ARCADIS Design & Consultancy for natural and built assets

LONDON BOROUGH OF HOUNSLOW SMALL SITES SMALL BUILDERS PROGRAMME

GARAGE BLOCK OPPOSITE 14 AND 16 BRENTSIDE, BRENTFORD, TW8 8BS

Geotechnical and Geo-Environmental Desk Study

APRIL 2019

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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 Hounslow (LBH), 'the Client', to undertake a desk-based survey for a garage block opposite 14 and 16 Brentside, Brentford, London ('the Site').

London Borough of Hounslow is aiming to divest a number of small sites, no fixed development plans are currently available for the Site. However, for the purpose of this assessment a residential end-use has been utilised. The objectives of this review are to:

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

The Site location is shown in Figure 1.



Figure 1: Site Location Plan provided by LBH.

1.2 Sources of Information

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

- The on-line British Geological Survey (BGS) Geology of Britain Map Viewer (Ref. 1);
- Historical borehole records available through BGS website (above) (Ref.1);
- Historical Ordnance Survey maps obtained from Groundsure Insight (included in Appendix A);
- Environmental Information from Groundsure Insight (Appendix B);
- Current publicly available aerial images and maps from Google maps (Ref. 2); and
- Zetica Regional Unexploded Ordnance Map & Pre-Desk Study Assessment report (contained within the Arcadis UXO Assessment report for this site, 10030793-ARC-16-XX-RP-YY-00017-01-UXO Report, Appendix A).

1.3 Limitations and Expectations

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

2 SITE SETTING AND HISTORY

2.1 Site Location

Table 2.1: Details relating to Site Location

Site Location / Address	Garage Block Opposite 14 and 16 Brentside, Brentford, TW8 8BS
National Grid Reference	517380, 177651
Approximate Site Area	The Site is roughly L-shape and covers an area of approximately 0.185 hectares.
Description of Site	The Site is situated between Upper Butts Road and Brentside. The Site is divided into two areas; an access road running alongside a grassy area of public open space; this is separated by a metal gate from an L-shaped area of land with parking garages. The access road is used for unofficial parking and is covered by asphalt hardstanding in poor condition with scarring from a number of recently repaired potholes. The public open space is surrounded by thin bollards and planted with three mature trees. The L-shaped area of land beyond the gate encompasses approximately 28 small garages arranged in three blocks lining the south, and parts of the north and west boundary of the site around a courtyard. The ground was observed to be covered by compacted aggregate and soil in poor condition with low grass and moss vegetation growth. The lower edges of the concrete garage buildings were observed to be spalling in places. The Site is openly accessible by foot to the east or steps leading up to the west corner from Brentside. Vehicular access is partially restricted by thin metal bollards to the east of the Site and entirely restricted by a metal gate to the south half of the site. Several metal manhole covers and street lamps indicate the presence of below ground services beneath the site. A water supply cover was observed close to the easternmost corner of site and an outdoor tap was present on the wall of one of the garage buildings. Site photographs are included in Appendix C.
Topography	The Topography of the Site is generally flat at approximately 9m Above Ordnance Datum (AOD). The western corner of site slopes down behind the garage block towards Brentside, which is approximately 2m lower than the site. The surrounding area is generally flat, with the local topography sloping gently down towards the River Brent, to the south west. In the wider area topography slopes gently down to the south, towards the River Thames.
Surrounding Area	The Site lies within a predominantly residential area comprising houses to the north, west, and south. Upper Butts road is directly adjacent to the east with more residential houses beyond this. Beyond the immediate area to the south / south west is the River Brent, while a play area / recreation grounds is present to the north west, Allotment Gardens are to the west, and the Brentford Station / railway and a health centre is to the north east.

2.2 Site History

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

It is not the intention of this report to provide a full history, but to identify those past uses on and within the vicinity of the Site that could have 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)
1866 - 1867	There are several small buildings on site, mostly in the north eastern section, with trees, vegetation and fenced areas of residential gardens. South of the site is mainly residential. The areas west and north of the site are largely undeveloped land, with areas of trees. There is a draw well 75m north, and 200m adjacent to Boston Lane. The London and South Western Railway (Loop Line) is present approximately 150m to the north west. Several drainage ditches are present to the north east / east.
1896	The small buildings on site have been demolished and re-developed along the north western boundary. A small building in the north east corner remains present. Immediately south of the site, three glass houses are present within the residential gardens. Increased residential development takes place north of Brentford Station. Mooring post within a dock are recorded along the River Brent, between 80 to 200m south. The draw wells are no longer labelled.
1915	No significant changes are noted on site. Two glass houses to immediate north of site and one to south. Five oil tanks are present 100m south west of the site. Increased residential development surrounding the Site. Sluice gate is marked on the River Brent approximately 150m south.
1935	No significant changes are noted on site. Hospital is present approximately 100m north east of the site. A boat house is noted approximately 50m south west, and the oil tanks have increased to nine square tanks and three circle holders. Allotment gardens are present roughly 50m west of the site. Beyond the River Brent, 75m south west of the site, development has increased to include a wharf, barge repair yards and a dock. 250m north is a Gyroscope Manufactory, and just beyond this a Knitting Mill. Station road, 125m north east, is now a tramway.
1960	The area of small buildings / garages on the north-western boundary has been demolished and the site appears to be vacant, other than the building in the north east corner. Further mixed development in the surrounding area. Glasshouses are gone from site boundary. Factory to the north west has expanded and reaches 175m away from site. Development of buildings now labelled warehouses 75-100m south west in an area deemed “British Waterways Brentford Depot”, and several works buildings have appeared approximately 200m away from site beyond this. Boston Manor Road doesn’t appear to feature a tramway anymore.
1966-1970	Small buildings resembling the present-day garages are built along the north boundary and in the south area of the site. The building in the north east corner is demolished. There is an electricity substation approximately 50m north west of the site, as well as an electricity transformer approximately 175m north east. The large factory from 175m-275m north is now a garage. The mill adjacent to this has been demolished and Great West House built. Brent Cottage is demolished. The area of extensive works building to the south west has new labels including rock works (plastics), water softeners factory, and engineering

Date	Historical Development (Site and Surrounding Area)
	works. In this area, there is a tank and a Chimney, approx. 175m south west of the site.
1987-1991	No significant changes are noted on site. Part of the allotment garden area to the north west is now a recreation ground. The large garage to the north west is demolished.
1989 - 1991	The grassy area in the north east of the site has been established. The area of the large garage has been redeveloped into residential areas in the north west.
1995	No significant changes are noted on site. Brentford Hospital has been demolished.
2010	No significant changes are noted on site. The area of warehouses beyond the River Brent, approximately 75-100m south west of the site, has been demolished and redeveloped into mainly residential houses and flats.
2019 (from publicly available aerial photography)	No significant changes are noted on site. Much of the works and warehouses approximately 200m south west are demolished and has mixed redevelopment.

2.2.1 Summary of Site History

The Site was previously occupied by various unspecified buildings from 1866, these buildings were later demolished and replaced by garages from 1966, which remain to the present day. Due to the previous development onsite, there is potential for Made Ground to be present. Furthermore, the sites usage as garages may be a potential source of hydrocarbon, lubricants or solvents should any spills or leakages have occurred.

The London and South Western Railway (Loop Line) is present approximately 150m to the north of the site and a garage was present approximately 175-270m to the north west between circa 1966 and 1991, so there is potential for contamination to be present including fuel and lubricating oils, metals, Polycyclic Aromatic Hydrocarbons (PAH) and other associated chemicals. These are both upgradient to the site, however due to the distances involved, there is unlikely to be a viable migration pathway for contaminants, and they have therefore been discounted.

There are four Electricity Substations upgradient to the site present on historical maps, the nearest being 50m north west of the site, however this entry is unlikely to be hydraulically upgradient from the site and has therefore been discounted. The others are 175-200m north west of the site and around 175m north east of the site, owing to the distances involved (PCB's are relatively immobile), they have also been discounted.

A number of other industrial or potentially contaminative sources have been present nearby the site (including oil tanks, warehouses, works, British Waterways Depot, etc.), however based on the local topography, and that most of these potential sources are on the opposite bank of the River Brent, they are considered unlikely to have impacted the Site.

2.3 Unexploded Ordnance

An Unexploded Ordnance assessment has been undertaken for the Site, the findings of which are detailed in the Arcadis Report 10030793-ARC-16-XX-RP-YY-0017-01-UXO Report.

The Preliminary Desk Study Assessment (PDSA) from Zetica referenced within the Arcadis Report, recommends that a detailed desk study needs to be commissioned to assess, and potentially zone, the UXO

hazard level on the Site. The detailed desk study provides an in-depth review of a site's history with respect to UXO, and each hazard zone will detail the potential type/depth of UXO which could be encountered. This will ultimately help inform proposed construction techniques and for the selection of appropriate mitigation measures during intrusive works.

3 PHYSICAL AND ENVIRONMENTAL SETTING

3.1 Published Geology, Hydrogeology and Hydrology

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

Table 3.1: Information Regarding Geology, Hydrogeology and Hydrology

Geology / Aquifer Status	Made Ground deposits may also be present at the Site, considering the previous development at the site. Superficial Deposits: Kempton Park Gravel Member described as Sand and Gravel. According to the Groundsure reports, this area is designated as a Secondary A Aquifer – Permeable Layers. It is noteworthy that the Groundsure Enviro-Insight report (included in Appendix B) has also highlighted possible Alluvium 22m to the south west, which is described as Clay, Silt, Sand and Gravel – this is likely to be associated with the presence of the River Brent. Solid Geology: London Clay Formation, described as Clay and Silt, which is designated as Unproductive Strata.
BGS Boreholes (within 250m of the Site)	There are no BGS boreholes within 250m of the Site.
Within a Source Protection Zone	Not recorded within 500m of the Site boundary.
Licensed Groundwater Abstraction Points	There are four licenced groundwater abstraction points noted within 1km of the Site; 1. 713m SW of the Site – two licenses relating to “Horticultural Watering” and “Spray Irrigation (Direct)”. The target strata is not supplied. 2. 948m S of the Site – two licenses relating to “Horticultural Watering” and “Spray Irrigation (Direct)”. The target strata is not supplied.
Surface Water Feature	Features within 250m of the site: 1. 50m S – River Brent – Canal 2. 136m SW – Grand Union Canal – Canal 3. 220m W and 217m S - River Brent - Inland river not influenced by normal tidal action. 4. 231m S - Grand Union Canal - Lock or flight of locks.
Likely Groundwater Flow Direction	Significant groundwater flow within the London Clay bedrock is not expected to be present. The Kempton Park Gravel Member is designated as a Secondary A Aquifer – Permeable Layers, and is likely to contain groundwater at shallow depths within granular material (sands and gravels). The nearest historical borehole log has indicated the Gravels present contained groundwater at levels around 5.4m and 8.2m bgl. Based on the local topography, groundwater flow within the Kempton Park Gravel Member is expected to flow towards the south west, however the overall flow direction is likely to be in the direction of the River Thames – to the south.

3.2 Environmental Public Registers

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

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

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 Consents	1. Trade Discharges – Unspecified, into The River Brent. Status: Revoked 06-Jul-2000. 2. Trade Discharges – Site Drainage, into the Grand Union Canal. Status: Revoked 05-01-2005.	155m S 189m S
Pollution Incident to controlled waters	One incident within 250m; Relating to an incident in July 2001 with contaminated water urban run-off, leading to a Category 2 incident (significant) for Water and a Category 4 incident (no impact) for Land / Air.	196m W
Landfill sites (current and historical)	No current or historic landfill sites are recorded within 250m of the Site.	N/A
Potentially Infilled Land	Seven areas of potentially infilled land are recorded within 250m of the Site, dating from 1865 – 1948, according to the Groundsure reports. These features have not been identified from historical mapping.	42-75m SW (Canal 1865-1983) 100m N (Unspecified Heap, 1865) 102m N (Unspecified Pit, 1894) 121-129m SW (Canal, 1894-1935) 123m NW (Cuttings, 1865) 131-134m W (Canal, 1898-1948) 206m S (Pond, 1894)
Industrial Sites	**Historical**: Hospital, Unspecified Commercial/Industrial /Depot, Unspecified Heap, Unspecified Pit, Cuttings, Unspecified Factory, Railway Sidings, Railway Station, Railway Building, Unspecified Works, Unspecified Mill, Garage	47 – 188m
	Current: Verisure Smart Alarms, Electricity Substations, Dock, Brentford Rail Station, Elite Airport Cars, Brentford Express Cars, Depot, Works, Warehouse, Tank, Vision Traders Ltd	36 – 250m
Petrol and Fuel Sites	None recorded within a 250m radius of the Site.	N/A

Data type	Description	Distance (m) and Direction
Local Authority Pollution Prevention and Controls	One List 2 Dangerous Substance Inventory Site record within 250m; Relates to an Active outlet (Outlet A Brentford Lock) into the Thames Estuary (Brent) of authorised substances iron and benzene.	101m S

The Site has been previously developed, therefore Made Ground is anticipated to be present which could contain contaminants.

The majority of the entries detailed within the above public registers are unlikely to have impacted upon the site due to their relative distances from the site. However, the infilled land entries (including the potentially infilled areas of canal, and the unspecified heap/tip) are potential sources of hazardous ground gases, if any viable pathways are present.

4 PRELIMINARY CONCEPTUAL MODEL

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

4.1 Potential Contaminant Sources

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

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

Table 4.1: Potential sources of contamination on site

Source	Potential Contaminants
On Site	
Made Ground is likely to be present on the Site from previous development and demolition.	Asbestos, metals, Polycyclic Aromatic Hydrocarbons (PAH), hydrocarbons, ground gas
Parking/Garages	Hydrocarbons, lubricants and solvents from potential spills/leaks from vehicle maintenance activities.
London Clay	Sulphates
Off Site	
Infilled land (canal 43m, unspecified Heap 100m, unspecified Pit 102m)	Ground gases

4.2 Potential Receptors

The proposed form of the development is currently unknown, however for the purpose of this assessment a residential end-use is assumed. 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 the assessment of potential risks to construction workers. The potential risks should be addressed by a site-specific construction workers risk assessment and implementation of appropriate health and safety measures, to adequately mitigate any potential risks. All works should be conducted in accordance with the CDM regulations 2015 (Ref. 6) or any other relevant guidance. Construction workers are not considered further as human health receptors.

4.2.2 Controlled Waters

- Secondary A Aquifer with permeable layers within superficial deposits.

- River Brent.

4.2.3 Buildings

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

4.3 Potential Pathways

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

Table 4.2: Potential Contaminative Pathways

Receptor	Description
Human health (future site users/residentials, visitors, maintenance workers and contractors)	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 (Secondary A Aquifer and River Brent)	Leaching of potential contaminants in soil or Made Ground into groundwater. Vertical migration of soluble contaminants through the unsaturated zone into groundwater beneath the Site. Horizontal migration and / or surface run-off of soluble contaminants into nearby surface water features.
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 the development and demolition of former buildings on site, therefore there is the potential for Made Ground to be present which could contain contaminants of concern. Potential contaminants in the Made Ground could impact the built environment and controlled waters if mobilised or disturbed by the works. If significant depths of Made Ground are present, and this contains putrescible matter, ground gas / vapours could be generated which could accumulate in confined spaces and pose risk to future site users. Furthermore, potential spillages/leaks of hydrocarbons, solvents and lubricants could have occurred given the sites usage as garages.

According to the Groundsure report, there is potential for Alluvium to be encountered on site. Infilled land has also been recorded within the surrounding land. These could be potential sources of ground gas that could migrate into confined spaces.

The degree of risk will need to be assessed prior to redevelopment, as such ground investigation and assessment is recommended. From experience, the potential for the need to undertake remediation should be limited given that the Site has not previously been extensively used for industrial or commercial use. However, thus the need for remediation, cannot be ruled out. If the Site is found to be contaminated, mitigation measures will be required to break the source-pathway-receptor linkages.

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

- 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 and a suitable growing medium in garden areas and public open space;
- Potentially further investigation and consultancy advice to support planning obligations.

5 Waste Management and Potential Development Constraints

5.1 Waste Management

Consideration should be given to the disposal of waste soils/Made Ground which are likely to be generated by development. Chemical testing of soils/Made Ground is likely to be required to inform a waste classification assessment and determine the potential disposal options. It should be noted that the waste contractor may require testing of the actual material to be disposed 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

Below ground services may be present beneath the Site. The paved ground and hardstanding may need to be removed or broken out, and the garage buildings may need to be demolished – Asbestos may be present given their age and an asbestos survey should be considered prior to any demolition works.

6 Geotechnical Considerations

6.1 General Comments

Ground conditions anticipated at the Site are likely to comprise Made Ground as the Site has previously been developed. No records of nearby historical borehole were found within the surrounding area. However, according to the BGS the site is underlain by the Kempton Park Gravel Member and the London Clay.

The National Ground Subsidence rating (provided by Groundsure) is obtained through the 6 natural ground stability hazard datasets, which are supplied by the British Geological Survey (BGS). The GeoSure data is derived from the BGS Digital Geological map of Great Britain at 1:50,000 scale. The maximum hazard rating of natural subsidence on site is classified as “Very Low”. However, the maximum hazard rating within the study site boundary (included a 50m buffer zone) reported by Groundsure was “moderate”, due to areas associated with the canal to the south west. At a location 32m SW, the hazard rating for shrink-swell clays was rated as “moderate”, meaning “ground conditions with predominantly high plasticity”. No other rating within the study site boundary was higher than “Very Low”.

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

- **Made Ground** - The nature and thickness of the Made Ground (if present) is unknown. The likely engineering performance of the Made Ground is not known.
- **Ground Gas** - Future development may need to be designed to mitigate against soils borne ground gas.
- **Shrinkable Clays** – Consideration will need to be given to the presence of existing trees that are removed, retained or the planting of future trees when considering the depths of the foundations. In addition, the risks associated with the London Clay include high plasticity clay which are subject to shrinkage and swelling, sulphate attack and should be considered during the investigation / design.
- **Underground Structures** - 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.
- **Shallow Groundwater** - Should shallow groundwater be present dewatering measures and excavation support would be required (depending on the findings of the ground investigation). This may also have implication upon the foundation design.
- **Contamination** – Potential contamination may require mitigation for future development, site users and controlled waters.
- **Sulphates** – Buried concrete may need to be designed to mitigate against natural adverse chemical conditions – especially given the presence of the underlying London Clay.
- **Underground Services** - Provision of contaminant resistant water supply pipes maybe required (depending on the findings of the ground investigation).
- **Excavations / Support** - The consequences of trench stability can vary, but usually pose a problem to the Contractor either by collapse into an already excavated trench or by the removal of support to plant, equipment or materials located adjacent to the excavation. The need to ensure stability and limit ground movements is of prime importance where excavations are adjacent to structures, roads, and public utilities or where man entry is envisaged. The suitability of the Contractor’s proposals for ground support will be particularly important in such areas.

  It is anticipated that excavations within the Made Ground and superficial deposits should be achievable using a suitable size of conventional excavation plant. Excavations within these materials

are unlikely to remain stable even in the short term and close lateral support will be required at all times or the sides of the excavation battered back to a safe angle above groundwater seepages.

The potential impacts of instability in excavations should be considered where adjacent buildings are present, and future works need to ensure that ground movements and vibrations do not affect existing structures.

6.2 Foundations

At this stage no intrusive ground investigation has been completed. Potential founding solutions will be dependent on the thickness of Made Ground and the geotechnical properties of the natural deposits. Made Ground is generally considered unsuitable for foundations due to its variable composition and its potential for high total and differential settlement.

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

Deeper trench fill may be possible although the maximum practical extent of this type of foundation is in the region of 2-2.5 m. In areas of deeper Made Ground, or where deeper soft compressible material is present (the depth of which would need to be determined) deeper foundation options or ground improvement methods maybe required 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.

7 Conclusions and Recommendations

7.1 Design Considerations

The Site is currently partially an area of public open space (grassy area), and a hardstanding area used for unofficial parking (assumingly by local residents), which also encompasses around 28 small garages within a garage block. An intrusive site investigation has not been undertaken at this stage. The Site was previously developed, demolished and redeveloped multiple times with small buildings / garages between 1866 and 1970, therefore Made Ground is anticipated to be present. The sites usage as garages is also a potential source of contamination.

Without mitigation, future site users may be at risk from contaminants that may have be present on Site. Exposure could occur in gardens or soft landscaped areas, especially if soils are disturbed by activities such as digging / gardening.

Contamination could be mobilised or disturbed by the works. Rainfall derived leaching could be exacerbated causing contamination of the underlying Secondary A Aquifer. This risk is especially prevalent if intrusive construction methods or piling create a preferential pathway for contaminants in the Made Ground to enter the underlying aquifer. The nearby River Brent could also be at risk if activity on the site causes horizontal migration and / or surface run-off of soluble contaminants off-site.

Made Ground is likely to be present on the Site from former development and demolition of buildings. If significant depths of Made Ground are present, and this contains putrescible matter, ground gas / vapours could be generated which could accumulate in confined spaces and pose risk to future site users.

Potential receptors are considered to be future Site users, proposed buildings and underground structures / services and groundwater beneath the Site (Secondary A Aquifer identified within the underlying Kempton Park Gravel Member).Whilst 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) or a clean cover system within soft-standing areas rather than large scale removal of materials.

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).

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.

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

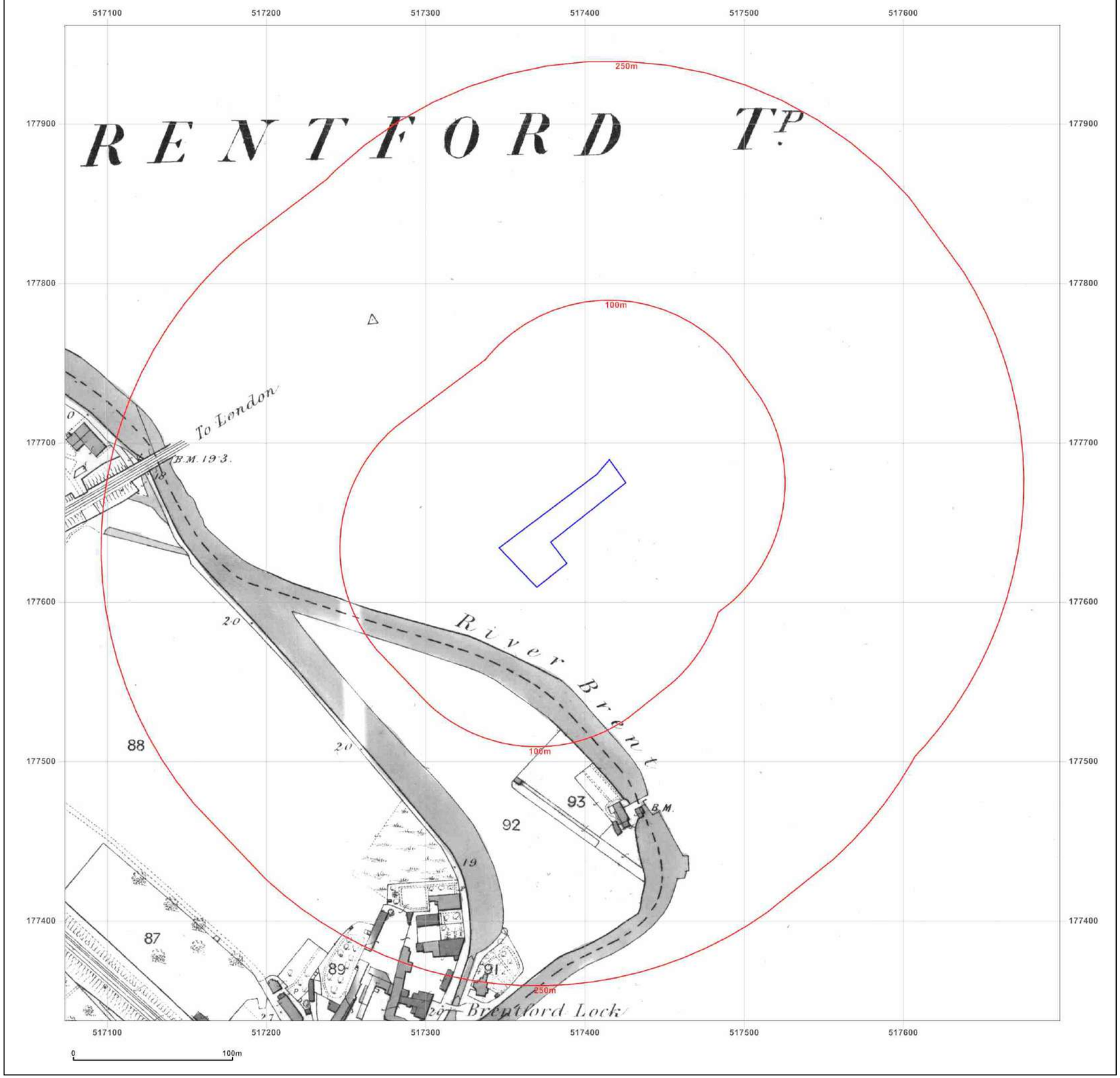
According to the Arcadis Unexploded Ordnance assessment which has been undertaken for the Site, the report recommends that a detailed desk study needs to be commissioned to assess, and potentially zone, the UXO hazard level on the Site.

8 References

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3. CIRIA C552 (2001) Contaminated land risk assessment. A guide to good practice.
4. 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).
5. The Construction (Design and Management) Regulations 2015.
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APPENDIX A

Historical Ordnance Survey Maps



Groundsure INSIGHTS

Site Details:

GARAGE BLOCK OPPOSITE 14
AND 16 BRENTSIDE,
BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: County Series
Map date: **1865**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

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

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Production date: 28 March 2019

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

GARAGE BLOCK OPPOSITE 14
AND 16 BRENTSIDE,
BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: 1056 Scale Town Plan

Map date: **1866**

Scale: 1:1,056

Printed at: 1:1,056

N
W E
S

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

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Groundsure INSIGHTS

Site Details:

GARAGE BLOCK OPPOSITE 14
AND 16 BRENTSIDE,
BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: County Series

Map date: **1867**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

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

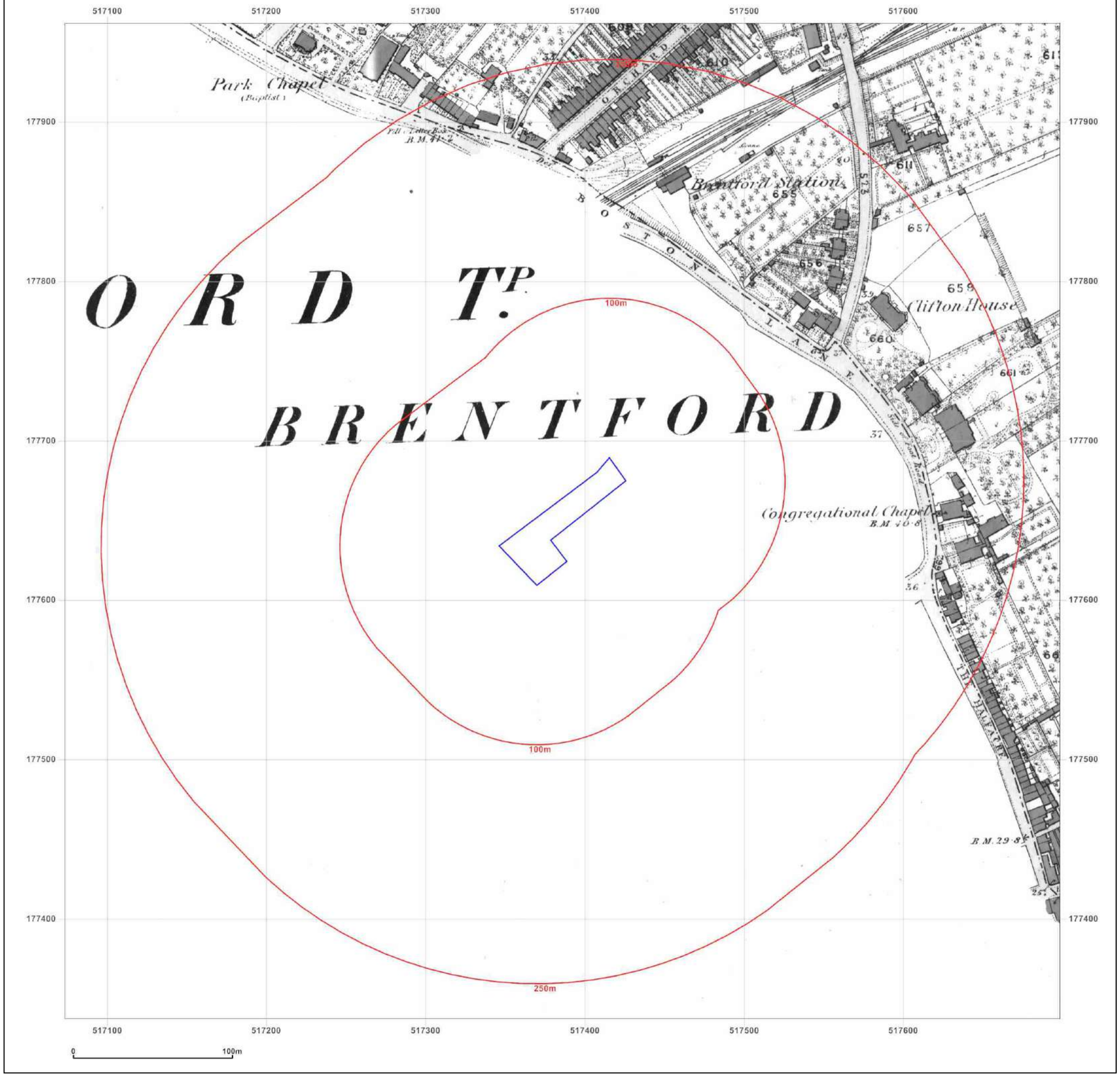
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Site Details:

GARAGE BLOCK OPPOSITE 14
AND 16 BRENTSIDE,
BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: County Series

Map date: **1867**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

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

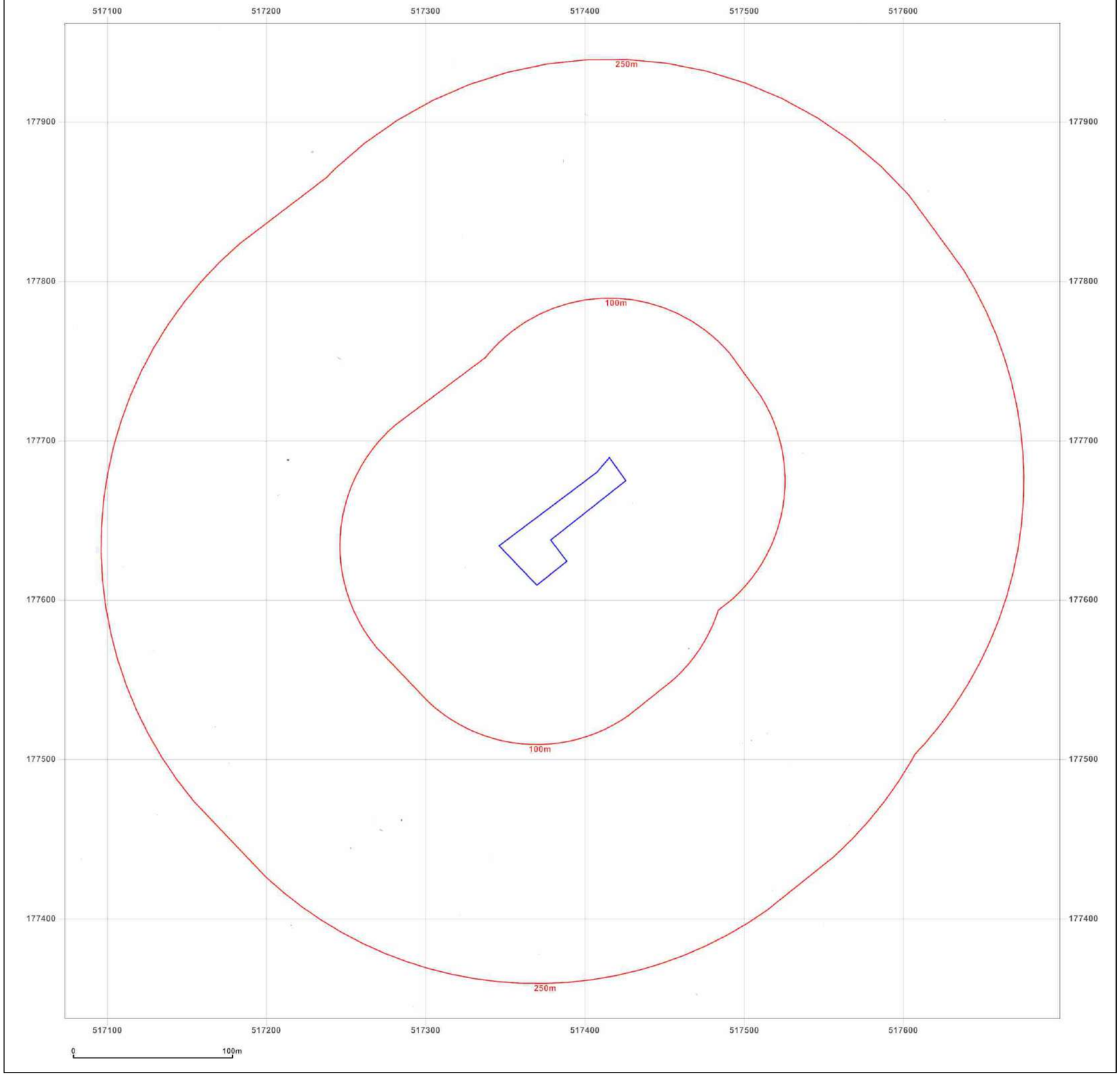
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Site Details:

GARAGE BLOCK OPPOSITE 14
AND 16 BRENTSIDE,
BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: County Series
Map date: **1869**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1869
Revised 1869
Edition N/A
Copyright N/A
Levelled N/A

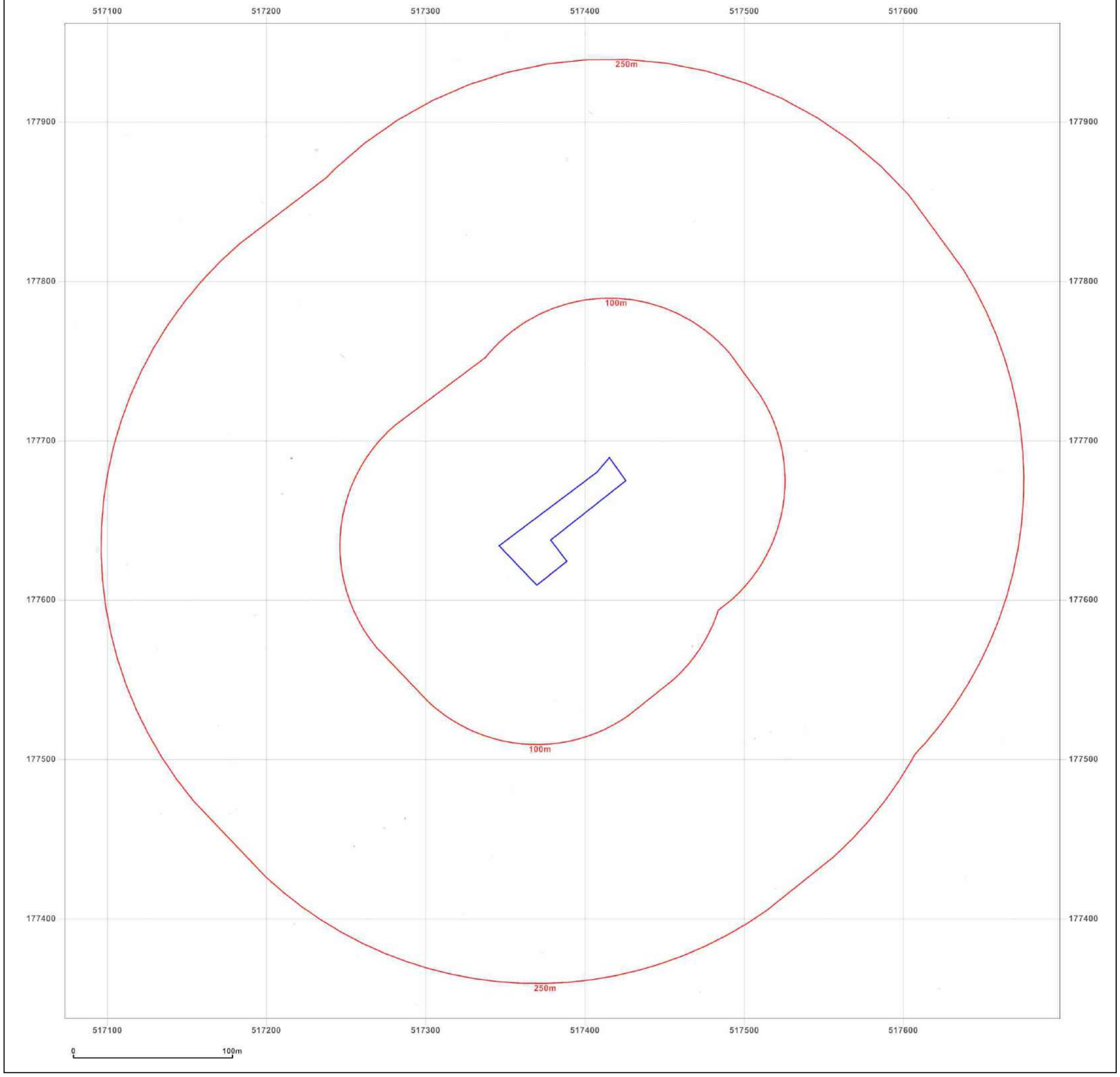
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Site Details:

GARAGE BLOCK OPPOSITE 14
AND 16 BRENTSIDE,
BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: County Series
Map date: **1869**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1869
Revised 1869
Edition N/A
Copyright N/A
Levelled N/A

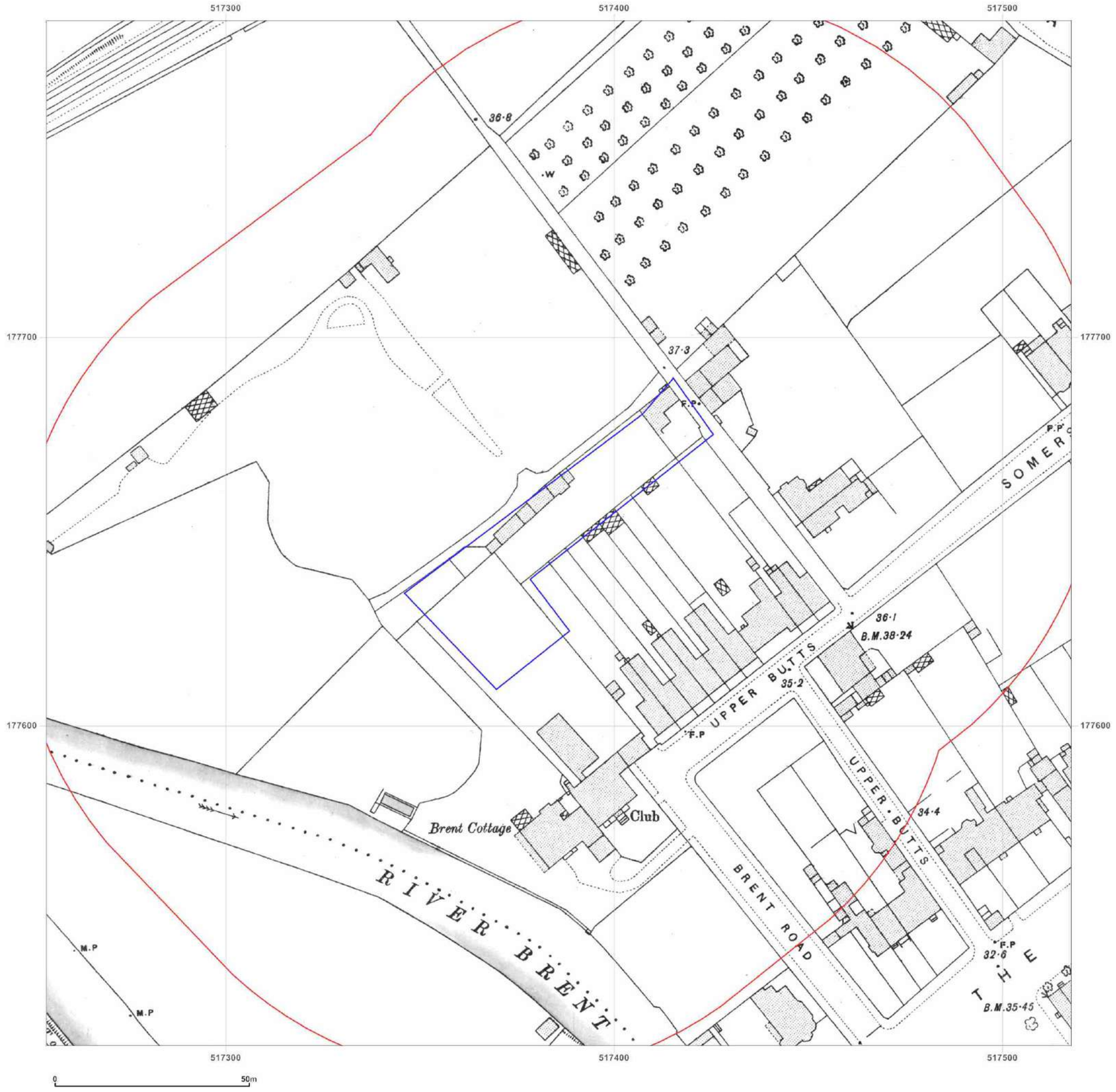
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Site Details:

GARAGE BLOCK OPPOSITE 14
AND 16 BRENTSIDE,
BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: 1056 Scale Town Plan
Map date: **1896**
Scale: 1:1,056
Printed at: 1:1,056

N
W E
S

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

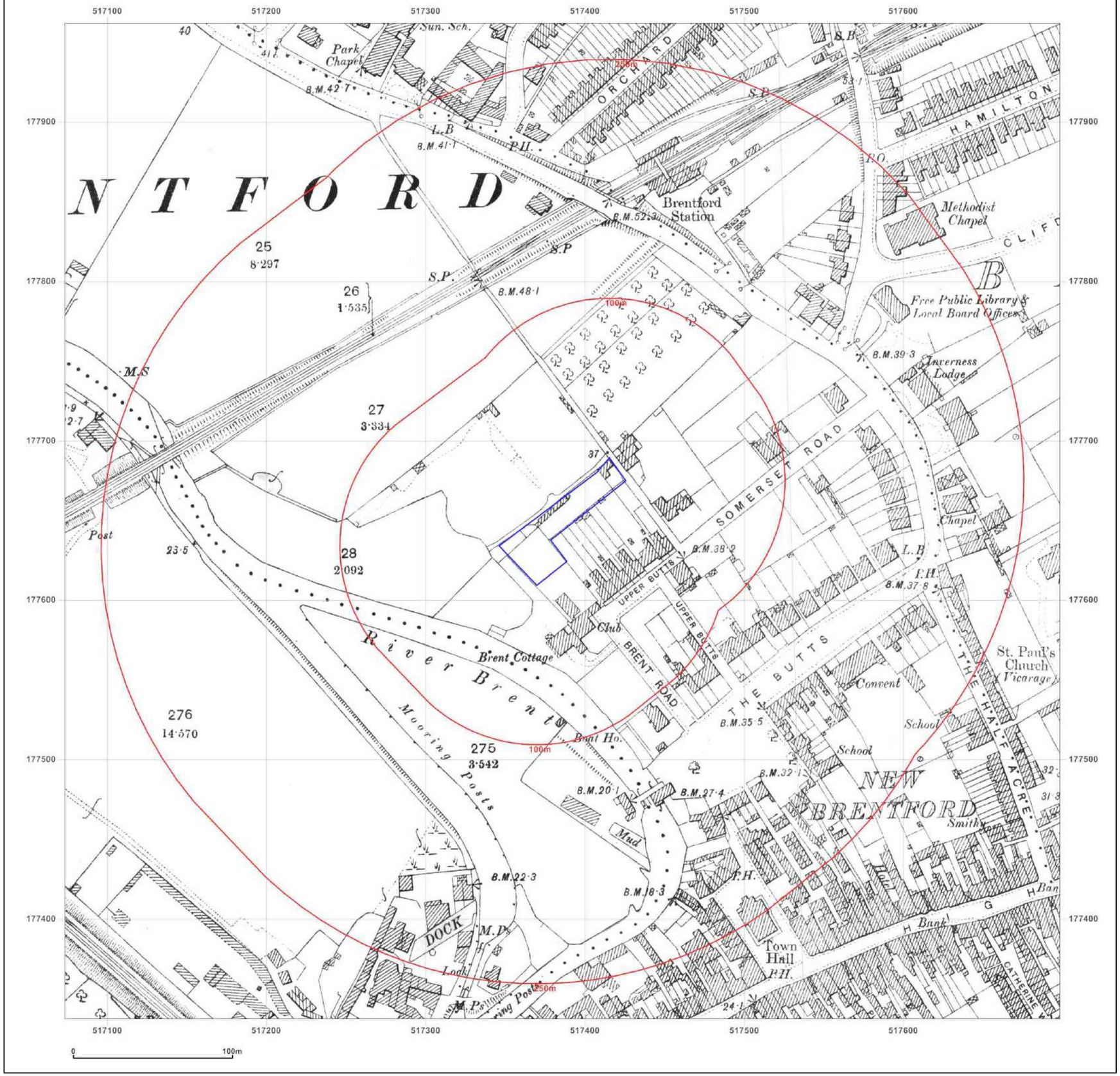
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Site Details:

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AND 16 BRENTSIDE,
BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: County Series
Map date: **1896**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

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

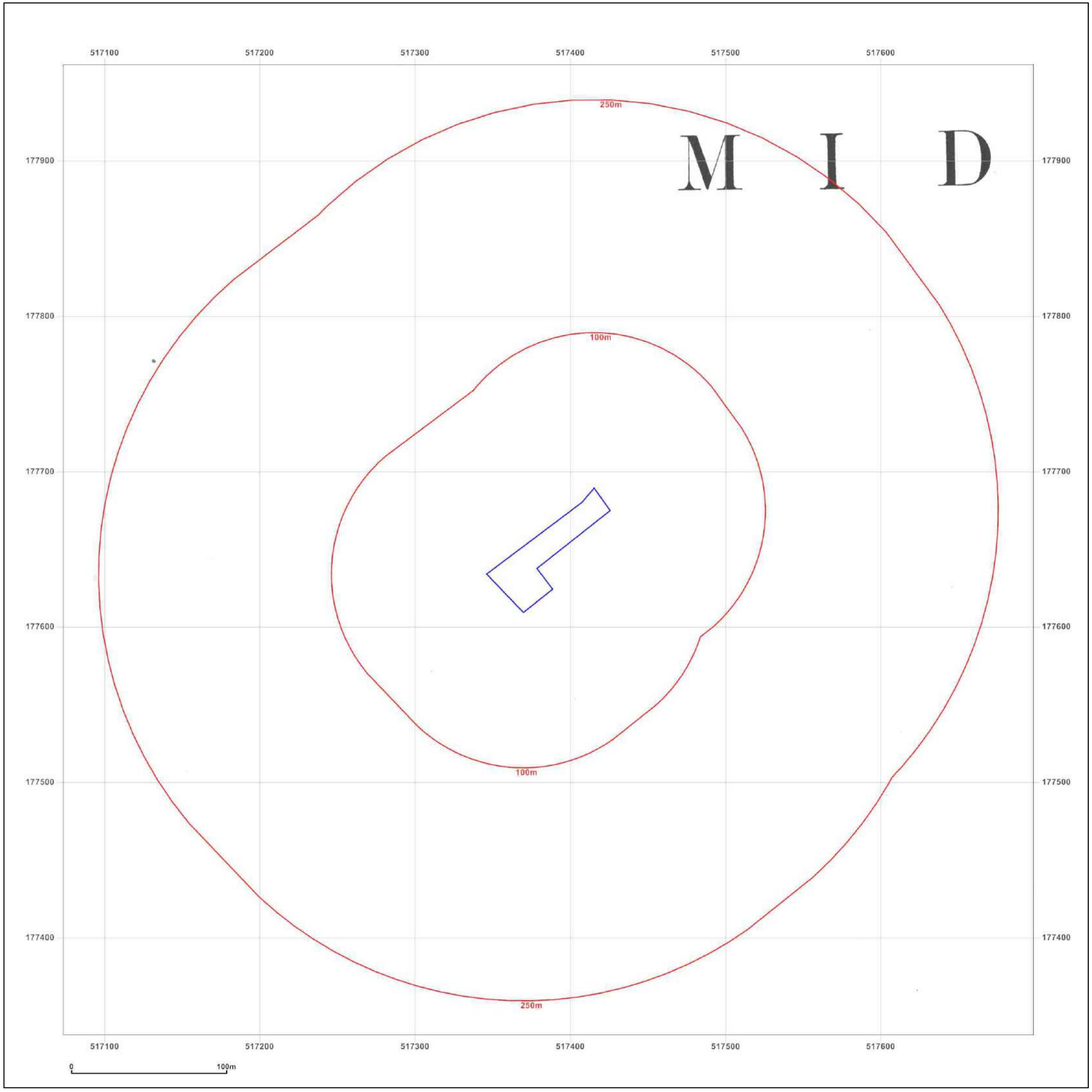
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Site Details:

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AND 16 BRENTSIDE,
BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: County Series

Map date: **1913**

Scale: 1:2,500

Printed at: 1:2,500

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

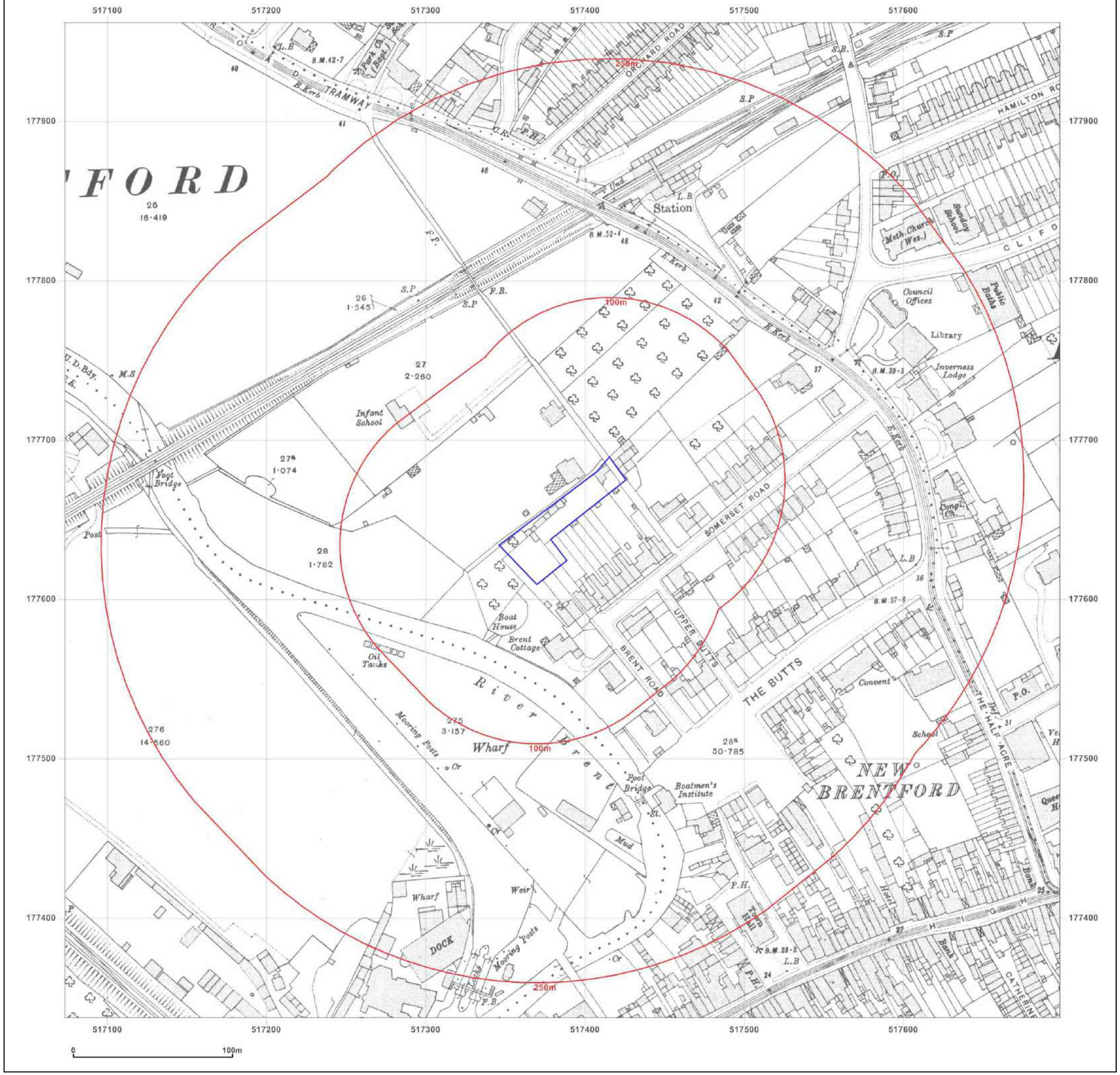
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Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: County Series

Map date: **1915**

Scale: 1:2,500

Printed at: 1:2,500

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

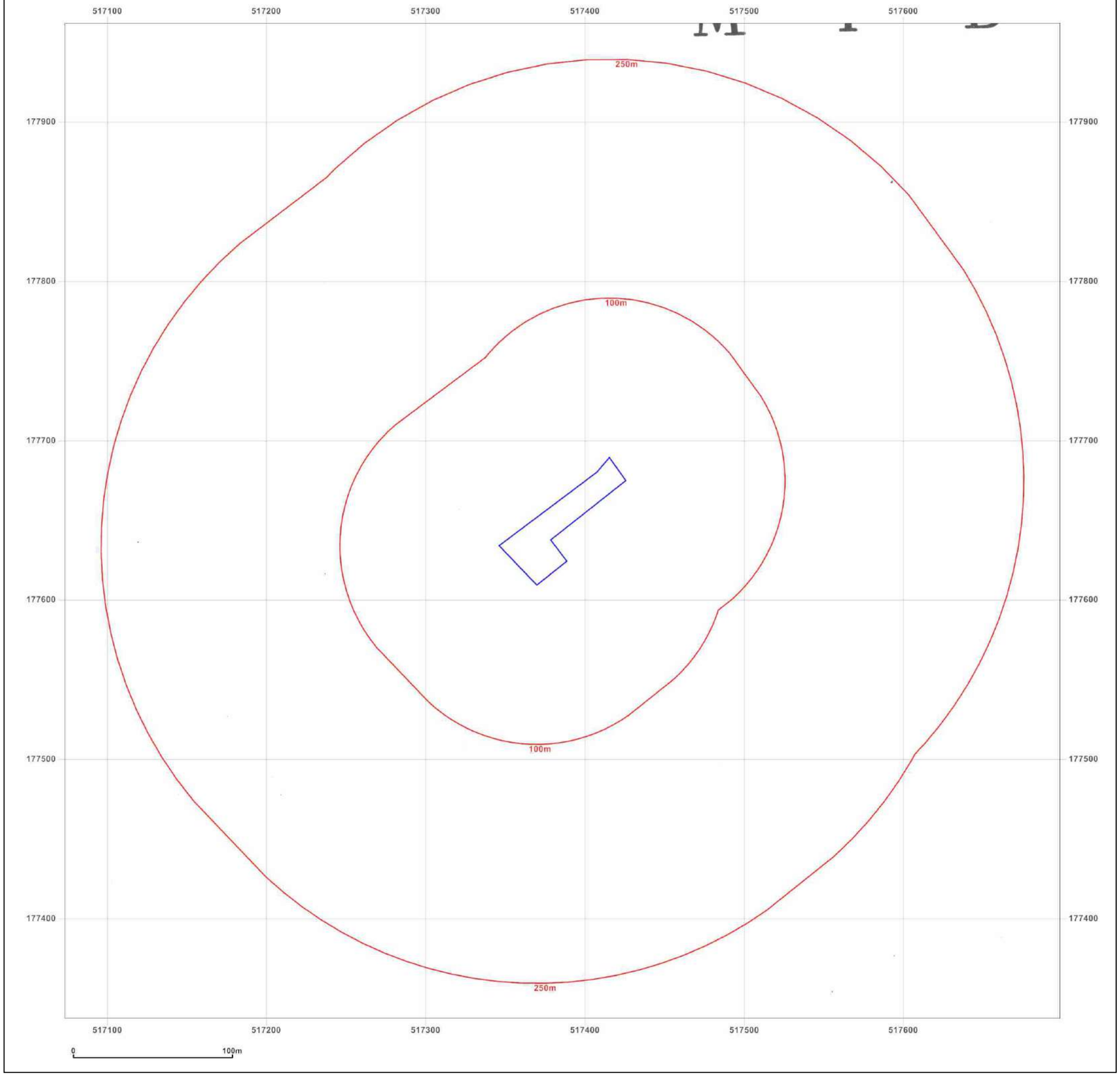
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Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: County Series
Map date: **1933**
Scale: 1:2,500
Printed at: 1:2,500

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

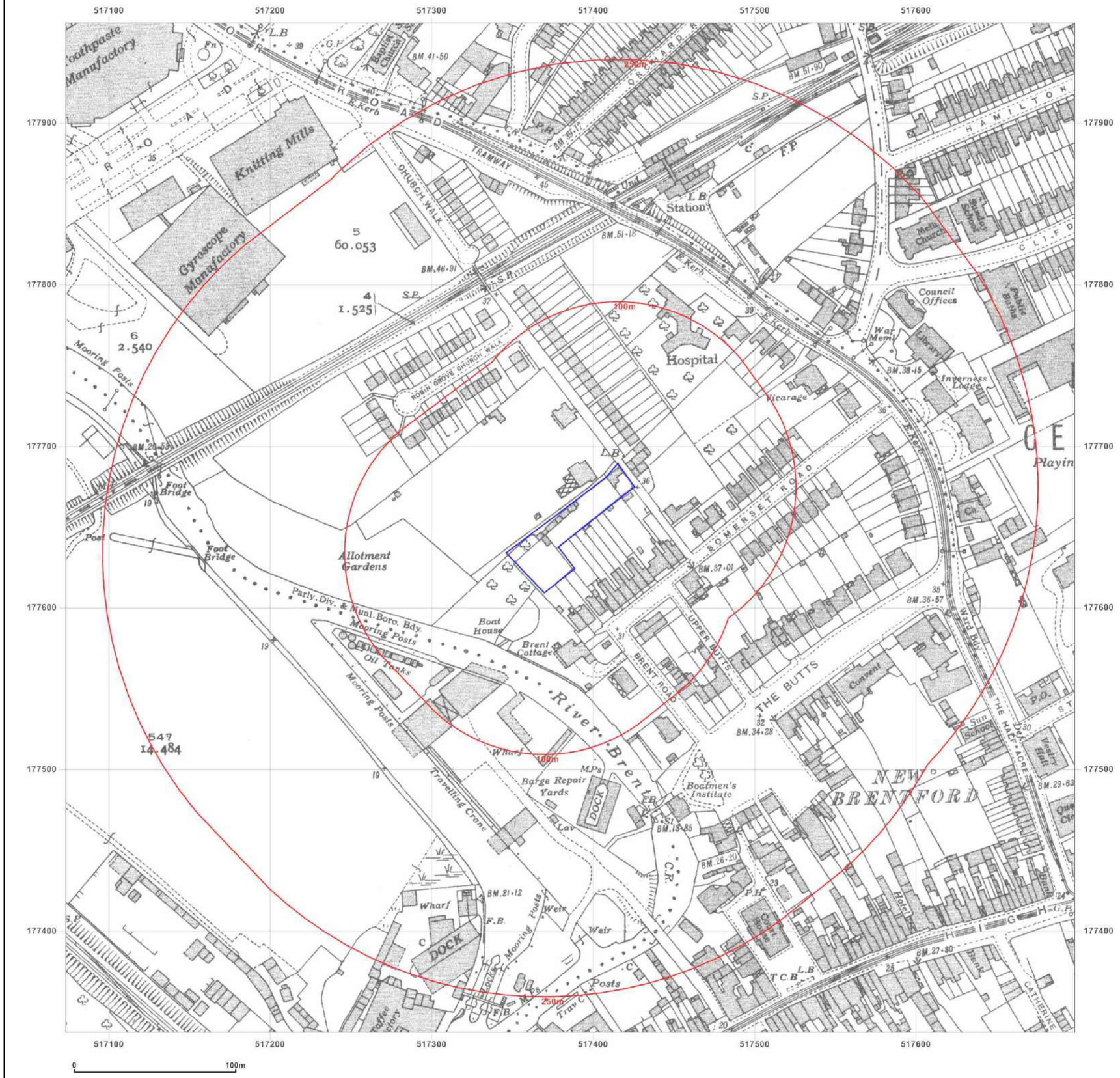
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Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: County Series

Map date: **1935**

Scale: 1:2,500

Printed at: 1:2,500

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

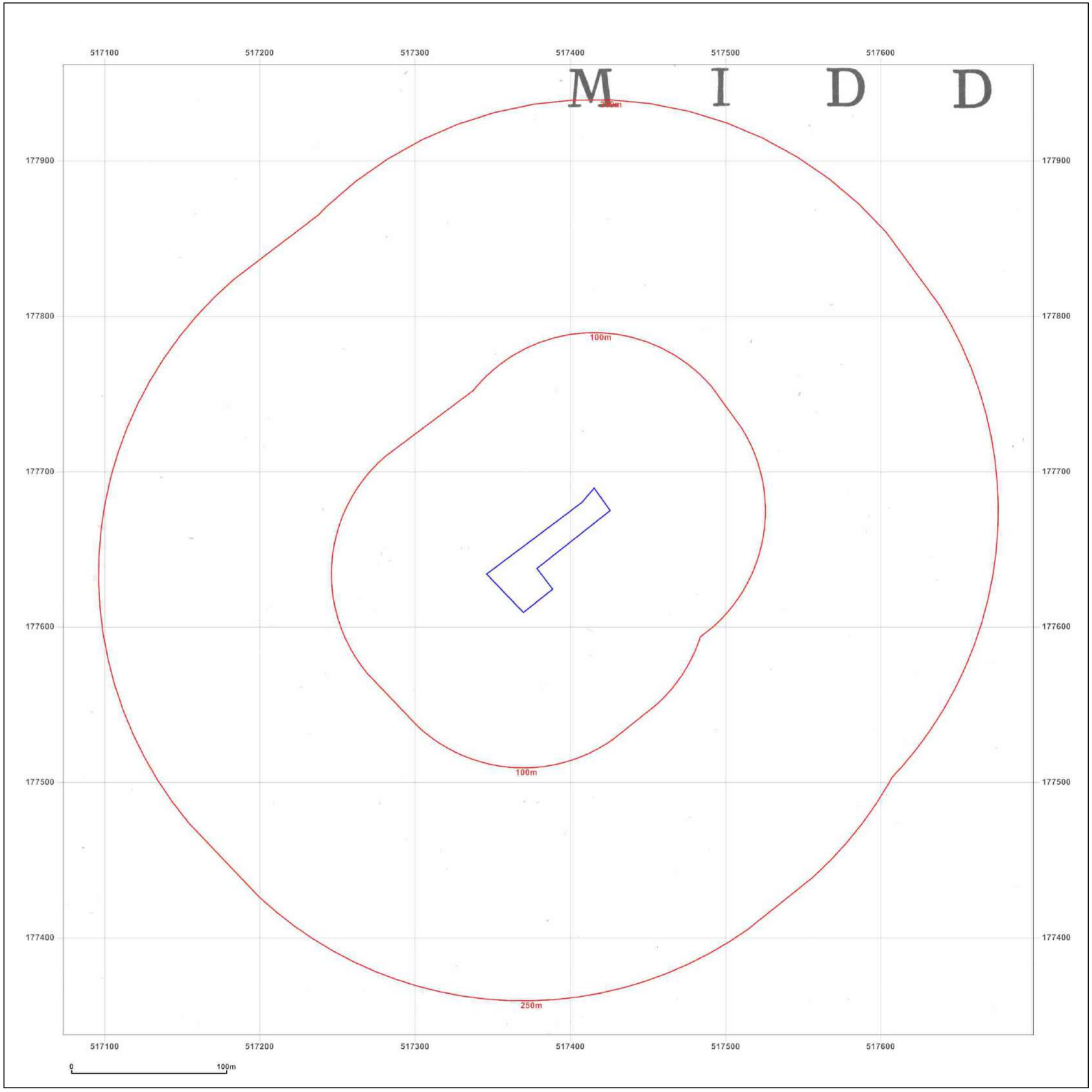
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BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: County Series
Map date: **1940**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

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

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AND 16 BRENTSIDE,
BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: National Grid

Map date: **1960**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed 1959 Revised 1959 Edition N/A Copyright 1960 Levelled 1957		Surveyed 1959 Revised 1959 Edition N/A Copyright 1960 Levelled 1957
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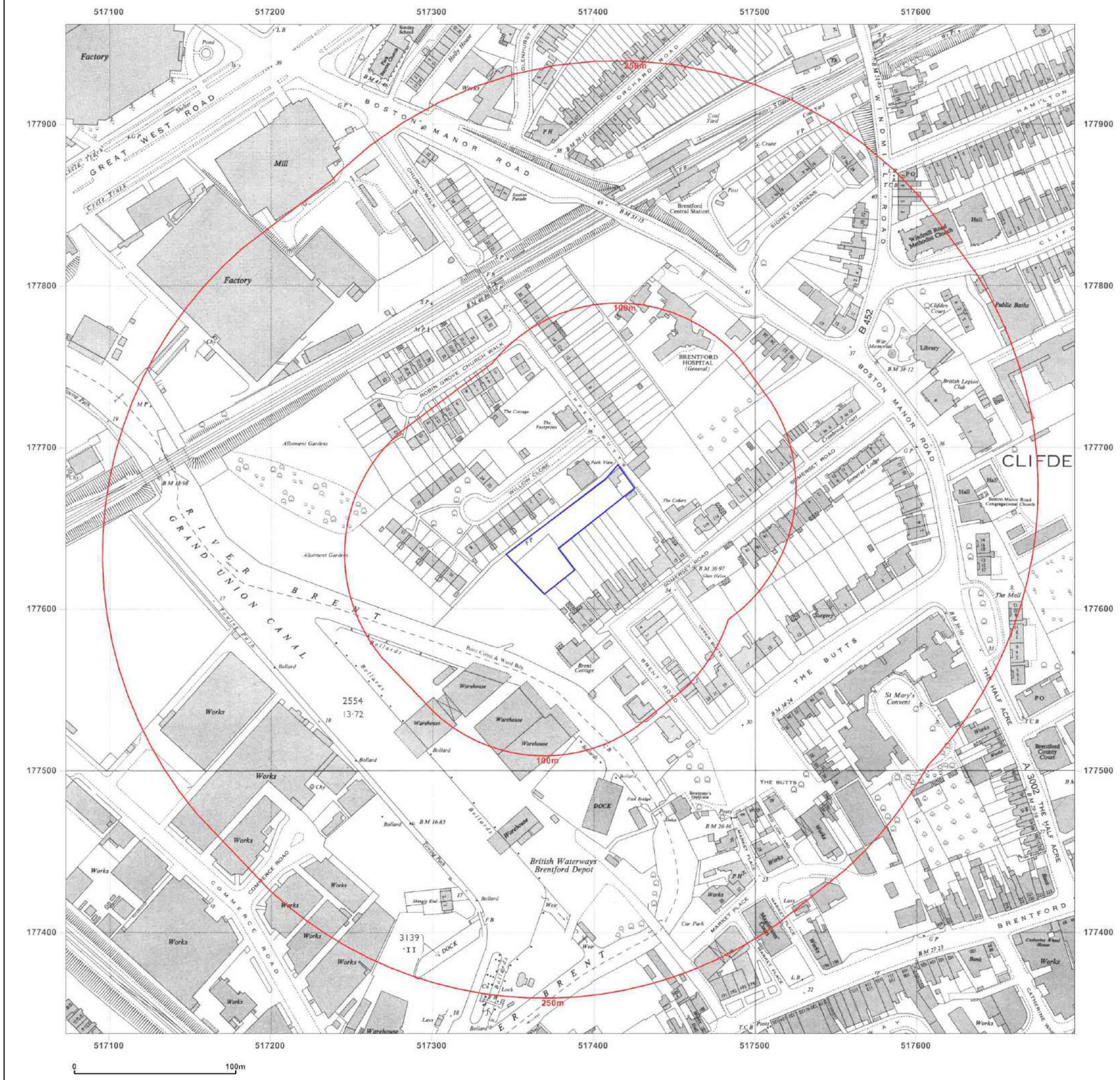
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Site Details:

GARAGE BLOCK OPPOSITE 14
AND 16 BRENTSIDE,
BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: National Grid

Map date: **1960**

Scale: 1:2,500

Printed at: 1:2,500

N
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S

Surveyed 1960
Revised 1960
Edition 1961
Copyright 1961
Levelled 1957

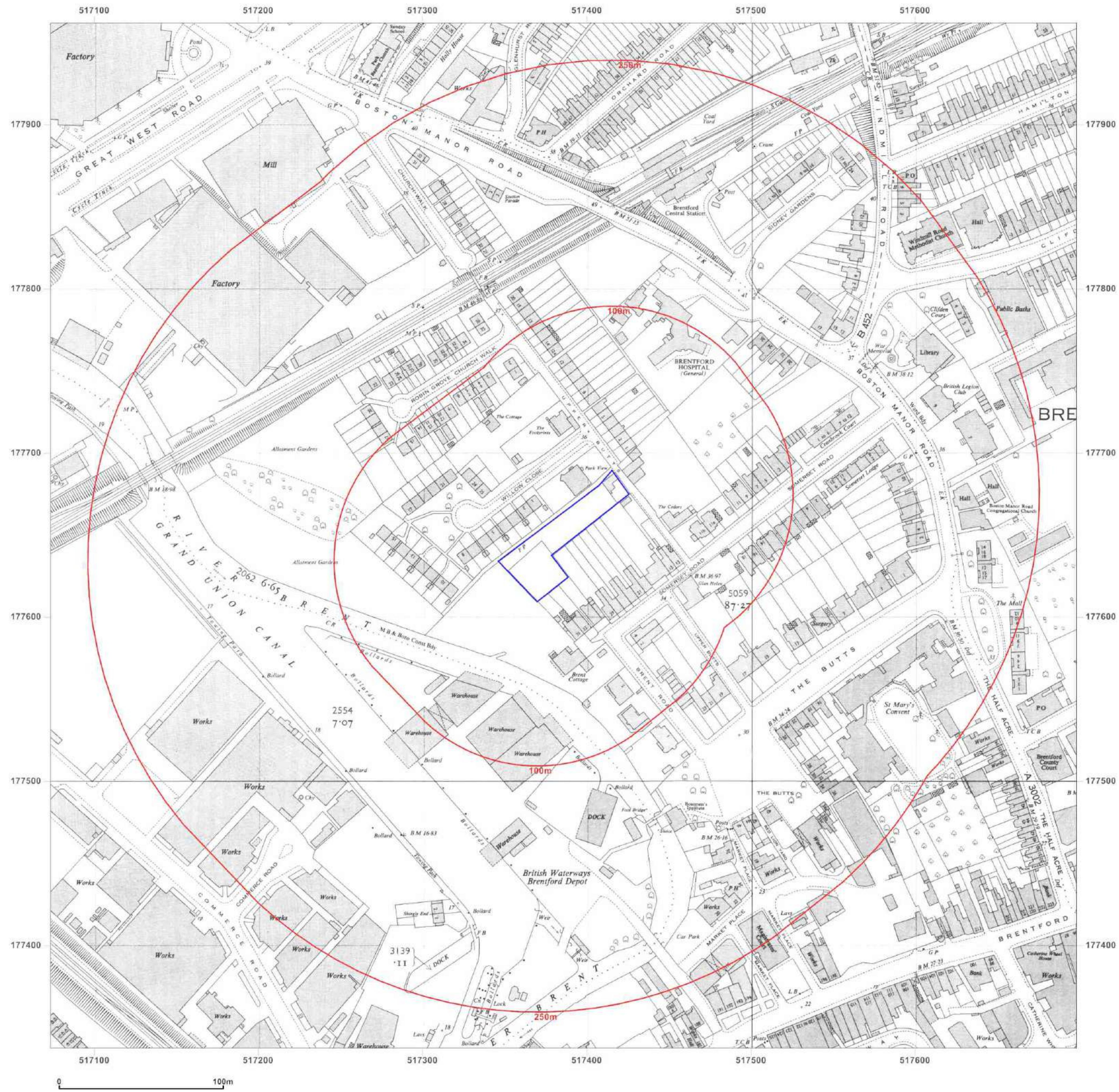
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AND 16 BRENTSIDE,
BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: National Grid

Map date: **1960**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1960
Revised 1960
Edition 1961
Copyright 1961
Levelled 1957

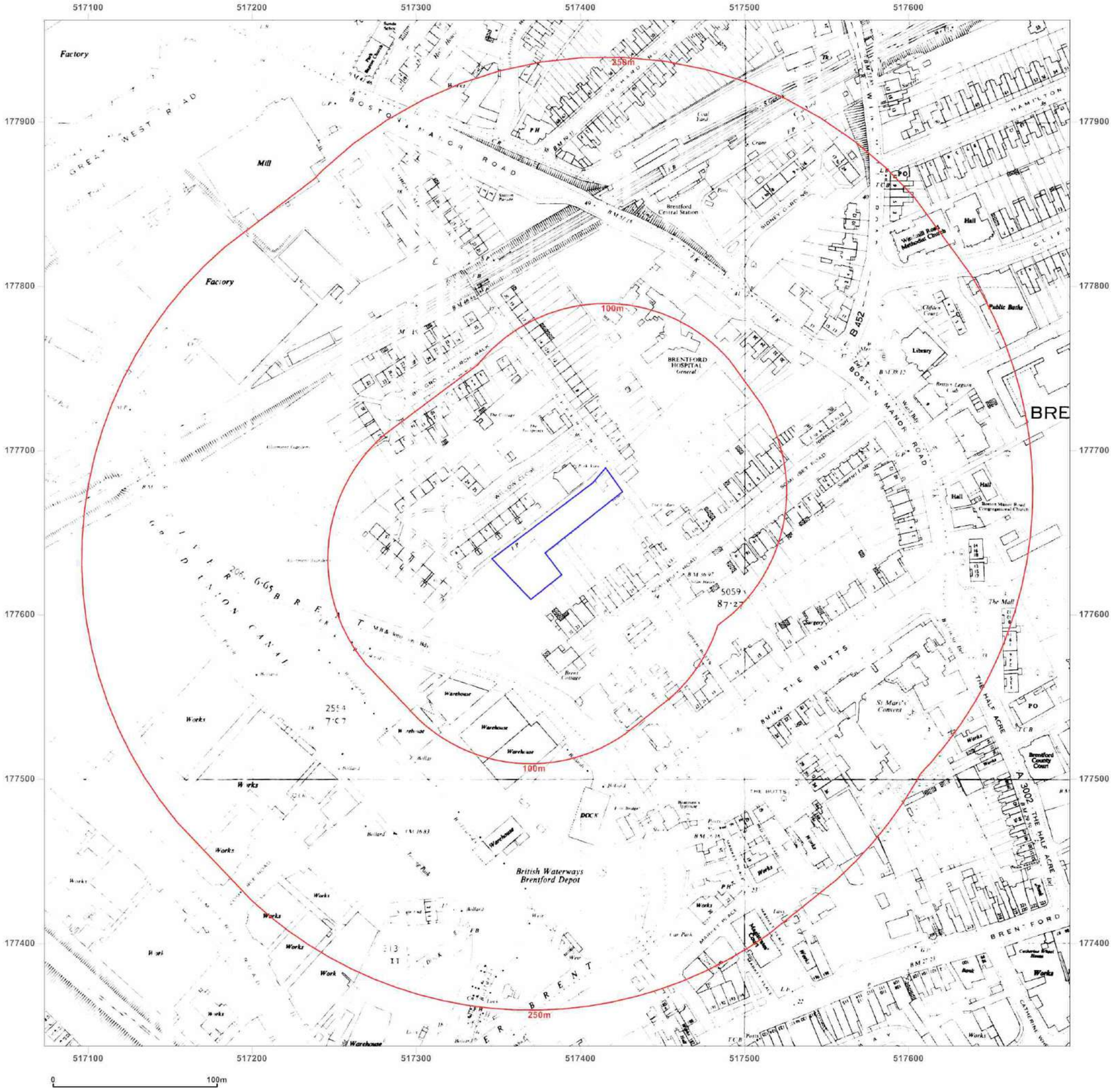
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Groundsure INSIGHTS

Site Details:

GARAGE BLOCK OPPOSITE 14
AND 16 BRENTSIDE,
BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: National Grid

Map date: **1961**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

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

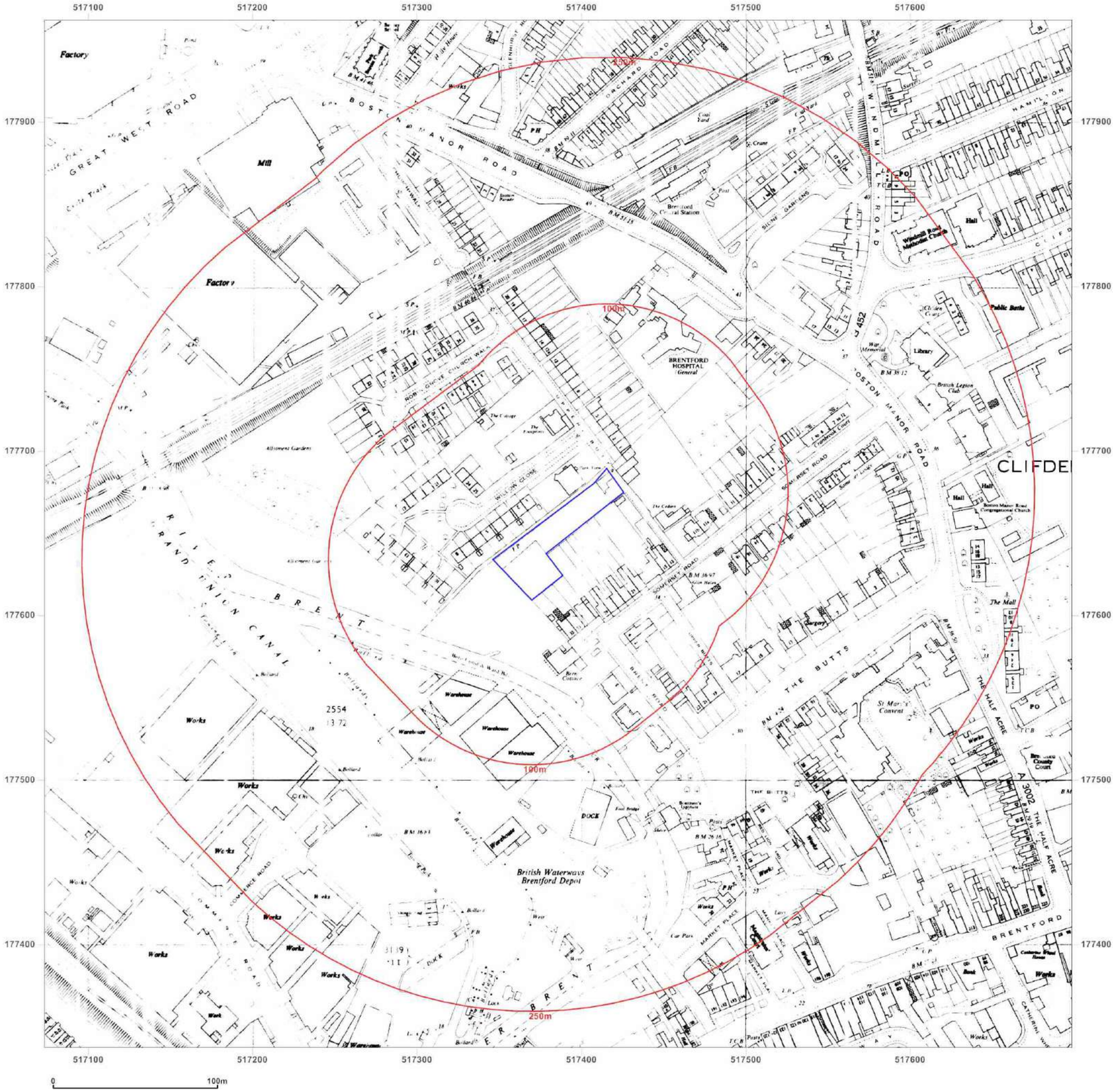
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Groundsure INSIGHTS

Site Details:

GARAGE BLOCK OPPOSITE 14
AND 16 BRENTSIDE,
BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: National Grid

Map date: **1961**

Scale: 1:2,500

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N
W E
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Surveyed N/A
Revised N/A
Edition N/A
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Levelled N/A

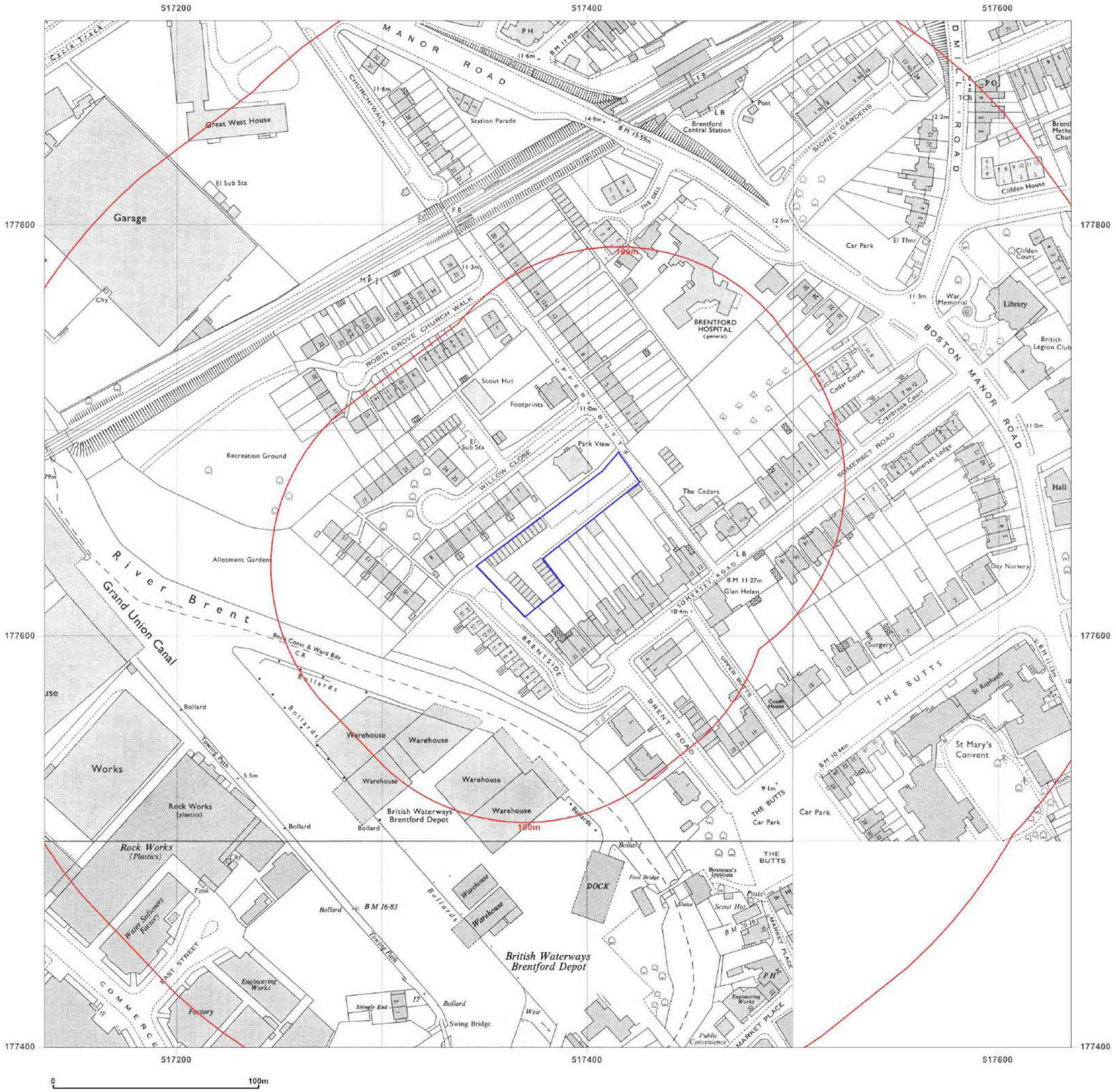
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Groundsure INSIGHTS

Site Details:

GARAGE BLOCK OPPOSITE 14
AND 16 BRENTSIDE,
BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: National Grid

Map date: **1966-1970**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed 1959 Revised 1965 Edition N/A Copyright 1966 Levelled 1957		

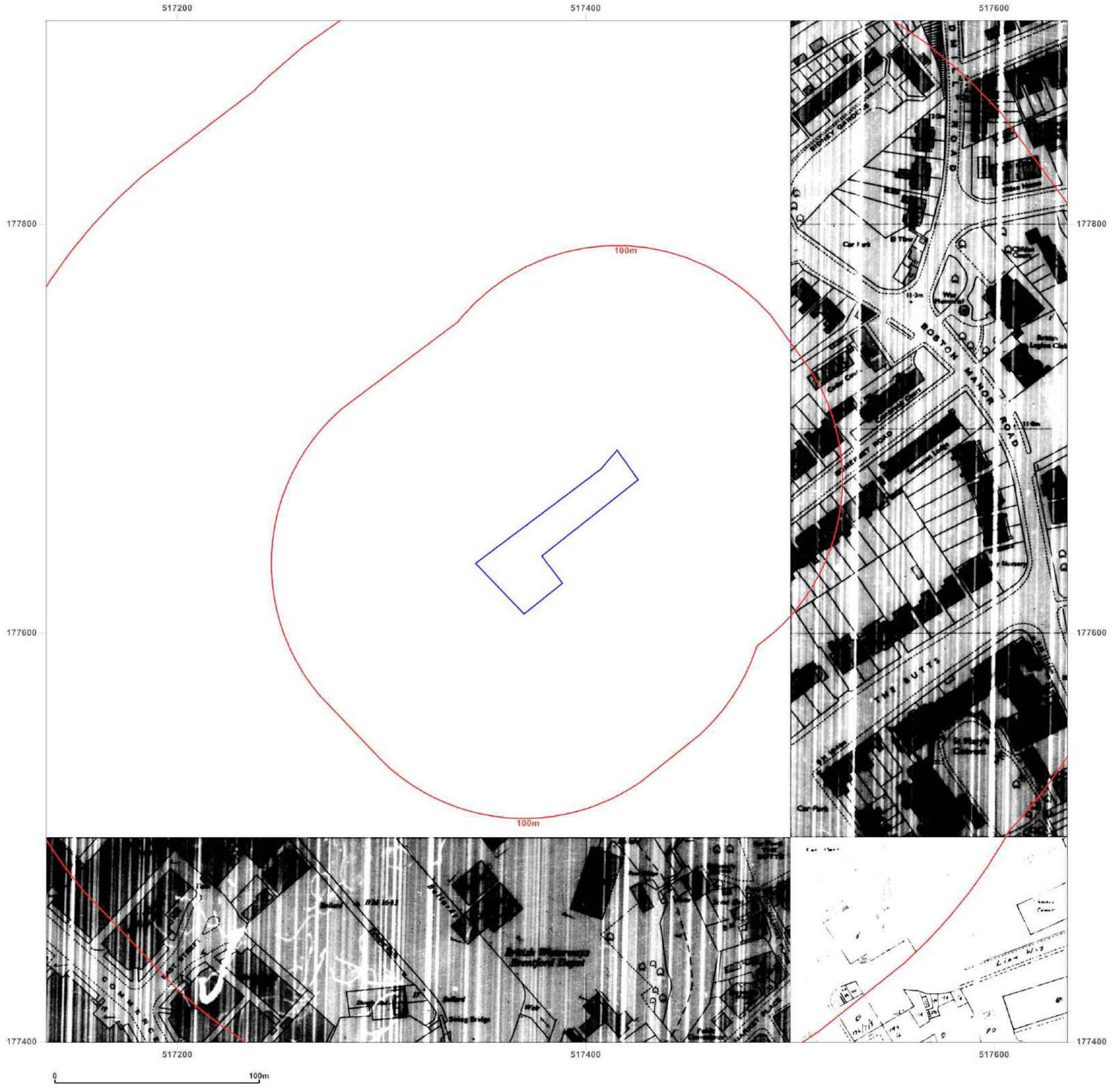
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Groundsure INSIGHTS

Site Details:

GARAGE BLOCK OPPOSITE 14
AND 16 BRENTSIDE,
BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: National Grid

Map date: **1974**

Scale: 1:1,250

Printed at: 1:2,000

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

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Groundsure INSIGHTS

Site Details:

GARAGE BLOCK OPPOSITE 14
AND 16 BRENTSIDE,
BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: National Grid

Map date: **1987-1991**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
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Surveyed N/A Revised N/A Edition N/A Copyright 1987 Levelled N/A		Surveyed 1957 Revised 1987 Edition N/A Copyright 1987 Levelled 1957
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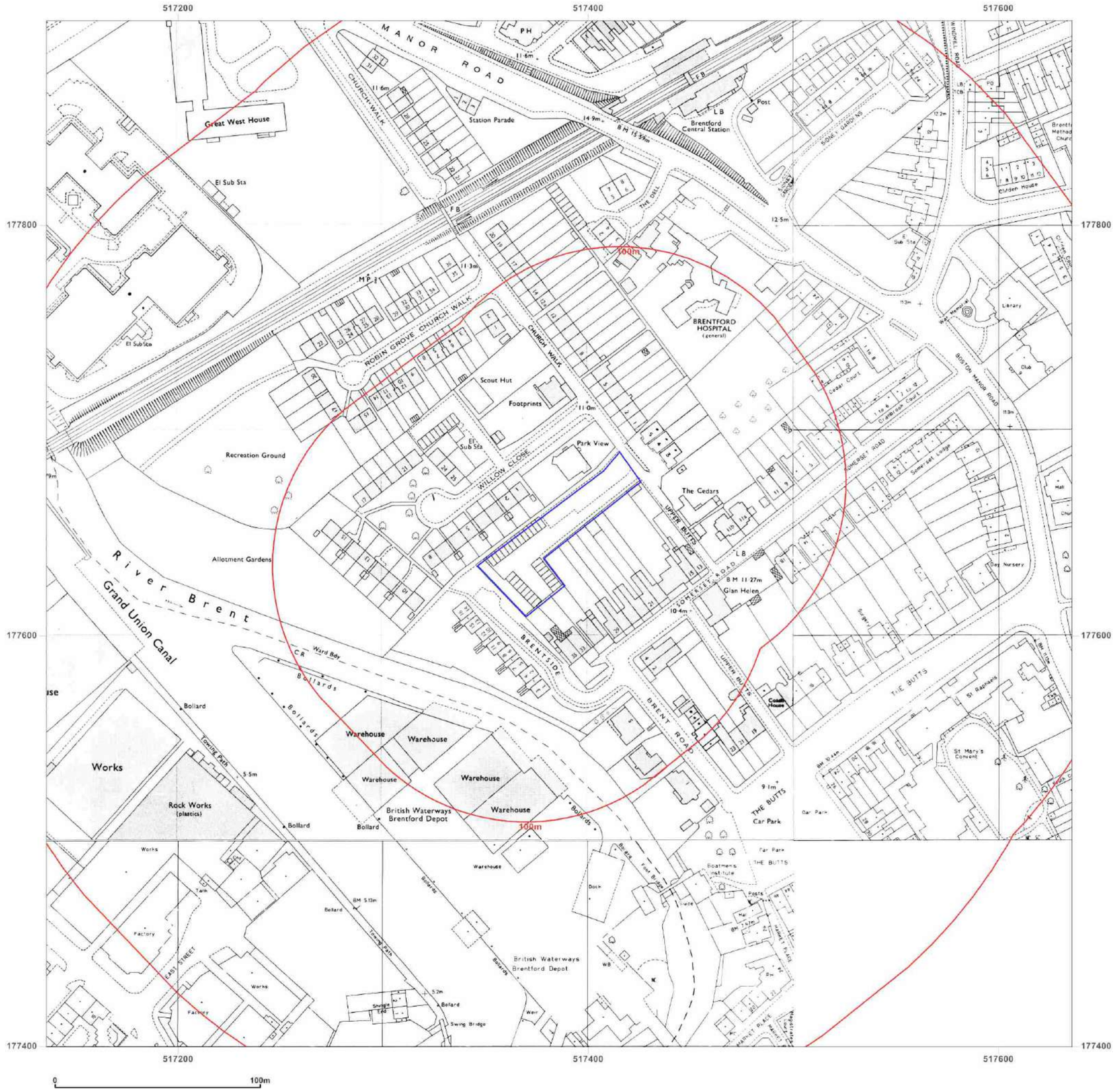
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Groundsure INSIGHTS

Site Details:

GARAGE BLOCK OPPOSITE 14
AND 16 BRENTSIDE,
BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: National Grid

Map date: **1989-1991**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed 1957 Revised 1989 Edition N/A Copyright 1989 Levelled 1957		Surveyed N/A Revised N/A Edition N/A Copyright 1991 Levelled N/A
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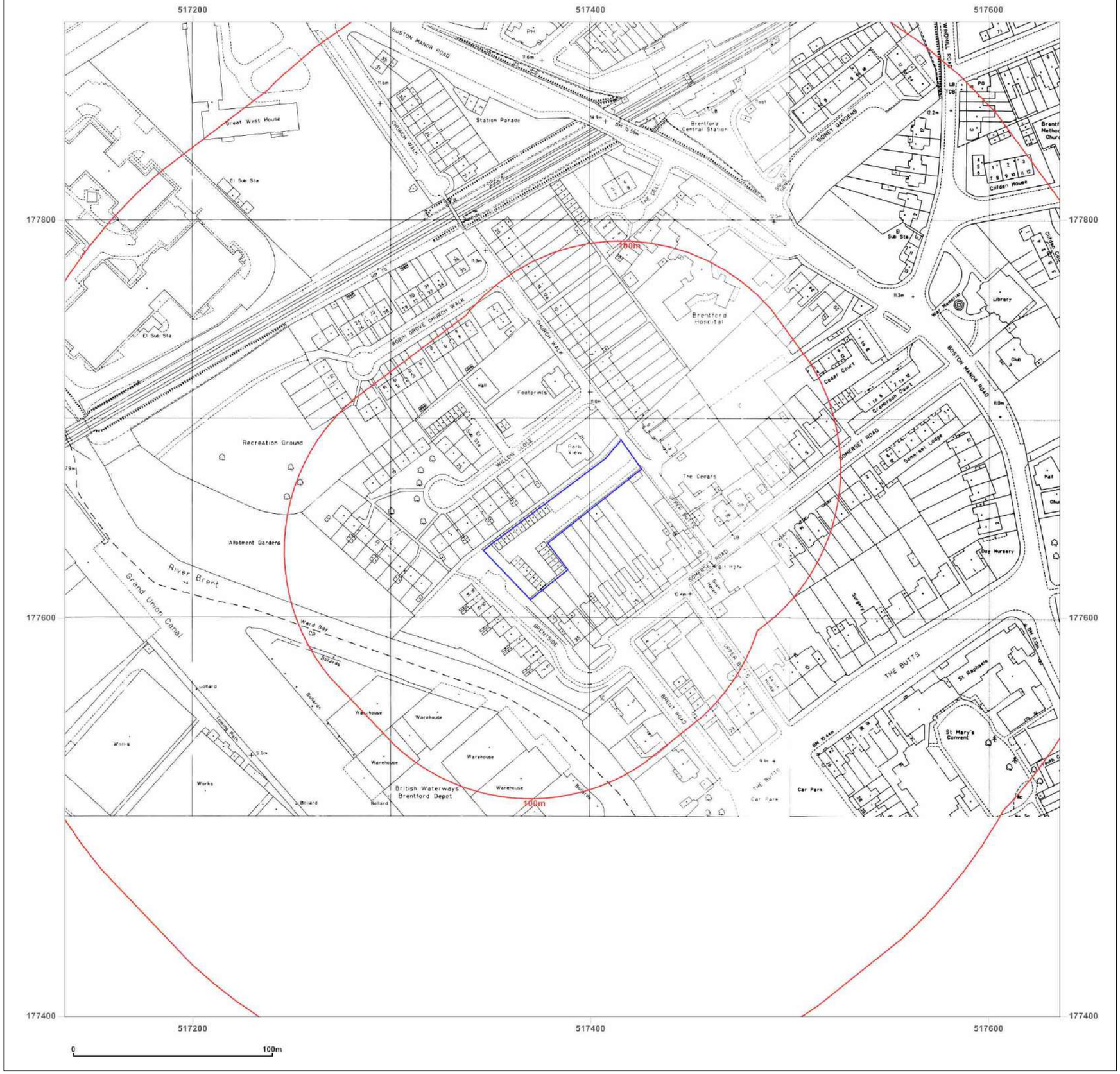
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GARAGE BLOCK OPPOSITE 14
AND 16 BRENTSIDE,
BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: National Grid

Map date: **1991-1992**

Scale: 1:1,250

Printed at: 1:2,000

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Surveyed N/A Revised N/A Edition N/A Copyright 1991 Levelled N/A		Surveyed N/A Revised N/A Edition N/A Copyright 1992 Levelled N/A

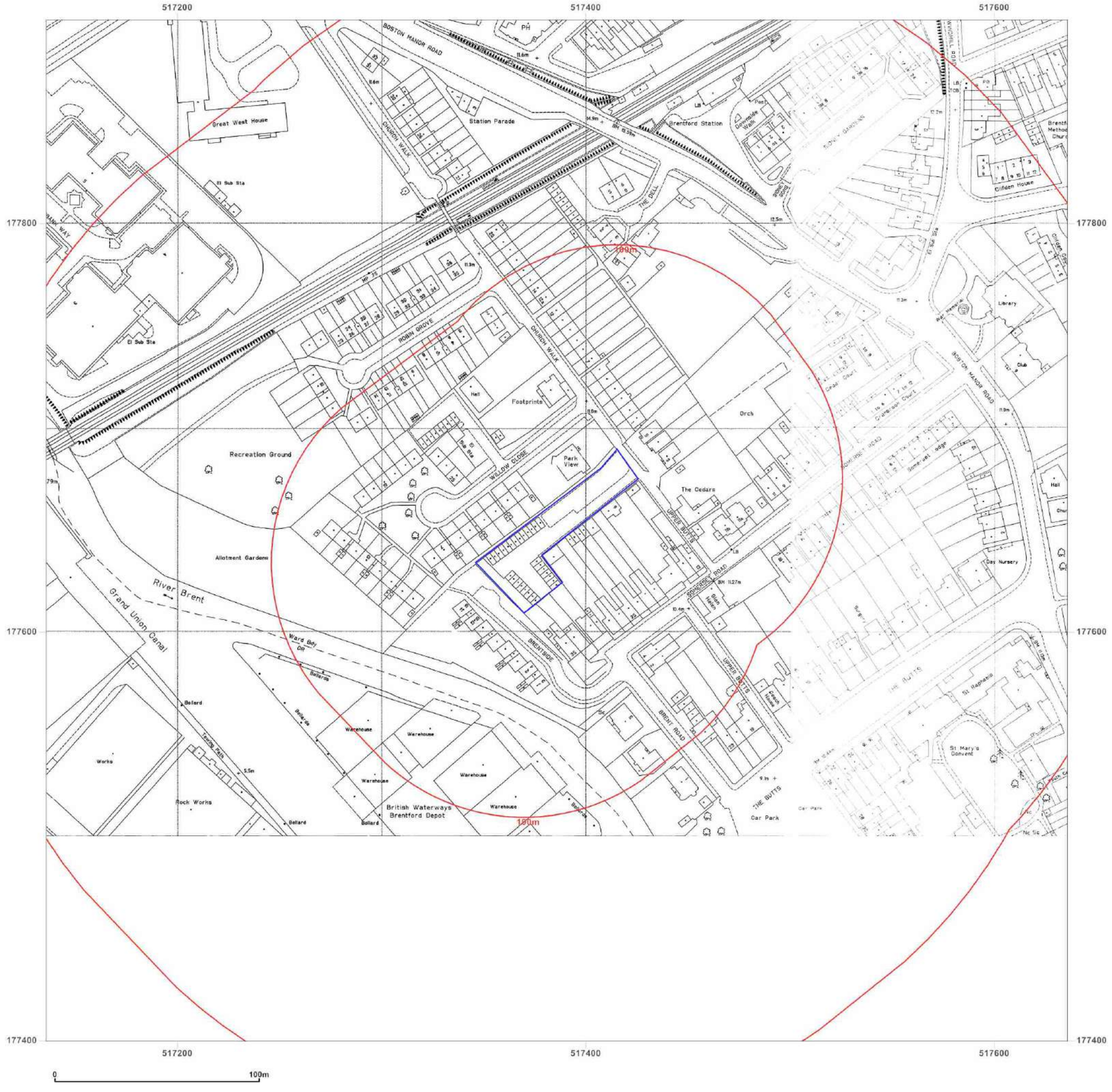
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Site Details:

GARAGE BLOCK OPPOSITE 14
AND 16 BRENTSIDE,
BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: National Grid

Map date: **1995**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

Surveyed 1995 Revised 1995 Edition N/A Copyright 1995 Levelled N/A		Surveyed N/A Revised N/A Edition N/A Copyright 1995 Levelled N/A

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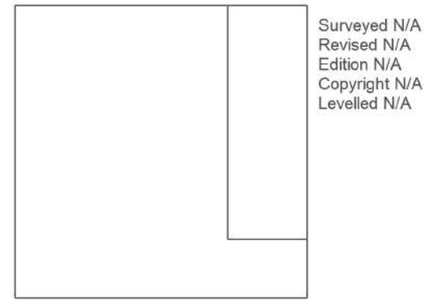
Site Details:

GARAGE BLOCK OPPOSITE 14
AND 16 BRENTSIDE,
BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: National Grid
Map date: **1995**
Scale: 1:1,250
Printed at: 1:2,000

N
W E
S



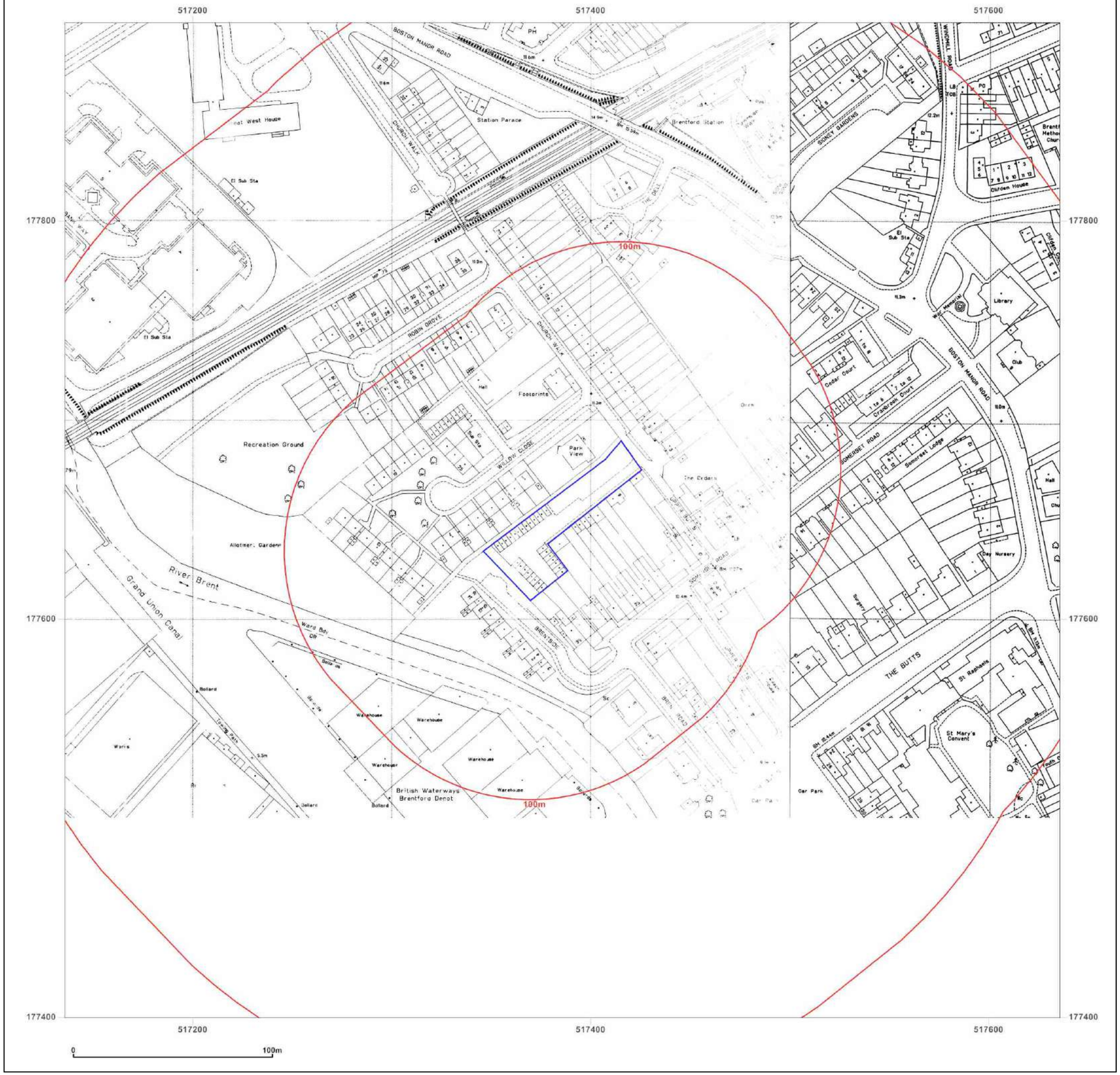
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Site Details:

GARAGE BLOCK OPPOSITE 14
AND 16 BRENTSIDE,
BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: National Grid

Map date: **1992-1995**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

Surveyed N/A Revised N/A Edition N/A Copyright 1995 Levelled N/A		Surveyed N/A Revised N/A Edition N/A Copyright 1992 Levelled N/A

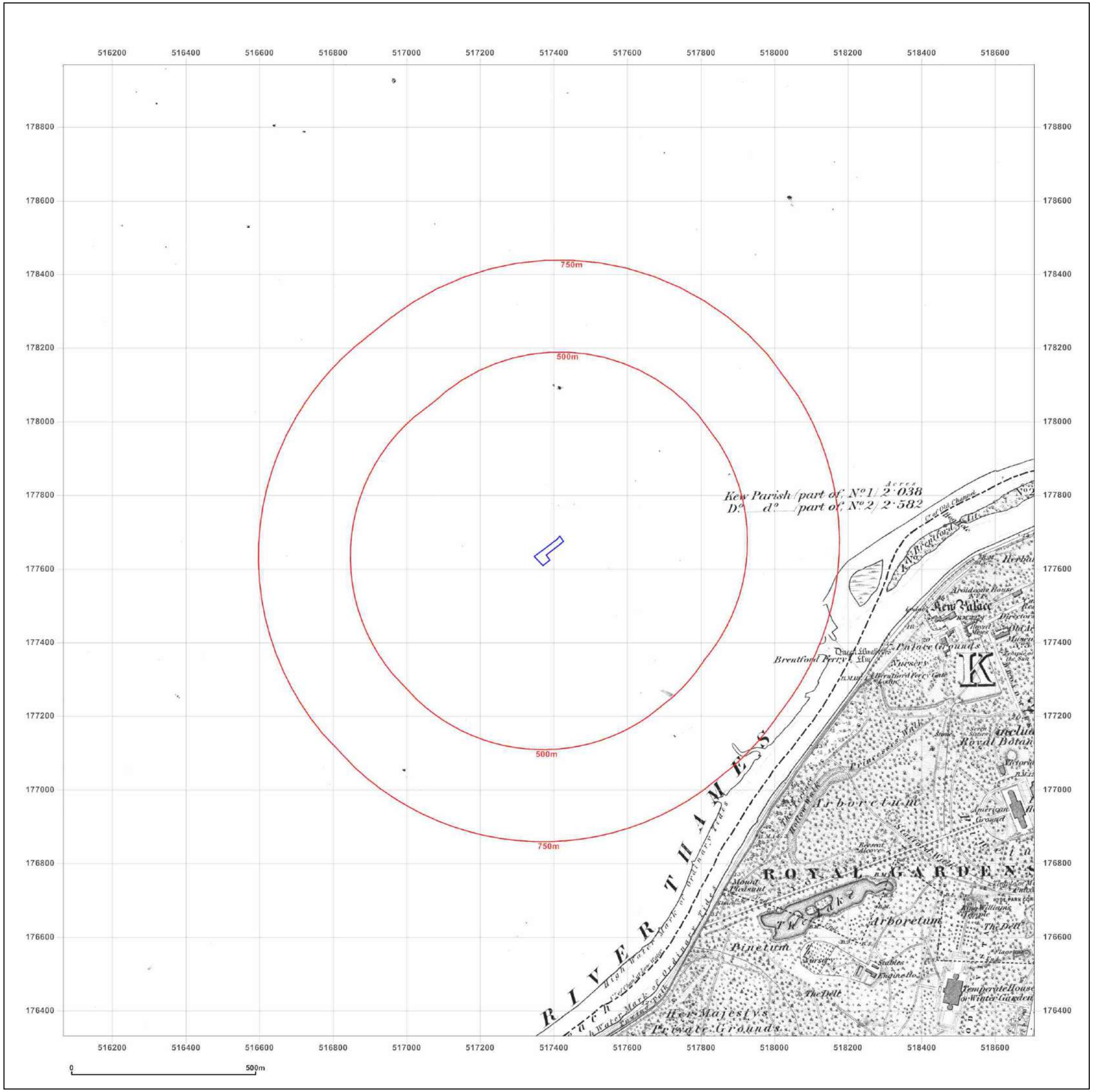
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Site Details:

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AND 16 BRENTSIDE,
BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: County Series
Map date: **1867**
Scale: 1:10,560
Printed at: 1:10,560

N
W E
S

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

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Site Details:

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AND 16 BRENTSIDE,
BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: County Series

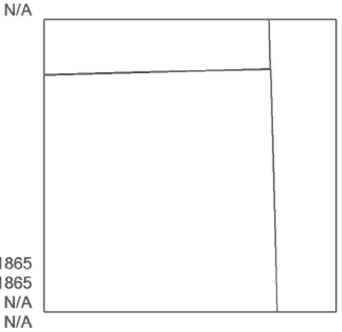
Map date: **1865-1868**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1865
Revised 1865
Edition 1868
Copyright N/A
Levelled N/A



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

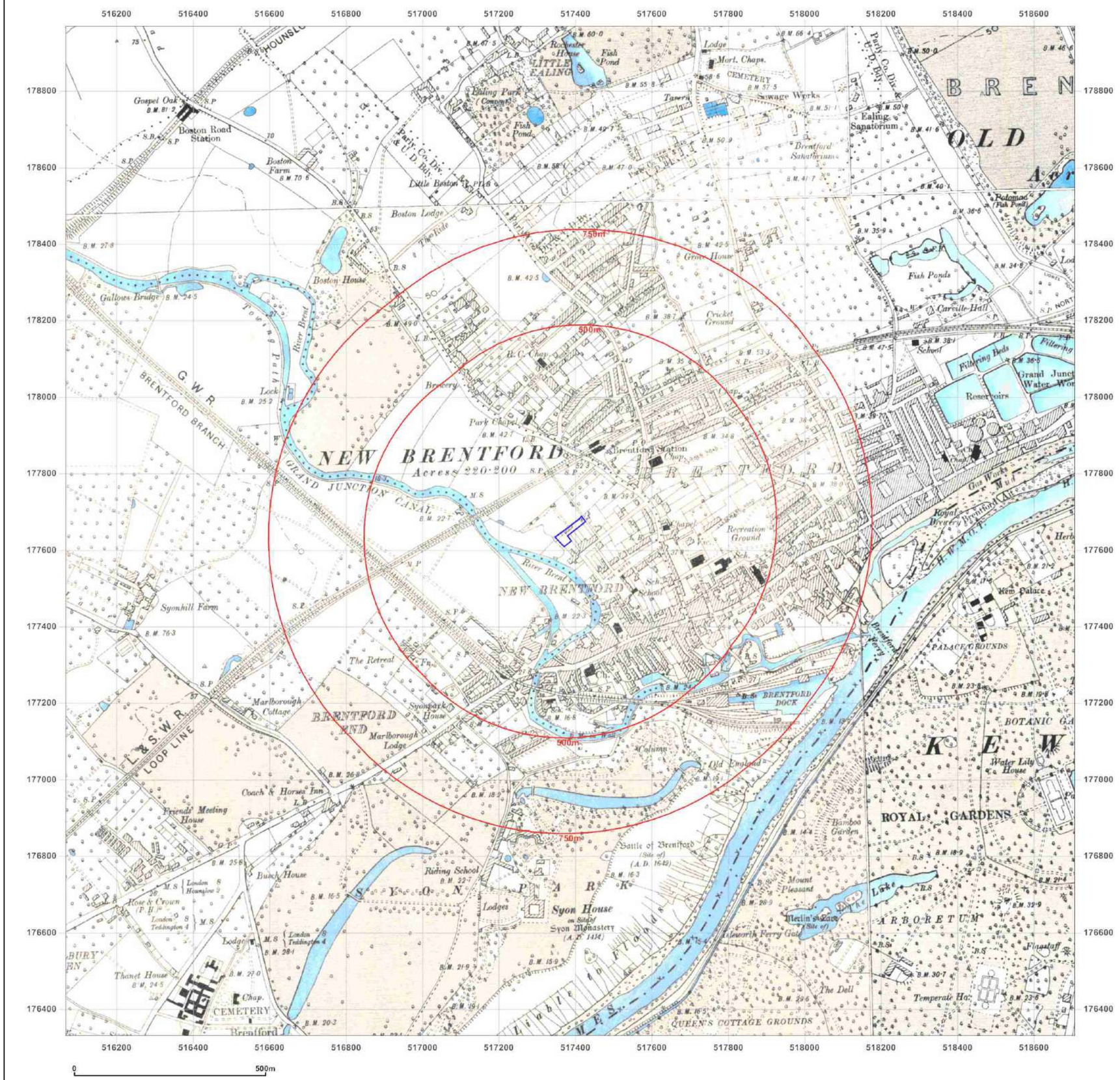
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Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: County Series

Map date: **1893-1894**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

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

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

Surveyed 1865
Revised 1894
Edition N/A
Copyright N/A
Levelled N/A

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

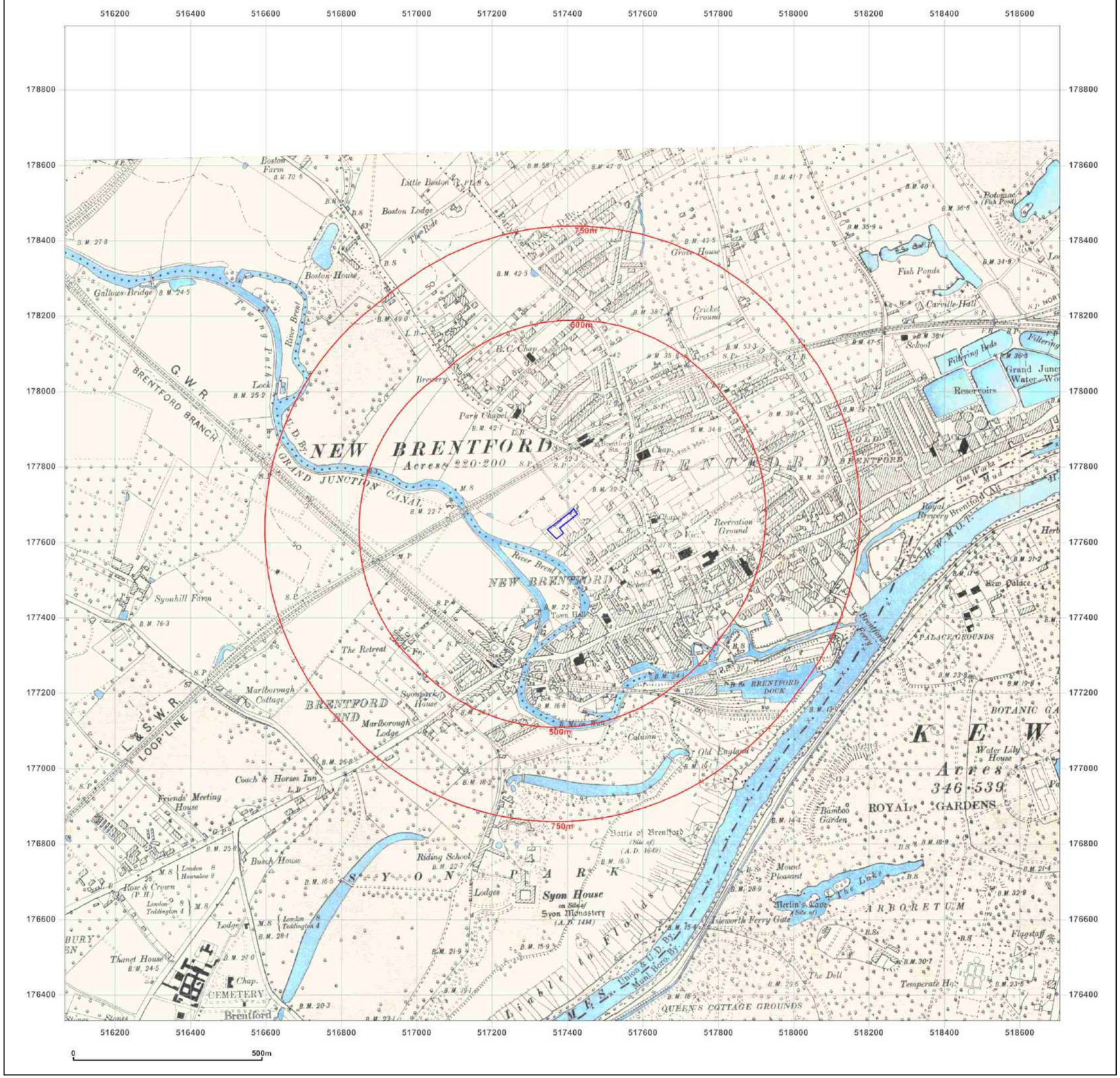
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Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: County Series

Map date: **1894**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

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

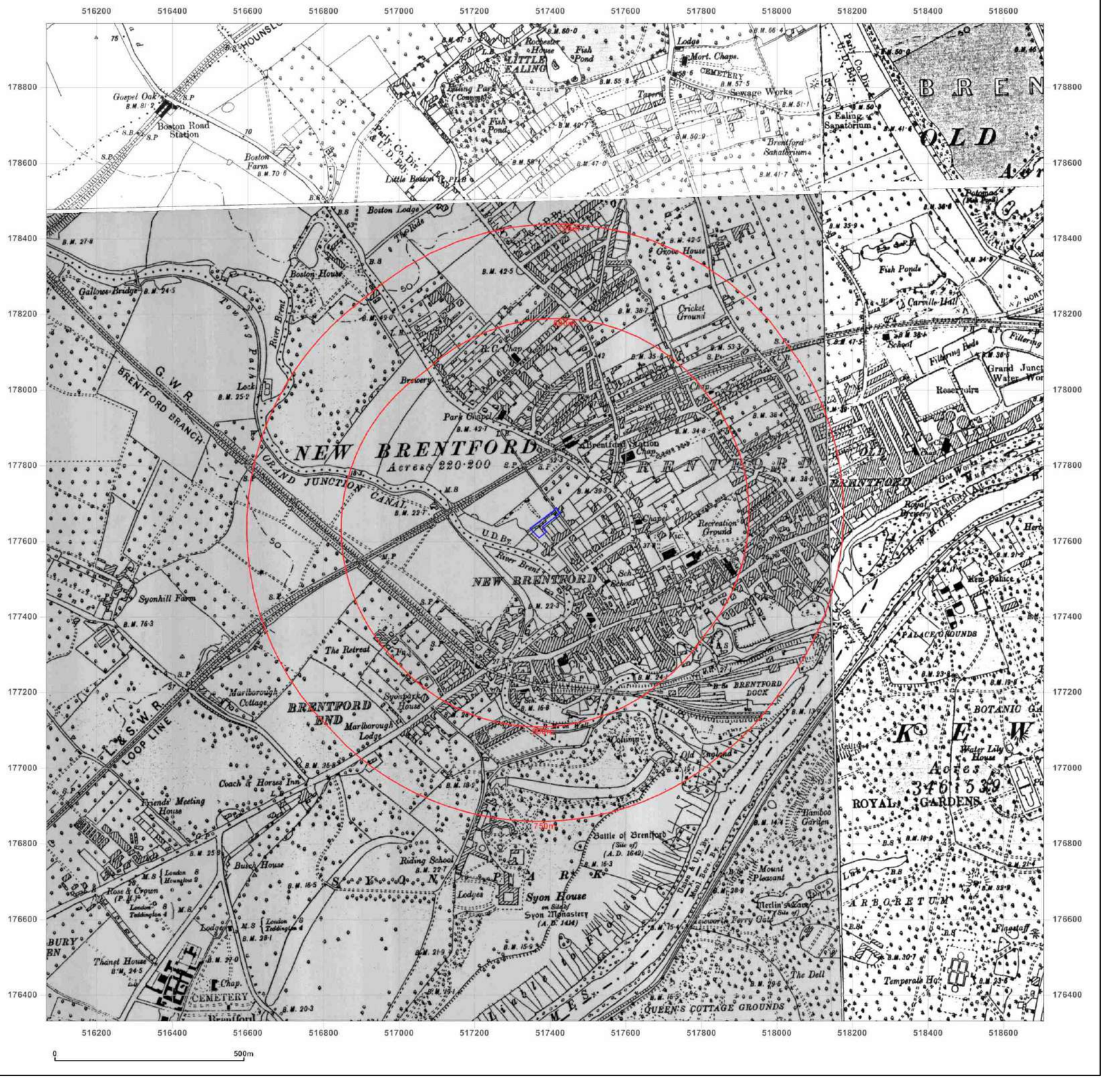
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Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: County Series
Map date: **1896**
Scale: 1:10,560
Printed at: 1:10,560

N
W E
S

Surveyed 1864
Revised 1896
Edition 1896
Copyright N/A
Levelled N/A

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

Surveyed 1865
Revised 1896
Edition 1896
Copyright N/A
Levelled N/A

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

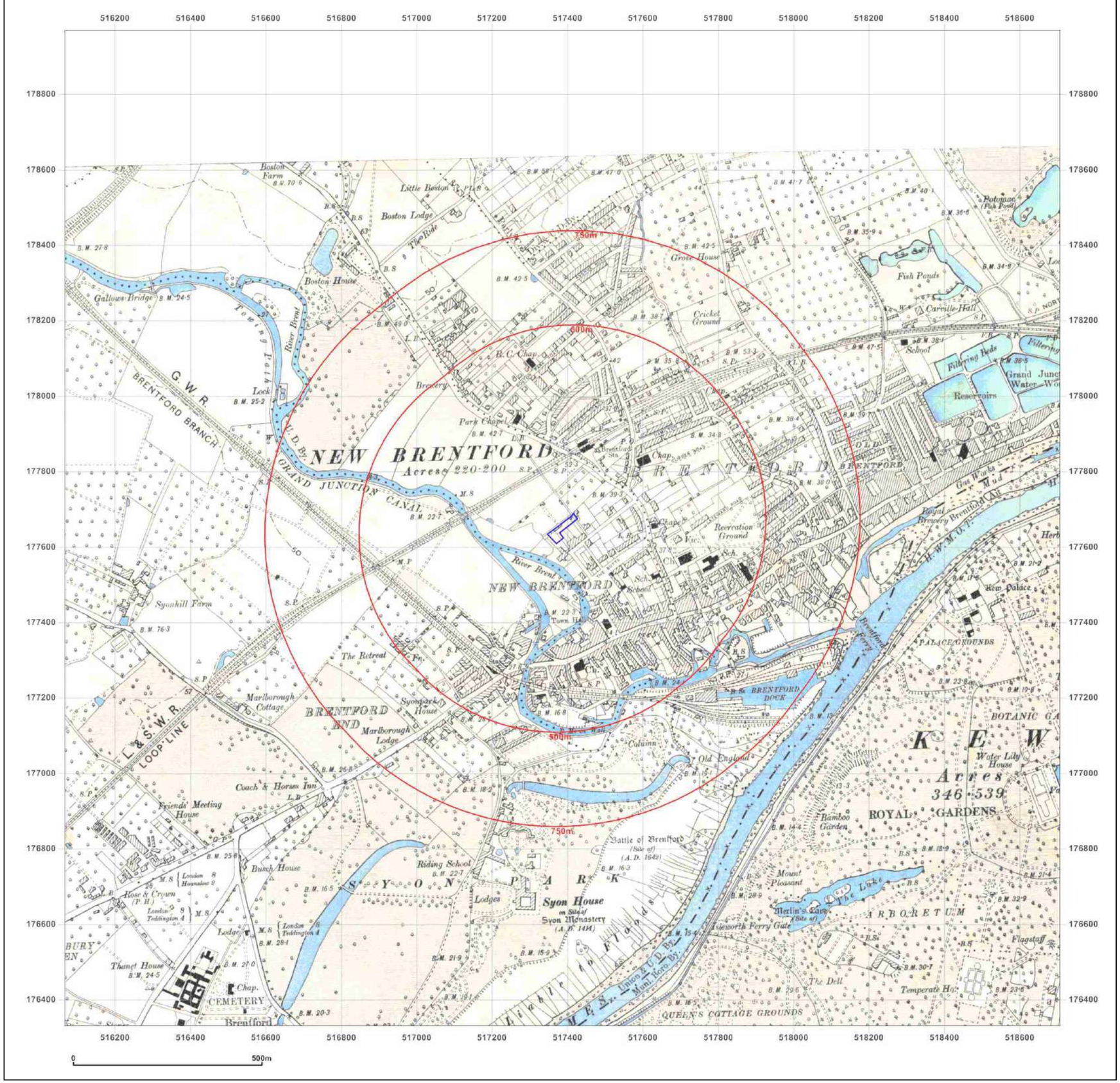
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Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: County Series

Map date: **1898**

Scale: 1:10,560

Printed at: 1:10,560

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

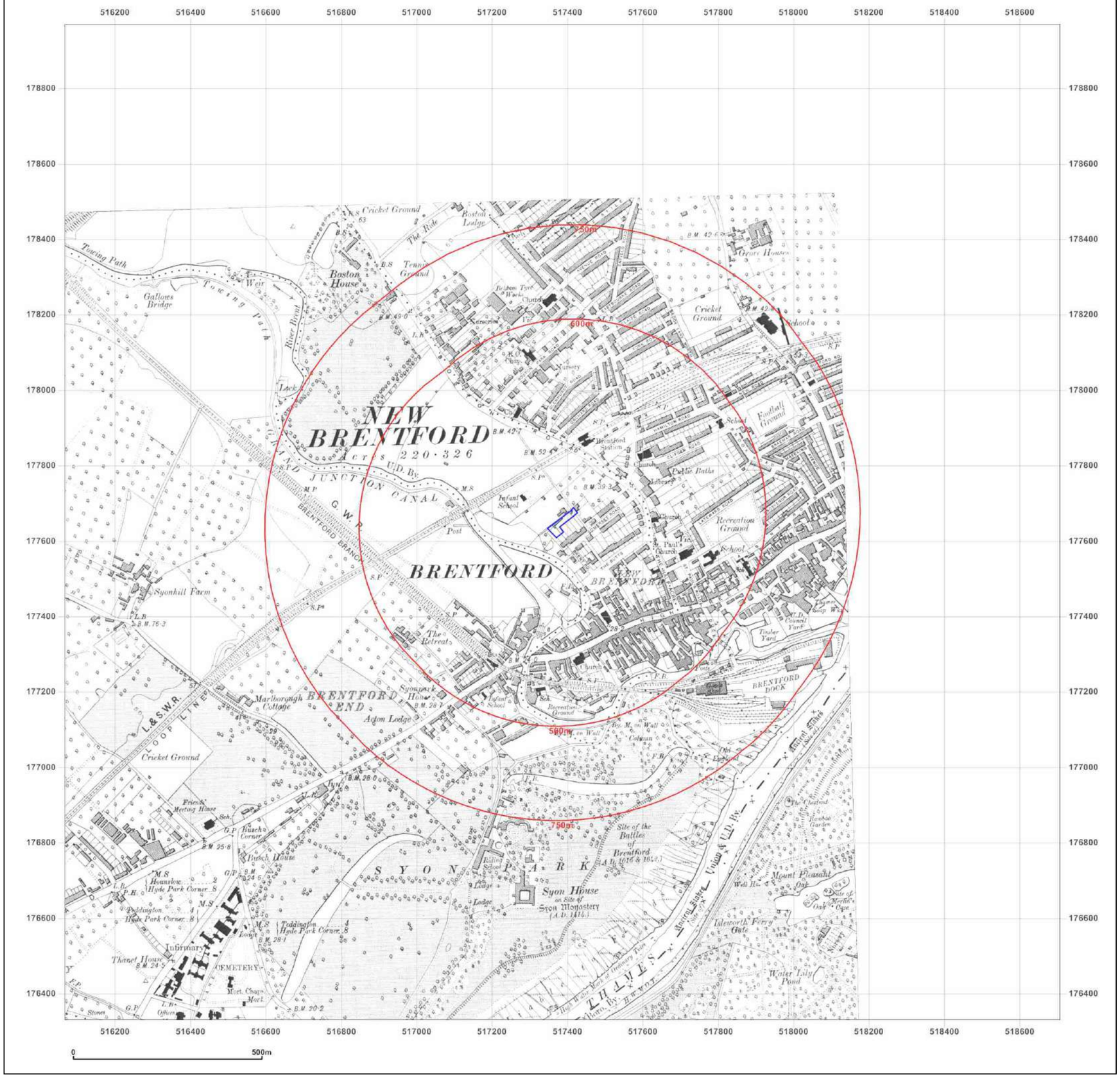
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Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

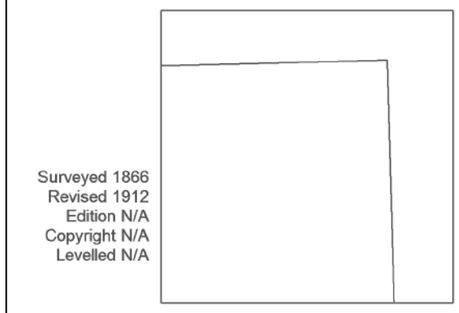
Map Name: County Series

Map date: **1912**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1866
Revised 1912
Edition N/A
Copyright N/A
Levelled N/A

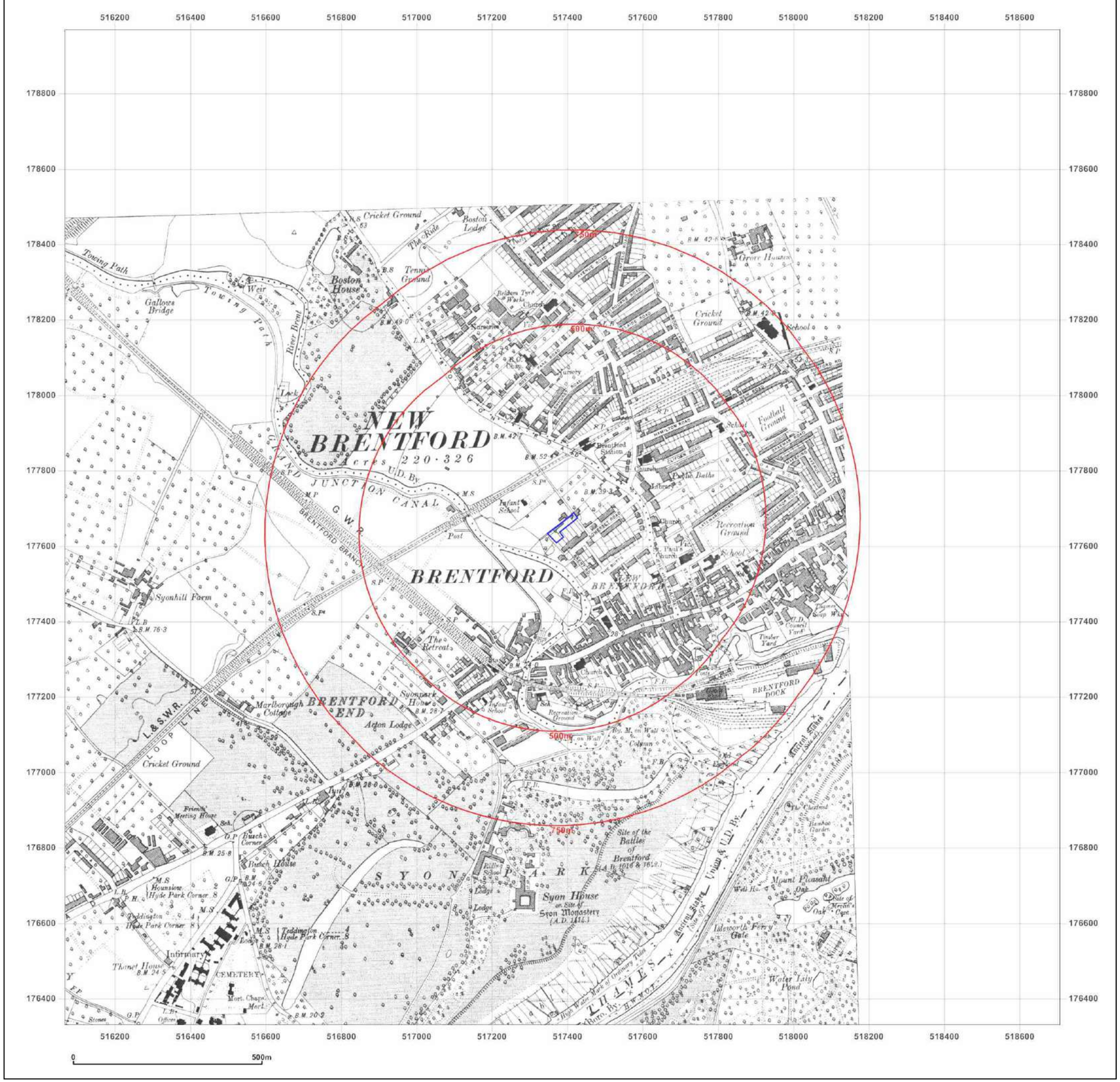
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Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

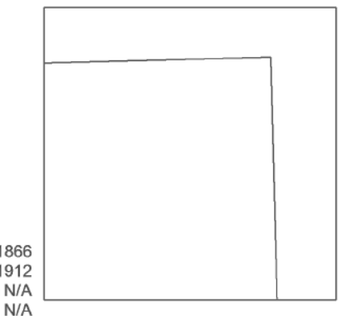
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Map date: **1912**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1866
Revised 1912
Edition N/A
Copyright N/A
Levelled N/A

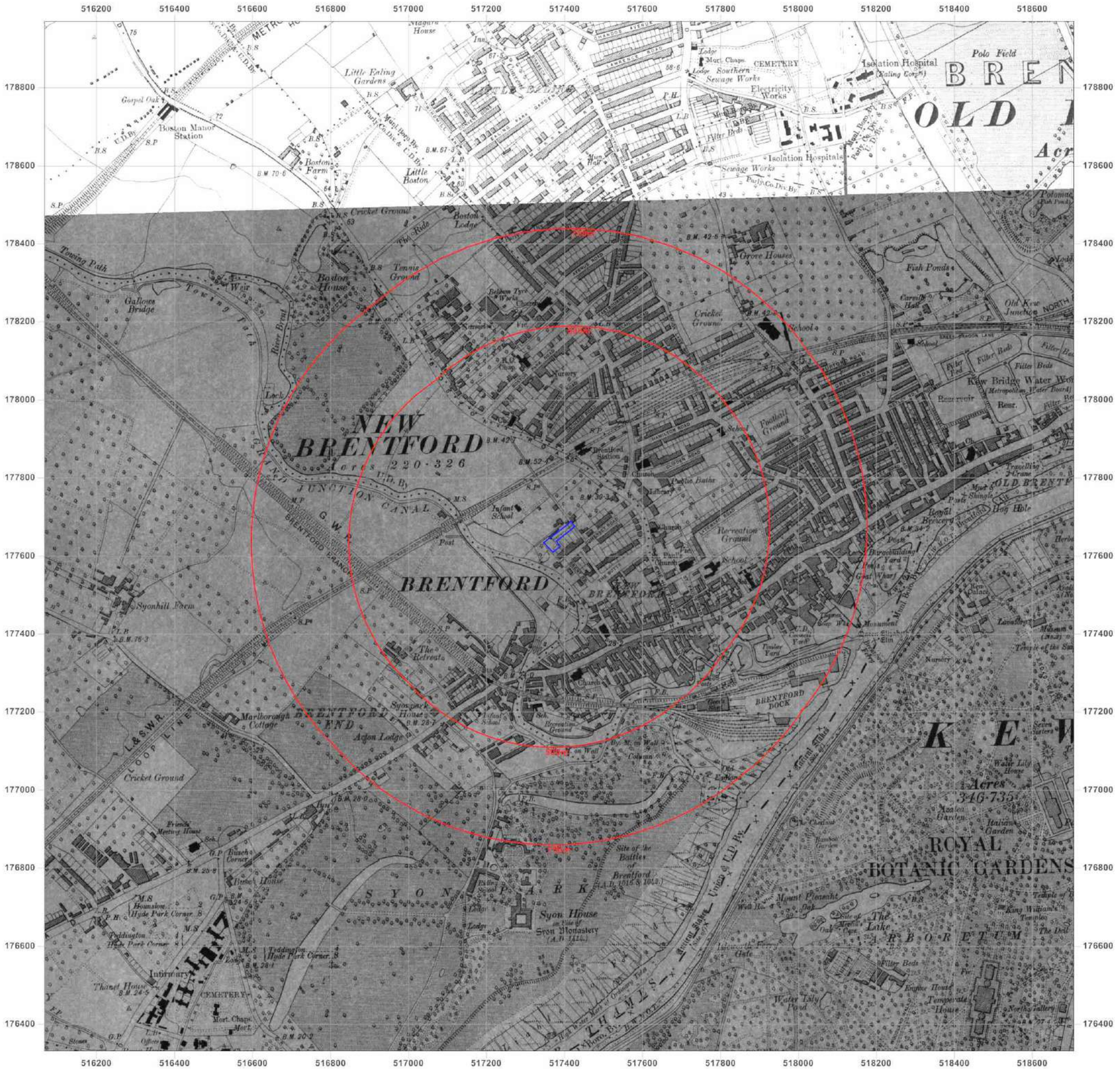
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Site Details:

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Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: County Series

Map date: **1920**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1864
Revised 1913
Edition 1920
Copyright N/A
Levelled 1912

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

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

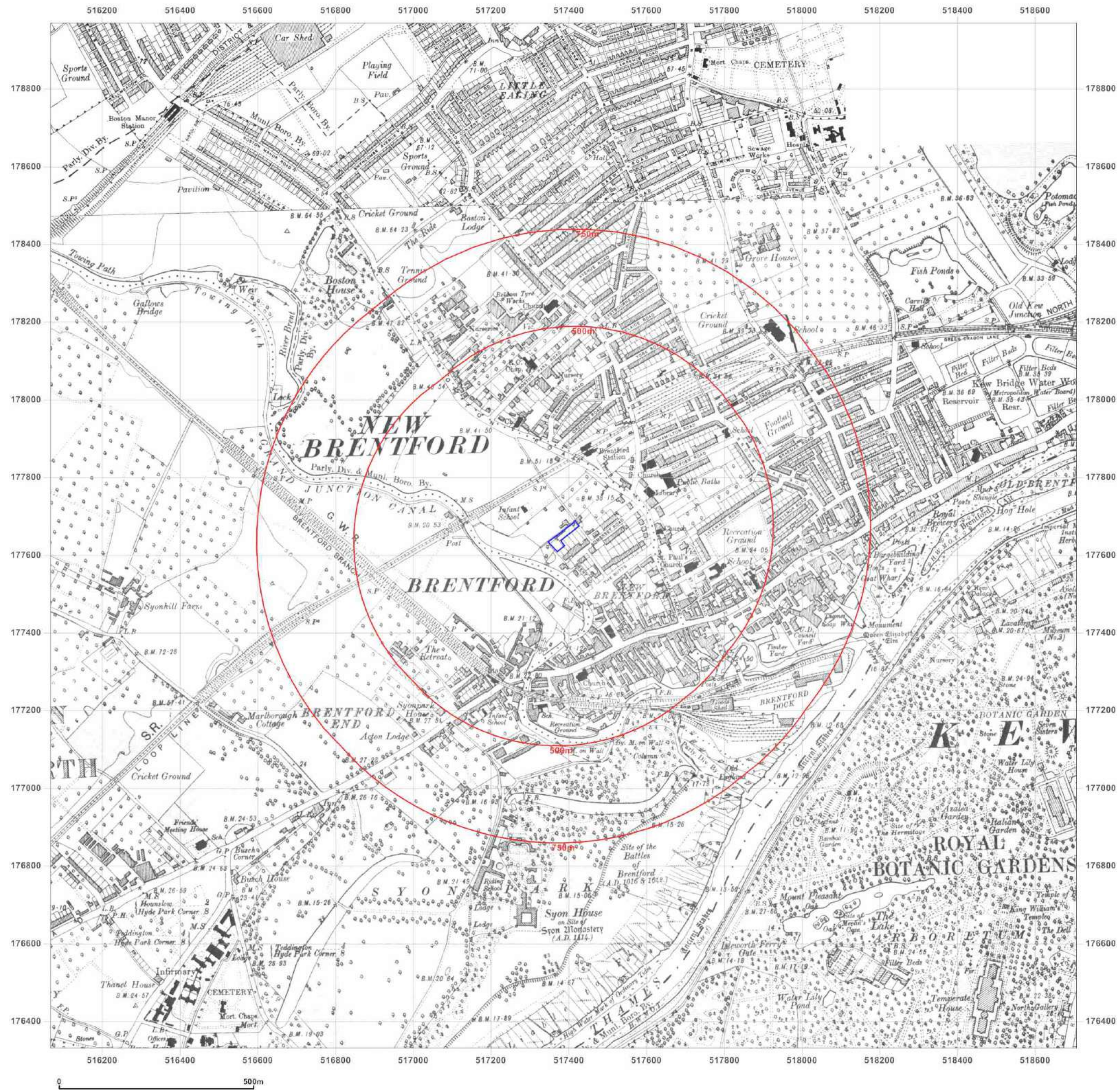
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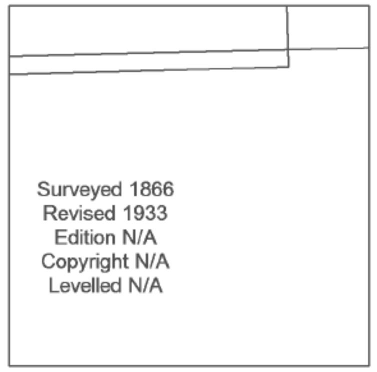
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Site Details:

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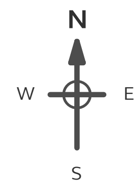
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Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: County Series

Map date: **1933-1934**

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1864
Revised 1934
Edition N/A
Copyright N/A
Levelled N/A

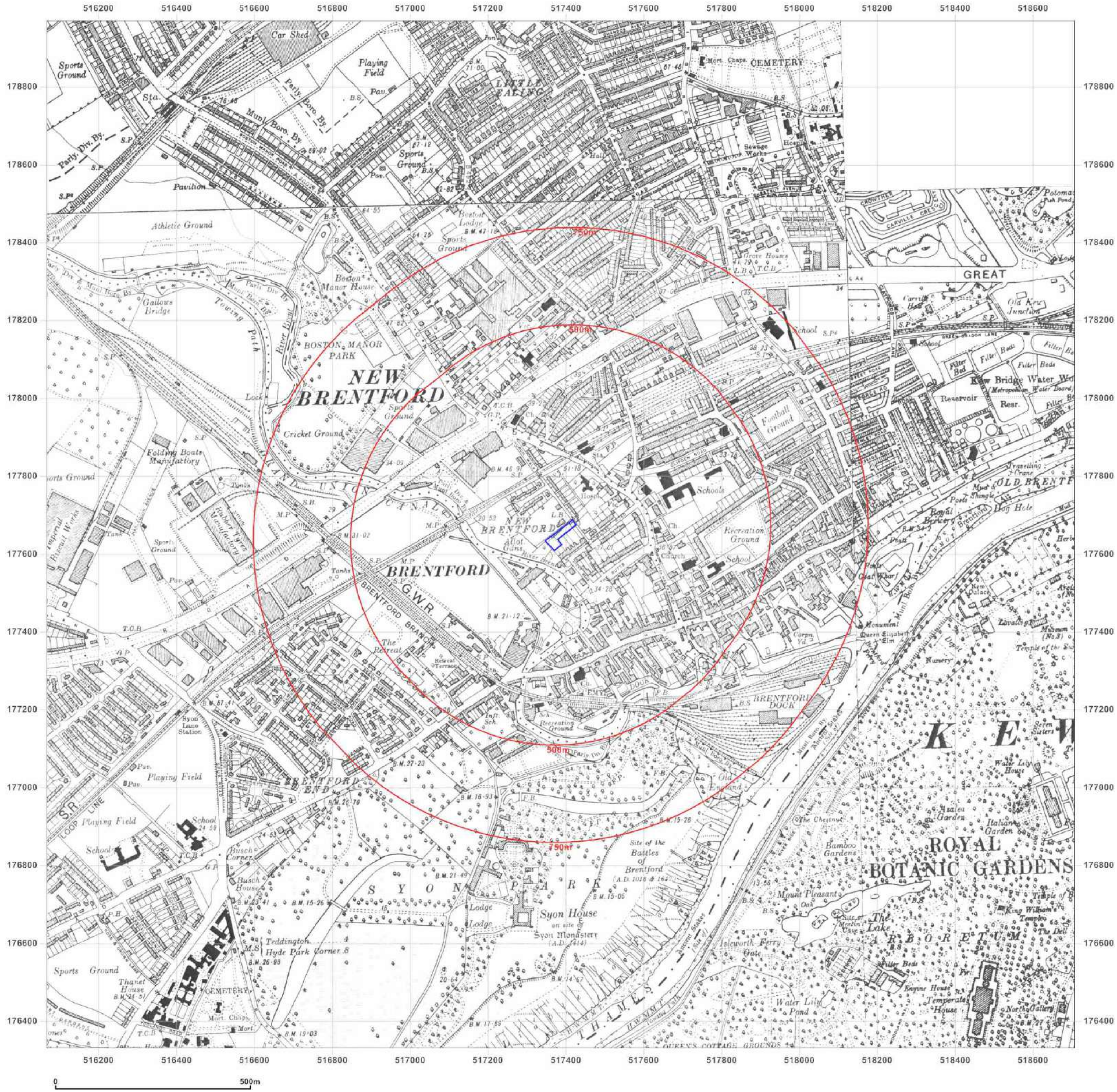
Surveyed 1866
Revised 1933
Edition N/A
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Site Details:

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AND 16 BRENTSIDE,
BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: County Series

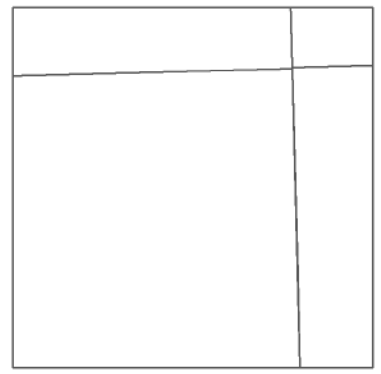
Map date: **1935-1938**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1864
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1866
Revised 1935
Edition N/A
Copyright N/A
Levelled N/A

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

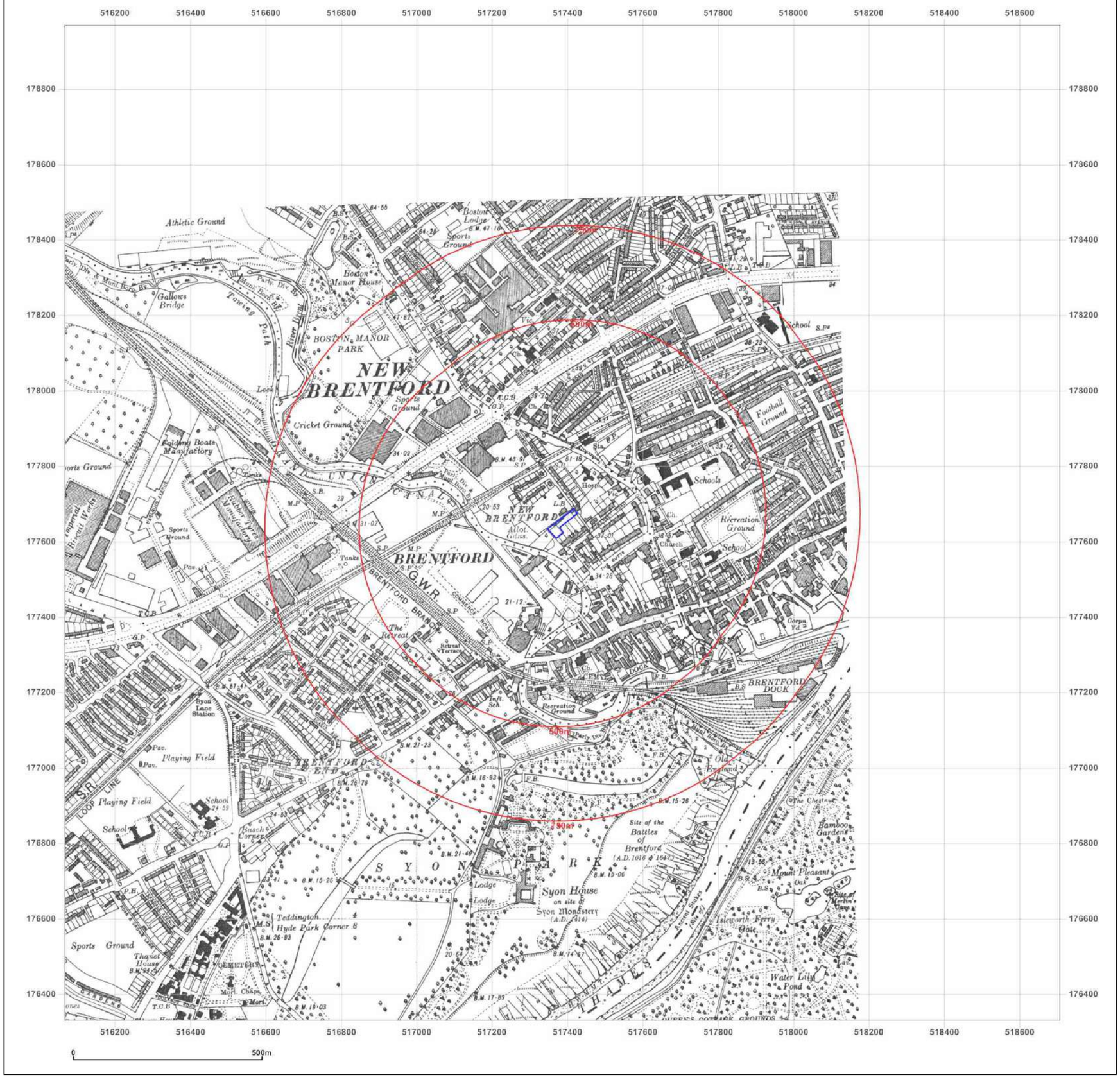
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Site Details:

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Client Ref: 14023929_
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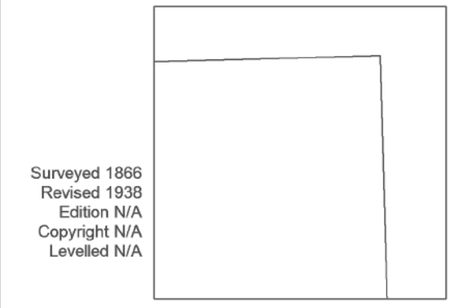
Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

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Site Details:

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AND 16 BRENTSIDE,
BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: Provisional

Map date: **1948**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

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

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BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: Provisional

Map date: **1948**

Scale: 1:10,560

Printed at: 1:10,560

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

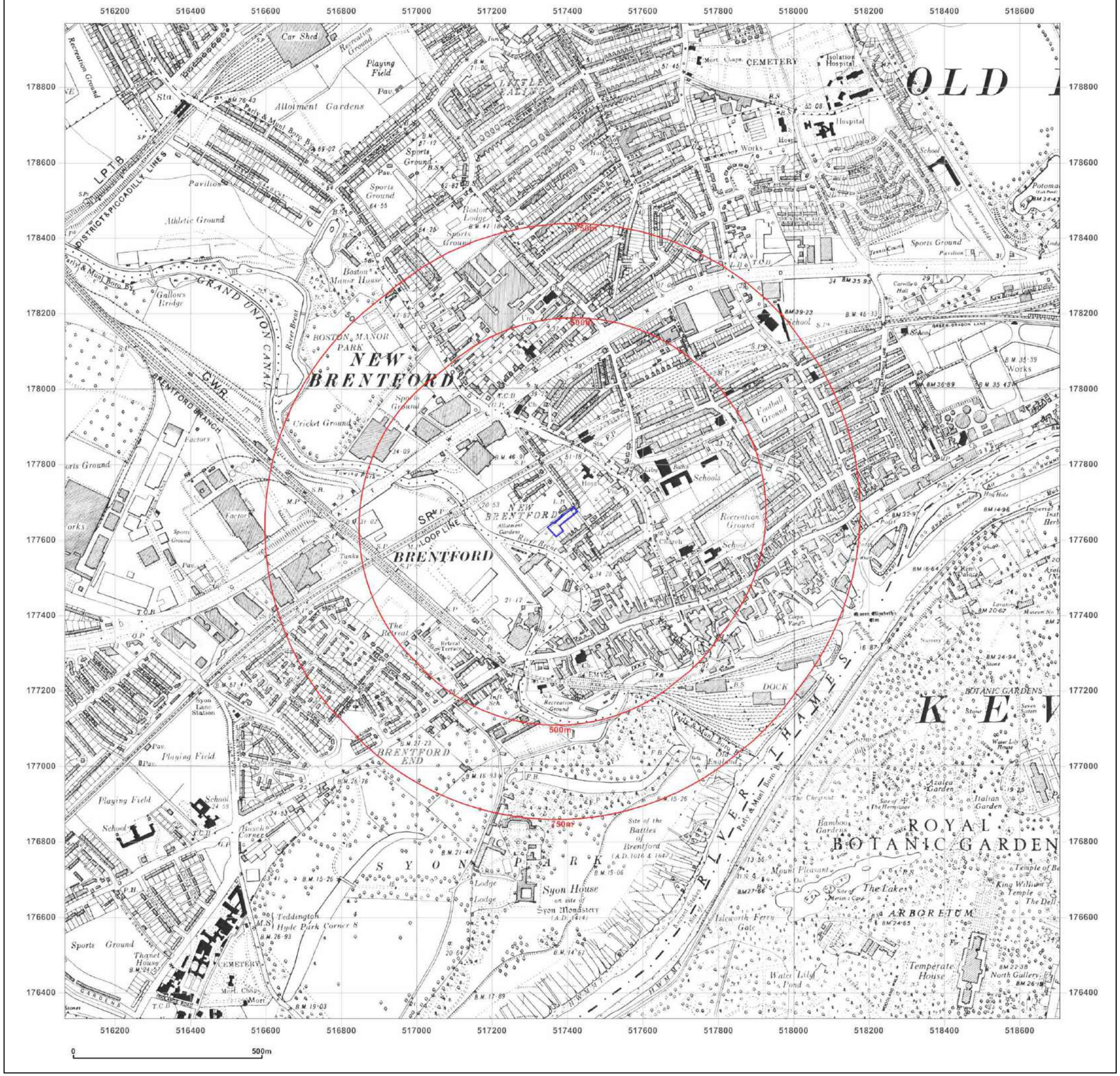
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Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: Provisional

Map date: **1961**

Scale: 1:10,560

Printed at: 1:10,560

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

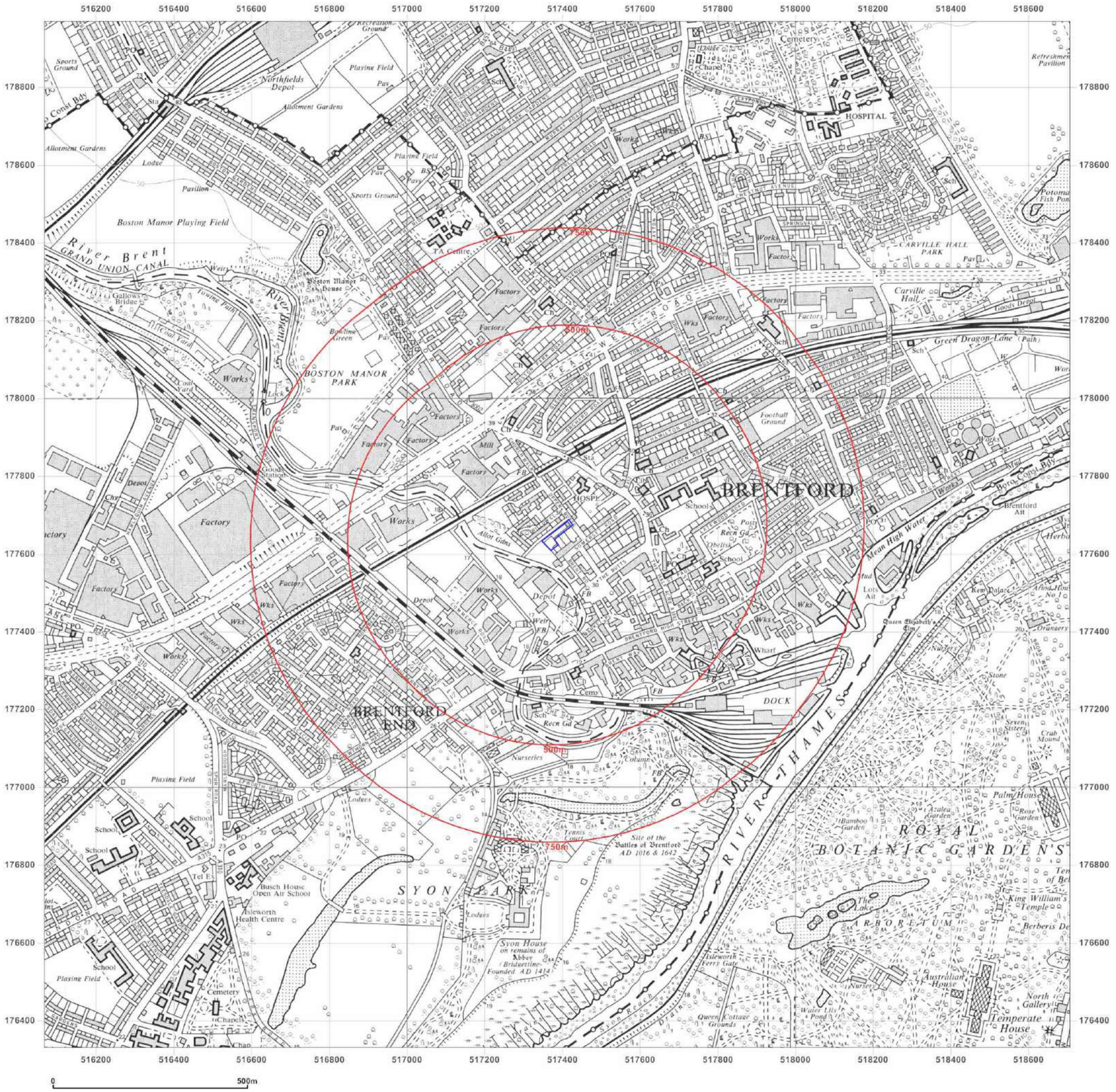
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Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: Provisional
Map date: **1966**
Scale: 1:10,560
Printed at: 1:10,560

N
W E
S

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

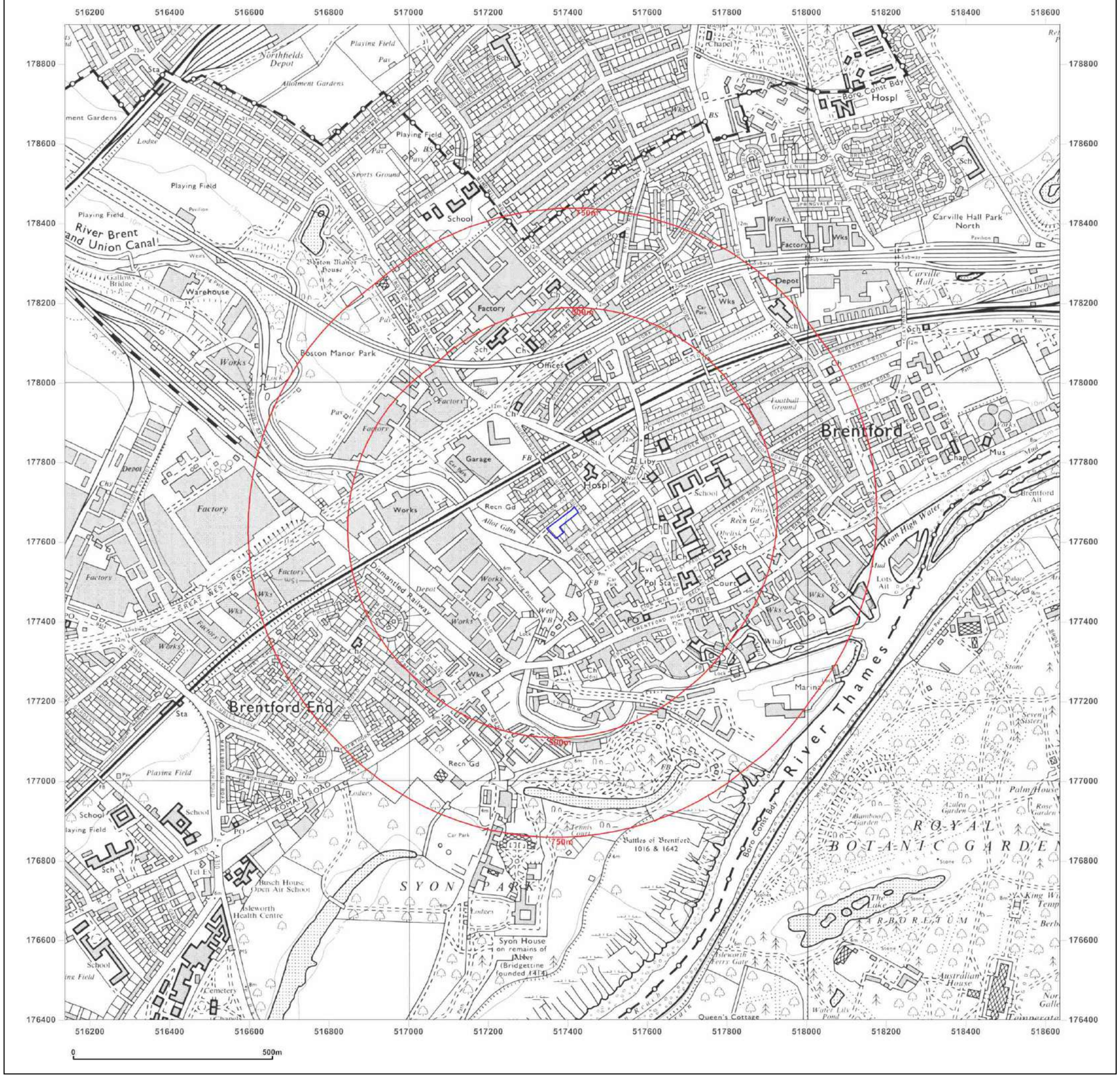
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GARAGE BLOCK OPPOSITE 14
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BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: National Grid

Map date: **1974**

Scale: 1:10,000

Printed at: 1:10,000

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S

Surveyed 1973
Revised 1974
Edition N/A
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Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: National Grid

Map date: **1987**

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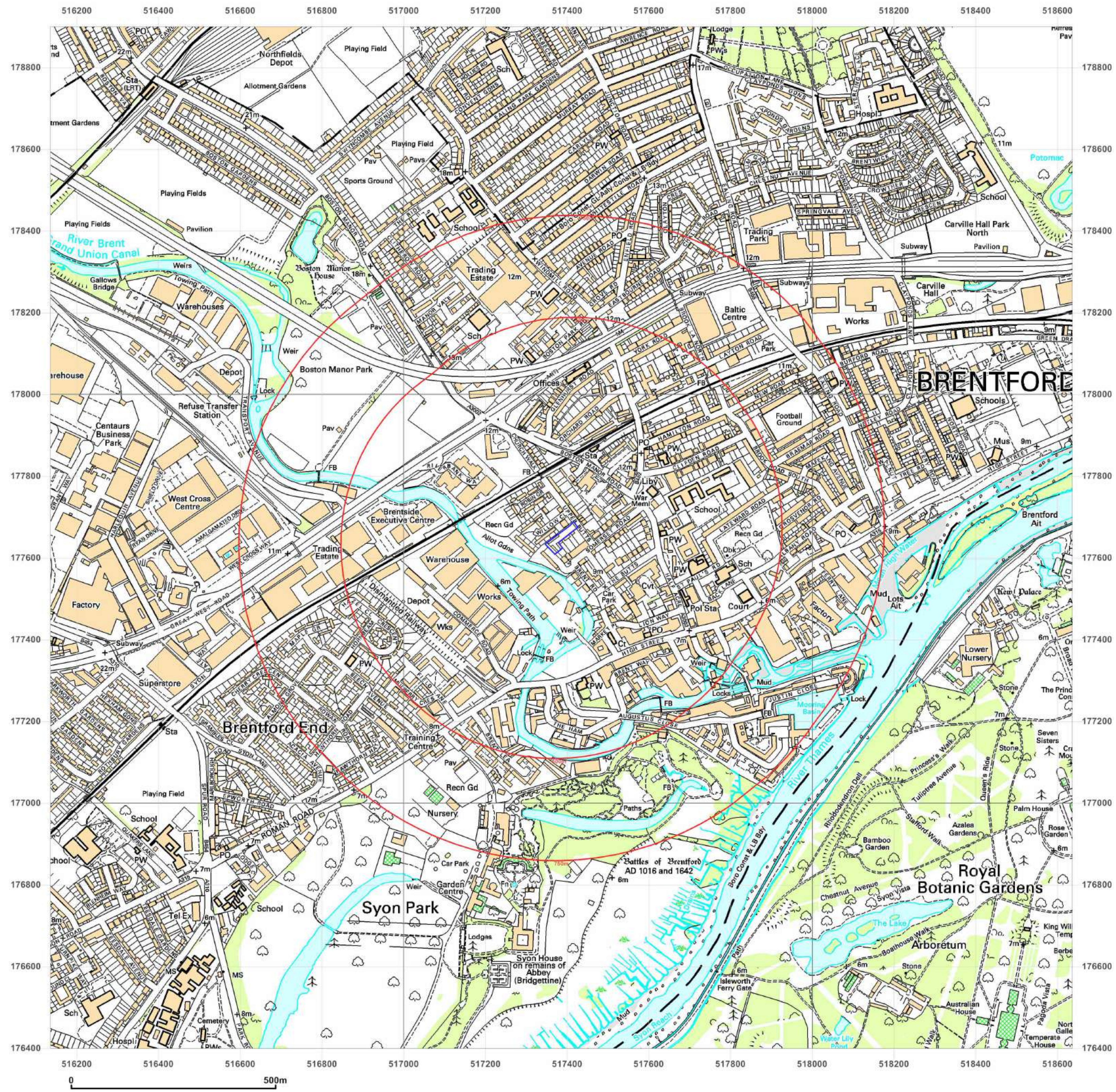
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BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: 1:10,000 Raster

Map date: **2002**

Scale: 1:10,000

Printed at: 1:10,000

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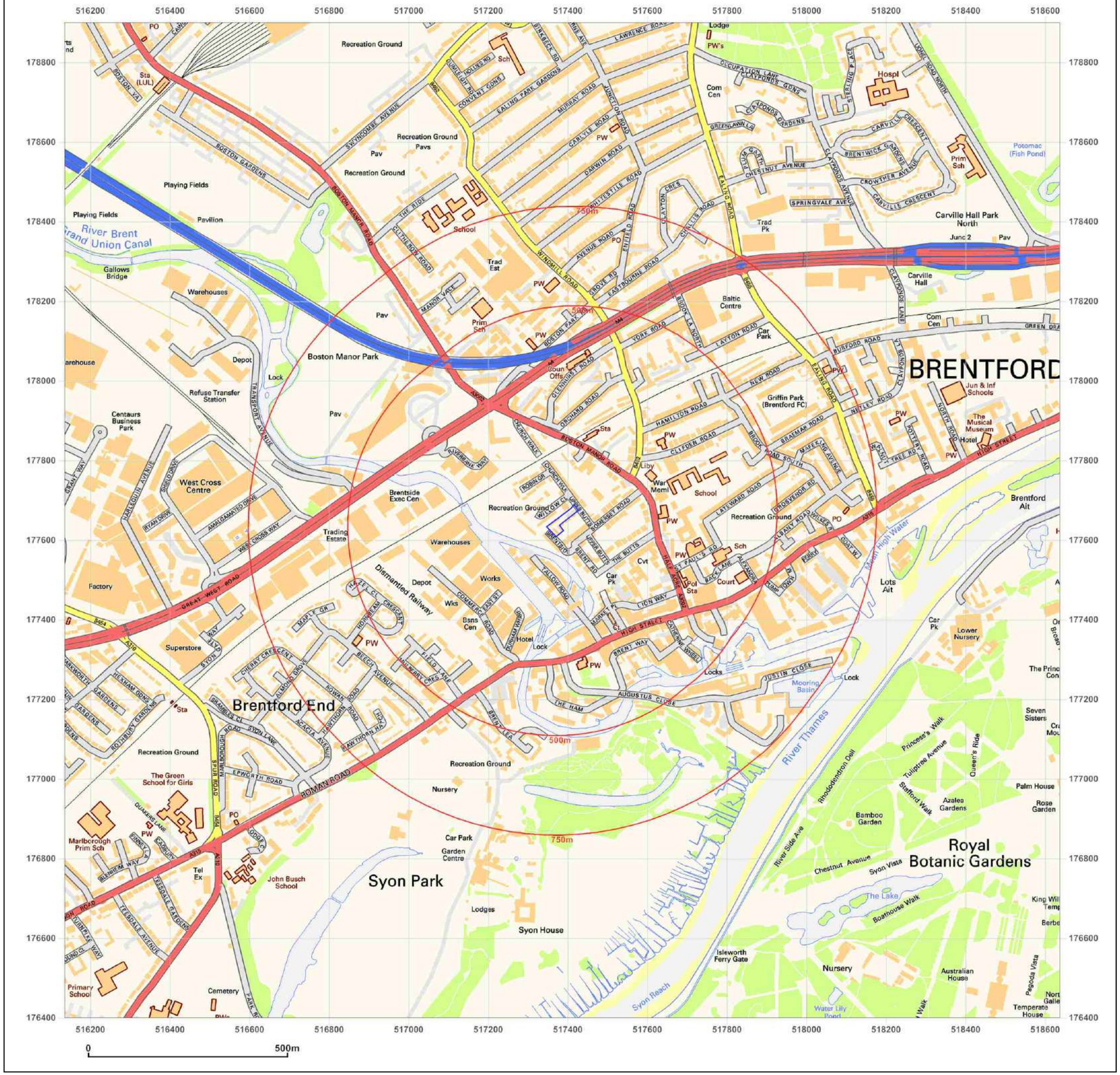
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BRENTFORD, TW8 8BS

Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: National Grid
Map date: **2010**
Scale: 1:10,000
Printed at: 1:10,000

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2010

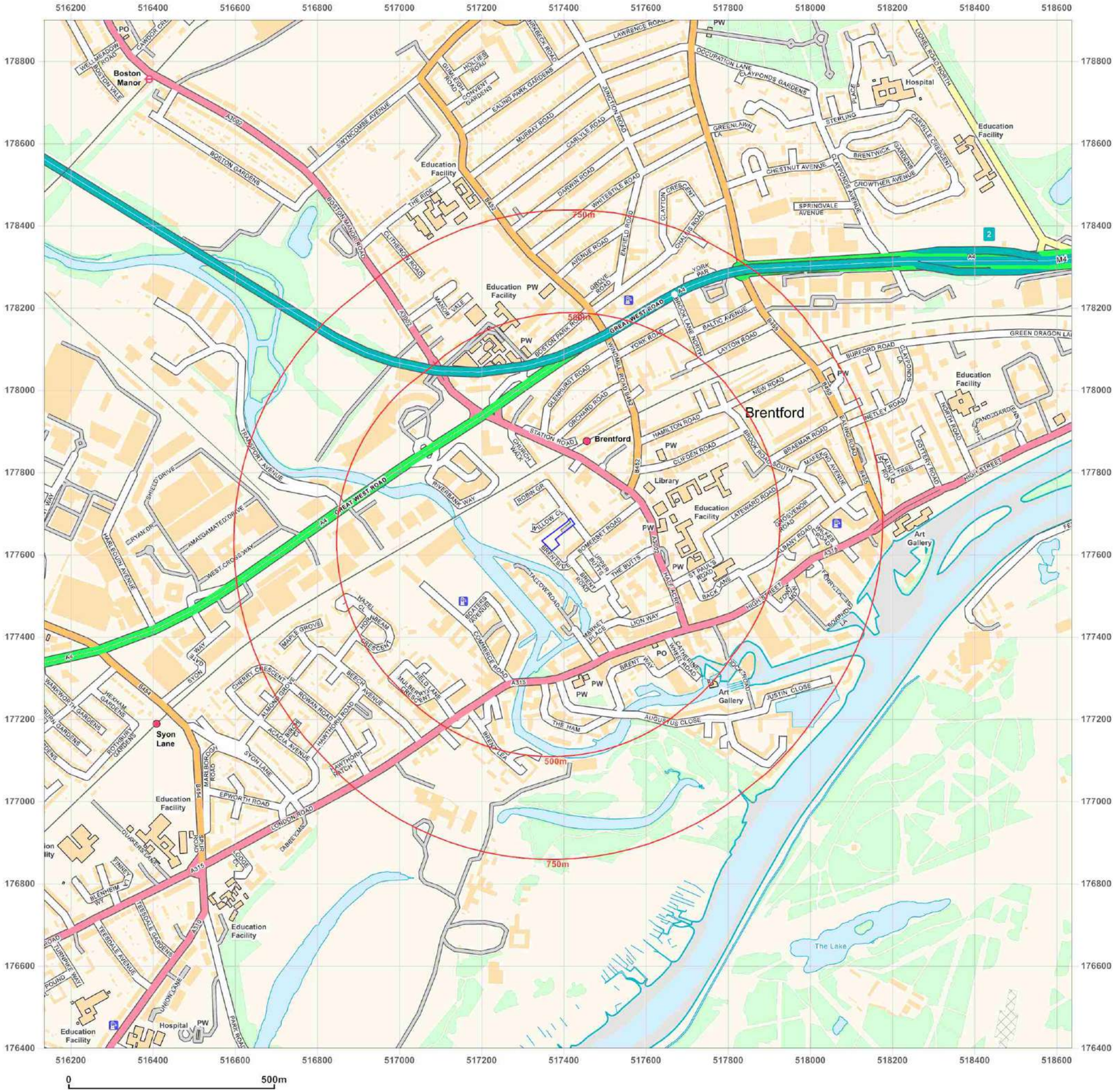
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Client Ref: 14023929_
Report Ref: GS-5910830
Grid Ref: 517386, 177649

Map Name: National Grid
Map date: **2014**
Scale: 1:10,000
Printed at: 1:10,000

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APPENDIX B

Groundsure Data Sheets and Site Sensitivity Maps

Arcadis Consulting UK Ltd

PO Box, 307,
MANCHESTER, M60 3NT

Groundsure Reference:	GS-5910828
Your Reference:	14023929_
Report Date	28 Mar 2019
Report Delivery Method:	Email - pdf

Enviro Insight

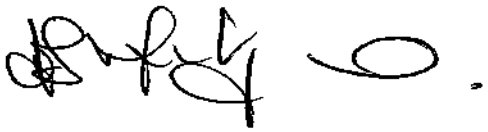
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Dear Sir/ Madam,

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

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

Yours faithfully,



Managing Director
Groundsure Limited

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Enviro Insight

Address:	**GARAGE BLOCK OPPOSITE 14 AND 16 BRENTSIDE, BRENTFORD, TW8 8BS**
Date:	**28 Mar 2019**
Reference:	**GS-5910828**
Client:	**Arcadis Consulting UK Ltd**

NW N NE

W E



SW S SE

Aerial Photograph Capture date:	20-Apr-2015
Grid Reference:	517380,177651
Site Size:	0.1850ha

Report Reference: GS-5910828
Client Reference: 14023929_

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Overview of Findings

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Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	0	4	58	146
1.2 Additional Information – Historical Tank Database	0	0	12	17
1.3 Additional Information – Historical Energy Features Database	0	1	20	34
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	2	24
1.6 Historical military sites	0	0	0	0
1.7 Potentially Infilled Land	0	4	12	25

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	1	2
2.1.6 Records of Part A(2) and Part B Activities and Enforcements	0	0	0	6
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0
2.1.8 Records of Licensed Discharge Consents	0	0	3	15
2.1.9 Records of Water Industry Referrals	0	0	0	2
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	0	0	0	0
2.2 Records of COMAH and NIHHS sites	0	0	0	0
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	0	1	5
2.3.2 National Incidents Recording System, List 1	0	0	0	1
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	3	5	1
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	0
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	0	1
3.2 Landfill and Other Waste Sites Findings						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	Not searched	Not searched
3.2.2 Environment Agency/Natural Resources Wales Licensed Waste Sites	0	0	0	0	9	4

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	2	16	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	0	0
4.3 National Grid Underground Electricity Cables	0	0	0	0
4.4 National Grid Gas Transmission Pipelines	0	0	0	0

Section 5: Geology	
5.1 Records of Artificial Ground and Made Ground present beneath the study site	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	4	9
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	1	0	2
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	1	0	0	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	Yes	Yes	Yes
6.10 Ordnance Survey MasterMap Water Network entries within 500m of the site	0	2	26	26	Not searched	Not searched
6.11 Surface water features within 250m of the study site	No	Yes	Yes	Not searched	Not searched	Not searched

Section 7: Flooding

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

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	1	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	2
8.8 Records of World Heritage Sites	0	0	0	1	1	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	Moderate
9.1.1 Maximum Shrink-Swell hazard rating identified on the study site	Moderate
9.1.2 Maximum Landslides hazard rating identified on the study site	Very Low
9.1.3 Maximum Soluble Rocks hazard rating identified on the study site	Negligible
9.1.4 Maximum Compressible Ground hazard rating identified on the study site	Moderate
9.1.5 Maximum Collapsible Rocks hazard rating identified on the study site	Very Low
9.1.6 Maximum Running Sand hazard rating identified on the study site	Low
9.2 Radon	
9.2.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The site is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.
9.2.2 Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary.

Section 10: Mining

10.1 Coal mining areas within 75m of the study site	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.

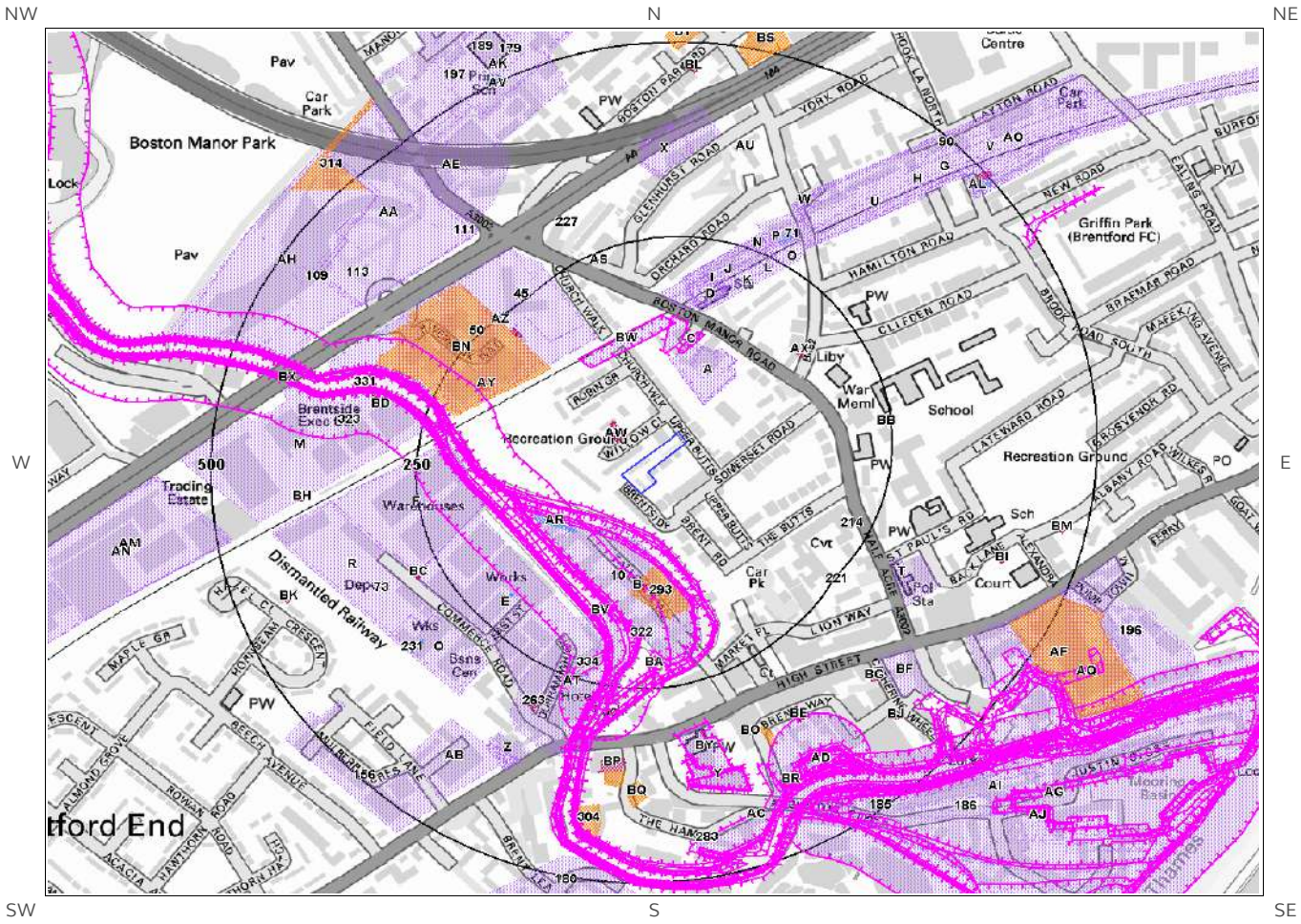
Note: Maps

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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Site Outline

250
500
Search Buffers (m)

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

Industrial Land Use

Potentially Infilled Land

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

Energy Features

Petrol Stations

Historical military sites

Tanks

Garages

1. Historical Industrial Sites

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

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

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 208

ID	Distance [m]	Direction	Use	Date
1A	47	NE	Hospital	1948
2A	47	NE	Hospital	1948
3A	47	NE	Hospital	1935
4A	47	NE	Hospital	1961
5A	51	NE	Hospital	1974
6A	51	NE	Hospital	1966
7A	51	NE	Hospital	1987
8B	52	SW	Unspecified Commercial/Industrial	1987
9B	52	SW	Unspecified Commercial/Industrial	1974
10	53	SW	Unspecified Depot	1966
11A	75	NE	Hospital	1938
12C	100	N	Unspecified Heap	1865
13C	102	N	Unspecified Pit	1894
14BW	123	NW	Cuttings	1865
15BN	155	NW	Unspecified Factory	1966
16H	155	N	Railway Sidings	1912
17D	156	N	Railway Station	1896
18AZ	157	NW	Unspecified Commercial/Industrial	1961
19G	158	N	Railway Sidings	1938
20D	159	N	Railway Station	1948
21D	159	N	Railway Station	1948
22AT	160	S	Unspecified Commercial/Industrial	1961
23D	161	N	Railway Station	1898
24I	162	N	Railway Station	1913
25D	162	N	Railway Station	1912
26D	163	N	Railway Station	1912
27E	163	SW	Unspecified Works	1987
28E	163	SW	Unspecified Works	1974
29E	163	SW	Unspecified Works	1966
30D	163	N	Railway Station	1894
31D	163	N	Railway Station	1933
32D	165	N	Railway Station	1894

33F	165	W	Unspecified Depot	1987
34D	165	N	Railway Station	1938
35D	166	N	Railway Station	1961
36D	166	N	Railway Station	1966
37D	166	N	Railway Station	1974
38U	167	N	Railway Sidings	1865
39D	167	N	Railway Station	1865
40D	167	N	Railway Station	1935
41F	168	W	Unspecified Commercial/Industrial	1974
42G	170	N	Railway Sidings	1961
43H	170	N	Railway Sidings	1966
44D	171	N	Railway Station	1987
45	178	NW	Unspecified Mill	1966
46I	183	N	Railway Sidings	1898
47J	183	N	Railway Sidings	1896
48J	184	N	Railway Sidings	1894
49J	185	N	Railway Sidings	1894
50	188	NW	Garage	1974
51G	189	N	Railway Sidings	1935
52H	193	N	Railway Sidings	1948
53H	193	N	Railway Sidings	1948
54K	202	NE	Railway Building	1912
55K	206	NE	Railway Building	1913
56L	225	NE	Railway Building	1912
57L	229	NE	Railway Building	1913
58M	242	W	Unspecified Works	1966
59M	242	W	Unspecified Works	1974
60N	244	N	Railway Building	1865
61N	244	N	Railway Building	1898
62N	249	N	Railway Building	1894
63O	255	NE	Railway Building	1912
64P	257	NE	Railway Buildings	1912
65O	260	NE	Railway Building	1913
66N	263	NE	Railway Building	1938
67P	264	NE	Railway Buildings	1935
68P	265	NE	Railway Building	1961
69P	265	NE	Railway Building	1966
70P	271	NE	Railway Building	1865
71	279	NE	Railway Buildings	1894
72P	279	NE	Railway Building	1938
73	280	SW	Unspecified Works	1987
74Q	282	SW	Unspecified Works	1974
75Q	282	SW	Unspecified Works	1966
76V	286	NE	Railway Sidings	1912
77G	288	NE	Railway Sidings	1933

78R	290	SW	Unspecified Depot	1966
79R	290	SW	Unspecified Depot	1974
80S	290	NE	Railway Sidings	1948
81S	290	NE	Railway Sidings	1948
82T	291	SE	Police Station	1987
83T	293	SE	Police Station	1974
84U	302	NE	Railway Sidings	1913
85G	302	NE	Railway Sidings	1896
86BY	303	S	Cemetery	1966
87G	304	NE	Railway Sidings	1894
88V	305	NE	Railway Sidings	1894
89G	305	NE	Railway Sidings	1898
90	313	NE	Railway Sidings	1913
91W	318	NE	Railway Buildings	1912
92W	319	NE	Railway Building	1912
93W	320	NE	Railway Buildings	1933
94W	321	NE	Railway Building	1938
95X	327	N	Nursery	1912
96X	328	N	Nursery	1912
97X	329	N	Nursery	1933
98X	333	N	Nursery	1913
99W	337	NE	Railway Building	1912
100Y	341	S	Cemetery	1935
101Y	344	S	Cemetery	1948
102Y	344	S	Cemetery	1948
103AD	345	SE	Dock	1961
104BF	350	SE	Unspecified Works	1966
105Z	351	SW	Railway Station	1948
106Z	351	SW	Railway Station	1948
107AA	353	NW	Unspecified Factory	1974
108AA	353	NW	Unspecified Factory	1966
109	353	NW	Unspecified Commercial/Industrial	1961
110AA	354	NW	Unspecified Factory	1987
111	358	NW	Unspecified Tank	1961
112Z	362	SW	Railway Station	1913
113	363	NW	Unspecified Factory	1966
114AE	368	NW	Brewery	1894
115Z	368	SW	Railway Station	1935
116Z	369	SW	Railway Station	1894
117Z	369	SW	Railway Station	1961
118Z	369	SW	Railway Station	1912
119Z	369	SW	Railway Station	1938
120AB	370	SW	Unspecified Works	1987
121AB	370	SW	Unspecified Commercial/Industrial	1974

122Z	370	SW	Railway Station	1933
123Z	370	SW	Railway Station	1894
124Y	371	S	Cemetery	1961
125Y	372	S	Cemetery	1938
126Z	372	SW	Railway Station	1898
127AC	377	SE	Dock	1948
128AC	377	SE	Dock	1948
129AH	384	NW	Unspecified Factory	1987
130AD	392	SE	Dock	1935
131AD	392	SE	Dock	1935
132AG	396	SE	Dock	1938
133BR	410	SE	Dock	1938
134AE	412	NW	Brewery	1896
135AE	422	NW	Brewery	1894
136AF	422	SE	Timber Yard	1912
137AF	422	SE	Unspecified Yard	1961
138AE	422	NW	Brewery	1898
139AV	426	NW	Nurseries	1913
140AO	432	NE	Railway Sidings	1974
141AG	437	SE	Unspecified Dock	1913
142AG	439	SE	Dock	1966
143AG	439	SE	Railway Sidings	1966
144AG	442	SE	Railway Sidings	1961
145AG	442	SE	Dock	1961
146AG	443	SE	Dock	1935
147AJ	443	SE	Railway Sidings	1935
148AG	443	SE	Dock	1935
149AG	443	SE	Dock	1948
150AG	443	SE	Dock	1948
151AG	445	SE	Unspecified Dock	1898
152AG	446	SE	Railway Sidings	1938
153AH	447	NW	Unspecified Factory	1974
154AH	447	NW	Unspecified Factory	1966
155AI	448	SE	Dock	1865
156	448	SW	Unspecified Commercial/Industrial	1974
157AI	448	SE	Railway Sidings	1865
158AQ	449	SE	Timber Yard	1912
159AF	449	SE	Unspecified Commercial/Industrial	1948
160AF	449	SE	Unspecified Commercial/Industrial	1948
161AF	450	SE	Unspecified Works	1974
162AF	450	SE	Unspecified Works	1966
163AG	451	SE	Dock	1933
164AG	451	SE	Railway Sidings	1933
165AJ	453	SE	Railway Sidings	1948

166AJ	453	SE	Railway Sidings	1948
167AG	455	SE	Railway Sidings	1912
168AG	457	SE	Railway Sidings	1912
169AG	457	SE	Dock	1894
170AG	457	SE	Railway Sidings	1894
171AJ	458	SE	Railway Sidings	1913
172AI	463	SE	Railway Sidings	1894
173AI	463	SE	Dock	1894
174AI	463	SE	Railway Sidings	1894
175AG	469	SE	Railway Sidings	1898
176AK	469	NW	Unspecified Factory	1974
177AF	471	SE	Unspecified Commercial/Industrial	1987
178G	471	NE	Railway Building	1865
179	472	NW	Unspecified Factory	1966
180	474	S	Nurseries	1966
181AL	474	NE	Railway Building	1912
182AK	475	NW	Unspecified Factory	1987
183AL	475	NE	Unspecified Tanks	1938
184AL	476	NE	Railway Building	1912
185	477	SE	Railway Sidings	1896
186	480	SE	Goods Depot	1865
187AM	481	W	Unspecified Factory	1966
188AM	481	W	Unspecified Factory	1974
189	481	NW	Unspecified Commercial/Industrial	1961
190S	482	NE	Unspecified Tanks	1961
191AG	483	SE	Unspecified Dock	1896
192AN	483	W	Unspecified Commercial/Industrial	1935
193S	484	NE	Railway Building	1935
194AN	486	W	Unspecified Commercial/Industrial	1948
195AN	486	W	Unspecified Commercial/Industrial	1948
196	486	SE	Council Yard	1912
197	487	NW	Nurseries	1912
198AM	488	W	Unspecified Commercial/Industrial	1961
199AO	489	NE	Railway Sidings	1913
200AL	489	NE	Railway Building	1966
201AL	490	NE	Railway Building	1974
202AP	490	NE	Unspecified Ground Workings	1948
203AP	490	NE	Unspecified Ground Workings	1948
204AQ	494	SE	Timber Yard	1913
205S	494	NE	Tanks	1948

206S	494	NE	Tanks	1948
207S	497	NE	Unspecified Tanks	1935
208AQ	498	SE	Timber Yard	1933

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: 29

ID	Distance (m)	Direction	Use	Date
209AR	89	SW	Oil Tanks	1935
210AR	90	SW	Oil Tanks	1915
211E	202	SW	Unspecified Tank	1996
212E	203	SW	Unspecified Tank	1966
213E	203	SW	Unspecified Tank	1988
214	225	SE	Tanks	1987
215AS	234	NW	Unspecified Tank	1970
216AS	235	NW	Unspecified Tank	1995
217AS	235	NW	Unspecified Tank	1991
218AS	238	NW	Unspecified Tank	1989
219AT	241	S	Unspecified Tank	1896
220BB	243	E	Unspecified Tank	1915
221	253	SE	Unspecified Tank	1915
222P	273	NE	Unspecified Tank	1867
223P	279	NE	Unspecified Tank	1960
224P	279	NE	Unspecified Tank	1970
225P	279	NE	Unspecified Tank	1960
226P	279	NE	Unspecified Tank	1960
227	296	NW	Unspecified Tank	1867
228BD	304	W	Unspecified Tank	1970
229Q	320	SW	Tanks	1966
230BO	334	SE	Unspecified Tank	1935
231	338	SW	Tanks	1966
232AU	370	N	Unspecified Tank	1974
233AU	370	N	Unspecified Tank	1966
234AL	479	NE	Tanks	1935
235AV	499	NW	Tanks	1968
236AV	500	NW	Tanks	1974
237AV	500	NW	Tanks	1966

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: 55

ID	Distance (m)	Direction	Use	Date
238AW	36	NW	Electricity Substation	1995
239AW	53	NW	Electricity Substation	1970
240AW	54	NW	Electricity Substation	1989
241AW	54	NW	Electricity Substation	1991
242AX	175	NE	Electricity Substation	1987
243AX	175	NE	Electricity Substation	1992
244AX	175	NE	Electricity Substation	1995
245AX	175	NE	Electricity Transformer	1970
246AY	193	NW	Electricity Substation	1995
247AY	197	NW	Electricity Substation	1991
248AY	197	NW	Electricity Substation	1989
249AZ	216	NW	Electricity Substation	1970
250BA	217	S	Electricity Substation	1996
251BA	219	S	Electricity Substation	1988
252AZ	220	NW	Electricity Substation	1995
253AZ	220	NW	Electricity Substation	1991
254AZ	221	NW	Electricity Substation	1989
255BB	235	E	Electricity Substation	1995
256BB	240	E	Electricity Substation	1987
257BB	240	E	Electricity Substation	1970
258BB	241	E	Electricity Substation	1992
259BC	272	SW	Electricity Substation	1970
260BC	273	SW	Electricity Substation	1989
261BC	273	SW	Electricity Substation	1991
262BC	273	SW	Electricity Substation	1995
263	291	SW	Electricity Substation	1996
264BD	311	W	Electricity Substation	1970
265BE	338	SE	Electricity Substation	1991
266BE	339	SE	Electricity Substation	1983
267BE	339	SE	Electricity Substation	1979
268BP	339	S	Electricity Substation	1996
269BF	362	SE	Electricity Substation	1991
270BG	362	SE	Electricity Substation	1979
271BG	362	SE	Electricity Substation	1983
272BH	388	W	Electricity Substation	1988
273BH	388	W	Electricity Substation	1994
274BH	389	W	Electricity Substation	1991

275BI	409	E	Electricity Substation	1987
276BI	410	E	Electricity Transformer	1970
277BI	411	E	Electricity Substation	1992
278BI	411	E	Electricity Substation	1995
279BJ	418	SE	Electricity Substation	1991
280BJ	419	SE	Electricity Substation	1983
281BK	430	W	Electricity Substation	1991
282BK	430	W	Electricity Substation	1991
283	449	S	Electricity Substation	1996
284BL	461	N	Electricity Substation	1974
285BL	461	N	Electricity Substation	1988
286BM	466	E	Electricity Substation	1987
287BM	467	E	Electricity Transformer	1970
288BM	468	E	Electricity Substation	1992
289BM	468	E	Electricity Substation	1995
290BL	471	N	Electricity Substation	1992
291BL	471	N	Electricity Substation	1995
292AL	489	NE	Electricity Substation	1987

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: 26

ID	Distance (m)	Direction	Use	Date
293	92	S	Barge Repair Yard	1935
294BN	161	NW	Garage	1970
295BO	334	SE	Garage	1960
296BO	334	SE	Garage	1960
297BO	334	SE	Garage	1960
298BP	356	S	Garage	1966
299BP	356	S	Garage	1996
300BP	357	S	Garage	1988

301BQ	369	S	Garage	1996
302BQ	387	S	Garage	1966
303BQ	387	S	Garage	1988
304	402	S	Motor Works	1915
305BR	406	SE	Garage	1979
306BR	406	SE	Garage	1991
307BR	410	SE	Garage	1983
308AF	456	SE	Motor Repair Works	1935
309BS	477	N	Garage	1981
310BS	477	N	Garage	1974
311BS	477	N	Garage	1987
312BS	477	N	Garage	1968
313BS	478	N	Garage	1966
314	479	NW	Motor Car Accessories Factory	1968
315BT	490	N	Garage	1966
316BT	490	N	Garage	1960
317BT	490	N	Garage	1959
318BT	490	N	Garage	1968

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

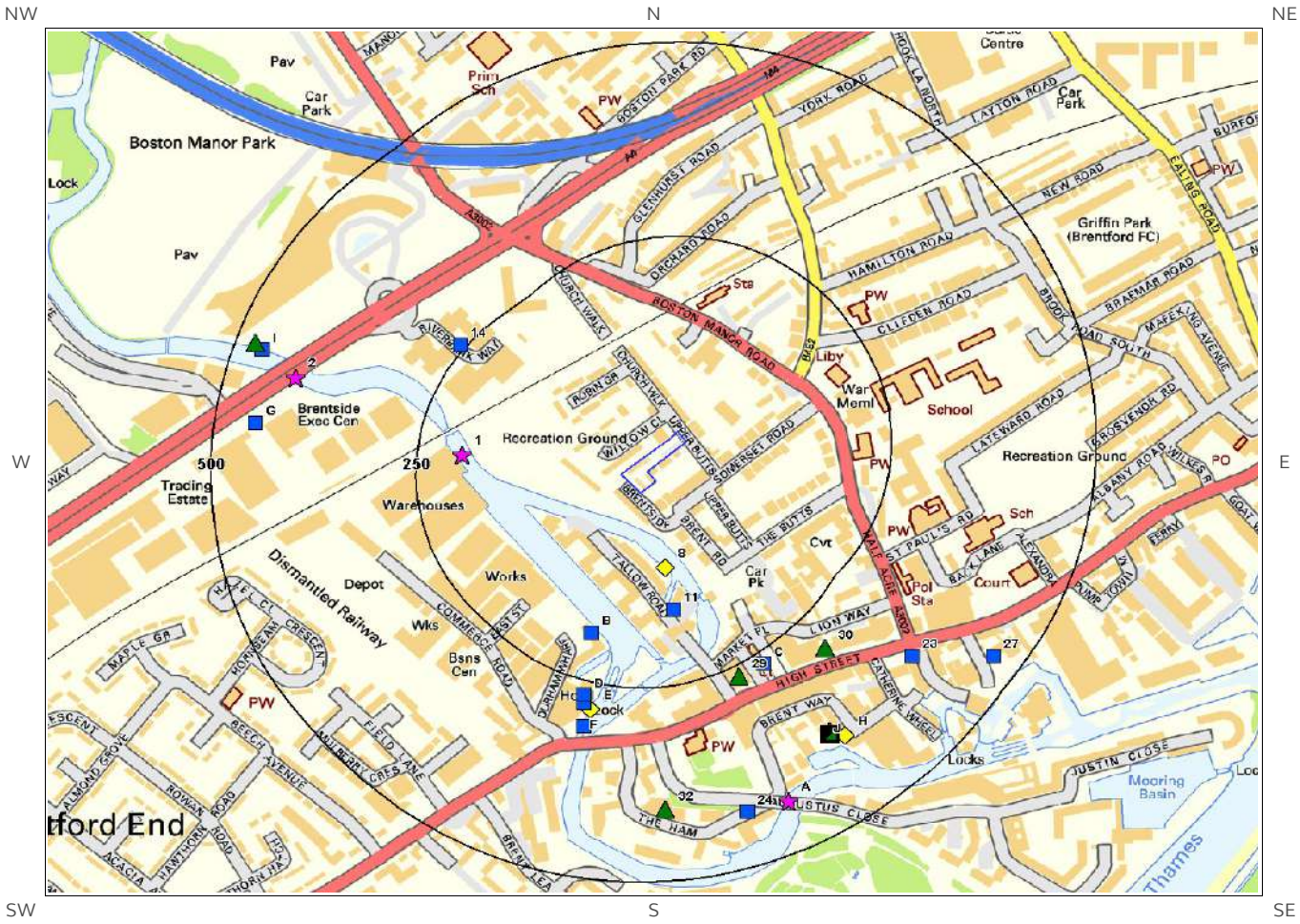
Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 41

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

ID	Distance(m)	Direction	Use	Date
319BU	42	SW	Canal	1913
320	45	SW	Canal	1938
321BD	48	SW	Canal	1912
322	49	SW	Canal	1912
323	75	SW	Canal	1865
324C	100	N	Unspecified Heap	1865
325C	102	N	Unspecified Pit	1894
326BU	121	SW	Canal	1894

327BV	121	SW	Canal	1935
328BV	122	SW	Canal	1933
329BW	123	NW	Cuttings	1865
330BU	129	SW	Canal	1894
331	131	W	Canal	1898
332BX	134	W	Canal	1948
333BX	134	W	Canal	1948
334	206	S	Pond	1894
335BY	303	S	Cemetery	1966
336Y	341	S	Cemetery	1935
337Y	344	S	Cemetery	1948
338Y	344	S	Cemetery	1948
339AD	345	SE	Dock	1961
340Y	371	S	Cemetery	1961
341Y	372	S	Cemetery	1938
342AC	377	SE	Dock	1948
343AC	377	SE	Dock	1948
344AD	392	SE	Dock	1935
345AD	392	SE	Dock	1935
346AG	396	SE	Dock	1938
347BR	410	SE	Dock	1938
348AG	439	SE	Dock	1966
349AG	442	SE	Dock	1961
350AG	443	SE	Dock	1935
351AG	443	SE	Dock	1935
352AG	443	SE	Dock	1948
353AG	443	SE	Dock	1948
354AI	448	SE	Dock	1865
355AG	451	SE	Dock	1933
356AG	457	SE	Dock	1894
357AI	463	SE	Dock	1894
358AP	490	NE	Unspecified Ground Workings	1948
359AP	490	NE	Unspecified Ground Workings	1948

2. Environmental Permits, Incidents and Registers Map



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Site Outline

250
500
Search Buffers (m)

Recorded Pollution Incident

Dangerous Substances (List 1)

Dangerous Substances (List 2)

Water Industry Referrals

Licenced Discharge Consents

Red List Discharge Consents

RAS 3 & 4 Authorisations

Part A(1) Authorised Processes and Historic IPC Authorisations

Part A(2) and Part B Authorised Processes

COMAH / NIHHS Sites

Sites Determined as Contaminated Land

Hazardous Substance Consents and Enforcements

2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

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

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

3

The following List 2 Dangerous Substance Inventory Site records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
8	101	S	517399	Name: Outlet A Brentford Lock	Authorised Substances: Iron, Benzene

ID	Distance (m)	Direction	NGR	Details	
			177513	Development D/w T/e Status: Active Receiving Water: Thames EstuaryBrent	
9E	285	S	517308 177331	Name: Outlet C Brentford Lock Development Dw T/e Status: Active Receiving Water: Thames EstuaryBrent	Authorised Substances: Iron, Benzene
10H	399	SE	517619 177298	Name: Twickenham Plating Group Plc, 6 Colne Rd, Twickenham Status: Active Receiving Water: -	Authorised Substances: Chromium, Copper, Lead, Nickel, Zinc

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

6

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	
29	266	SE	517490 177372	Address: Panache Dry Cleaning, 193 High Street, Brentford, TW8 8LB Process: Dry Cleaning Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified
30	298	SE	517595 177409	Address: Quality Elegance Dry Cleaners, 207-208 High Street, Brentford, TW8 8AH Process: Dry Cleaning Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified
31H	385	SE	517600 177301	Address: Ridgeway Motors Brentway 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
32	410	S	517400 177201	Address: Hall Autos The Ham, Brentway 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
33I	476	W	516900 177801	Address: Texaco The Dome, Gt West Rd Process: Petrol Vapour Recovery Process Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified
34I	476	W	516900 177801	Address: Dome Filling Station, The Dome, Great West Road, Brentford, Middlesex, TW8 9AD Process: Unloading of Petrol into Storage at Service Stations Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified

2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

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

18

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

ID	Distance (m)	Direction	NGR	Details	
11	155	S	517410 177460	Address: CHARLES CHURCH DEVELOPMENTS LTD, CHARLES CHURCH STREET, KNOLL ROAD, CAMBERLEY, SURREY, GU16 3TQ Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: CANM.0096 Permit Version: 1	Receiving Water: THE RIVER BRENT Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 24/10/2000 Effective Date: 06-Jul-2000 Revocation Date: 06/07/2000
12B	189	S	517310 177430	Address: NEW DEVELOPMENT, BRENTFORD LOCK, HIGH STREET, BRENTFORD, MIDDX Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: CANM.0094 Permit Version: 1	Receiving Water: GRAND UNION CANAL Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 12/05/2000 Effective Date: 12-May-2000 Revocation Date: 05/01/2005
13B	189	S	517310 177430	Address: NEW DEVELOPMENT, BRENTFORD LOCK, HIGH STREET, BRENTFORD, MIDDX Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: CANM.0094 Permit Version: 1	Receiving Water: GRAND UNION CANAL Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 12/05/2000 Effective Date: 12-May-2000 Revocation Date: 05/01/2005
14	257	NW	517150 177800	Address: DEVELOPMENT OFF GREAT WEST ROAD, BR, DEVELOPMENT OFF GREAT WEST ROAD, BRENTFORD, MIDDLESEX Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: CTWC.1708 Permit Version: 1	Receiving Water: GRAND UNIONCANAL (RIVERBRENT) Status: REVOKED - UNSPECIFIED Issue date: 07/07/1987 Effective Date: 07-Jul-1987 Revocation Date: 04/12/1992
15C	266	SE	517520 177390	Address: NEW DEV AT BRENTFORD LOCK -OUTLET B, BRENTFORD LOCK, HIGH STREET, BRENTFORD, MIDDLESEX, GU16 3TQ Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: CANM.0097 Permit Version: 1	Receiving Water: RIVER BRENT Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 24/08/2000 Effective Date: 06-Jul-2000 Revocation Date: 28/08/2003
16C	266	SE	517520 177390	Address: NEW DEV AT BRENTFORD LOCK -OUTLET B, BRENTFORD LOCK, HIGH STREET, BRENTFORD, MIDDLESEX, GU16 3TQ Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: CANM.0097 Permit Version: 1	Receiving Water: RIVER BRENT Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 24/08/2000 Effective Date: 06-Jul-2000 Revocation Date: 28/08/2003
17D	269	S	517300	Address: NEW DEV AT BRENTFORD LOCK	Receiving Water: RIVER BRENT G.U.C.

ID	Distance (m)	Direction	NGR	Details	
			177350	-OUTLET C, BRENTFORD LOCK, HIGH STREET, BRENTFORD, MIDDLESEX Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: CANM.0098 Permit Version: 1	Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 24/08/2000 Effective Date: 06-Jul-2000 Revocation Date: 06/07/2000
18D	269	S	517300 177350	Address: NEW DEV AT BRENTFORD LOCK -OUTLET C, BRENTFORD LOCK, HIGH STREET, BRENTFORD, MIDDLESEX Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: CANM.0098 Permit Version: 1	Receiving Water: RIVER BRENT G.U.C. Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 24/08/2000 Effective Date: 06-Jul-2000 Revocation Date: 06/07/2000
19E	278	S	517300 177340	Address: NEW DEVELOPMENT, BRENTFORD LOCK, HIGH STREET, BRENTFORD, MIDDX Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: CANM.0093 Permit Version: 1	Receiving Water: RIVER BRENT Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 12/05/2000 Effective Date: 12-May-2000 Revocation Date: 05/01/2005
20D	278	S	517300 177340	Address: NEW DEVELOPMENT, BRENTFORD LOCK, HIGH STREET, BRENTFORD, MIDDX Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: CANM.0093 Permit Version: 1	Receiving Water: RIVER BRENT Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 12/05/2000 Effective Date: 12-May-2000 Revocation Date: 05/01/2005
21F	307	S	517300 177310	Address: NEW DEVELOPMENT, BRENTFORD LOCK, HIGH STREET, BRENTFORD, MIDDX Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: CANM.0095 Permit Version: 1	Receiving Water: RIVER BRENT Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 12/05/2000 Effective Date: 12-May-2000 Revocation Date: 05/01/2005
22E	307	S	517300 177310	Address: NEW DEVELOPMENT, BRENTFORD LOCK, HIGH STREET, BRENTFORD, MIDDX Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: CANM.0095 Permit Version: 1	Receiving Water: RIVER BRENT Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 12/05/2000 Effective Date: 12-May-2000 Revocation Date: 05/01/2005
23	384	SE	517700 177400	Address: 77 HIGH STREET, BRENTFORD, MIDDX, 77 HIGH STREET, BRENTFORD, MIDDX Effluent Type: TRADE DISCHARGES - COOLING WATER Permit Number: CTMR.0134 Permit Version: 1	Receiving Water: THAMES Status: REVOKED - UNSPECIFIED Issue date: 06/12/1976 Effective Date: 06-Dec-1976 Revocation Date: 22/02/1990
24	430	S	517500 177200	Address: SOUTH OUTLET, BRENTFORD, MIDDX, SOUTH OUTLET, BRENTFORD, MIDDX Effluent Type: TRADE DISCHARGES - COOLING WATER Permit Number: CTMR.0326 Permit Version: 1	Receiving Water: (BRENT RIVER) Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 09/11/1976 Effective Date: 09-Nov-1976 Revocation Date: 14/12/1998
25G	451	W	516900 177700	Address: GREAT WEST ROAD, BRENTFORD, MIDDX, GREAT WEST ROAD, BRENTFORD, MIDD, X Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: CTMR.0330 Permit Version: 1	Receiving Water: (BRENT RIVER) Status: REVOKED - UNSPECIFIED Issue date: 06/12/1976 Effective Date: 06-Dec-1976 Revocation Date: 26/01/1993
26G	451	W	516900 177700	Address: GREAT WEST ROAD, BRENTFORD, MIDDX, GREAT WEST ROAD, BRENTFORD,	Receiving Water: (BRENT RIVER) Status: REVOKED - UNSPECIFIED

ID	Distance (m)	Direction	NGR	Details	
				MIDD, X Effluent Type: MISCELLANEOUS DISCHARGES - UNSPECIFIED Permit Number: CTMR.0331 Permit Version: 1	Issue date: 06/12/1976 Effective Date: 06-Dec-1976 Revocation Date: 24/07/1995
27	465	SE	517800 177400	Address: 87 HIGH STREET, BRENTFORD, MIDDX, 87 HIGH STREET, BRENTFORD, MIDDX Effluent Type: TRADE DISCHARGES - COOLING WATER Permit Number: CTMR.0324 Permit Version: 1	Receiving Water: BRENTFORD CREEK Status: REVOKED - UNSPECIFIED Issue date: 09/11/1976 Effective Date: 09-Nov-1976 Revocation Date: 20/03/1990
28I	466	W	516908 177794	Address: GLAXOSMITHKLINE SERVICES UNLIMITED, 980, GREAT WEST ROAD, BRENTFORD, MIDDLESEX, TW8 9GS Effluent Type: TRADE DISCHARGES - COOLING WATER Permit Number: CANM.1310 Permit Version: 1	Receiving Water: RIVER BRENT Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 24/10/2007 Effective Date: 24-Oct-2007 Revocation Date: -

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

2

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

ID	Distance (m)	Direction	Address	Permission reference	Local Authority	First Date Received	Last Date Received	Status
37J	386	SE	TWICKENHAM PLATING GROUP PLC, BRENT WAY, BRENT WAY, BRENTFORD, MIDDLESEX, TW8 8HU	AE1661	LONDON BOROUGH OF HOUNSLOW	01-Jun-2001	01-Jan-2018	DEAD (APPLICATION)
38J	386	SE	TWICKENHAM PLATING GROUP PLC, BRENT WAY, BRENT WAY, BRENTFORD, MIDDLESEX, TW8 8HU	AR7599	LONDON BOROUGH OF HOUNSLOW	01-Jul-2010	01-Jan-2018	RECEIVED

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

0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

Records of COMAH & NIHHS sites within 500m of the study site: 0

Database searched and no data found.

2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

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

6

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

ID	Distance (m)	Direction	NGR	Details	
1	196	W	517151.0 177659.0	Incident Date: 06-Jul-2001 Incident Identification: 14212.0 Pollutant: Contaminated Water Pollutant Description: Urban Run-Off	Water Impact: Category 2 (Significant) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
2	416	W	516949.0 177758.0	Incident Date: 06-Jul-2001 Incident Identification: 14395.0 Pollutant: Contaminated Water Pollutant Description: Urban Run-Off	Water Impact: Category 1 (Major) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
3A	434	SE	517549.0 177214.0	Incident Date: 01-Aug-2002 Incident Identification: 96587.0 Pollutant: Organic Chemicals/Products Pollutant Description: Surfactants and Detergents	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
4A	434	SE	517549.0 177214.0	Incident Date: 01-Aug-2002 Incident Identification: 96587.0 Pollutant: Organic Chemicals/Products:Oils and Fuel:Oils and Fuel Pollutant Description: Surfactants and Detergents:Mixed/Waste Oils:Other Oil or Fuel	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
5A	434	SE	517549.0 177214.0	Incident Date: 01-Aug-2002 Incident Identification: 96587.0 Pollutant: Oils and Fuel Pollutant Description: Other Oil or Fuel	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
6A	434	SE	517549.0 177214.0	Incident Date: 01-Aug-2002 Incident Identification: 96587.0 Pollutant: Oils and Fuel Pollutant Description: Mixed/Waste Oils	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

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

1

The following NIRS List 1 records are represented as points on the Environmental Permits, Incidents and Registers Map:

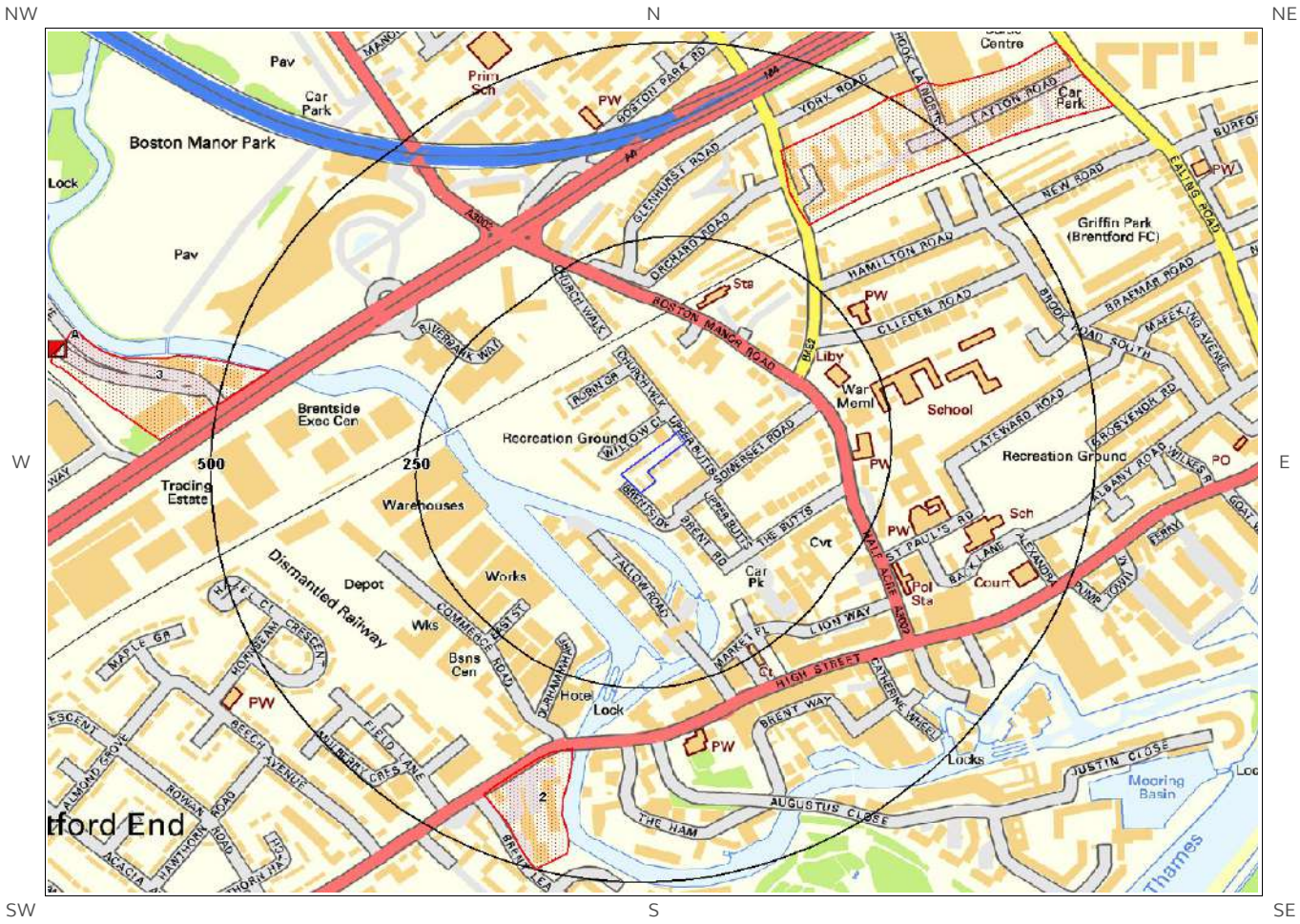
ID	Distance(m)	Direction	NGR	Details
7F	317	S		Incident Date: 27-Apr-2000 Incident Identification: 7609.0 Catchments Name: BRENT Water Description: RIVER STRETCH (FRESHWATER) Water Course: BRENT / G.U.C. - BRENTFOR Incident Substantiated: N/A Priority Description: 1 Day (24 Hours) Waste Description: Not Available Water Impact: Significant Impact Land Impact: No Impact Air Impact: No Impact Action Taken: Prosecution

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

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

Database searched and no data found.

3. Landfill and Other Waste Sites Map



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Site Outline

250 / 500 Search Buffers (m)

EA/NRW Active Landfill

EA/NRW Historic Landfill

BGS / DoE Survey Landfill

Historic and Planned Waste Sites

EA/NRW Licensed Waste Site

Local Authority/Historical Mapping Landfill Records

3. Landfill and Other Waste Sites

3.1 Landfill Sites

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

0

Database searched and no data found.

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

9

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

ID	Distance (m)	Direction	NGR	Details	
1	310	NE		Site Address: Layton Road, Brentford, Hounslow, London Waste Licence: - Site Reference: 8HO083 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: - Last Recorded: 31-Dec-1865
2	339	S		Site Address: Northumberland Wharf, Brentford End, Brentford, London Waste Licence: - Site Reference: 8HO067 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: - Last Recorded: -
3	448	W		Site Address: Transport Avenue, Brentford, Hounslow, London Waste Licence: - Site Reference: 8HO084, WES002 Waste Type: - Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: - Last Recorded: 31-Dec-1961
Not shown	756	E		Site Address: Watermans Park, High Street, Brentford Waste Licence: - Site Reference: 8HO066 Waste Type: - Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: - Last Recorded: 31-Dec-1865
Not shown	790	W		Site Address: Transport Avenue, Transfer Avenue Waste Licence: -	Licence Issue: Licence Surrendered: Licence Holder Address: -

ID	Distance (m)	Direction	NGR	Details	
				Site Reference: 8HO060, HOUX13 Waste Type: Commercial, Household Environmental Permitting Regulations (Waste) Reference: -	Operator: - Licence Holder: - First Recorded: 31-Dec-1900 Last Recorded: 31-Dec-1938
Not shown	947	E		Site Address: Old Thames Water Gas Works, Brentford, Hounslow, London Waste Licence: - Site Reference: 8HO082 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: 31-Dec-1960 Last Recorded: 31-Dec-1966
Not shown	962	NE		Site Address: Green Dragon Lane Flats, Green Dragon Lane Waste Licence: - Site Reference: 8HO065 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: 31-Dec-1964 Last Recorded: 31-Dec-1966
Not shown	970	N		Site Address: Clayponds Gardens, Clayponds Avenue Waste Licence: - Site Reference: 8HO061, HOUX14 Waste Type: Inert, Commercial, Household, Liquid sludge Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: 31-Dec-1915 Last Recorded: 31-Dec-1947
Not shown	1010	NE		Site Address: Carville Hill Park North, Brentford, Hounslow, London Waste Licence: - Site Reference: 8HO042 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: L B Hounslow First Recorded: - Last Recorded: 31-Dec-1951

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

0

Database searched and no data found.

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

1

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

ID	Distance (m)	Direction	NGR	Site Address	Source	Data Type
Not shown	1104	E	518533 177894	184 Holland Gardens, Brentford	Hounslow Borough Coucil	Point

3.2 Other Waste Sites

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

0

Database searched and no data found.

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

13

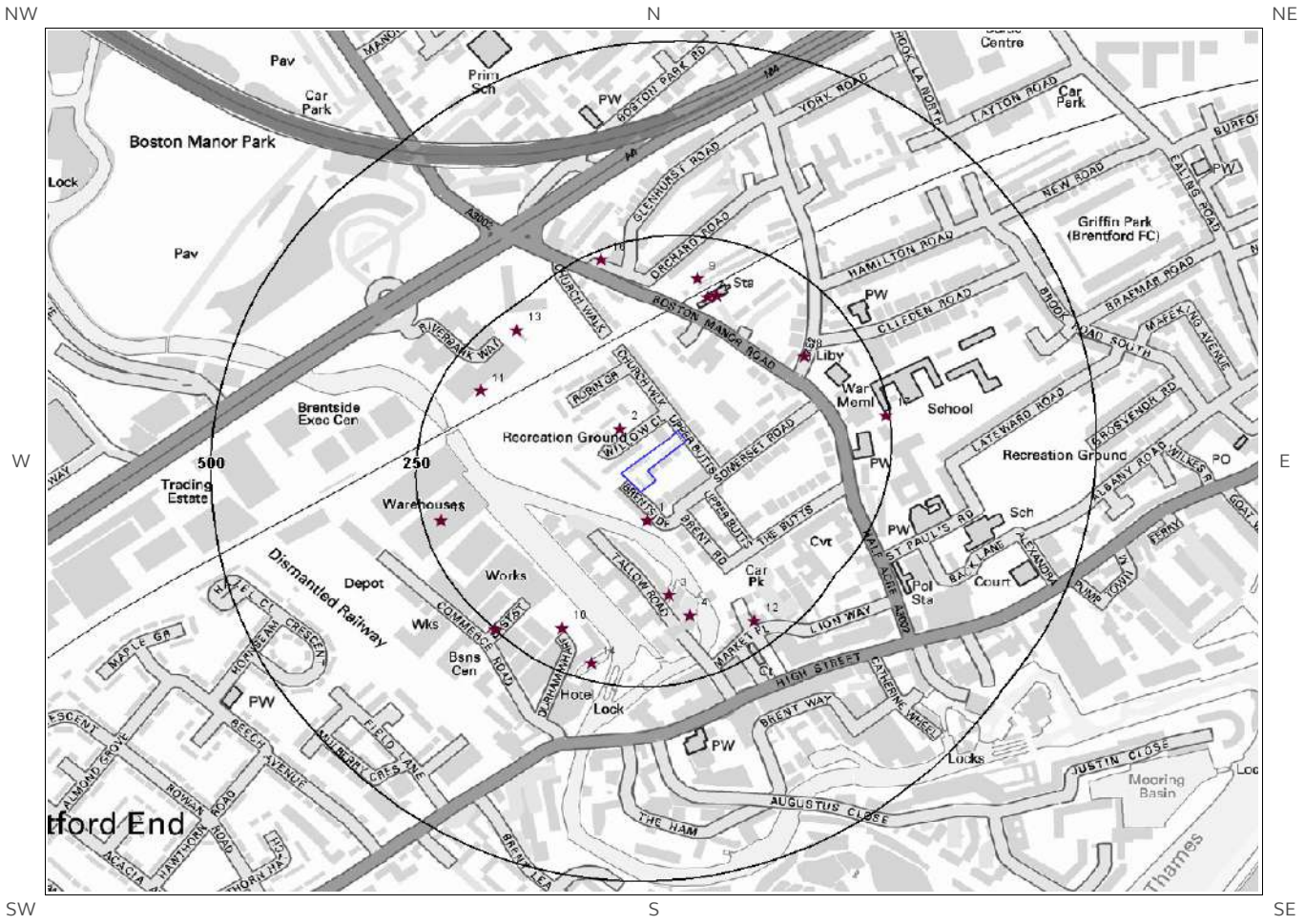
The following waste treatment, transfer or disposal sites records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details	
10A	705	W	516659 177795	Site Address: Transport Avenue Transfer Station, Transport Avenue, Off Great West Road, Brentford, Middlesex, TW8 9HF Type: Household, Commercial & Industrial Waste T Stn Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WES002 EPR reference: EA/EPR/RP3496NV/A001 Operator: West London Waste Authority Waste Management licence No: 80077 Annual Tonnage: 552975.0	Issue Date: 20/04/1993 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Transport Avenue Transfer Station Correspondence Address: -
11A	705	W	516659 177795	Site Address: Transport Avenue Transfer Station, Transport Avenue, Off Great West Road, Brentford, Middlesex, TW8 9HF Type: Household, Commercial & Industrial Waste T Stn Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SIT773 EPR reference: EA/EPR/AB3709CF/V002 Operator: Sita U K Ltd Waste Management licence No: 80077 Annual Tonnage: 432840.0	Issue Date: 20/04/1993 Effective Date: 19/01/2014 Modified: 25/11/2014 Surrendered Date: 0 Expiry Date: - Cancelled Date: - Status: Modified Site Name: Transport Avenue Transfer Station Correspondence Address: -
Not shown	750	W	516604 177743	Site Address: Initial Washrooms (Brentford) Service Centre, Unit 8, Amalgamated Drive, West Cross Ind Park, Brentford, Middlesex, TW8 9EZ Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: REN041 EPR reference: EA/EPR/DB3800XR/V003 Operator: Rentokil Initial U K Ltd Waste Management licence No: 100044 Annual Tonnage: 4999.0	Issue Date: 09/09/2007 Effective Date: 01/02/2016 Modified: 08/06/2018 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Initial Washrooms (Brentford) Service Centre Correspondence Address: -
Not shown	750	W	516604 177743	Site Address: Unit 8, Amalgamated Drive, West Cross Ind Park, Brentford, Middlesex, TW8 9EZ Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes	Issue Date: 09/09/2007 Effective Date: 01/02/2016 Modified: 15/08/2014 Surrendered Date: - Expiry Date: - Cancelled Date: -

ID	Distance (m)	Direction	NGR	Details	
				Environmental Permitting Regulations (Waste) Licence Number: REN041 EPR reference: EA/EPR/DB3800XR/T001 Operator: Rentokil Initial U K Limited Waste Management licence No: 100044 Annual Tonnage: 4999.0	Status: Transferred Site Name: Brentford Service Centre Correspondence Address: -
Not shown	761	W	516595 177758	Site Address: Unit 8, Amalgamated Drive, West Cross Ind Park, Brentford, Middlesex, TW8 9EZ Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: REN005 EPR reference: EA/EPR/FP3395EE/V002 Operator: Rentokil Initial Services Ltd Waste Management licence No: 100044 Annual Tonnage: 4999.0	Issue Date: 09/09/2007 Effective Date: - Modified: 31/03/2010 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Brentford Service Centre Correspondence Address: -
Not shown	761	W	516595 177758	Site Address: Unit 8, Amalgamated Drive, West Cross Ind Park, Brentford, Middlesex, TW8 9EZ Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: REN005 EPR reference: EA/EPR/FP3395EE/V003 Operator: Rentokil Initial Services Limited Waste Management licence No: 100044 Annual Tonnage: 4999.0	Issue Date: 09/09/2007 Effective Date: - Modified: 15/08/2014 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Brentford Service Centre Correspondence Address: -
Not shown	967	NW	516496 178096	Site Address: Transport Avenue, Brentford, Middlesex, TW8 9HF Type: Mobile plant treatment for soil <75,000 tpd Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: DAY057 EPR reference: EA/EPR/DB3639DV/A001 Operator: Day Group Limited Waste Management licence No: 105269 Annual Tonnage: 74999.0	Issue Date: 16/12/2011 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: S R 2010 No 11 Correspondence Address: -
Not shown	970	NW	516454 178016	Site Address: Transport Avenue Transfer Station, Transport Avenue, Off Great West Road, Brentford, Middlesex, TW8 9HF Type: Household, Commercial & Industrial Waste T Stn Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SIT773 EPR reference: EA/EPR/AB3709CF/V003 Operator: Suez Recycling And Recovery U K Ltd Waste Management licence No: 80077 Annual Tonnage: 432840.0	Issue Date: 20/04/1993 Effective Date: 19/01/2014 Modified: 30/06/2016 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Transport Avenue Transfer Station Correspondence Address: -
Not shown	1000	NW	516490 178152	Site Address: Brentford Aggregate Materials Recycling Facility, Transport Avenue, Brentford, Middlesex, TW8 9HF Type: Material Recycling Treatment Facility Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: DAY051 EPR reference: EA/EPR/BB3232RX/A001 Operator: Day Group Ltd Waste Management licence No: 103193 Annual Tonnage: 775000.0	Issue Date: 31/05/2012 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Brentford Aggregate Materials Recycling Facility Correspondence Address: -

ID	Distance (m)	Direction	NGR	Details	
Not shown	1141	NW	516323 178140	Site Address: Mayer Parry Brentford, Private Sidings, Transport Avenue, Brentford, Middlesex, TW8 9HA Type: Metal Recycling Site (mixed MRS's) Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MAY003 EPR reference: EA/EPR/YP3091NU/V002 Operator: Mayer Parry Recycling Ltd Waste Management licence No: 80370 Annual Tonnage: 74999.0	Issue Date: 28/07/1998 Effective Date: - Modified: 11/12/2009 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Mayer Parry, Brentford Correspondence Address: -
Not shown	1189	NW	516300 178200	Site Address: Mayer Parry Brentford, Private Sidings, Transport Avenue, Brentford, Middx, TW8 9HA Type: Metal Recycling Site (mixed MRS's) Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MAY003 EPR reference: - Operator: Mayer Parry Recycling Ltd Waste Management licence No: 80370 Annual Tonnage: 0.0	Issue Date: 28/07/1998 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Mayer Parry, Brentford Correspondence Address: Mayer Parry Recycling Ltd, Manor Road, Erith, Kent, DA8 2AD
Not shown	1201	NW	516294 178213	Site Address: Brentford Aggregate Materials Recycling Facility, Transport Avenue, Brentford, Middlesex, TW8 9HF Type: Material Recycling Treatment Facility Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: DAY051 EPR reference: EA/EPR/BB3232RX/V004 Operator: Day Group Limited Waste Management licence No: 103193 Annual Tonnage: 500000.0	Issue Date: 31/05/2012 Effective Date: - Modified: 15/03/2018 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Brentford Aggregate Materials Recycling Facility Correspondence Address: -
Not shown	1403	SE	518229 176501	Site Address: The Royal Botanic Gardens, Kew, Richmond, Surrey, TW9 3AB Type: Composting Facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ROY066 EPR reference: EA/EPR/HB3437RS/A001 Operator: The Royal Botanic Gardens, Kew Waste Management licence No: 104315 Annual Tonnage: 999.0	Issue Date: 31/08/2012 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: The Royal Botanic Gardens, Kew Correspondence Address: -

4. Current Land Use Map



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Site Outline

Search Buffers (m)
250
500

Current Industrial Sites

Petrol & Fuel Sites

Electricity Transmission Cables

Gas Transmission Pipelines

4. Current Land Uses

4.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site: 18

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	36	S	Verisure Smart Alarms	517378 177574	Unit 1 Brent Side Park, Brentford, Greater London, TW8 8BS	Electronic Equipment	Industrial Products
2	47	NW	Electricity Sub Station	517344 177692	Greater London, TW8	Electrical Features	Infrastructure and Facilities
3	136	S	Dock	517404 177478	Greater London, TW8	Marine Equipment Including Boats and Ships	Industrial Products
4	168	S	Electricity Sub Station	517429 177452	Greater London, TW8	Electrical Features	Infrastructure and Facilities
5A	175	N	Brentford Rail Station	517451 177861	Greater London, TW8	Railway Stations, Junctions and Halts	Public Transport, Stations and Infrastructure
6A	180	N	Elite Airport Cars	517462 177863	Station House, Boston Manor Road, Brentford, Greater London, TW8 8DT	Airlines and Airline Services	Transport, Storage and Delivery
7A	181	N	Brentford Express Cars	517462 177864	Station House, Boston Manor Road, Brentford, Greater London, TW8 8DT	Airlines and Airline Services	Transport, Storage and Delivery
8	181	NE	Electricity Sub Station	517569 177785	Greater London, TW8	Electrical Features	Infrastructure and Facilities
9	197	N	Depot	517439 177885	Greater London, TW8	Container and Storage	Transport, Storage and Delivery
10	198	SW	Electricity Sub Station	517274 177436	Greater London, TW8	Electrical Features	Infrastructure and Facilities
11	202	NW	Electricity Sub Station	517175 177741	Greater London, TW8	Electrical Features	Infrastructure and Facilities
12	215	SE	Works	517508 177445	Greater London, TW8	Unspecified Works Or Factories	Industrial Features
13	224	NW	Electricity Sub Station	517219 177819	Greater London, TW8	Electrical Features	Infrastructure and Facilities
14	227	S	Dock	517310 177390	Greater London, TW8	Marine Equipment Including Boats and Ships	Industrial Products
15	228	W	Warehouse	517126 177574	Greater London, TW8	Container and Storage	Transport, Storage and Delivery
16	239	NW	Tank	517321 177909	Greater London, TW8	Tanks (Generic)	Industrial Features
17	245	E	Electricity Sub Station	517668 177709	Greater London, TW8	Electrical Features	Infrastructure and Facilities
18	250	SW	Vision Traders Ltd	517192 177434	Unit 5 Commerce Road, Brentford, Greater London, TW8 8LE	New Vehicles	Motoring

4.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site: 0

Database searched and no data found.

4.3 National Grid High Voltage Underground Electricity Transmission Cables

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

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

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

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

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

Database searched and no data found.

5. Geology

5.1 Artificial Ground and Made Ground

Database searched and no data found.

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

5.2 Superficial Ground and Drift Geology

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

Lex Code	Description	Rock Type
KPGR-XSV	KEMPTON PARK GRAVEL MEMBER	SAND AND GRAVEL
ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL

5.3 Bedrock and Solid Geology

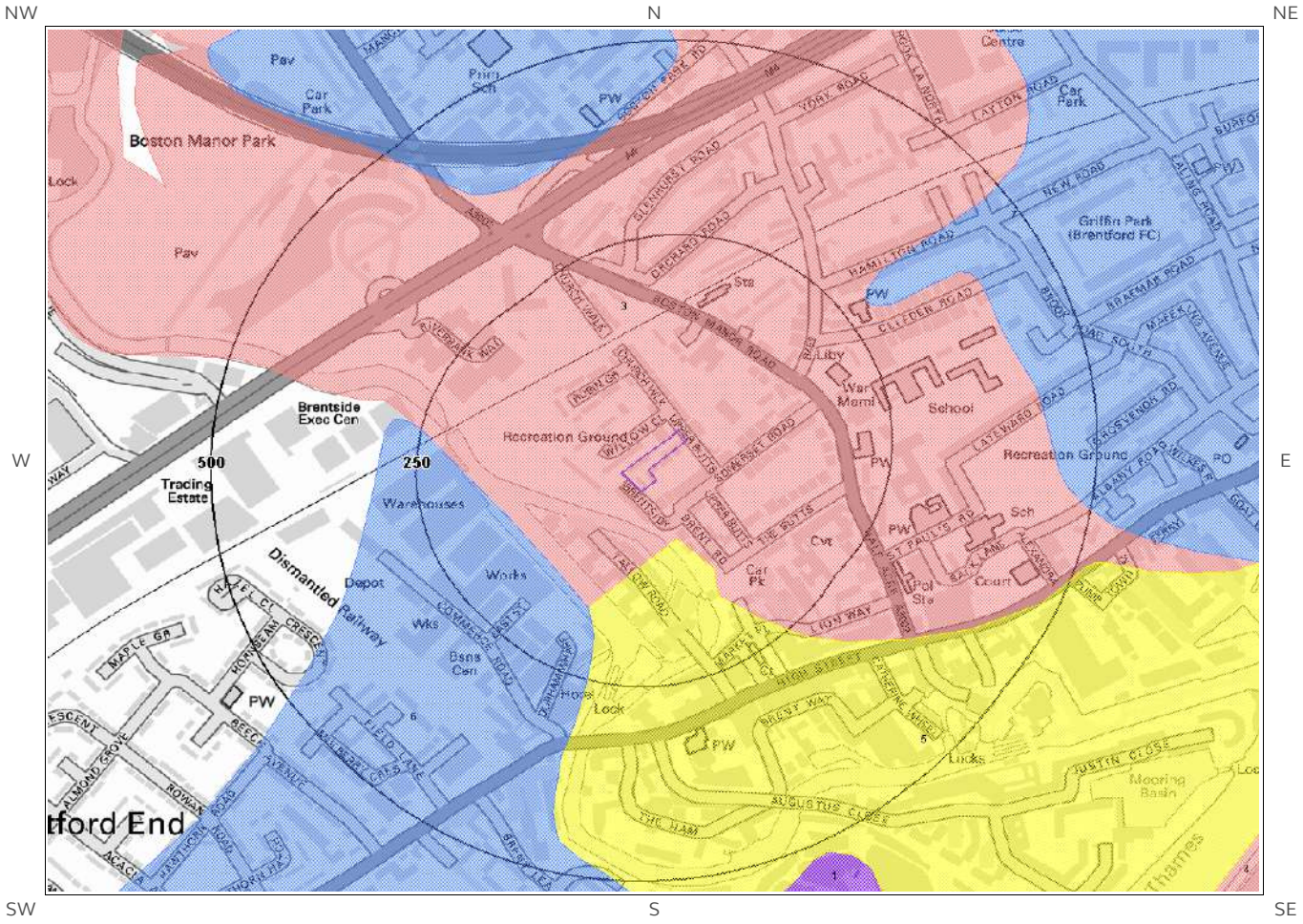
The database has been searched on site, including a 50m buffer.

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

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

6 Hydrogeology and Hydrology

6a. Aquifer Within Superficial Geology



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Site Outline

250
500
Search Buffers (m)

Principal Aquifer

Secondary (A) Aquifer - Permeable Layers

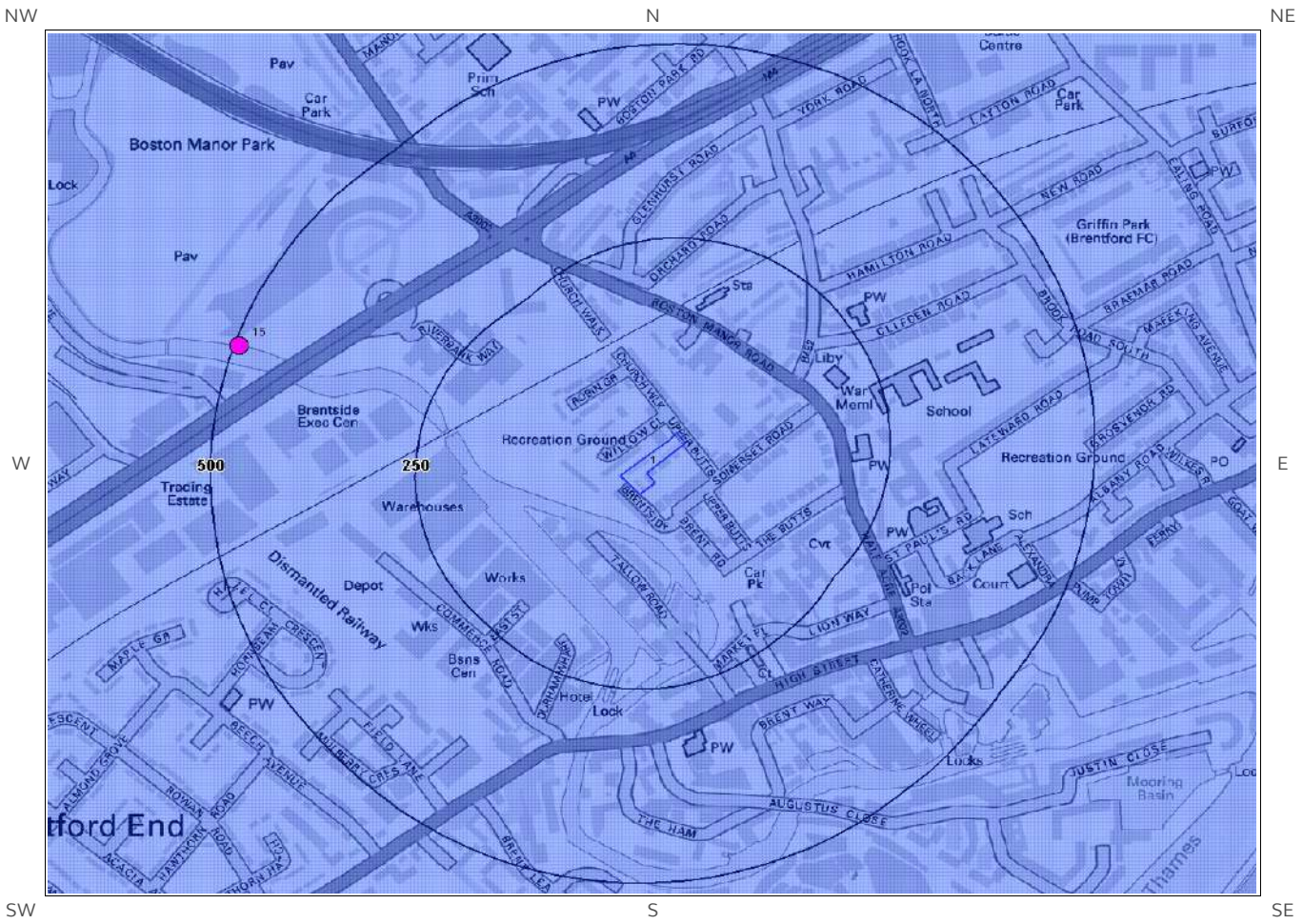
Secondary (B) Aquifer - Lower Permeability Layers

Secondary Aquifer - Undifferentiated Layers

Unproductive

Unknown (lakes and landslip)

6b. Aquifer Within Bedrock Geology and Abstraction Licences



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Site Outline

250
500
Search Buffers (m)

Principal Aquifer

Secondary (A) Aquifer - Permeable Layers

Secondary (B) Aquifer - Lower Permeability Layers

Groundwater Abstraction Licence

Secondary Aquifer - Undifferentiated Layers

Unproductive

Unknown (lakes and landslip)

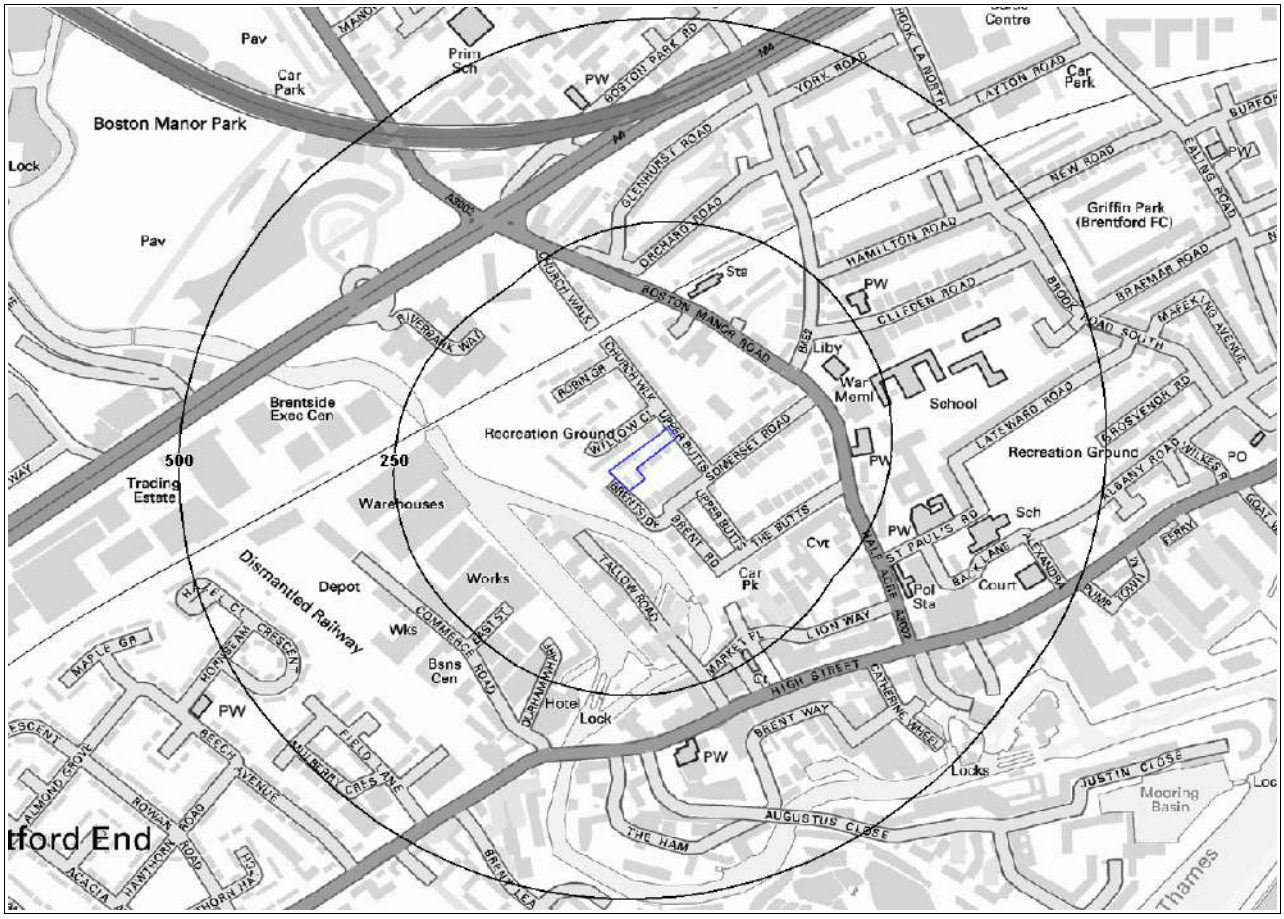
Surface Water Abstraction Licence

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

NW N NE

W E

SW S SE



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Site Outline

250 500 Search Buffers (m)

Source Protection Zone 1 - Inner Catchment

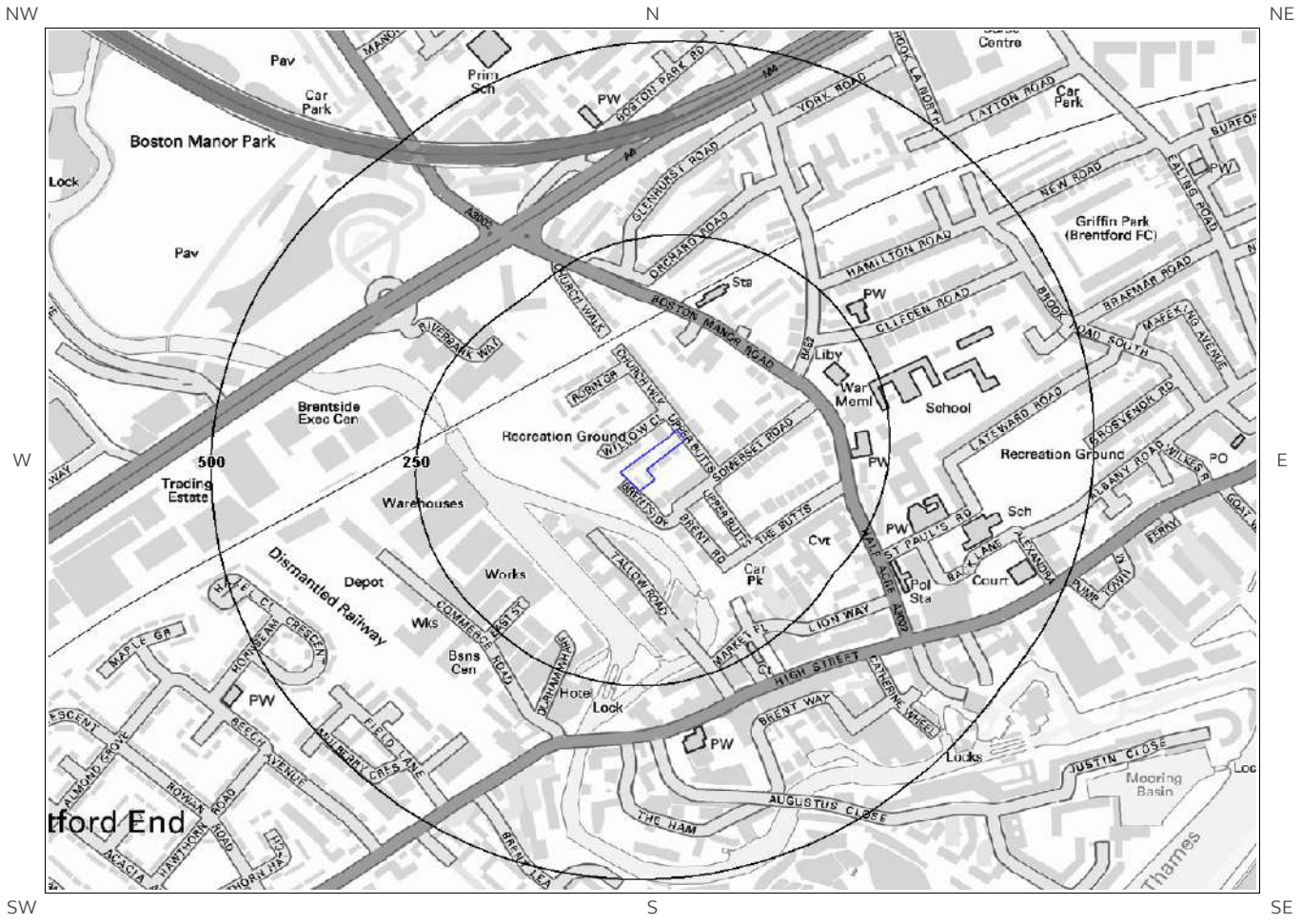
Source Protection Zone 2 - Outer Catchment

Source Protection Zone 3 - Total Catchment

Source Protection Zone 4 - Zone of Special Interest

Potable Water Abstraction Licence

6d. Hydrogeology – Source Protection Zones within confined aquifer



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Site Outline

250 Search Buffers (m)
500

Source Protection Zone 1 - Inner Catchment

Source Protection Zone 2C - Outer Catchment within Confined Aquifer

Source Protection Zone 3C - Total Catchment within Confined Aquifer

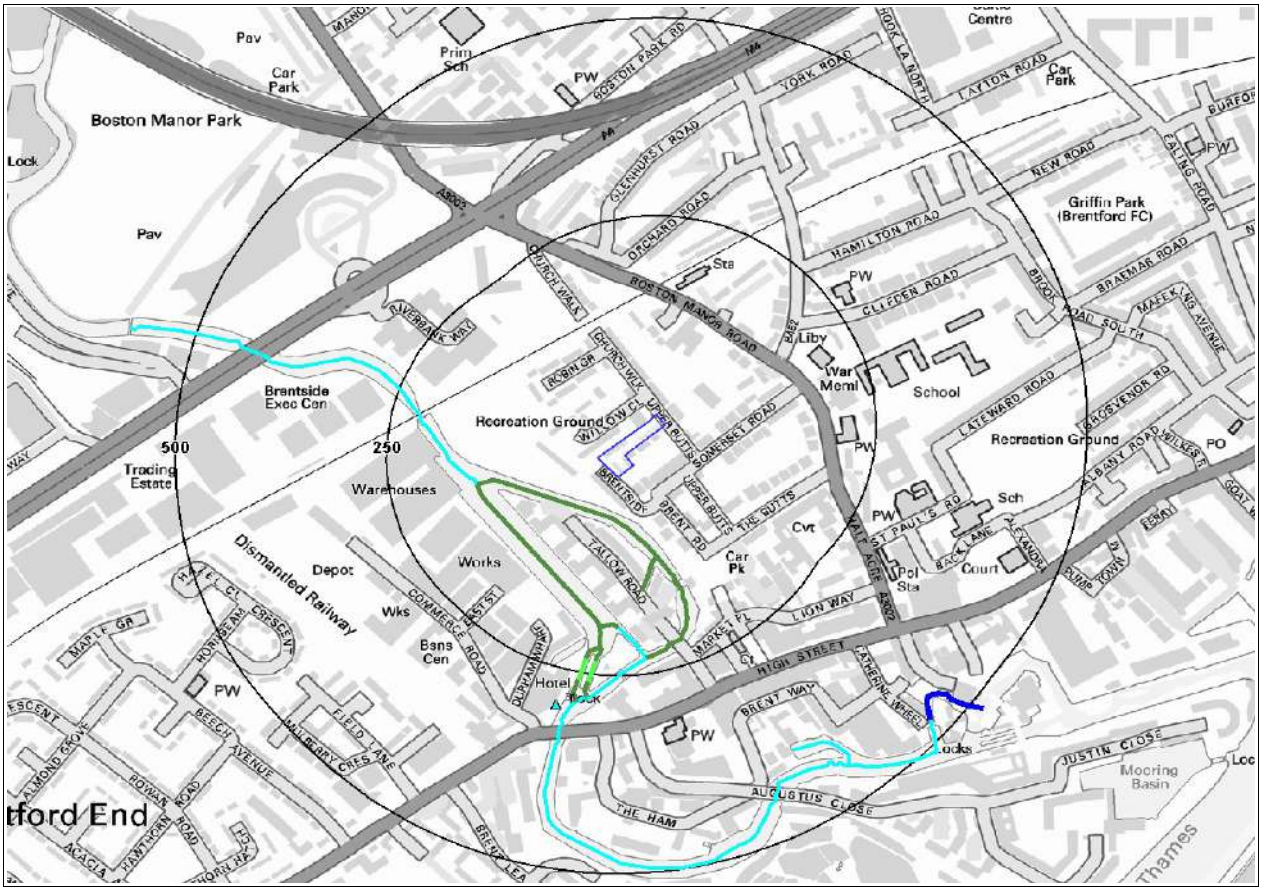
Potable Water Abstraction Licence

6e. Hydrology – Watercourse Network and River Quality

NW N NE

W E

SW S SE



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Site Outline

250 Search Buffers (m)
500

Watercourse type

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

Watercourse level

- On ground surface
- Underground or Elevated
- Level unknown

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

6.Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

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

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

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

ID	Distance (m)	Direction	Designation	Description
3	0	On Site	Secondary 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
5	74	SE	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
6	142	SW	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
7	282	NE	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

6.2 Aquifer within Bedrock Deposits

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

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

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

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

6.3 Groundwater Abstraction Licences

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

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

ID	Distance (m)	Direction	NGR	Details	
Not shown	713	SW	517000 177000	Status: Active Licence No: 28/39/37/0005 Details: Horticultural Watering Direct Source: THAMES GROUNDWATER Point: BOREHOLE 'A' AT SYON PARK, BRENTFORD Data Type: Point Name: Trustees Of Syon Park Estate	Annual Volume (m^3): 9092 Max Daily Volume (m^3): 218.2 Original Application No: - Original Start Date: 29/07/1982 Expiry Date: - Issue No: 102 Version Start Date: 28/09/2010 Version End Date:
Not shown	713	SW	517000 177000	Status: Active Licence No: 28/39/37/0005 Details: Spray Irrigation - Direct Direct Source: THAMES GROUNDWATER Point: BOREHOLE 'A' AT SYON PARK, BRENTFORD Data Type: Point Name: Trustees Of Syon Park Estate	Annual Volume (m^3): 9092 Max Daily Volume (m^3): 218.2 Original Application No: - Original Start Date: 29/07/1982 Expiry Date: - Issue No: 102 Version Start Date: 28/09/2010 Version End Date:
Not shown	948	S	517100 176700	Status: Active Licence No: 28/39/37/0005 Details: Horticultural Watering Direct Source: THAMES GROUNDWATER Point: BOREHOLE 'B' AT SYON PARK, BRENTFORD Data Type: Point Name: Trustees Of Syon Park Estate	Annual Volume (m^3): 9092 Max Daily Volume (m^3): 218.2 Original Application No: - Original Start Date: 29/07/1982 Expiry Date: - Issue No: 102 Version Start Date: 28/09/2010 Version End Date:
Not shown	948	S	517100 176700	Status: Active Licence No: 28/39/37/0005 Details: Spray Irrigation - Direct Direct Source: THAMES GROUNDWATER Point: BOREHOLE 'B' AT SYON PARK, BRENTFORD Data Type: Point Name: Trustees Of Syon Park Estate	Annual Volume (m^3): 9092 Max Daily Volume (m^3): 218.2 Original Application No: - Original Start Date: 29/07/1982 Expiry Date: - Issue No: 102 Version Start Date: 28/09/2010 Version End Date:
Not shown	1218	E	518643 177669	Status: Active Licence No: TH/039/0035/001/R01 Details: Heat Pump Direct Source: THAMES GROUNDWATER Point: KEW GARDENS, RICHMOND - BOREHOLE (3) Data Type: Point Name: THE BOARD OF TRUSTEES OF THE ROYAL BOTANIC GARDENS, KEW	Annual Volume (m^3): 124300 Max Daily Volume (m^3): 380 Original Application No: - Original Start Date: 19/05/2016 Expiry Date: 31/03/2022 Issue No: 1 Version Start Date: 19/05/2016 Version End Date:
Not shown	1218	E	518643 177669	Status: Historical Licence No: TH/039/0035/001 Details: Heat Pump Direct Source: THAMES GROUNDWATER Point: KEW GARDENS, RICHMOND - BOREHOLE (3) Data Type: Point Name: THE BOARD OF TRUSTEES OF THE ROYAL BOTANIC GARDENS, KEW	Annual Volume (m^3): 124300 Max Daily Volume (m^3): 380 Original Application No: - Original Start Date: 26/05/2009 Expiry Date: 31/03/2016 Issue No: 1 Version Start Date: 10/07/2014 Version End Date:

ID	Distance (m)	Direction	NGR	Details	
Not shown	1224	E	518649 177670	Status: Historical Licence No: TH/039/0035/001 Details: Heat Pump Direct Source: THAMES GROUNDWATER Point: KEW GARDENS, RICHMOND - BOREHOLE (2) Data Type: Point Name: THE BOARD OF TRUSTEES OF THE ROYAL BOTANIC GARDENS, KEW	Annual Volume (m^3): 124300 Max Daily Volume (m^3): 380 Original Application No: - Original Start Date: 26/05/2009 Expiry Date: 31/03/2016 Issue No: 1 Version Start Date: 10/07/2014 Version End Date:
Not shown	1224	E	518649 177670	Status: Active Licence No: TH/039/0035/001/R01 Details: Heat Pump Direct Source: THAMES GROUNDWATER Point: KEW GARDENS, RICHMOND - BOREHOLE (2) Data Type: Point Name: THE BOARD OF TRUSTEES OF THE ROYAL BOTANIC GARDENS, KEW	Annual Volume (m^3): 124300 Max Daily Volume (m^3): 380 Original Application No: - Original Start Date: 19/05/2016 Expiry Date: 31/03/2022 Issue No: 1 Version Start Date: 19/05/2016 Version End Date:
Not shown	1240	E	518665 177680	Status: Historical Licence No: TH/039/0035/001 Details: Heat Pump Direct Source: THAMES GROUNDWATER Point: KEW GARDENS, RICHMOND - BOREHOLE (1) Data Type: Point Name: THE BOARD OF TRUSTEES OF THE ROYAL BOTANIC GARDENS, KEW	Annual Volume (m^3): 124300 Max Daily Volume (m^3): 380 Original Application No: - Original Start Date: 26/05/2009 Expiry Date: 31/03/2016 Issue No: 1 Version Start Date: 10/07/2014 Version End Date:
Not shown	1240	E	518665 177680	Status: Active Licence No: TH/039/0035/001/R01 Details: Heat Pump Direct Source: THAMES GROUNDWATER Point: KEW GARDENS, RICHMOND - BOREHOLE (1) Data Type: Point Name: THE BOARD OF TRUSTEES OF THE ROYAL BOTANIC GARDENS, KEW	Annual Volume (m^3): 124300 Max Daily Volume (m^3): 380 Original Application No: - Original Start Date: 19/05/2016 Expiry Date: 31/03/2022 Issue No: 1 Version Start Date: 19/05/2016 Version End Date:
Not shown	1862	S	517460 175750	Status: Historical Licence No: 28/39/35/0006 Details: Spray Irrigation - Direct Direct Source: THAMES GROUNDWATER Point: GRAVEL AT ROYAL MID SURREY GOLF CLUB, RICHMOND Data Type: Line Name: ROYAL MID SURREY GOLF CLUB	Annual Volume (m^3): 43000 Max Daily Volume (m^3): 480 Original Application No: - Original Start Date: 28/03/1996 Expiry Date: - Issue No: 100 Version Start Date: 28/03/1996 Version End Date:
Not shown	1862	S	517460 175750	Status: Active Licence No: 28/39/35/0006 Details: Spray Irrigation - Direct Direct Source: THAMES GROUNDWATER Point: BOREHOLE A GRAVEL AT ROYAL MID SURREY GOLF CLUB, RICHMOND Data Type: Point Name: ROYAL MID SURREY GOLF CLUB	Annual Volume (m^3): 43000 Max Daily Volume (m^3): 480 Original Application No: - Original Start Date: 28/03/1996 Expiry Date: - Issue No: 100 Version Start Date: 28/03/1996 Version End Date:
Not shown	1911	S	517450 175700	Status: Active Licence No: 28/39/35/0006 Details: Spray Irrigation - Direct Direct Source: THAMES GROUNDWATER Point: BOREHOLE B GRAVEL AT ROYAL MID SURREY GOLF CLUB, RICHMOND Data Type: Point Name: ROYAL MID SURREY GOLF CLUB	Annual Volume (m^3): 43000 Max Daily Volume (m^3): 480 Original Application No: - Original Start Date: 28/03/1996 Expiry Date: - Issue No: 100 Version Start Date: 28/03/1996 Version End Date:

6.4 Surface Water Abstraction Licences

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

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

ID	Distance (m)	Direction	NGR	Details	
15	495	W	516880 177800	Status: Active Licence No: 28/39/36/0074 Details: Non-Evaporative Cooling Direct Source: THAMES SURFACE WATER - NON TIDAL Point: 980 GREAT WESTERN ROAD, BRENTFORD- RIVER BRENT Data Type: Point Name: Canal and River Trust	Annual Volume (m^3): 876000 Max Daily Volume (m^3): 2400 Application No: - Original Start Date: 03/09/2007 Expiry Date: 31/03/2025 Issue No: 2 Version Start Date: 17/12/2007 Version End Date:
Not shown	1338	NW	516180 178290	Status: Historical Licence No: 28/39/38/0039 Details: Dust Suppression Direct Source: THAMES SURFACE WATER - NON TIDAL Point: GRAND UNION CANAL AT BRENTFORD, MIDDLESEX Data Type: Point Name: BRITISH WATERWAYS BOARD	Annual Volume (m^3): 20000 Max Daily Volume (m^3): 100 Application No: - Original Start Date: 21/04/1999 Expiry Date: 31/12/2009 Issue No: 101 Version Start Date: 17/12/2007 Version End Date:
Not shown	1338	NW	516180 178290	Status: Active Licence No: TH/039/0038/004 Details: Dust Suppression Direct Source: THAMES SURFACE WATER - NON TIDAL Point: GRAND UNION CANAL AT BRENTFORD, MIDDLESEX Data Type: Point Name: Canal and River Trust	Annual Volume (m^3): 20000 Max Daily Volume (m^3): 100 Application No: - Original Start Date: 25/05/2010 Expiry Date: 31/03/2019 Issue No: 1 Version Start Date: 25/05/2010 Version End Date:

6.5 Potable Water Abstraction Licences

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

Database searched and no data found.

6.6 Source Protection Zones

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

Database searched and no data found.

6.7 Source Protection Zones within Confined Aquifer

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

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

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

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

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

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	838	E	518210 177380	River Name: Grand Union Canal (brent) Reach: Wyke Stream - Tideway End/Start of Stretch: End of Stretch NGR	D	D	E	E	E
Not shown	1415	NW	516120 178340	River Name: Grand Union Canal (brent) Reach: Wyke Stream - Tideway End/Start of Stretch: Start of Stretch NGR	D	D	E	E	E
Not shown	1415	NW	516120 178340	River Name: Brent Reach: Costons Brook - Wyke Stream End/Start of Stretch: End of Stretch NGR	E	E	E	E	E

6.9.2 Chemical Quality:

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

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

ID	Distance (m)	Direction	NGR	River Quality Grade	Chemical Quality Grade				
					2005	2006	2007	2008	2009
31	297	S	517297 177321	River Name: Brent Reach: Wyke Stream - Tideway End/Start of Stretch: Sample Point NGR	C	C	C	D	D
Not shown	838	E	518210 177380	River Name: Brent Reach: Wyke Stream - Tideway End/Start of Stretch: End of Stretch NGR	C	C	C	D	D
Not shown	1415	NW	516120 178340	River Name: Brent Reach: Wyke Stream - Tideway End/Start of Stretch: Start of Stretch NGR	C	C	C	D	D

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	50 S	River Brent	Canal. A manmade watercourse for inland navigation.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 14.6
56	50 S	River Brent	Canal. A manmade watercourse for inland navigation.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 14.6
2	111 SE	-	Canal. A manmade watercourse for inland navigation.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 14.6
3	111 SE	River Brent	Canal. A manmade watercourse for inland navigation.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 14.5
57	111 SE	-	Canal. A manmade watercourse for inland navigation.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 14.6
58	111 SE	River Brent	Canal. A manmade watercourse for inland navigation.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 14.5
4	136 SW	Grand Union Canal	Canal. A manmade watercourse for inland navigation.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 36.8
59	136 SW	Grand Union Canal	Canal. A manmade watercourse for inland navigation.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 36.8
5	147 W	Grand Union Canal	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 20.8

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
60	147 W	Grand Union Canal	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 20.8
6	185 S	Grand Union Canal	Canal. A manmade watercourse for inland navigation.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 8.1
61	185 S	Grand Union Canal	Canal. A manmade watercourse for inland navigation.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 8.1
7	190 S	Grand Union Canal	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 8.1
62	190 S	Grand Union Canal	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 8.1
8	191 S	Grand Union Canal	Canal. A manmade watercourse for inland navigation.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 31.8
63	191 S	Grand Union Canal	Canal. A manmade watercourse for inland navigation.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 31.8
9	213 W	Grand Union Canal	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 15.5
64	213 W	Grand Union Canal	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 15.5
10	216 S	Grand Union Canal	Canal. A manmade watercourse for inland navigation.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 6.8
11	216 S	Grand Union Canal	Canal. A manmade watercourse for inland navigation.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 7.6
65	216 S	Grand Union Canal	Canal. A manmade watercourse for inland navigation.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 6.8
66	216	Grand Union Canal	Canal. A manmade watercourse for inland	Catchment Area: Thames Relationship to Ground Level: On ground surface

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	S		navigation.	Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 7.6
12	231 S	Grand Union Canal	Lock or flight of locks. An enclosure in a canal or navigable river with gates and sluices at either end.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 9.9
13	231 S	Grand Union Canal	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 15.1
67	231 S	Grand Union Canal	Lock or flight of locks. An enclosure in a canal or navigable river with gates and sluices at either end.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 9.9
68	231 S	Grand Union Canal	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 15.1
14	233 S	Grand Union Canal	Lock or flight of locks. An enclosure in a canal or navigable river with gates and sluices at either end.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 13.9
69	233 S	Grand Union Canal	Lock or flight of locks. An enclosure in a canal or navigable river with gates and sluices at either end.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 13.9
15	256 W	Grand Union Canal	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 22.9
70	256 W	Grand Union Canal	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 22.9
16	260 S	Grand Union Canal	Canal. A manmade watercourse for inland navigation.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.9
17	260 S	Grand Union Canal	Canal. A manmade watercourse for inland navigation.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.9
Not shown	260 S	Grand Union Canal	Canal. A manmade watercourse for inland navigation.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.9
72	260 S	Grand Union Canal	Canal. A manmade watercourse for inland navigation.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions)

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				Average Width in Watercourse Section (m): 10.9
18	281 S	Grand Union Canal	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 27.0
Not shown	281 S	Grand Union Canal	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 27.0
19	288 S	Grand Union Canal	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 19.8
Not shown	288 S	Grand Union Canal	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 19.8
20	402 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 17.9
Not shown	402 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 17.9
21	429 SE	Grand Union Canal	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 25.1
Not shown	429 SE	Grand Union Canal	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 25.1
22	445 SE	Grand Union Canal	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 17.5
Not shown	445 SE	Grand Union Canal	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 17.5
23	446 SE	Grand Union Canal	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	446 SE	Grand Union Canal	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
24	455 SE	River Brent	Tidal river or stream.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
25	455 SE	Grand Union Canal	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 24.4
Not shown	455 SE	River Brent	Tidal river or stream.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	455 SE	Grand Union Canal	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 24.4
26	476 SE	River Brent	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	476 SE	River Brent	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
27	477 SE	River Brent	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 12.7
Not shown	477 SE	River Brent	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 12.7

6.11 Surface Water Features

Surface water features within 250m of the study site Identified

The following surface water records are not represented on mapping:

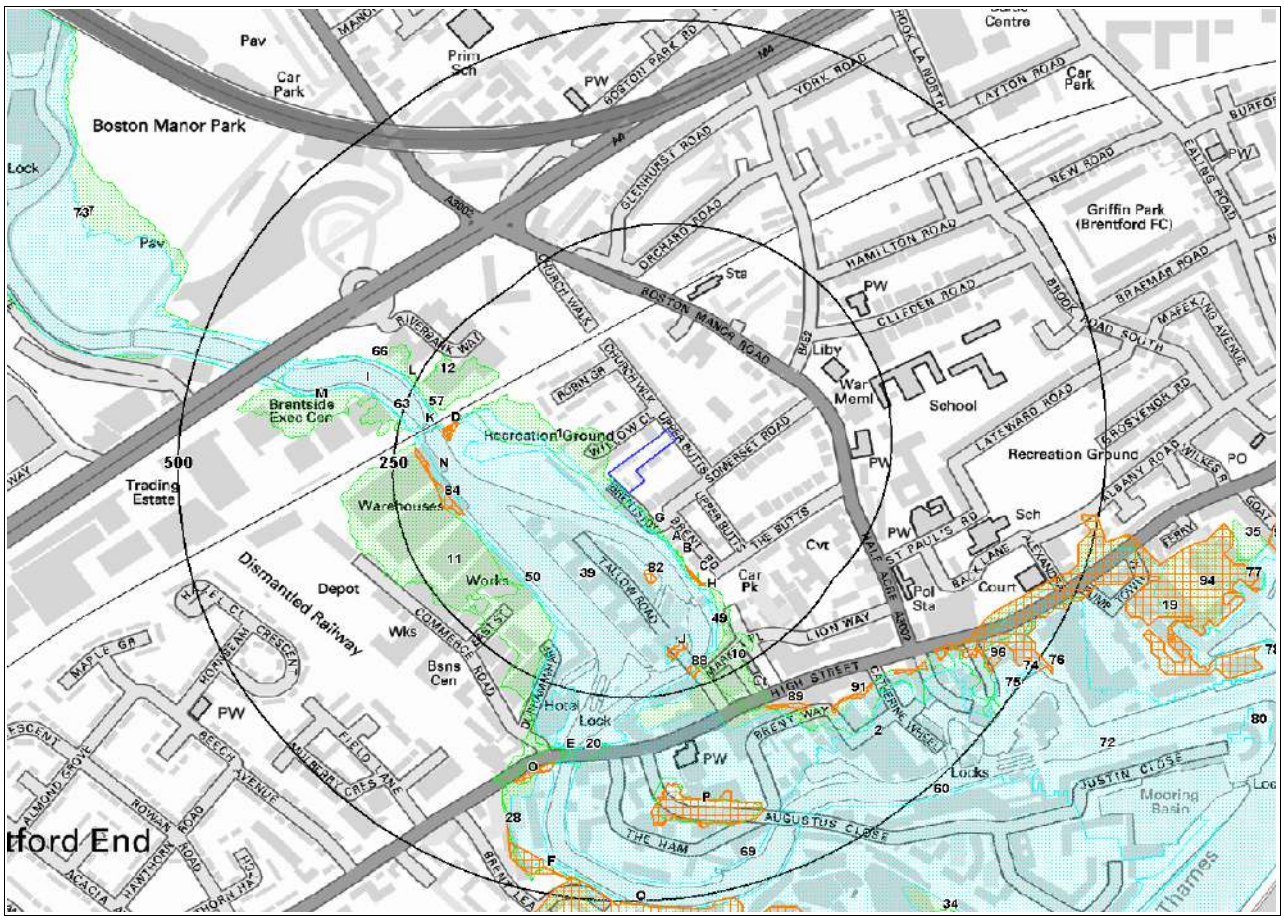
Distance (m)	Direction
42	SW
217	S
220	W

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

NW N NE

W E

SW S SE



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Site Outline

100
250
Search Buffers (m)

Zone 2 Floodplain

Zone 3 Floodplain

Flood Defences

Area used for Flood Storage

Area Benefiting from Flood Defences

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



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Site Outline

100
250
Search Buffers (m)

RoFRaS Rating

- Very Low
- Low
- Medium
- High

7 Flooding

7.1 River and Coastal Zone 2 Flooding

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

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

ID	Distance (m)	Direction	Update	Type
1	0	On Site	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
2	11	S	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
3G	24	SE	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
4A	77	SE	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
5A	85	SE	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
6B	94	SE	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
7B	105	SE	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
8C	126	SE	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
9C	132	SE	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
10	139	SE	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
11	165	SW	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
12	174	NW	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
13D	191	W	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
14D	196	W	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
15D	198	W	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
16K	207	W	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
17I	215	W	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)
18M	234	W	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)

7.2 River and Coastal Zone 3 Flooding

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

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

ID	Distance (m)	Direction	Update	Type
1	2	SW	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)
2	28	SW	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)
3G	61	SE	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)
4A	71	SE	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)
5A	97	SE	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)
6B	106	SE	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)
7B	114	SE	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)
8C	121	SE	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)
9C	125	SE	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)
10	131	SE	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)
11	138	SE	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)
12	157	SE	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)
13D	159	SW	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)
14D	161	SE	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)
15D	165	SW	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)
16K	185	S	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)
17I	189	SW	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)
18M	191	W	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)
	198	W	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)
	210	W	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)
	215	W	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)
	216	S	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)
	231	S	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)

234	W	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)
241	NW	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)
244	W	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)

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

Highest risk of flooding onsite — Medium

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 Medium (greater than 1 in 100 but less than 1 in 30) chance of flooding in any given year.

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

ID	Distance (m)	Direction	RoFRas flood Risk
1	0.0	On Site	Medium
2	9.0	S	Low
3	21.0	SW	High
4	49.0	W	Low

7.4 Flood Defences

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

Database searched and no data found.

7.5 Areas benefiting from Flood Defences

Areas benefiting from Flood Defences within 250m of the study site — Identified

7.6 Areas benefiting from Flood Storage

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

7.7 Groundwater Flooding Susceptibility Areas

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

Clearwater Flooding or Superficial Deposits Flooding — Superficial Deposits Flooding

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

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

Potential at Surface

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

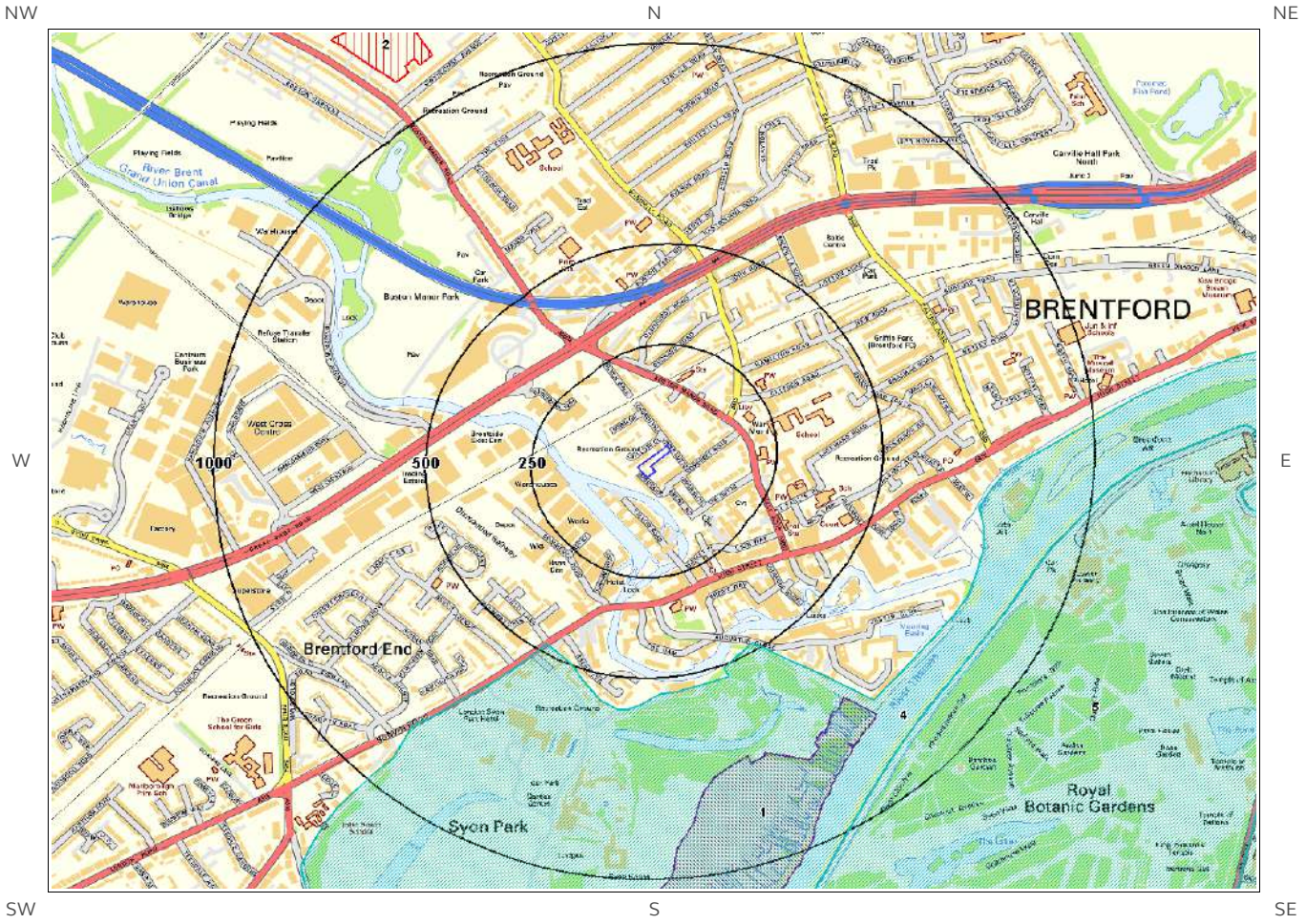
7.8 Groundwater Flooding Confidence Areas

British Geological Survey confidence rating in this result — Moderate

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

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

8. Designated Environmentally Sensitive Sites Map



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Site Outline

100
250
Search Buffers (m)

AONB
National Park
SSSI
Special Protection Areas
Nitrate Vulnerable Zones
Green Belt
Environmentally Sensitive Areas
Special Areas of Conservation
World Heritage Sites
Nitrate Sensitive Areas
Ancient Woodland
National Nature Reserve
Local Nature Reserves
Ramsar Sites

8. Designated Environmentally Sensitive Sites

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

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

1

The following Site of Special Scientific Interest (SSSI) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	SSSI Name	Data Source
1	718	SE	Syon Park	Natural England

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:

2

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

ID	Distance (m)	Direction	LNR Name	Data Source
2	1106	NW	Blondin Nature area	Natural England
Not shown	1731	S	Isleworth Ait	Natural England

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

2

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

ID	Distance (m)	Direction	World Heritage Site Name	Data Source
4	477	SW	Royal Botanic Gardens, Kew Buffer Zone	Historic England
5	869	SE	Royal Botanic Gardens, Kew	Historic England

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

9. Natural Hazards Findings

9.1 Detailed BGS GeoSure Data

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

9.1.1 Shrink Swell

Maximum Shrink-Swell* hazard rating identified on the study site — Moderate

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

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

9.1.2 Landslides

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

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

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

9.1.3 Soluble Rocks

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

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

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

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

9.1.4 Compressible Ground

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

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

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

9.1.5 Collapsible Rocks

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

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

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

9.1.6 Running Sand

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

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

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

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

9.2 Radon

9.2.1 Radon Affected Areas

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

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

9.2.2 Radon Protection

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

10. Mining

10.1 Coal Mining

Coal mining areas within 75m of the study site — 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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https://www.groundsure.com/terms-and-conditions-feb11-2019

Arcadis Consulting UK Ltd

PO Box, 307,
MANCHESTER, M60 3NT

Groundsure Reference:	GS-5910829
Your Reference:	14023929_
Report Date	28 Mar 2019
Report Delivery Method:	Email - pdf

Geo Insight

Address: GARAGE BLOCK OPPOSITE 14 AND 16 BRENTSIDE, BRENTFORD, TW8 8BS

Dear Sir/ Madam,

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

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

Yours faithfully,



Managing Director
Groundsure Limited

Enc.
Groundsure Geo Insight

Geo Insight

Address:	**GARAGE BLOCK OPPOSITE 14 AND 16 BRENTSIDE, BRENTFORD, TW8 8BS**
Date:	**28 Mar 2019**
Reference:	**GS-5910829**
Client:	**Arcadis Consulting UK Ltd**

NW N NE

W E



SW S SE

Aerial Photograph Capture date:	20-Apr-2015
Grid Reference:	517380,177651
Site Size:	0.1850ha

Groundsure
LOCATION INTELLIGENCE

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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 landslip within 500m of the study site boundary at 1:10,000 scale?	No
1.3 Bedrock, Solid Geology and linear features	1.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	1.3.2 Are there any records of linear features within 500m of the study site boundary at 1:10,000 scale?	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 landslip within 500m of the study site boundary?	No
	2.2.4 Are there any records relating to permeability of landslips within the study site* boundary?	No

Section 2: Geology 1:50,000 Scale

2.3 Bedrock, Solid Geology and linear features	2.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	2.3.2 Are there any records relating to permeability of bedrock ground within the study site boundary?	Yes
	2.3.3 Are there any records of linear features within 500m of the study site boundary?	No

Section 3: Radon

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

Section 4: Ground Workings	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	0	4	12	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	3

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

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

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

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

Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250
8 Records of Background Soil Chemistry	1	1	0

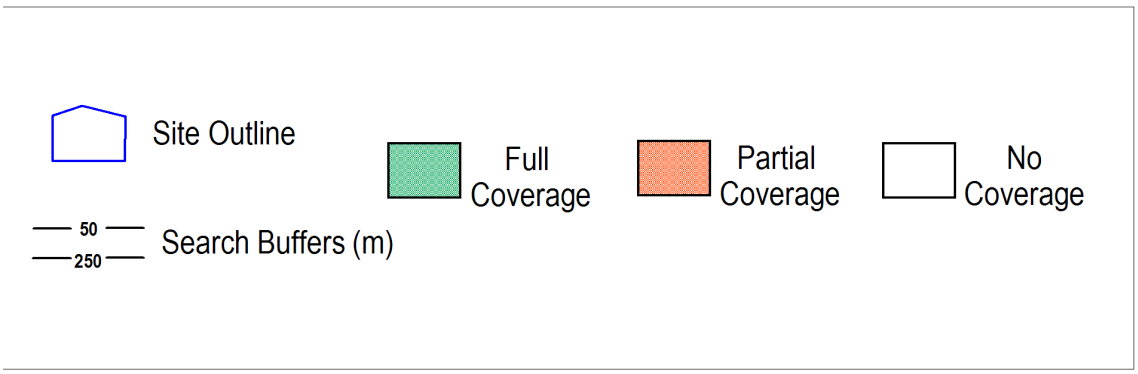
Section 9: Railways and Tunnels	On-site	0-50m	51-250	250-500
9.1 Tunnels	0	0	0	Not Searched
9.2 Historical Railway and Tunnel Features	0	0	30	Not Searched
9.3 Historical Railways	0	0	0	Not Searched
9.4 Active Railways	0	0	14	Not Searched
9.5 Railway Projects	0	0	0	0

1:10,000 Scale Availability



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1_10,000 Availability Legend



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

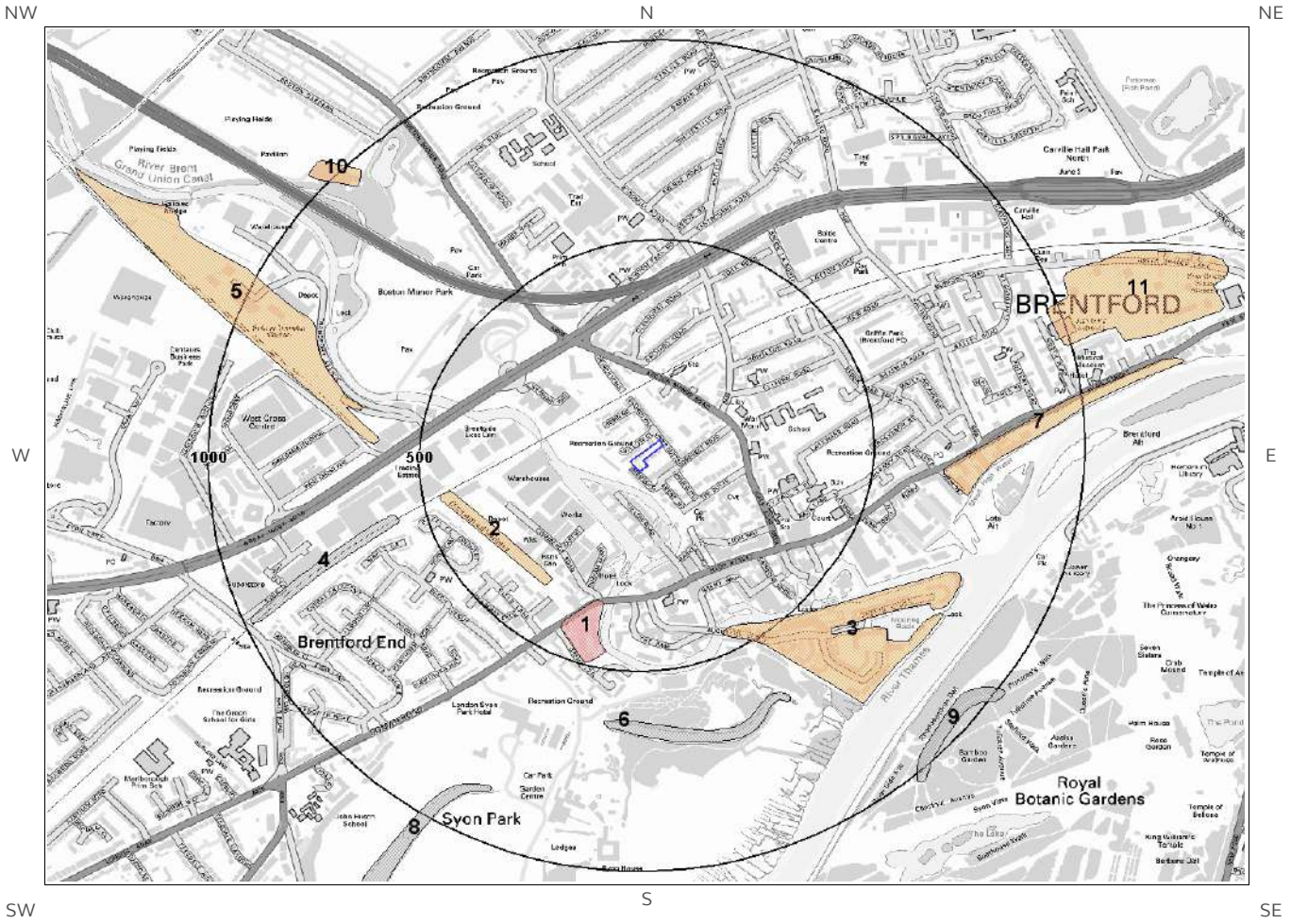
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not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

The definitions of coverage are as follows:

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

1 Geology (1:10,000 scale).

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



Artificial Ground Legend

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Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Disturbed Ground (undivided)

Worked Ground (undivided)

Landscaped Ground (undivided)

Infilled Ground

Reclaimed Ground

1. Geology 1:10,000 scale

1.1 Artificial Ground

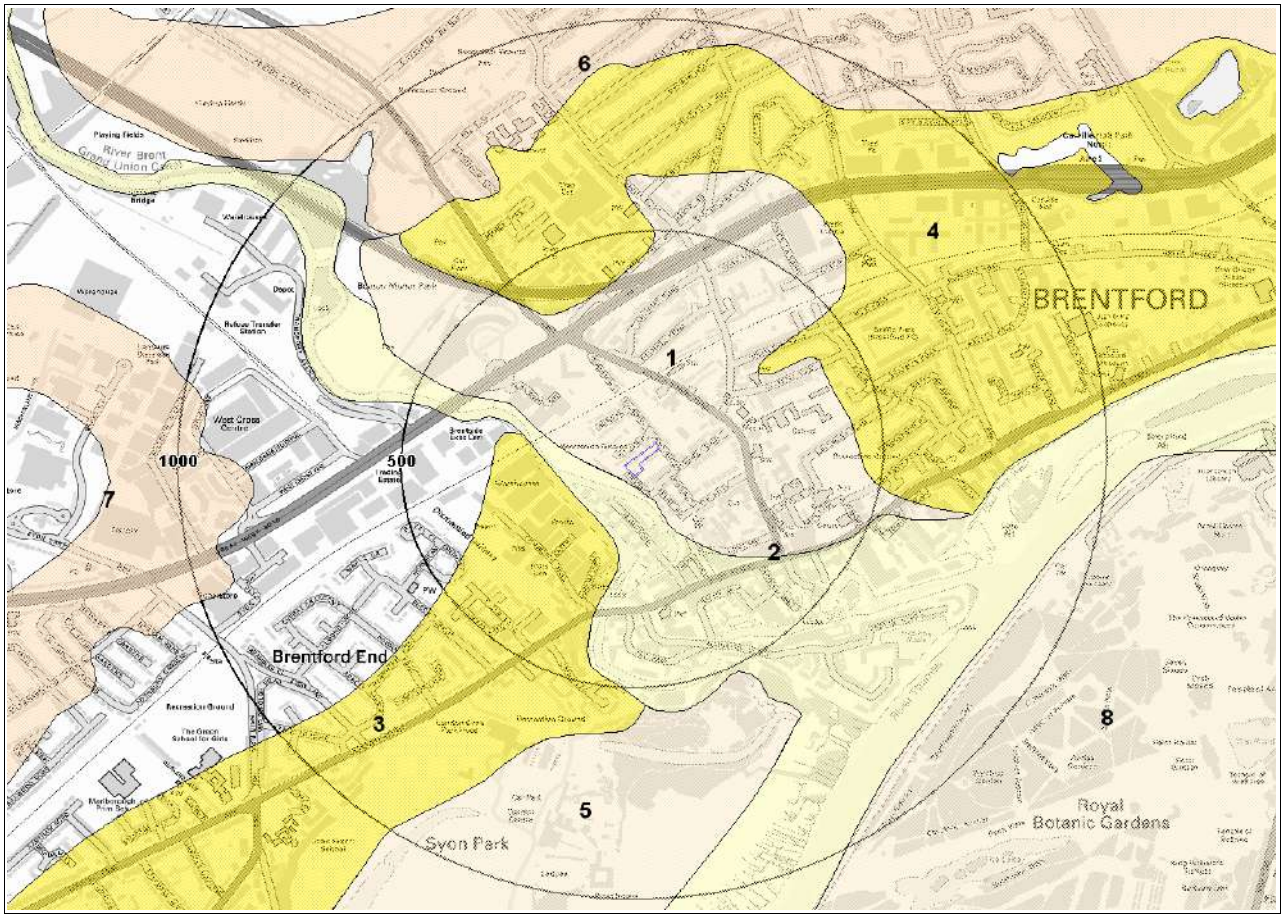
The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

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

ID	Distance	Direction	LEX Code	Description	Rock Description
1	335.0	S	WMGR-UKNOWN	Infilled Ground	Unknown/unclassified Entry
2	335.0	SW	MGR-UKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry
3	442.0	SE	MGR-UKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry

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

NW N NE



W E

SW S SE

Artificial Ground Legend

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Site Outline

500
1000
Search Buffers (m)

1.2 Superficial Deposits and Landslips

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

1.2.1 Superficial Deposits/ Drift Geology

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

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	KPGR-XSV	Kempton Park Gravel Formation - Sand And Gravel	Sand And Gravel
2	22.0	SW	ALV-Z	Alluvium - Silt (unlithified Deposits Coding Scheme)	Silt
3	131.0	SW	LASI-Z	Langley Silt Member - Silt (unlithified Deposits Coding Scheme)	Silt
4	283.0	NE	LASI-Z	Langley Silt Member - Silt (unlithified Deposits Coding Scheme)	Silt

1.2.2 Landslip

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

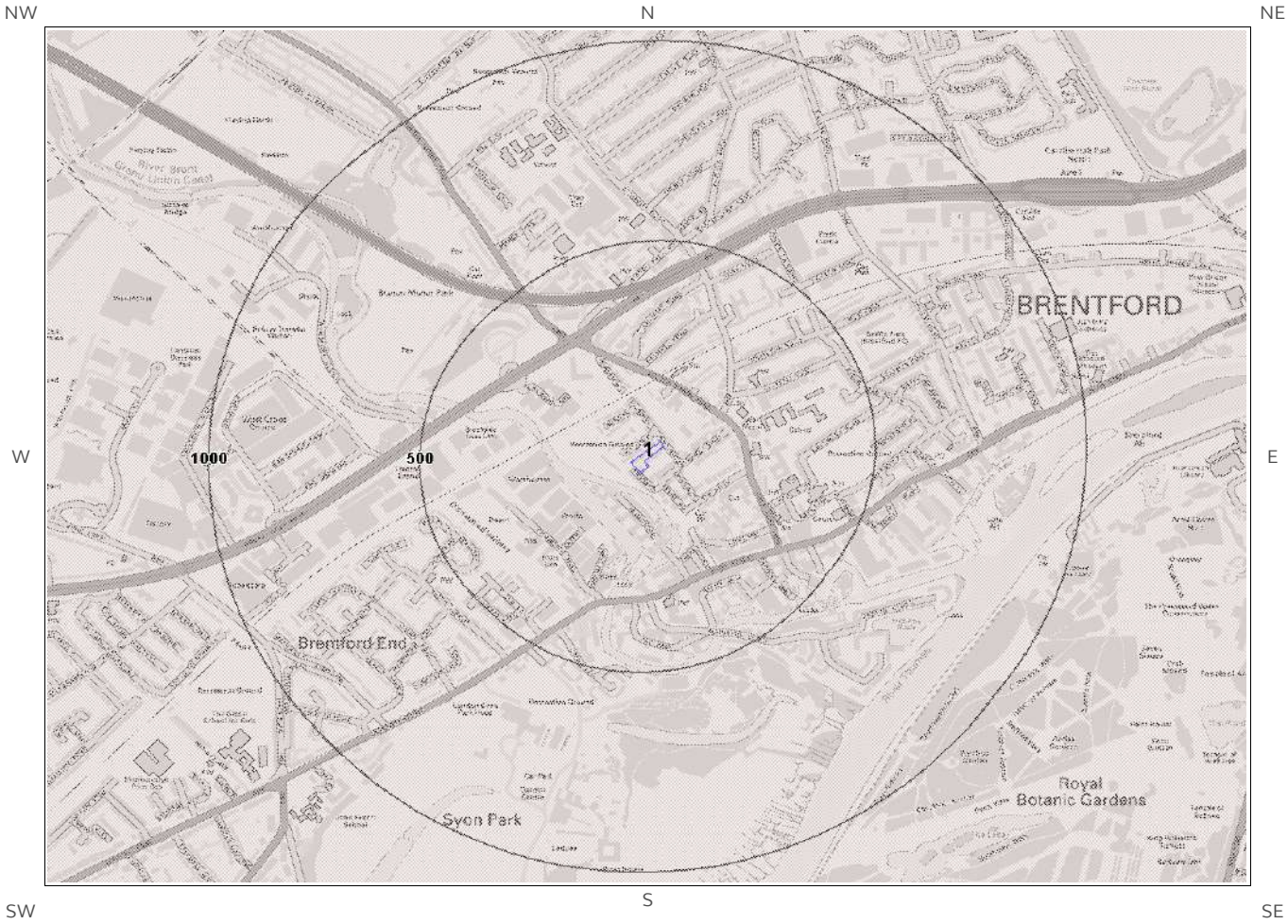
No

Database searched and no data found.

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

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

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



Bedrock and linear features Legend

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Site Outline

500
1000
Search Buffers (m)

1.3 Bedrock and linear features

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

1.3.1 Bedrock/ Solid Geology

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

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1	0.0	On Site	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.

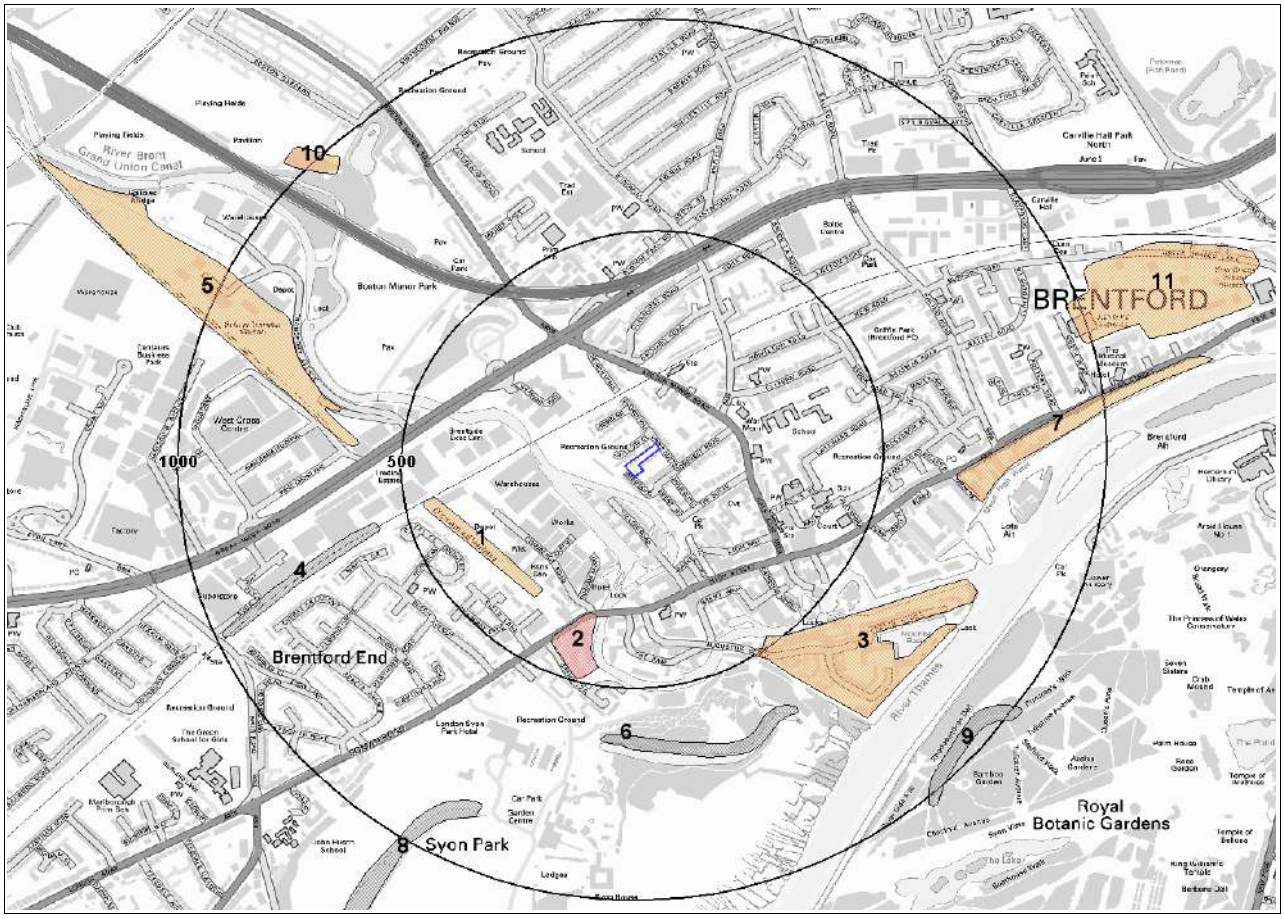
The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of great Britain at 1:10,000 scale.

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

NW N NE



W E

SW S SE

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Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Disturbed Ground (undivided)

Worked Ground (undivided)

Landscaped Ground (undivided)

Infilled Ground

Reclaimed Ground

2. Geology 1:50,000 scale

2.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 270

2.1.1 Artificial/ Made Ground

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

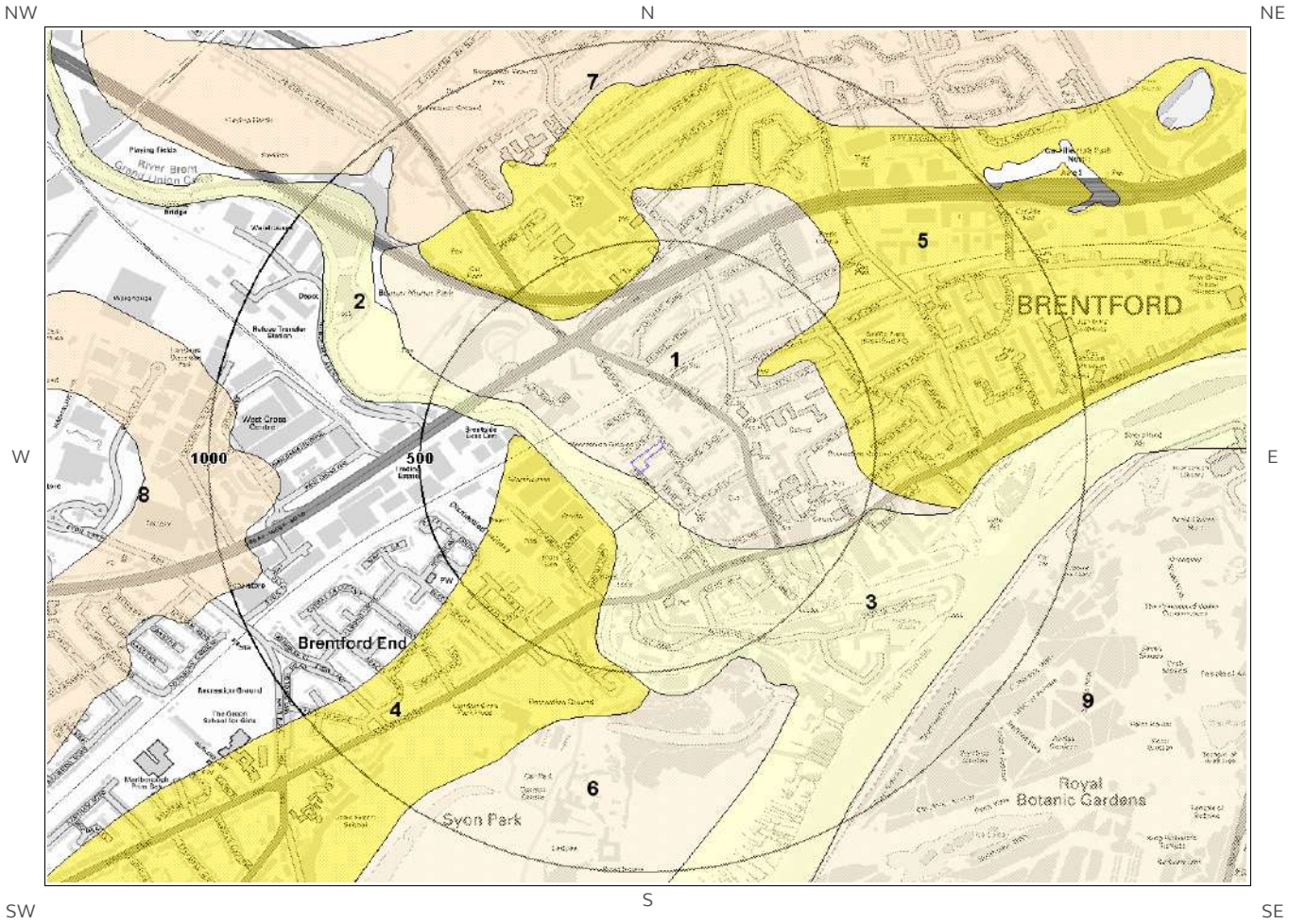
ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	335.0	SW	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
2	335.0	S	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
3	477.0	SE	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

2.1.2 Permeability of Artificial Ground

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

Database searched and no data found.

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



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Site Outline

500
1000
Search Buffers (m)

2.2 Superficial Deposits and Landslips

2.2.1 Superficial Deposits/ Drift Geology

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

ID	Distance	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	KPGR-XSV	KEMPTON PARK GRAVEL MEMBER	SAND AND GRAVEL
2	15.0	S	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
3	74.0	SE	ALV-XCZSP	ALLUVIUM	CLAY, SILT, SAND AND PEAT
4	142.0	SW	LASI-XCZ	LANGLEY SILT MEMBER	CLAY AND SILT
5	282.0	NE	LASI-XCZ	LANGLEY SILT MEMBER	CLAY AND SILT

2.2.2 Permeability of Superficial Ground

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

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

2.2.3 Landslip

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

Database searched and no data found.

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

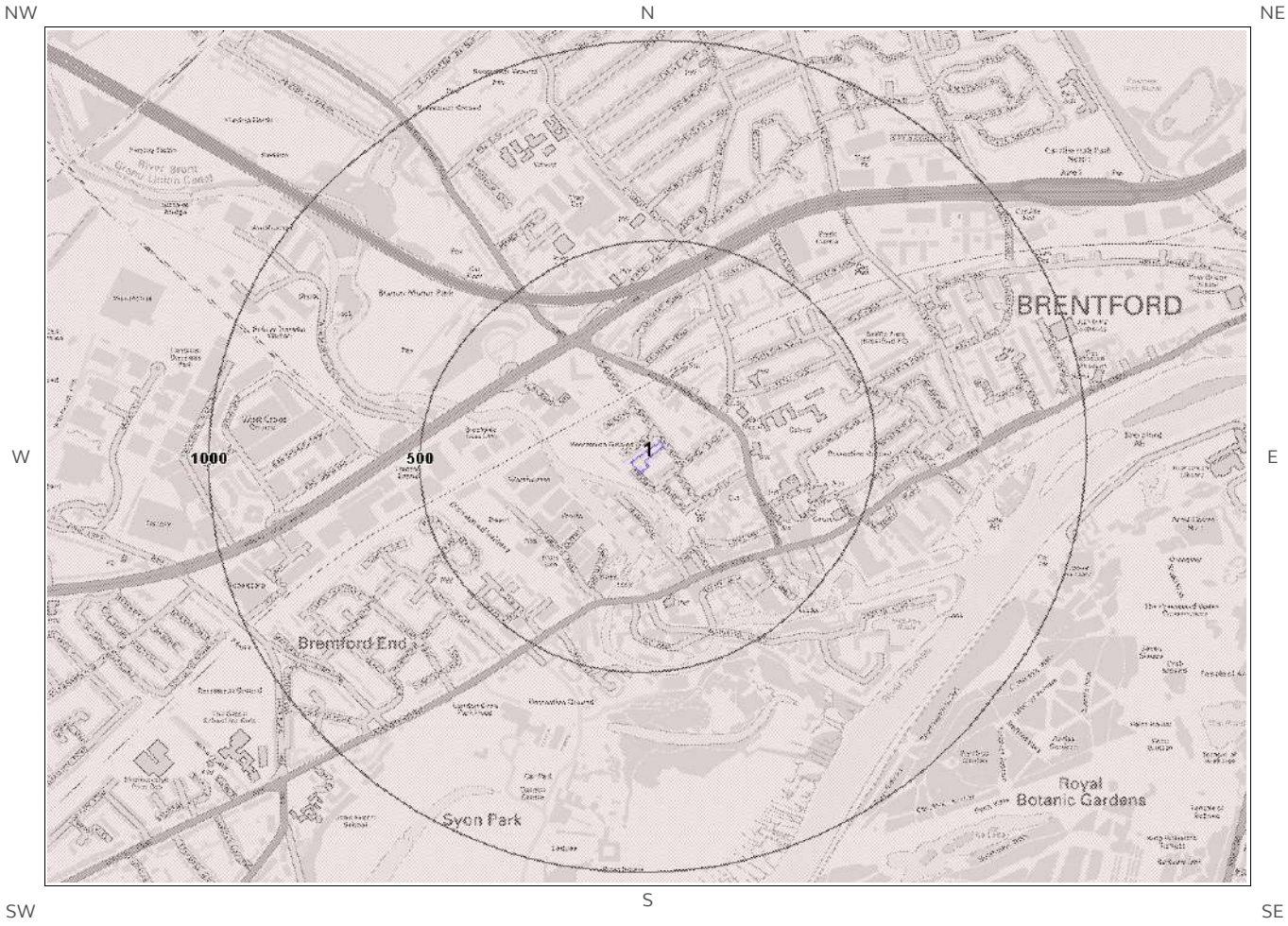
This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground, Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2.2.4 Landslip Permeability

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

Database searched and no data found.

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



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Site Outline

500
1000
Search Buffers (m)

2.3 Bedrock, Solid Geology & linear features

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 270

2.3.1 Bedrock/Solid Geology

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

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
1	0.0	On Site	LC-XCZ	LONDON CLAY FORMATION - CLAY AND SILT	YPRESIAN

2.3.2 Permeability of Bedrock Ground

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

Distance	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Mixed	Low	Very Low

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.

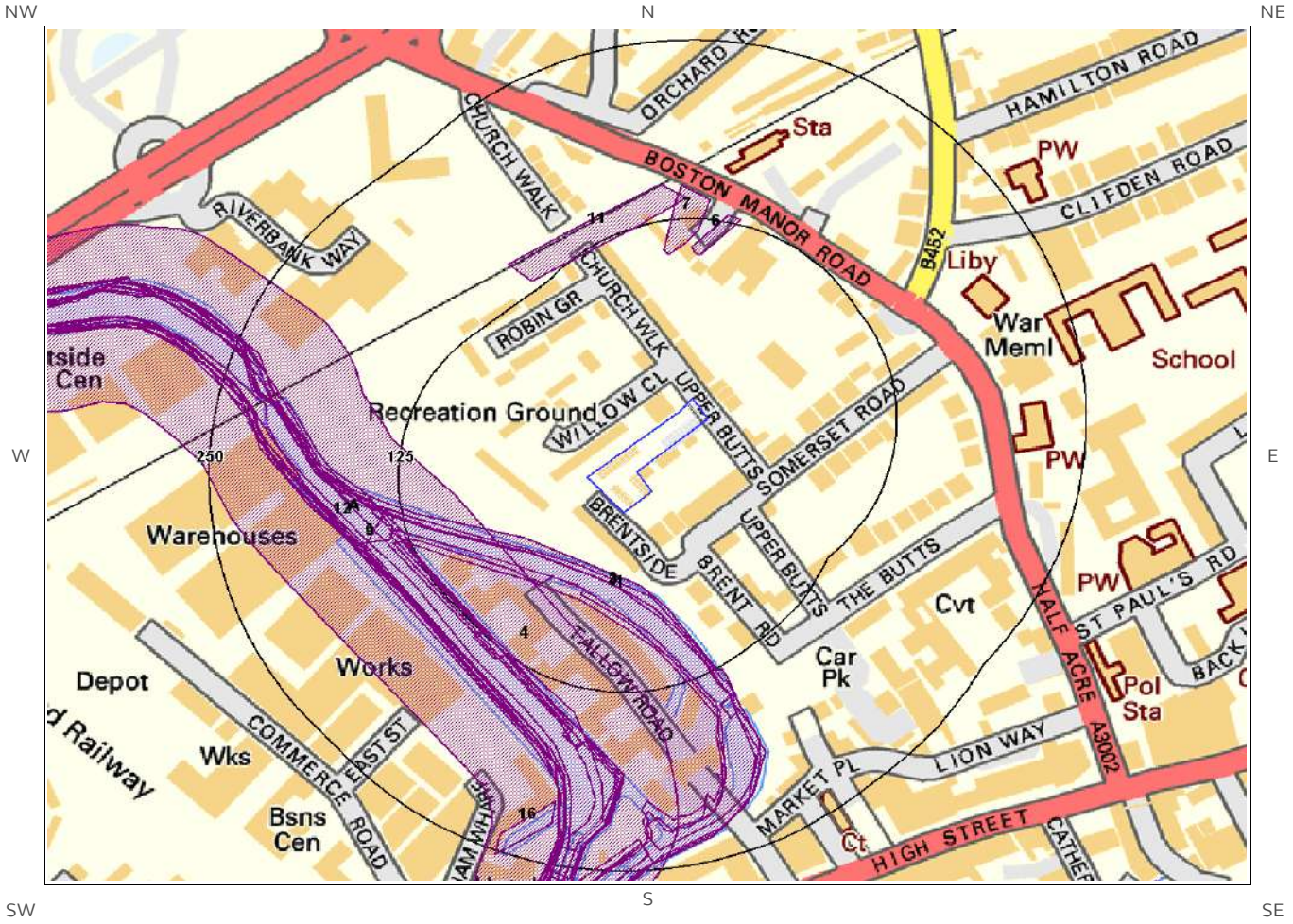
The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, 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

125
250
Search Buffers (m)

Historic Surface Ground Workings

Historic Underground Workings

Current Ground Workings

4 Ground Workings

4.1 Historical Surface Ground Working Features derived from Historical Mapping

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

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

ID	Distance (m)	Direction	NGR	Use	Date
1	42.0	SW	516659 177859	Canal	1913
2	45.0	SW	516757 177791	Canal	1938
3	48.0	SW	516755 177787	Canal	1912
4	49.0	SW	516749 177784	Canal	1912
5	75.0	SW	516674 177838	Canal	1865
6	100.0	N	517431 177803	Unspecified Heap	1865
7	102.0	N	517412 177814	Unspecified Pit	1894
8A	121.0	SW	516756 177786	Canal	1894
9	121.0	SW	516755 177789	Canal	1935
10A	122.0	SW	516665 177858	Canal	1933
11	123.0	NW	517352 177805	Cuttings	1865
12	129.0	SW	516659 177859	Canal	1894
13	131.0	W	516660 177851	Canal	1898
14B	134.0	W	515964 178597	Canal	1948
15B	134.0	W	515964 178597	Canal	1948
16	206.0	S	517305 177389	Pond	1894

4.2 Historical Underground Working Features derived from Historical Mapping

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

Are there any Historical Underground Working Features within 1000m of the study site boundary? No

Database searched and no data found.

4.3 Current Ground Workings

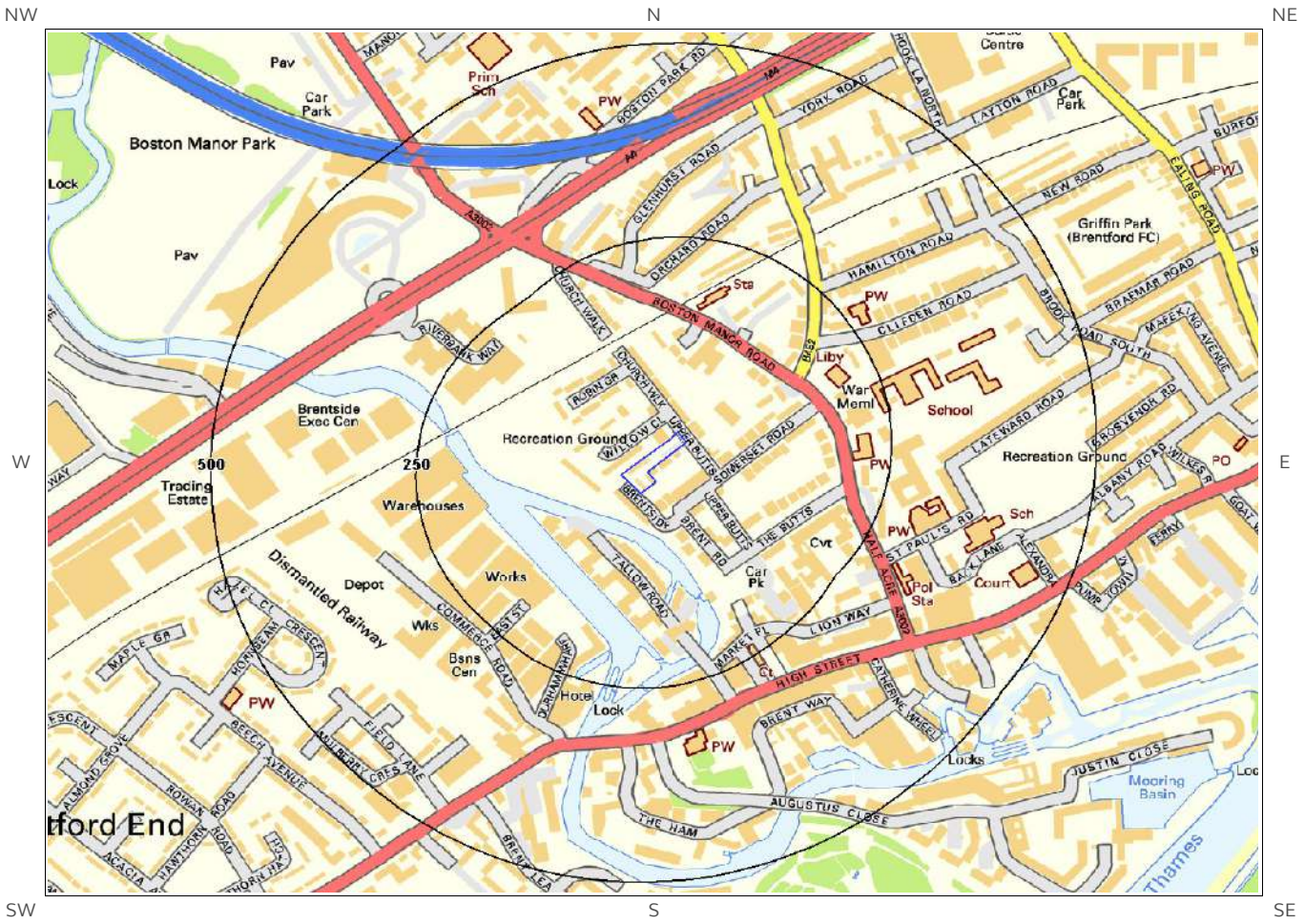
This dataset is derived from the BGS BRITPITS database covering active; inactive mines; quarries; oil wells; gas wells and mineral wharves; and rail deposits throughout the British Isles.

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

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

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	799.0	E	518173 177958	Clay & Shale	Brentford Pottery	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	987.0	W	516425 177990	Marine Sand & Gravel	Brentford Rail Depot	A site where mineral commodities are unloaded from rail trucks and stored	Active
Not shown	987.0	W	516425 177990	Crushed Rock	Brentford Rail Depot	A site where mineral commodities are unloaded from rail trucks and stored	Active

5 Mining, Extraction & Natural Cavities map



Mining, Extraction and Natural Cavities Legend

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Site Outline

250
500
Search Buffers (m)

Historical Mining

Non-Coal Mining Cavities

Natural Cavities (point data)

Natural Cavities (polygon data)

Non-Coal Mining

Highly likely

Likely

Unlikely

Highly unlikely

Rare

5 Mining, Extraction & Natural Cavities

5.1 Historical Mining

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

Are there any Historical Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.2 Coal Mining

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

Are there any Coal Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.3 Johnson Poole and Bloomer

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

Are there any JPB Mining areas within 1000m of the study site boundary? No

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

5.4 Non-Coal Mining

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

Are there any Non-Coal Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.5 Non-Coal Mining Cavities

This dataset provides information from the Peter Brett Associates (PBA) mining cavities database (compiled for the national study entitled "Review of mining instability in Great Britain, 1990" PBA has also continued adding to this database) on mineral extraction by mining.

Are there any Non-Coal Mining cavities within 1000m of the study site boundary? No

Database searched and no data found.

5.6 Natural Cavities

This dataset provides information based on the Peter Brett Associates natural cavities database. The dataset is made up of points and polygons. Where polygons are used these represent an area in which it is expected the cavities could be found. It does not indicate that cavities are present everywhere within the polygon, and caution should be used in the interpretation of this data.

Are there any Natural Cavities within 1000m of the study site boundary? No

Database searched and no data found.

5.7 Brine Extraction

This data provides information from the Cheshire Brine Subsidence Compensation Board.

Are there any Brine Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.8 Gypsum Extraction

This dataset provides information on Gypsum extraction from British Gypsum records.

Are there any Gypsum Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.9 Tin Mining

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

Are there any Tin Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.10 Clay Mining

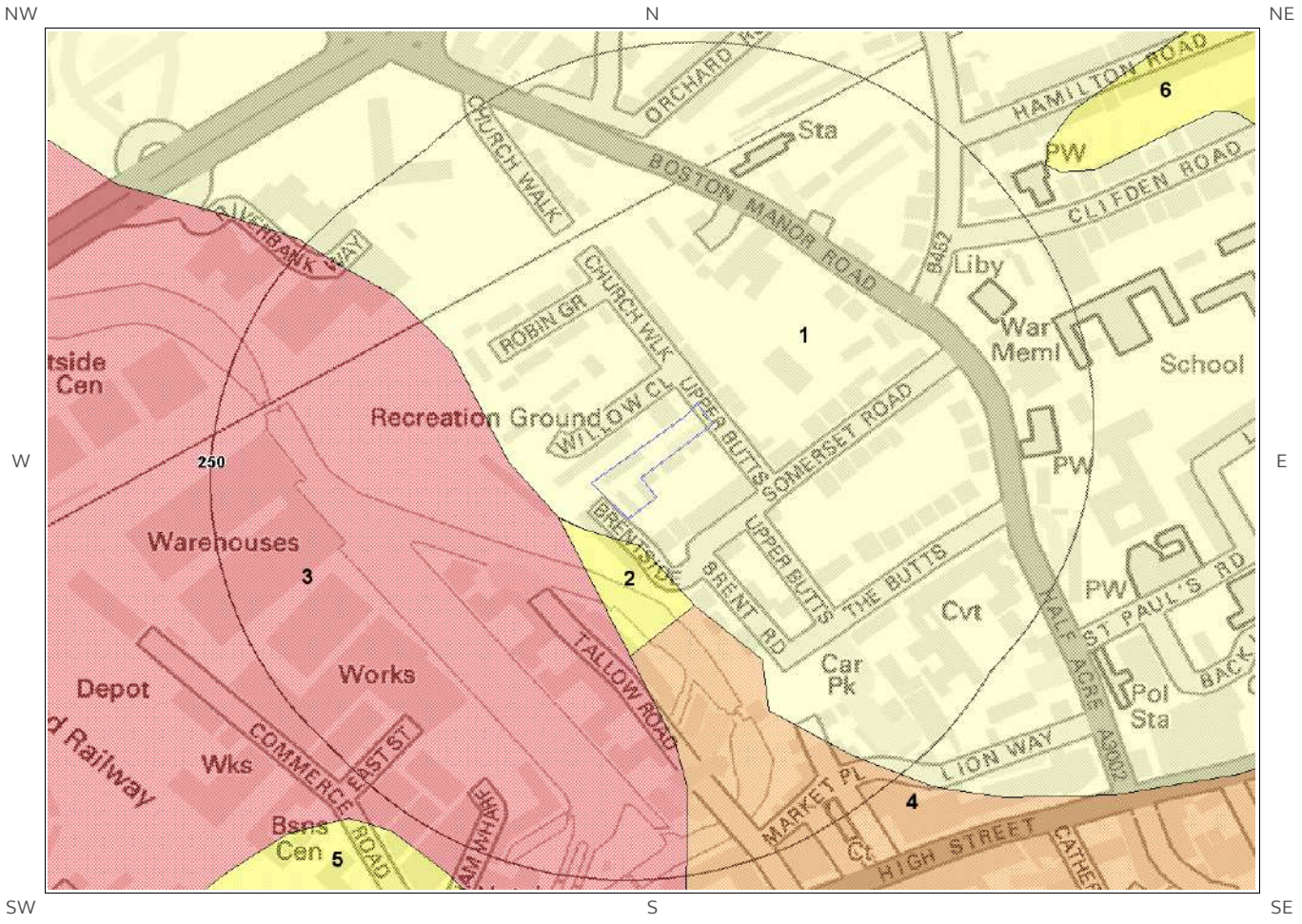
This dataset provides information on Kaolin and Ball Clay mining from relevant mining records.

Are there any Clay Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

6 Natural Ground Subsidence

6.1 Shrink-Swell Clay map

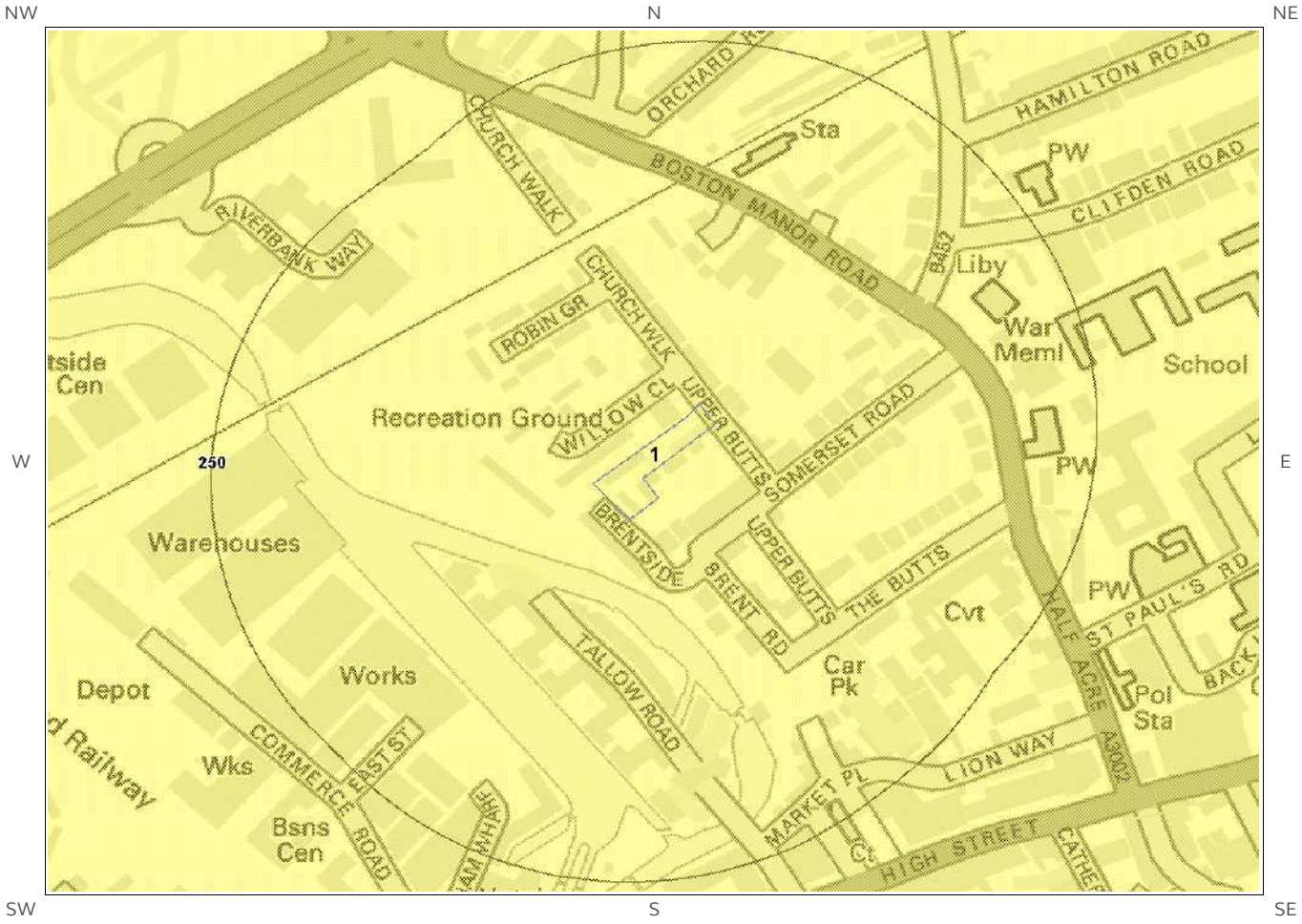


Shrink Swell Clay Legend

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6.2 Landslides map



Landslides Legend

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6.3 Ground Dissolution of Soluble Rocks map

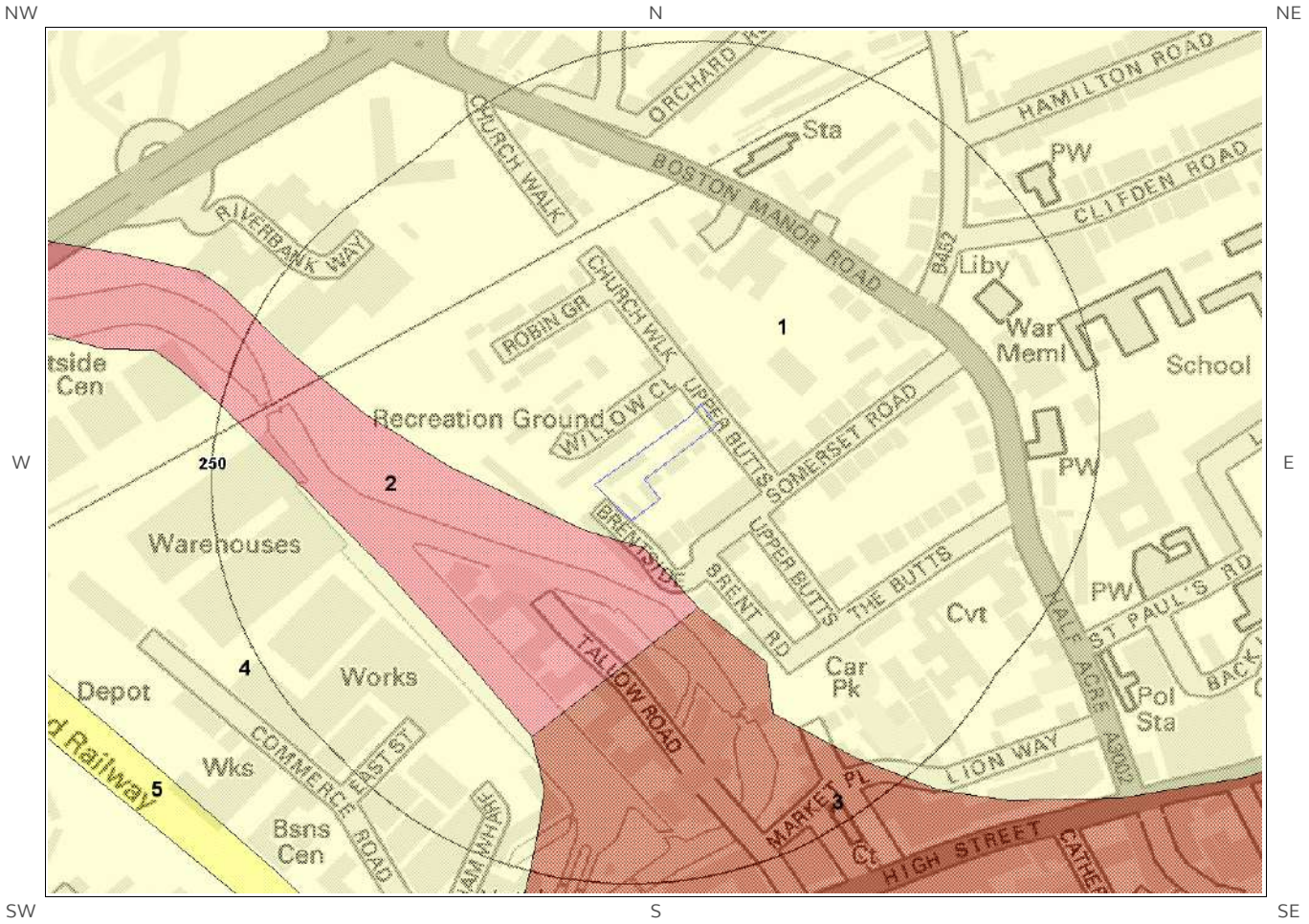


Ground Dissolution Soluble Rocks Legend

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6.4 Compressible Deposits map

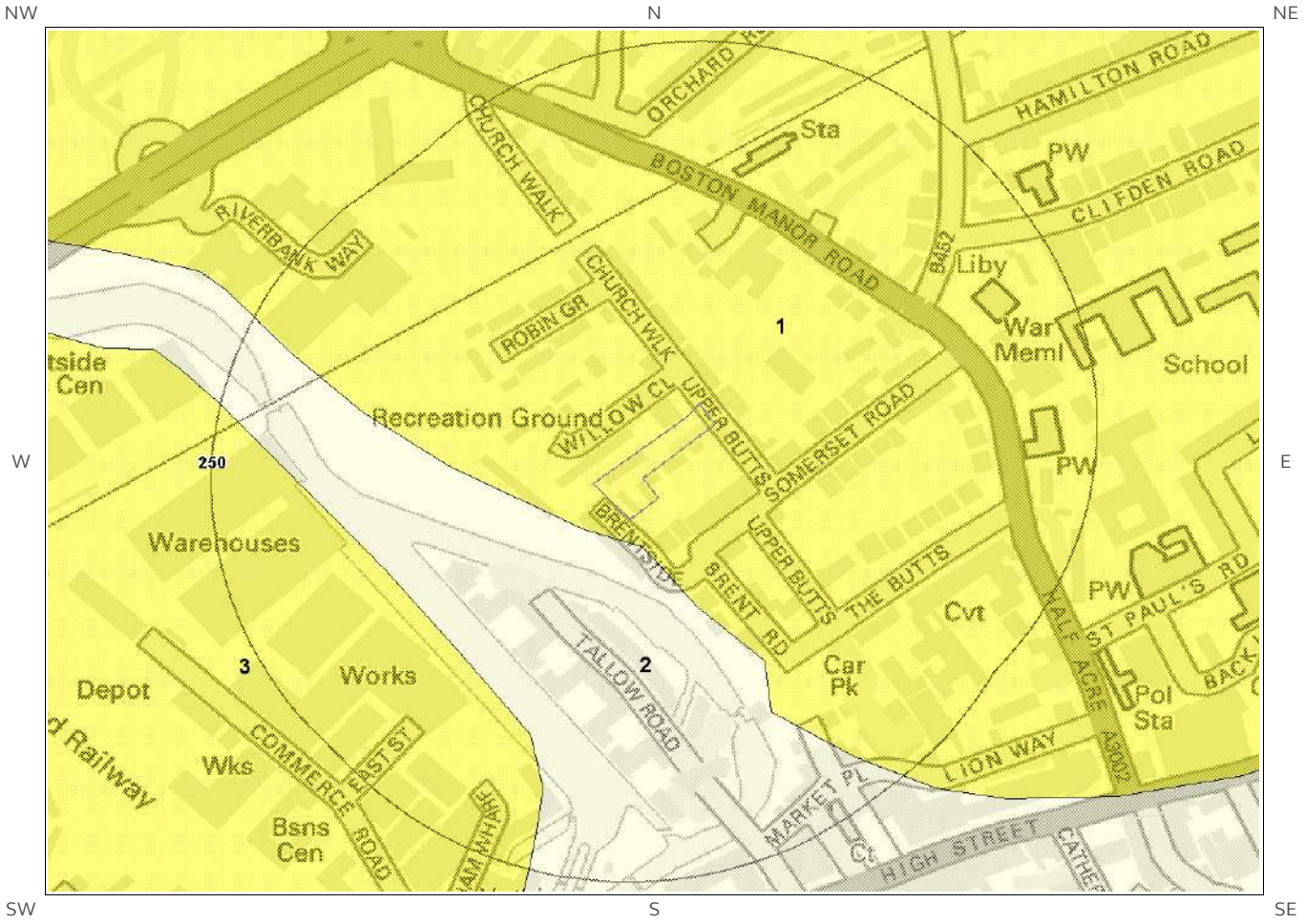


Compressible Deposits Legend

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6.5 Collapsible Deposits map

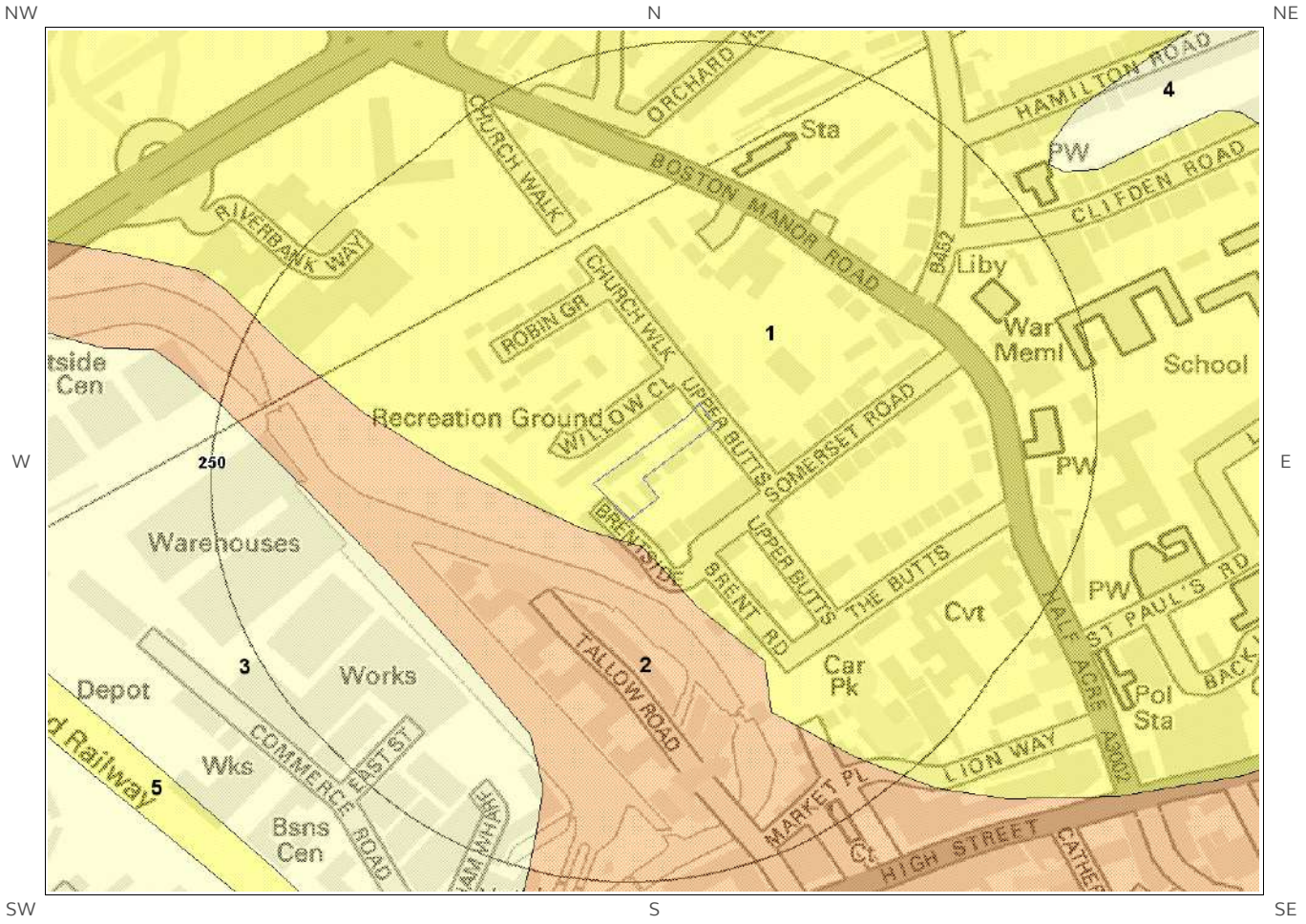


Collapsible Deposits Legend

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6.6 Running Sand map



Running Sand Legend

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6 Natural Ground Subsidence

The National Ground Subsidence rating is obtained through the 6 natural ground stability hazard datasets, which are supplied by the British Geological Survey (BGS).

The following GeoSure data represented on the mapping is derived from the BGS Digital Geological map of Great Britain at 1:50,000 scale.

What is the maximum hazard rating of natural subsidence within the study site*[*] boundary? Moderate

6.1 Shrink-Swell Clays

The following Shrink Swell information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	Ground conditions predominantly non-plastic. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely likely due to potential problems with shrink-swell clays.
2	15.0	S	Very Low	Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.
3	32.0	SW	Moderate	Ground conditions predominantly high plasticity. Do not plant or remove trees or shrubs near to buildings without expert advice about their effect and management. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a probable increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a probable increase in insurance risk during droughts or where vegetation with high moisture demands is present.

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

6.2 Landslides

The following Landslides information provided by the British Geological Survey:

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

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.

6.4 Compressible Deposits

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

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.
2	15.0	S	Moderate	Significant potential for compressibility problems. Avoid large differential loadings of ground. Do not drain or de-water ground near the property without technical advice. For new build - consider possibility of compressible ground in ground investigation, construction and building design. Consider effects of groundwater changes. Extra construction costs are likely. For existing property - possible increase in insurance risk from compressibility, especially if water conditions or loading of the ground change significantly.

6.5 Collapsible Deposits

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

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

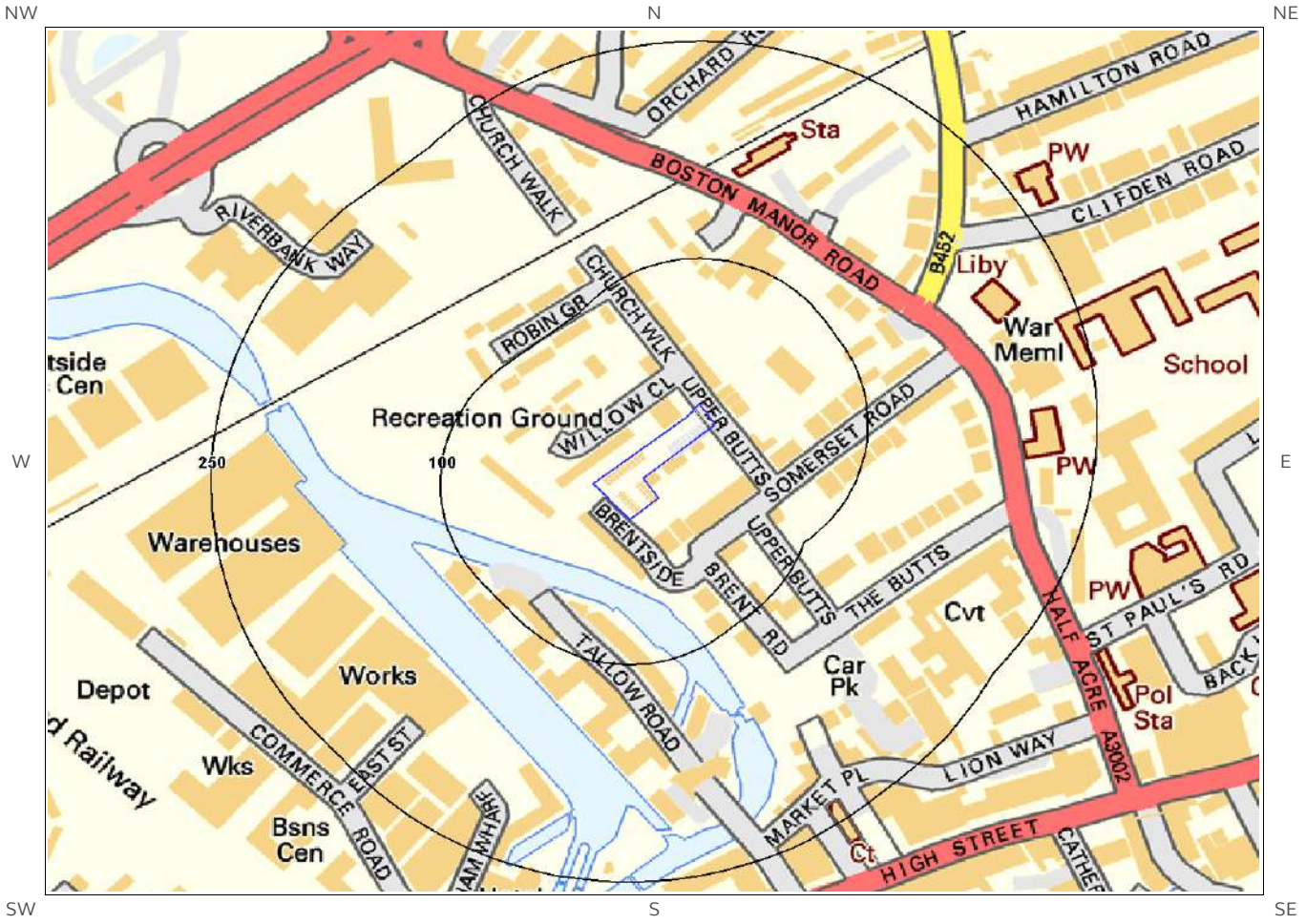
ID	Distance (m)	Direction	Hazard Rating	Details
2	15.0	S	Negligible	No indicators for collapsible deposits identified. No actions required to avoid problems due to collapsible deposits. No special ground investigation required, or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

6.6 Running Sands

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

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.
2	15.0	S	Low	Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build - consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property - no significant increase in insurance risk due to running sand problems is likely.

7 Borehole Records map



Borehole Records Legend

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Site Outline

Borehole Locations

125
250
Search Buffers (m)

7 Borehole Records

The systematic analysis of data extracted from the BGS Borehole Records database provides the following information.

Records of boreholes within 250m of the study site boundary: 0

Database searched and no data found.

8 Estimated Background Soil Chemistry

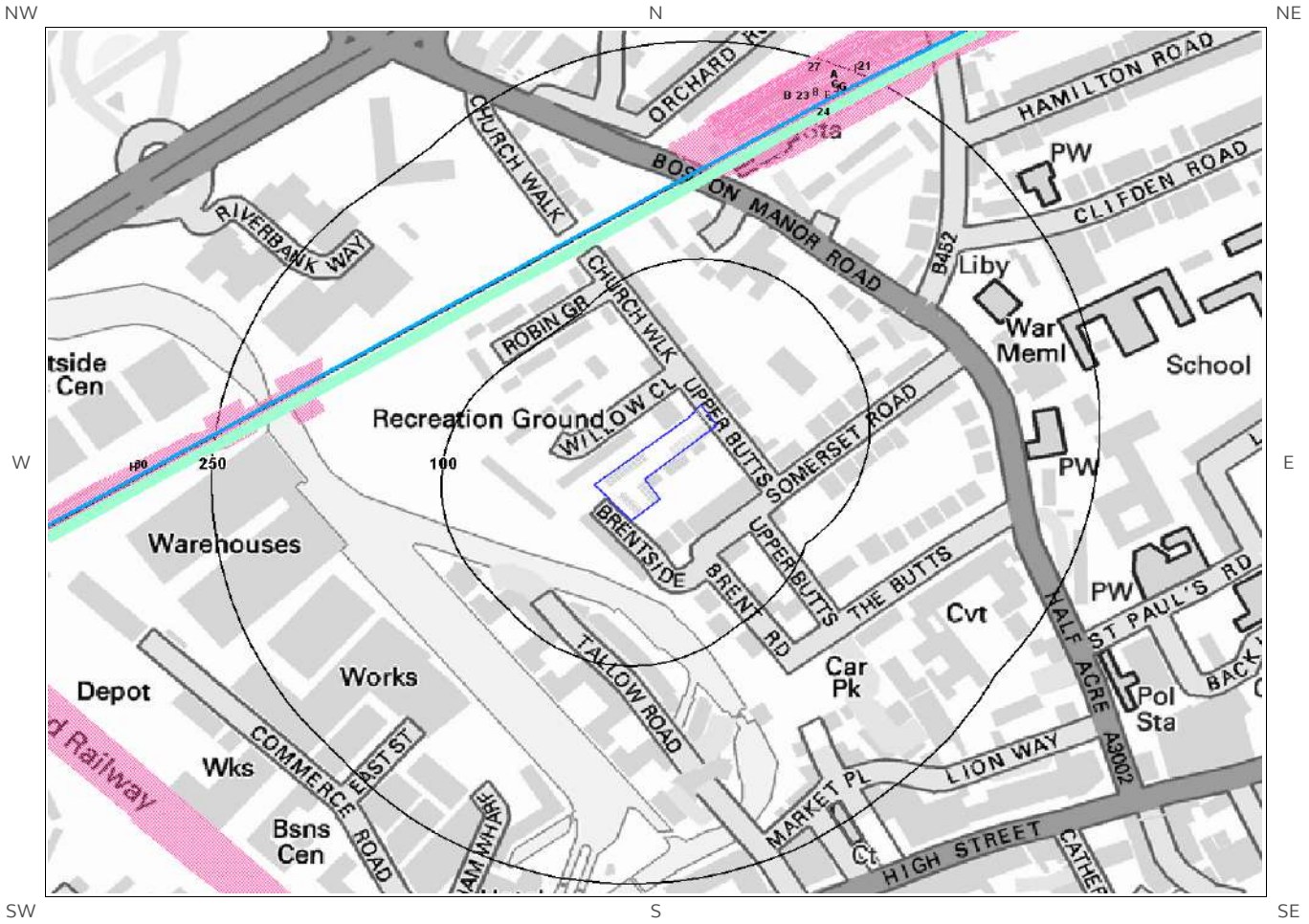
Records of background estimated soil chemistry within 250m of the study site boundary: 2

For further information on how this data is calculated and limitations upon its use, please see the Groundsure Geo Insight User Guide, available on request.

Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	London	No data	No data	No data	No data	No data
15.0	S	London	No data	No data	No data	No data	No data

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

9 Railways and Tunnels map



Railways and Tunnels Legend

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- Site Outline
- Search Buffers (m): 250, 500
- Underground or Partially Underground Railway / Subway System
- Railway Tunnel (OS Mapping)
- Abandoned or Dismantled Railway (OpenStreetMap)
- Railway Track (OS Mapping)
- Railway Track (OpenStreetMap)
- High Speed 2
- High Speed 2 Revised Proposed Route
- Crossrail 1
- Railway and/or Tunnel Feature from Historical Mapping

9 Railways and Tunnels

9.1 Tunnels

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

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

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

Database searched and no data found.

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

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

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

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

Database searched and no data found.

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

9.2 Historical Railway and Tunnel Features

This data is derived from Groundsure's unique Historical Land-use Database and contains features relating to tunnels, railway tracks or associated works that have been identified from historical Ordnance Survey mapping.

Have any historical railway or tunnel features been identified within the study site boundary? No

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

ID	Distance (m)	Direction	NGR	Details	Date
1E	155	N	517642 177994	Railway Sidings	1912
2C	158	N	517654 178002	Railway Sidings	1938
3	167	N	517618 177974	Railway Sidings	1865
4A	170	N	517702 178005	Railway Sidings	1961
5A	170	N	517702 178005	Railway Sidings	1966
6B	183	N	517474 177898	Railway Sidings	1898

ID	Distance (m)	Direction	NGR	Details	Date
7B	183	N	517480 177894	Railway Sidings	1896
8	184	N	517489 177902	Railway Sidings	1894
13	184	W	n/a	Railway	1915
9B	185	N	517458 177897	Railway Sidings	1894
14G	185	N	517495 177903	Railway Sidings	1867
15F	187	N	517574 177938	Railway Sidings	1960
10C	189	N	517673 178018	Railway Sidings	1935
16	190	W	n/a	Railway	1936
17E	190	N	517693 178001	Railway Sidings	1896
18F	191	N	517574 177938	Railway Sidings	1960
19A	191	N	517698 178016	Railway Sidings	1935
20B	192	N	517463 177905	Railway Sidings	1960
11D	193	N	517640 178004	Railway Sidings	1948
12D	193	N	517640 178004	Railway Sidings	1948
21	193	N	517701 178018	Railway Sidings	1915
22	201	W	n/a	Railway	1880
23	203	N	517480 177900	Railway Sidings	1960
24	209	N	517495 177889	Railway Sidings	1960
25G	223	NE	517508 177900	Railway Sidings	1970
26G	229	N	517502 177905	Railway Sidings	1992
27	233	N	517489 177920	Railway Sidings	1896
28H	234	W	517038 177641	Railway Sidings	1960
29H	234	W	517038 177641	Railway Sidings	1960
30	236	W	517057 177647	Railway Sidings	1960

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

9.3 Historical Railways

This data is derived from OpenStreetMap and provides information on the possible alignments of abandoned or dismantled railway lines in proximity to the study site.

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

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

Database searched and no data found.

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels map.

9.4 Active Railways

These datasets are derived from Ordnance Survey mapping and OpenStreetMap and provide information on the possible locations of active railway lines in proximity to the study site.

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

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

Distance (m)	Direction	Name	Type
132	NW	Hounslow Loop Line	Rail
132	NW	Hounslow Loop Line	Rail
135	NW	Hounslow Loop Line	Rail
135	NW	Hounslow Loop Line	Rail
141	NW	Not given	Multi Track
141	NW	Not given	Multi Track
205	W	Hounslow Loop Line	Rail
205	W	Hounslow Loop Line	Rail
207	W	Hounslow Loop Line	Rail
207	W	Hounslow Loop Line	Rail
227	W	Hounslow Loop Line	Rail
227	W	Hounslow Loop Line	Rail
230	W	Hounslow Loop Line	Rail
230	W	Hounslow Loop Line	Rail

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels map.

9.5 Railway Projects

These datasets provide information on the location of large scale railway projects High Speed 2 and Crossrail 1 .

Is the study site within 5km of the route of the High Speed 2 rail project? 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.

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APPENDIX C

Site Photographs

CLIENT:	London Borough of Hounslow		**DATE:**	03/04/2019	ARCADIS Design & Consultancy for natural and built assets
REFERENCE:	10030793	**SITE NAME:**	Garage block opposite 14 and 16 Brentside		10th Floor Three Piccadilly Place Manchester M1 3BN T: 0161 245 8700 F: 0161 245 8701

Plate 1 – View of the site entrance, from Upper Butts. Towards southwest.



Plate 2 – View of the main parking area and northern garage block. Towards north.



CLIENT:	London Borough of Hounslow		**DATE:**	03/04/2019	ARCADIS Design & Consultancy for natural and built assets
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Plate 3 – View of the two smaller garage blocks showing general conditions and utilities. Towards south.



Plate 4 – View of pavement and stairs down at west end of property. Towards southwest.



CLIENT:	London Borough of Hounslow		**DATE:**	03/04/2019	ARCADIS Design & Consultancy for natural and built assets
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Plate 5 – View of relative elevation of site and surroundings at west end of property. Towards west	
Plate 6 – View of site from western end showing general condition and outdoor tap. Towards northeast.	

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