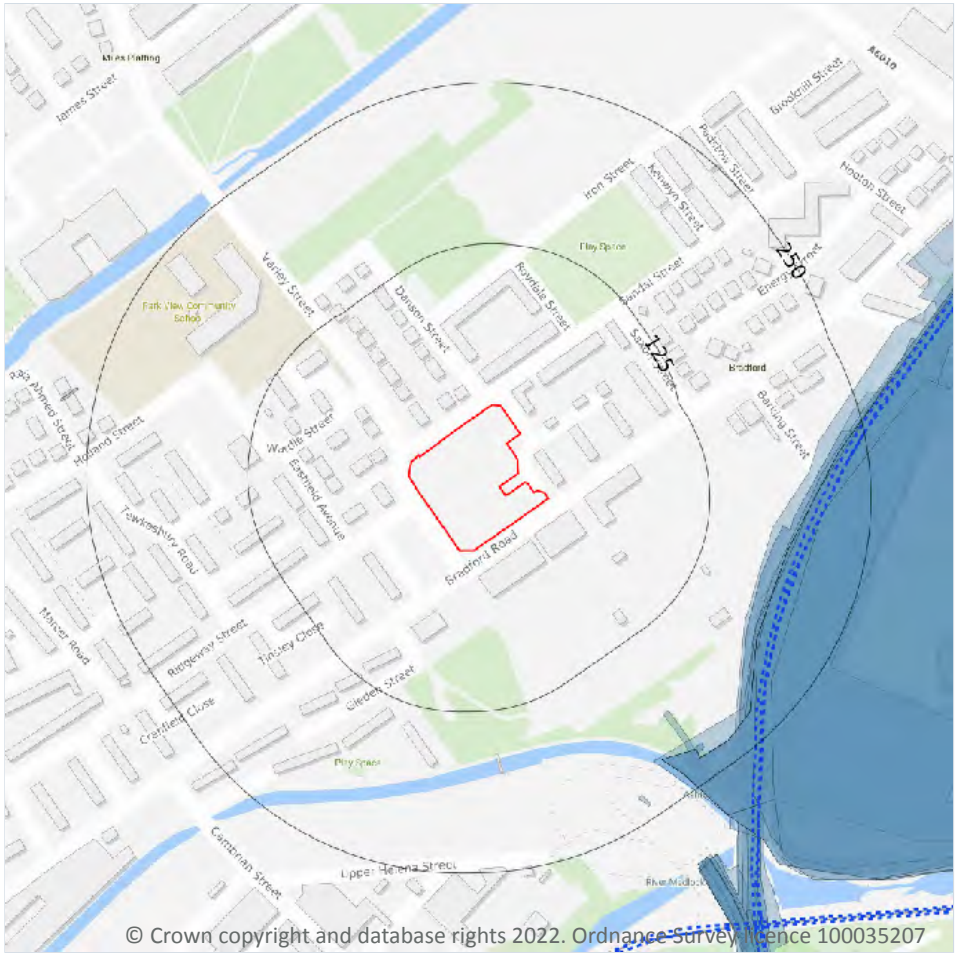
20.3 BGS Measured Urban Soil Chemistry

Records within 50m	**0**

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

This data is sourced from the British Geological Survey.

21 Railway infrastructure and projects



Site Outline

Search buffers in metres (m)

- Crossrail 1 Stations
- Crossrail 1 Route
- Crossrail 1 Worksites
- 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

21.1 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.

21.2 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.

21.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m	29

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 168**

Location	Land Use	Year of mapping	Mapping scale
173m E	Railway Sidings	1978	10000
175m E	Railway	1891	-
175m E	Railway	1905	-
184m E	Railway Sidings	1923	10560
188m SE	Railway Sidings	1948	1250
188m E	Railway Sidings	1931	2500
188m SE	Railway Sidings	1891	10560
188m E	Railways	1922	-
188m E	Railway Sidings	1938	10560
188m E	Railway Sidings	1933	10560
188m E	Railway Sidings	1921	10560
188m E	Railway Sidings	1906	10560
189m SE	Railway Sidings	1968	10560
191m E	Railway Sidings	1893	2500
193m E	Railway Sidings	1958	2500
194m E	Railway Sidings	1908	2500
200m E	Railway Sidings	1955	1250

Location	Land Use	Year of mapping	Mapping scale
201m E	Railway Sidings	1949	2500
201m E	Railway Sidings	1970	2500
206m E	Railway Sidings	1956	10560
206m E	Railway Sidings	1922	2500
223m SE	Tramway Sidings	1908	2500
223m SE	Tramway Sidings	1922	2500
224m SE	Railway Sidings	1891	500
230m SE	Railway Sidings	1891	500
232m E	Railway Sidings	1968	1250
241m E	Railway Sidings	1955	1250
243m E	Overhead Tramway Sidings	1949	2500
249m E	Railway Sidings	1948	1250

This data is sourced from Ordnance Survey/Groundsure.

21.5 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.

21.6 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.

21.7 Railways

Records within 250m	6

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 168**

Location	Name	Type
196m E		rail
198m E	Not given	Multi Track
200m E		rail
206m E	Not given	Multi Track
234m E	Not given	Multi Track
250m E	Not given	Multi Track

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 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.

21.9 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.

21.10 HS2

Records within 500m	0

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

(Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 ltd.

Data providers

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

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: https://www.groundsure.com/terms-and-conditions-jan-2020/.

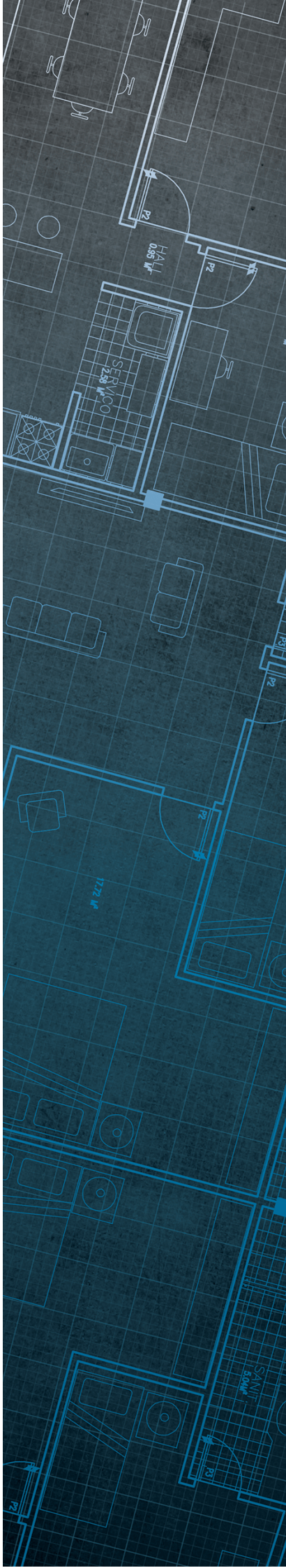
The Coal Authority

Consultants

Coal Mining Report

Miles Platting, Area 7.5b, M40 7ar
Greater Manchester

Date of enquiry:	**4 April 2022**
Date enquiry received:	**4 April 2022**
Issue date:	**4 April 2022**
Our reference:	**51002986960001**
Your reference:	**GS-8644046**



Consultants

Coal Mining Report

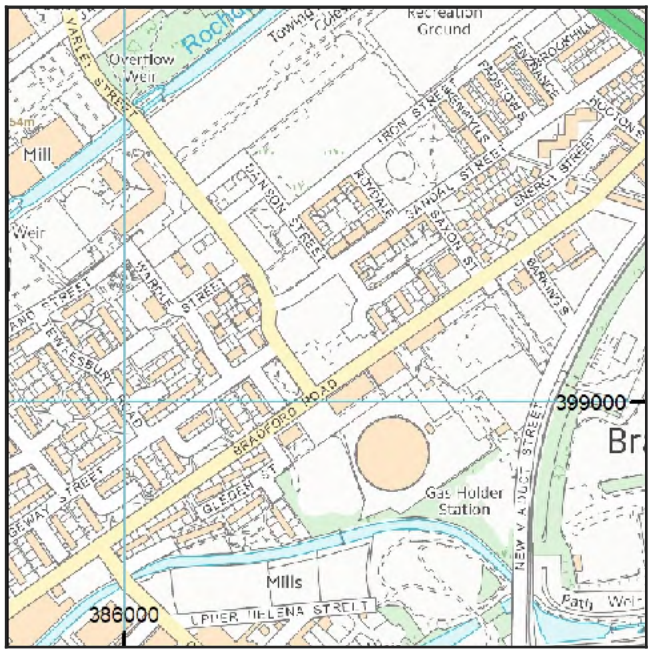
This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

GROUNDSURE LIMITED

Enquiry address

Miles Platting, Area 7.5b, M40 7ar
Greater Manchester



Approximate position of property

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NG18 4RG

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Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	BRADFORD THREE QUARTERS	Coal	35DB	39	Beneath Property	18.3	South-West	120	1900
unnamed	YARD	Coal	35CQ	106	North-East	18.4	South-West	100	1900
unnamed	BRADFORD FOUR FEET	Coal	35CS	117	South	18.4	South-West	120	1760
unnamed	BRADFORD FOUR FEET	Coal	35CU	118	Beneath Property	18.4	South-West	120	1900
unnamed	PARKER	Coal	35BL	349	North-East	18.0	South-West	80	1935
unnamed	PARKER	Coal	35BQ	541	Beneath Property	22.5	South	80	1935
unnamed	PARKER	Coal	35BP	542	South-East	18.0	South-West	80	1935
unnamed	PARKER	Coal	35BO	561	South	18.0	South-West	80	1935
unnamed	ROGER	Coal	35AY	662	North-East	16.1	South-West	180	1961
unnamed	CROMBOUKE	Coal	359J	674	East	16.0	South-West	120	1933
unnamed	ROGER	Coal	35AT	692	East	16.9	South-West	170	1956
unnamed	ROGER	Coal	35AU	713	East	18.7	South-West	170	1956
unnamed	CROMBOUKE	Coal	359H	733	East	17.4	South-West	120	1913
unnamed	ROGER	Coal	35AV	785	East	19.4	South-West	170	1956
unnamed	ROGER	Coal	35B2	800	North-West	21.6	South	180	1965
unnamed	CROMBOUKE	Coal	359F	819	Beneath Property	21.0	South-West	120	1924
unnamed	ROGER	Coal	35AZ	836	Beneath Property	20.8	South-West	180	1957
unnamed	CROMBOUKE	Coal	359E	836	Beneath Property	16.5	South-West	120	1932
unnamed	ROGER	Coal	35B0	894	South-West	19.0	South-West	180	1961
unnamed	ROGER	Coal	35B1	967	South-East	17.5	South-West	180	1958

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Probable unrecorded shallow workings

Yes.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Shaft	386399-014	386359 399047		Coal	

Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

11471	NW643	NW1171
NW1172	0	NW1170
NW437	NW645	PO0

Our records show we have more plans than those shown above which could affect the enquiry boundary.

Please contact us on 0345 762 6848 to determine the exact abandoned mine plans you require based on your needs.

Outcrops

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
OPENSHAW	Coal	Yes	Within	N/A	120

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

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Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations

Distance to site investigation (m)	Direction
47.6	East
10.1	North-East
10.5	West
10.4	North

See Section 4 for further information.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

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Section 3 – Licensing and future mining activity

Future underground mining
None recorded.

Coal mining licensing
None recorded within 200 metres of the enquiry boundary.

Court orders
None recorded.

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

Withdrawal of support notices
The property is in an area where a notice to withdraw support was given in 1955.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

Payments to owners of former copyhold land
The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

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Section 4 – Further information

The following potential risks have been identified and as part of your risk assessment should be investigated further.

Development advice

The site is within an area of historical coal mining activity. Should you require advice and/or support on understanding the mining legacy, its risks to your development or what next steps you need to take, please contact us.

Site investigations

The site is within an area of previous interest. It is close to where the Coal Authority has received information relating to past site investigations.

The site requires further investigation and may influence how you approach your risk assessment.

For further information on specific site or ground investigations in relation to any issues raised in Section 4, please call us on 0345 762 6848 or email us at groundstability@coal.gov.uk.

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Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk.**

Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

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Opencast mines
Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

Coal Authority managed tips
Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

Site investigations
Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

Remediated sites
Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

Coal mining subsidence
Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

Mine gas
Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission.

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Mine water treatment schemes
Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

Future underground mining
Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

Coal mining licensing
Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

Court orders
Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

Section 46 notices
Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

Withdrawal of support notices
Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

Payment to owners of former copyhold land
Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

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APPENDIX D

ii) Conceptual Model

The report aims to identify land which could potentially be affected by contamination, such that it could affect the value or re-use of the land, or such that mitigation would be required for certain proposed end uses of the land.

The assessment also aims to identify land which would be regarded as 'contaminated land' under the terms of the Environmental Protection Act 1990, Part IIa. This act includes a stricter test for contaminated land than that outlined above. Land is considered to be contaminated if either:

- the land is causing significant harm to people, ecosystems or infrastructure; or
- there is a significant possibility that such harm could be caused; or
- Pollution of controlled waters is being, or is likely to be, caused.

The following situations are defined as being where harm is to be regarded as significant:

- chronic or quite toxic effect, serious injury or death to humans;
- irreversible or other adverse harm to the ecological system;
- substantial damage to or failure of buildings;
- death of, or disease or other physical damage affecting, livestock or crops;
- Pollution of controlled waters.

The risk assessment uses a 'Source-Pathway-Receptor' methodology for assessing whether a source of contamination could potentially lead to harmful consequences. This means that there needs to be a pollutant linkage from source to receptor for harm to be caused, this linkage consisting of:

- a source of pollution;
- a pathway for the pollutant to move along;
- A receptor that is affected by the pollutant.

As an example, the pollutant source could be an identified leak of oil or an area of dumped waste.



The pathways could include transport of the contaminant by groundwater, surface water, windblown dust,

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or vapours, and for human receptors will include the means, by which contaminants enter the body, for example skin contact, ingestion and inhalation.

Receptors include people, other living organisms, the built environment and groundwater and surface waters (these latter two also being contaminant pathways).

The source-pathway-receptor methodology relationship allows an assessment of the environmental risk to be determined, based on the nature of the source, the degree of exposure of the receptor to the source and the sensitivity of the receptor.

This section of the report is based on the information set out in the previous sections of the report and should not be read independently of such sections.

Initial Conceptual Model

From the available information the preliminary conceptual model is visualised as follows:

Target (Receptor)	**POTENTIAL SOURCE-PATHWAY LINKAGE**
Site users / residents	Inhalation of soil gas, odours or dust.
	Ingestion of, and skin contact with, contaminated soil.
	Ingestion of contaminants in vegetables etc. or in soils adhering to vegetables, etc.
Construction/ maintenance workers.	Inhalation of soil gas, odours or dust
	Ingestion of, and skin contact with, contaminated soil
Plants	Adverse effects on growth caused by presence of contaminants in soil
Buildings and Structures	Flow of ground gas into buildings. Asphyxiation, toxicity, explosion and fire hazards
	Sulphate attack of foundations
	Hydrocarbons penetrating plastic water supply pipes
Groundwater	Migration of soluble contaminants into groundwater on or off site. Migration of oils into groundwater on or off site.
Surface water	Migration of soluble contaminants and/or direct run-off of contaminants. Migration of oils into groundwater on or off site.

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Initial Environmental Risk Assessment

General

It is accepted that an environmental risk assessment can be based on a source-pathway-target model. An examination is carried out as to whether a target will be at risk from a contamination source, that a source exists, and whether there are any pathways (routes of exposure) which might actually link the source to the target.

Environmental risk assessments rely heavily on numerical trigger concentrations or guidelines because exposure of targets to contamination is difficult to quantify directly. Quantification of risk is therefore mainly undertaken for general scenarios in order to derive trigger levels. These are derived for various contaminants for particular targets and routes of exposure. An example of a sensitive target would be users of a domestic back garden, where routes of exposure might be skin contact, dust inhalation, direct ingestion and indirect ingestion via cultivation and consumption of fruit and vegetables.

In March 2002, the first parts of the new CLEA risk assessment guidance were released by DEFRA/Environment Agency.

The risk assessment approach is an extension of the 'fit for use' concept whereby land is cleaned up to a standard fit for the proposed use, that is, so all remaining risks are acceptable. However, as well as being 'fit for use', the environmental risk assessment approach also addresses the soil and water environment so that these are also safeguarded where necessary. For example if a site was contaminated with heavy metals and the development comprised the proposed construction of hard standings and buildings only, the fit-for-use approach might require no remediation for the site. However, consideration of the wider environment needs to address whether groundwater is being contaminated, and if so whether remediation is required for this reason.

The following classification presented by CIRIA has been used in the assessment of risk:

Estimation of risk from consideration of magnitude, consequences and probabilities				
Probability	**Consequences**			
	Severe	**Moderate**	**Mild**	**Minor**
High	Very high	High	Moderate	Moderate / Low
Medium	High	Moderate	Moderate / Low	Low
Low	Moderate	Moderate / Low	Low	Very Low
Unlikely	Moderate / Low	Low	Very Low	Very Low

Reference: Contaminated Land Risk Management; A Guide to Good Practice, CIRIA C552:2001

CIRIA C665 Situation A Ground Gas Conceptual Model

The risk table contained in C665 is basically a modified risk assessment from CIRIA 152 1995, by which a conceptual model and semi-quantitative risk assessment can be made.

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The Coal Authority

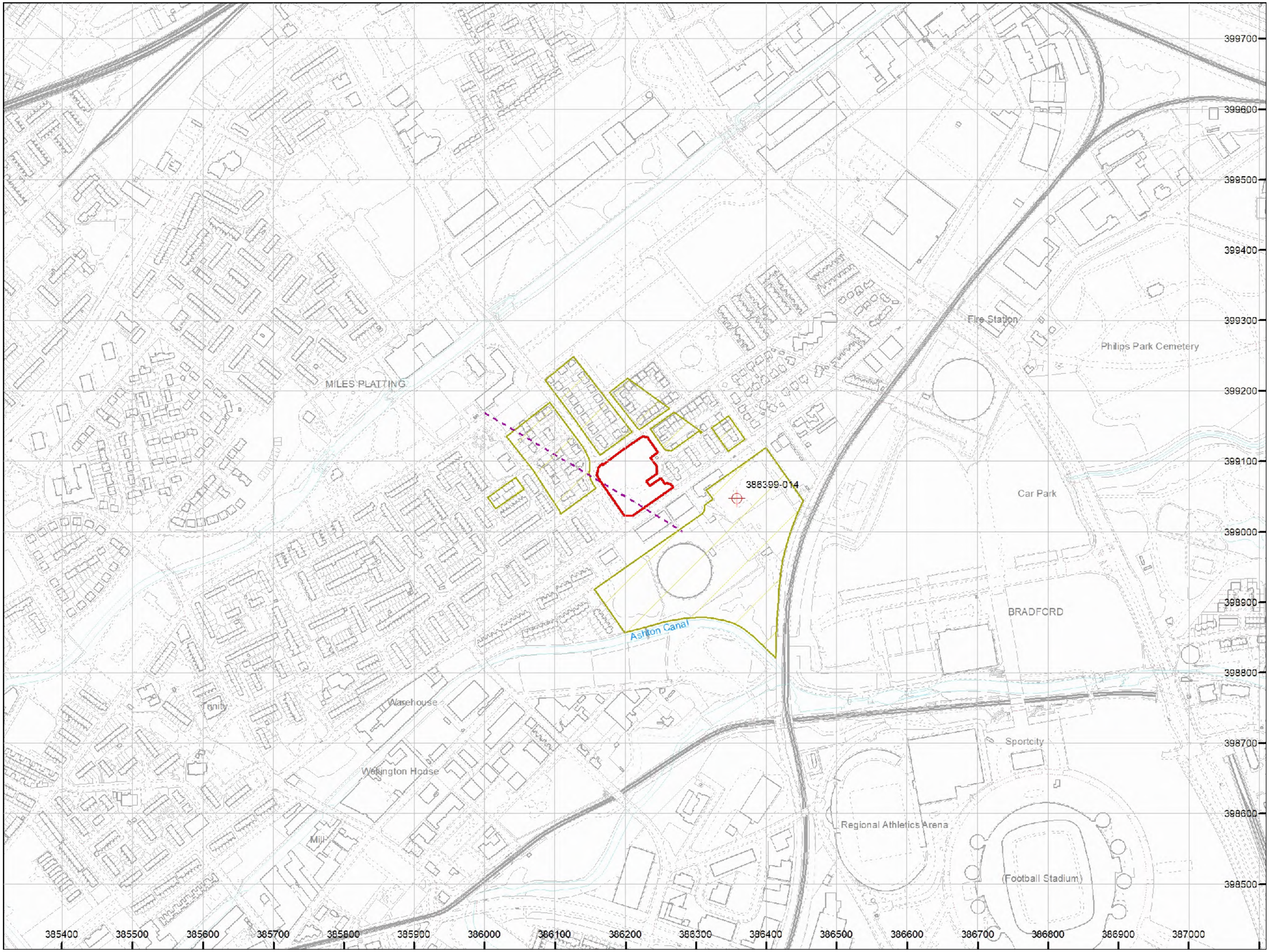
Summary of findings

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

Key

- Approximate position of the enquiry boundary shown
- Disused mine shaft
- Outcrop (Conjectured)
- Site investigations



How to contact us
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+44 (0)1623 637 000 (International)
www.groundstability.com

APPENDIX E

ii) Betts Exploratory Hole Location Plan

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DIGITISED SERVICES

- UNIDENTIFIED GPR TRACE
- TELECOMMUNICATIONS
- WATER
- DRAINAGE
- GAS
- ELECTRICITY

DO NOT SCALE

NOTES

THIS SKETCH SHOWS THE LOCATIONS OF EXPLORATORY HOLES UNDERTAKEN BY BETTS GEO AND DIGITISED SERVICES OVERLAIN AN AERIAL IMAGES TAKEN FROM GOOGLE MAPS (IMAGERY ©2022Google, MAP DATA ©2022Google, www.google.co.uk/maps).

SITE BOUNDARY

BETTS GEO - MAY 2022

- CABLE PERCUSSIVE BOREHOLE
- BUND SAMPLE
- WINDOW SAMPLE BOREHOLE

REV	DATE	BY	DESCRIPTION	CHK

DRAWING STATUS: DRAFT

BETTS GEO
CONSULTING ENGINEERS
Unit 6, Old Marsh Farm Barns, Welsh Road, Sealand, Flintshire CH5 2LY
Tel: 01244 288178 enquiries@betts-associates.co.uk

LOVELL HOMES

PROJECT:

MILES PLATTING AREA 7.5
MANCHESTER

TITLE:

EXPLORATORY HOLE LOCATION PLAN

DATE:	SCALE @ SIZE:	DRAWN:	CHECKED:
19/05/22	1:500 @ A3	RD	MJF

PROJECT No:	DRAWING No:	REV:
22LPL087	EXP001	-

Betts Geo
Old Marsh Farm Barns
CH5 2LY

BOREHOLE LOG

Project				BOREHOLE No
Miles Platting Area 7.5, Manchester				**WS1A**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
22LPL087	22-04-22 22-04-22			
Contractor				Sheet
				1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
						0.10	Grass over dark brown sandy clay with rootlets. [TOPSOIL]		
						0.40	Very dense cream white sandy GRAVEL of fine to coarse angulr Limestone. [MADE GROUND]		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											Dry and stable. No olfactory evidence of contamination. Terminated at 0.4mbgl due to unable to advance handpit. Backfilled with arisings.

All dimensions in metres Scale 1:50	Client Lovell	Method/ Plant Used HAND TOOLS	Logged By RD

Betts Geo
Old Marsh Farm Barns
CH5 2LY

BOREHOLE LOG

Project				BOREHOLE No
Miles Platting Area 7.5, Manchester				**WS1B**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
22LPL087	22-04-22 22-04-22			
Contractor				Sheet
				1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
						0.10	Grass over dark brown sandy clay with rootlets.		
						0.30	[TOPSOIL]		
							Very dense cream white sandy GRAVEL of fine to coarse angulr Limestone. [MADE GROUND]		

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To

GENERAL REMARKS

Dry and stable.
No olfactory evidence of contamination.
Terminated at 0.3mbgl due to unable to advance handpit.
Backfilled with arisings.

All dimensions in metres Scale 1:50	Client Lovell	Method/ Plant Used HAND TOOLS	Logged By RD

AGS3 UK BH 22LPL087 - MILES PLATTING AREA 7.5, MANCHESTER.GPJ GINT STD AGS 3_1.GDT 25/4/22

Betts Geo
Old Marsh Farm Barns
CH5 2LY

BOREHOLE LOG

Project				BOREHOLE No
Miles Platting Area 7.5, Manchester				**WS1C**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
22LPL087	22-04-22 22-04-22			
Contractor				Sheet
				1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
						0.05	Grass over dark brown sandy clay with rootlets.		
						0.20	[TOPSOIL]		
							Very dense cream white sandy GRAVEL of fine to coarse angulr Limestone. [MADE GROUND]		

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To

GENERAL REMARKS

Dry and stable.
No olfactory evidence of contamination.
Terminated at 0.2mbgl due to unable to advance handpit.
Backfilled with arisings.

All dimensions in metres Scale 1:50	Client Lovell	Method/ Plant Used HAND TOOLS	Logged By RD

AGS3 UK BH 22LPL087 - MILES PLATTING AREA 7.5, MANCHESTER.GPJ GINT STD AGS 3_1.GDT 25/4/22

Betts Geo
Old Marsh Farm Barns
CH5 2LY

BOREHOLE LOG

Project				BOREHOLE No
Miles Platting Area 7.5, Manchester				WS2
Job No	Date	Ground Level (m)	Co-Ordinates ()	
22LPL087	22-04-22 22-04-22			
Contractor				Sheet
				1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
						0.05	Grass over dark brown sandy clay with rootlets.		
						0.35	[TOPSOIL]		
0.30	ES						Very dense brown SAND & GRAVEL of fine to coarse angular tarmac, brick, limestone and sandstone. [MADE GROUND]		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	Dry and stable. No olfactory evidence of contamination. Terminated at 0.35mbgl due to unable to advance handpit. Unable to relocate due to CAT indicating services. Backfilled with arisings.

All dimensions in metres Scale 1:50	Client Lovell	Method/ Plant Used HAND TOOLS	Logged By RD

AGS3 UK BH 22LPL087 - MILES PLATTING AREA 7.5, MANCHESTER.GPJ GINT STD AGS 3_1.GDT 25/4/22

Betts Geo
Old Marsh Farm Barns
CH5 2LY

BOREHOLE LOG

Project				BOREHOLE No
Miles Platting Area 7.5, Manchester				**WS3A**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
22LPL087	22-04-22 22-04-22			
Contractor				Sheet
				1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
						0.10	Grass over dark brown sandy clay with rootlets. [TOPSOIL]		
0.40	ES					(0.50) 0.60	Dence brown slightly clayey very sandy GRAVEL of fine to coarse angular concrete and brick. [MADE GROUND]		
						0.80	Loose to medium grey brown slightly silty fine to coarse SAND. [MADE GROUND]		

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To

GENERAL REMARKS

Dry and stable.
No olfactory evidence of contamination.
Terminated at 0.8mbgl due to concrete floor/slab.
Backfilled with arisings.

All dimensions in metres Scale 1:50	Client Lovell	Method/ Plant Used HAND TOOLS	Logged By RD

AGS3 UK BH 22LPL087 - MILES PLATTING AREA 7.5, MANCHESTER.GPJ GINT STD AGS 3_1.GDT 25/4/22

Betts Geo
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CH5 2LY

BOREHOLE LOG

Project				BOREHOLE No
Miles Platting Area 7.5, Manchester				**WS3B**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
22LPL087	22-04-22 22-04-22			
Contractor				Sheet
				1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
						0.10	Grass over dark brown sandy clay with rootlets. [TOPSOIL]		
						(0.60)	Loose grey brown slightly gravelly fine to coarse SAND. Gravel of fine to medium angular brick and sandstone. [MADE GROUND]		
0.60	ES					0.70			

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To

GENERAL REMARKS

Dry and stable.
No olfactory evidence of contamination.
Terminated at 0.7mbgl due to concrete floor/slab.
Backfilled with arisings.

All dimensions in metres Scale 1:50	Client Lovell	Method/ Plant Used HAND TOOLS	Logged By RD

AGS3 UK BH 22LPL087 - MILES PLATTING AREA 7.5, MANCHESTER.GPJ GINT STD AGS 3_1.GDT 25/4/22

Betts Geo
Old Marsh Farm Barns
CH5 2LY

BOREHOLE LOG

Project				BOREHOLE No
Miles Platting Area 7.5, Manchester				**WS4A**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
22LPL087	22-04-22 22-04-22			
Contractor				Sheet
				1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
						0.15	Grass over dark brown sandy clay with rootlets. [TOPSOIL]		

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To

GENERAL REMARKS

Dry and stable.
No olfactory evidence of contamination.
Terminated at 0.15mbgl due to concrete floor/slab.
Backfilled with arisings.

All dimensions in metres Scale 1:50	Client Lovell	Method/ Plant Used HAND TOOLS	Logged By RD

AGS3 UK BH 22LPL087 - MILES PLATTING AREA 7.5, MANCHESTER.GPJ GINT STD AGS 3_1.GDT 25/4/22

Betts Geo
Old Marsh Farm Barns
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BOREHOLE LOG

Project				BOREHOLE No
Miles Platting Area 7.5, Manchester				**WS4B**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
22LPL087	22-04-22 22-04-22			
Contractor				Sheet
				1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
0.20	ES					0.05 0.35	Grass over dark brown sandy clay with rootlets. [TOPSOIL] Loose dark brown slightly clayey very sandy GRAVEL of fine to coarse angular concrete. [MADE GROUND]		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											Dry and stable. No olfactory evidence of contamination. Ternminated at 0.35 due to concrete floor/slab. Backfilled with arisings.

All dimensions in metres Scale 1:50	Client Lovell	Method/ Plant Used HAND TOOLS	Logged By RD

AGS3 UK BH 22LPL087 - MILES PLATTING AREA 7.5, MANCHESTER.GPJ GINT STD AGS 3_1.GDT 25/4/22

Betts Geo
Old Marsh Farm Barns
CH5 2LY

BOREHOLE LOG

Project				BOREHOLE No
Miles Platting Area 7.5, Manchester				**WS4C**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
22LPL087	22-04-22 22-04-22			
Contractor				Sheet
				1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
						0.05	Grass over dark brown sandy clay with rootlets.		
						0.20	[TOPSOIL]		
							Loose dark brown slightly clayey very sandy GRAVEL of fine to coarse angular concrete. [MADE GROUND]		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											Dry and stable. No olfactory evidence of contamination. Terminated at 0.2mbgl due to concrete boulder. Backfilled with arisings.

All dimensions in metres Scale 1:50	Client Lovell	Method/ Plant Used HAND TOOLS	Logged By RD

AGS3 UK BH 22LPL087 - MILES PLATTING AREA 7.5, MANCHESTER.GPJ GINT STD AGS 3_1.GDT 25/4/22

Betts Geo
Old Marsh Farm Barns
CH5 2LY

BOREHOLE LOG

Project				BOREHOLE No
Miles Platting Area 7.5, Manchester				**WS5A**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
22LPL087	22-04-22 22-04-22			
Contractor				Sheet
				1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
0.10	ES					0.20	Grass over dark brown sandy clay with rootlets. [TOPSOIL]		

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To

GENERAL REMARKS

Dry and stable.
No olfactory evidence of contamination.
Terminated at 0.2mbgl due to concrete floor/slab.
Backfilled with arisings.

All dimensions in metres Scale 1:50	Client Lovell	Method/ Plant Used HAND TOOLS	Logged By RD

AGS3 UK BH 22LPL087 - MILES PLATTING AREA 7.5, MANCHESTER.GPJ GINT STD AGS 3_1.GDT 25/4/22

Betts Geo
Old Marsh Farm Barns
CH5 2LY

BOREHOLE LOG

Project				BOREHOLE No
Miles Platting Area 7.5, Manchester				**WS5B**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
22LPL087	22-04-22 22-04-22			
Contractor				Sheet
				1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
						0.20	Grass over dark brown sandy clay with rootlets.		
0.25	ES					0.30	[TOPSOIL]		
							Very dense grey and brown sandy GRAVEL of fine to coarse angular limestone and brick. [MADE GROUND]		

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To

GENERAL REMARKS

Dry and stable.
No olfactory evidence of contamination.
Terminated at 0.3mbgl due to unable to advance hand pit.
Backfilled with arisings.

All dimensions in metres Scale 1:50	Client Lovell	Method/ Plant Used HAND TOOLS	Logged By RD

AGS3 UK BH 22LPL087 - MILES PLATTING AREA 7.5, MANCHESTER.GPJ GINT STD AGS 3_1.GDT 25/4/22

Betts Geo
Old Marsh Farm Barns
CH5 2LY

BOREHOLE LOG

Project				BOREHOLE No
Miles Platting Area 7.5, Manchester				CP1
Job No: 22LPL087	Date: 16-05-22 16-05-22	Ground Level (m):	Co-Ordinates ():	
Contractor:				Sheet: 1 of 1

SAMPLES & TESTS			Water	STRATA					Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION			
						0.10	Grass over dark brown sandy clay with rootlets.			
						0.30	[TOPSOIL]			
						(1.00)	Loose to medium dark brown very gravelly fine to coarse SAND. Gravel of fine to coarse angular brick, concrete, pipe, limestone, timber and plastic. [MADE GROUND]			
						1.30	Hard grey CONCRETE. [MADE GROUND]			
1.20		N16								
1.50	ES						Firm brown mottles grey slightly sandy CLAY with occassional laminations of brown fine sand/silt and gravel of fine to medium subangular to subrounded mixed lithologies. [GLACIAL TILL]			
1.60	D									
2.00		N15				(1.50)				
						2.80				
3.00	ES						Stiff brown slighlly sandy slighlty gravelly CLAY. Gravel of fine to coarse subrounded to subangular mixed lithologies. [GLACIAL TILL]			
3.00		N19								
						(2.20)				
4.00	D									
4.00		N28								
						5.00				
5.00		N26								

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	Dry and stable. No olfactory evidence of contamination. Terminated at target depth. Backfilled 2.0m, installed to 3.0mbgl.

All dimensions in metres Scale 1:50	Client: Lovell	Method/ Plant Used: Dando 2000	Logged By: RD

AGS3 UK BH 22LPL087 - MILES PLATTING AREA 7.5, MANCHESTER.GPJ GINT STD AGS 3_1.GDT 20/5/22

Betts Geo
Old Marsh Farm Barns
CH5 2LY

BOREHOLE LOG

Project				BOREHOLE No
Miles Platting Area 7.5, Manchester				CP2
Job No: 22LPL087	Date: 17-05-22 17-05-22	Ground Level (m):	Co-Ordinates ():	
Contractor:				Sheet: 1 of 1

SAMPLES & TESTS			Water	STRATA					Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION			
						0.10	Grass over dark brown sandy clay with rootlets.			
						0.20	[TOPSOIL]			
0.40	ES						Loose to medium dark brown very gravelly fine to coarse SAND. Gravel of fine to coarse angular brick, concrete, pipe, limestone, timber and plastic. [MADE GROUND]			
						(1.50)				
1.20		N75/ 83 mm					Hard grey CONCRETE. [MADE GROUND]			
						1.70				
1.75	D						Firm brown mottles grey slightly sandy CLAY with occassional laminations of brown fine sand/silt and gravel of fine to medium subangular to subrounded mixed lithologies. [GLACIAL TILL]			
1.80	ES									
2.00		N15								
						(1.80)				
3.00		N16								
						3.50				
							Stiff brown slighlly sandy slighlty gravelly CLAY. Gravel of fine to coarse subrounded to subangular mixed lithologies. [GLACIAL TILL]			
4.00	D									
4.00		N25				(1.50)				
						5.00				
5.00		N25								

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To

GENERAL REMARKS

Dry and stable.
No olfactory evidence of contamination.
Terminated at target depth.
Backfilled 2.0m, installed to 3.0mbgl.

All dimensions in metres Scale 1:50	Client: Lovell	Method/ Plant Used: Dando 2000	Logged By: RD

AGS3 UK BH 22LPL087 - MILES PLATTING AREA 7.5, MANCHESTER.GPJ GINT STD AGS 3_1.GDT 20/5/22

Betts Geo
Old Marsh Farm Barns
CH5 2LY

BOREHOLE LOG

Project				BOREHOLE No
Miles Platting Area 7.5, Manchester				CP3
Job No: 22LPL087	Date: 18-05-22 / 18-05-22	Ground Level (m):	Co-Ordinates ():	
Contractor:				Sheet: 1 of 2

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
						0.10	Grass over dark brown sandy clay with rootlets. [TOPSOIL]		
0.30	ES					(0.40) 0.50	Very dense dark brown slightly clayey gravelly fine to medium SAND. Gravel of fine to coarse angular brick, concrete and mortar. [MADE GROUND]		
						(0.40) 0.90	Very dense orange and grey sandy GRAVEL of fine to coarse brick and concrete. [MADE GROUND]		
1.00	ES								
1.20		N12				(0.80) 1.70	Dense black and orange ashy fine to coarse SAND with occassional gravel of fine to medium angular brick. [MADE GROUND]		
2.00	D						Firm brown mottles grey slightly sandy CLAY with occassional laminations of brown fine sand/silt. [GLACIAL TILL]		
2.00		N12				(1.50)			
3.00		N14				3.20			
3.50	D						Firm to stiff brown slightly sandy CLAY with occassional cobbles of subrounded to subangular mixed lithologies. [GLACIAL TILL]		
4.00		N21							
5.00		N20							
6.00		N29				(5.50)			
7.50		N34							

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt

Chiselling			Water Added	
From	To	Hours	From	To

GENERAL REMARKS

Dry and stable.
No olfactory evidence of contamination.
Terminated at target depth.
Backfilled 12.0m, installed to 3.0mbgl.

All dimensions in metres Scale 1:50	Client: Lovell	Method/ Plant Used: Dando 2000	Logged By: RD

AGS3 UK BH 22LPL087 - MILES PLATTING AREA 7.5, MANCHESTER.GPJ GINT STD AGS 3_1.GDT 20/5/22

Betts Geo
Old Marsh Farm Barns
CH5 2LY

BOREHOLE LOG

Project				BOREHOLE No
Miles Platting Area 7.5, Manchester				CP3
Job No	Date	Ground Level (m)	Co-Ordinates ()	
22LPL087	18-05-22 18-05-22			
Contractor				Sheet
				2 of 2

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
						8.70	Firm to stiff brown slightly sandy CLAY with occassional cobbles of subrounded to subangular mixed lithologies. [GLACIAL TILL] *(continued)*		
9.00		N50/ 146 mm				(1.80)	Very stiff brown very sandy CLAY with occassional laminations of fine brown sand/silt. [GLACIAL TILL]		
10.50		N43				10.50	Very stiff to hard brown slightly sandy CLAY with occassional gravel of fine to medium subrounded to subangular mixed lithologies and rare cobble. [GLACIAL TILL]		
12.00		N50/ 274 mm				(4.50)			
13.50		N50/ 267 mm							
						15.00			
15.00		N50/ 298 mm							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											Dry and stable. No olfactory evidence of contamination. Terminated at target depth. Backfilled 12.0m, installed to 3.0mbgl.

All dimensions in metres Scale 1:50	Client Lovell	Method/ Plant Used Dando 2000	Logged By RD

AGS3 UK BH 22LPL087 - MILES PLATTING AREA 7.5, MANCHESTER.GPJ GINT STD AGS 3_1.GDT 20/5/22

APPENDIX F

i) Contamination Test Results

ii) Geotechnical Test Results

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SUMMARY OF CONTAMINATION ANALYSIS: METALS

Project Name Miles Platting Area 7.5, Manchester
Project No 22LPL087
Date 22/04/2022

SOIL TYPE	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	TS	MG	N	N	MG	N	MG	MG
SAMPLE LOCATION	Bund Sample 1	Bund Sample 2	Bund Sample 3	Bund Sample 4	Bund Sample 5	Bund Sample 6	Bund Sample 7	Bund Sample 8	WS2	WS3A	WS3B	WS4B	WS5A	WS5B	CP1	CP1	CP2	CP2	CP3	CP3
DEPTH (m)	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.30	0.40	0.60	0.20	0.10	0.25	1.50	3.00	0.40	1.80	0.30	1.00
pH	7.77	9.35	8.31	8.24	7.79	8.27	7.9	7.85	7.82	8.44	8.98	7.86	8.39	8.21	8.96	9.3	9.78	9.14	8.06	8.51
Sulphate (water sol 2:1)	0.7	0.4	<0.01	<0.01	<0.01	0.02	0.64	<0.01	1.2	0.03	0.13	0.32	<0.01	0.04	0.08	0.01	0.5	0.05	0.06	0.08
Organic matter	7	5.4	10.2	6.6	10.4	3.3	6.4	5.5	4.9	3.5	5.6	9.2	4.2	4.6	1.4	1.6	2.4	4	4.1	3.8
Arsenic	14	10	13	13	11	5	16	8	14	7	47	20	14	6	4	2	8	<1	6	5
Cadmium	1.7	1.1	1.3	1.6	1.6	0.7	2.1	1.1	1.4	1.1	1.2	1.6	1.4	1.2	0.8	0.6	0.6	<0.5	0.6	0.6
Copper	77	61	61	74	46	17	143	36	80	48	373	72	72	40	29	24	37	19	31	29
Chromium (hexavalent)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Lead	240	175	107	150	83	40	518	81	201	86	388	146	101	70	20	11	107	10	72	46
Mercury	0.79	2.58	0.5	0.5	<0.17	1.33	1.04	<0.17	0.45	1.48	<0.17	0.73	0.85	0.91	0.62	<0.17	1.35	0.23	0.48	1.63
Nickel	21	19	17	23	16	8	27	12	19	13	14	21	18	13	40	35	15	28	13	21
Selenium	2	1	1	<1	<1	<1	2	1	<1	<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<1
Zinc	183	107	109	158	75	45	393	68	161	79	133	121	123	76	67	58	91	48	61	58
Asbestos in Soil	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD
Asbestos Matrix	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Quantification	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD
Organic matter	7	5.4	10.2	6.6	10.4	3.3	6.4	5.5	4.9	3.5	5.6	9.2	4.2	4.6	1.4	1.6	2.4	4	4.1	3.8

Metals	Mean Value Test *	Range		AtRisk 2017 (mg/kg)	AtRisk 2017 (mg/kg)	DEFRA C4SL 2017
	US_{95}	Largest Value (mg/kg)	Smallest Value (mg/kg)	With Homegrown Produce (1% SOM)	With Homegrown Produce (6% SOM)	
pH	8.68	9.78	7.77			-
Sulphate (water sol 2:1)	0.34	1.20	0.01			-
Organic matter	6.19	10.40	1.40			
Arsenic	14.99	47.00	2.00	32	32	37
Cadmium	1.32	2.10	0.60	10	10	22.1
Copper	98.40	373.00	17.00	4730	4790	-
Chromium (hexavalent)	1.00	<1	<1	3.62	3.63	20.5
Lead	181.83	518.00	10.00			200
Mercury	1.05	2.58	<0.17	8.81	15.8	-
Nickel	22.72	40.00	8.00	EA/ATRisk withdrawn Aug 2015		
Selenium	1.29	2.00	<1	375	375	-
Zinc	140.69	393.00	45.00	20000	20300	-

NOTE:
Any individual results and mean value tests above SGVs are shown RED highlighted.
Any outlier values which exceed relevant SGVs are shown in red

* - The calculations for the mean value test include outliers

**- Results for this determinand are assessed with no background levels taken into account

Results are expressed as mg/kg unless otherwise stated

Asbestos Quantification is expressed in %w/w.

ALL RESULTS PRESENTED ARE ASSESSED UNDER THE COMBINED CLEA ASSESSMENT CRITERION AS OUTLINED WITHIN SR4 ASSUMING NO FREE PRODUCT WAS OBSERVED DURING FIELDWORK- SEE 'GUIDANCE NOTES ON CONTAMINATION'.

SGVs are derived from the EA 2009 SGV's which are taken from AtRisk 2015. Category 4 screening levels have been adopted by the EA and have been included as new guidance.
Note: The SGV for elemental mercury has been used to assess total mercury concentrations at the site. The Environment Agency's Science Report SC050021 /Mercury SGV states that 'for general surface contamination and to simplify the assessment the SGV's for inorganic mercury can normally be compared with chemical analysis for total mercury content….'. Based on the latter, SGV for elemental mercury (170mg/kg) in the soil assessment is used
NAD - NO ASBESTOS DETECTED

TS - Topsoil, MG - Made Ground and N - Natural Ground

SUMMARY OF CONTAMINATION ANALYSIS: TPH

Project Name Miles Platting Area 7.5, Manchester
Project No 22LPL087
Date 22/04/2022

SOIL TYPE	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	TS	MG	N	N	MG	N	MG	MG
SAMPLE LOCATION	Bund Sample 1	Bund Sample 2	Bund Sample 3	Bund Sample 4	Bund Sample 5	Bund Sample 6	Bund Sample 7	Bund Sample 8	WS2	WS3A	WS3B	WS4B	WS5A	WS5B	CP1	CP1	CP2	CP2	CP3	CP3
DEPTH (m)	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.30	0.40	0.60	0.20	0.10	0.25	1.50	3.00	0.40	1.80	0.30	1.00
Ali >C5-C6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ali >C6-C8	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ali >C8-C10	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ali >C10-C12	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ali >C12-C16	<1	1	<1	<1	<1	<1	<10	<1	<1	2	<1	3	<1	<1	<1	<1	<1	<1	<1	<1
Ali >C16-C21	2	3	2	1	1	1	<10	<1	2	6	2	8	2	1	<1	<1	<1	<1	2	2
Ali >C21-C35	436	143	27	20	25	144	528	13	128	45	23	56	33	17	4	1	35	2	73	56
Total Aliphatics	438	147	30	22	26	145	528	13	129	54	26	68	35	18	4	1	36	2	75	59
Aro >C5-C7	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aro >C7-C8	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aro >C8-C10	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C10-C12	1	3	<1	<1	<1	<1	<10	<1	<1	<1	<1	2	<1	1	<1	<1	<1	<1	<1	<1
Aro >C12-C16	13	19	7	6	4	2	17	1	10	54	3	8	5	15	4	<1	2	<1	6	5
Aro >C16-C21	25	45	29	30	15	14	51	5	28	254	8	29	28	52	13	1	7	1	47	29
Aro >C21-C35	77	105	112	97	54	94	306	22	95	362	28	164	118	104	34	3	21	5	187	117
Total Aromatics	115	172	148	134	72	110	375	28	133	670	40	204	150	171	51	5	31	6	239	151
TPH (Ali & Aro)	553	319	178	155	98	255	903	41	263	723	66	271	185	190	54	6	66	8	314	210
BTEX - Benzene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - Toluene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - Ethyl Benzene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - m & p Xylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - o Xylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
MTBE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Organic Matter	7	5.4	10.2	6.6	10.4	3.3	6.4	5.5	4.9	3.5	5.6	9.2	4.2	4.6	1.4	1.6	2.4	4	4.1	3.8

TPH	Mean Value Test *	Range		AtRisk 2017 (mg/kg) Residential with Home Grown Produce	AtRisk 2017 (mg/kg) Residential with Home Grown Produce	DEFRA C4SL 2017
	US_{95}	Largest Value (mg/kg)	Smallest Value (mg/kg)	1% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***
Ali >C5-C6	0.01	<0.01	<0.01	42.7	369	-
Ali >C6-C8	0.01	<0.01	<0.01	99.3	1240	-
Ali >C8-C10	2.23	<1	<1	13.9	204	-
Ali >C10-C12	2.23	<1	<1	81.7	1180	-
Ali >C12-C16	2.39	3.00	<1	385	4130	-
Ali >C16-C21	3.48	8.00	<1	210000	210100	-
Ali >C21-C35	145.24	528.00	13.00			
Total Aliphatics	147.49	528.00	13.00			
Aro >C5-C7	0.01	<0.01	<0.01	0.137	0.871	-
Aro >C7-C8	0.01	<0.01	<0.01	113	780	-
Aro >C8-C10	2.23	1.00	<1	20.5	232	-
Aro >C10-C12	2.39	3.00	<1	70	468	-
Aro >C12-C16	13.74	54.00	1.00	165	830	-
Aro >C16-C21	56.38	254.00	5.00	319	1040	-
Aro >C21-C35	141.39	362.00	22.00	1120	1710	-
Total Aromatics	208.75	670.00	28.00			
TPH (Ali & Aro)	334.44	903.00	41.00			
BTEX - Benzene	0.01	<0.01	<0.01	0.0493	0.33	0.871
BTEX - Toluene	0.01	<0.01	<0.01	113	780	-
BTEX - Ethyl Benzene	0.01	<0.01	<0.01	50.7	453	-
BTEX - m & p Xylene	0.01	<0.01	<0.01	24	312	-
BTEX - o Xylene	0.01	<0.01	<0.01	26.4	336	-
MTBE	0.01	<0.01	<0.01	27.6	220	

	UU Drinking Water Guidelines
	PE Threshold
Total BTEX & MTBE	0.1
EC5-EC10 Ali-Aro	2
EC10-EC16 Ali-Aro	10
EC16-EC40 Ali-Aro	500

Results expressed as mg/kg air dried unless otherwise stated.

* - The calculations for the mean value test include outliers

*** THESE RESULTS PRESENTED ARE ASSESSED UNDER THE COMBINED CLEA ASSESSMENT CRITERION AS OUTLINED WITHIN SR4 ASSUMING NO FREE PRODUCT WAS OBSERVED DURING FIELDWORK- SEE 'GUIDANCE NOTES ON CONTAMINATION'.

NOTES:

For the Purpose of this investigation- results will be assessed agains RESIDENTIAL GUIDELINES WITH HOMEGROWN PRODUCE WITH NO FREE PRODUCT.

SUMMARY OF CONTAMINATION ANALYSIS: PAH

Project Name Miles Platting Area 7.5, Manchester
Project No 22LPL087
Date 22/04/22

SOIL TYPE	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	TS	MG	N	N	MG	N	MG	MG
SAMPLE LOCATION	Bund Sample 1	Bund Sample 2	Bund Sample 3	Bund Sample 4	Bund Sample 5	Bund Sample 6	Bund Sample 7	Bund Sample 8	WS2	WS3A	WS3B	WS4B	WS5A	WS5B	CP1	CP1	CP2	CP2	CP3	CP3
DEPTH (m)	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.30	0.40	0.60	0.20	0.10	0.25	1.50	3.00	0.40	1.80	0.30	1.00
Acenaphthene	0.09	0.22	0.1	0.17	0.05	0.06	0.29	0.04	0.07	0.57	0.07	0.14	0.16	0.15	0.11	<0.01	0.03	<0.01	0.2	0.25
Acenaphthylene	0.03	0.03	0.03	0.06	0.01	0.01	0.08	0.01	0.02	0.05	0.02	<0.01	0.04	0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.02
Anthracene	0.22	0.37	0.31	0.42	0.11	0.11	0.66	0.11	0.17	1.05	0.12	0.28	0.29	0.27	0.13	<0.02	0.07	<0.02	0.48	0.45
Benzo(a)anthracene	0.99	1.37	1.26	2.32	0.59	0.48	2.63	0.54	0.72	2.94	0.31	0.85	1.28	0.81	0.12	<0.04	0.23	<0.04	0.9	1.18
Benzo(a)pyrene	1.04	1.37	1.43	2.47	0.59	0.52	2.56	0.55	0.76	2.85	0.3	0.79	1.42	0.8	0.08	<0.04	0.23	<0.04	0.78	1
Benzo(b)fluoranthene	1.05	1.46	1.53	2.7	0.74	0.55	2.79	0.65	0.82	3.03	0.32	0.88	1.53	0.9	0.11	<0.05	0.27	<0.05	0.88	1.16
Benzo(ghi)perylene	0.55	0.81	0.79	1.26	0.33	0.3	1.41	0.3	0.43	1.36	0.16	0.38	0.77	0.39	<0.05	<0.05	0.13	<0.05	0.4	0.51
Benzo(k)fluoranthene	0.38	0.52	0.5	0.89	0.22	0.18	0.94	0.26	0.31	1.02	0.1	0.3	0.52	0.31	<0.07	<0.07	0.1	<0.07	0.32	0.41
Chrysene	1.07	1.44	1.28	2.36	0.66	0.5	2.73	0.59	0.81	2.96	0.36	0.9	1.33	0.85	0.14	<0.06	0.28	<0.06	0.97	1.22
Dibenzo(ah)anthracene	0.12	0.18	0.17	0.3	0.07	0.06	0.32	0.06	0.1	0.34	<0.04	0.09	0.17	0.09	<0.04	<0.04	<0.04	<0.04	0.09	0.12
Fluoranthene	1.75	2.64	2.5	4.08	1.04	0.85	4.96	1.04	1.35	6.49	0.6	1.75	2.29	1.71	0.4	<0.08	0.46	<0.08	2.45	2.92
Fluorene	0.08	0.13	0.08	0.13	0.04	0.03	0.21	0.02	0.06	0.45	0.08	0.1	0.12	0.1	0.08	<0.01	0.02	<0.01	0.19	0.2
Indeno(123-cd)pyrene	0.58	0.87	0.88	1.46	0.38	0.31	1.52	0.33	0.48	1.57	0.16	0.43	0.87	0.45	0.04	<0.03	0.15	<0.03	0.49	0.63
Naphthalene	<0.03	0.07	<0.03	0.05	<0.03	<0.03	0.05	<0.03	<0.03	0.15	<0.03	0.05	0.04	<0.03	0.08	<0.03	<0.03	<0.03	0.05	0.04
Phenanthrene	0.89	1.52	1.17	1.52	0.5	0.43	2.82	0.44	0.67	4.18	0.52	1.1	1.08	0.95	0.51	<0.03	0.27	<0.03	1.79	1.84
Pyrene	1.7	2.38	2.34	3.94	1.01	0.82	4.59	0.96	1.29	5.71	0.65	1.61	2.17	1.56	0.33	<0.07	0.43	<0.07	2.07	2.54
Organic Matter	7	5.4	10.2	6.6	10.4	3.3	6.4	5.5	4.9	3.5	5.6	9.2	4.2	4.6	1.4	1.6	2.4	4	4.1	3.8

PAH	Mean Value Test *	Range		AtRisk 2017 (mg/kg) Residential with Home Grown Produce	AtRisk 2017 (mg/kg) Residential with Home Grown Produce	DEFRA's C4SL 2017
	US_{95}	Largest Value (mg/kg)	Smallest Value (mg/kg)	1% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***
Acenaphthene	0.19	0.57	0.03	608	2760	-
Acenaphthylene	0.03	0.08	0.01			-
Anthracene	0.38	1.05	0.07	10200	26200	-
Benzo(a)anthracene	1.30	2.94	0.12	4.52	8.54	-
Benzo(a)pyrene	1.30	2.85	0.08	1.51	2.05	4.95
Benzo(b)fluoranthene	1.42	3.03	0.11	7.72	9.86	-
Benzo(ghi)perylene	0.69	1.41	0.13	96.2	103	-
Benzo(k)fluoranthene	0.49	1.02	0.10	84.4	100	-
Chrysene	1.35	2.96	0.14	585	927	-
Dibenzo(ah)anthracene	0.16	0.34	<0.04	0.838	1	-
Fluoranthene	2.62	6.49	0.40	983	2980	-
Fluorene	0.15	0.45	0.02	735	2610	-
Indeno(123-cd)pyrene	0.77	1.57	0.04	7.31	9.75	-
Naphthalene	0.06	0.15	<0.03	0.829	12.2	-
Phenanthrene	1.50	4.18	0.27			-
Pyrene	2.39	5.71	0.33	668	2120	-

Results expressed as mg/kg air dried unless otherwise stated.

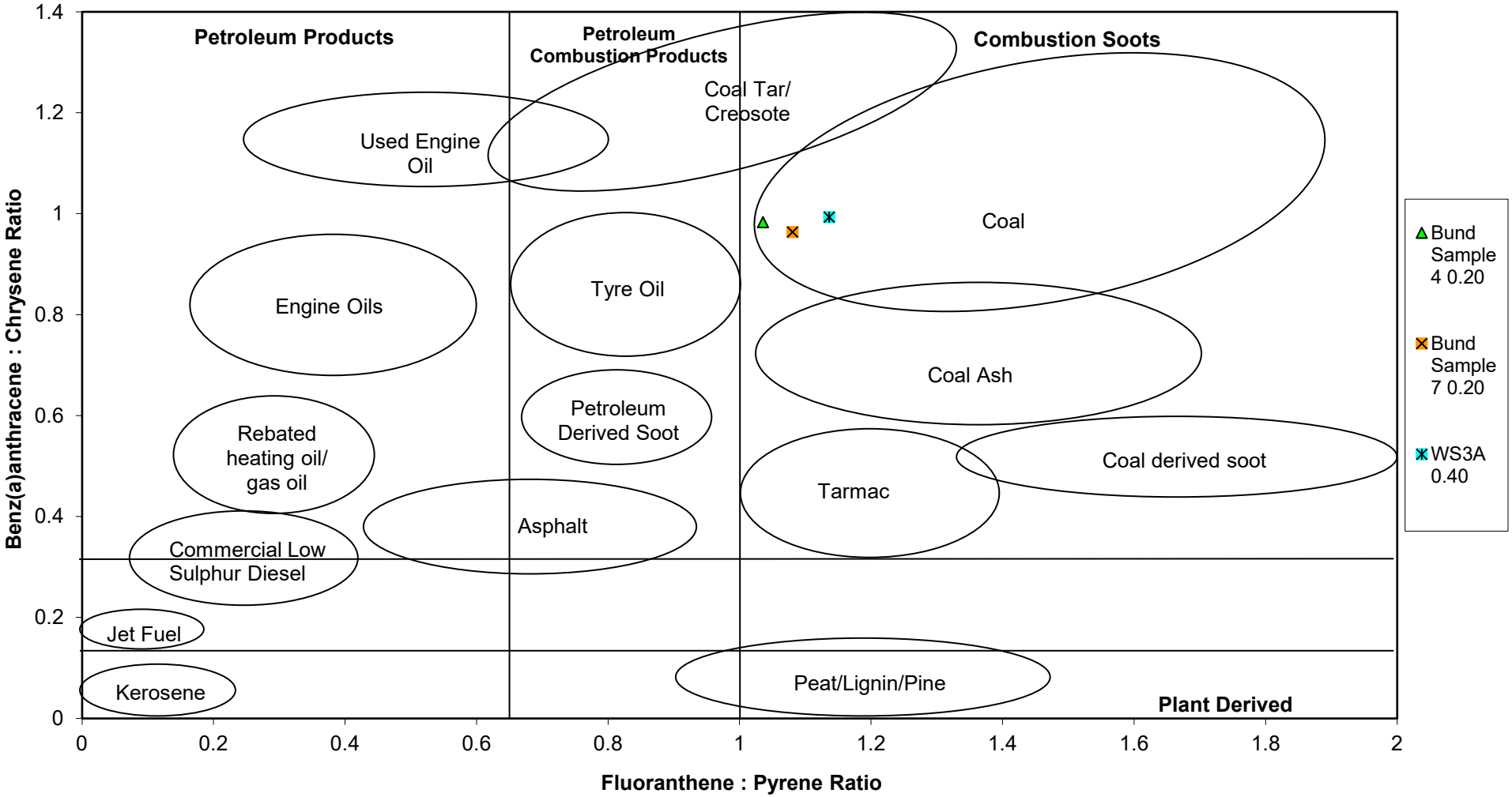
* - The calculations for the mean value test include outliers

*** THESE RESULTS PRESENTED ARE ASSESSED UNDER THE COMBINED CLEA ASSESSMENT CRITERION AS OUTLINED WITHIN SR4 ASSUMING NO FREE PRODUCT WAS OBSERVED DURING FIELDWORK- SEE 'GUIDANCE NOTES ON CONTAMINATION'.

NOTES:

For the Purpose of this investigation- results will be assessed agains **RESIDENTIAL GUIDELINES WITH HOMEGROWN PRODUCE WITH NO FREE PRODUCT.**

Double Ratio Plot of Benz(a)anthracene : Chrysene versus Fluoranthene : Pyrene



envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 22/03981
Issue Number: 1 **Date:** 04 May, 2022

Client:
Betts Geo Environmental
Old Marsh Farm Barns
Welsh Road
Sealand
Flintshire
UK
CH5 2LY

Project Manager: Betts Geolab/Robert Davies
Project Name: Miles Platting Area 7.5, Manchester
Project Ref: 22LPL087
Order No: BG4602
Date Samples Received: 25/04/22
Date Instructions Received: 26/04/22
Date Analysis Completed: 04/05/22

Approved by:

Holly Neary-King
Client Services Supervisor

Envirolab Job Number: 22/03981

Client Project Name: Miles Platting Area 7.5, Manchester

Client Project Ref: 22LPL087

Lab Sample ID	22/03981/1	22/03981/2	22/03981/3	22/03981/4	22/03981/5	22/03981/6	22/03981/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	Bund Sample 1	Bund Sample 2	Bund Sample 3	Bund Sample 4	Bund Sample 5	Bund Sample 6	Bund Sample 7			
Depth to Top	0.20	0.20	0.20	0.20	0.20	0.20	0.20			
Depth To Bottom										
Date Sampled	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22			
Sample Type	Soil - ES	Solid	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	4AE	7	4AE	6AE	2AE	4ABE	4ABE			
% Stones >10mm$_A$	10.8	<0.1	<0.1	<0.1	<0.1	35.7	<0.1	% w/w	0.1	A-T-044
pH$_D$$^{M\#}$	7.77	9.35	8.31	8.24	7.79	8.27	7.90	pH	0.01	A-T-031s
Sulphate (water sol 2:1)$_D$$^{M\#}$	0.70	0.40	<0.01	<0.01	<0.01	0.02	0.64	g/l	0.01	A-T-026s
Organic matter Default$_D$$^{M\#}$	7.0	5.4	10.2	6.6	10.4	3.3	6.4	% w/w	0.1	A-T-032 OM
Arsenic$_D$$^{M\#}$	14	10	13	13	11	5	16	mg/kg	1	A-T-024s
Cadmium$_D$$^{M\#}$	1.7	1.1	1.3	1.6	1.6	0.7	2.1	mg/kg	0.5	A-T-024s
Copper$_D$$^{M\#}$	77	61	61	74	46	17	143	mg/kg	1	A-T-024s
Chromium (hexavalent)$_D$	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-040s
Lead$_D$$^{M\#}$	240	175	107	150	83	40	518	mg/kg	1	A-T-024s
Mercury$_D$	0.79	2.58	0.50	0.50	<0.17	1.33	1.04	mg/kg	0.17	A-T-024s
Nickel$_D$$^{M\#}$	21	19	17	23	16	8	27	mg/kg	1	A-T-024s
Selenium$_D$$^{M\#}$	2	1	1	<1	<1	<1	2	mg/kg	1	A-T-024s
Zinc$_D$$^{M\#}$	183	107	109	158	75	45	393	mg/kg	5	A-T-024s
VPH total (>C5-C10)	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<10.00	mg/kg	1	Calc-stone+mois

Envirolab Job Number: 22/03981

Client Project Name: Miles Platting Area 7.5, Manchester

Client Project Ref: 22LPL087

Lab Sample ID	22/03981/1	22/03981/2	22/03981/3	22/03981/4	22/03981/5	22/03981/6	22/03981/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	Bund Sample 1	Bund Sample 2	Bund Sample 3	Bund Sample 4	Bund Sample 5	Bund Sample 6	Bund Sample 7			
Depth to Top	0.20	0.20	0.20	0.20	0.20	0.20	0.20			
Depth To Bottom										
Date Sampled	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22			
Sample Type	Soil - ES	Solid	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	4AE	7	4AE	6AE	2AE	4ABE	4ABE			
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}^{\#}$	NAD	NAD	NAD	NAD	NAD	NAD	NAD			A-T-045
Asbestos Matrix (visual)$_{D}$	-	-	-	-	-	-	-			A-T-045
Asbestos Matrix (microscope)$_{D}$	-	-	-	-	-	-	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A			A-T-045

Envirolab Job Number: 22/03981

Client Project Name: Miles Platting Area 7.5, Manchester

Client Project Ref: 22LPL087

Lab Sample ID	22/03981/1	22/03981/2	22/03981/3	22/03981/4	22/03981/5	22/03981/6	22/03981/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	Bund Sample 1	Bund Sample 2	Bund Sample 3	Bund Sample 4	Bund Sample 5	Bund Sample 6	Bund Sample 7			
Depth to Top	0.20	0.20	0.20	0.20	0.20	0.20	0.20			
Depth To Bottom										
Date Sampled	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22			
Sample Type	Soil - ES	Solid	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	4AE	7	4AE	6AE	2AE	4ABE	4ABE			
PAH-16MS										
Acenaphthene$_A^{M\#}$	0.09	0.22	0.10	0.17	0.05	0.06	0.29	mg/kg	0.01	A-T-019s
Acenaphthylene$_A^{M\#}$	0.03	0.03	0.03	0.06	0.01	0.01	0.08	mg/kg	0.01	A-T-019s
Anthracene$_A^{M\#}$	0.22	0.37	0.31	0.42	0.11	0.11	0.66	mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	0.99	1.37	1.26	2.32	0.59	0.48	2.63	mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	1.04	1.37	1.43	2.47	0.59	0.52	2.56	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	1.05	1.46	1.53	2.70	0.74	0.55	2.79	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	0.55	0.81	0.79	1.26	0.33	0.30	1.41	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	0.38	0.52	0.50	0.89	0.22	0.18	0.94	mg/kg	0.07	A-T-019s
Chrysene$_A^{M\#}$	1.07	1.44	1.28	2.36	0.66	0.50	2.73	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	0.12	0.18	0.17	0.30	0.07	0.06	0.32	mg/kg	0.04	A-T-019s
Fluoranthene$_A^{M\#}$	1.75	2.64	2.50	4.08	1.04	0.85	4.96	mg/kg	0.08	A-T-019s
Fluorene$_A^{M\#}$	0.08	0.13	0.08	0.13	0.04	0.03	0.21	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	0.58	0.87	0.88	1.46	0.38	0.31	1.52	mg/kg	0.03	A-T-019s
Naphthalene $_A^{M\#}$	<0.03	0.07	<0.03	0.05	<0.03	<0.03	0.05	mg/kg	0.03	A-T-019s
Phenanthrene$_A^{M\#}$	0.89	1.52	1.17	1.52	0.50	0.43	2.82	mg/kg	0.03	A-T-019s
Pyrene$_A^{M\#}$	1.70	2.38	2.34	3.94	1.01	0.82	4.59	mg/kg	0.07	A-T-019s
Total PAH-16MS$_A^{M\#}$	10.5	15.4	14.4	24.1	6.34	5.21	28.6	mg/kg	0.01	A-T-019s

Envirolab Job Number: 22/03981

Client Project Name: Miles Platting Area 7.5, Manchester

Client Project Ref: 22LPL087

Lab Sample ID	22/03981/1	22/03981/2	22/03981/3	22/03981/4	22/03981/5	22/03981/6	22/03981/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	Bund Sample 1	Bund Sample 2	Bund Sample 3	Bund Sample 4	Bund Sample 5	Bund Sample 6	Bund Sample 7			
Depth to Top	0.20	0.20	0.20	0.20	0.20	0.20	0.20			
Depth To Bottom										
Date Sampled	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22			
Sample Type	Soil - ES	Solid	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	4AE	7	4AE	6AE	2AE	4ABE	4ABE			
TPH CWG with Clean Up *C1										
Ali >C5-C6$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C6-C8$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$	<1	<1	<1	<1	<1	<1	<10	mg/kg	1	A-T-055s
Ali >C10-C12$_A^{M\#}$	<1	<1	<1	<1	<1	<1	<10	mg/kg	1	A-T-055s
Ali >C12-C16$_A^{M\#}$	<1	1	<1	<1	<1	<1	<10	mg/kg	1	A-T-055s
Ali >C16-C21$_A^{M\#}$	2	3	2	1	1	1	<10	mg/kg	1	A-T-055s
Ali >C21-C35$_A^{M\#}$	436	143	27	20	25	144	528	mg/kg	1	A-T-055s
Total Aliphatics$_A$	438	147	30	22	26	145	528	mg/kg	1	A-T-055s
Aro >C5-C7$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C7-C8$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$	<1	<1	<1	<1	<1	<1	<10	mg/kg	1	A-T-055s
Aro >C10-C12$_A$	1	3	<1	<1	<1	<1	<10	mg/kg	1	A-T-055s
Aro >C12-C16$_A$	13	19	7	6	4	2	17	mg/kg	1	A-T-055s
Aro >C16-C21$_A^{M\#}$	25	45	29	30	15	14	51	mg/kg	1	A-T-055s
Aro >C21-C35$_A$	77	105	112	97	54	94	306	mg/kg	1	A-T-055s
Total Aromatics$_A$	115	172	148	134	72	110	375	mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35)$_A$	553	319	178	155	98	255	903	mg/kg	1	A-T-055s
BTEX - Benzene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Toluene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - o Xylene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
MTBE$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s

Envirolab Job Number: 22/03981

Client Project Name: Miles Platting Area 7.5, Manchester

Client Project Ref: 22LPL087

Lab Sample ID	22/03981/8	22/03981/9	22/03981/10	22/03981/11	22/03981/12	22/03981/13	22/03981/14	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	Bund Sample 8	WS2	WS3A	WS3B	WS4B	WS5A	WS5B			
Depth to Top	0.20	0.30	0.40	0.60	0.20	0.10	0.25			
Depth To Bottom										
Date Sampled	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	2AE	4ABE	4A	4AB	4A	4AE	6ABE			
% Stones >10mm$_A$	<0.1	20.4	18.4	3.5	17.8	16.9	42.2	% w/w	0.1	A-T-044
pH$_D$$^{M\#}$	7.85	7.82	8.44	8.98	7.86	8.39	8.21	pH	0.01	A-T-031s
Sulphate (water sol 2:1)$_D$$^{M\#}$	<0.01	1.20	0.03	0.13	0.32	<0.01	0.04	g/l	0.01	A-T-026s
Organic matter Default$_D$$^{M\#}$	5.5	4.9	3.5	5.6	9.2	4.2	4.6	% w/w	0.1	A-T-032 OM
Arsenic$_D$$^{M\#}$	8	14	7	47	20	14	6	mg/kg	1	A-T-024s
Cadmium$_D$$^{M\#}$	1.1	1.4	1.1	1.2	1.6	1.4	1.2	mg/kg	0.5	A-T-024s
Copper$_D$$^{M\#}$	36	80	48	373	72	72	40	mg/kg	1	A-T-024s
Chromium (hexavalent)$_D$	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-040s
Lead$_D$$^{M\#}$	81	201	86	388	146	101	70	mg/kg	1	A-T-024s
Mercury$_D$	<0.17	0.45	1.48	<0.17	0.73	0.85	0.91	mg/kg	0.17	A-T-024s
Nickel$_D$$^{M\#}$	12	19	13	14	21	18	13	mg/kg	1	A-T-024s
Selenium$_D$$^{M\#}$	1	<1	<1	<1	2	<1	<1	mg/kg	1	A-T-024s
Zinc$_D$$^{M\#}$	68	161	79	133	121	123	76	mg/kg	5	A-T-024s
VPH total (>C5-C10)	<1.00	<1.00	<1.00	1.12	1.93	<1.00	<1.00	mg/kg	1	Calc-stone+mois

Envirolab Job Number: 22/03981

Client Project Name: Miles Platting Area 7.5, Manchester

Client Project Ref: 22LPL087

Lab Sample ID	22/03981/8	22/03981/9	22/03981/10	22/03981/11	22/03981/12	22/03981/13	22/03981/14	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	Bund Sample 8	WS2	WS3A	WS3B	WS4B	WS5A	WS5B			
Depth to Top	0.20	0.30	0.40	0.60	0.20	0.10	0.25			
Depth To Bottom										
Date Sampled	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	2AE	4ABE	4A	4AB	4A	4AE	6ABE			
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}^{\#}$	NAD	NAD	NAD	NAD	NAD	NAD	NAD			A-T-045
Asbestos Matrix (visual)$_{D}$	-	-	-	-	-	-	-			A-T-045
Asbestos Matrix (microscope)$_{D}$	-	-	-	-	-	-	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A			A-T-045

Envirolab Job Number: 22/03981

Client Project Name: Miles Platting Area 7.5, Manchester

Client Project Ref: 22LPL087

Lab Sample ID	22/03981/8	22/03981/9	22/03981/10	22/03981/11	22/03981/12	22/03981/13	22/03981/14	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	Bund Sample 8	WS2	WS3A	WS3B	WS4B	WS5A	WS5B			
Depth to Top	0.20	0.30	0.40	0.60	0.20	0.10	0.25			
Depth To Bottom										
Date Sampled	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	2AE	4ABE	4A	4AB	4A	4AE	6ABE			
PAH-16MS										
Acenaphthene$_A^{M\#}$	0.04	0.07	0.57	0.07	0.14	0.16	0.15	mg/kg	0.01	A-T-019s
Acenaphthylene$_A^{M\#}$	0.01	0.02	0.05	0.02	<0.01	0.04	0.01	mg/kg	0.01	A-T-019s
Anthracene$_A^{M\#}$	0.11	0.17	1.05	0.12	0.28	0.29	0.27	mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	0.54	0.72	2.94	0.31	0.85	1.28	0.81	mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	0.55	0.76	2.85	0.30	0.79	1.42	0.80	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	0.65	0.82	3.03	0.32	0.88	1.53	0.90	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	0.30	0.43	1.36	0.16	0.38	0.77	0.39	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	0.26	0.31	1.02	0.10	0.30	0.52	0.31	mg/kg	0.07	A-T-019s
Chrysene$_A^{M\#}$	0.59	0.81	2.96	0.36	0.90	1.33	0.85	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	0.06	0.10	0.34	<0.04	0.09	0.17	0.09	mg/kg	0.04	A-T-019s
Fluoranthene$_A^{M\#}$	1.04	1.35	6.49	0.60	1.75	2.29	1.71	mg/kg	0.08	A-T-019s
Fluorene$_A^{M\#}$	0.02	0.06	0.45	0.08	0.10	0.12	0.10	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	0.33	0.48	1.57	0.16	0.43	0.87	0.45	mg/kg	0.03	A-T-019s
Naphthalene $_A^{M\#}$	<0.03	<0.03	0.15	<0.03	0.05	0.04	<0.03	mg/kg	0.03	A-T-019s
Phenanthrene$_A^{M\#}$	0.44	0.67	4.18	0.52	1.10	1.08	0.95	mg/kg	0.03	A-T-019s
Pyrene$_A^{M\#}$	0.96	1.29	5.71	0.65	1.61	2.17	1.56	mg/kg	0.07	A-T-019s
Total PAH-16MS$_A^{M\#}$	5.90	8.06	34.7	3.77	9.65	14.1	9.35	mg/kg	0.01	A-T-019s

Envirolab Job Number: 22/03981

Client Project Name: Miles Platting Area 7.5, Manchester

Client Project Ref: 22LPL087

Lab Sample ID	22/03981/8	22/03981/9	22/03981/10	22/03981/11	22/03981/12	22/03981/13	22/03981/14	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	Bund Sample 8	WS2	WS3A	WS3B	WS4B	WS5A	WS5B			
Depth to Top	0.20	0.30	0.40	0.60	0.20	0.10	0.25			
Depth To Bottom										
Date Sampled	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22	22-Apr-22			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	2AE	4ABE	4A	4AB	4A	4AE	6ABE			
TPH CWG with Clean Up *C1										
Ali >C5-C6$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C6-C8$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C10-C12$_A^{M\#}$	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C12-C16$_A^{M\#}$	<1	<1	2	<1	3	<1	<1	mg/kg	1	A-T-055s
Ali >C16-C21$_A^{M\#}$	<1	2	6	2	8	2	1	mg/kg	1	A-T-055s
Ali >C21-C35$_A^{M\#}$	13	128	45	23	56	33	17	mg/kg	1	A-T-055s
Total Aliphatics$_A$	13	129	54	26	68	35	18	mg/kg	1	A-T-055s
Aro >C5-C7$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C7-C8$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$	<1	<1	<1	1	<1	<1	<1	mg/kg	1	A-T-055s
Aro >C10-C12$_A$	<1	<1	<1	<1	2	<1	1	mg/kg	1	A-T-055s
Aro >C12-C16$_A$	1	10	54	3	8	5	15	mg/kg	1	A-T-055s
Aro >C16-C21$_A^{M\#}$	5	28	254	8	29	28	52	mg/kg	1	A-T-055s
Aro >C21-C35$_A$	22	95	362	28	164	118	104	mg/kg	1	A-T-055s
Total Aromatics$_A$	28	133	670	40	204	150	171	mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35)$_A$	41	263	723	66	271	185	190	mg/kg	1	A-T-055s
BTEX - Benzene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Toluene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - o Xylene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
MTBE$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s

REPORT NOTES

General

This report shall not be reproduced, except in full, without written approval from Envirolab.
The results reported herein relate only to the material supplied to the laboratory.
The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and interpretations expressed are outside the scope of our accreditation.
If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve
EPH CWG results have humics mathematically subtracted through instrument calculation
TPH results "with Cleanup" indicates results cleaned up with Silica during extraction

EPH CWG GCxGC ID from TPH CWG

Where we have identified humic substances in any ID's from TPH CWG with Clean Up please note that the concentration of these humic substances is not included in the quantified results and are included in the ID for information.

Please contact us if you need any further information.

v2

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Betts Geo Environmental, Old Marsh Farm Barns, Welsh Road, Sealand, Flintshire, UK, CH5 2LY

Project: Miles Platting Area 7.5, Manchester

Clients Project No: 22LPL087

Project No: 22/03981

Date Received: 26/04/2022 (am)

Cool Box Temperatures (°C): 13.8 & 14.1

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	22/03981/1	22/03981/2	22/03981/3	22/03981/4	22/03981/5	22/03981/6	22/03981/7	22/03981/8	22/03981/9	22/03981/10	22/03981/11	22/03981/12
Client Sample No												
Client Sample ID/Depth	Bund Sample 1 0.20m	Bund Sample 2 0.20m	Bund Sample 3 0.20m	Bund Sample 4 0.20m	Bund Sample 5 0.20m	Bund Sample 6 0.20m	Bund Sample 7 0.20m	Bund Sample 8 0.20m	WS2 0.30m	WS3A 0.40m	WS3B 0.60m	WS4B 0.20m
Date Sampled	22/04/22	22/04/22	22/04/22	22/04/22	22/04/22	22/04/22	22/04/22	22/04/22	22/04/22	22/04/22	22/04/22	22/04/22
A-T-019s	04/05/2022	04/05/2022	04/05/2022	04/05/2022	04/05/2022	04/05/2022	04/05/2022	04/05/2022	04/05/2022	04/05/2022	04/05/2022	04/05/2022
A-T-022s	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
A-T-024s	03/05/2022	03/05/2022	03/05/2022	03/05/2022	03/05/2022	03/05/2022	03/05/2022	03/05/2022	03/05/2022	03/05/2022	03/05/2022	03/05/2022
A-T-026s	04/05/2022	04/05/2022	04/05/2022	04/05/2022	04/05/2022	04/05/2022	04/05/2022	04/05/2022	04/05/2022	04/05/2022	04/05/2022	04/05/2022
A-T-031s	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
A-T-032 OM	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022	03/05/2022	03/05/2022	03/05/2022
A-T-040s	04/05/2022	04/05/2022	04/05/2022	04/05/2022	04/05/2022	04/05/2022	04/05/2022	04/05/2022	04/05/2022	04/05/2022	04/05/2022	04/05/2022
A-T-044	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022	29/04/2022
A-T-045	27/04/2022	27/04/2022	27/04/2022	27/04/2022	27/04/2022	27/04/2022	27/04/2022	27/04/2022	27/04/2022	27/04/2022	27/04/2022	27/04/2022
A-T-055s	03/05/2022	03/05/2022	03/05/2022	03/05/2022	03/05/2022	03/05/2022	03/05/2022	03/05/2022	03/05/2022	03/05/2022	03/05/2022	03/05/2022
Calc-stone+mois	03/05/2022	03/05/2022	03/05/2022	03/05/2022	03/05/2022	03/05/2022	03/05/2022	03/05/2022	03/05/2022	03/05/2022	03/05/2022	03/05/2022

Lab Sample ID	22/03981/13	22/03981/14
Client Sample No		
Client Sample ID/Depth	WS5A 0.10m	WS5B 0.25m
Date Sampled	22/04/22	22/04/22
A-T-019s	04/05/2022	04/05/2022
A-T-022s	29/04/2022	29/04/2022
A-T-024s	03/05/2022	03/05/2022
A-T-026s	04/05/2022	04/05/2022
A-T-031s	29/04/2022	29/04/2022
A-T-032 OM	03/05/2022	03/05/2022
A-T-040s	04/05/2022	04/05/2022
A-T-044	29/04/2022	29/04/2022
A-T-045	27/04/2022	27/04/2022
A-T-055s	03/05/2022	03/05/2022
Calc-stone+mois	03/05/2022	03/05/2022

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

APPENDIX G

i) Gas Monitoring Data

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Site: Miles Platting Area 7.5
Job Number: 22LPL087
Date of Monitoring: 26/05/2022

Ground Gas Monitoring Round 1

Borehole	Gas Flow (l/hr)	Atmospheric Pressure (mB)	Methane CH_4(%v/v)		Carbon Dioxide CO_2 (% v/v)		Oxygen (%v/v)		Other Gases			Depth to Water	
			Peak	Steady	Peak	Steady	Min	Steady	PID	H_2S	CO	(mbgl)	BH depth
CP1	0.0	1013	0.3	0.2	0.1	0.1	21.2	21.3	-	-	1	DRY	2.85
CP2	0.0	1013	0.2	0.2	0.1	0.1	21.3	21.2	-	-	1	DRY	2.92
CP3	0.0	1013	0.2	0.2	0.2	0.2	21.3	21.2	-	-	1	DRY	2.90

Notes:
Monitoring order is left to right across the table
Monitoring should be for **not less** than 3 minutes. However, if high concentrations of gases are initially recorded, monitoring should be for up to 10 minutes

Relevant Information at the Time of Monitoring	
Monitored by:	GC
Weather:	Overcast with light rain, warm with light breeze
Equipment Used:	GA5000
	Solinst Mini Interface Meter
Visible signs of damage/stress:	
Other Comments/Observations:	Pressure stable

APPENDIX H

i) Notes on Ground Gas

Ground Gas

The Building Regulations and BRE Report 212 state that precautions are not mandatory against carbon dioxide unless 5.0% volume is exceeded. These documents do not give a threshold level for methane, but Baker suggests that this level is 0.1% volume. For methane up to 1.0% volume, and carbon dioxide above 5.0% volume, the Building Regulations and BRE Report state that passive measures may be adopted. Above 1.0% methane further specific guidance must be sought.

CIRIA Report 149 gives further guidance on the appropriate precautions for various gas regimes, called characteristic situations in this report. In the DETR Guide for Design by Ove Arup, various types of passive measures are assessed for performance with different gas regimes. The assessments used computational fluid dynamic (CFD) modelling.

A gas regime is essentially defined by two parameters:

i) The concentration of the gas (e.g. % methane)

ii) The emission rate of the gas from the ground.

The fact that two parameters are used is problematic if the site is to be classified on the basis of Table 28 in CIRIA Report 149. This is because high gas concentrations are often encountered which fall into an onerous gas regime; whereas the low flow rates which are also frequently encountered fall into less onerous gas regimes.

In order to use the Guide for Design to decide if passive measures are suitable, it is necessary to combine the gas concentration and the emission rate.

Three recent publications are used for ground gas risk assessment:

- CIRIA C665 for high rise residential / flats
- 'Guidance on Evaluation of Development Proposals on Sites Where Methane and Carbon Dioxide are Present' Report Edition No.04 March 2007 NHBC – designed for use with low rise residential properties
- BS8485:2007 'Code of practice for the characterization and remediation from ground gas in affected developments'

These documents improve upon the approach used in previous CIRIA and Wilson /Card Papers, by placing emphasis on gas flow rates, but still retain some reliance on the gas concentrations themselves.

CIRIA C665 Situation A Ground Gas Conceptual Model

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The risk table contained in C665 is basically a modified risk assessment from CIRIA 152 1995, by which a conceptual model and semi-quantitative risk assessment can be made.

High Rise / Flats (CIRIA 665 Table 8.5)

Characteristic Situation (CIRIA Report 149)	Risk Classification	Gas Screening Value (CH4 or CO2) (l/hr) [1]	Additional factors	Typical source of generation
1	Very low risk	**<0.07**	Typically methane ≤1%v/v and/or carbon dioxide ≤5%v/v. Otherwise consider increase to Situation 2	Natural soils with low Organic content. "Typical" Made Ground
2	Low risk	**<0.7**	Borehole flow rate not to exceed 70l/hr. Otherwise consider increase to Situation 3	Natural soil, high peat/organic content. "Typical" Made Ground
3	Moderate risk	**<3.5**		Old landfill, inert waste, mineworking flooded
4	Moderate to high risk	**<15**	Quantitative risk assessment required to evaluate scope of protective measures	Mineworking susceptible to flooding, completed landfill (WMP 26B criteria)
5	High risk	**<70**		Mineworking unflooded inactive with shallow workings near surface
6	Very high risk	**>70**		Recent landfill site

Notes:
1. Gas screening value: litres of gas/hour is calculated by multiplying the gas concentration (%) by the measured borehole flow rate (l/hr);
2. Site characterisation should be based on gas monitoring of concentrations and borehole flow rates for the minimum periods as defined within within CIRIA Report 665;
3. Source of gas and generation potential/performance must be identified;
4. Soil gas investigation to be in accordance with guidance contained within CIRIA Report 665;
5. If there is no detectable flow, use the limit of detection of the instrument;
6. The boundaries between the Partners in Technology classifications do not fit exactly with the boundaries for the above classification.

Typical scope of protective measures (extract from CIRIA Report 665 Table 8.6)

Characteristic Situation (from Table 8.5)	Number of levels of protection	Typical scope of protective measures for residential building (not low-rise traditional housing)[1]

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1	None	No special precautions
2	2	a) Reinforced concrete cast in situ floor slab (suspended, non-suspended or raft) with at least 1200g DPM and under-floor venting b) Beam and block or pre-cast concrete and 2000 g DPM/reinforced gas membrane and under-floor venting. All joints and penetrations sealed.
3	2	All types of floor slab as above. All joints and penetrations sealed. Proprietary gas resistant membrane and passively ventilated or positively pressurised under-floor sub-space.
4	3	All types of floor slab as above. All joints and penetrations sealed. Proprietary gas resistant membrane and passively ventilated under-floor subspace or positively pressurised under-floor sub-space, over-site capping or blinding and in ground venting layer
5	4	Reinforced concrete cast in situ floor slab (suspended, non-suspended or raft). All joints and penetrations sealed. Proprietary gas resistant membrane and ventilated or positively pressurised under-floor sub-space, over-site capping and in ground venting layer and in ground venting wells or barriers.
6	5	Not suitable unless gas regime is reduced first and quantitative risk assessment carried out to assess design of protection measures in conjunction with foundation design.

Notes:

1. Not suitable for use with low rise traditional housing. (Use the NHBC document instead);
2. Typical scope of protective measures may be rationalised for specific developments on the basis of quantitative risk assessments;
3. Note the type of protection is given for illustration purposes only. Information on the detailing and construction of passive protection measures is given in BR414 (Johnson, 2001). Individual site specific designs should provide the same number of separate protective methods for any given characteristic situation. See CIRIA Report 49;
4. In all cases there should be minimum penetration of ground slabs by services and minimum number of confined spaces such as cupboards above the ground slab. Any confined spaces should be ventilated;
5. Foundation design must minimise differential settlement particularly between structural elements and ground-bearing slabs;
6. Commercial buildings with basement car parks, provided with ventilation in accordance with the Building Regulations, may not require gas protection for Characteristic Situations 3 and 4;
7. Floor slabs should provide an acceptable formation on which to lay the gas membrane. If a block beam floor is used it should be well detailed so it has no voids in it that membranes have to span, and all holes for service penetrations should be filled. The minimum density of the blocks should be 600kg/m3 and the top surface should have a 4:1 ratio sand to cement grout brushed into all joints before placing any membrane (this is also good practice to stabilise the floor and should be carried out regardless of the need for ground gas membranes);
8. The ground gas-resistant membrane can also act as the damp-proof membrane;
9. Based on Building Regulations Approved Document C (Office of the Deputy Prime Minister, 2004a),which states that "a membrane below the concrete could be formed with a sheet of polyethylene, which should be at least 300mu thick (1200 gauge)". Please note the alteration from 300mm (as stated in the Approved Document C) to 300mu, as 300mm is a typographical error that has been recognised and corrected for within this report and CIRIA Report 665.

Low Rise Residential (NHBC)

Table 14.1: Gas Risk Assessment - Traffic Lights with Typical Maximum Concentrations and Gas Screening Values

	Methane [1]		**Carbon Dioxide** [1]	
Classification	**Typical Maximum Concentration** [3]	**Gas Screening Value** [2,4] (l/hr)	**Typical Maximum Concentration** [3] (%v/v)	**Gas Screening Value** [2,4] (l/hr)

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	(%v/v)			
Green				
	1	**0.13**	5	**0.78**
Amber 1				
	5	**0.63**	10	**1.60**
Amber 2				
	20	**1.60**	30	**3.10**
Red				

Notes:

1. The worst-case ground gas regime identified on the site, either methane or carbon dioxide, at the worst case temporal conditions that the site may be expected to encounter will be the decider as to what Traffic Light is allocated;
2. Borehole Gas Volume Flow Rate, in litres per hour as defined in Wilson and Card (1999), is the borehole flow rate multiplied by the concentration in the air stream of the particular gas being considered;
3. The Typical Maximum Concentrations can be exceeded in certain circumstances should the Conceptual Site Model indicate it is safe to do so;
4. The Gas Screening Value thresholds should not generally be exceeded without the completion of a detailed ground gas risk assessment taking into account site-specific conditions.

Table 14.2: Ground Gas Protection Measures Required for the Traffic Lights

Traffic Light	Ground Gas Protection Measures Required
Green	Ground gas protection measures are not required. (note based on standard NHBC house detail with 150mm void space under suspended floor)
Amber 1	Low-level ground gas protection measures are required, using a membrane and ventilated sub-floor void that creates a permeability contrast to limit the ingress of gas into buildings. Gas protection measures are to be installed as prescribed in BRE 414. Ventilation of the sub-floor void should be designed to provide a minimum of one complete volume change per 24 hours.
Amber 2	High-level ground gas protection measures are required, creating a permeability contrast to prevent ingress of gas into buildings. Gas protection measures are to be installed as prescribed in BRE 414. **Membranes used should always be fitted by a specialist contractor and should be fully certified (see Appendix G).** As with Amber 1, ventilation of the sub-floor void should be designed to provide a minimum of one complete volume change per 24 hours.
Red	Standard residential housing is not normally acceptable without further Ground Gas Risk Assessment and/or possible remedial mitigation measures to reduce/remove the source of the ground gases. In certain circumstances, active protection methods could be applied, but only when there is a legal agreement assuring the management and maintenance of the system for the life of the property.

BS8485: 2007

Table 2: Required Gas Protection By Characteristic Gas Situation & Type Of Building

Characteristic gas situation, CS	NHBC traffic light	Required gas protection			
		Non-managed property, e.g.	Public building [A]	Commercial buildings	Industrial buildings [B]

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		private housing			
1 2 3	Green Amber 1 Amber 2	0 3 4	0 3 3	0 2 2	0 1 C) 2
4 5 6	Red	6 D)	5 D) 6 E)	4 5 7	3 4 6

NOTE Traffic light indications are taken from NHBC Report no.: 10627-R01 (04) [3] and are mainly applicable to low-rise residential housing. These are for comparative purposes but the boundaries between the traffic light indications and CS values do not coincide.

A) Public buildings include, for example, managed apartments, schools and hospitals.
B) Industrial buildings are generally open and well ventilated. However, areas such as office pods might require a separate assessment and may be classified as commercial buildings and require a different scope of gas protection to the main building.
C) Maximum methane concentration 20% otherwise consider an increase to CS3.
D) Residential building on higher traffic light/CS sites is not recommended unless the type of construction or site circumstances allow additional levels of protection to be incorporated, e.g. high-performance ventilation or pathway intervention measures, and an associated sustainable system of management of maintenance of the gas control system, e.g. in institutional and/or fully serviced contractual situations.
E) Consideration of issues such as ease of evacuation and how false alarms will be handled are needed when completing the design specification of any protection scheme.

Table 3: Solutions Scores

PROTECTION ELEMENT/SYSTEM		SCORE	COMMENTS
a) Venting/dilution (See Annex A)			
Passive sub floor ventilation (venting layer can be a clear void or formed using gravel, geocomposites, polystyrene void formers, etc.) A)	Very good performance	2.5	Ventilation performance in accordance with Annex A. If passive ventilation is poor this is generally unacceptable, and some form of active system will be required.
	Good performance	1	
Subfloor ventilation with active abstraction/pressurization (venting layer can be a clear void or formed using gravel, geocomposites, polystyrene void formers, etc.) A)		2.5	There have to be robust management systems in place to ensure the continued maintenance of any ventilation system. Active ventilation can always be designed to meet good performance. Mechanically assisted systems come in two main forms: extraction and positive pressurization.
Ventilated car park (basement or undercroft)		4	Assumes car park is vented to deal with car exhaust fumes, designed to Building Regulations Document F [5] and IStructE guidance [6].
b) Barriers			
Floor slabs			It is good practice to install ventilation in all foundation systems to effect pressure relief as a minimum.
Block and beam floor slab		0	
Reinforced concrete ground bearing floor slab		0.5	

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Reinforced concrete ground bearing foundation raft with limited service penetrations that are cast into slab		1.5	Breaches in floor slabs such as joints have to be effectively sealed against gas ingress in order to maintain these performances.
Reinforced concrete cast in situ suspended slab with minimal service penetrations and water bars around all slab penetrations and at joints		1.5	
Fully tanked basement		2	
c) Membranes			
Taped and sealed membrane to reasonable levels of workmanship/in line with current good practice with validation B), C)		0.5	The performance of membranes is heavily dependent on the quality and design of the installation, resistance to damage after installation, and the integrity of joints
Proprietary gas resistant membrane to reasonable levels of workmanship/in line with current good practice under independent inspection (CQA) B), C)		1	
Proprietary gas resistant membrane installed to reasonable levels of workmanship/in line with current good practice under CQA with integrity testing and independent validation		2	
d) Monitoring and detection (not applicable to non-managed property, or in isolation)			
Intermittent monitoring using hand held equipment		0.5	
Permanent monitoring and alarm system A)	Installed in the underfloor venting/ dilution system	2	Where fitted, permanent monitoring systems ought to be installed in the underfloor venting/dilution system in the first instance but can also be provided within the occupied space as a fail safe
	Installed in the building	1	
e) Pathway Intervention			
Pathway intervention		-	This can consist of site protection measures for off-site or on-site sources (see Annex A).

NOTE In practice the choice of materials might well rely on factors such as construction method and the risk of damage after installation. It is important to ensure that the chosen combination gives an appropriate level of protection

A) It is possible to test ventilation systems by installing monitoring probes for post installation validation.

B) If a 1 200 g DPM material is to function as a gas barrier it should be installed according to BRE 212 [8]/BRE 414 [9], being taped and sealed to all penetrations.

C) Polymeric Materials >1 200 g can be used to improve confidence in the barrier. Remember that their gas resistance is robust and resistant to site damage.

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APPENDIX I

i) Off-site Disposal off Surplus Soil Guidance Notes

The disposal of waste (including surplus soils and contaminated soils) to landfill sites is governed by the *Landfill (England & Wales) Regulations 2002*, the *Hazardous Waste Technical Guidance document WM2 (2003)* and associated legislation.

One of the aims of the above legislation is to encourage waste producers (including developers disposing of surplus soils etc) to reduce their waste (and not just discard and disown it). This can be achieved by recycling or reusing the waste. In the case of contaminated sites where leaving contaminated material in-situ poses a risk to a potential receptor such as groundwater resources, further testing and assessment for such risk could reduce the quantities requiring disposal. If there is still unacceptable risk from contaminated soil being left in place, then it may be possible to reduce the risk to an acceptable level (such that the material can be left in place) by in-situ or ex-situ clean-up of the soils.

Before waste can be disposed of, the producer of the waste must undertake a number of steps. '*Initial Waste Testing and Characterisation'* is firstly undertaken to determine whether the waste is non-hazardous or hazardous. The exceptions are that some wastes such as coal tars, 'tank bottom sludge's', etc are immediately classed as hazardous, regardless of any testing or threshold concentrations.

Any inert or hazardous waste destined for landfill must undergo '*Compliance Testing'* using the Waste Acceptance Criteria (WAC). There are different inert and hazardous WAC limits relating to landfill sites that are correspondingly licensed to accept inert or hazardous waste.

If the '*Initial Waste Testing and Characterisation'* shows a waste to be hazardous, then it is a requirement that the material be tested against the WAC-hazardous suite of tests. If it *passes* the WAC-hazardous testing, then it can be taken to a hazardous waste landfill site. If the material *fails* the WAC-hazardous testing, then the material must be treated before undergoing re-characterisation, further WAC-hazardous testing and then potential disposal at a hazardous waste disposal site.

If the '*Initial Waste Testing and Characterisation'* shows a waste to be non-hazardous, then it can be taken to a non-hazardous waste landfill site, without further testing. The producer may however decide to undertake WAC-inert testing, in an attempt to reclassify the waste as inert, in which case the waste could then go to an inert landfill site.

The volumes of soils associated with potential hotspots on a site (be they hazardous or non-hazardous) which might require off-site disposal, could potentially be reduced by further on-site sampling and subsequent testing.

With regard to the *Compliance Testing*, it should be noted that some landfill sites are permitted to increase the standard WAC-hazardous/inert limit concentrations, such that they might accept waste that would normally fail such limits.

We would recommend that the contamination testing results (including the history of the site) be presented to the proposed landfills, to determine if they will accept waste generated at the site and what classification they would impose.

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APPENDIX J

i) Validation Report Guidance Notes

Unforeseen Hotspots of Contamination

Given the existence of made ground on the site it would be prudent to maintain vigilance during site clearance and construction, in case any further areas of suspected contamination are encountered.

If areas are found then a suitably qualified person should undertake appropriate sampling, testing and further risk assessment.

Any hotspots encountered during site clearance, not previously encountered in the ground investigation, are to be removed to a suitably licensed landfill site.

A validation report (see below) will be produced on completion of these works. This report will serve to confirm that the works were undertaken in accordance with the relevant legislation, the method statement, specification and planning conditions.

Validation Report Recommendations

It is suggested that the following records will be kept on site to provide a basis for the validation report:

- Daily record sheets of the remediation works to include a summary of the day's activities
- Weather conditions
- Plant, personnel and visitors to the remediation site
- Aspects relating to Health & Safety, environmental control or non-compliance with the specification or the Method Statements.
- All in situ and laboratory testing results.

All requirements of the remediation specification should be complied with; on completion of the remediation a validation report should be provided. This report will comprise the relevant site records and act as certification that the remedial and ground preparation works have been carried out in accordance with the specification.

The validation report will include the following:

- A description of the works undertaken.
- Records of any remediation works, including daily diary sheets.
- Progress photographs.
- Any chemical and geotechnical validation test results.
- As built surveys, including base excavations and top and bottom of capping layer.
- A statement that the works have been undertaken in accordance with the agreed specification

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APPENDIX K

i) Notes on Limitations

This report does not consider ecological impacts (e.g. bats) or botanical risks (e.g. Japanese knotweed). It is recommended that these are considered as part of the assessment of development constraints for the site.

The assessment and judgements given in this report are directed by both the finite data on which they are based and the proposed works to which they are addressed. The data essentially comprised a study of available documented information from various sources (including Client Furnished reports) together with discussions with relevant authorities and other interested parties. There may also be circumstances at the site that are not documented. The information reviewed is not exhaustive and has been accepted in good faith as providing representative and true data pertaining to site conditions. If additional information becomes available which might impact our environmental conclusions, we request the opportunity to review the information, reassess the potential concerns and modify our opinion if warranted.

It should be noted that any risks identified in this report are perceived risks based on the available information. Actual risks can only be assessed following a physical investigation of the site.

The site investigation has been carried out to provide information concerning the type and degree of contamination, and ground and groundwater conditions to allow a reasonable risk assessment to be made. Betts Geo Environmental Ltd undertake to exercise all reasonable skill, care and due diligence in the exercise of the investigation with respect to sampling techniques, sample storage and report interpretation.

The assessments and judgement given in this report are directed by both the finite data on which they are based and the proposed works to which they are addressed. Data acquisition is subject to the limitations of the methods of investigation used. Exploratory holes undertaken during fieldwork investigate small a small volume of ground in relation to the size of the site and as such can only provide an indication of site conditions. There may be conditions pertaining to the site and the proposed development i.e. localised “hotspots” of contamination, which have not been disclosed by the investigations.

The findings and opinions are relevant to the dates of our site works and should not be relied upon to represent conditions at substantially later dates. Conditions at the site will change over time due to natural variations and anthropogenic activities. Groundwater, surface water and soil gas conditions should be anticipated to change with diurnal, seasonal and meteorological variations.

The opinions expressed in this report regarding any contamination are based on simple statistical analysis and comparison with available guidance values. No liability can be accepted for the retrospective effects of any changes or amendments to these values.

This report was prepared by Betts Geo Environmental Ltd for the sole and exclusive use of Lovell Partnership. In response to particular instructions, any other parties using the information contained in this report do so at their own risk and any duty of care to those parties is excluded.

This document has been prepared for the titled project only and should any third party wish to use or rely

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upon the contents of the report, written approval from Betts Geo Environmental Ltd must be sought.

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