

LONDON BOROUGH OF TOWER HAMLETS – SMALL SITES INITIATIVE LARK ROW, E2 9JA




Geotechnical and Geo-Environmental Desk Study

AUGUST 2019



Lark Row, E2 9JA

Geotechnical and Geo-Environmental Desk Study

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1 INTRODUCTION

1.1 Terms of Reference

Arcadis Consulting (UK) Limited (Arcadis) has been commissioned by London Borough of Tower Hamlets (LBTH) 'the Client' to undertake a number of technical surveys for a site at Lark Row ('the Site').

LBTH is seeking to unlock small, publicly owned sites in the borough. This is with the aim to increase the supply of small surplus sites to market, potentially increase affordable housing availability and, at the same time, to encourage individual and community led housebuilders to take on the sites for development.

In preparation for marketing the sites to prospective purchasers (autumn 2019), LBTH is commissioning planning, legal and technical due diligence surveys. The purpose of the surveys is to enable purchasers to make robust and sensible proposals for the land in terms of both development-potential and land value.

The objectives of this review are to:

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

The site location is shown in Figure 1 below.

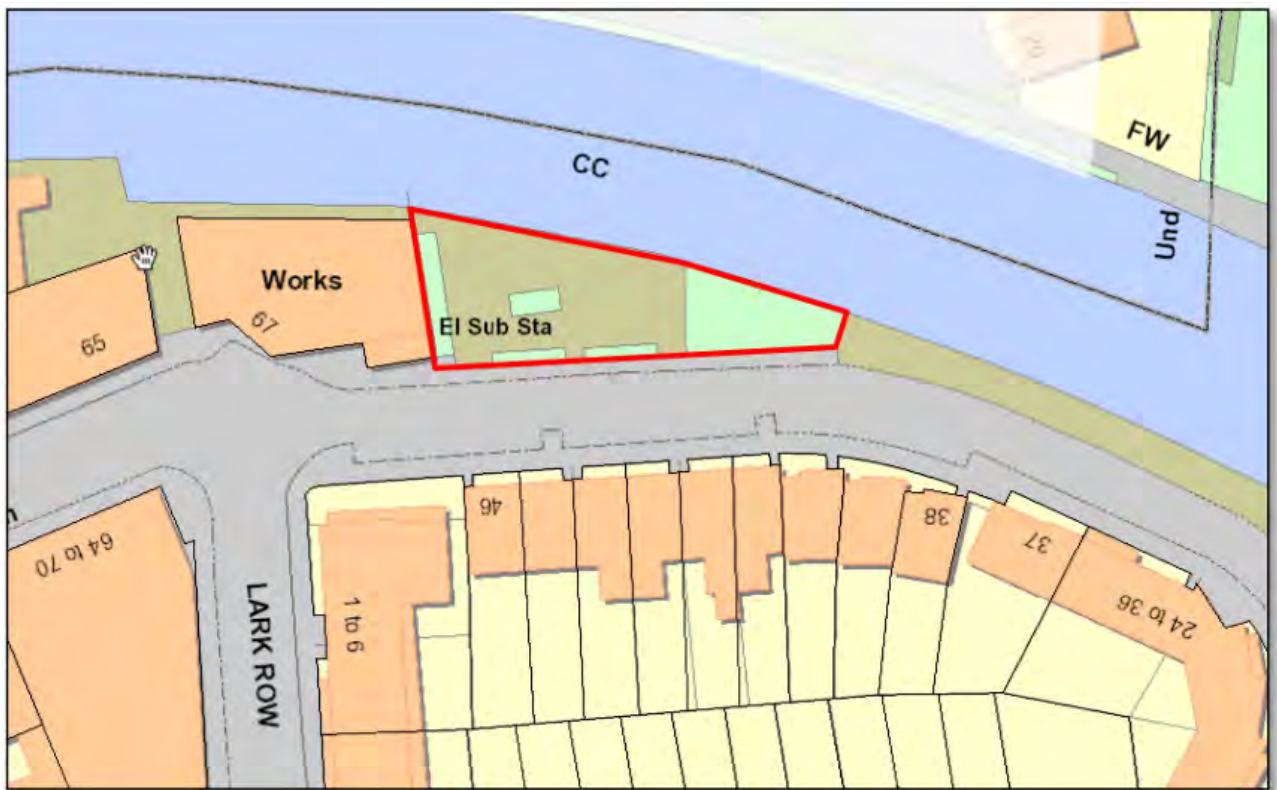


Figure 1: Site Location Plan provided by LBTH

1.2 Sources of Information

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

- The on-line British Geological Survey (BGS) Geology of Britain Map Viewer (Ref. 1);
- Historical borehole records available through BGS website (above) (Ref. 1);
- Current publicly available aerial images and maps from Google maps (Ref. 2);
- Zetica Regional Unexploded Ordnance Map (Appendix C);
- Unexploded Ordnance data obtained from Bomb Sight National Archives website (Ref. 3);
- Historical Ordnance Survey maps obtained from Groundsure (included in Appendix A);
- Environmental Information from Groundsure Datasheet (Appendix B); and,
- A site walkover by Arcadis

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 of writing. 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	Landscape amenity land Lark Row, London, E2 9JA
National Grid Reference	535092, 183579 (Approximately the centre of the Site)
Approximate Site Area	The Site is roughly triangular in shape and covers an area of approximately 0.026 hectares.
Description of Site	<p>Information collected during the site walkover conducted by Arcadis on 24th July 2019 and observations from Google Earth (Ref. 2) are summarised below. Google Earth street view images observed were captured April 2019.</p> <p>The Site is currently open to the public and used as community volunteer / landscaping project, comprising ground level and raised flowerbeds separated by hardstanding. Adjacent to the Site are a light industrial building (west), the Grand Union Canal (north) and Lark Row (south). The eastern edge of the site tapers to a point adjacent to a short footpath adjacent to the canal.</p> <p>An electrical substation is present immediately to the southwest of the site and a telephone mast is present on the west of the site. Vegetation across the area (2018 - Ref. 2) is overgrown and contains fly-tipped material. Upon site walkover, the pavement on the southwest corner contained fly-tipped material. Several drains are present to the south of the Site on Vyner Road.</p>
Topography	The Topography of the site is generally flat at approximately 17m (Ref. 1) Above Ordnance Datum (AOD). The immediate surrounding area is generally flat, with the local topography sloping very gently down towards the River Thames (3km) to the south.
Surrounding Area	The Site is situated within an area largely comprising of high density residential development with some commercial properties. Approximately 50m northeast of the Site, across the Grand Union Canal, is the southwestern end of Victoria Park. There are multiple highways surrounding the Site, the main highway, A107, is 290m west of the Site. The London over ground is 300m west of the Site with the closest station being Cambridge Heath.

2.2 Site History

A review of the available historical Ordnance Survey maps (Appendix A) has been undertaken to assess the historical development of the Site and surrounding areas within 250m.

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

Date	Historical Development (Site and Surrounding Area)
1873 - 1876	The eastern portion of the Site comprises undeveloped land potentially within the Bethnal Green Workhouse. Structures of unknown use are shown in the southwestern corner. The Grand Union Canal is adjacent to the north.

Date	Historical Development (Site and Surrounding Area)
	<p>The surrounding area to the south is occupied by structures and gardens associated with Bethnal Green Workhouse (later Waterloo House).</p> <p>Along the Grand Union canal is a chalk warehouse - 90m west, an engine house and wharf - 50m west, and a sawmill and timber yard - 80m east.</p>
1882 - 1896	<p>The structures on the west of the Site has been redeveloped. A mortuary has been constructed on the central portion of the Site.</p> <p>A timber yard is located 70m northwest and Sawmill built 230m southwest.</p> <p>From 1882, the Great Eastern Railway is shown 300m west of the Site, and a gasworks 400m west of the Site.</p>
1916	Extension of Mortuary structure on the east of the Site.
1938 - 1948	<p>The Site has been redeveloped, a small building is present on the west of the Site and a larger building is present on the east of the Site and crosses the southern boundary.</p> <p>The workhouse / Waterloo House to the south of the Site has been redeveloped (1938) into structures typical of flats.</p> <p>A large garage and printing works is shown 240m southwest of the Site, previously occupied by a saw mill and residential properties.</p> <p>An electrical substation is present 140m southeast of the Site</p>
1950	No significant change(s) observed
1962 - 1963	Redevelopment of surrounding area into structures typical of residential flats and structures labelled as works.
1970 - 1971	<p>By 1971, building on east of Site has been removed.</p> <p>Several electrical substations are built 15m / 190m west, 80m / 200m northwest, 250m northeast and 250m southeast of the Site.</p>
1988 - 1991	Site buildings demolished leaving a vacant parcel of land, developed into a playground.
1996 - 2018	No significant change(s) observed on the Site. Several residential redevelopments.

Summary of Site History

The Site was previously developed twice as part of Bethnal Green Workhouse with a mortuary present. The Site was redeveloped prior to 1938 into structures of unknown use the last of which is no longer shown from 1991. Therefore, there is the potential for Made Ground to be present.

Several potential offsite sources of contamination have been identified including numerous electrical substations, the closest being on the south westerly corner of the Site, also noted are timber yards, garage, print works, and general works of unknown type. The gas works to the west of this site although a significant source has been discounted based on its distance (approximately 400m) from the Site.

Based on the local topography, which slopes gently to the south, the majority of the identified potential off-site contamination sources are likely to be down hydraulic gradient and therefore pose a low risk to the site. Depending on the depth of the aquitard associated with the Grand Union Canal, migration of contaminants originating from the north is considered possible.

2.3 Unexploded Ordnance

With reference to the Zetica Unexploded Bomb Risk report for the site (Appendix C), the Site is designated as lying within an area denoted as “high” bomb risk. Further reference has been made to the Bomb Sight National Archives (Ref. 3) which indicates that five high explosive bombs were dropped to the north within approximately 100m around the Site.

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: Hackney Gravel Member which is designated as a secondary (A) aquifer.</p> <p>Solid Geology: London Clay Formation which is designated as Unproductive Strata.</p>
BGS Exploratory Holes (within 100m of the site)	<p>No borehole data was available within 100m of the site. The nearest record for an available borehole approximately 250m west (TQ38SW287) of the Site, due to the distance a set of trial pits 95m southeast (TQ38SE923/A-D) of the Site have been used.</p> <p>Made Ground was recorded to 0.3-1.0m bgl (TQ38SE923/A contains a further 0.4m of Vegetable Soil to a final depth of 0.7m bgl), followed by a brown clay to 1.4-1.5m bgl, overlying Sandy/Dirty Ballast to 1.5-2.6m bgl. Compact Sand and Ballast was recorded in the bottom of TQ/38SE923/B-D to a final depth of 2.6m bgl.</p> <p>The London Clay was identified as a yellow clay overlying a blue clay from 5.49m bgl in borehole TQ38SE287. A groundwater strike was not recorded. A groundwater strike was recorded at 3.8m bgl.</p>
Within a Source Protection Zone	Not recorded within 500m of the Site boundary.
Licensed Groundwater Abstraction Points	There is one licenced groundwater abstraction point noted within 1km of the Site. The nearest one is approximately 511m northwest and relates to historical abstraction for OCS Smarts Group Ltd "laundry use" from a borehole at Warburton Road, Hackney.
Surface Water Feature	Grand Union Canal is located on the northern boundary, flowing southeast towards the River Thames, which is located approximately 3Km south of the site flowing east.
Likely Groundwater Flow Direction	<p>Based on the local topography groundwater flow within the superficial deposit is likely to be towards the south east towards the River Thames. The Grand Union Canal is considered to be lined with clay and not in continuity with shallow groundwater, although it may influence local groundwater flow direction depending on its depth. Perched groundwater may also be present within or at the base of the Made Ground.</p> <p>Based on the published geology significant groundwater flow within London Clay bedrock is not expected to be present.</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.

It is not the purpose of this section to provide a comprehensive account of the environmental data but only to detail those factors that could impact the Site.

Table 3.2. Environmental Data

Data type	Description	Distance (m) and Direction
Radon	The site is not in a radon affected area as less than 1% of properties are above the Action Level.	N/A
Discharge Consent	There is one discharge consent recorded within a 250m radius of the site. This is associated with trade discharges (cooling water) from Bonner Hall Bridge Outlet, Hackney into the Grand Union Canal. Based on the assumed flow in the canal the discharge is likely downgradient of the Site.	152m east
Pollution Incidents to controlled waters	No pollution incidents are recorded on site. Only one pollution incident has occurred within 250m of the Site. This incident involved an unidentified pollutant, on the 22 nd June 2003; classified as category 3-minor incident to nearby water.	34m north
Landfill sites (current and historical)	There are no landfill Sites (historical/current) recorded within 250m of the Site.	N/A
Potentially Infilled Land	There are 25 areas of potentially infilled land recorded within 250m of the Site. The majority of the recordings are associated with the canal. There are 2 records potentially infilled land on the Site, dating to 1894. Within 10m north of the Site there are a further 14 records, dating between 1882-1994. There are 6 records 76m west of the Site, dating between 1948-94, and 1 record 248m west of the Site dated to 1882. There are 2 records of potentially infilled land associated with an unspecified Wharf on the Grand Union Canal dated 1920-1938	Onsite and Between 0-248m along the Grand Union Canal 32m west
Local Authority pollution prevention and controls	There are no pollution prevention and controls recorded within 250m of the site. The nearest one is 270m southwest related to a current Part B permit for Five Star Dry Cleaners, Cambridge Heath Road.	N/A
Contemporary Trade Directory Entries	Electrical Substation	Site boundary, 83m northeast, 142m southeast, 203m southwest, 211m south, 211m northwest, 241m southwest
	Repair and Servicing (Garages)	216m southwest, 216m southwest
	Industrial Products	9m west, 110m north, 148m southwest, 148m southwest, 166m west, 206m west, 210m west, 245m west, 245m west

Data type	Description	Distance (m) and Direction
	Transport, Storage and Delivery	97m west, 99m southwest, 245m west
	Unspecified Works	14m west, 58 southwest, 65m southwest, 88m west, 94m west, 137m southwest

The majority of the Contemporary Trade Directory Entries listed above are located more than 100m from the Site, to the west and south. Given the distance from the Site and the likely groundwater flow direction, the risk that contamination from these entries would have impacted the site is considered low. Depending on the depth of the aquitard associated with the Grand Union Canal, migration of contaminants from the north is considered possible.

The electrical substation and works at the site boundary are considered to have the potential to impact the site.

4 PRELIMINARY CONCEPTUAL MODEL

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

4.1 Potential Contaminant Sources

Based on the information obtained from the historical and environmental research, and pending confirmation of a groundwater flow direction, the following potential sources of contamination have been identified on and off site (Table 4.1).

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

Table 4.1: Potential sources of contamination on site

Source	Potential Contaminants
On Site	
Made Ground is likely to be present on the site from previous development and demolition.	Asbestos, metals, polyaromatic hydrocarbons (PAH), hydrocarbons, sulphates, pH, and ground gas.
London Clay bedrock underlying the site	Sulphates (aggressive ground conditions)
Off site	
Within the surrounding area, Made Ground is a likely contaminant source from multiple redevelopments in the last century, including infilled areas alongside the canal.	Asbestos, metals, polyaromatic hydrocarbons (PAH), hydrocarbons, sulphates, and ground gas.
Electrical Substation at the south western corner of the Site.	Hydrocarbons, polychlorinated biphenyls (PCBs)
Unspecified Works	Asbestos, metals, polyaromatic hydrocarbons (PAH), hydrocarbons, pH, and volatile and semi volatile organic compounds (VOC / SVOC) including chlorinated solvents.
Garages	Asbestos, metals, polyaromatic hydrocarbons (PAH), hydrocarbons, and VOC
Print works	Asbestos, metals, polyaromatic hydrocarbons (PAH), hydrocarbons, alcohols, acetates, glycols, SVOC and VOC
Timber yard(s)	Petroleum hydrocarbons, Phenolics / wood preserver, pesticides, creosote, copper/chrome/arsenic preparations, organic solvents, additives.

4.2 Potential Receptors

The proposed land use is currently unknown. As a precautionary approach the potential receptors detailed below take into consideration the proposed 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 assessment of potential risks to construction workers. The potential risks should be addressed by a site-specific construction workers risk assessment and implementation of appropriate health and safety measures, to adequately mitigate any potential risks. All works should be conducted in accordance with the CDM regulations 2015 (Ref. 6) or any other relevant guidance. Construction workers are not considered further as human health receptors.

4.2.2 Controlled Waters

- Groundwater beneath the Site – Secondary (A) aquifer in the superficial geology.

The nearest surface water feature is Grand Union Canal located immediately north of the Site, given the likely presence of an impermeable (puddle clay) lining this is not considered a plausible receptor. The River Thames is located approximately 3km south of the site and given the distance is not considered a plausible receptor.

4.2.3 Buildings

- Underground/structures/services (water pipes, concrete, foundations) including sulphate attack
- 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	Pathway
Human health (future site users/residents, visitors, maintenance workers and contractors)	Accidental ingestion of contaminants within soil, water and dust Inhalation of dust, vapours and ground gases Dermal contact with contaminants within soil, water and dust Ingestion of contaminated vegetables and soil attached to vegetables
Controlled Waters; Hackney Gravel Member Secondary (A) Aquifer	Leaching of contaminants from the unsaturated zone into underlying groundwater. Horizontal migration of soluble contaminants through the aquifer into groundwater beneath the site. Or from the site to neighbouring properties.
Buildings	Direct contact of building services or foundations with contaminants in the soil and Made Ground Gas and / or vapour accumulation in confined and poorly ventilated spaces Sulphate attack on buried concrete (direct contact)

4.4 Preliminary Qualitative Risk Assessment

Primary sources of on-site contamination are considered to be associated with Made Ground which is likely to be present from former development and demolition of buildings. The timber yard to the north west, electrical substation, and industrial building to the west are considered the most likely sources of offsite contamination.

Without mitigation, future site users may be at risk from contaminants within the Made Ground / underlying soils if exposure occurs in gardens or soft landscaped areas, especially if soils are disturbed by activities such as digging / gardening.

If significant depths of Made Ground containing putrescible matter or gross hydrocarbon contamination is found to be present, ground gas / vapours could be generated which could accumulate in confined spaces/buildings and pose risk to future site users.

Leaching and migration of contaminants from the Made Ground on site and surrounding sources, may infiltrate the underlying Secondary A aquifer and any perched groundwater beneath the Site. Migration will be driven by the local groundwater flow direction, likely to be to the south east, and migration of some VOC such as chlorinated solvents may be driven by the topography of the surface of the London Clay in addition to groundwater flow. The London Clay is a source of naturally occurring sulphates which could impact buried concrete.

This risk will need to be further understood through intrusive investigation into the ground conditions and potential contaminants in the soils. If the Site is found to be contaminated, mitigation measures will be required to break the source-pathway-receptor linkages.

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. It should be noted that the waste contractor may require testing of the actual material to be disposal prior to acceptance, and there is no obligation on a landfill operator to accept the waste.

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

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

5.2 Potential Development Constraints

The Grand Union Canal immediately north of the Site is considered the primary development constraint, the integrity of the canal structure will require protection through any redevelopment.

Services such as a street lighting, electrical substations and drainage have been identified immediately to the west and south of the Site. Therefore, there is the potential for below ground services to be present beneath the Site.

Hardstanding and pavements are present on and to the south of the Site which may need to be removed or broken out, small trees and vegetation are present predominantly to the southeast of the Site which may need to be removed. Fly tipped waste material has also been identified within the vegetation present onsite.

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 heavy industrial 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 is likely underlain by sand and gravel (a Secondary A Aquifer), an investigation is recommended to identify potential impacts on the aquifer.

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

- Removal of former foundations and concrete obstructions (if present);
- The Grand Union Canal;
- Excavation and replacement of upper part of Made Ground as necessary to support foundation solution;
- 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

6 Geotechnical Considerations

Ground conditions anticipated at the site are likely to comprise Made Ground as the Site has previously been developed. Based on published geological maps and the nearest historical BGS exploratory hole Made Ground deposits are anticipated to be underlain by superficial Sands and Gravels which overlies a significant thickness of London Clay. The geology of the Site should be confirmed through an intrusive investigation.

Potential founding solutions will be dependent on the encountered 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.

Below ground structures and services associated with previous structures may be present and will require removal prior to redevelopment. Ground disturbance caused by the removal of historical structures may increase the thickness of Made Ground already present beneath the site locally.

At this stage, conventional shallow foundations may not be appropriate for the site, but this would depend on the thickness of the Made Ground and the underlying ground conditions. Deeper trench fill may be possible although the maximum practical extent of this type of foundation is in the region of 2-2.5m. In areas of deeper Made Ground, or where deeper soft / loose bands are recorded either piling or ground treatment e.g. vibro-stone columns should provide a suitable foundation solution. The advice of a specialist ground improvement contractor should be sought to verify the suitability of the ground for treatment.

Consideration will need to be given to the presence of existing trees that are removed, retained or the planting of future trees when considering the depths of the foundations. In addition, the risks associated with the London Clay include high plasticity clay which are subject to shrinkage, swelling and sulphate attack and should be considered during the investigation / design.

Should excavation be required in the vicinity of the Grand Union Canal professional advice should be obtained to ensure the integrity of the canal structure is protected.

7 Conclusions and Recommendations

The Site is currently an undeveloped and publicly accessible plot of land with an electrical substation to the west and small trees predominantly to the east. An intrusive site investigation has not been undertaken at this stage.

The Site was previously part of Bethnal Green Workhouse with a mortuary shown on historical mapping, further nonspecific structures were present on the Site until 1991 at the latest after which the Site is shown as undeveloped land. Made Ground is anticipated to be present as a result of this.

Potential receptors are considered to be future Site users, the underlying Secondary A Aquifer, proposed buildings and underground structures / services.

Potential geo-environmental constraints have been identified that may impact on the future development. Whilst (low levels) of contamination may be present within the underlying soils, mitigation of risks to Site end users may be delivered by the appropriate design of the development itself (i.e. the use of hardstanding to limit the pathway for human exposure) rather than large scale removal of materials.

7.1 Design Considerations

Potential risks to human health, controlled waters and the built environment have been identified. It is recommended that an intrusive site investigation should be undertaken prior to redevelopment to quantify these risks. This should include for chemical testing of soils, groundwater monitoring (if present) and gas monitoring in accordance with the recommendations in CIRIA C665 (Ref. 7) and CLR 11 (Ref. 5) and consideration of shrinkage, swelling of London Clay and sulphate attack to below ground concrete.

7.2 Construction Considerations

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

Construction / demolition workers should use appropriate PPE and follow the site-specific contractors risk assessment which should include risks to human health from potential contamination. Due to the historic phases of development and demolition, consideration should be given to the potential presence of asbestos within the Made Ground.

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

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 and above ground services may be present beneath the Site especially associated with electricity substations, street lighting and drainage in the surrounding area of the Site. No service plans have been provided for this report and these will need to be taken into consideration during the proposed development.

Should excavation be required in the vicinity of the Grand Union Canal professional advice should be obtained to ensure the integrity of the canal structure is protected.

8 References

1. British Geological Survey (BGS) [online]. Available at: <https://mapapps.bgs.ac.uk/geologyofbritain/home.html>. Accessed February 2019.
2. Google maps [online]. Available at <https://www.google.co.uk/maps>. Accessed February 2019.
3. Bomb Sight National Archives [on-line]. Available at: <http://bombsight.org>. Accessed February 2019.
4. CIRIA C552 (2001) Contaminated land risk assessment. A guide to good practice.
5. DEFRA and the Environment Agency, 2004. Model Procedures for the Management of Land Contamination, Guidelines for Environmental Risk Assessment and Management, Contaminated Land Report 11 (CLR11).
6. The Construction (Design and Management) Regulations 2015.
7. CIRIA C665 (2007) Assessing risks posed by hazardous ground gases to buildings (revised).

APPENDIX A

Historical Ordnance Survey Maps

Site Details:

37, LARK ROW, LONDON, E2
9JA

Client Ref: 14028423
Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: 1056 Scale Town Plan

Map date: 1873-1876

Scale: 1:1,056

Printed at: 1:1,056



Surveyed 1870
Revised N/A
Edition 1873
Copyright N/A
Levelled N/A

Surveyed 1872
Revised N/A
Edition 1876
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Map legend available at:
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Site Details:

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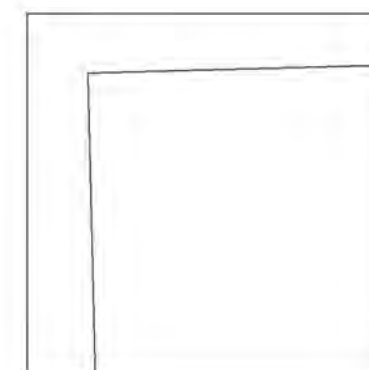
Client Ref: 14028423
Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: County Series

Map date: 1881

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1870
Revised N/A
Edition 1881
Copyright N/A
Levelled N/A

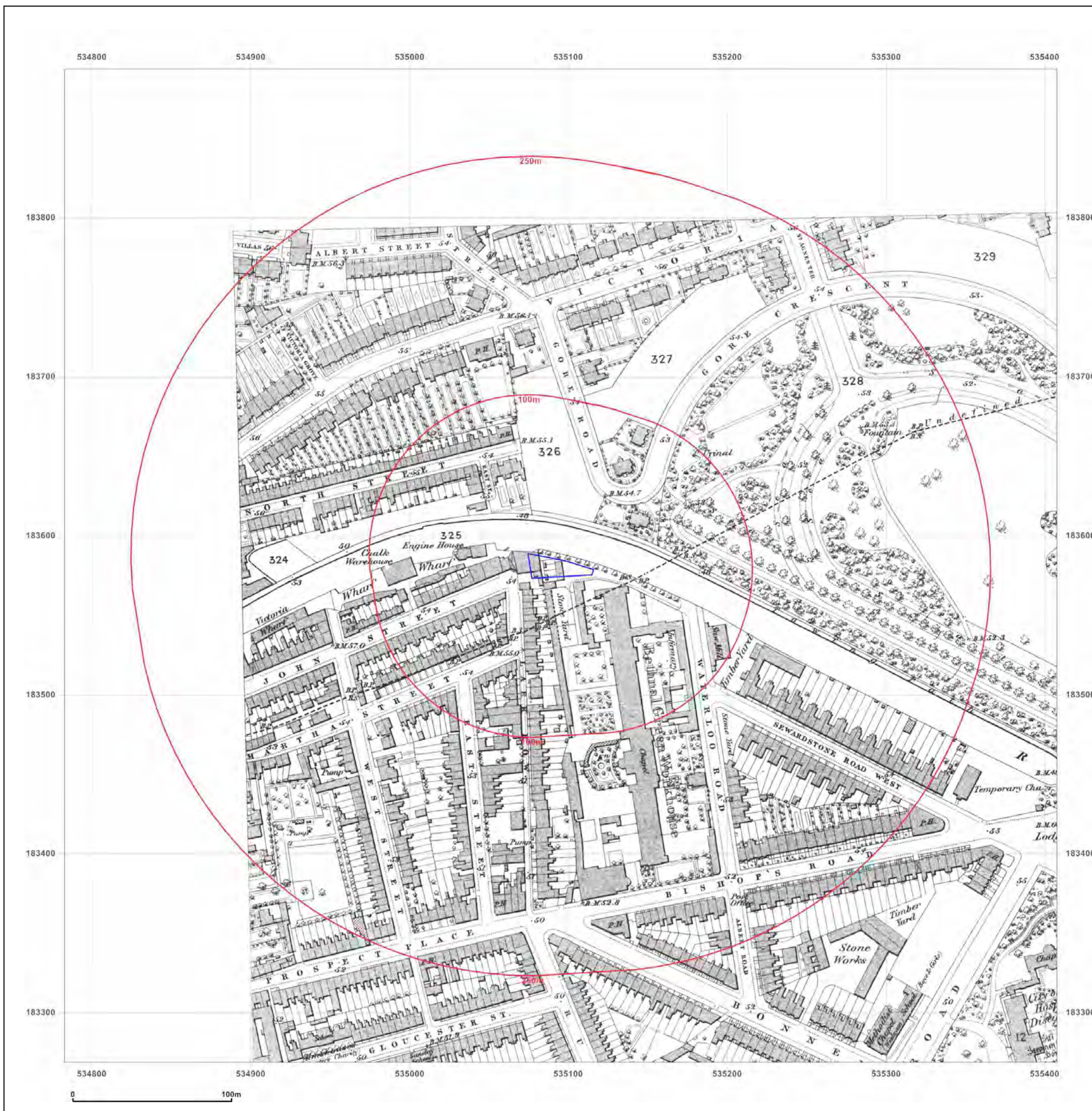


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Production date: 22 July 2019

Map legend available at:
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Site Details:

37, LARK ROW, LONDON, E2
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Client Ref: 14028423
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Grid Ref: 535095, 183581

Map Name: 1056 Scale Town Plan

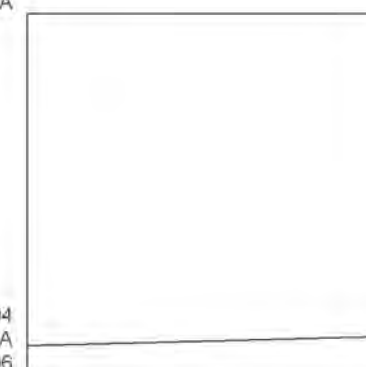
Map date: 1896

Scale: 1:1,056

Printed at: 1:1,056



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

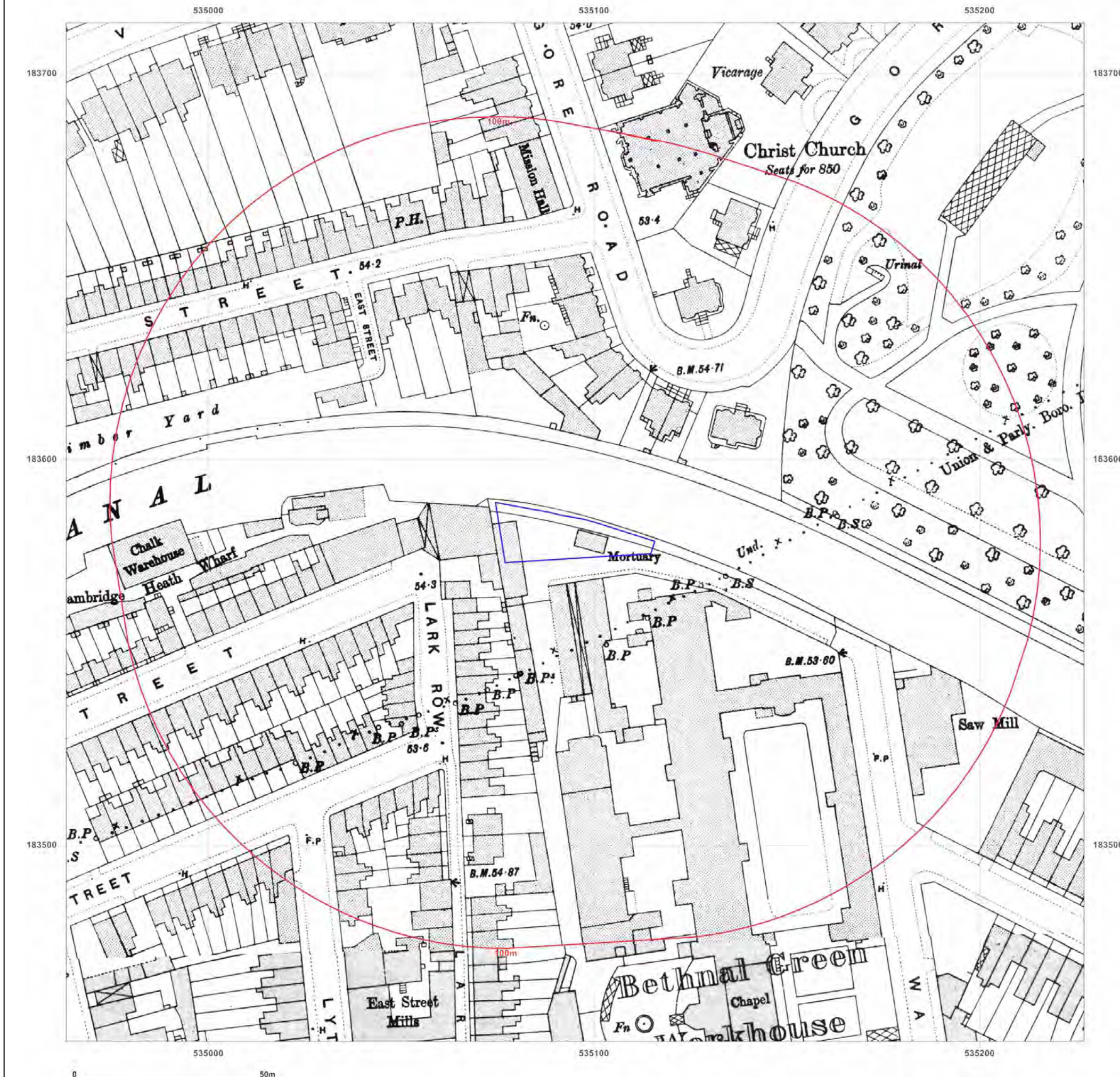


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Site Details:

37, LARK ROW, LONDON, E2
9JA

Client Ref: 14028423
Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: County Series

Map date: 1896

Scale: 1:2,500

Printed at: 1:2,500



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Surveyed 1896
Revised 1896
Edition N/A
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Revised 1896
Edition N/A
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Surveyed 1896
Revised 1896
Edition N/A
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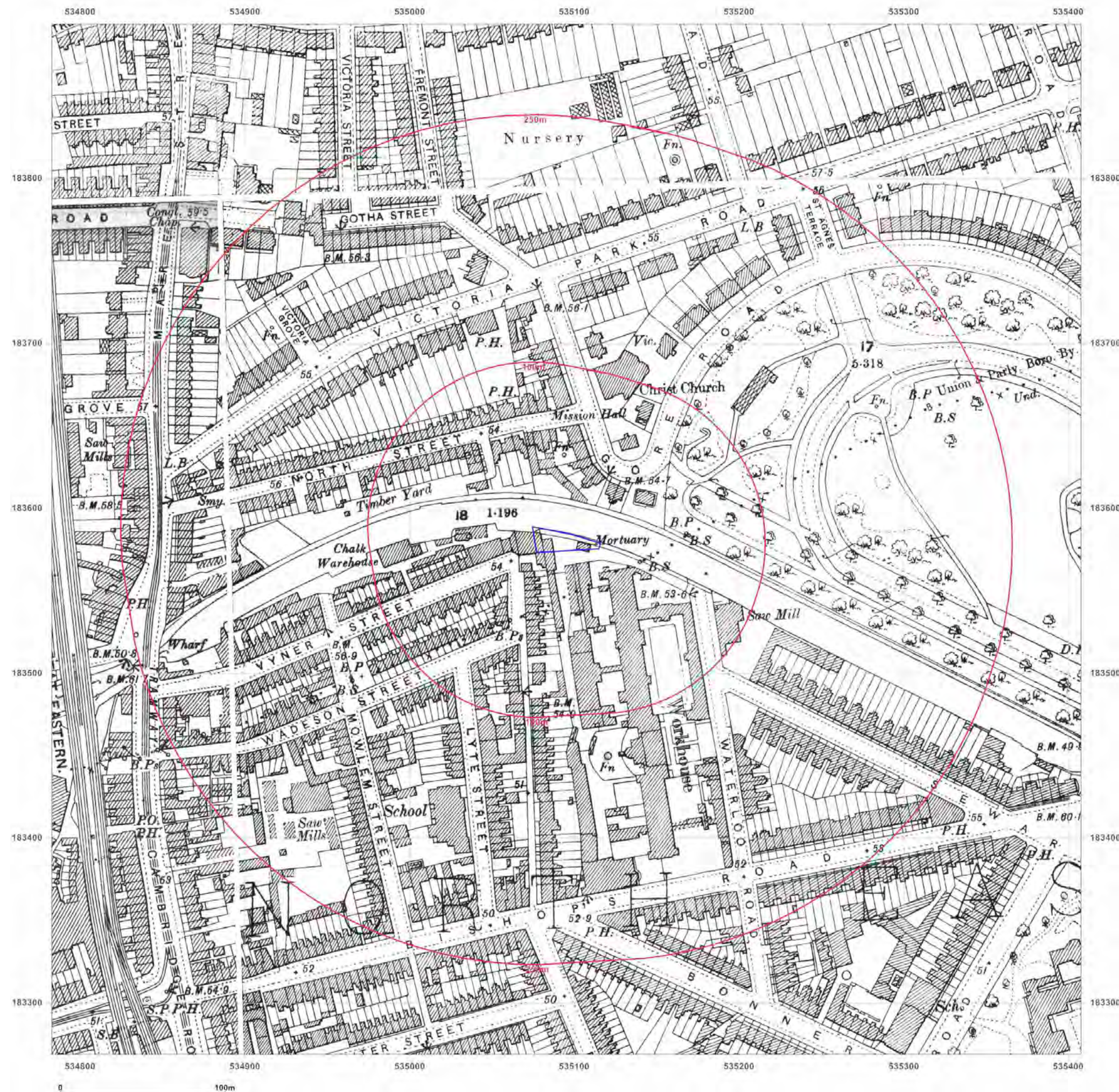


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Site Details:

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9JA

Client Ref: 14028423
Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: County Series

Map date: 1916

Scale: 1:2,500

Printed at: 1:2,500



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Revised 1916
Edition N/A
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Site Details:

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9JA

Client Ref: 14028423
Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: National Grid

Map date: 1948

Scale: 1:1,250

Printed at: 1:2,000



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Revised 1948
Edition N/A
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Surveyed 1948
Revised 1948
Edition N/A
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Surveyed 1948
Revised 1948
Edition N/A
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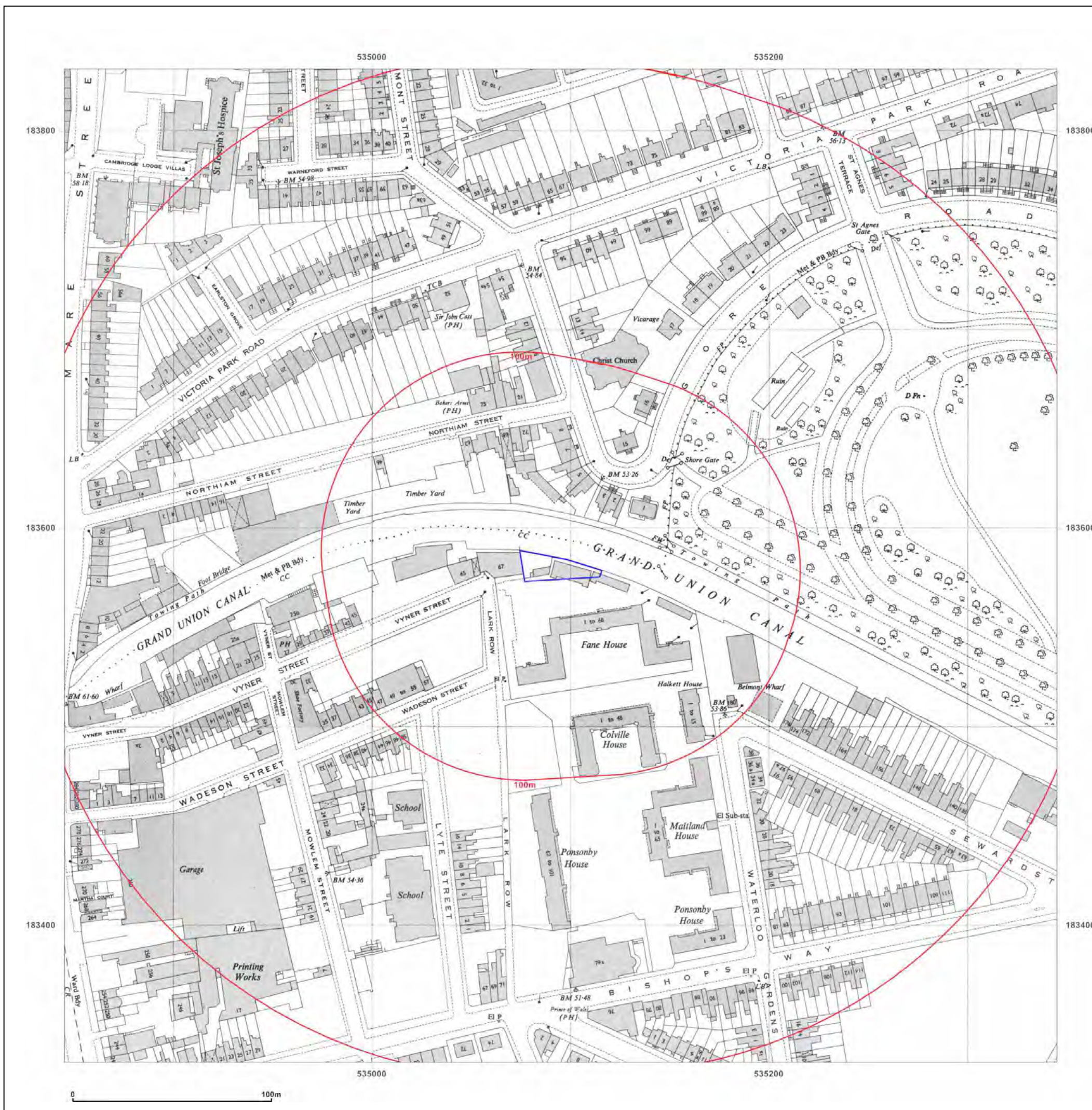


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Site Details:

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9JA

Client Ref: 14028423
Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: National Grid

Map date: 1948

Scale: 1:2,500

Printed at: 1:2,500



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

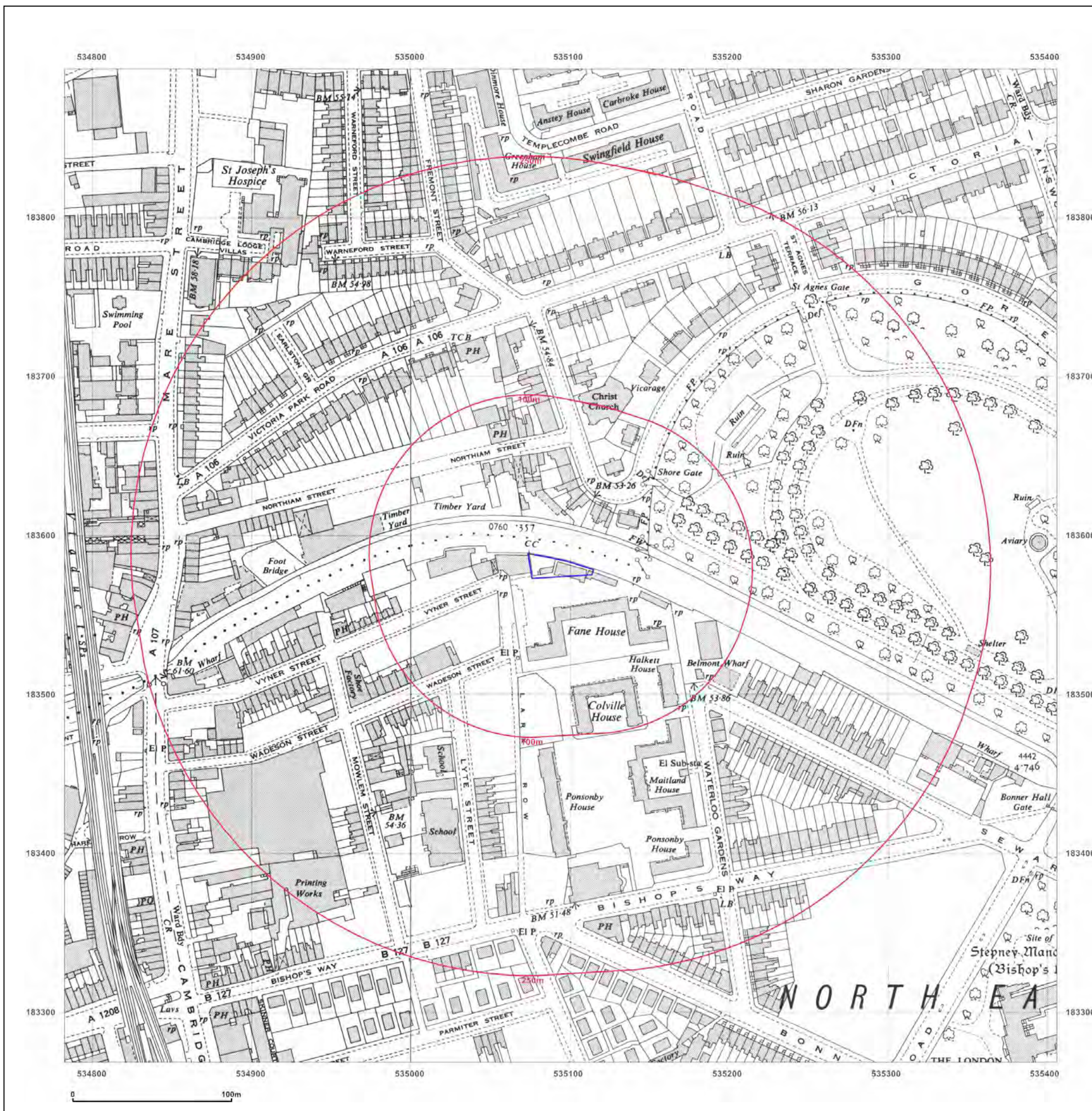


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Site Details:

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9JA

Client Ref: 14028423
Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: National Grid

Map date: 1948

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1948
Revised 1948
Edition N/A
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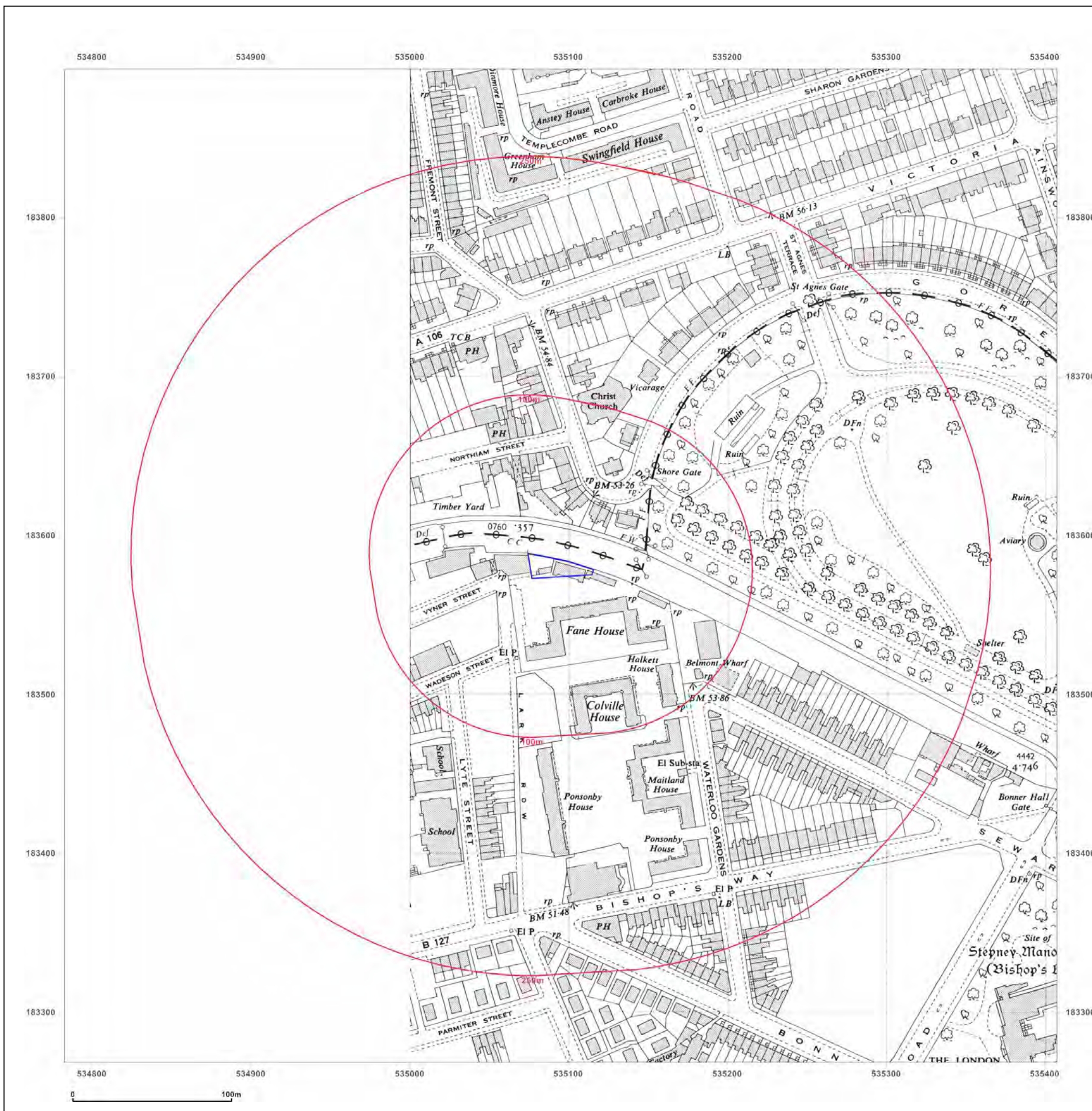


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Site Details:

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9JA

Client Ref: 14028423
Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: National Grid

Map date: 1950

Scale: 1:2,500

Printed at: 1:2,500



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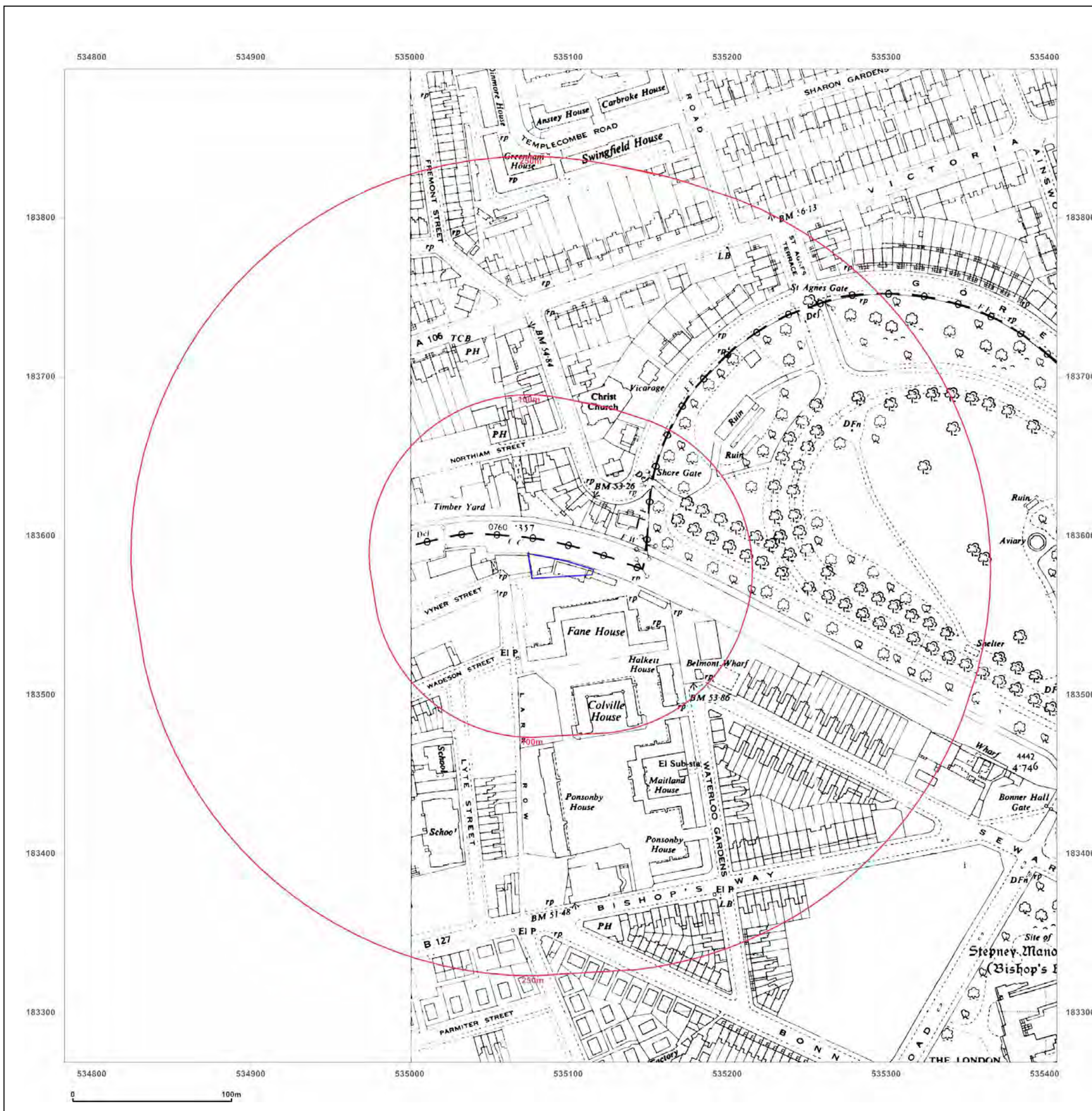


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Site Details:

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9JA

Client Ref: 14028423
Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: National Grid

Map date: 1953

Scale: 1:1,250

Printed at: 1:2,000



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9JA

Client Ref: 14028423
Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: National Grid

Map date: 1950-1955

Scale: 1:2,500

Printed at: 1:2,500



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Edition 1955
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Edition N/A
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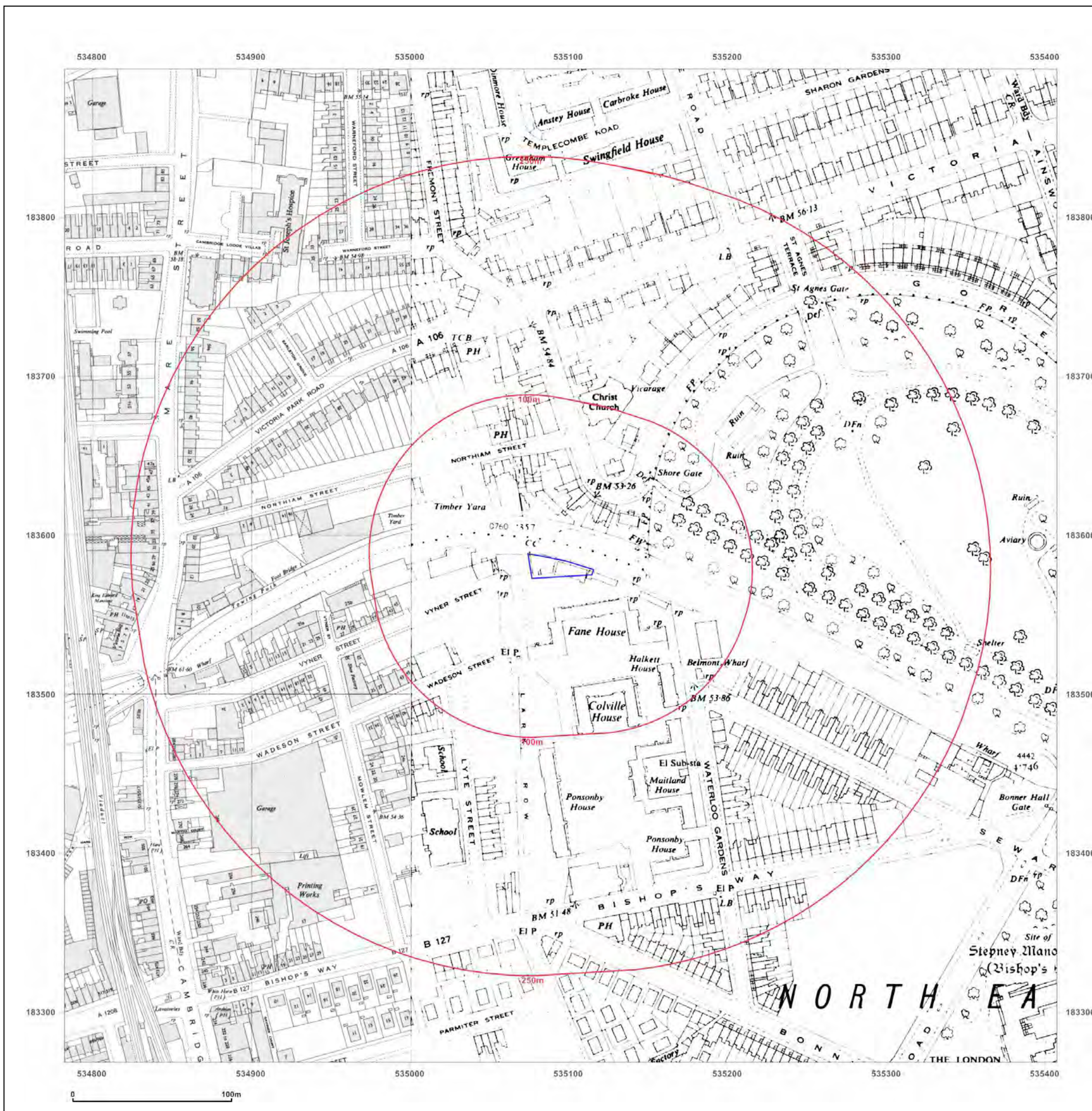


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9JA

Client Ref: 14028423
Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: National Grid

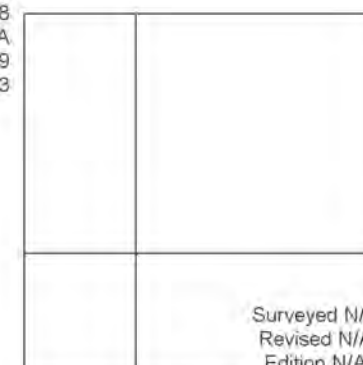
Map date: 1954-1959

Scale: 1:1,250

Printed at: 1:2,000



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9JA

Client Ref: 14028423
Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: National Grid

Map date: 1962-1963

Scale: 1:1,250

Printed at: 1:2,000



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Surveyed 1963
Revised 1963
Edition N/A
Copyright 1963
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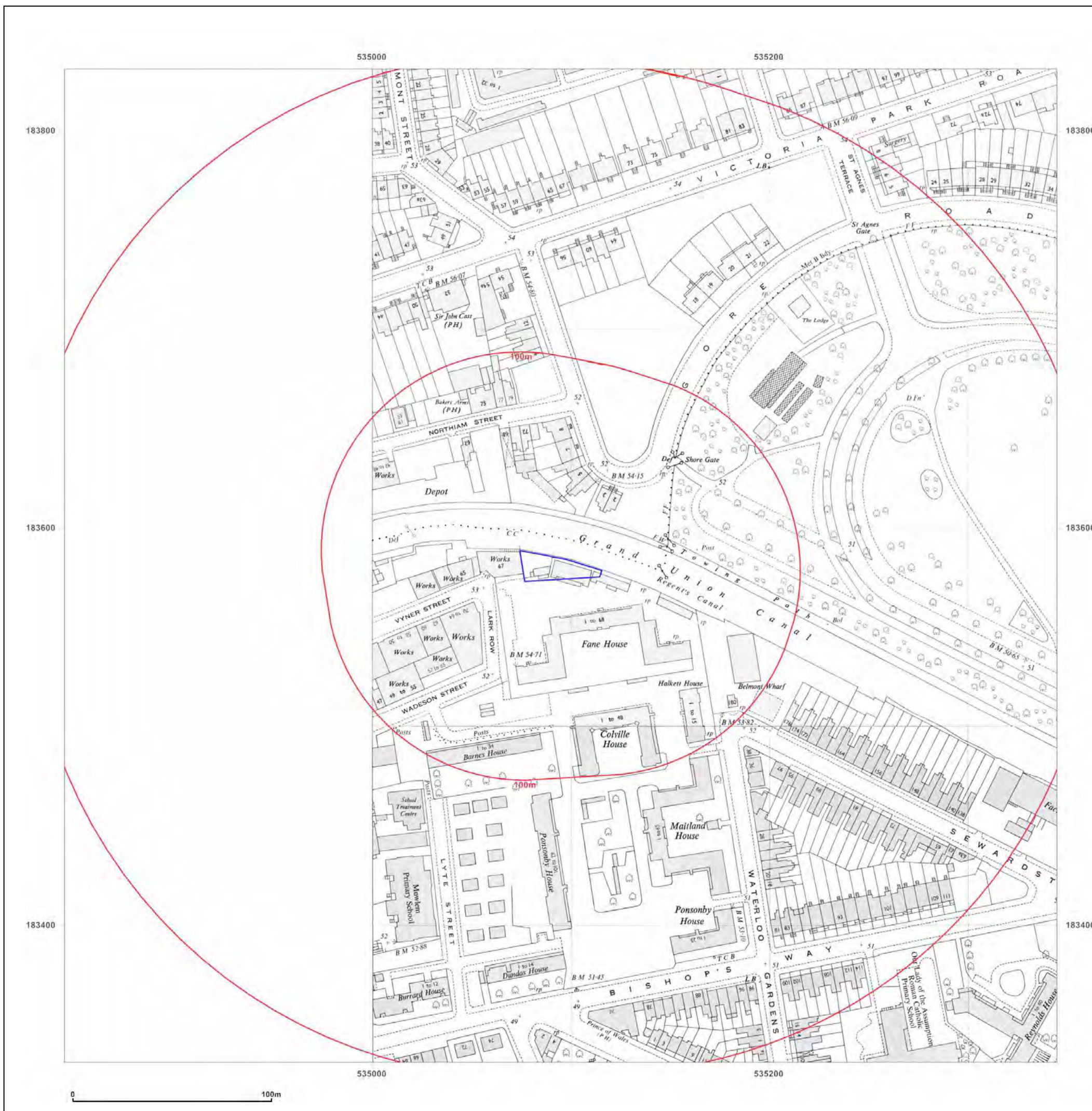


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9JA

Client Ref: 14028423
Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: National Grid

Map date: 1970-1971

Scale: 1:1,250

Printed at: 1:2,000



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Revised 1970
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Revised 1970
Edition N/A
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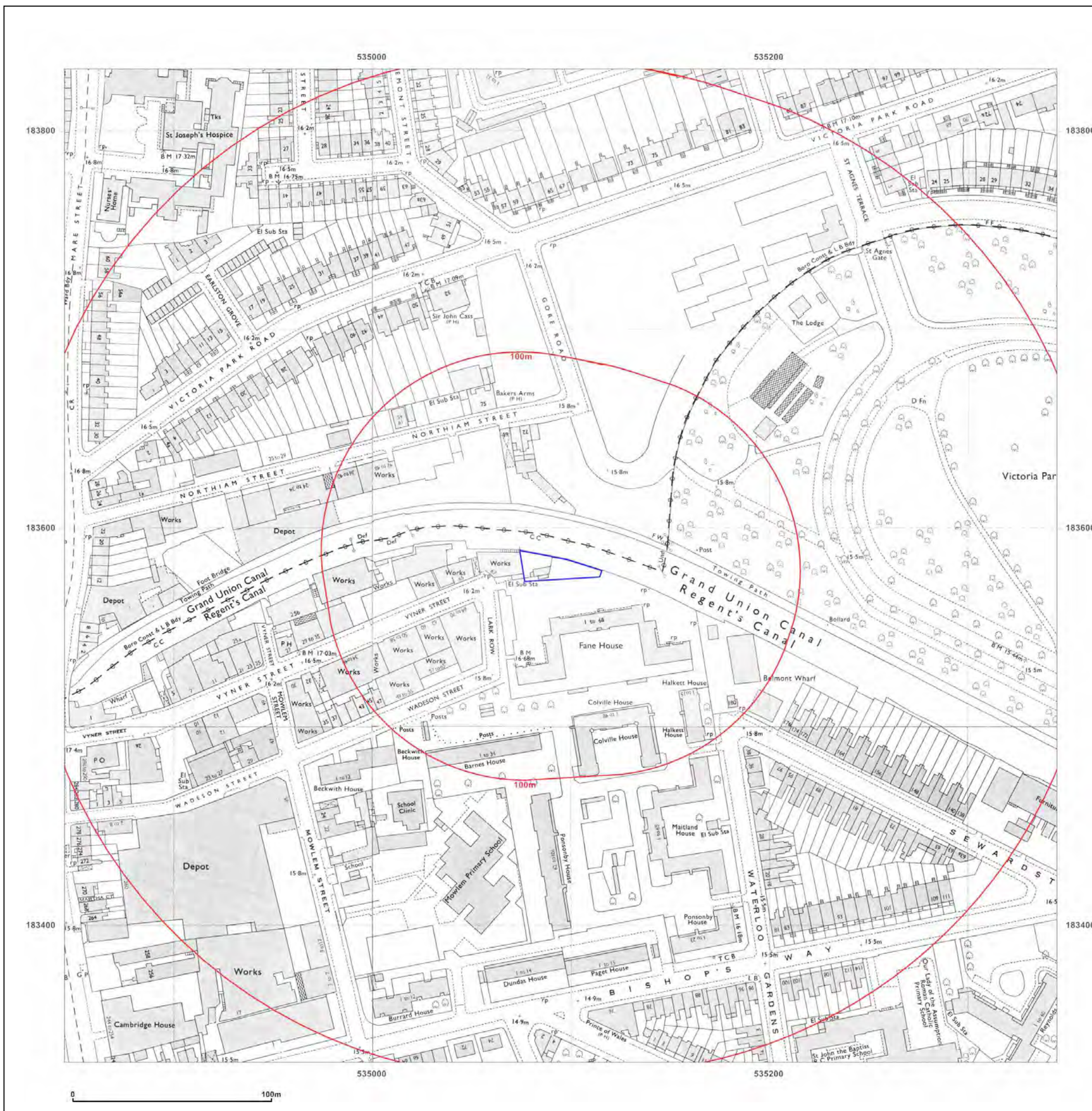


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9JA

Client Ref: 14028423
Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: National Grid

Map date: 1976-1978

Scale: 1:1,250

Printed at: 1:2,000



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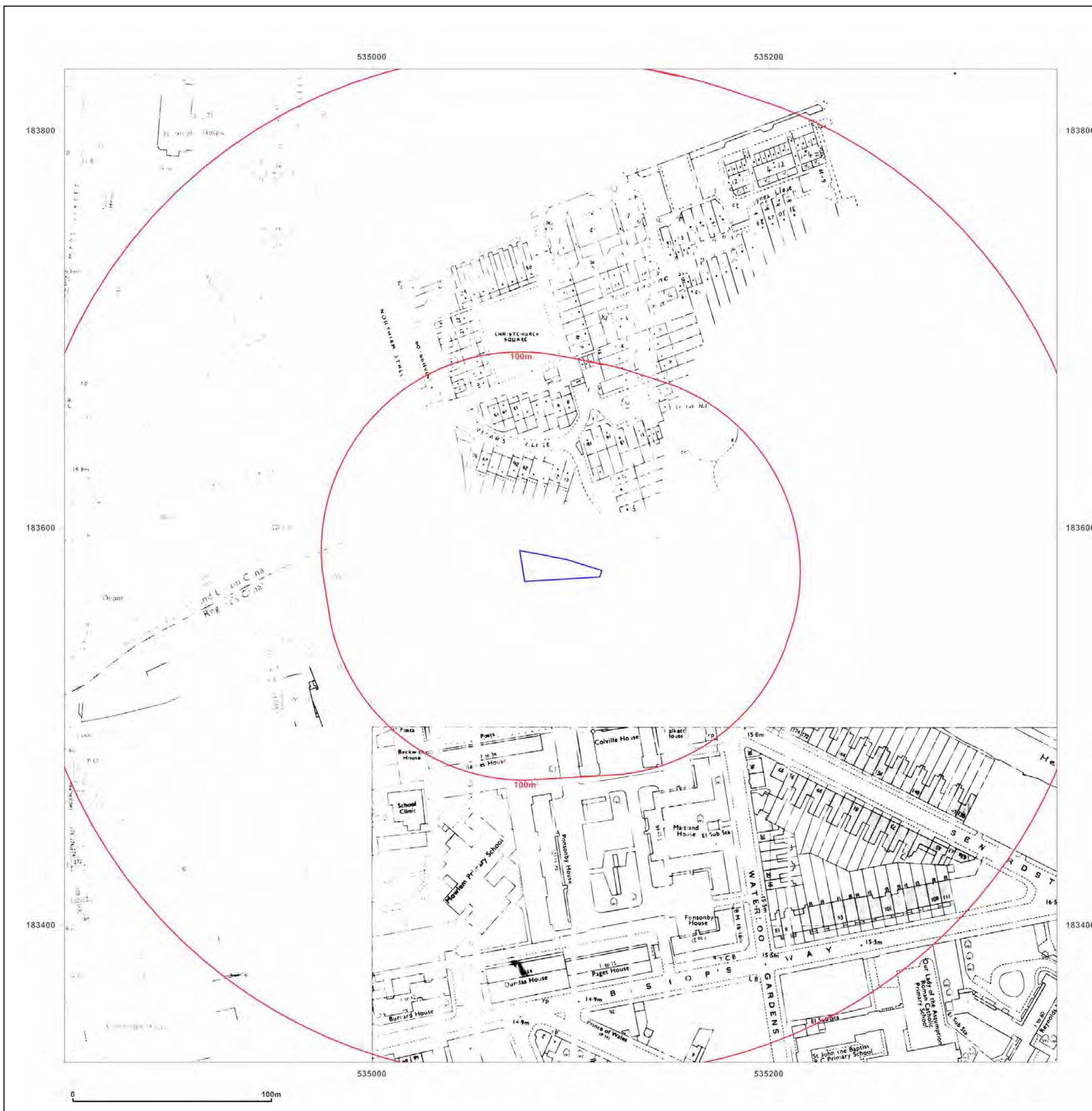


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9JA

Client Ref: 14028423
Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: National Grid

Map date: 1981-1985

Scale: 1:1,250

Printed at: 1:2,000



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9JA

Client Ref: 14028423
Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: National Grid

Map date: 1987-1991

Scale: 1:1,250

Printed at: 1:2,000



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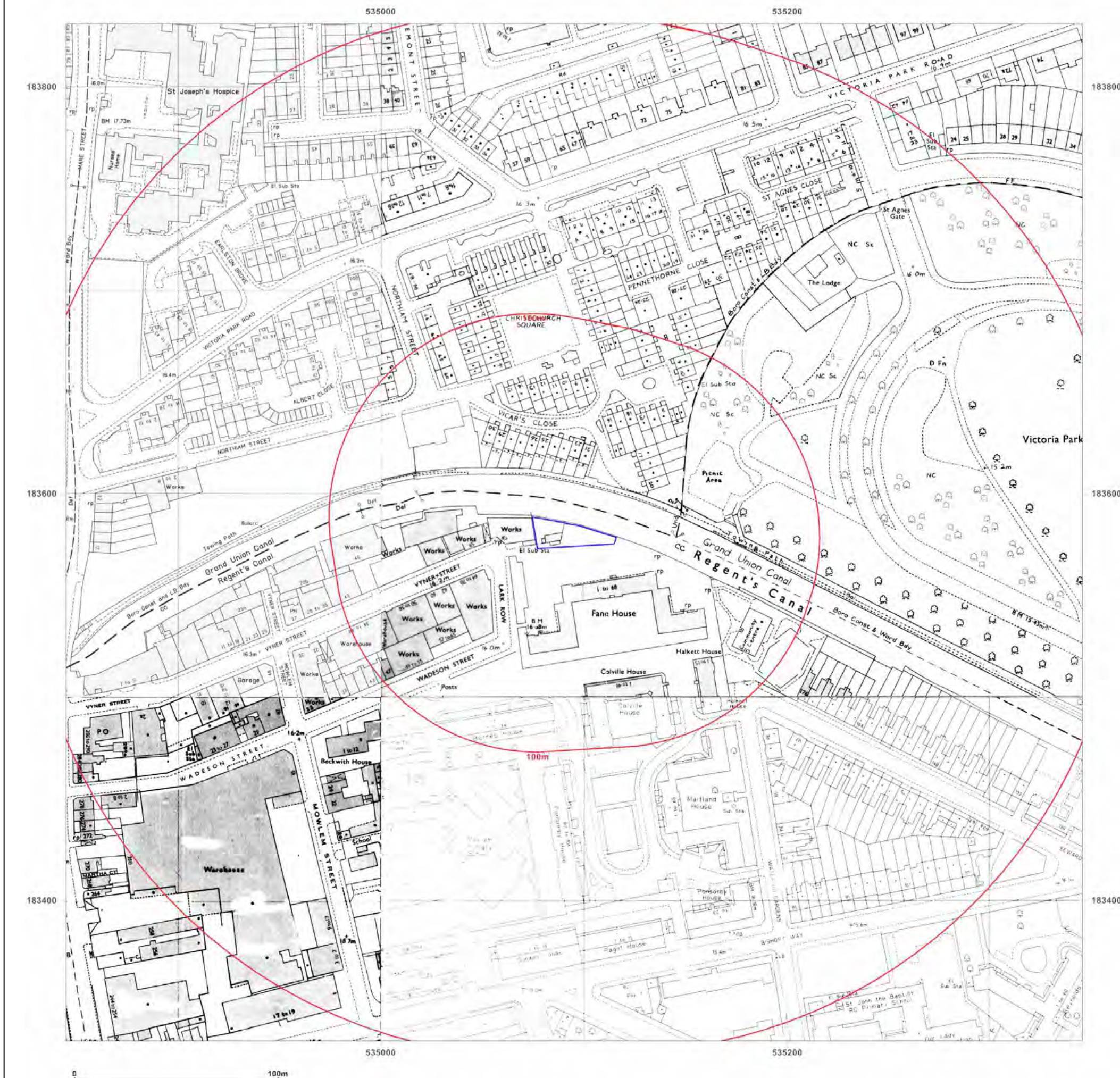


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9JA

Client Ref: 14028423
Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: National Grid

Map date: 1988-1991

Scale: 1:1,250

Printed at: 1:2,000



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Client Ref: 14028423
Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: National Grid

Map date: 1991

Scale: 1:1,250

Printed at: 1:2,000



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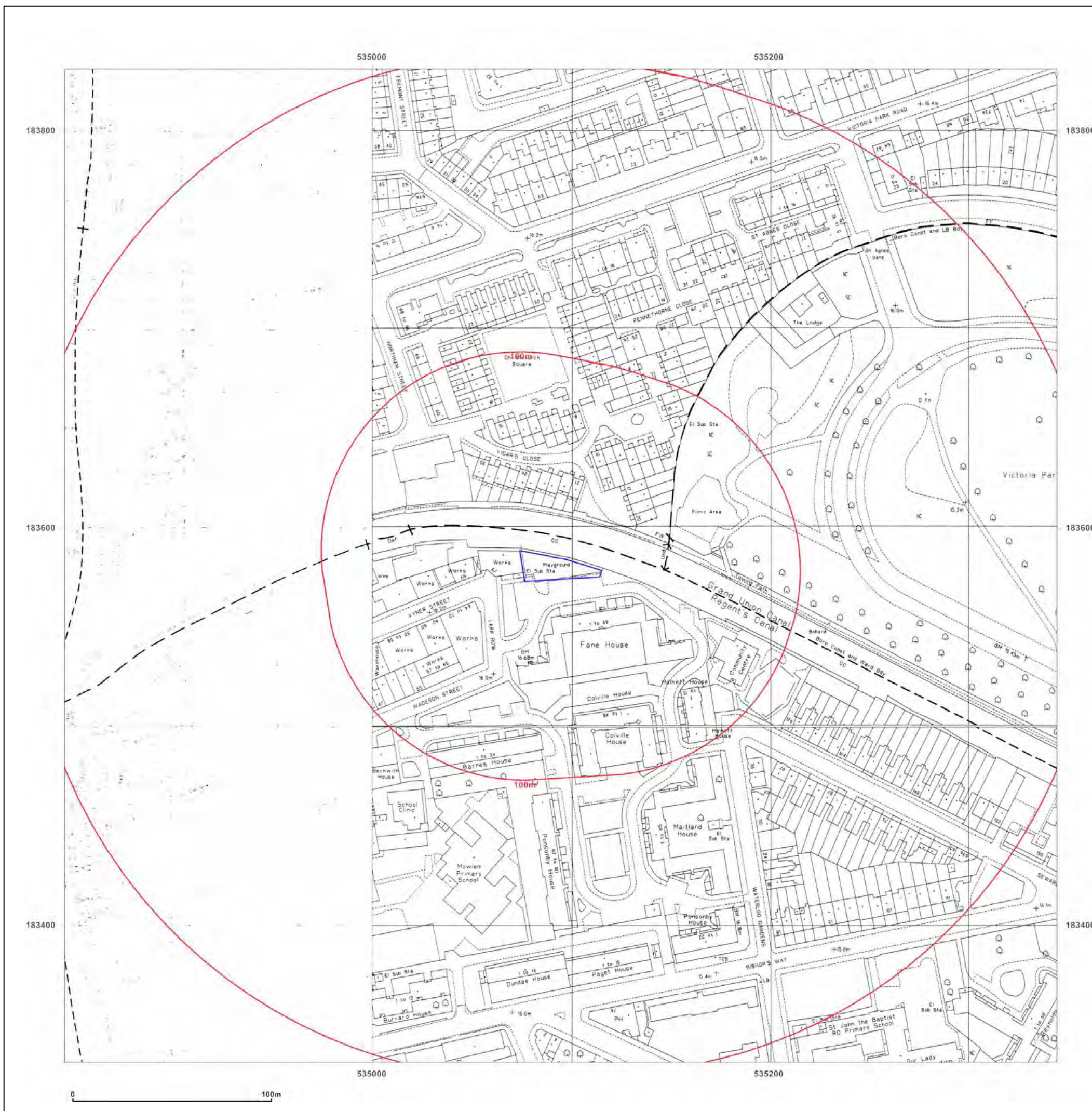


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9JA

Client Ref: 14028423
Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: National Grid

Map date: 1993

Scale: 1:1,250

Printed at: 1:2,000



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9JA

Client Ref: 14028423
Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: National Grid

Map date: 1991-1994

Scale: 1:1,250

Printed at: 1:2,000



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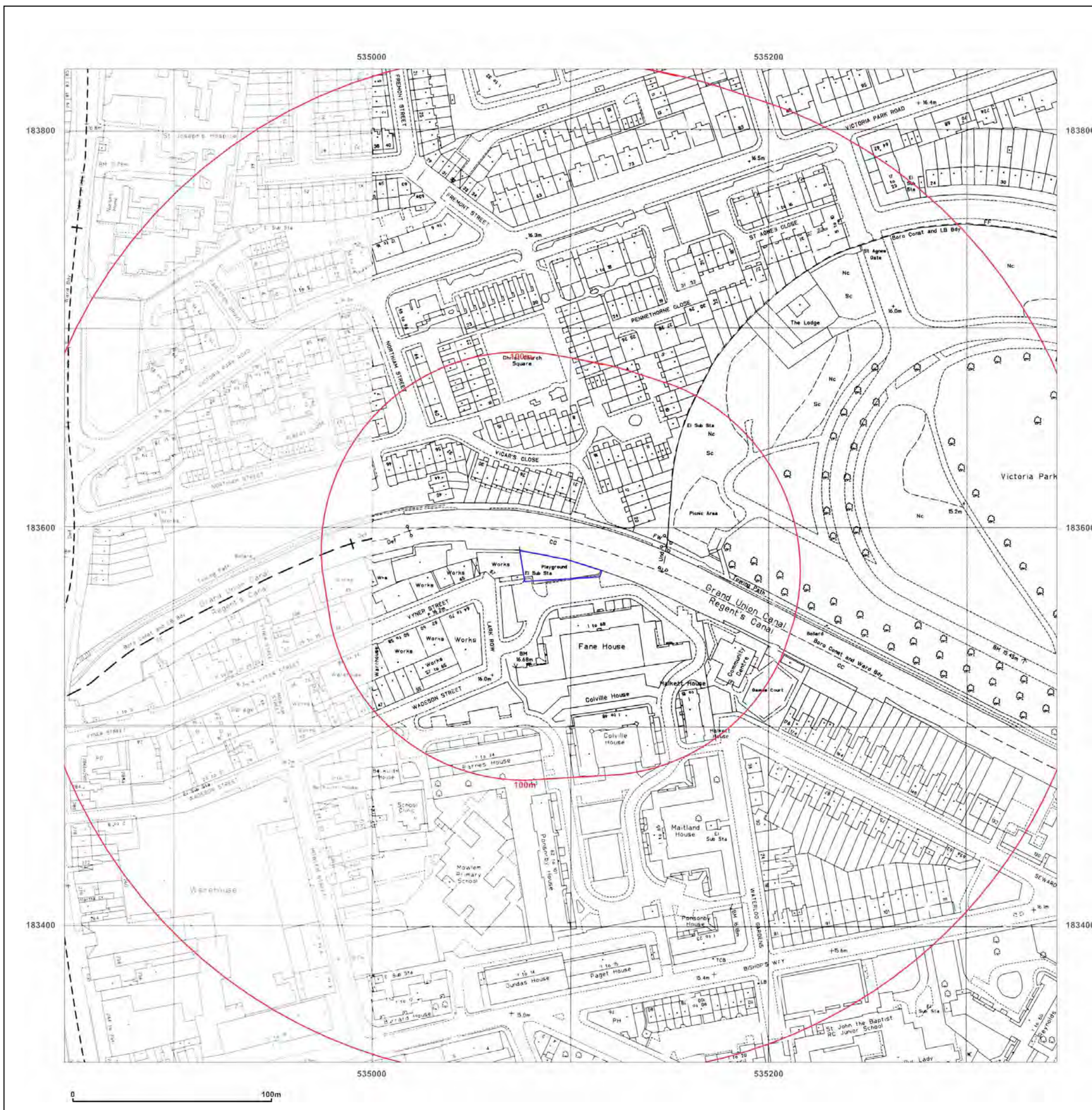


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9JA

Client Ref: 14028423
Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: National Grid

Map date: 1993-1994

Scale: 1:1,250

Printed at: 1:2,000



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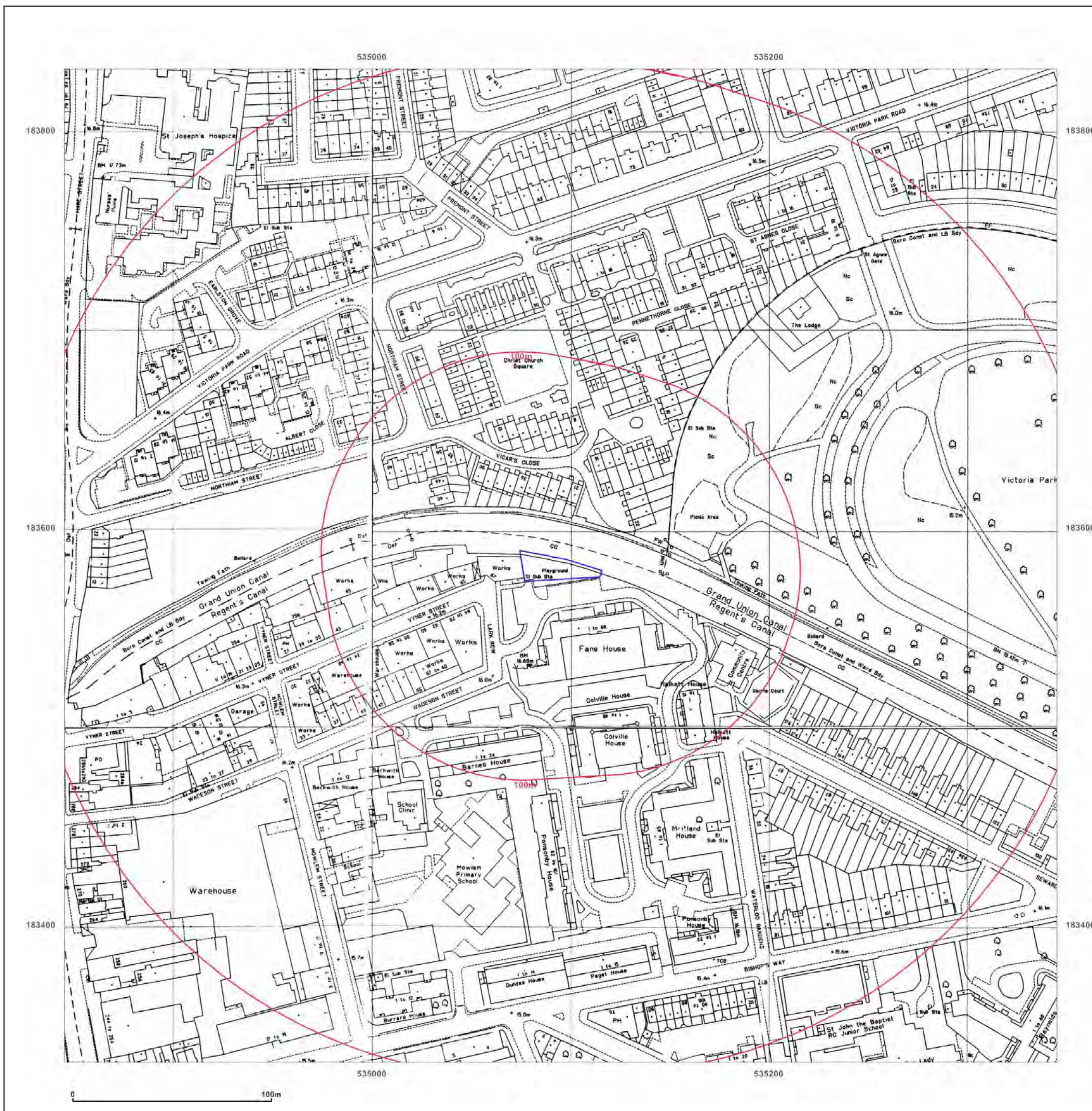


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9JA

Client Ref: 14028423
Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: National Grid

Map date: 1994

Scale: 1:1,250

Printed at: 1:2,000



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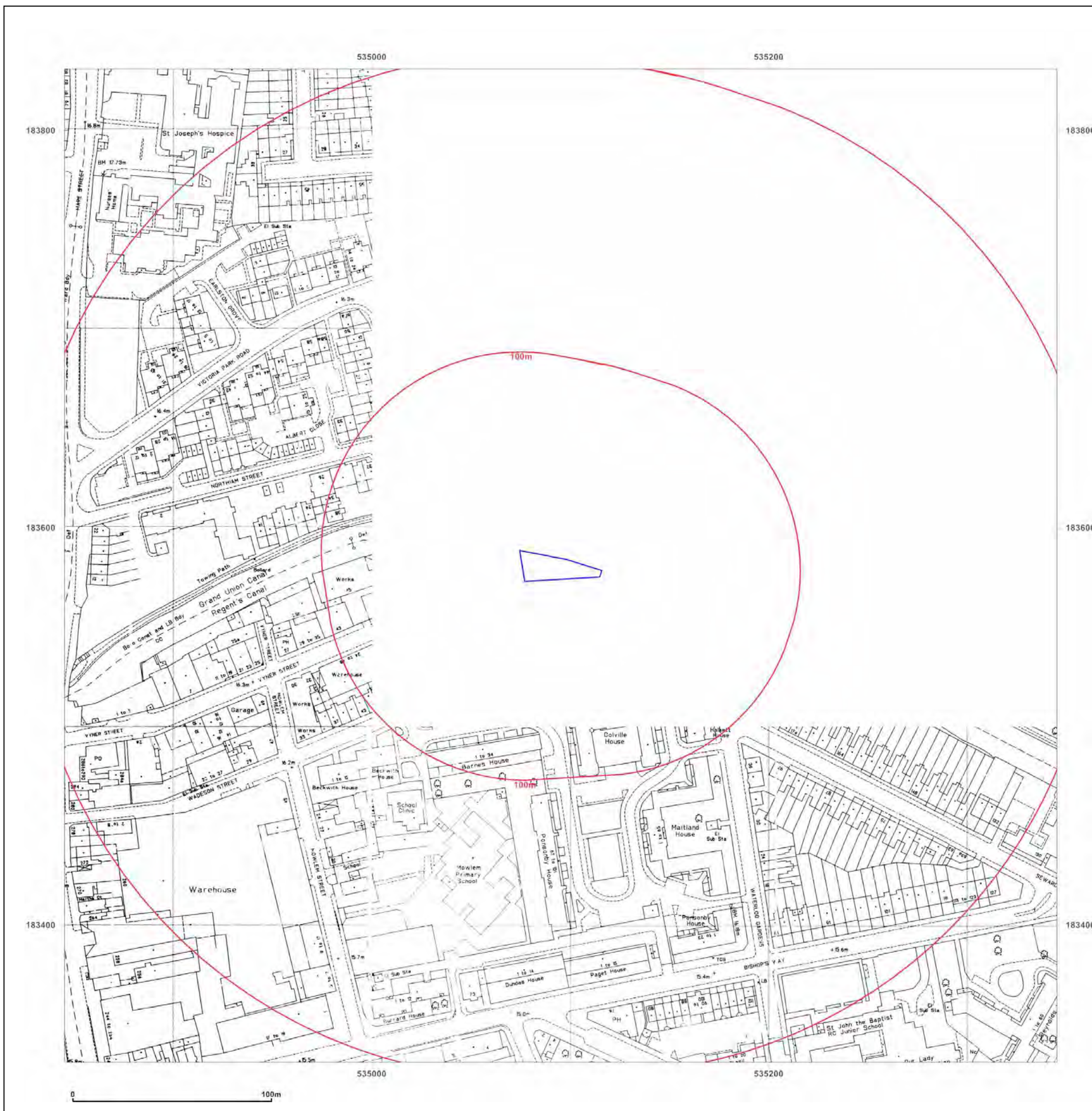


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Site Details:

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9JA

Client Ref: 14028423
Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: National Grid

Map date: 1994

Scale: 1:1,250

Printed at: 1:2,000



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Edition N/A
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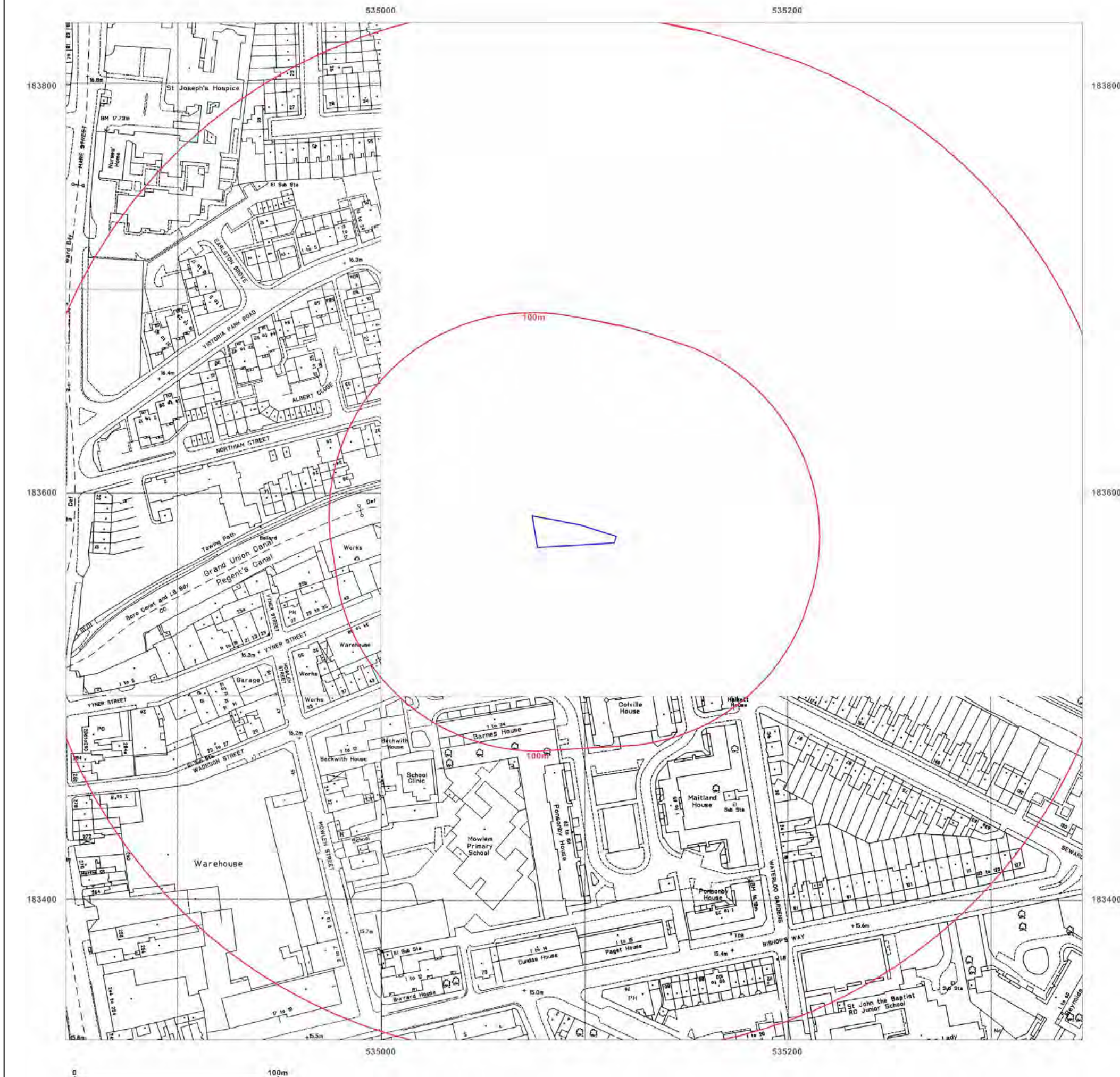


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Site Details:

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9JA

Client Ref: 14028423
Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: National Grid

Map date: 1995

Scale: 1:1,250

Printed at: 1:2,000



Surveyed N/A
Revised N/A
Edition N/A
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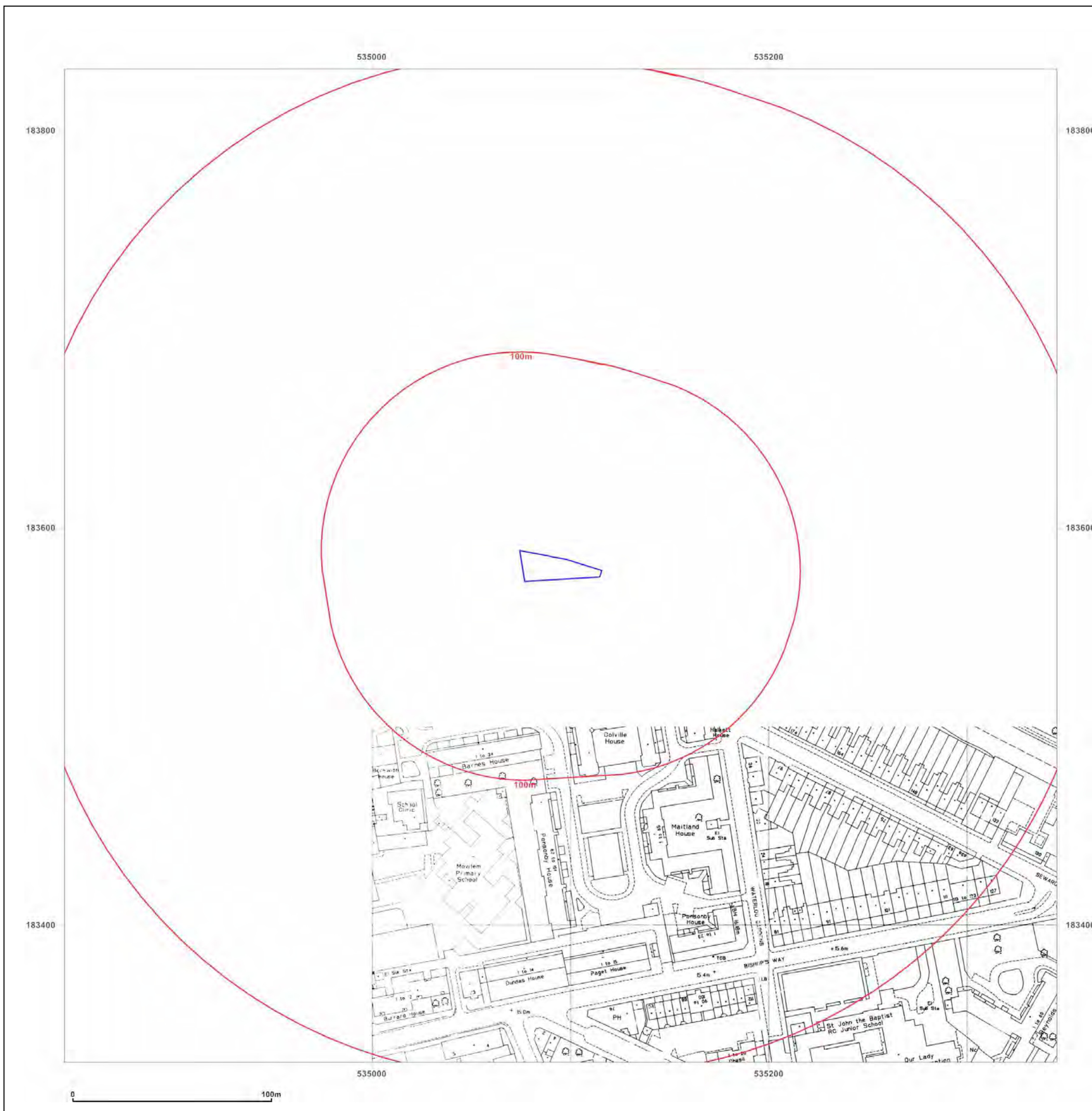


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Site Details:

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9JA

Client Ref: 14028423
Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: National Grid

Map date: 1995

Scale: 1:1,250

Printed at: 1:2,000



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

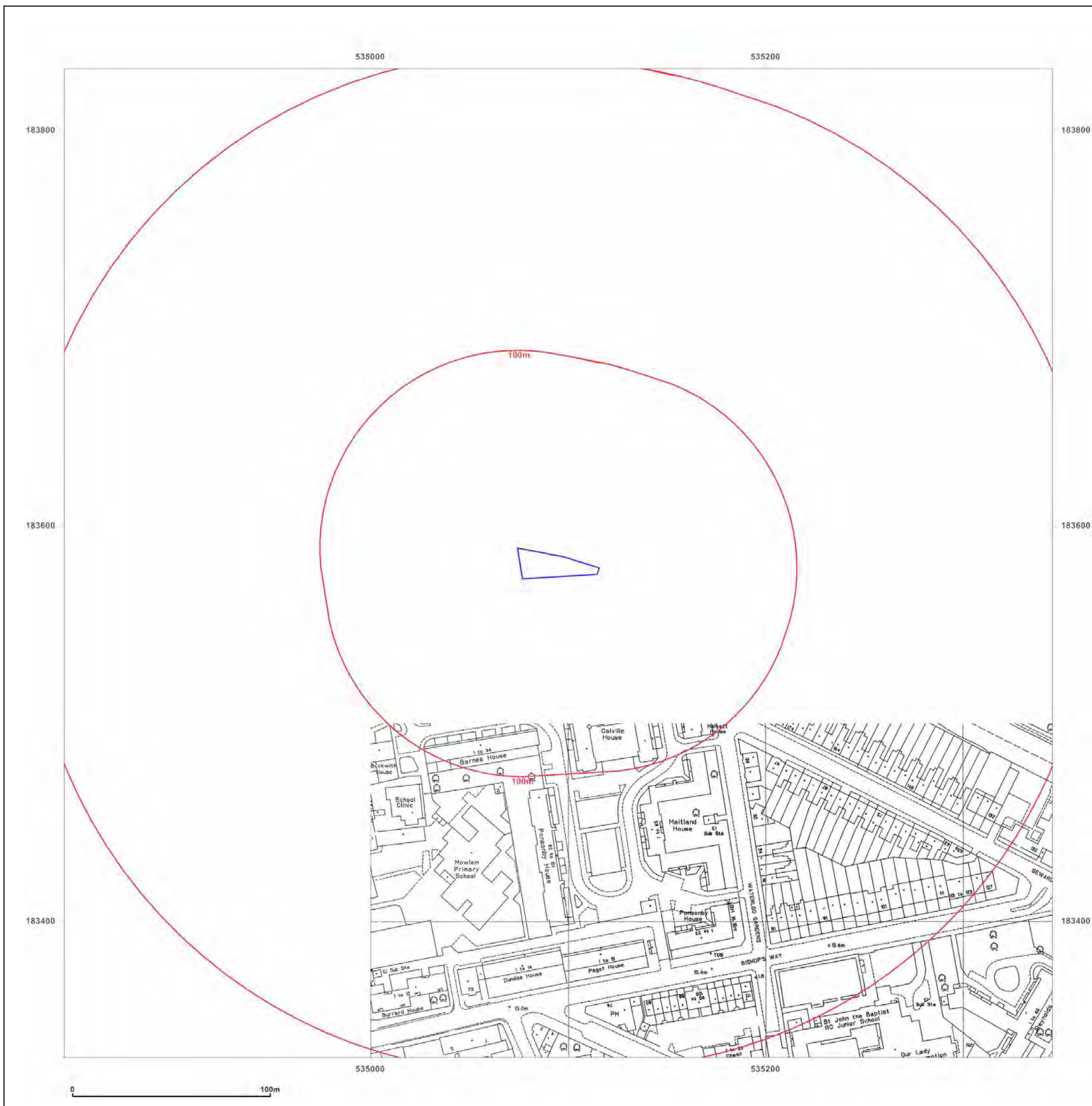


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Site Details:

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9JA

Client Ref: 14028423
Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: County Series

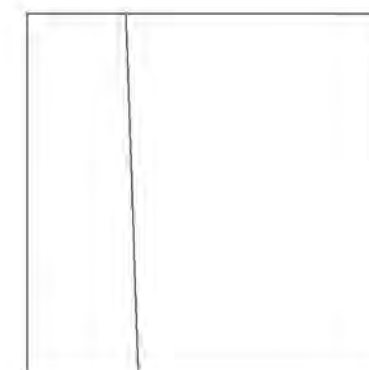
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Scale: 1:10,560

Printed at: 1:10,560



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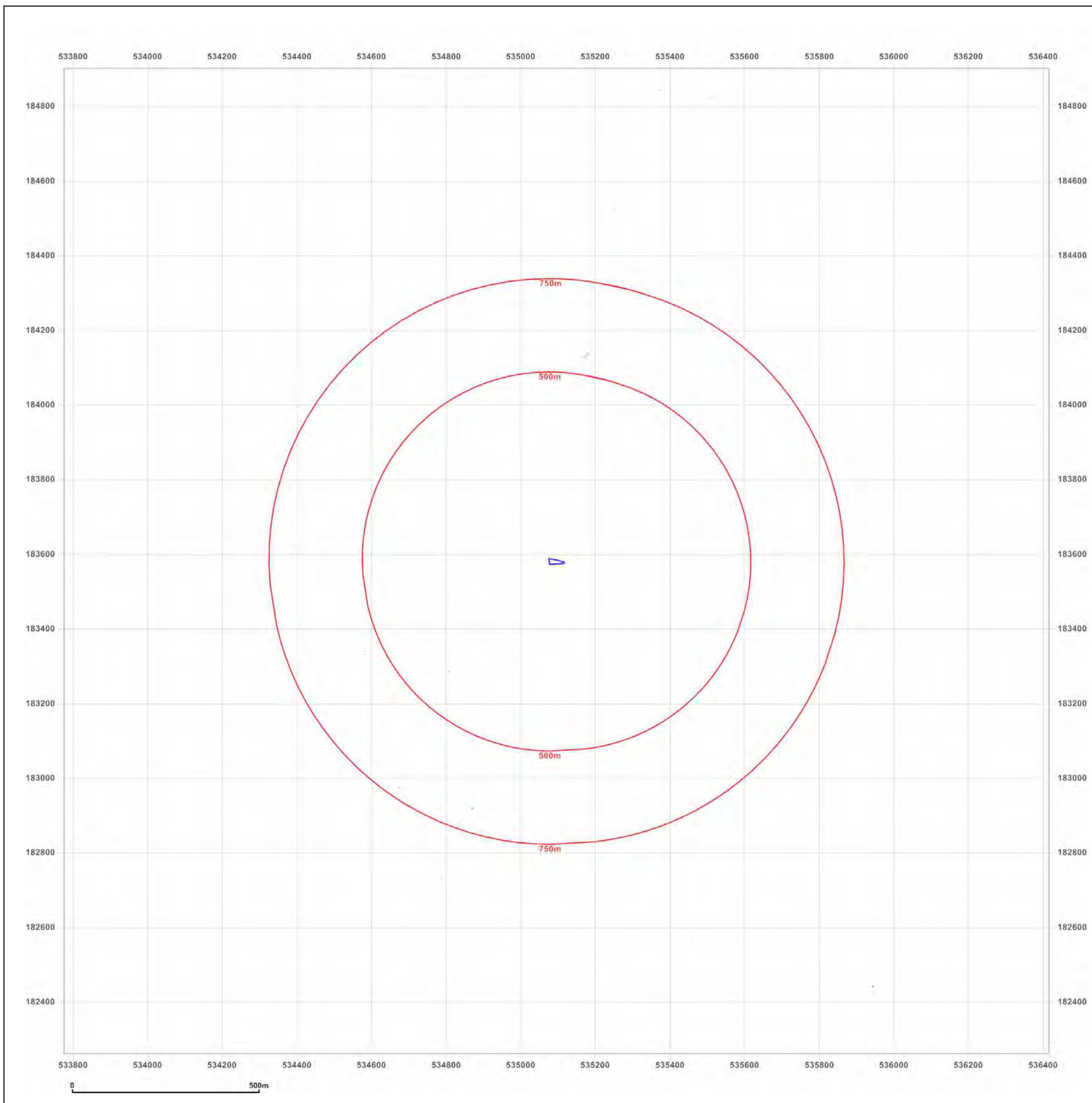


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Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: County Series

Map date: 1882

Scale: 1:10,560

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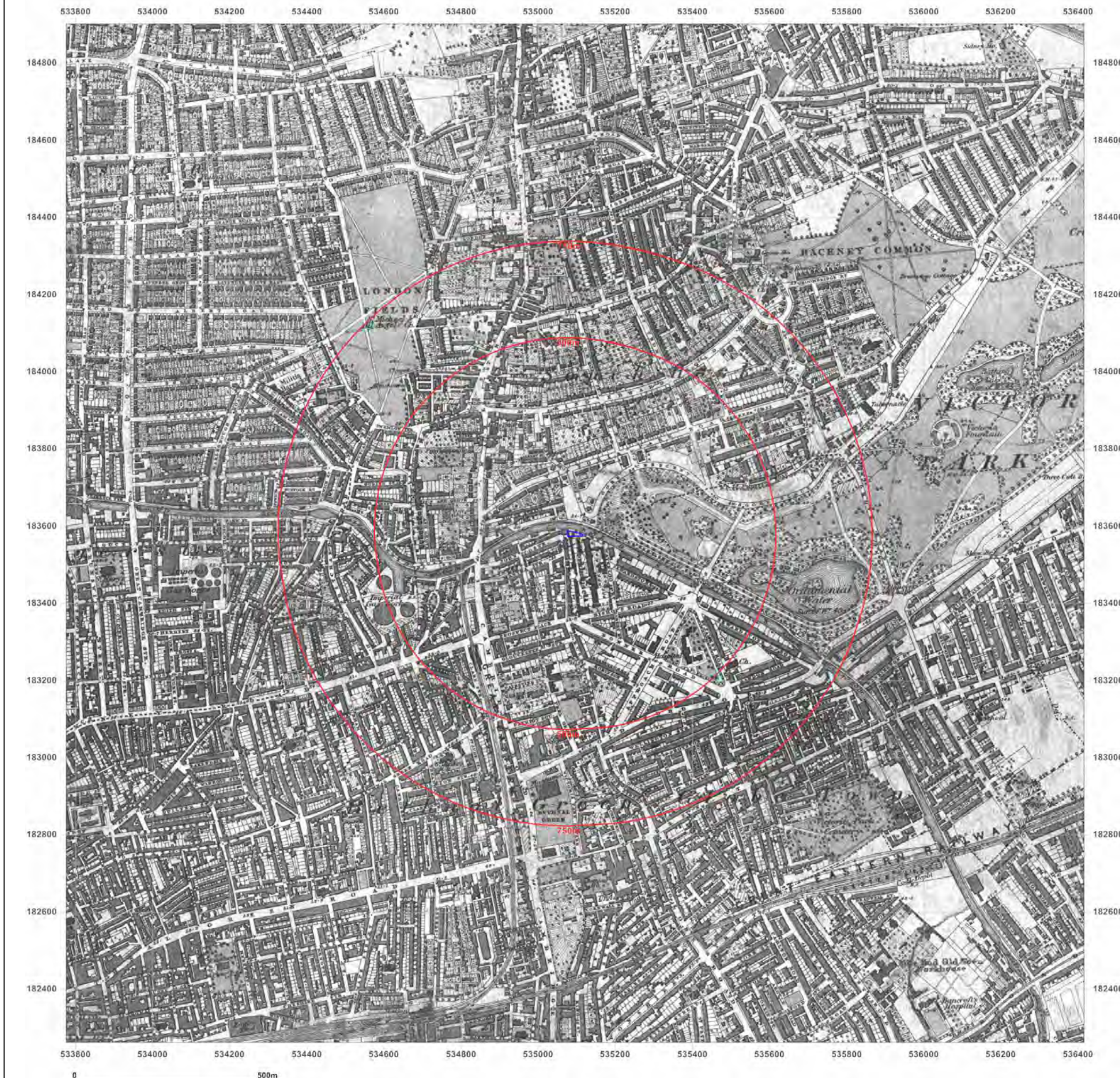


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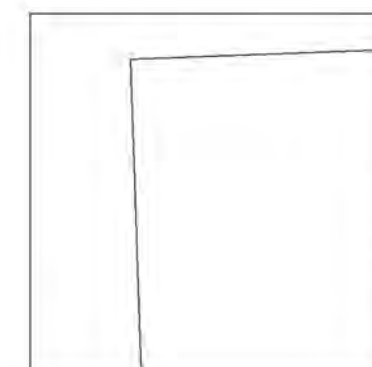
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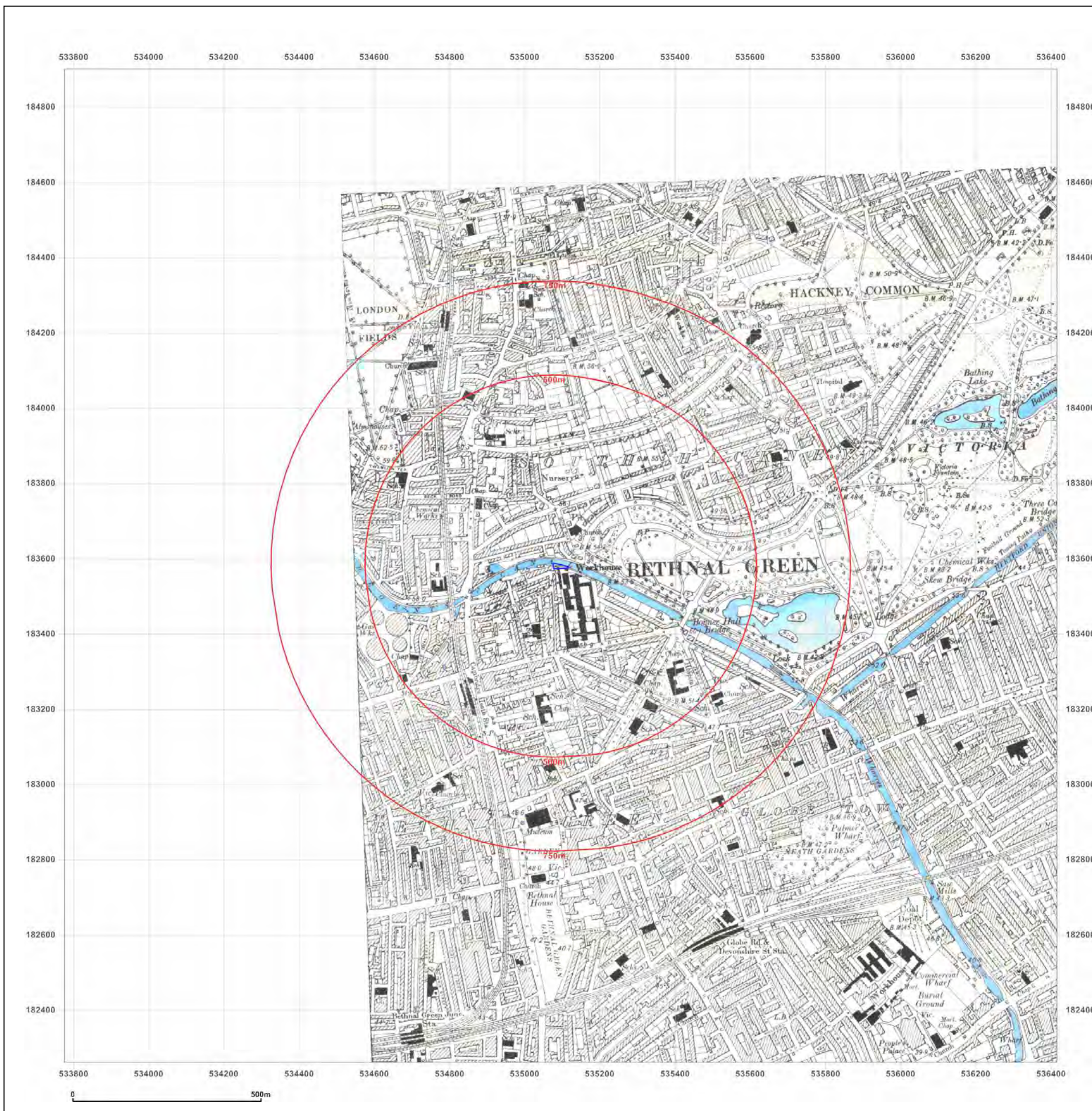


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Map Name: County Series

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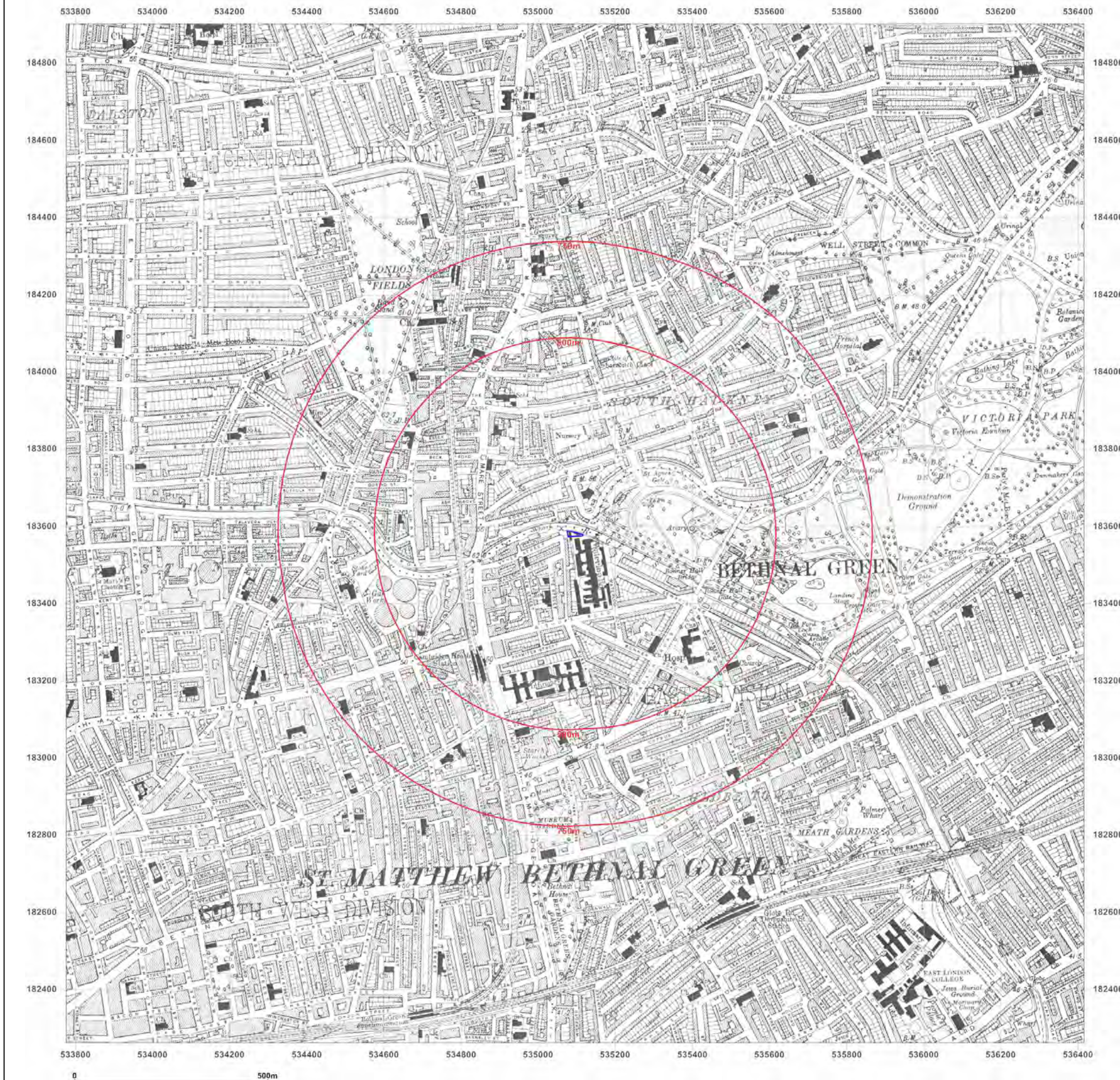


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Map Name: County Series

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Surveyed 1872
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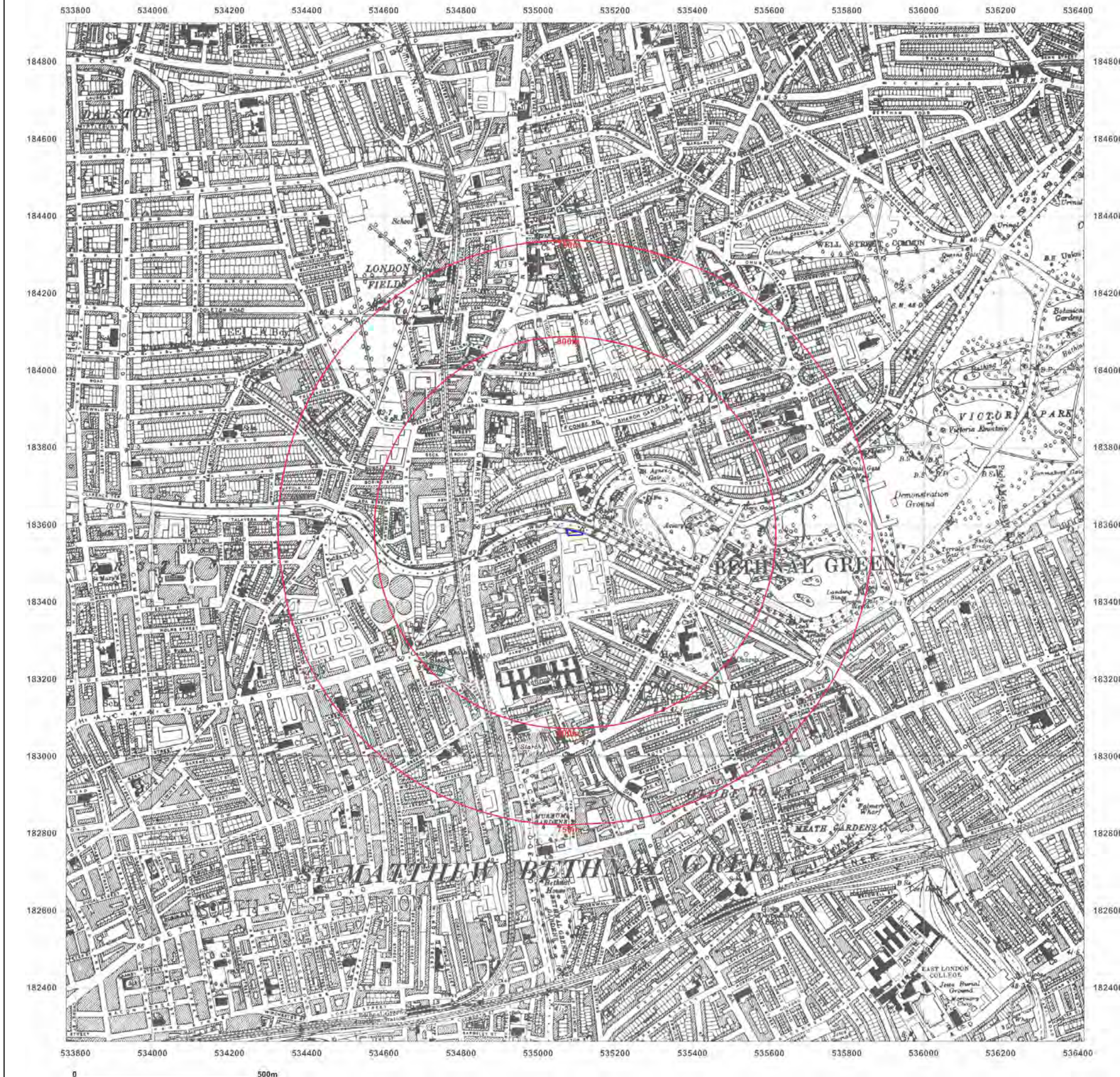


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Grid Ref: 535095, 183581

Map Name: Provisional

Map date: 1948-1949

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Client Ref: 14028423
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Grid Ref: 535095, 183581

Map Name: Provisional

Map date: 1955-1957

Scale: 1:10,560

Printed at: 1:10,560



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Surveyed 1955
Revised 1955
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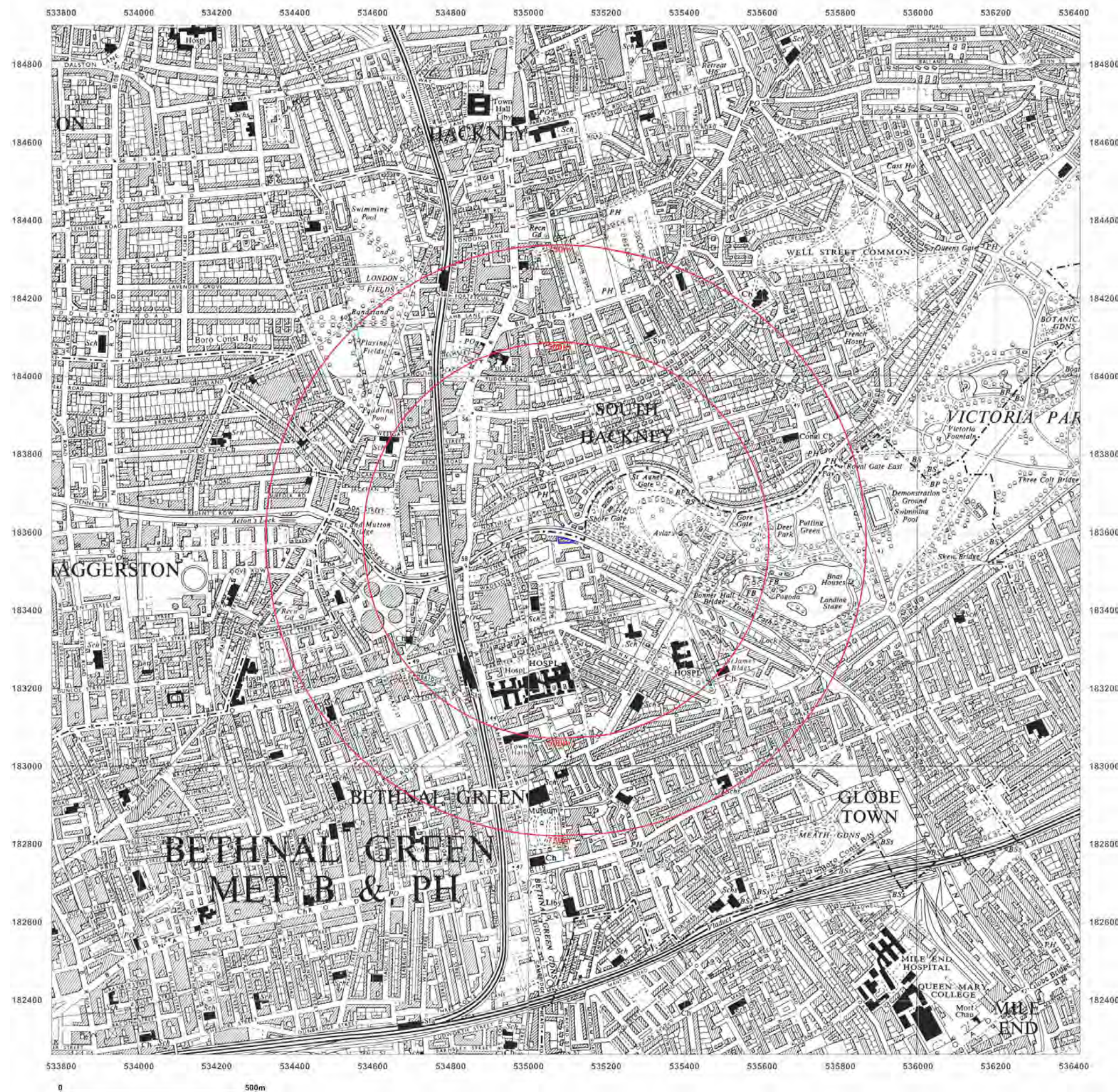


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Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: Provisional

Map date: 1965-1966

Scale: 1:10,560

Printed at: 1:10,560



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Surveyed 1965
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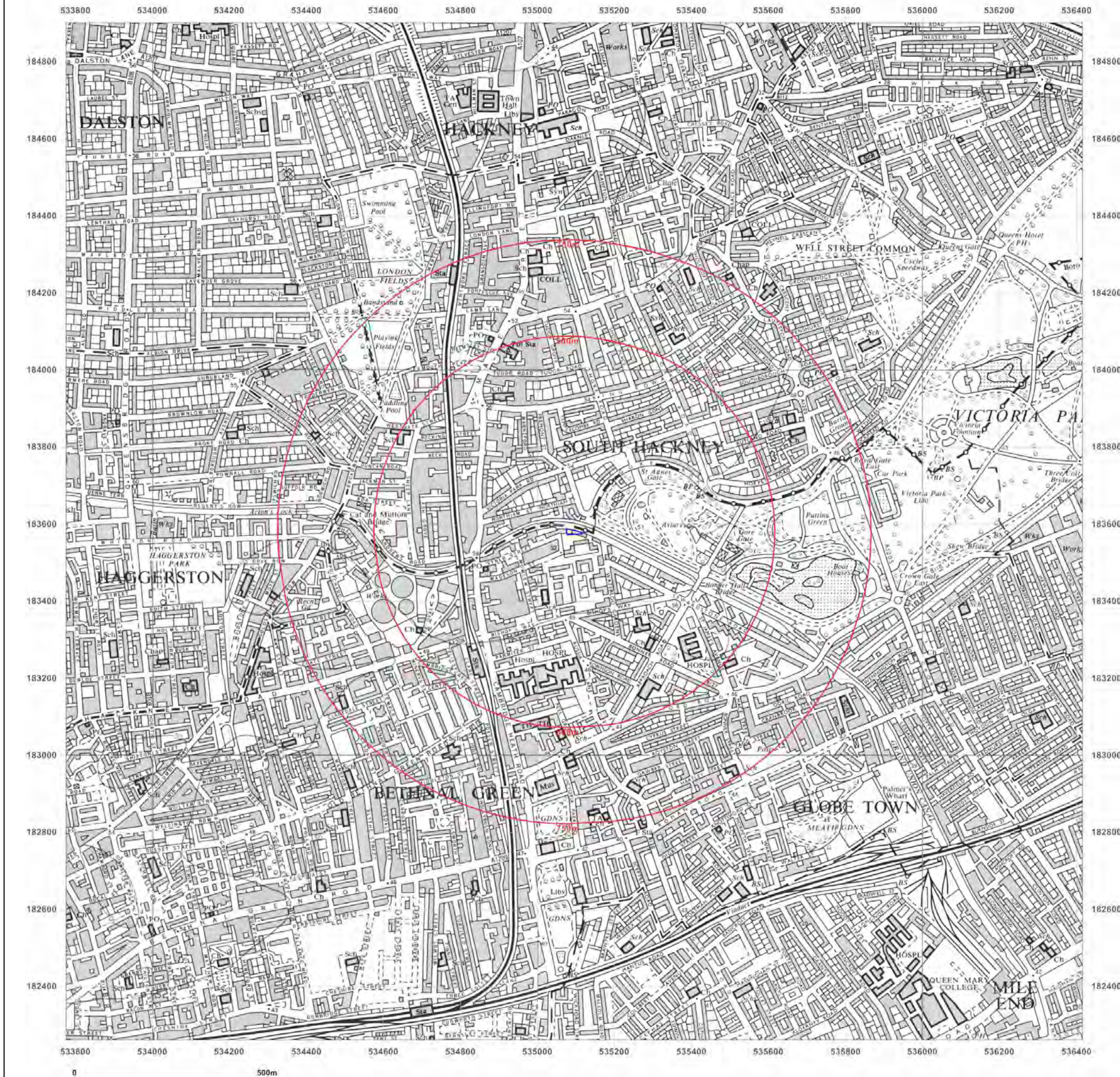


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Grid Ref: 535095, 183581

Map Name: National Grid

Map date: 1971-1973

Scale: 1:10,000

Printed at: 1:10,000



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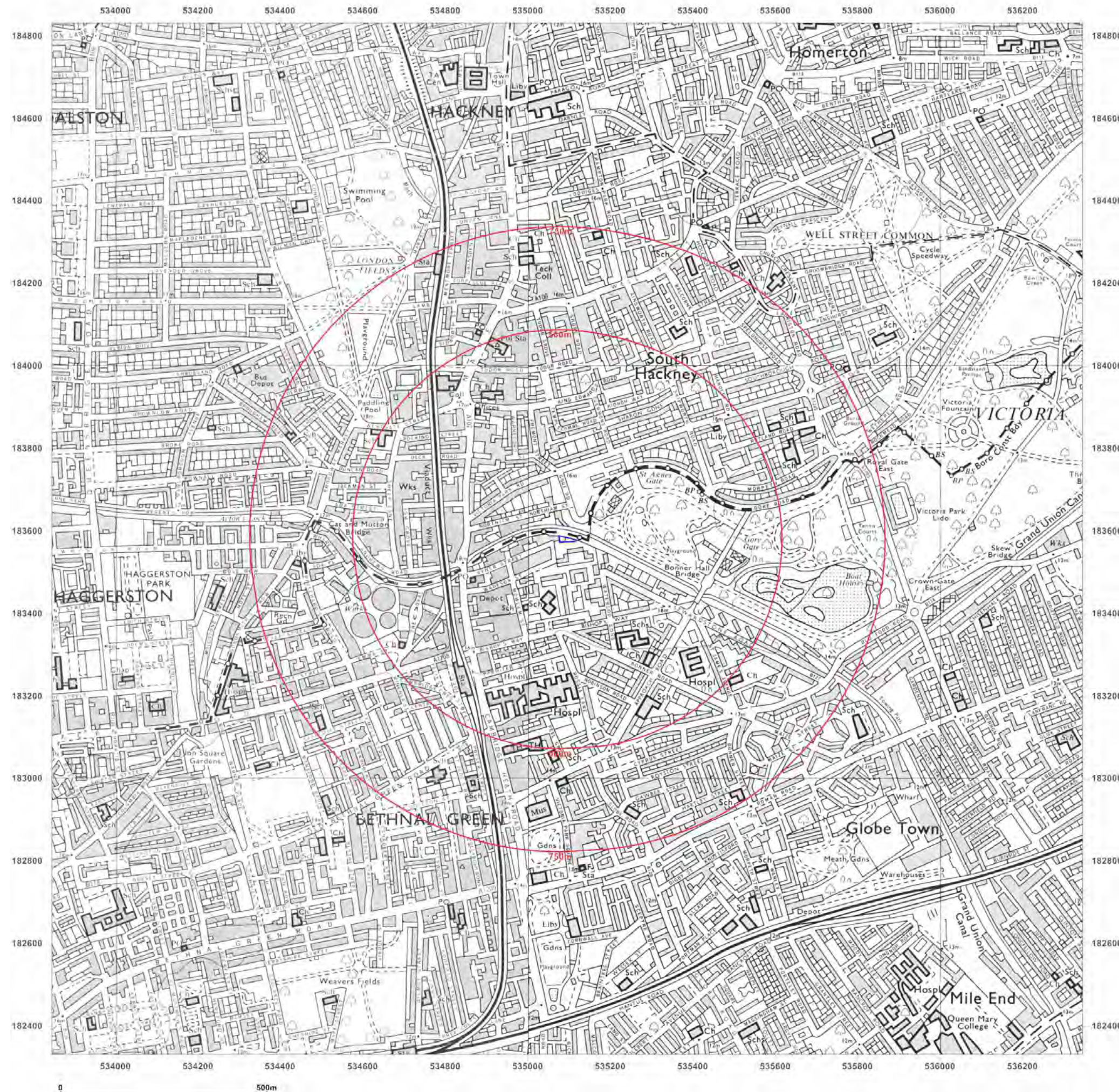


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Grid Ref: 535095, 183581

Map Name: National Grid

Map date: 1976-1981

Scale: 1:10,000

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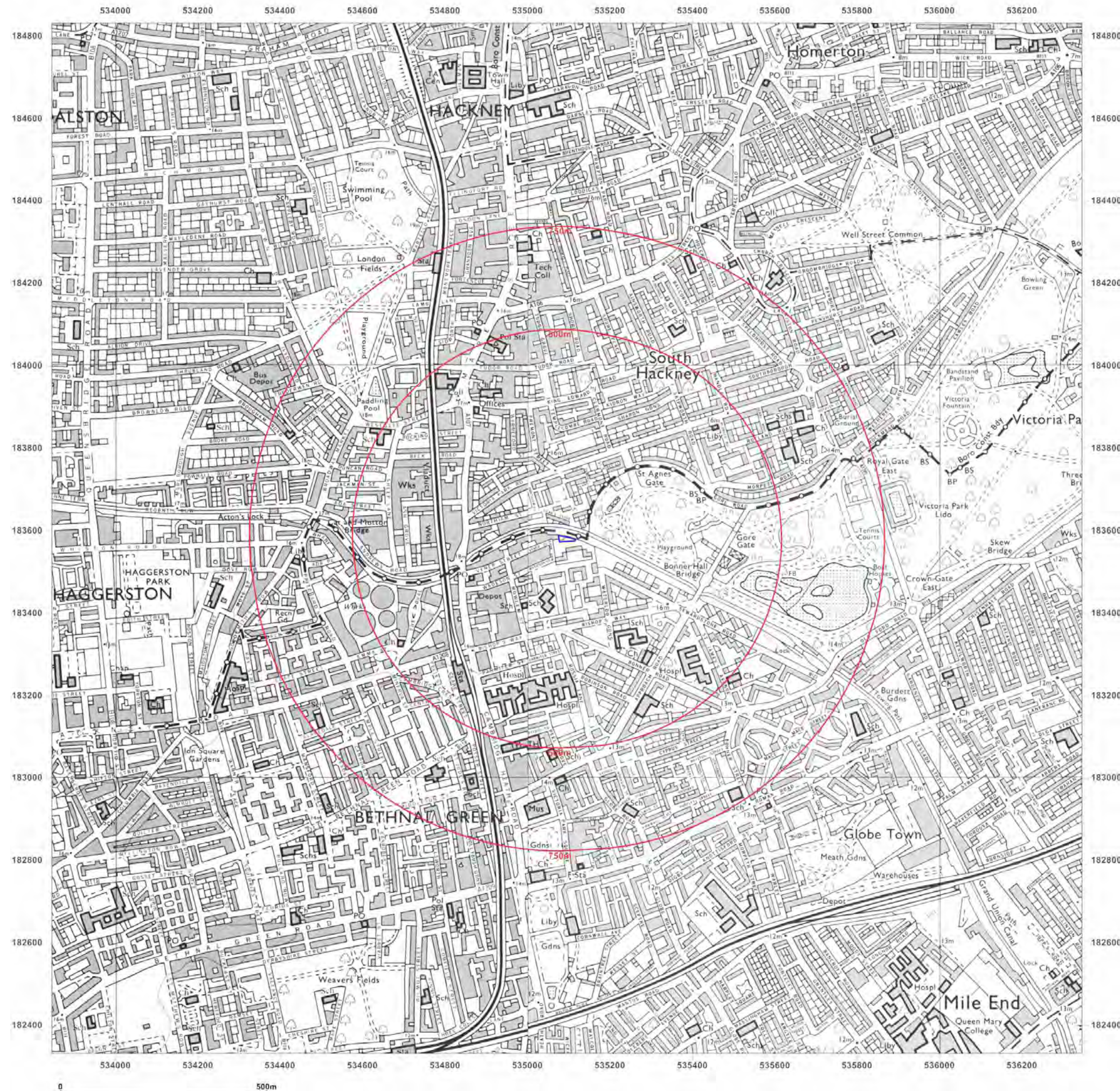


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Client Ref: 14028423
Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: National Grid

Map date: 1989-1994

Scale: 1:10,000

Printed at: 1:10,000



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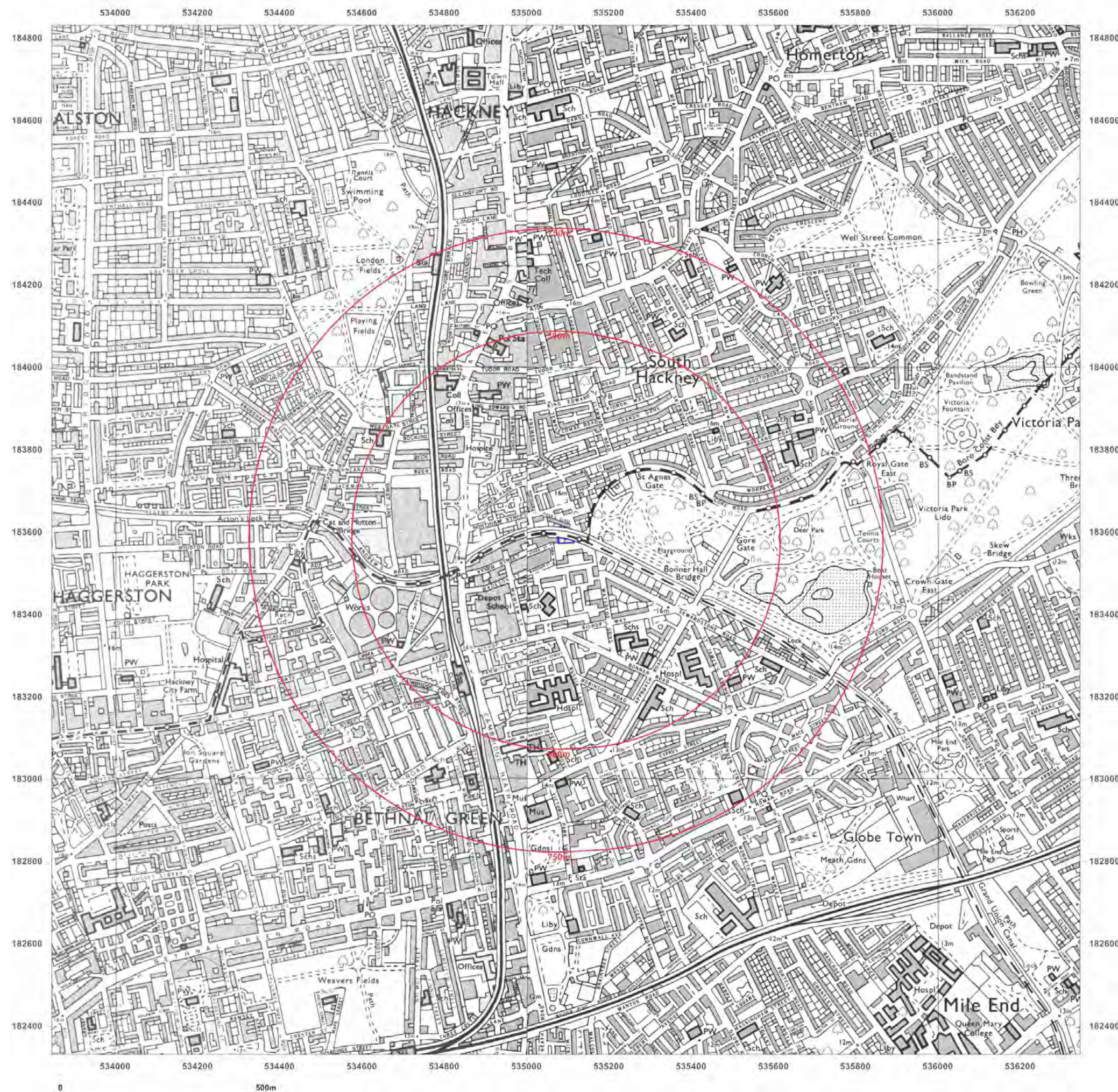


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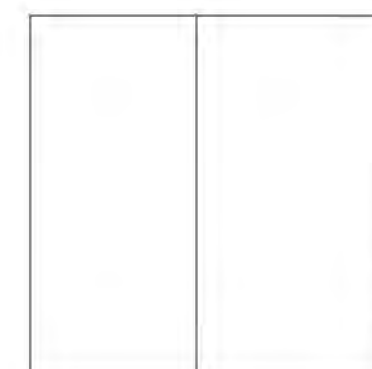
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Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: National Grid

Map date: 1994

Scale: 1:10,000

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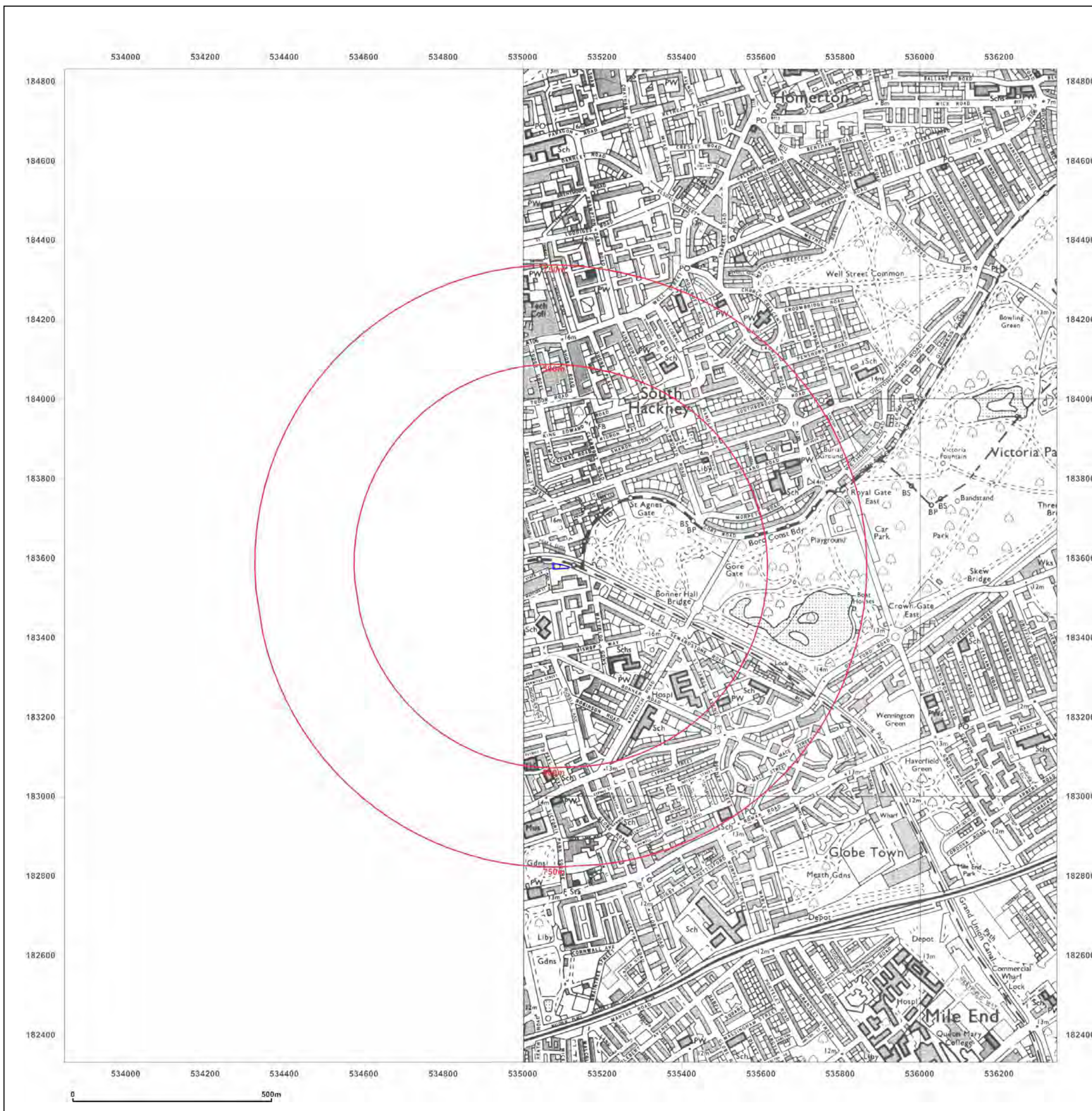


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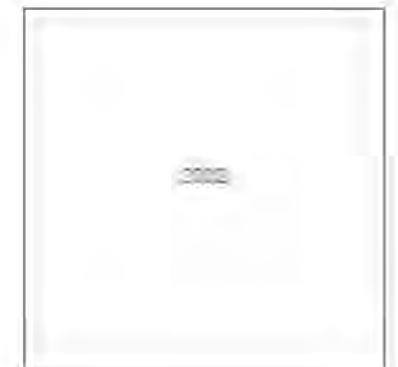
Client Ref: 14028423
Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: 1:10,000 Raster

Map date: 2002

Scale: 1:10,000

Printed at: 1:10,000

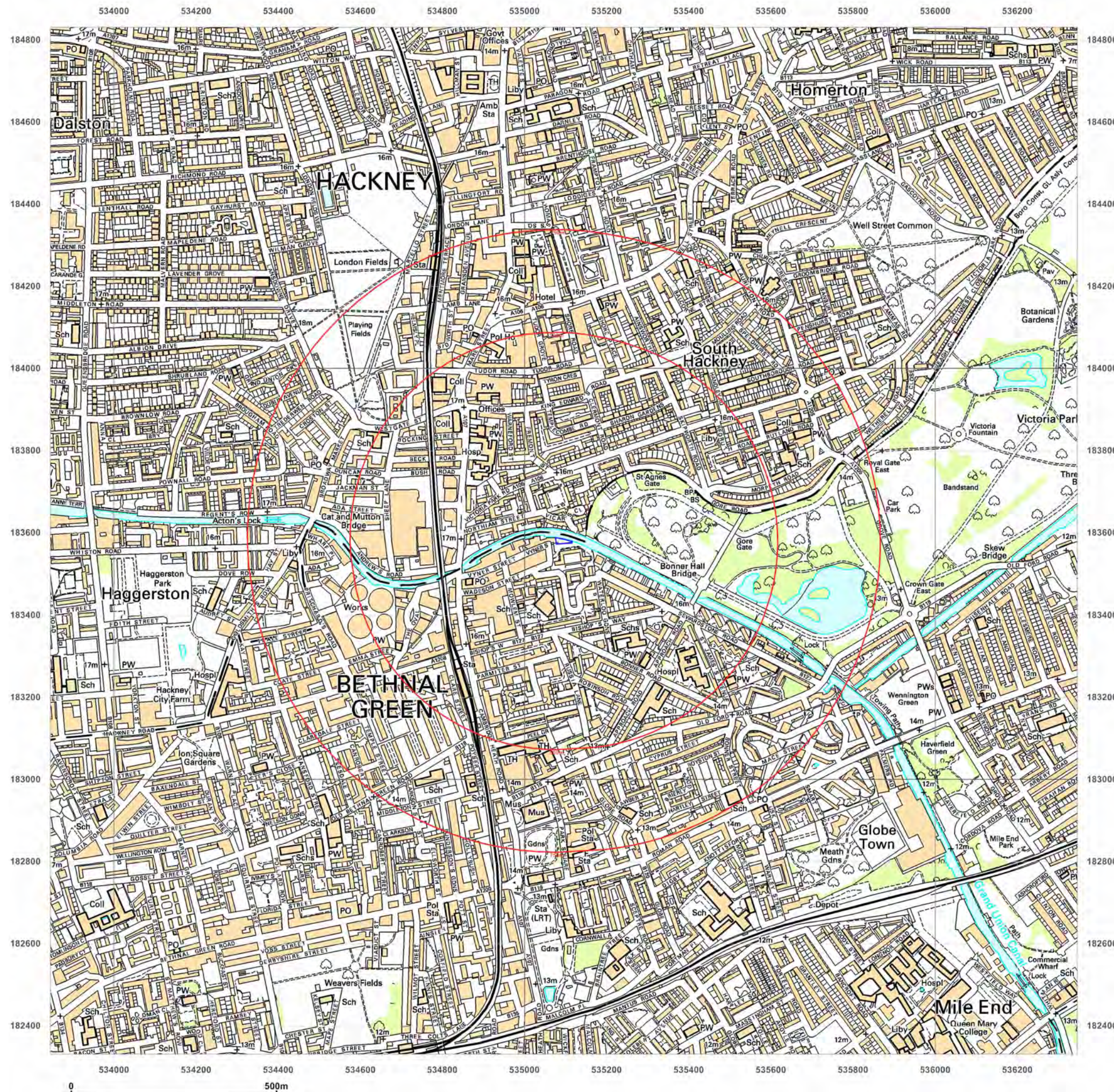


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Client Ref: 14028423
Report Ref: GS-6186770
Grid Ref: 535095, 183581

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

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Grid Ref: 535095, 183581

Map Name: National Grid

Map date: 2014

Scale: 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
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GS-6186768

Your Reference: 14028423

Report Date 22 Jul 2019

Report Delivery Method: Email - pdf

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Address: 37, LARK ROW, LONDON, E2 9JA

Date: 22 Jul 2019

Reference: GS-6186768

Client: Arcadis Consulting UK Ltd

NW

N

NE

W

E



SW

S

SE

Aerial Photograph Capture date: 07-Jun-2015

Grid Reference: 535092,183579

Site Size: 0.0393ha

Report Reference: GS-6186768

Client Reference: 14028423

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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	3	2	5	93
1.2 Additional Information – Historical Tank Database	0	0	1	140
1.3 Additional Information – Historical Energy Features Database	9	0	55	202
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	9	30
1.6 Historical military sites	0	0	0	0
1.7 Potentially Infilled Land	8	10	7	11
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	9
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	1
2.1.8 Records of Licensed Discharge Consents	0	0	1	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	2
2.2 Records of COMAH and NIHHS sites	0	0	0	1
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	1	0	3
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	0	0
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	0
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	1	1	2

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	1	3	25	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	0	2
4.3 National Grid Underground Electricity Cables	0	6	2	8
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	0	1	20
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	1	0	1
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	13
6.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	1	0	0	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	Yes	No
6.10 Ordnance Survey MasterMap Water Network entries within 500m of the site	0	2	0	4	Not searched	Not searched
6.11 Surface water features within 250m of the study site	Yes	No	No	Not searched	Not searched	Not searched

Section 7: Flooding

7.1 Environment Agency Zone 2 floodplains within 250m of the study site	None identified					
7.2 Environment Agency/Natural Resources Wales Zone 3 floodplains within 250m of the study site	None identified					
7.3 Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site	Very Low					
7.4 Flood Defences within 250m of the study site	None identified					
7.5 Areas benefiting from Flood Defences within 250m of the study site	None identified					
7.6 Areas used for Flood Storage within 250m of the study site	None identified					
7.7 Maximum BGS Groundwater Flooding susceptibility within 50m of the study site	Potential at Surface					
7.8 BGS confidence rating for the Groundwater Flooding susceptibility areas	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	0	0	0
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0

Section 8: Designated Environmentally Sensitive Sites	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
8.11 Records of National Parks	0	0	0	0	0	0
8.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
8.13 Records of Nitrate Vulnerable Zones	0	0	0	0	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	Very Low
9.1.1 Maximum Shrink-Swell hazard rating identified on the study site	Negligible
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.

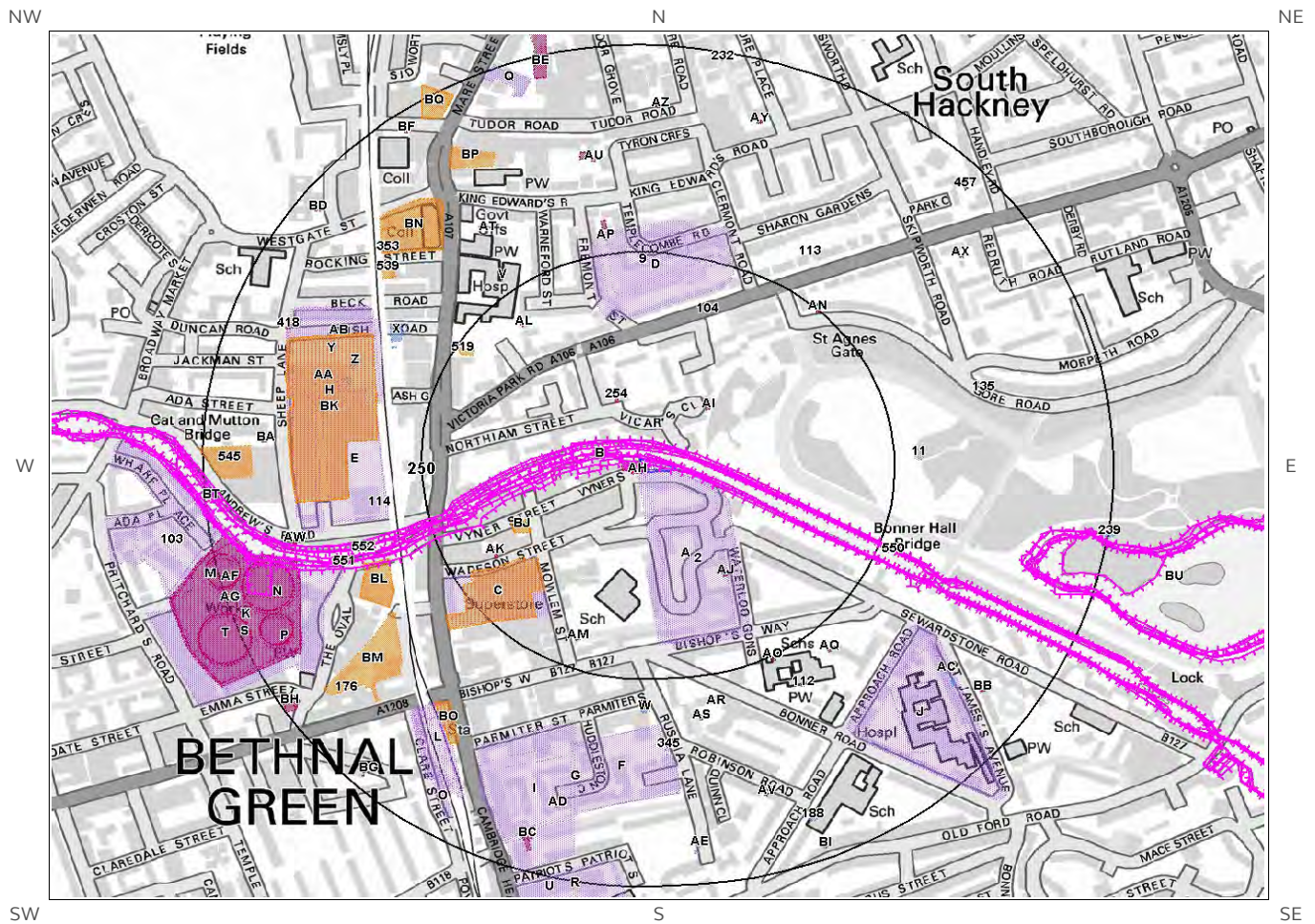
Note: Maps

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: 103

ID	Distance [m]	Direction	Use	Date
1A	0	On Site	Unspecified Workhouse	1920
2	0	On Site	Unspecified Workhouse	1894
3A	0	On Site	Unspecified Workhouse	1894
4B	32	W	Unspecified Wharf	1920
5B	32	W	Unspecified Wharf	1938
6C	157	SW	Unspecified Depot	1971
7C	157	SW	Unspecified Depot	1976
8D	170	N	Nursery	1894
9	181	N	Nursery	1920
10D	200	N	Nursery	1894
11	272	E	Unspecified Tank	1965
12E	294	W	Unspecified Works	1971
13E	295	W	Unspecified Works	1976
14H	301	W	Chemical Works	1894
15F	306	S	Hospital	1955
16F	306	S	Hospital	1981
17F	306	S	Hospital	1973
18F	306	S	Hospital	1989
19F	306	S	Hospital	1965
20G	306	S	Infirmery	1938
21G	306	S	Infirmery	1920
22H	307	W	Chemical Works	1894
23I	310	S	Hospital	1976
24I	310	S	Hospital	1971
25AA	313	W	Unspecified Works	1976
26Y	313	W	Unspecified Works	1971
27J	329	SE	Hospital	1965
28J	329	SE	Hospital	1973
29J	329	SE	Hospital	1955
30J	329	SE	Hospital	1949
31J	331	SE	Hospital	1938
32J	331	SE	Hospital	1920
33J	333	SE	Hospital	1981
34J	335	SE	Hospital	1882

35J	346	SE	Hospital	1894
36I	348	S	Hospital	1966
37I	348	S	Infirmery	1948
38I	348	S	Hospital	1957
39J	357	SE	Hospital	1894
40K	358	W	Unspecified Works	1994
41K	358	W	Unspecified Works	1971
42K	358	W	Unspecified Works	1976
43L	359	SW	Railway Station	1894
44L	363	SW	Railway Station	1948
45L	363	SW	Railway Station	1971
46L	364	SW	Railway Station	1920
47L	364	SW	Railway Station	1938
48J	364	SE	Hospital	1989
49J	364	SE	Hospital	1994
50L	365	SW	Railway Station	1882
51L	366	SW	Railway Station	1894
52L	374	SW	Railway Station	1957
53L	377	SW	Railway Station	1966
54L	378	SW	Railway Station	1994
55L	378	SW	Railway Station	1976
56K	404	W	Gas Works	1894
57M	406	W	Unspecified Commercial/Industrial	1948
58K	407	W	Gas Works	1894
59K	409	W	Unspecified Works	1966
60N	413	W	Gasometer	1894
61M	413	W	Unspecified Commercial/Industrial	1957
62K	416	W	Gas Works	1920
63K	416	W	Gasometers	1920
64K	416	W	Unspecified Tanks	1938
65K	416	W	Unspecified Commercial/Industrial	1938
66K	416	W	Gas Works	1882
67N	417	W	Gasometer	1894
68K	421	W	Unspecified Tanks	1971
69K	421	W	Unspecified Tanks	1966
70K	422	W	Unspecified Tanks	1957
71N	422	W	Unspecified Tanks	1994
72N	422	W	Unspecified Tanks	1976
73N	423	W	Unspecified Tank	1948
74P	437	SW	Gasometer	1894
75S	438	SW	Gasometers	1882
76O	439	SW	Railway Building	1994
77O	439	SW	Railway Building	1976
78P	439	SW	Unspecified Tanks	1994

79P	439	SW	Unspecified Tanks	1976
80P	440	SW	Gasometer	1894
81P	446	SW	Unspecified Tank	1948
82Q	457	N	Police Station	1957
83Q	457	N	Police Station	1994
84Q	457	N	Police Station	1976
85Q	457	N	Police Station	1966
86Q	457	N	Police Station	1971
87R	467	S	Starch Works	1920
88R	467	S	Starch Works	1938
89AF	470	W	Gasometer	1894
90M	472	W	Gasometer	1882
91M	474	W	Unspecified Tanks	1994
92M	474	W	Unspecified Tanks	1976
93M	474	W	Gasometer	1894
94M	480	W	Unspecified Tank	1948
95S	485	SW	Gasometer	1894
96T	486	W	Unspecified Tanks	1976
97T	486	W	Unspecified Tanks	1994
98T	486	SW	Gasometer	1894
99U	489	S	Unspecified Commercial/Industrial	1966
100U	489	S	Starch Works	1948
101U	489	S	Unspecified Commercial/Industrial	1957
102S	489	SW	Unspecified Tank	1948
103	489	W	Stone Yard	1920

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:

141

ID	Distance (m)	Direction	Use	Date
104	187	N	Unspecified Tank	1869
105V	267	NW	Tanks	1971
106V	268	NW	Tanks	1982
107W	283	S	Tanks	1991
108W	284	S	Tanks	1970
109AR	284	S	Unspecified Tank	1916
110W	285	S	Tanks	1985
111W	285	S	Tanks	1991

112	295	SE	Unspecified Tank	1896
113	297	NE	Unspecified Tank	1873
114	302	W	Unspecified Tank	1877
115X	307	NW	Unspecified Tank	1971
116X	308	NW	Unspecified Tank	1971
117X	310	NW	Unspecified Tank	1971
118X	310	NW	Unspecified Tank	1971
119H	341	W	Tanks	1971
120H	344	W	Tanks	1948
121H	344	W	Tanks	1950
122H	344	W	Tanks	1971
123H	345	W	Tanks	1948
124Y	345	W	Tanks	1948
125Z	345	W	Tanks	1950
126Z	345	W	Tanks	1948
127Z	347	W	Unspecified Tank	1971
128Z	347	W	Tanks	1950
129Z	347	W	Tanks	1948
130AA	348	W	Tanks	1971
131Z	350	W	Unspecified Tank	1971
132AA	350	W	Tanks	1971
133AA	350	W	Tanks	1948
134AA	358	W	Unspecified Tank	1971
135	362	E	Unspecified Tank	1869
136AB	374	NW	Tanks	1950
137AB	374	NW	Tanks	1948
138Y	374	W	Tanks	1948
139Y	374	W	Tanks	1950
140AB	375	NW	Tanks	1948
141Y	375	W	Tanks	1948
142AB	384	W	Tanks	1950
143AB	384	W	Tanks	1948
144AC	391	SE	Unspecified Tank	1991
145AC	393	SE	Unspecified Tank	1985
146AC	393	SE	Unspecified Tank	1991
147AC	404	SE	Unspecified Tank	1992
148AC	404	SE	Unspecified Tank	1993
149AC	405	SE	Unspecified Tank	1991
150AC	406	SE	Unspecified Tank	1994
151AC	406	SE	Unspecified Tank	1993
152AC	406	SE	Unspecified Tank	1995
153K	409	W	Gas Works	1950
154K	409	W	Gas Works	1948
155K	410	W	Gas Works	1948
156AD	411	S	Unspecified Tank	1991
157AD	411	S	Unspecified Tank	1990

158AD	411	S	Unspecified Tank	1948
159AD	411	S	Unspecified Tank	1948
160AD	411	S	Unspecified Tank	1950
161AD	411	S	Unspecified Tank	1971
162K	412	W	Gas Works	1896
163K	419	W	Gas Works	1877
164N	420	W	Gas Holder	1994
165N	420	W	Gas Holder	1993
166N	420	W	Gasometer	1896
167N	420	W	Gasholder	1981
168N	420	W	Gasholder	1990
169N	420	W	Gasholder	1991
170N	420	W	Gasholder	1990
171N	420	W	Gas Holder	1950
172N	420	W	Gas Holder	1948
173N	421	W	Unspecified Tank	1960
174N	421	W	Gasholder	1971
175N	421	W	Gasometer	1948
176	428	SW	Tank or Trough	1877
177P	440	SW	Gas Holder	1994
178P	440	SW	Gas Holder	1993
179P	441	SW	Gas Holder	1950
180P	441	SW	Gas Holder	1948
181P	441	SW	Unspecified Tank	1960
182P	441	SW	Gasholder	1971
183P	441	SW	Gasometer	1948
184P	441	SW	Gasholder	1991
185P	441	SW	Gasholder	1990
186P	441	SW	Gasholder	1981
187P	441	SW	Gasholder	1990
188	442	S	Unspecified Tank	1869
189P	442	SW	Gasometer	1877
190P	442	SW	Gasometer	1896
191AE	450	S	Unspecified Tank	1869
192AE	460	S	Unspecified Tank	1869
193K	464	W	Gas Holder	1950
194K	464	W	Gas Holder	1948
195K	464	W	Unspecified Tank	1993
196K	464	W	Unspecified Tank	1994
197K	464	W	Unspecified Tank	1991
198K	464	W	Unspecified Tank	1981
199K	464	W	Unspecified Tank	1990
200K	464	W	Unspecified Tank	1990
201K	465	W	Unspecified Tank	1896
202K	465	W	Unspecified Tank	1877
203AF	474	W	Unspecified Tank	1960

204AF	474	W	Gasometer	1948
205AF	474	W	Gasholder	1971
206AF	474	W	Gas Holder	1950
207AF	474	W	Gas Holder	1948
208AF	475	W	Gas Holder	1994
209AF	475	W	Gas Holder	1993
210AF	475	W	Gasholder	1990
211AF	475	W	Gasholder	1991
212AF	475	W	Gasholder	1981
213AF	475	W	Gasholder	1990
214AF	476	W	Gasometer	1896
215AF	476	W	Gasometer	1877
216BI	482	S	Gasometer	1869
217AF	482	W	Unspecified Tank	1896
218AF	482	W	Unspecified Tank	1877
219S	487	SW	Gas Holder	1950
220S	487	SW	Gas Holder	1948
221S	487	SW	Gasholder	1991
222S	487	SW	Gasholder	1990
223S	487	SW	Gasholder	1981
224S	487	SW	Gasholder	1990
225S	488	SW	Unspecified Tank	1960
226S	488	SW	Gasometer	1948
227S	488	SW	Gasholder	1971
228S	488	SW	Gas Holder	1994
229S	488	SW	Gas Holder	1993
230K	488	W	Unspecified Tank	1896
231K	488	W	Unspecified Tank	1877
232	489	N	Unspecified Tank	1873
233S	490	SW	Gasometer	1877
234S	490	SW	Gasometer	1896
235AG	495	W	Gas Holder	1950
236AG	495	W	Gas Holder	1948
237AG	496	W	Unspecified Tank	1948
238AG	496	W	Unspecified Tank	1960
239	497	E	Unspecified Tank	1870
240AG	499	W	Unspecified Tank	1981
241AG	499	W	Unspecified Tank	1990
242AG	499	W	Unspecified Tank	1991
243AG	499	W	Unspecified Tank	1990
244AG	499	W	Unspecified Tank	1971

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:

266

ID	Distance (m)	Direction	Use	Date
245AH	0	On Site	Electricity Substation	1994
246AH	0	On Site	Electricity Substation	1994
247AH	0	On Site	Electricity Substation	1971
248AH	0	On Site	Electricity Substation	1989
249AH	0	On Site	Electricity Substation	1991
250AH	0	On Site	Electricity Substation	1991
251AH	0	On Site	Electricity Substation	1991
252AH	0	On Site	Electricity Substation	1984
253AH	0	On Site	Electricity Substation	1999
254	73	N	Electricity Substation	1971
255AI	77	NE	Electricity Substation	1994
256AI	77	NE	Electricity Substation	1999
257AI	77	NE	Electricity Substation	1991
258AI	78	NE	Electricity Substation	1989
259AI	78	NE	Electricity Substation	1991
260AI	78	NE	Electricity Substation	1984
261AJ	134	SE	Electricity Substation	1993
262AJ	134	SE	Electricity Substation	1994
263AJ	134	SE	Electricity Substation	1995
264AJ	134	SE	Electricity Substation	1992
265AJ	134	SE	Electricity Substation	1991
266AJ	134	SE	Electricity Substation	1993
267AJ	134	SE	Electricity Substation	1948
268AJ	134	SE	Electricity Substation	1948
269AJ	135	SE	Electricity Substation	1970
270AJ	135	SE	Electricity Substation	1991
271AJ	135	SE	Electricity Substation	1991
272AJ	135	SE	Electricity Substation	1985
273AJ	135	SE	Electricity Substation	1948
274AJ	135	SE	Electricity Substation	1953
275AK	192	SW	Electricity Substation	1971
276AK	194	SW	Electricity Substation	1994
277AK	194	SW	Electricity Substation	1993
278AK	194	SW	Electricity Substation	1990
279AK	194	SW	Electricity Substation	1981
280AK	194	SW	Electricity Substation	1991
281AK	194	SW	Electricity Substation	1990
282AL	208	NW	Electricity Substation	1987
283AL	208	NW	Electricity Substation	1971
284AL	209	NW	Electricity Substation	1997

285AL	209	NW	Electricity Substation	1993
286AL	209	NW	Electricity Substation	1994
287AL	209	NW	Electricity Substation	1991
288AL	209	NW	Electricity Substation	1982
289AM	211	S	Electricity Substation	1991
290AM	211	S	Electricity Substation	1985
291AM	211	S	Electricity Substation	1991
292AM	211	S	Electricity Substation	1993
293AM	211	S	Electricity Substation	1994
294AM	211	S	Electricity Substation	1995
295AM	211	S	Electricity Substation	1991
296AM	211	S	Electricity Substation	1992
297AM	211	S	Electricity Substation	1993
298AM	213	S	Electricity Substation	1990
299AM	213	S	Electricity Substation	1990
300AN	245	NE	Electricity Substation	1991
301AN	245	NE	Electricity Substation	1994
302AN	245	NE	Electricity Substation	1999
303AN	246	NE	Electricity Substation	1989
304AN	246	NE	Electricity Substation	1991
305AN	246	NE	Electricity Substation	1984
306AN	247	NE	Electricity Substation	1971
307AO	250	SE	Electricity Substation	1991
308AO	250	SE	Electricity Substation	1970
309AO	251	SE	Electricity Substation	1985
310AO	251	SE	Electricity Substation	1991
311AP	267	N	Electricity Substation	1989
312AP	267	N	Electricity Substation	1991
313AQ	276	SE	Electricity Substation	1970
314AQ	276	SE	Electricity Substation	1953
315AQ	276	SE	Electricity Substation	1985
316AQ	276	SE	Electricity Substation	1991
317AQ	276	SE	Electricity Substation	1991
318AQ	276	SE	Electricity Substation	1992
319AQ	276	SE	Electricity Substation	1991
320AQ	276	SE	Electricity Substation	1993
321AQ	276	SE	Electricity Substation	1994
322AQ	276	SE	Electricity Substation	1993
323AQ	276	SE	Electricity Substation	1995
324AP	280	N	Electricity Substation	1948
325AP	280	N	Electricity Substation	1994
326AP	280	N	Electricity Substation	1999
327AP	280	N	Electricity Substation	1991
328AR	298	S	Electricity Substation	1991
329AR	298	S	Electricity Substation	1992
330AR	298	S	Electricity Substation	1993

331AR	298	S	Electricity Substation	1994
332AR	298	S	Electricity Substation	1993
333AR	298	S	Electricity Substation	1995
334AR	298	S	Electricity Substation	1970
335AS	298	S	Electricity Substation	1985
336AS	298	S	Electricity Substation	1991
337AS	298	S	Electricity Substation	1991
338AT	324	NW	Electricity Substation	1971
339AT	324	NW	Electricity Substation	1987
340AT	325	NW	Electricity Substation	1982
341AT	325	NW	Electricity Substation	1991
342AT	325	NW	Electricity Substation	1997
343AT	325	NW	Electricity Substation	1994
344AT	325	NW	Electricity Substation	1993
345	331	S	Electricity Substation	1995
346AU	362	N	Electricity Substation	1989
347AU	362	N	Electricity Substation	1984
348AU	362	N	Electricity Substation	1991
349AU	367	N	Electricity Substation	1994
350AU	367	N	Electricity Substation	1999
351AU	367	N	Electricity Substation	1991
352AU	367	N	Electricity Substation	1971
353	380	NW	Electricity Substation	1971
354AV	401	S	Electricity Substation	1985
355AV	401	S	Electricity Substation	1991
356AV	401	S	Electricity Substation	1991
357AV	402	S	Electricity Substation	1994
358AV	402	S	Electricity Substation	1993
359AV	402	S	Electricity Substation	1995
360AV	402	S	Electricity Substation	1991
361AV	402	S	Electricity Substation	1992
362AV	402	S	Electricity Substation	1993
363AW	404	W	Electricity Substation	1993
364AW	404	W	Electricity Substation	1994
365AW	404	W	Electricity Substation	1971
366AW	405	W	Electricity Substation	1990
367AW	405	W	Electricity Substation	1981
368AW	405	W	Electricity Substation	1991
369AW	405	W	Electricity Substation	1990
370AG	409	W	Gas Works	1950
371AG	409	W	Gas Works	1948
372AG	410	W	Gas Works	1948
373AX	411	NE	Electricity Substation	1991
374AX	411	NE	Electricity Substation	1984
375AX	411	NE	Electricity Substation	1989
376AG	412	W	Gas Works	1896

377AX	412	NE	Electricity Substation	1994
378AX	412	NE	Electricity Substation	1999
379AX	412	NE	Electricity Substation	1991
380AX	412	NE	Electricity Substation	1971
381K	419	W	Gas Works	1877
382N	420	W	Gas Holder	1993
383N	420	W	Gas Holder	1994
384N	420	W	Gasometer	1896
385N	420	W	Gasholder	1981
386N	420	W	Gasholder	1991
387N	420	W	Gasholder	1990
388N	420	W	Gasholder	1990
389N	420	W	Gas Holder	1950
390N	420	W	Gas Holder	1948
391N	421	W	Gasholder	1971
392N	421	W	Gasometer	1948
393AY	424	N	Electricity Substation	1989
394AY	424	N	Electricity Substation	1984
395AY	424	N	Electricity Substation	1991
396AY	424	N	Electricity Substation	1971
397AY	424	N	Electricity Substation	1991
398AY	424	N	Electricity Substation	1994
399AY	424	N	Electricity Substation	1999
400AZ	424	N	Electricity Substation	1991
401AZ	424	N	Electricity Substation	1999
402AZ	424	N	Electricity Substation	1992
403AZ	424	N	Electricity Substation	1997
404AZ	424	N	Electricity Substation	1995
405AZ	425	N	Electricity Substation	1972
406AZ	425	N	Electricity Substation	1955
407AZ	425	N	Electricity Substation	1990
408AZ	425	N	Electricity Substation	1990
409AZ	425	N	Electricity Substation	1980
410AZ	425	N	Electricity Substation	1991
411BA	426	W	Electricity Substation	1993
412BA	426	W	Electricity Substation	1997
413BA	426	W	Electricity Substation	1994
414BA	426	W	Electricity Substation	1987
415BA	426	W	Electricity Substation	1971
416BA	426	W	Electricity Substation	1991
417BA	426	W	Electricity Substation	1982
418	430	W	Electricity Substation	1971
419BB	436	SE	Electricity Substation	1953
420BB	437	SE	Electricity Substation	1985
421BB	437	SE	Electricity Substation	1991
422BB	437	SE	Electricity Substation	1991

423BB	437	SE	Electricity Substation	1970
424BB	437	SE	Electricity Substation	1993
425BB	437	SE	Electricity Substation	1994
426BB	437	SE	Electricity Substation	1995
427BB	437	SE	Electricity Substation	1991
428BB	437	SE	Electricity Substation	1992
429BB	437	SE	Electricity Substation	1993
430P	440	SW	Gas Holder	1994
431P	440	SW	Gas Holder	1993
432P	441	SW	Gas Holder	1950
433P	441	SW	Gas Holder	1948
434P	441	SW	Gasholder	1971
435P	441	SW	Gasometer	1948
436P	441	SW	Gasholder	1981
437P	441	SW	Gasholder	1991
438P	441	SW	Gasholder	1990
439P	441	SW	Gasholder	1990
440P	442	SW	Gasometer	1896
441P	442	SW	Gasometer	1877
442BC	452	S	Electricity Substation	1991
443BC	452	S	Electricity Substation	1981
444BC	452	S	Electricity Substation	1990
445BC	452	S	Electricity Substation	1990
446BC	452	S	Electricity Substation	1994
447BC	452	S	Electricity Substation	1993
448BC	452	S	Electricity Substation	1990
449BC	452	S	Electricity Substation	1990
450BC	452	S	Electricity Substation	1981
451BC	452	S	Electricity Substation	1991
452BC	453	S	Electricity Substation	1971
453BC	460	S	Electricity Substation	1993
454BC	460	S	Electricity Substation	1994
455K	464	W	Gas Holder	1948
456K	464	W	Gas Holder	1950
457	470	NE	Electricity Substation	1971
458BD	472	NW	Electricity Substation	1991
459BD	472	NW	Electricity Substation	1997
460BD	472	NW	Electricity Substation	1993
461BD	472	NW	Electricity Substation	1994
462BD	472	NW	Electricity Substation	1987
463BE	473	N	Electricity Transformer Station	1949
464BE	473	N	Electricity Transformer Station	1951
465BE	473	N	Electricity Transformer Station	1948
466BE	473	N	Electricity Transformer	1951

				Station	
467M	474	W	Gasholder	1971	
468M	474	W	Gasometer	1948	
469M	474	W	Gas Holder	1948	
470M	474	W	Gas Holder	1950	
471M	475	W	Gas Holder	1994	
472M	475	W	Gas Holder	1993	
473M	475	W	Gasholder	1990	
474M	475	W	Gasholder	1981	
475M	475	W	Gasholder	1991	
476M	475	W	Gasholder	1990	
477BF	475	NW	Electricity Substation	1971	
478BF	475	NW	Electricity Substation	1987	
479BF	475	NW	Electricity Substation	1991	
480BF	475	NW	Electricity Substation	1982	
481BG	476	SW	Electricity Substation	1990	
482BG	476	SW	Electricity Substation	1981	
483BG	476	SW	Electricity Substation	1991	
484BG	476	SW	Electricity Substation	1990	
485BG	476	SW	Electricity Substation	1971	
486BF	476	NW	Electricity Substation	1993	
487BF	476	NW	Electricity Substation	1994	
488BF	476	NW	Electricity Substation	1997	
489M	476	W	Gasometer	1896	
490M	476	W	Gasometer	1877	
491BH	481	SW	Electricity Substation	1950	
492BH	481	SW	Electricity Substation	1948	
493BG	482	SW	Electricity Substation	1993	
494BG	482	SW	Electricity Substation	1994	
495BI	482	S	Gasometer	1869	
496BH	483	SW	Electricity Substation	1948	
497S	487	SW	Gas Holder	1950	
498S	487	SW	Gas Holder	1948	
499S	487	SW	Gasholder	1981	
500S	487	SW	Gasholder	1990	
501S	487	SW	Gasholder	1991	
502S	487	SW	Gasholder	1990	
503S	488	SW	Gasometer	1948	
504S	488	SW	Gasholder	1971	
505S	488	SW	Gas Holder	1993	
506S	488	SW	Gas Holder	1994	
507S	490	SW	Gasometer	1896	
508S	490	SW	Gasometer	1877	
509AG	495	W	Gas Holder	1950	
510AG	495	W	Gas Holder	1948	

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: 39

ID	Distance (m)	Direction	Use	Date
511BJ	143	SW	Garage	1991
512BJ	143	SW	Garage	1982
513BJ	144	SW	Garage	1987
514BJ	145	SW	Garage	1997
515BJ	145	SW	Garage	1994
516BJ	145	SW	Garage	1993
517C	157	SW	Garage	1950
518C	170	SW	Garage	1948
519	229	NW	Garage	1982
520BK	301	W	Bus Garage	1993
521BK	301	W	Bus Garage	1997
522BK	301	W	Bus Garage	1994
523BK	301	W	Bus Garage	1987
524BK	302	W	Bus Garage	1982
525BK	302	W	Bus Garage	1991
526BL	307	W	Garage	1971
527BL	307	W	Garage	1960
528BL	308	W	Garage	1981
529BL	308	W	Garage	1990
530BL	308	W	Garage	1990
531BL	308	W	Garage	1991
532BL	316	SW	Garage	1994
533BL	316	SW	Garage	1993
534BM	330	SW	Garage	1971
535BM	330	SW	Garage	1960
536BN	338	NW	Garage	1959

537BN	340	NW	Garage	1950
538BN	347	NW	Garage	1948
539	355	NW	Garage	1982
540BO	355	SW	Garage	1971
541BO	355	SW	Garage	1960
542BO	360	SW	Garage	1981
543BP	391	NW	Garage	1971
544BP	391	NW	Garage	1987
545	443	W	Garage	1982
546BQ	470	NW	Garage	1965
547BQ	470	NW	Garage	1991
548BQ	470	NW	Garage	1981
549BQ	474	NW	Garage	1967

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

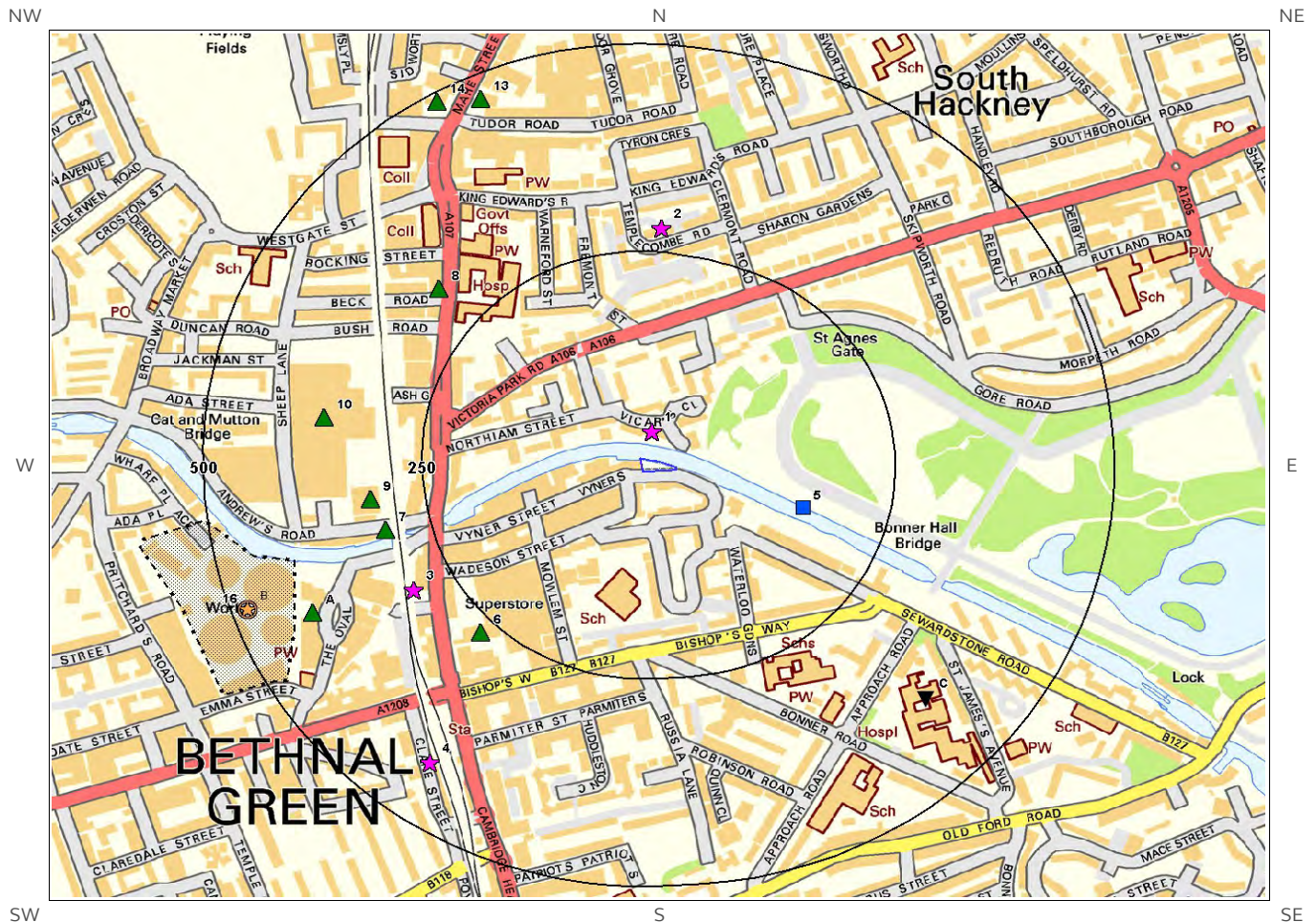
Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 36

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

ID	Distance(m)	Direction	Use	Date
550	0	On Site	Canal	1894
551	0	On Site	Canal	1894
552	0	N	Canal	1920
553BR	0	N	Canal	1938
554BR	0	N	Canal	1920
555BR	0	N	Canal	1920
556BR	0	N	Canal	1920
557BR	0	N	Canal	1920
558BS	2	N	Canal	1949
559BS	2	N	Canal	1989
560BS	2	N	Canal	1973
561BS	2	N	Canal	1965
562BS	2	N	Canal	1955
563BS	2	N	Canal	1981

564BS	2	N	Canal	1994
565	3	N	Canal	1882
566B	32	W	Unspecified Wharf	1938
567B	32	W	Unspecified Wharf	1920
568BT	76	W	Canal	1966
569BT	76	W	Canal	1994
570BT	76	W	Canal	1957
571BT	76	W	Canal	1976
572BT	76	W	Canal	1971
573BT	76	W	Canal	1948
574	248	W	Canal	1882
575BU	409	E	Water Body	1965
576BU	409	E	Water Body	1955
577BU	409	E	Water Body	1973
578BU	409	E	Water Body	1981
579BU	411	E	Pond	1920
580BU	411	E	Pond	1938
581BU	416	E	Water Body	1882
582BU	418	E	Pond	1989
583BU	418	E	Pond	1994
584BU	424	E	Water Body	1894
585BU	426	E	Water Body	1894

2. Environmental Permits, Incidents and Registers Map



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

2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

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

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

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:

9

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
6	270	SW	534891 183377	Address: Five Star Dry Cleaners, 256 Cambridge Heath Road, London, E2 9DA Process: Dry Cleaning Status: Current Permit Permit Type: Part B Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
7	303	W	534783 183501	Address: James Hoyle & Sons, The Beehive Foundry, 50 Andrews Rd, E8 4RL Process: Other Metal Processes; Foundry & casting process Status: Historical Permit Permit Type: Part B Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified
8	306	NW	534844 183791	Address: Be Smart Dry Cleaners, 71 Mare Street, London, E8 4RG Process: Dry Cleaning Status: Current Permit Permit Type: Part B Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified
9	313	W	534765 183538	Address: Cintique Ltd, Andrews Road, E8 4RN Process: Combustion & Incineration ; Coating Processes Status: Historical Permit Permit Type: Part B Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified
10	365	W	534712 183636	Address: Kentish Bus and Coach Ltd, Cambridge Heath Garage, Mare St, E8 1HR Process: Waste Oil Burner <0.4 MW Status: Historical Permit Permit Type: Part B Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified
11A	415	SW	534699 183401	Address: Mc Tyler, The Oval, Hackney Rd, E2 Process: Timber Manufacture Status: Historical Permit Permit Type: Part B Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
12A	415	SW	534699 183401	Address: Sullivans Mouldings, The Oval, Hackney Rd, E2 9DT Process: Timber Manufacture Status: Historical Permit Permit Type: Part B Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
13	469	NW	534891 184020	Address: Mare Street Service Station, 122-142 Mare Street, E8 3SG Process: Unloading of Petrol into Storage at Service Stations Status: Current Permit Permit Type: Part B Enforcement: Enforcement Notified Date of Enforcement: 23/02/2010 Comment: EPR 2007 (Section 60) Request for information
14	488	NW	534841 184017	Address: Thames Service Station, 139 Mare Street, E8 3RH Process: Unloading of Petrol into Storage at Service Stations Status: Historical Permit Permit Type: Part B Enforcement: Enforcement Noticed Date of Enforcement: 29/01/2007 Comment: Revocation notice issued

2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

1

The following RAS Licence (3 or 4) records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Address	Operator	Type	Permission Number	Dates	Status
19C	397	SE	535400 183300	Zzzz London Chest Hospital, Bonner Road, London, E2 9JX	Zzzz London Chest Hospital	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AD8083	Date of Approval: 31/3/1991 Effective from: 31/3/1991 Last date of update: 2015-01-01	Revoked/cancelled

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

1

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

ID	Distance (m)	Direction	NGR	Details
5	152	E	535260 183530	Address: BONNER HALL BRIDGE OUTLET, SOUTH HA, BONNER HALL BRIDGE OUTLET, SOUTH, HACKNEY, LONDON Effluent Type: TRADE DISCHARGES - COOLING WATER Permit Number: CTMR.0391 Permit Version: 1 Receiving Water: GRAND UNION CANAL Status: TRANSFERRED FROM R(PP)A 1951-1961 Issue date: 28/03/1980 Effective Date: 28-Mar-1980 Revocation Date: -

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:

2

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

ID	Distance (m)	Direction	Application Reference Number	NGR	Application Status	Application Date	Address	Details	Details of Enforcement Action
20B	481	W	PA/02/00453	534625183407	Historical Consent	03/04/2002	Transco Plc, Bethnal Green Holder Station, Marian Place, London, E2 9AP	Continuation of Hazardous Substances Consent following a change in control of part of the land.	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
21B	481	W	No Details	534625183407	Approved	No Details	Transco PLC, Bethnal Green Holder Station, Marian Place, Bethnal Green, London, England, E2 9AP	No Details	Enforcement: No Enforcement Notified Date of Enforcement: No Details Comment: No Details

2.2 Dangerous or Hazardous Sites

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

1

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

ID	Distance (m)	Direction	Company	Address	Operational Status	Tier
16	412	W	British Gas	British Gas, Bethnal Green Holder Station, Marion Place, Bethnal Green, E2 9AX	Historical COMAH Site	-

2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

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

4

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

ID	Distance (m)	Direction	NGR	Details
1	34	N	535086.0183621.0	Incident Date: 22-Jun-2003 Incident Identification: 167865.0 Pollutant: Pollutant Not Identified Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

ID	Distance (m)	Direction	NGR	Details	
Pollutant Description: Not Identified					
2	278	N	535097.0 183866.0	Incident Date: 07-Nov-2003 Incident Identification: 200524.0 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
3	299	SW	534814.0 183430.0	Incident Date: 24-Jul-2001 Incident Identification: 18518.0 Pollutant: Other Pollutant Pollutant Description: Other	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 3 (Minor)
4	428	SW	534833.0 183222.0	Incident Date: 24-Apr-2002 Incident Identification: 74402.0 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Smoke	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)

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

0

Database searched and no data found.

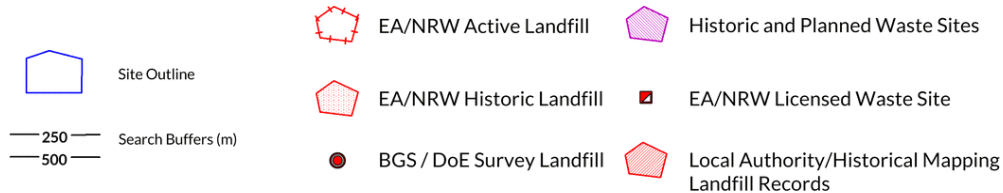
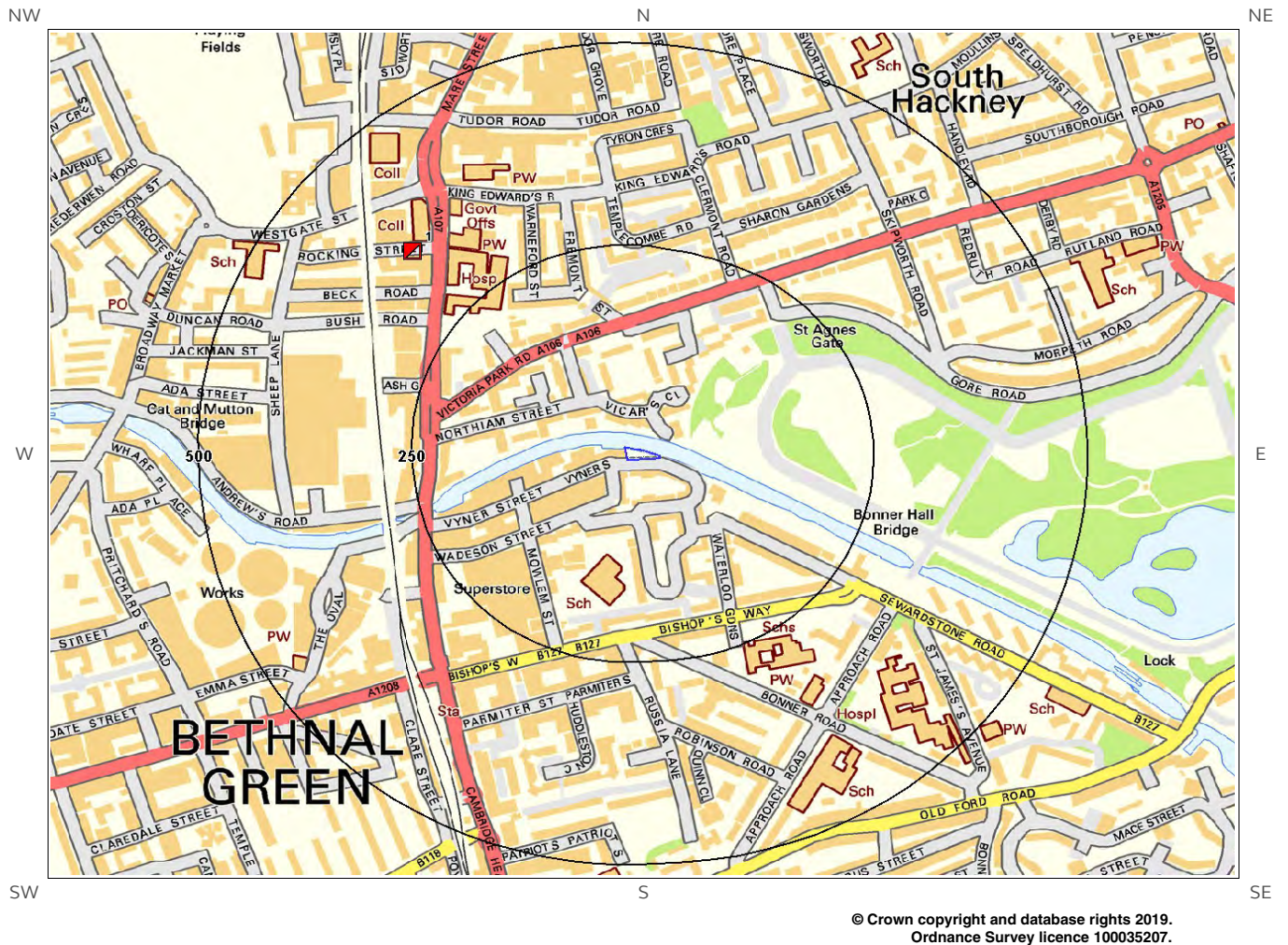
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

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

0

Database searched and no data found.

3. Landfill and Other Waste Sites Map



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:

0

Database searched and no data found.

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:

0

Database searched and no data found.

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.

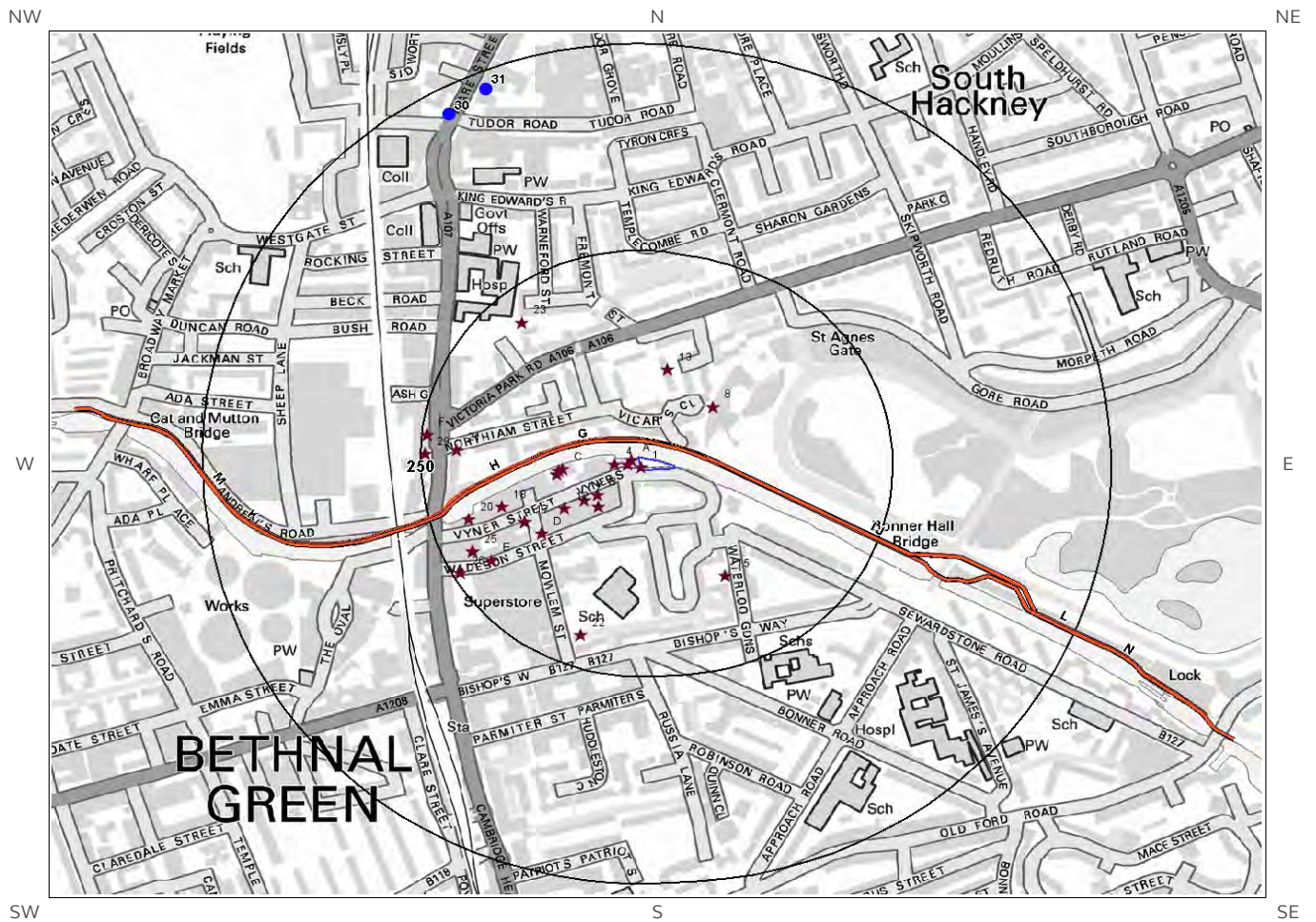
3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site:

4

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
1	348	NW	534825 183831	<p>Site Address: Steve Reegan, Bocking Street Transfer Station, Bocking Street, Hackney, London, E8 3RU</p> <p>Type: Special Waste Transfer Station</p> <p>Size: < 25000 tonnes</p> <p>Environmental Permitting Regulations (Waste) Licence Number: HAC001</p> <p>EPR reference: EA/EPR/BP3691NA/S002</p> <p>Operator: London Borough of Hackney</p> <p>Waste Management licence No: 80143</p> <p>Annual Tonnage: 102.0</p> <p>Issue Date: 28/09/1992</p> <p>Effective Date: -</p> <p>Modified: -</p> <p>Surrendered Date: Apr 12 2002 12:00AM</p> <p>Expiry Date: -</p> <p>Cancelled Date: -</p> <p>Status: Surrendered</p> <p>Site Name: Bocking Street Transfer Station</p> <p>Correspondence Address: -</p>
Not shown	710	NW	534767 184229	<p>Site Address: William Haley (DECEASED), Railway Arches, 387-389, Mentmore Terrace, London Fields, Hackney, London, E8 3PN</p> <p>Type: Metal Recycling Site (mixed MRS's)</p> <p>Size: < 25000 tonnes</p> <p>Environmental Permitting Regulations (Waste) Licence Number: HAL002</p> <p>EPR reference: EA/EPR/BP3191NK/A001</p> <p>Operator: William Haley (DECEASED)</p> <p>Waste Management licence No: 80144</p> <p>Annual Tonnage: 30000.0</p> <p>Issue Date: 30/08/1994</p> <p>Effective Date: -</p> <p>Modified: -</p> <p>Surrendered Date: -</p> <p>Expiry Date: 01/04/1997</p> <p>Cancelled Date: -</p> <p>Status: Expired</p> <p>Site Name: Bill Haley Metals, Mentmore Terrace</p> <p>Correspondence Address: -</p>
Not shown	1142	W	533971 183883	<p>Site Address: -</p> <p>Type: Metal Recycling Site (mixed MRS's)</p> <p>Size: < 25000 tonnes</p> <p>Environmental Permitting Regulations (Waste) Licence Number: BRO001</p> <p>EPR reference: -</p> <p>Operator: Brownlow Metals</p> <p>Waste Management licence No: 80141</p> <p>Annual Tonnage: 0.0</p> <p>Issue Date: 03/06/1994</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: Brownlow Metals, Brownlow Road</p> <p>Correspondence Address: -</p>
Not shown	1143	W	533971 183887	<p>Site Address: Brownlow Metals, 1, Brownlow Road, London, E8 4NS</p> <p>Type: Metal Recycling Site (mixed MRS's)</p> <p>Size: < 25000 tonnes</p> <p>Environmental Permitting Regulations (Waste) Licence Number: BRO001</p> <p>EPR reference: EA/EPR/BP3491NN/A001</p> <p>Operator: Alan Simpole & Ronald Hall</p> <p>Waste Management licence No: 80141</p> <p>Annual Tonnage: 286.0</p> <p>Issue Date: 03/06/1994</p> <p>Effective Date: -</p> <p>Modified: -</p> <p>Surrendered Date: -</p> <p>Expiry Date: -</p> <p>Cancelled Date: -</p> <p>Status: Expired</p> <p>Site Name: Brownlow Metals</p> <p>Correspondence Address: -</p>

4. Current Land Use Map



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4. Current Land Uses

4.1 Current Industrial Data

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

29

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	0	On Site	Electricity Sub Station	535077 183577	Greater London, E2	Electrical Features	Infrastructure and Facilities
2A	9	W	Vyner Lithoplates	535065 183585	67, Vyner Street, London, Greater London, E2 9DQ	Printing Related Machinery	Industrial Products
3A	14	W	Works	535061 183581	Greater London, E2	Unspecified Works Or Factories	Industrial Features
4	29	W	Casual Tees Ltd	535046 183580	63, Vyner Street, London, Greater London, E2 9DQ	Clothing, Components and Accessories	Consumer Products
5B	58	SW	Works	535027 183544	Greater London, E2	Unspecified Works Or Factories	Industrial Features
6B	65	SW	Works	535028 183530	Greater London, E2	Unspecified Works Or Factories	Industrial Features
7	74	SW	Works	535012 183537	Greater London, E2	Unspecified Works Or Factories	Industrial Features
8	83	NE	Electricity Sub Station	535159 183650	Greater London, E9	Electrical Features	Infrastructure and Facilities
9C	88	W	Wks	534987 183575	Greater London, E2	Unspecified Works Or Factories	Industrial Features
10C	94	W	Works	534982 183573	Greater London, E2	Unspecified Works Or Factories	Industrial Features
11C	97	W	Harmonia Mundi	534979 183569	45, Vyner Street, London, Greater London, E2 9DQ	Distribution and Haulage	Transport, Storage and Delivery
12	99	SW	Warehouse	534989 183527	Greater London, E2	Container and Storage	Transport, Storage and Delivery
13	110	N	Rail Watch	535106 183695	4, Christchurch Square, London, Greater London, E9 7HU	Published Goods	Industrial Products
14D	137	SW	Works	534963 183497	Greater London, E2	Unspecified Works Or Factories	Industrial Features
15	142	SE	Electricity Sub Station	535173 183446	Greater London, E2	Electrical Features	Infrastructure and Facilities
16D	148	SW	Abbeyville	534943 183511	49, Mowlem Street, London, Greater London, E2 9HE	Published Goods	Industrial Products
17	148	SW	Intercity Communication	534943 183511	49, Mowlem Street, London, Greater London, E2 9HE	Published Goods	Industrial Products
18	166	W	Ayon Ltd	534917 183529	11-19, Vyner Street, London, Greater London, E2 9DG	Office and Shop Equipment	Industrial Products

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
19E	203	SW	Electricity Sub Station	534905 183465	Greater London, E2	Electrical Features	Infrastructure and Facilities
20	206	W	Okido	534879 183514	1-5, Vyner Street, London, Greater London, E2 9DG	Published Goods	Industrial Products
21	210	W	Regent Typesetting	534864 183598	22, Mare Street, London, Greater London, E8 4RT	Plate Makers, Print Finishers and Type Setters	IT, Advertising, Marketing and Media Services
22	211	S	Electricity Sub Station	535007 183374	Greater London, E2	Electrical Features	Infrastructure and Facilities
23	211	NW	Electricity Sub Station	534940 183752	Greater London, E9	Electrical Features	Infrastructure and Facilities
24E	216	SW	Hilmi's M O T Centre Ltd	534884 183475	2a Vyner Street, London, Greater London, E2 9DG	Vehicle Repair, Testing and Servicing	Repair and Servicing
25	216	SW	C & H Taxis	534884 183475	2a, Vyner Street, London, Greater London, E2 9DG	Vehicle Repair, Testing and Servicing	Repair and Servicing
26	241	SW	Electricity Sub Station	534870 183449	Greater London, E2	Electrical Features	Infrastructure and Facilities
27F	245	W	Trilogy Print Solutions Ltd	534831 183616	33, Mare Street, London, Greater London, E8 4RP	Published Goods	Industrial Products
28F	245	W	D 65 Print Solutions	534831 183616	33, Mare Street, London, Greater London, E8 4RP	Published Goods	Industrial Products
29	245	W	Grays Storage & Removals Ltd	534829 183593	Unit 1 23-47 Mare Street, London, Greater London, E8 4RP	Container and Storage	Transport, Storage and Delivery

4.2 Petrol and Fuel Sites

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

2

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
30	468	NW	534856 184003	UNBRANDED	139 Mare Street, Warburton Road, Hackney, London, Inner London, E8 3RH	Not Applicable	Obsolete
31	478	N	534899 184034	TEXACO	122-142 Mare Street, Hackney, London, Inner London, E8 3SG	No	Open

4.3 National Grid High Voltage Underground Electricity Transmission Cables

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

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

16

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

ID	Distance (m)	Direction	Details
32G	20	N	Cable Set: - Cable Route: - Cable Make: - Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
33G	21	N	Cable Set: CITR4 - WHAM4 2 CABLE SECT 28 Cable Route: CITY ROAD - WEST HAM 2 Cable Make: CABLE ROUTE Cable Type: A/C Operating Voltage (kV): 400 Year of installation: 1982 Cable in tunnel: N
34H	22	N	Cable Set: CITR4 - WHAM4 1 CABLE SECT 28 Cable Route: CITY ROAD - WEST HAM 1 Cable Make: CABLE ROUTE Cable Type: A/C Operating Voltage (kV): 400 Year of installation: 1982 Cable in tunnel: N
35H	22	N	Cable Set: - Cable Route: - Cable Make: - Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
36I	38	E	Cable Set: CITR4 - WHAM4 1 CABLE SECT 29 Cable Route: CITY ROAD - WEST HAM 1 Cable Make: CABLE ROUTE Cable Type: A/C Operating Voltage (kV): 400 Year of installation: 1982 Cable in tunnel: N
37I	39	E	Cable Set: - Cable Route: - Cable Make: - Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
38J	131	E	Cable Set: - Cable Route: - Cable Make: - Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
39J	131	E	Cable Set: CITR4 - WHAM4 2 CABLE SECT 29 Cable Route: CITY ROAD - WEST HAM 2 Cable Make: CABLE ROUTE Cable Type: A/C Operating Voltage (kV): 400 Year of installation: 1982 Cable in tunnel: N
40K	294	W	Cable Set: - Cable Route: - Cable Make: - Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
41K	294	W	Cable Set: CITR4 - WHAM4 2 CABLE SECT 27 Cable Route: CITY ROAD - WEST HAM 2 Cable Make: CABLE ROUTE Cable Type: A/C Operating Voltage (kV): 400 Year of installation: 1982 Cable in tunnel: N
42L	307	E	Cable Set: - Cable Route: - Cable Make: - Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -

ID	Distance (m)	Direction	Details	
43L	307	E	Cable Set: CITR4 - WHAM4 1 CABLE SECT 30 Cable Route: CITY ROAD - WEST HAM 1 Cable Make: CABLE ROUTE	Cable Type: A/C Operating Voltage (kV): 400 Year of installation: 1982 Cable in tunnel: N
44M	362	W	Cable Set: - Cable Route: - Cable Make: -	Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
45M	362	W	Cable Set: CITR4 - WHAM4 1 CABLE SECT 27 Cable Route: CITY ROAD - WEST HAM 1 Cable Make: CABLE ROUTE	Cable Type: A/C Operating Voltage (kV): 400 Year of installation: 1982 Cable in tunnel: N
46N	405	E	Cable Set: - Cable Route: - Cable Make: -	Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
47N	405	E	Cable Set: CITR4 - WHAM4 2 CABLE SECT 30 Cable Route: CITY ROAD - WEST HAM 2 Cable Make: CABLE ROUTE	Cable Type: A/C Operating Voltage (kV): 400 Year of installation: 1982 Cable in tunnel: N

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
HAGR-XSV	HACKNEY GRAVEL MEMBER	SAND AND GRAVEL

5.3 Bedrock and Solid Geology

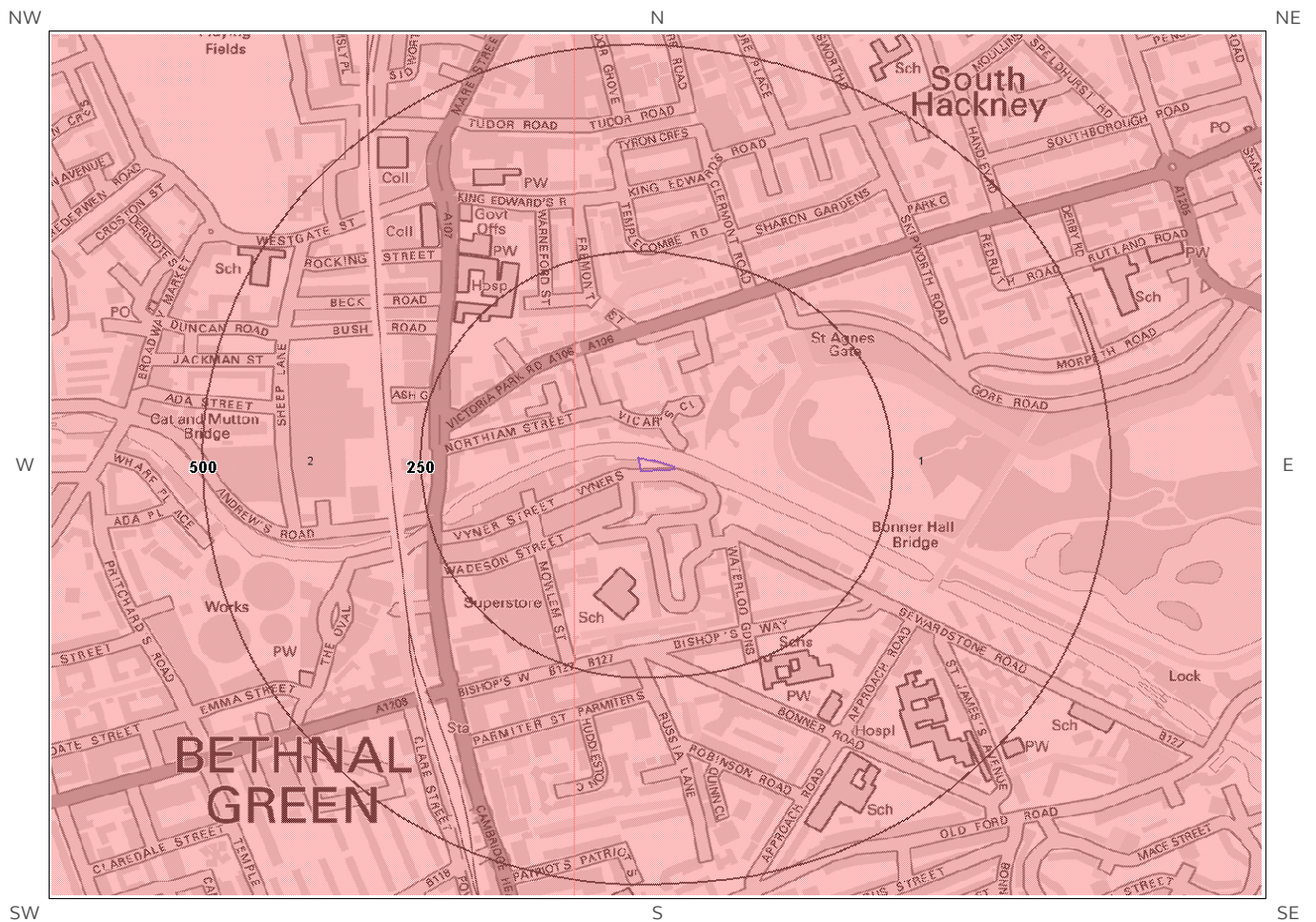
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
LC-XCZS	LONDON CLAY FORMATION	CLAY, SILT AND SAND

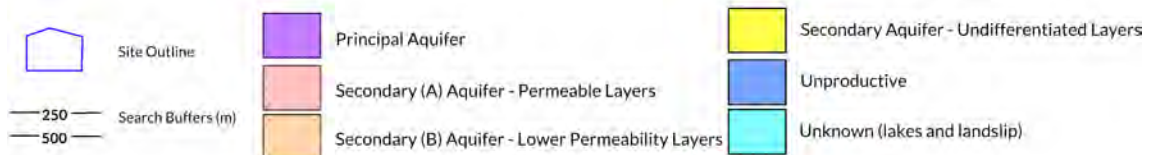
(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

6 Hydrogeology and Hydrology

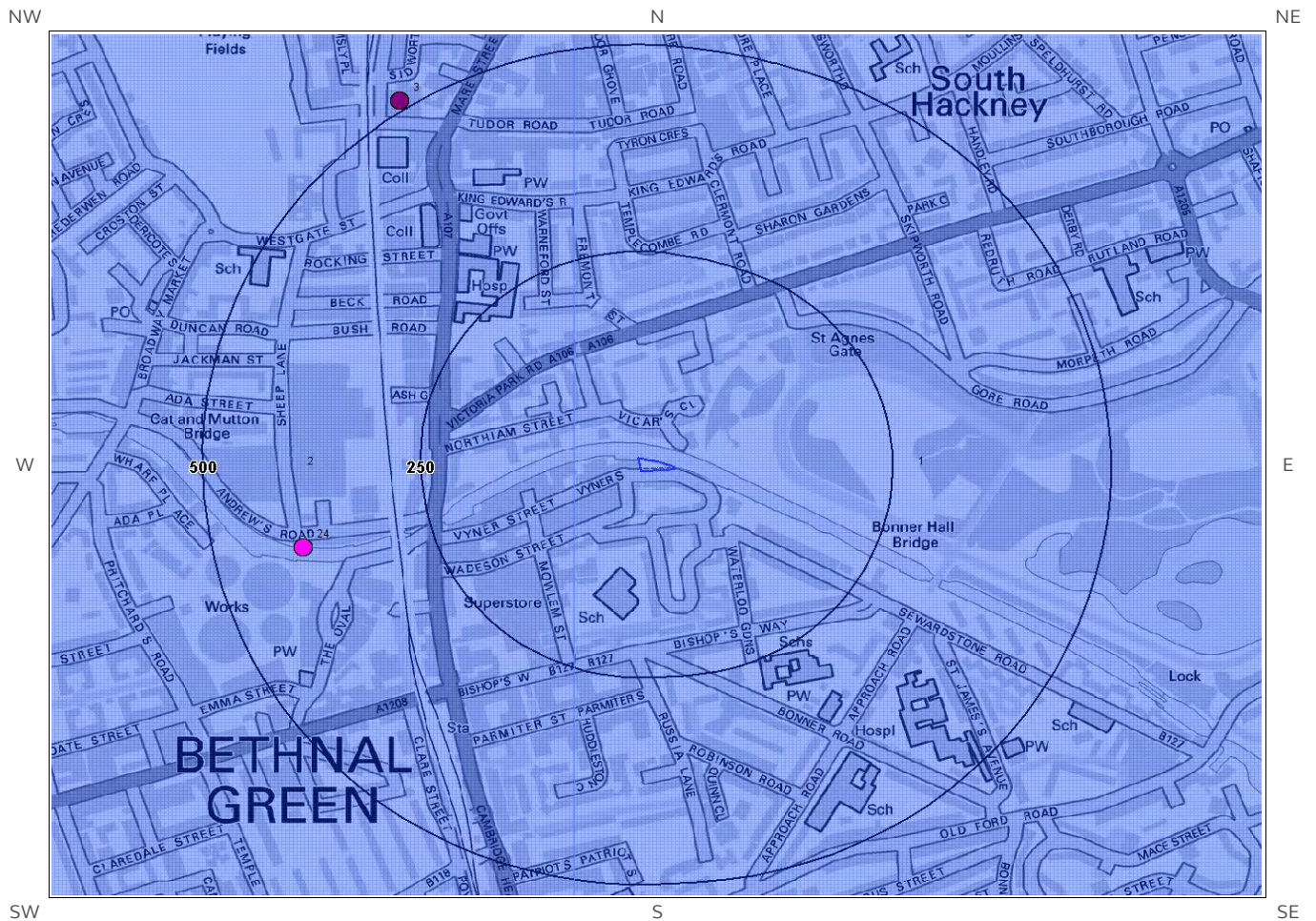
6a. Aquifer Within Superficial Geology



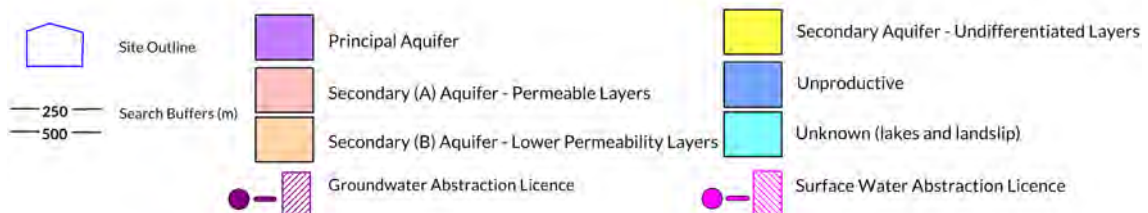
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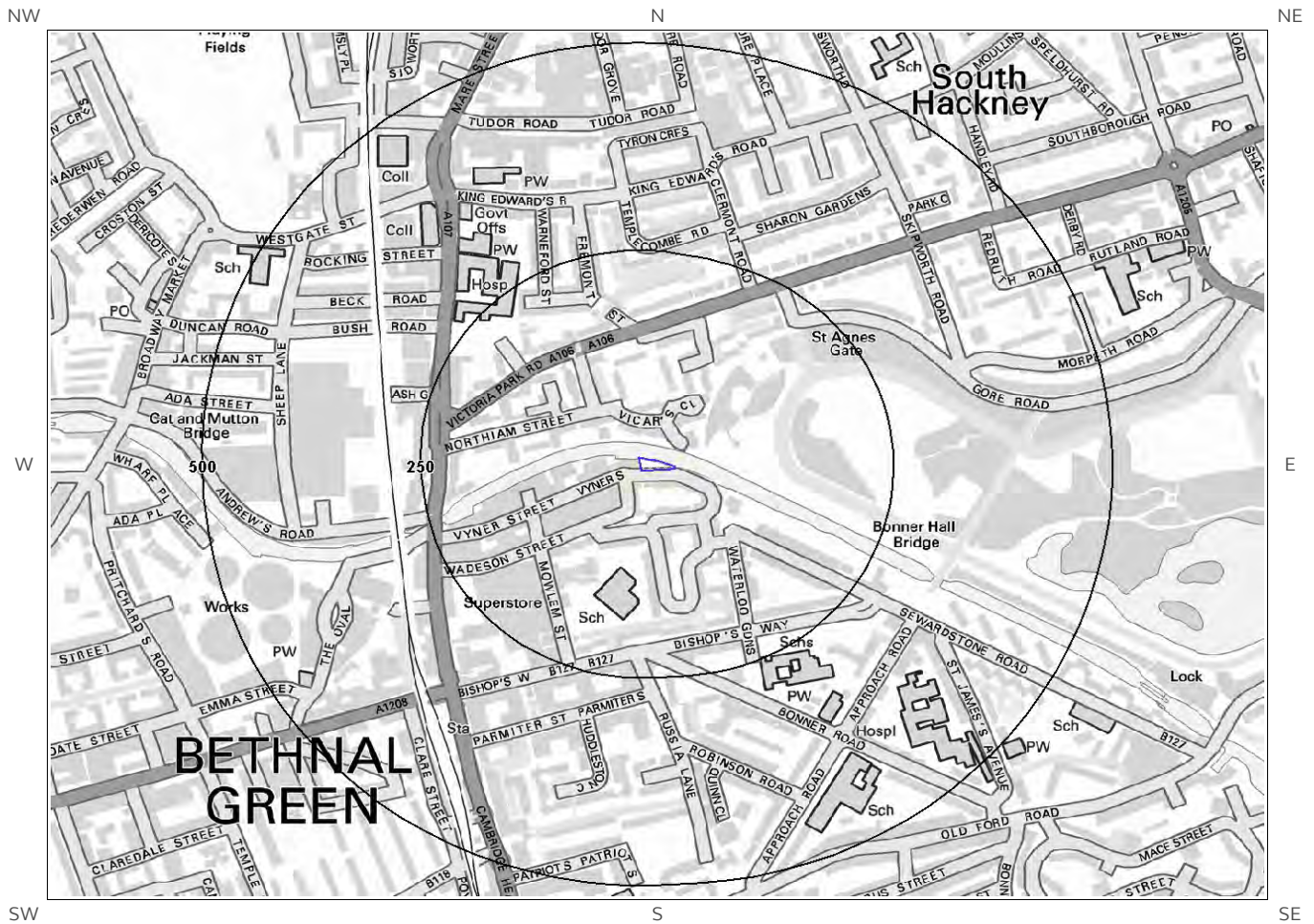
6b. Aquifer Within Bedrock Geology and Abstraction Licences



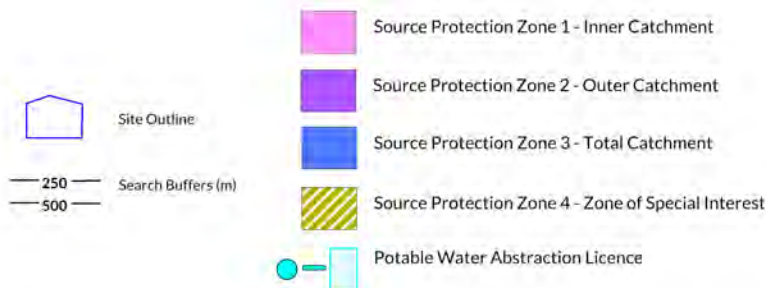
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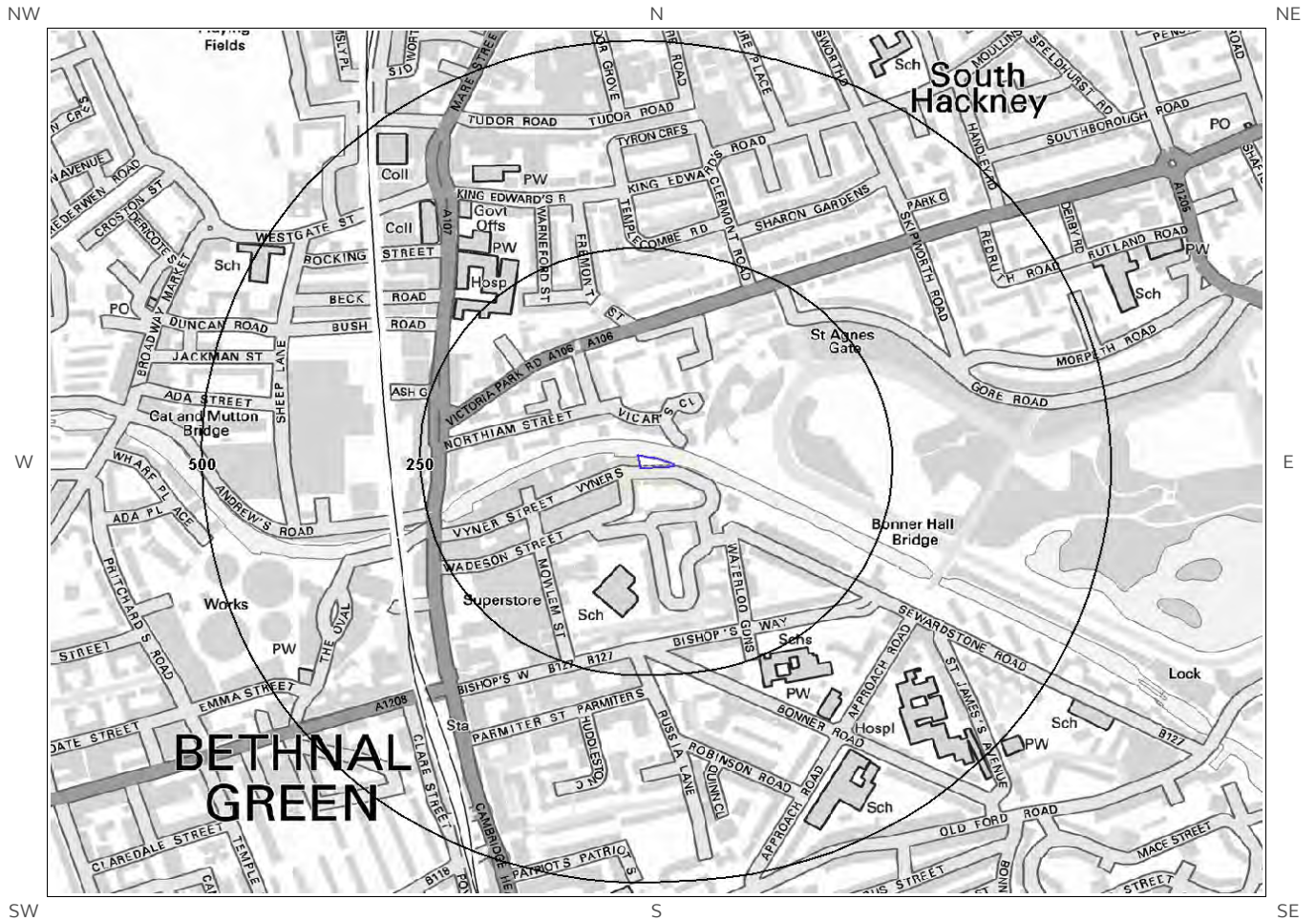
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences



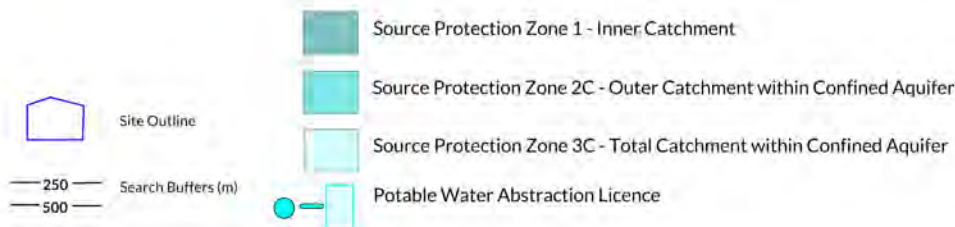
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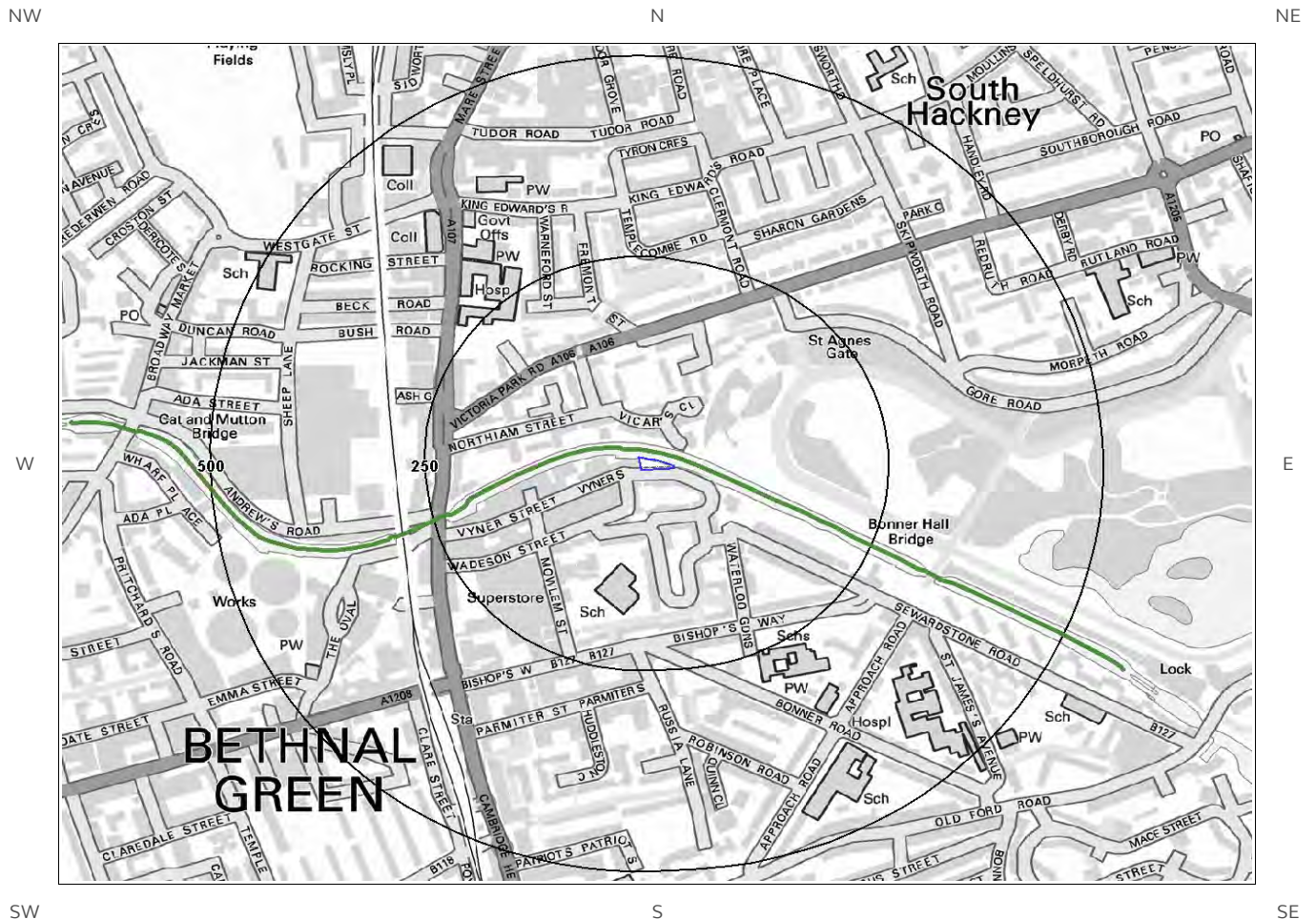
6d. Hydrogeology – Source Protection Zones within confined aquifer



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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	74	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

6.2 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	74	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
3	511	NW	534800 184020	<p>Status: Historical Licence No: 29/38/09/0171 Details: Laundry Use Direct Source: THAMES GROUNDWATER Point: BOREHOLE AT WARBURTON ROAD, HACKNEY, E8 Data Type: Point Name: OCS SMARTS GROUP LTD</p> <p>Annual Volume (m³): 175200 Max Daily Volume (m³): 480 Original Application No: - Original Start Date: 18/10/2000 Expiry Date: 31/12/2009 Issue No: 1 Version Start Date: 18/10/2000 Version End Date:</p>
Not shown	1195	SE	536100 182900	<p>Status: Historical Licence No: 28/39/39/0191 Details: Water Bottling Direct Source: THAMES GROUNDWATER Point: BOREHOLE A AT MILE END PARK, LONDON Data Type: Point Name: THE MILE END PARK PARTNERSHIP</p> <p>Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 23/06/1999 Expiry Date: 31/12/2004 Issue No: 100 Version Start Date: 23/06/1999 Version End Date:</p>
Not shown	1195	SE	536100 182900	<p>Status: Historical Licence No: 28/39/39/0191 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: BOREHOLE A AT MILE END PARK, LONDON Data Type: Point Name: THE MILE END PARK PARTNERSHIP</p> <p>Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 23/06/1999 Expiry Date: 31/12/2004 Issue No: 100 Version Start Date: 23/06/1999 Version End Date:</p>
Not shown	1418	SW	534310 182380	<p>Status: Historical Licence No: 28/39/39/0193 Details: Potable Water Supply - Direct Direct Source: THAMES GROUNDWATER Point: BOREHOLE AT THE BATHHOUSE, CHESHIRE STREET, LONDON E2 Data Type: Point Name: METROPOLITAN WATER CO LTD</p> <p>Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 02/08/2000 Expiry Date: 31/12/2009 Issue No: 3 Version Start Date: 08/08/2002 Version End Date:</p>
Not shown	1418	SW	534310 182380	<p>Status: Historical Licence No: TH/039/0039/029 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: THE BATHHOUSE, CHESHIRE STREET, LONDON E2-BOREHOLE A Data Type: Point Name: Magee</p> <p>Annual Volume (m³): 40000 Max Daily Volume (m³): 100 Original Application No: - Original Start Date: 13/08/2010 Expiry Date: 31/03/2019 Issue No: 1 Version Start Date: 13/08/2010 Version End Date:</p>
Not shown	1418	SW	534310 182380	<p>Status: Historical Licence No: 28/39/39/0193 Details: General use relating to Secondary Category (Medium Loss) Direct Source: THAMES GROUNDWATER Point: BOREHOLE AT THE BATHHOUSE, CHESHIRE STREET, LONDON E2 Data Type: Point Name: METROPOLITAN WATER CO LTD</p> <p>Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: - Expiry Date: 31/12/2009 Issue No: 1 Version Start Date: 01/10/2000 Version End Date:</p>

ID	Distance (m)	Direction	NGR	Details
Not shown	1418	SW	534310 182380	<p>Status: Historical Licence No: 28/39/39/0193 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: THAMES GROUNDWATER Point: THE BATHHOUSE, CHESHIRE STREET, LONDON E2-BOREHOLE A Data Type: Point Name: PENINSULA WATER LIMITED</p> <p>Annual Volume (m³): 80000 Max Daily Volume (m³): 360 Original Application No: - Original Start Date: 02/08/2000 Expiry Date: 31/12/2009 Issue No: 5 Version Start Date: 01/01/2007 Version End Date:</p>
Not shown	1418	SW	534310 182380	<p>Status: Historical Licence No: 28/39/39/0193 Details: Potable Water Supply - Direct Direct Source: THAMES GROUNDWATER Point: THE BATHHOUSE, CHESHIRE STREET, LONDON E2-BOREHOLE A Data Type: Point Name: PENINSULA WATER LIMITED</p> <p>Annual Volume (m³): 80000 Max Daily Volume (m³): 360 Original Application No: - Original Start Date: 02/08/2000 Expiry Date: 31/12/2009 Issue No: 5 Version Start Date: 03/08/2003 Version End Date:</p>
Not shown	1418	SW	534310 182380	<p>Status: Active Licence No: TH/039/0039/029/R01 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: THE BATHHOUSE, CHESHIRE STREET, LONDON E2-BOREHOLE A Data Type: Point Name: Magee</p> <p>Annual Volume (m³): 10000 Max Daily Volume (m³): 28 Original Application No: - Original Start Date: 01/04/2019 Expiry Date: 31/03/2025 Issue No: 1 Version Start Date: 01/04/2019 Version End Date:</p>
Not shown	1644	S	534890 181940	<p>Status: Historical Licence No: 28/39/39/0195 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: THAMES GROUNDWATER Point: BOREHOLE AT ALBION YARD, LONDON E1 Data Type: Point Name: PENINSULA WATER LIMITED</p> <p>Annual Volume (m³): 274500 Max Daily Volume (m³): 750 Original Application No: - Original Start Date: 01/12/2000 Expiry Date: 31/12/2009 Issue No: 3 Version Start Date: 01/07/2003 Version End Date:</p>
Not shown	1740	NE	536160 184970	<p>Status: Historical Licence No: 29/38/09/0178 Details: Potable Water Supply - Direct Direct Source: THAMES GROUNDWATER Point: HACKNEY HOSPITAL, LONDON - BOREHOLE A Data Type: Point Name: PENINSULA WATER LIMITED</p> <p>Annual Volume (m³): 140000 Max Daily Volume (m³): 3024 Original Application No: - Original Start Date: 11/07/2002 Expiry Date: 31/03/2013 Issue No: 2 Version Start Date: 01/07/2003 Version End Date:</p>
Not shown	1740	NE	536160 184970	<p>Status: Historical Licence No: 29/38/09/0178 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: THAMES GROUNDWATER Point: HACKNEY HOSPITAL, LONDON - BOREHOLE A Data Type: Point Name: PENINSULA WATER LIMITED</p> <p>Annual Volume (m³): 140000 Max Daily Volume (m³): 3024 Original Application No: - Original Start Date: 11/07/2002 Expiry Date: 31/03/2013 Issue No: 2 Version Start Date: 01/01/2007 Version End Date:</p>
Not shown	1740	NE	536160 184970	<p>Status: Historical Licence No: 29/38/09/0178 Details: Potable Water Supply - Direct Direct Source: THAMES GROUNDWATER Point: HACKNEY HOSPITAL, LONDON - BOREHOLE A Data Type: Point Name: PENINSULA WATER LIMITED</p> <p>Annual Volume (m³): 140000 Max Daily Volume (m³): 3024 Original Application No: - Original Start Date: 11/07/2002 Expiry Date: 31/03/2013 Issue No: 2 Version Start Date: 01/07/2003 Version End Date:</p>

ID	Distance (m)	Direction	NGR	Details
Not shown	1914	NE	536500 184900	<p>Status: Historical Licence No: 29/38/09/0201 Details: Potable Water Supply - Direct Direct Source: THAMES GROUNDWATER Point: OFF EDMESTON CLOSE - 2 BOREHOLES Data Type: Point Name: THAMES WATER UTILITIES LTD</p> <p>Annual Volume (m³): 2.92 Max Daily Volume (m³): 8000 Original Application No: - Original Start Date: - Expiry Date: 31/03/2013 Issue No: 1 Version Start Date: 01/01/2009 Version End Date:</p>
Not shown	1914	NE	536500 184900	<p>Status: Historical Licence No: TH/038/0009/030 Details: Potable Water Supply - Direct Direct Source: THAMES GROUNDWATER Point: OFF EDMESTON CLOSE - 2 BOREHOLES Data Type: Point Name: THAMES WATER UTILITIES LTD</p> <p>Annual Volume (m³): 2.92 Max Daily Volume (m³): 8000 Original Application No: - Original Start Date: 01/04/2013 Expiry Date: 31/03/2019 Issue No: 1 Version Start Date: 01/04/2013 Version End Date:</p>
Not shown	1914	NE	536500 184900	<p>Status: Historical Licence No: 29/38/09/0191 Details: Potable Water Supply - Direct Direct Source: THAMES GROUNDWATER Point: OFF EDMESTON CLOSE - 2 BOREHOLES Data Type: Point Name: THAMES WATER UTILITIES LTD</p> <p>Annual Volume (m³): 2.92 Max Daily Volume (m³): 8000 Original Application No: - Original Start Date: 22/03/2005 Expiry Date: 31/12/2008 Issue No: 3 Version Start Date: 29/08/2008 Version End Date:</p>
Not shown	1914	NE	536500 184900	<p>Status: Historical Licence No: 29/38/09/0191 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: THAMES GROUNDWATER Point: OFF EDMESTON CLOSE - BOREHOLE Data Type: Point Name: LONDON AND CONTINENTAL RAILWAYS LIMITED</p> <p>Annual Volume (m³): 2.92 Max Daily Volume (m³): 8000 Original Application No: - Original Start Date: 22/03/2005 Expiry Date: 31/12/2008 Issue No: 1 Version Start Date: 22/03/2005 Version End Date:</p>
Not shown	1937	SW	533544 182389	<p>Status: Historical Licence No: TH/039/0039/006 Details: Heat Pump Direct Source: THAMES GROUNDWATER Point: BOUNDARY STREET - ABSTRACTION BOREHOLE Data Type: Point Name: 2 - 4 Boundary Street Limited</p> <p>Annual Volume (m³): 157680 Max Daily Volume (m³): 432 Original Application No: - Original Start Date: 29/10/2009 Expiry Date: 31/03/2019 Issue No: 2 Version Start Date: 20/02/2017 Version End Date:</p>
Not shown	1937	SW	533544 182389	<p>Status: Active Licence No: TH/039/0039/006/R01 Details: Heat Pump Direct Source: THAMES GROUNDWATER Point: BOUNDARY STREET - ABSTRACTION BOREHOLE Data Type: Point Name: 2 - 4 Boundary Street Limited</p> <p>Annual Volume (m³): 157680 Max Daily Volume (m³): 432 Original Application No: - Original Start Date: 01/04/2019 Expiry Date: 31/03/2025 Issue No: 1 Version Start Date: 01/04/2019 Version End Date:</p>
Not shown	1951	NE	536533 184920	<p>Status: Historical Licence No: TH/038/0009/030 Details: Potable Water Supply - Direct Direct Source: THAMES GROUNDWATER Point: OFF EDMESTON CLOSE - 2 BOREHOLES Data Type: Point Name: THAMES WATER UTILITIES LTD</p> <p>Annual Volume (m³): 2.92 Max Daily Volume (m³): 8000 Original Application No: - Original Start Date: 01/04/2013 Expiry Date: 31/03/2019 Issue No: 2 Version Start Date: 16/03/2015 Version End Date:</p>
Not shown	1951	NE	536533 184920	<p>Status: Active Licence No: TH/038/0009/030/R01 Details: Potable Water Supply - Direct Direct Source: THAMES GROUNDWATER Point: OFF EDMESTON CLOSE - 2 BOREHOLES Data Type: Point Name: Thames Water Utilities Ltd</p> <p>Annual Volume (m³): 2.92 Max Daily Volume (m³): 8000 Original Application No: - Original Start Date: 01/04/2019 Expiry Date: 31/03/2025 Issue No: 1 Version Start Date: 01/04/2019 Version End Date:</p>

6.4 Surface Water Abstraction Licences

Surface Water Abstraction Licences within 2000m of the study site

Identified

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

ID	Distance (m)	Direction	NGR	Details
24	398	W	534690 183480	Status: Active Licence No: 28/39/39/0164 Details: Non-Evaporative Cooling Direct Source: THAMES SURFACE WATER - NON TIDAL Point: ANDREWS ROAD, LONDON, N1 - REGENTS CANAL Data Type: Point Name: Canal and River Trust Annual Volume (m³): 7.01 Max Daily Volume (m³): 19520 Application No: - Original Start Date: 18/07/1980 Expiry Date: - Issue No: 101 Version Start Date: 17/12/2007 Version End Date:
Not shown	1984	E	537000 184200	Status: Active Licence No: 29/38/09/0144 Details: Non-Evaporative Cooling Direct Source: THAMES SURFACE WATER - NON TIDAL Point: BOTTOM LOCK (POINT A) Data Type: Point Name: Canal and River Trust Annual Volume (m³): 1.75 Max Daily Volume (m³): 4800 Application No: - Original Start Date: 30/06/1980 Expiry Date: - Issue No: 101 Version Start Date: 17/12/2007 Version End Date:

6.5 Potable Water Abstraction Licences

Potable Water Abstraction Licences within 2000m of the study site

Identified

The following Potable Water Abstraction Licences records are represented as points, lines and regions on the SPZ and Potable Water Abstraction Licences Map (6c):

ID	Distance (m)	Direction	NGR	Details
Not shown	1195	SE	536100 182900	Status: Historical Licence No: 28/39/39/0191 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: BOREHOLE A AT MILE END PARK, LONDON Data Type: Point Name: THE MILE END PARK PARTNERSHIP Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 23/06/1999 Expiry Date: 31/12/2004 Issue No: 100 Version Start Date: Version End Date:
Not shown	1195	SE	536100 182900	Status: Historical Licence No: 28/39/39/0191 Details: Water Bottling Direct Source: THAMES GROUNDWATER Point: BOREHOLE A AT MILE END PARK, LONDON Data Type: Point Name: THE MILE END PARK PARTNERSHIP Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 23/06/1999 Expiry Date: 31/12/2004 Issue No: 100 Version Start Date: Version End Date:
Not shown	1418	SW	534310 182380	Status: Historical Licence No: 28/39/39/0193 Details: Potable Water Supply - Direct Direct Source: THAMES GROUNDWATER Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 02/08/2000

ID	Distance (m)	Direction	NGR	Details
				Point: BOREHOLE AT THE BATHHOUSE, CHESHIRE STREET, LONDON E2 Data Type: Point Name: METROPOLITAN WATER CO LTD Expiry Date: 31/12/2009 Issue No: 3 Version Start Date: Version End Date:
Not shown	1418	SW	534310 182380	Status: Historical Licence No: 28/39/39/0193 Details: Potable Water Supply - Direct Direct Source: THAMES GROUNDWATER Point: THE BATHHOUSE, CHESHIRE STREET, LONDON E2-BOREHOLE A Data Type: Point Name: PENINSULA WATER LIMITED Annual Volume (m³): 80000 Max Daily Volume (m³): 360 Original Application No: - Original Start Date: 02/08/2000 Expiry Date: 31/12/2009 Issue No: 5 Version Start Date: Version End Date:
Not shown	1418	SW	534310 182380	Status: Historical Licence No: TH/039/0039/029 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: THE BATHHOUSE, CHESHIRE STREET, LONDON E2-BOREHOLE A Data Type: Point Name: Magee Annual Volume (m³): 40000 Max Daily Volume (m³): 100 Original Application No: - Original Start Date: 13/08/2010 Expiry Date: 31/03/2019 Issue No: 1 Version Start Date: Version End Date:
Not shown	1418	SW	534310 182380	Status: Active Licence No: TH/039/0039/029/R01 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: THE BATHHOUSE, CHESHIRE STREET, LONDON E2-BOREHOLE A Data Type: Point Name: Magee Annual Volume (m³): 10000 Max Daily Volume (m³): 28 Original Application No: - Original Start Date: 01/04/2019 Expiry Date: 31/03/2025 Issue No: 1 Version Start Date: Version End Date:
Not shown	1740	NE	536160 184970	Status: Historical Licence No: 29/38/09/0178 Details: Potable Water Supply - Direct Direct Source: THAMES GROUNDWATER Point: HACKNEY HOSPITAL, LONDON - BOREHOLE A Data Type: Point Name: PENINSULA WATER LIMITED Annual Volume (m³): 140000 Max Daily Volume (m³): 3024 Original Application No: - Original Start Date: 11/07/2002 Expiry Date: 31/03/2013 Issue No: 2 Version Start Date: Version End Date:
Not shown	1740	NE	536160 184970	Status: Historical Licence No: 29/38/09/0178 Details: Potable Water Supply - Direct Direct Source: THAMES GROUNDWATER Point: HACKNEY HOSPITAL, LONDON - BOREHOLE A Data Type: Point Name: PENINSULA WATER LIMITED Annual Volume (m³): 140000 Max Daily Volume (m³): 3024 Original Application No: - Original Start Date: 11/07/2002 Expiry Date: 31/03/2013 Issue No: 2 Version Start Date: Version End Date:
Not shown	1914	NE	536500 184900	Status: Historical Licence No: 29/38/09/0191 Details: Potable Water Supply - Direct Direct Source: THAMES GROUNDWATER Point: OFF EDMESTON CLOSE - 2 BOREHOLES Data Type: Point Name: THAMES WATER UTILITIES LTD Annual Volume (m³): 2.92 Max Daily Volume (m³): 8000 Original Application No: - Original Start Date: 22/03/2005 Expiry Date: 31/12/2008 Issue No: 3 Version Start Date: Version End Date:
Not shown	1914	NE	536500 184900	Status: Historical Licence No: 29/38/09/0201 Details: Potable Water Supply - Direct Direct Source: THAMES GROUNDWATER Point: OFF EDMESTON CLOSE - 2 BOREHOLES Data Type: Point Name: THAMES WATER UTILITIES LTD Annual Volume (m³): 2.92 Max Daily Volume (m³): 8000 Original Application No: - Original Start Date: - Expiry Date: 31/03/2013 Issue No: 1 Version Start Date: Version End Date:

ID	Distance (m)	Direction	NGR	Details
Not shown	1914	NE	536500 184900	Status: Historical Licence No: TH/038/0009/030 Details: Potable Water Supply - Direct Direct Source: THAMES GROUNDWATER Point: OFF EDMESTON CLOSE - 2 BOREHOLES Data Type: Point Name: THAMES WATER UTILITIES LTD Annual Volume (m³): 2.92 Max Daily Volume (m³): 8000 Original Application No: - Original Start Date: 01/04/2013 Expiry Date: 31/03/2019 Issue No: 1 Version Start Date: Version End Date:
Not shown	1951	NE	536533 184920	Status: Historical Licence No: TH/038/0009/030 Details: Potable Water Supply - Direct Direct Source: THAMES GROUNDWATER Point: OFF EDMESTON CLOSE - 2 BOREHOLES Data Type: Point Name: THAMES WATER UTILITIES LTD Annual Volume (m³): 2.92 Max Daily Volume (m³): 8000 Original Application No: - Original Start Date: 01/04/2013 Expiry Date: 31/03/2019 Issue No: 2 Version Start Date: Version End Date:
Not shown	1951	NE	536533 184920	Status: Active Licence No: TH/038/0009/030/R01 Details: Potable Water Supply - Direct Direct Source: THAMES GROUNDWATER Point: OFF EDMESTON CLOSE - 2 BOREHOLES Data Type: Point Name: Thames Water Utilities Ltd Annual Volume (m³): 2.92 Max Daily Volume (m³): 8000 Original Application No: - Original Start Date: 01/04/2019 Expiry Date: 31/03/2025 Issue No: 1 Version Start Date: Version End Date:

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.

6.9 River Quality

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

6.9.1 Biological Quality:

Biological Quality data describes water quality in terms of 83 groups of macroinvertebrates, some of which are pollution sensitive. The results are graded from A ('Very Good') to F ('Bad').

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

ID	Distance (m)	Direction	NGR	River Quality Grade	Biological Quality Grade				
					2005	2006	2007	2008	2009
Not shown	768	SE	535790 183210	River Name: Grand Union Canal (paddington Arm) Reach: Hertford Union - Tideway End/Start of Stretch: Start of Stretch NGR	E	E	E	E	C

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

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

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

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
1	9 N	Grand Union Canal	Canal. A manmade watercourse for inland navigation.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 16.1
17	9 N	Grand Union Canal	Canal. A manmade watercourse for inland navigation.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 16.1
2	278 W	Grand Union Canal	Canal. A manmade watercourse for inland navigation.	Catchment Area: Severn Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
18	278 W	Grand Union Canal	Canal. A manmade watercourse for inland navigation.	Catchment Area: Severn Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
3	299 W	Grand Union Canal	Canal. A manmade watercourse for inland navigation.	Catchment Area: Severn Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 18.0
19	299 W	Grand Union Canal	Canal. A manmade watercourse for inland navigation.	Catchment Area: Severn Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 18.0

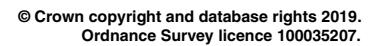
6.11 Surface Water Features

Surface water features within 250m of the study site

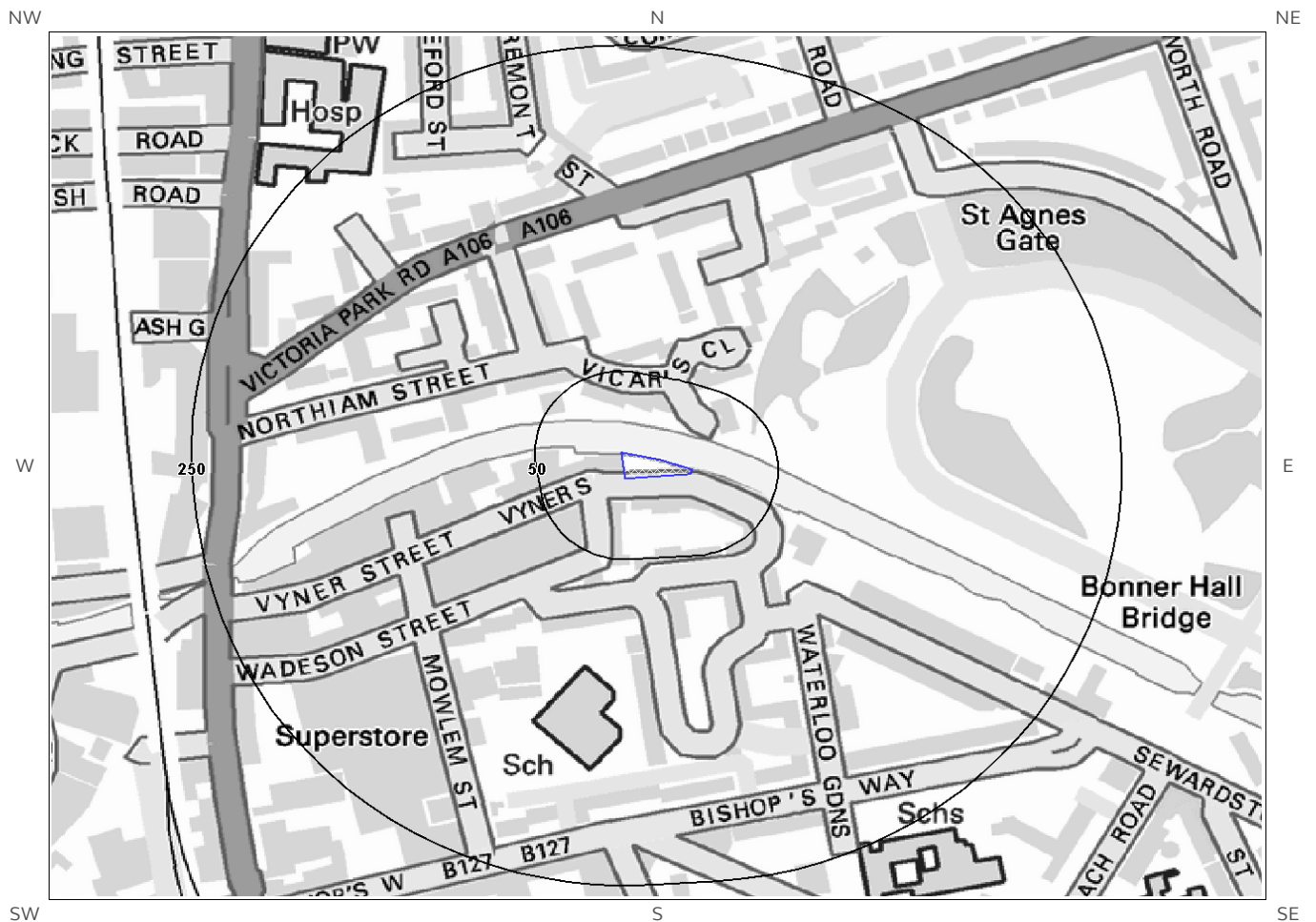
Identified

The following surface water records are not represented on mapping:

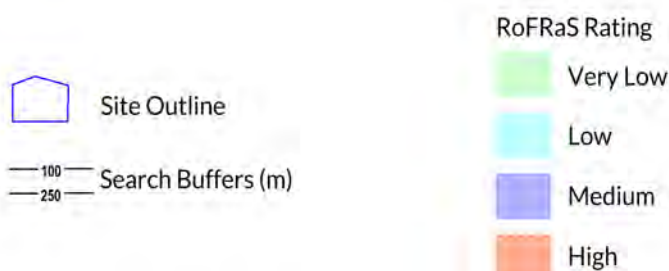
Distance (m)	Direction
0	On Site



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 None 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:

Database searched and no data found.

7.2 River and Coastal Zone 3 Flooding

Environment Agency/Natural Resources Wales Zone 3 floodplain within 250m None 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.

Database searched and no data found.

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

Highest risk of flooding onsite Very Low

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

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

7.4 Flood Defences

Flood Defences within 250m of the study site None identified
Database searched and no data found.

7.5 Areas benefiting from Flood Defences

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

7.6 Areas benefiting from Flood Storage

Areas used for Flood Storage within 250m of the study site

None identified

7.7 Groundwater Flooding Susceptibility Areas

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

Identified

Clearwater Flooding or Superficial Deposits Flooding

Superficial Deposits Flooding

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

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

Potential at Surface

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

7.8 Groundwater Flooding Confidence Areas

British Geological Survey confidence rating in this result

Moderate

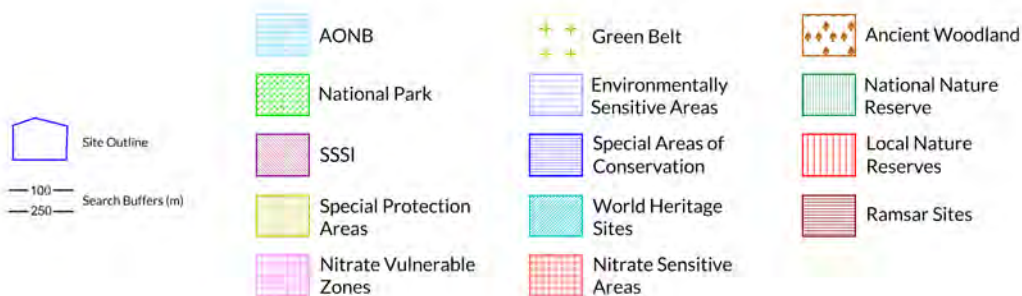
Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

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

None 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:

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

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 Negligible

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

Hazard
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.

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

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info@groundsure.com

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BGS Geological Hazards Reports and general geological enquiries:
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Phone: 020 7364 5000
Web: <http://www.towerhamlets.gov.uk/>
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Gemapping PLC
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Acknowledgements: Site of Special Scientific Interest, National Nature Reserve, Ramsar Site, Special Protection Area, Special Area of Conservation data is provided by, and used with the permission of, Natural England/Natural Resources Wales who retain the Copyright and Intellectual Property Rights for the data.

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<https://www.groundsure.com/terms-and-conditions-feb11-2019>

Arcadis Consulting UK Ltd

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BRISTOL, BS1 2NL

Groundsure
Reference:

GS-6186769

Your Reference: 14028423

Report Date 22 Jul 2019

Report Delivery Method: Email - pdf

Geo Insight

Address: 37, LARK ROW, LONDON, E2 9JA

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: 37, LARK ROW, LONDON, E2 9JA

Date: 22 Jul 2019

Reference: GS-6186769

Client: Arcadis Consulting UK Ltd



Aerial Photograph Capture date: 07-Jun-2015

Grid Reference: 535092,183579

Site Size: 0.0393ha

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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

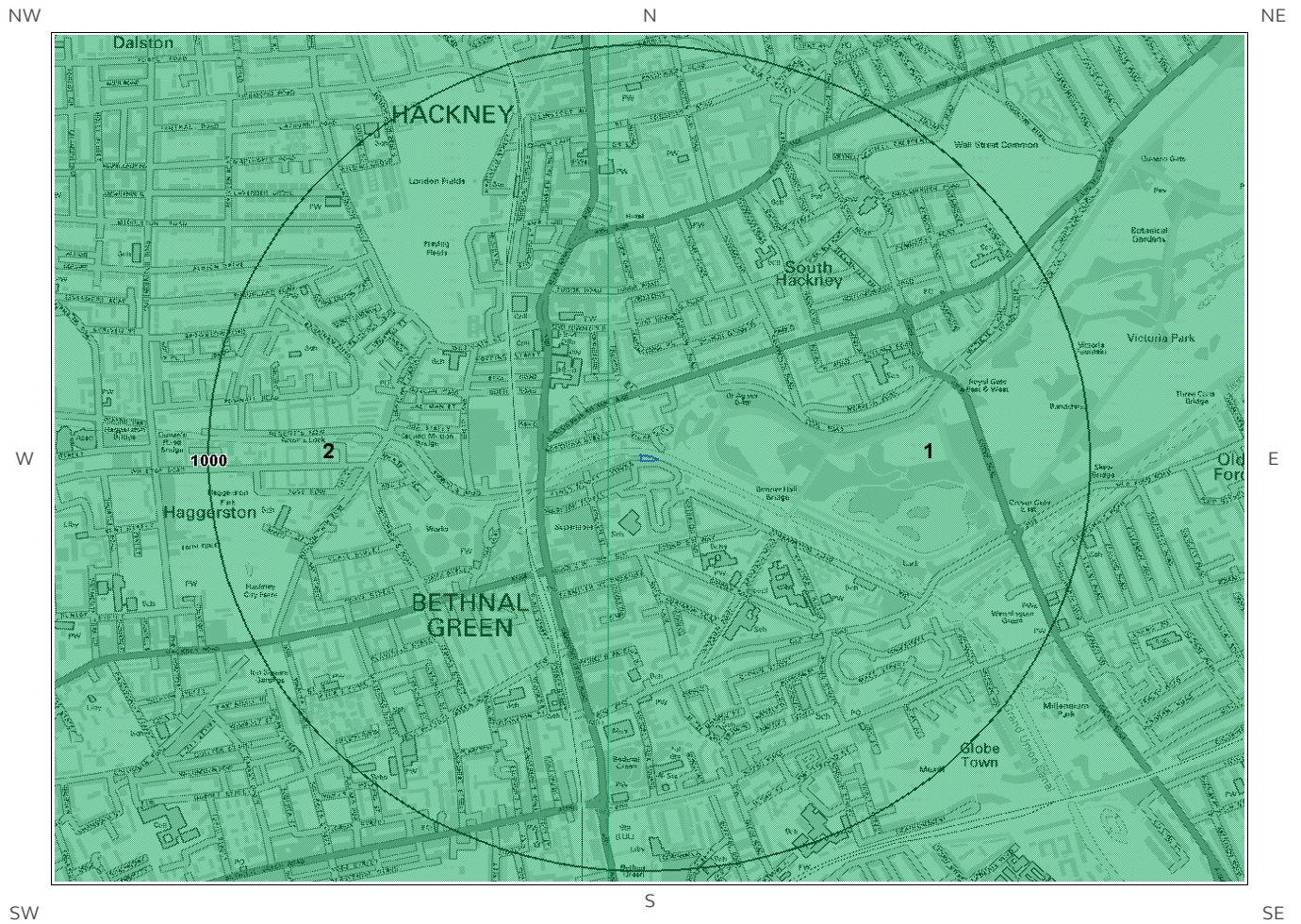
	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	8	10	7	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	0	0	0	0
4.3 Current Ground Workings	0	0	0	0	0

Section 5: Mining, Extraction & Natural Cavities

	On-site	0-50m	51-250	251-500	501-1000
5.1 Historical Mining	0	0	0	0	0
5.2 Coal Mining	0	0	0	0	0
5.3 Johnson Poole and Bloomer Mining Area	1	0	1	2	4
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

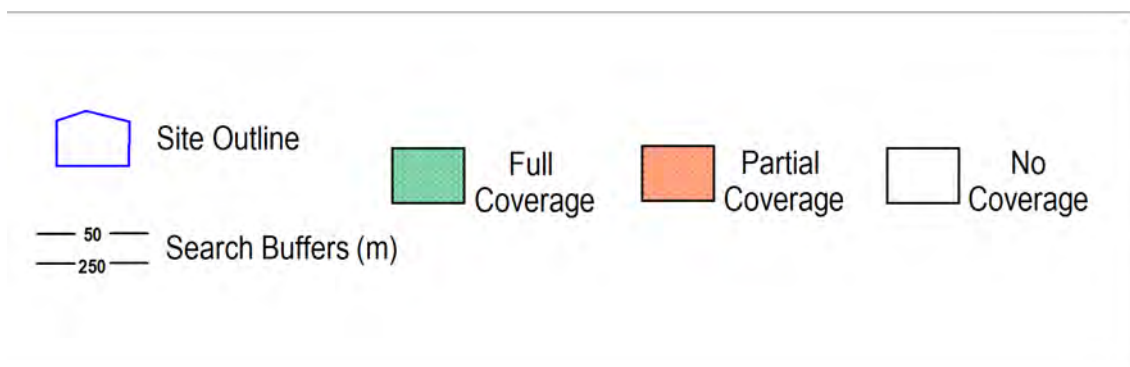
Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Cornwall and Devon Metalliferous Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0
Section 6: Natural Ground Subsidence	On-site				
6.1 Shrink-Swell Clay	Negligible				
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	18		
Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250		
8 Records of Background Soil Chemistry	1	0	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	74.0	Some deposits are mapped	Full	Full	No coverage
N3	1411.0	Some deposits are mapped	Full	Full	No coverage
N4	1413.0	Some deposits are mapped	Full	Full	No coverage

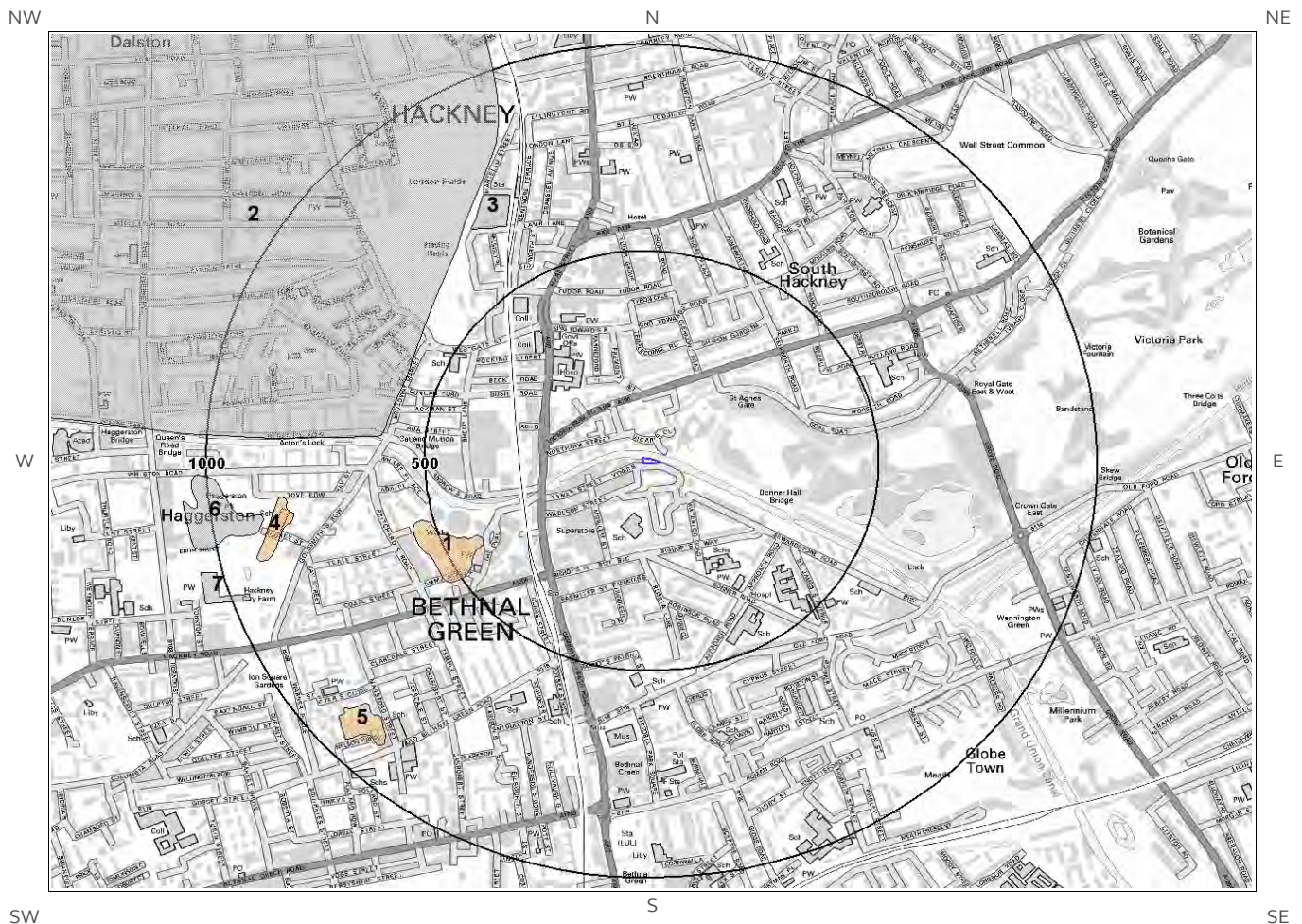
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not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

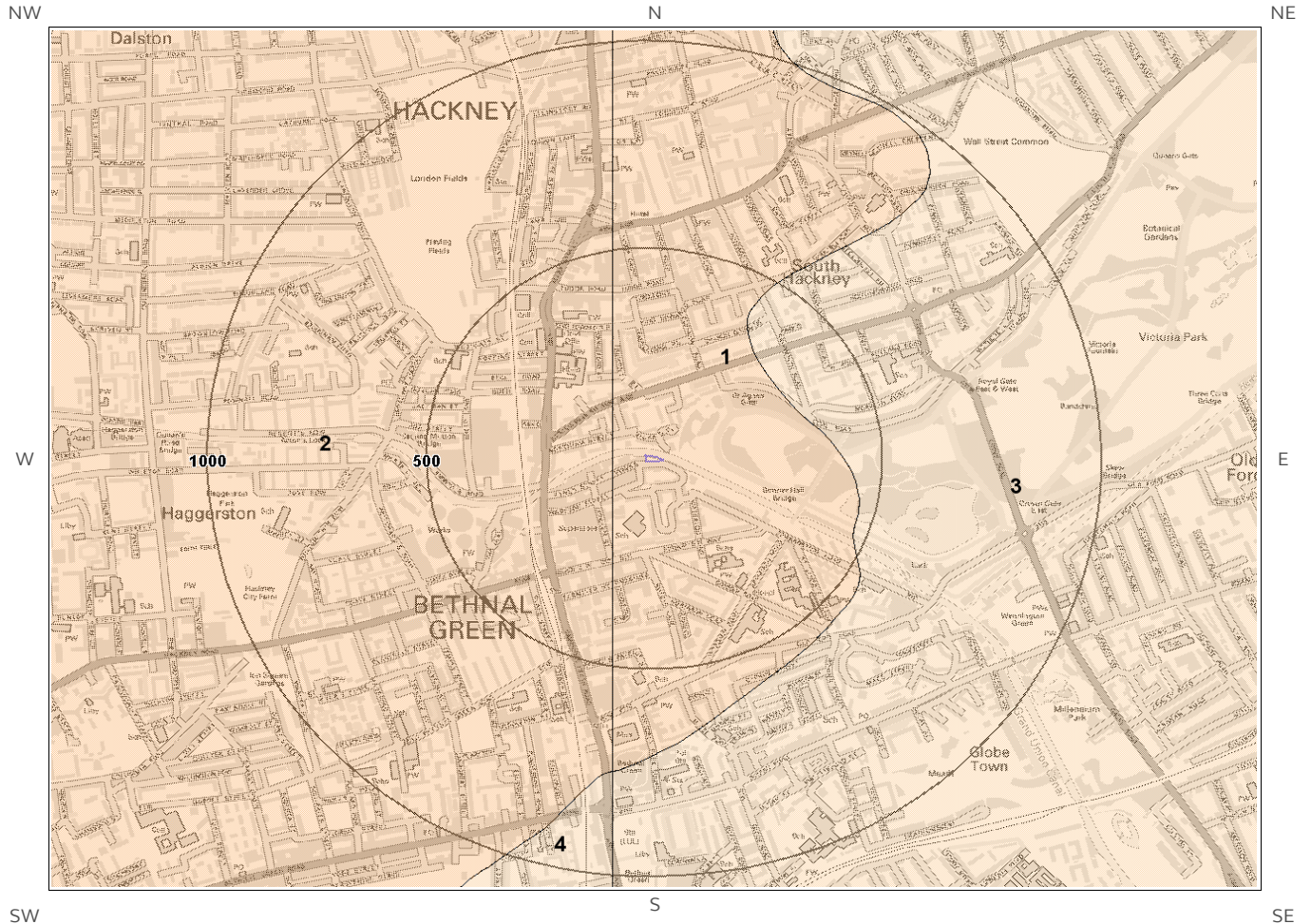
1.1 Artificial Ground

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

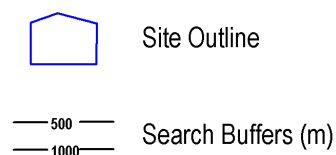
ID	Distance	Direction	LEX Code	Description	Rock Description
1	411.0	SW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

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	HAGR-XSV	Hackney Gravel Member - Sand And Gravel	Sand And Gravel
2	74.0	W	HAGR-XSV	Hackney Gravel Member - Sand And Gravel	Sand And Gravel
3	312.0	NE	TPGR-XSV	Taplow Gravel Formation - Sand And Gravel	Sand And Gravel

1.2.2 Landslip

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

No

Database searched and no data found.

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

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

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

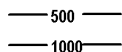


Bedrock and linear features Legend

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Site Outline



Search Buffers (m)

1.3 Bedrock and linear features

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

1.3.1 Bedrock/ Solid Geology

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

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1	0.0	On Site	LC-CLAY	London Clay Formation - Clay	Eocene Epoch
2	74.0	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

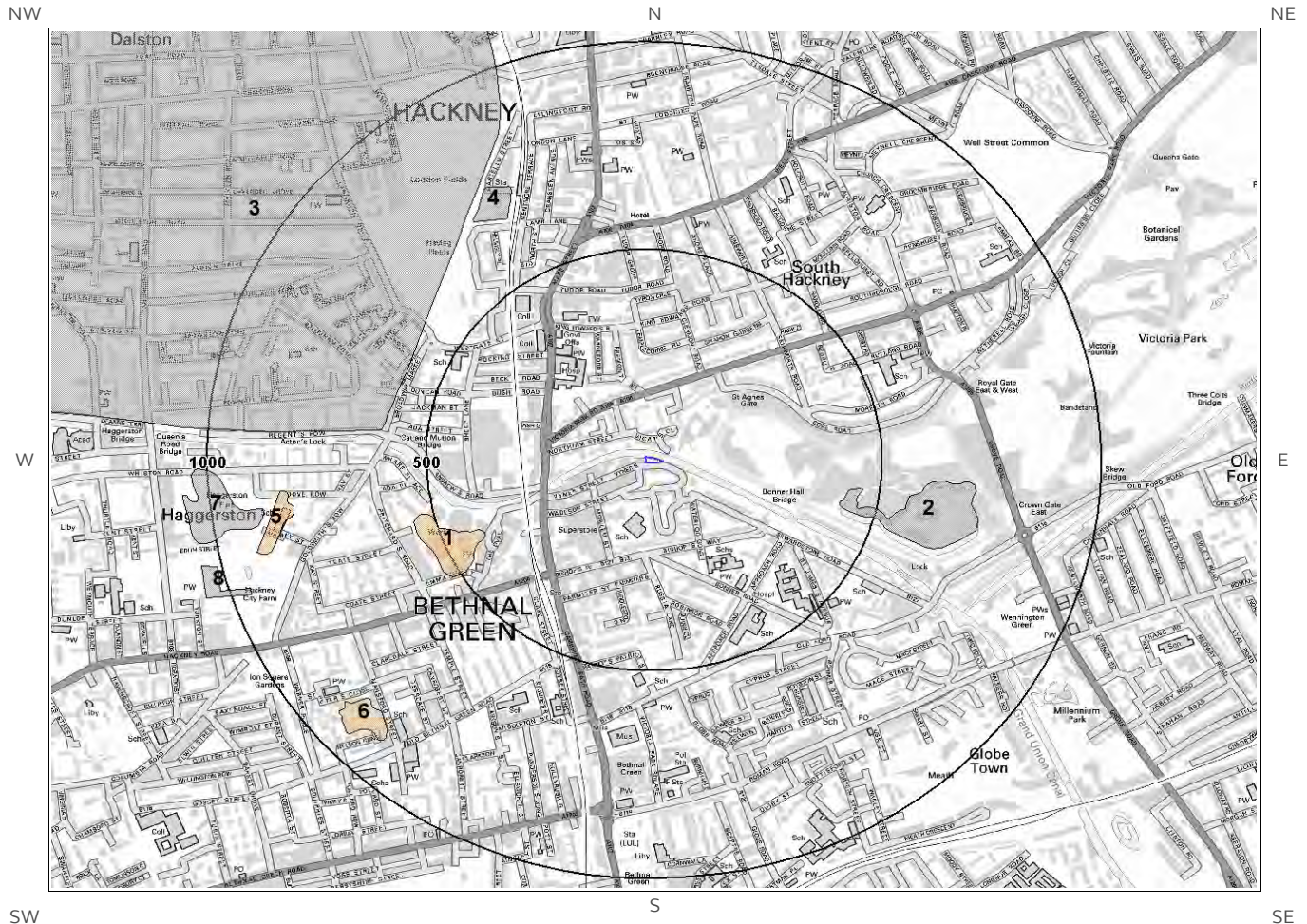
Database searched and no data found at this scale.

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.

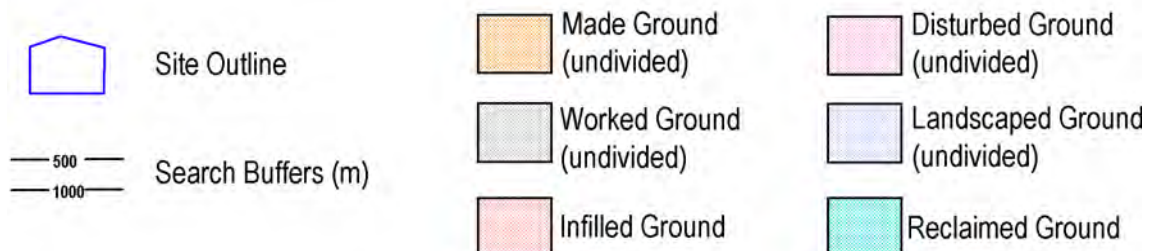
This Geology shows the main components as discrete layers, these are: Bedrock/ Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

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: 256

2.1.1 Artificial/ Made Ground

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

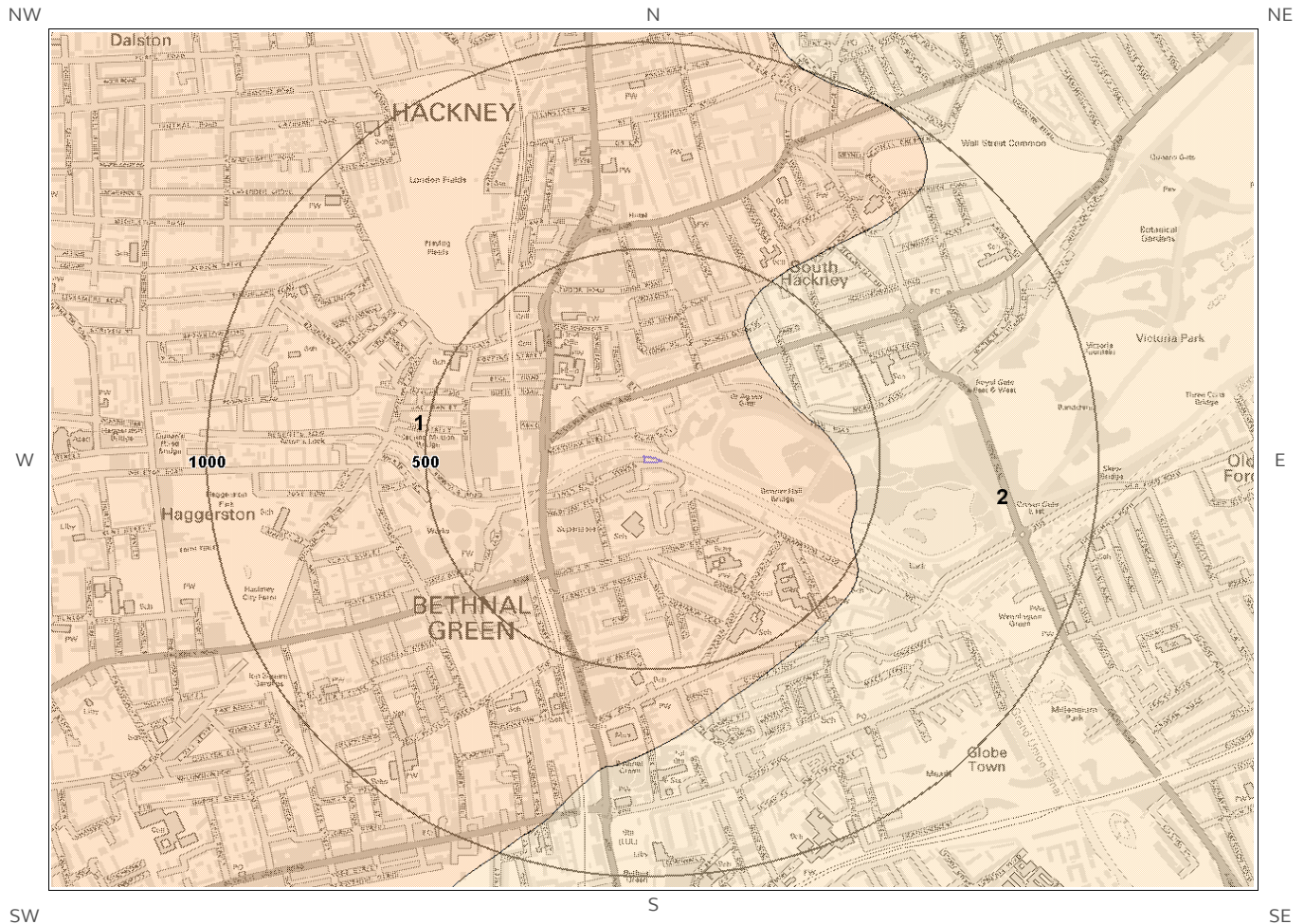
ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	406.0	SW	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
2	415.0	E	WGR-VOID	WORKED GROUND (UNDIVIDED)	VOID

2.1.2 Permeability of Artificial Ground

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

Database searched and no data found.

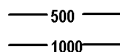
2.2 Superficial Deposits and Landslips map (1:50,000 scale)



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Site Outline



Search Buffers (m)

2.2 Superficial Deposits and Landslips

2.2.1 Superficial Deposits/ Drift Geology

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

ID	Distance	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	HAGR-XSV	HACKNEY GRAVEL MEMBER	SAND AND GRAVEL
2	319.0	NE	TPGR-XSV	TAPLOW GRAVEL MEMBER	SAND AND GRAVEL

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

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.

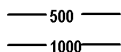
2.3 Bedrock and linear features map (1:50,000 scale)



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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: 256

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-XCZS	LONDON CLAY FORMATION - CLAY, SILT AND SAND	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	Moderate	Very Low

2.3.3 Linear features

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

Database searched and no data found.

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

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

3 Radon Data

3.1 Radon Affected Areas

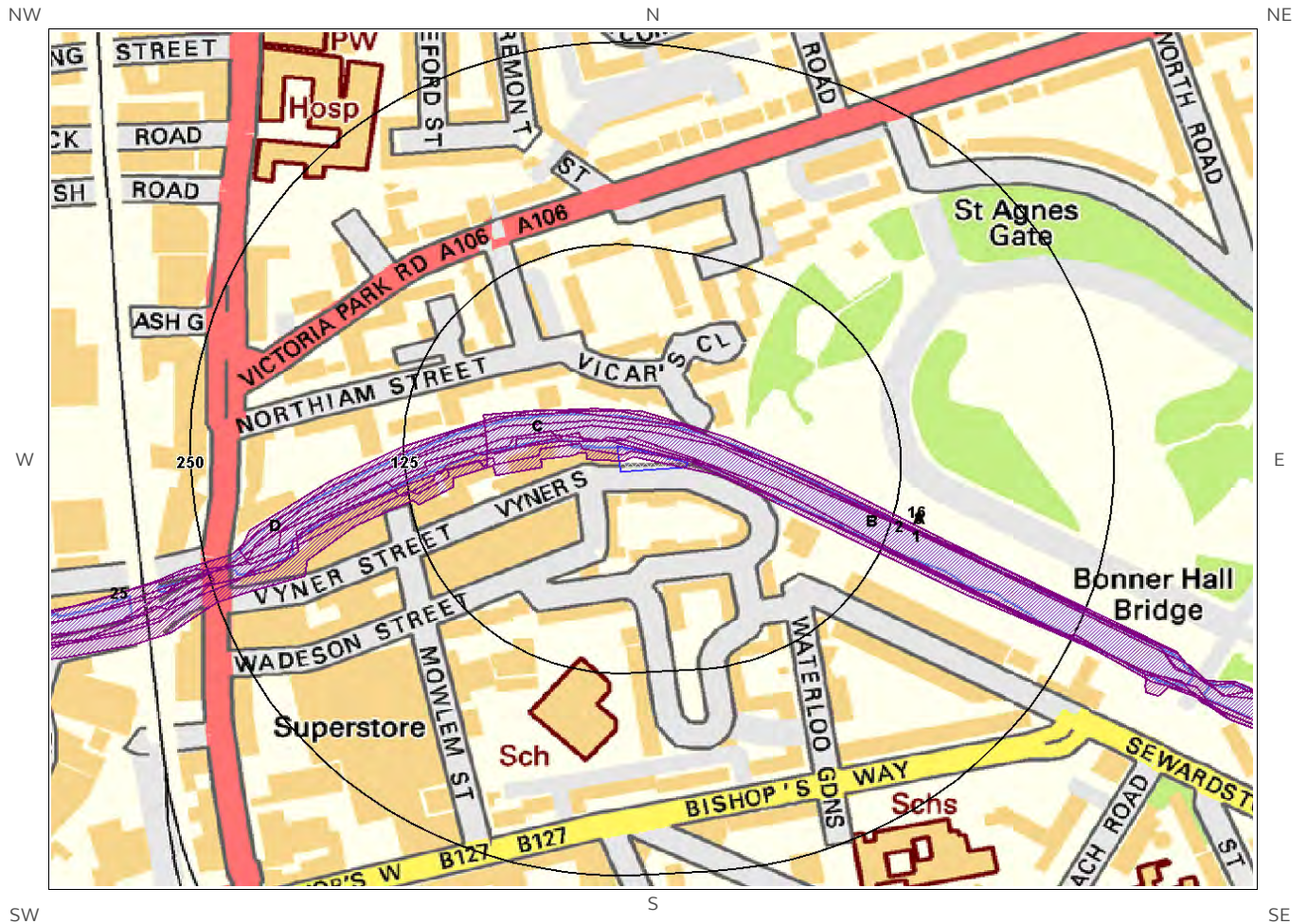
Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

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

3.2 Radon Protection



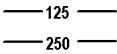


Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

4 Ground Workings map



Ground Workings Legend

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

4 Ground Workings

4.1 Historical Surface Ground Working Features derived from Historical Mapping

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

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

ID	Distance (m)	Direction	NGR	Use	Date
1	0.0	On Site	535916 183053	Canal	1894
2	0.0	On Site	535929 183013	Canal	1894
3A	0.0	N	536147 182586	Canal	1920
4A	0.0	N	536147 182586	Canal	1938
5A	0.0	N	536147 182586	Canal	1920
6A	0.0	N	536147 182586	Canal	1920
7A	0.0	N	536147 182586	Canal	1920
8	0.0	N	536298 182285	Canal	1920
9B	2.0	N	536057 182752	Canal	1965
10B	2.0	N	536057 182752	Canal	1989
11B	2.0	N	536057 182752	Canal	1981
12B	2.0	N	536057 182752	Canal	1973
13B	2.0	N	536057 182752	Canal	1994
14B	2.0	N	536057 182752	Canal	1949
15B	2.0	N	536057 182752	Canal	1955
16	3.0	N	535438 183431	Canal	1882
17C	32.0	W	535029 183592	Unspecified Wharf	1920
18C	32.0	W	535029 183592	Unspecified Wharf	1938
19D	76.0	W	532466 183518	Canal	1976
20D	76.0	W	532466 183518	Canal	1966
21D	76.0	W	532466 183518	Canal	1957

ID	Distance (m)	Direction	NGR	Use	Date
22D	76.0	W	532466 183518	Canal	1994
23D	76.0	W	532466 183518	Canal	1948
24D	76.0	W	532466 183518	Canal	1971
25	248.0	W	534566 183567	Canal	1882

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.

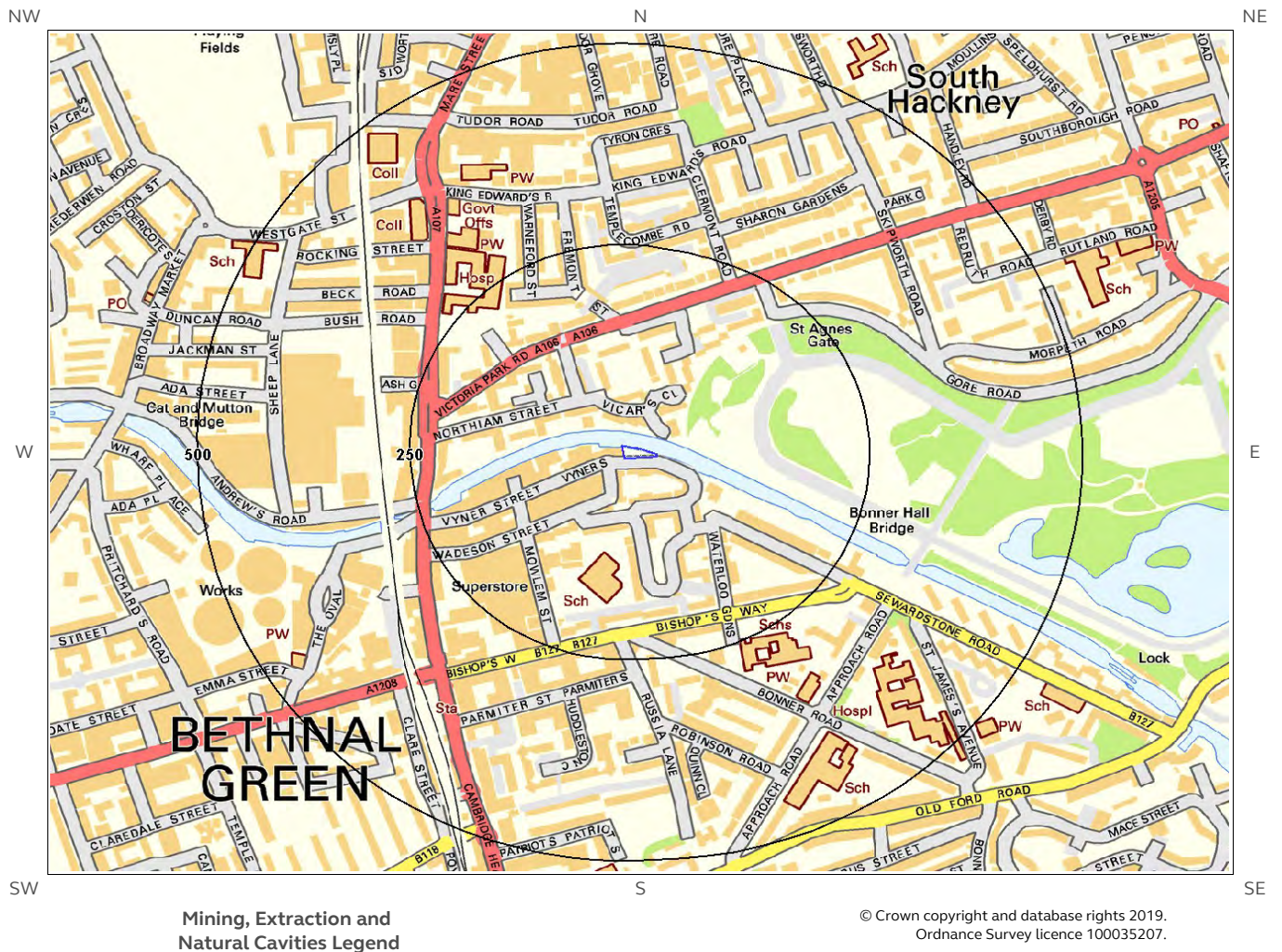
4.3 Current Ground Workings

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? No

Database searched and no data found.

5 Mining, Extraction & Natural Cavities map



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? Yes

The following information provided by JPB is not represented on mapping: Whilst outside of an area where The Coal Authority have information on coal mining activities, Johnson Poole & Bloomer (JPB) have information such as mining plans and maps held within their archive of mining activities that have occurred within 1km of this property. Further details and a quote for services can be obtained by emailing this report to enquiries.gs@jpb.co.uk.

5.4 Non-Coal Mining

This dataset provides information as to whether the study site lies within an area which may have been subject to non-coal historic mining.

Are there any Non-Coal Mining areas within 1000m of the study site boundary? 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.

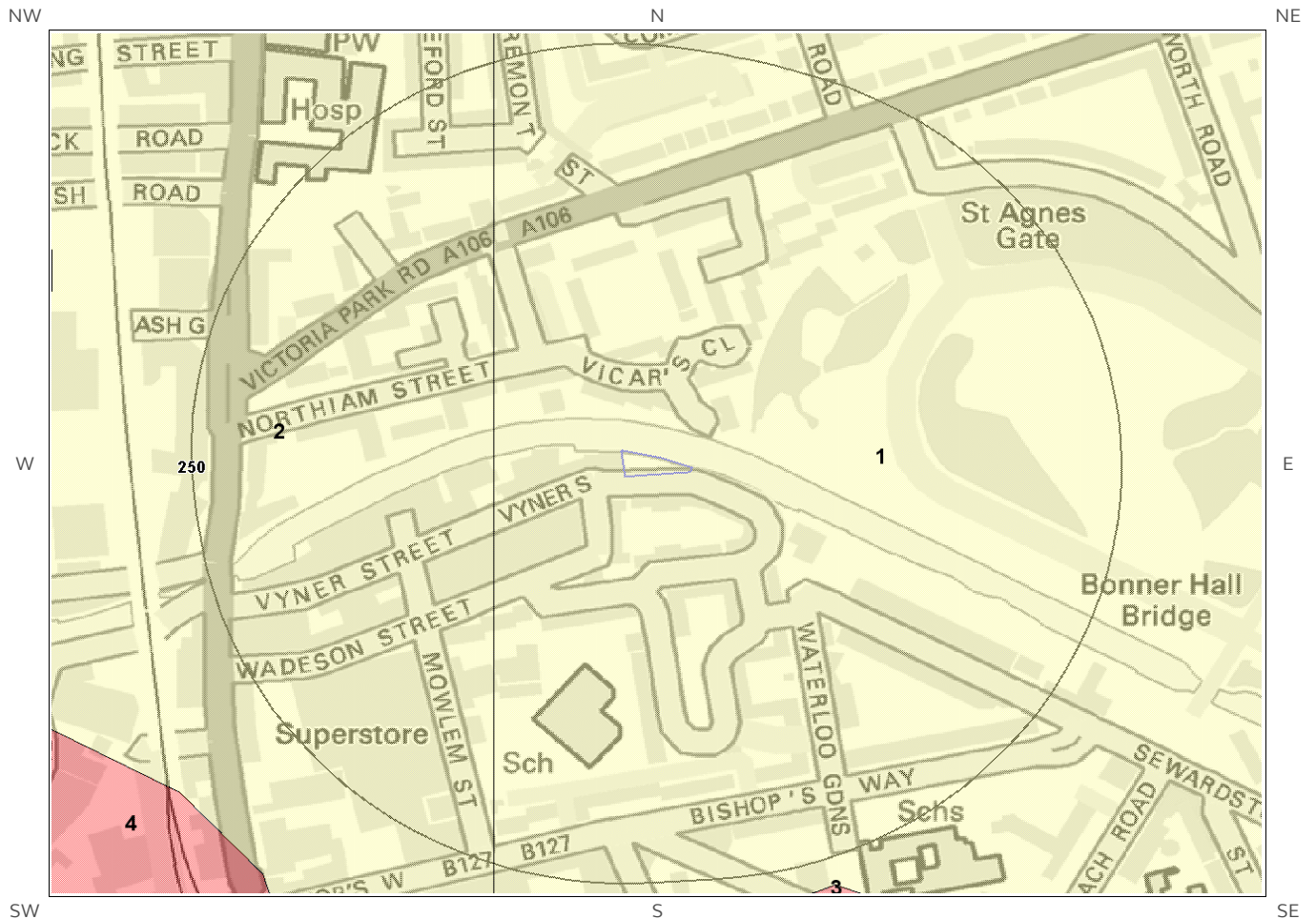
Are there any Clay Mining areas within 1000m of the study site boundary?

No

Database searched and no data found.

6 Natural Ground Subsidence

6.1 Shrink-Swell Clay map

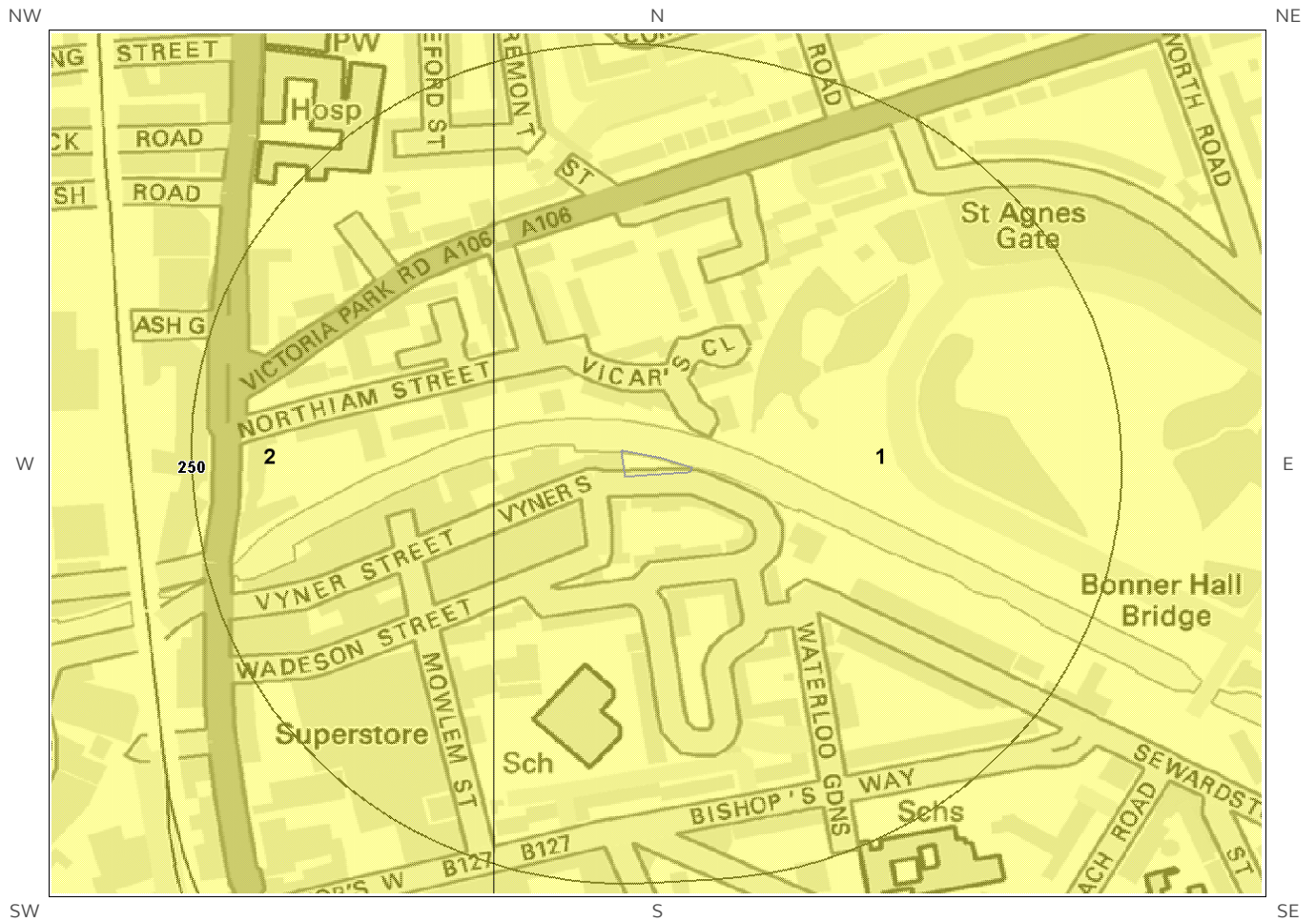


Shrink Swell Clay Legend

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6.2 Landslides map

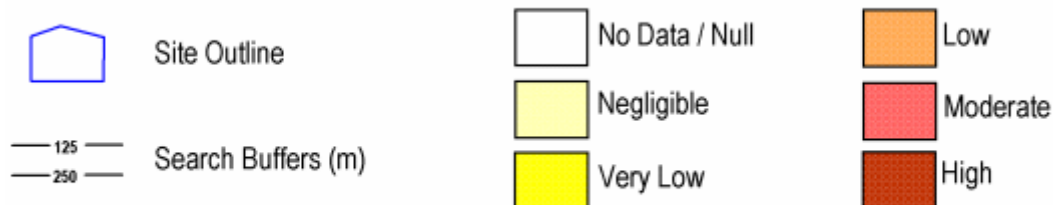


Landslides Legend

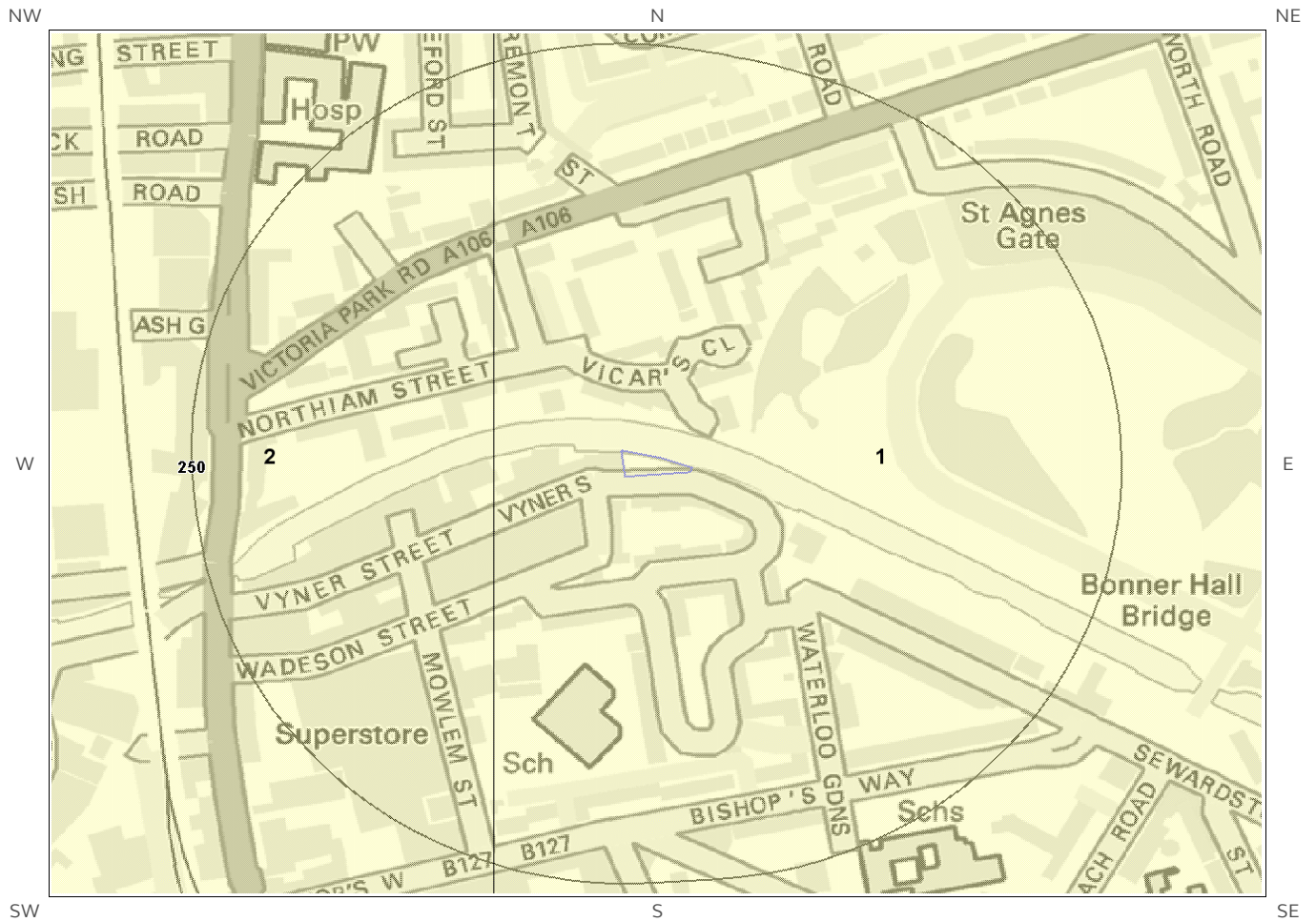
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6.3 Ground Dissolution of Soluble Rocks map



6.4 Compressible Deposits map

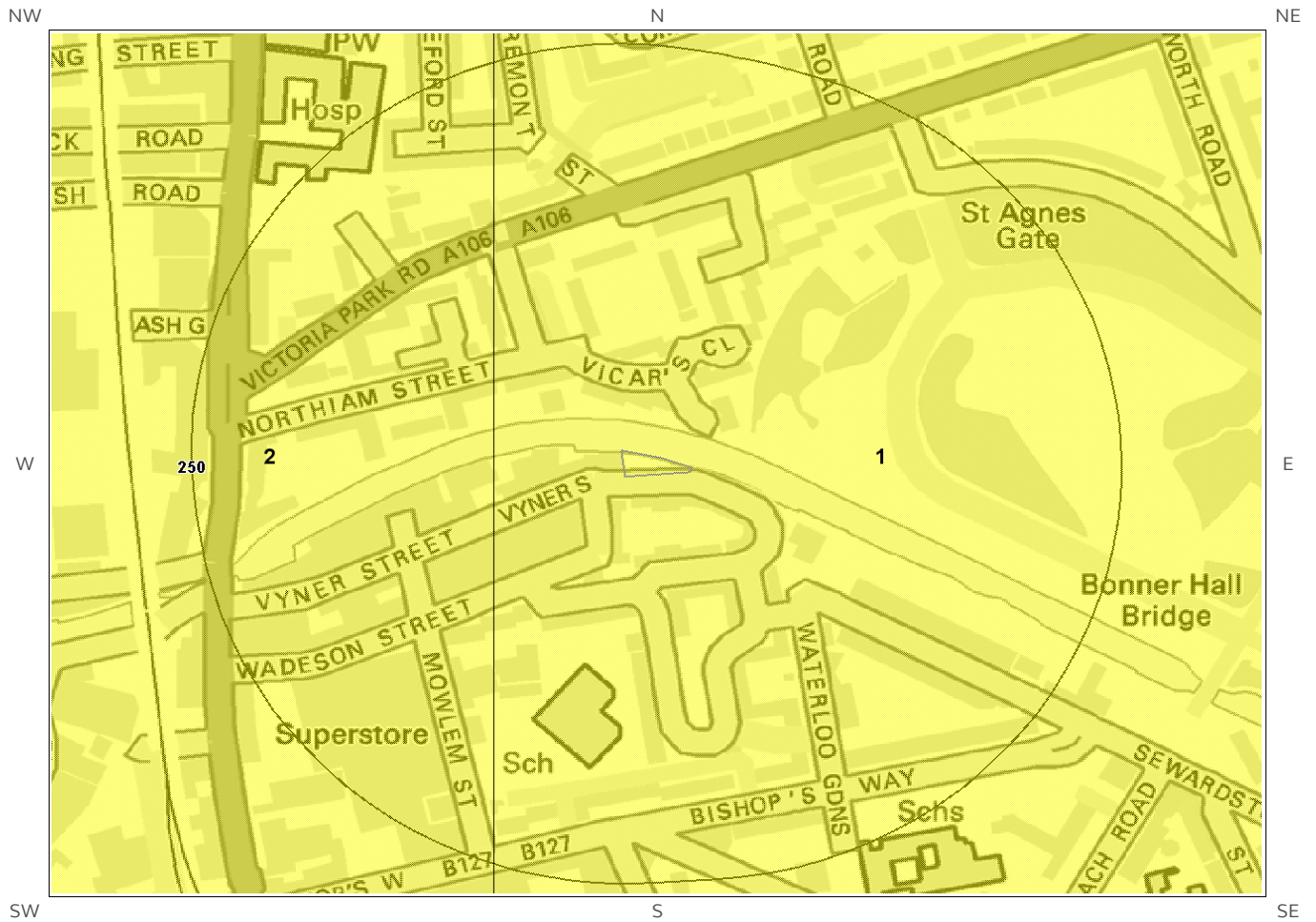


Compressible Deposits Legend

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6.5 Collapsible Deposits map

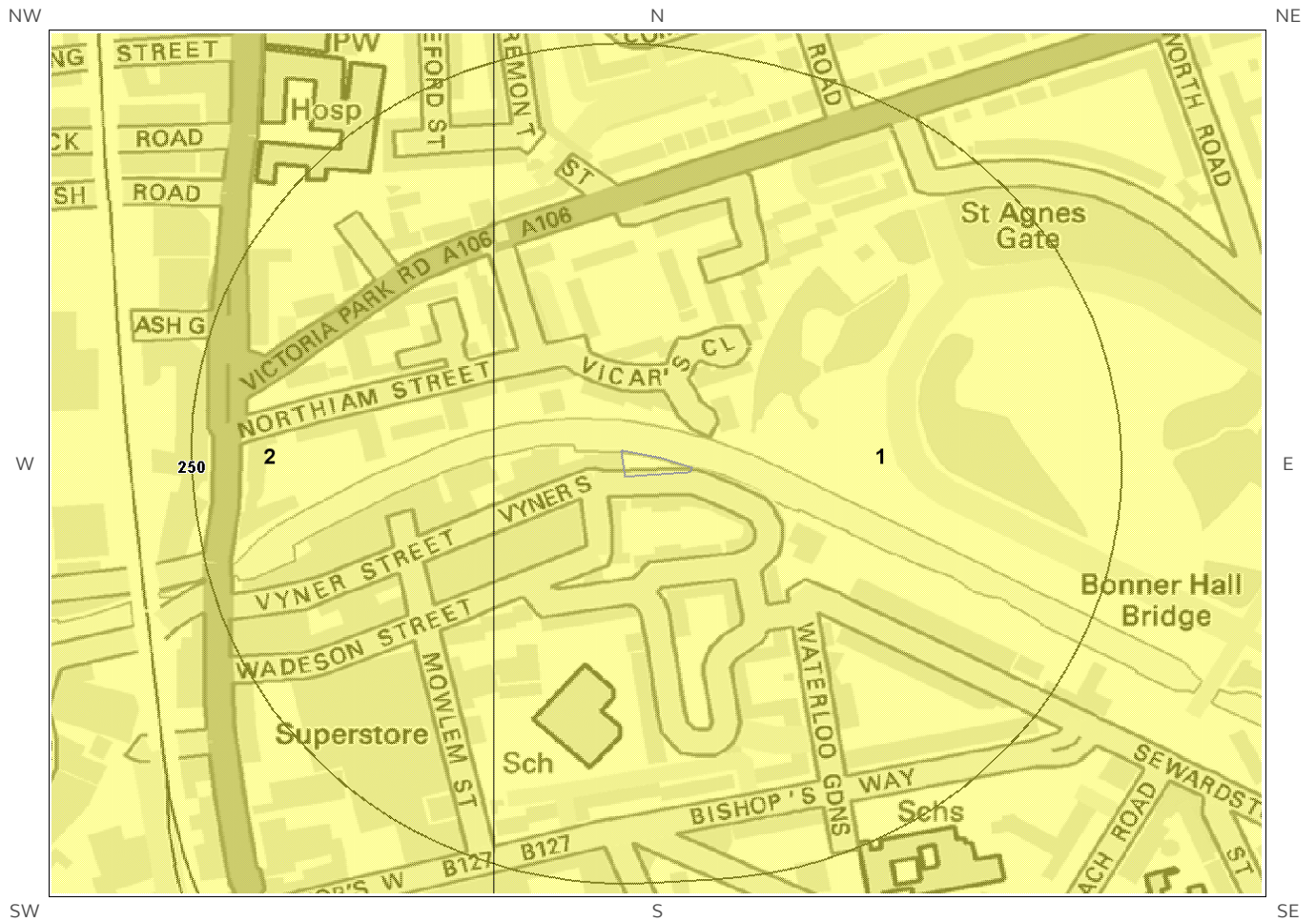


Collapsible Deposits Legend

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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? Very Low

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.

6.2 Landslides

The following Landslides information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

6.3 Ground Dissolution of Soluble Rocks

The following Ground Dissolution information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

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

6.4 Compressible Deposits

The following Compressible Deposits information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

6.5 Collapsible Deposits

The following Collapsible Rocks information provided by the British Geological Survey:

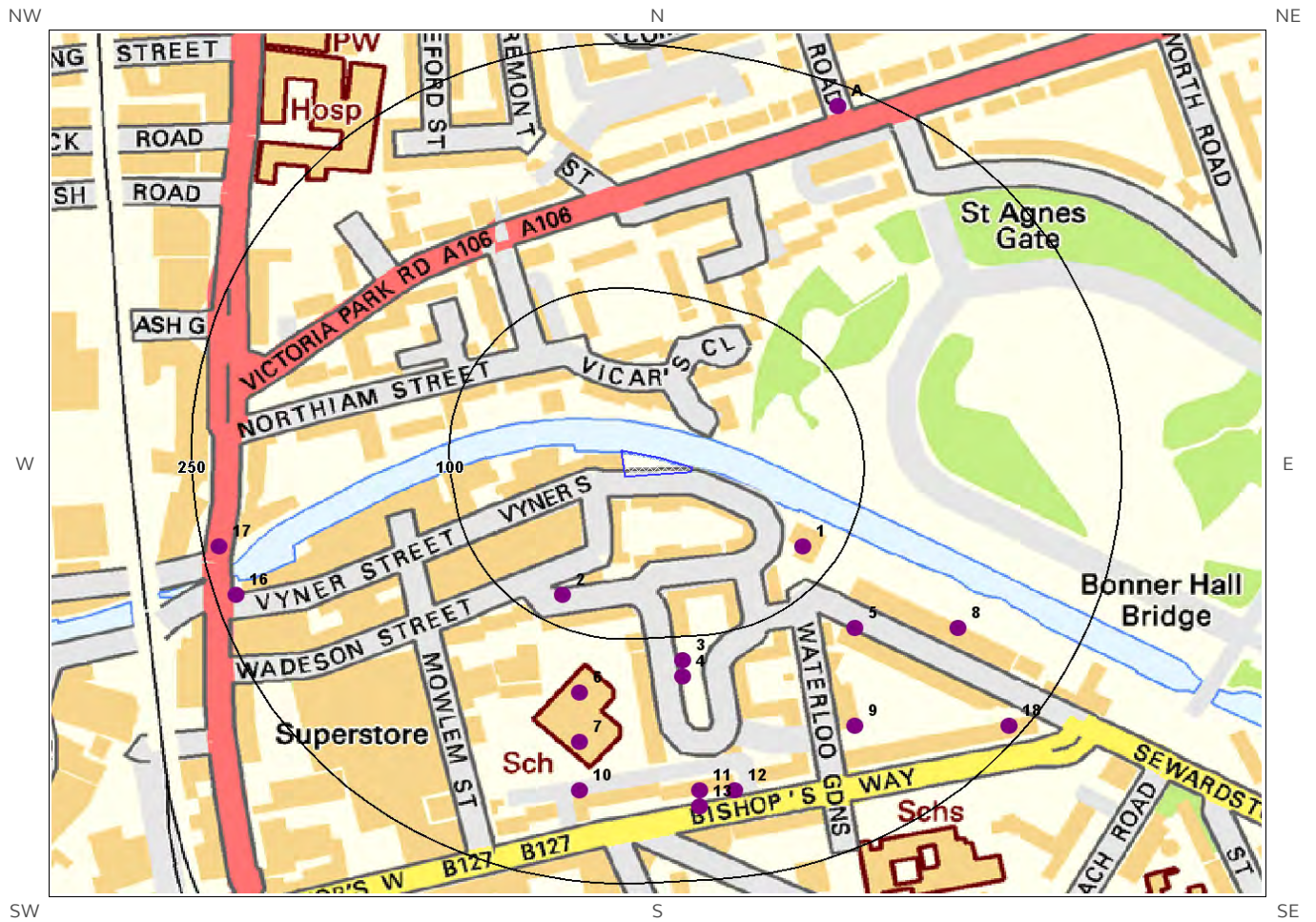
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible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

6.6 Running Sands

The following Running Sands information provided by the British Geological Survey:

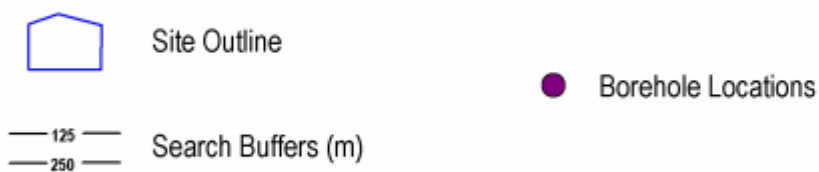
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased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

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:

18

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1	80.0	SE	535180 183530	TQ38SE719	18	SEWARDSTONE ROAD G.L.C.1
2	82.0	SW	535040 183500	TQ38SE923/A-D	3	WELLINGTON ESTATE TH.A-D
3	115.0	S	535110 183460	TQ38SE2213	124	WATERLOO ROAD, BETHNAL GREEN
4	125.0	S	535110 183450	TQ38SE166	92	BETHNAL GREEN WORKHOUSE D37
5	135.0	SE	535210 183480	TQ38SE726	9	SEWARDSTONE ROAD G.L.C.8
6	136.0	S	535050 183440	TQ38SE2185	3	MOWLEM PRIMARY SCHOOL A
7	165.0	S	535050 183410	TQ38SE2186	2	MOWLEM PRIMARY SCHOOL B
8	182.0	SE	535270 183480	TQ38SE721	18	SEWARDSTONE ROAD G.L.C.3
9	183.0	SE	535210 183420	TQ38SE720	9	SEWARDSTONE ROAD G.L.C.2
10	195.0	S	535050 183380	TQ38SE924/A-D	4	WELLINGTON ESTATE TH.1-4
11	196.0	S	535120 183380	TQ38SE2184	3	WELLINGTON ESTATE BETHNAL GREEN C
12	197.0	S	535140 183380	TQ38SE2182	4	WELLINGTON ESTATE BETHNAL GREEN A
13	206.0	S	535120 183370	TQ38SE2183	2	WELLINGTON ESTATE BETHNAL GREEN B
14A	237.0	N	535200 183800	TQ38SE4396	10	CHANNEL TUNNEL RAIL LINK G240178
15A	237.0	N	535200 183800	TQ38SE196	10	SHOVE ROAD & VICTORIA ROAD HACKNEY D74
16	238.0	W	534850 183500	TQ38SW287	10	VYNER ST & MARE ST BETHNAL GREEN D31
17	241.0	W	534840 183530	TQ38SW293	12	REGENTS CANAL MARE ST D43 BETHNAL GRN
18	242.0	SE	535300 183420	TQ38SE722	18	SEWARDSTONE ROAD G.L.C.4

The borehole records are available using the hyperlinks below: Please note that if the donor of the borehole record has requested the information be held as commercial-in-confidence, the additional data will be held separately by the BGS and a formal request must be made for its release.

#1: scans.bgs.ac.uk/sobi_scans/boreholes/1033622
#2: scans.bgs.ac.uk/sobi_scans/boreholes/1033955
#3: scans.bgs.ac.uk/sobi_scans/boreholes/1035272
#4: scans.bgs.ac.uk/sobi_scans/boreholes/1032549
#5: scans.bgs.ac.uk/sobi_scans/boreholes/1033629
#6: scans.bgs.ac.uk/sobi_scans/boreholes/1035244
#7: scans.bgs.ac.uk/sobi_scans/boreholes/1035245
#8: scans.bgs.ac.uk/sobi_scans/boreholes/1033624
#9: scans.bgs.ac.uk/sobi_scans/boreholes/1033623
#10: scans.bgs.ac.uk/sobi_scans/boreholes/1033956
#11: scans.bgs.ac.uk/sobi_scans/boreholes/1035243
#12: scans.bgs.ac.uk/sobi_scans/boreholes/1035241
#13: scans.bgs.ac.uk/sobi_scans/boreholes/1035242
#14A: scans.bgs.ac.uk/sobi_scans/boreholes/15618297
#15A: scans.bgs.ac.uk/sobi_scans/boreholes/1032579
#16: scans.bgs.ac.uk/sobi_scans/boreholes/1063639
#17: scans.bgs.ac.uk/sobi_scans/boreholes/1063645
#18: scans.bgs.ac.uk/sobi_scans/boreholes/1033625

8 Estimated Background Soil Chemistry

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

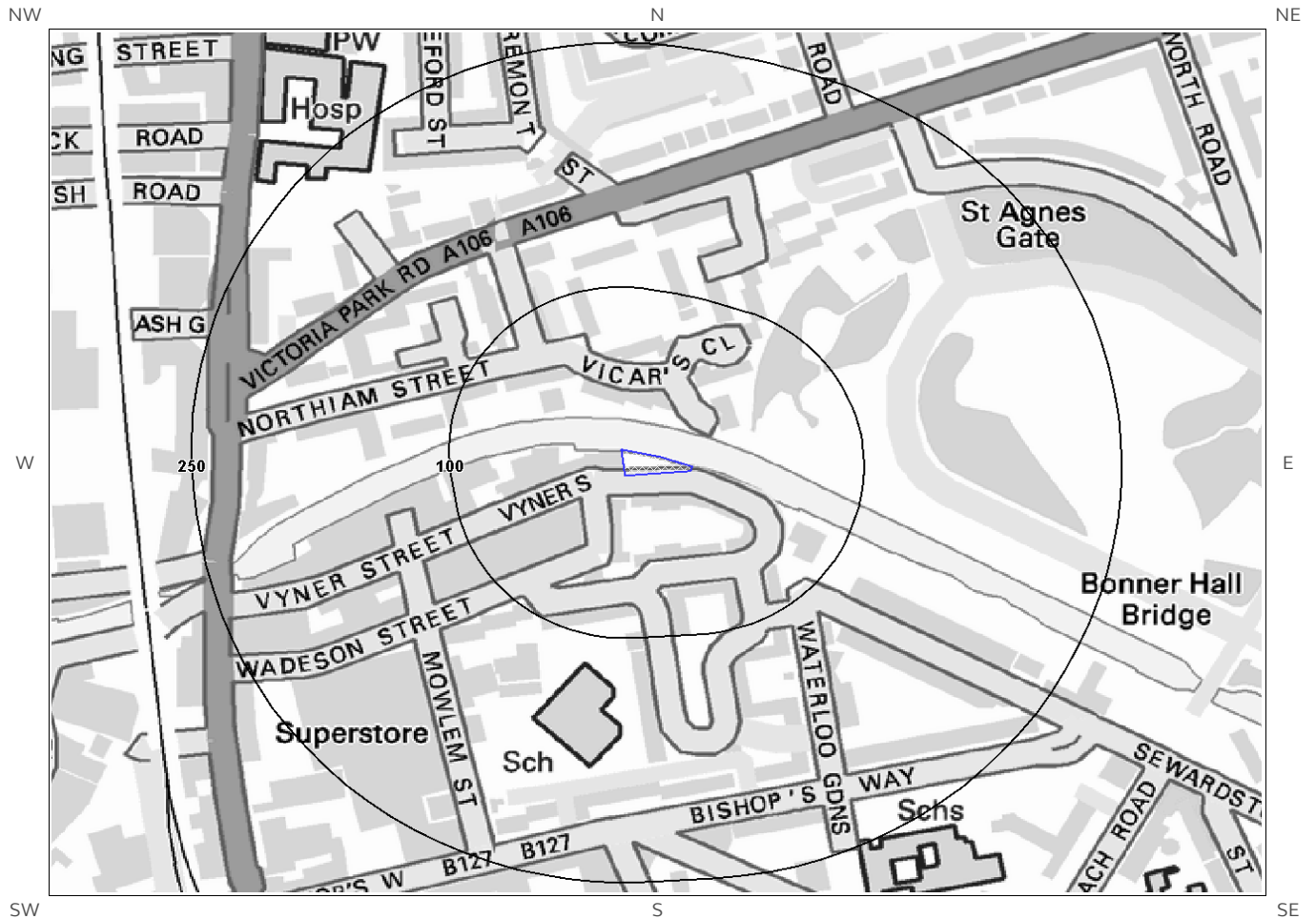
1

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

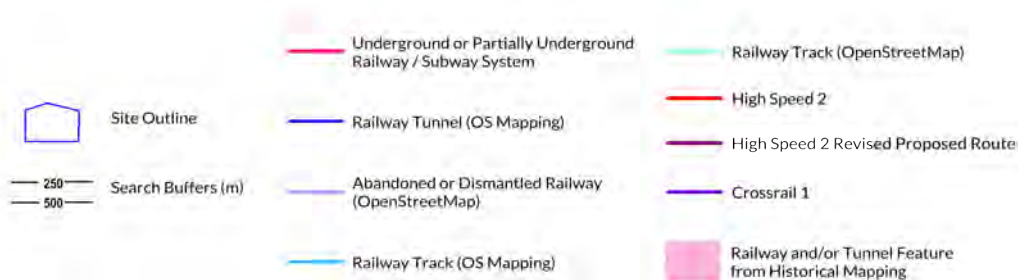
*As this data is based upon underlying 1:50,000 scale geological information, a 50m buffer has been added to the search radius.

9 Railways and Tunnels map



Railways and Tunnels Legend

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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? No

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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Email: enquiries@bgs.ac.uk
Web: www.bgs.ac.uk



BGS Geological Hazards Reports and general geological enquiries

British Gypsum

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The Coal Authority

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DX 716176 Mansfield 5
www.coal.gov.uk



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Standard Terms and Conditions

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<https://www.groundsure.com/terms-and-conditions-feb11-2019>

APPENDIX C

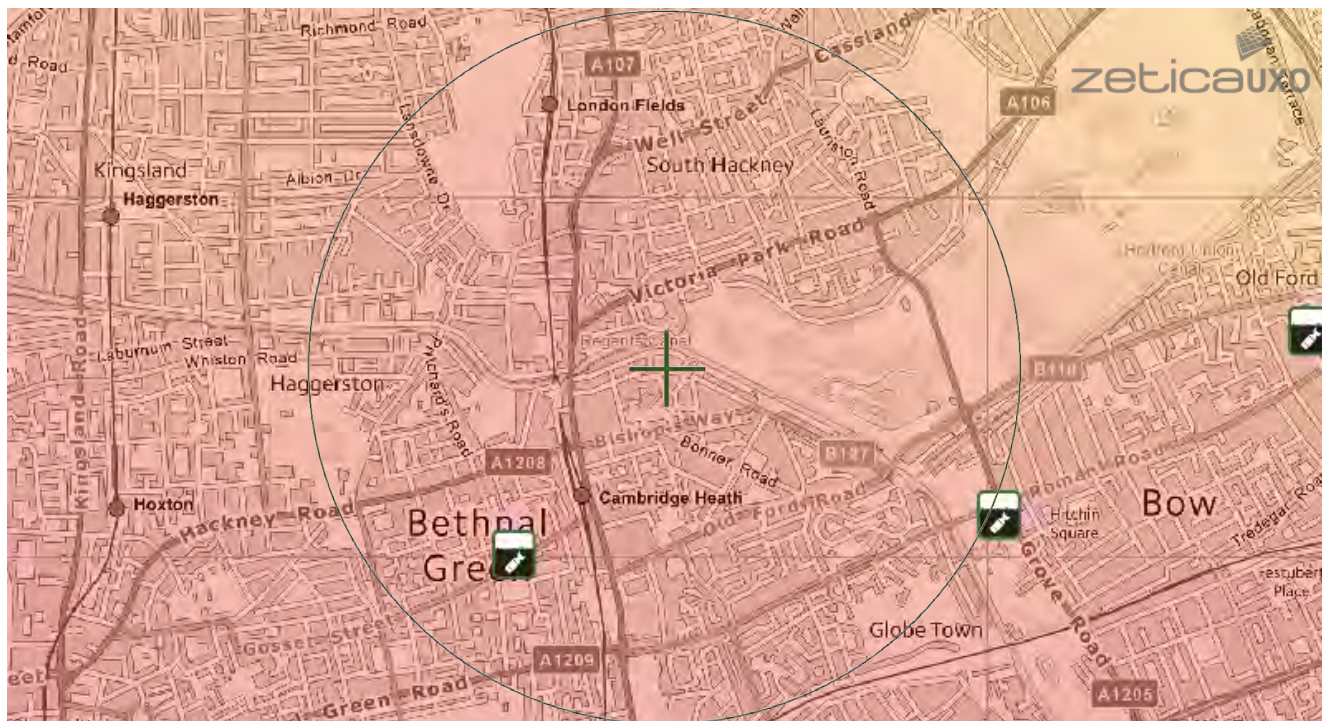
Zetica UXO Map

UNEXPLODED BOMB RISK MAP



SITE LOCATION

Location: E2 9JA,
Map Centre: 535113,183528



LEGEND

London Bomb Risk



How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

Relative UXB risk across London

The relative risk for the London area is established by plotting the recorded bombing densities.

These are represented as counts of high explosive bombs in km2 area. The areas coloured green represent a record of less than 10 bombs per km2.

Compared to other areas of the UK, this still represents a significant density. However, this is much lower than parts of Central London, where the red colouration indicates in excess of 150 bombs falling per km2, representing a very significant bombing density.

What do I do if my site is in a moderate or high density area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites with a moderate or high bombing density.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: +44 (0) 1993 886682

email: uxo@zetica.com

web: www.zeticauxo.com

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: (<https://zeticauxo.com/downloads-and-resources/risk-maps/>)

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It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

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