GEOTECHNICAL & GEOENVIRONMENTAL CONSULTANCY

A PHENNA GROUP COMPANY

Carter Lauren Construction Limited

HOLDAY INN EXPRESS, WIMBLEDON

Geotechnical and Geoenvironmental Interpretive Report

Revision 0

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Contents

1. INTRODUCTION

Card Geotechnics Limited (CGL) has been instructed by Carter Lauren Construction (the 'Client') through Simpson Associates Consulting Engineers LLP (the Structural Engineer) to carry out a geotechnical and geoenvironmental site investigation to support the redevelopment of the Holiday Inn Express in Colliers Wood, London, herein referred to as 'the site'. The proposed development is for the extension of the hotel into the footprint of the single storey café on the southeastern corner of site and the creation of an additional 10 guest rooms.

The purpose of this report is to provide factual information and interpretation from the ground investigation to support in the redevelopment of the site, inclusive of a desk-based study of the site history and potential associated contaminative linkages. This report includes details of the site investigation undertaken by CGL, ground conditions, site constraints, foundation inspection details and drawings and geotechnical and geoenvironmental assessments and recommendations pertinent to the proposed redevelopment works of the site.

The objectives of this report are to:

- Present a desk based review of historical maps and anticipated ground conditions for the site including associated geotechnical and geoenvironmental risks and constraints;
- Factual data obtained from the two intrusive ground investigations including details of the site works, borehole logs, monitoring records, structural foundation inspection drawings an laboratory and in-situ results;
- A source-pathway-receptor risk assessment to assess potential risks to human health and controlled waters arising from contaminated soils and soil gas on site and recommendations for remediation if required; and
- Recommendations for geotechnical design including foundations, excavations, floor slaps, buried concrete and external pavements.

A Glossary of Frequent Abbreviations is included after the Figures.

2. SITE CONTEXT

2.1 Site Location

The site is located at the Holiday Inn Express on Colliers Wood High Street in Wimbledon South, London SW19 2BH. The Ordnance Survey Grid Reference for the approximate centre of the site is 526746, 170332. A site location plan is presented in Figure 1.

2.2 Site Description

The site is located on the north side of Colliers Wood High Street and comprises the southeastern corner of the Holiday Inn Express building footprint with a single storey café building and an outdoor gated terrace space. The site is approximately 90m^2 in area. To the north of the site a small alley runs from the High Street west towards Wandle Park, a large communal green space which the Holiday Inn Express backs onto. Bounding the site further west along the alley is a UKPN substation. To the north the site neighbours the Charles Holden public house and to the south the Holiday Inn Express neighbours a small plot of low-rise residential housing. Across the street to the southwest is a modern high rise residential building with commercial ground floor use.

West of the site, within Wandle Park a National Grid pylon is found approximately 19m from site at its closest point. Further west on the other side of the park, the Merton Bus Depot is found approximately 150m from the centre of site at its closest point.

Approximately 50m northeast of the site is Colliers Wood underground station, with 2 No. London Underground Limited (LUL) Northern Line tunnels runs in an east-west direction beneath the east corner of the site and they are understood to be at a depth of circa 13mbgl[1].

In addition to the LUL tunnels beneath the site, a 1275mm diameter Thames Water sewer and water mains are known to be running along Colliers Wood High Street to the east of the site, as well as a water main and gas pipe directly below the footprint of the proposed development[2].

A site layout plan is included within Figure 2.

[1] https://www.dansilva.co.uk/s/London-Underground-Depth-Diagrams.pdf
[2] Location of Underground Services and Drains, Holiday Inn Express. Drawing Ref: 56830, dated February 2023

2.3 Proposed Development

The proposed development for the site, included within Appendix A details the construction of an additional 10 guest rooms within the footprint of the café and gated terrace area with a four storey extension to the existing building to match the building height.

It is noted the proposed Holiday Inn Express extension is to be completed with consideration to the existing LUL tunnels, UKPN substation and associated buried infrastructure and Thames Water sewer and water main. Foundation design and construction methodologies are subject to subsequent impact assessments on the above risk items.

The proposed development plans provided by the Client at the time of this report are included in Appendix A.

3. DESK STUDY

3.1 Introduction

The desk study is based on information procured by CGL, including historical maps and an environmental disclosure report (Appendix B), together with a review of published and unpublished geological records.

3.2 Historical Development

The historical development of the site has been traced from historical Ordinance Survey maps (1:10,000 and 1:2,500 scales), dated between 1866 and 2024, acquired from Groundsure and included in Appendix B. The key stages of historical development are summarised below, and the distances quoted are taken from the centre of the Holiday Inn Express site. Plate 1 to Plate 4 are oriented from original mapped position.

The earliest available mapping dated 1866 indicates the footprint of the Holiday Inn Express was occupied by residential dwellings with a tributary of the River Wandle running through; what is known in the present day as Wandle Park and south through the centre of site (Plate 1). At this time the *High Street* mapped running northeast southwest was in the same position as found at present day. Within 100m of the site in 1866, the surrounding area was predominantly open space with a *Sunday School* to the south and a *Public House* to the north.

By 1896, mapping of the site shows some increased development along the *High Street* and surrounding area (Plate 2). A neighbouring *Public House* is mapped north of the site understood to be the present-day Charles Holden pub. Within 100m, northeast of site where the present-day Colliers Wood Underground Station is located, a *Fire Brigade Station* and *Smithy* are both mapped. Further from site, approximately 250m to the southwest the *Merton Abbey Paper Mill* and *Print and Tapestry Works* are also recorded.

Plate 1. 1866 Historical OS Map of the Site

Plate 2. 1896 Historical OS Map of the Site

In 1913, residential development continues to expand in the wider area however development in proximity to the site is largely the same with exception of the neighbouring buildings to the southwest and those on the south side of the *High Street* now described as a *Laundry* (Plate 3).

By 1933 the *Omnibus Depot* was developed to the west of site across the *Mill Pond* and the *Colliers Wood Underground Station* was also mapped at its present-day location. The industrial land use to the south continues to expand with the development of the *New Merton Board Mills,* which would expand to include a *Cardboard Box Factory* by 1950 and *Water Works* approximately 250m to the southeast.

In 1950 the most relevant development to the site would be the *Engineering Works* mapped within the present-day Holiday Inn Express footprint in the northern corner of site (Plate 4). In addition to the Engineering Works, the 1950 map notes a *Tank* just outside of the western boundary of site although the type and contents are unknown.

Plate 3. 1913 Historical OS Map of the Site

Plate 4. 1950 Historical OS Map of the Site

Between 1950 and 1967, a *Garage* is mapped within the Holiday Inn site footprint. In addition, approximately 50m to the south of site in the area between the High Street and Priory Road the area is developed into a *Multistorey Car Park* and *Garage*. An *Electrical Substation* is also present to the east of the *Garage*. By 1981 the *Engineering Works* are no longer mapped and the footprint of the Holiday Inn Express site changes to similar to present day although not mapped as a hotel.

By 2001 the area is largely similar to that seen today with the change of land use south of site from the old Mills, Garages and Car Parks to a retail park and Hypermarket.

A summary of the key historical features onsite and offsite development is presented in Table 1 and Table 2, respectively.

Table 1. Summary of Onsite Development

Historical Feature	*Area of Site*	*First Date Mapped*	*Last Date Mapped*	*Comments*
Engineering Works	Northwest	1950	1976	Extends outside of the Holiday Inn footprint towards Wadle Park
Laundry	West	1913	1950	First mapped in 1913 but extended to be within the site boundary in 1933
Garage	Centre	1967	1976	Demolished with the redevelopment of the site to present day
Electrical Substation	Northeast	1976	Present	Still on site

The above industrial works and electrical substation are potential sources of contaminants and may present within the shallow soils on site. It is also noted that multiple stages of development on site are likely to have resulted in the deposition of Made Ground and there is a likelihood of relict foundations to be encountered associated with such development.

Table 2. Summary of Relevant Offsite Development

Historical Feature	*Distance/ Direction from Site*	*First Date Mapped*	*Last Date Mapped*	*Comments*
Fire Brigade Station	75m NE	1896	1913	Becomes the site of the Colliers Wood Underground Station
Smithy	75m NE	1896	1898	Becomes the site of the Colliers Wood Underground Station
Merton Abbey Mills & Works	250m SW	1896	1980	Expands and redevelops with a number of new buildings including a Cardboard Factory between 1950 and 1967
Laundry	20m S	1913	1950	Named the White Abbey Laundry
Omnibus Depot	150m W	1933	Present	Still present today
Cork Factory	150m N	1950	1954	Redeveloped to residential housing which is still present today
Garage	75m S	1967	1989	Redeveloped prior to redevelopment of Multistorey Car Park
Garage	100mN	1967	Present	Currently an Esso Fuel station

The Fire Brigade Station and Smithy at the site of the Colliers Wood Underground Station present a potential contaminant risk however the development of the station and excavation works for the below ground infrastructure may have removed the local risk. The White Abbey Laundry to the south of site across the High Street is the closest of the potential contaminant sources and presents the greatest risk of mobile contaminants impacting site.

3.3 Anticipated Ground Conditions

The British Geological Survey (BGS) geological records[3,4] for the area indicate the ground conditions at site comprise Alluvium and undifferentiated River Terrace Deposits at surface underlain by the London Clay Formation, Lambeth Group, Thanet Formation and Chalk at depth.

Whilst not mapped by the BGS, Made Ground is anticipated to be present over the natural strata associated with the redevelopment of site and the construction of the Holiday Inn Express building. The extent and thicknesses of the superficial Alluvium and River Terrace Deposits is unknown but may vary dependant on proximity to the River Wandle tributary.

The Alluvium typically comprises a soft to firm unconsolidated, compressible silty clay, but can contain layers of silt, sand, peat and basal gravel. The underlying River Terrace Deposits also associated with the fluvial deposition process is generally described as sands and gravels of flint with local lenses of silt, clay or peat.

Underling the superficial deposits in the area of site, the London Clay typically comprises overconsolidated, firm to stiff, becoming very stiff with depth, fissured, dark grey silt clay with occasional

[3] https://mapapps2.bgs.ac.uk/geoindex/home.html (Accessed May 2024)
[4] BGS (1998). Geological Survey of England and Wales 1:50,000 Geological Map Series. Map Sheet 270, South London. Solid and Drift.

claystone, selenite crystals and potentially sandy horizons. The London Clay is generally of very low permeability. A weathered profile at the top of the London Clay is anticipated, resulting in an orange/brown colour and slightly reduced strength.

The Lambeth Group in this area is anticipated to include the stiff to very stiff mottled clays of the Reading Formation over the dense to very dense sands of the Upnor Formation, the latter of which may be water bearing.

The Thanet Formation is typically a very dense, dark grey sand and can have an increasing silt content with depth.

The BGS borehole records within 150m of the site have been reviewed and are included in Appendix C of this report. The records support the anticipated ground condition mapped for the site area, with Made Ground at surface followed by Alluvium and River Terrace Deposits overlying the London Clay Formation.

Further details on the anticipated ground conditions for the site can be found in Appendix B.

3.4 Hydrology and Hydrogeology

The Environment Agency (EA) has produced an aquifer designation system consistent with the requirements of the Water Framework Directive, accessible via the 'Defra Magic' website[5]. The designations have been set for superficial and bedrock geologies and are based on the importance of aquifers for potable water supply and their role in supporting surface water bodies and wetland ecosystems.

The Superficial Drift River Terrace Deposits on site are designated as a Secondary 'A' Aquifer, while the underlying London Clay Formation is designated an Unproductive Stratum[5].

The site is also located within a Source Protection Zone 1 (inner catchment) and both a groundwater and surface water abstraction license are present at two locations within 500m of the site.

The River Wandle is 90m west of the site along the western boundary of Wandle Park, flowing North into the Thames. North of the site through Wadle Park, a tributary of the Wandle River is found at its closest 60m west of the site and historically ran through the Holiday Inn Site as presented in historical maps for the site in Appendix B, overlaid on Figure 3 and discussed in Section 3.2 of the report above. There is a potential that although the Wandle tributary no longer runs through the site the former course may still remain a preferential pathway for groundwater flow.

[5] https://magic.defra.gov.uk/MagicMap.aspx (Accessed May 2024)

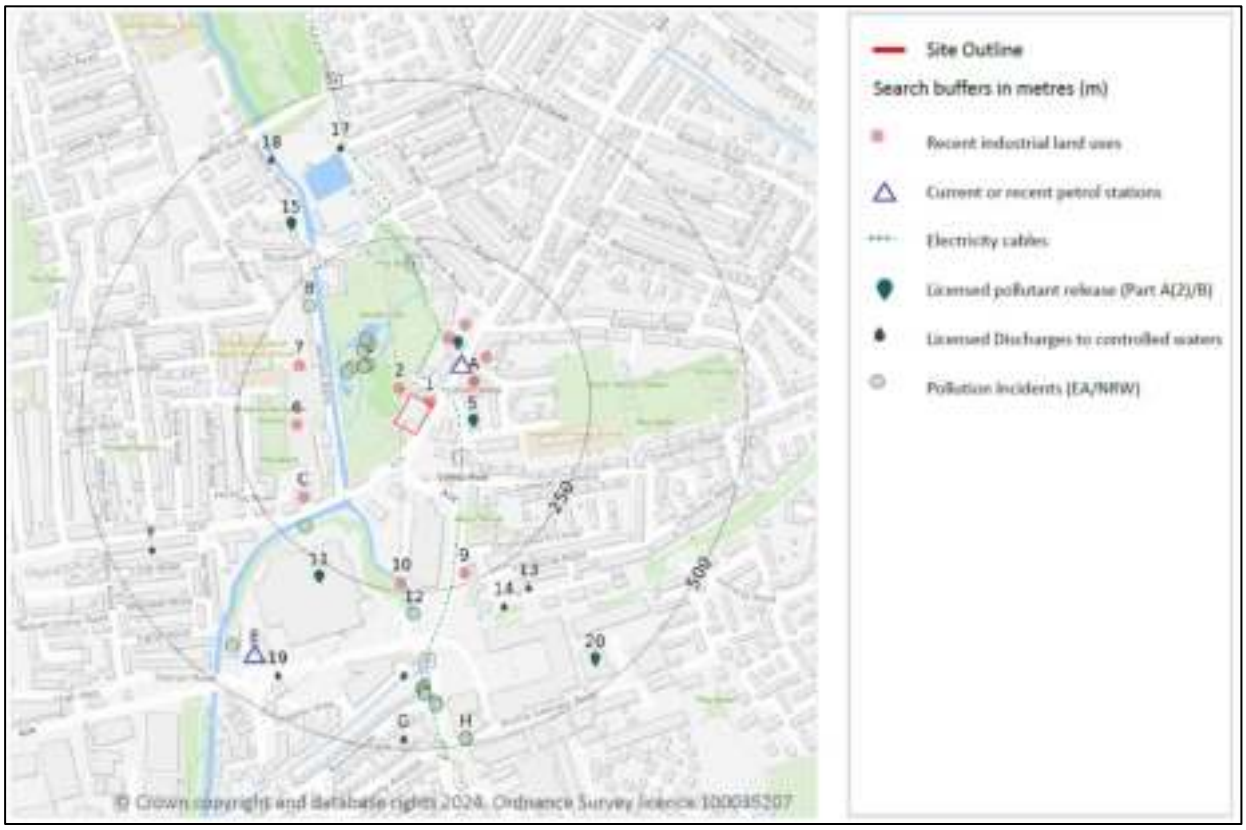
Flood risk ratings as designated for the site in Appendix B find the area to be within a medium risk area for flooding from rivers, a high risk for flooding from groundwater and the highest risk on site for surface water flooding is a 1 in 30 year, greater than 1.0m depth.

Ful details on the hydrological and hydrogeological setting for the site can be found in Appendix B.

3.5 Environmental Setting

An environmental disclosure report was procured from Groundsure (Appendix B) and the pertinent information is summarised below, with the current industrial land uses show on Plate 5.

Plate 5. Current Industrial Land Use



3.5.1 Historical and Current Land Uses

The following historical sites were recorded onsite or within the surrounding area:

- There are three historical potentially contaminative land uses onsite:
    - An unspecified *Engineering Works* dated between 1950 and 1976;
    - A *Laundry* on the western boundary of site between 1913 and 1950; and
    - An *Unspecified Garage* dated between 1967 and 1976.

- There are no historical records of historical tanks onsite however the closest tank recoded relates to an Unspecified Tank 2m west of the Holiday Inn Express site. The closest to site following is assumed to be the ESSO garage 77m northeast of site.

- There are no historical records of electrical substations onsite apart from the substation currently present north of the café area.

- There are no records of historical petrol stations within 500m of the site;

- There is one record of a historical garage on site, dated between 1967 and 1976.

- There are no historical military sites within 500m of the site.

The following current industrial sites or potentially contaminative land uses were recorded on the site or within the surrounding area:

- There is one record of a current electrical substation onsite, relating to the feature first mapped in 1981 and is still present on site today to the north of the proposed development café area.

- There are 10 other current potentially contaminative land uses within 250m of the site, the closest being the National Grid Pylon 19m northwest of the site followed by the Colliers Wood Station 74m northeast.

- The closest recorded petrol station to site is the ESSO garage 77m northeast of site.

There are no records of licensed Part A(1) installations (facilities which carry out industrial processes) within 500m of the site and five records of Part A(2) and Part B installations within 500m of the site, the closest located 68m east relating to dry cleaning activities.

3.5.2 Landfill, Potentially Infilled Land and Other Waste Sites

There is one record of a historical waste facility within 500m of the site relating to a sewerage treatment works located 386m to the southwest.

Records of current licensed waste sites find a single licenced site 168m south of the Holiday Inn Express, relating to a transfer station taking non-biodegradable wastes.

Two records of waste exemptions within 500m of the site were identified both relating to the sorting and denaturing of drugs for disposal, 443m and 453m southwest respectively.

3.5.3 Pollutant Incidents and Discharge Consents

The following pollutant incidents and consents are noted:

- There are 13 records of licenced discharge consents within 500m of the site, the closest 303m southeast of the site relating to the pumping of *Trade Discharges* into the Chalk Aquifer.

- There are 20 records of pollution incidents within 200m of the site, 18 of which are related to polluting of waters and are recorded as a Land Impact and Air Impact Category 4 (no impact) with a Water Impact Category 3 (minor impact). The closest of these to site is 81m northwest likely related to the waterways associated with the River Wandle. The two other incidents relate to the release of Crude Sewerage 425m south in January 2023 and identification of General Biodegradable Materials and Wastes 437m southwest in April 2023. The impacts of these incidents were recorded as Category 2 (Significant) for Water and Land Impact for the January incident and Category 2 (Significant) for Land Impact in the April incident.

It is noted that in the cases where Category 2 impacts are recorded, the Land Impact at this distance from site is unlikely to have an impact of the site conditions and recorded Water Impacts up stream will have flown down the River Wandle, not in contact with the site.

3.5.4 Radon

References to BRE[6] and HPA[7] guidance documents on radon and the radon potential classified in the Environmental Disclosure Report, the site is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

3.5.5 Mining and Quarrying Activities

No records of mining are recorded within 500m of the site and no mining is anticipated within the wider area.

[6] BRE. (2015). Radon: Guidance on protective measures for new buildings. Building Research Establishment, Report BR211, 2015

[7] HPA. (2007). Interactive atlas of radon in England and Wales. Health Protection Agency, HPA-RPD-033, 2007

4. PRELIMINARY RISK ASSESSMENT

4.1 Introduction

Historical contamination of land may present harm to human health and the environment. Current UK legislation stipulates that the risk associated with potential land contamination is assessed and remediated, if necessary. Under the Town and Country Planning Act 1990 (as amended), potential land contamination is a "material planning consideration" together with the National Planning Policy Framework (Dec 2023, which means that a planning authority must consider contamination when they prepare development plans or consider individual applications for planning permission. It is the responsibility of the developer to carry out the remediation where it is required and satisfy the Local Authority that the remediation has been carried out as agreed.

Additionally, Part 2A of the Environmental Protection Act 1990 requires that a significant source-pathway-receptor linkage exists to determine a site as contaminated land. This means that there has to be a contaminant present, a receptor that could be harmed by this contaminant, and a pathway linking the two. Part 2A deals with the contamination risk from a site in its current use, however, the planning system requires that the proposed use is considered. Where remediation is carried out under the planning system, it should be ensured that the site is in such a condition that it would still not meet the definition of contaminated land under Part 2A.

4.2 Preliminary Conceptual Site Model

A preliminary conceptual site model has been compiled for the site based on the desk study information to identify the potential sources of contamination and the associated potential pollutant linkages.

4.2.1 Potential Sources

Potential contamination sources can include both current and historical activities on site and in the surrounding area. The following potential sources have been identified at the site.

- *Historic Industrial Land Use* – the recorded presence of the unspecified Engineering Works, Garage and Laundry within the wider site boundary are potential source of contaminants which could have impacted the shallow soils and groundwater in this area. The Garage identified within the footprint of the Holiday Inn Express is a potential source of hydrocarbon and heavy metal contamination, while the Laundry identified in the southwest of site may also be a source of chemicals, hydrocarbons and chlorinated solvents;

- *Made Ground* – associated with the development of the site is anticipated. At present, the Made Ground may be a potential source of a range of contaminants including heavy metals, hydrocarbons and polycyclic aromatic hydrocarbons (PAHs) and asbestos together with contaminants associated with specific historical and current land uses. If the Made Ground has an appreciable organic content it may represent a potential source of ground gases;

- *Alluvium/peat* – may be present associated with the River Wandle If present, the Alluvium may be expected to include organic content that may be a potential source of ground gases including carbon dioxide and methane;

- *Electrical Substation* – directly neighbouring the area of proposed development may be a source of polychlorinated biphenyls (PCBs) however as first mapped in 1976, post 1970's the risk of PCBs is generally lower. There is potential that the substation and associated pipework may also include Asbestos Containing Materials (ACM) including insulation etc.

4.2.2 Potential Pathways

The following potential pathways have been considered:

- *Ingestion & inhalation* – contaminated soils/dust could be ingested or inhaled by site occupants or construction workers. Vapours may also be inhaled;

- *Direct/dermal contact* – direct/dermal contact with contaminated soils or groundwater can result in the permeation of contaminants through building material or the uptake of contaminants through the skin;

- *Root uptake* – uptake of phytotoxic contaminants by plants and vegetation, although based upon proposed development plans (Appendix A) planting of vegetation is not considered within the proposed development footprint;

- *Lateral and vertical migration* – leaching from potential contamination in the soils may impact the groundwater (if present) which could migrate to deeper aquifer units or migrate off-site;

- *Ground gas/vapour migration* – lateral migration of ground gases and/or vapours through the soil matrix could lead to accumulation within buildings, posing a risk of asphyxiation or explosion;

- *Drainage and services* – can create preferential pathways for contamination to migrate.

4.2.3 Potential Receptors

Based on the proposed end us of the site or residential purposes, the main receptors at the site are considered to be:

- *Future site occupiers* – considered to be at risk from possible contamination associated with the identified sources on site and ground gas/vapour accumulations within buildings;
- *Construction workers* – could be affected by potential contamination within soils and groundwater during ground works. Such persons are likely to be in close contact with potentially contaminated materials (if present);
- *Off-site residents* – potential contamination risks are likely to be low assuming appropriate practices during construction;
- *Controlled waters:*
    - *Groundwater* – the superficial deposits mapped on site by the BGS[3] and in historical borehole logs known to be a Superficial A Aquifer[5] and a principle chalk aquifer is highlighted at depth.
    - *Surface Water* – the River Wandle to the northwest is recorded to be approximately 60m from the site at its closest point and shallow groundwater within the Secondary A Aquifer of the superficial deposits is likely to be in hydraulic continuity with the surface water body.
- *On and off-site buildings and infrastructure* – could be at risk from ground gas migration, aggressive ground conditions and contaminants may permeate buried services such as water supply pipes.

4.3 Preliminary Qualitative Risk Assessment

A preliminary qualitative risk assessment has been undertaken based on the findings of the conceptual site model and the potential pollutant linkages that may exist at the site in accordance with Land Contaminated Risk Management (LCRM) 2020[8]. Using criteria broadly based on those presented in CIRIA Report C552[9], the magnitude of the risk associated with potential pollutant linkages has then been assessed and is summarised below in Table 3. The risk assessment methodology is presented in Appendix D.

[8] The Environment Agency (2020) Land Contaminated Risk Management Guidance. Updated July 2023
[9] CIRIA (2001) Contaminated Land Risk Assessment. A guide to good practice. C552.

Table 3. Preliminary Qualitative Risk Assessment

Potential Source/Medium	*Potential Exposure Route*	*Potential Receptor*	*Severity*	*Probability*	*Risk Rating*
Organic and inorganic contaminants within the shallow soils and/or groundwater associated with the historical development of the site including *Engineering Works*, *Garages* and *Laundries* as well as *the Electrical Substation* currently present neighbouring proposed development site.	Ingestion & inhalation-contaminated soils/dust could be ingested or inhaled by site occupants. Vapours may also be inhaled.	Future site occupiers/users	Medium	Low likelihood	Moderate / Low
		Construction workers	Mild	Likely	Moderate/ Low
		Off-site residents	Mild	Low likelihood	Low
	Drainage and services	On and off-site buildings and infrastructure	Mild	Low likelihood	Low
	Leaching from soils	Groundwater	Medium	Likely	Moderate
	Migration in permeable soils	Surface water	Medium	Low Likelihood	Moderate / Low
Alluvium / Peat and Made Ground with an appreciable organic content.	Inhalation, gas build-up in buildings	Future site occupiers/users	Medium	Low likelihood	Moderate / Low
		Construction workers	Medium	Unlikely	Low
		Buildings	Medium	Low likelihood	Moderate / Low

5. PREVIOUS GROUND INVESTIGATION – MAY 2024

5.1 Scope

The CGL site investigation for the Holiday Inn Express, Wimbledon was completed on the 23rd and 24th of May 2024 with a subsequent monitoring round completed on the 4th June 2024. The scope of investigation comprised the following:

- Specialist service clearance of all exploratory hole locations;
- 2 No. Window Sampler (WS) boreholes to depths of 6m bgl including Standard Penetration Testing (SPT) and Hand Shear Vane (HSV) insitu testing, sampling and installation of groundwater and ground gas monitoring standpipes;
- 2 No. hand dug Trial Pits (TP) to expose the foundations of the current Holiday Inn Express structure within the proposed development area;
- Collection of selected soils samples for chemical and geotechnical laboratory testing; and
- One round of groundwater and ground gas monitoring of WS standpipes.

A table of the exploratory hole locations undertaken on site alongside the reasons for termination can be found in Table 4 below.

Table 4. Exploratory Hole Location Summary

Location ID	Easting (m)	Northing (m)	Level	Hole Type	Final Depth (m)	Termination Reason
WS01	526742.582	170334.396	11.931	WS	6.0	Achieved Target Depth
WS02	526744.739	170328.17	11.883	WS	6.0	Achieved Target Depth
TP01	526744.193	170329.329	12.034	TP	1.0	Achieved Underside of Footing
TP02	526744.309	170328.451	11.749	TP	1.2	Achieved Underside of Footing

It is noted that the original scope was for the completion of three trial pits for inspection of foundations however due to encountering a live gas service running perpendicular to the Colliers Wood High Street along the northeast café wall, the foundation dimensions were obtained through extending the TP02 pit around the building corner.

Samples were retrieved for geotechnical and geoenvironmental testing and were logged by a suitably qualified engineer from CGL. The investigation was generally undertaken in accordance with the requirements set out within BS 5930:2015[10] and BS 10175:2011[11].

5.2 Ground Gas and Groundwater Monitoring

Ground gas and groundwater monitoring wells were installed in both WS boreholes WS01 and WS02. Standpipes were installed to target the Alluvium and River Terrace Deposits with details of response zone depths recorded in Table 5 below.

Table 5. Summary of Monitoring Installations

Location ID	*Monitoring Installation Response Zone (mbgl)*	*Target Strata*
WS01	1.0 to 2.5 [11.93 to 9.431]	Alluvium
WS02	2.0 to 3.0 [9.88 to 8.88]	River Terrace Deposits

5.3 Laboratory Testing

5.3.1 Chemical Testing

Representative soil samples were submitted to i2 Analytical Ltd (i2) (a UKAS and MCERTS accredited laboratory) for chemical testing. The samples taken for chemical laboratory testing were stored and transported in accordance with BS ISO 18400-105:2017[12]. The analysis included the following determinants:

- Soil Organic Matter (SOM);
- Ammoniacal Nitrogen;
- Total Cyanide;
- Heavy metals including antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, mercury, nickel, selenium, vanadium and zinc;
- Polycyclic Aromatic Hydrocarbons (PAH) and Total Petroleum Hydrocarbons (TPH);
- Total Monohydric Phenols;

[10] British Standards Institution (2015) Code of practice for ground investigations. BS 5930:2015+A1:2020.
[11] British Standards Institution (2011) Investigation of potentially contaminated sites – Code of practice. BS 10175:2011+A2:2017.
[12] British Standards Institution (2017). Soil quality. Sampling. Packaging, transport, storage and preservation of samples. BS ISO 18400-105.

- BTEX compounds (benzene, toluene, ethylbenzene, xylenes);
- Polychlorinated Biphenyls (PCB); and
- Asbestos screen and identification.

The full laboratory testing reports are presented in Appendix E.

5.3.2 Geotechnical Testing

Representative soil samples were taken and submitted to i2 (a UKAS accredited laboratory) for geotechnical testing in general accordance with BS 1377[13] The following tests were scheduled at the geotechnical laboratory:

- Four-point Atterberg Limit determination;
- Moisture content;
- Particle Size Distribution (PSD) wet/dry sieve; and
- pH and sulphate conditions for buried concrete.

The full geotechnical laboratory reports are presented in Appendix F.

5.4 Foundation Inspection Pitting

Hand dug trial pits were completed to determine the dimensions and condition of the footings at the three walls within the proposed development footprint. The locations of the trial pits are presented alongside the WS borehole locations on the Exploratory Hole Location Plan (EHLP) in Figure 4.

Foundation Inspection Pitting (FIP) drawings are included within Appendix G of this report alongside the exploratory borehole logs.

[13] British Standard (2018). Methods of testing for soils for civil engineering purposes. BS 1377:2018.

6. SUPPLEMENTARY GROUND INVESTIGATION – OCTOBER 2024

6.1 Scope

The supplementary CGL site investigation for the Holiday Inn Express, Wimbledon was completed on the 30th September and 1st October 2024 with a subsequent gas and groundwater monitoring round completed on the 16th October 2024. The scope of investigation comprised the following:

- Specialist service clearance of all exploratory hole locations;
- 1 No. Cable Percussion (CP) borehole to depths of 25m bgl including Standard Penetration Testing (SPT), sampling and installation of groundwater and ground gas monitoring standpipe;
- Collection of selected soils samples for chemical and geotechnical laboratory testing;
- One round of groundwater and ground gas monitoring of WS and CP standpipes from both CGL investigations; and
- Collection of a single groundwater sample for chemical laboratory testing from the CP standpipe.

Table 6. Exploratory Hole Location Summary

Location ID	Easting (m)	Northing (m)	Level	Hole Type	Final Depth (m)	Termination Reason
BH01	526714.66	170302.891	11.84	CP	25.0	Achieved Target Depth

An exploratory hole location plan is included as Figure 4. The borehole logs from both CGL investigations are included in Appendix G.

Prior to commencing ground penetrating works each exploratory hole location was cleared for buried services using a cable avoidance tool (CAT) and signal generator in accordance with HSG47. The investigation was generally undertaken in accordance with the requirements set out within BS 5930:2015[10] and BS 10175:2011[11].

During the investigation, groundwater strikes were recorded at 1.58m bgl within the River Terrace Deposits and at 4.45m bgl within the London Clay, which is likely to be perched.

6.1.1 Sampling and Field Testing

Soil samples were recovered for geotechnical and geoenvironmental testing and were logged by an engineer from CGL. A single groundwater sample was recovered for geoenvironmental testing during the October monitoring visit.

Geoenvironmental soil samples comprising representative samples from the Made Ground and natural soils were collected in line with the CGL internal Standard Operating Procedure (SOP), which includes using the appropriate amber glass jars for the collection of samples for hydrocarbon analysis and plastic tubs to collect samples for inorganics analysis. Samples were compacted/filled into the relevant containers to minimise headspace. Samples were stored in cool boxes with ice packs to dispatch to the laboratory and no non-conforming samples were reported by the laboratory.

Geoenvironmental groundwater sample was collected from the water encountered in the borehole installation, in line with the CGL internal SOP, which includes using the appropriate amber glass jars for the collection of samples for hydrocarbon analysis. Sample containers were filled in order to minimise headspace and stored in cool boxes with ice packs to dispatch to the laboratory.

Geotechnical samples were taken during the ground investigation consisting of bulk, disturbed and undisturbed (U100) samples, and in-situ Standard Penetration Tests (SPTs) were undertaken at regular intervals.

6.2 Ground Gas and Groundwater Monitoring

Ground gas and groundwater monitoring well was installed in BH01 targeting the River Terrace Deposits with details of response zone depths recorded in Table 7 below.

Table 7. Summary of Monitoring Installations

Location ID	*Monitoring Installation Response Zone (mbgl)*	*Target Strata*
BH01	1.0 to 3.0 [11.84 to 8.84]	River Terrace Deposits

6.3 Laboratory Testing

6.3.1 Chemical Testing

Representative soil samples were submitted to i2 Analytical Ltd (i2) (a UKAS and MCERTS accredited laboratory) for chemical testing. The samples taken for chemical laboratory testing were stored and transported in accordance with BS ISO 18400-105:2017[12]. The analysis included the following determinants:

- Heavy metals / metalloids including antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, mercury, nickel, selenium, vanadium and zinc;
- Polycyclic aromatic hydrocarbons (PAHs) and total petroleum hydrocarbons (TPHs);
- Total monohydric phenols;

- BTEX compounds (benzene, toluene, ethylbenzene, xylenes);
- Total cyanide;
- Soil Organic Matter (SOM);
- Total Sulphate as SO_4;
- pH determination;
- Asbestos screen and identification (Made Ground samples only) and quantification (where asbestos was positively identified during screening);
- Waste Acceptance Criteria (WAC) testing of select Made Ground samples; and
- Water testing for contaminant suite similar to that of the soil testing suite, excluding asbestos.

The full laboratory testing reports are presented in Appendix E.

6.3.2 Geotechnical Testing

Representative soil samples were taken and submitted to i2 (a UKAS accredited laboratory) for geotechnical testing in general accordance with BS 1377[13]. The following tests were scheduled at the geotechnical laboratory:

- Four-point Atterberg Limit determination;
- Moisture content;
- Particle Size Distribution (PSD) wet/dry sieve;
- Quick Undrained Triaxial Testing; and
- pH and sulphate conditions for buried concrete.

The full geotechnical laboratory reports are presented in Appendix F.

7. GROUND AND GROUNDATER CONDITIONS

7.1 Summary

The ground conditions encountered during both CGL investigation (borehole and window sample) works are summarised in Table 8 below and discussed in subsequent report sections. The borehole logs are included in Appendix G.

Table 8. Summary of Ground Conditions

Description of stratum	*Depth to Top (m bgl) [mOD]*	*Typical Thickness (m)*
Generally comprising a thin layer of tarmac over light brown to dark grey clayey sandy gravel with angular to subrounded, fine to coarse gravels of brick and concrete and very clayey slightly gravelly sand. Sand is coarse and occasional rounded coarse flint gravels. (MADE GROUND) *Encountered in all locations*	GL [11.84 to 11.93]	0.34 to 1.20
Very soft dark brown to dark grey sandy silty CLAY. Sand is fine to medium. Occasional rounded coarse flint gravels and relic organic material. Mild organic odour. OR Very loose dark grey brown slightly gravelly clayey SAND. Sand is fine to coarse. Gravel is angular to rounded, fine to coarse of flint and brick. Rare fine shells and shell fragments. [ALLUVIUM] *Encountered in WS01 and WS02 only*	1.00 to 1.20 [10.93 to 10.68]	1.30 to 1.80
Initial layer of soft light gravely slightly sandy clay over medium dense light brown very sandy gravel. Gravel is subangular to rounded, medium to coarse of flint. Sand is fine to coarse. [RIVER TERRACE DEPOSITS] *Encountered in all locations*	0.90 to 2.80 [10.94 to 9.13]	0.35 to 2.20
Firm becoming stiff greyish brown fissured mottled light bluish grey silty clay with mica traces. [LONDON CLAY FORMATION] *Encountered in all locations*	2.85 to 3.10 [9.03 to 8.74]	21.90*

*Note: * Base of stratum not encountered*

The ground conditions encountered are discussed in the report sections below, and SPT 'N' values versus level (mOD) and undrained shear strength (c_u) versus level (mOD) are present within Figure 5 and Figure 6 respectively.

7.2 Visual and Olfactory Evidence of Contamination

Anthropogenic materials such as brick and concrete were found within the Made Ground on site likely associated with previous phases of development. Additionally, a strong hydrocarbon odour was noted within the River Terrace Deposits in BH01. Visual or olfactory indicators of significant / gross contamination were limited within the areas investigated.

7.3 Made Ground

The Made Ground comprised a thin layer of tarmac over light brown to dark grey clayey sandy gravel with angular to subrounded, fine to coarse gravels of brick and concrete and very clayey slightly gravelly sand. Sand is coarse and occasional rounded coarse flint gravels.

7.4 Alluvium

Alluvium was encountered only in the two window sampler borehole locations (May CGL investigation) directly underlying the Made Ground. The Alluvium was recorded to vary in composition between locations WS01 and WS02, with WS02 comprising a 0.4m thickness slightly gravelly clayey sand unit underlying the Made Ground from 1.2m (10.68mOD) to 1.6m (10.28mOD) followed by a sandy silty clay to 2.5m (9.38mOD). WS01 however records the Alluvium as a silty clay from 1.0m (10.93mOD) to 2.2m (9.73mOD) becoming slightly sandy with depth between 2.2m (9.73mOD) and 2.8m (9.13mOD).

Alluvium was not encountered in the supplementary Borehole BH01.

Four no. Standard Penetration Tests (SPTs) were completed within the Alluvium recording SPT 'N' values of N=1 to N=3.

Four no. Hand Shear Vane (HSV) tests were also completed within the Alluvium to determine the undrained shear strength of the soils. These recorded values of between 18kPa and 30kPa, corresponding to the undrained strength terms of 'extremely low strength' to 'low strength'[10] based upon a c_u correlation of SPT 'N' x *f1 [4.5]* = c_u. The SPT 'N' values for the stratum are presented against level in Figure 5, and the undrained shear strengths (c_u) against level in Figure 6 respectively.

Classification testing was completed on three no. samples of the Alluvium and the following parameters were indicated below in Table 9.

Table 9. Summary of Classification Testing for the Alluvium

Stratum	MC (%)	LL (%)	PL (%)	PI (%)	Material <425µm (%)
Alluvium	26 to 34	38 to 56	19 to 35	16 to 21	76 to 100

Based upon the above, the Alluvium may be classified as a medium plasticity clay or a high plasticity silt, with a low to medium volume change potential[14]. It is noted the above parameters are based upon a limited number of samples.

[14] NHBC (2013) NHBC Standards. Chapter 4.2 Building near trees.

7.5 River Terrace Deposits

The River Terrace Deposits were encountered at a depth of 0.9m (10.94mOD) within Borehole BH01 and between 2.5m (9.38mOD) and 2.8m (9.13mOD) in the window sample boreholes (WS01 and WS02). The base of the River Terrace Deposits contacting the underlying London Clay was found to be at between 2.85m (9.03mOD) and 4.30m (7.63mOD). However, in BH01, the base of the River Terrace Deposits was found to be at 3.10m (874mOD).

The River Terrace Deposits generally comprised an initial layer of soft light gravely slightly sandy clay to a depth of 1.16m (10.68mOD) over medium dense light brown very sandy gravel. Gravel is subangular to rounded, medium to coarse of flint. Sand is fine to coarse.

A strong hydrocarbon odour was noted from 2.2m (9.64mOD) to 3.10m (8.74mOD) in BH01.

Across both investigations, five no. SPTs were undertaken within the River Terrace Deposits recording SPT 'N' values of N=5 and N=20, with an average value of 19, correlating to a relative density of 'medium dense'[10].

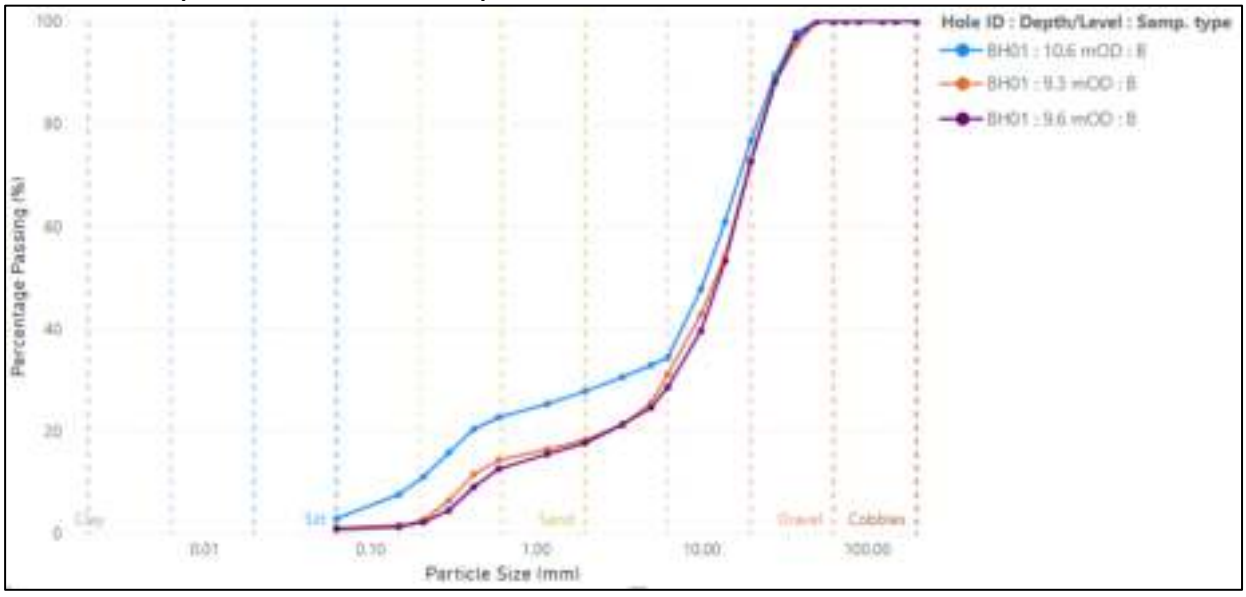
In Borehole BH01, three no. Particle Size Distribution (PSD) tests were conducted on samples of the River Terrace Deposits at 1.2m (10.64mOD), 2.2m (9.64mOD) and 2.5m (9.34m OD). The results of the PSD tests are summarised in Table 10 and graphically presented in Plate 6 below.

Table 10. Summary of Particle Size Distribution Results for the River Terrace Deposits

Stratum	Cobbles (%)	Gravels (%)	Sand (%)	Fines (%)	Uniformity Coefficient (%)*
River Terrace Deposits	0	72 to 82	17 to 25	1 to 3	34 to 71

Note * - Uniformity coefficient calculated in accordance with BS EN ISO 14688-2:2018. Directly extracted from laboratory reports

Plate 6. PSD Graph for the River Terrace Deposits



7.6 London Clay Formation

The London Clay Formation was proved to the maximum depth investigated, of 25m (-13.16mOD). The London Clay Formation was recorded to compose a greyish brown fissured mottled light bluish grey silty clay with mica traces.

Eight no. SPTs were undertaken within the London Clay Formation and record SPT 'N' values of N=13 to N=61 which correlates to a firm to stiff clay, supporting field observations for the stratum. SPT 'N' values and undrained shear strengths for the London Clay Formation and overlying strata are presented against level in Figure 5 and Figure 6 respectively.

Classification testing was completed on eight no. samples of the London Clay Formation and the following parameters were indicated below in Table 11.

Table 11. Summary of Classification Testing for the London Clay Formation

Stratum	MC (%)	LL (%)	PL (%)	PI (%)	Material <425µm (%)
London Clay Formation	24 to 30	61 to 82	24 to 32	34 to 51	96 to 100

Based upon the above, the London Clay may be classified as a high plasticity clay with a medium volume change potential[14].

Full geotechnical laboratory reports are included within Appendix F.

7.7 Groundwater

7.7.1 Groundwater Strikes

Groundwater strikes were encountered in Borehole BH01 at depths of 1.58m bgl (10.26mOD) within the River Terrace deposits and 4.45 bgl (7.39mOD) within the London Clay. Within WS01, groundwater strike was recorded at 2.8m (9.13mOD) and in WS02 at 2.5m (9.38mOD), both within the River Terrace Deposits.

7.7.2 Groundwater Monitoring

A return groundwater monitoring visit was completed on the 16th October 2024. At the same time, the previous window sampler borehole installations were monitored. No groundwater quality data were recorded. A summary of the groundwater levels monitored is presented in Table 12 overleaf, with detailed monitoring results included within Appendix I.

Table 12. Summary of Groundwater Monitoring Results

Location ID	*Date*	*Response Top (mbgl)*	*Response Base (mbgl)*	*Response Zone Stratum*	*Depth to Water (mbgl)*	*Water Level (mOD)*
WS01	04/06/2024	1.0	2.5	ALLUVIUM	2.31	9.62
	16/10/2024				1.95	9.98
WS02	04/06/2024	2.0	3.0	RIVER TERRACE DEPOSITS	2.10	9.78
	16/10/2024				2.25	9.63
BH01	16/10/2024	1.0	3.0	RIVER TERRACE DEPOSITS	1.67	10.17

7.8 Ground Gas

A return gas monitoring visit was completed on the 16th October 2024. At the same time, the previous window sampler borehole installations were monitored.

A falling pressure system was observed during the monitoring visit recording an atmospheric pressure of between 1001mb and 1006mb. A GA5000 gas analyser was used to measure gas flow, oxygen, carbon dioxide and methane concentrations. Full monitoring records are provided in Appendix I and a summary of the maximum flow rates and carbon dioxide and methane concentrations by borehole is given in Table 13 below.

Table 13. Summary of Ground Gas Monitoring Results

Location	*Stratum Targeted by Response Zone*	*Date*	*Steady Flow Rate (l/hr)*	*Minimum O_2 (% vol. in air)*	*Maximum CO_2 (% vol. in air)*	*Maximum CH_4 (% vol. in air)*
WS01	ALLUVIUM	04/06/2024	<0.01	20	0.6	<0.01
		16/10/2024	<0.01	20.7	0.4	<0.01
WS02	RIVER TERRACE DEPOSITS	04/06/2024	<0.01	20.7	<0.01	<0.01
		16/10/2024	<0.01	20.5	0.4	<0.01
BH01	RIVER TERRACE DEPOSITS	16/10/2024	<0.01	33	2.8	6.0

Photoionization detection (PID) monitoring was recorded down-hole during each monitoring visit to record volatile organic compounds (VOCs) that may have originated from volatile contamination from on and offsite sources. Sustained PID readings were not observed.

7.9 Sulphate, Sulphur and pH Conditions

Eight no. soil samples were analysed for sulphate and pH conditions to support the design of buried concrete in accordance with BRE SD1[15]. A summary of the laboratory test results is provided in Table 14 overleaf. Table 15 shows the laboratory results of the previous CGL investigation. The full laboratory reports are provided within Appendix F.

[15] BRE (2005) Concrete in Aggressive Ground. BRE Special Digest 1:2005

Table 14. Summary of Sulphate and pH Testing Results

Stratum	*Number of samples*	*pH*	*Total Sulphate as SO_4 (mg/kg)*	*Water Soluble SO_4 (mg/l)*	*Total Sulphur (mg/kg)*
Made Ground	1	7.9	-	100	-
River Terrace Deposits	1	8.4	-	92	-
London Clay	6	8.5 to 9.0	370 to 1200	340 to 980	3400 to 12000
	Number of samples	**pH**	**Sulphate as SO_4 (mg/l)**		
Groundwater	1	7.3	30.9		

Table 15. Summary of Sulphate and pH Testing Results

Stratum	*Number of samples*	*pH*	*Total Sulphate as SO_4 (mg/kg)*	*Water Soluble SO_4 (mg/l)*	*Total Sulphur (mg/kg)*
Made Ground	1	11.2	-	72.5	-
Alluvium	1	8.3	310	17.8	410
River Terrace Deposits	2	8.7 to 8.8	-	11.5 to 12.7	-
London Clay Formation	3	8.3 to 8.6	620 to 680	235 to 292	3400 to 7300

8. GEOENVIRONMENTAL ASSESSMENT

8.1 Introduction

This section of the report evaluates risks to potential receptors at the site from identified chemical contamination. Potential receptors have been determined with reference to the Part 2A regime and associated Defra guidance[16]. As with the Part 2A regime, under the planning regime all receptors (humans, controlled waters, ecology and buildings) have been considered if there is the potential for them to be adversely affected by exposure to contamination. The exploratory hole locations and subsequent laboratory tests were undertaken on a randomised sampling approach dependant on site constraints, accessibility and underground services to investigate identified potential sources of contamination.

A total of seven samples of Made Ground were collected and tested; five from the first CGL investigation and two from the supplementary one. The sections below summarize the findings of all the samples across the site from both investigations.

8.2 Risks to Human Health (Long-term Chronic Risk)

The laboratory test results have been compared against Generic Assessment Criteria (GAC) that have been derived in-house by CGL for *"commercial"* land use to assess the potential risk to human health from contamination in soils based upon the proposed development plans for the site. The determination of land use is based upon the proposed continuation of site as a hotel and not permanent housing.

During the previous CGL investigation a total of eight no. soil samples were scheduled for chemical testing; three samples of the Alluvium and five of the Made Ground. Based upon the average organic matter percentage recorded in the above samples, a conservative organic matter percentage of 1% for the Made Ground and 2.5% for the Alluvium has been assumed for the assessments.

During the supplementary CGL investigation, a total of four no. soil samples were scheduled for chemical testing; two samples of the River Terrace Deposits and two of the Made Ground. Based upon the average organic matter percentage recorded in the above samples, a conservative organic matter percentage of 1% for the Made Ground and the River Terrace Deposits has been assumed for the assessments.

The results of the assessments undertaken for the soils for both investigations are set out in Tables H1, H2 and H3 of Appendix H.

[16] DEFRA. (2012). Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance. Department for Environment, Food and Rural Affairs.

8.2.1 Risks from Soil Contamination

The results of the chemical assessment for the soils indicate that all the concentrations of determinants are below their respective GAC for the Made Ground for a *commercial* end use.

The assessment tables including concentrations for each stratum compared against GAC for commercial end use are appended within Appendix H.

8.2.2 Risks from Ground Gas

Based upon the limited data retrieved from the monitoring visits undertaken on the 4th June and 16th October 2024, a preliminary Gas Screening Value (GSV) has been calculated in general accordance with CIRIA 665[17] and NHBC 2023 guidance[18]. The calculations are based on the maximum flow rate of <0.01l/hr, the maximum value of carbon dioxide (2.8%) and methane (6.0%) recorded across site. With reference to BS8485, gas screening values (GSVs) have been calculated for methane and carbon dioxide using the following equation:

GSV = borehole flow rate (l/h) x gas concentration (%)

The calculated "worst possible" GSVs are presented in Table 16 below.

Table 16. Gas Screening Value Calculation Table

Ground gas	*Maximum site concentration (%)*	*Peak flow rate (l/hr)*	*Worst case calculated GSV (l/hr)*
Methane	6.0	<0.01	0.0016
Carbon dioxide	0.6		0.016

Based on the above concentrations and flow rates recorded in the initial monitoring rounds, since the calculated GSVs in Table 16 are below 0.07 l/hr, these correlate to Characteristic Situation 1 (CS1).

The Made Ground was identified across the site but was relatively shallow, only extending to depths of 1.2m at investigation locations. Although monitoring wells were not screened in the Made Ground, the generation potential for ground gas is considered 'very low' due to the low degradable organic content reported in collected samples (i.e. <5%)[19].

Following a CS1 classification, no ground gas protection measures are required for new structures at the site. CGL has undertaken only two monitoring visits and collected very limited data to date and therefore further monitoring may be required.

[17] CIRIA. (2007). Assessing risks posed by hazardous ground gases to buildings, CIRIA Report C665, London
[18] NHBC (2023) Hazardous Ground Gas - An essential guide for housebuilders. NF97
[19] Wilson, Card & Haines (2009) – Ground Gas Handbook

8.2.2.1 Radon

References to BRE[20] and HPA[21] guidance documents on radon and the radon potential as defined for the site area by Public Health England in the BGS Onshore GeoIndex Map[3], the site is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

8.3 Risks to Controlled Waters

8.3.1 Groundwater Testing

A single water sample was obtained and tested during the CGL investigation, retrieved from the shallow groundwater body within the River Terrace Deposits at borehole BH01. The results were also compared to the Environmental Quality Standards for freshwater and drinking water receptors, with the following exceedances recorded:

- The concentrations of speciated PAHs benzo(a)pyrene exceeded the EQS thresholds for both freshwater and drinking water receptors. The concentration of benzo(a)pyrene was recorded to be 0.06µg/l (EQS limit of 0.02µg/l and drinking water limit of 0.01µg/l).

The full assessment is provided in Table H5 in Appendix H.

8.3.2 Summary

The contaminant concentrations exceeding the EQS criteria within the groundwater sample are speciated PAH benzo(a)pyrene. Therefore, it is considered possible that this contamination originates on site.

However, as the existing building is to remain and the proposed extension will occupy the entire site footprint, water infiltration and therefore mobilisation of contaminants will be limited, and as such, the risks to the shallow groundwater body are considered to be moderate to low. The deeper groundwater bodies are protected by the overlying substantial thickness of the low permeability London Clay Formation. However, piling is anticipated to extend through the London Clay, creating a potential migration pathway to the deep aquifers. Therefore, a moderate to low risk is also considered for the deeper water bodies during pile installation and a Piling Work Risk Assessment is likely to be required.

8.4 Risks from Groundwater Contaminants (Vapour Pathway Only)

The groundwater chemical analysis results have been compared to volatile compound assessment criteria for a 'commercial' end use and the results of the assessment are summarised in Table H6 of

[20] BRE. (2015). *Radon: Guidance on protective measures for new buildings*. Building Research Establishment, Report BR211, 2015
[21] HPA. (2007). *Interactive atlas of radon in England and Wales*. Health Protection Agency, HPA-RPD-033, 2007

Appendix H. The results of the assessment indicate that the contaminants are below their respective thresholds. Additionally, low Volatile Organic Compound (VOC) concentrations were recorded using a photoionization detector (PID) during the two monitoring visits. Strong hydrocarbon odour was recorded during the supplementary CGL investigation during the drilling of BH01.

As such, the risk from vapour associated with groundwater contamination is considered to be low to moderate.

8.5 Risks from Ground Gas

Gas screening values have been calculated in accordance with CIRIA 665[22] and NHBC guidance using the maximum flow rate and maximum volume recorded during the gas monitoring visits undertaken to date. A maximum Gas Screening Value (GSV) of 0.016 l/hr has been calculated for CO_2, with a maximum GSV of 0.0016 l/hr for CH_4, corresponding to Characteristic Situation 1 (CS1).

The Made Ground was identified across the site but was relatively shallow, only extending to depths of 1.2m at investigation locations. Although monitoring wells were not screened in the Made Ground, the generation potential for ground gas is considered 'very low' due to the low degradable organic content reported in collected samples (i.e. <5%)[19].

Given this, and the low PID concentrations recorded during monitoring, and low soil contaminant concentrations indicated by laboratory analysis, the site is considered to be at low risk from ground gas.

As such, specific gas protection measures are not considered to be necessary in the foundations of the new development.

8.6 Risks to Water Supply Pipes

The risk to buried water supply pipes has been assessed from the chemical laboratory testing, which has been compared against the UKWIR23 for water pipe supply. The results are outlined in Table H6 of Appendix H, and indicate that the EC10-EC16 aliphatic hydrocarbons concentrations are slightly above the published threshold, and therefore barrier piping may be required for buried water supply pipes. However, further discussion and confirmation are required by the relevant water company prior construction commencement.

[22] CIRIA (2007). Assessing risks posed by hazardous ground gases to buildings, CIRIA Report C665, London.
[23] UK Water Industry Research. (2010). *Guidance for the selection of water pipes to be used in brownfield sites.* Ref 10/WM/03/21.

8.7 Risks to Buildings and Structures

Based upon the proposed development plans for the site and geological / site constraints identified, both shallow and piled foundation approaches are under consideration. A such, appropriate concrete classification for foundations within the superficial soils and potentially pyritic London Clay Formation is required. Potential risks to on-site buildings and structures from sulphate concentrations is considered to be low with consideration of appropriate concrete design based on sulphate concentrations recorded. Implications of the sulphate and pH conditions are discussed in Section 10.6 this report.

8.8 Revised Conceptual Site Model

The preliminary risk assessment has been updated based on the findings of the site investigation and the potential pollutant linkages revised and re-assessed in accordance with LCRM[8].

Table 17. Revised Conceptual Site Model

Potential Source/Medium	*Potential Exposure Route*	*Potential Receptor*	*Severity*	*Probability*	*Risk Rating*
Organic and inorganic contaminants within the shallow soils and/or groundwater associated with the historical development of the site including *Engineering Works*, *Garages* and *Laundries* as well as *the Electrical Substation* currently present neighbouring proposed development site.	Ingestion & inhalation-contaminated soils/dust could be ingested or inhaled by site occupants. Vapours may also be inhaled.	Future site occupiers/users	Medium	Unlikely	Low
		Construction workers	Mild	Likely	Moderate/ Low
		Off-site residents	Mild	Low likelihood	Low
	Drainage and services	On and off-site buildings and infrastructure	Mild	Low likelihood	Low
	Leaching from soils	Groundwater	Medium	Low likelihood	Moderate / Low
	Migration in permeable soils	Surface water	Medium	Unlikely	Low
Alluvium / Peat and Made Ground (where encountered) with an appreciable organic content.	Inhalation, gas build-up in buildings	Future site occupiers/users	Medium	Low likelihood	Moderate / Low
		Construction workers	Medium	Unlikely	Low
		Buildings	Medium	Low likelihood	Moderate / Low

9. GEOENVIRONMENTAL RECOMMEDATIONS

The proposed development will comprise the construction of an additional 10 guest rooms within the footprint of the café and gated terrace area with a four storey extension to the existing building to match the building height.

The following sections provide geoenvironmental recommendations with respect to contamination/remediation, and good practice management of materials and health and safety.

9.1 Contamination and Remediation

Contaminant concentrations within the shallow soils on site were recorded to be generally below their respective assessment criteria, with some GAC exceedances of speciated PAHs recorded in the groundwater testing.

Based on the assessments completed, the risks to human health (future site users, off-site land users, and construction workers) are considered to be low, with no specific remedial measures considered required to further mitigate these risks.

The groundwater testing results indicate that benzo(a)pyrene was detected in shallow groundwater. However, as the proposed structure will cover the entire site footprint, water infiltration from the surface will be significantly reduced, in turn decreasing the potential for these contaminants to be mobilised and migrate further into the groundwater. It is understood that the piling may extend through the London Clay, creating a potential migration pathway to the deep aquifers and therefore a Piling Works Risk Assessment is likely to be required.

Buried concrete and water supply pipes will need to be designed as appropriate for the aggressive ground conditions on site and the contaminants recorded.

A Remediation Strategy for the site may be required, which may include but not be limited to, provision of protective water supply pipes, watching brief and discovery strategy and materials management. Should the proposed scheme be adapted to include soft landscaping at ground level, reassessment of the risks to the identified receptors will be required. Additionally, placement of clean cover system across areas of soft landscaping would likely be necessary if the existing Made Ground remains on site.

9.2 Waste Classification and Material Management

As indicated in The Waste (England and Wales) Regulations (2011), the “waste hierarchy” should be used to rank waste management options according to what is best for the environment. Top priority should be given to preventing waste in the first place, for example, during the pre-construction and planning

stages of a new development. However, if waste is created, priority should be given to preparing it for re-use, then recycling, then recovery, and last of all disposal.

9.2.1 Re-use, Recycling and Recovery

In order to minimise the volumes of soils being disposed to landfill facilities, it is prudent to consider material management options prior to waste disposal. Screening of uncontaminated natural arisings may permit recycling/re-use of the material on site or for other sites under the WRAP protocol[24] (uncontaminated granular soils only) or the CL:AIRE protocol[25] and would lead to a reduction in disposal requirements if proposed development plans change to require such.

Providing that a Design Statement, including a Materials Management Plan (MMP), is produced to detail where materials will arise and how they will be used within the limits of the Code of Practice, there is no requirement to seek an environmental permit to re-use materials. However, the process would require a final validation report and sign off by a Qualified Person and is not applicable to soils that pose harm to human health or the environment.

9.2.2 Preliminary Waste Characterization

As detailed in the Environment Agency's 'Guidance on the classification and assessment of waste (4th Edition v1.2.GB) Technical Guidance WM3', wastes are presented in the List of Wastes Directive (LoWD as amended[26]) and grouped according to generic industry, process and waste type. Wastes within the LoWD are either hazardous or non-hazardous. Some of these wastes are hazardous without further assessment (absolute entries) or are 'mirror' entries that require further assessment as to hazardous properties in order to determine whether the waste is hazardous.

Waste soil, EWC code 17 05, has mirror entries on the LoWD and as such the first phase of the waste classification process is to determine if the waste is hazardous or not, i.e., a hazard assessment.

Certain contaminants (e.g., asbestos, diesel) have prescribed concentration thresholds that if breached will render the material hazardous waste. Thus, in the first instance the concentrations of plausible contaminants within the soil should be identified. A general suite of contaminants has been tested for, which includes relevant contaminants of concern such as organics (petroleum hydrocarbons), metals and asbestos. Based on the site history and surrounding land uses persistent organic pollutants (POPs) are not considered to be contaminants of concern. Results of this assessment should help to determine the likely fate of the soil (re-use elsewhere or disposal) and whether the soil is hazardous 17 05 03* (asterisk

[24] WRAP. (n.d.) The Quality Protocol.
[25] CL:AIRE.(2011). The Definition of Waste: Development Industry Code of Practice. Version 2.
[26] The Waste (Miscellaneous Amendments) (EU Exit) Regulations 2019

denotes hazardous waste code) or non-hazardous 17 05 04. Dependent on the results of the hazard assessment advice can be given as to the likely options available for a given waste and any further testing or assessment that may be required.

The laboratory test results from the four soil samples sent for chemical analysis have been entered into the HazWasteOnline model that uses that latest data and regulations to calculate the relevant hazard codes associated with each contaminant, summarised in Table 18. WAC testing was carried out on a single sample and the results also entered into HazWasteOnline.

Table 18. Preliminary waste characterisation.

Location	*Sample Depth (mbgl)*	*Stratum*	*Asbestos*	*European Waste Catalogue (EWC) Code*	*Comments*
BH01	0.50	Made Ground	Not Detected	17 05 04	Samples returned as 17 05 04 non-hazardous waste.
	1.0				Samples returned as 17 05 04 non-hazardous waste.
	2.2	River Terrace Deposits			Samples returned as 17 05 04 non-hazardous waste. Subsequent WAC testing indicates the materials were compliant with the inert WAC threshold criteria.
	2.5				Samples returned as 17 05 04 non-hazardous waste.

Both samples Made Ground and River Terrace Deposits were returned as 17 05 04 non-hazardous waste. Subsequent WAC testing of a single sample indicates that the same sample was compliant with the inert WAC threshold criteria. It is recommended that the chemical and WAC analysis data are supplied to the preferred inert disposal facility to confirm whether the material in question would be acceptable within the specific permit limits for the facility.

Uncontaminated natural soils would be acceptable to an inert landfill without the need for additional WAC testing in accordance with current legislation, assuming that the natural material can be effectively segregated from the Made Ground during construction.

In May/June 2012 HMR&C issued Briefs 15/12 and 18/12 clarifying how construction spoil and excess soils will be assessed for landfill tax purposes. Detailed accurate descriptions of waste are required for all wastes to support the landfill tax assessment. Uncontaminated naturally occurring soils will remain inert by default and eligible for the lower rate of landfill tax. Similarly, 'reworked soils' and demolition 'stone' comprising ONLY materials listed in the Schedule of the Landfill Tax (Qualifying Material) Order 2011 (SI 2011/1017) will also be eligible for the lower rate of landfill tax.

However, Made Ground containing soil and foreign objects such as timber, plastic, rubber, metal, paper, plasterboard, asbestos, etc., regardless of the results of chemical analysis for waste classification purposes, will be eligible for the standard (higher) rate of landfill tax. Therefore, to maximise eligibility for lower rate landfill tax on waste construction spoil/ reworked ground, careful waste segregation and controls are necessary. Such material, with more than 1% 'foreign' material would also be characterised as mixed waste with a different EWC code 17 09 03*(where hazardous) and 17 09 04 (where non-hazardous).

9.2.3 Waste Handling

All material intended for off-site disposal should be transported and disposed in accordance with the Environmental Protection (Duty of Care) Regulations, 1991 and the Landfill (England and Wales) Regulations, 2002 (as amended). Waste legislation stipulates that hazardous and not hazardous waste should be pre-treated prior to disposal. Pre-treatment can be undertaken either at the site of origin or may be carried out at a licensed off-site facility and can include selective segregation of soils conducted on site.

9.2.4 Asbestos

Asbestos fibres were not encountered during any of the CGL ground investigations. Where Made Ground is encountered during construction, although asbestos has not been positively identified within the CGL investigation precautions must be taken in the event of visually impacted asbestos soils being positively identified during earthworks. In this event, soils would require segregating and handling appropriately according to the main contractor's method statements and best practices.

9.3 Watching Brief and Discovery Strategy

A contamination watching brief and discovery strategy should be implemented by the main contractor during construction to address potential risks associated with as yet unidentified contamination. Where unexpected contamination, such as oily material or material of an unusual colour or odour, is encountered, the following discovery strategy is recommended:

- Work to cease in that area.
- Notify geoenvironmental engineer, to attend site and sample material for appropriate analysis. Notify Contaminated Land Officer at the City of London and/or the Environment Agency, as appropriate.
- Geoenvironmental engineer to supervise the excavation of contaminated material, which should be placed in a bunded area and covered to prevent rainwater infiltration.

- Soil samples should be obtained by the geoenvironmental engineer from both the excavated material, and the soils in the sides and base of the excavation to demonstrate that the full area of contamination has been excavated. In-situ testing should be undertaken on the sides and base of the excavation, as appropriate, to assess the presence of residual contamination in the soils.
- On receipt of chemical test results, the soils may be appropriately classified for disposal, or treatment if appropriate, and dealt with accordingly.
- Detailed records of the stockpile sizes, source and location should be kept and regularly updated to allow materials to be easily tracked from excavation until leaving the site.
- Records of excavated areas and the results of chemical testing should be incorporated within the final verification report for the site.

To facilitate appropriate waste disposal, if disposal of waste soil is required, all excavated soils should be segregated and stockpiled depending on their soil classifications.

9.4 Health and Safety

All site works should be undertaken in accordance with the guidelines prepared by the Health and Safety Executive (HSE, 1991)[27] and CIRIA Reports C132[28] and C650[29]. Where / if necessary, ACMs should be handled/removed in accordance with current regulations and guidance[30,31,32,33]. All work should also be carried out in accordance with the Contractor's Construction Health and Safety Plan. During the redevelopment, precautions should be taken to minimise exposure of workers and the general public to potentially harmful substances. Attention should also be paid to restricting possible off-site nuisance such as dust and odour emissions. Such precautions should include, but not be limited to:

- Personal hygiene, washing and changing procedures;
- Adequate PPE including disposable overalls, gloves and particulate filter masks/vapour respirators, where required;
- Dust and vapour suppression methods, particularly in enclosed spaces/ basements, including dampening down, minimising the working face exposed and covering stockpiles, where required;

[27] HSE (1991). Protection of Workers and the General Public during the development of contaminated land. Guidance Note HS(G)66, Health and Safety Executive, HMSO, 1991.
[28] CIRIA (1996). A guide for safe working on contaminated sites. Steeds JE, Shepherd E & Barry DL. CIRIA Report 132.
[29] CIRIA (2005) Environmental good practice – Site guide, 2nd Edition. CIRIA Report C650.
[30] HSG247 (2006) *Asbestos: The licensed contractors' guide*
[31] HSE (2006). *Work with materials containing asbestos- Control of Asbestos Regulations 2006- Approved Code of practice and guidance*, HSE 2006.
[32] Health and Safety Executive (2012). *The Control of Asbestos Regulations*.
[33] Health & Safety Executive. (January 2010). *Asbestos: The Survey Guide*. HSG 264

- Regular cleaning of all site roads, access roads and the public highway;
- Safe storage of fuel and other potentially polluting liquids and the provision of spill control and clean up facilities; and
- Positive collection and disposal of on-site run-off.

Excavations should be planned and inspected regularly by a competent person. No operatives should be permitted to enter un-shored or otherwise protected excavations identified as unstable by a competent person, however shallow they are. The stockpiled material and excavations should be dampened during all earthworks excavation and earth moving activities and vehicles should be washed before leaving site, with washings contained on site and suitably disposed.

It is not anticipated that long-term monitoring will be required for the proposed scheme further than the current programme of monitoring, however an earthworks completion report may be required to accompany the H&S file. This should include records on waste management, information on landscaping, soils imported and that the soils comply with permissible GACs in accordance with the current CLEA guidance. Please note though that if unexpected contamination is encountered then remedial measures, verification and a corresponding verification report may be required.

10. GEOTECHNICAL RECOMMENDATIONS

10.1 General

Current proposed development plans for the extension of the Holiday Inn Express into the southeast corner of site currently occupied by a single storey café. The proposed extension will comprise four storeys from ground level. The following geotechnical recommendations are based upon ground investigation findings, laboratory testing information and proposed development plans.

10.2 Geotechnical Design Parameters

Geotechnical design parameters have been provided, based on the in-situ SPT data, soil descriptions, results of the laboratory testing and published data for the well-studied London geology. These values are unfactored (characteristic values) and are considered to be 'moderately conservative' design parameters. The parameters are presented in Table 19 below. Plots showing the SPT 'N' values versus level (mOD) and undrained shear strength (c_u) versus level (mOD) are provided in Figure 5 and Figure 6 respectively.

Table 19. Geotechnical Design Parameters

Stratum	*Level at Top [mOD]*			*Bulk Unit Density γ_b (kN/m³)*	*Undrained Cohesion c_u (kPa) [c']*	*Friction Angle Ø (°)*	*Young's Modulus Eu (MPa) [E']*
	WS01 (N)	*WS02 (N)*	*BH01*				
Made Ground	11.9	11.9	11.8	18 [a]	-	24 [i]	-
Alluvium	10.9	10.7	-	16 [a]	10 [b]	24 [a]	6.0 [d] [4.5] [d]
River Terrace Deposits	9.1	9.4	10.9	19 [a]	-	35 [a]	30 [c]
London Clay Formation	7.6	9.0	8.8	20 [a]	50 + 8.4z [b] [5]	23 [a]	30+5z [d] [22.5+3.8z] [d]

a) BS 8004:2015 Code of Practice for Foundations
b) Cu = SPT 'N' x f1 where f1 = 4.5, after Stroud & Butler (1975)
c) Es = 1,200(N+6) For med-dense sands & gravels. Foundation Analysis and Design, Fifth Edition, Joseph E. Bowles, 1996*
d) Eu = 600xcu and E' = 0.75xEu: Burland, Standing, Jardine (2001) Building Response to Tunnelling, CIRIA SP200.
e) Nominal value for made ground (Normally not suitable for foundations)

10.2.1 Groundwater

The groundwater strikes and subsequent monitoring indicate the presence of a shallow groundwater within the River Terrace Deposits to a depth of about 10mOD, corresponding to a hydrostatic head of approximately 1m.

It should be noted that NHBC standards recommend that groundwater monitoring is undertaken over a period of at least 12 months, in order to capture seasonal variations[34].

[34] NHBC (2019). NHBC Standards.

10.3 Piled Foundations

It is understood that the new structure will be founded on a piled foundation, due to the presence and thickness of Alluvium and River Terrace Deposits below the proposed extension. No details regarding the type, diameter, or depth of these piles have been provided at this time.

Preliminary pile capacities have been calculated based on the use of Continuous Flight Auger (CFA piles of 300mm and 450 mm diameter. Partial factors used are as recommended by Eurocode 7[35], based on EC7 Design Approach 1 Combination 2 and should be compared against appropriately factored actions.

The factors assumed for these calculations and shown in Table 20, below.

Table 20. Partial Resistance Factors for Preliminary Pile Capacities

Resistance	Symbol	R4	R4 (with explicit verification of SLS)
Base	γ_b	2.0	1.7
Shaft (compression)	γ_s	1.6	1.4
Shaft (tension)		2.0	1.7
Model Factor		1.4	

Additionally, the following assumptions have been made:

- Cut-off level assumed at approximatively +10.775mOD, as indicated by Simpsons[36].
- Skin friction on the piles has been restricted to 140kPa for cohesive soils and 200kPa for granular soils.
- Adhesion value of 0.6 for the London Clay Formation has been assumed.
- Ultimate base stress in granular soils is limited to:
    - 10MPa for the River Terrace Deposits; and,
    - 15MPa for the London Clay Formation.
- Any contribution from the Made Ground and Alluvium to the pile capacity has been ignored.
- Any contributions to 'down-drag' caused by settlement of Made Ground and Alluvium has not been considered.

The preliminary pile capacities are shown in Figure 7 and Figure 8.. Table 21 below summarizes the minimum pile length required for the two pile diameters based on the highest design load. The maximum design load is taken as 775kN for EC7 Design Approach 1 Combination 2 based on the maximum combination of dead load (450kN) and live load (250kN) as shown in the piling layout drawing[42].

[35] British Standards Institution. (2006) National Annex to Eurocode 7: Geotechnical Design BS EN 1997-1
[36] Simpson, Holiday Inn Express, Wimbledon, Piling Layout, Project Number P23-001, drawing No 08, Revision P1, dated October 2024

Table 21. Example of highest design load and associated pile length.

Pile Diameter (mm)	Design Load-DA1C2 (kPa)	R4 (m)	R4 (with explicit verification of SLS) (m)
300	775	~23	~21
450		~18	~17

Early consultation with an appropriate piling contractor is recommended to confirm pile working capacities and to ensure the piling contractor can achieve the required depths and capacities. Specialist piling contractors may potentially show varying load capacity than those shown in Figure 7 and Figure 8 based on specific knowledge of their piling equipment and the geology present, as well as supporting testing evidence that may be acceptable to the local authority.

10.3.1 Piling Hazards

The following hazards identified during the investigation should be considered and accounted for during pile design and installation:

- Potential claystones identified within the London Clay Formation, which may hamper pile installation.
- A search of any existing services or underground tunnels should be undertaken prior the pilling installation.
- Compressible Made Ground and Alluvium in the upper layer may be a potential cause for 'down-drag' loading on the piles should they settle.

10.4 Excavations

Shallow excavations in the Made Ground, Alluvium and River Terrace Deposits have the potential to be unstable and temporary support or battering to a safe angle will be required. There is potential for groundwater ingress in the shallow excavations and sump pumping may be required – a machine excavated trial pitting exercise should in advance of construction assess water ingress. Excavations in the London Clay are likely to remain stable in the short-term.

No operatives should enter un-shored or otherwise unprotected excavations identified as unstable by a competent person, however shallow they are, in accordance with the guidelines presented within CIRIA Report 97[37].

[37] CIRIA. (1992). *Trenching Practice (Second Edition)*. Construction Industry Research and Information Report 97.

10.5 Protection of Buried Concrete Against Chemical Attack

The Design Sulphate (DS) and Aggressive Chemical Environmental for Concrete (ACEC) classes for each stratum are presented overleaf based on the results of the geotechnical sulphate and pH testing[38]. The London Clay Formation is potentially pyritic, and consideration has been given to appropriate concrete design classes based on total potential sulphate (TPS).

Table 22. DC and ACEC Classes

Stratum	*DS Class*	*ACEC Class*	*TPS DS Class[a]*	*TPS ACEC Class*
Made Ground	DS-1	AC-1s	-	-
Alluvium	DS-1	AC-1s	-	-
River Terrace Deposits	DS-1	AC-1	-	-
London Clay Formation	DS-2	AC-2	DS-5	AC-4s

The availability of total potential sulphate (TPS) in pyritic soils is dependent on the extent to which the soils are disturbed, and the level to which the soils may oxidise, resulting in sulphate ions that may reach the concrete. In this regard, BRE SD1 guidance[38] states that *"Concrete in pyritic ground which is initially low in soluble sulphate does not have to be designed to withstand a high potential sulphate class unless it is exposed to ground which has been disturbed to the extent that contained pyrite might oxidise and the resultant sulphate ions reach the concrete. This may prompt redesign of the structure or change to the construction process to avoid ground disturbance; for example, by using precast or cast-in situ piles instead of constructing a spread footing within an excavation."*

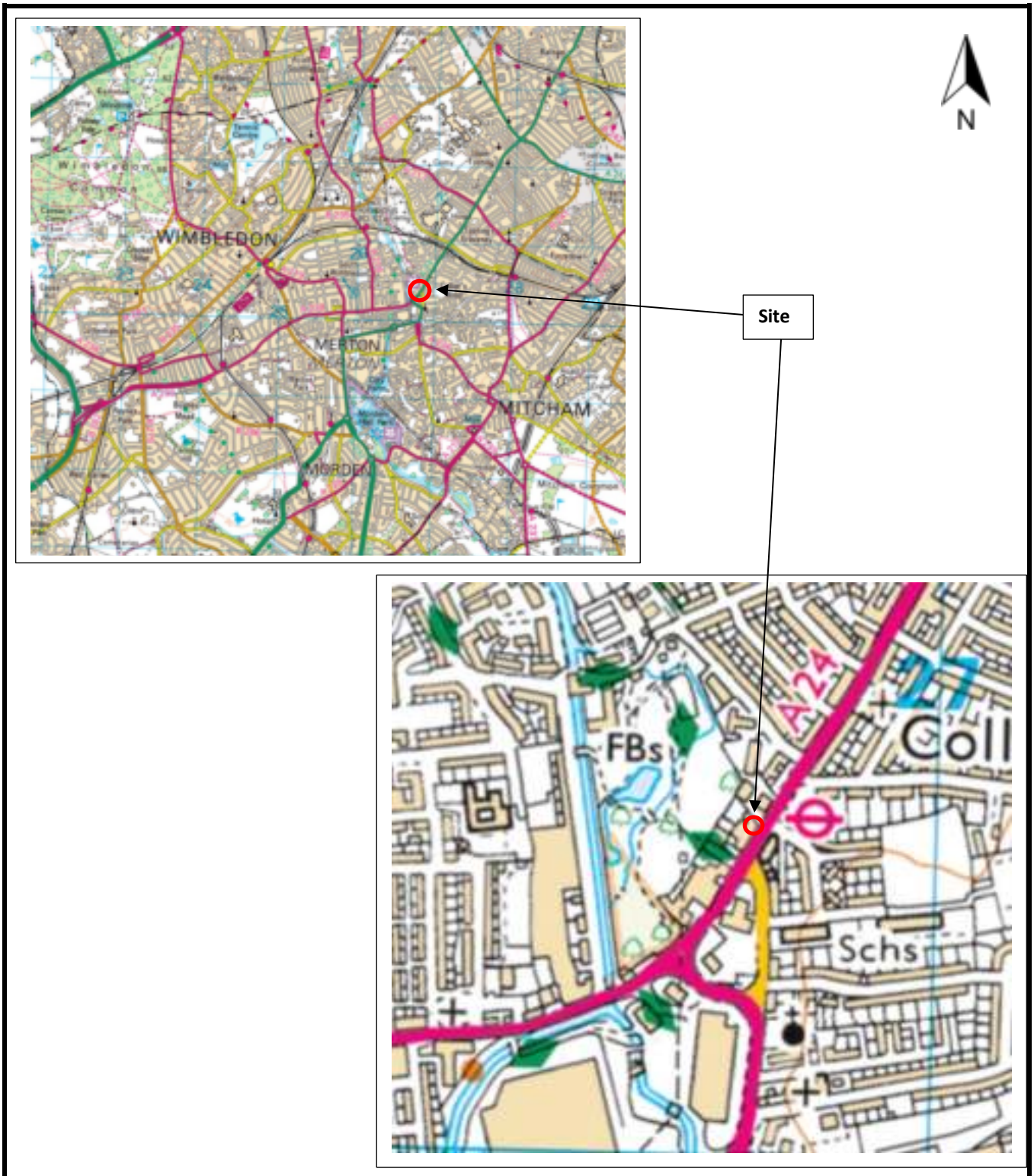
On this basis, a DS and ACEC class for the London Clay Formation of DS-2 and AC-2 may be adopted for concrete used for cast in-situ piles, based on water soluble sulphate (WSS). A Total potential sulphate (TPS) class of DS-5 and AC-4s should be adopted for concrete where London Clay Formation soils are exposed i.e. where concrete is in contact with open excavations, dependent on the extent to which the soils will be disturbed during excavation and construction.

[38] BRE (2005) Concrete in Aggressive Ground. BRE Special Digest 1:2005

GENERAL REPORT ABBREVIATIONS

ACM	Asbestos Containing Material
AOD	Above Ordnance Datum
BaP	Benzo(a)pyrene
bgl	Below ground level
BGS	British Geological Survey
BIA	Basement impact assessment
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
BRE	Building Research Establishment
BSI	British Standards Institute
C4SL	Category 4 Screening Level
CAT	Cable Avoidance Tool
CBR	California Bearing Ratio
CGL	Card Geotechnics Limited
CIRIA	Construction Industry Research and Information Association
CL:AIRE	Contaminated Land: Applications in Real Environments
CLEA	Contaminated Land Exposure Assessment
CLR	Contaminated Land Report
CPT	Cone Penetration Test
CS	Characteristic Situation
CSM	Conceptual Site Model
c_u	Undrained Shear Strength
DCP	Dynamic Cone Penetrometer
DEFRA	Department for the Environment, Food and Rural Affairs
DP	Dynamic Probe
DPM	Damp Proof Membrane
DWV	Drinking Water Value
EA	Environment Agency
EHO	Environmental Health Officer
EQS	Environmental Quality Standard
FID	Flame Ionisation Detector
GAC	Generic Assessment Criteria
GSV	Gas Screening Value
GPR	Ground Penetrating Radar
Ha	Hectare
HMRC	HM Revenue & Customs
HSE	Health & Safety Executive
HSV	Hand Shear Vane
kPa	KiloPascals
MMP	Materials Management Plan
NGR	National Grid Reference
OS	Ordnance Survey
OCP	Organochlorine Pesticides
OPP	Organophosphorus Pesticides
PAHs	Polycyclic Aromatic Hydrocarbons
PBET	Physiologically Based Extraction Testing
PCBs	Polychlorinated Biphenyls
PID	Photoionisation detector
ppb	Parts per billion
ppm	Parts per million
PSD	Particle Size Distribution
RIP	Remediation Implementation Plan
RQD	Rock Quality Designation
SGV	Soil Guideline Value
SOM	Soil Organic Matter
SPT	Standard Penetration Test
SSL	Soil Saturation Limit
SSRA	Site Specific Risk Assessment
SPZ	Source Protection Zone
SVOC	Semi-Volatile Organic Compounds
TCR	Total Core Recovery
TPH	Total Petroleum Hydrocarbons
TPHCWG	Total Petroleum Hydrocarbons Criteria Working Group
UKWIR	UK Water Industry Research
UXO	Unexploded Ordnance
VOC	Volatile Organic Compounds
WAC	Waste Acceptance Criteria
WSV	Water Screening Value

FIGURES



Client	Project	Job No
Carter Lauren Construction	**Holiday Inn Express - Wimbledon**	**CGL/10060B**
CGL GEOTECHNICAL & GEOENVIRONMENTAL CONSULTANCY A PHENNA GROUP COMPANY	Title: **Site Location Plan**	**Figure 1**

Drafted by:	SZ
Checked by:	SMK
Approved by:	MPC

Client	Project	Job No
Carter Lauren Construction	**Holiday Inn Express, Wimbledon**	**CGL/10060B**

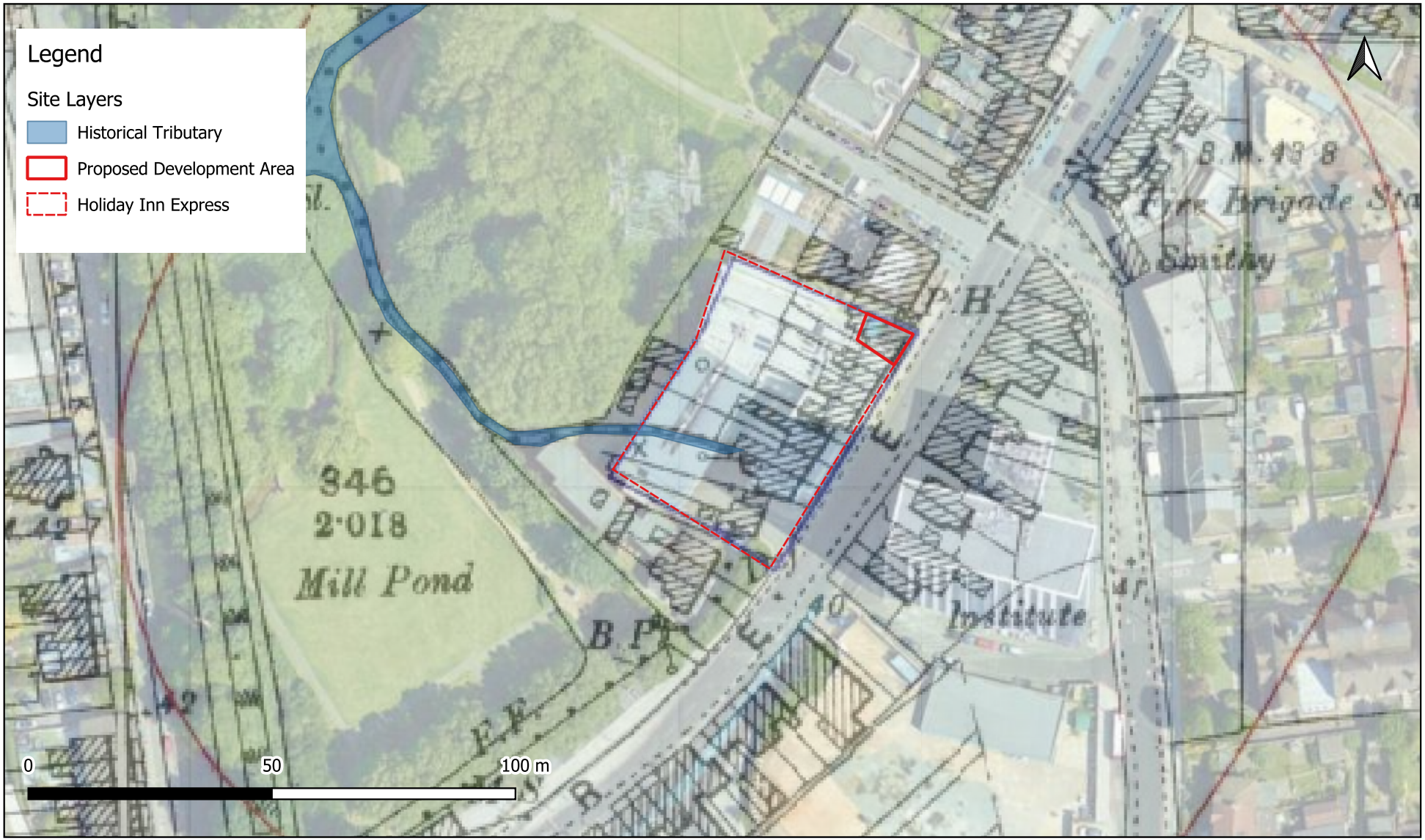
CGL
GEOTECHNICAL & GEOENVIRONMENTAL CONSULTANCY
A PHENNA GROUP COMPANY

Title

Site Layout Plan

Figure 2

Drafted by:	SZ
Checked by:	SMK
Approved by:	MPC



Client **Carter Lauren Construction**	Project **Holiday Inn Express, Wimbledon**	Job no. **CGL/10060A**
CGL GEOTECHNICAL & GEOENVIRONMENTAL CONSULTANCY	Title **1896 OS Map with Proposed Development Boundary**	**Figure 3**

CGL

Client
Carter Lauren Construction

Project
Holiday Inn Express, Wimbledon

Title
Exploratory Hole Location Plan

Project ID
CGL/10060B

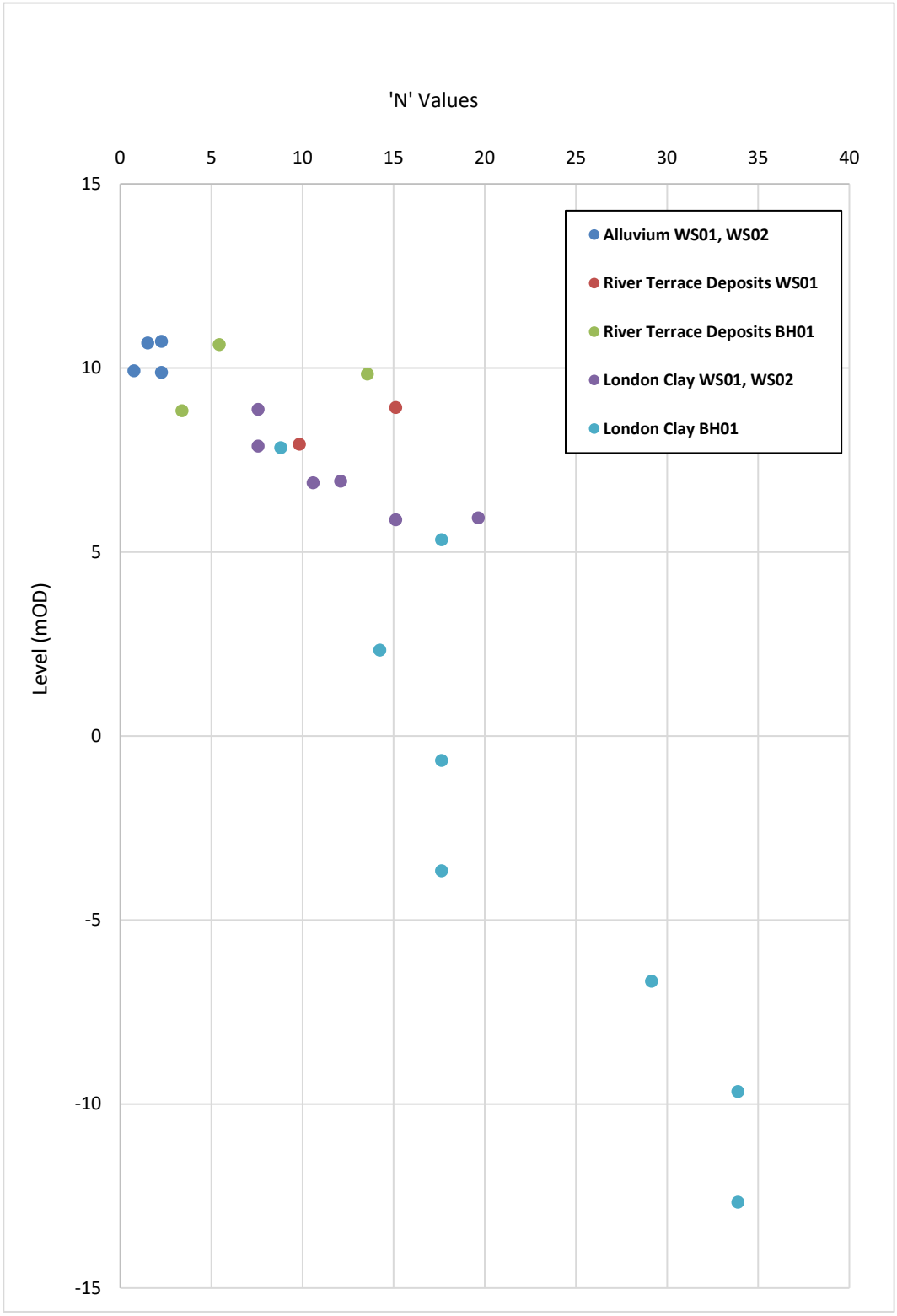
Key

May 2024 CGL Locations

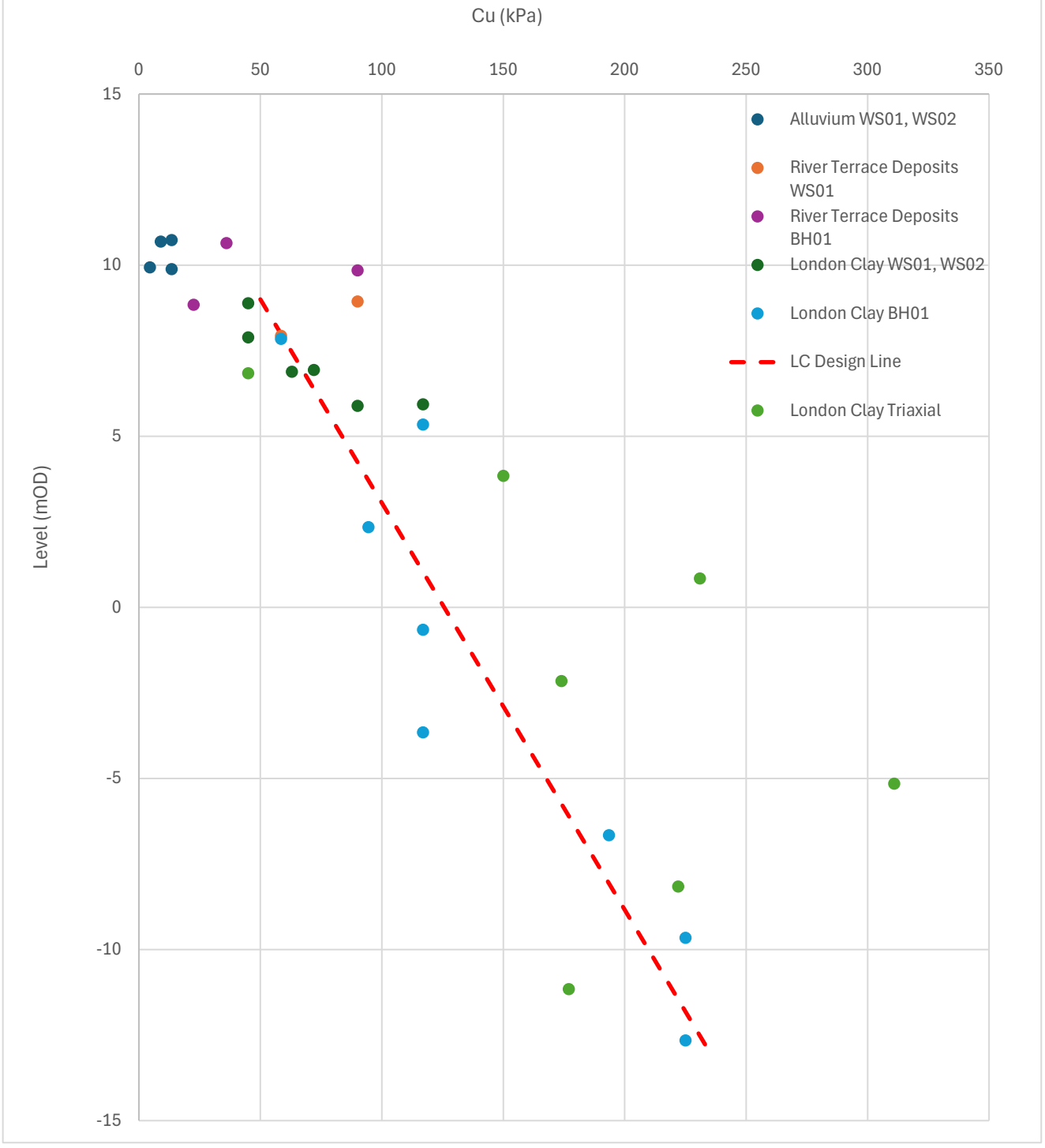
- Window Sample borehole
- Trial Pit

October 2024 CGL Locations

- Cable Percussion borehole



Client	Project	Job No
Carter Lauren Construction Ltd	**Holiday Inn Express, Wimbledon**	**CGL/10060B**
CGL GEOTECHNICAL & GEOENVIRONMENTAL CONSULTANCY A PHENNA GROUP COMPANY	Title: **SPT 'N60' Versus Level (mOD)**	**Figure 5**
		Drafted by: SZ
		Checked by: SMK/KN
		Approved by: MPC



Client	Project	Job No
Carter Lauren Construction Ltd	**Holiday Inn Express, Wimbledon**	**CGL/10060B**

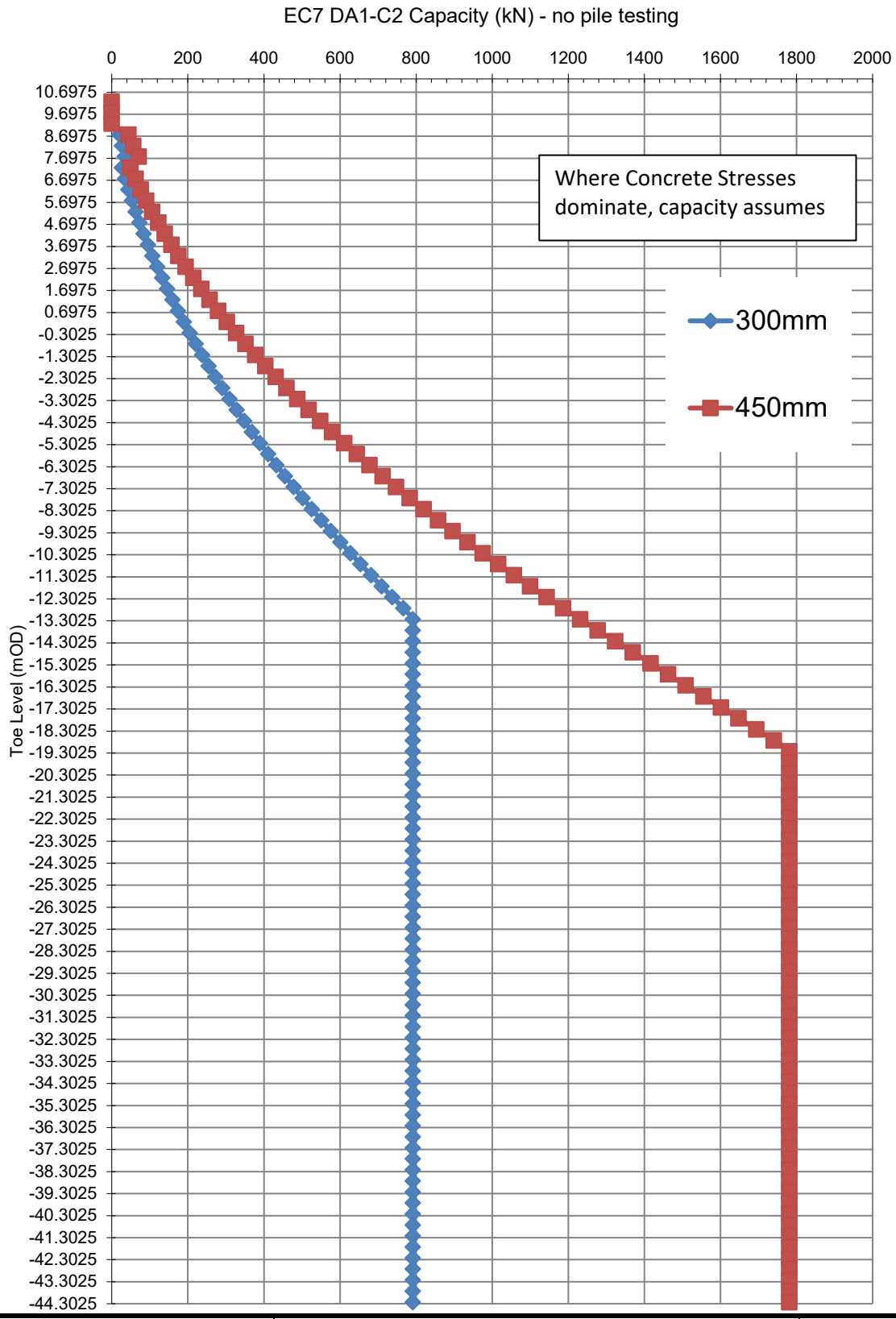
CGL GEOTECHNICAL & GEOENVIRONMENTAL CONSULTANCY A PHOENIX GROUP COMPANY

Title

Undrained Shear Strength (cu) versus Level (mOD)

Figure 6

Drafted by:	SZ
Checked by:	SMK/KN
Approved by:	MPC



Client	Project	Job No
Carter Lauren Construction Ltd	**Holiday Inn Express, Wimbledon**	**CGL/10060B**

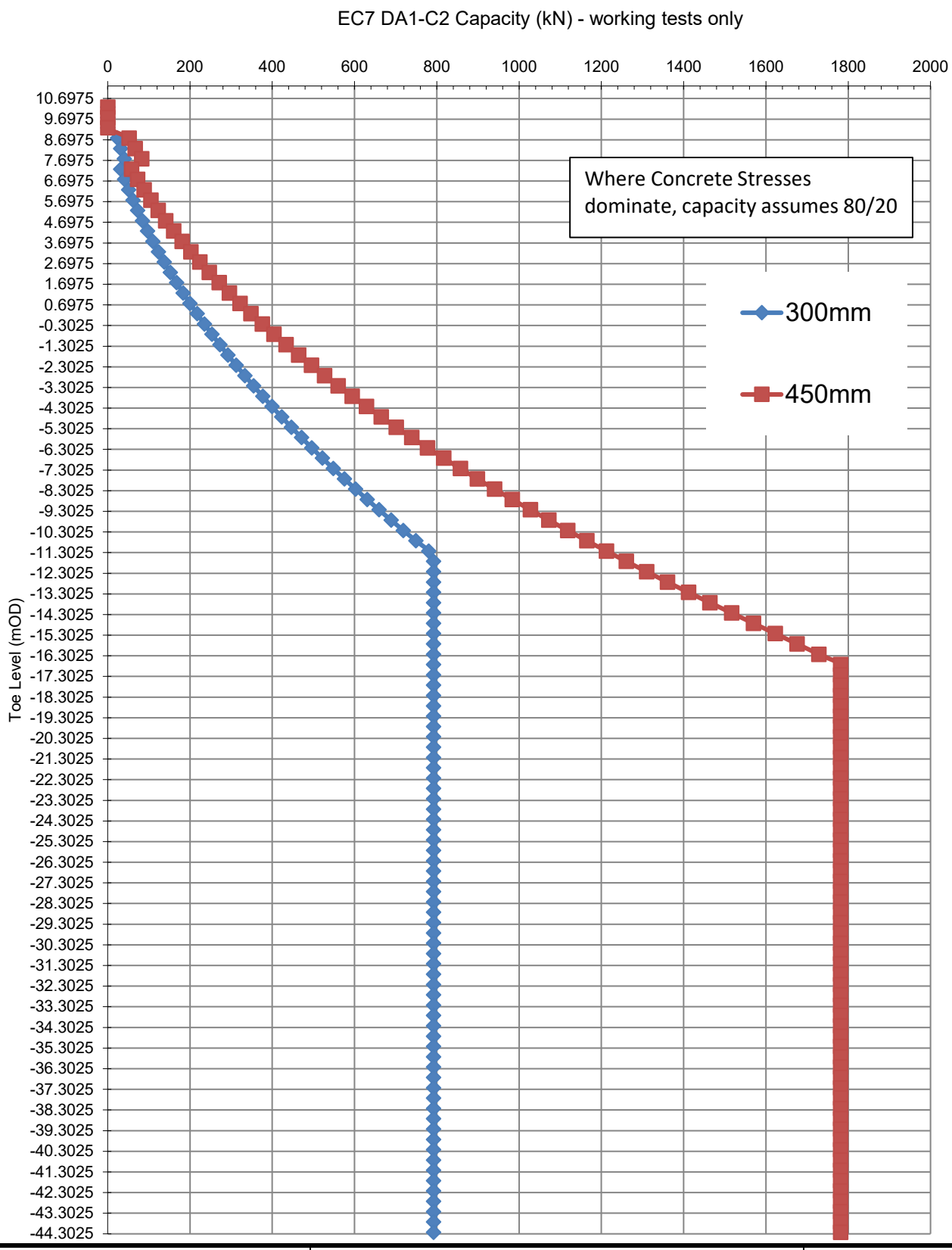
CGL GEOTECHNICAL & GEOENVIRONMENTAL CONSULTANCY

Title

Preliminary Pile Capacities (No Pile Tests)

Figure 7

Drafted by:	SZ
Checked by:	SMK
Approved by:	MPC



Client	Project	Job No
Carter Lauren Construction Ltd	**Holiday Inn Express, Wimbledon**	**CGL/10060B**

CGL GEOTECHNICAL & GEOENVIRONMENTAL CONSULTANCY

Title

Preliminary Pile Capacities (No Pile Tests)

Figure 8

Drafted by:	SZ
Checked by:	SMK
Approved by:	MPC

APPENDIX A

Proposed Development Plans

01 PROPOSED GROUND FLOOR
Scale: 1:100

0 5 8 10 13 15 M

N

Rev	Date	Description	By	Chk
C	19/12/24	ISSUED FOR PLANNING	AJ	

AXIOM ARCHITECTS
1 Brooklands Yard Southover High Street Lewes East Sussex BN7 1HU
Tel. 01273 479434 www.axiomarchitects.co.uk

Client
CARTER LAUREN CONSTRUCTION

Project
HOLIDAY INN EXPRESS WIMBLEDON
COLLIERS WOOD
LONDON SW19 2BH

Drawing
PROPOSED GROUND FLOOR PLAN

Scale	Date	Drawn	Checked
1:100 @ A1	18/11/24	AJ	AB

Drawing No. **Revision**
5823-P3- 111 C

Status
PLANNING

01 PROPOSED FIRST FLOOR
Scale: 1:100

0 5 8 10 13 15 M

N

Rev	Date	Description	By	Chk
C	19/12/24	ISSUED FOR PLANNING Plant enclosure revised	AJ	

AXIOM ARCHITECTS
1 Brooklands Yard Southover High Street Lewes East Sussex BN7 1HU
Tel. 01273 479434 www.axiomarchitects.co.uk

Client
CARTER LAUREN CONSTRUCTION

Project
HOLIDAY INN EXPRESS WIMBLEDON
COLLIERS WOOD
LONDON SW19 2BH

Drawing
PROPOSED FIRST FLOOR PLAN

Scale	Date	Drawn	Checked
1:100 @ A1	18/11/24	AJ	AB

Drawing No. **Revision**
5823-P3- 112 C

Status
PLANNING

01 PROPOSED SECOND FLOOR
Scale: 1:100

0 5 8 10 13 15 M

N

Rev	Date	Description	By	Chk
C	19/12/24	ISSUED FOR PLANNING	AJ	

AXIOM ARCHITECTS
1 Brooklands Yard Southover High Street Lewes East Sussex BN7 1HU
Tel. 01273 479434 www.axiomarchitects.co.uk

Client
CARTER LAUREN CONSTRUCTION

Project
HOLIDAY INN EXPRESS WIMBLEDON
COLLIERS WOOD
LONDON SW19 2BH

Drawing
PROPOSED SECOND FLOOR PLAN

Scale	Date	Drawn	Checked
1:100 @ A1	18/11/24	AJ	AB

Drawing No. **Revision**
5823-P3- 113 C

Status
PLANNING

01 PROPOSED THIRD FLOOR
Scale: 1:100

0 5 8 10 13 15 M

C	19/12/24	ISSUED FOR PLANNING	AJ
Rev	Date	Description	By Chk

AXIOM ARCHITECTS
1 Brooklands Yard Southover High Street Lewes East Sussex BN7 1HU
Tel. 01273 479434 www.axiomarchitects.co.uk

Client
CARTER LAUREN CONSTRUCTION

Project
HOLIDAY INN EXPRESS WIMBLEDON
COLLIERS WOOD
LONDON SW19 2BH

Drawing
PROPOSED THIRD FLOOR PLAN

Scale	Date	Drawn	Checked
1:100 @ A1	18/11/24	AJ	AB

Drawing No. **Revision**
5823-P3- 114 C

Status
PLANNING

01 PROPOSED ROOF LEVEL
Scale: 1:100

0 5 8 10 13 15 M

N

Rev	Date	Description	By	Chk
C	19/12/24	ISSUED FOR PLANNING Additional toilets indicated. Enclosed escape route to main stair added	AJ	

AXIOM ARCHITECTS
1 Brooklands Yard Southover High Street Lewes East Sussex BN7 1HU
Tel. 01273 479434 www.axiomarchitects.co.uk

Client
CARTER LAUREN CONSTRUCTION

Project
HOLIDAY INN EXPRESS WIMBLEDON
COLLIERS WOOD
LONDON SW19 2BH

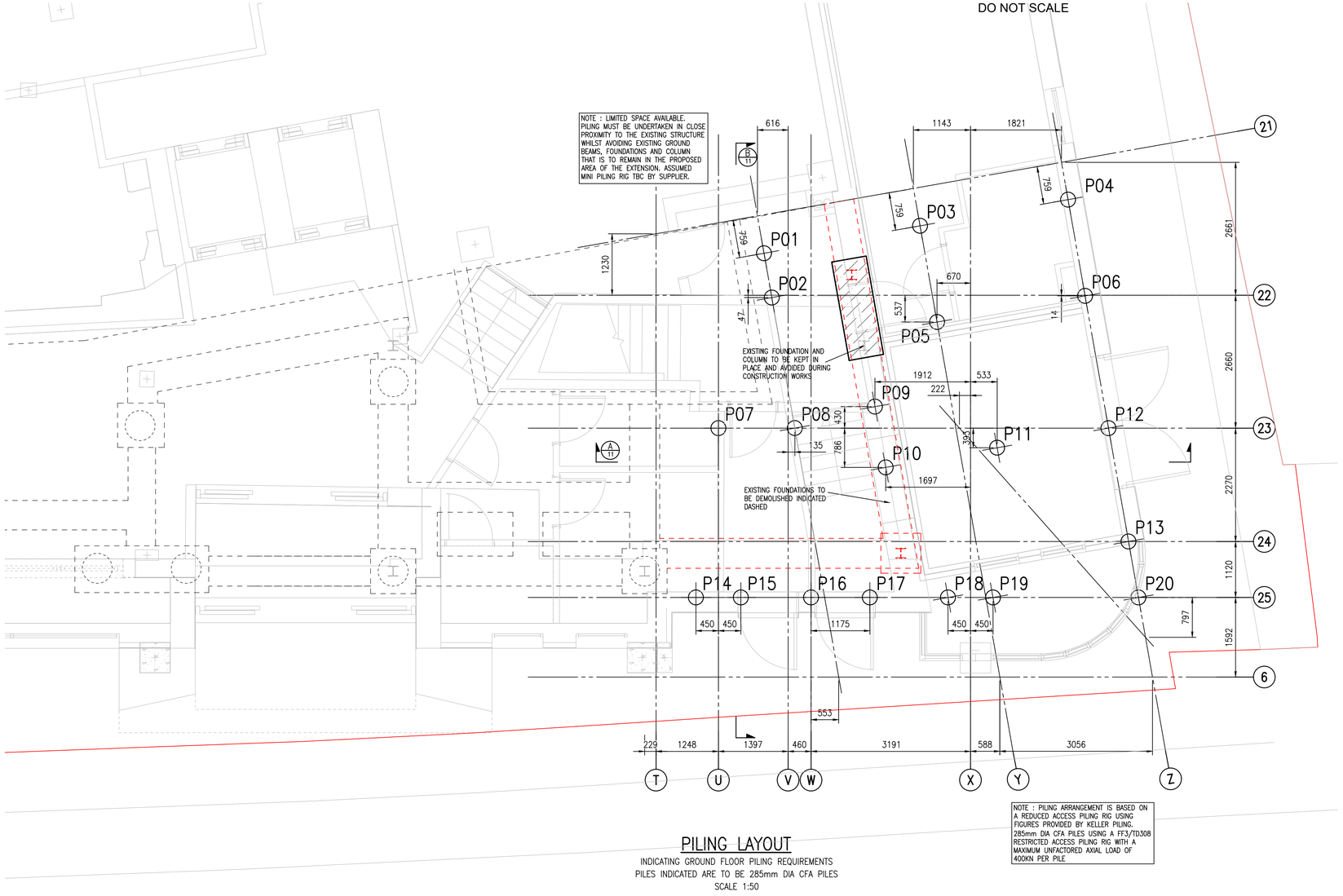
Drawing
PROPOSED ROOF LEVEL
FOURTH FLOOR MEETING ROOM & OFFICE

Scale	Date	Drawn	Checked
1:100 @ A1	18/11/24	AJ	AB

Drawing No. **Revision**
5823-P3- 115 C

Status
PLANNING

DO NOT SCALE



PILING LAYOUT

INDICATING GROUND FLOOR PILING REQUIREMENTS
PILES INDICATED ARE TO BE 285mm DIA CFA PILES
SCALE 1:50

NOTE : PILING ARRANGEMENT IS BASED ON A REDUCED ACCESS PILING RIG USING FIGURES PROVIDED BY KELLER PILING.
285mm DIA CFA PILES USING A FF3/TD308 RESTRICTED ACCESS PILING RIG WITH A MAXIMUM UNFACTORED AXIAL LOAD OF 400KN PER PILE

LOCATION PLAN

SCALE 1:500

NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S, ENGINEER'S & SUB-CONTRACTORS DRAWINGS AND DETAILS AND THE PROJECT SPECIFICATION.

2. SETTING OUT TO BE IN ACCORDANCE WITH THE ARCHITECT'S DRAWINGS AND RELEVANT DETAILS.

- PRELIMINARY PILE LOADS FOR THE PURPOSES OF TW LOAD IMPACT ASSESSMENT. FURTHER ANALYSIS REQUIRED TO CONFIRM FINAL LOADS AND HORIZONTAL LOADS APPLIED TO PILES.

Pile Cut off and Loading Table

LOADS INDICATED ARE UNFACTORED WORKING LOADS

Pile No.	Total Load (Unfactored) kN	Cut Off Level
01	275	+10.775
02	275	+10.775
03	400	+10.775
04	325	+10.775
05	250	+10.775
06	375	+10.775
07	375	+10.775
08	150	+10.775
09	275	+10.775
10	150	+10.775
11	175	+10.775
12	150	+10.775
13	150	+10.775
14	250	+10.775
15	250	+10.775
16	400	+10.775
17	150	+10.775
18	400	+10.775
19	400	+10.775
20	400	+10.775

- CUT OFF LEVELS ARE BASED ON FFL OF +12.050 AND SSL OF +11.900

MK	REVISION	BY	DATE
P2	SCHEME UPDATED TO SUIT LATEST ARCH AND ENG REQUIREMENTS	SDL	18.12.24
P1	PRELIMINARY ISSUE	SDL	31.10.24

DRAWING STATUS

PRELIMINARY

DRAWING TITLE

PILING LAYOUT

PROJECT

HOLIDAY INN EXPRESS WIMBLEDON

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Drawn	Ch'kd	Scales	Date
S.D.L	A.B.	1:50	OCT' 2024

Purpose of Issue: FOR INFORMATION

Project Number	Drawing Number	Revision
P23-001	08	P2

A1

APPENDIX B

Historical Maps and Groundsure Geo+Enviro Insight Report

Groundsure
LOCATION INTELLIGENCE

Enviro+Geo Insight

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Order Details

Date: 01/05/2024

Your ref: POP015870

Our Ref: GS-4CU-6U5-GRR-A9Q

Site Details

Location: 526716 170315

Area: 0.21 ha

Authority: London Borough of Merton ↗

Contact us with any questions at:
info@groundsure.com ↗
01273 257 755

Summary of findings

Page	Section	Past land use >	On site	0-50m	50-250m	250-500m	500-2000m
15 >	1.1 >	Historical industrial land uses >	0	11	48	108	-
22 >	1.2 >	Historical tanks >	0	1	5	96	-
26 >	1.3 >	Historical energy features >	1	0	6	20	-
27	1.4	Historical petrol stations	0	0	0	0	-
27 >	1.5 >	Historical garages >	1	2	3	1	-
28	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped >	On site	0-50m	50-250m	250-500m	500-2000m
29 >	2.1 >	Historical industrial land uses >	0	20	63	156	-
38 >	2.2 >	Historical tanks >	0	2	16	177	-
45 >	2.3 >	Historical energy features >	4	0	14	68	-
49	2.4	Historical petrol stations	0	0	0	0	-
49 >	2.5 >	Historical garages >	1	3	6	1	-
Page	Section	Waste and landfill >	On site	0-50m	50-250m	250-500m	500-2000m
50	3.1	Active or recent landfill	0	0	0	0	-
50	3.2	Historical landfill (BGS records)	0	0	0	0	-
51	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
51	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
51 >	3.5 >	Historical waste sites >	0	0	0	1	-
51 >	3.6 >	Licensed waste sites >	0	0	2	0	-
52 >	3.7 >	Waste exemptions >	0	0	0	3	-
Page	Section	Current industrial land use >	On site	0-50m	50-250m	250-500m	500-2000m
54 >	4.1 >	Recent industrial land uses >	0	2	9	-	-
55 >	4.2 >	Current or recent petrol stations >	0	0	1	1	-
56 >	4.3 >	Electricity cables >	0	2	1	1	-
56	4.4	Gas pipelines	0	0	0	0	-
56	4.5	Sites determined as Contaminated Land	0	0	0	0	-

57	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
57	4.7	Regulated explosive sites	0	0	0	0	-
57	4.8	Hazardous substance storage/usage	0	0	0	0	-
57	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
57	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
58 >	**4.11 >**	**Licensed pollutant release (Part A(2)/B) >**	0	0	2	3	-
59	4.12	Radioactive Substance Authorisations	0	0	0	0	-
59 >	**4.13 >**	**Licensed Discharges to controlled waters >**	0	0	0	13	-
61	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
61	4.15	Pollutant release to public sewer	0	0	0	0	-
61	4.16	List 1 Dangerous Substances	0	0	0	0	-
61	4.17	List 2 Dangerous Substances	0	0	0	0	-
62 >	**4.18 >**	**Pollution Incidents (EA/NRW) >**	0	0	10	10	-
64	4.19	Pollution inventory substances	0	0	0	0	-
64	4.20	Pollution inventory waste transfers	0	0	0	0	-
64	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	**Hydrogeology >**	On site	0-50m	50-250m	250-500m	500-2000m
65 >	**5.1 >**	**Superficial aquifer >**	Identified (within 500m)				
67 >	**5.2 >**	**Bedrock aquifer >**	Identified (within 500m)				
68 >	**5.3 >**	**Groundwater vulnerability >**	Identified (within 50m)				
69	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
69	5.5	Groundwater vulnerability- local information	None (within 0m)				
70 >	**5.6 >**	**Groundwater abstractions >**	0	0	0	1	11
73 >	**5.7 >**	**Surface water abstractions >**	0	0	1	0	2
74 >	**5.8 >**	**Potable abstractions >**	0	0	0	1	1
75 >	**5.9 >**	**Source Protection Zones >**	1	0	1	0	-
75	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	**Hydrology >**	On site	0-50m	50-250m	250-500m	500-2000m
76 >	**6.1 >**	**Water Network (OS MasterMap) >**	0	0	7	-	-

77 >	6.2 >	Surface water features >	0	0	4	-	-
77 >	6.3 >	WFD Surface water body catchments >	1	-	-	-	-
78 >	6.4 >	WFD Surface water bodies >	0	0	1	-	-
78	6.5	WFD Groundwater bodies	0	-	-	-	-
Page	Section	River and coastal flooding >	On site	0-50m	50-250m	250-500m	500-2000m
79 >	7.1 >	Risk of flooding from rivers and the sea >	Medium (within 50m)				
80	7.2	Historical Flood Events	0	0	0	-	-
80	7.3	Flood Defences	0	0	0	-	-
80	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
80	7.5	Flood Storage Areas	0	0	0	-	-
81 >	7.6 >	Flood Zone 2 >	Identified (within 50m)				
82 >	7.7 >	Flood Zone 3 >	Identified (within 50m)				
Page	Section	Surface water flooding >					
83 >	8.1 >	Surface water flooding >	1 in 30 year, Greater than 1.0m (within 50m)				
Page	Section	Groundwater flooding >					
85 >	9.1 >	Groundwater flooding >	High (within 50m)				
Page	Section	Environmental designations >	On site	0-50m	50-250m	250-500m	500-2000m
86	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
87	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
87	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
87	10.4	Special Protection Areas (SPA)	0	0	0	0	0
87	10.5	National Nature Reserves (NNR)	0	0	0	0	0
88 >	10.6 >	Local Nature Reserves (LNR) >	0	0	0	2	2
88	10.7	Designated Ancient Woodland	0	0	0	0	0
88	10.8	Biosphere Reserves	0	0	0	0	0
89	10.9	Forest Parks	0	0	0	0	0
89	10.10	Marine Conservation Zones	0	0	0	0	0
89	10.11	Green Belt	0	0	0	0	0
89	10.12	Proposed Ramsar sites	0	0	0	0	0

89	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
90	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
90	10.15	Nitrate Sensitive Areas	0	0	0	0	0
90 >	10.16 >	Nitrate Vulnerable Zones >	0	0	0	0	1
91 >	10.17 >	SSSI Impact Risk Zones >	1	-	-	-	-
92	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations >	On site	0-50m	50-250m	250-500m	500-2000m
93	11.1	World Heritage Sites	0	0	0	-	-
94	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
94	11.3	National Parks	0	0	0	-	-
94 >	11.4 >	Listed Buildings >	0	1	5	-	-
95 >	11.5 >	Conservation Areas >	1	0	0	-	-
95	11.6	Scheduled Ancient Monuments	0	0	0	-	-
95	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations >	On site	0-50m	50-250m	250-500m	500-2000m
96 >	12.1 >	Agricultural Land Classification >	Urban (within 250m)				
97	12.2	Open Access Land	0	0	0	-	-
97	12.3	Tree Felling Licences	0	0	0	-	-
97	12.4	Environmental Stewardship Schemes	0	0	0	-	-
97	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations >	On site	0-50m	50-250m	250-500m	500-2000m
98 >	13.1 >	Priority Habitat Inventory >	0	1	5	-	-
99	13.2	Habitat Networks	0	0	0	-	-
99	13.3	Open Mosaic Habitat	0	0	0	-	-
99	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale >	On site	0-50m	50-250m	250-500m	500-2000m
100 >	14.1 >	10k Availability >	Identified (within 500m)				
101 >	14.2 >	Artificial and made ground (10k) >	0	0	0	7	-
103 >	14.3 >	Superficial geology (10k) >	1	0	1	9	-

104	14.4	Landslip (10k)	0	0	0	0	-
105 >	14.5 >	Bedrock geology (10k) >	1	0	0	1	-
106	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale >	On site	0-50m	50-250m	250-500m	500-2000m
107 >	15.1 >	50k Availability >	Identified (within 500m)				
108 >	15.2 >	Artificial and made ground (50k) >	0	0	0	7	-
109	15.3	Artificial ground permeability (50k)	0	0	-	-	-
110 >	15.4 >	Superficial geology (50k) >	1	0	1	6	-
111 >	15.5 >	Superficial permeability (50k) >	Identified (within 50m)				
111	15.6	Landslip (50k)	0	0	0	0	-
111	15.7	Landslip permeability (50k)	None (within 50m)				
112 >	15.8 >	Bedrock geology (50k) >	1	0	0	0	-
113 >	15.9 >	Bedrock permeability (50k) >	Identified (within 50m)				
113	15.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	Boreholes >	On site	0-50m	50-250m	250-500m	500-2000m
114 >	16.1 >	BGS Boreholes >	0	4	14	-	-
Page	Section	Natural ground subsidence >					
116 >	17.1 >	Shrink swell clays >	Moderate (within 50m)				
117 >	17.2 >	Running sands >	Low (within 50m)				
118 >	17.3 >	Compressible deposits >	Moderate (within 50m)				
119 >	17.4 >	Collapsible deposits >	Negligible (within 50m)				
120 >	17.5 >	Landslides >	Very low (within 50m)				
121 >	17.6 >	Ground dissolution of soluble rocks >	Negligible (within 50m)				
Page	Section	Mining and ground workings >	On site	0-50m	50-250m	250-500m	500-2000m
123	18.1	BritPits	0	0	0	0	-
124 >	18.2 >	Surface ground workings >	0	11	3	-	-
124	18.3	Underground workings	0	0	0	0	0
125	18.4	Underground mining extents	0	0	0	0	-
125	18.5	Historical Mineral Planning Areas	0	0	0	0	-

125	18.6	Non-coal mining	0	0	0	0	0
125	18.7	JPB mining areas	None (within 0m)				
125	18.8	The Coal Authority non-coal mining	0	0	0	0	-
126 >	18.9 >	Researched mining >	0	0	0	1	-
126	18.10	Mining record office plans	0	0	0	0	-
126	18.11	BGS mine plans	0	0	0	0	-
126	18.12	Coal mining	None (within 0m)				
127	18.13	Brine areas	None (within 0m)				
127	18.14	Gypsum areas	None (within 0m)				
127	18.15	Tin mining	None (within 0m)				
127	18.16	Clay mining	None (within 0m)				

Page	Section	Ground cavities and sinkholes	On site	0-50m	50-250m	250-500m	500-2000m
128	19.1	Natural cavities	0	0	0	0	-
128	19.2	Mining cavities	0	0	0	0	0
128	19.3	Reported recent incidents	0	0	0	0	-
128	19.4	Historical incidents	0	0	0	0	-
129	19.5	National karst database	0	0	0	0	-

Page	Section	Radon >					
130 >	20.1 >	Radon >	Less than 1% (within 0m)				

Page	Section	Soil chemistry >	On site	0-50m	50-250m	250-500m	500-2000m
132 >	21.1 >	BGS Estimated Background Soil Chemistry >	1	0	-	-	-
132 >	21.2 >	BGS Estimated Urban Soil Chemistry >	4	0	-	-	-
133	21.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-

Page	Section	Railway infrastructure and projects >	On site	0-50m	50-250m	250-500m	500-2000m
134 >	22.1 >	Underground railways (London) >	0	1	0	-	-
135	22.2	Underground railways (Non-London)	0	0	0	-	-
135 >	22.3 >	Railway tunnels >	0	2	1	-	-
135 >	22.4 >	Historical railway and tunnel features >	0	0	21	-	-
136	22.5	Royal Mail tunnels	0	0	0	-	-

136	22.6	Historical railways	0	0	0	-	-
137	22.7	Railways	0	0	0	-	-
137	22.8	Crossrail 1	0	0	0	0	-
137	22.9	Crossrail 2	0	0	0	0	-
137	22.10	HS2	0	0	0	0	-

Recent aerial photograph

Capture Date: 30/04/2022

Site Area: 0.21ha

Recent site history - 2021 aerial photograph

Capture Date: 13/06/2021

Site Area: 0.21ha

Recent site history - 2016 aerial photograph

Capture Date: 23/09/2016

Site Area: 0.21ha

Recent site history - 2008 aerial photograph

Capture Date: 21/09/2008

Site Area: 0.21ha

Recent site history - 1999 aerial photograph

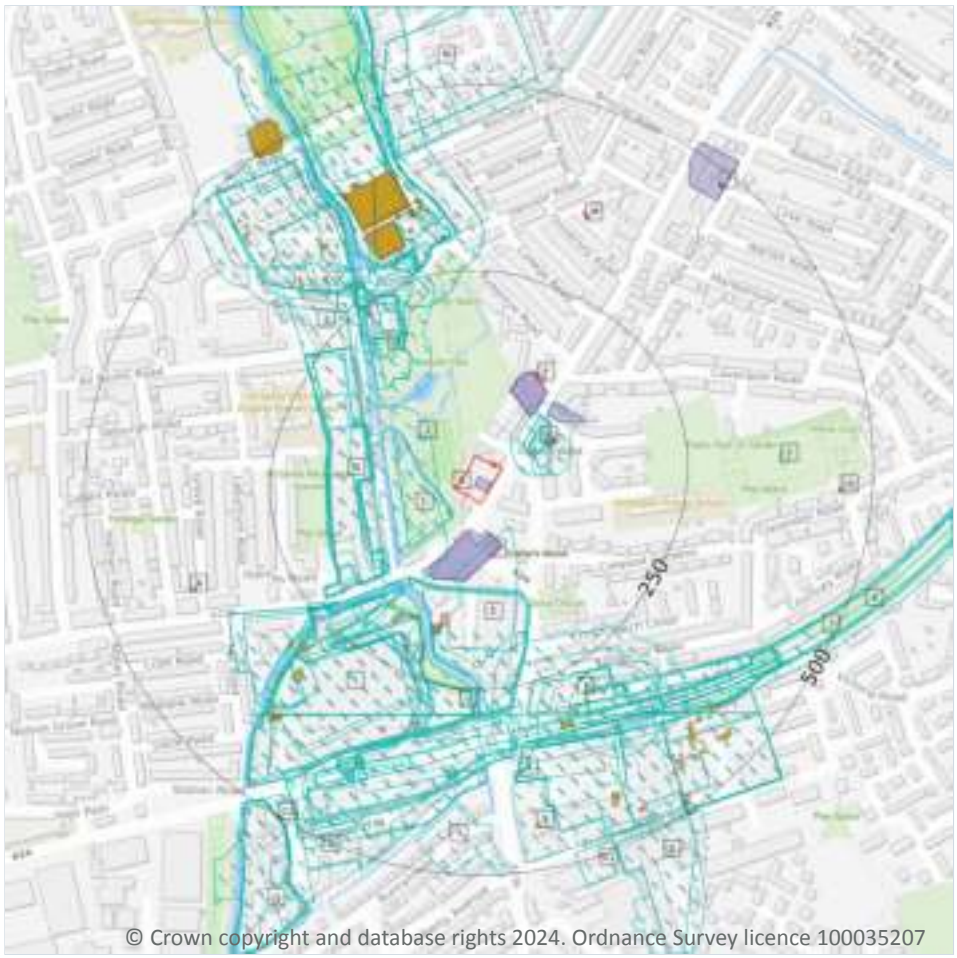
Capture Date: 04/09/1999

Site Area: 0.21ha

OS MasterMap site plan

Site Area: 0.21ha

1 Past land use



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical garages

1.1 Historical industrial land uses

Records within 500m	167

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
B	19m NE	Fire Engine Station	1919	2240235

ID	Location	Land use	Dates present	Group ID
C	21m SW	Mill Pond	1894	2289959
C	21m SW	Mill Pond	1919	2183516
C	23m SW	Mill Pond	1899	2238525
C	28m SW	Mill Pond	1934 - 1948	2191819
B	40m NE	Smithy	1899	2264308
B	41m NE	Smithy	1894	2240120
B	45m NE	London Transport Station	1987	2138093
B	45m NE	Unspecified Station	1938	2190989
B	47m NE	Unspecified Station	1965 - 1987	2246859
E	49m SE	Watercress Beds	1899	2141255
1	71m NW	Unspecified Tank	1934	2154062
G	109m W	Omnibus Depot	1965 - 1974	2172278
G	109m W	Unspecified Depot	1948	2181235
G	112m W	Omnibus Depot	1938	2191393
G	112m W	Unspecified Depot	1987	2274256
G	112m W	Omnibus Depot	1934	2248150
H	112m NW	Unspecified Mills	1919	2187977
G	113m W	Unspecified Commercial/Industrial	1954	2130721
E	114m S	Water Works	1938	2176132
E	116m S	Unspecified Commercial/Industrial	1938	2226260
G	116m W	Unspecified Depot	1987	2170508
E	117m S	Unspecified Commercial/Industrial	1954	2227478
E	117m S	Water Works	1948	2291055
E	121m S	Unspecified Factory	1965 - 1974	2238389
H	137m NW	Unspecified Mill	1938 - 1948	2260518
H	138m NW	Unspecified Works	1987	2203086
I	144m SW	Unspecified Commercial/Industrial	1934	2229426
I	144m SW	Unspecified Commercial/Industrial	1954	2227996

ID	Location	Land use	Dates present	Group ID
I	144m SW	Unspecified Commercial/Industrial	1948	2255109
I	152m SW	Unspecified Mills	1919	2223885
I	157m SW	Unspecified Mills	1965	2258406
I	157m SW	Unspecified Works	1974 - 1975	2272194
I	169m SW	Unspecified Old Mills	1894	2158378
I	170m SW	Unspecified Commercial/Industrial	1938	2260725
H	171m NW	Unspecified Mill	1934 - 1938	2190480
E	171m S	Unspecified Mills	1965	2139402
E	172m SW	Railway Sidings	1938	2201212
I	174m SW	Unspecified Mills	1899 - 1919	2262855
E	175m SW	Railway Sidings	1899 - 1938	2282976
J	175m SW	Railway Sidings	1948	2236443
J	175m SW	Railway Sidings	1954	2264043
H	177m NW	Unspecified Mills	1899 - 1919	2187747
I	178m SW	Copper Mills	1865	2138022
H	180m NW	Unspecified Commercial/Industrial	1954	2130740
I	181m SW	Unspecified Mills	1894	2249407
H	186m NW	Unspecified Mills	1894	2285843
H	190m NW	Unspecified Works	1965 - 1987	2258709
K	196m S	Water Works	1919	2221013
I	202m SW	Unspecified Works	1899 - 1919	2252203
I	204m SW	Unspecified Works	1894	2220429
E	210m SW	Railway Sidings	1894	2182058
H	212m N	Sewage Works	1919	2200232
H	212m N	Sewage Works	1894	2240363
I	216m SW	Railway Sidings	1919	2251281
H	219m NW	Flour Mill	1865	2152402
2	222m NW	Unspecified Works	1974	2159515

ID	Location	Land use	Dates present	Group ID
K	223m S	Water Works	1919	2271220
K	249m S	Water Works	1934 - 1938	2176133
K	254m S	Unspecified Works	1987	2218967
H	255m N	Unspecified Heaps	1954 - 1965	2183382
H	256m N	Unspecified Ground Workings	1987	2226236
K	256m S	Unspecified Works	1987	2226895
H	256m NW	Leather Works	1938	2292514
H	257m N	Sewage Disposal Works	1954	2222601
H	257m N	Unspecified Ground Workings	1934	2268075
H	257m NW	Leather Works	1948	2177437
H	259m N	Unspecified Heap	1938	2248375
H	261m N	Sewage Works	1899	2210677
H	262m N	Sewage Disposal Works	1938	2232754
H	264m N	Sewage Works	1919	2227662
K	271m SE	Electric Telegraph	1865	2128250
E	275m S	Railway Sidings	1919	2196182
K	280m SE	Unspecified Works	1965 - 1974	2175051
H	281m NW	Sewage Disposal Works	1948	2224120
E	282m S	Railway Sidings	1966	2214306
E	282m S	Railway Sidings	1975	2241718
H	282m NW	Patent Leather Works	1919	2142886
H	284m NW	Leather Works	1934 - 1938	2169438
H	284m NW	Unspecified Works	1987	2216309
E	285m S	Unspecified Commercial/Industrial	1951	2257329
H	285m NW	Sewage Disposal Works	1934	2211765
H	285m NW	Unspecified Works	1987	2264111
E	285m S	Railway Sidings	1951 - 1954	2224139
E	287m S	Railway Building	1951	2148230

ID	Location	Land use	Dates present	Group ID
H	288m NW	Leather Works	1919	2271142
K	288m SE	Cuttings	1894	2196471
K	289m SE	Cuttings	1899	2258059
K	292m S	Cuttings	1865	2224894
H	292m N	Railway Sidings	1938 - 1948	2245299
H	294m NW	Leather Works	1954	2268429
H	294m NW	Unspecified Works	1965 - 1974	2283591
E	294m S	Railway Building	1934	2148229
H	302m N	Railway Sidings	1965	2179027
H	302m N	Railway Sidings	1954	2214479
I	304m SW	Unspecified Works	1919	2254992
I	304m SW	Unspecified Works	1894	2276070
K	304m SE	Unspecified Tank	1938	2242629
K	305m SE	Unspecified Tank	1919	2252585
K	306m SE	Unspecified Tank	1934 - 1948	2252559
K	308m SE	Unspecified Tank	1919	2277359
E	311m S	Railway Sidings	1865	2198698
K	312m S	Railway Sidings	1919	2188996
H	317m N	Railway Sidings	1938	2228520
E	319m S	Railway Sidings	1934	2212826
E	319m S	Railway Land	1934	2140991
K	321m SE	Railway Sidings	1948	2168852
H	322m N	Railway Sidings	1934	2277612
I	323m SW	Mill Pond	1894	2178670
I	323m SW	Mill Pond	1899 - 1919	2263580
K	323m S	Railway Sidings	1938	2240206
I	324m SW	Unspecified Tank	1965 - 1974	2225678
K	326m SE	Unspecified Ground Workings	1938	2170366

ID	Location	Land use	Dates present	Group ID
I	328m SW	Mill Pond	1894	2250527
K	328m S	Unspecified Works	1966	2201898
K	328m S	Unspecified Works	1975 - 1992	2287248
K	331m SE	Unspecified Heap	1948	2136628
K	335m S	Smelting Works	1919	2244123
K	337m S	Unspecified Commercial/Industrial	1934 - 1938	2228222
K	338m S	Unspecified Commercial/Industrial	1938	2251568
3	339m SE	Cuttings	1919	2189474
E	340m S	Railway Building	1919	2148231
H	342m NW	Filter Beds	1919	2169917
H	343m NW	Filter Beds	1919	2172172
K	345m SE	Unspecified Factory	1992	2150940
K	345m SE	Unspecified Works	1966	2212990
K	345m SE	Unspecified Works	1975	2240663
E	355m S	Railway Building	1975	2267655
E	358m S	Railway Building	1938 - 1951	2171868
E	358m S	Railway Building	1938 - 1951	2225043
E	360m S	Railway Building	1919	2233739
K	361m SE	Railway Building	1954	2148228
E	361m S	Goods Yard	1966	2142145
E	362m S	Railway Station	1899	2227329
4	363m S	Unspecified Heap	1899	2136631
E	365m S	Railway Building	1919	2178405
E	366m S	Railway Station	1934	2283154
5	374m E	Unspecified Tank	1938 - 1948	2262842
E	376m SW	Railway Station	1919	2183428
E	377m SW	Railway Station	1894	2183574
E	381m SW	Railway Station	1938 - 1951	2237009

ID	Location	Land use	Dates present	Group ID
E	383m SW	Railway Station	1919	2169463
K	384m SE	Bakelite Works	1938	2185502
K	384m SE	Bakelite Works	1934 - 1938	2232088
I	389m SW	Unspecified Works	1992	2225207
E	401m SW	Railway Building	1865	2148207
7	404m S	Nursery	1934	2161256
H	410m N	Filter Beds	1965 - 1974	2225873
N	413m N	Unspecified Commercial/Industrial	1934 - 1938	2292984
H	413m N	Unspecified Works	1965 - 1974	2283954
E	416m S	Unspecified Depot	1992	2146989
N	417m N	Brick Works	1919	2190701
K	420m SE	Railway Building	1954	2148227
8	436m SE	Cuttings	1934 - 1987	2258529
N	438m N	Unspecified Commercial/Industrial	1948	2211691
O	442m S	Unspecified Works	1975	2231028
O	442m S	Unspecified Works	1966	2207830
Q	471m SW	Silk Printing Works	1899 - 1919	2209903
11	487m S	Varnish Works	1919	2152559
Q	491m SW	Unspecified Commercial/Industrial	1938	2130723
Q	491m SW	Silk Printing Works	1919	2217082
Q	491m SW	Silk Printing Works	1894	2282627
S	491m S	Unspecified Works	1975	2172054
R	491m NW	Unspecified Tanks	1954 - 1974	2203195
Q	493m SW	Silk Painting Works	1894	2163202
S	494m S	Unspecified Works	1966	2250714
Q	495m SW	Silk Printing Works	1934	2232825

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	102

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
A	2m W	Unspecified Tank	1950 - 1967	383361
E	176m SW	Unspecified Tank	1950	381810
E	181m SW	Tanks	1950	386845
E	191m SW	Unspecified Tank	1950 - 1981	384189
H	234m NW	Tanks	1950 - 1991	411460
I	248m SW	Unspecified Tank	1950	397224
L	269m S	Unspecified Tank	1950	400438
K	288m SE	Unspecified Tank	1950	361907
I	290m SW	Unspecified Tank	1950	361904
H	292m NW	Settling Tanks	1950	391086
H	293m NW	Settling Tanks	1950 - 1967	386029
H	293m NW	Settling Tanks	1982 - 1991	405485
H	294m NW	Filter Tanks	1934	379284
L	297m S	Unspecified Tank	1986	393622
L	298m S	Unspecified Tank	1970	404575
K	300m SE	Unspecified Tank	1967 - 1991	383962
I	301m SW	Unspecified Tank	1950	385237
H	302m NW	Filter Tanks	1933	379283
H	313m N	Tanks	1950 - 1989	385749
K	314m S	Tanks	1987	408934
K	314m S	Tanks	1986 - 1996	388450

ID	Location	Land use	Dates present	Group ID
H	315m N	Unspecified Tank	1934	361903
I	318m SW	Unspecified Tank	1976 - 1980	385263
I	324m SW	Unspecified Tank	1960	361905
H	325m NW	Tanks	1980 - 1991	401142
H	332m N	Unspecified Tank	1913	385731
H	333m N	Unspecified Tank	1950	382900
H	334m N	Unspecified Tank	1934	393772
H	334m N	Unspecified Tank	1934	361902
H	335m N	Tanks	1982 - 1989	398946
H	336m N	Tanks	1967	409549
H	337m NW	Unspecified Tank	1950	382767
H	337m NW	Unspecified Tank	1950	386435
H	338m N	Unspecified Tank	1913	361901
H	339m NW	Settling Tanks	1982 - 1991	407850
H	339m NW	Settling Tanks	1950 - 1967	380734
H	339m NW	Settling Tanks	1950	393847
H	339m NW	Filter Tanks	1933	379282
H	341m N	Tanks	1982 - 1989	385324
H	341m N	Tanks	1950 - 1967	410738
H	341m N	Tanks	1950	395850
H	342m N	Filter Tanks	1934	379281
H	343m NW	Tanks	1950	404488
H	343m NW	Tanks	1933 - 1950	409355
H	349m N	Unspecified Tank	1982 - 1989	402498
H	349m N	Unspecified Tank	1950 - 1967	399926
H	350m N	Unspecified Tank	1934	387470
H	357m NW	Unspecified Tank	1967 - 1982	407042
E	359m SW	Unspecified Tank	1970	361906

ID	Location	Land use	Dates present	Group ID
E	361m SW	Unspecified Tank	1970 - 1986	409234
H	375m NW	Unspecified Tank	1986 - 1991	391876
I	382m SW	Unspecified Tank	1976 - 1980	387026
I	383m SW	Tanks	1968	399921
I	384m SW	Tanks	1979	398300
H	385m NW	Tanks	1982 - 1989	392300
H	386m NW	Tanks	1967	386780
I	390m SW	Tanks	1968	391810
K	391m SE	Unspecified Tank	1952	387308
K	392m S	Unspecified Tank	1952	408883
K	392m SE	Unspecified Tank	1952	391600
K	392m SE	Unspecified Tank	1952	395427
H	392m NW	Tanks	1982 - 1989	390690
K	393m SE	Unspecified Tank	1952	393395
I	396m SW	Tanks	1968	375519
H	405m NW	Unspecified Tank	1986 - 1991	393738
K	406m SE	Unspecified Tank	1973	361909
K	410m SE	Tanks	1973	375527
K	414m SE	Tanks	1972 - 1982	402534
K	415m SE	Unspecified Tank	1973	361915
K	419m SE	Unspecified Tank	1973	361911
K	419m SE	Unspecified Tank	1934	361916
H	425m NW	Tanks	1950	395593
H	426m NW	Tanks	1950	381385
K	427m SE	Unspecified Tank	1952	396626
K	427m SE	Unspecified Tank	1968	405421
H	428m NW	Tanks	1950	402700
K	428m SE	Unspecified Tank	1952	381379

ID	Location	Land use	Dates present	Group ID
K	428m SE	Unspecified Tank	1970	398134
K	428m SE	Unspecified Tank	1952	401278
K	428m SE	Unspecified Tank	1950	394534
K	428m SE	Unspecified Tank	1950	411569
K	428m SE	Unspecified Tank	1973	361917
K	429m SE	Unspecified Tank	1952	385716
K	430m SE	Unspecified Tank	1952	402101
K	430m SE	Tanks	1952 - 1970	392808
H	432m NW	Tanks	1980 - 1991	399336
9	437m S	Unspecified Tank	1896 - 1898	384819
K	438m SE	Unspecified Tank	1952	403728
K	443m SE	Unspecified Tank	1970	361910
K	445m SE	Tanks	1973	375529
H	446m NW	Unspecified Tank	1980 - 1991	387689
K	446m SE	Tanks	1952	396883
K	447m SE	Unspecified Tank	1952	400307
K	450m SE	Tanks	1973	375528
K	455m SE	Unspecified Tank	1952	385355
K	455m SE	Unspecified Tank	1952	396592
K	456m SE	Unspecified Tank	1952	395252
R	490m NW	Separating Tanks	1950	411322
R	490m NW	Separating Tanks	1980	392225
R	490m NW	Separating Tanks	1950	392695
R	490m NW	Separating Tanks	1980	393023
12	499m SW	Unspecified Tank	1968 - 1985	403157

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	27

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
A	**On site**	**Electricity Substation**	**1981 - 1991**	**289273**
D	66m S	Electricity Substation	1967 - 1991	263745
F	124m NE	Electricity Substation	1981 - 1991	275430
F	131m NE	Electricity Substation	1967	259277
E	155m S	Electricity Substation	1950	242525
E	171m S	Electricity Substation	1981	270112
E	175m S	Electricity Substation	1950 - 1967	271594
E	254m S	Electricity Substation	1981 - 1991	285464
K	269m SE	Electricity Substation	1967 - 1991	266653
H	293m N	Electricity Substation	1967 - 1991	273720
E	307m S	Electricity Substation	1952 - 1970	279593
H	307m NW	Electricity Substation	1982 - 1991	266697
E	327m S	Electricity Substation	1970	242526
M	352m NE	Electricity Substation	1988 - 1991	266315
M	356m N	Electricity Substation	1967 - 1982	278750
6	374m W	Electricity Substation	1976 - 1991	267755
H	396m N	Electricity Substation	1982 - 1991	288516
H	396m N	Electricity Substation	1967	275092
K	437m SE	Electricity Substation	1952 - 1970	273037
10	453m E	Electricity Substation	1972 - 1992	271556
K	453m SE	Electricity Substation	1952	242527

ID	Location	Land use	Dates present	Group ID
K	463m SE	Electricity Substation	1952	280779
I	477m SW	Electricity Substation	1989	242524
K	479m SE	Electricity Substation	1986	257497
P	479m NE	Electricity Substation	1985 - 1992	262237
P	479m NE	Electricity Substation	1972	266481
K	487m SE	Electricity Substation	1987 - 1996	281986

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	**0**

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	**7**

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
A	**On site**	**Garage**	**1967**	**73184**
D	37m S	Garage	1967 - 1981	85895
D	42m S	Garage	1991	75097
F	79m NE	Garage	1967	75558
F	80m NE	Garage	1981 - 1991	81689

ID	Location	Land use	Dates present	Group ID
B	94m NE	Garage	1967	73185
P	456m NE	Garage	1972	73188

This data is sourced from Ordnance Survey / Groundsure.

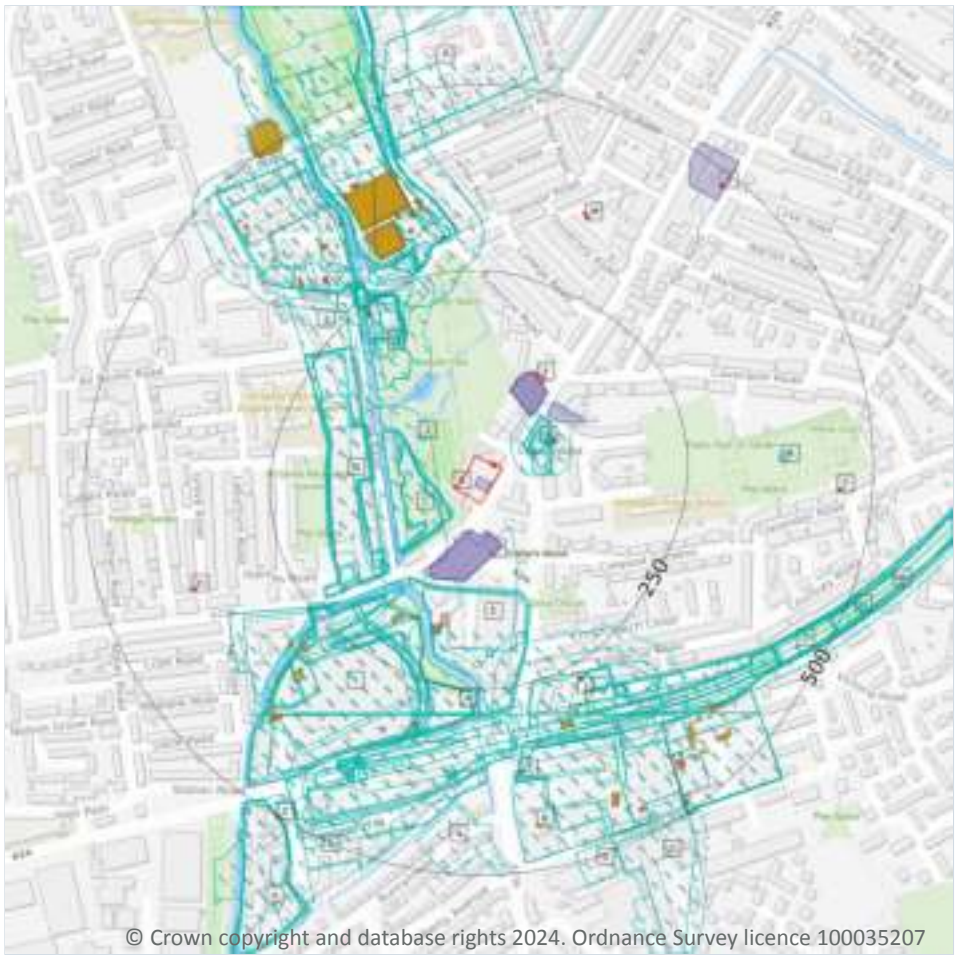
1.6 Historical military land

Records within 500m	**0**

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

This data is sourced from Ordnance Survey / Groundsure / other sources.

2 Past land use - un-grouped



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical garages

2.1 Historical industrial land uses

Records within 500m	239

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 29 >**

ID	Location	Land Use	Date	Group ID
B	19m NE	Fire Engine Station	1919	2240235
C	21m SW	Mill Pond	1894	2289959
C	21m SW	Mill Pond	1919	2183516

ID	Location	Land Use	Date	Group ID
C	23m W	Mill Pond	1919	2183516
C	23m SW	Mill Pond	1899	2238525
C	25m SW	Mill Pond	1894	2289959
C	28m SW	Mill Pond	1938	2191819
C	29m SW	Mill Pond	1938	2191819
C	29m SW	Mill Pond	1948	2191819
C	29m SW	Mill Pond	1934	2191819
B	40m NE	Smithy	1899	2264308
B	41m NE	Smithy	1894	2240120
B	43m E	Smithy	1894	2240120
B	45m NE	London Transport Station	1987	2138093
B	45m NE	Unspecified Station	1938	2190989
B	47m NE	Unspecified Station	1974	2246859
B	47m NE	Unspecified Station	1965	2246859
B	47m NE	Unspecified Station	1987	2246859
B	48m NE	Fire Engine Station	1919	2240235
E	49m SE	Watercress Beds	1899	2141255
1	71m NW	Unspecified Tank	1934	2154062
G	109m W	Omnibus Depot	1974	2172278
G	109m W	Omnibus Depot	1965	2172278
G	109m W	Unspecified Depot	1948	2181235
G	112m W	Omnibus Depot	1938	2191393
G	112m W	Unspecified Depot	1987	2274256
G	112m W	Omnibus Depot	1934	2248150
G	112m W	Omnibus Depot	1938	2191393
H	112m NW	Unspecified Mills	1919	2187977
G	113m W	Unspecified Commercial/Industrial	1954	2130721
E	114m S	Water Works	1938	2176132

ID	Location	Land Use	Date	Group ID
E	116m S	Unspecified Commercial/Industrial	1938	2226260
G	116m W	Unspecified Depot	1987	2170508
E	117m S	Unspecified Commercial/Industrial	1954	2227478
E	117m S	Water Works	1948	2291055
E	121m S	Unspecified Factory	1974	2238389
E	121m S	Unspecified Factory	1965	2238389
H	137m NW	Unspecified Mill	1938	2260518
H	138m NW	Unspecified Works	1987	2203086
I	144m SW	Unspecified Commercial/Industrial	1934	2229426
I	144m SW	Unspecified Commercial/Industrial	1954	2227996
I	144m SW	Unspecified Commercial/Industrial	1948	2255109
I	152m SW	Unspecified Mills	1919	2223885
I	157m SW	Unspecified Works	1974	2272194
I	157m SW	Unspecified Mills	1965	2258406
I	169m SW	Unspecified Old Mills	1894	2158378
I	170m SW	Unspecified Commercial/Industrial	1938	2260725
H	171m NW	Unspecified Mill	1938	2190480
E	171m S	Unspecified Mills	1965	2139402
I	172m SW	Unspecified Commercial/Industrial	1938	2260725
E	172m SW	Railway Sidings	1938	2201212
I	174m SW	Unspecified Mills	1899	2262855
I	175m SW	Railway Sidings	1934	2282976
I	175m SW	Railway Sidings	1954	2264043
I	175m SW	Railway Sidings	1948	2236443
H	177m NW	Unspecified Mills	1919	2187747
I	178m SW	Copper Mills	1865	2138022
H	180m NW	Unspecified Commercial/Industrial	1954	2130740
H	180m NW	Unspecified Mill	1948	2260518

ID	Location	Land Use	Date	Group ID
I	181m SW	Unspecified Mills	1919	2262855
I	181m SW	Unspecified Mills	1894	2249407
H	182m NW	Unspecified Mill	1934	2190480
H	186m NW	Unspecified Mills	1894	2285843
H	190m NW	Unspecified Works	1974	2258709
H	190m NW	Unspecified Works	1965	2258709
H	190m NW	Unspecified Works	1987	2258709
H	194m NW	Unspecified Mills	1899	2187747
H	194m NW	Unspecified Mills	1894	2285843
J	196m S	Water Works	1919	2221013
I	201m SW	Railway Sidings	1919	2282976
I	202m SW	Unspecified Works	1919	2252203
I	204m SW	Railway Sidings	1919	2282976
I	204m SW	Unspecified Works	1894	2220429
I	210m SW	Railway Sidings	1894	2182058
H	212m N	Sewage Works	1919	2200232
H	212m N	Sewage Works	1894	2240363
I	216m SW	Railway Sidings	1899	2282976
I	216m SW	Railway Sidings	1919	2251281
H	219m NW	Flour Mill	1865	2152402
2	222m NW	Unspecified Works	1974	2159515
J	223m S	Water Works	1919	2271220
J	249m S	Water Works	1934	2176133
J	249m S	Water Works	1938	2176133
J	254m S	Unspecified Works	1987	2218967
H	255m N	Unspecified Heaps	1965	2183382
H	255m N	Unspecified Heaps	1954	2183382
H	256m N	Unspecified Ground Workings	1987	2226236

ID	Location	Land Use	Date	Group ID
J	256m S	Unspecified Works	1987	2226895
H	256m NW	Leather Works	1938	2292514
H	257m N	Sewage Disposal Works	1954	2222601
I	257m SW	Unspecified Works	1899	2252203
H	257m N	Unspecified Ground Workings	1934	2268075
H	257m NW	Leather Works	1948	2177437
H	259m N	Unspecified Heap	1938	2248375
H	259m N	Unspecified Heap	1938	2248375
H	260m N	Sewage Works	1894	2240363
H	261m N	Sewage Works	1899	2210677
H	262m N	Sewage Disposal Works	1938	2232754
H	262m N	Sewage Disposal Works	1938	2232754
H	264m N	Sewage Works	1919	2227662
J	271m SE	Electric Telegraph	1865	2128250
E	275m S	Railway Sidings	1919	2196182
I	280m S	Unspecified Works	1975	2272194
J	280m SE	Unspecified Works	1974	2175051
J	280m SE	Unspecified Works	1965	2175051
H	281m NW	Sewage Disposal Works	1948	2224120
E	282m S	Railway Sidings	1966	2214306
E	282m S	Railway Sidings	1975	2241718
H	282m NW	Patent Leather Works	1919	2142886
H	284m NW	Leather Works	1934	2169438
H	284m NW	Unspecified Works	1987	2216309
H	284m NW	Leather Works	1938	2169438
I	285m S	Unspecified Commercial/Industrial	1951	2257329
H	285m NW	Sewage Disposal Works	1934	2211765
H	285m NW	Unspecified Works	1987	2264111

ID	Location	Land Use	Date	Group ID
E	285m S	Railway Sidings	1951	2224139
H	286m NW	Sewage Disposal Works	1938	2232754
E	287m S	Railway Building	1951	2148230
H	288m NW	Leather Works	1919	2271142
J	288m SE	Cuttings	1894	2196471
J	289m SE	Cuttings	1894	2196471
J	289m SE	Cuttings	1899	2258059
J	292m S	Cuttings	1865	2224894
H	292m N	Railway Sidings	1948	2245299
H	294m NW	Unspecified Works	1974	2283591
H	294m NW	Unspecified Works	1965	2283591
H	294m NW	Leather Works	1954	2268429
E	294m S	Railway Building	1934	2148229
E	295m S	Railway Sidings	1938	2282976
E	295m S	Railway Sidings	1919	2282976
H	302m N	Railway Sidings	1965	2179027
H	302m N	Railway Sidings	1954	2214479
I	304m SW	Unspecified Works	1919	2254992
I	304m SW	Unspecified Works	1894	2276070
J	304m SE	Unspecified Tank	1938	2242629
J	305m SE	Unspecified Tank	1919	2252585
J	306m SE	Unspecified Tank	1934	2252559
J	306m SE	Unspecified Tank	1938	2252559
J	308m SE	Unspecified Tank	1919	2277359
J	309m SE	Unspecified Tank	1948	2252559
E	311m S	Railway Sidings	1865	2198698
J	312m S	Railway Sidings	1919	2188996
H	314m N	Railway Sidings	1938	2245299

ID	Location	Land Use	Date	Group ID
H	317m N	Railway Sidings	1938	2228520
E	319m S	Railway Sidings	1934	2212826
E	319m S	Railway Land	1934	2140991
J	321m SE	Railway Sidings	1954	2224139
J	321m SE	Railway Sidings	1948	2168852
H	322m N	Railway Sidings	1934	2277612
I	323m SW	Mill Pond	1919	2263580
I	323m SW	Mill Pond	1894	2178670
J	323m S	Railway Sidings	1938	2240206
I	324m SW	Unspecified Tank	1974	2225678
I	324m SW	Unspecified Tank	1965	2225678
J	326m SE	Unspecified Ground Workings	1938	2170366
J	326m SE	Unspecified Ground Workings	1938	2170366
I	326m SW	Mill Pond	1899	2263580
I	328m SW	Mill Pond	1894	2250527
J	328m S	Unspecified Works	1966	2201898
J	328m S	Unspecified Works	1992	2287248
J	328m S	Unspecified Works	1975	2287248
J	331m SE	Unspecified Heap	1948	2136628
J	335m S	Smelting Works	1919	2244123
J	337m S	Unspecified Commercial/Industrial	1938	2228222
J	338m S	Unspecified Commercial/Industrial	1938	2251568
J	338m S	Smelting Works	1919	2244123
J	338m S	Unspecified Commercial/Industrial	1934	2228222
L	339m SE	Cuttings	1919	2189474
E	340m S	Railway Building	1919	2148231
H	342m NW	Filter Beds	1919	2169917
H	343m NW	Filter Beds	1919	2172172

ID	Location	Land Use	Date	Group ID
J	345m SE	Unspecified Works	1966	2212990
J	345m SE	Unspecified Factory	1992	2150940
J	345m SE	Unspecified Works	1975	2240663
E	355m S	Railway Building	1975	2267655
E	358m S	Railway Building	1951	2171868
E	358m S	Railway Building	1951	2225043
E	360m S	Railway Building	1919	2233739
J	361m SE	Railway Building	1954	2148228
E	361m S	Goods Yard	1966	2142145
I	362m S	Railway Station	1899	2227329
E	363m S	Railway Building	1938	2225043
3	363m S	Unspecified Heap	1899	2136631
E	363m S	Railway Building	1938	2171868
E	365m S	Railway Building	1919	2178405
I	366m S	Railway Station	1934	2283154
N	374m E	Unspecified Tank	1948	2262842
N	374m E	Unspecified Tank	1938	2262842
I	376m SW	Railway Station	1919	2183428
I	377m SW	Railway Station	1894	2183574
I	380m SW	Railway Station	1894	2183574
I	381m SW	Railway Station	1951	2237009
I	383m SW	Railway Station	1938	2237009
I	383m SW	Railway Station	1919	2169463
I	384m SW	Railway Station	1938	2237009
J	384m SE	Bakelite Works	1938	2185502
J	384m SE	Bakelite Works	1938	2232088
J	386m SE	Bakelite Works	1934	2232088
I	389m SW	Unspecified Works	1992	2225207

ID	Location	Land Use	Date	Group ID
J	396m SE	Unspecified Works	1966	2212990
J	396m SE	Unspecified Works	1975	2240663
I	401m SW	Railway Building	1865	2148207
4	404m S	Nursery	1934	2161256
H	410m N	Filter Beds	1974	2225873
H	410m N	Filter Beds	1965	2225873
P	413m N	Unspecified Commercial/Industrial	1938	2292984
H	413m N	Unspecified Works	1974	2283954
H	413m N	Unspecified Works	1965	2283954
P	414m N	Unspecified Commercial/Industrial	1934	2292984
I	416m S	Unspecified Depot	1992	2146989
P	417m N	Brick Works	1919	2190701
Q	417m SE	Cuttings	1919	2189474
J	420m SE	Railway Building	1954	2148227
L	436m SE	Cuttings	1938	2258529
L	437m SE	Cuttings	1938	2258529
P	438m N	Unspecified Commercial/Industrial	1948	2211691
L	438m SE	Cuttings	1934	2258529
L	442m SE	Cuttings	1948	2258529
S	442m S	Unspecified Works	1975	2231028
S	442m S	Unspecified Works	1966	2207830
H	467m N	Filter Beds	1919	2172172
V	471m SW	Silk Printing Works	1919	2209903
Q	484m E	Cuttings	1987	2258529
Q	486m E	Cuttings	1987	2258529
5	487m S	Varnish Works	1919	2152559
W	488m E	Cuttings	1974	2258529
W	488m E	Cuttings	1965	2258529

ID	Location	Land Use	Date	Group ID
V	491m SW	Unspecified Commercial/Industrial	1938	2130723
V	491m SW	Silk Printing Works	1919	2217082
V	491m SW	Silk Printing Works	1894	2282627
Y	491m S	Unspecified Works	1975	2172054
X	491m NW	Unspecified Tanks	1974	2203195
X	491m NW	Unspecified Tanks	1965	2203195
X	491m NW	Unspecified Tanks	1954	2203195
V	492m SW	Silk Printing Works	1899	2209903
V	493m SW	Silk Painting Works	1894	2163202
Y	494m S	Unspecified Works	1966	2250714
V	495m SW	Silk Printing Works	1934	2232825
W	496m E	Cuttings	1954	2258529

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**195**

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 29 >**

ID	Location	Land Use	Date	Group ID
A	2m W	Unspecified Tank	1967	383361
A	2m W	Unspecified Tank	1950	383361
E	176m SW	Unspecified Tank	1950	381810
E	176m SW	Unspecified Tank	1950	381810
E	181m SW	Tanks	1950	386845
E	182m SW	Tanks	1950	386845
E	191m SW	Unspecified Tank	1967	384189
E	191m SW	Unspecified Tank	1950	384189

ID	Location	Land Use	Date	Group ID
E	191m SW	Unspecified Tank	1981	384189
H	234m NW	Tanks	1988	411460
H	234m NW	Tanks	1989	411460
H	234m NW	Tanks	1991	411460
H	234m NW	Tanks	1991	411460
H	234m NW	Tanks	1982	411460
H	234m NW	Tanks	1967	411460
H	234m NW	Tanks	1950	411460
I	248m SW	Unspecified Tank	1950	397224
I	248m SW	Unspecified Tank	1950	397224
K	269m S	Unspecified Tank	1950	400438
K	269m S	Unspecified Tank	1950	400438
J	288m SE	Unspecified Tank	1950	361907
I	290m SW	Unspecified Tank	1950	361904
H	292m NW	Settling Tanks	1950	391086
H	293m NW	Settling Tanks	1967	386029
H	293m NW	Settling Tanks	1950	386029
H	293m NW	Settling Tanks	1982	405485
H	293m NW	Settling Tanks	1988	405485
H	293m NW	Settling Tanks	1988	405485
H	293m NW	Settling Tanks	1989	405485
H	293m NW	Settling Tanks	1991	405485
H	293m NW	Settling Tanks	1991	405485
H	294m NW	Filter Tanks	1934	379284
K	297m S	Unspecified Tank	1986	393622
K	298m S	Unspecified Tank	1970	404575
J	300m SE	Unspecified Tank	1981	383962
J	300m SE	Unspecified Tank	1981	383962

ID	Location	Land Use	Date	Group ID
J	300m SE	Unspecified Tank	1989	383962
J	300m SE	Unspecified Tank	1991	383962
J	300m SE	Unspecified Tank	1967	383962
I	301m SW	Unspecified Tank	1950	385237
I	301m SW	Unspecified Tank	1950	385237
H	302m NW	Filter Tanks	1933	379283
H	313m N	Tanks	1982	385749
H	313m N	Tanks	1988	385749
H	313m N	Tanks	1989	385749
H	313m N	Tanks	1950	385749
H	313m N	Tanks	1967	385749
H	313m N	Tanks	1950	385749
J	314m S	Tanks	1987	408934
J	314m S	Tanks	1996	388450
J	314m S	Tanks	1986	388450
H	315m N	Unspecified Tank	1934	361903
I	318m SW	Unspecified Tank	1980	385263
I	319m SW	Unspecified Tank	1976	385263
I	324m SW	Unspecified Tank	1960	361905
H	325m NW	Tanks	1991	401142
H	325m NW	Tanks	1986	401142
H	325m NW	Tanks	1980	401142
H	325m NW	Tanks	1980	401142
H	325m NW	Tanks	1991	401142
H	332m N	Unspecified Tank	1913	385731
H	333m N	Unspecified Tank	1950	382900
H	333m N	Unspecified Tank	1950	382900
H	334m N	Unspecified Tank	1934	393772

ID	Location	Land Use	Date	Group ID
H	334m N	Unspecified Tank	1934	361902
H	335m N	Tanks	1982	398946
H	335m N	Tanks	1988	398946
H	335m N	Tanks	1988	398946
H	335m N	Tanks	1989	398946
H	336m N	Tanks	1967	409549
H	337m NW	Unspecified Tank	1950	382767
H	337m NW	Unspecified Tank	1950	386435
H	338m N	Unspecified Tank	1913	361901
H	339m NW	Settling Tanks	1982	407850
H	339m NW	Settling Tanks	1988	407850
H	339m NW	Settling Tanks	1988	407850
H	339m NW	Settling Tanks	1989	407850
H	339m NW	Settling Tanks	1991	407850
H	339m NW	Settling Tanks	1991	407850
H	339m NW	Settling Tanks	1967	380734
H	339m NW	Settling Tanks	1950	380734
H	339m NW	Settling Tanks	1950	393847
H	339m NW	Filter Tanks	1933	379282
H	341m N	Tanks	1982	385324
H	341m N	Tanks	1988	385324
H	341m N	Tanks	1988	385324
H	341m N	Tanks	1989	385324
H	341m N	Tanks	1967	410738
H	341m N	Tanks	1950	410738
H	341m N	Tanks	1950	395850
H	342m N	Filter Tanks	1934	379281
H	343m NW	Tanks	1950	404488

ID	Location	Land Use	Date	Group ID
H	343m NW	Tanks	1950	409355
H	345m NW	Tanks	1933	409355
H	349m N	Unspecified Tank	1982	402498
H	349m N	Unspecified Tank	1988	402498
H	349m N	Unspecified Tank	1988	402498
H	349m N	Unspecified Tank	1989	402498
H	349m N	Unspecified Tank	1967	399926
H	349m N	Unspecified Tank	1950	399926
H	350m N	Unspecified Tank	1950	399926
H	350m N	Unspecified Tank	1934	387470
H	357m NW	Unspecified Tank	1982	407042
H	357m NW	Unspecified Tank	1967	407042
I	359m SW	Unspecified Tank	1970	361906
I	361m SW	Unspecified Tank	1986	409234
I	361m SW	Unspecified Tank	1970	409234
H	375m NW	Unspecified Tank	1986	391876
H	376m NW	Unspecified Tank	1991	391876
H	376m NW	Unspecified Tank	1991	391876
I	382m SW	Unspecified Tank	1980	387026
I	383m SW	Tanks	1968	399921
I	383m SW	Unspecified Tank	1976	387026
I	383m SW	Tanks	1968	399921
I	384m SW	Tanks	1979	398300
H	385m NW	Tanks	1982	392300
H	385m NW	Tanks	1988	392300
H	385m NW	Tanks	1988	392300
H	385m NW	Tanks	1989	392300
H	386m NW	Tanks	1967	386780

ID	Location	Land Use	Date	Group ID
I	390m SW	Tanks	1968	391810
I	390m SW	Tanks	1968	391810
J	391m SE	Unspecified Tank	1952	387308
J	392m S	Unspecified Tank	1952	408883
J	392m S	Unspecified Tank	1952	408883
J	392m SE	Unspecified Tank	1952	391600
J	392m SE	Unspecified Tank	1952	395427
H	392m NW	Tanks	1982	390690
H	392m NW	Tanks	1988	390690
H	392m NW	Tanks	1988	390690
H	392m NW	Tanks	1989	390690
J	393m SE	Unspecified Tank	1952	393395
I	396m SW	Tanks	1968	375519
H	405m NW	Unspecified Tank	1986	393738
H	405m NW	Unspecified Tank	1991	393738
H	405m NW	Unspecified Tank	1991	393738
J	406m SE	Unspecified Tank	1973	361909
J	410m SE	Tanks	1973	375527
J	414m SE	Tanks	1972	402534
J	414m SE	Tanks	1982	402534
J	415m SE	Unspecified Tank	1973	361915
J	419m SE	Unspecified Tank	1973	361911
J	419m SE	Unspecified Tank	1934	361916
H	425m NW	Tanks	1950	395593
H	426m NW	Tanks	1950	381385
J	427m SE	Unspecified Tank	1968	405421
J	427m SE	Unspecified Tank	1952	396626
H	428m NW	Tanks	1950	402700

ID	Location	Land Use	Date	Group ID
J	428m SE	Unspecified Tank	1952	381379
J	428m SE	Unspecified Tank	1952	401278
J	428m SE	Unspecified Tank	1970	398134
J	428m SE	Unspecified Tank	1950	394534
J	428m SE	Unspecified Tank	1950	411569
J	428m SE	Unspecified Tank	1973	361917
J	429m SE	Unspecified Tank	1952	385716
J	430m SE	Unspecified Tank	1952	402101
J	430m SE	Unspecified Tank	1952	402101
J	430m SE	Tanks	1968	392808
J	430m SE	Tanks	1952	392808
J	431m SE	Tanks	1952	392808
J	431m SE	Tanks	1952	392808
J	431m SE	Tanks	1970	392808
H	432m NW	Tanks	1980	399336
H	432m NW	Tanks	1986	399336
H	433m NW	Tanks	1991	399336
H	433m NW	Tanks	1991	399336
R	437m S	Unspecified Tank	1896	384819
J	438m SE	Unspecified Tank	1952	403728
J	438m SE	Unspecified Tank	1952	403728
J	438m SE	Unspecified Tank	1952	403728
R	439m S	Unspecified Tank	1898	384819
J	443m SE	Unspecified Tank	1970	361910
J	445m SE	Tanks	1973	375529
H	446m NW	Unspecified Tank	1980	387689
H	446m NW	Unspecified Tank	1986	387689
J	446m SE	Tanks	1952	396883

ID	Location	Land Use	Date	Group ID
J	446m SE	Tanks	1952	396883
J	446m SE	Tanks	1952	396883
H	447m NW	Unspecified Tank	1991	387689
H	447m NW	Unspecified Tank	1991	387689
J	447m SE	Unspecified Tank	1952	400307
J	447m SE	Unspecified Tank	1952	400307
J	447m SE	Unspecified Tank	1952	400307
J	450m SE	Tanks	1973	375528
J	455m SE	Unspecified Tank	1952	385355
J	455m SE	Unspecified Tank	1952	396592
J	456m SE	Unspecified Tank	1952	395252
X	490m NW	Separating Tanks	1950	411322
X	490m NW	Separating Tanks	1980	392225
X	490m NW	Separating Tanks	1950	392695
X	490m NW	Separating Tanks	1980	393023
Z	499m SW	Unspecified Tank	1968	403157
Z	499m SW	Unspecified Tank	1968	403157
Z	500m SW	Unspecified Tank	1979	403157
Z	500m SW	Unspecified Tank	1985	403157

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**86**

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 29 >**

ID	Location	Land Use	Date	Group ID
A	**On site**	**Electricity Substation**	**1981**	**289273**

ID	Location	Land Use	Date	Group ID
A	**On site**	**Electricity Substation**	**1981**	**289273**
A	**On site**	**Electricity Substation**	**1989**	**289273**
A	**On site**	**Electricity Substation**	**1991**	**289273**
D	66m S	Electricity Substation	1967	263745
D	66m S	Electricity Substation	1981	263745
D	66m S	Electricity Substation	1981	263745
D	66m S	Electricity Substation	1989	263745
D	66m S	Electricity Substation	1991	263745
F	124m NE	Electricity Substation	1981	275430
F	124m NE	Electricity Substation	1981	275430
F	124m NE	Electricity Substation	1989	275430
F	124m NE	Electricity Substation	1991	275430
F	131m NE	Electricity Substation	1967	259277
E	155m S	Electricity Substation	1950	242525
E	171m S	Electricity Substation	1981	270112
E	175m S	Electricity Substation	1967	271594
E	175m S	Electricity Substation	1950	271594
E	254m S	Electricity Substation	1981	285464
E	254m S	Electricity Substation	1989	285464
E	254m S	Electricity Substation	1991	285464
J	269m SE	Electricity Substation	1967	266653
J	269m SE	Electricity Substation	1981	266653
J	269m SE	Electricity Substation	1981	266653
J	269m SE	Electricity Substation	1989	266653
J	269m SE	Electricity Substation	1991	266653
H	293m N	Electricity Substation	1967	273720
H	293m N	Electricity Substation	1982	273720
H	293m N	Electricity Substation	1988	273720

ID	Location	Land Use	Date	Group ID
H	293m N	Electricity Substation	1988	273720
H	293m N	Electricity Substation	1989	273720
H	293m N	Electricity Substation	1991	273720
H	293m N	Electricity Substation	1991	273720
H	307m NW	Electricity Substation	1982	266697
H	307m NW	Electricity Substation	1988	266697
H	307m NW	Electricity Substation	1988	266697
H	307m NW	Electricity Substation	1989	266697
H	307m NW	Electricity Substation	1991	266697
H	307m NW	Electricity Substation	1991	266697
I	307m S	Electricity Substation	1968	279593
I	307m S	Electricity Substation	1952	279593
I	307m S	Electricity Substation	1952	279593
I	307m S	Electricity Substation	1952	279593
I	307m S	Electricity Substation	1970	279593
I	327m S	Electricity Substation	1970	242526
M	352m NE	Electricity Substation	1988	266315
M	352m NE	Electricity Substation	1988	266315
M	352m NE	Electricity Substation	1989	266315
M	352m NE	Electricity Substation	1991	266315
M	352m NE	Electricity Substation	1991	266315
M	356m N	Electricity Substation	1967	278750
M	357m N	Electricity Substation	1982	278750
O	374m W	Electricity Substation	1980	267755
O	374m W	Electricity Substation	1985	267755
O	374m W	Electricity Substation	1991	267755
O	374m W	Electricity Substation	1991	267755
O	375m W	Electricity Substation	1976	267755

ID	Location	Land Use	Date	Group ID
H	396m N	Electricity Substation	1982	288516
H	396m N	Electricity Substation	1988	288516
H	396m N	Electricity Substation	1988	288516
H	396m N	Electricity Substation	1989	288516
H	396m N	Electricity Substation	1991	288516
H	396m N	Electricity Substation	1991	288516
H	396m N	Electricity Substation	1967	275092
J	437m SE	Electricity Substation	1968	273037
J	437m SE	Electricity Substation	1952	273037
J	437m SE	Electricity Substation	1952	273037
J	437m SE	Electricity Substation	1952	273037
J	437m SE	Electricity Substation	1970	273037
T	453m E	Electricity Substation	1985	271556
T	453m E	Electricity Substation	1982	271556
T	453m E	Electricity Substation	1991	271556
T	453m E	Electricity Substation	1991	271556
J	453m SE	Electricity Substation	1952	242527
T	454m E	Electricity Substation	1992	271556
T	454m E	Electricity Substation	1972	271556
J	463m SE	Electricity Substation	1952	280779
J	463m SE	Electricity Substation	1952	280779
I	477m SW	Electricity Substation	1989	242524
J	479m SE	Electricity Substation	1986	257497
U	479m NE	Electricity Substation	1992	262237
U	479m NE	Electricity Substation	1972	266481
U	479m NE	Electricity Substation	1985	262237
U	479m NE	Electricity Substation	1991	262237
J	487m SE	Electricity Substation	1996	281986

ID	Location	Land Use	Date	Group ID
J	487m SE	Electricity Substation	1987	281986

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	**0**

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m	**11**

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 29 >**

ID	Location	Land Use	Date	Group ID
A	**On site**	**Garage**	**1967**	**73184**
D	37m S	Garage	1967	85895
D	37m S	Garage	1981	85895
D	42m S	Garage	1991	75097
F	79m NE	Garage	1967	75558
F	80m NE	Garage	1981	81689
F	80m NE	Garage	1981	81689
F	80m NE	Garage	1989	81689
F	80m NE	Garage	1991	81689
B	94m NE	Garage	1967	73185
U	456m NE	Garage	1972	73188

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill

Site Outline

Search buffers in metres (m)

Historical waste sites

Licensed waste sites

Waste exemptions

3.1 Active or recent landfill

Records within 500m	0

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.2 Historical landfill (BGS records)

Records within 500m	0

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m	0

Landfill sites identified from Local Authority records and high detail historical mapping.

This data is sourced from the Ordnance Survey/Groundsure and Local Authority records.

3.4 Historical landfill (EA/NRW records)

Records within 500m	0

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.5 Historical waste sites

Records within 500m	1

Waste site records derived from Local Authority planning records and high detail historical mapping.

Features are displayed on the Waste and landfill map on **page 50 >**

ID	Location	Address	Further Details	Date
1	386m SW	Site Address: Merton Priory Chapter House, Chapter Way, London, Merton, Central London, SW19 2RX, LONDON	Type of Site: Sewerage Treatment Works Planning application reference: 23/P2002 Description: Scheme comprises application for the installation of a new treatment plant. Data source: Historic Planning Application Data Type: Point	28/07/2023

This data is sourced from Ordnance Survey/Groundsure and Local Authority records.

3.6 Licensed waste sites

Records within 500m	2

Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

Features are displayed on the Waste and landfill map on **page 50 >**

ID	Location	Details		
A	168m S	Site Name: J P Fitzpatrick, Priory Pk, Merton, SW19 Site Address: J P Fitzpatrick (Cable T V) Ltd, Priory Park, Christchurch Road, Merton, London, SW19 Correspondence Address: Michael Legister, J Fitzpatrick Cable, 11 Churchill Court, Station Road, North Harrow, Middx, HA2 7SA	Type of Site: Transfer Station taking Non-Biodegradable Wastes Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: FIT001 EPR reference: - Operator: J P Fitzpatrick (Cable T V) Ltd Waste Management licence No: 83186 Annual Tonnage: 14300	Issue Date: 01/03/1993 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Revoked
A	168m S	Site Name: J P Fitzpatrick, Priory Pk, Merton, SW19 Site Address: Priory Park, Christchurch Road, Merton, London, SW19 Correspondence Address: -	Type of Site: Transfer Station taking Non-Biodegradable Wastes Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: 626850 EPR reference: EA/EPR/QP3993EH Operator: J P Fitzpatrick (Cable T V) Limited Waste Management licence No: 83186 Annual Tonnage: 14300	Issue Date: 01/03/1993 Effective Date: 01/03/1993 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Revoked

This data is sourced from the Environment Agency and Natural Resources Wales.

3.7 Waste exemptions

Records within 500m **3**

Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

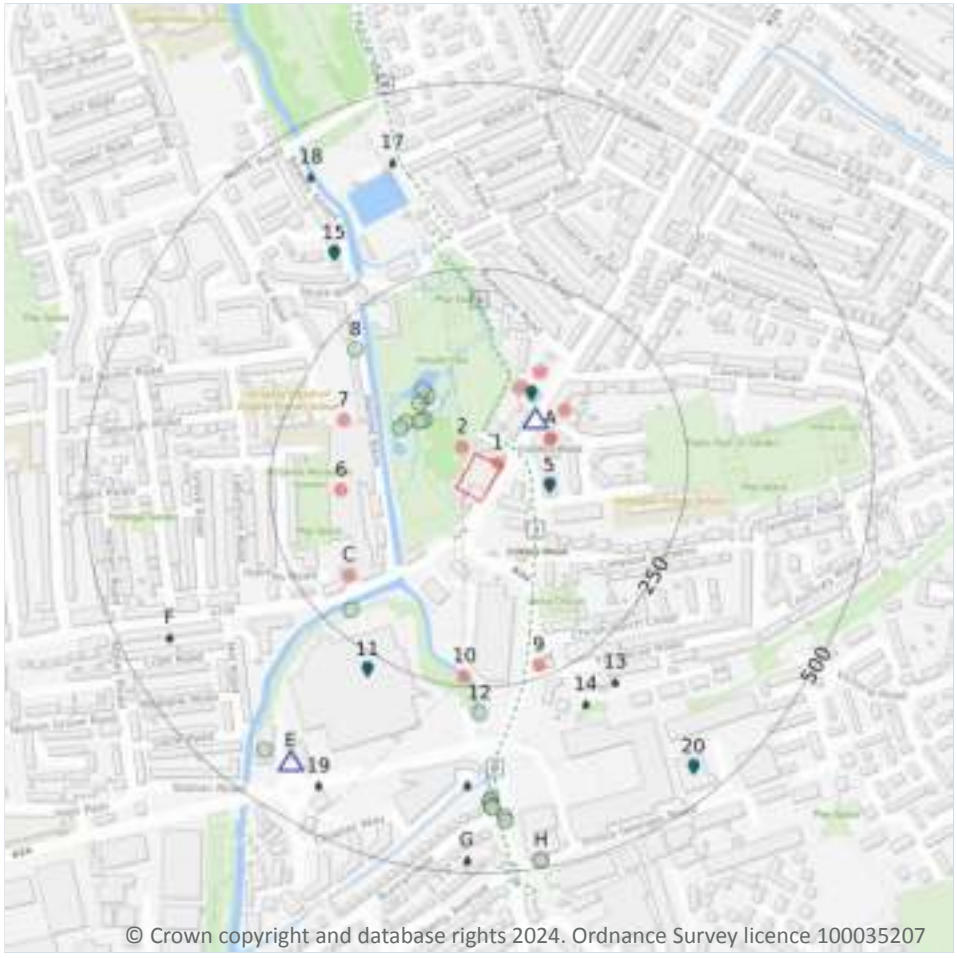
Features are displayed on the Waste and landfill map on **page 50 >**

ID	Location	Site	Reference	Category	Sub-Category	Description
B	443m SW	88-92, MERTON HIGH STREET, LONDON, SW19 1BD	WEX279529	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
B	453m SW	Abbey Pharmacy, 12a Abbey Parade, Merton High Street, London, SW19 1DG	WEX003913	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal

ID	Location	Site	Reference	Category	Sub-Category	Description
B	453m SW	12a Abbey Parade LONDON SW19 1DG	EPR/DH0815DR/A001	Treating waste exemption	Non-Agricultural Waste Only	Sorting and de-naturing of controlled drugs for disposal

This data is sourced from the Environment Agency and Natural Resources Wales.

4 Current industrial land use



Site Outline

Search buffers in metres (m)

Recent industrial land uses

Current or recent petrol stations

Electricity cables

Licensed pollutant release (Part A(2)/B)

Licensed Discharges to controlled waters

Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m	**11**

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 54 >**

ID	Location	Company	Address	Activity	Category
1	1m NE	Electricity Sub Station	Greater London, SW19	Electrical Features	Infrastructure and Facilities
2	19m NW	Pylon	Greater London, SW19	Electrical Features	Infrastructure and Facilities

ID	Location	Company	Address	Activity	Category
A	74m NE	Colliers Wood	Colliers Wood Station, High Street Colliers Wood, London, Greater London, SW19 2HR	Underground Network Stations	Public Transport, Stations and Infrastructure
A	107m NE	Tesco Petrol Station	164-178, High Street Collier's Wood, Colliers Wood, London, Greater London, SW19 2BN	Petrol and Fuel Stations	Road and Rail
A	113m NE	Electricity Sub Station	Greater London, SW19	Electrical Features	Infrastructure and Facilities
A	136m NE	Electricity Sub Station	Greater London, SW19	Electrical Features	Infrastructure and Facilities
6	154m W	Bus Depot	Greater London, SW19	Bus and Coach Stations, Depots and Companies	Public Transport, Stations and Infrastructure
7	177m NW	Electricity Sub Station	Greater London, SW19	Electrical Features	Infrastructure and Facilities
C	186m SW	Go-ahead London	London General 18, Merton High Street, Colliers Wood, London, Greater London, SW19 1DN	Bus and Coach Stations, Depots and Companies	Public Transport, Stations and Infrastructure
9	233m S	A & H Bryant	74, Christchurch Road, Colliers Wood, London, Greater London, SW19 2PB	Rubber, Silicones and Plastics	Industrial Products
10	236m S	Pylon	Greater London, SW19	Electrical Features	Infrastructure and Facilities

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	**2**

Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 54 >**

ID	Location	Company	Address	LPG	Status
A	77m NE	ESSO	164-178, High Street, Colliers Wood, London, Outer London, SW19 2BN	No	Open
E	430m SW	SAINSBURYS	Merantun Way, Merton, London, Outer London, SW19 1DD	No	Open

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	4

High voltage underground electricity transmission cables.

Features are displayed on the Current industrial land use map on **page 54 >**

ID	Location	Cable Set	Cable Route	Details	
3	26m NE	-	-	Cable Make: - Cable Type: PILOT Operating Voltage (kV): -	Year of installation: Not specified Cable in tunnel? Not specified
4	27m NE	-	-	Cable Make: - Cable Type: PILOT Operating Voltage (kV): -	Year of installation: Not specified Cable in tunnel? Not specified
D	187m S	-	-	Cable Make: - Cable Type: PILOT Operating Voltage (kV): -	Year of installation: Not specified Cable in tunnel? Not specified
16	384m N	-	-	Cable Make: - Cable Type: PILOT Operating Voltage (kV): -	Year of installation: Not specified Cable in tunnel? Not specified

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m	0

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m	0

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m	0

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	0

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.10 Licensed industrial activities (Part A(1))

Records within 500m	0

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.11 Licensed pollutant release (Part A(2)/B)

Records within 500m	5

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

Features are displayed on the Current industrial land use map on **page 54 >**

ID	Location	Address	Details	
5	68m E	Du Cane, 30 Christchurch Road, Colliers Wood, SW19 2NX	Process: Dry Cleaning Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
A	104m NE	Colliers Wood Service Station, 164-168 High Street, Colliers Wood, SW19 2BN	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
11	272m SW	Savacentre Ltd, 1 Merton High Street, London, SW19 1DD	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
15	330m NW	Connolly Leather, Wandlebank, SW19 1DW	Process: Leather Finishing Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
20	457m SE	Link Vehicle Solutions Ltd, Unit 2 Greenlea Industrial Park, Prince Georges Road, Colliers Wood, SW19 2PT.	Process: Respraying of Road Vehicles Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m	0

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.13 Licensed Discharges to controlled waters

Records within 500m	13

Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991.

Features are displayed on the Current industrial land use map on **page 54 >**

ID	Location	Address	Details	
13	303m SE	MERTON PUMPING STATION, FORTESCUE ROAD, LONDON, SW19 2EB	Effluent Type: TRADE DISCHARGES - PROCESS EFFLUENT - NOT WATER COMPANY Permit Number: CASM.1461 Permit Version: 1 Receiving Water: GROUND WATERS (CHALK AQUIFER)	Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 16/05/2007 Effective Date: 21/05/2007 Revocation Date: 21/11/2007
14	307m SE	MERTON ABBEY PUMPING STATION, MERTON ABBEY PUMPING STATION, MERTON, LONDON	Effluent Type: MISCELLANEOUS DISCHARGES - UNSPECIFIED Permit Number: CNTS.0012 Permit Version: 1 Receiving Water: RIVER WANDLE	Status: NEW CONSENT, (WATER INDUSTRY ACT 1991, SECTION 166) Issue date: 27/02/1995 Effective Date: 27/02/1995 Revocation Date: -
D	383m S	MITCHAM PICKLE DITCH CSO, CHRIST CHURCH ROAD, MITCHAM, SURREY	Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: CASM.1312 Permit Version: 1 Receiving Water: PICKLE DITCH	Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 31/03/2005 Effective Date: 31/03/2005 Revocation Date: 31/03/2008
D	383m S	MITCHAM PICKLE DITCH CSO, CHRIST CHURCH ROAD, MITCHAM, SURREY	Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: CASM.1312 Permit Version: 1 Receiving Water: PICKLE DITCH	Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 31/03/2005 Effective Date: 31/03/2005 Revocation Date: 31/03/2008

ID	Location	Address	Details	
D	383m S	RING MAIN DRAIN DOWN, BTW MONUMENT, RING MAIN DRAIN DOWN, BTW MONUME, NT WAY & CHRISTCHURCH RD, MERTON, LONDON	Effluent Type: MISCELLANEOUS DISCHARGES - UNSPECIFIED Permit Number: CATS.0033 Permit Version: 1 Receiving Water: PICKLE BROOK	Status: NEW CONSENT, (WATER INDUSTRY ACT 1991, SECTION 166) Issue date: 26/11/1997 Effective Date: 26/11/1997 Revocation Date: 15/12/1997
D	383m S	MITCHAM PICKLE DITCH CSO, CHRIST CHURCH ROAD, MITCHAM, SURREY	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: CASM.1312 Permit Version: 2 Receiving Water: PICKLE DITCH	Status: SURRENDERED UNDER EPR 2010 Issue date: 31/03/2005 Effective Date: 01/04/2008 Revocation Date: 25/10/2023
17	408m N	BYGROVE ROAD SEWAGE TREATMENT WORKS, BYGROVE ROAD STW, BYGROVE ROAD, MERTON, LONDON, SW19 2AZ	Effluent Type: TRADE DISCHARGES - PROCESS EFFLUENT - WATER COMPANY (WTW) Permit Number: CASM.1462 Permit Version: 1 Receiving Water: GROUND WATERS (CHALK AQUIFER)	Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 01/10/2007 Effective Date: 01/10/2007 Revocation Date: 30/06/2008
18	433m NW	CONNOLLY LEATHER LTD, WANDLE BANK, CONNOLLY LEATHER LTD, WANDLE BAN, K, WIMBLEDON, LONDON	Effluent Type: TRADE DISCHARGES - COOLING WATER Permit Number: CNTM.0168 Permit Version: 1 Receiving Water: RIVER WANDLE	Status: REVOKED - UNSPECIFIED Issue date: 26/03/1992 Effective Date: 26/03/1992 Revocation Date: 20/12/1996
F	435m SW	MERTON HIGH STREET, LONDON, MERTON HIGH STREET, LONDON	Effluent Type: TRADE DISCHARGES - COOLING WATER Permit Number: CTMR.0257 Permit Version: 1 Receiving Water: RIVER WANDLE	Status: REVOKED - UNSPECIFIED Issue date: 01/12/1977 Effective Date: 01/12/1977 Revocation Date: 03/06/1992
F	435m SW	MERTON HIGH STREET, LONDON, MERTON HIGH STREET, LONDON	Effluent Type: TRADE DISCHARGES - COOLING WATER Permit Number: CTMR.0258 Permit Version: 1 Receiving Water: RIVER WANDLE	Status: REVOKED - UNSPECIFIED Issue date: 01/12/1977 Effective Date: 01/12/1977 Revocation Date: 12/10/1993
19	440m SW	STATION ROAD, MERTON ABBEY, LONDON, STATION ROAD, MERTON ABBEY, LOND, ON	Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: CTMR.0271 Permit Version: 1 Receiving Water: (PICKLE DITCH)	Status: REVOKED - UNSPECIFIED Issue date: 01/09/1976 Effective Date: 01/09/1976 Revocation Date: 29/05/1991
G	483m S	Christchurch Road, Christchurch Road	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: TEMP.0673 Permit Version: 1 Receiving Water: GRAVENEY	Status: TEMPORARY CONSENTS (WATER ACT 1989, SECTION 113) Issue date: 02/11/1989 Effective Date: 02/11/1989 Revocation Date: 02/09/2010

ID	Location	Address	Details	
G	483m S	Christchurch Road, Christchurch Road	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: TEMP.0673 Permit Version: 2 Receiving Water: Graveney	Status: SURRENDERED UNDER EPR 2010 Issue date: 03/09/2010 Effective Date: 03/09/2010 Revocation Date: 19/08/2014

This data is sourced from the Environment Agency and Natural Resources Wales.

4.14 Pollutant release to surface waters (Red List)

Records within 500m	0

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.15 Pollutant release to public sewer

Records within 500m	0

Discharges of Special Category Effluents to the public sewer.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.16 List 1 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.17 List 2 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.18 Pollution Incidents (EA/NRW)

Records within 500m	20

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

Features are displayed on the Current industrial land use map on **page 54 >**

ID	Location	Details	
B	81m NW	Incident Date: 23/07/2003 Incident Identification: 175915 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)
B	86m NW	Incident Date: 07/12/2002 Incident Identification: 125121 Pollutant: Other Pollutant Pollutant Description: Other	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
B	86m NW	Incident Date: 07/12/2002 Incident Identification: 125121 Pollutant: Other Pollutant Pollutant Description: Other	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
B	100m NW	Incident Date: 22/05/2003 Incident Identification: 160124 Pollutant: Other Pollutant Pollutant Description: Other	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
B	101m NW	Incident Date: 15/10/2002 Incident Identification: 114912 Pollutant: Oils and Fuel Pollutant Description: Unidentified Oil	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
B	102m NW	Incident Date: 02/04/2002 Incident Identification: 68226 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)
B	105m NW	Incident Date: 06/07/2001 Incident Identification: 14469 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)
B	111m NW	Incident Date: 08/10/2002 Incident Identification: 113378 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

ID	Location	Details	
8	213m NW	Incident Date: 08/08/2001 Incident Identification: 22892 Pollutant: Sewage Materials Pollutant Description: Grey Water	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
C	216m SW	Incident Date: 25/10/2002 Incident Identification: 116728 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
12	284m S	Incident Date: 28/01/2002 Incident Identification: 54975 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)
D	400m S	Incident Date: 04/11/2002 Incident Identification: 118704 Pollutant: Sewage Materials Pollutant Description: Grey Water	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
D	403m S	Incident Date: 21/07/2003 Incident Identification: 175251 Pollutant: Sewage Materials Pollutant Description: Other Sewage Material	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
D	410m S	Incident Date: 28/10/2002 Incident Identification: 117275 Pollutant: Sewage Materials Pollutant Description: Grey Water	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
D	413m S	Incident Date: 24/09/2001 Incident Identification: 32550 Pollutant: General Biodegradable Materials and Wastes Pollutant Description: Other General Biodegradable Material or Waste	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
D	425m S	Incident Date: 23/01/2003 Incident Identification: 132833 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: Category 2 (Significant) Land Impact: Category 2 (Significant) Air Impact: Category 3 (Minor)
D	432m S	Incident Date: 01/03/2002 Incident Identification: 61349 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
E	437m SW	Incident Date: 19/04/2023 Incident Identification: 2144376 Pollutant: General Biodegradable Materials and Wastes Pollutant Description: Other General Biodegradable Material or Waste	Water Impact: Category 4 (No Impact) Land Impact: Category 2 (Significant) Air Impact: Category 4 (No Impact)

ID	Location	Details	
H	489m S	Incident Date: 09/07/2001 Incident Identification: 19324 Pollutant: Sewage Materials Pollutant Description: Grey Water	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
H	489m S	Incident Date: 09/07/2001 Incident Identification: 19324 Pollutant: Sewage Materials Pollutant Description: Grey Water	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

This data is sourced from the Environment Agency and Natural Resources Wales.

4.19 Pollution inventory substances

Records within 500m	**0**

The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.20 Pollution inventory waste transfers

Records within 500m	**0**

The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

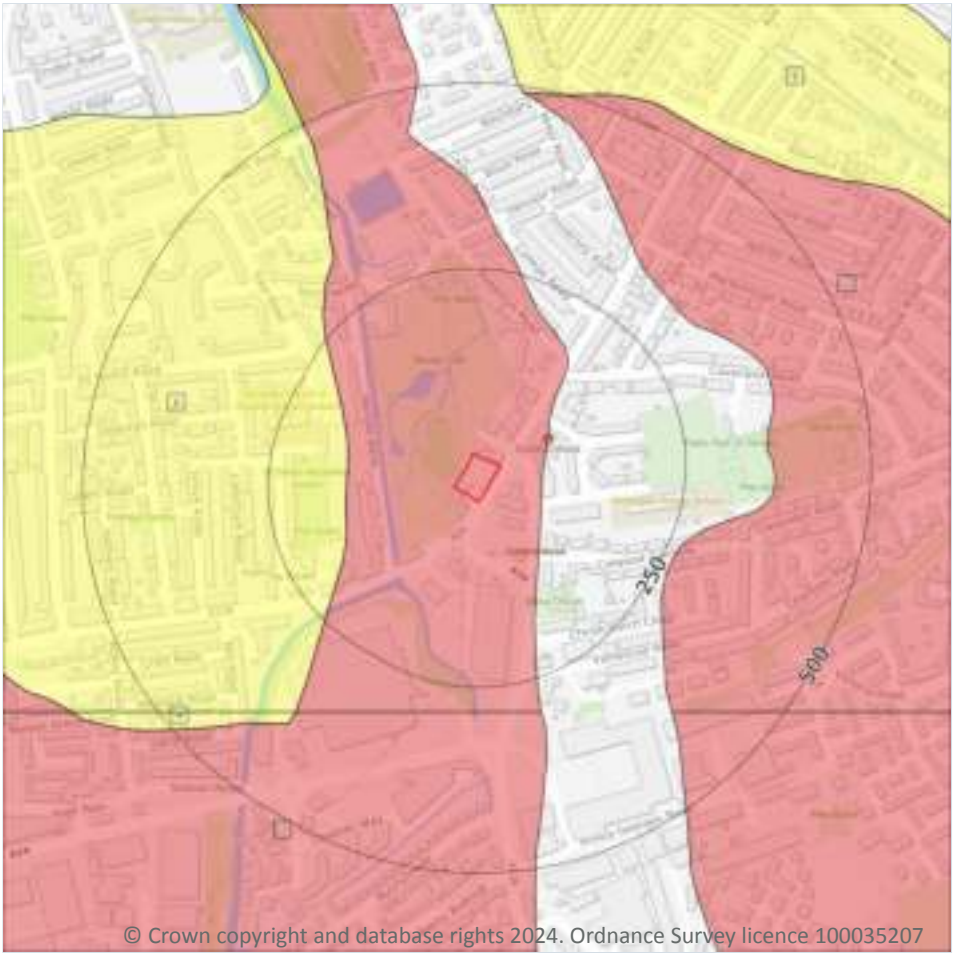
4.21 Pollution inventory radioactive waste

Records within 500m	**0**

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

5 Hydrogeology - Superficial aquifer



Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive
- Unknown

5.1 Superficial aquifer

Records within 500m	5

Aquifer status of groundwater held within superficial geology.

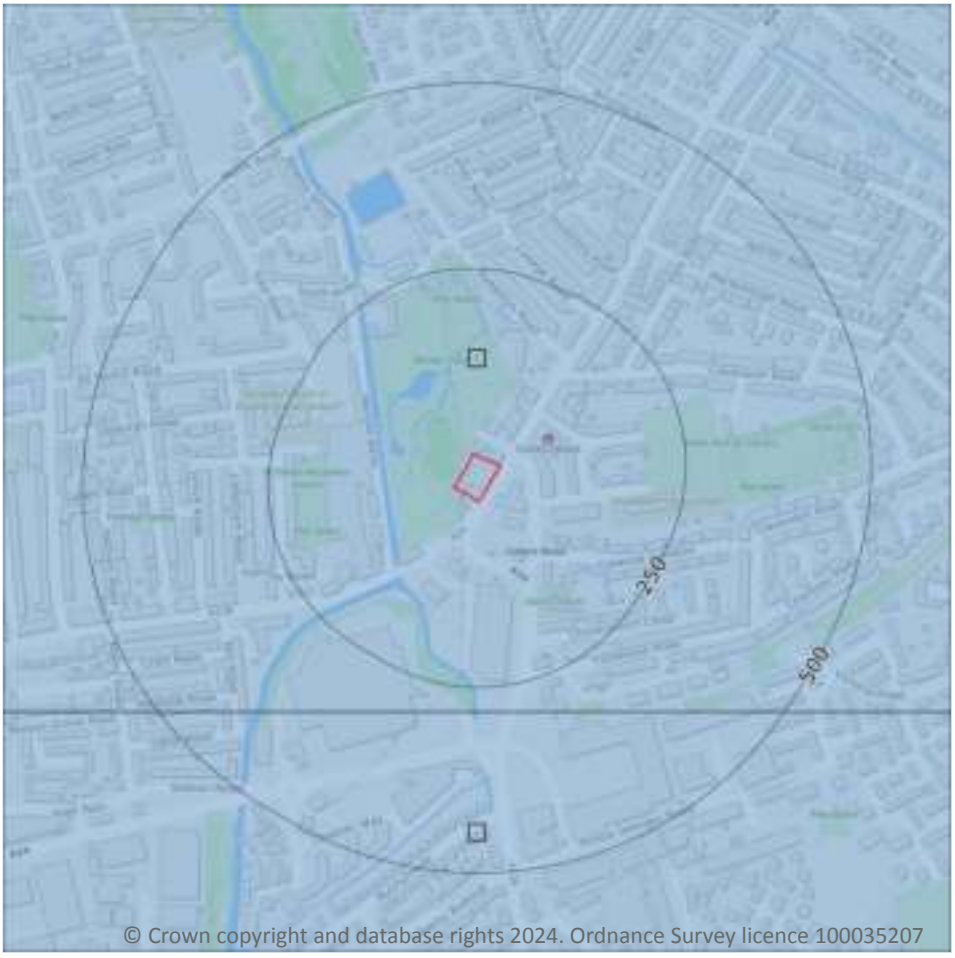
Features are displayed on the Hydrogeology map on **page 65 >**

ID	Location	Designation	Description
1	**On site**	**Secondary A**	**Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers**
2	144m W	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

ID	Location	Designation	Description
3	283m S	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
4	369m SW	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
5	492m N	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

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Bedrock aquifer



Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive

5.2 Bedrock aquifer

Records within 500m **2**

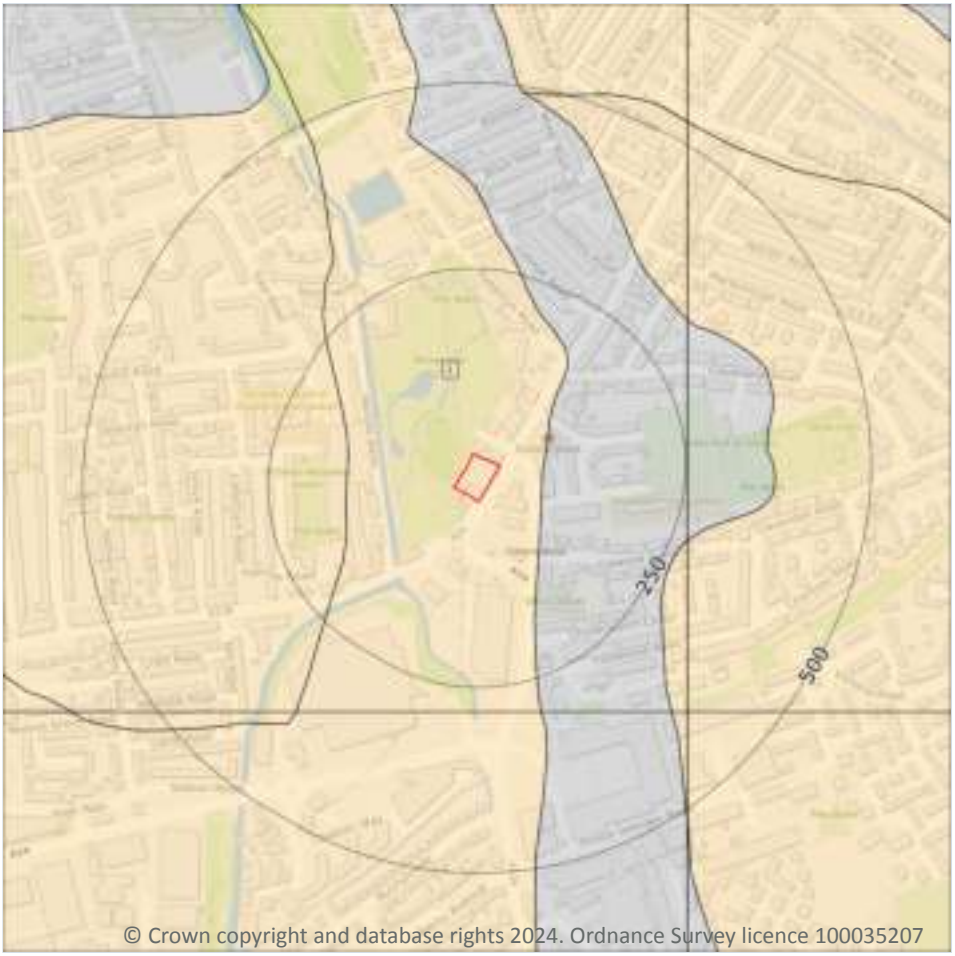
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 67 >**

ID	Location	Designation	Description
1	**On site**	**Unproductive**	**These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow**
2	283m S	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Groundwater vulnerability



Site Outline

Search buffers in metres (m)

Superficial vulnerability
- Principal superficial aquifer, high vulnerability
- Secondary superficial aquifer, high vulnerability
- Principal superficial aquifer, medium vulnerability
- Secondary superficial aquifer, medium vulnerability
- Principal superficial aquifer, low vulnerability
- Secondary superficial aquifer, low vulnerability

Bedrock vulnerability
- Principal bedrock aquifer, high vulnerability
- Secondary bedrock aquifer, high vulnerability
- Principal bedrock aquifer, medium vulnerability
- Secondary bedrock aquifer, medium vulnerability
- Principal bedrock aquifer, low vulnerability
- Secondary bedrock aquifer, low vulnerability

Other information
- Unproductive aquifer
- Soluble rock risk
- Local information

5.3 Groundwater vulnerability

Records within 50m	1

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Features are displayed on the Groundwater vulnerability map on **page 68 >**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	**Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Unproductive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: High Infiltration value: >70% Dilution value: 300-550mm/year**	**Vulnerability: High Aquifer type: Secondary Thickness: <3m Patchiness value: <90% Recharge potential: High**	**Vulnerability: Unproductive Aquifer type: Unproductive Flow mechanism: Mixed**

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

5.4 Groundwater vulnerability- soluble rock risk

Records on site	0

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

This data is sourced from the British Geological Survey and the Environment Agency.

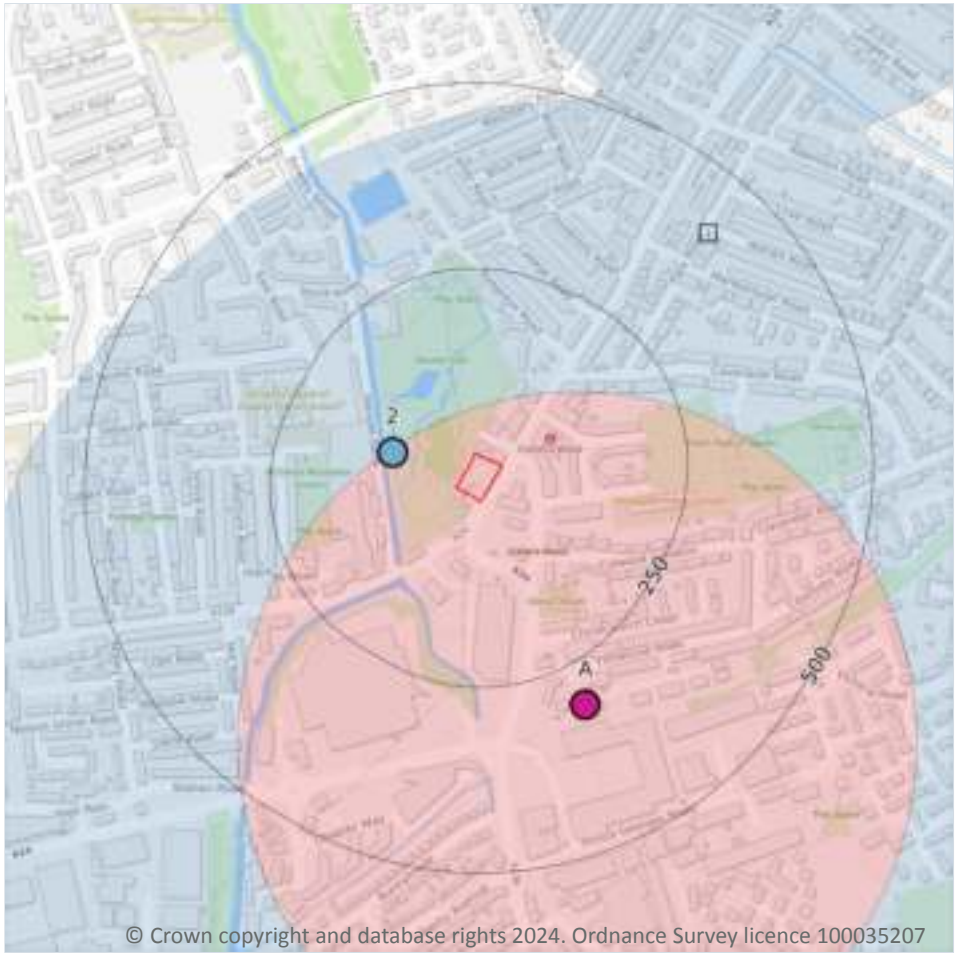
5.5 Groundwater vulnerability- local information

Records on site	0

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk ↗.

This data is sourced from the British Geological Survey and the Environment Agency.

Abstractions and Source Protection Zones



Site Outline

Search buffers in metres (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

Source Protection Zone 1c
Inner catchment - confined aquifer

Source Protection Zone 2c
Outer catchment - confined aquifer

Source Protection Zone 3c
Total catchment - confined aquifer

Drinking water abstraction licences

Drinking water abstraction licences
Polygon features

Drinking water abstraction licences
Linear features

Groundwater abstraction licence (point)

Groundwater abstraction licence (area)

Groundwater abstraction licence (linear)

Surface Water Abstractions (point)

Surface Water Abstractions (area)

Surface Water Abstractions (linear)

5.6 Groundwater abstractions

Records within 2000m	12

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 70 >**

ID	Location	Details	
A	307m SE	Status: Active Licence No: 28/39/41/0039 Details: Potable Water Supply - Direct Direct Source: THAMES GROUNDWATER Point: MERTON ABBEY PUMPING STATION Data Type: Point Name: Thames Water Utilities Ltd Easting: 526860 Northing: 170010	Annual Volume (m^3): 830000 Max Daily Volume (m^3): 8000 Original Application No: RG907 Original Start Date: 13/02/1967 Expiry Date: - Issue No: 100 Version Start Date: 10/07/2014 Version End Date: -
-	915m NW	Status: Historical Licence No: 28/39/41/0074 Details: Water Bottling Direct Source: THAMES GROUNDWATER Point: 12 WATERSIDE WAY, LONDON, - BOREHOLE 'A' Data Type: Point Name: NESTLE WATERCOOLERS UK LTD Easting: 526290 Northing: 171160	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 10/08/1998 Expiry Date: 31/12/2004 Issue No: 101 Version Start Date: 31/12/2001 Version End Date: -
-	1080m SW	Status: Historical Licence No: 28/39/41/0070 Details: General Washing/Process Washing Direct Source: THAMES GROUNDWATER Point: UNIT 9, DEER PARK ROAD, MERTON, - BOREHOLE 'A' Data Type: Point Name: SUNLIGHT SERVICE GROUP LTD Easting: 526270 Northing: 169300	Annual Volume (m^3): 1000000 Max Daily Volume (m^3): 3000 Original Application No: - Original Start Date: 02/10/1995 Expiry Date: - Issue No: 102 Version Start Date: 15/01/2009 Version End Date: -
-	1093m SW	Status: Historical Licence No: 28/39/41/0070 Details: General Washing/Process Washing Direct Source: THAMES GROUNDWATER Point: UNIT 9, DEER PARK ROAD, MERTON, - BOREHOLE 'B' Data Type: Point Name: SUNLIGHT SERVICE GROUP LTD Easting: 526200 Northing: 169320	Annual Volume (m^3): 1000000 Max Daily Volume (m^3): 3000 Original Application No: - Original Start Date: 02/10/1995 Expiry Date: - Issue No: 102 Version Start Date: 15/01/2009 Version End Date: -
-	1095m SW	Status: Active Licence No: 28/39/41/0070 Details: General Washing/Process Washing Direct Source: THAMES GROUNDWATER Point: UNIT 9, DEER PARK ROAD, MERTON, - BOREHOLE 'B' Data Type: Point Name: Elis UK Ltd Easting: 526183 Northing: 169327	Annual Volume (m^3): 413695 Max Daily Volume (m^3): 3000 Original Application No: NPS/WR/034976 Original Start Date: 02/10/1995 Expiry Date: - Issue No: 105 Version Start Date: 12/02/2021 Version End Date: -

ID	Location	Details	
-	1101m SW	Status: Active Licence No: 28/39/41/0070 Details: General Washing/Process Washing Direct Source: THAMES GROUNDWATER Point: UNIT 9, DEER PARK ROAD, MERTON, - BOREHOLE 'A' Data Type: Point Name: Elis UK Ltd Easting: 526241 Northing: 169290	Annual Volume (m^3): 413695 Max Daily Volume (m^3): 3000 Original Application No: NPS/WR/034976 Original Start Date: 02/10/1995 Expiry Date: - Issue No: 105 Version Start Date: 12/02/2021 Version End Date: -
-	1198m N	Status: Active Licence No: 28/39/41/0065 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: THAMES GROUNDWATER Point: ST GEORGE'S HOSPITAL BOREHOLE Data Type: Point Name: ST GEORGE'S HEALTHCARE TRUST Easting: 527000 Northing: 171510	Annual Volume (m^3): 480000 Max Daily Volume (m^3): 1350 Original Application No: NPS/WR/003161 Original Start Date: 05/09/1991 Expiry Date: - Issue No: 102 Version Start Date: 10/07/2014 Version End Date: -
-	1198m N	Status: Active Licence No: 28/39/41/0065 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: THAMES GROUNDWATER Point: ST.GEORGE'S HOSPITAL, BLACKSHAW ROAD, TOOTING, - BOREHOLE A Data Type: Point Name: ST GEORGE'S HEALTHCARE TRUST Easting: 527000 Northing: 171510	Annual Volume (m^3): 480000 Max Daily Volume (m^3): 1350 Original Application No: NPS/WR/003161 Original Start Date: 05/09/1991 Expiry Date: - Issue No: 102 Version Start Date: 10/07/2014 Version End Date: -
-	1198m N	Status: Historical Licence No: TH/039/0041/003 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: THAMES GROUNDWATER Point: ST GEORGE'S HOSPITAL BOREHOLE Data Type: Point Name: ST GEORGE'S HEALTHCARE TRUST Easting: 527000 Northing: 171510	Annual Volume (m^3): 480000 Max Daily Volume (m^3): 1350 Original Application No: - Original Start Date: 05/09/1991 Expiry Date: - Issue No: 1 Version Start Date: 09/06/2010 Version End Date: -

ID	Location	Details	
-	1865m NW	Status: Historical Licence No: 28/39/41/0083 Details: General Use Relating To Secondary Category (High Loss) Direct Source: THAMES GROUNDWATER Point: ARCHWAY CLOSE DURNSFORD ROAD WIMBLEDON SW19 Data Type: Point Name: HANSON QUARRY PROD EUROPE LTD Easting: 525787 Northing: 171968	Annual Volume (m^3): 28980 Max Daily Volume (m^3): 105 Original Application No: - Original Start Date: 31/08/2006 Expiry Date: 31/03/2013 Issue No: 1 Version Start Date: 31/08/2006 Version End Date: -
-	1865m NW	Status: Historical Licence No: TH/039/0041/019 Details: General Use Relating To Secondary Category (High Loss) Direct Source: THAMES GROUNDWATER Point: ARCHWAY CLOSE DURNSFORD ROAD WIMBLEDON SW19 Data Type: Point Name: HANSON QUARRY PRODUCTS EUROPE LTD Easting: 525787 Northing: 171968	Annual Volume (m^3): 28980 Max Daily Volume (m^3): 105 Original Application No: - Original Start Date: 02/05/2013 Expiry Date: 31/03/2019 Issue No: 1 Version Start Date: 02/05/2013 Version End Date: -
-	1962m NW	Status: Active Licence No: TH/039/0041/019/R01 Details: General Use Relating To Secondary Category (High Loss) Direct Source: THAMES GROUNDWATER Point: ARCHWAY CLOSE DURNSFORD ROAD WIMBLEDON SW19 Data Type: Point Name: HANSON QUARRY PRODUCTS EUROPE LTD Easting: 525666 Northing: 172009	Annual Volume (m^3): 28980 Max Daily Volume (m^3): 105 Original Application No: NPS/WR/026785 Original Start Date: 01/04/2019 Expiry Date: 31/03/2031 Issue No: 1 Version Start Date: 01/04/2019 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.7 Surface water abstractions

Records within 2000m	**3**

Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 70 >**

ID	Location	Details	
2	97m W	Status: Historical Licence No: 28/39/41/0075 Details: Make-Up Or Top Up Water Direct Source: THAMES SURFACE WATER - NON TIDAL Point: WANDLE PARK, COLLIER'S WOOD, - RIVER WANDLE 'A' Data Type: Point Name: GROUNDWORK MERTON Easting: 526600 Northing: 170350	Annual Volume (m^3): 4730400 Max Daily Volume (m^3): 12960 Original Application No: - Original Start Date: 19/01/1999 Expiry Date: - Issue No: 101 Version Start Date: 10/07/2014 Version End Date: -
-	1800m S	Status: Historical Licence No: TH/039/0041/009 Details: Transfer Between Sources (Post Water Act 2003) Direct Source: THAMES SURFACE WATER - NON TIDAL Point: FISHPASS INTAKE-RIVER WANDLE AT MORDEN HALL Data Type: Point Name: THE NATIONAL TRUST Easting: 526161 Northing: 168571	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: NPS/WR/009717 Original Start Date: 31/01/2012 Expiry Date: 31/03/2025 Issue No: 1 Version Start Date: 31/01/2012 Version End Date: -
-	1800m S	Status: Historical Licence No: TH/039/0041/008 Details: Hydroelectric Power Generation Direct Source: THAMES SURFACE WATER - NON TIDAL Point: TURBINE INTAKE-RIVER WANDLE AT MORDEN HALL Data Type: Point Name: THE NATIONAL TRUST Easting: 526163 Northing: 168570	Annual Volume (m^3): 37843200 Max Daily Volume (m^3): 114048 Original Application No: NPS/WR/008059 Original Start Date: 31/01/2012 Expiry Date: 31/03/2025 Issue No: 1 Version Start Date: 01/04/2013 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.8 Potable abstractions

Records within 2000m	**2**

Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 70 >**

ID	Location	Details	
A	307m SE	Status: Active Licence No: 28/39/41/0039 Details: Potable Water Supply - Direct Direct Source: THAMES GROUNDWATER Point: MERTON ABBEY PUMPING STATION Data Type: Point Name: Thames Water Utilities Ltd Easting: 526860 Northing: 170010	Annual Volume (m^3): 830000 Max Daily Volume (m^3): 8000 Original Application No: RG907 Original Start Date: 13/02/1967 Expiry Date: - Issue No: 100 Version Start Date: 10/07/2014 Version End Date: -
-	915m NW	Status: Historical Licence No: 28/39/41/0074 Details: Water Bottling Direct Source: THAMES GROUNDWATER Point: 12 WATERSIDE WAY, LONDON, - BOREHOLE 'A' Data Type: Point Name: NESTLE WATERCOOLERS UK LTD Easting: 526290 Northing: 171160	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 10/08/1998 Expiry Date: 31/12/2004 Issue No: 101 Version Start Date: 31/12/2001 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.9 Source Protection Zones

Records within 500m	**2**

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

Features are displayed on the Abstractions and Source Protection Zones map on **page 70 >**

ID	Location	Type	Description
A	**On site**	**1**	**Inner catchment**
1	59m N	2	Outer catchment

This data is sourced from the Environment Agency and Natural Resources Wales.

5.10 Source Protection Zones (confined aquifer)

Records within 500m	**0**

Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

This data is sourced from the Environment Agency and Natural Resources Wales.

6 Hydrology

Site Outline

Search buffers in metres (m)

Water Network (OS MasterMap)

Surface water features (wider than 5m)

Surface water features (narrower than 5m)

WFD River, canal and surface water transfer water bodies

WFD Lake water bodies

WFD Transitional and coastal water bodies

WFD Surface water body catchments boundaries

WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m	**7**

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

Features are displayed on the Hydrology map on **page 76 >**

ID	Location	Type of water feature	Ground level	Permanence	Name
A	60m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
B	87m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	90m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	River Wandle
4	149m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	The Pickle
5	149m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	River Wandle
6	177m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	River Graveney
C	245m N	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	4

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

Features are displayed on the Hydrology map on **page 76 >**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	1

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on **page 76 >**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
1	**On site**	**River**	**Wandle (Croydon to Wandsworth) and the Graveney**	**GB106039023460**	**Wandle**	**London**

This data is sourced from the Environment Agency and Natural Resources Wales.

6.4 WFD Surface water bodies

Records identified	**1**

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each water body listed.

Features are displayed on the Hydrology map on **page 76 >**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
2	91m W	River	Wandle (Croydon to Wandsworth) and the Graveney	GB106039023460 ↗	Moderate	Fail	Moderate	2019

This data is sourced from the Environment Agency and Natural Resources Wales.

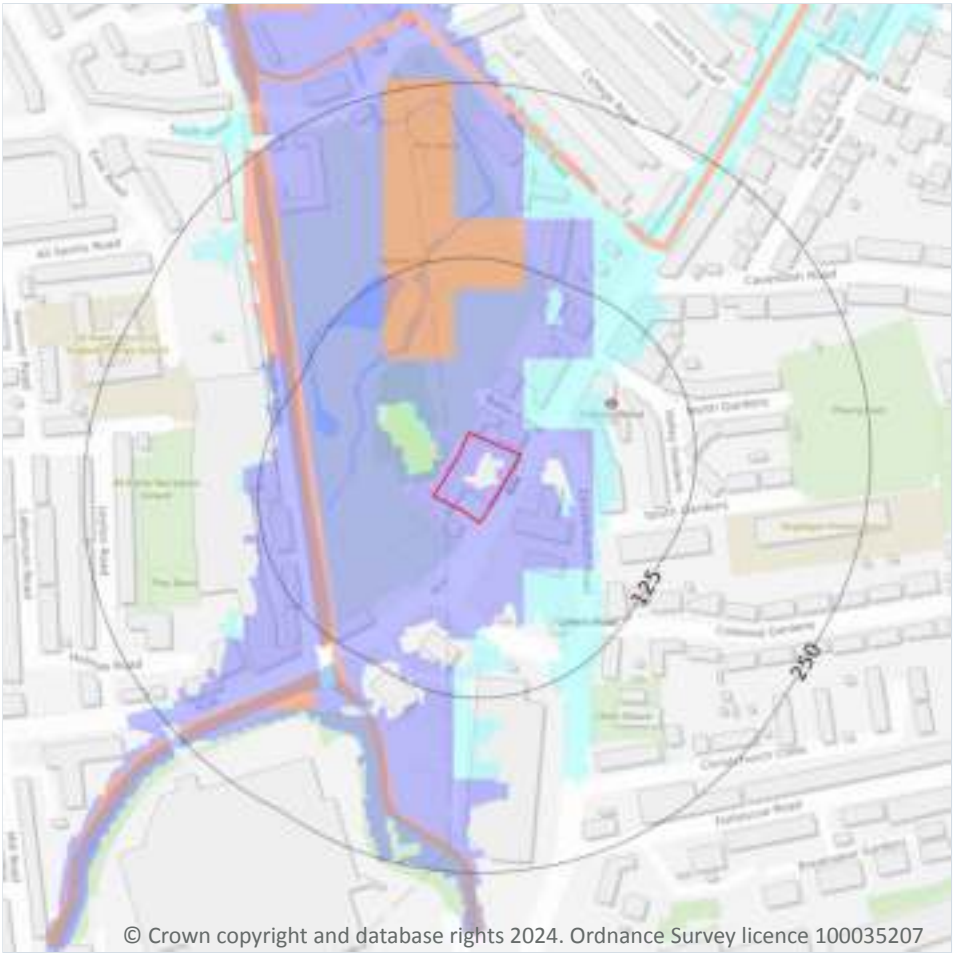
6.5 WFD Groundwater bodies

Records on site	**0**

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

This data is sourced from the Environment Agency and Natural Resources Wales.

7 River and coastal flooding



Site Outline

Search buffers in metres (m)

River and coastal flooding:

High

Medium

Low

Very Low

Historical Flood Events

Areas Used for Flood Storage

Areas Benefiting from Flood Defences

Flood Defences

7.1 Risk of flooding from rivers and the sea

Records within 50m	8

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m within the Risk of Flooding from Rivers and Sea (RoFRaS)/Flood Risk Assessment Wales (FRAW) models. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition. The risk categories for RoFRaS for rivers and the sea and FRAW for rivers are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance). The risk categories for FRAW for the sea are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 200 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 200 chance) or High (greater than or equal to 1 in 30 chance).

Features are displayed on the River and coastal flooding map on **page 79 >**

Distance	Flood risk category
On site	**Medium**
0 - 50m	Medium

This data is sourced from the Environment Agency and Natural Resources Wales.

7.2 Historical Flood Events

Records within 250m	**0**

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.3 Flood Defences

Records within 250m	**0**

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.4 Areas Benefiting from Flood Defences

Records within 250m	**0**

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

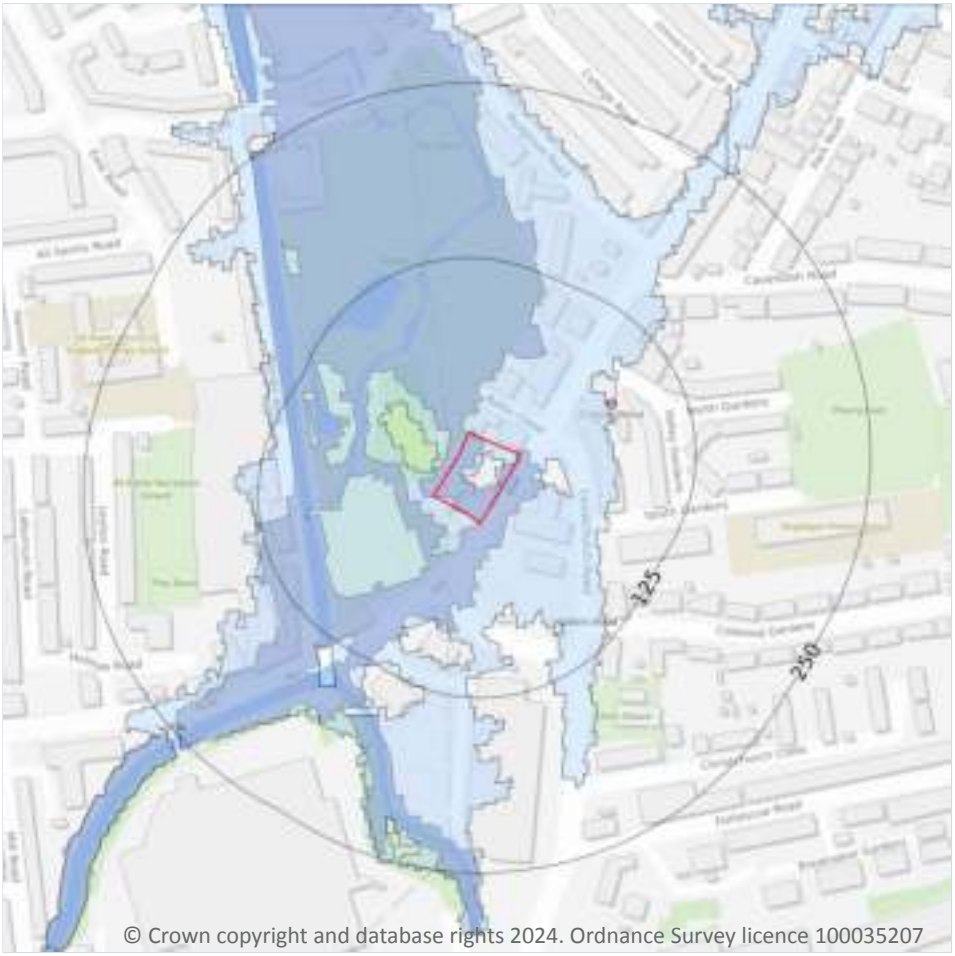
7.5 Flood Storage Areas

Records within 250m	**0**

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

This data is sourced from the Environment Agency and Natural Resources Wales.

River and coastal flooding - Flood Zones



Site Outline

Search buffers in metres (m)

Flood zone 2

Flood zone 3

7.6 Flood Zone 2

Records within 50m	1

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

Features are displayed on the River and coastal flooding map on **page 79 >**

Location	Type
On site	**Zone 2 - (Fluvial /Tidal Models)**

This data is sourced from the Environment Agency and Natural Resources Wales.

7.7 Flood Zone 3

Records within 50m	1

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

Features are displayed on the River and coastal flooding map on **page 79 >**

Location	Type
On site	**Zone 3 - (Fluvial Models)**

This data is sourced from the Environment Agency and Natural Resources Wales.

8 Surface water flooding

Site Outline
Search buffers in metres (m)

1 in 1000 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

8.1 Surface water flooding

Highest risk on site	**1 in 30 year, Greater than 1.0m**
Highest risk within 50m	**1 in 30 year, Greater than 1.0m**

Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

Features are displayed on the Surface water flooding map on **page 83 >**

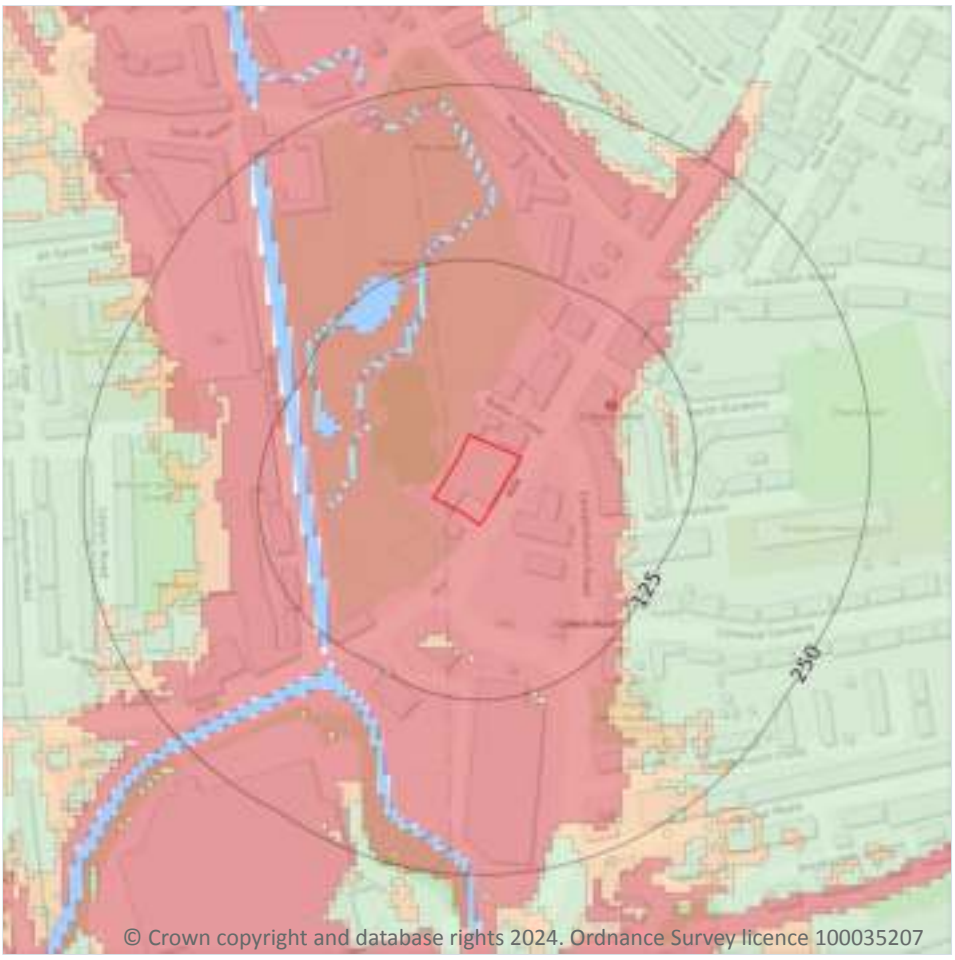
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Greater than 1.0m
1 in 250 year	Greater than 1.0m
1 in 100 year	Greater than 1.0m
1 in 30 year	Greater than 1.0m

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding



Site Outline

Search buffers in metres (m)

High

Moderate - High

Moderate

Low

Negligible

9.1 Groundwater flooding

Highest risk on site	**High**
Highest risk within 50m	**High**

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on **page 85 >**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations

Site Outline

Search buffers in metres (m)

Local Nature Reserves (LNR)

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	0

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	0

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.3 Special Areas of Conservation (SAC)

Records within 2000m	0

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.4 Special Protection Areas (SPA)

Records within 2000m	0

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.5 National Nature Reserves (NNR)

Records within 2000m	0

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.6 Local Nature Reserves (LNR)

Records within 2000m	4

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

Features are displayed on the Environmental designations map on **page 86 >**

ID	Location	Name	Data source
1	415m SE	Myrna Close	Natural England
2	487m NW	Wandle Meadow Nature Park	Natural England
3	1062m SW	Merton Park Green Walks	Natural England
4	1326m NW	Lower Wandle	Natural England

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.7 Designated Ancient Woodland

Records within 2000m	0

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.8 Biosphere Reserves

Records within 2000m	0

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.9 Forest Parks

Records within 2000m	0

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m	0

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.11 Green Belt

Records within 2000m	0

Areas designated to prevent urban sprawl by keeping land permanently open.

This data is sourced from the Ministry of Housing, Communities and Local Government.

10.12 Proposed Ramsar sites

Records within 2000m	0

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m	0

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

This data is sourced from Natural England and Natural Resources Wales.

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m	0

Special Protection Areas (SPAs) are areas designated (or 'classified') under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m	0

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

Records within 2000m	1

Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

Location	Name	Type	NVZ ID	Status
1072m SW	Wandle (Croydon to Wandsworth) and the R. Gravney NVZ	Surface Water	464	Existing

This data is sourced from Natural England and Natural Resources Wales.

SSSI Impact Zones and Units

Site Outline

Search buffers in metres (m)

SSSI Impact Risk Zones

SSSI Units

- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

10.17 SSSI Impact Risk Zones

Records on site	1

Developed to allow rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

Features are displayed on the SSSI Impact Zones and Units map on **page 91 >**

ID	Location	Type of developments requiring consultation
1	**On site**	**Infrastructure - Airports, helipads and other aviation proposals.** **Air pollution - Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 750m², manure stores > 3500t).** **Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.**

This data is sourced from Natural England.

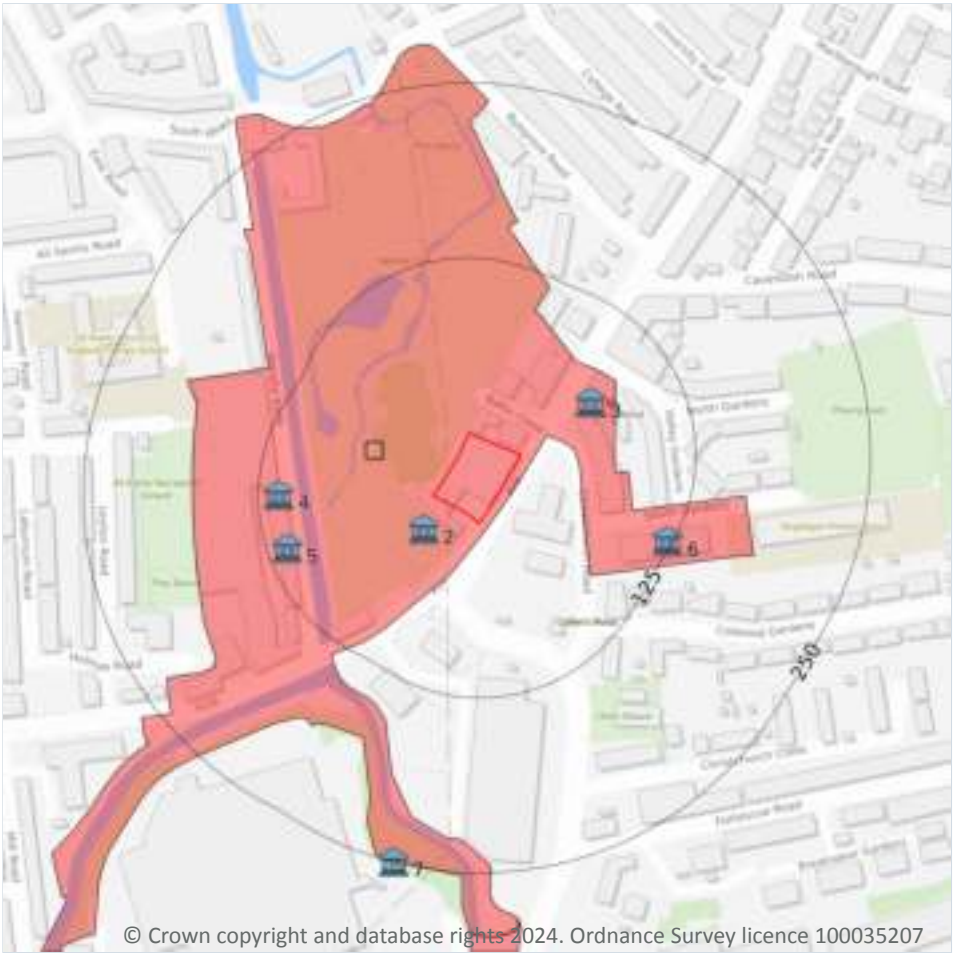
10.18 SSSI Units

Records within 2000m	**0**

Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

This data is sourced from Natural England and Natural Resources Wales.

11 Visual and cultural designations



Site Outline

Search buffers in metres (m)

Listed buildings

Conservation areas

Conservation areas - no data

National Parks

Areas of Outstanding Natural Beauty

Registered parks and gardens

Scheduled Monuments

World Heritage Sites

11.1 World Heritage Sites

Records within 250m	0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.2 Area of Outstanding Natural Beauty

Records within 250m	0

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.3 National Parks

Records within 250m	0

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.

11.4 Listed Buildings

Records within 250m	6

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.

Features are displayed on the Visual and cultural designations map on **page 93 >**

ID	Location	Name	Grade	Reference Number	Listed date
2	24m SW	Drinking Fountain In Wandle Park About Five Yards To North Of Southern Entrance	II	1193236	02/09/1988
3	63m NE	Colliers Wood London Regional Transport Station	II	1080925	25/06/1987
4	110m W	16 And 17, Wandle Bank	II	1054610	07/06/1994
5	111m W	9-13, Wandle Bank Sw19	II	1193929	13/05/1976
6	122m E	Singlegate School And Gatepiers	II	1249149	20/05/1994

ID	Location	Name	Grade	Reference Number	Listed date
7	250m S	Portion Of Wall On The West Side Of River Pickle Between Merton High Street And Merantun Way	II	1358009	25/06/1987

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.5 Conservation Areas

Records within 250m	1

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.

Features are displayed on the Visual and cultural designations map on **page 93 >**

ID	Location	Name	District	Date of designation
1	**On site**	**Wandle Valley**	**Merton**	**29/11/1990**

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.6 Scheduled Ancient Monuments

Records within 250m	0

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.7 Registered Parks and Gardens

Records within 250m	0

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

12 Agricultural designations

Site Outline

Search buffers in metres (m)

- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Non-agricultural land
- Urban land
- Exclusion land
- Tree felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m	1

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on **page 96 >**

ID	Location	Classification	Description
1	**On site**	**Urban**	-

This data is sourced from Natural England.

12.2 Open Access Land

Records within 250m	0

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

This data is sourced from Natural England and Natural Resources Wales.

12.3 Tree Felling Licences

Records within 250m	0

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	0

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. The schemes identified may be historical schemes that have now expired, or may still be active.

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m	0

Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

This data is sourced from Natural England.

13 Habitat designations

Site Outline

Search buffers in metres (m)

Priority Habitat Inventory
Open Mosaic Habitat
Limestone Pavement Orders

Habitat Networks
Primary Habitat
Restorable Habitat
Associated Habitats
Habitat Restoration-Creation
Network Enhancement Zone 1
Network Enhancement Zone 2

13.1 Priority Habitat Inventory

Records within 250m	**6**

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

Features are displayed on the Habitat designations map on **page 98 >**

ID	Location	Main Habitat	Other habitats
1	5m N	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
A	59m W	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
A	62m W	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
B	80m W	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

ID	Location	Main Habitat	Other habitats
A	82m W	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
B	87m W	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	0

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m	0

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

This data is sourced from Natural England.

13.4 Limestone Pavement Orders

Records within 250m	0

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.

14 Geology 1:10,000 scale - Availability

Site Outline

Search buffers in metres (m)

Full coverage

Partial coverage

No coverage

14.1 10k Availability

Records within 500m **2**

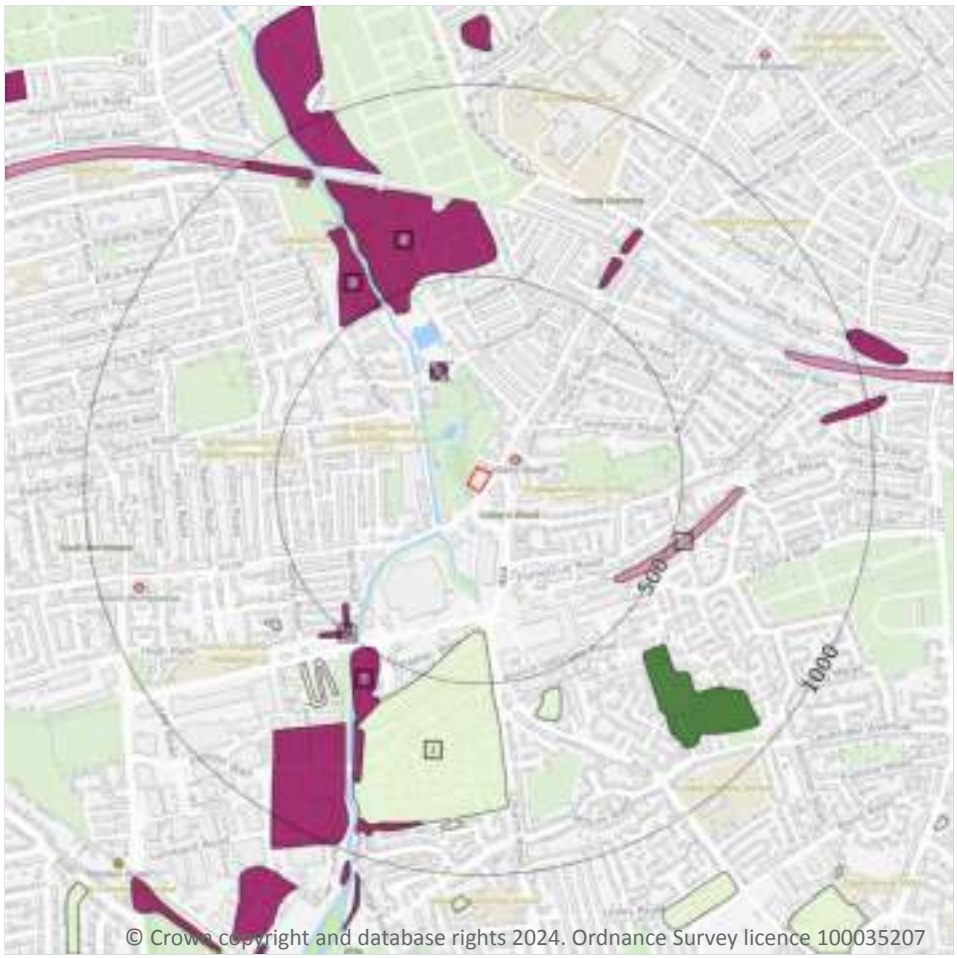
An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 100 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**No coverage**	**TQ27SE**
2	283m S	Full	Full	Full	No coverage	TQ26NE

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Artificial and made ground



Site Outline

Search buffers in metres (m)

- Reclaimed ground
- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

14.2 Artificial and made ground (10k)

Records within 500m	7

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

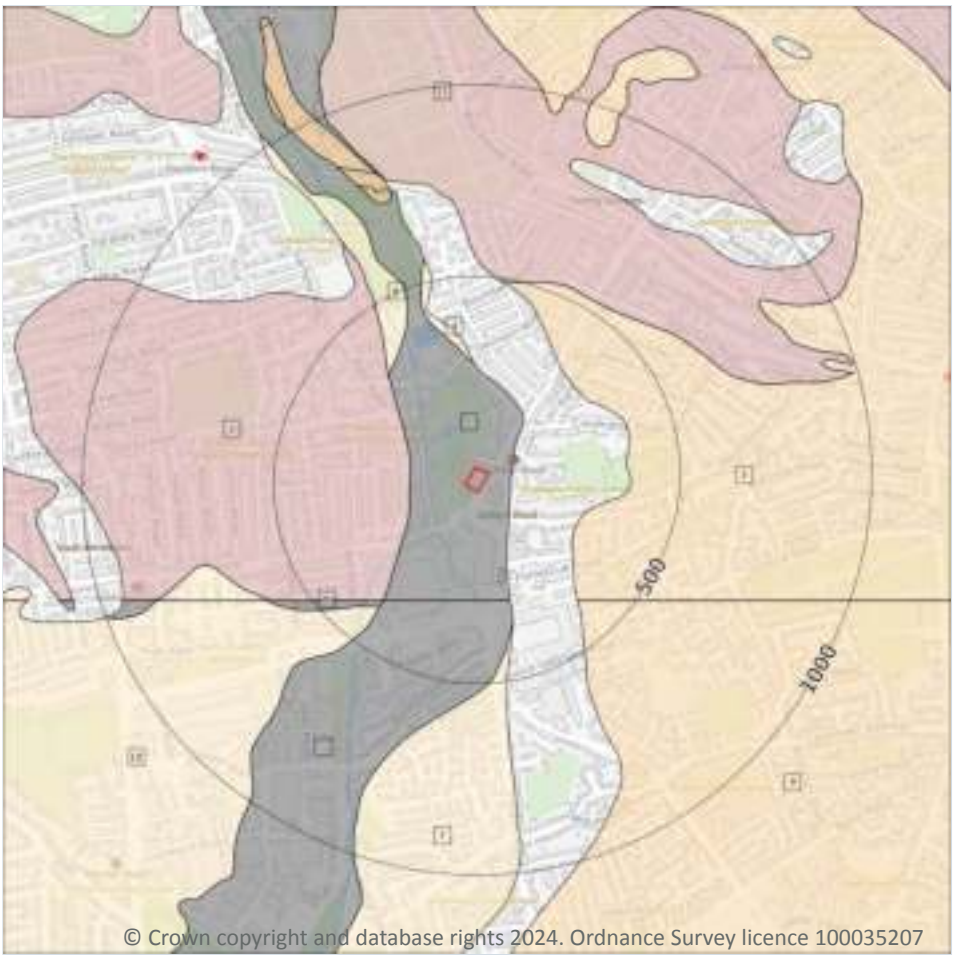
Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 101 >**

ID	Location	LEX Code	Description	Rock description
1	254m N	MGR-UKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry
2	363m S	WMGR-UKNOWN	Infilled Ground	Unknown/unclassified Entry
3	415m SE	WGR-UKNOWN	Worked Ground (Undivided)	Unknown/unclassified Entry
4	441m SW	MGR-UKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry

ID	Location	LEX Code	Description	Rock description
5	445m NW	MGR-UKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry
6	491m NW	MGR-UKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry
7	492m SW	MGR-UKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (10k)

Superficial geology (10k)
Please see table for more details.

14.3 Superficial geology (10k)

Records within 500m **11**

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 103 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**ALV-Z**	**Alluvium - Silt (unlithified Deposits Coding Scheme)**	**Silt**
2	144m W	HEAD-Z	Head - Silt	Silt
3	265m SE	TPGR-XSV	Taplow Gravel Formation - Sand And Gravel	Sand And Gravel
4	278m N	KPGR-XSV	Kempton Park Gravel Formation - Sand And Gravel	Sand And Gravel

ID	Location	LEX Code	Description	Rock description
5	283m S	ALV-Z	Alluvium - Silt (unlithified Deposits Coding Scheme)	Silt
6	331m NW	KPGR-XSV	Kempton Park Gravel Formation - Sand And Gravel	Sand And Gravel
7	353m S	KPGR-XSV	Kempton Park Gravel Formation - Sand And Gravel	Sand And Gravel
8	369m SW	HEAD-C	Head - Clay (unlithified Deposits Coding Scheme)	Clay
9	384m SE	TPGR-XSV	Taplow Gravel Formation - Sand And Gravel	Sand And Gravel
10	389m SW	KPGR-XSV	Kempton Park Gravel Formation - Sand And Gravel	Sand And Gravel
11	493m N	HEAD-Z	Head - Silt	Silt

This data is sourced from the British Geological Survey.

14.4 Landslip (10k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock

Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (10k)

Bedrock geology (10k)
Please see table for more details.

14.5 Bedrock geology (10k)

Records within 500m **2**

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 105 >**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**LC-CLAY**	**London Clay Formation - Clay**	**Eocene Epoch**
2	283m S	LC-CLAY	London Clay Formation - Clay	Eocene Epoch

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m	0

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.

15 Geology 1:50,000 scale - Availability

Site Outline

Search buffers in metres (m)

Geological map tile

15.1 50k Availability

Records within 500m	1

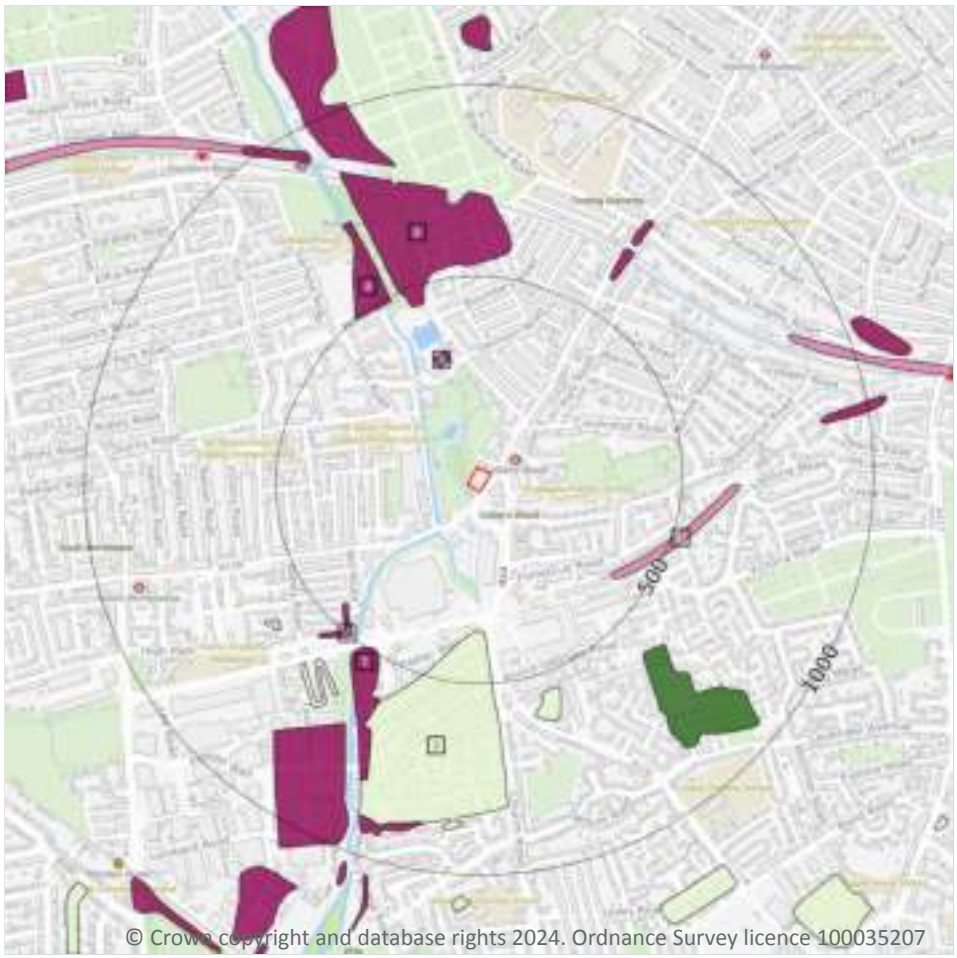
An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 107 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**EW270_south_london_v4**

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Artificial and made ground



Site Outline

Search buffers in metres (m)

- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

15.2 Artificial and made ground (50k)

Records within 500m	7

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on **page 108 >**

ID	Location	LEX Code	Description	Rock description
1	280m N	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
2	363m S	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
3	403m SE	WGR-VOID	WORKED GROUND (UNDIVIDED)	VOID
4	441m SW	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

ID	Location	LEX Code	Description	Rock description
5	449m N	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
6	489m NW	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
7	492m SW	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.

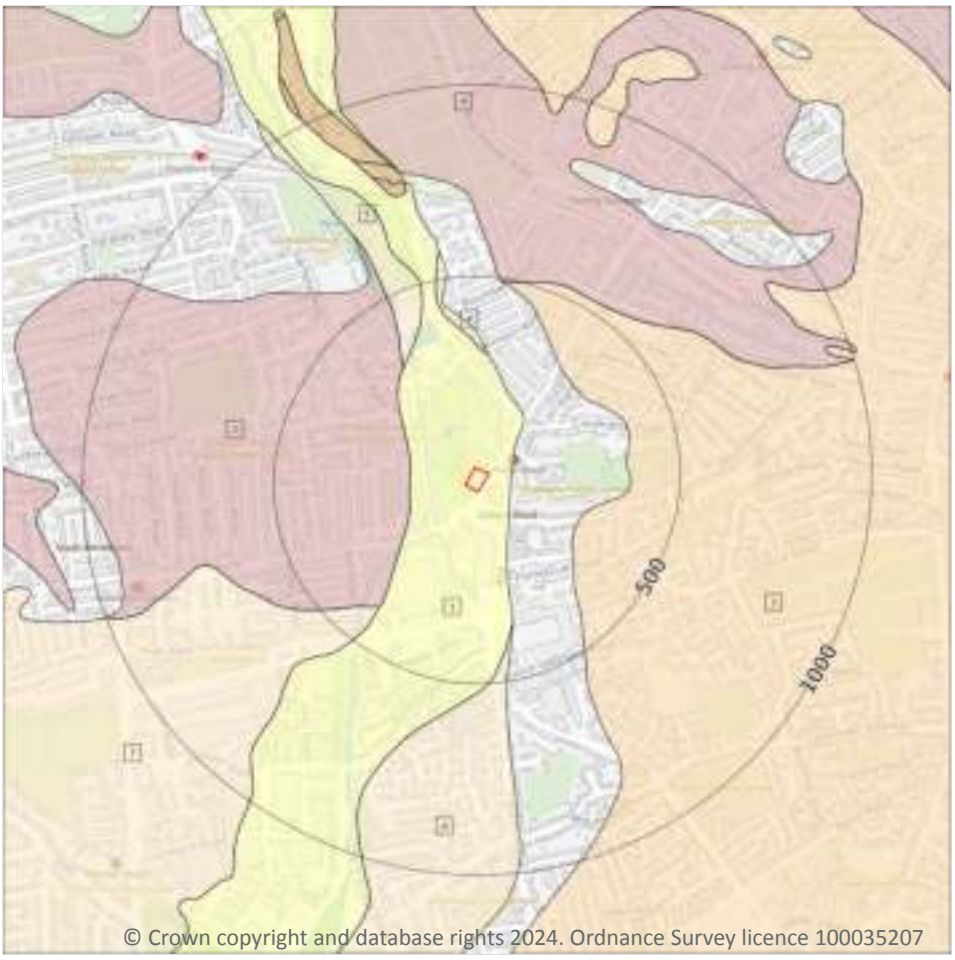
15.3 Artificial ground permeability (50k)

Records within 50m	**0**

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

Superficial geology (50k)
Please see table for more details.

15.4 Superficial geology (50k)

Records within 500m **8**

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 110 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**ALV-XCZSV**	**ALLUVIUM**	**CLAY, SILT, SAND AND GRAVEL**
2	144m W	HEAD-XCZSV	HEAD	CLAY, SILT, SAND AND GRAVEL
3	265m SE	TPGR-XSV	TAPLOW GRAVEL MEMBER	SAND AND GRAVEL

ID	Location	LEX Code	Description	Rock description
4	300m N	KPGR-XSV	KEMPTON PARK GRAVEL MEMBER	SAND AND GRAVEL
5	322m NW	KPGR-XSV	KEMPTON PARK GRAVEL MEMBER	SAND AND GRAVEL
6	353m S	KPGR-XSV	KEMPTON PARK GRAVEL MEMBER	SAND AND GRAVEL
7	389m SW	KPGR-XSV	KEMPTON PARK GRAVEL MEMBER	SAND AND GRAVEL
8	492m N	HEAD-XCZSV	HEAD	CLAY, SILT, SAND AND GRAVEL

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	1

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Intergranular**	**High**	**Very Low**

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

15.7 Landslip permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock

Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

Bedrock geology (50k)
Please see table for more details.

15.8 Bedrock geology (50k)

Records within 500m	1

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 112 >**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**LC-XCZ**	**LONDON CLAY FORMATION - CLAY AND SILT**	**YPRESIAN**

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	1

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Mixed**	**Low**	**Very Low**

This data is sourced from the British Geological Survey.

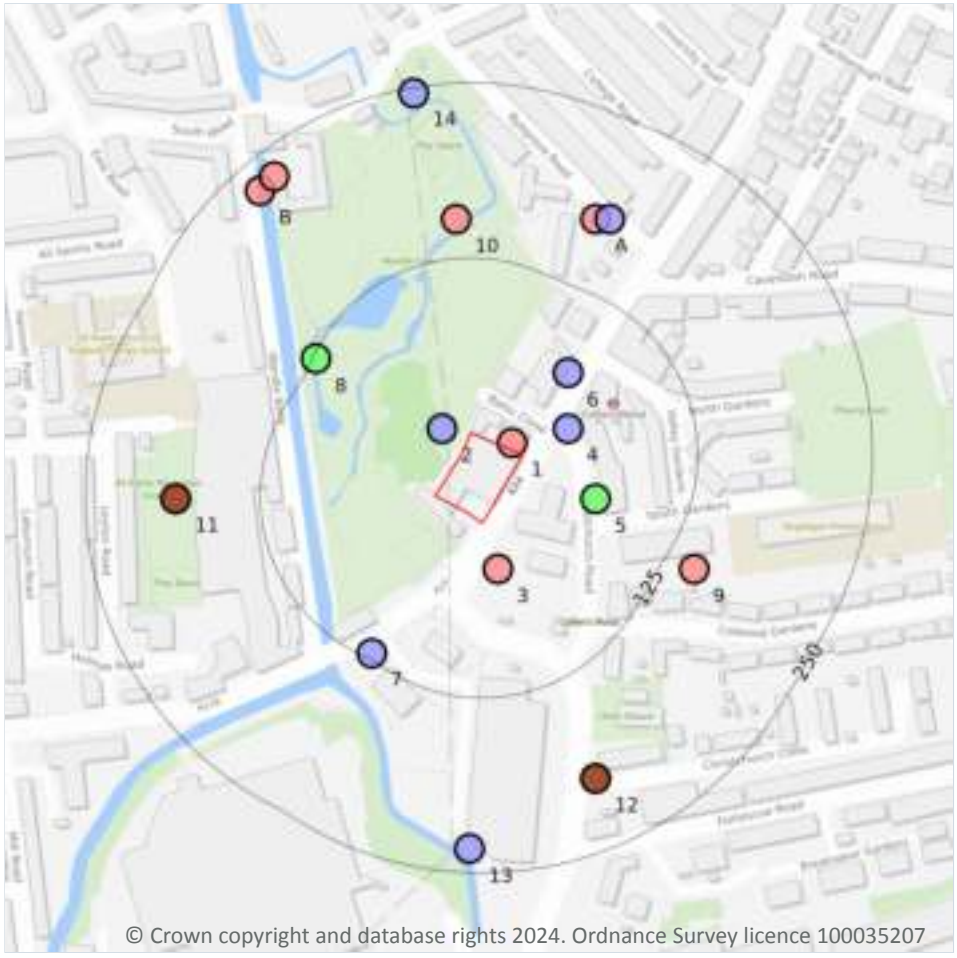
15.10 Bedrock faults and other linear features (50k)

Records within 500m	0

Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.

16 Boreholes



Site Outline

Search buffers in metres (m)

Confidential

0 - 10m

10 - 30m

30m+

Unknown

16.1 BGS Boreholes

Records within 250m	18

The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

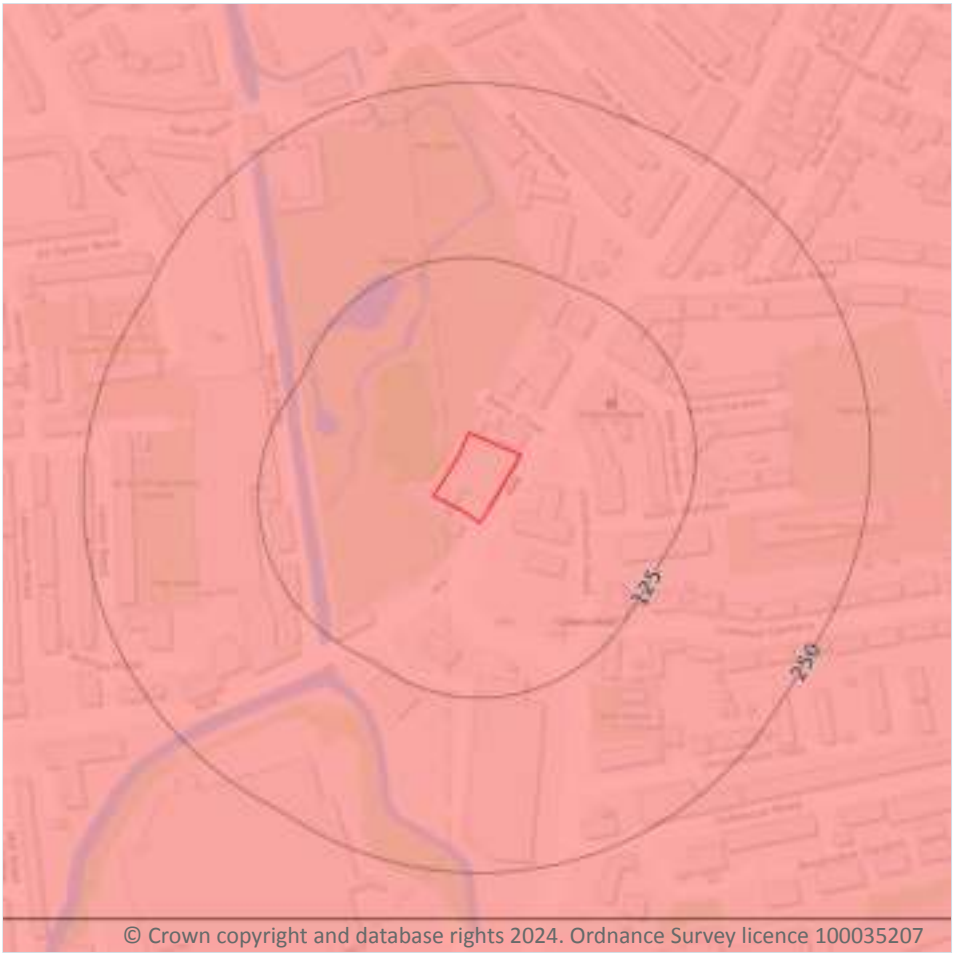
Features are displayed on the Boreholes map on **page 114 >**

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	5m NE	526740 170340	CLARE VILLAS MITCHAM	54.86	N	589500 ↗
2	20m NW	526690 170350	BEDDINGTON-WIMBLEDON LINE 24	6.0	N	589811 ↗
3	35m S	526730 170250	MITCHAM BOARD SCHOOLS	67.36	N	589501 ↗

ID	Location	Grid reference	Name	Length	Confidential	Web link
4	37m NE	526780 170350	CHRISTCHURCH ROAD BH3 MERTON	7.01	N	589554 ↗
5	61m E	526800 170300	COLLIERS WOOD 3	29.87	N	589913 ↗
6	67m NE	526780 170390	RAYNES PARK SEWER RECONSTRUCTION BH1	9.0	N	589867 ↗
7	121m SW	526640 170190	RAYNES PARK SEWER RECONSTRUCTION BH2	8.0	N	589868 ↗
8	123m NW	526600 170400	WANDLE PARK HOUSE, WIMBLEDON	24.4	N	590308 ↗
9	147m SE	526870 170250	PRIMARY SCHOOL, MITCHAM	71.32	N	590291 ↗
10	153m N	526700 170500	BYEGROVE ROAD, MITCHAM	54.86	N	590285 ↗
A	175m NE	526800 170500	MITCHAM	57.91	N	590284 ↗
A	179m NE	526810 170500	RAYNES PARK SEWER BH5	10.0	N	589805 ↗
11	185m W	526500 170300	NEAR RIVER WANDLE, WIMBLEDON	-1.0	N	590309 ↗
12	200m S	526800 170100	MITCHAM VICARAGE	-1.0	N	590310 ↗
B	229m NW	526560 170520	WANDLE BANK, COLLIERS WOOD	121.92	N	590287 ↗
B	231m NW	526570 170530	WANDLE BANK COLLIERSWOOD	121.92	N	590205 ↗
13	233m S	526710 170050	BEDDINGTON-WIMBLEDON LINE 23	6.0	N	589810 ↗
14	246m N	526670 170590	BEDDINGTON-WIMBLEDON LINE 25	6.0	N	589812 ↗

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.1 Shrink swell clays

Records within 50m	1

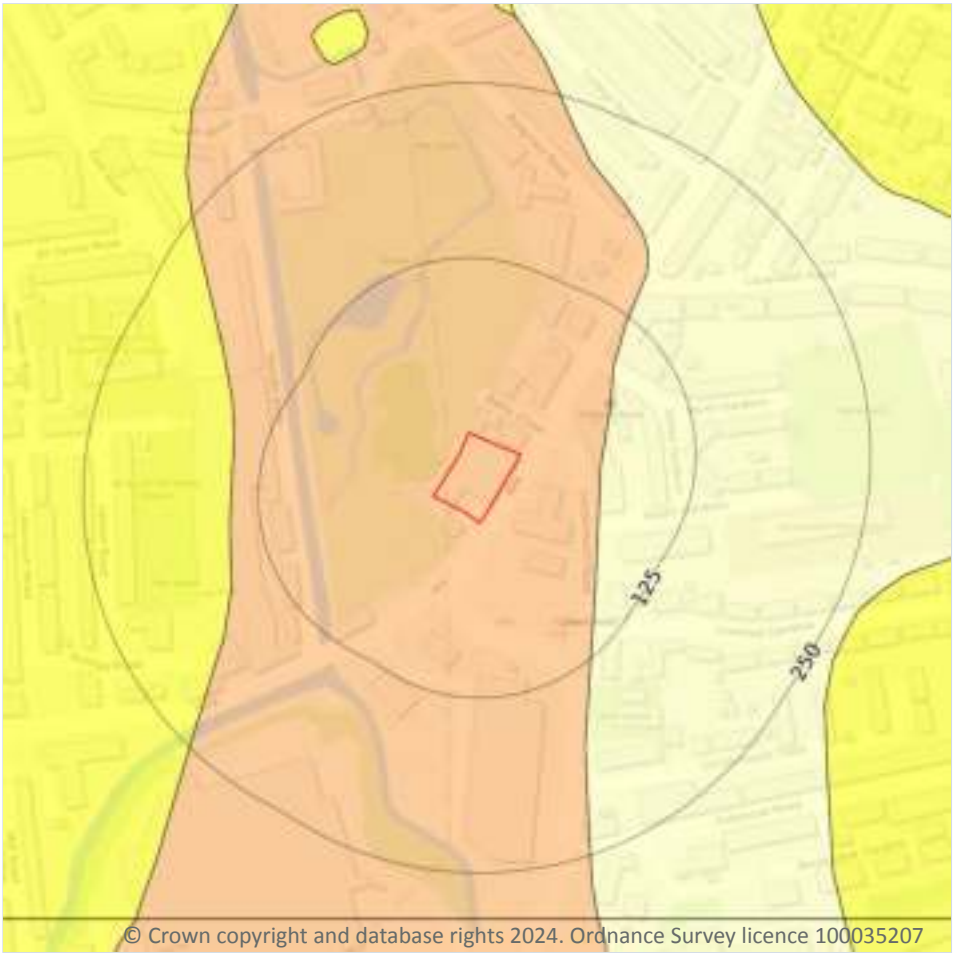
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 116 >**

Location	Hazard rating	Details
On site	**Moderate**	**Ground conditions predominantly high plasticity.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.2 Running sands

Records within 50m	1

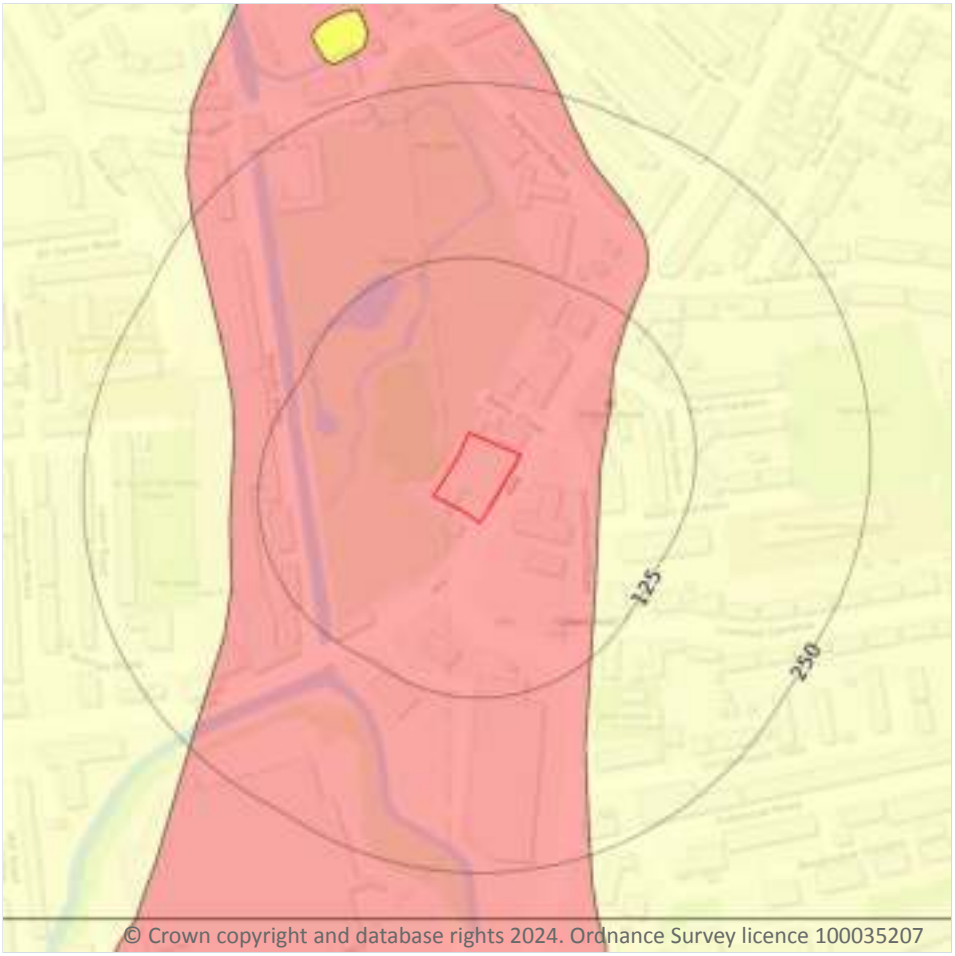
The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on **page 117 >**

Location	Hazard rating	Details
On site	**Low**	**Running sand conditions may be present. Constraints may apply to land uses involving excavation or the addition or removal of water.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.3 Compressible deposits

Records within 50m	1

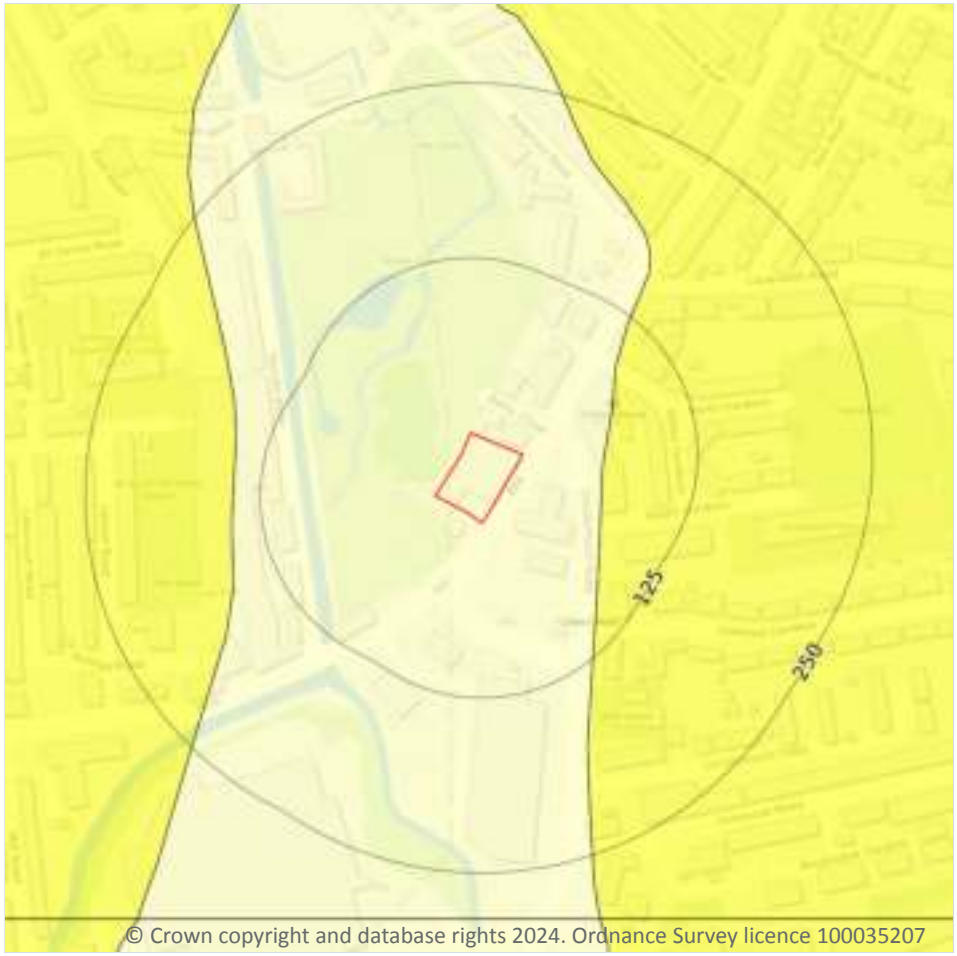
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 118 >**

Location	Hazard rating	Details
On site	**Moderate**	**Compressibility and uneven settlement hazards are probably present. Land use should consider specifically the compressibility and variability of the site.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.4 Collapsible deposits

Records within 50m	1

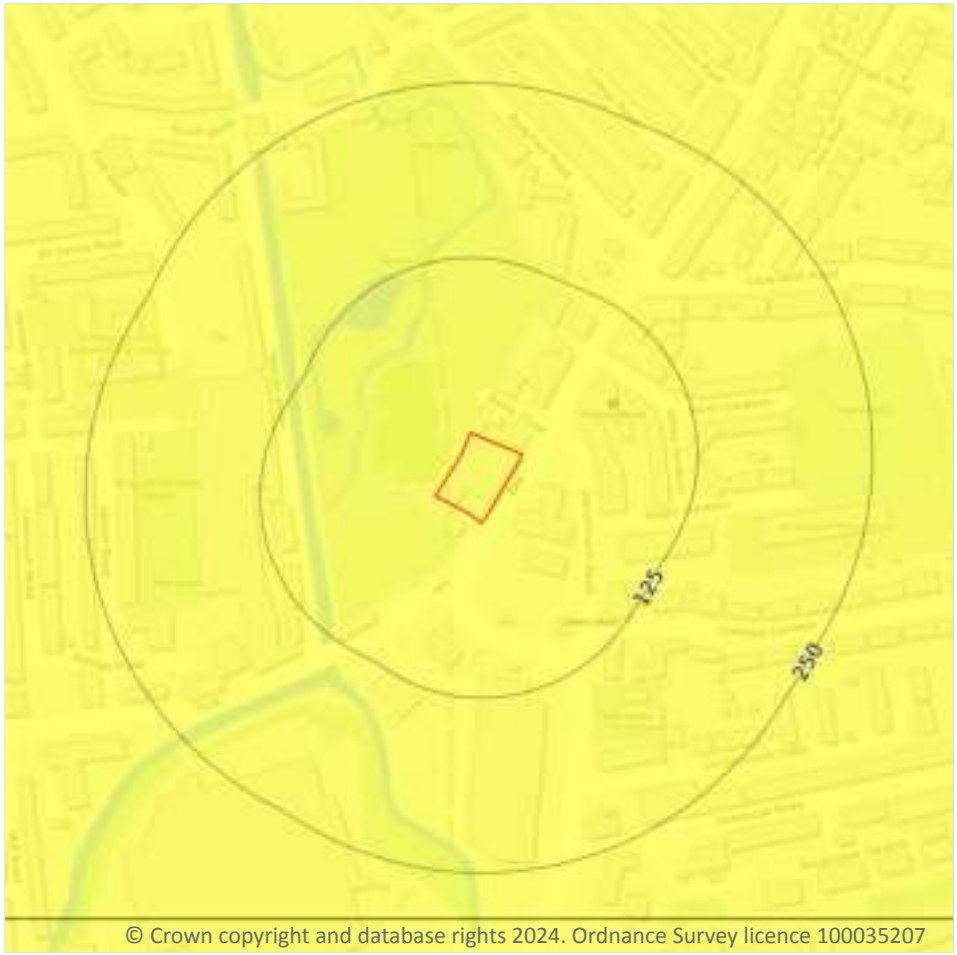
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 119 >**

Location	Hazard rating	Details
On site	**Negligible**	**Deposits with potential to collapse when loaded and saturated are believed not to be present.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.5 Landslides

Records within 50m	1

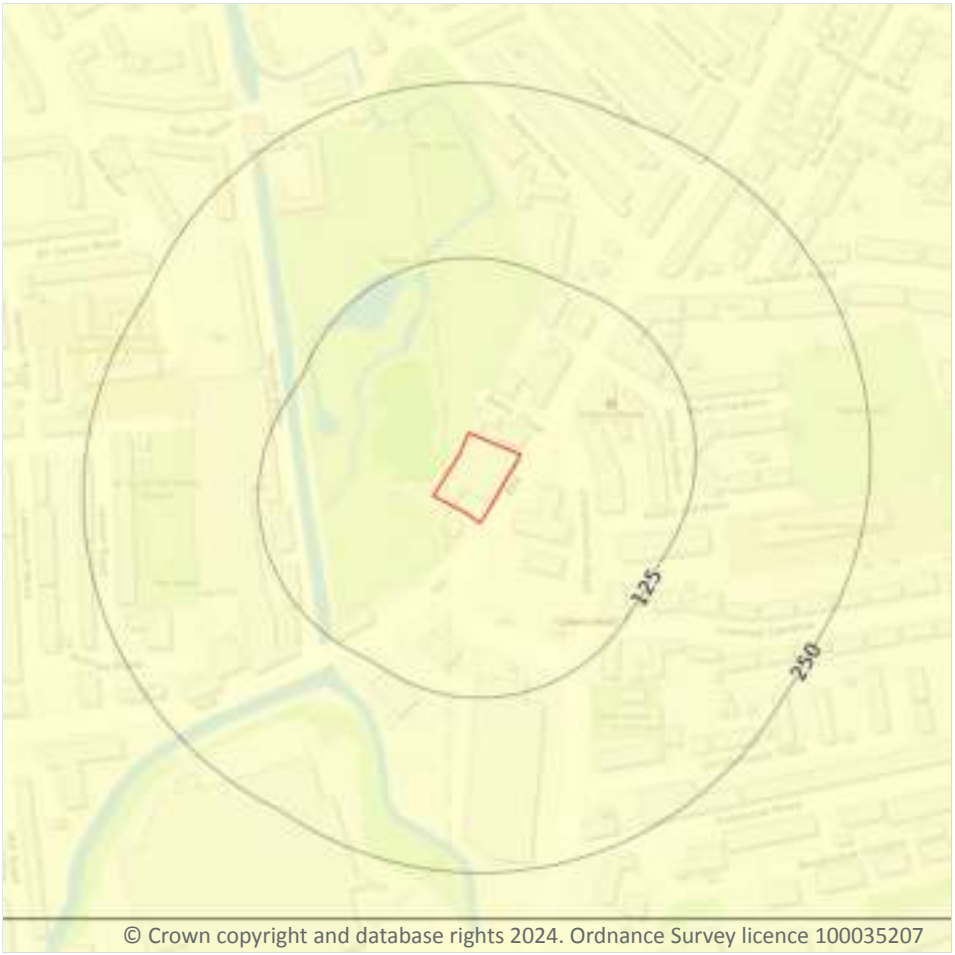
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 120 >**

Location	Hazard rating	Details
On site	**Very low**	**Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.6 Ground dissolution of soluble rocks

Records within 50m	1

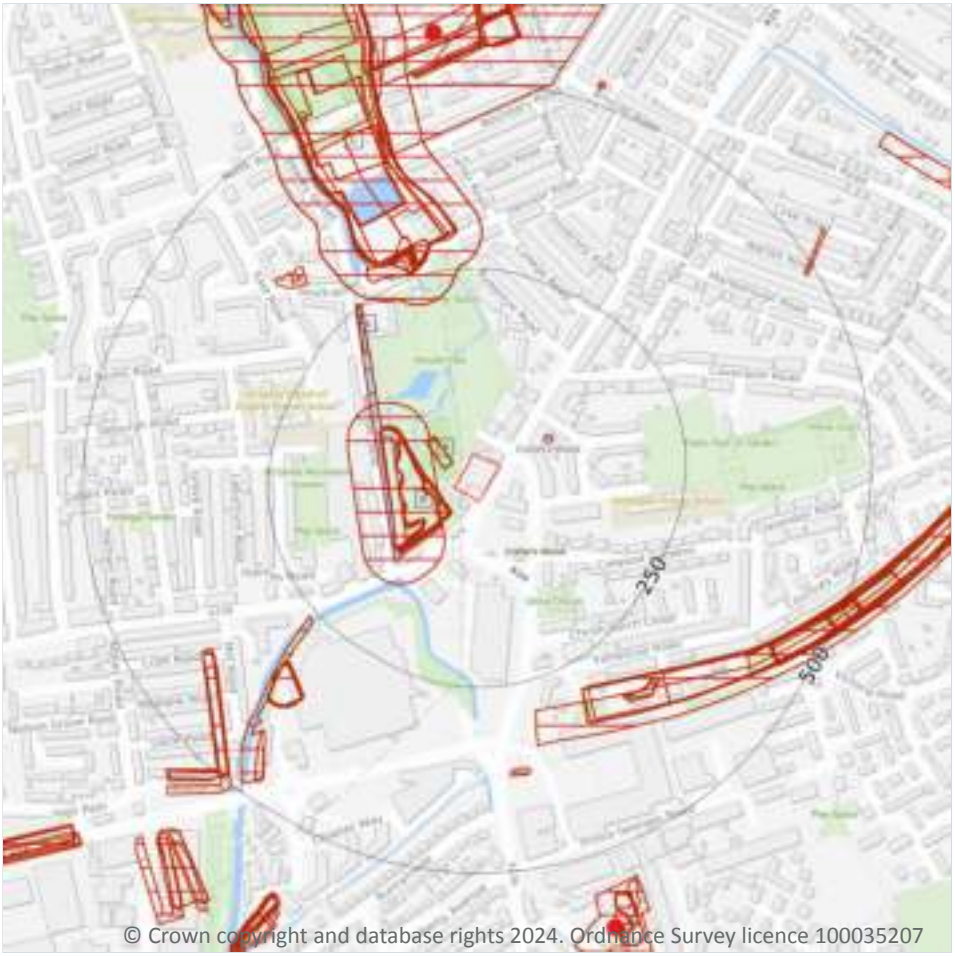
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 121 >**

Location	Hazard rating	Details
On site	**Negligible**	**Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.**

This data is sourced from the British Geological Survey.

18 Mining and ground workings



Site Outline

Search buffers in metres (m)

BritPits

Surface ground workings

Underground workings

Underground mining extents

Historical mineral planning areas

TCA non-coal mining

Non Coal Mining

Sporadic underground mining of restricted extent possible

Localised small scale underground mining possible

Small scale mining possible

Underground mining known or likely within or in close proximity

Underground mining known within or in very close proximity

18.1 BritPits

Records within 500m	0

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

This data is sourced from the British Geological Survey.

18.2 Surface ground workings

Records within 250m	14

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining and ground workings map on **page 123 >**

ID	Location	Land Use	Year of mapping	Mapping scale
A	19m NW	Pond	1934	1:10560
A	19m NW	Pond	1938	1:10560
B	21m SW	Mill Pond	1894	1:10560
B	21m SW	Mill Pond	1919	1:10560
B	23m W	Mill Pond	1919	1:10560
B	23m SW	Mill Pond	1899	1:10560
B	25m SW	Mill Pond	1894	1:10560
B	28m SW	Mill Pond	1938	1:10560
B	29m SW	Mill Pond	1938	1:10560
B	29m SW	Mill Pond	1948	1:10560
B	29m SW	Mill Pond	1934	1:10560
1	194m NW	Pond	1919	1:10560
C	212m N	Sewage Works	1919	1:10560
C	212m N	Sewage Works	1894	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.3 Underground workings

Records within 1000m	0

Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground mining extents

Records within 500m	0

This data identifies underground mine workings that could present a potential risk, including adits and seam workings. These features have been identified from BGS Geological mapping and mine plans sourced from the BGS and various collections and sources.

This data is sourced from Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	0

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	0

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

This data is sourced from the British Geological Survey.

18.7 JPB mining areas

Records on site	0

Areas which could be affected by former coal and other mining. This data includes some mine plans unavailable to the Coal Authority.

This data is sourced from Johnson Poole and Bloomer.

18.8 The Coal Authority non-coal mining

Records within 500m	0

This data provides an indication of the potential zone of influence of recorded underground non-coal mining workings. Any and all analysis and interpretation of Coal Authority Data in this report is made by Groundsure, and is in no way supported, endorsed or authorised by the Coal Authority. The use of the data is restricted to the terms and provisions contained in this report. Data reproduced in this report may be the copyright of the

Coal Authority and permission should be sought from Groundsure prior to any re-use.

This data is sourced from The Coal Authority.

18.9 Researched mining

Records within 500m	1

This data indicates areas of potential mining identified from alternative or archival sources, including; BGS Geological paper maps, Lidar data, aerial photographs (from World War II onwards), archaeological data services, websites, Tithe maps, and various text/plans from collected books and reports. Some of this data is approximate and Groundsure have interpreted the resultant risk area and, where possible, specific areas of risk have been captured.

Location	Mineral type
363m S	Unspecified

This data is sourced from Groundsure.

18.10 Mining record office plans

Records within 500m	0

This dataset is representative of Mining Record Office and/or plan extents held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.11 BGS mine plans

Records within 500m	0

This dataset is representative of BGS mine plans held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.12 Coal mining

Records on site	0

Areas which could be affected by past, current or future coal mining.

This data is sourced from the Coal Authority.

18.13 Brine areas

Records on site	0

The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

This data is sourced from the Cheshire Brine Subsidence Compensation Board.

18.14 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.15 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

18.16 Clay mining

Records on site	0

Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).

19 Ground cavities and sinkholes

19.1 Natural cavities

Records within 500m	0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Stantec UK Ltd.

19.2 Mining cavities

Records within 1000m	0

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Stantec UK Ltd.

19.3 Reported recent incidents

Records within 500m	0

This data identifies sinkhole information gathered from media reports and Groundsure's own records. This data goes back to 2014 and includes relative accuracy ratings for each event and links to the original data sources. The data is updated on a regular basis and should not be considered a comprehensive catalogue of all sinkhole events. The absence of data in this database does not mean a sinkhole definitely has not occurred during this time.

This data is sourced from Groundsure.

19.4 Historical incidents

Records within 500m	0

This dataset comprises an extract of 1:10,560, 1:10,000, 1:2,500 and 1:1,250 scale historical Ordnance Survey maps held by Groundsure, dating back to the 1840s. It shows shakeholes, deneholes and other 'holes' as noted on these maps. Dene holes are medieval chalk extraction pits, usually comprising a narrow shaft with a number of chambers at the base of the shaft. Shakeholes are an alternative name for suffusion sinkholes, most commonly found in the limestone landscapes of North Yorkshire but also extensively noted around the Brecon Beacons National Park.

Not all 'holes' noted on Ordnance Survey mapping will necessarily be present within this dataset.

This data is sourced from Groundsure.

19.5 National karst database

Records within 500m	0

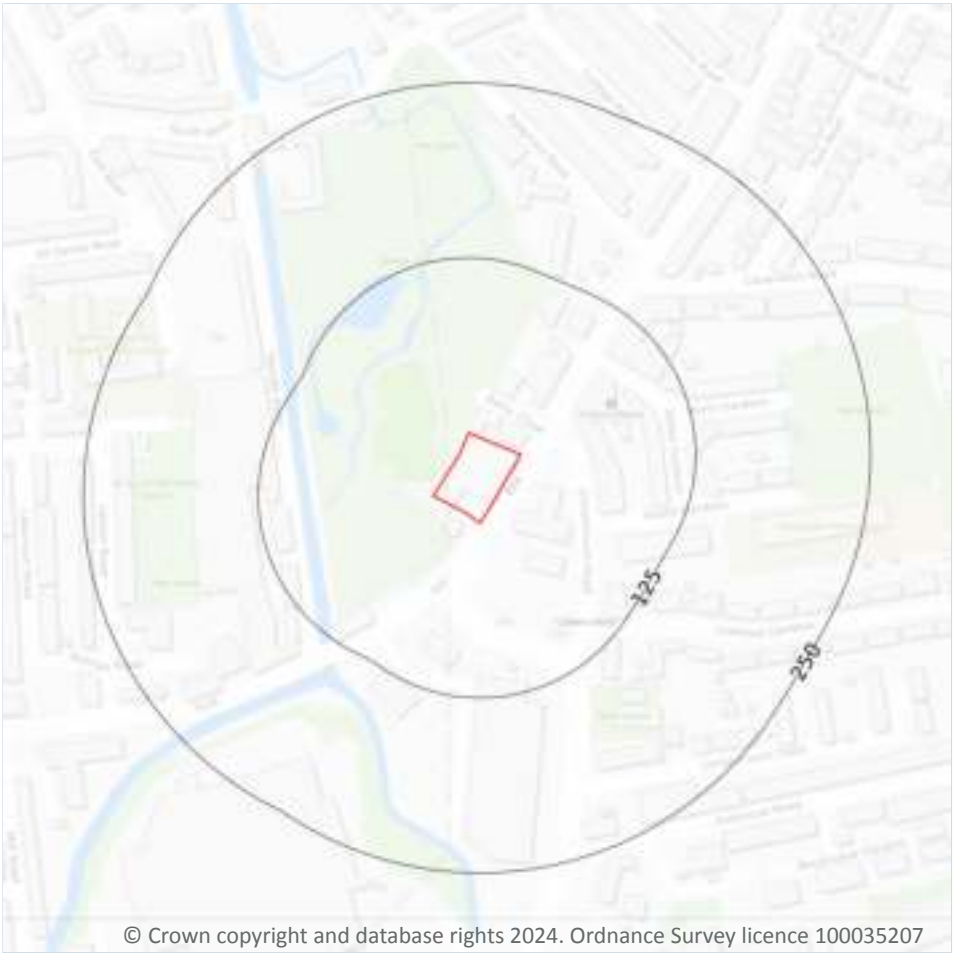
This is a comprehensive database of national karst information gathered from a wide range of sources. BGS have collected data on five main types of karst feature: Sinkholes, stream links, caves, springs, and incidences of associated damage to buildings, roads, bridges and other engineered works.

Since the database was set up in 2002 data covering most of the evaporite karst areas of the UK have now been added, along with data covering about 60% of the Chalk, and 35% of the Carboniferous Limestone outcrops. Many of the classic upland karst areas have yet to be included. Recorded so far are: Over 800 caves, 1300 stream sinks, 5600 springs, 10,000 sinkholes.

The database is not yet complete, and not all records have been verified. The absence of data does not mean that karst features are not present at a site. A reliability rating is included with each record.

This data is sourced from the British Geological Survey.

20 Radon



Site Outline

Search buffers in metres (m)

Greater than 30%

Between 10% and 30%

Between 5% and 10%

Between 3% and 5%

Between 1% and 3%

Less than 1%

20.1 Radon

Records on site	1

The Radon Potential data classifies areas based on their likelihood of a property having a radon level at or above the Action Level in Great Britain. The dataset is intended for use at 1:50,000 scale and was derived from both geological assessments and indoor radon measurements (more than 560,000 records). A minimum 50m buffer should be considered when searching the maps, as the smallest detectable feature at this scale is 50m. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain (1:100,000 scale).

Features are displayed on the Radon map on **page 130 >**

Location	Estimated properties affected	Radon Protection Measures required
On site	**Less than 1%**	**None**

This data is sourced from the British Geological Survey and UK Health Security Agency.

21 Soil chemistry

21.1 BGS Estimated Background Soil Chemistry

Records within 50m	1

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km^2. In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km^2; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**No data**	**No data**	**No data**	**No data**	**No data**	**No data**	**No data**

This data is sourced from the British Geological Survey.

21.2 BGS Estimated Urban Soil Chemistry

Records within 50m	4

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km^2).

Location	Arsenic (mg/kg)	Bioaccessible Arsenic (mg/kg)	Lead (mg/kg)	Bioaccessible Lead (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Nickel (mg/kg)	Tin (mg/kg)
On site	**16**	**2.8**	**177**	**122**	**0.3**	**60**	**47**	**21**	**14**
On site	**16**	**2.8**	**218**	**150**	**0.4**	**66**	**52**	**23**	**15**
On site	**16**	**2.8**	**173**	**119**	**0.3**	**60**	**46**	**21**	**14**
On site	**16**	**2.8**	**193**	**133**	**0.3**	**64**	**49**	**22**	**14**

This data is sourced from the British Geological Survey.

21.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km^2.

This data is sourced from the British Geological Survey.

22 Railway infrastructure and projects

Site Outline
Search buffers in metres (m)
Crossrail 1 Stations
Crossrail 1 Route
Crossrail 2 Stations
Crossrail 2 Route
Crossrail 2 Worksites
Crossrail 2 Safeguarding
Crossrail 2 Headhouses
Railway stations
Active railways
Active tunnels
Abandoned railways
Historic railways
Historic tunnels
Underground stations
Underground Lines
Royal Mail tunnels
HS2 optimised route
HS2 Stations
HS2 Depots
HS2 Surface Safeguarding
HS2 Subsurface Safeguarding

22.1 Underground railways (London)

Records within 250m	1

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

Features are displayed on the Railway infrastructure and projects map on **page 134 >**

Location	Line Name	Line Section	Track Type	Depth (m bgl)	Operational hours
17m S	Northern Line	Northern Line	Tunnel	15.6	Mon-Thu: Early 0512 Late 2358 Fri-Sun: Early 0522

This data is sourced from publicly available information by Groundsure.

22.2 Underground railways (Non-London)

Records within 250m	0

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.

This data is sourced from publicly available information by Groundsure.

22.3 Railway tunnels

Records within 250m	3

Railway tunnels taken from contemporary Ordnance Survey mapping.

Features are displayed on the Railway infrastructure and projects map on **page 134 >**

Location	Type
6m SE	Railway Tunnel
11m NE	Railway Tunnel
106m NE	Railway Tunnel

This data is sourced from the Ordnance Survey.

22.4 Historical railway and tunnel features

Records within 250m	21

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

Features are displayed on the Railway infrastructure and projects map on **page 134 >**

Location	Land Use	Year of mapping	Mapping scale
172m SW	Railway Sidings	1938	10560
175m SW	Railway Sidings	1934	10560
175m SW	Railway Sidings	1954	10560
175m SW	Railway Sidings	1948	10560
178m SW	Railway Sidings	1934	2500
184m SW	Railway Sidings	1950	2500
185m SW	Railway Sidings	1950	1250

Location	Land Use	Year of mapping	Mapping scale
201m SW	Railway Sidings	1919	10560
204m SW	Railway Sidings	1919	10560
208m SW	Railway Sidings	1896	2500
210m SW	Railway Sidings	1933	2500
210m SW	Railway Sidings	1894	10560
211m SW	Railway Sidings	1913	2500
216m SW	Railway Sidings	1899	10560
216m SW	Railway Sidings	1919	10560
219m SW	Railways	1913	-
223m SW	Railway	1898	-
223m SW	Railway	1910	-
223m SW	Railway	1934	-
224m SW	Railway Sidings	1898	2500
227m SW	Railway Sidings	1913	2500

This data is sourced from Ordnance Survey/Groundsure.

22.5 Royal Mail tunnels

Records within 250m	0

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.

This data is sourced from Groundsure/the Postal Museum.

22.6 Historical railways

Records within 250m	0

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

This data is sourced from OpenStreetMap.

22.7 Railways

Records within 250m	0

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways.

This data is sourced from Ordnance Survey and OpenStreetMap.

22.8 Crossrail 1

Records within 500m	0

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

22.9 Crossrail 2

Records within 500m	0

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

22.10 HS2

Records within 500m	0

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

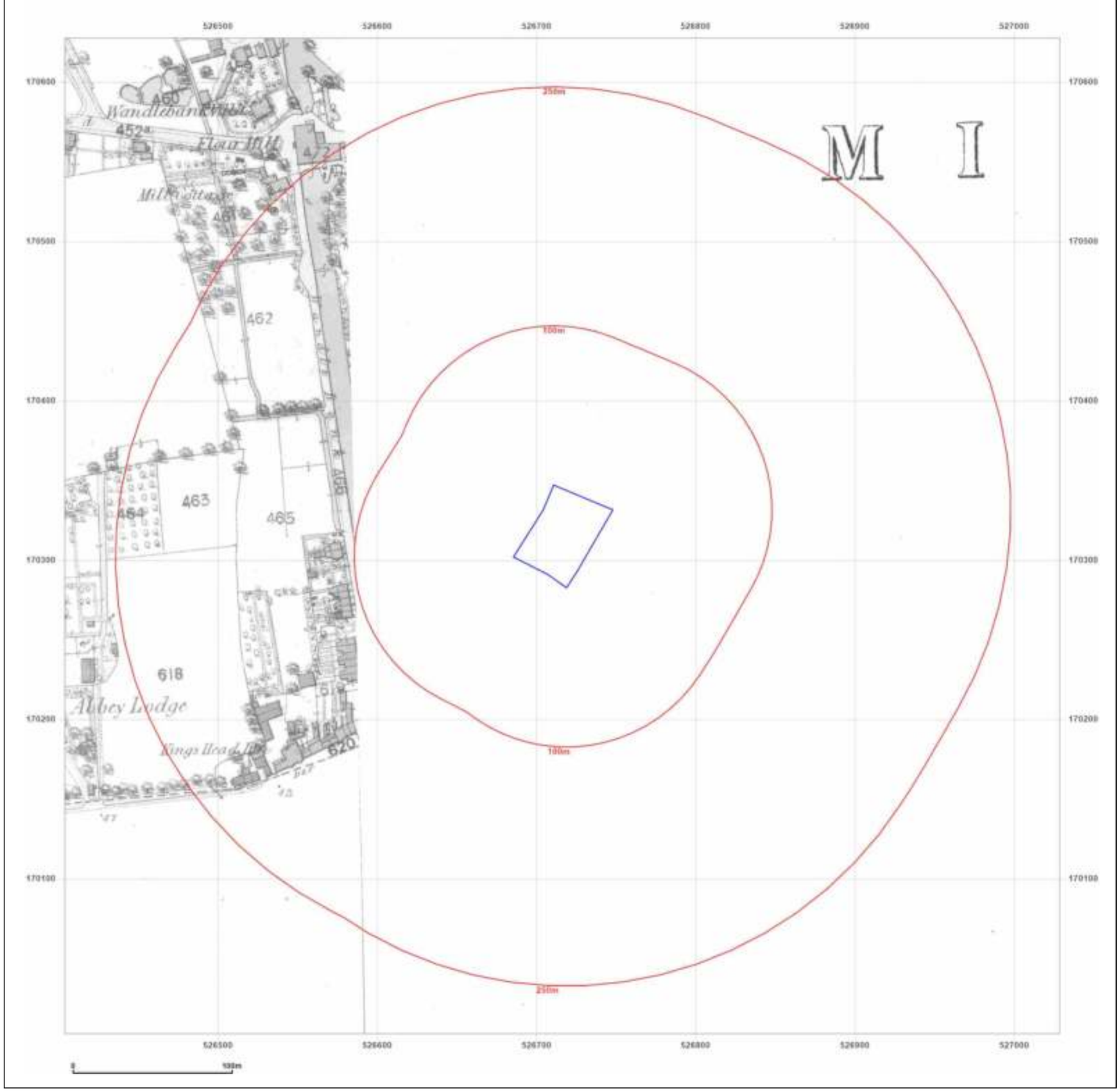
This data is sourced from HS2 ltd.

Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see https://www.groundsure.com/sources-reference ↗.

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: www.groundsure.com/terms-and-conditions-april-2023/ ↗.



Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: County Series

Map date: **1865-1866**

Scale: 1:2,500

Printed at: 1:2,500

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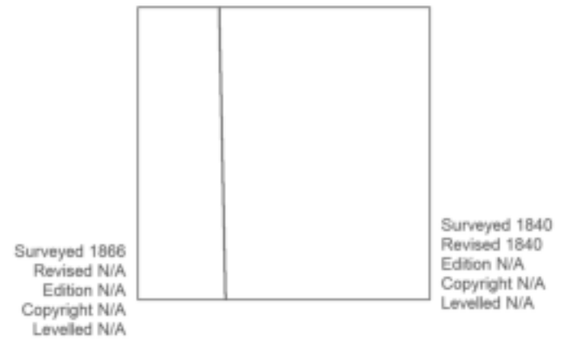

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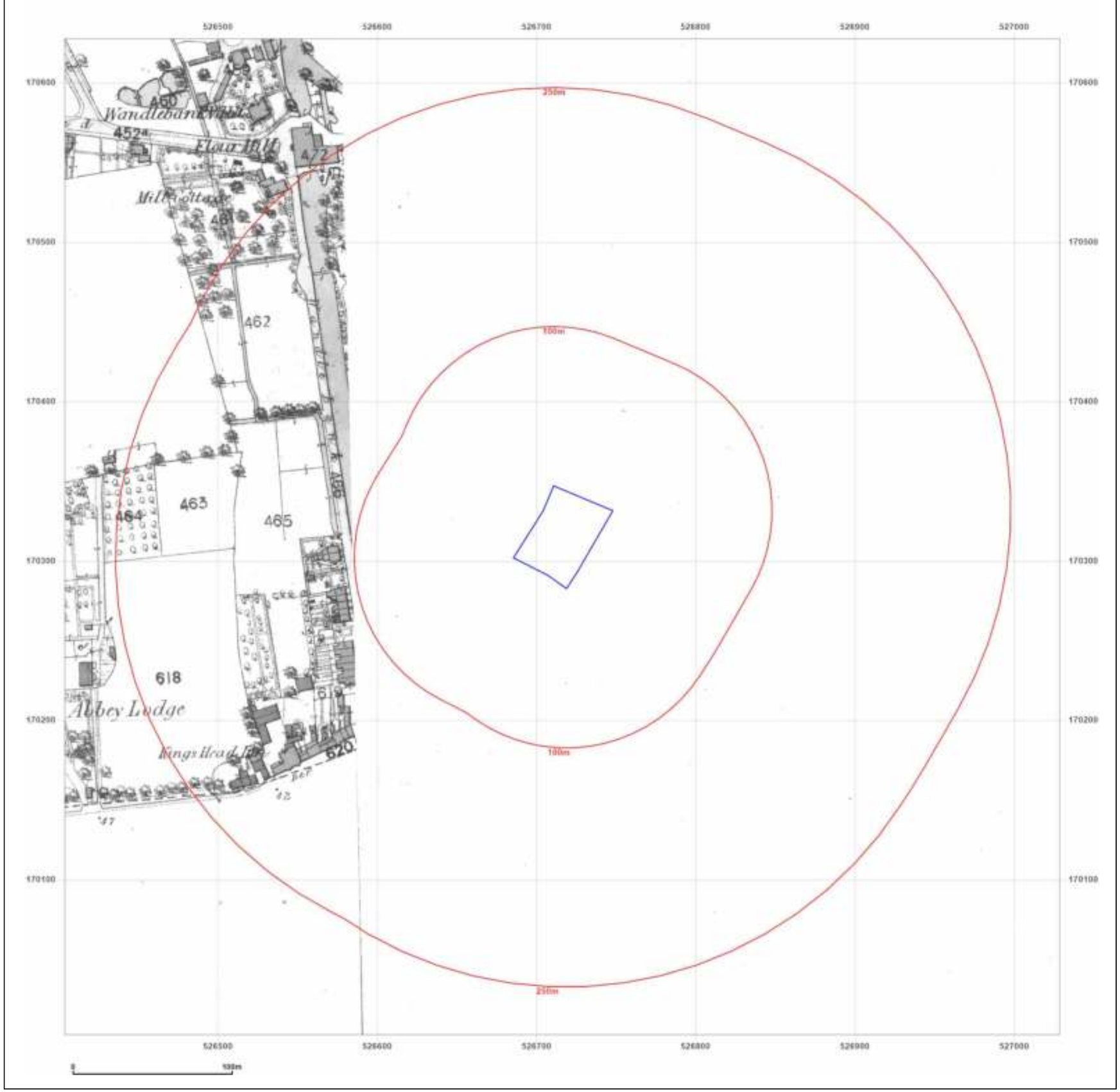
Production date: 01 May 2024

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



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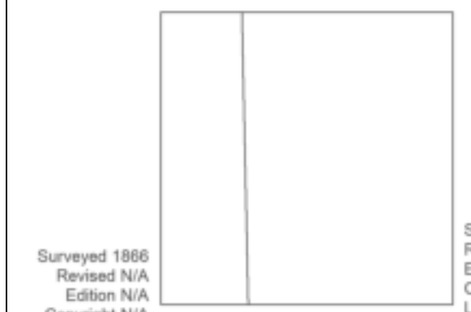

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Map legend available at:
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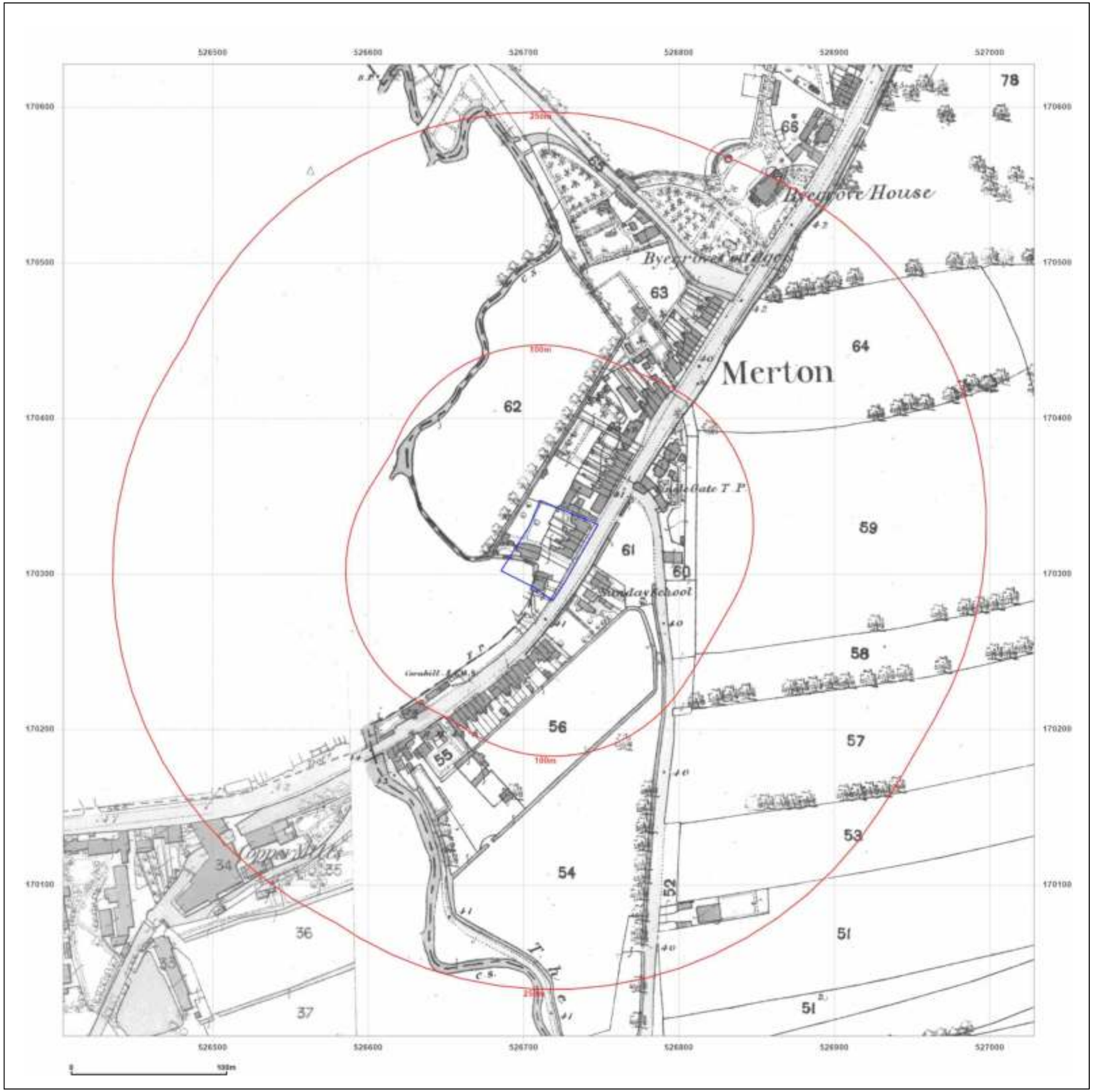

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Scale: 1:2,500
Printed at: 1:2,500

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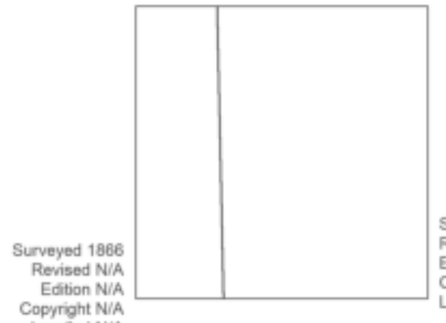

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Map legend available at:
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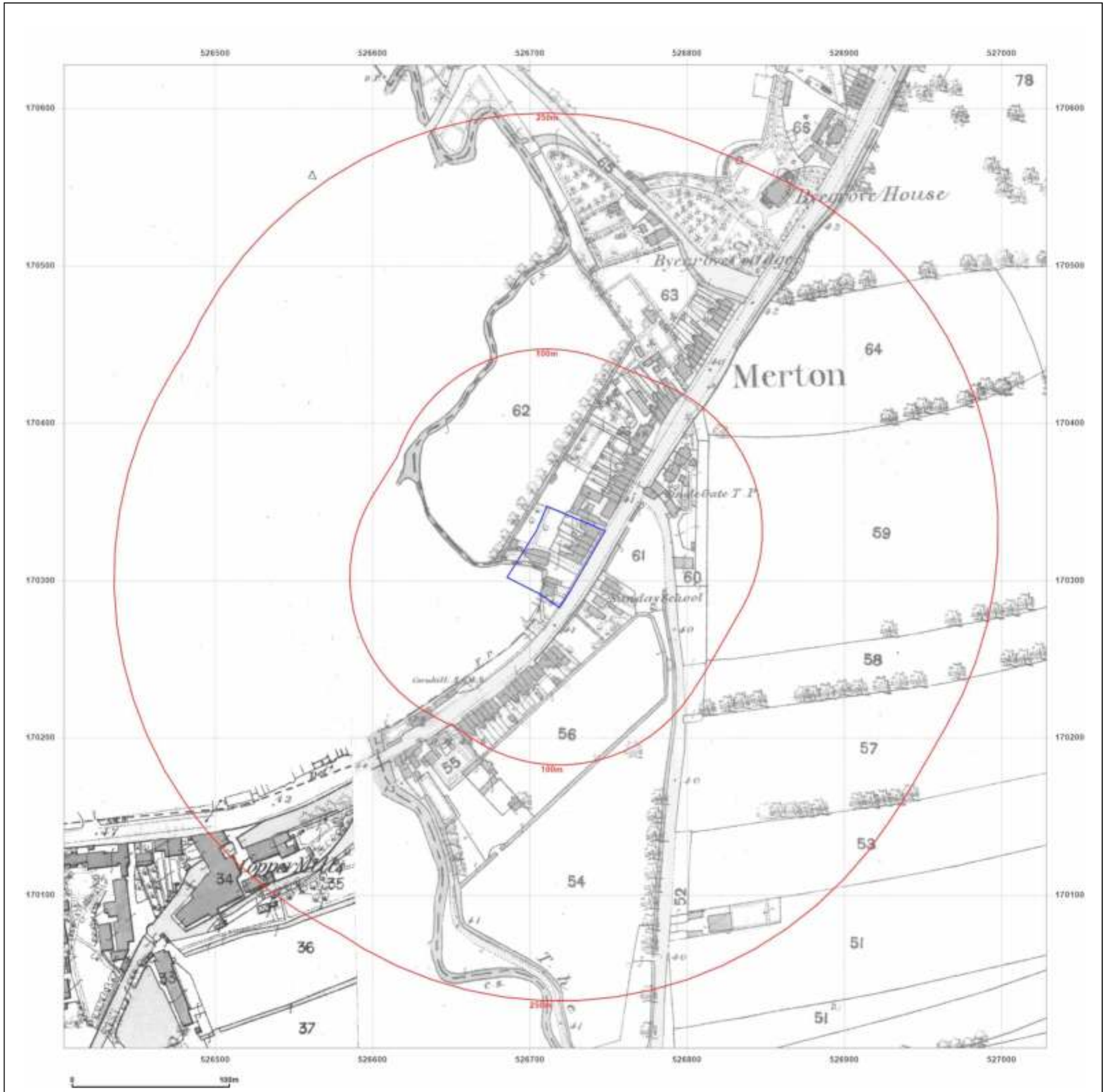

Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: County Series
Map date: **1866-1868**
Scale: 1:2,500
Printed at: 1:2,500

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

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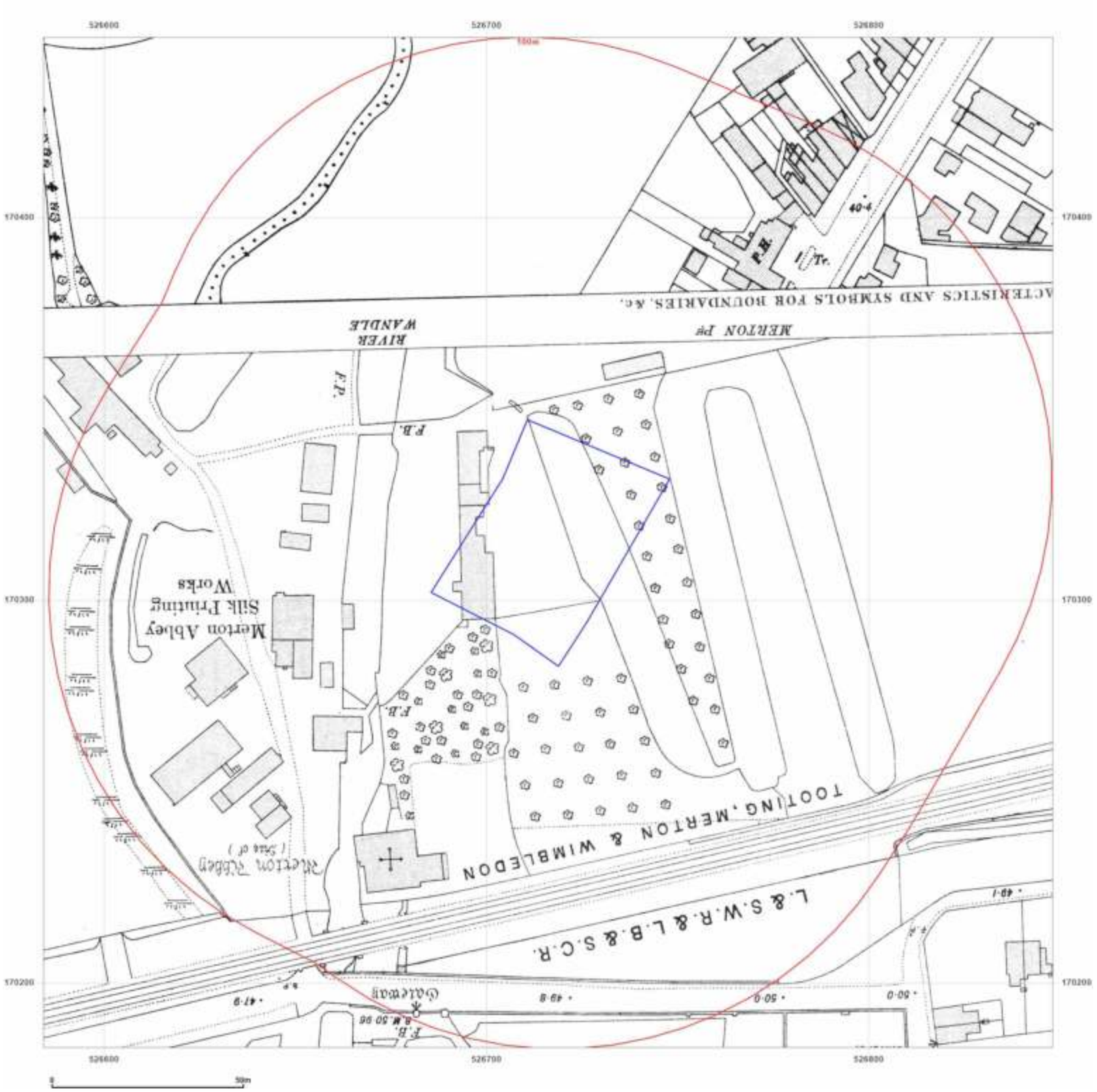

Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

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

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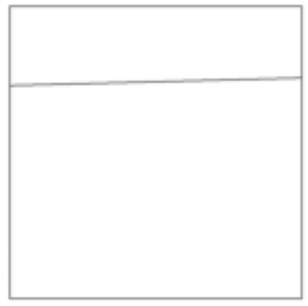
Surveyed 1895
Revised N/A
Edition 1896
Copyright N/A
Levelled N/A



Surveyed 1895
Revised N/A
Edition 1896
Copyright N/A
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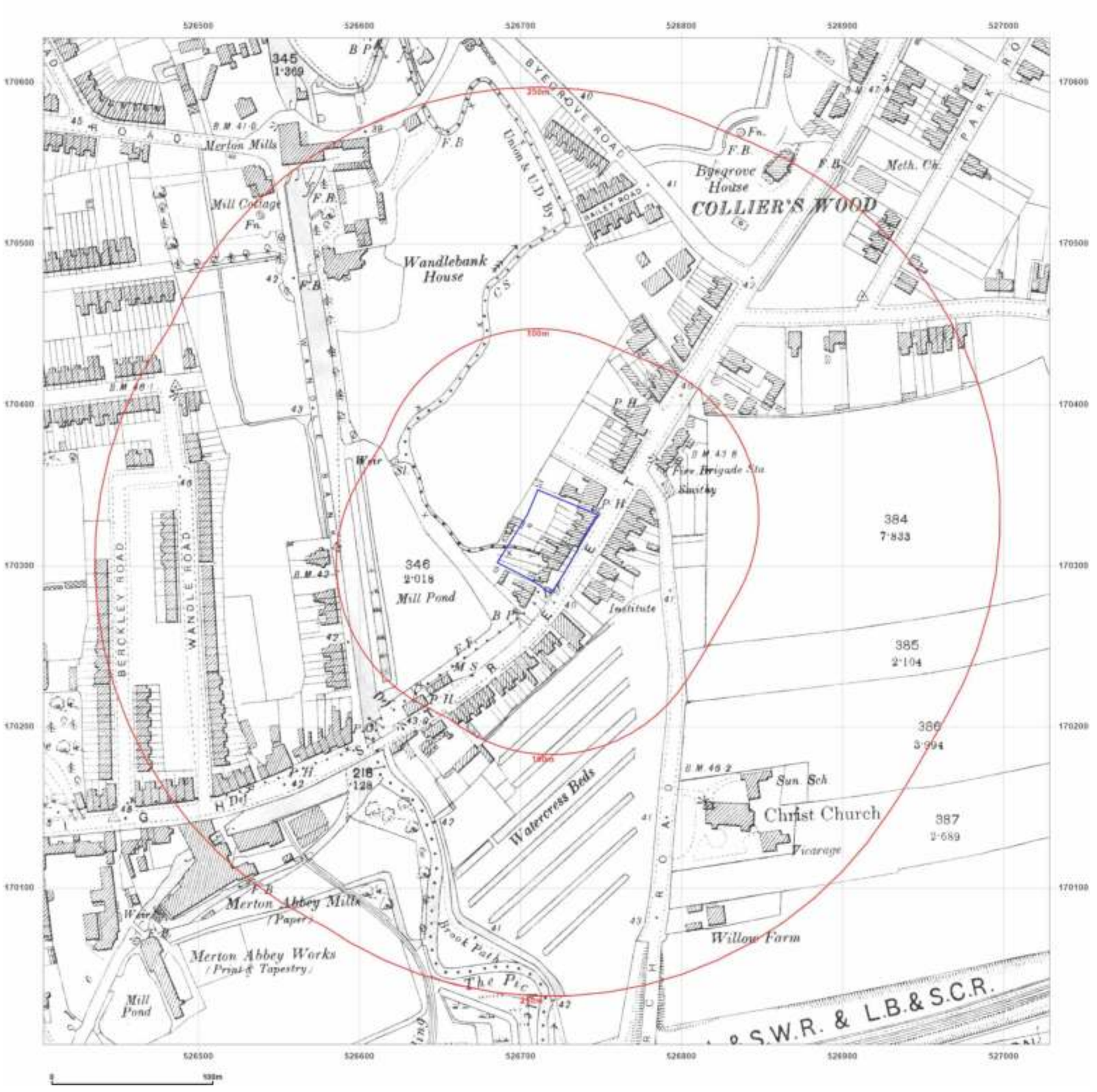

Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

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

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

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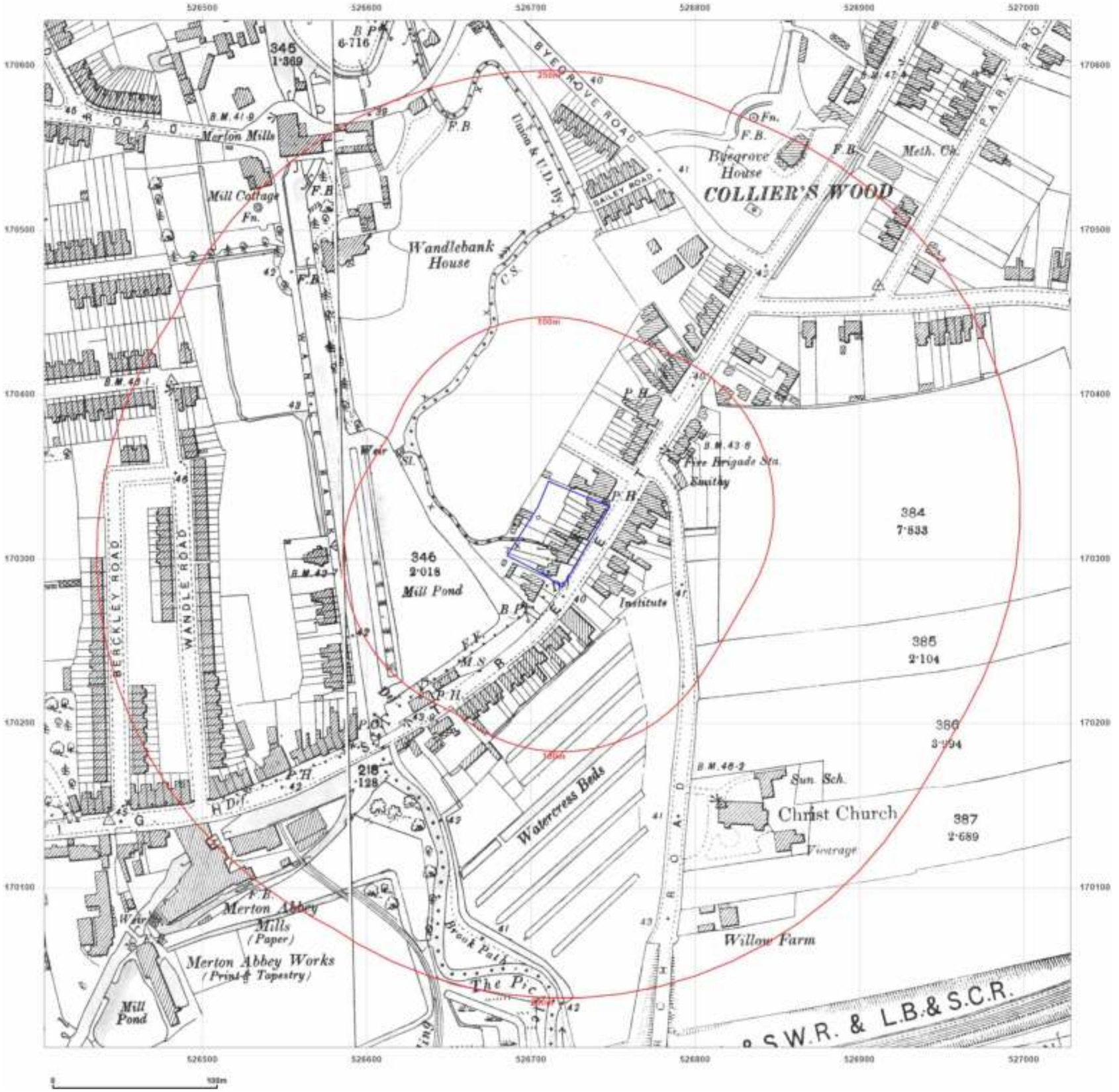

Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: County Series
Map date: **1898**
Scale: 1:2,500
Printed at: 1:2,500

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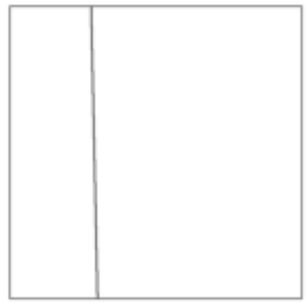

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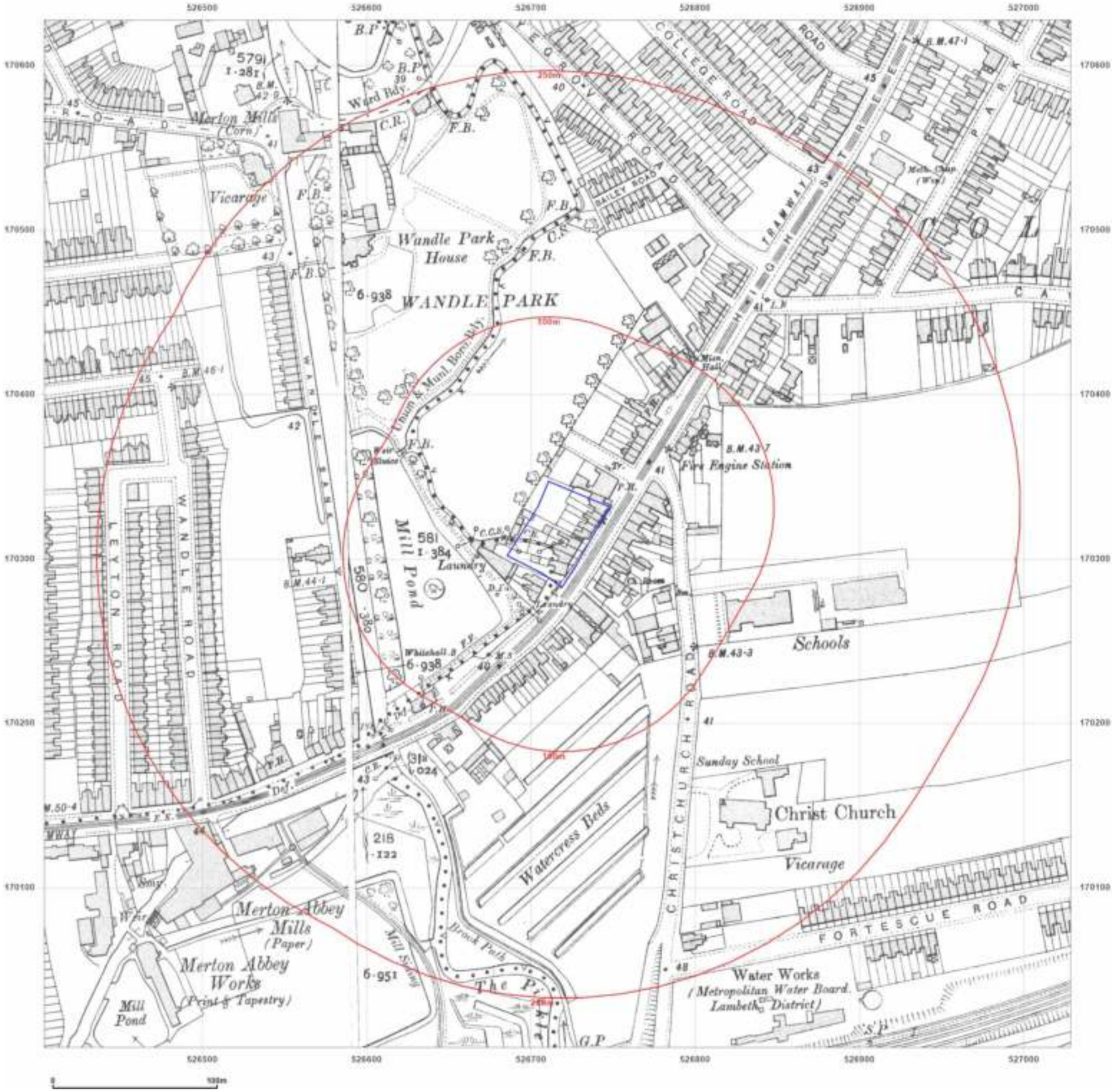

Site Details:

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Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: County Series

Map date: **1913**

Scale: 1:2,500

Printed at: 1:2,500

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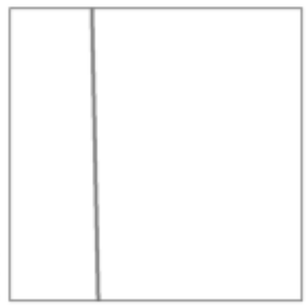

Surveyed 1913
Revised 1913
Edition N/A
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Levelled N/A

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Revised 1913
Edition N/A
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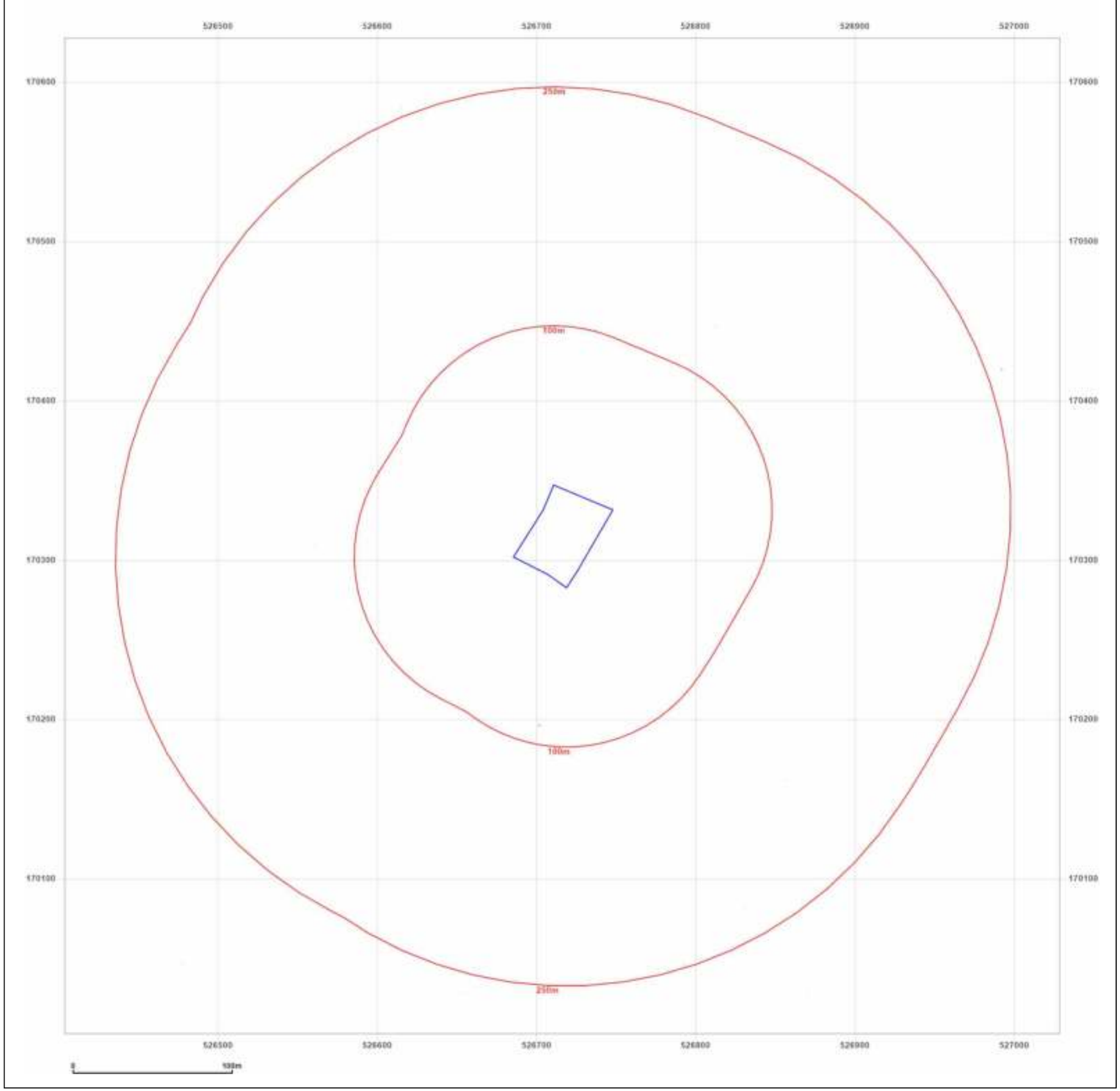

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Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: County Series
Map date: **1916**
Scale: 1:2,500
Printed at: 1:2,500

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Site Details:

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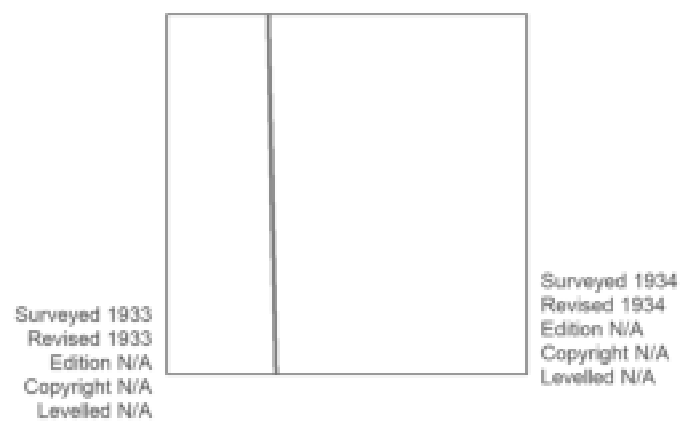
Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: County Series

Map date: **1933-1934**

Scale: 1:2,500

Printed at: 1:2,500



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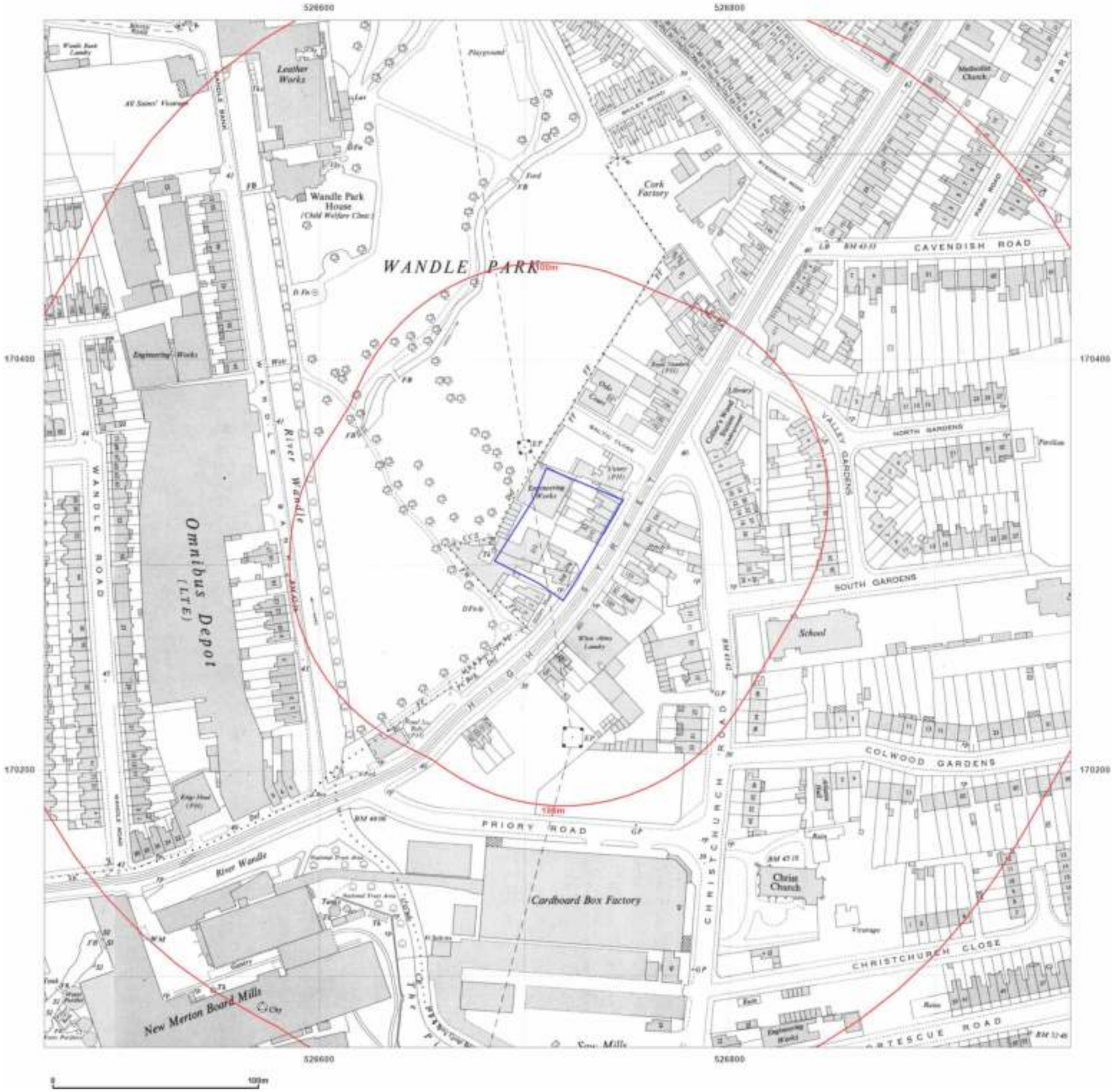

Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: National Grid
Map date: **1950**
Scale: 1:1,250
Printed at: 1:2,000

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Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled 1934

Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled 1934

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

Surveyed 1950
Revised 1950
Edition N/A
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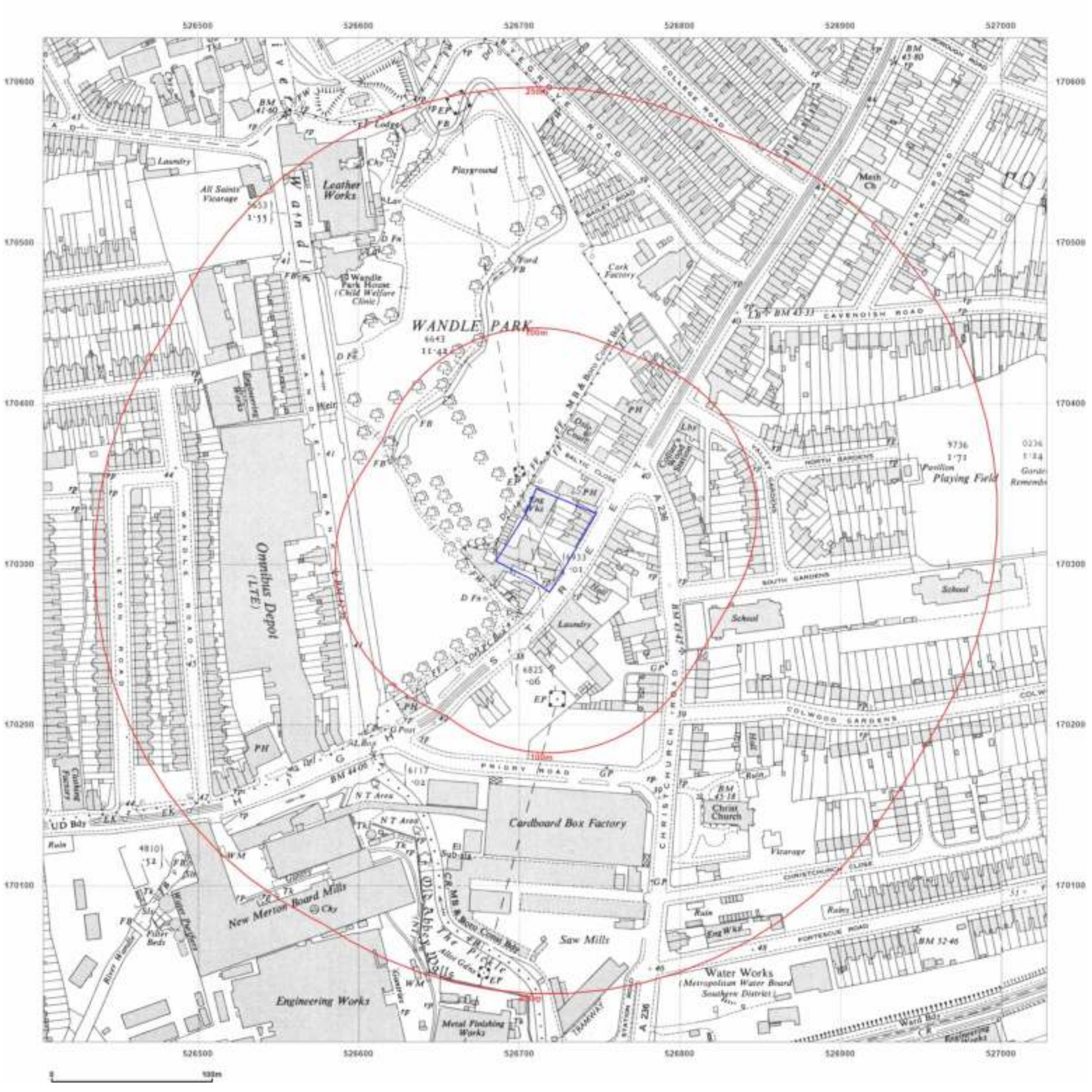

Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: National Grid

Map date: **1950**

Scale: 1:2,500

Printed at: 1:2,500

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

Surveyed 1950
Revised 1950
Edition N/A
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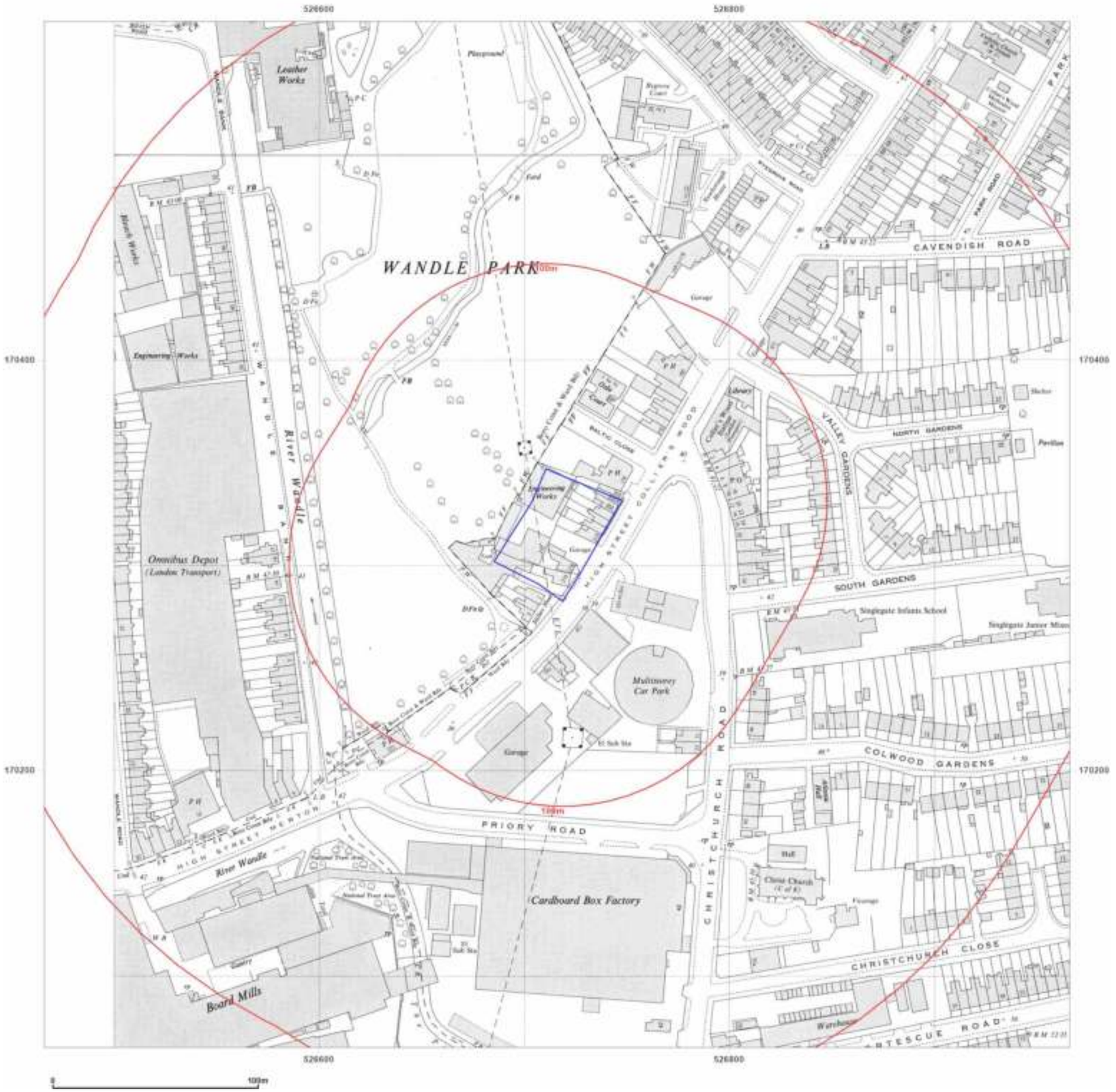

Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: National Grid

Map date: **1967**

Scale: 1:1,250

Printed at: 1:2,000

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Surveyed 1950
Revised 1966
Edition N/A
Copyright 1967
Levelled 1954

Surveyed 1950
Revised 1966
Edition N/A
Copyright 1967
Levelled 1955

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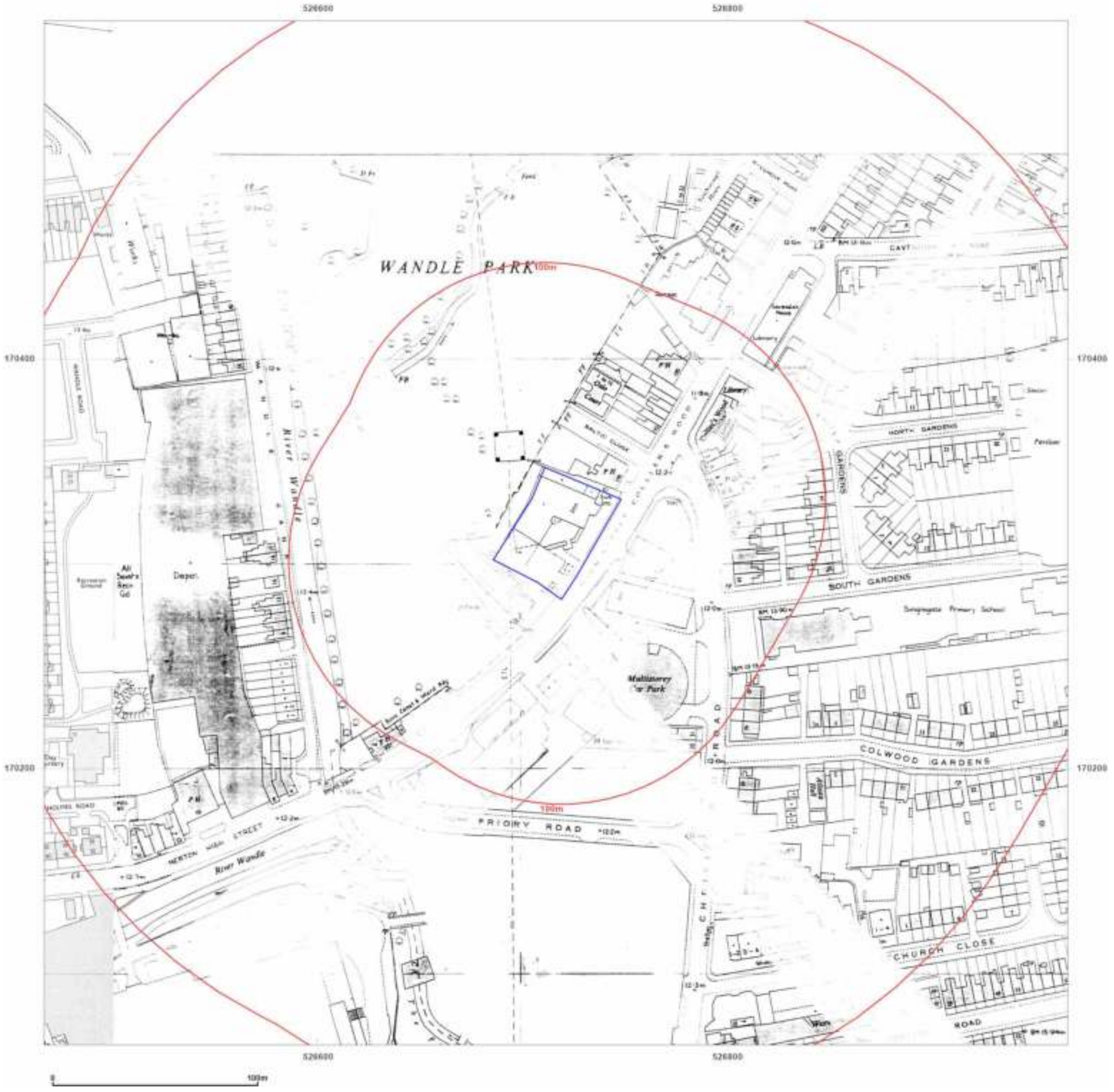

Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: National Grid
Map date: **1976-1981**
Scale: 1:1,250
Printed at: 1:2,000

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

Surveyed 1976
Revised 1976
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1981
Levelled 1973

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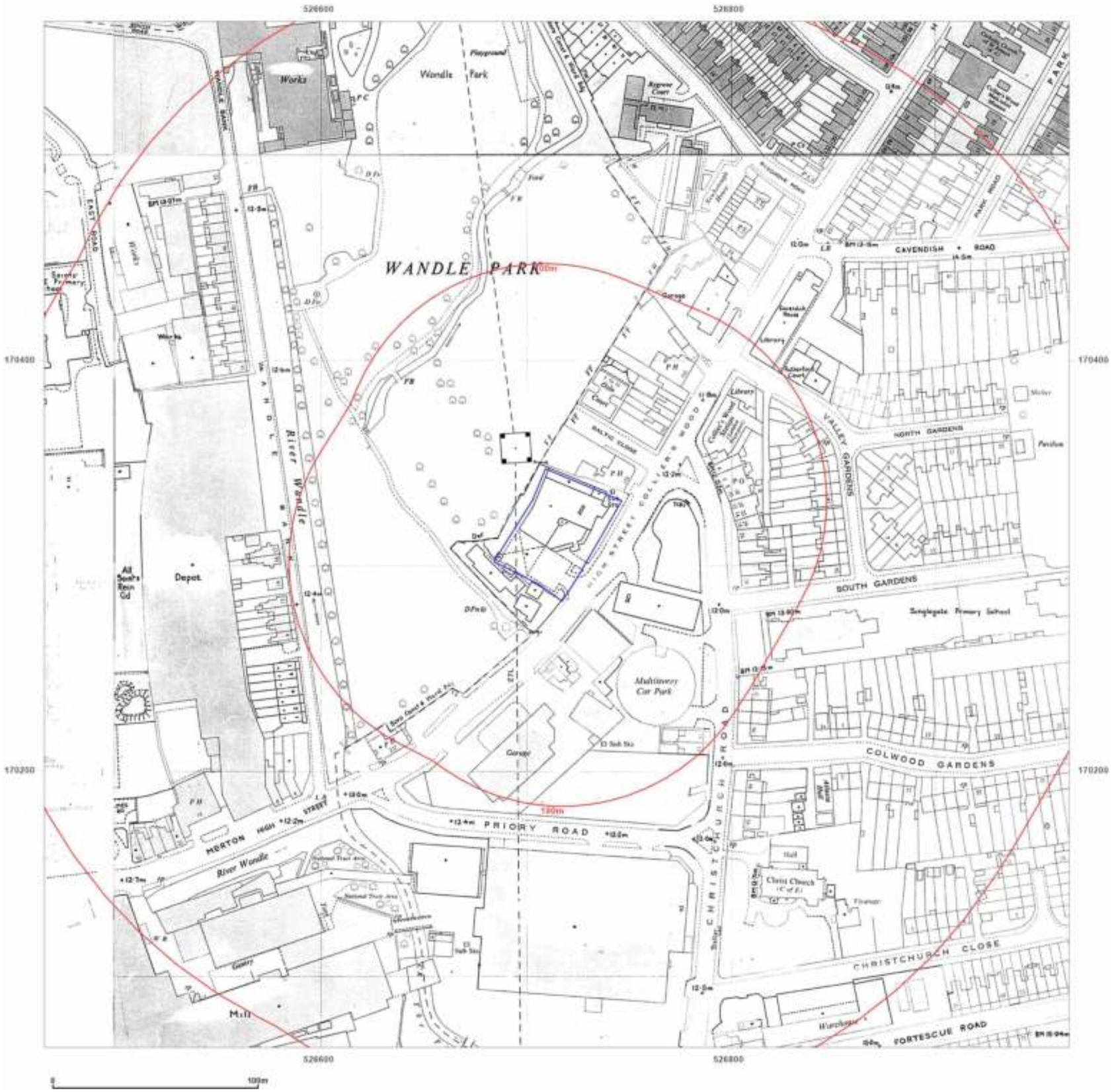

Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: National Grid

Map date: **1980-1985**

Scale: 1:1,250

Printed at: 1:2,000

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

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1982
Levelled 1972

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1985
Levelled 1972

Surveyed 1973
Revised 1981
Edition N/A
Copyright 1981
Levelled 1973

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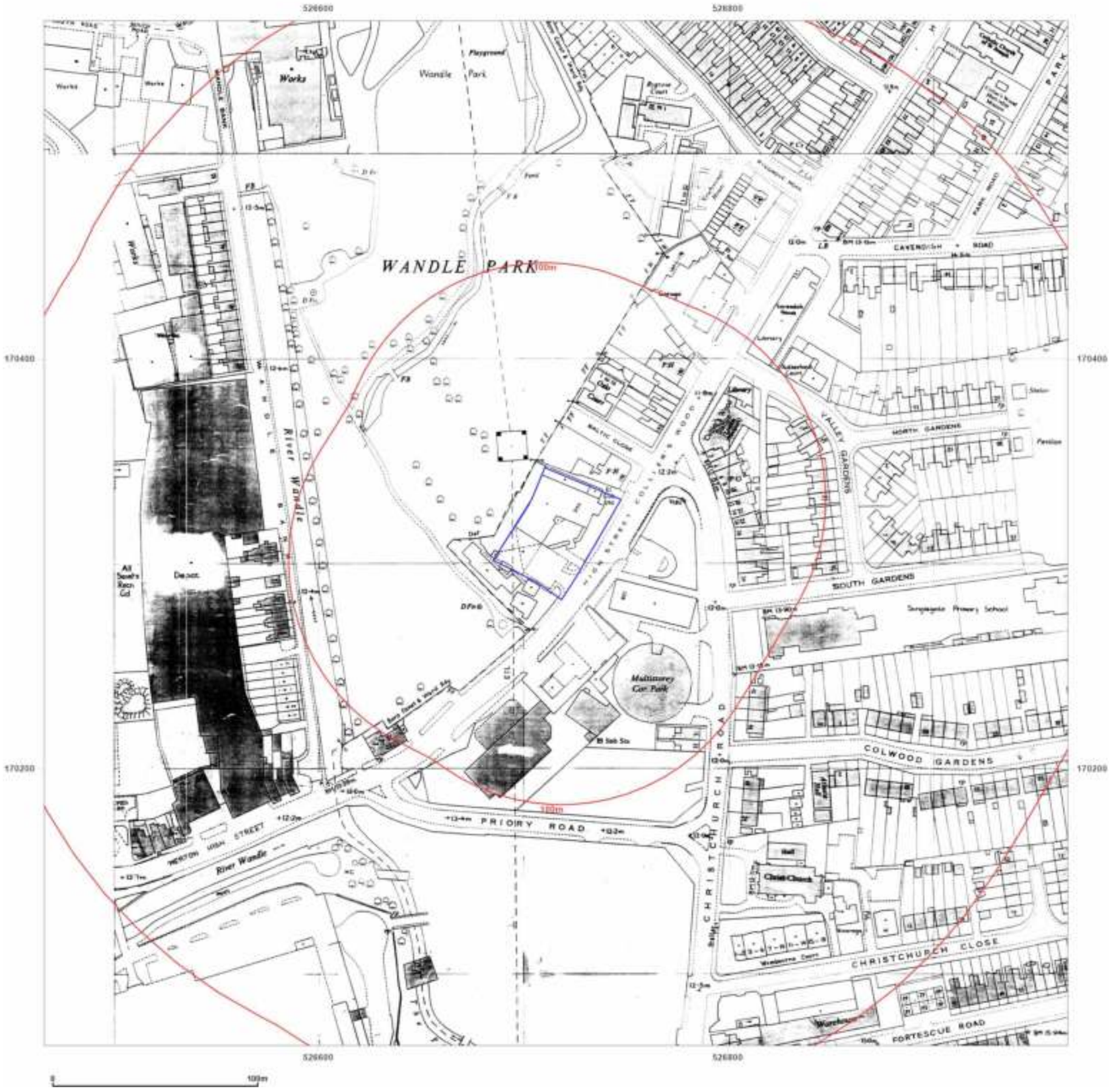

Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: National Grid

Map date: **1985-1989**

Scale: 1:1,250

Printed at: 1:2,000

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Surveyed 1972
Revised 1985
Edition N/A
Copyright 1985
Levelled 1972

Surveyed 1986
Revised 1988
Edition N/A
Copyright 1988
Levelled 1986

Surveyed 1973
Revised 1989
Edition N/A
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Levelled 1973

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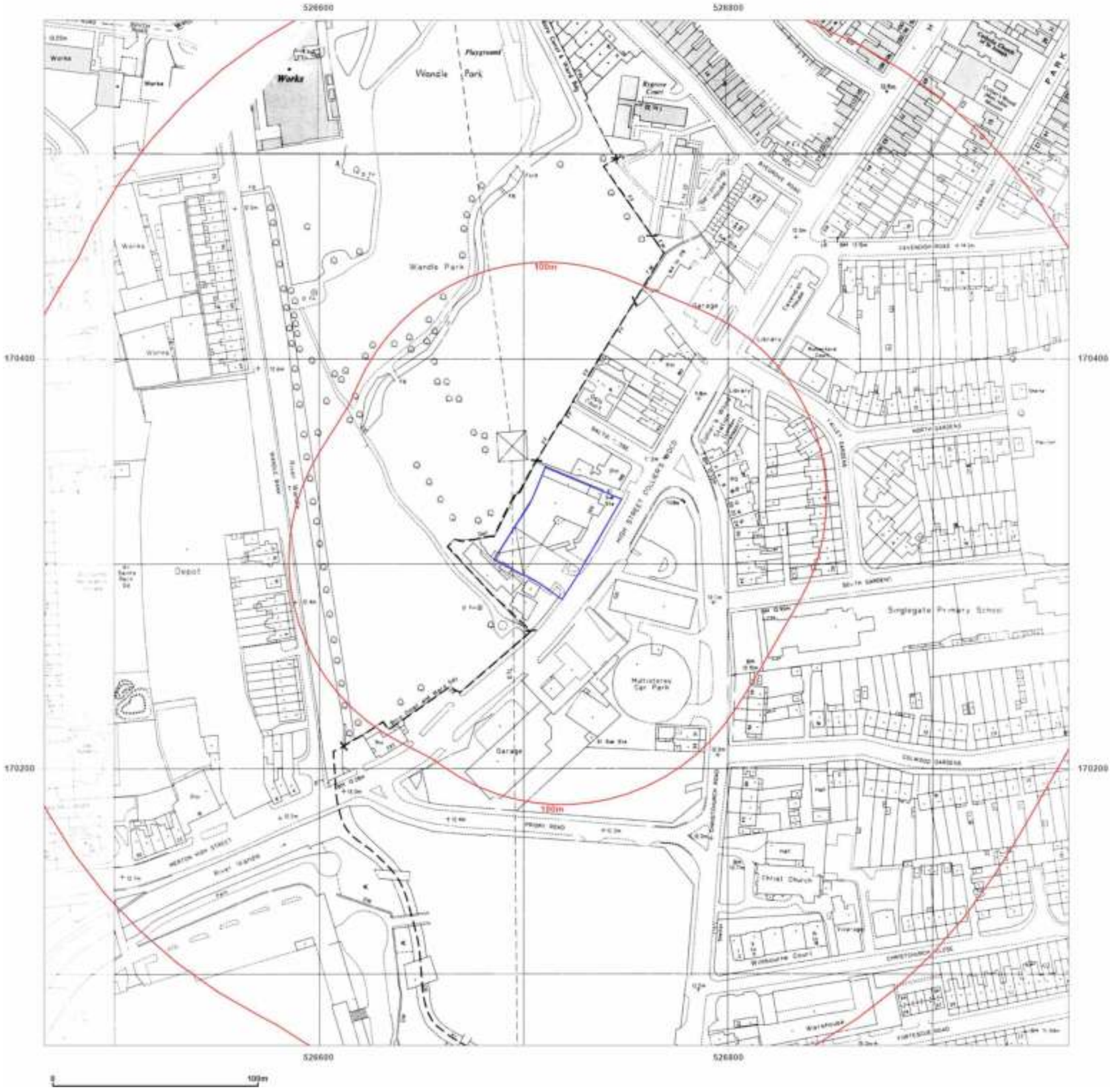

Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: National Grid

Map date: **1986-1991**

Scale: 1:1,250

Printed at: 1:2,000

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Surveyed 1986 Revised 1986 Edition N/A Copyright N/A Levelled N/A	Surveyed 1986 Revised 1988 Edition N/A Copyright 1988 Levelled 1986
Surveyed N/A Revised N/A Edition N/A Copyright 1991 Levelled N/A	Surveyed N/A Revised N/A Edition N/A Copyright 1991 Levelled N/A

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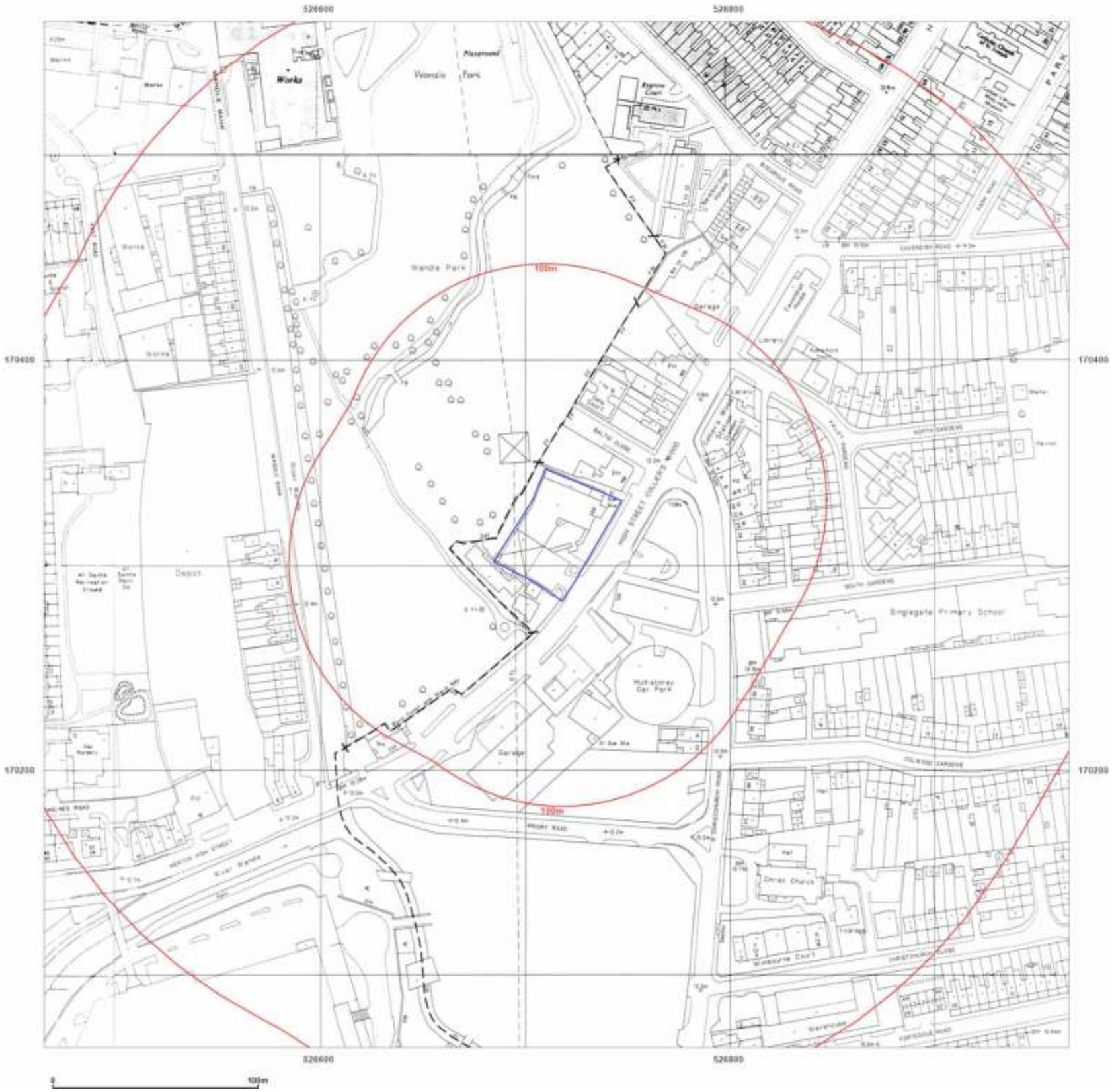

Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: National Grid

Map date: **1989-1991**

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 1986
Revised 1989
Edition N/A
Copyright 1989
Levelled 1986

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

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Revised 1991
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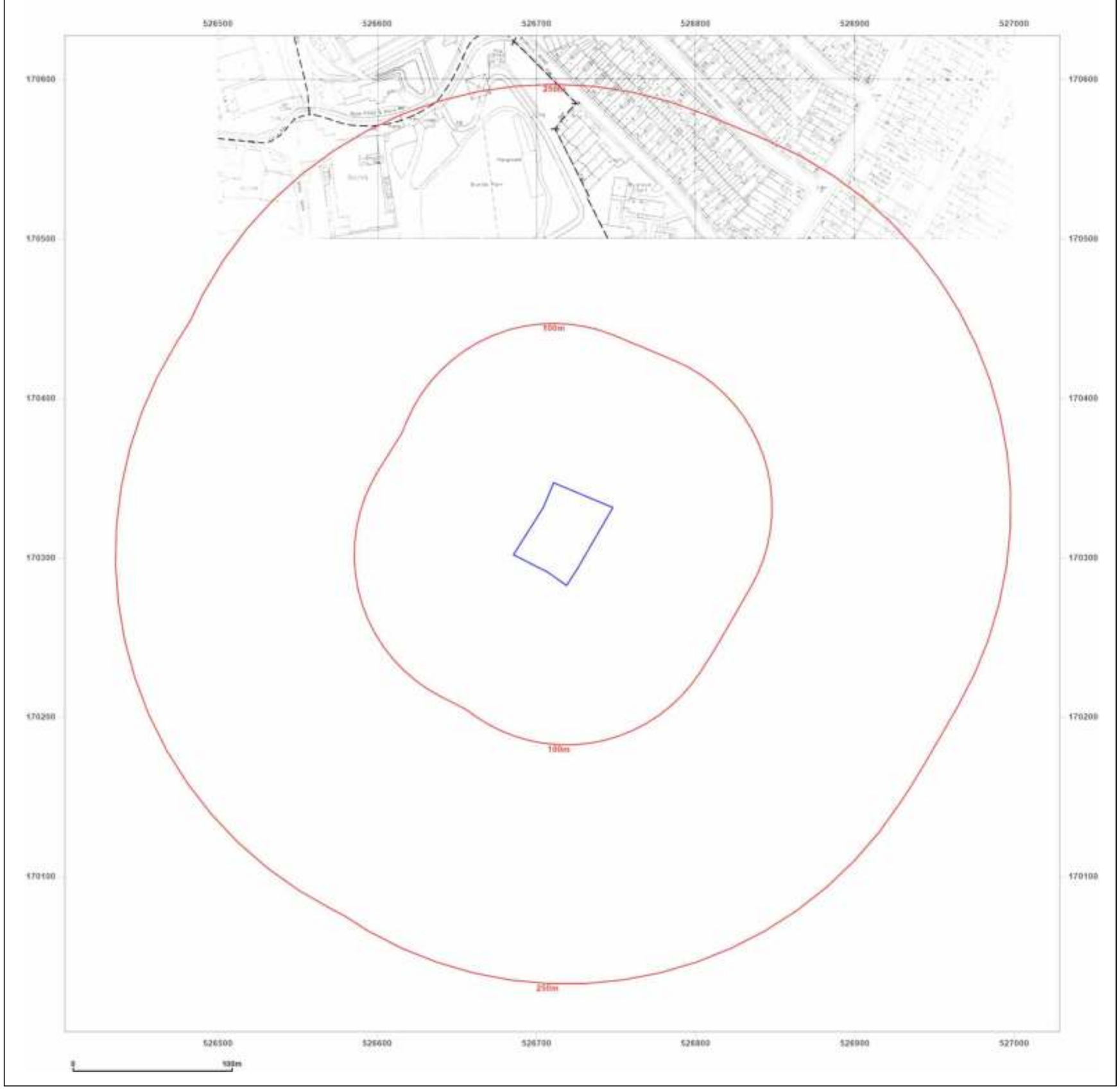

Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: National Grid
Map date: **1991**
Scale: 1:2,500
Printed at: 1:2,500

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Surveyed N/A
Revised N/A
Edition N/A
Copyright 1991
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Site Details:

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Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

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2003

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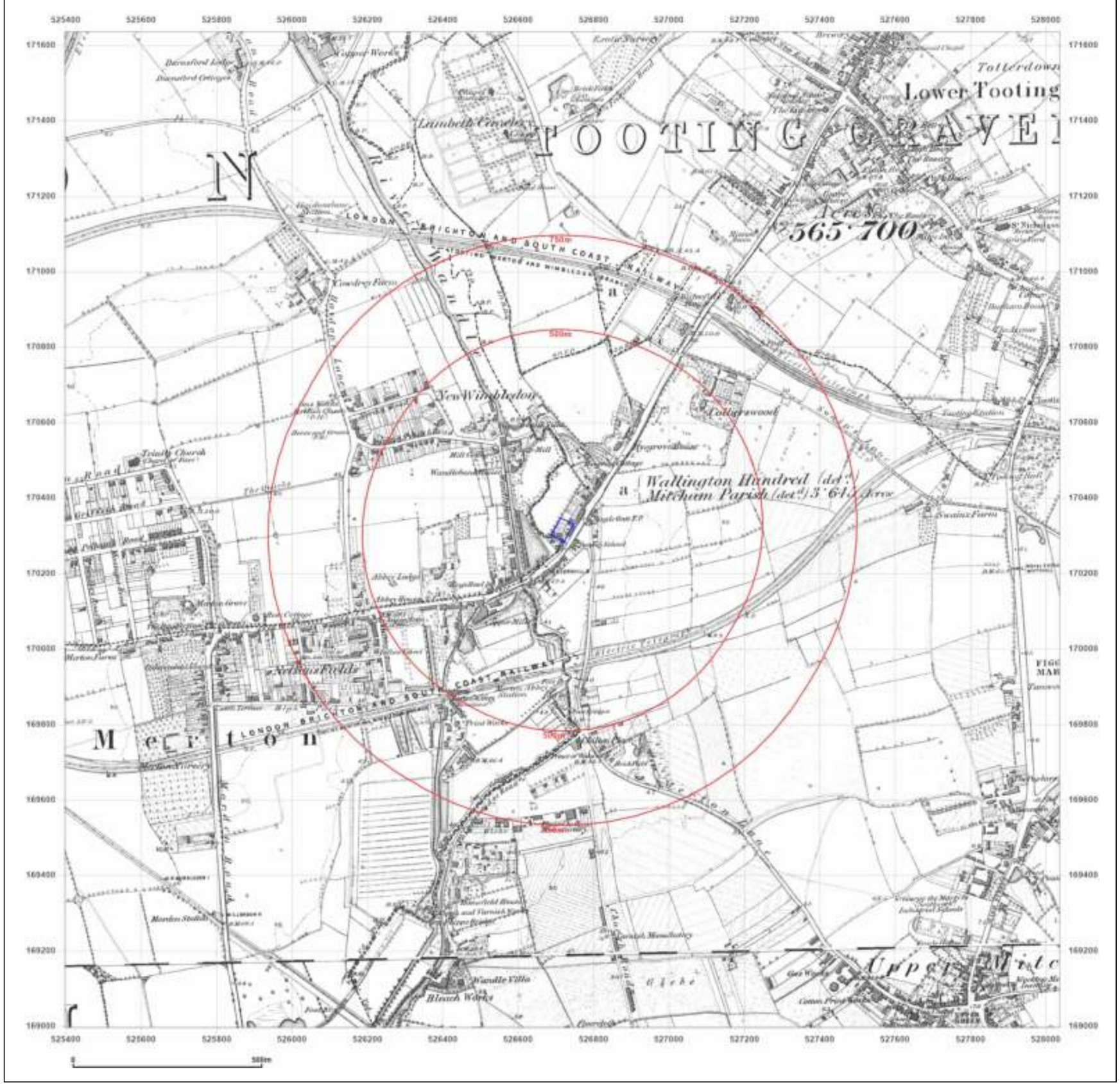

Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: County Series
Map date: **1865-1867**
Scale: 1:10,560
Printed at: 1:10,560

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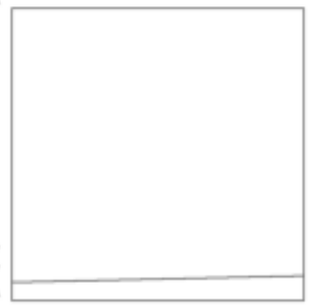
Surveyed 1865
Revised 1865
Edition N/A
Copyright N/A
Levelled N/A



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

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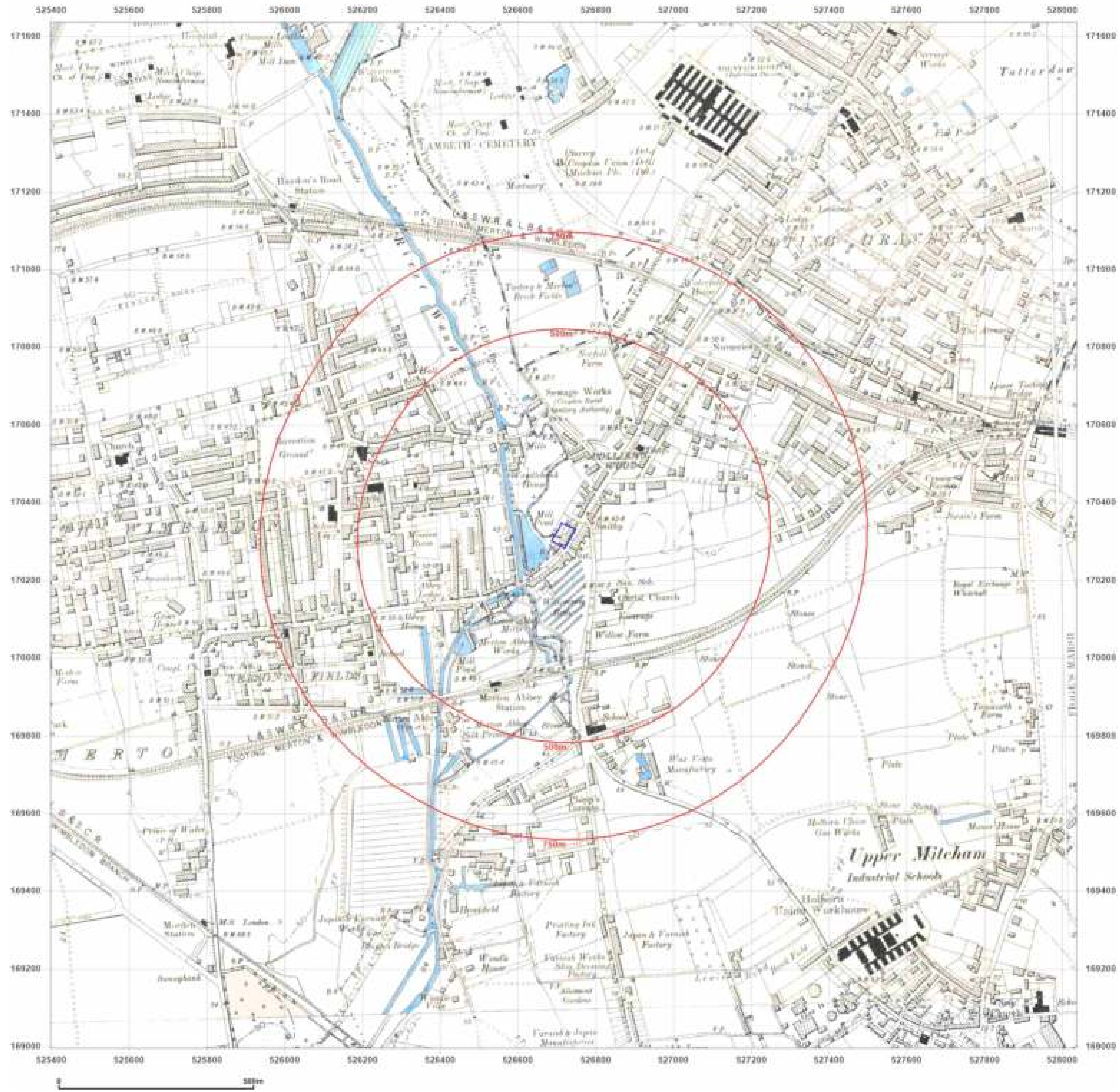

Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: County Series

Map date: **1894-1896**

Scale: 1:10,560

Printed at: 1:10,560

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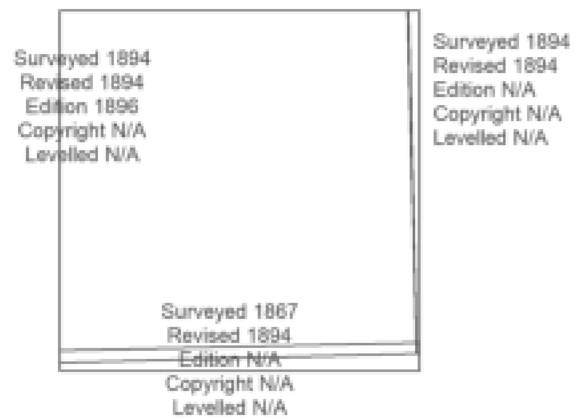

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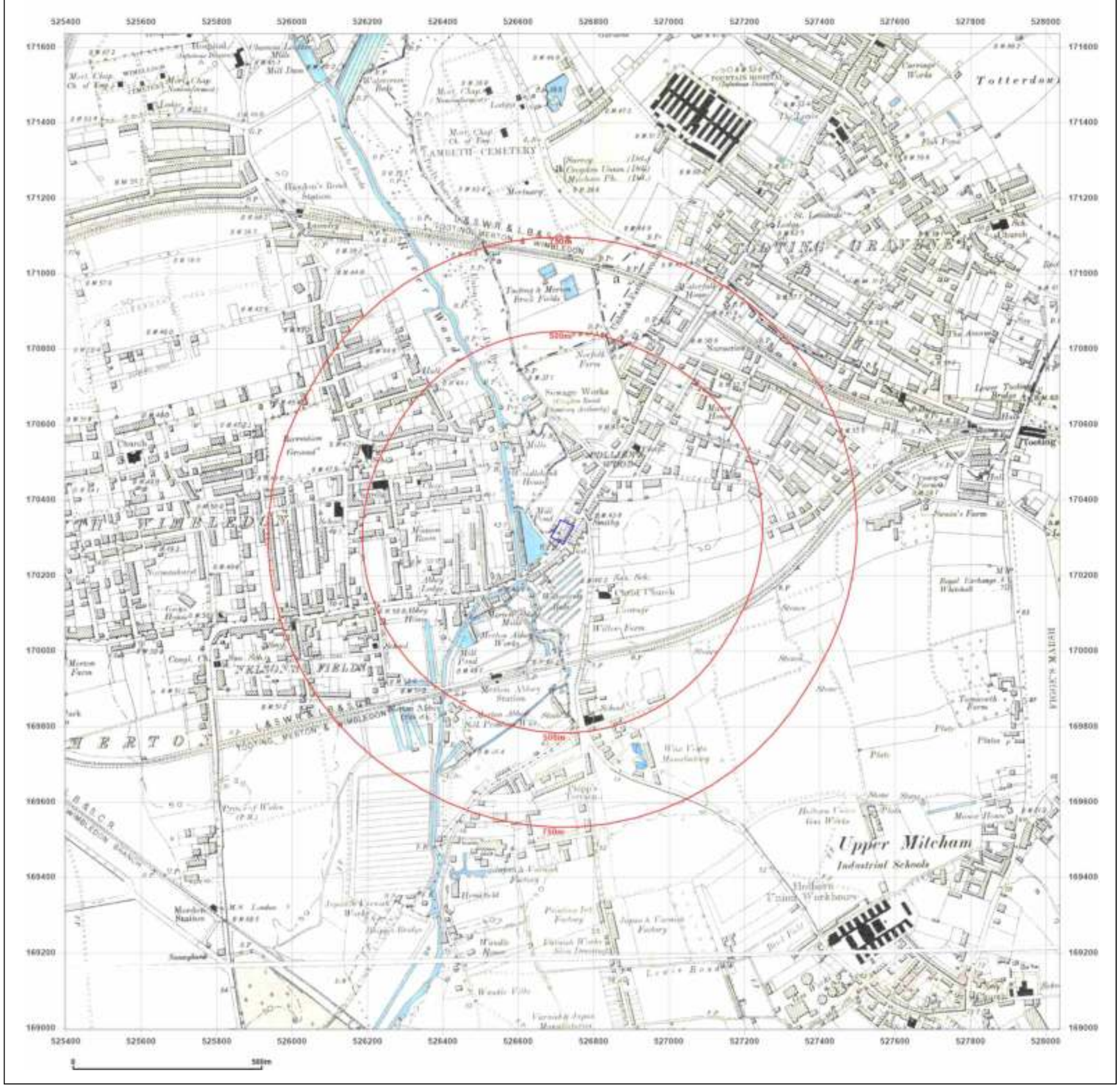
Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: County Series

Map date: **1895-1899**

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 1867
Revised 1894
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1895
Revised 1895
Edition N/A
Copyright N/A
Levelled N/A

Powered by OS

Produced by
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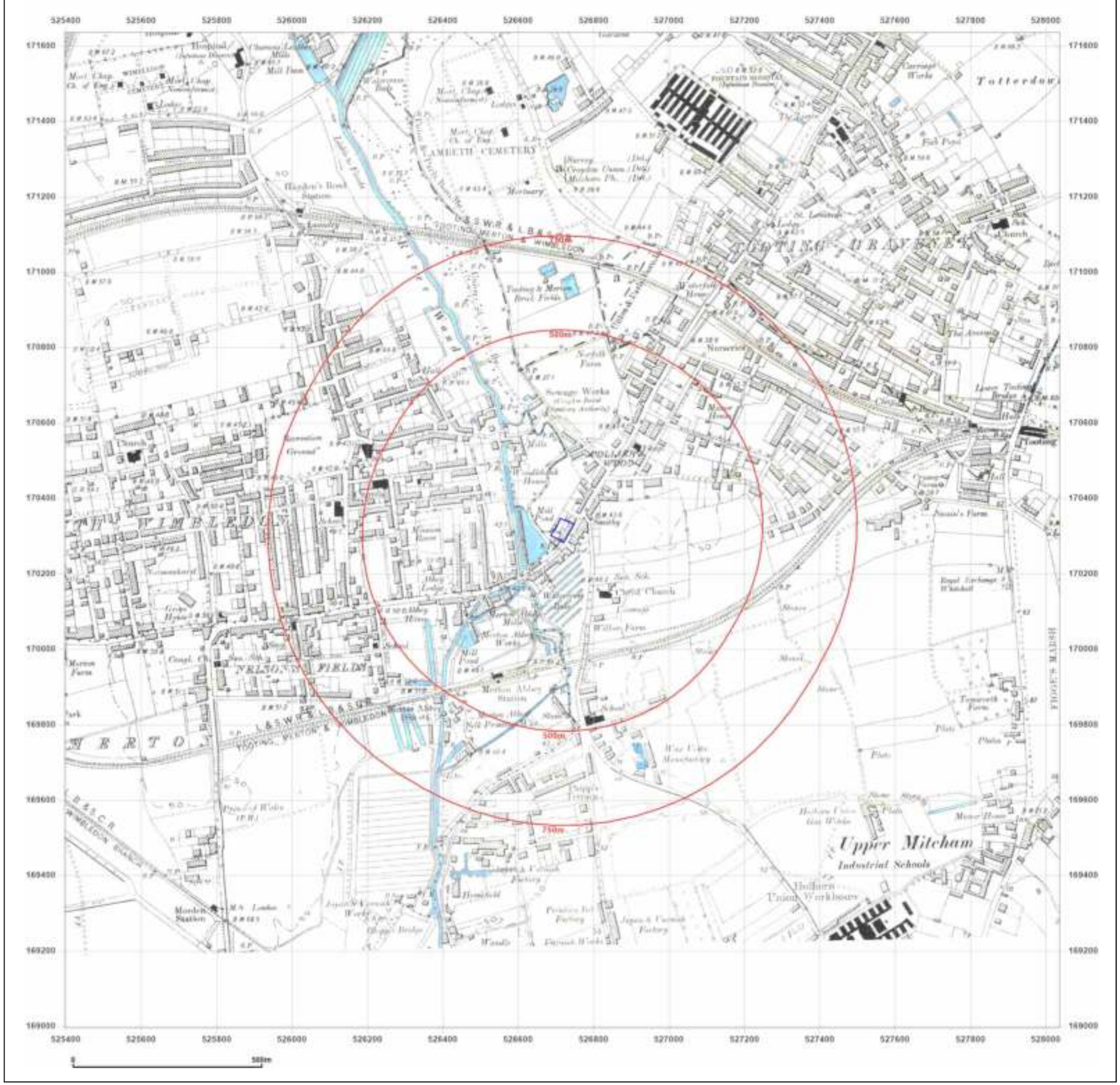
W: www.groundsure.com

Production date: 01 May 2024

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



Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: County Series

Map date: **1899**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1894
Revised 1894
Edition 1899
Copyright N/A
Levelled N/A

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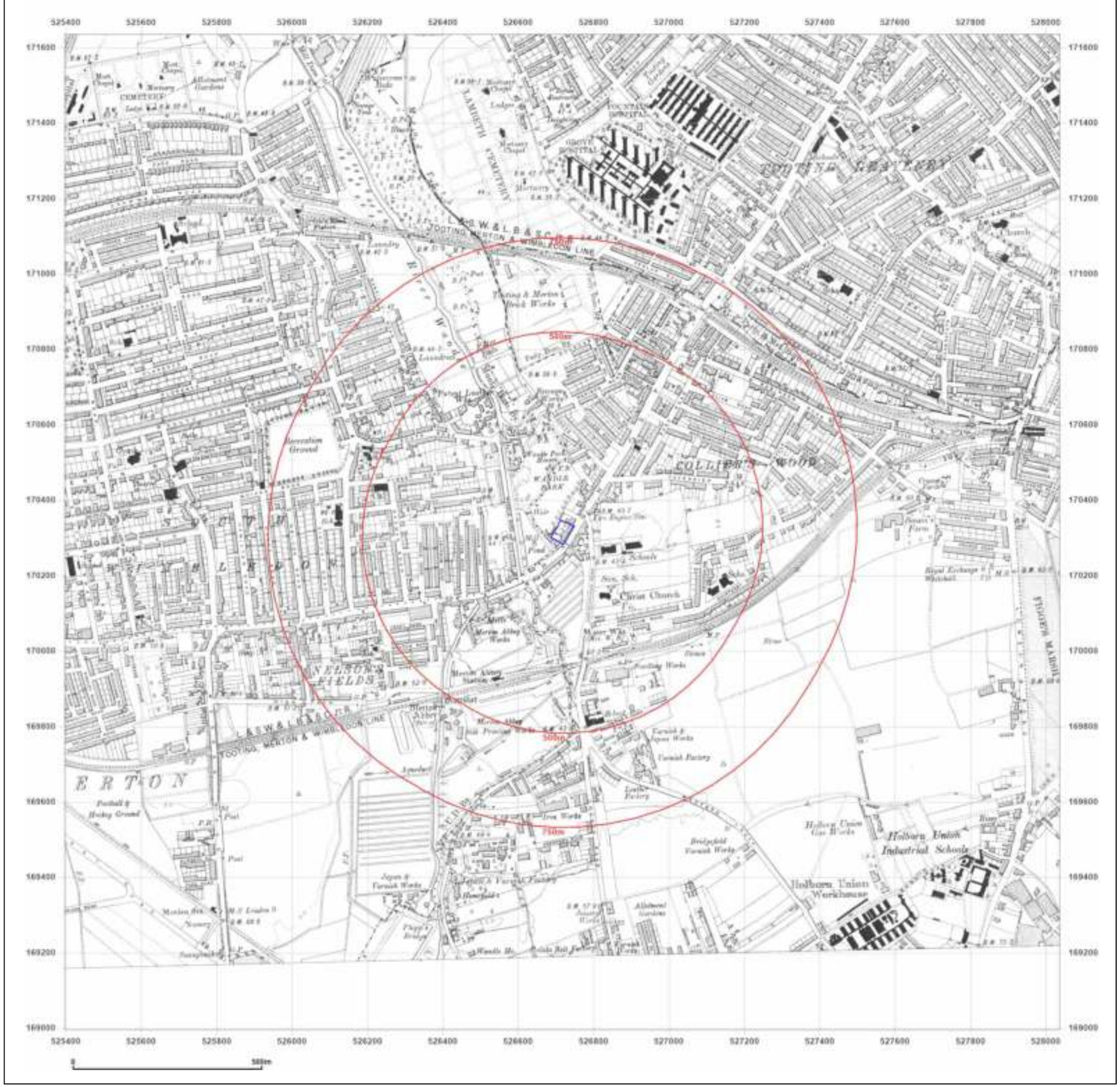
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: County Series

Map date: **1919**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1868
Revised 1919
Edition N/A
Copyright N/A
Levelled N/A

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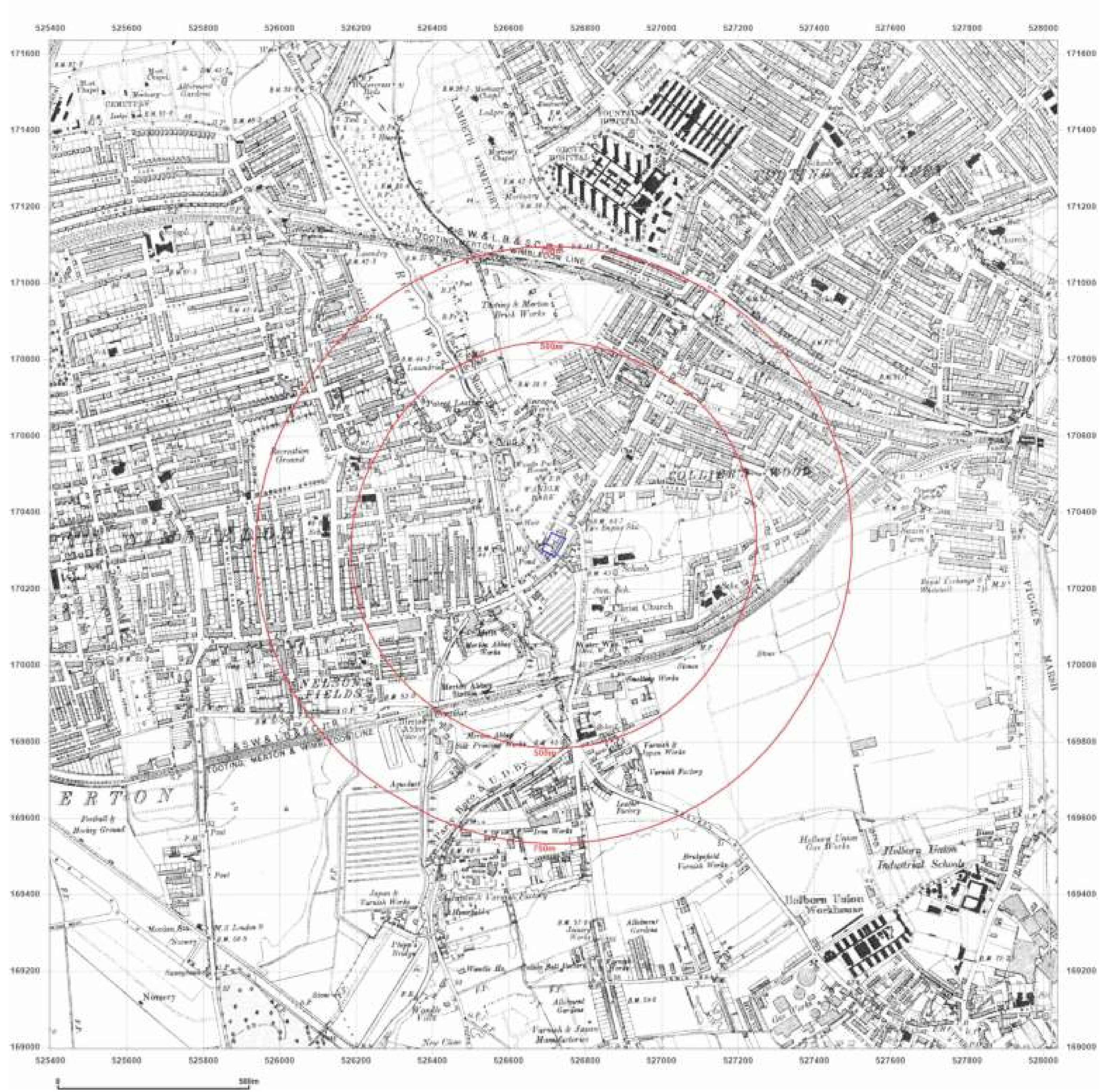
Production date: 01 May 2024

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



Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: County Series

Map date: **1919**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1867
Revised 1919
Edition 1919
Copyright N/A
Levelled N/A

Surveyed 1869
Revised 1919
Edition N/A
Copyright N/A
Levelled N/A

Powered by OS

Produced by
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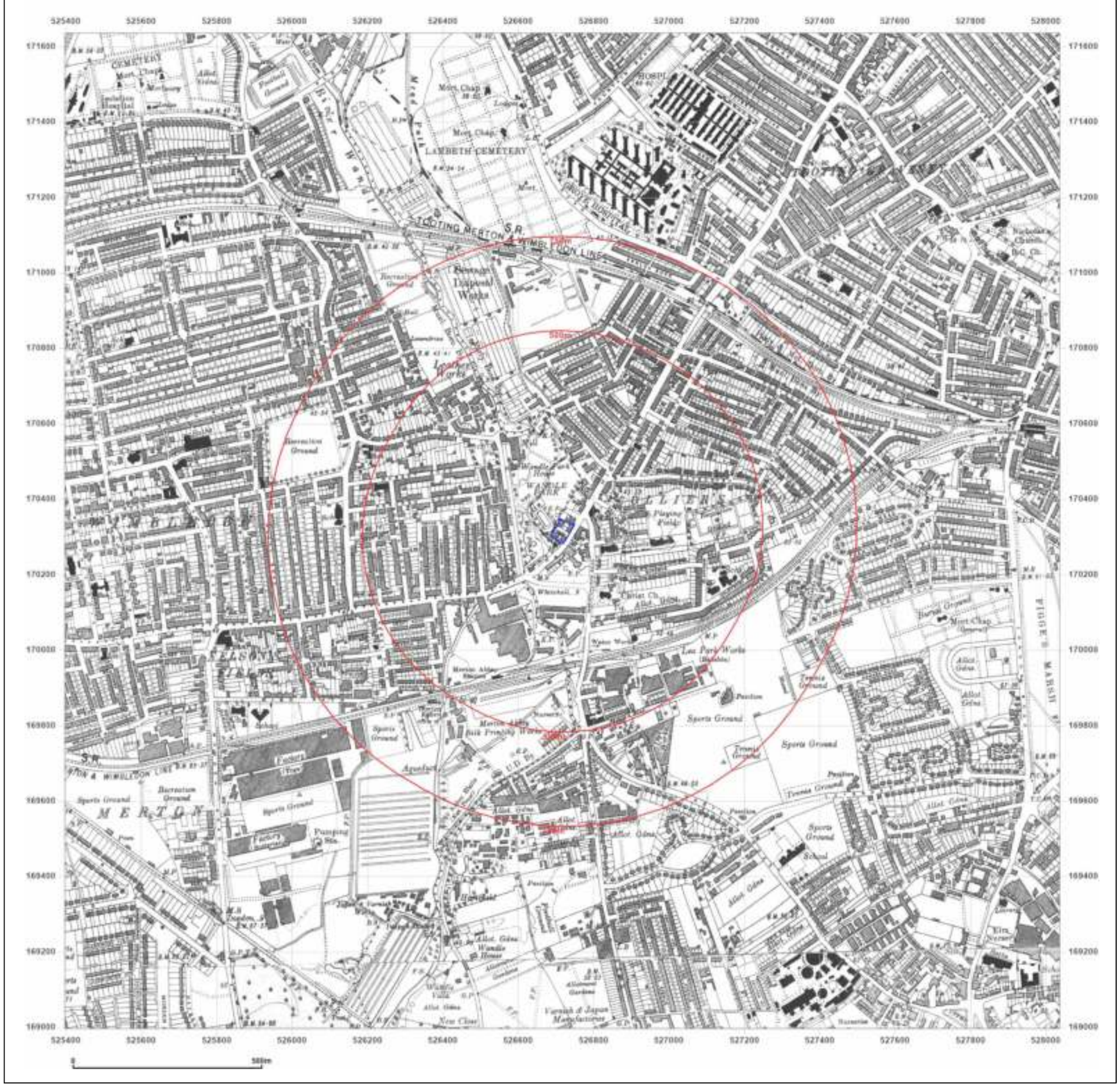
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

Production date: 01 May 2024

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



Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: County Series

Map date: **1934**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1868
Revised 1934
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1867
Revised 1934
Edition N/A
Copyright N/A
Levelled N/A

Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

Production date: 01 May 2024

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

Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1868
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A

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

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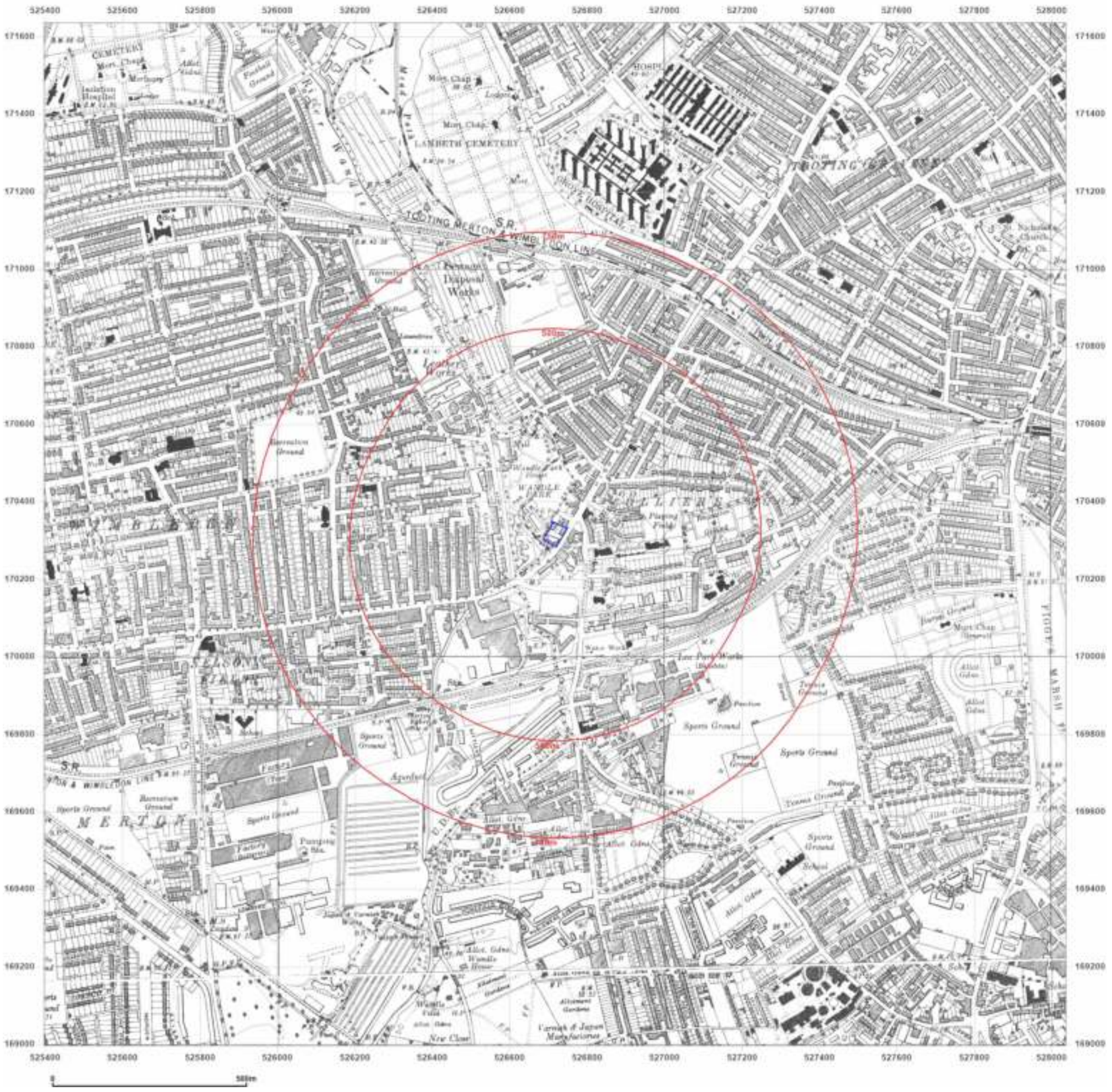
W: www.groundsure.com

Production date: 01 May 2024

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



Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1868
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

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

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Produced by
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W: www.groundsure.com

Production date: 01 May 2024

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

Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: Provisional

Map date: **1948-1951**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

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

Surveyed N/A
Revised 1951
Edition 1951
Copyright N/A
Levelled 1934

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Production date: 01 May 2024

Map legend available at:
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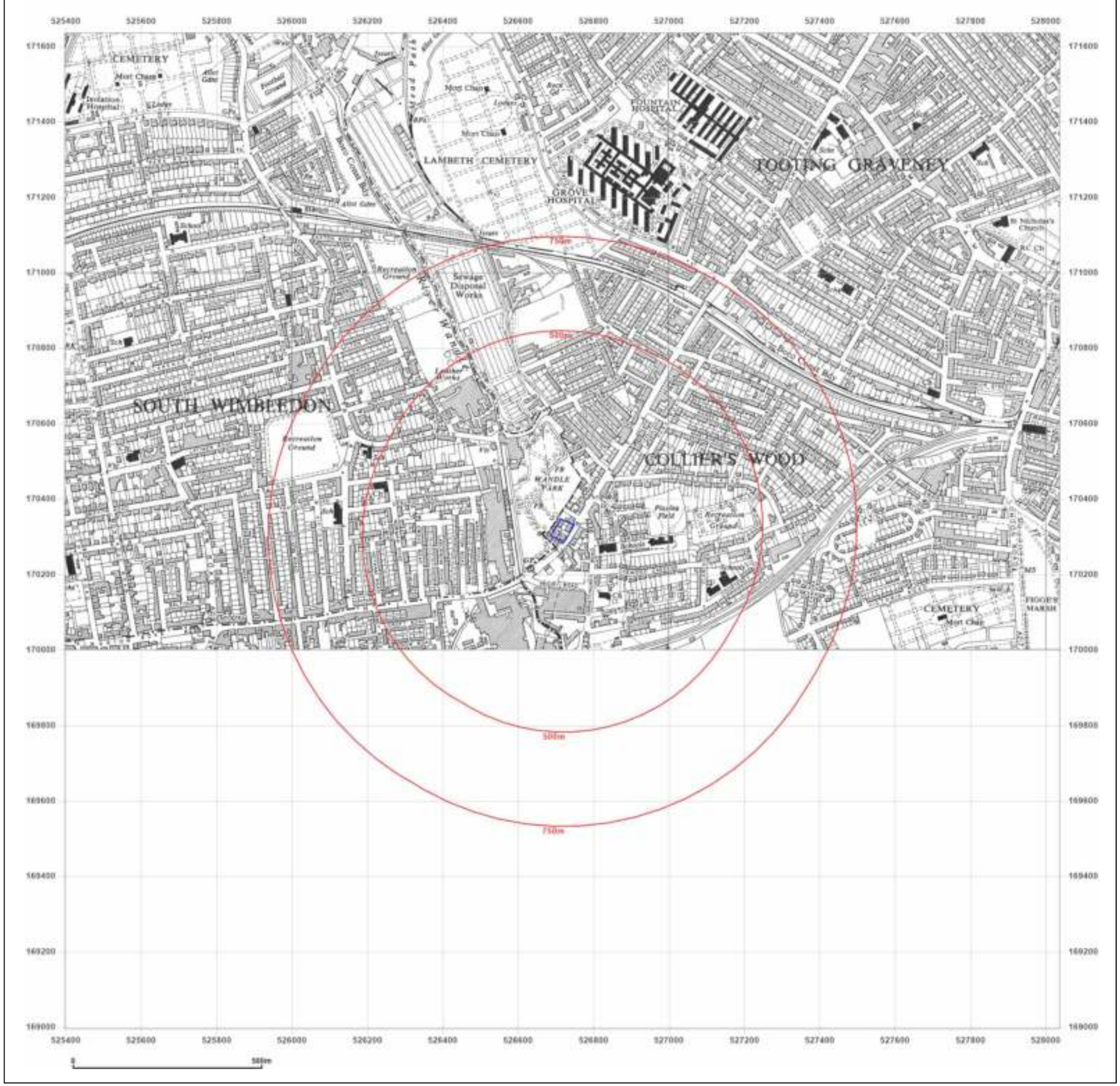

Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: Provisional
Map date: **1954**
Scale: 1:10,560
Printed at: 1:10,560

N
W E
S

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

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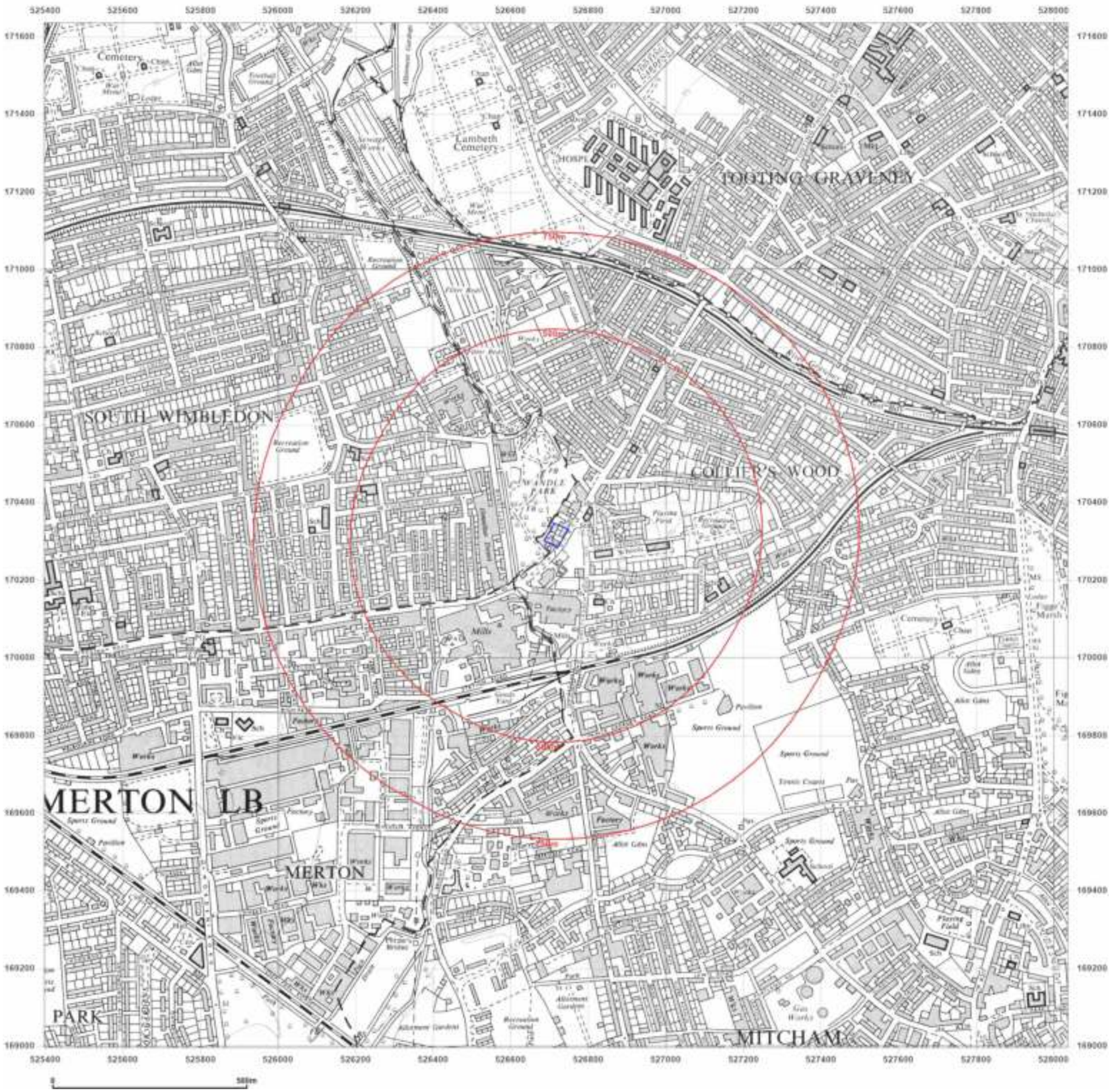
Production date: 01 May 2024

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



Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: Provisional

Map date: **1965-1968**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

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

Surveyed 1968
Revised 1968
Edition N/A
Copyright 1968
Levelled N/A

Powered by OS

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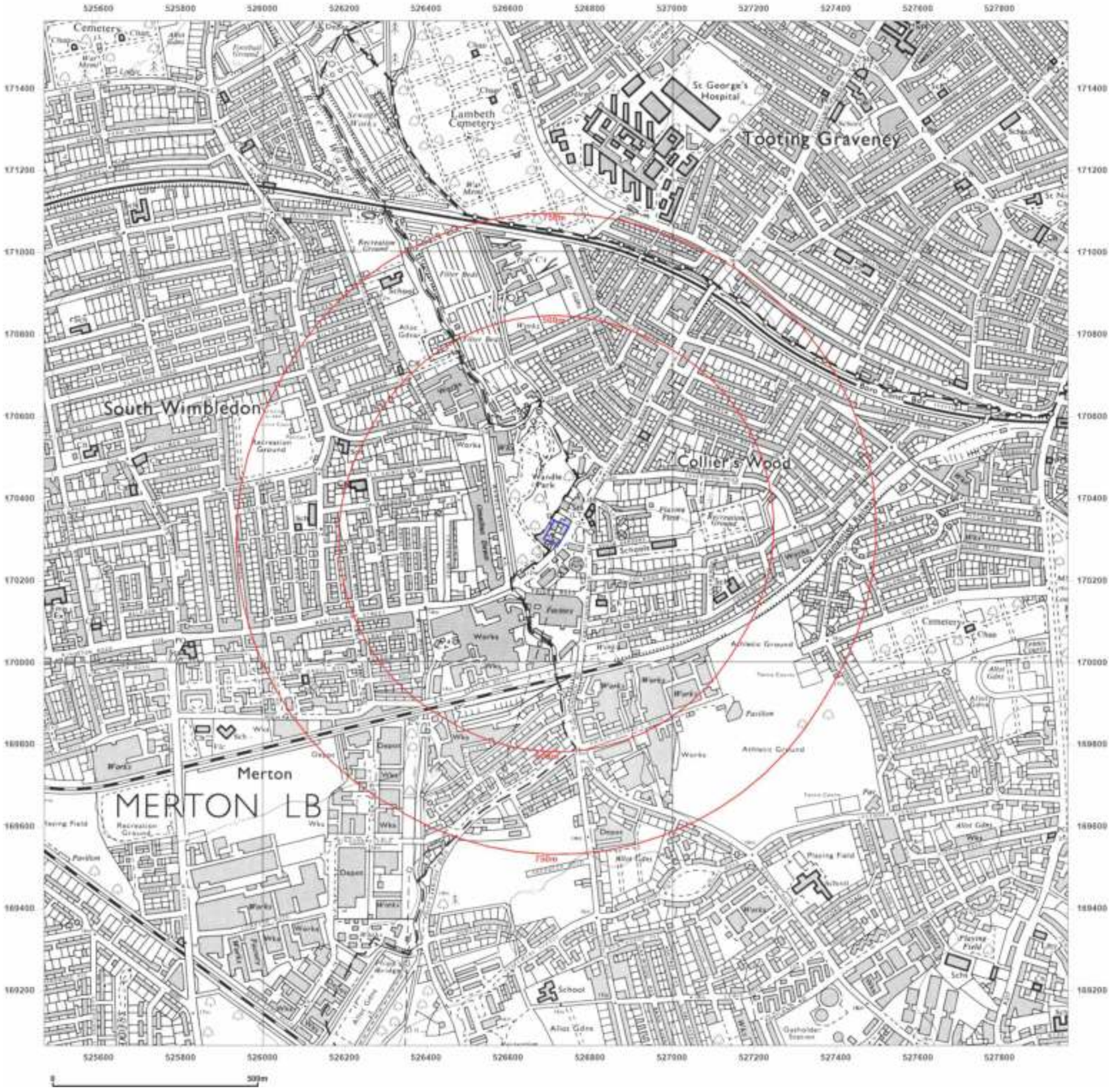
Production date: 01 May 2024

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



Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: National Grid

Map date: **1974-1975**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

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

Surveyed 1974
Revised 1975
Edition N/A
Copyright N/A
Levelled N/A

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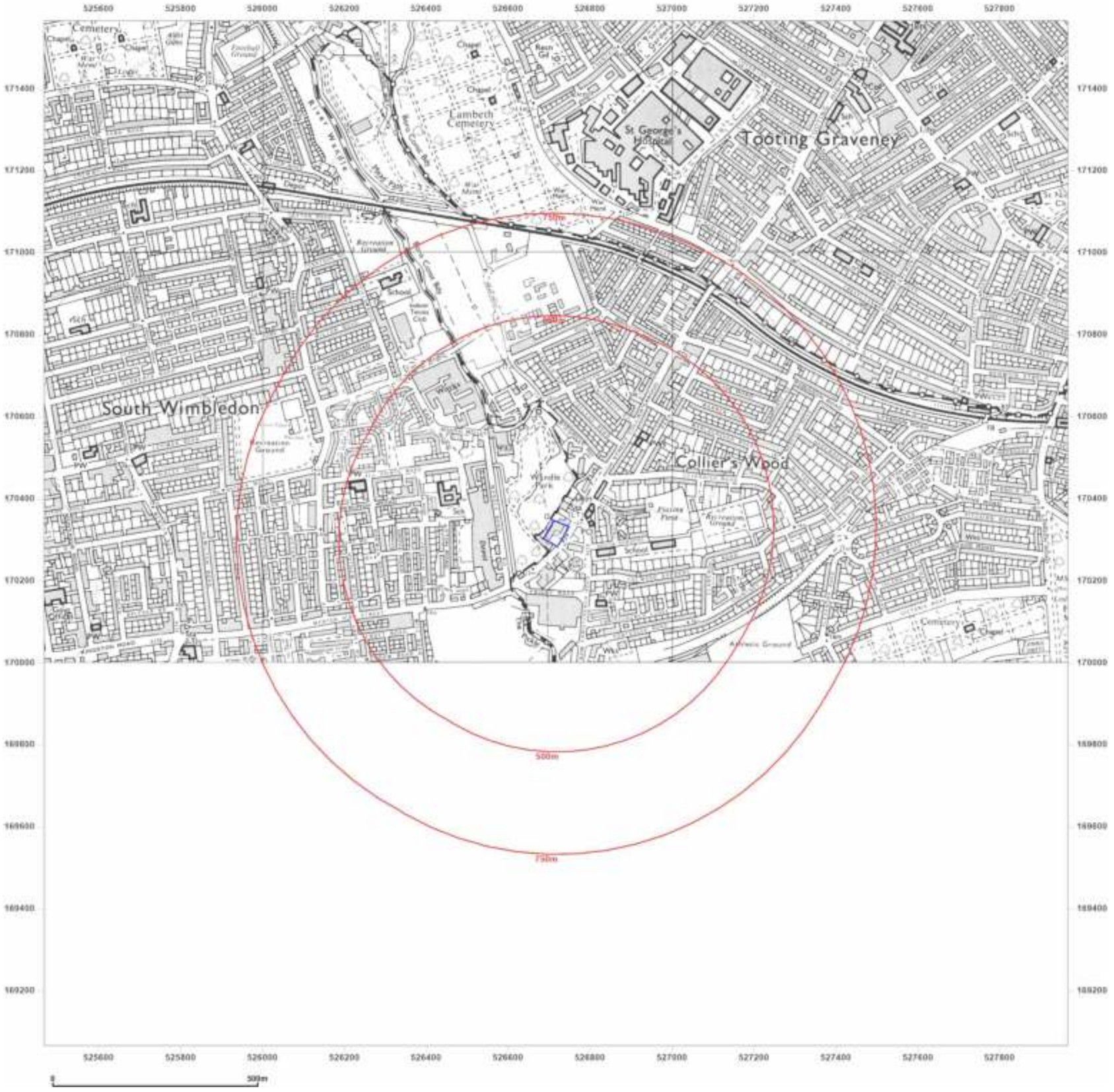
Production date: 01 May 2024

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



Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: National Grid

Map date: **1987**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

Surveyed 1984
Revised 1987
Edition N/A
Copyright N/A
Levelled N/A

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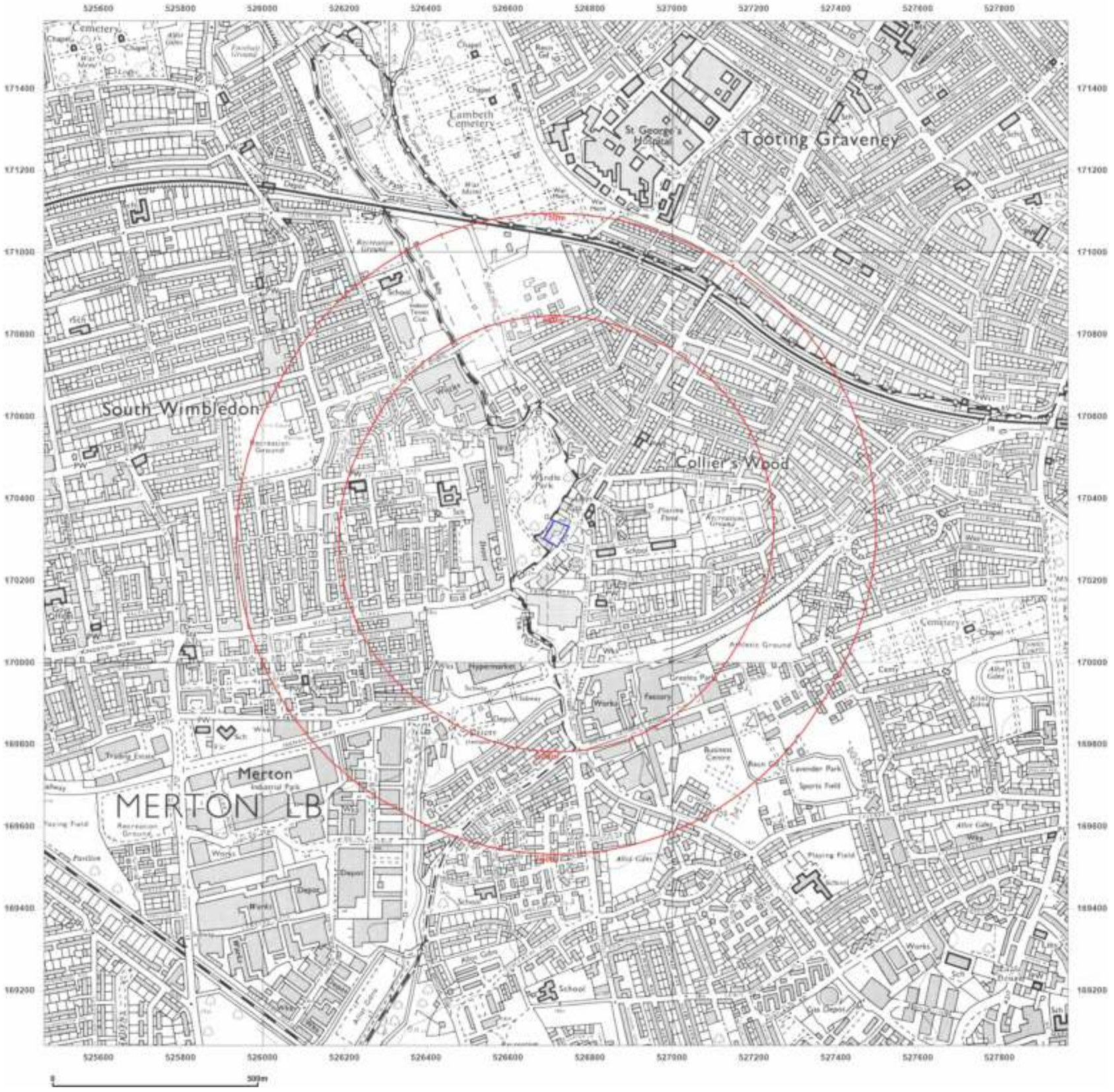
W: www.groundsure.com

Production date: 01 May 2024

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



Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: National Grid

Map date: **1987-1992**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

Surveyed 1984
Revised 1987
Edition N/A
Copyright N/A
Levelled N/A

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

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Produced by
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T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

Production date: 01 May 2024

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

Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: National Grid
Map date: **2001**
Scale: 1:10,000
Printed at: 1:10,000

N
W E
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2001

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W: www.groundsure.com

Production date: 01 May 2024

Map legend available at:
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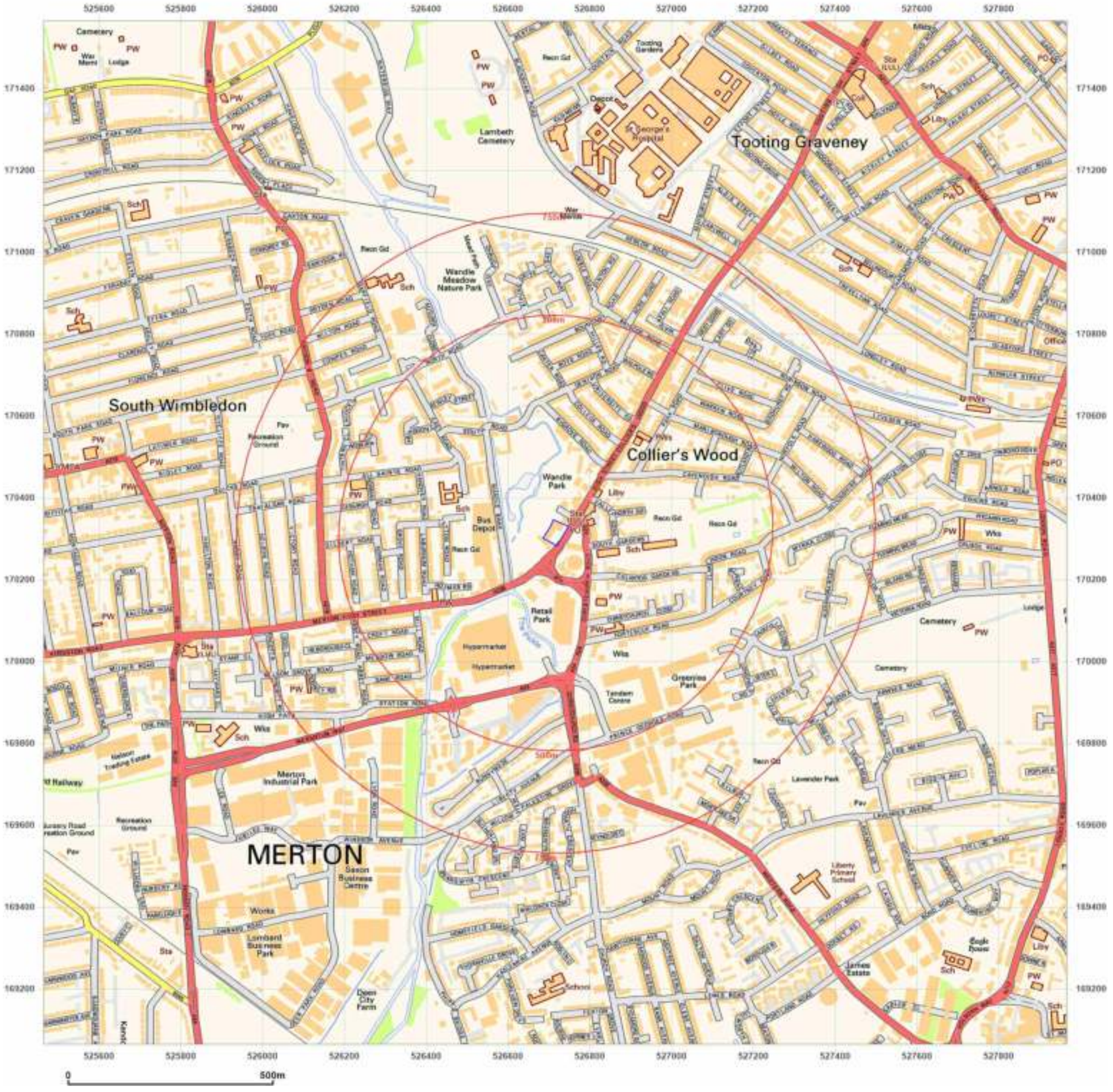

Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

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

N
W E
S

2010

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Produced by
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Map legend available at:
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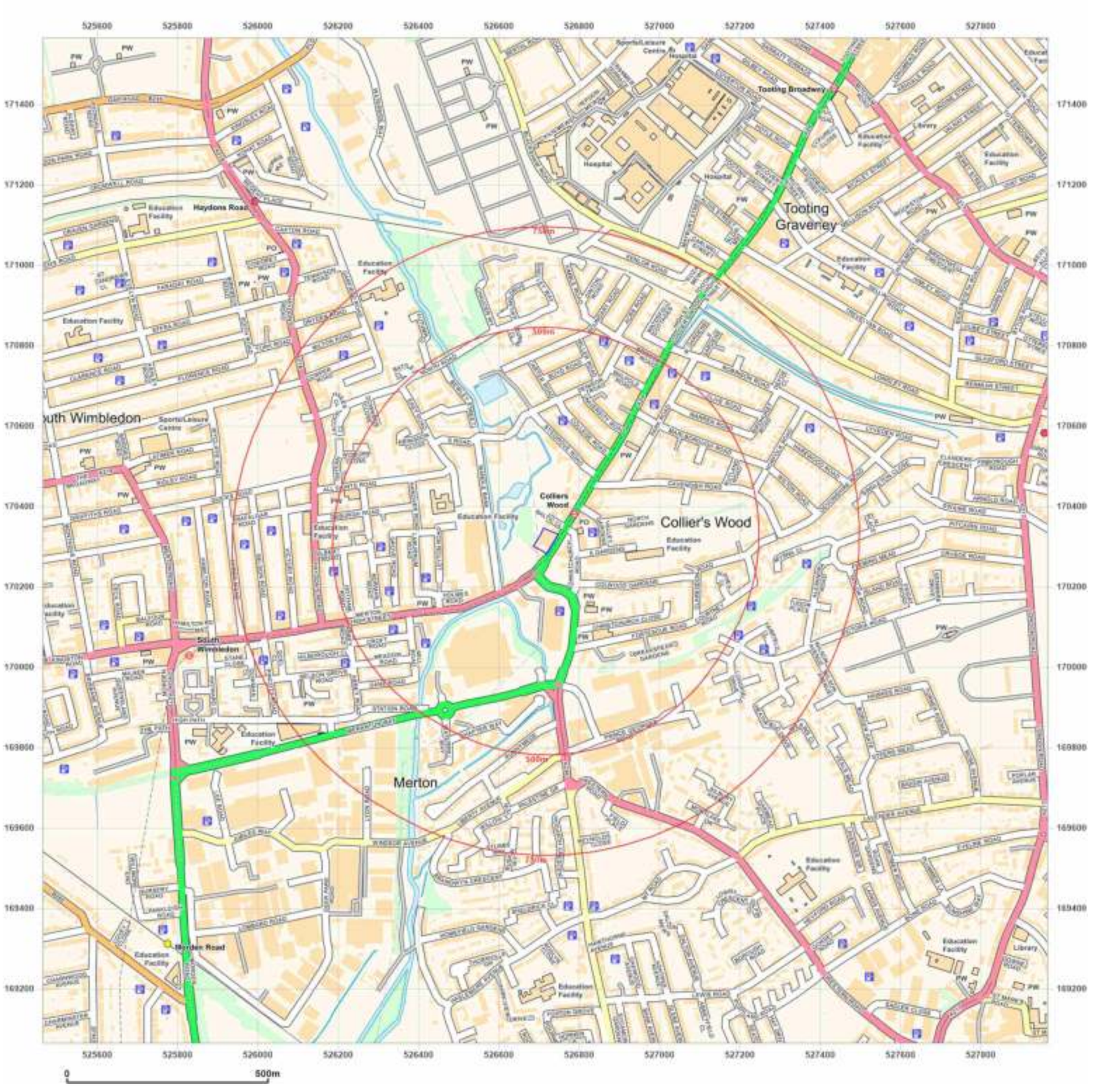

Groundsure INSIGHTS

Site Details:

200 HIGH STREET COLLIER'S WOOD, COLLIERS WOOD, MERTON, SW19 2BH

Client Ref: POP015870
Report Ref: GS-MWX-J8T-Z58-SBP
Grid Ref: 526716, 170315

Map Name: National Grid
Map date: **2024**
Scale: 1:10,000
Printed at: 1:10,000

N
W E
S

2024

Powered by OS

Produced by
Groundsure Insights
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E: info@groundsure.com
W: www.groundsure.com

Production date: 01 May 2024

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

APPENDIX C

BGS Borehole Logs and Location Plan

TQ 27 / 212

TQ 27/212

For Survey use only Licence No.

N.

TQ 27 SE 14

2672 7033

RECORD OF WELL

At Clare Villas (now Milesmead)

Town or Village Mitcham

County Surrey

EXACT SITE OF WELL

Six-inch sheet 7 SE: E Six-inch National Grid sheet

For State whether owner, tenant, builder, contractor, consultant, etc.:—

Address (if different from above)

* DELETE WHICHEVER INAPPLICABLE

Level of ground surface above sea level (O.D.) + 40 ft. If well top is not at ground level, state how far } above* / below* ft.

SHAFT ft.; diameter ft.; HEADINGS (please attach details—dimensions and directions)

BORE 180 ft.; diameter of bore: at top in.; at bottom 3 in.

Full details of permanent lining tubes (position, length, diameter, plain, slotted etc.)

TEST CONDITIONS

Water struck at depths of ft. below well top.

Water rose ~~Water level rose~~ 9 ft. above* / ~~below~~ well top. Suction at ft. Yield on hours'* / days' test ~~overflowed pumping at~~ 12 galls. per ~~min~~ (at 9'a.s.) with depression to ft. below well top.

Recovery to rest level in mins.* / hours Capacity of pump g.p.h. Date of measurements

NORMAL CONDITIONS

DESCRIPTION OF PERMANENT PUMPING EQUIPMENT:

Make and/or type Motive power

Capacity galls. per hour. Suction at ft. below well top.

Amount pumped galls. per day. Estimated consumption galls. per week.

Well made by Eastell Date of sinking

Information from Lucas JSA 1877 p 612 LM p 209 WSS p 200

ADDITIONAL NOTES ANALYSIS (please attach copy if available)

In 1876 Water rose 7'a.s. (Lined standpipe)
Used as a from old London Alter 30-1-47 by T.K.T

For Survey use only

Date Received

Section #

Pumping Test

Observ. well

118

TQ 27/212

(For Survey use only) GEOLOGICAL CLASSIFICATION

NATURE OF STRATA

If measurements start below ground surface, state how far

THICKNESS Feet	Inches	DEPTH Feet	Inches
To Chalk	174		174
Chalk	to		180

GEOLOGICAL SURVEY OF GREAT BRITAIN

RECORD OF SHAFT OR BORE FOR MINERALS

(For Survey use only)
6-inch Map Registered No. TQ27SE/14

Name of Shaft or Bore given by Geological Survey:

Name and Number given by owner: Clare Villas

Nat. Grid Reference 2674·7034

For whom made

Town or Village Mitcham County London

Exact site { Attach a tracing from a map, or a sketch-map, if possible.

Purpose for which made well

1" N.S.Map No.	1" O.S.Map No.	Confidential or not
270		

Ground Level at shaft bore relative to O.D. If not ground level give O.D. of beginning of shaft bore

Made by Date of sinking

Information from Date received

Examined by

SPECIMEN NUMBERS AND ADDITIONAL NOTES

(For Survey use only) Geological Classification	DESCRIPTION OF STRATA	Thickness Ft.	Thickness In.	Depth Ft.	Depth In.
	London Memoir II			180	
	p·209 .Note.			(52-86 m)	

Mitcham. J. Lucas, *Journ. Soc. Arts.*, vol. xxv. p. 612.
Water overflowed, or rose to the surface.

	Level.	To Chalk.	In Chalk.
Longley Road, 1876	Abt. 55	187	7
Waterfall Cottages	47	157	18
Phœnix Villa, 1875	55	210	15
Acton Terrace, Clarke's	47	168	12
Byegrove House	44	180	10
Clare Villas	40	174	6
		220	
Greys	40		
New Singlegate Board Schools, 1874	41	220	14
		260	
Fountain Cottage	48		
Latham's Varnish Works, 1874	50	250	10
Lewis' Cottages, 1865	63	235	25
Gas-works, two wells	63	225?	25?
Mitcham House	68	184	16
Mr. Hatfield's	54	310	5
Raven Spring, 1875	56	220	40
Surrey Brewery	68	170	55
Baron House	70	170	—
Mitcham Hall (Gedge), 1874	70	170	130
Sampson's Yard, 1871	70	180	10

And two others, which do not reach the Chalk.
Hope Cottages, 48 feet above O.D., 260 deep, ending in sand.
St. Saviour's Schools, 70 feet above O.D., sunk 50, bored 160, [presumably to sand.]

(5462) Wt. 31837/P5.134. 2m. 10/34. G.W.B.Ltd. Gp.663

RECORD OF WELL

For Survey use only Licence No. 70

N. 8

TQ27/212

At Clare Villas (now Milkswood)

Town or Village Mitcham

County Surrey

EXACT SITE OF WELL

Six-inch sheet 7 SE-E Six-inch National Grid sheet TQ 2673 7034

For ..... State whether owner, tenant, builder, contractor, consultant, etc. :— .....

Address (if different from above) .....

Level of ground surface above sea level (O.D.) +41 (Easton) ft. If well top is not at ground level, state how far ..... above:* below;* ..... ft.

* DELETE WHICHEVER IS INAPPLICABLE

SHAFT ..... ft.; diameter ..... ft.; HEADINGS (please attach details—dimensions and directions)

BORE 180 ft.; diameter of bore: at top ..... in.; at bottom 3 in.

Full details of permanent lining tubes (position, length, diameter, plain, slotted etc.) .....

.....

.....

Water struck at depths of ..... ft. below well top.

TEST CONDITIONS

Water rose ~~Rest level of water~~ 9 ft. above* ~~below~~ well top. Suction at ..... ft. Yield on ..... hours'* days' test ~~pumping~~ overflowed at 12 galls. per min (at 9'a.s.) with depression to ..... ft. below well top.

Recovery to rest level in ..... mins.* hours Capacity of pump ..... g.p.h. Date of measurements .....

DESCRIPTION OF PERMANENT PUMPING EQUIPMENT:

NORMAL CONDITIONS

Make and/or type ..... Motive power .....

Capacity ..... galls. per hour. Suction at ..... ft. below well top.

Amount pumped ..... galls. per day. Estimated consumption ..... galls. per week.

Well made by Eastell Date of sinking .....

Information from Lucas JSA 1877 p 612 hm p 209 WSS p 200 & E Easton

ADDITIONAL NOTES ANALYSIS (please attach copy if available)

In 1876 Water rose 7'a.s. (Screwed standpipe)
Sized as ● from old London Atlas 30.1.47 by T.K.T
Filled in.
Overflowed. Mar. 1879 (E. Easton).

For Survey use only

Date Received .....

Section 6 .....

Pumping test .....

Observ. well .....

Recorder .....

E.R. log .....

Site marked on

1" map .....

6" map ..... (use symbol)

Record forwarded

to .....

date .....

GEOLOGICAL SURVEY, WATER DIVISION, SOUTH KENSINGTON, LONDON, S.W.7.

LOG OF STRATA OVERLEAF.

BGS ID: 589500 : BGS Reference: TQ27SE14
British National Grid (27700) : 526740,170340

2

(For Survey use only) GEOLOGICAL CLASSIFICATION	NATURE OF STRATA If measurements start below ground surface, state how far	THICKNESS Feet	 Inches	DEPTH Feet	 Inches
	To Chalk	174		174	
	Chalk	6		180	

270/118

Thickness Depth

270/118 Drift
TQ 27/212
London Clay
Woolwich & Reading Beds (? Intermediate Type) } 174 ft. 174
Thanet Sand
Upper Chalk 6 ft. 180

Sandbeston. 1974

Data Bank

TQ27/212

270/118 Millersmead, Colliers Wood, Mitcham (formerly Clare Villas).
(Filled in).

n.p. [J.S.A., 1847, 25, p. 612. Surface + 41. Bore 3 in. Ck -133.

Overflowed at +50 at 720 g.p.h. Eastell, date unknown.

n.p. Overflowed at +48. 1876. Overflowed. Mar. 1879.

Drift	174	174
LC		
WRB		
T		
Ck	6	180

270/119 Formerly Providence Villa, Benedick Road, Mitcham. (Disused).

n.p. [J.S.A., 1847, 25, p. 612. Surface + 40. Bore 3 in.

Overflowed at 3,780 g.p.h. Mallard, 1859.

n.p. Overflowed at +45. 1876. Overflowed at +45½ at 1,850 g.p.h.

Ferruginous. Mar. 1879.

Drift			
LC			
WRB	?220	?220	Geol p' check (2 versions)
T			
Ck			

270/120 Singlegate School, Mitcham. (Disused).

n.p. [J.S.A., 1847, 25, p. 612. Surface + 46. Bore 4 in. Ck -174. ?

Eastell, 1874.

n.p. Overflowed at +56. 1876. Overflowed at +55½ at 600 g.p.h. Ferruginous. Mar. 1879.

Drift		
LC		
WRB	220	220
T		
Ck	14	234

GEOLOGICAL SURVEY OF GREAT BRITAIN

RECORD OF SHAFT OR BORE FOR MINERALS

(For Survey use only)
6-inch Map Registered No.
TQ27SE/15

Name of Shaft or Bore given by Geological Survey:

Name and Number given by owner: Mitcham boardschools

Nat. Grid Reference 2673·7025

For whom made

Town or Village Mitcham County London

Exact site (Attach a tracing from a map, or a sketch-map, if possible.)

1" N.S. Map No.	1" O.S. Map No.	Confidential or not
270		

Purpose for which made Well

Ground Level at shaft bore relative to O.D. If not ground level give O.D. of beginning of shaft bore

Made by Date of sinking pre 1894

Information from Date received

Examined by

SPECIMEN NUMBERS AND ADDITIONAL NOTES

(For Survey use only) Geological Classification	DESCRIPTION OF STRATA	Thickness Ft.	Thickness In.	Depth Ft.	Depth In.
	Wm Whitaker "Some Surrey wells" Trans Croydon Microscopical Nat. Hist Club. 1894-5 p.142 Note.			221 (67·36m)	
	142 Mr. W. Whitaker on some Surrey Wells.				
	Mitcham. Schools.				
	Made and communicated by Messrs. Tilley.				
	To chalk, 213 / Chalk, 8 } 221				

(1412) Wt.32837/PS.134 3m. 11/64 G.W.B.Ltd. Gp.863

BOREHOLE LOG

BOREHOLE NO. 24
DIAM. 150mm
WATER STRUCK AT 1.7m
TQ 2756 / 293

S.P.T. X
U. 100 Sample
U. 100 to recovery
Bulk sample
Disturbed sample
Water sample

DATE	DEPTH OF BORING	DEPTH OF CASING	DEPTH TO WATER	STRATA DESCRIPTION No. ex. 12. 2669. 7035	STRATA CHANGE (m) DEPTH	STRATA CHANGE (m) O.D.	S.P.T. BLOWS	DEPTH	SAMPLE TYPE
5.8.74				TOPSOIL.	0.40	11.60 11.20			
				MADE GROUND.					
5.8.74	1.70	3.00	Strike 1.50		1.70	9.90		1.80	B
6.8.74	1.80	3.00	Dry	GRAVEL. F.M.C. flint gravel with little sand content. Clay bound at base.					
					3.20	8.40		3.00 to 3.45	
	2.80	3.70	Dry	SILTY CLAY. Firm becoming firm/stiff. Grey brown. Fissured with occasional lenses of silt.				3.80 to 4.25	
	5.00	3.70		(London Clay, weathered initially).				5.00 to 5.45	
	6.50	3.70						6.50 to 6.95	
6.8.74	6.95	3.70	Dry		6.95	4.65			
				END OF BOREHOLE.					

TQ 28 NE/
TQ 27 SE/348-356
C 254-7000
1" 270
+ TQ 26 NW/38-41

REPORT ON A SITE INVESTIGATION

at

RAYNES PARK SEWER RECONSTRUCTION

for

THAMES WATER AUTHORITY

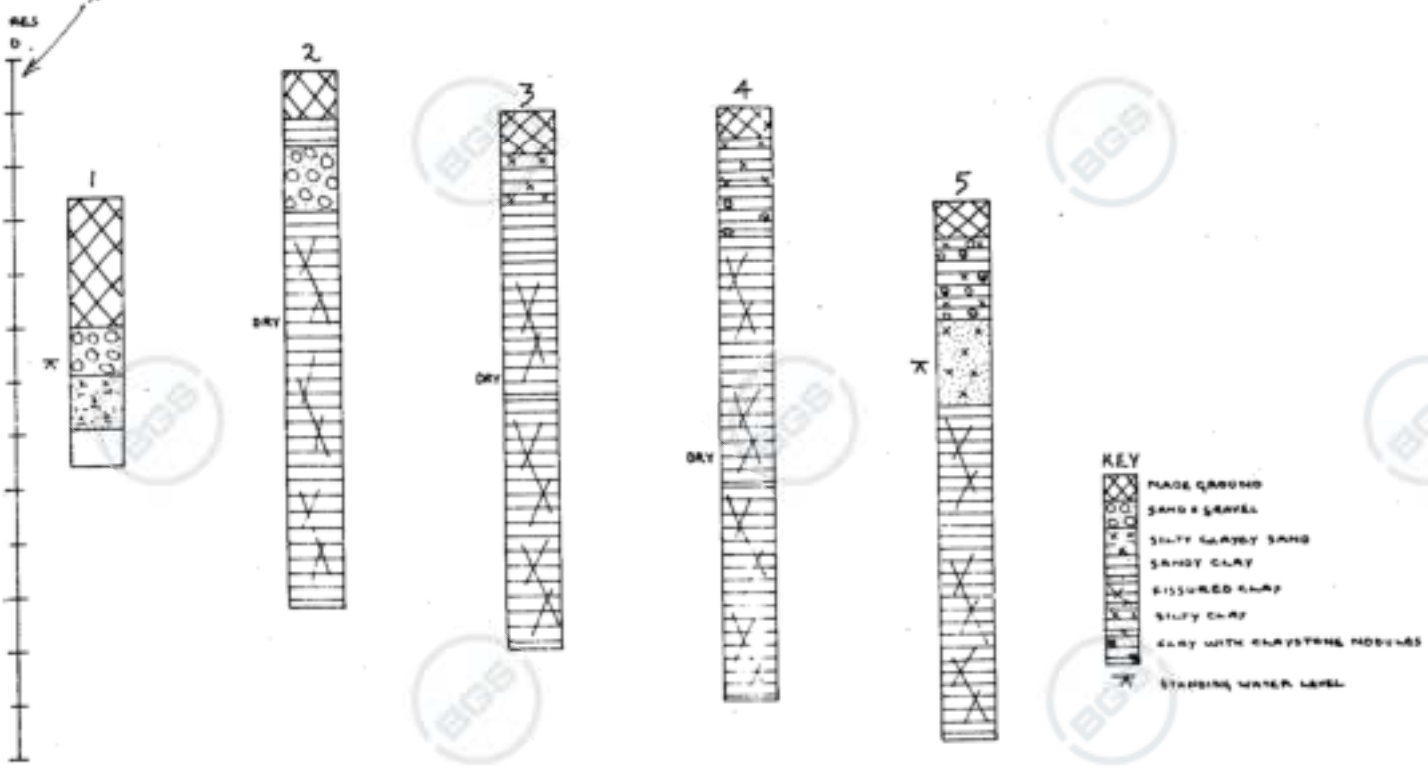
Consulting Engineers:-

MESSRS. TREVOR CROCKER & PARTNERS.

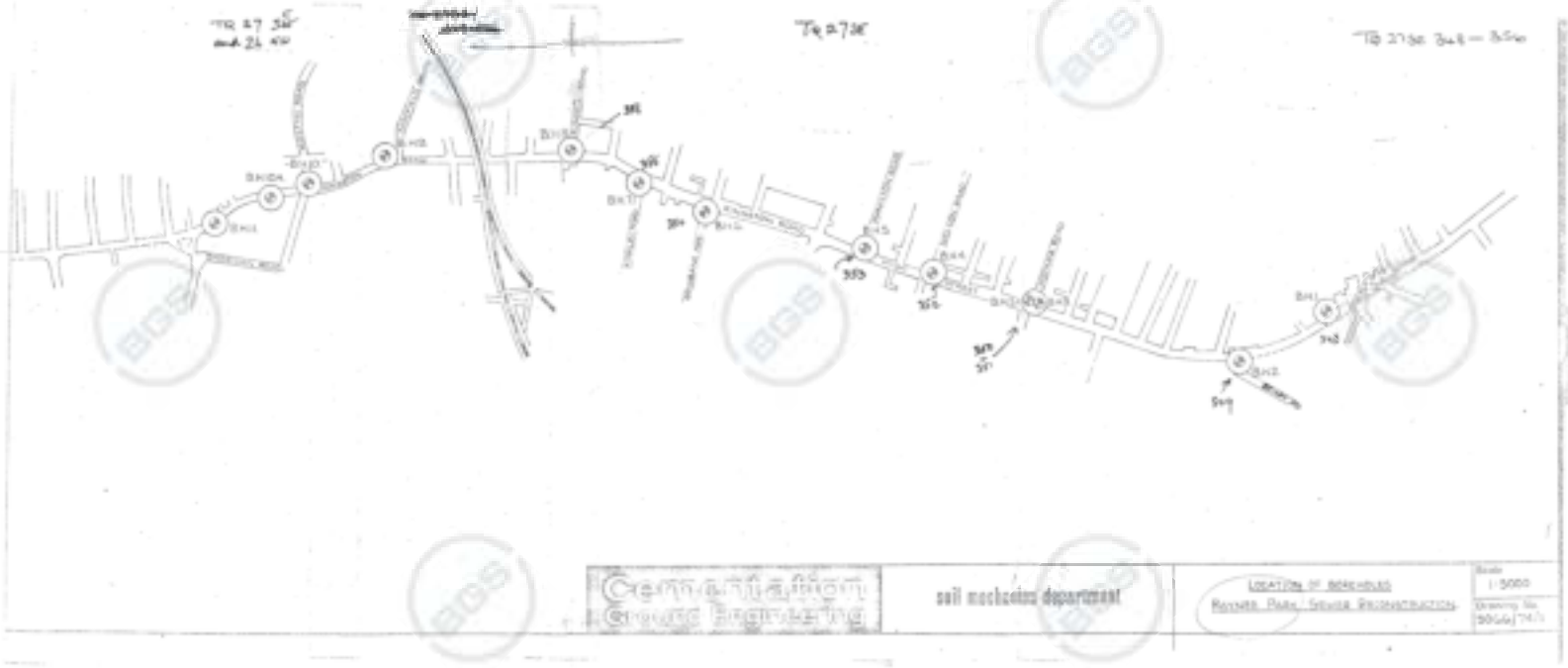
Report No. 3066/74/GKT/SP November, 1974

BGS ID: 589867 : BGS Reference: TQ27SE348
British National Grid (27700) : 526780,170390

4th TQ 27SE
nos. 348 → 353?



RAYNES PARK SEWER RECONSTRUCTION


soil mechanics department

incorrectly located on 1:10560 master — TQ 27 SE/348

soil mechanics department

BOREHOLE No. 1

CONTRACT: HAYNES PARK SEWER RECONSTRUCTION.

REPORT No. 5066/74/GKT/SD

Client: Thames Water Authority.
Cons. Engs: Trevor Crocker & Partners.

Ground Level: 11.90 m.O.D.

Cha./Co-ords.

Site Address: High Street, Colliers Wood, at Junction with Baltic Close, London, S.W.19

2.0 at 0 site plan

Boring Commenced: 26.9.74
Boring Completed: 26.9.74

Shell & Auger Boring: 200 mm. dia. to 9.00 m.

Rotary Drilling: dia. to m.

Circulation Fluid–

Ground Water Record	Strikes	Inflow	Sealed at	Date
	2.70 m.	Medium	4.50 m.	Hole Depth
	m.		m.	Casing Depth
	m.		m.	Water Level

Remarks

Description	Depth (Scale 20mm = 1 m)	Legend	Sample Ref. No.	Type	Sample Taken From m.	To m.	N blows 0.3 m.
Made ground (brick and conrete fragments in sand clay matrix).			9834	J	1.00		
	2.00		9835	J	2.00		
Soft dark brown slightly organic silty clay with occasional shell fragments and a few stones.	2.45		9836	J	2.50		
Soft grey-green slightly organic very sandy silty clay.	3.00		9837	J	3.05		
			9838	D	3.25	3.55	23
Flint gravel with some grey organic silty clay.	3.70		9839	J	3.75		
Stiff, becoming very stiff, grey-brown fissured silty clay containing occasional thin bands and pockets of fine sand and silt. (London Clay).			9840	U	3.80	4.25	
			9841	J	4.75		
			9842	U	5.30	5.75	
			9843	J	5.80		
			9844	J	6.80		
			9845	U	6.85	7.30	
			9846	J	7.80		
			9847	U	8.55	9.00	
	9.00		9848	W	(2.70)		

Plan 64
All 34
good thirty (24)
LL 17

NOTES: U-Undisturbed Sample P-Piston Sample D-Large Disturbed Sample J-Jar Sample W-Water Sample

BGS ID: 589913 : BGS Reference: TQ27SE394
British National Grid (27700) : 526800,170300

LOCATION : COLLIERS WOOD.
BOREHOLE DIA. : 10" & 8"
DATE (Start) : 31-10-1964

BOREHOLE No. : 1 (Sheet 1 of 2)
GROUND LEVEL : +35.31' OD TQ27SE 394
WATER LEVEL : Water entered borehole at 5'-0" B.C.

Description	Thickness	Depth	Sample	Remarks
MADE GROUND.	2'-6"	0'-0"		
Soft brown silty CLAY.	0'-6"	2'-6"	1	
		3'-0"	2	12 blows to drive 1 ft
			3	
Loose silty GRAVEL, becoming coarser with depth.	7'-6"		+	9 blows/ft
			+37.81	
		10'-6"	4	
Blue CLAY with some gravel.	1'-6"	12'-0"	+24.31	
			6	38 blows to drive 1 ft
			7	
Firm blue silty CLAY with a 3" layer of CLAYSTONE at 21'-0"	18'-0"		8	38 blows to drive 1 ft
			9 +18'	
			10	42 blows to drive 1 ft
			11	
		30'-0"	12	51 blows to drive 1 ft
			13	
			14	60 blows to drive 1 ft
			15	
Stiff blue silty CLAY.	20'-0"		16	54 blows to drive 1 ft
			17	
			18	55 blows to drive 1 ft
			19	
		50'-0"		

HOLE SCALE : 1" = 5' • : DISTURBED SAMPLE ▮ : UNDISTURBED SAMPLE + STANDARD PENETRATION TEST

LOCATION : COLLIERS WOOD
BOREHOLE No. : 1 (Sheet 2 of 2)
BOREHOLE DIA. : 10" & 8"
GROUND LEVEL : TQ27SE 394
DATE (Start) : 31-10-1964
WATER LEVEL : Water entered borehole at 5'-0" B.G.L.

Description	Thickness	Depth	Sample	Remarks
		50'-0"	20	47 blows to drive 1 ft
Stiff blue silty CLAY.	11'-0"		21	
		61'-0"	22	62 blows to drive 1 ft
			23	
Compact grey/brown clayey SILT with traces of fine green sandy silt.	10'-0"		24	75 blows to drive 1 ft.
			25	
		71'-0"	26	78 blows to drive 1 ft
			BOREHOLE COMPLETED.	

HOLE SCALE : 1" = 5' • : DISTURBED SAMPLE ▮ : UNDISTURBED SAMPLE · STANDARD PENETRATION TEST

LOCATION : Colliers Wood. BOREHOLE No. : 2 (Sheet 1 of 2). TQ 27 SE 394

BOREHOLE DIA : 10" & 8" GROUND LEVEL : 39.42

DATE (Start) : 24-10-1964 WATER LEVEL : Seepage at 26'-0" B.G.L.

Description	Thickness	Depth	Sample	Remarks
		0'-0"		
MADE GROUND: ash & bricks.	7'-6"			
		7'-6"	• 1	
Soft grey clayey SILT.	8'-0"			
		10'-6"	• 2	
Firm blue CLAY with some gravel.	3'-6"			
		14'-0"	• 3	
			■ 4	35 blows to drive 1 ft.
			• 5	
Firm – changing to stiff at 22-0 – blue CLAY with thin layers of fine sandy silt.	12'-0"		■ 6	41 blows to drive 1 ft.
CLAYSTONE.	0'-8"	26'-0"	• 7 †14	
		26'-8"	■ 8	68 blows to drive 1 ft.
			■ 9	71 blows to drive 1 ft.
			• 10	
Stiff blue silty CLAY, becoming laminated at 35'-0".	18'-10"		■ 11	78 blows to drive 1 ft.
			• 12	
			■ 13	64 blows to drive 1 ft.
			• 14	
CLAYSTONE.	0'-2"	45'-2"	■ 15	80 blows to drive 8"
		46'-0"	• 16-6	
Stiff blue laminated silty CLAY.	4'-0"			
		50'-0"		

E SCALE : 1" = 5' • : DISTURBED SAMPLE ▮ : UNDISTURBED SAMPLE + STANDARD PENETRATION TEST

LOCATION : COLLIERS WOOD.
BOREHOLE DIA. : 10" & 8"
DATE (Start) : 24-10-1964

BOREHOLE No. : 2 (Sheet 2 of 2)
GROUND LEVEL :
WATER LEVEL : Seepage at 26.0 B.C.L.

TQ 27SE 394

Description	Thickness	Depth	Sample	Remarks
		50'-0"	17	78 blows to drive 1 ft.
			18	
Stiff blue laminated silty CLAY.	14'-0"		19	67 blows to drive 1 ft.
			20	
			21	67 blows to drive 1 ft.
		64'-0"	22	
			23	82 blows to drive 1 ft.
Compact blue/brown laminated clayey SILT with pockets of green sandy SILT.	7'-0"		24	
		71'-0"	25	86 blows to drive 1 ft.
			BOREHOLE COMPLETED.	

64.00
39.42
-24.58

HOLE SCALE : 1" = 5' • : DISTURBED SAMPLE ▮ : UNDISTURBED SAMPLE + STANDARD PENETRATION TEST

TQ27SE 394

LOCATION : COLLIERS WOOD.
BOREHOLE DIA. : 10", 8" & 6"
DATE (Start) : 19-10-1964

BOREHOLE No. : 3 (Sheet 1 of 2)
GROUND LEVEL : + 40·03' (12.20m)
WATER LEVEL : Seepages of water at 26'-6" & 38'-6" B.G.L. Final level was 48'-6" B.G.L.

Description	Thickness	Depth	Sample	Remarks
		0'-0"		
MADE GROUND. ash bricks & clay.	6'-6"	6'-6"		
Firm blue CLAY with stones.	1'-6"	8'-0"	• 1	
Firm blue slightly organic CLAY.	1'-6"	9'-6"	• 2	
			▮ 3	32 blows to drive 1 ft.
			• 4	
			▮ 5	44 blows to drive 1 ft.
Firm blue silty CLAY.	16'-6"		• 6	
			▮ 7	54 blows to drive 1 ft.
			• 8	
			▮ 9	58 blows to drive 1 ft.
		26'-0"	• 10	
			▮ 11	75 blows to drive 1 ft.
			• 12	
Stiff blue very silty CLAY.	24'-0"		▮ 13	78 blows to drive 1 ft.
			▮ 15	68 blows to drive 1 ft.
			• 16	
			▮ 17	77 blows to drive 1 ft.
		50'-0"		

Ground level (m) +12.2m
Made 2.0 m
Alluvium 0.9 m
London Clay 15.1 m
[illegible] 11.9 m

HOLE SCALE : 1" = 5'   • : DISTURBED SAMPLE   ▮ : UNDISTURBED SAMPLE   — STANDARD PENETRATION TEST

LOCATION : COLLIERS WOOD
BOREHOLE DIA. : 6" & 8" & 6"
DATE (Start) : 18-10-1964

BOREHOLE No. : 3 (Sheet 2 of 2)
GROUND LEVEL :
WATER LEVEL :

TQ27SE 394

Description	Thickness	Depth	Sample	Remarks
CLAYSTONE : 3" thick.	0'3"	50'0" 50'3"	18	75 blows to drive 1 ft.
Stiff blue silty CLAY.	8'5"		19	
			20	86 blows to drive 1 ft.
			21	
		58'8"		
			22	87 blows to drive 1 ft.
Stiff grey / brown laminated clayey SILT with pockets of green sandy SILT.	11'8"		23	
			24	82 blows to drive 1 ft
			25	
		70'11"	26	78 blows to drive 1 ft.
			27	
			28	
Compact green slightly laminated clayey SILT.	26'8"		29	102 blows to drive 1 ft.
			30	
			31	116 blows to drive 1 ft.
			32	
Thin layer of cemented shells at 96'8".		96'8"	33	
Compact brown / green slightly clayey SILT with layers of black / green sand.	2'8"	98'8" (29.87m)	34	
			BOREHOLE COMPLETED.	

EHOLE SCALE : 1" = 5' • : DISTURBED SAMPLE I : UNDISTURBED SAMPLE STANDARD PENETRATION TEST

LOCATION : COLLIERS WOOD.

BOREHOLE DIA. : 10" & 8"

DATE (Start) : 28-10-1964

BOREHOLE No. : 4 (Sheet 1 of 2)

GROUND LEVEL : 131.98'OD TQ 27 SE 394

WATER LEVEL : Seepages down to 10'-0" O.D.

Description	Thickness	Depth	Sample	Remarks
		0'-0"		
MADE GROUND.	3'-0"	3'-0"	1	
Soft to firm brown sandy silty CLAY with a small amount of brick	4'-0"	7'-0"	2	22 blows to drive 1 ft.
Loose silty SAND with some gravel	1'-6"	8'-6"	3	
Firm mottled blue/brown organic CLAY	2'-0"	10'-6"	4	
			5	24 blows to drive 1 ft.
			7 6"	34 blows to drive 1 ft.
			8	
			9	41 blows to drive 1 ft.
			10	
Firm blue silty CLAY with a 6" layer of CLAYSTONE at 27'-0".	22'-6"		11	48 blows to drive 1 ft.
			12	
			13	43 blows to drive 1 ft.
			14 +12	
			15	54 blows to drive 1 ft.
		33'-0"	16	
			17	68 blows to drive 1 ft.
			18 +2	
Stiff blue silty CLAY with a 2" layer of CLAYSTONE at 37'-6".	17'-0"		19	64 blows to drive 1 ft.
			20	
			21	67 blows to drive 1 ft.
			22	
		50'-0"		

SCALE 1" = 5' D - DISTURBED SAMPLE U - UNDISTURBED SAMPLE

LOCATION : COLLIERS WOOD

BOREHOLE No. : 4 (Sheet 2 of 2)

BOREHOLE DIA : 10" & 8"

GROUND LEVEL : TQ 27 SE 394

DATE (Start) : 28-10-1964

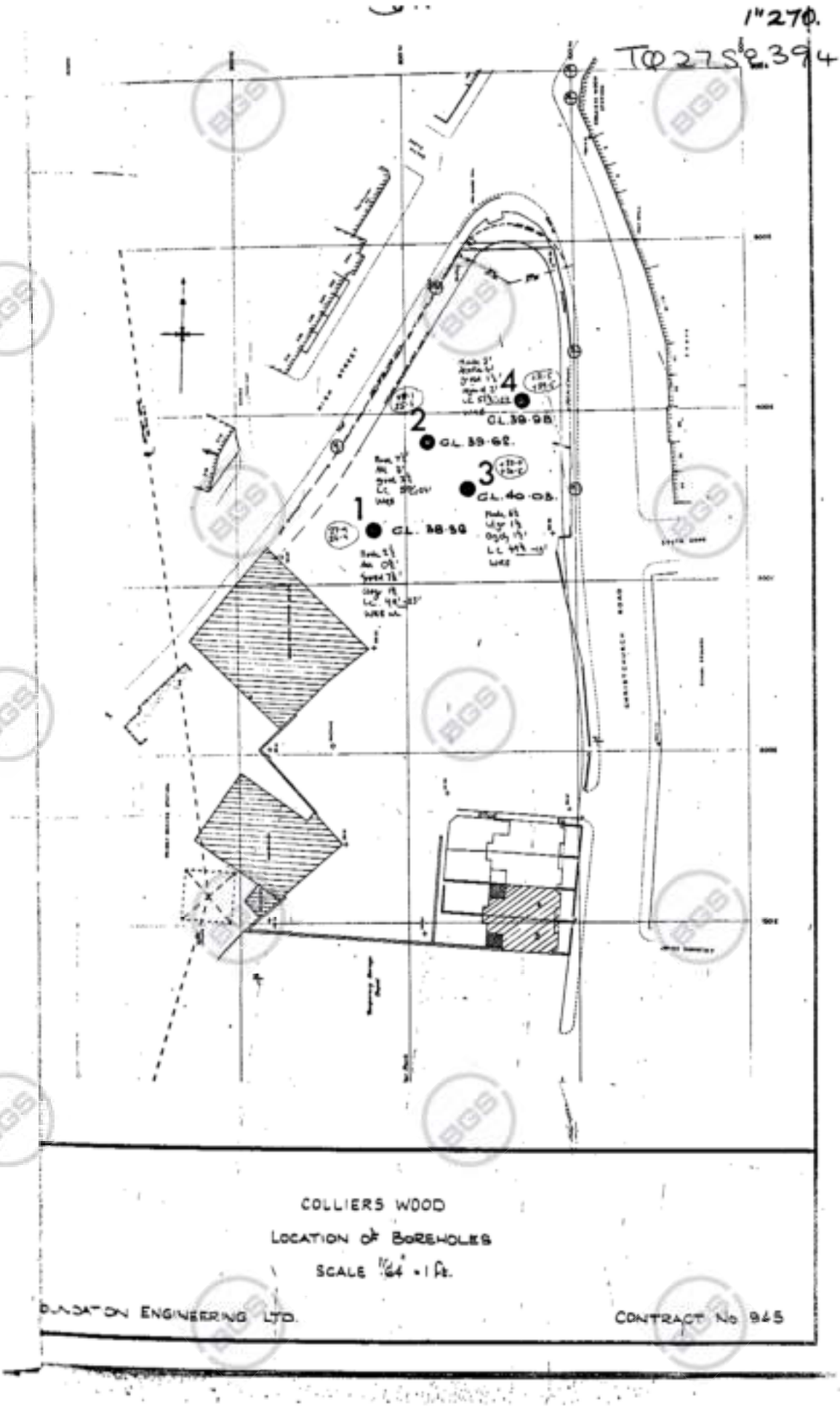
WATER LEVEL : : Seepages down to 10'-0" O.C.L.

Description	Thickness	Depth	Sample	Remarks
		50'-0"	25 *24/6"	43 blows to drive 1 ft.
Stiff blue silty CLAY with a 6" layer of CLAYSTONE at 50'-6".	12'-0"		25	48 blows to drive 1 ft.
			*26	
			27	65 blows to drive 1 ft.
		62'-0"	*28	
Compact blue/brown clayey SILT with traces of green silt.	9'-0"		29	73 blows to drive 1 ft.
			*30	
		71'-0"	31	77 blows to drive 1 ft.
			BOREHOLE COMPLETED.	

62·00
39·92
22·08

LE SCALE : 1" — 5' *: DISTURBED SAMPLE I : UNDISTURBED SAMPLE STANDARD PENETRATION TEST

BGS ID: 589913 : BGS Reference: TQ27SE394
British National Grid (27700) : 526800,170300



NGRC

BOREHOLE RECORDS

ADJUSTMENT FORM

QUARTER SHEET TQ27SE

BH REGISTRATION NUMBER 734 – 793

RECORDS ENTERED AND HELD BY WALLINGFORD

BH REGISTRATION NUMBER(S)

For Survey use only Licence No.

N.

2

12

TQ 27/219

RECORD OF WELL

At New Singlegate Board School (Primary School)

Town or Village Mitcham

County Surrey

EXACT SITE OF WELL

Six-inch sheet 7 SE-G Six-inch National Grid sheet TQ 2687 7025

For ... State whether owner, tenant, builder, contractor, consultant, etc. :—

Address (if different from above)

Level of ground surface above sea level (O.D.) +47 +46 ft. If well top is not at ground level, state how far above:* below: ... ft.

* DELETE WHICHEVER IS INAPPLICABLE

SHAFT ... ft.; diameter ... ft.; HEADINGS (please attach details—dimensions and directions)

BORE 234 ft.; diameter of bore: at top 4 in.; at bottom ... in.

Full details of permanent lining tubes (position, length, diameter, plain, slotted etc.)

TEST CONDITIONS

Water struck at depths of ... ft. below well top.

Rest level of water ... ft. above* below well top. Suction at ... ft. Yield on ... hours'* days' test pumping at ... galls. per ... with depression to ... ft. below well top.

Recovery to rest level in ... mins.* hours Capacity of pump ... g.p.h. Date of measurements ...

NORMAL CONDITIONS

DESCRIPTION OF PERMANENT PUMPING EQUIPMENT:

Make and/or type ... Motive power ...

Capacity ... galls. per hour. Suction at ... ft. below well top.

Amount pumped ... galls. per day. Estimated consumption ... galls. per week.

Well made by Eastwell Date of sinking 1874.

Information from Lucas JSA 1877 p.612 LMp209 (R.L.10. p.83) WSS p 200

ADDITIONAL NOTES ANALYSIS (please attach copy if available)

Well disused no information available

Visited 29.4.40 pp E.F.B.

In 1876 Water rose 10' a.s. (curved standpipe).

In May 1879 overflowed at 9'6" a.s. into tank at rate 10 g.p.min, temp. 56°F.

Supplied house & school V. irony

For Survey use only

Date Received

Section 6

Pumping test

Observ. well

Recorder

E.R. log

Site marked on

1" map

6" map (use symbol)

Record forwarded

to

date

Geological Survey, Water Division, South Kensington, London, S.W.7.

LOG OF STRATA OVERLEAF.

BGS ID: 590291 : BGS Reference: TQ27SE772
British National Grid (27700) : 526870,170250

2

(For Survey use only) GEOLOGICAL CLASSIFICATION	NATURE OF STRATA If measurements start below ground surface, state how far	THICKNESS Feet	 Inches	DEPTH Feet	 Inches
	To Chalk	220		220	
	Chalk	14		234	

270/120

Thickness Depth.

TQ 27/219

270/120

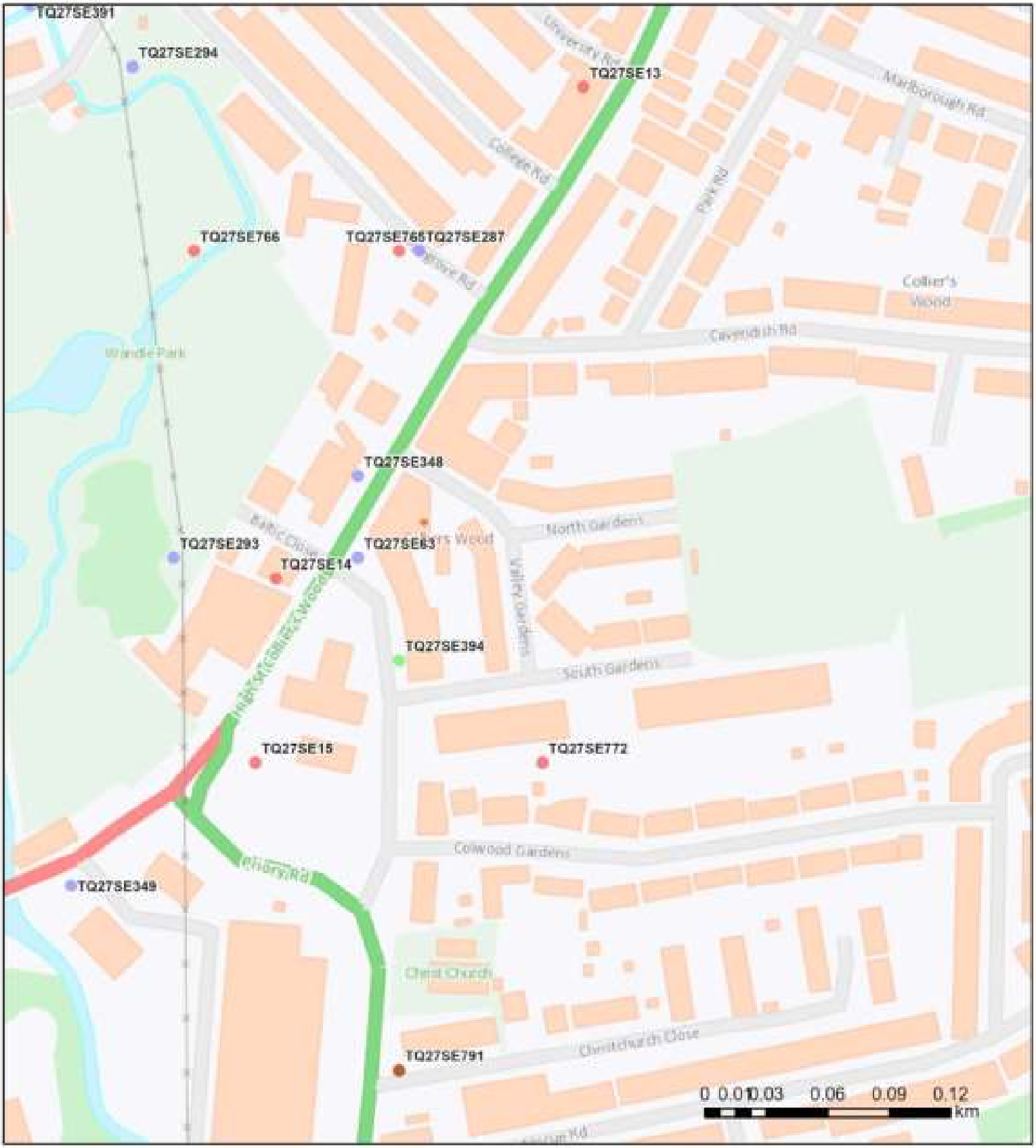
Drift
London Clay
Woolwich + Reading Beds (? Intermediate Type) } 220 ft. 220
Thanet Sand 14 ft. 234
Upper Chalk

Swindon 1974

Data Bank

GeoIndex Report

British Geological Survey



Map Key

Borehole records

- Unknown Length
- Confidential
- 0 - 10m
- 10 - 30m
- 30m+

Selection Results

APPENDIX D

Risk Assessment Methodology

CGL Risk Assessment Methodology

The following risk Assessment methodology is based on CIRIA C552 (2001) Contaminated Land Risk Assessment – A Guide to Good Practice[1], in order to quantify potential risk via risk estimation and risk evaluation, which can be adopted at the Phase I stage. This will then determine an overall risk category which can be used to identify likely actions. This methodology uses qualitative descriptors and therefore is a qualitative approach and is undertaken for each potential pollution linkage (source-pathway-receptor) identified for the site in accordance with Land Condition Risk Management[2].

The methodology requires the classification of:

- The magnitude of the consequence (severity) of a risk occurring, and
- The magnitude of the probability (likelihood) of a risk occurring.

The potential consequences of contamination risks occurring at this site are classified in accordance with Table 1 below, which is adapted from the CIRIA guidance[1].

Table 1. Classifications of Consequence ratings

Classification	*Definition of Consequence*	*Examples*
Severe	Short-term (acute) risks to human health.	High concentration of cyanide on the surface of an informal recreation area
	Short-term (acute) risk of pollution of sensitive water resource or ecosystem.	Major spillage of contaminants from site into controlled waters
	Catastrophic damage to crops/buildings/property/infrastructure, including off-site soils.	Explosion causing building collapse
Medium	Long-term (chronic) risks to human health	Concentrations of a contaminant from site exceeding the generic or site specific assessment criteria
	Long-term (chronic) pollution of sensitive water resource	Leaching of contaminants from a site into a major or minor aquifer
	Significant change in an ecosystem/contamination of off-site soils	Death of a species within a designated nature reserve
Mild	Pollution of non-sensitive water resource	Pollution of a non-classified groundwater
	Significant damage to crops/ buildings/property/infrastructure	Damage to a building rendering it unsafe to occupy (e.g. foundation damage resulting in instability)
	Damage to an ecosystem or sensitive buildings/structures/services	
Minor	Easily preventable non-permanent health effects	Presence of contamination at concentrations which require the use of personal protective equipment during site work
	Harm, although not necessarily significant harm, which may result in financial loss or expenditure to resolve	Loss of plants in a landscaping scheme/discolouration of concrete
	Easily repairable effects of damage to buildings/structures/services	

[1] CIRIA, (2001). *Contaminated Land Risk Assessment. A Guide to Good Practice*. CIRIA C552.

[2] Land Condition Risk Management - https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm

The potential probability of the risks being realised are classified in accordance with the ratings set out in Table 2 which are adapted from the CIRIA guidance[1]. It should be noted that where a pollutant linkage has not been identified the likelihood is considered to be zero.

Table 2. Classifications of probability ratings

Classification	*Definition*
High likelihood	There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable in the long term, or there is evidence at the receptor that an event has occurred
Likely	There is a pollution linkage and all the elements are present and in the right place which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term
Low likelihood	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such an event would take place and is less likely in the short term.
Unlikely	There is a pollutant linkage but circumstances are such that it is improbable that an event would occur even in the very long term

In accordance with C552 the risk classification for each pollution linkage are classified in accordance with the matrix for consequence and probability set out in Table 3. The definitions for the risk classifications are presented in **Table** 4.

Table 3. Risk classification matrix

		Consequence			
		Severe	***Medium***	***Mild***	***Minor***
Probability	**High likelihood**	Very High	High	Moderate	Moderate / Low
	Likely	High	Moderate	Moderate / Low	Low
	Low likelihood	Moderate	Moderate / Low	Low	Very Low
	Unlikely	Moderate / Low	Low	Very Low	Very Low

Table 4. Risk classification definitions

Classification	*Definition*
Very High	There is a high probability that severe harm could arise to a designated receptor from the identified hazard or there is evidence that severe harm is currently happening. This risk, if realised, is likely to result in substantial liability. Urgent investigation (if not already undertaken) and remediation are likely to be required.
High	Harm is likely to arise to a designated receptor from the identified hazard. Realisation of the risk is likely to result in substantial liability. Urgent investigation (if not already undertaken) and remediation are likely to be required.
Moderate	It is possible that harm could arise to a designated receptor from the identified hazard. However, it is either relatively unlikely that such harm would be severe or if any harm were to occur it is more likely that the harm would be relatively mild. Urgent investigation (if not already undertaken) is normally required to clarify the potential risk and to determine the potential liability. Some remedial works may be required in the longer term.
Low	It is possible that harm could arise to a designated receptor from the identified hazard, but it is considered likely that this harm, if realised, would at worse normally be mild.
Very Low	There is a low possibility that harm could arise to a designated receptor from the identified hazard. In the event of such harm being realised it is not likely to be severe.

APPENDIX E

Chemical Laboratory Reports

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Woolsack Way
Godalming
Surrey

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e: SofiaZ@cgl-uk.com
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i2 Analytical Ltd.
7 Woodshots Meadow,
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WD18 8YS

t: 01923 225404
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Analytical Report Number : 24-021748

Project / Site name:	Holiday Inn	**Samples received on:**	22/05/2024
Your job number:	CGL 10060A	**Samples instructed on/ Analysis started on:**	28/05/2024
Your order number:	POP016001	**Analysis completed by:**	05/06/2024
Report Issue Number:	1	**Report issued on:**	06/06/2024
Samples Analysed:	4 soil samples - 2 leachate samples		

Signed: JSzwagrzak

Joanna Szwagrzak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 24-021748
Project / Site name: Holiday Inn
Your Order No: POP016001

Lab Sample Number				210753	210754	210755	210756
Sample Reference				WS01	WS01	WS02	WS02
Sample Number				1	2	1	3
Depth (m)				0.50	1.20	0.40	1.50
Date Sampled				23/05/2024	23/05/2024	23/05/2024	23/05/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	16	25	12	16
Total mass of sample received	kg	0.1	NONE	0.9	0.9	0.9	0.8
Asbestos							
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SCA	SCA	SCA	SCA
General Inorganics							
pH (L099)	pH Units	N/A	MCERTS	9.2	8.1	10	9.8
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO_4	mg/kg	50	MCERTS	670	790	1200	770
Organic Matter (automated)	%	0.1	MCERTS	2.9	3.8	1.3	1.3
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.26	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.08	0.06	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	0.53	0.41	0.28
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.13	0.08	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	1.4	1	0.53
Pyrene	mg/kg	0.05	MCERTS	< 0.05	1.3	0.87	0.47
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.79	0.57	0.29
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.91	0.62	0.31
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	1.3	0.85	0.38
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.37	0.33	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	1.1	0.67	0.32
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.63	0.4	0.21
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.2	0.15	0.07
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.83	0.5	0.26
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Total PAH							
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	9.81	6.53	3.13
Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.85	9.81	6.53	3.13

Analytical Report Number: 24-021748
Project / Site name: Holiday Inn
Your Order No: POP016001

Lab Sample Number				210753	210754	210755	210756
Sample Reference				WS01	WS01	WS02	WS02
Sample Number				1	2	1	3
Depth (m)				0.50	1.20	0.40	1.50
Date Sampled				23/05/2024	23/05/2024	23/05/2024	23/05/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Heavy Metals / Metalloids							
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	5.4	2.2	3.6	2.2
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	8.9	12	9.3
Barium (aqua regia extractable)	mg/kg	1	MCERTS	270	96	200	96
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.78	0.84	0.61	0.47
Boron (water soluble)	mg/kg	0.2	MCERTS	0.5	1.6	0.4	0.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	3.1	< 0.2	0.5	< 0.2
Chromium (hexavalent) Low Level	mg/kg	1.2	NONE	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	44	28	23	25
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	44	28	23	25
Copper (aqua regia extractable)	mg/kg	1	MCERTS	110	69	61	32
Lead (aqua regia extractable)	mg/kg	1	MCERTS	270	64	690	150
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.5	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	23	17	15	15
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	33	40	32	27
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	270	75	180	240
Petroleum Hydrocarbons							
TPHCWG - Aliphatic >C5 - C6 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_1D_AL	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_1D_AL	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >C16 - C21 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >C21 - C35 EH_CU_1D_AL	mg/kg	8	MCERTS	47	< 8.0	< 8.0	23
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_1D_AL	mg/kg	10	NONE	47	< 10	< 10	23
TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	4.5	< 2.0	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	16	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	59	< 10	< 10	14
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	79	< 10	< 10	14
VOCs							
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0

Analytical Report Number: 24-021748
Project / Site name: Holiday Inn
Your Order No: POP016001

Lab Sample Number				210753	210754	210755	210756
Sample Reference				WS01	WS01	WS02	WS02
Sample Number				1	2	1	3
Depth (m)				0.50	1.20	0.40	1.50
Date Sampled				23/05/2024	23/05/2024	23/05/2024	23/05/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
PCBs by GC-MS							
PCB Congener 28	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-
PCB Congener 52	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-
PCB Congener 101	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-
PCB Congener 118	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-
PCB Congener 138	mg/kg	0.001	MCERTS	0.005	-	0.002	-
PCB Congener 153	mg/kg	0.001	MCERTS	0.003	-	0.001	-
PCB Congener 180	mg/kg	0.001	MCERTS	0.003	-	0.002	-
Total PCBs	mg/kg	0.007	MCERTS	0.011	-	< 0.007	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-021748
Project / Site name: Holiday Inn

Your Order No: POP016001

Lab Sample Number				210754	210755
Sample Reference				WS01	WS02
Sample Number				2	1
Depth (m)				1.20	0.40
Date Sampled				23/05/2024	23/05/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
General Inorganics					
pH (automated)	pH Units	N/A	ISO 17025	7.9	8.7
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0	1.2
Free Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	-	< 1
Sulphate as SO_4	µg/l	45	ISO 17025	2510	11800
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	5.6	6.4
Total Phenols					
Total Phenols (monohydric) low level	µg/l	1	NONE	< 1.0	< 1.0
Speciated PAHs					
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01
Total PAH					
Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16
Heavy Metals / Metalloids					
Antimony (dissolved)	µg/l	1.7	ISO 17025	< 1.7	< 1.7
Arsenic (dissolved)	µg/l	1	ISO 17025	3.2	13
Barium (dissolved)	µg/l	0.05	ISO 17025	12	16
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2
Boron (dissolved)	µg/l	10	ISO 17025	26	36
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	20
Chromium (III)	µg/l	5	NONE	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	0.7	22
Copper (dissolved)	µg/l	0.7	ISO 17025	25	21
Lead (dissolved)	µg/l	1	ISO 17025	< 1.0	28
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	3.8	2.2
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	8.2	17
Zinc (dissolved)	µg/l	0.4	ISO 17025	25	16
Calcium (dissolved)	mg/l	0.012	ISO 17025	24	19

Analytical Report Number: 24-021748
Project / Site name: Holiday Inn

Your Order No: POP016001

Lab Sample Number				210754	210755
Sample Reference				WS01	WS02
Sample Number				2	1
Depth (m)				1.20	0.40
Date Sampled				23/05/2024	23/05/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Petroleum Hydrocarbons					
Petroleum Range Organics (C6 - C10) HS_1D_TOTAL	µg/l	10	NONE	< 10	< 10
TPH (C10 - C25) EH_1D_TOTAL_MS	µg/l	10	NONE	< 10	< 10
TPH (C25 - C40) EH_1D_TOTAL_MS	µg/l	10	NONE	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 24-021748
Project / Site name: Holiday Inn

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
210753	WS01	1	0.5	Brown loam and clay with gravel and vegetation
210754	WS01	2	1.2	Brown clay and sand with gravel
210755	WS02	1	0.4	Brown loam and clay with gravel
210756	WS02	3	1.5	Brown clay and sand with gravel

Analytical Report Number : 24-021748
Project / Site name: Holiday Inn

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
Dissolved Organic Carbon in leachate	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Total petroleum hydrocarbons by GC-MS/GC-MS HS in leachate	Determination of total petroleum hydrocarbons in leachate by GC-MS/GC-MS HS	In-house method	L070B/L088	W	NONE
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088	D/W	MCERTS
Chromium III in leachate	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE

Analytical Report Number : 24-021748
Project / Site name: Holiday Inn

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	ISO 17025
Hexavalent chromium in soil (low level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	NONE
Free cyanide (low level) in leachate	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Monohydric phenols (low level) in leachate	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Total cyanide (low level) in leachate	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS
pH at 20°C in leachate (automated)	Determination of pH in leachate by electrometric measurement	In-house method	L099	W	ISO 17025
Speciated PAHs and/or Semi-volatile organic compounds in leachate	SVOCs and PAHs in leachate	In-house method	L102B		ISO 17025
Organic 2:1 Leachate		In-house method	L020B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography

Analytical Report Number : 24-021748
Project / Site name: Holiday Inn

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))				
CU	Clean-up - e.g. by Florisil®, silica gel				
1D	GC - Single coil/column gas chromatography				
2D	GC-GC - Double coil/column gas chromatography				
Total	Aliphatics & Aromatics				
AL	Aliphatics				
AR	Aromatics				
#1	EH_2D_Total but with humics mathematically subtracted				
#2	EH_2D_Total but with fatty acids mathematically subtracted				
_	Operator - understore to separate acronyms (exception for +)				
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total				

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Analytical Report Number : 24-021927-2A

Replaces Analytical Report Number: 24-021927, issue no. 1
Report format change.
Split results as per client's request.

Project / Site name:	Holiday Inn	**Samples received on:**	22/05/2024
Your job number:	CGL-10060A	**Samples instructed on/ Analysis started on:**	22/05/2024
Your order number:	POP016001	**Analysis completed by:**	04/06/2024
Report Issue Number:	2A	**Report issued on:**	26/06/2024
Samples Analysed:	2 soil samples - 1 leachate sample		

Signed: JSzwagrzak

Joanna Szwagrzak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 24-021927-2A
Project / Site name: Holiday Inn
Your Order No: POP016001

Lab Sample Number				211635	211659
Sample Reference				TP01	TP02
Sample Number				B1	B1
Depth (m)				0.50	0.50
Date Sampled				24/05/2024	24/05/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	20	25.9
Moisture Content	%	0.01	NONE	6	8.2
Total mass of sample received	kg	0.1	NONE	2	0.5
Asbestos					
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	-	WEM
General Inorganics					
pH (L099)	pH Units	N/A	MCERTS	11.4	11.3
Total Cyanide	mg/kg	1	MCERTS	1.2	< 1.0
Total Sulphate as SO_4	mg/kg	50	MCERTS	3500	1100
Organic Matter (automated)	%	0.1	MCERTS	0.9	0.5
Heavy Metals / Metalloids					
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	1.2	1.9
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.1	9.9
Barium (aqua regia extractable)	mg/kg	1	MCERTS	85	85
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.29	0.36
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7	0.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent) Low Level	mg/kg	1.2	NONE	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	16	12
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	16	12
Copper (aqua regia extractable)	mg/kg	1	MCERTS	12	15
Lead (aqua regia extractable)	mg/kg	1	MCERTS	10	13
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	8.2	10
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	21	27
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	77	62

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-021927-2A
Project / Site name: Holiday Inn

Your Order No: POP016001

Lab Sample Number				211635
Sample Reference				TP01
Sample Number				B1
Depth (m)				0.50
Date Sampled				24/05/2024
Time Taken				None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
General Inorganics				
pH (automated)	pH Units	N/A	ISO 17025	7.6
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0
Sulphate as SO_4	µg/l	45	ISO 17025	139000
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	11
Heavy Metals / Metalloids				
Antimony (dissolved)	µg/l	1.7	ISO 17025	< 1.7
Arsenic (dissolved)	µg/l	1	ISO 17025	< 1.0
Barium (dissolved)	µg/l	0.05	ISO 17025	31
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2
Boron (dissolved)	µg/l	10	ISO 17025	36
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	3
Copper (dissolved)	µg/l	0.7	ISO 17025	8.1
Lead (dissolved)	µg/l	1	ISO 17025	< 1.0
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	< 0.3
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	6.3
Zinc (dissolved)	µg/l	0.4	ISO 17025	8.1
Calcium (dissolved)	mg/l	0.012	ISO 17025	71

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 24-021927-2A
Project / Site name: Holiday Inn

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
211635	TP01	B1	0.5	Brown sand with gravel and stones
211659	TP02	B1	0.5	Brown sand with gravel and stones

Analytical Report Number : 24-021927-2A
Project / Site name: Holiday Inn

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Dissolved Organic Carbon in leachate	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Chromium III in leachate	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	ISO 17025
Hexavalent chromium in soil (low level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	NONE
Total cyanide (low level) in leachate	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS
pH at 20°C in leachate (automated)	Determination of pH in leachate by electrometric measurement	In-house method	L099	W	ISO 17025

Analytical Report Number : 24-021927-2A
Project / Site name: Holiday Inn

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Organic 2:1 Leachate		In-house method	L020B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

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Analytical Report Number : 24-045485

Project / Site name:	Holiday Inn	**Samples received on:**	01/10/2024
Your job number:	CGL-10060B	**Samples instructed on/ Analysis started on:**	03/10/2024
Your order number:	POP016752	**Analysis completed by:**	15/10/2024
Report Issue Number:	1	**Report issued on:**	15/10/2024
Samples Analysed:	2 soil samples		

Signed:

Adan Cazas Garcia
Key Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 24-045485
Project / Site name: Holiday Inn
Your Order No: POP016752

Lab Sample Number				336282	336283
Sample Reference				BH01	BH01
Sample Number				1	2
Depth (m)				0.50	1.00
Date Sampled				30/09/2024	30/09/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**		
Stone Content	%	0.1	NONE	21.5	6.8
Moisture Content	%	0.01	NONE	14	16
Total mass of sample received	kg	0.1	NONE	0.8	0.8
Asbestos					
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MUA	MUA
General Inorganics					
pH (L099)	pH Units	N/A	MCERTS	8.5	8.2
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO_4	mg/kg	50	MCERTS	1700	410
Organic Matter (automated)	%	0.1	MCERTS	1.4	1.4
Total Phenols					
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0
Speciated PAHs					
Naphthalene	mg/kg	0.05	MCERTS	0.08	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.09	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.45	0.05
Anthracene	mg/kg	0.05	MCERTS	0.17	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	1.1	0.09
Pyrene	mg/kg	0.05	MCERTS	0.99	0.1
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.76	0.06
Chrysene	mg/kg	0.05	MCERTS	0.83	0.07
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	1.1	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.48	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.92	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.52	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.13	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.58	< 0.05
Coronene	mg/kg	0.05	NONE	0.2	< 0.05
Total PAH					
Total WAC-17 PAHs	mg/kg	0.85	NONE	8.39	< 0.85

Analytical Report Number: 24-045485
Project / Site name: Holiday Inn
Your Order No: POP016752

Lab Sample Number				336282	336283
Sample Reference				BH01	BH01
Sample Number				1	2
Depth (m)				0.50	1.00
Date Sampled				30/09/2024	30/09/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**		
Heavy Metals / Metalloids					
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	4.5	3
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	16	10
Barium (aqua regia extractable)	mg/kg	1	MCERTS	160	39
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.74	0.5
Boron (water soluble)	mg/kg	0.2	MCERTS	2.2	2.1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent) Low Level	mg/kg	1.2	NONE	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	21	14
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	21	15
Copper (aqua regia extractable)	mg/kg	1	MCERTS	99	72
Lead (aqua regia extractable)	mg/kg	1	MCERTS	540	120
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.7	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	15	12
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	33	26
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	200	40
Petroleum Hydrocarbons					
TPHCWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	11	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	33	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	40	< 8.0
TPHCWG - Aliphatic >EC35 - EC40 $_{EH\_CU\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10
TPHCWG - Aliphatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	84	< 10
TPHCWG - Aliphatic >EC5 - EC40 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	84	< 10
TPHCWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.02	MCERTS	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	2.6	< 2.0
TPHCWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	19	< 10
TPHCWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	37	< 10
TPHCWG - Aromatic >EC35 - EC40 $_{EH\_CU\_1D\_AR}$	mg/kg	10	NONE	11	< 10
TPHCWG - Aromatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	59	< 10
TPHCWG - Aromatic >EC5 - EC40 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	70	< 10
TPH Total >EC5 - EC40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	150	< 10
VOCs					
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 24-045485
Project / Site name: Holiday Inn

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
336282	BH01	1	0.5	Brown sand with stones
336283	BH01	2	1	Brown clay and sand with gravel and stones

Analytical Report Number : 24-045485
Project / Site name: Holiday Inn

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088-PL	D/W	MCERTS
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL/L130B	W	NONE
Hexavalent chromium in soil (low level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS

Analytical Report Number : 24-045485
Project / Site name: Holiday Inn

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

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Analytical Report Number : 24-045761

Project / Site name:	Holiday Inn	**Samples received on:**	01/10/2024
Your job number:	CGL 10060B	**Samples instructed on/ Analysis started on:**	03/10/2024
Your order number:	POP016752	**Analysis completed by:**	11/10/2024
Report Issue Number:	1	**Report issued on:**	11/10/2024
Samples Analysed:	2 soil samples		

Signed:

Adan Cazas Garcia
Key Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 24-045761
Project / Site name: Holiday Inn
Your Order No: POP016752

Lab Sample Number				337930	337931
Sample Reference				BH01	BH01
Sample Number				B8	B9
Depth (m)				2.20	2.50
Date Sampled				30/09/2024	30/09/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**		
Stone Content	%	0.1	NONE	52.3	68.7
Moisture Content	%	0.01	NONE	4.1	3.3
Total mass of sample received	kg	0.1	NONE	1.3	1.2
General Inorganics					
pH (L099)	pH Units	N/A	MCERTS	9.1	8
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO_4	mg/kg	50	MCERTS	270	470
Organic Matter (automated)	%	0.1	MCERTS	0.9	0.9
Total Phenols					
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0
Speciated PAHs					
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.23
Acenaphthene	mg/kg	0.05	MCERTS	0.17	0.55
Fluorene	mg/kg	0.05	MCERTS	0.13	0.48
Phenanthrene	mg/kg	0.05	MCERTS	1.7	2.2
Anthracene	mg/kg	0.05	MCERTS	0.42	0.79
Fluoranthene	mg/kg	0.05	MCERTS	1.6	1.6
Pyrene	mg/kg	0.05	MCERTS	1.5	2.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.63	1
Chrysene	mg/kg	0.05	MCERTS	0.56	0.88
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.66	0.53
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.16	0.18
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.51	0.63
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.25	0.17
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.26	0.22
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05
Total PAH					
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	8.52	11.8
Total WAC-17 PAHs	mg/kg	0.85	NONE	8.52	11.8

Analytical Report Number: 24-045761
Project / Site name: Holiday Inn
Your Order No: POP016752

Lab Sample Number				337930	337931
Sample Reference				BH01	BH01
Sample Number				B8	B9
Depth (m)				2.20	2.50
Date Sampled				30/09/2024	30/09/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**		
Heavy Metals / Metalloids					
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	1.9	< 1.0
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	3	8.5
Barium (aqua regia extractable)	mg/kg	1	MCERTS	21	11
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.23	0.17
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7	0.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	45	72
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	45	72
Copper (aqua regia extractable)	mg/kg	1	MCERTS	13	13
Lead (aqua regia extractable)	mg/kg	1	MCERTS	12	4.5
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	8.5	31
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1.1	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	17	13
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	46	13
Petroleum Hydrocarbons					
TPHCWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	8.4	15
TPHCWG - Aliphatic >EC35 - EC40 $_{EH\_CU\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10
TPHCWG - Aliphatic >EC5 - EC40 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	15
TPHCWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.02	MCERTS	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0	5
TPHCWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	12	20
TPHCWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	17	28
TPHCWG - Aromatic >EC35 - EC40 $_{EH\_CU\_1D\_AR}$	mg/kg	10	NONE	< 10	< 10
TPHCWG - Aromatic >EC5 - EC40 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	30	53
TPH (>EC5 - EC10) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	< 1.0	< 1.0
TPH Total >EC5 - EC40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	38	68
Petroleum Range Organics (EC6 - EC10) $_{HS\_1D\_TOTAL}$	mg/kg	1	ISO 17025	< 1.0	< 1.0
TPH (EC10 - EC25) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	22	38
TPH (EC25 - EC40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	28	43
TPH (EC10 - EC40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	50	81

Analytical Report Number: 24-045761
Project / Site name: Holiday Inn
Your Order No: POP016752

Lab Sample Number				337930	337931
Sample Reference				BH01	BH01
Sample Number				B8	B9
Depth (m)				2.20	2.50
Date Sampled				30/09/2024	30/09/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**		
VOCs					
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0
Miscellaneous Organics					
TPH Carbon Range	N/A	N/A	NONE	Although low levels of PAHs are visible, no product is identifiable owing to the low levels present.☐ ☐ The sample TIC trace is simple.☐ ☐ The trace does not match the standard product profiles.	The total ion count (TIC trace) shows a carbon range from C10 to C35.☐ The sample TIC trace is complex, showing aromatic product sources.☐ ☐ The trace does not match the standard product profiles.
TPH Fuel Type	N/A	N/A	NONE	Although low levels of PAHs are visible, no product is identifiable owing to the low levels present.☐ ☐ The sample TIC trace is simple.☐ ☐ The trace does not match the standard product profiles.	The total ion count (TIC trace) shows a carbon range from C10 to C35.☐ The sample TIC trace is complex, showing aromatic product sources.☐ ☐ The trace does not match the standard product profiles.

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 24-045761
Project / Site name: Holiday Inn

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
337930	BH01	B8	2.2	Brown gravelly sand with stones
337931	BH01	B9	2.5	Brown gravelly sand with stones

Analytical Report Number : 24-045761
Project / Site name: Holiday Inn

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
TPH Chromatogram in soil	TPH Chromatogram in soil	In-house method	L064B	D	NONE
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088-PL	D/W	MCERTS
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL/L130B	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	MCERTS
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS

Analytical Report Number : 24-045761
Project / Site name: Holiday Inn

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS
Product ID in soil	Determination of product ID by interpretation against standard chromatograms	In-house method	L064B	D	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
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1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

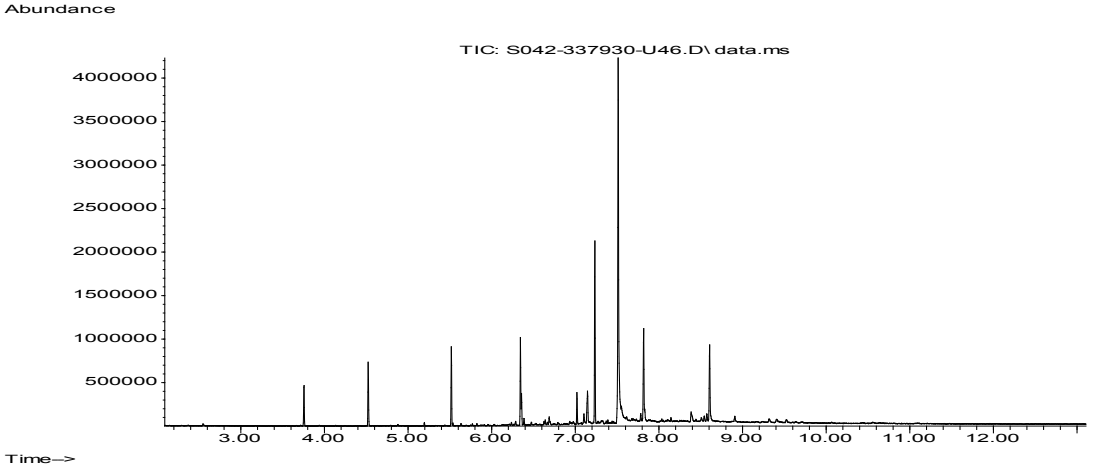
Sample Deviation Report

Analytical Report Number : 24-045761
Project / Site name: Holiday Inn

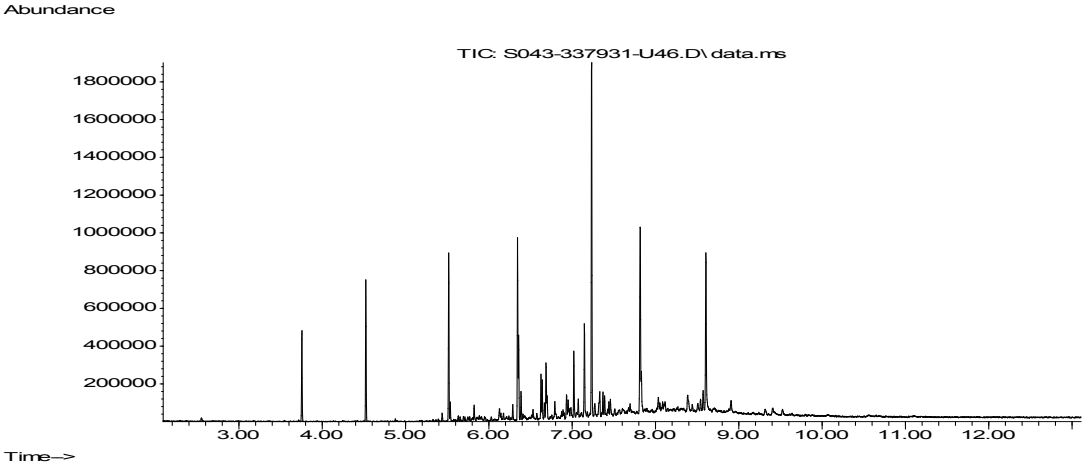
This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
BH01	B8	S	337930	b	BTEX and/or Volatile organic compounds in soil	L073B	b
BH01	B8	S	337930	b	Monohydric phenols in soil	L080-PL	b
BH01	B8	S	337930	b	Product ID in soil	L064B	b
BH01	B8	S	337930	b	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	b
BH01	B8	S	337930	b	TPH Chromatogram in soil	L064B	b
BH01	B8	S	337930	b	Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	L076B/L088-PL	b
BH01	B8	S	337930	b	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	b
BH01	B9	S	337931	b	BTEX and/or Volatile organic compounds in soil	L073B	b
BH01	B9	S	337931	b	Monohydric phenols in soil	L080-PL	b
BH01	B9	S	337931	b	Product ID in soil	L064B	b
BH01	B9	S	337931	b	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	b
BH01	B9	S	337931	b	TPH Chromatogram in soil	L064B	b
BH01	B9	S	337931	b	Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	L076B/L088-PL	b
BH01	B9	S	337931	b	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	b



Although low levels of PAHs are visible, no product is identifiable owing to the low levels present.
The sample TIC trace is simple.
The trace does not match the standard product profiles.



The total ion count (TIC trace) shows a carbon range from C10 to C35.
The sample TIC trace is complex, showing aromatic product sources.
The trace does not match the standard product profiles.

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Analytical Report Number : 24-048078

Project / Site name:	Holiday Inn	**Samples received on:**	16/10/2024
Your job number:	CGL 10060B	**Samples instructed on/ Analysis started on:**	16/10/2024
Your order number:	POP016752	**Analysis completed by:**	22/10/2024
Report Issue Number:	1	**Report issued on:**	25/10/2024
Samples Analysed:	1 water sample		

Signed:

Charlotte Andrew
Key Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 24-048078
Project / Site name: Holiday Inn

Your Order No: POP016752

Lab Sample Number				350259
Sample Reference				BH01
Sample Number				W1
Depth (m)				None Supplied
Date Sampled				16/10/2024
Time Taken				None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**	
General Inorganics				
pH (L099)	pH Units	N/A	ISO 17025	7.3
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0
Sulphate as SO_4	µg/l	45	ISO 17025	30900
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	160
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	4.06
Hardness - Total	mgCaCO3/l	1	ISO 17025	325
Total Phenols				
Total Phenols (Monohydric) Low Level	µg/l	1	NONE	< 1.0
Speciated PAHs				
Naphthalene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	0.09
Acenaphthene	µg/l	0.01	ISO 17025	1.1
Fluorene	µg/l	0.01	ISO 17025	0.12
Phenanthrene	µg/l	0.01	ISO 17025	0.1
Anthracene	µg/l	0.01	ISO 17025	0.08
Fluoranthene	µg/l	0.01	ISO 17025	0.1
Pyrene	µg/l	0.01	ISO 17025	0.18
Benzo(a)anthracene	µg/l	0.01	ISO 17025	0.1
Chrysene	µg/l	0.01	ISO 17025	0.08
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	0.04
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	0.02
Benzo(a)pyrene	µg/l	0.01	ISO 17025	0.06
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01
Total PAH				
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	2.02
Heavy Metals / Metalloids				
Antimony (dissolved)	µg/l	0.4	ISO 17025	1.8
Arsenic (dissolved)	µg/l	0.15	ISO 17025	5.42
Barium (dissolved)	µg/l	0.06	ISO 17025	42
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.3
Copper (dissolved)	µg/l	0.5	ISO 17025	2.3
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	4.7
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.1
Vanadium (dissolved)	µg/l	0.2	ISO 17025	2.7
Zinc (dissolved)	µg/l	0.5	ISO 17025	4.6

Analytical Report Number: 24-048078
Project / Site name: Holiday Inn

Your Order No: POP016752

Lab Sample Number				350259
Sample Reference				BH01
Sample Number				W1
Depth (m)				None Supplied
Date Sampled				16/10/2024
Time Taken				None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**	
Boron (dissolved)	µg/l	10	ISO 17025	130
Calcium (dissolved)	mg/l	0.012	ISO 17025	120
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0
Petroleum Hydrocarbons				
TPH - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	µg/l	1	ISO 17025	< 1.0
TPH - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	µg/l	1	ISO 17025	< 1.0
TPH - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	µg/l	1	ISO 17025	< 1.0
TPH - Aliphatic >EC10 - EC12 $_{EH\_1D\_AL\_MS}$	µg/l	10	NONE	< 10
TPH - Aliphatic >EC12 - EC16 $_{EH\_1D\_AL\_MS}$	µg/l	10	NONE	< 10
TPH - Aliphatic >EC16 - EC21 $_{EH\_1D\_AL\_MS}$	µg/l	10	NONE	< 10
TPH - Aliphatic >EC21 - EC35 $_{EH\_1D\_AL\_MS}$	µg/l	10	NONE	< 10
TPH - Aliphatic >EC5 - EC35 $_{HS+EH\_1D\_AL\_MS}$	µg/l	10	NONE	< 10
TPH - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	µg/l	1	ISO 17025	< 1.0
TPH - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	µg/l	1	ISO 17025	< 1.0
TPH - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	µg/l	1	ISO 17025	< 1.0
TPH - Aromatic >EC10 - EC12 $_{EH\_1D\_AR\_MS}$	µg/l	10	NONE	< 10
TPH - Aromatic >EC12 - EC16 $_{EH\_1D\_AR\_MS}$	µg/l	10	NONE	18
TPH - Aromatic >EC16 - EC21 $_{EH\_1D\_AR\_MS}$	µg/l	10	NONE	14
TPH - Aromatic >EC21 - EC35 $_{EH\_1D\_AR\_MS}$	µg/l	10	NONE	< 10
TPH - Aromatic >EC5 - EC35 $_{HS+EH\_1D\_AR\_MS}$	µg/l	10	NONE	32
VOCs				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	3	ISO 17025	< 3.0
Benzene	µg/l	3	ISO 17025	< 3.0
Toluene	µg/l	3	ISO 17025	< 3.0
Ethylbenzene	µg/l	3	ISO 17025	< 3.0
p & m-xylene	µg/l	3	ISO 17025	< 3.0
o-xylene	µg/l	3	ISO 17025	< 3.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 24-048078
Project / Site name: Holiday Inn

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited matrices: SW, PW, GW, except B - SW,GW, Hg - SW,PW, Al - SW,PW	In-house method based on USEPA Method 6020 & 200.8 for the determination of trace elements in water by ICP-MS	L012B	W	ISO 17025
Dissolved Organic Carbon in water	Determination of dissolved organic carbon in water by TOC/DOC NDIR Analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited matrices: SW, PW, GW, FSE, LL; PrW, DI PrW (Al, Cu, Fe,Zn)	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Sulphate in water	Determination of sulphate in water after filtration by acidification followed by ICP-OES. Accredited matrices: SW, PW, GW, PrW, DI PrW, FSE, LL	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Total Hardness of water	Determination of total hardness of water by calculation from calcium and magnesium. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045B	W	ISO 17025
Total Petroleum Hydrocarbons with carbon banding in water by GC-MS	Determination of total petroleum hydrocarbons in water by GC-MS with carbon banding aliphatic and aromatic	In-house method	L070B	W	NONE
BTEX and/or Volatile Organic Compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW, PW, GW	In-house method based on USEPA 8260	L073B	W	ISO 17025
Chromium(III) in water	In-house method by calculation from total Cr and Cr(VI)	In-house method by calculation	L080-PL	W	NONE
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5-diphenylcarbazide, followed by colorimetry. Accredited matrices: SW, PW, GW, FSE, LL	In-house method by continuous flow analyser	L080-PL	W	ISO 17025
Monohydric phenols (low level) in water	Determination of phenols in water by continuous flow analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	NONE
Total cyanide (low level) in water	Determination of total cyanide in water by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	NONE
Total Petroleum Hydrocarbons in water by HS-GC-MS	Determination of total petroleum hydrocarbons in water by headspace GC-MS. Accredited matrices: SW, PW, GW	In-house method	L088-PL	W	ISO 17025
pH of water at 20°C (automated)	Determination of pH of water by electrochemical measurement. Accredited matrices: SW, PW, GW, FSE, LL	In-house method	L099-PL	W	ISO 17025

Analytical Report Number : 24-048078
Project / Site name: Holiday Inn

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Speciated PAHs and/or Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds (including PAHs) in water by extraction in dichloromethane followed by GC-MS. Accredited matrices (PAHs): SW, PW, GW	In-house method based on USEPA 8270	L102B	W	ISO 17025
Ammoniacal Nitrogen as N in water	Determination of ammonium/ammonia/ammoniacal nitrogen by the colorimetric salicylate/nitroprusside method using discrete analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

APPENDIX F

Geotechnical Laboratory Reports

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS EN ISO 17892-4:2016, BS 1377-2:2022 cl. 10

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

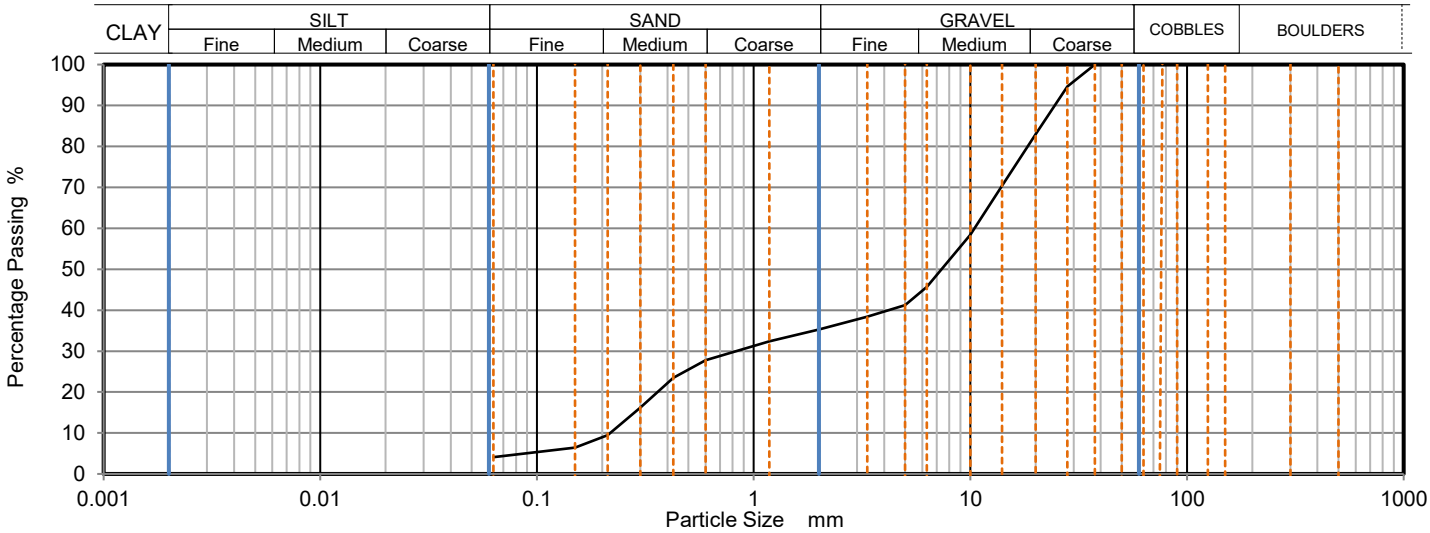
4041

Client:	Card Geotechnics Ltd	Client Reference:	CGL-10060A
Client Address:	4 Godalming Business Centre, Woolsack Way, Godalming, Surrey	Job Number:	24-021909-0
		Date Sampled:	23/05/2024
		Date Received:	27/05/2024
Contact:	Sofia Zougrou	Date Tested:	03/06/2024
Site Address:	Holiday Inn	Sampled By:	i2 - DTM

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	211511	Depth Top [m]:	3.00
Hole No.:	WS01	Depth Base [m]:	Not Given
Sample Reference:	B1	Sample Type:	B
Sample Description:	Brown very sandy slightly clayey GRAVEL with fragments of flintstones		
Sample Preparation:	Sample was quartered, oven dried at 106.2 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	95		
20	83		
14	70		
10	58		
6.3	46		
5	41		
3.35	38		
2	35		
1.18	32		
0.6	28		
0.425	24		
0.3	16		
0.212	10		
0.15	6		
0.063	4		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	65.00
Sand	31.00
Fines <0.063 mm	4.00

Grading Analysis		
D100	mm	37.5
D60	mm	10.5
D30	mm	0.828
D10	mm	0.218
Uniformity Coefficient		48
Curvature Coefficient		0.3

Uniformity and Curvature Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with ISO 17892 -4, by sieving on as received or wet sample

Remarks: Preliminary report

Signed:

Katarzyna Koziel
Senior Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 11/06/2024

GF 366.11

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS EN ISO 17892-4:2016, BS 1377-2:2022 cl. 10

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

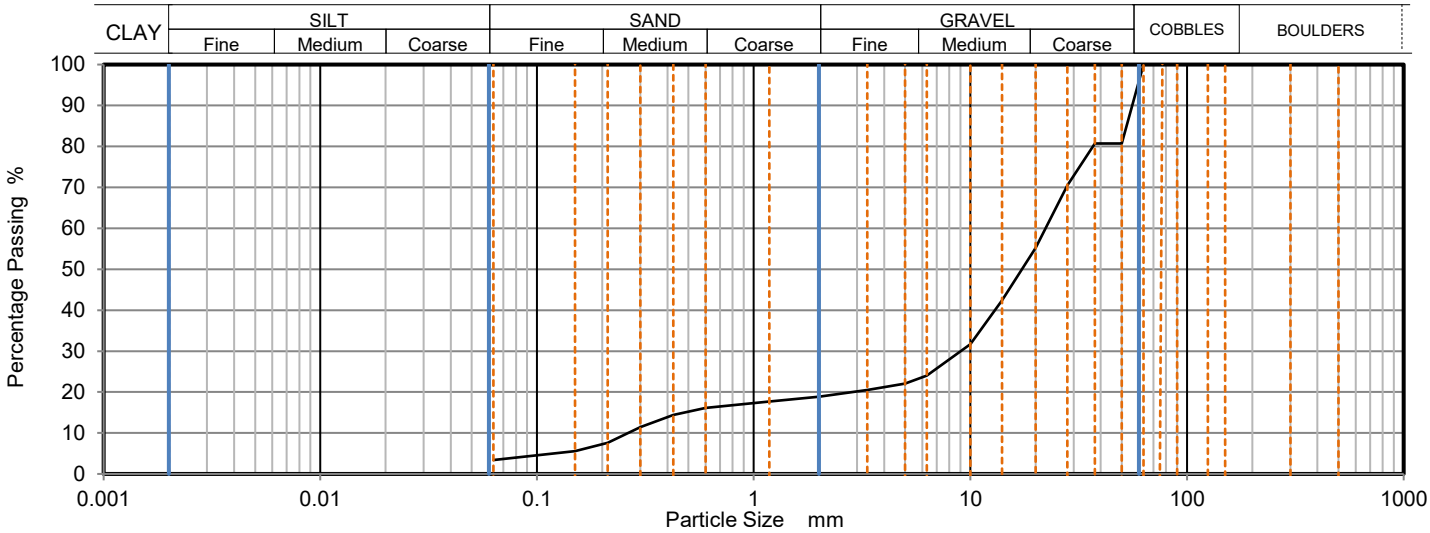
4041

Client:	Card Geotechnics Ltd	Client Reference:	CGL-10060A
Client Address:	4 Godalming Business Centre, Woolsack Way, Godalming, Surrey	Job Number:	24-021909-0
		Date Sampled:	23/05/2024
		Date Received:	27/05/2024
Contact:	Sofia Zougrou	Date Tested:	03/06/2024
Site Address:	Holiday Inn	Sampled By:	i2 - DTM

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	211513	Depth Top [m]:	2.60
Hole No.:	WS02	Depth Base [m]:	Not Given
Sample Reference:	B1	Sample Type:	B
Sample Description:	Brown sandy slightly clayey GRAVEL with fragments of flintstones		
Sample Preparation:	Sample was quartered, oven dried at 106.2 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	81		
37.5	81		
28	71		
20	55		
14	42		
10	32		
6.3	24		
5	22		
3.35	21		
2	19		
1.18	18		
0.6	16		
0.425	14		
0.3	11		
0.212	8		
0.15	6		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	81.00
Sand	16.00
Fines <0.063 mm	3.00

Grading Analysis		
D100	mm	63
D60	mm	22.2
D30	mm	9.02
D10	mm	0.264
Uniformity Coefficient		84
Curvature Coefficient		14

Uniformity and Curvature Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with ISO 17892 -4, by sieving on as received or wet sample

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS EN ISO 17892-4:2016 Table 1.
Preliminary report

Signed:

Katarzyna Koziel
Senior Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 11/06/2024

GF 366.11

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022, cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022, cl 5.2 and 6

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

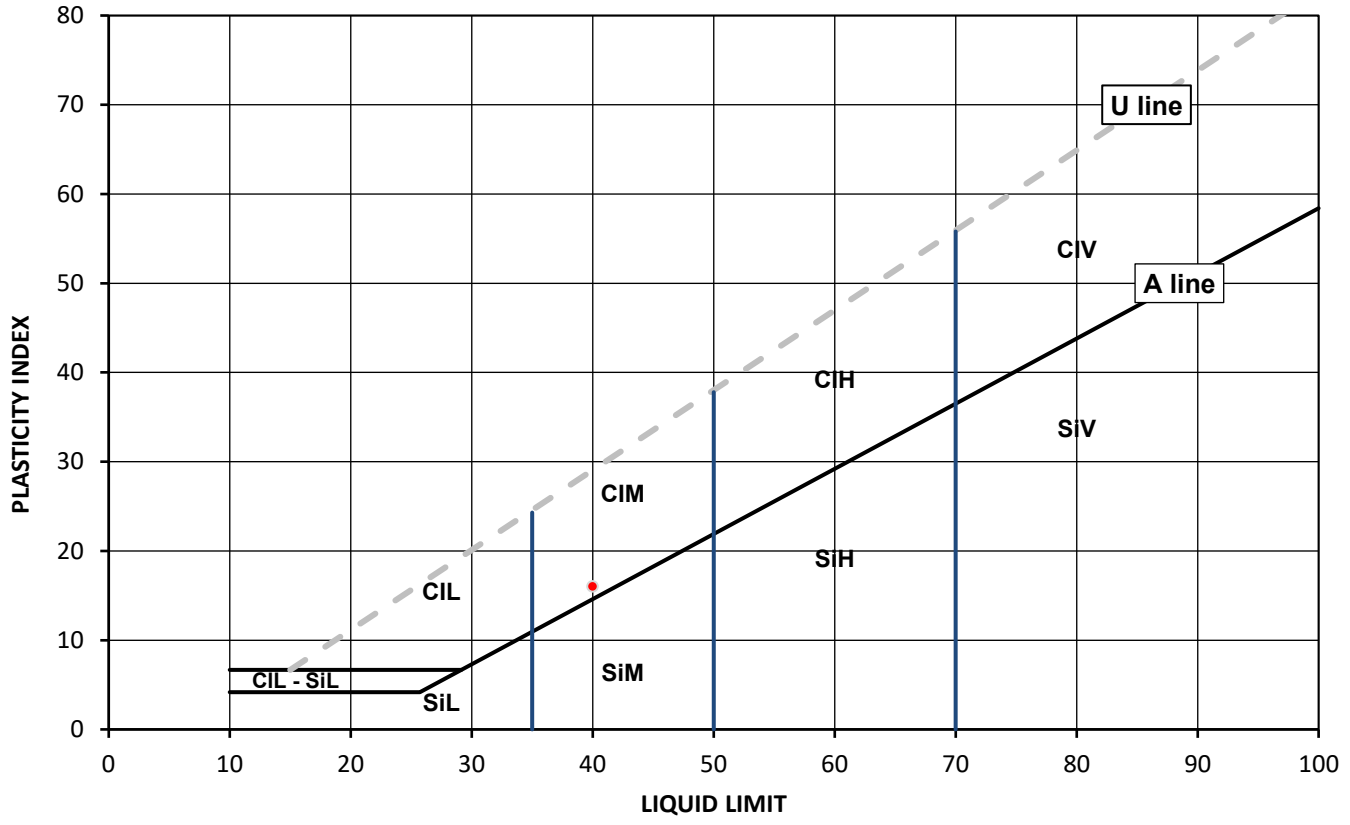
Client:	Card Geotechnics Ltd	Client Reference:	CGL-10060A
Client Address:	4 Godalming Business Centre, Woolsack Way, Godalming, Surrey	Job Number:	24-021909-1
		Date Sampled:	23/05/2024
		Date Received:	27/05/2024
Contact:	Sofia Zougrou	Date Tested:	03/06/2024
Site Address:	Holiday Inn	Sampled By:	i2 - DTM

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	211508	Depth Top [m]:	1.50
Hole No.:	WS01	Depth Base [m]:	Not Given
Sample Reference:	D1	Sample Type:	D
Sample Description:	Brown sandy silty CLAY		
Sample Preparation:	Tested in natural condition; The water content in the sample was increased		
Cone Type:	80g/30deg		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
34.6	40	24	16	0.69	0.31	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN 17892-1: 2014; # Non accredited

Remarks:

Signed:

Katarzyna Koziel
Senior Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 13/06/2024

GF 337.13

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022, cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022, cl 5.2 and 6

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

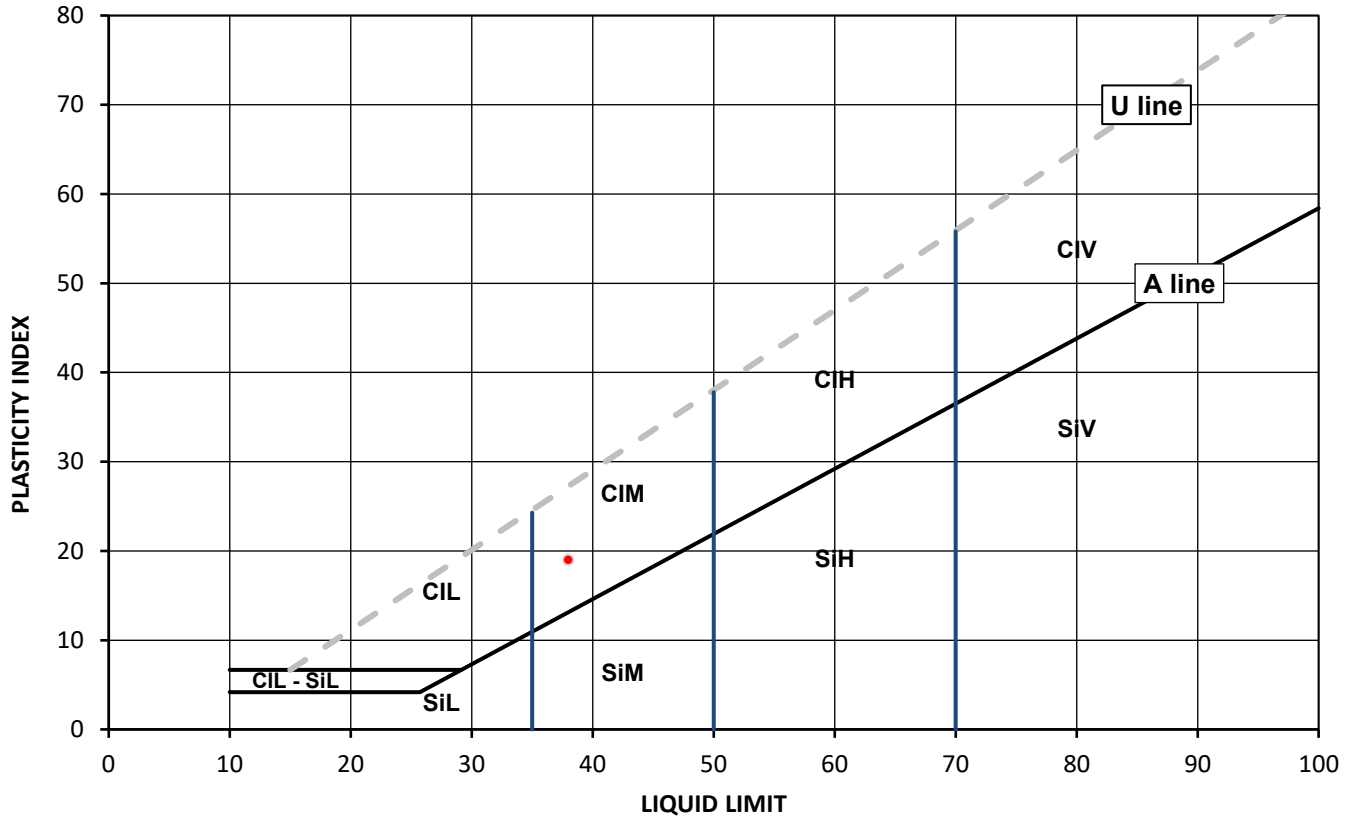
Client:	Card Geotechnics Ltd	Client Reference:	CGL-10060A
Client Address:	4 Godalming Business Centre, Woolsack Way, Godalming, Surrey	Job Number:	24-021909-1
		Date Sampled:	23/05/2024
		Date Received:	27/05/2024
Contact:	Sofia Zougrou	Date Tested:	03/06/2024
Site Address:	Holiday Inn	Sampled By:	i2 - DTM

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	211509	Depth Top [m]:	2.30
Hole No.:	WS01	Depth Base [m]:	Not Given
Sample Reference:	D2	Sample Type:	D
Sample Description:	Brown slightly gravelly sandy CLAY		
Sample Preparation:	Tested after >0.425mm removed by hand; The water content in the sample was increased		
Cone Type:	80g/30deg		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
26.9	38	19	19	0.42	0.58	76



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN 17892-1: 2014; # Non accredited

Remarks:

Signed:

Katarzyna Koziel
Senior Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 13/06/2024

GF 337.13

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022, cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022, cl 5.2 and 6

i2 Analytical Ltd
Unit 8 Harrowden Road
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4041

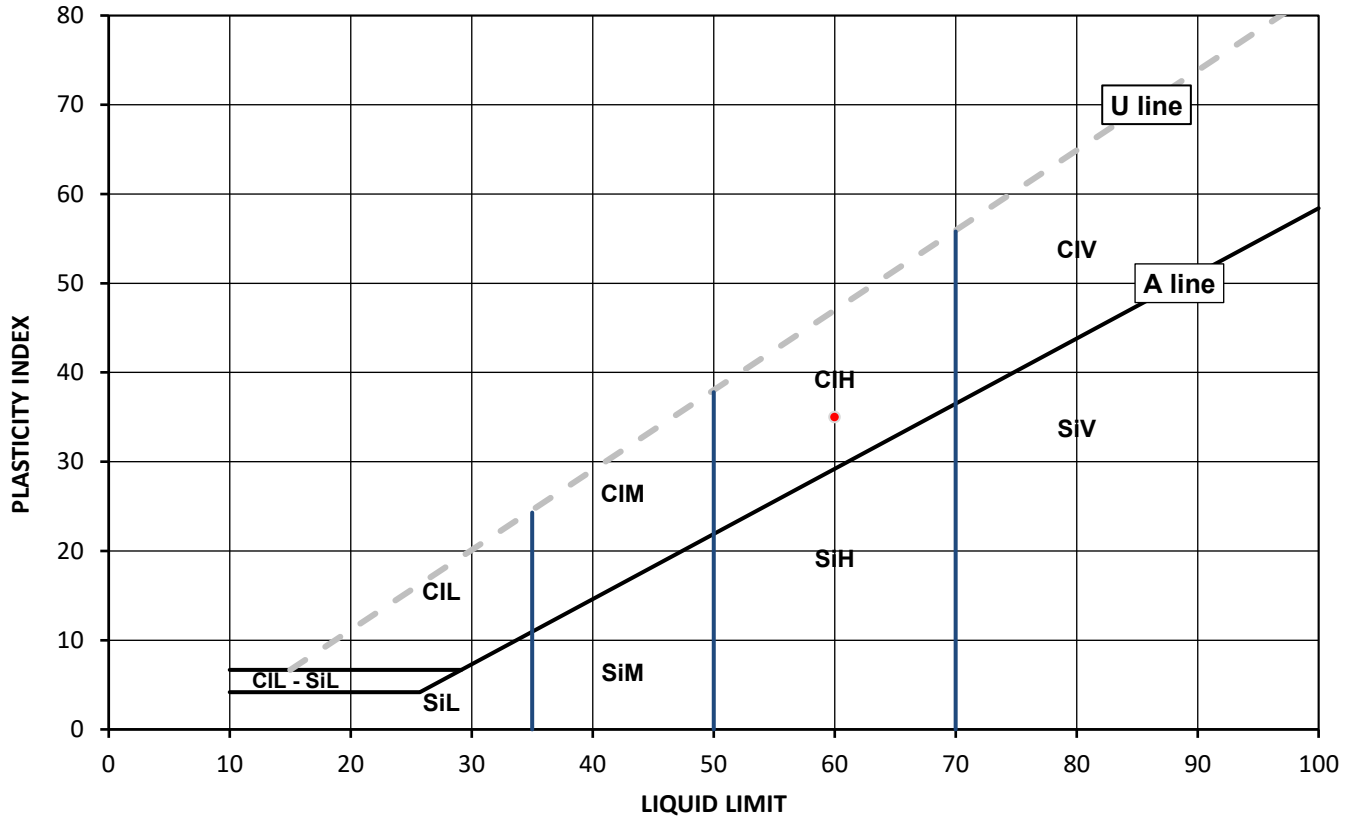
Client:	Card Geotechnics Ltd	Client Reference:	CGL-10060A
Client Address:	4 Godalming Business Centre, Woolsack Way, Godalming, Surrey	Job Number:	24-021909-1
		Date Sampled:	23/05/2024
		Date Received:	27/05/2024
Contact:	Sofia Zougrou	Date Tested:	03/06/2024
Site Address:	Holiday Inn	Sampled By:	i2 - DTM

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	211510	Depth Top [m]:	5.50
Hole No.:	WS01	Depth Base [m]:	Not Given
Sample Reference:	D3	Sample Type:	D
Sample Description:	Brownish grey CLAY		
Sample Preparation:	Tested in natural condition; The water content in the sample was increased		
Cone Type:	80g/30deg		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
30.6	60	25	35	0.17	0.83	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN 17892-1: 2014; # Non accredited

Remarks:

Signed:

Katarzyna Koziel
Senior Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 13/06/2024

GF 337.13

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022, cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022, cl 5.2 and 6

i2 Analytical Ltd
Unit 8 Harrowden Road
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Northampton NN4 7EB

4041

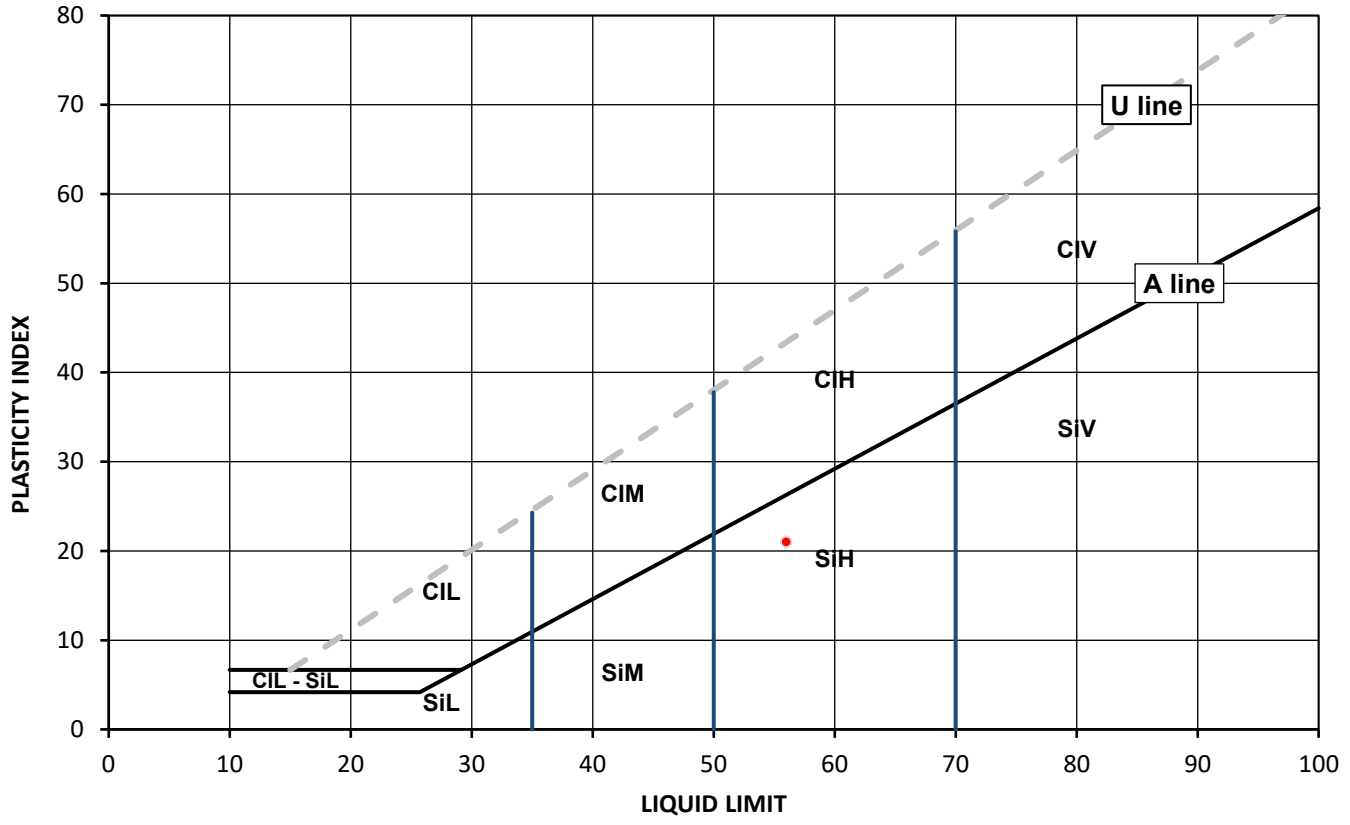
Client:	Card Geotechnics Ltd	Client Reference:	CGL-10060A
Client Address:	4 Godalming Business Centre, Woolsack Way, Godalming, Surrey	Job Number:	24-021909-1
		Date Sampled:	23/05/2024
		Date Received:	27/05/2024
Contact:	Sofia Zougrou	Date Tested:	03/06/2024
Site Address:	Holiday Inn	Sampled By:	i2 - DTM

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	211512	Depth Top [m]:	1.70
Hole No.:	WS02	Depth Base [m]:	Not Given
Sample Reference:	D1	Sample Type:	D
Sample Description:	Dark brown slightly gravelly slightly sandy silty CLAY		
Sample Preparation:	Tested after >0.425mm removed by hand; The water content in the sample was increased		
Cone Type:	80g/30deg		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
29.0	56	35	21	-0.29	1.29	85



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN 17892-1: 2014; # Non accredited

Remarks:

Signed:

Katarzyna Koziel
Senior Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 13/06/2024

GF 337.13

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022, cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022, cl 5.2 and 6

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

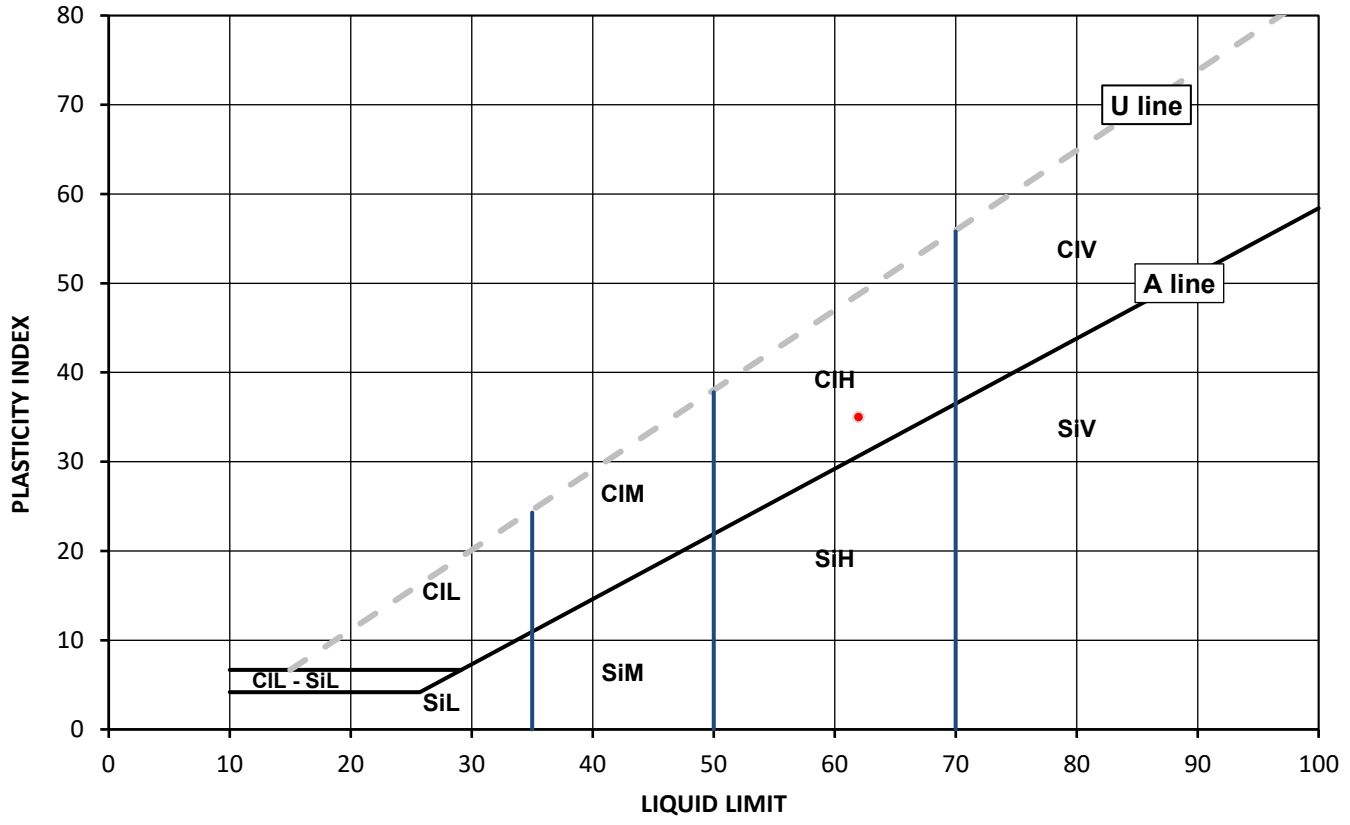
Client:	Card Geotechnics Ltd	Client Reference:	CGL-10060A
Client Address:	4 Godalming Business Centre, Woolsack Way, Godalming, Surrey	Job Number:	24-021909-1
		Date Sampled:	23/05/2024
		Date Received:	27/05/2024
Contact:	Sofia Zougrou	Date Tested:	03/06/2024
Site Address:	Holiday Inn	Sampled By:	i2 - DTM

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	211514	Depth Top [m]:	3.60
Hole No.:	WS02	Depth Base [m]:	Not Given
Sample Reference:	D3	Sample Type:	D
Sample Description:	Brownish grey CLAY		
Sample Preparation:	Tested in natural condition; The water content in the sample was increased		
Cone Type:	80g/30deg		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
29.3	62	27	35	0.06	0.94	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN 17892-1: 2014; # Non accredited

Remarks:

Signed:

Katarzyna Koziel
Senior Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 13/06/2024

GF 337.13

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022, cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022, cl 5.2 and 6

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre, Woolsack Way, Godalming, Surrey
Contact: Sofia Zougrou
Site Address: Holiday Inn

Client Reference: CGL-10060A
Job Number: 24-021909-1
Date Sampled: 23/05/2024
Date Received: 27/05/2024
Date Tested: 03/06/2024
Sampled By: i2 - DTM

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

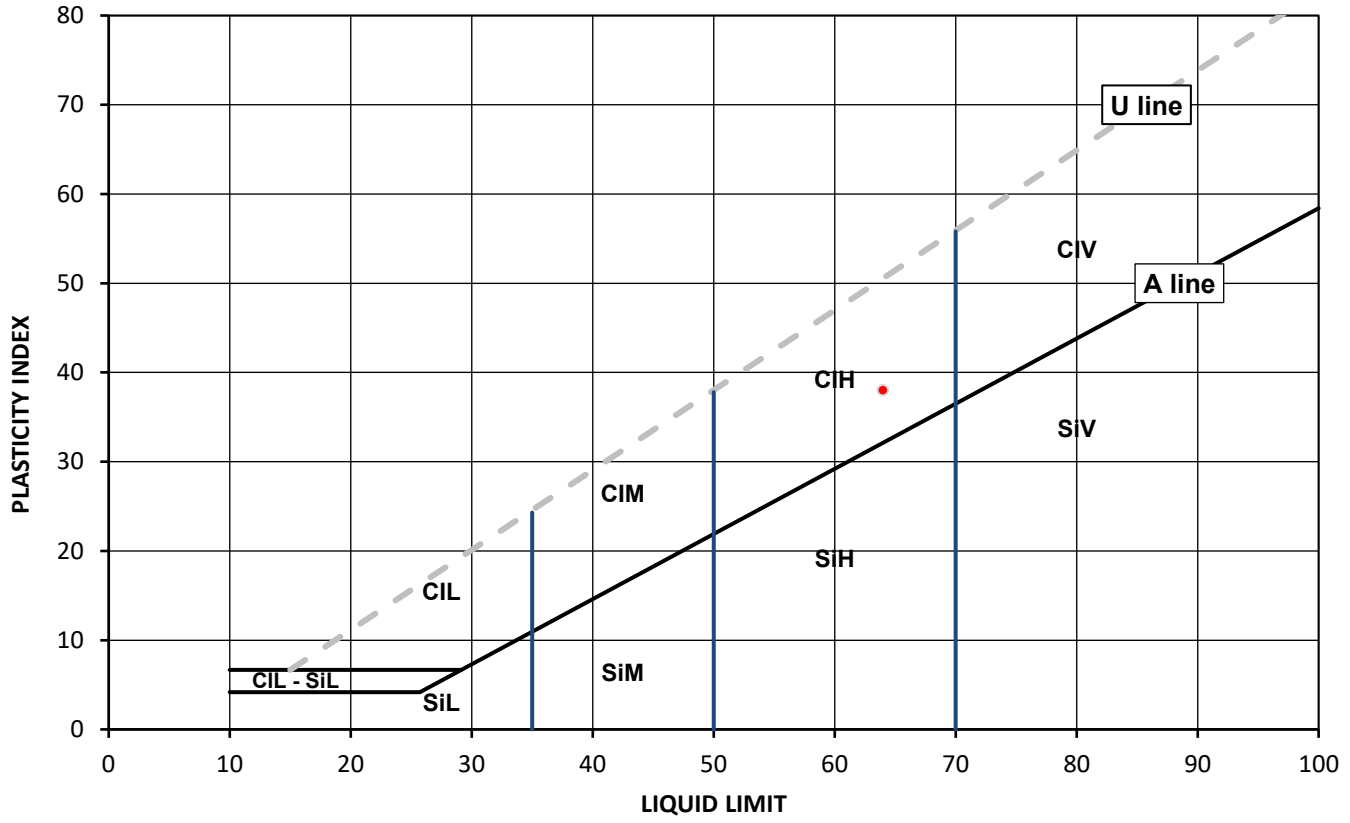
Test Results:

Laboratory Reference: 211515
Hole No.: WS02
Sample Reference: D5
Sample Description: Brownish grey CLAY

Depth Top [m]: 5.60
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested in natural condition; The water content in the sample was increased
Cone Type: 80g/30deg

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
22.5	64	26	38	-0.08	1.08	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN 17892-1: 2014; # Non accredited

Remarks:

Signed:

Katarzyna Koziel
Senior Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 13/06/2024

GF 337.13

SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client: Card Geotechnics Ltd

Client Address: 4 Godalming Business Centre, Woolsack Way,
Godalming, Surrey

Contact: Sofia Zougrou

Site Address: Holiday Inn

BS EN ISO 17892-12:2018+A2:2022 cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022, cl 5.2 and 6. W by BS EN 17892-1:2014.

Client Reference: CGL-10060A
Job Number: 24-021909-1
Date Sampled: 23/05/2024
Date Received: 27/05/2024
Date Tested: 03/06/2024
Sampled By: i2 - DTM

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	W	Liquid & Plastic Limit							Density		
		Reference	Depth Top m	Depth Base m	Type			%	% Passing 425um %	WL* %	Correlation Factor	Wp %	Ip %	Cone type	Sample Preparation	bulk Mg/m3	dry Mg/m3	PD Mg/m3
211508	WS01	D1	1.50	Not Given	D	Brown sandy silty CLAY	Atterberg 4 Point	34.6	100	40	-	24	16	80g/30 deg	N / I			
211509	WS01	D2	2.30	Not Given	D	Brown slightly gravelly sandy CLAY	Atterberg 4 Point	26.9	76	38	-	19	19	80g/30 deg	R / I			
211510	WS01	D3	5.50	Not Given	D	Brownish grey CLAY	Atterberg 4 Point	30.6	100	60	-	25	35	80g/30 deg	N / I			
211512	WS02	D1	1.70	Not Given	D	Dark brown slightly gravelly slightly sandy silty CLAY	Atterberg 4 Point	29.0	85	56	-	35	21	80g/30 deg	R / I			
211514	WS02	D3	3.60	Not Given	D	Brownish grey CLAY	Atterberg 4 Point	29.3	100	62	-	27	35	80g/30 deg	N / I			
211515	WS02	D5	5.60	Not Given	D	Brownish grey CLAY	Atterberg 4 Point	22.5	100	64	-	26	38	80g/30 deg	N / I			

Note: # Non accredited; NP - Non plastic; N - Tested in natural condition, R - Tested after >0,425mm removed by hand, W - Tested after washing to remove >425mm; I - The water content in the sample was increased , D - The water content in the sample was decreased; * - One point liquid limit corrected as per the report Correlation Factor by Clayton C.R.I and Jukes A.W (1978)

Comments:

Signed:

Katarzyna Koziel
Senior Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 13/06/2024 **GF 362.14**

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS EN ISO 17892-4:2016, BS 1377-2:2022 cl. 10

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

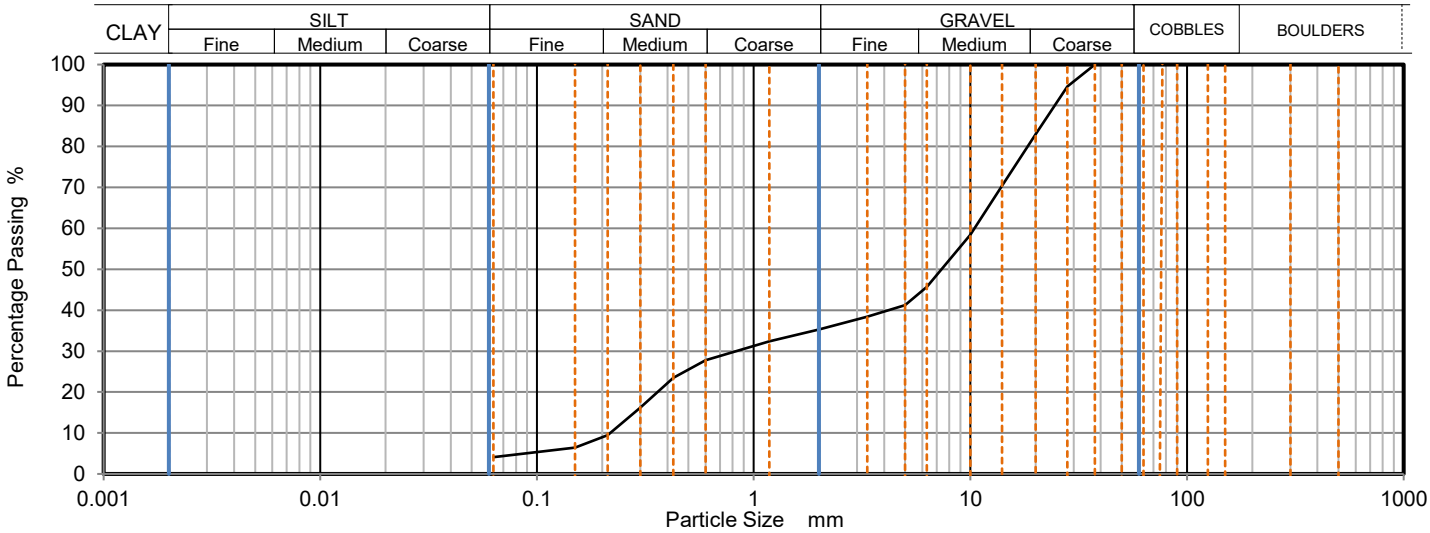
4041

Client:	Card Geotechnics Ltd	Client Reference:	CGL-10060A
Client Address:	4 Godalming Business Centre, Woolsack Way, Godalming, Surrey	Job Number:	24-021909-1
		Date Sampled:	23/05/2024
		Date Received:	27/05/2024
Contact:	Sofia Zougrou	Date Tested:	03/06/2024
Site Address:	Holiday Inn	Sampled By:	i2 - DTM

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	211511	Depth Top [m]:	3.00
Hole No.:	WS01	Depth Base [m]:	Not Given
Sample Reference:	B1	Sample Type:	B
Sample Description:	Brown very sandy slightly clayey GRAVEL with fragments of flintstones		
Sample Preparation:	Sample was quartered, oven dried at 106.2 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	95		
20	83		
14	70		
10	58		
6.3	46		
5	41		
3.35	38		
2	35		
1.18	32		
0.6	28		
0.425	24		
0.3	16		
0.212	10		
0.15	6		
0.063	4		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	65.00
Sand	31.00
Fines <0.063 mm	4.00

Grading Analysis		
D100	mm	37.5
D60	mm	10.5
D30	mm	0.828
D10	mm	0.218
Uniformity Coefficient		48
Curvature Coefficient		0.3

Uniformity and Curvature Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with ISO 17892 -4, by sieving on as received or wet sample

Remarks:

Signed:

Katarzyna Koziel
Senior Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 13/06/2024

GF 366.11

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS EN ISO 17892-4:2016, BS 1377-2:2022 cl. 10

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

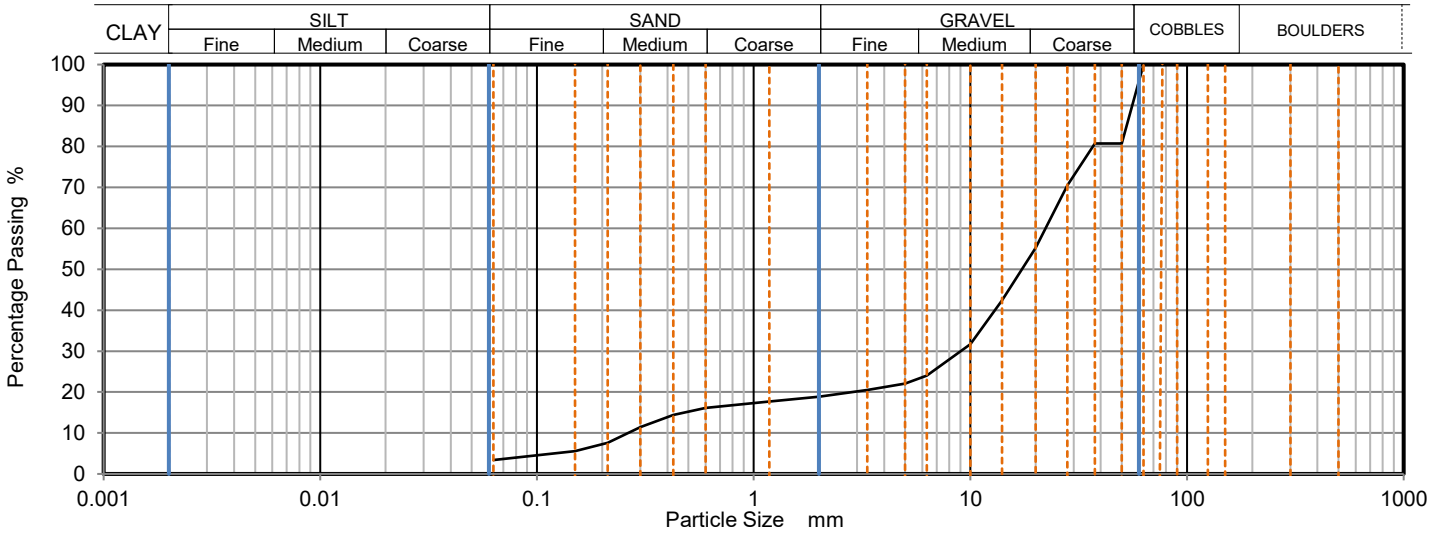
4041

Client:	Card Geotechnics Ltd	Client Reference:	CGL-10060A
Client Address:	4 Godalming Business Centre, Woolsack Way, Godalming, Surrey	Job Number:	24-021909-1
		Date Sampled:	23/05/2024
		Date Received:	27/05/2024
Contact:	Sofia Zougrou	Date Tested:	03/06/2024
Site Address:	Holiday Inn	Sampled By:	i2 - DTM

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	211513	Depth Top [m]:	2.60
Hole No.:	WS02	Depth Base [m]:	Not Given
Sample Reference:	B1	Sample Type:	B
Sample Description:	Brown sandy slightly clayey GRAVEL with fragments of flintstones		
Sample Preparation:	Sample was quartered, oven dried at 106.2 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	81		
37.5	81		
28	71		
20	55		
14	42		
10	32		
6.3	24		
5	22		
3.35	21		
2	19		
1.18	18		
0.6	16		
0.425	14		
0.3	11		
0.212	8		
0.15	6		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	81.00
Sand	16.00
Fines <0.063 mm	3.00

Grading Analysis		
D100	mm	63
D60	mm	22.2
D30	mm	9.02
D10	mm	0.264
Uniformity Coefficient		84
Curvature Coefficient		14

Uniformity and Curvature Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with ISO 17892 -4, by sieving on as received or wet sample

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS EN ISO 17892-4:2016 Table 1.

Signed:

Katarzyna Koziel
Senior Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 13/06/2024

GF 366.11

Card Geotechnics Ltd
4 Godalming Business Centre
Woolsack Way
Godalming
Surrey

t: 01483 310600

e: sofiaz@cgl-uk.com
dennism@cgl-uk.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 24-021911

Project / Site name:	Holiday Inn	**Samples received on:**	27/05/2024
Your job number:	CGL-10060A	**Samples instructed on/ Analysis started on:**	28/05/2024
Your order number:	POP016001	**Analysis completed by:**	06/06/2024
Report Issue Number:	1	**Report issued on:**	10/06/2024
Samples Analysed:	10 soil samples		

Signed:

Joanna Szwagrzak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 24-021911
Project / Site name: Holiday Inn
Your Order No: POP016001

Lab Sample Number				211516	211517	211518	211519	211520
Sample Reference				WS01	WS01	WS02	WS02	WS02
Sample Number				D3	B1	D1	D2	B1
Depth (m)				5.50	3.00	1.70	2.10	2.60
Date Sampled				23/05/2024	23/05/2024	23/05/2024	23/05/2024	23/05/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	55.2	< 0.1	< 0.1	54.5
Moisture Content	%	0.01	NONE	19	5.7	35	19	6.5
Total mass of sample received	kg	0.1	NONE	0.4	0.5	0.4	0.5	0.4
General Inorganics								
pH (L099)	pH Units	N/A	MCERTS	8.4	8.7	-	-	8.8
Total Sulphate as SO_4	mg/kg	50	MCERTS	620	-	-	-	-
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	480	26	-	-	23
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.238	0.0127	-	-	0.0115
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	238	12.7	-	-	11.5
Water Soluble SO_4 16hr extraction (2:1)	mg/l	1.25	MCERTS	-	12.7	-	-	11.5
Total Sulphur	mg/kg	50	MCERTS	4300	-	-	-	-
Organic Matter (automated)	%	0.1	MCERTS	-	-	8.7	0.8	-
Heavy Metals / Metalloids								
Magnesium (water soluble)	mg/kg	5	NONE	-	< 5.0	-	-	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-021911
Project / Site name: Holiday Inn
Your Order No: POP016001

Lab Sample Number				211521	211522	211523	211769	211770
Sample Reference				WS02	WS02	TP02	WS01	WS01
Sample Number				D3	D5	B1	D1	D2
Depth (m)				3.60	5.60	0.50	1.50	2.30
Date Sampled				23/05/2024	23/05/2024	23/05/2024	23/05/2024	23/05/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	24.7	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	17	9	8.5	24	19
Total mass of sample received	kg	0.1	NONE	0.5	0.4	0.5	0.4	0.5
General Inorganics								
pH (L099)	pH Units	N/A	MCERTS	8.3	8.6	11.2	-	8.3
Total Sulphate as SO_4	mg/kg	50	MCERTS	680	620	-	-	310
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	580	470	140	-	36
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.292	0.235	0.0725	-	0.0178
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	292	235	72.5	-	17.8
Water Soluble SO_4 16hr extraction (2:1)	mg/l	1.25	MCERTS	-	-	72.5	-	-
Total Sulphur	mg/kg	50	MCERTS	7300	3400	-	-	410
Organic Matter (automated)	%	0.1	MCERTS	-	-	-	2	-
Heavy Metals / Metalloids								
Magnesium (water soluble)	mg/kg	5	NONE	-	-	< 5.0	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 24-021911
Project / Site name: Holiday Inn

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
211516	WS01	D3	5.5	Brown clay
211517	WS01	B1	3	Brown sand with gravel and stones
211518	WS02	D1	1.7	Brown clay and sand with gravel
211519	WS02	D2	2.1	Brown clay
211520	WS02	B1	2.6	Brown sand with gravel and stones
211521	WS02	D3	3.6	Brown clay
211522	WS02	D5	5.6	Brown clay
211523	TP02	B1	0.5	Brown sand with gravel and stones
211769	WS01	D1	1.5	Brown clay
211770	WS01	D2	2.3	Brown clay and sand with gravel

Analytical Report Number : 24-021911
Project / Site name: Holiday Inn

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES	In-house method based on TRL 447	L038B	D	NONE
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES	In-house method	L038B	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022, cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022, cl 5.2 and 6

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

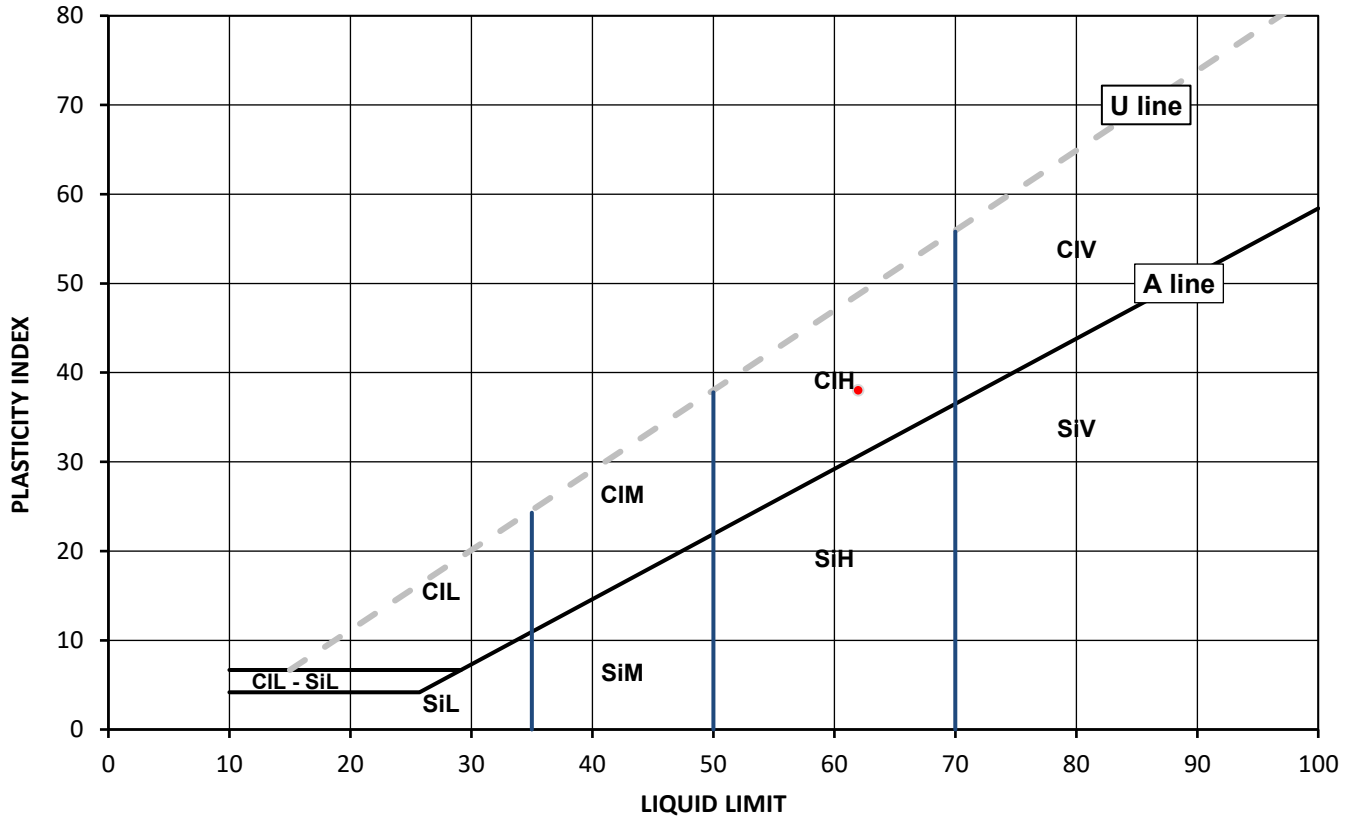
Client:	Card Geotechnics Ltd	Client Reference:	CGL 10060B
Client Address:	4 Godalming Business Centre, Woolsack Way, Godalming, Surrey	Job Number:	24-045545-1
		Date Sampled:	30/09/2024
		Date Received:	01/10/2024
Contact:	Sofia Zougrou	Date Tested:	10/10/2024
Site Address:	Holiday Inn	Sampled By:	Client - SZ

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	336701	Depth Top [m]:	3.10
Hole No.:	BH01	Depth Base [m]:	Not Given
Sample Reference:	B11	Sample Type:	B
Sample Description:	Brown slightly gravelly CLAY		
Sample Preparation:	Tested after washing to remove >0.425mm; The water content in the sample was increased		
Cone Type:	80g/30deg		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
29.0	62	24	38	0.13	0.87	96



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

Signed: Monika Siewior
Reporting Specialist

for and on behalf of i2 Analytical Ltd

Date Reported: 23/10/2024

GF 337.14

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022, cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022, cl 5.2 and 6

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

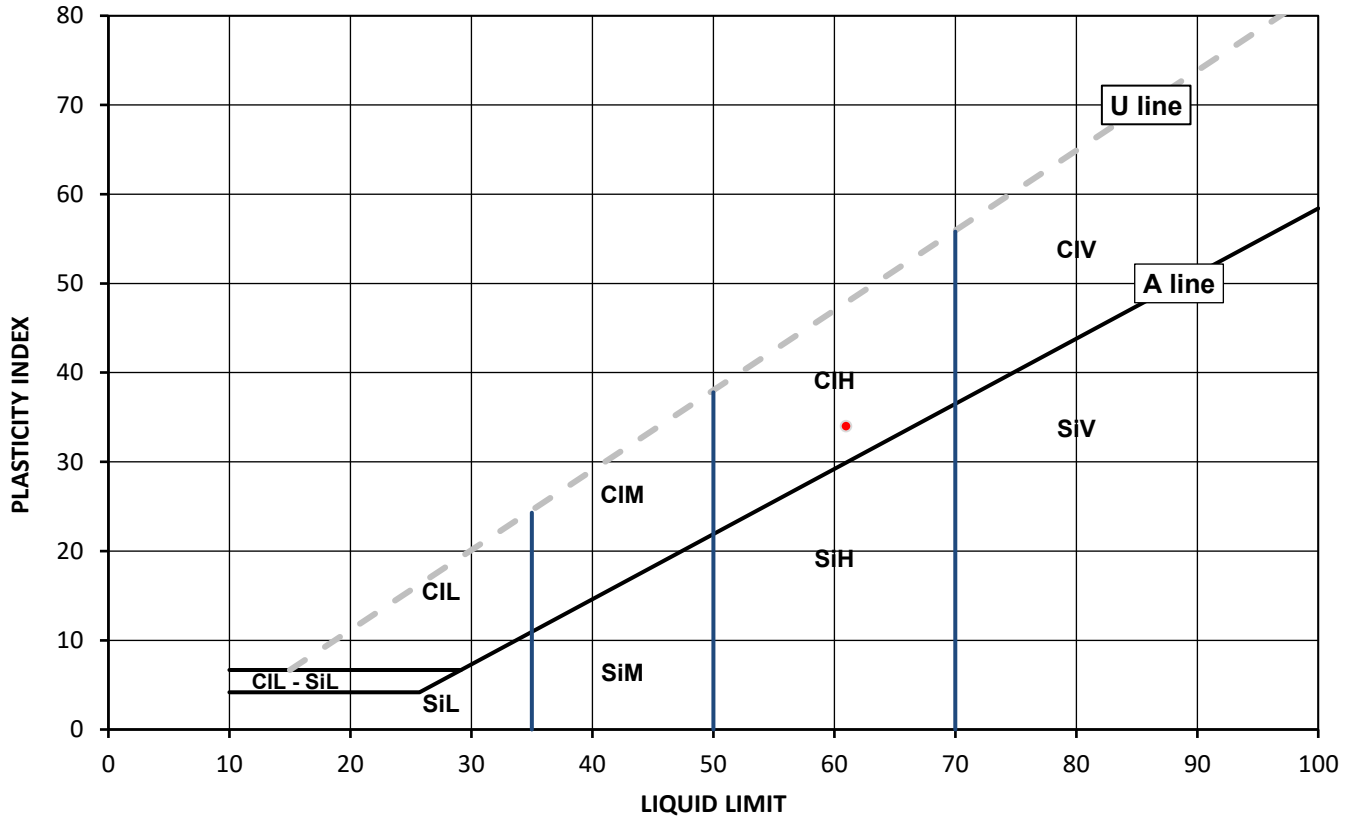
Client:	Card Geotechnics Ltd	Client Reference:	CGL 10060B
Client Address:	4 Godalming Business Centre, Woolsack Way, Godalming, Surrey	Job Number:	24-045545-1
		Date Sampled:	30/09/2024
		Date Received:	01/10/2024
Contact:	Sofia Zougrou	Date Tested:	08/10/2024
Site Address:	Holiday Inn	Sampled By:	Client - SZ

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	336703	Depth Top [m]:	6.50
Hole No.:	BH01	Depth Base [m]:	Not Given
Sample Reference:	D15	Sample Type:	D
Sample Description:	Brown CLAY		
Sample Preparation:	Tested in natural condition; The water content in the sample was increased		
Cone Type:	80g/30deg		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
25.2	61	27	34	-0.06	1.06	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

Signed: Monika Siewior
Reporting Specialist

for and on behalf of i2 Analytical Ltd

Date Reported: 23/10/2024

GF 337.14

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022, cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022, cl 5.2 and 6

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client:	Card Geotechnics Ltd	Client Reference:	CGL 10060B
Client Address:	4 Godalming Business Centre, Woolsack Way, Godalming, Surrey	Job Number:	24-045545-1
		Date Sampled:	30/09/2024
		Date Received:	01/10/2024
Contact:	Sofia Zougrou	Date Tested:	08/10/2024
Site Address:	Holiday Inn	Sampled By:	Client - SZ

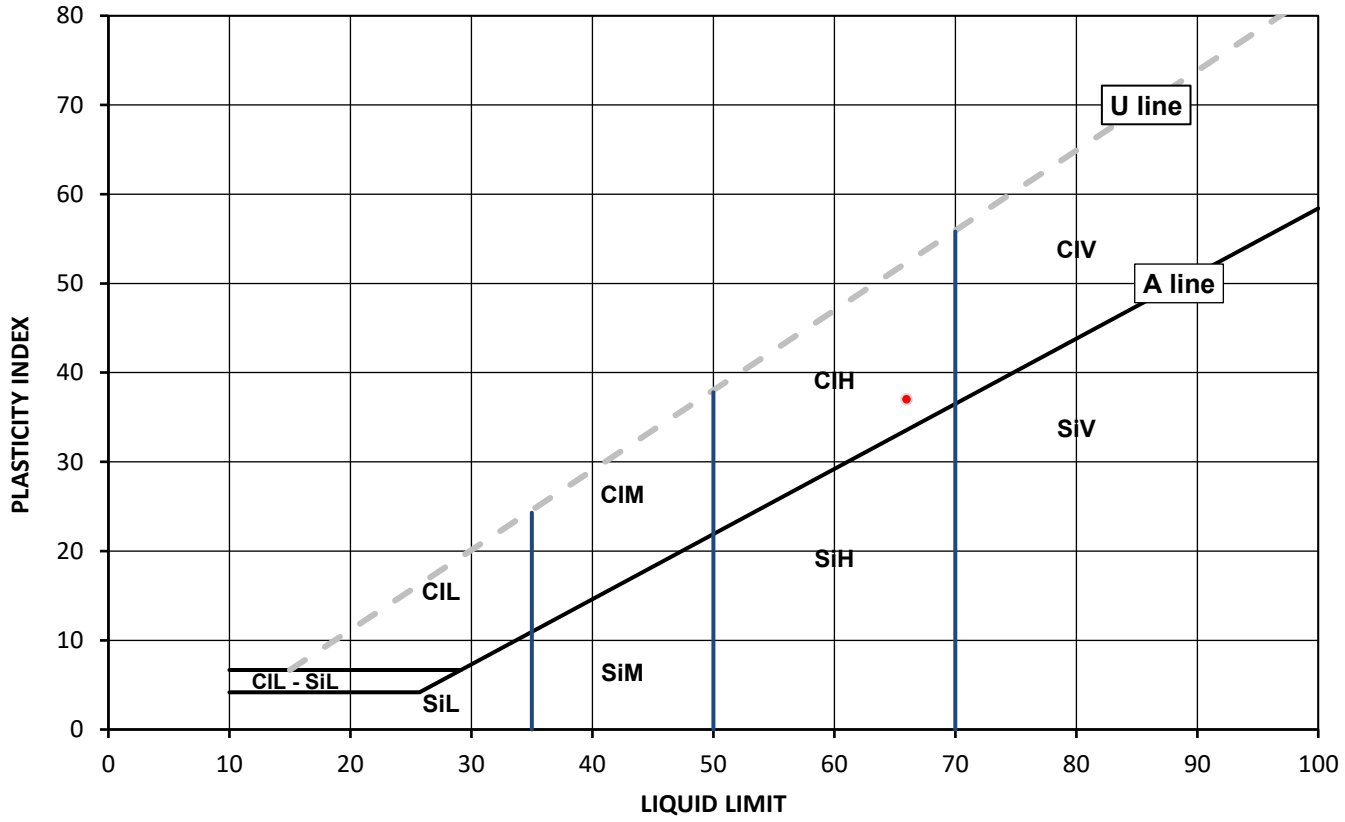
Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	336705	Depth Top [m]:	9.50
Hole No.:	BH01	Depth Base [m]:	Not Given
Sample Reference:	D20	Sample Type:	D
Sample Description:	Brown CLAY		

Sample Preparation: Tested in natural condition; The water content in the sample was increased
Cone Type: 80g/30deg

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
30.2	66	29	37	0.03	0.97	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

Signed: Monika Siewior
Reporting Specialist

for and on behalf of i2 Analytical Ltd

Date Reported: 23/10/2024

GF 337.14

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022, cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022, cl 5.2 and 6

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

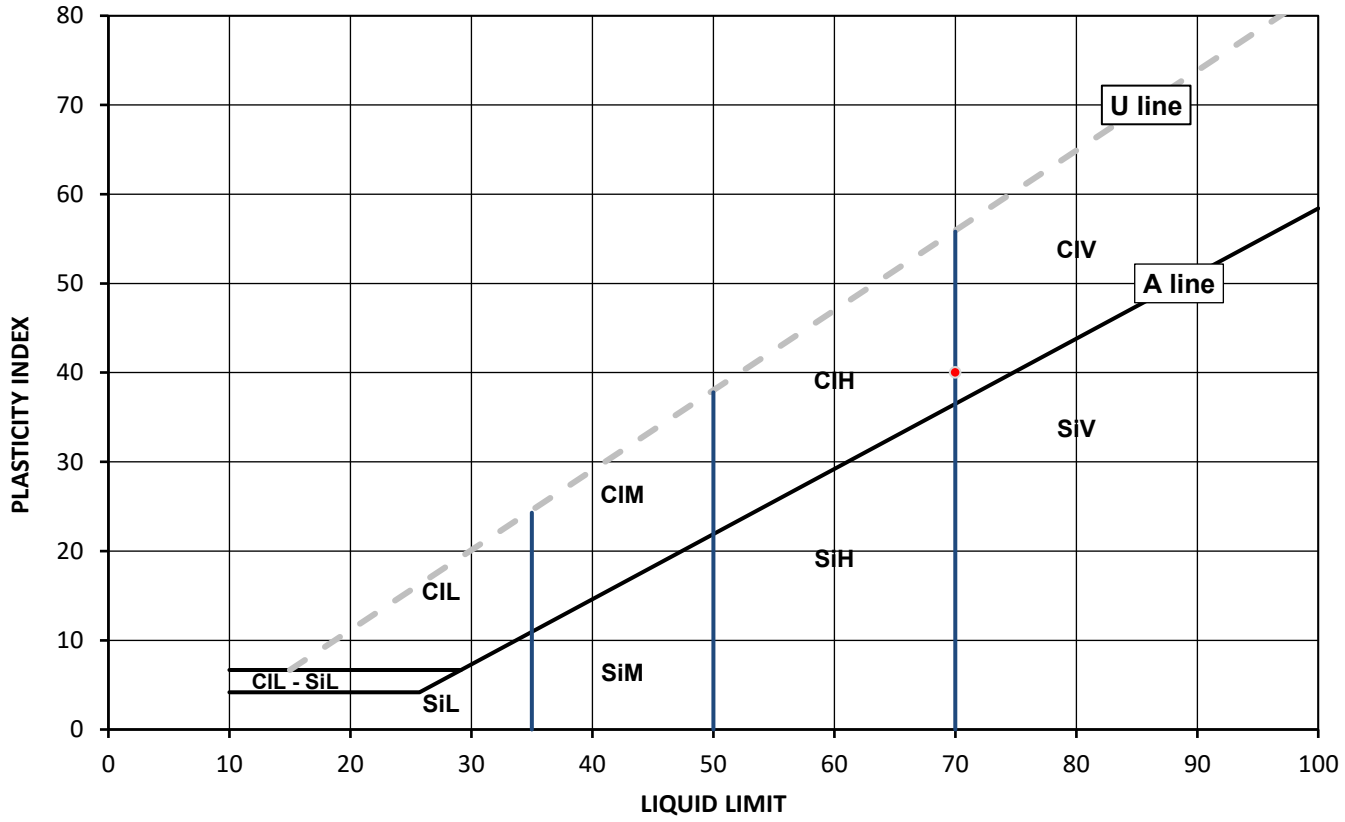
Client:	Card Geotechnics Ltd	Client Reference:	CGL 10060B
Client Address:	4 Godalming Business Centre, Woolsack Way, Godalming, Surrey	Job Number:	24-045545-1
		Date Sampled:	30/09/2024
		Date Received:	01/10/2024
Contact:	Sofia Zougrou	Date Tested:	08/10/2024
Site Address:	Holiday Inn	Sampled By:	Client - SZ

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	336707	Depth Top [m]:	12.00
Hole No.:	BH01	Depth Base [m]:	Not Given
Sample Reference:	D24	Sample Type:	D
Sample Description:	Brown CLAY		
Sample Preparation:	Tested in natural condition; The water content in the sample was increased		
Cone Type:	80g/30deg		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
29.1	70	30	40	-0.03	1.03	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

Signed: Monika Siewior
Reporting Specialist

for and on behalf of i2 Analytical Ltd

Date Reported: 23/10/2024

GF 337.14

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022, cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022, cl 5.2 and 6

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

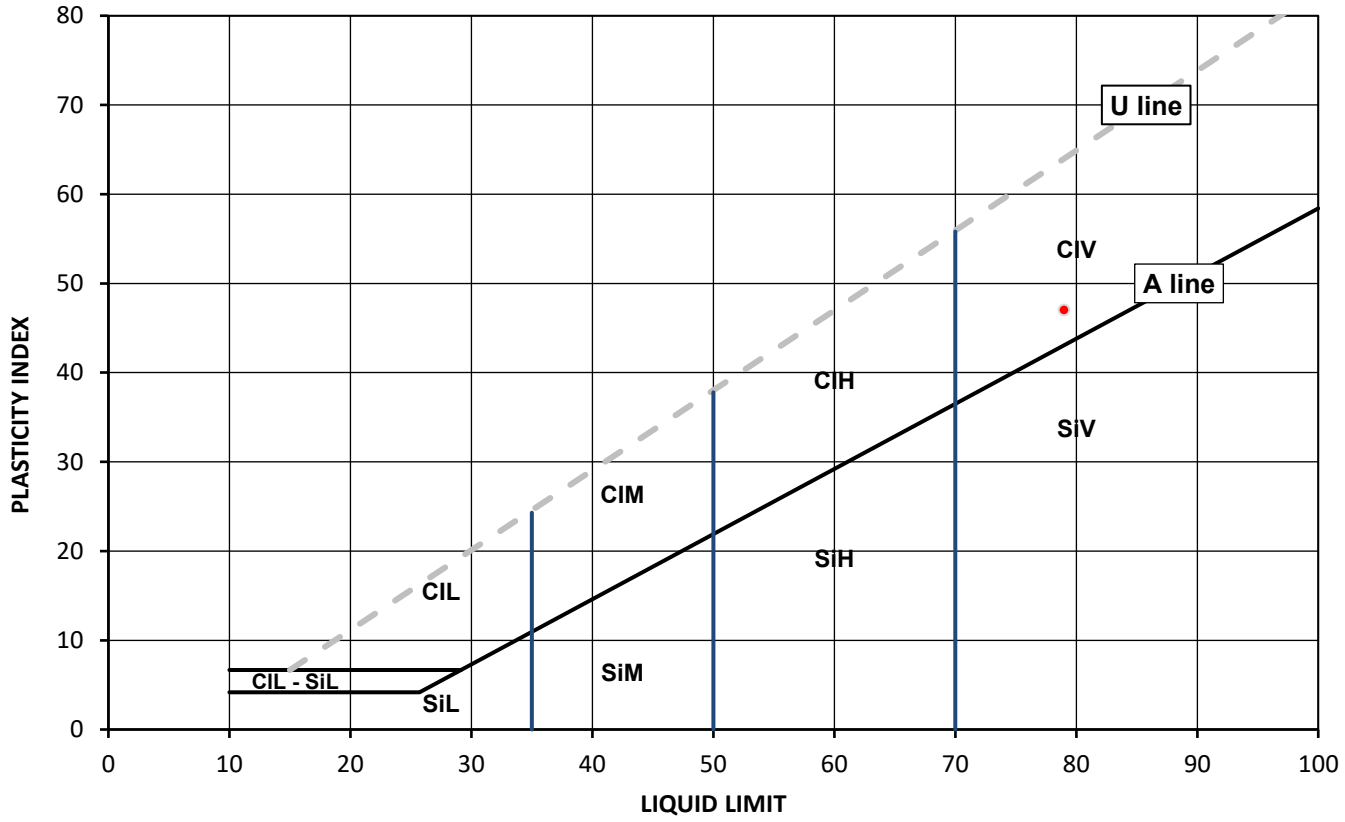
Client:	Card Geotechnics Ltd	Client Reference:	CGL 10060B
Client Address:	4 Godalming Business Centre, Woolsack Way, Godalming, Surrey	Job Number:	24-045545-1
		Date Sampled:	01/10/2024
		Date Received:	01/10/2024
Contact:	Sofia Zougrou	Date Tested:	08/10/2024
Site Address:	Holiday Inn	Sampled By:	Client - SZ

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	336709	Depth Top [m]:	15.00
Hole No.:	BH01	Depth Base [m]:	Not Given
Sample Reference:	D29	Sample Type:	D
Sample Description:	Brown CLAY		
Sample Preparation:	Tested in natural condition; The water content in the sample was increased		
Cone Type:	80g/30deg		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
29.5	79	32	47	-0.04	1.04	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

Signed: Monika Siewior
Reporting Specialist

for and on behalf of i2 Analytical Ltd

Date Reported: 23/10/2024

GF 337.14

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022, cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022, cl 5.2 and 6

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

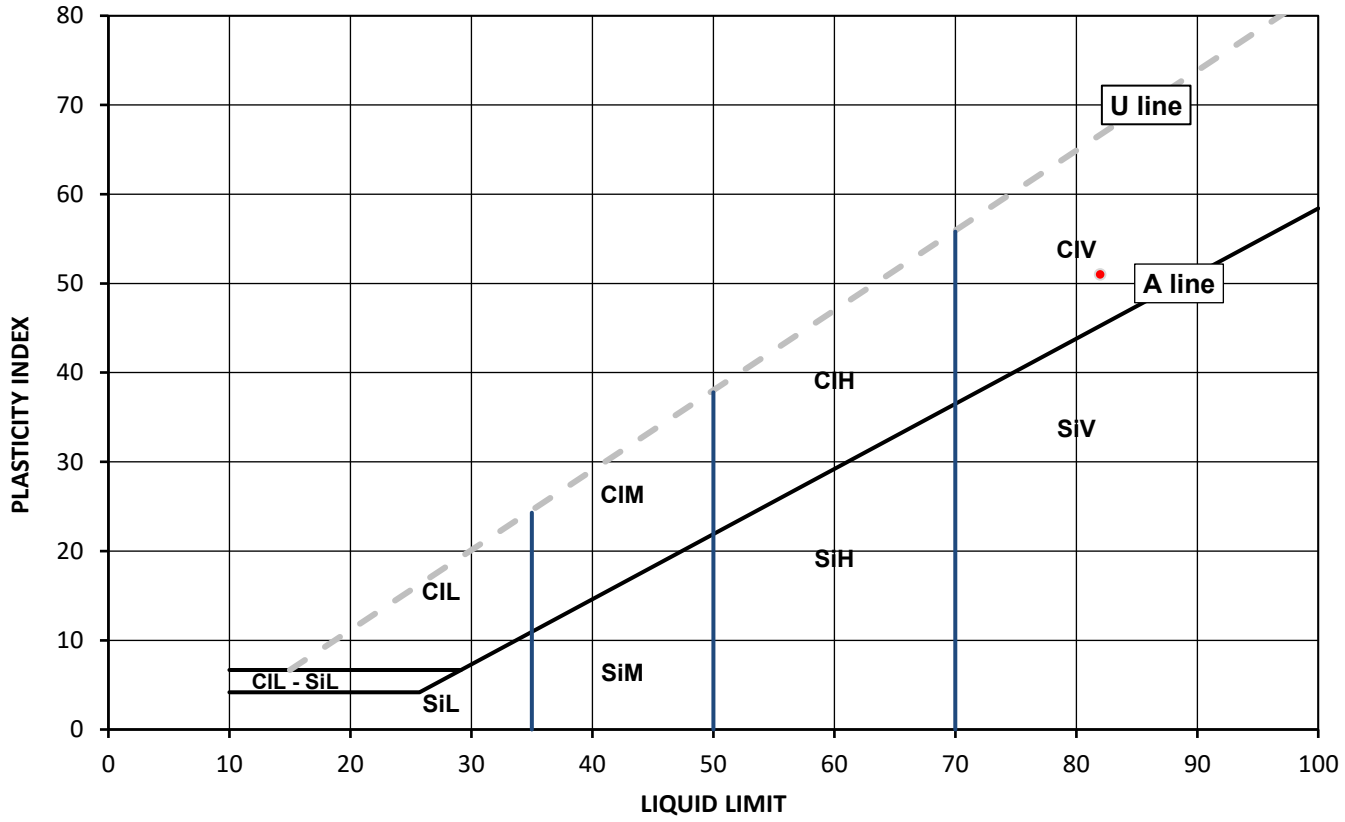
Client:	Card Geotechnics Ltd	Client Reference:	CGL 10060B
Client Address:	4 Godalming Business Centre, Woolsack Way, Godalming, Surrey	Job Number:	24-045545-1
		Date Sampled:	01/10/2024
		Date Received:	01/10/2024
Contact:	Sofia Zougrou	Date Tested:	08/10/2024
Site Address:	Holiday Inn	Sampled By:	Client - SZ

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	336711	Depth Top [m]:	18.00
Hole No.:	BH01	Depth Base [m]:	Not Given
Sample Reference:	D34	Sample Type:	D
Sample Description:	Brown CLAY		
Sample Preparation:	Tested in natural condition; The water content in the sample was increased		
Cone Type:	80g/30deg		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
26.4	82	31	51	-0.10	1.10	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

Signed: Monika Siewior
Reporting Specialist

for and on behalf of i2 Analytical Ltd

Date Reported: 23/10/2024

GF 337.14

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022, cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022, cl 5.2 and 6

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

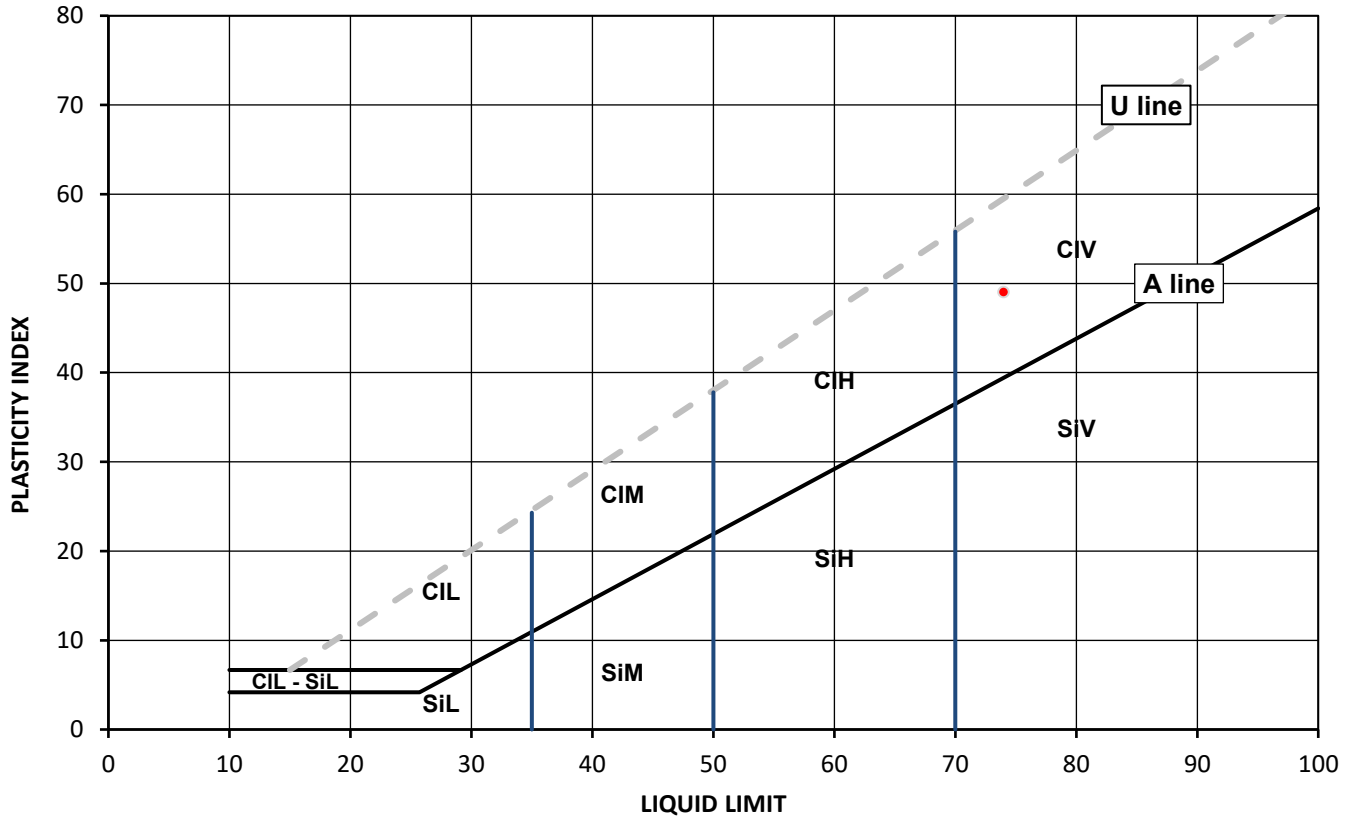
Client:	Card Geotechnics Ltd	Client Reference:	CGL 10060B
Client Address:	4 Godalming Business Centre, Woolsack Way, Godalming, Surrey	Job Number:	24-045545-1
		Date Sampled:	01/10/2024
		Date Received:	01/10/2024
Contact:	Sofia Zougrou	Date Tested:	08/10/2024
Site Address:	Holiday Inn	Sampled By:	Client - SZ

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	336713	Depth Top [m]:	21.00
Hole No.:	BH01	Depth Base [m]:	Not Given
Sample Reference:	D39	Sample Type:	D
Sample Description:	Brown CLAY		
Sample Preparation:	Tested in natural condition; The water content in the sample was increased		
Cone Type:	80g/30deg		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
23.5	74	25	49	-0.02	1.02	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

Signed: Monika Siewior
Reporting Specialist

for and on behalf of i2 Analytical Ltd

Date Reported: 23/10/2024

GF 337.14

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022, cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022, cl 5.2 and 6

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

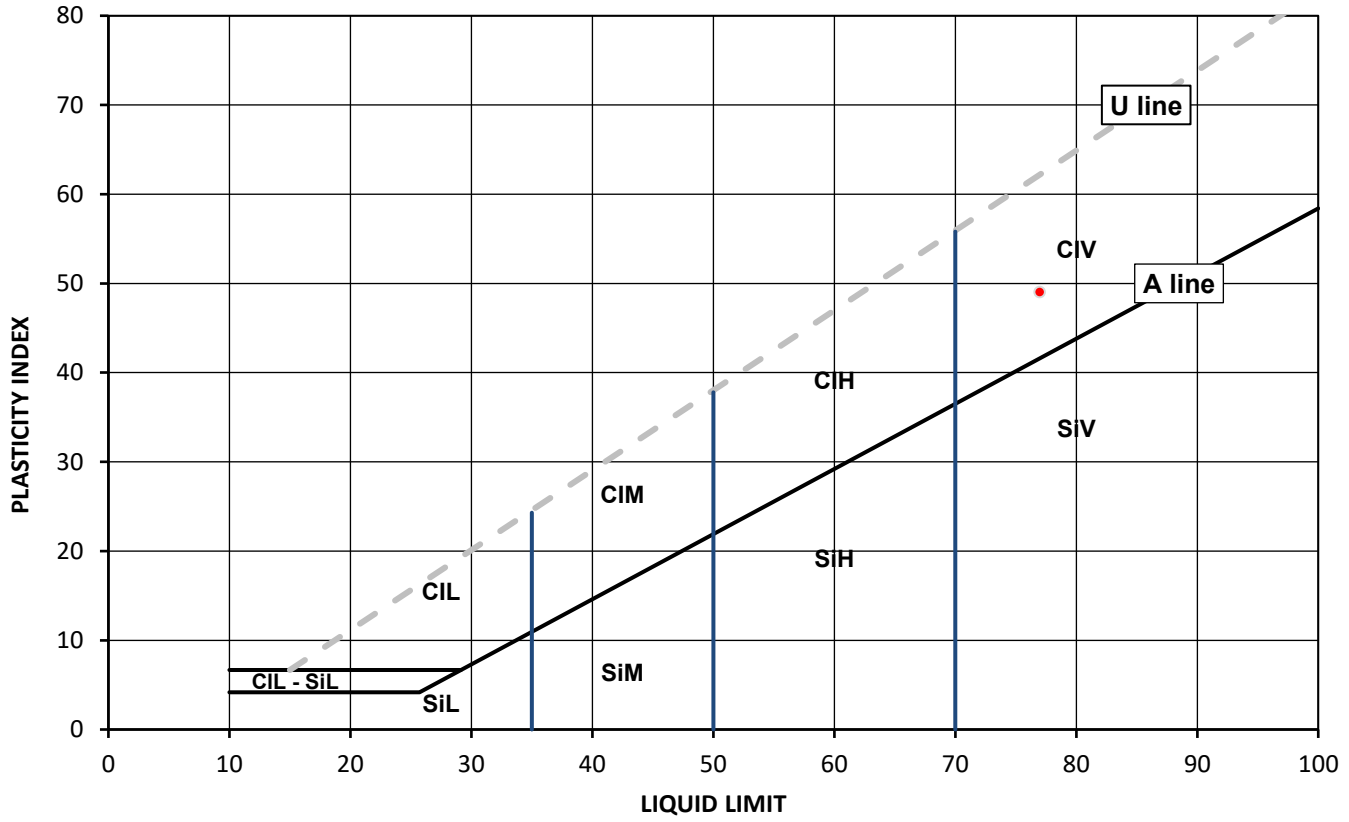
Client:	Card Geotechnics Ltd	Client Reference:	CGL 10060B
Client Address:	4 Godalming Business Centre, Woolsack Way, Godalming, Surrey	Job Number:	24-045545-1
		Date Sampled:	01/10/2024
		Date Received:	01/10/2024
Contact:	Sofia Zougrou	Date Tested:	08/10/2024
Site Address:	Holiday Inn	Sampled By:	Client - SZ

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	336715	Depth Top [m]:	23.45
Hole No.:	BH01	Depth Base [m]:	Not Given
Sample Reference:	D43	Sample Type:	D
Sample Description:	Brown CLAY		
Sample Preparation:	Tested in natural condition; The water content in the sample was increased		
Cone Type:	80g/30deg		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
25.1	77	28	49	-0.06	1.06	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

Signed: Monika Siewior
Reporting Specialist

for and on behalf of i2 Analytical Ltd

Date Reported: 23/10/2024

GF 337.14

SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client: Card Geotechnics Ltd

Client Address: 4 Godalming Business Centre, Woolsack Way,
Godalming, Surrey

Contact: Sofia Zougrou

Site Address: Holiday Inn

BS EN ISO 17892-12:2018+A2:2022 cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022, cl 5.2 and 6. W by BS EN ISO 17892-1:2014+A1:2022.

Client Reference: CGL 10060B
Job Number: 24-045545-1
Date Sampled: 30/09 - 01/10/2024
Date Received: 01/10/2024
Date Tested: 10/10/2024
Sampled By: Client - SZ

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	W	Liquid & Plastic Limit							Density		
		Reference	Depth Top m	Depth Base m	Type			%	% Passing 425um %	WL* %	Correlation Factor	Wp %	Ip %	Cone type	Sample Preparation	bulk Mg/m3	dry Mg/m3	PD Mg/m3
336701	BH01	B11	3.10	Not Given	B	Brown slightly gravelly CLAY	Atterberg 4 Point	29.0	96	62	-	24	38	80g/30 deg	WR / I			
336703	BH01	D15	6.50	Not Given	D	Brown CLAY	Atterberg 4 Point	25.2	100	61	-	27	34	80g/30 deg	N / I			
336705	BH01	D20	9.50	Not Given	D	Brown CLAY	Atterberg 4 Point	30.2	100	66	-	29	37	80g/30 deg	N / I			
336707	BH01	D24	12.00	Not Given	D	Brown CLAY	Atterberg 4 Point	29.1	100	70	-	30	40	80g/30 deg	N / I			
336709	BH01	D29	15.00	Not Given	D	Brown CLAY	Atterberg 4 Point	29.5	100	79	-	32	47	80g/30 deg	N / I			
336711	BH01	D34	18.00	Not Given	D	Brown CLAY	Atterberg 4 Point	26.4	100	82	-	31	51	80g/30 deg	N / I			
336713	BH01	D39	21.00	Not Given	D	Brown CLAY	Atterberg 4 Point	23.5	100	74	-	25	49	80g/30 deg	N / I			
336715	BH01	D43	23.45	Not Given	D	Brown CLAY	Atterberg 4 Point	25.1	100	77	-	28	49	80g/30 deg	N / I			

Note: # Non accredited; NP - Non plastic; N - Tested in natural condition, R - Tested after >0,425mm removed by hand, WR - Tested after washing to remove >425mm; I - The water content in the sample was increased , D - The water content in the sample was decreased; * - One point liquid limit corrected as per the report Correlation Factor by Clayton C.R.I and Jukes A.W (1978)

Comments:

Signed: Monika Siewior
Reporting Specialist

for and on behalf of i2 Analytical Ltd

Date Reported: 23/10/2024 **GF 362.16**

SUMMARY REPORT

DETERMINATION OF WATER CONTENT

Tested in Accordance with: BS EN ISO 17892-1:2014+A1:2022, BS 1377-2: 2022, clause 4.1

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client: Card Geotechnics Ltd

Client Address: 4 Godalming Business Centre, Woolsack Way, Godalming, Surrey

Contact: Sofia Zougrou

Site Address: Holiday Inn

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Client Reference: CGL 10060B
Job Number: 24-045545-1
Date Sampled: 30/09 - 01/10/2024
Date Received: 01/10/2024
Date Tested: 08/10 - 10/10/2024
Sampled By: Client - SZ

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC											
		Reference	Depth Top m	Depth Base m	Type			%											
336701	BH01	B11	3.10	Not Given	B	Brown slightly gravelly CLAY		29.0											
336703	BH01	D15	6.50	Not Given	D	Brown CLAY		25.2											
336705	BH01	D20	9.50	Not Given	D	Brown CLAY		30.2											
336707	BH01	D24	12.00	Not Given	D	Brown CLAY		29.1											
336709	BH01	D29	15.00	Not Given	D	Brown CLAY		29.5											
336711	BH01	D34	18.00	Not Given	D	Brown CLAY		26.4											
336713	BH01	D39	21.00	Not Given	D	Brown CLAY		23.5											
336715	BH01	D43	23.45	Not Given	D	Brown CLAY		25.1											

Comments:

Signed: Monika Siewior
Reporting Specialist

for and on behalf of i2 Analytical Ltd

Date Reported: 23/10/2024

GF 126.18

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS EN ISO 17892-4:2016, BS 1377-2:2022 cl. 10

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

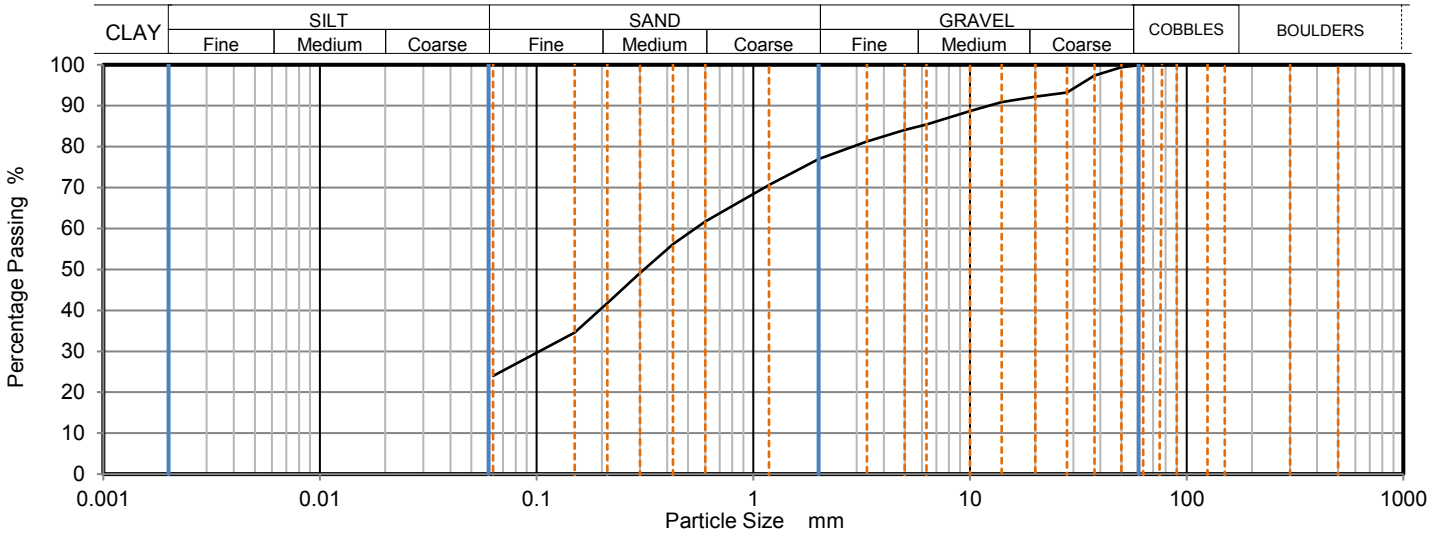
4041

Client:	Card Geotechnics Ltd	Client Reference:	CGL 10060B
Client Address:	4 Godalming Business Centre, Woolsack Way, Godalming, Surrey	Job Number:	24-045545-1
		Date Sampled:	30/09/2024
		Date Received:	01/10/2024
Contact:	Sofia Zougrou	Date Tested:	10/10/2024
Site Address:	Holiday Inn	Sampled By:	Client - SZ

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	336697	Depth Top [m]:	0.50
Hole No.:	BH01	Depth Base [m]:	Not Given
Sample Reference:	B4	Sample Type:	B
Sample Description:	Dark grey very gravelly very clayey SAND		
Sample Preparation:	Sample was quartered, oven dried at 108.8 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	99		
37.5	97		
28	93		
20	92		
14	91		
10	89		
6.3	85		
5	84		
3.35	81		
2	77		
1.18	71		
0.6	62		
0.425	56		
0.3	49		
0.212	42		
0.15	35		
0.063	24		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	23.00
Sand	53.00
Fines <0.063 mm	24.00

Grading Analysis		
D100	mm	63
D60	mm	0.54
D30	mm	0.103
D10	mm	
Uniformity Coefficient		8.6
Curvature Coefficient		

Uniformity and Curvature Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with ISO 17892 -4, by sieving on as received or wet sample

Remarks:

Signed: Monika Siewior
Reporting Specialist

for and on behalf of i2 Analytical Ltd

Date Reported: 23/10/2024

GF 366.11

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS EN ISO 17892-4:2016, BS 1377-2:2022 cl. 10

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

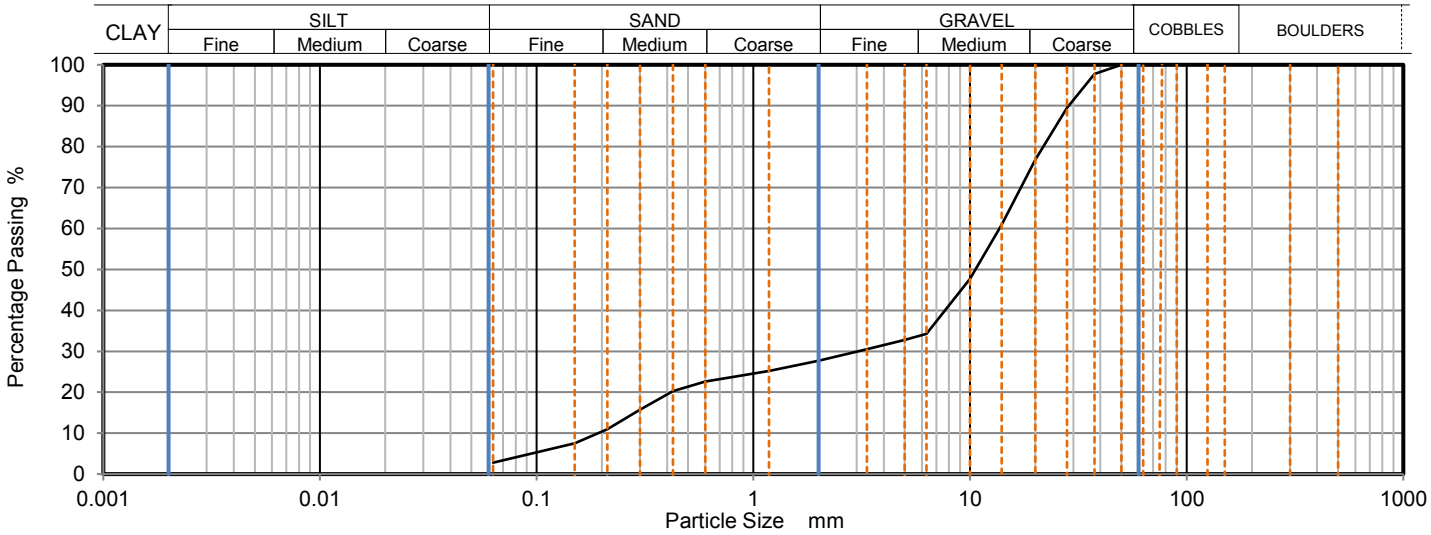
4041

Client:	Card Geotechnics Ltd	Client Reference:	CGL 10060B
Client Address:	4 Godalming Business Centre, Woolsack Way, Godalming, Surrey	Job Number:	24-045545-1
		Date Sampled:	30/09/2024
		Date Received:	01/10/2024
Contact:	Sofia Zougrou	Date Tested:	10/10/2024
Site Address:	Holiday Inn	Sampled By:	Client - SZ

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	336698	Depth Top [m]:	1.20
Hole No.:	BH01	Depth Base [m]:	Not Given
Sample Reference:	B6	Sample Type:	B
Sample Description:	Grey very gravelly slightly clayey SAND		
Sample Preparation:	Sample was quartered, oven dried at 107.7 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	98		
28	90		
20	77		
14	61		
10	48		
6.3	34		
5	33		
3.35	31		
2	28		
1.18	25		
0.6	23		
0.425	20		
0.3	16		
0.212	11		
0.15	8		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	72.00
Sand	25.00
Fines <0.063 mm	3.00

Grading Analysis		
D100	mm	50
D60	mm	13.7
D30	mm	3.07
D10	mm	0.193
Uniformity Coefficient		71
Curvature Coefficient		3.6

Uniformity and Curvature Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with ISO 17892 -4, by sieving on as received or wet sample

Remarks:

Signed: Monika Siewior
Reporting Specialist

for and on behalf of i2 Analytical Ltd

Date Reported: 23/10/2024

GF 366.11

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS EN ISO 17892-4:2016, BS 1377-2:2022 cl. 10

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

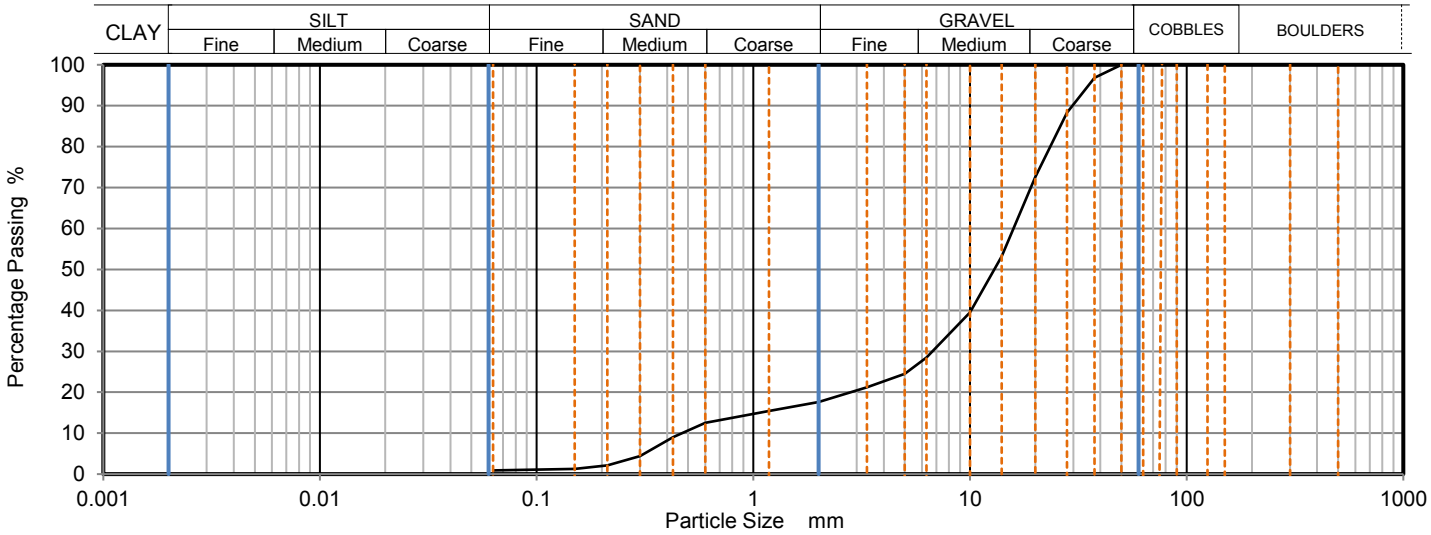
4041

Client:	Card Geotechnics Ltd	Client Reference:	CGL 10060B
Client Address:	4 Godalming Business Centre, Woolsack Way, Godalming, Surrey	Job Number:	24-045545-1
		Date Sampled:	30/09/2024
		Date Received:	01/10/2024
Contact:	Sofia Zougrou	Date Tested:	10/10/2024
Site Address:	Holiday Inn	Sampled By:	Client - SZ

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	336699	Depth Top [m]:	2.20
Hole No.:	BH01	Depth Base [m]:	Not Given
Sample Reference:	B8	Sample Type:	B
Sample Description:	Grey sandy GRAVEL		
Sample Preparation:	Sample was quartered, oven dried at 108.8 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	97		
28	88		
20	73		
14	53		
10	40		
6.3	29		
5	25		
3.35	21		
2	18		
1.18	15		
0.6	13		
0.425	9		
0.3	4		
0.212	2		
0.15	1		
0.063	1		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	82.00
Sand	17.00
Fines <0.063 mm	1.00

Grading Analysis		
D100	mm	50
D60	mm	15.9
D30	mm	6.71
D10	mm	0.468
Uniformity Coefficient		34
Curvature Coefficient		6.1

Uniformity and Curvature Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with ISO 17892 -4, by sieving on as received or wet sample

Remarks:

Signed: Monika Siewior
Reporting Specialist

for and on behalf of i2 Analytical Ltd

Date Reported: 23/10/2024

GF 366.11

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS EN ISO 17892-4:2016, BS 1377-2:2022 cl. 10

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

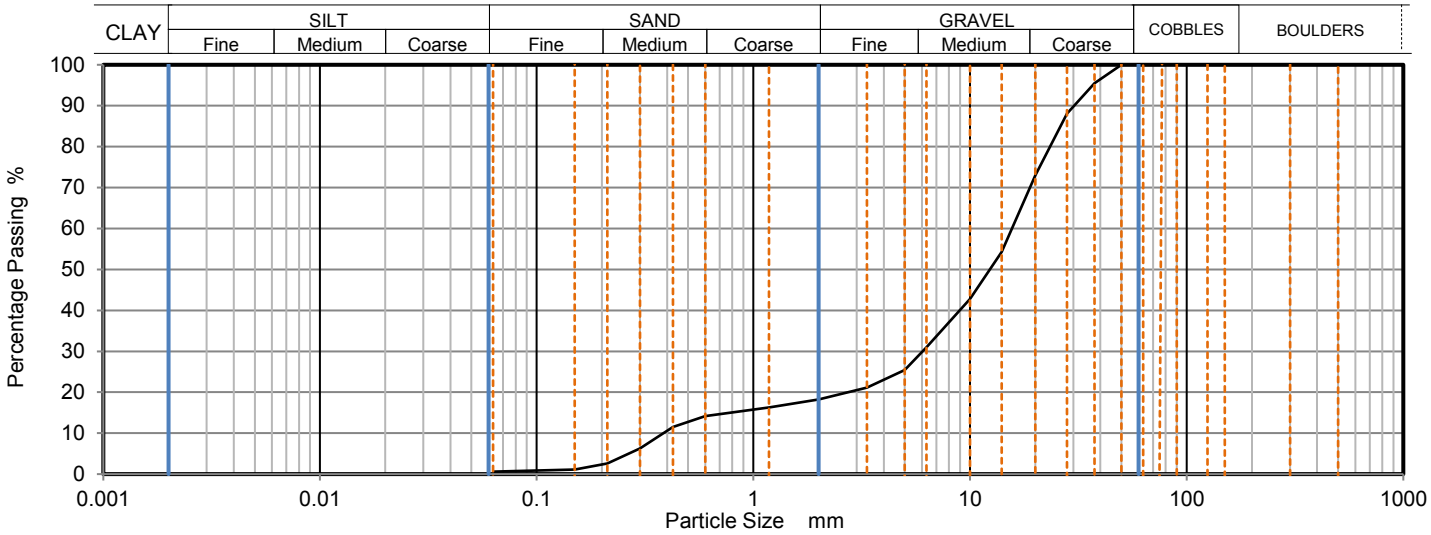
4041

Client:	Card Geotechnics Ltd	Client Reference:	CGL 10060B
Client Address:	4 Godalming Business Centre, Woolsack Way, Godalming, Surrey	Job Number:	24-045545-1
		Date Sampled:	30/09/2024
		Date Received:	01/10/2024
Contact:	Sofia Zougrou	Date Tested:	10/10/2024
Site Address:	Holiday Inn	Sampled By:	Client - SZ

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	336700	Depth Top [m]:	2.50
Hole No.:	BH01	Depth Base [m]:	Not Given
Sample Reference:	D9	Sample Type:	B
Sample Description:	Grey sandy GRAVEL		
Sample Preparation:	Sample was quartered, oven dried at 107.7 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	96		
28	88		
20	73		
14	54		
10	43		
6.3	31		
5	25		
3.35	21		
2	18		
1.18	16		
0.6	14		
0.425	12		
0.3	6		
0.212	3		
0.15	1		
0.063	1		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	81.00
Sand	18.00
Fines <0.063 mm	1.00

Grading Analysis		
D100	mm	50
D60	mm	15.6
D30	mm	6.05
D10	mm	0.385
Uniformity Coefficient		41
Curvature Coefficient		6.1

Uniformity and Curvature Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with ISO 17892 -4, by sieving on as received or wet sample

Remarks:

Signed: Monika Siewior
Reporting Specialist

for and on behalf of i2 Analytical Ltd

Date Reported: 23/10/2024

GF 366.11

TEST CERTIFICATE

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST

Tested in Accordance with: BS EN ISO 17982-8:2018,
BS 1377-2 Cl. 28:2022

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client:	Card Geotechnics Ltd	Client Reference:	CGL 10060B
Client Address:	4 Godalming Business Centre, Woolsack Way, Godalming, Surrey	Job Number:	24-045545-1
		Date Sampled:	30/09/2024
		Date Received:	01/10/2024
Contact:	Sofia Zougrou	Date Tested:	22/10/2024
Site Address:	Holiday Inn	Sampled By:	Client - SZ

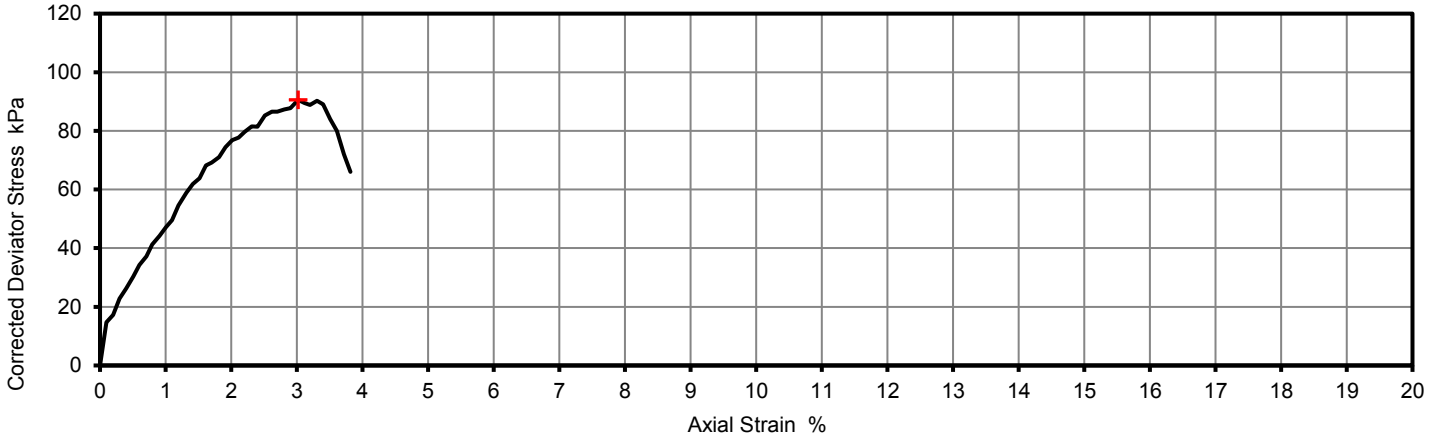
Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

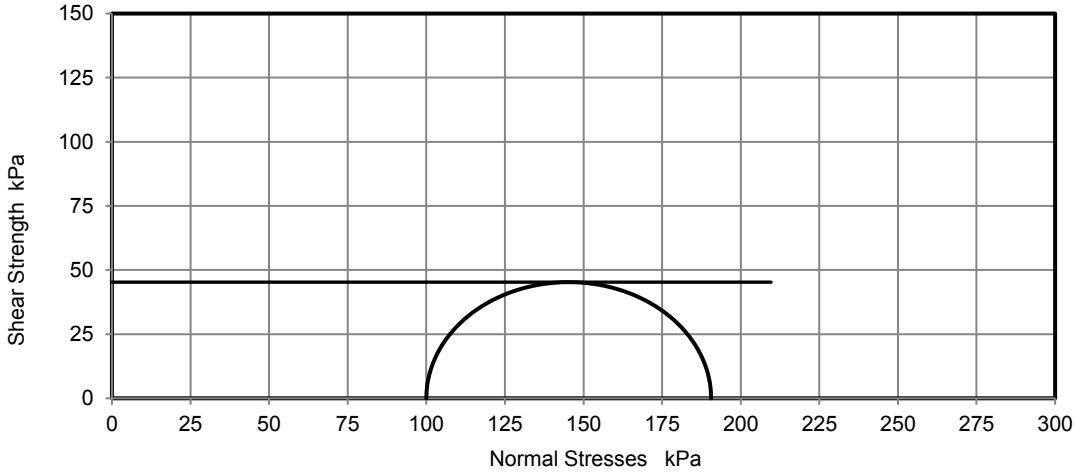
Laboratory Reference:	336702	Depth Top [m]:	5.00
Hole No.:	BH01	Depth Base [m]:	Not Given
Sample Reference:	U13	Sample Type:	U
Sample Description:	Dark brown CLAY		
Sample Preparation:	Sample prepared in accordance with BS EN ISO 17892-8: 2018 Clause 6.2.		

Test Number	1		Rate of Strain	2.00	%/min	
Depth within Sample	-	m	Cell Pressure	100	kPa	
Length	100.36	mm	Axial Strain at Failure	3.0	%	
Diameter	49.96	mm	Deviator Stress, (σ1 - σ3)f	91	kPa	
Length Prior to Shearing	100.36	mm	Undrained Shear Strength, cu	45	kPa	½(σ1 - σ3)f
Bulk Density	1.96	Mg/m3	Mode of Failure	Brittle		
Initial Water Content	25.6	%	Membrane Thickness	0.27	mm	
Final Water Content	26.0	%	Membrane Correction	0.94	kPa	
Dry Density	1.56	Mg/m3				

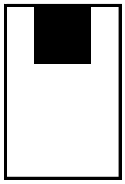
Deviator Stress v Axial Strain



Mohr Circles



Position within sample



Note: Deviator stress corrected for area change and membrane effects.

Remarks:

Signed: Monika Siewior
Reporting Specialist

for and on behalf of i2 Analytical Ltd

Date Reported: 23/10/2024

GF 463.4

TEST CERTIFICATE

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST

Tested in Accordance with: BS EN ISO 17982-8:2018,
BS 1377-2 Cl. 28:2022

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client:	Card Geotechnics Ltd	Client Reference:	CGL 10060B
Client Address:	4 Godalming Business Centre, Woolsack Way, Godalming, Surrey	Job Number:	24-045545-1
		Date Sampled:	30/09/2024
		Date Received:	01/10/2024
Contact:	Sofia Zougrou	Date Tested:	22/10/2024
Site Address:	Holiday Inn	Sampled By:	Client - SZ

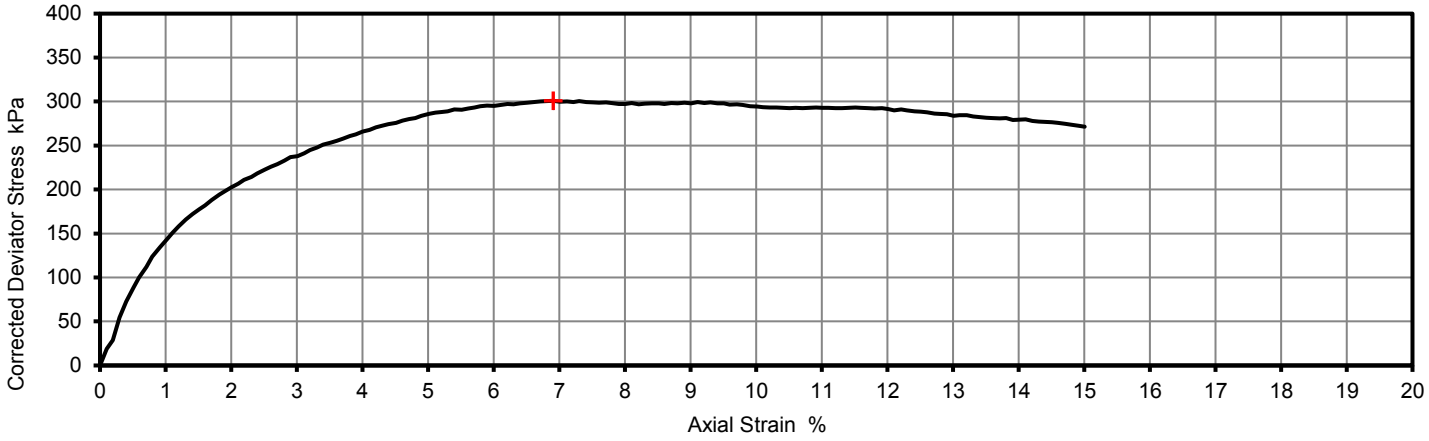
Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

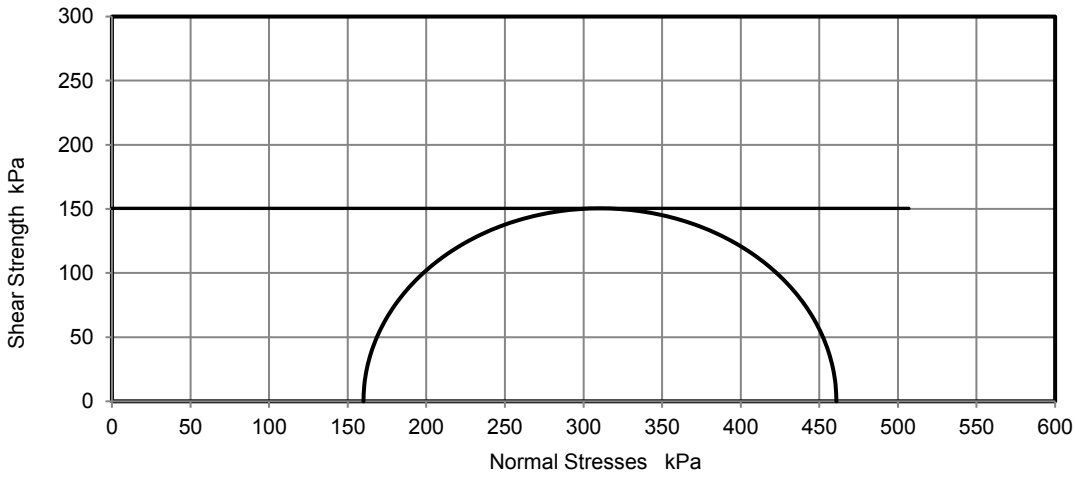
Laboratory Reference:	336704	Depth Top [m]:	8.00
Hole No.:	BH01	Depth Base [m]:	Not Given
Sample Reference:	U17	Sample Type:	U
Sample Description:	Dark brown CLAY		
Sample Preparation:	Sample prepared in accordance with BS EN ISO 17892-8: 2018 Clause 6.2.		

Test Number	1		Rate of Strain	2.00	%/min	
Depth within Sample	-	m	Cell Pressure	160	kPa	
Length	204.47	mm	Axial Strain at Failure	6.9	%	
Diameter	103.22	mm	Deviator Stress, (σ1 - σ3)f	301	kPa	
Length Prior to Shearing	204.47	mm	Undrained Shear Strength, cu	150	kPa	½(σ1 - σ3)f
Bulk Density	2.00	Mg/m3	Mode of Failure	Compound		
Initial Water Content	27.4	%	Membrane Thickness	0.28	mm	
Final Water Content	26.3	%	Membrane Correction	1.08	kPa	
Dry Density	1.57	Mg/m3				

Deviator Stress v Axial Strain



Mohr Circles



Position within sample

Note: Deviator stress corrected for area change and membrane effects.

Remarks:

Signed: Monika Siewior
Reporting Specialist

for and on behalf of i2 Analytical Ltd

Date Reported: 23/10/2024

GF 463.4

TEST CERTIFICATE

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST

Tested in Accordance with: BS EN ISO 17982-8:2018,
BS 1377-2 Cl. 28:2022

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client:	Card Geotechnics Ltd	Client Reference:	CGL 10060B
Client Address:	4 Godalming Business Centre, Woolsack Way, Godalming, Surrey	Job Number:	24-045545-1
		Date Sampled:	30/09/2024
		Date Received:	01/10/2024
Contact:	Sofia Zougrou	Date Tested:	22/10/2024
Site Address:	Holiday Inn	Sampled By:	Client - SZ

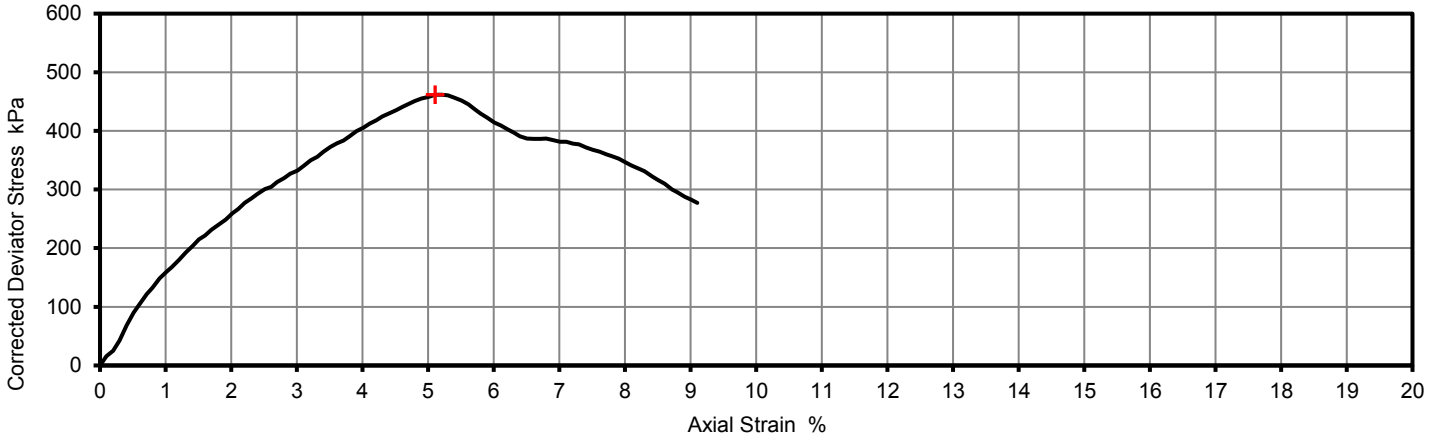
Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

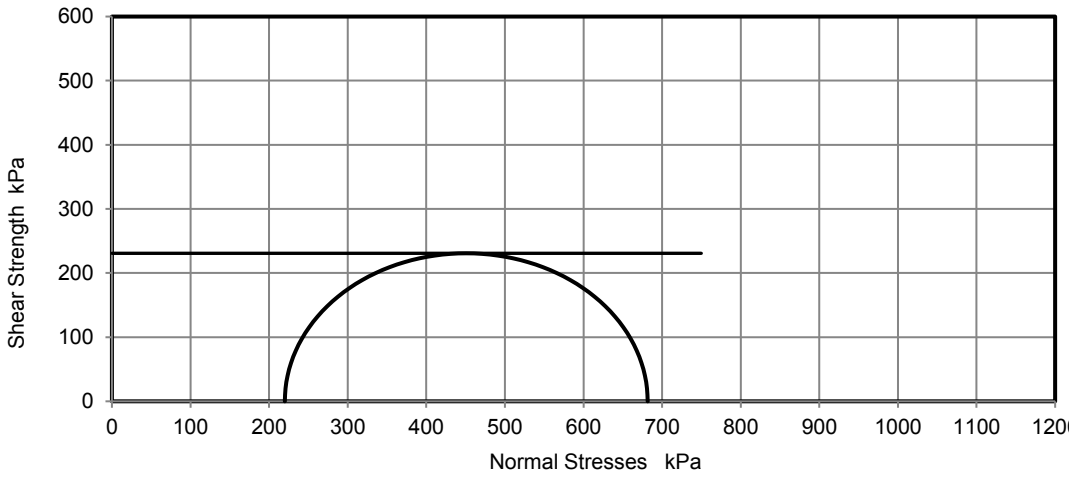
Laboratory Reference:	336706	Depth Top [m]:	11.00
Hole No.:	BH01	Depth Base [m]:	Not Given
Sample Reference:	U22	Sample Type:	U
Sample Description:	Dark brown CLAY		
Sample Preparation:	Sample prepared in accordance with BS EN ISO 17892-8: 2018 Clause 6.2.		

Test Number	1		Rate of Strain	2.00	%/min	
Depth within Sample	-	m	Cell Pressure	220	kPa	
Length	205.15	mm	Axial Strain at Failure	5.1	%	
Diameter	103.14	mm	Deviator Stress, (σ1 - σ3)f	462	kPa	
Length Prior to Shearing	205.13	mm	Undrained Shear Strength, cu	231	kPa	½(σ1 - σ3)f
Bulk Density	2.01	Mg/m3	Mode of Failure	Compound		
Initial Water Content	28.4	%	Membrane Thickness	0.28	mm	
Final Water Content	27.7	%	Membrane Correction	0.80	kPa	
Dry Density	1.57	Mg/m3				

Deviator Stress v Axial Strain



Mohr Circles



Position within sample

Note: Deviator stress corrected for area change and membrane effects.

Remarks:

Signed: Monika Siewior
Reporting Specialist

for and on behalf of i2 Analytical Ltd

Date Reported: 23/10/2024

GF 463.4

TEST CERTIFICATE

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST

Tested in Accordance with: BS EN ISO 17982-8:2018,
BS 1377-2 Cl. 28:2022

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client:	Card Geotechnics Ltd	Client Reference:	CGL 10060B
Client Address:	4 Godalming Business Centre, Woolsack Way, Godalming, Surrey	Job Number:	24-045545-1
		Date Sampled:	01/10/2024
		Date Received:	01/10/2024
Contact:	Sofia Zougrou	Date Tested:	22/10/2024
Site Address:	Holiday Inn	Sampled By:	Client - SZ

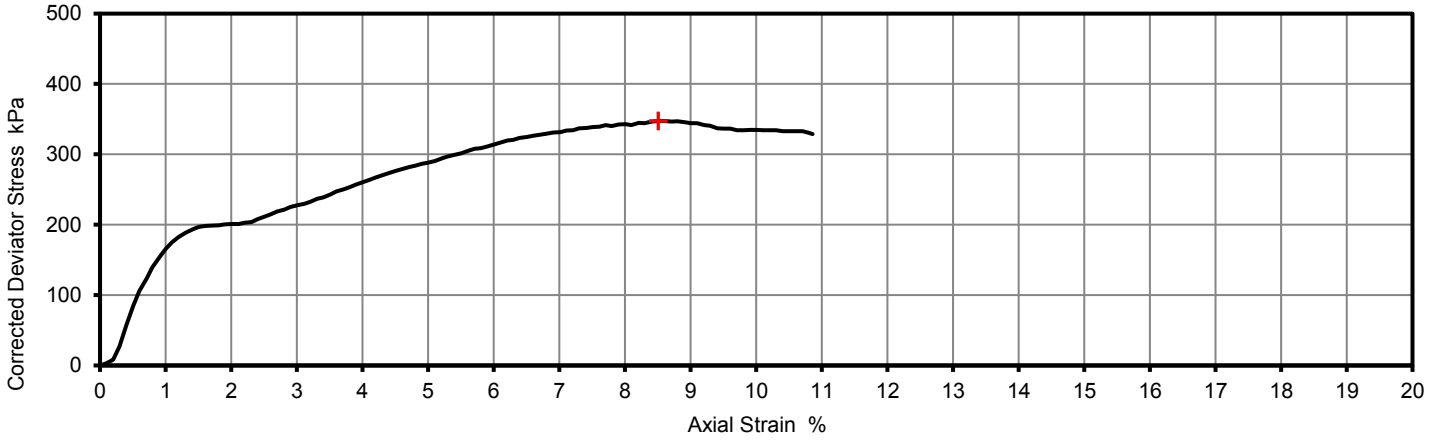
Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

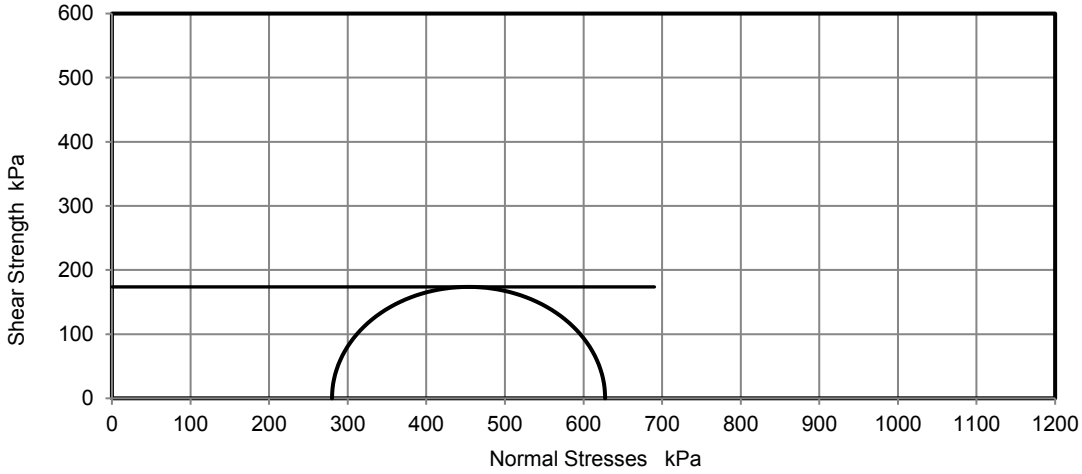
Laboratory Reference:	336708	Depth Top [m]:	14.00
Hole No.:	BH01	Depth Base [m]:	Not Given
Sample Reference:	U27	Sample Type:	U
Sample Description:	Dark brown CLAY		
Sample Preparation:	Sample prepared in accordance with BS EN ISO 17892-8: 2018 Clause 6.2.		

Test Number	1		Rate of Strain	2.00	%/min	
Depth within Sample	-	m	Cell Pressure	280	kPa	
Length	205.76	mm	Axial Strain at Failure	8.5	%	
Diameter	103.14	mm	Deviator Stress, (σ1 - σ3)f	348	kPa	
Length Prior to Shearing	205.75	mm	Undrained Shear Strength, cu	174	kPa	½(σ1 - σ3)f
Bulk Density	1.98	Mg/m3	Mode of Failure	Brittle		
Initial Water Content	28.1	%	Membrane Thickness	0.28	mm	
Final Water Content	28.1	%	Membrane Correction	1.33	kPa	
Dry Density	1.55	Mg/m3				

Deviator Stress v Axial Strain



Mohr Circles



Position within sample

Note: Deviator stress corrected for area change and membrane effects.

Remarks:

Signed: Monika Siewior
Reporting Specialist

for and on behalf of i2 Analytical Ltd

Date Reported: 23/10/2024

GF 463.4

TEST CERTIFICATE

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST

Tested in Accordance with: BS EN ISO 17982-8:2018,
BS 1377-2 Cl. 28:2022

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client:	Card Geotechnics Ltd	Client Reference:	CGL 10060B
Client Address:	4 Godalming Business Centre, Woolsack Way, Godalming, Surrey	Job Number:	24-045545-1
		Date Sampled:	01/10/2024
		Date Received:	01/10/2024
Contact:	Sofia Zougrou	Date Tested:	22/10/2024
Site Address:	Holiday Inn	Sampled By:	Client - SZ

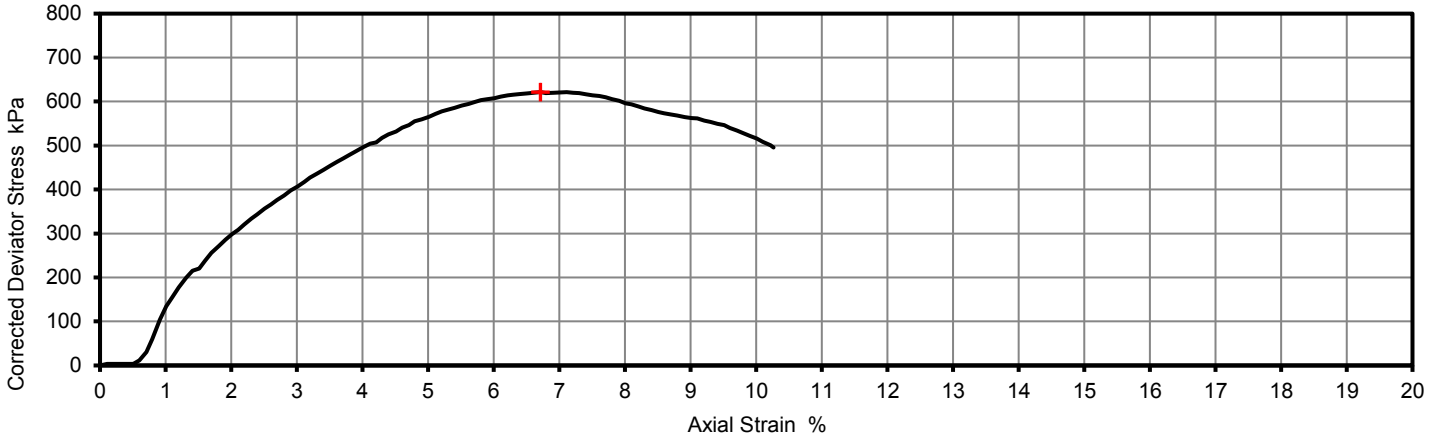
Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

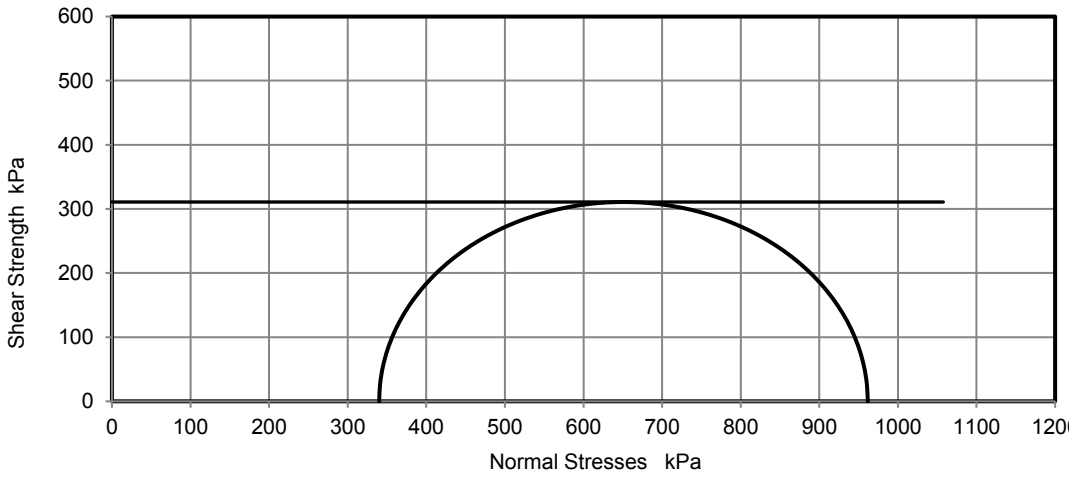
Laboratory Reference:	336710	Depth Top [m]:	17.00
Hole No.:	BH01	Depth Base [m]:	Not Given
Sample Reference:	U32	Sample Type:	U
Sample Description:	Dark grey CLAY		
Sample Preparation:	Sample prepared in accordance with BS EN ISO 17892-8: 2018 Clause 6.2.		

Test Number	1		Rate of Strain	2.00	%/min
Depth within Sample	-	m	Cell Pressure	340	kPa
Length	204.53	mm	Axial Strain at Failure	6.7	%
Diameter	104.02	mm	Deviator Stress, (σ1 - σ3)f	622	kPa
Length Prior to Shearing	204.51	mm	Undrained Shear Strength, cu	311	kPa ½(σ1 - σ3)f
Bulk Density	1.99	Mg/m3	Mode of Failure	Brittle	
Initial Water Content	26.7	%	Membrane Thickness	0.27	mm
Final Water Content	26.0	%	Membrane Correction	1.01	kPa
Dry Density	1.57	Mg/m3			

Deviator Stress v Axial Strain



Mohr Circles



Position within sample

Note: Deviator stress corrected for area change and membrane effects.

Remarks:

Signed: Monika Siewior
Reporting Specialist

for and on behalf of i2 Analytical Ltd

Date Reported: 23/10/2024

GF 463.4

TEST CERTIFICATE

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST

Tested in Accordance with: BS EN ISO 17982-8:2018, BS 1377-2 Cl. 28:2022

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client:	Card Geotechnics Ltd	Client Reference:	CGL 10060B
Client Address:	4 Godalming Business Centre, Woolsack Way, Godalming, Surrey	Job Number:	24-045545-1
		Date Sampled:	01/10/2024
		Date Received:	01/10/2024
Contact:	Sofia Zougrou	Date Tested:	22/10/2024
Site Address:	Holiday Inn	Sampled By:	Client - SZ

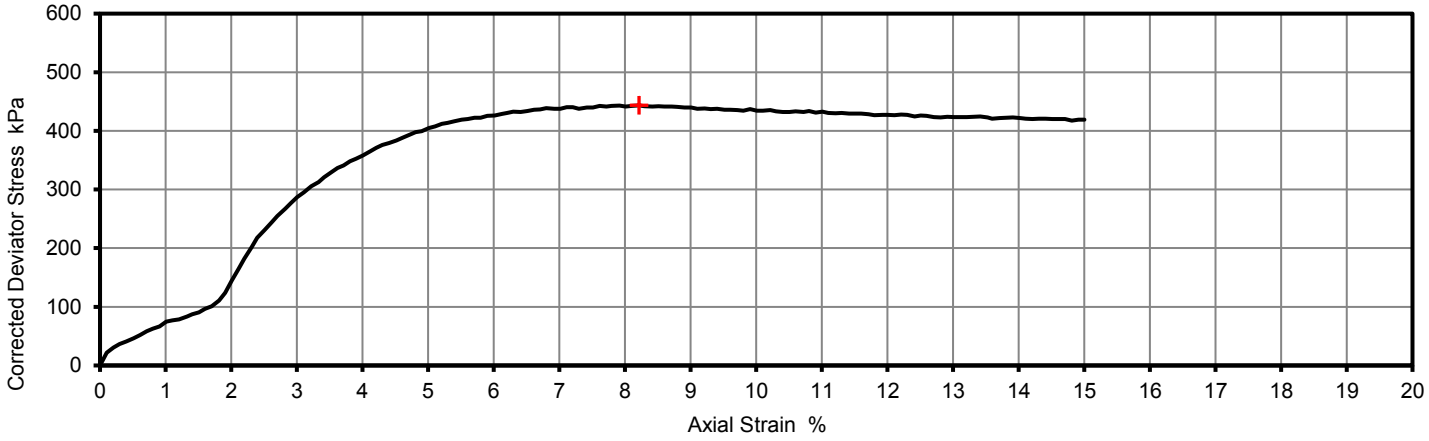
Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

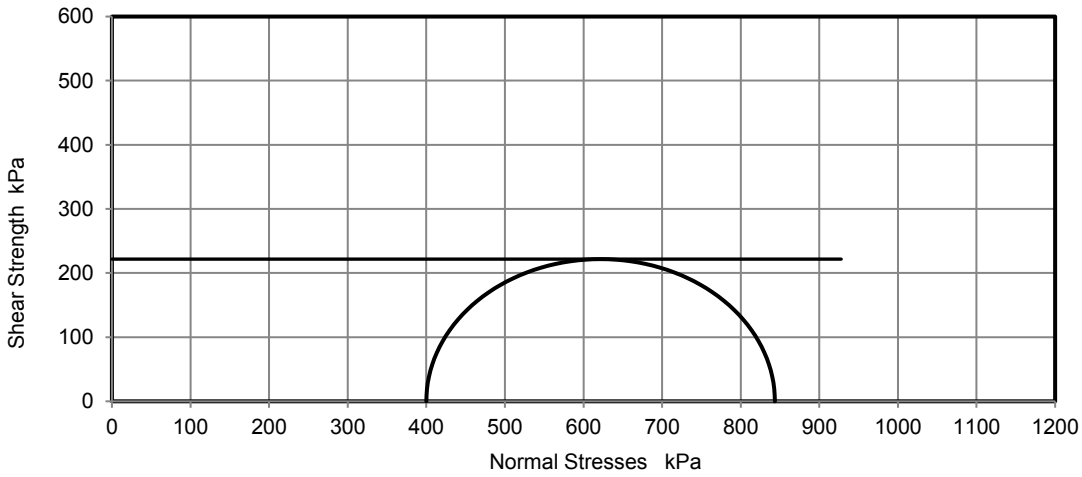
Laboratory Reference:	336712	Depth Top [m]:	20.00
Hole No.:	BH01	Depth Base [m]:	Not Given
Sample Reference:	U37	Sample Type:	U
Sample Description:	Dark brown CLAY		
Sample Preparation:	Sample prepared in accordance with BS EN ISO 17892-8: 2018 Clause 6.2.		

Test Number	1		Rate of Strain	2.00	%/min
Depth within Sample	-	m	Cell Pressure	400	kPa
Length	98.13	mm	Axial Strain at Failure	8.2	%
Diameter	49.84	mm	Deviator Stress, (σ1 - σ3)f	443	kPa
Length Prior to Shearing	98.13	mm	Undrained Shear Strength, cu	222	kPa ½(σ1 - σ3)f
Bulk Density	1.94	Mg/m3	Mode of Failure	Compound	
Initial Water Content	27.3	%	Membrane Thickness	0.26	mm
Final Water Content	26.9	%	Membrane Correction	2.47	kPa
Dry Density	1.53	Mg/m3			

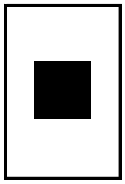
Deviator Stress v Axial Strain



Mohr Circles



Position within sample



Note: Deviator stress corrected for area change and membrane effects.

Remarks:

Signed: Monika Siewior
Reporting Specialist

for and on behalf of i2 Analytical Ltd

Date Reported: 23/10/2024

GF 463.4

TEST CERTIFICATE

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST

Tested in Accordance with: BS EN ISO 17982-8:2018,
BS 1377-2 Cl. 28:2022

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client:	Card Geotechnics Ltd	Client Reference:	CGL 10060B
Client Address:	4 Godalming Business Centre, Woolsack Way, Godalming, Surrey	Job Number:	24-045545-1
		Date Sampled:	01/10/2024
		Date Received:	01/10/2024
Contact:	Sofia Zougrou	Date Tested:	22/10/2024
Site Address:	Holiday Inn	Sampled By:	Client - SZ

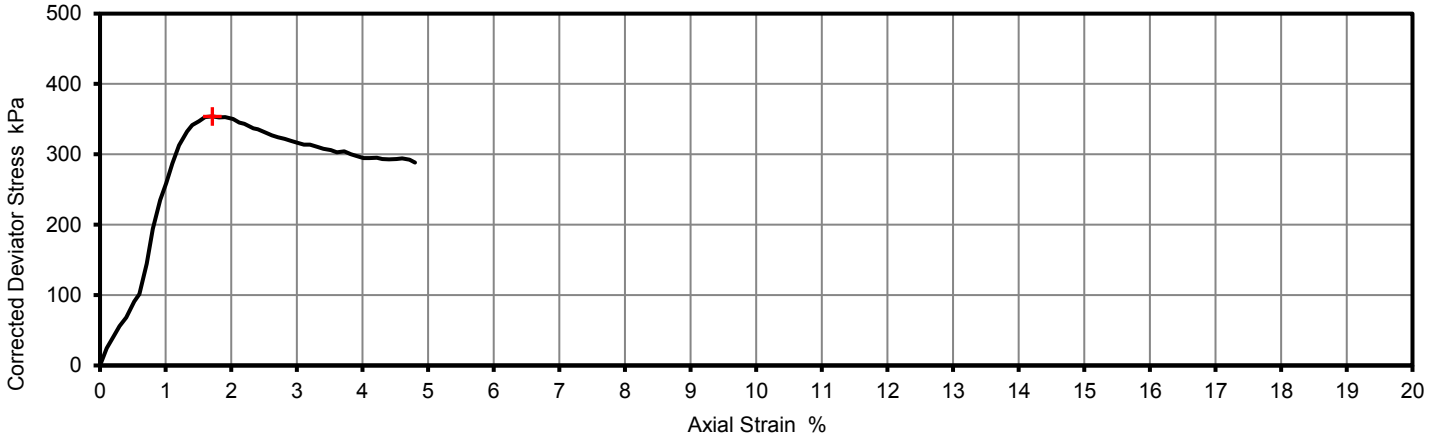
Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

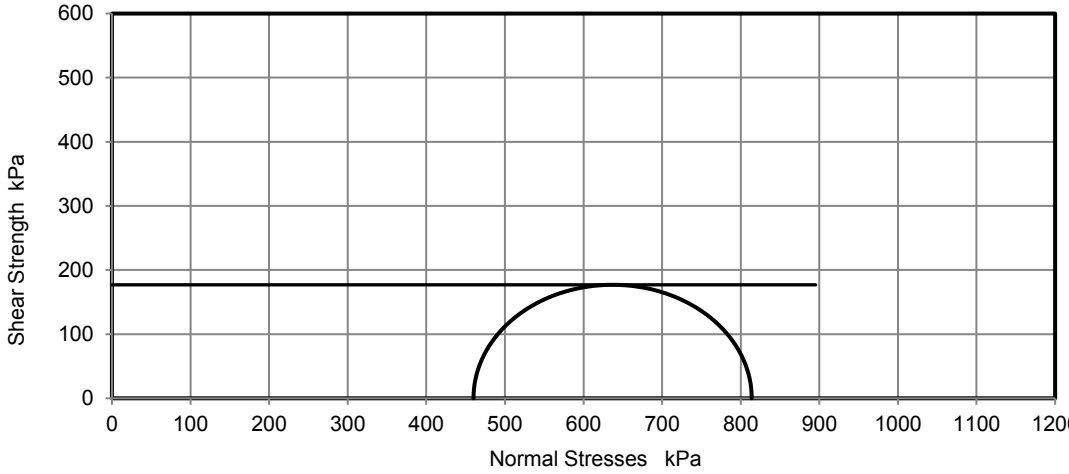
Laboratory Reference:	336714	Depth Top [m]:	23.00
Hole No.:	BH01	Depth Base [m]:	Not Given
Sample Reference:	U42	Sample Type:	U
Sample Description:	Dark grey CLAY		
Sample Preparation:	Sample prepared in accordance with BS EN ISO 17892-8: 2018 Clause 6.2.		

Test Number	1		Rate of Strain	2.00	%/min
Depth within Sample	-	m	Cell Pressure	460	kPa
Length	98.14	mm	Axial Strain at Failure	1.7	%
Diameter	49.64	mm	Deviator Stress, (σ1 - σ3)f	354	kPa
Length Prior to Shearing	98.13	mm	Undrained Shear Strength, cu	177	kPa ½(σ1 - σ3)f
Bulk Density	2.03	Mg/m3	Mode of Failure	Compound	
Initial Water Content	23.7	%	Membrane Thickness	0.27	mm
Final Water Content	23.1	%	Membrane Correction	0.54	kPa
Dry Density	1.64	Mg/m3			

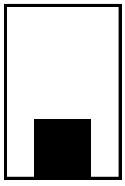
Deviator Stress v Axial Strain



Mohr Circles



Position within sample



Note: Deviator stress corrected for area change and membrane effects.

Remarks:

Signed: Monika Siewior
Reporting Specialist

for and on behalf of i2 Analytical Ltd

Date Reported: 23/10/2024

GF 463.4

Card Geotechnics Ltd
4 Godalming Business Centre
Woolsack Way
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i2 Analytical Ltd.
7 Woodshots Meadow,
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t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 24-045550

Project / Site name:	Holiday Inn	**Samples received on:**	01/10/2024
Your job number:	CGL 10060B	**Samples instructed on/ Analysis started on:**	03/10/2024
Your order number:	POP016752	**Analysis completed by:**	17/10/2024
Report Issue Number:	1	**Report issued on:**	17/10/2024
Samples Analysed:	8 soil samples		

Signed:

Dominika Liana
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 24-045550
Project / Site name: Holiday Inn
Your Order No: POP016752

Lab Sample Number				336723	336724	336725	336726	336727
Sample Reference				BH01	BH01	BH01	BH01	BH01
Sample Number				B4	B6	D16	D21	D26
Depth (m)				0.50	1.20	7.50	10.50	13.50
Date Sampled				30/09/2024	30/09/2024	30/09/2024	30/09/2024	30/09/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	27.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	15	7.4	16	17	17
Total mass of sample received	kg	0.1	NONE	0.4	0.5	0.6	0.5	0.6

Geotechnical

Geotechnical Testing - Various		N/A	NONE	See attached	See attached	See attached	See attached	See attached

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.9	8.4	8.5	8.6	8.6
Total Sulphate as SO_4	mg/kg	50	MCERTS	-	-	370	420	510
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	100	92	340	470	200
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.05	0.046	0.169	0.235	0.102
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	50	46	169	235	102
Water Soluble SO_4 16hr extraction (2:1)	mg/l	1.25	MCERTS	50	46	-	-	-
Total Sulphur	mg/kg	50	MCERTS	-	-	3400	3400	4500

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-045550
Project / Site name: Holiday Inn
Your Order No: POP016752

Lab Sample Number				336728	336729	336730
Sample Reference				BH01	BH01	BH01
Sample Number				D31	D38	D44
Depth (m)				16.50	20.45	24.00
Date Sampled				01/10/2024	01/10/2024	01/10/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	14	15	13
Total mass of sample received	kg	0.1	NONE	0.4	0.5	0.6

Geotechnical

Geotechnical Testing - Various		N/A	NONE	See attached	See attached	See attached

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.8	8.5	9
Total Sulphate as SO_4	mg/kg	50	MCERTS	1100	1200	-
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	980	910	710
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.49	0.457	0.353
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	490	457	353
Water Soluble SO_4 16hr extraction (2:1)	mg/l	1.25	MCERTS	-	-	353
Total Sulphur	mg/kg	50	MCERTS	12000	6800	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 24-045550
Project / Site name: Holiday Inn

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
336723	BH01	B4	0.5	Brown sandy clay with gravel
336724	BH01	B6	1.2	Brown sand with gravel and stones
336725	BH01	D16	7.5	Brown clay and sand
336726	BH01	D21	10.5	Brown clay and sand
336727	BH01	D26	13.5	Brown clay and sand
336728	BH01	D31	16.5	Brown clay and sand
336729	BH01	D38	20.45	Brown clay and sand
336730	BH01	D44	24	Brown clay and sand

Analytical Report Number : 24-045550
Project / Site name: Holiday Inn

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES	In-house method	L038B	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS
Geotechnical Testing	See attached geotechnical report	See attached geotechnical report	PL		NONE
AGS4 Required (Geotech only)			PL		NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

APPENDIX G

CGL Borehole Logs

Project Title: Holiday Inn Express Wimbledon	Status:	Location ID
Client: Carter Lauren Construction	**FINAL**	**BH01**

Location Type: Cable percussion (shell and auger)

Coords: 526714.660E/170302.890N Level: 11.840m

Ordnance Survey Great Britain National Grid

Final Depth: **25.00 m**

Orientation: 0° Inclination: 90°

Date Start: 30/09/2024 Date End: 01/10/2024

Card Geotechnics Limited,
12 Melcombe Place,
London,
NW1 6JJ
www.cgl-uk.com

Method and Plant Used

From (m)	To (m)	Type	Plant Used
0.00	1.20	IP	Hand Dug
1.20	25.00	CP	Cable Percussion Rig

Groundwater

Strike (m)	Time (min)	Rose To
1.58	-	2.40
4.45	-	5.80

Sample Depth (m)	Type/ Ref	Tests/Results	Strata Description	Strata Depth (m)	Level (m)	Inst/ Backfill
			Tarmac	0.05	11.79	
			[MADE GROUND]	0.34	11.50	
0.50	B 4		Light brown sandy slightly clayey fine to coarse angular to subangular gravel of flint, bricks and tarmac fragments			
0.50	D 3		[MADE GROUND]	0.60	11.24	
0.50	ES 1		Dark grey very sandy clayey fine to coarse angular to subangular gravel of brick fragments, flint and wood fragments			
1.00	ES 2		[MADE GROUND]	0.90	10.94	
1.20	B 6	SPT(S) 1.20m N=8 (1,1/1,2,2,3)	Light brownish grey very clayey slightly gravelly fine to coarse sand. Gravel is fine and medium subangular to subrounded of brick fragments and flint	1.16	10.68	
1.20	D 5		[MADE GROUND]	1.26	10.58	
1.70	W 1		Light brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to coarse subangular to subrounded of flint. Sand is fine to coarse.			
		SPT(S) 2.00m N=20 (4,5/5,5,5,5)	[RIVER TERRACE DEPOSITS]			
2.20	B 8		Light brown very sandy fine to coarse subangular to subrounded GRAVEL of flint.			
2.20	D 7		[RIVER TERRACE DEPOSITS]			
2.20	ES 3		Brown sandy fine to coarse subangular to subrounded GRAVEL of flint. Sand is fine to coarse.			
2.50	B 9		[RIVER TERRACE DEPOSITS]			
2.50	ES 4		*from 2.20 to 3.10m bgl - Very strong hydrocarbon odour.*			
		SPT(S) 3.00m N=5 (2,1/1,1,1,2)		3.10	8.74	
3.10	B 11		Firm becoming stiff greyish brown fissured mottled bluish grey silty CLAY with mica traces.			
3.10	D 10		[LONDON CLAY]			
4.00	D 12	SPT(S) 4.00m N=13 (1,2/3,3,3,4)				
5.00	U 13					
5.45	D 14		*from 5.80 to 3.10m bgl - Light grey claystone.*			
6.50	D 15	SPT(S) 6.50m N=26 (2,4/5,6,7,8)				
7.50	D 16					
8.00	U 17					
8.45	D 18					
9.00	D 19					
9.50	D 20	SPT(S) 9.50m N=21 (2,3/4,4,6,7)				

Strata continues onto next page

Notes:

1. Borehole terminated at 25m bgl within the London Clay at target depth.
2. Ground water strikes were recorded at 1.58m bgl within the River Terrace Deposits and at 4.45m bgl within the London Clay.
3. m bgl = meters below ground level, N - SPT 'N' value, ES =Environemtal Sample, B =Bulk Sample, D = Disturbed Sample, U100 = Undisturbed Sample.
4. Standpipe Installation: GL to 1.0m bgl plain pipe with bentonite backfill, 1.0m to 3.0m slotted pipe with gravel backfill, 3.0m to 5.0m bentonite seal, 5.0m to base backfilled with arisings.
5. Coordinates and ground level measured in by a utilities contractor.

Hole Diameter		Casing	
Depth (m)	Diam (mm)	Depth (m)	Diam (mm)
25.00	150	4.00	150

Hammer Information	
Energy Ratio	Serial No.
61%	BHDS05

Install Response Zones		
Ref	From (m)	To (m)
Pipe1	1.00	3.00

Scale: 1:50

Logged By: SZ
Checked By: SMK
Approved By: MPC
Section ID:

CGL Reference
CGL/10060A

Project Title: Holiday Inn Express Wimbledon	Status:	Location ID
Client: Carter Lauren Construction	**FINAL**	**BH01**

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	1.20	IP	Hand Dug	1.58	-	2.40
1.20	25.00	CP	Cable Percussion Rig	4.45	-	5.80

Location Type: Cable percussion (shell and auger)

Coords: 526714.660E/170302.890N Level: 11.840m

Ordnance Survey Great Britain National Grid

Final Depth: **25.00 m**

Orientation: 0° Inclination: 90°

Date Start: 30/09/2024 Date End: 01/10/2024

Card Geotechnics Limited,
12 Melcombe Place,
London,
NW1 6JJ
www.cgl-uk.com

Samples & Tests			Water Level (m)	Legend /Cover	Strata Depth (m)	Level (m)	Strata Description	Inst/ Backfill	Depth (m)
Sample Depth (m)	Type/ Ref	Tests/Results							
10.50	D 21						Firm becoming stiff greyish brown fissured mottled bluish grey silty CLAY with mica traces. [LONDON CLAY]		
11.00	U 22								11
11.45	D 23								
12.00	D 24								12
12.50	D 25	SPT(S) 12.50m N=26 (2,4/5,7,6,8)							
									13
13.50	D 26								
14.00	U 27								14
14.45	D 28								
15.00	D 29								15
15.50	D 30	SPT(S) 15.50m N=26 (2,4/5,6,7,8)							
									16
16.50	D 31								
17.00	U 32								17
17.45	D 33								
18.00	D 34								18
18.50	D 35	SPT(S) 18.50m N=43 (3,7/9,9,12,13)							
									19
19.50	D 36								
20.00	U 37								20

Strata continues onto next page

Notes:

1. Borehole terminated at 25m bgl within the London Clay at target depth.
2. Ground water strikes were recorded at 1.58m bgl within the River Terrace Deposits and at 4.45m bgl within the London Clay.
3. m bgl = meters below ground level, N - SPT 'N' value, ES =Environemtal Sample, B =Bulk Sample, D = Disturbed Sample, U100 = Undisturbed Sample.
4. Standpipe Installation: GL to 1.0m bgl plain pipe with bentonite backfill, 1.0m to 3.0m slotted pipe with gravel backfill, 3.0m to 5.0m bentonite seal, 5.0m to base backfilled with arisings.
5. Coordinates and ground level measured in by a utilities contractor.

Hole Diameter		Casing	
Depth (m)	Diam (mm)	Depth (m)	Diam (mm)
25.00	150	4.00	150

Hammer Information	
Energy Ratio	Serial No.
61%	BHDS05

Install Response Zones		
Ref	From (m)	To (m)

Scale: 1:50

Logged By: SZ
Checked By: SMK
Approved By: MPC
Section ID:

CGL Reference
CGL/10060A

Project Title: Holiday Inn Express Wimbledon	Status:	Location ID
Client: Carter Lauren Construction	**FINAL**	**BH01**

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	1.20	IP	Hand Dug	1.58	-	2.40
1.20	25.00	CP	Cable Percussion Rig	4.45	-	5.80

Location Type: Cable percussion (shell and auger)

Coords: 526714.660E/170302.890N Level: 11.840m

Ordnance Survey Great Britain National Grid

Final Depth: **25.00 m**

Orientation: 0° Inclination: 90°

Date Start: 30/09/2024 Date End: 01/10/2024

Card Geotechnics Limited,
12 Melcombe Place,
London,
NW1 6JJ
www.cgl-uk.com

Samples & Tests			Water Level (m)	Legend /Cover	Strata Depth (m)	Level (m)	Strata Description	Inst/ Backfill	Depth (m)
Sample Depth (m)	Type/ Ref	Tests/Results							
20.45	D 38						Firm becoming stiff greyish brown fissured mottled bluish grey silty CLAY with mica traces. [LONDON CLAY]		
21.00	D 39								21
21.50	D 40	SPT(S) 21.50m N=50 (4,7/50 for 295mm)							
22.50	D 41								22
23.00	U 42								
23.45	D 43								23
24.00	D 44								
24.50	D 45	SPT(S) 24.50m N=50 (5,8/50 for 245mm)							24
					25.00	-13.16			
							EOH at 25.00m - Achieved target depth.		25
									26
									27
									28
									29
									30

Notes:

1. Borehole terminated at 25m bgl within the London Clay at target depth.
2. Ground water strikes were recorded at 1.58m bgl within the River Terrace Deposits and at 4.45m bgl within the London Clay.
3. m bgl = meters below ground level, N - SPT 'N' value, ES =Environemtal Sample, B =Bulk Sample, D = Disturbed Sample, U100 = Undisturbed Sample.
4. Standpipe Installation: GL to 1.0m bgl plain pipe with bentonite backfill, 1.0m to 3.0m slotted pipe with gravel backfill, 3.0m to 5.0m bentonite seal, 5.0m to base backfilled with arisings.
5. Coordinates and ground level measured in by a utilities contractor.

Hole Diameter		Casing	
Depth (m)	Diam (mm)	Depth (m)	Diam (mm)
25.00	150	4.00	150

Hammer Information	
Energy Ratio	Serial No.
61%	BHDS05

Install Response Zones		
Ref	From (m)	To (m)

Scale: 1:50

Logged By: SZ
Checked By: SMK
Approved By: MPC
Section ID:

CGL Reference
CGL/10060A

Project Title: Holiday Inn Express Wimbledon

Client: Carter Lauren Construction

Status: **FINAL**

Location ID: **WS01**

Location Type: Window Sampler

Coords: 526742.582E/170334.396N Level: 11.931m

Final Depth: **6.00 m**

Orientation: ° Inclination: °

Date Start: 23/05/2024 Date End: 23/05/2024

Card Geotechnics Limited,
12 Melcombe Place,
London,
NW1 6JJ
www.cgl-uk.com

Method and Plant Used

From (m)	To (m)	Type	Plant Used
0.00	1.20	IP	Hand tools
1.20	6.00	WS	Tracked Window Sampler Rig

Groundwater

Strike (m)	Time (min)	Rose To
2.80	-	-

Sample Depth (m)	Type/ Ref	Tests/Results	Water Level (m)	Legend /Cover	Strata Depth (m)	Level (m)	Strata Description	WS Run	Window Sampling Diam (mm)	Recovery (%)	Inst/ Backfill	Depth (m)
					0.10	11.83	Cobble paving					
					0.40	11.53	Grey brown sandy gravel. Gravel is subangular to subrounded, fine to coarse of brick and concrete. Sand is coarse.					
0.50	ES 1				0.45	11.48	[MADE GROUND]					
					1.00	10.93	Grey lean mix sandy concrete with subrounded to rounded coarse flint aggregate.					
1.20	ES 2	SPT(S) 1.20m N=3 (0,0/0,1,1,1)					Grey brown slightly silty sandy gravel. Gravel is angular to subangular, fine to coarse of brick and concrete. Sand is fine to coarse. Occasional rounded coarse flint gravel.					
		HSV 1.40m (p)= 30 kPa (r)= 12 kPa					[MADE GROUND]					
1.50	D 1											
1.50	D D1						Very soft dark brown mottled brown orange silty CLAY. Occasional dark grey relict organic material.					
		HSV 1.80m (p)= 30 kPa (r)= 8 kPa					[ALLUVIUM]					
		SPT(S) 2.00m N=1 (0,0/0,0,0,1)					*from 1.40 to 1.60m bgl - Becomes orange brown*					
					2.20	9.73	*from 1.75 to 1.90m bgl - Pocket of medium to coarse Sand and shells and shell fragments become frequent*					
2.30	D 2						*from 2.00 to 2.20m bgl - Becomes very soft*					
2.30	D D2	HSV 2.40m (p)= 18 kPa (r)= 7 kPa										
2.50	ES 3											
			▼		2.80	9.13	Very soft dark grey slightly sandy silty CLAY. Sand is fine to medium. Occasional rounded coarse flint gravels. Mild organic odour.					
							[ALLUVIUM]					
3.00	B B1	SPT(S) 3.00m N=20 (4,4/3,6,5,6)					Medium dense brown slightly silty sandy GRAVEL. Gravel is subangular to rounded, medium to coarse of flint. Sand is medium to coarse.					
3.00 - 4.00	B 1						[RIVER TERRACE DEPOSITS]					
		SPT(S) 4.00m N=13 (3,5/4,4,3,2)										
					4.30	7.63						
							Firm to stiff dark grey slightly sandy silty CLAY. Sand is fine. Occasional fine to medium selenite crystals and brown grey silt horizons.					
							[LONDON CLAY FORMATION]					
		SPT(S) 5.00m N=16 (2,3/3,4,5,4)										
		HSV 5.20m (p)= 89 kPa (r)= 13 kPa										
5.50	D 3											
5.50	D D3											
		SPT(S) 6.00m N=26 (4,13/9,7,5,5)			6.00	5.93	EOH at 6.00m - Achieved target depth					

Notes:

1. Window sample terminated at 6.0m bgl within the London Clay at target depth;
2. Groundwater strike recorded at 2.8m bgl within the River Terrace Deposits;
3. mbgl = metres below ground level, N - SPT 'N' value, ES = Environmental Sample, B = Bulk Sample, D = Disturbed Sample;
4. Installation: GL to 1.0m bgl plain pipe with bentonite backfill, 1.0m to 2.5m bgl slotted pipe with gravel backfill, 2.5m to 3.0m bgl bentonite seal, 3.0m to base backfilled with arisings.
5. Coordinates and ground level measured in by utilities contractor.

Hole Diameter

Depth (m)	Diam (mm)
2.00	102
3.00	87
4.00	75
5.00	65
6.00	65

Casing

Depth (m)	Diam (mm)
3.00	127

Hammer Information

Energy Ratio	Serial No.
68%	CKWS02

Install Response Zones

Ref	From (m)	To (m)
Pipe 1	1.00	2.50

Scale: 1:50

Logged By: DTM
Checked By: JSB
Approved By: MPC
Section ID:

CGL Reference
CGL/10060A

Project Title: Holiday Inn Express Wimbledon	Status:	Location ID
Client: Carter Lauren Construction	**FINAL**	**WS02**

Location Type: Window Sampler

Coords: 526744.739E/170328.170N Level: 11.883m

Final Depth: **6.00 m**

Orientation: ° Inclination: °

Date Start: 23/05/2024 Date End: 23/05/2024

Card Geotechnics Limited,
12 Melcombe Place,
London,
NW1 6JJ
www.cgl-uk.com

Method and Plant Used

From (m)	To (m)	Type	Plant Used
0.00	1.20	IP	Hand tools
1.20	6.00	WS	Tracked Window Sampler Rig

Groundwater

Strike (m)	Time (min)	Rose To
2.50	-	-

Sample Depth (m)	Type/ Ref	Tests/Results	Water Level (m)	Legend /Cover	Strata Depth (m)	Level (m)	Strata Description	Window Sampling WS Run	Window Sampling Diam (mm)	Window Sampling Recovery (%)	Inst/ Backfill	Depth (m)
					0.02	11.86	Paving tile					
					0.05	11.83	Compacted yellow sand. Sand is coarse.					
					0.10	11.78	Pale grey reinforced concrete with subrounded to rounded flint aggregate. Rebar is 3mm in diameter, ribbed and laid in a hatch at 70mm depth					
0.40	ES 1											
0.80	ES 2						Grey brown sandy gravel. Gravel is angular to subangular, fine to coarse of brick and concrete. Sand is fine to coarse. Occasional half bricks and concrete cobbles including broken paving slabs.					
		SPT(S) 1.20m N=2 (0,0/0,0,0,2)			1.20	10.68	[MADE GROUND]					
1.50	ES 3				1.60	10.28	Very loose dark grey brown slightly gravelly clayey SAND. Sand is fine to coarse. Gravel is angular to rounded, fine to coarse of flint and brick. Rare fine shells and shell fragments. Brick gravels are generally angular and fine and flint gravels are rounded and coarse.					
1.70	D 1	HSV 1.70m (p)= 18 kPa (r)= 4 kPa										
1.70	D D1											
		SPT(S) 2.00m N=3 (0,0/0,0,0,3)					[ALLUVIUM]					
2.10	D 2						Very soft grey brown sandy silty CLAY. Sand is fine to medium. Occasional medium to coarse sand bands.					
2.10	D D2											
		HSV 2.50m (p)= 19 kPa (r)= 3 kPa	▼		2.50	9.38	[ALLUVIUM]					
2.60	B 1						Medium dense yellow brown slightly silty sandy GRAVEL. Gravel is subrounded to rounded coarse of flint. Sand is coarse.					
2.60	B B1				2.85	9.03	[RIVER TERRACE DEPOSITS]					
		HSV 2.95m (p)= 59 kPa (r)= 12 kPa SPT(C) 3.00m N=10 (1,1/2,2,3,3)					Firm to stiff dark grey slightly sandy silty CLAY. Sand is fine to medium. Occasional fine to medium selenite crystals and brown grey silty sand bands.					
3.60	D 3	HSV 3.60m (p)= 101 kPa (r)= 35 kPa					[LONDON CLAY FORMATION]					
3.60	D D3											
		SPT(S) 4.00m N=10 (1,1/2,2,3,3)										
4.60	D 4	HSV 4.60m (p)= 117 kPa (r)= 22 kPa					*4.50m bgl - Clay becomes concoidally fractured and selenite crystals more frequent*					
		SPT(S) 5.00m N=14 (3,3/3,3,3,5)										
5.60	D 5											
5.60	D D5											
		SPT(S) 6.00m N=20 (2,4/4,4,6,6)			6.00	5.88	EOH at 6.00m - Achieved target depth					

Notes:

1. Window sample terminated at 6.0m bgl within the London Clay at target depth;
2. Groundwater strike recorded at 2.5m bgl within the River Terrace Deposits;
3. mbgl = metres below ground level, N - SPT 'N' value, ES = Environmental Sample, B = Bulk Sample, D = Disturbed Sample;
4. Installation: GL to 2.0m bgl plain pipe with bentonite backfill, 2.0m to 3.0m bgl slotted pipe with gravel backfill, 3.0m to 3.5m bgl bentonite seal, 3.5m to base backfilled with arisings.
5. Coordinates and ground level measured in by utilities contractor.

Hole Diameter

Depth (m)	Diam (mm)
2.00	102
3.00	87
4.00	75
5.00	65
6.00	65

Casing

Depth (m)	Diam (mm)
3.00	127

Hammer Information

Energy Ratio	Serial No.
68%	CKWS02

Install Response Zones

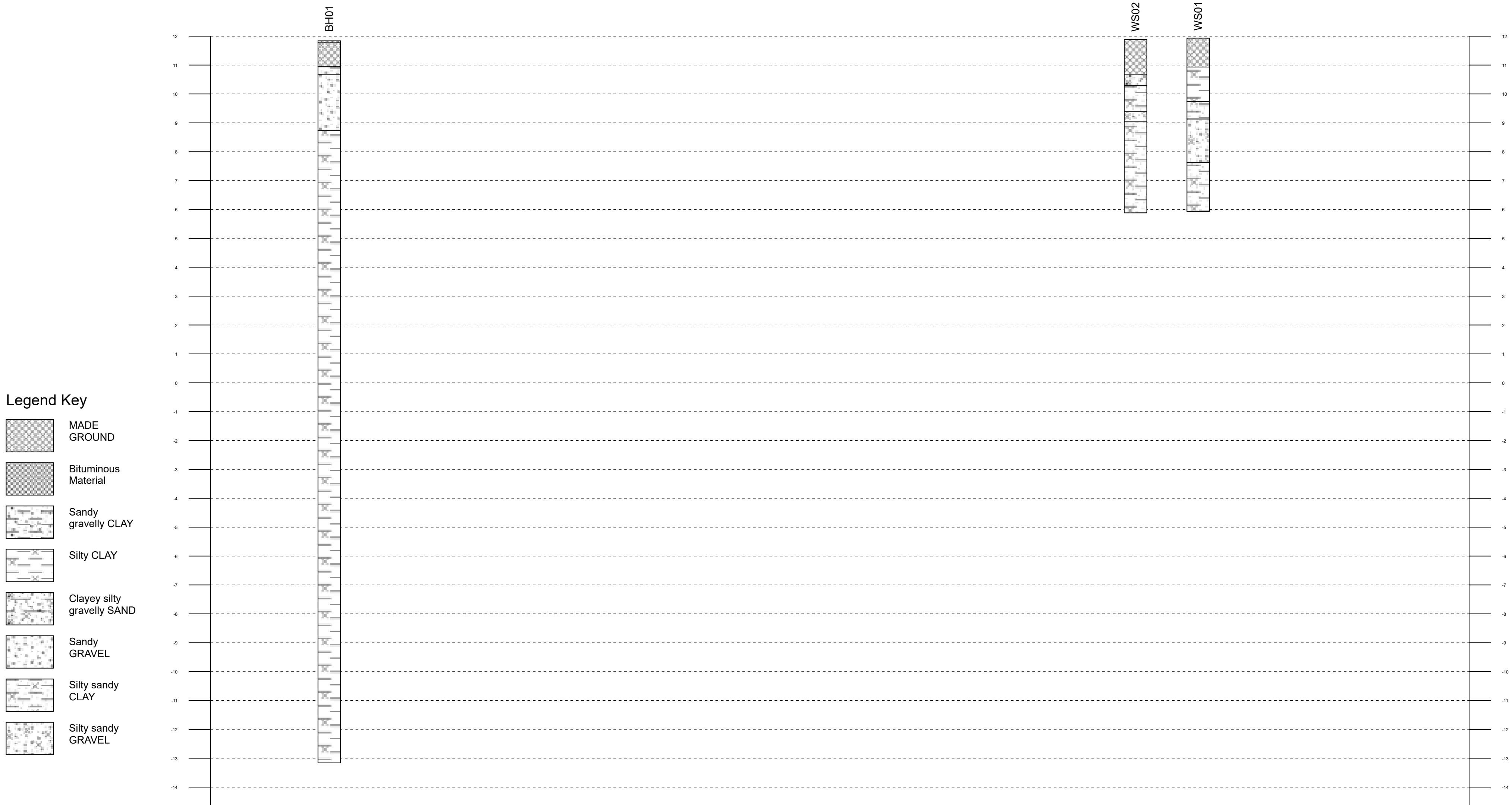
Ref	From (m)	To (m)
Pipe 1	2.00	3.00

Scale: 1:50

Logged By: DTM
Checked By: JSB
Approved By: MPC
Section ID:

CGL Reference
CGL/10060A

Project Id: CGL/10060A	Title: Section Line	Card Geotechnics Limited, 12 Melcombe Place, London, NW1 6JJ www.cgl-uk.com
Project Title: Holiday Inn Express Wimbledon	Vertical Scale: 1:195	
Location: SW19 2BH	Horizontal Scale: 1:273	
Client: Carter Lauren Construction	Engineer: Dennis Moynahan	



Chainage (m)	0.00	3.56	42.50 / 42.60	43.06	45.63	50.94
Elevation (mAOD)		11.840	11.749 / 11.889	12.034	11.931	
Offset (m)		0.29	4.22 / 4.74	3.55	1.11	

APPENDIX H

Contamination Assessment Tables

Table H1. Data assessment summary - potential soil risks to human health					
Land Use Category:	**Commercial**			**SOM:**	1.00%
Stratum:	**Made Ground**			**No. Samples**	7
Determinand	**GAC** mg/kg	**Min recorded (mg/kg)**	**Max recorded (mg/kg)**	**No. Samples tested for determinand**	**No. Samples exceeding GAC**
Arsenic (aqua regia extractable)	323	9.1	16	6	0
Beryllium (aqua regia extractable)	11.6	0.29	0.78	6	0
Boron (water soluble)	236000	0.4	2.2	6	0
Cadmium (aqua regia extractable)	188	<0.2	3.1	6	0
Chromium (III)	8350	12	44	6	0
Chromium (hexavalent) low level	32.2	<1.2	<1.2	6	0
Copper (aqua regia extractable)	68300	12	110	6	0
Lead (aqua regia extractable)	2300	10	690	6	0
Mercury (aqua regia extractable)	1190	<0.3	0.7	6	0
Nickel (aqua regia extractable)	983	8.2	23	6	0
Selenium (aqua regia extractable)	13000	<1	<1	6	0
Vanadium (aqua regia extractable)	6360	21	33	6	0
Zinc (aqua regia extractable)	728000	40	270	6	0
Benzene	36.7	<0.005	<0.005	7	0
Toluene	73700	<0.005	<0.005	7	0
Ethylbenzene	21000	<0.005	<0.005	7	0
O-Xylene	8820	<0.005	<0.005	7	0
Total Phenols (monohydric)	33800	<1	<1	6	0
Total Cyanide	34	<1	1.2	6	0
TPH - Aliphatic >C5 - C6	3560	<0.010	<0.010	6	0
TPH - Aliphatic >C6 - C8	7620	<0.010	<0.010	6	0
TPH - Aliphatic >C8 - C10	1670	<0.010	<0.010	6	0
TPH - Aliphatic >C10 - C12	8170	<1	8.2	6	0
TPH - Aliphatic >C12 - C16	49300	<2.0	11	6	0
TPH - Aliphatic >C16 - C21	1910000	<8	33	6	0
TPH - Aliphatic >C21 - C35	1910000	<8	71	6	0
TPH - Aromatic >EC5 - EC7	36.5	<0.010	<0.010	6	0
TPH - Aromatic >EC7 - EC8	73700	<0.010	<0.010	6	0
TPH - Aromatic >EC8 - EC10	2650	<0.020	<0.020	6	0
TPH - Aromatic >EC10 - EC12	12700	<1	22	6	0
TPH - Aromatic >EC12 - EC16	31900	<2	220	6	0
TPH - Aromatic >EC16 - EC21	28600	<10	480	6	0
TPH - Aromatic >EC21 - EC35	28600	<10	480	6	0
Naphthalene	247	<0.05	3.8	7	0
Acenaphthylene	75800	<0.05	9.2	7	0
Acenaphthene	76000	<0.05	2.6	7	0
Fluorene	59700	<0.05	13	7	0
Phenanthrene	22200	<0.05	43	7	0
Anthracene	514000	<0.05	13	7	0
Fluoranthene	22400	<0.05	23	7	0
Pyrene	53800	<0.05	48	7	0
Benzo(a)anthracene	171	<0.05	14	7	0
Chrysene	347	<0.05	14	7	0
Benzo(b)fluoranthene	44.3	<0.05	9.9	7	0
Benzo(k)fluoranthene	1170	<0.05	3.7	7	0
Benzo(a)pyrene	35.2	<0.05	15	7	0
Indeno(1,2,3-cd)pyrene	502	<0.05	4.2	7	0
Di-benzo(a,h)anthracene	3.84	<0.05	1.2	7	0
Benzo(ghi)perylene	3930	<0.05	6.8	7	0
pH	14	8.2	11.4	7	0
Asbestos in Soils	(Number of samples in which Asbestos detected)				0

Table H2. Data assessment summary - potential soil risks to human health					
Land Use Category:	**Commercial**			**SOM:**	2.50%
Stratum:	**[ALLUVIUM]**			**No. Samples**	3
Determinand	**GAC** mg/kg	**Min recorded (mg/kg)**	**Max recorded (mg/kg)**	**No. Samples tested for determinand**	**No. Samples exceeding GAC**
Arsenic (aqua regia extractable)	323	8.9	9.3	2	0
Beryllium (aqua regia extractable)	11.6	0.47	0.84	2	0
Boron (water soluble)	236000	0.4	1.6	2	0
Cadmium (aqua regia extractable)	188	<0.2	<0.2	2	0
Chromium (III)	8350	25	28	2	0
Chromium (hexavalent) low level	32.2	<1.2	<1.2	2	0
Copper (aqua regia extractable)	68300	32	69	2	0
Lead (aqua regia extractable)	2300	64	150	2	0
Mercury (aqua regia extractable)	1190	<0.3	<0.3	2	0
Nickel (aqua regia extractable)	983	15	17	2	0
Selenium (aqua regia extractable)	13000	<1	<1	2	0
Vanadium (aqua regia extractable)	6360	27	40	2	0
Zinc (aqua regia extractable)	728000	75	240	2	0
Benzene	64.5	<0.005	<0.005	3	0
Toluene	134000	<0.005	<0.005	3	0
Ethylbenzene	42700	<0.005	<0.005	3	0
O-Xylene	19900	<0.005	<0.005	3	0
Total Phenols (monohydric)	36500	<1	<1	2	0
Total Cyanide	34	<1	<1	2	0
TPH - Aliphatic >C5 - C6	5940	<0.02	<0.02	2	0
TPH - Aliphatic >C6 - C8	16000	<0.02	<0.02	2	0
TPH - Aliphatic >C8 - C10	3970	<0.05	<0.05	2	0
TPH - Aliphatic >C10 - C12	19400	<1	<1	2	0
TPH - Aliphatic >C12 - C16	72500	<2	<2	2	0
TPH - Aliphatic >C16 - C21	1910000	<8	<8	2	0
TPH - Aliphatic >C21 - C35	1910000	<8	23	2	0
TPH - Aromatic >EC5 - EC7	63.6	<0.01	<0.01	2	0
TPH - Aromatic >EC7 - EC8	134000	<0.01	<0.01	2	0
TPH - Aromatic >EC8 - EC10	6260	<0.05	<0.05	2	0
TPH - Aromatic >EC10 - EC12	24200	<1	<1	2	0
TPH - Aromatic >EC12 - EC16	35800	<2	<2	2	0
TPH - Aromatic >EC16 - EC21	28600	<10	<10	2	0
TPH - Aromatic >EC21 - EC35	28600	<10	14	2	0
Naphthalene	585	<0.05	0.26	3	0
Acenaphthylene	92200	<0.05	0.08	3	0
Acenaphthene	92300	<0.05	<0.05	3	0
Fluorene	66500	<0.05	<0.05	3	0
Phenanthrene	22500	<0.05	0.53	3	0
Anthracene	530000	<0.05	0.13	3	0
Fluoranthene	22500	<0.05	1.4	3	0
Pyrene	54000	<0.05	1.3	3	0
Benzo(a)anthracene	175	<0.05	0.79	3	0
Chrysene	352	<0.05	0.91	3	0
Benzo(b)fluoranthene	44.7	<0.05	1.3	3	0
Benzo(k)fluoranthene	1180	<0.05	0.37	3	0
Benzo(a)pyrene	35.5	<0.05	1.1	3	0
Indeno(1,2,3-cd)pyrene	506	<0.05	0.63	3	0
Di-benzo(a,h)anthracene	3.86	<0.05	0.2	3	0
Benzo(ghi)perylene	3950	<0.05	0.83	3	0
pH	14	7.9	9.8	3	0

Table H3. Data assessment summary - potential soil risks to human health					
Land Use Category:	**Commercial**			**SOM:**	1.00%
Stratum:	**River Terrace Deposits**			**No. Samples**	2
Determinand	**GAC** mg/kg	**Min recorded (mg/kg)**	**Max recorded (mg/kg)**	**No. Samples tested for determinand**	**No. Samples exceeding GAC**
Arsenic (aqua regia extractable)	323	3	8.5	2	0
Beryllium (aqua regia extractable)	11.6	0.17	0.23	2	0
Boron (water soluble)	236000	0.5	0.7	2	0
Cadmium (aqua regia extractable)	188	<0.2	<0.2	2	0
Chromium (III)	8350	45	72	2	0
Chromium (hexavalent) low level	32.2	<1.8	<1.8	2	0
Copper (aqua regia extractable)	68300	13	13	2	0
Lead (aqua regia extractable)	2300	4.5	12	2	0
Mercury (aqua regia extractable)	1190	<0.3	<0.3	2	0
Nickel (aqua regia extractable)	983	8.5	31	2	0
Selenium (aqua regia extractable)	13000	<1	1.1	2	0
Vanadium (aqua regia extractable)	6360	13	17	2	0
Zinc (aqua regia extractable)	728000	13	46	2	0
Benzene	64.5	<0.005	<0.005	2	0
Toluene	134000	<0.005	<0.005	2	0
Ethylbenzene	42700	<0.005	<0.005	2	0
O-Xylene	19900	<0.005	<0.005	2	0
Total Phenols (monohydric)	36500	<1	<1	2	0
Total Cyanide	34	<1	<1	2	0
TPH - Aliphatic >C5 - C6	5940	<0.010	<0.010	2	0
TPH - Aliphatic >C6 - C8	16000	<0.010	<0.010	2	0
TPH - Aliphatic >C8 - C10	3970	<0.010	<0.010	2	0
TPH - Aliphatic >C10 - C12	19400	<1	<1	2	0
TPH - Aliphatic >C12 - C16	72500	<2	<2	2	0
TPH - Aliphatic >C16 - C21	1910000	<8	<8	2	0
TPH - Aliphatic >C21 - C35	1910000	8.4	15	2	0
TPH - Aromatic >EC5 - EC7	63.6	<0.010	<0.010	2	0
TPH - Aromatic >EC7 - EC8	134000	<0.010	<0.010	2	0
TPH - Aromatic >EC8 - EC10	6260	<0.020	<0.020	2	0
TPH - Aromatic >EC10 - EC12	24200	<1	<1	2	0
TPH - Aromatic >EC12 - EC16	35800	<2	5	2	0
TPH - Aromatic >EC16 - EC21	28600	12	20	2	0
TPH - Aromatic >EC21 - EC35	28600	17	28	2	0
Naphthalene	585	<0.05	<0.05	2	0
Acenaphthylene	92200	<0.05	0.23	2	0
Acenaphthene	92300	0.17	0.55	2	0
Fluorene	66500	0.13	0.48	2	0
Phenanthrene	22500	1.7	2.2	2	0
Anthracene	530000	0.48	0.79	2	0
Fluoranthene	22500	1.6	1.6	2	0
Pyrene	54000	1.5	2.3	2	0
Benzo(a)anthracene	175	0.63	1	2	0
Chrysene	352	0.56	0.88	2	0
Benzo(b)fluoranthene	44.7	0.53	0.66	2	0
Benzo(k)fluoranthene	1180	0.16	0.18	2	0
Benzo(a)pyrene	35.5	0.51	0.63	2	0
Indeno(1,2,3-cd)pyrene	506	0.17	0.25	2	0
Di-benzo(a,h)anthracene	3.86	<0.05	<0.05	2	0
Benzo(ghi)perylene	3950	0.22	0.26	2	0
pH	14	8	9.1	2	0

Table H4. Data assessment summary - potential risks to groundwater							
Water Body			**Freshwater**		**Number of Groundwater Samples:**		**1**
Determinand	**Notes**	**Freshwater EQS[1] (µg/l)**	**EC Drinking Water Value (µg/l)**	**Concentration recorded (µg/l)**	**Bioavailable concentration (µg/l)**	**Exceeding EQS**	**Exceeding DWV**
Arsenic		50	10	5.42	-	No	No
Cadmium		0.25	5	< 0.02	-	No	No
Chromium (VI)	*(1)*	3.4	50	< 5.0	-	No	No
Chromium (III)	*(1)*	4.7	50	< 5.0	-	No	No
Lead	*(2)*	7.2	10	<0.2	-	No	No
Mercury		0.07	1	< 0.05	-	No	No
Selenium		*	10	1.1	-		No
Boron		*	1000	130	-		No
Copper	*(2,3)*	1	2000	2.3	0.13	No	No
Nickel	*(2)*	4	20	4.7	1.14	No	No
Zinc	*(2,4)*	10.9	5000	4.6	2.02	No	No
Barium		*	1000	42	-		No
Beryllium		15	*	< 0.1	-	No	
Total Phenols (monohydric)		7.7	300	< 1.0	-	No	No
Total Cyanide	*(5)*	1	50	< 1.0	-	No	No
Total Sulphate as SO4 (mg/l)		*	250	30.9	-		No
TPH		*	10	< 10	-		No
PAH	*(6)*	*	0.1	0.08	-		No
Anthracene		0.1	*	0.08	-	No	
Benzo(a)pyrene		0.02	0.01	0.06	-	**Yes**	**Yes**
Fluoranthene		0.1	*	0.1	-	No	
Naphthalene		2	*	< 0.01	-	No	
Benzene		10	1	< 3.0	-	No	No
Toluene		74	*	< 3.0	-	No	
Total ammonia/ ammoniacal nitrogen as NH4		*	390	0.16	-		No
Hardness (mg CaCO3/l)		*	*	325	-		
pH		6.0 - 9.0	6.5 to 10	7.3	-	No	No

Notes:

* = No assessment criteria defined or given.

1 - Chromium drinking water value relates to total chromium

2 - Freshwater EQS value for bioavailable fraction for lead, copper, nickel and zinc. Bioavaialble fraction assessed using UKTAG Metal Bioavailability Assessment Tool

3 - Copper saltwater EQS 3.76 µg/l dissolved where DOC < 1mg. 3.76 + (2.677 x ((DOC/2) – 0.5)) µg/l dissolved, where DOC > 1mg/l.

4 - Freshwater EQS based on bioavailable fraction of 10.9µg/l plus ambient background concentration. For saltwarer EQS 6.8 µg/l dissolved zinc plus ambient background

5 - EQS value relates to free cyanide, drinking water standard based on total cyanide.

6 - Sum concentration of 4 PAH compounds; benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene and indeno(1,2,3-cd)pyrene.

ASSESSMENT CRITERIA

Table H3 below, sets out CGL's rationale for generic assessment criteria (GAC) adoption in order to evaluate risks posed to potential receptors at Holiday Inn Express, Wimbledon from identified chemical contamination. Potential receptors have been identified with reference to the Part IIA regime and associated LCRM guidance. As with the Part IIA regime, under the planning regime all receptors (humans, controlled waters, ecology, crops/livestock and buildings) have been considered if there is the potential for them to be adversely affected by exposure to contamination. The results of the assessment for the Holiday Inn Express site are then presented in Tables H1,H2 and H3 of this appendix.

Table H5. Rationale for Assessment Criteria Adoption

Source / Media	CGL's Approach & Rationale
Risks to Human Health (long-term chronic risks)	
Soil contaminants	• Laboratory test results have been compared against Generic Assessment Criteria (GACs) derived in-house by CGL using the Contaminated Land Exposure Assessment (CLEA) model and version 1.071 of the CLEA software. Where Soil Guideline Values (SGVs) have been published previously by the Environment Agency, the CGL GACs have updated these based on current exposure parameters (e.g. updated inhalation rates). • The GACs have been generated assuming a sandy loam soil type and a Soil Organic Material of 1% for the Made Ground, Alluvium and the River Terrace Deposits based upon conservative measured value ranges. • In the event impacts are identified on a site above the GAC level for arsenic, cadmium, chromium VI, benzene or benzo(a)pyrene, the results have been compared to the applicable Category 4 Screening Level (C4SL) published by DEFRA to further assess risks. • The exception to the above relates to lead. The SGV for lead has been withdrawn and the C4SL for lead is used by CGL directly as a first tier of assessment. • The CGL GACs represent conservative screening criteria (set at acceptable or minimal risk) and have generally been calculated using the default parameters for the standard land use scenarios set out in the CLEA technical report and toxicological inputs in line with the requirements of Science Report SC050021/SR2 and, in the case of petroleum hydrocarbons, Science Report P5-080/TR3. • Where a CGL GAC has not been derived alternative assessment criteria will be sourced from current commercially-available sources (including international standards where no suitable UK assessment criteria exists). • Concentrations of cyanide above the laboratory reporting limit are assessed against a Soil Screening Value (SSV) developed by Atkins. Atkins have based this assessment criteria on acute exposure to a 0 to 6 year old child. • Where the dataset is of appropriate size, assessment against the applicable GAC or C4SL is carried out at the 95th percentile of the sample mean (designated US_{95}), which is considered to represent a reasonable worst-case scenario. An assessment of the normality of the data has been undertaken. Where datasets are normally distributed the one sample t-test has been applied to calculate the US_{95}. In the case of non-parametric datasets, the Chebychev Theorem has been applied. The Grubbs Test has also been used to identify potential outliers within datasets. • It is noted that the British Geological Survey has published background levels for a number of organic and inorganic constituents. In the event that the C4SL or a GAC is found to be exceeded, the risk may still be considered to be low, unlikely to meet the definition of contaminated land under Part IIA and potentially suitable for use from a development perspective, if the contaminant concentrations are below local background levels, assuming no other contributing factors. • At this time an authoritative GAC is not available for asbestos fibres in soil. A positive identification of asbestos fibres in a soil sample by the laboratory is considered sufficient to warrant additional assessment of risks. Laboratory identification and quantification by microscopy may be required subject to source of material.

Source / Media	CGL's Approach & Rationale
Ground gas	• Concentrations and flow rates of carbon dioxide and methane in ground gas are converted to Gas Screening Values (GSVs) in accordance with CIRIA (2007). Potential risks associated with gas chemistry are evaluated in accordance with guidance presented in CIRIA (2007), NHBC (2007), BSI (2007).
Radon	• Risks from the radon content of soil gas are evaluated in accordance with BRE (2011).
Risks to Buildings & Structures	
Water supply pipes	• The evaluation of water supply pipe requirements at the site has been undertaken in general accordance with guidance and criteria produced by the UK Water Industry (2011).
Sulfate & pH conditions	• The evaluation of risks to buried concrete has followed the guidance and criteria produced by BRE (2005).
Risks to Vegetation & Plants	
Soil contaminants	• Risks to plant growth (i.e. phytotoxicity) have been assessed for specific contaminants where the limits for phytotoxic effect proposed (e.g. by BS 3882) are significantly lower than the health GAC.

Table H6. Data assessment summary – potential groundwater vapour risk to human health (Commercial land use)

Contaminant	Commercial GAC_{gwvap} (µg/l)	Measured Value (µg/l)	Exceeding Assessment Criteria?
Benzene	20,000	<3	No
Toluene	21,000,000[1]	<3	No
Ethylbenzene	960,000[1]	<3	No
Total Xylene	940,000[1]	<3	No
Methyl tertiary butyl ether (MTBE)	7,800,000[1]	<3	No
TPH aromatic >EC5 to EC7[2]	20,000,000[1]	<1.0	No
TPH aromatic >EC7 to EC8	21,000,000[1]	<1.0	No
TPH aromatic >EC8 to EC10	190,000[1]	<1.0	No
TPH aromatic >EC10 to EC12	660,000[1]	<10	No
TPH aromatic >EC12 to EC16	3,700,000[1]	18	No
TPH aliphatic EC5 to EC6	190,000[1]	<1.0	No
TPH aliphatic >EC6 to EC8	150,000[1]	<1.0	No
TPH aliphatic >EC8 to EC10	5,700[1]	<1.0	No
TPH aliphatic >EC10 to EC12	3,600[1]	<10	No
Acenaphthene	15,000,000[1]	1.1	No
Acenaphthylene	20,000,000[1]	0.09	No
Fluorene	18,000,000[1]	0.12	No
Naphthalene	190,000[1]	<0.01	No

Notes

Assessment criteria sourced from SoBRA, (2017). *Development of Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater.* Version 2.0. September 2024.

1. Assessment criteria exceeds theoretical solubility limit, an assessment should be made for the potential presence of free product.

2. Assessment criteria for TPH Aromatic >EC5 to EC7 should also be compared to assessment criteria for benzene to account for genotoxic mutagenic affects.

Table H7. Standard Water Supply Pipe Assessment

Test Group[1]	Testing Required?	PE threshold (mg/kg)	Metal Pipes / Barrier Pipe	Laboratory Detection Limit (mg/kg)	Testing UKAS accredited Y/N	Maximum concentration at proposed pipeline depth[2] (mg/kg)	Maximum site concentration[3] (mg/kg)	Locations and depths where concentrations exceed proposed pipeline threshold.
Total BTEX & MTBE	**Where Preliminary Risk Assessment (PRA) has identified land potentially affected by contamination**	**0.1**	**Pass**	<0.01	MCERTS	<0.05	<0.01	-
EC5–EC10 aliphatic and aromatic hydrocarbons		**2**	**Pass**	<0.001	MCERTS	<0.001	<0.001	-
EC10-EC16 aliphatic and aromatic hydrocarbons		**10**	**Fail**	Aliphatic: 1-2 Aromatic: 1-2	MCERTS	Aliphatic: 11 Aromatic: 2.6	Aliphatic: 11 Aromatic: 2.6	-
EC16-EC40 aliphatic and aromatic hydrocarbons		**500**	**Pass**	Aliphatic: 8 Aromatic: 10	MCERTS	Aliphatic: 84 Aromatic: 70	Aliphatic: 84 Aromatic: 70	-
Phenols		**2**	**Pass**	1	MCERTS	<1.0	<1.0	-
Corrosive	**pH**	**Pass**	**Note[4]**	pH units	On-site measurement	8.5	9.1	-

[1] Tests Groups as per Appendix G of UKWIR Guidance.

[2] Water pipes are normally laid 0.75-1.35 metres below finished ground level.

[3] State if liquid free product is present in soil or groundwater.

[4] Threshold: For wrapped steel, corrosive if pH<7 and conductivity >400 µs/cm. For wrapped ductile iron corrosive if pH<5, Eh not neutral and conductivity >400 µs/cm. For copper, corrosive if pH<5 or>8 and Eh positive.

APPENDIX I

Ground Gas and Groundwater Monitoring Results

GROUND GAS & WATER MONITORING RECORD SHEET

Project Name and Location: Holiday Inn Express, Wimbledon

Client: Carter Lauren Construction Limited | **Job No:** CGL/10060B

Conditions and Key

(*) Water level not accurately calculable due to location being dry or water depth not recorded
(>) Reading > (greater than) maximum resolution of instrumentation
(<) Reading < (less than) minimum resolution of instrumentation
(1) The peak reading is the maximum recorded level during a monitoring event.
(2) The steady reading is the level which remained constant after approximately 1 minute.
(3) GGMP = Ground Gas Monitoring Point. GWMP = Groundwater Monitoring Point.

Card Geotechnics Limited,
12 Melcombe Place,
London,
NW1 6JJ
www.cgl-uk.com
Tel: + (44) 020 3096 7567

Instruments Used: GA5000 gas analyser, photoionization detector, dip meter.

Monitored by: TC

Point Details				Target Stratum	Peak (1)			Steady (2)					Physical					Other
Location ID	Install Ref (3)	Round Reference	Date		Gas Flow (l/hr)	CO2 (%vol)	CH4 (%vol)	CO2 (%vol)	CH4 (%vol)	O2 (%vol)	Min O2 (% vol)	PID (ppm)	Atmos Pressure (mBAR)	Water Depth (mbgl)	Install Base (mbgl)	Cover Level (mOD)	Water Level (mOD)	Comment
BH01		1	16/10/2024	River Terrace Deposits	<0.01	2.8	6.0	2.8	<0.01	33.0	33.0	0	1001	1.67	3.00	11.84	10.17	
WS01		1	04/06/2024	River Terrace Deposits	<0.01	0.6	<0.01	0.5	<0.01	20.7	20.0	0	1006	2.31	2.60	11.93	9.62	
		2	16/10/2024		<0.01	0.4	<0.01	0.4	<0.01	20.7	20.7	0	1002	1.95	3.00		9.98	
WS02		1	04/06/2024	River Terrace Deposits	<0.01	<0.01	<0.01	<0.01	<0.01	21	20.7	0	1006	2.10	5.03	11.88	9.78	
		2	16/10/2024		<0.01	0.4	<0.01	0.4	<0.01	20.5	20.5	0	1002	2.25	2.60		9.63	

APPENDIX J

WAC Testing Results

Card Geotechnics Ltd
4 Godalming Business Centre
Woolsack Way
Godalming
Surrey

t: 01483 310600

e: sofiaz@cgl-uk.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 24-045764

Project / Site name:	Holiday Inn	**Samples received on:**	01/10/2024
Your job number:	CGL 10060B	**Samples instructed on/ Analysis started on:**	03/10/2024
Your order number:	POP016752	**Analysis completed by:**	11/10/2024
Report Issue Number:	1	**Report issued on:**	11/10/2024
Samples Analysed:	1 soil sample - 1 2stage sample		

Signed:

Adan Cazas Garcia
Key Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 24-045764
Project / Site name: Holiday Inn
Your Order No: POP016752

Lab Sample Number				337946
Sample Reference				BH01
Sample Number				B8
Depth (m)				2.20
Date Sampled				30/09/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**	
Stone Content	%	0.1	NONE	61.7
Moisture Content	%	0.01	NONE	4.4
Total mass of sample received	kg	0.1	NONE	1.3
General Inorganics				
pH (L005B)	pH Units	N/A	MCERTS	8.1
Total Organic Carbon (TOC) – Manual	%	0.1	MCERTS	0.1
Loss on Ignition @ 450°C	%	0.2	MCERTS	0.3
Acid Neutralisation Capacity	+/- mmol/kg	-9999	NONE	4.6
Speciated PAHs				
Naphthalene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.09
Acenaphthene	mg/kg	0.05	MCERTS	0.09
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.12
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.59
Pyrene	mg/kg	0.05	MCERTS	0.88
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.36
Chrysene	mg/kg	0.05	MCERTS	0.29
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.19
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.08
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.26
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05
Coronene	mg/kg	0.05	NONE	< 0.05
Total PAH				
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	2.96
Total WAC-17 PAHs	mg/kg	0.85	NONE	2.96
Petroleum Hydrocarbons				
Mineral Oil (EC10 - EC40) EH_CU_1D_AL	mg/kg	10	NONE	< 10
VOCs				
Benzene	µg/kg	5	MCERTS	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0
Total BTEX	µg/kg	5	MCERTS	< 5.0

Analytical Report Number: 24-045764
Project / Site name: Holiday Inn
Your Order No: POP016752

Lab Sample Number				337946
Sample Reference				BH01
Sample Number				B8
Depth (m)				2.20
Date Sampled				30/09/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**	
PCBs by GC-MS				
PCB Congener 28	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 52	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 101	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 118	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 138	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 153	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 180	mg/kg	0.001	MCERTS	< 0.001
Total PCBs	mg/kg	0.007	MCERTS	< 0.007

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

i2 Analytical
7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	**24-045764**						
					Client:	**CARDGEO**	
Location	**Holiday Inn**						
Lab Reference (Sample Number)	337946				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	30/09/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	BH01 B8						
Depth (m)	2.20						
Solid Waste Analysis							
TOC (%)**	0.1				3%	5%	6%
Loss on Ignition (%) **	0.3				--	--	10%
BTEX (µg/kg)**	< 5.0				6000	--	--
Sum of PCBs (mg/kg)**	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	2.96				100	--	--
pH (units)**	8.1				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	4.6				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 3 preparation utilising end over end leaching procedure)	2:1 mg/l	8:1 mg/l		Cumulative 10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.0020	< 0.0020		< 0.020	0.5	2	25
Barium *	0.013	0.0057		0.069	20	100	300
Cadmium *	< 0.00010	< 0.00010		< 0.0010	0.04	1	5
Chromium *	0.0034	< 0.00060		0.011	0.5	10	70
Copper *	0.012	0.0085		0.091	2	50	100
Mercury *	< 0.00070	< 0.0007		< 0.0070	0.01	0.2	2
Molybdenum *	0.0033	0.0023		0.024	0.5	10	30
Nickel *	0.0053	0.0013		0.020	0.4	10	40
Lead *	0.0019	< 0.0017		< 0.017	0.5	10	50
Antimony *	0.0027	< 0.0020		< 0.020	0.06	0.7	5
Selenium *	0.019	< 0.0050		< 0.050	0.1	0.5	7
Zinc *	0.0087	0.0011		0.023	4	50	200
Chloride *	< 4.0	< 4.0		< 15	800	15000	25000
Fluoride*	0.11	0.053		0.63	10	150	500
Sulphate *	12	2.4		40	1000	20000	50000
TDS*	58	33		370	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.16	< 0.13		< 0.50	1	-	-
DOC	5.62	11		103	500	800	1000
Leach Test Information							
Stone Content (%)	61.7						
Sample Mass (kg)	1.3						
Dry Matter (%)							
Moisture (%)	4.4						
Stage 1							
Volume Eluate L2 (litres)	0.342						
Filtered Eluate VE1 (litres)	0.30						

Results are expressed on a dry weight basis, after correction for moisture content where applicable. *= UKAS accredited (liquid eluate analysis only)

Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation ** = MCERTS accredited

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Analytical Report Number : 24-045764
Project / Site name: Holiday Inn

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
337946	BH01	B8	2.2	Brown sand with gravel and stones

Analytical Report Number : 24-045764
Project / Site name: Holiday Inn

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH at 20°C in soil	Determination of pH in soil by addition of water followed by electrometric measurement	In-house method	L005B	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L023B	D	MCERTS
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
TDS in WAC leachate (BS EN 12457-3 Prep)	Determination of total dissolved solids in leachate by electrometric measurement	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L031B	W	ISO 17025
Fluoride in WAC leachate (BS EN 12457-3 Prep)	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L033B	W	ISO 17025
DOC in WAC leachate (BS EN 12457-3 Prep)	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR analyser	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L037B	W	NONE
Metals in WAC leachate (BS EN 12457-3 Prep)	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed	L039B	W	ISO 17025
Sulphate in WAC leachate (BS EN 12457-3 Prep)	Determination of sulphate in leachate by acidification followed by ICP-OES	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed	L039B	W	ISO 17025
Preparation WAC leachate		In-house method	L043B	W	NONE
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046B	W	NONE
Loss on ignition of soil @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	In-house method	L047-PL	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088-PL	D/W	NONE

Analytical Report Number : 24-045764
Project / Site name: Holiday Inn

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Phenol Index in WAC leachate (BS EN 12457-3 Prep)	Determination of monohydric phenols in leachate by continuous flow analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Chloride in WAC leachate (BS EN 12457-3 Prep)	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

Sample Deviation Report

Analytical Report Number : 24-045764
Project / Site name: Holiday Inn

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
BH01	B8	S	337946	b	BTEX and/or Volatile organic compounds in soil	L073B	b
BH01	B8	S	337946	b	PCB's By GC-MS in soil	L027B	b
BH01	B8	S	337946	b	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	b
BH01	B8	S	337946	b	Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	L076B/L088-PL	b

HazWasteOnline™

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

a) understand the origin of the waste
b) select the correct List of Waste code(s)
c) confirm that the list of determinands, results and sampling plan are fit for purpose
d) select and justify the chosen metal species (Appendix B)
e) correctly apply moisture correction and other available corrections
f) add the meta data for their user-defined substances (Appendix A)
g) check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

GUJ0P-S92CM-TTMEX

Job name

Holiday Inn Express, Wimbledon - Additional SI

Description/Comments

Project

CGL/10060B

Site

Holiday Inn Express, Wibbledon Additional SI

Classified by

Name:
Nikki Burrows
Date:
31 Oct 2024 13:04 GMT
Telephone:
01392439905

Company:
CGL UK (Card Geotechnics Ltd)
Palatine House, Matford Court
Sigford Road
Exeter
EX2 8NL

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification: **CERTIFIED**

Course	Date
Hazardous Waste Classification	08 Feb 2024

Next 3 year Refresher due by Feb 2027

Purpose of classification

2 - Material Characterisation

Address of the waste

Colliers Wood High Street in Wimbledon South, London **Post Code** SW19 2BH

SIC for the process giving rise to the waste

41201 Construction of commercial buildings

Description of industry/producer giving rise to the waste

Construction of additional guest rooms

Description of the specific process, sub-process and/or activity that created the waste

Waste created during excavations

Description of the waste

Made Ground: light brown to dark grey clayey sandy gravel with gravels of brick and concrete and very clayey slightly gravelly sand

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	BH01-B8-30092024-2.20		Non Hazardous		3
2	BH01-1-30092024-0.50		Non Hazardous		6
3	BH01-2-30092024-1.00		Non Hazardous		9
4	BH01-B9-30092024-2.50		Non Hazardous		12

Related documents

#	Name	Description
1	24-045485_HWOL.hwol	i2 Analytical .hwol file used to populate the Job
2	24-045761_HWOL.hwol	i2 Analytical .hwol file used to populate the Job
3	24-045764.batch.batch	i2 Analytical .batch file used to populate the Job
4	24-045764_HWOL.hwol	i2 Analytical .hwol file used to populate the Job
5	Example waste stream template for contaminated soils	waste stream template used to create this Job

Report

Created by: Nikki Burrows

Created date: 31 Oct 2024 13:04 GMT

Classification of sample: BH01-B8-30092024-2.20

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH01-B8-30092024-2.20
Moisture content:
4.4%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 4.4% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		1.9 mg/kg	1.197	2.174 mg/kg	0.000217 %	✓	
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		3 mg/kg	1.32	3.787 mg/kg	0.000379 %	✓	
3	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		21 mg/kg	1.623	32.593 mg/kg	0.00326 %	✓	
4	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.23 mg/kg	2.775	0.61 mg/kg	0.000061 %	✓	
5	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.7 mg/kg	3.22	2.155 mg/kg	0.000215 %	✓	
6	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<**LOD**
7	chromium in chromium(III) compounds { * chromium(III) oxide (worst case) }		215-160-9	1308-38-9		45 mg/kg	1.462	65.77 mg/kg	0.00658 %		
8	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<**LOD**
9	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		13 mg/kg	1.126	13.993 mg/kg	0.0014 %	✓	
10	lead { * lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	12 mg/kg		11.472 mg/kg	0.00115 %	✓	
11	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %		<**LOD**
12	nickel { dinickel hexacyanoferrate }	028-037-00-8	238-946-3	14874-78-3		8.5 mg/kg	2.806	22.798 mg/kg	0.00228 %	✓	
13	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				1.1 mg/kg	1.405	1.477 mg/kg	0.000148 %	✓	
14	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		17 mg/kg	1.785	29.013 mg/kg	0.0029 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
15		zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }				46	mg/kg	4.398	193.403	mg/kg	0.0193 %	✓	
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
16	*	TPH (C6 to C40) petroleum group				50	mg/kg		47.8	mg/kg	0.00478 %	✓	
				TPH									
17		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
18		benzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
19		toluene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
20	*	ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
21		xylene				<0.026	mg/kg		<0.026	mg/kg	<0.0000026 %		<**LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
22		cyanides { * salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
23	*	pH				9.1	pH		9.1	pH	9.1 pH		
				PH									
24		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
25	*	acenaphthylene				0.09	mg/kg		0.086	mg/kg	0.0000086 %	✓	
			205-917-1	208-96-8									
26	*	acenaphthene				0.17	mg/kg		0.163	mg/kg	0.0000163 %	✓	
			201-469-6	83-32-9									
27	*	fluorene				0.13	mg/kg		0.124	mg/kg	0.0000124 %	✓	
			201-695-5	86-73-7									
28	*	phenanthrene				1.7	mg/kg		1.625	mg/kg	0.000163 %	✓	
			201-581-5	85-01-8									
29	*	anthracene				0.42	mg/kg		0.402	mg/kg	0.0000402 %	✓	
			204-371-1	120-12-7									
30	*	fluoranthene				1.6	mg/kg		1.53	mg/kg	0.000153 %	✓	
			205-912-4	206-44-0									
31	*	pyrene				1.5	mg/kg		1.434	mg/kg	0.000143 %	✓	
			204-927-3	129-00-0									
32		benzo[a]anthracene				0.63	mg/kg		0.602	mg/kg	0.0000602 %	✓	
		601-033-00-9	200-280-6	56-55-3									
33		chrysene				0.56	mg/kg		0.535	mg/kg	0.0000535 %	✓	
		601-048-00-0	205-923-4	218-01-9									
34		benzo[b]fluoranthene				0.66	mg/kg		0.631	mg/kg	0.0000631 %	✓	
		601-034-00-4	205-911-9	205-99-2									
35		benzo[k]fluoranthene				0.16	mg/kg		0.153	mg/kg	0.0000153 %	✓	
		601-036-00-5	205-916-6	207-08-9									
36		benzo[a]pyrene; benzo[def]chrysene				0.51	mg/kg		0.488	mg/kg	0.0000488 %	✓	
		601-032-00-3	200-028-5	50-32-8									
37	*	indeno[123-cd]pyrene				0.25	mg/kg		0.239	mg/kg	0.0000239 %	✓	
			205-893-2	193-39-5									
38		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
39	*	benzo[ghi]perylene				0.26	mg/kg		0.249	mg/kg	0.0000249 %	✓	
			205-883-8	191-24-2									
40	*	polychlorobiphenyls; PCB				<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<**LOD**
		602-039-00-4	215-648-1	1336-36-3									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
41	*	coronene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-881-7	191-07-1									
42	*	monohydric phenols				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
				P1186									
										Total:	0.0443 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
*	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"
Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 15000 mg/kg (1.5%) because: Not flammable unless saturated with a free phase product. Should a liquid phase be observed, then flash point testing should be carried out.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00478%)

Classification of sample: BH01-1-30092024-0.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH01-1-30092024-0.50
Moisture content:
14%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 14% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		4.5 mg/kg	1.197	4.633 mg/kg	0.000463 %	✓	
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		16 mg/kg	1.32	18.168 mg/kg	0.00182 %	✓	
3	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		160 mg/kg	1.623	223.39 mg/kg	0.0223 %	✓	
4	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.74 mg/kg	2.775	1.766 mg/kg	0.000177 %	✓	
5	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		2.2 mg/kg	3.22	6.092 mg/kg	0.000609 %	✓	
6	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<**LOD**
7	chromium in chromium(III) compounds { * chromium(III) oxide (worst case) }		215-160-9	1308-38-9		21 mg/kg	1.462	30.693 mg/kg	0.00307 %		
8	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.2 mg/kg	2.27	<2.724 mg/kg	<0.000272 %		<**LOD**
9	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		99 mg/kg	1.126	95.858 mg/kg	0.00959 %	✓	
10	lead { * lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	540 mg/kg		464.4 mg/kg	0.0464 %	✓	
11	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.7 mg/kg	1.353	0.815 mg/kg	0.0000815 %	✓	
12	nickel { dinickel hexacyanoferrate }	028-037-00-8	238-946-3	14874-78-3		15 mg/kg	2.806	36.192 mg/kg	0.00362 %	✓	
13	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1 mg/kg	1.405	<1.405 mg/kg	<0.000141 %		<**LOD**
14	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		33 mg/kg	1.785	50.664 mg/kg	0.00507 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
15		zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }				200	mg/kg	4.398	756.443	mg/kg	0.0756 %	✓	
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
16	*	TPH (C6 to C40) petroleum group				150	mg/kg		129	mg/kg	0.0129 %	✓	
				TPH									
17		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
18		benzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
19		toluene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
20	*	ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
21		xylene				<0.013	mg/kg		<0.013	mg/kg	<0.0000013 %		<**LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
22		cyanides { * salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
23	*	pH				8.5	pH		8.5	pH	8.5 pH		
				PH									
24		naphthalene				0.08	mg/kg		0.0688	mg/kg	0.00000688 %	✓	
		601-052-00-2	202-049-5	91-20-3									
25	*	acenaphthylene				0.09	mg/kg		0.0774	mg/kg	0.00000774 %	✓	
			205-917-1	208-96-8									
26	*	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-469-6	83-32-9									
27	*	fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-695-5	86-73-7									
28	*	phenanthrene				0.45	mg/kg		0.387	mg/kg	0.0000387 %	✓	
			201-581-5	85-01-8									
29	*	anthracene				0.17	mg/kg		0.146	mg/kg	0.0000146 %	✓	
			204-371-1	120-12-7									
30	*	fluoranthene				1.1	mg/kg		0.946	mg/kg	0.0000946 %	✓	
			205-912-4	206-44-0									
31	*	pyrene				0.99	mg/kg		0.851	mg/kg	0.0000851 %	✓	
			204-927-3	129-00-0									
32		benzo[a]anthracene				0.76	mg/kg		0.654	mg/kg	0.0000654 %	✓	
		601-033-00-9	200-280-6	56-55-3									
33		chrysene				0.83	mg/kg		0.714	mg/kg	0.0000714 %	✓	
		601-048-00-0	205-923-4	218-01-9									
34		benzo[b]fluoranthene				1.1	mg/kg		0.946	mg/kg	0.0000946 %	✓	
		601-034-00-4	205-911-9	205-99-2									
35		benzo[k]fluoranthene				0.48	mg/kg		0.413	mg/kg	0.0000413 %	✓	
		601-036-00-5	205-916-6	207-08-9									
36		benzo[a]pyrene; benzo[def]chrysene				0.92	mg/kg		0.791	mg/kg	0.0000791 %	✓	
		601-032-00-3	200-028-5	50-32-8									
37	*	indeno[123-cd]pyrene				0.52	mg/kg		0.447	mg/kg	0.0000447 %	✓	
			205-893-2	193-39-5									
38		dibenz[a,h]anthracene				0.13	mg/kg		0.112	mg/kg	0.0000112 %	✓	
		601-041-00-2	200-181-8	53-70-3									
39	*	benzo[ghi]perylene				0.58	mg/kg		0.499	mg/kg	0.0000499 %	✓	
			205-883-8	191-24-2									
40	*	coronene				0.2	mg/kg		0.172	mg/kg	0.0000172 %	✓	
			205-881-7	191-07-1									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
41	*	monohydric phenols		P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
								Total:	0.183 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
*	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 15000 mg/kg (1.5%) because: Not flammable unless saturated with a free phase product. Should a liquid phase be observed, then flash point testing should be carried out.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0129%)

Classification of sample: BH01-2-30092024-1.00

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH01-2-30092024-1.00
Moisture content:
16%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 16% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		3 mg/kg	1.197	3.017 mg/kg	0.000302 %	✓	
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		10 mg/kg	1.32	11.091 mg/kg	0.00111 %	✓	
3	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		39 mg/kg	1.623	53.185 mg/kg	0.00532 %	✓	
4	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.5 mg/kg	2.775	1.166 mg/kg	0.000117 %	✓	
5	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		2.1 mg/kg	3.22	5.68 mg/kg	0.000568 %	✓	
6	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<**LOD**
7	chromium in chromium(III) compounds { * chromium(III) oxide (worst case) }		215-160-9	1308-38-9		14 mg/kg	1.462	20.462 mg/kg	0.00205 %		
8	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.2 mg/kg	2.27	<2.724 mg/kg	<0.000272 %		<**LOD**
9	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		72 mg/kg	1.126	68.094 mg/kg	0.00681 %	✓	
10	lead { * lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	120 mg/kg		100.8 mg/kg	0.0101 %	✓	
11	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %		<**LOD**
12	nickel { dinickel hexacyanoferrate }	028-037-00-8	238-946-3	14874-78-3		12 mg/kg	2.806	28.28 mg/kg	0.00283 %	✓	
13	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1 mg/kg	1.405	<1.405 mg/kg	<0.000141 %		<**LOD**
14	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		26 mg/kg	1.785	38.988 mg/kg	0.0039 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
15		zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }				40	mg/kg	4.398	147.77	mg/kg	0.0148 %	✓	
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
16	*	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
				TPH									
17		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
18		benzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
19		toluene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
20	*	ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
21		xylene				<0.013	mg/kg		<0.013	mg/kg	<0.0000013 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
22		cyanides { * salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
		006-007-00-5											
23	*	pH				8.2	pH		8.2	pH	8.2 pH		
				PH									
24		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
25	*	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-917-1	208-96-8									
26	*	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
27	*	fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-695-5	86-73-7									
28	*	phenanthrene				0.05	mg/kg		0.042	mg/kg	0.0000042 %	✓	
			201-581-5	85-01-8									
29	*	anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			204-371-1	120-12-7									
30	*	fluoranthene				0.09	mg/kg		0.0756	mg/kg	0.00000756 %	✓	
			205-912-4	206-44-0									
31	*	pyrene				0.1	mg/kg		0.084	mg/kg	0.0000084 %	✓	
			204-927-3	129-00-0									
32		benzo[a]anthracene				0.06	mg/kg		0.0504	mg/kg	0.00000504 %	✓	
		601-033-00-9	200-280-6	56-55-3									
33		chrysene				0.07	mg/kg		0.0588	mg/kg	0.00000588 %	✓	
		601-048-00-0	205-923-4	218-01-9									
34		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
35		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
36		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
37	*	indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
38		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
39	*	benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
40	*	coronene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-881-7	191-07-1									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
41	*	monohydric phenols				<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
				P1186							
								Total:	0.0497 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
*	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH01-B9-30092024-2.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH01-B9-30092024-2.50
Moisture content:
3.3%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 3.3% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		<1 mg/kg	1.197	<1.197 mg/kg	<0.00012 %		<LOD
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		8.5 mg/kg	1.32	10.852 mg/kg	0.00109 %	✓	
3	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		11 mg/kg	1.623	17.269 mg/kg	0.00173 %	✓	
4	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.17 mg/kg	2.775	0.456 mg/kg	0.0000456 %	✓	
5	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.5 mg/kg	3.22	1.557 mg/kg	0.000156 %	✓	
6	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
7	chromium in chromium(III) compounds { * chromium(III) oxide (worst case) }		215-160-9	1308-38-9		72 mg/kg	1.462	105.232 mg/kg	0.0105 %		
8	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<LOD
9	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		13 mg/kg	1.126	14.154 mg/kg	0.00142 %	✓	
10	lead { * lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	4.5 mg/kg		4.352 mg/kg	0.000435 %	✓	
11	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %		<LOD
12	nickel { dinickel hexacyanoferrate }	028-037-00-8	238-946-3	14874-78-3		31 mg/kg	2.806	84.102 mg/kg	0.00841 %	✓	
13	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1 mg/kg	1.405	<1.405 mg/kg	<0.000141 %		<LOD
14	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		13 mg/kg	1.785	22.442 mg/kg	0.00224 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
15		zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }				13	mg/kg	4.398	55.286	mg/kg	0.00553 %	✓	
		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
16	*	TPH (C6 to C40) petroleum group				81	mg/kg		78.327	mg/kg	0.00783 %	✓	
				TPH									
17		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
18		benzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
19		toluene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
20	*	ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
21		xylene				<0.013	mg/kg		<0.013	mg/kg	<0.0000013 %		<**LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
22		cyanides { * salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
		006-007-00-5											
23	*	pH				8	pH		8	pH	8pH		
				PH									
24		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
25	*	acenaphthylene				0.23	mg/kg		0.222	mg/kg	0.0000222 %	✓	
			205-917-1	208-96-8									
26	*	acenaphthene				0.55	mg/kg		0.532	mg/kg	0.0000532 %	✓	
			201-469-6	83-32-9									
27	*	fluorene				0.48	mg/kg		0.464	mg/kg	0.0000464 %	✓	
			201-695-5	86-73-7									
28	*	phenanthrene				2.2	mg/kg		2.127	mg/kg	0.000213 %	✓	
			201-581-5	85-01-8									
29	*	anthracene				0.79	mg/kg		0.764	mg/kg	0.0000764 %	✓	
			204-371-1	120-12-7									
30	*	fluoranthene				1.6	mg/kg		1.547	mg/kg	0.000155 %	✓	
			205-912-4	206-44-0									
31	*	pyrene				2.3	mg/kg		2.224	mg/kg	0.000222 %	✓	
			204-927-3	129-00-0									
32		benzo[a]anthracene				1	mg/kg		0.967	mg/kg	0.0000967 %	✓	
		601-033-00-9	200-280-6	56-55-3									
33		chrysene				0.88	mg/kg		0.851	mg/kg	0.0000851 %	✓	
		601-048-00-0	205-923-4	218-01-9									
34		benzo[b]fluoranthene				0.53	mg/kg		0.513	mg/kg	0.0000513 %	✓	
		601-034-00-4	205-911-9	205-99-2									
35		benzo[k]fluoranthene				0.18	mg/kg		0.174	mg/kg	0.0000174 %	✓	
		601-036-00-5	205-916-6	207-08-9									
36		benzo[a]pyrene; benzo[def]chrysene				0.63	mg/kg		0.609	mg/kg	0.0000609 %	✓	
		601-032-00-3	200-028-5	50-32-8									
37	*	indeno[123-cd]pyrene				0.17	mg/kg		0.164	mg/kg	0.0000164 %	✓	
			205-893-2	193-39-5									
38		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
39	*	benzo[ghi]perylene				0.22	mg/kg		0.213	mg/kg	0.0000213 %	✓	
			205-883-8	191-24-2									
40	*	coronene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-881-7	191-07-1									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
41	*	monohydric phenols		P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
								Total:	0.0416 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
*	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 15000 mg/kg (1.5%) because: Not flammable unless saturated with a free phase product. Should a liquid phase be observed, then flash point testing should be carried out.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00783%)

Appendix A: Classifier defined and non GB MCL determinands

* **chromium(III) oxide (worst case)** (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from C&L Inventory Database
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H332 , Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Resp. Sens. 1; H334 , Skin Sens. 1; H317 , Repr. 1B; H360FD , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

* **lead compounds with the exception of those specified elsewhere in this Annex (worst case)**

GB MCL index number: 082-001-00-6
Description/Comments: Worst Case: IARC considers lead compounds Group 2A; Probably carcinogenic to humans; Lead REACH Consortium, following MCL protocols, considers lead compounds from smelting industries, flue dust and similar to be Carcinogenic category 1A
Additional Hazard Statement(s): Carc. 1A; H350
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 1A; H350 hazard statement sourced from: IARC Group 2A (Sup 7, 87) 2006; Lead REACH Consortium www.reach-lead.eu/substanceinformation.html (worst case lead compounds). Review date 29/09/2015

* **TPH (C6 to C40) petroleum group** (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , STOT RE 2; H373 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 2; H361d , Aquatic Chronic 2; H411

* **ethylbenzene** (EC Number: 202-849-4, CAS Number: 100-41-4)

GB MCL index number: 601-023-00-4
Description/Comments:
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

* **salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex**

GB MCL index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

* **pH** (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

* **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H330 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

* **acenaphthene** (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Aquatic Chronic 2; H411

* **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

* **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Skin Irrit. 2; H315

* **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

* **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

* **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

* **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2; H351

* **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

* **polychlorobiphenyls; PCB** (EC Number: 215-648-1, CAS Number: 1336-36-3)

GB MCL index number: 602-039-00-4
Description/Comments: Worst Case: IARC considers PCB Group 1; Carcinogenic to humans;

POP specific threshold from ATP1 (Regulation 756/2010/EU) to POPs Regulation (Regulation 850/2004/EC). Where applicable, the calculation method laid down in European standards EN 12766-1 and EN 12766-2 shall be applied.
Additional Hazard Statement(s): Carc. 1A; H350
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 1A; H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

* **coronene** (EC Number: 205-881-7, CAS Number: 191-07-1)

Description/Comments: Data from C&L Inventory Database; no entries in Registered Substances or Pesticides Properties databases; SDS: Sigma Aldrich, 1907/2006 compliant, dated 2012 - no entries; IARC – Group 3, not carcinogenic.
Data source: http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=17010&HarmOnly=no?fc=true&lang=en
Data source date: 16 Jun 2014
Hazard Statements: STOT SE 2; H371

* **monohydric phenols** (CAS Number: P1186)

Description/Comments: Combined hazards statements from harmonised entries in CLP for phenol, cresols and xylenols (604-001-00-2, 604-004-00-9, 604-006-00-X)
Data source: CLP combined data
Data source date: 26 Mar 2019
Hazard Statements: Muta. 2; H341 , Acute Tox. 3; H331 , Acute Tox. 3; H311 , Acute Tox. 3; H301 , STOT RE 2; H373 , Skin Corr. 1B; H314 , Skin Corr. 1B; H314 >= 3 % , Skin Irrit. 2; H315 1 <= conc. < 3 % , Eye Irrit. 2; H319 1 <= conc. < 3 % , Aquatic Chronic 2; H411

Appendix B: Rationale for selection of metal species

antimony {antimony trioxide}

Worst case CLP species based on hazard statements/molecular weight and low solubility. Industrial sources include: flame retardants in electrical apparatus, textiles and coatings.

arsenic {arsenic trioxide}

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic. Industrial sources include: smelting; main precursor to other arsenic compounds.

barium {barium diboron tetraoxide}

Cr(6) below LOD.

beryllium {beryllium oxide}

Reasonable case CLP species based on hazard statements/molecular weight. Industrial sources include: most common (non alloy) form, used in ceramics.

boron {diboron trioxide}

Reasonable case CLP species based on hazard statements/ molecular weight, physical form and low solubility. Industrial sources include: fluxing agent for glass/enamels; additive for fibre optics, borosilicate glass.

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history.

chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass.

chromium in chromium(VI) compounds {chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex}

Worst case species based on hazard statements/molecular weight.

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected.

lead {lead compounds with the exception of those specified elsewhere in this Annex (worst case)}

Cr(6) below LOD.

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight.

nickel {dinickel hexacyanoferrate}

Cr(6) below LOD.

selenium {selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case. Pigment cadmium sulphoselenide not likely to be present in this soil. No evidence for the other CLP entries: sodium selenite, nickel II selenite and nickel selenide, to be present in this soil.

vanadium {divanadium pentaoxide; vanadium pentoxide}

Worst case

zinc {zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2]}

Cr(6) below LOD.

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide].

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021
HazWasteOnline Classification Engine Version: 2024.304.6320.11573 (30 Oct 2024)
HazWasteOnline Database: 2024.304.6320.11573 (30 Oct 2024)

This classification utilises the following guidance and legislation:
WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
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5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
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