OVG Manchester:

Appendix 7.1 – Geo-Environmental and Geo-Technical Desk Study

BUROHAPPOLD ENGINEERING

OVG Manchester Limited

Geoenvironmental and Geotechnical Desk Study

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00	Desk Study	FG / AS	July 2019	RF / BSJ
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Executive Summary

Objectives

The purpose of this Desk Study is to establish the environmental, geological, hydrological and hydrogeological conditions present at the site that may result in potential contamination risks / ground related risks for existing and/or potential future uses. The overall aims of this report were (i) to inform the Client's understanding of potential ground-related risks associated with the proposed redevelopment and (ii) to provide evidence necessary to support the planning application.

Site Setting

The site centred at National Grid Reference 386841, 398878, located off Sportcity Way, Manchester. It covers some 4.46ha and is generally a flat, with a shallow downward gradient from the south to north. Recently the site has occasionally been used for car parking. Other than a few piles of 'dumped' material it is an open site with little vegetation. The Ashton Canal and footpath form the southern boundary, Alan Turing Way the eastern, Joe Mercer Way the western and Sportcity Way the northern. Beyond these boundaries there are a range of uses, Manchester Etihad Stadium is located to the south, car parking for the stadium is located to the north (beyond Sportcity Way), Philip's Park to the east and the Leisure Centre to the west.

Geological Setting

The site is underlain by a sequence of Made Ground, River Terrace Gravels and Alluvium (in the north west area), Glacial Till and the Coal Measures. Three coal seams extend across the site, these include Bradford ¾ seam, Bradford Four Foot and Charlotte seam. The seams were actively mined as early as 1760s; there are two shafts located within the site boundaries (namely, Shaft B and Shaft C). The River Medlock, once located within the site, is now contained within a culvert north of the site. Historical investigations indicate River Terrace Gravels and Alluvium have eroded away the Glacial Till below the north-western part of the Site leaving a direct pathway to the Coal Measures (Secondary Aquifer).

History

Until the mid-1800s, the site was occupied by agricultural land with the River Medlock meandering through the northwest. The Ashton canal and lock formed the southern boundary and Mill Lane the east. Victoria Gardens were located to the north and in part occupied some of the site. By 1848, the River Medlock had been straightened and diverted further north. Industrial works occupied land south of the canal during the early 1890s and residential development occupied the eastern part of the site. During the early 1900s the River Medlock was diverted into a culvert and Forge Lane was constructed running centrally through the site. The largest change at this time was the development of Bradford Road Gas Works, which included tanks, gas holders, tramways and large buildings (some within the site boundary). By the early 1930s, there was further development to the gas works and more development to the industrial works south, beyond the canal. There were no further significant changes to the site and its surroundings until late 1970s whereby most of these works were cleared including buildings associated with the gas works. Between the late 1980s and late 1990s there were changes to the land use in the eastern part of the site and by 1995 Mill Lane became known as Alan Turing Way. By 2002, construction of the Etihad Stadium to the south was underway and road layouts in the surrounding area developed. In 2009, a BMX track occupied the western part of the site, but this was removed in 2010.

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Geotechnical Considerations

Due to the size and type of structure it is anticipated that piled foundations will be required. Retaining walls will be required around the boundary of the structure. Due to possible obstructions in the made ground it is likely these will be contiguous piled walls, considering groundwater will not be an issue.

The following geotechnical risks have been identified:

- The Coal Measures and number of seams on the site are likely to present a constraint to the foundation design. At this stage it is assumed that pile capacity will be based on shaft friction alone and should found either a minimum of ten times seam thickness above any coal seam or penetrate through the seam to form a rock socket beneath the base.
- Should any easement zones be present around existing services, the foundation layout will need to be designed to accommodate these.
- The variation in ground across the site (significant Made Ground and local Alluvium and River Terrace Gravels) may lead to differential settlement issues.
- The thick layer of Made Ground (>10m) presents an onerous design case for retaining wall design.
- Buried obstructions identified in previous ground investigations may impact the type of pile being installed and impact the programme.
- Limited groundwater data is available and so further monitoring is required to derive a design groundwater level.
- The Ashton canal is in close proximity to the proposed development and the works must be designed accordingly so as not to impact it.

Geoenvironmental Considerations

A number of potential sources of contamination in near surface ground have been identified with the potential for exposure to people, controlled waters (River Medlock, Secondary Aquifer, and Ashton Canal), and below ground infrastructure. Large volumes of Made Ground are present below the site as a result of historical industrial site uses and various enabling works activities in more recent history.

High to Moderate / Low risks were assessed to people (construction workers, neighbours and future site users), controlled waters and below ground infrastructure associated with this potential contamination. Appropriate ground investigation, design and implementation of remediation and adoption of standard construction good practice will achieve mitigation of these potential risks.

The potential risks associated with the possible presence of Unexploded Ordnance (UXO) were assessed as Moderate, therefore a detailed UXO risk assessment is required.

Conclusions and Recommendations

A site investigation is recommended to further determine the nature and extent of any contamination of near surface soils and groundwater. It is also required to determine the geotechnical properties of the ground and the presence of coal seams/mine workings. The investigation should combine geotechnical and geoenvironmental objectives. The results of the site investigation will inform the foundation design and the remediation strategy required to mitigate potentially unacceptable risks associated with the potential redevelopment.

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1 Introduction

1.1 General

This report presents the results of a Geoenvironmental and Geotechnical Desk Study for the OVG Manchester Limited site prepared by BuroHappold on behalf of OVG Manchester Limited. The purpose of this study is to establish the environmental, geological, hydrological and hydrogeological conditions present at the site that may result in potential contamination and/or geotechnical design risks for the proposed future use.

This report was updated in December 2019 to account for an updated red line boundary, including extensions both north and south of the previous red line boundary to account for vehicle access in and out of the Site.

OVG Manchester Limited forms part of the larger Eastlands Regeneration Framework Area. The site is located within Manchester City Council's (MCC) remit and is currently a vacant site occasionally used for car parking.

The outline of the site is shown below in Figure 1-1 and Figure 1-2.

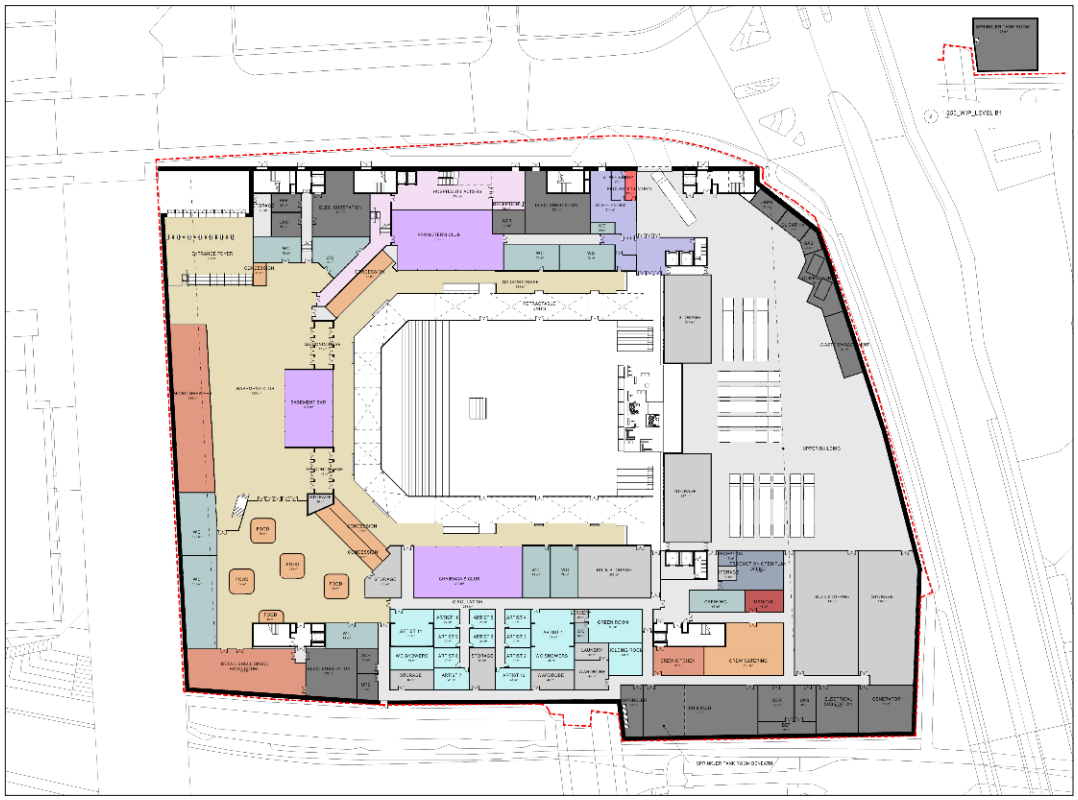

Figure 1-1 Site layout with red line boundary

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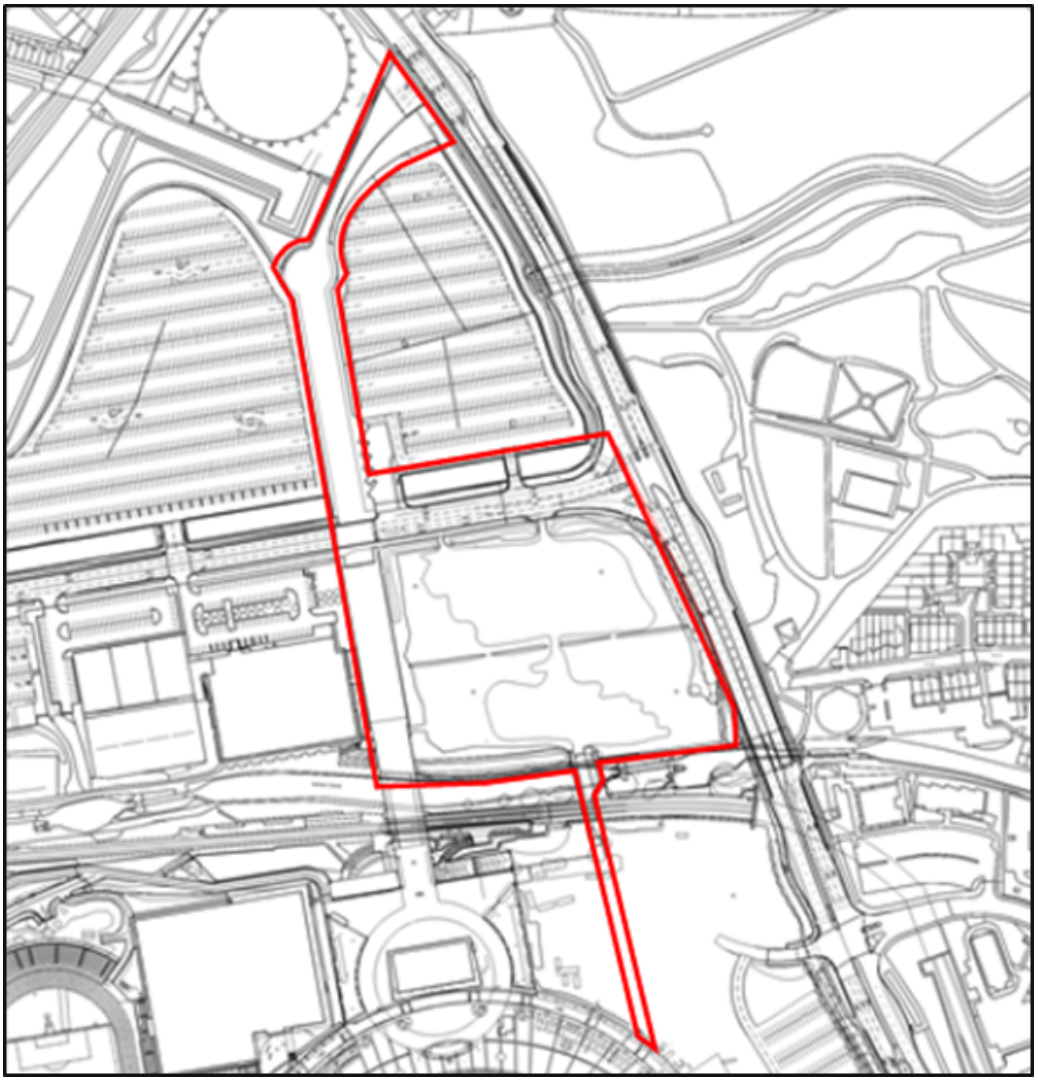

Figure 1-2 Updated red line boundary (December 2019)

1.2 Study Aims and Objectives

The overall aim of this study was to carry out a geoenvironmental and geotechnical assessment of the site to inform the client's understanding of potential ground-related risks associated with the proposed redevelopment.

This report will provide information relevant to redevelopment in accordance with the requirements of the National Planning Policy Framework (NPPF) [1]. The work was carried out in general accordance with the Model Procedures [2], the relevant British Standard [3], the Environment Agency Guiding Principles [4] and other current good practice guidance. The objectives were:

- To determine the historical and current use of the site and its surroundings;
- To determine the nature of the ground conditions and the environmental sensitivity of the site;
- To assess the potential location, nature and extent of any ground and groundwater contamination;

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- To identify any geotechnical potential constraints;
- To assess the potential risks to people and the environment (natural and built) associated with ground contamination (solid, liquid or gas) both in the site's existing condition and for the proposed future use;
- To construct an initial Conceptual Site Model and carry out a preliminary contaminated land risk assessment, in general accordance with the EA/DEFRA Model Procedures [2];
- To prepare a report based upon all the above suitable to inform the client about potential risks related to ground conditions and also suitable to support a planning application in accordance with NPPF [1] and to provide baseline information suitable to enable Environmental Impact Assessment; and
- To evaluate the potential need for and scope of any subsequent site investigations and/or remedial action or design.

1.3 Information Sources

The principal sources of information for this desk study report include: historical and current topographic maps, public register information (**Appendix E**); existing site investigation information and information available from the Environment Agency website and other online sources. This report is therefore based upon information obtained from third party sources, together with observations from the site walkover survey. The third party data has been accepted as face value and has not been independently verified. BuroHappold can therefore give no warranty, representation or assurance as to the accuracy or completeness of such information.

1.4 Competence

This work reported here was carried out by geoenvironmental scientists and geotechnical engineers from BuroHappold. BuroHappold is a consulting engineering company that manages its work under various Quality Management Systems that are certified to ISO 9001. The work itself was carried out by the staff with relevant qualifications, training and experience. This overall technical responsibility for the geoenvironmental work was held by a Technical Director with substantial experience in the assessment of land affected by contamination who is a Chartered Geologist and registered SiLC (Specialist is Land Contamination) and SQP (Suitably Qualified Person). A geotechnical review has been undertaken by a suitably qualified and experienced engineer who is chartered with either the Geological Society or the Institution of Civil Engineers.

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2 Current land use and proposed development

2.1 Site Location and Topography

The site is centred at National Grid Reference 386841, 398878, located off Sportcity Way, Manchester M11 3DU. It is at approximately +60.6mOD and falls north to +56.8mOD. The site is 4.36ha and is bounded to the north by Sportcity Way, east by Alan Turing Way and Philips Park, west by access ramp and bridge across to Etihad Stadium, and south by Ashton Canal, tram line followed by the Etihad Stadium.

2.2 Current Activities on Site

BuroHappold visited the site on the 6th June 2019. Access onto the site can be reached from the south via Ashton Canal and from the north via two gated entrances. The site is a vacant open area that is occasionally used for car parking. The ground surface is typically flat with a shallow downward gradient from the southern boundary to 2/3 across the site (northwards), then a more significant drop to Sportcity Way at the northern boundary. The surface is predominantly compact granular fill, comprising crush with visible fragments of brick, concrete and other gravels. Some areas (central) contain fine sand-like cover. Where makeshift drains have been constructed, coarser gravel is present, in part (western boundary) this comprises full bricks.

Figure 2-1 Approximate topography across site

The centre of the site does not contain any significant vegetation. Toward the site boundaries there is a thin layer of grass. Immature silver birch trees can be found along the south boundary, semi-mature trees and shrubs along the eastern and northern boundary, and a mixture of both along the western boundary. No invasive vegetation species were observed.

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Figure 2-2 View looking south. Note compact granular surface

Figure 2-3 View looking east. Note semi-mature trees and shrubs along boundaries.

Occasional areas contain 'dumped' material namely, wooden panels, a small square of tarmac, gravel and sand (50-100kgs), and some pedestrian fencing. Manhole rings are also present; it is likely these have been left from managing the car parking.

Figure 2-4 'Dumped' material.

Figure 2-5 View looking north. Note vegetation growing from concrete manhole ring.

Drainage trenches were located within the site parameters including a 30-60cm trench along the northern and north-western boundaries. There is also a brick / coarse gravel filled ditch running across the centre of the site from east to west. These features are shown by a dashed red line within Figure 2-1 above. Multiple manholes and inspection covers were identified across the site, generally running north/south (these are detailed on the topographical surveys presented within Appendix A). It should be noted that not all covers identified on service plans were found during the site walkover. Surface water pooling was observed on site, although the weather was dry at the time of visiting, the days leading up to 6th June saw approximately 11mm of rain.

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2.3 Current Activities in the Surrounding Area

The surrounding area comprises commercial, residential and retail uses.

North: The northern boundary is confined by Sportcity Way, which includes the two access gates to the site. Beyond the road is a densely vegetated verge with a steep upward gradient (approximately 1m), followed by a tarmac carpark and gas holder. The gradient of the carpark from east to west ranges from +55.0mOD to +58.0mOD respectively. The most northerly point recorded on the topographical survey (Appendix A) is the grass verge between the car park and the gas holder, the level has been recorded as +56.1mOD.

East: Alan Turing Way forms the eastern boundary with Philips Park and residential housing beyond. Alan Turing Way sits at approximately +63.3mOD to the southeast of the site and falls to approximately +56.3mOD to the north.

South: Ashton Canal is located adjacent to the southern boundary. The eastern part of this canal is at a similar height to the site, at approximately +60.4mAOD. The canal and ground level then drops to the west beyond a lock to approximately +56.7mAOD. The level of the site to the west is around +59.0mAOD, over 2m difference in height. Beyond the canal is a tramline then the Etihad Stadium.

West: An elevated walkway that bridges over the canal up to the Etihad Stadium forms the western boundary. Beyond this walkway is Manchester Tennis and Football Centre. Approximately 400m west, beyond the railway and New Viaduct Street, is another gas holder.

2.4 Proposed Development

At present, the proposals for development are indicative only and being at an early stage will naturally develop further during the design process.

The proposed redevelopment is a large scale arena structure with associated service yards. As proposed the footprint of the arena will take up the majority of the site. The current scheme requires significant earthworks operations to level the site and retaining solutions will be required around the perimeter.

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3 Environmental Setting

3.1 Geology

The 1:50 000 geological map Sheet 85 [5] and 1:10 000 geological map Sheet SJ89NE [6] together with BGS borehole records (Appendix B) indicate the geology to be the Pennine Upper Coal Measures of the Upper Carboniferous, overlain by Quaternary deposits. The map shows the site to be underlain by the following:

- Made Ground
- Alluvium and River Terrace Deposits (north-western area) – Soft grey clay and unconsolidated orange-brown clayey sands and gravels.
- Glacial Till – Firm becoming very stiff reddish-brown clay and silty clay with gravels and pebbles.
- Pennine Upper and Middle Coal Measures – Mudstones, siltstones and sandstones with beds of coal, fireclay and ironstone within the upper parts.

The maps indicate four coal seam horizons to sub-crop across the site. These include the Bradford Four Foot, Bradford Three Quarters and Charlotte Mine. A further 2 seams, the Yard Mine (NE) and the 18 Inch seam sub-crop to the north east, up dip of the site, and these seams are anticipated to be present beneath the site due to the dip orientation of the seam (all seams generally dip south-west). The maps indicate that the strata dips between 20° (inclined strata measured underground) and 25° (inclined strata) SW.

This has been further defined using historic ground investigations as presented in Section 5 and 6.

3.2 Hydrogeology

The superficial deposits have been classified as a Secondary (undifferentiated) Aquifer. Secondary (undifferentiated) Aquifer is assigned where it is not possible to assign either Secondary A or Secondary B Aquifer status . In general, these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the soil. In this instance reflective of the variable nature of the Glacial Till.

The Coal Measures are classified as Secondary (A) Aquifer, defined as 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.

There are five active groundwater abstractions located within 1km of the site. However, the site is not within a groundwater source protection zone. The abstractions are relating to the following:

- Borehole at Norton Street, Miles Platting, Manchester (611m north)
- Two boreholes at Openshaw, West Ashton, Manchester (971m south-east)
- Two boreholes at Premises at Croft Street, Clayton, Manchester (982m east)

3.3 Hydrology and Drainage

The Ashton Canal is located along the southern boundary of the site (8m south). The canal climbs for 10.8km through 18 locks toward Ashton-under-Lyne. Lock No.9 is located adjacent to the site resulting in approximately 3.5m ground level change. According to the topographical survey (Appendix A) the east side of Lock No. 9 (SE of the site) is at approximately +60.4mOD and west of the lock (SW of the site) the ground drops to +56.7mOD. a steep embankment up to the site is present on the west side with the site at approximately +59.0mOD.

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The River Medlock is located 24m to the north-west of the site and flows south and west toward the River Irwell in Manchester city centre. The course of the River Medlock meandered through the north-western part of the site during the late 1840s (Figure 3-1). By the early 1890s it had been diverted away from the main site area, and re-aligned(Figure 3-2). By 1905, the River was contained within a 600m-long culvert below the former Bradford Road Gas Works, north of the main site area (Figure 3-3).

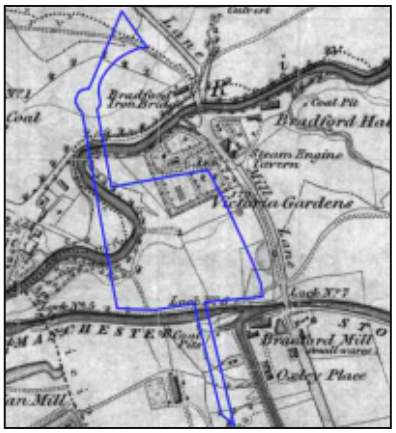

Figure 3-1 Historical map 1848 (Groundsure)

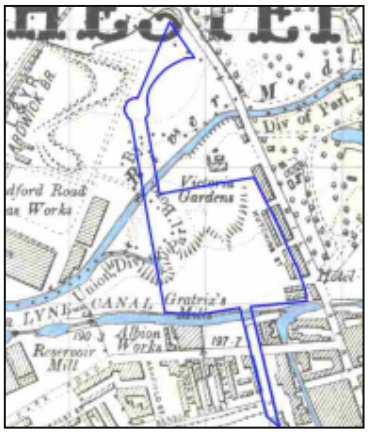

Figure 3-2 Historical map 1890-1891 (Groundsure)

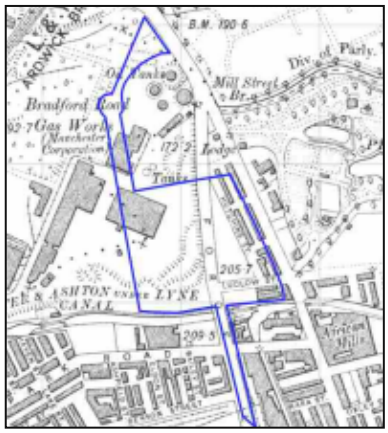

Figure 3-3 Historical map 1905 (Groundsure)

3.4 Flood Risk

The site is not located within a floodplain, with the nearest floodplain >200m north-east (Flood Zones 2 and 3). The superficial deposits have been highlighted as susceptible to groundwater flooding and the British Geological Survey has classified the site as "High" relating to flooding confidence.

As part of planning requirements, a detailed Flood Risk Assessment (FRA) has been carried out. Full and appropriate reference should be made to that report.

3.5 Natural Hazards

Regulatory data relating to ground stability for the site is summarised in Table 3-1 below with the full information presented in full in Appendix E.

Table 3-1 Potential natural hazards based on BGS Geosure data

Potential Hazard	Hazard Rating
Shrink swell	Very Low
Landslide	Very Low
Soluble Rocks	Negligible
Compressible Ground	Moderate
Collapsible Rocks	Very Low
Running Sand	Very Low

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3.6 Radon

The Indicative Atlas of Radon for England and Wales [7] and the Groundsure report indicates that the site is not a Radon Affected Area, as less than 1% of properties are above the Action Level. Therefore, no radon protective measures are necessary.

3.7 Mining

3.7.1 Coal Seams

The site is located within an area previously worked for coal. According to the geological maps, there are four coal seams sub-cropping on the site. Previous investigations suggest approximately eight seams have the potential to lie beneath the site. The main worked seams (and most heavily investigated and reported) comprise, Bradford Four Foot, Bradford Three Quarters, and Charlotte Mine. Other seams that have been recorded within previous investigations and reports include: 18 Inch (located north-east and reported within the 1986 investigation by Northwest Holst Soil Engineering [8] and 2008 Arup Constraints Report [9]) and, three "thin seams" labelled as A, B and C (located between the Charlotte Mine seam and Bradford Three Quarter seam). The 2008 Arup Constraints Report [9] also refers to the Fireclay Horizon (worked seatearth mudstone), located between the 18 Inch seam and the Bradford Four Foot. Additional seams were located on numerous plans, but these have previously not been found to extend beneath the site, they include the Openshaw Mine, Yard Mine and Smut seam.

Further coal seams are present at depth (>900m deep), these include the Roger seam and the Crombouke seam. These were worked in association with Bradford Colliery. Due to the distance below ground, these seams are not discussed further in this Desk Study Report but shall be considered within a Coal Mining Risk Assessment of the site.

The coal seam treatment works based on historical review of the available information is presented below in Table 3-2.

Table 3-2 Summary of coal seam treatment works

Coal Seam	2004 (Phase 3 Enabling Works)	BWB 2011
Bradford Four Foot and Bradford Three Quarters	Treatment undertaken on a 6m grid. Holes sunk using rotary percussive method to depths of up to 30m. Bradford Four Foot: Located between 16 and 25m, dipped SW. Intact 1.1m thick. Bradford Three Quarters: Located between 14.5 and 25.5m, dipped SW. Recorded as 0.7m thick. No loose or voided ground associated with historic shallow	**Validation of historic** Validation of historical works (Validation Area A) included drilling and grouting on a 12m grid with grout take being assessed at completion of each hole. Where grout take was in excess of 5 tonnes / group in a group of four adjacent holes then additional holes were drilled on a reduced grid spacing until grout take on average was less than 1 tonne / hole. Validation area approximately 3100m^2. Involved grouting of 41 holes, where possible, on a 12m grid to depths of between 25m and 30mbgl, in order to identify any possible voids or broken ground beneath the site. Holes were grout injected with 10:1 ratio, PFA to OPC, grout. Holes B5 and C7 took 6 tonnes and 2 tonnes respectively. The combined grout take of these locations exceeded the 5 tonne limit per group of four holes specified. Additional 8 boreholes were drilled and grout injected. Grout takes of between 0.3tonnes and 0.6 tonnes per hole were recorded. Meaning the voided ground has been sufficiently treated. Total volume of grout take from 41 holes: 17.6tonne.

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Coal Seam	2004 (Phase 3 Enabling Works)	BWB 2011
	mine working beneath Hotel footprint (SE). No treatment was undertaken to car park (central area), highway (Forge Lane) or the Budget Hotel (NE).	**New treatment works** Holes pressure grouted. Drilling works ensured a minimum of 10 times seam thickness of competent rock above the worked seam. Treated typically to depth of 30mbgl. Where 10m of competent rock cover was not achieved, treatment depths were was extended. New grouting works were carried out (Treatment Area A and B) on a 6m grid. Pressure grouted with 10:1 ratio PFA to OPC grout, at a pressure of 70PSI. Where grout take exceeded 5 tonnes per hole, spacing was reduced to 3m.
		Treatment Area A Works on voids present on worked Bradford 4' seam located in north eastern part of Area C. Approximate area of 3800m^2 including drilling and grouting of 156 holes on a primary 6m grid to a depth of 25m to 33mbgl. Drilling holes encountered soft / broken ground (predominantly in Bradford 4' seam). However, grout takes were generally not elevated. Only 5 holes had a grout take of >1tonne of grout. Majority of holes had 0.3-0.4 tonnes. Combined grout take for an area where broken ground was recorded (G47 and G45 at 25mbgl) was 29.5 tonnes. These holes are located at the southern edge. Further holes and grouting was injected. This area is now recorded as suitably treated.
		Treatment Area B Approximate area 4500m^2. 194 holes on a 6m grid to a depths of between 30mbgl and 36mbgl. 12 holes on a secondary 3m grid were drilled in areas of high grout take. Five boreholes recorded grout take above 1 tonne. The majority of boreholes were recorded to have grout take of between 0.3tonne and 0.5tonne.

3.7.2 Mine Shafts

Deep mining took place across the site. Three shafts have been located, drilled, grouted and capped following extensive investigations and treatment works since the 1980s. Recent records name these shafts as Shaft A, Shaft B and Shaft C; in other records Shaft A is referred to as Shaft 12 and Shaft B as Shaft 13 (for Coal Mining Authority references see Section 3.7.3 above). Another shaft that could be present within the site bounds is Shaft 11; this shaft has never been located. From the 2008 Arup Constraints Report [9], a comment was made suggesting this shaft is a duplicate of Shaft 13, of which they make this comment based on the 1983 Ward Ashcroft Report however this report has not been provided for review. On the Coal Authority Plans made available there are two shafts shown labelled as Shaft 22 and Shaft 23, these coincide with Shaft B/13 and Shaft C, respectively.

There is also mention of the Little Shaft No. 10, this is an alternative position of Shaft 22 which implies there is a duplicate record, this information is based on a planning document communicated to British Coal Corporation from the Manchester City Council Planning Department (Appendix 5 of the BWB Master Mine Works Validation Report [10]). The evidence behind these comments is not known, and therefore this assumption cannot be relied upon.

Shaft B was grouted from the base of the shaft (33mbgl); this was validated by Buckingham Group Contracting Ltd in 2010. Shaft C was not located during numerous historical investigations, however, Buckingham Group Contracting Ltd located the shaft in 2010 and grouted the shaft to its full depth, 22mbgl, with a plug formed at rock head. Many other shafts exist beyond the site boundary, within the wider Sportcity Manchester development (approximately 32 mine shafts have been registered with the Coal Mining Authority).

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Two shafts are present near the southern boundary of the site to the south of the canal, Shaft H and Shaft I. Shaft H was investigated as part of the Metrolink and Stadium enabling works but was not located. Buckingham Group Contracting Ltd returned in 2010.They carried out a probing exercise in the location of the shaft but could not find any evidence of the shaft. Shaft I was originally partially grouted in 2002 as part of the Metrolink and Stadium works. Buckingham Group Contracting Ltd carried out further grouting to the full depth and capped the shaft in 2010.

The mine shaft treatment works, based on an historical review of the available information, are presented below in Table 3-3.

Further details on the mining activity across the area is described within Section 5. A tabulated summary of references to the mining works within the previous reports is presented in Appendix C.

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Table 3-3 Summary of mine shaft treatment works

Shaft	Coal Authority Reference	Co-ordinates	NHSE – 1986	2002 (Metrolink Advance Works)	2004 (Phase 3 Enabling Works)	BWB 2011	
						Description of works	Approximate Level Drilled at Base of Shaft
A / 12	386398-004	Anticipated co-ordinates: 386744, 398844. Possible position is approximately 10m west of the western site boundary.	Located. 2m diameter. Base proved to 54m. Drilled grouted and capped.	N/A	N/A	A total of 88 holes drilled at 1m centres (in an arc within 15m radius of anticipated location). Bedrock encountered at 12mbgl. Shaft not identified in any holes. Shaft was not found. It was believed to be located below Joe Mercer Way.	N/A
B / 13 / 22	386398-003	Cap location centred at 386818, 398904 Cap extends: NW – 386815.2, 398905.3 NE – 386818.7, 398906.2 SW – 386826.5, 398901.0 SE – 386819.9, 398901.8	Located. 2m diameter. Base proved to 25.5m. Drilled grouted and capped.	N/A	N/A	New grouting work commenced from the base of the shaft, at 33mbgl. A total of 55 tonnes of 10:1 ratio PFA to OPC grout was injected into the shaft up to surface. Grout tubes were pulled back at 2m intervals where backpressure was identified, which is used to indicate when a void had been filled. Majority of grout was taken at or near the base of the shaft. Grout cubes taken to prove a compliance strength of 1.0N/mm2.	25.5mAOD 46.3mAOD to top of cap
C / 23	386398-010	387876.9, 398906.5	Searched and not found	N/A	173 probe holes sunk to depths up to 15m. A square spiral search pattern with probes at 1.1m centres. Shaft not found.	227 holes drilled to bedrock, identified at 11mbgl. Base of shaft located and proved to 22mbgl. Shaft was approximately 1m in diameter. Shaft grouted at a pressure of 70PSI with grout tubes pulled back at 2m intervals where backpressure was identified, which is used to indicate when a void has been filled. A total of 5.5 tonnes of 10:1 ratio PFA to OPC grout was injected into the shaft. Due to 9m of Made Ground being present at this location it was deemed impractical to install a concrete cap within the Glacial Till. A grout plug was installed to mitigate any risk of further subsidence in the area of the shaft. 25 holes at 2m	35.2mAOD

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Shaft	Coal Authority Reference	Co-ordinates	NHSE – 1986	2002 (Metrolink Advance Works)	2004 (Phase 3 Enabling Works)	BWB 2011	
						Description of works	**Approximate Level Drilled at Base of Shaft**
						spacing centred at the shaft were drilled 12m into the bedrock. These were then injected with 5:1 ratio PFA to OPC grout mix. A total of 6 tonnes of grout was used in the grout plug. Grout cubes taken to prove a compliance strength of 1.0N/mm2.	
11 / Little Shaft No. 10	-	Unknown	Believed to be a duplicate of Shaft 13 (B / 22).	N/A	-	No treatment works carried out to date. Appendix 5 of the BWB Master Mine Works Validation report implies that Little Shaft No. 10 is a duplicate of Shaft 13 (B / 22).	
H	386398-013	Unknown	N/A	Not located	N/A	Shaft not located during investigation and earthworks excavation. Probe holes were drilled in the anticipated area of the shaft, however it was not identified. No treatment works carried out to date.	
I	386398-012	386920.7, 398758.7	N/A	Borehole drilled, 75mm diameter casing installed to 40m depth. 20T injected under pressure at 40m depth. Grout injected under pressure and repeated in stages up to 20m depth. Total grout take 31 tonnes.	N/A	Diameter of shaft was approximately 2.5m, base of shaft proven to 54mbgl. Shaft was grouted from the base and took 29.1 tonnes in total	6.8mAOD 58.10mAPD to top of cap

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3.7.3 Coal Mining Authority

Currently, there are no applications to work the coal beneath the site. The BGS 1:10,000 Geology Series Sheet SJ89NE [6] shows a dip of 25° SW of inclined strata along the Bradford Four Foot seam and a dip of 20° SW measured below ground along the Bradford Three Quarters seam. All the seams located within the site are orientated along a NW-SE strike.

The Coal Mining Authority report the site could be affected by underground mining of six seams of coal at 50m to 900m depth, last worked in 1961. The Authority also report that coal is present at or close to the surface. There are three mine entries located on the site known to the Coal Authority. These include:

- 386398-004 (also referred to as Shaft A or Shaft 12). Drilled, grouted and capped in 1986 by Ward Ashcroft and Parkman.
- 386398-003 (also referred to as Shaft B or Shaft 13). Drilled, grouted and capped in 1986 by Ward Ashcroft and Parkman. Further grouted in October 2010 using 55 tonnes of cement based mix. Capping was estimated as being 300mm thick and positioned some 11mbgl.
- 386398-010 (also referred to as Shaft C). Shaft searched for in 1977 but not located. Searched and located in 2010 using a series of probe holes. The shaft was pressure grouted using 5.5 tonnes of pulverised fly ash (PFA) / cement mix grout. A grout plug using a 5:1 mix of PFA / cement was installed above the shaft.

There may be unrecorded mine entries in the local area that do not appear on the Coal Authority records.

3.8 Archaeology

There was no reference to archaeology within the Groundsure report. The Historic England Archive has been checked but no records of historic monuments have been found for the site.

3.9 Unexploded Ordnance

No reference to unexploded ordnance (UXO) was made within any of the reviewed historical information. A Preliminary UXO Risk Assessment has been carried out by BuroHappold in accordance with CIRIA C681 [11] and is included in Appendix C. In addition to the consideration of the potential for aerial delivered UXO, consideration has also been given to mitigation factors, namely: (i) the extent of post-war development; and (ii) the extent of proposed intrusive works. The assessment concluded that the risks associated with UXO are Moderate therefore a detailed UXO risk assessment is required.

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4 Site Setting

4.1 Site History

The Site history and that for the surrounding area has been completed using historic maps from 1848 to 2014. This history is summarised in Table 4-1 below. The maps are presented in Appendix E.

Table 4-1 - Summary of site history and history of the surrounding area

Date	On site History	History of areas surrounding the site
1848 (small scale)	Site predominantly cleared / farmland aside from River Medlock which meanders through the NW. Victoria Gardens occupies some of the northern area of the site.	**North**: Victoria Gardens occupies the land between the site and the River Medlock to the north. Adjacent to the Gardens is Mill Lane which turns into Hulme Hall Lane after the Bradford Iron Bridge. A small culvert exists between the River Medlock and a body of water located next The Grange. Railway line runs East/West around 750m N. Manchester Steel Works, Newton Size Works and Chemical Works are all located over 500m N and NW. **East**: Mill Lane runs North/South adjacent to the site. The Steam Engine Tavern, Bradford Hall and a coal pit are located NE beyond Mill Lane. A tributary to the River Medlock is located east of the Steam Engine Tavern, two small water bodies south of this tributary located around the Parliamentary Boundary (around 500m E) are also present. Beyond 500m is another small culvert (from the tributary) and a Brick Kiln. **South**: Manchester, Stockport and Ashton Canal with locks (No.4-7) and canal arm down to Bradford Colliery [290m S] and coal pits [closest 18m S]. Bradford Mill and Oxley Place are also located off the canal arm. Fustian Mill, a Pottery and a Brick Field and Kiln are located to the SW, beyond the Manchester and Salford Water Works Reservoir. **West**: Small culvert located between River Medlock and the Canal. Medlock Lodge, Gleden Coal Pits are located <500m. At approximately 500m W is a Brick Field. Holt Town Reservoir located >500m W.
1891 (small scale)	River Medlock has been diverted/straightened (N). The previous channel appears to have been infilled within the site boundary. Embankment across the northern section of the site. Some residential development including Hutchins St and Ludlow St (E). Forge lane constructed on site south of the canal.	**North**: Hulme Hall Lane and Mill Lane now entirely Mill St. Bradford Rd Gas Works and a Brick Works developed [approximately 100m W and 300m NW respectively]. Ardwick Junction developed off the Railway leading to a Coal Yard, the Bradford Rd Gas Works, Bradford Iron Works and other industries beyond. Philips Park and Philips Park Cemetery developed. The Grange and associated water bodies no longer present. Some small pools of water present between Philips Park Cemetery and the Railway. Some industrial works 750m beyond the site boundary. **East**: The tributary is no longer present and several ponds are now present in its place (within Philip's Park). Some residential development and a hotel W of Mill Lane, including Stuart St. The Steam Engine Tavern, Bradford Hall and a coal pit are no longer present. Water reservoirs developed >500m W. Philips Park Mill developed. Brick Field off the Canal developed (approximately 500m SE). **South**: Significant changes and development. Manchester and Salford Water Works Reservoir no longer present. Much residential development present along with Reservoir Mill, Albion Works, Gratrix Mill, Bradford Iron Works, rail and tramlines. Bradford Colliery still present. **West**: Bradford Rd Gas Works, including 3 holders beyond the new rail line [approximately 330m W]. A small basin present, located off Ashton Canal into the gas works site. A Sanitary Works and Cotton Works now present. The small culvert, Medlock Lodge and Gleden Coal Pits no longer present. Holt Town Reservoir and Brick Works no longer present.

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Date	On site History	History of areas surrounding the site
1893 (large scale)	No significant changes since 1891.	**North**: No significant changes. **East**: African Mills (Cotton) and Townley Iron Works located E, off Mill St (SE of site). **South**: Park Mills (Cotton) E of canal arm. Bradford Iron Works W of canal arm. Beswick Goods Station (associated with tramlines). Iron Works N of tramlines. Gratix's Mills labelled as Lead, Albion Works as Color, and Reservoir Mill Cotton. **West**: No significant changes.
1906 (small scale)	Forge Lane extended centrally through the site. Ludlow St connects onto this. Slight alteration to topography – embankments developed. Two buildings associated with the gas works partially developed on the site. River Medlock diverted into culvert beneath the site	**North and West**: Significant development to the Bradford Rd Gas Works. Oil tanks, tanks, additional buildings and holders now present located within 200m from the site boundary. Clay Pit and Brick Works S of the Coal Yard. Ardwick Junction labelled with Philips Park Sidings. River Medlock no longer shown to be present on the surface having been diverted into a culvert near to the Sanitary Works (basin located here). Reservoir Mill replaced with residential development. Cotton works W of the railway still present. **East**: Residential development and an Electricity Generating Station development S of Phillip's Park [350m E of the site]. Bath (outdoor bathing pool?) now constructed east of all the ponds within Philip's Park. **South**: No significant changes.
1908 (large scale)	No significant changes since 1906.	**South:** Towing Path along N of canal. Park Mills now residential, Albion Works no longer present. No other significant changes since 1906.
1922 (large scale) 1923 (small scale)	Residential development east of Forge Lane and north of Stuart Street (formally Ludlow Street).	**North**: Large gasholder developed as part of Bradford Rd Gas Works. Clay Pits now labelled as Old Clay Pit, Brick Works now located east of these Pits (>500m). **East**: St Pauls Church and a Sunday school developed just S of Philips Park. **South and West**: No significant changes since 1908.
1931-1933 (large scale) 1933 (small scale)	Significant development to gas works onto the site. Tramlines and additional buildings now present within the west area of the site. Police Call Box located west side of Forge Lane. Area east of Forge Lane still occupied by residential development.	**North and West**: Significant development to Bradford Rd Gas Works. Old Clay Pits no longer present. Slight development to the Brick Works including a Tramline. The small basin located off Ashton Canal into the gas works site no longer present (developed over). One gas holder removed within the gas works site(W of railway, N of Sanitary Works). **East**: Philips Park Mill no longer present. No other significant development. **South**: Bradford Iron Works (Wire) now occupies area previously residential. The Iron Works also now cover a small part of the canal arm (N). African Mills now Philips Park Printing Works. Progress Bakery developed in place of former Albion Works. Additional buildings constructed either side of Gratrix's Mills but not labelled. In November 1927, an explosion was recorded at Bradford Road Gasworks *https://api.parliament.uk/historic-hansard/commons/1927/nov/24/gasworks-manchester-explosion#S5CV0210P0_19271124_HOC_78*

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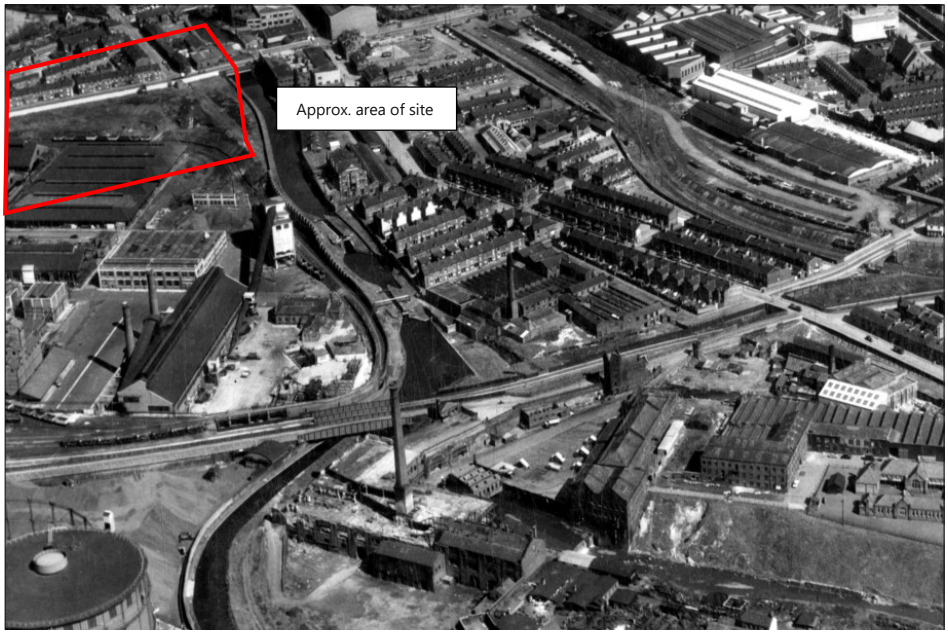
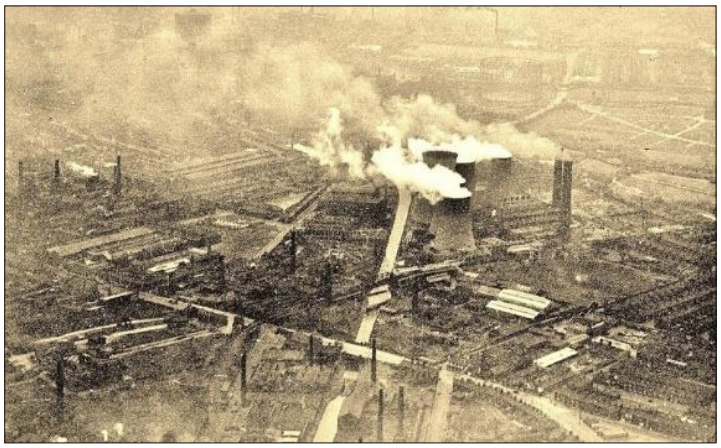
Date	On site History	History of areas surrounding the site
	 **Figure 4-1 Image taken from Bradford Pit website (https://bradfordpit.com/). Date unknown but based on historic maps assumed to be around 1930s. Large embankments shown going up to the canal.**	
1938 (small scale)	No significant changes	No significant changes since 1931-1933.
1948 (large scale)	Electricity Sub Substation developed immediately south of Police Call Box.	**South**: Northern part of Colliery Canal Arm labelled as Overflow Weir. According to online sources (www.hidden –manchester.org.uk) after 1947, a 420m tunnel 50mbgl was driven from the Bradford Colliery to the Stuart Street Power Station (the Electricity Generation Station) located approximately 270m SE of the site. This enabled coal to be transferred from the colliery to the bunker within the power station.  **Figure 4-2 Bradford Colliery (far left) and Stuart Street Power Station (right) - Manchester Archives** https://hidden-manchester.org.uk/coal/coal-tunnel-to-stuart-street-power-station.html
1955 (large scale)	No significant changes. Travelling crane located in SE area.	**South**: Progress Bakery now labelled as Bakery. No other significant changes since 1938.

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Date	On site History	History of areas surrounding the site
1956 (small scale)	No significant changes since 1955.	**East**: Electricity Generating Station blanked from map (S of Philips Park) **West**: Three holders associated with the gas works removed (W of railway, N of Sanitary Works). No other significant changes since 1955.
1958 (large scale)	No significant changes since 1955.	No significant changes since 1956.
1968 (small scale)	Series of circular structures (possibly tanks?) located on northern arm of site.	**East**: Electricity Generation Station back on the map now includes 5 tanks/holders. Water bodies in Philp's Park now reduced in number and Bath no longer present. One pond now labelled Boating Pond. **West**: Sanitary Works no longer recorded.
1979 (large scale)	According to map, partial removal of Bradford Rd Gas Works, all buildings and above ground infrastructure within the site bounds removed, including tank structures on northern arm. Electricity Substation moved further south. Two tanks developed on south boundary (between the Electricity Substation and the Canal). Police Call Box removed. Area east of Forge Lane completely cleared of all residential developments. Embankments now reduced to west side of Forge Lane. Shelter shown on southern arm of site.	**West**: Many buildings and infrastructure associated with the former Bradford Rd Gas Works (within 100m) no longer present. **South**: Beyond Philips Park Rd (S of Gratrix's Mills) area cleared of residential developments and Bradford Iron Works now occupied by travelling cranes. The canal arm and part of the Overflow Weir have been infilled. The Iron Foundry is still present.
1981 (small scale)	Map shows no change to Bradford Rd Gas Works, contradicting the description of the large scale 1979 map (above). This map was surveyed in 1976, revised in 1980 with copyright in 1981. No significant changes since 1979.	**North**: Coal Yard no longer present **East**: Holders/tanks associated with Electricity Generation Station no longer present. Boating pond within Philip's Park no longer labelled, only one pond remains. **South:** Bradford Colliery cleared and two shafts have been marked *(one of the shafts extended to over 890m)*. Southern part of former Bradford Iron Works cleared. **West**: Several buildings N of Beswick Goods Station cleared.
1985 (small scale) 1987 (large scale)	Hutchins Rd no longer present. Two new buildings located north of Stuart St. Large majority of Bradford Rd Gas Works cleared. Electricity Substation removed. Tanks no longer labelled.	**North and West**: Bradford Rd Gas Works nearly entirely cleared. Gas holder and a couple of buildings still present. Expansion to the Works and factories E of the former Coal Yard and railway. **South**: Multiple Travelling Cranes recorded in areas of former Works. Reduction in the number of tramlines associated with former Bradford Iron Works. Shafts now recorded as disused.

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Date	On site History	History of areas surrounding the site
1991 (large and small scale)	Tanks west of Forge Lane no longer present. All buildings associated with Bradford Rd Gas Works no longer present except the northern-most gas holder.	**North and West**: Former Bradford Rd Gas Works now entirely cleared except one gas holder in the far N, <100m north of site boundary **East**: Electricity Generation Station partially removed (associated Electricity Substations still present). Stuart street diverted south over canal away from the former Electricity Generation Station (not shown on large scale map). **South**: Majority of Works south of the Canal are no longer labelled. Southern part of former Bradford Iron Works now labelled as a Depot. Travelling cranes no longer present.
1995 (large scale)	Large building developed N of Stuart St in place of the previous unknown buildings. Area south of Stuart St cleared. Road layout alterations in northern part of site. Mill St now Alan Turing Way. west of Forge Lane, embankments are no longer present.	**North and East**: Road layout alterations, Mill St no Alan Turing Way. Diversion off this road runs along northern boundary of site (over Forge Lane). **South**: Alterations to road system (Philips Park Rd) within former Bradford Iron Works. Large building constructed within infilled area of Overflow Weir (S). Iron Foundry still present.
2000 *(Google Earth)*	*South of Stuart St, land appears to be tarmac/concrete covered. North of Stuart St, no buildings present, majority of site is grass covered aside from eastern area alongside Alan Turing Way. West of Forge Lane, predominantly grass cover with some earthworks taking place in far west side.*	
2001 (small scale)	No significant changes since 2000.	**North**: Top end of Forge Lane no longer present. Large residential area cleared N of former Coal Yard. **East**: National Cycling Centre constructed in place of former Electricity Generation Station. **South**: All previous developments cleared down to Ashton New Rd. Residential areas E of Alan Turing Way (and S of Canal) cleared.
2003 *(Google Earth)*	*Forge Lane almost entirely disused as a functioning road. Earthworks to the west of former Forge Lane. Stuart St no longer present, some earthworks taking place S of the former street. Access ramp from Joe Mercer Way formed on W boundary down to the Canal developed within SW corner of site. Metrolink line S of the Canal being developed. Car Parks constructed N of the site across area formerly Bradford Rd Gas Works. The City of Manchester Stadium has been developed along with associated sports buildings and tracks to the S.*	
2005 *(Google Earth)*	*Forge Lane redeveloped.*	
2009 *(Google Earth)*	*BMX track under construction within W area of site (N of access ramp). East of Forge Lane, area used for some storage.*	
2010 (small scale)	Stuart St and building N both no longer present. Joe Mercer Way labelled along west. Road constructed along north boundary.	**North**: Two car parks developed in place of former gas works buildings *(as described from 2003 Google Earth imagery)*. **East**: Superstore developed E of Alan Turing Way and S of Canal. **South**: The City of Manchester Stadium renamed as Manchester City FC, Sportcity and Regional Athletics Arena. **West**: Road forming western border to the site now labelled as Joe Mercer Way *(as described in 2003 Google Earth imagery)*.
2014	Site cleared completely, Forge Lane no longer present on site.	**North**: Road running along N border labelled as Sportcity Way. **West**: Building W of Joe Mercer Way labelled as Etihad Campus. South: Sportcity and Arena now labelled as Sports/Leisure Centre. Additional buildings now present within this area. Access roads/paths around Stadium developed.
2016 *(Google Earth)*	*Site used for parking.*	

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Date	On site History	History of areas surrounding the site
2019	Road along north boundary labelled as Sportcity Way. Joe Mercer Way no longer labelled on site. South end of site connects to ring road around the stadium.	**North:** Gasholder to the N of site removed. **East:** Increased development of National Cycling Centre, 500m. Footpaths shown in N of Philips Park. **South**: Some small buildings constructed as part of Sports/Leisure centre to N of stadium. Etihad Campus Metrolink stop shown to the S of canal. Metrolink shown running east-west towards Holt Town station (750m W) and Velopark station (500m SE). **West:** Gasholder station approx. 500m W removed. Small building constructed to E of New Viaduct Street.

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4.2 Regulatory Data

Regulatory data relating to potentially contaminative uses is summarised in Table 4-2 below. This information was obtained from the Landmark report, presented in full in Table 4-2

Table 4-2 - Summary of Regulatory Data

Item	Location [on/off site]	Information	Potential to Impact
Environmental Permits, Incidents and Registers			
List 1 Dangerous Substances Inventory sites	4 [within 500m, >250m]	Rhodia Industrial Specialities Ltd. Two records shown as 'Active' (433m SE). Clifford Whatmough Ltd, Cadmium substances. One record shows status 'Not Active' and the second record (same site) records status as 'Active' (436m NE).	No
Part A(2) and Part B Activities and Enforcements	2 [within 250m, >51m 5 [within 500m, >250m]	North Manchester Commercials, respraying of road vehicles, historical permit (243m NE). Asda Eastlands, unloading of petrol into storage at service station, current permit (247m E).	No
Licensed Discharge Consents	1 [within 50m] 2 [within 250m, >50m]	Bradford Road Gas Works, sewage discharge – sewer storm overflow – water company. Receiving water: River Medlock. Revoked 1998 (49m, W).	No
Planning Hazardous Substance Consents and Enforcements	1 [within 50m] 1 [within 250m, >50m]	National Grid Gas PLC. Storage of low pressure gas, 1992 approved status (48m, NW).	**Yes**
COMAH and NIHHS sites	1 [within 50m]	British Gas – Bradford Road Holder Station (8m, NW).	**Yes**
National Incidents Recording System, List 2	6 [within 500m, >250m]	May 2003, inorganic chemicals/products described as acid pollutant. Water impact – Category 3, Minor (412m E). July 2001, atmospheric pollutants and effects described as smoke pollutant. Land and air impact – Category 3, Minor (487m W). August 2001, general biodegradable materials and wastes. Land and air impact – Category 3, Minor (492m W). June 2001, specific waste materials described as commercial waste. Land and air impact – Category 3, Minor (493m W). June 2001, specific waste materials described as commercial waste. Land and air impact – Category 3, Minor (494m W). June 2001, specific waste materials described as commercial waste. Land and air impact – Category 3, Minor (497m W).	No
None of the following were recorded within 500m of the site: historic IPC Authorisations; Part A(1) and IPCC Authorised Activities; Red List Discharge Consents; List 2 Dangerous Substances Inventory Sites; Category 3 or 4 Radioactive Substances Authorisations; Water Industry Referrals; National Incidents Recording System, List 1; Sites determined as Contaminated Land under Part 2A EPA 1990.			

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Item	Location [on/off site]	Information	Potential to Impact
Landfill and Other Waste Sites			
Environment Agency Historic Landfill Sites	1 on-site 3 [within 500m, >250m]	Bradford Road Works (North West Gas Holder). Inert, industrial and Special Waste types. License issued 1979 and surrendered 1983. New viaduct Street (277m, W); Bradford Rd, inert waste, 1985-1993 (319m, W); Clayton Vale Power Station, inert, industrial, commercial, household, special, liquid sludge waste types. Issued 1974 (492m, E).	**Yes**
Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	1 [within 250m, >50m] 16 [within 500m, >250m]	Scrap Yard 1988 (181m SE)	No
None of the following were recorded within 500m of the site: EA Registered Landfill Sites; BGS/DoE Landfill Site Survey; Landfills in Local Authority and Historical Mapping Records.			
Current Land Use			
Industrial Sites Data	2 [within 50m] 13 [within 250m, >50m]	Electricity Sub Station (19m, W) Etihad Campus – Manchester Metrolink (30m S)	**Yes**
Petrol and Fuel Sites	1 [within 500m, >250m]	Asda (264m E) Status: Open	No
None of the following were recorded within 500m of the site: National Grid Underground Electricity Cables; National Grid Gas Transmission Pipelines.			
Points of Interest (Environmentally Sensitive Sites)			
None of the following were recorded within 500m of the site: Sites of Special Scientific Interest (SSSI); National Nature Reserves (NNR); Special Areas of Conservation (SAC); Special Protection Areas (SPA); Ramsar Sites; Ancient Woodlands; Local Nature Reserves (LNR); World Heritage Sites; Environmental Sensitive Areas; Areas of Outstanding Beauty (AONB); National Parks; Nitrate Sensitive Areas; Nitrate Vulnerable Zones; Green Belt Land.			

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5 Previous Site Investigations

5.1 Available Information

The larger Sportcity development area has had a series of investigations, enabling works, remediation works and associated validation works completed. These studies have been taking place across the wider site area since the 1980s. A list of the available information applicable to the site is presented below.

Listed available reports referring to the site

1. 1986 Norwest Holst Soil Engineering Ltd, *Site Investigation Report (Bradford Gasworks)* [8]
2. 1986 Ward, Ashcroft and Parkman Consulting Engineers, *Report on location of mineshafts and shallow mine workings (Bradford Road Gas Works Site)* [12]
3. 1998 Arup, *Interim Geotechnical Desk Study (Draft 1)* [13]
4. 2001 Arup, *Remediation and Enabling Works Methodology Statement (Sportcity Eastlands - Enabling Works Phase 1)* [14]
5. 2002 Parkman Ltd, *Validation Report for Sportcity (Enabling Works Phase 1)* [Annotated as superseded] [15]
6. 2002 Drilltec Northern, *Metrolink Advanced Works, Drilling and Grouting*
7. 2004 Arup, *Validation Report (Sportcity Phase 3 Enabling Works)* [16]
8. 2008 Arup, *Sportcity Constraints Establishment, Context Report* [9]
9. 2010 May Gurney Geotechnical, *Site Investigation Report (Sportcity Remediation and Servicing Contract)* [17]
10. 2010 Arup, *Geotechnical Interpretative Report (Sportcity Remediation and Servicing Works)* [18]
11. 2010 Arup, *Outline Remediation Strategy (Sportcity Remediation and Servicing Works)* [19]
12. 2010 Buckingham Group Ltd, *Remediation Strategy* [20]
13. 2011 Buckingham Group Ltd, *Verification Report* [21]
14. 2011 BWB Consulting, *Master Mine Stabilisation Works Validation Report (Sportcity Remediation and Servicing Works)* [10]
15. 2011 BWB Consulting, *Area C Mine Stabilisation Works Validation Report (Sportcity Remediation and Servicing Works)* [22]
16. 2011 BWB Consulting, *Removal of Constraints for New Developments over the Existing Mine Shafts at Sportcity Manchester* [23]
17. 2011 BWB Consulting, *Area C Earthworks Validation Report (Sportcity Remediation and Servicing Works)* [24]

Listed available drawings referring to the site

1. 1998 Arup, *Enabling Works – Existing Site Investigation Layout* [Dwg. CLA010402, CLA010404, CLA010408]
2. 1998 Arup, *Enabling Works – Typical Details (mine workings and mineshafts*) [Dwg. CDA060310, CDA060302, CDA060304]
3. 2000 Alfred McAlpine Civil Engineers, *Location Plan of Actual Earthworks Treatment* [Dwg. No. STAD/L55/210]
4. 2019 Arup, *Existing Combined Services* [Dwg. ECS-ARP-SW-DR-CU-0001]
5. 2019 Arup, *Extent of Previous Remediation and Residual Consents* [Dwg. ECS-ARP-SW-DR-CG-0002]

Listed available specifications referring to the site

1. 2010 BWB Consulting, *Earthworks Specification (Sportcity Remediation and Servicing Works)* [25]

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5.1.2 Review of 1986 Norwest Holst Soil Engineering Ltd – *Site Investigation Report*

This site investigation explored the area west of Forge Lane and north of Ashton Canal (see Figure 5-1 below) with the purpose of locating old mine shafts and the extent of old mine workings. A total of 3,044 50mm diameter 'probe holes' were drilled within 11 previously designated search areas. The search areas had a radius of either 15m or 20m. Where a mineshaft was identified, the shaft was probed to a depth of not less than 25m. A key borehole was then sunk using deep rotary drilling. In addition to locating the mineshafts, rotary-percussive drilling was also used to locate the shallow coal seams at depths of up to 30m. Shafts 12 and 13 are applicable to the current site development proposals.

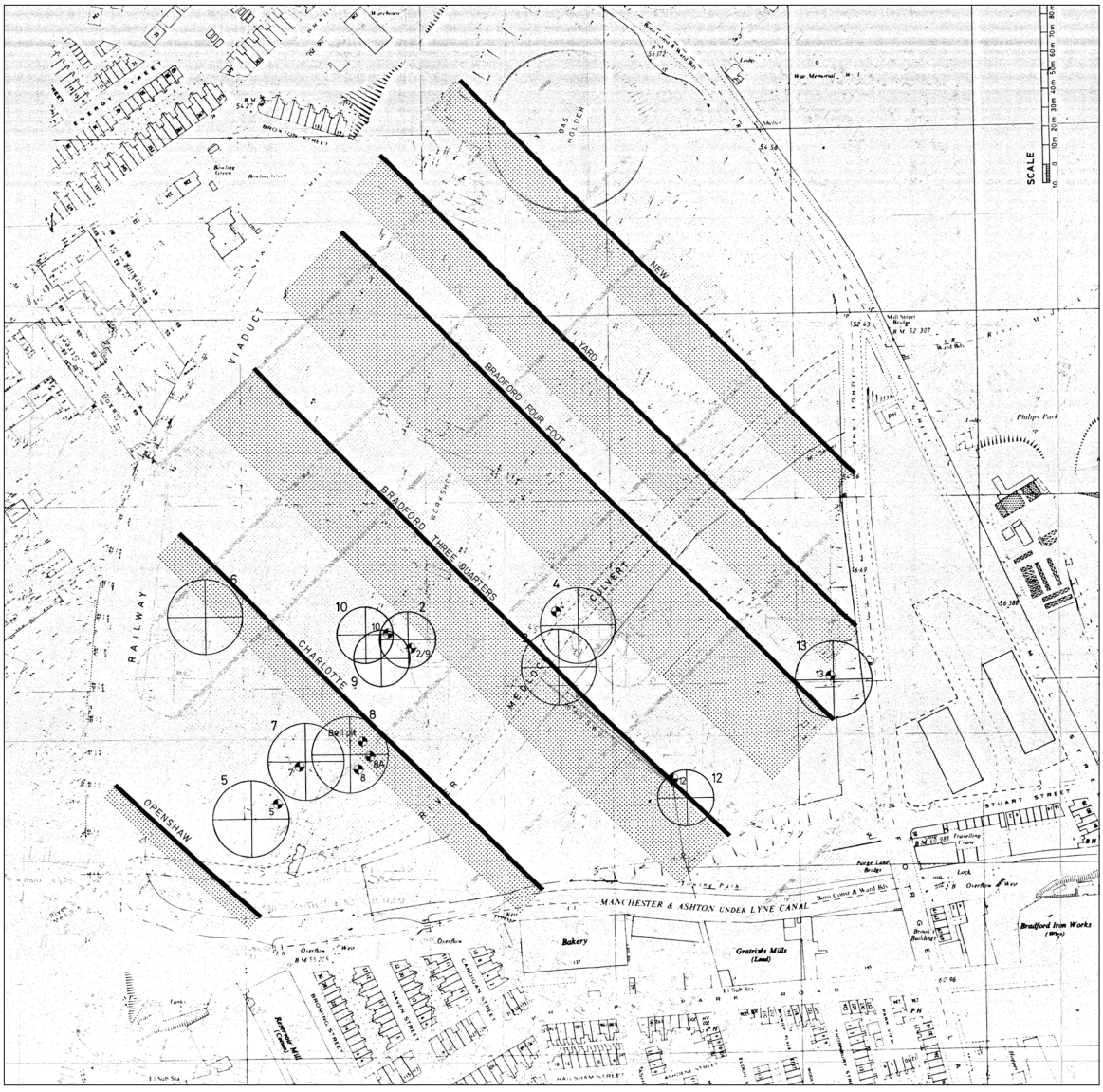

Figure 5-1 Coal seams and mine shafts explored during Norwest Holst Soil Engineering in 1986

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Norwest Holst Soil Engineering Ltd (NHSE) carried out an additional investigation to location Shaft 12 [8], involving trial trench excavation and probing. The trenches were taken down to 3mbgl and exposed natural ground comprising stiff brown Glacial Till. Shaft 12 was identified by the probe holes, drilled generally to a depth of at least 30mbgl (+21.06mOD). Additional probing was then used to establish the shaft diameter, found to be 2m. The key borehole proved the base of the shaft to 54mbgl (-2.94mOD). Made Ground comprising soft to firm clay, ash and brick fragments was encountered to rock head (between 5m and 6mbgl, +46.06mOD and +45.06mOD respectively).

Shaft 13 was partially located on the embankment adjacent to Forge Lane. Trenching did not expose the shaft but it was located within probe holes 8 and 9 . The base of the shaft was proved at 25.5mbgl (+26.17mOD) with 1.5m of mudstone penetrated beyond this level. A shaft diameter of 2m was established. Weathered mudstone rock head was encountered between 8mbgl and 8.6mbgl (+43.67mOD and +43.07mOD) directly overlain by Made Ground. The Made Ground comprised black shale, grey PFA, ash, and clay. A moderate inflow of groundwater was noted within one of the boreholes in this search area at 8.5mbgl (+43.17mOD).

NHSE identified five coal seams beneath their search area, these include, Bradford Four Foot, Bradford Three Quarters, Charlotte Mine, Yard Mine and the New seam. A borehole (CP3) was positioned to intercept the Bradford Four Foot seam but was terminated at 9.7mbgl (+42.35mOD) after encountering toxic chemicals mixed with groundwater that was being blown back with the air return. The chemicals were identified as a mixture of coal tars and phenols (gas works by products). The borehole was grouted and capped with concrete. To avoid encountering further contamination, CP3 was relocated 10m north (now CP4). The Bradford Four Foot was located between 27.3m and 28.1mbgl (+24.75mOD to +23.95mOD). Using a dip of 22° (NHSE assumed this dip from other coal seams) a sub-crop of the seam was positioned 4m away from the conjectured position. Borehole location CP6 encountered a thin coal seam between 26.40m and 26.7mbgl (+25.0mOD and +24.7mOD) within mudstone which NHSE believed to be the New seam based on its depth location. Three rotary-cored boreholes were then drilled in order to determine the depths and locations of the remaining seams. A thin coal seam was located at 21.35mbgl (+30.3mOD) within RC1, NHSE record this as corresponding to the Bradford Three Quarter seam. No other coals were encountered within this borehole. Borehole RC2 encountered rock head at 12mbgl (+40.0mOD) and penetrated three coal seams at depths of 16.9mbgl (+35.1mOD), 32.5mbgl (+19.5mOD) and 53.9mbgl (-1.9mOD) which NHSE believe to correspond to the Bradford Four Foot, Yard and New seams respectively. The seam thicknesses were 0.9m, 1.1m and 0.35m. The final borehole (RC3) encountered rock head at 9.5mbgl (+42.45mOD). NHSE record locating the Charlotte Mine seam at 15.6mbgl (+36.35mOD) with 0.7m coal recorded.

5.1.3 Review of 1986 Ward, Ashcroft and Parkman - British Gas North Western – *Report on Location of Mineshafts and Shallow Mineworkings*

This report summarises the findings of a borehole investigation carried out under the direction of Ward, Ashcroft and Parkman for British Gas North Western as part of the Bradford Road Gas Works reclamation. The investigation was carried out between March and July 1986 by NHSE (see summary in Section 5.1.2 above). This report provided detail on the coal seam outcrops, zones potentially affected by shallow mine workings and the locations of 8 mineshafts. British Coal indicated that up to 13 mineshafts existed in the area, however one location was outside the proposed development site therefore not explored by Ward, Ashcroft and Parkman and two other locations were thought to be duplicates, therefore bringing the total locations to 11. No drawings or plans have been provided for this review.

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The investigation identified 8 of the 11 recorded mineshafts in the area and a further 2 unrecorded shafts were revealed. The depths of half of the mineshafts were as predicted with the remaining half being shallower than anticipated. Three mineshafts were not located, of these, one is believed by Ward, Ashcroft and Parkman to be below the River Medlock culvert. The third was not located within the predicted search zone. The identified mineshafts were grout-filled to their full depth and capped by reinforced concrete slabs (agreed with British Coal).

Shallow workings were identified in two areas of the site. Exploratory investigation of the coal seams broadly confirmed their location as predicted, however a southerly shift of approximately 20 metres was recorded. Ward, Ashcroft and Parkman suggest the findings indicate a more complex geological structure beneath the site (folding or possible faulting) is present. This is based on the recorded angle of dip of the seams being variable and steeper than predicted (20-22°). They recommended further investigation on the shallow workings where developments are to be located. No remedial treatment to the shallow works was carried out

5.1.4 Review of 1998 Arup – Manchester Stadium, Eastlands – *Interim Geotechnical Desk Study (Draft)*

This report does not directly cover the proposed development site (Ashton Canal forms the northern most border) but the report provides a detailed section on the history of mining within the area.

Following adoption of the 'longwall' mining techniques in 1948, subsidence was recorded in the overlying and surrounding areas. This included tilting of the gasholder north of the canal. In 1866, the first shaft at the Bradford Colliery site was sunk to the Parker Mine seam. The Parker mine shaft was subsequently deepened to the Roger Mine seam and a second shaft (the Bradford Deep) also sunk to the Roger seam. Coal was worked from these seams from approximately 1000m deep shafts. The National Coal Board concluded the Roger mine workings were the prime cause of the subsidence. Total subsidence measured exceeded 1.8m in Cambrian Street to the north of west Eastlands. This is approximately 500m west of the proposed development site covered in this desk study.

Within the mining section of this report Arup make comment on the discrepancies between names of various coal seams. The comment Arup make explains that the naming of coal seams beneath the Bradford Four Foot seam is not consistent. In 1990, Wardell Armstrong report an unidentified 0.5m thick seam and the Yard seam below the Bradford Four Foot seam. This was equivalent to the 18 Inch seam (or 1/2m seam) referenced in a letter dated 1982 by the National Coal Board. There is also reference to an Upper seam (thought by Arup to be the Yard seam) and a Lower seam referenced by Arup as Smut Coal.

A total of 38 ground gas monitoring standpipes were installed from the 1993 Northern Foundations Ltd site investigation. Arup comment on the results. Methane was consistently above 1% in one location (located near the Inner Relief Road for the Etihad Stadium). This was expected to be a result of methane emanating from the Coal Measure rock rather than the Made Ground. Of the 38 standpipes, 20 indicated the presence of carbon dioxide above 1.5%. Of the 20, 7 recorded concentrations above 5%. Arup comment that the level of contamination on site did not exceed the action levels (as defined at the time) for hard cover which was commensurate with the site end-use.

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5.1.5 Review of 2004 Arup – Enabling Works (Phase 3) –*Validation Report for Sportcity*

This validation report covers the Phase 3 earthworks carried out in October 2003 and January 2004, undertaken by AWG Construction Services, on behalf of Amec Developments Ltd. The report looked at two areas, the area north of Ashton Canal (covered in this review) bound to the west by Forge Lane and east by Alan Turing Way. The second area is the Residential Phase 4 area, located south of Ashton Canal and east of Alan Turing Way (this part of the report will not be reviewed). This validation report refers to the Arup Sportcity Hotel and Residential Extension Remediation Strategy (2003) and the Soil Mechanics Sportcity Hotel and Diner Sites Factual Report on Ground Investigation (2003) however these reports have not been located and are therefore not included within this review.

Material was excavated down to a level of +58mOD, approximately 2mbgl (or to the top of the Glacial Till if encountered above this level) across the southern part of the site. Within the western and central areas, the formation material was Made Ground, comprising mixed gravels of colliery spoil-type fill including siltstone and mudstone. No buried obstructions were identified at the formation level. Excavations were taken to approximately +59mOD where Glacial Till was encountered within the east of the southern area (comprised stiff brown clay). Class 1 granular fill was placed across this southern area and included site won crush comprising brick and concrete and some imported material. The final 0.5m of fill up to the final enabling works level of +60mOD comprised granular 6F1/2 capping, sourced mainly from site-crushed materials.

Further north within this area of the site fill comprised Class 1 and Class 2 type materials. A cut and fill exercise meant much of the colliery spoil material located in the east was moved to the west. Other fill material was also used, mainly comprising imported clay (placed in the east). The final 0.15m across the central area was constructed using recycled 6F1 granular fill (sourced from site materials and imported material). West of the site included a new access road and a landscape bund. The bund included site won Class 4 material complying with Site Specific Guideline Values (SSGVs) for a commercial end-use. This was constructed to approximately 1.5m in height with a base width of approximately 15m and a batter formed at 1 in 3.

Drilling and grouting works targeting the shallow mine workings were completed by Van Elle below the development site. Treatment was undertaken on a 6m grid to intercept the Bradford Four Foot and Bradford Three Quarters seams. Probe holes were extended to 30mbgl. No evidence of voids nor loose or disturbed ground, associated with shallow mine workings, was found within the probe holes. Probe holes indicated the Bradford Four Foot seam was present between 16mbgl and 25mbgl and generally dipped SW. The seam was approximately 1.1m thick. The Bradford Three Quarters seam was about 0.7m thick and located at about 14.5mbgl to 22.5mbgl, dipping to the SW. The volume of grout take was representative of the theoretical volumes of the holes drilled suggesting little to no evidence of mine workings present in those isolated areas. No treatment was carried out to the central-north area. Arup include a comment within the report saying the Coal Authority has a record of a mineshaft located below the budget hotel development site; Arup refer to this shaft as Shaft C (see Figure 5-2 below for edited extract of location). Previous efforts to locate Shaft C were made by NHSE (1999) and Soil Mechanics (2000) but were unsuccessful. A further search was undertaken as part of this enabling works. The search included 173 probe holes sunk to 15mbgl at 1.1m centres on a spiral pattern. No evidence of a shaft being present below the budget hotel site was found. Arup conclude that it is unlikely the shaft exists within the searched areas, presenting a low risk to the future development.

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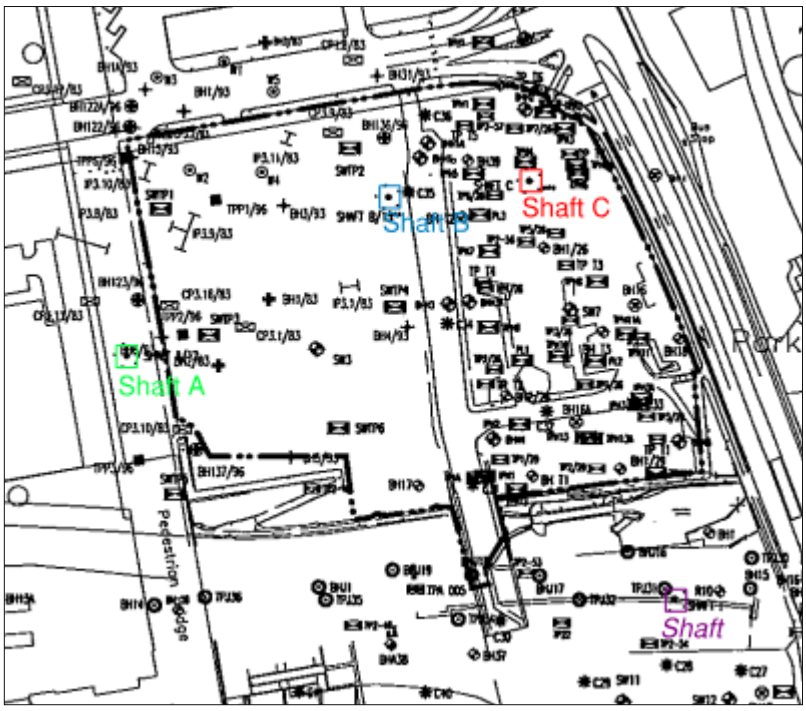

Figure 5-2 Edited extract of Figure 4 from Arup Validation Report (2004)

Four areas of contamination were identified from the investigation that required remediation (see extract below, Figure 5-3). One area was not remediated as the source of contamination was outside the site boundary. All unsuitable material was disposed off-site. Validation samples showed elevated concentrations of total sulphates above the commercial SSGVs. Arup considered this appropriate to remain on site provided water-soluble sulphate SSGVs were not exceeded. Elevated concentrations of lead in excess of the commercial SSGVs were encountered however, due to the location, the material could not be excavated. Acidic pH values were encountered in one sample. Elevated concentrations of TPH were also encountered, but Arup reported that the concentrations were not considered elevated enough to affect the US95 calculations so did not instruct any further excavation.

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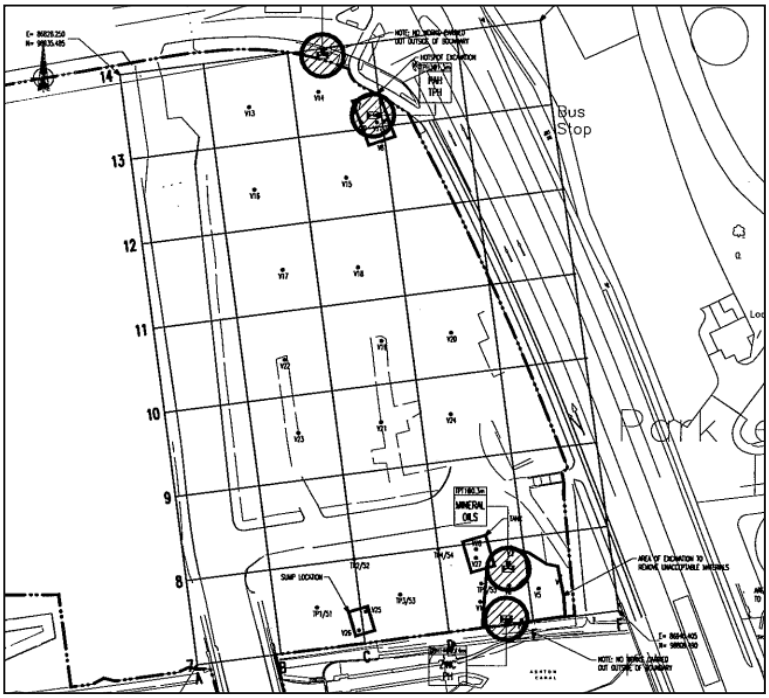

Figure 5-3 Extract from Figure 7 within Arup Validation Report (2004)

Elevated TPH concentrations were recorded in multiple samples however Arup suggested this was a result of blacktop material being present within the fill samples (although no specific correlation was confirmed). Consequently, Arup were satisfied that the use of the material did not present a hazard and therefore could remain on site and be used as engineering fill.

During excavations, a tank was encountered in the south of the site (cell D7, see Figure 5-3. AWG employed specialist contractors to decommission the tank by removing and disposing of the tanks content. Validation samples were taken of the material below the tank once it was removed, the results were below the relevant commercial SSGVs. A small brick sump was identified within the south of the site (cells B7-C7, Figure 5-3), measuring approximately 5m x 5m x 1.5m, containing black ashy fill. The ashy material was removed and disposed off-site. The material below the sump was validated and no levels of contamination in excess of commercial SSGVs were recorded. Surface water monitoring was taken at Ashton Canal, no adverse impact on surface water quality was identified during any of the site works.

The boundary retaining wall (to the canal) south of the hotel site was recorded to be in poor condition with sections of masonry missing. The enabling works did not change the loading conditions at the back of the wall. Depending on future developments, Arup suggest further assessment of this retaining wall should be considered.

A new highway was constructed west of the hotel site (a new Forge Lane) to provide access to the hotel plots. Street lighting ducting were installed on the east verge to accommodate future electricity supply. A new 160mm mains water supply was installed by United Utilities as part of the enabling works, this is also located on the east verge of the new highway. Surface water drainage was constructed below the west footpath of the new highway. A 225mm foul sewer was also installed below the east highway footpath to provide connection to the hotel plot.

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5.1.6 Review of 2008 Arup – Sportcity Constraints Establishment –*Context Report*

This report considers the constraints in terms of transportation, ground issues and utilities. This review by BuroHappold focuses on the just the ground issues. The comments below are all by Arup [9].

The Commonwealth Games enabling works included filling of extensive areas associated with the former gas works. These materials were profiled to provide suitable levels for car parking with a thin layer of lime/cement stabilisation. Material below this is likely to be of poor geotechnical quality.

The site topography is variable which could impose some constraints on any future developments. The Bradford Road Gasworks site has considerable variation in elevation within its boundaries.

The EA have a building restriction zone of 8m from the outer faces of the River Medlock culvert. The Ashton Canal is under the control of British Waterways Board, it is likely any developments will need to consider unrestricted access to the towpath and any construction would have to avoid imposing loading on the canal walls.

Fluvial deposits in NW of site are believed to be in direct hydraulic connectivity with the underlying coal measures and may provide a pathway between the Made Ground and the underlying coal measures. Previous investigations have found evidence of contamination seepages through the walls of the culvert into the River Medlock. Although the source contamination may have now been removed by the enabling works, a pathway may still exist and should be considered in any future works.

Foundations from previous buildings may still be present on the site. Enabling works will have removed some of these obstructions. The remaining obstructions may include a variety of massive brick foundations and piles, as well as slabs, tanks, mineshafts, culverts and tunnels.

The site has an extensive history of coal mining activity which has resulted in a number of mineshafts and worked coal seams being present below the site. Many of the mining activities were centred on the former Bradford Colliery, which was located on the Sportcity West area and included two deep (~900m) mineshafts. Treatment of these workings tended to target development locations therefore some areas of treatment may still be required.

Arup refer to an historical investigation in 1954 associated with the former gasworks site (this investigation has not been reviewed by BuroHappold). There is mention of a possible adit mine entrance accessing the early-mine workings on the Bradford Three Quarter seam. This is believed to be located in the valley side of the River Medlock. A later comment also refers to an un-collapsed adit associated with Bradford Three Quarter seam immediately adjacent to the Hotel development (east side of the current development site).

Arup stated that contamination is likely to exist across the site. In areas where remediation took place, these should be assessed as legislation has since changed and the proposed end use altered. Asbestos was encountered at depth within the fill material near to the landfill (part of the former Bradford Road Gas Works site) and in areas of infilled land (Ashton Canal arm. Previous investigations have also identified ground gas concentrations at levels which will likely require gas protection measures.

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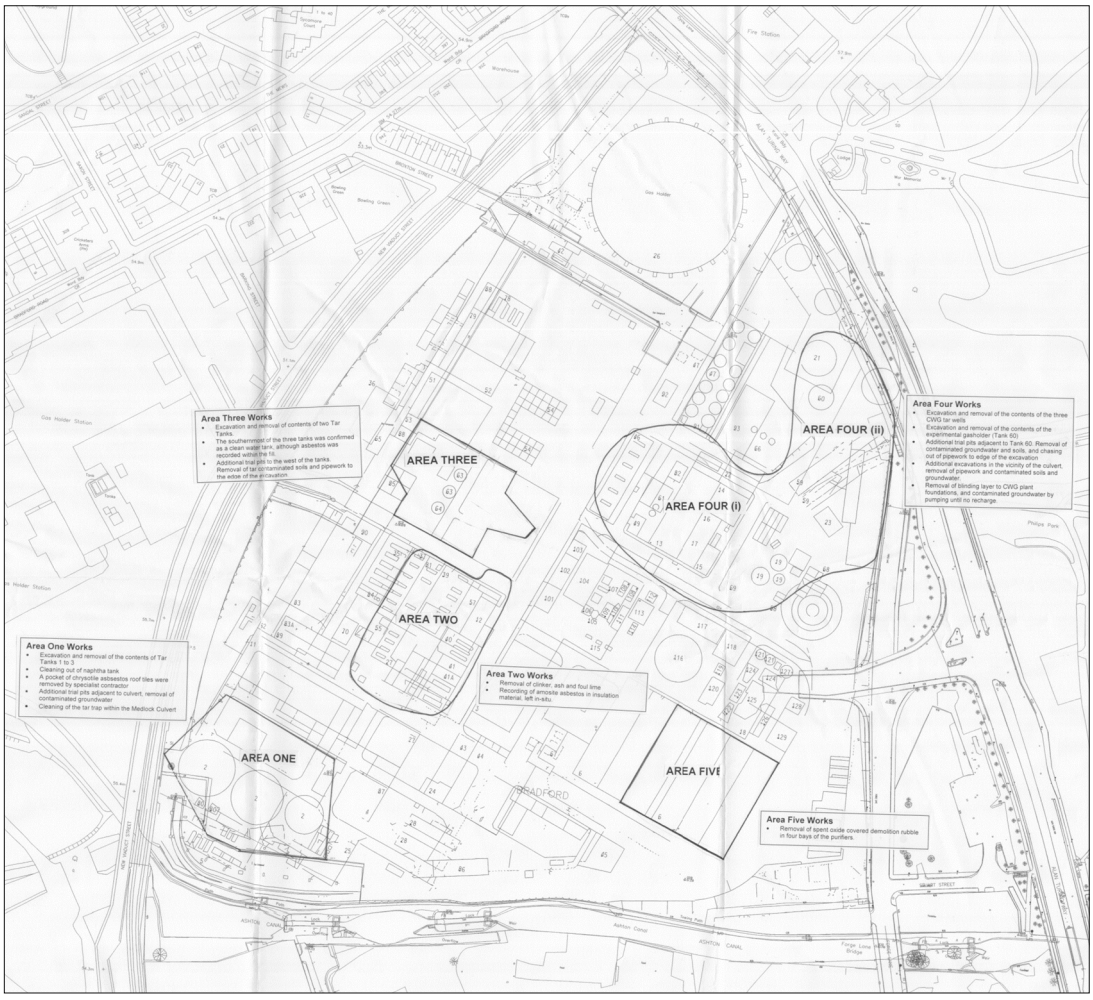
Arup refer to two distinct phases of remediation across the Bradford Road Gas Works site (including the proposed development site area reviewed in this report). The first remediation works taking place between 1988-1993 by Parkman Consulting Engineers. This phase comprised using the site as a licenced landfill. A 0.5m thick layer of granular fill was spread across the site as a capillary break layer with 3-7m of inert fill spread on top (restricted to 3m thickness over River Medlock culvert). Arup state that no report was issued following completion of the landfilling works but believed a completion certificate was issued by the contractor. Parkman undertook the second phase of remediation work in 1997. The remediation work targeted certain grossly contaminated areas across the former gas works (see Table 5-1). A total of 59,247 tonnes of special waste and 1,360 tonnes of contaminated water were removed from the site. Five areas of contamination had been highlighted, one of these areas was applicable to the proposed development site in this Desk Study:

Area 5 - removal of spent oxide covered demolition rubble in four bays of the purifiers.

Table 5-1 Extract from Constraints Report showing Area 5 (spent oxide contamination)



Elevated concentrations of carbon dioxide and methane were also identified in the area.

Japanese knotweed was identified and treated during some of the enabling works between June 2001 and March 2002 on the Sportcity West area, south of the canal.

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5.1.7 Review of 2010 Arup – *Geotechnical Interpretative Report* (*Sportcity Remediation and Servicing Works)*

This report refers to the site investigation undertaken by May Gurney between December 2009 and January 2010 [17]. The investigation covered a larger area than the site being assessed in this Desk Study.

The 'Northern Area' (relevant to proposed development in this Desk Study) comprised rough, open ground with a granular cap. This cap is thought to be part of the Phase 3 Enabling Works and has since become overgrown with low level vegetation. Temporary batters (1:2) were observed at the edge of the site adjacent to Ashton Canal and Alan Turing Way. At the time, ground levels fell towards the north from +60.5mOD at Forge Lane Bridge to +55mOD along Sportcity Way. There was also a temporary BMX track formed with topographical variations of up to 4m in height, west of Forge Lane.

The May Gurney ground investigation works comprised various boreholes (cable percussion and rotary coring methods), probe holes, and trial pitting. The geology encountered was reported as two separate areas across the 'Northern Area', east and west. The eastern area showed topographical levels between +60.1mOD (south) and +57.2mOD (Sportcity Way).

Made Ground was typically granular and described as clayey, silty or gravelly SAND. Soft black clayey ash was encountered. Gravel was mudstone, sandstone, limestone, slate, quartzite, pottery, wire, tiles, metal, brick, concrete, plastic, asphalt, ash, coal, coke, clinker, and glass. The western area recorded a maximum depth of Made Ground to 16mbgl. SPT results within the Made Ground recorded a very large range, with some results likely a result of local obstructions and/or oversized particles. Alluvial deposits were described as soft grey CLAY / Firm orange-brown grey and brown mottled sandy CLAY. The top of Alluvium was encountered from 6.1mbgl to 14.1mbgl. Two locations identified the River Terrace Gravels at 11.7mbgl and 6.8mbgl. The material was described as medium dense orange-brown mottled clayey sand. Glacial Till (Boulder Clay) was encountered from 1mbgl to 16.5mbgl. Described as a firm to very stiff, slightly sandy to sandy, slightly gravelly clay.

	Made Ground	**Alluvium**	**River Terrace Deposits**	**Glacial Till**
No. locations encountered	18	3	2	44
Max thickness (m)	9.9 (north)	0.8	1.7	14.3
Min thickness (m)	1.1	0.3	1.3	
Moisture Content (%)	10-22	-	-	13.6-37.5
Plasticity [PI, PL] (%)	Variable	-	-	19-22, 15-25
Particle Size Distribution	Well Graded, <35% fines content	-	-	15-37% Clay and 45% Silt
SPT N Value	Large variety of SPT values	40 (based on one value)	15 and 19 (based on two values)	5-216, increased strength with depth
Undrained shear strength (Cu=) *Stroud 1988*	-	-	-	Upper Till: 40+8.75s Lower Till: 110+23.5z
Stiffness (E'=) (kN.m3) *Young's Modulus*	-	-	-	Upper Till: 8000+1750z Lower Till: 22000+4700z
Bulk Density (Mg/m3)	-	-	-	2.1-2.2

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	Made Ground	Alluvium	River Terrace Deposits	Glacial Till
Californian Bearing Ratio (%)	6-53.3	-	-	-

The rock head within the Coal Measures was encountered between 15-21mbgl (+48.8 to +42.9mOD). Rock head surfaces were highly weathered and generally recorded as very stiff clay, often fissured. The Coal Measures strata was recorded to dip south west at between 10° and 24°. The shallower dips are present in the south east of the larger site, with dip increasing to the west. The strata are dislocated by a NW-SE trending fault. Boreholes encountered the seams, rock head within these boreholes was located between +44.56mOD and +46.81mOD. Coal was generally recovered as a thin seam or a gravel. No laboratory or in-situ testing was undertaken as part of the investigation. The seam descriptions are summarised within Table 6.4 of the interpretative report. The report explains that no previous treatment had been carried out beneath the western half of the 'Northern Area'.

The Shaft C location was investigated in numerous previous investigations, with no success. Van Elle believed the shaft was unlikely to exist but it was later identified during the works instructed by BWB Consulting (2011). Shaft B was located in 1986 by Ward, Ashcroft and Parkman. The shaft was drilled, grouted and capped but there are no as-built records. Shaft A was apparently drilled, grouted and capped in 1986 by Ward Ashcroft and Parkman (now apparently located beneath Joe Mercer Way).

Ground gas monitoring (from both Made Ground and the Coal Measures) were assessed, Arup define the ground gas regime as Characteristic Situation 2 / 3. If a site is characterised above Characteristic Situation 1, ground gas protection measures should be considered. In this instance, according to the results from the assessment by Arup, ground gas protection measures would likely be a requirement where it is not possible to remove the source and/or the proposed development includes enclosed spaces.

Joe Mercer Way was constructed on a crib wall embankment, this should be considered before any substantial earthworks take place that could impact this. Loading restrictions have been identified on Forge Lane Bridge *(Highways Services, Forge Lane Canal Bridge No 121, Assessment Summary)*.

5.1.8 Review of 2010 Arup - *Outline Remediation Strategy (Sportcity Remediation and Servicing Works)*

The Remediation Strategy provides a table on the geological ground conditions (summarised below for ease of reference).

Table 5-2 Summary of geology (taken from Outline Remediation Strategy [19])

Strata	North of Ashton Canal	
	Approximate Depth	Approximate Thickness
Made Ground	GL	3-13m
Glacial Till	3-13m	0.5-12m
Alluvium	3-13m	1-2m
Coal Measures	8-17m	Not proven

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Arup explain how the Ashton Canal crosses over the river to the west of the site boundary, beneath New Viaduct Street. They state that the Ashton Canal is anticipated to be clay lined and therefore would have limited connection to the underlying strata and contamination. According to Arup, shallow groundwater was found across the site and in general not believed to be in hydraulic connectivity with the underlying Coal Measures where Glacial Till is present. Along the former channel of the River Medlock the Glacial Till has been eroded and replaced by Alluvial deposits. Where this has happened Arup believe the two groundwater systems have significant hydraulic connectivity. See the groundwater monitoring results summarised below (Table 5-3, Table 5-4, and Table 5-5).

Table 5-3 Groundwater monitoring from May Gurney Site Investigation (*Made Ground*)

May Gurney SI Borehole ID	**Response Zone**	**Ground level mOD (mbgl)**			
	Made Ground	**27/01/2010**	**03/02/2010**	**10/02/2010**	**17/02/10**
BH01A/09	10.0-14.5	+44.57 (12.18)	+44.55 (12.2)	+44.48 (12.27)	+44.7 (12.05)
BH02A/09	7.0-10.0	-	DRY	DRY	DRY
BH03/09	3.0-5.0	+52.2 (4.91)	+52.27 (4.84)	DRY	DRY
BH04/09	3.0-5.0	-	DRY	DRY	DRY
BH06/09	1.5-3.5	+58.44 (1.65)	+58.26 (1.83)	+58.01 (2.08)	+58.41 (1.68)
BH07/09	4.0-6.0	+53.44 (5.31)	+53.58 (5.17)	+53.49 (5.26)	+53.49 (5.26)
BH09/09	7.0-10.5	+50.84 (9.54)	+50.63 (9.8)	+50.93 (9.5)	+50.93 (9.5)
BH11/09	2.0-4.0	+56.52 (3.56)	+56.79 (3.29)	+56.74 (3.34)	+56.77 (3.31)
Boreholes below located south of the Ashton Canal and Metrolink, beyond the site boundary					
BH13/09	1.0-2.0	+60.96 (0.63)	+60.96 (0.63)	+60.99 (0.60)	+60.72 (0.87)
BH14/09	1.5-3.5	+59.78 (2.24)	+59.76 (2.26)	+59.81 (2.21)	+59.87 (2.15)
BH15/09	1.0-3.0	+60.97 (1.64)	+61.07 (1.54)	-	+62.14 (0.47)

Table 5-4 Groundwater monitoring from May Gurney Site Investigation (*Superficial Deposits*)

May Gurney SI Borehole ID	**Response Zone**	**Ground level mOD (mbgl)**			
	Superficial Deposits (granular	27/01/2010	03/02/2010	10/02/2010	17/02/10
BH07/09	7.0-8.5	+51.78 (6.97)	+51.85 (6.9)	+51.58 (7.17)	+51.61 (7.14)
BH10/09	6.0-8.0	DRY	+53.25 (7.67)	DRY	DRY

Table 5-5 Groundwater monitoring from May Gurney Site Investigation (*Coal Measures*)

May Gurney SI Borehole ID	**Response Zone**	**Ground level mOD (mbgl)**			
	Coal Measures	**27/01/2010**	**03/02/2010**	**10/02/2010**	**17/02/10**
BH01A/09	28.0-32.0	+34.4 (22.35)	+34.56 (22.19)	+34.56 (22.19)	+34.64 (22.11)
BH03/09	15.0-17.0	DRY	+41.69 (15.42)	+41.5 (15.61)	+41.62 (15.49)
BH04/09	20.0-22.0	+42.69 (15.08)	+42.16 (15.61)	+40.23 (17.54)	+40.37 (17.4)
BH05/09	28.0-30.0	+34.64 (23.72)	-	-	-
Boreholes below located south of the Ashton Canal and Metrolink, beyond the site boundary					
BH14/09	17.0-19.0	DRY	DRY	DRY	+43.76 (18.26)
BH15/09	17.0-19.0	+46.66 (15.95)	+43.71 (18.9)	+43.7 (18.91)	+44.84 (17.77)

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Made Ground at a large number of exploratory locations contained materials such as ash, clinker and metal fragments. Possible asbestos was noted within the Made Ground in five samples across the entire site. Hydrogen sulphide odour was noted in one location. Hydrocarbon odour was also noted in one location and solvent odour in two locations.

Arup provide details on the chemical analysis completed by the May Gurney site investigation. The results indicate elevated concentrations of PAHs in some of the samples. Namely, 23% of samples contained elevated concentrations of benzo[a]pyrene and 5% of samples contained elevated concentrations of indeno(123cd)pyrene both above the relevant initial screening values to assess potential risk to human health (industrial SGVs). Other contaminants were also recorded however these were typically 1-2 samples out of >158 samples tested. These contaminants include lead, benzo(a)anthracene, naphthalene, benzo(b)fluoranthene and chrysene.

Benzo(a)pyrene present within the Made Ground was the only contaminant identified by statistical analysis as potentially posing a risk to human health. Statistics were completed using ESI Contaminated Land Statistics Calculator software, consistent with the approach set out in 'Guidance on Comparing Soil Contamination Data with Critical Concentrations', CIEH/CL:AIRE, 2008. From this, an upper confidence limit of 16mg/kg was derived with the Generic Assessment Criteria (GAC) proposed by CIEH/LQM of 14mg/kg for commercial land use.

Elevated concentrations of 2-4 dinitrotoluene and total cyanide identified as an issue following a ConSim Level 3 soil model for the site. These concentrations were present within the soils across the former gasworks area and according to Arup pose a risk to Ashton Canal. The elevated concentration of 2-4 dinitrotoluene within the former gasworks area is also considered a risk to the River Medlock and groundwater within the Secondary aquifer (250m down gradient of the site).

Ground gas results following a programme of monitoring indicate Characteristic Situation 2 / 3. No measures were required for the constraints removal phase. Arup explain that future developers would need to consider ground gas protection measures.

The aggressive nature of the ground was assessed. The Made Ground was classified as DS-2, AC-2 and natural soils as DS-2m AC-1.

Outline Remediation Strategy:

- Excavate and treat / dispose of elevated benzo(a)pyrene concentrations within the Made Ground
- Excavate and treat / dispose of elevated 2-4dinitrotoluene (4.5mg/kg) within Made Ground at 1m depth in TP09/09
- Verification of the extent and risk posed by elevated TPH and PAHs within the shallow groundwater observed at BH01/09
- Installation of engineered capping layer
- Installation and monitoring of selected borehole locations after the works
- Monitoring up gradient and down gradient of the River Medlock and Ashton Canal during enabling works

A suitably licensed contractor was required for inspection and removal of asbestos from site to a licensed facility. Measures to deal with this formed part of the Contractors Implementation Plan.

Risk Assessment Criteria was provided within a series of tables in Section 16 of the Remediation Strategy.

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5.1.9 Review of 2010 Buckingham Group Contracting Ltd – *Remediation Strategy*

Buckingham carried out additional statistical analysis using the May Gurney data. They re-visited and re-assessed the benzo(a)pyrene data within the Made ground. They assessed all the samples within the Made Ground down to 2.5mbgl. Within Area C (the relevant area to this Desk Study) there were 36 samples. Buckingham established the UCL mean of the samples and compared this with the critical concentration of 14mg/kg (GAC proposed by CIEH/LQM for commercial land use). The benzo(a)pyrene UCL mean calculation for Area C was 10.1mg/kg, below the commercial GAC criteria. A capping layer across the entire site was proposed by Arup and Buckingham to enable benzo(a)pyrene concentrations above the 14mg/kg GAC to be present whilst protecting human health. The proposal in Arups Outline Remediation Strategy [19] allowed a maximum concentration for benzo(a)pyrene of 23mg/kg below the capping layer and a 5mg/kg limit within the capping layer. The UCL mean calculation for Area C (10.1mg/kg) exceeded the capping layer limit of 5mg/kg.

At borehole BH01/09 (northwest of the proposed development site) elevated concentrations of hydrocarbons were recorded. Buckingham state, if concentrations are significantly elevated following monitoring then three additional boreholes would have to be drilled at a distance of 8m evenly spaced around BH01/09 to further monitor the area and inform a quantitative risk assessment. Further boreholes were drilled during the subsequent earthworks, see Section 5.1.13 below.

Concentrations of 2,4-dinitrotoluene were located in one location from the May Gurney investigation, at 1mbgl within TP09/09 (no other samples from this trial pit were analysed for 2,4-dinitrotoluene). An assessment of the impact of 2,4-dinitrotoluene on controlled waters was undertaken using ConSim software. Buckingham modelled the maximum concentration (100mg/kg) using ConSim, the model suggested there was no risk to controlled waters when natural degradation is taken into account and when the area is less than 630m2. The concentration was below the relevant human health GAC and also below soil saturation concentration. The concentration of 100mg/kg was therefore proposed as the Site Action Criterion for the 2,4-dinitrotoluene 'hotspot'. The extent of the 2,4-dinitrotoluene contamination will be delineated by validation testing.

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5.1.10 Review of 2011 BWB Consulting – Area C Earthworks Validation Report (Sportcity Remediation and Servicing Works)

Due to earlier remediation within the southeast area of Area C, the former hotel development footprint, BWB agreed no further remediation work was required within this area. Cut and fill works with a capping layer placed above formation level. To establish material movement Area C was divided into 13 panels (see Figure 5-4). A service easement area was created along the south eastern and southern boundaries; predominantly running through area of previous hotel remediation.

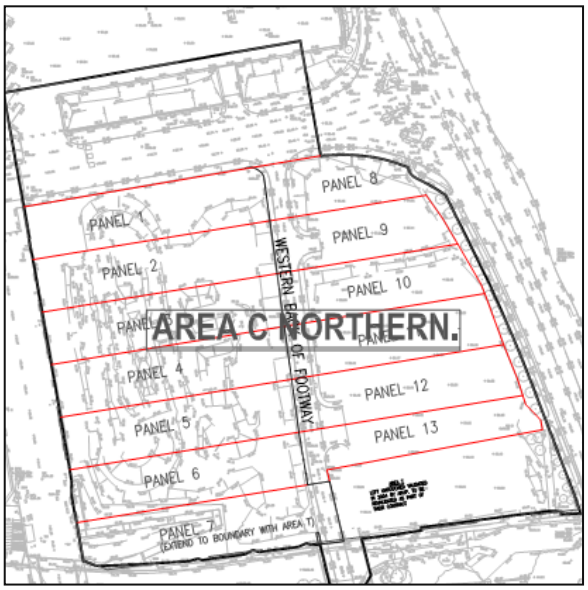

Figure 5-4 Extract from BWB Earthworks Validation Report (2011) - Panel distribution [Figure 2]

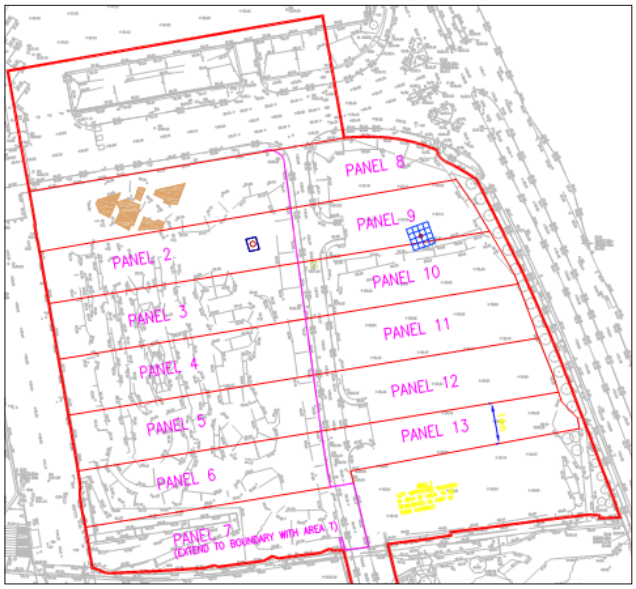

Figure 5-5 Extract from BWB Earthworks Validation Report (2011) - Obstructions within Area C [Figure 4]

Excavation works: Made Ground excavated to 2m below final formation level or top of Glacial Till. Material was inspected for visual and olfactory evidence of contamination during the excavation process, no contaminated material was uncovered. Panel 1 located lightweight concrete blocks at ~2mbgl, these were removed to a depth of 8mbgl (assumed to be associated with the former gasworks). The obstructions appeared to continue south of Panel 1, BWB agreed with Arup that the remainder of these obstructions should remain in place. The remaining blocks have been surveyed, an extract is presented above in Figure 5-5. For the full drawing, see Figure 4 within the BWB report [24]. This figure also presents the Shaft B cap and redundant manholes. The concrete blocks were crushed and mixed with the excavated and stockpiled Class 1A/1B and 2C material.

BWB provide a breakdown of geotechnical properties (PSDs, MCs and PI) retrieved during the earthworks in order to confirm May Gurneys findings. They confirm the majority of material across Area C is of soil class 1A/1B with a proportion of class 2C material. Lime modification was carried out on materials where low CBR values where obtained or excessive rutting took place.

Earthworks cut was taken as close to the boundary as possible, however along the north and east boundaries an exclusion zone for excavation was enforced. In this zone 3m probe holes were carried out in order to check for buried obstructions. None were encountered. Across the remainder of the site buried obstructions were removed down to 5mbgl with the exception of those structures such as concrete blocks in Panel 1 and service entries.

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Capping was specified to be 300mm of 6F2 material. Capping material was either site won (including the crushed buried concrete blocks) or imported. A geo-textile was placed on the final formation surface prior to the placement of the 300mm 6F2 capping layer.

Settlement gauges (6 no. within Area C) were installed, bearing on the formation, on the underside of the capping (concrete block with the inclusion of a steel datum pin). Monitoring of the gauges was planned for monthly intervals for the first 5 months followed by two visits within the 12 month period. This data was not included within this Report.

5.1.11 Review of 2011 BWB Consulting – Master Mine Stabilisation Works Validation Report (Sportcity Remediation and Servicing Works)

The mine stabilisation works were carried out by M&J Drilling Services in 2010. Historical coal seam stabilisation is summarised within Table 4 of the report. This report validates the historical treatment of these works. Boreholes were taken to a depth below the seam previously treated. Where grout take was in excess of 5 tonnes /group more holes were drilled until grout take, on average, was less than 1 tonne/hole.

Within Appendix 5, BWB provide copies of historical information, plans and maps. Included was one of the abandoned mining plans showing the likely location of the adit at the River Medlock, located in the north-west corner of the site.

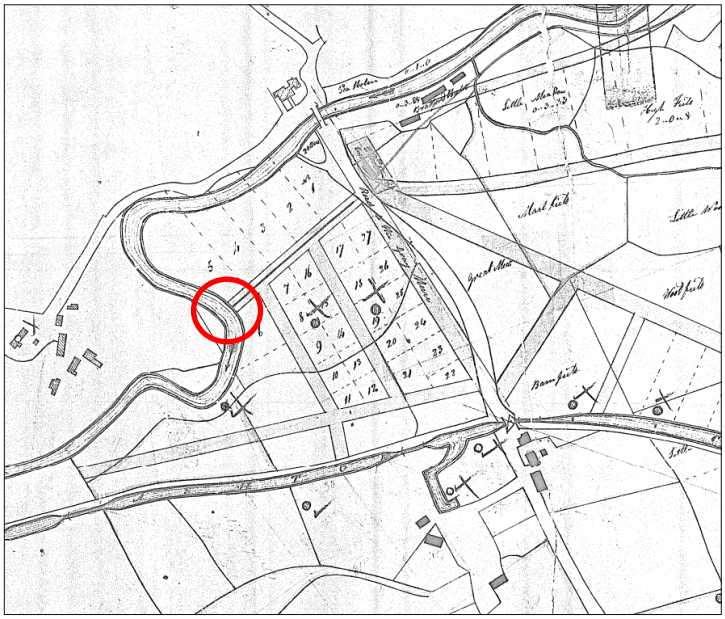

Figure 5-6 Extract from the BWB Master Mine Works Verification report (2011). Note adit from River Medlock.

Within the information made available within this report, there are two shafts shown labelled as Shaft 22 and Shaft 23, these coincide with Shaft B / 13 and Shaft C, respectively. There was also mention of a Little Shaft No. 10, this was recorded as a an alternative position for Shaft 22 which implies it was a duplicate record, this information is based on a planning document communicated to Bristol Coal Corporation from the Manchester City Council Planning Department.

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5.1.12 Review of 2011 BWB Consulting – Removal of Constraints for New Development (Sportcity Remediation and Servicing Works)

Shaft A (also referred to as Shaft 12) – no further work was undertaken as the shaft was not located within the site and had previously been grouted and capped.

Shaft B (also referred to as Shaft 13) – previously grouted and capped. Grouted from base of shaft (33mbgl). The existing cap was validated by Buckingham Group Contracting Ltd.

Shaft C – Shaft not located during numerous investigations in the past. Shaft was located under this contract and grouted to full depth, 22mbgl with a plug formed at rock head.

BWB Consulting explain that the validation of this work ensures the located mine shafts can now be built on and no longer form a constraint. They explain that there will always be a requirement that any foundation construction on future builds should be at a sufficient distance from the shaft, presumably such that it doesn't cause any additional loading to the shaft. For further details on treatment works see Section 3.7.

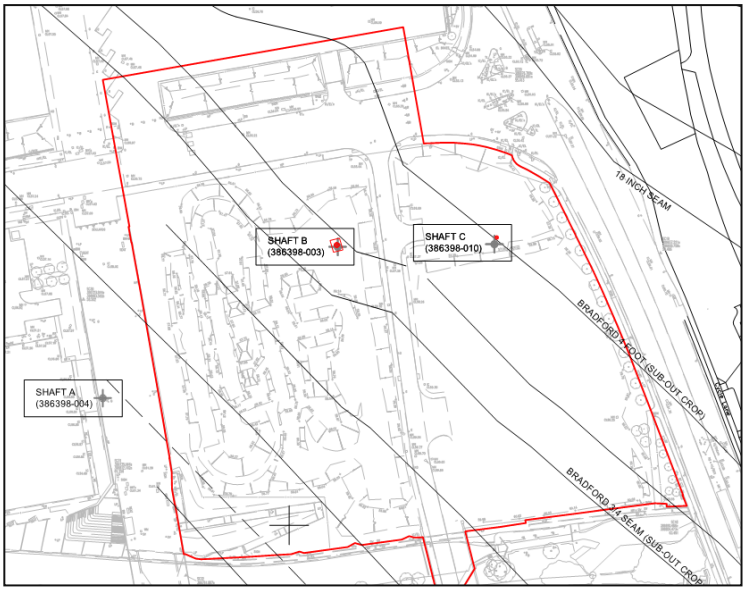

Figure 5-7 Extract from BWB Validation Report showing shafts and coal seams

5.1.13 Review of 2011 Buckingham Group Contracting Ltd – *Verification Report*

A distinct localised band of spent oxide (white clayey gravel type material) was encountered when excavating Panel 8 (see Figure 5-4 above for location of panel). Analytical results of the samples containing spent oxide indicated the material was suitable for re-use on site.

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The 6F2 capping material contained elevated concentrations of petroleum hydrocarbons in the aromatic range of C21 to C35. Recorded concentrations were approximately two times the target threshold of 500mg/kg with maximum concentration recorded at 6300mg/kg (over 12 times the threshold). Buckingham explain that with representative samples of the capping material being difficult to obtain, the low percentage of the capping that the analysed material represents and the known composition of the major part of the capping material (brick and concrete), it was considered that the analytical results should not be assessed in isolation. The site target (500mg/kg) was also much stricter than the human health or water thresholds therefore, it was concluded that the material was in fact suitable. BuroHappold note that there is no logical basis for this decision or argument given in the report and it is direct contradiction to the stated remedial strategy.

One sample contained amosite asbestos fibres. This location area was segregated and disposed off-site to a licensed facility.

Sampling and an assessment of the soils around the location of TP09/09 where the elevated concentration of 2,4-dinitrotoluene was recorded was carried out. The soils within the assessment met the Site Re-Use Quality Criteria for 2,4-dinitrotoluene and no further remedial work was required.

Following review of groundwater contamination within BH01/09, a further three boreholes were constructed in order to monitor this contamination. These were positioned both up and down gradient of BH01/09. Analytical results from 2010 of the hydrocarbon contamination were shown to be declining, according to Buckingham. From the results of the groundwater level monitoring and assessment of topographic setting, it was concluded that there was a hydraulic gradient from the area of contamination towards the River Medlock. Migration of hydrocarbons towards the River Medlock was modelled and the results showed a 95% certainty that the concentration of hydrocarbons in the groundwater adjacent to the River would not exceed the screening values set out in Remediation Strategy. Taking the results of the model together with the protection provided by the culvert and the dilution within the River, it was concluded by Buckingham that there was no unacceptable risk to quality in water within the River. BuroHappold note that dilution is not an acceptable mitigating factor.

Four post remediation gas and groundwater monitoring were installed across Area C to satisfy the requirements of the Remediation Strategy. See below for Buckingham's summary of the monitoring borehole installations:

Borehole Location	Drilled depth (mbgl)	Response zone	Monitoried strata
BH01/11	11.0	1.0-10.2	Made Ground
BH02/11	4.0	1.0-3.5	Made Ground
BH03/11	15.0	1.0-15.0	Made Ground and Drift
BH04/11	15.25	13.5-15.0	Coal Measures

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5.2 BuroHappold Review Summary

Following review of all the available information, the following information has been highlighted:

Geoenvironmental

- Elevated concentrations of TPH (Aromatic bands C21-C35) present across the site within the top 300mm capping layer.
- Spent oxide was uncovered beneath the former Gas Works site, this may still be present in areas below the 2mbgl remediation levels.
- Elevated concentrations of PAHs (specifically benzo[a]pyrene) encountered within May Gurney investigation, Arup re-visited, removed outliers and assessed the UCL calculation as below relative commercial criteria. This was only assessed down to 2.5mbgl. Commercial criteria used may not be to current standards.
- Site-wide remediation (Panels 1-13) was carried out down to 2mbgl. The boundaries of some areas were not accessible at the time of remediation and therefore should be further investigated. Elevated concentrations of various contaminants may be present below the 2m remediated zone.
- Coal tars and phenols recorded as toxic chemicals being blown out from one of the cable percussion holes in 1986, although outside the site boundary (to the NW) this should still be highlighted as a possible constraint.
- Southern area on the east side of the site was remediated in 2004. No further remediation was carried out in 2010. The threshold criteria across this area of the site are now out-dated and further review of contamination in this area should be undertaken.
- Ground gas regime was assessed as Characteristic Situation 2 / 3, further monitoring and assessment of the regime needs to be carried out to establish the suitable Characteristic Situation and determine whether zoning can be implemented.
- All chemical data should be compared to the current soil assessment criteria (S4ULs and C4ULs) to confirm the proposed developments meets the relevant criteria.
- Cost implications for removing potentially contaminated material needs to be allowed for in the development cost plan.

Geotechnical

- Concrete obstructions are present in the northern area of the site, these were removed down to 8mbgl in Panel 1 (see Figure 5-5) and are expected to continue further south. Such obstructions could provide implications with future foundation options. Remaining blocks have been surveyed.
- The poor state of Ashton Canal retaining walls
- Confirm crushed material placed as part of 2010 enabling works meets geotechnical requirements for proposed development
- Incident where toxic gas and fumes was encountered during boring may present a risk to pile construction
- The various coal seams will present a constraint to the pile design
- The location of mineshafts
- The location of the adit associated with Bradford Three Quarter coal seam.

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6 Preliminary Geotechnical Assessment

6.1 Stratigraphy

The ground level across the site ranges between +60.6mOD and falls north to +56.8mOD. The geological sequence across the site can be generalised as:

- Made Ground over,
- Alluvium and River Terrace deposits over (northwest only),
- Glacial Till over, and
- Carboniferous Pennine Upper and Middle Coal Measures.

A series of cross sections showing the geology across the site have been produced, these are presented in the Drawings at the end of this report. One section (D-D') provides an approximation of the coal seam depths beneath the site and likely location of a fault. Reviewed historical information indicated the likely location of this fault in within the southwest part of the site, with a probable northwest-southeast strike. During investigation of the coal seams in 1986 by NHSE [8], Ward Ashcroft and Parkman [12] say the recorded angle of dip of the seams was much more variable and steeper than predicted (20-22°) suggesting this was a result of more complex geology (a fault) beneath the site. Later in 2010, Arup [18] also refer to the dislocated nature of the geology indicating the presence of a fault.

The solid geology (Coal Measures) dip approximately 20° and become less steep further south. Borehole logs from May Gurney ground investigations indicate the Bradford Three Quarters horizon is 'washed out' within the northern area of the site and numerous boreholes encountered substantial core loss and gravel potentially associated with previous mine workings. A 1.2m thick layer of sandstone was encountered beneath this horizon. The Bradford Four Foot horizon is divided into a thick and a thin seam, separated by seat earth mudstone. The main seam is locally much thinner and less extensively worked adjacent to the Ashton Canal. No intact coal seam associated with the Charlotte Mine horizon was recorded, gravel and core loss were reported suggesting previous working of the Charlotte Mine seam. For the purposes of this report, the coal seam levels have been taken from the May Gurney site investigation [17] and/or the BWB Earthworks Validation [24]. Levels from other reports show some variation to the levels reported in Table 6-2 although those boreholes are not located beneath the site; specific ones are referred to in the table, but otherwise are not generally included.).

Table 6-1 Ground stratigraphy

Strata	Description	Top of Deposit		Thickness Range [m]
		Depth (Strata Top) [mbgl]	Elevation [mAOD]	
Made Ground	Typically granular clayey, silty or gravelly SAND. Soft black clayey ash encountered. Gravel is mudstone, sandstone, limestone, slate, quartzite, pottery, wire, tiles, metal, brick, concrete, plastic, asphalt, ash, coal, coke, clinker, and glass. Post earthworks, top 2m of MG is Class 1A/1B with a portion of Class 2C. A 300mm capping layer of 6F1 material was placed across the site. Buried obstructions removed to 5mbgl.	GL	~+60.0	2.0 - 16.0

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Strata	Description	Top of Deposit		Thickness Range [m]
		Depth (Strata Top) [mbgl]	Elevation [mAOD]	
Alluvium*	Soft grey CLAY / Firm orange-brown grey and brown mottled sandy CLAY	3.5 to 14.1	+56.5 to +45.9	0.5 – 5.0
River Terrace Gravels*	Medium dense orange-brown mottled clayey SAND	6.8 to 11.7	+53.2 to +48.3	1.3 - 2.5
Glacial Till [including Boulder Clay]	Firm becoming very stiff at depth, brown and grey, thinly laminated fissured CLAY with fine to coarse gravel. Described as slightly sandy to sandy, slightly gravelly clay from Arup 2010 Geotechnical Report, based on May Gurneys investigation.	6.1 to 12.0	+53.9 to +48.0	1.0 - 8.7
Carboniferous Coal Measures	Very weak becoming weak grey thinly laminated very silty MUDSTONE. Weathering variable throughout deposit and expected to be completely weathered around coal workings. Contained siltstones and sandstones. Coal seams described below in Table 6-2	6.7 to 16.0	+53.3 to +46.0	Underside of deposit not proven

**The Alluvium and River Terrace Gravels are only present in the north western part of the site*

Table 6-2 Coal seam data based on May Gurney site investigation information and BWB Earthworks Validation

Coal seam	Level (mbgl)	Elevation (mOD)	Approximate Thickness (m)
18 Inch / Yard*	54.15 and 53.85	-1.9 to -2.15	0.3-0.6
Fireclay (seatearth mudstone)	Approximately 2.5m of mudstone between the Bradford Four Foot and Fireclay. Approximately 16m of mudstone between the Fireclay and the 18 Inch Coal.		1.4
Bradford Four Foot	11 and 23 Encountered at increased depth within Treatment Area B. Dips SW between 14° and 24°	See Cross Section D-D' for inferred elevation	0.17-0.3
		See Cross Section D-D' for inferred elevation	1.2-1.35 (worked)
		See Cross Section D-D' for inferred elevation	0.05-0.3
Bradford Three Quarters	13 and 29 Recorded as cropping out immediately beneath the Glacial Till. Seam angle approximately 21°	See Cross Section D-D' for inferred elevation	0.6-1.2
Thin seams: A, B, C	Measures between Bradford Three Quarters and Charlotte Mine coals (78 to 90m). Between Charlotte and 'A' seam, sandstone and mudstone with thick sandstone horizons. A – 25m below Charlotte Below the 'A' seam, mainly mudstone with occasional sandstone and siltstone. B – 45m below Charlotte (most persistent) C – 62m below Charlotte (least persistent)		
Charlotte Mine (includes very weak seatearth mudstone and three separate	Sub-crops beneath southwest of former Bradford Rd Gas Works. Also worked at shallow depth beneath the River Medlock alluvial deposits.		0.3-0.4

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Coal seam	Level (mbgl)	Elevation (mOD)	Approximate Thickness (m)
coals across the horizon)			

*****Where no information available from May Gurney site investigation (2009)* [17] *and/or BWB Earthworks Validation (2011)* [24]*, data has been inferred from other reports, of which, may be located off site.*

Alluvium and River Terrace Gravels are present within the northwest area of the site where the River Medlock was once located before being re-aligned and diverted into a culvert further north of the site in the early 1900s. Glacial Till is believed to be absent within this area with Alluvium and River Terrace Gravels located directly over the Coal Measures. These superficial deposits are not anticipated in any other areas of the site.

Multiple ground investigations and subsequent reports have been reviewed. All the reviewed information was from mid-1980s to 2011, post deconstruction of the Bradford Road Gas Works. Due to the mining history within the area many of the investigations were undertaken to target and understand the shallow workings of the coal seams and various deep shafts, extending >30mbgl within the site (away from the site as much as ~900mbgl). All shafts on record by the Coal Authority have been located, treated and validated. West of Forge Lane, treatment works to 8 mine shafts was completed in 1986. Shallow mine workings were also identified at the time but no treatment work undertaken.

The eastern side of the site was subject to enabling works and some remediation in 2004, this was to cover the then proposed development: hotel (south), car park (central), and budget hotel (north). Made Ground was excavated down to 2mbgl (+58mOD) across all these areas. In the south, suitable Class 1 granular fill placed back down with a 0.5m of granular 6F1/F2 capping fill placed up to the final enabling works level (+60mOD). The central area contained a final 0.15m of recycled 6F1 granular fill. To the west, a new access road was constructed including a landscaped bund formed of Class 4 materials, this was approximately 1.5m in height with a 1:3 batter (base width ~15m).

West of Forge Lane was later used for a BMX track (constructed in 2009, based on Google Earth images). According to Arup in 2010, there was a maximum of 4m variation in height.

Further enabling works took place in 2009-2010 whereby Made Ground was excavated down to 2mbgl across the entire site (except the southern area remediated in 2004). This was carried out using a grid system of 13 panels (refer to Figure 5-4). This excavation process confirmed the majority of material across this area was Class 1A/1B with a proportion of Class 2C material. Buried obstructions were removed down to 5mbgl. A 300mm capping layer comprising 6F2 material was placed over a geo-textile marker layer across the site.

The final site levels across the site following the 2010 enabling works (verified by Buckingham) were generally +60mAOD along the southern boundary with a gentle fall to +56mAOD along the northern boundary.

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6.2 Groundwater

Shallow groundwater was identified across the site within the Made Ground, see Table 5-3 within Section 5.1.8, this is believed to be perched within lenses relating to the variability of composition within the Made Ground.

Due to the presence of Glacial Till across the site, the perched water within the Made Ground is not considered to be in hydraulic continuity with the Coal Measures. However, where the Till has been eroded away (north-west) there is potential for contaminants in the perched water of the Made Ground to pass through the fluvial deposits into the underlying Coal Measures. Previous historic investigations have reported evidence of contamination seepage through the culvert walls into the River Medlock. However, more recent assessment by others suggest the culvert wall acts as a barrier against migration of contamination into the river.

Groundwater levels around the BH01/09 series (geoenvironmental purposes):

Table 6-3 Groundwater levels around the BH01/09 series

BH ID	**Ground Level (mAOD)**	**Response zone (mbgl)**	***Groundwater levels***											
			January		February		September		Mid-October		Late-October		November	
			mOD	mbgl	mOD	mbgl	mOD	mbgl	mOD	mbgl	mOD	mbgl	mOD	mbgl
BH01/09D	+56.75	28.0-32.0 – within the coal measures	+34.4	22.4	+34.6	22.2	-		-		+35.8		+36.1	20.7
BH01/09	+56.75	10.0-14.5 – based on shallow response zone of original BH01/09	+44.6	12.2	+44.6	12.2	+49.8	7.0	-		+44.60	12.5	-	
BH01/09W	+56.86		-		-		-		+44.8	12.1	+44.6	12.3	+43.7	13.2
BH01/09X	+56.93		-		-		-		+47.2	9.7	+47.8	9.1	+43.6	13.4
BH01/09Y	+56.83		-		-		-		+44.4	12.4	+44.6	12.2	+42.8	14.0
BH01/09Z	+57.12		-		-		-		DRY		DRY		DRY	

For groundwater monitoring levels across the site, see Section 5.1.8. Arup [19] provide the groundwater monitoring results within the superficial deposits and Coal Measures based on monitoring from the May Gurney Site Investigation [17]. Groundwater within the Coal Measures ranges from +34.4mOD (22.35mbgl) up to +42.69mOD (15.08mbgl) in the north west of the site. The northeast side of the site records groundwater within the Coal Measures at approximately +41.6mOD (15.5mbgl). No groundwater monitoring was carried out within the Coal Measures across the south of the site. Beyond the Ashton Canal and Metro link, groundwater within the Coal Measures was recorded between +46.66mOD (15.95mbgl) and +43.7mOD (18.91mbgl) [19].

6.3 Geotechnical Risks

From a review of the available information, a number of geotechnical risks and constraints have been identified that may influence the design.

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6.3.1 Coal Measures

As has been discussed previously there are several coal seams running beneath the site. In addition, there may be a geological fault present in the south east corner. Due to the nature and scale of the structure it is assumed that the foundations will be piled and these features will likely be a major constraint to the pile design. In general it is necessary to found piles a minimum distance above any coal seam (10 times seam thickness as a rule of thumb), or to penetrate through them. At this stage it is assumed that piles will be bored cast in situ, designed in shaft friction alone.

The incident where toxic fumes were encountered during boring is also noted as a risk to the foundation construction operations and appropriate risk mitigation measures will be required on site where the risk cannot be designed out.

6.3.2 Historic River Channel

The previous course of the Medlock in the north west corner of the site means that Alluvial and River Terrace Deposits are present. This variation in geology will need to be taken into account in foundation design to ensure no undue differential movements of new structures.

6.3.3 Adjacent Stake Holders

The various site boundaries present constraints to the design of the retaining solutions and consultation will be required with the relevant stakeholders.

Existing retaining walls are present to the south between the site and the canal. A condition survey should be undertaken and where possible the retaining solution for the arena should not interact with these structures. The level of interaction will be dependent on the construction methodology and the distance between the two sets of walls.

To the east, the retaining walls will be supporting Alan Turing Way and so consultation with the local authority will be required.

The current scheme presented leaves a gap between the arena retaining walls on the west and Joe Mercer Way, which should avoid the development impacting the crib wall that Joe Mercer Way is supported on. This will need to be reviewed as the design progresses.

6.3.4 In Ground Obstructions

In-ground obstructions in the form of “lightweight concrete blocks” have been identified and in some places removed. The remaining blocks will inhibit piling operations and it would be desirable to move them as part of an enabling works package.

A number of existing services are present on the site and research is ongoing to establish the status of any easement zones around them. Several sewers run north south through the centre of the site, one of which may still be active. If this is the case then any structure above will be required to bridge over the easement zone. In the southeast corner, it appears likely that there will be an active easement around existing electrical cables and this will be a no build zone.

Tanks have been recorded on site. It is not known what the contents or material of these tanks are.

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6.3.5 Remediated Mine Shafts

From the literature review undertaken it appears likely that all of the mineshafts, which have been located on the site, have been grouted, capped or plugged. There is however, some uncertainty with regard to one shaft, Shaft 11 (also referred to as Little Shaft No. 10). It has been speculated that this is Shaft 13 (B / 22) (duplicated records), but there has been nothing conclusive presented in any of the available reports. In addition, some of the shafts have been grouted but there is no evidence to show that all of them have been capped. The areas of grouting will need to be considered both in pile design and in determination of the construction methodology. This also applies to seams that lie beyond the boundary of the site, where collapse of any workings could have an impact at the site margins.

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7 Preliminary Geoenvironmental Risk Assessment

7.1 General Approach

In the UK, the assessment of risk from contamination is based on consideration of the conceptual site model and follows the "source-pathway-receptor" approach. If one of these three elements (source, pathway or receptor) is absent, it is considered that there is no risk of harm. If, however, there is considered to be a linkage between any given source and any given receptor, then a risk-based approach is used to assess the significance or impact of the linkage. Risks are defined as the probability of an event occurring combined with the severity of the consequence of that event. Particularly, to assess the risks to site end users posed by any given source, the sensitivity of each receptor is considered. For example, the concentration of contamination acceptable at a site to be developed as a residential property with a garden used to grow vegetables and accessible to young children is set lower than that for a commercial site where soil is exposed only in minor areas of landscaping and the only long-term users of the site are adults. Similarly, a site overlying a Principal Aquifer supplying potable water will be considered more stringently than a site overlying an impermeable geology with only minor seepages of groundwater.

Risks are classified using the matrix provided in Table 7-1 which is taken from CIRIA C552 [26]. Risks above Low usually require assessment and / or mitigation.

Table 7-1 The classification of risk

Probability (likelihood of occurrence)		**Consequence**			
		Severe	**Medium**	**Mild**	**Minor**
	High likelihood	Very high risk	High risk	Moderate risk	Low risk
	Likely	High risk	Moderate risk	Moderate / low risk	Low risk
	Low likelihood	Moderate risk	Moderate / low risk	Low risk	Very low risk
	Unlikely	Moderate / low risk	Low risk	Very low risk	Very low risk

7.2 Conceptual site model

The potential risks posed to human health and the environment by ground contamination at this Site have been evaluated by a generic quantitative risk assessment which incorporates the 'source-pathway-receptor' identification and assessment methodology in accordance with the Model Procedures [2]. The risk assessment process therefore involves the identification of each source based on the information in this report, including any available existing ground investigation results together with the identification of relevant exposure pathway(s) and receptors. The potential risks to the receptors have been assessed by considering the potential effect of the source on the receptor as well as the likelihood of a pathway linking the two, i.e. a contaminant linkage as discussed above.

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7.3 Sources

The potential contamination sources at the Site have been identified from the review of regulatory data, historical maps and previous site investigations and are summarised in Table 7-2. The 'Contaminants of Concern' in this risk assessment are based primarily on information from this review of historical information and by reference to relevant Industry Profile reports ([27], [28] and [29]).

Table 7-2 Summary of potential sources of contamination

Potential Source	Location	Likely Age	Potential Contaminants of Concern
Previous industrial uses: Bradford Road Gas Works including tramlines, historical buildings – demolition (i.e. residential houses)	On site	From 1900s	Asbestos, heavy metals, organic and inorganic compounds, acids /alkalis, PAHs, TPHs, spent oxide, fuels and oils, organic solvents.
Infilled land: River Medlock (NW), NW Bradford Rd Holder Station, cut and fill activities across the site, coal seams and mine shafts	On Site	River diverted 1890s Holder station late 1970s to early 1980s Cut and fill from 1980s	Hazardous ground gases. Leachate.
Tanks and electricity substations	On and off site	Electricity Substation from late 1940s Tanks from late 1960s	Petroleum hydrocarbons, transformer oils, PCBs.
NHSE 1986 Report: CP3 location – toxic chemicals encountered mixed with GW at +42.35mOD	Off site	1986	Coal tars and phenols (associated with offsite gas works)
Surrounding historical industrial uses: Mills, Colliery, Brick Works and Fields, Coal Yard, Gas Works, Iron Works, Albion Works, rail and tramlines, Cotton Works, Sanitary Works, Beswick Goods Station (and associated tramlines), Electricity Generating Station	Off site	Pre 1850s	Asbestos, heavy metals, organic and inorganic compounds, coal/ash, acids /alkalis, PAHs, TPHs, fuels and oils, organic solvents.
Surrounding infilled land: coal pits (NE, W and S), coal seams and mine shafts, water bodies and reservoirs (E and S), canal arm and overflow basin (S)	Off site	Pre 1850s	Hazardous ground gases.

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7.4 Pathways and receptors

The proposed development comprises a commercial scheme (see Section 2.4). The presence of contamination (in soils, liquids or gases) has the potential to impact upon human and environmental receptors both in the short term (during construction) and in the long term (during use and occupation). Those receptors and the pathways that could link them to the sources identified in Table 7-2 are summarised below.

Table 7-3 Summary table of receptors and potential pathways

Receptor		Pathway
Human Health	Investigation and construction workers	Direct/ dermal contact. Ingestion/ inhalation of soils. Inhalation of gas / vapour.
	Future site users / visitors (residents, guests, workers)	Direct/dermal contact. Inhalation of contaminated dusts, gas & vapour.
	Off site occupiers / visitors of neighbouring land	Inhalation of contaminated dusts.
Controlled Waters	River Medlock, Ashton Canal	Migration via permeable strata and preferential pathways (e.g. piling)
	Secondary Aquifers (Coal Measures)	Migration via permeable strata and preferential pathways (e.g. piling)
Building/Services	Buried concrete foundations. Potable water supply pipework	Direct contact / aggressive attack

7.5 Assessment of risk

The assessment of the level of risk for each of the potential contaminant linkages identified above is summarised in Table 7-4. The table lists the potential sources identified above. For each source an assessment is then made, receptor by receptor as to the magnitude of the potential consequence (reflecting the potential severity of the hazard associated with that source and the sensitivity of the receptor).

Consideration has also been given to the level of uncertainty associated with each of these potential sources. For example, much of the information is based upon historical records which are likely to be partial and will not be complete, together with the limited nature of the existing site investigation data. Because of this uncertainty, the identification of the sources is based upon a conservative assessment of the potential location, nature and extent of the source. The probability or likelihood of the hazard being realised is then assessed by consideration of the directness / integrity of the exposure pathway that could link the receptor to the source. The assigned level of risk is determined by the terms of consequence and probability in accordance with C552 [26] and summarised in Table 7-1. The final column describes all of the factors considered in the assessment and presents the justification for the assessed level of risk.

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Table 7-4 - Preliminary Risk Assessment

Source		**Receptor**/ Pathway	**Risk assessment** (following CIRIA C552)			Comment on hazard realisation
Origin	Contaminants of concern		Consequence	Probability	Risk	
Made Ground / Demolition debris / Former Gas Works material Previous industrial uses: Bradford Road Gas Works including tramlines, historical buildings – demolition (i.e. residential houses) Surrounding historical industrial uses: Mills, Colliery, Brick Works and Fields, Coal Yard, Gas Works, Iron Works, Albion Works, rail and tramlines, Cotton Works, Sanitary Works, Beswick Goods Station (and associated tramlines), Electricity Generating Station Tanks and Electricity Substation	Heavy metals, organic and inorganic compounds, PAHs, alkalis, asbestos, spent oxide, coal tars, cyanide and phenols.	**Description of the Source:** The first developments on site comprised Victoria Gardens in the north, these were replaced by Bradford Rd Gas Works by 1906. Residential development within the east of the site was present from early 1890s with Forge Lane constructed by 1906. During 1930s significant development to Bradford Rd Gas Works took place including construction of several tramlines. Both Gas Works and the residential area were cleared by 1979. Thereafter, several unknown buildings were present within the eastern part of the site. Alterations and development to the road layout took place during 1990s. An electricity substation was developed in the late 1940s within the south of the site, and two tanks developed in 1979 nearby. By the early 1990s these were removed. A large BMX track (forming mounds and ditches) was created in 2009. These activities will have resulted in the presence of Made Ground. Historical site investigations indicate Made Ground extends to depth of 16m in some areas of the site. Historical geochemical analysis has taken place, indicating elevated concentrations of TPH, some heavy metals and some PAHs (namely Benzo(a)pyrene). Elevated concentrations of sulphates were also recorded. Spent oxide was recorded encountered during the 2011 earthworks remediation, this was removed however there is potential for similar contamination to be located in areas near to the former gas works. Contamination has been assessed across the site, with several areas 'hotspots' of Made Ground removed for off-site disposal. A large cut and fill exercise was undertaken in 2010 whereby 2m of Made Ground was excavated and re-used and a 300mm capping layer placed (though the capping material was later found to have high concentrations of TPH). Boundary areas were not subjected to this cut/fill exercise due to vegetation. Further assessment was recommended as the ground was prepared solely for commercial use and creating a suitable formation platform.				
		Future site users / visitors (guests and maintenance) Direct / dermal contact. Inhalation of soils / dusts. Ingestion of contaminated water supplies. Migration and accumulation of hazardous gases.	Severe	Unlikely	**Moderate / Low**	Proposed future use is for commercial use with soft and hard landscaping. Potential for dust generation, direct contact and ingestion. Exposure time is relatively limited. Mitigation of potential risks can be achieved by appropriate investigation / design and implementation of remediation / mitigation measures including encapsulation.
		Investigation and construction workers Direct / dermal contact. Ingestion / inhalation of contaminated soils, gases and vapours.	Severe	Low likelihood	**Moderate**	Potential for exposure during investigations/ earthworks. Period of exposure dependent on construction timescales. Standard Health and Safety precautions likely to be used by workers. Mitigation of potential risks can be achieved by appropriate investigation and if needed remediation and adoption of standard good construction practice.
		Off site occupiers / visitors of neighbouring land Inhalation of contaminated dusts.	Severe	Unlikely	**Moderate / Low**	Large scale development, potential to impact surrounding visitors by dust generation. Increased potential during any earthworks. Mitigation of potential risks can be achieved by appropriate investigation and if needed remediation and adoption of standard good construction practice including dust control.

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Source		**Receptor**/ Pathway	**Risk assessment** (following CIRIA C552)			Comment on hazard realisation
Origin	Contaminants of concern		Consequence	Probability	Risk	
		Degradation of Water quality **[Secondary aquifer – Coal Measures]**	Mild	Low likelihood	**Low**	Potential for increased infiltration and promotion of leaching during development earthworks. Mitigation of potential risks could be achieved by appropriate investigation, risk assessment and design. Aquifer of low quality and not used for water abstraction,
		Controlled Waters – River Medlock and Ashton Canal	Medium	Low likelihood	**Moderate / Low**	Potential for increased infiltration and promotion of leaching through the permeable strata (NW) and/or surface water run-off during development earthworks. Mitigation of potential risks could be achieved by appropriate investigation, risk assessment and design.
		Buildings/services - permeation of water supply pipework, degradation of concrete Direct contact/, aggressive attack/ below ground structures	Medium	Low likelihood	**Moderate / Low**	Potential for direct contact on development site. Mitigation of potential risks can be achieved by appropriate investigation / design and implementation of appropriate design.
On site infilled land: River Medlock (NW), NW Bradford Rd Holder Station, cut and fill activities across the site. Coal measures and shafts. **Surrounding infilled land**: coal pits (NE, W and S), water bodies and reservoirs (E and S), canal arm and overflow basin (S)	Hazardous ground gases such as carbon dioxide and methane	**Description of Source:** The site was first altered in the northwest, by the 1890s the River Medlock (which once meandered through this part of the site) was diverted / straightened to the north (away from the site) and later formed a culvert beneath Bradford Rd Gas Works. The northwest area would have been subject to infilling prior to the development of Bradford Rd Gas Works by 1906. There were various water bodies / ponds located around the site (including ponds within Philip's Park and the Manchester Water Works Reservoir) which were infilled by 1980s and 1890s respectively. South of the site, there was an overflow weir and canal arm that extended to the Bradford Colliery, these were predominantly infilled by 1979. Regulatory data from GroundSure indicates on site landfill associated with the NW Bradford Rd Holder Station was present (licensed between 1979 and 1983). Other landfills were also recorded within the vicinity of the site (>300m) however due to the geology beneath the site it is unlikely any hazardous gases, if present, from these areas would affect the site. South of the site, there was an overflow weir and canal arm that extended to the Bradford Colliery, these were predominantly infilled by 1979. Cut and fill activities, typically using site won material (colliery spoil) took place across the site throughout various enabling works in recent history (since 1980s). Ground gas regime was assessed from historical investigation data, with elevated concentrations of hazardous gases suggested to be generating from Made Ground and coal seams below the site. No protection measures were implemented as part of the remedial works. The site was previously assessed as between Characteristic Situation 2 and 3, requiring protection measures on future enclosed developments.				
		Future site users / visitors (guests and maintenance) Migration and accumulation of hazardous gases.	Severe	Likely	**High risk**	Proposed future use is commercial with hard and soft landscaping. Potential for inhalation of hazardous vapours. Exposure time is relatively limited. Mitigation of potential risks can be achieved by appropriate investigation/design and implementation of remediation/mitigation measures

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Source		**Receptor**/ Pathway	**Risk assessment** (following CIRIA C552)			Comment on hazard realisation
Origin	Contaminants of concern		Consequence	Probability	Risk	
		Investigation and construction workers Inhalation of hazardous gases and vapours.	Severe	Unlikely	**Moderate / Low**	Potential for inhalation of hazardous vapours. Exposure time is relatively limited and enclosed poorly ventilated spaces unlikely to be encountered. Mitigation of potential risks can be achieved by appropriate investigation/design and implementation of appropriate control measures and monitoring if required.

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8 Scope of Ground Investigation

8.1 Outline scope of ground investigation

Technique	Purpose
Boreholes (Dynamic sampling with rotary follow on)	A number of boreholes will be sunk to confirm the ground conditions beneath the site and also to provide samples for geotechnical laboratory testing. The depths of these will be targeted to identify the coal seams and verify the dip of the seams across the site. Geoenvironmental soil samples will also be taken at specified depths across the Made Ground and any impacted nature strata, selected samples will be scheduled for laboratory chemical analysis. Leachate testing will also be included.
Trial pits	Trial pits will be excavated around the site to provide visual inspection of the Made Ground. Geoenvironmental soil samples will also be taken at specified depths across the Made Ground and any impacted nature strata, selected samples will be scheduled for laboratory chemical analysis. Leachate testing will also be included. Trial pits will also be used to inspect existing foundations i.e. bridge abutments for Joe Mercer Way.
Standard penetration testing	Standard penetration testing is an in situ test that will give an indication of the in situ density of granular material.
Plate bearing tests	Plate bearing tests at varying depths will provide load settlement characteristics for the Made Ground.
Probing / Coring	Probing using an irregular pattern to establish the location of seams and shafts. Coring to see the extent of grout treatment works.
Geotechnical laboratory testing	Geotechnical laboratory testing will be undertaken to classify the material on site and establish its strength and stiffness. In addition geochemical testing will provide information required for buried concrete design.
Groundwater installations for monitoring and sampling purposes.	Both shallow and deep groundwater monitoring wells will be installed to determine the groundwater regime across the site. Groundwater samples will be taken to assess potential contamination within the groundwater.
Ground gas installations for monitoring and sampling purposes	A series of wells will be installed to the base of Made Ground across the site. A ground gas monitoring programme of 5-6 weeks (post site investigation) will be carried out to determine the ground gas regime. Depending on the results of the monitoring ground gas samples may be instructed. Wells will also be installed within some of the coal seams to assess presence of ground gas within the coal seams.

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9 Conclusions and Recommendations

9.1 Geoenvironmental considerations

A number of potential sources of contamination in near surface and deeper ground have been identified with the potential for exposure to people, controlled waters (River Medlock, Secondary Aquifer, and Ashton Canal), and below ground infrastructure. Large volumes of Made Ground are present below the site as a result of historical industrial site uses and various enabling works and remedial activities in more recent history.

Potential High to Moderate / Low risks were assessed to people (construction workers, neighbours and future site users), controlled waters and below ground infrastructure associated with the remaining potential contamination. The potential risks associated with the possible presence of Unexploded Ordnance (UXO) were assessed as Moderate.

The historic ground investigation results and contamination assessment is now so dated that it does not meet current geoenvironmental assessment requirements. Further ground investigation work is necessary in order to provide adequate site coverage and in terms of 'updating' and 'verification' of the geoenvironmental ground model. Ground investigation and subsequent qualitative risk assessment will be necessary in order to address future planning requirements.

Following review of regulatory data, investigation of COMAH license discharge should be reviewed. There is ongoing dialogue around the COMAH zones.

Based on the updated red line boundary extensions, the sources of contamination have been updated (Table 7-2) and the risk assessment re-visited. There are no significant changes to the risks.

9.2 Geotechnical considerations

Due to the size and type of the structure it is anticipated that piled foundations will be required. Retaining walls will be required around the boundary of the structure. Due to possible obstructions in the made ground it is likely these will be contiguous piled walls, assuming that groundwater will not be an issue.

The following geotechnical risks have been identified:

- The Coal Measures and number of seams on the site are likely to present a constraint to the foundation design. At this stage it is assumed that pile capacity will be based on shaft friction alone and should found either a minimum of ten times seam thickness above any coal seam or penetrate through the seam to form a rock socket at least 1m below the base.
- An exclusion zone will be required around grouted and capped shafts, in respect of piled foundations, in addition floor slabs may be required to span across treated shafts.
- Should any easement zones be present around existing services, the foundation layout will need to be designed to accommodate these.
- Due to the variation in ground across the site (significant Made Ground and local Alluvium and River Terrace Gravels) consideration needs to be given to ways of controlling differential settlement.
- The thick layer of Made Ground (>10m) presents an onerous design case for retaining wall design.
- Buried obstructions identified in previous ground investigations will impact the type of pile being installed and have the potential to lead to programme delays.

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- Limited groundwater data is available and so further monitoring is required to derive a design groundwater level.
- The Ashton canal is close to the proposed development and the works must be designed accordingly so as not to impact it.

9.3 Summary of contamination risks

An Initial Conceptual Site Model has been determined and a Preliminary Risk Assessment with respect to ground contamination has been carried out for the site. The main sources of potential contamination have been identified and the potential risks have been qualitatively assessed. The assessment is based upon the site in its current condition, but it also includes consideration of the potential risks associated with any below ground works (e.g. site investigation or future foundation works etc.) and the potential future use. A summary of the potentially significant risks (i.e. greater than Low) is presented below.

Table 9-1 Summary of potential risks

Receptor	Source	Potential risk
Future site users / visitors (guests and maintenance)	Infilled land – hazardous ground gas	High
	Made ground / demolition debris / former gas works material Electricity Substations and tanks	Moderate / low
Investigation and construction workers	Made ground / demolition debris / former gas works material Electricity Substations and tanks	Moderate
	Infilled land – hazardous ground gas	
Off site occupiers / visitors of neighbouring land	Made ground / demolition debris / former gas works material Electricity Substations and tanks	Moderate / Low
Controlled Waters – River Medlock and Ashton Canal	Made ground / demolition debris / former gas works material Electricity Substations and tanks	Moderate / Low

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Buildings / Services – permeation of water supply pipework, degradation of concrete	Made ground / demolition debris / former gas works material Electricity Substations and tanks	Moderate / Low

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9.4 Recommendations

There are potentially significant risks associated with the site due to the former on site and surrounding land use. Therefore it is recommended that a ground investigation is completed. The aims and objectives of the investigation should combine geotechnical and geoenvironmental objectives.

The geoenvironmental aims will be to gain an understanding of:

- The presence, extent and nature of the Made Ground / fill materials;
- The risks to construction workers and future site users from on site contamination;
- The potential for contamination within the site soils to impact controlled waters;
- The ground gas regime;
- The shallow groundwater regime.

The investigation should identify the potential pathways and allow assessment of risk to sensitive receptors. This data will also inform any remediation / mitigation requirements associated with the proposed development. To meet the aims and objectives above, the scope of the ground investigation should include the following:

- Boreholes of suitable frequency and depth. Boreholes should include monitoring installations to intercept ground gas and groundwater,
- Trial pitting across the site with sampling of near surface soils and deeper,
- Chemical testing of representative soil and groundwater samples; and
- A gas monitoring programme.

The geotechnical objectives will be to:

- Verify the stratigraphy beneath and across the site
- Confirm the location and dip of the coal seams
- Undertake groundwater monitoring
- Verify the treatment works carried out on shafts and shallow mine workings across the site,
- Provide in situ and laboratory test results in order to derive geotechnical design parameters.

The data obtained from this investigation would be collated, assessed and presented in a report suitable for submission in support of a planning application. The report would include recommendations on the need for and scope of any remediation and provide outline geotechnical design recommendations.

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Drawings

0042841-BHE-XX-XX-DR-GE-0001 – Historical Ground Investigation

0042841-BHE-XX-XX-DR-GE-0002 – Geological Cross Sections

0042841-BHE-XX-XX-DR-GE-0003 – Constraints Plan

NTH/185/210 P2 - 2011 BWB Area C Coal Seam Treatment

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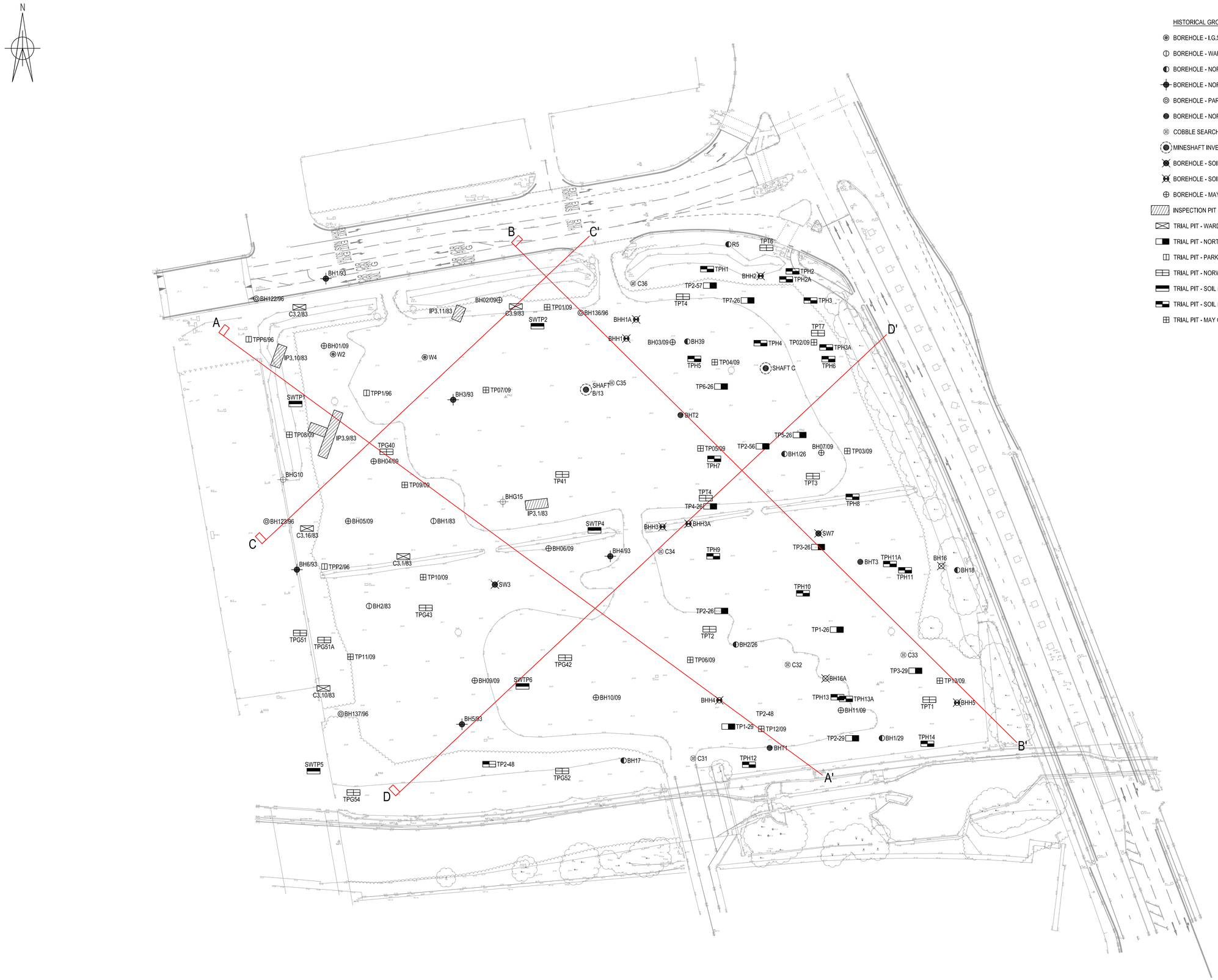

HISTORICAL GROUND INVESTIGATION

- BOREHOLE - I.G.S 1954
- BOREHOLE - WARD ASHCROFT & PARKMAN 1983
- BOREHOLE - NORTHERN FOUNDATIONS 1991
- BOREHOLE - NORTHERN FOUNDATIONS 1993
- BOREHOLE - PARKMAN 1996
- BOREHOLE - NORWEST HOLST 1999
- COBBLE SEARCH - NORWEST HOLST 1999
- MINESHAFT INVESTIGATION - SOIL MECHANICS 2000
- BOREHOLE - SOIL MECHANICS 2000
- BOREHOLE - SOIL MECHANICS 2003
- BOREHOLE - MAY GURNEY 2009
- INSPECTION PIT - WARD ASHCROFT & PARKMAN 1983
- TRIAL PIT - WARD ASHCROFT & PARKMAN 1983
- TRIAL PIT - NORTHERN FOUNDATIONS 1991
- TRIAL PIT - PARKMAN 1996
- TRIAL PIT - NORWEST HOLST 1999
- TRIAL PIT - SOIL MECHANICS 2000
- TRIAL PIT - SOIL MECHANICS 2003
- TRIAL PIT - MAY GURNEY 2009

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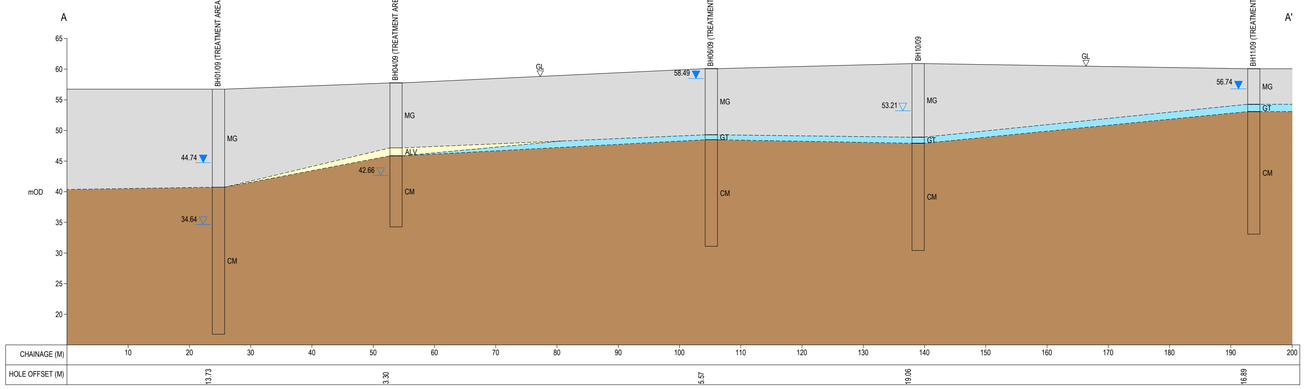

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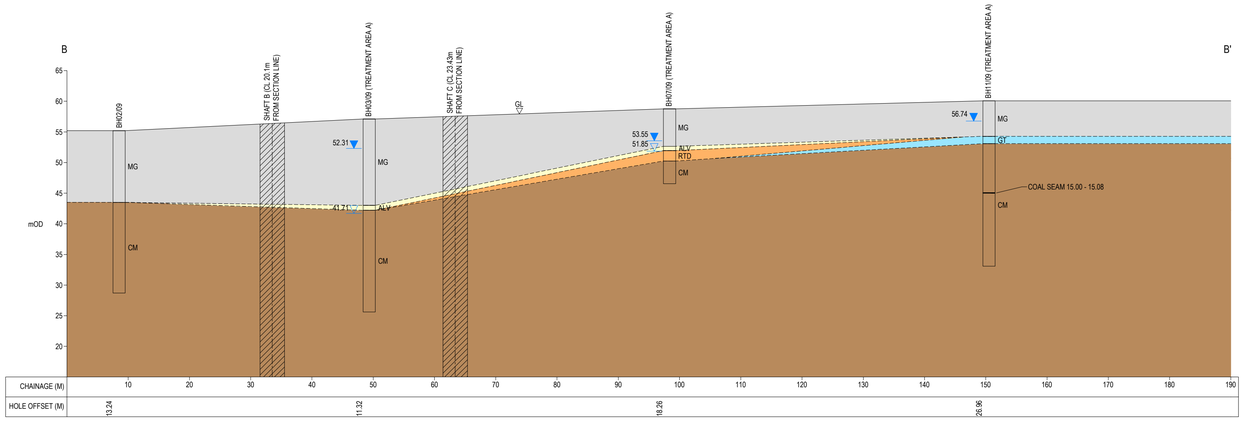

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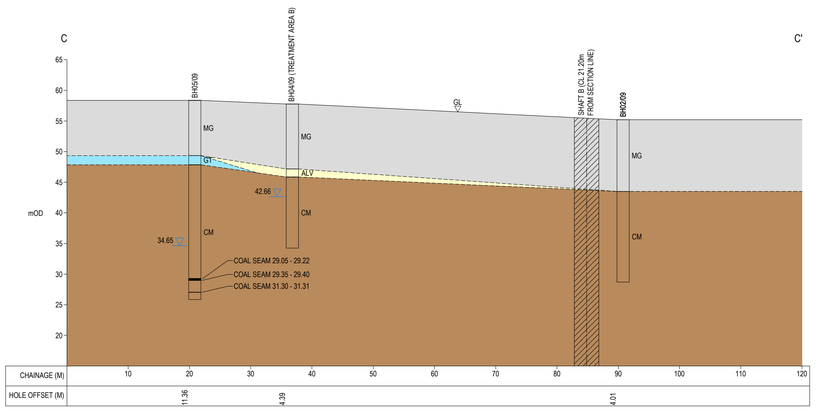

SECTION D - D'
SCALES
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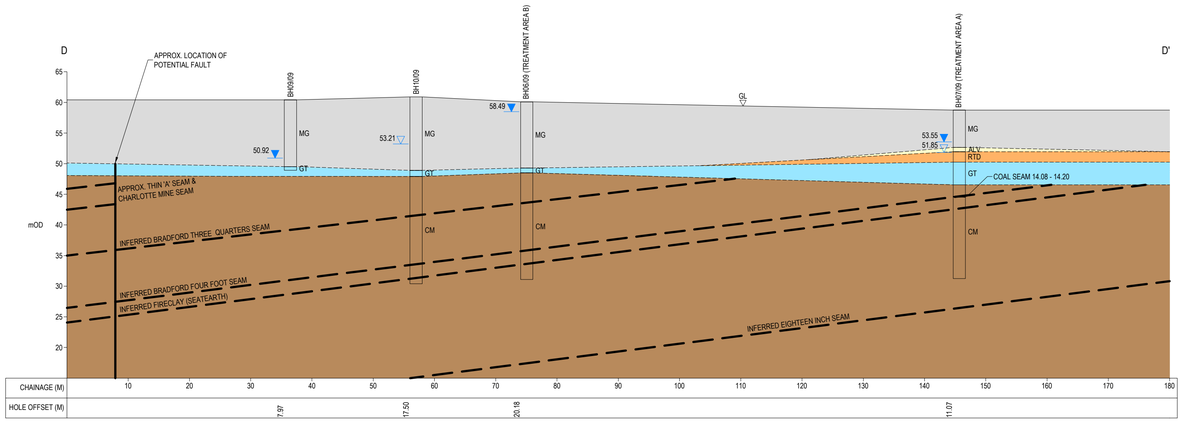

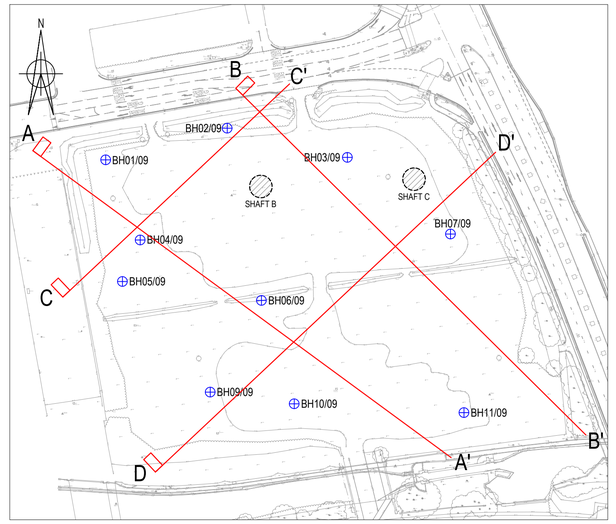

MG	MADE GROUND
ALV	ALLUVIUM
RTG	RIVER TERRACE DEPOSITS
GT	GLACIAL TILL
CM	COAL MEASURES
51.85	GROUNDWATER TABLE (mOD)
44.74	GROUNDWATER - PERCHED (mOD)

NOTE

HOLES MARKED TREATMENT AREAS A & B WERE LOCATED WITHIN TREATMENT AREAS FROM THE 2011 BWB REPORT. WITHIN THESE AREAS GLACIAL TILL WAS ENCOUNTRED AT APPROX. 11 mBGL AND 14 mBGL FOLLOWED BY GREY MUDSTONE OF THE COAL MEASURES.

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CONSTRUCTION.

MAINTENANCE/CLEANING/OPERATION.

DECOMMISSIONING/DEMOLITION.

Notes

Rev	Description	Date	Drn	Ch'd
00	INFORMATION	17.07.19	NG	FG

INFORMATION

Status of drawing

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Architect POPULUS
Project PROJECT BRADFORD
Drg Title GEOLOGICAL CROSS SECTIONS

Scales@A1 1:500
Drawn by NG
Checked by FG
Job No. 0042841
Date JULY 2019
Rev 00
Drawing No. 0042841-BHE-XX-XX-DR-GE-0002

Neil Gibson P:\0042841 Project Bradford\F09 Ground Eng- Site Inv\Sheet\0042841-BHE-XX-XX-DR-GE-0002.dwg

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Notes

1848 RIVER MEDLOCK POSITION, SUBSTATION & TANKS LOCATIONS - GROUNDSURE.

SHAFT A - ARUP, MINESHAFT AND MINE WORKINGS, FIGURE 14, 15.10.08.

SHAFTS B & C - BWB CONSULTING, AS BUILT MINESHAFT POSITIONS, DRAWING NO. NTH/185/201, REVISION P1, 14.03.11.

SHAFT 13 - ARUP, MINESHAFTS AND MINE WORKINGS, FIGURE 14, 15.10.08.

COAL SEAMS AND FAULTS - ARUP, COAL SEAMS AND MINESHAFT DETAILS, DRAWING NO., ARP-LAY-CG-132, REVISION C, 01.03.10.

COAL PROBE BOREHOLE LOCATIONS - NORWEST HOLST ENGINEERING, MINE SHAFTS LOCATION SITE PLAN, DRAWING NO. 14/6873/AO, AUGUST 1986.

BASE OF MADE GROUND/TOP OF NATURAL GROUND - ARUP, BASE OF MADE GROUND CONTOURS, DRAWING NO. ARP-LAY-CE-242, REVISION C, 01.03.10

CONTAMINATION HOTSPOTS, HISTORICAL TANK & SUMP - ARUP, EARTHWORKS VALIDATION PLAN, DRAWING NO. CLC060405, 23.01.04.

2004 SITE TREATMENT WORKS - ARUP, DRILLING AND GROUTING TREATMENT LOCATION PLAN, DRAWING NO. CLC060403, 23.01.04.

2011 SHAFT A - C TREATMENT - BWB CONSULTING, FIGURE 2 AREA C MINESHAFT INVESTIGATION, VALIDATION AND TREATMENT WORKS, DRAWING NO. NTN185/03/AREAC/F2, FEBRUARY 2011.

TREATMENT AREA A - BWB CONSULTING, FIGURE 5 TREATMENT AREA A MINE STABILISATION WORKS, DRAWING NO. NTH185/03/AREAC/F5, JANUARY 2011.

TREATMENT AREA B - BWB CONSULTING, FIGURE 6 TREATMENT AREA B MINE STABILISATION WORKS, DRAWING NO. NTH185/03/AREAC/F6, JANUARY 2011.

VALIDATION AREA - BWB CONSULTING, FIGURE 4 VALIDATION AREA A MINE STABILISATION WORKS, DRAWING NO. NTH185/03/AREAC/F4, FEBRUARY 2011.

BURIED OBSTRUCTIONS - BUCKINGHAM GROUP CONTRACTING, SURVEYED OBSTRUCTIONS, DRAWING NO. 005, REVISION A, 11.02.11.

HISTORICAL REMEDIATION - ARUP, PREVIOUS ENABLING AND REMEDIAL WORKS, FIGURE 15, 25.09.08.

RESIDUAL CONTAMINATION - ARUP, POTENTIAL RESIDUAL CONTAMINATION, FIGURE 16, 15.10.08.

Rev	Description	Date	Drn	Ch'd
00	INFORMATION	17.07.19	NG	FG

INFORMATION

Status of drawing

BUROHAPPOLD ENGINEERING

Camden Mill
Lower Bristol Road
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Architect *POPULUS*

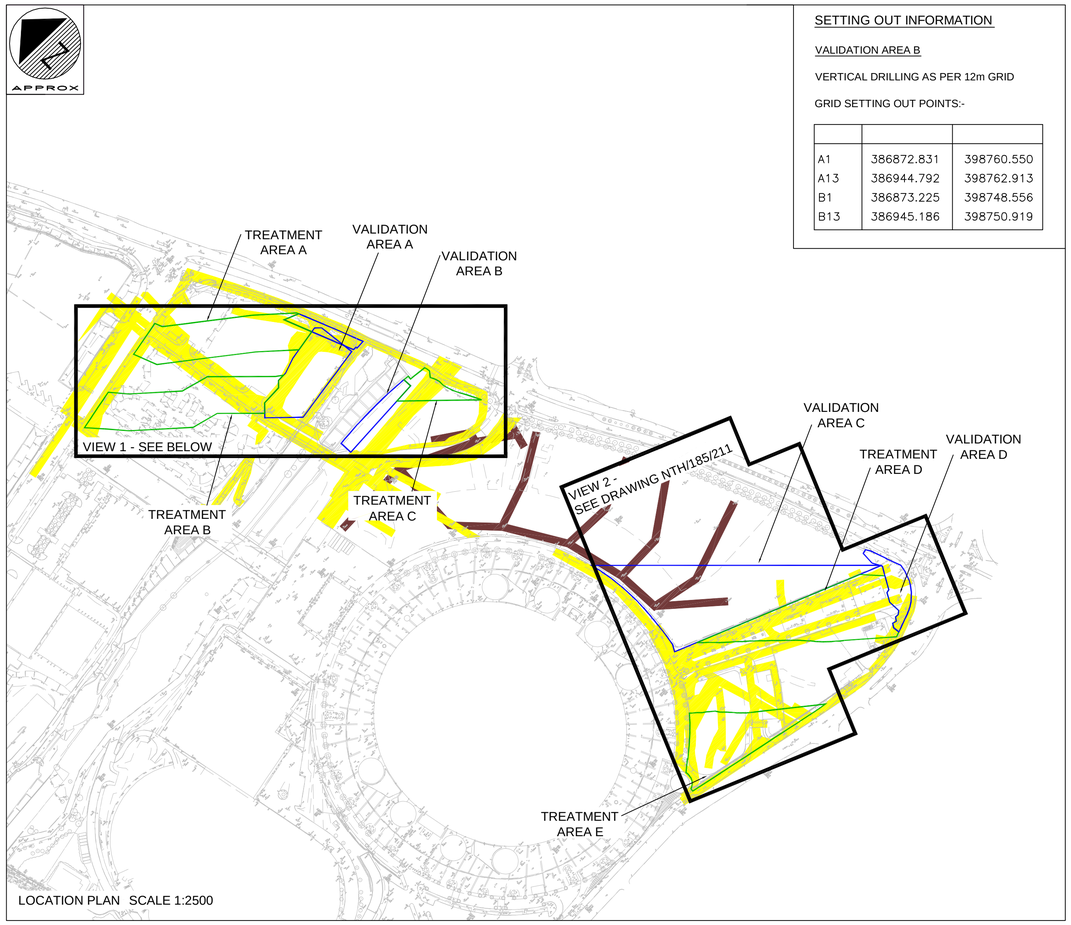
Project **PROJECT BRADFORD**

Drg Title CONSTRAINTS PLAN

Scales@A1 1:500	Job No. 0042841
Drawn by NG	Date JULY 2019
Checked by FG	Rev 00

Drawing No. 0042841-BHE-XX-XX-DR-GE-0003

Xref Dbase:P:\0042841 Project Bradford\F09 Ground Eng\ Files\rvt\0042841-BHE-XX-XX-DR-GE-0003.dwg



LOCATION PLAN SCALE 1:2500

SETTING OUT INFORMATION

VALIDATION AREA B

VERTICAL DRILLING AS PER 12m GRID

GRID SETTING OUT POINTS:-

A1	386872.831	398760.550
A13	386944.792	398762.913
B1	386873.225	398748.556
B13	386945.186	398750.919

SETTING OUT INFORMATION

TREATMENT AREA A

VERTICAL DRILLING AS PER 6m GRID

GRID SETTING OUT POINTS:-

	E	N
B19	386841.097	398945.525
B57	386920.156	398863.393
G19	386819.483	398924.720
G57	386902.704	398838.266

30° OBLIQUE DRILLING SETTING OUT POINTS:-

	E	N	ADDITIONAL POINTS
TA-1	386852.435	398925.994	
TA-2	386852.717	398920.001	
TA-3	386853.033	398911.467	
TA-4	386847.869	398908.396	TA-4 TO TA-5 @ 6m INTERVALS
TA-5	386850.231	398890.552	
TA-6	386818.005	398941.068	
TA-7	386812.095	398940.031	
TA-8	386814.225	398927.896	
TA-9	386820.130	398928.963	
TA-10	386824.386	398923.088	TA-10 TO TA-11 @ 6m INTERVALS
TA-11	386826.084	398904.877	
TA-12	386922.418	398857.906	
TA-13	386924.556	398852.300	

VALIDATION AREA A

VERTICAL DRILLING AS PER 12m GRID

GRID SETTING OUT POINTS:-

	E	N
D1	386872.768	398826.106
D5	386889.412	398808.815
E1	386864.123	398817.784
E5	386880.767	398800.493

30° OBLIQUE DRILLING SETTING OUT POINTS:-

	E	N	ADDITIONAL POINTS
VA-1	386864.644	398801.725	
VA-2	386862.782	398811.176	
VA-3	386863.130	398816.418	
VA-4	386870.589	398819.754	VA-4 TO VA-5 @ 5.5m INTERVALS
VA-5	386912.001	398826.762	
VA-6	386915.413	398826.567	
VA-7	386919.850	398821.619	
VA-8	386922.911	398816.840	
VA-9	386925.597	398811.228	
VA-10	386933.719	398829.618	
VA-11	386937.785	398825.205	

TREATMENT AREA B

VERTICAL DRILLING AS PER 6m GRID

GRID SETTING OUT POINTS:-

	E	N
J7	386777.226	398934.012
J33	386831.276	398877.862
Q7	386746.967	398904.885
Q33	386801.060	398848.690

30° OBLIQUE DRILLING SETTING OUT POINTS:-

	E	N	ADDITIONAL POINTS
TB-1	386770.899	398932.800	
TB-2	386747.778	398928.742	TB-1 TO TA-2 @ 6m INTERVALS
TB-3	386778.969	398921.528	
TB-4	386761.255	398918.329	TB-3 TO TA-4 @ 6m INTERVALS
TB-5	386755.570	398916.683	
TB-6	386750.440	398913.571	
TB-7	386829.348	398879.847	
TB-8	386832.305	398862.093	TB-7 TO TA-8 @ 6m INTERVALS
TB-9	386834.795	398838.223	TB-8 TO TA-9 @ 6m INTERVALS
TB-10	386854.026	398861.502	
TB-11	386856.155	398843.628	TB-10 TO TA-11 @ 6m INTERVALS
TB-12	386857.895	398838.073	
TB-13	386860.074	398833.601	
TB-14	386866.062	398833.966	
TB-15	386878.458	398836.071	

TREATMENT AREA C

VERTICAL DRILLING AS PER 6m GRID

GRID SETTING OUT POINTS:-

	E	N
A3	386956.914	398763.162
A7	386965.246	398754.526
E3	386939.642	398746.498
E7	386947.974	398737.862

30° OBLIQUE DRILLING SETTING OUT POINTS:-

	E	N	ADDITIONAL POINTS
TC-1	386960.412	398752.277	
TC-2	386948.481	398750.989	TC-1 TO TC-2 @ 6m INTERVALS
TC-3	386939.533	398750.024	
TC-4	386965.492	398732.786	
TC-5	386947.517	398733.720	TC-4 TO TC-5 @ 6m INTERVALS

NOTES

1. DO NOT SCALE THIS DRAWING. ALL DIMENSIONS MUST BE CHECKED/ VERIFIED ON SITE. IF IN DOUBT ASK.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS AND SPECIALISTS DRAWINGS AND SPECIFICATIONS.
3. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE. ALL LEVELS IN METRES UNLESS NOTED OTHERWISE.
4. ANY DISCREPANCIES NOTED ON SITE ARE TO BE REPORTED TO THE ENGINEER IMMEDIATELY.

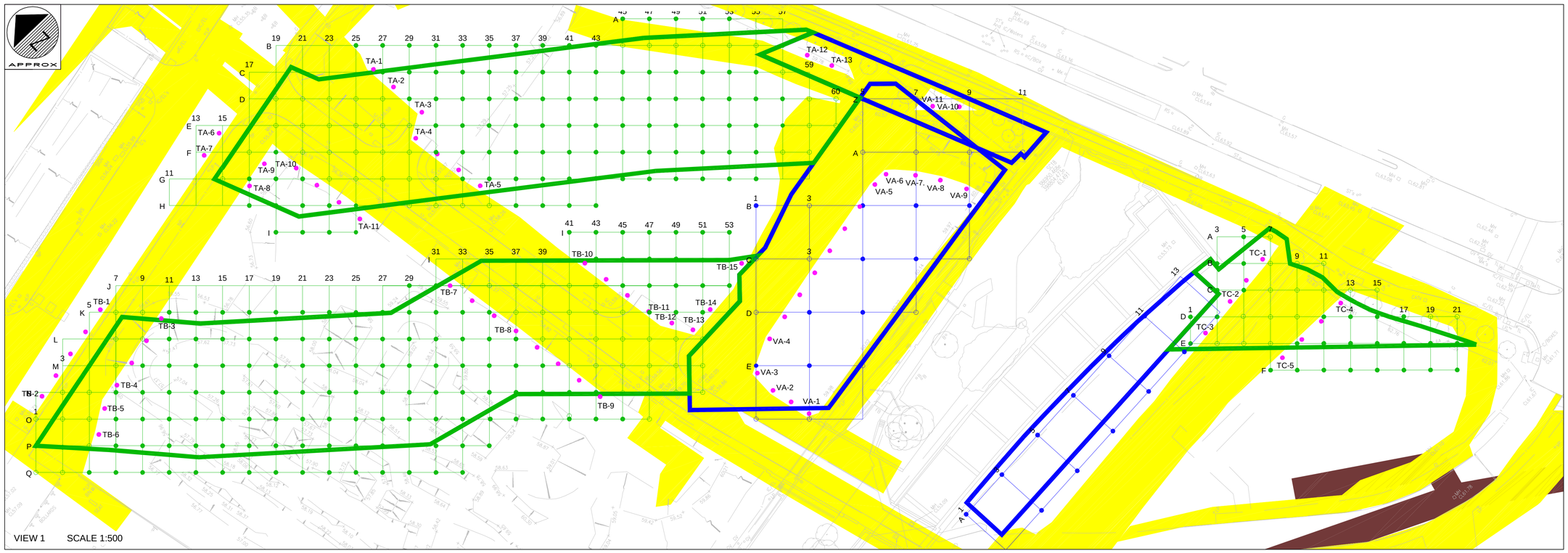
KEY

EXTENT OF SEAMS TO BE TREATED - 6m GRID

AREAS PREVIOUSLY TREATED WITHIN THE SITE BOUNDARY - TO BE VALIDATED - 12m GRID

OBLIQUE DRILLING (30° FROM VERTICAL PLANE) IN ORDER TO TREAT ARES WITHIN SERVICES EASEMENT CORRIDOR

SERVICES EASEMENT



VIEW 1 SCALE 1:500

Rev	Date	Description	Drawn	Auth'n
P2	14.10.10	OBLIQUE DRILLING LOCATIONS AMENDED	TH	BB
P1	29.09.10	PRELIMINARY ISSUE	TH	BB

AMENDMENTS

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environmental | water | transportation | civil | structural | highways | infrastructure

Client

NEW EAST MANCHESTER (BUCKINGHAM GROUP)

Project Title

SPORT CITY REMEDIATION & SITE SERVICING

Drawing Title

SCOPE OF WORKS FOR MINE WORKINGS TREATMENT AND VALIDATION - SHEET 1 of 2

Scale	Date	Drawn	Authorised
AS SHOWN	09.2010	TH	BB

Drawing Status

PRELIMINARY

Drawing No:	Revision
NTH/185/210	P2

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Appendix A Topographical Surveys

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Note:

Orientation to existing site grid.
All levels relate to existing site datum.

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Drainage information must be verified with local authority records before use

Levels in parenthesis indicate top of walls.

A - 07/06/19 - Additional drainage infomation added.

SURVEY STATIONS

Name	Easting	Northing	Height
SO1	386721.67	398920.03	57.14
SO2	386617.56	398918.87	57.02
SO3	386741.20	398815.98	61.42
SO4	386769.25	398717.79	60.96
SO5	386694.13	398691.57	60.62
SO6	386613.54	398591.07	60.62
SO7	386937.57	398522.46	60.62
SO8	386927.35	398447.38	60.62
SO9	387008.05	398411.30	61.97
SO10	387137.75	398362.69	63.16
SO11	387124.73	398459.14	61.97
SO12	387010.92	398461.57	61.97
SO13	387019.93	398990.53	62.01
SO14	386978.40	398798.85	63.81
SO15	386898.51	398956.33	56.75
SO16	386798.10	398952.83	56.10
TBM1	386721.76	399070.12	58.65
MF1	386761.83	398781.31	61.20
MF2	386777.87	398799.16	60.85
MF3	386802.66	398787.06	56.87
MF4	386831.92	398790.90	56.93
MF5	386869.50	398795.96	57.67
MF6	386891.26	398800.37	60.27
MF7	386955.58	398806.06	60.61
MF8	386934.62	398843.43	61.96
PA1	386894.43	398890.89	58.63
PA2	386864.49	398892.89	58.63
PA3	386806.40	398900.16	57.70
PA4	386771.87	398799.16	60.85
MF9	386832.46	399075.21	52.23
SO4	386499.28	398988.75	56.27
SO5	386546.44	398718.60	56.69

STANDARD REFERENCE & ABBREVIATIONS

(AN).....Assumed Route
AB.....Air Brick
AV.....Air Valve
B/W.....Barbed Wire
BAR.....Barrier
BB.....Belisha Beacon
BH.....Borehole
BL.....Bed Level
BOL.....Bollard
BS.....Bus Stop
BT Box....British Telecom Box
BT.....British Telecom It
BRTW.....Brick Retaining Wall
BW.....Brick Wall
C/B.....Close Boarded
C/I.....Corrugated Iron
C/P.....Chestnut Paling
CB.....Control Box
CBW.....Concrete Block Wall
CCTV.....Closed Circuit TV
CD.....Cable Duct
CEL.....Cellar Light
CHL.....Chain Link
CHM.....Chimney
CL.....Cover Level
CM.....Cable Marker
COL.....Column
CONC.....Concrete
CP.....Catch Pit
CRTW.....Concrete Retaining Wall
CTV.....Cable Television
CUL.....Culvert
CW.....Concrete Block Wall
DC.....Drainage Channel
DPC.....Damp Proof Course
DR.....Drain
DSW.....Dry Stone Wall
ECP.....Electricity Cable Pit
EIC.....Electricity Inspection Cover
EJ.....Expansion Joint
EJB.....Electricity Junction Box
EL SUB STN..Electricity Sub Station
EL.....Eaves Level
ELB.....Electricity Box
EP.....Electricity Pole
ER.....Earth Rod
ETL.....Electricity Transmission Line
FB.....Flower Bed
FH.....Fire Hydrant
FL.....Floor Level
FP.....Flagpole
G*.*.....Girth (of tree)
G.....Gully
GAB.....Gabion
GCP.....Gas Inlet Pipe
GMKR.....Gas Marker
GST.....Gas Stop Tap (Domestic)
GSV.....Gas Stop Valve (Mains)
HSE.....Housing
HT.....Height
HV.....High Voltage
I/R.....Iron Railing
II.....Inspection Cover
IL.....Invert Level
IP.....Iron Pipe
KO.....Kerb Outlet
LB.....Letter Box
LP.....Lamp Post
MG.....Multi Girth
MH.....Manhole
MKR.....Marker
MP.....Mooring Point
NP.....Street Name Plate
O/H.....Overhead
O/P.....Open Paving
OC.....Overhead Electric Wire
OF.....Outfall Pipe
OSBM.....Ordnance Survey Bench Mark
OT.....Overhead Telecom Wire
P/C.....Post & Chain
P/R.....Post & Rail
P/W.....Post & Wire
PAV.....Paving
PB.....Pillar Box
PC.....Pedestrian Crossing
PP.....Petrol Pump
PT.....Post or Pillar
RE.....Reading Eye
RS.....Road Sign
RTW.....Retaining Wall
RWP.....Rain Water Pipe
SAP.....Sapling
SL.....Sump Level
SOL.....Soffit Level
SP.....Sign Post
SPL.....Springing Level
SRTW.....Stone Retaining Wall
SV.....Stop Valve (unspecified)
SVP.....Soil Vent Pipe
SW.....Stone Wall
TAC.....Tactile Paving
TB.....Traffic Bollard
TBM.....Temporary Bench Mark
TCB.....Telephone Call Box
TFB.....Taken From Records
TIE.....Anchor Point (Masts/Poles)
TL.....Traffic Light
TLB.....Traffic Light Control Box
TM.....Ticket Machine
TMC.....Tarmac
TP.....Telecommunications Pole
TPIT.....Trial Pit
TS.....Trash Screen
U/C.....Under Construction
U/G.....Underground
UTL.....Unable to Lift (BM,IC etc)
UTS.....Unable to Survey
VDP.....Vehicle Detector Pad
VP.....Vent Pipe
W/M.....Wire Mesh
WL.....Water Level
WM.....Water Meter
WO.....Wash Out
WP.....Waste Pipe
WST.....Water Stop Tap (domestic)
WSV.....Water Stop Valve (mains)

1	2			
3	4	5		
6	7	8		
	9	10		
			11	12
			13	14

SurveY OPERATIONS
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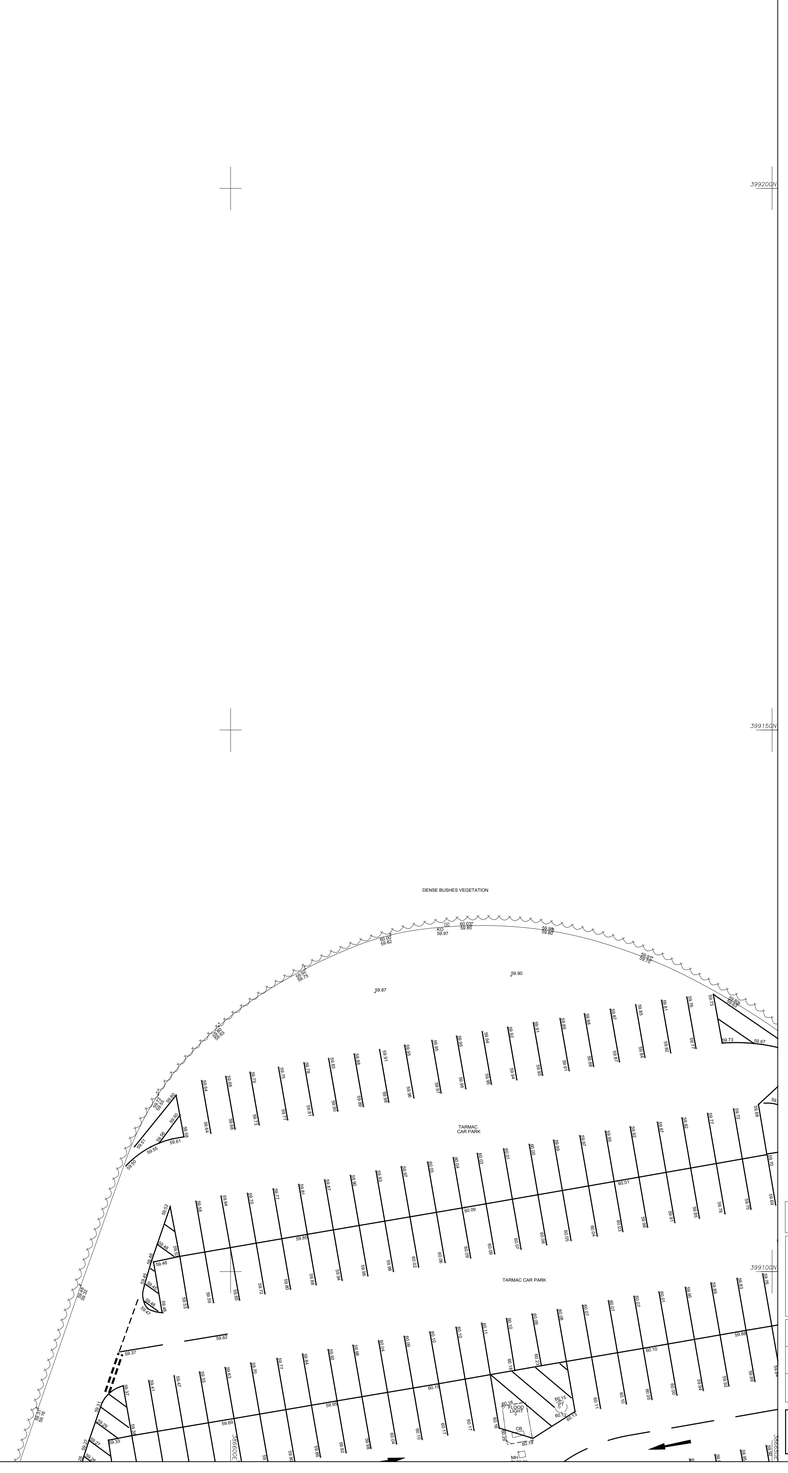
Tel: 01695 725662 Fax: 01695 51816
Email: mail@survops.co.uk – www.survops.co.uk

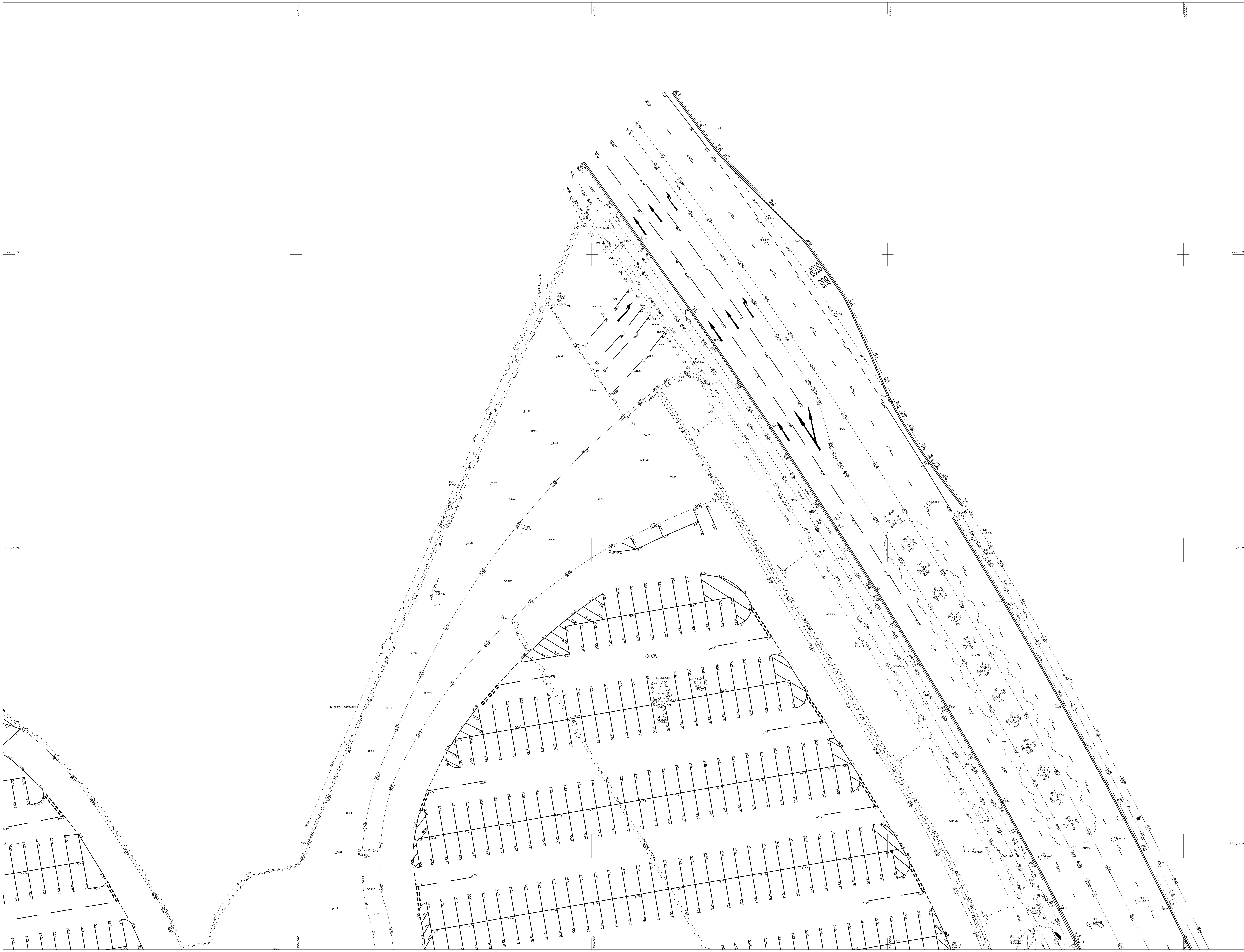
Client
City Football Group

Drawing Title
Topographical Survey of Land at:
Etihad Campus
Manchester
Sheet 1 of 14

Scale(s)	1:200	Surveyor	Var
Date	June 19	Drawn	DIF
Job Number	19D065	Checked	TP

Sheet Size & Drg Number & Revision
A0 19D065/001





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N

Note:

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A - 07/06/19 - Additional drainage infomation added.

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MF5	386869.50	398795.96	57.67
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MF7	386935.58	398806.06	60.61
MF8	386934.63	398843.43	61.96
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BAR.........Barrier	LP..........Lamp Post
BB..........Belisha Beacon	MG..........Multi-Girth
BH..........Borehole	MH..........Manhole
BL..........Bed Level	MKR.........Marker
BOL.........Bollard	MP..........Mooring Point
BS..........Bus Stop	NP..........Street Name Plate
BT Box......British Telecom Box	O/H.........Overhead
BT..........British Telecom IC	O/P.........Open Paling
BRTW........Brick Retaining Wall	OE..........Overhead Electric Wire
BW..........Brick Wall	OP..........Outfall Pipe
C/B.........Close Boarded	OSBM........Ordnance Survey Bench Mark
C/I.........Corrugated Iron	OT..........Overhead Telecom Wire
C/P.........Chestnut Paling	P/C.........Post & Chain
CB..........Control Box	P/R.........Post & Rail
CBW.........Concrete Block Wall	P/W.........Post & Wire
CCTV........Closed Circuit TV	PAV.........Paving
CD..........Cable Duct	PB..........Pillar Box
CEL.........Cellar Light	PC..........Pedestrian Crossing
CH/L........Chain Link	PP..........Petrol Pump
CHY.........Chimney	PT..........Post or Pillar
CL..........Cover Level	RE..........Rodding Eye
CM..........Cable Marker	RS..........Road Sign
COL.........Column	RTW.........Retaining Wall
CONC........Concrete	RWP.........Rain Water Pipe
CP..........Catch Pit	SAP.........Sapling
CRTW........Concrete Retaining Wall	SL..........Sump Level
CTV.........Cable Television	SoL.........Soffit Level
CUL.........Culvert	SP..........Sign Post
CW..........Concrete Block Wall	SPL.........Springing Level
DC..........Drainage Channel	SRTW........Stone Retaining Wall
DPC.........Damp Proof Course	SV..........Stop Valve (unspecified)
DR..........Drain	SVP.........Soil Vent Pipe
DSW.........Dry Stone Wall	SW..........Stone Wall
ECP.........Electricity Cable Pit	TAC.........Tactile Paving
EIC.........Electricity Inspection Cover	TB..........Traffic Bollard
EJ..........Expansion Joint	TBM.........Temporary Bench Mark
EJB.........Electricity Junction Box	TCB.........Telephone Call Box
EL SUB STN..Electricity Sub Station	TFR.........Taken From Records
EL..........Eaves Level	TIE.........Anchor Point (Masts/Poles)
ELB.........Electricity Box	TL..........Traffic Light
EP..........Electricity Pole	TLB.........Traffic Light Control Box
ER..........Earth Rod	TM..........Ticket Machine
ETL.........Electricity Transmission Line	TMC.........Tarmac
FB..........Flower Bed	TP..........Telecommunications Pole
FH..........Fire Hydrant	TPIT........Trial Pit
FL..........Floor Level	TS..........Trash Screen
FP..........Flagpole	U/C.........Under Construction
G*.*........Girth (of tree)	U/G.........Underground
G...........Gulley	UTL.........Unable to Lift (MH,IC etc)
GAB.........Gabion	UTS.........Unable to Survey
GIP.........Gas Inlet Pipe	VDP.........Vehicle Detector Pad
GMKR........Gas Marker	VP..........Vent Pipe
GST.........Gas Stop Tap (Domestic)	W/M.........Wire Mesh
GSV.........Gas Stop Valve (Mains)	WL..........Water Level
HSE.........Housing	WM..........Water Meter
Ht..........Height	WO..........Wash Out
HV..........High Voltage	WP..........Waste Pipe
I/R.........Iron Railing	WST.........Water Stop Tap (domestic)
IC..........Inspection Cover	WSV.........Water Stop Valve (mains)

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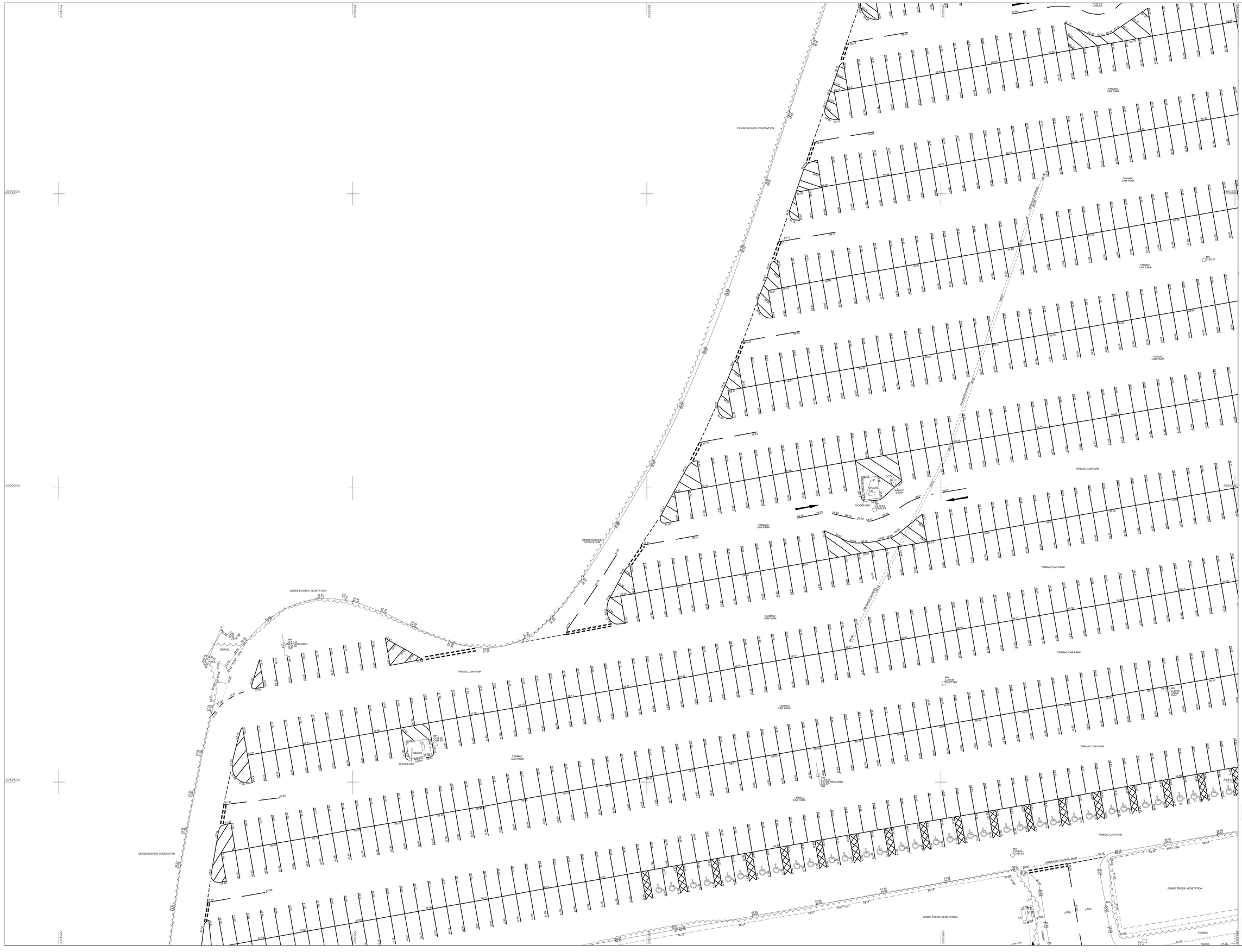
Client
City Football Group

Drawing Title
Topographical Survey of Land at:
Etihad Campus
Manchester
Sheet 2 of 14

Scale(s)	1:200	Surveyor	Var
Date	June 19	Drawn	DIF
Job Number	19D065	Checked	TP

Sheet Size & Drg Number & Revision
A0 19D065/002



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Note:

Orientation to existing site grid.

All levels relate to existing site datum.

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Drainage information must be verified with local authority records before use

Levels in parenthesis indicate top of walls.

A - 07/06/19 - Additional drainage infomation added.

SURVEY STATIONS

Name	Eeasting	Northing	Height
SO1	386721.67	398920.03	57.14
SO2	386617.56	398918.87	57.02
SO3	386741.20	398815.98	61.42
SO4	386769.25	398717.79	60.96
SO5	386813.54	398615.67	60.62
SO6	386913.53	398595.57	60.62
SO7	386937.57	398522.46	60.62
SO8	386927.35	398447.36	60.62
SO9	387008.05	398411.30	61.97
SO10	387137.75	398362.69	63.16
SO11	387124.73	398459.14	61.97
SO12	387109.92	398561.57	62.01
SO13	387019.92	398990.53	62.01
SO14	386978.40	398798.85	63.81
SO15	386898.57	398856.33	56.75
SO16	386798.10	398952.83	56.10
TBM1	386721.76	399070.12	58.65
MF1	386761.83	398781.31	61.20
MF2	386802.64	398787.06	56.87
MF3	386802.66	398787.06	56.87
MF4	386831.92	398790.90	56.93
MF5	386869.50	398795.96	57.67
MF6	386891.26	398800.37	60.27
MF7	386935.58	398806.06	60.61
MF8	386934.62	398843.43	61.96
PA1	386884.43	398890.15	58.63
PA2	386884.49	398892.89	58.63
PA3	386806.40	398900.16	57.70
PA4	386771.87	398799.16	60.85
MF9	386832.46	399075.21	52.23
SO4	386449.28	398998.73	56.24
SO5	386546.44	398718.60	59.69

STANDARD REFERENCE & ABBREVIATIONS

(AN).....Assumed Route
AB.....Air Brick
AV.....Air Valve
B/W.....Barbed Wire
BAR.....Barrier
BB.....Bellaire Beacon
BH.....Borehole
BL.....Bed Level
BOL.....Bollard
BS.....Bus Stop
BT Box....British Telecom Box
BT.....British Telecom St
BRCW.....Brick Retaining Wall
BW.....Brick Wall
C/S.....Close Boarded
CI1.....Corrugated Iron
C/P.....Chestnut Paling
CB.....Control Box
CBW.....Concrete Block Wall
CCTV.....Closed Circuit TV
CD.....Cable Duct
CO.....Cellar Light
CH.....Chain Link
CHM.....Chimney
CL.....Cover Level
CM.....Cable Marker
COL.....Column
CONC.....Concrete
CP.....Catch Pit
CRTW.....Concrete Retaining Wall
CTV.....Cable Television
CUL.....Culvert
CW.....Concrete Block Wall
DC.....Drainage Channel
DPC.....Damp Proof Course
DR.....Drain
DSW.....Dry Stone Wall
ECP.....Electricity Cable Pit
EIC.....Electricity Inspection Cover
EJ.....Expansion Joint
EJB.....Electricity Junction Box
EL SUB STA..Electricity Sub Station
EL.....Eaves Level
ELE.....Electricity Box
EP.....Electricity Pole
ER.....Earth Rod
ETL.....Electricity Transmission Line
FB.....Flower Bed
FH.....Fire Hydrant
FL.....Floor Level
FP.....Flagpole
GT.....Girth (of tree)
G.....Gully
GAB.....Gabion
GIP.....Gas Inlet Pipe
GMKR.....Gas Marker
GOT.....Gas Stop Tap (Domestic)
GSV.....Gas Stop Valve (Mains)
HSE.....Housing
HT.....Height
HV.....High Voltage
I/R.....Iron Railing
IC.....Inspection Cover
I.....Invert Level
IP.....Inlet Pipe
KO.....Kerb Outlet
LB.....Letter Box
LP.....Lamp Post
MB.....Multi Girth
MH.....Manhole
MKR.....Marker
MP.....Mooring Point
NP.....Street Name Plate
O/H.....Overhead
O/P.....Open Paling
OHTW.....Overhead Electric Wire
OP.....Outfall Pipe
OSMK.....Ordnance Survey Bench Mark
OT.....Overhead Telecom Wire
P/C.....Post & Chain
P/R.....Post & Rail
P/W.....Post & Wire
PAV.....Paving
PB.....Pillar Box
PC.....Pedestrian Crossing
PP.....Petrol Pump
PT.....Post or Pillar
RL.....Rodding Eye
RS.....Road Sign
RTW.....Retaining Wall
RWP.....Rain Water Pipe
SAP.....Sapling
SL.....Sump Level
SO.....Soffit Level
SP.....Sign Post
SPL.....Springing Level
SRTW.....Stone Retaining Wall
SV.....Stop Valve (unspecified)
SVP.....Soil Vent Pipe
SW.....Stone Wall
TAC.....Tactile Paving
TB.....Traffic Bollard
TBM.....Temporary Bench Mark
TCB.....Telephone Call Box
TFB.....Taken From Records
TIE.....Anchor Point (Mast/Poles)
TL.....Traffic Light
TLB.....Traffic Light Control Box
TM.....Ticket Machine
TWC.....Tarmac
TY.....Telecommunications Pole
TP1T.....Trial Pit
TS.....Trash Screen
U/C.....Under Construction
U/G.....Underground
UTL.....Unable to Lift (MH,IC etc)
UTS.....Unable to Survey
VCP.....Vehicle Detector Pad
VP.....Vent Pipe
W/M.....Wire Mesh
WL.....Water Level
WM.....Water Meter
WO.....Wash Out
WP.....Waste Pipe
WSC.....Water Stop Tap (Domestic)
WSV.....Water Stop Valve (mains)

1	2	
3	4	5
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Survey OPERATIONS
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Client
City Football Group

Drawing Title
Topographical Survey of Land at:
Etihad Campus
Manchester
Sheet 3 of 14

Scale(s)	1:200	Surveyor	Var
Date	June 19	Drawn	DIF
Job Number	19D065	Checked	TP

Sheet Size & Drg Number & Revision
A0 19D065/003

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Note:

Orientation to existing site grid.

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Drainage information must be verified with local authority records before use

Levels in parenthesis indicate top of walls.

A - 07/06/19 - Additional drainage infomation added.

SURVEY STATIONS

Name	Eastings	Northing	Height
SO1	386721.87	398920.03	57.14
SO2	386617.56	398918.87	57.02
SO3	386741.20	398815.98	61.42
SO4	386769.25	398717.79	60.96
SO5	386713.54	398622.69	60.62
SO6	386611.54	398595.07	60.45
SO7	386937.57	398522.46	60.62
SO8	386927.35	398447.36	60.62
SO9	387008.05	398411.30	61.97
SO10	387137.75	398362.69	63.16
SO11	387124.73	398459.14	61.97
SO12	387019.82	398561.57	62.01
SO13	387019.92	398690.53	62.01
SO14	386978.40	398798.85	63.81
SO15	386898.51	398856.33	56.75
SO16	386798.10	398952.83	56.10
TBM1	386721.76	399070.12	58.65
MF1	386761.83	398781.31	61.20
MF2	386822.71	398787.08	56.87
MF3	386802.66	398787.08	56.87
MF4	386831.82	398790.90	56.93
MF5	386869.51	398795.94	57.67
MF6	386891.26	398800.37	60.27
MF7	386955.58	398806.06	60.61
MF8	386934.62	398843.43	61.96
MF9	386832.46	399075.21	52.23
PA2	386884.49	398890.89	58.63
PA3	386806.40	398900.16	57.70
PA4	386771.87	398799.16	60.85
MF9	386832.46	399075.21	52.23
SO4	386446.24	398998.73	56.69
SO5	386546.44	398718.60	56.69

STANDARD REFERENCE & ABBREVIATIONS

(AN)..... Assumed North	I.L.....Invert Level
AB.....Air Brick	IP.....Inlet Pipe
AV.....Air Valve	KO.....Kerb Outlet
B/W.....Barbed Wire	LB.....Letter Box
BAR.....Barrier	LP.....Lamp Post
BB.....Bellaha Beacon	MG.....Multi Girth
BH.....Borehole	MH.....Manhole
BL.....Bed Level	MKR.....Marker
BOL.....Bollard	MP.....Mooring Point
BS.....Bus Stop	NP.....Street Name Plate
BT Box.....British Telecom Box	O/H.....Overhead
BT.....British Telecom St	O/P.....Open Paling
BRTW.....Brick Retaining Wall	O/V.....Overhead Electric Wire
BW.....Brick Wall	OP.....Outfall Pipe
C/D.....Close Boarded	OSBM.....Ordnance Survey Bench Mark
C/I.....Corrugated Iron	OT.....Overhead Telecom Wire
C/P.....Chestnut Paling	P/C.....Post & Chain
CB.....Control Box	P/R.....Post & Rail
CBW.....Concrete Block Wall	P/W.....Post & Wire
CCTV.....Closed Circuit TV	PAV.....Paving
CD.....Cable Duct	PB.....Pillar Box
CEL.....Cellar Light	PC.....Pedestrian Crossing
CHL.....Chain Link	PP.....Petrol Pump
CHM.....Chimney	PT.....Post or Pillar
CL.....Cover Level	RE.....Rodding Eye
CM.....Cable Marker	RS.....Road Sign
COL.....Column	RTW.....Retaining Wall
CONC.....Concrete	SMP.....Main Water Pipe
CP.....Catch Pit	SAP.....Sapling
CRTW.....Concrete Retaining Wall	S.L.....Sump Level
CTV.....Cable Television	SCL.....Soffit Level
CUL.....Culvert	SP.....Sign Post
CW.....Concrete Block Wall	SPL.....Springing Level
DC.....Drainage Channel	STTW.....Stone Retaining Wall
DPC.....Damp Proof Course	SV.....Stop Valve (unspecified)
DR.....Drain	SVP.....Soil Vent Pipe
DSW.....Dry Stone Wall	SW.....Stone Wall
ECP.....Electricity Cable Pit	TAC.....Tactile Paving
ESI.....Electricity Inspection Cover	TB.....Traffic Bollard
Ex.....Expansion Joint	TBM.....Temporary Bench Mark
EJB.....Electricity Junction Box	TCB.....Telephone Call Box
FI SUB STN.Electricity Sub Station	TFB.....Token Fire Bascerda
FL.....Kawa Level	TIE.....Anchor Point (Waste/Holes)
ELK.....Electricity Box	TL.....Traffic Light
EP.....Electricity Pole	TLB.....Traffic Light Control Box
ER.....Earth Rod	TM.....Ticket Machine
ETL.....Electricity Transmission Line	TRE.....Tarmac
FB.....Flower Bed	TP.....Telecommunications Pole
FH.....Fire Hydrant	TPIT.....Trial Pit
FL.....Floor Level	TS.....Trash Screen
FP.....Flagpole	U/C.....Under Construction
GP.....Girth of Tree)	U/G.....Underground
G.....Gulley	UTL.....Unable to Lift (BM,IC etc)
GAB.....Gabion	UTS.....Unable to Survey
GIP.....Gas Inlet Pipe	VDP.....Vehicle Detector Pad
GMKR.....Gas Marker	VP.....Vent Pipe
GOT.....Gas Stop Tap (Domestic)	W/M.....Wire Mesh
GSV.....Gas Stop Valve (Mains)	W.....Water Level
HSE.....Housing	WM.....Water Meter
HT.....Height	WO.....Wash Out
HV.....High Voltage	WP.....Waste Pipe
I/R.....Iron Railing	WST.....Water Stop Tap (Domestic)
IC.....Inspection Cover	WSV.....Water Stop Valve (mains)

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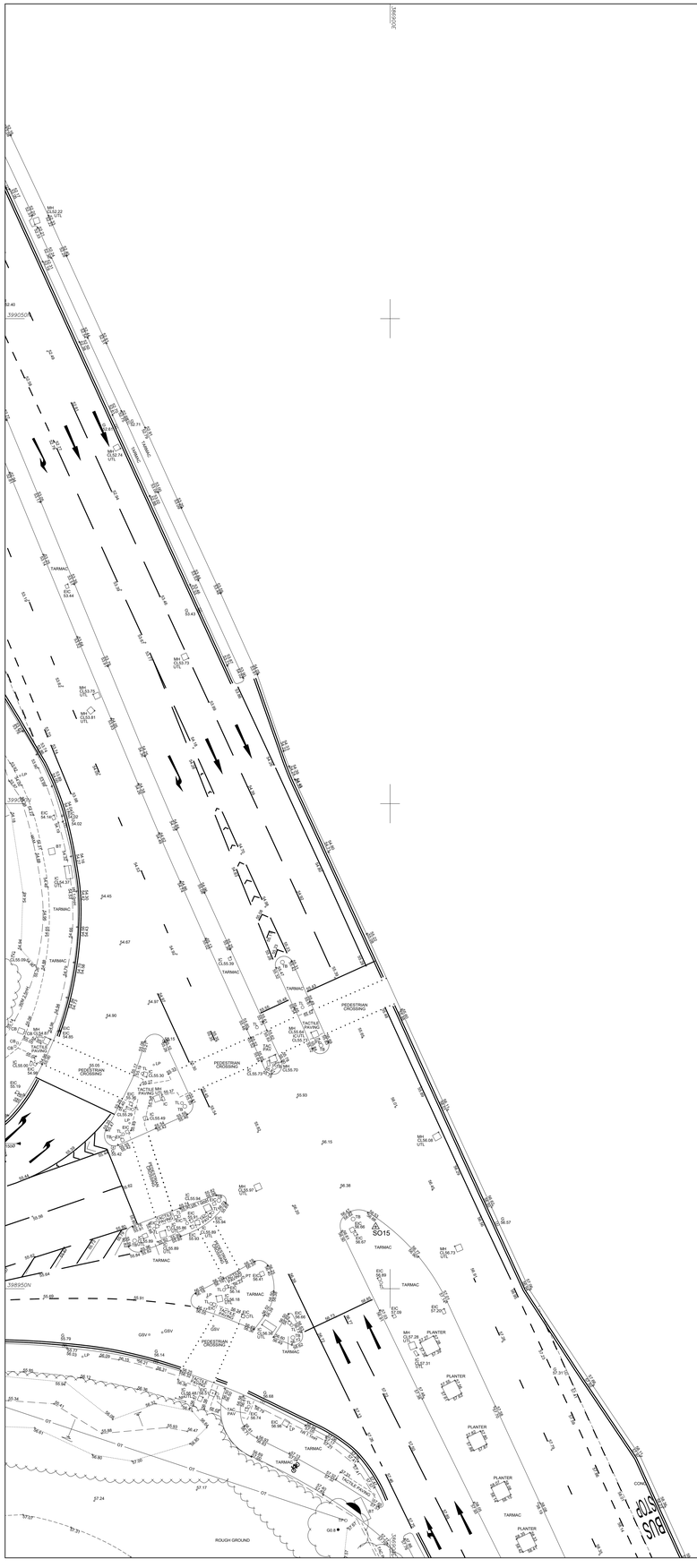
Client
City Football Group

Drawing Title
Topographical Survey of Land at:
Etihad Campus
Manchester
Sheet 4 of 14

Scale(s)	1:200	Surveyor	Var
Date	June 19	Drawn	DIF
Job Number	19D065	Checked	TP

Sheet Size & Drg Number & Revision
A0 19D065/004



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Note:

Orientation to existing site grid.

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Levels in parenthesis indicate top of walls.

A - 07/06/19 - Additional drainage infomation added.

SURVEY STATIONS

Name	Eastings	Northing	Height
SO1	386721.67	398920.03	57.14
SO2	386617.56	398918.87	57.02
SO3	386741.20	398815.98	61.42
SO4	386769.25	398717.79	60.96
SO5	386694.54	398691.57	60.62
SO6	386613.53	398691.57	60.62
SO7	386937.57	398522.46	60.62
SO8	386927.35	398447.58	60.62
SO9	387008.05	398411.30	61.97
SO10	387157.75	398362.69	63.16
SO11	387124.73	398459.14	61.97
SO12	387010.92	398560.17	62.01
SO13	387019.92	398690.53	62.01
SO14	386978.40	398798.85	63.81
SO15	386898.51	398856.39	56.75
SO16	386798.10	398952.83	56.10
TBM1	386721.76	399070.12	58.65
MF1	386761.83	398781.31	61.20
MF2	386761.83	398781.31	61.20
MF3	386802.66	398787.06	56.87
MF4	386831.82	398790.90	56.93
MF5	386869.50	398795.96	57.67
MF6	386891.26	398800.37	60.27
MF7	386855.58	398806.06	60.61
MF8	386934.63	398843.43	61.96
PA1	386871.87	398799.16	60.85
PA2	386864.49	398892.89	58.63
PA3	386806.40	398900.16	57.70
PA4	386771.87	398799.16	60.85
MF9	386832.46	399075.21	52.23
SO4	386449.28	398988.75	56.27
SO5	386546.44	398718.60	56.69

STANDARD REFERENCE & ABBREVIATIONS

(AN).....Assumed Route
AB.....Air Brick
AV.....Air Valve
B/W.....Barbed Wire
BAR.....Barrier
BB.....Bellaba Beacon
BH.....Borehole
BL.....Bed Level
BOL.....Bollard
BS.....Bus Stop
BT Box....British Telecom Box
BT.....British Telecom St
BRTW.....Brick Retaining Wall
BW.....Brick Wall
C/D.....Close Boarded
C/I.....Corrugated Iron
C/P.....Chestnut Paling
CB.....Control Box
CBW.....Concrete Block Wall
CCTV.....Closed Circuit TV
CD.....Cable Duct
CEL.....Cellar Light
CHL/L.....Chain Link
CHM.....Chimney
CL.....Cover Level
CM.....Cable Marker
COL.....Column
CONC.....Concrete
CP.....Catch Pit
CRTW.....Concrete Retaining Wall
CTV.....Cable Television
CUL.....Culvert
CW.....Concrete Block Wall
DC.....Drainage Channel
DPC.....Damp Proof Course
DR.....Drain
DSW.....Dry Stone Wall
ECP.....Electricity Cable Pit
EIC.....Electricity Inspection Cover
EJ.....Expansion Joint
EJB.....Electricity Junction Box
EL SUB STN..Electricity Sub Station
EL.....Eaves Level
ELB.....Electricity Box
EP.....Electricity Pole
ER.....Earth Rod
ETL.....Electricity Transmission Line
FB.....Flower Bed
FH.....Fire Hydrant
FL.....Floor Level
FP.....Flagpole
GI'S.....Grids (of trees)
G.....Gulley
GAB.....Gabion
GIP.....Gas Inlet Pipe
GMKR.....Gas Marker
GBT.....Gas Stop Tap (Domestic)
GSV.....Gas Stop Valve (Mains)
HSE.....Housing
HT.....Height
HV.....High Voltage
I/R.....Iron Railing
II.....Inspection Cover
IL.....Invert Level
IP.....Inlet Pipe
KO.....Kerb Outlet
LB.....Letter Box
LP.....Lamp Post
MG.....Multi Girth
MH.....Manhole
MKR.....Marker
MP.....Mooring Point
NP.....Street Name Plate
O/H.....Overhead
O/P.....Open Paling
OC.....Overhead Electric Wire
OP.....Outfall Pipe
OSBM.....Ordnance Survey Bench Mark
OT.....Overhead Telecom Wire
P/C.....Post & Chain
P/R.....Post & Rail
P/W.....Post & Wire
PAV.....Paving
PB.....Pillar Box
PC.....Pedestrian Crossing
PP.....Petrol Pump
PT.....Post or Pillar
RE.....Rodding Eye
RS.....Road Sign
RTW.....Retaining Wall
RWP.....Rain Water Pipe
SAP.....Sapling
SL.....Sump Level
SO.....Soffit Level
SP.....Sign Post
SPL.....Springing Level
SRTW.....Stone Retaining Wall
SV.....Stop Valve (unspecified)
SVP.....Soil Vent Pipe
SW.....Stone Wall
TAC.....Tactile Paving
TB.....Traffic Bollard
TBM.....Temporary Bench Mark
TCB.....Telephone Call Box
TFR.....Taken From Records
TIE.....Anchor Point (Waste/Poles)
TL.....Traffic Light
TLB.....Traffic Light Control Box
TM.....Ticket Machine
TMC.....Tarmac
TP.....Telecommunications Pole
TPIT.....Trial Pit
TS.....Trash Screen
U/C.....Under Construction
U/G.....Underground
UTL.....Unable to Lift (MH,IC etc)
UTS.....Unable to Survey
VCP.....Vehicle Detector Pad
VP.....Vent Pipe
WCH.....Wire Mesh
WL.....Water Level
WM.....Water Meter
WO.....Wash Out
WP.....Waste Pipe
WST.....Water Stop Tap (domestic)
WSV.....Water Stop Valve (mains)

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3	4	5
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		13	14

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Client
City Football Group

Drawing Title
Topographical Survey of Land at:
Etihad Campus
Manchester
Sheet 5 of 14

Scale(s)	1:200	Surveyor	Var
Date	June 19	Drawn	DIF
Job Number	19D065	Checked	TP

Sheet Size & Drg Number & Revision
A0 19D065/005

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A - 07/06/19 - Additional drainage infomation added.

SURVEY STATIONS

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SO1	386721.67	398920.03	57.14
SO2	386617.56	398918.87	57.02
SO3	386741.20	398815.98	61.42
SO4	386769.25	398717.79	60.96
SO5	386613.54	398717.07	60.62
SO6	386613.54	398595.57	60.62
SO7	386937.57	398522.46	60.62
SO8	386927.35	398447.36	60.62
SO9	387008.05	398411.30	61.97
SO10	387137.75	398362.69	63.16
SO11	387124.73	398459.14	61.97
SO12	387019.92	398459.13	62.01
SO13	387019.92	398696.53	62.01
SO14	386978.40	398798.85	63.81
SO15	386898.51	398856.33	56.75
SO16	386798.10	398952.83	56.10
TBM1	386721.76	399070.12	56.65
MF1	386761.83	398781.31	61.20
MF2	386802.64	398787.06	56.87
MF3	386802.64	398787.06	56.87
MF4	386831.82	398790.90	56.93
MF5	386869.50	398795.96	57.67
MF6	386891.26	398800.37	60.27
MF7	386955.58	398856.06	61.96
MF8	386934.62	398843.43	61.96
PA1	386864.43	398890.81	58.63
PA2	386864.49	398890.89	58.63
PA3	386806.40	398900.16	57.70
PA4	386777.87	398799.16	60.85
MF9	386832.46	399075.21	52.23
SO17	386449.23	398798.73	56.27
SO18	386546.44	398718.60	56.69

STANDARD REFERENCE & ABBREVIATIONS

(AS)..... Assumed Route	I.L..... Invert Level
AB..... Air Brick	IP..... Inlet Pipe
AV..... Air Valve	KO..... Kerb Outlet
B/W..... Barbed Wire	LB..... Letter Box
BAR..... Barrier	LP..... Lamp Post
BB..... Belisha Beacon	MG..... Multi Girth
BH..... Borehole	MH..... Manhole
BL..... Bed Level	MKR..... Marker
BOL..... Bollard	MP..... Mooring Posts
BS..... Bus Stop	NP..... Street Name Plate
BT Box..... British Telecom Box	O/H..... Overhead
BT..... British Telecom St	O/P..... Open Paling
BRTW..... Brick Retaining Wall	OC..... Overhead Electric Wire
BW..... Brick Wall	OF..... Outfall Pipe
C/B..... Close Boarded	OSDM..... Ordnance Survey Bench Mark
C/I..... Corrugated Iron	OT..... Overhead Telecom Wire
C/P..... Chestnut Paling	P/C..... Post & Chain
CB..... Control Box	P/R..... Post & Rail
CBW..... Concrete Block Wall	P/W..... Post & Wire
CCTV..... Closed Circuit TV	PAV..... Paving
CD..... Cable Duct	PB..... Pillar Box
CEL..... Cellar Light	PC..... Pedestrian Crossing
CHL..... Chain Link	PP..... Petrol Pump
CHY..... Chimney	PT..... Post or Pillar
CL..... Cover Level	RE..... Rodding Eye
CM..... Cable Marker	RS..... Road Sign
COL..... Column	RTW..... Retaining Wall
CONC..... Concrete	SWP..... Main Water Pipe
CP..... Catch Pit	SAP..... Sapling
CRTW..... Concrete Retaining Wall	SL..... Sump Level
CTV..... Cable Television	SLL..... Soffit Level
CUL..... Culvert	SP..... Sign Post
CW..... Concrete Block Wall	SPL..... Springing Level
DC..... Drainage Channel	SRTW..... Stone Retaining Wall
DPC..... Damp Proof Course	SV..... Stop Valve (unspecified)
DR..... Drain	SVP..... Soil Vent Pipe
DSW..... Dry Stone Wall	SW..... Stone Wall
ESO..... Electricity Cable Pit	TAC..... Tactile Paving
ESI..... Electricity Inspection Cover	TB..... Traffic Bollard
EJ..... Expansion Joint	TBM..... Temporary Bench Mark
ELB..... Electricity Junction Box	TCB..... Telephone Call Box
EL SUB STA..Electricity Sub Station	TFB..... Taken From Records
EL..... Exess Level	TIP..... Anchor Point (Masts/Poles)
ELB..... Electricity Box	TL..... Traffic Light
EP..... Electricity Pole	TLB..... Traffic Light Control Box
ER..... Earth Rod	TM..... Ticket Machine
ETL..... Electricity Transmission Line	TRE..... Tarmac
FB..... Flower Bed	TV..... Telecommunications Pole
FH..... Fire Hydrant	TPIT..... Trial Pit
FL..... Floor Level	TS..... Trash Screen
FP..... Flagpole	U/C..... Under Construction
GP..*..... Girth (of tree)	U/G..... Underground
G..... Gulley	UTL..... Unable to Lift (BM,IC etc)
GAB..... Gabion	UTS..... Unable to Survey
GIP..... Gas Inlet Pipe	VDP..... Vehicle Detector Pad
GMKR..... Gas Marker	VP..... Vent Pipe
GOT..... Gas Stop Tap (Domestic)	W/W..... Wire Mesh
GBV..... Gas Stop Valve (Mains)	WL..... Water Level
HSG..... Housing	WM..... Water Meter
HT..... Height	WO..... Wash Out
HV..... High Voltage	WP..... Waste Pipe
I/R..... Iron Railing	WST..... Water Stop Tap (domestic)
IC..... Inspection Cover	WSV..... Water Stop Valve (mains)

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	13	14

SurveY OPERATIONS
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Client
City Football Group

Drawing Title
Topographical Survey of Land at:
Etihad Campus
Manchester
Sheet 6 of 14

Scale(s)	1:200	Surveyor	Var
Date	June 19	Drawn	DIF
Job Number	19D065	Checked	TP

Sheet Size & Drg Number & Revision
A0 19D065/006

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Note:

Orientation to existing site grid.

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Survey Control Markers established for Mapping purposes only and should not be used for Construction without the written approval of Survey Operations Ltd.

Drainage information must be verified with local authority records before use

Levels in parenthesis indicate top of walls.

A - 07/06/19 - Additional drainage infomation added.

SURVEY STATIONS

Name	Eastings	Northings	Height
SO1	386721.67	398820.03	57.14
SO2	386617.56	398818.87	57.02
SO3	386741.20	398815.98	61.42
SO4	386769.25	398717.79	60.96
SO5	386813.54	398622.44	60.62
SO6	386913.54	398591.57	60.62
SO7	386937.57	398522.44	60.62
SO8	386927.35	398447.56	60.62
SO9	387008.05	398411.30	61.97
SO10	387137.75	398362.69	63.16
SO11	387124.73	398459.14	61.97
SO12	387109.93	398611.13	62.01
SO13	387019.92	398960.31	62.01
SO14	386978.40	398798.85	63.81
SO15	386898.51	398956.39	56.75
SO16	386798.10	398952.83	56.10
TBM1	386721.76	399070.12	58.65
MF1	386761.83	398781.31	61.20
MF2	386776.24	398844.43	61.96
MF3	386802.66	398787.06	56.87
MF4	386831.82	398790.90	56.93
MF5	386869.50	398795.94	57.67
MF6	386891.26	398800.37	60.27
MF7	386955.58	398806.04	60.61
MF8	386934.62	398843.43	61.96
PA1	386864.43	398890.89	58.63
PA2	386864.49	398890.89	58.63
PA3	386806.40	398900.16	57.70
PA4	386771.87	398799.16	60.85
MF9	386832.46	399075.21	52.23
SO4	386446.24	398798.75	56.27
SO5	386546.44	398718.60	56.69

STANDARD REFERENCE & ABBREVIATIONS

(AN).....Assumed Route
AS.....Air Brick
AV.....Air Valve
B/W.....Barbed Wire
BAR.....Barrier
BB.....Bellaba Beacon
BH.....Borehole
BL.....Bed Level
BOL.....Bollard
BS.....Bus Stop
BT Box....British Telecom Box
BT.....British Telecom St
BWTW.....Brick Retaining Wall
BW.....Brick Wall
C/B.....Close Boarded
C/I.....Corrugated Iron
C/P.....Chestnut Paling
CB.....Control Box
CBW.....Concrete Block Wall
CCTV.....Closed Circuit TV
CD.....Cable Duct
CEL.....Cellar Light
CHL.....Chain Link
CHM.....Chimney
CL.....Cover Level
CM.....Cable Marker
COL.....Column
CONC.....Concrete
CP.....Catch Pit
CRTW.....Concrete Retaining Wall
CTV.....Cable Television
CUL.....Culvert
CW.....Concrete Block Wall
DC.....Drainage Channel
DPC.....Damp Proof Course
DR.....Drain
DRW.....Dry Stone Wall
DTP.....Electricity Cable Pit
EIC.....Electricity Inspection Cover
EJ.....Expansion Joint
EJB.....Electricity Junction Box
EL SUB STN..Electricity Sub Station
EL.....Eaves Level
ELB.....Electricity Box
EP.....Electricity Pole
ER.....Earth Rod
ETL.....Electricity Transmission Line
FB.....Flower Bed
FH.....Fire Hydrant
FL.....Floor Level
FP.....Flagpole
GF.....Girth (of tree)
G.....Gulley
GAR.....Gabion
GIC.....Gas Inlet Pipe
GMKR.....Gas Marker
GRT.....Gas Stop Tap (Domestic)
GSV.....Gas Stop Valve (Mains)
HSE.....Housing
HT.....Height
HV.....High Voltage
I/R.....Iron Railing
IC.....Inspection Cover
IL.....Invert Level
IP.....Inlet Pipe
KO.....Kerb Outlet
LB.....Letter Box
LP.....Lamp Post
MH.....Manhole
MKR.....Marker
MP.....Mooring Point
NP.....Street Name Plate
O/H.....Overhead
O/P.....Open Paling
OHTW.....Overhead Electric Wire
OP.....Outfall Pipe
OSBM.....Ordnance Survey Bench Mark
OT.....Overhead Telecom Wire
P/C.....Post & Chain
P/R.....Post & Rail
P/W.....Post & Wire
PAV.....Paving
PB.....Pillar Box
PC.....Pedestrian Crossing
PT.....Petrol Pump
PT.....Post or Pillar
RC.....Rodding Eye
RD.....Road Sign
RTW.....Retaining Wall
RWP.....Rain Water Pipe
SAP.....Sapling
SL.....Sump Level
SLL.....Soffit Level
SP.....Sign Post
SPL.....Springing Level
SRTW.....Stone Retaining Wall
SV.....Stop Valve (unspecified)
SVP.....Soil Vent Pipe
SW.....Stone Wall
TAC.....Tactile Paving
TB.....Traffic Bollard
TBM.....Temporary Bench Mark
TCB.....Telephone Call Box
TFB.....Taken From Records
TIE.....Anchor Point (Masts/Poles)
TL.....Traffic Light
TLB.....Traffic Light Control Box
TM.....Ticket Machine
TRE.....Tarmac
TT.....Telecommunications Pole
TRIP.....Trial Pit
TS.....Trash Screen
U/C.....Under Construction
U/G.....Underground
UTL.....Unable to Lift (MH,IC etc)
UTS.....Unable to Survey
VCP.....Vehicle Detector Pad
VP.....Vent Pipe
W/M.....Wire Mesh
WA.....Water Level
WB.....Water Meter
WC.....Wash Out
WP.....Waste Pipe
WSV.....Water Stop Tap (Domestic)
WSW.....Water Stop Valve (mains)

1	2			
3	4	5		
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Client
City Football Group

Drawing Title
Topographical Survey of Land at:
Etihad Campus
Manchester
Sheet 7 of 14

Scale(s)	1:200	Surveyor	Var
Date	June 19	Drawn	DIF
Job Number	19D065	Checked	TP

Sheet Size & Drg Number & Revision
A0 19D065/007

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Note:

Orientation to existing site grid.

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Drainage information must be verified with local authority records before use

Levels in parenthesis indicate top of walls.

A - 07/06/19 - Additional drainage infomation added.

SURVEY STATIONS

Name	Easting	Northing	Height
SO1	396721.67	398920.03	57.14
SO2	396617.56	398918.87	57.02
SO3	396741.20	398815.98	61.42
SO4	396769.25	398717.79	60.96
SO5	396813.54	398661.67	60.62
SO6	396913.54	398591.57	60.45
SO7	396937.57	398522.46	60.62
SO8	396927.35	398447.38	60.62
SO9	387008.05	398411.30	61.97
SO10	387157.75	398362.69	63.16
SO11	387124.73	398459.14	61.97
SO12	387019.92	398515.37	62.01
SO13	387019.92	398990.53	62.01
SO14	396978.40	398798.85	63.81
SO15	396898.51	398856.39	56.75
SO16	396798.10	398952.83	56.10
TBM1	396721.74	399070.12	58.65
MF1	396761.83	398781.31	61.20
MF2	396777.87	398807.06	60.61
MF3	396802.66	398787.06	56.87
MF4	396831.82	398790.90	56.93
MF5	396869.50	398795.96	57.67
MF6	396891.26	398800.37	60.27
MF7	396915.58	398806.06	60.61
MF8	396934.63	398843.43	61.96
PA1	396884.49	398890.89	58.63
PA2	396884.49	398890.89	58.63
PA3	396806.40	398900.16	57.70
PA4	396771.87	398799.16	60.85
MF9	396832.46	399075.21	52.23
SO17	396449.28	398988.75	56.27
SO18	396546.44	398718.60	56.69

STANDARD REFERENCE & ABBREVIATIONS

(AS).....Assumed Route
AB.....Air Brick
AV.....Air Valve
B/W.....Barbed Wire
BAR.....Barrier
BB.....Bellaba Beacon
BH.....Borehole
BL.....Bed Level
BOL.....Bollard
BS.....Bus Stop
BT Box....British Telecom Box
BT.....British Telecom St
BRTW.....Brick Retaining Wall
BW.....Brick Wall
C/B.....Close Boarded
CI/.....Corrugated Iron
C/P.....Chestnut Paling
CB.....Control Box
CBW.....Concrete Block Wall
CCTV.....Closed Circuit TV
CD.....Cable Duct
CEL.....Cellar Light
CHL.....Chain Link
CHM.....Chimney
CL.....Cover Level
CM.....Cable Marker
COL.....Column
CONC.....Concrete
CP.....Catch Pit
CRTW.....Concrete Retaining Wall
CTV.....Cable Television
CUL.....Culvert
CW.....Concrete Kerb Wall
DC.....Drainage Channel
DPC.....Damp Proof Course
DR.....Drain
DRW.....Dry Stone Wall
ECP.....Electricity Cable Pit
ECI.....Electricity Inspection Cover
EJ.....Expansion Joint
EJB.....Electricity Junction Box
EL SUB STA..Electricity Sub Station
EL.....Exess Level
ELB.....Electricity Box
EP.....Electricity Pole
ER.....Earth Rod
ETI.....Electricity Transmission Line
FB.....Flower Bed
FH.....Fire Hydrant
FL.....Floor Level
FP.....Flagpole
G*.*.....Girth (of tree)
G.....Gulley
GAB.....Gabion
GIP.....Gas Inlet Pipe
GM.....Gas Marker
GSV.....Gas Stop Tap (Domestic)
GSV.....Gas Stop Valve (Mains)
HGT.....Housing
HT.....Height
HV.....High Voltage
I/R.....Iron Railing
II.....Inspection Cover
I.L.....Invert Level
IP.....Inlet Pipe
KO.....Kerb Outlet
LB.....Letter Box
LP.....Lamp Post
MBL.....Multi Girth
MH.....Manhole
MKR.....Marker
MP.....Mooring Point
NP.....Street Name Plate
O/H.....Overhead
O/P.....Open Paling
OE.....Overhead Electric Wire
OP.....Outfall Pipe
OSGB.....Ordnance Survey Bench Mark
OT.....Overhead Telecom Wire
P/C.....Post & Chain
P/R.....Post & Rail
P/W.....Post & Wire
PAV.....Paving
PB.....Pillar Box
PC.....Pedestrian Crossing
PP.....Petrol Pump
PT.....Post or Pillar
PV.....Peabbing Eye
RS.....Road Sign
RTW.....Retaining Wall
RWP.....Rain Water Pipe
SAP.....Sapling
SL.....Sump Level
Sof.....Soffit Level
SP.....Sign Post
SPr.....Springing Level
SRTW.....Stone Retaining Wall
SV.....Stop Valve (unspecified)
SVP.....Soil Vent Pipe
SW.....Stone Wall
TAC.....Tactile Paving
TB.....Traffic Bollard
TBM.....Temporary Bench Mark
TCB.....Telephone Call Box
TCB.....Taken From Records
TCE.....Anchor Point (Waste/Pollar)
TL.....Traffic Light
TLB.....Traffic Light Control Box
TM.....Ticket Machine
TNC.....Tarmac
TV.....Telecommunications Pole
TP27.....Trial Pit
TS.....Trash Screen
U/C.....Under Construction
U/G.....Underground
UTL.....Unable to Lift (SM,TC etc)
UTS.....Unable to Survey
VDP.....Vehicle Detector Pad
VP.....Vent Pipe
W/M.....Wire Mesh
W.....Water Level
WB.....Water Meter
WO.....Wash Out
WP.....Waste Pipe
WSV.....Water Stop Tap (domestic)
WSV.....Water Stop Valve (mains)

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Client: City Football Group

Drawing Title: Topographical Survey of Land at: Etihad Campus Manchester Sheet 8 of 14

Scale(s)	1:200	Surveyor	Var
Date	June 19	Drawn	DIF
Job Number	19D065	Checked	TP

Sheet Size & Drg Number & Revision: A0 19D065/008

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Note:
Orientation to existing site grid.
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Drainage information must be verified with local authority records before use
Levels in parenthesis indicate top of walls.
A - 07/06/19 - Additional drainage infomation added.

SURVEY STATIONS

Name	Eeasting	Northing	Height
SO1	386721.87	398920.03	57.14
SO2	386617.56	398918.87	57.02
SO3	386741.20	398815.98	61.42
SO4	386769.25	398717.79	60.96
SO5	386613.54	398717.79	60.62
SO6	386613.54	398595.07	60.62
SO7	386937.57	398922.46	60.62
SO8	386927.35	398447.36	60.62
SO9	387008.05	398411.30	61.97
SO10	387137.75	398362.69	63.16
SO11	387124.73	398459.14	61.97
SO12	387010.93	398461.17	61.97
SO13	387019.93	398996.53	62.01
SO14	386978.40	398798.85	63.81
SO15	386898.51	398856.33	56.75
SO16	386798.10	398952.83	56.10
TBM1	386721.76	399070.12	58.65
MF1	386761.83	398781.31	61.20
MF2	386761.83	398781.31	61.20
MF3	386802.66	398787.08	54.87
MF4	386831.82	398790.90	56.93
MF5	386869.50	398795.94	57.67
MF6	386891.26	398800.37	60.27
MF7	386955.58	398808.04	60.61
MF8	386934.62	398843.43	61.96
PA1	386894.49	398892.85	58.63
PA2	386894.49	398892.85	58.63
PA3	386806.40	398900.16	57.70
PA4	386771.87	398799.16	60.85
MF9	386832.46	399075.21	52.23
SO7	386449.28	398988.75	56.27
SO8	386546.44	398718.60	59.69

STANDARD REFERENCE & ABBREVIATIONS

(AN).....Assumed Node	Il.....Invert Level
AR.....Air Brick	IP.....Inlet Pipe
AV.....Air Valve	KO.....Kerb Outlet
B/W.....Barbed Wire	LB.....Letter Box
BAR.....Barrier	LP.....Lamp Post
BB.....Belisha Beacon	MG.....Multi Girth
BH.....Borehole	MH.....Manhole
BL.....Bed Level	MKR.....Marker
BOL.....Bollard	MP.....Mooring Point
BS.....Bus Stop	NP.....Street Name Plate
BT Box....British Telecom Box	O/H.....Overhead
BT.....British Telecom St	O/P.....Open Paling
BW.....Brick Retaining Wall	OC.....Overhead Electric Wire
BW.....Brick Wall	OP.....Outfall Pipe
C/B.....Close Boarded	OSGB.....Ordnance Survey Bench Mark
C/I.....Corrugated Iron	OT.....Overhead Telecom Wire
C/P.....Chestnut Paling	P/C.....Post & Chain
CB.....Control Box	P/R.....Post & Rail
CBW.....Concrete Block Wall	P/W.....Post & Wire
CCTV.....Closed Circuit TV	PAV.....Paving
CO.....Cable Duct	PB.....Pillar Box
CS.....Cellar Light	PC.....Pedestrian Crossing
CW/L.....Chain Link	PP.....Petrol Pump
CHM.....Chimney	PT.....Post or Pillar
CL.....Cover Level	RE.....Rodding Eye
CM.....Cable Marker	RS.....Road Sign
COL.....Column	RTW.....Retaining Wall
CONC.....Concrete	SWP.....Main Water Pipe
CP.....Catch Pit	SAP.....Sapling
CRTW.....Concrete Retaining Wall	SL.....Sump Level
CTV.....Cable Television	SUL.....Soffit Level
CUL.....Culvert	SP.....Sign Post
CW.....Concrete Block Wall	SPL.....Springing Level
DC.....Drainage Channel	SRTW.....Stone Retaining Wall
DPC.....Damp Proof Course	SV.....Stop Valve (unspecified)
DR.....Drain	SVP.....Soil Vent Pipe
DRW.....Dry Stone Wall	SW.....Stone Wall
ECP.....Electricity Cable Pit	TAC.....Tactile Paving
EIC.....Electricity Inspection Cover	TB.....Traffic Bollard
EJ.....Expansion Joint	TBM.....Temporary Bench Mark
EJB.....Electricity Junction Box	TCB.....Telephone Call Box
EL SUB STN..Electricity Sub Station	TFA.....Taken From Records
EL.....Kiosk Level	TIE.....Anchor Point (Mast/Poles)
ELE.....Electricity Box	TL.....Traffic Light
EP.....Electricity Pole	TLB.....Traffic Light Control Box
ER.....Earth Rod	TM.....Ticket Machine
ETL.....Electricity Transmission Line	TWL.....Tarmac
FB.....Flower Bed	TP.....Telecommunications Pole
FH.....Fire Hydrant	TPIT.....Trial Pit
FL.....Floor Level	TS.....Trash Screen
FP.....Flagpole	U/E.....Under Construction
GI.....Girth (of tree)	U/G.....Underground
G.....Gulley	UTL.....Unable to Lift (BM,IC etc)
GAB.....Gabion	UTS.....Unable to Survey
GCI.....Gas Inlet Pipe	VDP.....Vehicle Detector Pad
GMK.....Gas Marker	VP.....Vent Pipe
GOT.....Gas Stop Tap (Domestic)	W/M.....Wire Mesh
GSV.....Gas Stop Valve (Mains)	WL.....Water Level
HSE.....Housing	WM.....Water Meter
HT.....Height	WO.....Wash Out
HV.....High Voltage	WP.....Waste Pipe
I/R.....Iron Railing	WST.....Water Stop Tap (Domestic)
II.....Inspection Cover	WSV.....Water Stop Valve (mains)

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	9	10												
		11	12											
		13	14											

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Client
City Football Group

Drawing Title
Topographical Survey of Land at:
Etihad Campus
Manchester
Sheet 9 of 14

Scale(s)	1:200	Surveyor	Var
Date	June 19	Drawn	DIF
Job Number	19D065	Checked	TP

Sheet Size & Drg Number & Revision
A0 19D065/009

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Note:
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Drainage information must be verified with local authority records before use
Levels in parenthesis indicate top of walls.
A - 07/06/19 - Additional drainage infomation added.

SURVEY STATIONS

Name	Eorsting	Northing	Height
SO1	386721.87	398920.03	57.14
SO2	386617.56	398918.87	57.02
SO3	386741.20	398815.98	61.42
SO4	386769.25	398717.79	60.96
SO5	386613.54	398691.57	60.62
SO6	386613.54	398591.57	60.62
SO7	386937.57	398522.46	60.62
SO8	386927.35	398447.58	60.62
SO9	387008.05	398411.30	61.97
SO10	387137.75	398362.69	63.16
SO11	387124.73	398459.14	61.97
SO12	387010.92	398461.57	62.01
SO13	387019.92	398960.53	62.01
SO14	386978.40	398798.85	63.81
SO15	386898.51	398856.39	56.75
SO16	386798.10	398952.83	56.10
TBM1	386721.74	399070.12	58.65
MF1	386761.83	398781.31	61.20
MF2	386802.46	398787.06	56.87
MF3	386802.66	398787.06	56.87
MF4	386831.82	398790.90	56.93
MF5	386869.50	398795.96	57.67
MF6	386891.26	398800.37	60.27
MF7	386955.58	398806.04	60.61
MF8	386934.63	398843.43	61.96
PA1	386894.49	398890.89	58.63
PA2	386894.49	398890.89	58.63
PA3	386806.40	398900.16	57.70
PA4	386771.87	398799.16	60.85
MF9	386832.46	399075.21	52.23
SO4	386449.28	398988.75	56.27
SO5	386546.44	398718.60	56.69

STANDARD REFERENCE & ABBREVIATIONS

(AN).....Assumed Route
AB.....Air Brick
AV.....Air Valve
B/W.....Barbed Wire
BAR.....Barrier
BB.....Belisha Beacon
BH.....Borehole
BL.....Bed Level
BOL.....Bollard
BS.....Bus Stop
BT Box....British Telecom Box
BT.....British Telecom St
BRTW.....Brick Retaining Wall
BW.....Brick Wall
C/B.....Close Boarded
CI\.....Corrugated Iron
C/F.....Chestnut Paling
CB.....Control Box
CBW.....Concrete Block Wall
CCTV.....Closed Circuit TV
CO.....Cable Duct
CS\.....Cellar Light
CHL\.....Chain Link
CHM.....Chimney
CL.....Cover Level
CM.....Cable Marker
COL.....Column
CONC.....Concrete
CP.....Catch Pit
CRTW.....Concrete Retaining Wall
CTV.....Cable Television
CUL.....Culvert
CW.....Concrete Block Wall
DC.....Drainage Channel
DPC.....Damp Proof Course
DR.....Drain
DSW.....Dry Stone Wall
ECP.....Electricity Cable Pit
EIC.....Electricity Inspection Cover
Ex.....Expansion Joint
FJB.....Electricity Junction Box
FL SUB STN..Electricity Sub Station
EL.....Kexes Level
FLB.....Electricity Box
EP.....Electricity Pole
ER.....Earth Rod
ETL.....Electricity Transmission Line
FB.....Flower Bed
FH.....Fire Hydrant
FL.....Floor Level
FP.....Flagpole
G*.....Girth (of tree)
G_.....Gulley
GAB.....Gabion
GCV.....Gas Inlet Pipe
GMKR.....Gas Marker
GSV.....Gas Stop Tap (Domestic)
GSV.....Gas Stop Valve (Mains)
HSE.....Housing
HT.....Height
HV.....High Voltage
I/R.....Iron Railing
IC.....Inspection Cover
IL.....Invert Level
IP.....Inlet Pipe
KO.....Kerb Outlet
LB.....Letter Box
LP.....Lamp Post
MB.....Multi Girth
MH.....Manhole
MKR.....Marker
MP.....Mooring Point
NP.....Street Name Plate
O/H.....Overhead
O/P.....Open Paling
OL\.....Overhead Electric Wire
OP.....Outfall Pipe
OSBM.....Ordnance Survey Bench Mark
OT.....Overhead Telecom Wire
P/C.....Post & Chain
P/R.....Post & Rail
P/W.....Post & Wire
PAV.....Paving
PB.....Pillar Box
PC.....Pedestrian Crossing
PP.....Petrol Pump
PT.....Post or Pillar
RC.....Rodding Eye
RM.....Road Sign
RTW.....Retaining Wall
RWP.....Rain Water Pipe
SAP.....Sapling
SL.....Sump Level
SO.....Soffit Level
SP.....Sign Post
SPL.....Springing Level
SRTW.....Stone Retaining Wall
SV.....Stop Valve (unspecified)
SVP.....Soil Vent Pipe
TB.....Traffic Bollard
TBM.....Temporary Bench Mark
TCB.....Telephone Call Box
TFB.....Taken From Records
TIP.....Anchor Point (Boats/Poles)
TL.....Traffic Light
TLB.....Traffic Light Control Box
TM.....Ticket Machine
TMC.....Tarmac
TP.....Telecommunications Pole
TPIT.....Trial Pit
TS.....Trash Screen
U/C.....Under Construction
U/G.....Underground
UTL.....Unable to Lift (BM,IC etc)
UTS.....Unable to Survey
VDP.....Vehicle Detector Pad
VP.....Vent Pipe
WCW.....Wire Mesh
WL.....Water Level
WM.....Water Meter
WO.....Wash Out
WP.....Waste Pipe
WSV.....Water Stop Tap (Domestic)
WSV.....Water Stop Valve (mains)

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	11	12
	13	14

SurveY OPERATIONS
Smith Street, Skelmersdale, Lancs. WN8 8LN
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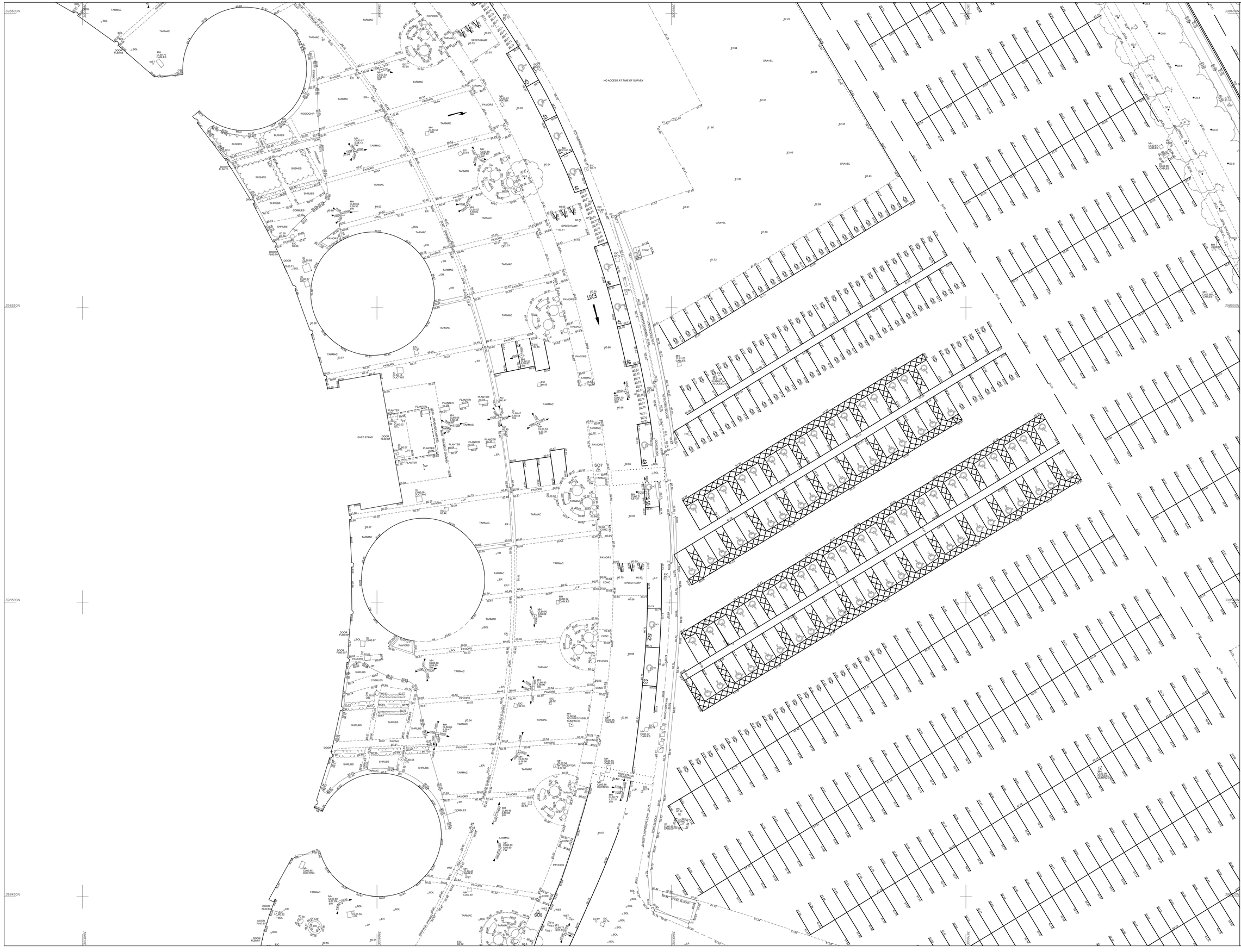
Email: mail@survops.co.uk ~ www.survops.co.uk

Client: City Football Group

Drawing Title: Topographical Survey of Land at:
Etihad Campus
Manchester
Sheet 10 of 14

Scale(s)	1:200	Surveyor	Var
Date	June 19	Drawn	DIF
Job Number	19D065	Checked	TP

Sheet Size & Drg Number & Revision: A0 19D065/010



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Note:
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Levels in parenthesis indicate top of walls.
A - 07/06/19 - Additional drainage infomation added.

SURVEY STATIONS

Name	Eastings	Northings	Height
SO1	386721.87	398920.03	57.14
SO2	386617.56	398918.87	57.02
SO3	386741.20	398815.98	61.42
SO4	386769.25	398717.79	60.96
SO5	386694.13	398717.57	60.62
SO6	386613.54	398595.07	60.45
SO7	386937.57	398522.46	60.62
SO8	386927.35	398447.36	60.62
SO9	387008.05	398411.30	61.97
SO10	387137.75	398362.69	63.16
SO11	387124.73	398459.14	61.97
SO12	387010.82	398459.31	61.97
SO13	387019.93	398996.53	62.01
SO14	386978.40	398798.85	63.81
SO15	386898.51	398856.33	56.75
SO16	386798.10	398952.83	56.10
TBM1	386721.76	399070.12	58.65
MF1	386761.83	398781.31	61.20
MF2	386747.83	398787.06	61.20
MF3	386802.66	398787.06	56.87
MF4	386831.82	398790.90	56.93
MF5	386869.50	398790.94	57.67
MF6	386891.26	398800.37	60.27
MF7	386855.58	398806.06	60.61
MF8	386934.62	398843.43	61.96
MF9	386832.46	399075.21	52.23
PA1	386844.22	398898.75	56.69
PA2	386846.44	398718.60	56.65
PA3	386806.40	398900.16	57.70
PA4	386771.87	398799.16	60.85
MF9	386832.46	399075.21	52.23
SO4	386769.25	398717.79	60.96
SO5	386746.44	398718.60	56.65

STANDARD REFERENCE & ABBREVIATIONS

(AN).....Assumed Route
AB.....Air Brick
AV.....Air Valve
B/W.....Barbed Wire
BAR.....Barrier
BB.....Bellaba Beacon
BH.....Borehole
BL.....Bed Level
BOL.....Bollard
BS.....Bus Stop
BT Box....British Telecom Box
BT.....British Telecom St
BRTW.....Brick Retaining Wall
BW.....Brick Wall
C/D.....Close Boarded
C/I.....Corrugated Iron
C/P.....Chestnut Paling
CB.....Control Box
CBW.....Concrete Block Wall
CCTV.....Closed Circuit TV
CD.....Cable Duct
CO.....Cellar Light
CRL.....Chain Link
CHM.....Chimney
CL.....Cover Level
CM.....Cable Marker
COL.....Column
CONC.....Concrete
CP.....Catch Pit
CRTW.....Concrete Retaining Wall
CTV.....Cable Television
CU.....Culvert
CW.....Concrete Block Wall
DC.....Drainage Channel
DPC.....Damp Proof Course
DR.....Drain
DSW.....Dry Stone Wall
ESP.....Electricity Cable Pit
ESI.....Electricity Inspection Cover
Ex.....Expansion Joint
EJB.....Electricity Junction Box
EL SUB STN.Electricity Sub Station
EL.....Eaves Level
ELB.....Electricity Box
EP.....Electricity Pole
ER.....Earth Rod
ETL.....Electricity Transmission Line
FB.....Flower Bed
FH.....Fire Hydrant
FL.....Floor Level
FP.....Flagpole
GF'A'.....Girth of Grey
G.....Gully
GAB.....Gabion
GIC.....Gas Inlet Pipe
GMKR.....Gas Marker
GBT.....Gas Stop Tap (Domestic)
GSV.....Gas Stop Valve (Mains)
HSE.....Housing
HT.....Height
HV.....High Voltage
I/R.....Iron Railing
II.....Inspection Cover
IL.....Invert Level
IP.....Inlet Pipe
KO.....Kerb Outlet
LB.....Letter Box
LP.....Lamp Post
MG.....Multi Girth
MH.....Manhole
MKR.....Marker
MP.....Mooring Point
NP.....Street Name Plate
O/H.....Overhead
O/P.....Open Paling
OHTW.....Overhead Electric Wire
OP.....Outfall Pipe
OSBM.....Ordnance Survey Bench Mark
OT.....Overhead Telecom Wire
P/C.....Post & Chain
P/R.....Post & Rail
P/W.....Post & Wire
PAV.....Paving
PB.....Pillar Box
PC.....Pedestrian Crossing
PF.....Petrol Pump
PT.....Post or Pillar
RE.....Rodding Eye
RH.....Road Sign
RTW.....Retaining Wall
RWP.....Rain Water Pipe
SAP.....Sapling
SL.....Sump Level
SPL.....Springing Level
SRTW.....Stone Retaining Wall
SV.....Stop Valve (unspecified)
SVP.....Soil Vent Pipe
SW.....Stone Wall
TAC.....Tactile Paving
TB.....Traffic Bollard
TBM.....Temporary Bench Mark
TCB.....Telephone Call Box
TFB.....Taken From Records
TIE.....Anchor Point (Waste/Poles)
TL.....Traffic Light
TLB.....Traffic Light Control Box
TM.....Ticket Machine
TREE.....Tarmac
TP.....Telecommunications Pole
TPIT.....Trial Pit
TS.....Trash Screen
U/C.....Under Construction
U/G.....Underground
UTL.....Unable to Lift (BM,IC etc)
UTB.....Unable to Survey
VDP.....Vehicle Detector Pad
VP.....Vent Pipe
WCM.....Wire Mesh
WL.....Water Level
WM.....Water Meter
WO.....Wash Out
WP.....Waste Pipe
WST.....Water Stop Tap (Domestic)
WSV.....Water Stop Valve (mains)

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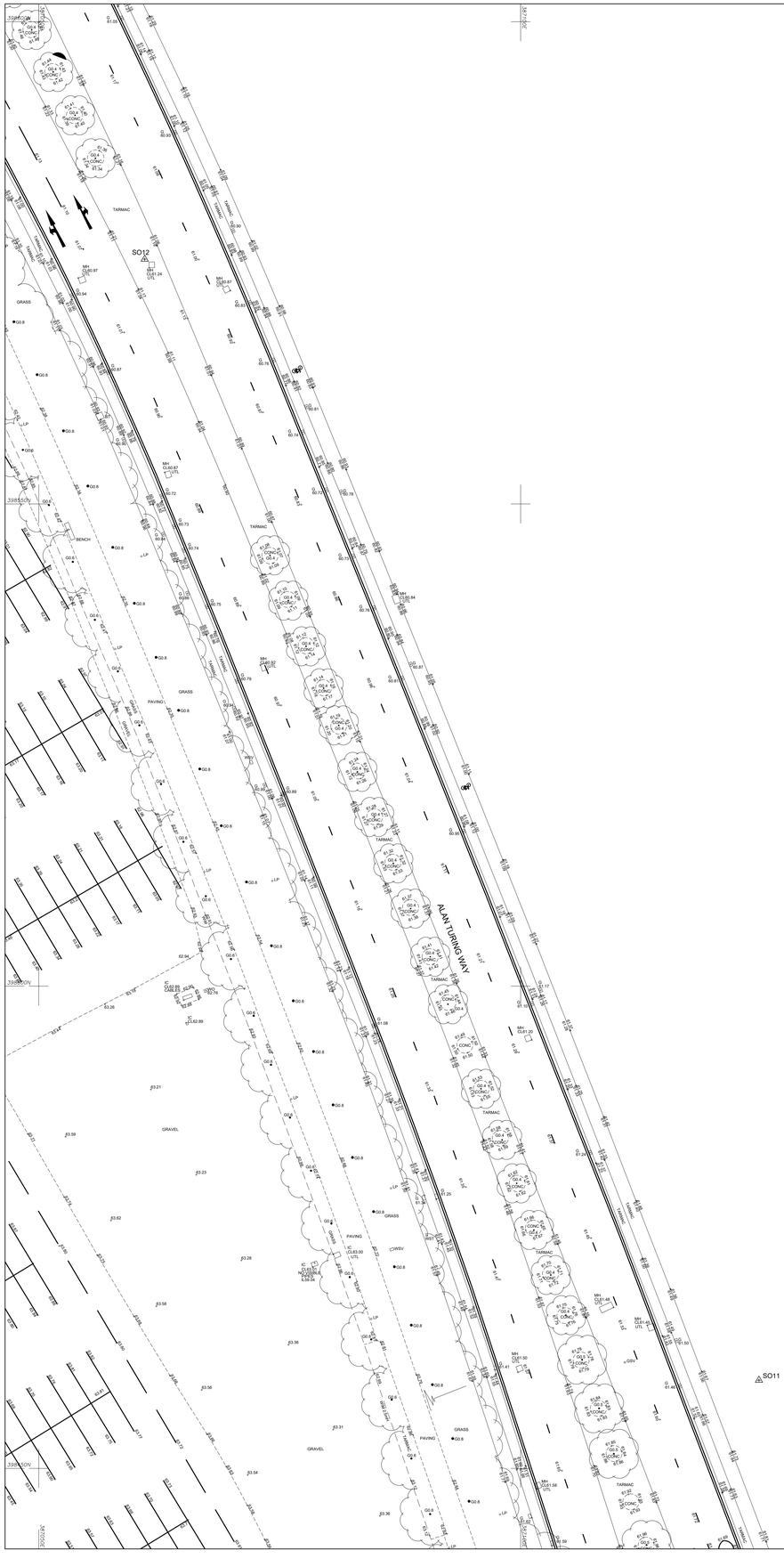
Client
City Football Group

Drawing Title
Topographical Survey of Land at:
Etihad Campus
Manchester
Sheet 11 of 14

Scale(s)	1:200	Surveyor	Var
Date	June 19	Drawn	DIF
Job Number	19D065	Checked	TP

Sheet Size & Drg Number & Revision
A0 19D065/011



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Levels in parenthesis indicate top of walls.

A - 07/06/19 - Additional drainage infomation added.

SURVEY STATIONS

Name	Eeasting	Northing	Height
SO1	386721.67	398920.03	57.14
SO2	386617.56	398918.87	57.02
SO3	386741.20	398815.98	61.42
SO4	386769.25	398717.79	60.96
SO5	386813.54	398691.57	60.62
SO6	386913.54	398691.57	60.62
SO7	386937.57	398522.44	60.62
SO8	386927.35	398447.38	60.62
SO9	387008.05	398411.30	61.97
SO10	387157.75	398362.69	63.16
SO11	387124.73	398459.14	61.97
SO12	387010.92	398560.17	62.01
SO13	387019.92	398690.53	62.01
SO14	386978.40	398798.85	63.81
SO15	386898.51	398856.39	56.75
SO16	386798.10	398952.83	56.10
TBM1	386721.76	399070.12	58.65
MF1	386761.83	398781.31	61.20
MF2	386802.64	398787.08	60.87
MF3	386802.66	398787.08	56.87
MF4	386831.82	398790.90	56.93
MF5	386869.50	398795.96	57.67
MF6	386891.26	398800.37	60.27
MF7	386955.58	398806.06	60.61
MF8	386934.63	398843.43	61.96
PA1	386884.42	398892.83	58.63
PA2	386884.49	398892.89	58.63
PA3	386806.40	398900.16	57.70
PA4	386771.87	398799.16	60.85
MF9	386832.46	399075.21	52.23
SO4	386449.28	398898.75	56.27
SO5	386546.44	398718.60	56.69

STANDARD REFERENCE & ABBREVIATIONS

(AS).....Assumed Route
AV.....Air Valve
B/W.....Barbed Wire
BAR.....Barrier
BB.....Belisha Beacon
BH.....Borehole
BL.....Bed Level
BOL.....Bollard
BS.....Bus Stop
BT Box....British Telecom Box
BT.....British Telecom St
BWTW.....Brick Retaining Wall
BW.....Brick Wall
C/B.....Close Boarded
C/I.....Corrugated Iron
C/P.....Chestnut Paling
CB.....Control Box
CBW.....Concrete Block Wall
CCTV.....Closed Circuit TV
CD.....Cable Duct
CO.....Cellar Light
CRI.....Chain Link
CHY.....Chimney
CL.....Cover Level
CM.....Cable Marker
COL.....Column
CONC.....Concrete
CP.....Catch Pit
CRTW.....Concrete Retaining Wall
CTV.....Cable Television
CUL.....Culvert
CW.....Concrete Block Wall
DC.....Drainage Channel
DPC.....Damp Proof Course
DR.....Drain
DSW.....Dry Stone Wall
ECP.....Electricity Cable Pit
EIC.....Electricity Inspection Cover
EJ.....Expansion Joint
EJB.....Electricity Junction Box
EL SUB STA..Electricity Sub Station
EL.....Kawa Level
ELB.....Electricity Box
EP.....Electricity Pole
ER.....Earth Rod
ETL.....Electricity Transmission Line
FB.....Flower Bed
FH.....Fire Hydrant
FL.....Floor Level
FP.....Flagpole
GP.*.....Girth (of tree)
G.....Gulley
GAB.....Gabion
GIP.....Gas Inlet Pipe
GMKR.....Gas Marker
GSV.....Gas Stop Tap (Domestic)
GSV.....Gas Stop Valve (Mains)
HBD.....Hoarding
HT.....Height
HV.....High Voltage
I/R.....Iron Railing
IC.....Inspection Cover
I.L.....Invert Level
IP.....Inlet Pipe
KO.....Kerb Outlet
LB.....Letter Box
LP.....Lamp Post
MH.....Multi Girth
MK.....Manhole
MKR.....Marker
MP.....Mooring Point
NP.....Street Name Plate
O/H.....Overhead
O/P.....Open Paling
OH.....Overhead Electric Wire
OP.....Outfall Pipe
OSBM.....Ordnance Survey Bench Mark
OT.....Overhead Telecom Wire
P/C.....Post & Chain
P/R.....Post & Rail
P/W.....Post & Wire
PAV.....Paving
PB.....Pillar Box
PC.....Pedestrian Crossing
PP.....Petrol Pump
PT.....Post or Pillar
RE.....Reading Eye
RS.....Road Sign
RTW.....Retaining Wall
RWP.....Rain Water Pipe
SAP.....Sapling
S.....Sump Level
Soi.....Soffit Level
SP.....Sign Post
SPr.....Springing Level
SRTW.....Stone Retaining Wall
SV.....Stop Valve (unspecified)
SVP.....Soil Vent Pipe
SW.....Stone Wall
TAC.....Tactile Paving
TB.....Traffic Bollard
TBM.....Temporary Bench Mark
TCB.....Telephone Call Box
TFR.....Taken From Records
TIE.....Anchor Point (Masts/Poles)
TL.....Traffic Light
TLB.....Traffic Light Control Box
TM.....Ticket Machine
TWC.....Tarmac
TP.....Telecommunications Pole
TRIP.....Trial Pit
TS.....Trash Screen
U/C.....Under Construction
U/G.....Underground
UTL.....Unable to Lift (BM,IC etc)
UTS.....Unable to Survey
VDP.....Vehicle Detector Pad
VP.....Vent Pipe
WIW.....Wire Mesh
WL.....Water Level
WM.....Water Meter
WO.....Wash Out
WP.....Waste Pipe
WSV.....Water Stop Tap (Domestic)
WSV.....Water Stop Valve (Mains)

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Client
City Football Group

Drawing Title
Topographical Survey of Land at:
Etihad Campus
Manchester
Sheet 12 of 14

Scale(s)	1:200	Surveyor	Var
Date	June 19	Drawn	DIF
Job Number	19D065	Checked	TP

Sheet Size & Drg Number & Revision
A0 19D065/012

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A - 07/06/19 - Additional drainage infomation added.

SURVEY STATIONS

Name	Eeasting	Northing	Height
SO1	386721.67	398920.33	57.14
SO2	386617.56	398918.87	57.02
SO3	386741.20	398815.98	61.42
SO4	386769.25	398717.79	60.96
SO5	386694.13	398717.57	60.62
SO6	386613.54	398590.07	60.45
SO7	386937.57	398522.46	60.62
SO8	386927.35	398447.56	60.62
SO9	387008.05	398411.30	61.97
SO10	387157.75	398362.69	63.16
SO11	387124.73	398459.14	61.97
SO12	387019.80	398496.53	62.01
SO13	387019.93	398696.53	62.01
SO14	386978.40	398798.85	63.81
SO15	386898.51	398856.39	56.75
SO16	386798.10	398952.83	56.10
TBM1	386721.76	399070.12	58.65
MT1	386761.83	398781.31	61.20
MT2	386802.64	398787.08	60.87
MT3	386802.66	398787.08	54.67
MT4	386831.82	398790.90	56.93
MT5	386869.50	398795.96	57.67
MT6	386891.26	398800.37	60.27
MT7	386855.58	398856.06	60.61
MT8	386934.63	398843.43	61.96
PA1	386806.40	398900.16	57.70
PA2	386804.49	398892.89	58.63
PA3	386806.40	398900.16	57.70
PA4	386771.87	398799.16	60.85
MT9	386832.46	399075.21	52.23
SO17	386449.28	398998.75	56.28
SO18	386546.48	398718.60	59.69

STANDARD REFERENCE & ABBREVIATIONS

(AN).....Assumed Route
AB.....Air Brick
AV.....Air Valve
B/W.....Barbed Wire
BAR.....Barrier
BB.....Bellaba Beacon
BH.....Borehole
BL.....Bed Level
BOL.....Bollard
BS.....Bus Stop
BT Box....British Telecom Box
BT.....British Telecom St
BRW.....Brick Retaining Wall
BW.....Brick Wall
C/D.....Close Boarded
C/I.....Corrugated Iron
C/P.....Chestnut Paling
CB.....Control Box
CBW.....Concrete Block Wall
CCTV.....Closed Circuit TV
CD.....Cable Duct
CO.....Collar Light
CH/L.....Chain Link
CHM.....Chimney
CL.....Cover Level
CM.....Cable Marker
COL.....Column
CONC.....Concrete
CP.....Catch Pit
CRTW.....Concrete Retaining Wall
CTV.....Cable Television
CUL.....Culvert
CW.....Concrete Block Wall
DC.....Drainage Channel
DPC.....Damp Proof Course
DR.....Drain
DSW.....Dry Stone Wall
ECP.....Electricity Cable Pit
ESC.....Electricity Inspection Cover
EJ.....Expansion Joint
EJB.....Electricity Junction Box
El Sub Sta..Electricity Sub Station
EL.....Eaves Level
EW.....Electricity Wee
EP.....Electricity Pole
ER.....Earth Rod
ETL.....Electricity Transmission Line
FB.....Flower Bed
FH.....Fire Hydrant
FL.....Floor Level
FP.....Flagpole
GP..*.....Girth (of tree)
G.....Gulley
GAB.....Gabion
GIP.....Gas Inlet Pipe
GMK.....Gas Marker
GO1.....Gas Stop Tap (Domestic)
GSV.....Gas Stop Valve (Mains)
HSG.....Housing
HT.....Height
HV.....High Voltage
I/R.....Iron Railing
IC.....Inspection Cover
I.L.....Invert Level
IP.....Inlet Pipe
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RWP.....Rain Water Pipe
SAP.....Sapling
SL.....Sump Level
SO.....Soffit Level
SP.....Sign Post
SPL.....Springing Level
SRTW.....Stone Retaining Wall
SV.....Stop Valve (unspecified)
SW.....Soil Vent Pipe
SWA.....Stone Wall
TAC.....Tactile Paving
TB.....Traffic Bollard
TBM.....Temporary Bench Mark
TCB.....Telephone Call Box
TFR.....Taken From Records
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UTL.....Unable to Lift (BM,IC etc)
UTS.....Unable to Survey
VCP.....Vehicle Detector Pad
VP.....Vent Pipe
W/M.....Wire Mesh
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WM.....Water Meter
WO.....Wash Out
WP.....Waste Pipe
WSV.....Water Stop Tap (Domestic)
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Topographical Survey of Land at:
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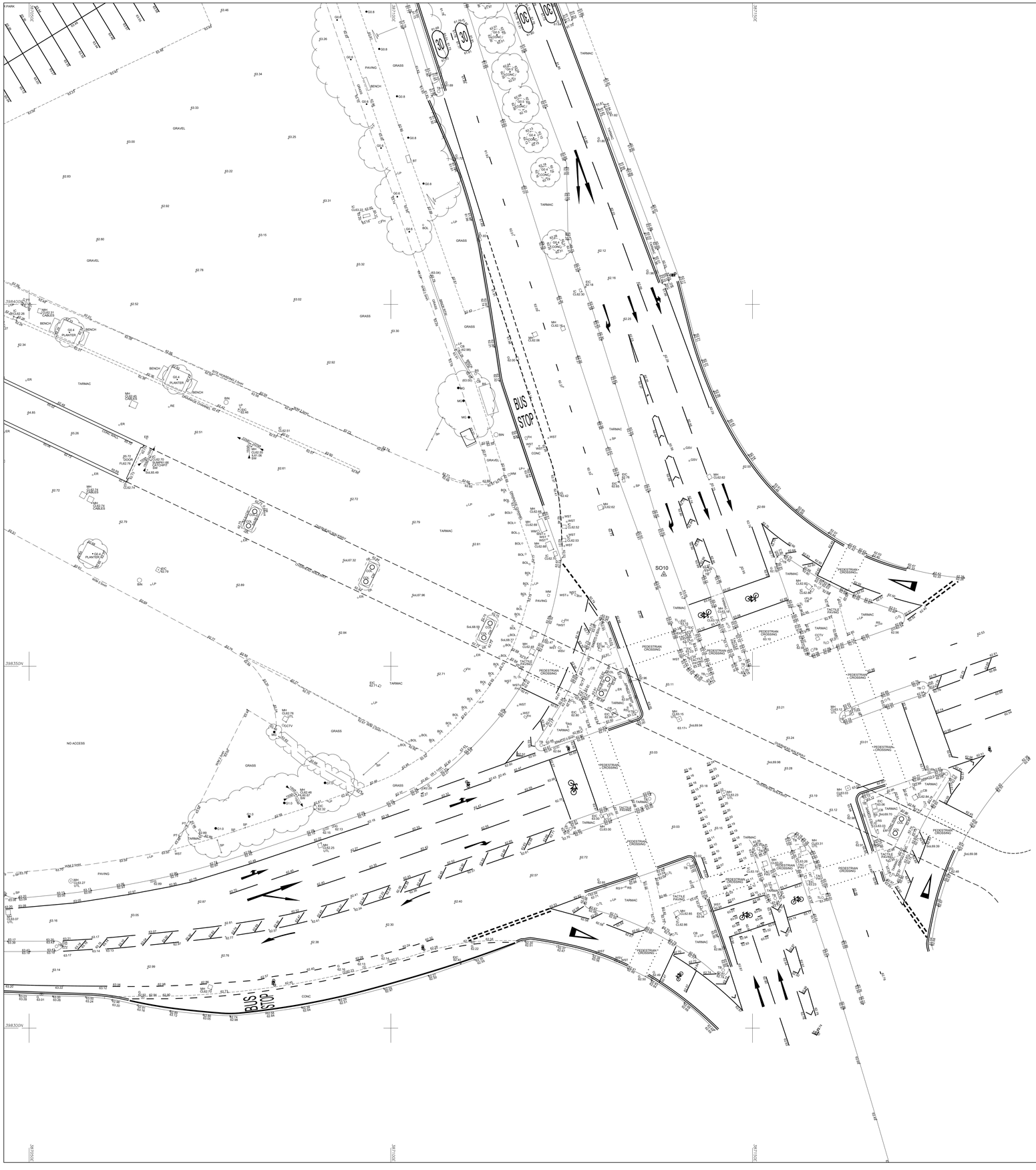
Sheet 13 of 14

Scale(s)	1:200	Surveyor	Var
Date	June 19	Drawn	DIF
Job Number	19D065	Checked	TP

Sheet Size & Drg Number & Revision
A0 19D065/013



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SO10	387157.75	398362.69	63.16
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SO12	387019.92	398459.14	62.01
SO13	387019.92	398990.53	62.01
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SO15	386898.51	398856.39	56.75
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MF2	386761.83	398781.31	61.20
MF3	386802.66	398787.06	56.87
MF4	386831.82	398790.90	56.93
MF5	386869.50	398795.96	57.67
MF6	386891.26	398800.37	60.27
MF7	386915.58	398806.06	60.61
MF8	386934.63	398843.43	61.96
PA1	386894.49	398890.89	58.63
PA2	386894.49	398890.89	58.63
PA3	386806.40	398900.16	57.70
PA4	386771.87	398799.16	60.85
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SO5	386546.44	398718.60	56.69

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B/W.....Barbed Wire
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BB.....Belisha Beacon
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BL.....Bed Level
BOL.....Bollard
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BT Box....British Telecom Box
BT.....British Telecom St
BRTW.....Brick Retaining Wall
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C/B.....Close Boarded
C/I.....Corrugated Iron
C/P.....Chestnut Paling
CB.....Control Box
CBW.....Concrete Block Wall
CCTV.....Closed Circuit TV
CO.....Cable Duct
CS1.....Cellar Light
CHL.....Chain Link
CHY.....Chimney
CL.....Cover Level
CK.....Cable Marker
COL.....Column
CONC.....Concrete
CP.....Catch Pit
CRTW.....Concrete Retaining Wall
CTV.....Cable Television
CUL.....Culvert
CW.....Concrete Block Wall
DC.....Drainage Channel
DPC.....Damp Proof Course
DR.....Drain
DSW.....Dry Stone Wall
ECP.....Electricity Cable Pit
ECI.....Electricity Inspection Cover
EJ.....Expansion Joint
EJB.....Electricity Junction Box
EL SUB STN..Electricity Sub Station
EL.....Kiosk Level
ELE.....Electricity Pole
EP.....Electricity Pole
ER.....Earth Rod
ETL.....Electricity Transmission Line
FB.....Flower Bed
FH.....Fire Hydrant
FL.....Floor Level
FP.....Flagpole
GF.....Girth (of tree)
G.....Gulley
GAR.....Garage
GCI.....Gas Inlet Pipe
GMKR.....Gas Marker
GBT.....Gas Stop Tap (Domestic)
GSV.....Gas Stop Valve (Mains)
HSE.....Housing
HT.....Height
HV.....High Voltage
I/R.....Iron Railing
II.....Inspection Cover
IL.....Invert Level
IP.....Iron Pipe
KO.....Kerb Outlet
LB.....Letter Box
LP.....Lamp Post
MH.....Multi Girth
MK.....Manhole
MKR.....Marker
MP.....Mooring Point
NP.....Street Name Plate
O/H.....Overhead
O/P.....Open Paling
OC.....Overhead Electric Wire
OP.....Outfall Pipe
OSDM.....Ordnance Survey Bench Mark
OT.....Overhead Telecom Wire
P/C.....Post & Chain
P/R.....Post & Rail
P/W.....Post & Wire
PAV.....Paving
PB.....Pillar Box
PC.....Pedestrian Crossing
PT.....Petrol Pump
PT.....Post or Pillar
RB.....Rodding Eye
RD.....Road Sign
RTW.....Retaining Wall
RWP.....Rain Water Pipe
SAP.....Sapling
SL.....Sump Level
SL.....Soffit Level
SP.....Sign Post
SPL.....Springing Level
SRTW.....Stone Retaining Wall
SV.....Stop Valve (unspecified)
SVP.....Soil Vent Pipe
SW.....Stone Wall
TAC.....Tactile Paving
TB.....Traffic Bollard
TBM.....Temporary Bench Mark
TCB.....Telephone Call Box
TFR.....Taken From Records
TIE.....Anchor Point (Masts/Poles)
TL.....Traffic Light
TLB.....Traffic Light Control Box
TM.....Ticket Machine
TRE.....Tarmac
TT.....Telecommunications Pole
TRIT.....Trial Pit
TS.....Trash Screen
U/C.....Under Construction
U/G.....Underground
UTL.....Unable to Lift (MH,IC etc)
UTS.....Unable to Survey
VCP.....Vehicle Detector Pad
VP.....Vent Pipe
WCH.....Wire Mesh
WL.....Water Level
WMK.....Water Marker
WO.....Mash Out
WP.....Waste Pipe
WSV.....Water Stop Tap (Domestic)
WSV.....Water Stop Valve (mains)

1	2	
3	4	5
6	7	8
	9	10
	11	12
	13	14

SurveY OPERATIONS

Smith Street, Skelmersdale, Lancs. WN8 8LN
Tel: 01695 725662 Fax: 01695 51816
Email: mail@surveyops.co.uk - www.surveyops.co.uk

Client
City Football Group

Drawing Title
Topographical Survey of Land at:
Etihad Campus
Manchester
Sheet 14 of 14

Scale(s)	1:200	Surveyor	Var
Date	June 19	Drawn	DIF
Job Number	19D065	Checked	TP

Sheet Size & Drg Number & Revision
A0 19D065/014

Appendix B BGS Borehole logs

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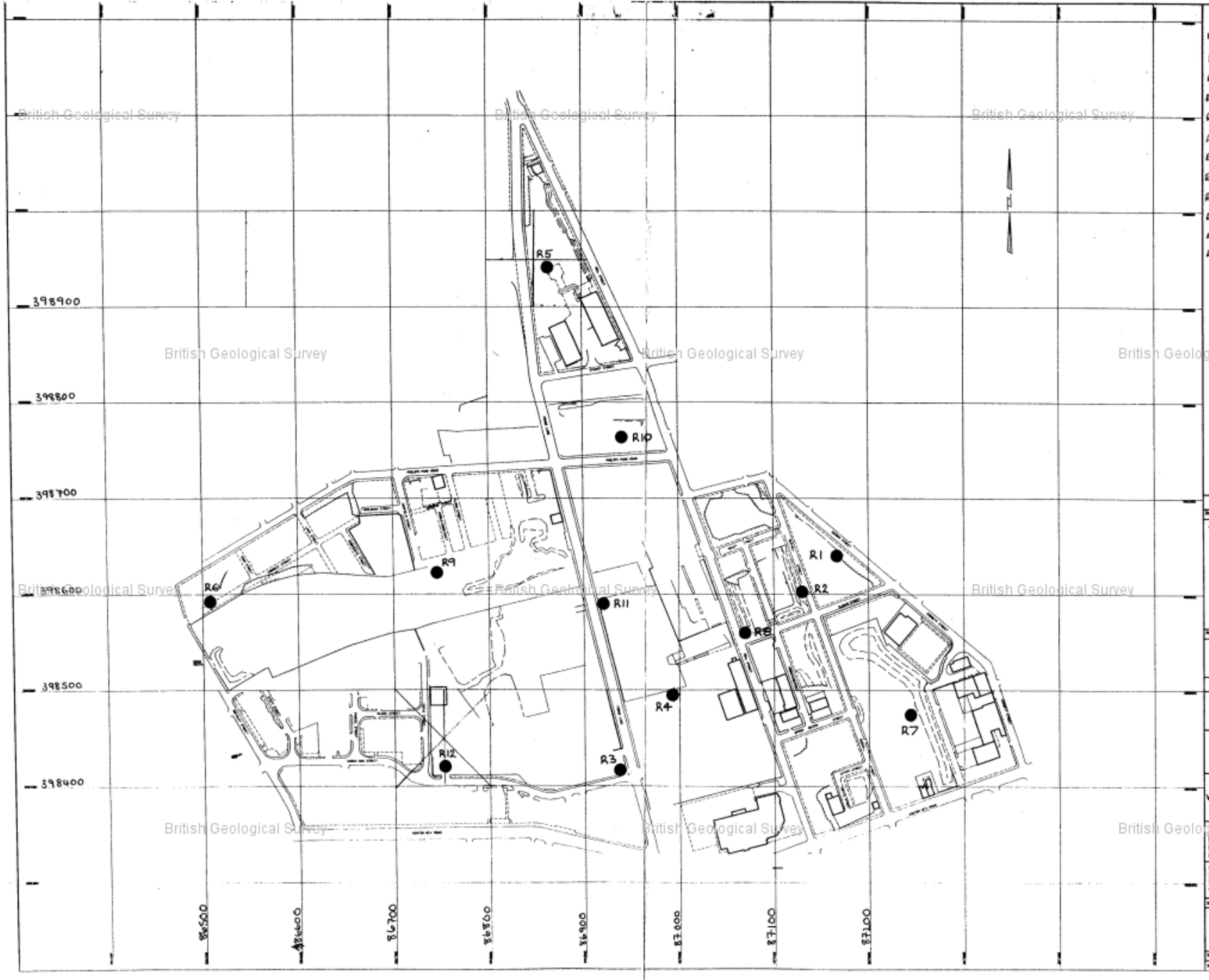
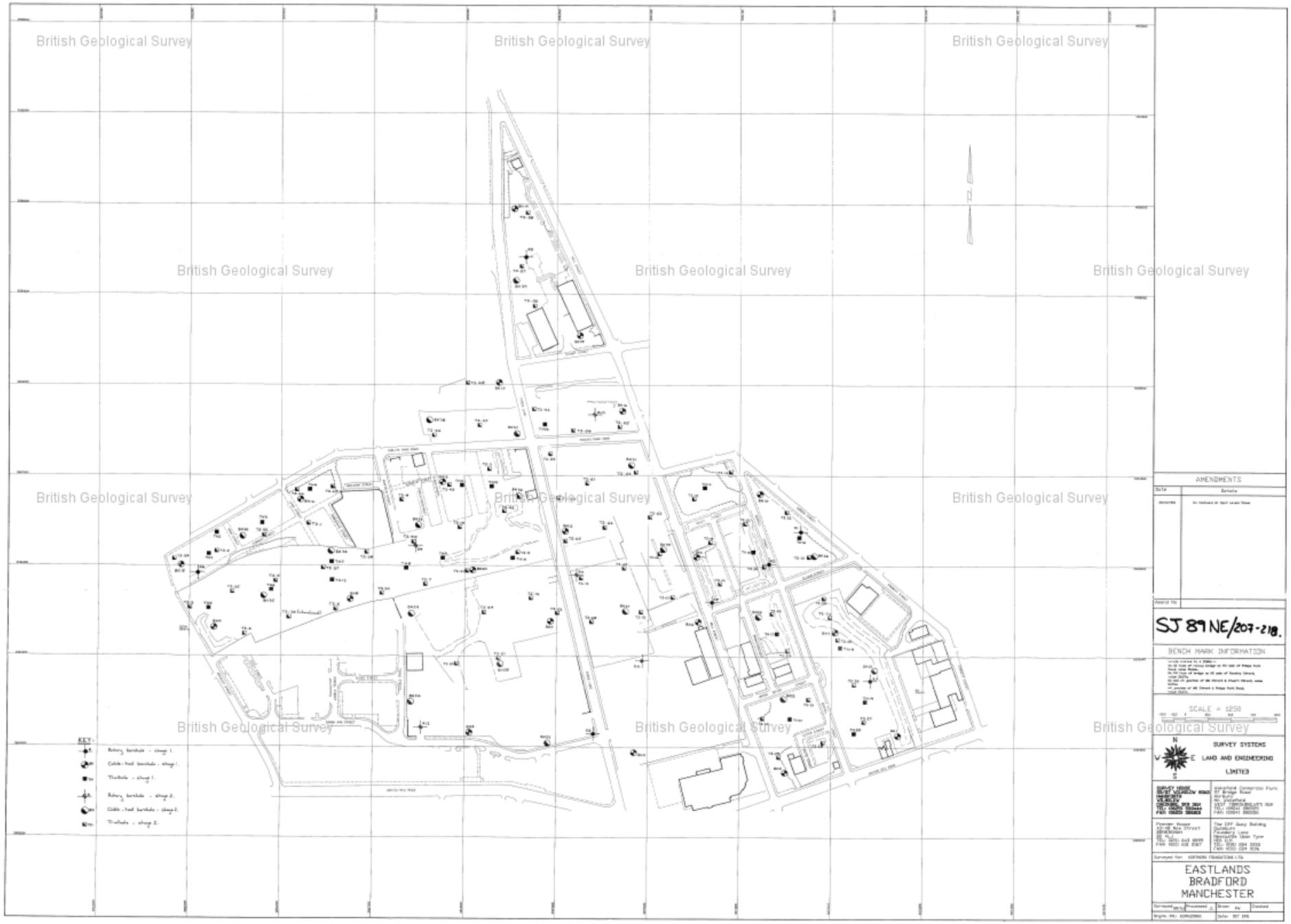

R1 - 8716 - 9865
R2 - 8712 - 9860
R3 - 8693 - 9842
R4 - 8697 - 9849
R5 - 8667 - 9892
R6 - 8652 - 9858
R7 - 8725 - 9847
R8 - 8707 - 9857
R9 - 8674 - 9863
R10 8694 - 9877
R11 8692 - 9859
R12 8675 - 9842
SJ 89 NW/109-28
AMENDMENTS
BENCH MARK INFORMATION
SCALE = 1250
SURVEY SYSTEMS LAND AND ENGINEERING LIMITED
EASTLANDS
BRADFORD
MANCHESTER
398900
398800
398700
398600
398500
398400
86500
86600
86700
86800
86900
87000
87100
87200
British Geological Survey



British Geological Survey

AMENDMENTS

Date	Details

SJ 89 NE/207-218.

BENCH MARK INFORMATION

SCALE = 1250

SURVEY SYSTEMS LAND AND ENGINEERING LIMITED

EASTLANDS
BRADFORD
MANCHESTER

Borehole Log

SJ89NE 241 8687-9892

Site EASTLANDS
Client Manchester City Council
Borehole No. R5 sheet 1
Grid Ref.
Ground Level 55.05 m. a.o.d.

Job No. S.I. 5400
Date Aug - Sept 1991
Diameter 75 mm core
Method Rotary
Scale 1 : 100

Description	Depth m	Legend	OD level m	Samples and in situ tests: Depth m	Type	Test	TCR %	SCR %	RQD %	Groundwater
Fill - topsoil, brick & concrete rubble, sand, clay, slate, traces of broken glass, pieces of weathered shale & mudstone										Final 7.90m
	12.00		43.05							
Mudstone - light grey - highly weathered, fractured	12.80			12.30	C	1	100			
Mudstone - light to mid-grey - slight to moderately weathered - moderately fractured	15.60			13.60	C	2	60			
				13.40						
Siltstone - light to mid-grey - slightly weathered to fresh					C	3	100			
Mudstone - see sheet 2	17.00			16.60	C	4				

Remarks
Air-mist flush. Coreline.

Key U - undisturbed
B - bulk
D - disturbed
S - SPT SC - Solid Cone
C - Core
W - Water

Northern Foundations

Borehole Log

SJ89NE 211

Site EASTLANDS
Client Manchester City Council
Borehole No. R5 sheet 2
Grid Ref.
Ground Level

Job No. S.I. 5400
Date Aug - Sept 1991
Diameter 75 mm core
Method Rotary
Scale 1 : 100

Description	Depth m	Legend	OD level m	Samples and in situ tests: Depth, m	Type	Test	TCR %	Groundwater
Continued from sheet 1	17.00							
Mudstone - highly fractured	17.30							
Mudstone - mid to dark grey - slightly weathered - occasional fractures, but with some thin (100mm) bands of highly fractured rock				18.00	C	4	96	
				19.00	C	5	88	
				19.90	C	6	93	
				20.90	C	7	100	
	21.90			21.90				
Mudstone - dark grey & black - occasional fractures - fresh	24.00		31.05	23.90	C	8	100	
Coal - highly fragmented	24.30		30.75		C	9	86	
Mudstone - mid-grey - fresh, but with occasional thin (<75mm) bands of highly weathered & fractured rock - where fresh, occasional fractures				27.40	C	10	100	
				26.90	C	11	100	
				27.90	C	12	93	
				29.90	C	13	100	
				30.90	C	14	53	
	32.90			32.90				
Mudstone - some oxidation - fresh but highly fractured	33.00		22.05		C	15	67	Entry - slow
Void	33.50		21.55					
Mudstone - mod. weathered, fractured	34.00			33.90				

Remarks
Air-mist flush. Coroline.
Coal : 24.00 - 24.30 m
Void : 33.00 - 33.50 m

Key U - undisturbed
B - bulk
D - disturbed
S - SPT SC - Solid Cone
C - Core
W - Water

British Geological Survey

Borehole Log

SJ89NE 211

Site EASTLANDS
Client Manchester City Council
Borehole No. R 5 sheet 3
Grid Ref.
Ground Level

Job No. S.I. 5400
Date Aug - Sept 1991
Diameter 75 mm core
Method Rotary
Scale 1 : 100

Description	Depth m	Legend	OD level m	Samples and in situ tests: Depth m	Type	Test	TCR %	Groundwater
Continued from sheet 2	34.00							
Mudstone - mod. weathered & fractured	34.40			34.40	C	16	100	
Mudstone - light grey - slightly weathered to fresh - occasional fractures	35.60				C	17	100	
Siltstone - light grey - fresh	36.00			37.00				
Mudstone - mid grey - mainly slightly weathered to fresh, with occasional fractures				37.30	C	18	100	
- with occasional thin (0.10 - 0.30m) bands of highly weathered & fractured rock				38.30	C	19	90	
				40.30	C	20	93	
	41.80				C	21	100	
Sandstone - lt. grey, fine gr. - fresh	42.30			41.80				
Mudstone - mid-grey, some fractures - fresh	42.70				C	22	80	
Siltstone - light grey, some oxidation - moderately fractured - fresh	43.30			43.30				
Mudstone - slight fractures - fresh	43.70							
Sandstone - light grey, some oxidation - fine grained - occasional fractures - fresh	44.80				C	23	100	
Mudstone - sl. weathered - highly fractured	45.20			44.80				
Sandstone - light grey, some oxidation - fine gr., occ. fractures - fresh	45.80				C	24	100	
Mudstone - mid to dark grey - moderately fractured, with some thin bands highly fractured - fresh to slightly weathered				46.70	C	25	100	
				47.80				
	48.80				C	26	100	
Mudstone - dark grey & black - highly weathered & fractured - 'broken ground'	49.80		5.23	49.30	C	27	73	49.10m Entry
Collapsed workings - traces of oil	50.40		4.65					
Mudstone - dark grey/black - fresh	50.80		4.25	50.80				
Coal - highly fragmented	51.00							

Note: 49.80 - 50.40 Strong odour of oil, slight film of oil on rock fragments - workings.

Air-mist flush. Coreline.

Key U - undisturbed
B - bulk
D - disturbed
S - SPT SC - Solid Core
C - Core
W - Water

Northern Foundations

Borehole Log

SJ89NE 211

Site: EASTLANDS
Client: Manchester City Council
Borehole No.: R 5 sheet 4
Grid Ref.:
Ground Level:

Job No.: S.I. 5400
Date: Aug - Sept 1991
Diameter: 75 mm core
Method: Rotary
Scale: 1 : 100

Description	Depth m	Legend	OD level m	Samples and in situ tests: Depth, m	Type	Test	TCR %	Groundwater
Continued from sheet 3	51.00							
Mudstone - mid-grey - initially slightly weathered, becoming fresh - occasional minor fractures - with occasional thin (20-50mm) bands of highly fractured rock				52.30	C	28	100	Entry 52.30
					C	29	100	
				53.80	C	30	93	
				53.30	C	31	100	
	56.20							
Sandstone - light grey - fine grained - occasional fractures - fresh				56.80	C	32	100	
	58.40		-3.35					
Coal - highly fragmented	58.80		-3.85	58.30	C	33	100	
Mudstone - mid to dark grey - mainly fresh, occasionally slightly weathered - occasional fractures & occasional thin (0.10-0.20m) bands highly fractured				59.80	C	34	97	
				61.30	C	35	93	
				62.30	C	36	100	
				64.30	C	37	100	
	65.80		-10.75	67.30				

Remarks

Air-mist flush. Coreline.

Coal : 58.40 - 58.90 m

Re-drill for grouting : water at 7.90m (borehole collapsed below). All rock strata appear dry to 30m.

Key, U - undisturbed
B - bulk
D - disturbed
S - SPT SC - Solid Cone
C - Core
W - Water

Northern Foundations

Appendix C Mine shafts and coal seam summary table

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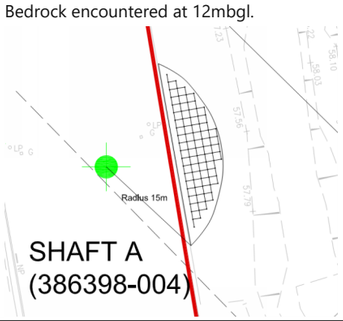
Shaft	1986 – NHSE - SI	1998 – Arup – Desk Study	2002 (Metrolink Advance Works)	2003/2004 – Arup – Phase 3 Validation	2008 – Arup – Constraints	2011 – BWB – Mine Stabilisation
Shaft A (Coal Auth Ref: 386398-004)		Grid Ref: E-86744, N-98844 Source: Ab plan 14917/1, Ab plan 14917/3-1761, Coal Authority			Not shown on Figure 14.	Co-ordinates are located 11m west of the site area. A grid of 88 holes was drilled at 1m centres on a 15m radius from the anticipated location. Bedrock encountered at 12mbgl. 

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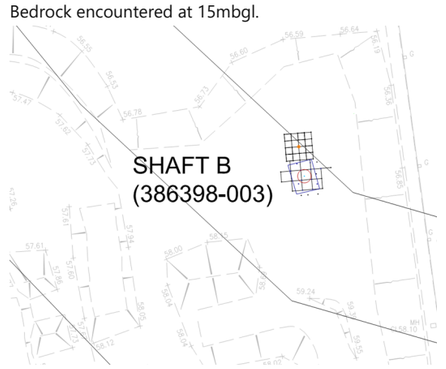
Shaft	1986 – NHSE - SI	1998 – Arup – Desk Study	2002 (Metrolink Advance Works)	2003/2004 – Arup – Phase 3 Validation	2008 – Arup – Constraints	2011 – BWB – Mine Stabilisation
Shaft B (Coal Auth Ref: 386398-003)		Grid Ref: E-86823, N-98911 Source: Ab plan 14917/1, Coal Authority Comment: Ab plan 14917 shows position 12m north of Coal Authority position.			Not shown on Figure 14.	**Identified.** Probes proved depth of 32.5mbgl. A concrete shaft cap was identified (approximately 0.3m thick). The shaft was grouted, taking 55 tonne in total. Shaft co-ordinates: 386817.6, 398903.7 As found shaft cap extents co-ordinates: NW – 386815.2, 398905.3; NE – 386818.7, 398906.2; SW – 386826.5, 398901.0; SE – 386819.9, 398901.8 Level drilled at base of shaft: 25.5mAOD, 46.3mOD to top of cap Shaft capped under previous contract and grouted to validate this contract. Bedrock encountered at 15mbgl. 

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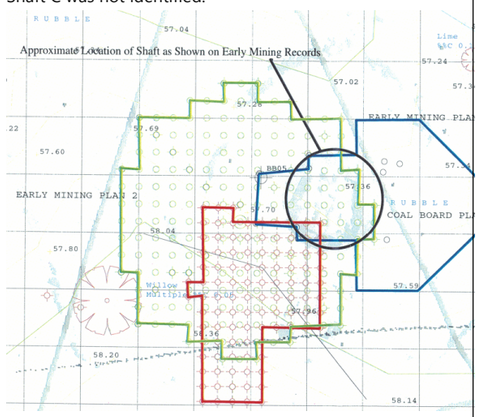
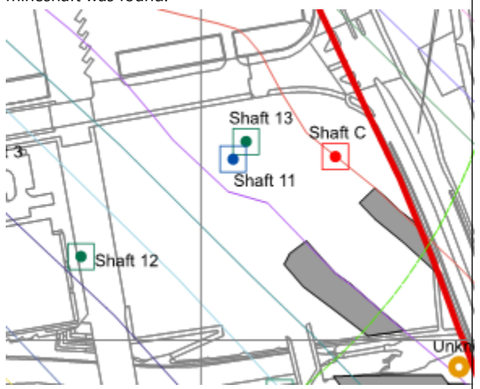
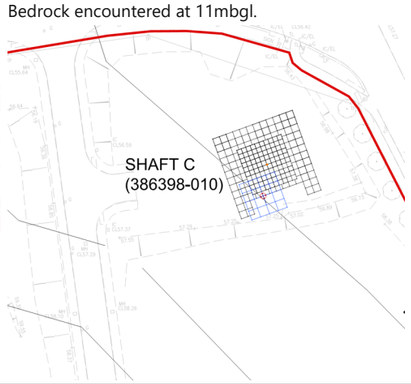
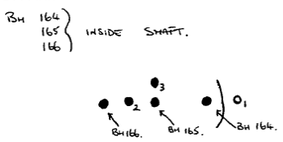
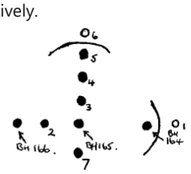
Shaft	1986 – NHSE - SI	1998 – Arup – Desk Study	2002 (Metrolink Advance Works)	2003/2004 – Arup – Phase 3 Validation	2008 – Arup – Constraints	2011 – BWB – Mine Stabilisation
Shaft C (Coal Auth Ref: 386398-010)		Grid Ref: E-86876, N-98908 Source: Ab plan 14917/1, Coal Authority		173 probe holes sunk to 15m. A square spiral search pattern with probes at 1.1m centres was undertaken but Shaft C was not identified.  Green – Norwest Holst Investigation 1998 Red – Soil Mechanics Investigation 2000 Blue – Van Elle Investigation 2003	Located on Figure 14. Labelled as 'Shaft investigated but **not found**'. Probed during most recent investigation. Area within a radius of 15m of plotted position (from Coal Authority plan 14917/1) at 1.5m centres. No definitive evidence of mineshaft was found. 	**Identified.** The shaft is approximately 1m in diameter and was proven to a depth of 22mbgl. The shaft was grouted taking 5.5 tonne in total. A grout plug was installed above the shaft using 5:1 ratio of PFA to cement grout, the grid of holes were drilled on a 5x5 grid at 2m centres. Shaft co-ordinates: 386876.9, 398906.5 No cap present. Level drilled at base of shaft: 35.2mAOD. Shaft identified, grouted and plug installed. Some 9m of MG meant a cap was impractical at this location. Bedrock encountered at 11mbgl. 
Shaft 11 / Little Shaft No. 10					Located on Figure 14. Shaft not investigated as part of the Parkman enabling works, believed to be a **duplicate of Shaft 13 (B / 22)**.	
Shaft 12	**Identified.** Trenching also carried out down to 3mbgl. Shaft located within BH164, BH165 and BH166.  Probe holes 2, 3, 4, 5, 7 were all located inside the shaft. Shaft 2 and 3 record soft ground to 24mbgl and 4, 5, 7 record soft ground to 18mbgl. Probe holes 1 and 6 record hard strata at 8mbgl and 7mbgl respectively.  2m shaft diameter established.				Located on Figure 14. Shaft investigated and **treated** as part of the Parkman enabling works.	

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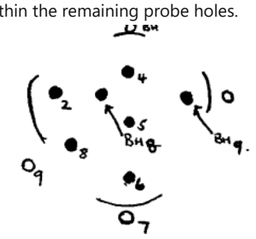
Shaft	1986 – NHSE - SI	1998 – Arup – Desk Study	2002 (Metrolink Advance Works)	2003/2004 – Arup – Phase 3 Validation	2008 – Arup – Constraints	2011 – BWB – Mine Stabilisation
Shaft 13	**Identified.** Shaft located within BH8 and BH9. Soft ground was recorded within these holes down to 25.5mbgl. Probe hole 2, 4, 5, 6 and 8 were all located within in the shaft. Soft ground was located in all these probe holes down to 25.5mbgl. Hard strata was recorded between 7.8 and 8mbgl within the remaining probe holes.  2m shaft diameter established.				Located on Figure 14. Shaft investigated and **treated** as part of the Parkman enabling works.	
Shaft H						Shaft not located during investigation and earthworks excavation. Probe holes were drilled in the anticipated area of the shaft, however it was not identified. No treatment works carried out to date.
Shaft I			Borehole drilled, 75mm diameter casing installed to 40m depth. 20T injected under pressure at 40m depth. Grout injected under pressure and repeated in stages up to 20m depth. Total grout take 31 tonnes.			Diameter of shaft was approximately 2.5m, base of shaft proven to 54mbgl. Shaft was grouted from the base and took 29.1 tonnes in total
Coal Seams	**1986 - NHSE**	**1998**		**2003/2004 – Arup – Phase 3 Validation**	**2008 – Arup - Constraints**	**2011 – BWB – Mine stabilisation Verification**

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Shaft	1986 – NHSE - SI	1998 – Arup – Desk Study	2002 (Metrolink Advance Works)	2003/2004 – Arup – Phase 3 Validation	2008 – Arup – Constraints	2011 – BWB – Mine Stabilisation
18 Inch Horizon	RC2 between -1.9 and -2.15mAOD (53.85-54.15mbgl) *[0.3m thick]*				Approximately 16m of mudstone with ironstone between Fireclay and 18 Inch Coal. 18 Inch approximately 0.3m-0.6m thick. Occasionally worked horizon. No evidence to suggest this thin seam was worked beneath the Bradford Rd Gas Work area, or beneath adjacent areas. However when mine-working treatment took place on adjacent Alan Turing Way, reference was made to possible working on this horizon. Records of this treatment were inspected and there is no definitive evidence that mine-workings were encountered.	
Fireclay Horizon					Approximately 2.5m of mudstone between the Bradford 4' and the Fireclay horizons. Fireclay up to 1.4m thick, seatearth mudstone.	

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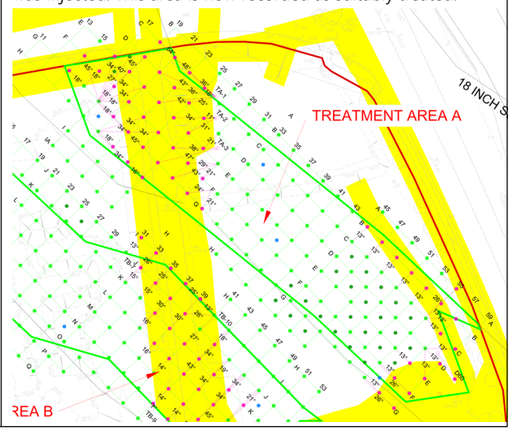
Shaft	1986 – NHSE - SI	1998 – Arup – Desk Study	2002 (Metrolink Advance Works)	2003/2004 – Arup – Phase 3 Validation	2008 – Arup – Constraints	2011 – BWB – Mine Stabilisation
Bradford Four Foot Horizon	Located between 27.3 and 28.1mbgl. The sub-crop of the seam was located 4m away from the conjectured position. Borehole records (BH interpreting likely horizon): CP4 between +24.75 and +23.95mAOD (27.3-28.1mbgl) *[0.8m thick]* CP6 between +25.0 and +24.7mAOD (26.4-26.7mbgl) *[0.3m thick]* RC2 between +19.5 and +18.6mAOD (32.5-33.4mbgl) *[two seams within 0.9m]*			Van Elle undertook drilling and grouting on a 6m grid to intercept Bradford 4'. The holes were sunk using rotary percussive method to depths of 30mbgl. Seam located between approximately 16 to 25mbgl. Dips SW. Recorded as intact and approximately 1.1m thick. No evidence of works recorded during drilling of probe holes. Grout takes only filled theoretical volume of the holes drilled.	Partially treated within the SE. Between ¾ and 4' coals, 14m-19m of predominantly mudstone. Approximately 2.0m-2.5m thick (including partings). Three leaves present the middle (thickest) being the worked horizon: - section from 'Forge Pit': Coal 0.23m Dirt 0.46m Cannel 0.15m Coal (worked) 1.07m Fireclay 0.38m Coal 0.05m Thickest and most extensively worked seam. Intersected by 8 boreholes in the NHSE investigation and Ashcroft and Parkman investigation. Where unworked, 3 seams recorded within about 3m of strata: upper 0.17-0.3m thick, middle 1.2-1.35m (worked horizon) and lower was 0.05-0.3m. Mine-workings encountered disturbed ground between 1.2 and 4.5m thick, with no evidence of residual voids. Borehole SW7 and 3 boreholes within Hotel area intersected this horizon and 3 positions proved mine-workings. Mine-workings were evident by zones of no recovery, suggesting loose and collapsed ground but no voids. Works appear to be completely collapsed, possibly due to early date of workings.	Treatment Area A Works on voids present on worked Bradford 4' seam located in north eastern part of Area C. Approximate area of 3800m² including drilling and grouting of 156 holes on a primary 6m grid to a depth of 25m to 33mbgl. Holes injected with 10.1 ratio, PFA to OPC, grout. Ground conditions: MG over Glacial Till which was recorded to depths of 11m-14mbgl. Then grey mudstone of the Coal Measures. Bradford seam encountered across entire working area targeted for treatment. Known to be cropping out in NE of working area and recorded to increase with depth moving SW. Seam encountered to approximate depths of 11mbgl (up-dip) and 23mbgl (down-dip). The seam was also identified in Treatment Area B at increased depth. Seam dips SW between 24° and 14°. Approx. thickness 1.2m. Bradford ¾ seam also recorded in a number of locations within the SW working area. Recorded as cropping out immediately beneath the Glacial Till, at approximately 13mbgl. Also dipped SW, approximately 0.6-1.2m thick. Drilling holes encountered soft / broken ground (predominantly in Bradford 4' seam). However, grout takes were generally not elevated. Only 5 holes had a grout take of >1tonne of grout. Majority of holes has 0.3-0.4tonne intake. Combined grout take for an area where broken ground was recorded (G47 and G45 at 25mbgl) was 29.5tonne. These holes are located at the southern edge. Further holes and grouting was injected. This area is now recorded as suitably treated. 

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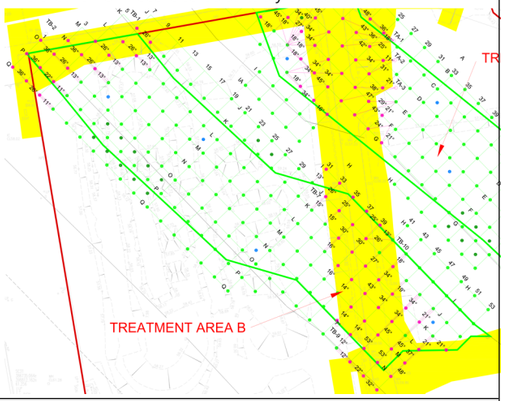
Shaft	1986 – NHSE - SI	1998 – Arup – Desk Study	2002 (Metrolink Advance Works)	2003/2004 – Arup – Phase 3 Validation	2008 – Arup – Constraints	2011 – BWB – Mine Stabilisation
Bradford ¾ Horizon	Thin impoverished seam located at 21.35mbgl, thought to be Bradford ¾ seam. Borehole records (BH interpreting likely horizon): CP2/3 between +29.7 and +28.5mAOD (22.0-23.0mbgl) *[two thin seams within the metre range]* RC2 between +35.1 and +34.2mAOD (16.9-17.8mbgl) *[0.9m thick]*			Van Elle undertook drilling and grouting on a 6m grid to intercept Bradford 4'. The holes were sunk using rotary percussive method to depths of 30mbgl. Seam located between approximately 14.5 to 25.5mbgl. Dips SW. Approximately 0.7m thick. No evidence of works recorded during drilling of probe holes. Grout takes only filled theoretical volume of the holes drilled.	Partially treated within the SE. Strike NW to SE. Approximately 0.8m thick seam Clearly proven in 4 boreholes from NHSE ground investigation. Where unworked the coal was found to be 0.8-0.9m thick. A previous investigation (W4 sunk in 1954 at SE part of Gas Works) proved an apparent cavity of 1.1m high very close to the expected outcrop/sub-crop of the ¾ coal. This likely represents an un-collapsed adit mine entrance, accessing early mine-workings on the ¾ coal in the valley side of the River. Other boreholes intersecting the seam indicate disturbed strata between 0.9m and 2.9m thick. This is consistent with the complete collapse or convergence of the mine workings. Boreholes SW3 and T1 intersected this horizon. Horizon not clearly proved. Definitive mine workings also not proven. An ancient adit mine entry has been proved immediately adjacent to Hotel area. A highly weathered very weak fractured zone was noted at about 23.1mbgl in T1 accompanied by 30cm of core loss indicating workings may have completely collapsed.	Treatment Area B Approximate area 4500m$^{2.}$ 194 holes on a 6m grid to a depth of 30mbgl and 36mbgl. 12 holes on a secondary 3m grid. Advanced in areas of high grout take. MG over Glacial Till recorded to approximate depth of between 11m and 14mbgl. Then mudstone of the Coal Measures Bradford 4' located at depth within the N of the treatment area. Seam encountered between 25mbgl (up-dip) and 30mbgl (down-dip) after which the seam would have been located beneath the base of the BH. Dipping angle SW between 24° and 14° and approx.. 1.2m thick. Bradford ¾ target seam approximately 13mbgl (up-dip) immediately below the Glacial Till / fill material, and 29mbgl (down-dip) in the SW of the worked area. Seam angle: 21° and approx. 0.6-1.2m thick. Five boreholes recorded grout take above 1 tonne. The majority of boreholes were recorded to have grout take of between 0.3tonne and 0.5tonne. This area is now recorded as suitably treated. 
Thin A Thin B Thin C					Measures between Charlotte Coals and ¾ Coals: 78m – 90m. Sequence divided by three relatively persistent thin coals: A – 25m below Charlotte B – 45m below Charlotte (most persistent) C – 62m below Charlotte (least persistent) Between Charlotte and 'A' seam sandstone and mudstone with several thick sandstone horizons. Below 'A' seam mainly mudstone with occasional sandstone and siltstone bands.	
Fault					Fault shown to cross the SW corner of the site	

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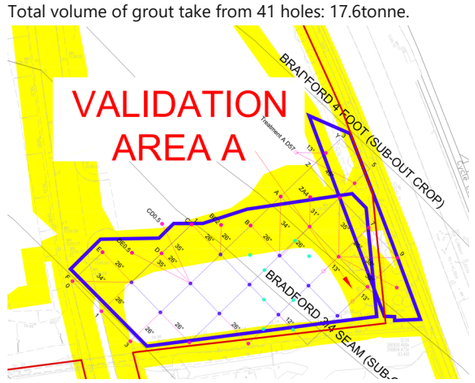
Shaft	1986 – NHSE - SI	1998 – Arup – Desk Study	2002 (Metrolink Advance Works)	2003/2004 – Arup – Phase 3 Validation	2008 – Arup – Constraints	2011 – BWB – Mine Stabilisation
Charlotte Horizon	RC3 between +36.35 and +35.65mAOD (15.6-16.3mbgl) *[0.7m thick]*	Occasionally worked variable horizon generally thin (0.15-0.25m) in places thickens to about 1.0m			Charlotte 'Lower Leaf' not shown to cross site. Charlotte coals thickness of strata: 8-13.0m. Sequence of very weak brown and black seatearth mudstones with up to 3 separate coals. Typical sequence: Upper Leaf 0.4-1.1m Brown/black seatearth 2.0-3.0m Coal 0.3-0.4m (sometimes with a separate seam just above) Brown/black seatearth 4.0-5.0m Lower leaf (with parting) 0.5-1.0m Brown Seatearth 1.0-2.0m. The Charlotte Coal subcrops beneath the SW area of Bradford Rd Gas Works. There are three seams associated with the Charlotte Coals, generally the top seam (thickest) was the seam being worked. Several mineshafts located in the SW of the Gas Works specifically access the Charlotte Coals. The results of the mineshaft investigation indicated the seam was also worked by bell pit mining where the coal occurred at shallow depth beneath the River Medlock Alluvial Deposits. All boreholes that have penetrated the seam have encountered fully collapsed workings. .	
Stuart Street Tunnel					Bulk grouted. Stop ends formed and grout injected through boreholes drilled from ground level through the steel and concrete roof of the tunnel, vent holes allowed water in the tunnel to be displaced to the surface.	
Validation Area A						Located in the southeast of Area C. Area designed to validate treatment works undertaken along Alan Turing Way. Works required to validate historical coal seam treatment works. Targeted seams were the Bradford 4' and Bradford ¾. Validation area approximately 3100m^2. Involved grouting of 41 holes, where possible, on a 12m grid to depths of between 25m and 30mbgl. In order to identify any possible voids or broken ground beneath the site. Holes were grout injected with 10:1 ratio, PFA to OPC, grout. Holes B5 and C7 took 6 tonne and 2 tonne respectively. The combined grout take of these locations exceeded the 5 tonne limit per group of four holes specified. Additional 8 boreholes were drilled and grout injected. Grout takes of 0.3tonne and 0.6 tonne per hole were recorded in all holes. Meaning the voided ground has been sufficiently treated. Total volume of grout take from 41 holes: 17.6tonne. 

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Appendix D Preliminary UXO Risk Assessment

This Preliminary UXO Risk Assessment has been carried out by BuroHappold in accordance with CIRIA C681. The purpose of the preliminary risk assessment is a qualitative screening exercise to assess the likelihood of finding UXO at the site. This can then be used to make an informed decision if further UXO specific risk management is required.

The assessment is based on data obtained from a desktop review of information, including site location, bombing records, historical uses, historical development and proposed development. A UXO risk map from Bombsight was also obtained for this assessment. (0)

Item	Comments	Score
Site Setting	The site is centred at National Grid Reference 386841, 398878, located off Sportcity Way, Manchester M11 3DU. It is at approximately 60.6mOD and falls north to 56.8mOD. The site is 2.3ha and is bounded to the north by Sportcity Way, east by Alan Turing Way and Philips Park, west by access ramp and bridge across to Etihad Stadium, and south by Ashton Canal, tram line followed by the Etihad Stadium.	4
Site description and historical land usage	The site and surrounding area have been built up with a mixture of industrial, commercial and residential use since the late 1800s. From the early 1900s, Bradford Rd Gas Works occupied northern and western part of the site. Residential development occupied the area to the east. Significant industrial works were present south of Ashton Canal. The Gas Works were mostly cleared by the 1970s.	8
Record of bombing	Area of known WWII bombing	4
Level of post war development	Whole site redeveloped and subject to significant earthworks.	-6
Level of proposed intrusive works	Significant proposed development (80% of site)	0
Assessed Risk	Moderate	16, -6
Recommendations	The assessment found risk associated with UXO to be Moderate, therefore a detailed UXO risk assessment is required.	
Attachments	**Table 10-1 -** Potential aerial delivered UXO hazards **Table 10-2 -** Mitigation factors **Table 10-3 -** Final score summary **Attachment 1 –** Pre- WWII Historical Map **Attachment 2–** Post – WWII Historical Maps	

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Table 10-1 Scoring process for indicators of potential aerial delivered UXO hazards

Data Item	Increasing Potential for aerial delivered UXO Hazards →			
	1	**2**	**4**	**8**
A - Site Setting	Rural	Small towns	Cities Large Towns	
B - Site description and historical land usage	Greenfield site only Agricultural land only	Residential only Within 10 mile radius of site of previous military use Within 5 mile radius of wartime[1] for following: Railway marshalling yard Power station Gas works Port Industrial centre	Within 5 mile radius of site of previous military use Within 1 mile radius of wartime[1] for following: Railway marshalling yard Power station Gas works Port Industrial centre On wartime[1] flight paths	Within 1 mile radius of site of previous military use Former wartime[1]: Railway marshalling yard Power station Gas works Port Industrial centre
C – Record of bombing	No history of WWII bombing	Within 10 mile radius of area of known WWII bombing	Within 5 mile radius of area of known WWII bombing	Area of known WWII bombing

[1]Wartime refers to the site being in use at the time of WWI and WWII when its significance may have caused it to be the target of an enemy attack.

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Table 10-2 Scoring process for considering mitigation factors

Data Item	Decreasing Potential for aerial delivered UXO Hazards ←				
	-6	**-5**	**-3**	**-1**	**0**
D - Level of post war development	Whole site redevelopment (100% of the site)	Significant post war development (>80% of the site)	Moderate level of post war development (<80% and ≥45% of the site)	Some post war development (<45% and ≥10% of the site)	Minimal post war development (<10% of the site)
E - Level of proposed intrusive works in areas not subject to post war development[1]	Very Small (<5%)	Small (<10%)	Some (<45% and ≥10%)	Moderate (<80% and ≥45%)	Significant (>80%)

[1]Only if the level of post-war development is known and can be quantified in terms of site area and an approximation of depth should a mitigation factor be applied.

Table 10-3 Final score is based on the sum of rows A, B, C, D and E in

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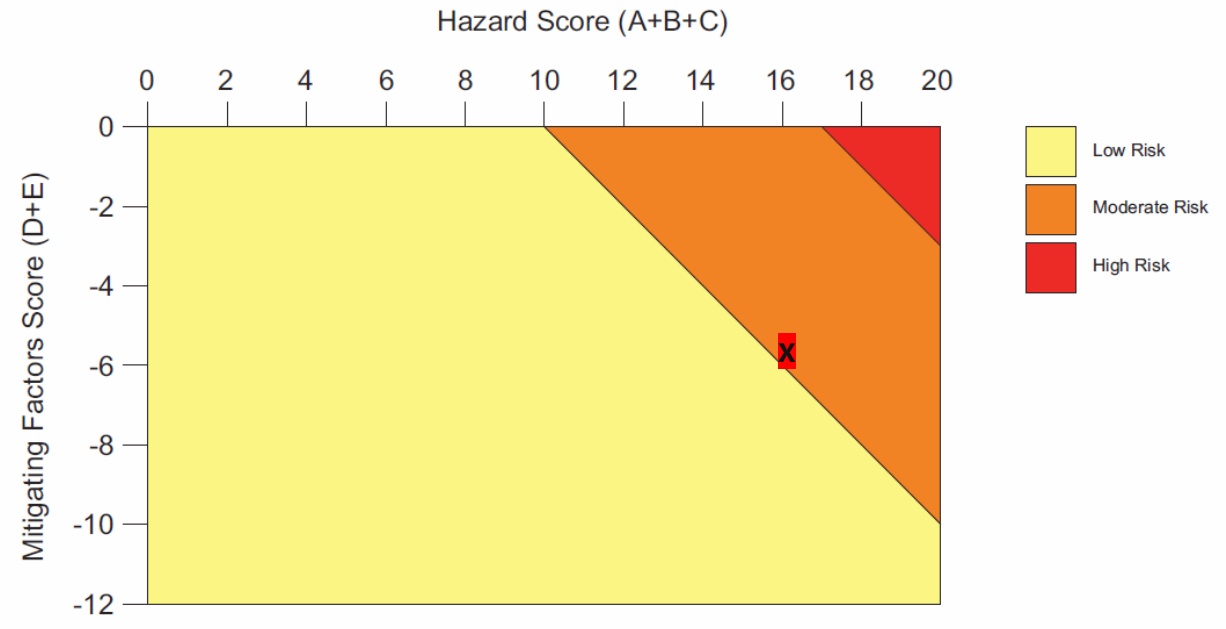
Table 10-1and Table 10-2

Final Hazard Score	Risk of encountering an Aerial dropped UXO	Implication
-9 - 9	Low Risk	No further UXO risk assessment likely to be required
10 - 17	Moderate Risk	Detailed UXO Risk Assessment required
17 - 20	High Risk	Detailed UXO Risk Assessment required.



This risk assessment methodology is intended as a generic tool. A small number of sites with unusual site-specific conditions may require additional consideration of the hazard scoring.

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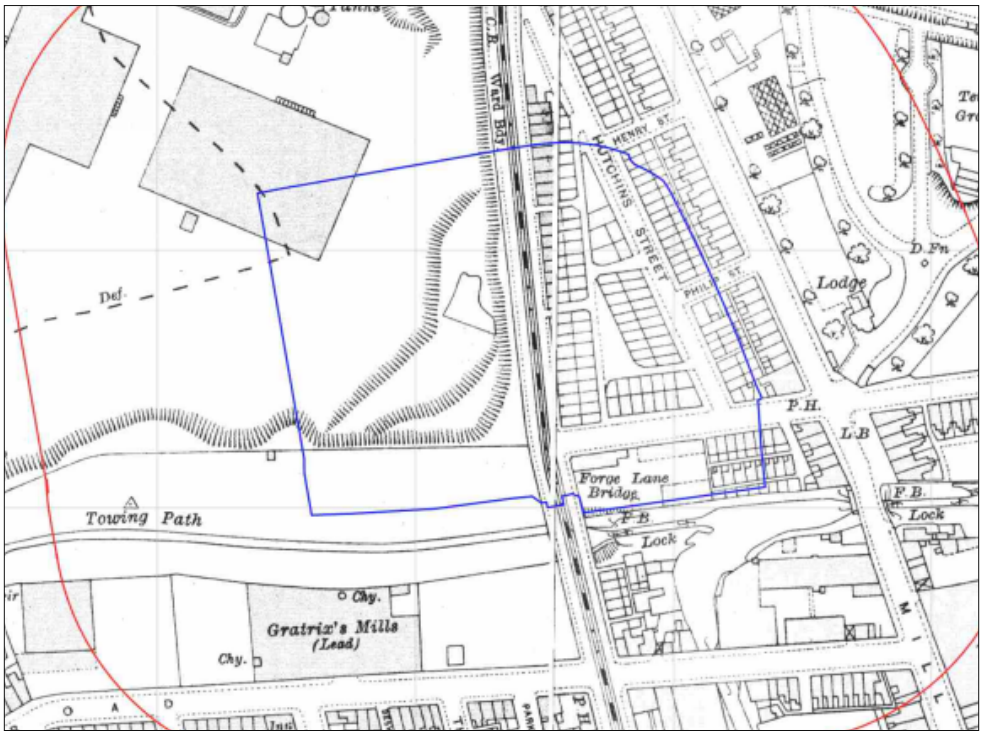
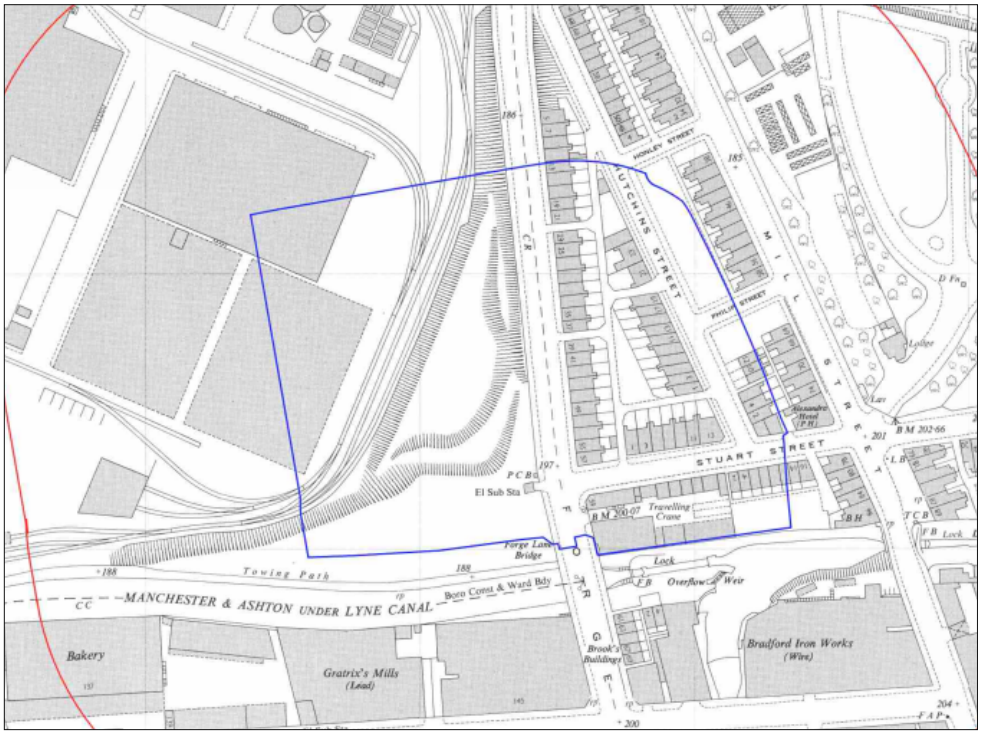
Attachment 1. Pre-WWII Historical Map, 1923



Attachment 2. Post-WWII Historical Map, 1955



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Appendix E Groundsure

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BURO HAPPOLD

230 BURO HAPPOLD, LOWER BRISTOL ROAD, BATH, BA2 3DQ

Groundsure Reference:	GS-6479143
Your Reference:	0042841
Report Date	22 Nov 2019
Report Delivery Method:	Email - pdf

Enviro Insight

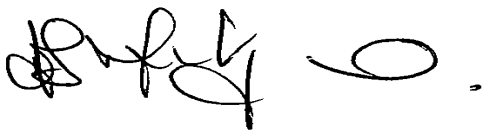
Address: TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Dear Sir/ Madam,

Thank you for placing your order with Groundsure. Please find enclosed the **Groundsure Enviro Insight** as requested.

If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above Groundsure reference number.

Yours faithfully,



Managing Director
Groundsure Limited

Enc.
Groundsure Enviroinsight

Enviro Insight

Address:	**TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU**
Date:	**22 Nov 2019**
Reference:	**GS-6479143**
Client:	**BURO HAPPOLD**

NW N NE

W E

SW S SE

Aerial Photograph Capture date: 11-Jun-2015
Grid Reference: 386822,398887
Site Size: 4.3617ha

Report Reference: GS-6479143
Client Reference: 0042841

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Overview of Findings

For further details on each dataset, please refer to each individual section in the main report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	47	103	104	247
1.2 Additional Information – Historical Tank Database	17	49	64	170
1.3 Additional Information – Historical Energy Features Database	9	13	22	74
1.4 Additional Information – Historical Petrol and Fuel Site Database	0	0	0	0
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	0	0	5	7
1.6 Historical military sites	0	0	0	0
1.7 Potentially Infilled Land	17	19	70	97

Section 2: Environmental Permits, Incidents and Registers	On-site	0-50m	51-250	251-500
2.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
2.1.1 Records of historic IPC Authorisations	0	0	0	0
2.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	0	0
2.1.3 Records of Red List Discharge Consents	0	0	0	0
2.1.4 Records of List 1 Dangerous Substances Inventory sites	0	0	0	4
2.1.5 Records of List 2 Dangerous Substances Inventory sites	0	0	0	0
2.1.6 Records of Part A(2) and Part B Activities and Enforcements	0	0	2	5
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0
2.1.8 Records of Licensed Discharge Consents	0	1	2	5
2.1.9 Records of Water Industry Referrals	0	0	0	0
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	0	1	1	2
2.2 Records of COMAH and NIHHS sites	0	1	0	1
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	0	0	6
2.3.2 National Incidents Recording System, List 1	0	0	0	0
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

Section 3: Landfill and Other Waste Sites	On-site	0-50m	51-250	251-500	501-1000	1000-1500
3.1 Landfill Sites						
3.1.1 Environment Agency/Natural Resources Wales Registered Landfill Sites	0	0	0	0	0	Not searched
3.1.2 Environment Agency/Natural Resources Wales Historic Landfill Sites	1	0	0	3	1	5
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	1
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	0	2
3.2 Landfill and Other Waste Sites Findings						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	1	16	Not searched	Not searched
3.2.2 Environment Agency/Natural Resources Wales Licensed Waste Sites	0	0	0	4	18	30

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	2	13	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	0	1
4.3 National Grid Underground Electricity Cables	0	0	0	0
4.4 National Grid Gas Transmission Pipelines	0	0	0	0

Section 5: Geology	
5.1 Records of Artificial Ground and Made Ground present beneath the study site	Identified
5.2 Records of Superficial Ground and Drift Geology present beneath the study site	Identified
5.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 6: Hydrogeology and Hydrology	0-500m
6.1 Records of Strata Classification in the Superficial Geology within 500m of the study site	Identified
6.2 Records of Strata Classification in the Bedrock Geology within 500m of the study site	Identified

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	13	14
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	4	2
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	1	0	0	1	Not searched	Not searched

Section 6: Hydrogeology and Hydrology

	0-500m					
	On-site	0-50m	51-250	251-500	501-1000	1000-1500
6.9 Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site	No	No	No	Yes	No	Yes
6.10 Ordnance Survey MasterMap Water Network entries within 500m of the site	8	6	8	8	Not searched	Not searched
6.11 Surface water features within 250m of the study site	Yes	Yes	Yes	Not searched	Not searched	Not searched

Section 7: Flooding

7.1 Enviroment Agency Zone 2 floodplains within 250m of the study site	Identified
7.2 Environment Agency/Natural Resources Wales Zone 3 floodplains within 250m of the study site	Identified
7.3 Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site	Very Low
7.4 Flood Defences within 250m of the study site	None identified
7.5 Areas benefiting from Flood Defences within 250m of the study site	None identified
7.6 Areas used for Flood Storage within 250m of the study site	None identified
7.7 Maximum BGS Groundwater Flooding susceptibility within 50m of the study site	Potential at Surface
7.8 BGS confidence rating for the Groundwater Flooding susceptibility areas	High

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	0
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
8.6 Records of Ancient Woodlands	0	0	0	0	0	0
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	1	0
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
8.11 Records of National Parks	0	0	0	0	0	0
8.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
8.13 Records of Nitrate Vulnerable Zones	0	0	0	0	1	0
8.14 Records of Green Belt land	0	0	0	0	1	0

Section 9: Natural Hazards

9.1 Maximum risk of natural ground subsidence	Moderate
9.1.1 Maximum Shrink-Swell hazard rating identified on the study site	Very Low
9.1.2 Maximum Landslides hazard rating identified on the study site	Very Low
9.1.3 Maximum Soluble Rocks hazard rating identified on the study site	Negligible
9.1.4 Maximum Compressible Ground hazard rating identified on the study site	Moderate
9.1.5 Maximum Collapsible Rocks hazard rating identified on the study site	Very Low
9.1.6 Maximum Running Sand hazard rating identified on the study site	Low
9.2 Radon	
9.2.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The site is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.
9.2.2 Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary.

Section 10: Mining

10.1 Coal mining areas within 75m of the study site	Identified
10.2 Non-Coal Mining areas within 50m of the study site boundary	None identified
10.3 Brine affected areas within 75m of the study site	None identified

Using this report

The following report is designed by Environmental Consultants for Environmental Professionals bringing together the most up-to-date market leading environmental data. This report is provided under and subject to the Terms & Conditions agreed between Groundsure and the Client. The document contains the following sections:

1. Historical Industrial Sites

Provides information on past land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. Potentially Infilled Land features are also included. This search is conducted using radii of up to 500m.

2. Environmental Permits, Incidents and Registers

Provides information on Regulated Industrial Activities and Pollution Incidents as recorded by Regulatory Authorities, and sites determined as Contaminated Land. This search is conducted using radii up to 500m.

3. Landfills and Other Waste Sites

Provides information on landfills and other waste sites that may pose a risk to the study site. This search is conducted using radii up to 1500m.

4. Current Land Uses

Provides information on current land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. These searches are conducted using radii of up to 500m. This includes information on potentially contaminative industrial sites, petrol stations and fuel sites as well as high pressure gas pipelines and underground electricity transmission lines.

5. Geology

Provides information on artificial and superficial deposits and bedrock beneath the study site.

6. Hydrogeology and Hydrology

Provides information on productive strata within the bedrock and superficial geological layers, abstraction licences, Source Protection Zones (SPZs) and river quality. These searches are conducted using radii of up to 2000m.

7. Flooding

Provides information on river and coastal flooding, flood defences, flood storage areas and groundwater flood areas. This search is conducted using radii of up to 250m.

8. Designated Environmentally Sensitive Sites

Provides information on the Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, Local Nature Reserves (LNR), Areas of Outstanding Natural Beauty (AONB), National Parks (NP), Environmentally Sensitive Areas, Nitrate Sensitive Areas, Nitrate Vulnerable Zones and World Heritage Sites and Scheduled Ancient Woodland. These searches are conducted using radii of up to 2000m.

9. Natural Hazards

Provides information on a range of natural hazards that may pose a risk to the study site. These factors include natural ground subsidence and radon..

10. Mining

Provides information on areas of coal and non-coal mining and brine affected areas.

11. Contacts

This section of the report provides contact points for statutory bodies and data providers that may be able to provide further information on issues raised within this report. Alternatively, Groundsure provide a free Technical Helpline (08444 159000) for further information and guidance.

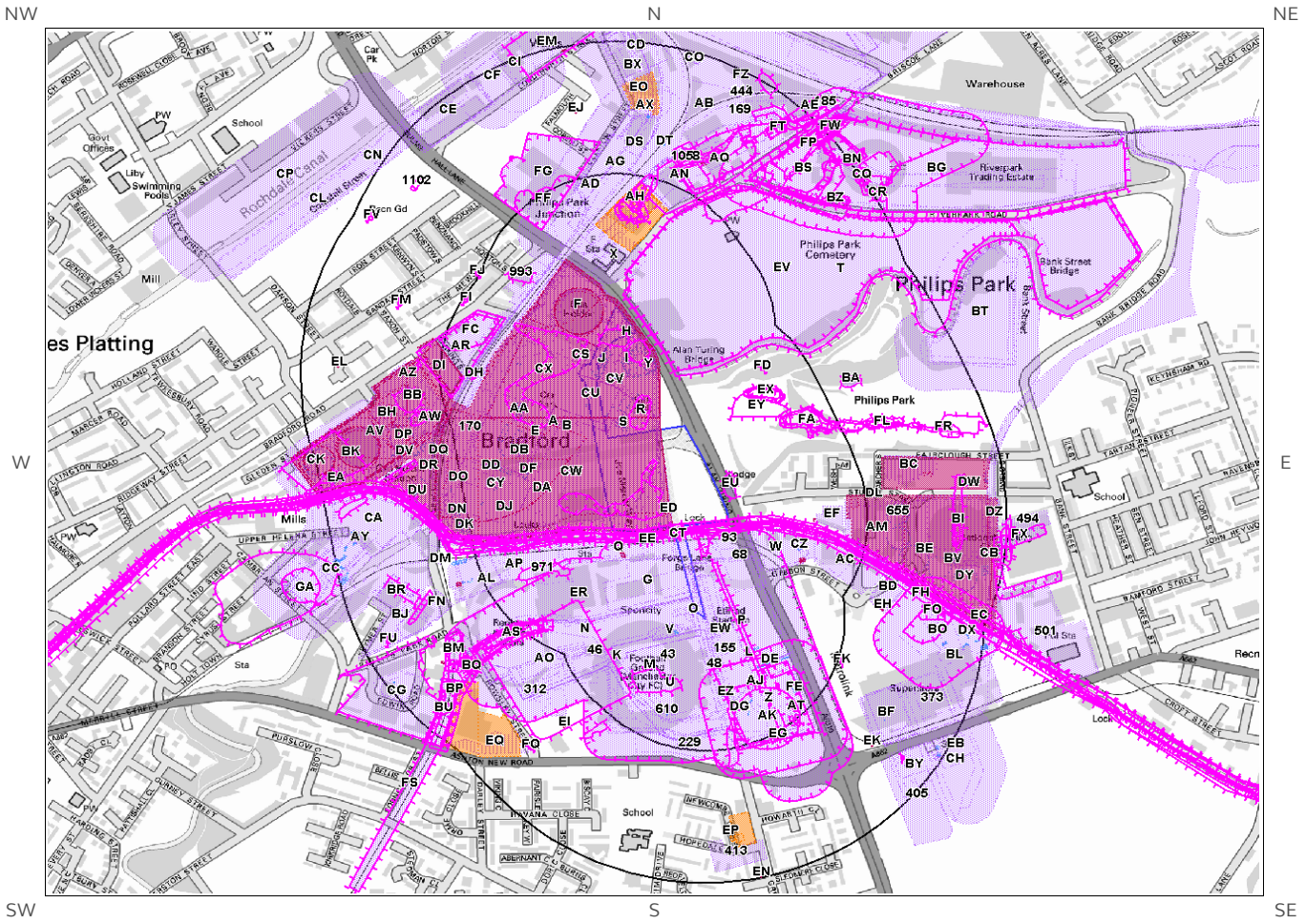
Note: Maps

Only certain features are placed on the maps within the report. All features represented on maps found within this search are given an identification number. This number identifies the feature on the mapping and correlates it to the additional information provided below. This identification number precedes all other information and takes the following format -Id: 1, Id: 2, etc. Where numerous features on the same map are in such close proximity that the numbers would obscure each other a letter identifier is used instead to represent the features. (e.g. Three features which overlap may be given the identifier “A” on the map and would be identified separately as features 1A, 3A, 10A on the data tables provided).

Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as “Not Shown”.

All distances given in this report are in Metres (m). Directions are given as compass headings such as N: North, E: East, NE: North East from the nearest point of the study site boundary.

1. Historical Land Use



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Historical 1:10,000 and 1:10,560 scale mapping

Site Outline

Industrial Land Use

Potentially Infilled Land

250
500
Search Buffers (m)

Historical 1:2,500, 1:1,250 and 1:500 scale mapping

Energy Features

Petrol Stations

Historical military sites

Tanks

Garages

1. Historical Industrial Sites

1.1 Potentially Contaminative Uses identified from 1:10,000 scale Mapping

The systematic analysis of data extracted from standard 1:10,560 and 1:10,000 scale historical maps provides the following information:

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 501

ID	Distance [m]	Direction	Use	Date
1D	0	On Site	Railway Sidings	1923
2DC	0	On Site	Railway Sidings	1906
3A	0	On Site	Railway Sidings	1933
4A	0	On Site	Railway Sidings	1938
5E	0	On Site	Railway Sidings	1978
6A	0	On Site	Gas Works	1923
7B	0	On Site	Gas Works	1906
8B	0	On Site	Unspecified Commercial/Industrial	1938
9B	0	On Site	Unspecified Commercial/Industrial	1933
10B	0	On Site	Gas Works	1921
11B	0	On Site	Unspecified Commercial/Industrial	1956
12C	0	On Site	Unspecified Ground Workings	1921
13C	0	On Site	Unspecified Ground Workings	1906
14F	0	On Site	Gas Works	1985
15I	0	On Site	Gas Work	1978
16Q	0	On Site	Unspecified Works	1891
17H	0	On Site	Gasometer	1978
18G	0	On Site	Unspecified Works	1978
19D	0	On Site	Railway Sidings	1921
20E	0	On Site	Unspecified Commercial/Industrial	1978
21E	0	On Site	Railway Sidings	1956
22J	0	On Site	Gasometer	1978
23F	0	On Site	Gas Works	1991
24G	0	On Site	Unspecified Works	1968
25N	0	On Site	Railway Sidings	1978
26K	0	On Site	Railway Sidings	1956
27B	0	On Site	Unspecified Commercial/Industrial	1968
28E	0	On Site	Railway Sidings	1968
29H	0	On Site	Refuse Heap	1906
30C	0	On Site	Unspecified Ground	1923

			Workings	
31I	0	On Site	Gas Work	1968
32J	0	On Site	Gasometer	1968
33H	0	On Site	Gasometer	1968
34K	0	On Site	Railway Sidings	1921
35M	0	On Site	Railway Sidings	1906
36L	0	On Site	Unspecified Commercial/Industrial	1933
37L	0	On Site	Unspecified Commercial/Industrial	1938
38M	0	On Site	Railway Sidings	1938
39M	0	On Site	Railway Sidings	1933
40K	0	On Site	Railway Sidings	1891
41K	0	On Site	Railway Sidings	1923
42EW	0	On Site	Unspecified Commercial/Industrial	1923
43	0	On Site	Colliery	1968
44CT	0	On Site	Coal Pits	1851
45N	0	W	Unspecified Works	1968
46	0	W	Railway Sidings	1968
47P	0	E	Unspecified Commercial/Industrial	1891
48	1	E	Iron Works	1956
49O	2	W	Goods Station	1956
50O	2	W	Goods Station	1968
51P	2	E	Unspecified Works	1968
52P	2	E	Unspecified Commercial/Industrial	1978
53O	6	W	Railway Building	1938
54Q	7	W	Unspecified Mills	1938
55R	7	N	Unspecified Pit	1921
56R	7	N	Unspecified Pit	1906
57R	7	N	Unspecified Pit	1923
58F	7	NW	Gasometer	1991
59N	7	W	Mineral Yard	1921
60N	7	W	Mineral Yard	1906
61CX	9	NW	Refuse Heap	1891
62P	10	E	Unspecified Works	1985
63EU	10	NE	Refuse Heap	1851
64Q	10	W	Unspecified Mills	1923
65O	11	SW	Railway Buildings	1923
66F	11	NW	Gasometer	1985
67Q	12	S	Unspecified Mill	1968
68	13	S	Smallwares Mill	1851
69I	13	S	Unspecified Pit	1906
70S	14	N	Unspecified Tank	1933
71S	14	N	Unspecified Tank	1938

72S	14	N	Unspecified Tanks	1921
73S	14	N	Unspecified Tanks	1923
74F	15	NW	Unspecified Tank	1933
75F	15	NW	Unspecified Tank	1938
76F	15	NW	Gasometer	1921
77O	16	W	Railway Building	1968
78F	16	NW	Unspecified Tank	1978
79F	16	NW	Unspecified Tank	1956
80F	16	NW	Unspecified Tank	1968
81S	16	E	Unspecified Tank	1933
82S	16	E	Unspecified Tank	1938
83S	16	E	Unspecified Tanks	1923
84S	16	E	Unspecified Tanks	1921
85S	16	E	Unspecified Tanks	1906
86O	17	W	Goods Station	1956
87EE	18	S	Coal Pits	1851
88F	18	NW	Gasometer	1923
89CV	18	SE	Unspecified Tanks	1923
90S	18	E	Unspecified Tanks	1968
91Q	19	S	Unspecified Mills	1933
92Q	19	S	Unspecified Mills	1921
93	19	S	Unspecified Works	1968
94S	19	E	Unspecified Tanks	1978
95U	20	S	Unspecified Works	1985
96I	21	S	Unspecified Tanks	1956
97T	22	NE	Cemetery	1938
98T	22	NE	Cemetery	1921
99T	22	NE	Cemetery	1906
100T	22	NE	Cemetery	1891
101T	22	NE	Cemetery	1933
102T	22	NE	Cemetery	1923
103DD	22	W	Gas Works	1891
104T	22	NE	Cemetery	1978
105T	22	NE	Cemetery	1956
106T	22	NE	Cemetery	1985
107EV	22	NE	Cemetery	1991
108T	22	NE	Cemetery	1968
109U	23	SW	Unspecified Works	1991
110M	23	SW	Unspecified Works	1978
111M	23	SW	Unspecified Works	1968
112I	25	SE	Oil Tanks	1923
113R	25	N	Unspecified Tank	1933
114R	25	N	Unspecified Tank	1938
115R	25	N	Unspecified Tanks	1906
116R	25	N	Unspecified Tanks	1921
117R	25	N	Unspecified Tanks	1923

118I	26	S	Unspecified Tank	1938
119I	26	S	Unspecified Tank	1933
120I	26	S	Oil Tanks	1906
121I	26	S	Oil Tanks	1921
122I	26	SE	Gasometer	1968
123I	29	SE	Gasometer	1978
124I	32	SE	Unspecified Tank	1938
125I	32	SE	Oil Tanks	1921
126I	32	SE	Oil Tanks	1906
127I	32	SE	Unspecified Tank	1933
128V	33	SW	Railway Building	1891
129V	36	SW	Goods Station	1921
130V	36	SW	Goods Station	1938
131V	36	SW	Goods Station	1933
132U	36	SW	Iron Works	1923
133U	36	SW	Iron Works	1921
134U	36	SW	Iron Works	1933
135U	36	SW	Iron Works	1891
136U	36	SW	Iron Works	1938
137U	36	SW	Iron Works	1906
138W	39	E	Unspecified Mills	1921
139W	39	E	Unspecified Commercial/Industrial	1933
140V	40	SW	Goods Station	1923
141W	42	SE	Unspecified Mills	1923
142W	42	SE	Unspecified Mills	1906
143X	44	N	Fire Station	1985
144X	44	N	Fire Station	1991
145W	45	E	Unspecified Works	1968
146I	48	E	Unspecified Tank	1938
147I	48	E	Oil Tanks	1906
148I	48	E	Unspecified Tank	1933
149I	48	E	Oil Tanks	1921
150R	49	E	Gasometer	1923
151Y	54	S	Unspecified Tank	1933
152Y	54	S	Unspecified Tank	1938
153Y	54	S	Oil Tanks	1921
154Y	54	S	Oil Tanks	1906
155	66	SE	Unspecified Tank	1923
156X	73	N	Fire Station	1978
157DS	79	NW	Coal Yard	1891
158Z	94	S	Colliery	1851
159Z	96	S	Colliery	1891
160AP	97	SW	Fustian Mills	1851
161X	98	N	Railway Building	1923
162AG	109	N	Coal Yard	1906

163AA	115	W	Unspecified Tanks	1921
164AA	122	W	Unspecified Tanks	1923
165AB	124	N	Railway Sidings	1991
166AU	124	N	Railway Sidings	1956
167AB	124	N	Railway Sidings	1968
168AE	129	NW	Railway Sidings	1923
169	129	NW	Railway Sidings	1891
170	129	W	Railway Sidings	1891
171Z	132	SE	Unspecified Depot	1991
172Z	132	SE	Unspecified Depot	1985
173AC	134	E	Unspecified Works	1991
174AC	134	E	Unspecified Works	1985
175Z	136	SE	Colliery	1923
176Z	136	SE	Colliery	1921
177Z	136	SE	Colliery	1906
178AF	143	N	Garage	1968
179AD	146	NW	Coal Yard	1968
180AD	146	NW	Coal Yard	1956
181AJ	148	SE	Coal Pits	1851
182AE	150	N	Railway Sidings	1933
183AE	150	N	Railway Sidings	1906
184AE	150	N	Railway Sidings	1921
185	154	N	Railway Sidings	1938
186AF	158	N	Unspecified Pit	1956
187AC	158	E	Unspecified Works	1968
188AG	159	NW	Coal Yard	1923
189EF	159	E	Unspecified Works	1968
190AG	159	N	Coal Yard	1921
191AK	161	SE	Unspecified Disused Shafts	1991
192AH	162	N	Unspecified Pit	1923
193AH	162	N	Unspecified Pit	1933
194AH	162	N	Unspecified Pit	1938
195AH	162	N	Unspecified Pit	1921
196AR	165	NW	Brick Works	1891
197FC	172	NW	Unspecified Pit	1906
198FD	173	NE	Coal Pit	1851
199AI	174	SW	Unspecified Works	1991
200AI	174	SW	Unspecified Works	1985
201AJ	178	SE	Coal Pit	1851
202AI	180	SW	Railway Building	1968
203DH	185	W	Coal Pit	1851
204AO	185	SW	Mineral Yard	1923
205K	194	SW	Railway Building	1938
206AQ	195	NE	Brick Works	1906
207N	196	SW	Railway Building	1923

208AK	197	SE	Coal Pits	1851
209FG	197	NW	Brick Works	1891
210FF	197	NW	Unspecified Heaps	1891
211AS	200	SW	Cuttings	1956
212AL	203	SW	Unspecified Factory	1991
213AL	203	SW	Unspecified Factory	1985
214AM	206	E	Unspecified Mills	1906
215AM	206	E	Unspecified Mills	1921
216AM	206	E	Unspecified Mills	1923
217AN	208	NE	Unspecified Works	1985
218AN	208	NE	Unspecified Works	1991
219AO	209	W	Goods Shed	1956
220AO	209	W	Goods Shed	1968
221AP	210	SW	Unspecified Mill	1968
222AQ	211	NE	Unspecified Factory	1978
223AR	211	W	Unspecified Works	1968
224AM	211	E	Unspecified Mills	1891
225AS	212	SW	Cuttings	1985
226AO	212	W	Goods Shed	1938
227AO	212	W	Goods Shed	1933
228AO	213	W	Goods Shed	1921
229	215	S	Unspecified Works	1978
230AO	216	W	Goods Shed	1923
231AS	216	SW	Cuttings	1978
232AS	216	SW	Cuttings	1968
233AS	218	SW	Cuttings	1933
234AS	218	SW	Cuttings	1938
235AS	218	SW	Cuttings	1921
236AK	219	SE	Unspecified Shafts	1978
237AL	219	SW	Unspecified Mill	1938
238AL	219	SW	Unspecified Mill	1933
239AL	219	SW	Unspecified Mill	1891
240AS	221	SW	Cuttings	1906
241AS	221	SW	Cuttings	1923
242AL	222	SW	Unspecified Mill	1923
243AT	229	SE	Unspecified Disused Shafts	1985
244AT	239	SE	Unspecified Shafts	1978
245FI	240	NW	Coal Pits	1851
246FZ	240	N	Railway Sidings	1985
247AU	244	N	Railway Sidings	1978
248AT	248	SE	Unspecified Disused Shafts	1985
249AV	250	W	Unspecified Commercial/Industrial	1891
250AV	250	W	Unspecified Commercial/Industrial	1938

251AV	250	W	Gas Stove Works	1921
252AV	250	W	Raising Works	1906
253AV	250	W	Unspecified Commercial/Industrial	1933
254AV	250	W	Gas Stove Works	1923
255FJ	251	NW	Coal Pit	1851
256AQ	252	NE	Old Clay Pit	1921
257AQ	255	NE	Unspecified Pit	1938
258AQ	255	NE	Unspecified Pit	1933
259AQ	255	NE	Clay Pit	1906
260AQ	255	NE	Old Clay Pit	1923
261FK	256	E	Coal Pit	1851
262AW	259	W	Unspecified Tank	1891
263AZ	265	W	Unspecified Commercial/Industrial	1851
264AW	268	W	Unspecified Tank	1906
265AW	268	W	Unspecified Tank	1921
266AW	268	W	Gasometer	1923
267AW	269	W	Unspecified Pit	1933
268AW	269	W	Unspecified Pit	1938
269BB	279	W	Unspecified Tank	1891
270AX	284	N	Unspecified Works	1991
271AX	284	N	Unspecified Works	1985
272AY	284	W	Sanitary Works	1933
273AY	284	W	Sanitary Works	1921
274AZ	285	W	Coal Pit	1851
275BA	285	NE	Unspecified Heap	1921
276BA	285	NE	Unspecified Heap	1906
277BA	285	NE	Unspecified Heap	1923
278BA	285	NE	Unspecified Heap	1938
279BA	285	NE	Unspecified Heap	1933
280BB	285	W	Unspecified Pit	1938
281BB	285	W	Unspecified Pit	1933
282BE	286	E	Unspecified Tanks	1968
283BB	287	W	Unspecified Tank	1921
284BB	287	W	Unspecified Tank	1906
285BB	287	W	Gasometer	1923
286BN	287	NE	Brick Works	1921
287BC	289	E	Electric Substation	1985
288BC	289	E	Electric Substation	1991
289BD	290	SE	Unspecified Mill	1968
290BD	293	SE	Unspecified Mill	1985
291AS	297	SW	Engine House	1851
292BO	304	E	Brick Field	1891
293DM	312	W	Railway Building	1923
294BE	312	E	Unspecified Commercial/Industrial	1933

295BE	312	E	Electricity Generating Station	1923
296BE	312	E	Unspecified Commercial/Industrial	1938
297BE	312	E	Electricity Generating Station	1921
298BE	312	E	Electricity Generating Station	1906
299BF	313	SE	Engineering Works	1923
300DP	315	W	Unspecified Tank	1891
301BF	316	SE	Engineering Works	1921
302FN	319	SW	Pottery	1851
303AV	320	W	Unspecified Tank	1933
304AV	320	W	Unspecified Tank	1921
305AV	320	W	Unspecified Tank	1906
306AV	320	W	Unspecified Tank	1938
307AV	320	W	Gasometer	1923
308BF	320	SE	Unspecified Works	1968
309BF	321	SE	Unspecified Works	1985
310BF	321	SE	Unspecified Works	1991
311BW	321	W	Sanitary Works	1956
312	321	SW	Railway Building	1891
313BK	324	W	Gas Works	1985
314BH	330	W	Unspecified Tank	1891
315BP	332	SW	Cuttings	1891
316AY	334	W	Sanitary Works	1906
317AY	334	W	Sanitary Works	1938
318AY	334	W	Sanitary Works	1891
319BG	335	NE	Brick Works	1933
320BG	335	NE	Brick Works	1938
321BM	336	SW	Cuttings	1956
322CA	338	W	Sanitary Works	1923
323BH	338	W	Unspecified Tank	1906
324BH	338	W	Gasometer	1923
325BH	338	W	Unspecified Tank	1921
326BI	339	E	Unspecified Works	1978
327BI	339	E	Electric Generating Station	1968
328BS	340	NE	Brick Works	1956
329BJ	342	SW	Cotton Works	1921
330BJ	342	SW	Cotton Works	1938
331BJ	342	SW	Cotton Works	1891
332BJ	342	SW	Cotton Works	1906
333BJ	342	SW	Cotton Works	1933
334BJ	342	SW	Cotton Works	1923
335BI	342	E	Unspecified Works	1985
336BG	342	NE	Abattoir	1968

337FM	343	W	Coal Pits	1851
338BG	345	NE	Abattoir	1978
339BK	348	W	Gas Work	1978
340BX	348	N	Unspecified Works	1968
341BL	349	E	Chemical Works	1933
342BL	349	E	Chemical Works	1921
343BL	349	E	Chemical Works	1923
344BL	349	E	Chemical Works	1906
345BK	349	W	Unspecified Commercial/Industrial	1956
346BK	349	W	Unspecified Works	1968
347BK	349	W	Gas Works	1991
348BQ	352	SW	Cuttings	1991
349BM	352	SW	Cuttings	1956
350BN	353	NE	Brick Works	1923
351BG	354	NE	Abattoir	1991
352BG	354	NE	Abattoir	1985
353BO	355	E	Unspecified Ground Workings	1906
354BP	357	SW	Cuttings	1906
355BP	357	SW	Cuttings	1938
356BP	357	SW	Cuttings	1923
357BQ	358	SW	Cuttings	1968
358AX	361	N	Unspecified Works	1978
359BJ	367	SW	Unspecified Works	1968
360BR	370	W	Unspecified Works	1991
361BR	370	W	Unspecified Works	1985
362AX	371	N	Railway Building	1938
363BS	372	NE	Unspecified Ground Workings	1921
364BK	374	W	Gasometers	1991
365BK	374	W	Gasometer	1985
366BR	377	W	Unspecified Works	1978
367BM	379	SW	Coal Pit	1851
368BJ	380	W	Unspecified Factory	1968
369FO	383	E	Unspecified Pit	1938
370BK	383	W	Gasometers	1978
371BK	383	W	Unspecified Tanks	1956
372BK	383	W	Unspecified Tanks	1968
373	384	E	Unspecified Works	1968
374BK	386	W	Unspecified Tank	1906
375BK	386	W	Unspecified Tank	1938
376BK	386	W	Unspecified Tank	1933
377BK	386	W	Gasometer	1923
378BK	386	W	Gasometer	1921
379FP	387	NE	Unspecified Pits	1906
380BT	389	NE	Unspecified	1933

			Commercial/Industrial	
381BT	389	NE	Unspecified Works	1921
382BT	389	NE	Tanneries	1906
383BT	389	NE	Unspecified Disused Works	1891
384BT	389	NE	Unspecified Commercial/Industrial	1938
385EQ	392	SW	Unspecified Works	1978
386BU	392	SW	Cuttings	1933
387BU	392	SW	Cuttings	1921
388BL	392	E	Unspecified Works	1978
389BL	392	E	Unspecified Works	1985
390BL	392	E	Unspecified Works	1991
391FQ	392	SW	Coal Pit	1851
392CG	393	SW	Brick Field	1851
393CF	394	NW	Timber Yard	1921
394EO	395	N	Railway Building	1938
395BP	401	SW	Railway Building	1923
396BI	404	E	Unspecified Tanks	1978
397BI	404	E	Chimneys	1968
398CI	404	NW	Forge	1921
399BV	406	E	Unspecified Tank	1938
400BV	406	E	Unspecified Tank	1933
401BZ	411	NE	Unspecified Pit	1906
402CH	411	SE	Unspecified Commercial/Industrial	1906
403BK	411	W	Brick Field	1851
404BV	411	E	Unspecified Tank	1968
405	412	SE	Unspecified Commercial/Industrial	1923
406BL	413	E	Unspecified Works	1968
407BW	415	W	Unspecified Works	1968
408BY	416	SE	Unspecified Works	1968
409BX	416	N	Unspecified Commercial/Industrial	1923
410FS	417	SW	Cuttings	1956
411DZ	418	E	Mineral Railway Sidings	1906
412CB	418	E	Railway Sidings	1921
413	419	S	Tannery	1851
414BY	422	SE	Unspecified Depot	1985
415BZ	422	NE	Unspecified Pit	1891
416CA	422	W	Unspecified Ground Workings	1968
417BS	425	NE	Unspecified Ground Workings	1923
418CB	428	E	Railway Sidings	1923
419CB	432	E	Mineral Railway Sidings	1938
420CB	432	E	Mineral Railway Sidings	1933

421CC	432	W	Unspecified Works	1991
422CC	432	W	Unspecified Works	1985
423BT	434	NE	Unspecified Works	1923
424CD	434	N	Unspecified Works	1985
425CD	434	N	Unspecified Works	1991
426CJ	435	NE	Unspecified Ground Workings	1906
427CC	435	W	Unspecified Commercial/Industrial	1923
428CE	437	NW	Unspecified Works	1938
429CE	437	NW	Unspecified Works	1891
430BY	438	SE	Coal Pit	1851
431CE	440	NW	Unspecified Works	1933
432CE	440	NW	Chemical Works	1921
433CF	440	NW	Unspecified Commercial/Industrial	1985
434CE	440	NW	Chemical Works	1923
435CG	441	SW	Unspecified Works	1991
436CC	441	W	Unspecified Works	1978
437CE	441	NW	Unspecified Mills	1968
438CF	444	NW	Timber Yard	1923
439BT	444	NE	Unspecified Commercial/Industrial	1956
440CC	444	W	Oil Works	1923
441CG	446	SW	Unspecified Works	1978
442CG	446	SW	Unspecified Works	1985
443BT	450	NE	Unspecified Works	1991
444	451	NE	Railway Buildings	1923
445FU	451	SW	Brick Kiln	1851
446CF	453	NW	Iron Works	1906
447BT	453	NE	Print Works	1851
448BK	455	W	Gasometer	1985
449EM	460	N	Brick Works	1906
450CH	460	SE	Unspecified Commercial/Industrial	1923
451CI	461	N	Unspecified Works	1978
452BG	461	NE	Tramway Sidings	1933
453BG	461	NE	Tramway Sidings	1938
454CJ	462	NE	Unspecified Ground Workings	1956
455FV	466	NW	Coal Pit	1851
456EB	467	SE	Unspecified Works	1968
457CH	469	SE	Unspecified Commercial/Industrial	1891
458FW	473	NE	Unspecified Pit	1921
459CK	473	W	Unspecified Tank	1938
460CK	473	W	Unspecified Tank	1933
461BG	474	NE	Tramway Sidings	1956

462CH	475	SE	Unspecified Tank	1906
463CL	475	NW	Unspecified Works	1985
464CL	475	NW	Unspecified Works	1991
465CD	475	N	Railway Building	1938
466GA	476	W	Oil Works	1921
467CE	476	NW	Unspecified Works	1968
468CM	478	E	Railway Sidings	1968
469CM	478	E	Railway Sidings	1956
470FX	479	E	Unspecified Heap	1923
471CN	480	NW	Unspecified Mills	1906
472CN	480	NW	Unspecified Mills	1923
473CN	480	NW	Unspecified Mills	1938
474CN	480	NW	Unspecified Mills	1921
475CN	480	NW	Unspecified Mills	1891
476CN	480	NW	Unspecified Mills	1933
477CO	480	N	Railway Building	1933
478CO	480	N	Railway Building	1921
479CO	480	N	Railway Building	1923
480CO	480	N	Railway Building	1906
481FY	482	E	Unspecified Ground Workings	1923
482CO	482	N	Railway Building	1956
483CH	484	SE	Unspecified Tank	1891
484BY	485	SE	Unspecified Tank	1906
485CC	486	W	Unspecified Tank	1906
486CC	486	W	Unspecified Tank	1938
487CQ	488	NE	Unspecified Heap	1923
488CP	488	NW	Unspecified Commercial/Industrial	1906
489CP	488	NW	Unspecified Commercial/Industrial	1921
490CP	488	NW	Unspecified Commercial/Industrial	1933
491CP	488	NW	Unspecified Commercial/Industrial	1938
492CP	488	NW	Unspecified Commercial/Industrial	1891
493CC	489	W	Unspecified Tank	1923
494	491	E	Chemicals Works	1891
495CH	492	SE	Unspecified Tank	1891
496CQ	493	NE	Unspecified Heap	1921
497CR	495	NE	Unspecified Heap	1933
498CR	495	NE	Unspecified Heap	1938
499CL	495	NW	Canal Works	1968
500CD	496	N	Railway Building	1938
501	498	E	Oil Works	1923

1.2 Additional Information – Historical Tank Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical tanks within 500m of the search boundary: 300

ID	Distance (m)	Direction	Use	Date
502E	0	On Site	Gas Works	1908
503E	0	On Site	Gas Works	1922
504CW	0	On Site	Gas Works	1948
505CS	0	On Site	Gas Works	1968
506CU	0	On Site	Unspecified Tank	1968
507CS	0	On Site	Tanks	1968
508H	0	On Site	Unspecified Tank	1968
509CT	0	On Site	Tanks	1979
510CU	0	On Site	Unspecified Tank	1970
511J	0	On Site	Tanks	1970
512J	0	On Site	Unspecified Tank	1970
513J	0	On Site	Tanks	1970
514H	0	On Site	Unspecified Tank	1970
515CS	0	On Site	Gas Works	1949
516CS	0	On Site	Gas Works	1970
517S	0	E	Tanks	1922
518S	0	E	Tanks	1931
519CU	2	W	Unspecified Tank	1970
520F	2	NW	Gas Works	1984
521CU	2	W	Unspecified Tank	1968
522I	4	SE	Tanks	1970
523H	6	SE	Unspecified Tank	1968
524H	7	SE	Unspecified Tank	1970
525S	8	N	Tanks	1948
526F	14	NW	Gasometer	1922
527F	14	NW	Unspecified Tank	1931
528F	14	NW	Unspecified Tank	1970
529F	14	NW	Gasometer	1949
530DQ	14	W	Gas Works	1893
531F	14	NW	Gas Holder	1984
532R	14	N	Tanks	1931
533R	14	N	Tanks	1922
534F	14	NW	Gas Holder	1995
535F	14	NW	Gas Holder	1995
536F	15	NW	Gasometer	1968
537CU	17	E	Unspecified Tank	1931
538R	17	N	Tanks	1931

539R	17	N	Tanks	1922
540R	17	N	Tanks	1908
541R	19	E	Tanks	1958
542R	20	E	Tanks	1948
543R	20	E	Tanks	1955
544H	20	S	Unspecified Tank	1949
545R	22	N	Tanks	1948
546R	22	N	Unspecified Tank	1955
547I	24	SE	Tanks	1949
548Q	24	S	Unspecified Tank	1891
549I	26	S	Oil Tanks	1908
550I	27	S	Oil Tanks	1931
551I	27	S	Oil Tanks	1922
552R	28	E	Tanks	1949
553CV	28	E	Tanks	1908
554CV	28	E	Tanks	1931
555CV	28	E	Tanks	1922
556CV	28	E	Tanks	1949
557R	29	N	Tanks	1949
558R	29	E	Tanks	1949
559R	29	E	Unspecified Tank	1968
560I	32	SE	Unspecified Tank	1949
561I	32	SE	Unspecified Tank	1968
562I	33	SE	Unspecified Tank	1970
563R	34	N	Tanks	1949
564R	39	E	Tanks	1949
565V	50	SW	Tanks	1987
566V	50	SW	Tanks	1979
567V	50	SW	Tanks	1955
568CY	51	W	Gas Works	1891
569Y	52	SE	Unspecified Tank	1968
570Y	52	S	Unspecified Tank	1949
571Y	52	S	Unspecified Tank	1970
572I	53	E	Unspecified Tank	1949
573R	57	E	Unspecified Tank	1922
574R	57	E	Unspecified Tank	1908
575CV	64	E	Unspecified Tank	1931
576CW	96	W	Unspecified Tank	1891
577L	104	SE	Tanks	1893
578CX	104	W	Unspecified Tank	1970
579CX	104	W	Unspecified Tank	1968
580DA	111	W	Unspecified Tank	1891
581AA	113	SW	Unspecified Tank	1949
582AA	116	W	Tanks	1922
583AA	116	SW	Tanks	1931
584L	118	SE	Unspecified Tank	1893

585L	120	SE	Tanks	1893
586DF	125	W	Tanks	1948
587E	128	W	Tanks	1948
588CY	129	W	Unspecified Tank	1931
589L	130	SE	Tanks	1985
590CZ	131	E	Tanks	1989
591CZ	131	E	Tanks	1994
592L	133	SE	Tanks	1953
593DA	134	W	Unspecified Tank	1948
594DB	137	W	Unspecified Tank	1979
595ER	138	SW	Tanks	1891
596DB	138	W	Unspecified Tank	1948
597DB	138	W	Unspecified Tank	1955
598DE	138	SE	Unspecified Tank	1989
599EZ	146	S	Unspecified Tank	1893
600DC	147	W	Tanks	1948
601CY	151	W	Unspecified Tank	1891
602DD	152	W	Unspecified Tank	1948
603DE	155	SE	Tanks	1953
604DE	155	SE	Tanks	1985
605DB	163	W	Tanks	1931
606DF	172	W	Unspecified Tank	1891
607Z	174	SE	Tanks	1893
608DG	181	S	Unspecified Tank	1893
609DJ	182	W	Unspecified Tank	1948
610	187	S	Tank or Trough	1908
611CY	190	W	Unspecified Tank	1979
612CY	191	W	Unspecified Tank	1958
613CY	191	W	Unspecified Tank	1955
614Z	192	SE	Unspecified Tank	1949
615DO	198	SW	Gas Works	1948
616FE	204	SE	Unspecified Tank	1893
617DG	209	SE	Unspecified Tank	1949
618DI	209	W	Gas Works	1949
619DH	209	W	Gas Works	1970
620DI	210	W	Gas Works	1952
621DI	210	W	Gas Works	1968
622DI	210	W	Gas Works	1948
623AZ	210	W	Gas Holder Station	1991
624DI	210	W	Gas Works	1984
625DJ	215	W	Unspecified Tank	1891
626DJ	220	W	Tanks	1948
627BB	233	W	Gas Holder Station	1995
628BB	233	W	Gas Holder Station	1994
629AM	235	E	Tanks	1893
630AM	236	E	Tanks	1893

631DK	250	W	Tanks	1948
632DK	252	W	Tanks	1931
633BK	259	W	Gas Works	1979
634DK	262	W	Tanks	1979
635DL	262	E	Unspecified Tank	1949
636DL	262	E	Unspecified Tank	1953
637DL	262	E	Unspecified Tank	1949
638AW	266	W	Gasometers	1908
639AW	266	W	Gasometers	1893
640AW	266	W	Gasometers	1922
641DM	267	W	Tanks	1948
642DM	267	W	Tanks	1955
643DN	268	W	Tanks	1958
644DN	268	W	Tanks	1955
645DN	268	W	Tanks	1979
646AL	268	W	Unspecified Tank	1931
647DK	268	W	Overhead Tanks	1948
648DO	268	W	Unspecified Tank	1948
649DM	269	W	Tanks	1931
650AL	274	W	Tank or Trough	1908
651DN	274	W	Tanks	1979
652AL	283	W	Unspecified Tank	1908
653DP	284	W	Tanks	1931
654DQ	284	W	Tanks	1922
655	284	E	Unspecified Tank	1953
656BE	285	E	Unspecified Tank	1953
657DR	300	W	Tanks	1948
658DQ	307	W	Tanks	1948
659DP	309	W	Tanks	1908
660BH	310	W	Tanks	1986
661DR	310	W	Unspecified Tank	1948
662BB	310	W	Gasometer	1891
663BH	311	W	Tanks	1992
664BH	311	W	Tanks	1989
665BH	312	W	Unspecified Tank	1995
666BH	312	W	Unspecified Tank	1994
667BH	313	W	Unspecified Tank	1991
668BE	314	E	Unspecified Tank	1953
669DS	315	N	Unspecified Tank	1970
670DT	315	N	Unspecified Tank	1949
671DT	316	N	Unspecified Tank	1952
672DT	316	N	Unspecified Tank	1949
673DT	317	N	Unspecified Tank	1979
674BK	317	W	Gas Holder Station	1992
675BK	317	W	Gas Holder Station	1989
676BK	318	W	Gas Holder Station	1986

677DP	319	W	Unspecified Tank	1931
678DP	325	W	Gasometer	1891
679DU	331	W	Unspecified Tank	1948
680DU	334	W	Unspecified Tank	1908
681DU	334	W	Unspecified Tank	1922
682BH	336	W	Gasometer	1891
683DV	337	W	Unspecified Tank	1948
684DV	357	W	Overhead Tanks	1948
685AX	360	N	Unspecified Tank	1990
686AX	360	N	Unspecified Tank	1979
687AX	361	N	Unspecified Tank	1995
688BV	368	E	Unspecified Tank	1953
689BF	373	SE	Tank or Trough	1893
690AV	380	W	Gasholder	1992
691BK	381	W	Gasometers	1979
692AV	381	W	Unspecified Tank	1958
693AV	382	W	Gas Holder	1986
694AV	382	W	Unspecified Tank	1948
695AV	382	W	Gas Holder	1989
696AV	382	W	Unspecified Tank	1955
697BK	384	W	Unspecified Tank	1931
698BK	384	W	Gasometer	1922
699BK	384	W	Gasometer	1908
700BR	390	W	Unspecified Tank	1989
701BR	390	W	Tanks	1992
702EP	409	S	Unspecified Tank	1893
703BV	409	E	Tanks	1932
704BV	410	E	Unspecified Tank	1949
705BV	410	E	Unspecified Tank	1949
706BP	417	SW	Unspecified Tank	1979
707DY	418	E	Unspecified Tank	1953
708BO	427	E	Unspecified Tank	1953
709BO	427	E	Unspecified Tank	1949
710BO	427	E	Unspecified Tank	1949
711DW	434	E	Unspecified Tank	1949
712DW	434	E	Unspecified Tank	1949
713BL	442	E	Unspecified Tank	1953
714BL	442	E	Unspecified Tank	1949
715BL	442	E	Unspecified Tank	1949
716AY	448	W	Unspecified Tank	1891
717CA	451	W	Unspecified Tank	1891
718BO	453	E	Unspecified Tank	1949
719CA	453	W	Unspecified Tank	1891
720BO	456	E	Unspecified Tank	1953
721BO	456	E	Unspecified Tank	1949
722AY	457	W	Unspecified Tank	1979

723AY	458	W	Unspecified Tank	1948
724AY	458	W	Unspecified Tank	1955
725AY	461	W	Unspecified Tank	1931
726CB	463	E	Unspecified Tank	1949
727CB	463	E	Unspecified Tank	1949
728DX	463	E	Unspecified Tank	1949
729DX	464	E	Unspecified Tank	1949
730DX	464	E	Unspecified Tank	1953
731DX	464	E	Unspecified Tank	1949
732DX	464	E	Unspecified Tank	1932
733DY	465	E	Unspecified Tank	1949
734DY	465	E	Unspecified Tank	1949
735DZ	466	E	Tanks	1949
736DX	466	E	Unspecified Tank	1953
737DX	466	E	Unspecified Tank	1949
738DZ	466	E	Tanks	1949
739CK	466	W	Gasholder	1992
740CK	466	W	Gas Holder	1986
741DW	467	E	Tanks	1953
742CK	467	W	Unspecified Tank	1958
743CK	468	W	Gas Holder	1989
744CK	468	W	Unspecified Tank	1948
745CK	468	W	Unspecified Tank	1955
746DX	468	E	Unspecified Tank	1949
747DX	469	E	Unspecified Tank	1949
748EA	469	W	Tanks	1986
749EA	470	W	Tanks	1992
750EA	470	W	Tanks	1989
751CK	471	W	Unspecified Tank	1931
752CE	472	NW	Unspecified Tank	1893
753AY	474	W	Unspecified Tank	1979
754AY	475	W	Unspecified Tank	1948
755AY	475	W	Unspecified Tank	1955
756AY	478	W	Unspecified Tank	1931
757CE	478	NW	Unspecified Tank	1971
758EB	478	SE	Unspecified Tank	1908
759BW	479	W	Unspecified Tank	1986
760BW	480	W	Unspecified Tank	1989
761CC	481	W	Tanks	1979
762CC	481	W	Tanks	1908
763CC	481	W	Tanks	1922
764EC	481	E	Unspecified Tank	1908
765EC	481	E	Unspecified Tank	1922
766EC	481	E	Unspecified Tank	1932
767CC	482	W	Tanks	1948
768CC	482	W	Tanks	1955

769CC	482	W	Tanks	1931
770CE	482	NW	Tanks	1922
771CC	483	W	Unspecified Tank	1931
772CC	483	W	Unspecified Tank	1908
773CC	483	W	Unspecified Tank	1922
774DX	483	E	Unspecified Tank	1953
775DX	483	E	Unspecified Tank	1949
776CG	484	SW	Unspecified Tank	1979
777CG	484	SW	Unspecified Tank	1979
778CG	484	SW	Unspecified Tank	1983
779CC	484	W	Unspecified Tank	1891
780CG	485	SW	Unspecified Tank	1980
781CC	486	W	Tanks	1979
782CC	486	W	Unspecified Tank	1908
783EB	487	SE	Unspecified Tank	1908
784CC	487	W	Tanks	1948
785CC	487	W	Tanks	1955
786CC	488	W	Unspecified Tank	1908
787CC	489	W	Tanks	1979
788CC	490	W	Tanks	1931
789CC	490	W	Tanks	1979
790CC	490	W	Tanks	1986
791CC	490	W	Tanks	1948
792CC	490	W	Tanks	1955
793CC	493	W	Unspecified Tank	1908
794CC	494	W	Tanks	1989
795CC	494	W	Tanks	1948
796CC	494	W	Tanks	1955
797DX	497	E	Tanks	1949
798DX	498	E	Tanks	1932
799DX	498	E	Tanks	1953
800DX	498	E	Tanks	1949
801CC	498	W	Unspecified Tank	1891

1.3 Additional Information – Historical Energy Features Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical energy features within 500m of the search boundary: 118

ID	Distance (m)	Direction	Use	Date
802CS	0	On Site	Gas Works	1970
803CS	0	On Site	Gas Works	1949

804CS	0	On Site	Gas Works	1968
805E	0	On Site	Gas Works	1922
806E	0	On Site	Gas Works	1908
807CW	0	On Site	Gas Works	1948
808ED	0	On Site	Electricity Substation	1955
809ED	0	On Site	Electricity Substation	1948
810ED	0	On Site	Electricity Substation	1979
811F	2	NW	Gas Works	1984
812F	14	NW	Gasometer	1922
813F	14	NW	Gasometer	1949
814DQ	14	W	Gas Works	1893
815F	14	NW	Gas Holder	1984
816F	14	NW	Gas Holder	1995
817F	14	NW	Gas Holder	1995
818F	15	NW	Gasometer	1968
819EE	40	S	Electricity Substation	1995
820EE	41	S	Electricity Sub-Station	1991
821EE	41	S	Electricity Sub-Station	1979
822EE	41	S	Electricity Sub-Station	1987
823EE	41	S	Electricity Substation	1955
824CY	51	W	Gas Works	1891
825CZ	146	SE	Electricity Substation	1989
826CZ	146	SE	Electricity Substation	1994
827CZ	148	SE	Electricity Substation	1949
828CZ	148	SE	Electricity Substation	1949
829CZ	148	SE	Electricity Substation	1953
830CZ	149	SE	Electricity Substation	1985
831EF	153	E	Electricity Substation	1989
832EF	153	E	Electricity Substation	1994
833DO	198	SW	Gas Works	1948
834DI	209	W	Gas Works	1949
835DI	209	W	Gas Works	1970
836DI	210	W	Gas Works	1968
837DI	210	W	Gas Works	1948
838DI	210	W	Gas Works	1952
839AZ	210	W	Gas Holder Station	1991
840DI	210	W	Gas Works	1984
841BE	213	E	Electricity Generating Station	1949
842BE	213	E	Electricity Generating Station	1949
843DL	222	E	Electricity Substation	1994
844BB	233	W	Gas Holder Station	1995
845BB	233	W	Gas Holder Station	1994
846EG	254	SE	Electricity Substation	1949
847EG	254	SE	Electricity Substation	1949

848EG	254	SE	Electricity Substation	1953
849BK	259	W	Gas Works	1979
850BH	266	W	Gasometers	1908
851BH	266	W	Gasometers	1922
852BH	266	W	Gasometers	1893
853BC	280	E	Electricity Substation	1994
854BC	281	E	Electricity Transformer Station	1985
855AL	290	W	Electricity Substation	1979
856AL	290	W	Electricity Substation	1986
857AL	290	W	Electricity Substation	1992
858AL	290	W	Electricity Substation	1955
859AL	290	W	Electricity Substation	1989
860AQ	305	NE	Electricity Substation	1995
861AQ	305	NE	Electricity Substation	1995
862AN	307	NE	Electricity Substation	1984
863AN	308	NE	Electricity Transformer	1968
864AV	309	W	Corporation Gas Works	1891
865BB	310	W	Gasometer	1891
866EH	312	E	Electricity Substation	1949
867EH	313	E	Electricity Substation	1989
868EH	313	E	Electricity Substation	1949
869EH	313	E	Electricity Substation	1953
870EH	314	E	Electricity Substation	1985
871BV	316	E	Electricity Generating Station	1922
872BV	316	E	Electricity Generating Station	1908
873EI	317	SW	Electricity Substation	1995
874BK	317	W	Gas Holder Station	1992
875BK	317	W	Gas Holder Station	1989
876BK	318	W	Gas Holder Station	1986
877EI	318	SW	Electricity Substation	1979
878EI	319	SW	Electricity Substation	1983
879DP	325	W	Gasometer	1891
880BH	336	W	Gasometer	1891
881DV	340	W	Corporation Gas Works	1891
882BC	360	E	Electricity Substation	1989
883BC	366	E	Electricity Substation	1985
884EJ	371	N	Electricity Substation	1979
885EJ	372	N	Electricity Substation	1990
886EJ	372	N	Electricity Substation	1995
887EK	376	SE	Electricity Substation	1991
888EK	378	SE	Electricity Substation	1994
889EK	378	SE	Electricity Substation	1996
890EK	378	SE	Electricity Substation	1996
891EK	378	SE	Electricity Substation	1995

892AV	380	W	Gasholder	1992
893BK	381	W	Gasometers	1979
894AV	382	W	Gas Holder	1986
895AV	382	W	Gas Holder	1989
896BK	384	W	Gasometer	1908
897BK	384	W	Gasometer	1922
898BS	389	NE	Electricity Substation	1948
899BM	391	SW	Electricity Substation	1979
900BM	391	SW	Electricity Substation	1986
901BM	392	SW	Electricity Substation	1989
902BM	392	SW	Electricity Substation	1992
903EL	428	W	Electricity Substation	1970
904EL	428	W	Electricity Substation	1968
905EL	430	W	Electricity Substation	1984
906EL	435	W	Electricity Substation	1995
907EL	435	W	Electricity Substation	1994
908EL	436	W	Electricity Substation	1991
909CK	466	W	Gasholder	1992
910CK	466	W	Gas Holder	1986
911CK	468	W	Gas Holder	1989
912EM	491	N	Electricity Substation	1990
913EM	492	N	Electricity Substation	1995
914EN	495	S	Electricity Substation	1996
915EN	495	S	Electricity Substation	1994
916EN	495	S	Electricity Substation	1995
917EN	495	S	Electricity Substation	1996
918EN	497	S	Electricity Substation	1991
919EN	497	S	Electricity Substation	1980

1.4 Additional Information – Historical Petrol and Fuel Site Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical petrol stations and fuel sites within 500m of the search boundary: 0

Database searched and no data found.

1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical garage and motor vehicle repair sites within 500m of the search boundary: 12

ID	Distance (m)	Direction	Use	Date
920AF	106	N	Garage	1995
921AF	106	N	Garage	1995
922AF	107	N	Garage	1984
923AF	140	N	Garage	1968
924AF	141	N	Garage	1970
925EO	369	N	Wagon Repair Works	1931
926EP	374	S	Garage	1979
927EP	374	S	Garage	1983
928BU	375	SW	Garage	1986
929EQ	394	SW	Garage	1983
930EP	412	S	Garage	1956
931EP	412	S	Garage	1958

1.6 Historical military sites

Certain military installations were not noted on historic mapping for security reasons. Whilst not all military land is necessarily of concern, Groundsure has researched and digitised a number of Ordnance Factories and other military industrial features (e.g. Ordnance Depots, Munitions Testing Grounds) which may be of contaminative concern. This research was drawn from a number of different sources, and should not be regarded as a definitive or exhaustive database of potentially contaminative military installations. The boundaries of sites within this database have been estimated from the best evidence available to Groundsure at the time of compilation.

Records of historical military sites within 500m of the search boundary: 0

Database searched and no data found.

1.7 Potentially Infilled Land

Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 203

The following Historical Potentially Infilled Features derived from the Historical Mapping information is provided by Groundsure:

ID	Distance(m)	Direction	Use	Date
932C	0	On Site	Unspecified Ground Workings	1923
933FH	0	On Site	Canal	1923
934ER	0	On Site	Canal	1891
935ER	0	On Site	Canal	1933
936ER	0	On Site	Canal	1938
937ER	0	On Site	Canal	1921
938ER	0	On Site	Canal	1906
939M	0	On Site	Colliery	1968
940CT	0	On Site	Coal Pits	1851
941ES	0	On Site	Canal	1985
942ES	0	On Site	Canal	1978
943ET	0	On Site	Canal	1956

944	0	On Site	Canal	1991
945ET	0	On Site	Canal	1968
946H	0	On Site	Refuse Heap	1906
947C	0	On Site	Unspecified Ground Workings	1906
948C	0	On Site	Unspecified Ground Workings	1921
949R	7	N	Unspecified Pit	1923
950R	7	N	Unspecified Pit	1906
951R	7	N	Unspecified Pit	1921
952CX	9	NW	Refuse Heap	1891
953EU	10	NE	Refuse Heap	1851
954I	13	S	Unspecified Pit	1906
955EE	18	S	Coal Pits	1851
956T	22	NE	Cemetery	1923
957T	22	NE	Cemetery	1906
958T	22	NE	Cemetery	1938
959T	22	NE	Cemetery	1921
960T	22	NE	Cemetery	1933
961T	22	NE	Cemetery	1891
962EV	22	NE	Cemetery	1991
963T	22	NE	Cemetery	1956
964T	22	NE	Cemetery	1985
965T	22	NE	Cemetery	1978
966T	22	NE	Cemetery	1968
967EW	36	E	Canal	1891
968EY	83	NE	Pond	1968
969Z	94	S	Colliery	1851
970Z	96	S	Colliery	1891
971	108	SW	Pond	1851
972EX	121	NE	Pond	1923
973EX	121	NE	Pond	1938
974EX	121	NE	Pond	1906
975EX	121	NE	Pond	1921
976EX	121	NE	Pond	1933
977M	127	SW	Pond	1851
978EY	127	NE	Pond	1891
979EX	130	NE	Pond	1956
980EX	130	NE	Pond	1968
981Z	136	SE	Colliery	1923
982Z	136	SE	Colliery	1921
983Z	136	SE	Colliery	1906
984AO	148	SW	Reservoir	1851
985EZ	148	SE	Coal Pits	1851
986FA	154	NE	Pond	1923
987FA	154	NE	Pond	1933

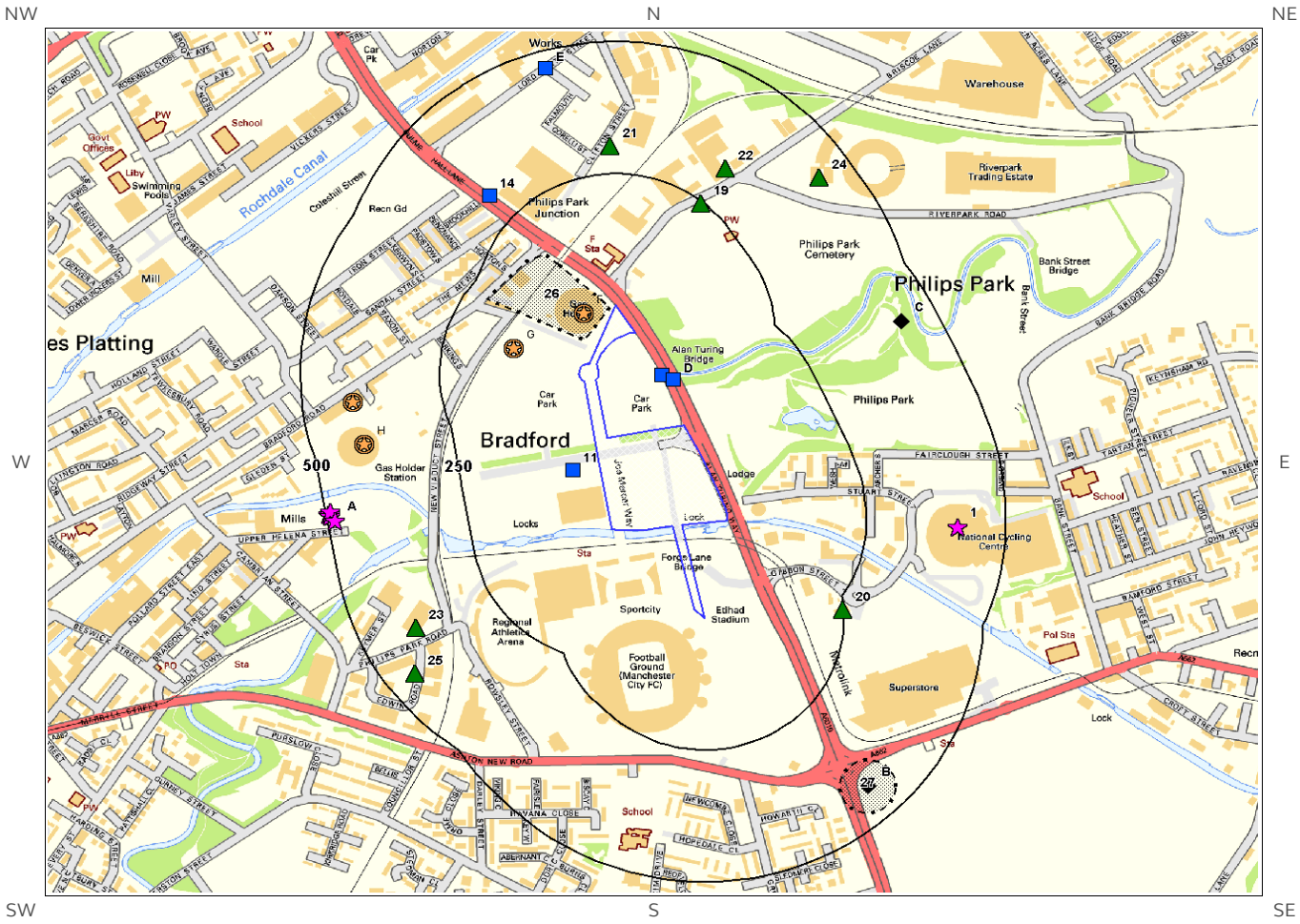
988FA	154	NE	Pond	1906
989FA	154	NE	Pond	1891
990FA	154	NE	Pond	1938
991FA	154	NE	Pond	1921
992AF	158	N	Unspecified Pit	1956
993	160	NW	Pond	1851
994FA	160	NE	Pond	1978
995FA	160	NE	Pond	1968
996AK	161	SE	Unspecified Disused Shafts	1991
997FB	161	NE	Ponds	1956
998AH	162	N	Unspecified Pit	1923
999AF	162	N	Unspecified Pit	1921
1000AF	162	N	Unspecified Pit	1933
1001AF	162	N	Unspecified Pit	1938
1002AR	165	NW	Brick Works	1891
1003FB	165	NE	Pond	1991
1004FB	165	NE	Pond	1985
1005FC	172	NW	Unspecified Pit	1906
1006FD	173	NE	Coal Pit	1851
1007FE	178	SE	Coal Pit	1851
1008AF	179	N	Pond	1906
1009DH	185	W	Coal Pit	1851
1010AH	188	N	Pond	1891
1011AQ	195	NE	Brick Works	1906
1012AK	197	SE	Coal Pits	1851
1013FF	197	NW	Unspecified Heaps	1891
1014FG	197	NW	Brick Works	1891
1015AS	200	SW	Cuttings	1956
1016FH	212	S	Pond	1851
1017AS	212	SW	Cuttings	1985
1018AK	215	SE	Pond	1851
1019AS	216	SW	Cuttings	1978
1020AS	216	SW	Cuttings	1968
1021AS	218	SW	Cuttings	1933
1022AS	218	SW	Cuttings	1921
1023AS	218	SW	Cuttings	1938
1024AK	219	SE	Unspecified Shafts	1978
1025AS	221	SW	Cuttings	1923
1026AS	221	SW	Cuttings	1906
1027AK	229	SE	Unspecified Disused Shafts	1985
1028BS	235	NE	Ponds	1851
1029AK	239	SE	Unspecified Shafts	1978
1030FI	240	NW	Coal Pits	1851
1031FB	246	NE	Pond	1923

1032FB	246	NE	Pond	1933
1033FB	246	NE	Pond	1891
1034FB	246	NE	Pond	1938
1035FB	246	NE	Pond	1921
1036FB	246	NE	Pond	1906
1037AK	248	SE	Unspecified Disused Shafts	1985
1038FJ	251	NW	Coal Pit	1851
1039AQ	252	NE	Old Clay Pit	1921
1040AQ	255	NE	Old Clay Pit	1923
1041AQ	255	NE	Clay Pit	1906
1042AQ	255	NE	Unspecified Pit	1938
1043AQ	255	NE	Unspecified Pit	1933
1044FK	256	E	Coal Pit	1851
1045AN	261	NE	Pond	1938
1046AN	261	NE	Pond	1933
1047EI	267	SW	Pond	1851
1048AW	269	W	Unspecified Pit	1938
1049AW	269	W	Unspecified Pit	1933
1050AZ	285	W	Coal Pit	1851
1051BA	285	NE	Unspecified Heap	1923
1052BA	285	NE	Unspecified Heap	1921
1053BA	285	NE	Unspecified Heap	1933
1054BA	285	NE	Unspecified Heap	1906
1055BA	285	NE	Unspecified Heap	1938
1056BB	285	W	Unspecified Pit	1933
1057BB	285	W	Unspecified Pit	1938
1058	287	N	Pond	1906
1059BN	287	NE	Brick Works	1921
1060AQ	291	NE	Ponds	1891
1061FL	293	NE	Pond	1891
1062FL	293	NE	Pond	1938
1063FL	294	NE	Pond	1923
1064FL	294	NE	Pond	1933
1065FL	294	NE	Pond	1906
1066FL	294	NE	Pond	1921
1067DX	304	E	Brick Field	1891
1068DR	322	W	Pond	1891
1069BP	332	SW	Cuttings	1891
1070BG	335	NE	Brick Works	1933
1071BG	335	NE	Brick Works	1938
1072BM	336	SW	Cuttings	1956
1073BS	340	NE	Brick Works	1956
1074FM	343	W	Coal Pits	1851
1075FN	345	W	Pond	1891
1076BQ	352	SW	Cuttings	1991

1077BM	352	SW	Cuttings	1956
1078BN	353	NE	Brick Works	1923
1079BO	355	E	Unspecified Ground Workings	1906
1080BP	357	SW	Cuttings	1923
1081BP	357	SW	Cuttings	1938
1082BP	357	SW	Cuttings	1906
1083BM	358	SW	Cuttings	1968
1084BR	367	W	Reservoir	1956
1085FR	370	E	Ponds	1891
1086BS	372	NE	Unspecified Ground Workings	1921
1087BM	379	SW	Coal Pit	1851
1088FO	383	E	Unspecified Pit	1938
1089FP	387	NE	Unspecified Pits	1906
1090BU	392	SW	Cuttings	1921
1091BU	392	SW	Cuttings	1933
1092FQ	392	SW	Coal Pit	1851
1093CG	393	SW	Brick Field	1851
1094BI	404	E	Pond	1891
1095BI	406	E	Pond	1851
1096BZ	411	NE	Unspecified Pit	1906
1097CK	411	W	Brick Field	1851
1098FR	414	E	Pond	1956
1099FS	417	SW	Cuttings	1956
1100CJ	420	NE	Pond	1921
1101CJ	420	NE	Pond	1933
1102	420	NW	Pond	1891
1103FT	421	NE	Pond	1923
1104FT	421	NE	Pond	1906
1105FT	421	NE	Pond	1938
1106BZ	422	NE	Unspecified Pit	1891
1107CA	422	W	Unspecified Ground Workings	1968
1108BN	425	NE	Unspecified Ground Workings	1923
1109CJ	435	NE	Unspecified Ground Workings	1906
1110BY	438	SE	Coal Pit	1851
1111FU	451	SW	Brick Kiln	1851
1112CK	457	W	Pond	1851
1113EM	460	N	Brick Works	1906
1114CJ	462	NE	Unspecified Ground Workings	1956
1115FV	466	NW	Coal Pit	1851
1116FP	467	NE	Ponds	1923
1117FW	469	NE	Pond	1938
1118FW	473	NE	Unspecified Pit	1921

1119BN	475	NE	Pond	1921
1120FP	477	NE	Pond	1956
1121FX	479	E	Unspecified Heap	1923
1122BN	481	NE	Pond	1933
1123BN	481	NE	Pond	1938
1124FY	482	E	Unspecified Ground Workings	1923
1125CQ	484	NE	Pond	1906
1126FZ	486	NE	Pond	1851
1127CQ	488	NE	Unspecified Heap	1923
1128FX	490	E	Pond	1891
1129CQ	492	NE	Pond	1891
1130CQ	493	NE	Unspecified Heap	1921
1131CR	495	NE	Unspecified Heap	1938
1132CR	495	NE	Unspecified Heap	1933
1133GA	499	W	Reservoir	1851
1134FX	500	E	Pond	1851

2. Environmental Permits, Incidents and Registers Map



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- Site Outline
- Search Buffers (m) — 250, 500
- Recorded Pollution Incident
- Dangerous Substances (List 1)
- Dangerous Substances (List 2)
- Water Industry Referrals
- Licenced Discharge Consents
- Red List Discharge Consents
- RAS 3 & 4 Authorisations
- Part A(1) Authorised Processes and Historic IPC Authorisations
- Part A(2) and Part B Authorised Processes
- COMAH / NIHHS Sites
- Sites Determined as Contaminated Land
- Hazardous Substance Consents and Enforcements

2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

Searches of information provided by the Environment Agency/Natural Resources Wales and Local Authorities reveal the following information:

2.1.1 Records of historic IPC Authorisations within 500m of the study site:

0

Database searched and no data found.

2.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site:

0

Database searched and no data found.

2.1.3 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site:

0

Database searched and no data found.

2.1.4 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site:

4

The following List 1 Dangerous Substance Inventory Site records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
7B	433	SE	387200 398300	Name: Rhodia Industrial Specialities Ltd, Status: Active Receiving Water: Manchester Ship Canal	Authorised Substances: Cadmium
8B	433	SE	387200 398300	Name: Rhodia Industrial Specialities Ltd, Status: Active Receiving Water: Manchester Ship Canal	Authorised Substances: Cadmium
9C	436	NE	387260 399180	Name: Clifford Whatmough Limited, Score Street, Manchester Status: Not Active Receiving Water: Manchester Ship Canal	Authorised Substances: Cadmium
10C	436	NE	387260	Name: Clifford Whatmough Limited,	Authorised Substances: -

ID	Distance (m)	Direction	NGR	Details
			399180	Score Street, Manchester Status: Active Receiving Water: -

2.1.5 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site:

0

Database searched and no data found.

2.1.6 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site:

7

The following Part A(2) and Part B Activities are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
19	243	NE	386899 399401	Address: North Manchester Commercials, Briscoe Lane, M40 2NL Process: Respraying of Road Vehicles Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
20	247	E	387154 398632	Address: Asda Eastlands, Ashton New Road, Bradford, M11 4BD Process: Unloading of Petrol into Storage at Service Stations Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
21	300	N	386736 399511	Address: Trafford Rubber Product Ltd, North Mnadchester Site, 55 Clifton Street, Miles Platting, M10 8HF Process: Rubber Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
22	323	NE	386944 399467	Address: Northern Butchers Hide Markets Ltd, 228 Briscoe Lane, Newton Heath, M10 6XG Process: Animal and Plant/Vegetable Processes Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
23	400	SW	386388 398598	Address: 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
24	436	NE	387112 399451	Address: GRM Insulation Solutions Ltd, Block 1, Riverpark, Riverpark Road, Manchester, M40 2XP Process: Coating Processes Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified

ID	Distance (m)	Direction	NGR	Details	
25	449	SW	386386 398511	Address: West & Musgrave, Edwin Rd, M11 3ER Process: Non-ferrous Metal Foundry Processes Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified

2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

2.1.8 Records of Licensed Discharge Consents within 500m of the study site:

8

The following Licensed Discharge Consents records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
11	49	W	386670 398900	Address: 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-Sep-1994 Revocation Date: 02/10/1998
12D	88	N	386850 399070	Address: MILL ST AT PARK INN, MANCHESTER Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0100 Permit Version: 1	Receiving Water: RIVER MEDLOCK Status: REVOKED - UNSPECIFIED Issue date: Effective Date: 01-Jan-1995 Revocation Date: 18/07/1995
13D	92	SE	386830 399080	Address: MILL ST/FORGE LANE, MANCHESTER Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0099 Permit Version: 1	Receiving Water: RIVER MEDLOCK Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: Effective Date: 01-Jan-1995 Revocation Date: 26/08/1999
14	308	NW	386520 399420	Address: HULME HALL LANE OPP FALMO, 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-Jan-1995 Revocation Date:
15E	466	N	386620 399660	Address: LORD NORTH STREET/CLIFTON ST CSO, LORD NORTH STREET, MANCHESTER, GREATER MANCHESTER, M40 2HJ Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY	Receiving Water: SHOOTERS BROOK Status: VARIED UNDER EPR 2010 Issue date: 03/09/2010 Effective Date: 03-Sep-2010 Revocation Date: 04/02/2016

ID	Distance (m)	Direction	NGR	Details	
				Permit Number: 01MAN0069 Permit Version: 3	
16E	466	N	386620 399660	Address: LORD NORTH STREET/CLIFTON ST CSO, LORD NORTH STREET, MANCHESTER, GREATER MANCHESTER, M40 2HJ Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0069 Permit Version: 4	Receiving Water: SHOOTERS BROOK Status: VARIED UNDER EPR 2010 Issue date: 05/02/2016 Effective Date: 05-Feb-2016 Revocation Date:
17E	466	N	386620 399660	Address: LORD NORTH STREET/CLIFTON ST CSO, LORD NORTH STREET, MANCHESTER, GREATER MANCHESTER, M40 2HJ Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0069 Permit Version: 2	Receiving Water: SHOOTERS BROOK Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: 14/04/2009 Effective Date: 14-Apr-2009 Revocation Date: 02/09/2010
18E	466	N	386620 399660	Address: LORD NORTH STREET/CLIFTON ST CSO, LORD NORTH STREET, MANCHESTER, GREATER MANCHESTER, M40 2HJ Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0069 Permit Version: 1	Receiving Water: SHOOTERS BROOK Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: Effective Date: 01-Jan-1995 Revocation Date: 13/04/2009

2.1.9 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site:

0

Database searched and no data found.

2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site:

4

The following records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	Application Reference Number	NGR	Application Status	Application Date	Address	Details	Details of Enforcement Action
32F	48	NW	000001/HSC/NORTH2/92	386688 399195	Approved	01/10/1992	National Grid Gas PLC, Bradford Road Holder Station (East), Bradford Road, Miles Platting, Manchester, Greater Manchester,	Storage of low pressure gas.	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified

ID	Distance (m)	Direction	Application Reference Number	NGR	Application Status	Application Date	Address	Details	Details of Enforcement Action
							England, M40 7BN		
33G	126	W	059226/HSC/NORTH2/00	386563 399130	Historical Consent	11/07/2000	Land Bounded By Alan Turing Way & New Viaduct Street, Bradford,	Continuation Of Hazardous Substances Consent For Storage Of Gas	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
34H	410	W	059225/HSC/NORTH2/00	386294 398947	Historical Consent	11/05/2000	Land At Gleden Street, Bradford, WF17 6HY	Continuation Of Hazardous Substances Consent For Storage Of Gas	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
35I	410	W	No Details	386274 399027	Approved	No Details	National Grid Gas PLC, Bradford Road Holder Station (West), Bradford Road, Miles Platting, Manchester, Greater Manchester, England, M40 7AS	No Details	Enforcement: No Enforcement Notified Date of Enforcement: No Details Comment: No Details

2.2 Dangerous or Hazardous Sites

Records of COMAH & NIHHS sites within 500m of the study site: 2

The following COMAH & NIHHS Authorisation records provided by the Health and Safety Executive are represented as polygons or buffered points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	Company	Address	Operational Status	Tier
26	8	NW	British Gas	British Gas, Bradford Road Holder Station, Bradford Road, Miles Platting, M10 7BL	Historical COMAH Site	-
27	383	SE	Rhodia Ltd	Rhodia Ltd, Ashton New Road, Manchester, M11 4AT	Historical NIHHS Site	-

2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

2.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site:

6

The following NIRS List 2 records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
1	412	E	387360.0 398792.0	Incident Date: 07-May-2003 Incident Identification: 173905.0 Pollutant: Inorganic Chemicals/Products Pollutant Description: Acids	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
2A	487	W	386242.0 398803.0	Incident Date: 18-Jul-2001 Incident Identification: 17447.0 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Smoke	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 3 (Minor)
3A	492	W	386234.0 398821.0	Incident Date: 03-Aug-2001 Incident Identification: 21821.0 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)
4A	493	W	386234.0 398812.0	Incident Date: 27-Jun-2001 Incident Identification: 11933.0 Pollutant: Specific Waste Materials Pollutant Description: Commercial Waste	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 3 (Minor)
5A	494	W	386233.0 398815.0	Incident Date: 25-Jun-2001 Incident Identification: 11433.0 Pollutant: Specific Waste Materials Pollutant Description: Commercial Waste	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 3 (Minor)
6A	497	W	386230.0 398815.0	Incident Date: 28-Jun-2001 Incident Identification: 12020.0 Pollutant: Specific Waste Materials Pollutant Description: Commercial Waste	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 3 (Minor)

2.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site:

0

Database searched and no data found.

2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

Records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site	0

Database searched and no data found.

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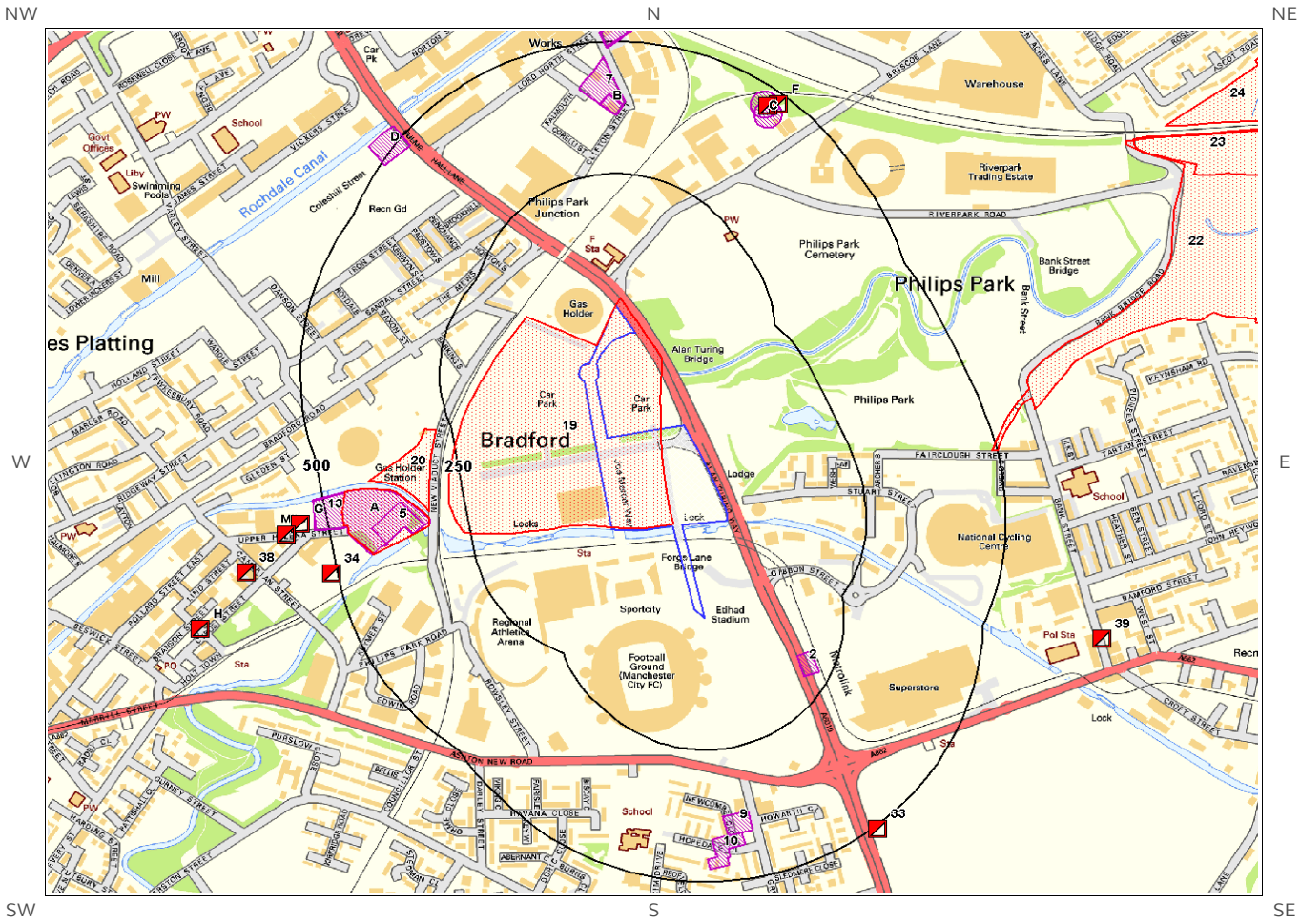
3. Landfill and Other Waste Sites Map



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Site Outline

250
500
Search Buffers (m)

EA/NRW Active Landfill

EA/NRW Historic Landfill

BGS / DoE Survey Landfill

Historic and Planned Waste Sites

EA/NRW Licensed Waste Site

Local Authority/Historical Mapping Landfill Records

3. Landfill and Other Waste Sites

3.1 Landfill Sites

3.1.1 Records from Environment Agency/Natural Resources Wales landfill data within 1000m of the study site:

0

Database searched and no data found.

3.1.2 Records of Environment Agency/Natural Resources Wales historic landfill sites within 1500m of the study site:

10

The following landfill records are represented as either points or polygons on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details	
19	0	On Site		Site Address: Bradford Road Works, Bradeley Hall Road, Haslington, Crewe, 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-Dec-1979 Licence Surrendered: 14-Dec-1983 Licence Holder Address: Welman House, Altrincham, Cheshire Operator: - Licence Holder: North West Gas First Recorded: 07-Dec-1979 Last Recorded: 01-Dec-1983
20	277	W		Site Address: New Viaduct Street, Greater Manchester Waste Licence: - Site Reference: F045 Waste Type: - Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: - Last Recorded: -
21A	319	W		Site Address: Bradford Road - Cambrian Street Depot, Greater Manchester Waste Licence: Yes Site Reference: F044, RD/LIC/381/84 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 10-Oct-1985 Licence Surrendered: 09-Mar-1993 Licence Holder Address: - Operator: - Licence Holder: Regional Surveyore (North West Gas) First Recorded: 31-Dec-1985 Last Recorded: 31-Dec-1990
22	492	E		Site Address: Clayton Vale Power Station, Bank Bridge Road, Manchester Waste Licence: Yes Site Reference: RD/LIC/045/76,GDO F001 Waste Type: Inert, Industrial, Commercial, Household, Special, Liquid sludge Environmental Permitting Regulations	Licence Issue: 01-Jan-1974 Licence Surrendered: Licence Holder Address: Europa House, Birdhall Lane, Cheadle Heath, Stockport Operator: - Licence Holder: Central Electricity Generating Board

ID	Distance (m)	Direction	NGR	Details	
				(Waste) Reference: -	First Recorded: 31-Dec-1965 Last Recorded: 31-Dec-1968
23	964	E		Site Address: Clayton Vale, Clayton, Manchester, Greater Manchester Waste Licence: - Site Reference: - Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: Central Electricity Generating Board Licence Holder: - First Recorded: 31-Dec-1901 Last Recorded: -
24	1029	E		Site Address: Clayton Vale Power Station, Bank Bridge Road, Manchester Waste Licence: Yes Site Reference: GDO F001,RD/LIC/045/76 Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 12-Mar-1979 Licence Surrendered: 21-Jul-1983 Licence Holder Address: Europa House, Birdhall Lane, Cheadle Heath, Stockport Operator: - Licence Holder: Central Electricity Generating Board First Recorded: 31-Dec-1901 Last Recorded: 31-Dec-1980
Not shown	1091	NE		Site Address: Land adjacent to Mitchell Street, Mitchell Street, Newton Heath, Manchester, Greater Manchester Waste Licence: Yes Site Reference: F008, RD/LIC/013/76 Waste Type: Inert, Industrial, Commercial, Household Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 10-Jul-1978 Licence Surrendered: 14-Oct-1985 Licence Holder Address: Taylor Road, Urmston, Manchester Operator: - Licence Holder: Messrs H Evers First Recorded: 01-May-1973 Last Recorded: 31-Dec-1984
Not shown	1282	SW		Site Address: Palmerston Street Landfill, Great Ancoats Street, River Medlock, Ardwick, Manchester, Greater Manchester Waste Licence: Yes Site Reference: RD/LIC/440/86, F046 Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 20-Aug-1986 Licence Surrendered: 21-Jul-1988 Licence Holder Address: Clarence House, Mellor Road, Cheadle Hulme, Stockport Operator: - Licence Holder: Peter Birse Limited First Recorded: 01-Sep-1986 Last Recorded: 31-Dec-1987
Not shown	1424	E		Site Address: Stockport Branch Canal, Greater Manchester Waste Licence: - Site Reference: F056 Waste Type: Inert, Liquid sludge Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: - Last Recorded: -
Not shown	1460	N		Site Address: Moston Brook, Northampton Road, Harpurhey, Manchester, Greater Manchester Waste Licence: Yes Site Reference: F006 Waste Type: Inert, Industrial, Commercial, Household, Special, Liquid sludge Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 01-Jan-1974 Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: Manchester City Council First Recorded: 01-May-1974 Last Recorded: 01-Dec-1977

3.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site:

1

The following landfill records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details	
Not shown	1240	NE	388000.0 399500.0	Address: Clayton Vale, Clayton, Manchester 11 BGS Number: 2777.0	Risk: No risk to aquifer Waste Type: N/A

3.1.4 Records of Landfills from Local Authority and Historical Mapping Records within 1500m of the study site:

2

The following landfill records are represented as points or polygons on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Site Address	Source	Data Type
Not shown	1089	NE	387624 400249	Briscoe Lane Lanfill	Manchester City Council	Polygon
Not shown	1435	E	388351 399268	Refuse Tip	1965 mapping	Polygon

3.2 Other Waste Sites

3.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site:

17

The following waste treatment, transfer or disposal sites records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details		
2	181	SE	387092 398532	Type of Site: Scrap Yard Site Address: N/A	Planning Application Reference: N/A Date: 1988	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
3A	317	W	386309 398800	Type of Site: Refuse Destructor Site Address: N/A	Planning Application Reference: N/A Date: 1955	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
4A	317	W	386309 398800	Type of Site: Corporation Refuse Destructor Site Address: N/A	Planning Application Reference: N/A Date: 1948	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
5	329	W	386356 398800	Type of Site: Refuse Destructor	Planning Application Reference: N/A	Further Details: N/A Data Source: Historic Mapping

ID	Distance (m)	Direction	NGR	Details		
				Site Address: N/A	Date: 1958	Data Type: Polygon
6B	360	N	386739 399591	Type of Site: Scrap Metal Works Site Address: N/A	Planning Application Reference: N/A Date: 1952	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
7	361	N	386722 399627	Type of Site: Scrap Metal Works Site Address: N/A	Planning Application Reference: N/A Date: 1970	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
8B	361	N	386740 399592	Type of Site: Scrap Metal Works Site Address: N/A	Planning Application Reference: N/A Date: 1979	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
9	374	S	386966 398230	Type of Site: Scrap Metal Yard Site Address: N/A	Planning Application Reference: N/A Date: 1956	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
10	412	S	386945 398177	Type of Site: Scrap Metal Yard Site Address: N/A	Planning Application Reference: N/A Date: 1956	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
11C	429	NE	387020 399573	Type of Site: Waste Transfer Station Site Address: MCR Central Skips, Off, Briscoe Lane, Arkady, Industrial Estate, Newton, MANCHESTER, Greater Manchester, M40 2XP	Planning Application Reference: 094574/WST/2010/N1 Date: 29/01/2012	Further Details: Scheme comprises change of use of part of site to form Waste Transfer Station incorporating: construction of a sorting shed; siting of a two storey prefabricated building with lean to extension to form canteen and office; installation of a weigh bridge and plant; and associated 5 metre high lighting columns and CCTV. Construction block, metal cladding walls; lighting columns site works. An application (ref: 094574/WST/2010/N1) for detailed planning permission was granted by Manchester C.C. A detailedplanning application has been granted. Data Source: Historic Planning Application Data Type: Point
12C	440	NE	387015 399591	Type of Site: Materials Reclamation Facility Site Address: 1-3, Arkady Industrial Estate Off, Briscoe Lane, Manchester, Greater Manchester, M40 2XG	Planning Application Reference: 105165/WST/2014/N1 Date: -	Further Details: Scheme comprises part retrospective application for use of land as a materials reclamation facility (MRF), including the construction of 2 industrial storage sheds, external picking station and siting of portacabins, together with creation of car park and construction of fencing. The associated works include sewer systems, landscaping, infrastructure, enabling works and access roads. Data Source: Historic Planning Application Data Type: Point

ID	Distance (m)	Direction	NGR	Details		
13	459	W	386232 398820	Type of Site: Scrap Yard Site Address: N/A	Planning Application Reference: N/A Date: 1986	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
14D	477	NW	386341 399514	Type of Site: Waste & c. Mills Site Address: N/A	Planning Application Reference: N/A Date: 1908	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
15D	477	NW	386341 399514	Type of Site: Waste & c. Mills Site Address: N/A	Planning Application Reference: N/A Date: 1922	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
16E	489	N	386749 399728	Type of Site: Scrap Yard Site Address: N/A	Planning Application Reference: N/A Date: 1979	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
17E	490	N	386747 399728	Type of Site: Scrap Yard Site Address: N/A	Planning Application Reference: N/A Date: 1989	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
18E	491	N	386747 399729	Type of Site: Scrap Yard Site Address: N/A	Planning Application Reference: N/A Date: 1995	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon

3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site:

52

The following waste treatment, transfer or disposal sites records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details	
29C	467	NE	387020 399590	Site Address: Yard 3, Arkady Ind Est, Brisco Lane, Newton Heath, Manchester, Lancs, M40 2XG Type: 75kte HCI Waste TS + treatment Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MCR002 EPR reference: EA/EPR/VP3594VS/A001 Operator: M C R Central Skips Ltd Waste Management licence No: 102576 Annual Tonnage: 74999.0	Issue Date: 08/09/2011 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: M C R Central Skips Ltd Correspondence Address: -
30F	480	NE	387038 399593	Site Address: Yard 3, Arkady Ind Est, Brisco Lane, Newton Heath, Manchester, Gt Manchester, M40 2XG Type: 75kte HCI Waste TS + treatment Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WWS010 EPR reference: EA/EPR/NB3239AE/V003 Operator: D M R Recycling (M/ C R) Limited Waste Management licence No: 102576 Annual Tonnage: 74999.0	Issue Date: 08/09/2011 Effective Date: 18/02/2013 Modified: 18/03/2014 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Wright Waste Solutions Waste Transfer Station Correspondence Address: -
31F	480	NE	387038	Site Address: Yard 3, Arkady Ind Est, Brisco	Issue Date: 08/09/2011

ID	Distance (m)	Direction	NGR	Details	
			399593	Lane, Newton Heath, Manchester, M40 2XG Type: 75kte HCI Waste TS + treatment Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WWS010 EPR reference: EA/EPR/NB3239AE/V003 Operator: D M R Recycling (MCr) Limited Waste Management licence No: 102576 Annual Tonnage: 74999.0	Effective Date: 18/02/2013 Modified: 18/03/2014 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Revoked Site Name: Wright Waste Solutions Waste Transfer Station Correspondence Address: -
32F	480	NE	387038 399593	Site Address: Yard 3, Arkady Ind Est, Brisco Lane, Newton Heath, Manchester, Gt Manchester, M40 2XG Type: 75kte HCI Waste TS + treatment Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WWS010 EPR reference: EA/EPR/NB3239AE/V002 Operator: Wright Waste Solutions Ltd Waste Management licence No: 102576 Annual Tonnage: 74999.0	Issue Date: 08/09/2011 Effective Date: 18/02/2013 Modified: 07/03/2013 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Wright Waste Solutions Waste Transfer Station Correspondence Address: -
33	506	SE	387218 398220	Site Address: Land/premises At, Score Street, Clayton, Manchester, M11 2SN Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: FWS001 EPR reference: EA/EPR/JP3092CU/S002 Operator: F W Singleton Ltd Waste Management licence No: 53626 Annual Tonnage: 383333.272	Issue Date: 08/12/1995 Effective Date: - Modified: - Surrendered Date: May 23 2013 12:00AM Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: F W Singleton Ltd Correspondence Address: -
34	511	W	386236 398704	Site Address: Holt Town Ind Est, Holt Town, Manchester, M40 7FQ Type: 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: 50000.0	Issue Date: 03/11/1995 Effective Date: - Modified: - Surrendered Date: Jun 26 2002 12:00AM Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: P Mc Guiness & Co Ltd Correspondence Address: -
35G	549	W	386180 398798	Site Address: Upper Helena Street, Manchester, M40 7EQ Type: 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: 5000.0	Issue Date: 18/11/1999 Effective Date: - Modified: - Surrendered Date: Jun 14 2004 12:00AM Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: D Race & Sons Correspondence Address: -
36G	577	W	386155 398777	Site Address: - Type: 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: 0.0	Issue Date: 16/05/2001 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Upper Helena Street Correspondence Address: Bradley Hall Farm, Rhodes Green, Middleton, Manchester, M24 4SL
37G	577	W	386155 398777	Site Address: - Type: Household, Commercial & Industrial	Issue Date: 16/05/2001 Effective Date: -

ID	Distance (m)	Direction	NGR	Details	
				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: 0.0	Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Upper Helena Street Correspondence Address: Bradley Hall Farm, Rhodes Green, Middleton, Manchester, M24 4SL
38	660	W	386084 398706	Site Address: Union Mill, 1, Cambrian Street, Ancoats, Manchester, M40 7EG Type: 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: 1040.0	Issue Date: 07/06/2005 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Expired Site Name: Olympia Motor Services Correspondence Address: -
39	708	E	387620 398580	Site Address: Bank Street, Clayton, Manchester, M11 4BT Type: Material Recycling Treatment Facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: RPL004 EPR reference: EA/EPR/GP3192CM/V002 Operator: Recon Packaging Ltd Waste Management licence No: 53467 Annual Tonnage: 416.667	Issue Date: 04/12/1998 Effective Date: - Modified: 24/08/2016 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Recon Packaging Ltd Correspondence Address: -
40H	764	W	386000 398600	Site Address: - Type: 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: 0.0	Issue Date: 16/05/2001 Effective Date: 07/10/2004 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Transferred Site Name: Lumns Lane, Clifton Junction, Swinton Correspondence Address: Central House, 299, Grimshaw Lane, Middleton, Manchester, M40 2AT
41H	764	W	386000 398600	Site Address: Upper Helena Street, Manchester, M40 7EQ Type: 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: 24999.0	Issue Date: 16/05/2001 Effective Date: 07/10/2004 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Expired Site Name: Lumns Lane, Clifton Junction, Swinton Correspondence Address: -
Not shown	821	N	386465 399982	Site Address: Land At The Junction Of, Cheetham Street & Goodier Street, Oldham Road, Manchester, M40 2BP Type: Metal Recycling Site (mixed MRS's) Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: TSG002 EPR reference: - Operator: The Sheppard Group Ltd Waste Management licence No: 53767 Annual Tonnage: 0.0	Issue Date: 12/10/1993 Effective Date: - Modified: 09/08/2004 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: European Metal Recycling Ltd Correspondence Address: Alexandra Building, Alexandra Dock 1, Bootle, Liverpool, Merseyside, L20 1BX
Not	821	N	386465	Site Address: Land At The Junction Of,	Issue Date: 12/10/1993

ID	Distance (m)	Direction	NGR	Details	
shown			399982	Cheetham Street & Goodier Street, Oldham Road, Manchester, M40 2BP Type: Metal Recycling Site (mixed MRS's) Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: TSG002 EPR reference: - Operator: The Sheppard Group Ltd Waste Management licence No: 53767 Annual Tonnage: 28800.0	Effective Date: - Modified: 06/08/2002 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: European Metal Recycling Ltd Correspondence Address: Alexandra Building, Alexandra Dock 1, Bootle, Liverpool, Merseyside, L20 1BX
Not shown	821	N	386465 399982	Site Address: Land At The Junction Of, Cheetham Street & Goodier Street, Oldham Road, Manchester, M40 2BP Type: Metal Recycling Site (mixed MRS's) Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: EUR005 EPR reference: EA/EPR/FP3896CB/V004 Operator: European Metal Recycling Ltd Waste Management licence No: 53767 Annual Tonnage: 75000.0	Issue Date: 12/10/1993 Effective Date: 11/01/2005 Modified: 04/01/2005 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Expired Site Name: European Metal Recycling Ltd Correspondence Address: -
Not shown	836	N	386831 400043	Site Address: Navigation Trading Estate, Bower Street, Newton Heath, Manchester, M40 2AR Type: Material Recycling Treatment Facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: RPL003 EPR reference: EA/EPR/EP3192CS/V004 Operator: Recon Packaging Ltd Waste Management licence No: 53559 Annual Tonnage: 585.0	Issue Date: 12/03/1997 Effective Date: - Modified: 23/10/2014 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Newton Heath Recycling Treatment Facility Correspondence Address: -
Not shown	840	N	386446 399995	Site Address: Land/premises At, Irlam Street, Off Irlam Road, Manchester, M40 2BP Type: Metal Recycling Site (mixed MRS's) Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: EUR004 EPR reference: EA/EPR/FP3194CG/V002 Operator: European Metal Recycling Ltd Waste Management licence No: 50355 Annual Tonnage: 75000.0	Issue Date: 04/01/2005 Effective Date: - Modified: 11/12/2009 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: European Metal Recycling Ltd Correspondence Address: -
Not shown	861	N	386846 400067	Site Address: Manchester Drums Ltd, Bower Street, Newton Heath, Manchester, M40 2AF Type: Material Recycling Treatment Facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: NCG001 EPR reference: EA/EPR/GB3603MZ/T001 Operator: N C G - M D L U K Limited Waste Management licence No: 53488 Annual Tonnage: 416.667	Issue Date: 12/08/1998 Effective Date: 03/11/2018 Modified: 09/06/2014 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Transferred Site Name: Manchester Drums Ltd Correspondence Address: -
Not shown	861	N	386846 400067	Site Address: Manchester Drums Ltd, Bower Street, Newton Heath, Manchester, M40 2AF Type: Material Recycling Treatment Facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: NCG001 EPR reference: EA/EPR/GB3603MZ/T001 Operator: N C G - M D L U K Limited	Issue Date: 12/08/1998 Effective Date: 03/11/2018 Modified: 09/06/2014 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Transferred Site Name: Manchester Drums Ltd Correspondence Address: -

ID	Distance (m)	Direction	NGR	Details	
				Waste Management licence No: 53488 Annual Tonnage: 416.667	
Not shown	861	N	386846 400067	Site Address: Manchester Drums Ltd, Bower Street, Newton Heath, Manchester, M40 2AF Type: Material Recycling Treatment Facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MAN009 EPR reference: EA/EPR/TP3692CL/V002 Operator: Manchester Drums Ltd Waste Management licence No: 53488 Annual Tonnage: 416.667	Issue Date: 12/08/1998 Effective Date: 02/11/2001 Modified: 09/06/2014 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Manchester Drums Ltd Correspondence Address: -
Not shown	992	SE	387544 397858	Site Address: Unit 4, Wilson Street, Openshaw, Manchester, M11 2AZ Type: ELV Facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: VAN005 EPR reference: EA/EPR/EP3194CX/A001 Operator: Vanparts Limited Waste Management licence No: 50399 Annual Tonnage: 1040.0	Issue Date: 16/01/2006 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Van Parts Ltd Correspondence Address: -
Not shown	1016	SE	387591 397868	Site Address: Unit 1, 108, Wilson Street, Openshaw, Manchester, M11 2AZ Type: Vehicle Depollution Facility <5000 tps Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ASW003 EPR reference: EA/EPR/GP3495VF/V002 Operator: A S Waste Removals Ltd Waste Management licence No: 101518 Annual Tonnage: 4999.0	Issue Date: 17/06/2010 Effective Date: - Modified: 25/05/2011 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: A S Waste Removals Ltd Correspondence Address: -
Not shown	1016	SE	387591 397868	Site Address: Unit 1, 108, Wilson Street, Openshaw, Manchester, Lancs, M11 2AZ Type: 75kte Vehicle Depollution Facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ASW003 EPR reference: GP3495VF/A001 Operator: A S Waste Removals Ltd Waste Management licence No: 101518 Annual Tonnage: 0.0	Issue Date: 17/06/2010 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: A S Waste Removals Ltd Correspondence Address: -
Not shown	1017	NW	386210 400075	Site Address: Land Adjacent To 498 Oldham Road, Miles Platting, Manchester, M40 5AA Type: Inert & Excavation WTS with treatment Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: NOR002 EPR reference: EA/EPR/EB3301HD/A001 Operator: Northbank Demolition Company Limited Waste Management licence No: 403404 Annual Tonnage: 249999.0	Issue Date: 25/07/2016 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Aggregate & Soil Recycling Facility Correspondence Address: -
Not shown	1017	NW	386210 400075	Site Address: Land Adj To, 498, Oldham Road, Miles Platting, Manchester, M40 5AA Type: Inert & Excavation WTS with treatment Size: < 25000 tonnes Environmental Permitting Regulations	Issue Date: 23/12/2011 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Revoked

ID	Distance (m)	Direction	NGR	Details	
				(Waste) Licence Number: CON132 EPR reference: EA/EPR/DB3630DJ/A001 Operator: Anthony O' Connor & Sons Ltd Waste Management licence No: 103632 Annual Tonnage: 250000.0	Site Name: Anthony O' Connor & Sons Ltd Correspondence Address: -
Not shown	1017	NW	386210 400075	Site Address: Land Adj To, 498, Oldham Road, Miles Platting, Manchester, Lancs, M40 5AA Type: Inert & Excavation WTS with treatment Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: CON132 EPR reference: EA/EPR/DB3630DJ/A001 Operator: Anthony O' Connor And Sons Ltd Waste Management licence No: 103632 Annual Tonnage: 250000.0	Issue Date: 23/12/2011 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Anthony O' Connor And Sons Ltd Correspondence Address: -
Not shown	1041	NW	386258 400130	Site Address: Old Leaches Yard, Beckford Street, Miles Platting, Manchester, M40 5AE Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: BEN007 EPR reference: EA/EPR/CP3892CN/T001 Operator: Anthony & Darren James Benson Waste Management licence No: 53518 Annual Tonnage: 5000.0	Issue Date: 09/02/1993 Effective Date: 02/07/2004 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Transferred Site Name: Bensons For Skips Correspondence Address: -
Not shown	1044	NW	386200 400100	Site Address: Beckford Street, Miles Platting, Manchester, M40 5AE Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: BAH001 EPR reference: - Operator: Hibbert Brian Anthony Waste Management licence No: 53518 Annual Tonnage: 416.667	Issue Date: 09/02/1993 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Old Leaches Builders Yard Correspondence Address: 63, Brierley Avenue, Failsworth, Manchester, M35 0RF
Not shown	1047	NW	385954 399895	Site Address: Collyhurst Street, Manchester, M40 8RR Type: Transfer Station taking Non-Biodegradable Wastes Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: GBR001 EPR reference: EA/EPR/FB3200UX/A001 Operator: G B Railfreight Limited Waste Management licence No: 404063 Annual Tonnage: 299999.0	Issue Date: 18/08/2017 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Collyhurst Street Waste Transfer Station Correspondence Address: -
Not shown	1188	S	386652 397459	Site Address: 8, Tuley Street, Gorton, Manchester, M11 2DY Type: Vehicle Depollution Facility <5000 tps Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ANY032 EPR reference: EA/EPR/AB3133RU/A001 Operator: Anyaeriuba Emmanuel Waste Management licence No: 102972 Annual Tonnage: 4999.0	Issue Date: 27/07/2011 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Breakers Yard, 8 Tuley Street Correspondence Address: -
Not	1201	SW	386370	Site Address: Ashton Old Road Recycling	Issue Date: 11/05/2012

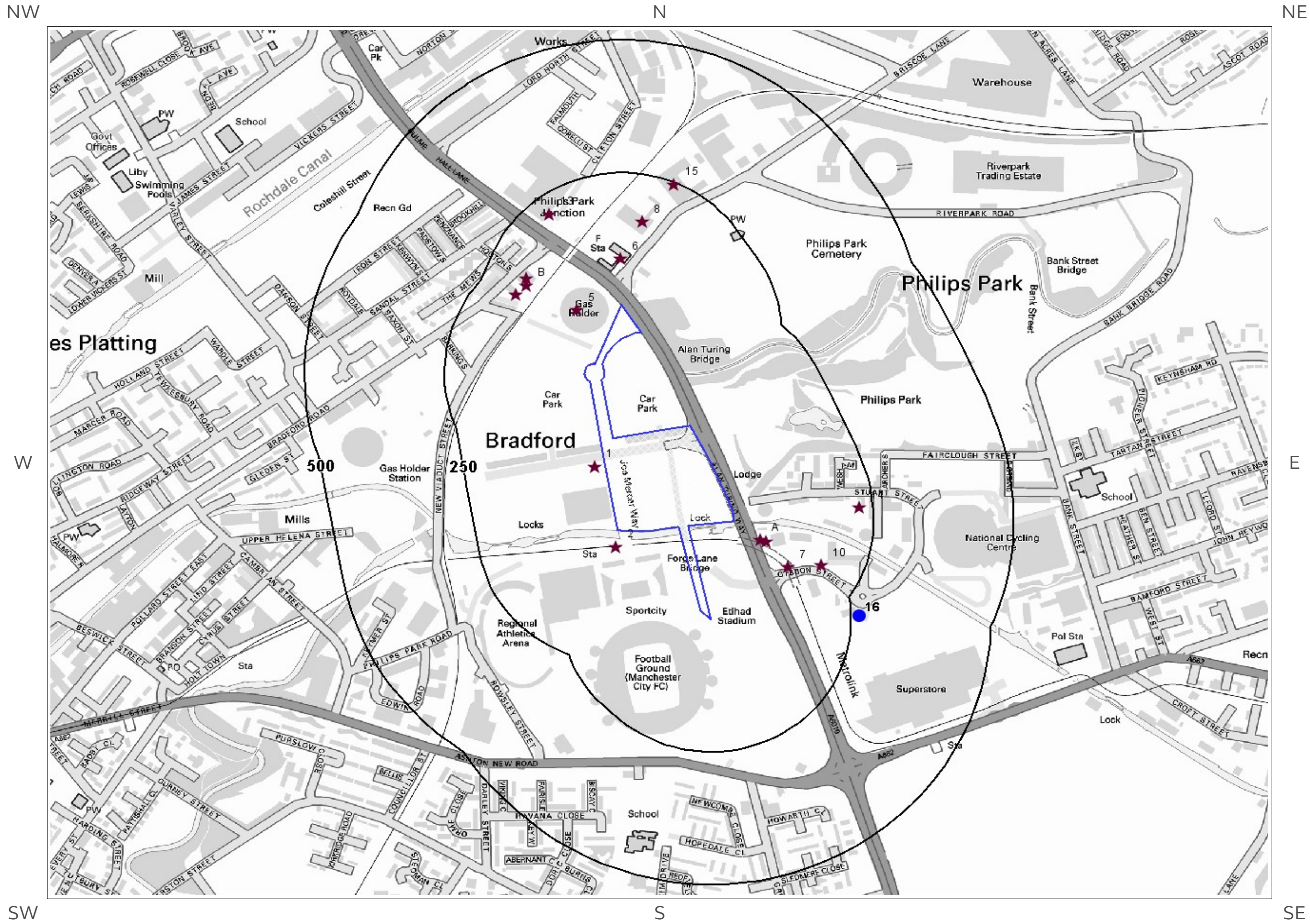
ID	Distance (m)	Direction	NGR	Details	
shown			397545	Depot, Ashton Old Road, Manchester, M11 2XX Type: Treatment of waste to produce soil <75,000 tpy Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WMA012 EPR reference: EA/EPR/GB3930AM/A001 Operator: W Maher & Sons Ltd Waste Management licence No: 104212 Annual Tonnage: 74999.0	Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Ashton Old Road Recycling Depot Correspondence Address: -
Not shown	1212	S	386845 397409	Site Address: Singleton's Scrap Metal Ltd, Land Off Wolveton Street, Openshaw, Manchester, M11 2DU Type: Vehicle Depollution Facility <5000 tps Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: FWS011 EPR reference: EA/EPR/KB3534RB/S002 Operator: F W Singleton Limited Waste Management licence No: 104629 Annual Tonnage: 0.0	Issue Date: 20/08/2012 Effective Date: - Modified: - Surrendered Date: Oct 24 2012 12:00AM Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Singleton's Scrap Metal Ltd Correspondence Address: -
Not shown	1217	S	386845 397404	Site Address: Singleton's Scrap Metal, Land Of Wolveton Street, Manchester, M11 2DU Type: Household, Commercial & Industrial Waste T Stn Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: FWS010 EPR reference: EA/EPR/JB3731RJ/A001 Operator: F W Singleton Ltd Waste Management licence No: 104515 Annual Tonnage: 74999.0	Issue Date: 17/09/2012 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Singleton's Scrap Metal Correspondence Address: -
Not shown	1241	S	386681 397399	Site Address: Iwaste Ltd, Gorton Road, Gorton, Manchester, M11 2DZ Type: Vehicle Depollution Facility <5000 tps Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: IWA002 EPR reference: EA/EPR/KB3238RL/A001 Operator: Iwaste Ltd Waste Management licence No: 104595 Annual Tonnage: 4999.0	Issue Date: 25/10/2012 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Iwaste Ltd Correspondence Address: -
Not shown	1279	S	386750 397350	Site Address: Land/premises At, Gorton Road, Gorton, Manchester, M11 2DZ Type: ELV Facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: AUT005 EPR reference: EA/EPR/UP3594CX/A001 Operator: Auto Salvage Holtown Ltd Waste Management licence No: 50275 Annual Tonnage: 2500.0	Issue Date: 14/05/2004 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Expired Site Name: Auto Salvage Holtown Ltd Correspondence Address: -
Not shown	1308	S	386785 397317	Site Address: Land/premises At, Gorton Road, Ardwick, Manchester, M11 2DZ Type: ELV Facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: TDX002 EPR reference: EA/EPR/MP3594CJ/A001 Operator: T D X Ltd Waste Management licence No: 50264 Annual Tonnage: 2500.0	Issue Date: 28/02/2005 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Southside Railway Sidings Correspondence Address: -

ID	Distance (m)	Direction	NGR	Details	
Not shown	1313	SW	386160 397540	Site Address: Units 15, Rondin Close, Ardwick, Manchester, M12 6BF Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MCG002 EPR reference: EA/EPR/RP3098CB/A001 Operator: P Mc Guinness & Co Ltd Waste Management licence No: 50105 Annual Tonnage: 4999.0	Issue Date: 09/08/2002 Effective Date: - Modified: 21/12/2004 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Expired Site Name: P Mc Guinness & Co Transfer Station Correspondence Address: -
Not shown	1324	SW	386200 397500	Site Address: - Type: Household, Commercial & Industrial Waste T Stn Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ACA001 EPR reference: - Operator: Cash Anthony Waste Management licence No: 53760 Annual Tonnage: 6250.0	Issue Date: 16/12/1993 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Birch Plant & Waste Services Ltd Correspondence Address: -
Not shown	1324	SW	386200 397500	Site Address: Unit 12, Rondin Road, Ardwick, Manchester, M12 6BF Type: Household, Commercial & Industrial Waste T Stn Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: BIR071 EPR reference: - Operator: Birch Skip Hire Ltd. Waste Management licence No: 53760 Annual Tonnage: 6250.0	Issue Date: 16/12/1993 Effective Date: 01/05/2008 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Transferred Site Name: Birch Skip Hire Correspondence Address: Unit 12, Rondin Close, Off Ashton Old Road, Manchester, M12 6LL
Not shown	1324	SW	386200 397500	Site Address: Unit 12, Rondin Road, Ardwick, Manchester, M12 6BF Type: Household, Commercial & Industrial Waste T Stn Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: BIR071 EPR reference: EA/EPR/CP3097LW/V002 Operator: Birch Skip Hire Ltd. Waste Management licence No: 53760 Annual Tonnage: 6250.0	Issue Date: 16/12/1993 Effective Date: 01/05/2008 Modified: 15/10/2008 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Revoked Site Name: Birch Skip Hire Correspondence Address: -
Not shown	1324	SW	386200 397500	Site Address: Unit 12, Rondin Road, Ardwick, Manchester, M12 6BF Type: Household, Commercial & Industrial Waste T Stn Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: BIR071 EPR reference: EA/EPR/CP3097LW/V002 Operator: Birch Skip Hire Ltd Waste Management licence No: 53760 Annual Tonnage: 6250.0	Issue Date: 16/12/1993 Effective Date: 01/05/2008 Modified: 15/10/2008 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Revoked Site Name: Birch Skip Hire Correspondence Address: -
Not shown	1336	S	386816 397287	Site Address: Southside Railway Sidings, Gorton Road, Gorton, Manchester, M11 2DZ Type: Metal Recycling Site (Vehicle Dismantler) Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: UCS002 EPR reference: EA/EPR/HB3534AU/T001 Operator: U C S (Manchester) Limited Waste Management licence No: 50464 Annual Tonnage: 2500.0	Issue Date: 19/12/2006 Effective Date: 14/06/2012 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Transferred Site Name: Universal Car Spares Limited Correspondence Address: -

ID	Distance (m)	Direction	NGR	Details	
Not shown	1336	S	386816 397287	Site Address: Southside Railway Sidings, Gorton Road, Gorton, Manchester, M11 2DZ Type: Metal Recycling Site (Vehicle Dismantler) Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: AHM002 EPR reference: EA/EPR/YP3494CK/A001 Operator: Tufail Ahmed And Mohammad Ahmed Waste Management licence No: 50464 Annual Tonnage: 2500.0	Issue Date: 19/12/2006 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Universal Car Spares Correspondence Address: -
Not shown	1407	SW	386314 397344	Site Address: Rondin House, Rondin Road, Ardwick, Manchester, M12 6BF Type: Household, Commercial & Industrial Waste T Stn Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MCG003 EPR reference: EA/EPR/CP3294CX/V004 Operator: P Mc Guinness & Co Ltd Waste Management licence No: 50363 Annual Tonnage: 74999.0	Issue Date: 21/12/2004 Effective Date: - Modified: 24/08/2012 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: P Mc Guinness & Co Ltd Correspondence Address: -
Not shown	1410	SW	386200 397400	Site Address: Rondin House, Rondin Road, Ardwick, Manchester, M12 6BF Type: Household, Commercial & Industrial Waste T Stn Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MCG003 EPR reference: - Operator: P Mc Guinness & Company Ltd Waste Management licence No: 50363 Annual Tonnage: 0.0	Issue Date: 21/12/2004 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: P Mc Guinness & Co Ltd Correspondence Address: Pearl Environmental, 13, Middleton Road, Reddish, Stockport, SK5 6SG
Not shown	1422	SW	386237 397366	Site Address: 22, Rondin Road, Ardwick, Manchester, M12 6BF Type: 75kte Metal Recycling Site Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SIM002 EPR reference: EA/EPR/EB3803ME/T001 Operator: Sims Group U K Ltd Waste Management licence No: 104965 Annual Tonnage: 74999.0	Issue Date: 08/10/2013 Effective Date: 23/01/2017 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Transferred Site Name: Sims Group U K Limited Correspondence Address: -
Not shown	1422	SW	386237 397366	Site Address: 22, Rondin Road, Ardwick, Manchester, M12 6BF Type: 75kte Metal Recycling Site Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SIM002 EPR reference: EA/EPR/EB3803ME/T001 Operator: Sims Group U K Limited Waste Management licence No: 104965 Annual Tonnage: 74999.0	Issue Date: 08/10/2013 Effective Date: 23/01/2017 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Transferred Site Name: Sims Group U K Limited Correspondence Address: -
Not shown	1422	SW	386237 397366	Site Address: 22, Rondin Road, Ardwick, Manchester, M12 6BF Type: 75kte Metal Recycling Site Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: OES001 EPR reference: EA/EPR/MB3832AC/A001 Operator: One51 E S Metals (North) Limited Waste Management licence No: 104965 Annual Tonnage: 74999.0	Issue Date: 08/10/2013 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Howarth Metals Correspondence Address: -

ID	Distance (m)	Direction	NGR	Details	
Not shown	1455	S	386683 397182	Site Address: Vaughan Industrial Estate, Unit 10, Vaughan Street, West Gorton, Manchester, M12 5BT Type: Metal Recycling Site (mixed MRS's) Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: CMR001 EPR reference: EA/EPR/ZP3098CT/A001 Operator: Concorde Metals Recycling Ltd Waste Management licence No: 50030 Annual Tonnage: 0.0	Issue Date: 29/08/2003 Effective Date: - Modified: - Surrendered Date: Dec 6 2011 12:00AM Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Concorde Metals Recycling Correspondence Address: -
Not shown	1465	SW	385960 397502	Site Address: Operational Depot, Hooper Street, Manchester, M12 6LA Type: Inert & Excavation WTS with treatment Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MAN114 EPR reference: EA/EPR/DB3839DD/A001 Operator: Manchester City Council Waste Management licence No: 103692 Annual Tonnage: 249999.0	Issue Date: 15/12/2011 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Hooper Street Depot Correspondence Address: -
Not shown	1492	SE	387759 397394	Site Address: A7 The Dresser Centre, Whitworth Street, Openshaw, Manchester, M11 2NE Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ABE017 EPR reference: EA/EPR/PB3937RD/T001 Operator: Asbestos Clearance And Disposal Services Limited Waste Management licence No: 53947 Annual Tonnage: 30.416	Issue Date: 05/07/1989 Effective Date: 22/05/2013 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Transferred Site Name: A7 The Dresser Centre Correspondence Address: -

4. Current Land Use Map



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Site Outline

Current Industrial Sites

Electricity Transmission Cables

250
500
Search Buffers (m)

Petrol & Fuel Sites

Gas Transmission Pipelines

4. Current Land Uses

4.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site: 15

The following records are represented as points on the Current Land Uses map.

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	19	W	Electricity Sub Station	386699 398908	Greater Manchester, M11	Electrical Features	Infrastructure and Facilities
2	30	S	Etihad Campus (Manchester Metrolink)	386737 398757	Greater Manchester, M11	Tram, Metro and Light Railway Stations and Stops	Public Transport, Stations and Infrastructure
3A	57	SE	Electricity Sub Station	386994 398770	Greater Manchester, M11	Electrical Features	Infrastructure and Facilities
4A	67	SE	Electricity Sub Station	387004 398766	Greater Manchester, M11	Electrical Features	Infrastructure and Facilities
5	70	NW	Gas Holder	386667 399203	Greater Manchester, M40	Gas Features	Infrastructure and Facilities
6	89	N	Philips Park Fire Station	386745 399300	Fire Station, Briscoe Lane, Manchester, Greater Manchester, M40 2XG	Fire Brigade Stations	Central and Local Government
7	127	SE	Electricity Sub Station	387043 398719	Greater Manchester, M11	Electrical Features	Infrastructure and Facilities
8	162	N	Roanza Mercedes Benz Truck & Van	386783 399369	Enza Mercedes Benz, Briscoe Lane, Manchester, Greater Manchester, M40 2NL	Vehicle Repair, Testing and Servicing	Repair and Servicing
9B	171	NW	Bradford Road Car Sales	386577 399249	256, Bradford Road, Manchester, Greater Manchester, M40 7BT	Secondhand Vehicles	Motoring
10	176	SE	Electricity Sub Station	387104 398722	Greater Manchester, M11	Electrical Features	Infrastructure and Facilities
11B	177	NW	Warehouse	386577 399263	Greater Manchester, M40	Container and Storage	Transport, Storage and Delivery
12B	182	NW	J F M Plates	386557 399231	250-252, Bradford Road, Manchester, Greater Manchester, M40 7BT	Printing Related Machinery	Industrial Products
13	216	NW	Electricity Sub Station	386617 399384	Greater Manchester, M40	Electrical Features	Infrastructure and Facilities
14	226	E	Electricity Sub Station	387172 398831	Greater Manchester, M11	Electrical Features	Infrastructure and Facilities
15	247	N	Works	386840 399440	Greater Manchester, M40	Unspecified Works Or Factories	Industrial Features

4.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site: 1

The following petrol or fuel site records provided by Catalist are represented as points on the Current Land Use map:

ID	Distance (m)	Direction	NGR	Company	Address	LPG	Status
16	264	E	387171 398625	ASDA	Alan Turing Way, Bradford, Manchester, Greater Manchester, M11 4BD	No	Open

4.3 National Grid High Voltage Underground Electricity Transmission Cables

This dataset identifies the high voltage electricity transmission lines running between generating power plants and electricity substations. The dataset does not include the electricity distribution network (smaller, lower voltage cables distributing power from substations to the local user network). This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high voltage underground electricity transmission cables within 500m of the study site: 0

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

This dataset identifies high-pressure, large diameter pipelines which carry gas between gas terminals, power stations, compressors and storage facilities. The dataset does not include the Local Transmission System (LTS) which supplies gas directly into homes and businesses. This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high pressure gas transmission pipelines within 500m of the study site: 0

Database searched and no data found.

5. Geology

5.1 Artificial Ground and Made Ground

The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

5.2 Superficial Ground and Drift Geology

The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON

5.3 Bedrock and Solid Geology

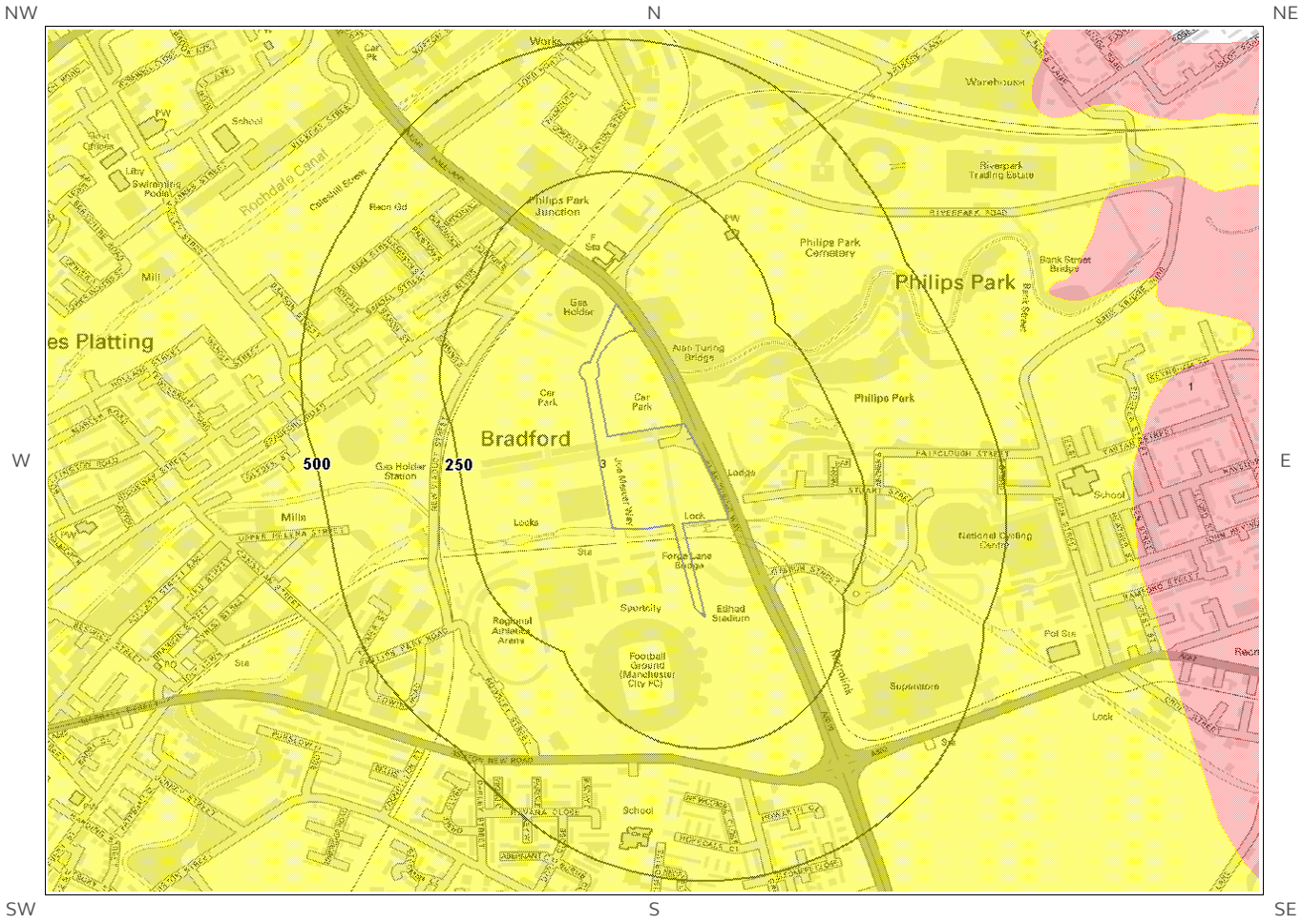
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
PUCM-MDSS	PENNINE UPPER COAL MEASURES FORMATION	MUDSTONE, SILTSTONE AND SANDSTONE

(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

6 Hydrogeology and Hydrology

6a. Aquifer Within Superficial Geology



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Site Outline

250
500
Search Buffers (m)

Principal Aquifer

Secondary (A) Aquifer - Permeable Layers

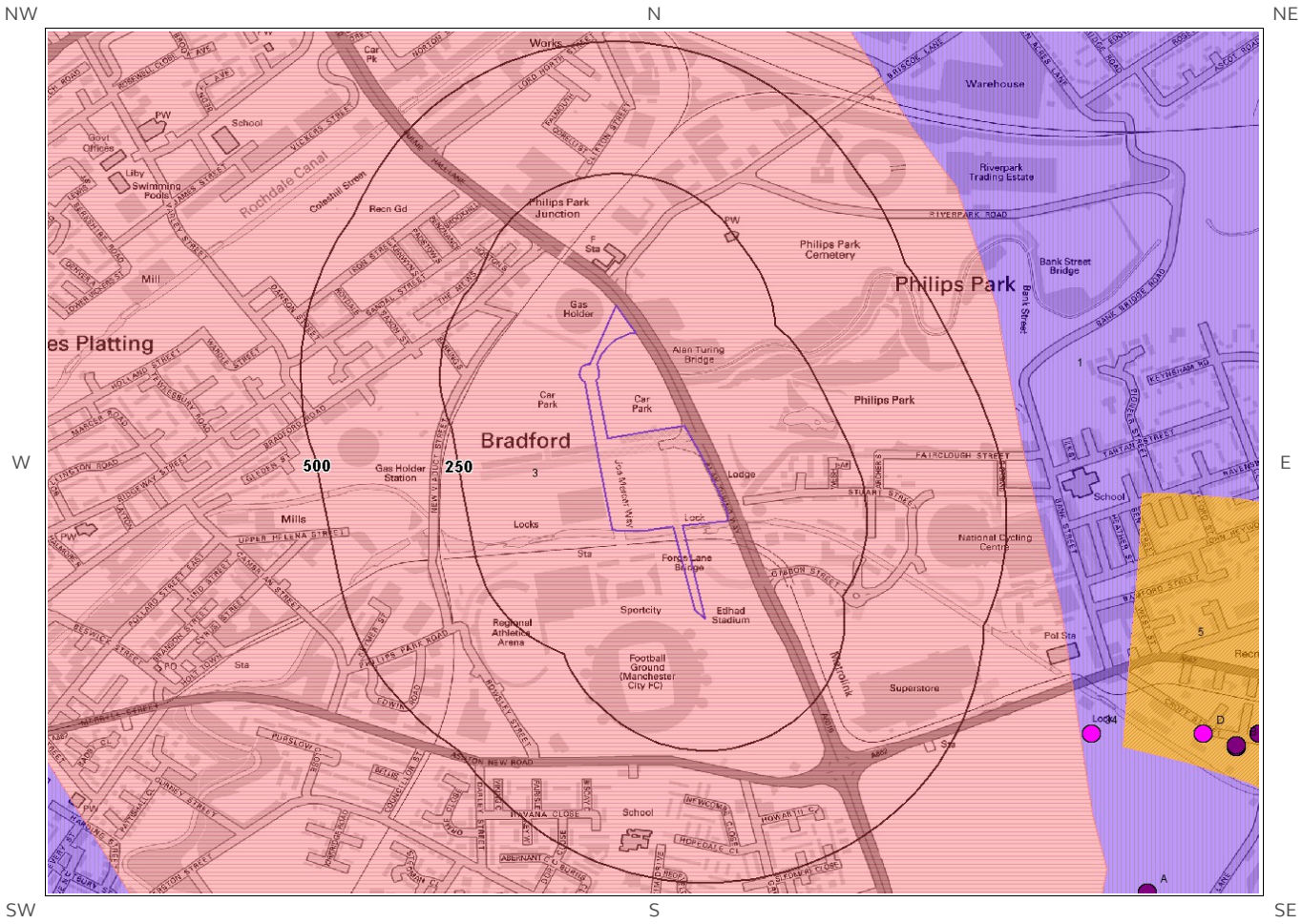
Secondary (B) Aquifer - Lower Permeability Layers

Secondary Aquifer - Undifferentiated Layers

Unproductive

Unknown (lakes and landslip)

6b. Aquifer Within Bedrock Geology and Abstraction Licences



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Site Outline

250
500
Search Buffers (m)

Principal Aquifer

Secondary (A) Aquifer - Permeable Layers

Secondary (B) Aquifer - Lower Permeability Layers

Groundwater Abstraction Licence

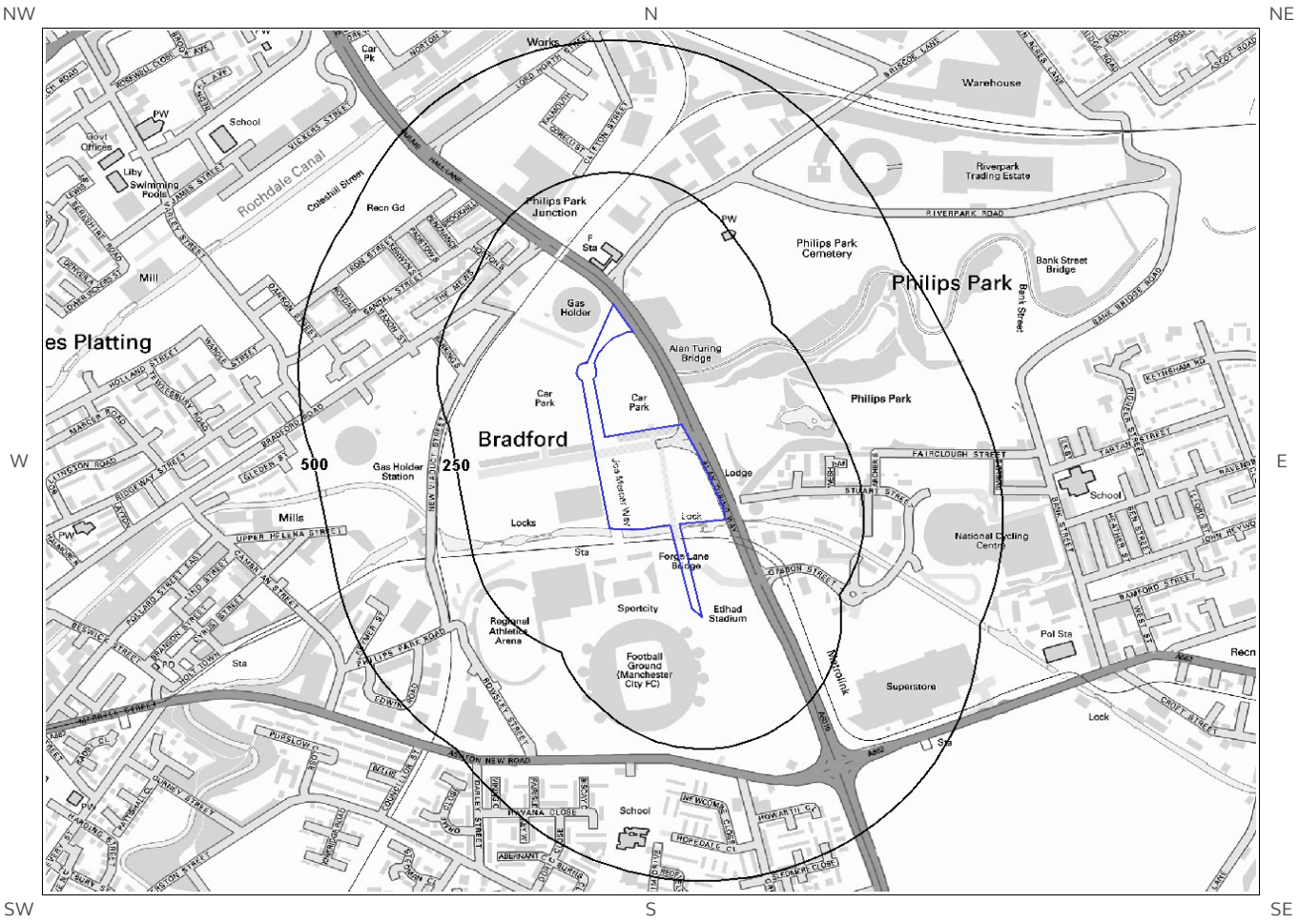
Secondary Aquifer - Undifferentiated Layers

Unproductive

Unknown (lakes and landslip)

Surface Water Abstraction Licence

6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences



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Site Outline

250
500
Search Buffers (m)

Source Protection Zone 1 - Inner Catchment

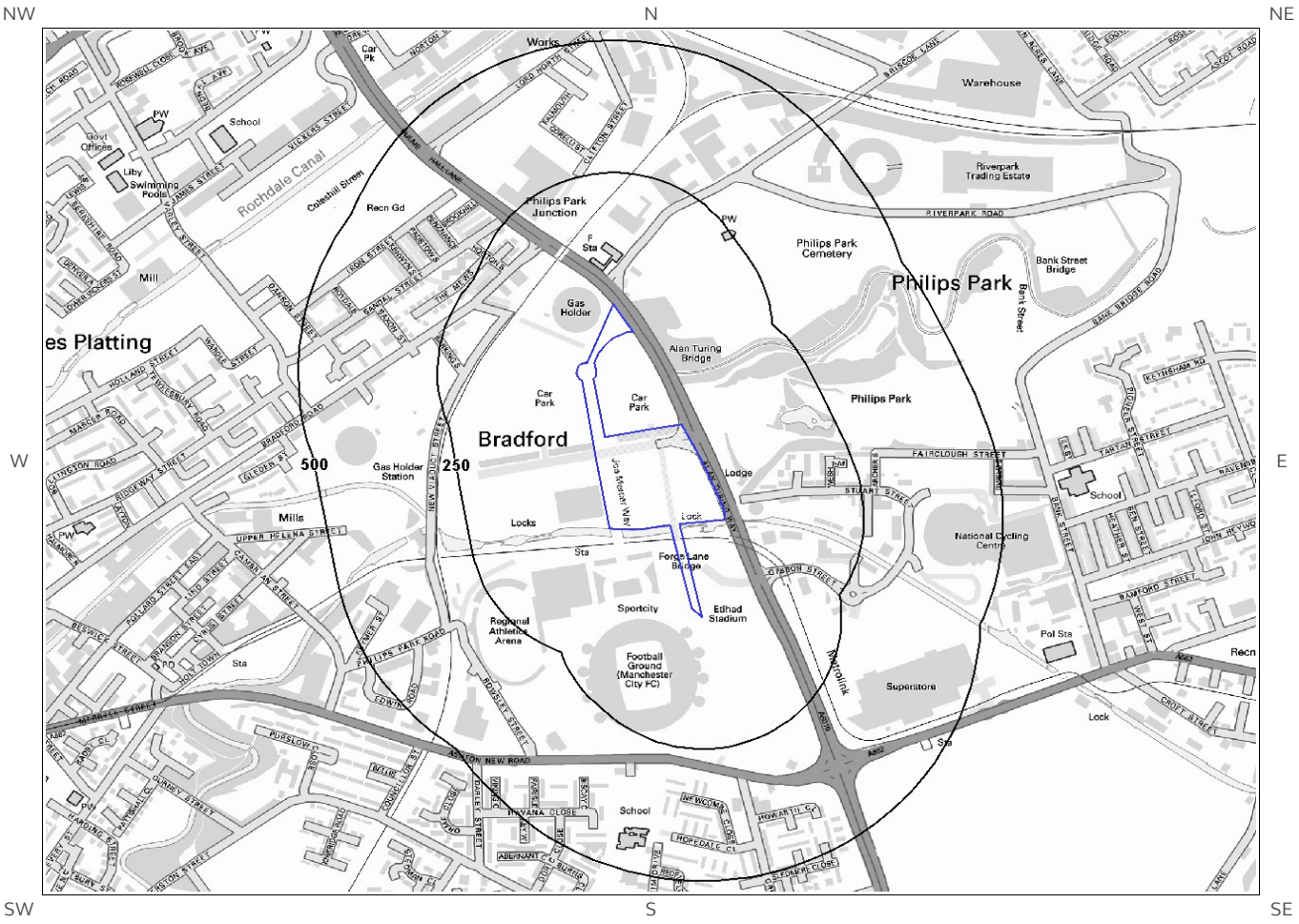
Source Protection Zone 2 - Outer Catchment

Source Protection Zone 3 - Total Catchment

Source Protection Zone 4 - Zone of Special Interest

Potable Water Abstraction Licence

6d. Hydrogeology – Source Protection Zones within confined aquifer



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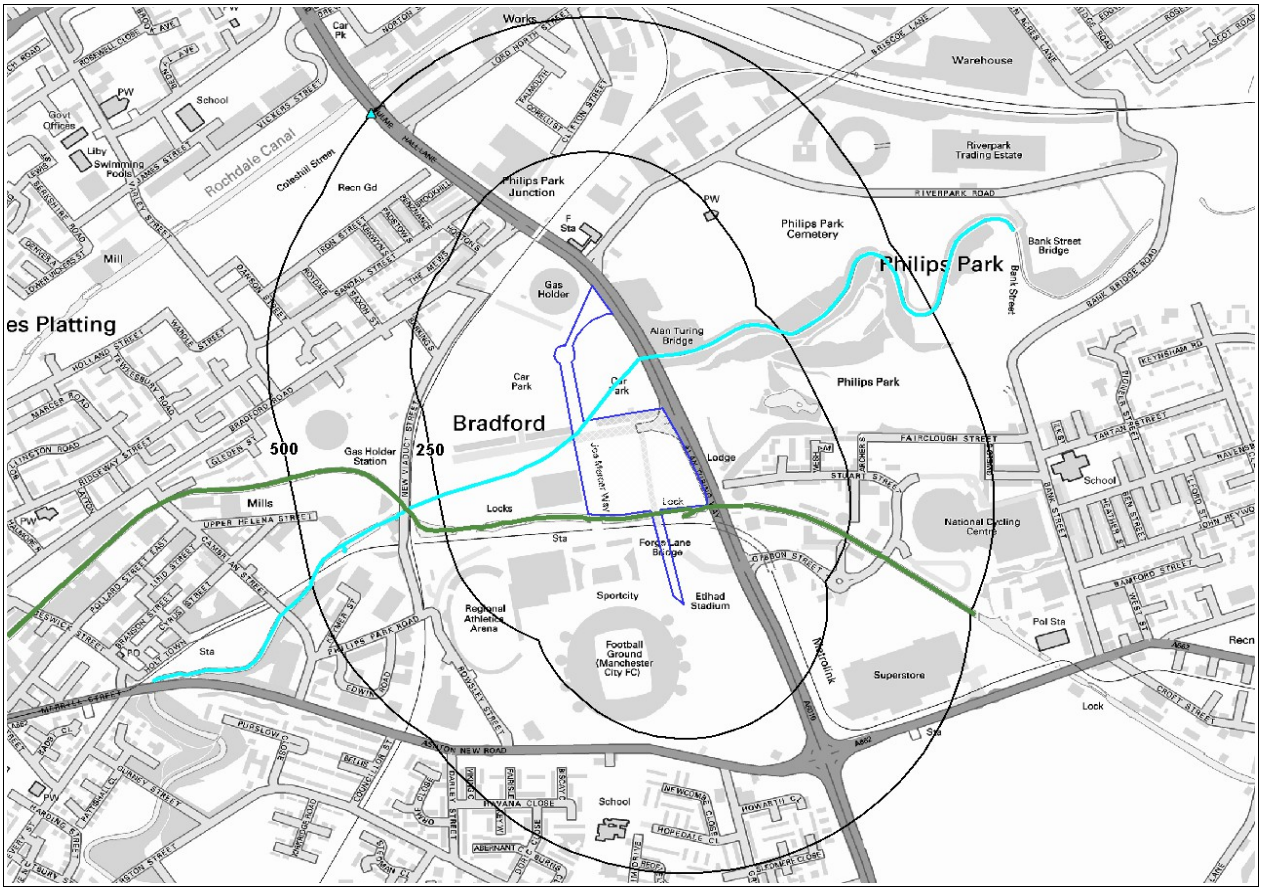
6e. Hydrology – Watercourse Network and River Quality

NW N NE

W E

SW S SE



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Site Outline

250 / 500 Search Buffers (m)

Watercourse type

- Tidal River
- Inland River
- Canal
- Lock or Flight of Locks
- Lake, Reservoir, or Marsh
- Foreshore
- Drain or Transfer

Watercourse level

- On ground surface
- Underground or Elevated
- Level unknown

- General Quality Assessment: Biology
- General Quality Assessment: Chemistry

6.Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

Records of strata classification within the superficial geology at or in proximity to the property Yes

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Superficial Geology Map (6a):

ID	Distance (m)	Direction	Designation	Description
3	0	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

6.2 Aquifer within Bedrock Deposits

Records of strata classification within the bedrock geology at or in proximity to the property Yes

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	Designation	Description
3	0	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

6.3 Groundwater Abstraction Licences

Groundwater Abstraction Licences within 2000m of the study site — Identified

The following Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	NGR	Details	
Not shown	611	N	386550 399790	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	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:
Not shown	611	N	386550 399790	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	Annual Volume (m^3): 33000 Max Daily Volume (m^3): 125 Original Application No: - Original Start Date: 08/02/2000 Expiry Date: - Issue No: 3 Version Start Date: 13/08/2012 Version End Date:
9A	947	SE	387700 398100	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	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:
10A	947	SE	387700 398100	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	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:
11A	947	SE	387700 398100	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	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	Distance (m)	Direction	NGR	Details	
12A	947	SE	387700 398100	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	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:
Not shown	971	SE	387681 398032	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	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:
Not shown	971	SE	387681 398032	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	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:
Not shown	971	SE	387681 398032	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	Annual Volume (m^3): 221650 Max Daily Volume (m^3): 1000 Original Application No: - Original Start Date: 01/04/2018 Expiry Date: 31/03/2024 Issue No: 1 Version Start Date: 01/04/2018 Version End Date:
Not shown	971	SE	387681 398032	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	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:
Not shown	971	SE	387681 398032	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	Annual Volume (m^3): 221650 Max Daily Volume (m^3): 1000 Original Application No: - Original Start Date: 01/04/2018 Expiry Date: 31/03/2024 Issue No: 1 Version Start Date: 01/04/2018 Version End Date:

ID	Distance (m)	Direction	NGR	Details	
18B	982	E	387860 398379	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 Limited	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: 103 Version Start Date: 09/03/2017 Version End Date:
19B	982	E	387859 398375	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 Limited	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: 103 Version Start Date: 09/03/2017 Version End Date:
20C	1016	E	387900 398400	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	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:
21C	1016	E	387900 398400	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	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:
22C	1016	E	387900 398400	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	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:
Not shown	1170	E	388000 398200	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	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	Distance (m)	Direction	NGR	Details	
Not shown	1170	E	388000 398200	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	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:
Not shown	1170	E	388000 398200	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	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:
Not shown	1170	E	388000 398200	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	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:
Not shown	1170	E	388000 398200	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	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:
Not shown	1170	E	388000 398200	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	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:
Not shown	1171	E	388027 398277	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 Limited	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: 103 Version Start Date: 09/03/2017 Version End Date:

ID	Distance (m)	Direction	NGR	Details	
Not shown	1951	SW	385240 397540	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	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:
Not shown	1951	SW	385240 397540	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	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:
Not shown	1960	NW	385000 400100	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	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:
Not shown	1960	NW	385000 400100	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	Annual Volume (m^3): 438689 Max Daily Volume (m^3): 1636.56 Original Application No: - Original Start Date: 16/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 09/02/2011 Version End Date:

6.4 Surface Water Abstraction Licences

Surface Water Abstraction Licences within 2000m of the study site — Identified

The following Surface Water Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	NGR	Details	
34	726	E	387600 398400	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	Annual Volume (m^3): - Max Daily Volume (m^3): - Application No: - Original Start Date: 01/04/1969 Expiry Date: - Issue No: 100 Version Start Date: 01/04/1969 Version End Date:
35D	919	E	387800	Status: Historical	Annual Volume (m^3): -

ID	Distance (m)	Direction	NGR	Details	
			398400	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	Max Daily Volume (m³): - Application No: - Original Start Date: 01/04/1969 Expiry Date: - Issue No: 100 Version Start Date: 01/04/1969 Version End Date:
36D	919	E	387800 398400	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	Annual Volume (m³): - Max Daily Volume (m³): - Application No: - Original Start Date: 01/04/1969 Expiry Date: - Issue No: 100 Version Start Date: 01/04/1969 Version End Date:
37D	919	E	387800 398400	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	Annual Volume (m³): 3.50042e+006 Max Daily Volume (m³): 3.50042e+006 Application No: - Original Start Date: 01/04/1969 Expiry Date: - Issue No: 100 Version Start Date: 01/04/1969 Version End Date:
Not shown	1234	E	388100 398300	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	Annual Volume (m³): - Max Daily Volume (m³): - Application No: - Original Start Date: 01/04/1969 Expiry Date: - Issue No: 100 Version Start Date: 01/04/1969 Version End Date:
Not shown	1234	E	388100 398300	Status: Active 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	Annual Volume (m³): 68190 Max Daily Volume (m³): 68190 Application No: - Original Start Date: 01/04/1969 Expiry Date: - Issue No: 100 Version Start Date: 01/04/1969 Version End Date:

6.5 Potable Water Abstraction Licences

Potable Water Abstraction Licences within 2000m of the study site — None identified

Database searched and no data found.

6.6 Source Protection Zones

Source Protection Zones within 500m of the study site — None identified

Database searched and no data found.

6.7 Source Protection Zones within Confined Aquifer

Source Protection Zones within the Confined Aquifer within 500m of the study site — None identified

Historically, Source Protection Zone maps have been focused on regulation of activities which occur at or near the ground surface, such as prevention of point source pollution and bacterial contamination of water supplies. Sources in confined aquifers were often considered to be protected from these surface pressures due to the presence of a low permeability confining layer (e.g. glacial till, clay). The increased interest in subsurface activities such as onshore oil and gas exploration, ground source heating and cooling requires protection zones for confined sources to be marked on SPZ maps where this has not already been done.

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

Environment Agency/Natural Resources Wales information on groundwater vulnerability and soil leaching potential within 500m of the study site — Identified

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Minor Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.
478	E	Major Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.

6.9 River Quality

Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site — Identified

6.9.1 Biological Quality:

Database searched and no data found.

6.9.2 Chemical Quality:

Chemical quality data is based on the General Quality Assessment Headline Indicators scheme (GQAHI). In England, each chemical sample is measured for ammonia and dissolved oxygen. In Wales, the samples are measured for biological oxygen demand (BOD), ammonia and dissolved oxygen. The results are graded from A ('Very Good') to F ('Bad').

The following Chemical Quality records are shown on the Hydrology Map (6e):

					Chemical Quality Grade				
ID	Distance (m)	Direction	NGR	River Quality Grade	2005	2006	2007	2008	2009
16A	499	NW	386363 399530	River Name: Rochdale Canal Reach: Empress Processing To Ashton Canal End/Start of Stretch: Sample Point NGR	A	A	A	A	A
17A	499	NW	386363 399530	River Name: Rochdale Canal Reach: Qsl At Summit To Empress Processing End/Start of Stretch: Sample Point NGR	A	A	A	A	A
Not shown	1459	SW	385714 397750	River Name: Medlock Reach: Lords Bk. To Irwell End/Start of Stretch: Sample Point NGR	B	B	B	C	C

6.10 Ordnance Survey MasterMap Water Network

Ordnance Survey MasterMap Water Network entries within 500m of the study site

This watercourse information is provided by Ordnance Survey MasterMap Water Network. The data provides a detailed centre line following the curve of the waterway precisely, so all distances provided in the report should be understood as measurements to the centreline rather than a measurement to the nearest point of the watercourse. Underground watercourses are inferred from entry and exit points so caution is advised in using these to indicate precise locations of underground watercourses when planning site investigation and development.

The following Ordnance Survey MasterMap Water Network records are represented on the Hydrology Map (6e):

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
1	0 On Site	River Medlock Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
2	0 On Site	Ashton Canal Alternative Name: -	Canal. A manmade watercourse for inland navigation.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 4.1
3	0 On Site	Ashton Canal Alternative Name: -	Canal. A manmade watercourse for inland navigation.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
4	0	Ashton Canal	Canal. A manmade	Catchment Area: Mersey

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	On Site	Alternative Name: -	watercourse for inland navigation.	Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 9.7
23	0 On Site	River Medlock Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
24	0 On Site	Ashton Canal Alternative Name: -	Canal. A manmade watercourse for inland navigation.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 4.1
25	0 On Site	Ashton Canal Alternative Name: -	Canal. A manmade watercourse for inland navigation.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
26	0 On Site	Ashton Canal Alternative Name: -	Canal. A manmade watercourse for inland navigation.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 9.7
5	3 S	Ashton Canal Alternative Name: -	Canal. A manmade watercourse for inland navigation.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 6.8
27	3 S	Ashton Canal Alternative Name: -	Canal. A manmade watercourse for inland navigation.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 6.8
6	9 S	- Alternative Name: -	Canal. A manmade watercourse for inland navigation.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 7.1
28	9 S	- Alternative Name: -	Canal. A manmade watercourse for inland navigation.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 7.1
7	36 E	Ashton Canal Alternative Name: -	Canal. A manmade watercourse for inland navigation.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.5
29	36 E	Ashton Canal Alternative Name: -	Canal. A manmade watercourse for inland navigation.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.5
8	63 E	Ashton Canal Alternative Name: -	Canal. A manmade watercourse for inland navigation.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.5
30	63 E	Ashton Canal Alternative Name: -	Canal. A manmade watercourse for inland navigation.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				conditions) Average Width in Watercourse Section (m): 2.5
9	64 E	Ashton Canal Alternative Name: -	Canal. A manmade watercourse for inland navigation.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.0
31	64 E	Ashton Canal Alternative Name: -	Canal. A manmade watercourse for inland navigation.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.0
10	95 SE	River Medlock Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
11	95 SE	River Medlock Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.4
32	95 SE	River Medlock Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
33	95 SE	River Medlock Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.4
12	321 W	River Medlock Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.2
34	321 W	River Medlock Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.2
13	428 W	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 7.2
14	428 W	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
35	428 W	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 7.2
36	428 W	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
15	432 W	River Medlock Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 8.7
37	432 W	River Medlock Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Mersey Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 8.7

6.11 Surface Water Features

Surface water features within 250m of the study site Identified

The following surface water records are not represented on mapping:

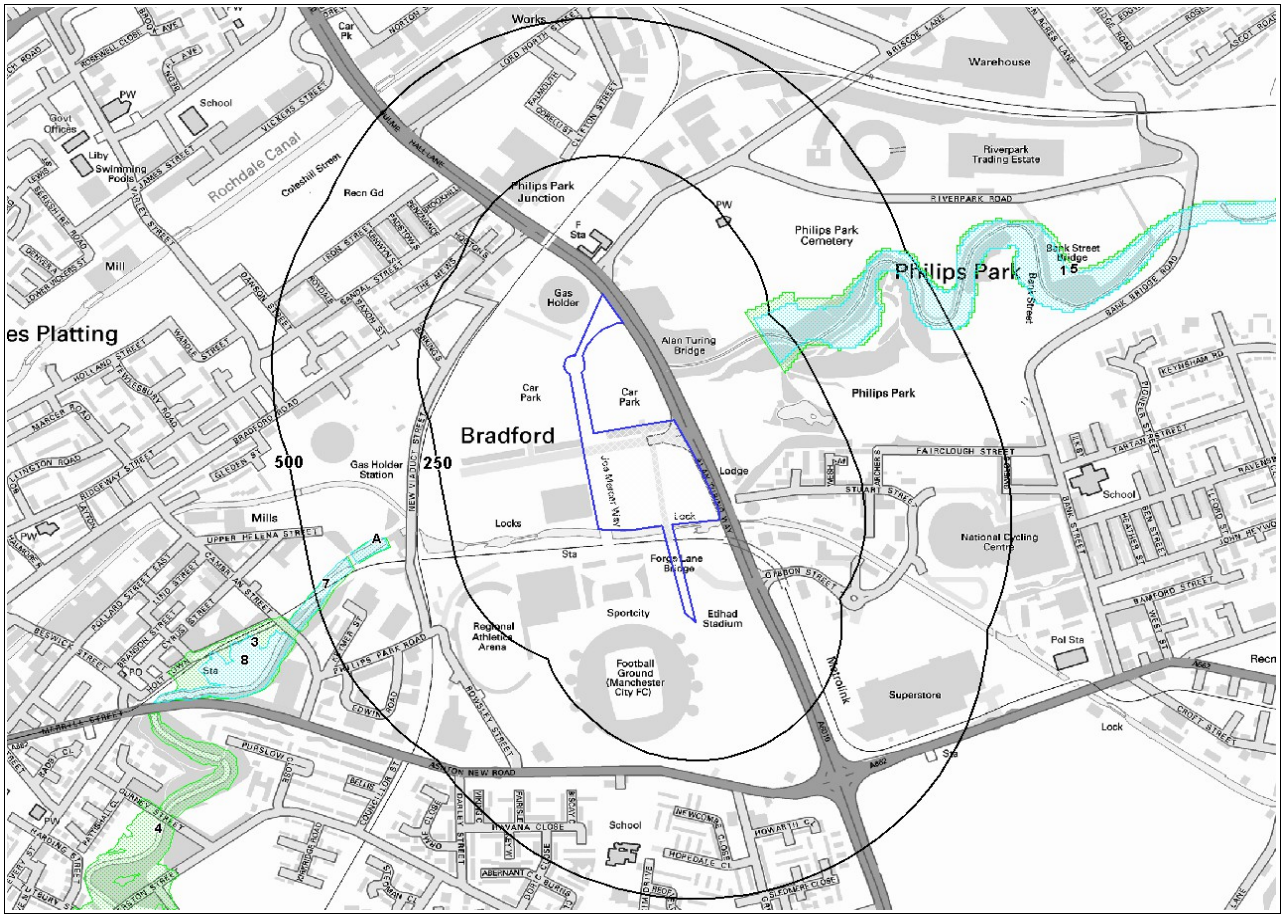
Distance (m)	Direction
0	On Site
0	On Site
0	S
34	E
96	N
161	NE

7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)

NW N NE

W E

SW S SE



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Site Outline

Search Buffers (m) — 100 — 250

Zone 2 Floodplain

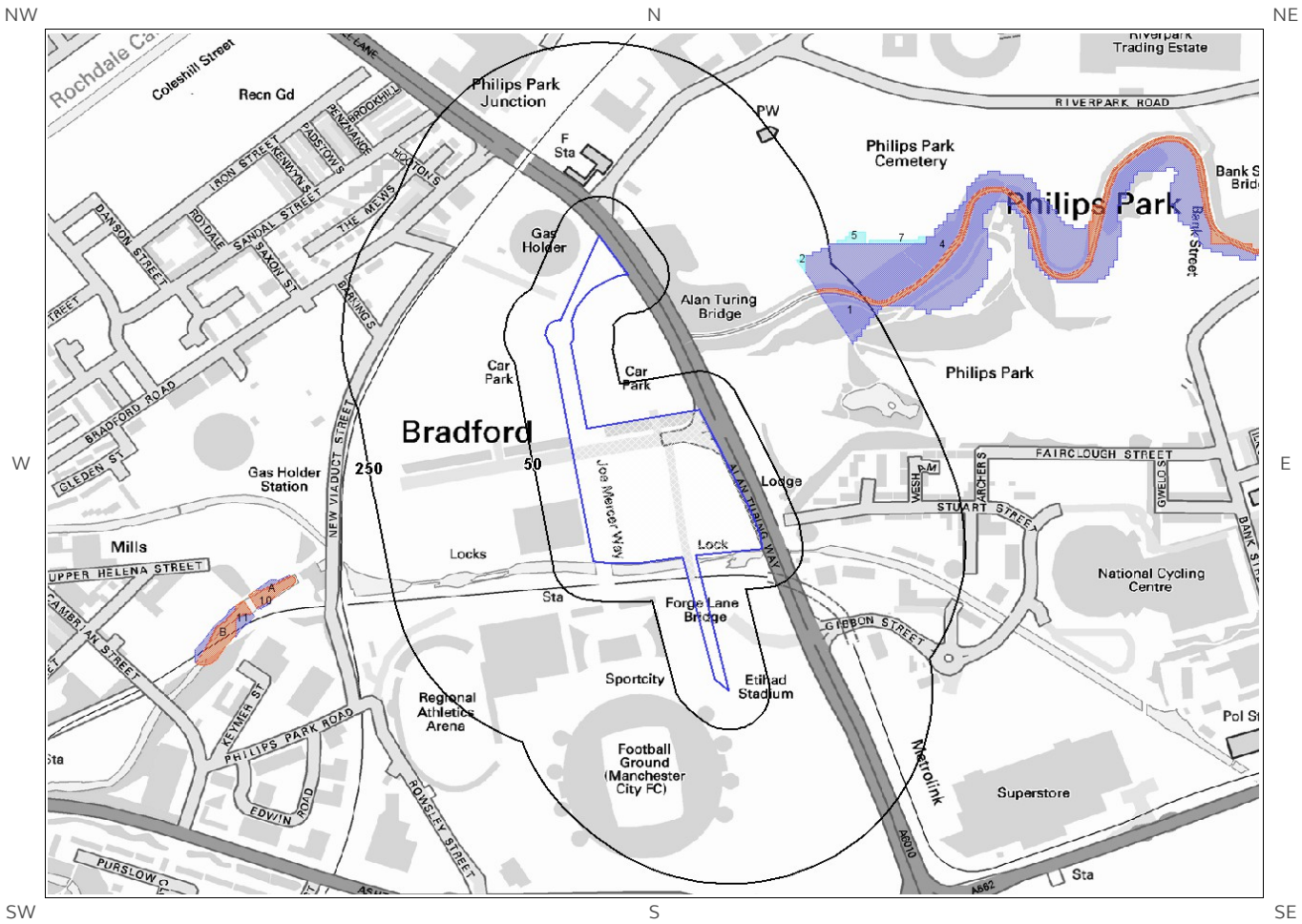
Zone 3 Floodplain

Flood Defences

Area used for Flood Storage

Area Benefiting from Flood Defences

7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map



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Site Outline

100 / 250 Search Buffers (m)

RoFRaS Rating

- Very Low
- Low
- Medium
- High

7 Flooding

7.1 River and Coastal Zone 2 Flooding

Environment Agency/Natural Resources Wales Zone 2 floodplain within 250m — Identified

Environment Agency/Natural Resources Wales Zone 2 floodplains estimate the annual probability of flooding as between 1 in 1000 (0.1%) and 1 in 100 (1%) from rivers and between 1 in 1000 (0.1%) and 1 in 200 (0.5%) from the sea. Any relevant data is represented on Map 7a – Flood Map for Planning:

ID	Distance (m)	Direction	Update	Type
1	206	NE	19-Nov-2019	Zone 2 - (Fluvial /Tidal Models)

7.2 River and Coastal Zone 3 Flooding

Environment Agency/Natural Resources Wales Zone 3 floodplain within 250m — Identified

Zone 3 shows the extent of a river flood with a 1 in 100 (1%) or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year. Any relevant data is represented on Map 7a – Flood Map for Planning.

ID	Distance (m)	Direction	Update	Type
1	208	NE	19-Nov-2019	Zone 3 - (Fluvial Models)

7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating

Highest risk of flooding onsite — Very Low

The Environment Agency/Natural Resources Wales RoFRaS database provides an indication of river and coastal flood risk at a national level on a 50m grid with the flood rating at the centre of the grid calculated and given above. The data considers the probability that the flood defences will overtop or breach by considering their location, type, condition and standard of protection.

RoFRaS data for the study site indicates the property is in an area with a Very Low (less than 1 in 1000) chance of flooding in any given year.

7.4 Flood Defences

Flood Defences within 250m of the study site — None identified

Database searched and no data found.

7.5 Areas benefiting from Flood Defences

Areas benefiting from Flood Defences within 250m of the study site — None identified

7.6 Areas benefiting from Flood Storage

Areas used for Flood Storage within 250m of the study site — None identified

7.7 Groundwater Flooding Susceptibility Areas

7.7.1 British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site — Identified

Clearwater Flooding or Superficial Deposits Flooding — Superficial Deposits Flooding

Notes: Groundwater flooding may either be associated with shallow unconsolidated sedimentary aquifers which overlie unproductive aquifers (Superficial Deposits Flooding), or with unconfined aquifers (Clearwater Flooding).

7.7.2 Highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions

Potential at Surface

Where potential for groundwater flooding to occur at surface is indicated, this means that given the geological conditions in the area groundwater flooding hazard should be considered in all land-use planning decisions. It is recommended that other relevant information e.g. records of previous incidence of groundwater flooding, rainfall, property type, and land drainage information be investigated in order to establish relative, but not absolute, risk of groundwater flooding.

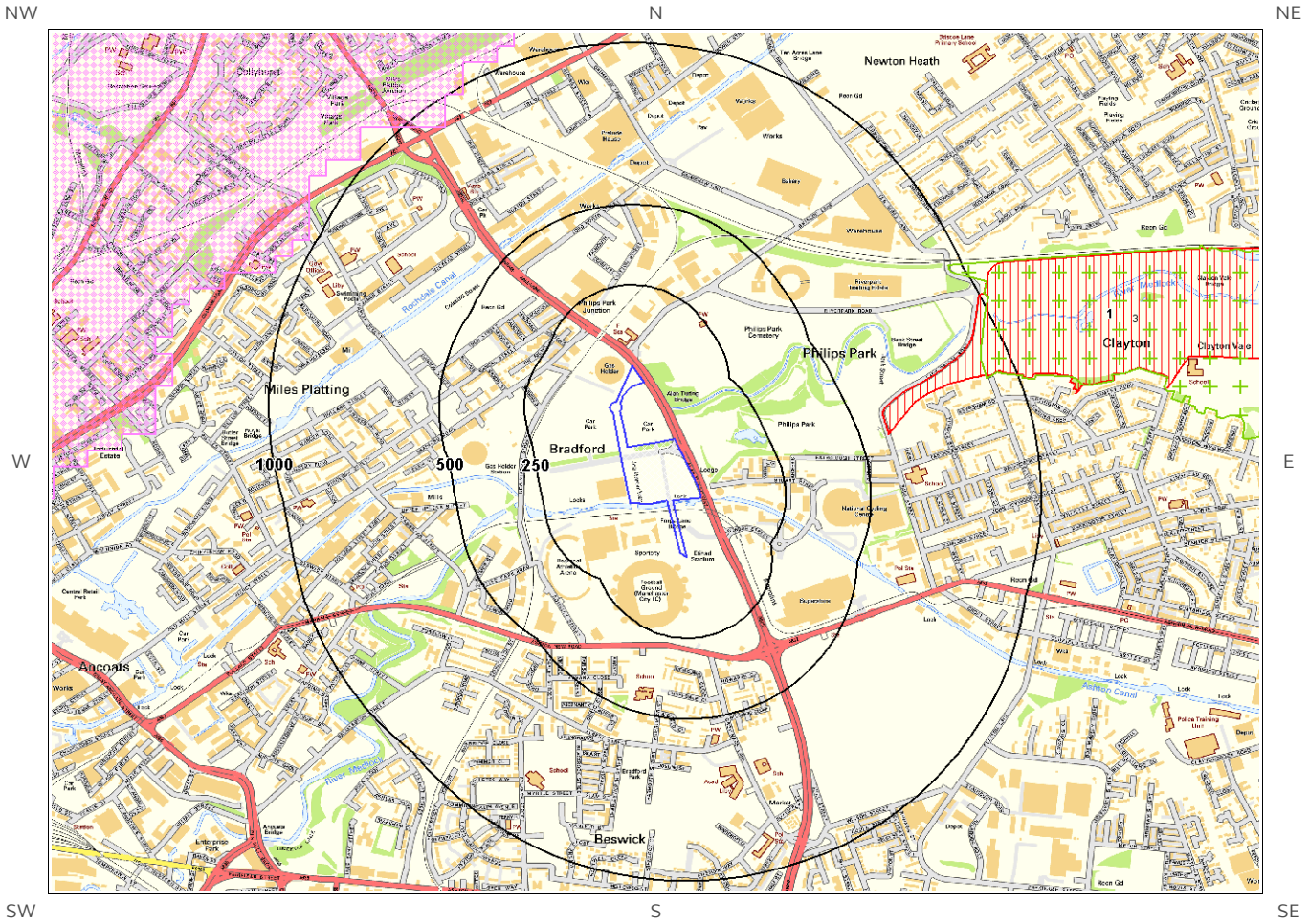
7.8 Groundwater Flooding Confidence Areas

British Geological Survey confidence rating in this result — High

Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

The confidence rating is on a threefold scale - Low, Moderate and High. This provides a relative indication of the BGS confidence in the accuracy of the susceptibility result for groundwater flooding. This is based on the amount and precision of the information used in the assessment. In areas with a relatively lower level of confidence the susceptibility result should be treated with more caution. In other areas with higher levels of confidence the susceptibility result can be used with more confidence.

8. Designated Environmentally Sensitive Sites Map



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Site Outline

100
250
Search Buffers (m)

AONB
National Park
SSSI
Special Protection Areas
Nitrate Vulnerable Zones

Green Belt
Environmentally Sensitive Areas
Special Areas of Conservation
World Heritage Sites
Nitrate Sensitive Areas

Ancient Woodland
National Nature Reserve
Local Nature Reserves
Ramsar Sites

8. Designated Environmentally Sensitive Sites

Designated Environmentally Sensitive Sites within 2000m of the study site	Identified

8.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:

0

Database searched and no data found.

8.2 Records of National Nature Reserves (NNR) within 2000m of the study site:

0

Database searched and no data found.

8.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:

0

Database searched and no data found.

8.4 Records of Special Protection Areas (SPA) within 2000m of the study site:

0

Database searched and no data found.

8.5 Records of Ramsar sites within 2000m of the study site:

0

Database searched and no data found.

8.6 Records of Ancient Woodland within 2000m of the study site:

0

Database searched and no data found.

8.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:

1

The following Local Nature Reserve (LNR) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	LNR Name	Data Source
1	582	E	Clayton Vale	Natural England

8.8 Records of World Heritage Sites within 2000m of the study site:

0

Database searched and no data found.

8.9 Records of Environmentally Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

8.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:

0

Database searched and no data found.

8.11 Records of National Parks (NP) within 2000m of the study site:

0

Database searched and no data found.

8.12 Records of Nitrate Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

8.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:

1

The following Nitrate Vulnerable Zone records produced by DEFRA are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	NVZ Name	Data Source
2	919	NW	Existing	DEFRA

8.14 Records of Green Belt land within 2000m of the study site:

1

Green Belt data contains Ordnance Survey data © Crown copyright and database right [2015].

ID	Distance	Direction	Green Belt Name	Local Authority Name
3	911	E	Liverpool, Manchester and West Yorks Greenbelt	Manchester District (B)

9. Natural Hazards Findings

9.1 Detailed BGS GeoSure Data

BGS GeoSure Data has been searched to 50m. The data is included in tabular format. If you require further information on geology and ground stability, please obtain a Groundsure Geo Insight, available from our website. The following information has been found:

9.1.1 Shrink Swell

Maximum Shrink-Swell*[*] hazard rating identified on the study site — Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.

9.1.2 Landslides

Maximum Landslide* hazard rating identified on the study site — Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

9.1.3 Soluble Rocks

Maximum Soluble Rocks* hazard rating identified on the study site — Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

* This indicates an automatically generated 50m buffer and site.

9.1.4 Compressible Ground

Maximum Compressible Ground* hazard rating identified on the study site — Moderate

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Significant potential for compressibility problems. Avoid large differential loadings of ground. Do not drain or de-water ground near the property without technical advice. For new build consider possibility of compressible ground in ground investigation, construction and building design. Consider effects of groundwater changes. Extra construction costs are likely. For existing property possible increase in insurance risk from compressibility, especially if water conditions or loading of the ground change significantly.

9.1.5 Collapsible Rocks

Maximum Collapsible Rocks* hazard rating identified on the study site — Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

9.1.6 Running Sand

Maximum Running Sand** hazard rating identified on the study site — Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property no significant increase in insurance risk due to running sand problems is likely.

* This indicates an automatically generated 50m buffer and site.

9.2 Radon

9.2.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The site is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, combined with geological data. The dataset is considered accurate to 50m to allow for the margin of error in geological lines, and the findings of this report supercede any answer given in the less accurate Indicative Atlas of Radon in Great Britain, which simplifies the data to give the highest risk within any given 1km grid square. As such, the radon atlas is considered indicative, whereas the data given in this report is considered definitive.

9.2.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing
ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

10. Mining

10.1 Coal Mining

Coal mining areas within 75m of the study site — Identified

The following coal mining information provided by the Coal Authority is not represented on Mapping:

Distance (m)	Direction	Details
0	On Site	The site lies in or in proximity to the coal mining reporting area as defined by the Coal Authority

10.2 Non-Coal Mining

Non-Coal Mining areas within 50m of the study site boundary — None identified

Database searched and no data found.

10.3 Brine Affected Areas

Brine affected areas within 75m of the study site — None identified
Guidance: No Guidance Required.

Contact Details

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info@groundsure.com

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Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
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BGS Geological Hazards Reports and general geological enquiries:
enquiries@bgs.ac.uk

Environment Agency
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Rotherham, S60 1BY
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The Coal Authority
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Ordnance Survey
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Local Authority
Authority: Manchester City Council
Phone: 0161 234 5000
Web: http://www.manchester.gov.uk/
Address: , Manchester, M60 2LA

Gemapping PLC
Virginia Villas, High Street, Hartley Witney,
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Acknowledgements: Site of Special Scientific Interest, National Nature Reserve, Ramsar Site, Special Protection Area, Special Area of Conservation data is provided by, and used with the permission of, Natural England/Natural Resources Wales who retain the Copyright and Intellectual Property Rights for the data.
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https://www.groundsure.com/terms-and-conditions-feb11-2019

Groundsure
LOCATION INTELLIGENCE

BURO HAPPOLD

230 BURO HAPPOLD, LOWER BRISTOL ROAD,
BATH, BA2 3DQ

Groundsure Reference:	GS-6479144
Your Reference:	0042841
Report Date	22 Nov 2019
Report Delivery Method:	Email - pdf

Geo Insight

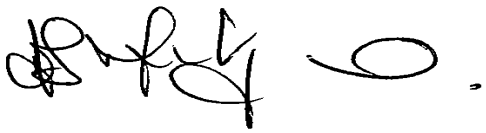
Address: TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Dear Sir/ Madam,

Thank you for placing your order with Groundsure. Please find enclosed the **Groundsure Geo Insight** as requested.

If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above Groundsure reference number.

Yours faithfully,



Managing Director
Groundsure Limited

Enc.
Groundsure Geo Insight

Geo Insight

Address:	**TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU**
Date:	**22 Nov 2019**
Reference:	**GS-6479144**
Client:	**BURO HAPPOLD**

NW N NE

W E

SW S SE

Aerial Photograph Capture date: 11-Jun-2015

Grid Reference: 386822,398887

Site Size:	4.3617ha

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Overview of Findings

The Groundsure Geo Insight provides high quality geo-environmental information that allows geo-environmental professionals and their clients to make informed decisions and be forewarned of potential ground instability problems that may affect the ground investigation, foundation design and possibly remediation options that could lead to possible additional costs.

The report is based on the BGS 1:50,000 and 1:10,000 Digital Geological Map of Great Britain, BGS Geosure data; BRITPITS database; Non-coal mining data and Borehole Records, Coal Authority data including brine extraction areas, PBA non-coal mining and natural cavities database, Johnson Poole and Bloomer mining data and Groundsure's unique database including historical surface ground and underground workings.

For further details on each dataset, please refer to each individual section in the report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Geology 1:10,000 Scale		
1.1 Artificial Ground	1.1 Is there any Artificial Ground/ Made Ground present beneath the study site at 1:10,000 scale?	Yes
1.2 Superficial Geology and Landslips	1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site at 1:10,000 scale?*	Yes
	1.2.2 Are there any records of landslip within 500m of the study site boundary at 1:10,000 scale?	No
1.3 Bedrock, Solid Geology and linear features	1.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	1.3.2 Are there any records of linear features within 500m of the study site boundary at 1:10,000 scale?	Yes

Section 2: Geology 1:50,000 Scale		
2.1 Artificial Ground	2.1.1 Is there any Artificial Ground/ Made Ground present beneath the study site?	Yes
	2.1.2 Are there any records relating to permeability of artificial ground within the study site*boundary?	Yes
2.2 Superficial Geology and Landslips	2.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?*	Yes
	2.2.2 Are there any records of permeability of superficial ground within 500m of the study site?	Yes
	2.2.3 Are there any records of landslip within 500m of the study site boundary?	No
	2.2.4 Are there any records relating to permeability of landslips within the study site* boundary?	No

Section 2: Geology 1:50,000 Scale

2.3 Bedrock, Solid Geology and linear features	2.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	2.3.2 Are there any records relating to permeability of bedrock ground within the study site boundary?	Yes
	2.3.3 Are there any records of linear features within 500m of the study site boundary?	Yes

Section 3: Radon

3. Radon	3.1Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.
	3.2Radon Protection	No radon protective measures are necessary.

Section 4: Ground Workings	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	17	19	62	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	0	7	0	0
4.3 Current Ground Workings	0	0	2	2	7

Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.1 Historical Mining	0	0	7	0	3
5.2 Coal Mining	1	0	0	0	0
5.3 Johnson Poole and Bloomer Mining Area	2	0	2	0	4
5.4 Non-Coal Mining*	0	0	0	1	1
5.5 Non–Coal Mining Cavities	0	0	0	1	1
5.5 Natural Cavities	0	0	0	0	0

Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Cornwall and Devon Metalliferous Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0

Section 6: Natural Ground Subsidence	On-site
6.1 Shrink-Swell Clay	Very Low
6.2 Landslides	Very Low
6.3 Ground Dissolution of Soluble Rocks	Negligible
6.4 Compressible Deposits	Moderate
6.5 Collapsible Deposits	Very Low
6.5 Running Sand	Low

Section 7: Borehole Records	On-site	0-50m	51-250
7 BGS Recorded Boreholes	17	37	286

Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250
8 Records of Background Soil Chemistry	2	0	0

Section 9: Railways and Tunnels	On-site	0-50m	51-250	250-500
9.1 Tunnels	0	1	0	Not Searched
9.2 Historical Railway and Tunnel Features	40	23	58	Not Searched
9.3 Historical Railways	0	0	0	Not Searched
9.4 Active Railways	4	8	20	Not Searched
9.5 Railway Projects	0	0	0	0

1:10,000 Scale Availability

1_10,000 Availability Legend

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Site Outline

Full Coverage

Partial Coverage

No Coverage

50
250
Search Buffers (m)

Availability of 1:10,000 Scale Geology Mapping

The following information represents the availability of the key components of the 1:10,000 scale geological data.

ID	Distance	Artificial Coverage	Superficial Coverage	Bedrock Coverage	Mass Movement Coverage
1	0.0	Some deposits are mapped	Full	Full	Some deposits are mapped
2	789.0	Some deposits are mapped	Full	Full	Some deposits are mapped
N3	1681.0	Some deposits are mapped	Full	Full	No coverage
N4	1912.0	Some deposits are mapped	Full	Full	Some deposits are mapped

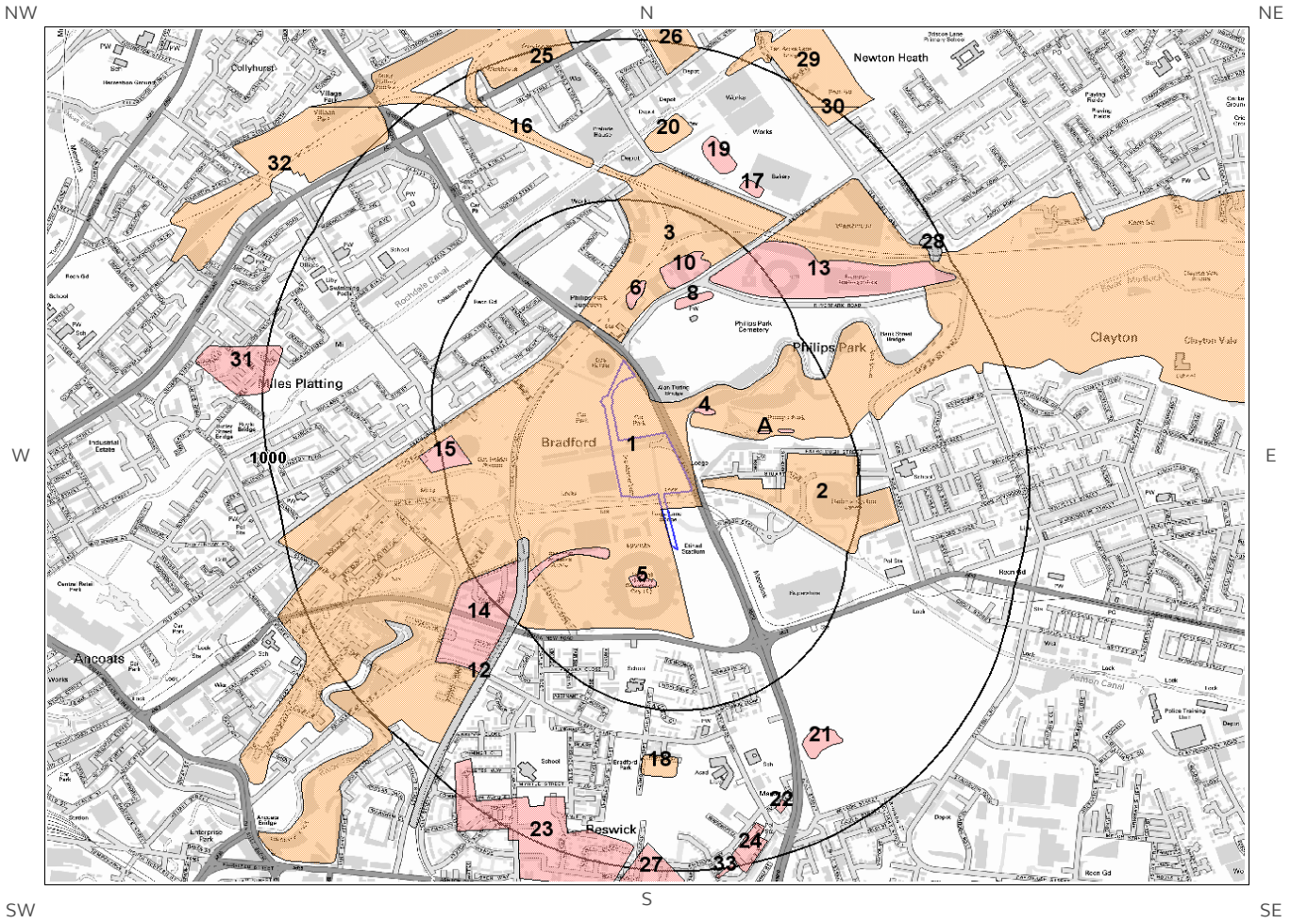
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not all themes are mapped or available on every map sheet. Therefore a coverage layer showing the availability of the four themes is presented above.

The definitions of coverage are as follows:

Geology	Full Coverage	Partial Coverage	No Coverage
Bedrock	The whole tile has been mapped	Some but not all the tile has been mapped	No coverage
Superficial	The whole tile has been mapped	Some but not all of the tile has been mapped	No coverage
Artificial	Some deposits are mapped on this tile	-	No deposits are mapped
Mass Movement	Some deposits are mapped on this tile	-	No coverage

1 Geology (1:10,000 scale).

1.1 Artificial Ground map (1:10,000 scale)



Artificial Ground Legend

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Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Disturbed Ground (undivided)

Worked Ground (undivided)

Landscaped Ground (undivided)

Infilled Ground

Reclaimed Ground

1. Geology 1:10,000 scale

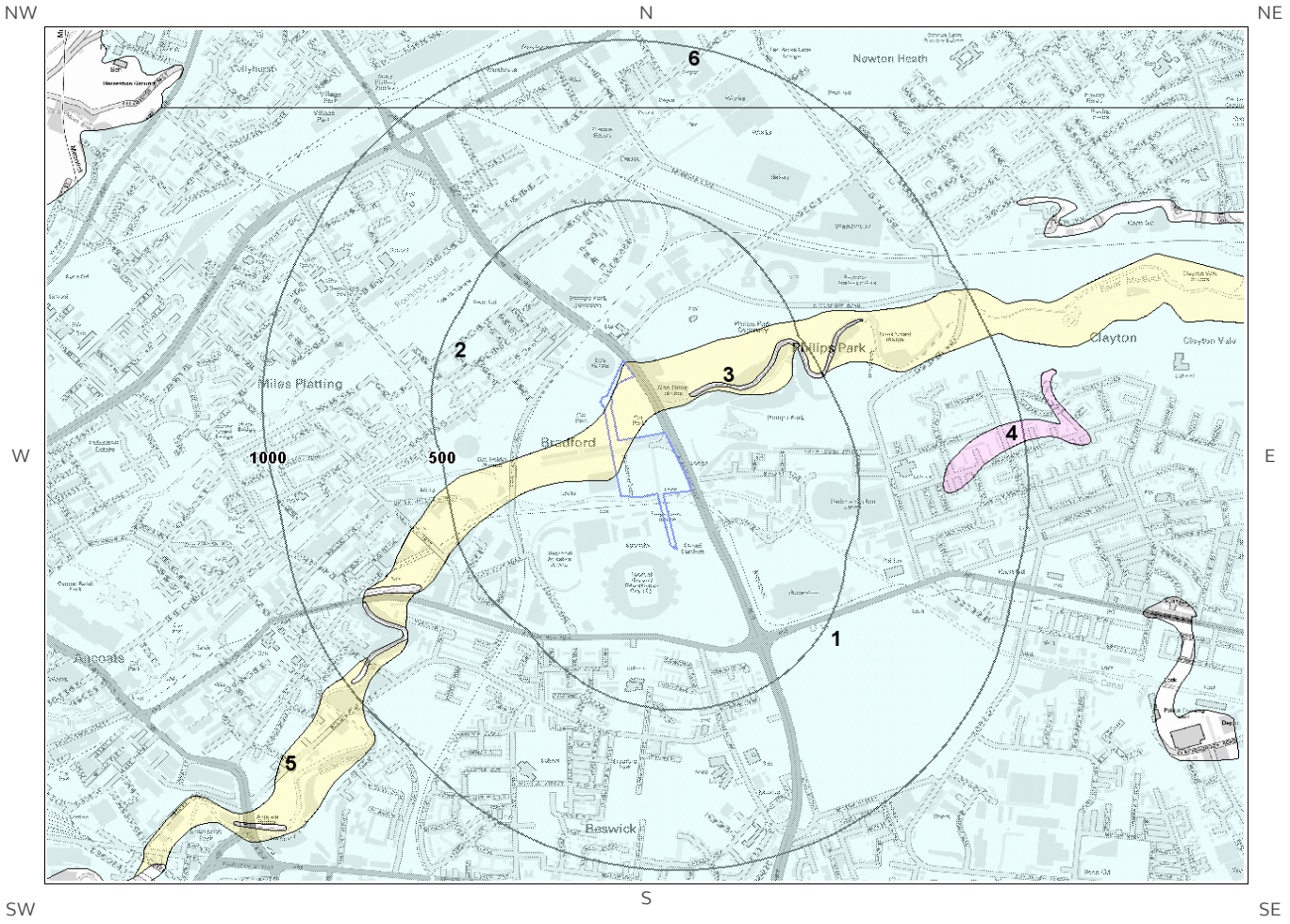
1.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

Are there any records of Artificial/ Made Ground within 500m of the study site boundary at 1:10,000 scale? Yes

ID	Distance	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
2	36.0	E	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
3	55.0	N	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
4	110.0	NE	WMGR-ARTDP	Infilled Ground	Artificial Deposit
5	116.0	SW	WMGR-ARTDP	Infilled Ground	Artificial Deposit
6	159.0	N	WMGR-ARTDP	Infilled Ground	Artificial Deposit
7	168.0	S	WMGR-ARTDP	Infilled Ground	Artificial Deposit
8	222.0	NE	WMGR-ARTDP	Infilled Ground	Artificial Deposit
9A	249.0	NE	WMGR-ARTDP	Infilled Ground	Artificial Deposit
10	264.0	NE	WMGR-ARTDP	Infilled Ground	Artificial Deposit
11A	303.0	NE	WMGR-ARTDP	Infilled Ground	Artificial Deposit
12	307.0	SW	WGR-VOID	Worked Ground (Undivided)	Void
13	356.0	NE	WMGR-ARTDP	Infilled Ground	Artificial Deposit
14	365.0	SW	WMGR-ARTDP	Infilled Ground	Artificial Deposit
15	416.0	W	WMGR-ARTDP	Infilled Ground	Artificial Deposit

1.2 Superficial Deposits and Landslips map (1:10,000 scale)



Artificial Ground Legend

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Site Outline

500
1000
Search Buffers (m)

1.2 Superficial Deposits and Landslips

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping

1.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary at 1:10,000 scale? Yes

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton
2	0.0	On Site	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton
3	0.0	On Site	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel

1.2.2 Landslip

Are there any records of Landslip within 500m of the study site boundary at 1:10,000 scale?

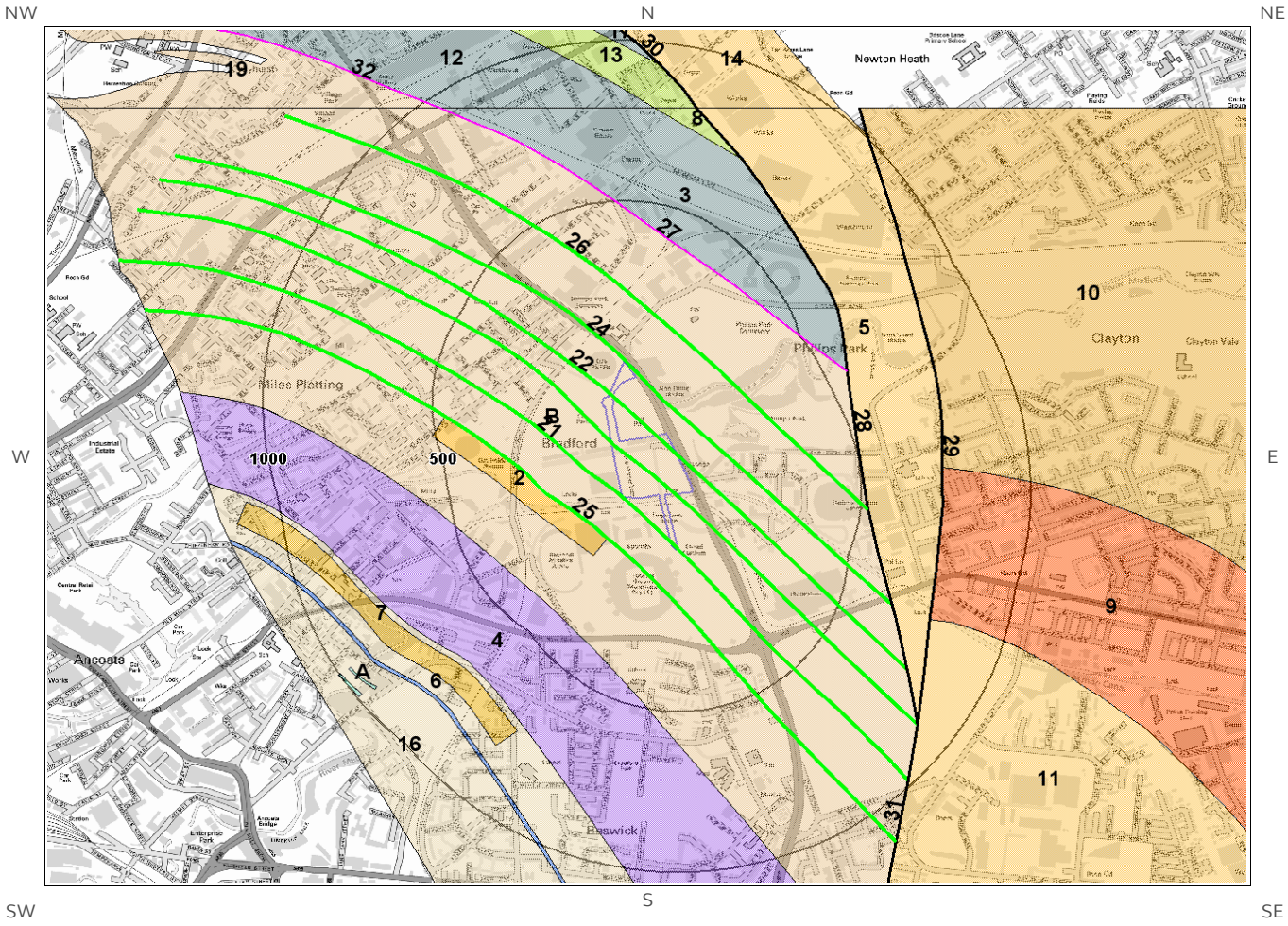
No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:10,000 scale

This Geology shows the main components as discrete layers, these are: Artificial / Made Ground, Superficial / Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

1.3 Bedrock and linear features map (1:10,000 scale)



Bedrock and linear features Legend

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Site Outline

500
1000
Search Buffers (m)

1.3 Bedrock and linear features

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

1.3.1 Bedrock/ Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary at 1:10,000 scale.

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1B	0.0	On Site	PUCM-MDSS	Pennine Upper Coal Measures Formation - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
2	124.0	SW	OPS-SDST	Openshaw Sandstone - Sandstone	Bolsovian Sub-age
3	383.0	NE	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
4	391.0	SW	ETM-STMD	Etruria Formation - Sandstone And Mudstone	Westphalian Age

1.3.2 Linear features

Are there any records of linear features within 500m of the study site boundary at 1:10,000 scale? Yes

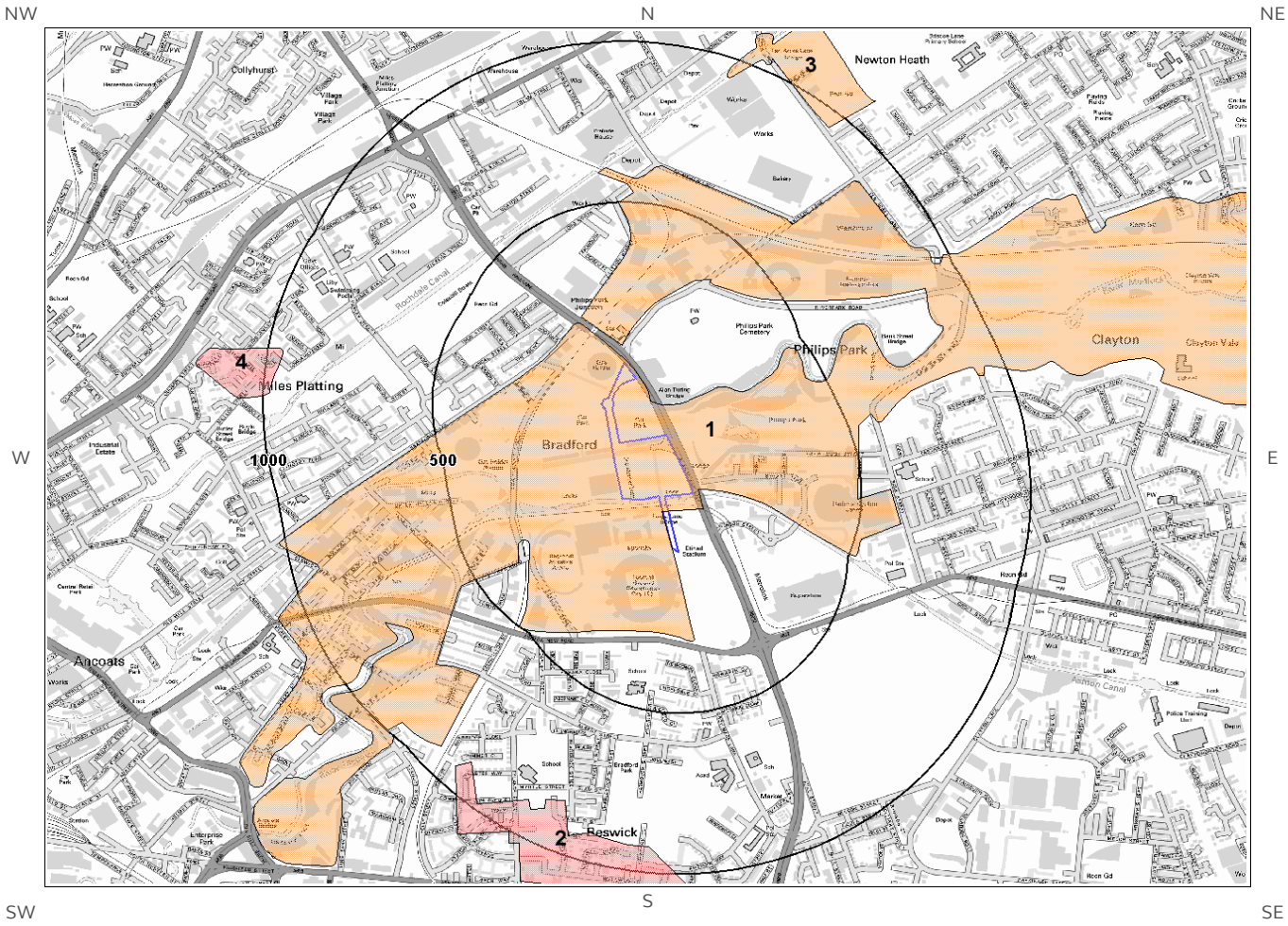
ID	Distance (m)	Direction	Category Description	Feature Description
21	0.0	On Site	ROCK	Coal seam, inferred
22	0.0	On Site	ROCK	Coal seam, inferred
23B	0.0	On Site	ROCK	Coal seam, inferred
24	3.0	NE	ROCK	Coal seam, inferred
25	115.0	SW	ROCK	Coal seam, inferred
26	168.0	NE	ROCK	Coal seam, inferred
27	383.0	NE	FOSSIL_HORIZON	Fossil horizon, marine band coincident with bedrock geology boundary

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of great Britain at 1:10,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/ Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2 Geology 1:50,000 Scale

2.1 Artificial Ground map



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Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Disturbed Ground (undivided)

Worked Ground (undivided)

Landscaped Ground (undivided)

Infilled Ground

Reclaimed Ground

2. Geology 1:50,000 scale

2.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 085

2.1.1 Artificial/ Made Ground

Are there any records of Artificial/ Made Ground within 500m of the study site boundary? Yes

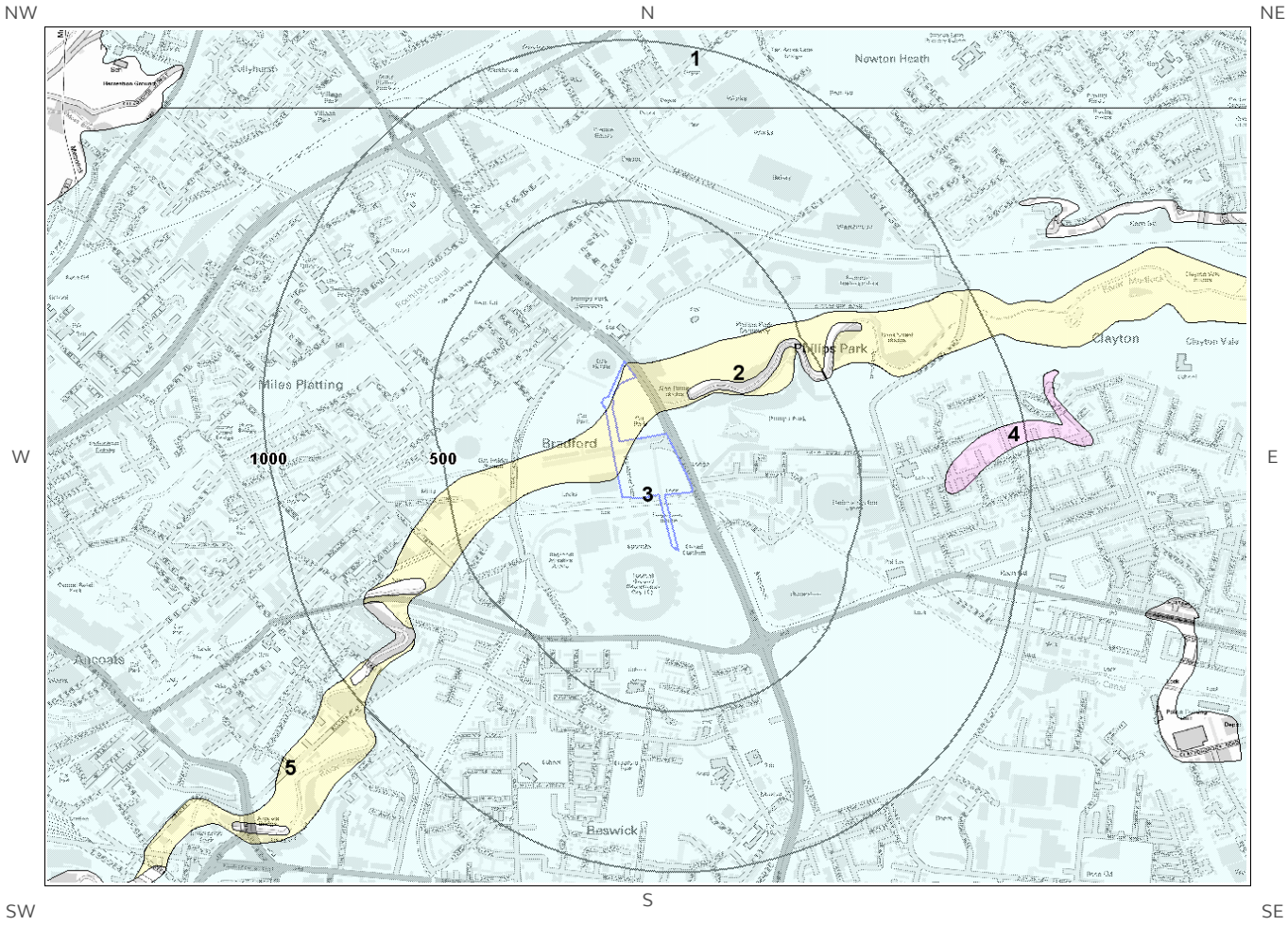
ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

2.1.2 Permeability of Artificial Ground

Are there any records relating to permeability of artificial ground within the study site boundary? Yes

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Mixed	Very High	Low

2.2 Superficial Deposits and Landslips map (1:50,000 scale)



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Site Outline

500
1000
Search Buffers (m)

2.2 Superficial Deposits and Landslips

2.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary? Yes

ID	Distance	Direction	LEX Code	Description	Rock Description
2	0.0	On Site	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
3	0.0	On Site	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON

2.2.2 Permeability of Superficial Ground

Are there any records relating to permeability of superficial ground within the study site boundary? Yes

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Mixed	High	Low
0.0	On Site	Intergranular	High	Very Low
0.0	On Site	Mixed	High	Low

2.2.3 Landslip

Are there any records of Landslip within 500m of the study site boundary? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

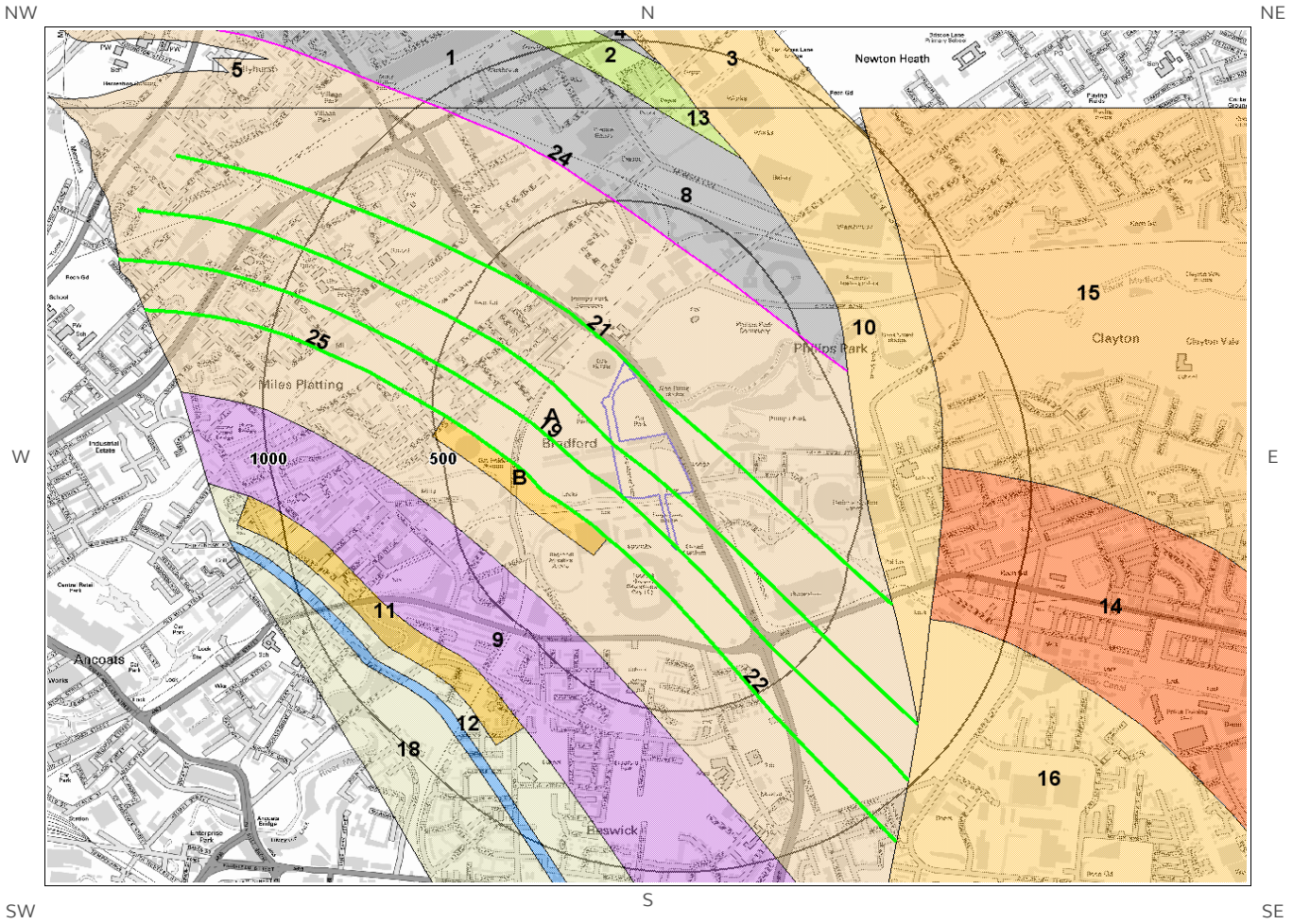
This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground, Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2.2.4 Landslip Permeability

Are there any records relating to permeability of landslips within the study site boundary? No

Database searched and no data found.

2.3 Bedrock and linear features map (1:50,000 scale)



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Site Outline

500
1000
Search Buffers (m)

2.3 Bedrock, Solid Geology & linear features

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 085

2.3.1 Bedrock/Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary:

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
6A	0.0	On Site	PUCM-MDSS	PENNINE UPPER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
7B	124.0	SW	OPS-SDST	OPENSHAW SANDSTONE - SANDSTONE	WESTPHALIAN
8	383.0	NE	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
9	390.0	SW	ETM-STMD	ETRURIA FORMATION - SANDSTONE AND MUDSTONE	WESTPHALIAN

2.3.2 Permeability of Bedrock Ground

Are there any records relating to permeability of bedrock ground within the study site boundary? Yes

Distance	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Fracture	Moderate	Low

2.3.3 Linear features

Are there any records of linear features within 500m of the study site boundary? Yes

ID	Distance	Direction	Category Description	Feature Description
19	0.0	On Site	ROCK	Coal seam, inferred
20A	0.0	On Site	ROCK	Coal seam, inferred
21	3.0	NE	ROCK	Coal seam, inferred
22	115.0	SW	ROCK	Coal seam, inferred
23B	124.0	SW	ROCK	Coal seam, inferred
24	383.0	NE	FOSSIL_HORIZON	Marine band
25	465.0	W	ROCK	Coal seam, inferred

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nation wide coverage.

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3 Radon Data

3.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, combined with geological data. The dataset is considered accurate to 50m to allow for the margin of error in geological lines, and the findings of this report supercede any answer given in the less accurate Indicative Atlas of Radon in Great Britain, which simplifies the data to give the highest risk within any given 1km grid square. As such, the radon atlas is considered indicative, whereas the data given in this report is considered definitive.

3.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

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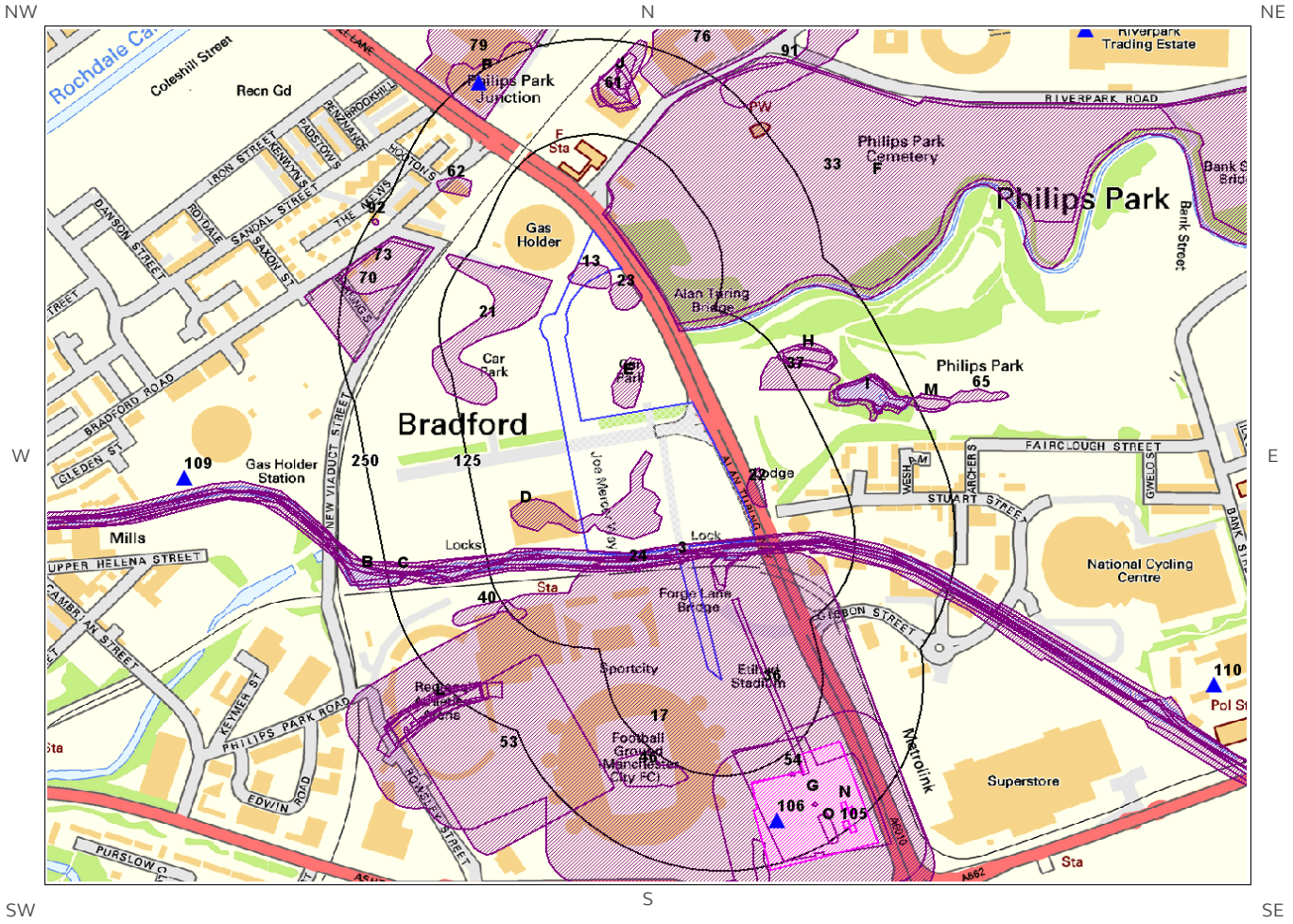
4 Ground Workings map



Ground Workings Legend

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Site Outline

125
250
Search Buffers (m)

Historic Surface Ground Workings

Historic Underground Workings

Current Ground Workings

4 Ground Workings

4.1 Historical Surface Ground Working Features derived from Historical Mapping

This dataset is based on Groundsure's unique Historical Land Use Database derived from 1:10,560 and 1:10,000 scale historical mapping

Are there any Historical Surface Ground Working Features within 250m of the study site boundary? Yes

ID	Distance (m)	Direction	NGR	Use	Date
1K	0.0	On Site	385547 398380	Canal	1923
2C	0.0	On Site	388869 396935	Canal	1968
3	0.0	On Site	386857 398775	Coal Pits	1851
4A	0.0	On Site	385734 398565	Canal	1891
5A	0.0	On Site	385734 398565	Canal	1933
6A	0.0	On Site	385734 398565	Canal	1921
7A	0.0	On Site	385734 398565	Canal	1938
8A	0.0	On Site	385734 398565	Canal	1906
9	0.0	On Site	385460 398281	Canal	1991
10B	0.0	On Site	385441 398289	Canal	1978
11B	0.0	On Site	385441 398289	Canal	1985
12C	0.0	On Site	388869 396935	Canal	1956
13	0.0	On Site	386743 399151	Refuse Heap	1906
14D	0.0	On Site	386807 398863	Unspecified Ground Workings	1906
15D	0.0	On Site	386807 398863	Unspecified Ground Workings	1923
16D	0.0	On Site	386807 398863	Unspecified Ground Workings	1921
17	0.0	On Site	386806 398531	Colliery	1968
18E	7.0	N	386790 399010	Unspecified Pit	1921
19E	7.0	N	386790 399010	Unspecified Pit	1923
20E	7.0	N	386790 399010	Unspecified Pit	1906
21	9.0	NW	386622 399080	Refuse Heap	1891

ID	Distance (m)	Direction	NGR	Use	Date
22	10.0	NE	386951 398873	Refuse Heap	1851
23	13.0	S	386788 399126	Unspecified Pit	1906
24	18.0	S	386803 398765	Coal Pits	1851
25F	22.0	NE	386987 399255	Cemetery	1938
26F	22.0	NE	386987 399255	Cemetery	1891
27F	22.0	NE	386987 399255	Cemetery	1906
28F	22.0	NE	386987 399255	Cemetery	1921
29F	22.0	NE	386987 399255	Cemetery	1933
30F	22.0	NE	386987 399255	Cemetery	1923
31F	22.0	NE	386987 399263	Cemetery	1985
32F	22.0	NE	386987 399263	Cemetery	1978
33	22.0	NE	387116 399263	Cemetery	1991
34F	22.0	NE	386987 399263	Cemetery	1956
35F	22.0	NE	386987 399263	Cemetery	1968
36	36.0	E	386967 398611	Canal	1891
37	83.0	NE	387005 399022	Pond	1968
38G	94.0	S	387019 398464	Colliery	1851
39G	96.0	S	387029 398448	Colliery	1891
40	108.0	SW	386619 398708	Pond	1851
41H	121.0	NE	387011 399045	Pond	1923
42H	121.0	NE	387011 399045	Pond	1906
43H	121.0	NE	387011 399045	Pond	1933
44H	121.0	NE	387011 399045	Pond	1921
45H	121.0	NE	387011 399045	Pond	1938
46	127.0	SW	386820 398502	Pond	1851
47H	127.0	NE	387017 399041	Pond	1891
48H	130.0	NE	387012 399047	Pond	1956
49H	130.0	NE	387012 399047	Pond	1968
50G	136.0	SE	387023 398455	Colliery	1906

ID	Distance (m)	Direction	NGR	Use	Date
51G	136.0	SE	387023 398455	Colliery	1921
52G	136.0	SE	387023 398455	Colliery	1923
53	148.0	SW	386643 398522	Reservoir	1851
54	148.0	SE	386995 398496	Coal Pits	1851
55I	154.0	NE	387089 398988	Pond	1923
56I	154.0	NE	387089 398988	Pond	1933
57I	154.0	NE	387089 398988	Pond	1938
58I	154.0	NE	387089 398988	Pond	1906
59I	154.0	NE	387089 398988	Pond	1891
60I	154.0	NE	387089 398988	Pond	1921
61	158.0	N	386777 399389	Unspecified Pit	1956
62	160.0	NW	386575 399268	Pond	1851
63I	160.0	NE	387093 398996	Pond	1978
64I	160.0	NE	387093 398996	Pond	1968
65	161.0	NE	387154 398994	Ponds	1956
66J	162.0	N	386779 399417	Unspecified Pit	1923
67J	162.0	N	386779 399408	Unspecified Pit	1933
68J	162.0	N	386779 399408	Unspecified Pit	1938
69J	162.0	N	386779 399408	Unspecified Pit	1921
70	165.0	NW	386469 399120	Brick Works	1891
71I	165.0	NE	387098 398999	Pond	1985
72I	165.0	NE	387098 398999	Pond	1991
73	172.0	NW	386485 399162	Unspecified Pit	1906
74J	179.0	N	386781 399407	Pond	1906
75J	188.0	N	386785 399416	Pond	1891
76	195.0	NE	386958 399475	Brick Works	1906
77G	197.0	SE	387023 398457	Coal Pits	1851
78P	197.0	NW	386619 399407	Unspecified Heaps	1891
79	197.0	NW	386623 399446	Brick Works	1891

ID	Distance (m)	Direction	NGR	Use	Date
80L	200.0	SW	386531 398580	Cuttings	1956
81K	212.0	S	386956 398375	Pond	1851
82L	212.0	SW	386548 398568	Cuttings	1985
83O	215.0	SE	387040 398425	Pond	1851
84L	216.0	SW	386564 398591	Cuttings	1978
85L	216.0	SW	386564 398591	Cuttings	1968
86L	218.0	SW	386549 398576	Cuttings	1921
87L	218.0	SW	386549 398576	Cuttings	1938
88L	218.0	SW	386549 398576	Cuttings	1933
89L	221.0	SW	386548 398572	Cuttings	1923
90L	221.0	SW	386548 398572	Cuttings	1906
91	235.0	NE	387044 399490	Ponds	1851
92	240.0	NW	386477 399221	Coal Pits	1851
93M	246.0	NE	387168 398982	Pond	1923
94M	246.0	NE	387168 398982	Pond	1921
95M	246.0	NE	387168 398982	Pond	1938
96M	246.0	NE	387168 398982	Pond	1906
97M	246.0	NE	387168 398982	Pond	1891
98M	246.0	NE	387168 398982	Pond	1933

4.2 Historical Underground Working Features derived from Historical Mapping

This data is derived from the Groundsure unique Historical Land Use Database. It contains data derived from 1:10,000 and 1:10,560 historical Ordnance Survey Mapping and includes some natural topographical features (Shake Holes for example) as well as manmade features that may have implications for ground stability. Underground and mining features have been identified from surface features such as shafts. The distance that these extend underground is not shown.

Are there any Historical Underground Working Features within 1000m of the study site boundary? Yes

The following Historical Underground Working Features are provided by Groundsure:

ID	Distance (m)	Direction	NGR	Use	Date
99G	136.0	SE	387023 398455	Colliery	1906

ID	Distance (m)	Direction	NGR	Use	Date
100G	136.0	SE	387023 398455	Colliery	1921
101G	136.0	SE	387023 398455	Colliery	1923
102N	219.0	SE	387059 398455	Unspecified Shafts	1978
103N	229.0	SE	387067 398449	Unspecified Disused Shafts	1985
104O	239.0	SE	387062 398431	Unspecified Shafts	1978
105	248.0	SE	387070 398425	Unspecified Disused Shafts	1985

4.3 Current Ground Workings

This dataset is derived from the BGS BRITPITS database covering active; inactive mines; quarries; oil wells; gas wells and mineral wharves; and rail deposits throughout the British Isles.

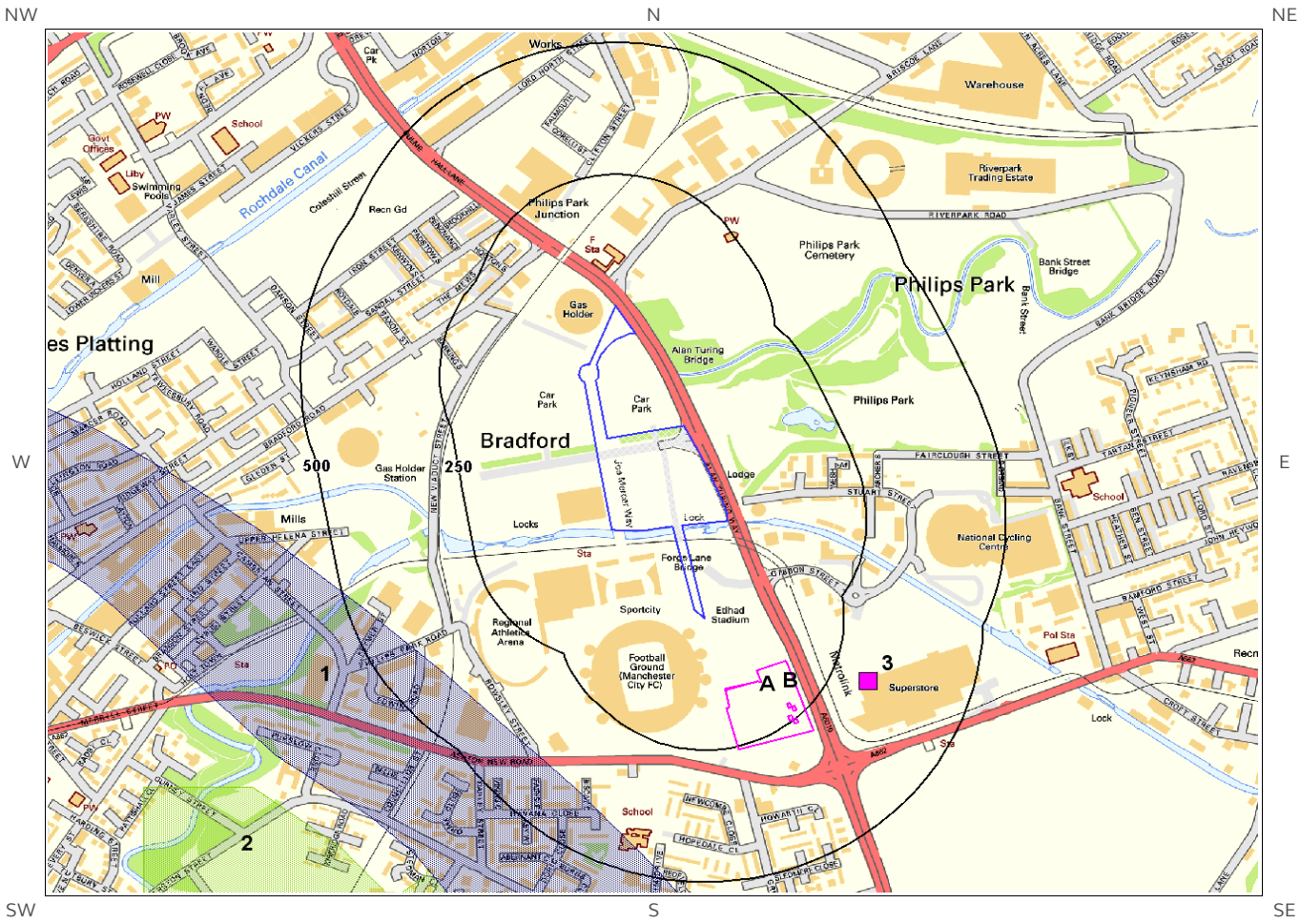
Are there any BGS Current Ground Workings within 1000m of the study site boundary? Yes

The following Current Ground Workings information is provided by British Geological Survey:

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
106	196.0	S	386975 398435	Coal, Deep	Bradford Colliery	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
107P	239.0	NW	386605 399404	Clay & Shale	Miles Platting Brick Works	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	345.0	NE	386930 399504	Clay & Shale	Philips Park Brick Works	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
109	476.0	W	386239 398885	Clay & Shale	Glenden Hall Brick Field	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
110	601.0	E	387518 398614	Clay & Shale	West End Brick Field	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
111	656.0	NE	387359 399474	Clay & Shale	Philips Park Brick Works	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	708.0	SW	386480 398055	Limestone	Ardwick Lime Works Pit	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	779.0	SE	387460 398070	Coal, Deep	Clayton Colliery	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	798.0	W	385949 398679	Clay & Shale	Holt Town Brick Field	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	935.0	S	386635 397725	Clay & Shale	Beswick Brick Field	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	978.0	SW	386450 397755	Clay & Shale	Beswick Brick Field	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

5 Mining, Extraction & Natural Cavities map



Mining, Extraction and Natural Cavities Legend

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Site Outline

Search Buffers (m) — 250 — 500

Historical Mining

Non-Coal Mining Cavities

Natural Cavities (point data)

Natural Cavities (polygon data)

Non-Coal Mining

- Highly likely
- Likely
- Unlikely
- Highly unlikely
- Rare

5 Mining, Extraction & Natural Cavities

5.1 Historical Mining

This dataset is derived from Groundsure unique Historical Land-use Database that are indicative of mining or extraction activities.

Are there any Historical Mining areas within 1000m of the study site boundary? Yes

The following Historical Mining information is provided by Groundsure:

ID	Distance (m)	Direction	NGR	Details	Date
5A	136.0	SE	387023 398455	Colliery	1923
6A	136.0	SE	387023 398455	Colliery	1921
7A	136.0	SE	387023 398455	Colliery	1906
8B	219.0	SE	387059 398455	Unspecified Shafts	1978
9B	229.0	SE	387067 398449	Unspecified Disused Shafts	1985
10B	239.0	SE	387062 398431	Unspecified Shafts	1978
11B	248.0	SE	387070 398425	Unspecified Disused Shafts	1985
Not shown	737.0	N	386443 399971	Coal Wharf	1923
Not shown	737.0	N	386443 399971	Coal Wharf	1906
Not shown	737.0	N	386443 399971	Coal Wharf	1921

5.2 Coal Mining

This dataset provides information as to whether the study site lies within a known coal mining affected area as defined by the coal authority.

Are there any Coal Mining areas within 1000m of the study site boundary? Yes

The following Coal Mining information provided by the Coal Authority is not represented on Mapping:

Distance (m)	Direction	Details
0.0	On Site	The site lies in or in proximity to the coal mining reporting area as defined by the Coal Authority

5.3 Johnson Poole and Bloomer

This dataset provides information as to whether the study site lies within an area where JPB hold information relating to mining.

Are there any JPB Mining areas within 1000m of the study site boundary? Yes

The following information provided by JPB is not represented on mapping: 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. Further details and a quote for services can be obtained by emailing this report to enquiries.gs@jpb.co.uk.

5.4 Non-Coal Mining

This dataset provides information as to whether the study site lies within an area which may have been subject to non-coal historic mining.

Are there any Non-Coal Mining areas within 1000m of the study site boundary? Yes

The following non-coal mining information is provided by the BGS:

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
1	394.0	SW	Not available	Vein Mineral	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
2	687.0	SW	Ardwick	Limestone - Ardwick	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

5.5 Non-Coal Mining Cavities

This dataset provides information from the Peter Brett Associates (PBA) mining cavities database (compiled for the national study entitled “Review of mining instability in Great Britain, 1990” PBA has also continued adding to this database) on mineral extraction by mining.

Are there any Non-Coal Mining cavities within 1000m of the study site boundary? Yes

The following Non-Coal Mining Cavities information provided by Peter Brett Associates:

ID	Distance (m)	Direction	NGR	Address	Superficial Deposits	Bedrock Deposits	Extracted Mineral
3	316.0	E	387200 398500	Manchester, Greater Manchester	Glacial Till	Carboniferous Coal Measures	Fireclay
Not shown	626.0	S	387000 398000	ARDWICK, Greater Manchester	Glacial Till	Carboniferous Coal Measures	Bath Stone, Cornstone, Limestone

5.6 Natural Cavities

This dataset provides information based on the Peter Brett Associates natural cavities database. The dataset is made up of points and polygons. Where polygons are used these represent an area in which it is expected the cavities could be found. It does not indicate that cavities are present everywhere within the polygon, and caution should be used in the interpretation of this data.

Are there any Natural Cavities within 1000m of the study site boundary? No

Database searched and no data found.

5.7 Brine Extraction

This data provides information from the Cheshire Brine Subsidence Compensation Board.

Are there any Brine Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.8 Gypsum Extraction

This dataset provides information on Gypsum extraction from British Gypsum records.

Are there any Gypsum Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.9 Cornwall and Devon Metalliferous Mining

This dataset provides information on metalliferous mining areas in Cornwall/Devon and is derived from records held by Mining Searches UK.

Are there any Cornwall and Devon Metalliferous Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.10 Clay Mining

This dataset provides information on Kaolin and Ball Clay mining from relevant mining records.

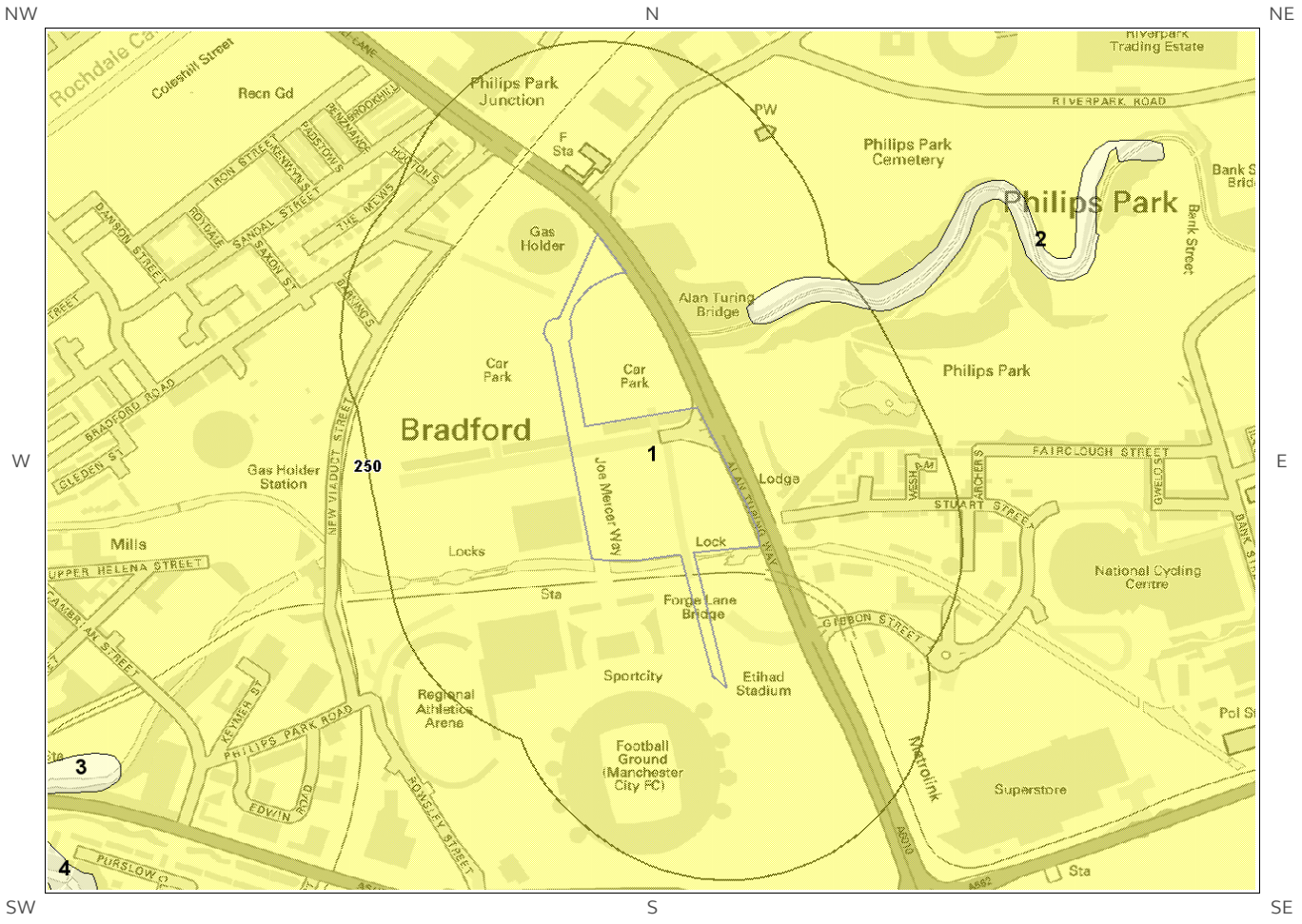
Are there any Clay Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

---

6 Natural Ground Subsidence

6.1 Shrink-Swell Clay map



Shrink Swell Clay Legend

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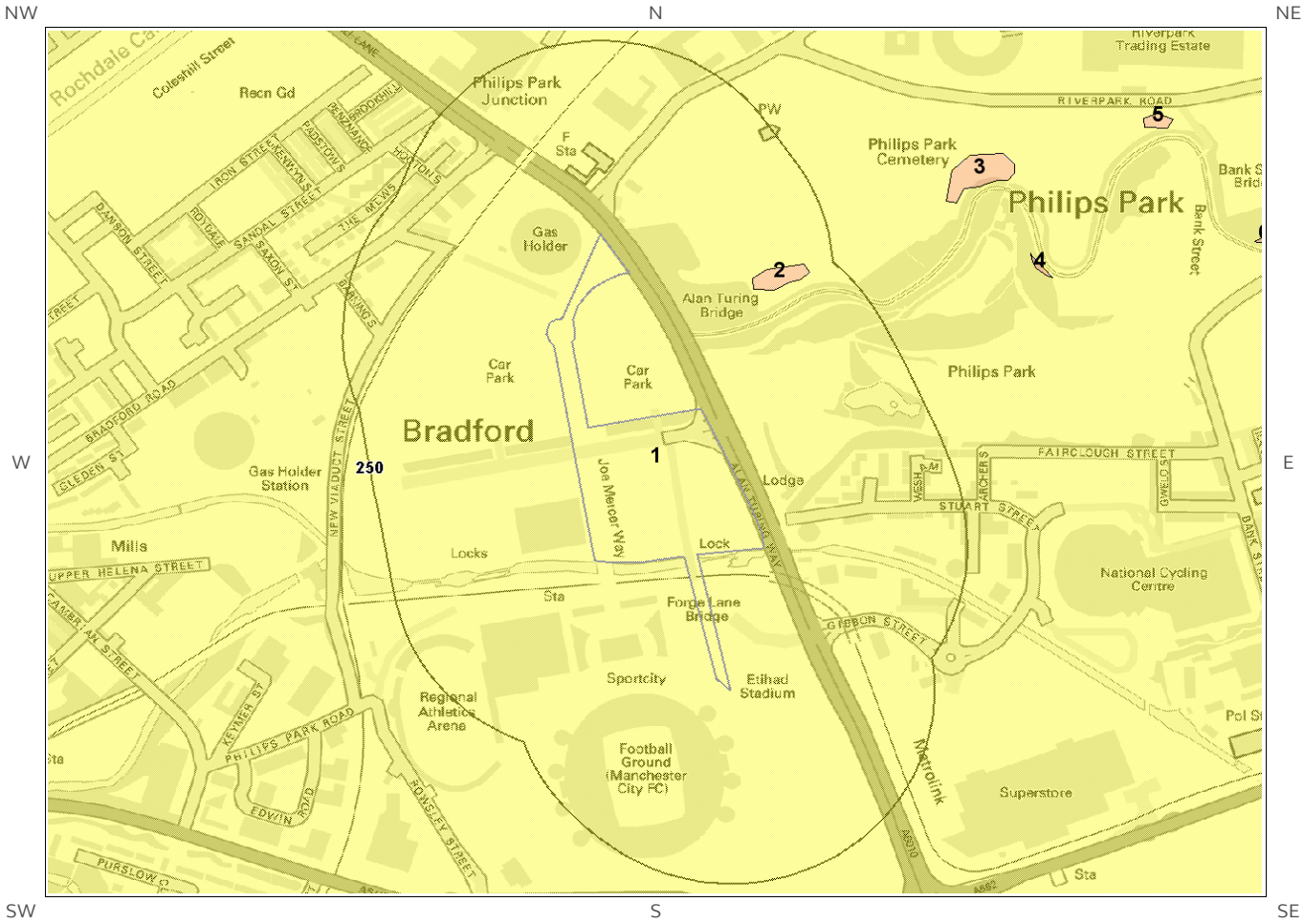
6.2 Landslides map



Landslides Legend

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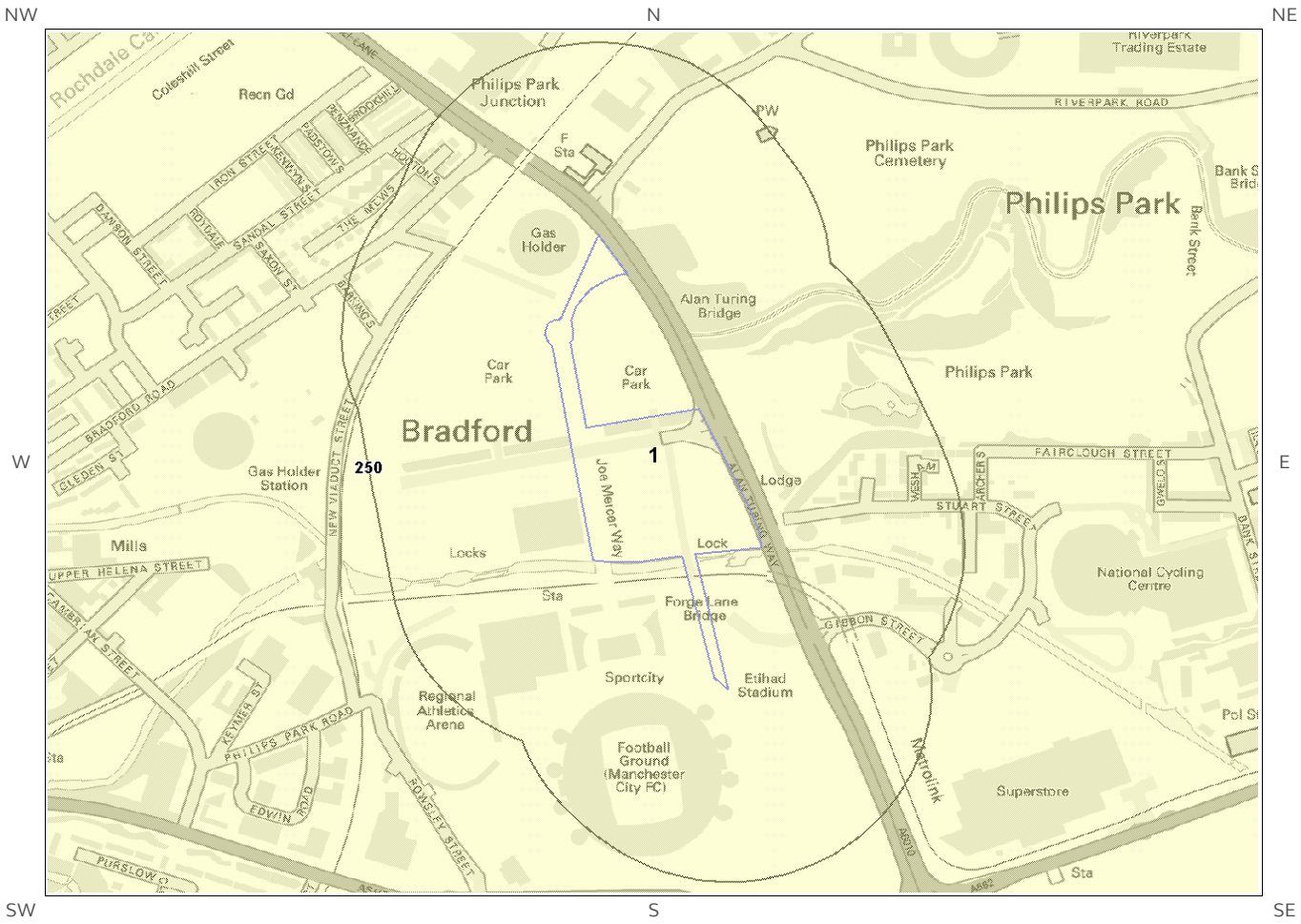
6.3 Ground Dissolution of Soluble Rocks map



Ground Dissolution Soluble Rocks Legend

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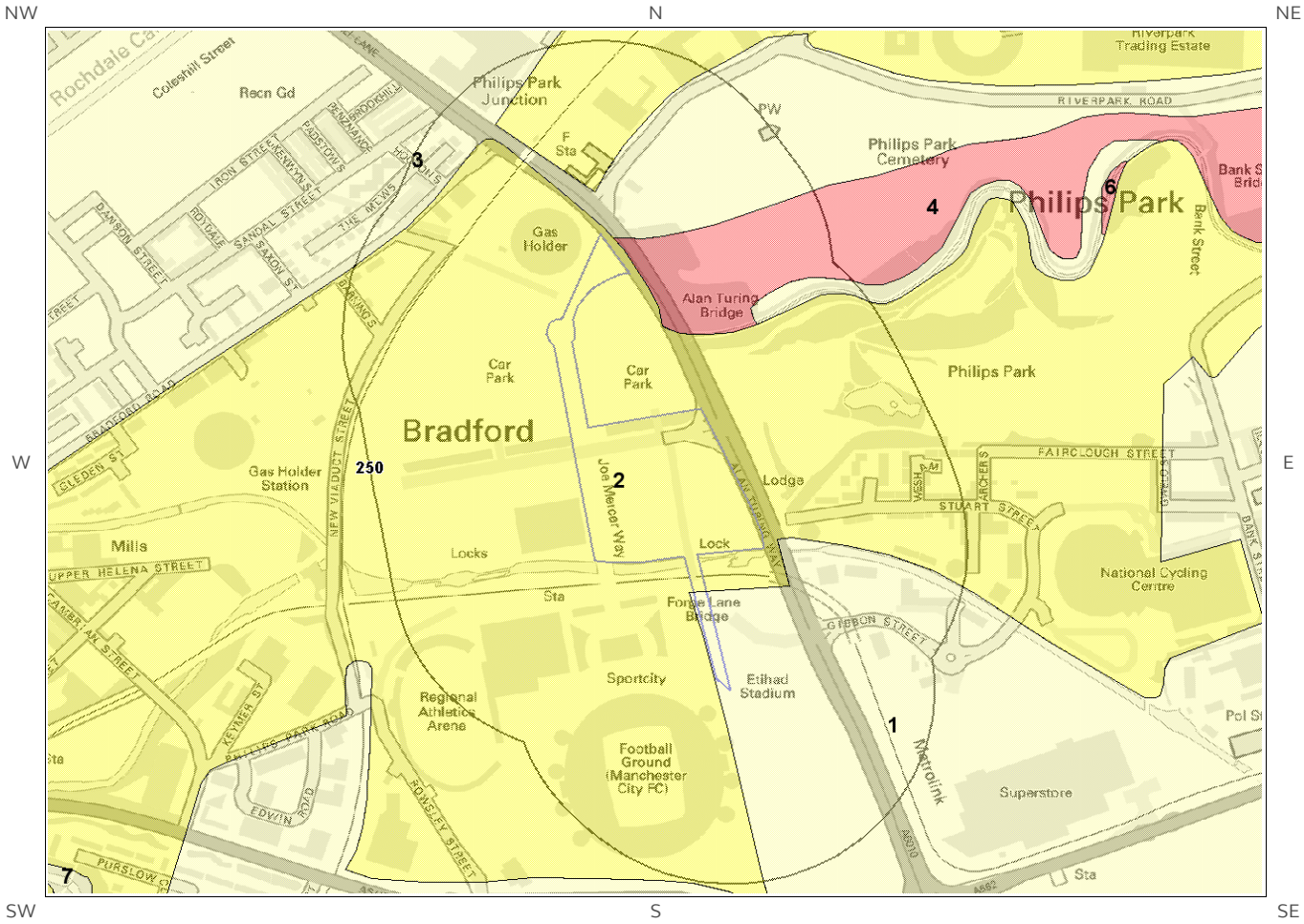
6.4 Compressible Deposits map



Compressible Deposits Legend

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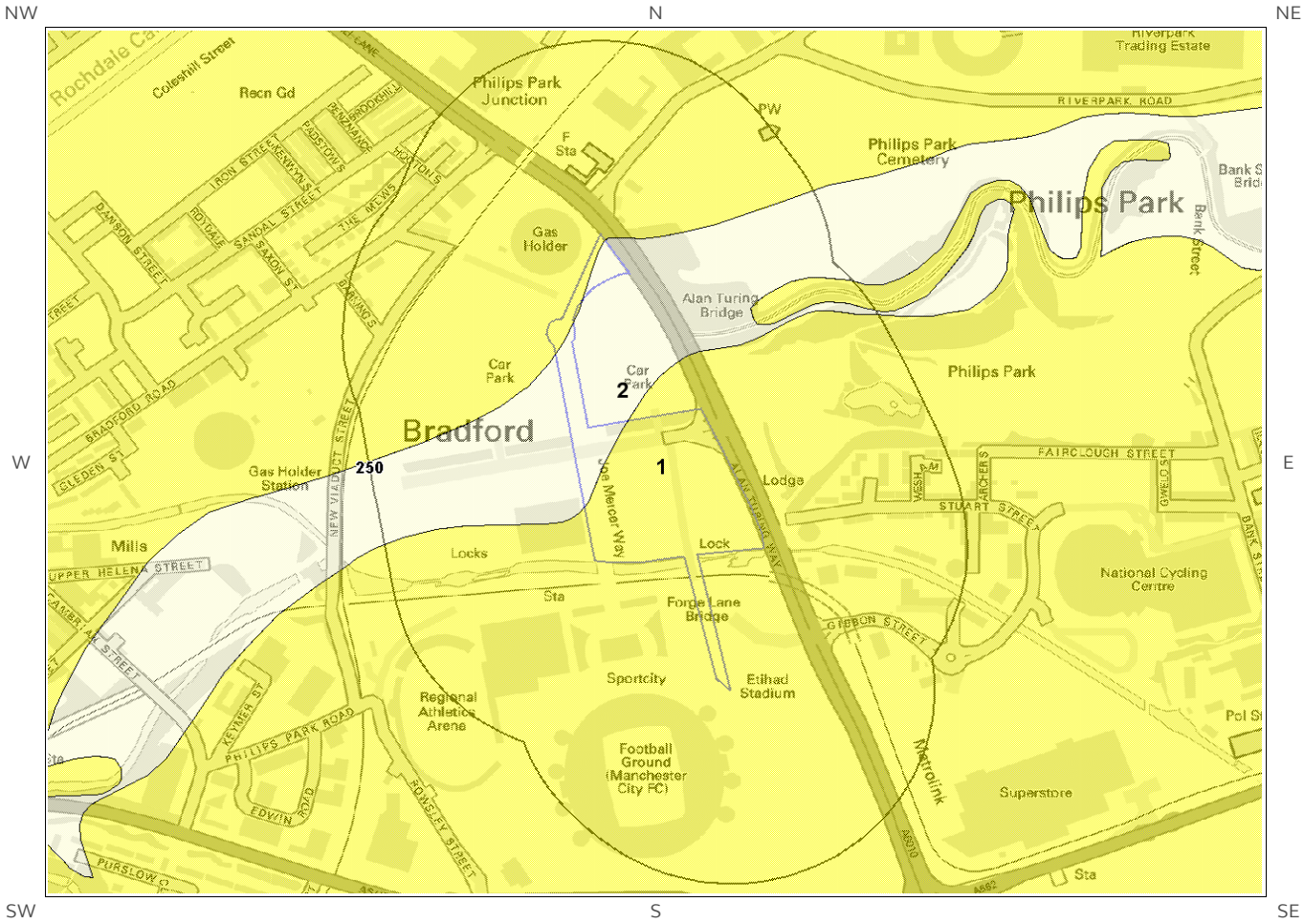
6.5 Collapsible Deposits map



Collapsible Deposits Legend

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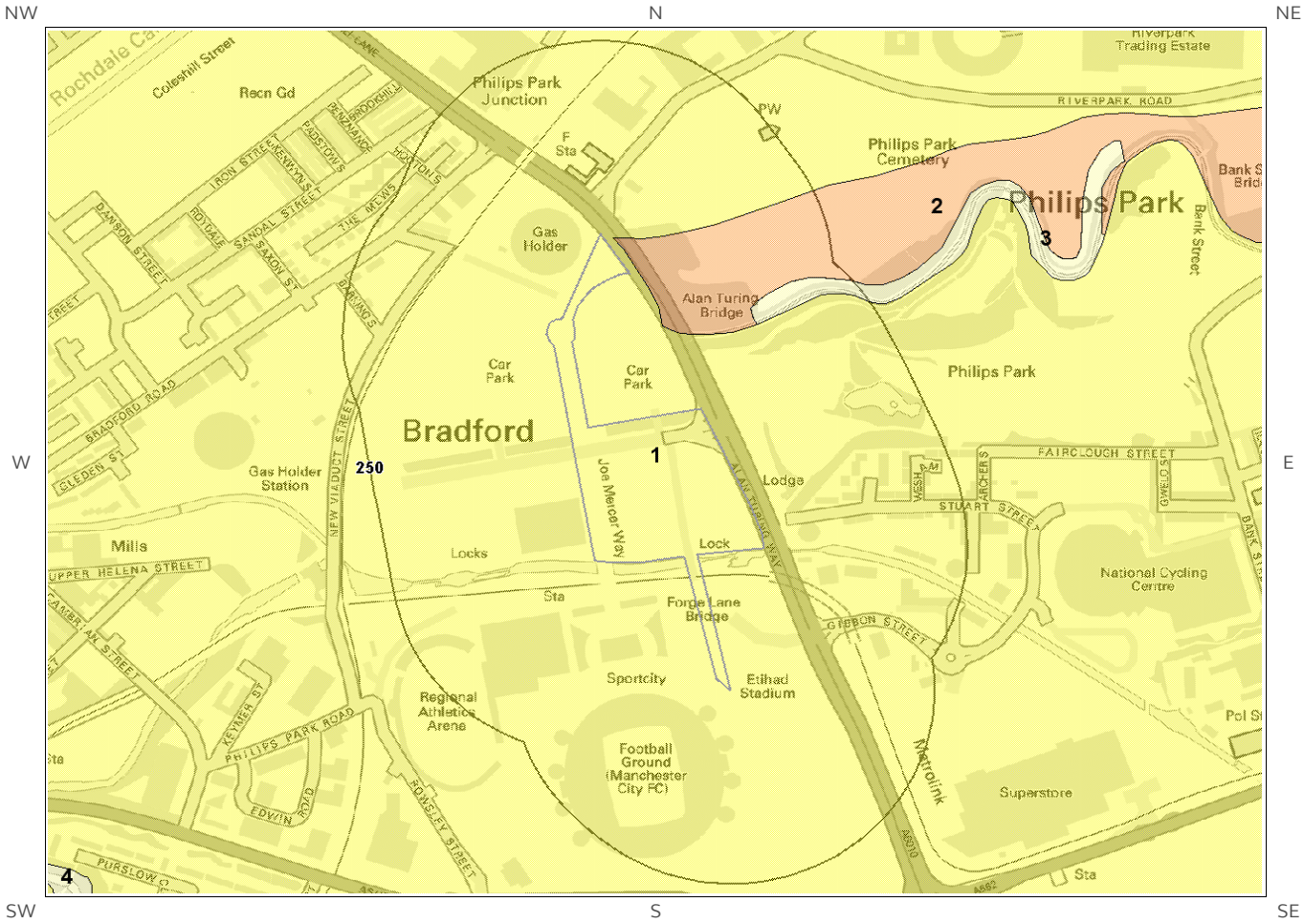
6.6 Running Sand map



Running Sand Legend

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Site Outline

125
250
Search Buffers (m)

No Data / Null

Negligible

Very Low

Low

Moderate

High

6 Natural Ground Subsidence

The National Ground Subsidence rating is obtained through the 6 natural ground stability hazard datasets, which are supplied by the British Geological Survey (BGS).

The following GeoSure data represented on the mapping is derived from the BGS Digital Geological map of Great Britain at 1:50,000 scale.

What is the maximum hazard rating of natural subsidence within the study site*[*] boundary? Moderate

6.1 Shrink-Swell Clays

The following Shrink Swell information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.

6.2 Landslides

The following Landslides information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

6.3 Ground Dissolution of Soluble Rocks

The following Ground Dissolution information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

* This includes an automatically generated 50m buffer zone around the site

6.4 Compressible Deposits

The following Compressible Deposits information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.
2	0.0	On Site	Very Low	Very low potential for compressible deposits to be present. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.
3	9.0	NE	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.
4	10.0	NE	Moderate	Significant potential for compressibility problems. Avoid large differential loadings of ground. Do not drain or de-water ground near the property without technical advice. For new build - consider possibility of compressible ground in ground investigation, construction and building design. Consider effects of groundwater changes. Extra construction costs are likely. For existing property - possible increase in insurance risk from compressibility, especially if water conditions or loading of the ground change significantly.

6.5 Collapsible Deposits

The following Collapsible Rocks information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.
2	0.0	On Site	Negligible	No indicators for collapsible deposits identified. No actions required to avoid problems due to collapsible deposits. No special ground investigation required, or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

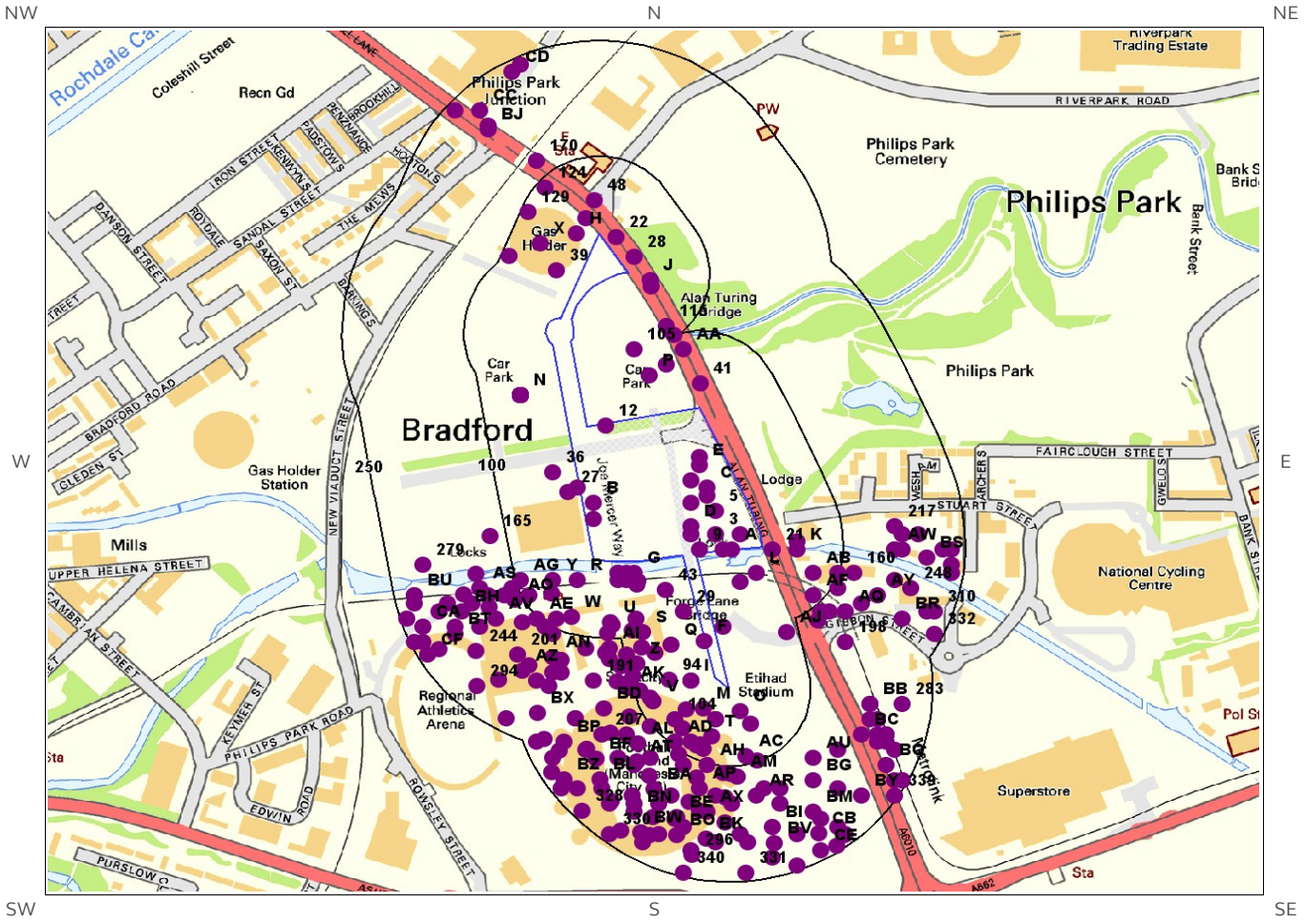
6.6 Running Sands

The following Running Sands information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

ID	Distance (m)	Direction	Hazard Rating	Details
2	10.0	NE	Low	Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build - consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property - no significant increase in insurance risk due to running sand problems is likely.

7 Borehole Records map



Borehole Records Legend

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Site Outline

Borehole Locations

125
250
Search Buffers (m)

7 Borehole Records

The systematic analysis of data extracted from the BGS Borehole Records database provides the following information.

Records of boreholes within 250m of the study site boundary: 340

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1A	0.0	On Site	386910 398800	SJ89NE1669	No details	EASTLANDS PLOT 29 BH1/29
2A	0.0	On Site	386900 398800	SJ89NE1671	No details	EASTLANDS PLOT 29 TH2/29
3	0.0	On Site	386890 398820	SJ89NE1662	No details	EASTLANDS PLOT 26 TH1/26
4A	0.0	On Site	386920 398820	SJ89NE1672	No details	EASTLANDS PLOT 29 TH3/29
5	0.0	On Site	386890 398850	SJ89NE1664	No details	EASTLANDS PLOT 26 TH3/26
6C	0.0	On Site	386880 398880	SJ89NE1666	No details	EASTLANDS PLOT 26 TH5/26
7D	0.0	On Site	386860 398830	SJ89NE1663	No details	EASTLANDS PLOT 26 TH2/26
8E	0.0	On Site	386870 398910	SJ89NE1668	No details	EASTLANDS PLOT 26 TH7/26
9	0.0	On Site	386870 398800	SJ89NE1670	No details	EASTLANDS PLOT 29 TH1/29
10B	0.0	On Site	386740 398860	SJ89NE627	15	LOWER MEDLOCK UCSO 519A
11B	0.0	On Site	386740 398840	SJ89NE626	30.05	LOWER MEDLOCK UCSO 519
12	0.0	On Site	386755 398961	SJ89NE79	4.57	MANCHESTER CORP. BRADFORD GAS WORKS
13C	0.0	On Site	386860 398890	SJ89NE1667	No details	EASTLANDS PLOT 26 TH6/26
14D	0.0	On Site	386860 398820	SJ89NE1661	No details	EASTLANDS PLOT 26 BH2/26
15C	0.0	On Site	386860 398860	SJ89NE1665	No details	EASTLANDS PLOT 26 TH4/26
16C	0.0	On Site	386880 398870	SJ89NE1660	No details	EASTLANDS PLOT 26 BH1/26
17E	0.0	On Site	386870 398920	SJ89NE211	65	EASTLANDS R5
18F	2.0	W	386876 398681	SJ89NE1492	4.5	MANCHESTER STADIUM PHASE1 TPA25
19B	3.0	W	386720 398880	SJ89NE625	20.27	LOWER MEDLOCK UCSO 518
20F	11.0	E	386900 398700	SJ89NE1493	4.5	MANCHESTER STADIUM PHASE1 TPA29
21	13.0	E	386960 398800	SJ89NE513	13.4	INTERMEDIATE RING ROAD MC3
22	14.0	NE	386768 399206	SJ89NE58	9.14	MANCHESTER CORP. HULME HALL LANE

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
23G	15.0	S	386790 398770	SJ89NE2193	No details	MANCHESTER METROLINK-ADDITIONAL WORKS TPA7
24G	15.0	S	386780 398770	SJ89NE2191	No details	MANCHESTER METROLINK-ADDITIONAL WORKS TPA5
25G	15.0	S	386770 398770	SJ89NE2190	No details	MANCHESTER METROLINK-ADDITIONAL WORKS TPA4
26G	15.0	S	386770 398770	SJ89NE2189	No details	MANCHESTER METROLINK-ADDITIONAL WORKS TPA3
27	16.0	W	386708 398874	SJ89NE78	6.1	MANCHESTER CORP. BRADFORD GAS WORKS
28	17.0	NE	386790 399180	SJ89NE632	20.1	LOWER MEDLOCK UCSO 401
29	18.0	W	386850 398720	SJ89NE1659	No details	EASTLANDS PLOT 23 R1/23
30G	25.0	S	386780 398760	SJ89NE2192	No details	MANCHESTER METROLINK-ADDITIONAL WORKS TPA6
31H	25.0	NW	386719 399210	SJ89NE91	19.81	MANCHESTER CORP. GAS WORKS BRADFORD ROAD 1
32H	25.0	NW	386730 399230	SJ89NE518	29.65	INTERMEDIATE RING ROAD GW2
33G	25.0	S	386770 398760	SJ89NE2188	No details	MANCHESTER METROLINK-ADDITIONAL WORKS TPA2
34G	26.0	S	386794 398759	SJ89NE1591	85	MANCHESTER STADIUM PHASE1 SHF1
35J	28.0	E	386810 399150	SJ89NE633	30.1	LOWER MEDLOCK UCSO 402
36	29.0	W	386690 398900	SJ89NE624	30.14	LOWER MEDLOCK UCSO 517
37I	29.0	W	386860 398630	SJ89NE1495	3	MANCHESTER STADIUM PHASE1 TPA31
38I	29.0	W	386860 398630	SJ89NE1494	3	MANCHESTER STADIUM PHASE1 TPA31
39	30.0	NW	386694 399162	SJ89NE90	19.81	MANCHESTER CORP. GAS WORKS BRADFORD ROAD 2
40G	31.0	S	386793 398754	SJ89NE1592	18	MANCHESTER STADIUM PHASE1 SHF2
41	32.0	N	386872 399016	SJ89NE85	17.07	MANCHESTER CORP. MILL STREET
42O	32.0	SE	386920 398590	SJ89NE217	65	EASTLANDS R11
43	33.0	W	386828 398747	SJ89NE1450	14.9	MANCHESTER STADIUM PHASE1 A38
44L	33.0	S	386940 398770	SJ89NE216	65.25	EASTLANDS R10
45J	33.0	SE	386811 399142	SJ89NE59	7.62	MANCHESTER CORP. HULME HALL LANE
46R	34.0	SW	386720 398760	SJ89NE2187	No details	MANCHESTER METROLINK-ADDITIONAL WORKS TPA1
47M	41.0	SW	386875 398594	SJ89NE1513	4.5	MANCHESTER STADIUM PHASE1 TPA49

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
48	42.0	N	386741 399253	SJ89NE57	9.75	MANCHESTER CORP. HULME HALL LANE
49K	42.0	E	386990 398800	SJ89NE511	16.1	INTERMEDIATE RING ROAD MC1
50K	42.0	E	386990 398810	SJ89NE512	30.36	INTERMEDIATE RING ROAD MC2
51L	43.0	S	386920 398758	SJ89NE1597	54	MANCHESTER STADIUM PHASE1 SH1
52Q	43.0	W	386835 398676	SJ89NE1491	4.5	MANCHESTER STADIUM PHASE1 TPA24
53M	43.0	SW	386890 398580	SJ89NE1691	No details	EASTLANDS PLOTS 35C,35D & 36 TH1/35
54M	43.0	SW	386890 398580	SJ89NE1716	No details	EASTLANDS PLOTS 35C,35D & 36 BH1/35
55P	51.0	N	386809 399026	SJ89NE80	7.32	MANCHESTER CORP. BRADFORD GAS WORKS
56N	51.0	W	386650 399000	SJ89NE371	2	BRADFORD ROAD GASWORKS CP2/2
57N	51.0	W	386650 399000	SJ89NE382	18	BRADFORD ROAD GASWORKS RC3
58N	51.0	W	386650 399000	SJ89NE366	57	BRADFORD ROAD GASWORKS S12 KB1
59N	51.0	W	386650 399000	SJ89NE367	11	BRADFORD ROAD GASWORKS S13 AB1
60N	51.0	W	386650 399000	SJ89NE373	0	BRADFORD ROAD GASWORKS CP3/1
61N	51.0	W	386650 399000	SJ89NE363	0	BRADFORD ROAD GASWORKS S10 AB1
62N	51.0	W	386650 399000	SJ89NE349	120	BRADFORD ROAD GASWORKS S2/9 KB2
63N	51.0	W	386650 399000	SJ89NE374	9	BRADFORD ROAD GASWORKS CP3/2
64N	51.0	W	386650 399000	SJ89NE359	51	BRADFORD ROAD GASWORKS S5 KB1
65N	51.0	W	386650 399000	SJ89NE357	14	BRADFORD ROAD GASWORKS S5 AB1
66N	51.0	W	386650 399000	SJ89NE352	110	BRADFORD ROAD GASWORKS S10 KB1
67N	51.0	W	386650 399000	SJ89NE375	30	BRADFORD ROAD GASWORKS CP4
68N	51.0	W	386650 399000	SJ89NE370	1	BRADFORD ROAD GASWORKS CP2/1
69N	51.0	W	386650 399000	SJ89NE356	58	BRADFORD ROAD GASWORKS S4 KB2
70N	51.0	W	386650 399000	SJ89NE360	13	BRADFORD ROAD GASWORKS S7 AB1
71N	51.0	W	386650 399000	SJ89NE350	12	BRADFORD ROAD GASWORKS S10 AB2
72N	51.0	W	386650 399000	SJ89NE347	16	BRADFORD ROAD GASWORKS S2/9 AB2
73N	51.0	W	386650 399000	SJ89NE361	12	BRADFORD ROAD GASWORKS S7 AB2
74N	51.0	W	386650 399000	SJ89NE378	0	BRADFORD ROAD GASWORKS CP7/1
75N	51.0	W	386650 399000	SJ89NE369	12	BRADFORD ROAD GASWORKS CP1
76N	51.0	W	386650 399000	SJ89NE364	9	BRADFORD ROAD GASWORKS S12 AB1

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
77N	51.0	W	386650 399000	SJ89NE358	12	BRADFORD ROAD GASWORKS S5 AB2
78N	51.0	W	386650 399000	SJ89NE372	26	BRADFORD ROAD GASWORKS CP2/3
79N	51.0	W	386650 399000	SJ89NE362	12	BRADFORD ROAD GASWORKS S8 AB1
80N	51.0	W	386650 399000	SJ89NE377	30	BRADFORD ROAD GASWORKS CP6
81N	51.0	W	386650 399000	SJ89NE346	12	BRADFORD ROAD GASWORKS S2/9 AB1
82N	51.0	W	386650 399000	SJ89NE376	30	BRADFORD ROAD GASWORKS CP5
83N	51.0	W	386650 399000	SJ89NE368	11	BRADFORD ROAD GASWORKS S13 AB2
84N	51.0	W	386650 399000	SJ89NE379	25	BRADFORD ROAD GASWORKS CP7/2
85N	51.0	W	386650 399000	SJ89NE365	9	BRADFORD ROAD GASWORKS S12 AB2
86N	51.0	W	386650 399000	SJ89NE348	12	BRADFORD ROAD GASWORKS S2/9 AB3
87N	51.0	W	386650 399000	SJ89NE353	14	BRADFORD ROAD GASWORKS S4 AB1
88N	51.0	W	386650 399000	SJ89NE354	11	BRADFORD ROAD GASWORKS S4 AB2
89N	51.0	W	386650 399000	SJ89NE380	69	BRADFORD ROAD GASWORKS RC1/4
90N	51.0	W	386650 399000	SJ89NE351	11	BRADFORD ROAD GASWORKS S10 AB3
91N	51.0	W	386650 399000	SJ89NE381	60	BRADFORD ROAD GASWORKS RC2
92N	51.0	W	386650 399000	SJ89NE355	7	BRADFORD ROAD GASWORKS S4 KB1
93O	52.0	SE	386933 398574	SJ89NE1515	2.6	MANCHESTER STADIUM PHASE1 TPA58
94	55.0	W	386833 398631	SJ89NE1496	3	MANCHESTER STADIUM PHASE1 TPA32
95M	56.0	SW	386854 398592	SJ89NE1416	37.1	MANCHESTER STADIUM PHASE 1 A06
96Y	57.0	SW	386690 398760	SJ89NE1655	No details	EASTLANDS PLOT 19 TH 1/19
97X	61.0	NW	386675 399198	SJ89NE92	22.86	MANCHESTER CORP. GAS WORKS BRADFORD ROAD 5
98P	61.0	N	386830 399040	SJ89NE519	25	INTERMEDIATE RING ROAD MR3
99Q	64.0	W	386816 398666	SJ89NE1490	1.8	MANCHESTER STADIUM PHASE1 TPA23
100T	66.0	S	386886 398557	SJ89NE1471	24	MANCHESTER STADIUM PHASE1 PHA03
101R	68.0	SW	386689 398743	SJ89NE1473	21	MANCHESTER STADIUM PHASE1 PHA05
102A B	71.0	SE	387010 398770	SJ89NE1454	No details	EASTLANDS PLOT 38 TH 1/38
103S	73.0	W	386800 398693	SJ89NE1570	3	MANCHESTER STADIUM PHASE1 TPA120
104	74.0	SW	386840 398580	SJ89NE1692	No details	EASTLANDS PLOTS 35C,35D & 36 TH2/35
105	75.0	E	386790 399060	SJ89NE516	12	INTERMEDIATE RING ROAD MR4/4A

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
106S	75.0	S	386792 398710	SJ89NE1474	4.5	MANCHESTER STADIUM PHASE1 TPA08
107T	77.0	SW	386849 398568	SJ89NE1516	3.5	MANCHESTER STADIUM PHASE1 TPA59
108AA	78.0	N	386850 399060	SJ89NE514	7.2	INTERMEDIATE RING ROAD MR1
109S	78.0	W	386799 398673	SJ89NE1569	3.3	MANCHESTER STADIUM PHASE1 TPA119
110W	79.0	S	386713 398713	SJ89NE1413	No details	MANCHESTER STADIUM PHASE 1 A04
111U	81.0	S	386761 398705	SJ89NE141	No details	BORING AT BENSON STREET
112T	81.0	SW	386871 398547	SJ89NE1441	17.3	MANCHESTER STADIUM PHASE1 A31B
113V	83.0	SW	386813 398603	SJ89NE1512	1.2	MANCHESTER STADIUM PHASE1 TPA48
114U	84.0	S	386763 398702	SJ89NE1475	3.3	MANCHESTER STADIUM PHASE1 TPA09
115	84.0	SE	386830 399090	SJ89NE515	10	INTERMEDIATE RING ROAD MR2
116V	84.0	W	386810 398608	SJ89NE1445	15.52	MANCHESTER STADIUM PHASE1 A33C
117T	84.0	SW	386867 398546	SJ89NE1439	1.4	MANCHESTER STADIUM PHASE1 A31
118T	84.0	SW	386867 398546	SJ89NE1438	1.4	MANCHESTER STADIUM PHASE1 A31
119S	84.0	W	386788 398695	SJ89NE1571	3.3	MANCHESTER STADIUM PHASE1 TPA121
120T	84.0	SW	386860 398550	SJ89NE1698	No details	EASTLANDS PLOTS 35C,35D & 36 TH8/35
121T	85.0	SW	386875 398541	SJ89NE1440	1.5	MANCHESTER STADIUM PHASE1 A31A
122AJ	85.0	E	386978 398693	SJ89NE1405	No details	MANCHESTER STADIUM PHASE1 A02
123AF	89.0	SE	387010 398740	SJ89NE2194	No details	MANCHESTER METROLINK-ADDITIONAL WORKS TPA8
124	89.0	NW	386680 399270	SJ89NE517	21.1	INTERMEDIATE RING ROAD GW1
125Z	89.0	W	386793 398652	SJ89NE1568	3	MANCHESTER STADIUM PHASE1 TPA118
126AC	90.0	S	386927 398532	SJ89NE1593	3.2	MANCHESTER STADIUM PHASE1 TPGG
127W	90.0	SW	386694 398710	SJ89NE1476	4.5	MANCHESTER STADIUM PHASE1 TPA10
128X	90.0	NW	386636 399181	SJ89NE89	18.29	MANCHESTER CORP. GAS WORKS BRADFORD ROAD 3
129	91.0	NW	386659 399238	SJ89NE88	12.19	MANCHESTER CORP. GAS WORKS BRADFORD ROAD 4
130Y	93.0	SW	386660 398740	SJ89NE1656	No details	EASTLANDS PLOT 19 TH 2/19
131V	94.0	W	386797 398617	SJ89NE1561	2	MANCHESTER STADIUM PHASE1 TPA111A
132AG	94.0	W	386650 398760	SJ89NE1654	No details	EASTLANDS PLOT 19 R1/19
133U	95.0	S	386757 398691	SJ89NE1573	3	MANCHESTER STADIUM PHASE1 TPA123

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
134AD	97.0	SW	386840 398550	SJ89NE1717	No details	EASTLANDS PLOTS 35C,35D & 36 BH2/35
135Z	97.0	W	386789 398636	SJ89NE1567	3	MANCHESTER STADIUM PHASE1 TPA117
136AA	97.0	N	386839 399078	SJ89NE60	5.49	MANCHESTER CORP. HULME HALL LANE
137AB	98.0	E	387040 398770	SJ89NE1466	No details	EASTLANDS PLOT 38 1/38
138V	99.0	W	386792 398617	SJ89NE1443	2	MANCHESTER STADIUM PHASE1 A33A
139AC	99.0	S	386941 398526	SJ89NE1514	3.7	MANCHESTER STADIUM PHASE1 TPA56
140Z	99.0	W	386780 398663	SJ89NE1414	35.1	MANCHESTER STADIUM PHASE 1 A05
141AD	103.0	SW	386810 398570	SJ89NE1693	No details	EASTLANDS PLOTS 35C,35D & 36 TH3/35
142V	103.0	W	386787 398620	SJ89NE1442	1.4	MANCHESTER STADIUM PHASE1 A33
143AH	103.0	S	386880 398520	SJ89NE1699	No details	EASTLANDS PLOTS 35C,35D & 36 TH9/35
144AE	104.0	SW	386670 398710	SJ89NE1624	No details	EASTLANDS PLOT 14 TH 1/14
145AD	106.0	SW	386845 398534	SJ89NE1517	1.7	MANCHESTER STADIUM PHASE1 TPA60
146AE	106.0	SW	386680 398700	SJ89NE1622	No details	EASTLANDS PLOT 14 1/14
147AF	107.0	SE	387040 398750	SJ89NE1456	No details	EASTLANDS PLOT 38 TH 3/38
148AG	107.0	W	386640 398750	SJ89NE1658	No details	EASTLANDS PLOT 19 1/19
149AK	108.0	W	386782 398620	SJ89NE1444	2	MANCHESTER STADIUM PHASE1 A33B
150AE	109.0	SW	386690 398690	SJ89NE1625	No details	EASTLANDS PLOT 14 TH 2/14
151AH	110.0	S	386900 398510	SJ89NE1713	No details	EASTLANDS PLOTS 35C,35D & 36 TH23/35
152Z	110.0	W	386773 398648	SJ89NE1566	3	MANCHESTER STADIUM PHASE1 TPA116
153AF	110.0	SE	387020 398720	SJ89NE1455	No details	EASTLANDS PLOT 38 TH 2/38
154AH	110.0	S	386909 398509	SJ89NE1532	3.2	MANCHESTER STADIUM PHASE1 TPA76
155AO	110.0	SW	386643 398735	SJ89NE1478	4.5	MANCHESTER STADIUM PHASE1 TPA12
156AI	114.0	S	386760 398672	SJ89NE1489	3.2	MANCHESTER STADIUM PHASE1 TPA22A
157AM	115.0	S	386917 398505	SJ89NE1417	30.4	MANCHESTER STADIUM PHASE1 A07
158AH	115.0	SW	386850 398520	SJ89NE1700	No details	EASTLANDS PLOTS 35C,35D & 36 TH10/35
159AI	116.0	S	386730 398672	SJ89NE1574	3	MANCHESTER STADIUM PHASE1 TPA124
160	117.0	E	387060 398770	SJ89NE1457	No details	EASTLANDS PLOT 38 TH 4/38
161AF	117.0	SE	387030 398720	SJ89NE2195	No details	MANCHESTER METROLINK-ADDITIONAL WORKS TPA9
162AJ	117.0	SE	387016 398708	SJ89NE142	No details	BORING AT AFRICA MILLS

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
163V	117.0	SW	386784 398583	SJ89NE1511	4.5	MANCHESTER STADIUM PHASE1 TPA47
164AK	118.0	W	386769 398629	SJ89NE1497	4.5	MANCHESTER STADIUM PHASE1 TPA33
165	120.0	W	386613 398818	SJ89NE77	11.58	MANCHESTER CORP. BRADFORD GAS WORKS
166AI	120.0	S	386755 398666	SJ89NE1572	3	MANCHESTER STADIUM PHASE1 TPA122
167AI	120.0	W	386760 398658	SJ89NE1488	2.4	MANCHESTER STADIUM PHASE1 TPA22
168AE	120.0	SW	386652 398706	SJ89NE1477	4.5	MANCHESTER STADIUM PHASE1 TPA11
169AG	120.0	SW	386630 398740	SJ89NE1657	No details	EASTLANDS PLOT 19 TH 3/19
170	121.0	NW	386670 399305	SJ89NE56	6.1	MANCHESTER CORP. HULME HALL LANE
171AH	122.0	S	386867 398504	SJ89NE1531	4.5	MANCHESTER STADIUM PHASE1 TPA75
172AL	129.0	SW	386794 398548	SJ89NE1419	53.7	MANCHESTER STADIUM PHASE1 A10
173AL	131.0	SW	386810 398530	SJ89NE1697	No details	EASTLANDS PLOTS 35C,35D & 36 TH7/35
174AQ	132.0	SE	387050 398720	SJ89NE1467	No details	EASTLANDS PLOT 38 2/38
175AL	133.0	SW	386780 398560	SJ89NE1694	No details	EASTLANDS PLOTS 35C,35D & 36 TH4/35
176AP	135.0	S	386870 398490	SJ89NE1710	No details	EASTLANDS PLOTS 35C,35D & 36 TH20/35
177AU	136.0	SE	387010 398530	SJ89NE1689	No details	EASTLANDS PLOT 35B TH14
178AM	136.0	S	386950 398490	SJ89NE1685	No details	EASTLANDS PLOT 35B TH10
179AN	137.0	S	386690 398660	SJ89NE1627	No details	EASTLANDS PLOT 14 TH 4/14
180AN	137.0	S	386700 398656	SJ89NE1487	4.5	MANCHESTER STADIUM PHASE1 TPA21
181AO	139.0	W	386610 398740	SJ89NE2178	No details	MANCHESTER METROLINK-EAST OF ARDWICK VOL 1 BHZ2
182AP	140.0	S	386890 398480	SJ89NE1721	No details	EASTLANDS PLOTS 35C,35D & 36 BH6/35
183AP	142.0	S	386902 398478	SJ89NE1533	2.5	MANCHESTER STADIUM PHASE1 TPA82
184BD	142.0	W	386753 398594	SJ89NE1510	3.1	MANCHESTER STADIUM PHASE1 TPA46
185AQ	143.0	SE	387070 398730	SJ89NE1458	No details	EASTLANDS PLOT 38 TH 5/38
186AV	143.0	SW	386620 398710	SJ89NE1651	No details	EASTLANDS PLOT 18 TH 1/18
187AR	143.0	S	386940 398480	SJ89NE1673	No details	EASTLANDS PLOT 35B BH1
188AO	144.0	SW	386611 398725	SJ89NE1449	13.1	MANCHESTER STADIUM PHASE1 A37
189AR	144.0	SE	386970 398490	SJ89NE210	65	EASTLANDS R4
190AS	145.0	W	386600 398750	SJ89NE1653	No details	EASTLANDS PLOT 18 TH 3/18
191	146.0	W	386740 398630	SJ89NE215	65	EASTLANDS R9

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
192AS	146.0	W	386595 398769	SJ89NE83	17.98	MANCHESTER CORP. NEAR HAVEN STREET
193AT	146.0	SW	386793 398525	SJ89NE1518	4.5	MANCHESTER STADIUM PHASE1 TPA61
194AL	148.0	SW	386761 398562	SJ89NE1556	3.5	MANCHESTER STADIUM PHASE1 TPA107
195AR	149.0	S	386910 398470	SJ89NE1714	No details	EASTLANDS PLOTS 35C,35D & 36 TH24/35
196AT	150.0	SW	386809 398506	SJ89NE1437	18.18	MANCHESTER STADIUM PHASE1 A30A
197AT	152.0	SW	386790 398520	SJ89NE1718	No details	EASTLANDS PLOTS 35C,35D & 36 BH3/35
198	153.0	E	387050 398680	SJ89NE2196	No details	MANCHESTER METROLINK-ADDITIONAL WORKS TPA10
199AN	153.0	S	386700 398640	SJ89NE1629	No details	EASTLANDS PLOT 14 TH 6/14
200AU	154.0	SE	387040 398540	SJ89NE1690	No details	EASTLANDS PLOT 35B TH15
201	155.0	SW	386647 398663	SJ89NE1484	4.2	MANCHESTER STADIUM PHASE1 TPA18
202AP	156.0	S	386858 398472	SJ89NE1429	15.3	MANCHESTER STADIUM PHASE1 A23
203AN	156.0	S	386690 398640	SJ89NE1623	No details	EASTLANDS PLOT 14 2/14
204AY	156.0	SE	387090 398740	SJ89NE1459	No details	EASTLANDS PLOT 38 TH 6/38
205AP	156.0	SW	386835 398481	SJ89NE1555	4.5	MANCHESTER STADIUM PHASE1 TPA106
206BG	157.0	SE	387010 398500	SJ89NE1686	No details	EASTLANDS PLOT 35B TH11
207	158.0	SW	386750 398560	SJ89NE1695	No details	EASTLANDS PLOTS 35C,35D & 36 TH5/35
208AN	159.0	SW	386660 398650	SJ89NE1626	No details	EASTLANDS PLOT 14 TH 3/14
209AL	159.0	SW	386770 398530	SJ89NE1696	No details	EASTLANDS PLOTS 35C,35D & 36 TH6/35
210BA	161.0	SW	386814 398489	SJ89NE1530	3.2	MANCHESTER STADIUM PHASE1 TPA74
211AV	161.0	W	386590 398730	SJ89NE1652	No details	EASTLANDS PLOT 18 TH 2/18
212AX	162.0	S	386880 398460	SJ89NE1711	No details	EASTLANDS PLOTS 35C,35D & 36 TH21/35
213AR	162.0	SE	386970 398470	SJ89NE1684	No details	EASTLANDS PLOT 35B TH9
214AW	162.0	E	387110 398800	SJ89NE1795	No details	EASTLANDS PLOT 69 BHR1/69
215AW	162.0	E	387110 398800	SJ89NE241	65	EASTLANDS R1/69
216AX	163.0	S	386870 398461	SJ89NE1472	18	MANCHESTER STADIUM PHASE1 PHA04
217	164.0	E	387110 398830	SJ89NE1796	No details	EASTLANDS PLOT 69 TH1/69
218AV	165.0	SW	386600 398700	SJ89NE1650	No details	EASTLANDS PLOT 18 1/18
219AS	167.0	W	386580 398742	SJ89NE76	17.83	MANCHESTER CORP. BRADFORD GAS WORKS
220AY	168.0	E	387110 398760	SJ89NE1468	No details	EASTLANDS PLOT 38 3/38

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
221AZ	170.0	SW	386652 398642	SJ89NE1485	4.5	MANCHESTER STADIUM PHASE1 TPA19
222AW	172.0	E	387120 398800	SJ89NE1798	No details	EASTLANDS PLOT 69 TH3/69
223AZ	172.0	SW	386670 398630	SJ89NE1628	No details	EASTLANDS PLOT 14 TH 5/14
224AW	173.0	E	387120 398820	SJ89NE1800	No details	EASTLANDS PLOT 69 BH1/69
225BC	173.0	E	387070 398560	SJ89NE214	63	EASTLANDS R8
226BA	173.0	SW	386820 398470	SJ89NE1706	No details	EASTLANDS PLOTS 35C,35D & 36 TH16/35
227AZ	173.0	S	386685 398623	SJ89NE1498	4.5	MANCHESTER STADIUM PHASE1 TPA34
228BB	173.0	E	387080 398600	SJ89NE2197	No details	MANCHESTER METROLINK-ADDITIONAL WORKS TPA11
229BB	173.0	E	387080 398600	SJ89NE2001	No details	MANCHESTER METRO PHASE 3 EXTENSION TO COMMONWEALTH WEALTH GAMES STADIUM TP J23
230AX	173.0	S	386902 398446	SJ89NE1534	4.8	MANCHESTER STADIUM PHASE1 TPA83
231BH	176.0	W	386578 398720	SJ89NE1479	4.5	MANCHESTER STADIUM PHASE1 TPA13
232BC	177.0	E	387080 398580	SJ89NE2028	No details	MANCHESTER METRO PHASE 3 EXTENSION TO COMMONWEALTH WEALTH GAMES STADIUM BHJ8
233BD	179.0	W	386718 398581	SJ89NE1436	1.5	MANCHESTER STADIUM PHASE1 A30
234BD	179.0	W	386718 398581	SJ89NE1446	12.56	MANCHESTER STADIUM PHASE1 A34
235BE	180.0	S	386842 398452	SJ89NE1535	2.2	MANCHESTER STADIUM PHASE1 TPA84
236BF	181.0	SW	386743 398528	SJ89NE1519	2.5	MANCHESTER STADIUM PHASE1 TPA62
237BE	182.0	S	386840 398450	SJ89NE1720	No details	EASTLANDS PLOTS 35C,35D & 36 BH5/35
238BF	183.0	SW	386732 398541	SJ89NE1584	1.3	MANCHESTER STADIUM PHASE1 TPST1
239BA	184.0	SW	386788 398480	SJ89NE1529	4.5	MANCHESTER STADIUM PHASE1 TPA73
240BG	185.0	SE	387040 398490	SJ89NE1687	No details	EASTLANDS PLOT 35B TH12
241BF	185.0	SW	386730 398540	SJ89NE1612	No details	EASTLANDS PLOT 1 - 10 TH 13/1
242BB	187.0	E	387090 398580	SJ89NE2000	No details	MANCHESTER METRO PHASE 3 EXTENSION TO COMMONWEALTH WEALTH GAMES STADIUM TP J22
243BI	187.0	S	386960 398440	SJ89NE1678	No details	EASTLANDS PLOT 35B TH3
244	188.0	SW	386595 398668	SJ89NE1483	4.5	MANCHESTER STADIUM PHASE1 TPA17
245BE	188.0	S	386850 398440	SJ89NE1708	No details	EASTLANDS PLOTS 35C,35D & 36 TH18/35

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
246BH	189.0	W	386560 398730	SJ89NE1648	No details	EASTLANDS PLOTS 16 & 17 TP 1/16
247BM	189.0	SE	387010 398460	SJ89NE1683	No details	EASTLANDS PLOT 35B TH8
248	190.0	E	387130 398750	SJ89NE1460	No details	EASTLANDS PLOT 38 TH 7/38
249BI	190.0	S	386920 398430	SJ89NE1715	No details	EASTLANDS PLOTS 35C,35D & 36 TH25/35
250BA	190.0	SW	386790 398470	SJ89NE1719	No details	EASTLANDS PLOTS 35C,35D & 36 BH4/35
251BH	191.0	SW	386570 398700	SJ89NE1649	No details	EASTLANDS PLOTS 16 & 17 TP 2/16
252BJ	191.0	NW	386610 399345	SJ89NE55	6.1	MANCHESTER CORP. CLIFTON STREET
253BC	192.0	E	387090 398560	SJ89NE2029	No details	MANCHESTER METRO PHASE 3 EXTENSION TO COMMONWEALTH WEALTH GAMES STADIUM BHJ8T1
254BE	192.0	SW	386813 398452	SJ89NE1536	2.4	MANCHESTER STADIUM PHASE1 TPA85
255AW	193.0	E	387140 398820	SJ89NE1797	No details	EASTLANDS PLOT 69 TH2/69
256BL	195.0	SW	386748 398501	SJ89NE1425	41.2	MANCHESTER STADIUM PHASE1 A14
257BJ	195.0	NW	386610 399350	SJ89NE383	No details	CLIFTON STREET 1
258BC	195.0	E	387090 398550	SJ89NE1722	No details	EASTLANDS PLOTS 41 - 44 TH1/41
259AZ	195.0	SW	386623 398631	SJ89NE1486	4.5	MANCHESTER STADIUM PHASE1 TPA20
260BR	196.0	SE	387120 398710	SJ89NE1461	No details	EASTLANDS PLOT 38 TH 8/38
261BT	196.0	SW	386570 398690	SJ89NE1646	No details	EASTLANDS PLOTS 16 & 17 R/16
262BK	196.0	S	386879 398425	SJ89NE1547	4.5	MANCHESTER STADIUM PHASE1 TPA95
263BN	198.0	SW	386790 398460	SJ89NE1703	No details	EASTLANDS PLOTS 35C,35D & 36 TH13/35
264BK	200.0	S	386890 398420	SJ89NE1712	No details	EASTLANDS PLOTS 35C,35D & 36 TH22/35
265BI	201.0	S	386930 398420	SJ89NE209	65	EASTLANDS R3
266BL	201.0	SW	386750 398490	SJ89NE1701	No details	EASTLANDS PLOTS 35C,35D & 36 TH11/35
267BC	201.0	E	387100 398560	SJ89NE2031	No details	MANCHESTER METRO PHASE 3 EXTENSION TO COMMONWEALTH WEALTH GAMES STADIUM BHJ8T3
268BC	201.0	E	387100 398560	SJ89NE2030	No details	MANCHESTER METRO PHASE 3 EXTENSION TO COMMONWEALTH WEALTH GAMES STADIUM BHJ8T2
269BC	201.0	E	387100 398560	SJ89NE1999	No details	MANCHESTER METRO PHASE 3 EXTENSION TO COMMONWEALTH WEALTH GAMES STADIUM TP J21

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
270BO	201.0	S	386842 398429	SJ89NE1559	3.4	MANCHESTER STADIUM PHASE1 TPA110
271BH	202.0	W	386550 398720	SJ89NE1647	No details	EASTLANDS PLOTS 16 & 17 1/16
272BS	203.0	E	387150 398790	SJ89NE1799	No details	EASTLANDS PLOT 69 TH4/69
273BM	203.0	SE	387020 398450	SJ89NE1674	No details	EASTLANDS PLOT 35B BH2
274BP	204.0	SW	386704 398550	SJ89NE1509	4.5	MANCHESTER STADIUM PHASE1 TPA45
275BC	205.0	E	387100 398550	SJ89NE2032	No details	MANCHESTER METRO PHASE 3 EXTENSION TO COMMONWEALTH WEALTH GAMES STADIUM BHJ8T4
276BN	205.0	SW	386762 398474	SJ89NE1528	3.3	MANCHESTER STADIUM PHASE1 TPA72
277BI	207.0	SE	386990 398430	SJ89NE1679	No details	EASTLANDS PLOT 35B TH4
278BV	208.0	S	386963 398419	SJ89NE1548	3.7	MANCHESTER STADIUM PHASE1 TPA96
279	208.0	W	386530 398780	SJ89NE2084	No details	ASHTON CANAL CORRIDOR TRANSCO PIPELINE BHT 2
280BO	209.0	SW	386820 398430	SJ89NE1707	No details	EASTLANDS PLOTS 35C,35D & 36 TH17/35
281BN	210.0	SW	386760 398470	SJ89NE1702	No details	EASTLANDS PLOTS 35C,35D & 36 TH12/35
282BX	211.0	S	386671 398588	SJ89NE1499	4.5	MANCHESTER STADIUM PHASE1 TPA35
283	213.0	E	387120 398600	SJ89NE208	65	EASTLANDS R2
284BP	214.0	SW	386698 398539	SJ89NE1585	2	MANCHESTER STADIUM PHASE1 TPST2
285BY	214.0	SE	387070 398480	SJ89NE1688	No details	EASTLANDS PLOT 35B TH13
286BO	214.0	SW	386809 398429	SJ89NE1424	41	MANCHESTER STADIUM PHASE1 A13
287BO	214.0	SW	386809 398429	SJ89NE1423	41	MANCHESTER STADIUM PHASE1 A13
288BO	215.0	S	386860 398410	SJ89NE1709	No details	EASTLANDS PLOTS 35C,35D & 36 TH19/35
289BW	216.0	SW	386798 398433	SJ89NE1430	15.6	MANCHESTER STADIUM PHASE1 A24
290CC	216.0	NW	386600 399370	SJ89NE2331	10	ALAN TURING WAY MILES PLATTING MANCHESTER 12
291BQ	217.0	SE	387100 398520	SJ89NE1723	No details	EASTLANDS PLOTS 41 - 44 TH2/41
292CB	217.0	SE	387017 398432	SJ89NE101	312	PARKER SHAFT BRADFORD COLLIERY
293BQ	217.0	E	387110 398540	SJ89NE1998	No details	MANCHESTER METRO PHASE 3 EXTENSION TO COMMONWEALTH WEALTH GAMES STADIUM TP J20
294	219.0	SW	386596 398623	SJ89NE1422	30.95	MANCHESTER STADIUM PHASE1 A12
295BR	219.0	E	387150 398720	SJ89NE1469	No details	EASTLANDS PLOT 38 4/38

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
296	220.0	S	386861 398404	SJ89NE1427	33.75	MANCHESTER STADIUM PHASE1 A15
297BS	222.0	E	387170 398800	SJ89NE1776	No details	EASTLANDS PLOT 59 BH3
298BM	223.0	SE	387040 398440	SJ89NE1682	No details	EASTLANDS PLOT 35B TH7
299BL	223.0	SW	386720 398490	SJ89NE1613	No details	EASTLANDS PLOT 1 - 10 TH 14/1
300BT	224.0	SW	386550 398670	SJ89NE1636	No details	EASTLANDS PLOT 15 TH 1/15
301BP	225.0	SW	386690 398530	SJ89NE1611	No details	EASTLANDS PLOT 1 - 10 TH 12/1
302BP	225.0	W	386679 398554	SJ89NE1451	19	MANCHESTER STADIUM PHASE1 PHA01
303BU	225.0	W	386520 398740	SJ89NE1631	No details	EASTLANDS PLOT 15 2/15
304BU	225.0	W	386520 398740	SJ89NE2083	No details	ASHTON CANAL CORRIDOR TRANSCO PIPELINE BHT 1
305BV	226.0	S	386960 398400	SJ89NE1677	No details	EASTLANDS PLOT 35B TH2
306BW	227.0	SW	386800 398420	SJ89NE1705	No details	EASTLANDS PLOTS 35C,35D & 36 TH15/35
307BU	228.0	W	386520 398730	SJ89NE1638	No details	EASTLANDS PLOT 15 TH 3/15
308CA	228.0	SW	386530 398700	SJ89NE1637	No details	EASTLANDS PLOT 15 TH 2/15
309BW	228.0	SW	386774 398435	SJ89NE1537	1.8	MANCHESTER STADIUM PHASE1 TPA86
310	228.0	E	387160 398720	SJ89NE1462	No details	EASTLANDS PLOT 38 TH 9/38
311BZ	228.0	SW	386704 398502	SJ89NE1527	4.5	MANCHESTER STADIUM PHASE1 TPA71
312BS	232.0	E	387180 398800	SJ89NE1759	No details	EASTLANDS PLOT 59 TH1
313BX	233.0	SW	386632 398581	SJ89NE1500	4.5	MANCHESTER STADIUM PHASE1 TPA36
314BS	233.0	E	387180 398780	SJ89NE1779	No details	EASTLANDS PLOT 59 BHR1
315BS	234.0	E	387180 398770	SJ89NE1777	No details	EASTLANDS PLOT 59 BH4
316BS	234.0	E	387180 398770	SJ89NE1760	No details	EASTLANDS PLOT 59 TH2
317CD	235.0	NW	386640 399420	SJ89NE2327	9	ALAN TURING WAY MILES PLATTING MANCHESTER 8
318BY	235.0	SE	387110 398500	SJ89NE1727	No details	EASTLANDS PLOTS 41 - 44 BH1/41
319BP	235.0	W	386670 398550	SJ89NE1600	No details	EASTLANDS PLOT 1 - 10 R2/1
320BZ	236.0	SW	386689 398511	SJ89NE1520	4.5	MANCHESTER STADIUM PHASE1 TPA63
321CA	236.0	SW	386530 398680	SJ89NE1630	No details	EASTLANDS PLOT 15 1/15
322CB	237.0	SE	387050 398430	SJ89NE918	No details	BRADFORD COLLIERY
323CB	237.0	SE	387049 398429	SJ89NE102	646.61	PARKER SHAFT BRADFORD COLLIERY

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
324CE	238.0	SE	387020 398410	SJ89NE1680	No details	EASTLANDS PLOT 35B TH5
325CC	238.0	NW	386570 399370	SJ89NE2347	3.8	ALAN TURING WAY MILES PLATTING MANCHESTER TP16
326BZ	239.0	SW	386700 398490	SJ89NE1617	No details	EASTLANDS PLOT 1 - 10 3/1
327CF	239.0	SW	386536 398664	SJ89NE1482	4.5	MANCHESTER STADIUM PHASE1 TPA16
328	239.0	SW	386726 398461	SJ89NE1526	2.2	MANCHESTER STADIUM PHASE1 TPA70
329CD	239.0	NW	386650 399430	SJ89NE384	No details	CLIFTON STREET 2
330	240.0	SW	386760 398430	SJ89NE1704	No details	EASTLANDS PLOTS 35C,35D & 36 TH14/35
331	240.0	S	386927 398380	SJ89NE1428	13.42	MANCHESTER STADIUM PHASE1 A17
332	241.0	SE	387160 398690	SJ89NE1463	No details	EASTLANDS PLOT 38 TH 10/38
333CA	243.0	W	386510 398710	SJ89NE1640	No details	EASTLANDS PLOT 15 TH 5/15
334CB	243.0	SE	387039 398415	SJ89NE103	105.53	TOP OF DEEP SHAFT BRADFORD COLLIERY
335BQ	244.0	SE	387120 398500	SJ89NE2198	No details	MANCHESTER METROLINK-ADDITIONAL WORKS TPA12
336BQ	244.0	SE	387120 398500	SJ89NE1997	No details	MANCHESTER METRO PHASE 3 EXTENSION TO COMMONWEALTH WEALTH GAMES STADIUM TP J19
337CE	244.0	S	386990 398390	SJ89NE1676	No details	EASTLANDS PLOT 35B TH1
338CF	245.0	SW	386520 398680	SJ89NE1639	No details	EASTLANDS PLOT 15 TH 4/15
339	246.0	SE	387110 398480	SJ89NE1724	No details	EASTLANDS PLOTS 41 - 44 TH3/41
340	246.0	S	386850 398380	SJ89NE1794	No details	EASTLANDS PLOT 63 TH2/63

The borehole records are available using the hyperlinks below: Please note that if the donor of the borehole record has requested the information be held as commercial-in-confidence, the additional data will be held separately by the BGS and a formal request must be made for its release.

#10B: scans.bgs.ac.uk/sobi_scans/boreholes/937044
#11B: scans.bgs.ac.uk/sobi_scans/boreholes/937043
#12: scans.bgs.ac.uk/sobi_scans/boreholes/936480
#17E: scans.bgs.ac.uk/sobi_scans/boreholes/936628
#18F: scans.bgs.ac.uk/sobi_scans/boreholes/12700768
#19B: scans.bgs.ac.uk/sobi_scans/boreholes/937042
#20F: scans.bgs.ac.uk/sobi_scans/boreholes/12700769
#21: scans.bgs.ac.uk/sobi_scans/boreholes/936930
#22: scans.bgs.ac.uk/sobi_scans/boreholes/936459
#27: scans.bgs.ac.uk/sobi_scans/boreholes/936479
#28: scans.bgs.ac.uk/sobi_scans/boreholes/937049
#31H: scans.bgs.ac.uk/sobi_scans/boreholes/936492
#32H: scans.bgs.ac.uk/sobi_scans/boreholes/936935
#34G: scans.bgs.ac.uk/sobi_scans/boreholes/12700972
#35J: scans.bgs.ac.uk/sobi_scans/boreholes/937050
#36: scans.bgs.ac.uk/sobi_scans/boreholes/937041
#37I: scans.bgs.ac.uk/sobi_scans/boreholes/12700772
#38I: scans.bgs.ac.uk/sobi_scans/boreholes/12700770
#39: scans.bgs.ac.uk/sobi_scans/boreholes/936491
#40G: scans.bgs.ac.uk/sobi_scans/boreholes/12700999
#41: scans.bgs.ac.uk/sobi_scans/boreholes/936486
#42O: scans.bgs.ac.uk/sobi_scans/boreholes/936634
#43: scans.bgs.ac.uk/sobi_scans/boreholes/12700637
#44L: scans.bgs.ac.uk/sobi_scans/boreholes/936633
#45J: scans.bgs.ac.uk/sobi_scans/boreholes/936460
#47M: scans.bgs.ac.uk/sobi_scans/boreholes/12700799
#48: scans.bgs.ac.uk/sobi_scans/boreholes/936458
#49K: scans.bgs.ac.uk/sobi_scans/boreholes/936928
#50K: scans.bgs.ac.uk/sobi_scans/boreholes/936929
#51L: scans.bgs.ac.uk/sobi_scans/boreholes/12701004
#52Q: scans.bgs.ac.uk/sobi_scans/boreholes/12700766
#55P: scans.bgs.ac.uk/sobi_scans/boreholes/936481
#56N: scans.bgs.ac.uk/sobi_scans/boreholes/936788
#57N: scans.bgs.ac.uk/sobi_scans/boreholes/936799
#58N: scans.bgs.ac.uk/sobi_scans/boreholes/936783
#59N: scans.bgs.ac.uk/sobi_scans/boreholes/936784
#60N: scans.bgs.ac.uk/sobi_scans/boreholes/936790
#61N: scans.bgs.ac.uk/sobi_scans/boreholes/936780
#62N: scans.bgs.ac.uk/sobi_scans/boreholes/936766
#63N: scans.bgs.ac.uk/sobi_scans/boreholes/936791
#64N: scans.bgs.ac.uk/sobi_scans/boreholes/936776
#65N: scans.bgs.ac.uk/sobi_scans/boreholes/936774
#66N: scans.bgs.ac.uk/sobi_scans/boreholes/936769
#67N: scans.bgs.ac.uk/sobi_scans/boreholes/936792
#68N: scans.bgs.ac.uk/sobi_scans/boreholes/936787
#69N: scans.bgs.ac.uk/sobi_scans/boreholes/936773
#70N: scans.bgs.ac.uk/sobi_scans/boreholes/936777
#71N: scans.bgs.ac.uk/sobi_scans/boreholes/936767
#72N: scans.bgs.ac.uk/sobi_scans/boreholes/936764
#73N: scans.bgs.ac.uk/sobi_scans/boreholes/936778
#74N: scans.bgs.ac.uk/sobi_scans/boreholes/936795
#75N: scans.bgs.ac.uk/sobi_scans/boreholes/936786
#76N: scans.bgs.ac.uk/sobi_scans/boreholes/936781
#77N: scans.bgs.ac.uk/sobi_scans/boreholes/936775
#78N: scans.bgs.ac.uk/sobi_scans/boreholes/936789
#79N: scans.bgs.ac.uk/sobi_scans/boreholes/936779

#80N: scans.bgs.ac.uk/sobi_scans/boreholes/936794
#81N: scans.bgs.ac.uk/sobi_scans/boreholes/936763
#82N: scans.bgs.ac.uk/sobi_scans/boreholes/936793
#83N: scans.bgs.ac.uk/sobi_scans/boreholes/936785
#84N: scans.bgs.ac.uk/sobi_scans/boreholes/936796
#85N: scans.bgs.ac.uk/sobi_scans/boreholes/936782
#86N: scans.bgs.ac.uk/sobi_scans/boreholes/936765
#87N: scans.bgs.ac.uk/sobi_scans/boreholes/936770
#88N: scans.bgs.ac.uk/sobi_scans/boreholes/936771
#89N: scans.bgs.ac.uk/sobi_scans/boreholes/936797
#90N: scans.bgs.ac.uk/sobi_scans/boreholes/936768
#91N: scans.bgs.ac.uk/sobi_scans/boreholes/936798
#92N: scans.bgs.ac.uk/sobi_scans/boreholes/936772
#93O: scans.bgs.ac.uk/sobi_scans/boreholes/12700812
#94: scans.bgs.ac.uk/sobi_scans/boreholes/12700775
#95M: scans.bgs.ac.uk/sobi_scans/boreholes/12700559
#97X: scans.bgs.ac.uk/sobi_scans/boreholes/936493
#98P: scans.bgs.ac.uk/sobi_scans/boreholes/936936
#99Q: scans.bgs.ac.uk/sobi_scans/boreholes/12700764
#100T: scans.bgs.ac.uk/sobi_scans/boreholes/12700737
#101R: scans.bgs.ac.uk/sobi_scans/boreholes/12700739
#103S: scans.bgs.ac.uk/sobi_scans/boreholes/12700950
#105: scans.bgs.ac.uk/sobi_scans/boreholes/936933
#106S: scans.bgs.ac.uk/sobi_scans/boreholes/12700741
#107T: scans.bgs.ac.uk/sobi_scans/boreholes/12700813
#108AA: scans.bgs.ac.uk/sobi_scans/boreholes/936931
#109S: scans.bgs.ac.uk/sobi_scans/boreholes/12700949
#111U: scans.bgs.ac.uk/sobi_scans/boreholes/936546
#112T: scans.bgs.ac.uk/sobi_scans/boreholes/12700628
#113V: scans.bgs.ac.uk/sobi_scans/boreholes/12700798
#114U: scans.bgs.ac.uk/sobi_scans/boreholes/12700743
#115: scans.bgs.ac.uk/sobi_scans/boreholes/936932
#116V: scans.bgs.ac.uk/sobi_scans/boreholes/12700632
#117T: scans.bgs.ac.uk/sobi_scans/boreholes/12700626
#118T: scans.bgs.ac.uk/sobi_scans/boreholes/12700625
#119S: scans.bgs.ac.uk/sobi_scans/boreholes/12700951
#121T: scans.bgs.ac.uk/sobi_scans/boreholes/12700627
#124: scans.bgs.ac.uk/sobi_scans/boreholes/936934
#125Z: scans.bgs.ac.uk/sobi_scans/boreholes/12700948
#126AC: scans.bgs.ac.uk/sobi_scans/boreholes/12701000
#127W: scans.bgs.ac.uk/sobi_scans/boreholes/12700744
#128X: scans.bgs.ac.uk/sobi_scans/boreholes/936490
#129: scans.bgs.ac.uk/sobi_scans/boreholes/936489
#131V: scans.bgs.ac.uk/sobi_scans/boreholes/12700895
#133U: scans.bgs.ac.uk/sobi_scans/boreholes/12700953
#135Z: scans.bgs.ac.uk/sobi_scans/boreholes/12700947
#136AA: scans.bgs.ac.uk/sobi_scans/boreholes/936461
#138V: scans.bgs.ac.uk/sobi_scans/boreholes/12700630
#139AC: scans.bgs.ac.uk/sobi_scans/boreholes/12700800
#140Z: scans.bgs.ac.uk/sobi_scans/boreholes/12700549
#142V: scans.bgs.ac.uk/sobi_scans/boreholes/12700629
#145AD: scans.bgs.ac.uk/sobi_scans/boreholes/12700814
#149AK: scans.bgs.ac.uk/sobi_scans/boreholes/12700631
#152Z: scans.bgs.ac.uk/sobi_scans/boreholes/12700946
#154AH: scans.bgs.ac.uk/sobi_scans/boreholes/12700834
#155AO: scans.bgs.ac.uk/sobi_scans/boreholes/12700747

#156AI: scans.bgs.ac.uk/sobi_scans/boreholes/12700763
#157AM: scans.bgs.ac.uk/sobi_scans/boreholes/12700560
#159AI: scans.bgs.ac.uk/sobi_scans/boreholes/12700954
#162AJ: scans.bgs.ac.uk/sobi_scans/boreholes/936547
#163V: scans.bgs.ac.uk/sobi_scans/boreholes/12700797
#164AK: scans.bgs.ac.uk/sobi_scans/boreholes/12700776
#165: scans.bgs.ac.uk/sobi_scans/boreholes/936478
#166AI: scans.bgs.ac.uk/sobi_scans/boreholes/12700952
#167AI: scans.bgs.ac.uk/sobi_scans/boreholes/12700761
#168AE: scans.bgs.ac.uk/sobi_scans/boreholes/12700745
#170: scans.bgs.ac.uk/sobi_scans/boreholes/936457
#171AH: scans.bgs.ac.uk/sobi_scans/boreholes/12700833
#172AL: scans.bgs.ac.uk/sobi_scans/boreholes/12700578
#180AN: scans.bgs.ac.uk/sobi_scans/boreholes/12700760
#183AP: scans.bgs.ac.uk/sobi_scans/boreholes/12700835
#184BD: scans.bgs.ac.uk/sobi_scans/boreholes/12700795
#188AO: scans.bgs.ac.uk/sobi_scans/boreholes/12700636
#189AR: scans.bgs.ac.uk/sobi_scans/boreholes/936627
#191: scans.bgs.ac.uk/sobi_scans/boreholes/936632
#192AS: scans.bgs.ac.uk/sobi_scans/boreholes/936484
#193AT: scans.bgs.ac.uk/sobi_scans/boreholes/12700815
#194AL: scans.bgs.ac.uk/sobi_scans/boreholes/12700887
#196AT: scans.bgs.ac.uk/sobi_scans/boreholes/12700624
#201: scans.bgs.ac.uk/sobi_scans/boreholes/12700755
#202AP: scans.bgs.ac.uk/sobi_scans/boreholes/12700616
#205AP: scans.bgs.ac.uk/sobi_scans/boreholes/12700885
#210BA: scans.bgs.ac.uk/sobi_scans/boreholes/12700832
#215AW: scans.bgs.ac.uk/sobi_scans/boreholes/936658
#216AX: scans.bgs.ac.uk/sobi_scans/boreholes/12700738
#219AS: scans.bgs.ac.uk/sobi_scans/boreholes/936477
#221AZ: scans.bgs.ac.uk/sobi_scans/boreholes/12700757
#225BC: scans.bgs.ac.uk/sobi_scans/boreholes/936631
#227AZ: scans.bgs.ac.uk/sobi_scans/boreholes/12700778
#230AX: scans.bgs.ac.uk/sobi_scans/boreholes/12700836
#231BH: scans.bgs.ac.uk/sobi_scans/boreholes/12700748
#233BD: scans.bgs.ac.uk/sobi_scans/boreholes/12700623
#234BD: scans.bgs.ac.uk/sobi_scans/boreholes/12700633
#235BE: scans.bgs.ac.uk/sobi_scans/boreholes/12700851
#236BF: scans.bgs.ac.uk/sobi_scans/boreholes/12700816
#238BF: scans.bgs.ac.uk/sobi_scans/boreholes/12700964
#239BA: scans.bgs.ac.uk/sobi_scans/boreholes/12700831
#244: scans.bgs.ac.uk/sobi_scans/boreholes/12700753
#252BJ: scans.bgs.ac.uk/sobi_scans/boreholes/936456
#254BE: scans.bgs.ac.uk/sobi_scans/boreholes/12700852
#256BL: scans.bgs.ac.uk/sobi_scans/boreholes/12700589
#259AZ: scans.bgs.ac.uk/sobi_scans/boreholes/12700758
#262BK: scans.bgs.ac.uk/sobi_scans/boreholes/12700870
#265BI: scans.bgs.ac.uk/sobi_scans/boreholes/936626
#270BO: scans.bgs.ac.uk/sobi_scans/boreholes/12700892
#274BP: scans.bgs.ac.uk/sobi_scans/boreholes/12700794
#276BN: scans.bgs.ac.uk/sobi_scans/boreholes/12700830
#278BV: scans.bgs.ac.uk/sobi_scans/boreholes/12700872
#282BX: scans.bgs.ac.uk/sobi_scans/boreholes/12700779
#283: scans.bgs.ac.uk/sobi_scans/boreholes/936625
#284BP: scans.bgs.ac.uk/sobi_scans/boreholes/12700965
#286BO: scans.bgs.ac.uk/sobi_scans/boreholes/12700588

#287BO: scans.bgs.ac.uk/sobi_scans/boreholes/12700587
#289BW: scans.bgs.ac.uk/sobi_scans/boreholes/12700617
#290CC: scans.bgs.ac.uk/sobi_scans/boreholes/15989191
#292CB: scans.bgs.ac.uk/sobi_scans/boreholes/936502
#294: scans.bgs.ac.uk/sobi_scans/boreholes/12700586
#296: scans.bgs.ac.uk/sobi_scans/boreholes/12700614
#302BP: scans.bgs.ac.uk/sobi_scans/boreholes/12700638
#309BW: scans.bgs.ac.uk/sobi_scans/boreholes/12700853
#311BZ: scans.bgs.ac.uk/sobi_scans/boreholes/12700828
#313BX: scans.bgs.ac.uk/sobi_scans/boreholes/12700780
#317CD: scans.bgs.ac.uk/sobi_scans/boreholes/15989187
#320BZ: scans.bgs.ac.uk/sobi_scans/boreholes/12700817
#322CB: scans.bgs.ac.uk/sobi_scans/boreholes/937335
#323CB: scans.bgs.ac.uk/sobi_scans/boreholes/936504
#325CC: scans.bgs.ac.uk/sobi_scans/boreholes/15989209
#327CF: scans.bgs.ac.uk/sobi_scans/boreholes/12700752
#328: scans.bgs.ac.uk/sobi_scans/boreholes/12700826
#331: scans.bgs.ac.uk/sobi_scans/boreholes/12700615
#334CB: scans.bgs.ac.uk/sobi_scans/boreholes/936505

8 Estimated Background Soil Chemistry

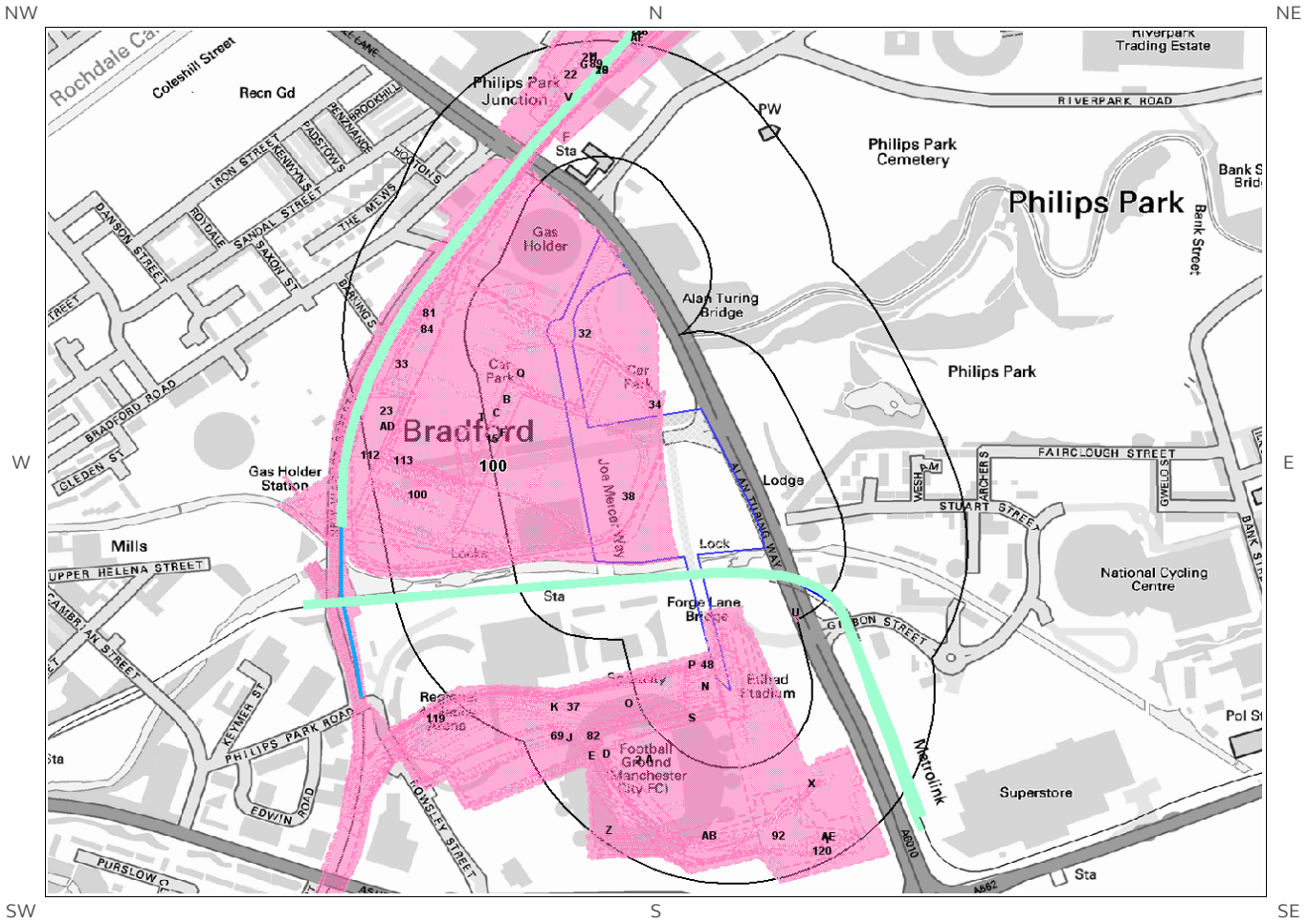
Records of background estimated soil chemistry within 250m of the study site boundary: 2

For further information on how this data is calculated and limitations upon its use, please see the Groundsure Geo Insight User Guide, available on request.

Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg	100 - 200 mg/kg

*As this data is based upon underlying 1:50,000 scale geological information, a 50m buffer has been added to the search radius.

9 Railways and Tunnels map



Railways and Tunnels Legend

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- Site Outline
- Search Buffers (m) — 250 — 500
- Underground or Partially Underground Railway / Subway System
- Railway Tunnel (OS Mapping)
- Abandoned or Dismantled Railway (OpenStreetMap)
- Railway Track (OS Mapping)
- Railway Track (OpenStreetMap)
- High Speed 2
- High Speed 2 Revised Proposed Route
- Crossrail 1
- Railway and/or Tunnel Feature from Historical Mapping

9 Railways and Tunnels

9.1 Tunnels

This data is derived from OpenStreetMap and provides information on the possible locations of underground railway systems in the UK - the London Underground, the Tyne & Wear Metro and the Glasgow Subway.

Have any underground railway lines been identified within the study site boundary? No

Have any underground railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

This data is derived from Ordnance Survey mapping and provides information on the possible locations of railway tunnels forming part of the UK overground railway network.

Have any other railway tunnels been identified within the site boundary? No

Have any other railway tunnels been identified within 250m of the site boundary? Yes

Distance (m)	Direction	Detail
34	S	Railway Tunnel

Any records that have been identified are represented on the Railways and Tunnels map.

9.2 Historical Railway and Tunnel Features

This data is derived from Groundsure's unique Historical Land-use Database and contains features relating to tunnels, railway tracks or associated works that have been identified from historical Ordnance Survey mapping.

Have any historical railway or tunnel features been identified within the study site boundary? Yes

Have any historical railway or tunnel features been identified within 250m of the study site boundary? Yes

ID	Distance (m)	Direction	NGR	Details	Date
1A	0	On Site	386753 398549	Railway Sidings	1906
2	0	On Site	386744 398540	Railway Sidings	1933
3A	0	On Site	386744 398540	Railway Sidings	1938
4E	0	On Site	386752 398551	Railway Sidings	1921

ID	Distance (m)	Direction	NGR	Details	Date
5D	0	On Site	386721 398520	Railway Sidings	1891
6B	0	On Site	386625 399038	Railway Sidings	1938
7B	0	On Site	386625 399038	Railway Sidings	1933
8C	0	On Site	386508 399050	Railway Sidings	1906
9C	0	On Site	386508 399050	Railway Sidings	1921
10D	0	On Site	386753 398549	Railway Sidings	1923
11E	0	On Site	386694 398567	Railway Sidings	1956
12K	0	On Site	386666 398575	Railway Sidings	1978
13F	0	On Site	386632 398987	Railway Sidings	1956
14T	0	On Site	386615 399045	Railway Sidings	1978
15	0	On Site	386483 399057	Railway Sidings	1923
16F	0	On Site	386626 399037	Railway Sidings	1968
17J	0	W	386476 398528	Railway Sidings	1968
30I	0	On Site	386733 399057	Railway Sidings	1968
31I	0	On Site	386611 399057	Railway Sidings	1970
32	0	On Site	386668 399099	Railway Sidings	1949
33	0	On Site	386615 399262	Railway Sidings	1931
34	0	On Site	386812 398982	Railway Sidings	1955
35	0	On Site	386693 398845	Railway Sidings	1955
36J	0	On Site	386490 398543	Railway Sidings	1958
37	0	On Site	386715 398616	Railway Sidings	1955
38	0	On Site	386606 398886	Railway Sidings	1948
39	0	On Site	386797 398943	Railway Sidings	1955
40K	0	On Site	386715 398616	Railway Sidings	1948
41L	0	On Site	386582 398927	Tramway Sidings	1908
42L	0	On Site	386582 398927	Tramway Sidings	1922
43N	0	On Site	n/a	Railway	1893
44L	0	On Site	386443 398886	Railway Sidings	1958
45M	0	On Site	386870 398641	Railway Sidings	1932

ID	Distance (m)	Direction	NGR	Details	Date
46M	0	On Site	386911 398652	Railway Sidings	1908
47M	0	On Site	386911 398652	Railway Sidings	1922
48	0	On Site	n/a	Railway	1905
49	0	On Site	386668 398893	Tramway Sidings	1931
50N	0	On Site	n/a	Railway	1922
51N	0	On Site	n/a	Railway	1932
52	0	On Site	386920 398604	Railway Sidings	1893
53O	13	SW	386691 398603	Railway Sidings	1987
54O	13	SW	386691 398603	Railway Sidings	1979
55P	14	W	386860 398648	Railway Sidings	1932
56Q	15	W	386649 399026	Railway Sidings	1949
57P	16	W	386860 398646	Railway Sidings	1908
58P	16	W	386860 398646	Railway Sidings	1922
59P	16	W	386860 398646	Railway Sidings	1893
60N	20	SW	386865 398614	Railway Sidings	1893
61N	20	SW	386865 398614	Railway Sidings	1932
62N	20	SW	386865 398614	Railway Sidings	1922
63N	20	SW	386865 398614	Railway Sidings	1908
64	27	NW	386642 399069	Overhead Tramway Sidings	1949
65Q	29	W	386649 399026	Railway Sidings	1968
66B	31	W	n/a	Railways	1922
67J	33	W	386585 398522	Railway Sidings	1922
68R	34	W	386537 399152	Railway Sidings	1893
69	35	W	386477 398520	Railway Sidings	1931
70R	35	W	386532 399138	Railway Sidings	1908
71	42	W	n/a	Railway	1891
72S	50	SW	386861 398580	Railway Sidings	1932
73S	50	SW	386861 398580	Railway Sidings	1922
74S	50	SW	386861 398580	Railway Sidings	1908
75S	50	SW	386861 398580	Railway Sidings	1893
76T	79	W	386618 398966	Overhead Tramway Sidings	1948

ID	Distance (m)	Direction	NGR	Details	Date
77	87	SW	386726 398594	Railway Sidings	1891
78U	87	SE	386987 398716	Railway Sidings	1955
79U	87	SE	386987 398716	Railway Sidings	1948
80	111	W	386510 399019	Overhead Tramway Sidings	1949
81	115	NW	386559 399146	Railway Sidings	1949
82	116	SW	386761 398510	Railway Sidings	1891
83	118	NW	386806 399500	Railway Sidings	1970
84	118	NW	386544 399087	Railway Sidings	1968
85V	123	NW	n/a	Railways	1934
86V	123	NW	n/a	Railways	1908
18	124	N	386963 399664	Railway Sidings	1956
19	124	N	386901 399554	Railway Sidings	1991
20	124	N	386901 399554	Railway Sidings	1968
87	125	W	386575 398858	Overhead Tramway Sidings	1948
21G	129	NW	387023 399602	Railway Sidings	1923
22	129	NW	386859 399556	Railway Sidings	1891
23	129	W	386474 399015	Railway Sidings	1891
88AD	131	NW	386500 398993	Railway Sidings	1922
89	134	NW	386850 399648	Railway Sidings	1949
90V	139	NW	386816 399607	Railway Sidings	1922
91AC	141	W	386451 398886	Railway Sidings	1891
92	142	SE	386967 398456	Railway Sidings	1908
24G	150	N	387023 399602	Railway Sidings	1921
25H	150	N	387023 399602	Railway Sidings	1906
26H	150	N	387023 399602	Railway Sidings	1933
93W	152	SW	386812 398482	Railway Sidings	1922
27	154	N	387008 399652	Railway Sidings	1938
94W	154	S	386829 398468	Railway Sidings	1908
95Y	155	SE	n/a	Railway	1922
96X	156	SE	387004 398493	Railway Sidings	1949

ID	Distance (m)	Direction	NGR	Details	Date
97Z	157	SE	386795 398448	Railway Sidings	1949
98X	158	SE	387026 398506	Railway Sidings	1949
99Y	159	SE	386957 398448	Railway Sidings	1922
100	176	W	386523 398869	Railway Sidings	1948
101A B	181	S	386891 398429	Railway Sidings	1908
102Z	182	SW	386798 398451	Railway Sidings	1956
103C	182	W	386509 398976	Railway Sidings	1955
104A A	186	SE	387057 398504	Tramway Sidings	1949
105A A	186	SE	387057 398504	Tramway Sidings	1953
106A B	189	S	386869 398423	Railway Sidings	1893
107A A	191	SE	387058 398497	Tramway Sidings	1949
108A A	191	SE	387058 398497	Tramway Sidings	1953
109A A	198	SE	387065 398497	Tramway Sidings	1949
110A A	198	SE	387065 398497	Tramway Sidings	1953
111A C	198	SW	386366 398886	Railway Sidings	1948
112	198	SW	386446 398886	Railway Sidings	1955
113	202	W	386506 398914	Railway Sidings	1948
114A D	204	W	386491 398950	Railway Sidings	1948
115A E	212	SE	387032 398425	Railway Sidings	1949
116A E	212	SE	387032 398425	Railway Sidings	1949
117A E	214	SE	387005 398420	Railway Sidings	1953
118A F	215	N	386794 399463	Railway Sidings	1984
119	236	SW	386534 398574	Railway Sidings	1955
120	239	SE	387020 398407	Railway Sidings	1949
28	240	N	386990 399622	Railway Sidings	1985
121A F	243	N	386815 399475	Railway Sidings	1968
29	244	N	386990 399629	Railway Sidings	1978

Any records that have been identified are represented on the Railways and Tunnels map.

9.3 Historical Railways

This data is derived from OpenStreetMap and provides information on the possible alignments of abandoned or dismantled railway lines in proximity to the study site.

Have any historical railway lines been identified within the study site boundary? No

Have any historical railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels map.

9.4 Active Railways

These datasets are derived from Ordnance Survey mapping and OpenStreetMap and provide information on the possible locations of active railway lines in proximity to the study site.

Have any active railway lines been identified within the study site boundary? Yes

Have any active railway lines been identified within 250m of the study site boundary? Yes

Distance (m)	Direction	Name	Type
0	On Site	Not given	light rail
0	On Site	Not given	light rail
0	On Site	Not given	light rail
0	On Site	Not given	light rail
23	S	Not given	light rail
23	S	Not given	light rail
25	S	Not given	light rail
25	S	Not given	light rail
31	S	Not given	light rail
31	S	Not given	light rail
36	S	Not given	light rail
36	S	Not given	light rail
133	NW	Not given	Multi Track
133	NW	Not given	Multi Track
134	NW	Not given	rail
134	NW	Not given	rail
134	NW	Not given	rail
134	NW	Not given	rail
138	NW	Not given	rail
138	NW	Not given	rail
138	NW	Not given	rail
138	NW	Not given	rail
141	NW	Not given	rail
141	NW	Not given	rail
145	NW	Not given	rail
145	NW	Not given	rail
160	E	Not given	light rail
160	E	Not given	light rail
164	E	Not given	light rail
164	E	Not given	light rail
166	E	Not given	light rail

Distance (m)	Direction	Name	Type
166	E	Not given	light rail

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels map.

9.5 Railway Projects

These datasets provide information on the location of large scale railway projects High Speed 2 and Crossrail 1 .

Is the study site within 5km of the route of the High Speed 2 rail project? Yes

Is the study site within 500m of the route of the Crossrail 1 rail project? No

Further information on proximity to these routes, the project construction status and associated works can be obtained through the purchase of a Groundsure HS2 and Crossrail 1 Report.

The route data has been digitised from publicly available maps by Groundsure. The route as provided relates to the Crossrail 1 project only, and does not include any details of the Crossrail 2 project, as final details of the route for Crossrail 2 are still under consultation.

Please note that this assessment takes account of both the original Phase 2b proposed route and the amended route proposed in 2016. As the Phase 2b route is still under consultation, Groundsure are providing information on both options until the final route is formally confirmed. Practitioners should take account of this uncertainty when advising clients.

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Email:**enquiries@bgs.ac.uk**
Web:**www.bgs.ac.uk**
BGS Geological Hazards Reports and general geological enquiries

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The Coal Authority

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Mansfield
Notts NG18 4RG
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DX 716176 Mansfield 5
www.coal.gov.uk

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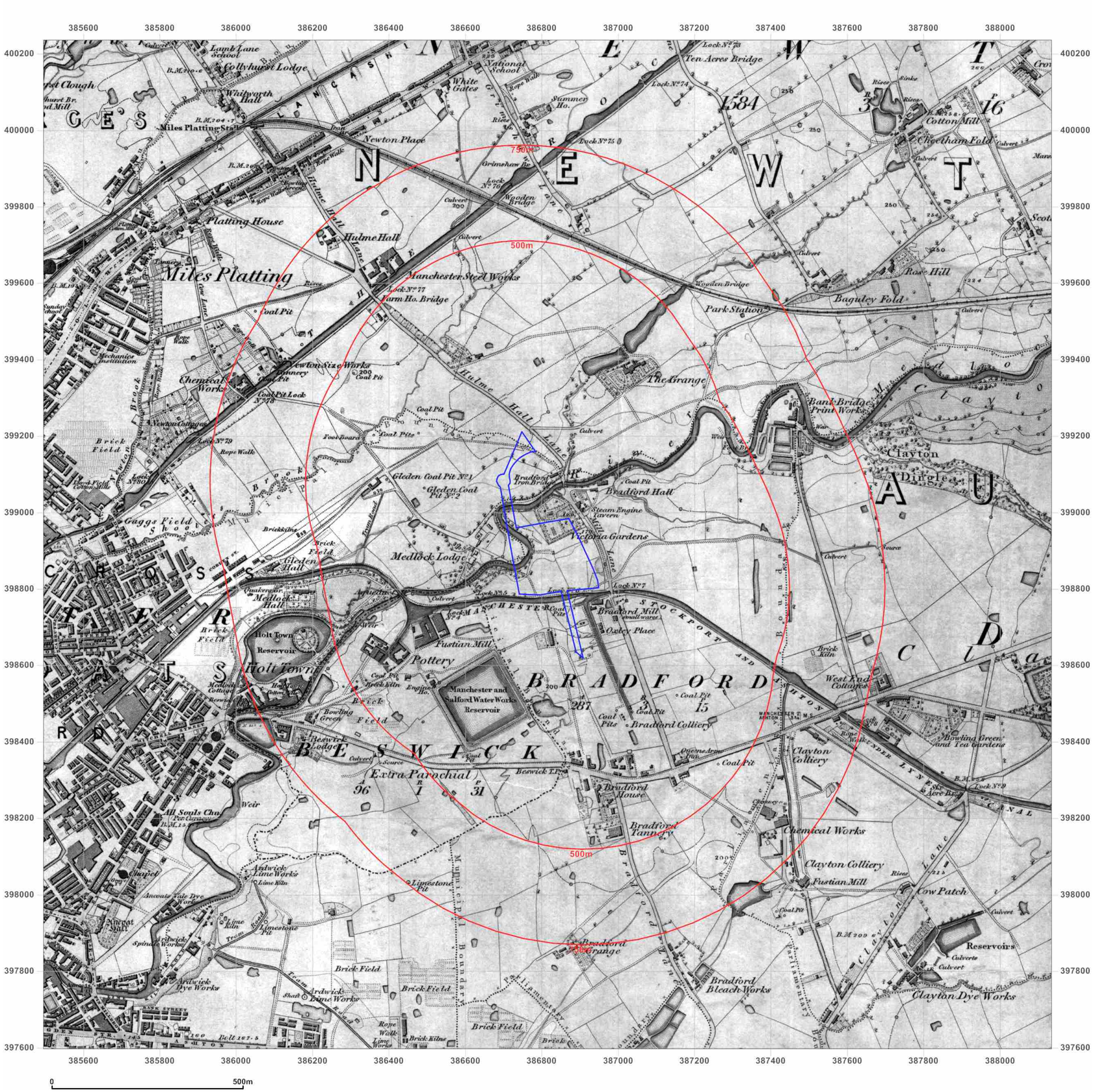

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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145
Grid Ref: 386814, 398915

Map Name: County Series
Map date: **1848**
Scale: 1:10,560
Printed at: 1:10,560

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

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Client Ref: 0042841
Report Ref: GS-6479145
Grid Ref: 386814, 398915

Map Name: County Series

Map date: **1890-1891**

Scale: 1:10,560

Printed at: 1:10,560

N
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Revised 1891
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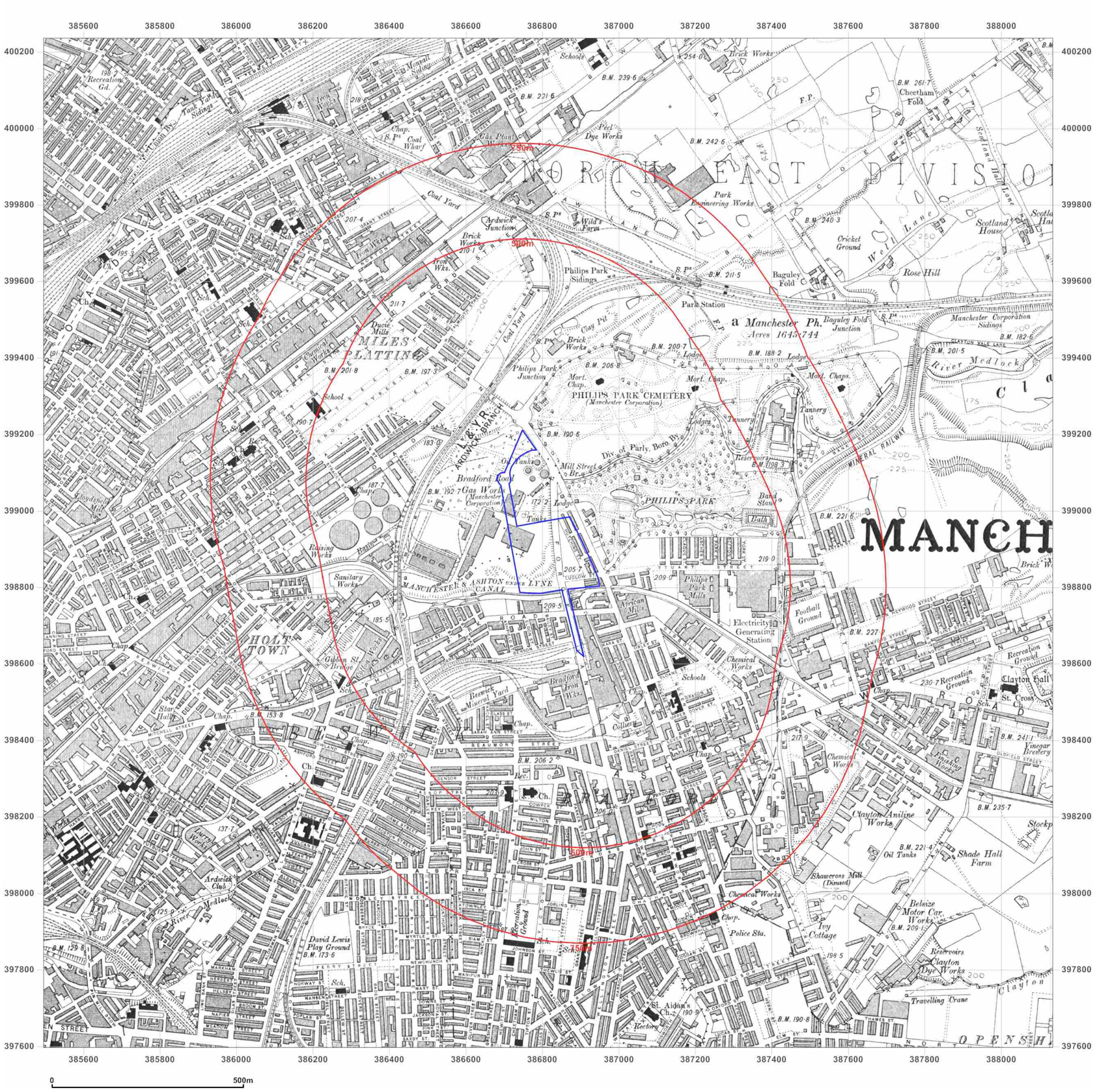

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Site Details:

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Client Ref: 0042841
Report Ref: GS-6479145
Grid Ref: 386814, 398915

Map Name: County Series

Map date: **1905-1906**

Scale: 1:10,560

Printed at: 1:10,560

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Edition 1906
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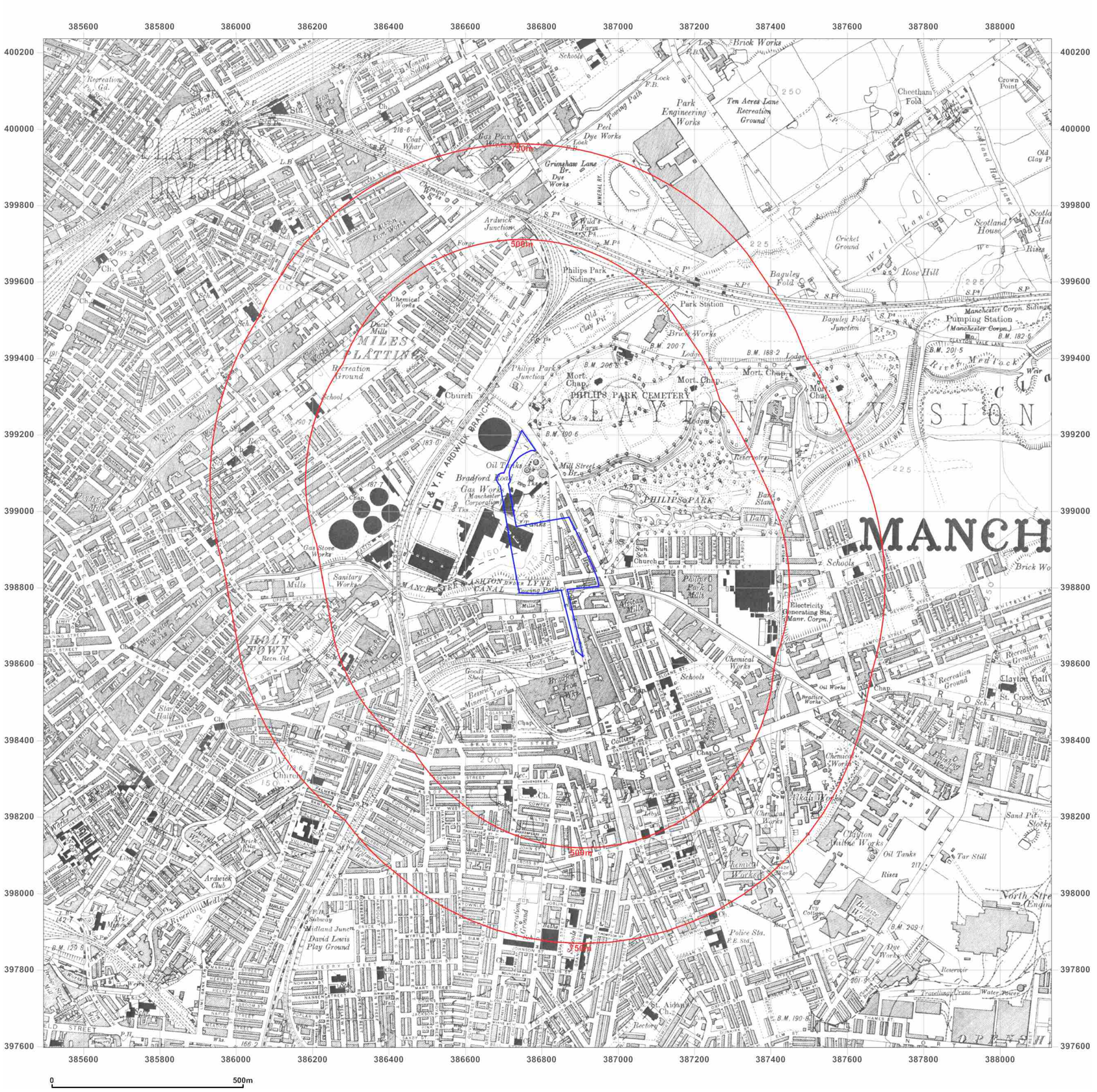

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Client Ref: 0042841
Report Ref: GS-6479145
Grid Ref: 386814, 398915

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

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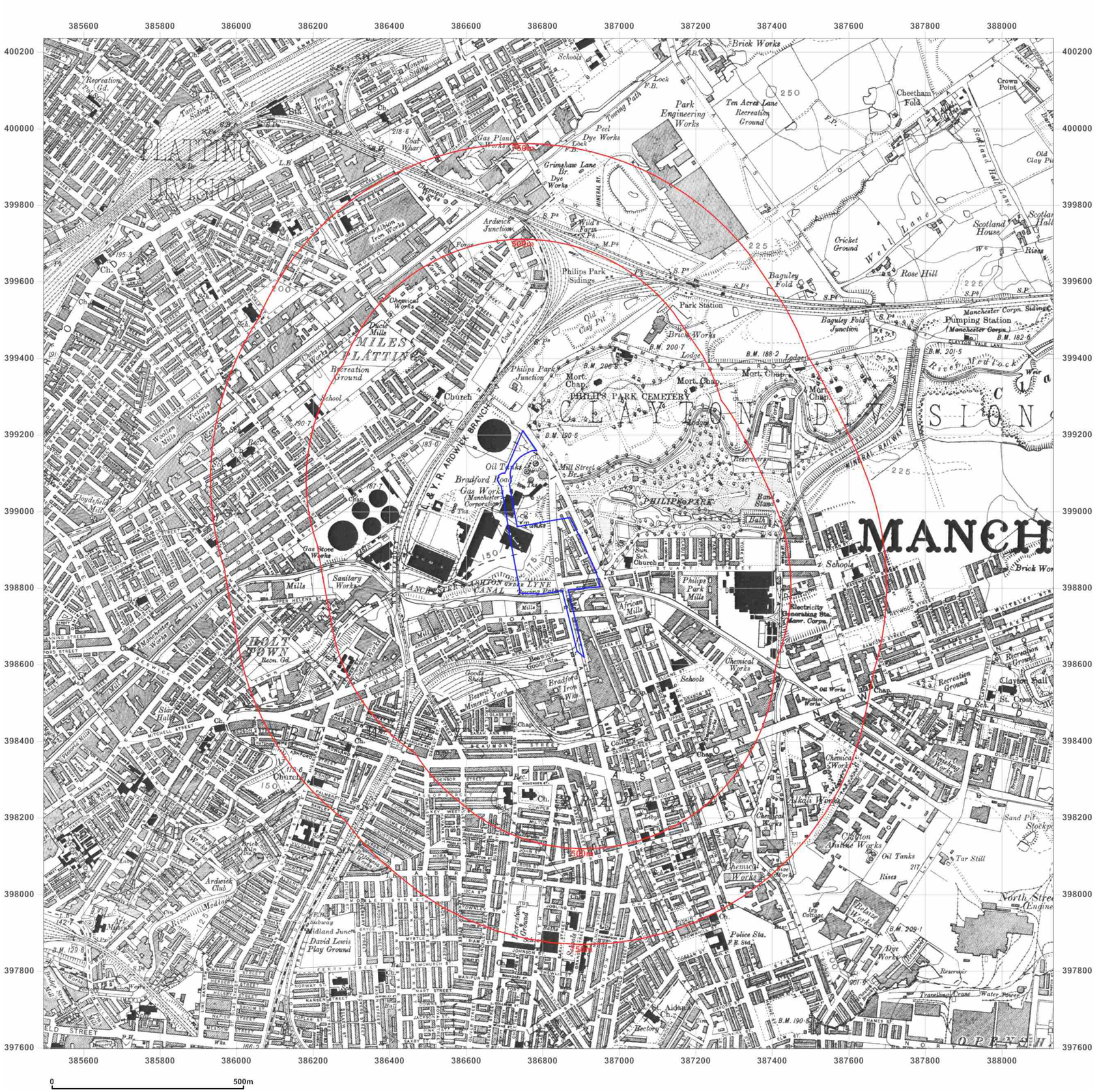

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Client Ref: 0042841
Report Ref: GS-6479145
Grid Ref: 386814, 398915

Map Name: County Series

Map date: **1923**

Scale: 1:10,560

Printed at: 1:10,560

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Edition 1923
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Client Ref: 0042841
Report Ref: GS-6479145
Grid Ref: 386814, 398915

Map Name: County Series
Map date: **1933-1934**
Scale: 1:10,560
Printed at: 1:10,560

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Revised 1933
Edition 1933
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Surveyed 1844
Revised 1934
Edition 1934
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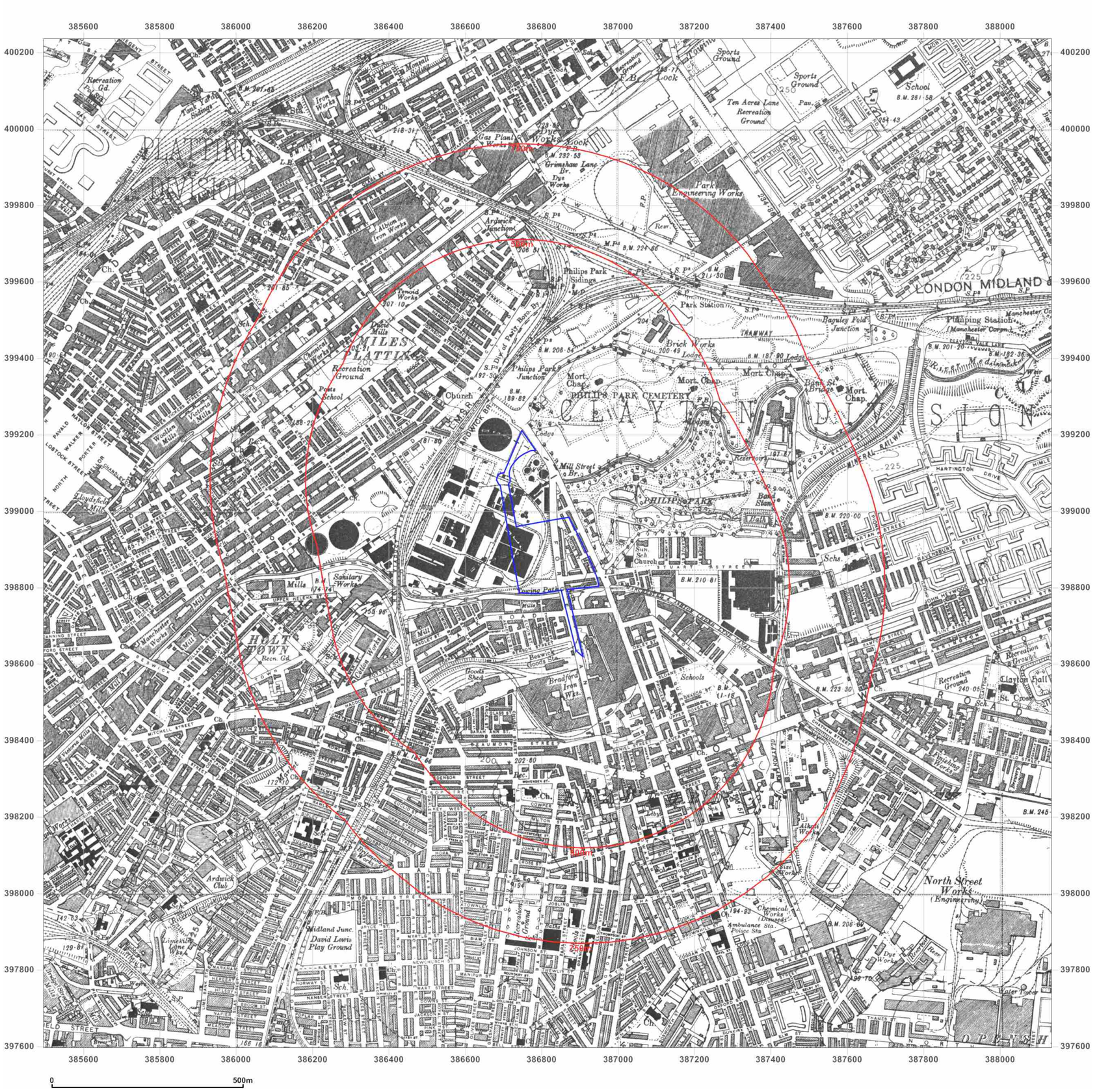

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Client Ref: 0042841
Report Ref: GS-6479145
Grid Ref: 386814, 398915

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

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Client Ref: 0042841
Report Ref: GS-6479145
Grid Ref: 386814, 398915

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

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Client Ref: 0042841
Report Ref: GS-6479145
Grid Ref: 386814, 398915

Map Name: Provisional
Map date: **1966-1968**
Scale: 1:10,560
Printed at: 1:10,560

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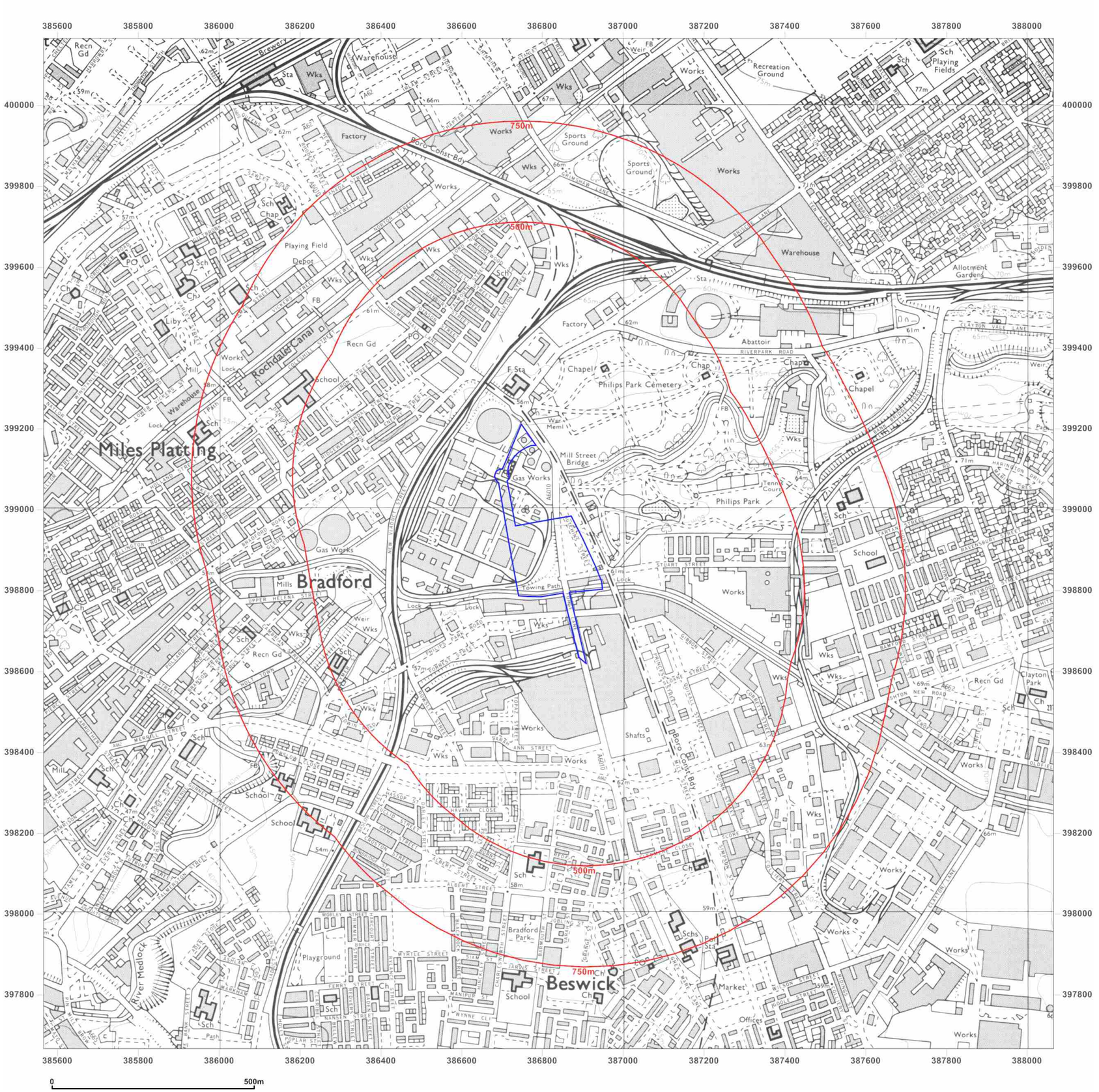

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Site Details:

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Client Ref: 0042841
Report Ref: GS-6479145
Grid Ref: 386814, 398915

Map Name: National Grid

Map date: **1980-1981**

Scale: 1:10,000

Printed at: 1:10,000

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Revised 1980
Edition N/A
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Levelled N/A

Surveyed 1976
Revised 1980
Edition N/A
Copyright 1981
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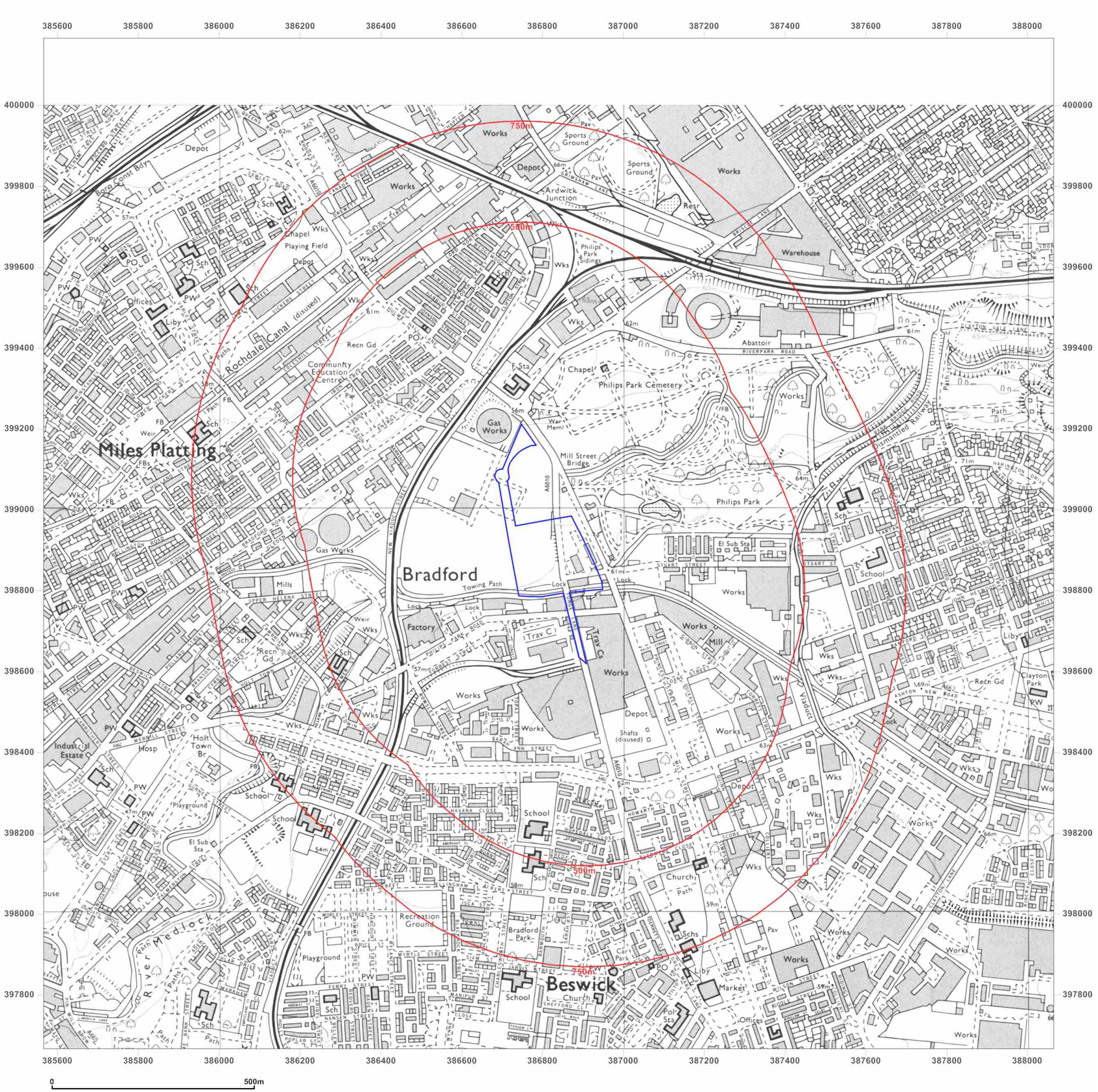

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145
Grid Ref: 386814, 398915

Map Name: National Grid

Map date: **1985**

Scale: 1:10,000

Printed at: 1:10,000

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Revised 1985
Edition N/A
Copyright 1985
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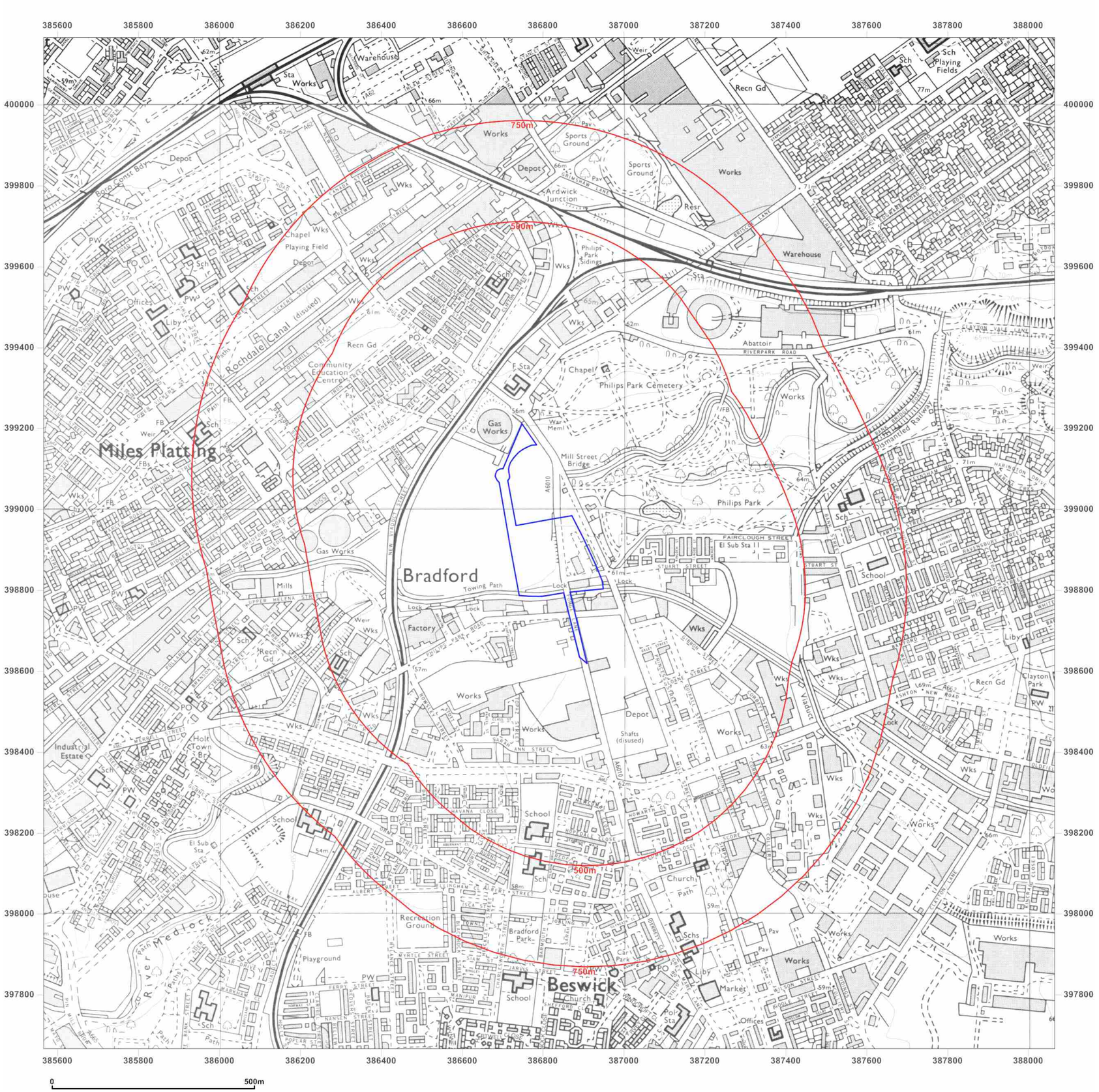

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145
Grid Ref: 386814, 398915

Map Name: National Grid

Map date: **1988-1991**

Scale: 1:10,000

Printed at: 1:10,000

N
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Revised 1988
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1985
Revised 1991
Edition N/A
Copyright 1991
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Groundsure INSIGHTS

Site Details:

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Client Ref: 0042841
Report Ref: GS-6479145
Grid Ref: 386814, 398915

Map Name: National Grid

Map date: **2001**

Scale: 1:10,000

Printed at: 1:10,000

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2001

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Client Ref: 0042841
Report Ref: GS-6479145
Grid Ref: 386814, 398915

Map Name: National Grid

Map date: **2010**

Scale: 1:10,000

Printed at: 1:10,000

N W E S

2010

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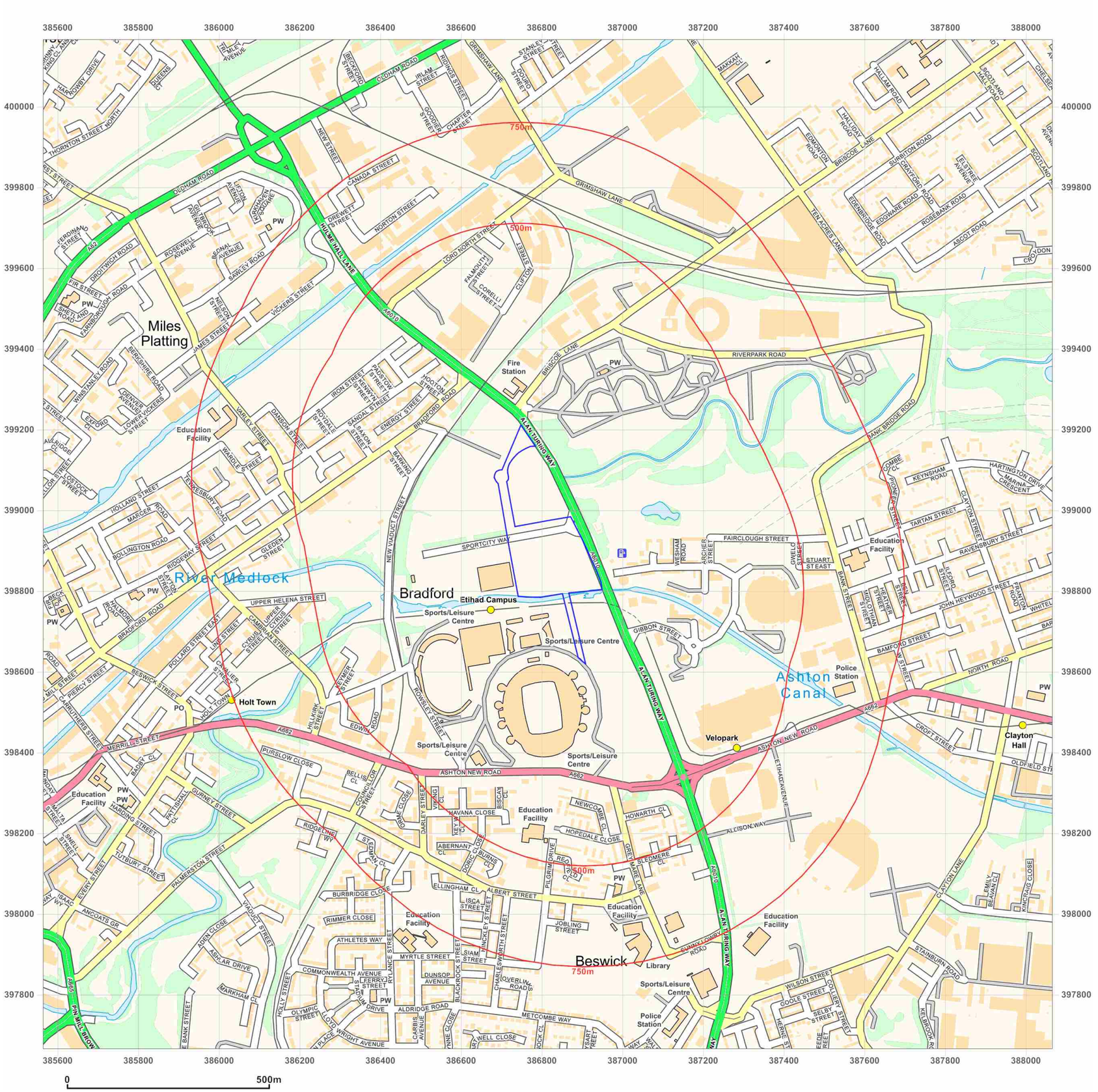

Site Details:

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Client Ref: 0042841
Report Ref: GS-6479145
Grid Ref: 386814, 398915

Map Name: National Grid

Map date: **2019**

Scale: 1:10,000

Printed at: 1:10,000

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2019

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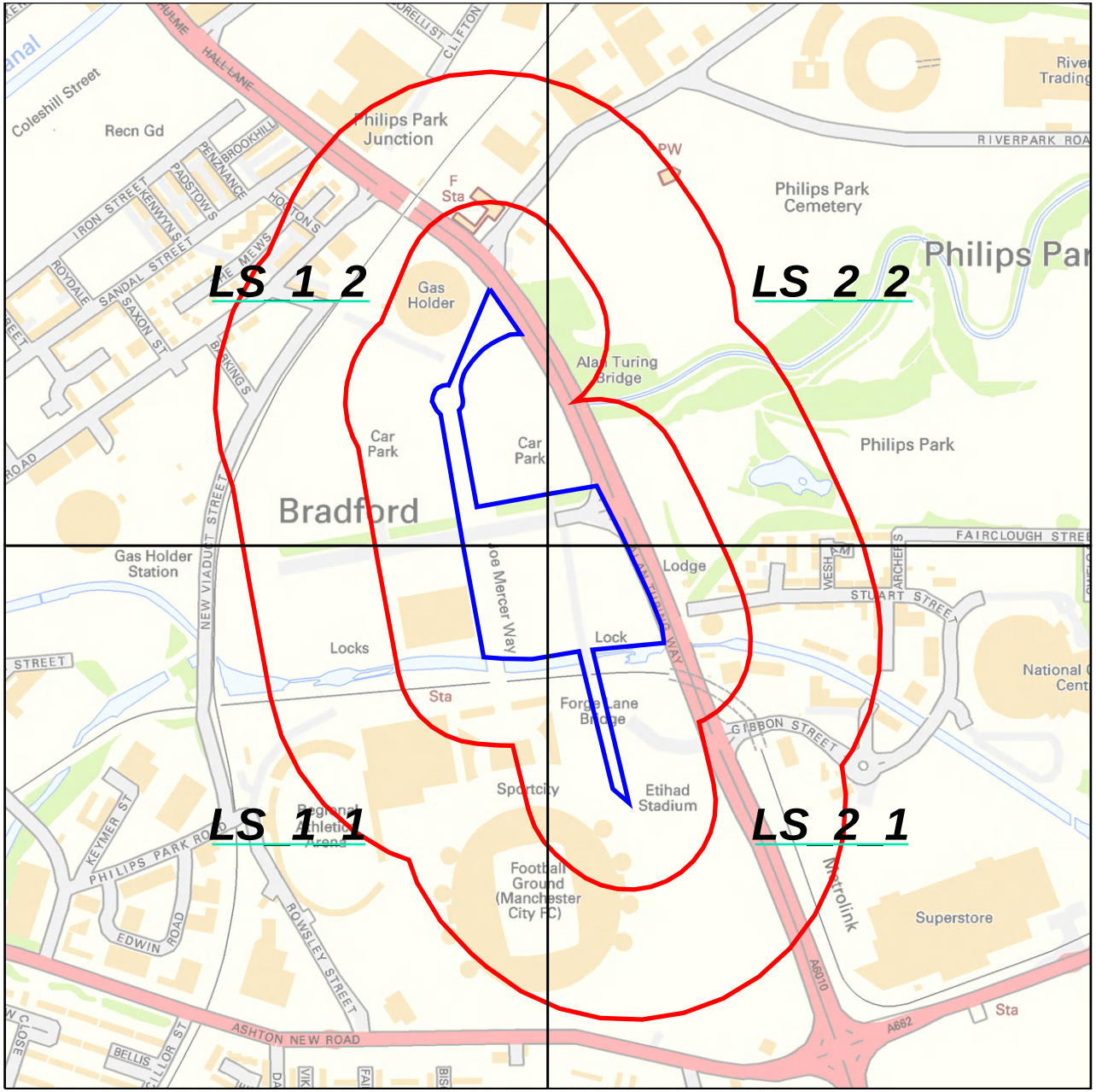

Groundsure INSIGHTS

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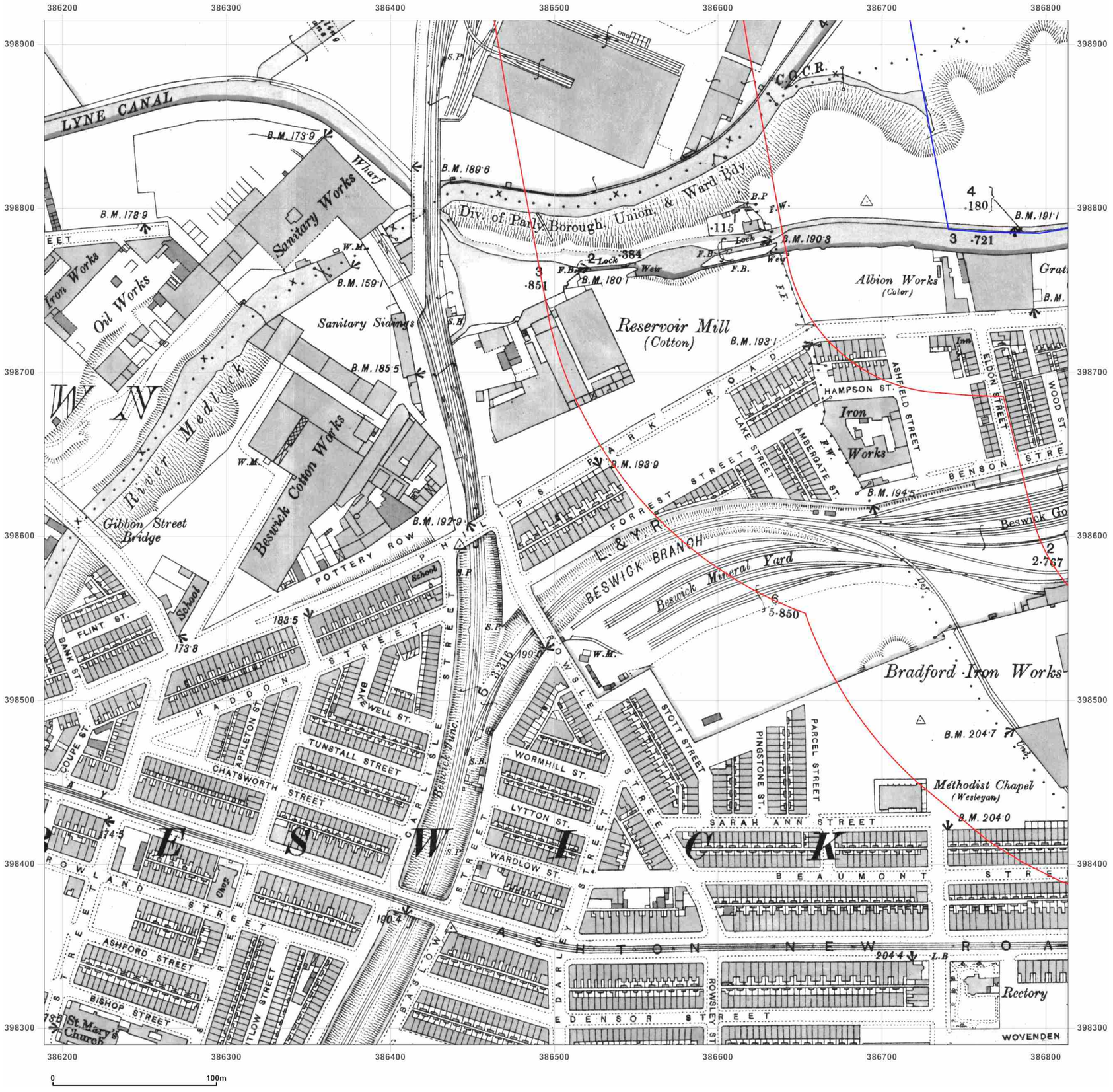
1:2500 Scale Grid Index



Groundsure INSIGHTS

Site Details:

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Client Ref: 0042841
Report Ref: GS-6479145_LS_1_1
Grid Ref: 386501, 398602

Map Name: County Series
Map date: **1893**
Scale: 1:2,500
Printed at: 1:2,500

N W E S

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Revised N/A
Edition 1893
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Levelled N/A

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Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_LS_1_1
Grid Ref: 386501, 398602

Map Name: County Series
Map date: 1908
Scale: 1:2,500
Printed at: 1:2,500

N W E S

Surveyed 1891
Revised 1905
Edition 1908
Copyright N/A
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Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_LS_1_1
Grid Ref: 386501, 398602

Map Name: County Series
Map date: **1922**
Scale: 1:2,500
Printed at: 1:2,500

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

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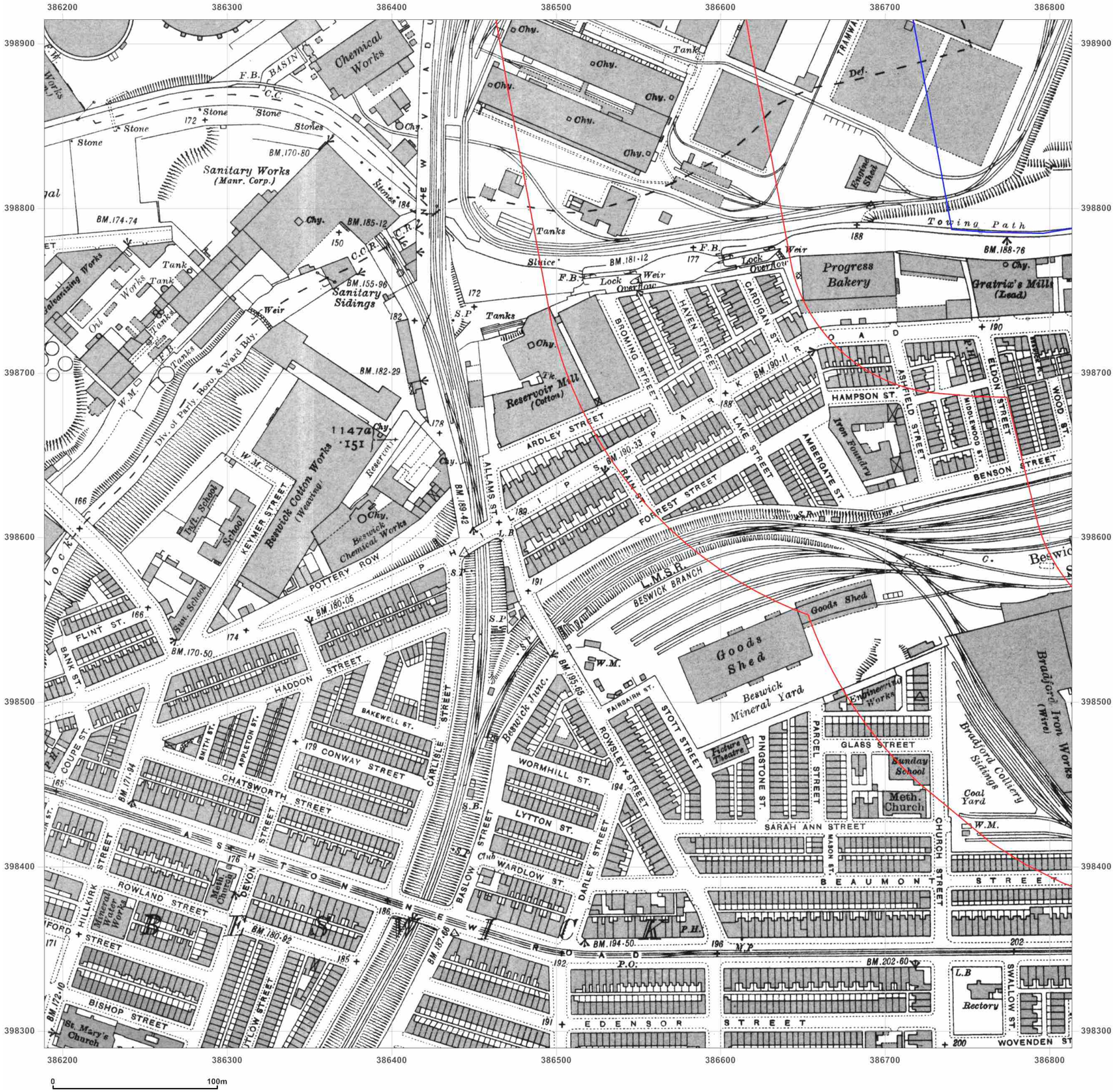

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_LS_1_1
Grid Ref: 386501, 398602

Map Name: County Series
Map date: **1931**
Scale: 1:2,500
Printed at: 1:2,500

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

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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_LS_1_1
Grid Ref: 386501, 398602

Map Name: National Grid

Map date: **1958**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed 1958
Revised 1958
Edition N/A
Copyright 1959
Levelled 1949

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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_LS_1_2
Grid Ref: 386501, 399228

Map Name: County Series
Map date: **1893**
Scale: 1:2,500
Printed at: 1:2,500

N
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Surveyed 1893
Revised N/A
Edition 1893
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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_LS_1_2
Grid Ref: 386501, 399228

Map Name: County Series
Map date: **1908**
Scale: 1:2,500
Printed at: 1:2,500

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Surveyed 1891
Revised 1905
Edition 1908
Copyright N/A
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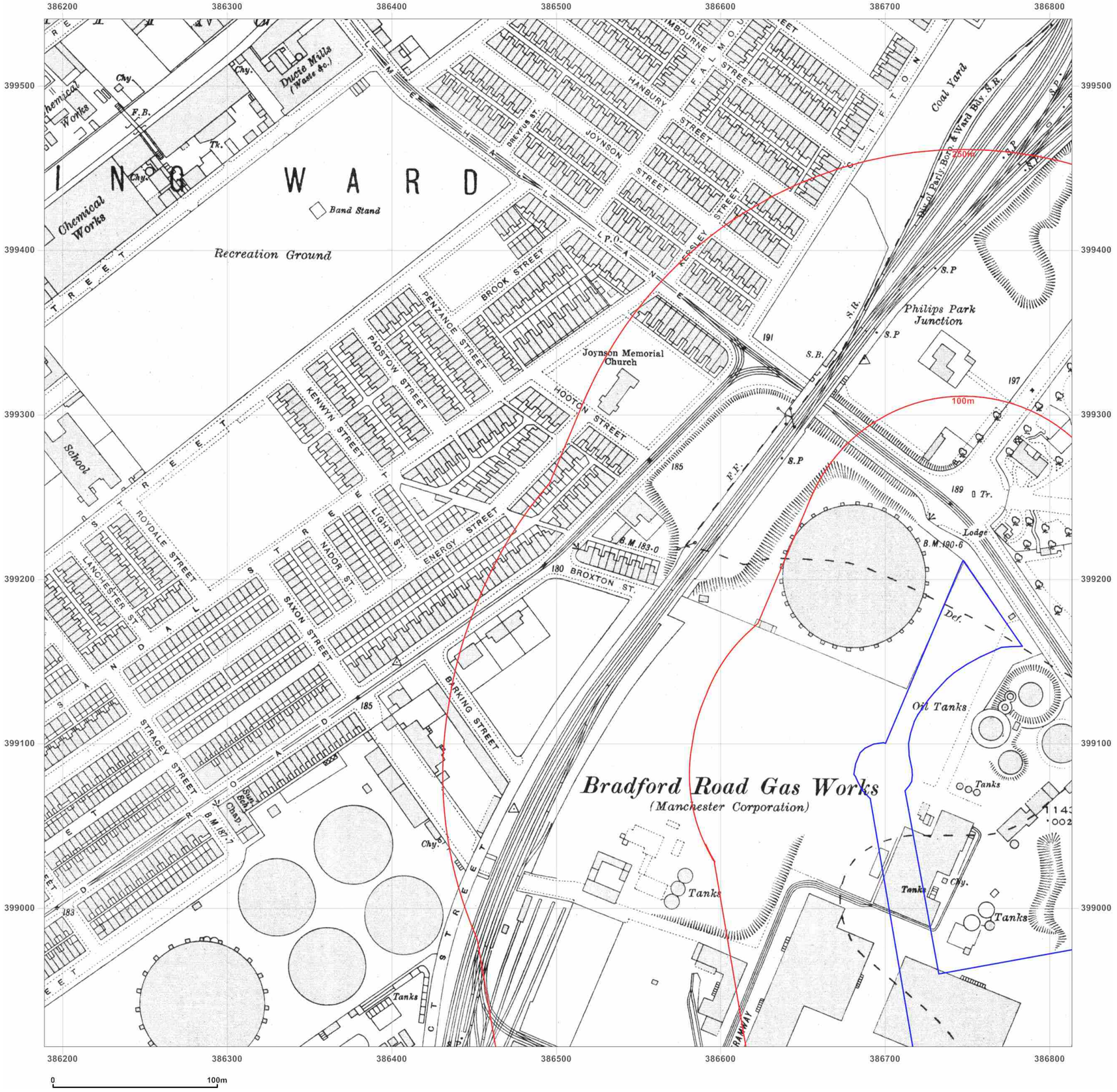

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_LS_1_2
Grid Ref: 386501, 399228

Map Name: County Series
Map date: **1922**
Scale: 1:2,500
Printed at: 1:2,500

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

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Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_LS_1_2
Grid Ref: 386501, 399228

Map Name: County Series
Map date: **1931**
Scale: 1:2,500
Printed at: 1:2,500

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

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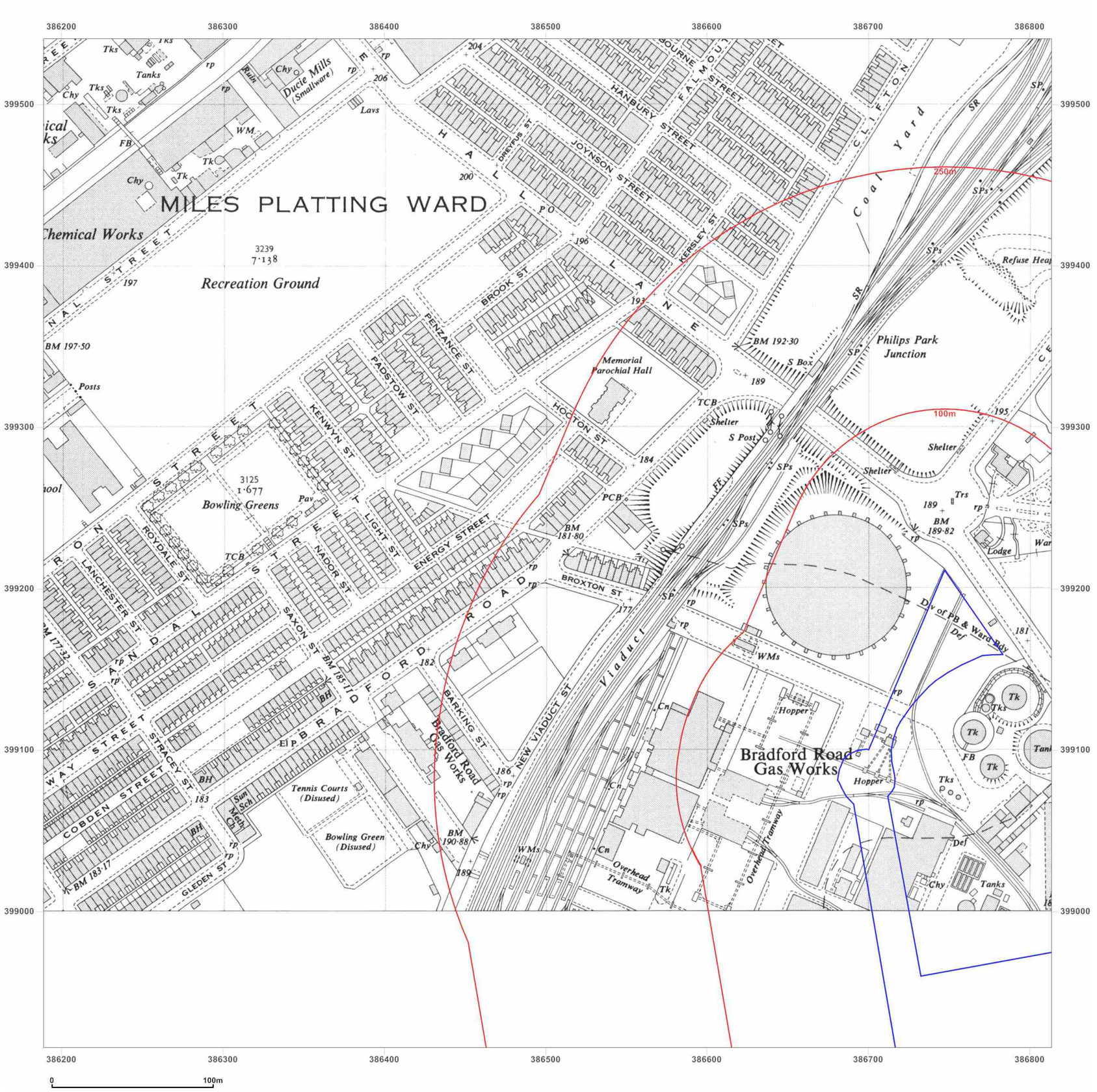

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_LS_1_2
Grid Ref: 386501, 399228

Map Name: National Grid
Map date: **1949**
Scale: 1:2,500
Printed at: 1:2,500

N
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Surveyed 1949
Revised 1949
Edition N/A
Copyright 1950
Levelled 1929

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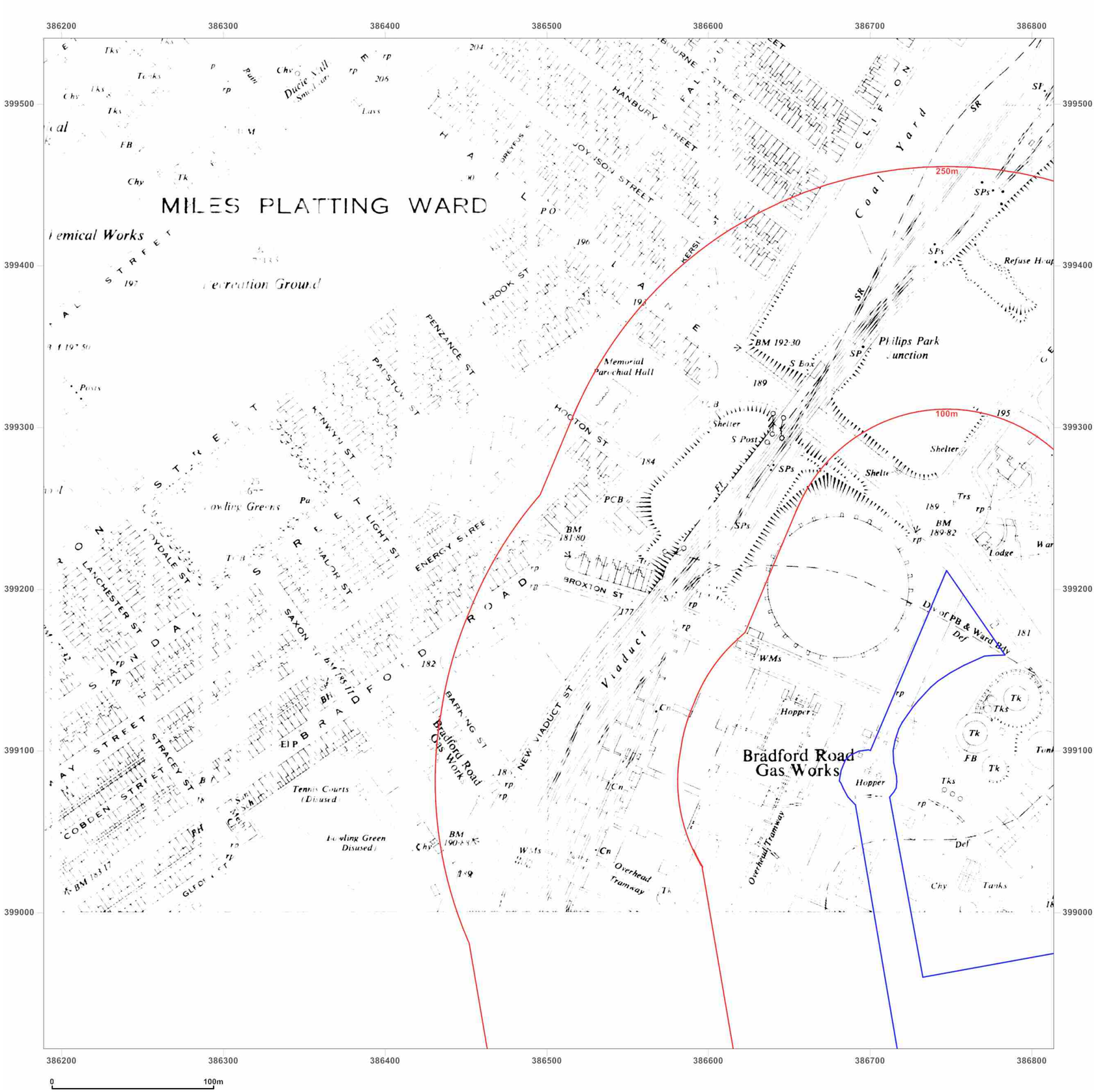

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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_LS_1_2
Grid Ref: 386501, 399228

Map Name: National Grid

Map date: **1951**

Scale: 1:2,500

Printed at: 1:2,500

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

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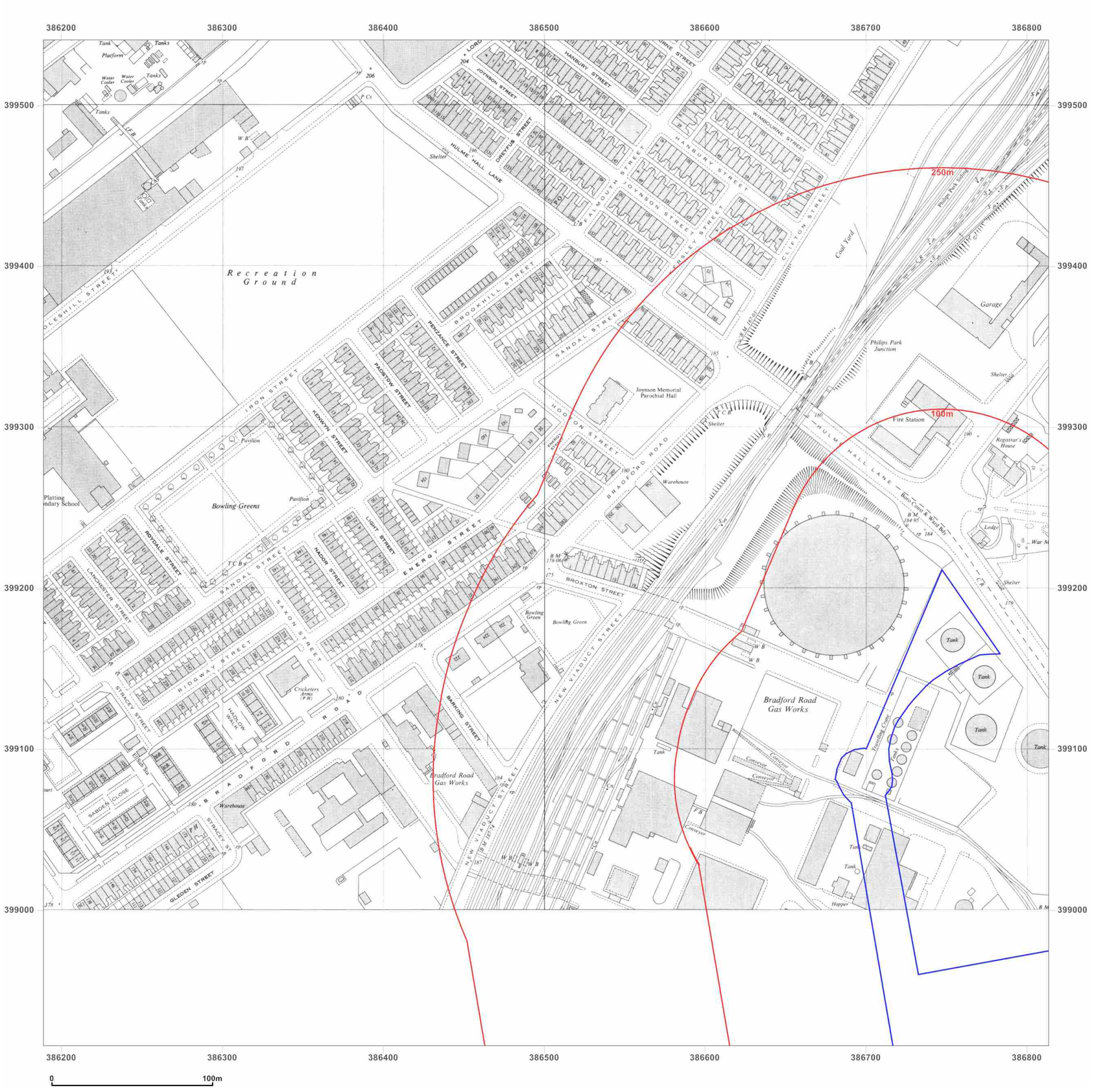

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_LS_1_2
Grid Ref: 386501, 399228

Map Name: National Grid

Map date: **1970**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed N/A
Revised 1969
Edition N/A
Copyright 1970
Levelled 1964

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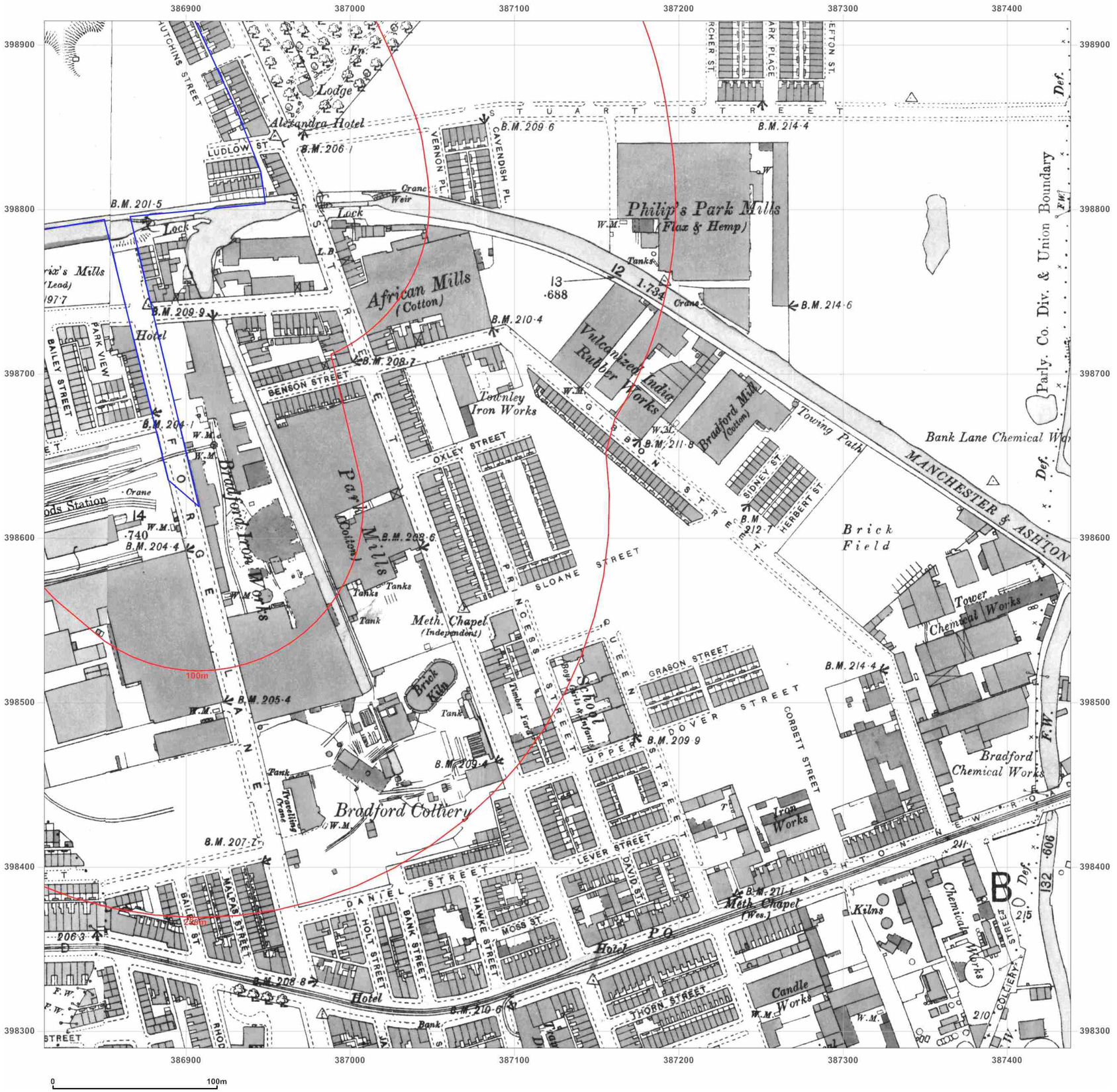

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_LS_2_1
Grid Ref: 387126, 398602

Map Name: County Series

Map date: **1893**

Scale: 1:2,500

Printed at: 1:2,500

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

Surveyed 1893
Revised N/A
Edition 1893
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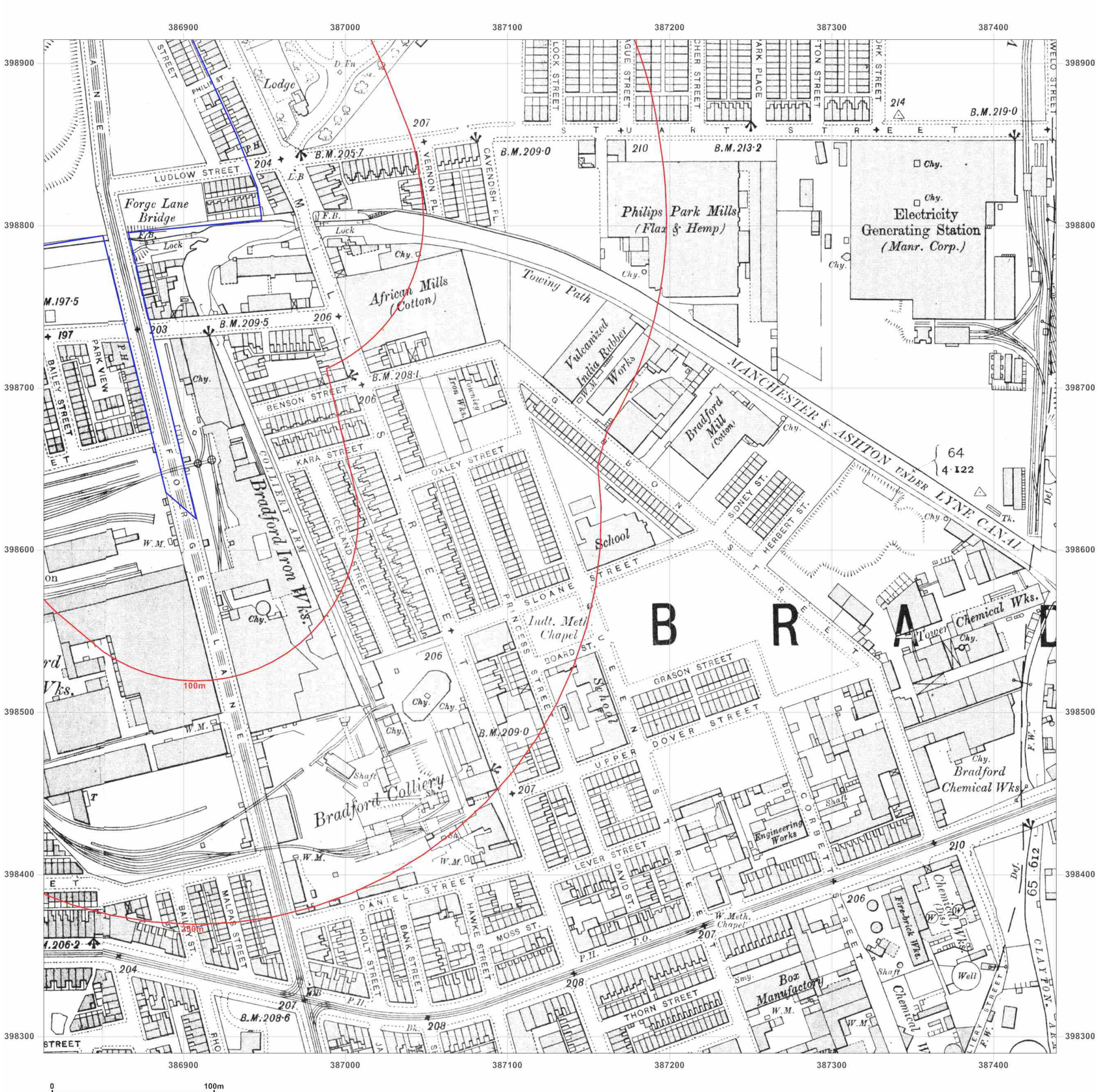

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_LS_2_1
Grid Ref: 387126, 398602

Map Name: County Series
Map date: **1908**
Scale: 1:2,500
Printed at: 1:2,500

N W E S

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

Surveyed 1891
Revised 1905
Edition 1908
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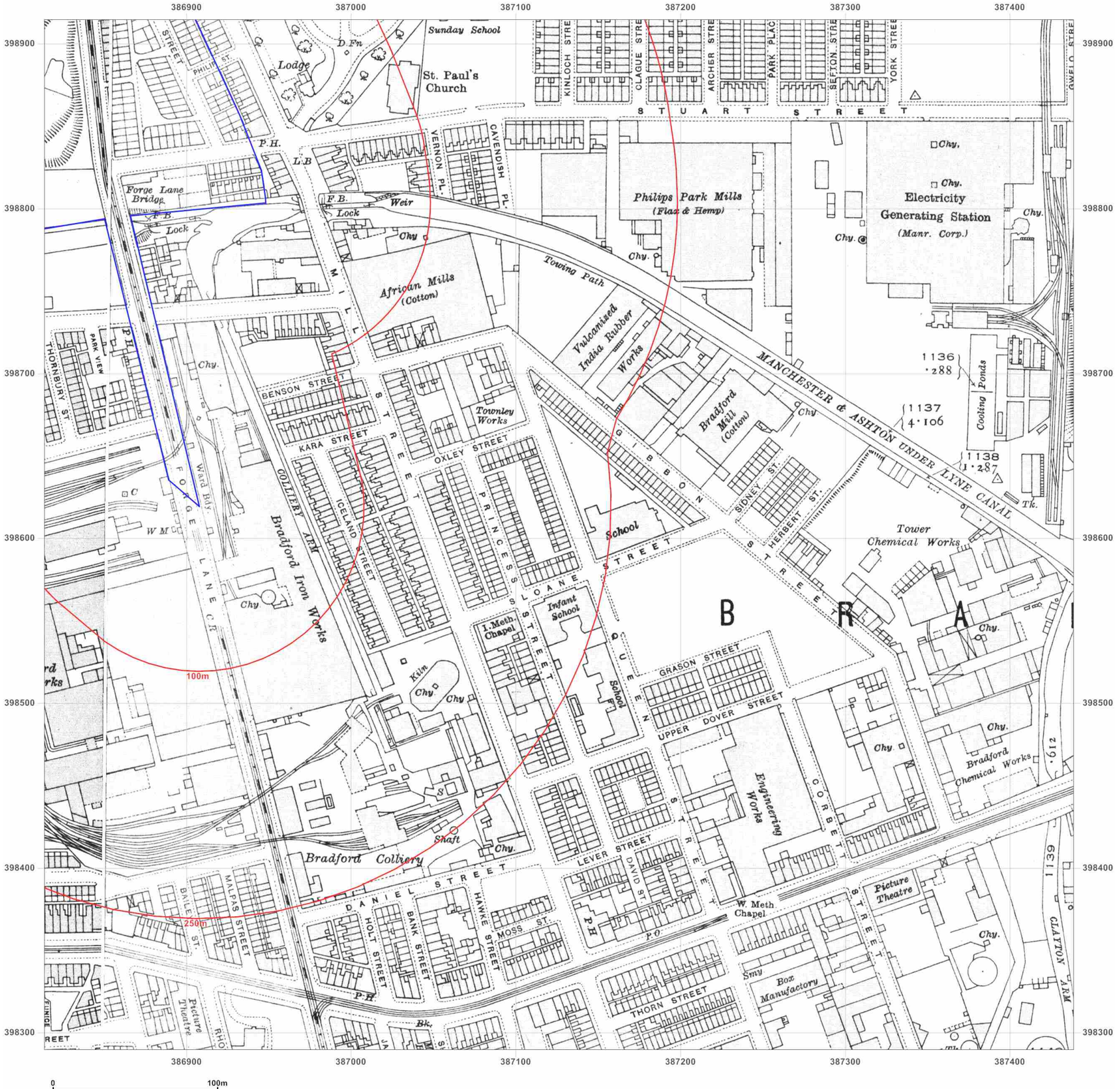

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_LS_2_1
Grid Ref: 387126, 398602

Map Name: County Series
Map date: **1922**
Scale: 1:2,500
Printed at: 1:2,500

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

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

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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_LS_2_1
Grid Ref: 387126, 398602

Map Name: County Series
Map date: **1931-1932**
Scale: 1:2,500
Printed at: 1:2,500

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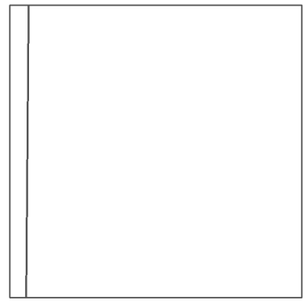
Surveyed 1873
Revised 1931
Edition N/A
Copyright N/A
Levelled 1927

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



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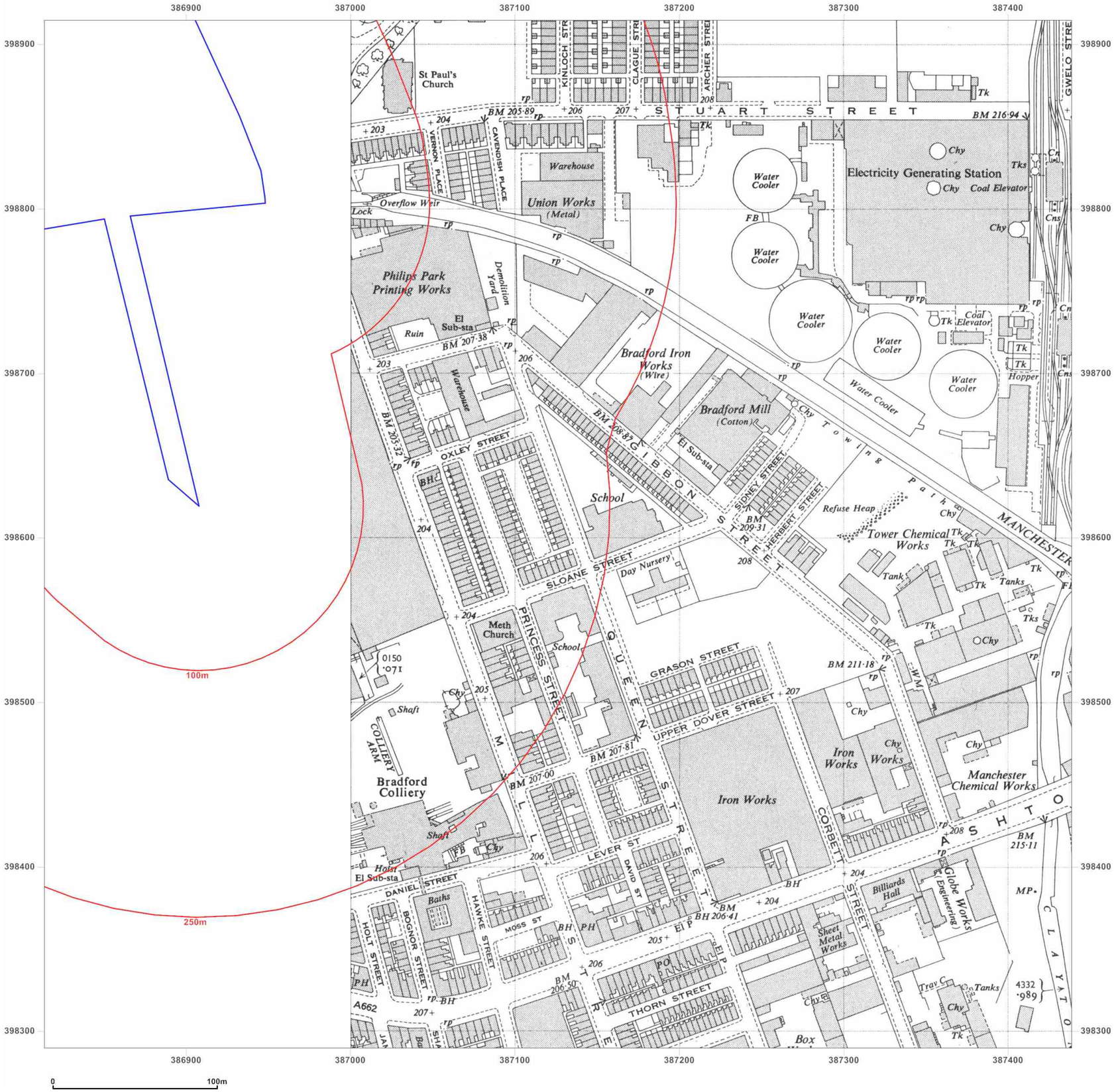

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_LS_2_1
Grid Ref: 387126, 398602

Map Name: National Grid

Map date: **1949**

Scale: 1:2,500

Printed at: 1:2,500

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

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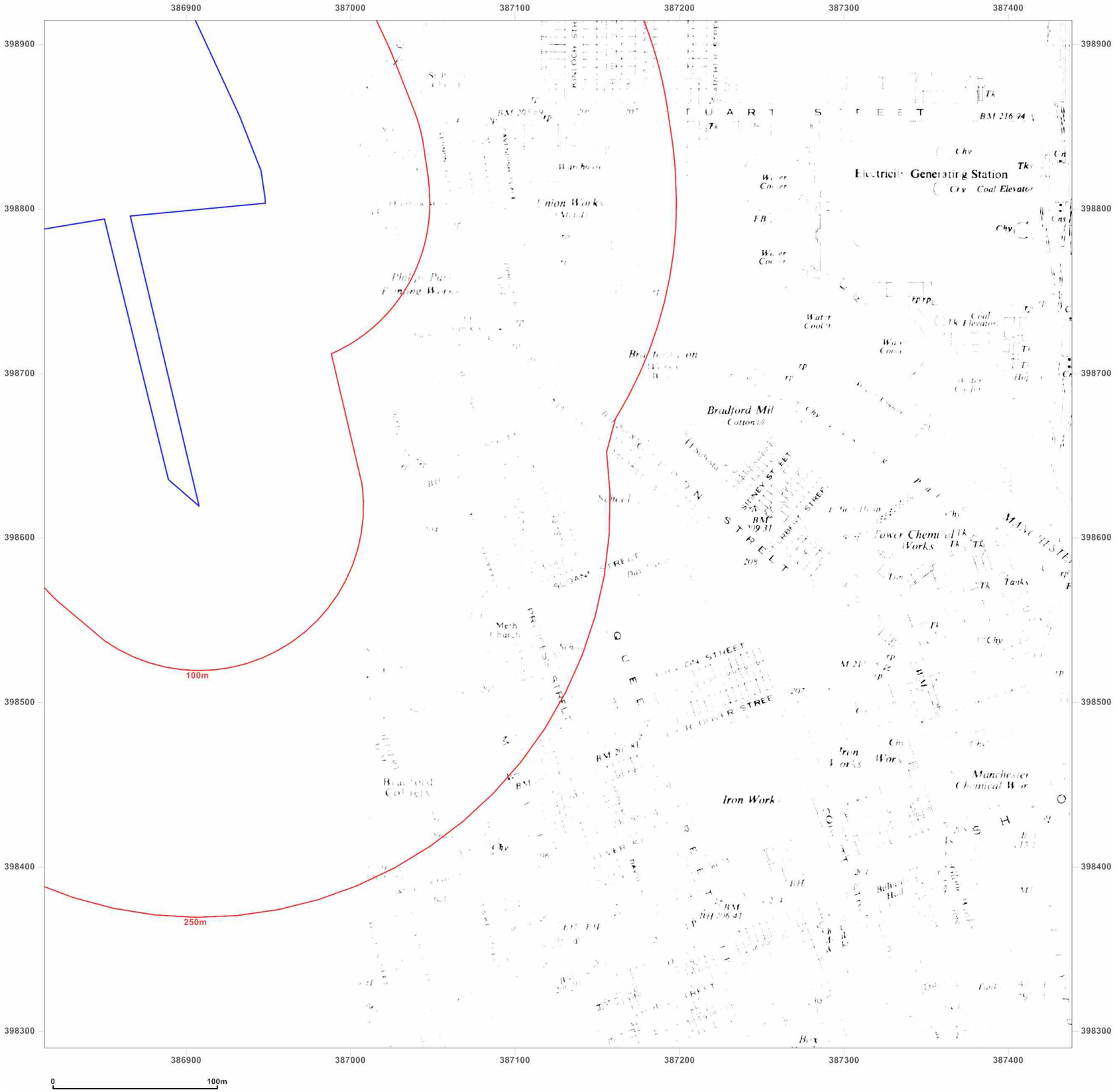

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_LS_2_1
Grid Ref: 387126, 398602

Map Name: National Grid

Map date: **1951**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed N/A
Revised N/A
Edition N/A
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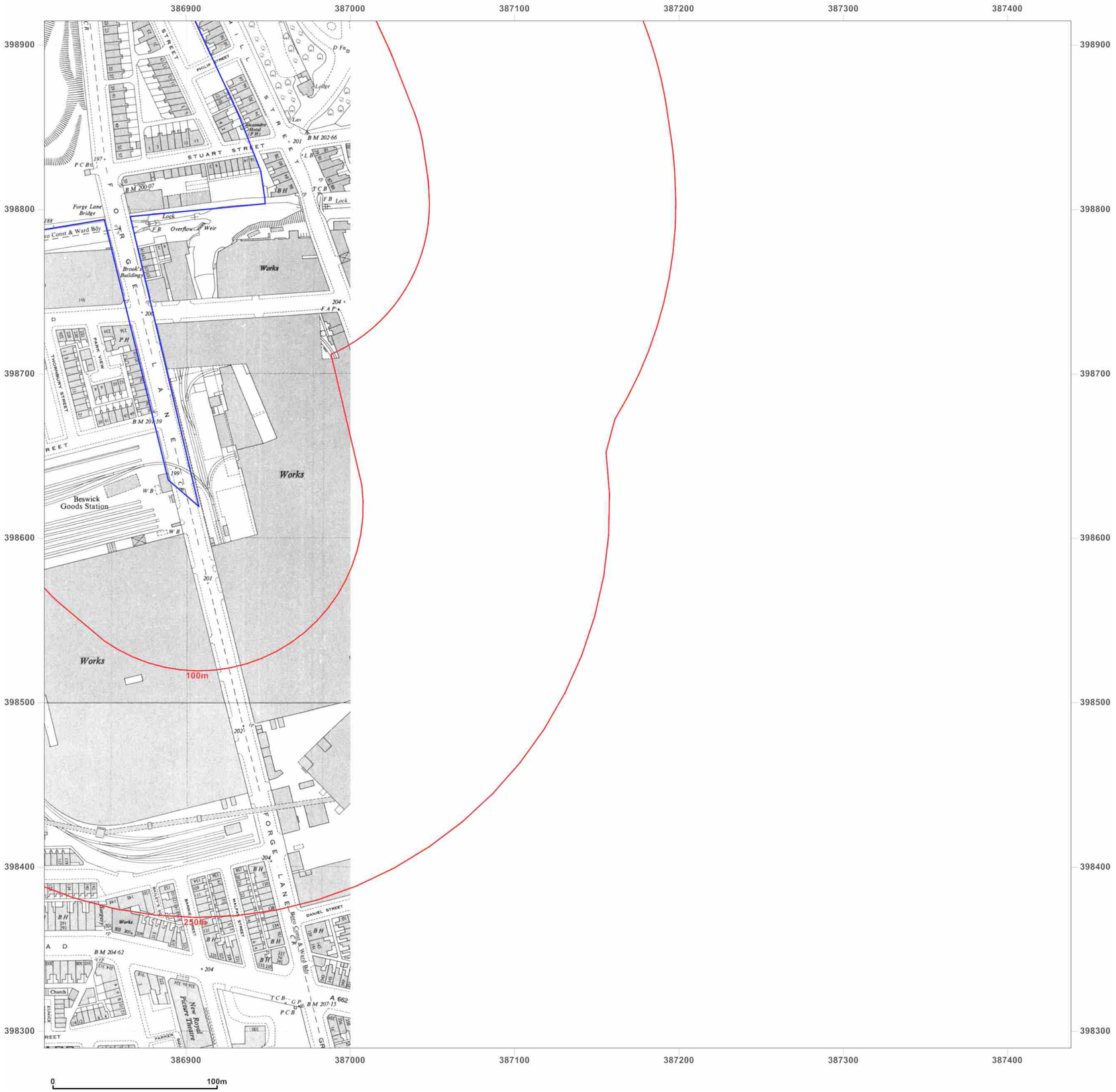

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_LS_2_1
Grid Ref: 387126, 398602

Map Name: National Grid

Map date: **1958**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed 1958
Revised 1958
Edition N/A
Copyright 1959
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Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_LS_2_2
Grid Ref: 387126, 399228

Map Name: County Series
Map date: **1893**
Scale: 1:2,500
Printed at: 1:2,500

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

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Edition 1893
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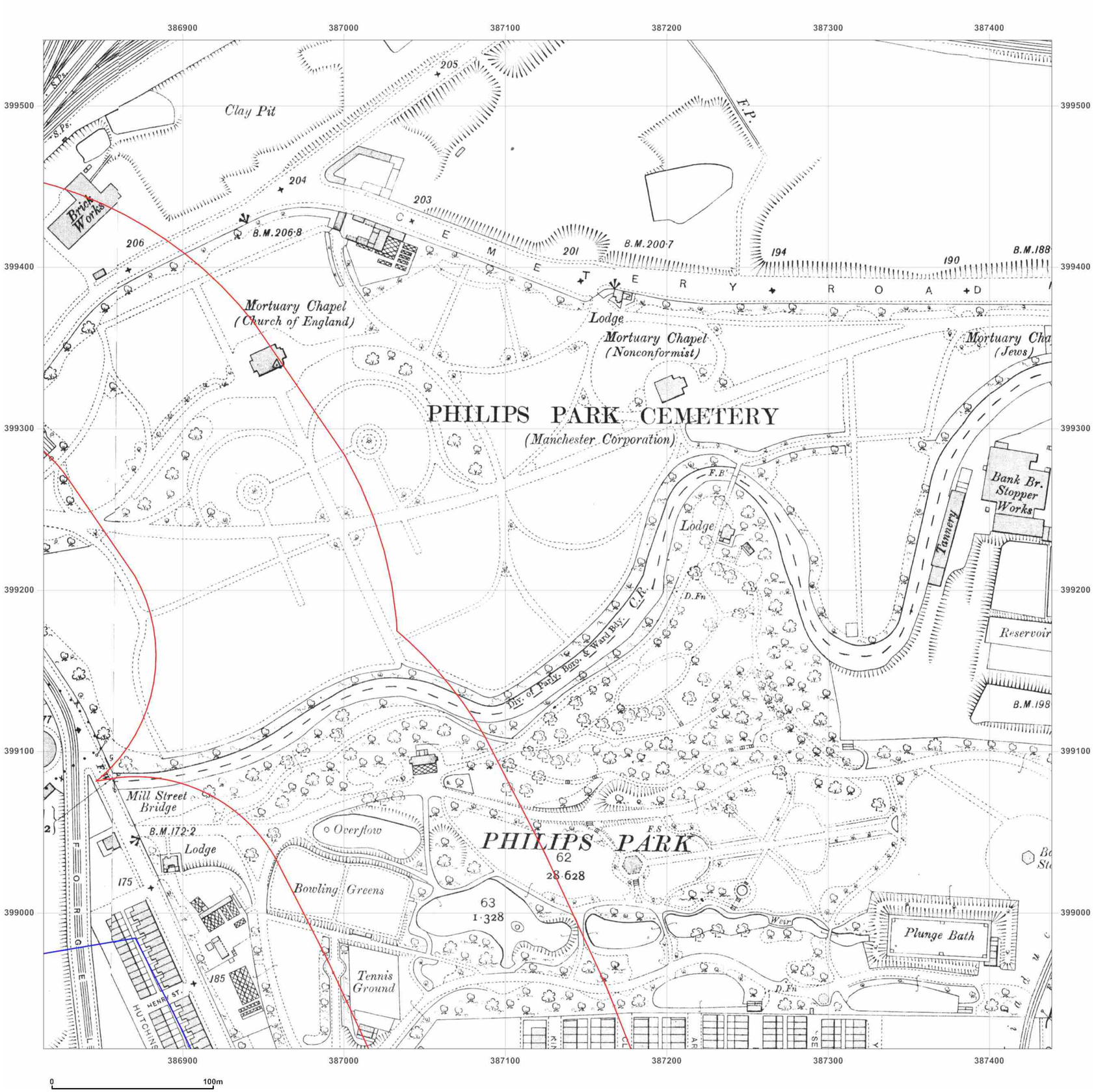

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_LS_2_2
Grid Ref: 387126, 399228

Map Name: County Series
Map date: **1908**
Scale: 1:2,500
Printed at: 1:2,500

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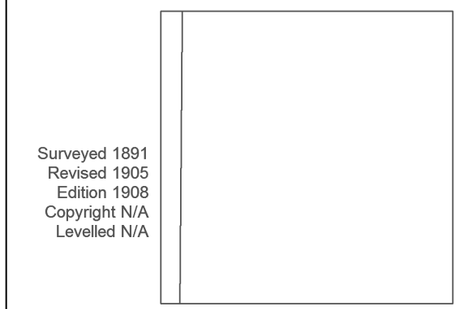

Surveyed 1891
Revised 1905
Edition 1908
Copyright N/A
Levelled N/A

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

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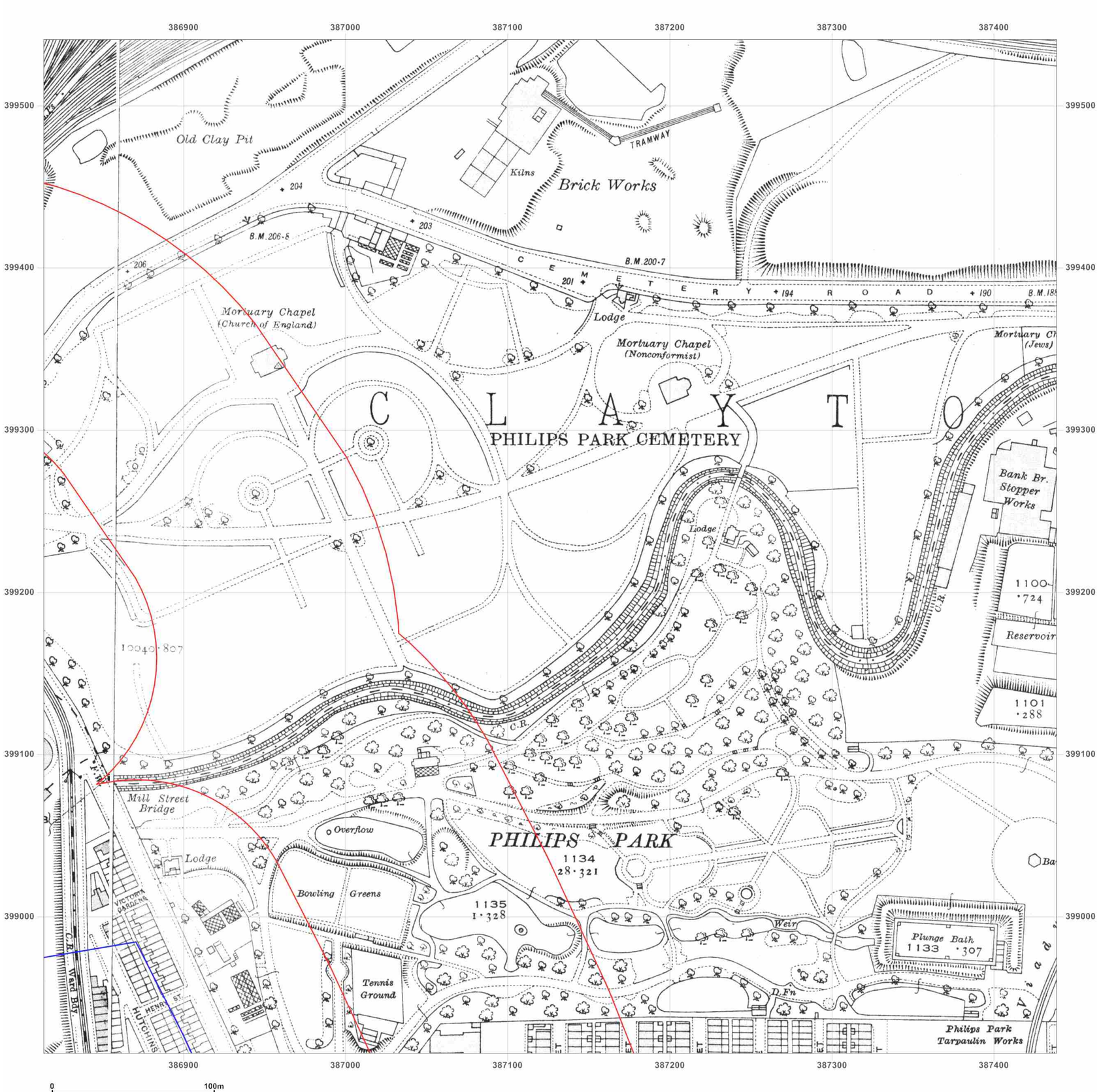

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_LS_2_2
Grid Ref: 387126, 399228

Map Name: County Series

Map date: **1922**

Scale: 1:2,500

Printed at: 1:2,500

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

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

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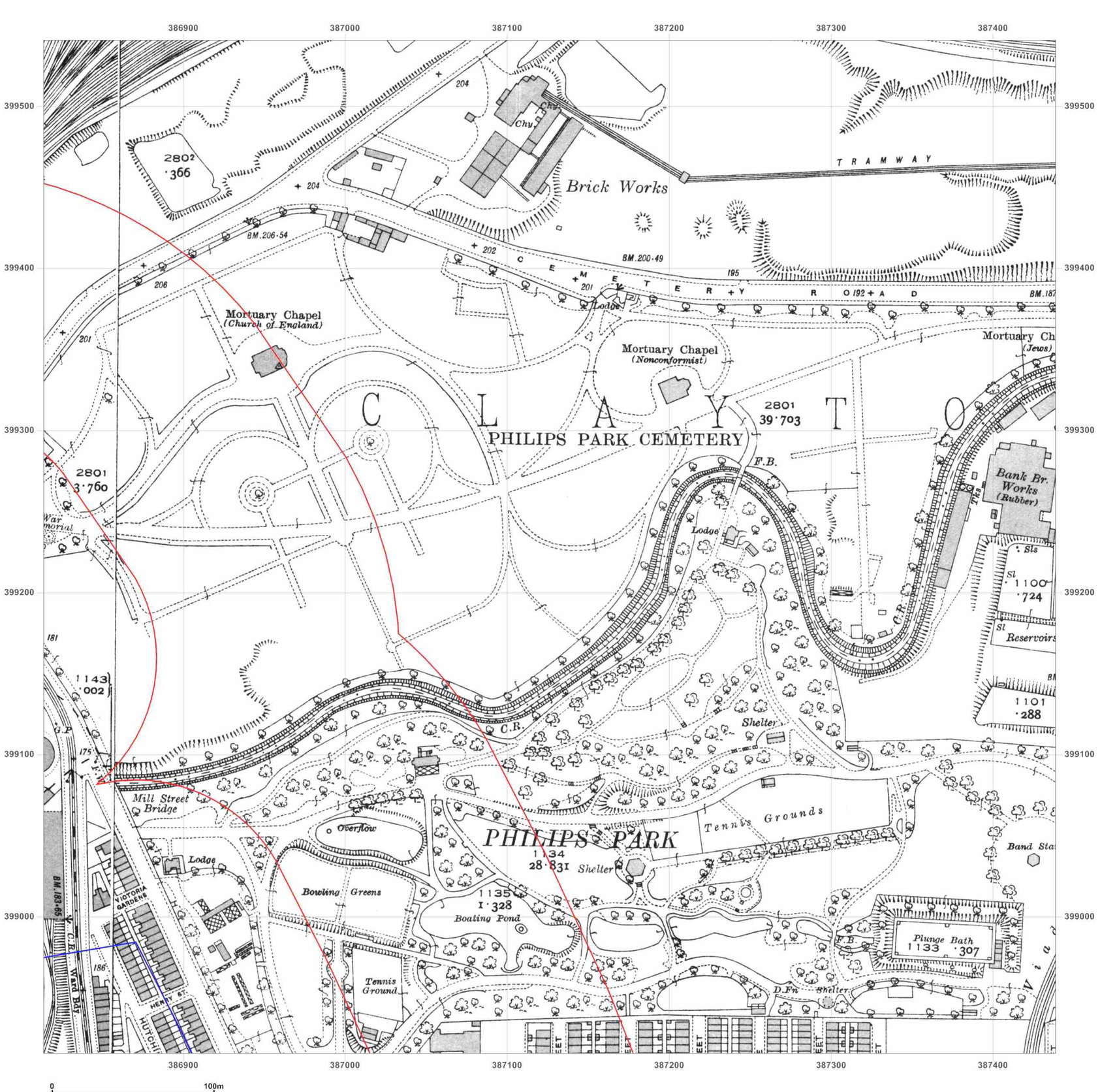

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_LS_2_2
Grid Ref: 387126, 399228

Map Name: County Series
Map date: **1931-1932**
Scale: 1:2,500
Printed at: 1:2,500

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

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

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Production date: 22 November 2019

Map legend available at:
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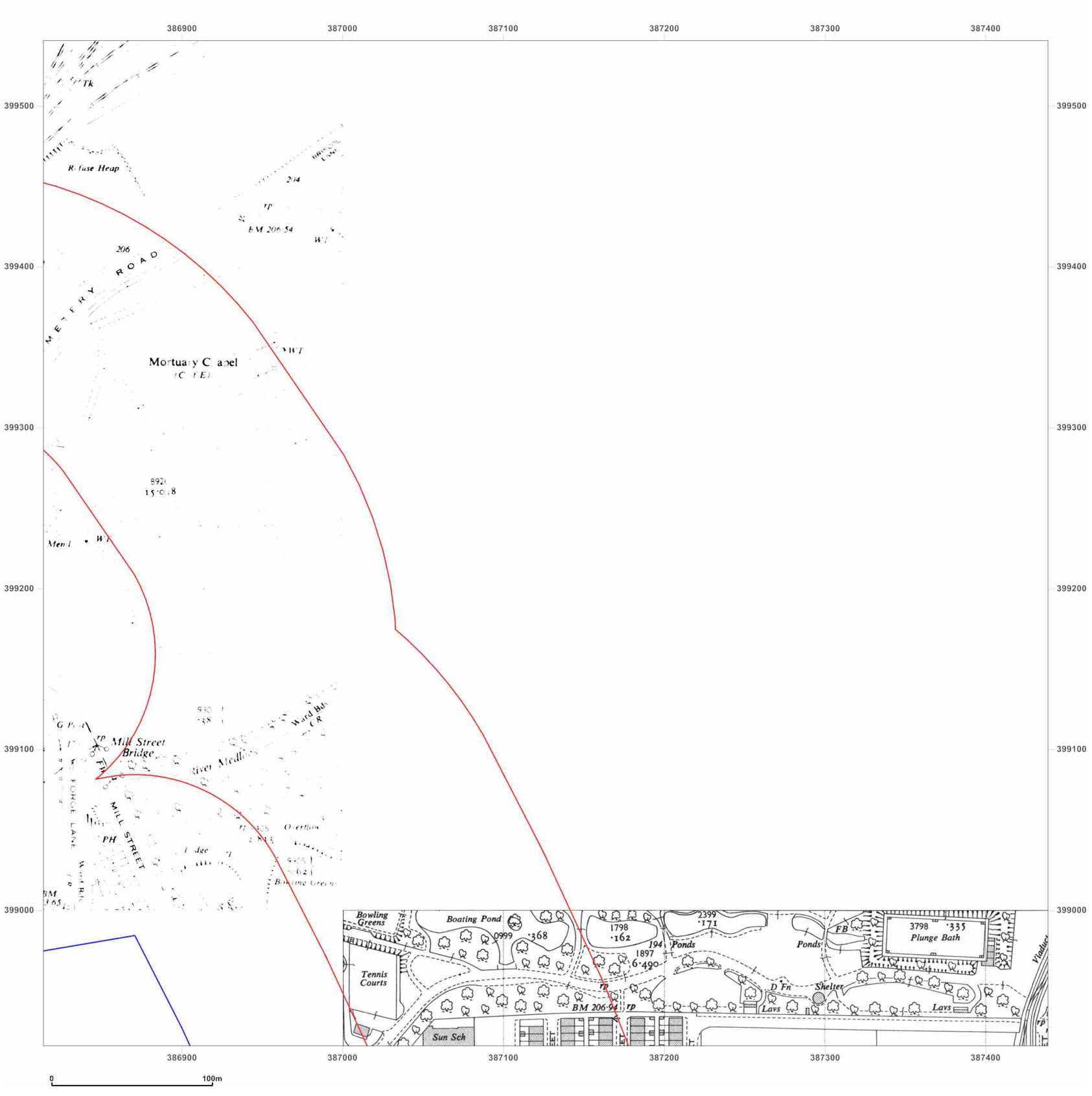

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_LS_2_2
Grid Ref: 387126, 399228

Map Name: National Grid
Map date: **1949-1951**
Scale: 1:2,500
Printed at: 1:2,500

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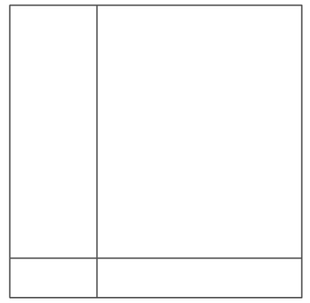
Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1949
Revised 1949
Edition N/A
Copyright 1950
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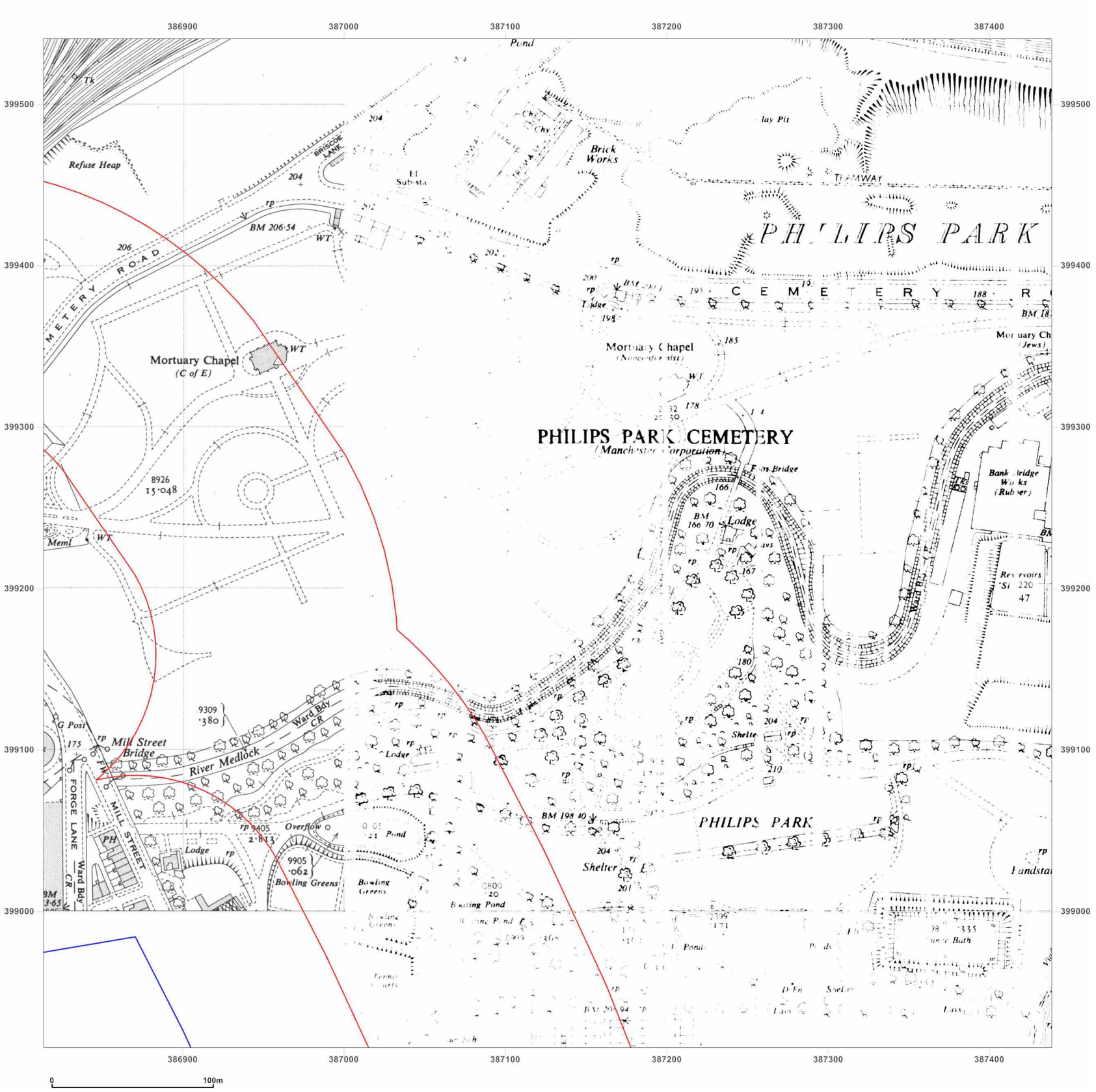

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_LS_2_2
Grid Ref: 387126, 399228

Map Name: National Grid
Map date: **1949-1951**
Scale: 1:2,500
Printed at: 1:2,500

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Surveyed 1949
Revised 1949
Edition N/A
Copyright 1950
Levelled 1929

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

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Revised N/A
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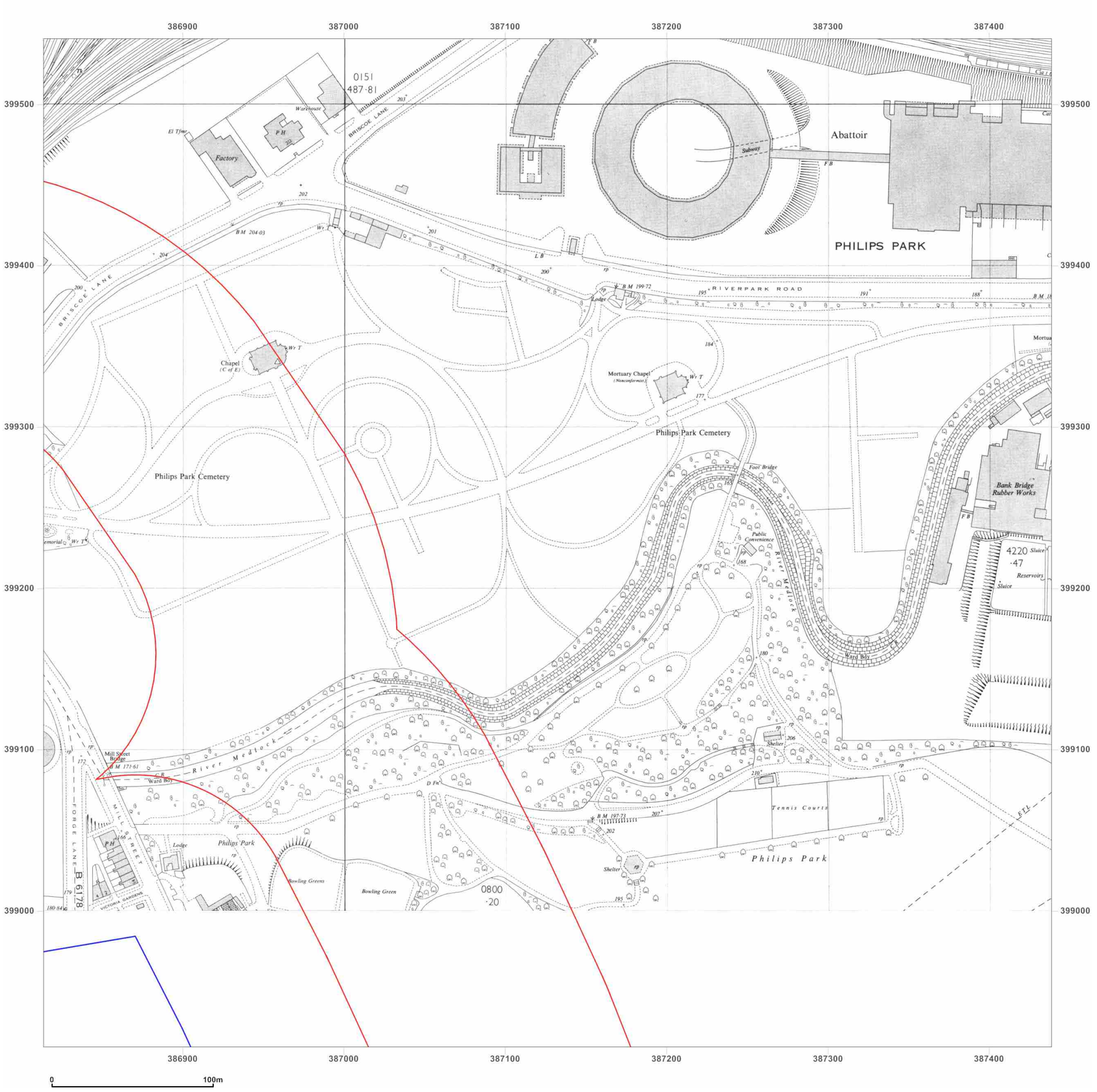

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_LS_2_2
Grid Ref: 387126, 399228

Map Name: National Grid

Map date: **1970**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed N/A
Revised 1969
Edition N/A
Copyright 1970
Levelled 1964

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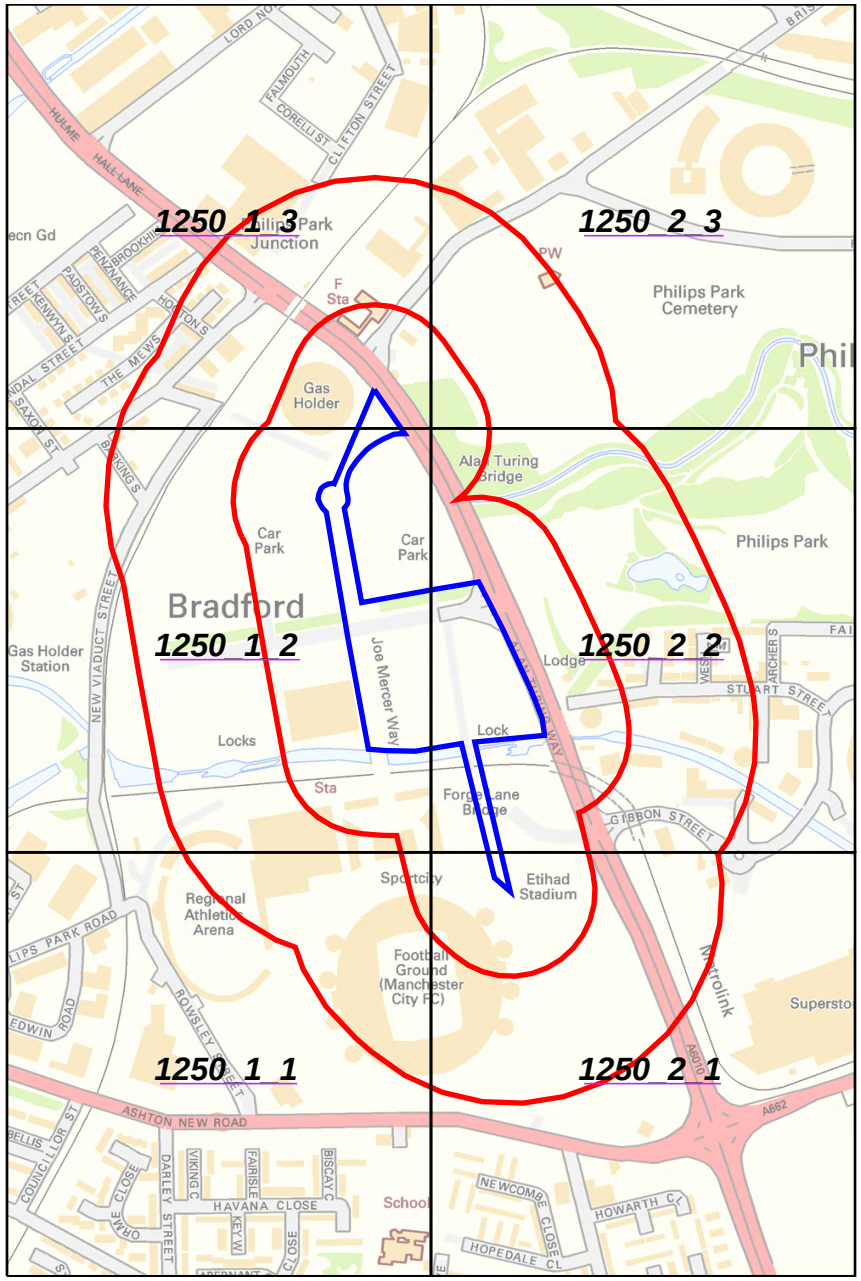

Groundsure INSIGHTS

1:1250 Scale Grid Index

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_1
Grid Ref: 386564, 398415

Map Name: County Series Town Plan
Map date: **1891**
Scale: 1:500
Printed at: 1:1,000

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

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Site Details:

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Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_1
Grid Ref: 386564, 398415

Map Name: National Grid
Map date: **1948-1949**
Scale: 1:1,250
Printed at: 1:2,000

N W E S

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

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

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

Surveyed 1949
Revised 1949
Edition N/A
Copyright 1949
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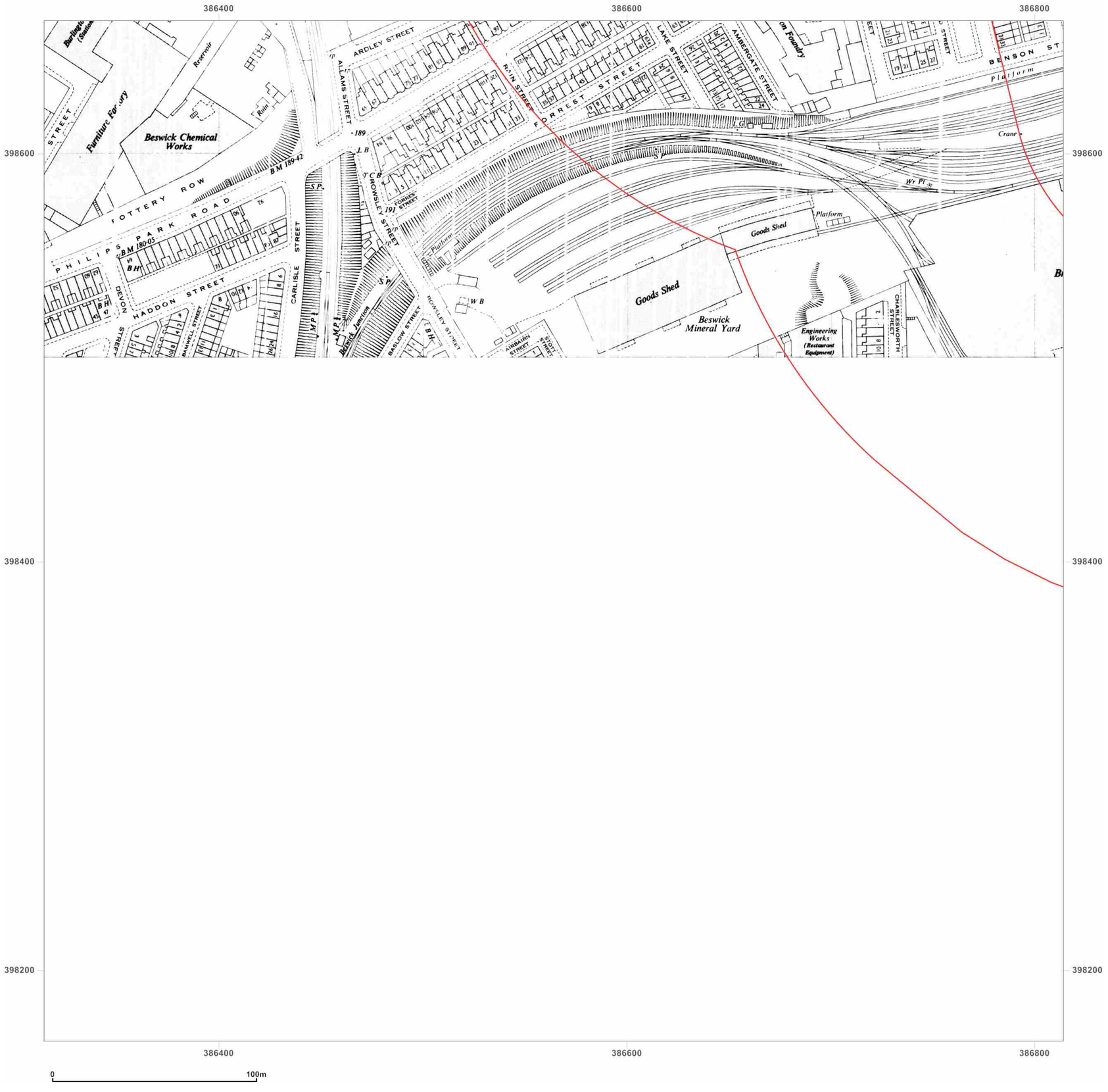

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_1
Grid Ref: 386564, 398415

Map Name: National Grid
Map date: **1956**
Scale: 1:1,250
Printed at: 1:2,000

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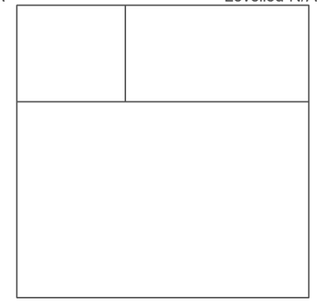
Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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



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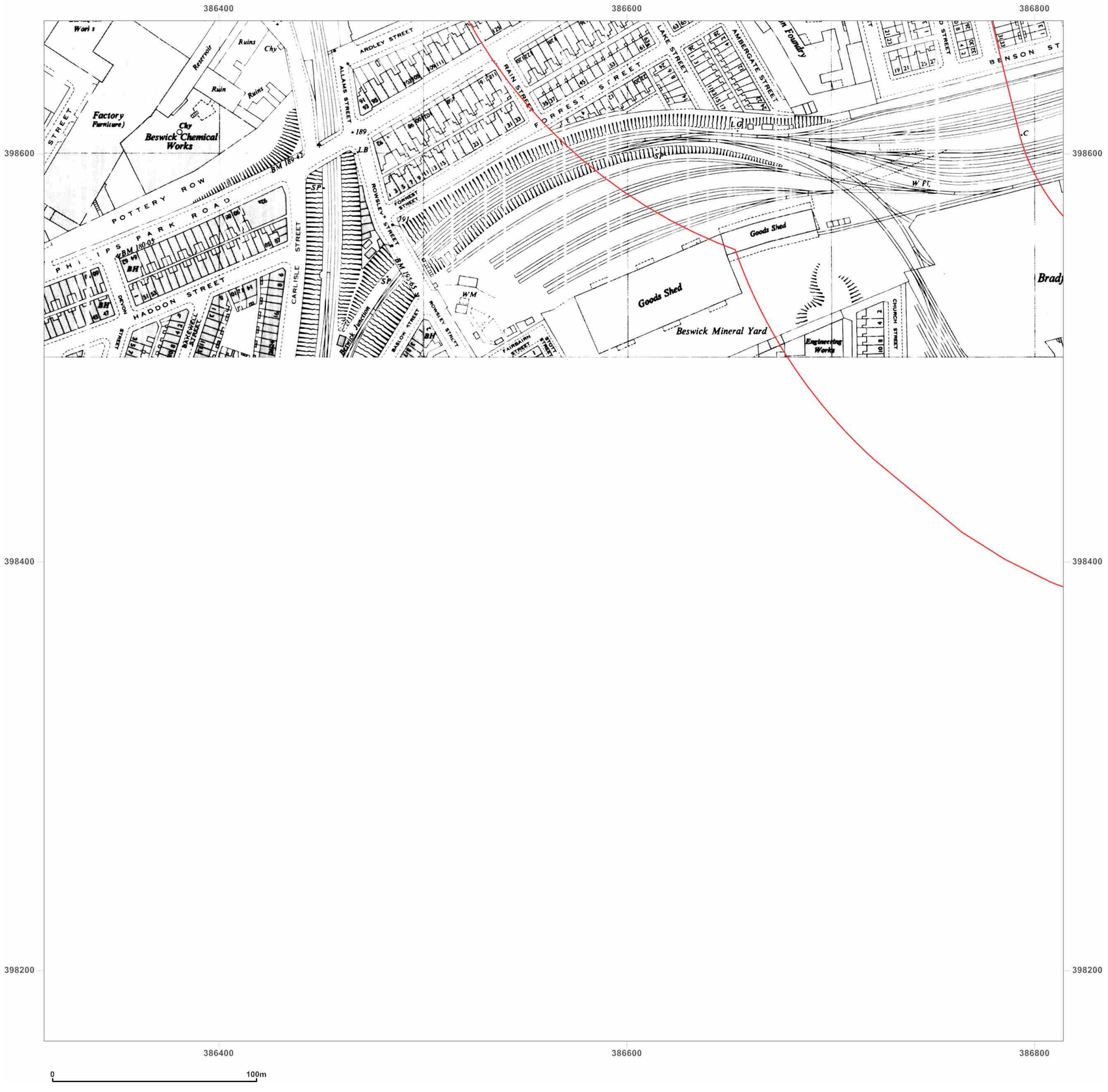

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_1
Grid Ref: 386564, 398415

Map Name: National Grid
Map date: **1956**
Scale: 1:1,250
Printed at: 1:2,000

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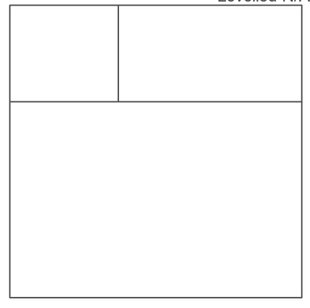
Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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



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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_1
Grid Ref: 386564, 398415

Map Name: National Grid
Map date: **1955-1958**
Scale: 1:1,250
Printed at: 1:2,000

N W E S

Surveyed 1955
Revised 1955
Edition N/A
Copyright 1955
Levelled 1929

Surveyed 1955
Revised 1955
Edition N/A
Copyright 1955
Levelled 1949

Surveyed 1948
Revised 1958
Edition N/A
Copyright 1958
Levelled 1929

Surveyed 1956
Revised 1956
Edition N/A
Copyright 1956
Levelled 1929

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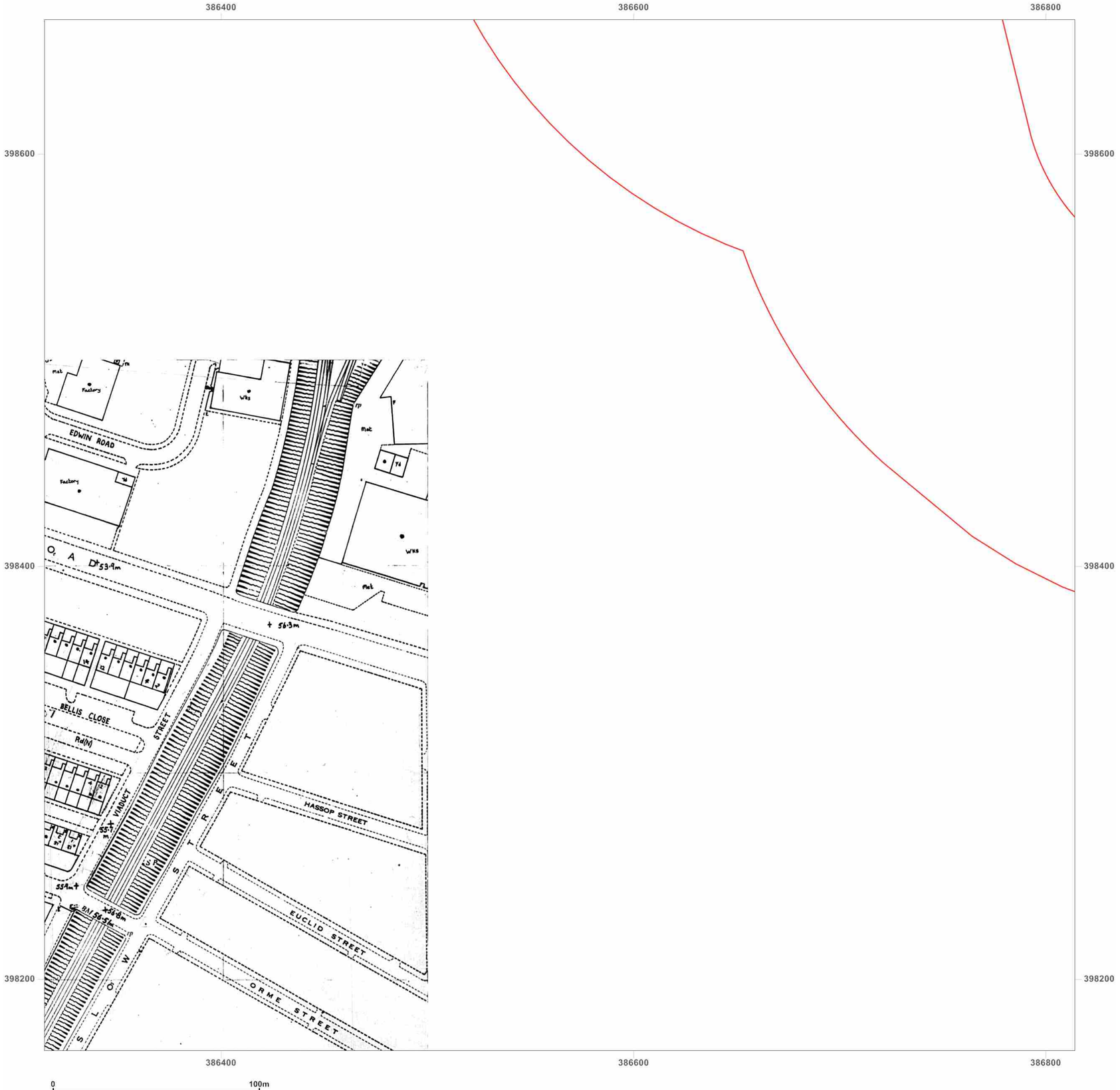

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_1
Grid Ref: 386564, 398415

Map Name: National Grid
Map date: **1979**
Scale: 1:1,250
Printed at: 1:2,000

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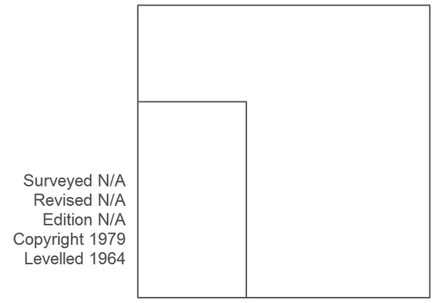

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Revised N/A
Edition N/A
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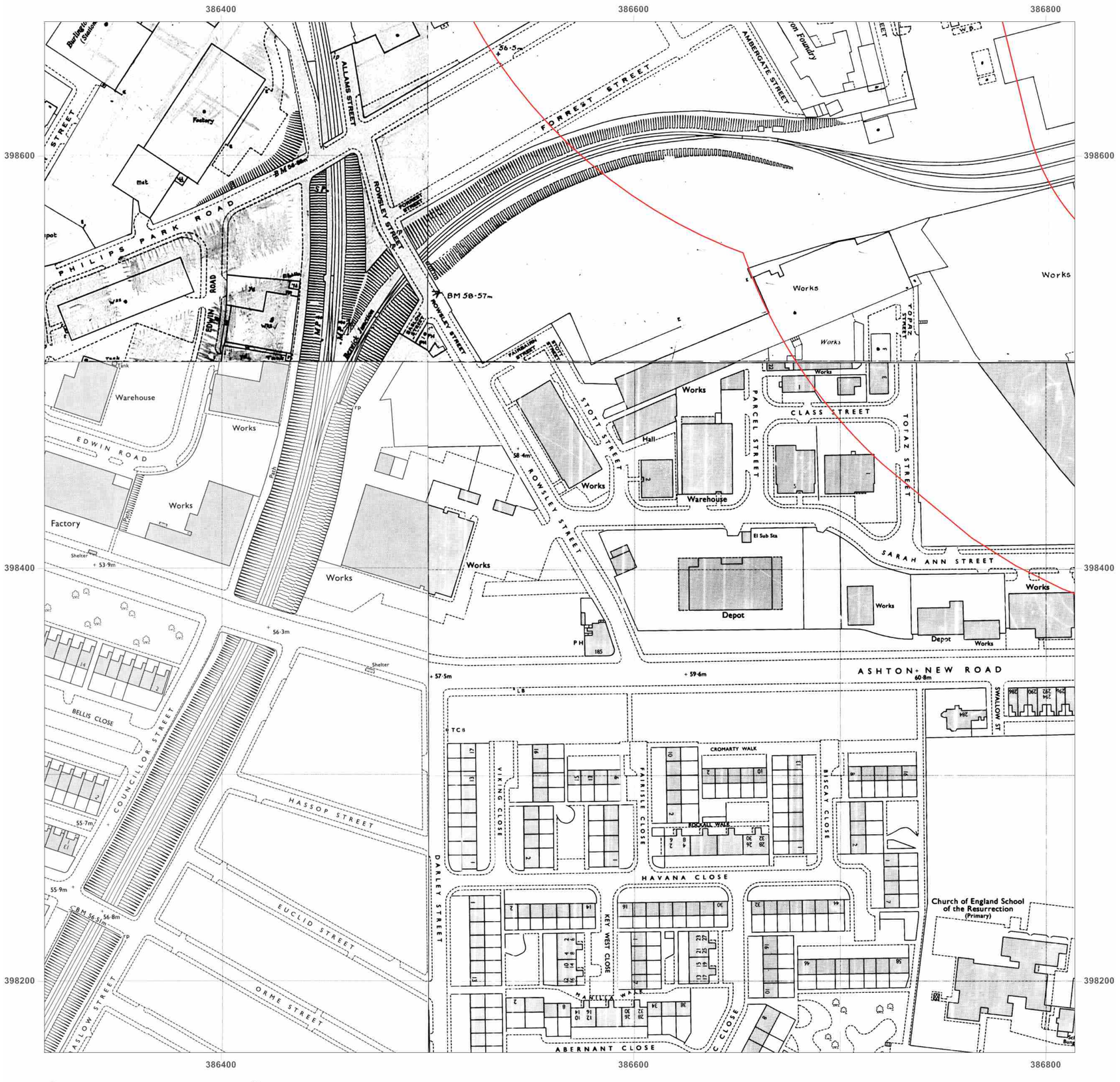

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_1
Grid Ref: 386564, 398415

Map Name: National Grid
Map date: **1978-1980**
Scale: 1:1,250
Printed at: 1:2,000

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Surveyed N/A
Revised N/A
Edition N/A
Copyright 1979
Levelled 1964

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1979
Levelled 1964

Surveyed 1948
Revised 1979
Edition N/A
Copyright 1980
Levelled 1964

Surveyed N/A
Revised N/A
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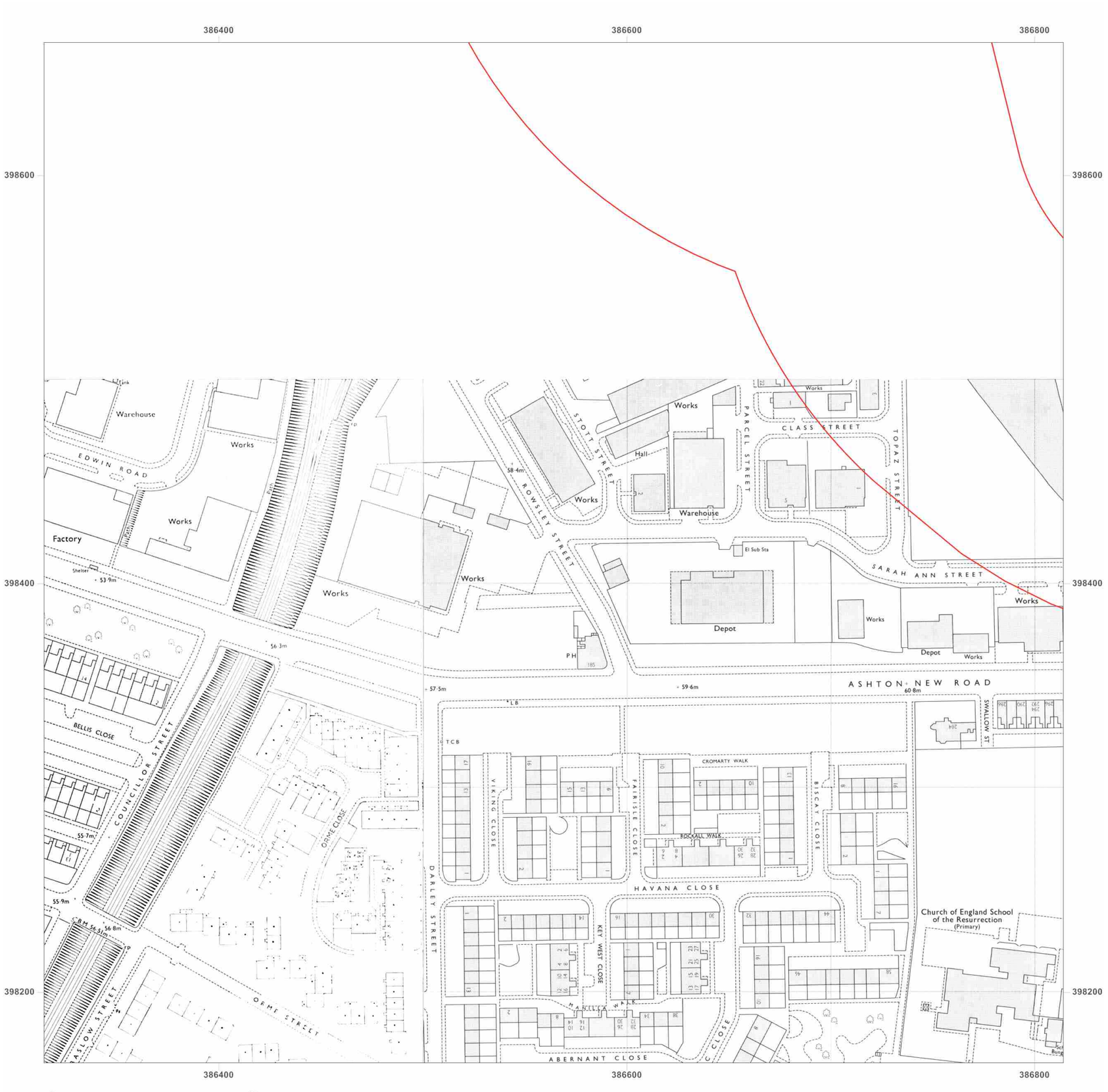

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_1
Grid Ref: 386564, 398415

Map Name: National Grid

Map date: **1979-1983**

Scale: 1:1,250

Printed at: 1:2,000

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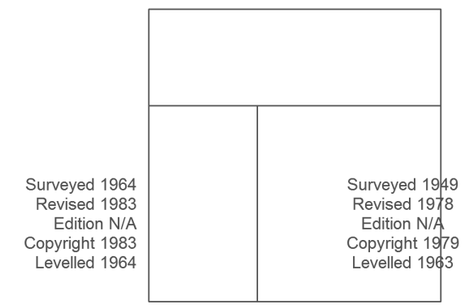

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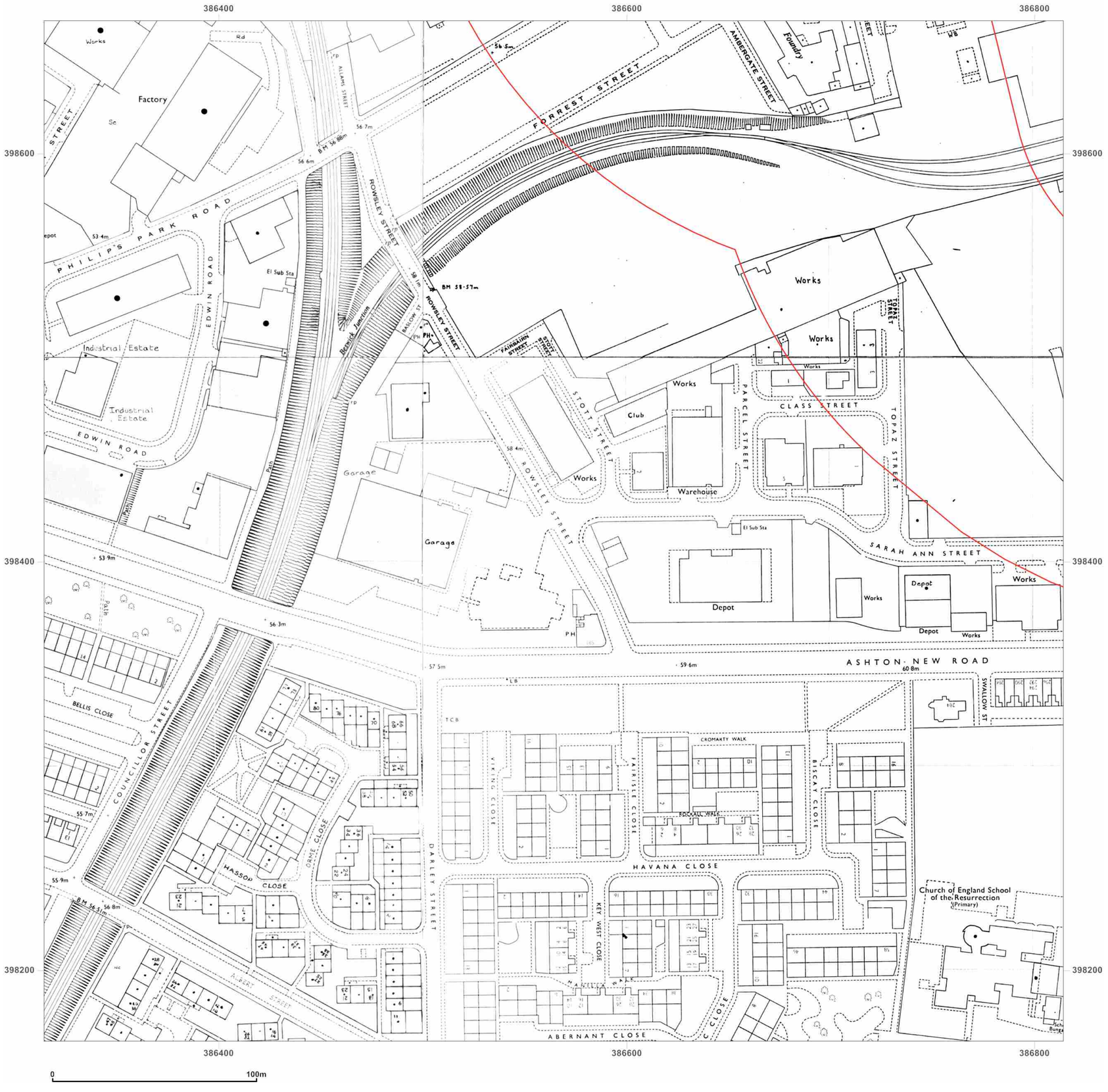

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_1
Grid Ref: 386564, 398415

Map Name: National Grid
Map date: **1983-1987**
Scale: 1:1,250
Printed at: 1:2,000

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Surveyed 1964 Revised 1986 Edition N/A Copyright 1986 Levelled 1964	Surveyed 1963 Revised 1983 Edition N/A Copyright 1983 Levelled 1963

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Site Details:

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Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_1
Grid Ref: 386564, 398415

Map Name: National Grid
Map date: **1988-1992**
Scale: 1:1,250
Printed at: 1:2,000

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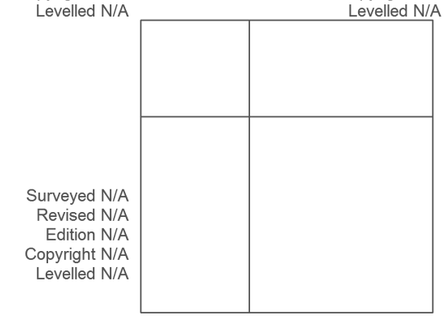
Surveyed 1992
Revised 1992
Edition N/A
Copyright 1992
Levelled N/A

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

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



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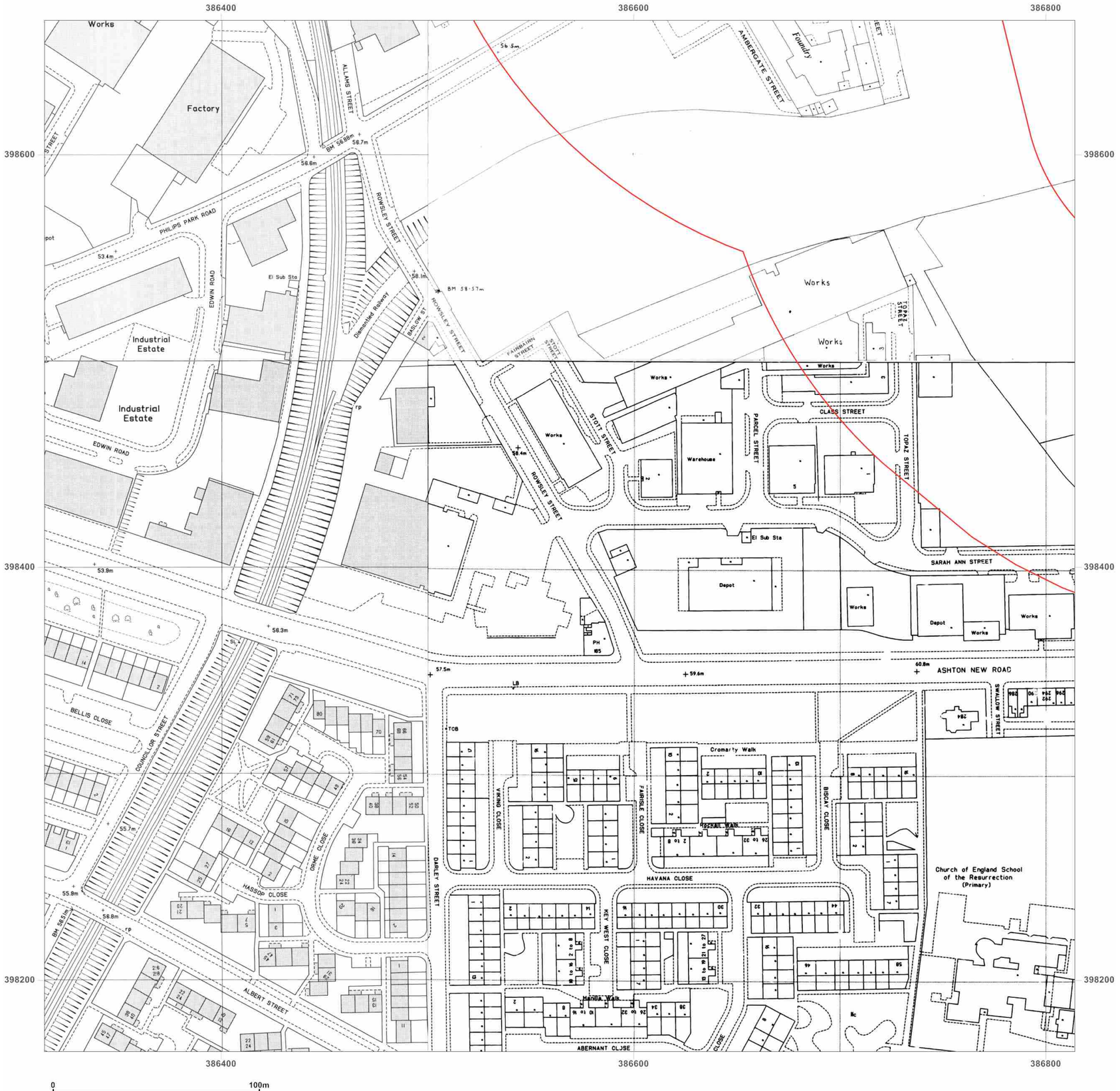

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_1
Grid Ref: 386564, 398415

Map Name: National Grid
Map date: **1987-1992**
Scale: 1:1,250
Printed at: 1:2,000

N
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Surveyed 1948
Revised 1988
Edition N/A
Copyright 1989
Levelled 1964

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

Surveyed 1948
Revised 1987
Edition N/A
Copyright 1987
Levelled 1964

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

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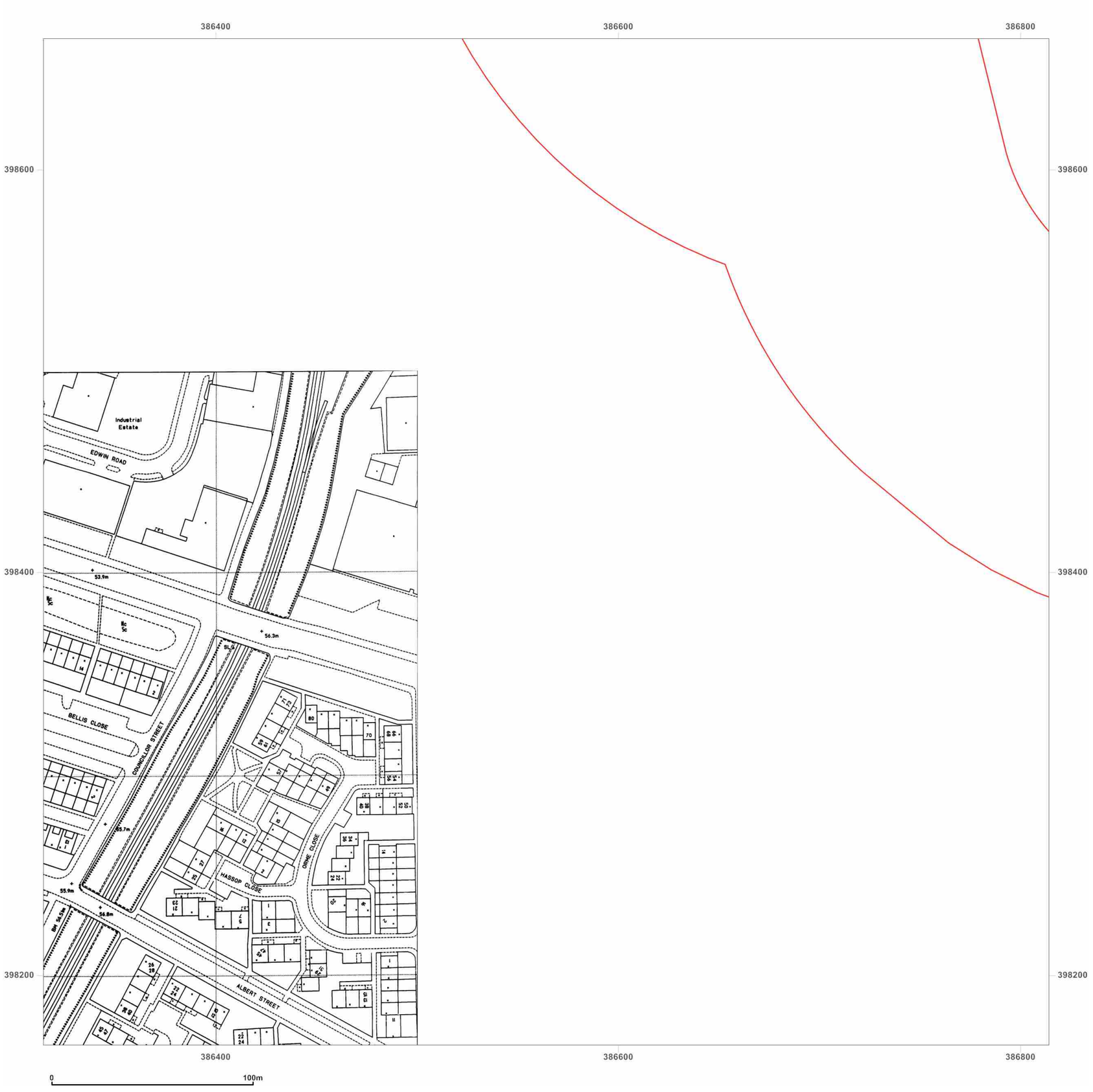

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_1
Grid Ref: 386564, 398415

Map Name: National Grid
Map date: **1993**
Scale: 1:1,250
Printed at: 1:2,000

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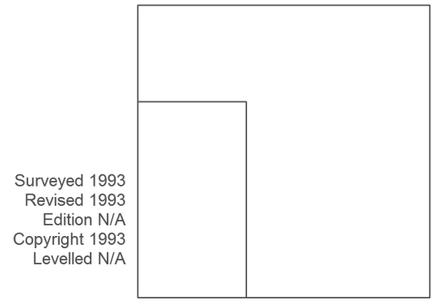

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Revised 1993
Edition N/A
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Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_1
Grid Ref: 386564, 398415

Map Name: National Grid
Map date: **1992-1995**
Scale: 1:1,250
Printed at: 1:2,000

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

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Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_1
Grid Ref: 386564, 398415

Map Name: National Grid
Map date: **1993-1995**
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

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

Surveyed 1995
Revised 1995
Edition N/A
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Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_1
Grid Ref: 386564, 398415

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

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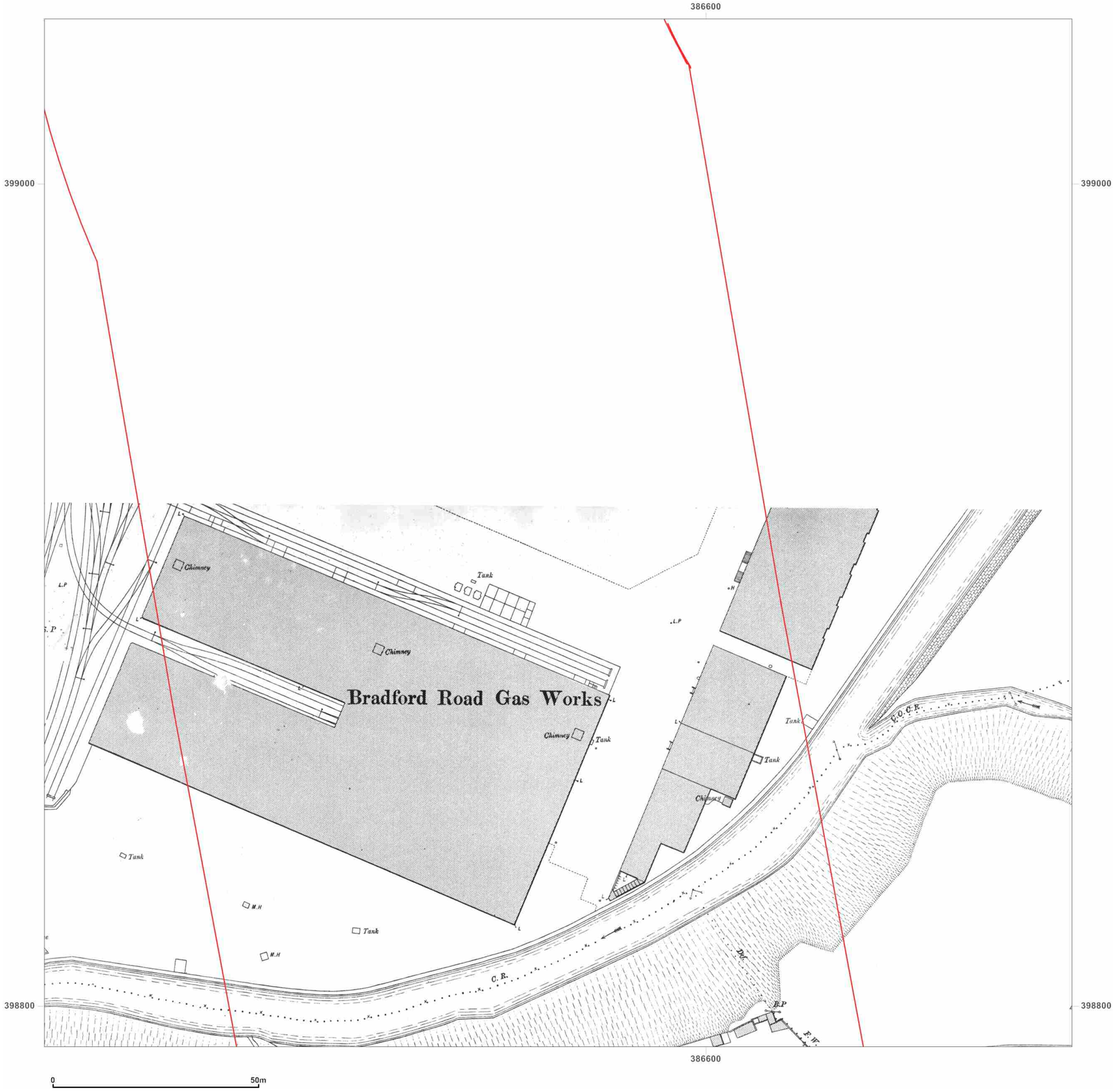

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_2
Grid Ref: 386564, 398915

Map Name: County Series Town Plan
Map date: **1891**
Scale: 1:500
Printed at: 1:1,000

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

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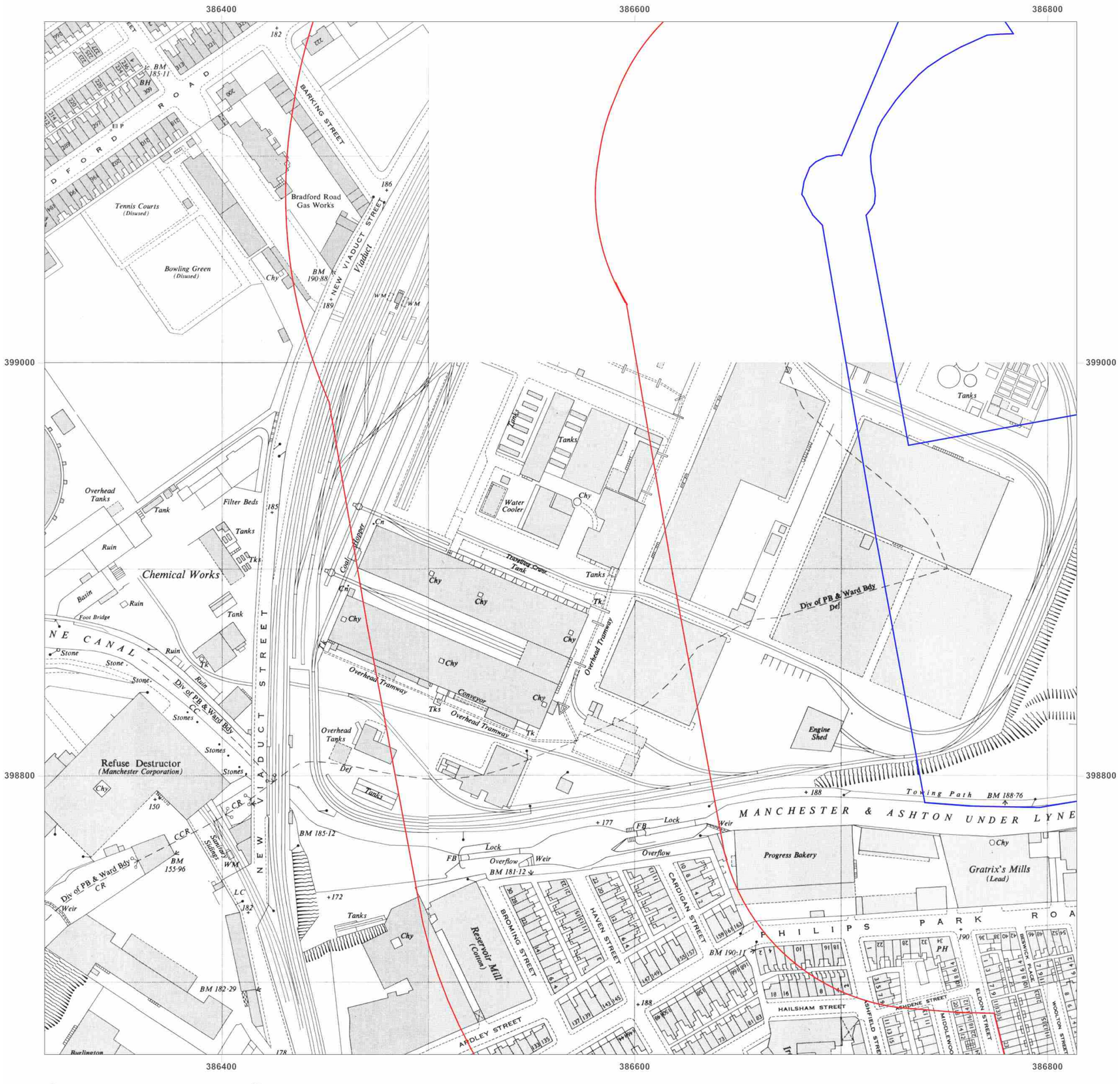

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_2
Grid Ref: 386564, 398915

Map Name: National Grid
Map date: **1948**
Scale: 1:1,250
Printed at: 1:2,000

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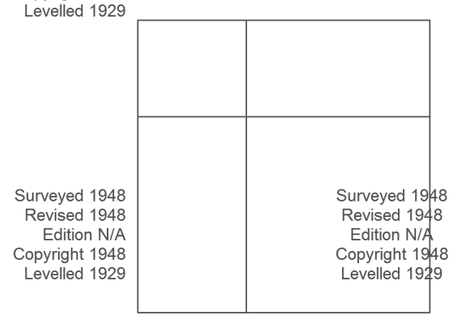
Surveyed 1948
Revised 1948
Edition N/A
Copyright 1948
Levelled 1929



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

Surveyed 1948
Revised 1948
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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_2
Grid Ref: 386564, 398915

Map Name: National Grid
Map date: **1952-1955**
Scale: 1:1,250
Printed at: 1:2,000

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Surveyed 1948
Revised 1952
Edition N/A
Copyright 1952
Levelled 1929

Surveyed 1955
Revised 1955
Edition N/A
Copyright 1955
Levelled 1929

Surveyed 1955
Revised 1955
Edition N/A
Copyright 1955
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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_2
Grid Ref: 386564, 398915

Map Name: National Grid
Map date: **1953-1956**
Scale: 1:1,250
Printed at: 1:2,000

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

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

Surveyed N/A
Revised N/A
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Site Details:

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Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_2
Grid Ref: 386564, 398915

Map Name: National Grid
Map date: **1956**
Scale: 1:1,250
Printed at: 1:2,000

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

Surveyed N/A
Revised N/A
Edition N/A
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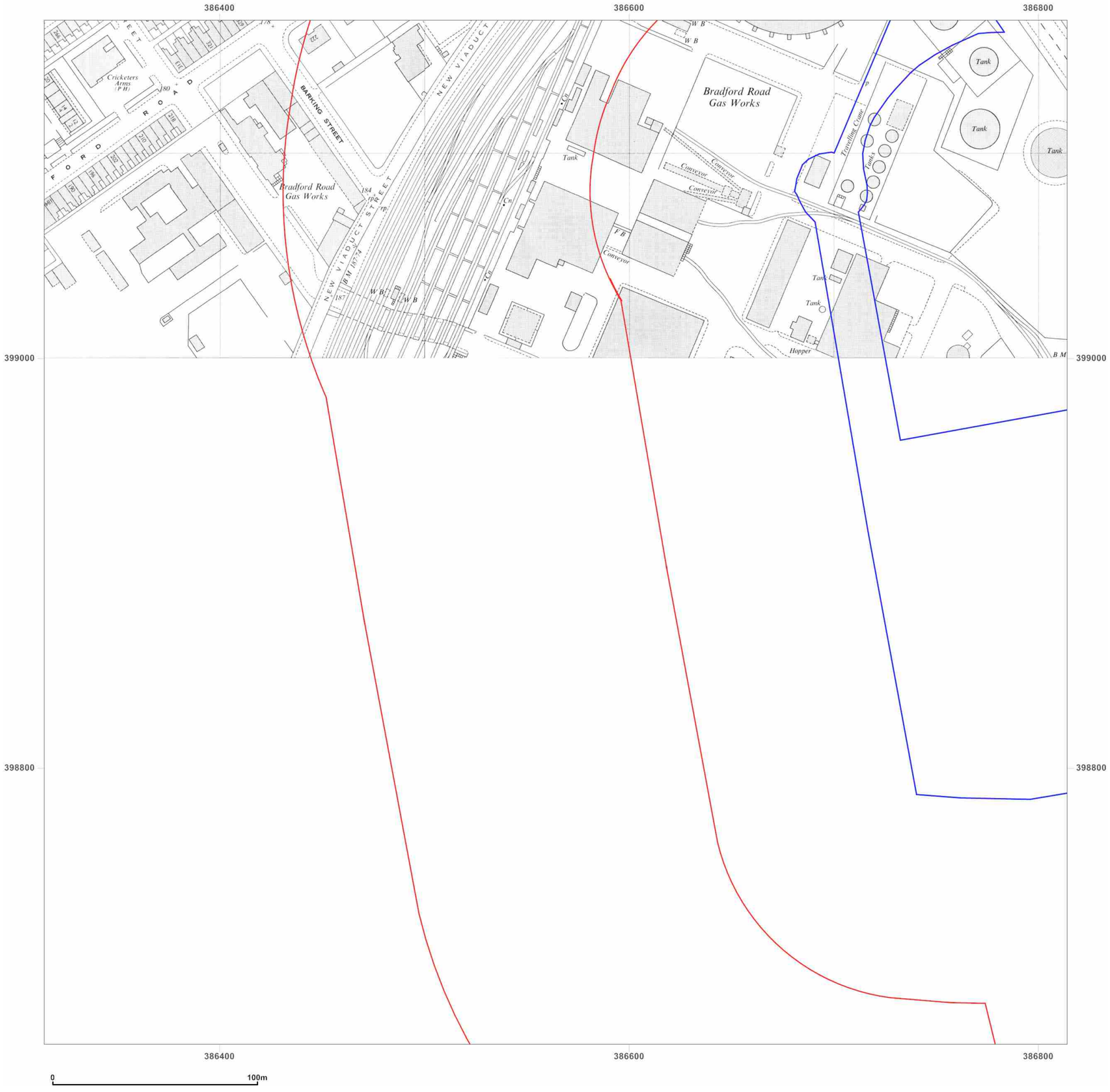

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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_2
Grid Ref: 386564, 398915

Map Name: National Grid
Map date: **1968**
Scale: 1:1,250
Printed at: 1:2,000

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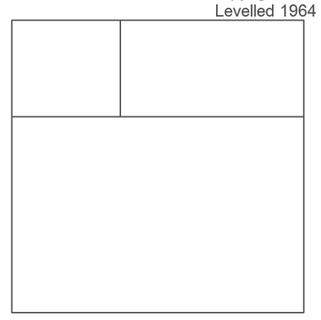
Surveyed 1948
Revised 1968
Edition N/A
Copyright 1968
Levelled 1964

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



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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_2
Grid Ref: 386564, 398915

Map Name: National Grid
Map date: **1979-1984**
Scale: 1:1,250
Printed at: 1:2,000

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

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

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1979
Levelled 1964

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Revised N/A
Edition N/A
Copyright 1979
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Site Details:

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Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_2
Grid Ref: 386564, 398915

Map Name: National Grid
Map date: **1986-1991**
Scale: 1:1,250
Printed at: 1:2,000

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

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

Surveyed 1966
Revised 1987
Edition N/A
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Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_2
Grid Ref: 386564, 398915

Map Name: National Grid
Map date: **1989-1992**
Scale: 1:1,250
Printed at: 1:2,000

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Surveyed 1992 Revised 1992 Edition N/A Copyright 1992 Levelled N/A	Surveyed N/A Revised N/A Edition N/A Copyright 1992 Levelled N/A
Surveyed 1948 Revised 1988 Edition N/A Copyright 1989 Levelled 1964	Surveyed 1991 Revised 1991 Edition N/A Copyright 1991 Levelled N/A

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Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_2
Grid Ref: 386564, 398915

Map Name: National Grid
Map date: **1992-1995**
Scale: 1:1,250
Printed at: 1:2,000

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Surveyed 1994 Revised 1994 Edition N/A Copyright 1994 Levelled N/A			Surveyed N/A Revised N/A Edition N/A Copyright 1995 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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Site Details:

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Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_2
Grid Ref: 386564, 398915

Map Name: National Grid
Map date: **1992-1995**
Scale: 1:1,250
Printed at: 1:2,000

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

Surveyed N/A
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Edition N/A
Copyright 1995
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Surveyed 1992
Revised 1992
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Copyright 1992
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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_2
Grid Ref: 386564, 398915

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

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

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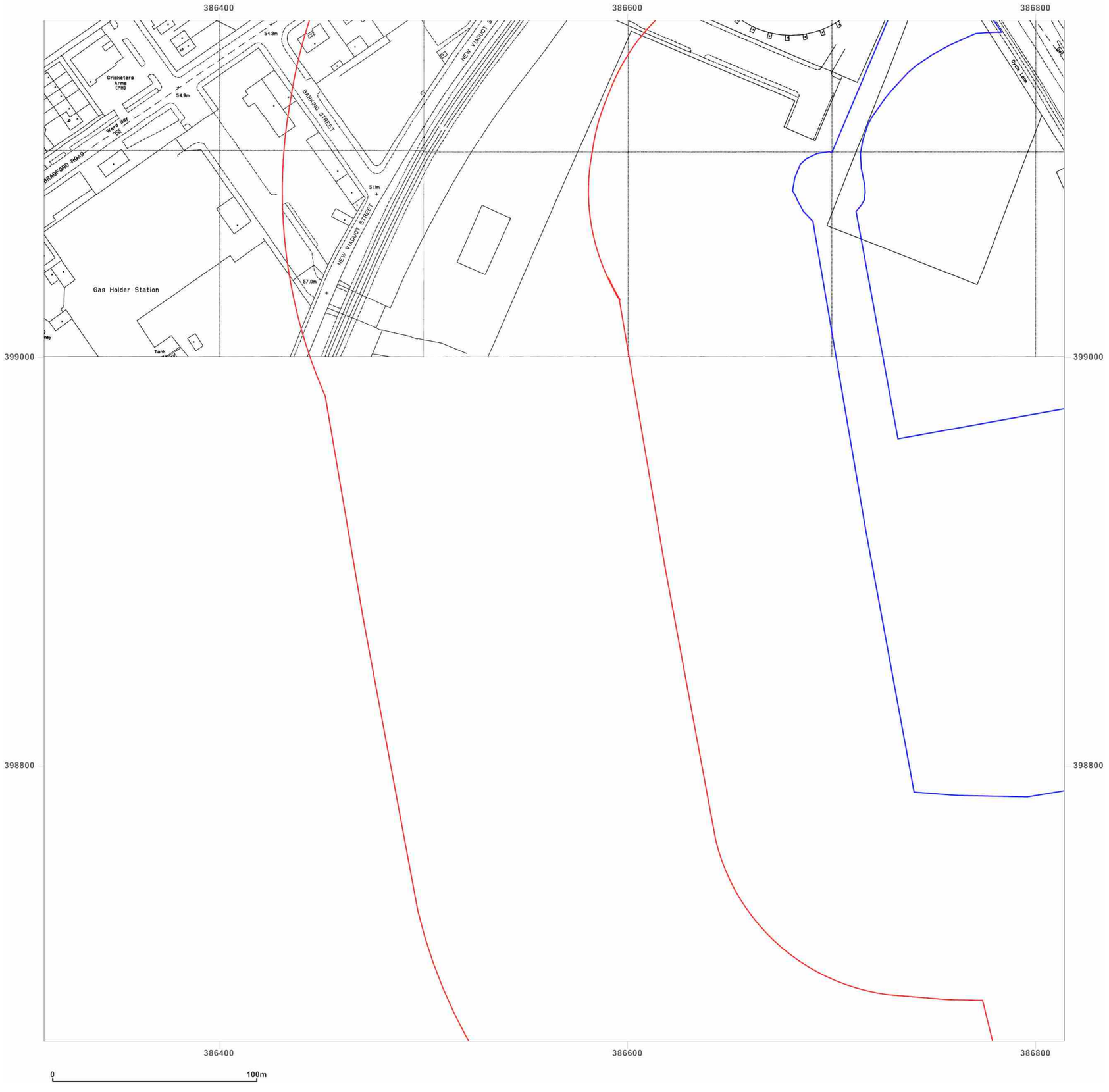

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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_2
Grid Ref: 386564, 398915

Map Name: National Grid
Map date: **1995**
Scale: 1:1,250
Printed at: 1:2,000

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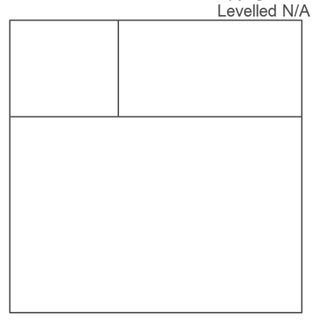
Surveyed 1995
Revised 1995
Edition N/A
Copyright 1995
Levelled N/A



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Revised 1995
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Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_2
Grid Ref: 386564, 398915

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

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2003

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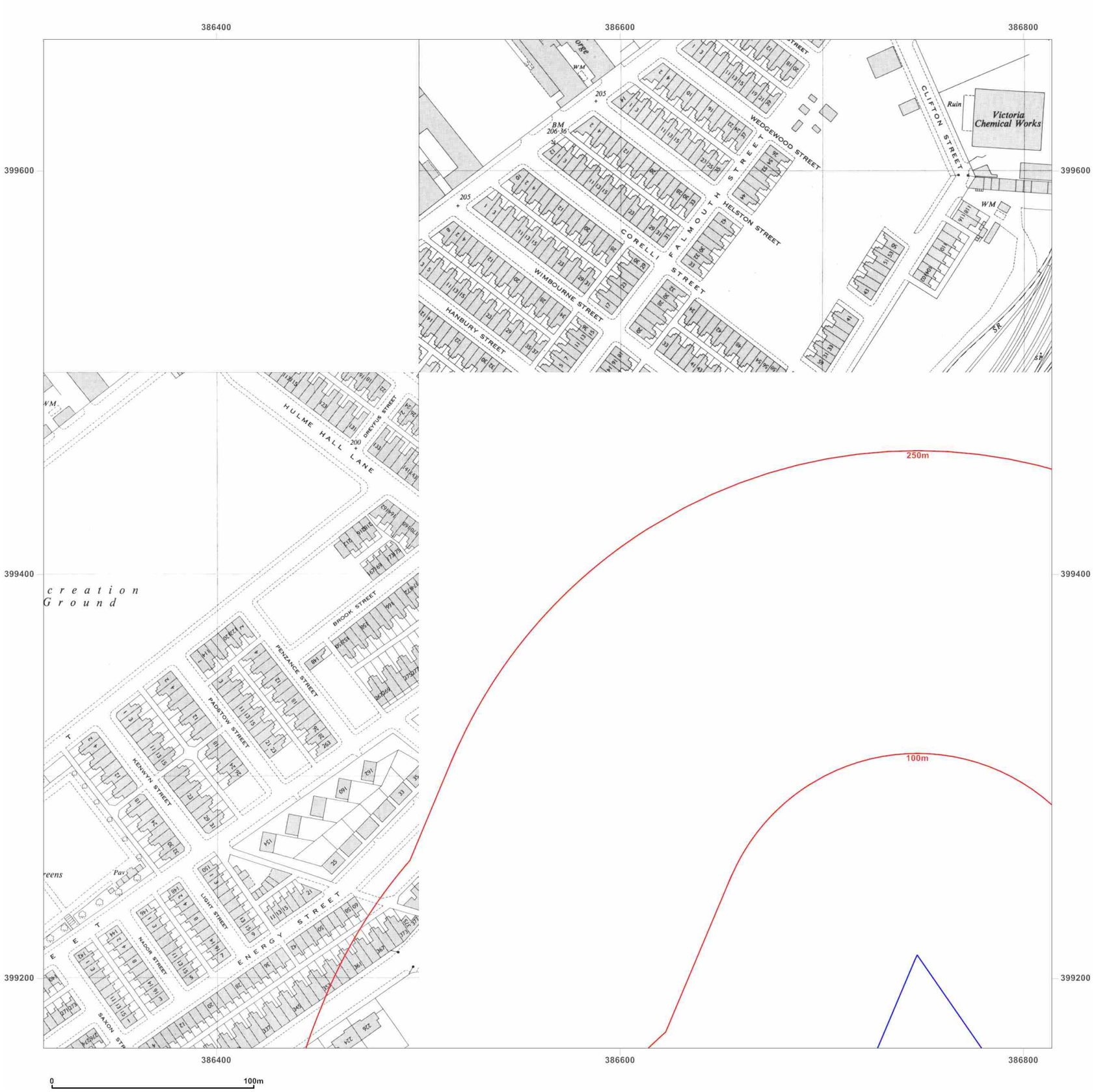

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_3
Grid Ref: 386564, 399415

Map Name: National Grid
Map date: **1948-1949**
Scale: 1:1,250
Printed at: 1:2,000

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Surveyed 1949
Revised 1949
Edition N/A
Copyright N/A
Levelled 1929

Surveyed 1948
Revised 1948
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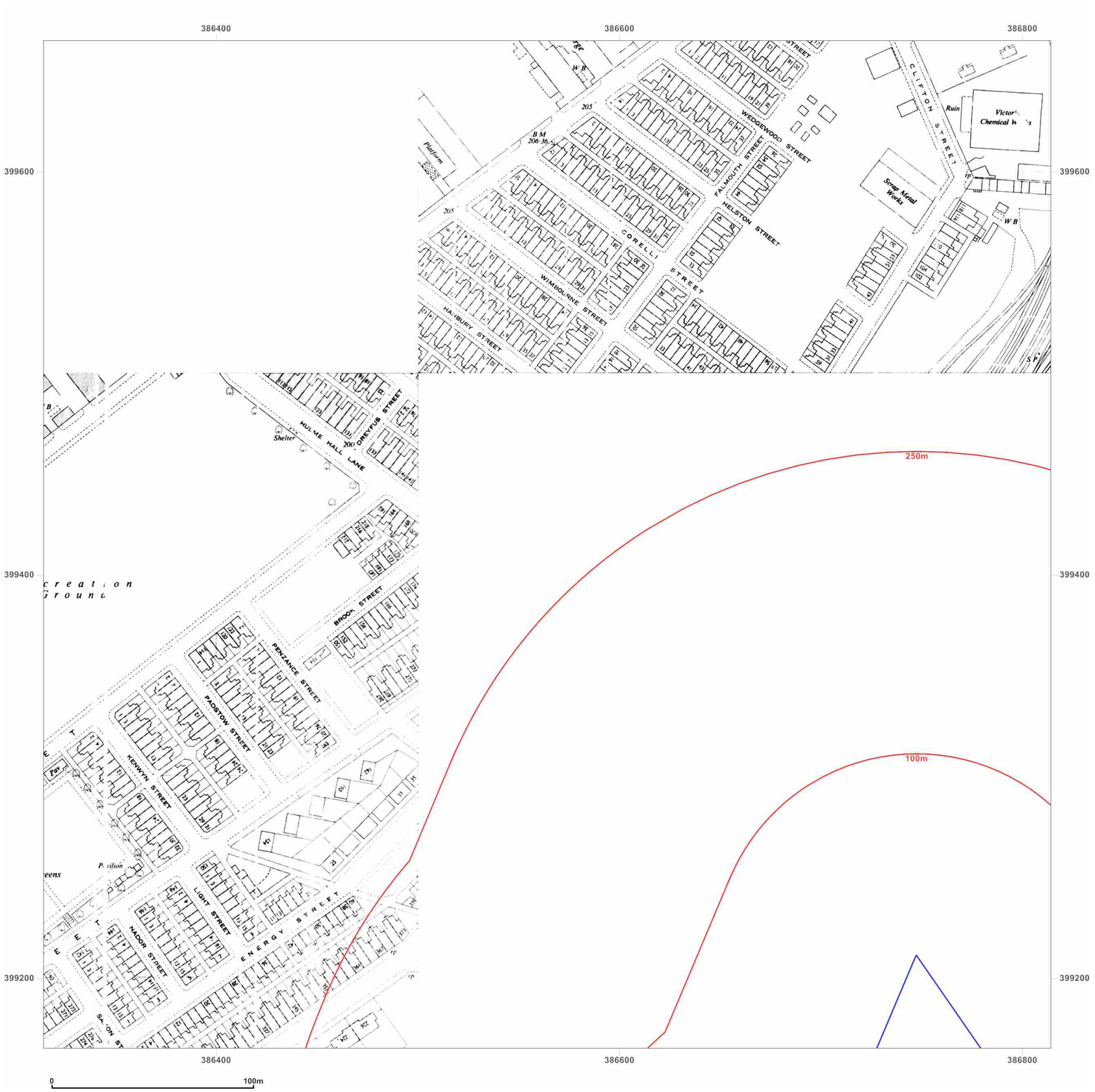

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_3
Grid Ref: 386564, 399415

Map Name: National Grid
Map date: **1953**
Scale: 1:1,250
Printed at: 1:2,000

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

Surveyed N/A
Revised N/A
Edition N/A
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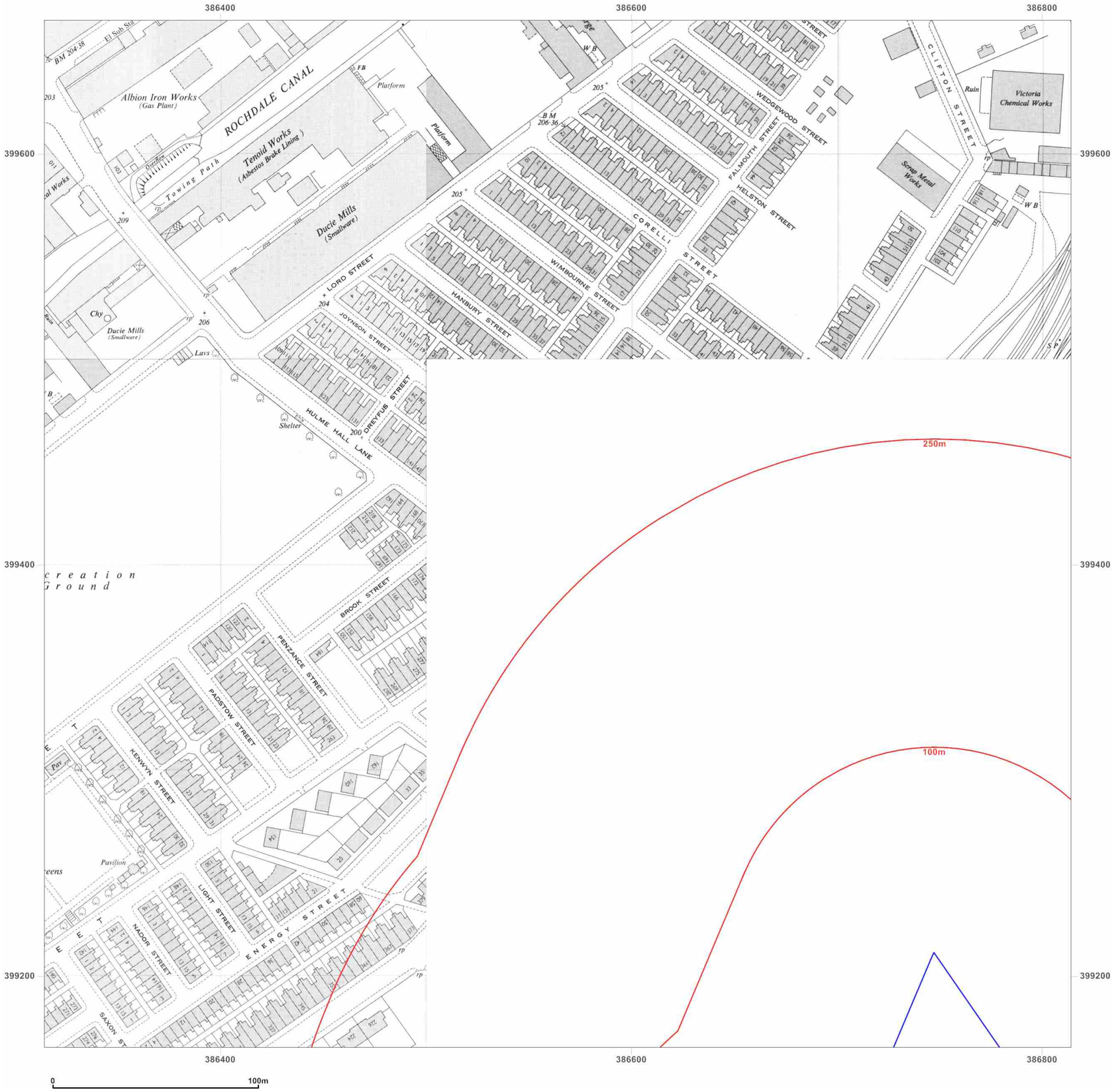

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_3
Grid Ref: 386564, 399415

Map Name: National Grid
Map date: **1952-1955**
Scale: 1:1,250
Printed at: 1:2,000

N
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Surveyed 1949
Revised 1955
Edition N/A
Copyright N/A
Levelled 1929

Surveyed 1949
Revised 1952
Edition N/A
Copyright N/A
Levelled 1929

Surveyed 1948
Revised 1952
Edition N/A
Copyright 1952
Levelled 1929

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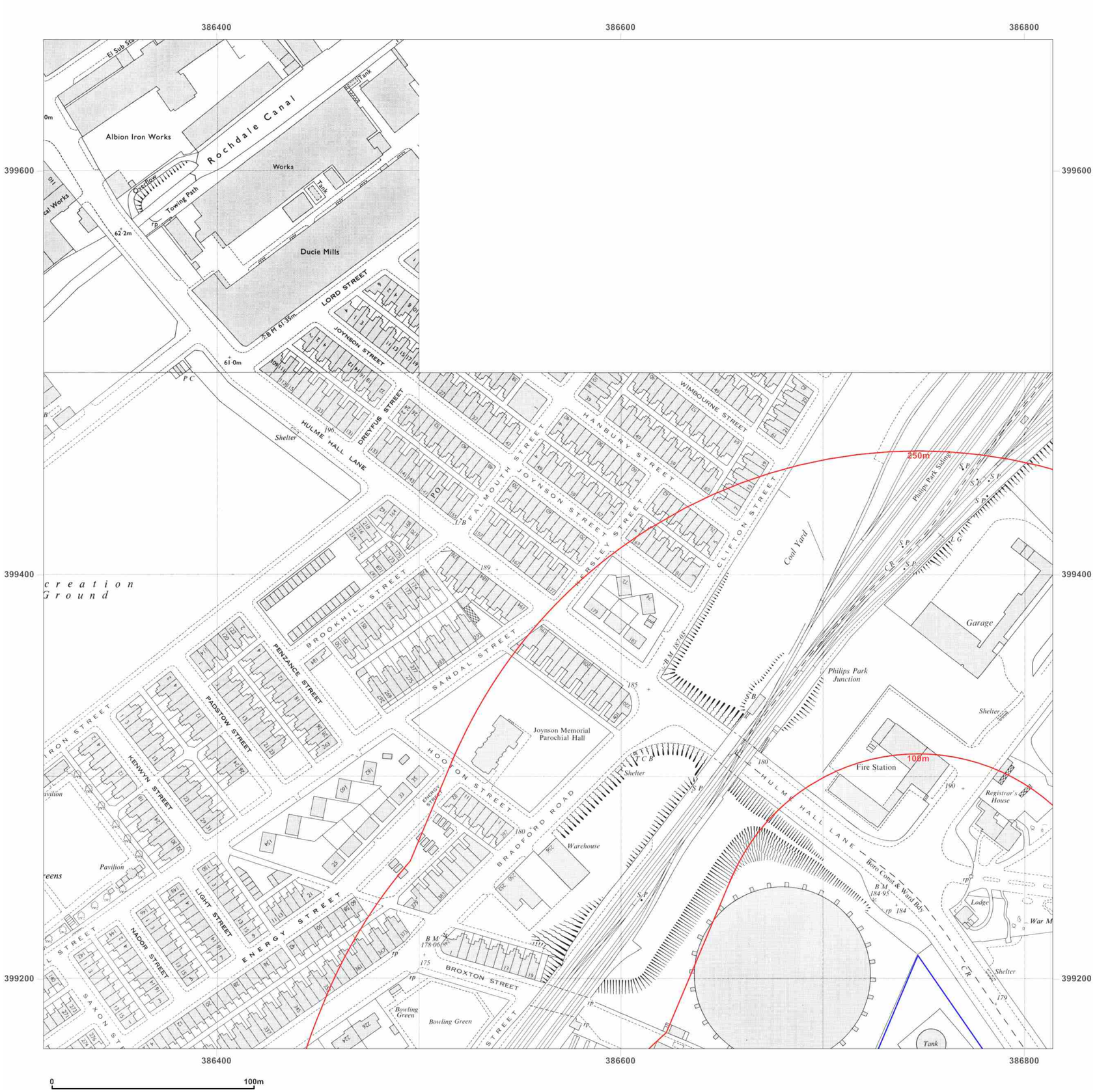

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_3
Grid Ref: 386564, 399415

Map Name: National Grid
Map date: **1968-1971**
Scale: 1:1,250
Printed at: 1:2,000

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Surveyed 1949
Revised 1970
Edition N/A
Copyright 1971
Levelled 1964

Surveyed 1948 Revised 1968 Edition N/A Copyright 1968 Levelled 1964	Surveyed 1949 Revised 1967 Edition N/A Copyright 1968 Levelled 1964

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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_3
Grid Ref: 386564, 399415

Map Name: National Grid

Map date: **1979-1984**

Scale: 1:1,250

Printed at: 1:2,000

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

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1979
Levelled 1964

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

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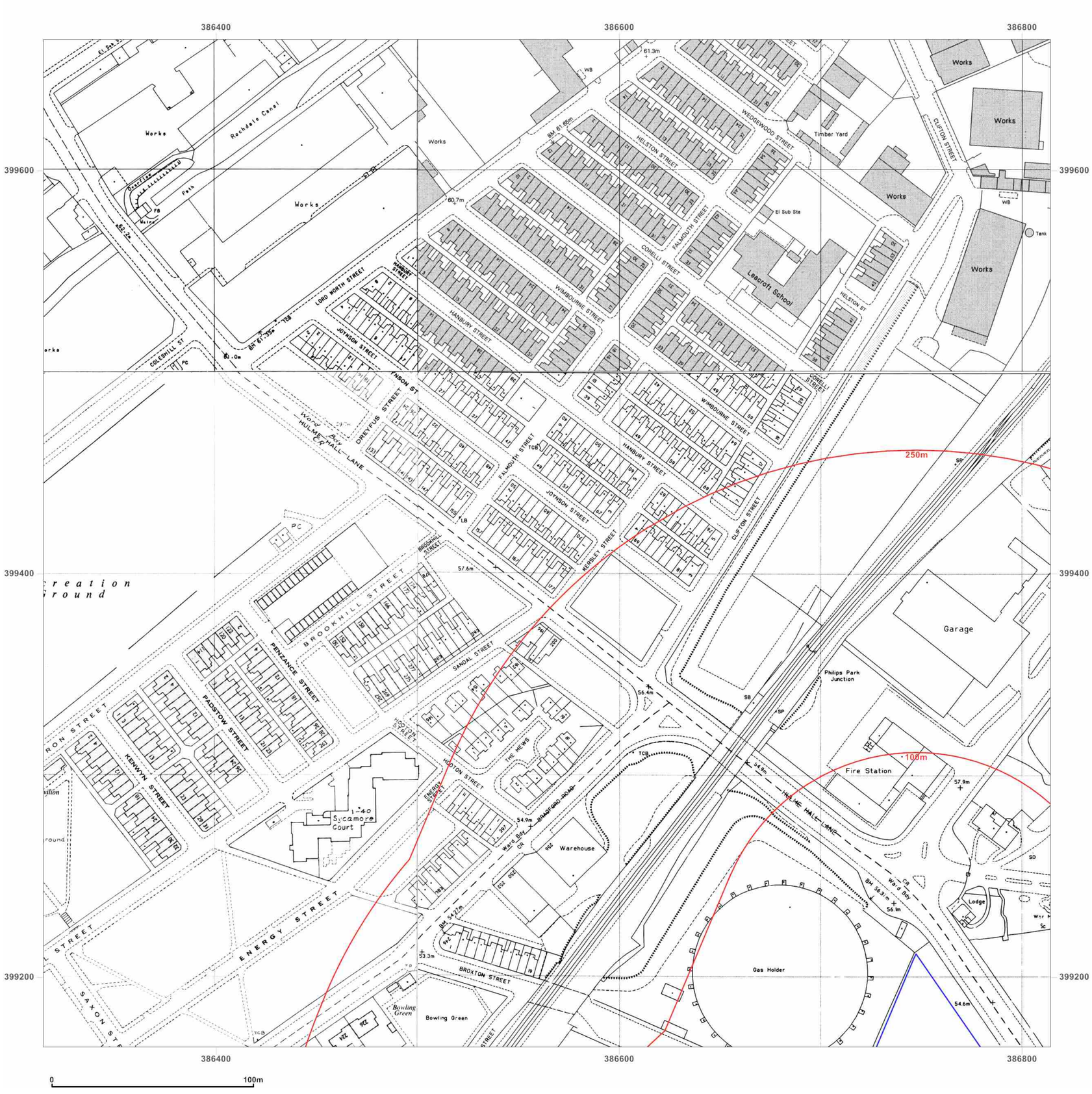

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_3
Grid Ref: 386564, 399415

Map Name: National Grid
Map date: **1990-1992**
Scale: 1:1,250
Printed at: 1:2,000

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Surveyed 1949 Revised 1970 Edition N/A Copyright 1990 Levelled N/A	Surveyed 1989 Revised 1989 Edition N/A Copyright 1990 Levelled N/A
Surveyed 1991 Revised 1991 Edition N/A Copyright 1991 Levelled N/A	Surveyed N/A Revised N/A Edition N/A Copyright 1992 Levelled N/A

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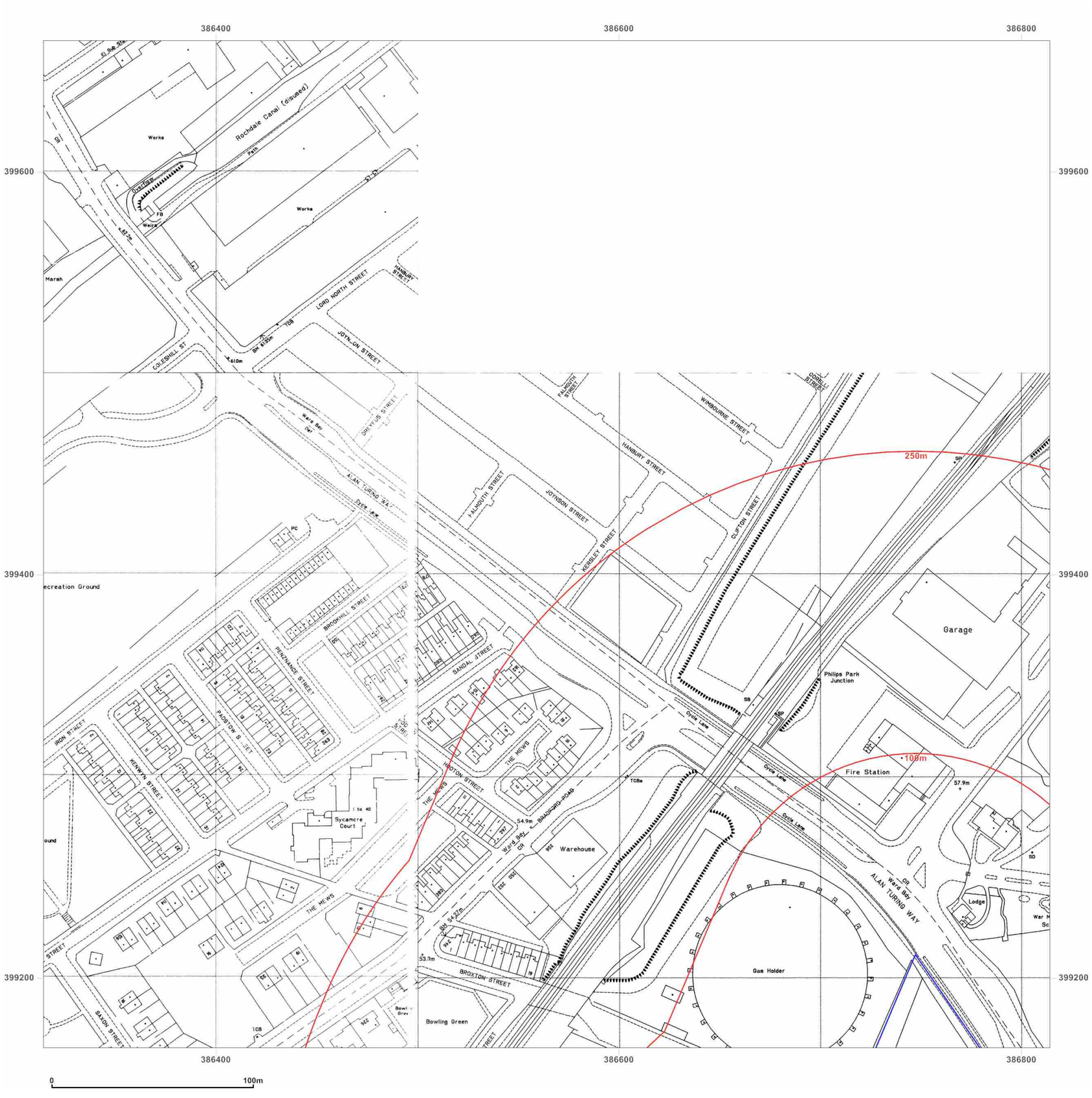

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_3
Grid Ref: 386564, 399415

Map Name: National Grid
Map date: **1995**
Scale: 1:1,250
Printed at: 1:2,000

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

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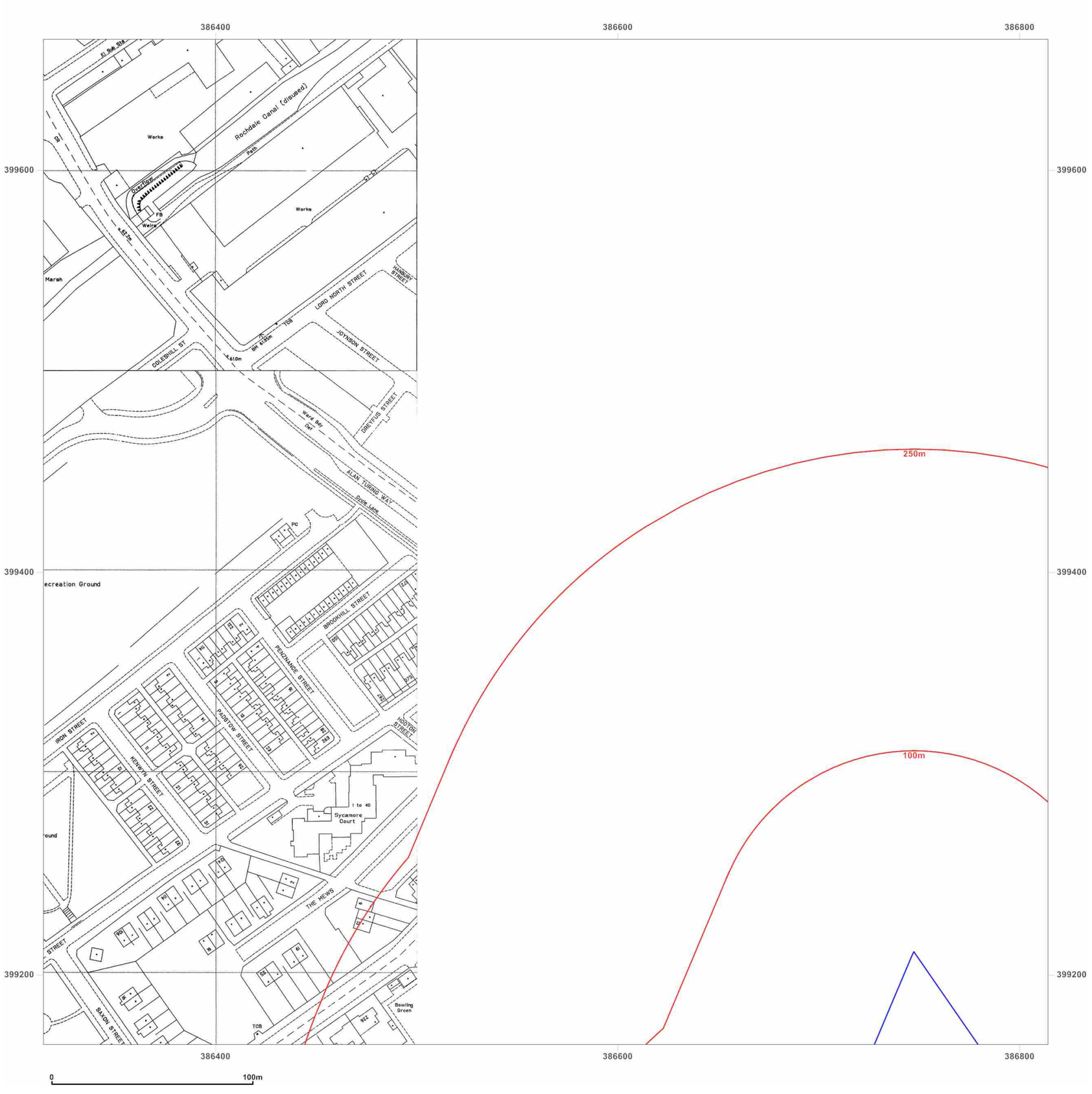

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_3
Grid Ref: 386564, 399415

Map Name: National Grid
Map date: **1995**
Scale: 1:1,250
Printed at: 1:2,000

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

Surveyed 1995
Revised 1995
Edition N/A
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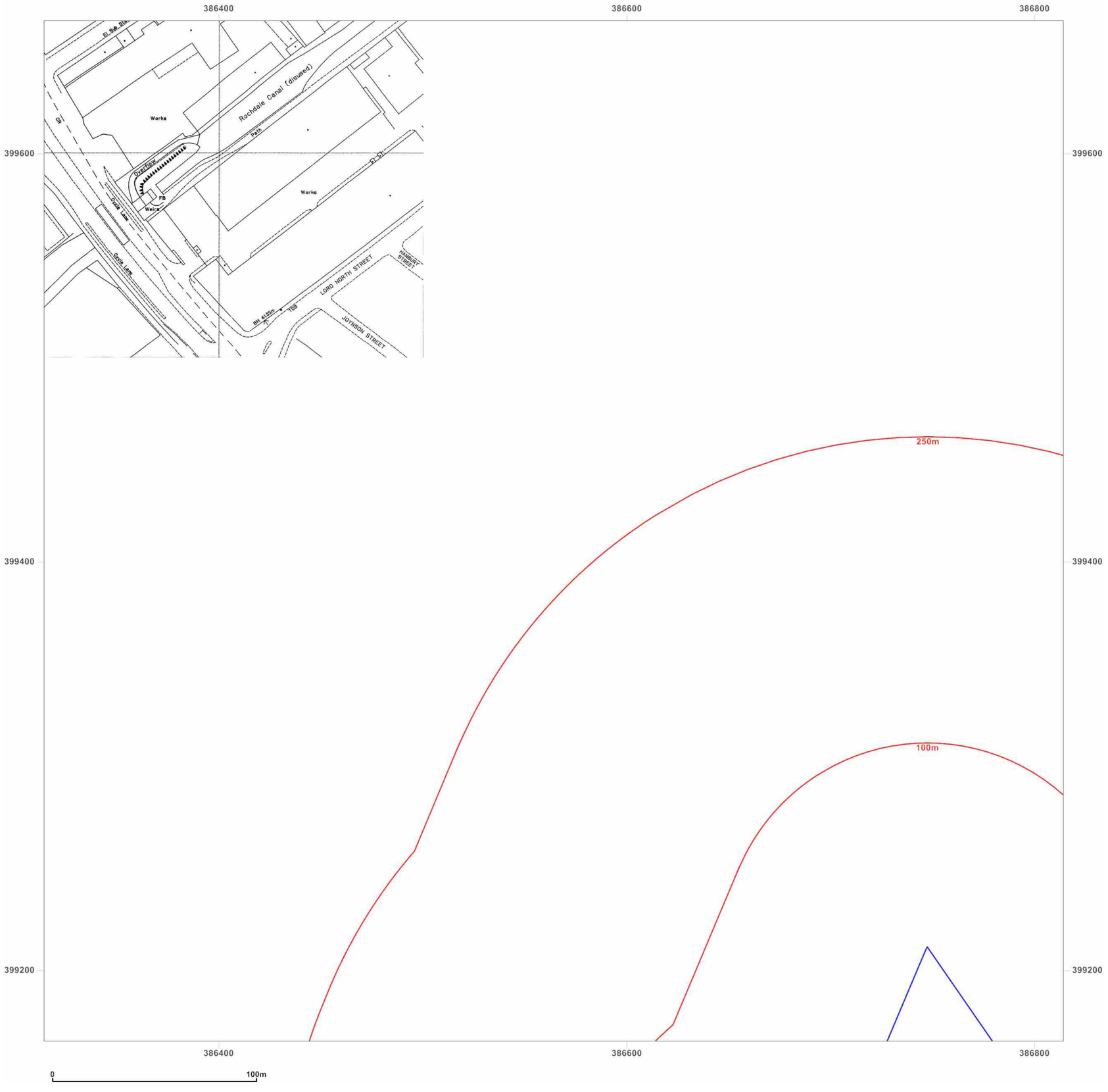

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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_3
Grid Ref: 386564, 399415

Map Name: National Grid
Map date: **1995**
Scale: 1:1,250
Printed at: 1:2,000

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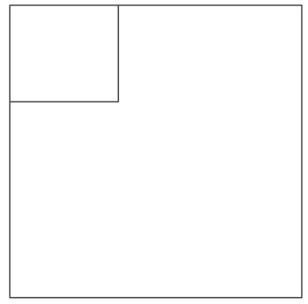
Surveyed 1995
Revised 1995
Edition N/A
Copyright 1995
Levelled N/A



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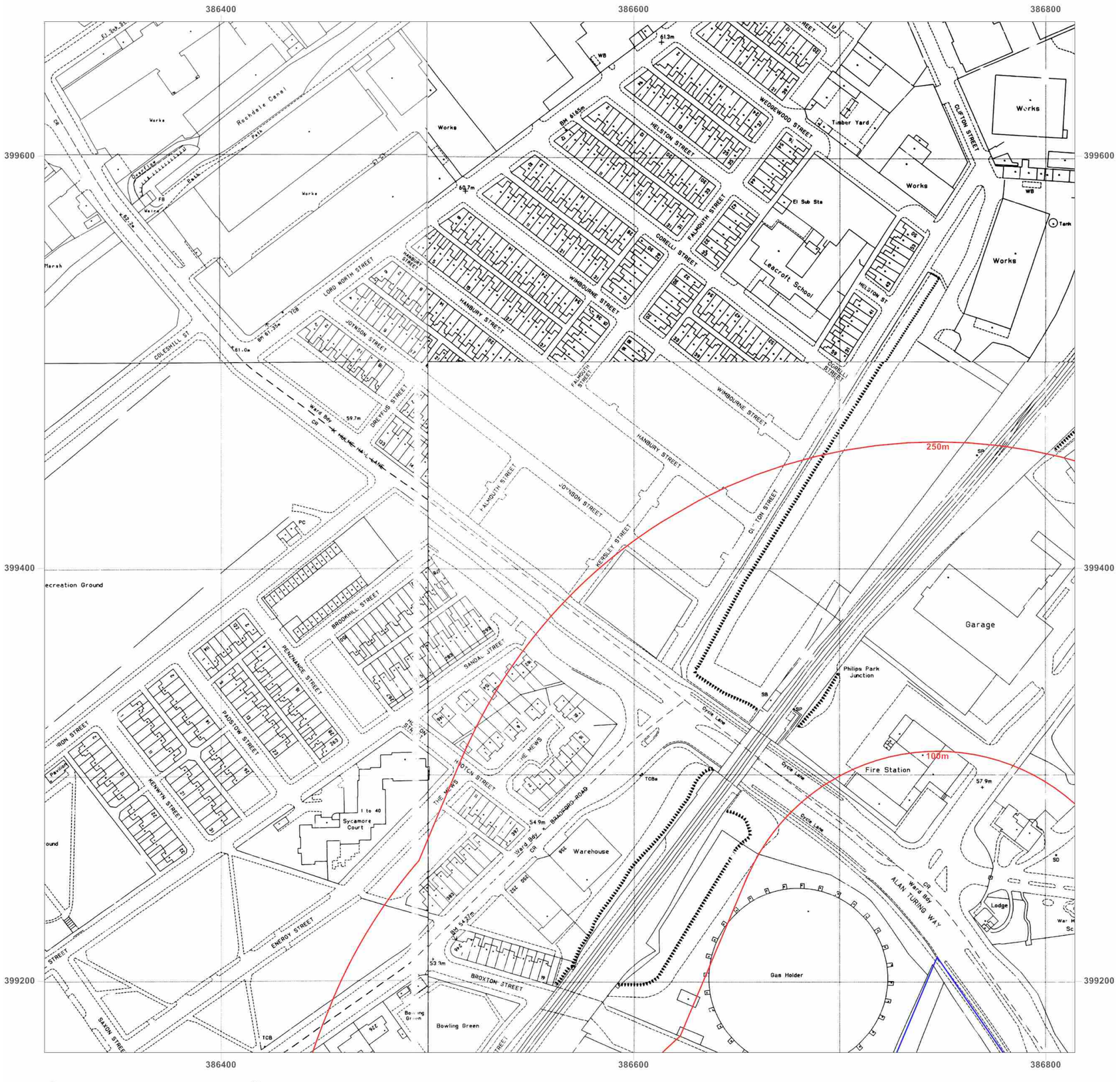

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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_3
Grid Ref: 386564, 399415

Map Name: National Grid
Map date: **1991-1995**
Scale: 1:1,250
Printed at: 1:2,000

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Surveyed 1949 Revised 1970 Edition N/A Copyright 1991 Levelled N/A	Surveyed N/A Revised N/A Edition N/A Copyright 1992 Levelled N/A
Surveyed 1992 Revised 1992 Edition N/A Copyright 1992 Levelled N/A	Surveyed N/A Revised N/A Edition N/A Copyright 1995 Levelled N/A

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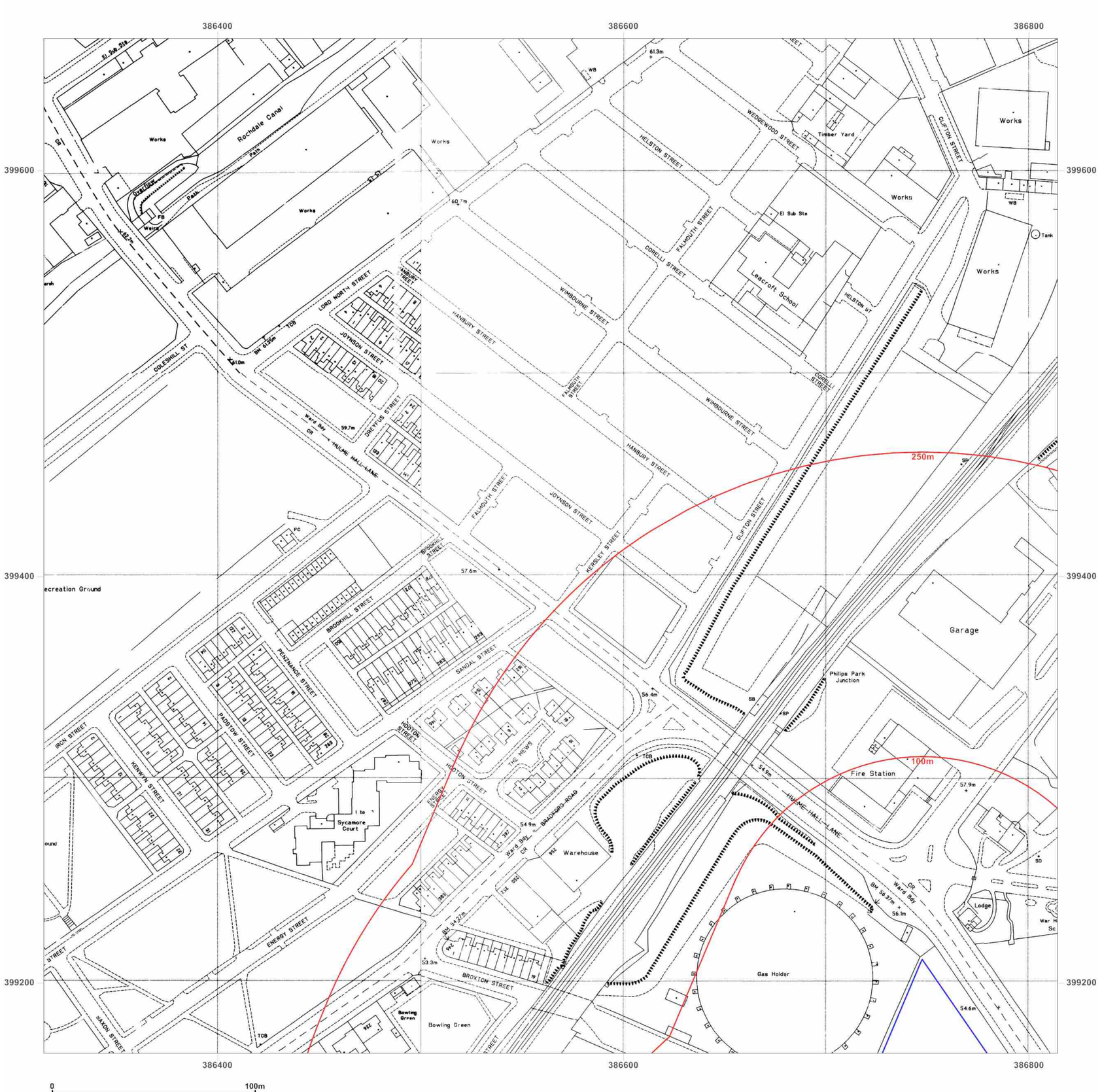

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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_3
Grid Ref: 386564, 399415

Map Name: National Grid
Map date: **1992-1995**
Scale: 1:1,250
Printed at: 1:2,000

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

Surveyed N/A
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Edition N/A
Copyright 1995
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Surveyed 1994
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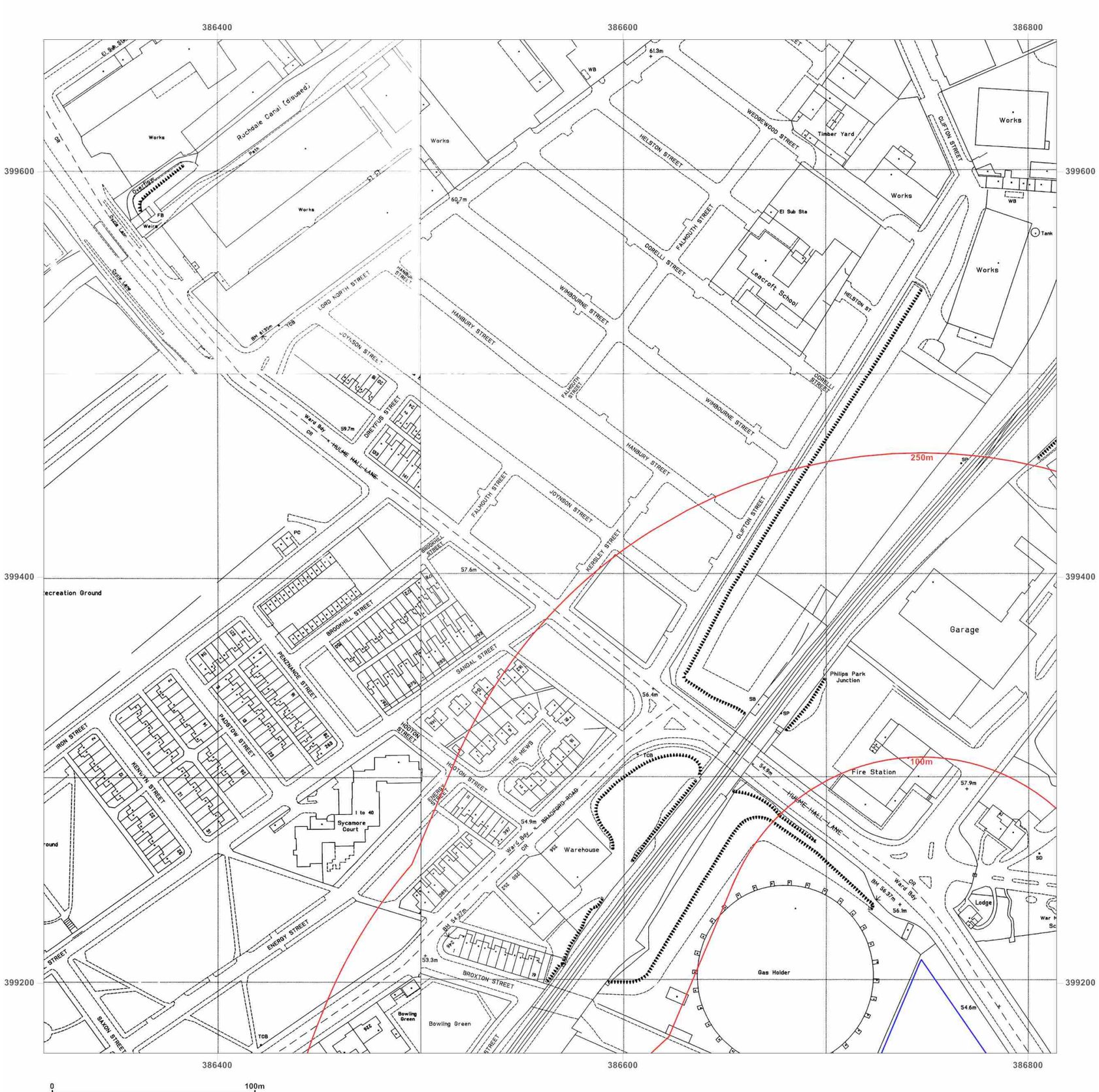

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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_3
Grid Ref: 386564, 399415

Map Name: National Grid
Map date: **1994-1995**
Scale: 1:1,250
Printed at: 1:2,000

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

Surveyed 1995
Revised 1995
Edition N/A
Copyright 1995
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Surveyed 1994
Revised 1994
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Site Details:

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Client Ref: 0042841
Report Ref: GS-6479145_1250scale_1_3
Grid Ref: 386564, 399415

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

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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_1
Grid Ref: 387064, 398415

Map Name: National Grid
Map date: **1948-1949**
Scale: 1:1,250
Printed at: 1:2,000

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Surveyed 1948 Revised 1948 Edition N/A Copyright 1948 Levelled 1929	Surveyed 1949 Revised 1949 Edition N/A Copyright 1949 Levelled 1949
Surveyed 1949 Revised 1949 Edition N/A Copyright 1949 Levelled 1929	Surveyed 1949 Revised 1949 Edition N/A Copyright 1949 Levelled 1949

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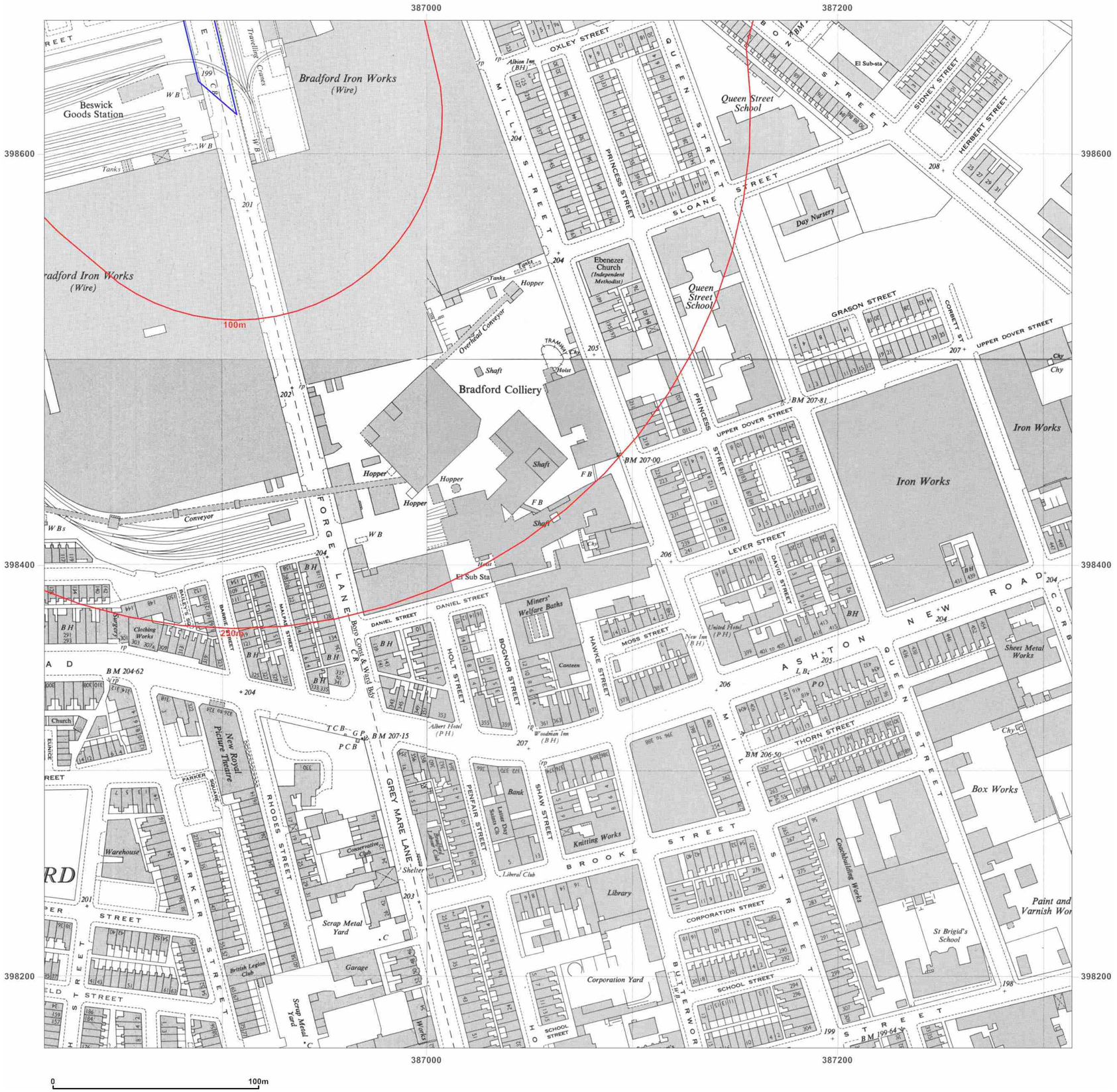

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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_1
Grid Ref: 387064, 398415

Map Name: National Grid
Map date: **1953-1956**
Scale: 1:1,250
Printed at: 1:2,000

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Surveyed 1955
Revised 1955
Edition N/A
Copyright 1955
Levelled 1949

Surveyed 1948
Revised 1953
Edition N/A
Copyright 1953
Levelled 1949

Surveyed 1956
Revised 1956
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Revised 1953
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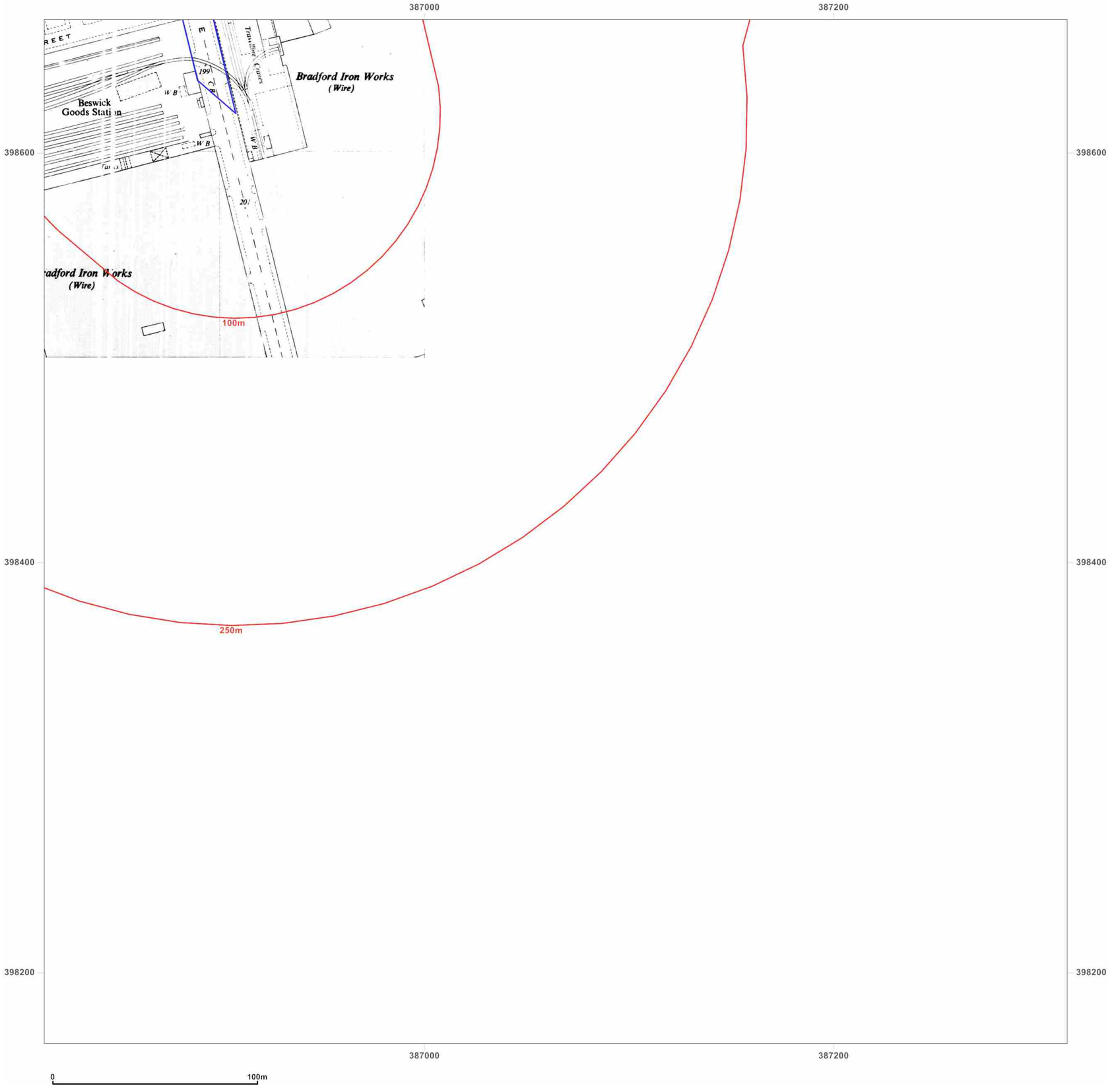

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_1
Grid Ref: 387064, 398415

Map Name: National Grid
Map date: **1956**
Scale: 1:1,250
Printed at: 1:2,000

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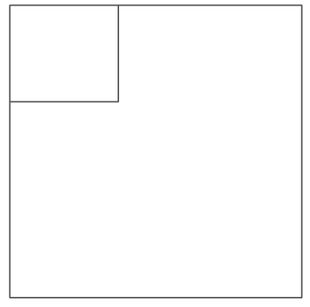
Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



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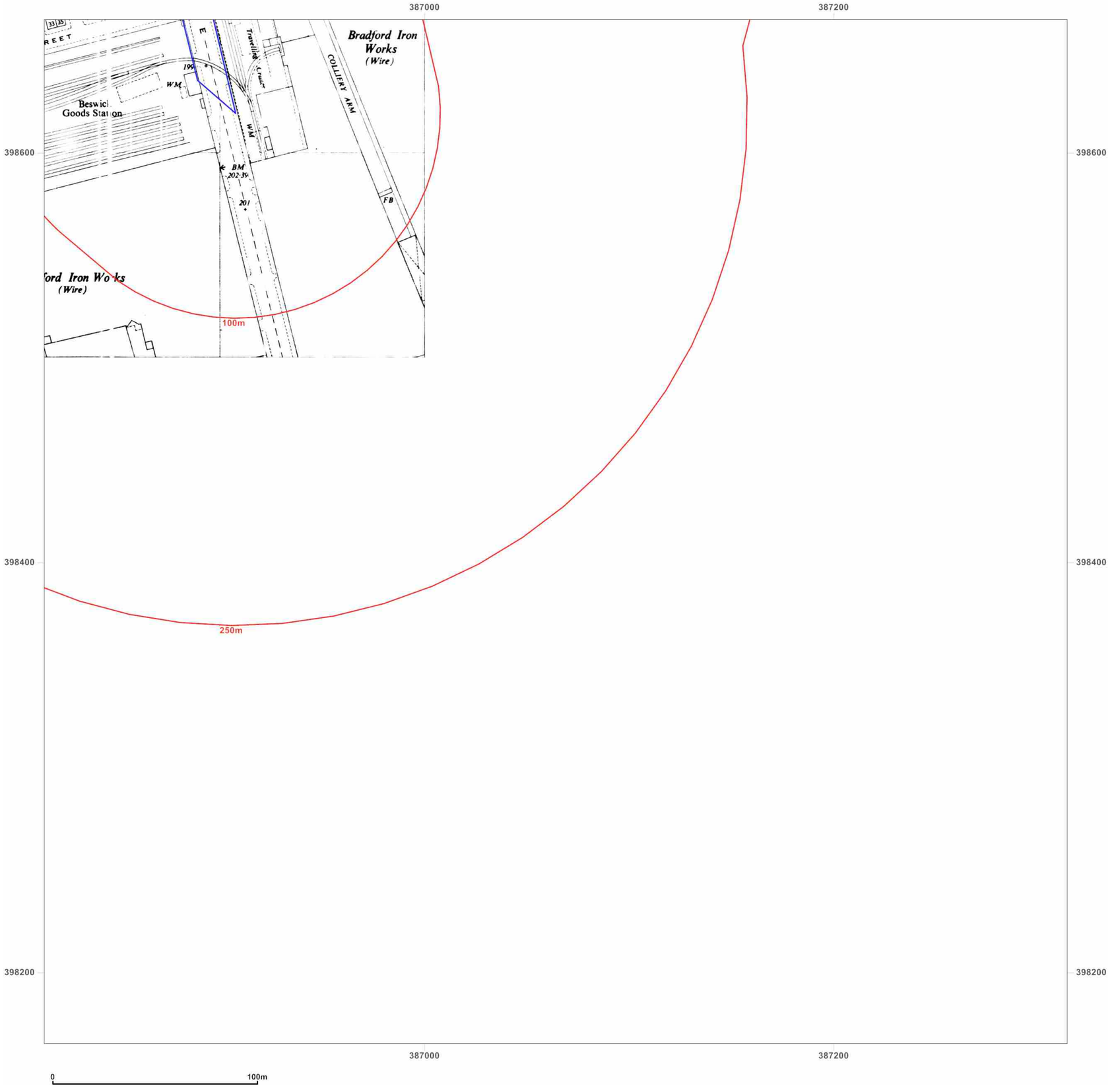

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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_1
Grid Ref: 387064, 398415

Map Name: National Grid
Map date: **1956**
Scale: 1:1,250
Printed at: 1:2,000

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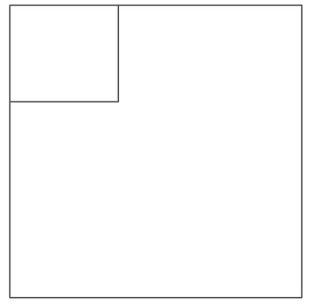
Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



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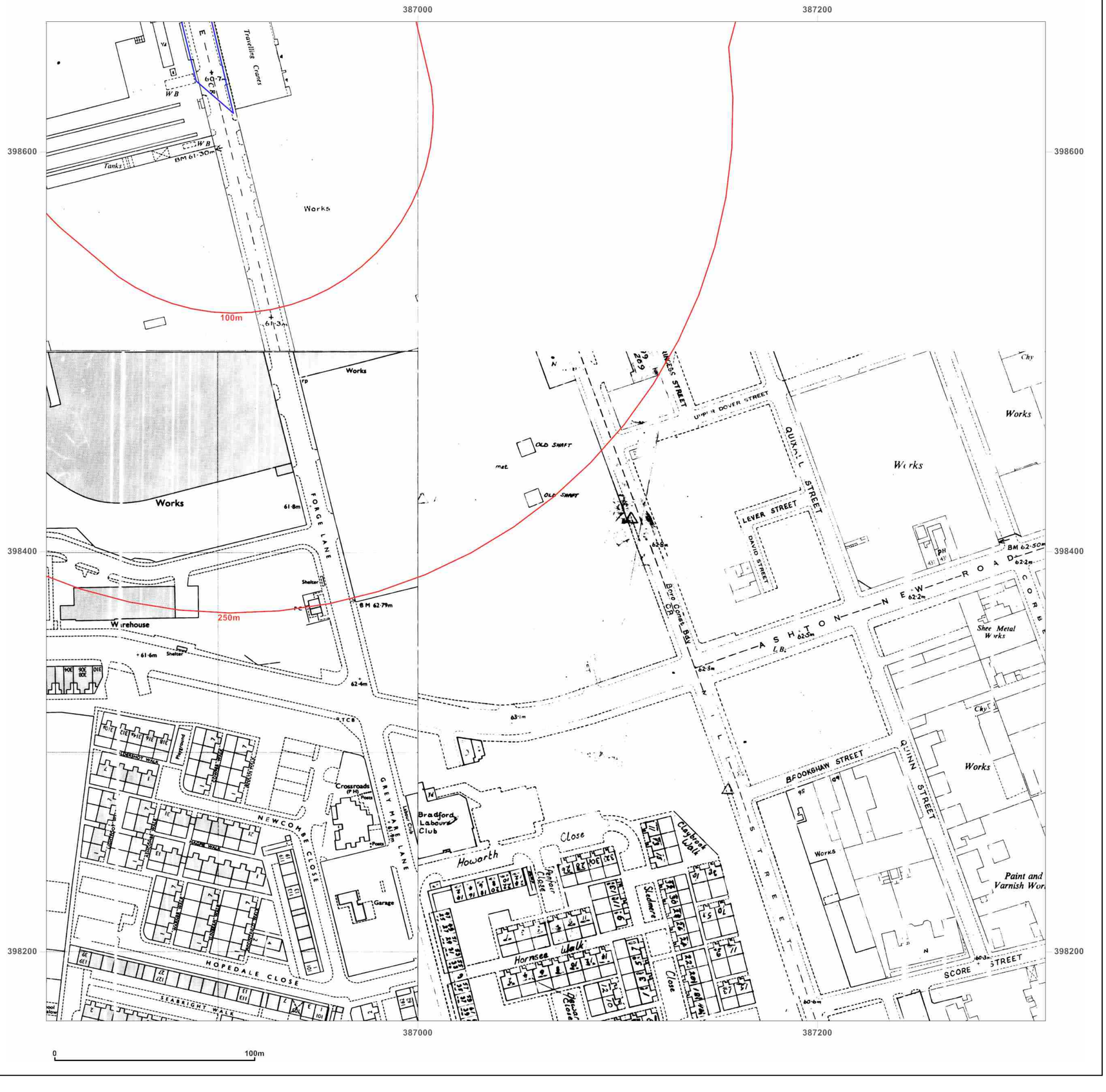

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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_1
Grid Ref: 387064, 398415

Map Name: National Grid
Map date: **1977-1979**
Scale: 1:1,250
Printed at: 1:2,000

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

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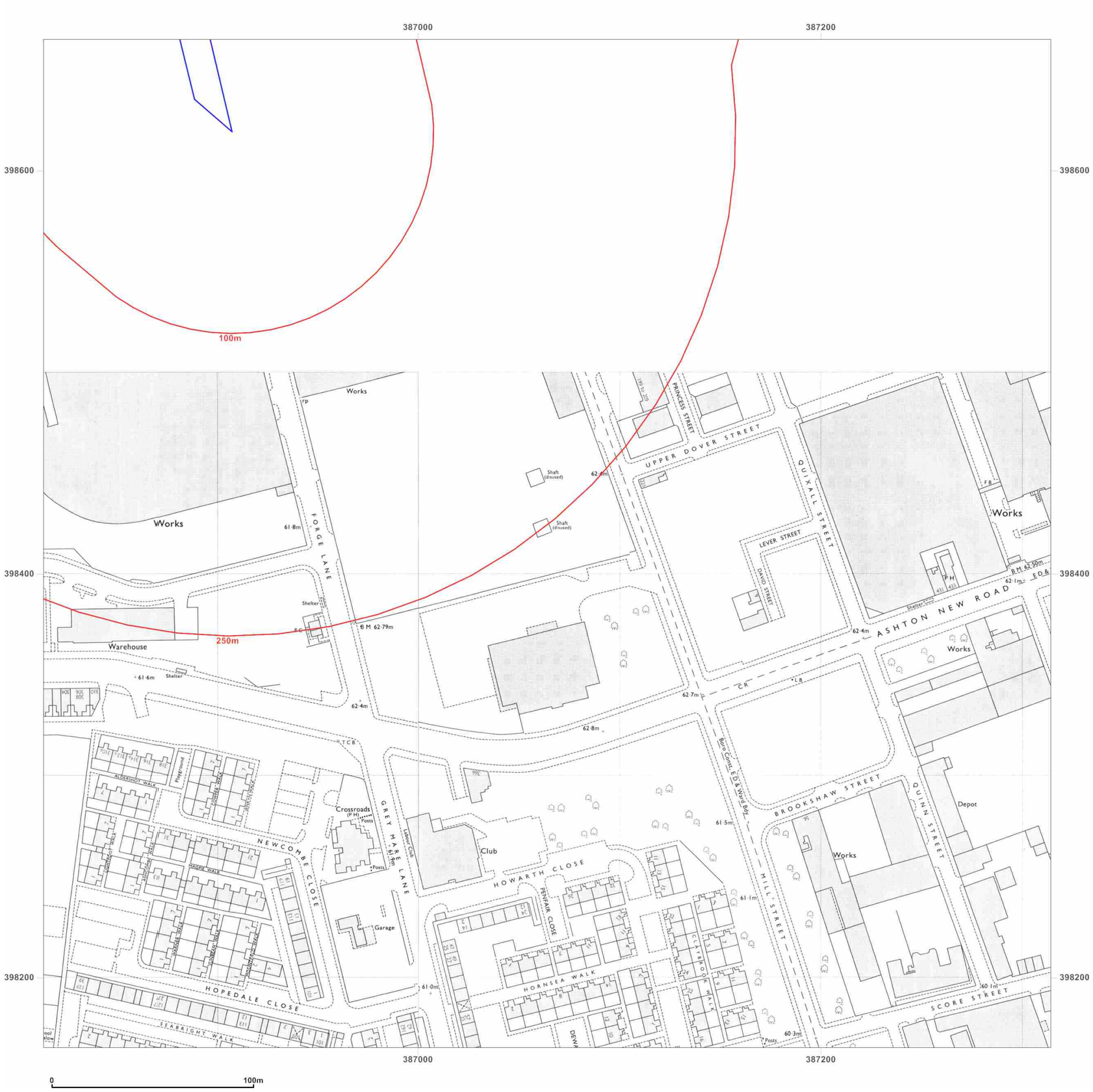

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_1
Grid Ref: 387064, 398415

Map Name: National Grid
Map date: **1979-1980**
Scale: 1:1,250
Printed at: 1:2,000

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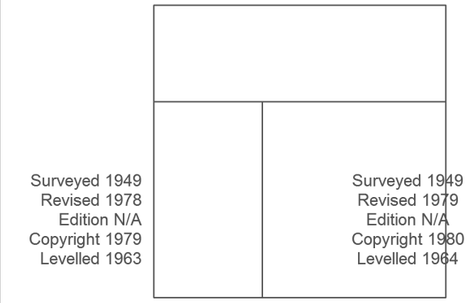

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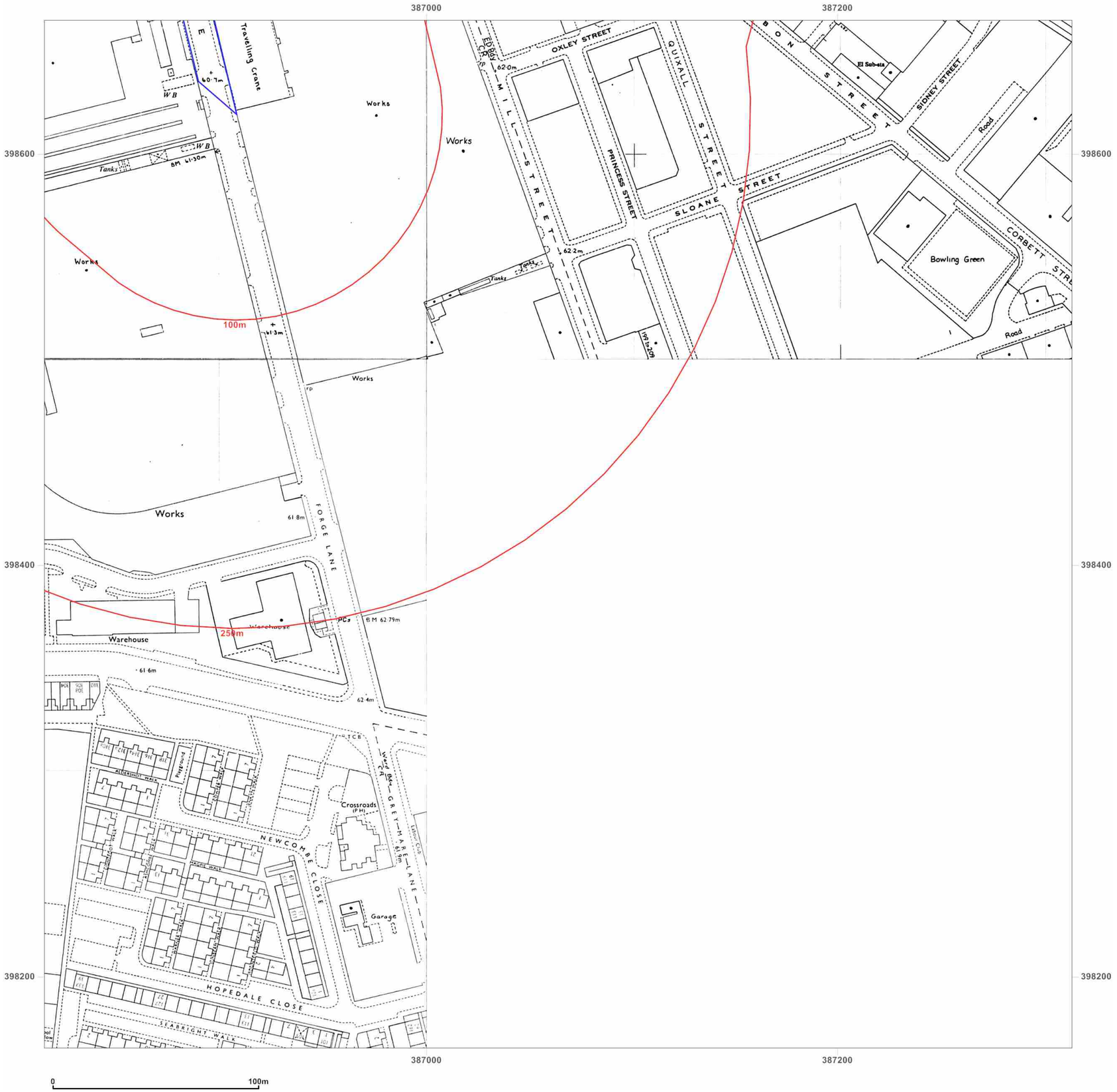

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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_1
Grid Ref: 387064, 398415

Map Name: National Grid
Map date: **1983-1987**
Scale: 1:1,250
Printed at: 1:2,000

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Revised 1987
Edition N/A
Copyright 1987
Levelled 1966

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Revised 1985
Edition N/A
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Levelled 1964

Surveyed 1963
Revised 1983
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Site Details:

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Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_1
Grid Ref: 387064, 398415

Map Name: National Grid
Map date: **1989-1992**
Scale: 1:1,250
Printed at: 1:2,000

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Surveyed 1992 Revised 1992 Edition N/A Copyright 1992 Levelled N/A	Surveyed 1964 Revised 1991 Edition N/A Copyright 1991 Levelled 1964

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Site Details:

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Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_1
Grid Ref: 387064, 398415

Map Name: National Grid
Map date: **1994-1995**
Scale: 1:1,250
Printed at: 1:2,000

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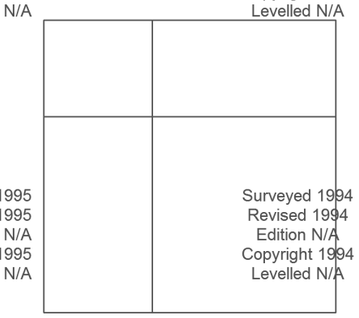
Surveyed 1995
Revised 1995
Edition N/A
Copyright 1995
Levelled N/A

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



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Site Details:

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Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_1
Grid Ref: 387064, 398415

Map Name: National Grid
Map date: **1994-1995**
Scale: 1:1,250
Printed at: 1:2,000

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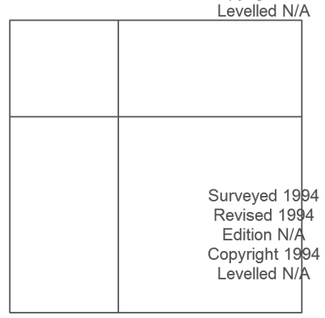
Surveyed 1995
Revised 1995
Edition N/A
Copyright 1995
Levelled N/A

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



Surveyed 1994
Revised 1994
Edition N/A
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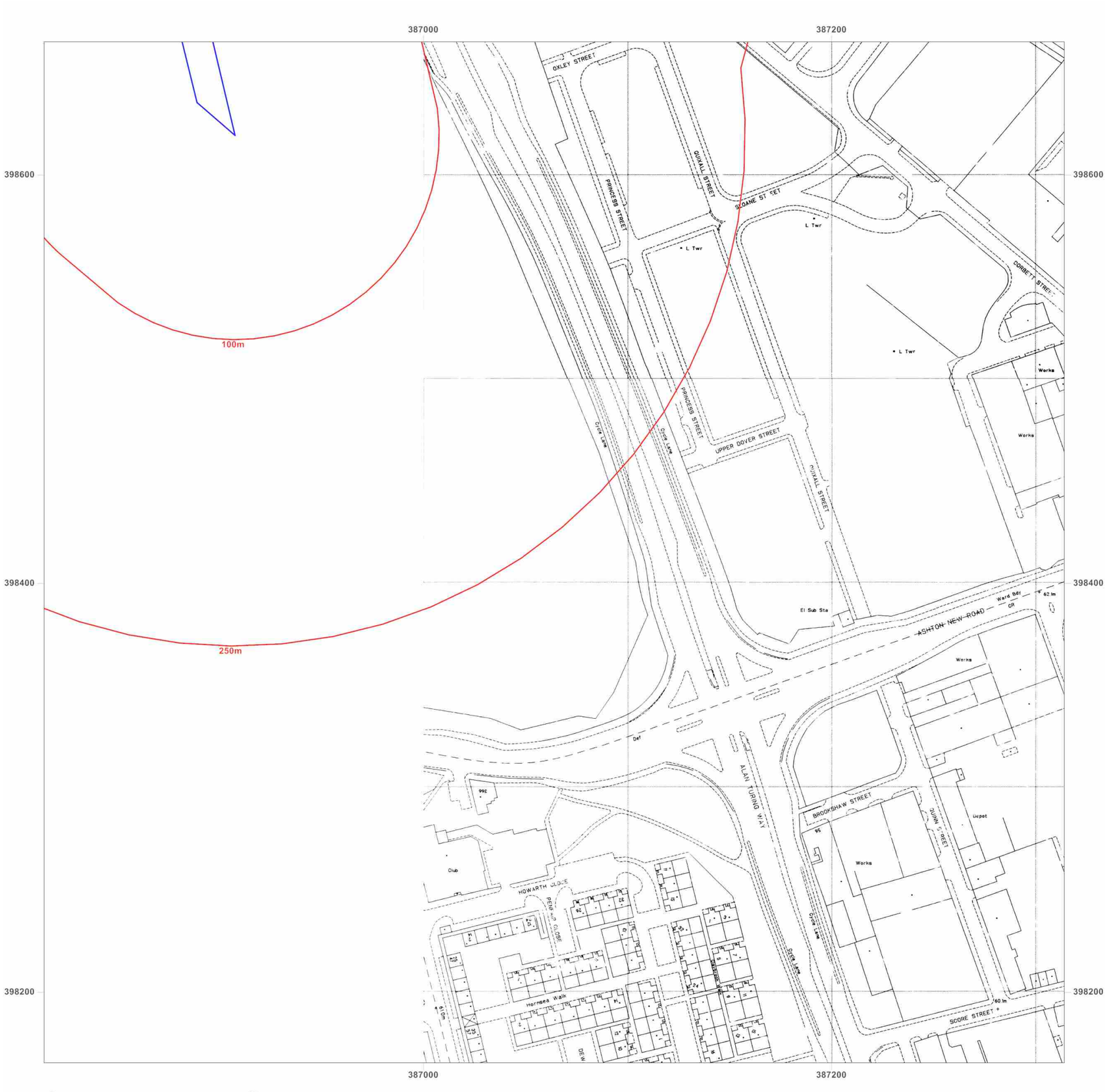

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_1
Grid Ref: 387064, 398415

Map Name: National Grid
Map date: **1995**
Scale: 1:1,250
Printed at: 1:2,000

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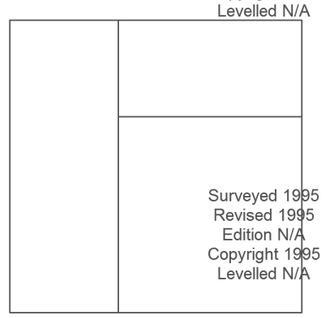
Surveyed 1995
Revised 1995
Edition N/A
Copyright 1995
Levelled N/A



Surveyed 1995
Revised 1995
Edition N/A
Copyright 1995
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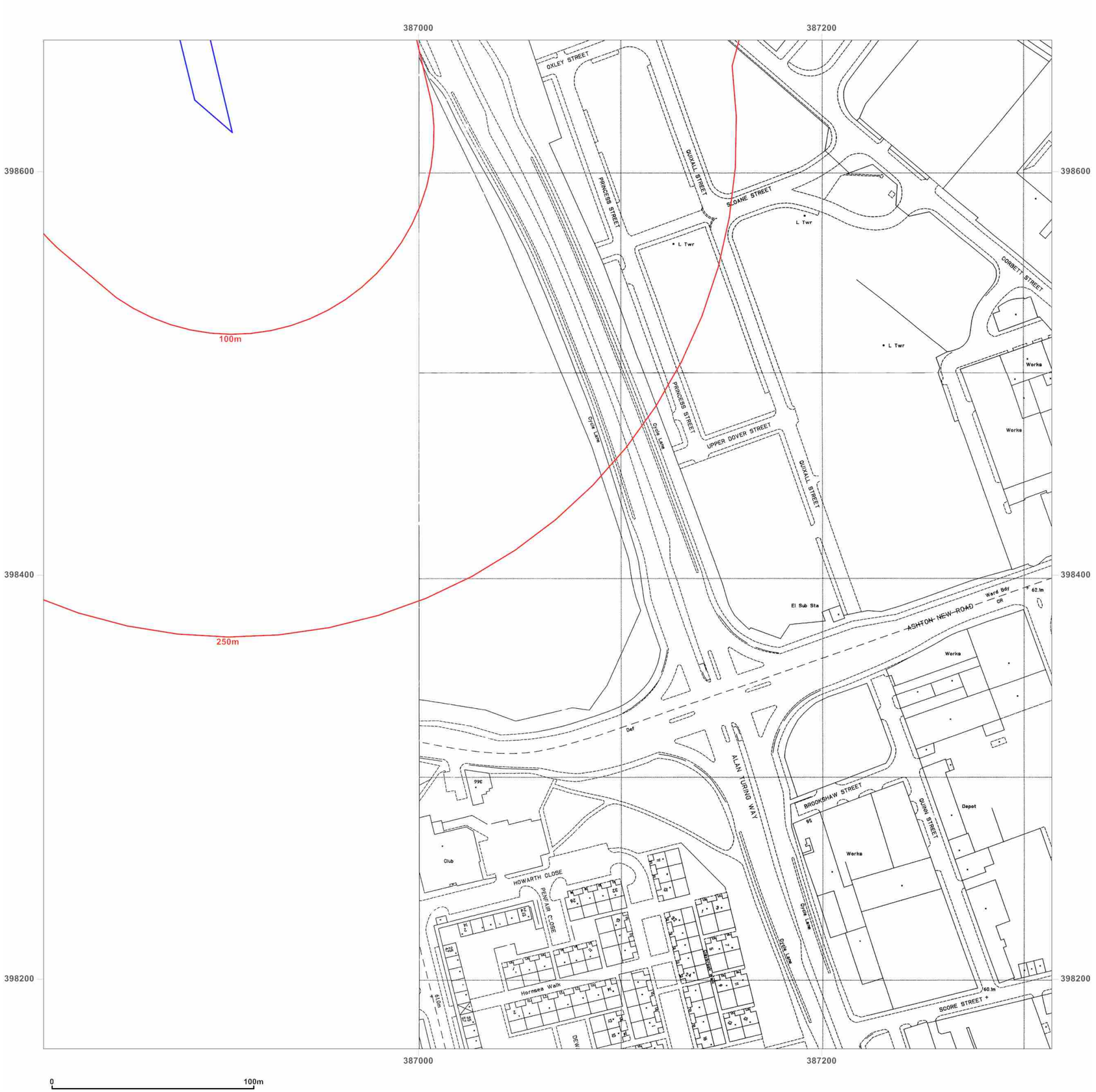

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_1
Grid Ref: 387064, 398415

Map Name: National Grid
Map date: **1995**
Scale: 1:1,250
Printed at: 1:2,000

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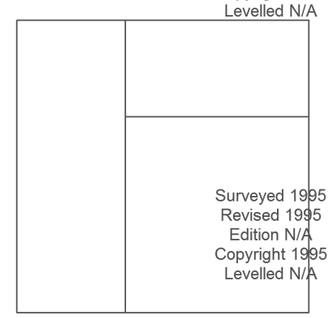
Surveyed 1995
Revised 1995
Edition N/A
Copyright 1995
Levelled N/A



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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_1
Grid Ref: 387064, 398415

Map Name: National Grid
Map date: **1992-1995**
Scale: 1:1,250
Printed at: 1:2,000

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

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Site Details:

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Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_1
Grid Ref: 387064, 398415

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

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2003

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Site Details:

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Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_2
Grid Ref: 387064, 398915

Map Name: National Grid
Map date: **1948-1949**
Scale: 1:1,250
Printed at: 1:2,000

N W E S

Surveyed 1948
Revised 1948
Edition N/A
Copyright N/A
Levelled 1949

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

Surveyed 1949
Revised 1949
Edition N/A
Copyright 1949
Levelled 1949

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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_2
Grid Ref: 387064, 398915

Map Name: National Grid
Map date: **1953-1955**
Scale: 1:1,250
Printed at: 1:2,000

N
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Surveyed 1955
Revised 1955
Edition N/A
Copyright 1955
Levelled 1949

Surveyed 1948
Revised 1953
Edition N/A
Copyright 1953
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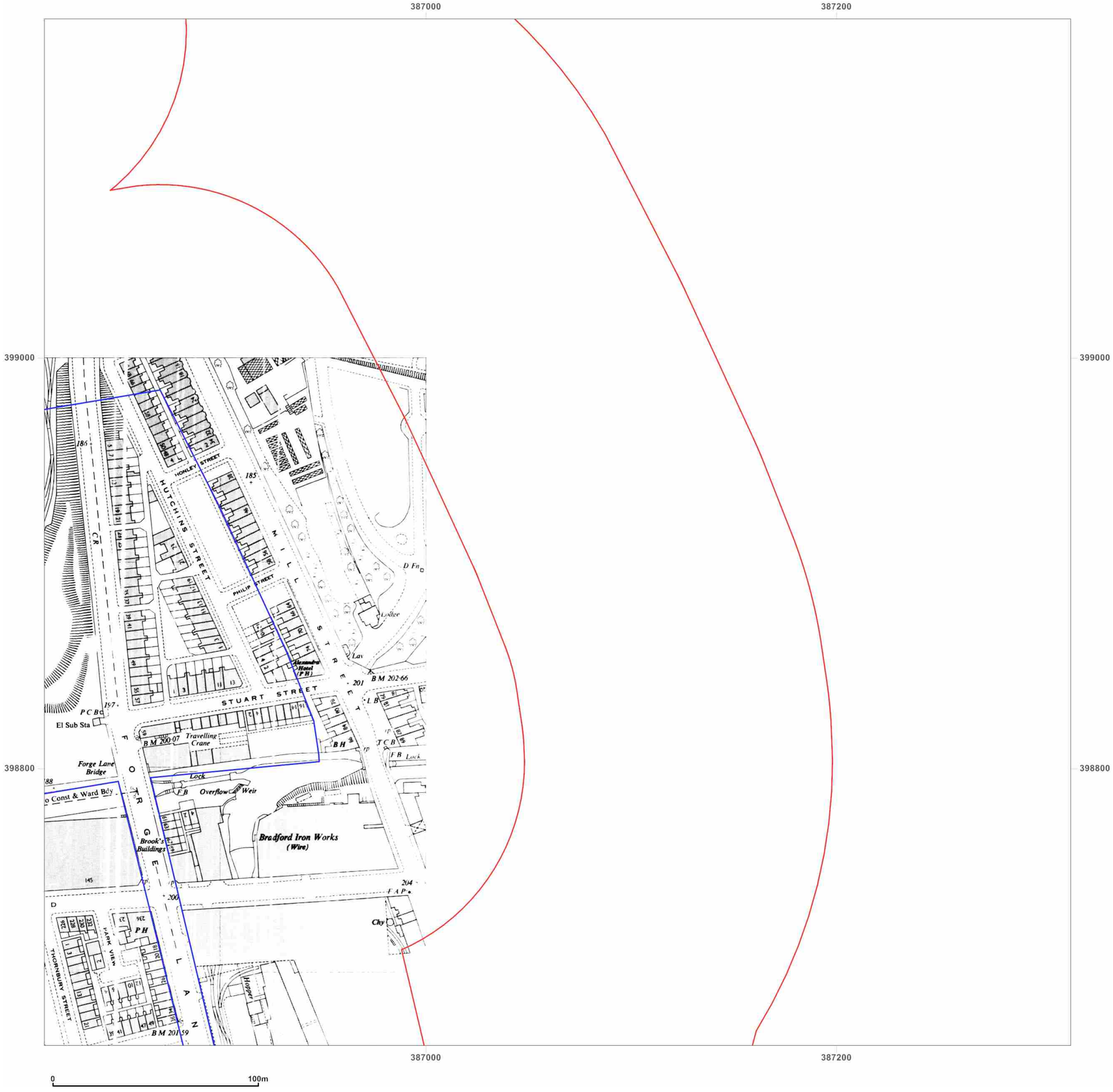

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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_2
Grid Ref: 387064, 398915

Map Name: National Grid
Map date: **1956**
Scale: 1:1,250
Printed at: 1:2,000

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Revised N/A
Edition N/A
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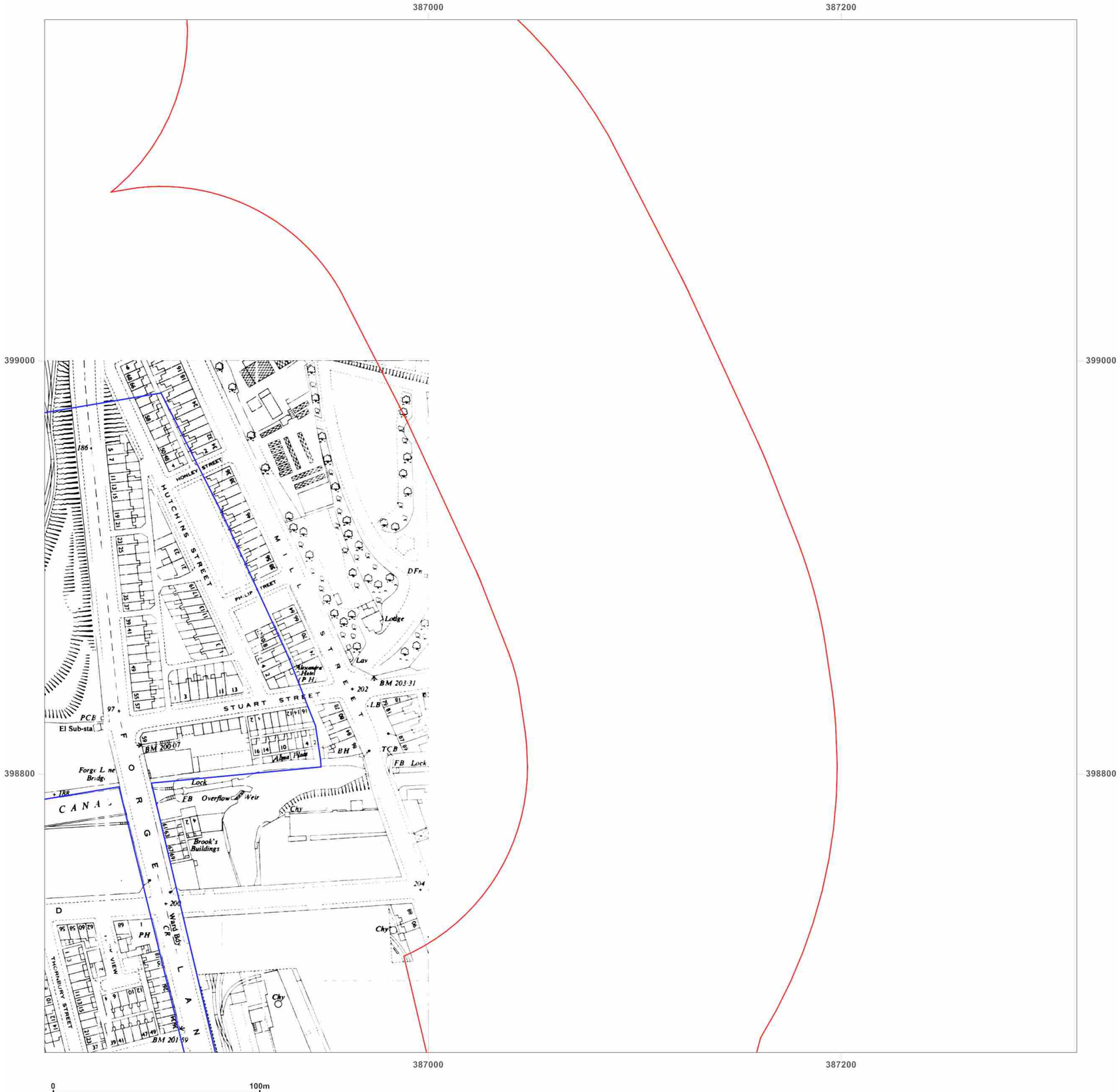

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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_2
Grid Ref: 387064, 398915

Map Name: National Grid
Map date: **1956**
Scale: 1:1,250
Printed at: 1:2,000

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Revised N/A
Edition N/A
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Site Details:

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Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_2
Grid Ref: 387064, 398915

Map Name: National Grid
Map date: **1966-1968**
Scale: 1:1,250
Printed at: 1:2,000

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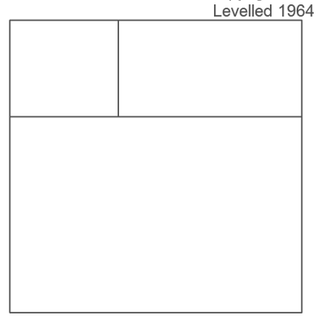
Surveyed 1949
Revised 1967
Edition N/A
Copyright 1968
Levelled 1964

Surveyed 1948
Revised 1965
Edition N/A
Copyright 1966
Levelled 1964



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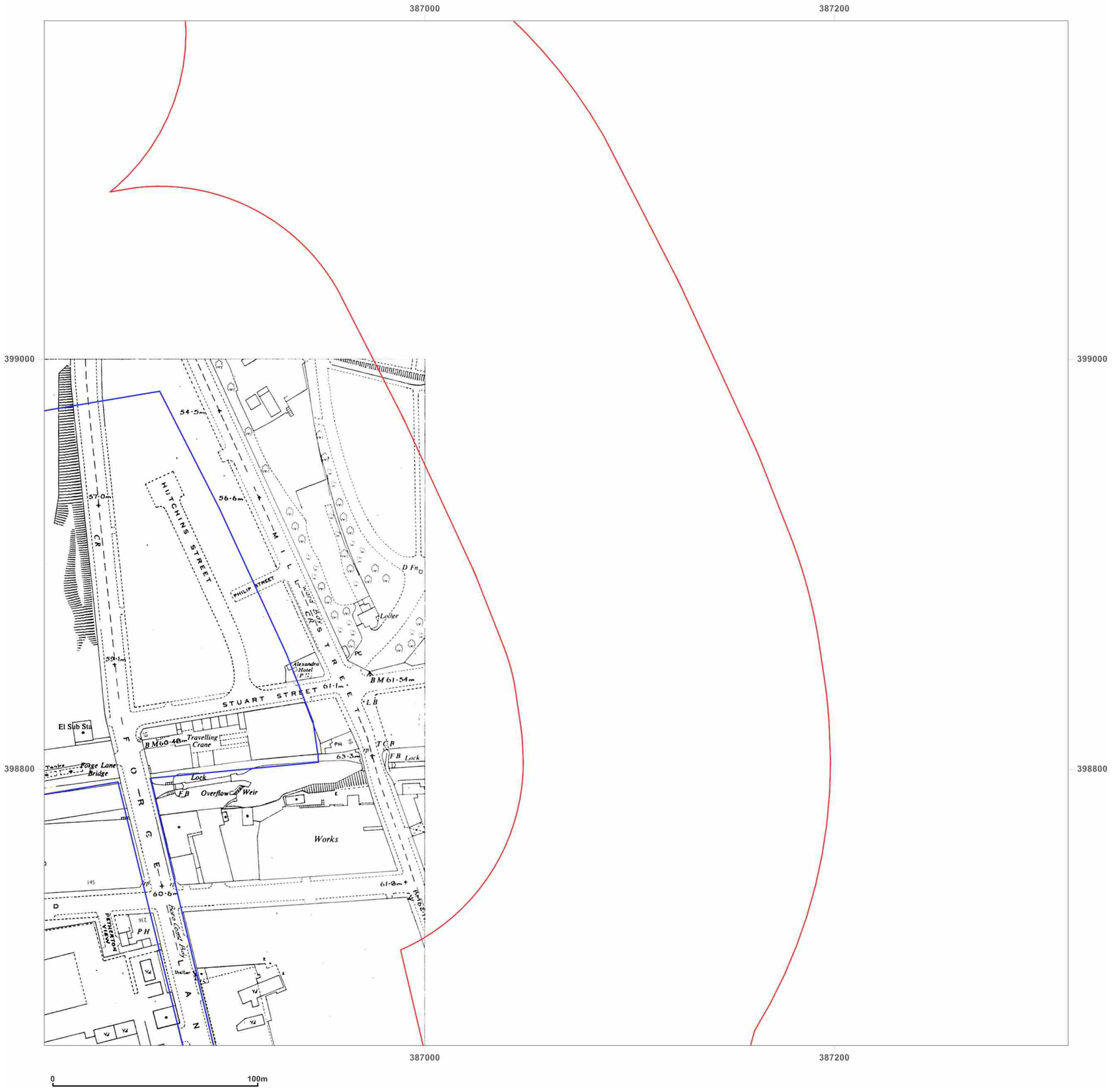

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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_2
Grid Ref: 387064, 398915

Map Name: National Grid
Map date: **1979**
Scale: 1:1,250
Printed at: 1:2,000

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Revised N/A
Edition N/A
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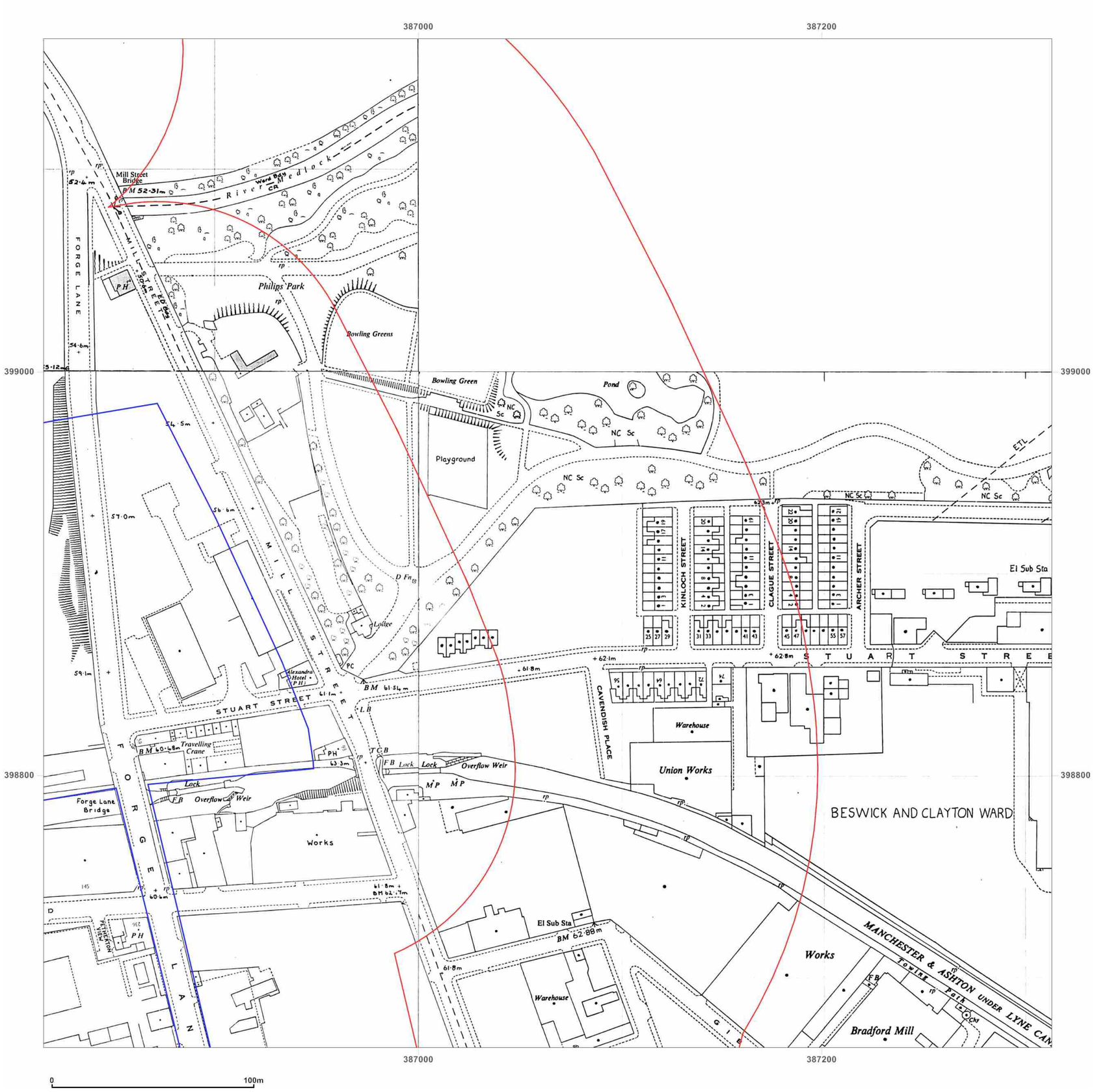

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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_2
Grid Ref: 387064, 398915

Map Name: National Grid
Map date: **1984-1987**
Scale: 1:1,250
Printed at: 1:2,000

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

Surveyed 1966
Revised 1987
Edition N/A
Copyright 1987
Levelled 1966

Surveyed 1964
Revised 1985
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Copyright 1985
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Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_2
Grid Ref: 387064, 398915

Map Name: National Grid
Map date: **1989-1992**
Scale: 1:1,250
Printed at: 1:2,000

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

Surveyed 1964
Revised 1990
Edition N/A
Copyright 1990
Levelled 1964

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

Surveyed 1949
Revised 1988
Edition N/A
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Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_2
Grid Ref: 387064, 398915

Map Name: National Grid
Map date: **1994-1995**
Scale: 1:1,250
Printed at: 1:2,000

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Surveyed 1995
Revised 1995
Edition N/A
Copyright 1995
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Surveyed 1995
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Revised 1994
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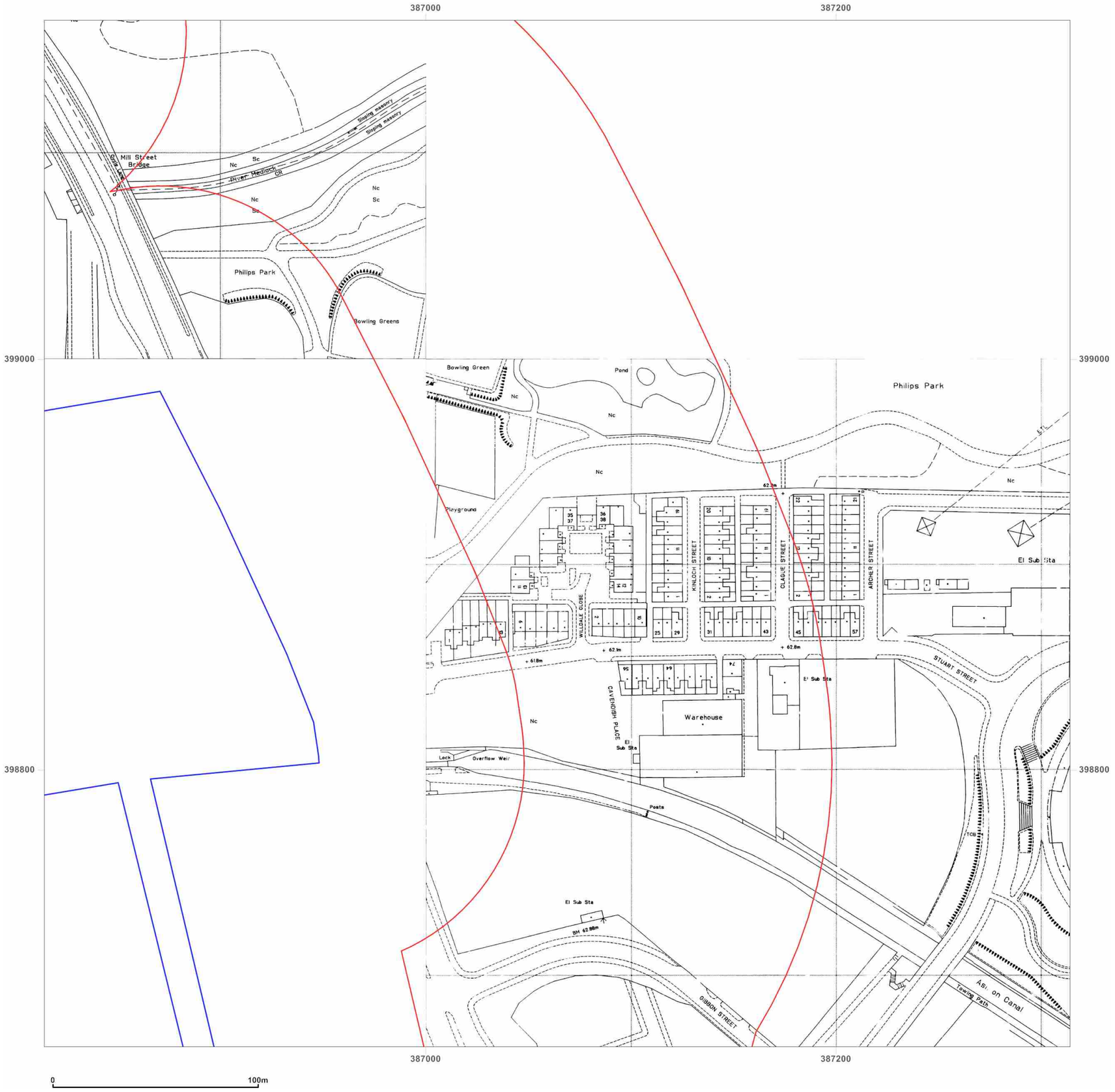

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_2
Grid Ref: 387064, 398915

Map Name: National Grid
Map date: **1995**
Scale: 1:1,250
Printed at: 1:2,000

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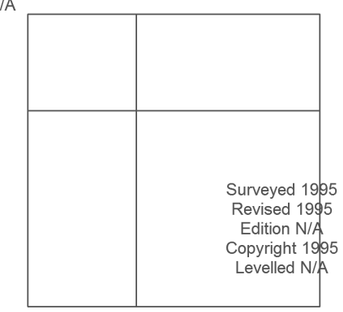
Surveyed 1995
Revised 1995
Edition N/A
Copyright 1995
Levelled N/A



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Revised 1995
Edition N/A
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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_2
Grid Ref: 387064, 398915

Map Name: National Grid
Map date: **1995**
Scale: 1:1,250
Printed at: 1:2,000

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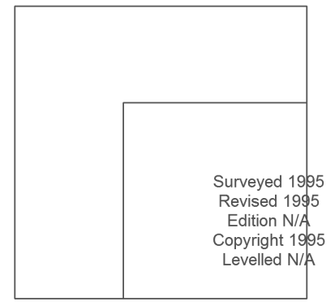

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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_2
Grid Ref: 387064, 398915

Map Name: National Grid
Map date: **1992-1995**
Scale: 1:1,250
Printed at: 1:2,000

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

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

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

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Revised 1992
Edition N/A
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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_2
Grid Ref: 387064, 398915

Map Name: National Grid
Map date: **1994-1995**
Scale: 1:1,250
Printed at: 1:2,000

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

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

Surveyed 1994
Revised 1994
Edition N/A
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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_2
Grid Ref: 387064, 398915

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

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2003

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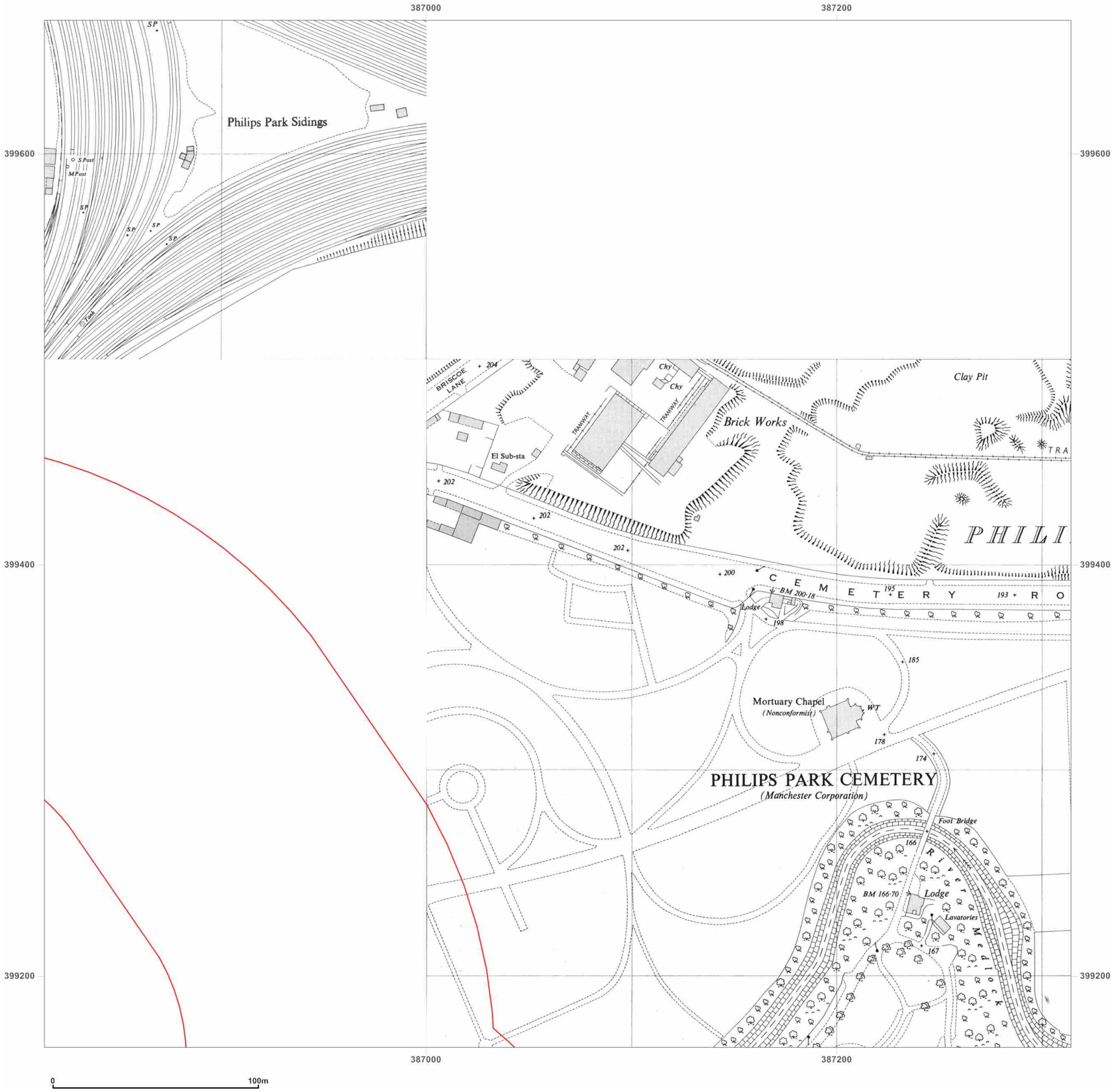

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_3
Grid Ref: 387064, 399415

Map Name: National Grid
Map date: **1948-1949**
Scale: 1:1,250
Printed at: 1:2,000

N W E S

Surveyed 1949
Revised 1949
Edition N/A
Copyright N/A
Levelled 1929

Surveyed 1948
Revised 1948
Edition N/A
Copyright N/A
Levelled 1949

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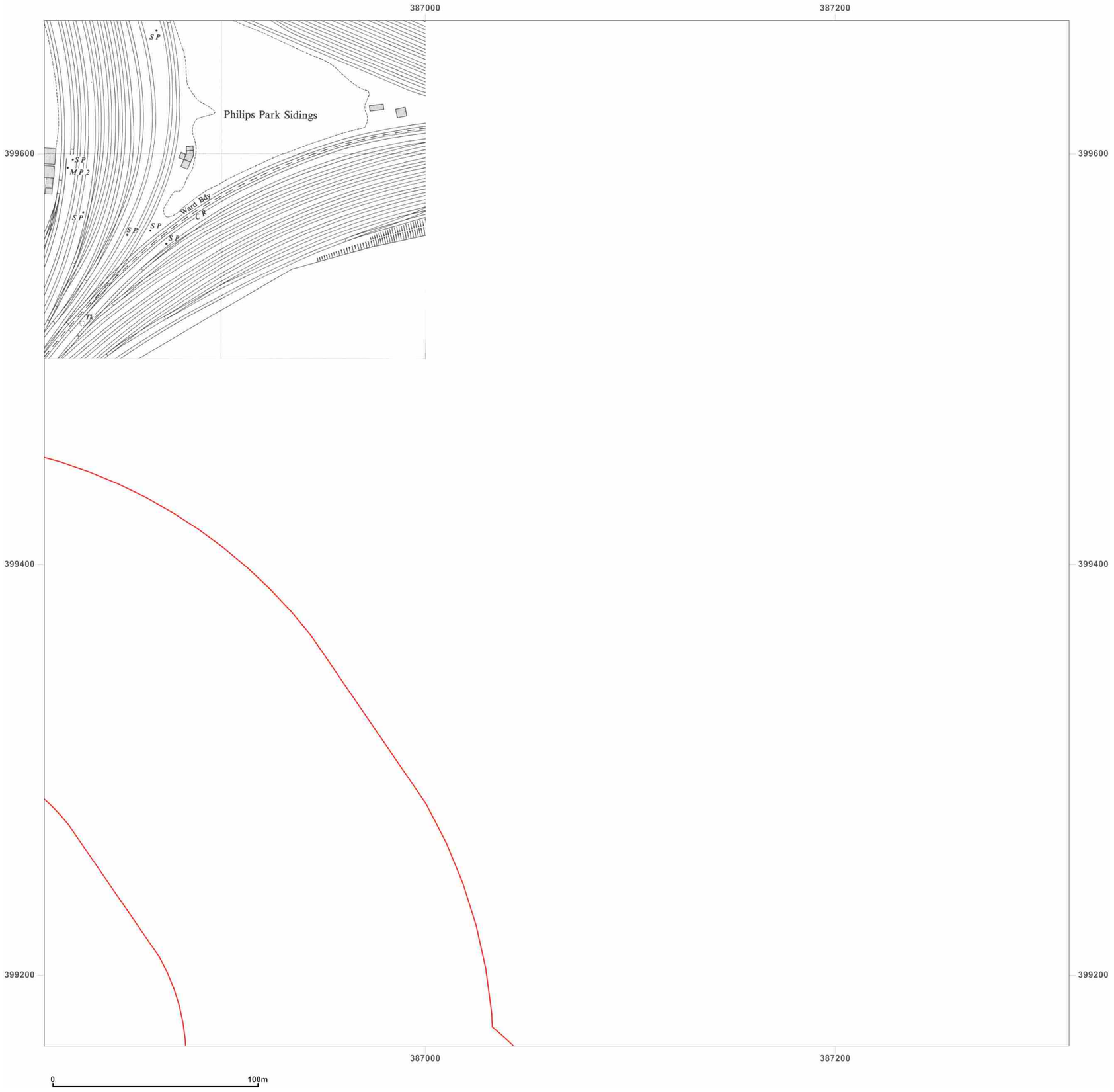

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_3
Grid Ref: 387064, 399415

Map Name: National Grid
Map date: **1952**
Scale: 1:1,250
Printed at: 1:2,000

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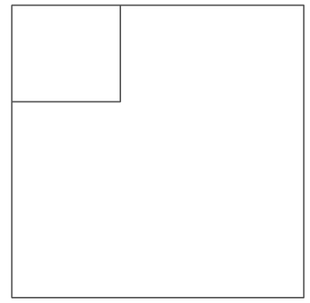
Surveyed 1949
Revised 1952
Edition N/A
Copyright N/A
Levelled 1929



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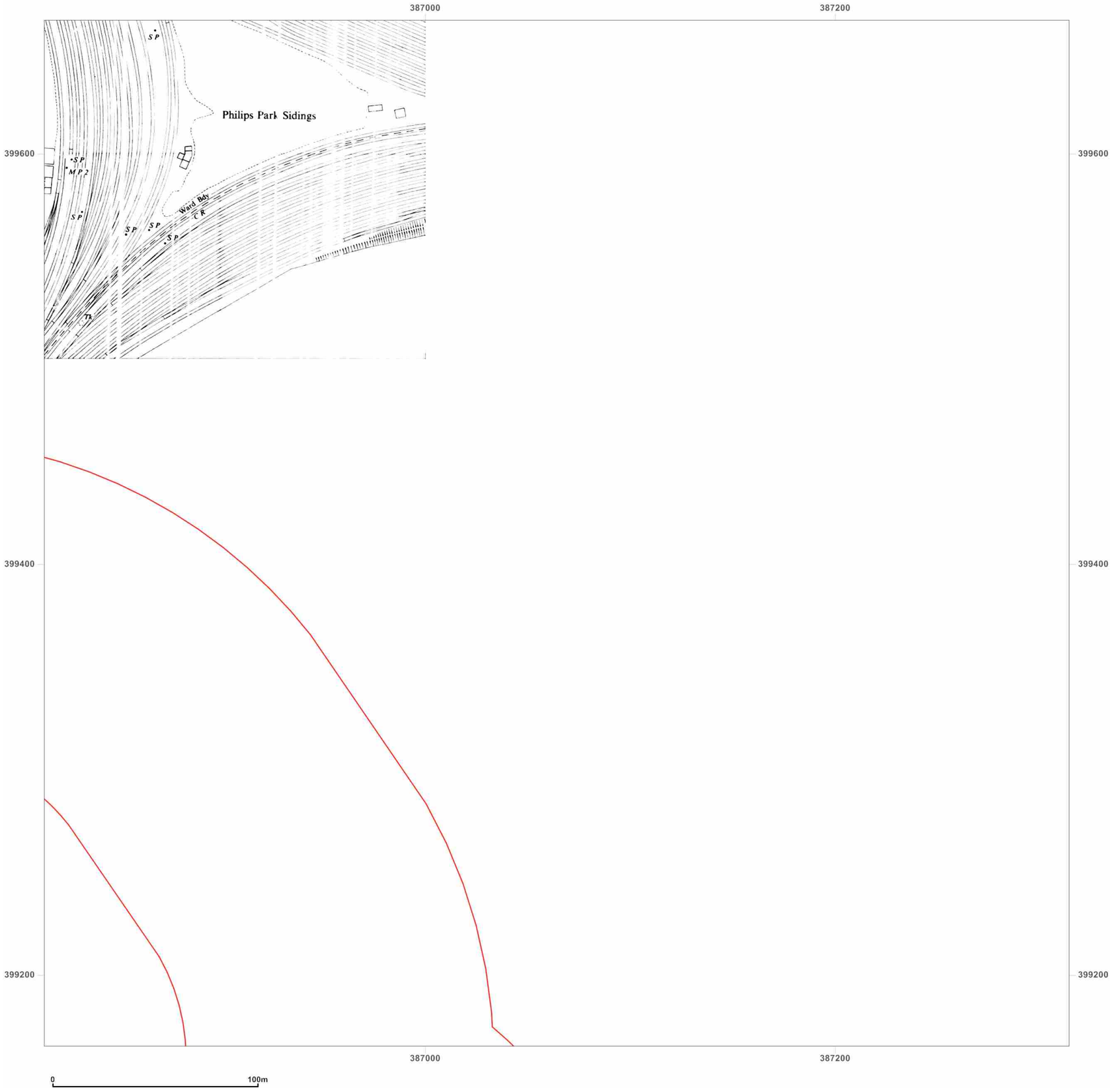

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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_3
Grid Ref: 387064, 399415

Map Name: National Grid
Map date: **1953**
Scale: 1:1,250
Printed at: 1:2,000

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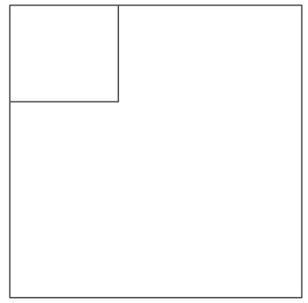
Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



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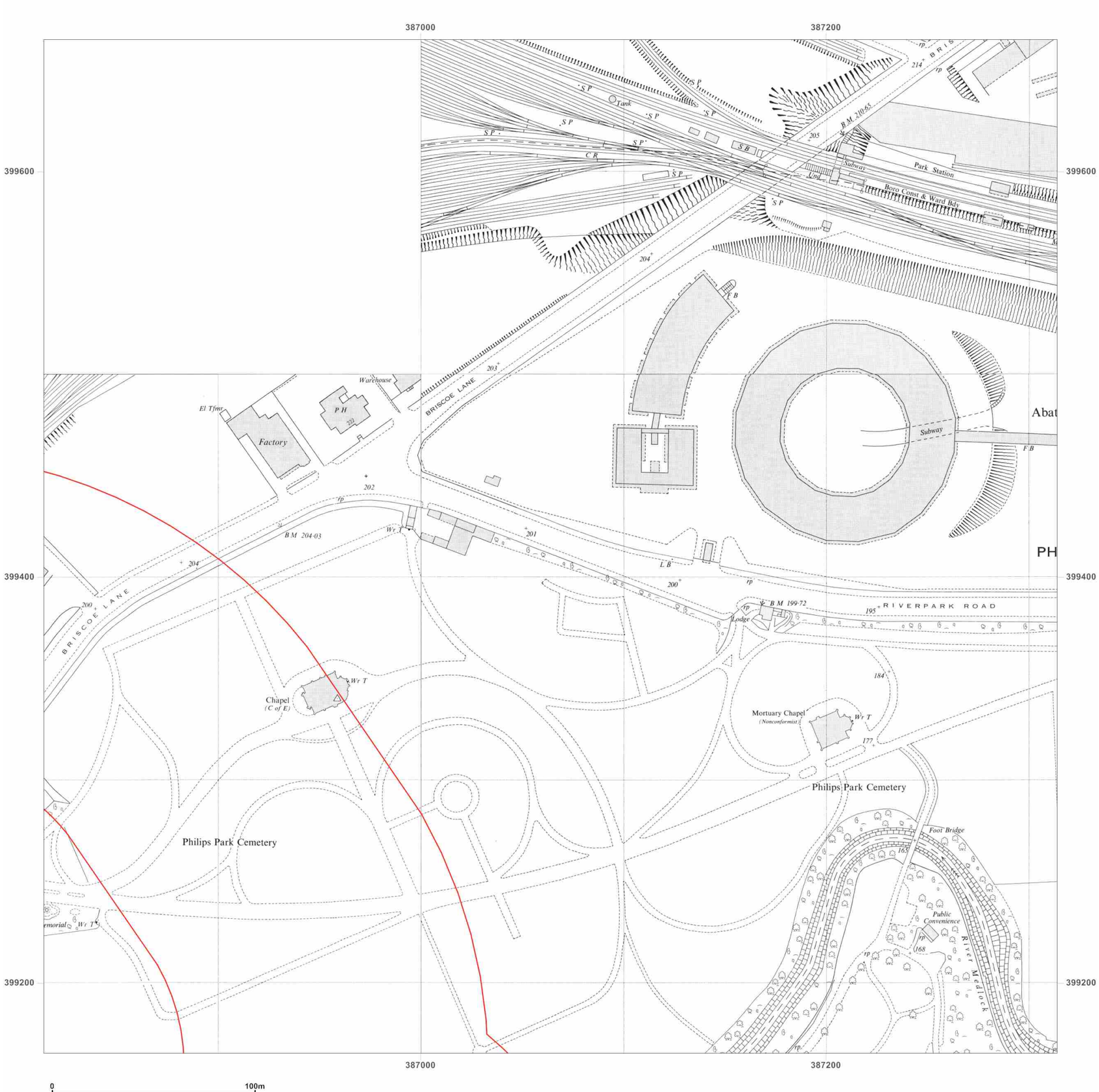

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_3
Grid Ref: 387064, 399415

Map Name: National Grid
Map date: **1966-1968**
Scale: 1:1,250
Printed at: 1:2,000

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Surveyed 1949
Revised 1966
Edition N/A
Copyright 1966
Levelled 1964

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

Surveyed 1948
Revised 1965
Edition N/A
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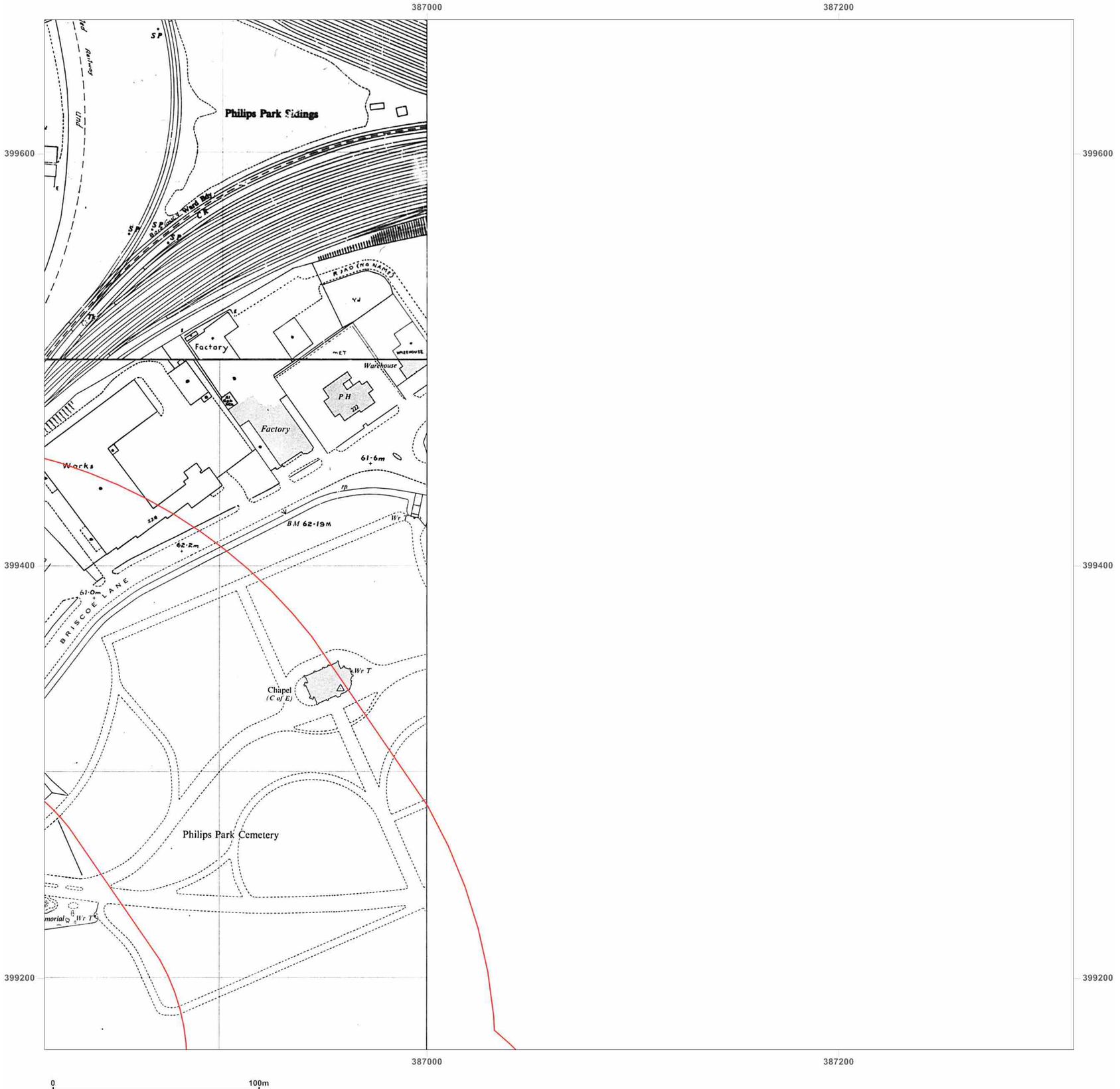

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_3
Grid Ref: 387064, 399415

Map Name: National Grid
Map date: **1979-1984**
Scale: 1:1,250
Printed at: 1:2,000

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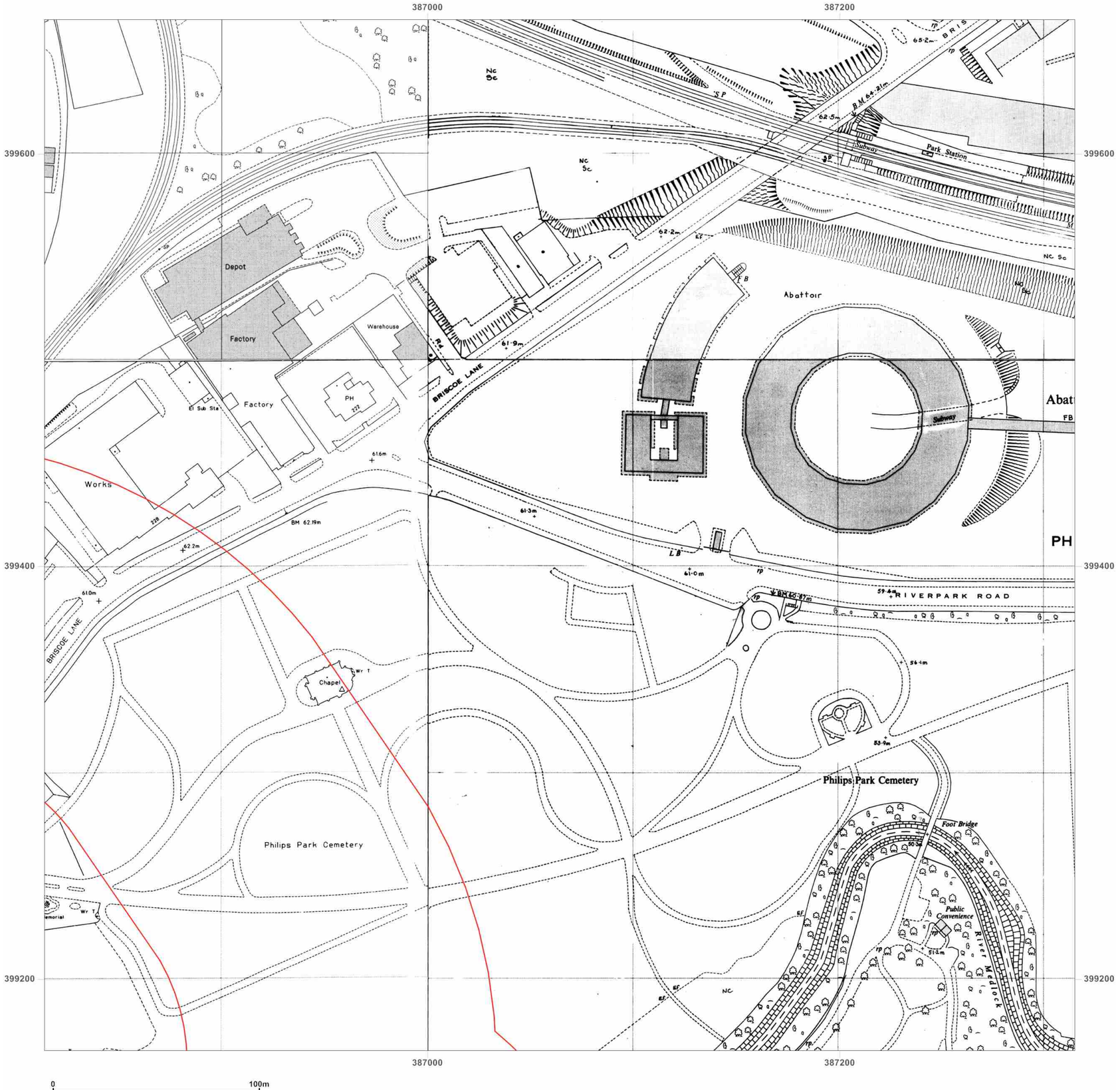

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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_3
Grid Ref: 387064, 399415

Map Name: National Grid
Map date: **1990-1992**
Scale: 1:1,250
Printed at: 1:2,000

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Surveyed 1989
Revised 1989
Edition N/A
Copyright 1990
Levelled N/A

Surveyed 1959
Revised 1991
Edition N/A
Copyright 1991
Levelled 1959

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Revised N/A
Edition N/A
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Surveyed 1964
Revised 1990
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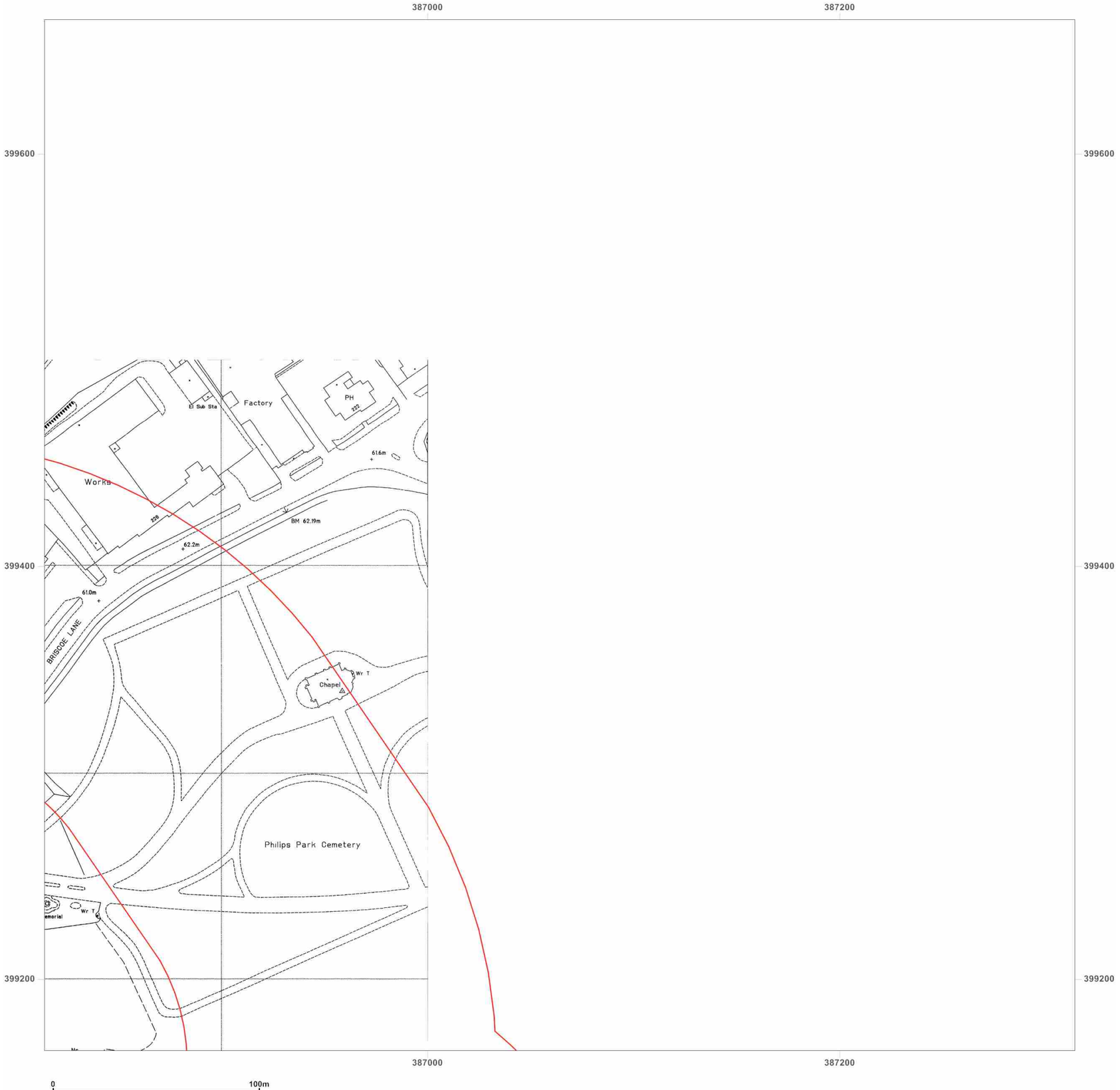

Groundsure INSIGHTS

Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_3
Grid Ref: 387064, 399415

Map Name: National Grid
Map date: **1995**
Scale: 1:1,250
Printed at: 1:2,000

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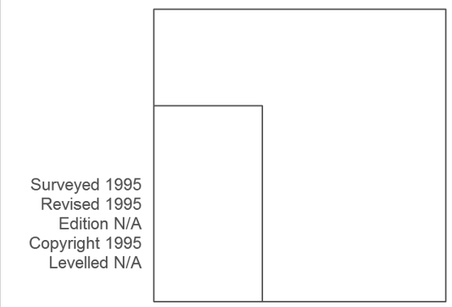

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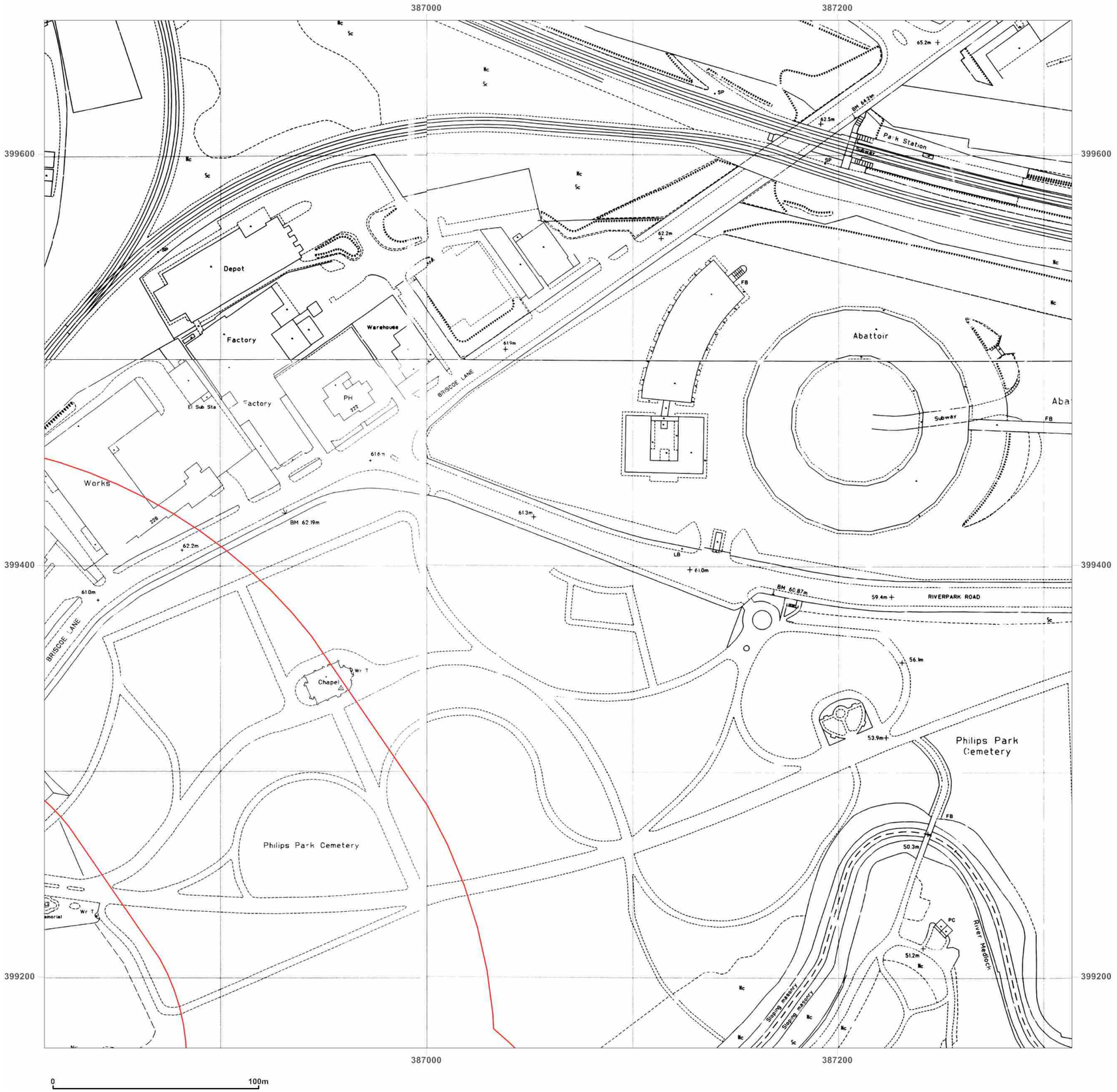

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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_3
Grid Ref: 387064, 399415

Map Name: National Grid
Map date: **1992-1995**
Scale: 1:1,250
Printed at: 1:2,000

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

Surveyed N/A
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Copyright 1992
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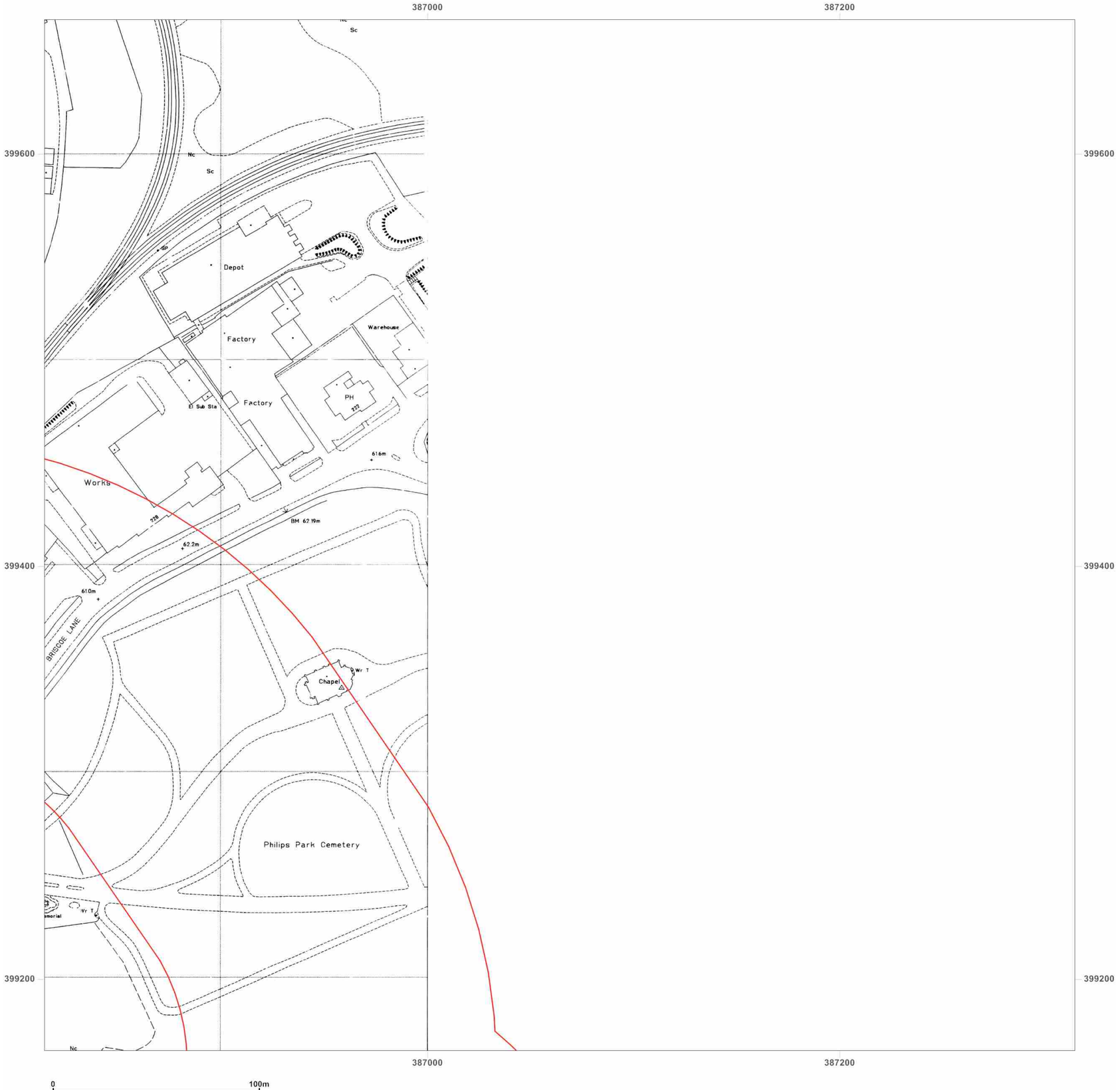

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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_3
Grid Ref: 387064, 399415

Map Name: National Grid
Map date: **1995**
Scale: 1:1,250
Printed at: 1:2,000

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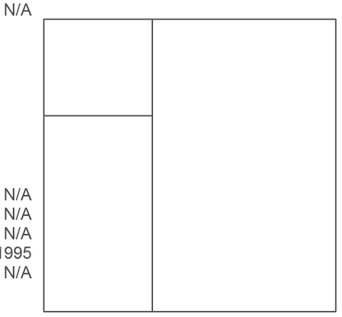
Surveyed N/A
Revised N/A
Edition N/A
Copyright 1995
Levelled N/A



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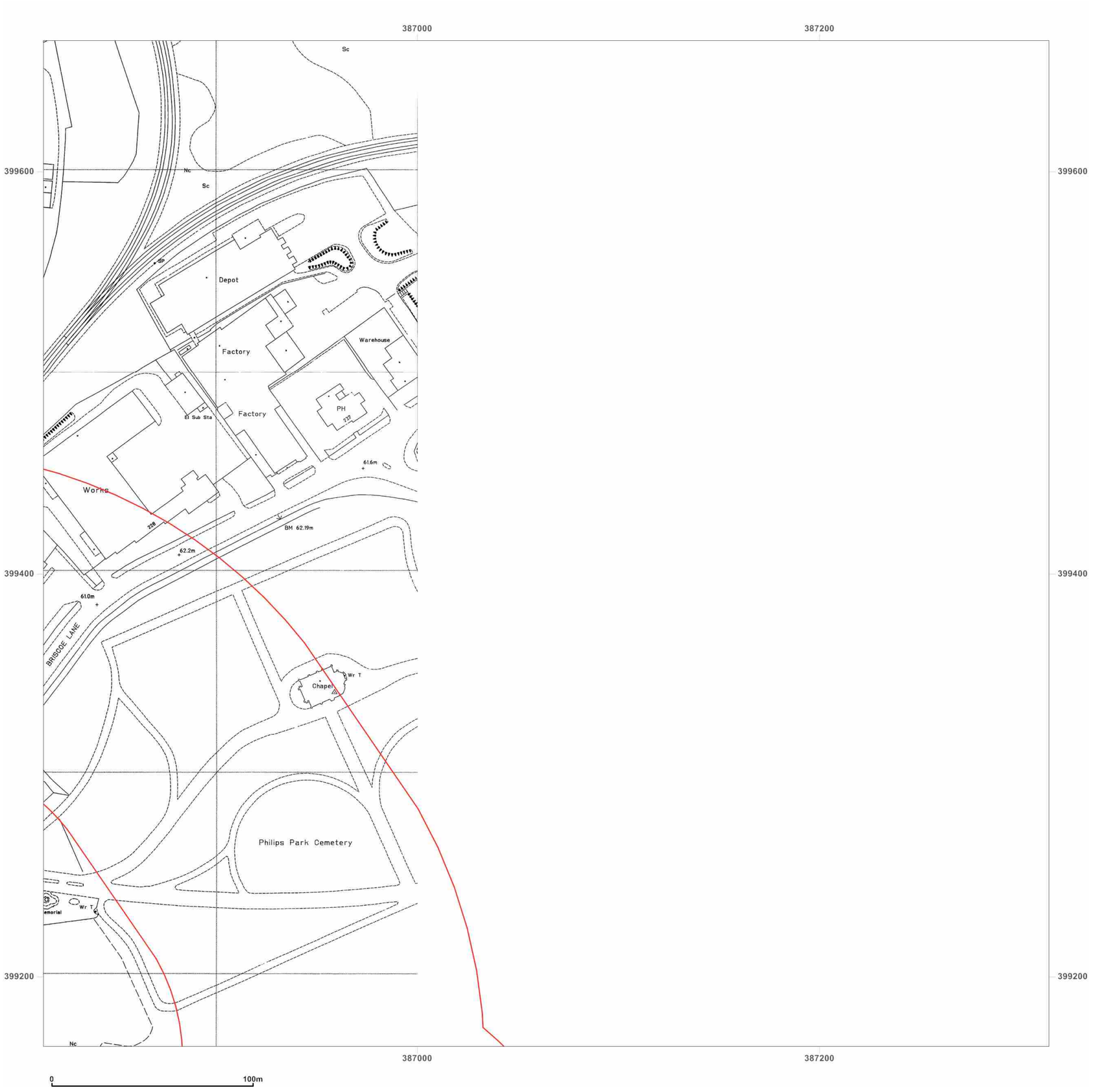

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Site Details:

TENNIS 79M FROM MANCHESTER TENNIS & FOOTBALL CENTRE, 9 SPORTCITY WAY 96M FROM SPORTCITY WA, SPORTCITY WAY, MANCHESTER, M11 3DU

Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_3
Grid Ref: 387064, 399415

Map Name: National Grid
Map date: **1995**
Scale: 1:1,250
Printed at: 1:2,000

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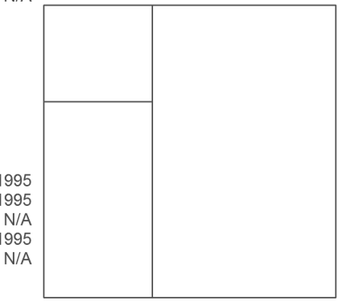
Surveyed 1995
Revised 1995
Edition N/A
Copyright 1995
Levelled N/A



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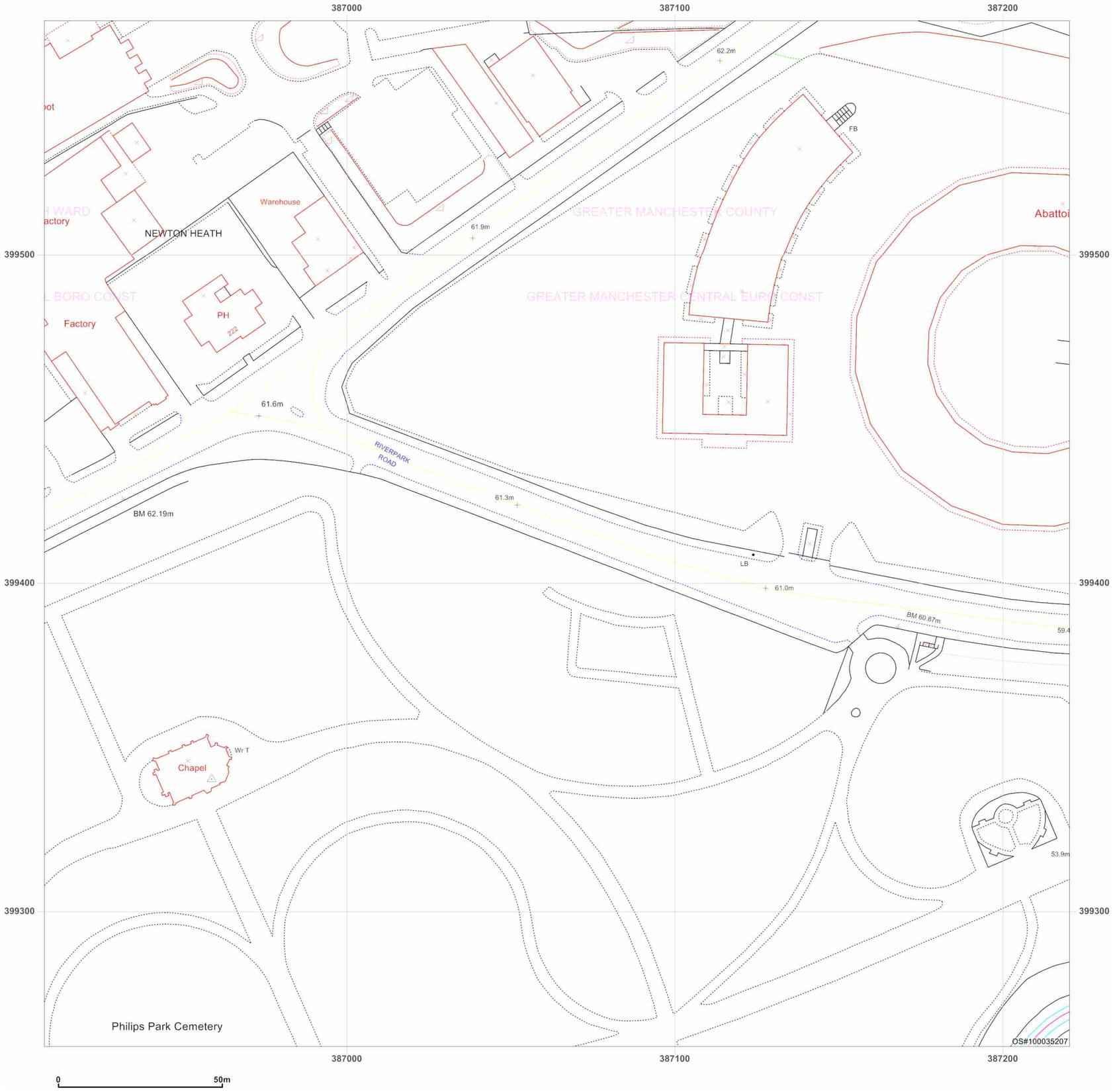

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Site Details:

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Client Ref: 0042841
Report Ref: GS-6479145_1250scale_2_3
Grid Ref: 387064, 399415

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

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