

LONDON BOROUGH OF HOUNSLOW SMALL SITES SMALL BUILDERS PROGRAMME

**BEACONSFIELD CLOSE, CHISWICK,
W4 4EL**

Geotechnical and Geo-Environmental Desk Study

NOVEMBER 2019



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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 and site walkover for the garage blocks adjacent to Beaconsfield Close, Chiswick, W4 4EL ('the Site(s)').

LBH is aiming to divest a number of small sites to enable positive regeneration. It is believed the proposed end use for the site will be for residential purposes. 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(s) and the 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 the Site(s).

The Site location is shown in Figure 1 below.

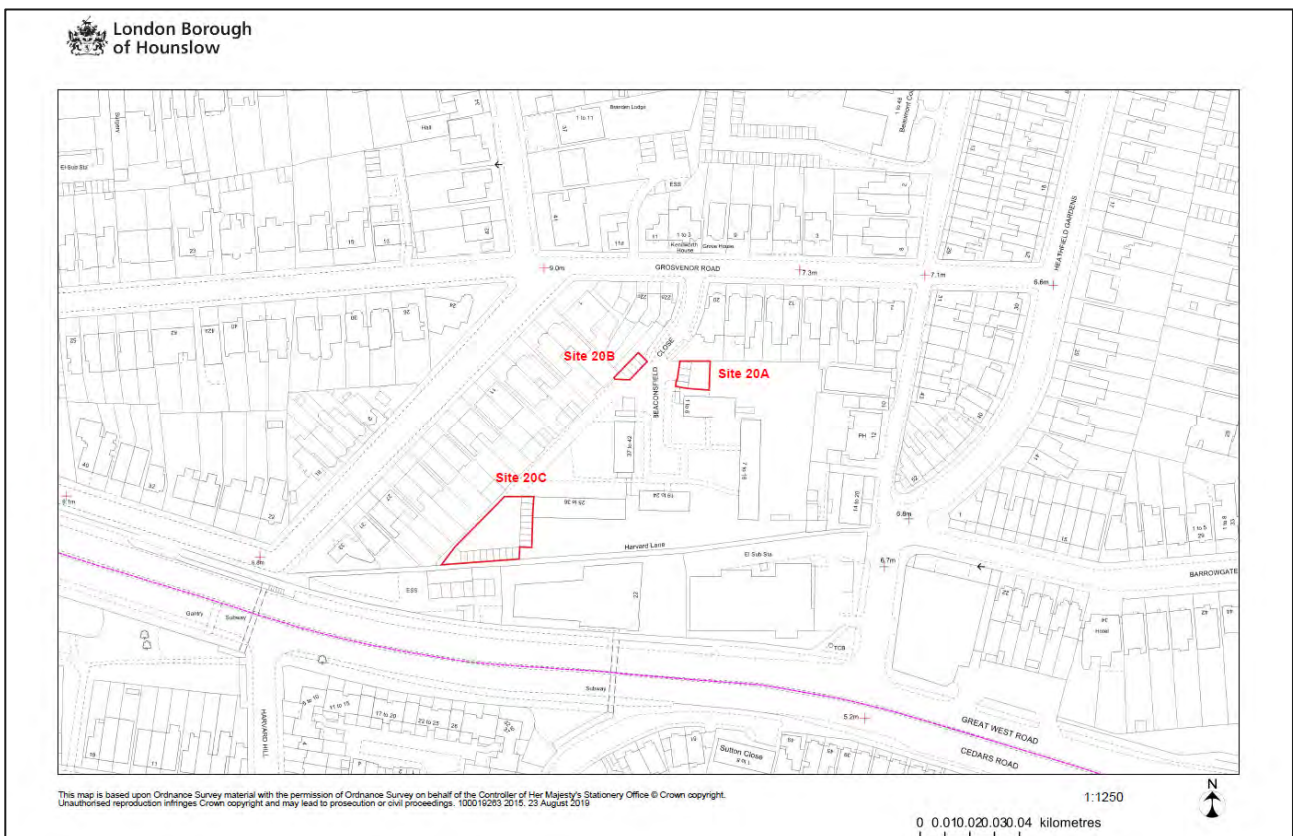


Figure 1: Site Location Plan provided by LBH

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);
- BGS 1:50,000 Map 270 (South London) solid and drift edition 1998;
- Historical borehole records available through BGS website (above) (Ref.1);
- Historical Ordnance Survey maps obtained from Groundsure (included in Appendix A);
- Environmental Information from Groundsure (Appendix B);
- Current publicly available aerial images and maps from Google maps (Ref. 2);
- Zetica Regional Unexploded Ordnance Map & Pre-Desk Study Assessment report (contained within the Arcadis UXO Assessment report for this site, 10030793-ARC-XX-XX-RP-YY-0185-01-UXO Report);
- Department for Environment, Food and Rural Affairs “Magic” website (Ref.7); and
- Zetica Bomb map (Ref.9.).

1.3 Limitations and Expectations

This report has been prepared for the Client in accordance with the terms and conditions of appointment. Arcadis cannot accept any responsibility for any use of or reliance on the contents of this report by any third party. The copyright of this document, including the electronic format shall remain the property of Arcadis.

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	Beaconsfield Close, Chiswick, W4 4EL
National Grid Reference	<p>Site 20A - 520126,178121</p> <p>Site 20B - 520105,178123</p> <p>Site 20C - 520056,178056</p>
Approximate Site Area	The Site consists of three adjacent parcels of land referred as Site 20A, Site 20B and Site 20C as shown in Figure 1, with approximate areas 0.01 Ha (hectares), 0.01 Ha and 0.06 Ha respectively.
Description of Site	<p>The Site 20A is currently occupied by 3 no. garages with spaces for car parking at the front. The garage block is of brick construction and the roof is felted. The door frames are timber and in good condition while the doors are of a powder coated metal construction. The northern and southern site boundaries comprise a close board fence and a brick-built bin area which separate the Site and the properties to the north and south. The brick-built bin area also provides access to the rear of the garages and the garden area to the east. The hardstanding in front of the Site is asphalt which is in reasonably good condition, although there is a scar running north-south in line with the pavement. There is paved hardstanding to the rear (east) of the garages which is used as a clothes drying area. The Site is in an urban residential area.</p> <p>The Site 20B is currently occupied by 4 no. garages with spaces for car parking at the front with an adjoining storage area to the south-west. The garage is of brick construction and the roof is corrugated and may be made from an asbestos type material. The door frames are timber and in good condition while the doors are of a powder coated metal construction. There is a large crack through the brickwork on the south-east corner of the building. The hardstanding in front of the Site is asphalt which is in good condition. The Site is in an urban residential area.</p> <p>The Site 20C is currently occupied by 18 no. garages comprising of one run of 10 and another perpendicular to it of 8 with spaces for car parking at the front. The garage is of brick construction. The door frames are timber and in good condition while the doors are of a powder coated metal construction. There is guttering running along the front of the building with the downpipes discharging into surface drains although this is badly damaged at the north end. Also, at the north end are what appear to be 5 storerooms with individual locking doors. The hardstanding in front of the Site is asphalt which is in good condition with some scarring but no holes or cracks. This Site is in an urban residential area.</p> <p>Site photographs are included in Appendix C.</p>
Topography	<p>The topography of the Site 20A is generally flat at approximately 6 m Above Ordnance Datum (AOD). The topography of the immediate area is also generally flat, with the hardstanding slightly sloping down towards Beaconsfield Close to the west.</p> <p>The topography of the Site 20 B is generally flat at approximately 6 m Above Ordnance Datum (AOD). The topography of the immediate area is also generally flat, with the hardstanding slightly sloping down towards Beaconsfield Close to the south-east.</p> <p>The topography of the Site 20 C is generally flat at approximately 7 m Above Ordnance Datum (AOD).</p>
Surrounding Area	The Site lies within an urban setting, surrounded predominantly by residential homes comprising houses with gardens and flats with landscaping. To the south of Site 20C, a set of transformers are noted with the Great West Road and commercial buildings beyond. The River Thames is approximately 700m to the south-west of Site 20C.

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(s) 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 resulted in contamination of 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

Map Dates	Historical Detail
1867 - 1874	<p>The Site appears to be a part of woodland (possible plantation) with scattered buildings noted to the east of Site 20A and south east and south of the Site 20C at approximately 100m.</p> <p>A pond is noted at approximately 150m southeast and Duke's Lake noted at approximately 500m southeast of Site 20C.</p> <p>A Nursery is noted to approximately 70m north of Site 20A.</p> <p>Three railway lines are noted; these are approximately 300m to the west of Site 20B, 500m to the north of Site 20A and 400m to the south (London and Southwestern Railway) of the Site 20C. Brentford Road Station is shown approximately 350m to the northwest of Site 20C.</p>
1894 - 1898	<p>The eastern part of Site 20A is a plantation / orchard, the western section is a roadway accessing Beaconsfield Terrace, the roadway is also shown in the eastern part of Site 20B, the rest of the Site is undeveloped. Site 20C is shown as a plantation / orchard.</p> <p>Large semi-detached houses similar to the current layout are shown to the west of the Sites on Harvard Road and north of the Sites on Grosvenor Road. A structure of unknown use is located immediately south of Site 20B. Beaconsfield Terrace is shown to the east of Site 20C and south of Site 20A</p> <p>The Brentford Road Station is now noted as Gunnersbury Station.</p>
1915 - 1948	<p>A structure appears to be occupying Site 20A named as a pavilion (1935), trees are no longer shown on Site 20C.</p> <p>The surrounding area shows continued residential development (primarily), the vacant area to the immediate south of 20A is noted as a tennis ground. An industrial type structure is shown approximately 20m to the south east of Site 20C.</p> <p>A swimming pool is shown approximately 110m to the northeast.</p> <p>The fishpond to the southeast of Site 20C is no longer present.</p>
1950 - 1961	<p>The site 20C is marked as a part of "Allotment Gardens".</p> <p>The industrial type building to the south east of Site 20C is marked as a milk depot.</p> <p>An electrical sub station is shown approximately 15m to the southwest of Site 20C</p> <p>The Great West road was developed, to approx. 35m south of the Site 20A, running in a west to east orientation.</p>
1965 - 1987	<p>The Site developed into the current layout with garages and vehicle parking spaces.</p> <p>The tennis court to the south of 20A and Beaconsfield Terrace have been redeveloped with buildings with a layout similar to the current flats.</p>

Map Dates	Historical Detail
	<p>From 1965 the "Milk Depot" is now marked as "Depot"</p> <p>Unspecified works noted approximately 500m southwest of Site 20C. Factory noted to 480m northwest of Site 20B followed by other unspecified works. Garage noted to approximately 120m southeast of Site 20C (1965).</p> <p>A change in layout in the unspecified works to the southwest is noted from 1978, present use is unknown.</p> <p>Fire station is noted 180m northeast of Site 20A from 1974. The electrical substation to the south east of Site 20C has expanded to the southern site boundary.</p>
2001 - Present	<p>Site remains in the same configuration. The swimming pool to the north east has been filled in.</p>

2.2.1 Summary of Site History

The Site appears to be undeveloped until 1915 when Site 20A was developed with a building and Site 20B partially developed as a roadway; Site 20C remained undeveloped. Later by 1965, the present-day configuration of the Site comprising of garages and car parking was established. The Site remains unchanged since then. The historical on-site sources of potential contamination are therefore:

- Made Ground from demolition of on site and adjacent buildings.
- Spills and leaks from vehicles utilising garages.

The surrounding land has seen growth in primarily residential development, with limited/less extensive commercial and industrial development. The most pertinent potentially contaminative activities which could have an impact on the Site are summarised as follows:

- Electrical transformers immediately south of Site 20C.
- The "Milk Depot" / "Depot" approximately 20m southeast of Site 20C.
- Infilled fishpond approximately 120m southeast and swimming pool 110m northeast.
- Garage approximately 120m southeast.
- Fire station approximately 180m to the northeast.

The infilled fishpond, depot, and garage to the southeast are considered likely to be located down hydraulic gradient of the Sites based on local topography; however, until this is confirmed the risk from these potential sources, although considered low, cannot be discounted. The following potential sources have been discounted as posing a significant risk due to distance from the Sites:

- Railways to the west, south, and north.
- Unspecified works approximately 500m southwest.
- Factory approximately 480m northwest.

2.3 Unexploded Ordnance

With reference to the Zetica unexploded bomb risk map (Ref 9) the Site lies within an area of 'High' bomb risk.

An Unexploded Ordnance (UXO) assessment has been undertaken for the Site, the findings of which are detailed in 10030793-ARC-XX-XX-RP-YY-0183-01-UXO Report, November 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 - Sand and Gravel which is designated as a Secondary (A) Aquifer.</p> <p>Solid Geology: London Clay Formation - Clay and Silt which is designated as Unproductive Strata.</p> <p>Made Ground is also anticipated particularly on Site 20A and 20B associated with the historical development.</p>
BGS Boreholes (within 100m of the site)	<p>The closest borehole record available to Site is located at approx. 75m east of Site 20A (TQ27NW76, recorded on January 1933), however, the record contains details of five Trial holes, exact location of which are unknown but based on street names may be up to 300m from the Site. As such the logs cannot be relied on to indicate potential ground conditions at the Site.</p>
Within a Source Protection Zone	<p>None recorded within 500m of the Site boundary.</p>
Licensed Groundwater Abstraction Points	<p>Three active groundwater abstraction points are located within 1km of the Site, the nearest is located 725m north of the Site registered to Chiswick Park Estate Management Limited, licensed to use as "Make-up/Top up Water" as well as for Spray Irrigation.</p>
Surface Water Feature	<p>No surface water feature is noted within 250m of the Site.</p> <p>The River Thames is located approximately 630m southwest of the Site (closest point), flowing in an easterly orientation.</p>
Likely Groundwater Flow Direction	<p>The Superficial Deposits of sand and gravel are designated a Secondary A Aquifer which is considered permeable and likely to contain groundwater at shallow depths. Significant groundwater content and sub-surface flow is not expected within the underlying bedrock.</p> <p>Based on the local topography of Site and surrounding area, any shallow groundwater would likely flow south or southwest towards the River Thames.</p>

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.

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. No radon protection measures are considered necessary for new dwellings.	N/A
Licensed Discharge Consents	None identified within 250m of site.	N/A
Mining Features	None identified within 250m of site.	N/A
Pollution Incident to controlled waters	None identified within 500m of site	N/A
Landfill sites (current and historical)	None identified within 500m of site	N/A
Potentially Infilled Land	Pond	106m south 182m southeast
	Fish Pond	108m south 112m south 113m south 114m south
Local Authority pollution prevention and controls	None identified within 250m of site.	N/A
Contemporary Trade Directory (250m buffer)	Electric Substation	18m south 67m north 120m south 174m northeast 220m northwest
	Safestore Ltd – Container and Storage	39m southeast
	Depot	85m south
	Fire Station	196m northeast
	Mercsite – Vehicle Repair, testing and servicing	245m northeast
Fuel Station Entries	No records of active petrol or fuel sites have been identified within 250m of site.	N/A
Flooding information	Groundwater flooding susceptibility areas within 50m of the boundary of the study site have been identified and associated with shallow unconsolidated sedimentary	

Data type	Description	Distance (m) and Direction-
	aquifers which overlie unproductive aquifers (Superficial Deposits Flooding).	25m south
	An Environment Agency/Natural Resources Wales Zone 2 floodplain within 250m has been identified.	26m south
	An Environment Agency/Natural Resources Wales Zone 3 floodplain within 250m has been identified.	
	The Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating is very low.	
Designated environmentally sensitive sites	Local Nature Reserve- Gunnersbury Triangle Royal Botanic Gardens, Kew Buffer Zone (World Heritage site England)	415m north 892m southwest
Tunnels	None within 500m of the Site.	N/A
Shrink-Swell Clay	Moderate risk	25m south (Site risk indicated as negligible)

3.2.1 Summary

In terms of the environmental public register information identified in Table 3.2, the most pertinent potentially contaminative activities which could have viably impacted Site are summarised as follows:

- Electricity substation adjacent south of Site and 67m north of the Site 20C.
- Depot at 85m south of Site 20C.
- Infilled pond to 108m south of Site 20C.
- Fire Station at 196m northeast of Site 20A.

All other features identified are considered either too far away from site or located in a direction whereby any potential contaminants are likely to be transported away from the site, and therefore, have not been considered further.

Ground conditions close to the boundary of Site 20C have been identified as having a moderate risk of shrink-swell clays.

4 PRELIMINARY CONCEPTUAL MODEL

Geo-environmental assessments are required in accordance with current regulatory guidance (CIRIA C552 - Ref. 3 and LC:RM – Ref. 4) 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).

Table 4.1: Potential sources of contamination on site

Source	Potential Contaminants
On Site	
Made Ground is likely to be present on the site from previous development and demolition.	Asbestos, metals, polyaromatic hydrocarbons (PAH), hydrocarbons, ground gas
London Clay	Sulphates
Vehicle Parking/Garages use	Hydrocarbons, lubricants and solvents from potential spills/leaks from vehicle maintenance activities and asbestos.
Off Site	
Made Ground from offsite developments and infilled pits	Metals, PAH, hydrocarbons, ground gas
Adjacent electric substation	Petroleum hydrocarbons, polychlorinated biphenyls (PCB), and asbestos.
Infilled pond	Metals, PAH, hydrocarbons, ground gas
Depot	Hydrocarbons, VOC, SVOC, and asbestos.
Fire Station	Hydrocarbons, poly and perfluoroalkyl substances (PFAS)

Compounds in green are of low mobility and have been discounted further when from off-site sources.

PFAS are a group of emerging contaminants drinking water standards exist for two common PFASs perfluorooctane sulphonate (PFOS) and perfluorooctanoate (PFOA). Both PFOS and PFOA are characterised by their persistence, mobility in aquifers and surface waters, and low drinking water standards. Given PFAS have only been identified as contaminants of concern from an off-site source they are not considered to pose a significant risk to the Site(s) unless a future redevelopment includes an abstraction of groundwater for domestic purposes.

4.2 Potential Receptors

At the time of writing the proposed end use of the site will comprise residential dwellings, however no design plans are available.

As a precautionary approach the potential human health receptor detailed below take into consideration the most conservative future land 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. 5) or any other relevant guidance. Construction workers are not considered further as human health receptors.

4.2.2 Controlled Waters

- The Superficial Deposits beneath the Site are classified as a Secondary A Aquifer and therefore considered a potential receptor at risk.
- The nearest surface water feature is the River Thames located 630m southwest of the Site. Considering the significant distance from site it is considered unlikely for any potential pollutants to reach the river. Therefore, for the purposes of this report surface waters has not been considered as a potential receptor.

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/residents' 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>Vertical migration of contaminants through the unsaturated zone into groundwater beneath the site.</p> <p>Lateral migration of contaminants onto the Site from offsite.</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 degradation 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 gases or vapour.</p>

4.4 Preliminary Qualitative Risk Assessment

Potential sources of contamination are considered present on site and pathways and receptors 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 and potential contamination from the site current use and contamination from offsite sources highlighted above as well as and high sulphate content within the London Clay. 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 the development. Chemical testing of soils/Made Ground is likely to be required to inform a waste classification assessment and determine the potential disposal options. The waste contractor may require testing of the actual material to be disposed of 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

From experience, the potential risk for significant remediation to be required, is likely to be low given the Site has not previously been used for industrial or commercial use. However, a detailed ground investigation has not been undertaken, therefore ground conditions are still unknown at this point and this assessment is a guide.

A ground investigation is recommended to determine the potential contamination present on the Site and any potential geotechnical constraints. Given the Site being underlain by sand and gravel and a Secondary A Aquifer, an investigation is recommended to identify potential impacts on the aquifer.

The following potential environmental conditions have been identified that may warrant further consideration and/or implementation:

- Potential for asbestos to be present in existing structures;
- Asbestos protection measures during disturbance of Made Ground (depending on the findings of the ground investigation);
- Provision of gas protection measures (depending on the findings of the ground investigation);
- Provision of contaminant resistant water supply pipes (depending on the findings of the ground investigation);
- Provision of clean cover system in garden areas and public open space;
- Potentially further investigation and consultancy advice to support planning obligations;
- Potential for UXO;
- Potential presence of public utilities and services, of note surface scaring was observed during the walkover; and
- Reference should be made to the Ecological Assessment Report (Ref: 10030793-ARC-XX-XX-RP-EC-0213-01) with respect to potential presence of invasive species.

6 GEOTECHNICAL CONSIDERATIONS

6.1 General Comments

Based on the lack of site-specific intrusive investigation the following potential geotechnical constraints and ground engineering abnormalities should be considered which may influence future development. These are not conclusive and site-specific ground investigation should be carried out to confirm prevailing constraints:

- **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 soils borne ground gas from Made Ground.
- **Shrinkable Clays** - The plasticity of the Made Ground and Superficial Deposits and depth to the London Clay Formation are not known and therefore, given that the Groundsure indicate the moderate risk of shrinking and swelling clays, consideration will need to be given to the potential impact of shrinkable clays, when considering the depths of foundations.
- **Variable Ground Conditions** - The presence of Made Ground and superficial deposits and their potentially heterogeneous nature is likely to produce variable conditions across the site depending on thickness and composition.
- **Underground Structures** - Former foundations, services and concrete obstructions (if present) from historical on-site development may need removal.
- **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.
- **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 always be required or the sides of the excavation battered back to a safe angle. Groundwater may require management. Obstructions may require breaking out.

- **Instability of nearby structures** - Consideration will need to be given to the potential impacts of instability of excavations upon adjacent to existing buildings/structures. 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 where Made Ground is absent or shallow, the Kempton Park Gravel Member if present and comprising competent sands and gravels, may be suitable for shallow foundations for light weight structures, however this will need to be confirmed via an appropriate ground investigation.

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

7 CONCLUSIONS AND RECOMMENDATIONS

The Site is currently used as car parking and garages. An intrusive site investigation has not been undertaken. The Site was undeveloped until late 1910s, when Site 20A was developed with a building and Site 20B partially developed as a roadway; Site 20C remained undeveloped. The Site was redeveloped into its present-day layout in late 1960s.

7.1 Design Considerations

Potential risks to human health, environmental health and the built environment have been identified. 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 ground conditions for foundation design and the chemical regime to assess 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. 6) and LC:RM (Ref. 4) 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 including soil borne gas. Due to the historic phases of development, demolition and redevelopment consideration should be given to the potential presence of asbestos within the Made Ground, soil contamination and the potential for impacted groundwaters.

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 into River Terrace Deposits are proposed.

There is a potential risk from UXO, and it is recommended that a site-specific detailed desk study is undertaken prior to any intrusive investigations or earthworks. A watching brief from a UXO specialist may be required.

Underground ground services may be present the Site. These will need to be taken into consideration during the proposed development.

8 REFERENCES

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APPENDIX A

Historical Ordnance Survey Maps

Site Details:

520097 178114

Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

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

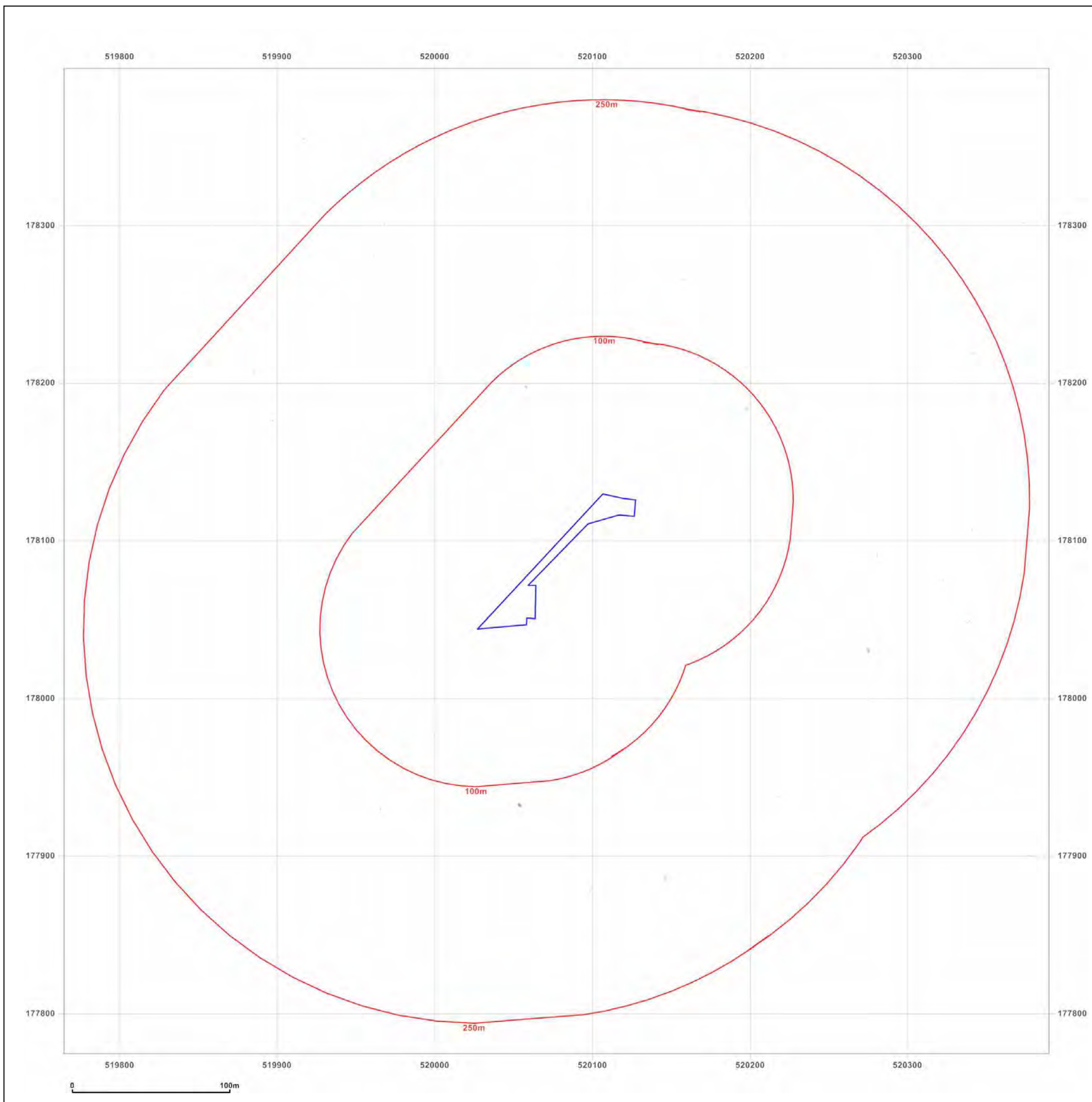


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Production date: 08 November 2019

Map legend available at:
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Site Details:

520097 178114

Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

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

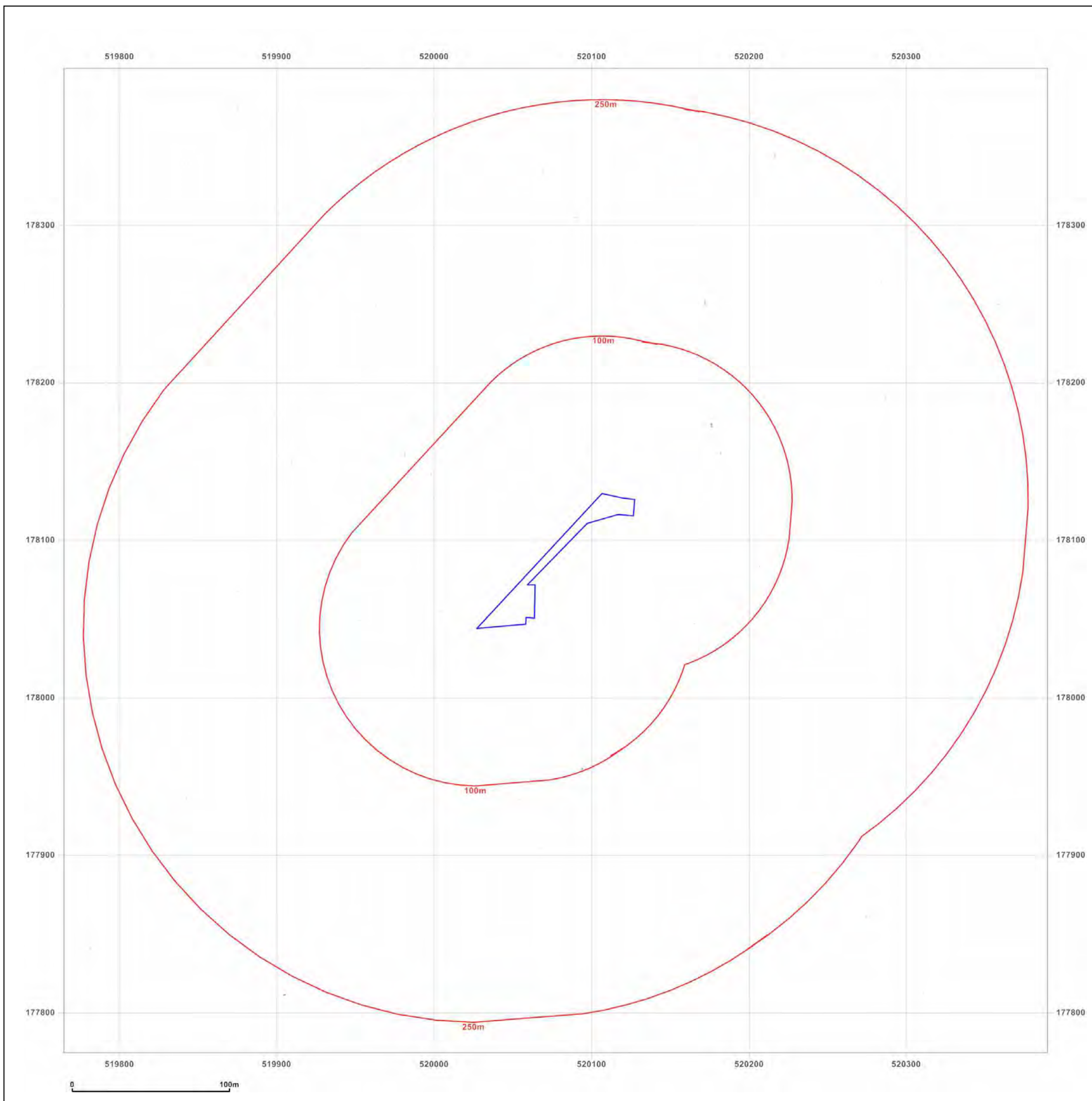


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Site Details:

520097 178114

Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

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

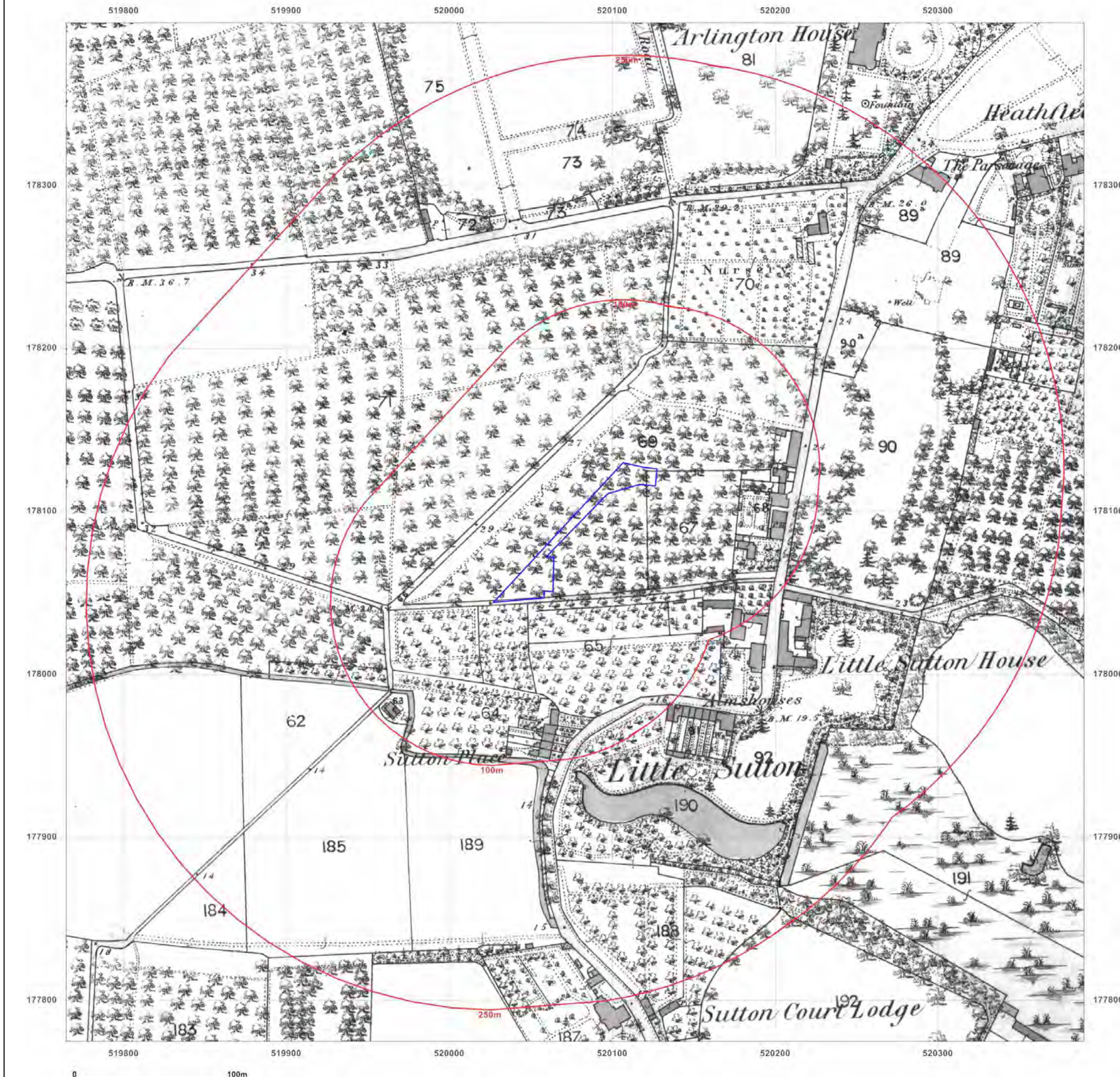


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Site Details:

520097 178114

Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

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

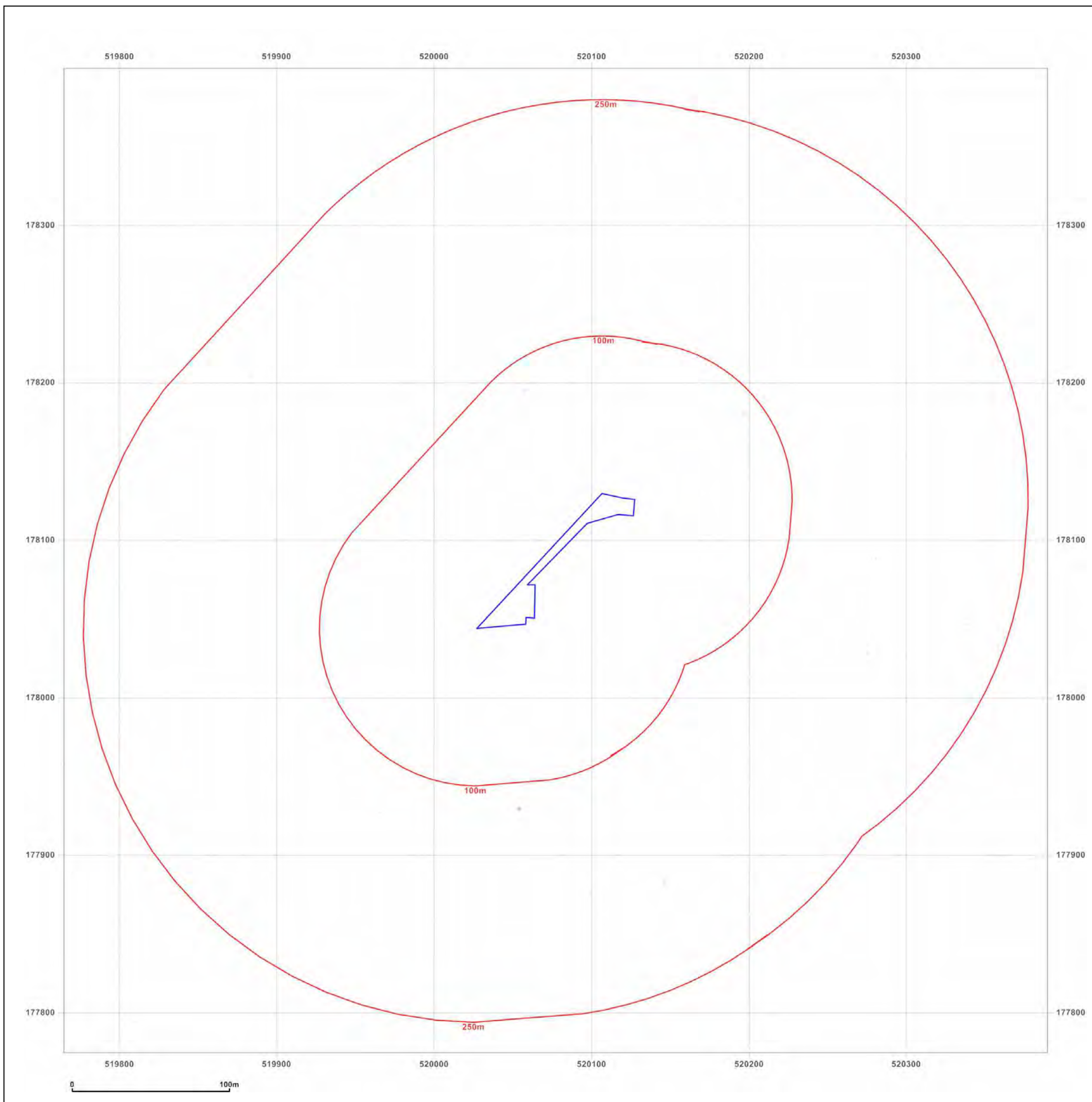


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Site Details:

520097 178114

Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: 1056 Scale Town Plan

Map date: 1896

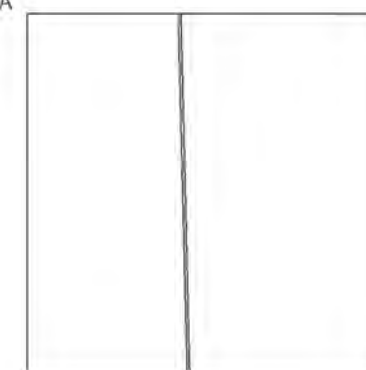
Scale: 1:1,056

Printed at: 1:1,056



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

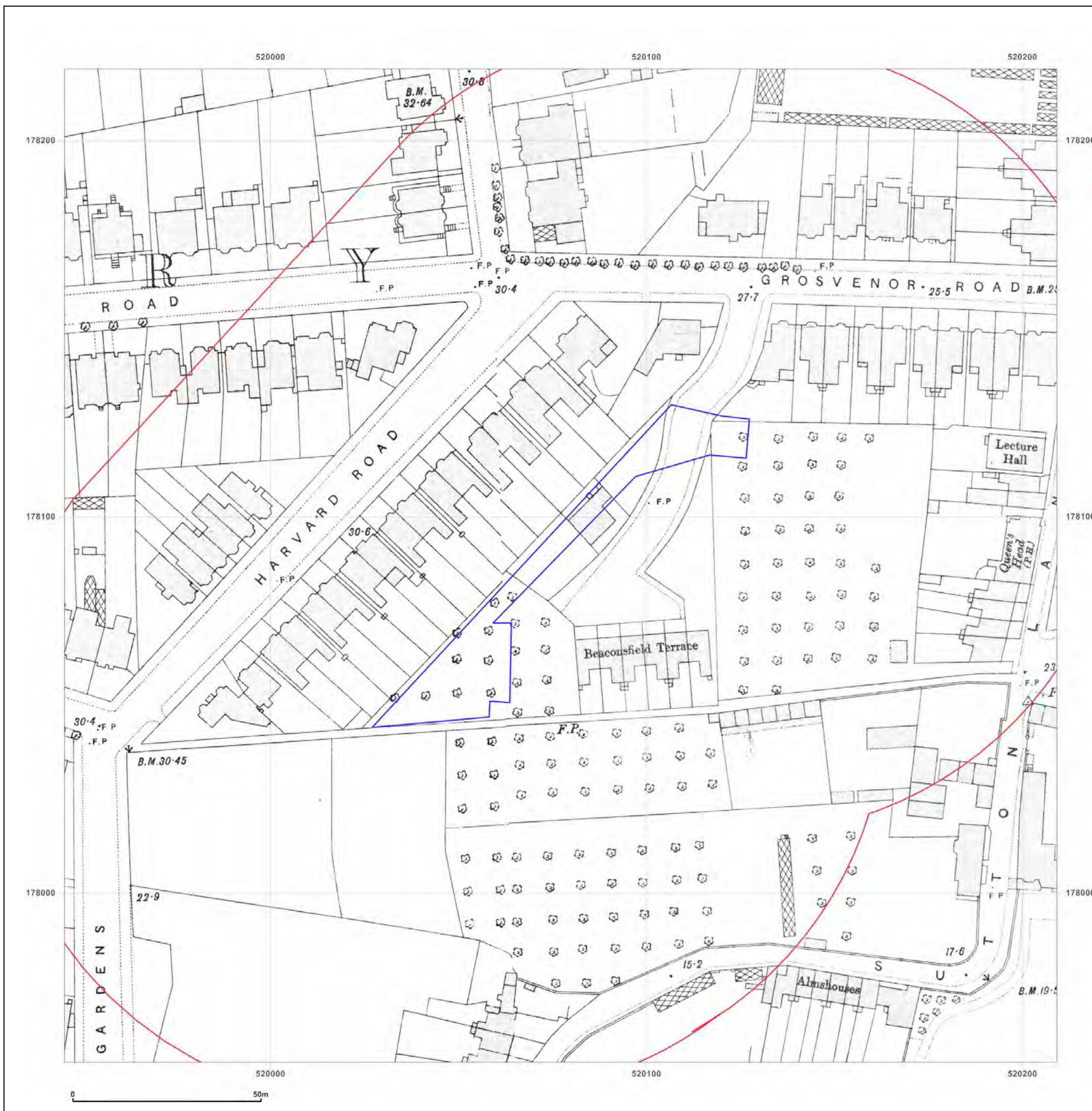


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Site Details:

520097 178114

Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: County Series

Map date: 1896

Scale: 1:2,500

Printed at: 1:2,500



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

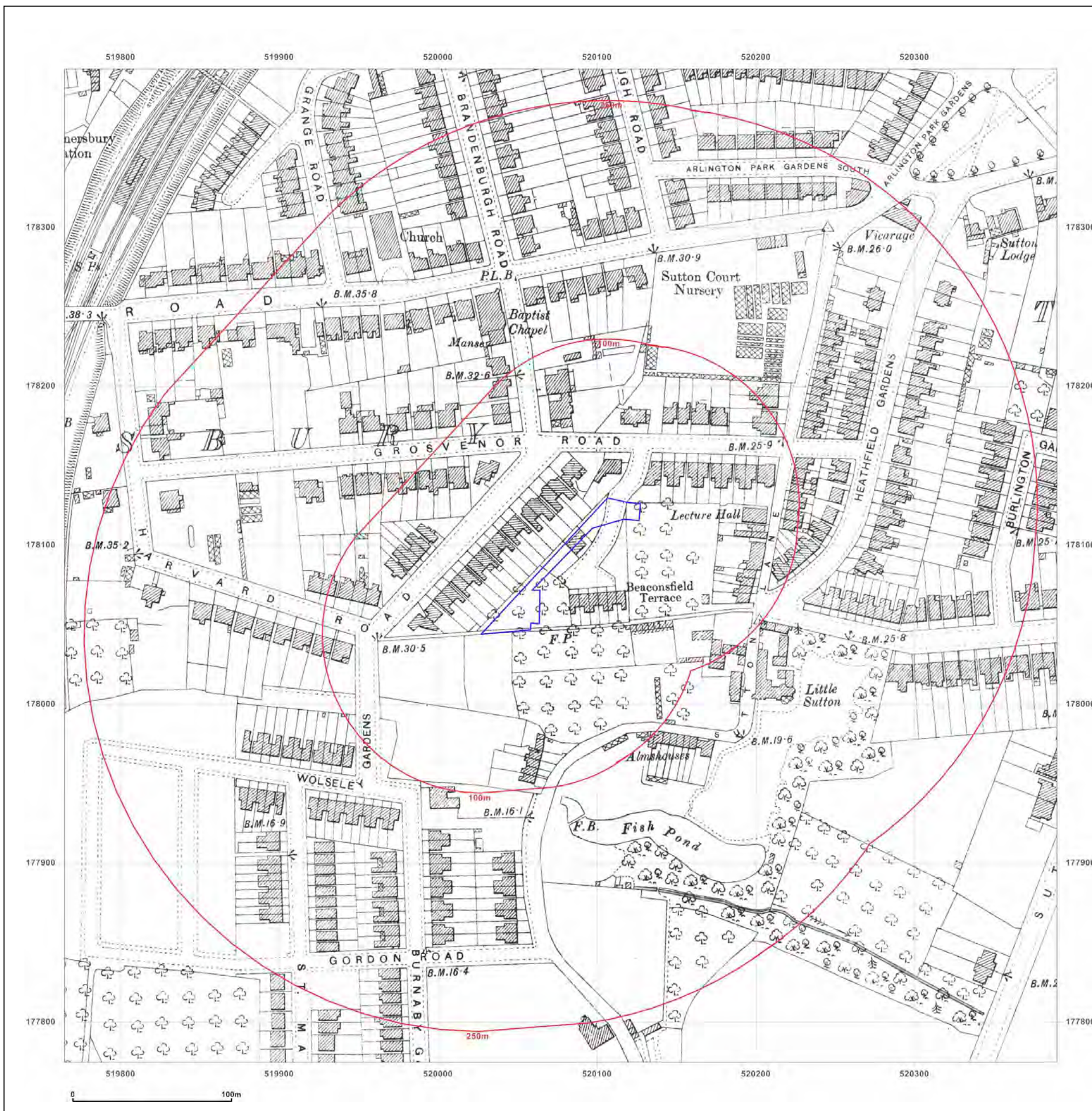


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Site Details:

520097 178114

Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

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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Site Details:

520097 178114

Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: County Series

Map date: 1933

Scale: 1:2,500

Printed at: 1:2,500



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

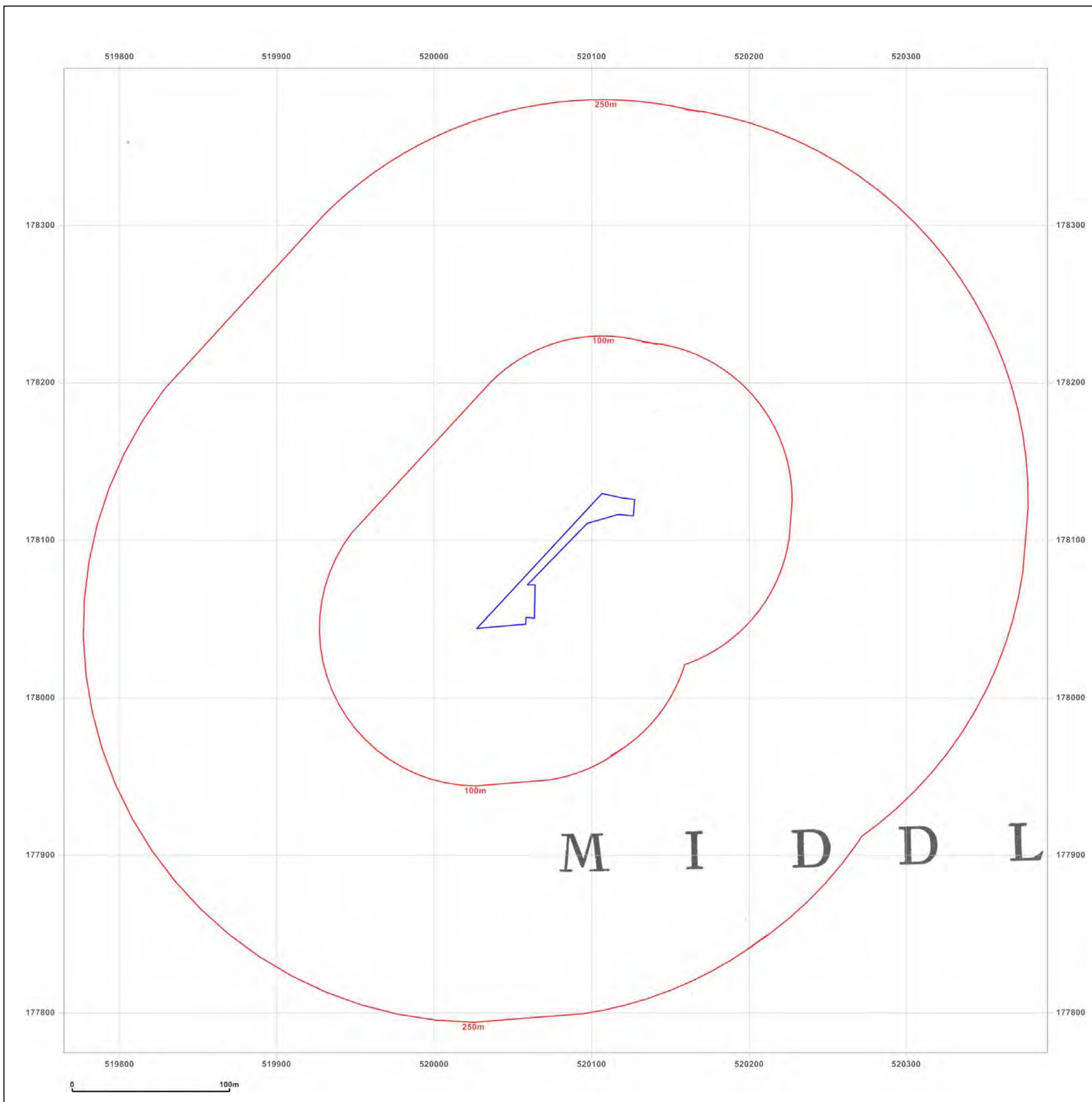


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Site Details:

520097 178114

Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: County Series

Map date: 1935

Scale: 1:2,500

Printed at: 1:2,500



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



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Site Details:

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Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

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

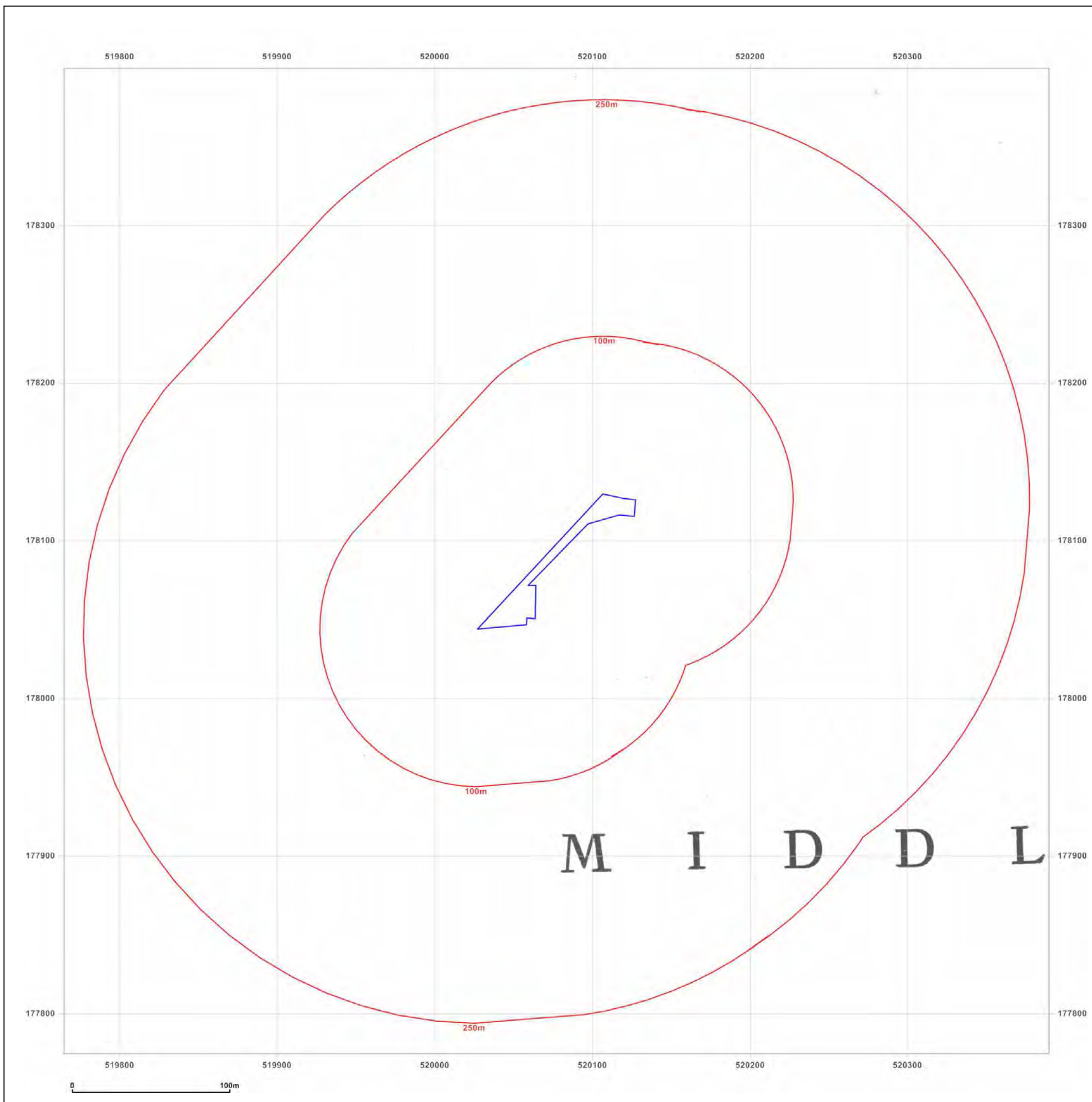


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Site Details:

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Grid Ref: 520077, 178087

Map Name: National Grid

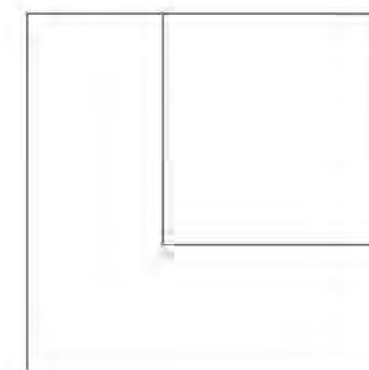
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Scale: 1:2,500

Printed at: 1:2,500



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



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Site Details:

520097 178114

Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: National Grid

Map date: 1950-1951

Scale: 1:1,250

Printed at: 1:2,000



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

Surveyed 1951
 Revised 1951
 Edition N/A
 Copyright N/A
 Levelled 1932

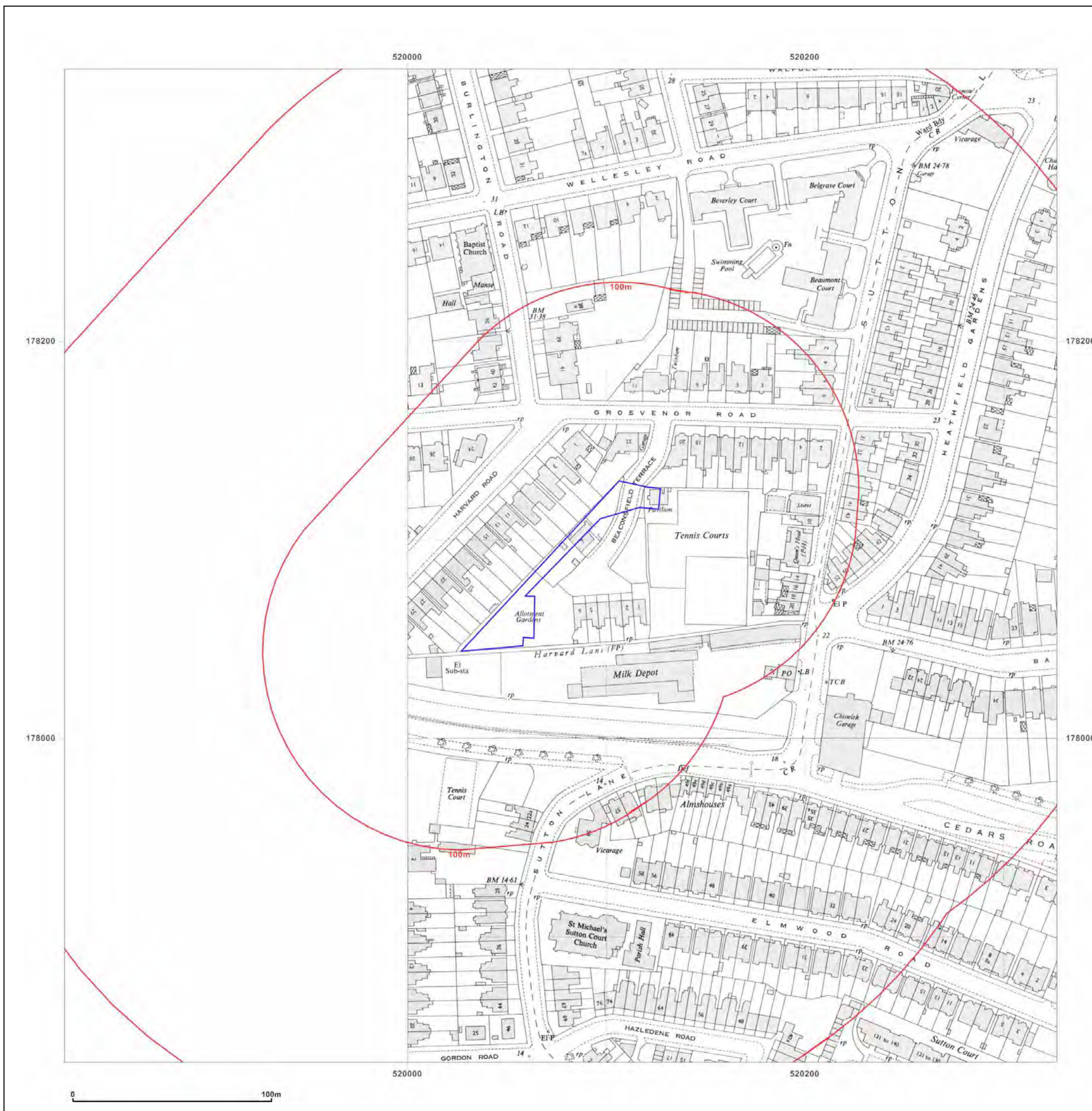


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Site Details:

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Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: National Grid

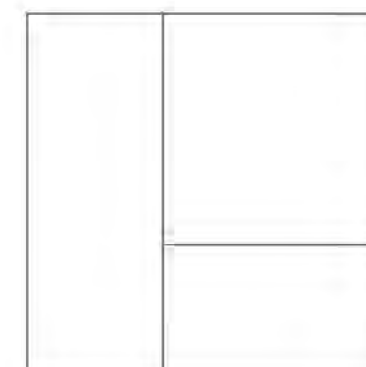
Map date: 1950-1951

Scale: 1:2,500

Printed at: 1:2,500



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



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



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Site Details:

520097 178114

Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: National Grid

Map date: 1951-1954

Scale: 1:1,250

Printed at: 1:2,000



	Surveyed N/A
	Revised N/A
	Edition N/A
	Copyright N/A
	Levelled N/A
	Surveyed 1951
	Revised 1954
	Edition N/A
	Copyright N/A
	Levelled 1932



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Site Details:

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Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087


Map Name: National Grid

Map date: 1955-1960

Scale: 1:1,250

Printed at: 1:2,000



	
Surveyed 1959 Revised 1959 Edition N/A Copyright 1960 Levelled 1954	Surveyed N/A Revised N/A Edition N/A Copyright N/A Levelled N/A



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Site Details:

520097 178114

Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: National Grid

Map date: 1960

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1980
 Revised 1960
 Edition 1961
 Copyright 1961
 Levelled 1957

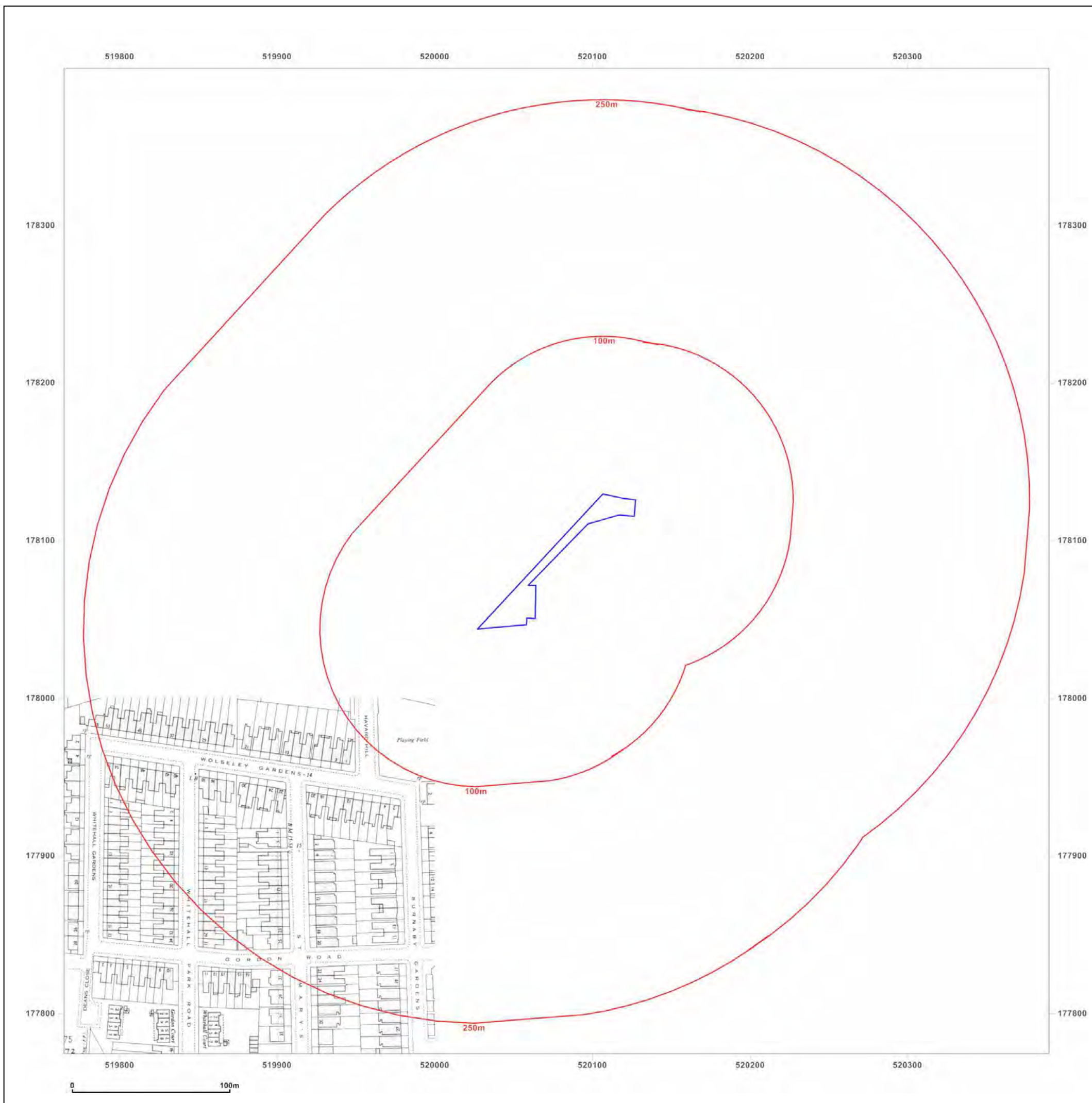


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Site Details:

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Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: National Grid

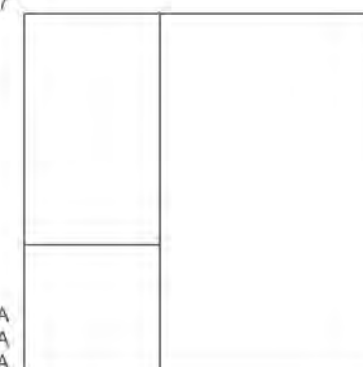
Map date: 1961-1962

Scale: 1:2,500

Printed at: 1:2,500



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



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

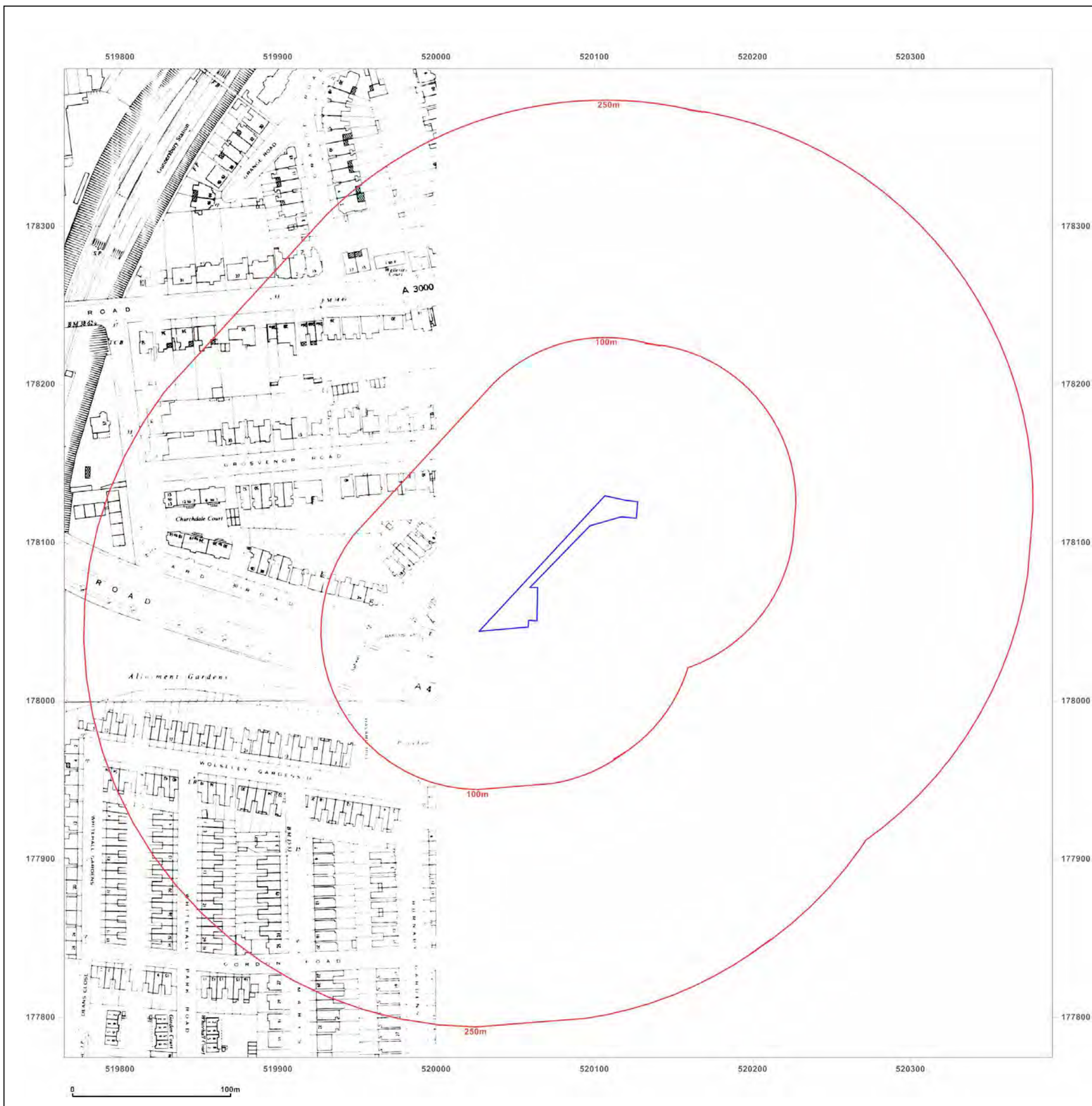


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Site Details:

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Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

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 1961
 Revised 1961
 Edition N/A
 Copyright 1962
 Levelled 1957

Surveyed 1951
 Revised 1964
 Edition N/A
 Copyright 1965
 Levelled 1954



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Site Details:

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Map Name: National Grid

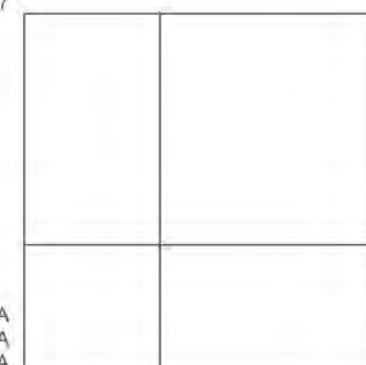
Map date: 1960-1965

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1960
 Revised 1960
 Edition 1962
 Copyright 1962
 Levelled 1957



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

Surveyed 1965
 Revised 1965
 Edition N/A
 Copyright 1967
 Levelled 1954



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Site Details:

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Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: National Grid

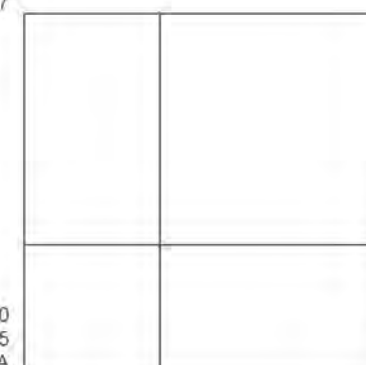
Map date: 1962-1967

Scale: 1:2,500

Printed at: 1:2,500



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



Surveyed 1960
 Revised 1965
 Edition N/A
 Copyright 1961
 Levelled 1957

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



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Map legend available at:
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Site Details:

520097 178114

Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: National Grid

Map date: 1971-1974

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1959
 Revised 1971
 Edition N/A
 Copyright N/A
 Levelled N/A

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

Surveyed 1959
 Revised 1971
 Edition N/A
 Copyright 1972
 Levelled 1954

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



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Site Details:

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Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: National Grid

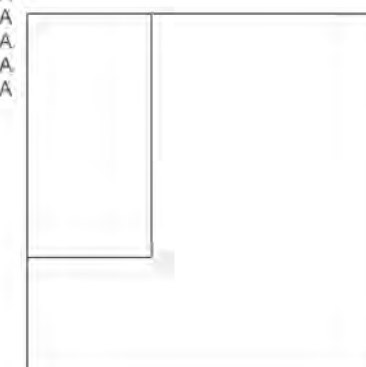
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Scale: 1:1,250

Printed at: 1:2,000



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

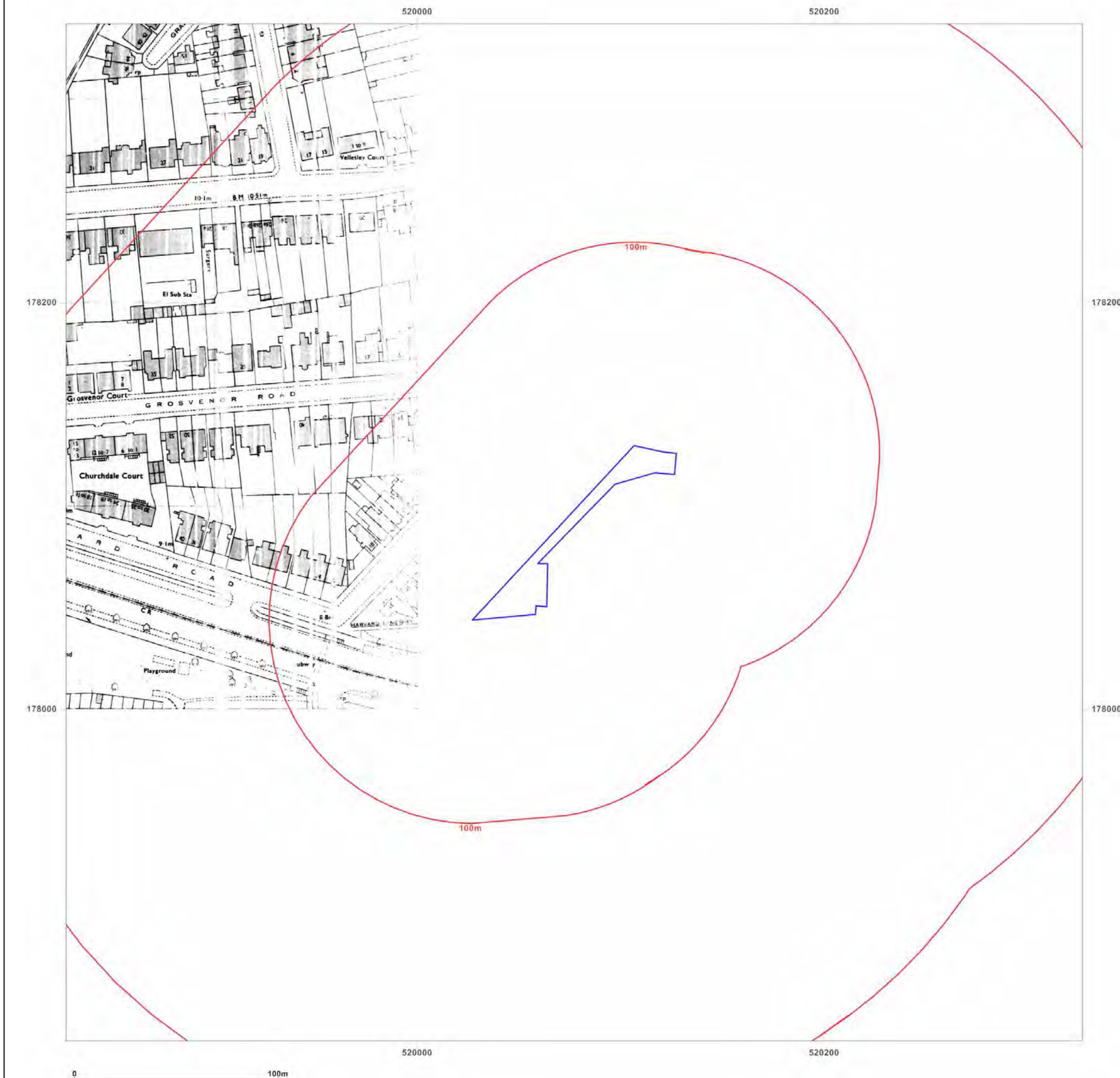


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Map legend available at:
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Site Details:

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Client Ref: 14032643
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Grid Ref: 520077, 178087

Map Name: National Grid

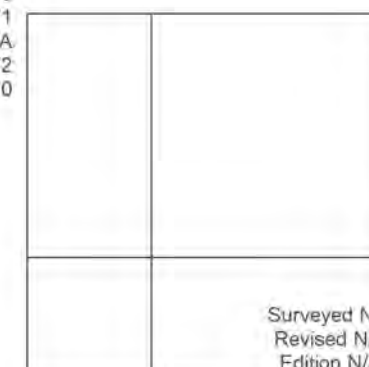
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Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1959
 Revised 1971
 Edition N/A
 Copyright 1972
 Levelled 1970



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



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Site Details:

520097 178114

Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: National Grid

Map date: 1983-1988

Scale: 1:1,250

Printed at: 1:2,000



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

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

Surveyed 1954
 Revised 1985
 Edition N/A
 Copyright 1985
 Levelled 1954



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Map legend available at:
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Site Details:

520097 178114

Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: National Grid

Map date: 1991

Scale: 1:1,250

Printed at: 1:2,000



Surveyed N/A
 Revised N/A
 Edition N/A
 Copyright 1991
 Levelled N/A

Surveyed N/A
 Revised N/A
 Edition N/A
 Copyright 1991
 Levelled N/A

Surveyed N/A
 Revised N/A
 Edition N/A
 Copyright 1991
 Levelled N/A

Surveyed N/A
 Revised N/A
 Edition N/A
 Copyright 1991
 Levelled N/A

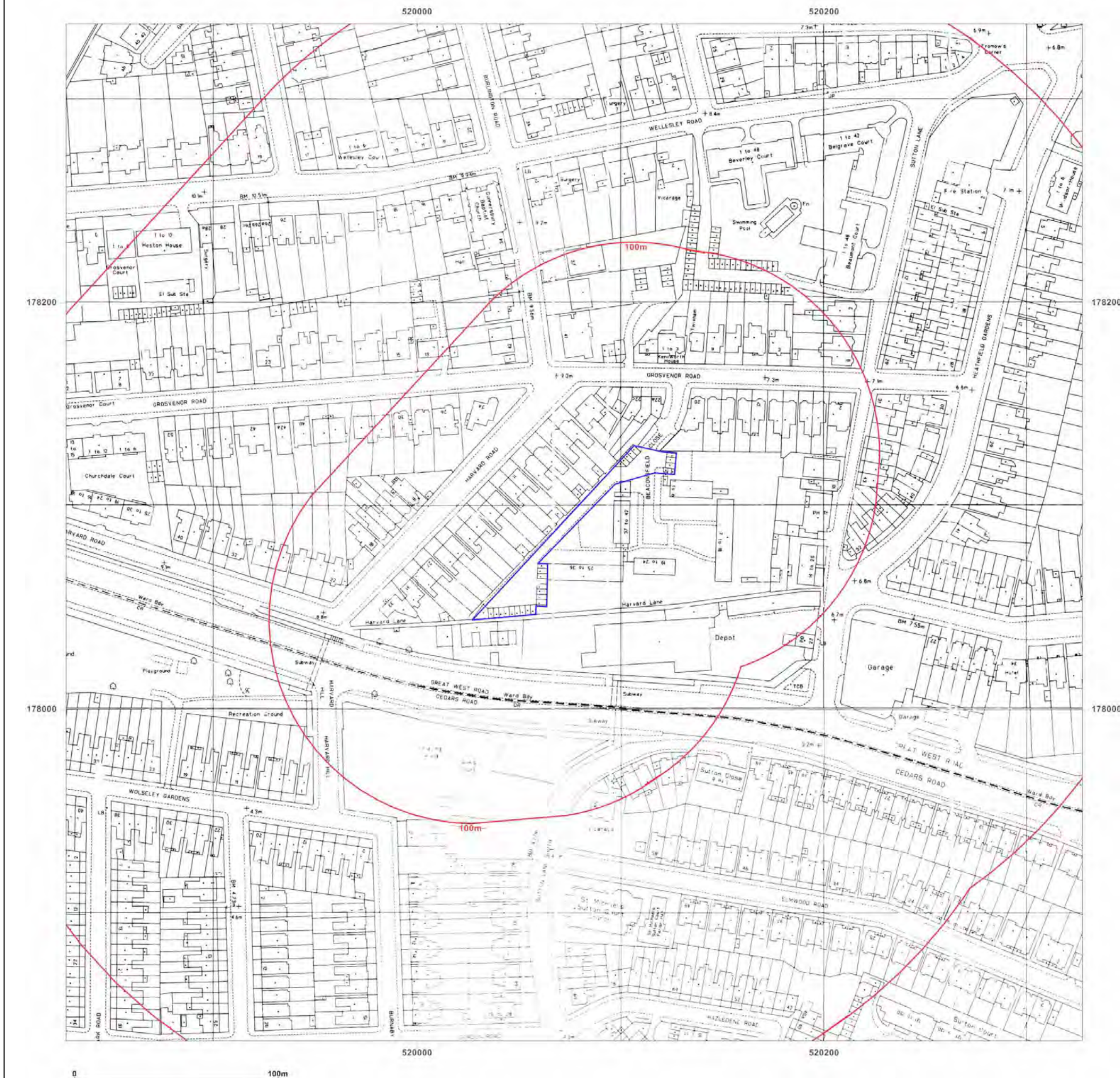


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Site Details:

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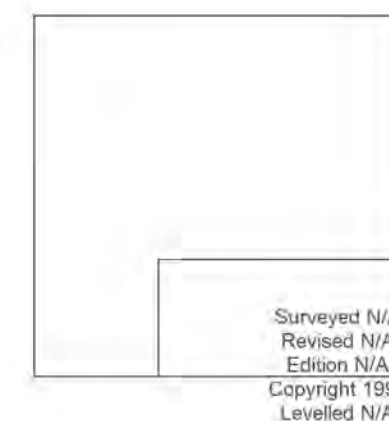
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Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: National Grid

Map date: 1992

Scale: 1:1,250

Printed at: 1:2,000



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Site Details:

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Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: National Grid

Map date: 1991-1994

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1991 Revised 1991 Edition N/A Copyright 1991 Levelled N/A	
Surveyed N/A Revised N/A Edition N/A Copyright 1994 Levelled N/A	Surveyed 1991 Revised 1991 Edition N/A Copyright 1991 Levelled N/A



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Site Details:

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Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: National Grid

Map date: 1992-1994

Scale: 1:1,250

Printed at: 1:2,000



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

Surveyed N/A
 Revised N/A
 Edition N/A
 Copyright 1992
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Site Details:

520097 178114

Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250



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Site Details:

520097 178114

Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: County Series

Map date: 1866-1867

Scale: 1:10,560

Printed at: 1:10,560



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

Surveyed 1866
 Revised 1866
 Edition N/A
 Copyright N/A
 Levelled N/A

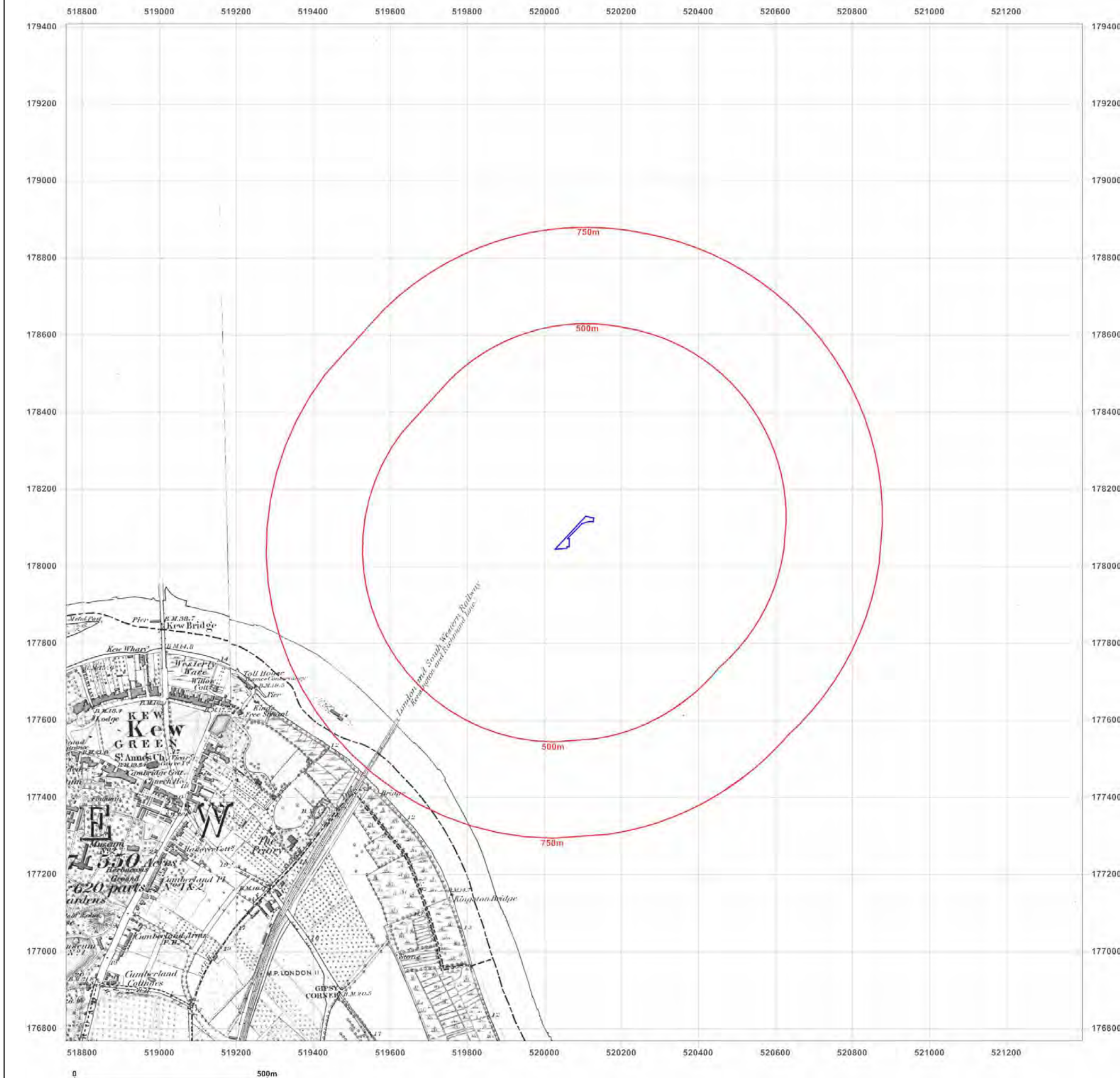


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Site Details:

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Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: County Series

Map date: 1873-1874

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1866
Revised 1874
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1866
Revised 1873
Edition N/A
Copyright N/A
Levelled N/A

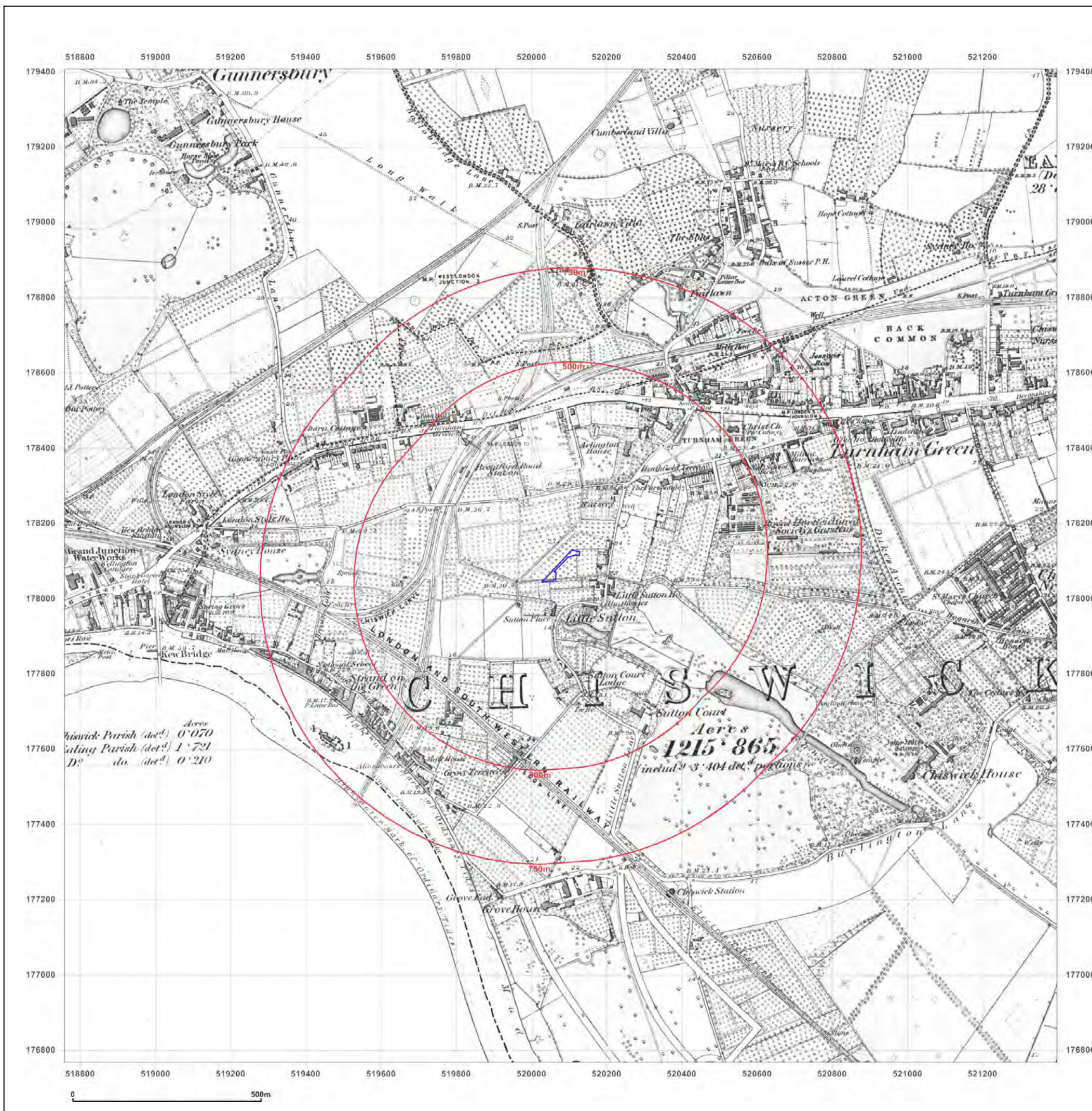


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Site Details:

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Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: County Series

Map date: 1893-1894

Scale: 1:10,560

Printed at: 1:10,560



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

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

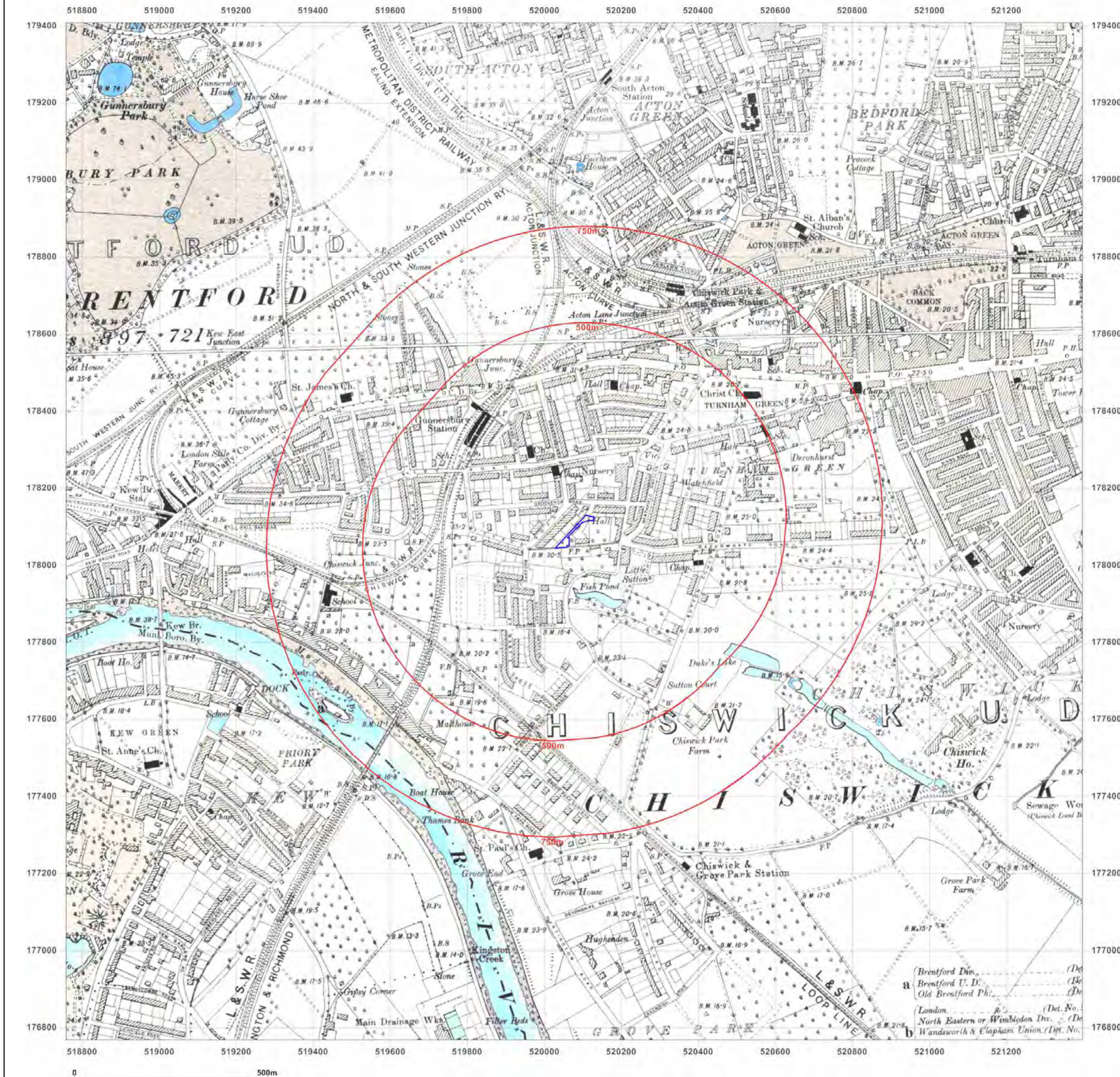


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Site Details:

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Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: County Series

Map date: 1894

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1866
 Revised 1894
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1866
 Revised 1894
 Edition N/A
 Copyright N/A
 Levelled N/A

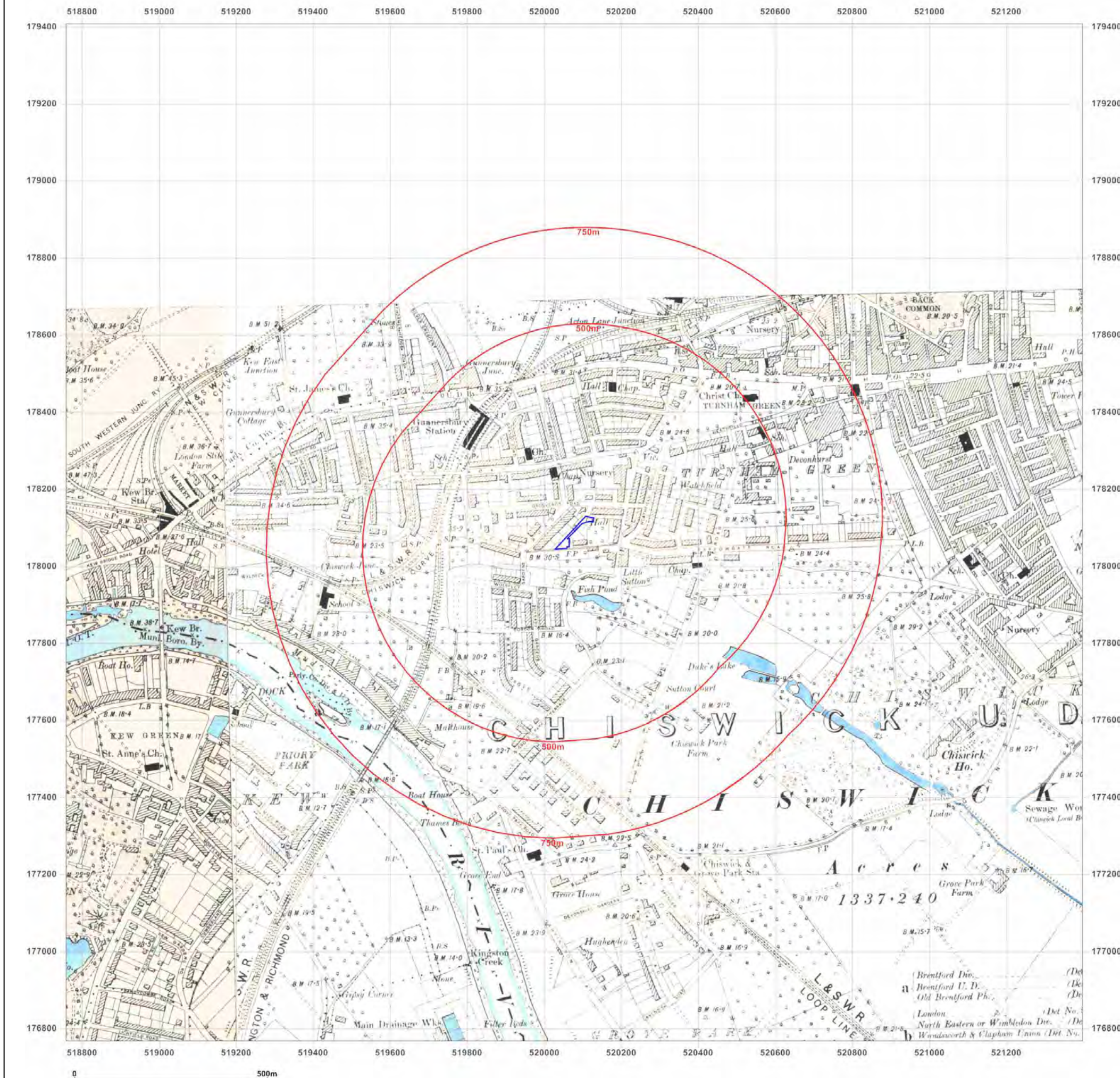


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Site Details:

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Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: County Series

Map date: 1896

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1894
Revised N/A
Edition 1896
Copyright N/A
Levelled N/A

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

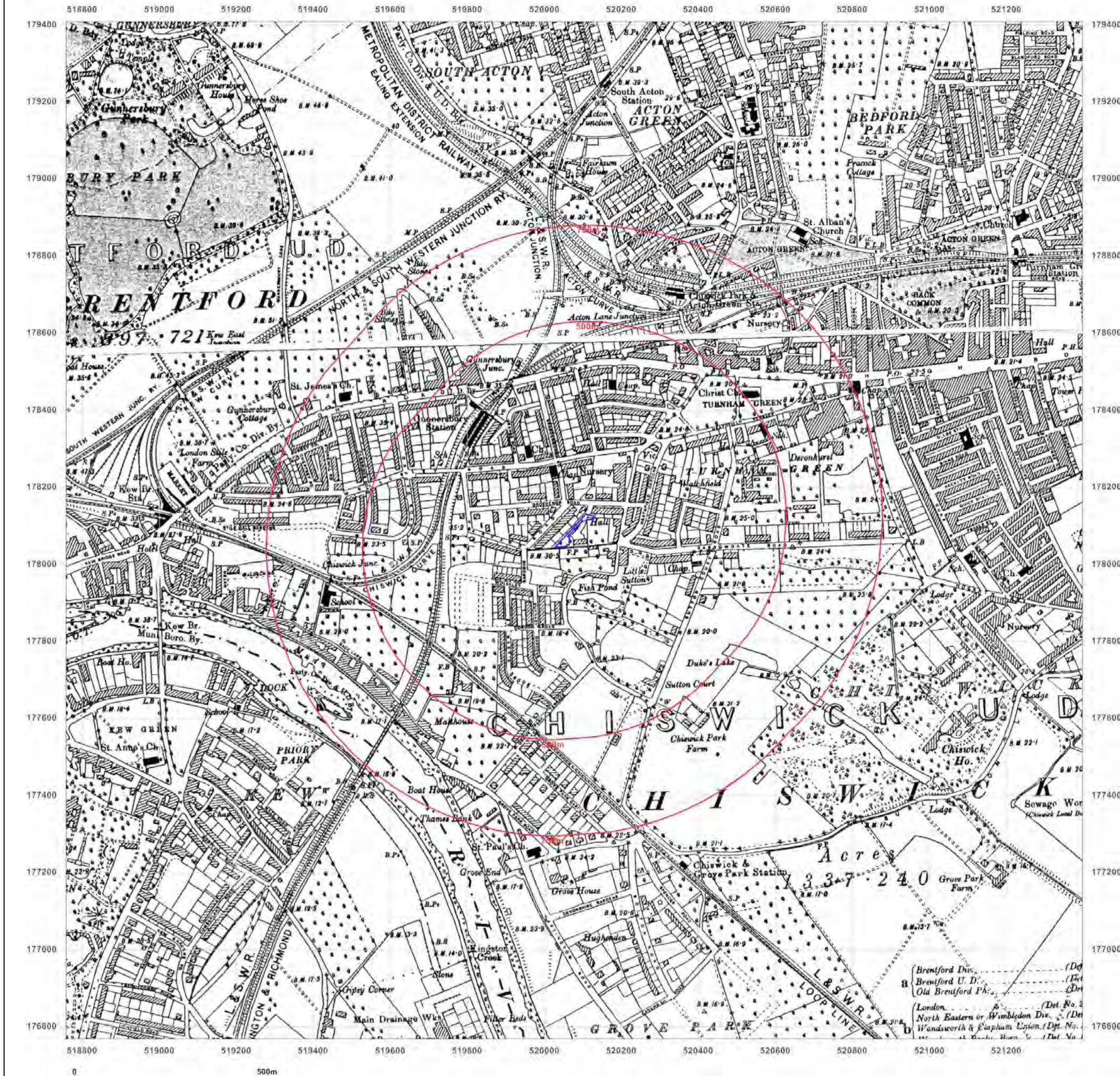


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Site Details:

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Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: County Series

Map date: 1894-1898

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1866
 Revised 1894
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1866
 Revised 1894
 Edition N/A
 Copyright N/A
 Levelled N/A

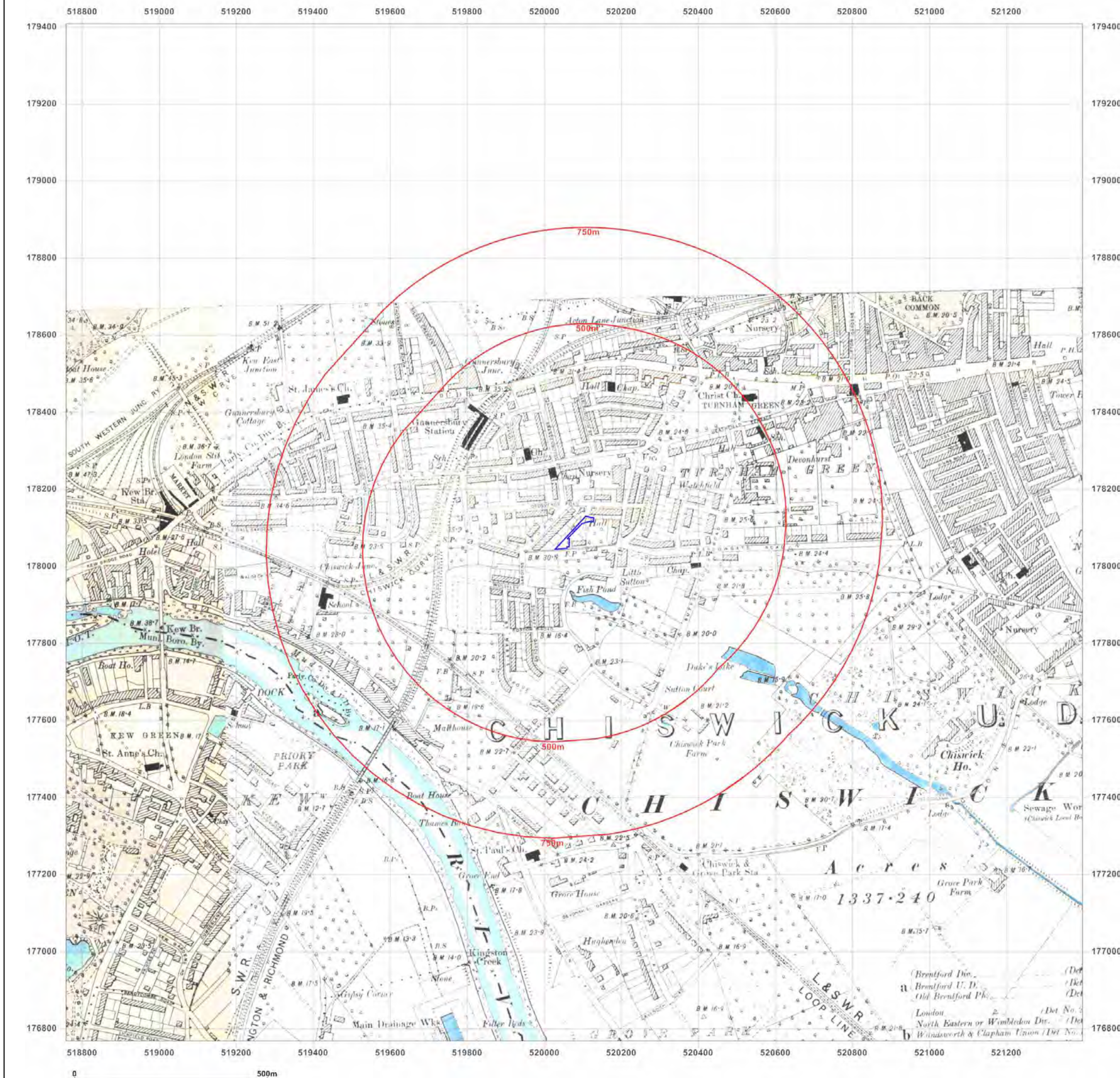


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Site Details:

520097 178114

Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: County Series

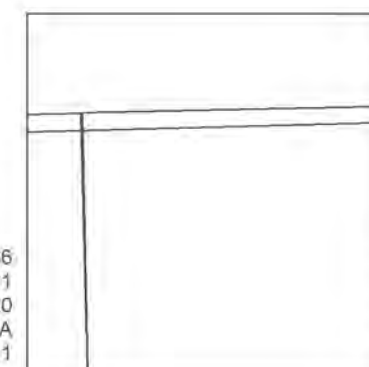
Map date: 1919-1920

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1865
Revised 1920
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1866
Revised 1911
Edition 1920
Copyright N/A
Levelled 1911

Surveyed 1866
Revised 1919
Edition N/A
Copyright N/A
Levelled N/A

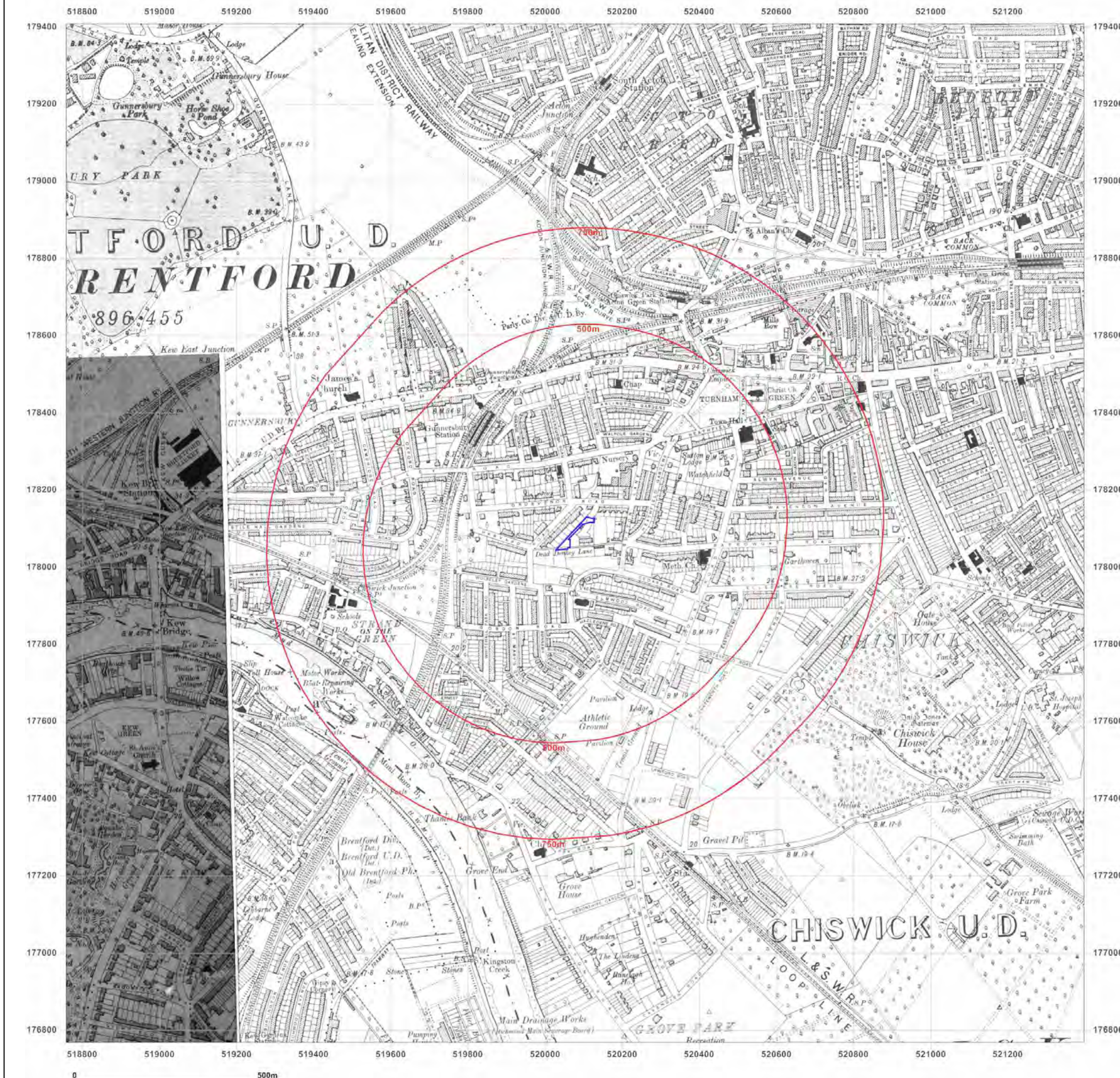


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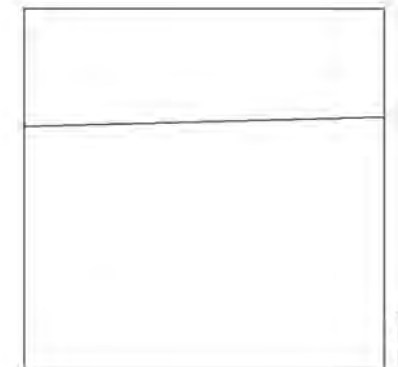
Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

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

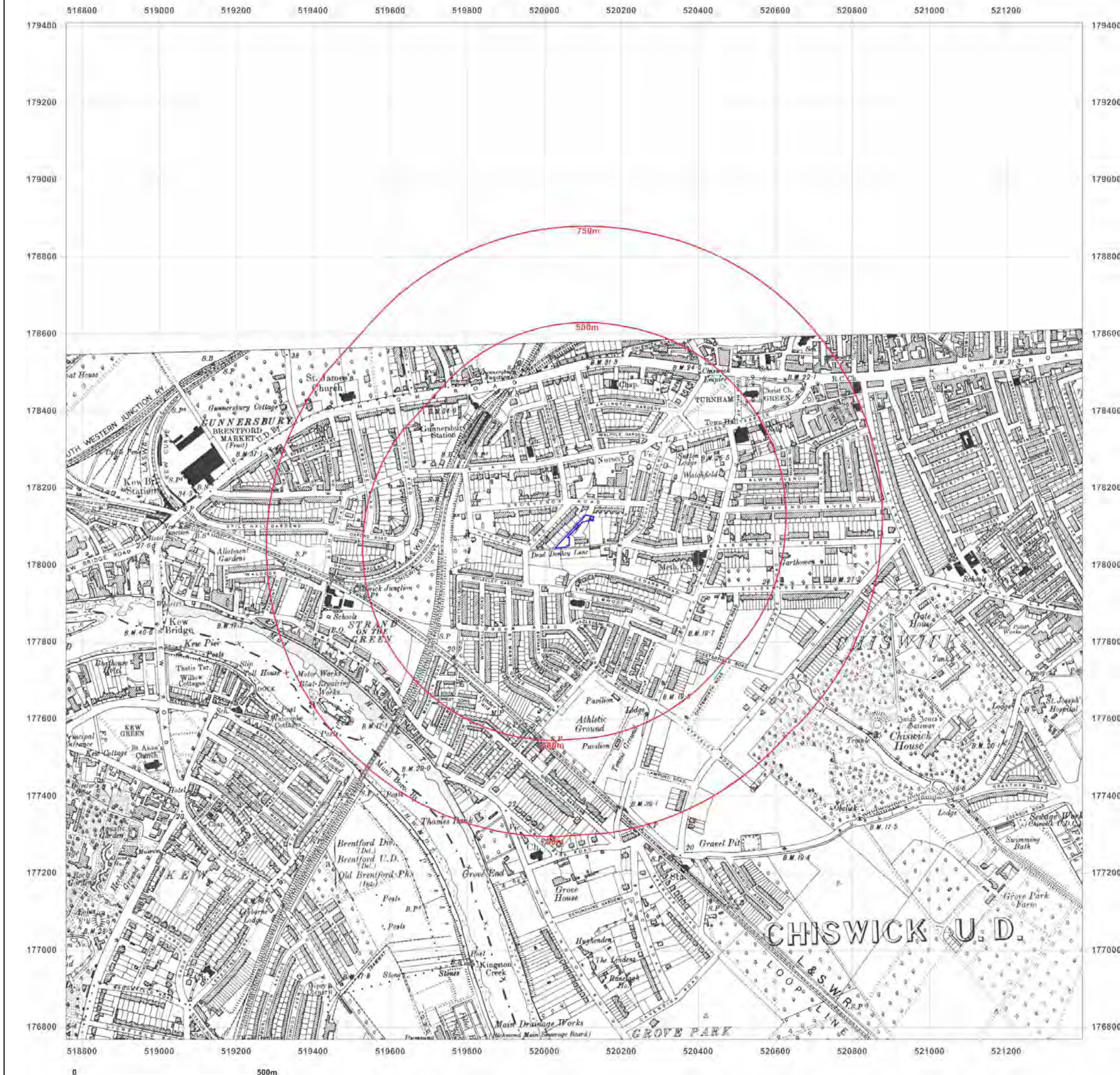


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Site Details:

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Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: County Series

Map date: 1933

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1866
 Revised 1933
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1866
 Revised 1933
 Edition N/A
 Copyright N/A
 Levelled N/A

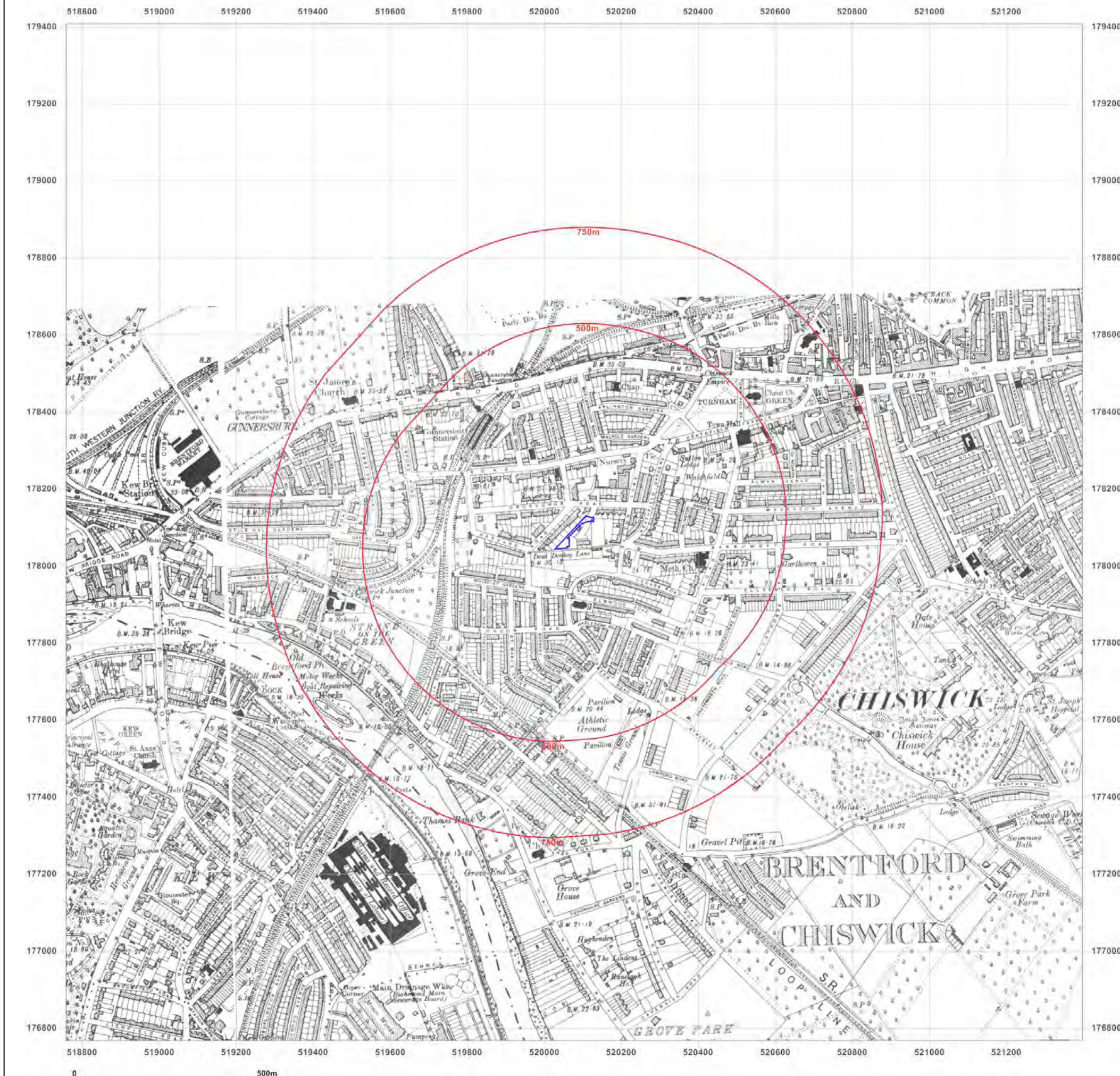


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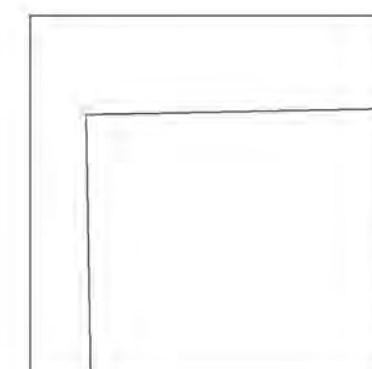
Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: County Series

Map date: 1933

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1866
 Revised 1933
 Edition N/A
 Copyright N/A
 Levelled N/A

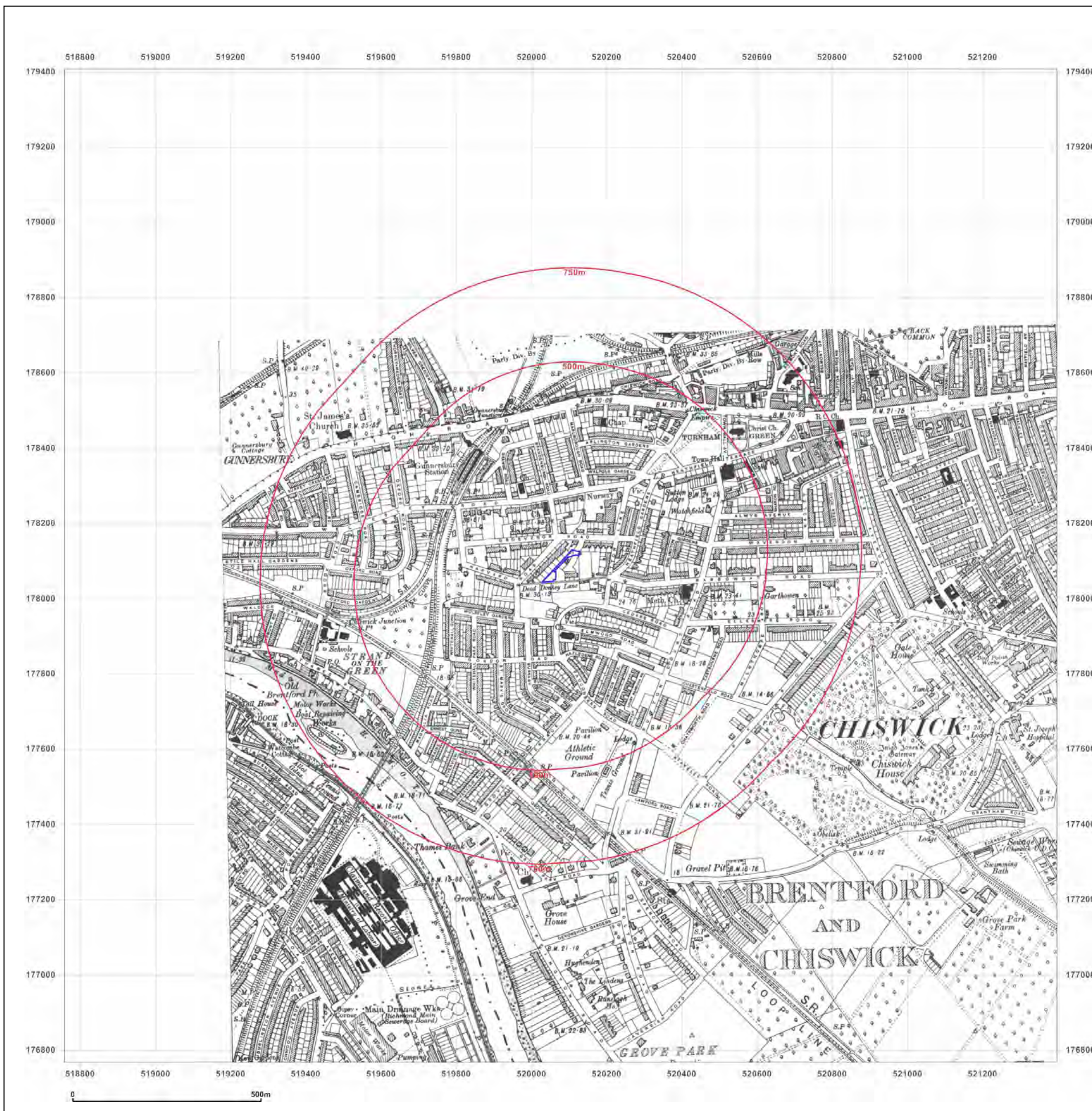


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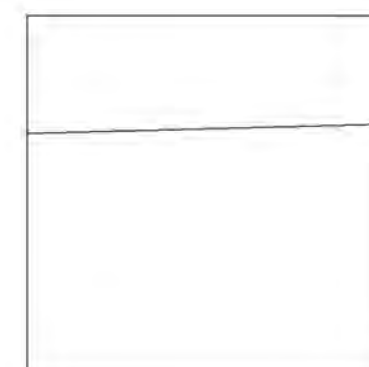
Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: County Series

Map date: 1938

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1867
 Revised 1938
 Edition N/A
 Copyright N/A
 Levelled N/A

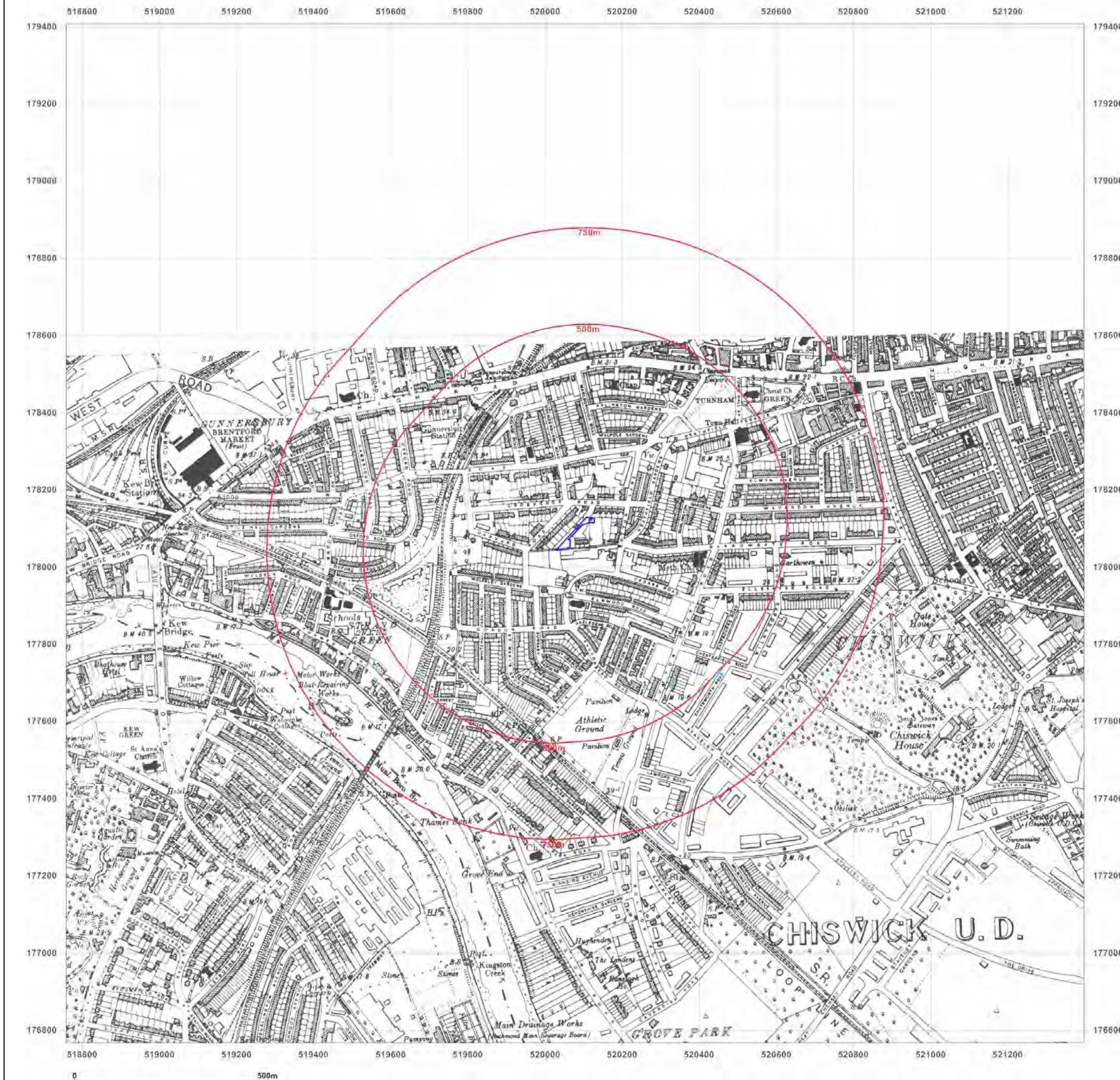


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Site Details:

520097 178114

Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

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
Levelled N/A

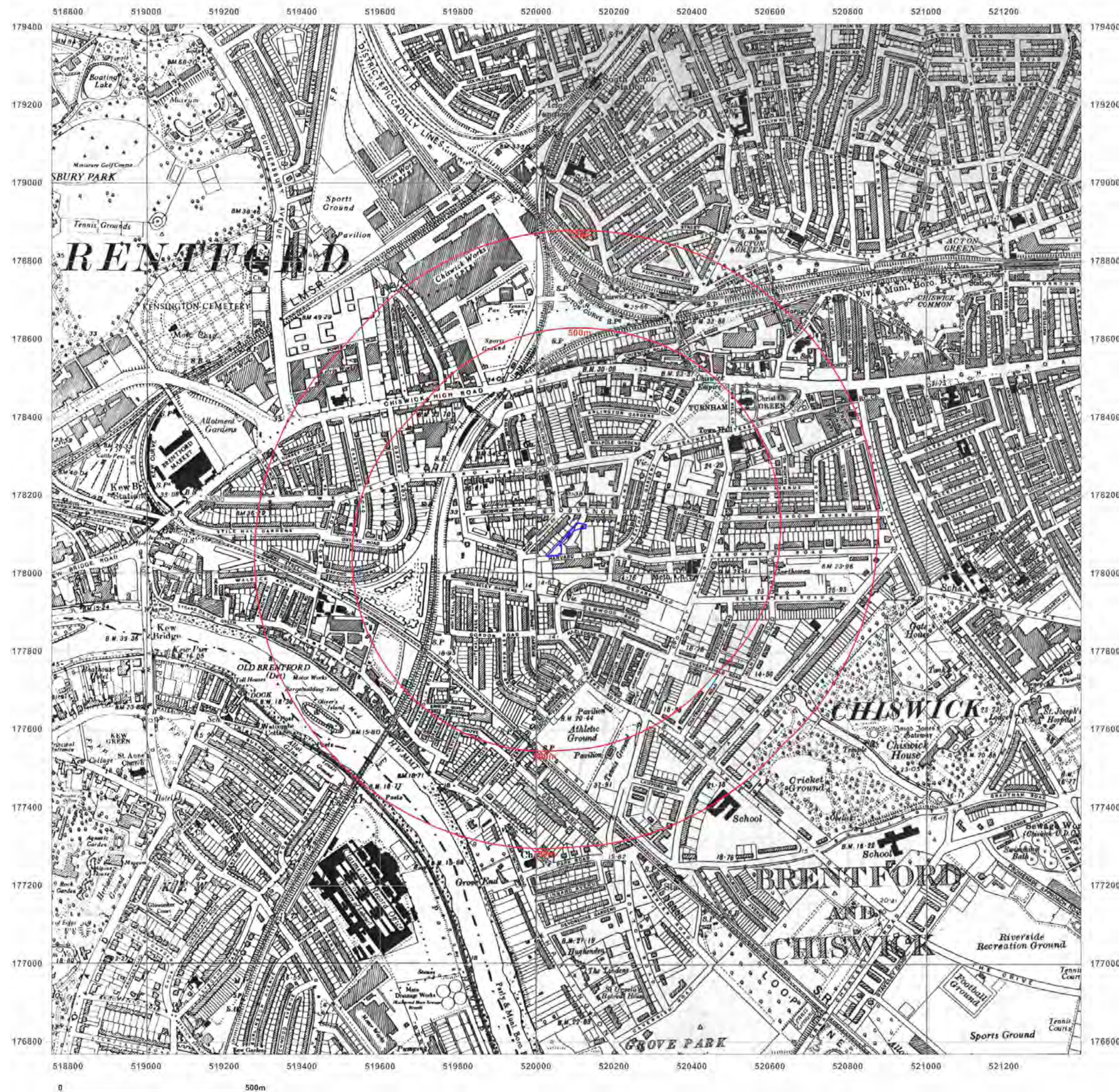


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Site Details:

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Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: Provisional

Map date: 1948

Scale: 1:10,560

Printed at: 1:10,560



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

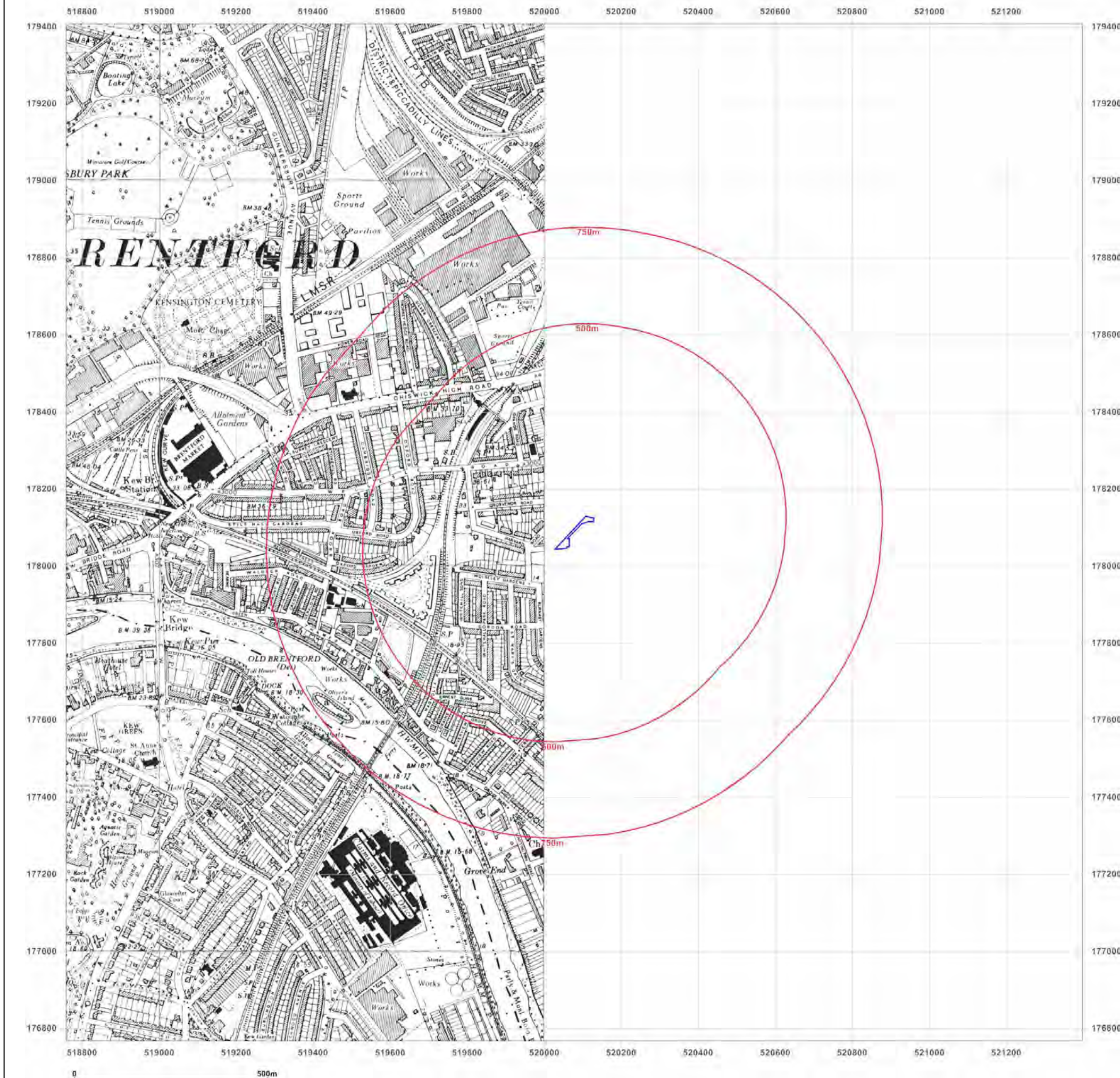


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Site Details:

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Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: Provisional

Map date: 1958-1961

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1940
Revised 1961
Edition N/A
Copyright N/A
Levelled N/A

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

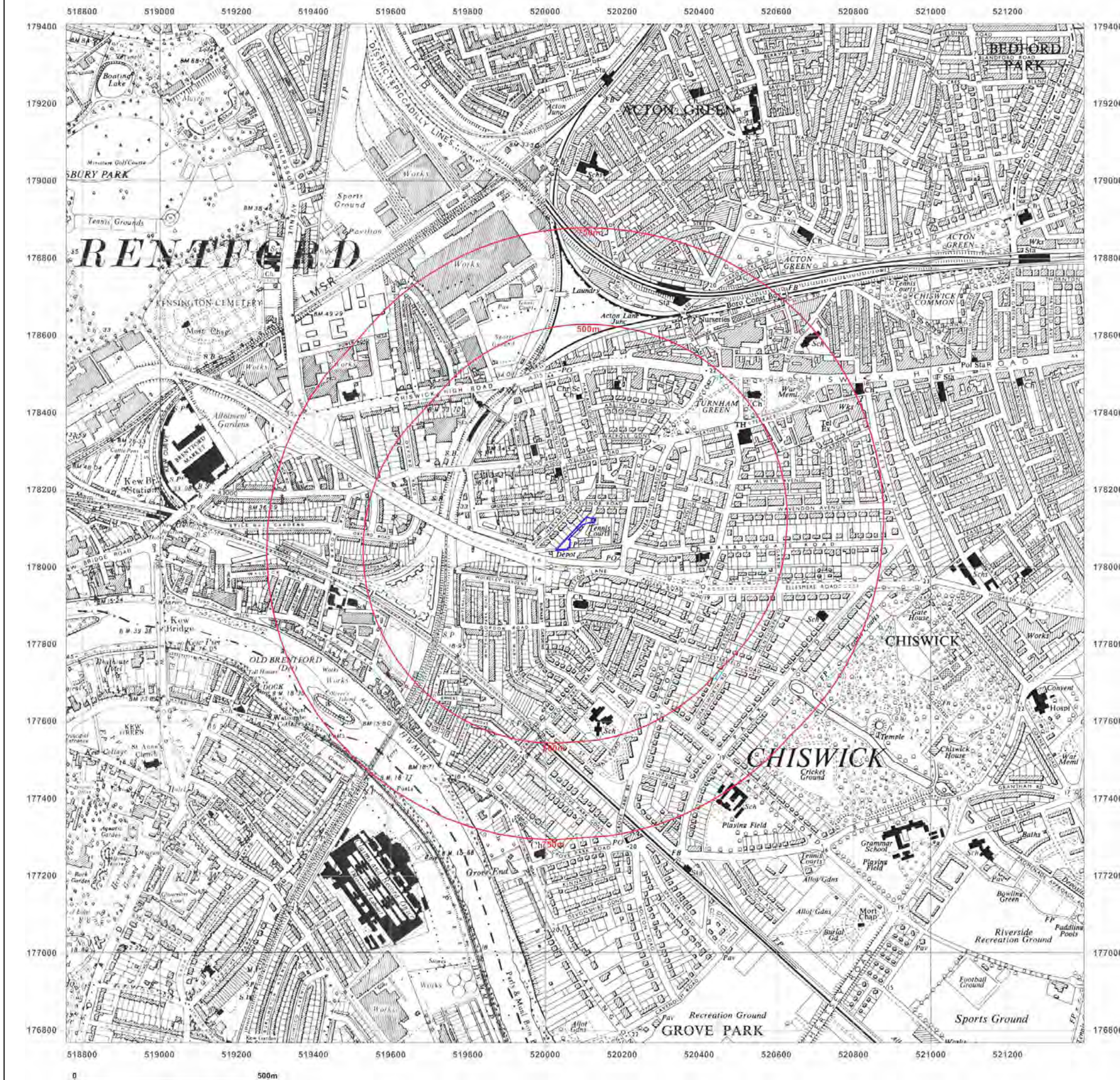


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Site Details:

520097 178114

Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: Provisional

Map date: 1962-1966

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1966
Revised 1966
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1958
Revised 1962
Edition 1958
Copyright 1958
Levelled N/A

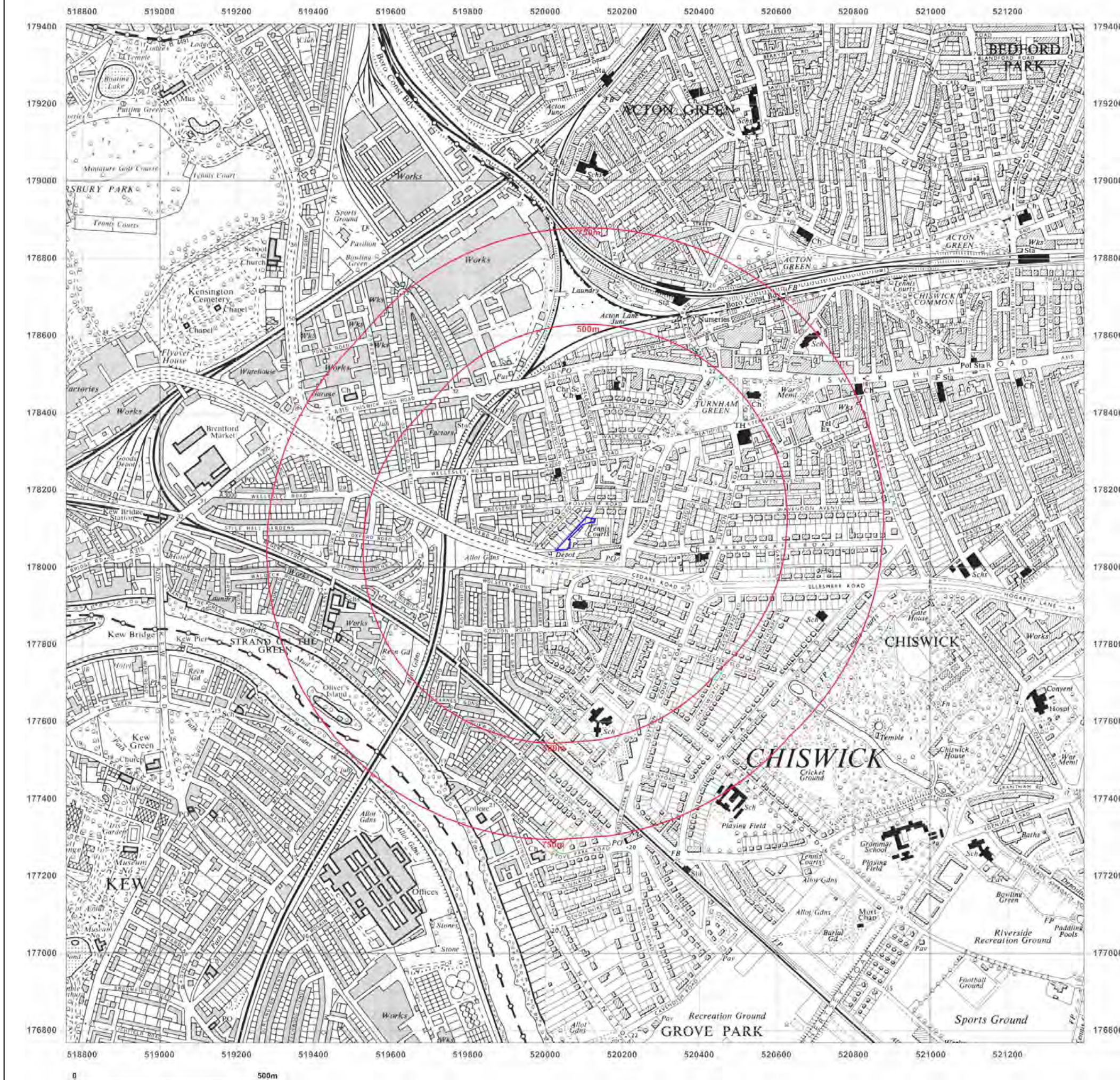


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Site Details:

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Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: Provisional

Map date: 1967

Scale: 1:10,560

Printed at: 1:10,560



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

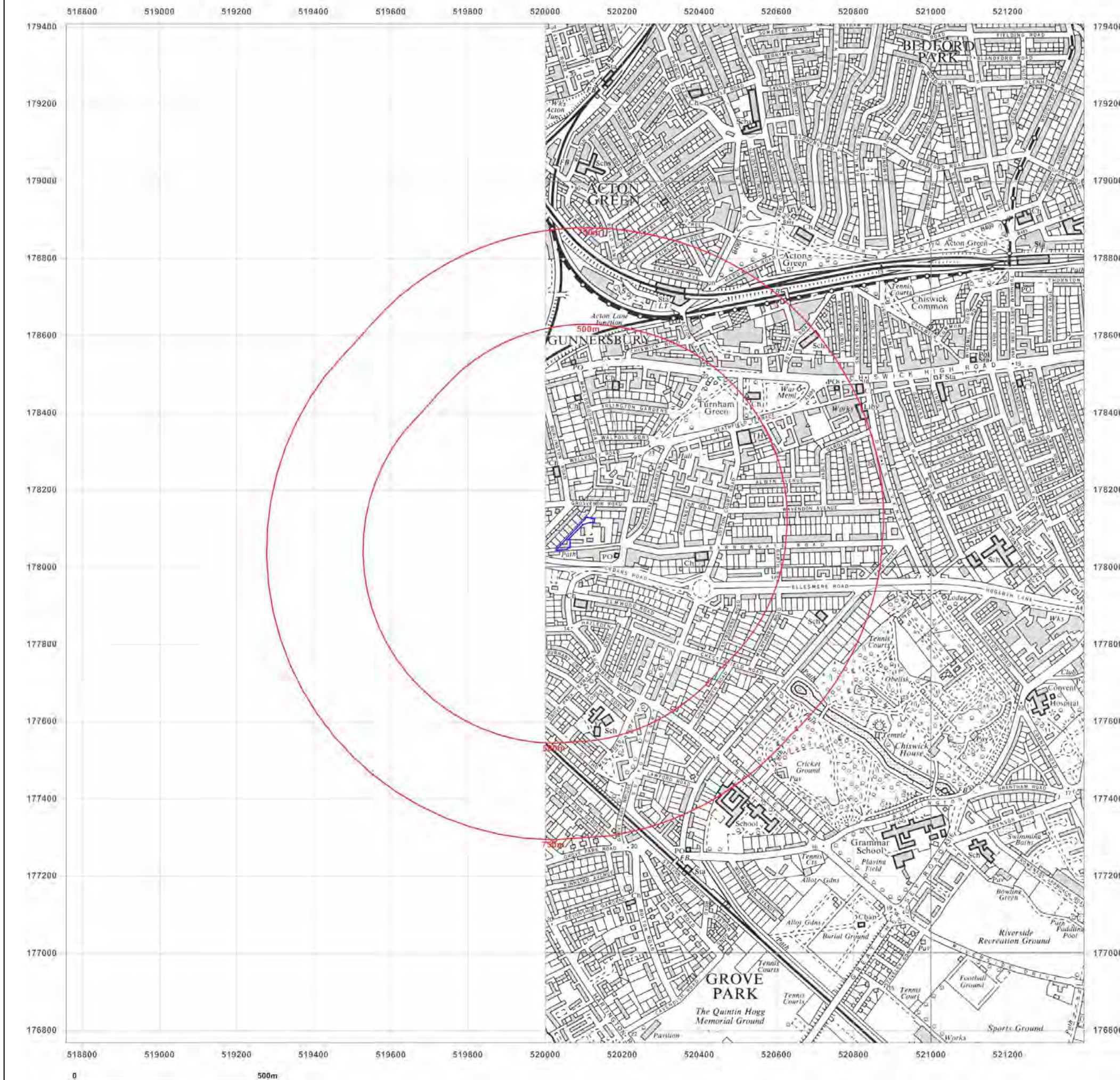


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Site Details:

520097 178114

Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: National Grid

Map date: 1974

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1973
 Revised 1974
 Edition N/A
 Copyright N/A
 Levelled N/A

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

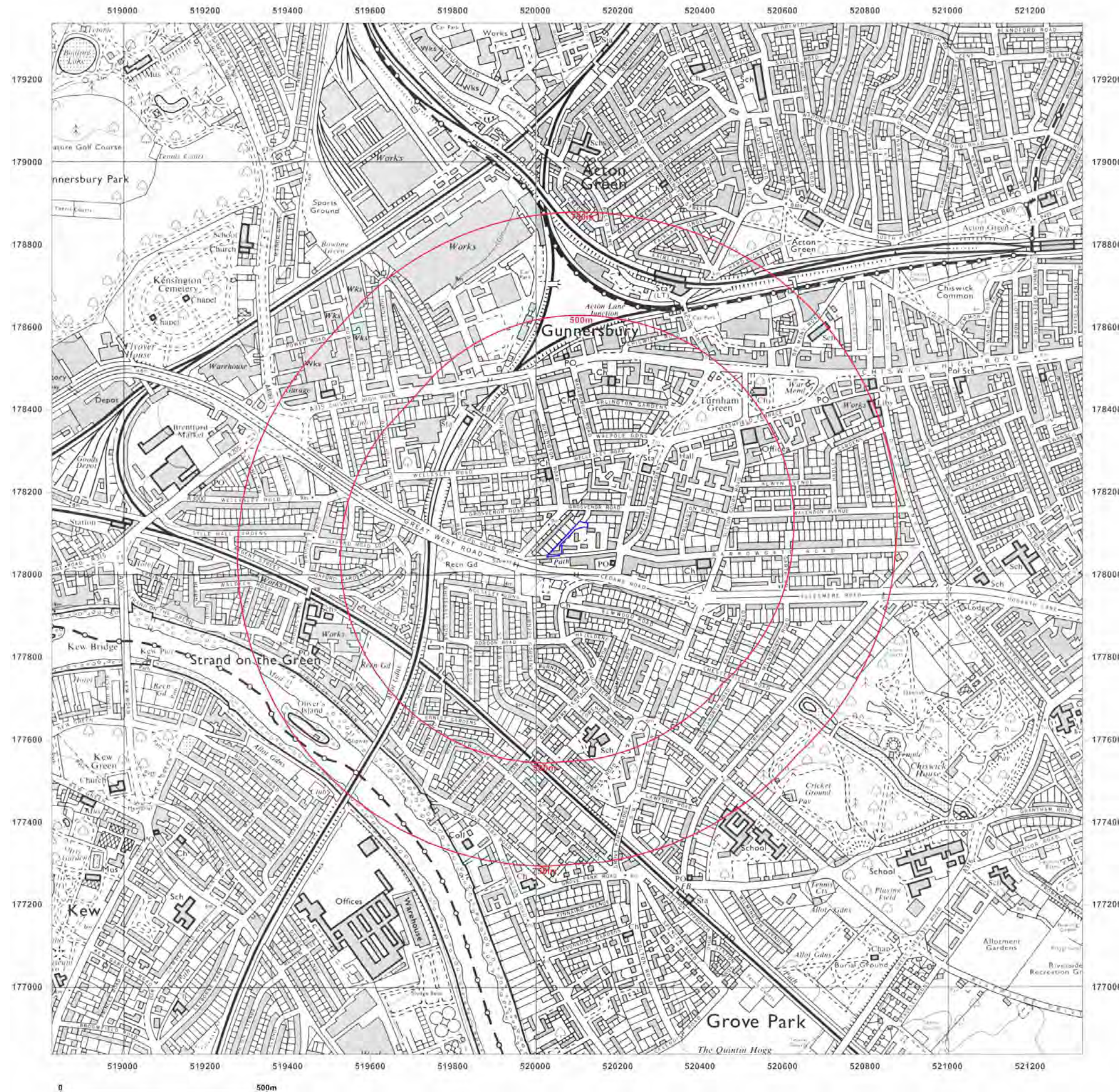


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Site Details:

520097 178114

Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: National Grid

Map date: 1987

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1982
 Revised 1987
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1981
 Revised 1987
 Edition N/A
 Copyright N/A
 Levelled N/A

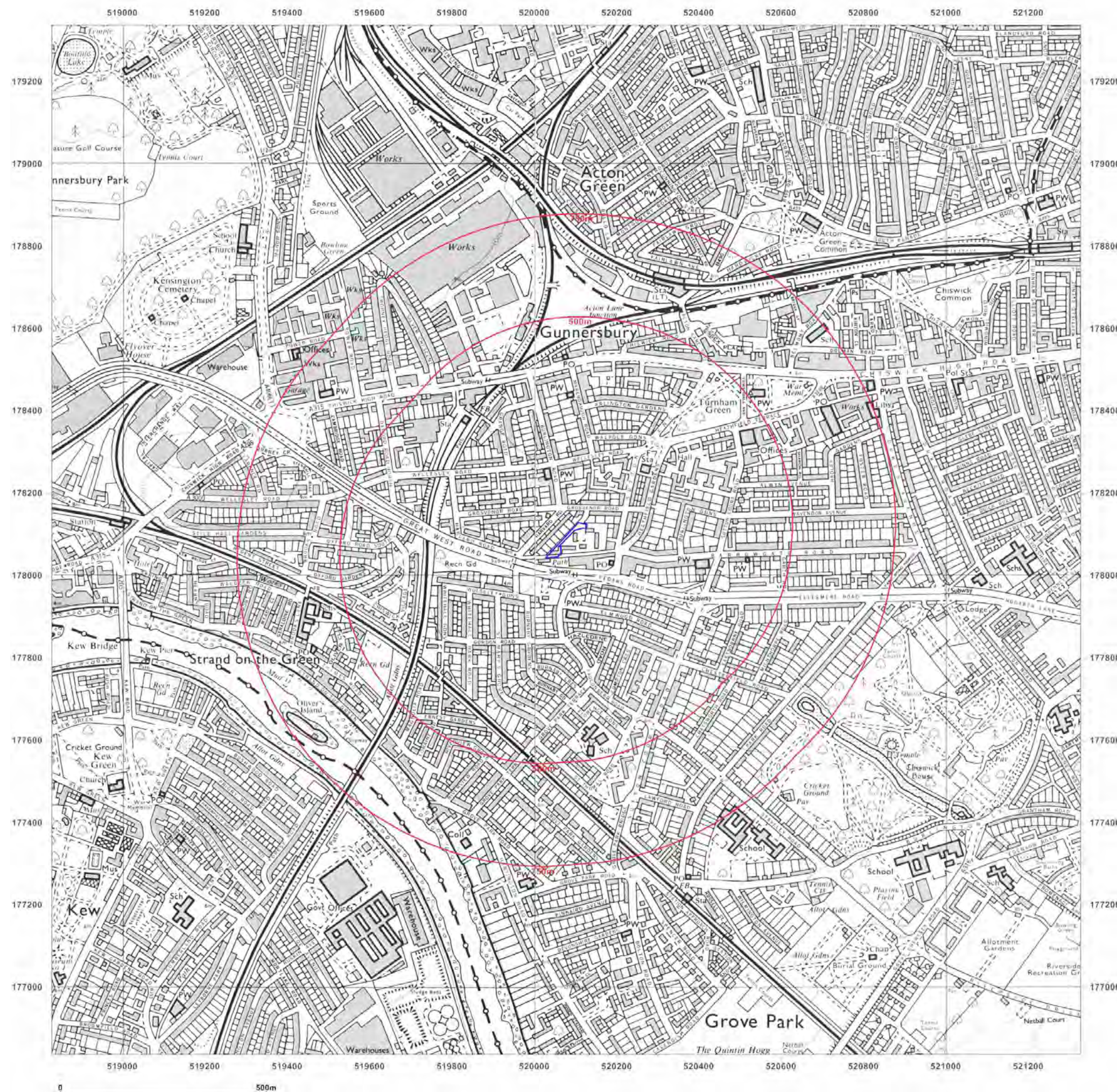


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Site Details:

520097 178114

Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: National Grid

Map date: 2001

Scale: 1:10,000

Printed at: 1:10,000



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Site Details:

520097 178114

Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000



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Site Details:

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Client Ref: 14032643
Report Ref: GS-6449767
Grid Ref: 520077, 178087

Map Name: National Grid

Map date: 2019

Scale: 1:10,000

Printed at: 1:10,000

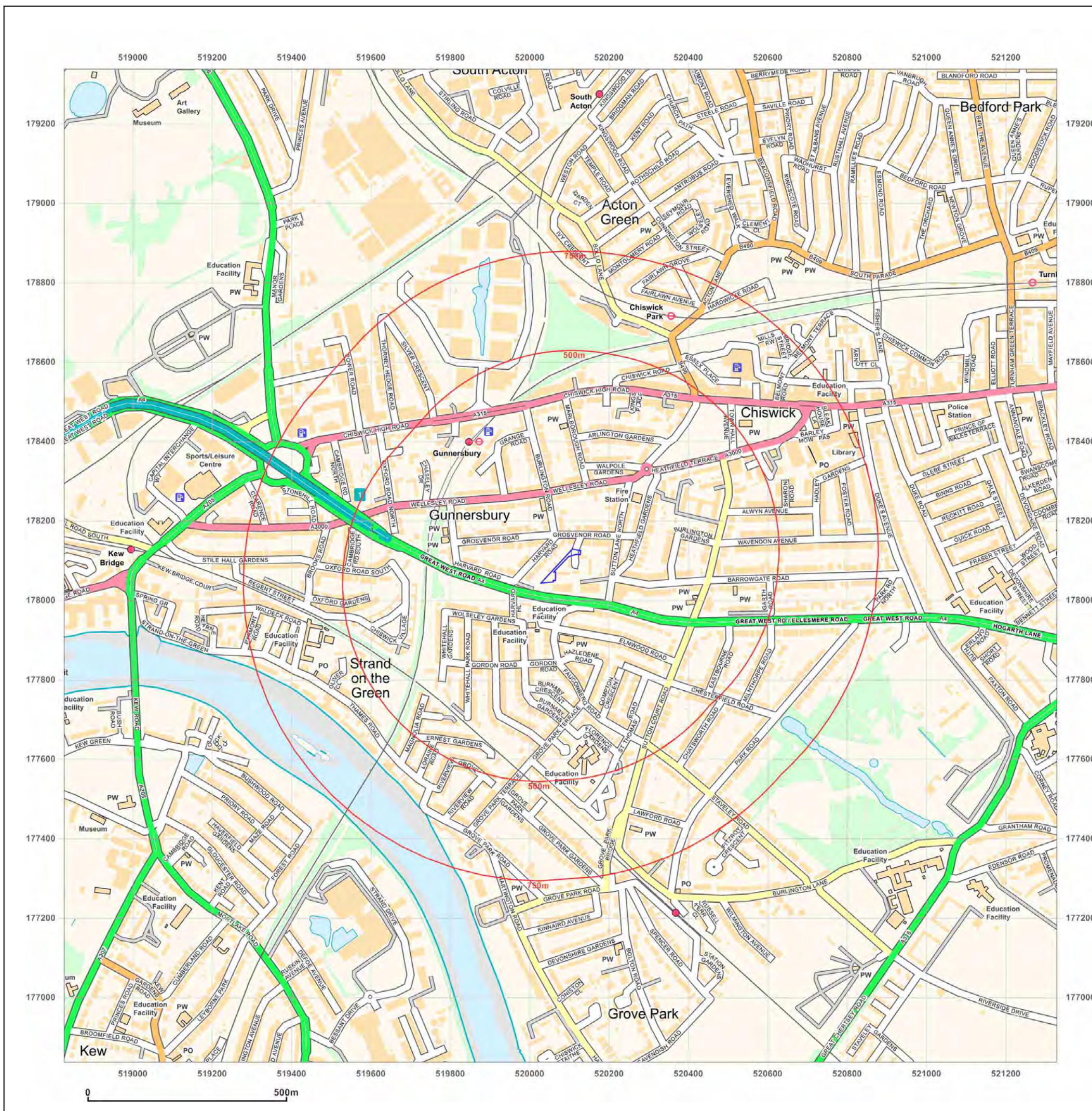


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APPENDIX B

Groundsure Data Sheets and Site Sensitivity Maps



Arcadis Consulting UK Ltd

Arcadis CONSULTING UK LTD, THE PITHAY,
BRISTOL, BS1 2NL

Groundsure
Reference:

GS-6449765

Your Reference: 14032643

Report Date 8 Nov 2019

Report Delivery Method: Email - pdf

Enviro Insight

Address: 520097 178114,

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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: 520097 178114,
Date: 8 Nov 2019
Reference: GS-6449765
Client: Arcadis Consulting UK Ltd

NW

N

NE

W

E



SW

S

SE

Aerial Photograph Capture date: 20-Apr-2015
Grid Reference: 520074,178091
Site Size: 0.1271ha

Report Reference: GS-6449765
Client Reference: 14032643

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Overview of Findings

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

Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	0	2	11	97
1.2 Additional Information – Historical Tank Database	0	0	0	12
1.3 Additional Information – Historical Energy Features Database	0	2	5	20
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	10
1.6 Historical military sites	0	0	0	0
1.7 Potentially Infilled Land	0	0	6	54
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	0	2
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	0
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	2	9
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	2
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	0	9

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	2	9	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	0	3
4.3 National Grid Underground Electricity Cables	0	6	6	6
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	None identified
5.2 Records of Superficial Ground and Drift Geology present beneath the study site	Identified
5.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 6: Hydrogeology and Hydrology				0-500m		
6.1 Records of Strata Classification in the Superficial Geology within 500m of the study site				Identified		
6.2 Records of Strata Classification in the Bedrock Geology within 500m of the study site				Identified		
	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	2	10	8
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	No	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	0	1	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.

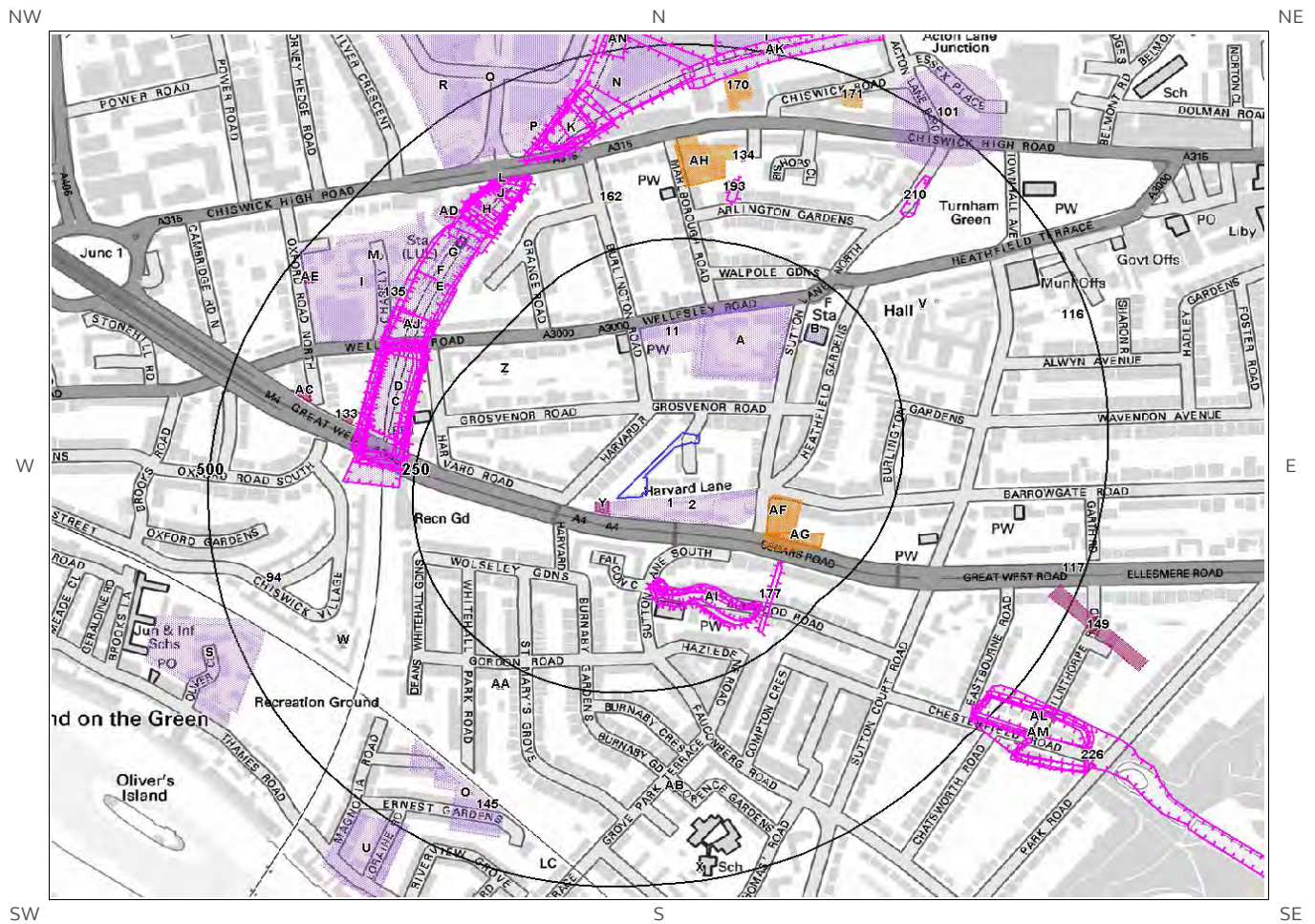
Note: Maps

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).

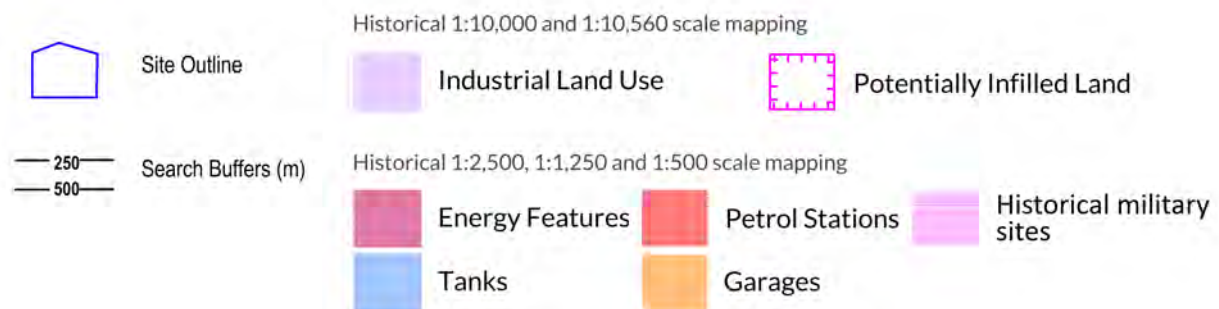
Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as "Not Shown".

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: 110

ID	Distance [m]	Direction	Use	Date
1	3	S	Unspecified Depot	1958
2	4	S	Unspecified Depot	1962
3A	71	N	Nursery	1911
4A	74	N	Nursery	1898
5A	74	N	Nursery	1894
6A	74	N	Nursery	1910
7A	74	N	Nursery	1933
8A	77	N	Nursery	1933
9A	78	N	Nursery	1920
10A	81	N	Nursery	1866
11	102	N	Nursery	1893
12B	180	NE	Fire Station	1987
13B	180	NE	Fire Station	1974
14C	260	W	Cuttings	1933
15C	260	W	Cuttings	1910
16C	264	W	Cuttings	1920
17C	264	W	Cuttings	1938
18D	264	W	Cuttings	1961
19D	265	W	Cuttings	1948
20D	265	W	Cuttings	1948
21C	266	W	Cuttings	1933
22D	267	W	Cuttings	1866
23D	270	W	Cuttings	1966
24D	270	W	Cuttings	1987
25D	270	W	Cuttings	1974
26D	272	W	Cuttings	1893
27D	277	W	Cuttings	1898
28E	279	NW	Railway Sidings	1938
29E	279	NW	Railway Sidings	1920
30D	281	W	Cuttings	1894
31AJ	309	NW	Cuttings	1893
32E	313	NW	Cuttings	1894
33F	315	NW	Cuttings	1966
34F	321	NW	Railway Station	1911

35F	325	NW	Railway Station	1933
36G	334	NW	Railway Station	1893
37F	334	NW	Railway Station	1938
38F	334	NW	Railway Station	1920
39G	334	NW	Railway Station	1898
40F	335	NW	Railway Station	1866
41G	336	NW	Railway Station	1933
42G	336	NW	Railway Station	1910
43G	336	NW	Railway Station	1948
44G	336	NW	Railway Sidings	1948
45H	337	NW	Cuttings	1866
46G	340	NW	Railway Station	1894
47H	341	NW	Cuttings	1933
48H	342	NW	Cuttings	1938
49H	342	NW	Cuttings	1920
50H	344	NW	Cuttings	1933
51H	344	NW	Cuttings	1910
52I	346	NW	Unspecified Commercial/Industrial	1987
53I	346	NW	Unspecified Commercial/Industrial	1974
54H	347	NW	Cuttings	1948
55H	347	NW	Cuttings	1948
56G	347	NW	Railway Station	1966
57H	351	NW	Cuttings	1961
58G	353	NW	Railway Station	1961
59H	353	NW	Cuttings	1893
60J	355	NW	Cuttings	1898
61J	356	NW	Cuttings	1894
62H	356	NW	Cuttings	1966
63G	357	NW	Railway Station	1987
64G	357	NW	Railway Station	1974
65M	379	NW	Unspecified Factory	1966
66K	384	N	Cuttings	1898
67J	386	NW	Junction Station	1938
68J	386	NW	Junction Station	1920
69J	386	NW	Railway Building	1966
70N	388	N	Cuttings	1894
71J	388	NW	Railway Building	1893
72K	389	N	Cuttings	1866
73L	389	NW	Railway Building	1910
74L	389	NW	Railway Building	1933
75M	389	NW	Unspecified Commercial/Industrial	1961
76K	390	N	Cuttings	1893
77L	392	NW	Railway Building	1948
78L	392	NW	Railway Building	1948

79N	393	N	Cuttings	1910
80N	393	N	Cuttings	1933
81K	393	N	Cuttings	1987
82K	397	NW	Cuttings	1961
83K	397	NW	Cuttings	1966
84K	397	NW	Cuttings	1974
85O	397	SW	Timber Yard	1933
86O	397	SW	Timber Yard	1910
87K	402	N	Cuttings	1948
88K	402	N	Cuttings	1948
89O	404	SW	Timber Yard	1933
90O	405	SW	Timber Yard	1920
91Q	406	NW	Unspecified Works	1987
92P	414	NW	Railway Building	1894
93P	419	NW	Junction Station	1893
94	424	W	Junction Station	1920
95P	424	NW	Railway Building	1933
96P	424	NW	Railway Building	1910
97Q	426	NW	Unspecified Works	1966
98R	428	NW	Unspecified Works	1961
99R	432	NW	Works	1948
100R	432	NW	Works	1948
101	440	NE	Smithy	1866
102AK	444	N	Cuttings	1866
103S	463	W	Unspecified Commercial/Industrial	1961
104S	469	SW	Unspecified Works	1974
105S	469	SW	Unspecified Works	1966
106T	475	N	Cuttings	1910
107T	475	N	Cuttings	1933
108AN	489	N	Cuttings	1866
109U	491	SW	Malthouse	1898
110U	494	SW	Malthouse	1894

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:

12

ID	Distance (m)	Direction	Use	Date
111V	315	NE	Unspecified Tank	1962
112V	335	NE	Unspecified Tank	1962

113W	381	SW	Tanks	1972
114W	381	SW	Tanks	1994
115W	382	SW	Tanks	1985
116	479	E	Unspecified Tank	1896
117	482	E	Tanks	1916
118X	486	S	Unspecified Tank	1965
119X	486	S	Unspecified Tank	1991
120X	486	S	Unspecified Tank	1991
121X	486	S	Unspecified Tank	1975
122X	486	S	Unspecified Tank	1992

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:

27

ID	Distance (m)	Direction	Use	Date
123Y	11	W	Electricity Substation	1950
124Y	11	W	Electricity Substation	1950
125B	171	NE	Electricity Substation	1991
126B	171	NE	Electricity Substation	1983
127Z	209	NW	Electricity Substation	1971
128Z	209	NW	Electricity Substation	1988
129Z	211	NW	Electricity Substation	1996
130AA	279	SW	Electricity Substation	1985
131AA	279	SW	Electricity Substation	1972
132AA	280	SW	Electricity Substation	1994
133	337	W	Electricity Cooling Station	1971
134	357	N	Electricity Substation	1991
135	373	NW	Electricity Substation	1971
136AB	374	S	Electricity Substation	1954
137AB	375	S	Electricity Substation	1951
138AB	375	S	Electricity Substation	1951
139AC	394	W	Electricity Substation	1988
140AC	396	W	Electricity Substation	1971
141AC	396	W	Electricity Substation	1996
142AD	396	NW	Electricity Substation	1988
143AD	397	NW	Electricity Substation	1971
144AD	399	NW	Electricity Substation	1996
145	426	S	Electricity Substation	1994
146AE	464	NW	Electricity Substation	1971
147AE	464	NW	Electricity Substation	1988

148AE	466	NW	Electricity Substation	1996
149	470	SE	Electricity Supply Station	1916

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: 22

ID	Distance (m)	Direction	Use	Date
150AF	112	SE	Garage	1950
151AF	112	SE	Garage	1962
152AF	112	SE	Garage	1991
153AF	113	SE	Garage	1983
154AF	113	SE	Garage	1965
155AG	140	SE	Garage	1965
156AG	140	SE	Garage	1951
157AG	142	SE	Garage	1991
158AG	146	SE	Garage	1975
159AG	147	SE	Garage	1992
160AG	147	SE	Garage	1991
161AG	147	SE	Garage	1950
162	309	N	Garage	1983
163AH	316	N	Garage	1991
164AH	316	N	Garage	1950
165AH	316	N	Garage	1962
166AH	316	N	Garage	1950
167AH	317	N	Garage	1950
168AH	317	N	Garage	1950
169AH	317	N	Garage	1950
170	420	N	Garage	
171	460	N	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

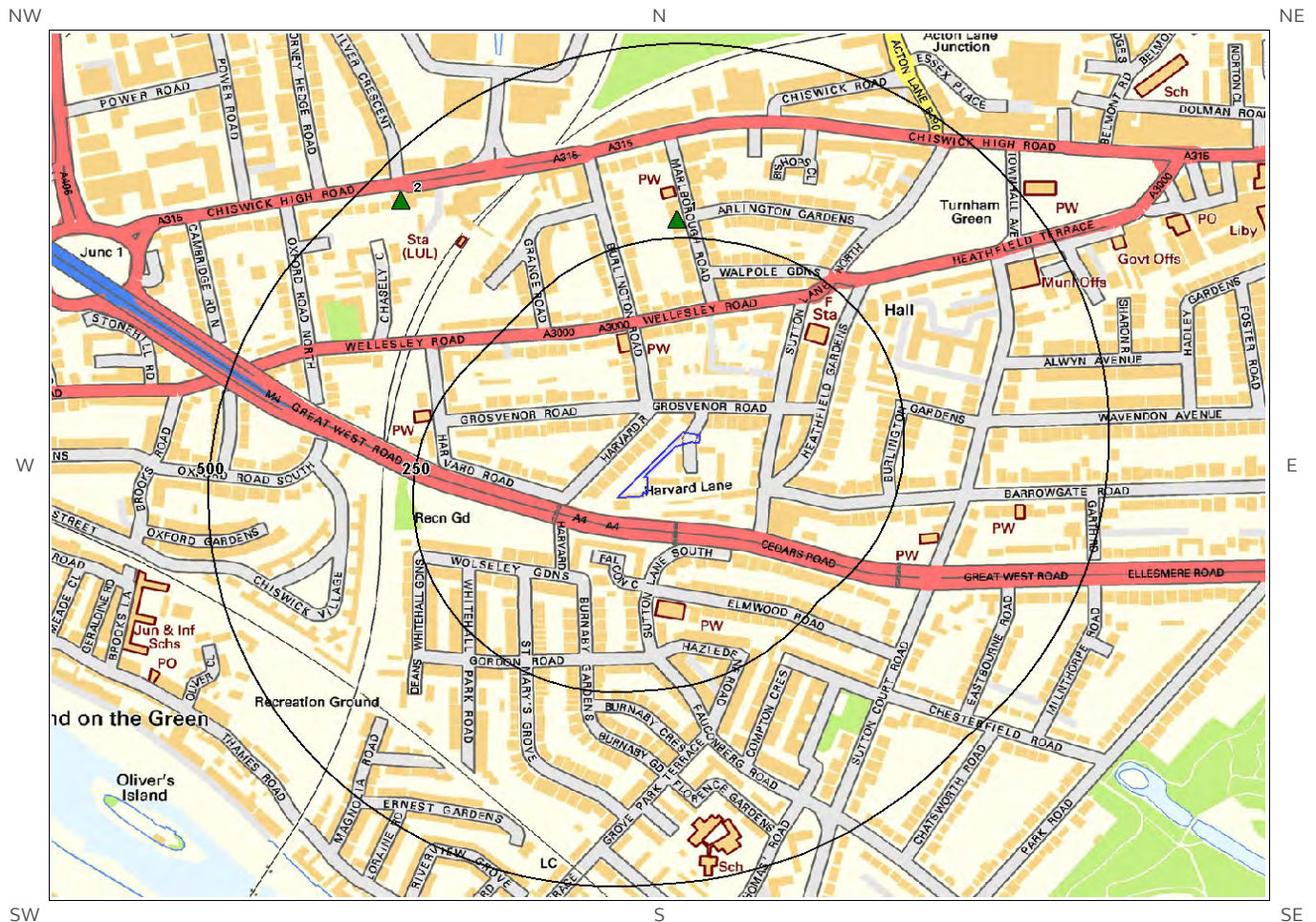
Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 60

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

ID	Distance(m)	Direction	Use	Date
172AI	106	S	Pond	1866
173AI	108	S	Fish Pond	1893
174AI	112	S	Fish Pond	1898
175AI	113	S	Fish Pond	1911
176AI	114	S	Fish Pond	1894
177	182	SE	Pond	1866
178C	260	W	Cuttings	1933
179C	260	W	Cuttings	1910
180C	264	W	Cuttings	1920
181C	264	W	Cuttings	1938
182D	264	W	Cuttings	1961
183C	265	W	Cuttings	1948
184C	265	W	Cuttings	1948
185C	266	W	Cuttings	1933
186D	267	W	Cuttings	1866
187C	270	W	Cuttings	1987
188C	270	W	Cuttings	1974
189C	270	W	Cuttings	1966
190C	272	W	Cuttings	1893
191D	277	W	Cuttings	1898
192C	281	W	Cuttings	1894
193	303	N	Pond	1866
194AJ	309	NW	Cuttings	1893
195E	313	NW	Cuttings	1894
196F	315	NW	Cuttings	1966
197H	337	NW	Cuttings	1866
198H	341	NW	Cuttings	1933

199H	342	NW	Cuttings	1938
200H	342	NW	Cuttings	1920
201H	344	NW	Cuttings	1910
202H	344	NW	Cuttings	1933
203H	347	NW	Cuttings	1948
204H	347	NW	Cuttings	1948
205H	351	NW	Cuttings	1961
206H	353	NW	Cuttings	1893
207J	355	NW	Cuttings	1898
208J	356	NW	Cuttings	1894
209H	356	NW	Cuttings	1966
210	378	NE	Pond	1866
211K	384	N	Cuttings	1898
212N	388	N	Cuttings	1894
213K	389	N	Cuttings	1866
214K	390	N	Cuttings	1893
215N	393	N	Cuttings	1933
216N	393	N	Cuttings	1910
217K	393	N	Cuttings	1987
218K	397	NW	Cuttings	1974
219K	397	NW	Cuttings	1961
220K	397	NW	Cuttings	1966
221K	402	N	Cuttings	1948
222K	402	N	Cuttings	1948
223AK	444	N	Cuttings	1866
224T	475	N	Cuttings	1933
225T	475	N	Cuttings	1910
226	475	SE	Canal	1866
227AL	479	SE	Lake	1893
228AL	480	SE	Water Body	1911
229AM	480	SE	Lake	1894
230AM	482	SE	Water Body	1898
231AN	489	N	Cuttings	1866

2. Environmental Permits, Incidents and Registers Map



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2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

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

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

2

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
1	271	N	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
2	453	NW	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

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:

0

Database searched and no data found.

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.

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.

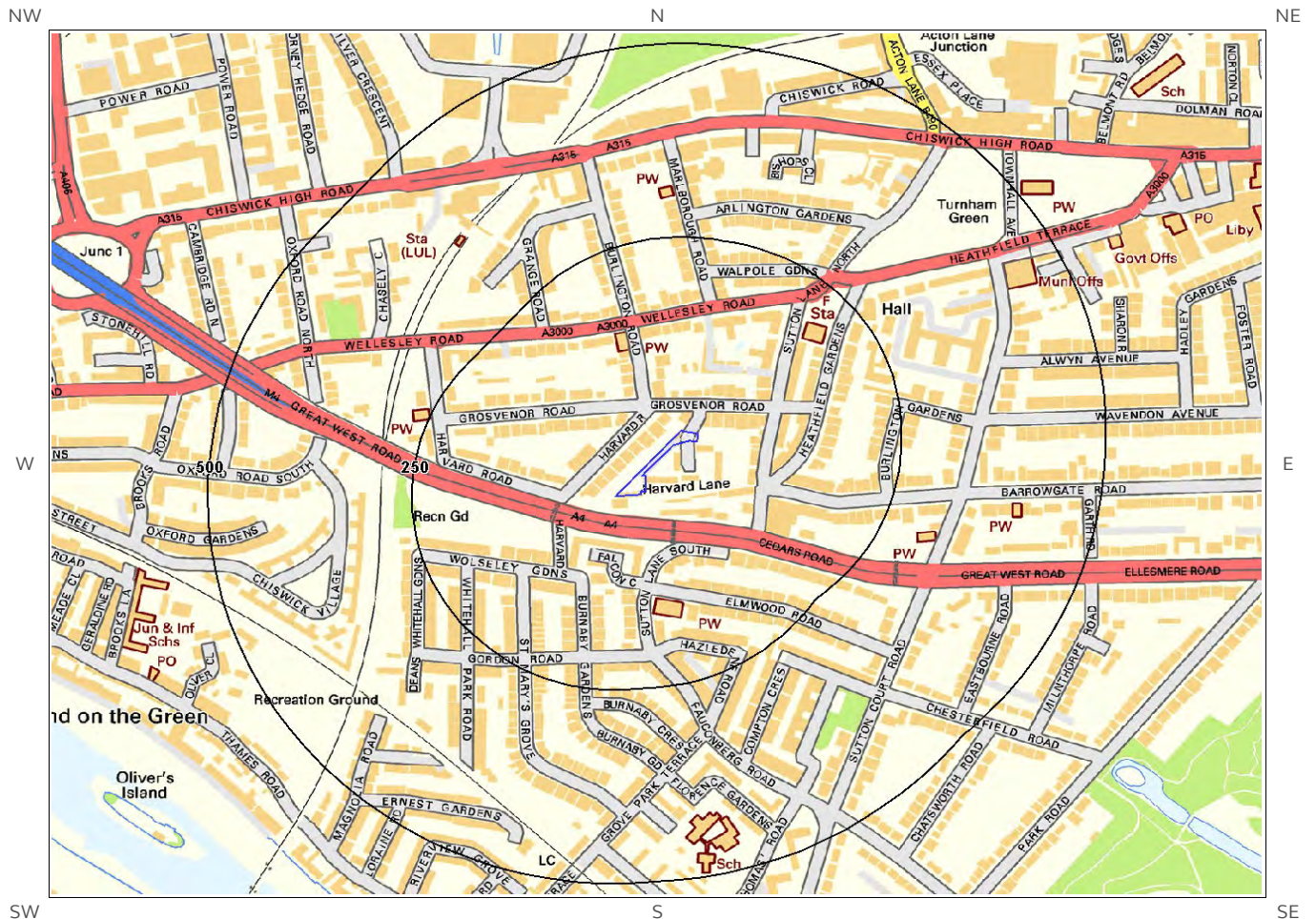
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

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

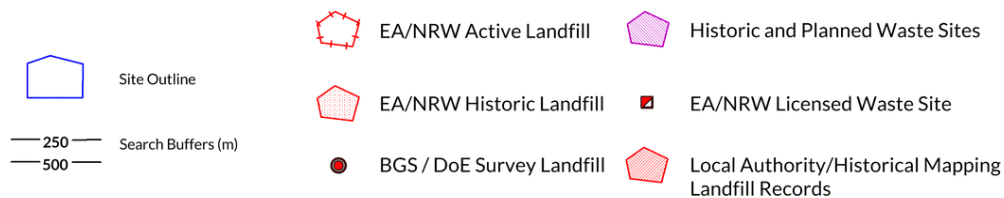
0

Database searched and no data found.

3. Landfill and Other Waste Sites Map



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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:

11

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
Not shown	791	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	792	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	1185	S		Site Address: Cubitts Basin, Grove Park, Chiswick, Hounslow, London Waste Licence: - Site Reference: 8HO046 Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: - Last Recorded: -
Not shown	1257	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	1291	W		Site Address: Old Thames Water Gas Works, Brentford, Hounslow, London Waste Licence: - Licence Issue: Licence Surrendered: Licence Holder Address: -

ID	Distance (m)	Direction	NGR	Details
				Site Reference: 8HO082 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: - Operator: - Licence Holder: - First Recorded: 31-Dec-1960 Last Recorded: 31-Dec-1966
Not shown	1305	SE		Site Address: Corney Road, Chiswick, London W4 Waste Licence: - Site Reference: 8HO081 Waste Type: Inert, Industrial, Special Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: 31-Dec-1946 Last Recorded: 31-Dec-1949
Not shown	1380	W		Site Address: Watermans Park, High Street, Brentford Waste Licence: - Site Reference: 8HO066 Waste Type: - Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: - Last Recorded: 31-Dec-1865
Not shown	1384	S		Site Address: Hartington Road Sports Ground, Hartington Road Waste Licence: - Site Reference: 8HO041 Waste Type: - Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: Ham River Grit Licence Holder: - First Recorded: - Last Recorded: 31-Dec-1935
Not shown	1385	SE		Site Address: Dukes Meadow, Great Chertsey Road, London Waste Licence: - Site Reference: 8HO040 Waste Type: - Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: Ham River Grit Licence Holder: London Borough of Hounslow First Recorded: 31-Dec-1945 Last Recorded: 31-Dec-1950
Not shown	1421	S		Site Address: Hartington Road Sports Ground, Hartington Road Waste Licence: - Site Reference: 8HO041 Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: Ham River Grit Licence Holder: - First Recorded: - Last Recorded: 31-Dec-1934
Not shown	1444	S		Site Address: Ibis Rowing Club, Grove Park, Chiswick, Hounslow, London Waste Licence: - Site Reference: 8HO063 Waste Type: - Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: - Last Recorded: -

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:

2

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

ID	Distance (m)	Direction	NGR	Site Address	Source	Data Type
Not shown	1424	SE	521479 177512	Corney Road, Chiswick	London Borough Of Hounslow	Polygon
Not shown	1476	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

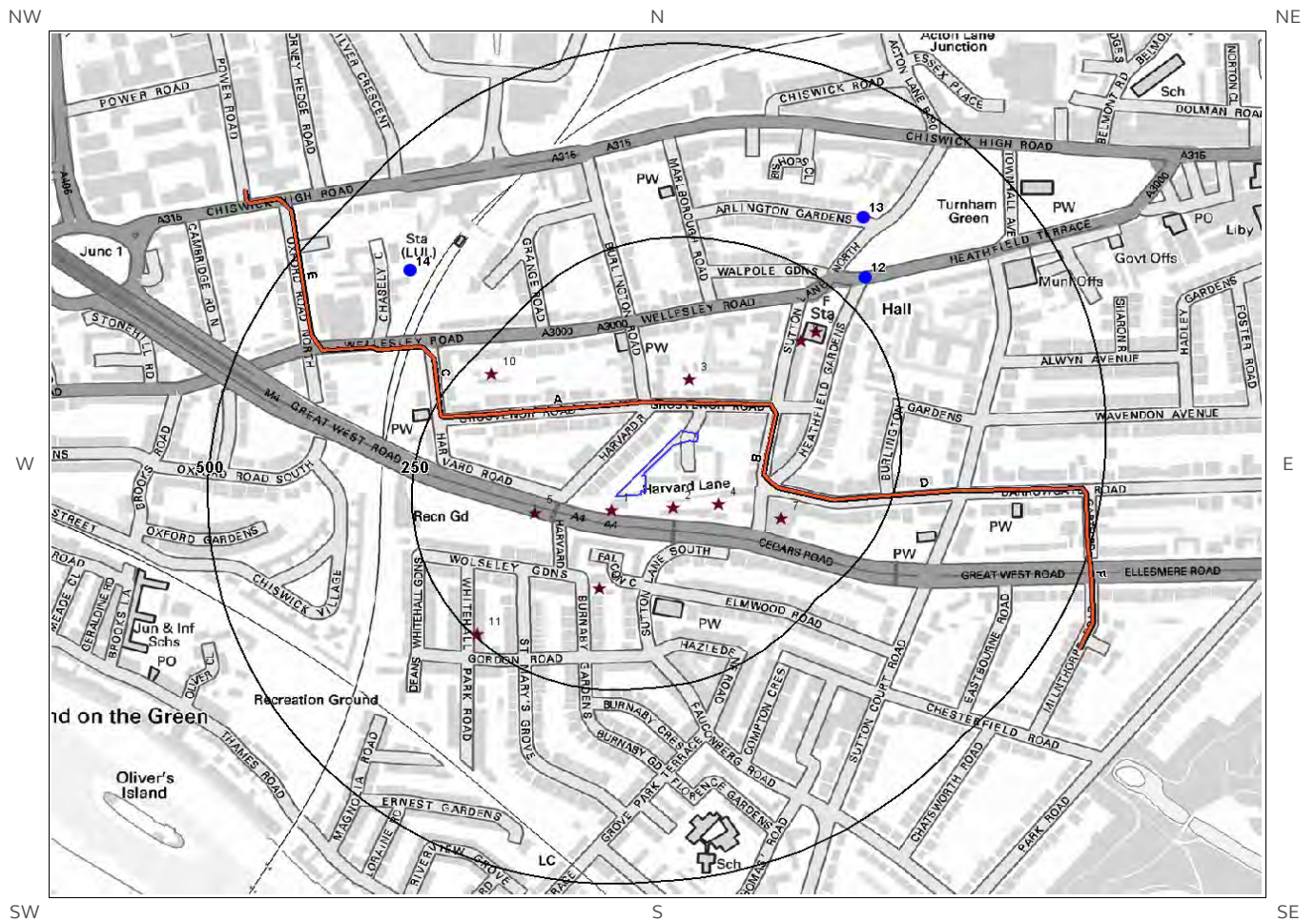
The following waste treatment, transfer or disposal sites records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details
Not shown	1107	W	518935 178224	<p>Site Address: Ward Ltd, British Rail Goods Yard North, Lionel Road, Kew Bridge, Brentford, Middlesex, TW8 0JA</p> <p>Type: Household, Commercial & Industrial Waste T Stn</p> <p>Size: >= 75000 tonnes</p> <p>Environmental Permitting Regulations (Waste) Licence Number: WAR001</p> <p>EPR reference: EA/EPR/RP3996NS/V002</p> <p>Operator: Ward Ltd</p> <p>Waste Management licence No: 80074</p> <p>Annual Tonnage: 165740.0</p> <p>Issue Date: 15/12/1992</p> <p>Effective Date: -</p> <p>Modified: 25/03/1997</p> <p>Surrendered Date: -</p> <p>Expiry Date: -</p> <p>Cancelled Date: -</p> <p>Status: Expired</p> <p>Site Name: Br Goods Yard (north), Brentford</p> <p>Correspondence Address: -</p>
Not shown	1109	W	518953 178319	<p>Site Address: British Rail Goods Yard, Kew Bridge North, Lionel Road, Brentford, Middlesex, TW8 0JA</p> <p>Type: Household, Commercial & Industrial Waste T Stn</p> <p>Size: >= 75000 tonnes</p> <p>Environmental Permitting Regulations (Waste) Licence Number: QUA003</p> <p>EPR reference: EA/EPR/PP3993ET/S002</p> <p>Operator: Quattro (U K) Ltd</p> <p>Waste Management licence No: 80724</p> <p>Issue Date: 23/11/2007</p> <p>Effective Date: -</p> <p>Modified: -</p> <p>Surrendered Date: Feb 7 2019 12:00AM</p> <p>Expiry Date: -</p> <p>Cancelled Date: -</p> <p>Status: Surrendered</p> <p>Site Name: Quattro - Brentford</p> <p>Correspondence Address: -</p>

ID	Distance (m)	Direction	NGR	Details	
Annual Tonnage: 0.0					
Not shown	1128	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	1128	W	518925 178286	Site Address: Chiswick Skips Ltd, 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) Limited 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: Transferred Site Name: British Rail Goods Yard Correspondence Address: -
Not shown	1128	W	518925 178286	Site Address: Chiswick Skips Ltd, BR 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: CHI001 EPR reference: - Operator: Chiswick Skips Ltd Waste Management licence No: 80020 Annual Tonnage: 0.0	Issue Date: 04/12/1991 Effective Date: - Modified: 05/03/1999 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Chiswick Skips, Brentford Correspondence Address: Chiswick Skips Ltd, BR Goods Yard, Kew Bridge North, Lionel Road, Brentford, Middlesex, TW8 0JA
Not shown	1129	N	519842 179227	Site Address: Ealing LB Council, Acton Waste & Recycling Centre, Stirling Road, Acton, London, W3 8DJ Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: EAL002 EPR reference: - Operator: Ealing London Borough Council Waste Management licence No: 80030 Annual Tonnage: 0.0	Issue Date: 15/11/1994 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Acton Waste & Recycling Centre Correspondence Address: Ealing London Borough Council, Perceval House, 14-16, Uxbridge Road, Ealing, London, W5 2HL
Not shown	1132	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	1153	W	518898 178281	Site Address: Old British Rail Goods Yard, Lionel Road, Brentford, Brentford, Middlesex, TW8 0JA Type: Household, Commercial & Industrial	Issue Date: 15/11/2004 Effective Date: - Modified: - Surrendered Date: -

ID	Distance (m)	Direction	NGR	Details
				<p>Waste T Stn</p> <p>Size: >= 25000 tonnes < 75000 tonnes</p> <p>Environmental Permitting Regulations (Waste) Licence Number: BRE012</p> <p>EPR reference: EA/EPR/VP3097NN/A001</p> <p>Operator: Brentford Commercials Ltd</p> <p>Waste Management licence No: 80618</p> <p>Annual Tonnage: 74999.0</p> <p>Expiry Date: -</p> <p>Cancelled Date: -</p> <p>Status: Expired</p> <p>Site Name: Brentford Commercials (Waste) Ltd</p> <p>Correspondence Address: -</p>
Not shown	1157	N	519830 179253	<p>Site Address: Ealing London Borough Council, Acton Waste & Recycling Centre, Stirling Road, Acton, London, W3 8DJ</p> <p>Type: Household Waste Amenity Site</p> <p>Size: < 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 & Recycling Centre</p> <p>Correspondence Address: -</p>

4. Current Land Use Map



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Site Outline

★ Current Industrial Sites

— Electricity Transmission Cables

— 250 — Search Buffers (m)
— 500 —

● Petrol & Fuel Sites

— Gas Transmission Pipelines

4. Current Land Uses

4.1 Current Industrial Data

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

11

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	18	S	Electricity Sub Station	520021 178027	Greater London, W4	Electrical Features	Infrastructure and Facilities
2	39	SE	Safestore Ltd	520096 178030	22, Sutton Lane North, London, Greater London, W4 4LD	Container and Storage	Transport, Storage and Delivery
3	67	N	Electricity Sub Station	520116 178196	Greater London, W4	Electrical Features	Infrastructure and Facilities
4	85	S	Depot	520152 178035	Greater London, W4	Container and Storage	Transport, Storage and Delivery
5	102	W	Gantry	519927 178024	Greater London, W4	Travelling Cranes and Gantries	Industrial Features
6	120	S	Electricity Sub Station	520006 177926	Greater London, W4	Electrical Features	Infrastructure and Facilities
7	143	SE	Porsche Centre West London	520229 178016	Chiswick Garage, Cedars Road, London, Greater London, W4 4LZ	New Vehicles	Motoring
8	174	NE	Electricity Sub Station	520253 178246	Greater London, W4	Electrical Features	Infrastructure and Facilities
9	196	NE	Chiswick Fire Station	520271 178257	Chiswick Fire Station 2-4, Heathfield Gardens, London, Greater London, W4 4JY	Fire Brigade Stations	Central and Local Government
10	220	NW	Electricity Sub Station	519874 178203	Greater London, W4	Electrical Features	Infrastructure and Facilities
11	245	SW	Mercsite	519857 177866	23, Whitehall Park Road, London, Greater London, W4 3NE	Vehicle Repair, Testing and Servicing	Repair and Servicing

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
12	287	NE	520332	OBSOLETE	361-365, Chiswick High	Not Applicable	Obsolete

ID	Distance (m)	Direction	NGR	Company	Address	LPG	Status
			178328		Road, Marlborough Road, Chiswick, London, Outer London, W4 4HS		
13	345	NE	520329 178405	OBSOLETE	512-518, Chiswick High Road, Chiswick, London, Outer London, W4 5RG	Not Applicable	Obsolete
14	384	NW	519774 178336	OBSOLETE	610-624, Chiswick High Road, Chiswick, London, Outer London, W4 5RU	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:

18

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

ID	Distance (m)	Direction	Details	
15A	36	N	Cable Set: - Cable Route: - Cable Make: -	Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
16A	36	N	Cable Set: SOUTH (BICC) CABLE SECT 53 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
17A	37	N	Cable Set: - Cable Route: - Cable Make: -	Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
18B	43	NE	Cable Set: - Cable Route: - Cable Make: -	Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
19B	44	NE	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
20B	45	NE	Cable Set: - Cable Route: - Cable Make: -	Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
21C	183	NW	Cable Set: - Cable Route: - Cable Make: -	Cable Type: PILOT Operating Voltage (kV): - Year of installation: -

ID	Distance (m)	Direction	Details	
				Cable in tunnel: -
22C	183	NW	Cable Set: SOUTH (BICC) CABLE SECT 54 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
23C	186	NW	Cable Set: - Cable Route: - Cable Make: -	Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
24D	187	SE	Cable Set: - Cable Route: - Cable Make: -	Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
25D	190	SE	Cable Set: SOUTH (BICC) CABLE SECT 51 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
26D	192	SE	Cable Set: - Cable Route: - Cable Make: -	Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
27E	397	NW	Cable Set: - Cable Route: - Cable Make: -	Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
28E	400	NW	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
29E	403	NW	Cable Set: - Cable Route: - Cable Make: -	Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
30F	435	E	Cable Set: SOUTH (BICC) CABLE SECT 50 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
31F	438	E	Cable Set: - Cable Route: - Cable Make: -	Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
32F	438	E	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

Database searched and no data found.

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

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

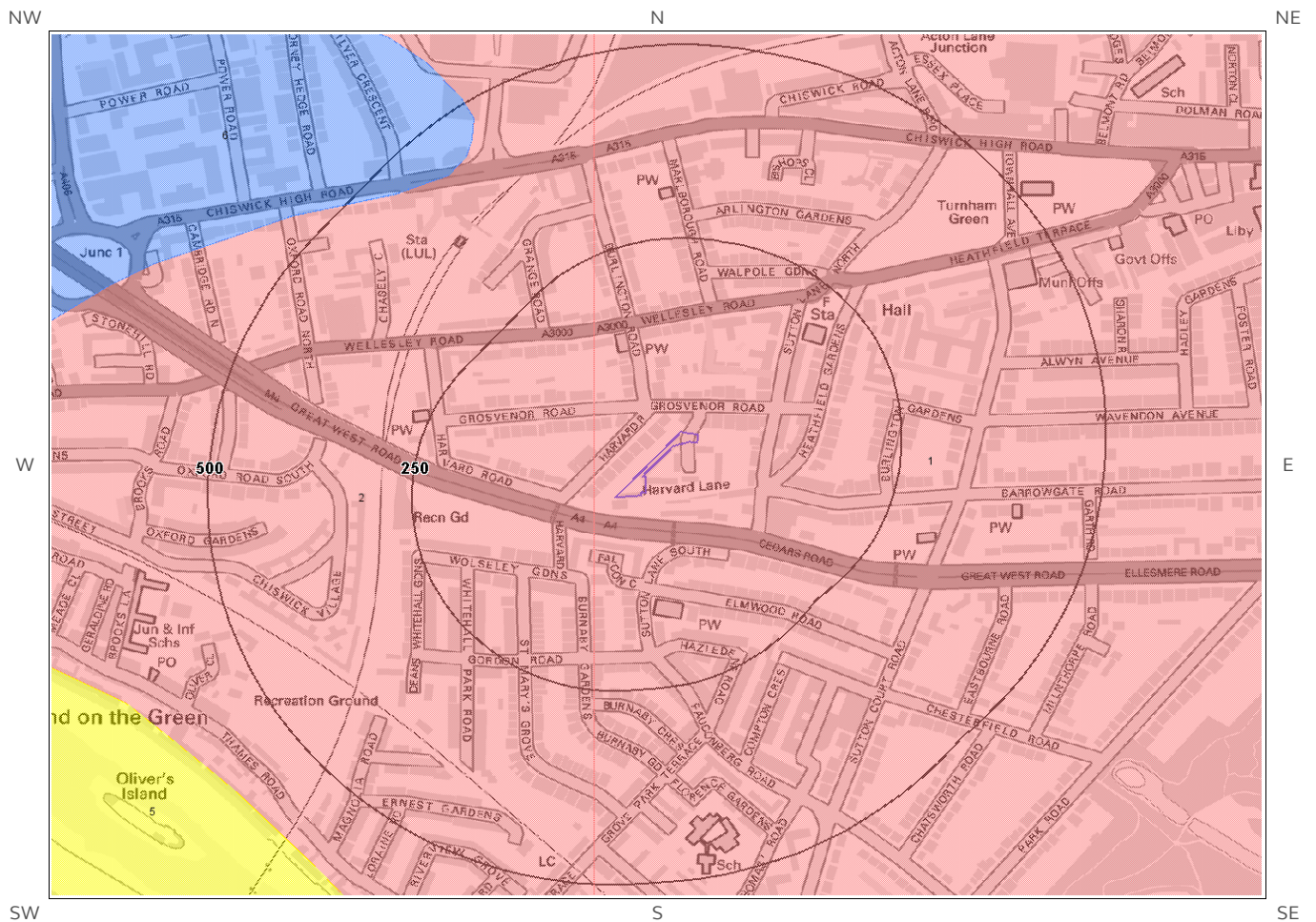
The database has been searched on site, including a 50m buffer.

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)

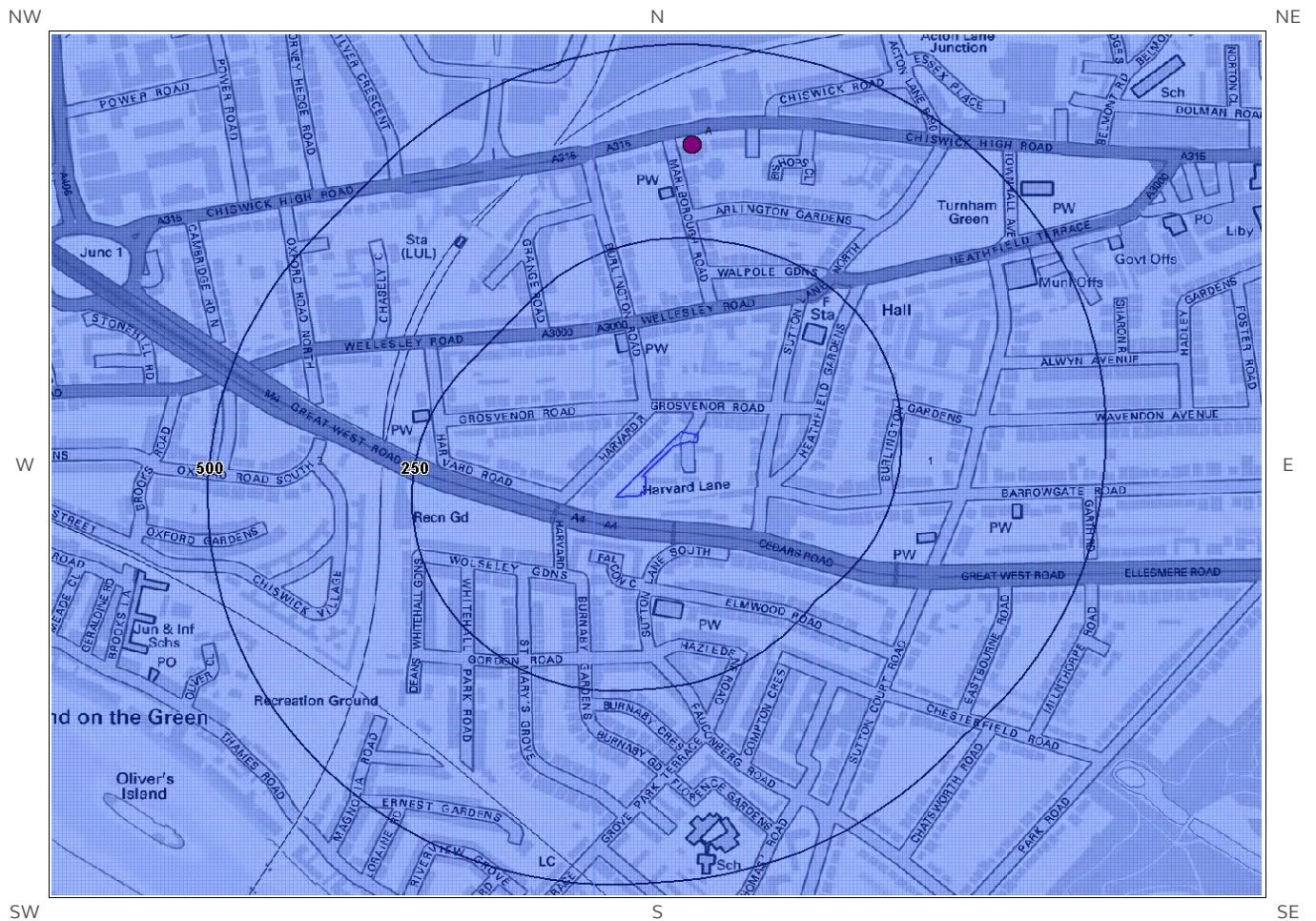
6 Hydrogeology and Hydrology

6a. Aquifer Within Superficial Geology

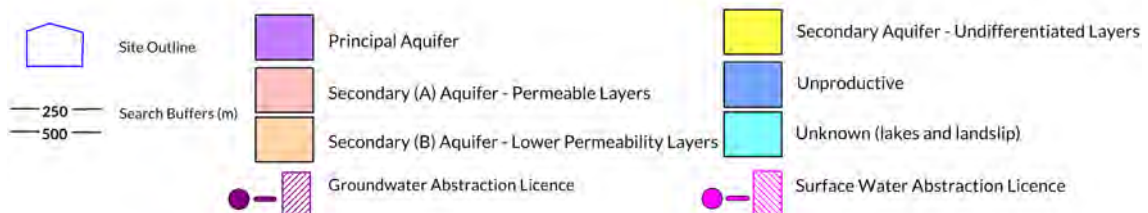


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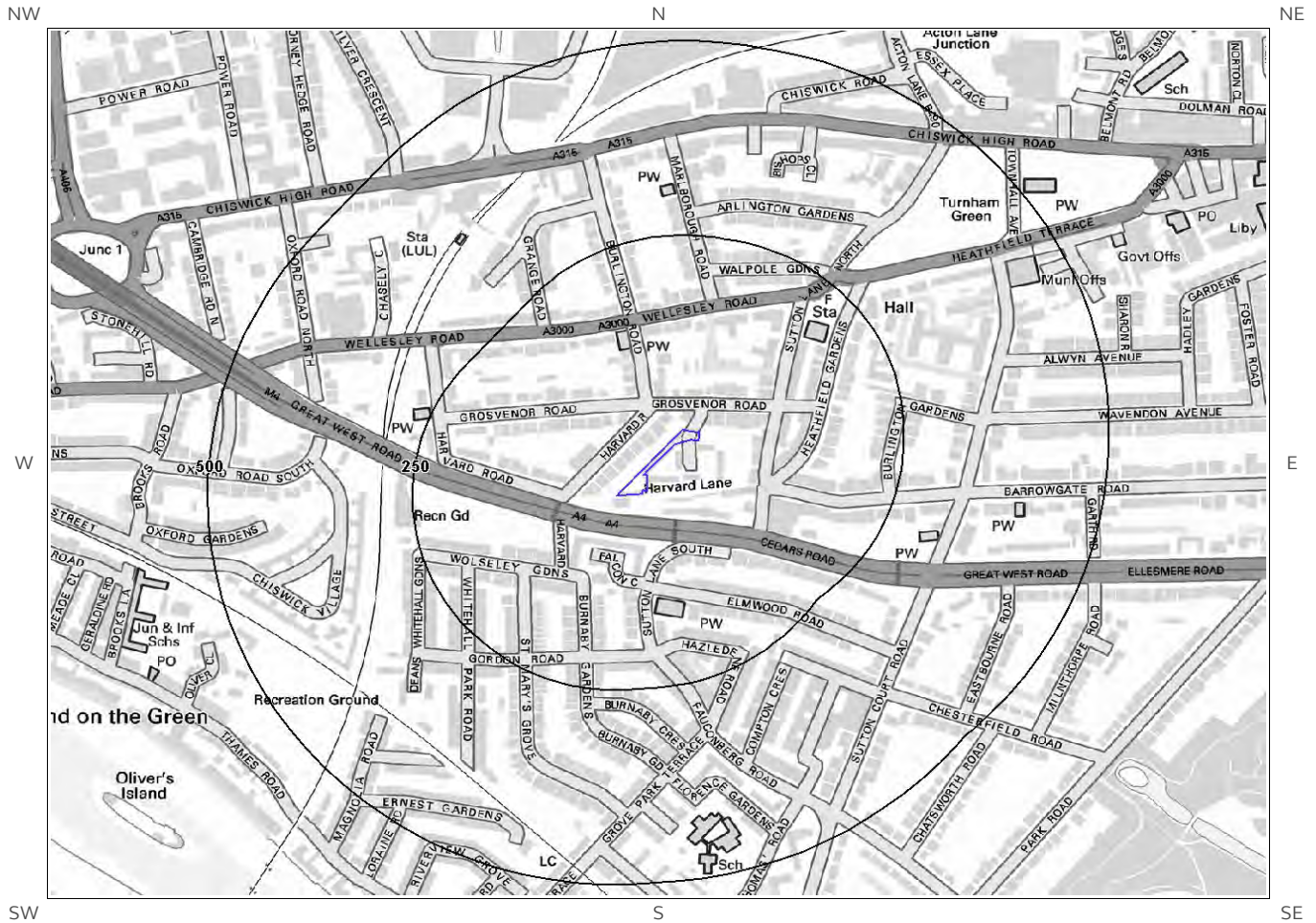
6b. Aquifer Within Bedrock Geology and Abstraction Licences



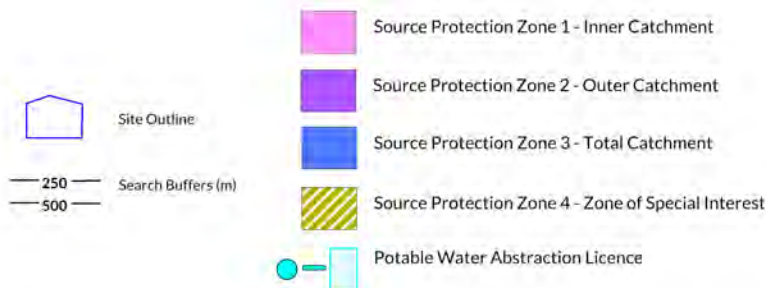
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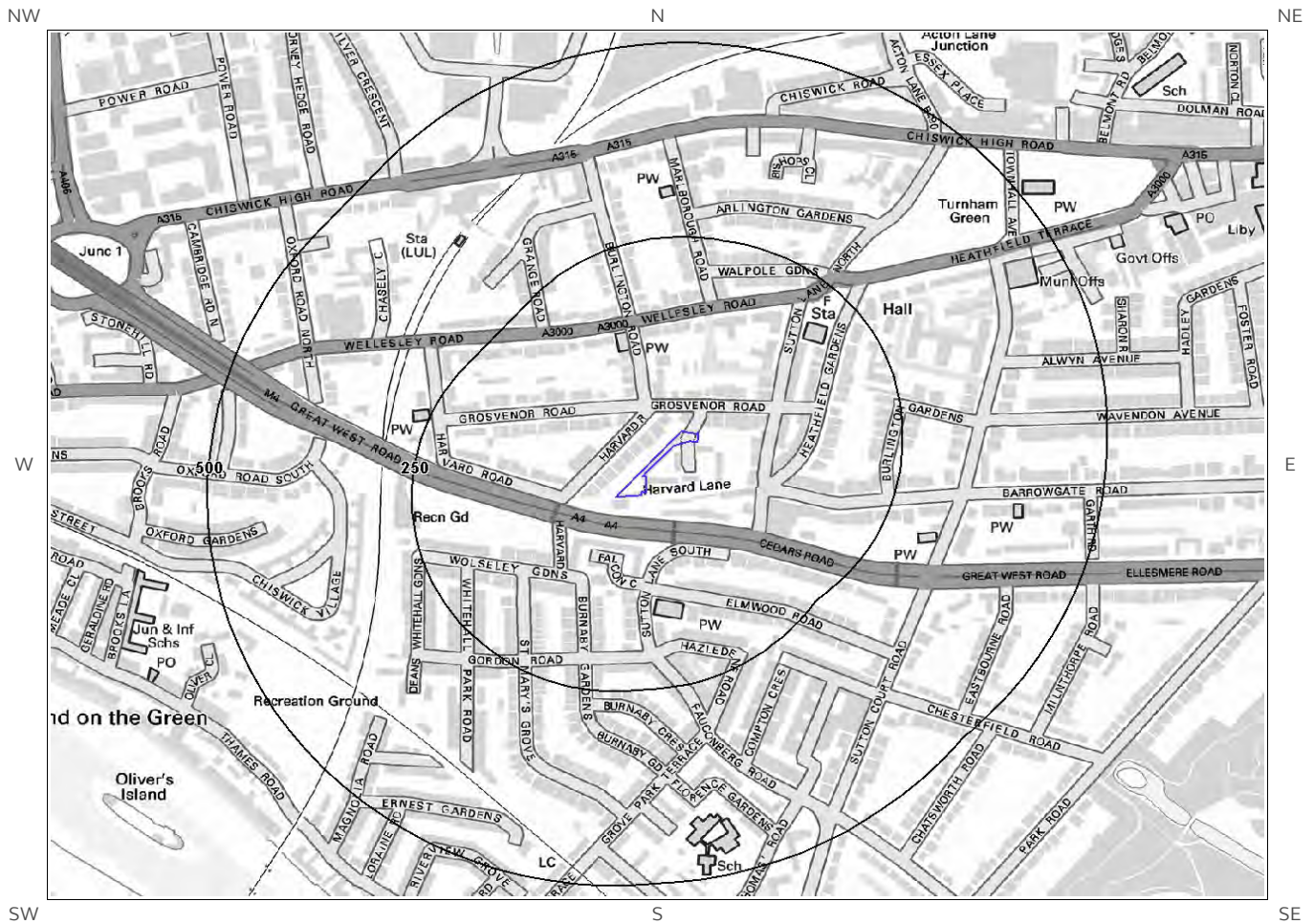
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences



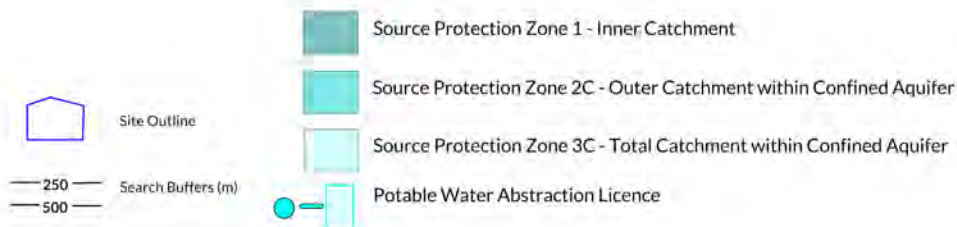
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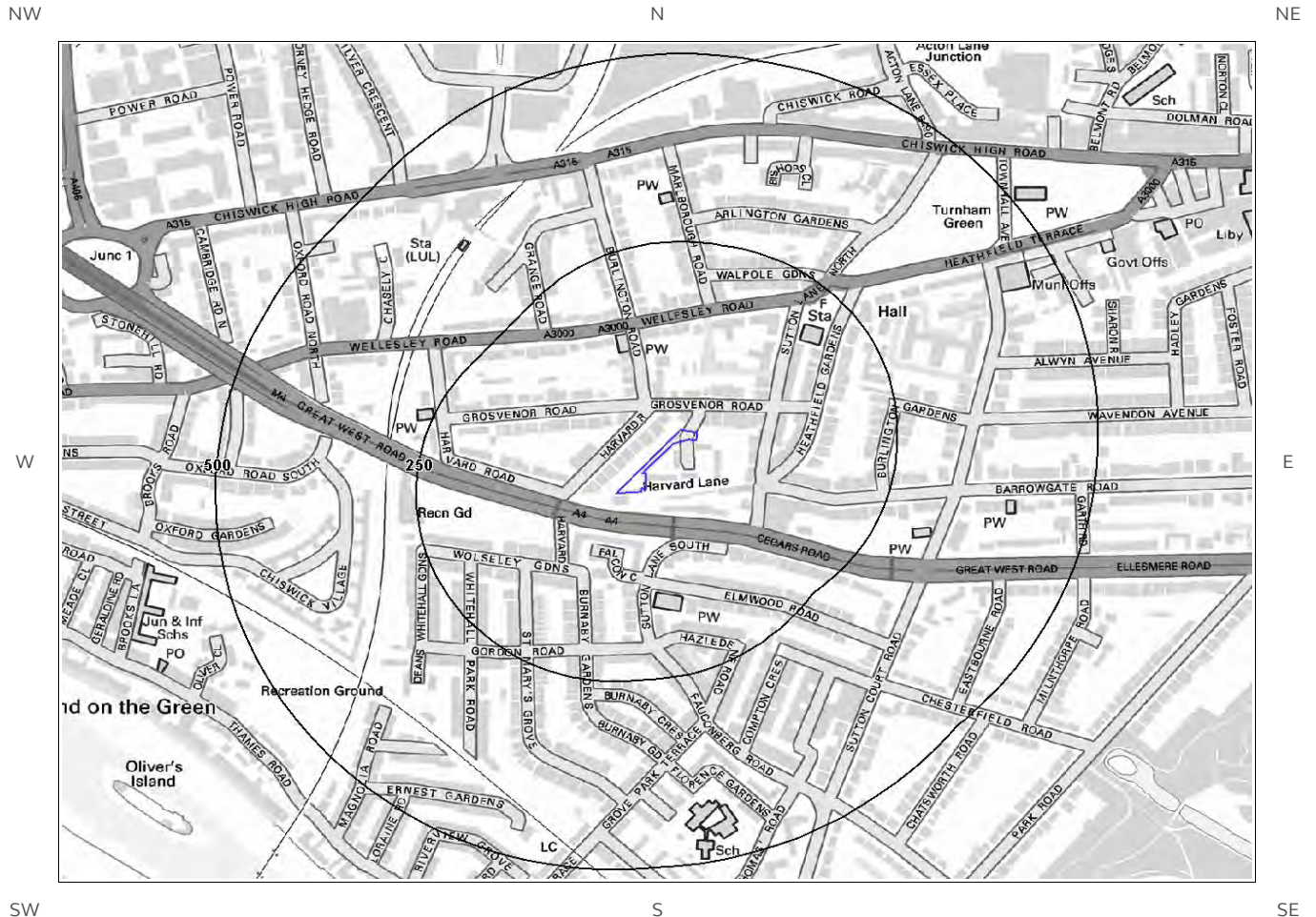
6d. Hydrogeology – Source Protection Zones within confined aquifer



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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	27	W	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	437	NW	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	27	W	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	370	N	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): 6,935 Max Daily Volume (m³): 19 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 10/03/2005 Version End Date:</p>
4A	370	N	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: Expiry Date: Issue No: Version Start Date: 28/03/2002 Version End Date:</p>
Not shown	725	N	519831 178800	<p>Status: Historical 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): 19,540 Max Daily Volume (m³): 588 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 05/09/2014 Version End Date:</p>
Not shown	725	N	519831 178800	<p>Status: Historical 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): 19,540 Max Daily Volume (m³): 588 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 05/09/2014 Version End Date:</p>
Not shown	725	N	519831 178800	<p>Status: Active Licence No: TH/039/0039/030/R01 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): 23,540 Max Daily Volume (m³): 294 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 18/04/2019 Version End Date:</p>
Not shown	725	N	519831 178800	<p>Status: Active Licence No: TH/039/0039/030/R01 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): 23,540 Max Daily Volume (m³): 294 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 18/04/2019 Version End Date:</p>

ID	Distance (m)	Direction	NGR	Details	
Not shown	725	N	519830 178800	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	Annual Volume (m³): 19,540 Max Daily Volume (m³): 294 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 02/07/2007 Version End Date:
Not shown	725	N	519830 178800	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	Annual Volume (m³): 19,540 Max Daily Volume (m³): 294 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 02/07/2007 Version End Date:
Not shown	956	SW	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): 10,000 Max Daily Volume (m³): 30 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 23/06/2014 Version End Date:
Not shown	956	SW	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): 10,000 Max Daily Volume (m³): 30 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 23/06/2014 Version End Date:
Not shown	984	SW	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): 10,000 Max Daily Volume (m³): 30 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 23/06/2014 Version End Date:
Not shown	984	SW	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): 10,000 Max Daily Volume (m³): 30 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 23/06/2014 Version End Date:
Not shown	1410	W	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): 124,300 Max Daily Volume (m³): 380 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 19/05/2016 Version End Date:

ID	Distance (m)	Direction	NGR	Details
Not shown	1410	W	518665 177680	<p>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</p> <p>Annual Volume (m³): 124,300 Max Daily Volume (m³): 380 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 10/07/2014 Version End Date:</p>
Not shown	1428	W	518649 177670	<p>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</p> <p>Annual Volume (m³): 124,300 Max Daily Volume (m³): 380 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 19/05/2016 Version End Date:</p>
Not shown	1428	W	518649 177670	<p>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</p> <p>Annual Volume (m³): 124,300 Max Daily Volume (m³): 380 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 10/07/2014 Version End Date:</p>
Not shown	1434	W	518643 177669	<p>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</p> <p>Annual Volume (m³): 124,300 Max Daily Volume (m³): 380 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 10/07/2014 Version End Date:</p>
Not shown	1434	W	518643 177669	<p>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</p> <p>Annual Volume (m³): 124,300 Max Daily Volume (m³): 380 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 19/05/2016 Version End Date:</p>
Not shown	1489	E	521600 177900	<p>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</p> <p>Annual Volume (m³): 81,828 Max Daily Volume (m³): 327 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 14/09/1970 Version End Date:</p>
Not shown	1782	S	520500 176320	<p>Status: Active Licence No: 28/39/39/0180 Details: Spray Irrigation - Direct Direct Source: THAMES GROUNDWATER Point: DUKES MEADOW GOLF CLUB, LONDON - BOREHOLE Data Type: Point Name: D & D LEISURE SPORTS LTD</p> <p>Annual Volume (m³): 8,000 Max Daily Volume (m³): 55 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 01/04/2008 Version End Date:</p>

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.
27	W	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

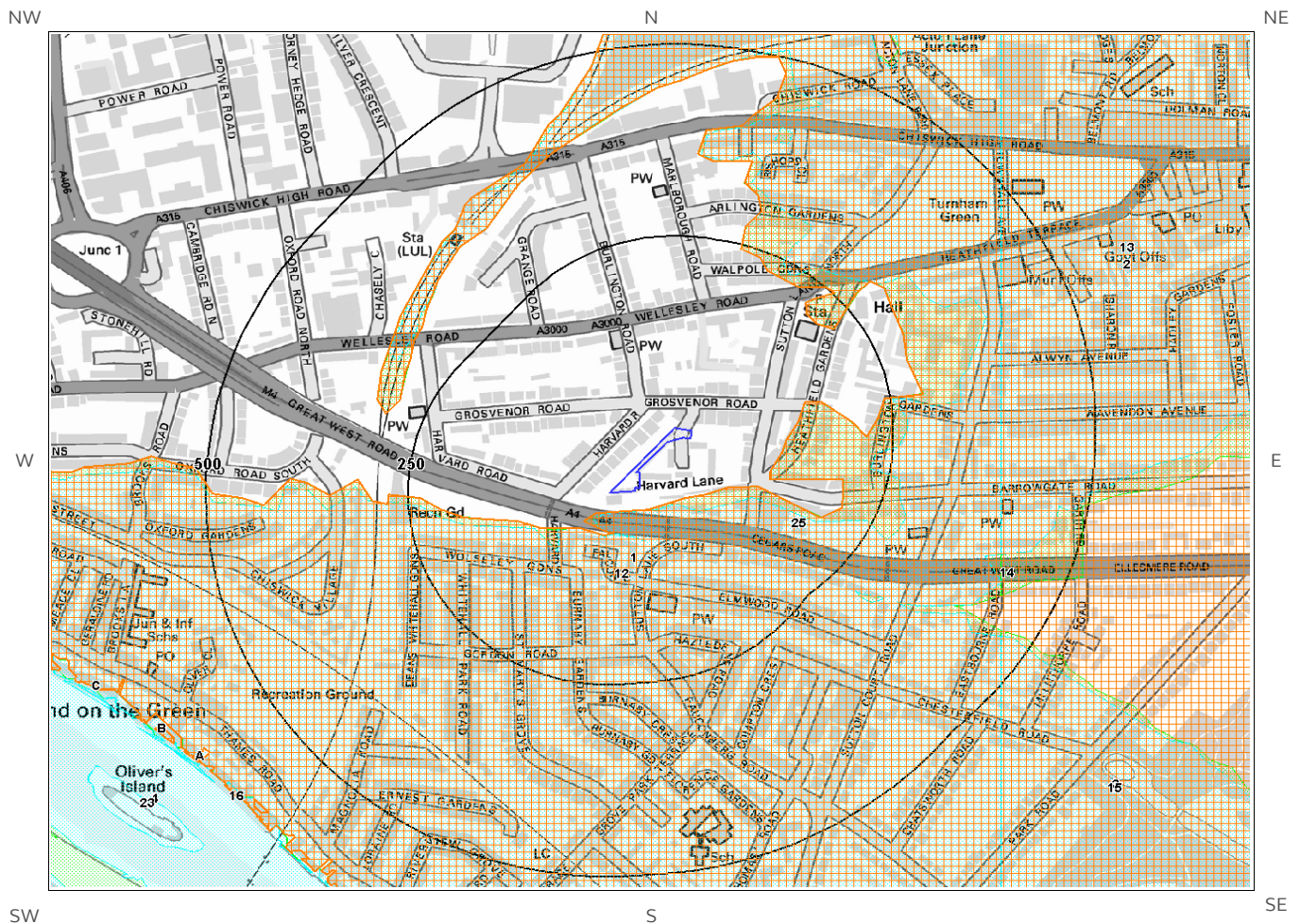
Database searched and no data found.

6.11 Surface Water Features

Surface water features within 250m of the study site None identified

Database searched and no data found.

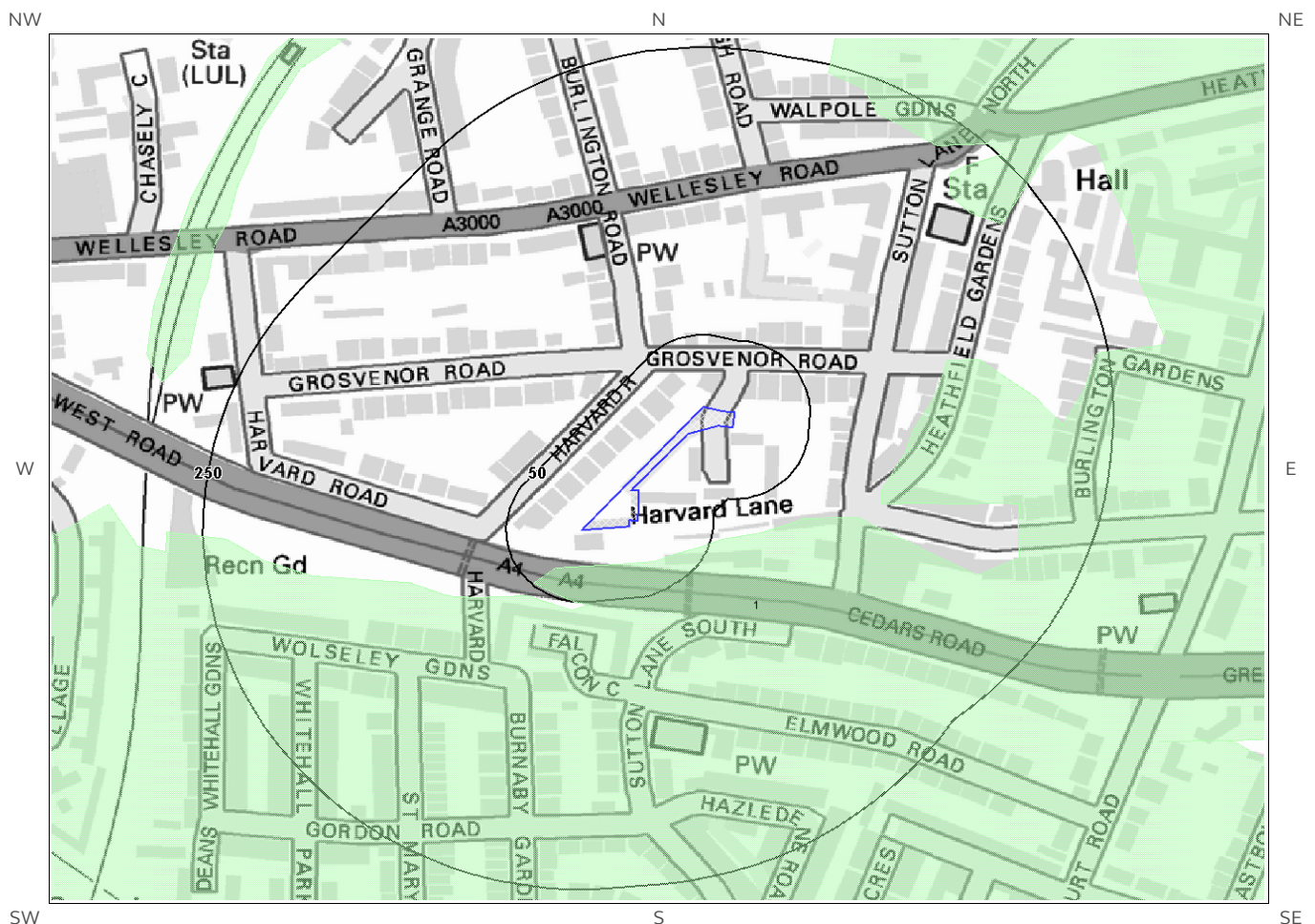
7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)



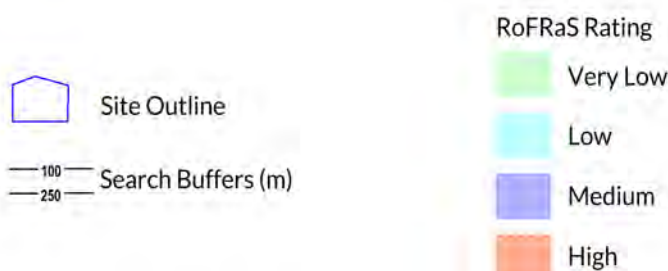
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7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map



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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	25	S	09-Sep-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	26	S	09-Sep-2019	Zone 3 - (Fluvial Models)

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

Highest risk of flooding onsite

Very Low

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

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

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	25.0	S	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.

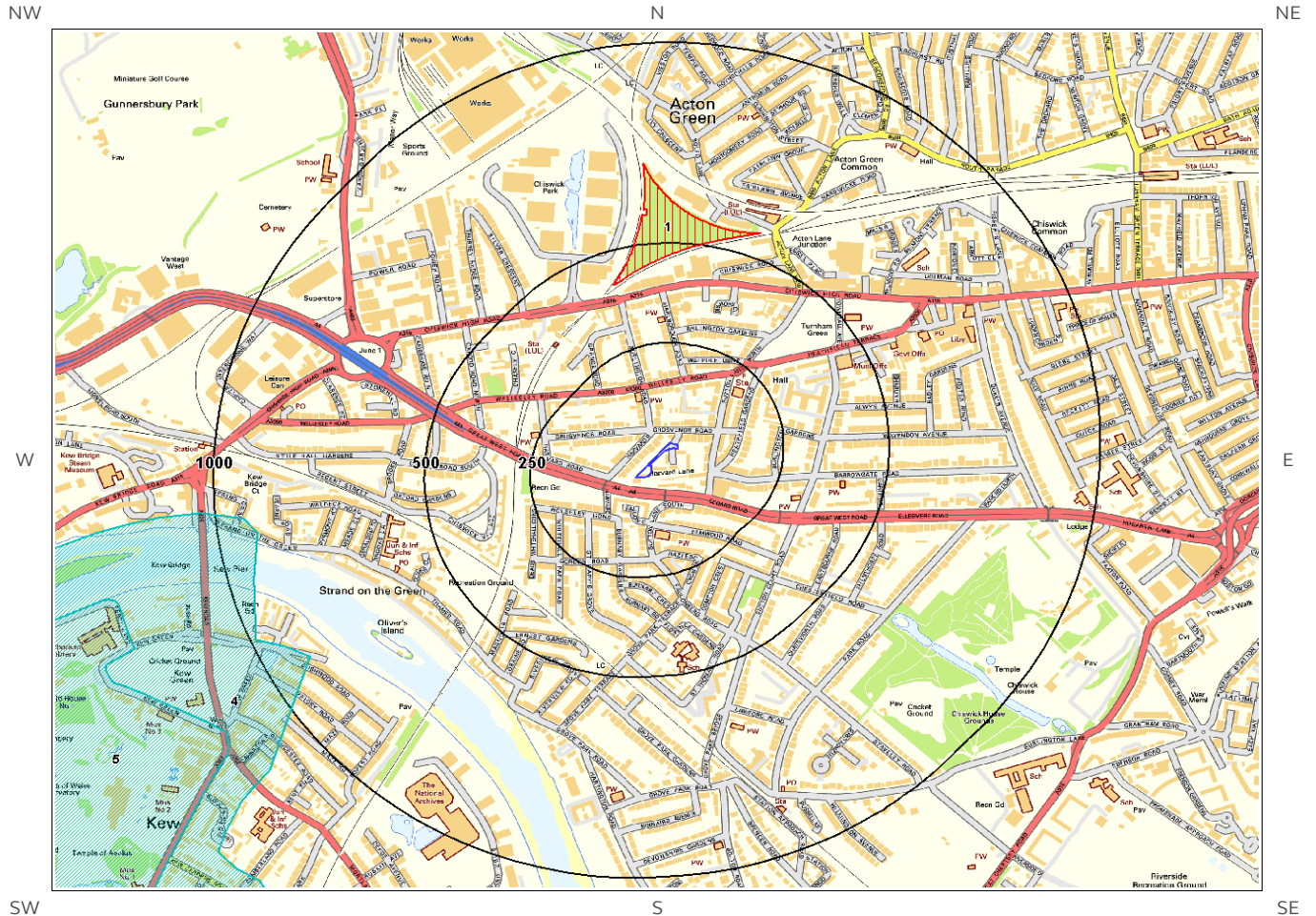
7.8 Groundwater Flooding Confidence Areas

British Geological Survey confidence rating in this result Moderate

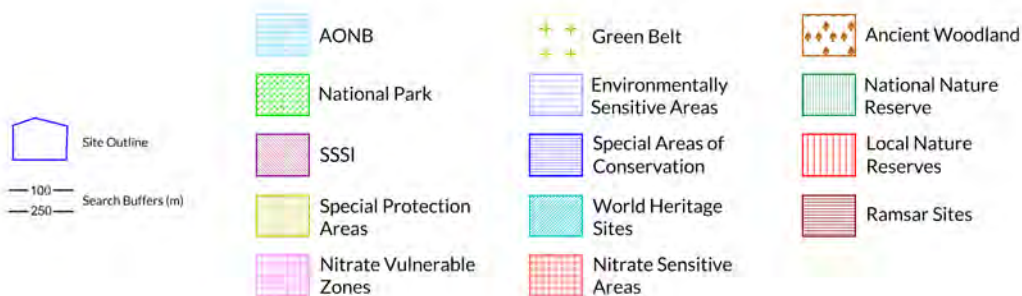
Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

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	415	N	Gunnersbury Triangle	Natural England
Not shown	1663	E	Chiswick Eyot	Natural England
Not shown	1700	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	892	SW	Royal Botanic Gardens, Kew Buffer Zone	Historic England
5	1159	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
Telephone: 08444 159 000
info@groundsure.com

British Geological Survey Enquiries

Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
Fax: 0115 936 3276.
Email:

Web: www.bgs.ac.uk

BGS Geological Hazards Reports and general geological enquiries:
enquiries@bgs.ac.uk

Environment Agency

National Customer Contact Centre, PO Box 544
Rotherham, S60 1BY
Tel: 03708 506 506

Web: www.environment-agency.gov.uk

Email: enquiries@environment-agency.gov.uk

Public Health England

Public information access office
Public Health England, Wellington House
133-155 Waterloo Road, London, SE1 8UG
www.gov.uk/phe

Email: enquiries@phe.gov.uk
Main switchboard: 020 7654 8000

The Coal Authority

200 Lichfield Lane
Mansfield
Notts NG18 4RG
Tel: 0345 7626 848
DX 716176 Mansfield 5
www.coal.gov.uk

Ordnance Survey

Adanac Drive, Southampton
SO16 0AS
Tel: 08456 050505

Local Authority

Authority: London Borough of Hounslow
Phone: 020 8583 2000

Web: <http://www.hounslow.gov.uk/>

Address: Civic Centre, Lampton Road, Hounslow, London, TW3 4DN

Gemapping PLC

Virginia Villas, High Street, Hartley Witney,
Hampshire RG27 8NW
Tel: 01252 845444



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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Address: 520097 178114,

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,



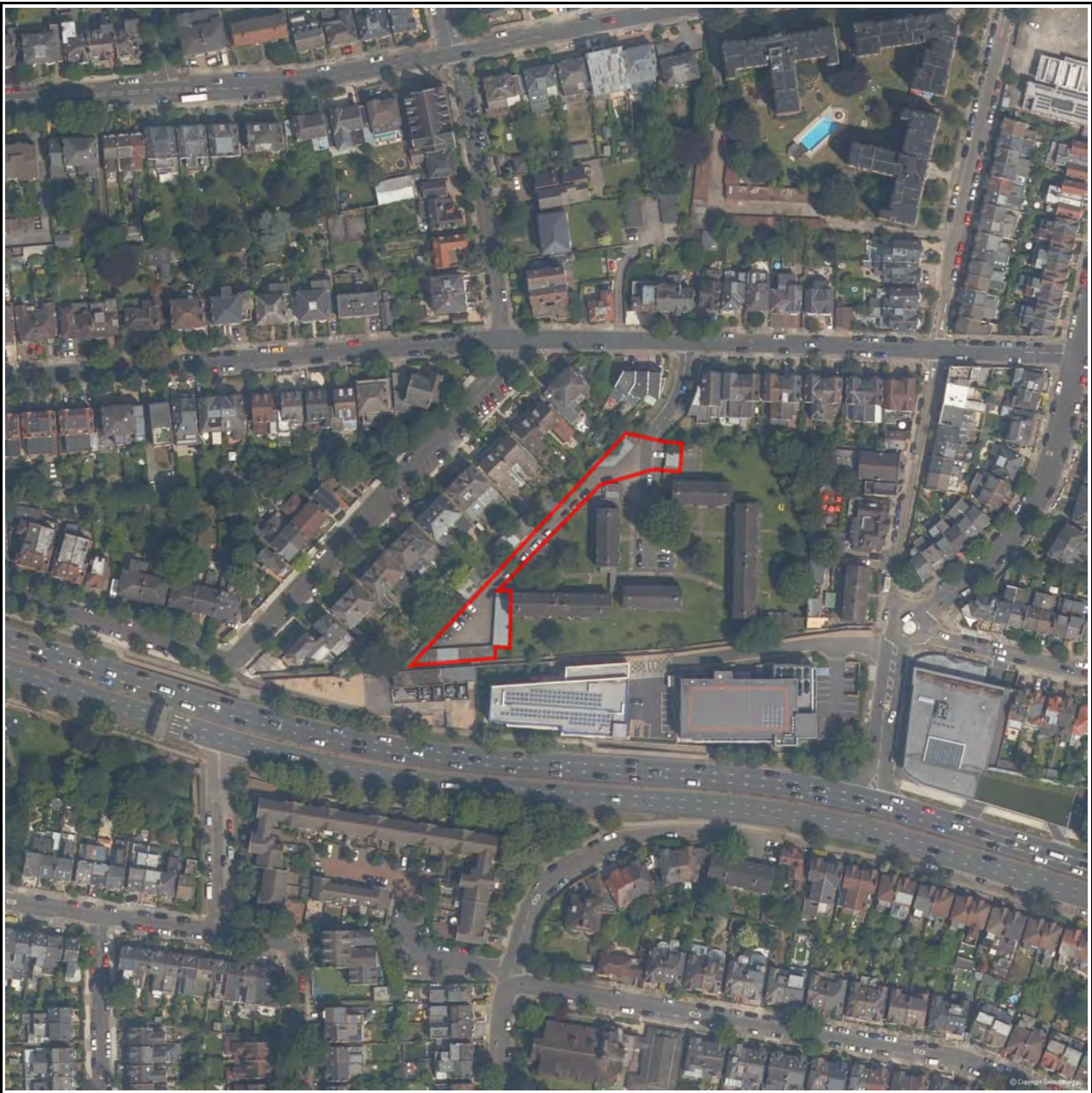
Managing Director
Groundsure Limited

Enc.
Groundsure Geo Insight

Address: 520097 178114,
Date: 8 Nov 2019
Reference: GS-6449766
Client: Arcadis Consulting UK Ltd

NW N NE

W E



SW S SE

Aerial Photograph Capture date: 20-Apr-2015
Grid Reference: 520074,178091
Site Size: 0.1271ha

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Overview of Findings

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

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

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

Section 1: Geology 1:10,000 Scale

1.1 Artificial Ground	1.1 Is there any Artificial Ground/ Made Ground present beneath the study site at 1:10,000 scale?	No
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?	No
	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	0	6	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	0	0	2

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

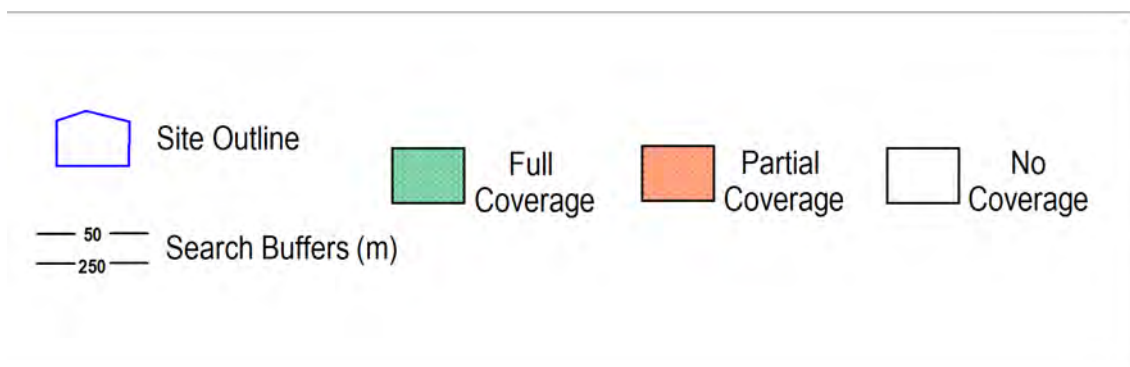
Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Cornwall and Devon Metalliferous Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0
Section 6: Natural Ground Subsidence	On-site				
6.1 Shrink-Swell Clay	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	23		
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	0	0	Not Searched	
9.2 Historical Railway and Tunnel Features	0	0	0	Not Searched	
9.3 Historical Railways	0	0	0	Not Searched	
9.4 Active Railways	0	0	0	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	27.0	Some deposits are mapped	Full	Full	No coverage
N3	1870.0	Some deposits are mapped	Full	Full	No coverage
N4	1873.0	Some deposits are mapped	Full	Full	No coverage

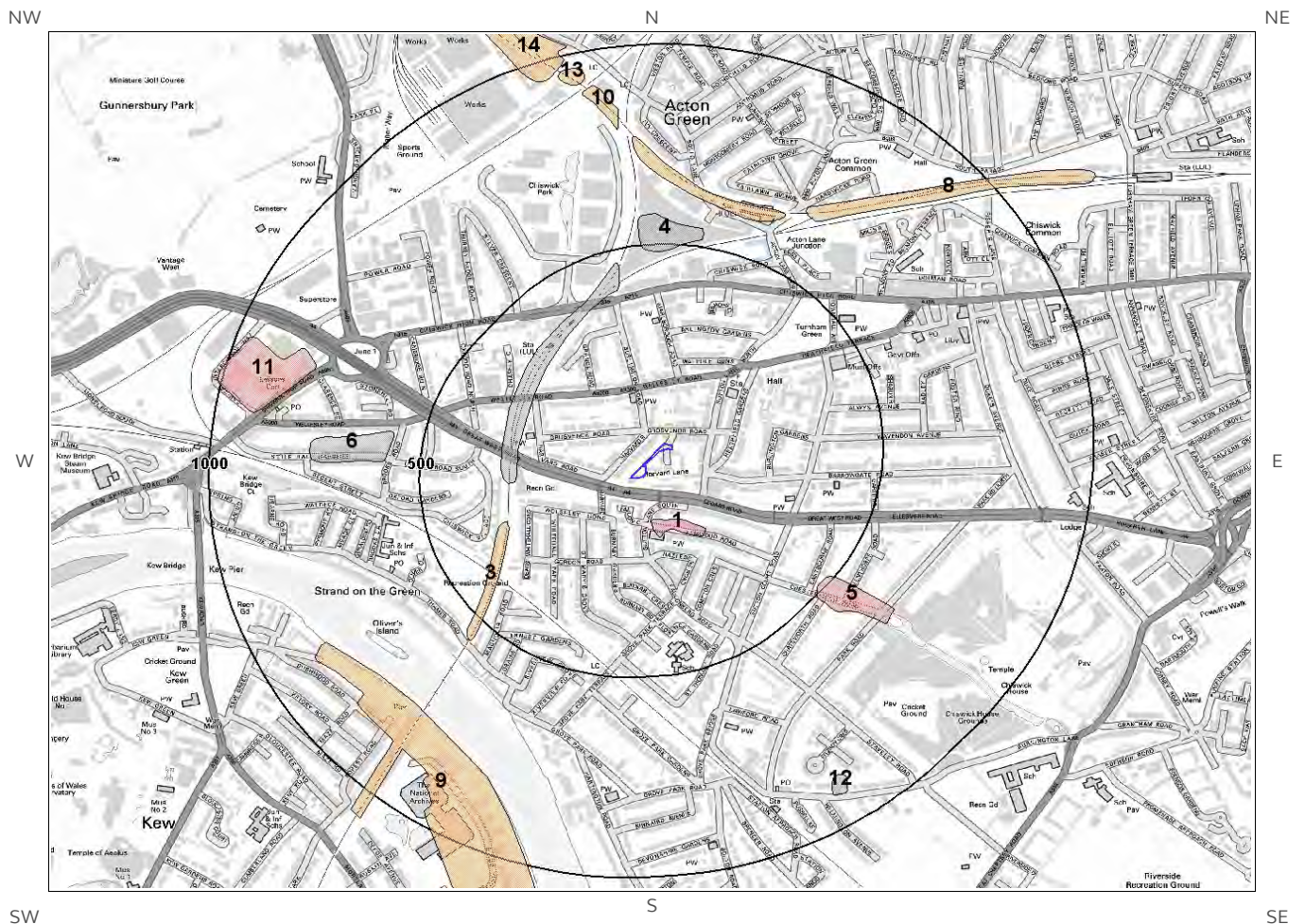
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not 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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1. Geology 1:10,000 scale

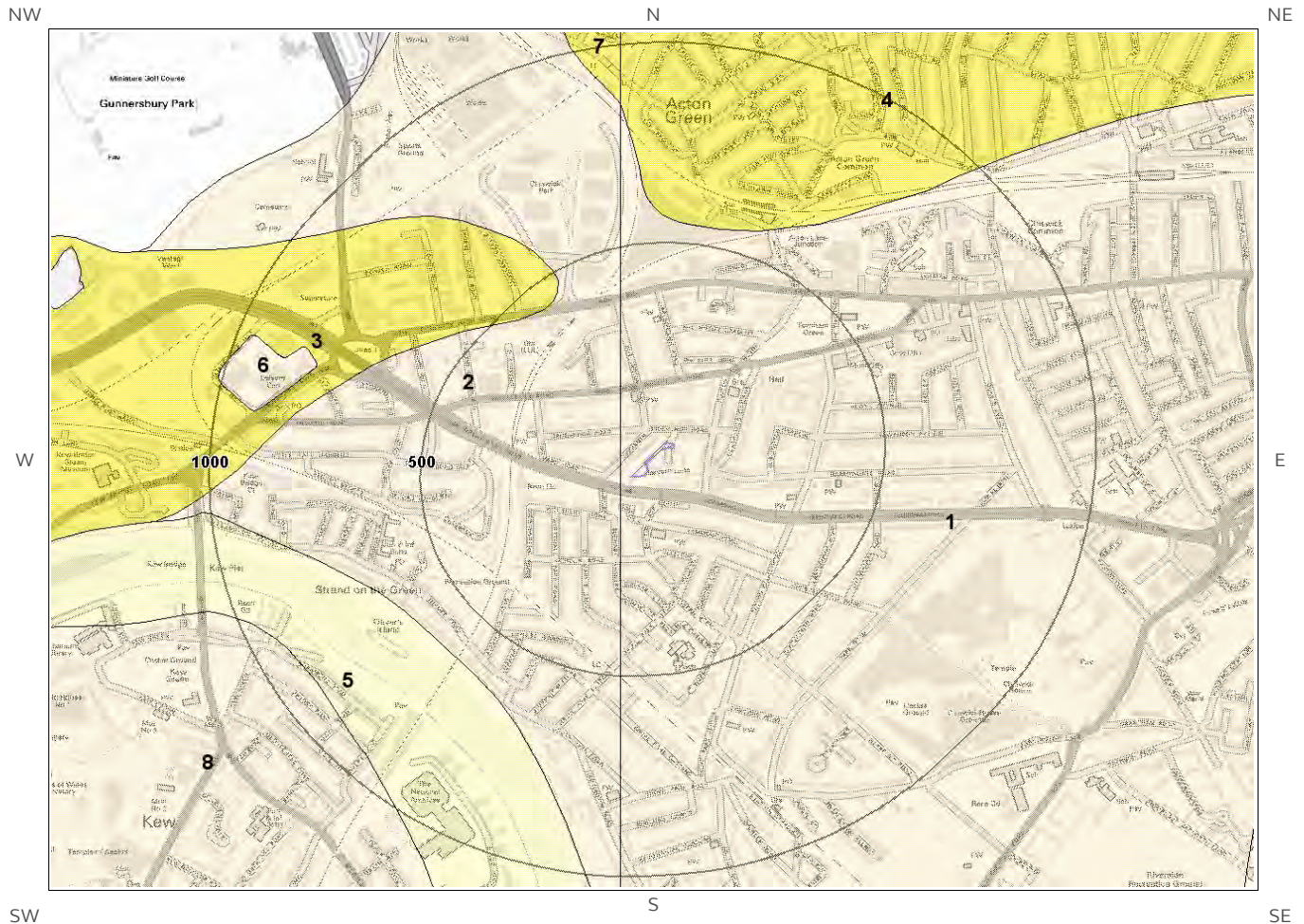
1.1 Artificial Ground

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

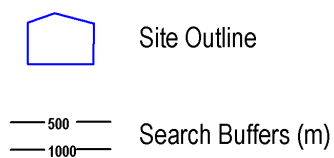
ID	Distance	Direction	LEX Code	Description	Rock Description
1	108.0	S	WMGR-UNKNOWN	Infilled Ground	Unknown/unclassified Entry
2	269.0	W	WGR-UNKNOWN	Worked Ground (Undivided)	Unknown/unclassified Entry
3	312.0	W	MGR-UNKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry
4	482.0	N	WGR-UNKNOWN	Worked Ground (Undivided)	Unknown/unclassified Entry
5	483.0	SE	WMGR-UNKNOWN	Infilled Ground	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	27.0	W	KPGR-XSV	Kempton Park Gravel Formation - Sand And Gravel	Sand And Gravel
3	437.0	NW	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

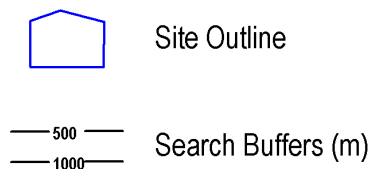
This Geology shows the main components as discrete layers, these are: Artificial / Made Ground, Superficial / Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

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	27.0	W	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

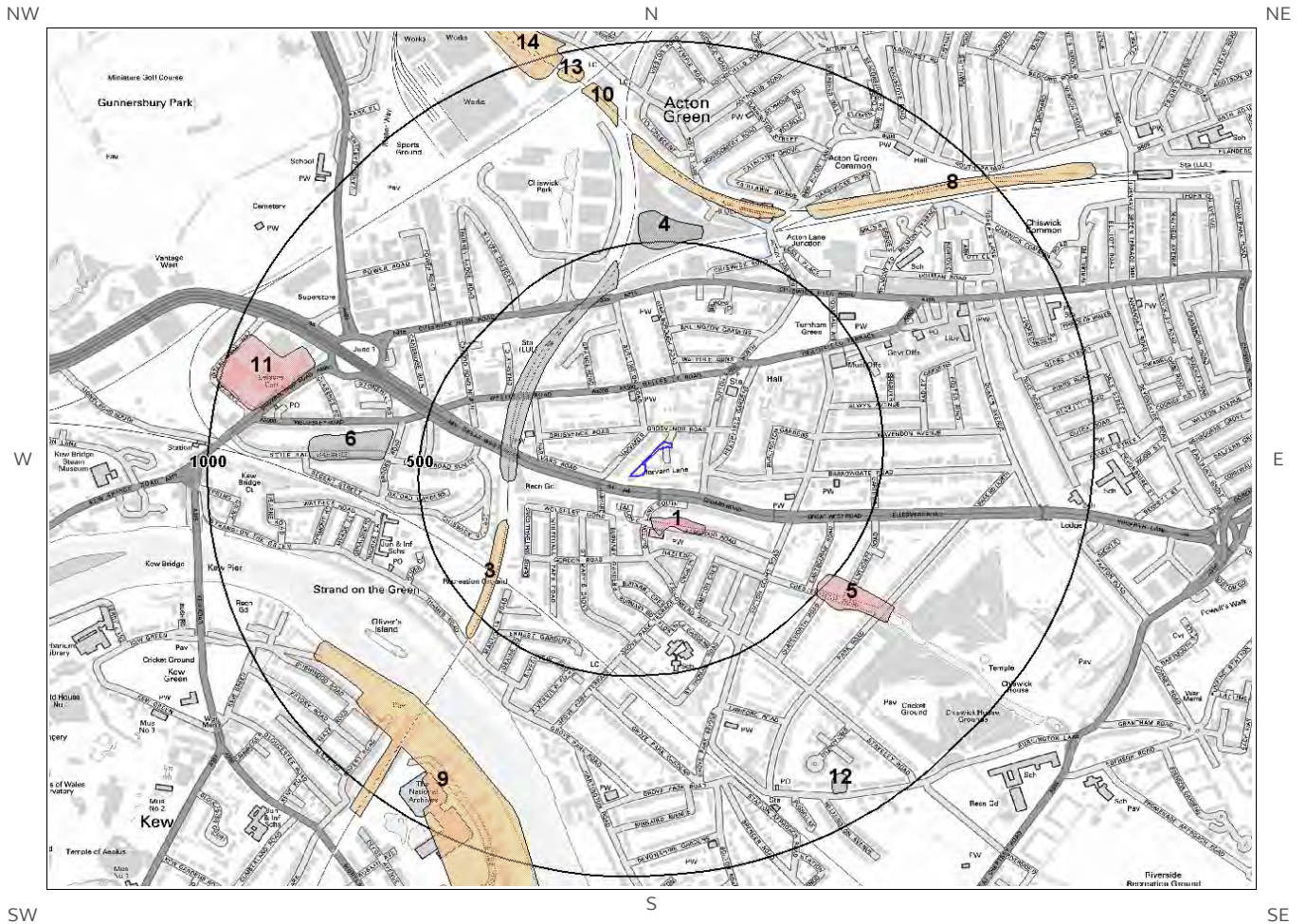
Database searched and no data found at this scale.

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.

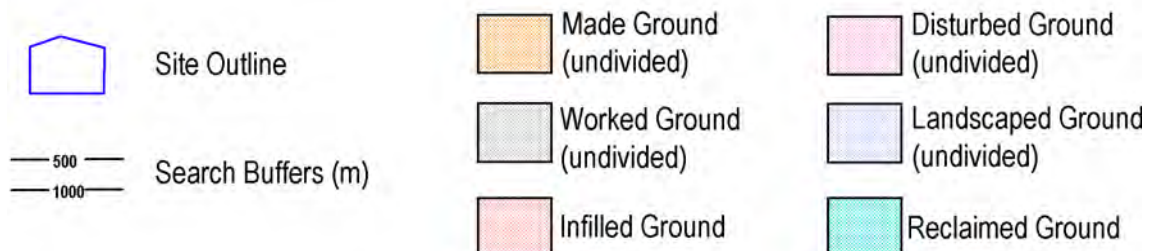
This Geology shows the main components as discrete layers, these are: Bedrock/ Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

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

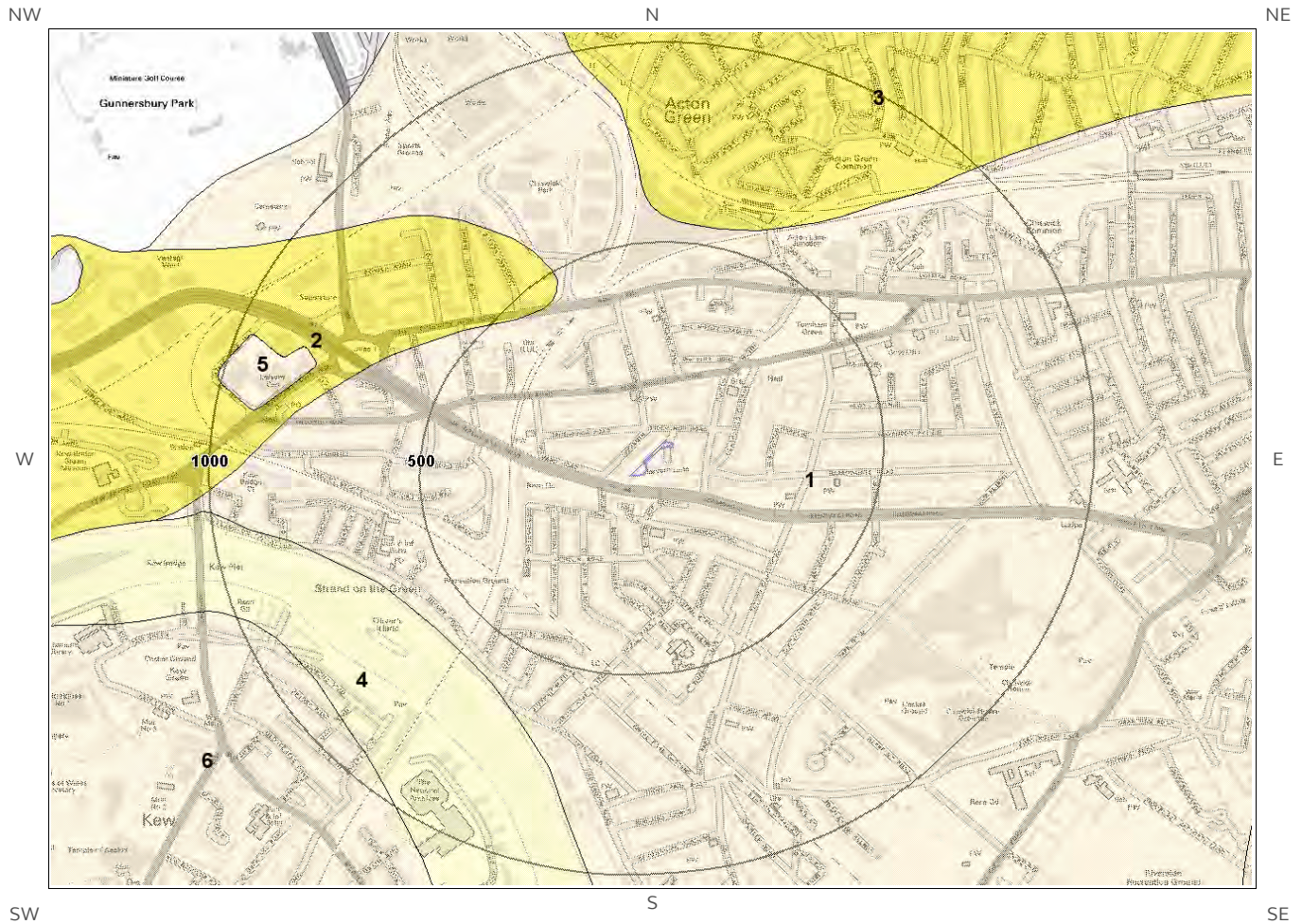
ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	108.0	S	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
2	270.0	W	WGR-VOID	WORKED GROUND (UNDIVIDED)	VOID
3	312.0	W	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
4	481.0	N	WGR-VOID	WORKED GROUND (UNDIVIDED)	VOID
5	483.0	SE	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT

2.1.2 Permeability of Artificial Ground

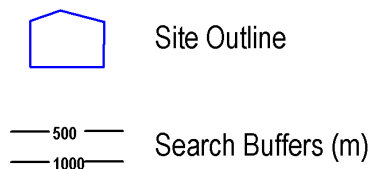
Are there any records relating to permeability of artificial ground within the study site boundary? No

Database searched and no data found.

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



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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	437.0	NW	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
27.0	W	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.

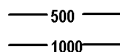
2.3 Bedrock and linear features map (1:50,000 scale)



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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
27.0	W	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

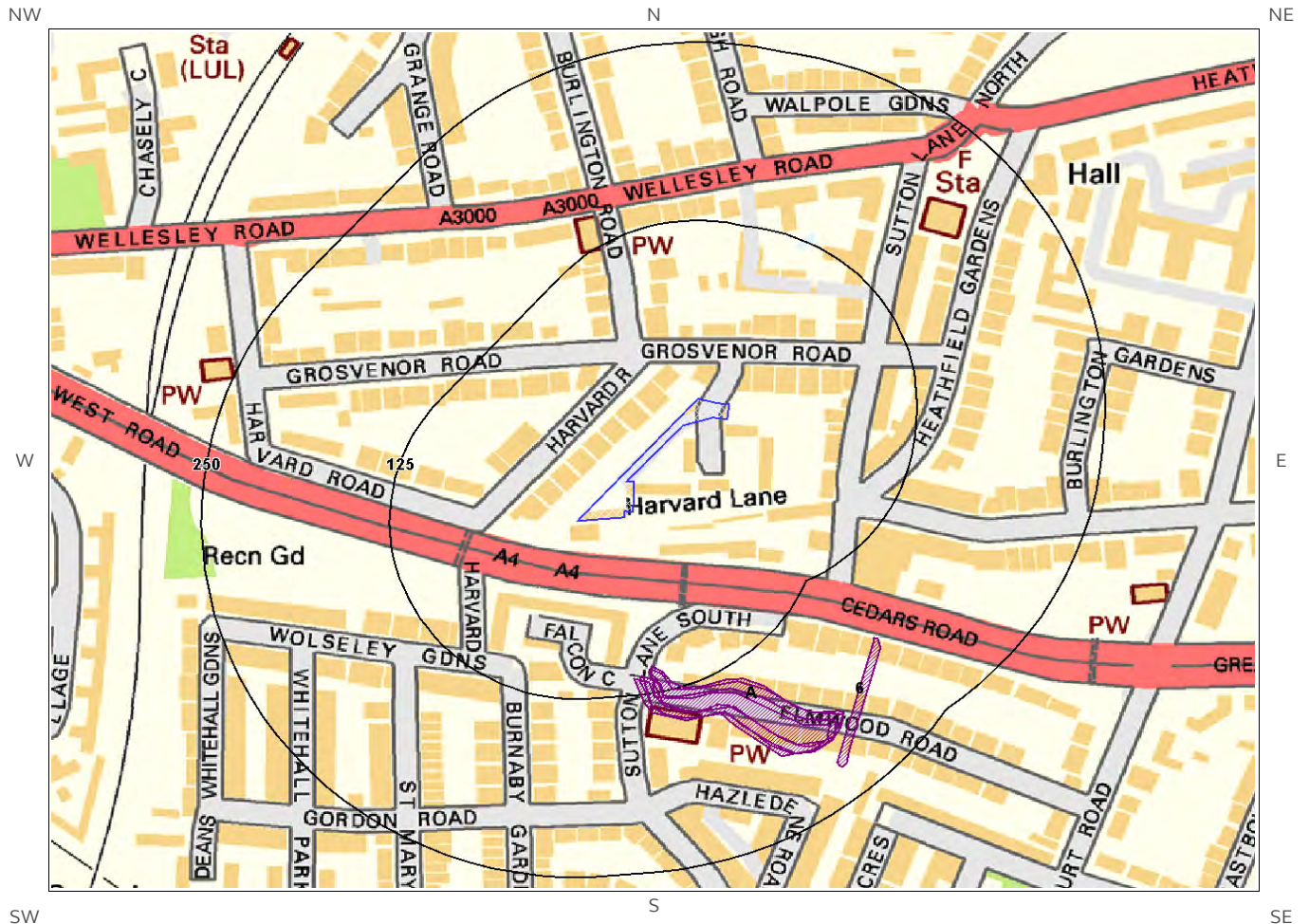
Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

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



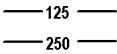


Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

4 Ground Workings map



Ground Workings Legend

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-  Site Outline
-  Historic Surface Ground Workings
-  Historic Underground Workings
-  Current Ground Workings
-  Search Buffers (m)

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	106.0	S	520139 177915	Pond	1873
2A	108.0	S	520139 177913	Fish Pond	1893
3A	112.0	S	520133 177908	Fish Pond	1898
4A	113.0	S	520135 177908	Fish Pond	1911
5A	114.0	S	520130 177906	Fish Pond	1894
6	182.0	SE	520214 177917	Pond	1873

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

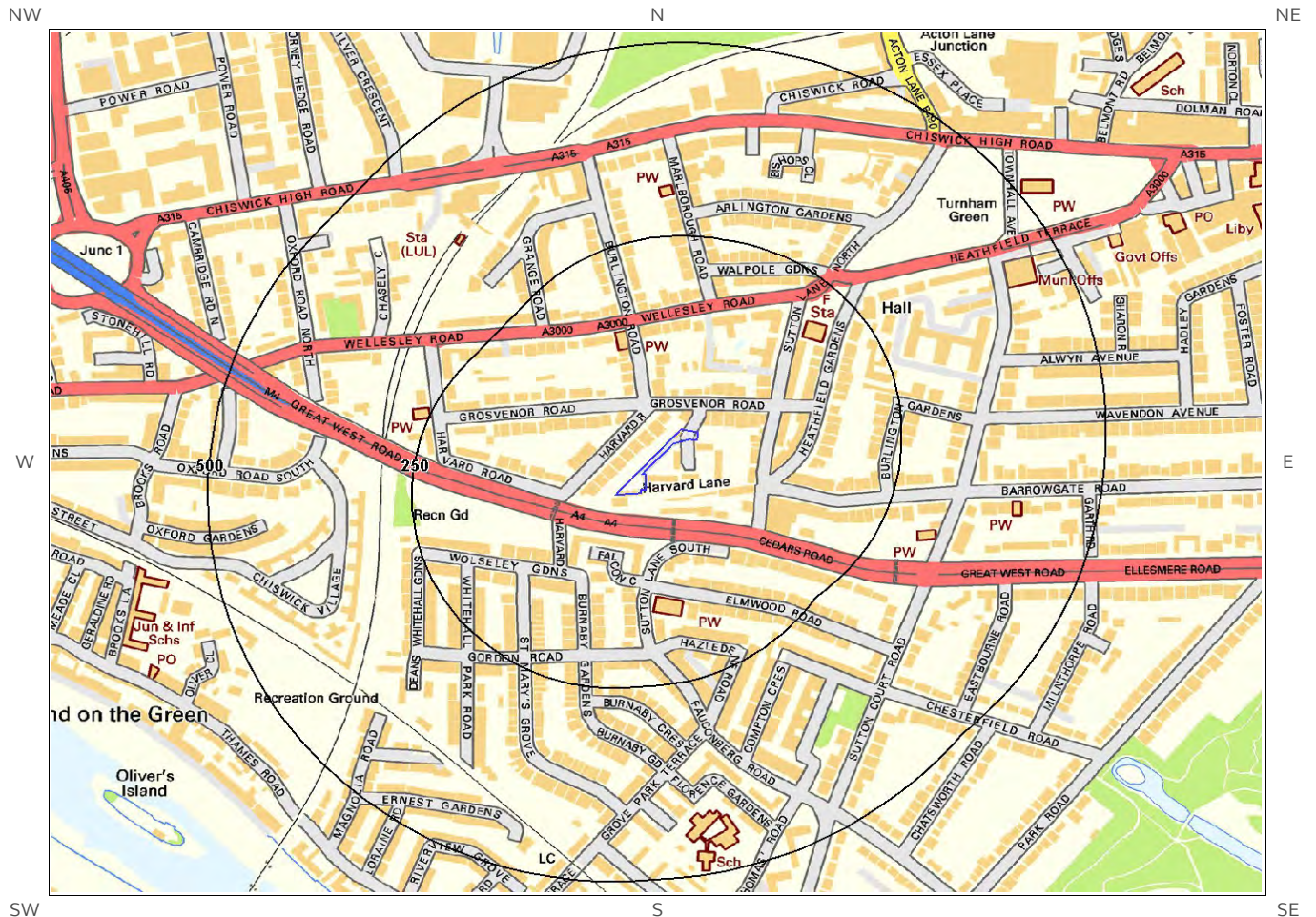
This dataset is derived from the BGS BRITPITS database covering active; inactive mines; quarries; oil wells; gas wells and mineral wharves; and rail deposits throughout the British Isles.

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:

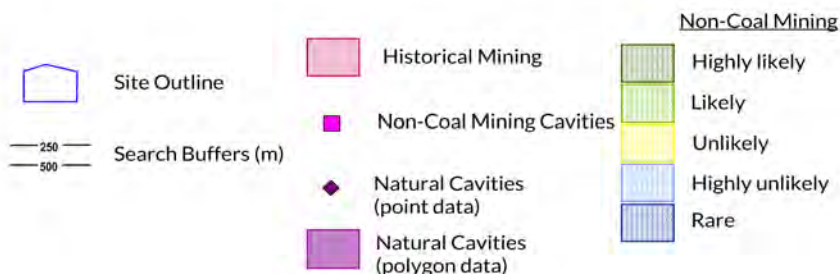
ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	523.0	N	520099 178653	Sand & Gravel	Acton Curve Ballast Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	905.0	SE	520544 177283	Sand & Gravel	Burlington Lane Gravel 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 Cornwall and Devon Metalliferous Mining

This dataset provides information on metalliferous mining areas in Cornwall/Devon and is derived from records held by Mining Searches UK.

Are there any Cornwall and Devon Metalliferous Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.10 Clay Mining

This dataset provides information on Kaolin and Ball Clay mining from relevant mining records.

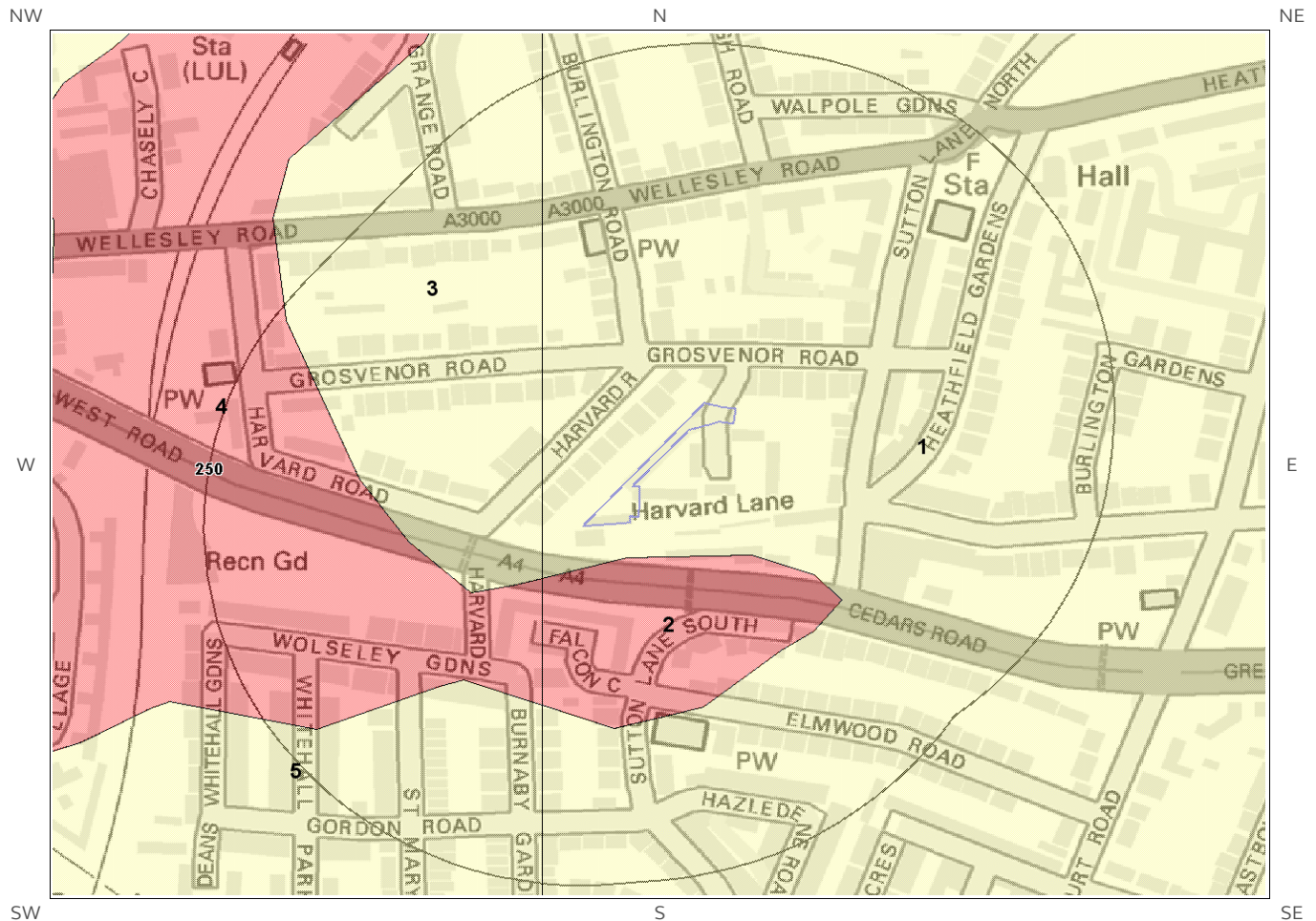
Are there any Clay Mining areas within 1000m of the study site boundary?

No

Database searched and no data found.

6 Natural Ground Subsidence

6.1 Shrink-Swell Clay map

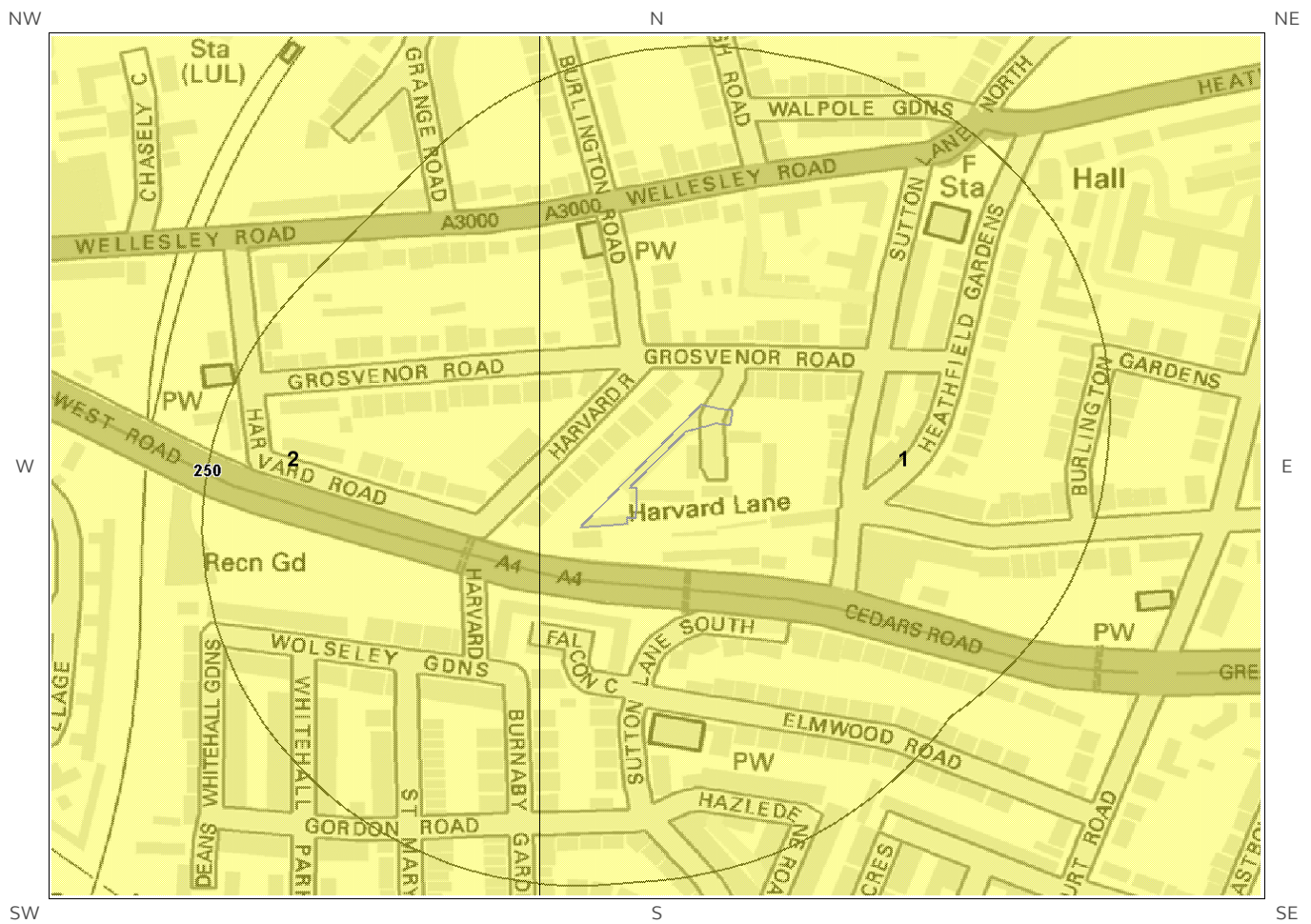


Shrink Swell Clay Legend

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6.2 Landslides map



Landslides Legend

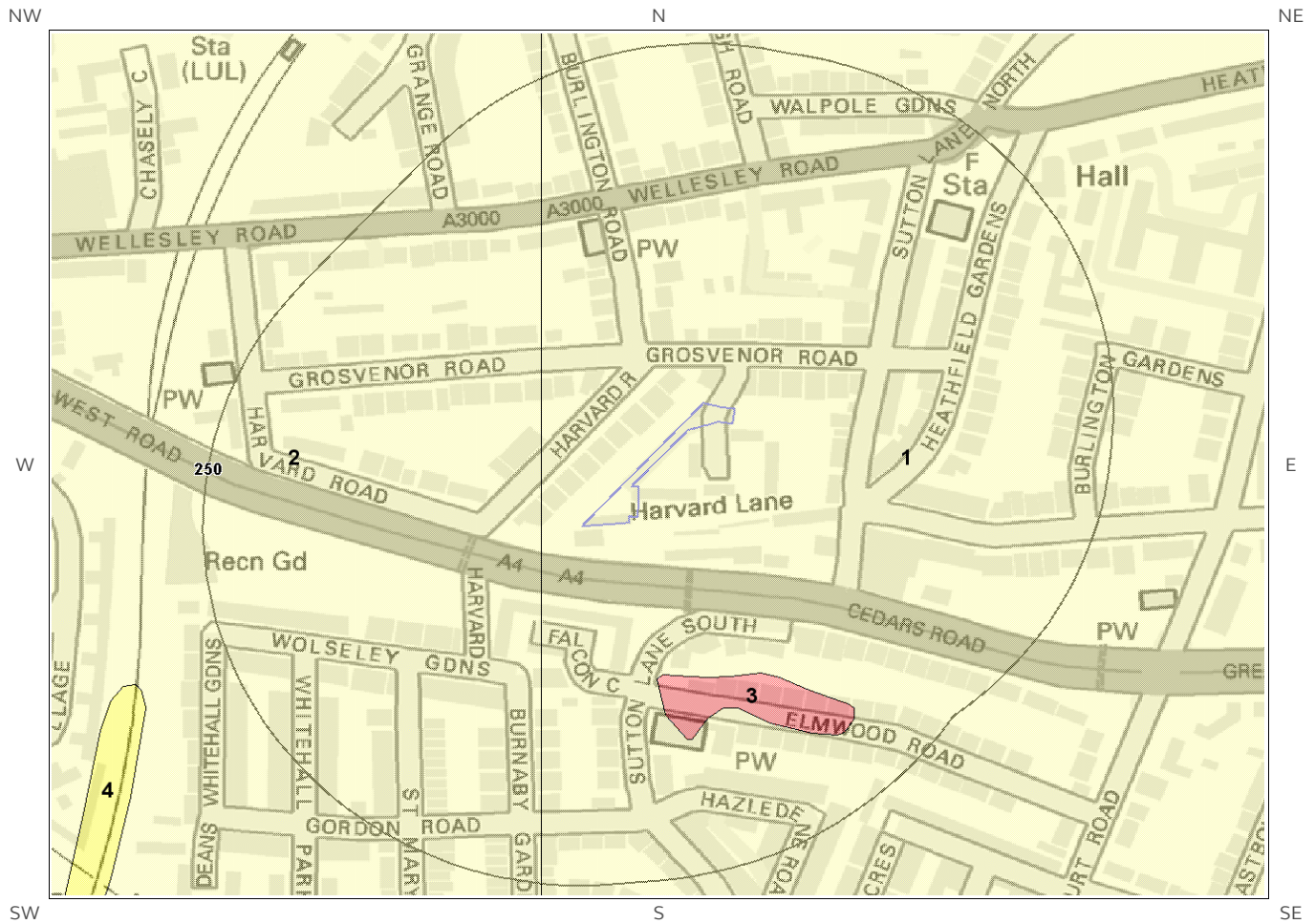
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6.3 Ground Dissolution of Soluble Rocks map



6.4 Compressible Deposits map

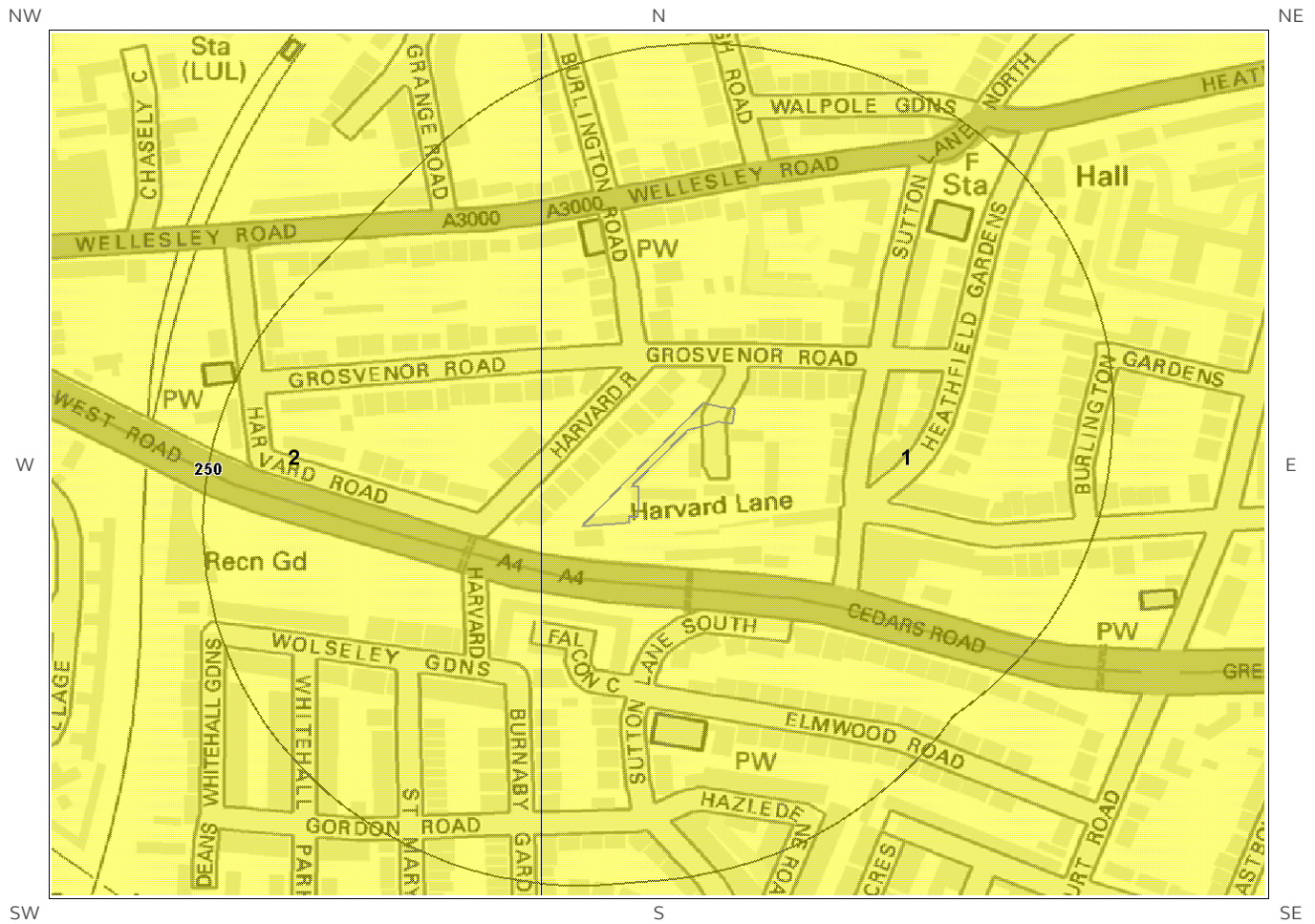


Compressible Deposits Legend

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6.5 Collapsible Deposits map

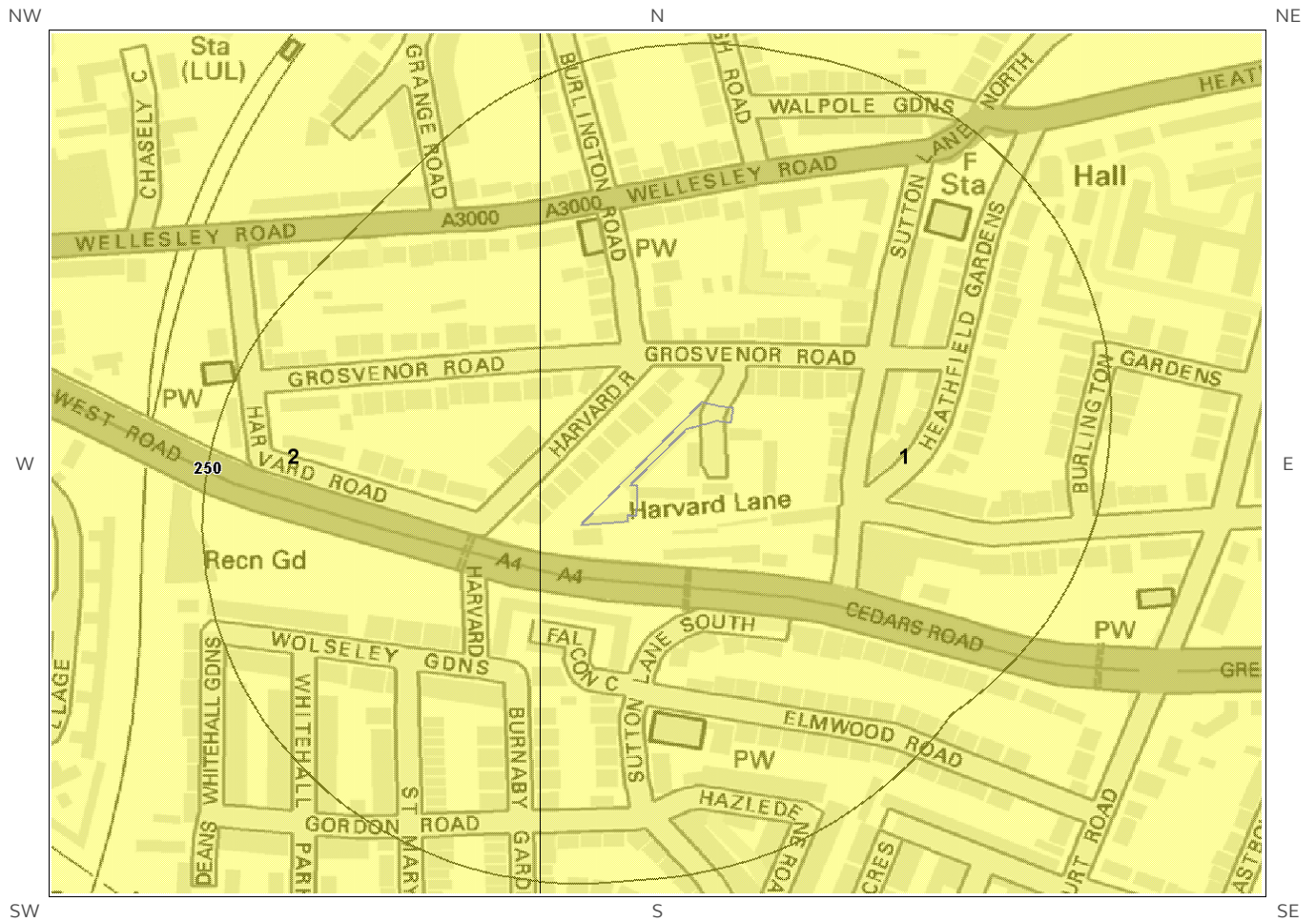


Collapsible Deposits Legend

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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	24.0	S	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	27.0	W	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	45.0	SW	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	27.0	W	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	27.0	W	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	27.0	W	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:

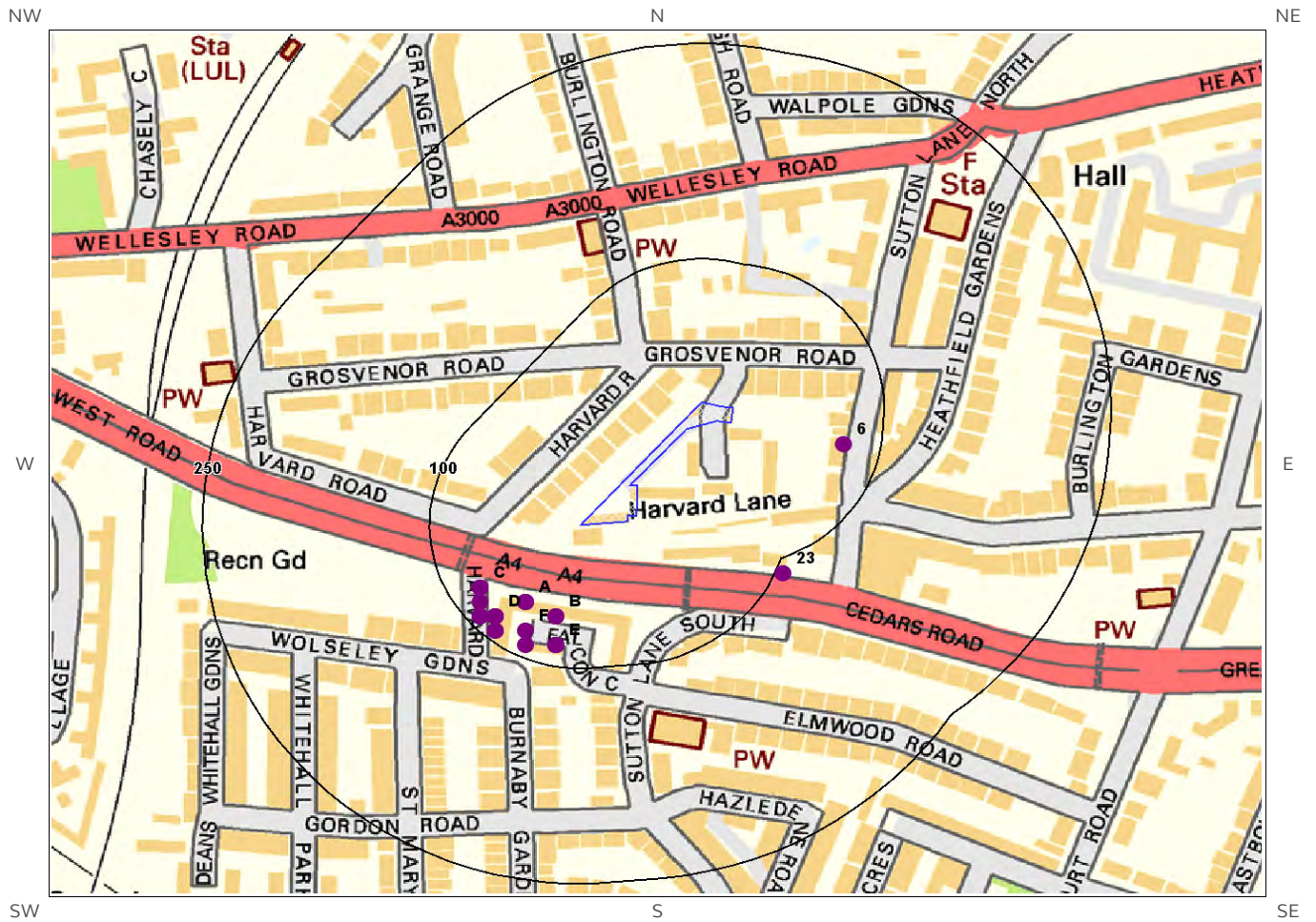
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.
2	27.0	W	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:

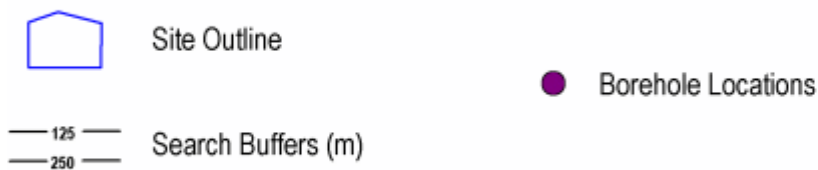
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.
2	27.0	W	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: 23

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1A	65.0	SW	519990 177990	TQ17NE380	No details	GUNNERSBURY PREPARATORY SCHOOL HOUSING DEVELOPMENT 4B
2A	65.0	SW	519990 177990	TQ17NE388	No details	GUNNERSBURY PREPARATORY SCHOOL HOUSING DEVELOPMENT TP4
3A	65.0	SW	519990 177990	TQ17NE378	No details	GUNNERSBURY PREPARATORY SCHOOL HOUSING DEVELOPMENT 4A
4B	66.0	S	520010 177980	TQ27NW705	No details	GUNNERSBURY PREPARATORY SCHOOL HOUSING DEVELOPMENT 7B
5B	66.0	S	520010 177980	TQ27NW704	No details	GUNNERSBURY PREPARATORY SCHOOL HOUSING DEVELOPMENT 7A
6	75.0	E	520200 178100	TQ27NW76	4	SUTTON LANE & FALCONBERG RD CHISWICK W.4
7C	80.0	SW	519960 178000	TQ17NE375	No details	GUNNERSBURY PREPARATORY SCHOOL HOUSING DEVELOPMENT 2A
8C	80.0	SW	519960 178000	TQ17NE376	No details	GUNNERSBURY PREPARATORY SCHOOL HOUSING DEVELOPMENT 2B
9F	83.0	SW	519990 177970	TQ17NE383	No details	GUNNERSBURY PREPARATORY SCHOOL HOUSING DEVELOPMENT 6A
10D	86.0	SW	519970 177980	TQ17NE379	No details	GUNNERSBURY PREPARATORY SCHOOL HOUSING DEVELOPMENT 3B
11D	86.0	SW	519970 177980	TQ17NE387	No details	GUNNERSBURY PREPARATORY SCHOOL HOUSING DEVELOPMENT TP3
12D	86.0	SW	519970 177980	TQ17NE377	No details	GUNNERSBURY PREPARATORY SCHOOL HOUSING DEVELOPMENT 3A

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
13E	86.0	S	520010 177960	TQ27NW709	No details	GUNNERSBURY PREPARATORY SCHOOL HOUSING DEVELOPMENT TP6
14E	86.0	S	520010 177960	TQ27NW706	No details	GUNNERSBURY PREPARATORY SCHOOL HOUSING DEVELOPMENT 8A
15E	86.0	S	520010 177960	TQ27NW707	No details	GUNNERSBURY PREPARATORY SCHOOL HOUSING DEVELOPMENT 8B
16E	86.0	S	520010 177960	TQ27NW708	No details	GUNNERSBURY PREPARATORY SCHOOL HOUSING DEVELOPMENT TP5
17D	86.0	SW	519960 177990	TQ17NE386	No details	GUNNERSBURY PREPARATORY SCHOOL HOUSING DEVELOPMENT TP2
18F	92.0	SW	519990 177960	TQ17NE384	No details	GUNNERSBURY PREPARATORY SCHOOL HOUSING DEVELOPMENT 6B
19D	93.0	SW	519960 177980	TQ17NE374	No details	GUNNERSBURY PREPARATORY SCHOOL HOUSING DEVELOPMENT 1A
20D	93.0	SW	519960 177980	TQ17NE385	No details	GUNNERSBURY PREPARATORY SCHOOL HOUSING DEVELOPMENT TP1
21D	93.0	SW	519970 177970	TQ17NE381	No details	GUNNERSBURY PREPARATORY SCHOOL HOUSING DEVELOPMENT 5A
22D	93.0	SW	519970 177970	TQ17NE382	No details	GUNNERSBURY PREPARATORY SCHOOL HOUSING DEVELOPMENT 5B
23	105.0	SE	520160 178010	TQ27NW590	4.87	SUTTON LANE, CHISWICK

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.

#6: scans.bgs.ac.uk/sobi_scans/boreholes/586655
#23: scans.bgs.ac.uk/sobi_scans/boreholes/587185

8 Estimated Background Soil Chemistry

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

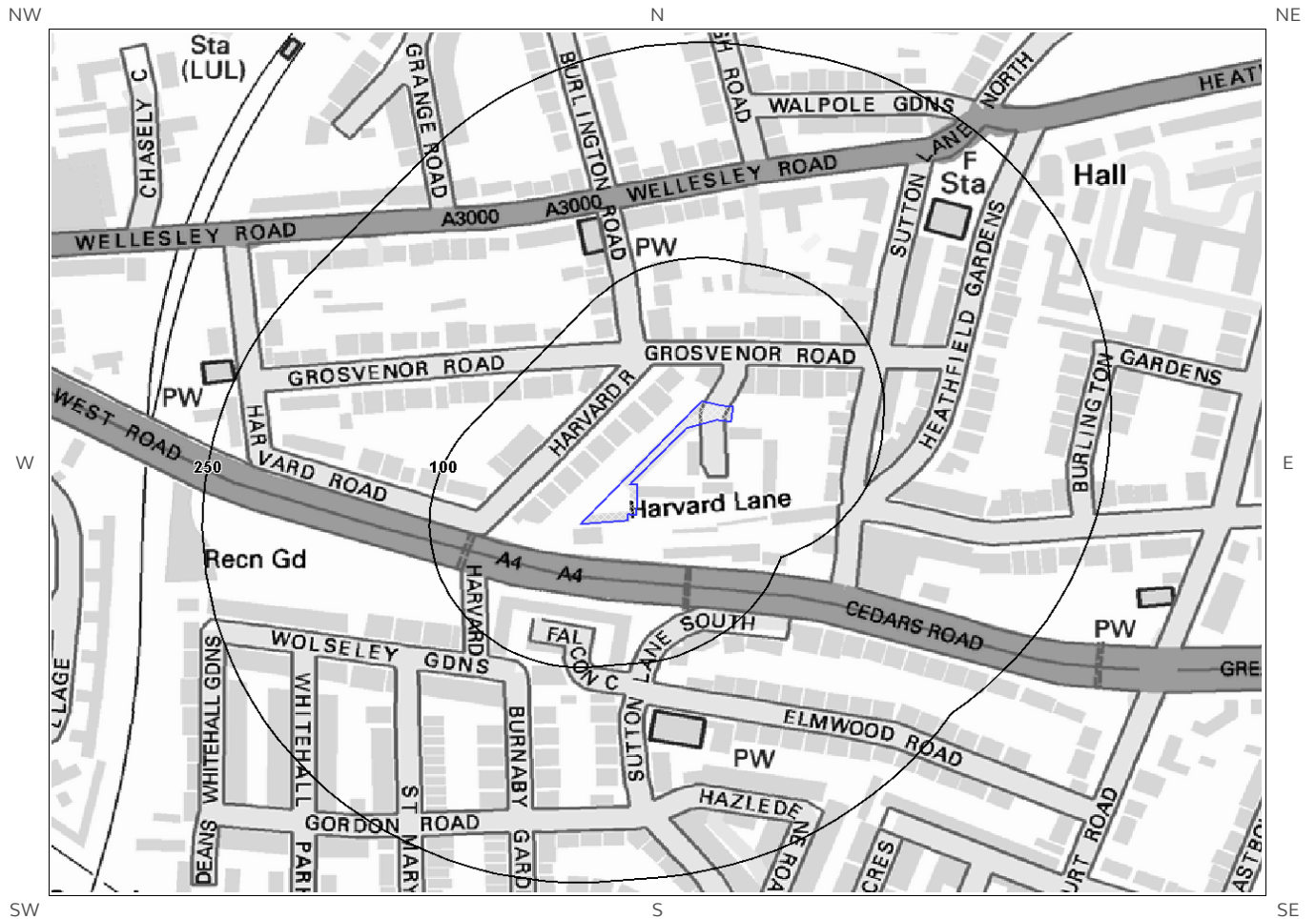
3

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
27.0	W	London	No data	No data	No data	No data	No data
44.0	S	London	No data	No data	No data	No data	No data

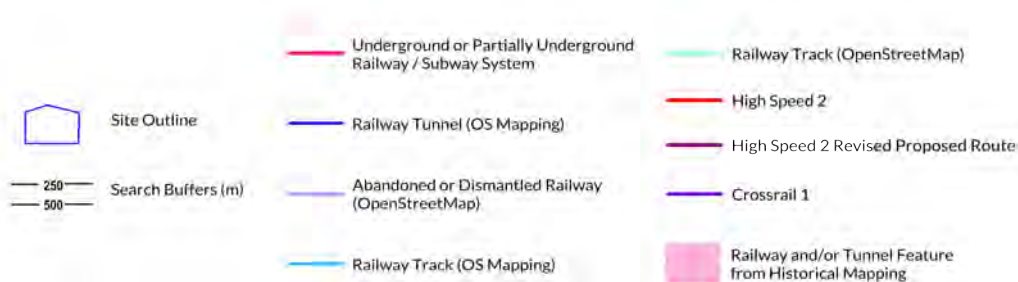
*As this data is based upon underlying 1:50,000 scale geological information, a 50m buffer has been added to the search radius.

9 Railways and Tunnels map



Railways and Tunnels Legend

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© OpenStreetMapContributors



9 Railways and Tunnels

9.1 Tunnels

This data is derived from OpenStreetMap and provides information on the possible locations of underground railway systems in the UK - the London Underground, the Tyne & Wear Metro and the Glasgow Subway.

Have any underground railway lines been identified within the study site boundary? No

Have any underground railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

This data is derived from Ordnance Survey mapping and provides information on the possible locations of railway tunnels forming part of the UK overground railway network.

Have any other railway tunnels been identified within the site boundary? No

Have any other railway tunnels been identified within 250m of the site boundary? 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? No

Database searched and no data found.

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? 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.

9.5 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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Telephone: 08444 159 000
info@groundsure.com



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Tel: 0115 936 3143.
Fax: 0115 936 3276.
Email: enquiries@bgs.ac.uk
Web: www.bgs.ac.uk



BGS Geological Hazards Reports and general geological enquiries

British Gypsum

British Gypsum Ltd
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Loughborough
Leicestershire
LE12 6HX



The Coal Authority

200 Lichfield Lane
Mansfield
Notts NG18 4RG
Tel: 0345 7626 848
DX 716176 Mansfield 5
www.coal.gov.uk



Public Health England

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Public Health England, Wellington House
133-155 Waterloo Road, London, SE1 8UG
<https://www.gov.uk/government/organisations/public-health-england>
Email: enquiries@phe.gov.uk
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<https://www.groundsure.com/terms-and-conditions-feb11-2019>

APPENDIX C

Site Photographs

CLIENT:	London Borough of Hounslow	DATE:	11/2019	 ARCADIS		Design & Consultancy for natural and built assets
REFERENCE:	10030793	SITE NAME:	Beaconsfield Close	2 Glass Wharf, Temple Quay, Bristol, BS2 0FR		T: 0161 245 8700 F: 0161 245 8701
Plate 1 – View of the three garages from Beaconsfield Close to the west of Site 20A						
Plate 2 – View towards the northeast of the Site 20A						

CLIENT:	London Borough of Hounslow	DATE:	11/2019	 ARCADIS Design & Consultancy for natural and built assets	
REFERENCE:	10030793	SITE NAME:	Beaconsfield Close	2 Glass Wharf, Temple Quay, Bristol, BS2 0FR	T: 0161 245 8700 F: 0161 245 8701
Plate 3 – View of the four garages to the east and the storage room to the south east of the Site 20B					
Plate 4 – View of the large crack through the brickwork on the south-east corner of the building of Site 20B					

CLIENT:	London Borough of Hounslow	DATE:	11/2019	 ARCADIS		Design & Consultancy for natural and built assets
REFERENCE:	10030793	SITE NAME:	Beaconsfield Close	2 Glass Wharf, Temple Quay, Bristol, BS2 0FR		T: 0161 245 8700 F: 0161 245 8701
Plate 5 – View to the northeast of Site20B, with adjacent Beaconsfield close Road visible.						
Plate 6 – View of the garages and car parking space, looking from the west to the east of the Site 20C						

CLIENT:	London Borough of Hounslow	DATE:	11/2019	 ARCADIS Design & Consultancy for natural and built assets	
REFERENCE:	10030793	SITE NAME:	Beaconsfield Close	2 Glass Wharf, Temple Quay, Bristol, BS2 0FR	T: 0161 245 8700 F: 0161 245 8701
Plate 7 – View of the other garages of Site 20C, looking from the north towards the south					
Plate 8 – View of the five storerooms to the north of the Site 20C.					

CLIENT:	London Borough of Hounslow	DATE:	11/2019	 ARCADIS Design & Consultancy for natural and built assets	
REFERENCE:	10030793	SITE NAME:	Beaconsfield Close	2 Glass Wharf, Temple Quay, Bristol, BS2 0FR	T: 0161 245 8700 F: 0161 245 8701
Plate 9 – View of the garages of Site 20C, looking from west towards southeast					
Plate 10 – View of the downpipe on the northern end of Site 20C, discharging into the surface drain					

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