



e3p

Phase I Geoenvironmental Site Assessment
Land off Wilbraham Road, Chorlton, Manchester

Reference: 15-811-R1-5
Date: November 2022



PHASE I GEOENVIRONMENTAL SITE ASSESSMENT

Land off Wilbraham Road
Chorlton
Manchester

Prepared for:

Anwyl Homes

Report Ref: 15-811-R1-5
Date Issued: November 2022

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EXECUTIVE SUMMARY

Site Address	Land off Wilbraham Road, Chorlton, Manchester, M21 0UX	
Grid Reference	E 382643 N 394254	
Site Area	Approximately 2.22 Ha.	
Proposed Development	Full planning application proposing the erection of a residential development (Use Class C3a), with associated infrastructure, including landscaping, ecological mitigation, drainage, car parking, access from Wilbraham Road, demolition of garage to the rear of 354 Wilbraham Road and other associated works.	
Current Site Use	The application site extends to approximately 2.22 hectares (ha) and comprises an irregular shaped parcel of land within the administrative boundary of Manchester City Council (Grid Reference – E 382643 / N 394254). The application site comprises two distinct parcels of land, as described below. The part of the site identified for the proposed housing development comprises a roughly rectangular shaped parcel of land, which extends to 2 ha. 354 Wilbraham Road and its associated garage are the only existing buildings/structures within the site boundary. Access to the site is obtained from Wilbraham Road. The housing site is privately owned by GMYF and is secured on all boundaries by fencing and gates aside from 354 Wilbraham Road which is an occupied dwelling. The part of the site identified for ecological enhancement comprises 0.22 ha. The ecological enhancement area is owned by the St Margaret's Centre.	
Site History	Earliest mapping indicates the site was agricultural land with several ponds and field boundaries recorded on site. The site was subsequently developed in the 1930s to form an athletic/football ground with associated pavilion and tennis courts with trees and shrubs recorded around the periphery of the site. The tennis courts were removed in circa 1950 while the pavilion remained on site until the early 2000s. The site's last known use was as playing pitches (primarily football). However, this use ceased in 2016 (more than 5 years ago).	
Environmental Setting	Drift Geology	Glaciofluvial Sheet Deposits – SAND and GRAVEL
	Bedrock Geology	Wilmslow Sandstone Group – SANDSTONE.
	Faults	No faults are located on or within influencing distance of the site.
	Hydrogeology	The site is underlain by a secondary A superficial aquifer and a principal bedrock aquifer. The closest groundwater abstraction point is 1.60km north of the site.
	Hydrology	No surface water features are located within 250 m of the site.
	Flood Risk	Unaffected by flooding from rivers. Moderate to high potential for groundwater flooding to occur.



Utility Locations	A formal drainage survey has not been completed; however, a review of online records held by United Utilities indicates the presence of an abandoned sewer running through the southeast sector of the site. No other drainage infrastructure is noted with the site boundary. There is likely to be private connections to the residential property off Wilbraham Road however these are not recorded on statutory service plans.
Landfill Sites and Ground Gases	There are no current or historic landfill sites located within 250 m of the site. There are several recorded infilled features including ponds and field boundaries on site and within 250m of the site which may be a source of Made Ground and organic soils and putrescible materials which could be subject to gassing and the production of hazardous ground gases.
Radon	Less than 1% of houses above the 'Action Level' – no special precautions required.
Hazardous Installations	No hazardous installations that could potentially prejudice the proposed construction of highly sensitive residential dwellings have been identified within influencing distance of the subject site.
Initial Conceptual Site Model	Contaminant Sources The site is potentially underlain by localised Made Ground deposits from former developments on site (pavilion and tennis courts) with the presence of infilled ponds and field boundaries recorded in localised areas. Where Made Ground and infilled features are present, there is a potential for heavy metals, PAHs, and asbestos within Made Ground soils. Infilled features with high organic content may also present a risk of hazardous ground gases. Receptors The future residential end users and construction workers are a significant receptor if any significant contamination is identified on site. The underlying secondary A drift aquifer and the principal bedrock aquifer are recorded as highly sensitive receptors. Pathways The potential contaminants of concern identified from the initial conceptual site model have pathways relating to direct contact and ingestion, volatilisation/indoor explosion, vapour inhalation and dust inhalation. The underlying drift deposits are anticipated to comprise sand underlain by low-permeability clay. Where sand deposits are recorded these will likely provide a preferential pathway for both hazardous ground gases and mobile phase contaminants within groundwater. The underlying low-permeability clay will restrict downward migration to the underlying bedrock aquifer.
Recommendations	Intrusive geoenvironmental ground investigation to confirm the conceptual site model.



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DRAWING LIST

15-811-001 - Site Location Plan
15-811-002 - Proposed Development Plan
15-811-003 - Historical Features Plan
15-811-004 - Site Features Plan



1. INTRODUCTION

1.1. BACKGROUND

This Phase 1 Geoenvironmental Site Assessment has been prepared on behalf of Anwyl Homes ('the Applicant') in support of a full planning application at land off Wilbraham Road, Chorlton, Manchester ('the site').

The description of development is as follows:

"Full planning application proposing the erection of a residential development (Use Class C3a), with associated infrastructure, including landscaping, ecological mitigation, drainage, car parking, access from Wilbraham Road, demolition of garage to the rear of 354 Wilbraham Road and other associated works."."

The site is owned by The Greater Manchester Trust for Recreation (working name "The Greater Manchester Youth Federation (GMYF)") and previously known as Boys' and Girls' clubs of Greater Manchester). GMYF, is a registered charity, whose origin dates to the mid 1800's.

GMYF has been operating in an extremely challenging environment owing to a long period of sustained funding cuts and the impacts of the Covid-19 pandemic. Following a strategic review, the charity is disposing of redundant land that it owns, including the application site, with the aim of reinvesting in several critical areas of the charity, such as safeguarding, governance and a new team of youth workers, to ensure that the 125 year old charity is able to support its affiliated clubs, volunteers and young people across Greater Manchester.

GMYF has selected Anwyl Homes as the preferred developer for the application site.

1.2. PROPOSED DEVELOPMENT

The Proposed Site Layout is indicated in Figure 1.1.



FIGURE 1.1 PROPOSED SITE LAYOUT



1.3. OBJECTIVES

The objectives of the geoenvironmental investigation are as follows:

- ➊ Review historical plans, geology, hydrogeology, site sensitivity, floodplain issues, mining records and any local authority information available in order to complete a desk study in line with Environment Agency (EA) document Land Contamination: Risk Management (LC:RM) (2019).
- ➋ Assess the implications of any potential environmental risks, liabilities and development constraints associated with the site in relation to the future use of the site and in relation to off-site receptors.
- ➌ Assess the desk-study information and, where possible, provide preliminary recommendations in relation to foundations, pavement construction and floor slabs.
- ➍ Provide recommendations regarding future works required and undertake a preliminary pre-construction cost appraisal.



1.4. SOURCES OF INFORMATION

Background information was sought from the following sources:

- ☐ Groundsure Search.
- ☐ Historical mapping dated 1848 to 2022. A selection of historical maps are reproduced in Appendix V.
- ☐ On-line planning records held by Manchester City Council.
- ☐ Consultations with representatives of Manchester City Council.
- ☐ Magic Map Groundwater Vulnerability Map.
- ☐ Radon: Guidance on protective measures for new buildings (BRE Document BR 211, 2007).
- ☐ British Geological Survey Map.
- ☐ Groundsure IO database.
- ☐ <https://zeticauxo.com/downloads-and-resources/risk-maps/>
- ☐ <https://flood-map-for-planning.service.gov.uk>.

1.5. LIMITATIONS

The limitations of this report are presented in Appendix I.

1.6. CONFIDENTIALITY

E3P has prepared this report solely for the use of the client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from E3P; a charge may be levied against such approval.

1.7. RISK CLASSIFICATION

E3P has utilised the available data to classify the site on the basis of its likely contaminated land liability and potential for geotechnical constraints in relation to the site development. The risk classification definitions are summarised in Table 1.1.



TABLE 1.1 RISK CLASSIFICATION

RISK	DEFINITION
Low	There are unlikely to be significant contaminated land liabilities/geotechnical constraints associated with the property.
Low Moderate	There are unlikely to be significant contaminated land liabilities/geotechnical constraints associated with the property with regard to the proposed use. However, minor issues may require further consideration in the event of future redevelopment of the site.
Moderate	Some potential contaminated land liabilities/geotechnical constraints are likely to affect the property as a result of historical and/or current activities. The risks identified are unlikely to pose an immediate significant issue but the purchaser/developer may wish to make further enquiries of the vendor or undertake further environmental improvements. Redevelopment of the site will likely require further site investigation.
Moderate High	Some potentially significant contaminated land liabilities/geotechnical constraints have been identified at the property that requires further assessment, including intrusive ground investigations.
High	Significant potential contaminated land liabilities/geotechnical constraints have been identified at the property. Further assessment including intrusive ground investigation will be required to determine the level of risk and associated liability.



2. SITE SETTING

2.1. SITE DETAILS

Site Address	Land off Wilbraham Road, Chorlton, Manchester, M21 0UX
Grid Reference	E 382643 N 394254
Site Area	Approximately 2.22 Ha.

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

A site location map is presented in Appendix III as Drawing 15-811-001.

2.2. CURRENT SITE USE

E3P has undertaken a site walkover of the entire site and a description of the key findings is summarised in Table 2.1.

TABLE 2.1 SITE DESCRIPTION

Occupancy/Use	The application site extends to approximately 2.22 hectares (ha) and comprises an irregular shaped parcel of land within the administrative boundary of Manchester City Council (Grid Reference – E 382643 / N 394254). The application site comprises two distinct parcels of land, as described below. The part of the site identified for the proposed housing development comprises a roughly rectangular shaped parcel of land, which extends to 2 ha. 354 Wilbraham Road and its associated garage are the only existing buildings/structures within the site boundary. Access to the site is obtained from Wilbraham Road. The housing site is privately owned by GMYF and is secured on all boundaries by fencing and gates aside from 354 Wilbraham Road which is an occupied dwelling. The part of the site identified for ecological enhancement comprises 0.22 ha. The ecological enhancement area is owned by the St Margaret's Centre.	
Surface Cover (%)	Buildings	2%
	Hardstand	5%
	Soft Cover	93%
Structures	The site predominantly comprises soft cover with no structures within the playing field area of the site. A palisade fence is present along the southern and eastern site boundaries with low-level fencing surrounding the west and north along the adjacent residential gardens. A residential property (358 Wilbraham Road) is present in the south of the site adjacent to the access track off Wilbraham Road with an associated outbuilding and fencing. No further structures have been identified within the site boundary.	
Access	Pedestrian and vehicular access to the site can be gained via an access track with a gated entrance off Wilbraham Road. The gate is approximately 2.50 m wide.	



Slope	The site is relatively flat with an increase of circa 0.50m from north to south.
Retaining Structures	No retaining structures have been identified within the site boundary.
Vegetation/Ecology	The majority of the site is covered by rough grass vegetation. Semi mature and mature trees are present along the southern, western and northern boundaries of the site. Hedgerows are present along the northern and western boundaries of the site.
Vegetation/Ecology Cont.	The garden associated with 358 Wilbraham Road was not accessed during the E3P site walkover, however it is anticipated that there is some vegetation present, likely landscaped gardens with some mature/semi-mature trees. An Ecological Impact Assessment has been completed at the subject site by Tyler Grange Group Ltd (Report Ref: 14807_R02a_BP_CW, dated October 2022). Tyler Grange have concluded that the site is largely covered by poor semi-improved grassland, with the south-west, south-east and eastern boundary of the site noted to be cultivated/disturbed land. An area of the south-eastern sector of the site is noted as cultivated land (amenity grassland). Scrub (dense/continuous) areas have been noted along the site boundaries.
Hazardous Material Storage	No above-ground storage tanks (ASTs) or underground storage tanks (USTs) were observed at the site during the preliminary site walkover. Due to the previously predominately undeveloped nature of the site, it is unlikely that hazardous materials storage will have occurred on the site.
Asbestos-Containing Material (ACM)	No evidence of ACM was noted across the site during the site walkover. There is the potential for ACM to be present within any Made Ground associated with infilled features and the former pavilion in the southeast of the site. The residential unit in the south of the site may contain ACM due to the age of the structure, however there is currently no scope to carry out works to this property therefore there is unlikely to be any risk associated with potential ACM.
Polychlorinated Biphenyls (PCBs)	There is no equipment identified that may contain PCBs within the site boundary.
Waste Storage	Potentially hazardous waste streams are unlikely to be generated at the site and none were observed during the preliminary site inspection.
Drainage	A formal drainage survey has not been completed; however, a review of online records held by United Utilities indicates the presence of an abandoned sewer running through the southeast sector of the site. No other drainage infrastructure is noted with the site boundary. There is likely to be private connections to the residential property off Wilbraham Road however these are not recorded on statutory service plans.



2.3. SURROUNDING AREA

The surrounding area land uses are summarised in Table 2.2.

TABLE 2.2 SURROUNDING LAND USES

DIRECTION	LAND USE
North	Residential units
East	St Margaret's Sports Fields and Maine Road Football Club
South	Residential units
West	Residential units

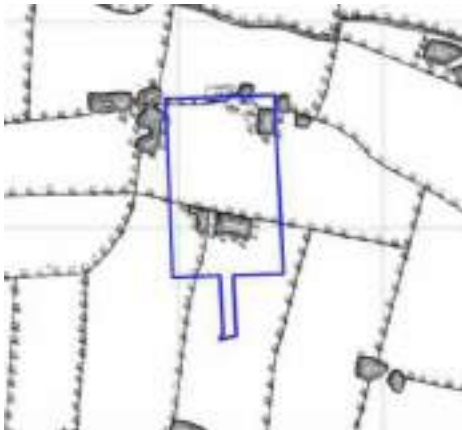


3. SITE HISTORY

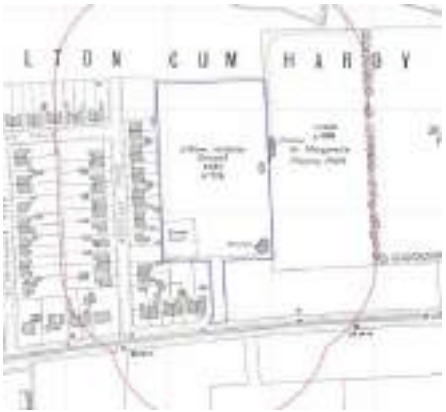
3.1. ON-SITE HISTORICAL DEVELOPMENT

A review of historical mapping and historical aerial imagery pertinent to the site is summarised in Table 3.1. In addition, historical site features are presented on Drawing No 15-811-003 in Appendix III.

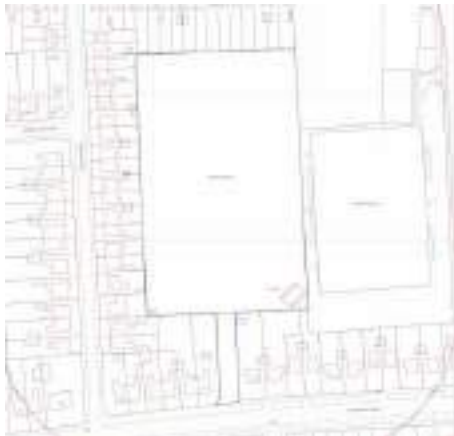
TABLE 3.1 HISTORICAL DEVELOPMENT

MAP EDITION	HISTORICAL LAND USE	HISTORICAL MAP EXCERPT
1848-1849 1:10,560	The site is recorded as undeveloped agricultural land. Field boundaries run through the north and central areas of the site trending east-west, and through the south area of the site trending north-south. Three ponds are located within the site boundary in the northeast corner and central areas of the site. An area of marshland is recorded in the north of the site surrounding a pond.	
1881 1:2,500	The site is still recorded as agricultural land. The field boundaries in the north and south of the site are no longer recorded. The three ponds on site are no longer recorded and presumed to have been infilled.	
1894 1:2,500	There are no significant changes to the subject site.	



MAP EDITION	HISTORICAL LAND USE	HISTORICAL MAP EXCERPT
1933 1:2,500	The site is recorded as Albion Athletic Ground. The field boundary running through the centre of the site is no longer recorded. Two buildings are present in the east with the building in the southeast recorded as a pavilion. Tennis courts are recorded in the southwest of the site.	
1950-1954 1:1,250	The site remains an Athletic Ground. The small, unmarked building in the east of the site and the tennis courts in the southwest of the site are no longer recorded. There are no other significant changes to the subject site.	
1964 1:2,500	A relatively small, unmarked structure is located in the southwest corner of the site. There are no other significant changes to the subject site.	
1992 1:1,250	The site is recorded as Football Ground. There are no other significant changes to the subject site.	



MAP EDITION	HISTORICAL LAND USE	HISTORICAL MAP EXCERPT
2003 1:1,250	There are no significant changes to the subject site.	
2005 Ariel Imagery	Ariel imagery indicates that the pavilion is no longer present on site and the site comprises grass cover with no other features recorded. There are no other significant changes to the subject site.	
2010 1:10,000	There are no significant changes to the subject site.	



MAP EDITION	HISTORICAL LAND USE	HISTORICAL MAP EXCERPT
2016 Ariel Imagery	There are no significant changes to the subject site.	
2022 Aerial Imagery	The site is no longer used as a football ground and appears vacant. The site has remained in this configuration until the present day.	



3.2. OFF-SITE HISTORICAL DEVELOPMENT

A review of potentially contaminative uses identified on historical Ordnance Survey maps within a 250 m radius of the site is summarised in Table 3.2.

TABLE 3.2 SURROUNDING HISTORICAL DEVELOPMENT

SURROUNDING FEATURE	DISTANCE	DATES	DIRECTION
Ponds (multiple) <i>Then: no longer marked (infilled)</i>	Boundary	Pre 1848 – Pre 1905 Pre 1905 – Present	Northeast
Ponds (multiple) <i>Then: no longer marked (infilled)</i>	Boundary	Pre 1948 – Pre 1932 Pre 1932 – Present	Northwest
Canal Feeder (surface water) <i>Then: no longer recorded (culverted)</i>	80m	Pre 1848–Pre 1950 Pre 1950–Present	North
Ponds (multiple) <i>Then: no longer marked (infilled)</i>	180m	Pre 1848 – Pre 1905 Pre 1905 – Present	Northeast
Ponds (multiple) <i>Then: no longer marked (infilled)</i>	190m	Pre 1848 – Pre 1905 Pre 1905 – Present	South
Ponds (multiple) <i>Then: no longer marked (infilled)</i>	190m	Pre 1848 – Pre 1905 Pre 1905 – Present	Southeast
Pond <i>Then: no longer marked (infilled)</i>	200m	Pre 1948 – Pre 1932 Pre 1932 – Present	East
Ponds (multiple) <i>Then: no longer marked (infilled)</i>	225m	Pre 1948 – Pre 1932 Pre 1932 – Present	South
Ponds (multiple) <i>Then: no longer marked (infilled)</i>	240m	Pre 1848 – Pre 1905 Pre 1905 – Present	East

3.3. PLANNING HISTORY

E3P has undertaken a review of online planning records held by Manchester City Council and no environmentally pertinent information has been obtained for the site.



3.4. ANECDOTAL INFORMATION

A web-based search of the subject site has recovered the following photographs, courtesy of Historic England in Figure 3.1.

FIGURE 3.1. HISTORIC ENGLAND



The above image shows the site in its former use as a football/athletic ground which correlates with the historic mapping data.



4. ENVIRONMENTAL SETTING

4.1. GEOLOGY AND HYDROGEOLOGY

The British Geological Survey (BGS) map (Sheet 85) for the site, (1:50,000, Solid and Drift editions) and online records indicate the site is underlain by the geological sequence presented in Table 4.1.

TABLE 4.1 SUMMARY OF UNDERLYING GEOLOGY

GEOLOGICAL UNIT	CLASSIFICATION	DESCRIPTION	AQUIFER CLASSIFICATION
Drift	Glaciofluvial Sheet Deposits	SAND and GRAVEL	Secondary A
Solid	Wilmslow Sandstone Formation	SANDSTONE	Principal

A review of the BGS borehole data has identified a borehole within the site boundary. The ground conditions encountered have been summarised in Table 4.2.

TABLE 4.2 SUMMARY OF BGS BOREHOLE RECORDS

LOCATION	DEPTH	MADE GROUND	DRIFT	SOLID
On site	7.00 m	Not encountered	SAND with traces of peat 0.20 – 1.30m Boulder CLAY 1.30 – 7.00m	Not encountered

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

The Groundsure report indicates that the site is not located within a Groundwater Source Protection Zone or a Drinking Water Safeguard Zone.

Furthermore, there are no groundwater abstraction points within 1.0 km of the site.

4.2. NATURAL LANDFORM AND GEOMORPHOLOGY

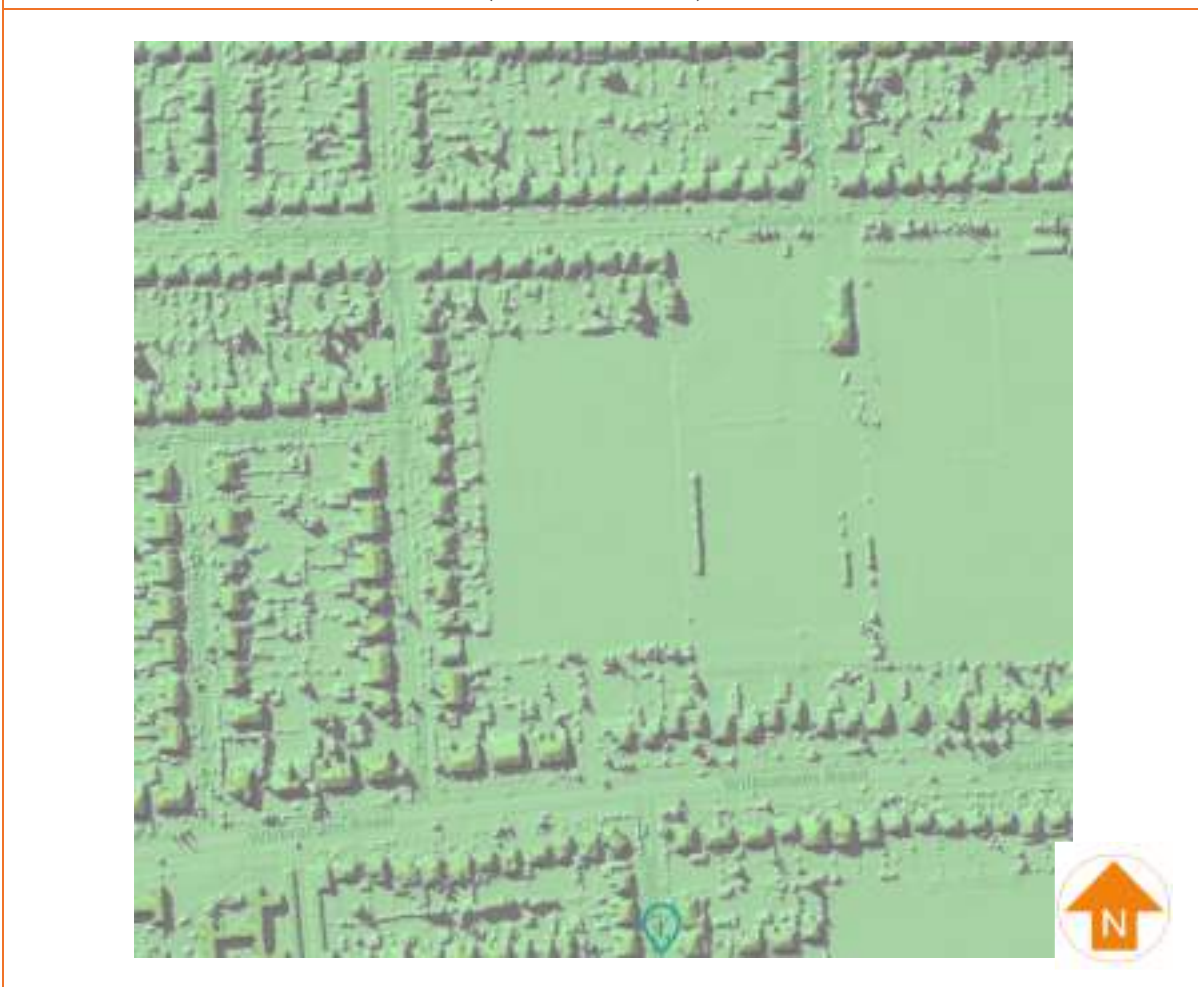
Based on the initial geological assessment, a review of available topographic data and pertinent mapping, E3P has undertaken a preliminary geomorphological assessment of the landform and its possible mechanism for formation.

Due to the level nature of the site and historical use as playing fields, it is possible that fill material has been used to level the site. The historical maps shown various infilled ponds on site circa 1948-1949 which have since been infilled.

Surface lidar data for the site is shown in Figure 4.1 overleaf.



FIGURE 4.1 SURFACE LIDAR DATA (GROUNDSURE IO)



4.3. GEOTECHNICAL DATA

Geotechnical data presented within a commercially available environmental database is summarised in Table 4.3.

TABLE 4.3 SUMMARY OF GEOTECHNICAL DATA

HAZARD	DESIGNATION
Shrink-Swell Clay	No Hazard
Landslides	Very low risk
Ground Dissolution	No hazard
Compressible Ground	No hazard
Collapseable Deposits	Very low risk
Running Sand	Very low risk
Natural Cavities	None recorded
Man-made Cavities	None recorded



4.4. COAL MINING

The site is not located within a Coal Authority Reporting Area and is not deemed to be at risk from historic underground coal mining.

4.5. RADON RISK POTENTIAL

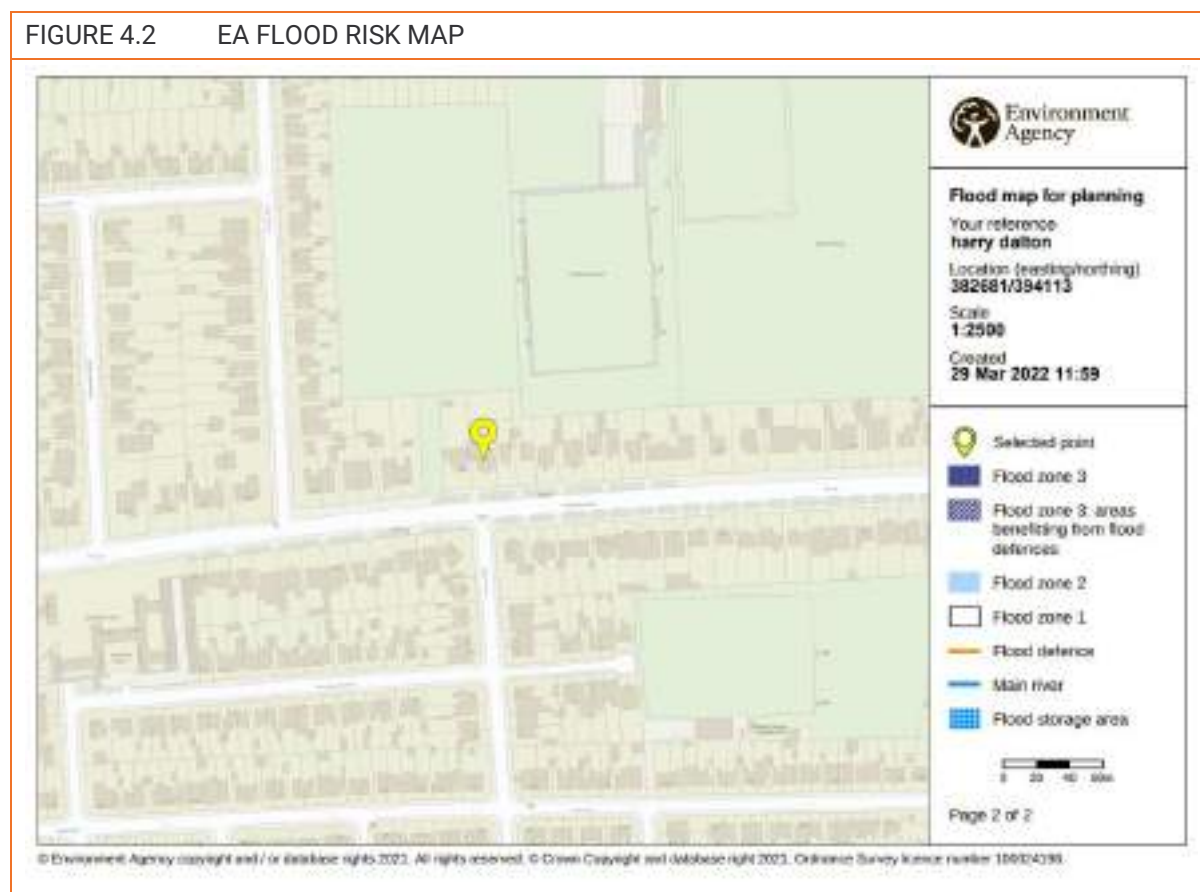
The Envirocheck report indicates the site is situated in an area where less than 1% of homes are above the "Action Level" and that the BGS reports that full radon protective measures are not necessary in the construction of new dwellings or extensions.

4.6. HYDROLOGY

No surface water features are located within 250 m of the site boundary.

The site is predominantly located within a currently defined "Flood Risk Zone 1"; defined as land assessed as having less than 1 in 1,000 annual probability of river or sea flooding ($< 0.1\%$), and as such is considered to be unaffected by river flooding. The Envirocheck report states there is a moderate to high potential for groundwater flooding to occur at the site. The Environment Agency (EA) Flood Risk Map for the site is presented in Figure 4.2.

FIGURE 4.2 EA FLOOD RISK MAP



Source - <https://flood-map-for-planning.service.gov.uk/>



4.7. INDUSTRIAL LAND USES

The site is located within a predominantly residential area, therefore there are no entries within the trade directory for industrial land uses within 250 m of the site.

4.8. HAZARDOUS SUBSTANCE CONSENTS

The Groundsure Report confirms the absence of the following Hazardous Installations within 500m of the site:

- Control of Major Accident Hazard (COMAH) Sites.
- Explosive Sites.
- Notification of Installation Handling Hazardous Substances (NIHHS).
- Planning Hazardous Substance Consents.
- Planning Hazardous Substance Enforcements.

4.9. SOIL CHEMISTRY

The UK Soil Observatory Map Viewer datasets detail the topsoil concentrations of five potentially harmful elements (PHEs): Arsenic (As), Cadmium (Cd), Chromium (Cr), Nickel (Ni) and Lead (Pb). Elevated concentrations of these PHEs can exist because of natural geological conditions or possible anthropogenic sources.

The following estimated soil chemistry levels (detailed in Table 4.4 below) are attributed to the site:

TABLE 4.4 ESTIMATED SOIL CHEMISTRY

POTENTIALLY HARMFUL ELEMENT	ESTIMATED GEOMETRIC MEAN CONCENTRATION RANGE WITHIN THE SITE BOUNDARY (mg/kg)
Arsenic	<15
Cadmium	<1.8
Chromium	20 – 40
Lead	<100
Nickel	<15

A comparison of these estimated concentrations with relevant Tier I values would indicate that these heavy metal compounds would not pose a development constraint.

However, actual concentrations within the Made Ground deposits will need to be confirmed through ground investigation.



4.10. SENSITIVE LAND USES

The closest residential properties are located adjacent to the northern, southern, and western boundaries of the site. The site is located within a SSSI impact risk zone, where types of development requiring consultation include: Livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 4000m², Combustion - General combustion processes >50mw energy input. including energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion. It is not considered that the site will pose a risk to a SSSI given the proposed development.

4.11. SITE SENSITIVITY ASSESSMENT

The site is assessed to be located within a **Moderate** sensitivity setting as discussed within Table 4.5.

TABLE 4.5 SITE SENSITIVITY ASSESSMENT

SENSITIVITY PROFILE	DISCUSSION	RATING
Groundwater Source Protection Zone or Drinking Water Safeguard Zone	The site is not located within a groundwater source protection zone or a drinking water safeguard zone.	Low
Distance to the Closest Groundwater Abstraction Point	There are no groundwater abstraction points recorded within 1.0km of the site boundary. There are no active groundwater abstraction licences recorded within 2.0km of the site boundary. The closest historic abstraction point is recorded 1.60 km from the site and was used for cooling processes.	Low
Aquifer Classification in Superficial Drift Deposits	The underlying Glaciofluvial Sheet Deposits are recorded as a secondary A aquifer	Moderate
Aquifer Classification in Bedrock	The underlying bedrock is classified as a principal aquifer however the overall sensitivity is reduced as there are no potable groundwater abstraction points within 1.60 km of the site boundary.	Moderate/High
Is the Site Underlain by Low-Permeability Drift to Depths in Excess of 10 m?	The underlying superficial deposits are likely to comprise sand and gravel. A review of BGS borehole records (on-site) indicates the presence of sand to circa 1.30 m bgl underlain by boulder clay to a proven depth of 7.00 m bgl. Where low-permeability clay deposits are present, this will limit the migration of mobile phase contaminants to the underlying principal aquifer however the sand deposits will provide a suitable pathway.	Moderate
Is the Site Located Within 50 m of a Surface Watercourse?	The risk to surface water is negligible given the absence of a viable receptor within influencing distance of the site	Low
Sensitive Land Uses	The closest residential properties are located adjacent to the northern, southern, and western boundaries of the site.	Moderate
OVERALL SITE ENVIRONMENTAL SENSITIVITY		Moderate



4.12. PRELIMINARY GEOTECHNICAL ASSESSMENT

Based on the desk-study information, the following geotechnical assessment has been made:

- Given the predominantly undeveloped nature of the site, it is likely there will be limited Made Ground fill deposits and obstructions.
- Several historically infilled ponds are present within the site boundary, which are potential sources of alluvial deposits, silts, organic peat deposits and potentially substantial depths of Made Ground. The composition of the fill material is currently unknown therefore investigation will be required in order to assess the fill materials and undertake in-situ geotechnical testing to determine the likely foundation solution for plots in these areas.
- The site is topographically level with no significant level variations recorded within proximity to the site therefore it is unlikely that significant earthworks will be required to form a suitable development platform.
- The site is not recorded to be underlain by any historic mine workings or geology deemed to be susceptible to ground instability or dissolution.



5. REGULATORY DATA

5.1. LANDFILL SITES AND WASTE TREATMENT SITES

No landfill sites or waste treatment site are located within 250 m of the site boundary.

The nearest landfill is recorded 1.50 km from the site boundary.

5.2. REGULATORY DATABASE

The information summarised in Table 5.1 has been obtained from a commercially available environmental database. The summary table only includes records from within 250 m of the subject site and not otherwise detailed in the report.

TABLE 5.1 SUMMARY OF ENVIRONMENTAL DATA

RECORD	ENTRIES WITHIN 250 m	DETAILS
Contaminated Land Register Entries and Notices	0	None Identified
Authorised Industrial Processes (IPC/IPPC/LAPPC)	0	None Identified
Fuel Stations Entries	0	None Identified
Licensed Radioactive Substances	0	None Identified
Enforcements, Prohibitions or Prosecutions	0	None Identified
Discharge Consents	0	None Identified
Pollution Incidents	0	None Identified
Consents Issued Under the Planning (Hazardous Substances) Act 1990	0	None Identified
Control of Major Accident Hazard (COMAH) Sites	0	None Identified

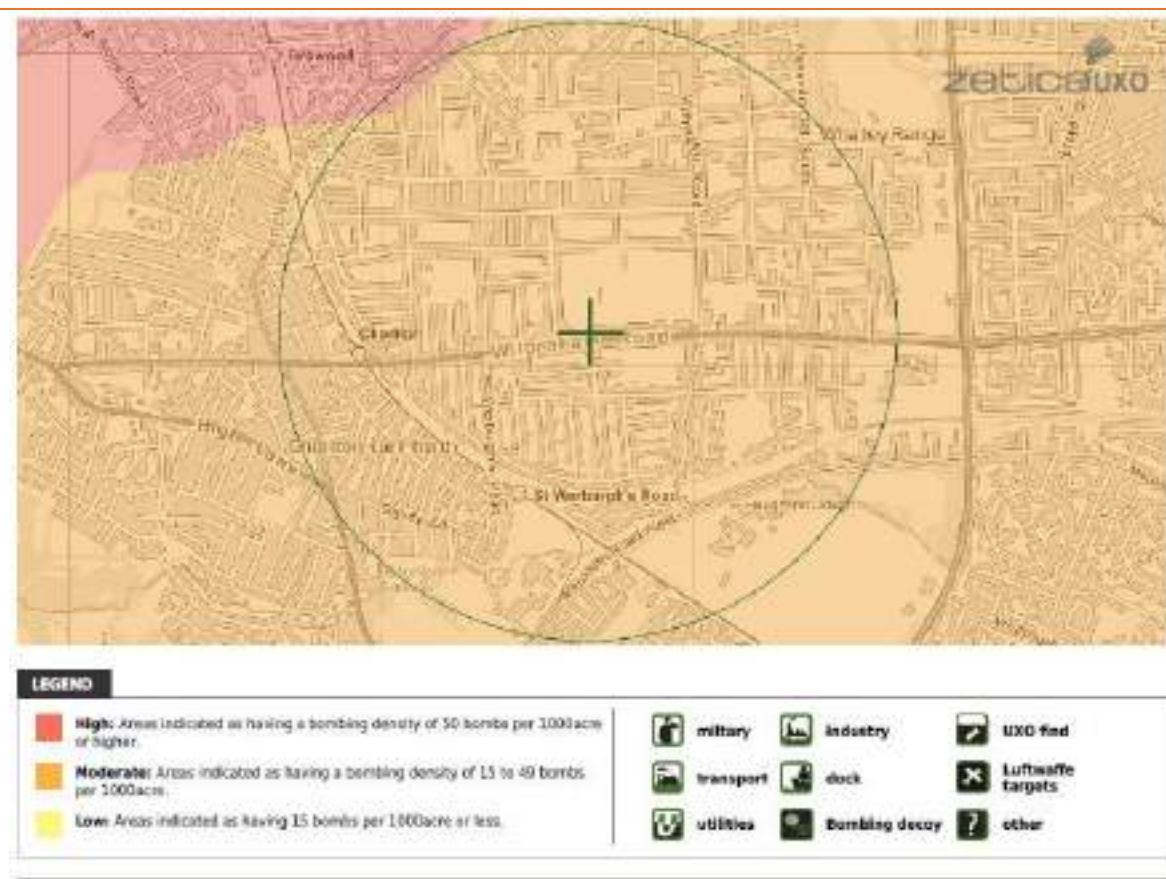
5.3. UNEXPLODED ORDNANCE

The regional unexploded bomb risk map from Zetica (2014) indicates that the site is in an area at moderate risk from possible unexploded ordnance (UXO) resulting from the Second World War.

The Zetia UXO Risk Map is presented as Figure 5.1 overleaf.



FIGURE 5.1 ZETICA UXO RISK MAP



Source - <https://zeticauxo.com/downloads-and-resources/risk-maps/>

E3P have obtained a Stage 1 Preliminary UXO Risk Assessment from Brimstone which indicates that the risks with very shallow and shallow buried UXO may have been partially mitigated however the risk associated with any deep buried UXO remains unmitigated across the site.

It is recommended that a Stage 2 Detailed Risk Assessment is undertaken prior to the proposed development.

The Stage 1 Preliminary UXO Risk Assessment has been included within Appendix VI.



6. INITIAL CONCEPTUAL SITE MODEL

In accordance with EA LCRM (2019) and BSI 10175 (Code of Practice for Investigation of Potentially Contaminated Land), E3P has developed an initial conceptual site model (CSM) to identify potential contamination sources, migration pathways and receptors within the study area.

This is summarised within Table 6.1.

ON-SITE SOURCES OF CONTAMINATION

The following potential on-site sources of contamination have been identified:

-  Former Developments (football ground, pavilion, and tennis courts)
 - Made Ground - Heavy Metals, PAHs, TPHs, Hazardous ground gases (CO₂, CH₄)
 - Asbestos within building fibres, demolition materials and Made Ground
-  Infilled ponds
 - Made Ground - Heavy Metals, asbestos, PAHs, TPHs
 - Made Ground/Organic Materials - Hazardous ground gases (CO₂, CH₄)

OFF-SITE SOURCES OF CONTAMINATION

The following potential off-site source of contamination have been identified:

-  Infilled Ponds
 - Made Ground/Infilled ground – Heavy Metals, PAHs, TPHs, Hazardous ground gases (CO₂, CH₄)



6.1. INITIAL CONCEPTUAL SITE MODEL

Following the completion of the desk-based site assessment, the initial conceptual model shown in Table 6.1 has been prepared for the site.

TABLE 6.1 INITIAL CONCEPTUAL SITE MODEL

SOURCE	PATHWAY	RECEPTOR
Human Health		
Heavy Metals and non-volatile PAHs associated with Made Ground and infilled features	Dermal Contact and Ingestion Consumption of Homegrown Produce	Construction Workers End Users
Discussion: Made Ground associated with construction of the historic building, infilled ponds and former field boundaries is a potential source of heavy metals and non-volatile PAHs. Recommendation: Further investigation is required to confirm if the Made Ground across the site is impacted by heavy metals and non-volatile PAHs. If identified, a suitable clean cover system for areas of landscaping will prevent exposure to future site users. Construction works should be completed with PPE and the provision of welfare.		
Volatile Hydrocarbon Compounds associated with Made Ground	Volatilisation/Accumulation Vapour Inhalation	Construction Workers End Users
Discussion: Although deemed to be unlikely, there is a potential for low-level volatile hydrocarbon impact in localised areas of Made Ground and infilled ponds due to the unknown source of the fill material. Future site users may be exposed to volatile contaminants via inhalation and accumulation of vapours in indoor space, representing a long-term risk. Volatile contamination may pose a short-term risk to construction workers, particularly in confined spaces. Recommendation: Further investigation is required to confirm if the Made Ground soils are impacted by volatile contaminants. Should potentially volatile contamination be identified during the intrusive phase of works, appropriate mitigation measures will be required.		



SOURCE	PATHWAY	RECEPTOR
Asbestos-Containing Materials (ACMs) within Made Ground and infilled features	Fibre/Dust Inhalation	Construction Workers End Users Third-Party Property
Discussion: The site remained undeveloped fields with several ponds until the 1930's when the site was developed to a football/athletic ground with associated pavilion building. The presence of historic field boundaries and ponds across the site which have been infilled are a potential source of asbestos within soils. The former building may have contained ACM which may have resulted in asbestos and ACM within any associated Made Ground. Recommendation: An intrusive site investigation and laboratory analysis are required to determine the presence and quantification of any asbestos in the soils. The risks associated with potential asbestos and ACM within Made Ground can be mitigated through the development of a detailed enabling works strategy following guidance and protocol specified within the <i>Control of Asbestos Regulations (2012)</i> and industry best practice as detailed in <i>CIRIA733 (Asbestos in Soil and Made Ground: A guide to understanding risk)</i>. Construction works completed with PPE and provision of suitable welfare.		
Organic Contaminants such as Hydrocarbons associated with Made Ground	Ingestion of Tainted Water Supply	End Users
Assessment: Low likelihood as no significant contamination is anticipated at pipeline depth across the site (0.75–1.35 m). Recommendation: An intrusive investigation is required to confirm requirements for the proposed water supply.		
Hazardous Ground Gases		
Methane and Carbon Dioxide associated with Possible On-Site Made Ground and Infilled Features onsite and within 250 m	Inhalation Accumulation	Construction Workers End Users
Discussion: Made Ground is anticipated within localised areas of the site from former developments (pavilion and tennis courts). Infilled ponds and field boundaries have been identified from historic mapping which may contain organic soils and putrescible materials which may present a risk of hazardous ground gas production. The underlying drift deposits are anticipated to be sand deposits underlain by clay, therefore where the sand is present, this may provide a preferential pathway for any hazardous ground gases to migrate to the proposed development from infilled features (ponds) and Made Ground. The low-permeability clay will somewhat restrict the migration of hazardous ground gases.		



Carbon dioxide and methane have asphyxiation and explosive risks, respectively, and should the underlying Made Ground soils be actively gassing the risk to construction workers can be mitigated through appropriate management of confined space entry, whereas the risk to future end users can be mitigated through the adoption of appropriate gas protection measures in accordance with BS8485 (Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings (2015+A1:2019)).

Recommendation:

A phase of ground gas monitoring should be completed to determine the level of risk.

Controlled Waters

Mobile Contaminants associated with Made Ground

Vertical/Lateral Migration

Secondary A Aquifer (drift)
Principal Aquifer (bedrock)

Discussion:

No significant sources of mobile contamination have been identified, however contaminants associated with Made Ground and infilled features across the site cannot be discounted, albeit minor.

The presence of sand drift deposits will likely facilitate the downward migration to the secondary A drift aquifer however the underlying low-permeability clay will likely provide some protection to the underlying principal bedrock aquifer which is classified as a high-risk receptor. The sensitivity of the aquifer is reduced given there are no active potable groundwater abstractions within 1km.

Recommendation:

Sampling of groundwater is required to inform a controlled water risk assessment.

Buildings and Infrastructure

pH and Sulphate

Corrosion of Concrete

Foundations/Concrete

Discussion:

Made Ground, particularly infilled ponds and field boundaries across the site may contain ash deposits and elevated pH and sulphate which may result in corrosion of buried concrete within any proposed subsurface structures. Assessment must be undertaken to confirm the levels of pH and sulphate within the underlying strata.

Recommendation:

An intrusive investigation is required.

Ecology

Phytotoxic contaminants (Made Ground)

Plant Uptake

Flora

Discussion:

Although the likelihood is low, contamination may be present within shallow Made Ground which may be taken up by flora in soft landscaping.

Recommendation:

Intrusive investigation to determine risk on a site wide basis. If identified, a cover system may be required within any future proposed landscaped areas.



7. CONCLUSIONS AND RECOMMENDATIONS

7.1. SITE SUMMARY

Current Site Use	The application site extends to approximately 2.22 hectares (ha) and comprises an irregular shaped parcel of land within the administrative boundary of Manchester City Council (Grid Reference – E 382643 / N 394254). The application site comprises two distinct parcels of land, as described below. The part of the site identified for the proposed housing development comprises a roughly rectangular shaped parcel of land, which extends to 2 ha. 354 Wilbraham Road and its associated garage are the only existing buildings/structures within the site boundary. Access to the site is obtained from Wilbraham Road. The housing site is privately owned by GMYF and is secured on all boundaries by fencing and gates aside from 354 Wilbraham Road which is an occupied dwelling. The part of the site identified for ecological enhancement comprises 0.22 ha. The ecological enhancement area is owned by the St Margaret's Centre.
Historical Site Use	Earliest mapping indicates the site was agricultural land with several ponds and field boundaries recorded on site. The site was subsequently developed in the 1930s to form an athletic/football ground with associated pavilion and tennis courts with trees and shrubs recorded around the periphery of the site. The tennis courts were removed in circa 1950 while the pavilion remained on site until the early 2000s. The site's last known use was as playing pitches (primarily football). However, this use ceased in 2016 (more than 5 years ago).
Site Sensitivity	The site is located within a predominantly residential area. The site is within a SSSI Impact Risk Zone however given the proposed development it is not considered the site will pose a risk to a SSSI. The site is not located within a Drinking Water Safeguard Zone or a Groundwater Source Protection Zone. There are no potable groundwater abstraction points within 1.50 km of the site boundary.

7.2. CONTAMINATED LAND ASSESSMENT

Human Health	Where Made Ground is present, there is a risk of heavy metals, PAHs, hydrocarbon compounds and asbestos. Former buildings on-site may have been constructed with ACM and therefore asbestos may be present within Made Ground or demolition waste. Several infilled ponds and field boundaries are recorded on site indicating that substantial depths of Made Ground and soft organic clays are likely present. Due to the unconfirmed nature of the infilled materials, there is a risk of PAHs, hydrocarbon compounds and ACM and where organic materials are present there is a risk of hazardous ground gases.
---------------------	---



	The site is located within a predominantly residential area, therefore limited industrial land uses are present within proximity to the site reducing the risk from off-site contamination.
Controlled Waters	The site is underlain by both a secondary A superficial aquifer and a principal bedrock aquifer, however these are afforded some protection from the recorded glaciofluvial sheet deposits likely comprising low-permeability clay deposits. Given the low likelihood of significant contamination at the subject site, there is considered to be a low risk to groundwater. There are no recorded surface water features within influencing distance of the site therefore there is deemed to be a low risk to surface water.
Ground Gas	There are several recorded infilled features including ponds and field boundaries on site and within 250m of the site which may be a source of Made Ground and organic soils and putrescible materials which could be subject to gassing and the production of hazardous ground gases. Ground gas monitoring has been completed to confirm the ground gas regime at the site, the results are presented within the E3P Phase 2 Geoenvironmental Site Assessment Report (15-811-R2-3, dated November 2022).
Potable Water	There are no significant sources of contamination identified however a full UKWIR assessment should be undertaken across the site to determine the requirements for the proposed development.

7.3. GEOTECHNICAL ASSESSMENT

Geological	No assessment is required for coal mining. Localised organic deposits maybe present in infilled field boundaries and drainage ditches.
Civil and Structural	Where former structures are recorded on site shallow obstructions and former foundations may be present which will required grubbing out in their entirety and backfilling with suitably engineered fill. The presence of several infilled ponds on site indicates that substantial depths of Made Ground with the potential for soft organic clays and putrescible materials. Plots within these areas may required an engineered foundation solution.
Abnormal Foundations	An abnormal engineering solution may be required if/where there is significant thickness of Made Ground / tree influence / soft cohesive deposits.

END OF REPORT



APPENDIX I

LIMITATIONS

1. This report and its findings should be considered in relation to the terms of reference and objectives agreed between E3P and the client as indicated in Section 1.3.
2. For the work, reliance has been placed on publicly available data obtained from the sources identified. The information is not necessarily exhaustive and further information relevant to the site may be available from other sources. When using the information it has been assumed it is correct. No attempt has been made to verify the information.
3. This report has been produced in accordance with current UK policy and legislative requirements for land and groundwater contamination which are enforced by the local authority and the Environment Agency. Liabilities associated with land contamination are complex and requires advice from legal professionals.
4. During the site walkover, reasonable effort has been made to obtain an overview of the site conditions. However, during the site walkover, no attempt has been made to enter areas of the site that are unsafe or present a risk to health and safety, are locked, barricaded, overgrown, or the location of the area has not been made known or accessible.
5. Access considerations, the presence of services and the activities being carried out on the site limited the locations where sampling locations could be installed and the techniques that could be used.
6. Site sensitivity assessments have been made based on available information at the time of writing and are ultimately for the decision of the regulatory authorities.
7. Where mention has been made to the identification of Japanese Knotweed and other invasive plant species and asbestos or asbestos-containing materials, this is for indicative purposes only and do not constitute or replace full and proper surveys.
8. The executive summary, conclusions and recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon without considering the context of the report in full.
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10. New information, revised practices or changes in legislation may necessitate the re-interpretation of the report, in whole or in part.



APPENDIX II

GLOSSARY

TERMS

ACM	Asbestos-containing material	MMP	Materials management plan
ADS	Acoustic design statement	ND	Not detected
AST	Above-ground storage tank	NDP	Nuclear density probe
BGS	British Geological Survey	NMP	Noise management plan
BSI	British Standards Institute	NPSE	Noise policy statement for England
BTEX	Benzene, toluene, ethylbenzene, xylenes	NR	Not recorded
CA	Coal Authority	PAH	Polycyclic aromatic hydrocarbon
CBR	California bearing ratio	PCB	Polychlorinated biphenyl
CIEH	Chartered Institute of Environmental Health	PI	Plasticity index
CIRIA	Construction Industry Research Association	PID	Photo ionisation detector
CLEA	Contaminated land exposure assessment	POS	Public open space
CML	Council of Mortgage Lenders	PPE	Personnel protective equipment
CoC	Contaminants of concern	ProPG	Professional practice guidance
CSM	Conceptual site model	QA	Quality assurance
DNAPL	Dense non-aqueous phase liquid (chlorinated solvents, PCB)	SGV	Soil guideline value
DWS	Drinking water standard	SPH	Separate-phase hydrocarbon
EA	Environment Agency	SPT	Standard penetration test
EQS	Environmental quality standard	SVOC	Semi-volatile organic compound
FFL	Finished floor level	TPH	Total and speciated petroleum hydrocarbon
GAC	General assessment criteria	TPH CWG	Total Petroleum Hydrocarbon (Criteria Working Group)
GL	Ground level	UKWIR	United Kingdom Water Infrastructure Risk
GSV	Gas screening value	UST	Underground storage tank
HCV	Health criteria value	VCC	Vibro-concrete column
ICSM	Initial conceptual site model	VOC	Volatile organic compound
LEL	Lower explosive limit	VRSC	Vibro-replacement stone columns
LMRL	Lower method reporting limit	VSC	Vibro-stone columns
LNAPL	Light non-aqueous phase liquid (petrol, diesel, kerosene)	WHO	World Health Organisation
MCV	Moisture condition value	WRAP	Waste and Resources Action Programme



Land off Wilbraham Road, Chorlton, Manchester

Phase I Geoenvironmental Site Assessment

November 2022

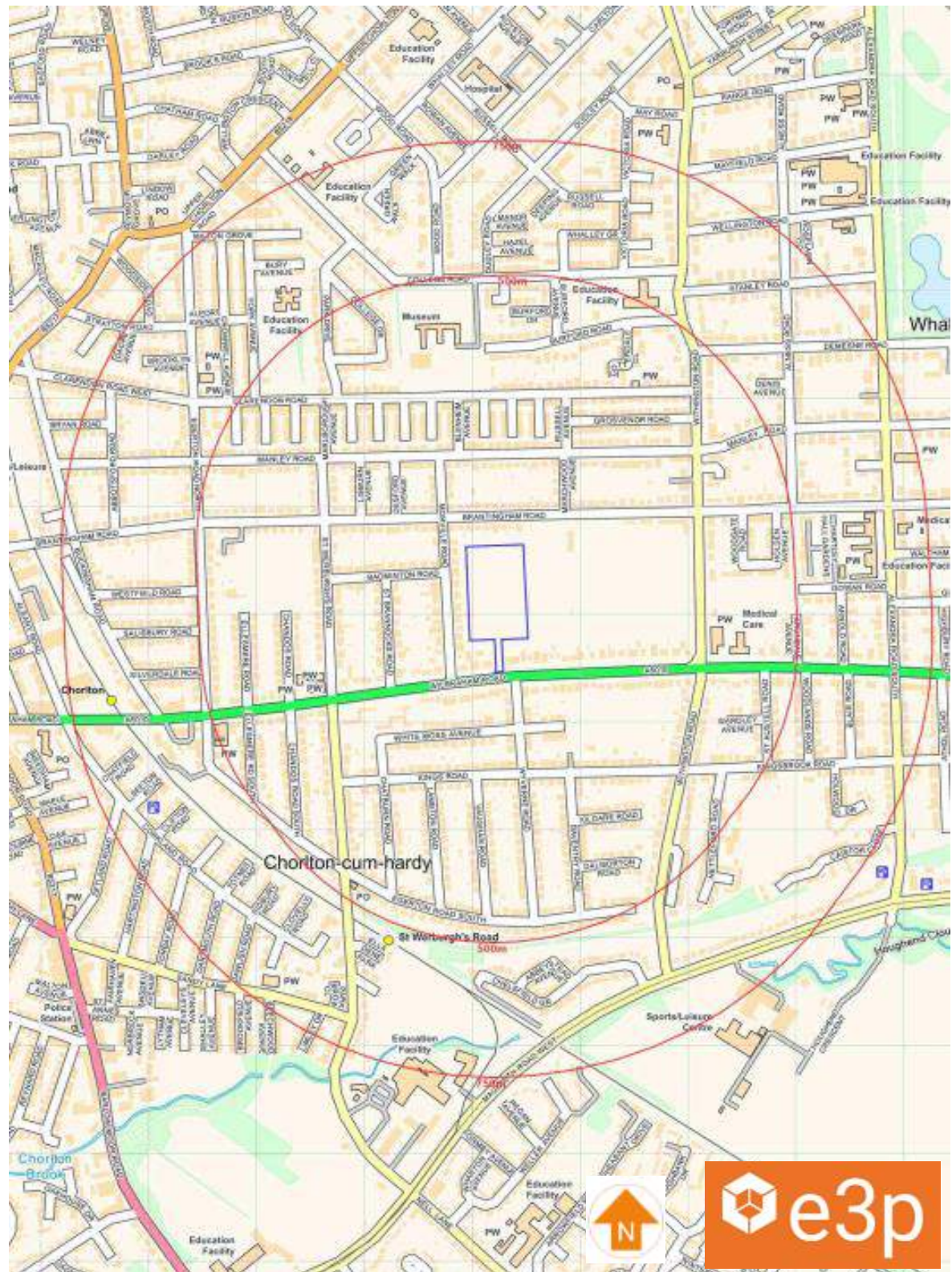
MIBK	Methyl isobutyl ketone	WTE	Water table elevation
m	Metres	ppm	Parts per million
km	Kilometres	mg/m³	Milligram per metre cubed
% v/v	Percent volume in air	m bgl	Metres below ground level
mb	Millibars (atmospheric pressure)	m bcl	Metre below cover level
l/hr	Litres per hour	mAOD	Metres above ordnance datum (sea level)
µg/l	Micrograms per litre (parts per billion)	kN/m²	Kilonewtons per metre squared
ppb	Parts per billion	µm	Micrometre
mg/kg	Milligrams per kilogram (parts per million)	SSRT	Site Specific Remediation Target
PSD	Particle Size Distribution	DD	Dry Density
CL:AIRE	Contaminated Land: Applications in Real Environments	Mc	Moisture Content
ρ	Bulk Density	GPR	Ground Penetrating Radar
NDP	Nuclear Density Probe	FFL	Finished Floor Level
LEL	Lower Explosive Limit	UKWIR	UK Water Industry Research
CIRIA	Construction Industry Research and Information Association	LOD	Limit of Detection

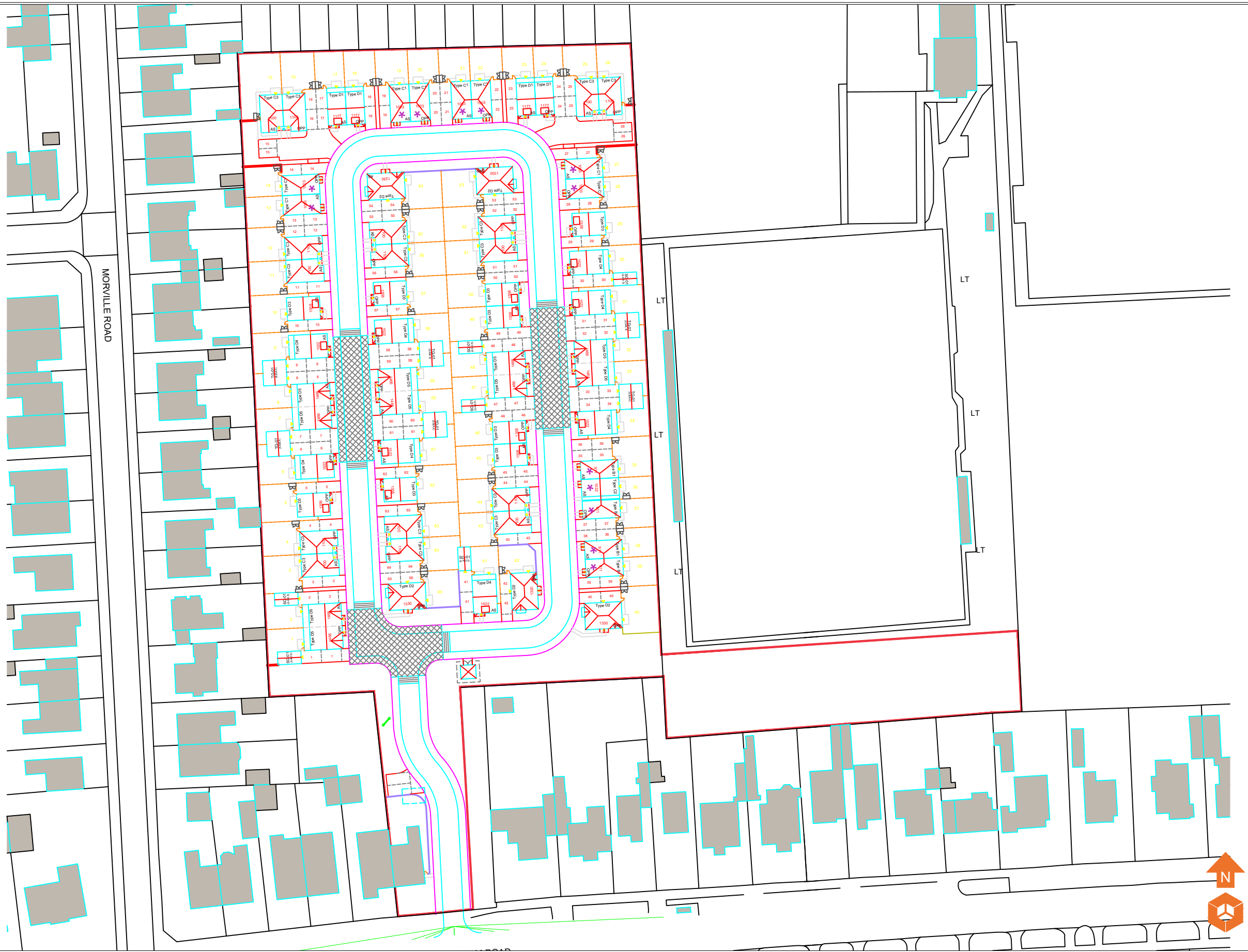


APPENDIX III

DRAWINGS

DRAWING 15-811-001 – SITE LOCATION PLAN





Notes:				
P1	REVC	24.11.2022	HM	BH
P1	REVB	03.10.2022	CB	BH
P1	REVA	31.03.2022	CB	BH
Phase	Issue	Date	Drawn	Checked

Client:
Anwyl Homes
Job Title:
Land off Wilbraham Road, Chorlton

Job No:
15-811
Drawing No:
002
Date:
24.11.2022
Scale:
NTS
Drawing Title:
Proposed Development Plan



Environmental Engineering
Partnership Ltd
Taylor Road, Trafford Park
Urmston, Manchester, M41 7JQ
Tel: 0161 707 9612
E-mail: info@e3p.co.uk
Website: www.e3p.co.uk

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Site Features Field - Rough Grass Access Gate Hedgerows Hardstanding Mature and Semi Mature Trees Pallisade Fence	Notes:	Client: Anwyl Homes	Job No: 15-811	Date: 31.03.2022	e3p Environmental Engineering Partnership Ltd Taylor Road, Trafford Park Urmston, Manchester, M41 7JQ Tel: 0161 707 9612 E-mail: info@e3p.co.uk Website: www.e3p.co.uk
P1 REVA 31.03.2022 CB BH Phase Issue Date Drawn Checked	Job Title: Land off Wilbraham Road, Chorlton	Drawing No: 004	Scale: NTS	Drawing Title: Site Features Plan	The client must not amend any drawing, design or other intellectual property produced by E3P Ltd without permission in writing from E3P Ltd in advance of any amendments being made. In the event that such written permission is not obtained in advance of the amendments being made, E3P Ltd shall not be liable for any damage and/or losses occurring as a result of the amended drawing, design or intellectual property.

APPENDIX IV PHOTOGRAPHS

PLATE 1 VIEW OF SITE ACCESS FROM WILBRAHAM ROAD FACING NORTH



PLATE 2 VIEW OF SITE FACING NORTH



PLATE 3 MATURE AND SEMI-MATURE TREES AROUND THE SOUTHERN PERIPHERY



PLATE 4 VIEW OF THE SITE FACING SOUTH



APPENDIX V

HISTORICAL MAPS

Site Details:

Lane off Wilbraham
Road, Chorlton,
Manchester

Client Ref: 15811-000993
Report Ref: GS-8604266
Grid Ref: 382645, 394210

Map Name: County Series

Map date: 1897

Scale: 1:10,560

Printed at: 1:10,560



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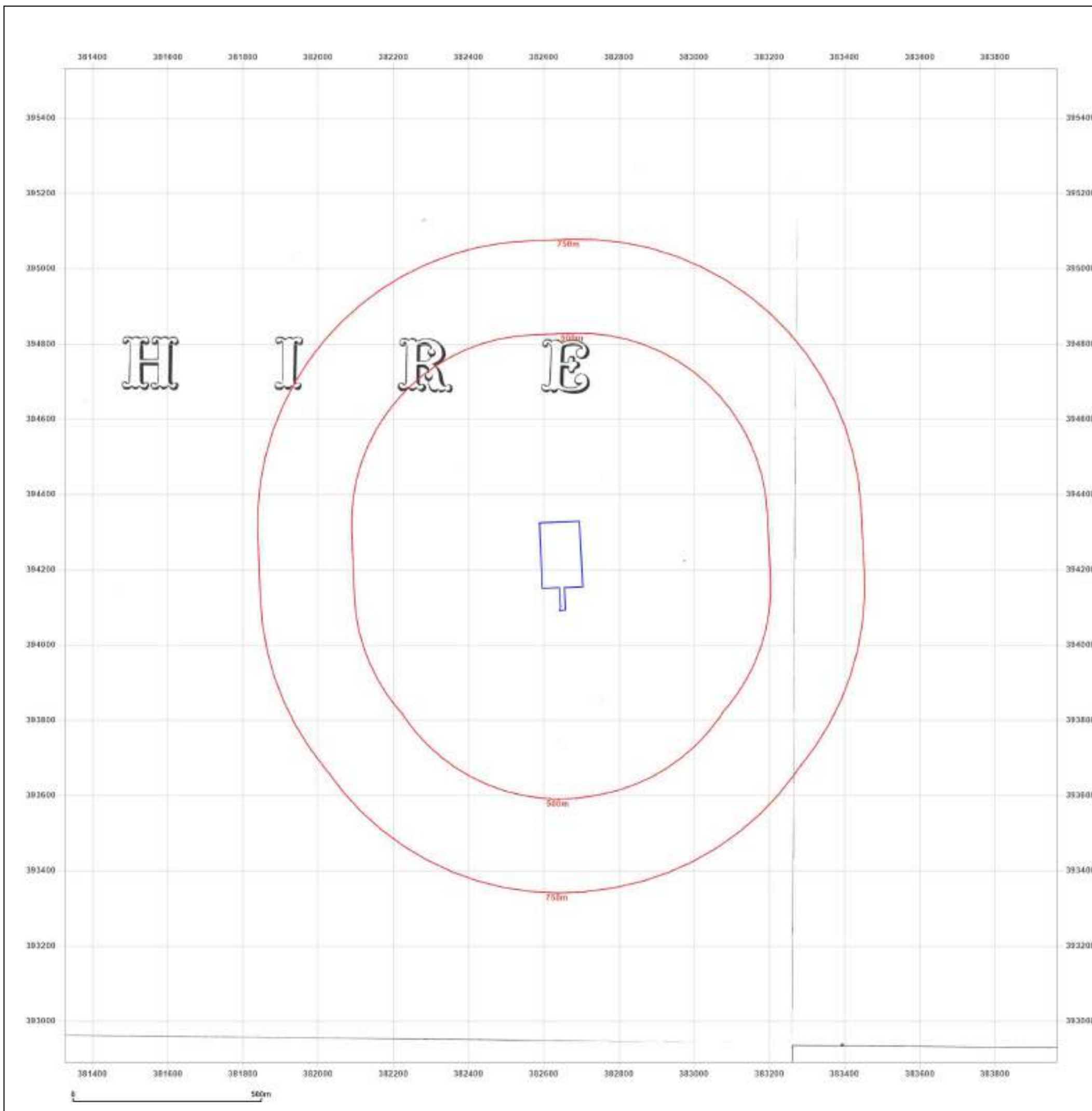


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Site Details:

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Report Ref: GS-8604266
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Map date: 1905

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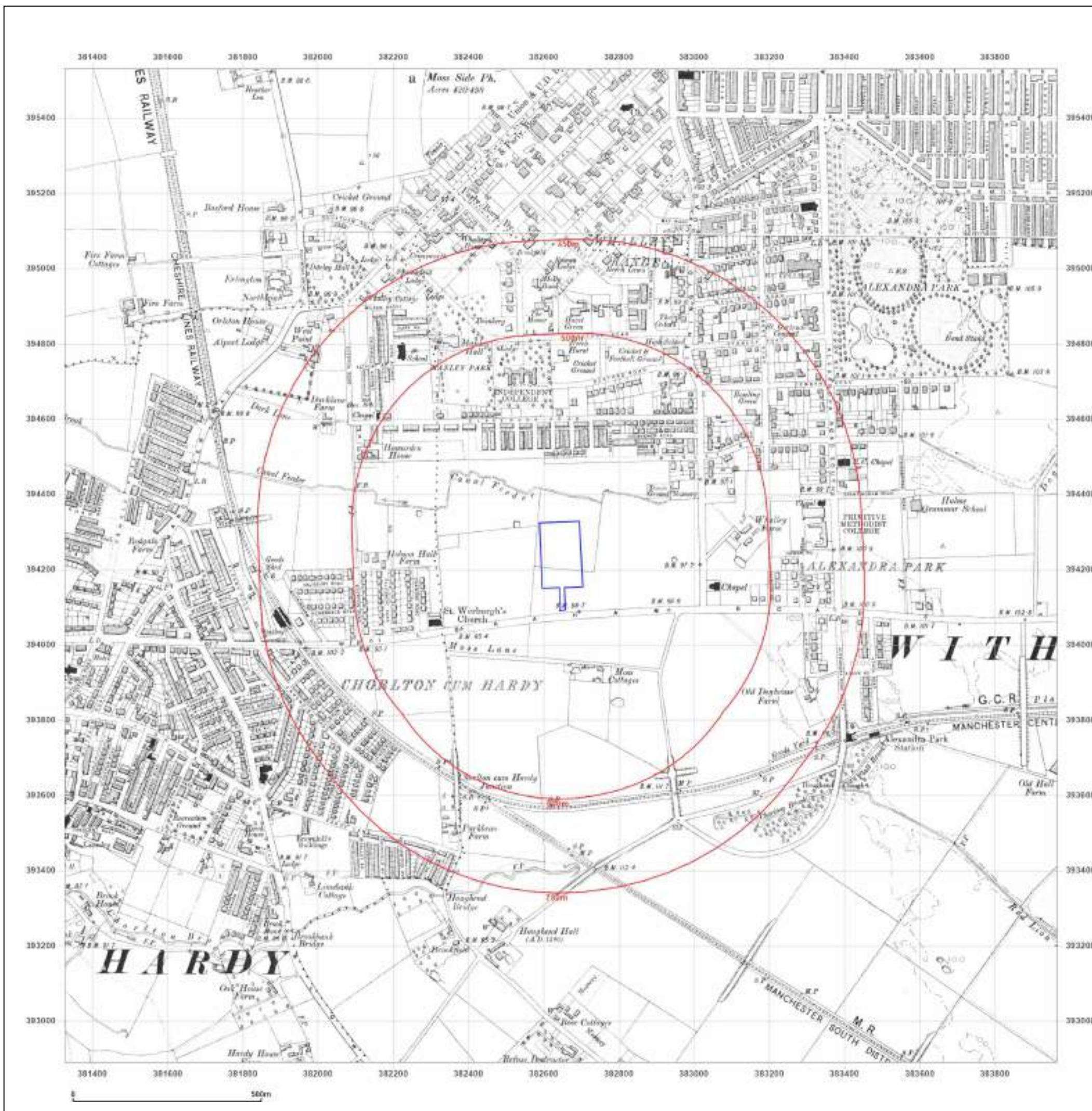


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Report Ref: GS-8604266
Grid Ref: 382645, 394210

Map Name: County Series

Map date: 1908-1911

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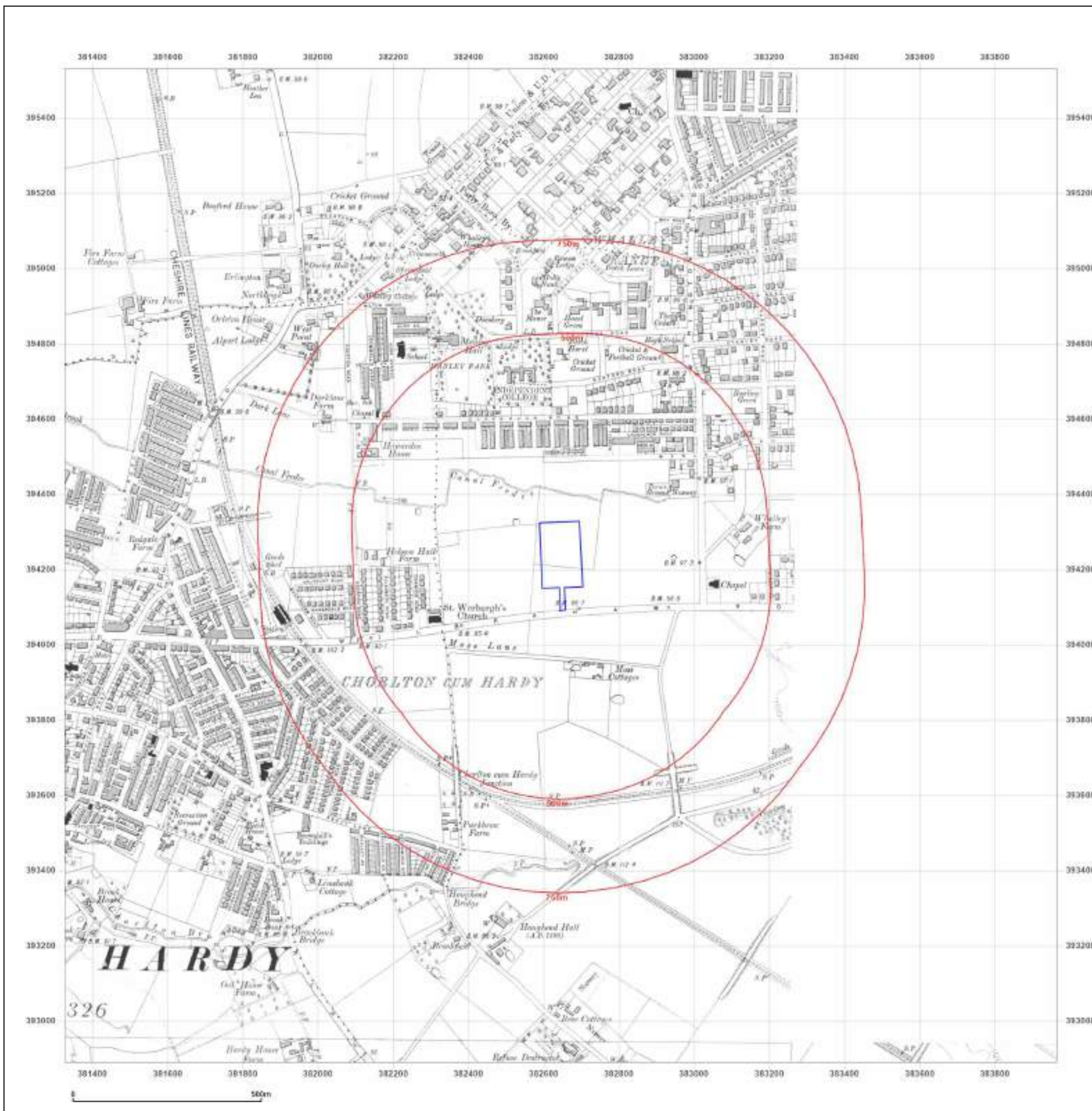


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Report Ref: GS-8604266
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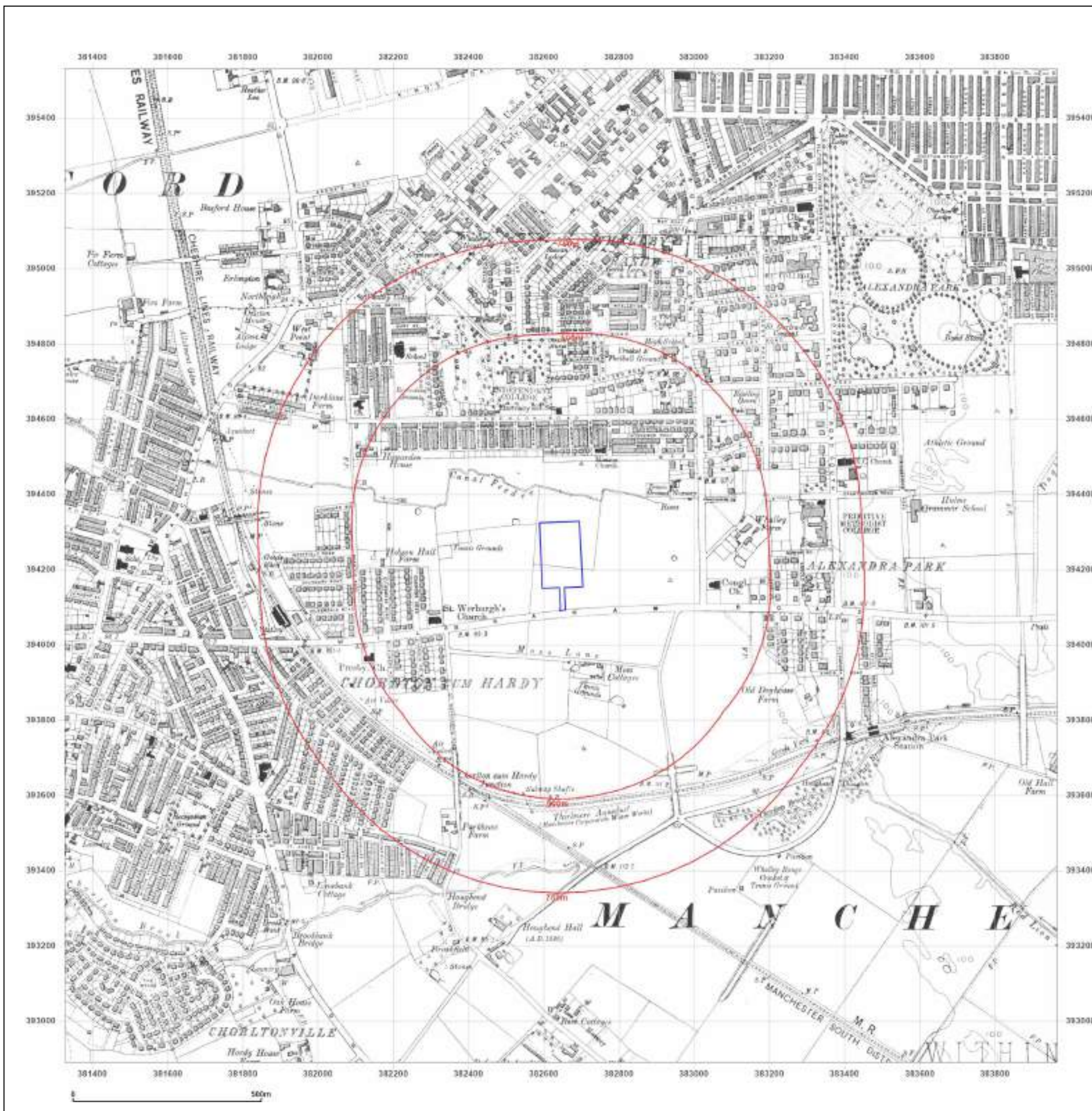


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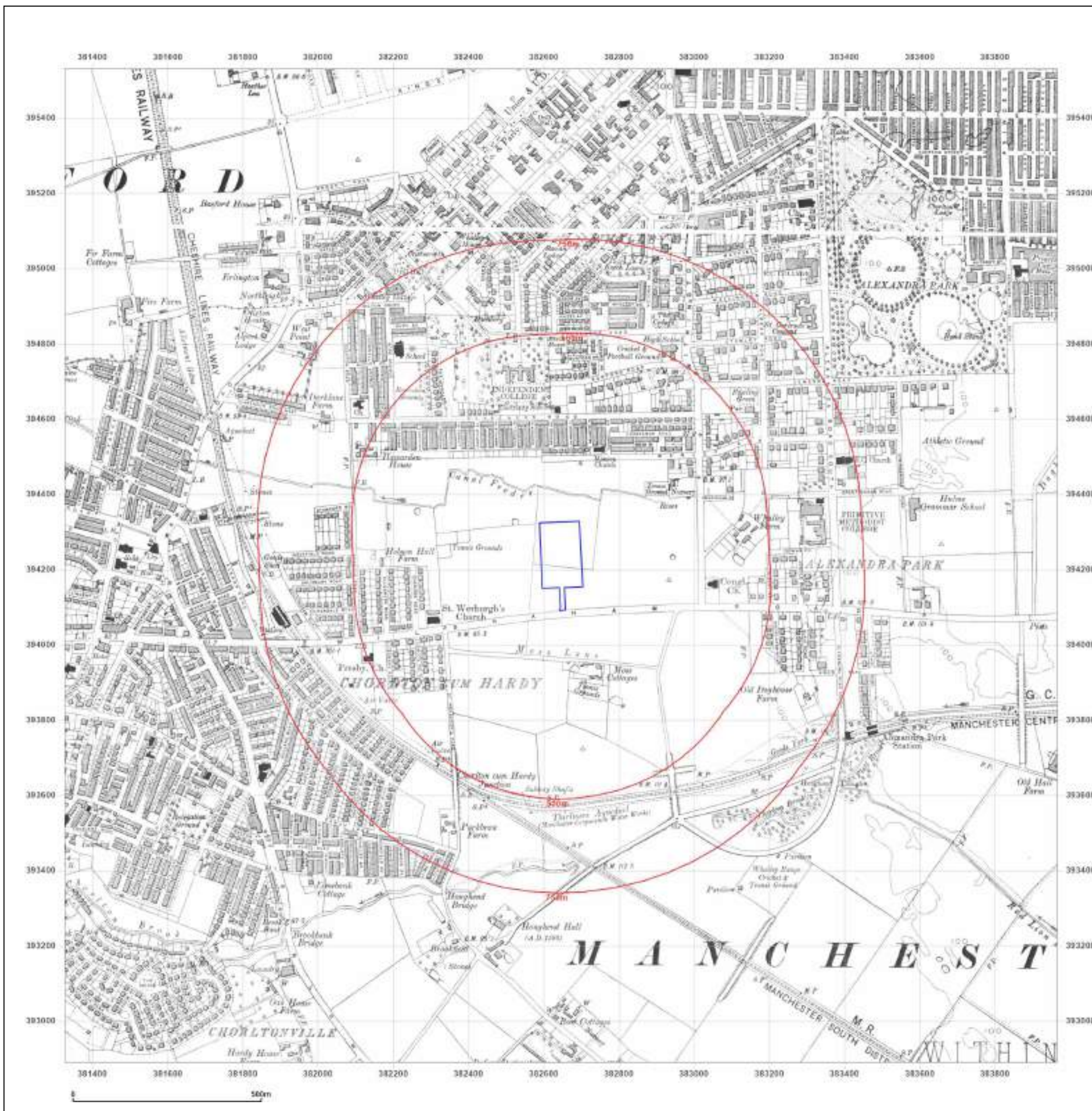


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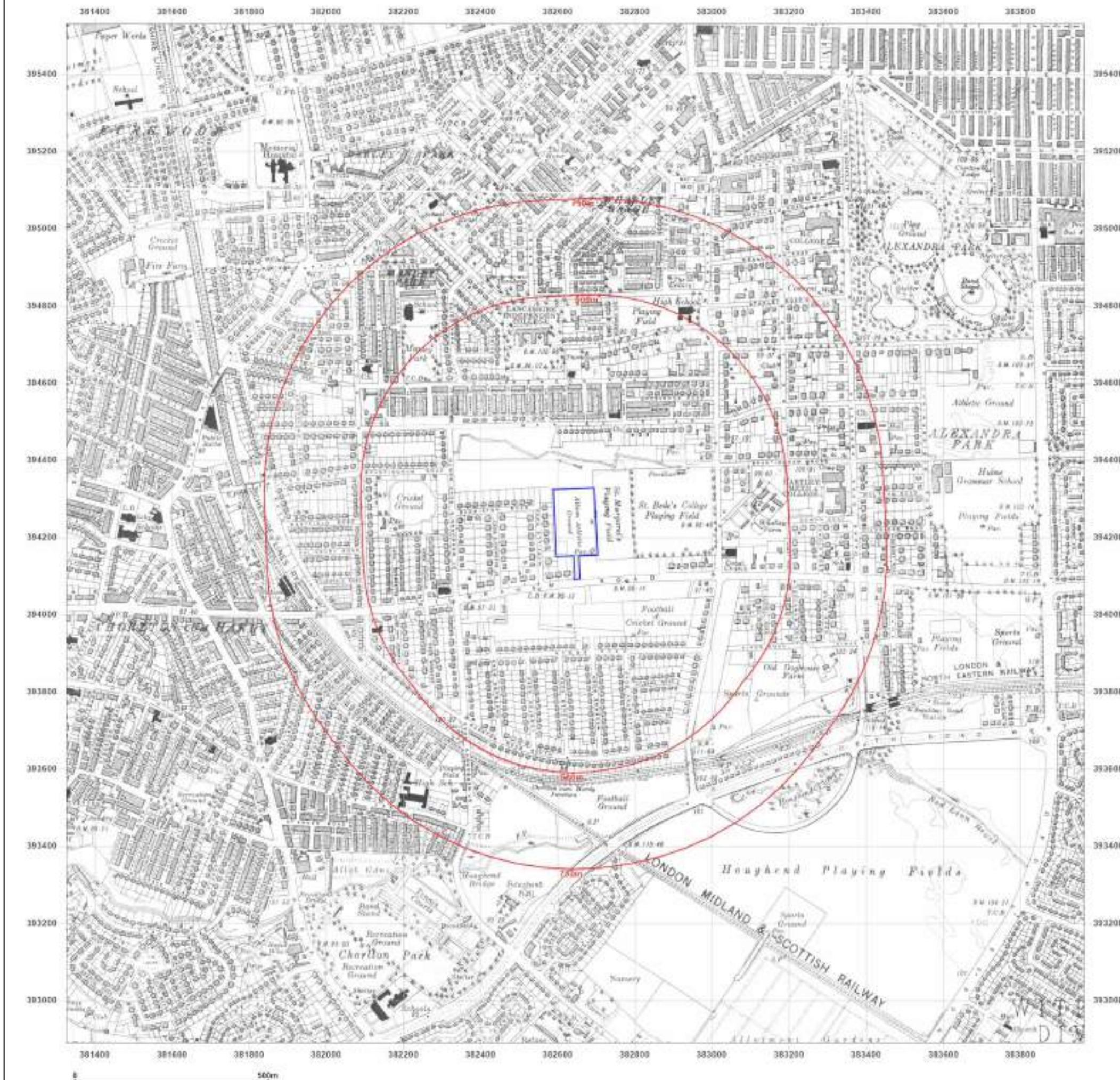


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Manchester

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Report Ref: GS-8604266
Grid Ref: 382645, 394210

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Revised 1838
Edition 1838
Copyright N/A
Levelled 1927

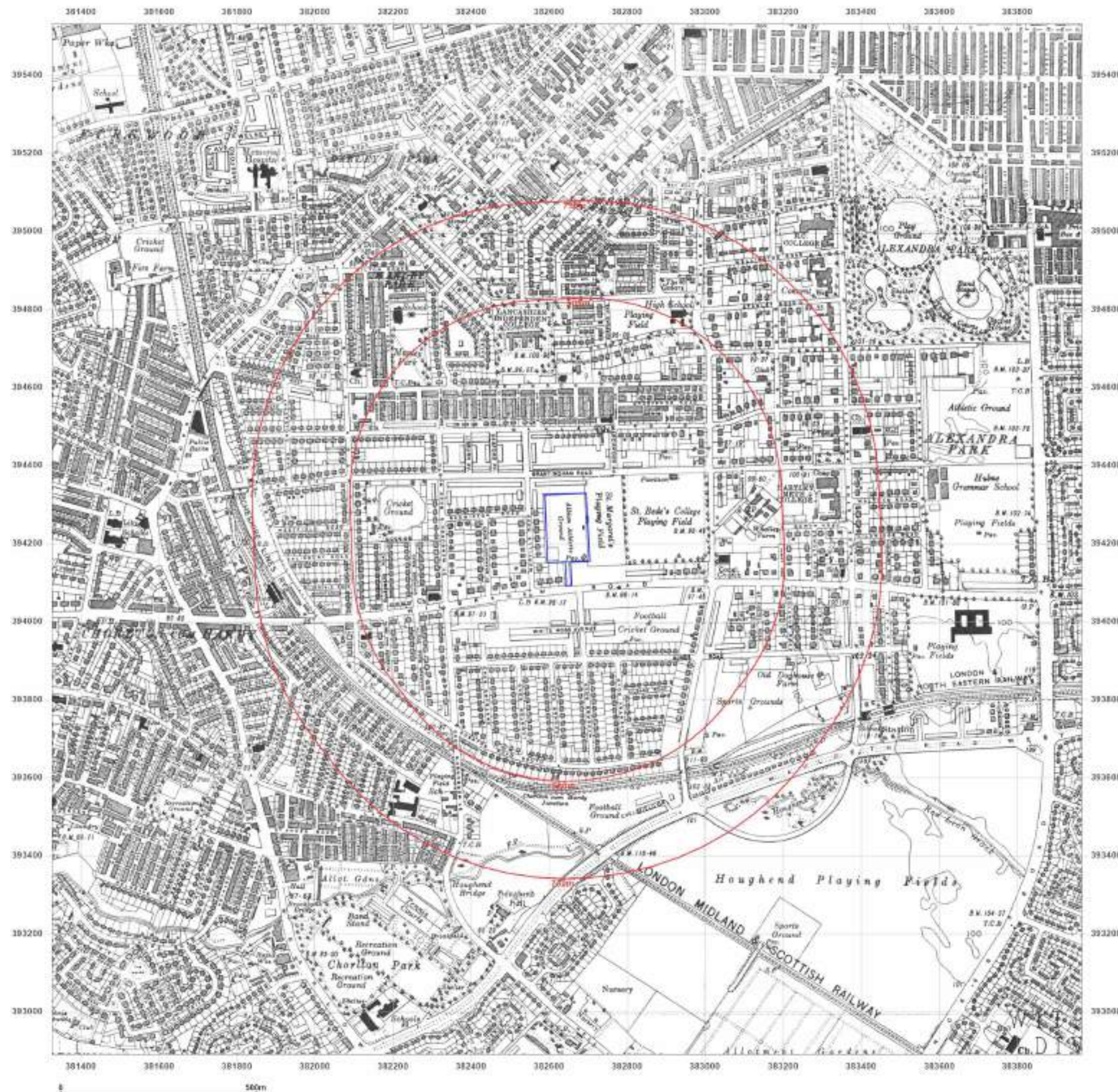


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Site Details:

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Manchester

Client Ref: 15811-000993
Report Ref: GS-8604266
Grid Ref: 382645, 394210

Map Name: Provisional

Map date: 1955-1956

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1956
Revised 1956
Edition N/A
Copyright 1958
Levelled N/A

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

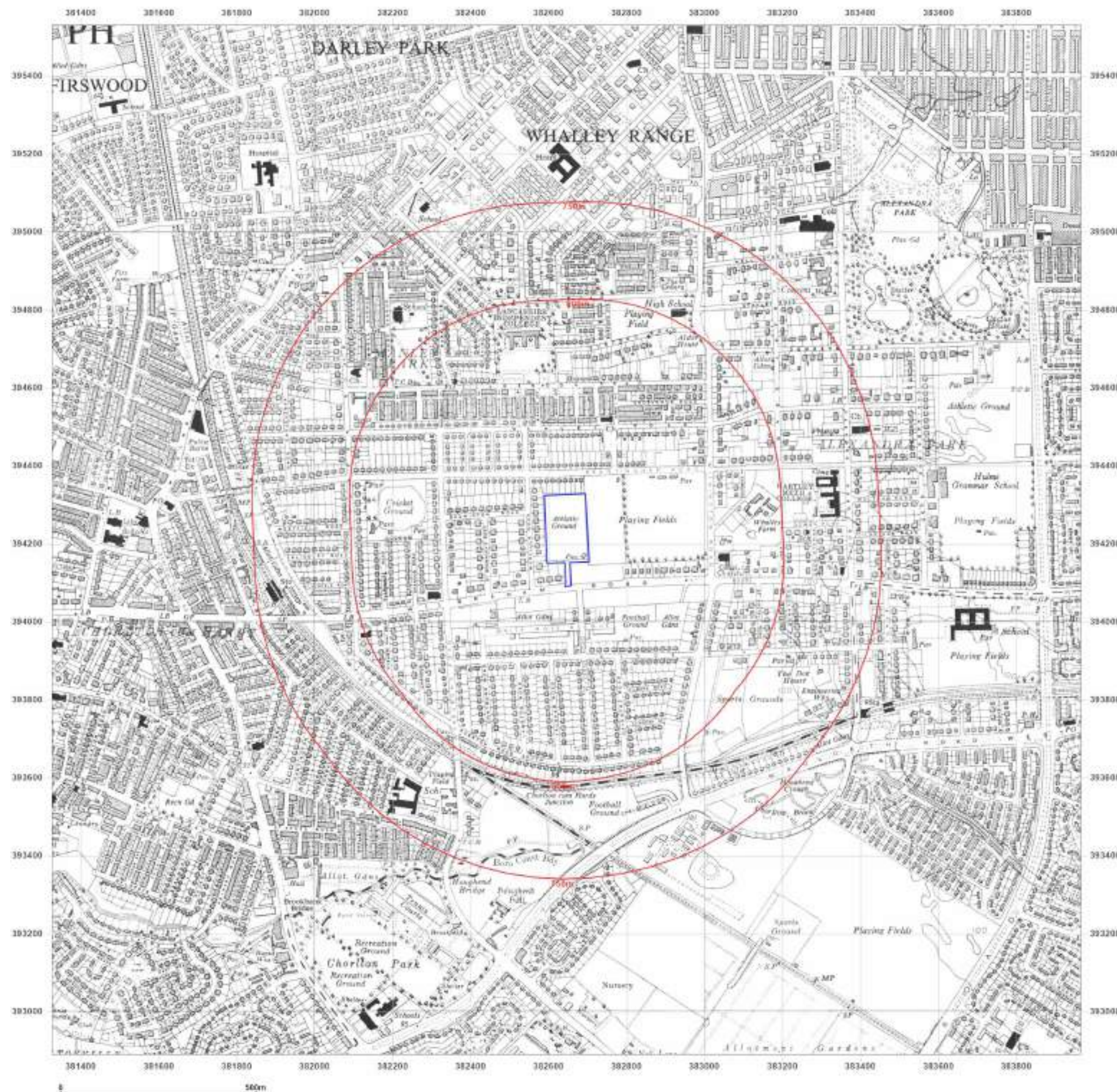


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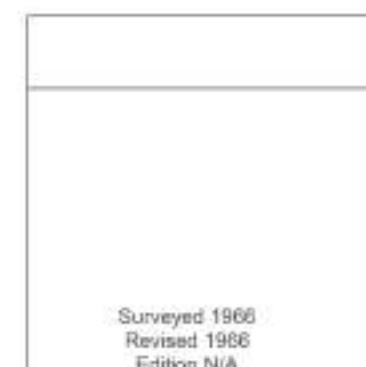
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Report Ref: GS-8604266
Grid Ref: 382645, 394210

Map Name: Provisional

Map date: 1966

Scale: 1:10,560

Printed at: 1:10,560

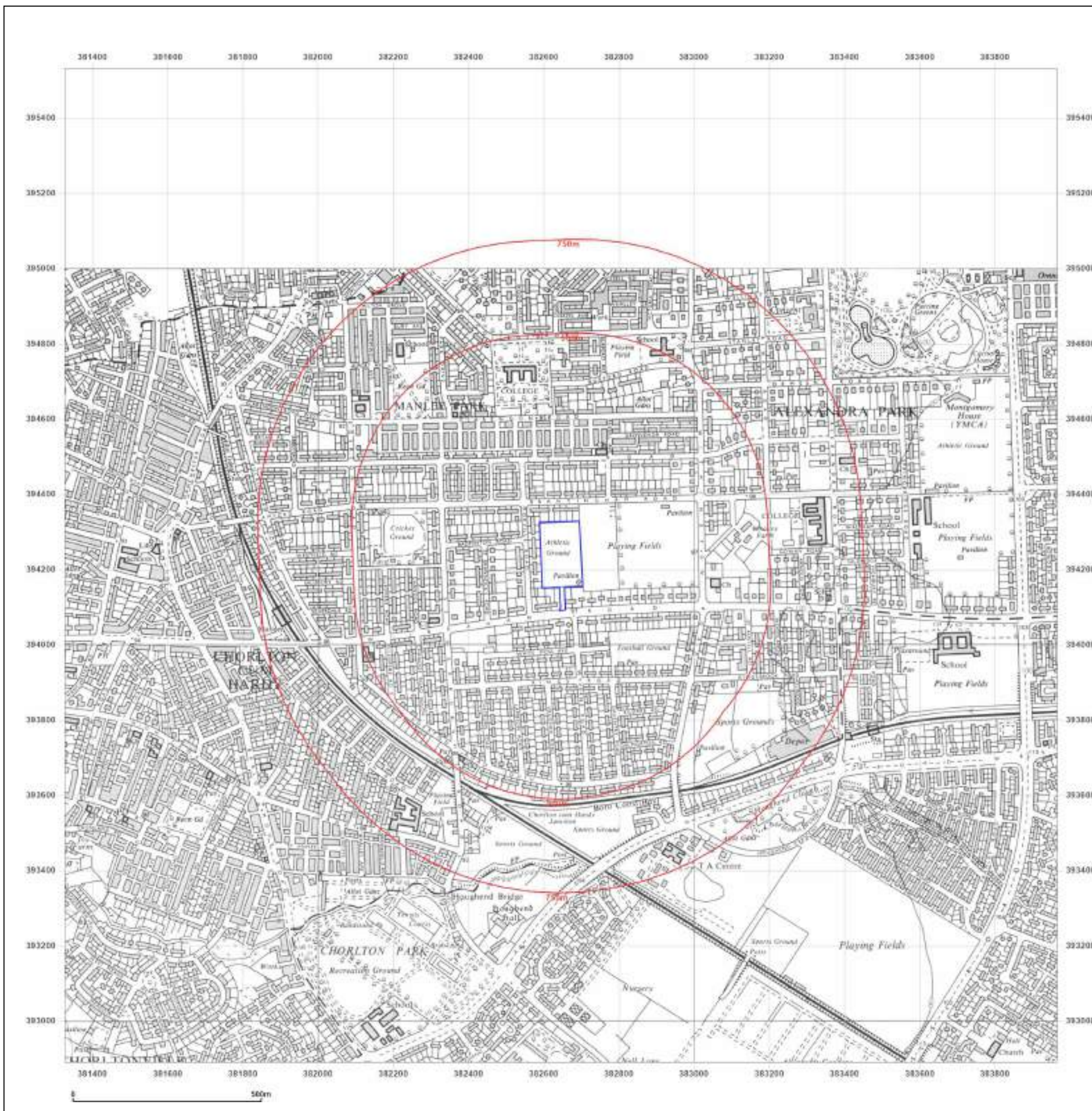


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Client Ref: 15811-000993
Report Ref: GS-8604266
Grid Ref: 382645, 394210

Map Name: National Grid

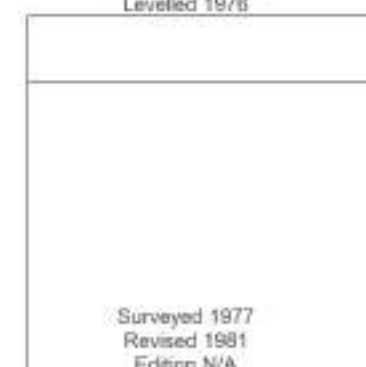
Map date: 1980-1981

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1978
Revised 1980
Edition N/A
Copyright 1980
Levelled 1978



Surveyed 1977
Revised 1981
Edition N/A
Copyright 1981
Levelled 1978

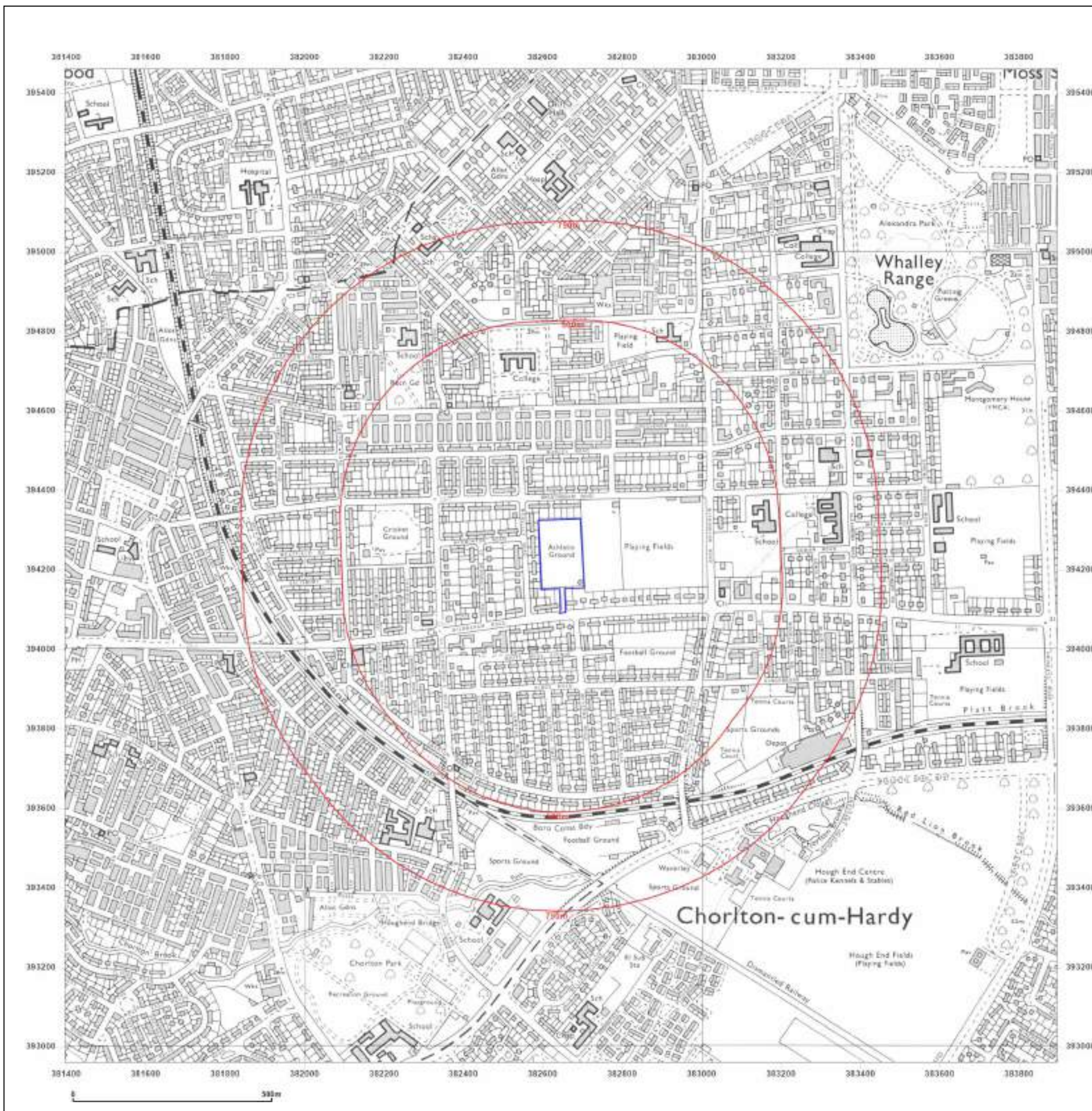


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Client Ref: 15811-000993
Report Ref: GS-8604266
Grid Ref: 382645, 394210

Map Name: National Grid

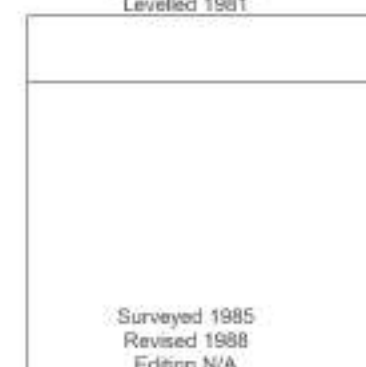
Map date: 1985-1988

Scale: 1:10,000

Printed at: 1:10,000



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



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

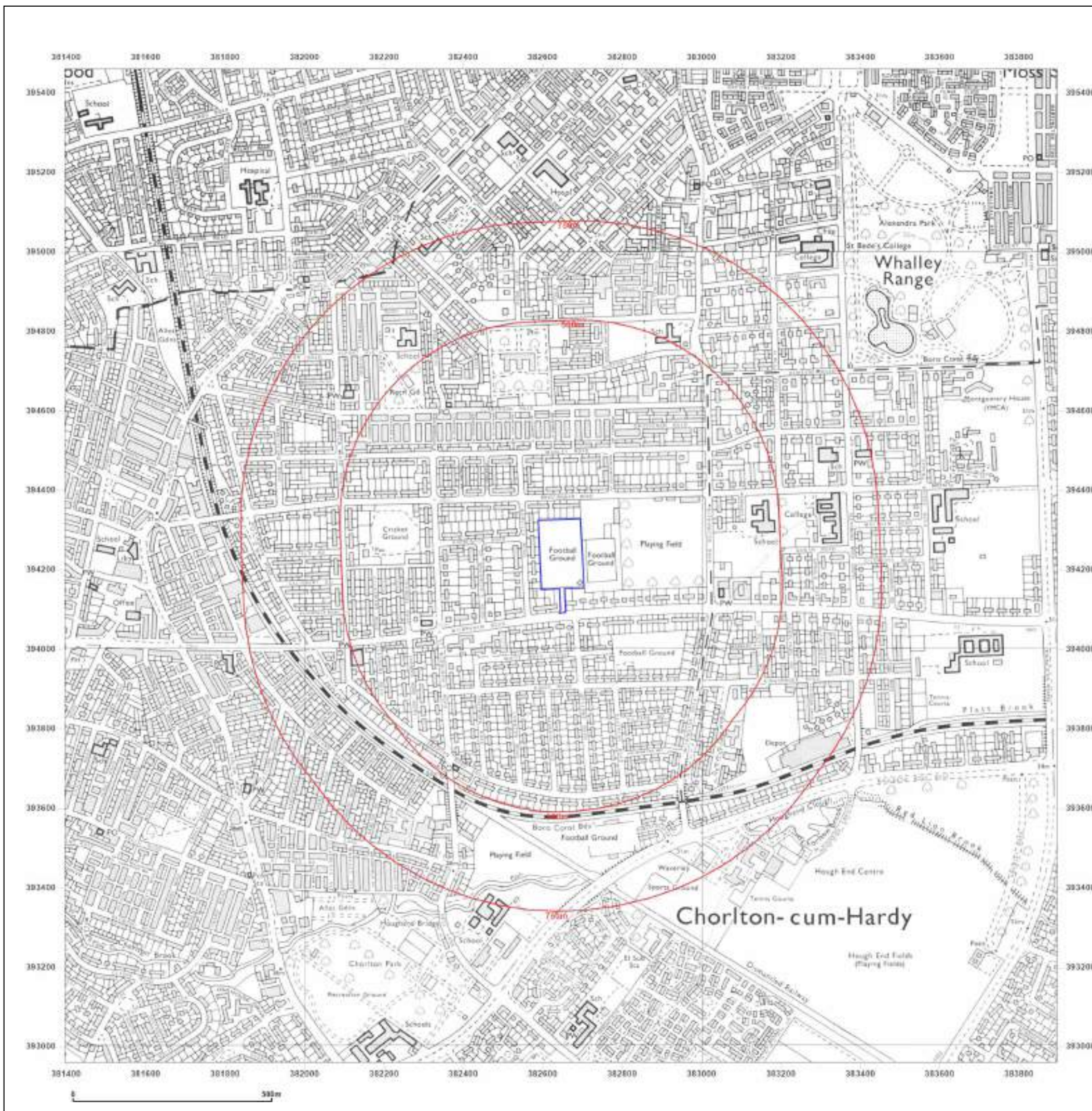


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Site Details:

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Manchester

Client Ref: 15811-000993
Report Ref: GS-8604266
Grid Ref: 382645, 394210

Map Name: National Grid

Map date: 2001

Scale: 1:10,000

Printed at: 1:10,000



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Client Ref: 15811-000993
Report Ref: GS-8604266
Grid Ref: 382645, 394210

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000



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Client Ref: 15811-000993
Report Ref: GS-8604266
Grid Ref: 382645, 394210

Map Name: National Grid

Map date: 2022

Scale: 1:10,000

Printed at: 1:10,000

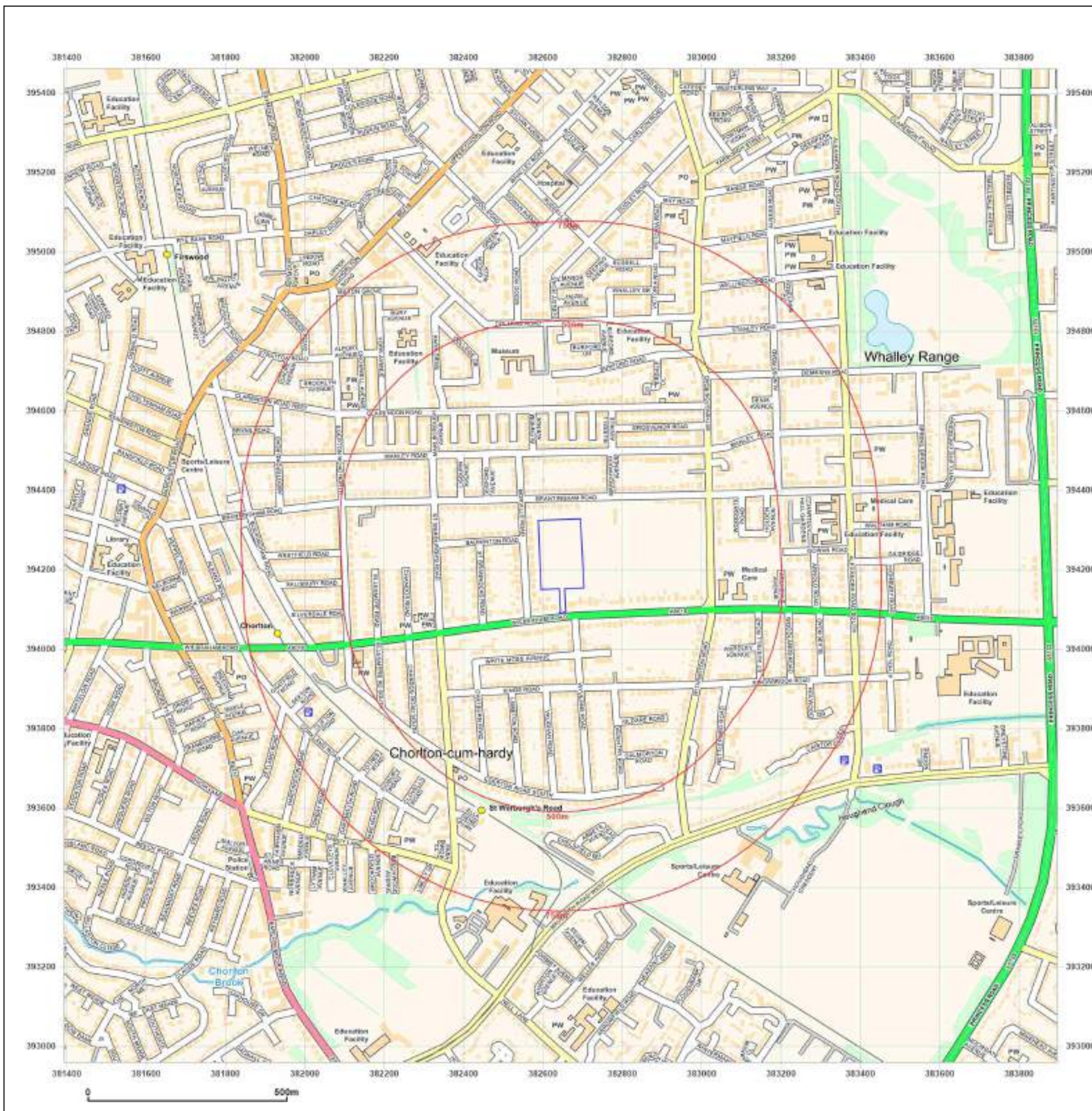


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Site Details:

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Manchester

Client Ref: 15811-000993
Report Ref: GS-8604266
Grid Ref: 382645, 394210

Map Name: County Series

Map date: 1881

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1881
Revised N/A
Edition 1881
Copyright N/A
Levelled N/A

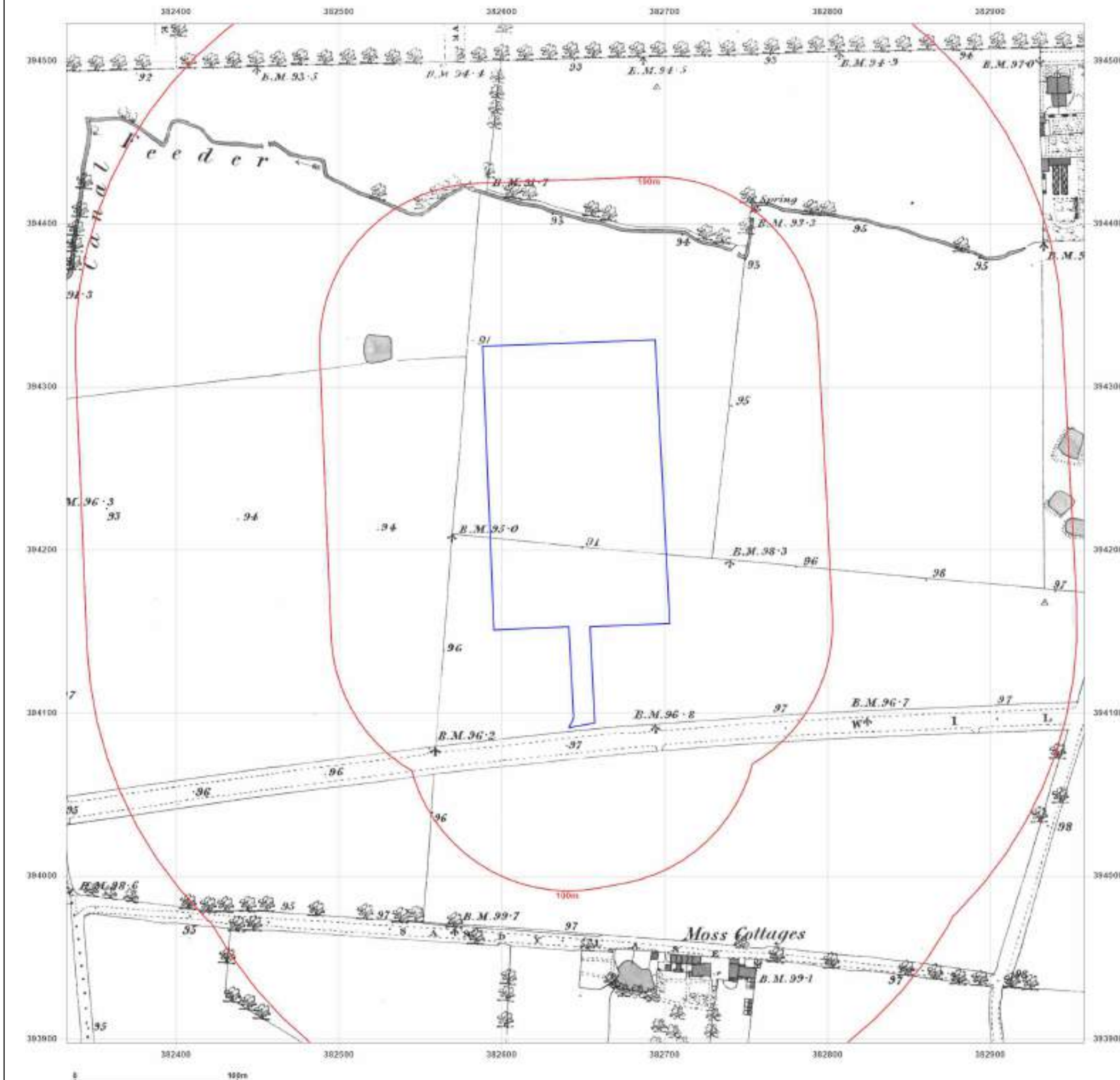


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Site Details:

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Client Ref: 15811-000993
Report Ref: GS-8604266
Grid Ref: 382645, 394210

Map Name: County Series

Map date: 1894

Scale: 1:2,500

Printed at: 1:2,500



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

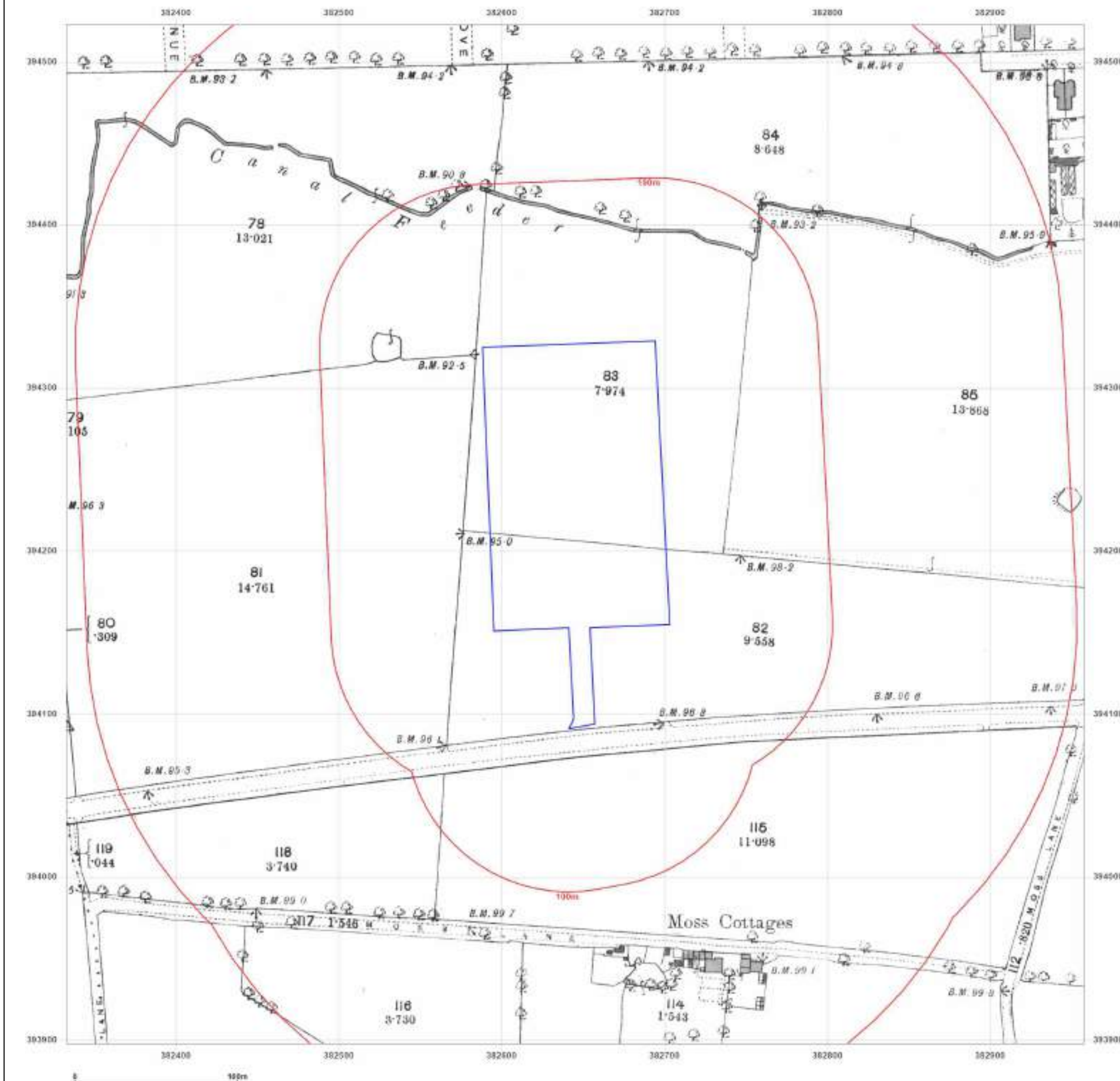


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Site Details:

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Manchester

Client Ref: 15811-000993
Report Ref: GS-8604266
Grid Ref: 382645, 394210

Map Name: County Series

Map date: 1907

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1891
Revised 1905
Edition 1907
Copyright N/A
Levelled N/A

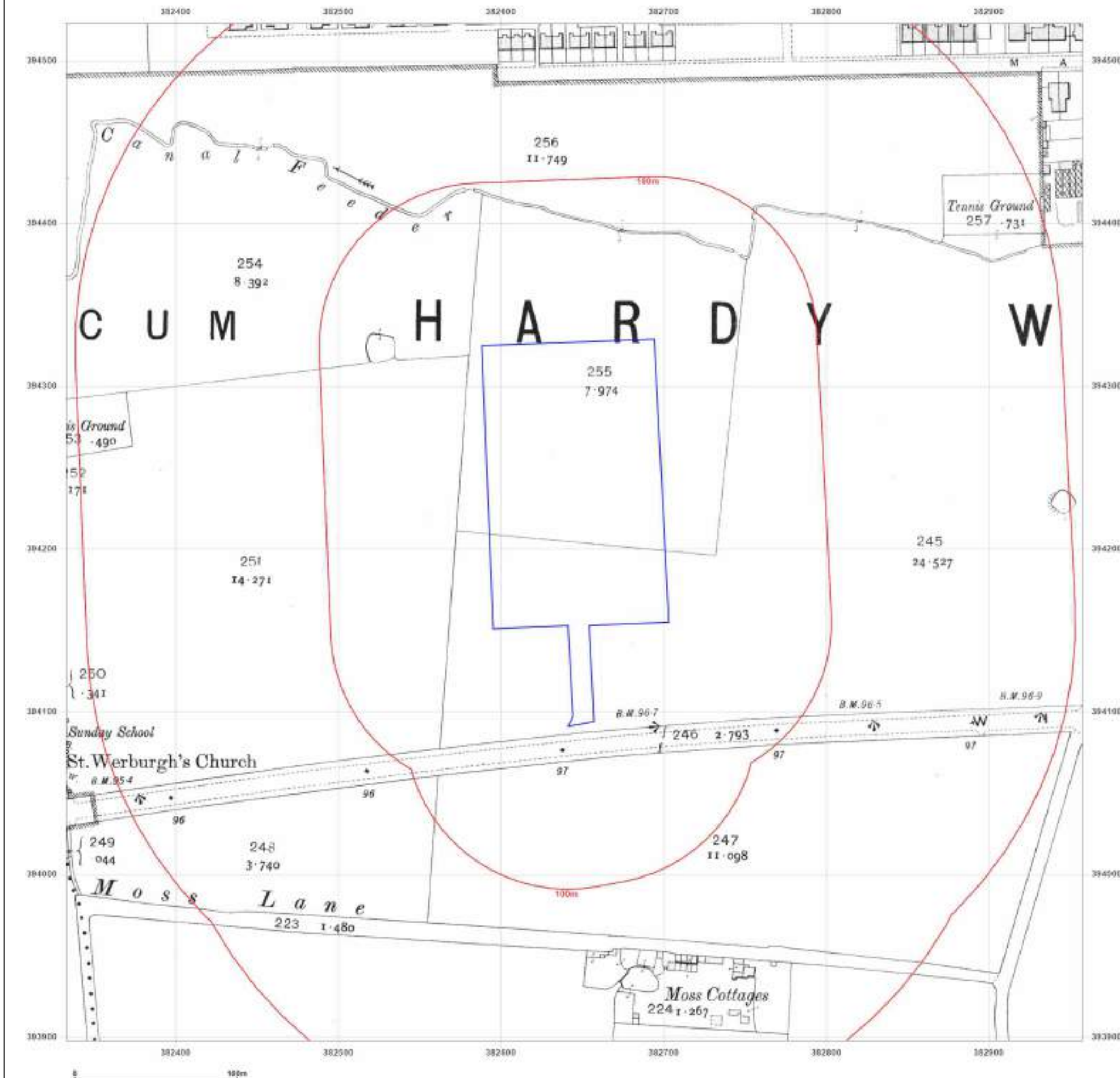


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Site Details:

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Road, Chorlton,
Manchester

Client Ref: 15811-000993
Report Ref: GS-8604266
Grid Ref: 382645, 394210

Map Name: County Series

Map date: 1922

Scale: 1:2,500

Printed at: 1:2,500



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

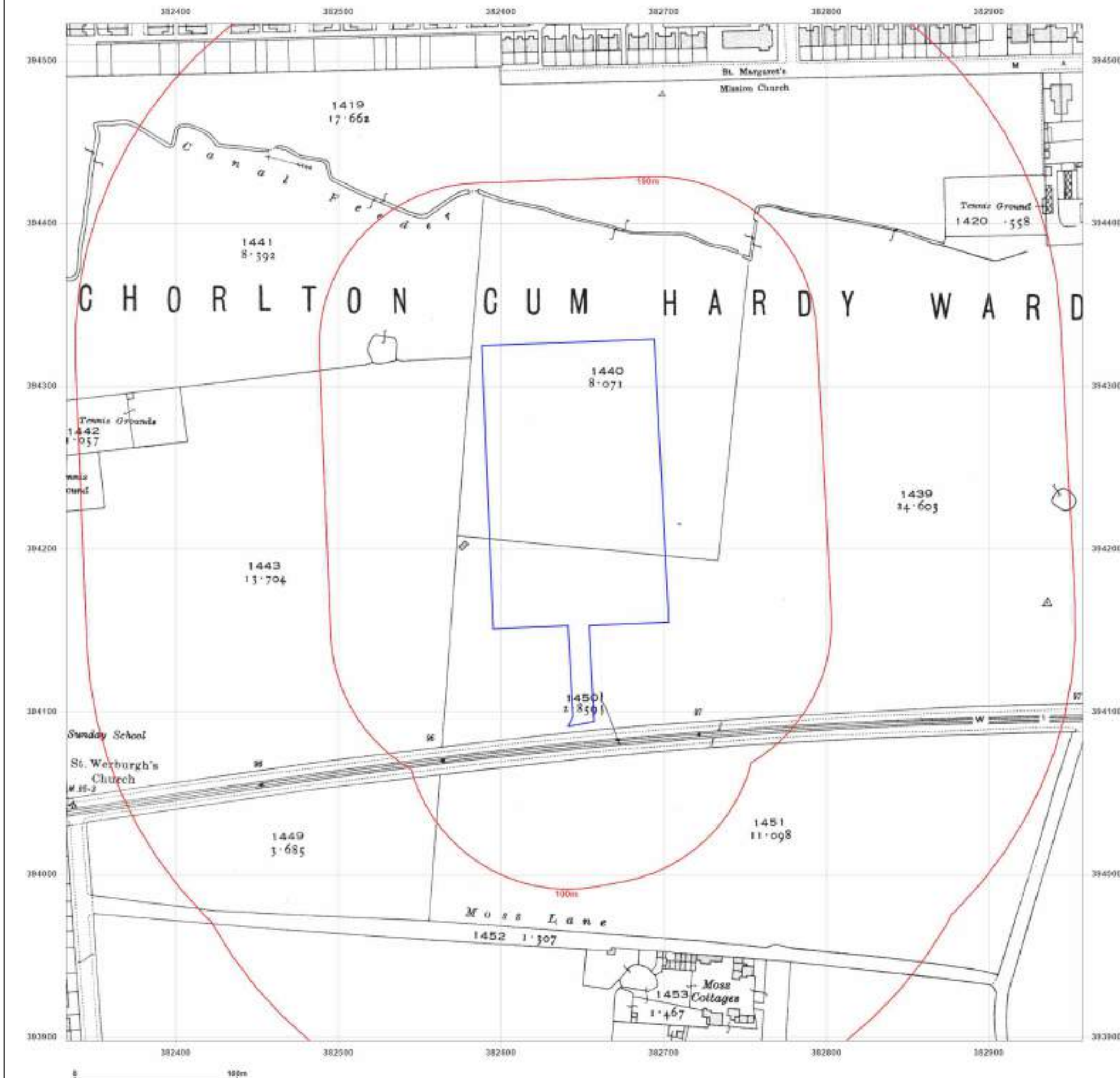


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Site Details:

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Client Ref: 15811-000993
Report Ref: GS-8604266
Grid Ref: 382645, 394210

Map Name: County Series

Map date: 1933

Scale: 1:2,500

Printed at: 1:2,500



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

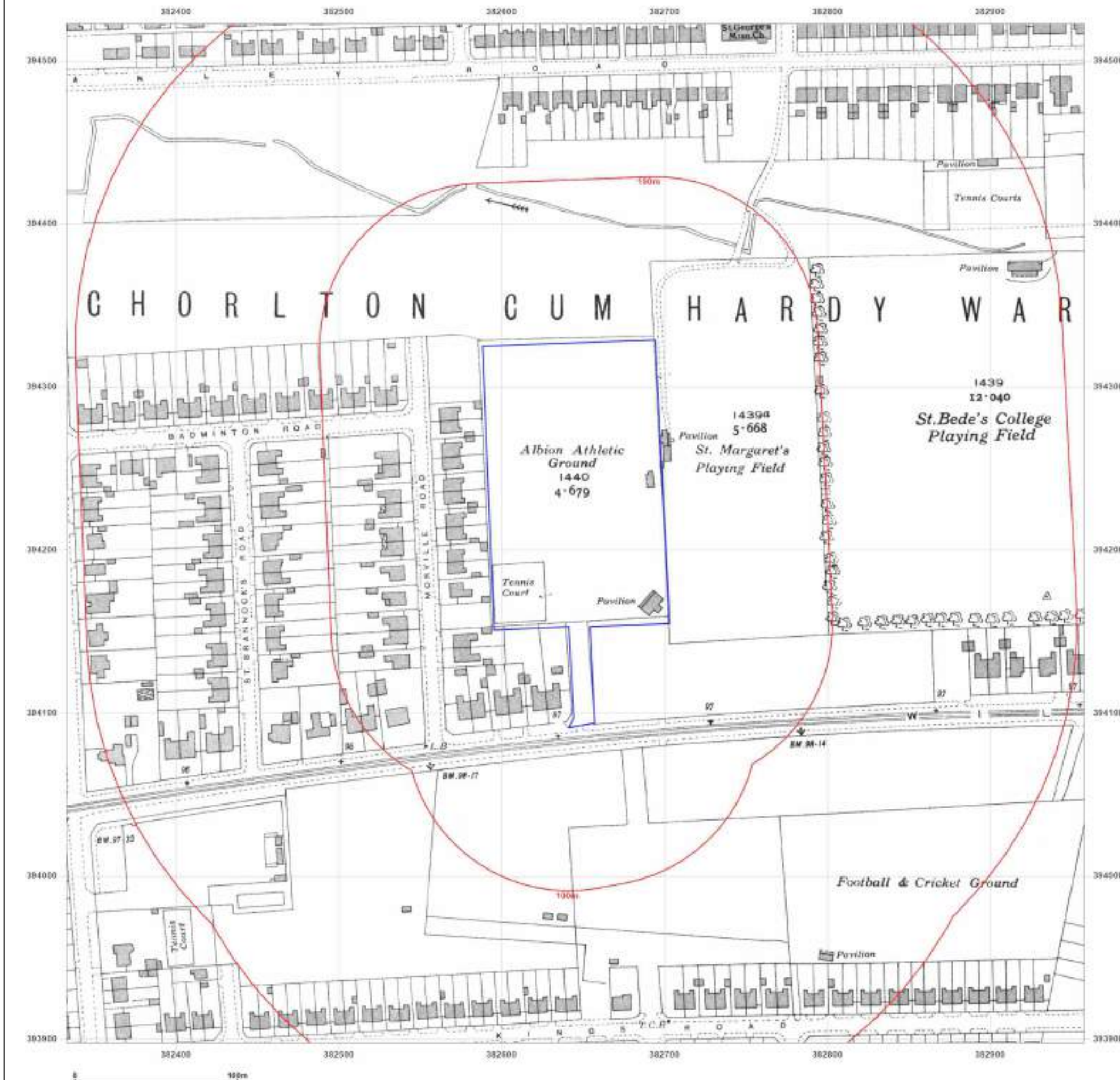


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Site Details:

Lane off Wilbraham Road, Chorlton, Manchester

Client Ref: 15811-000993
Report Ref: GS-8604266
Grid Ref: 382645, 394210

Map Name: National Grid

Map date: 1950-1954

Scale: 1:1,250

Printed at: 1:2,000



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

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

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

Surveyed 1954
 Revised 1954
 Edition N/A
 Copyright N/A
 Levelled 1927



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Site Details:

Lane off Wilbraham Road, Chorlton, Manchester

Client Ref: 15811-000993
Report Ref: GS-8604266
Grid Ref: 382645, 394210

Map Name: National Grid

Map date: 1951-1955

Scale: 1:1,250

Printed at: 1:2,000



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

Surveyed 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
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Site Details:

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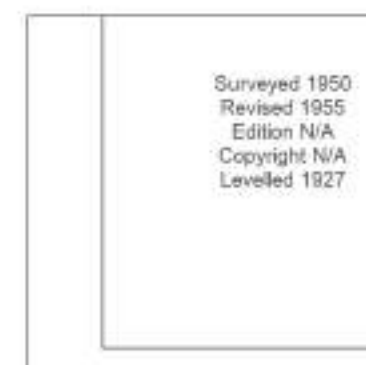
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Report Ref: GS-8604266
Grid Ref: 382645, 394210

Map Name: National Grid

Map date: 1955

Scale: 1:1,250

Printed at: 1:2,000



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Site Details:

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Client Ref: 15811-000993
Report Ref: GS-8604266
Grid Ref: 382645, 394210

Map Name: National Grid

Map date: 1950-1955

Scale: 1:2,500

Printed at: 1:2,500



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

Surveyed 1954
 Revised 1954
 Edition 1955
 Copyright N/A
 Levelled 1948



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Site Details:

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Manchester

Client Ref: 15811-000993
Report Ref: GS-8604266
Grid Ref: 382645, 394210

Map Name: National Grid

Map date: 1964

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1958
Revised 1958
Edition 1964
Copyright 1964
Levelled 1958

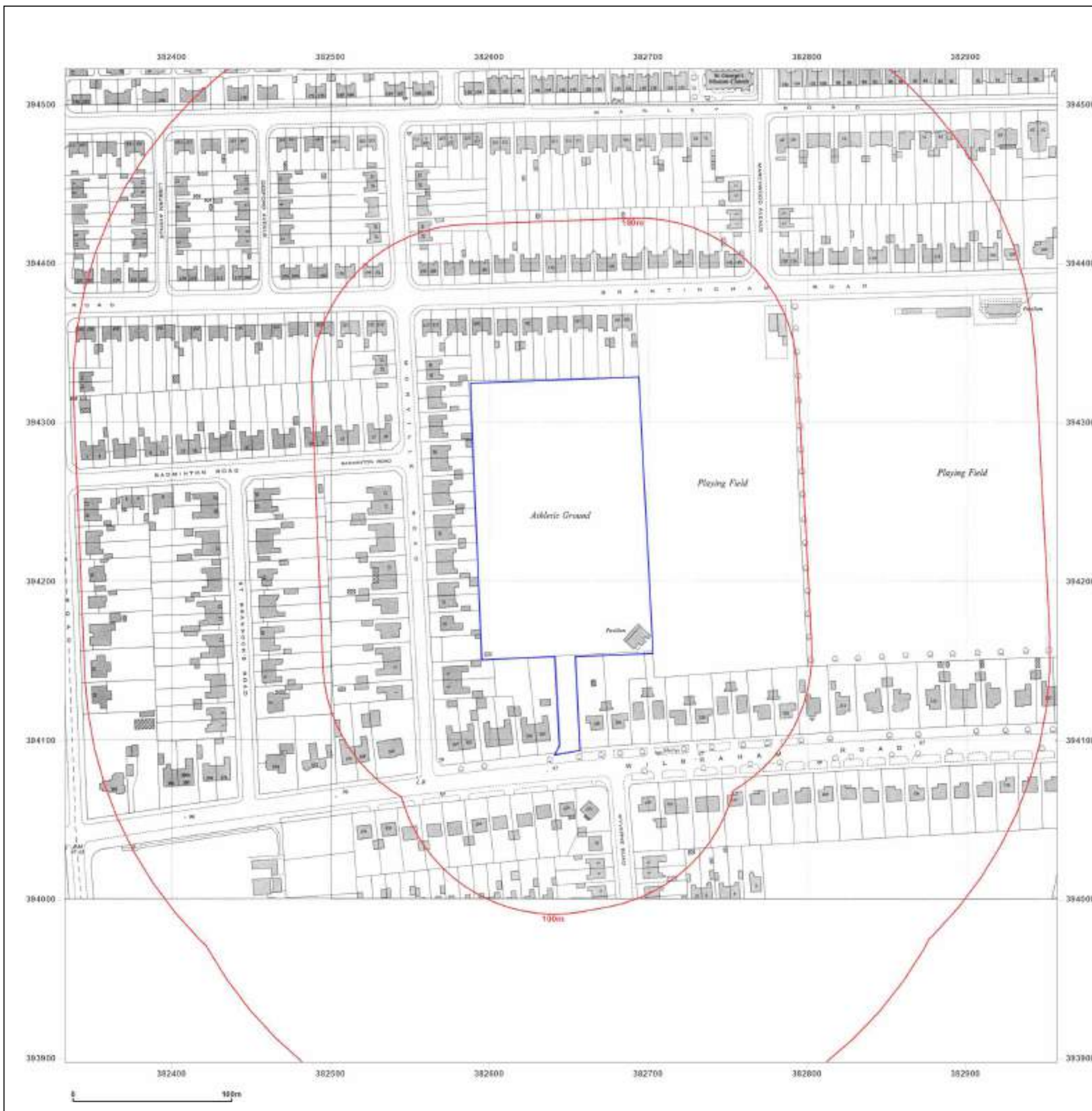


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Site Details:

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Client Ref: 15811-000993
Report Ref: GS-8604266
Grid Ref: 382645, 394210

Map Name: National Grid

Map date: 1992

Scale: 1:1,250

Printed at: 1:2,000



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

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

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



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Site Details:

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Client Ref: 15811-000993
Report Ref: GS-8604266
Grid Ref: 382645, 394210

Map Name: National Grid

Map date: 1992

Scale: 1:1,250

Printed at: 1:2,000



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

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

Surveyed 1954
 Revised 1974
 Edition N/A
 Copyright 1992
 Levelled N/A

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

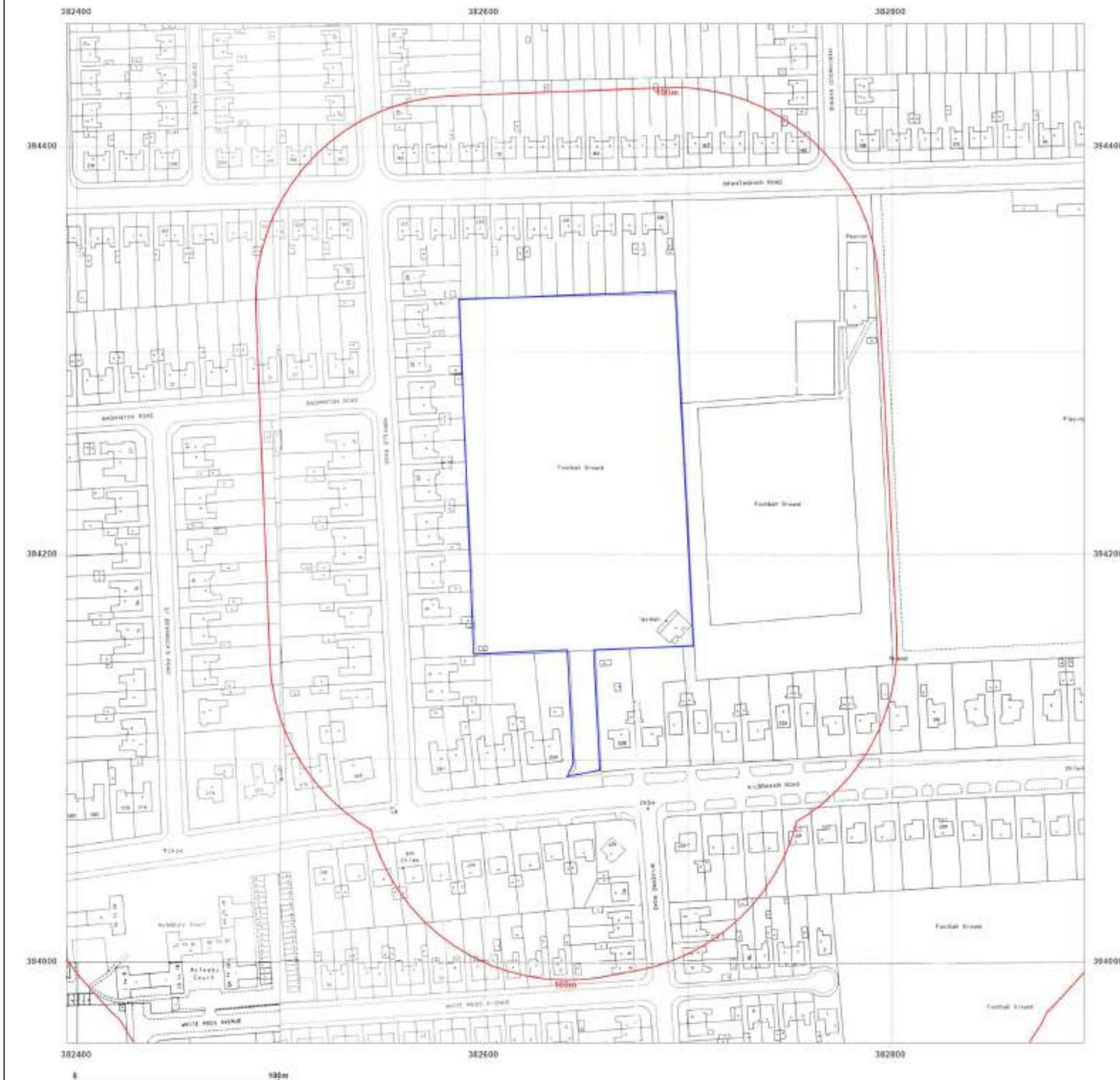


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Site Details:

Lane off Wilbraham Road,
Chorlton,
Manchester

Client Ref: 15811-000993
Report Ref: GS-8604266
Grid Ref: 382645, 394210

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250



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APPENDIX VI

STAGE 1 PRELIMINARY

UXO RISK ASSESSMENT

STAGE 1 PRELIMINARY UXO RISK ASSESSMENT

REPORT REF: PRA-22-1732 | Revision: 0



Suite 6, Delta House, Laser Quay,
Culpeper Close, Rochester, ME2 4HU
0207 117 2492
www.brimstoneuxo.com

Client: E3P
Project: Wilbraham Road, Manchester
Date: 25/03/2022

INTRODUCTION

The Stage 1 Preliminary Risk Assessment is an initial screening assessment designed to highlight any sources of unexploded ordnance (UXO) with the potential to contaminate a given site.

The aim of the Stage 1 assessment is to identify or discount the need for further detailed research - a Stage 2 Detailed UXO Risk Assessment.

This desktop assessment has been researched and written by a dedicated Researcher / Risk Assessor and produced in accordance with the CIRIA C681 Guidelines: 'Unexploded Ordnance, a Guide for the Construction Industry' (published in 2009).

In preparation for this assessment, original wartime records, historic OS mapping and the *Brimstone UXO Sources Database* have been reviewed. The latter incorporates multiple datasets plotting the positions of a variety of domestic military sites and confirmed historic German bombing targets.

The Stage 1 Preliminary Risk Assessment considers the following:

1. The Proposed Works
2. Enemy Action during WWI and WWII
3. British / Allied Military Activity
4. Historic Site Occupancy
5. Risk Mitigating Factors

THE SITE

The Site (approximately centred on the National Grid Ref: SJ 82644 94256) is located in the Chorlton-Cum-Hardy district of Manchester, approximately 1.35km east of Chorlton railway station.

The Site comprises a large area of open, undeveloped ground. An access way and part of a structure and garden area on Wilbraham Road are situated in the southern section. It is bound to the north by residential structures and garden areas on Brantingham Road, to the east by a sports pitch thought to be associated with Maine Road football club, to the south by residential structures and garden areas on Wilbraham Road and to the west by residential structures and garden areas on Morville Road.



THE PROPOSED WORKS

An SI is proposed, comprising 6 no. 5.00 m window sample boreholes and 15 no. mechanically excavated trial pits to between 3.00m and 4.00m bgl.

Development works comprise 67 low rise residential units. The foundation depths are currently unknown.

ENEMY ACTION DURING WWI AND WWII

Potential Source of UXO	Significant?	Details	
WWI German Bombing	✗	No raids affected Manchester during WWI.	
WWII German Bombing	✓	British District Bombing Density Statistics	The Site was located within the WWII-era County Borough of Manchester, which sustained 27 bombs / 1,000 acres, a low-to-moderate bombing density.

		Evidence of bomb strikes / damage	Confirmed bombing incidents in the south-east of the Site and 260m west. No OS mapped evidence of damage. Note, as the vast majority of the Site comprised open ground, such damage would not be visible.
		Local Bombing Decoy Sites	None located within a significant distance. The closest was located approximately 7.7km south-west.
		Local German Bombing Targets	Luftwaffe target photography indicates that Salford Docks, approximately 2.7km north-west, were the primary targets in the area.
WWII German Cross Channel Artillery Shelling	✘	n/a	
BRITISH / ALLIED MILITARY ACTIVITY			
Potential Source of UXO	Significant?	Details	
WWII Home Guard (HG) activity	✘/✓	Soldiers of the 49th and 56th Lancashire (Manchester) HG Battalions will have been active locally during WWII. Armed soldiers could have accessed the Site when on patrol.	
Site requisitioned for wartime military use	✘/✓	The Site could have been requisitioned for temporary wartime use (e.g. LAA gun battery, searchlight battery, tented camp, RAF barrage balloon site).	
Existing or historic Army or RAF training area / weapons range	✘	n/a	
Existing or historic military bases and other installations	✘	n/a	
Existing or historic munitions or explosives factories	✘	n/a	
Existing or historic military storage depots	✘	n/a	
Existing or historic military defensive fortifications	✘	n/a	
WWII light and / or heavy anti-aircraft (LAA and HAA) fire	✓	Numerous (>30) HAA batteries were recorded within active range of the Site during WWII. LAA guns likely defended vulnerable points within range of the Site too. Luftwaffe activity in the region was relatively frequent and relatively intense. Therefore, these guns likely fired a reasonable quantity of ammunition. It is possible that an unexploded AA shell struck the Site.	
WWII pipe-mined locations and beach minefields	✘	n/a	
SITE HISTORY			
What was the Site occupancy historically, especially during WWI and WWII?	During WWII, the vast majority of the Site comprised open, undeveloped ground, recorded as Albion Athletic Ground. A Pavilion was recorded in the south-east, while a feature of an unknown nature was recorded in the south-west. The Site was bound to the north, south and west by residential structures and garden areas.		
RISK MITIGATING FACTORS			
Post-conflict ground works	At some stage post-1964, the Pavilion in the south-east of the Site was cleared. General maintenance of the areas of open ground on Site may have disturbed soil at very shallow depths. The clearing and grubbing out of the foundations of the pavilion will have disturbed soil to the depths of the foundations. likely shallow.		

Likelihood of UXO remaining	The risk associated with (any) very shallow and shallow buried UXO may have been partially mitigated. The risk associated with (any) deep buried UXO will almost certainly remain unmitigated across the Site.
-----------------------------	--

CONCLUSIONS

German UXO:

- Manchester was subjected to medium and small-scale air raids during WWII. Although the wartime figures for the wider borough suggest a low-to-moderate bombing density, the Site was situated over 2.5km from an identified target and therefore the local bombing density was likely lower than that of the wider area.
- However, an HE bombing incident was recorded within open ground within the south-eastern section of the Site. It is conceivable that further strikes, possibly UXBs, also affected the Site.
- Almost the entirety of the Site comprised open, undeveloped ground. This ground cover is not thought to be conducive to the visual detection of evidence of UXBs, while the small pavilion structure which appears to have survived the war externally intact would likely have been conducive to such observation of UXBs. Note, this structure may have been evacuated for a period.
- As open ground, the majority of the Site does not appear to have an obvious use. It is conceivable therefore that these areas were not frequently accessed. A UXB strike within such conditions could potentially have gone unnoticed and unrecorded.
- The proposed SI works will disturb a relatively large volume of soil, thereby increasing the probability of a UXB encounter.

British / Allied UXO:

- No evidence of significant military activity specifically on Site has been found and none is likely to have occurred.
- It is quite possible that an unexploded British AA shell struck the Site during WWII and penetrated to a shallow depth. Any such UXO incident could have been overlooked and remained in-situ.

RECOMMENDATION(S)

SI Works	A Stage 2 Detailed Risk Assessment is recommended to elucidate the risk to the proposed works.
Development Works	