

# **LONDON BOROUGH OF HOUNSLOW SMALL SITES SMALL BUILDERS PROGRAMME**

## **GARAGE BLOCKS AT GUNNERSBURY CLOSE, CHISWICK, W4 4AH**

### **Geotechnical and Geo-Environmental Desk Study**

APRIL 2019

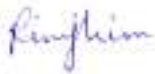
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# Garage Blocks at Gunnersbury Close, Chiswick, W4 4AH

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## VERSION CONTROL

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# CONTENTS

<b>1</b>	<b>INTRODUCTION .....</b>	<b>1</b>
1.1	Terms of Reference .....	1
1.2	Sources of Information .....	2
1.3	Limitations and Expectations.....	2
<b>2</b>	<b>SITE SETTING AND HISTORY .....</b>	<b>3</b>
2.1	Site Location .....	3
2.2	Site History .....	3
2.2.1	Summary of Site History .....	5
2.3	Unexploded Ordnance .....	5
<b>3</b>	<b>PHYSICAL AND ENVIRONMENTAL SETTING .....</b>	<b>6</b>
3.1	Published Geology, Hydrogeology and Hydrology .....	6
3.2	Environmental Public Registers .....	6
3.2.1	Summary.....	7
<b>4</b>	<b>PRELIMINARY CONCEPTUAL MODEL.....</b>	<b>8</b>
4.1	Potential Contaminant Sources .....	8
4.2	Potential Receptors (Residential End Use).....	8
4.2.1	Human Health .....	8
4.2.2	Controlled Waters .....	9
4.2.3	Buildings .....	9
4.3	Potential Pathways .....	9
4.4	Preliminary Qualitative Risk Assessment.....	9
<b>5</b>	<b>WASTE MANAGEMENT AND POTENTIAL DEVELOPMENT CONSTRAINTS ....</b>	<b>10</b>
5.1	Waste Management .....	10
5.2	Potential Development Constraints .....	10
<b>6</b>	<b>GEOTECHNICAL CONSIDERATIONS .....</b>	<b>11</b>
6.1	General Comments .....	11
6.2	Foundations .....	12

7 CONCLUSIONS AND RECOMMENDATIONS ..... 13

7.1 Design Considerations.....13

7.2 Construction Considerations .....13

8 REFERENCES ..... 14

APPENDICES

APPENDIX A

Historical Ordnance Survey Maps

APPENDIX B

Groundsure Data Sheets and Site Sensitivity Maps

APPENDIX C

Site Photographs

# 1 INTRODUCTION

## 1.1 Terms of Reference

Arcadis Consulting (UK) Limited (Arcadis) has been commissioned by London Borough of Hounslow (LBH), 'the Client', to undertake a desk-based survey for garage blocks at Gunnersbury Close, Chiswick, London ('the Site').

LBH is aiming to develop a number of small sites into residential developments, however no proposed development plans are available for the site at the time of writing. The objectives of this review are to:

- Review geo-environmental information regarding the Site and its surrounding area;
- Provide outline information on potential geo-environmental and geotechnical constraints which may impact on the land value or redevelopment potential for the Site; and
- Identify potential development constraints due to geotechnical and geo-environmental conditions on Site.

The Site location is shown in Figure 1 below.



Figure 1: Site Location Plan provided by LBH

## 1.2 Sources of Information

As part of this desk study report various sources of information have been used and are detailed below:

- The on-line British Geological Survey (BGS) Geology of Britain Map Viewer (Ref. 1);
- Historical borehole records available through BGS website (above) (Ref.1);
- Historical Ordnance Survey maps obtained from Groundsure Insight (included in Appendix A);
- Environmental Information from Groundsure Insight (Appendix B);
- Current publicly available aerial images and maps from Google maps (Ref. 2);
- Unexploded Survey Report for Gunnersbury Close (Ref. 3)

## 1.3 Limitations and Expectations

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This report has been compiled from a number of sources, which Arcadis believes to be trustworthy. However, Arcadis is unable to guarantee the accuracy of information provided by others. The report is based on information available at the time. Consequently, there is a potential for further information to become available, which may change this report's conclusion and for which Arcadis cannot be responsible.

## 2 SITE SETTING AND HISTORY

### 2.1 Site Location

Table 2.1: Details relating to Site Location

Site Location / Address	Gunnersbury Close, Chiswick, London, W4 4AH
National Grid Reference	519951,1784452
Approximate Site Area	The Site is roughly rectangular in shape and covers an area of approximately 0.057 hectares.
Description of Site	<p>The Site is predominantly a car parking area/garage situated between Chiswick High road (to the north) and Grange Road (to the south) and is bordered by residential buildings to the east and west. The Site is bounded by brick walls along the north and west boundaries and can be accessed through a gate from Grange Road to the south. The site comprises 16 garage buildings arranged in 2 blocks along the east and west boundaries; outbuildings are located near the south east corner as well as recycling bins with additional wheelie bins placed on hardstanding on the eastern side of the site.</p> <p>The site is mostly covered by macadam hardstanding which is in good to moderate condition (minor cracks evident) with small square grate drains. No evidence of surface staining was noted during site walkover. A kerbed grassy verge/flowerbed with a large mature tree is present in the southwest corner of the site. The bin storage areas comprise a raised concrete platform.</p> <p>Externally, the garages appeared to be in good order, with external lights; the roof gutters drain directly to the hardstanding surface. An external tap is located at the corner of the bin storage building. Several rectangular metal manhole covers indicate the presence of below ground utilities. It is not known whether the garage rooves comprise asbestos containing materials. A row of trees is located offsite directly to the north and directly to the south.</p> <p>Site photographs are included in Appendix C.</p>
Topography	The topography of the Site is generally flat at approximately 11m Above Ordnance Datum (AOD). It appears to slope gently up to the north. The immediate surrounding area is generally flat, with the regional topography sloping very gently down towards the River Thames to the south west.
Surrounding Area	The Site lies within a mixed development urban area comprising residential houses to the south and east, Chiswick business park to the north beyond Chiswick High Road. Gunnersbury railway station is located approximately 100m to the south west.

### 2.2 Site History

A review of the available historical Ordnance Survey maps (Appendix A) has been undertaken to assess the historical development of the Site and surrounding areas.

It is not the intention of this report to provide a full history, but to identify those past uses on and within the vicinity of the Site that could have introduced sources of contamination to the soils and/or waters. Significant changes to the land use of the Site and surrounding areas are summarised in Table 2.2 below.

Table 2.2 History of Site and Surrounding Area

Date	Historical Development (Site and Surrounding Area)
1867	<p>The Site is shown to consist of a residential property with garden. The remainder of the site is shown as grassland and trees.</p> <p>The surrounding area is undeveloped agricultural land and orchards, with few buildings, these are primarily cottages and farms.</p>
1873 - 1874	<p>No significant changes are noted on site.</p> <p>A railway line is located adjacent to the western site boundary, running in a north east to south west direction. The railway line is in a cut with Chiswick road bridging over it. Brentford Road Station is marked 150m south west to the site. Chiswick High Road marked adjacent north of the site.</p>
1894 - 1915	<p>No significant changes are noted on site.</p> <p>Residential and community buildings have increased surrounding the site. A tramway is shown running along the adjacent north road.</p> <p>Brentford Road Station is renamed as Gunnersbury Station.</p>
1940 – 1950	<p>No significant changes are noted on site.</p> <p>Circa 1947, Chiswick works is marked approximately 200m north and Kelvin Works marked approximately 220m north west.</p> <p>A garage marked approximately 150m east of the site circa 1950.</p>
1960 - 1966	<p>No significant changes are noted on site.</p> <p>Circa 1960, a works building is marked 150m and 250m west of the site. A factory is shown 180m south west of the site. It is not known what the factory manufactures. A garage previously noted 80m east to the site is no longer shown circa 1965.</p> <p>Public house at 125m north west of the site.</p> <p>Circa 1966, the Kelvin Works has been redeveloped into several works' buildings including a garage. In addition, the previously noted motor works is now shown as a warehouse.</p>
1972 - 1988	<p>The property previously noted on site is now demolished, and site is shown with demarcations as plots of land on the western and eastern sides of the area. These are presumed to be the current car parking garages.</p> <p>Circa 1972, the previously shown factory is now shown as Soft drinks factory. Electricity substations marked 120m west, 220m south west and 220m south. Two car parks are shown 150m south west of the site.</p> <p>Circa 1988 the factory (180m south west) and substation (220m south west) are no longer marked.</p>
1991 - 2002	<p>No significant changes are noted on site.</p> <p>Circa 1993, a Garage is marked 250m east of the site.</p>



Date	Historical Development (Site and Surrounding Area)
	Circa 2002, Chiswick works buildings to the north have been demolished. The undeveloped area 20m north to the site is marked as Nature Reserve. In addition, a garage 150m east of the site is no longer marked.
2010 - 2014	No significant changes are noted on site.  Circa 2010, the cleared area approximately 30m to the north of the site is now redeveloped as Chiswick Business Park with many commercial buildings.  Circa 2010 till 2014, a fuel station is shown 20m southwest.
2019 (from publicly available aerial photography)	The Site area is shown as a car parking area and storage area for household waste and recycling bins for the nearby residential buildings.  The surrounding areas contain a mix of residential and commercial developments.  In addition, the fuel station is no longer shown.

### 2.2.1 Summary of Site History

The Site was historically partially developed (in the north east) within the late 1800`s as a residential property with garden. This was demolished and redeveloped as car parking garages circa 1972.

The surrounding land use has seen some industrial development comprising;

- Railway lines – located adjacent to the northern and western site boundaries since circa 1870`s till present day. The railway line is in a cutting under Chiswick road, directly north-west of the Site.
- Factories / works buildings –A factory was present 180m south west to the site between 1960 and 1988 and contamination from it can be discounted as it is down hydraulic gradient from the site. Chiswick works was present 200m north to the site between 1947 and 2002.
- Garage - A garage is present approximately 150m east of the site boundary from circa 1950 until circa 2002. This is located up hydraulic gradient from the site, however based upon the anticipated groundwater flow and distance from site it is considered unlikely to have caused a significant impact upon the site.
- Fuel Station – located near the site (approximately 20m south west) but for a very short period i.e. between 2010 and 2014 and down hydraulic gradient from the site.

## 2.3 Unexploded Ordnance

An Unexploded Ordnance (UXO) assessment has been undertaken for the Site, the findings of which are detailed in 10030793-ARC-21-XX-RP-YY-0001-01-UXO Survey Report-Gunnersbury Close Unexploded Ordnance Survey, April 2019.

The Preliminary Desk Study Assessment (PDSA) from Zetica recommends that a detailed desk study needs to be commissioned to assess, and potentially zone, the UXO hazard level on the Site. The detailed desk study provides an in-depth review of a site's history with respect to UXO, and each hazard zone will detail the potential type/depth of UXO which could be encountered. This will ultimately help inform proposed construction techniques and for the selection of appropriate mitigation measures during intrusive works.

### 3 PHYSICAL AND ENVIRONMENTAL SETTING

#### 3.1 Published Geology, Hydrogeology and Hydrology

With reference to the sources of information detailed in section 1.2, the following information has been obtained.

Table 3.1 Information Regarding Geology, Hydrogeology and Hydrology

Geology / Aquifer Status	<p>Superficial Deposits: Kempton Park Gravel Member described as Sand and Gravel which is designated as Secondary A Aquifer – Permeable Layers.</p> <p>Solid Geology: London Clay Formation, described as clay and silt, which is designated as Unproductive Strata.</p>
BGS Boreholes (within 250m of the Site)	<p>There are 7 historic boreholes recorded within approximately 250m of the site. The nearest of which is 130m west of the site denoted as TQ17NE308.</p> <p>The borehole record dated 1983 indicated loam up to a depth of 0.46 m bgl, followed by coarse to medium sand and medium to large gravel to 1.3 m bgl, followed by brown clay with sand traces up to a depth of 7.8m bgl, followed compact clay up to 8.5m bgl.</p> <p>Groundwater was encountered at approximately 1.8 m bgl.</p>
Within a Source Protection Zone	Not recorded within 500m of the Site boundary.
Licensed Groundwater Abstraction Points	<p>There are two licenced groundwater abstraction point noted within 500m of the Site.</p> <ul style="list-style-type: none"> <li>175m east at Chiswick Service Station – Historical (Inactive) - pollution remediation water from the Thames Groundwater.</li> <li>360m north at Chiswick High Road – Active – make-up or top up water from the Thames Groundwater.</li> </ul>
Surface Water Feature	<p>Manmade pond within the Chiswick Park approximately 170m north of the site. River Thames is located approximately 850m south west to the site.</p>
Likely Groundwater Flow Direction	Based on the published geology, the Kempton Park Gravel Member (superficial deposits) is a Secondary A aquifer which is permeable and likely to contain groundwater at shallow depths. Based on the local topography, any shallow groundwater would likely flow south west towards the River Thames.

#### 3.2 Environmental Public Registers

Public register information from the Groundsure Report (Appendix B) for the Site and the surrounding area (within 250m radius) has been summarised in Table 3.2 below.

It is not the purpose of this section to provide a comprehensive account of the environmental data but only to detail those factors that are or could impact the Site and are present within 250m of the site boundary.

It should be stated that the following were not recorded within 250m of the site boundary;

- Discharge Consents;
- Pollution Incident to controlled waters;

- Landfill sites (current and historical); and
- Local Authority Pollution Prevention and Controls.

Table 3.2. Environmental Data

Data type	Description	Distance (m) and Direction
Radon	The site is in a lower probability radon area as less than 1% of properties are above the Action Level.	N/A
Ground workings	Related to sand and gravel (quarry) which is now ceased	244m north east
Potentially Infilled Land	Thirty-four areas of potentially infilled land are recorded within 250m of the Site. All are related to railway cuttings the nearest was dated 1933.	9m west
Current Industrial Land Uses	Electricity Substation	7 No recorded surrounding the site between 65m (east) and 249m (north west).
	Actelion-Industrial Products (medical supplies)	82m west
	Air China-Transport, Storage and Delivery	82m west
	Gunnersbury- Public Transport, Stations and Infrastructure	102m west
	Gunnersbury rail Station- Public Transport, Stations and Infrastructure	102m west
	Works-Industrial Features	150m west
	Singapore Airlines- Transport, Storage and Delivery	169m north
	Halfords-Motoring	207m north east
Petrol and Fuel Sites	Obsolete petrol station	190m south west

### 3.2.1 Summary

It is considered that none of the above features identified within Table 3.2 above are considered to be potential contaminative sources which would cause a significant effect to the proposed site as they are either too far away from the site or in a location whereby the anticipated groundwater flow would transport any contaminants away from the site, and therefore have not been considered further.

## 4 PRELIMINARY CONCEPTUAL MODEL

Geo-environmental assessments are required in accordance with current regulatory guidance (CIRIA C552 - Ref. 4 and CLR11 – Ref. 5) to consider the significance of potential contamination in terms of plausible source-pathway-receptor pollutant linkages. As part of this process, it is necessary to develop a conceptual model of these potential pollutant linkages by identifying the potential contamination sources, sensitive receptors and any potential exposure pathways. A risk assessment is then undertaken to determine the likelihood that these potential pollutant linkages are complete.

### 4.1 Potential Contaminant Sources

Based on the information obtained from the historical and environmental research, the following potential sources of contamination have been identified on site and within the surrounding area (Table 4.1).

It should be noted that it is considered unlikely that all these substances would be present at significant concentrations within the Site.

Table 4.1: Potential sources of contamination on site

Source	Potential Contaminants
<b>On Site</b>	
Made Ground may have been used to form a level surface for the current car park and demolition of the historical property.	Asbestos, metals, Polycyclic Aromatic Hydrocarbons (PAH), hydrocarbons, ground gas
Car Parking Garage	Hydrocarbons, lubricants and solvents from potential spills/leaks from vehicle maintenance activities, asbestos.
London Clay	Sulphates
<b>Off Site</b>	
Railway lines, buildings and station (adjacent west)	PCB, PAHs, ethylene glycol (anti-freeze), herbicides, creosote, ferrous residues, metals fines, ash, sulphate, fuel and lubricating oils

### 4.2 Potential Receptors (Residential End Use)

At the time of writing the proposed end use is proposed to be residential, however no design plans have been provided to date. As a precautionary approach the potential receptors detailed below take into consideration the most conservative end use as residential properties with private gardens and landscaped areas. It is considered possible that any potential contamination within the soils may be disturbed during the construction phase, or during gardening or landscaping undertaken by any future site users.

#### 4.2.1 Human Health

- Future site users (residents, visitors, maintenance workers and contractors)

Contamination risks to construction workers are not appraised by chronic (long term) exposure human health risk assessments. There are no appropriate published criteria applicable to the assessment of potential risks to construction workers. The potential risks should be addressed by a site-specific construction workers risk assessment and implementation of appropriate health and safety measures, to adequately mitigate any

potential risks. All works should be conducted in accordance with the CDM regulations 2015 (Ref. 6) or any other relevant guidance. Construction workers are not considered further as human health receptors.

#### 4.2.2 Controlled Waters

- Secondary A Aquifer with permeable layers within superficial deposits.

#### 4.2.3 Buildings

- Underground/ structures/services (water pipes, concrete, foundations).
- Proposed buildings.

### 4.3 Potential Pathways

Potential pathways are the routes that link the receptor to the contamination. The potential pathways for this site are summarised in the table below.

Table 4.2: Potential Contaminative Pathways

Receptor	Description
Human health (future site users/residentials, visitors, maintenance workers and contractors)	<p>Accidental ingestion of contaminants within soil, water and dust.</p> <p>Inhalation of dust, vapours and ground gases</p> <p>Dermal contact with contaminants within soil, water and dust.</p> <p>Ingestion of contaminated vegetables and soil attached to vegetables.</p>
Controlled Waters (Secondary A Aquifer)	<p>Leaching of potential contaminants in soil or Made Ground into groundwater.</p> <p>Vertical migration of contaminants through the unsaturated zone into groundwater beneath the Site.</p>
Buildings and structures including water supply pipes	<p>Direct contact of building services or foundations with contaminants in the soil and Made Ground leading to derogation of concrete or tainting of water supply.</p> <p>Migration of ground gases into buildings and accumulation of gasses in confined and poorly ventilated spaces leading to explosive gasses or vapour.</p>

### 4.4 Preliminary Qualitative Risk Assessment

Potential Sources of contamination, pathways and receptors are considered present on site or will be introduced during redevelopment and as such potential pollutant linkages exist. The main potential sources of contamination identified within this report are Made Ground from previous developments, potential contamination from the sites current use and contamination from offsite sources (historic railway lines and associated land). The degree of risk will need to be assessed prior to redevelopment. Ground investigation and assessment is recommended.

## **5 Waste Management and Potential Development Constraints**

### **5.1 Waste Management**

Consideration should be given to the disposal of waste soils/Made Ground which are likely to be generated by development. Chemical testing of soils/Made Ground is likely to be required to inform a waste classification assessment and determine the potential disposal options. It should be noted that the waste contractor may require testing of the actual material to be disposal prior to acceptance, and there is no obligation on a landfill operator to accept the waste.

Soils suspected of being contaminated should be segregated from soils which appear to be 'clean' and should not be used elsewhere on the Site as fill or landscaping unless they can be proven to be fit for purpose.

Imported topsoil for gardens and landscaped areas should be clean, fit for purpose and validated as necessary.

### **5.2 Potential Development Constraints**

There are several metal manholes covers on the site which indicate the presence of below ground utilities beneath the site. Existing garages and hardstanding are present. A brick wall bounds the north and west borders of the Site. A large mature tree is present in the southwest corner. Surface and underground obstructions maybe present which may need to be broken out.

## 6 Geotechnical Considerations

### 6.1 General Comments

Historical borehole data (located 130 m west of the site boundary) has identified likely ground conditions to comprise;

- Topsoil (loam) up to 0.46m bgl;
- Superficial Deposits, comprising sands and gravels to 1.30 m bgl and clays up to 8.50m bgl;
- Bedrock was not encountered;
- Groundwater depth is anticipated to be at a depth of 1.8m bgl.

Made Ground is also anticipated associated with the current and historic development.

Based upon the information provided and reviewed as part of this report the following potential geotechnical constraints should be considered.

- **Made Ground** - The nature and thickness of the Made Ground (if present) is unknown. The likely engineering performance of the Made Ground is not known.
- **Ground Gas** - Future development may need to be designed to mitigate against soil borne ground gas from made ground.
- **Shrinkable Clays** – This site is located within an area of moderate risk of shrinkable clays. Consideration will need to be given to the presence of existing trees that are removed, retained or the planting of future trees when considering the depths of the foundations, as a large mature tree is present in the southwest corner of the site. In addition, the risks associated with the London Clay include high plasticity clay which are subject to shrinkage and swelling, sulphate attack and should be considered during the investigation / design.
- **Railway Cutting** – Active railway going under the A315 main road (bridge) located 10m north west of the site. It is recommended that stake holder liaison with Network Rail /London underground is undertaken to ascertain the potential constraints associated with the site and the need for a protection corridor.
- **Underground Structures** - Removal of former foundations, services and concrete obstructions (if present) from historical on-site development.
- **Shallow Groundwater** - Should shallow groundwater be present dewatering measures and excavation support would be required (depending on the findings of the ground investigation). This may also have implication upon the foundation design.
- **Contamination** – Potential contamination may require mitigation for future development, site users and controlled waters.
- **Sulphates** – Buried concrete may need to be designed to mitigate against natural adverse chemical conditions.
- **Underground Services** - Provision of contaminant resistant water supply pipes maybe required (depending on the findings of the ground investigation).
- **Excavations / Support** - The consequences of trench stability can vary, but usually pose a problem to the Contractor either by collapse into an already excavated trench or by the removal of support to plant, equipment or materials located adjacent to the excavation. The need to ensure stability and limit ground movements is of prime importance where excavations are adjacent to structures, roads,

and public utilities or where man entry is envisaged. The suitability of the Contractor's proposals for ground support will be particularly important in such areas.

It is anticipated that excavations within the Made Ground and superficial deposits should be achievable using a suitable size of conventional excavation plant. Excavations within these materials are unlikely to remain stable even in the short term and close lateral support will be required at all times or the sides of the excavation battered back to a safe angle above groundwater seepages.

Consideration will need to be given to the potential impacts of instability of excavations adjacent to existing buildings. Ground movement and vibrations may affect existing structures and may require mitigation.

## **6.2 Foundations**

Potential founding solutions will be dependent on the thickness of Made Ground and the geotechnical properties of the natural deposits. Made Ground is generally considered unsuitable for foundations due to its variable composition and its potential for high total and differential settlement.

At this stage it is envisaged that the Kempton Park Gravel Member comprising sands and gravels should be suitable for shallow foundations for light weight structures but will need to be confirmed via an appropriate ground investigation.

In areas of deeper Made Ground, or where deeper soft compressible material is present (the depth of which would need to be determined) deeper foundation options or ground improvement methods maybe required.



## 7 Conclusions and Recommendations

### 7.1 Design Considerations

The Site is currently used as a car parking garage including adjacent flat waste storage area. An intrusive site investigation has not been undertaken. The Site was previously a residential property and garden from 1870s which was demolished and redeveloped as its current use circa 1972.

Potential sources of contamination have been identified, as shown in table 4.1 and potential pollutant linkages exist. Therefore, an appropriate ground investigation is recommended to determine the degree of risk to end users and controlled waters. This should include for chemical testing of soils, groundwater monitoring (if present) and gas monitoring in accordance with the recommendations in CIRIA C665 (Ref. 7) and CLR 11 (Ref. 5) and consideration of shrinkage and swelling, compressible ground stability and sulphate attack to below ground concrete.

### 7.2 Construction Considerations

During construction, a watching brief should be undertaken to identify the presence of any unforeseen contamination. If contamination is encountered, all works should cease until the advice of a suitably qualified professional can be sought.

Construction / demolition workers should use appropriate PPE and follow the Site-specific contractors risk assessment which should include risks to human health from potential contamination. Due to the historic phases of development, demolition and redevelopment consideration should be given to the potential presence of asbestos within the Made Ground, and the potential for a range of other contamination to be present from the adjacent west railway line electricity substation to the east.

Good site management practices should be adopted during the construction phase such as covering stockpiles to minimise surface runoff/dust creation.

A foundation works risk assessment may be required to assess the risk to the underlying Secondary A Aquifer if foundations or piling which penetrate the base of the Made Ground are proposed.

According to the Arcadis Unexploded Ordnance assessment has been undertaken for the Site, the report recommends that a detailed desk study needs to be commissioned to assess, and potentially zone, the UXO hazard level on the Site.

## 8 References

1. British Geological Survey (BGS) [online]. <https://mapapps.bgs.ac.uk/geologyofbritain/home.html> Accessed April 2019.
2. Google maps [online]. Available at <https://www.google.co.uk/maps>. Accessed April 2019.
3. Gunnersbury Close report number- 10030793-ARC-21-XX-RP-YY-0001-01-UXO Survey Report. Accessed April 2019.
4. CIRIA C552 (2001) Contaminated land risk assessment. A guide to good practice.
5. DEFRA and the Environment Agency, 2004. Model Procedures for the Management of Land Contamination, Guidelines for Environmental Risk Assessment and Management, Contaminated Land Report 11 (CLR11).
6. The Construction (Design and Management) Regulations 2015.
7. CIRIA C665 (2007) Assessing risks posed by hazardous ground gases to buildings (revised).

## **APPENDIX A**

### **Historical Ordnance Survey Maps**

#### Site Details:

GUNNERSBURY CLOSE,  
CHISWICK, LONDON, W4 4AH

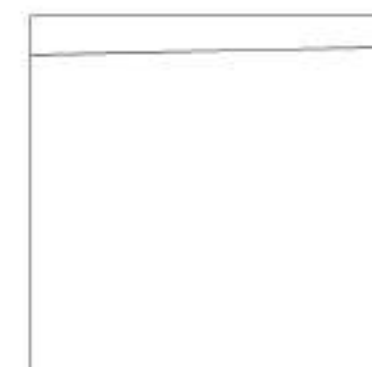
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**Report Ref:** GS-5910846  
**Grid Ref:** 519944, 178442

**Map Name:** County Series

**Map date:** 1840

**Scale:** 1:2,500

**Printed at:** 1:2,500



Surveyed 1840  
Revised 1840  
Edition N/A  
Copyright N/A  
Levelled N/A

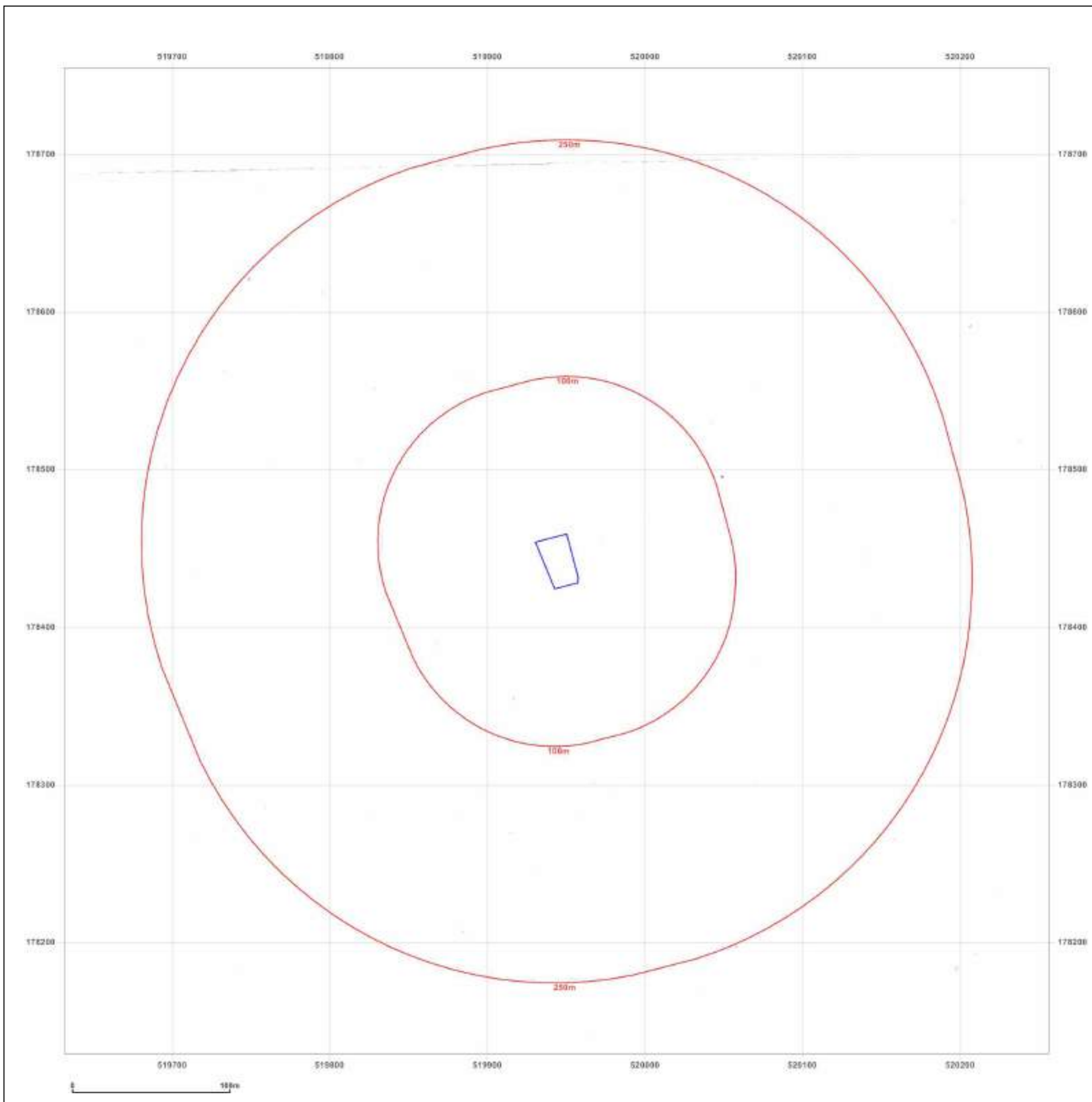


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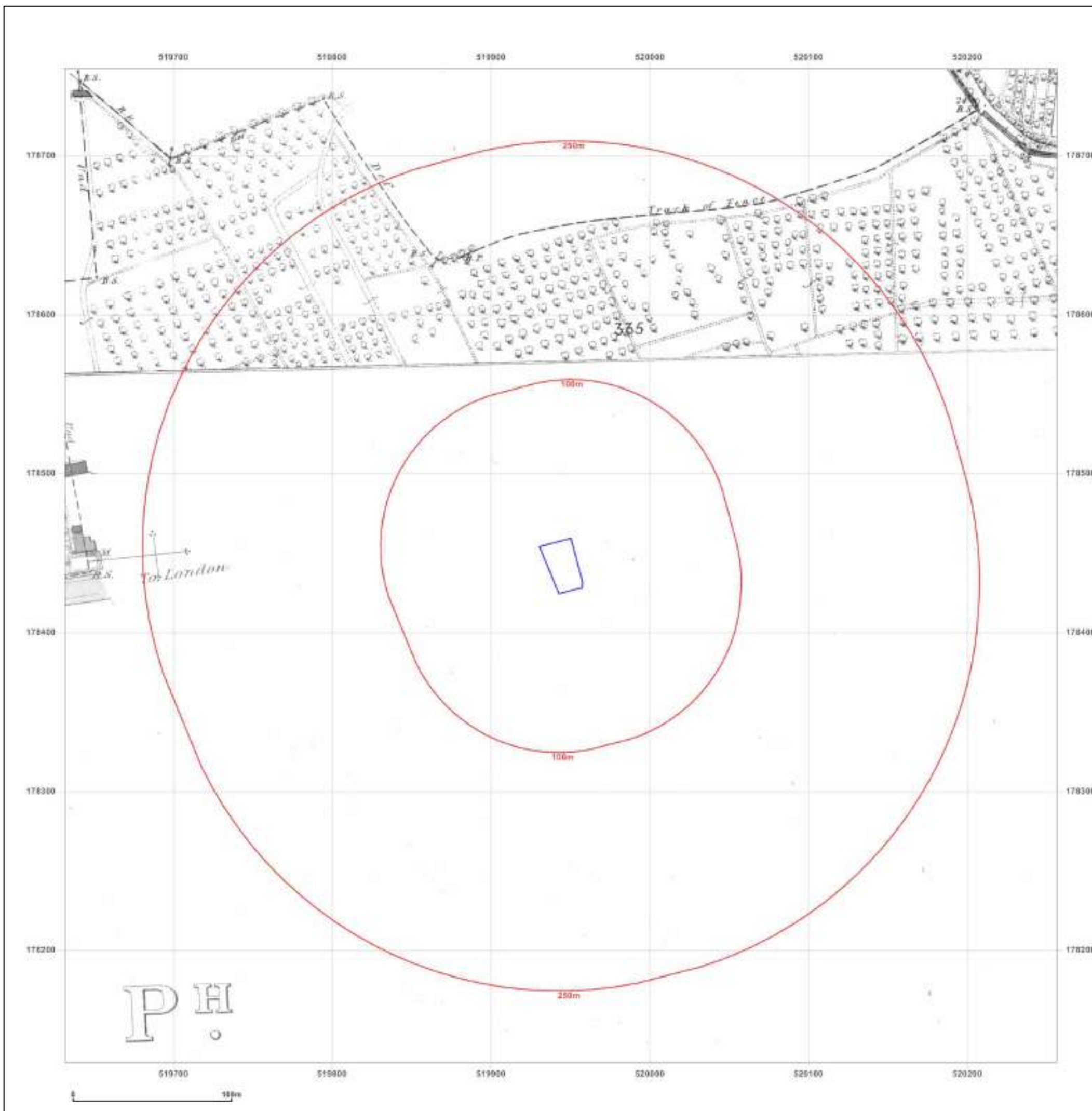


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#### Site Details:

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**Client Ref:** 14023929  
**Report Ref:** GS-5910846  
**Grid Ref:** 519944, 178442

**Map Name:** County Series

**Map date:** 1867

**Scale:** 1:2,500

**Printed at:** 1:2,500



Surveyed 1867  
Revised 1867  
Edition N/A  
Copyright N/A  
Levelled N/A

Surveyed 1867  
Revised 1867  
Edition N/A  
Copyright N/A  
Levelled N/A

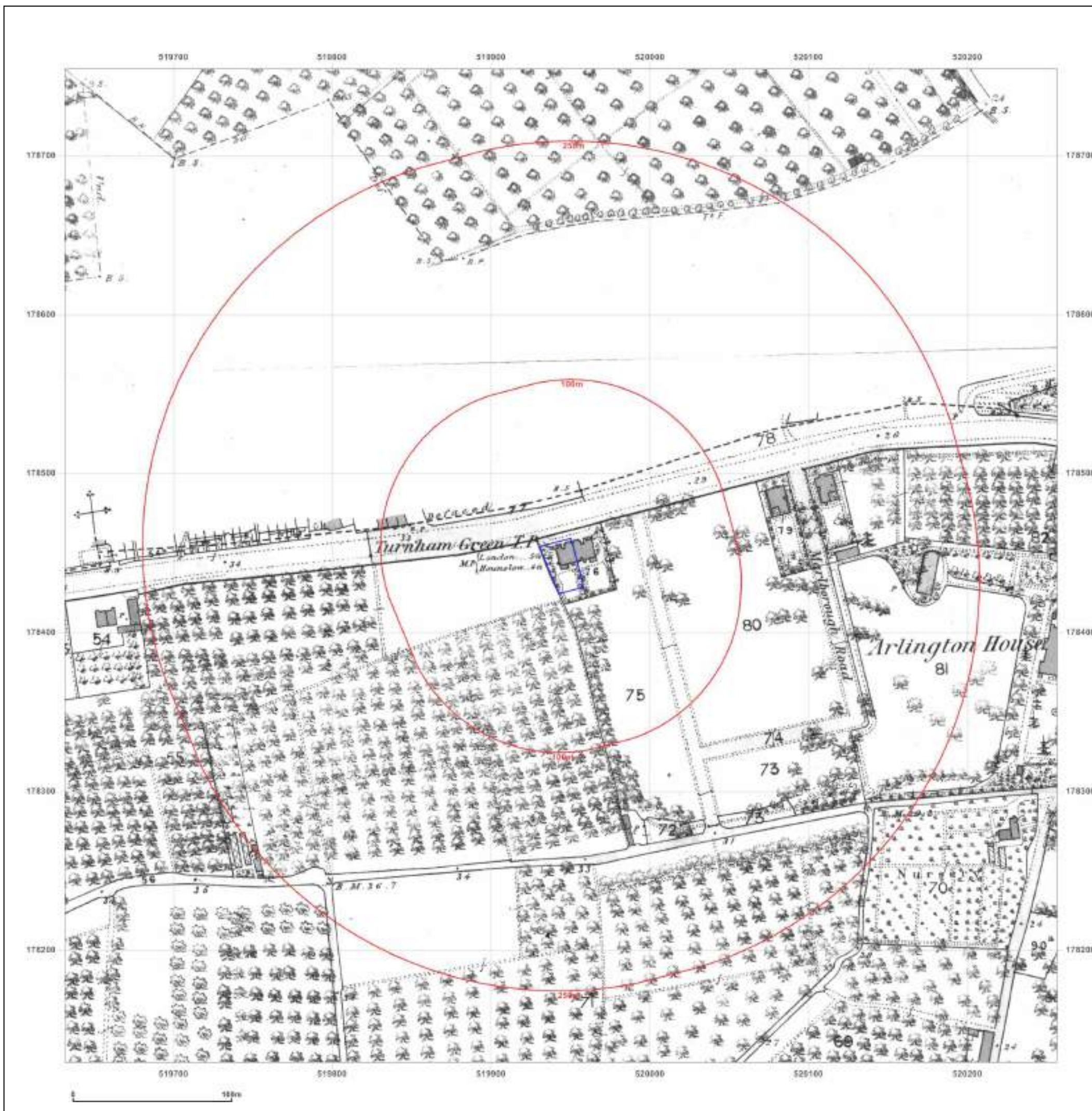


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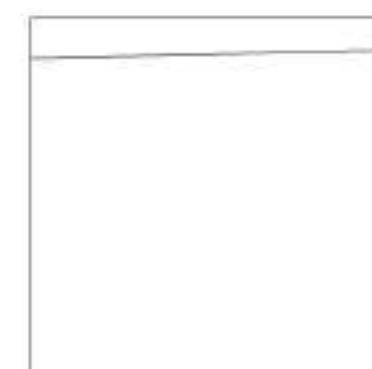
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**Grid Ref:** 519944, 178442

**Map Name:** County Series

**Map date:** 1868

**Scale:** 1:2,500

**Printed at:** 1:2,500



Surveyed 1868  
Revised N/A  
Edition N/A  
Copyright N/A  
Levelled N/A

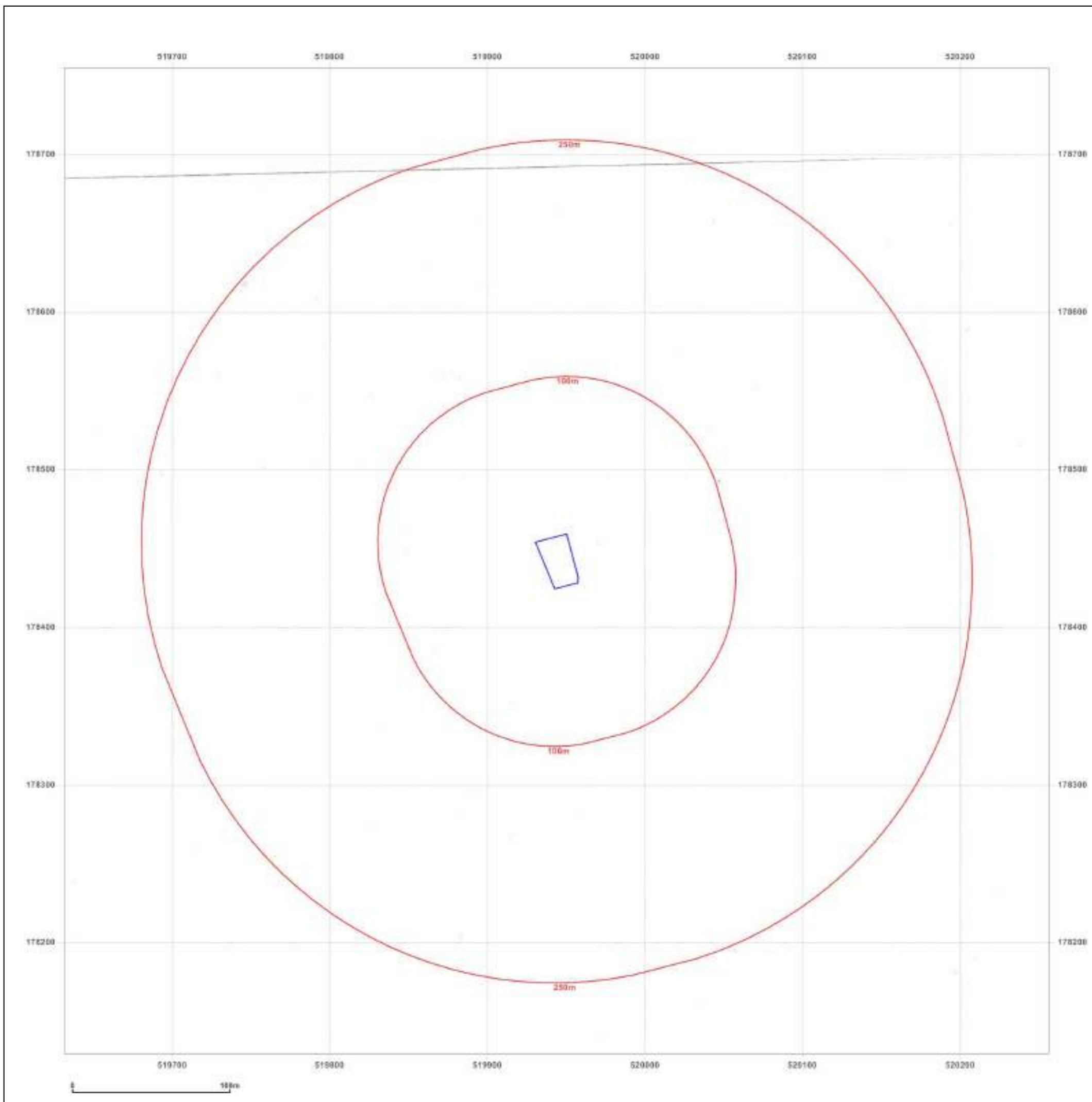


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**Client Ref:** 14023929  
**Report Ref:** GS-5910846  
**Grid Ref:** 519944, 178442

**Map Name:** 1056 Scale Town Plan

**Map date:** 1896

**Scale:** 1:1,056

**Printed at:** 1:1,056



Surveyed 1891  
Revised N/A  
Edition 1896  
Copyright N/A  
Levelled N/A

Surveyed 1893  
Revised N/A  
Edition 1896  
Copyright N/A  
Levelled N/A

Surveyed 1893  
Revised N/A  
Edition 1896  
Copyright N/A  
Levelled N/A

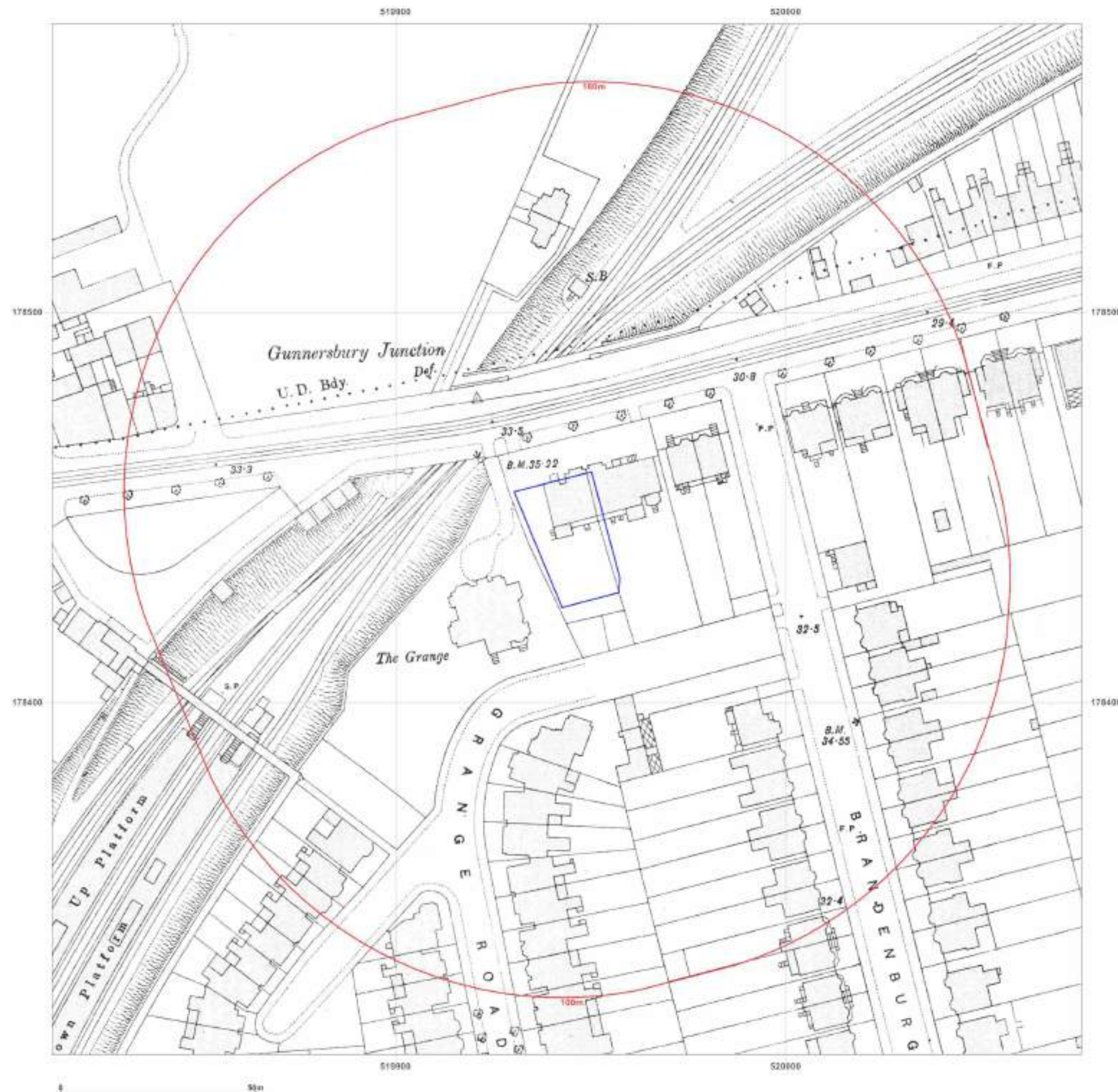


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Client Ref: 14023929  
Report Ref: GS-5910846  
Grid Ref: 519944, 178442

Map Name: County Series

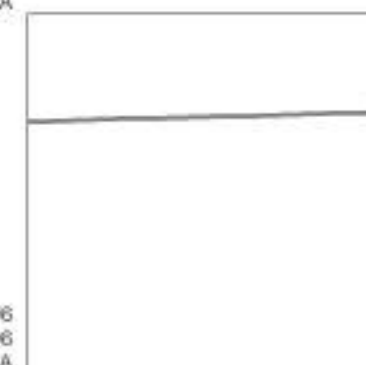
Map date: 1896

Scale: 1:2,500

Printed at: 1:2,500



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

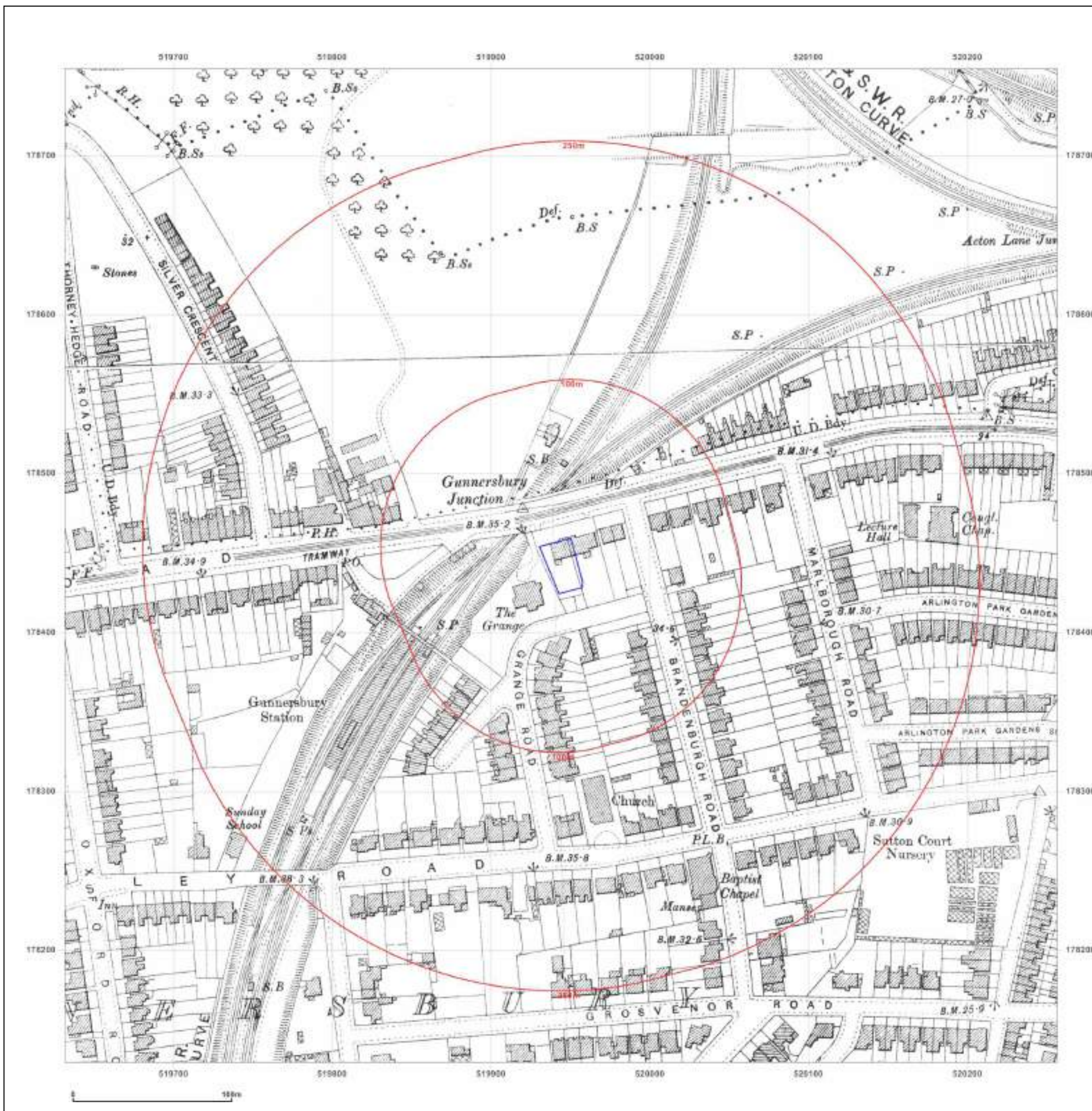


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**Client Ref:** 14023929  
**Report Ref:** GS-5910846  
**Grid Ref:** 519944, 178442

**Map Name:** County Series

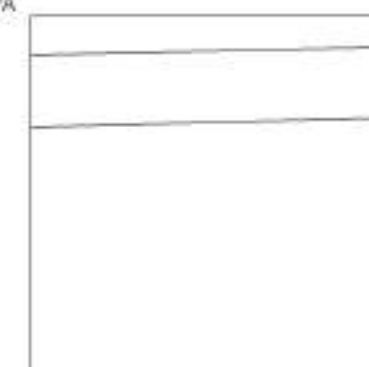
**Map date:** 1913-1915

**Scale:** 1:2,500

**Printed at:** 1:2,500



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



Surveyed 1913  
Revised 1913  
Edition N/A  
Copyright N/A  
Levelled N/A

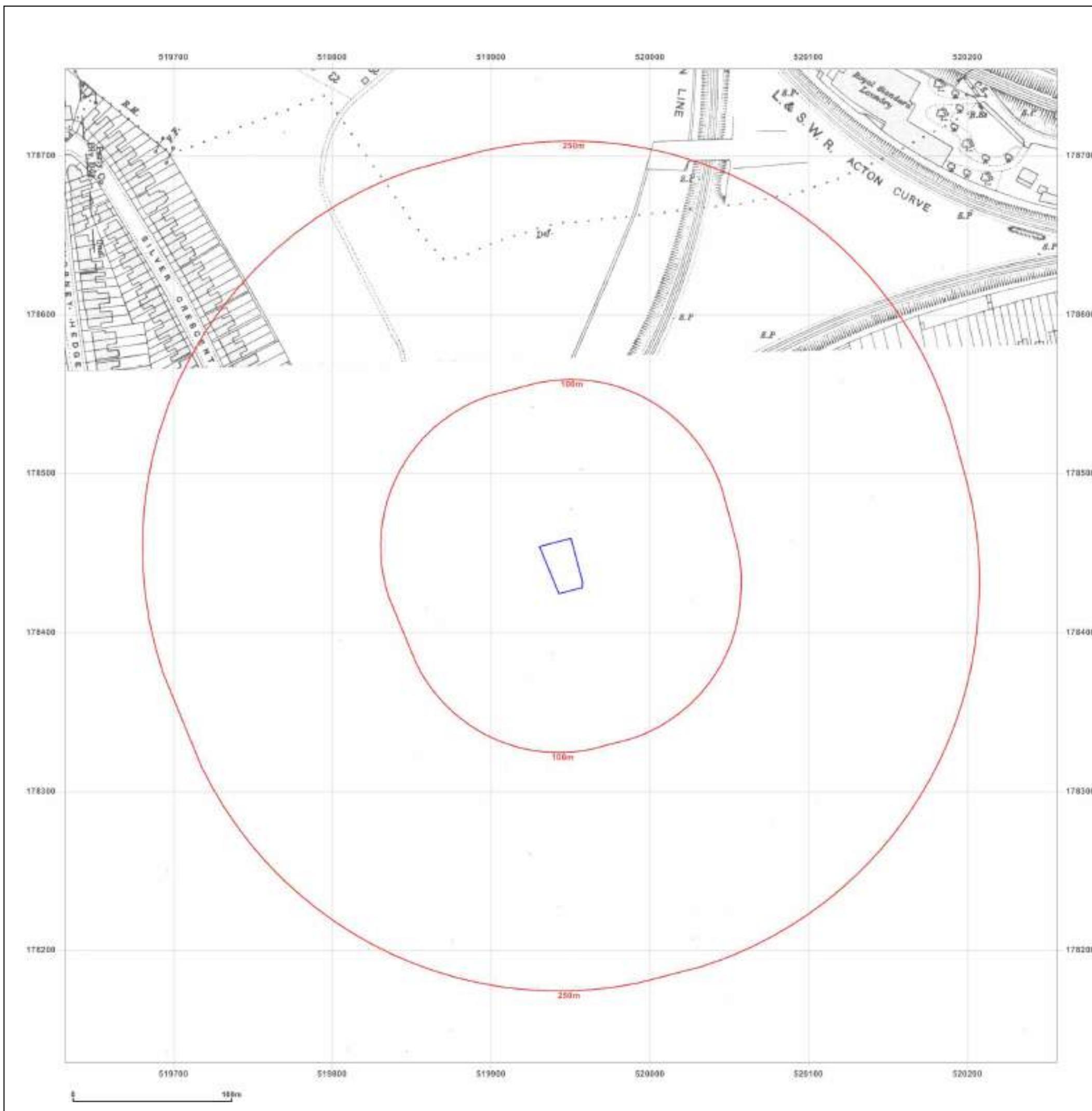


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**Client Ref:** 14023929  
**Report Ref:** GS-5910846  
**Grid Ref:** 519944, 178442

**Map Name:** County Series

**Map date:** 1915

**Scale:** 1:2,500

**Printed at:** 1:2,500



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

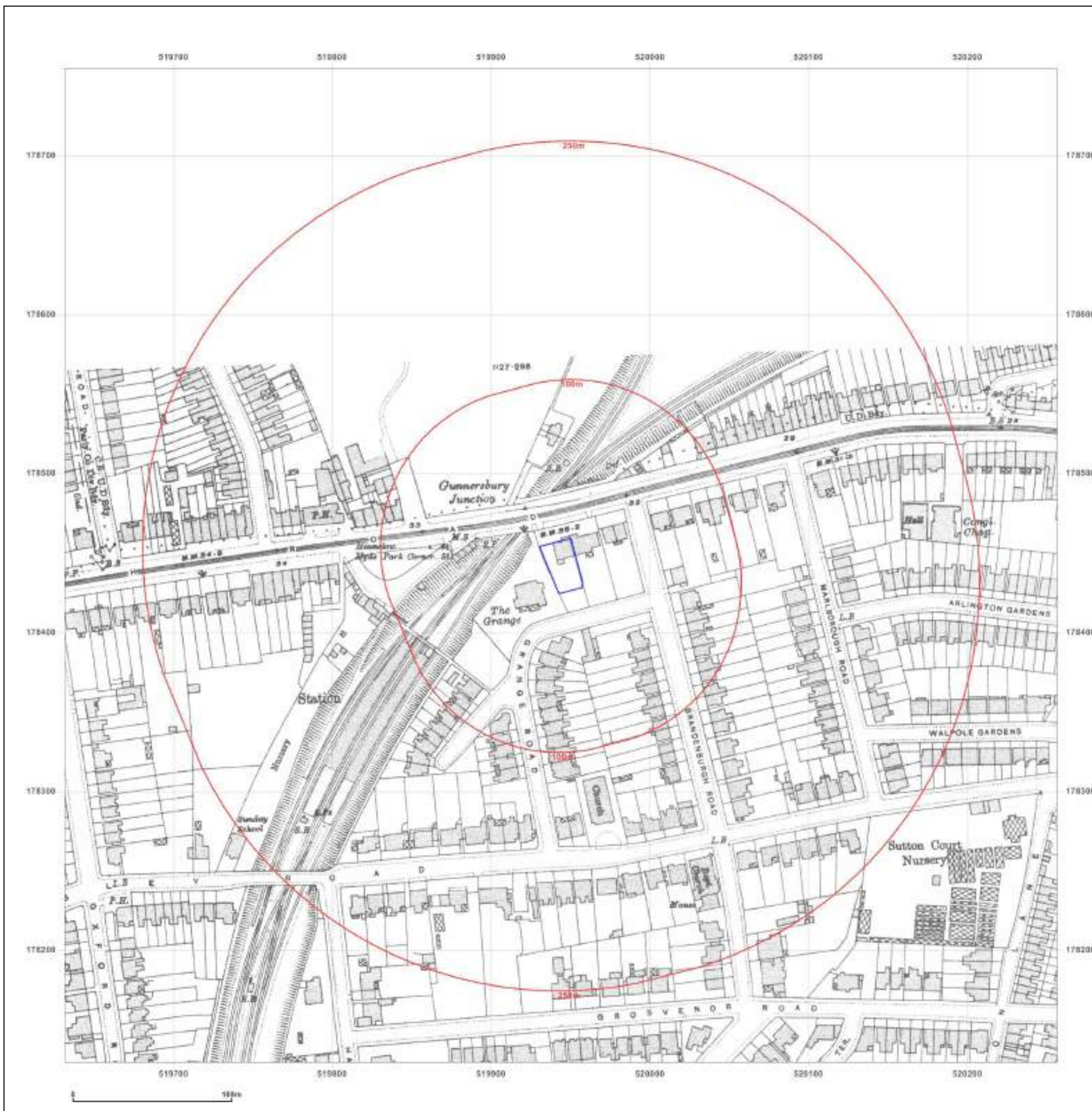


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**Map Name:** County Series

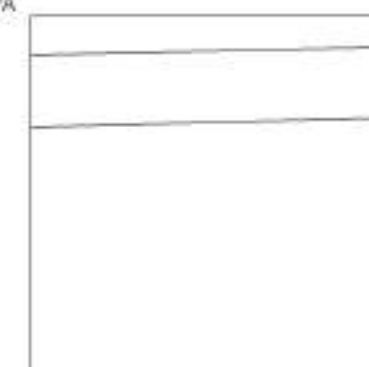
**Map date:** 1933-1935

**Scale:** 1:2,500

**Printed at:** 1:2,500



Surveyed 1935  
Revised 1935  
Edition N/A  
Copyright N/A  
Levelled N/A



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

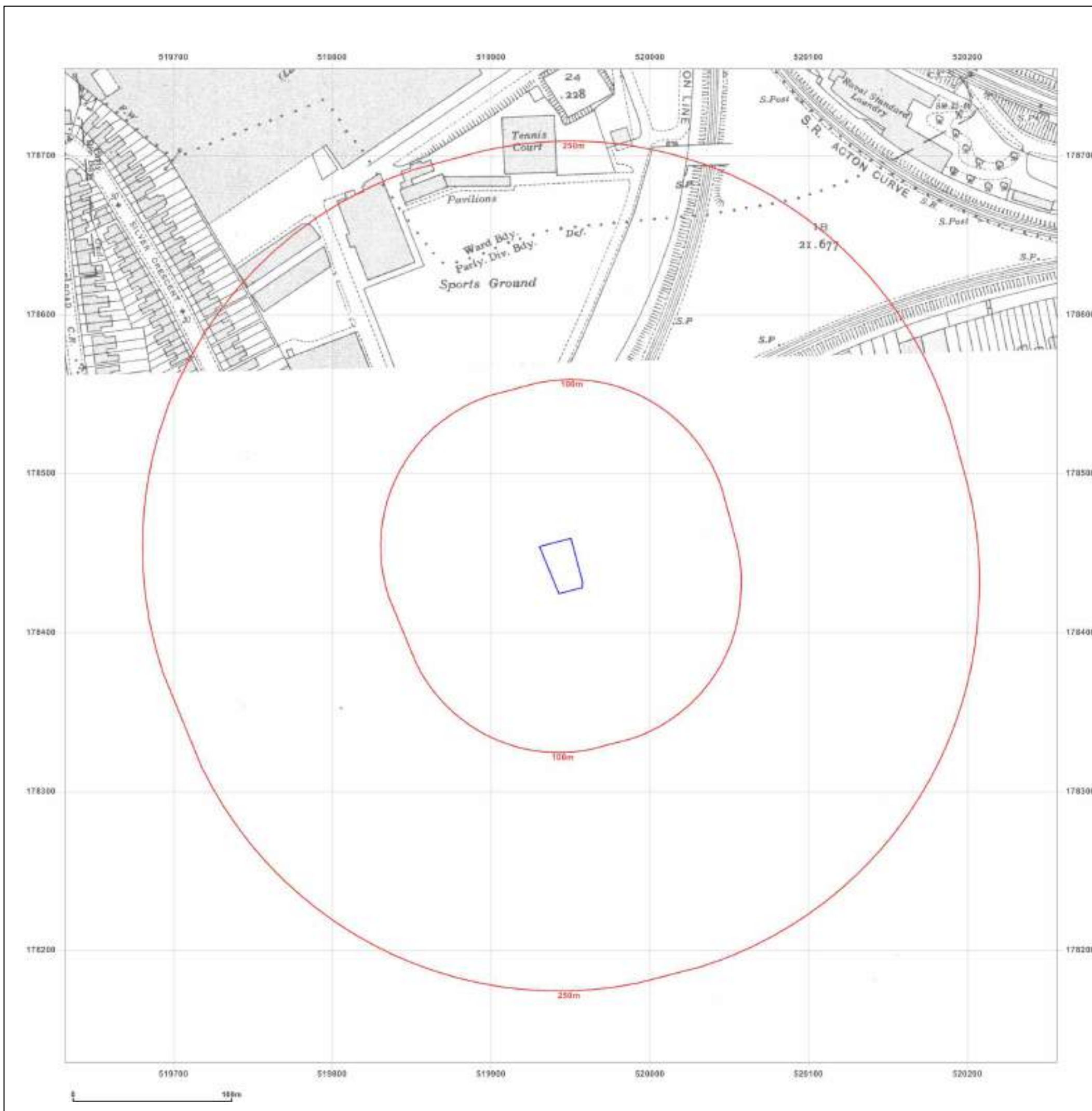


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**Client Ref:** 14023929  
**Report Ref:** GS-5910846  
**Grid Ref:** 519944, 178442

**Map Name:** County Series

**Map date:** 1935

**Scale:** 1:2,500

**Printed at:** 1:2,500



Surveyed 1935  
Revised 1935  
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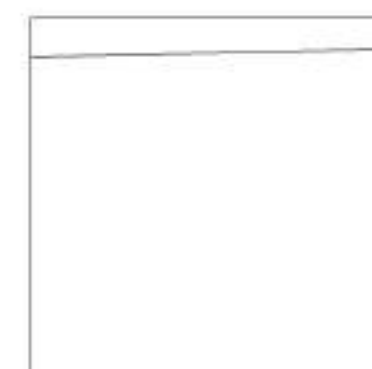
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**Map Name:** County Series

**Map date:** 1940

**Scale:** 1:2,500

**Printed at:** 1:2,500



Surveyed 1940  
Revised 1940  
Edition N/A  
Copyright N/A  
Levelled N/A

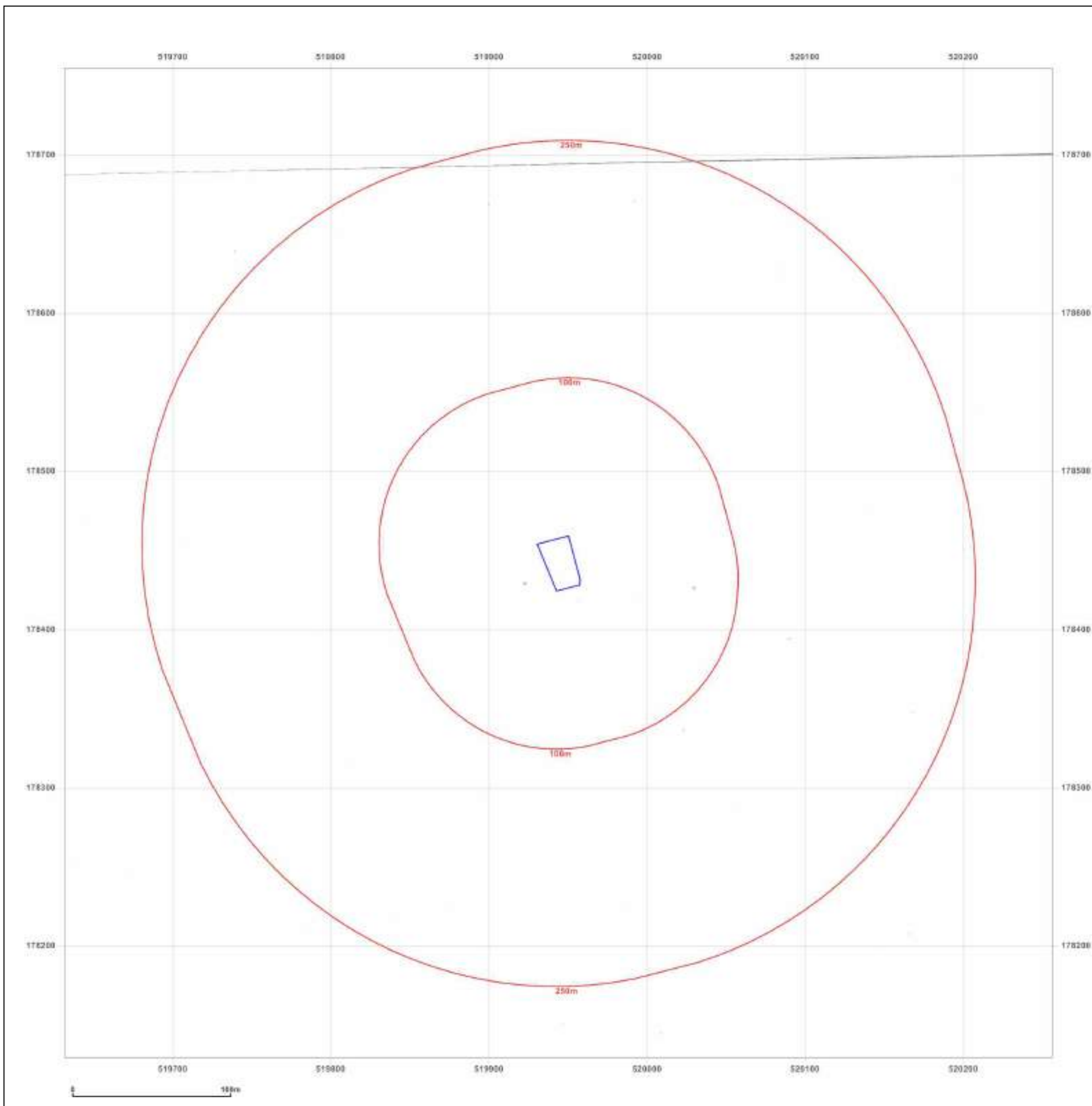


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**Client Ref:** 14023929  
**Report Ref:** GS-5910846  
**Grid Ref:** 519944, 178442

**Map Name:** National Grid

**Map date:** 1950

**Scale:** 1:1,250

**Printed at:** 1:2,000



Surveyed 1950  
Revised 1950  
Edition N/A  
Copyright N/A  
Levelled 1932

Surveyed 1950  
Revised 1950  
Edition N/A  
Copyright N/A  
Levelled 1932

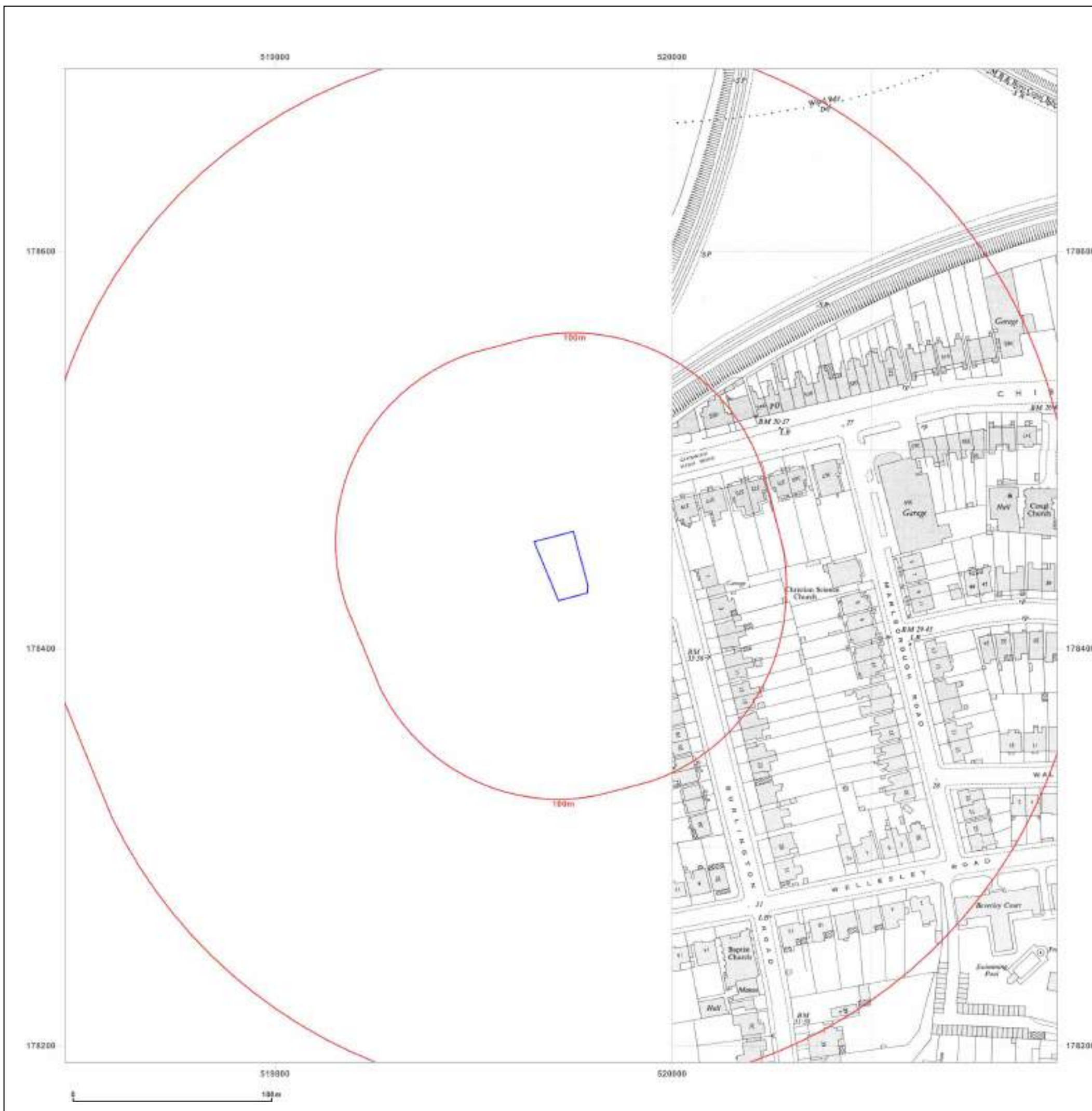


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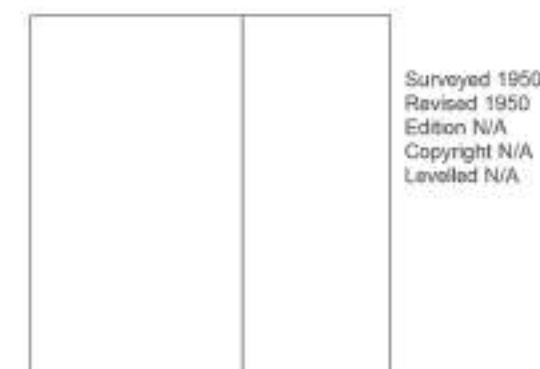
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**Map date:** 1950

**Scale:** 1:2,500

**Printed at:** 1:2,500



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

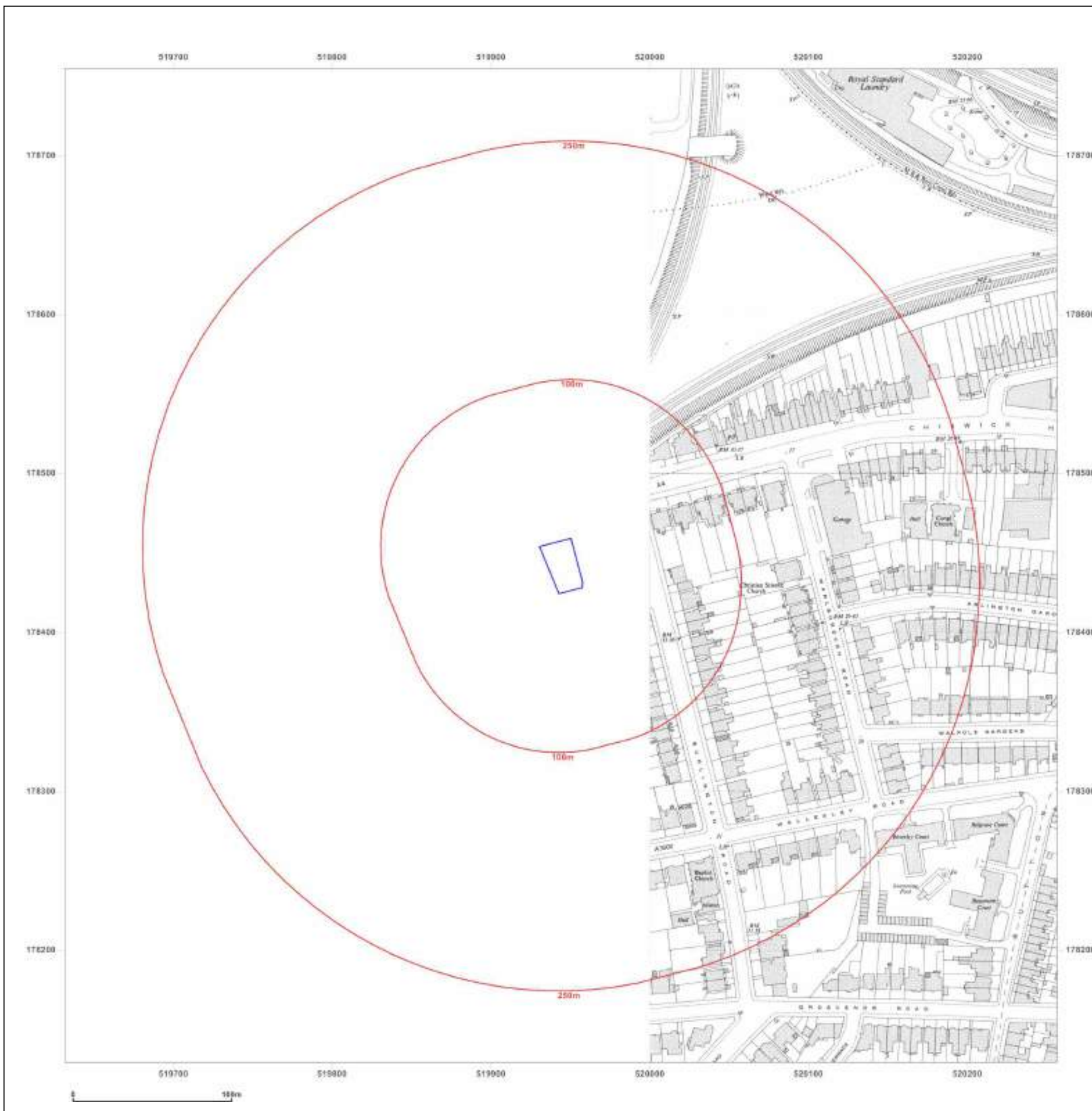


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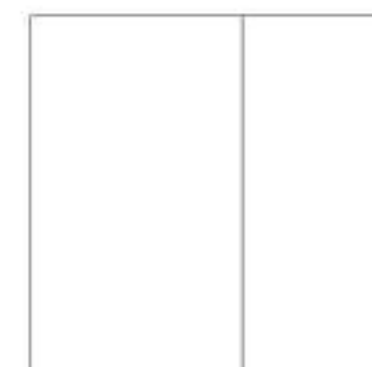
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**Map date:** 1950

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Surveyed 1950  
Revised 1950  
Edition N/A  
Copyright N/A  
Levelled 1932

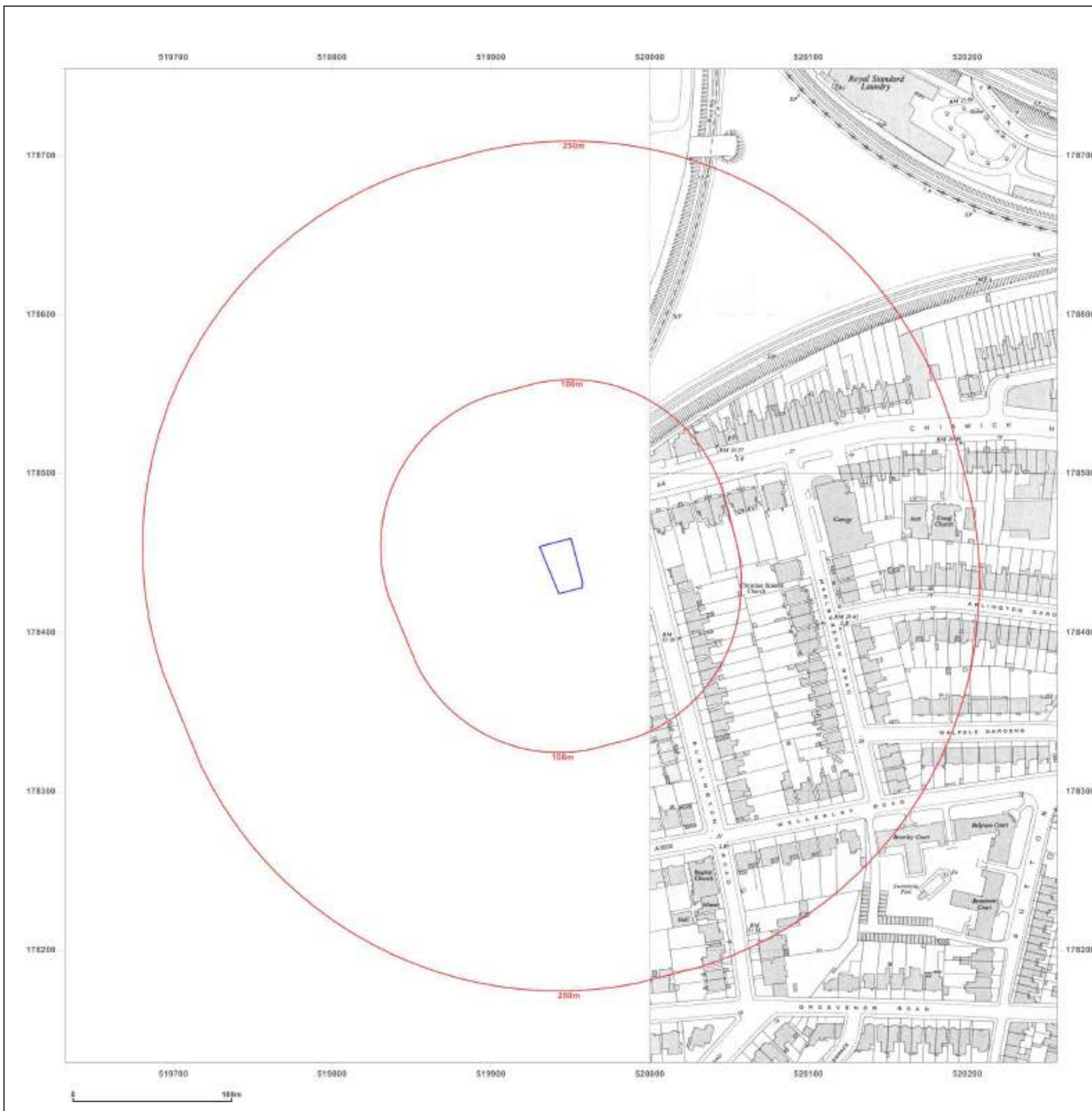


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**Map Name:** National Grid

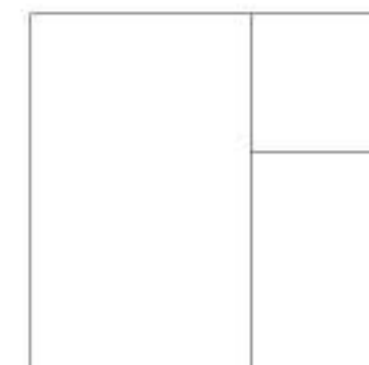
**Map date:** 1951

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**Printed at:** 1:2,000



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



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Revised N/A  
Edition N/A  
Copyright N/A  
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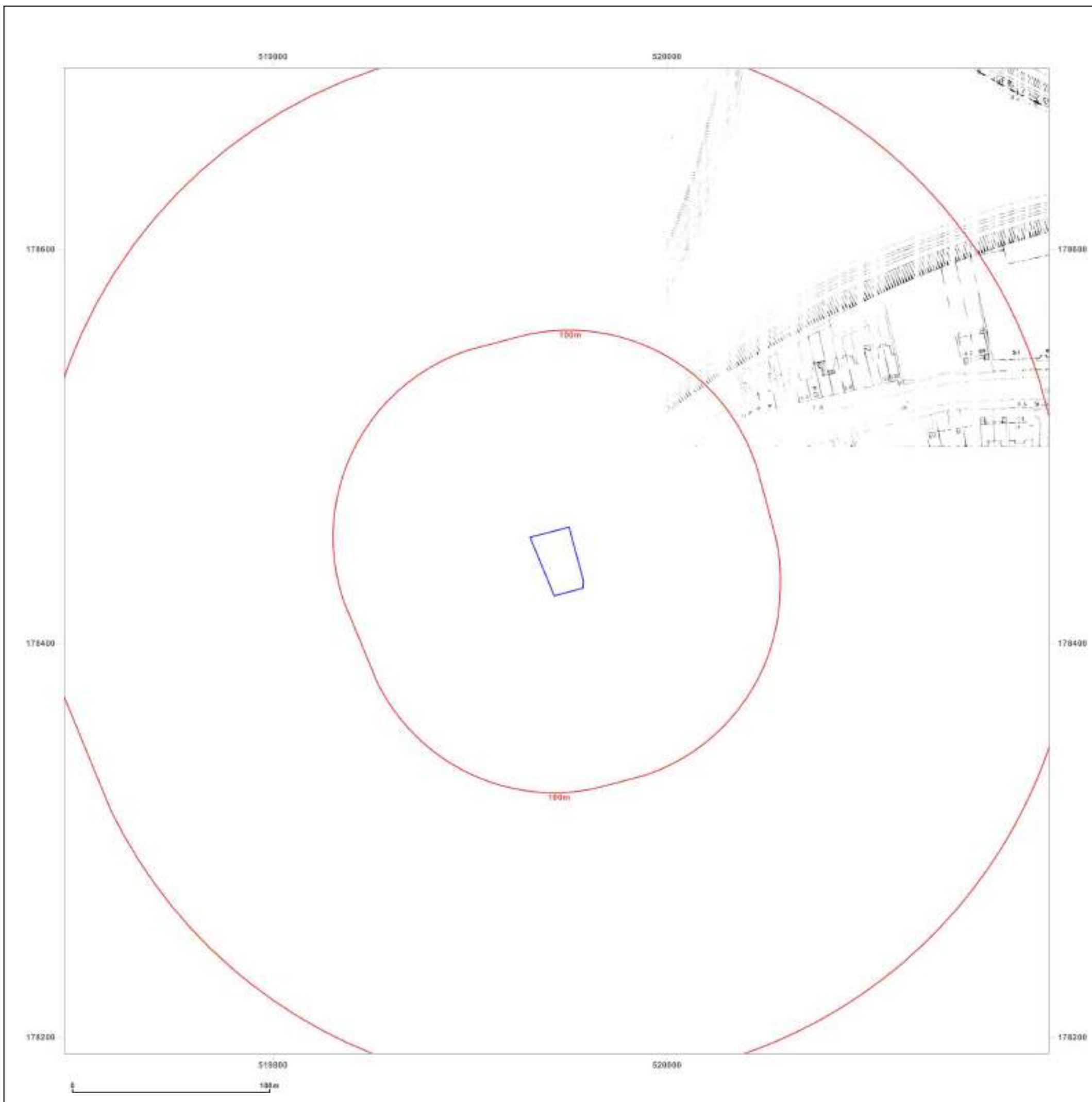


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**Grid Ref:** 519944, 178442

**Map Name:** National Grid

**Map date:** 1960

**Scale:** 1:2,500

**Printed at:** 1:2,500



Surveyed 1960  
Revised 1960  
Edition 1962  
Copyright 1962  
Levelled 1957

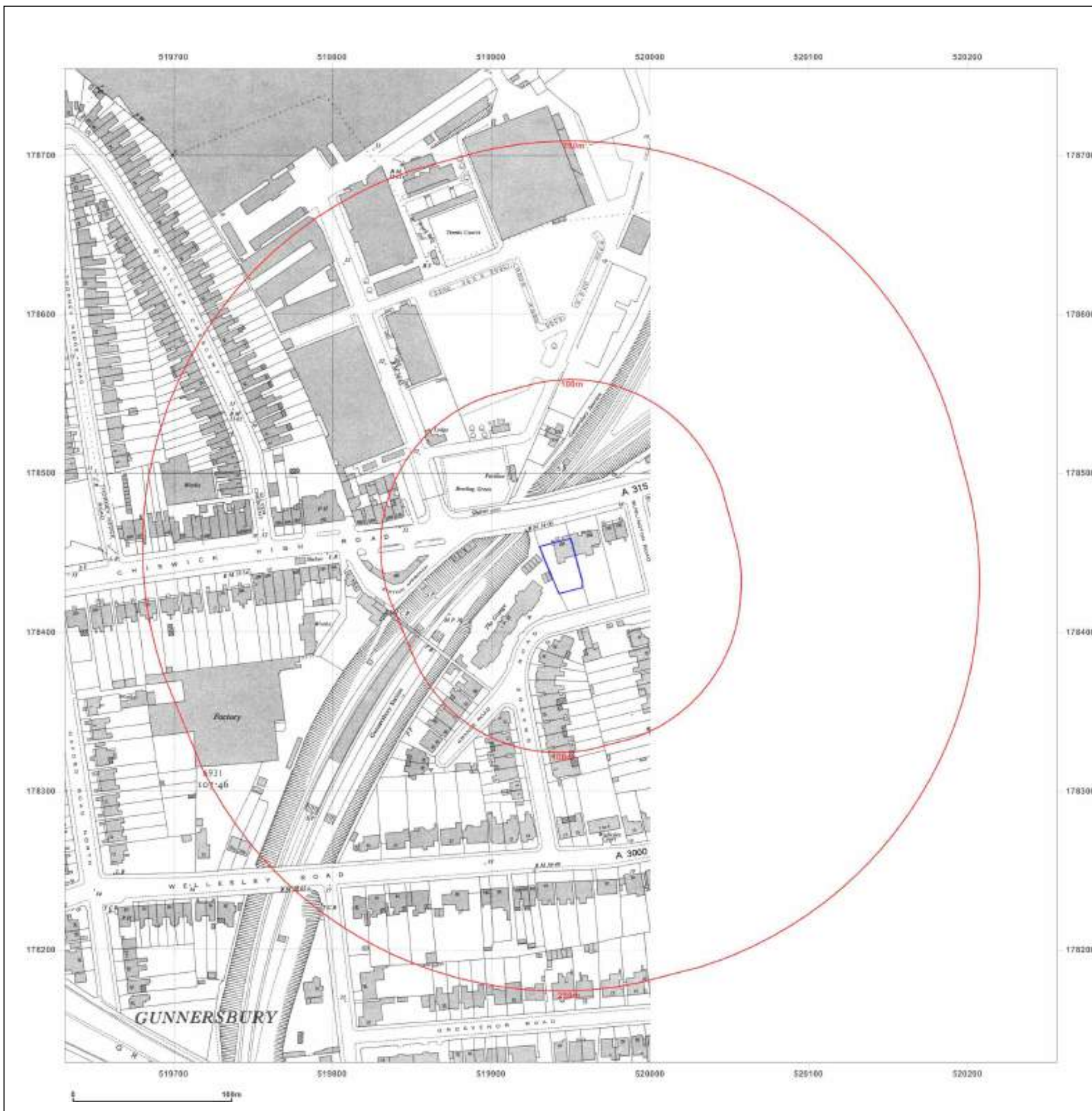


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**Client Ref:** 14023929  
**Report Ref:** GS-5910846  
**Grid Ref:** 519944, 178442

**Map Name:** National Grid

**Map date:** 1962

**Scale:** 1:2,500

**Printed at:** 1:2,500



Surveyed N/A  
Revised N/A  
Edition 1962  
Copyright 1962  
Levelled 1957

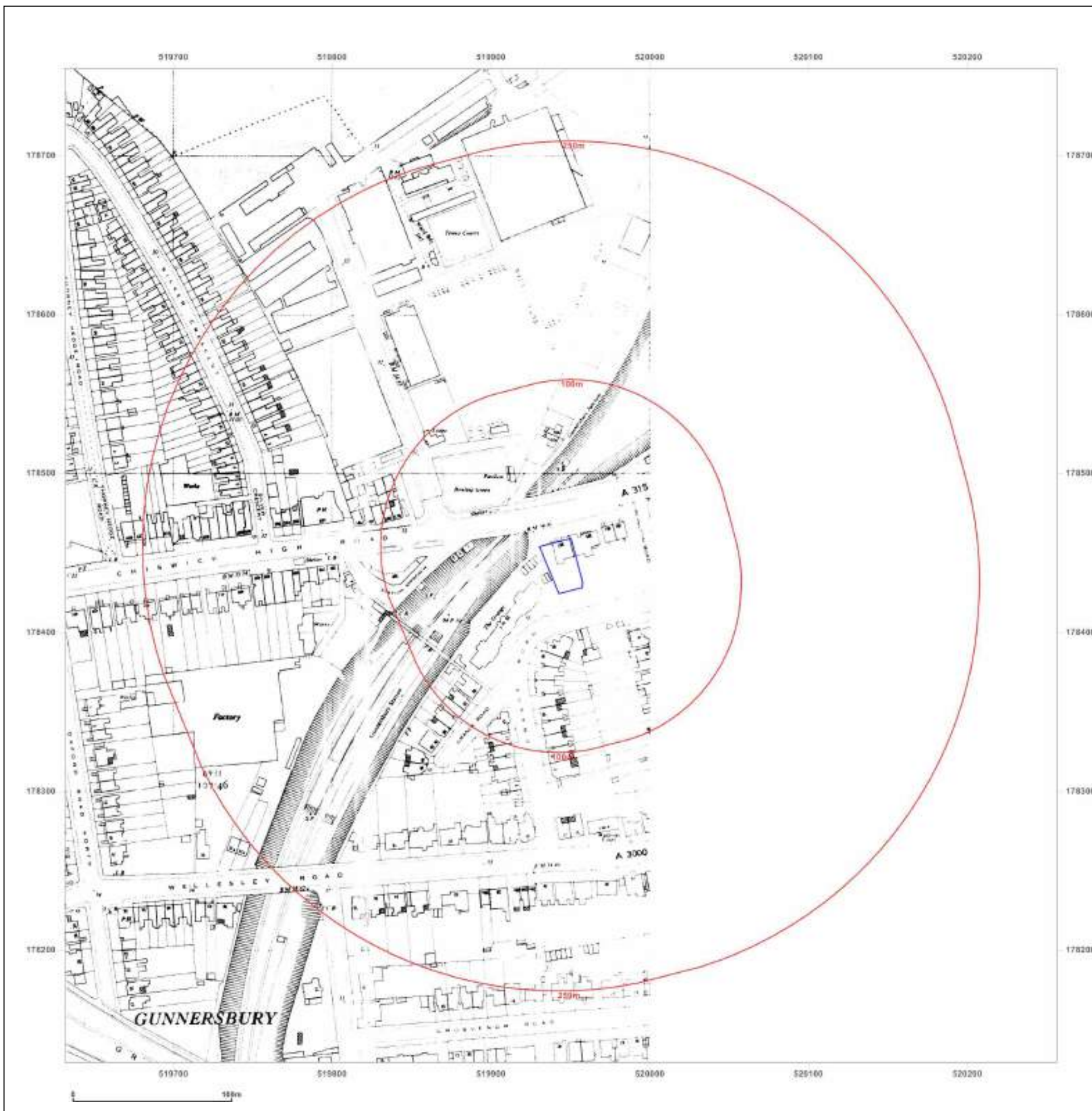


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**Map Name:** National Grid

**Map date:** 1962

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Surveyed N/A  
Revised 1965  
Edition 1962  
Copyright 1962  
Levelled 1957

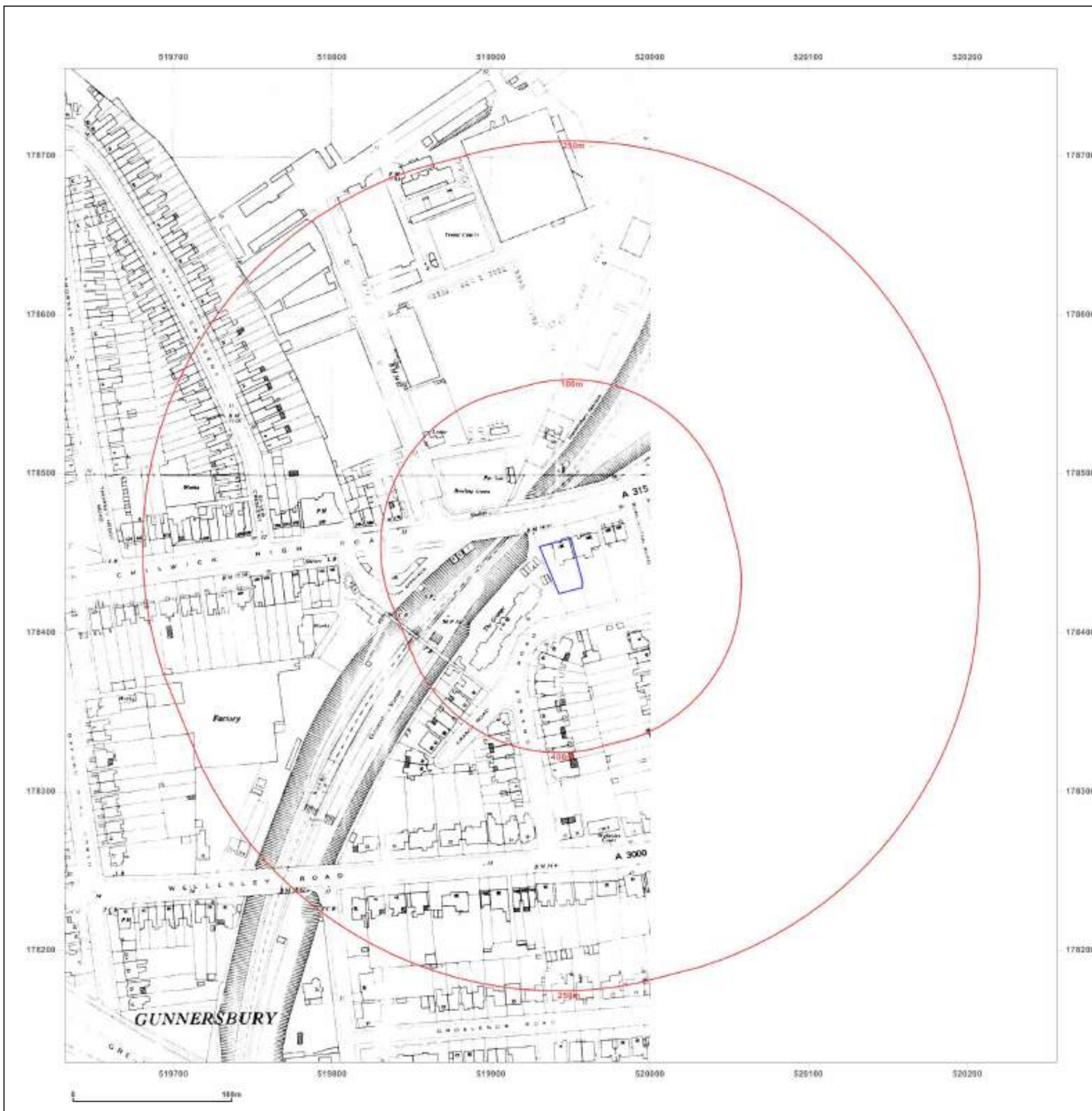


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**Map Name:** National Grid

**Map date:** 1961-1965

**Scale:** 1:1,250

**Printed at:** 1:2,000



Surveyed 1959  
Revised 1959  
Edition N/A  
Copyright 1961  
Levelled 1957

Surveyed 1950  
Revised 1964  
Edition N/A  
Copyright 1965  
Levelled 1957

Surveyed 1959  
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Edition N/A  
Copyright 1961  
Levelled 1957

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Revised 1961  
Edition N/A  
Copyright 1962  
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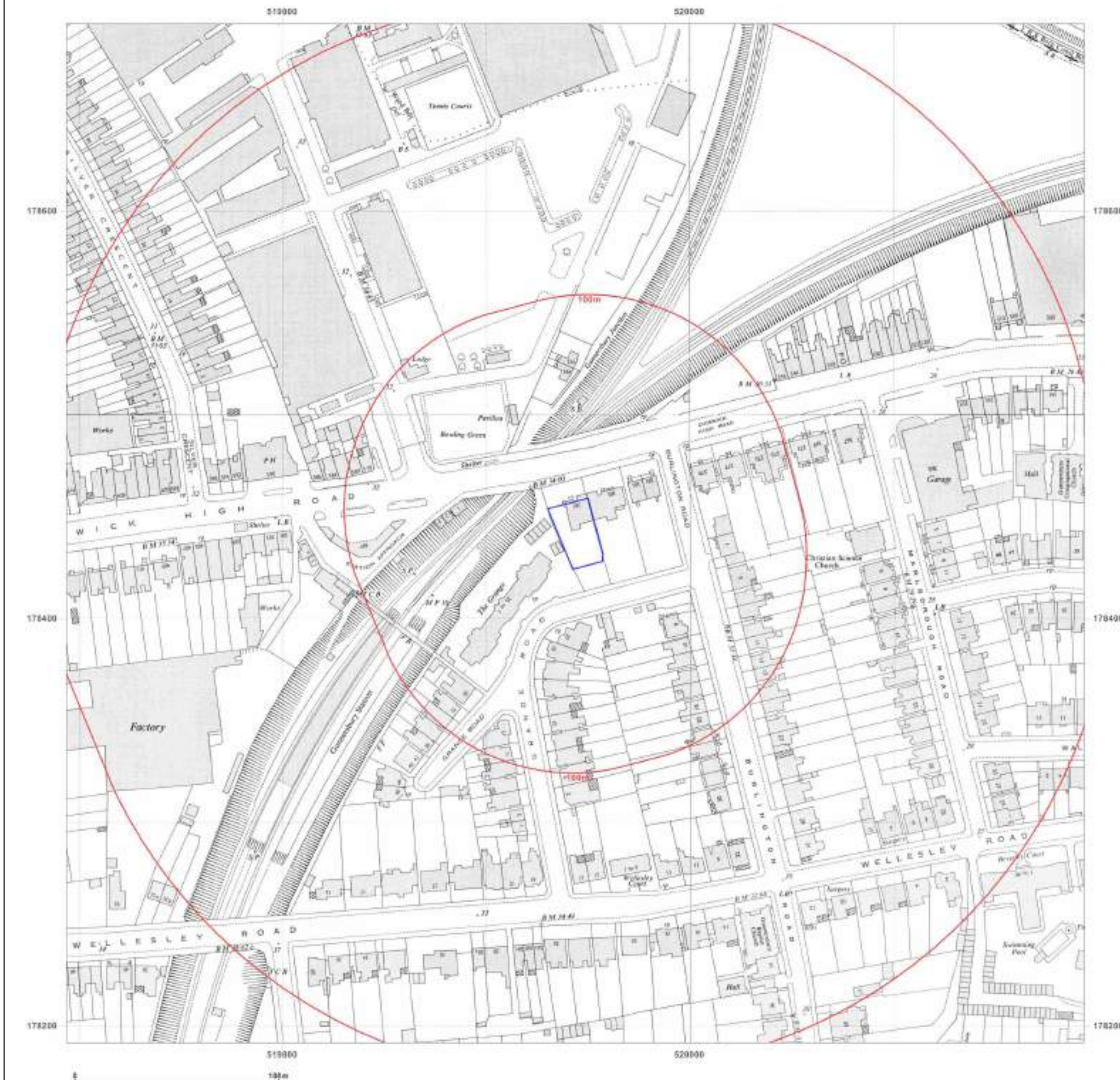


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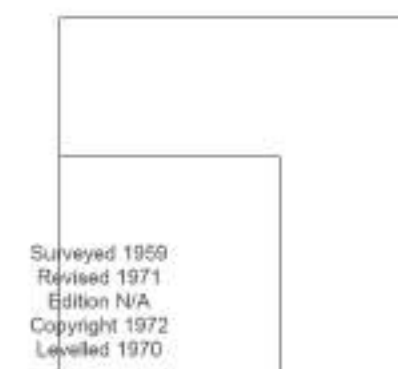
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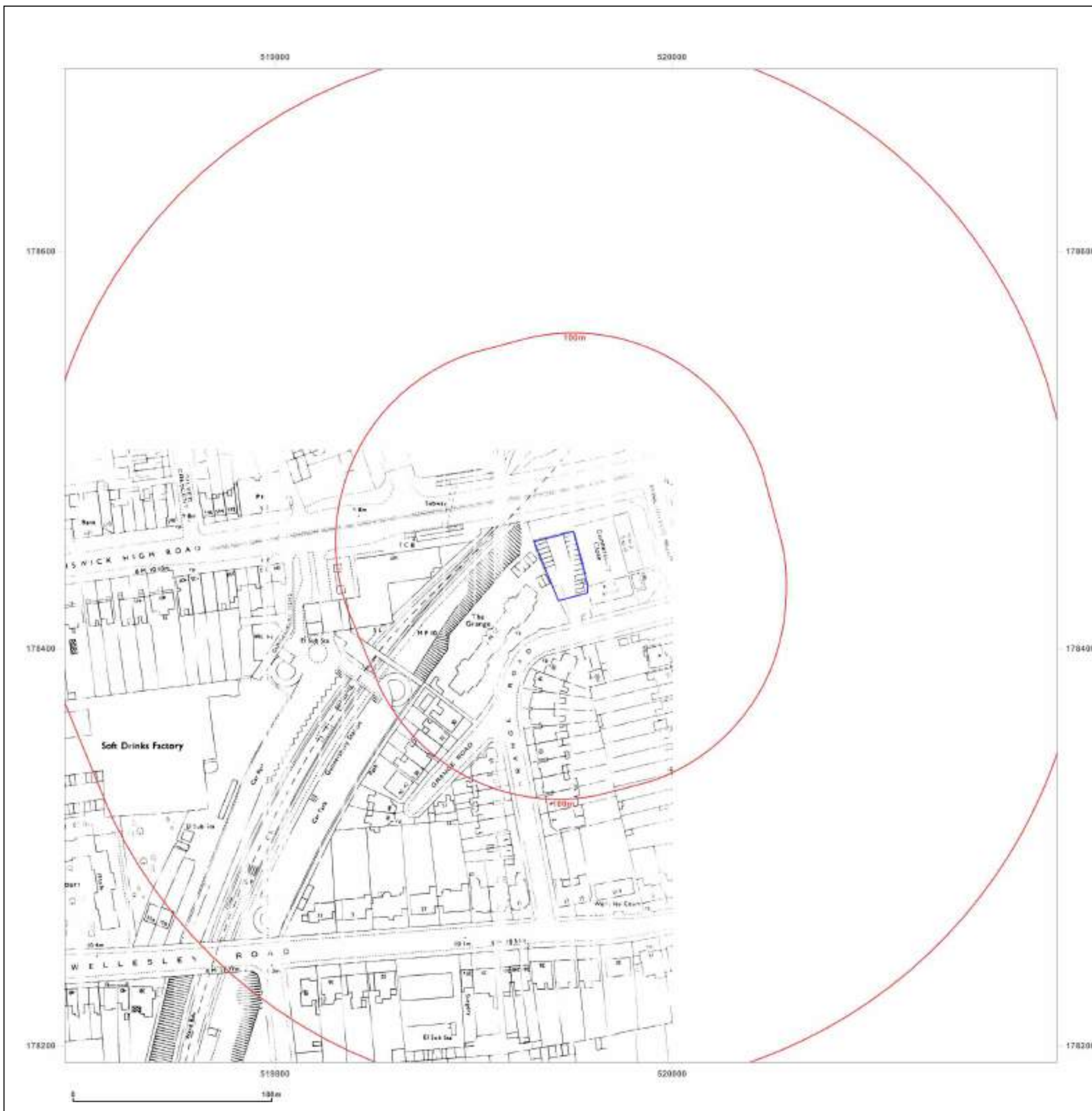


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**Client Ref:** 14023929  
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**Grid Ref:** 519944, 178442

**Map Name:** National Grid

**Map date:** 1971-1974

**Scale:** 1:1,250

**Printed at:** 1:2,000



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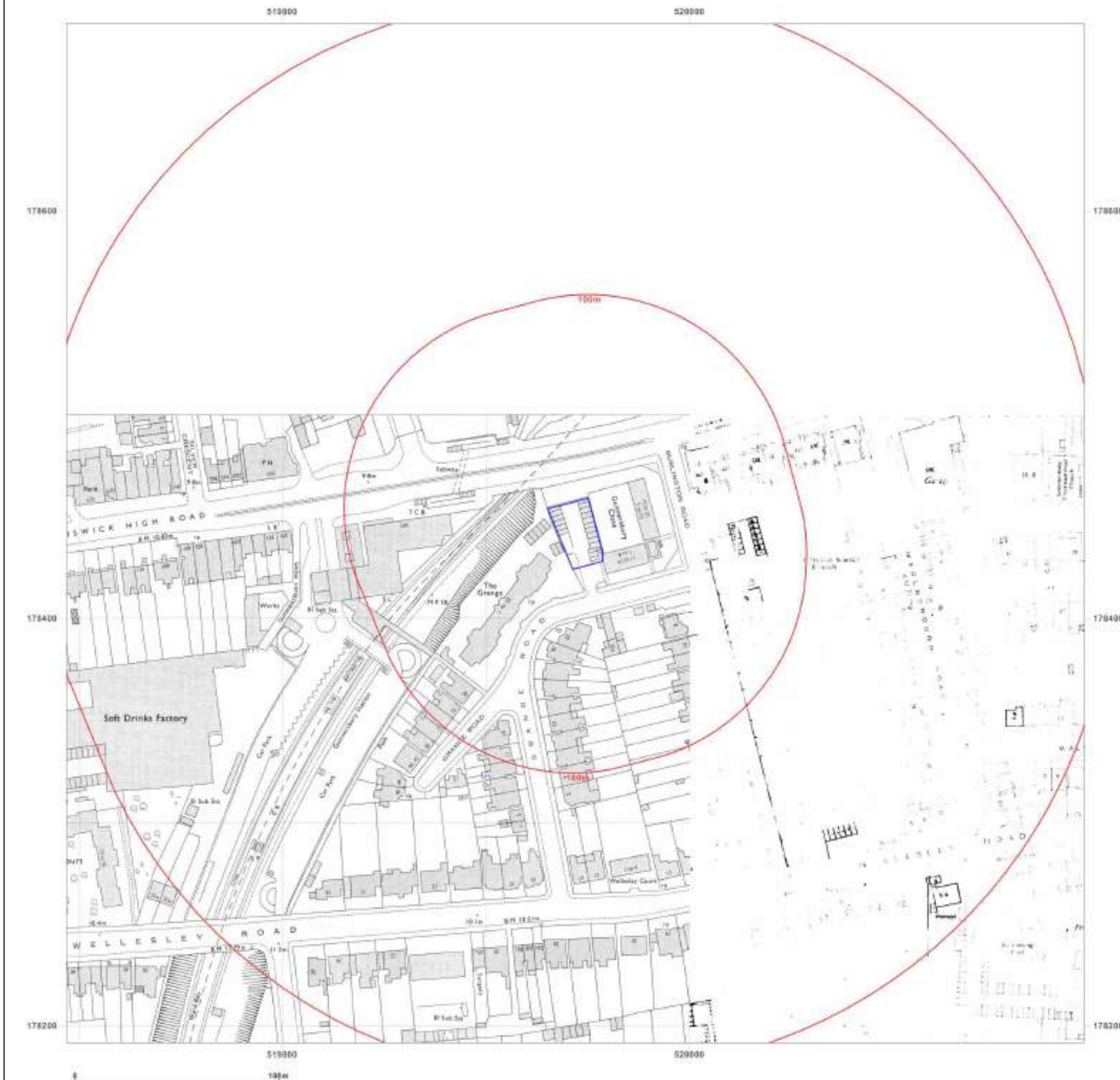


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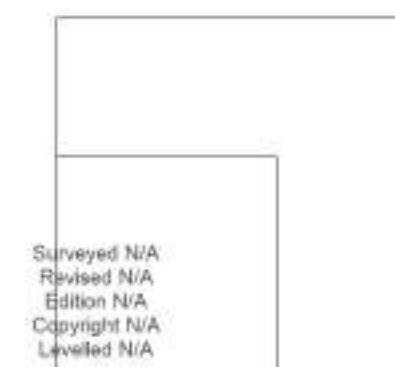
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**Report Ref:** GS-5910846  
**Grid Ref:** 519944, 178442

**Map Name:** National Grid

**Map date:** 1974

**Scale:** 1:1,250

**Printed at:** 1:2,000



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Edition N/A  
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**Client Ref:** 14023929  
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**Grid Ref:** 519944, 178442

**Map Name:** National Grid

**Map date:** 1982-1988

**Scale:** 1:1,250

**Printed at:** 1:2,000



Surveyed 1975  
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Edition N/A  
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Surveyed 1970  
Revised 1988  
Edition N/A  
Copyright 1988  
Levelled 1970

Surveyed 1975  
Revised 1983  
Edition N/A  
Copyright 1983  
Levelled 1975

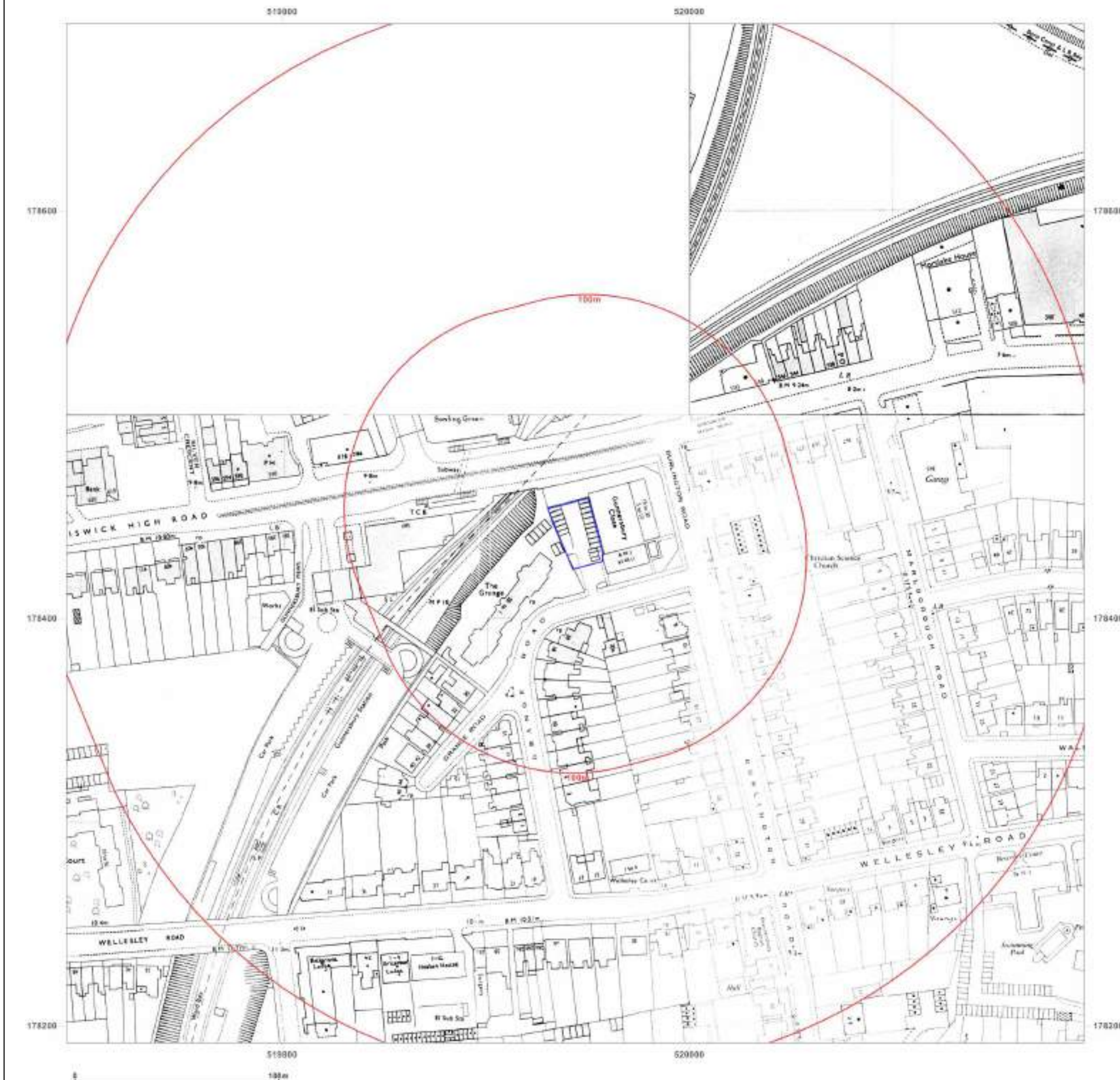


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**Map Name:** National Grid

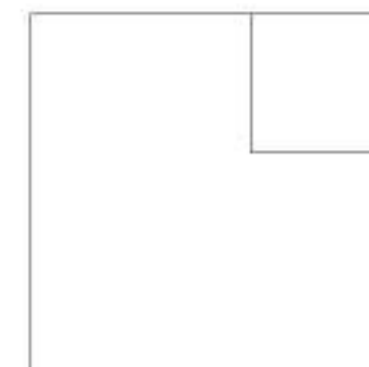
**Map date:** 1991

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**Map date:** 1990-1991

**Scale:** 1:1,250

**Printed at:** 1:2,000



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Revised 1990  
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Edition N/A  
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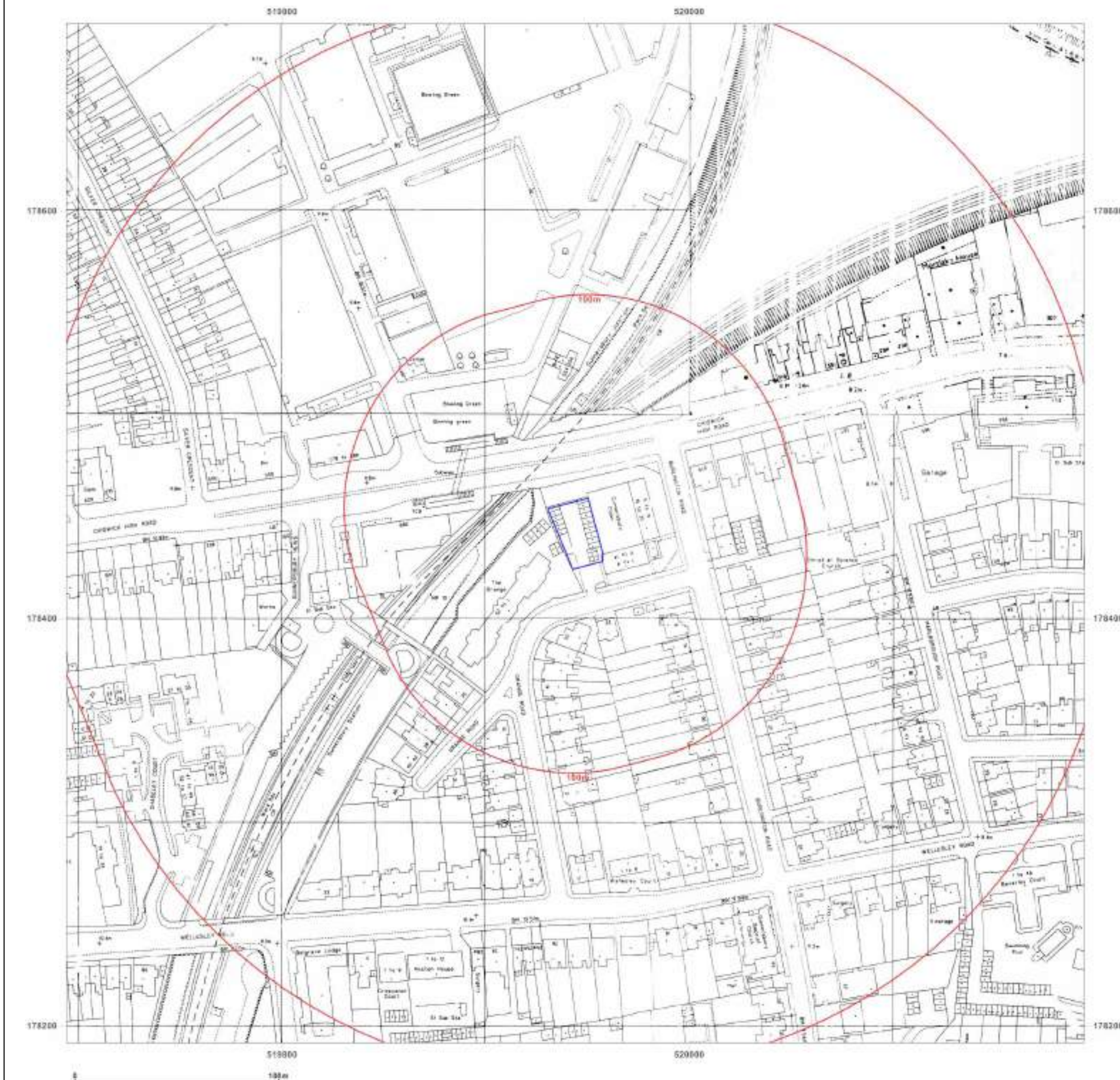


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**Report Ref:** GS-5910846  
**Grid Ref:** 519944, 178442

**Map Name:** National Grid

**Map date:** 1990-1993

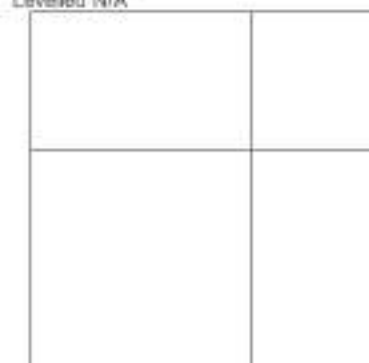
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**Printed at:** 1:2,000



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Revised N/A  
Edition N/A  
Copyright 1993  
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Surveyed 1975  
Revised 1990  
Edition N/A  
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Levelled 1975



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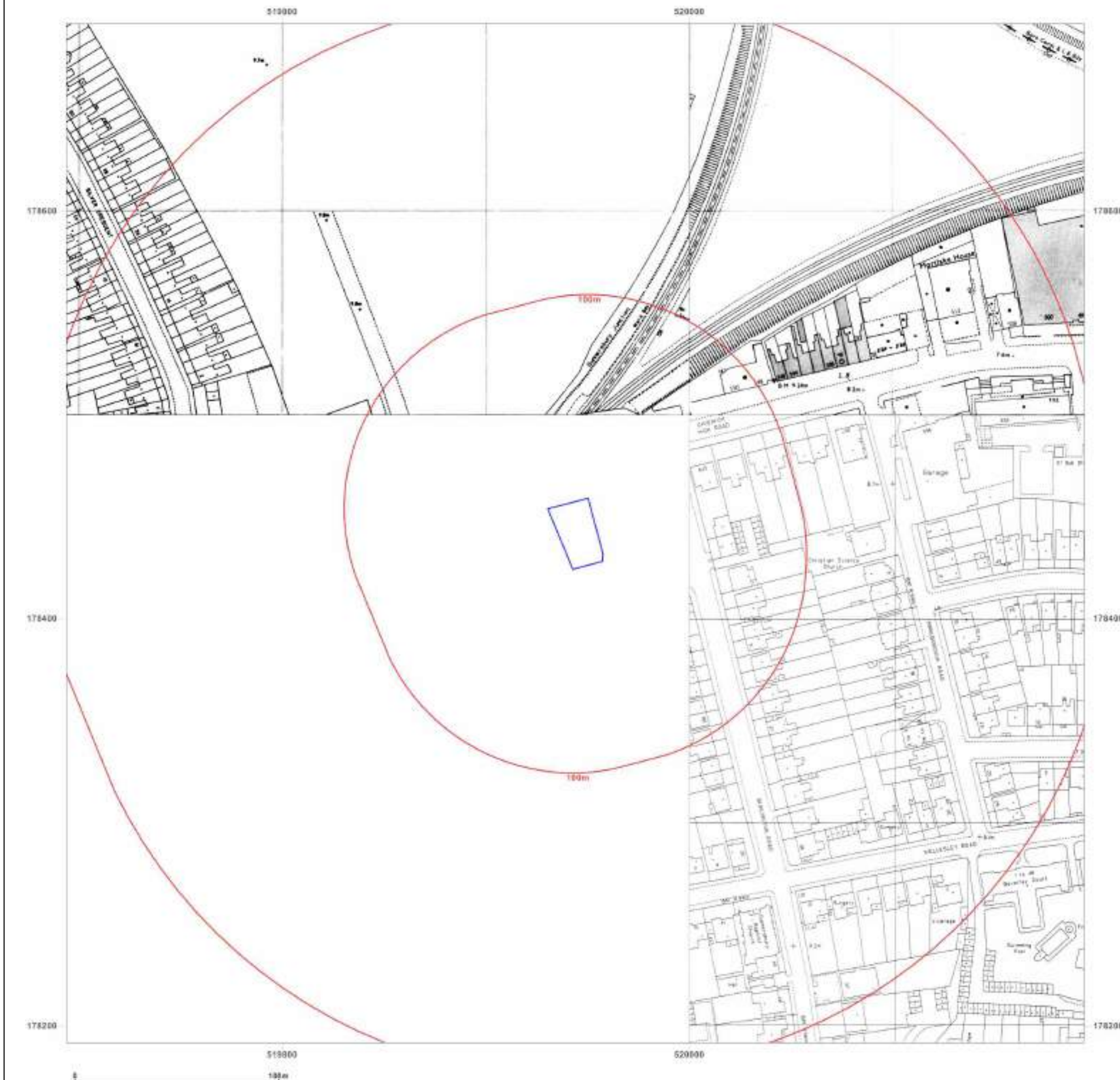


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**Grid Ref:** 519944, 178442

**Map Name:** National Grid

**Map date:** 1991-1993

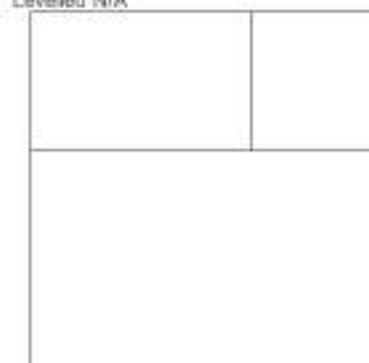
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**Printed at:** 1:2,000



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Revised N/A  
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Revised N/A  
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**Client Ref:** 14023929  
**Report Ref:** GS-5910846  
**Grid Ref:** 519944, 178442

**Map Name:** County Series

**Map date:** 1866-1867

**Scale:** 1:10,560

**Printed at:** 1:10,560



Surveyed 1867  
Revised 1867  
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Surveyed 1866  
Revised 1866  
Edition N/A  
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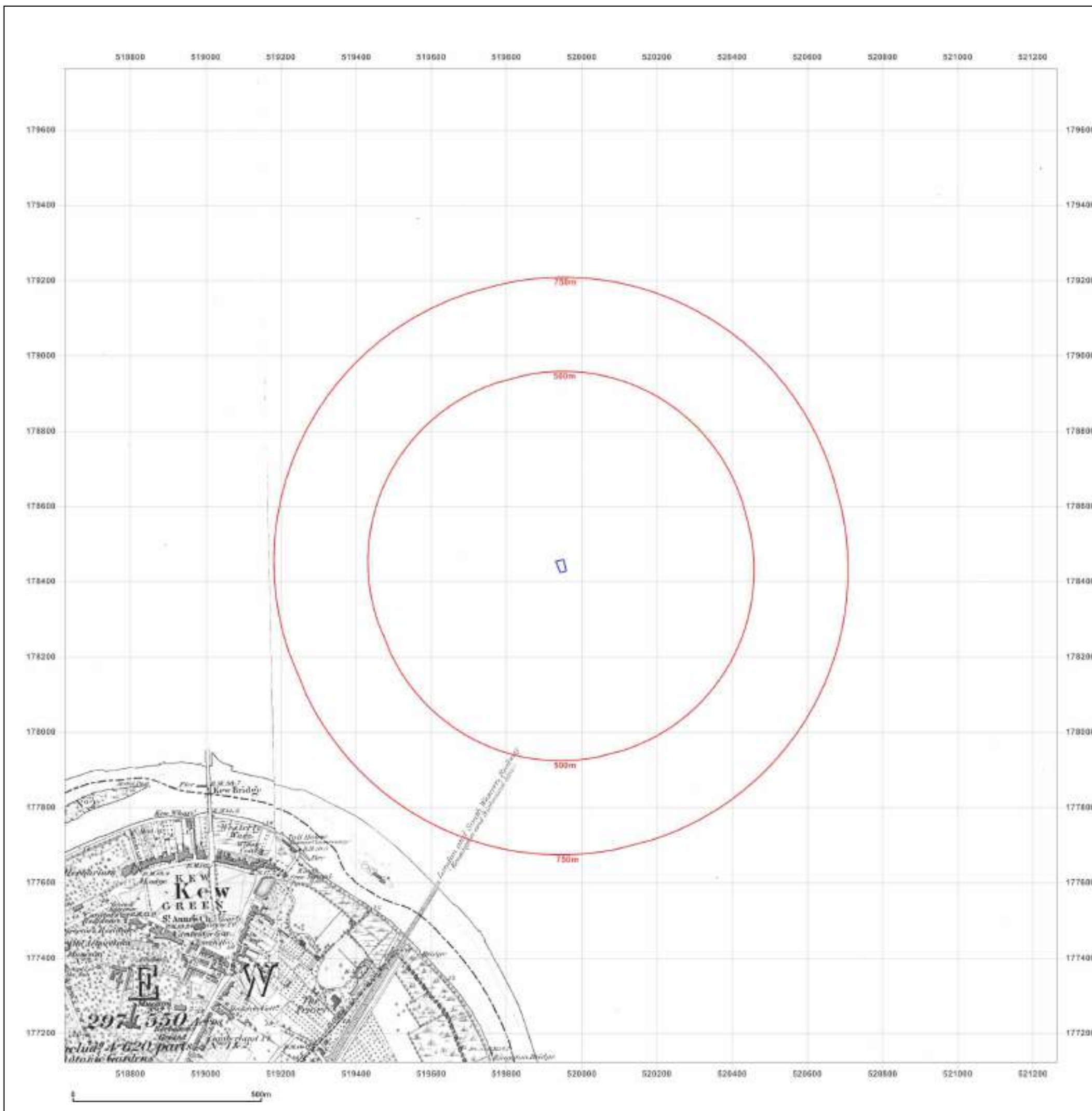


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Client Ref: 14023929  
Report Ref: GS-5910846  
Grid Ref: 519944, 178442

Map Name: County Series

Map date: 1873-1874

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1868  
Revised 1874  
Edition N/A  
Copyright N/A  
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Surveyed 1868  
Revised 1873  
Edition N/A  
Copyright N/A  
Levelled N/A

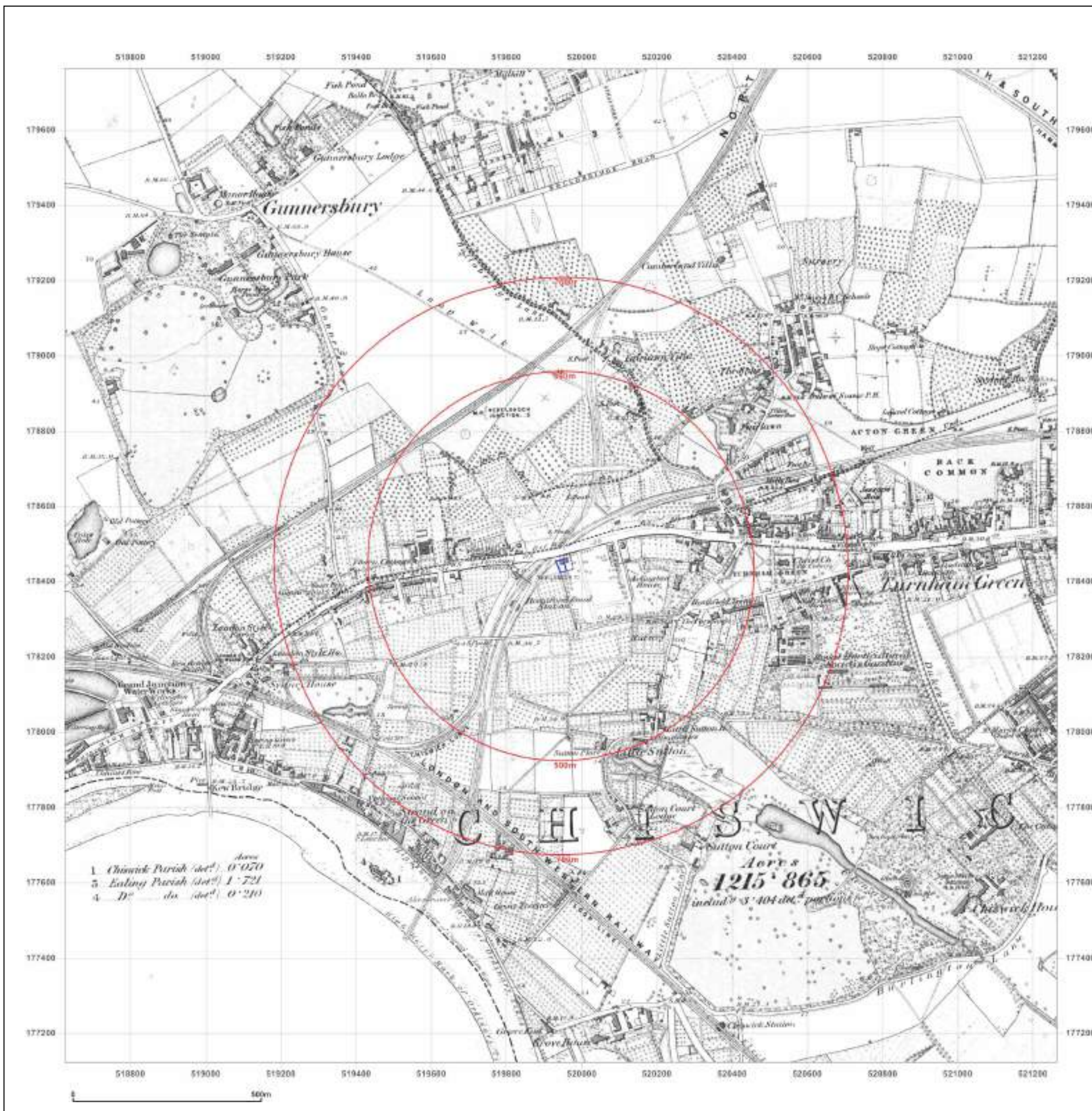


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**Client Ref:** 14023929  
**Report Ref:** GS-5910846  
**Grid Ref:** 519944, 178442

**Map Name:** County Series

**Map date:** 1893-1894

**Scale:** 1:10,560

**Printed at:** 1:10,560



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Revised 1894  
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Surveyed 1893  
Revised 1893  
Edition N/A  
Copyright N/A  
Levelled N/A

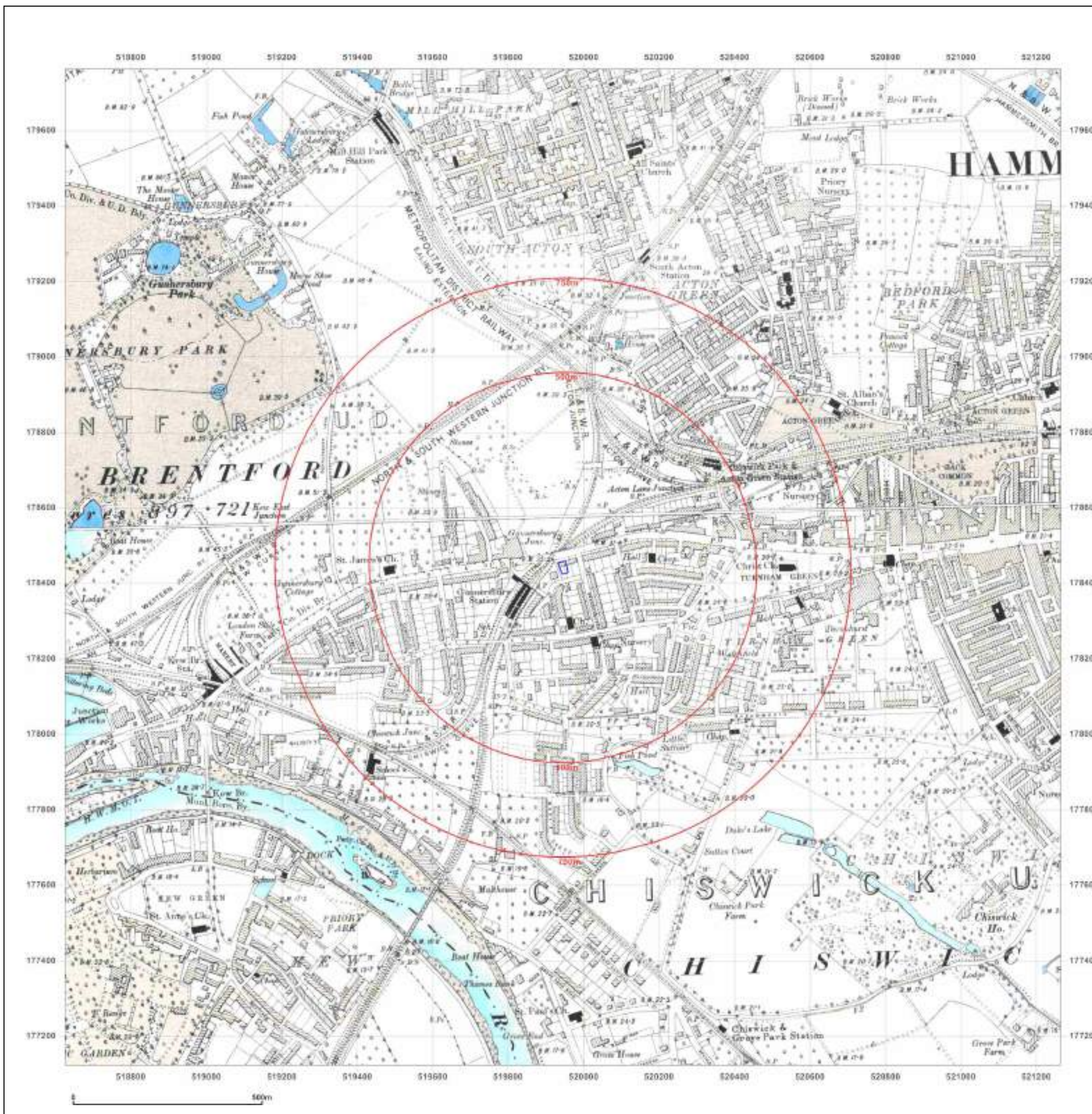


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**Client Ref:** 14023929  
**Report Ref:** GS-5910846  
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**Map Name:** County Series

**Map date:** 1894

**Scale:** 1:10,560

**Printed at:** 1:10,560



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Revised 1894  
Edition N/A  
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Surveyed 1888  
Revised 1894  
Edition N/A  
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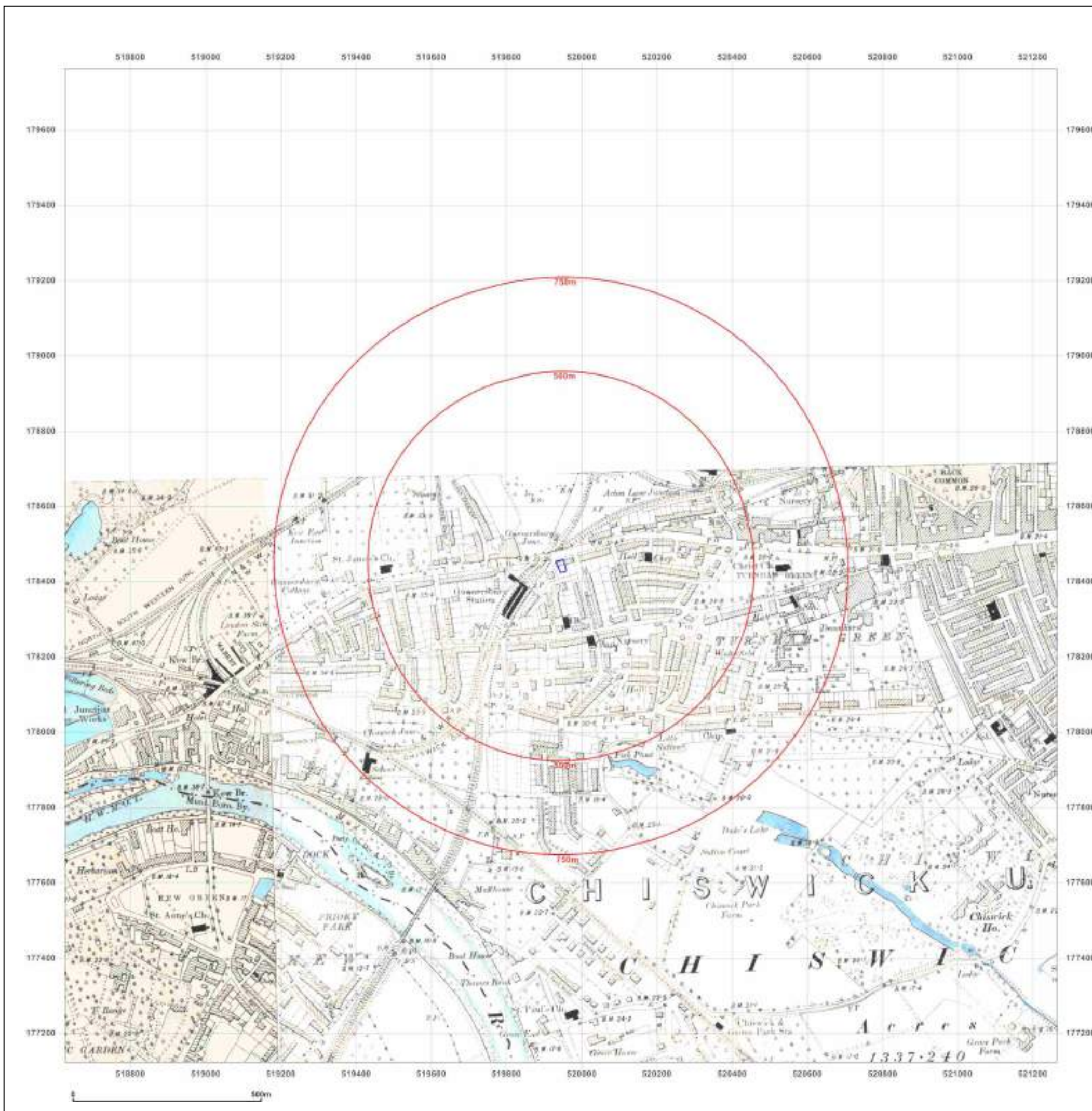


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Client Ref: 14023929  
Report Ref: GS-5910846  
Grid Ref: 519944, 178442

Map Name: County Series

Map date: 1896

Scale: 1:10,560

Printed at: 1:10,560



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**Client Ref:** 14023929  
**Report Ref:** GS-5910846  
**Grid Ref:** 519944, 178442

**Map Name:** County Series

**Map date:** 1894-1898

**Scale:** 1:10,560

**Printed at:** 1:10,560



Surveyed 1888  
Revised 1894  
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Revised 1894  
Edition N/A  
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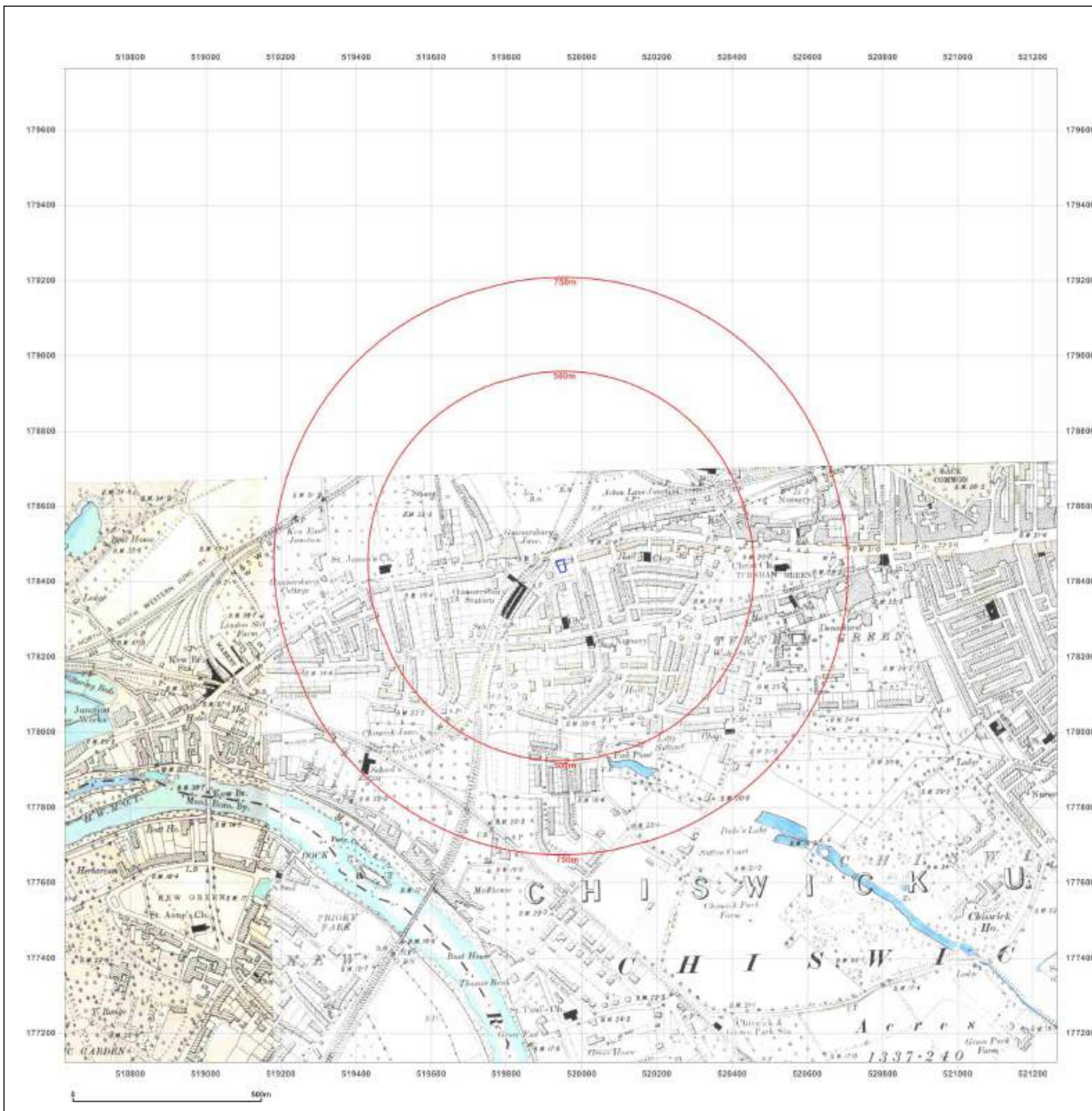


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**Client Ref:** 14023929  
**Report Ref:** GS-5910846  
**Grid Ref:** 519944, 178442

**Map Name:** County Series

**Map date:** 1919-1920

**Scale:** 1:10,560

**Printed at:** 1:10,560



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Revised 1920  
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Surveyed 1888  
Revised 1911  
Edition 1920  
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Surveyed 1888  
Revised 1919  
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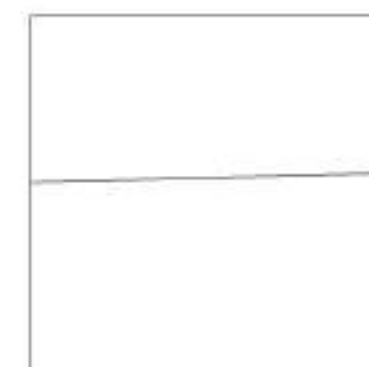
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**Map Name:** County Series

**Map date:** 1920

**Scale:** 1:10,560

**Printed at:** 1:10,560



Surveyed 1867  
Revised 1920  
Edition N/A  
Copyright N/A  
Levelled N/A

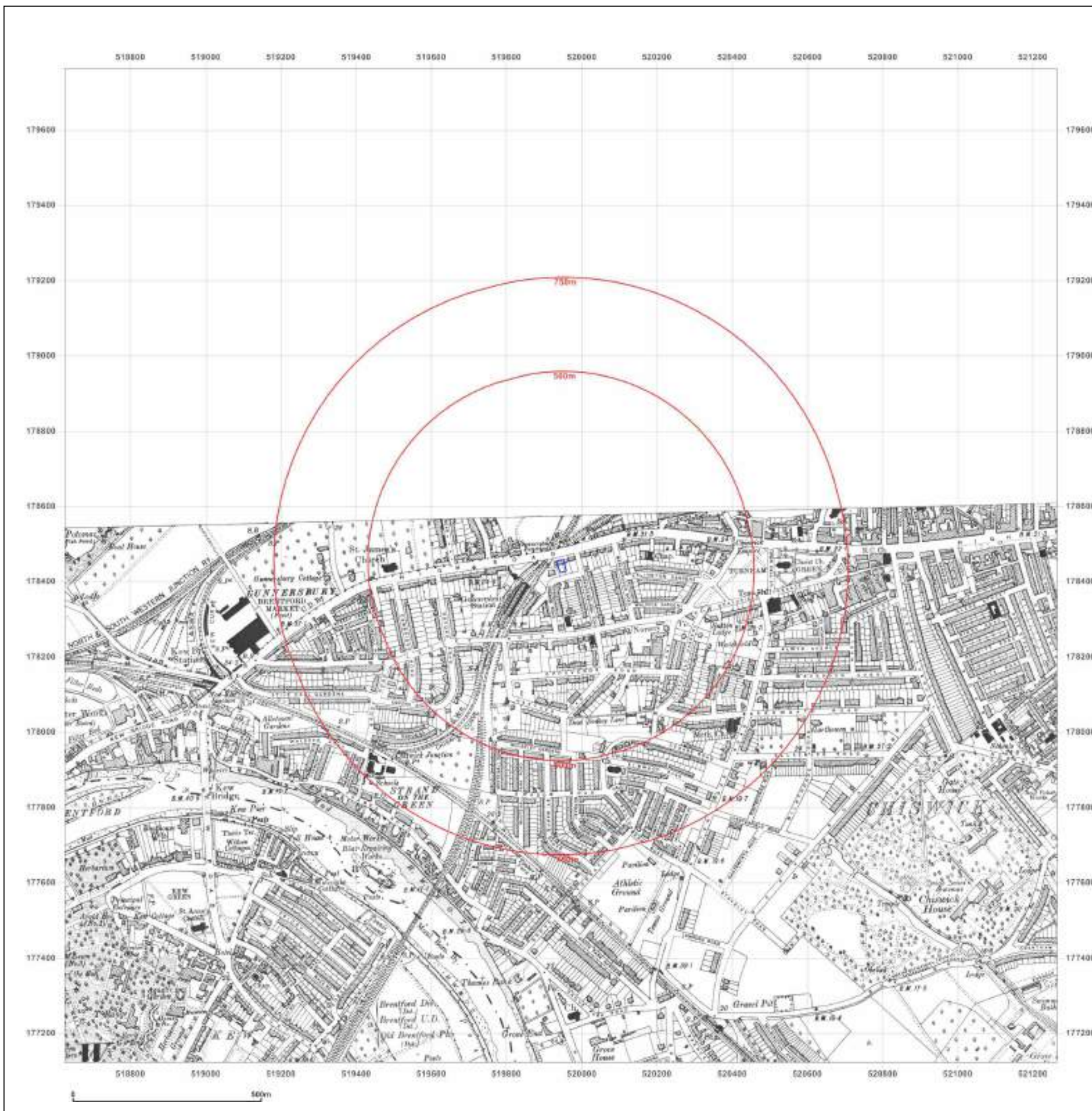


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**Client Ref:** 14023929  
**Report Ref:** GS-5910846  
**Grid Ref:** 519944, 178442

**Map Name:** County Series

**Map date:** 1933

**Scale:** 1:10,560

**Printed at:** 1:10,560



Surveyed 1888  
Revised 1933  
Edition N/A  
Copyright N/A  
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Surveyed 1888  
Revised 1933  
Edition N/A  
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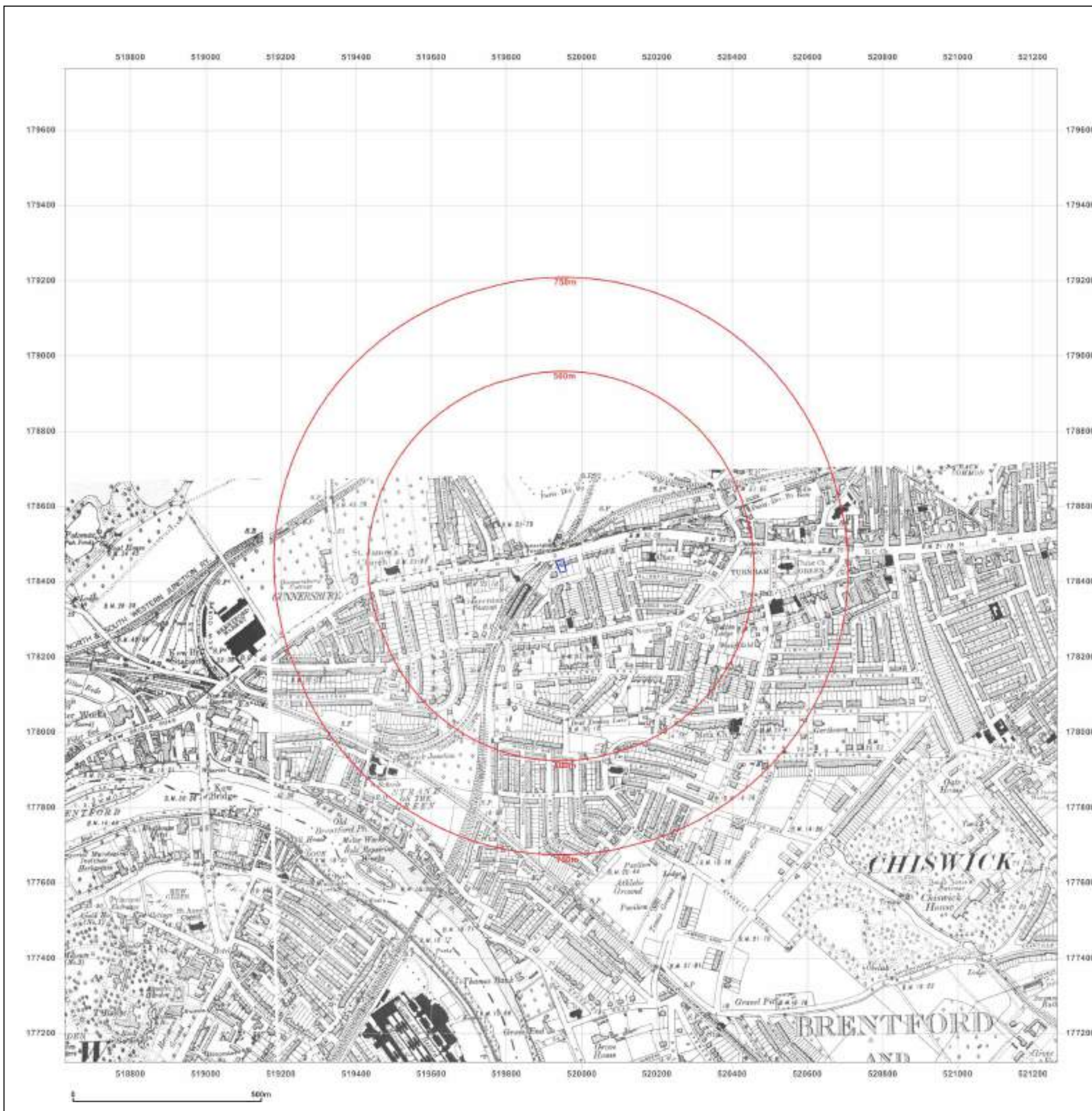


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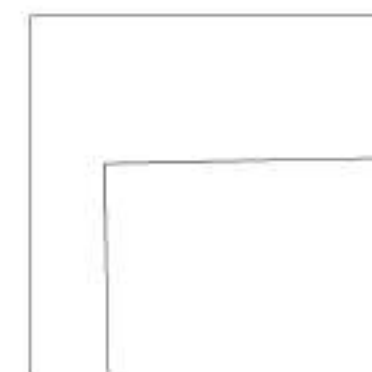
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**Map Name:** County Series

**Map date:** 1933

**Scale:** 1:10,560

**Printed at:** 1:10,560



Surveyed 1868  
Revised 1933  
Edition N/A  
Copyright N/A  
Levelled N/A

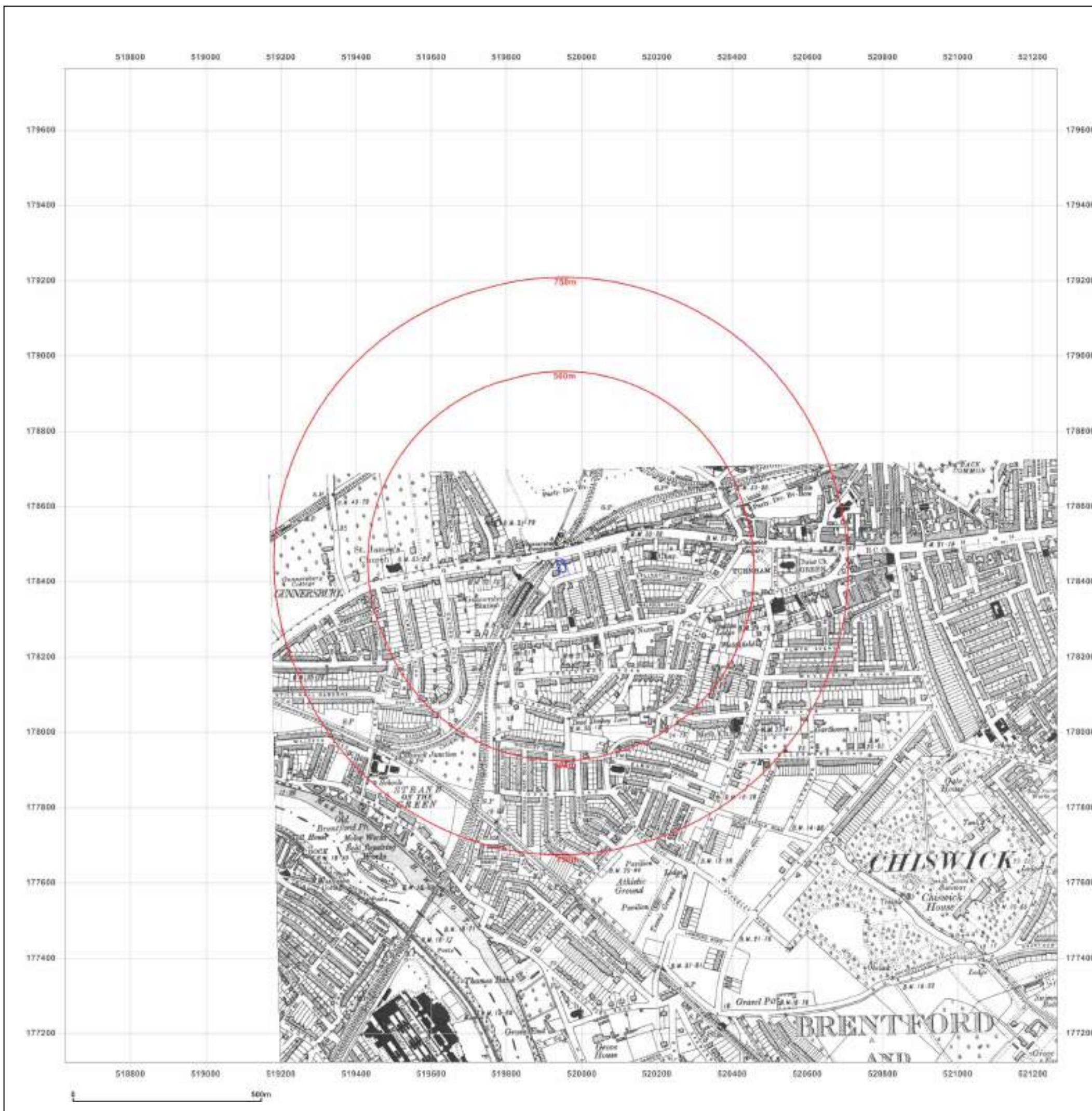


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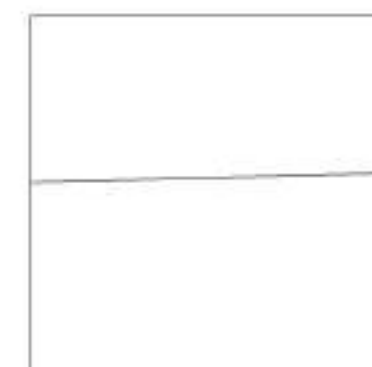
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**Grid Ref:** 519944, 178442

**Map Name:** County Series

**Map date:** 1938

**Scale:** 1:10,560

**Printed at:** 1:10,560



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**Client Ref:** 14023929  
**Report Ref:** GS-5910846  
**Grid Ref:** 519944, 178442

**Map Name:** Provisional

**Map date:** 1947-1948

**Scale:** 1:10,560

**Printed at:** 1:10,560



Surveyed 1940  
Revised 1948  
Edition N/A  
Copyright N/A  
Levelled 1934

Surveyed 1940  
Revised 1947  
Edition N/A  
Copyright N/A  
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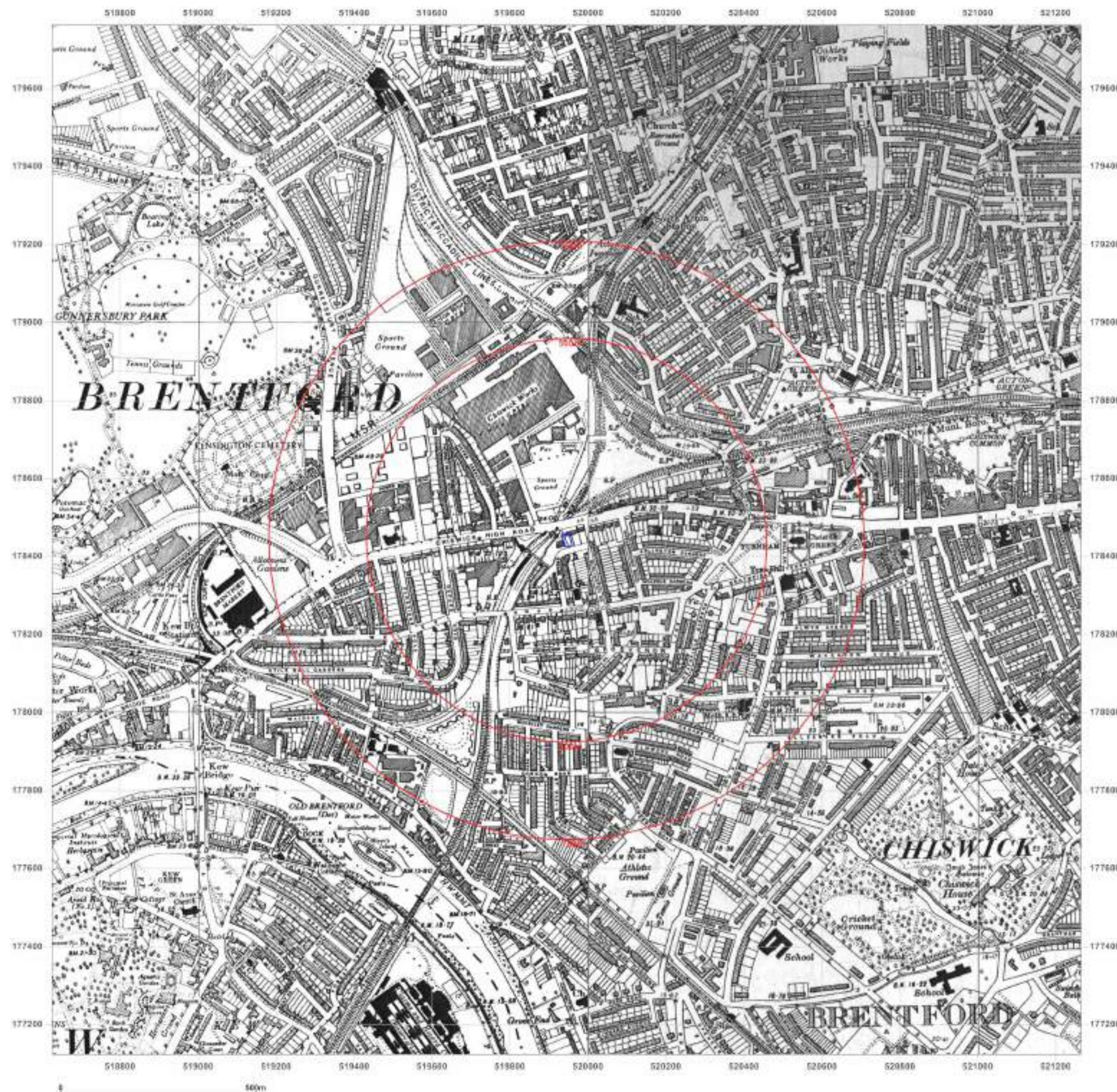


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**Client Ref:** 14023929  
**Report Ref:** GS-5910846  
**Grid Ref:** 519944, 178442

**Map Name:** Provisional

**Map date:** 1948

**Scale:** 1:10,560

**Printed at:** 1:10,560



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Revised 1948  
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**Client Ref:** 14023929  
**Report Ref:** GS-5910846  
**Grid Ref:** 519944, 178442

**Map Name:** Provisional

**Map date:** 1958-1961

**Scale:** 1:10,560

**Printed at:** 1:10,560



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Revised 1961  
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Revised 1958  
Edition N/A  
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**Client Ref:** 14023929  
**Report Ref:** GS-5910846  
**Grid Ref:** 519944, 178442

**Map Name:** Provisional

**Map date:** 1962-1966

**Scale:** 1:10,560

**Printed at:** 1:10,560



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Revised 1962  
Edition 1958  
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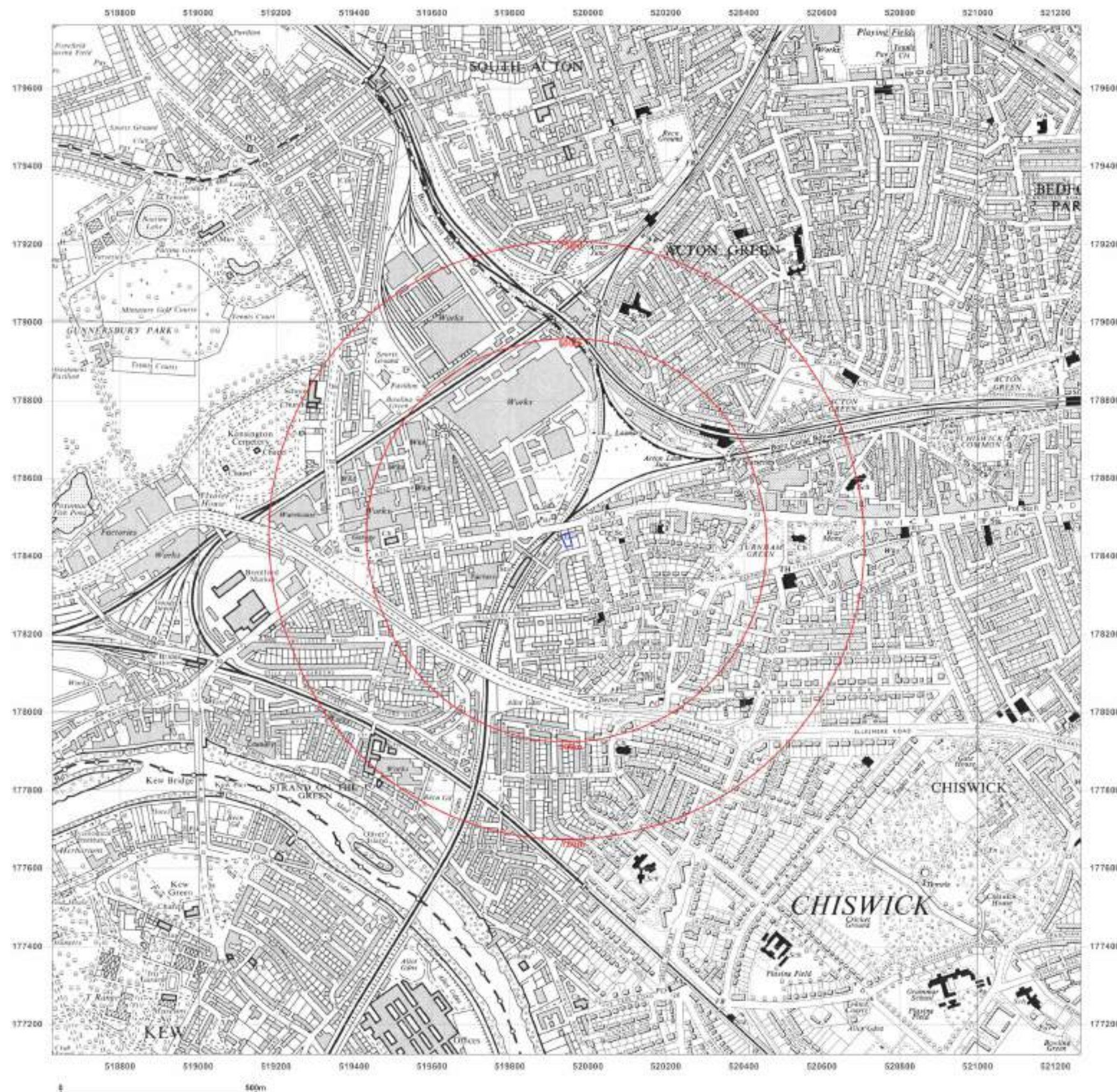


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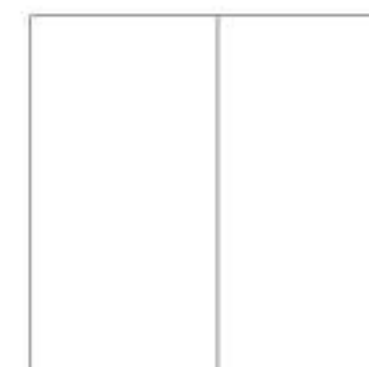
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**Report Ref:** GS-5910846  
**Grid Ref:** 519944, 178442

**Map Name:** Provisional

**Map date:** 1967

**Scale:** 1:10,560

**Printed at:** 1:10,560



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**Grid Ref:** 519944, 178442

**Map Name:** National Grid

**Map date:** 1974

**Scale:** 1:10,000

**Printed at:** 1:10,000



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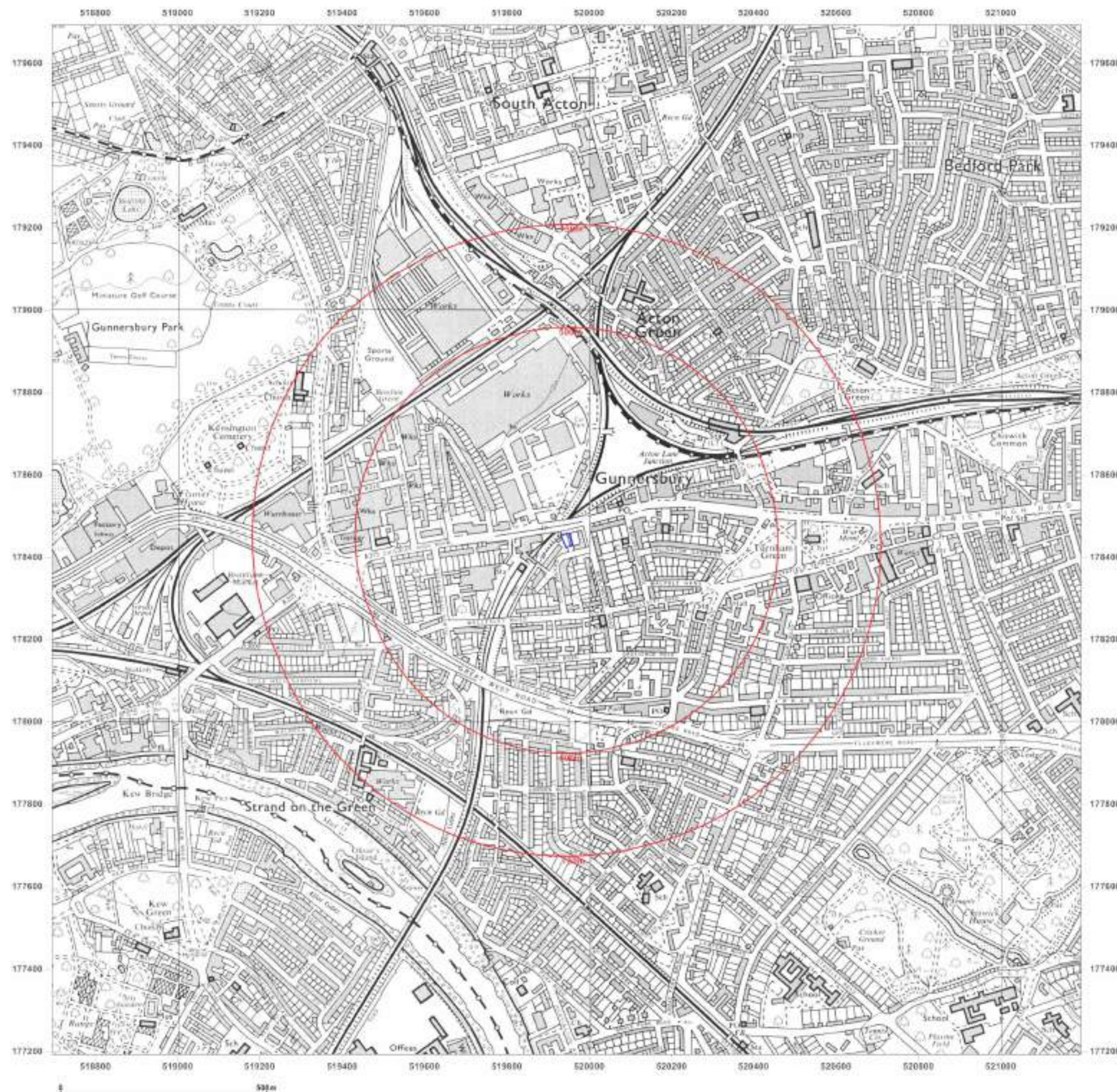


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**Map Name:** National Grid

**Map date:** 1987

**Scale:** 1:10,000

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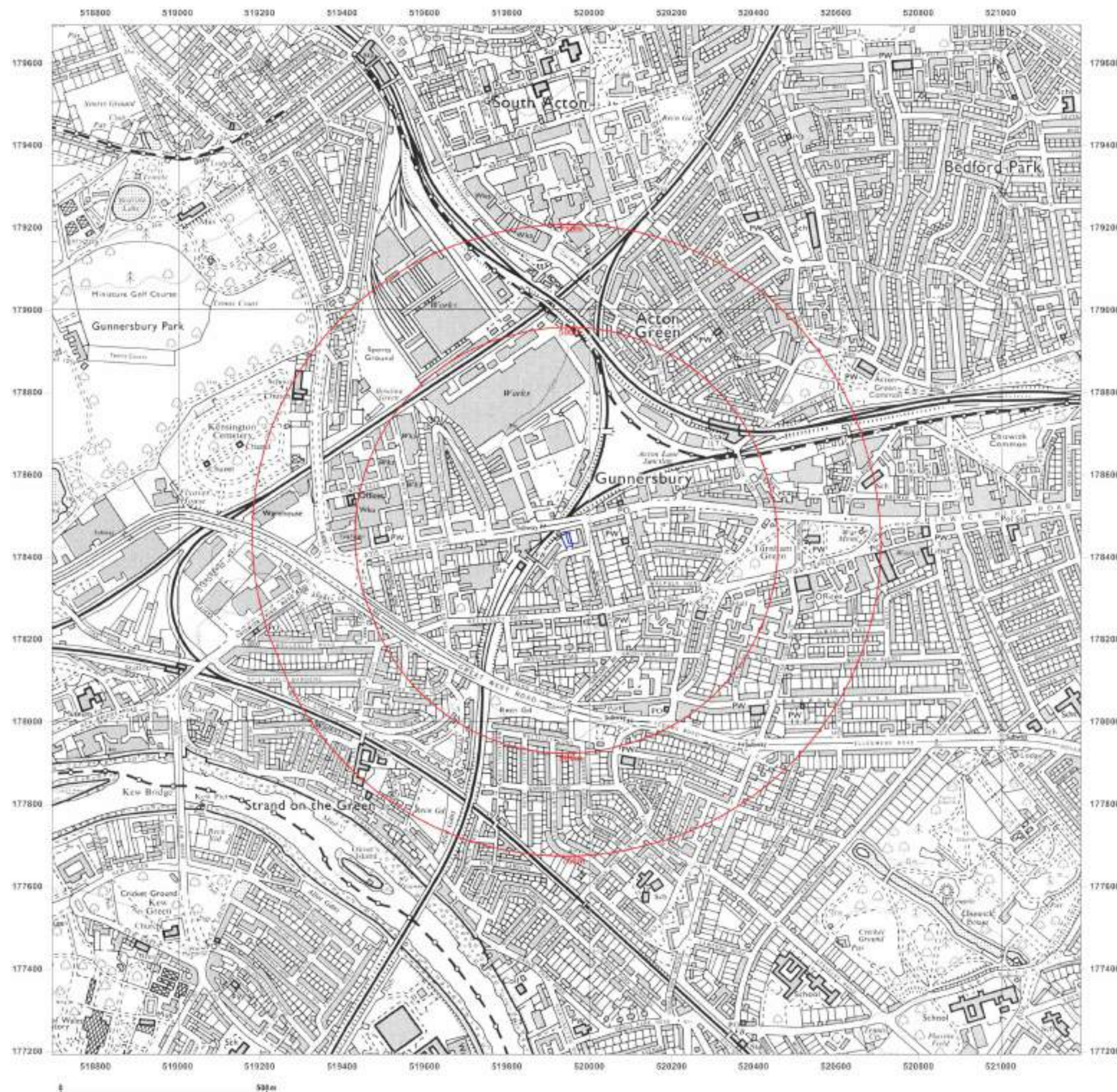


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**Client Ref:** 14023929  
**Report Ref:** GS-5910846  
**Grid Ref:** 519944, 178442

**Map Name:** 1:10,000 Raster

**Map date:** 2002

**Scale:** 1:10,000

**Printed at:** 1:10,000

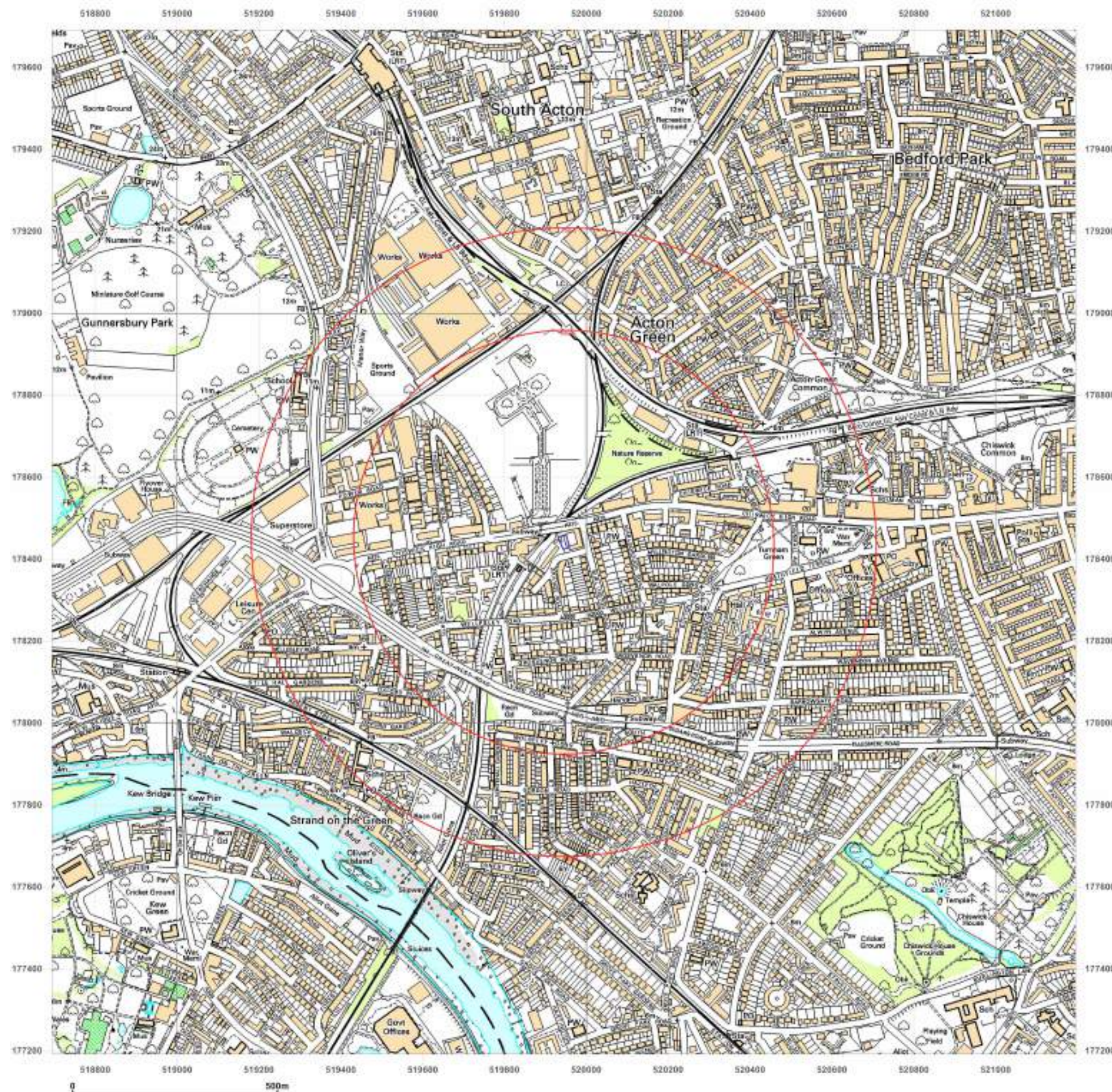


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**Report Ref:** GS-5910846  
**Grid Ref:** 519944, 178442

**Map Name:** National Grid

**Map date:** 2010

**Scale:** 1:10,000

**Printed at:** 1:10,000



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**Report Ref:** GS-5910846  
**Grid Ref:** 519944, 178442

**Map Name:** National Grid

**Map date:** 2014

**Scale:** 1:10,000

**Printed at:** 1:10,000

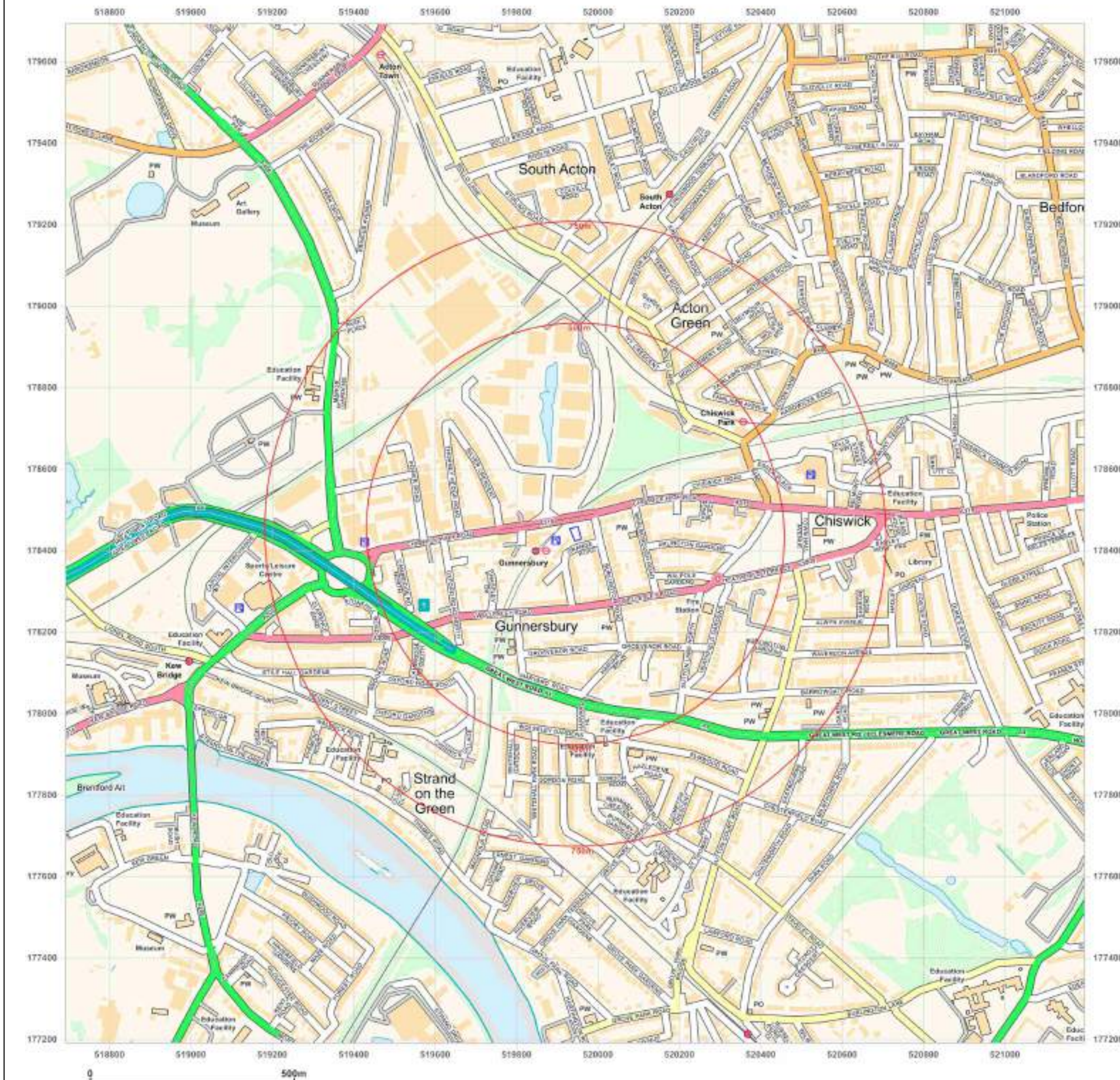


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## **APPENDIX B**

### **Groundsure Data Sheets and Site Sensitivity Maps**





Arcadis Consulting UK Ltd  
PO Box, 307,  
MANCHESTER, M60 3NT

Groundsure Reference: GS-5910844

Your Reference: 14023929

Report Date 28 Mar 2019

Report Delivery Method: Email - pdf

## Enviro Insight

Address: GUNNERSBURY CLOSE, CHISWICK, LONDON, W4 4AH

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



Address: GUNNERSBURY CLOSE, CHISWICK, LONDON, W4 4AH

Date: 28 Mar 2019

Reference: GS-5910844

Client: Arcadis Consulting UK Ltd

NW

N

NE

W

E



SW

S

SE

Aerial Photograph Capture date: 20-Apr-2015

Grid Reference: 519951,178452

Site Size: 0.0579ha

Report Reference: GS-5910844

Client Reference: 14023929



# Contents Page

Contents Page	3
Overview of Findings	6
Using this report	10
1. Historical Land Use	11
1. Historical Industrial Sites	12
1.1 Potentially Contaminative Uses identified from 1:10,000 scale Mapping	12
1.2 Additional Information – Historical Tank Database	16
1.3 Additional Information – Historical Energy Features Database	16
1.4 Additional Information – Historical Petrol and Fuel Site Database	17
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	17
1.6 Historical military sites	18
1.7 Potentially Infilled Land	18
2. Environmental Permits, Incidents and Registers Map	21
2. Environmental Permits, Incidents and Registers	22
2.1 Industrial Sites Holding Licences and/or Authorisations	22
2.1.1 Records of historic IPC Authorisations within 500m of the study site	22
2.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site	22
2.1.3 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site	22
2.1.4 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site	22
2.1.5 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site	22
2.1.6 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site	23
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	23
2.1.8 Records of Licensed Discharge Consents within 500m of the study site	23
2.1.9 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site	24
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	24
2.2 Dangerous or Hazardous Sites	24
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents	24
2.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site	24
2.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site	24
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	25
3. Landfill and Other Waste Sites Map	26
3. Landfill and Other Waste Sites	27
3.1 Landfill Sites	27
3.1.1 Records from Environment Agency/Natural Resources Wales landfill data within 1000m of the study site	27
3.1.2 Records of Environment Agency/Natural Resources Wales historic landfill sites within 1500m of the study site	27
3.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site	28
3.1.4 Records of Landfills from Local Authority and Historical Mapping Records within 1500m of the study site	28
3.2 Other Waste Sites	28
3.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site	28
3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site	29
4. Current Land Use Map	31
4. Current Land Uses	32
4.1 Current Industrial Data	32
4.2 Petrol and Fuel Sites	33
4.3 National Grid High Voltage Underground Electricity Transmission Cables	33
4.4 National Grid High Pressure Gas Transmission Pipelines	34



5. Geology	35
5.1 Artificial Ground and Made Ground.....	35
5.2 Superficial Ground and Drift Geology .....	35
5.3 Bedrock and Solid Geology .....	35
6 Hydrogeology and Hydrology	36
6a. Aquifer Within Superficial Geology	36
6b. Aquifer Within Bedrock Geology and Abstraction Licences	37
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences	38
6d. Hydrogeology – Source Protection Zones within confined aquifer	39
6e. Hydrology – Watercourse Network and River Quality	40
6. Hydrogeology and Hydrology	41
6.1 Aquifer within Superficial Deposits.....	41
6.2 Aquifer within Bedrock Deposits.....	41
6.3 Groundwater Abstraction Licences.....	42
6.4 Surface Water Abstraction Licences.....	44
6.5 Potable Water Abstraction Licences.....	44
6.6 Source Protection Zones.....	45
6.7 Source Protection Zones within Confined Aquifer.....	45
6.8 Groundwater Vulnerability and Soil Leaching Potential.....	45
6.9 River Quality.....	45
6.9.1 Biological Quality:.....	45
6.9.2 Chemical Quality:.....	46
6.10 Ordnance Survey MasterMap Water Network.....	46
6.11 Surface Water Features.....	46
7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)	47
7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS)	48
Map	48
7 Flooding	49
7.1 River and Coastal Zone 2 Flooding.....	49
7.2 River and Coastal Zone 3 Flooding.....	49
7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating.....	49
7.4 Flood Defences.....	50
7.5 Areas benefiting from Flood Defences.....	50
7.6 Areas benefiting from Flood Storage.....	50
7.7 Groundwater Flooding Susceptibility Areas.....	50
7.8 Groundwater Flooding Confidence Areas.....	50
8. Designated Environmentally Sensitive Sites Map	51
8. Designated Environmentally Sensitive Sites	52
8.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:.....	52
8.2 Records of National Nature Reserves (NNR) within 2000m of the study site:.....	52
8.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:.....	52
8.4 Records of Special Protection Areas (SPA) within 2000m of the study site:.....	52
8.5 Records of Ramsar sites within 2000m of the study site:.....	52
8.6 Records of Ancient Woodland within 2000m of the study site: .....	53
8.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:.....	53
8.8 Records of World Heritage Sites within 2000m of the study site:.....	53
8.9 Records of Environmentally Sensitive Areas within 2000m of the study site: .....	53
8.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site: .....	53
8.11 Records of National Parks (NP) within 2000m of the study site: .....	54
8.12 Records of Nitrate Sensitive Areas within 2000m of the study site:.....	54
8.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:.....	54



8.14 Records of Green Belt land within 2000m of the study site:.....	54
9. Natural Hazards Findings.....	55
9.1 Detailed BGS GeoSure Data.....	55
9.1.1 Shrink Swell.....	55
9.1.2 Landslides.....	55
9.1.3 Soluble Rocks.....	55
9.1.4 Compressible Ground.....	56
9.1.5 Collapsible Rocks.....	56
9.1.6 Running Sand.....	56
9.2 Radon.....	57
9.2.1 Radon Affected Areas.....	57
9.2.2 Radon Protection.....	57
10. Mining.....	58
10.1 Coal Mining.....	58
10.2 Non-Coal Mining.....	58
10.3 Brine Affected Areas .....	58
Contact Details.....	59
Standard Terms and Conditions.....	61



# 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	0	35	65	76
1.2 Additional Information – Historical Tank Database	0	0	0	2
1.3 Additional Information – Historical Energy Features Database	0	0	8	24
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	12	16
1.6 Historical military sites	0	0	0	0
1.7 Potentially Infilled Land	0	23	30	28
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	0
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	1
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	0	0	2
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	0	0	0
2.2 Records of COMAH and NIHHS sites	0	0	0	0
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	0	0	0
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	0	0	0	0	1	5
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	0
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	0	1
3.2 Landfill and Other Waste Sites Findings						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	Not searched	Not searched
3.2.2 Environment Agency/Natural Resources Wales Licensed Waste Sites	0	0	0	0	3	6

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	0	14	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	1	2
4.3 National Grid Underground Electricity Cables	0	0	3	12
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	2	4	0	11
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
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	1	0	0	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	No	No	No
6.10 Ordnance Survey MasterMap Water Network entries within 500m of the site	0	0	0	0	Not searched	Not searched
6.11 Surface water features within 250m of the study site	No	No	Yes	Not searched	Not searched	Not searched

Section 7: Flooding						
7.1 Environment 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	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	Moderate					

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	1	0	0	2
8.8 Records of World Heritage Sites	0	0	0	0	1	1
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	0	0
8.14 Records of Green Belt land	0	0	0	0	0	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	Moderate
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	Negligible
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	Very 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	None 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

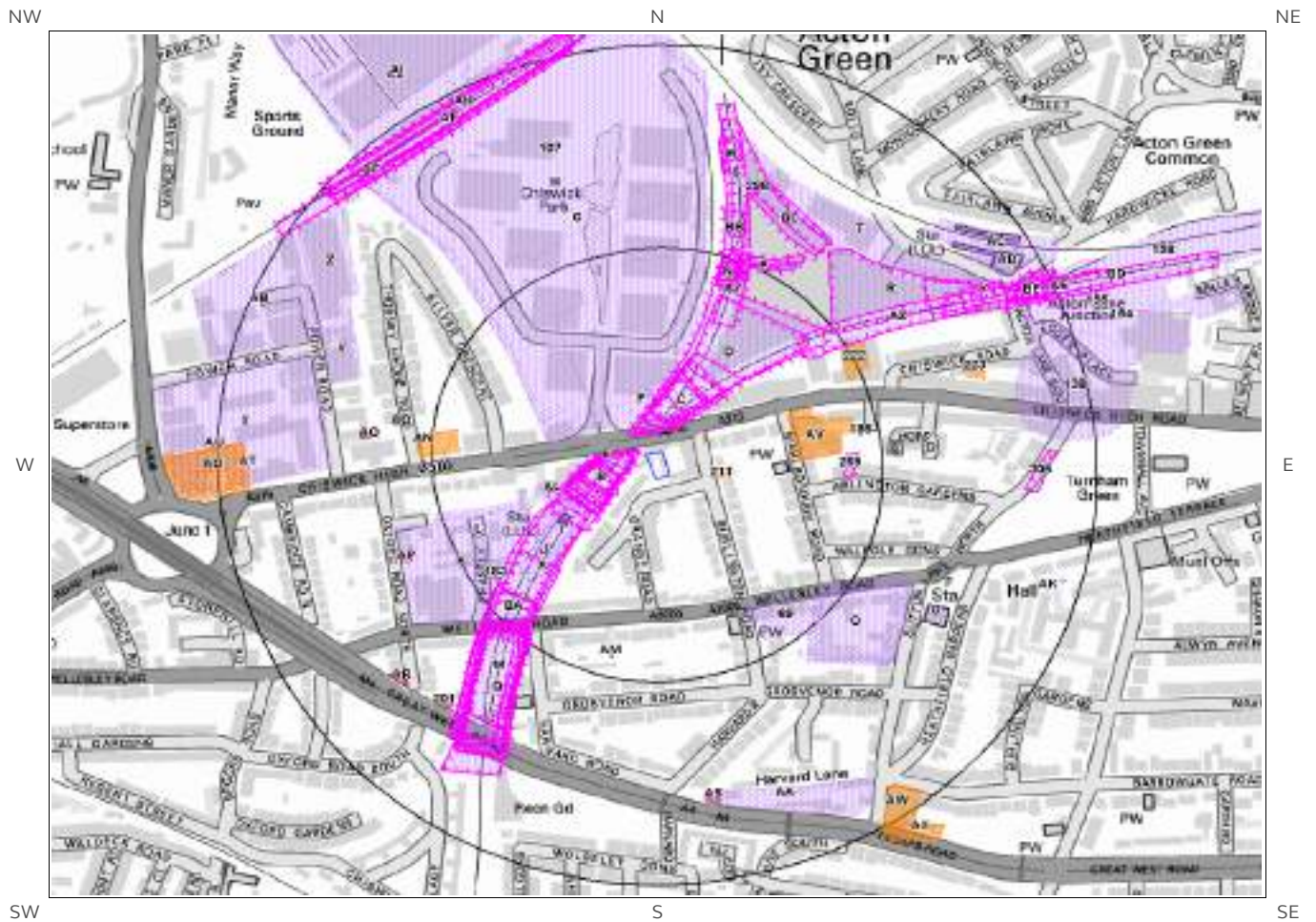
Only certain features are placed on the maps within the report. All features represented on maps found within this search are given an identification number. This number identifies the feature on the mapping and correlates it to the additional information provided below. This identification number precedes 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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# 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: 176

ID	Distance [m]	Direction	Use	Date
1A	7	W	Railway Sidings	1938
2A	7	W	Railway Sidings	1920
3B	9	W	Cuttings	1933
4B	13	NW	Cuttings	1866
5B	15	W	Cuttings	1961
6B	16	W	Cuttings	1898
7B	17	W	Cuttings	1894
8C	25	N	Cuttings	1898
9B	26	W	Cuttings	1933
10B	26	W	Cuttings	1910
11C	28	N	Cuttings	1866
12D	28	N	Cuttings	1894
13D	34	N	Cuttings	1910
14D	34	N	Cuttings	1933
15C	35	N	Cuttings	1893
16E	36	W	Railway Building	1966
17B	37	W	Cuttings	1966
18C	37	N	Cuttings	1961
19C	37	N	Cuttings	1966
20C	37	N	Cuttings	1974
21E	38	W	Railway Building	1910
22E	38	W	Railway Building	1933
23C	38	N	Cuttings	1987
24B	39	W	Cuttings	1938
25B	39	W	Cuttings	1920
26B	39	W	Cuttings	1948
27B	39	W	Cuttings	1948
28G	40	N	Unspecified Works	1987
29E	41	W	Railway Building	1948
30E	41	W	Railway Building	1948
31E	42	W	Junction Station	1938
32E	42	W	Junction Station	1920
33E	42	W	Railway Building	1893
34B	45	W	Cuttings	1893

35F	47	N	Railway Building	1894
36C	53	N	Cuttings	1948
37C	53	N	Cuttings	1948
38F	55	N	Junction Station	1893
39F	63	N	Railway Building	1933
40F	63	N	Railway Building	1910
41G	66	NW	Unspecified Works	1966
42H	67	NW	Unspecified Works	1961
43H	70	NW	Works	1948
44H	70	NW	Works	1948
45I	80	W	Railway Station	1910
46I	80	W	Railway Station	1933
47I	83	W	Railway Station	1948
48I	83	W	Railway Sidings	1948
49J	85	SW	Cuttings	1966
50I	87	SW	Railway Station	1938
51I	87	SW	Railway Station	1920
52I	88	W	Railway Station	1961
53J	89	SW	Railway Station	1933
54I	89	SW	Railway Station	1893
55J	93	SW	Railway Station	1911
56J	94	SW	Cuttings	1894
57I	95	W	Railway Station	1966
58I	96	SW	Railway Station	1898
59I	100	SW	Railway Station	1894
60I	105	SW	Railway Station	1987
61I	105	SW	Railway Station	1974
62J	142	SW	Railway Station	1866
63K	144	W	Unspecified Commercial/Industrial	1987
64K	144	W	Unspecified Commercial/Industrial	1974
65L	145	W	Unspecified Commercial/Industrial	1961
66M	158	SW	Cuttings	1866
67L	165	W	Unspecified Factory	1966
68AY	169	N	Cuttings	1866
69	184	SE	Nursery	1893
70AZ	201	NE	Cuttings	1866
71BA	205	SW	Cuttings	1893
72M	210	SW	Cuttings	1898
73N	213	N	Cuttings	1898
74N	219	N	Cuttings	1894
75P	221	NE	Unspecified Ground Workings	1894
76N	221	N	Cuttings	1920
77O	224	SE	Nursery	1894



78O	224	SE	Nursery	1910
79O	224	SE	Nursery	1933
80O	225	SE	Nursery	1866
81O	227	SE	Nursery	1898
82O	227	SE	Nursery	1911
83N	227	N	Cuttings	1947
84N	229	N	Cuttings	1896
85O	231	SE	Nursery	1920
86O	232	SE	Nursery	1933
87P	233	NE	Unspecified Ground Workings	1896
88Q	233	SW	Cuttings	1910
89Q	233	SW	Cuttings	1933
90Q	234	SW	Cuttings	1948
91Q	234	SW	Cuttings	1948
92M	234	SW	Cuttings	1961
93N	235	N	Cuttings	1910
94N	235	N	Cuttings	1933
95Q	240	SW	Cuttings	1920
96Q	240	SW	Cuttings	1938
97Q	243	SW	Cuttings	1933
98R	245	NE	Cuttings	1910
99R	245	NE	Cuttings	1933
100Q	247	SW	Cuttings	1893
101Q	252	SW	Cuttings	1894
102Q	254	SW	Cuttings	1966
103Q	254	SW	Cuttings	1987
104Q	254	SW	Cuttings	1974
105BB	257	N	Cuttings	1920
106S	261	N	Cuttings	1866
107	272	NW	Unspecified Works	1974
108S	276	N	Cuttings	1894
109BC	299	NE	Cuttings	1896
110T	324	NE	Laundry	1958
111T	325	NE	Laundry	1962
112U	342	SE	Fire Station	1974
113U	342	SE	Fire Station	1987
114V	345	W	Unspecified Works	1974
115V	345	W	Unspecified Works	1966
116V	345	W	Unspecified Works	1987
117W	349	N	Cuttings	1920
118Y	355	NE	Cuttings	1933
119W	360	N	Cuttings	1947
120X	366	W	Unspecified Works	1961
121X	366	W	Unspecified Works	1987
122X	366	W	Unspecified Works	1966

123X	366	W	Unspecified Works	1974
124Y	368	NE	Cuttings	1920
125Z	378	NW	Unspecified Works	1974
126Z	378	NW	Unspecified Works	1966
127Z	378	NW	Unspecified Works	1987
128X	386	W	Works	1948
129X	386	W	Works	1948
130AA	390	S	Unspecified Depot	1958
131AA	392	S	Unspecified Depot	1962
132Y	392	NE	Cuttings	1947
133AC	403	NE	Railway Station	1962
134AB	409	W	Unspecified Works	1974
135AB	409	W	Unspecified Works	1987
136AB	409	W	Unspecified Works	1966
137AC	410	NE	Railway Station	1896
138	415	E	Smithy	1866
139AC	420	NE	Railway Station	1958
140AC	420	NE	Railway Station	1987
141AC	420	NE	Railway Station	1967
142AC	420	NE	Railway Station	1974
143AD	429	NE	Railway Station	1898
144AC	430	NE	Railway Station	1920
145AC	431	NE	Railway Building	1947
146AC	432	NE	Railway Station	1894
147AE	441	NE	Cuttings	1898
148AC	443	NE	Railway Station	1894
149AD	444	NE	Railway Station	1933
150AD	444	NE	Railway Station	1910
151AE	445	NE	Cuttings	1894
152BD	450	NE	Cuttings	1866
153BE	452	NE	Cuttings	1920
154	452	E	Nurseries	1958
155	452	E	Nurseries	1962
156AE	454	NE	Cuttings	1947
157BF	457	NW	Cuttings	1866
158	457	NE	Railway Sidings	1958
159AF	459	NW	Cuttings	1920
160AE	462	NE	Cuttings	1933
161AE	462	NE	Cuttings	1910
162AF	462	NW	Cuttings	1896
163AG	464	W	Garage	1974
164AG	464	W	Garage	1987
165AG	464	W	Garage	1966
166AH	465	NW	Cuttings	1894
167AF	465	NW	Cuttings	1948
168AF	465	NW	Cuttings	1948



169AH	468	NW	Cuttings	1961
170AI	485	NW	Unspecified Works	1974
171AI	485	NW	Unspecified Works	1966
172AI	485	NW	Unspecified Works	1987
173AJ	493	NW	Railway Sidings	1948
174AJ	493	NW	Railway Sidings	1948
175AJ	495	NW	Works	1948
176AJ	495	NW	Works	1948

## 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:

2

ID	Distance (m)	Direction	Use	Date
177AK	460	E	Unspecified Tank	1962
178AK	475	E	Unspecified Tank	1962

## 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:

32

ID	Distance (m)	Direction	Use	Date
179AL	114	W	Electricity Substation	1988
180AL	114	W	Electricity Substation	1996
181AL	115	W	Electricity Substation	1971
182AM	218	S	Electricity Substation	1996
183	219	SW	Electricity Substation	1971
184AM	219	S	Electricity Substation	1988
185AM	219	S	Electricity Substation	1971
186	226	E	Electricity Substation	1991
187AN	258	W	Electricity Substation	1971
188AN	259	W	Electricity Substation	1996
189AN	261	W	Electricity Substation	1988
190AO	286	W	Electricity Substation	1996
191AO	291	W	Electricity Substation	1988
192AO	292	W	Electricity Substation	1971

193AP	301	W	Electricity Substation	1971
194AP	301	W	Electricity Substation	1988
195AP	302	W	Electricity Substation	1996
196AQ	322	W	Electricity Substation	1988
197AQ	323	W	Electricity Substation	1996
198AQ	323	W	Electricity Substation	1971
199U	343	SE	Electricity Substation	1983
200U	343	SE	Electricity Substation	1991
201	363	SW	Electricity Cooling Station	1971
202AR	376	SW	Electricity Substation	1988
203AR	376	SW	Electricity Substation	1996
204AR	377	SW	Electricity Substation	1971
205AS	388	S	Electricity Substation	1950
206AS	389	S	Electricity Substation	1950
207AT	463	W	Electricity Substation	1989
208AT	464	W	Electricity Substation	1991
209AU	499	W	Electricity Substation	1989
210AU	500	W	Electricity Substation	1991

## 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: 28

ID	Distance (m)	Direction	Use	Date
211	53	E	Garage	1950
212AV	152	E	Garage	1991
213AV	152	E	Garage	1983
214AV	152	E	Garage	1962
215AV	152	E	Garage	1950
216AV	152	E	Garage	1950
217AV	152	E	Garage	1950
218AV	153	E	Garage	1996



219AN	217	W	Garage	1988
220AN	220	W	Garage	1971
221AN	228	W	Garage	1950
222	231	E	Garage	1950
223	364	E	Garage	1950
224AW	460	SE	Garage	1983
225AW	460	SE	Garage	1991
226AW	461	SE	Garage	1962
227AW	461	SE	Garage	1989
228AW	461	SE	Garage	1961
229AG	463	W	Garage	1960
230AG	463	W	Garage	1991
231AG	468	W	Garage	1987
232AG	470	W	Garage	1985
233AG	470	W	Garage	1974
234AG	470	W	Garage	1965
235AG	471	W	Garage	1965
236AX	495	SE	Garage	1951
237AX	495	SE	Garage	
238AX	496	SE	Garage	

## 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: 81

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

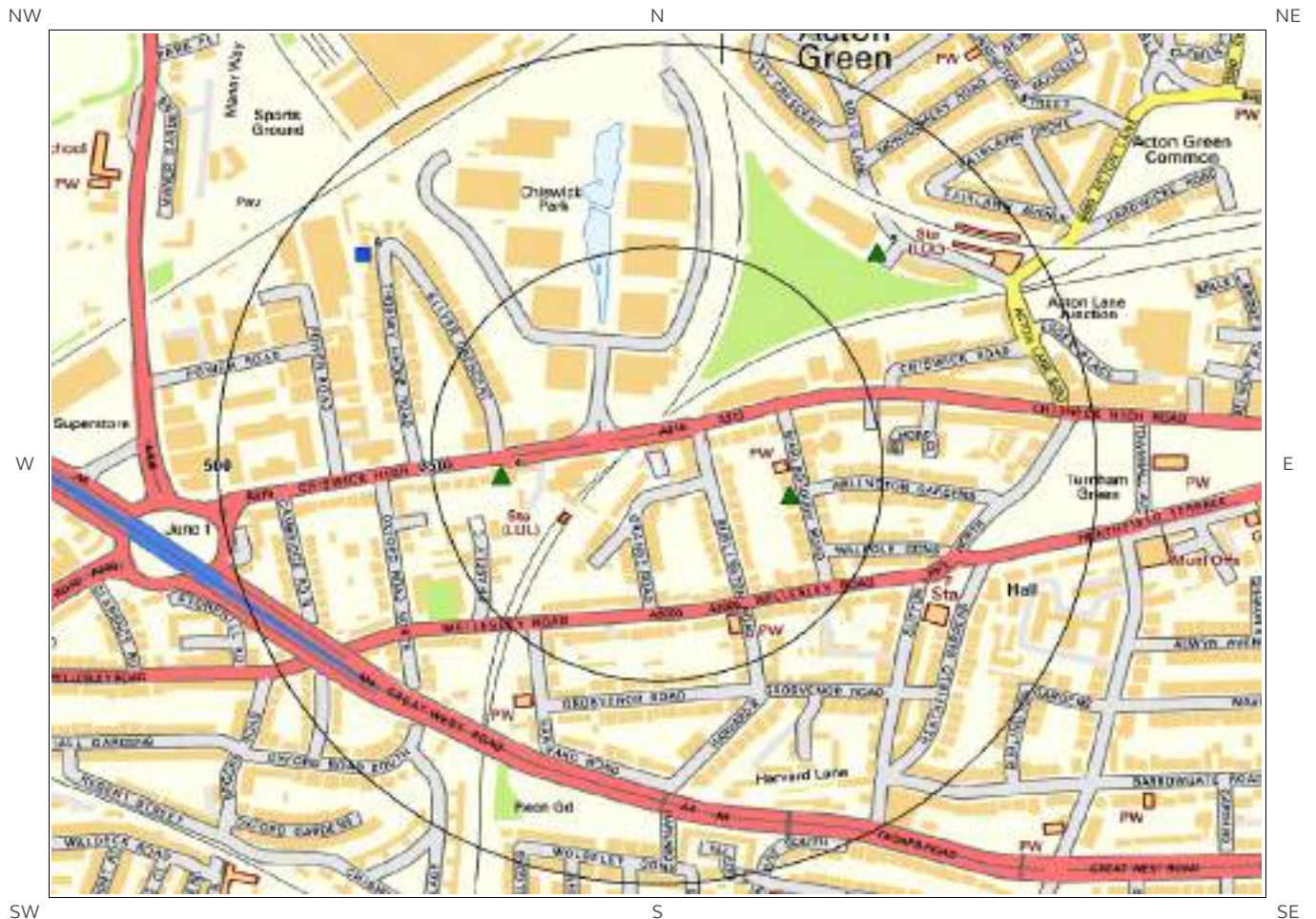
ID	Distance(m)	Direction	Use	Date
239B	9	W	Cuttings	1933
240B	13	NW	Cuttings	1866
241B	15	W	Cuttings	1961
242B	16	W	Cuttings	1898
243B	17	W	Cuttings	1894
244C	25	N	Cuttings	1898
245B	26	W	Cuttings	1933

246B	26	W	Cuttings	1910
247C	28	N	Cuttings	1866
248D	28	N	Cuttings	1894
249D	34	N	Cuttings	1910
250D	34	N	Cuttings	1933
251C	35	N	Cuttings	1893
252B	37	W	Cuttings	1966
253C	37	N	Cuttings	1974
254C	37	N	Cuttings	1961
255C	37	N	Cuttings	1966
256C	38	N	Cuttings	1987
257B	39	W	Cuttings	1938
258B	39	W	Cuttings	1920
259B	39	W	Cuttings	1948
260B	39	W	Cuttings	1948
261B	45	W	Cuttings	1893
262C	53	N	Cuttings	1948
263C	53	N	Cuttings	1948
264J	85	SW	Cuttings	1966
265J	94	SW	Cuttings	1894
266M	158	SW	Cuttings	1866
267AY	169	N	Cuttings	1866
268AZ	201	NE	Cuttings	1866
269	204	E	Pond	1866
270BA	205	SW	Cuttings	1893
271M	210	SW	Cuttings	1898
272N	213	N	Cuttings	1898
273N	219	N	Cuttings	1894
274P	221	NE	Unspecified Ground Workings	1894
275N	221	N	Cuttings	1920
276N	227	N	Cuttings	1947
277N	229	N	Cuttings	1896
278P	233	NE	Unspecified Ground Workings	1896
279Q	233	SW	Cuttings	1933
280Q	233	SW	Cuttings	1910
281Q	234	SW	Cuttings	1948
282Q	234	SW	Cuttings	1948
283M	234	SW	Cuttings	1961
284N	235	N	Cuttings	1933
285N	235	N	Cuttings	1910
286Q	240	SW	Cuttings	1920
287Q	240	SW	Cuttings	1938
288Q	243	SW	Cuttings	1933
289R	245	NE	Cuttings	1910
















290R	245	NE	Cuttings	1933
291Q	247	SW	Cuttings	1893
292Q	252	SW	Cuttings	1894
293Q	254	SW	Cuttings	1987
294Q	254	SW	Cuttings	1974
295Q	254	SW	Cuttings	1966
296BB	257	N	Cuttings	1920
297S	261	N	Cuttings	1866
298	276	N	Cuttings	1894
299BC	299	NE	Cuttings	1896
300W	349	N	Cuttings	1920
301Y	355	NE	Cuttings	1933
302W	360	N	Cuttings	1947
303Y	368	NE	Cuttings	1920
304Y	392	NE	Cuttings	1947
305	416	E	Pond	1866
306AE	441	NE	Cuttings	1898
307AE	445	NE	Cuttings	1894
308BD	450	NE	Cuttings	1866
309BE	452	NE	Cuttings	1920
310BE	454	NE	Cuttings	1947
311BF	457	NW	Cuttings	1866
312AF	459	NW	Cuttings	1920
313BE	462	NE	Cuttings	1933
314BE	462	NE	Cuttings	1910
315AH	462	NW	Cuttings	1896
316AH	465	NW	Cuttings	1894
317AH	465	NW	Cuttings	1948
318AH	465	NW	Cuttings	1948
319AH	468	NW	Cuttings	1961

## 2. Environmental Permits, Incidents and Registers Map



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



## 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.

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#### 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:

0

Database searched and no data found.

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

0

Database searched and no data found.

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

3

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
3	144	E	520099 178401	Address: Exclusive Workshops, Marlborough Rd, W4 Process: Respraying of Road Vehicles Status: Historical Permit Permit Type: Part B Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified
4	171	W	519762 178425	Address: Ariana Dry Cleaners, 405 Chiswick High Road, London, W4 4AR Process: Dry Cleaning Status: Current Permit Permit Type: Part B Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified
5	347	NE	520199 178699	Address: Carringtons, Colonial Way, Bollo Lane, W4 5NU 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

## 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:

2

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

ID	Distance (m)	Direction	NGR	Details
1A	412	NW	519600 178700	Address: Thorney Hedge Road, Chiswick, Thorney Hedge Road, Chiswick Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: TEMP.2104 Permit Version: 1 Receiving Water: TIDAL THAMES Status: TEMPORARY CONSENTS (WATER ACT 1989, SECTION 113) Issue date: 02/11/1989 Effective Date: 02-Nov-1989 Revocation Date: 02/09/2010
2A	412	NW	519600 178700	Address: Thorney Hedge Road, Chiswick, Thorney Hedge Road, Chiswick Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: TEMP.2104 Permit Version: 2 Receiving Water: THAMES Status: SURRENDERED UNDER EPR 2010 Issue date: 03/09/2010 Effective Date: 03-Sep-2010 Revocation Date: 13/10/2015



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:

0

Database searched and no data found.

---

## 2.2 Dangerous or Hazardous Sites

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

0

Database searched and no data found.

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## 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:

0

Database searched and no data found.

---

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

0

Database searched and no data found.

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

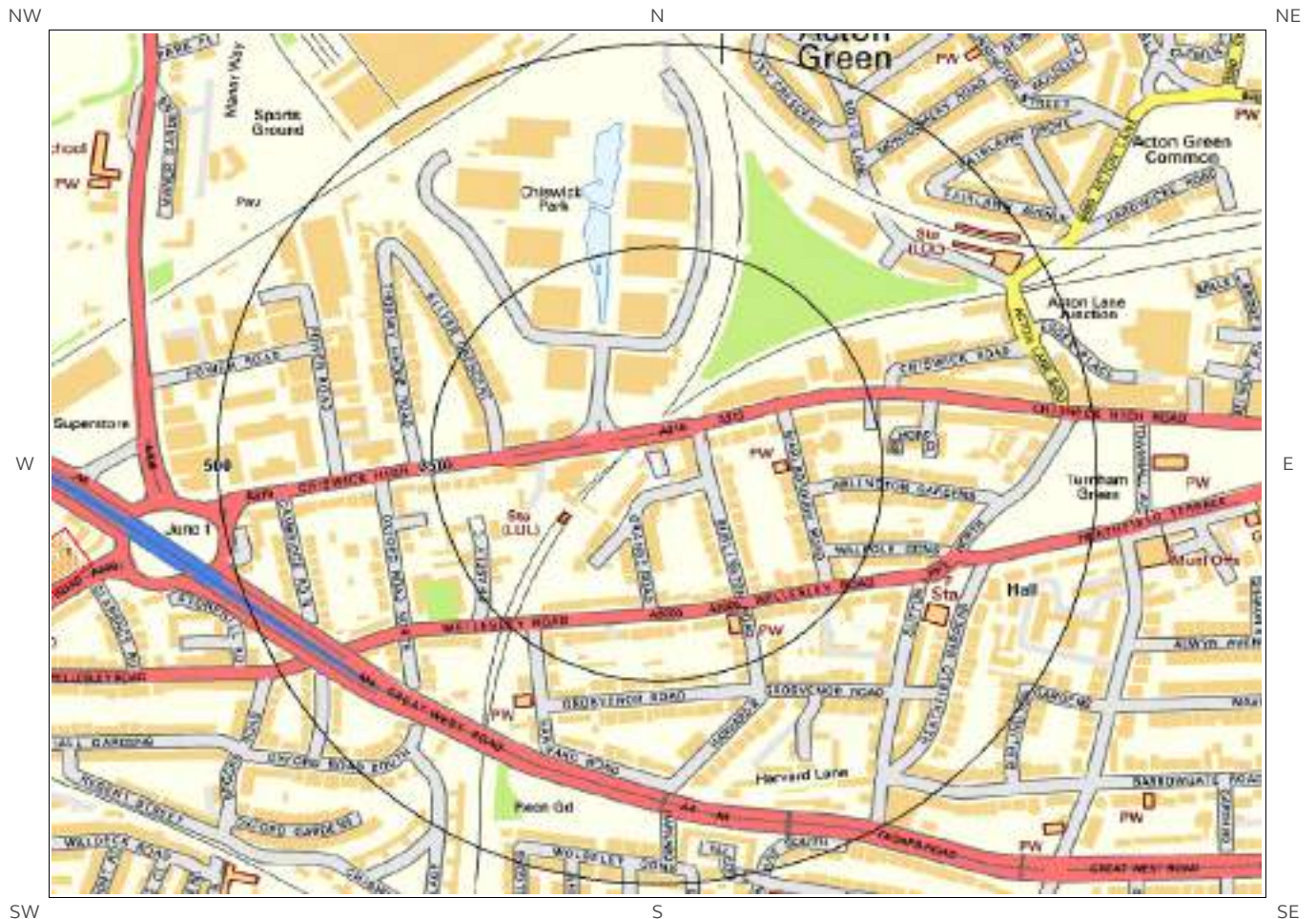
Records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site 0

Database searched and no data found.


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# 3. Landfill and Other Waste Sites Map



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 Site Outline

 250 Search Buffers (m)  
 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:

6

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
1	660	W		Site Address: Texas DIY, Ibis lane, Hartington Road Waste Licence: - Site Reference: 8HO064 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: - Last Recorded: 31-Dec-1935
Not shown	1166	SE		Site Address: Staveley Road, Grove Park, Chiswick, Hounslow, London Waste Licence: - Site Reference: 8HO062 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: 31-Dec-1913 Last Recorded: 31-Dec-1951
Not shown	1204	W		Site Address: Green Dragon Lane Flats, Green Dragon Lane Waste Licence: - Site Reference: 8HO065 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: 31-Dec-1964 Last Recorded: 31-Dec-1966
Not shown	1260	W		Site Address: Old Thames Water Gas Works, Brentford, Hounslow, London Waste Licence: - Site Reference: 8HO082 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: 31-Dec-1960 Last Recorded: 31-Dec-1966
Not shown	1397	SW		Site Address: Watermans Park, High Street, Brentford Waste Licence: - Licence Issue: Licence Surrendered: Licence Holder Address: -



ID	Distance (m)	Direction	NGR	Details
Not shown	1430	W		Site Reference: 8HO066 Waste Type: - Environmental Permitting Regulations (Waste) Reference: -
				Operator: - Licence Holder: - First Recorded: - Last Recorded: 31-Dec-1865
Not shown	1430	W		Site Address: Carville Hill Park North, Brentford, Hounslow, London Waste Licence: - Site Reference: 8HO042 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: -
				Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: L B Hounslow First Recorded: - Last Recorded: 31-Dec-1951

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

0

Database searched and no data found.

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

1

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	1480	W	518533 177894	184 Holland Gardens, Brentford	Hounslow Borough Council	Point

## 3.2 Other Waste Sites

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

0

Database searched and no data found.

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

9

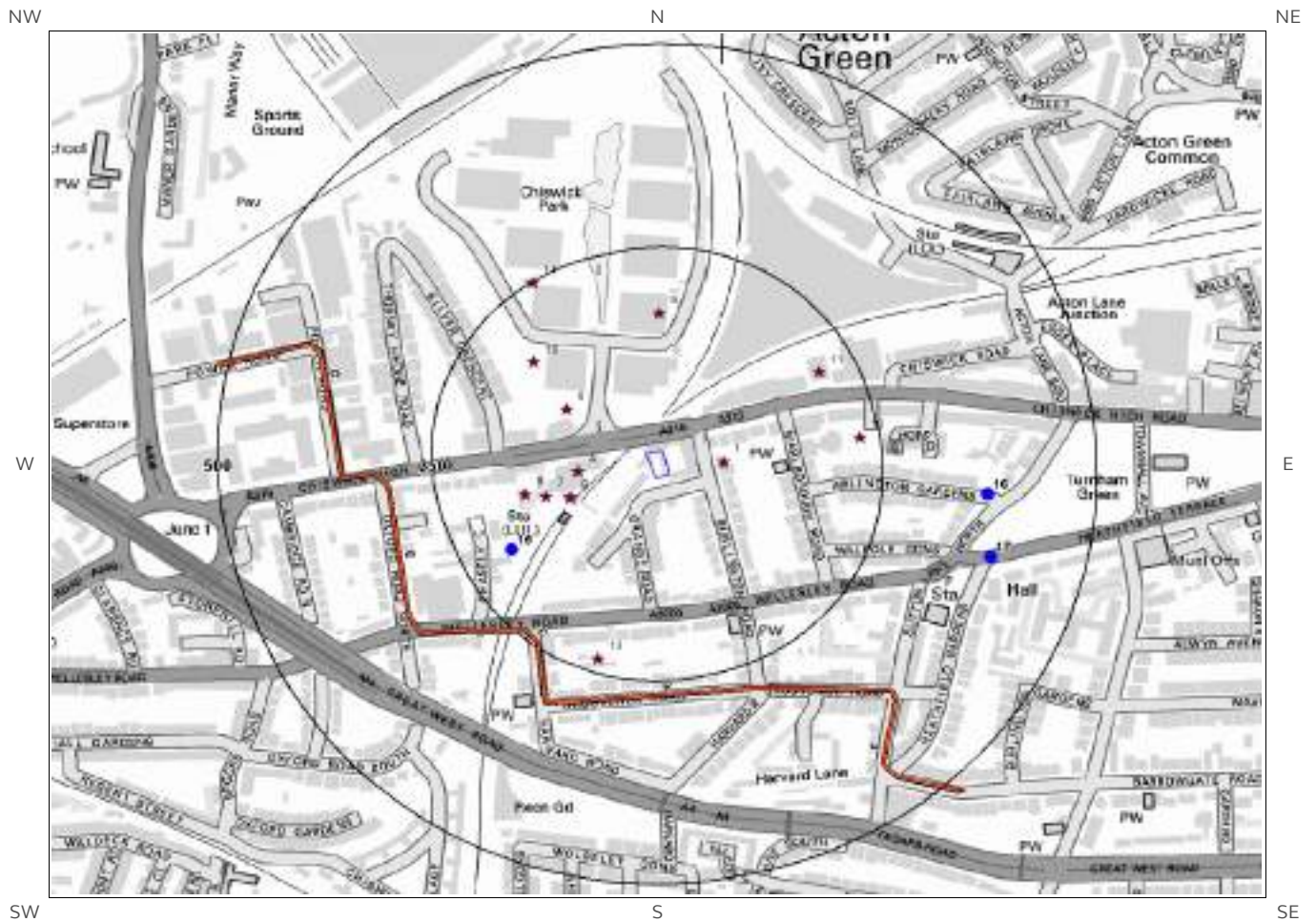
The following waste treatment, transfer or disposal sites records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details
Not shown	775	N	519842 179227	<p>Site Address: Ealing LB Council, Acton Waste &amp; Recycling Centre, Stirling Road, Acton, London, W3 8DJ</p> <p>Type: Household, Commercial &amp; Industrial Waste T Stn</p> <p>Size: &lt; 25000 tonnes</p> <p>Environmental Permitting Regulations (Waste) Licence Number: EAL002</p> <p>EPR reference: -</p> <p>Operator: Ealing London Borough Council</p> <p>Waste Management licence No: 80030</p> <p>Annual Tonnage: 0.0</p> <p>Issue Date: 15/11/1994</p> <p>Effective Date: -</p> <p>Modified: -</p> <p>Surrendered Date: -</p> <p>Expiry Date: -</p> <p>Cancelled Date: -</p> <p>Status: Issued</p> <p>Site Name: Acton Waste &amp; Recycling Centre</p> <p>Correspondence Address: Ealing London Borough Council, Perceval House, 14-16, Uxbridge Road, Ealing, London, W5 2HL</p>
Not shown	803	N	519830 179253	<p>Site Address: Ealing London Borough Council, Acton Waste &amp; Recycling Centre, Stirling Road, Acton, London, W3 8DJ</p> <p>Type: Household Waste Amenity Site</p> <p>Size: &lt; 25000 tonnes</p> <p>Environmental Permitting Regulations (Waste) Licence Number: EAL002</p> <p>EPR reference: EA/EPR/EP3996NZ/A001</p> <p>Operator: Ealing London Borough Council</p> <p>Waste Management licence No: 80030</p> <p>Annual Tonnage: 15330.0</p> <p>Issue Date: 15/11/1994</p> <p>Effective Date: -</p> <p>Modified: -</p> <p>Surrendered Date: -</p> <p>Expiry Date: -</p> <p>Cancelled Date: -</p> <p>Status: Issued</p> <p>Site Name: Acton Waste &amp; Recycling Centre</p> <p>Correspondence Address: -</p>
Not shown	987	W	518953 178319	<p>Site Address: British Rail Goods Yard, Kew Bridge North, Lionel Road, Brentford, Middlesex, TW8 0JA</p> <p>Type: Household, Commercial &amp; Industrial Waste T Stn</p> <p>Size: &gt;= 75000 tonnes</p> <p>Environmental Permitting Regulations (Waste) Licence Number: QUA003</p> <p>EPR reference: EA/EPR/PP3993ET/A001</p> <p>Operator: Quattro ( U K ) Ltd</p> <p>Waste Management licence No: 80724</p> <p>Annual Tonnage: 912000.0</p> <p>Issue Date: 23/11/2007</p> <p>Effective Date: -</p> <p>Modified: -</p> <p>Surrendered Date: -</p> <p>Expiry Date: -</p> <p>Cancelled Date: -</p> <p>Status: Issued</p> <p>Site Name: Quattro - Brentford</p> <p>Correspondence Address: -</p>
Not shown	1019	W	518925 178286	<p>Site Address: Chiswick Skips Ltd, B R Goods Yard, Kew Bridge North, Lionel Road, Brentford, Middlesex, TW8 0JA</p> <p>Type: Household, Commercial &amp; Industrial Waste T Stn</p> <p>Size: &gt;= 25000 tonnes &lt; 75000 tonnes</p> <p>Environmental Permitting Regulations (Waste) Licence Number: QUA004</p> <p>EPR reference: -</p> <p>Operator: Quattro ( U K ) Limited</p> <p>Waste Management licence No: 80020</p> <p>Annual Tonnage: 0.0</p> <p>Issue Date: 04/12/1991</p> <p>Effective Date: 19/10/2006</p> <p>Modified: 05/03/1999</p> <p>Surrendered Date: -</p> <p>Expiry Date: -</p> <p>Cancelled Date: -</p> <p>Status: Transferred</p> <p>Site Name: Quattro U K, Brentford</p> <p>Correspondence Address: Regency Street, Off Victoria Road, Park Royal, London, NW10 6NR</p>
Not shown	1019	W	518925 178286	<p>Site Address: Chiswick Skips Ltd, BR Goods Yard, Kew Bridge North, Lionel Road, Brentford, Middlesex, TW8 0JA</p> <p>Type: Household, Commercial &amp; Industrial Waste T Stn</p> <p>Size: &gt;= 25000 tonnes &lt; 75000 tonnes</p> <p>Environmental Permitting Regulations (Waste) Licence Number: CHI001</p> <p>EPR reference: -</p> <p>Issue Date: 04/12/1991</p> <p>Effective Date: -</p> <p>Modified: 05/03/1999</p> <p>Surrendered Date: -</p> <p>Expiry Date: -</p> <p>Cancelled Date: -</p> <p>Status: Modified</p> <p>Site Name: Chiswick Skips, Brentford</p> <p>Correspondence Address: Chiswick Skips</p>



ID	Distance (m)	Direction	NGR	Details	
				Operator: Chiswick Skips Ltd Waste Management licence No: 80020 Annual Tonnage: 0.0	Ltd, BR Goods Yard, Kew Bridge North, Lionel Road, Brentford, Middlesex, TW8 0JA
Not shown	1019	W	518925 178286	Site Address: Chiswick Skips Ltd, B R Goods Yard, Kew Bridge North, Lionel Road, Brentford, Middlesex, TW8 0JA Type: Household, Commercial & Industrial Waste T Stn Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: QUA004 EPR reference: EA/EPR/NP3996NJ/T004 Operator: Quattro ( U K ) Ltd Waste Management licence No: 80020 Annual Tonnage: 172200.0	Issue Date: 04/12/1991 Effective Date: 19/10/2006 Modified: 05/03/1999 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Revoked Site Name: Quattro U K, Brentford Correspondence Address: -
Not shown	1022	W	518935 178224	Site Address: Ward Ltd, British Rail Goods Yard North, Lionel Road, Kew Bridge, Brentford, Middlesex, TW8 0JA Type: Household, Commercial & Industrial Waste T Stn Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WAR001 EPR reference: EA/EPR/RP3996NS/V002 Operator: Ward Ltd Waste Management licence No: 80074 Annual Tonnage: 165740.0	Issue Date: 15/12/1992 Effective Date: - Modified: 25/03/1997 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Expired Site Name: Br Goods Yard (north), Brentford Correspondence Address: -
Not shown	1025	W	518920 178280	Site Address: Old British Rail Goods Yard, Lionel Road, Brentford, Brentford, Middlesex, TW8 0JA Type: Household, Commercial & Industrial Waste T Stn Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: BRE012 EPR reference: - Operator: Brentford Commercials Ltd Waste Management licence No: 80618 Annual Tonnage: 0.0	Issue Date: 15/11/2004 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Brentford Commercials (waste) Ltd Correspondence Address: Old British Rail Goods Yard, Lionel Road, Brentford, Middlesex, TW8 0JA
Not shown	1047	W	518898 178281	Site Address: Old British Rail Goods Yard, Lionel Road, Brentford, Brentford, Middlesex, TW8 0JA Type: Household, Commercial & Industrial Waste T Stn Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: BRE012 EPR reference: EA/EPR/VP3097NN/A001 Operator: Brentford Commercials Ltd Waste Management licence No: 80618 Annual Tonnage: 74999.0	Issue Date: 15/11/2004 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Expired Site Name: Brentford Commercials ( Waste ) Ltd Correspondence Address: -

# 4. Current Land Use Map



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## 4. Current Land Uses

### 4.1 Current Industrial Data

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

14

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	65	E	Electricity Sub Station	520021 178445	Greater London, W4	Electrical Features	Infrastructure and Facilities
2A	82	W	Actelion	519851 178433	389, Chiswick High Road, London, Greater London, W4 4AL	Medical Equipment, Supplies and Pharmaceuticals	Industrial Products
3A	82	W	Air China	519851 178433	389, Chiswick High Road, London, Greater London, W4 4AL	Airlines and Airline Services	Transport, Storage and Delivery
4B	102	W	Gunnersbury	519842 178401	Gunnersbury Station Station Approach, Chiswick High Road, London, Greater London, W4 4AN	Underground Network Stations	Public Transport, Stations and Infrastructure
5B	102	W	Gunnersbury Rail Station	519842 178401	Greater London, W4	Railway Stations, Junctions and Halts	Public Transport, Stations and Infrastructure
6	108	NW	Electricity Sub Station	519838 178510	Greater London, W4	Electrical Features	Infrastructure and Facilities
7	128	W	Electricity Sub Station	519813 178403	Greater London, W4	Electrical Features	Infrastructure and Facilities
8	150	W	Works	519789 178405	Greater London, W4	Unspecified Works Or Factories	Industrial Features
9	169	N	Singapore Airlines	519946 178628	Building 11 Chiswick Park 566, Chiswick High Road, London, Greater London, W4 5YS	Airlines and Airline Services	Transport, Storage and Delivery
10	174	NW	Electricity Sub Station	519799 178568	Greater London, W4	Electrical Features	Infrastructure and Facilities
11	207	NE	Halfords	520133 178556	512-518, Chiswick High Road, London, Greater London, W4 5RG	Vehicle Parts and Accessories	Motoring
12	227	E	Electricity Sub Station	520180 178476	Greater London, W4	Electrical Features	Infrastructure and Facilities
13	232	S	Electricity Sub Station	519874 178203	Greater London, W4	Electrical Features	Infrastructure and Facilities
14	249	NW	Electricity Sub Station	519798 178665	Greater London, W4	Electrical Features	Infrastructure and Facilities

## 4.2 Petrol and Fuel Sites

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

3

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
15	190	SW	519774 178336	OBSOLETE	610-624, Chiswick High Road, Chiswick, London, Outer London, W4 5RU	Not Applicable	Obsolete
16	373	E	520329 178405	OBSOLETE	512-518, Chiswick High Road, Chiswick, London, Outer London, W4 5RG	Not Applicable	Obsolete
17	388	E	520332 178328	OBSOLETE	361-365, Chiswick High Road, Marlborough Road, Chiswick, London, Outer London, W4 4HS	Not Applicable	Obsolete

## 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:

15

The following Underground Electricity Transmission Cable records are represented as linear features on the Current Land Use map:

ID	Distance (m)	Direction	Details	
18C	241	SW	Cable Set: - Cable Route: - Cable Make: -	Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
19C	241	SW	Cable Set: SOUTH (BICC) CABLE SECT 54 Cable Route: WIMBLEDON - WILLES DEN Cable Make: BICC 275KV OIL	Cable Type: A/C Operating Voltage (kV): 275 Year of installation: 1967 Cable in tunnel: N
20C	242	SW	Cable Set: - Cable Route: - Cable Make: -	Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
21D	266	S	Cable Set: - Cable Route: - Cable Make: -	Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
22D	266	S	Cable Set: SOUTH (BICC) CABLE SECT 53	Cable Type: A/C



ID	Distance (m)	Direction	Details	
			Cable Route: WIMBLEDON - WILLESSEN Cable Make: BICC 275KV OIL	Operating Voltage (kV): 275 Year of installation: 1967 Cable in tunnel: N
23D	267	S	Cable Set: - Cable Route: - Cable Make: -	Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
24E	303	W	Cable Set: - Cable Route: - Cable Make: -	Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
25E	304	W	Cable Set: SOUTH (BICC) CABLE SECT 55 Cable Route: WIMBLEDON - WILLESSEN Cable Make: BICC 275KV OIL	Cable Type: A/C Operating Voltage (kV): 275 Year of installation: 1967 Cable in tunnel: N
26E	304	W	Cable Set: - Cable Route: - Cable Make: -	Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
27F	322	SE	Cable Set: - Cable Route: - Cable Make: -	Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
28F	324	SE	Cable Set: SOUTH (BICC) CABLE SECT 52 Cable Route: WIMBLEDON - WILLESSEN Cable Make: BICC 275KV OIL	Cable Type: A/C Operating Voltage (kV): 275 Year of installation: 1967 Cable in tunnel: N
29F	326	SE	Cable Set: - Cable Route: - Cable Make: -	Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
30G	358	W	Cable Set: - Cable Route: - Cable Make: -	Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
31G	358	W	Cable Set: SOUTH (BICC) CABLE SECT 56 Cable Route: WIMBLEDON - WILLESSEN Cable Make: BICC 275KV OIL	Cable Type: A/C Operating Voltage (kV): 275 Year of installation: 1967 Cable in tunnel: N
32G	358	W	Cable Set: - Cable Route: - Cable Make: -	Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -

## 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
WGR-VOID	WORKED GROUND (UNDIVIDED)	VOID

---

## 5.2 Superficial Ground and Drift Geology

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

Lex Code	Description	Rock Type
KPGR-XSV	KEMPTON PARK GRAVEL MEMBER	SAND AND GRAVEL

---

## 5.3 Bedrock and Solid Geology

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

Lex Code	Description	Rock Type
LC-XCZ	LONDON CLAY FORMATION	CLAY AND SILT

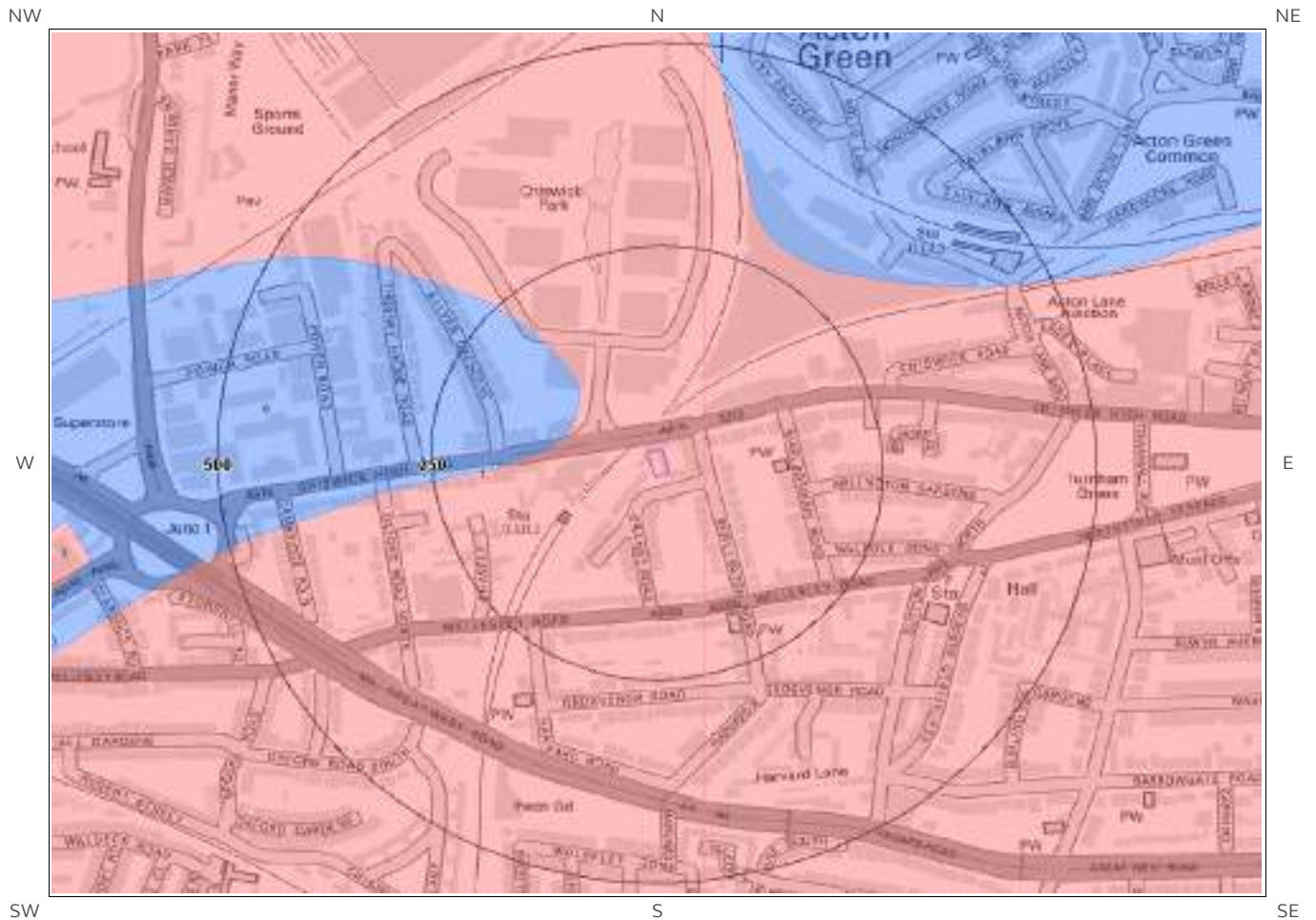
(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

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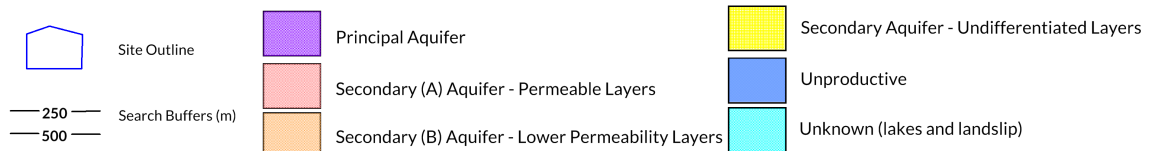


# 6 Hydrogeology and Hydrology

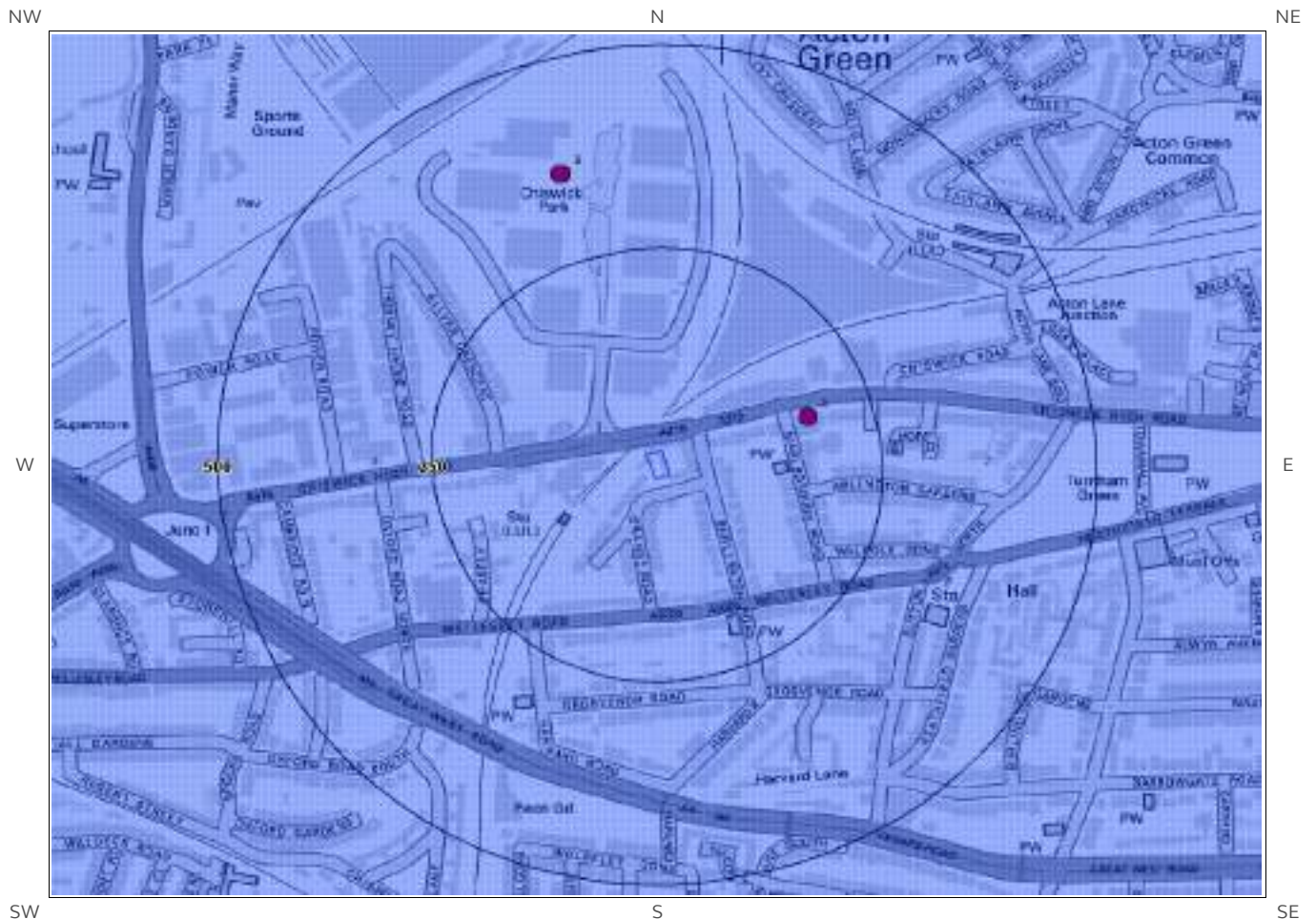
## 6a. Aquifer Within Superficial Geology



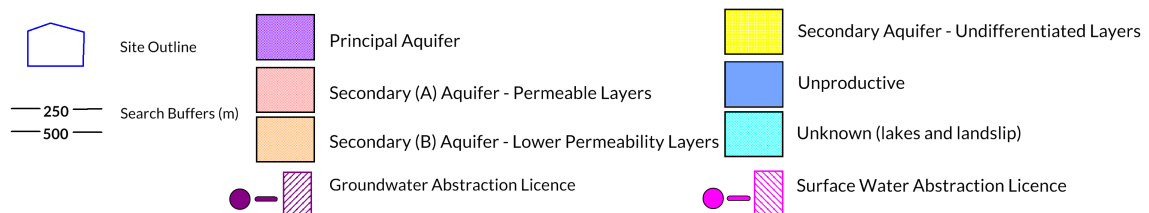
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# 6b. Aquifer Within Bedrock Geology and Abstraction Licences

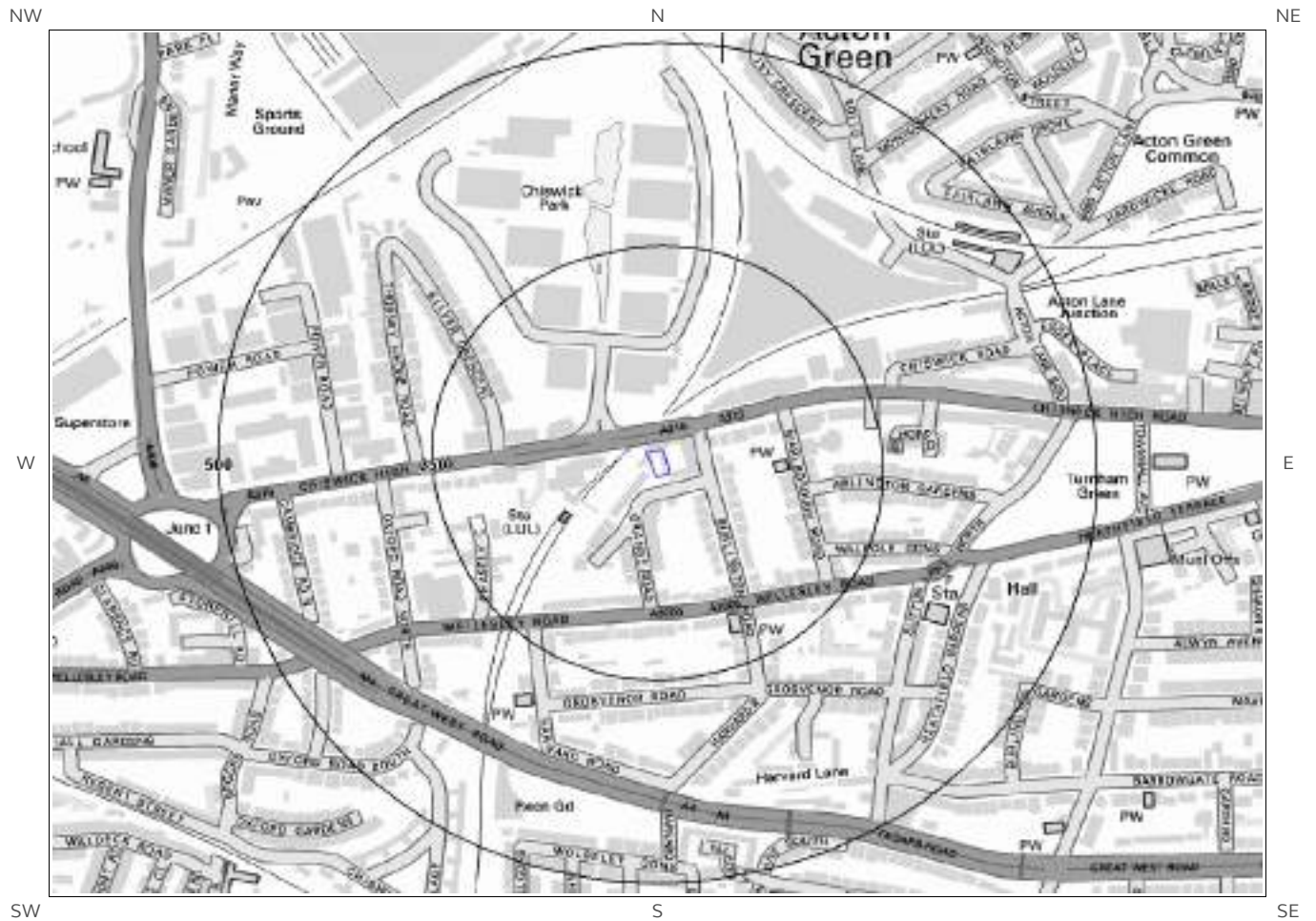


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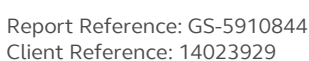
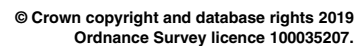




# 6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences

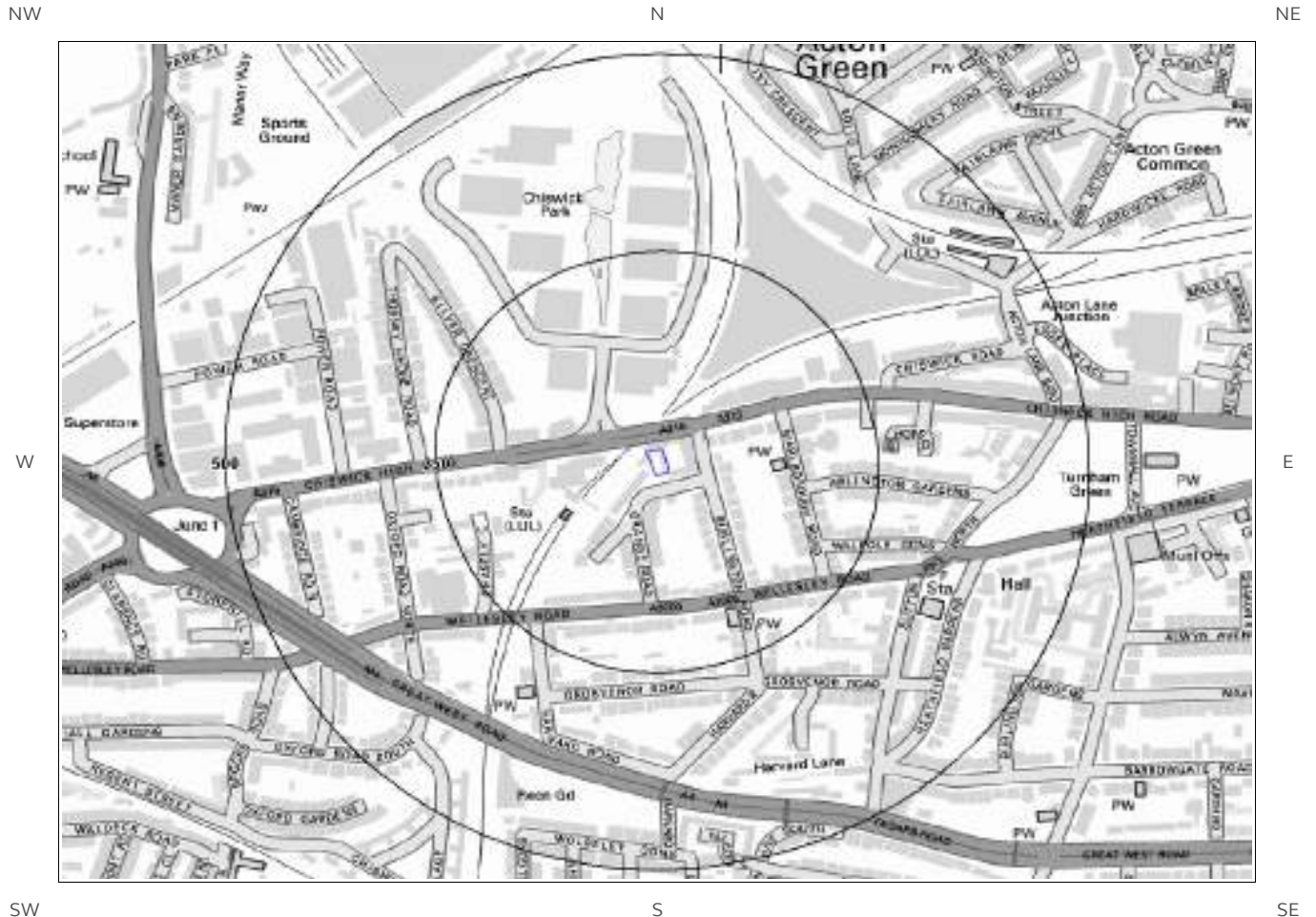


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# 6e. Hydrology – Watercourse Network and River Quality



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# 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
1	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
2	43	E	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	93	W	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
7	284	NE	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

## 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
1	0	On Site	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
2	43	E	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow



## 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
3A	175	E	520120 178500	<p>Status: Historical Licence No: 28/39/39/0200 Details: Pollution Remediation Direct Source: THAMES GROUNDWATER Point: POINT 'A' AT CHISWICK SERVICE STATION, CHISWICK, LONDON W4. Data Type: Point Name: TOTALFINAELF UK LTD</p> <p>Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 28/03/2002 Expiry Date: 31/01/2005 Issue No: 1 Version Start Date: 28/03/2002 Version End Date:</p>
4A	175	E	520120 178500	<p>Status: Historical Licence No: 28/39/39/0216 Details: Pollution Remediation Direct Source: THAMES GROUNDWATER Point: CHISWICK SERVICE STATION, CHISWICK, LONDON W4-POINT 'A'. Data Type: Point Name: TOTAL UK LIMITED</p> <p>Annual Volume (m³): 6935 Max Daily Volume (m³): 19 Original Application No: - Original Start Date: 10/03/2005 Expiry Date: 31/03/2013 Issue No: 1 Version Start Date: 10/03/2005 Version End Date:</p>
5B	360	N	519831 178800	<p>Status: Active Licence No: TH/039/0039/030 Details: Make-Up Or Top Up Water Direct Source: THAMES GROUNDWATER Point: BOREHOLE AT CHISWICK HIGH ROAD, LONDON Data Type: Point Name: CHISWICK PARK ESTATE MANAGEMENT LIMITED</p> <p>Annual Volume (m³): 19540 Max Daily Volume (m³): 588.2 Original Application No: - Original Start Date: 22/05/2010 Expiry Date: 31/03/2019 Issue No: 2 Version Start Date: 05/09/2014 Version End Date:</p>
6B	360	N	519831 178800	<p>Status: Active Licence No: TH/039/0039/030 Details: Spray Irrigation - Direct Direct Source: THAMES GROUNDWATER Point: BOREHOLE AT CHISWICK HIGH ROAD, LONDON Data Type: Point Name: CHISWICK PARK ESTATE MANAGEMENT LIMITED</p> <p>Annual Volume (m³): 19540 Max Daily Volume (m³): 588.2 Original Application No: - Original Start Date: 22/05/2010 Expiry Date: 31/03/2019 Issue No: 2 Version Start Date: 05/09/2014 Version End Date:</p>
7B	360	N	519830 178800	<p>Status: Historical Licence No: 28/39/39/0197 Details: Make-Up Or Top Up Water Direct Source: THAMES GROUNDWATER Point: BOREHOLE AT CHISWICK HIGH ROAD, LONDON Data Type: Point Name: CHISWICK PARK ESTATE MANAGEMENT LTD</p> <p>Annual Volume (m³): 19540 Max Daily Volume (m³): 294.1 Original Application No: - Original Start Date: 11/10/2000 Expiry Date: 31/12/2009 Issue No: 5 Version Start Date: 02/07/2007 Version End Date:</p>
8B	360	N	519830 178800	<p>Status: Historical Licence No: 28/39/39/0197 Details: Spray Irrigation - Direct Direct Source: THAMES GROUNDWATER Point: BOREHOLE AT CHISWICK HIGH ROAD, LONDON Data Type: Point Name: CHISWICK PARK ESTATE MANAGEMENT LTD</p> <p>Annual Volume (m³): 19540 Max Daily Volume (m³): 294.1 Original Application No: - Original Start Date: 11/10/2000 Expiry Date: 31/12/2009 Issue No: 5 Version Start Date: 02/07/2007 Version End Date:</p>

ID	Distance (m)	Direction	NGR	Details	
Not shown	1253	S	519480 177260	Status: Active Licence No: TH/039/0035/002 Details: Make-Up Or Top Up Water Direct Source: THAMES GROUNDWATER Point: WELL 1 AT THE NATIONAL ARCHIVES. KEW, RICHMOND,SURREY Data Type: Point Name: The Secretary of State for Justice	Annual Volume (m³): 10000 Max Daily Volume (m³): 30 Original Application No: - Original Start Date: 23/06/2014 Expiry Date: 31/03/2025 Issue No: 1 Version Start Date: 23/06/2014 Version End Date:
Not shown	1253	S	519480 177260	Status: Active Licence No: TH/039/0035/002 Details: Evaporative Cooling Direct Source: THAMES GROUNDWATER Point: WELL 1 AT THE NATIONAL ARCHIVES. KEW, RICHMOND,SURREY Data Type: Point Name: The Secretary of State for Justice	Annual Volume (m³): 10000 Max Daily Volume (m³): 30 Original Application No: - Original Start Date: 23/06/2014 Expiry Date: 31/03/2025 Issue No: 1 Version Start Date: 23/06/2014 Version End Date:
Not shown	1287	S	519490 177220	Status: Active Licence No: TH/039/0035/002 Details: Evaporative Cooling Direct Source: THAMES GROUNDWATER Point: WELL 2 AT THE NATIONAL ARCHIVES, KEW, RICHMOND, SURREY Data Type: Point Name: The Secretary of State for Justice	Annual Volume (m³): 10000 Max Daily Volume (m³): 30 Original Application No: - Original Start Date: 23/06/2014 Expiry Date: 31/03/2025 Issue No: 1 Version Start Date: 23/06/2014 Version End Date:
Not shown	1287	S	519490 177220	Status: Active Licence No: TH/039/0035/002 Details: Make-Up Or Top Up Water Direct Source: THAMES GROUNDWATER Point: WELL 2 AT THE NATIONAL ARCHIVES, KEW, RICHMOND, SURREY Data Type: Point Name: The Secretary of State for Justice	Annual Volume (m³): 10000 Max Daily Volume (m³): 30 Original Application No: - Original Start Date: 23/06/2014 Expiry Date: 31/03/2025 Issue No: 1 Version Start Date: 23/06/2014 Version End Date:
Not shown	1479	SW	518665 177680	Status: Historical Licence No: TH/039/0035/001 Details: Heat Pump Direct Source: THAMES GROUNDWATER Point: KEW GARDENS, RICHMOND - BOREHOLE (1) Data Type: Point Name: THE BOARD OF TRUSTEES OF THE ROYAL BOTANIC GARDENS, KEW	Annual Volume (m³): 124300 Max Daily Volume (m³): 380 Original Application No: - Original Start Date: 26/05/2009 Expiry Date: 31/03/2016 Issue No: 1 Version Start Date: 10/07/2014 Version End Date:
Not shown	1479	SW	518665 177680	Status: Active Licence No: TH/039/0035/001/R01 Details: Heat Pump Direct Source: THAMES GROUNDWATER Point: KEW GARDENS, RICHMOND - BOREHOLE (1) Data Type: Point Name: THE BOARD OF TRUSTEES OF THE ROYAL BOTANIC GARDENS, KEW	Annual Volume (m³): 124300 Max Daily Volume (m³): 380 Original Application No: - Original Start Date: 19/05/2016 Expiry Date: 31/03/2022 Issue No: 1 Version Start Date: 19/05/2016 Version End Date:
Not shown	1497	SW	518649 177670	Status: Historical Licence No: TH/039/0035/001 Details: Heat Pump Direct Source: THAMES GROUNDWATER Point: KEW GARDENS, RICHMOND - BOREHOLE (2) Data Type: Point Name: THE BOARD OF TRUSTEES OF THE ROYAL BOTANIC GARDENS, KEW	Annual Volume (m³): 124300 Max Daily Volume (m³): 380 Original Application No: - Original Start Date: 26/05/2009 Expiry Date: 31/03/2016 Issue No: 1 Version Start Date: 10/07/2014 Version End Date:



ID	Distance (m)	Direction	NGR	Details
Not shown	1497	SW	518649 177670	Status: Active Licence No: TH/039/0035/001/R01 Details: Heat Pump Direct Source: THAMES GROUNDWATER Point: KEW GARDENS, RICHMOND - BOREHOLE (2) Data Type: Point Name: THE BOARD OF TRUSTEES OF THE ROYAL BOTANIC GARDENS, KEW Annual Volume (m³): 124300 Max Daily Volume (m³): 380 Original Application No: - Original Start Date: 19/05/2016 Expiry Date: 31/03/2022 Issue No: 1 Version Start Date: 19/05/2016 Version End Date:
Not shown	1503	SW	518643 177669	Status: Active Licence No: TH/039/0035/001/R01 Details: Heat Pump Direct Source: THAMES GROUNDWATER Point: KEW GARDENS, RICHMOND - BOREHOLE (3) Data Type: Point Name: THE BOARD OF TRUSTEES OF THE ROYAL BOTANIC GARDENS, KEW Annual Volume (m³): 124300 Max Daily Volume (m³): 380 Original Application No: - Original Start Date: 19/05/2016 Expiry Date: 31/03/2022 Issue No: 1 Version Start Date: 19/05/2016 Version End Date:
Not shown	1503	SW	518643 177669	Status: Historical Licence No: TH/039/0035/001 Details: Heat Pump Direct Source: THAMES GROUNDWATER Point: KEW GARDENS, RICHMOND - BOREHOLE (3) Data Type: Point Name: THE BOARD OF TRUSTEES OF THE ROYAL BOTANIC GARDENS, KEW Annual Volume (m³): 124300 Max Daily Volume (m³): 380 Original Application No: - Original Start Date: 26/05/2009 Expiry Date: 31/03/2016 Issue No: 1 Version Start Date: 10/07/2014 Version End Date:
Not shown	1726	E	521600 177900	Status: Historical Licence No: 28/39/39/0137 Details: Non-Evaporative Cooling Direct Source: THAMES GROUNDWATER Point: WELL AT GRIFFIN BREWERY, CHISWICK, LONDON W4 Data Type: Point Name: FULLER SMITH & TURNER LTD Annual Volume (m³): 81828 Max Daily Volume (m³): 327.3 Original Application No: - Original Start Date: 14/09/1970 Expiry Date: - Issue No: 100 Version Start Date: 14/09/1970 Version End Date:

## 6.4 Surface Water Abstraction Licences

Surface Water Abstraction Licences within 2000m of the study site

None identified

Database searched and no data found.

## 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.
43	E	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.

## 6.9 River Quality

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

None identified

### 6.9.1 Biological Quality:

Database searched and no data found.



### 6.9.2 Chemical Quality:

Database searched and no data found.

---

## 6.10 Ordnance Survey MasterMap Water Network

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

Database searched and no data found.

---

## 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:

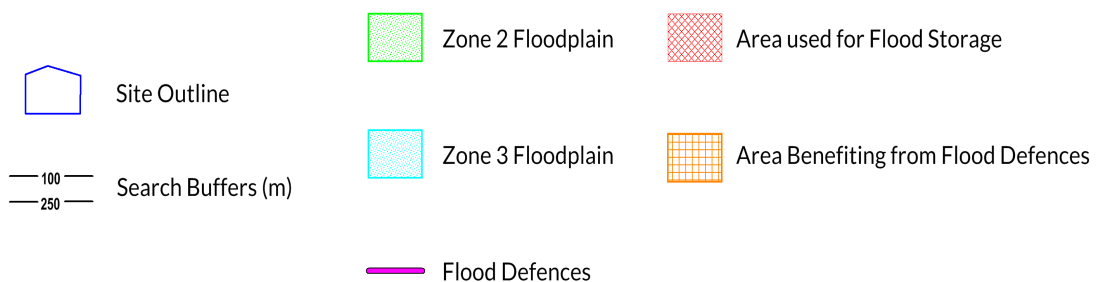
Distance (m)	Direction
169	N

---

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



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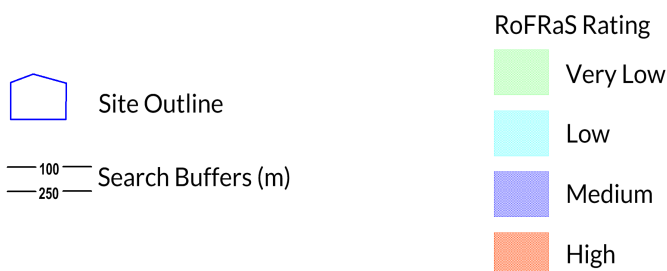




# 7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map



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# 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	7	NW	21-Feb-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	7	NW	21-Feb-2019	Zone 3 - (Fluvial /Tidal 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.

Any relevant data within 250m is represented on the RoFRaS Flood map. Data to 50m is reported in the table below.

ID	Distance (m)	Direction	RoFRaS flood Risk
1	7.0	NW	Very Low



## 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 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.

---

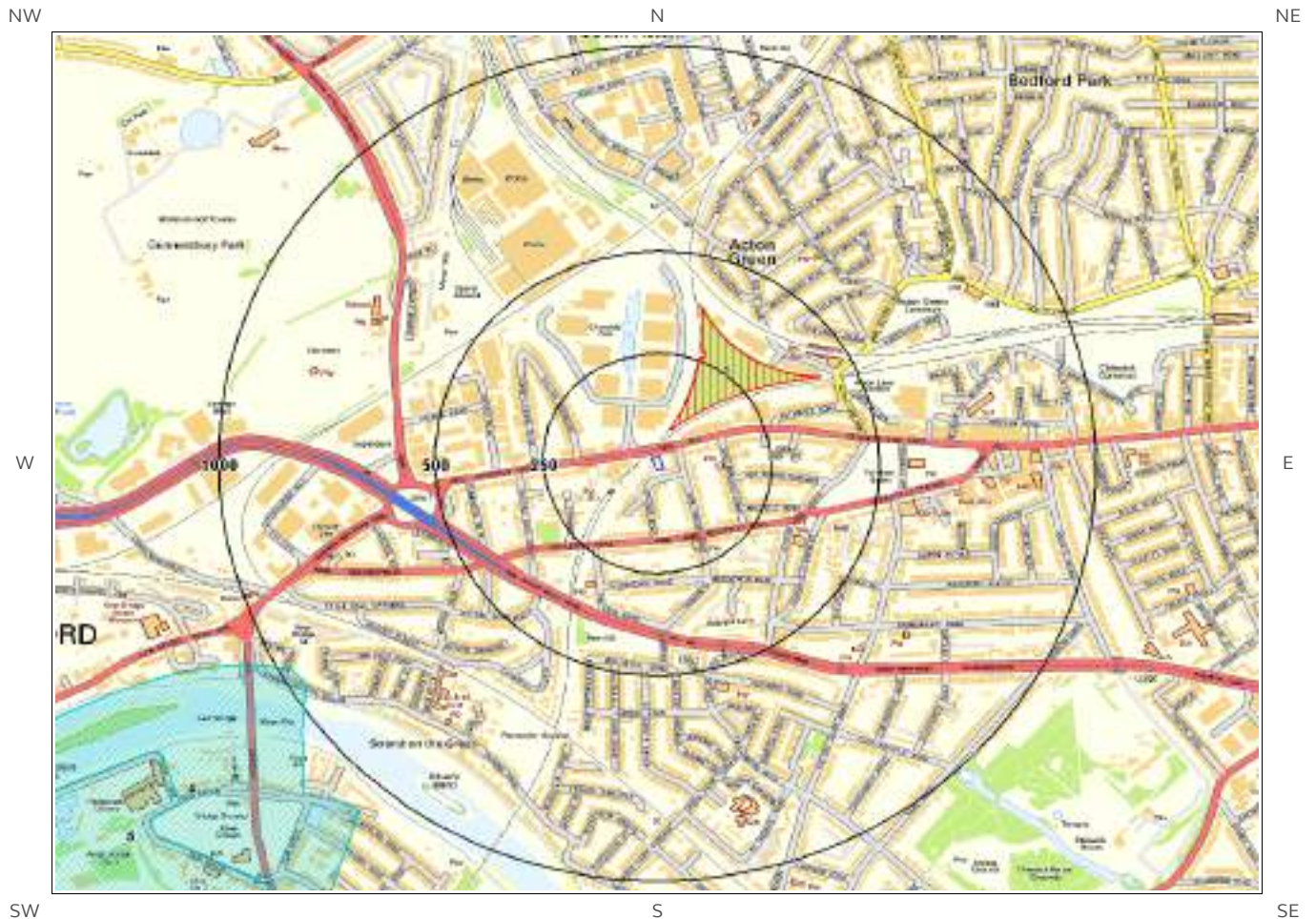
## 7.8 Groundwater Flooding Confidence Areas

British Geological Survey confidence rating in this result Moderate

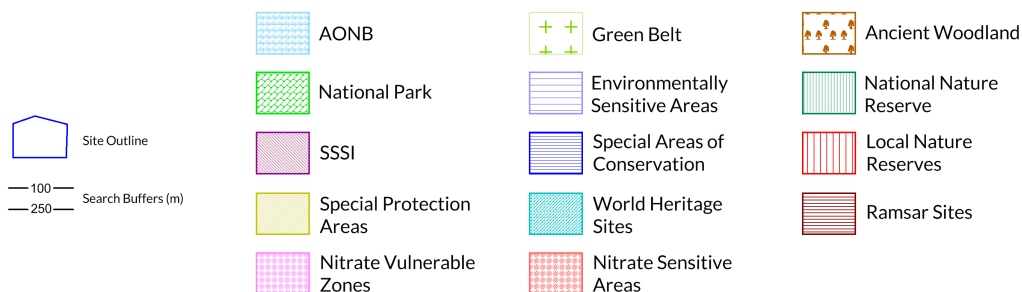
Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

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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# 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:

3

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	70	N	Gunnersbury Triangle	Natural England
Not shown	1900	E	Chiswick Eyot	Natural England
Not shown	1987	SE	Leg of Mutton Reservoir	Natural England

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

2

The following World Heritage Site records provided by English Heritage and Cadw are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	World Heritage Site Name	Data Source
4	963	SW	Royal Botanic Gardens, Kew Buffer Zone	Historic England
5	1337	SW	Royal Botanic Gardens, Kew	Historic England

## 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:

0

Database searched and no data found.

---

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

0

Database searched and no data found.

---

# 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 Moderate

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

Hazard
Ground conditions predominantly high plasticity. Do not plant or remove trees or shrubs near to buildings without expert advice about their effect and management. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a probable increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a probable increase in insurance risk during droughts or where vegetation with high moisture demands is present.

### 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

Negligible

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

Hazard
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.

#### 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

Very Low

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

Hazard
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.

\* 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

None identified

Database searched and no data found.

---

## 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

**Groundsure Helpline**  
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info@groundsure.com



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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>





Arcadis Consulting UK Ltd  
PO Box, 307,  
MANCHESTER, M60 3NT

Groundsure Reference: GS-5910845

Your Reference: 14023929

Report Date 28 Mar 2019

Report Delivery Method: Email - pdf

## Geo Insight

Address: GUNNERSBURY CLOSE, CHISWICK, LONDON, W4 4AH

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

**Address:** GUNNERSBURY CLOSE, CHISWICK, LONDON, W4 4AH  
**Date:** 28 Mar 2019  
**Reference:** GS-5910845  
**Client:** Arcadis Consulting UK Ltd



Aerial Photograph Capture date: 20-Apr-2015  
Grid Reference: 519951,178452  
Site Size: 0.0579ha



# Contents Page

Contents Page.....	3
Overview of Findings.....	5
1:10,000 Scale Availability.....	8
Availability of 1:10,000 Scale Geology Mapping.....	9
1 Geology (1:10,000 scale).....	10
1.1 Artificial Ground map (1:10,000 scale).....	10
1. Geology 1:10,000 scale.....	11
1.1 Artificial Ground.....	11
1.2 Superficial Deposits and Landslips map (1:10,000 scale).....	12
1.2 Superficial Deposits and Landslips.....	13
1.2.1 Superficial Deposits/ Drift Geology.....	13
1.2.2 Landslip.....	13
1.3 Bedrock and linear features map (1:10,000 scale).....	14
1.3 Bedrock and linear features.....	15
1.3.1 Bedrock/ Solid Geology.....	15
1.3.2 Linear features.....	15
2 Geology 1:50,000 Scale.....	16
2.1 Artificial Ground map.....	16
2. Geology 1:50,000 scale.....	17
2.1 Artificial Ground.....	17
2.1.1 Artificial/ Made Ground .....	17
2.1.2 Permeability of Artificial Ground.....	17
2.2 Superficial Deposits and Landslips map (1:50,000 scale).....	18
2.2 Superficial Deposits and Landslips.....	19
2.2.1 Superficial Deposits/ Drift Geology.....	19
2.2.2 Permeability of Superficial Ground .....	19
2.2.3 Landslip.....	19
2.2.4 Landslip Permeability.....	19
2.3 Bedrock and linear features map (1:50,000 scale).....	20
2.3 Bedrock, Solid Geology & linear features.....	21
2.3.1 Bedrock/Solid Geology.....	21
2.3.2 Permeability of Bedrock Ground.....	21
2.3.3 Linear features.....	21
3 Radon Data.....	22
3.1 Radon Affected Areas.....	22
3.2 Radon Protection.....	22
4 Ground Workings map.....	23
4 Ground Workings.....	24
4.1 Historical Surface Ground Working Features derived from Historical Mapping.....	24
4.2 Historical Underground Working Features derived from Historical Mapping.....	26
4.3 Current Ground Workings.....	26
5 Mining, Extraction & Natural Cavities.....	28
5.1 Historical Mining.....	28
5.2 Coal Mining.....	28
5.3 Johnson Poole and Bloomer.....	28
5.4 Non-Coal Mining.....	28
5.5 Non-Coal Mining Cavities.....	29
5.6 Natural Cavities.....	29
5.7 Brine Extraction.....	29
5.8 Gypsum Extraction.....	29
5.9 Tin Mining.....	29
5.10 Clay Mining.....	30
6 Natural Ground Subsidence.....	31
6.1 Shrink-Swell Clay map.....	31
6.2 Landslides map.....	32
6.3 Ground Dissolution of Soluble Rocks map.....	33
6.4 Compressible Deposits map.....	34
6.5 Collapsible Deposits map.....	35
6.6 Running Sand map.....	36

6 Natural Ground Subsidence.....	37
6.1 Shrink-Swell Clays.....	37
6.2 Landslides.....	38
6.3 Ground Dissolution of Soluble Rocks.....	38
6.4 Compressible Deposits.....	38
6.5 Collapsible Deposits.....	39
6.6 Running Sands.....	39
7 Borehole Records.....	41
8 Estimated Background Soil Chemistry.....	42
9 Railways and Tunnels map.....	43
9 Railways and Tunnels.....	44
9.1 Tunnels .....	44
9.2 Historical Railway and Tunnel Features .....	45
9.3 Historical Railways.....	45
9.4 Active Railways.....	45
9.5 Railway Projects.....	46



# 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 landslide 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?	No

## 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?	No
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 landslide 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?

No

## Section 3: Radon

### 3. Radon

3.1 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 property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

3.2 Radon 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	0	23	30	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	0	0	0	0
4.3 Current Ground Workings	0	0	1	0	0

## Section 5: Mining, Extraction & Natural Cavities

	On-site	0-50m	51-250	251-500	501-1000
5.1 Historical Mining	0	0	0	0	0
5.2 Coal Mining	0	0	0	0	0
5.3 Johnson Poole and Bloomer Mining Area	0	0	0	0	0
5.4 Non-Coal Mining*	0	0	0	0	0
5.5 Non-Coal Mining Cavities	0	0	0	0	0
5.5 Natural Cavities	0	0	0	0	0



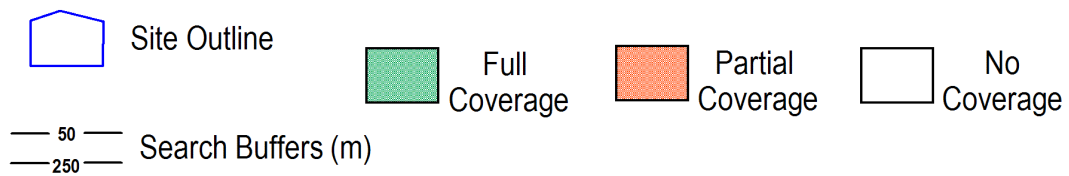
Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Tin Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0
Section 6: Natural Ground Subsidence	On-site				
6.1 Shrink-Swell Clay	Moderate				
6.2 Landslides	Very Low				
6.3 Ground Dissolution of Soluble Rocks	Negligible				
6.4 Compressible Deposits	Negligible				
6.5 Collapsible Deposits	Very Low				
6.5 Running Sand	Very Low				
Section 7: Borehole Records	On-site	0-50m	51-250		
7 BGS Recorded Boreholes	0	0	8		
Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250		
8 Records of Background Soil Chemistry	1	2	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	0	7	3	Not Searched	
9.3 Historical Railways	0	0	0	Not Searched	
9.4 Active Railways	0	12	8	Not Searched	
9.5 Railway Projects	0	0	0	0	

# 1:10,000 Scale Availability



1\_10,000 Availability Legend

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# 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	No coverage
2	43.0	Some deposits are mapped	Full	Full	No coverage
N3	1541.0	Some deposits are mapped	Full	Full	No coverage
N4	1542.0	Some deposits are mapped	Full	Full	No coverage

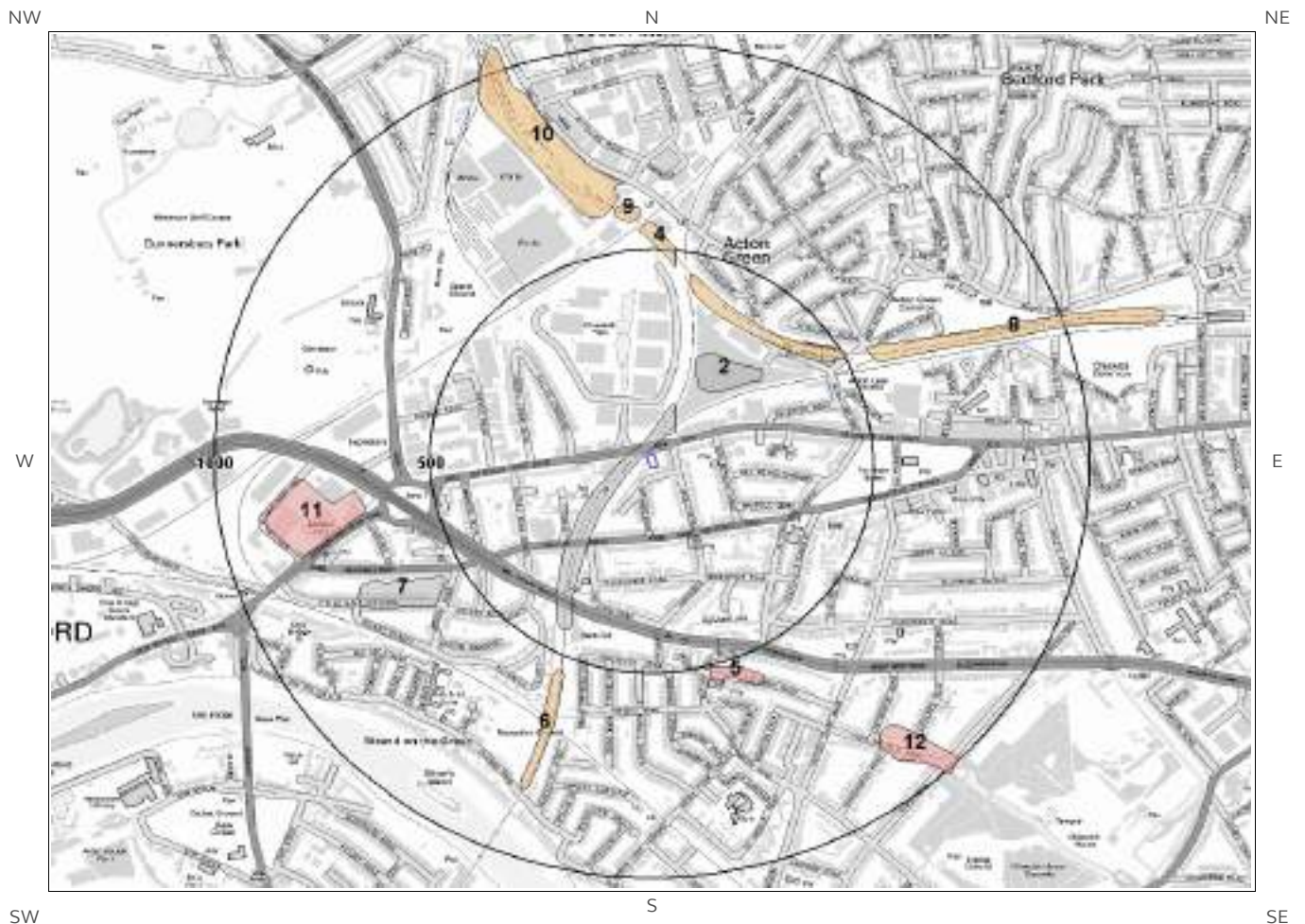
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not 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		Made Ground (undivided)		Disturbed Ground (undivided)
	Search Buffers (m)		Worked Ground (undivided)		Landscaped Ground (undivided)
			Infilled Ground		Reclaimed Ground



# 1. Geology 1:10,000 scale

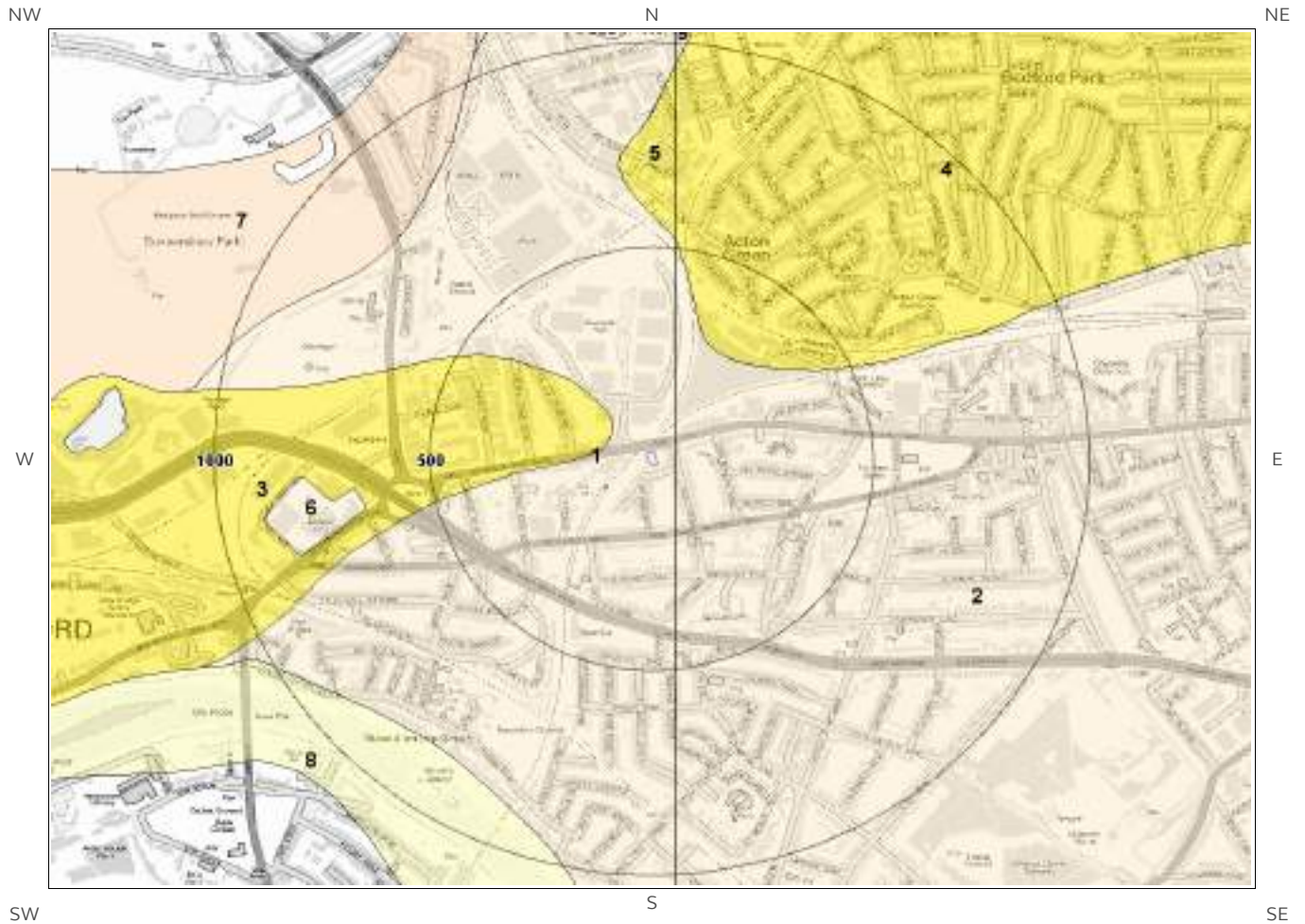
## 1.1 Artificial Ground

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

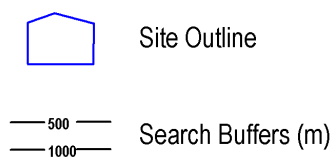
ID	Distance	Direction	LEX Code	Description	Rock Description
1	6.0	NW	WGR- UNKNOWN	Worked Ground (Undivided)	Unknown/unclassified Entry
2	193.0	NE	WGR- UNKNOWN	Worked Ground (Undivided)	Unknown/unclassified Entry
3	367.0	NE	MGR- UNKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry
4	460.0	N	MGR- UNKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry

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



Artificial Ground Legend

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# 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	KPGR-XSV	Kempton Park Gravel Formation - Sand And Gravel	Sand And Gravel
2	43.0	E	KPGR-XSV	Kempton Park Gravel Formation - Sand And Gravel	Sand And Gravel
3	93.0	W	LASI-Z	Langley Silt Member - Silt (unlithified Deposits Coding Scheme)	Silt
4	284.0	NE	LASI-Z	Langley Silt Member - Silt (unlithified Deposits Coding Scheme)	Silt

## 1.2.2 Landslip

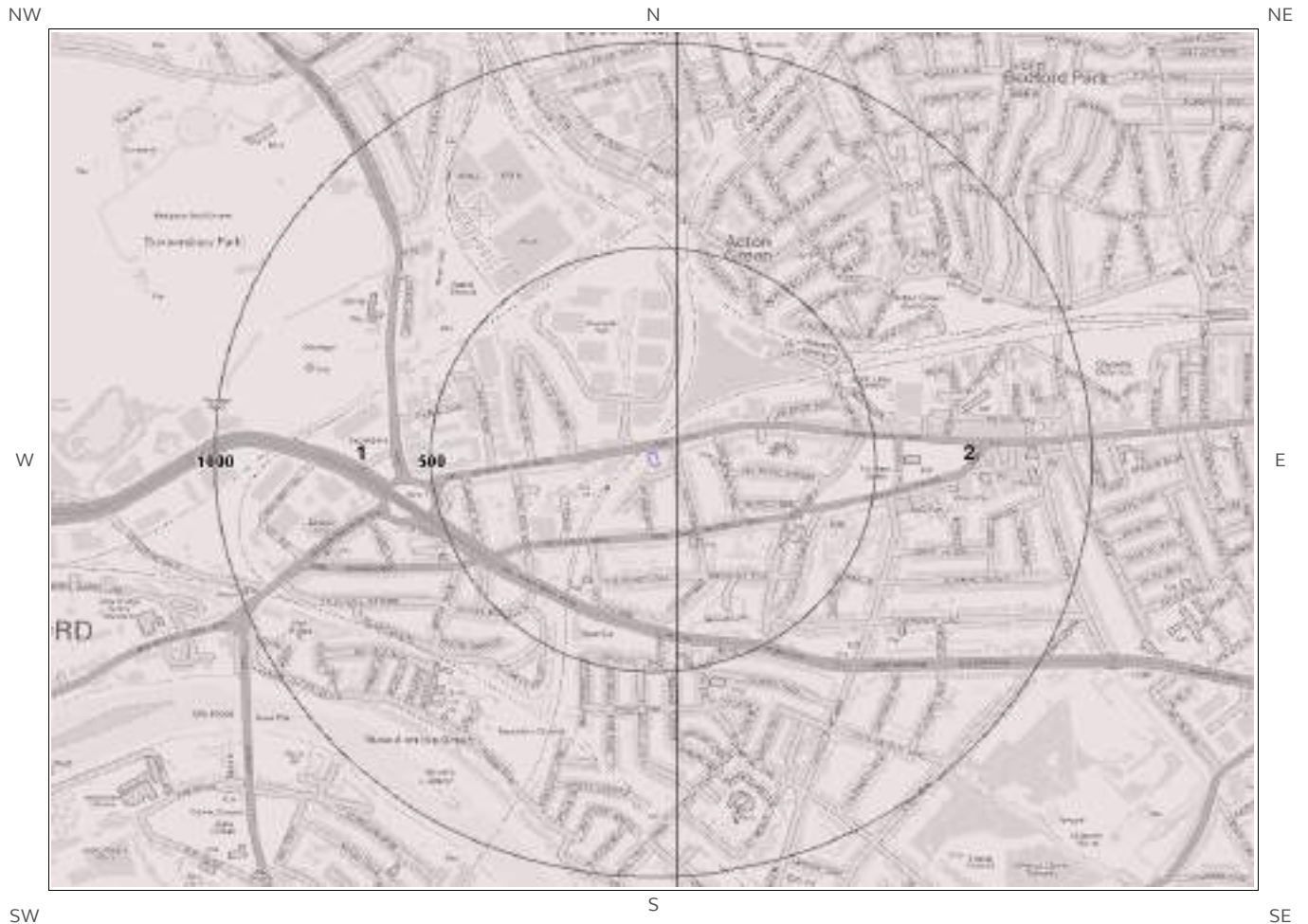
Are there any records of Landslip within 500m of the study site boundary at 1:10,000 scale? No

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

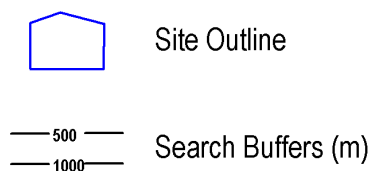
This Geology shows the main components as discrete layers, these are: Artificial / Made Ground, Superficial / Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

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



Bedrock and linear features Legend

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## 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
1	0.0	On Site	LC-CLAY	London Clay Formation - Clay	Eocene Epoch
2	43.0	E	LC-CLAY	London Clay Formation - Clay	Eocene Epoch

---

### 1.3.2 Linear features

Are there any records of linear features within 500m of the study site boundary at 1:10,000 scale? No

Database searched and no data found at this scale.

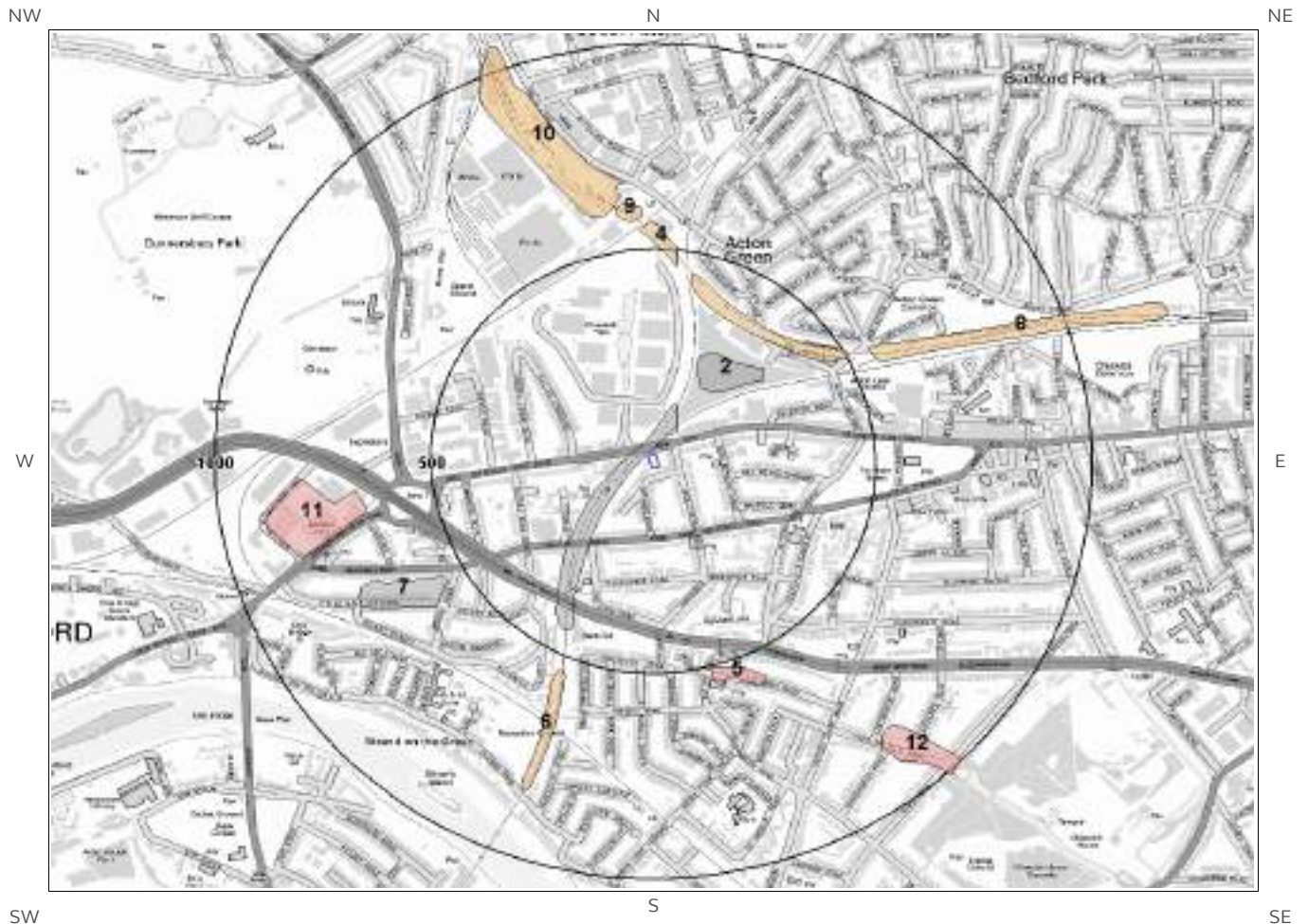
The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of great Britain at 1:10,000 scale.

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.

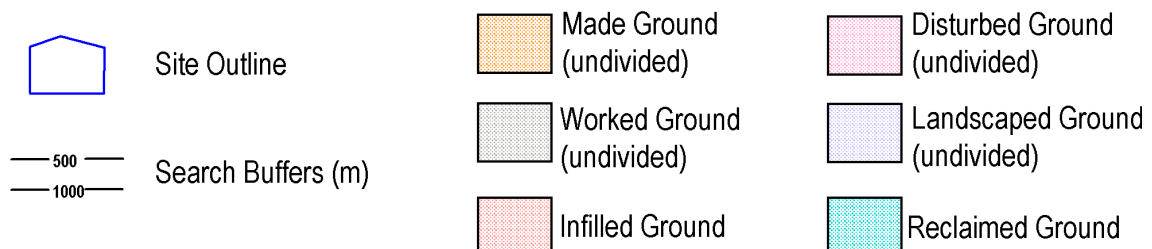
---

# 2 Geology 1:50,000 Scale

## 2.1 Artificial Ground map



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## 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: 270

#### 2.1.1 Artificial/ Made Ground

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

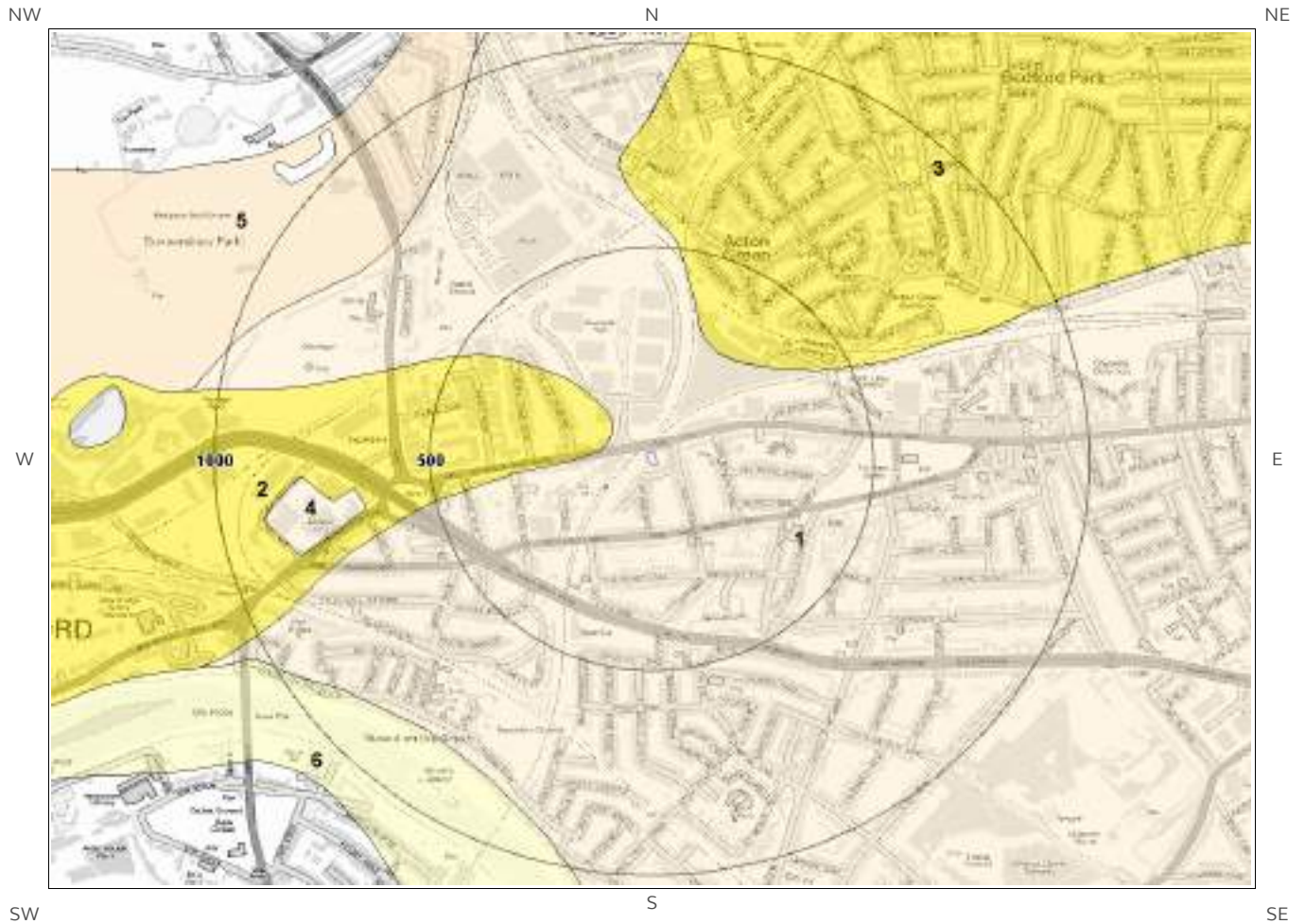
ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	6.0	NW	WGR-VOID	WORKED GROUND (UNDIVIDED)	VOID
2	193.0	NE	WGR-VOID	WORKED GROUND (UNDIVIDED)	VOID
3	367.0	NE	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
4	460.0	N	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

#### 2.1.2 Permeability of Artificial Ground

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

Database searched and no data found.

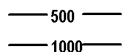
## 2.2 Superficial Deposits and Landslips map (1:50,000 scale)



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Site Outline



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
1	0.0	On Site	KPGR-XSV	KEMPTON PARK GRAVEL MEMBER	SAND AND GRAVEL
2	93.0	W	LASI-XCZ	LANGLEY SILT MEMBER	CLAY AND SILT
3	284.0	NE	LASI-XCZ	LANGLEY SILT MEMBER	CLAY AND SILT

### 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	Intergranular	Very High	High
43.0	E	Intergranular	Very High	High

### 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.

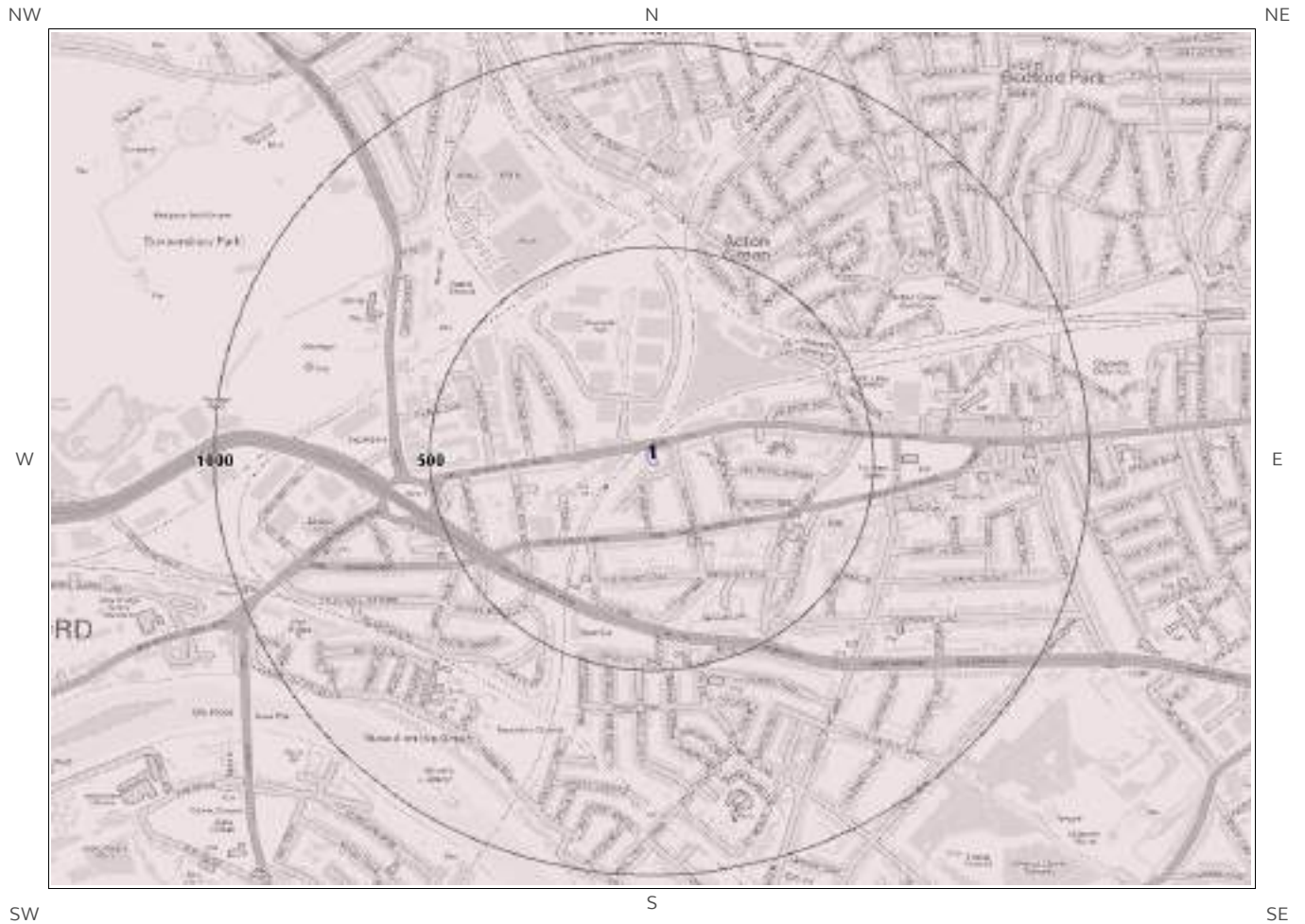
This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground, Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

### 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.

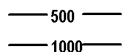
## 2.3 Bedrock and linear features map (1:50,000 scale)



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Site Outline



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: 270

### 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
1	0.0	On Site	LC-XCZ	LONDON CLAY FORMATION - CLAY AND SILT	YPRESIAN

### 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	Mixed	Low	Very Low
43.0	E	Mixed	Low	Very Low

### 2.3.3 Linear features

Are there any records of linear features 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, 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.

## 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.

---

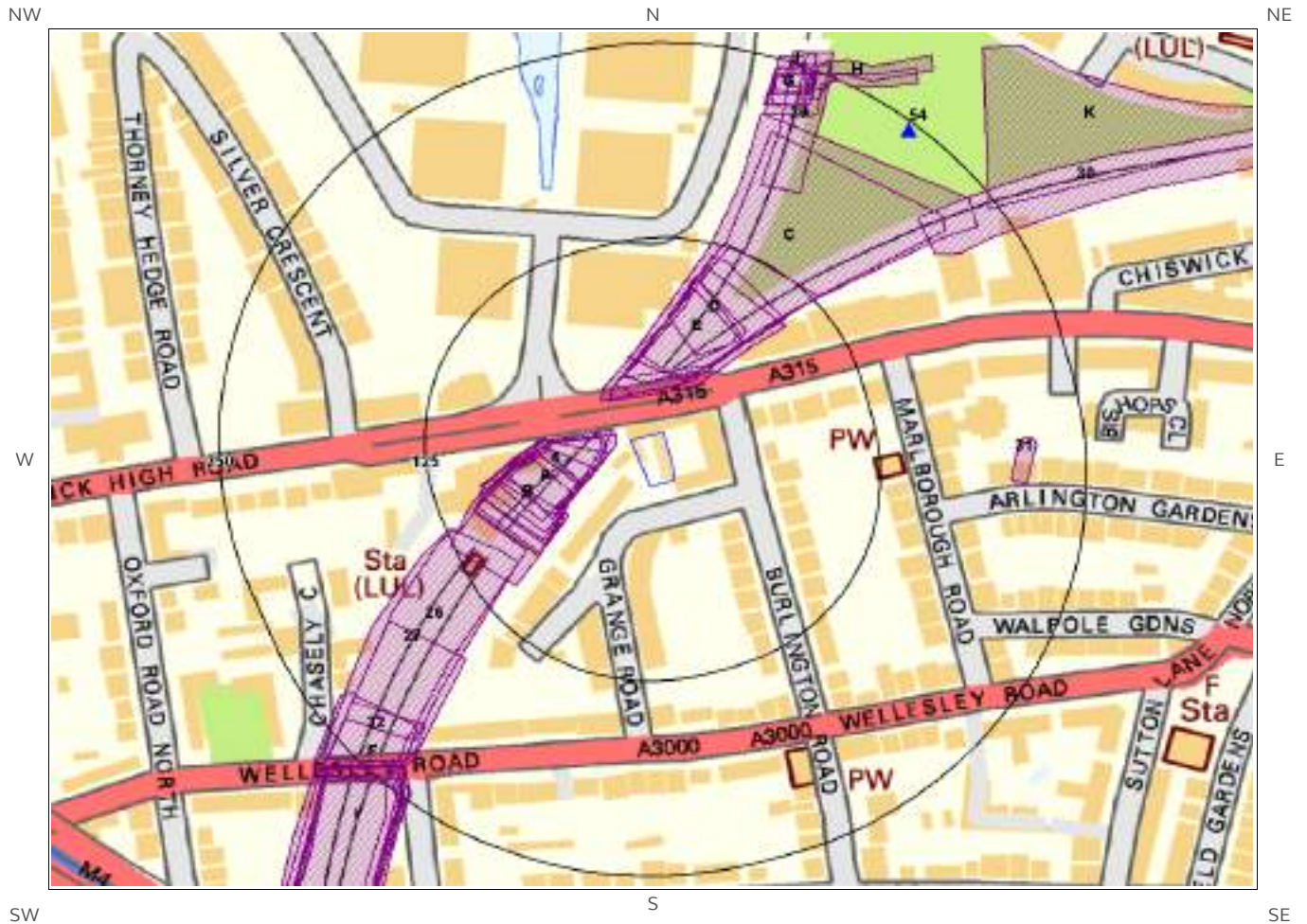
### 3.2 Radon Protection

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.

---



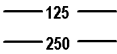




# 4 Ground Workings map



Ground Workings Legend

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- |   |                    |   |                                  |
|---|--------------------|---|----------------------------------|
|  | Site Outline       |  | Historic Surface Ground Workings |
|  | Search Buffers (m) |  | 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
1A	9.0	W	519878 178419	Cuttings	1933
2B	13.0	NW	519870 178410	Cuttings	1873
3A	15.0	W	519878 178425	Cuttings	1961
4	16.0	W	519882 178431	Cuttings	1898
5A	17.0	W	519880 178429	Cuttings	1894
6E	25.0	N	519971 178522	Cuttings	1898
7B	26.0	W	519875 178419	Cuttings	1910
8B	26.0	W	519875 178419	Cuttings	1933
9D	28.0	N	519983 178531	Cuttings	1873
10C	28.0	N	520026 178572	Cuttings	1894
11C	34.0	N	520024 178572	Cuttings	1910
12C	34.0	N	520024 178572	Cuttings	1933
13D	35.0	N	519975 178531	Cuttings	1893
14A	37.0	W	519877 178428	Cuttings	1966
15E	37.0	N	519965 178527	Cuttings	1961
16E	37.0	N	519965 178527	Cuttings	1974
17E	37.0	N	519965 178527	Cuttings	1966
18E	38.0	N	519963 178523	Cuttings	1987
19A	39.0	W	519869 178414	Cuttings	1938
20A	39.0	W	519869 178414	Cuttings	1920
21A	39.0	W	519874 178426	Cuttings	1948



ID	Distance (m)	Direction	NGR	Use	Date
22A	39.0	W	519874 178426	Cuttings	1948
23A	45.0	W	519882 178430	Cuttings	1893
24D	53.0	N	519974 178534	Cuttings	1948
25D	53.0	N	519974 178534	Cuttings	1948
26	85.0	SW	519812 178335	Cuttings	1966
27	94.0	SW	519800 178321	Cuttings	1894
28F	158.0	SW	519761 178198	Cuttings	1873
29	169.0	N	520031 178654	Cuttings	1874
30	201.0	NE	520229 178617	Cuttings	1874
31	204.0	E	520169 178441	Pond	1873
32	205.0	SW	519776 178267	Cuttings	1893
33F	210.0	SW	519751 178197	Cuttings	1898
34G	213.0	N	520026 178676	Cuttings	1898
35G	219.0	N	520024 178681	Cuttings	1894
36H	221.0	NE	520042 178677	Unspecified Ground Workings	1894
37G	221.0	N	520030 178680	Cuttings	1920
38G	227.0	N	520029 178684	Cuttings	1947
39J	229.0	N	520030 178690	Cuttings	1896
40H	233.0	NE	520078 178687	Unspecified Ground Workings	1896
41I	233.0	SW	519756 178163	Cuttings	1933
42I	233.0	SW	519756 178163	Cuttings	1910
43I	234.0	SW	519751 178168	Cuttings	1948
44I	234.0	SW	519751 178168	Cuttings	1948
45F	234.0	SW	519759 178177	Cuttings	1961
46J	235.0	N	520039 178691	Cuttings	1910
47J	235.0	N	520039 178691	Cuttings	1933
48I	240.0	SW	519751 178159	Cuttings	1920
49I	240.0	SW	519751 178159	Cuttings	1938
50I	243.0	SW	519749 178162	Cuttings	1933

ID	Distance (m)	Direction	NGR	Use	Date
51K	245.0	NE	520247 178655	Cuttings	1910
52K	245.0	NE	520247 178655	Cuttings	1933
53I	247.0	SW	519751 178168	Cuttings	1893

## 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? No

Database searched and no data found.

## 4.3 Current Ground Workings

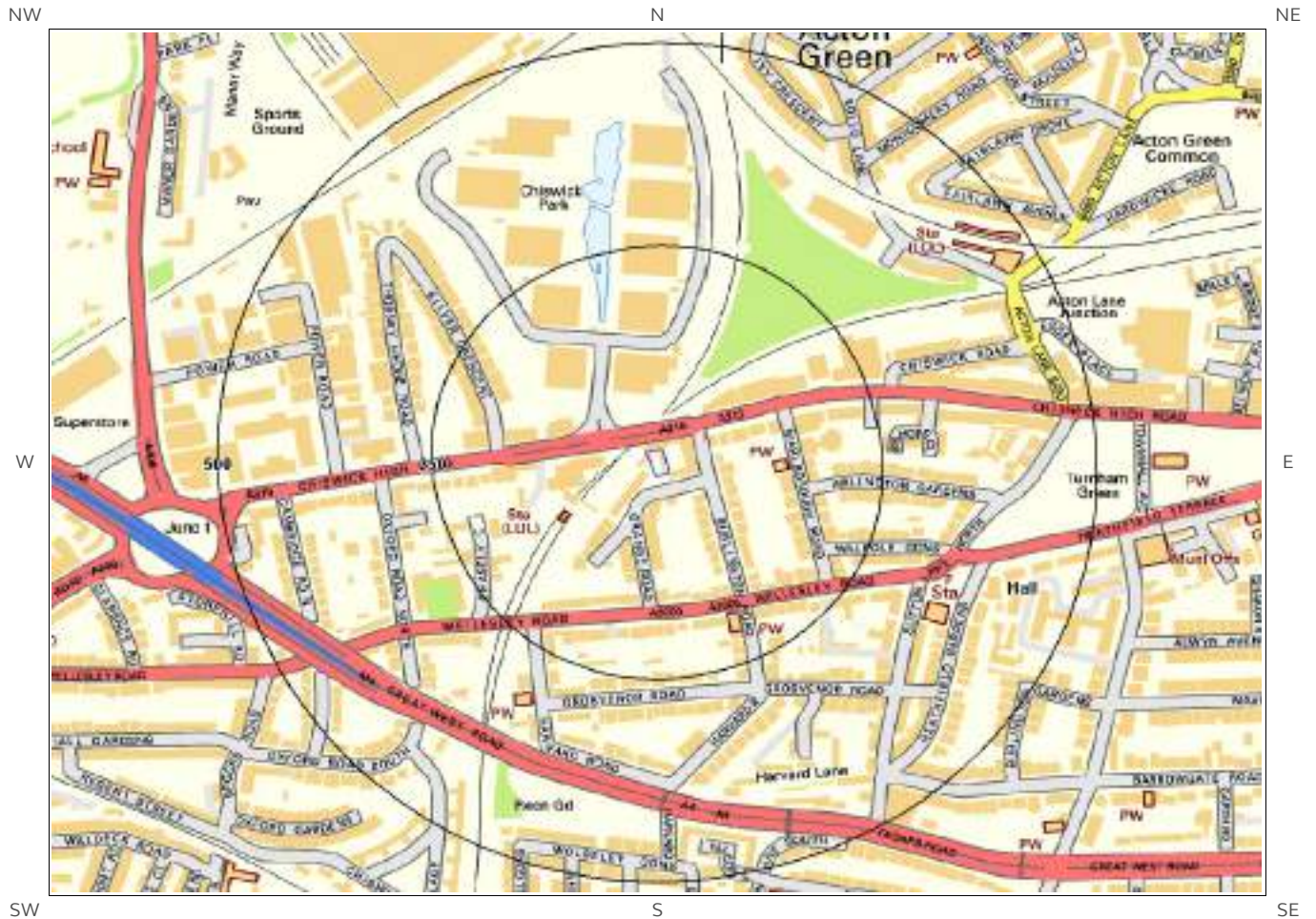
This dataset is derived from the BGS BRITPITS database covering active; inactive mines; quarries; oil wells; gas wells and mineral wharves; and rail deposits throughout the British Isles.

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:

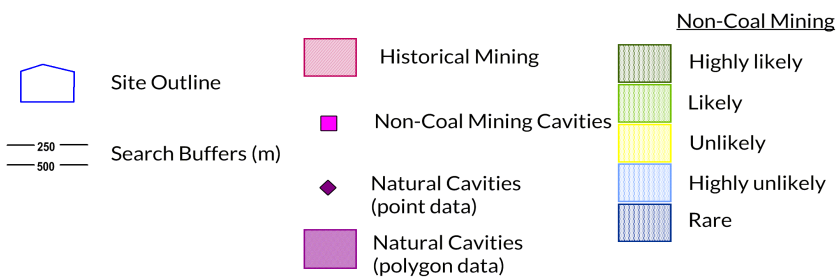
ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
54	244.0	NE	520099 178653	Sand & Gravel	Acton Curve Ballast Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

# 5 Mining, Extraction & Natural Cavities map



**Mining, Extraction and Natural Cavities Legend**

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# 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? No

Database searched and no data found.

---

## 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? No

Database searched and no data found.

---

## 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? No

The following information provided by JPB is not represented on mapping: Database searched and no data found.

---

## 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? No

Database searched and no data found.

---

## 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? No

Database searched and no data found.

---

## 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 Tin Mining

This dataset provides information on tin mining areas and is derived from tin mining records. This search is based upon postcode information to a sector level..

Are there any Tin 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

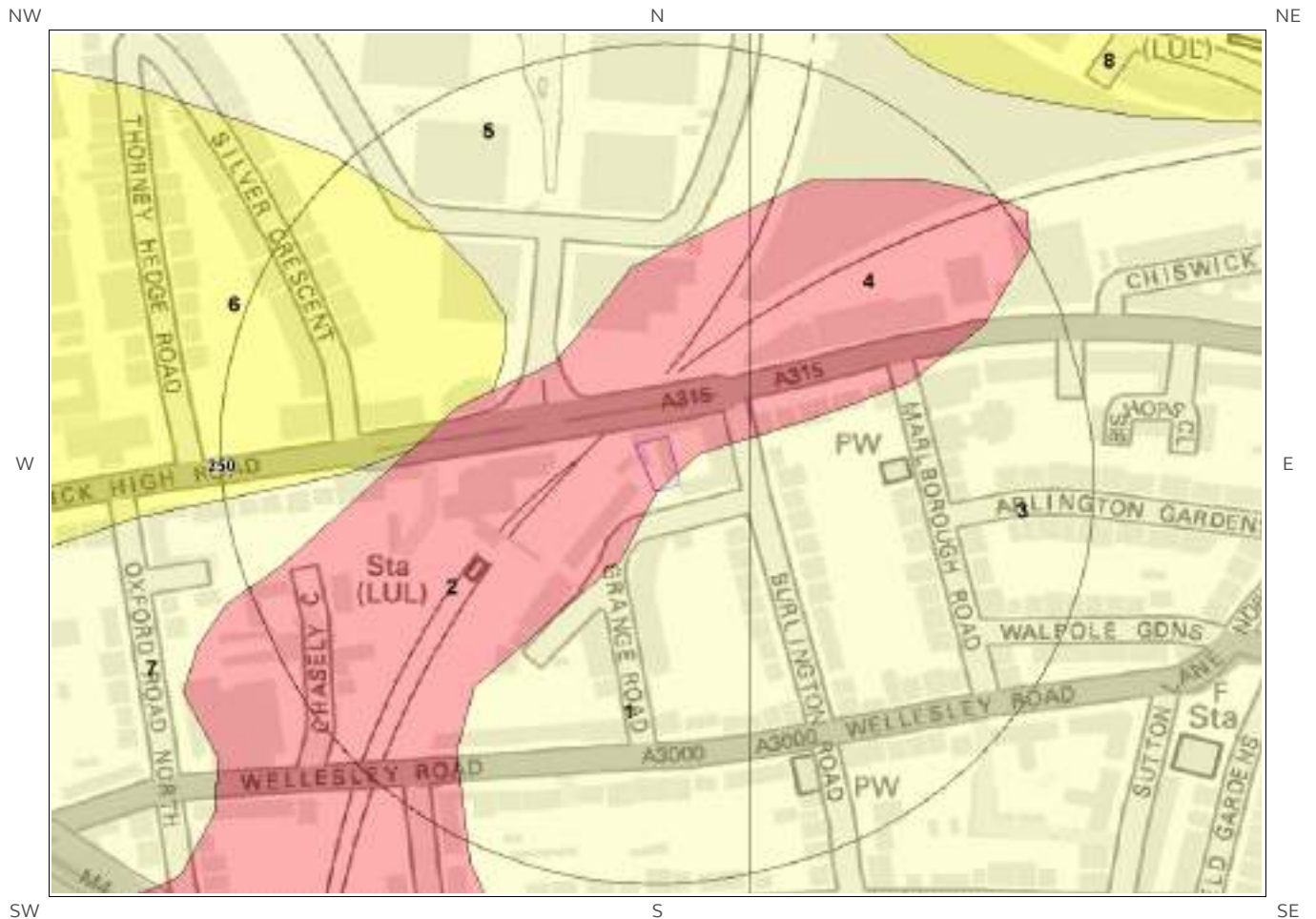
Database searched and no data found.

---



# 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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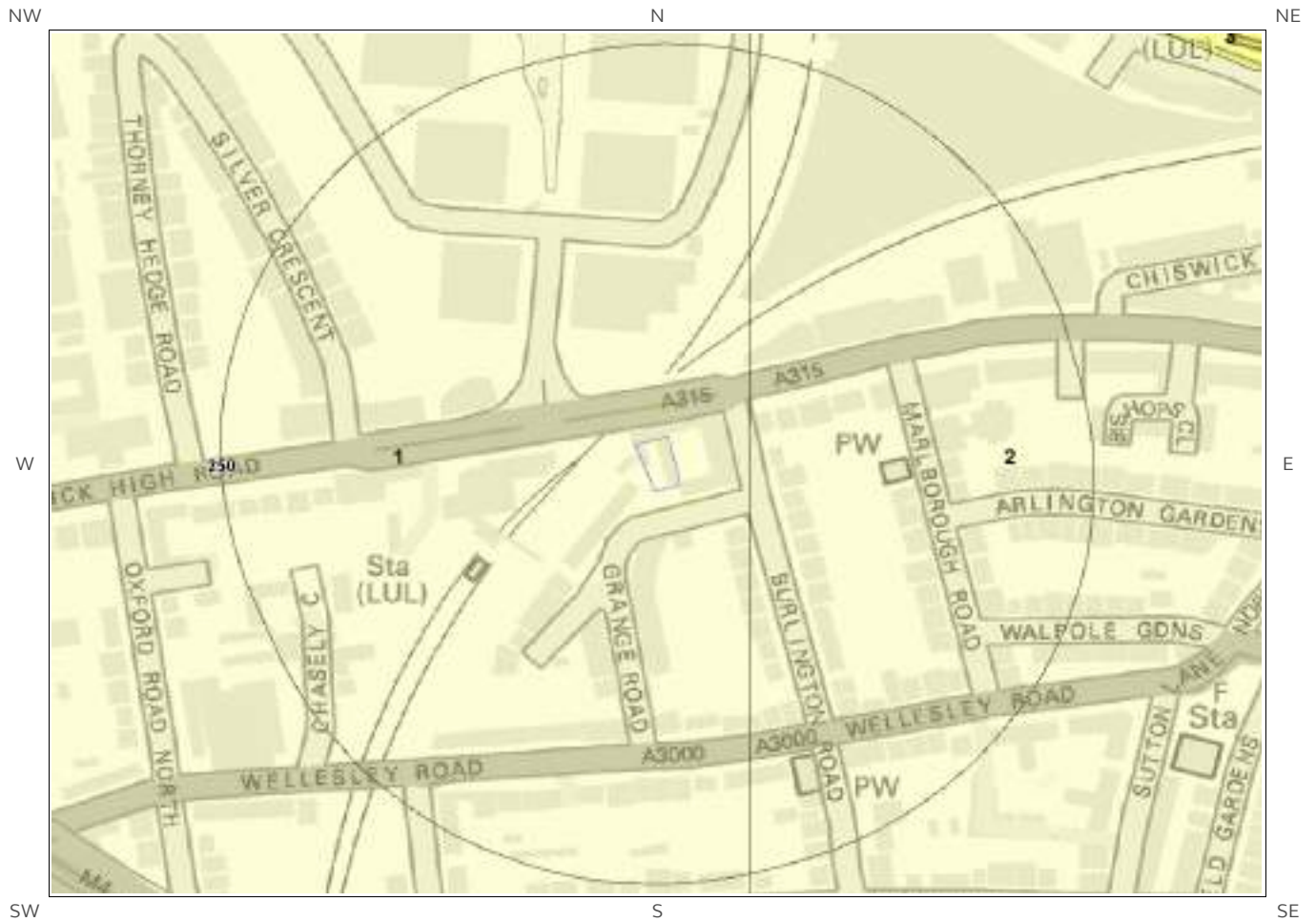


## 6.3 Ground Dissolution of Soluble Rocks map





## 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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# 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	Negligible	Ground conditions predominantly non-plastic. 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 likely due to potential problems with shrink-swell clays.
2	0.0	On Site	Moderate	Ground conditions predominantly high plasticity. Do not plant or remove trees or shrubs near to buildings without expert advice about their effect and management. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a probable increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a probable increase in insurance risk during droughts or where vegetation with high moisture demands is present.
3	43.0	E	Negligible	Ground conditions predominantly non-plastic. 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 likely due to potential problems with shrink-swell clays.
4	48.0	E	Moderate	Ground conditions predominantly high plasticity. Do not plant or remove trees or shrubs near to buildings without expert advice about their effect and management. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a probable increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a probable increase in insurance risk during droughts or where vegetation with high moisture demands is present.

\* This includes an automatically generated 50m buffer zone around the site

## 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.
2	43.0	E	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.
2	43.0	E	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.

## 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	43.0	E	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.

## 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	43.0	E	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.

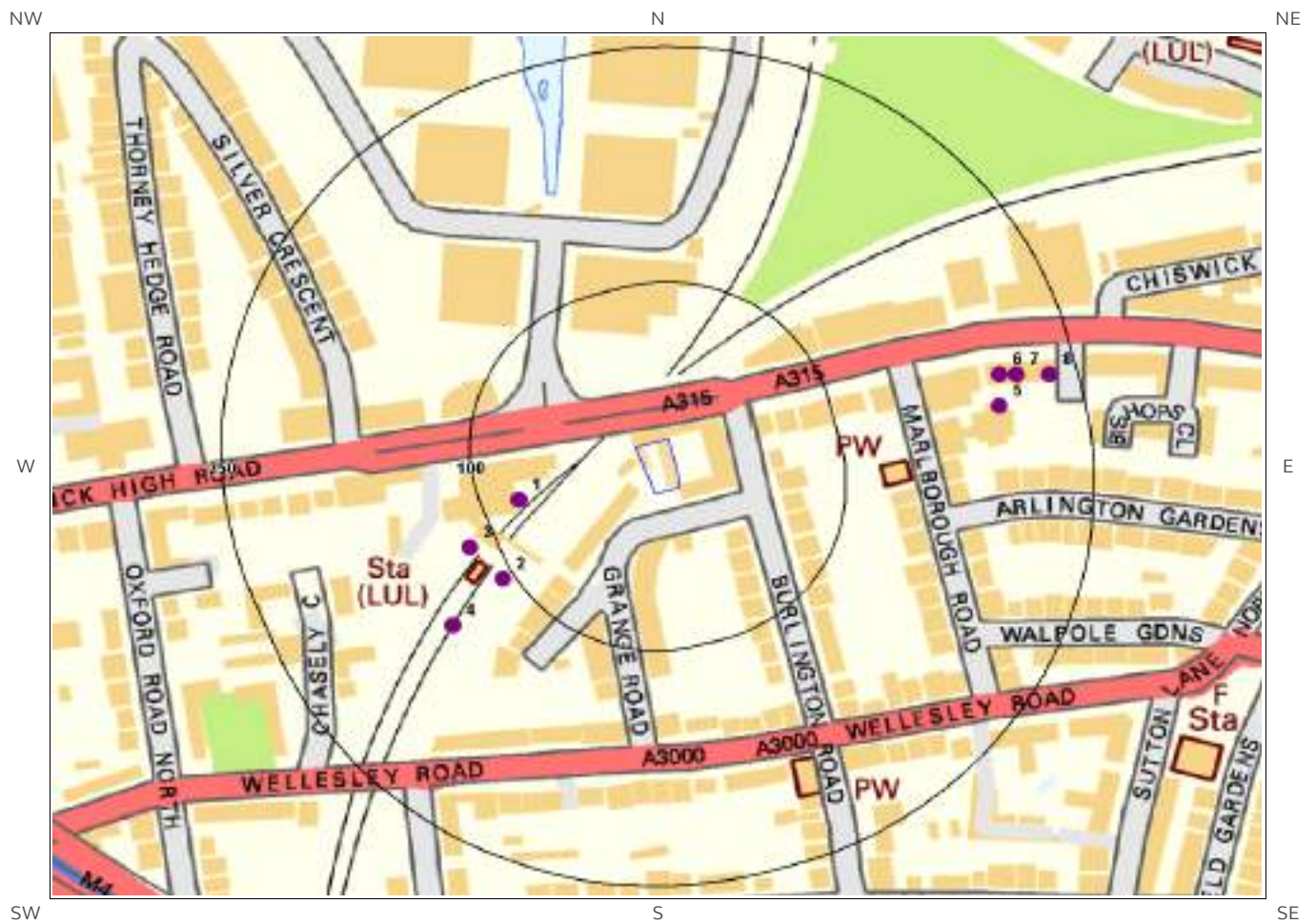
## 6.6 Running Sands

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.
2	43.0	E	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.

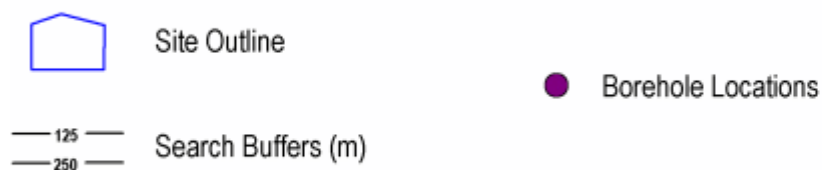


# 7 Borehole Records map



Borehole Records Legend

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## 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:

8

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1	78.0	W	519860 178420	TQ17NE308	25.29	GUNNERSBURY STATION 4
2	107.0	SW	519850 178370	TQ17NE305	12.19	GUNNERSBURY STATION 1
3	117.0	W	519830 178390	TQ17NE307	25.29	GUNNERSBURY STATION 3
4	149.0	SW	519820 178340	TQ17NE306	12.19	GUNNERSBURY STATION 2
5	198.0	E	520150 178480	TQ27NW690	-1.0	327-357 CHISWICK HIGH ROAD LONDON TP2
6	204.0	E	520150 178500	TQ27NW686	-1.0	327-357 CHISWICK HIGH ROAD LONDON 1
7	213.0	E	520160 178500	TQ27NW689	-1.0	327-357 CHISWICK HIGH ROAD LONDON TP1
8	233.0	E	520180 178500	TQ27NW687	-1.0	327-357 CHISWICK HIGH ROAD LONDON 2

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.

#1: [scans.bgs.ac.uk/sobi\\_scans/boreholes/580953](https://scans.bgs.ac.uk/sobi_scans/boreholes/580953)

#2: [scans.bgs.ac.uk/sobi\\_scans/boreholes/580950](https://scans.bgs.ac.uk/sobi_scans/boreholes/580950)

#3: [scans.bgs.ac.uk/sobi\\_scans/boreholes/580952](https://scans.bgs.ac.uk/sobi_scans/boreholes/580952)

#4: [scans.bgs.ac.uk/sobi\\_scans/boreholes/580951](https://scans.bgs.ac.uk/sobi_scans/boreholes/580951)

## 8 Estimated Background Soil Chemistry

Records of background estimated soil chemistry within 250m of the study site boundary:

3

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	London	No data	No data	No data	No data	No data
41.0	N	London	No data	No data	No data	No data	No data
43.0	E	London	No data	No data	No data	No data	No data

\*As this data is based upon underlying 1:50,000 scale geological information, a 50m buffer has been added to the search radius.

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# 9 Railways and Tunnels map



Railways and Tunnels Legend

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# 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? Yes

Distance (m)	Direction	Detail
10	NW	London Underground - District Line

The approximate depth value for the nearest London Underground line given in this dataset has been extrapolated from published depths of tube lines at station platforms, and assume a constant gradient between stations. Using this method, topographical variation has resulted in some parts of the line having associated depth values either shallower or deeper than the real-world situation. Depth values are for indication only and should not be relied upon for any calculation or technical purpose and are in no way a substitute for a professional survey.

Line
London Underground Line: District Line Depth: 0mbgl Track Type: Surface Track

*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? No

Database searched and no data found.

*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? No

Have any historical railway or tunnel features been identified within 250m of the study site boundary? Yes

ID	Distance (m)	Direction	NGR	Details	Date
4	5	W	n/a	Railway	1935
1A	7	W	519825 178310	Railway Sidings	1938
2A	7	W	519825 178310	Railway Sidings	1920
5B	8	NW	n/a	Railways	1897
6B	8	NW	n/a	Railways	1915
7	13	NW	n/a	Railway	1915
8	29	W	519884 178435	Railway Sidings	1915
3	83	W	519829 178359	Railway Sidings	1948
9	128	N	n/a	Railways	1896
10	218	SW	519762 178246	Railway Sidings	1915

*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? No

Have any active railway lines been identified within 250m of the study site boundary? Yes

Distance (m)	Direction	Name	Type
9	NW	District Line and Overground (North London Line)	Rail



Distance (m)	Direction	Name	Type
9	NW	District Line and Overground (North London Line)	Rail
13	NW	District Line and Overground (North London Line)	Rail
13	NW	District Line and Overground (North London Line)	Rail
20	N	Overground (North London Line)	Rail
20	N	Overground (North London Line)	Rail
23	W	Not given	Rail
23	W	Not given	Rail
24	N	Overground (North London Line)	Rail
24	N	Overground (North London Line)	Rail
41	N	Not given	Multi Track
41	N	Not given	Multi Track
88	W	District Line and Overground (North London Line)	Rail
88	W	District Line and Overground (North London Line)	Rail
93	W	District Line and Overground (North London Line)	Rail
93	W	District Line and Overground (North London Line)	Rail
105	SW	District Line and Overground (North London Line)	Rail
105	SW	District Line and Overground (North London Line)	Rail
110	W	District Line and Overground (North London Line)	Rail
110	W	District Line and Overground (North London Line)	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.

# Contact Details

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**British Geological Survey**  
NATURAL ENVIRONMENT RESEARCH COUNCIL

BGS Geological Hazards Reports and general geological enquiries

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The Coal  
Authority

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This report has been prepared in accordance with the Groundsure Ltd standard Terms and Conditions of business for work of this nature.



# Standard Terms and Conditions

Groundsure's Terms and Conditions can be viewed online at this link:  
<https://www.groundsure.com/terms-and-conditions-feb11-2019>




## **APPENDIX C**

### **Site Photographs**

<b>CLIENT:</b>	London Borough of Hounslow	<b>DATE:</b>	03/04/2019	 <b>ARCADIS</b>		Design & Consultancy for natural and built assets
<b>REFERENCE:</b>	10030793	<b>SITE NAME:</b>	Gunnersbury Close	10 <sup>th</sup> Floor Three Piccadilly Place Manchester M1 3BN	T: 0161 245 8700 F: 0161 245 8701	
Plate 1 – View of the site entrance, from south. Towards north.						
Plate 2 – View of the recycling disposal area and verge with mature tree. Towards northwest.						



<b>CLIENT:</b>	London Borough of Hounslow	<b>DATE:</b>	03/04/2019	 <b>ARCADIS</b>		Design & Consultancy for natural and built assets
<b>REFERENCE:</b>	10030793	<b>SITE NAME:</b>	Gunnersbury Close	10 <sup>th</sup> Floor Three Piccadilly Place Manchester M1 3BN	T: 0161 245 8700 F: 0161 245 8701	
<p>Plate 3 – View of the household waste disposal area. Towards northeast.</p>						
<p>Plate 4 – View of drainage and sandbags (potential for surface water flooding likely due to proximity to outdoor tap). Towards southeast.</p>						

<b>CLIENT:</b>	London Borough of Hounslow	<b>DATE:</b>	03/04/2019	 <b>ARCADIS</b>		Design & Consultancy for natural and built assets
<b>REFERENCE:</b>	10030793	<b>SITE NAME:</b>	Gunnersbury Close	10 <sup>th</sup> Floor Three Piccadilly Place Manchester M1 3BN	T: 0161 245 8700 F: 0161 245 8701	
Plate 5 – View of rear wall showing potential vertical crack (down the centre just right of the wall-mounted light) caused by nearby tree. Towards northwest)						
Plate 6 – View of garage blocks from north wall. Facing south.						

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