APPENDIX C
SITE INVESTIGATION AND GROUND MOVEMENT ASSESSMENT

70 Lady Margaret Road
London
NW5 2NP

Desk Study, Ground Investigation & Basement Impact Assessment

Philip Allard

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Rev 1

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Contents

Executive summary

This executive summary contains an overview of the key findings and conclusions. No reliance should be placed on any part of the executive summary until the whole of the report has been read. Other sections of the report may contain information that puts into context the findings that are summarised in the executive summary.

Brief

This report describes the findings of a site investigation carried out by Geotechnical and Environmental Associates Limited (GEA) on the instructions of Symmetrys, on behalf of Philip Allard, with respect to partial demolition of the existing rear extension and subsequent construction of a new extension with a single level basement. The purpose of the investigation has been to determine the ground conditions and hydrogeology, to provide a preliminary assessment of the presence of contamination and to provide information to assist with the design of the basement structure and suitable foundations. The report also includes information required to comply with London Borough of Camden Planning Guidance (CPG) Basements, relating to the requirement for a Basement Impact Assessment (BIA), including a ground movement analysis (GMA).

Previous desk study findings

The earliest map studied, dated 1850, shows the site to be vacant, with Maiden Lane present in the location of present-day Brecknock Road, located approximately 35 m to the north of the site. This road had been renamed to Brecknock Road by 1871. The map dated 1895 shows that the existing house had been constructed and significant development had taken place in the surrounding area. A post office was present approximately 10 m to the north of the site. With the exception of some houses removed in the 1930s and 1940s, some of which were presumably following WWII bomb damage in the surrounding area, very few changes are noted on subsequent maps. Planning permission was granted for the site in February 1970 for the erection of an extension to the existing building to provide an additional kitchen. The site and surrounding area have since remained largely unchanged.

Ground conditions

The expected ground conditions were encountered in that, below a moderate thickness of made ground, the London Clay Formation was proved to the maximum depth investigated of 9.50 m. The made ground was underlain by patio slabs or decorative gravel and was found to comprise very soft orange brown and reddish brown sandy slightly gravelly clay with variable amounts of brick and concrete fragments, flint gravel, tile, metal, carbonaceous material, slate and roots and rootlets, present to a maximum depth of 0.80 m. Below this, the London Clay was present which comprised an initial layer of firm becoming stiff brown mottled light grey slightly sandy clay with occasional decayed rootlets and fine to coarse selenite to a depth of 5.00 m. This initial layer contained several lenses of fine orange brown sand. Decayed rootlets were present to a depth of 3.80 m but no visual evidence of desiccation was identified. Below this, the London Clay comprised stiff becoming very stiff brown mottled orange brown clay with occasional selenite to the full depth investigated of 9.50 m.

Groundwater was not encountered in the borehole. Groundwater seepages were present at the base of Trial Pit No 2 and at a depth of 0.50 m in Trial Pit No 3. Both of these trial pits were excavated to identify the shallow foundation configuration of the single-storey extension and the seepages are thought to be due to the water building up against the foundations of this building.

Contamination testing has indicated two of the samples to contain marginally elevated concentrations of lead. Additionally, fibres of chrysotile asbestos were encountered in three of the four samples, at concentrations of less than 0.001%.

Recommendations

Formation level for the proposed basement should be within the firm to stiff London Clay. Excavations for the proposed basement structure will require temporary support to maintain stability and to prevent any excessive ground movements. Significant groundwater flows are not expected to be encountered within the basement excavation. The use of concrete underpinning to form the basement retaining walls is considered a suitable solution in view of the ground conditions at this site. New spread foundations bearing in the London Clay below basement level may be designed to apply a net allowable bearing pressure of 150 kN/m^2.

Site workers should adopt suitable precautions when handling soil but a requirement for any permanent remedial works is not envisaged.

Basement Impact Assessment

The BIA has not indicated any concerns with regard to the effects of the proposed basement on the site and surrounding area. It has been concluded that the impacts identified can be mitigated by appropriate design and standard construction practice.

The ground movement analysis and building damage assessment has indicated that the basement is not expected to cause unacceptable movements or levels of damage to surrounding sensitive structures.

Part 1: Investigation Report

This section of the report details the objectives of the investigation, the work that has been carried out to meet these objectives and the results of the investigation. Interpretation of the findings is presented in Part 2.

1.0 Introduction

Geotechnical and Environmental Associates Limited (GEA) has been commissioned by Symmetrys on behalf of Philip Allard to carry out a desk study, ground investigation and ground movement assessment at 70 Lady Margaret Road, London NW5 2NP.

This report also forms part of a Basement Impact Assessment (BIA), which has been carried out in accordance with guidelines from the London Borough of Camden (LBC) in support of a planning application.

1.1 Proposed Development

The proposed development involves the demolition of the existing three-storey rear extending structure and the construction of a ground plus two-storey extension attached to the existing retained structure and a single-storey basement underneath the proposed extension.

This report is specific to the proposed development and the advice herein should be reviewed if the development proposals are amended.

1.2 Purpose of Work

The principal technical objectives of the work carried out were as follows:

- to check the history of the site with respect to previous contaminative uses;
- to provide an assessment of the risk of encountering unexploded ordnance (UXO);
- to determine the ground conditions and their engineering properties;
- to use the above information to provide recommendations with respect to the design of suitable foundations and retaining walls;
- to assess the impact of the proposed basement on the local hydrogeology, hydrology and stability of the surrounding natural and build environment;
- to provide an indication of the degree of soil contamination present; and
- to assess the risk that any such contamination may pose to the proposed development, its users or the wider environment.

1.3 Scope of Work

In order to meet the above objectives, a desk study was carried out, followed by a ground investigation. The desk study comprised:

- a review of historical Ordnance Survey (OS) maps and environmental searches sourced from the Envirocheck database;
- a review of readily available geological maps;
- a preliminary unexploded ordnance (UXO) risk assessment carried out by 1st Line Defence; and
- a walkover survey of the site carried out in conjunction with the fieldwork.

In the light of this desk study an intrusive ground investigation was carried which comprised, in summary, the following activities:

- a single borehole advanced to a depth of 9.50 m below ground level using a cut-down opendrive sampling rig;
- standard penetration tests (SPTs) carried out at regular intervals within the borehole to provide quantitative data on the strength of the soils;
- three manually excavated trial pits to determine the configuration of existing foundations;
- the installation of a single groundwater monitoring standpipe in the boreholes to allow for future groundwater monitoring;

- testing of selected soil samples for contamination and geotechnical purposes; and
- provision of a report presenting and interpreting the above data, together with our advice and recommendations with respect to the proposed development.

This report includes a contaminated land assessment which has been undertaken by a suitably qualified and competent professional in accordance with the methodology presented by the Environment Agency in their Land contamination risk assessment (LCRM)[1] published 19 April 2021. This involves identifying, making decisions on, and taking appropriate action to deal with, land contamination in a way that is consistent with government policies and legislation within the United Kingdom. Risk management is divided into three stages; Risk Assessment, Options Appraisal and Remediation, and each stage comprises three tiers. The Risk Assessment stage includes preliminary risk assessment (PRA), generic quantitative risk assessment (GQRA) and detailed quantitative risk assessment (DQRA)and this report includes the PRA and GQRA.

The exploratory methods adopted in this investigation have been selected on the basis of the constraints of the site including but not limited to access and space limitations, together with any budgetary or timing constraints. Where it has not been possible to reasonably use an EC7 compliant investigation technique a practical alternative has been adopted to obtain indicative soil parameters and any interpretation is based upon engineering experience, local precedent where applicable and relevant published information.

1.3.1 Basement Impact Assessment

The work carried out includes a Hydrological and Hydrogeological Assessment and Land Stability Assessment (also referred to as Slope Stability Assessment). These assessments form part of the BIA procedure specified in the London Borough of Camden Planning Guidance CPG[2] and their Guidance for Subterranean Development[3] prepared by Arup (the "Arup report") in accordance with Policy A5 of the Camden Local Plan 2017. The aim of the work is to provide information on surface water, groundwater and land stability and in particular to assess whether the development will affect neighbouring properties or groundwater movements and whether any identified impacts can be appropriately mitigated by the design of the development.

1.3.2 Qualifications

The land stability element of the Basement Impact Assessment (BIA) has been carried out by Martin Cooper, a BEng in Civil Engineering, a chartered engineer (CEng), member of the Institution of Civil Engineers (MICE), and Fellow of the Geological Society (FGS) who has over 20 years' specialist experience in ground engineering. The subterranean (groundwater) flow assessment has been carried out by Nick Mannix, MSc in Hydrogeology, Chartered Geologist (CGeol) and Fellow of the Geological Society of London (FGS). The surface water and flooding assessment has been carried out by Rupert Evans, a hydrologist with more than ten years consultancy experience in flood risk assessment, surface water drainage schemes and hydrology / hydraulic modelling. Rupert Evans is a Chartered Environmentalist, Chartered Water and Environmental Manager and a Member of CIWEM.

The assessments have been made in conjunction with Steve Branch, a BSc in Engineering Geology and Geotechnics, MSc in Geotechnical Engineering, a Chartered Geologist (CGeol) and Fellow of the Geological Society (FGS) with some 30 years' experience in geotechnical engineering and engineering geology.

All assessors meet the qualification requirements of the Council guidance.

1.4 Limitations

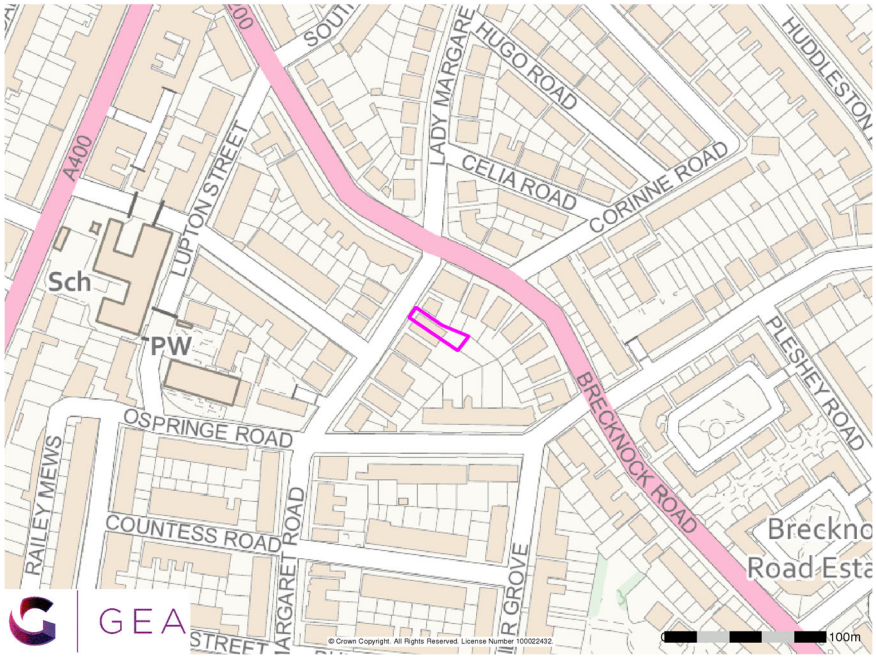
The conclusions and recommendations made in this report are limited to those that can be made on the basis of the investigation. The results of the work should be viewed in the context of the range of data sources consulted, the number of locations where the ground was sampled and the number of soil, gas or ground water samples tested. No liability can be accepted for information in other data sources or conditions not revealed by the sampling or testing. Any comments made on the basis of information obtained from the client or third parties are given in good faith on the assumption that the information is accurate; no independent validation of such information has been made by GEA.

1 https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm
2 London Borough of Camden Planning Guidance CPG (January 2021) *Basements*
3 Ove Arup & Partners (2010) *Camden geological, hydrogeological and hydrological study. Guidance for Subterranean Development.* For London Borough of Camden November 2010

2.0 The Site

2.1 Site Description

The site is located in London Borough of Camden, approximately 250 m to the south of Tufnell Park London Underground station. It fronts onto and is accessed from Lady Margaret Road to the northwest and is bordered to the northeast by 70A Lady Margaret Road, to the southwest by 68 Lady Margaret Road and to the southeast by the rear garden of Nos 149-151 Brecknock Road. The site may be additionally located by National Grid Reference 529310, 185600 and is shown on the map extract below.



A walkover of the site was carried out by a geotechnical engineer from GEA at the time of the fieldwork. The site is roughly rectangular in shape and measures approximately 60 m northwest to southeast by 10 m northeast to southwest. It is occupied by a three-storey to four-storey residential property with associated front and rear gardens and a passageway running along the northern boundary. A small, low-headroom basement is present below the front of the site, likely to have been used as a coal cellar or similar. A single storey extension was constructed at the rear of the site in the 1970s. The house is located in the northwest of the site with a small patio and low garden wall in the centre of the site. A long and narrow grassed garden with planters surrounding is present in the southeast of the site. A semi-mature deciduous tree is present in the garden close to the single-storey extension and several mature and semi mature shrubs, bushes and trees are located in the planters and along the northern, southern and eastern boundaries both on and just off site in neighbouring gardens.

The site is sensibly level. At the front of the site is a paved pedestrian walkway and Lady Margaret Road slopes gently towards the northeast.

2.1.1 Adjoining Structures

No 68 Lady Margaret Road to the southeast is formed of three-storeys and also probably includes a single level part-basement similar to the subject site. No 70A Lady Margaret Road appears to be a small, single storey building. It is not known if this has a basement but it is considered unlikely. However, the building is constructed on a level considerably lower than that of No 70 Lady Margaret Road.

2.2 Site History

The earliest map studied, dated 1850, shows the site to be vacant, with Maiden Lane in the location of present-day Brecknock Road, located approximately 35 m to the north of the site. This road had been renamed Brecknock Road by 1871.

The map dated 1895 shows the existing house had been constructed on site and significant development had taken place in the surrounding area. A post office was present approximately 10 m to the north of the site.

With the exception of some houses removed in the 1930s and 1940s, presumably due to WWII damage in the surrounding area, very few changes are noted on subsequent maps. Planning permission was granted for the site in February 1970 for the erection of an extension to the existing building to provide an additional kitchen.

2.3 Other Information

Environmental searches revealed no records of any existing and historical landfill sites, waste management, treatment or disposal sites within 700 m of the site. Additionally, no areas of potentially infilled land are recorded within 600 m of the site.

No pollution incidents to controlled waters have been recorded within 900 m of the site. Furthermore, no fuel stations are recorded within 450 m of the site.

The search indicated that the site is located in an area where less than 1% of homes are affected by radon emissions; according to records held by the Health Protection Agency, and as such radon protection measures will not be required.

2.4 Preliminary UXO Risk Assessment

A Preliminary UXO Risk Assessment has been undertaken by 1st Line Defence, and a copy of their report (ref PRA-17472, dated February 2023) is included within the appendix. The risk assessment has been carried out in accordance with the guidelines provided by CIRIA[4], which state that the likelihood of encountering and detonating UXO below a site should be assessed along with establishing the consequences that may arise. The first phase comprises a preliminary risk assessment, which should be undertaken at an early stage of the development planning. If such an assessment identifies a high level of risk then a detailed risk assessment should be carried out by a UXO specialist, which will identify an appropriate course of action with regard to risk mitigation.

The report indicates that during WWII (world war II) the site was located within the Metropolitan Borough of St Pancras which sustained an overall very high density of bombing. Reference to London Bomb Census mapping has indicated the nearest bomb strike to the site to be at the junction of Lady Margaret Road and Brecknock Road. The lack of bombing on the site is corroborated by the LLC bomb damage map, which does not record any damage to structures on or immediately surrounding the site. The closest damage is recorded approximately 25 m north and 45 m south and west. Available aerial photography does not indicate any damage to the site during the war, or on the neighbouring sites. As a result, it was concluded that the risk level at the site is not considered to be significantly elevated above the 'background level' for the wider area and it was therefore recommended that no further research or mitigation was required.

2.5 Geology

The British Geological Survey (BGS) map of the area (Sheet 256) indicates the site is directly underlain by the London Clay. However, the site is shown within an area of previously worked ground. According to the BGS memoir, the London Clay is homogenous, slightly calcareous silty clay to very silty clay, with some beds of clayey silt grading to silty fine-grained sand. The London Clay overlies a downwards sequence of Lambeth Group (sandy clays) overlying Thanet Sand (fine grained sands), which in turn overlies the Cretaceous Chalk.

A search of the BGS borehole archive revealed the records of a borehole drilled approximately 80 m to the east of the site, which extended to a depth of about 12 m. The borehole initially encountered made ground described as rubble which extended to a depth of 0.30 m. Below this depth the London Clay was encountered and is described as an initial layer of firm to stiff brown and mottled brown fissured silty clay, extending to a depth of 11.00 m, below which the London Clay was described as stiff blue/grey fissured silty clay which extended to the full depth of the borehole.

2.6 Hydrology and Hydrogeology

The London Clay Formation is classified as Unproductive Strata, referring to rock layers or drift deposits with low permeability and that have negligible significance for water supply or river base flow.

As the London Clay is likely to comprise predominantly clay soils, it cannot support groundwater flow over any significant distance, nor can it be considered to support a "water table" or continuous piezometric surface. Boreholes constructed within clays can fill with water, due to the often high water content of shallow clays draining into the standpipe or by the collection of surface water drainage, which is unable to drain through the clay; however, this is not reflective of the type of groundwater flow that would occur in a porous and permeable saturated stratum.

The permeability of the weathered London Clay will be predominantly secondary, through fissures in the clay. Published data indicates the horizontal permeability of the London Clay to generally range between 1×10^{-11} m/s and 1×10^{-9} m/s.

Groundwater was not encountered during the advancement of the BGS borehole described in the previous section. There are no surface water features within 450 m of the site and the site lies outside the catchment of the Hampstead Heath chain of ponds but is shown to be within an area of worked ground on Figure 16 of the Arup report.

The site is not located within a groundwater Source Protection Zone (SPZ) and there are no groundwater abstraction zones located within 1 km of the site.

4 CIRIA C681 (2009) *Unexploded ordnance (UXO) A guide for the construction industry*

Lady Margaret Road is listed within the London Borough of Camden report[5] as having suffered from surface water flooding in the 2002 flooding event. However, the report indicates that the Road did not suffer surface water flooding at the site during the 1975 event.

Spring lines are present at the interface of the Bagshot Beds and the Claygate Member in the area of Hampstead Heath and, to a lesser extent, near the boundary between the Claygate Member and the underlying lowly permeable London Clay. These springs have been the source of a number of London's lost rivers, including the Tyburn and Westbourne.

Figure 11 of the Arup report and reference to the Lost Rivers of London[6] indicates that the site does not lie in close proximity to the path of any former watercourses.

The site is largely covered by the existing building and hardstanding and therefore infiltration of rainwater into the ground beneath the site is limited to the front and rear gardens, and the majority of surface runoff is likely to drain into combined sewers in the road.

2.7 Preliminary Risk Assessment

Part IIA of the Environmental Protection Act 1990, which was inserted into that Act by Section 57 of the Environment Act 1995, provides the main regulatory regime for the identification and remediation of contaminated land. The determination of contaminated sites is based on a "suitable for use" approach which involves managing the risks posed by contaminated land by making risk-based decisions. This risk assessment is carried out on the basis of a source-pathway-receptor approach.

Source

The desk study findings indicate that the site has not had a potentially contaminative history as it has been occupied by the existing buildings since the early 20th Century.

The buildings on site may have asbestos included in their construction, such that fragments or fibres of asbestos, as well as heavy metals or polyaromatic hydrocarbons (PAHs) may have entered the shallow soils during construction, and there is a risk of these contaminants being released during demolition. As with any developed site, there is the potential for localised spillages and leakages, but this is not considered to represent a significant source of contamination.

There are no historical or existing landfill sites within 1 km of the site and no areas of potentially infilled land within 600 m of the site, therefore there is not a risk to the site from landfill gas.

Receptor

The continued use of the site as for residential purposes means that end users represent high sensitivity receptors.

Buried services are likely to come into contact with any contaminants present within the soils through which they pass, and site workers are likely to come into contact with any contaminants present during construction works.

Groundwater and adjacent sites are also considered relatively sensitive receptors.

Pathway

Within the site, end users will be isolated from direct contact with any contaminants present within the made ground by the house and surrounding hard surfacing, thus potential contaminant exposure pathways will exist with respect to end users only in areas of proposed soft landscaping.

There will be a potential for contaminants to move onto or off the site horizontally within the made ground via any perched groundwater flows, although these pathways are already in existence. A pathway for ground workers to come into contact with any contamination will exist during construction work and services will come into contact with any contamination within the soils in which they are laid.

There is thus considered to be a low potential for a contaminant pathway to be present between any potential contaminant source and a target for the particular contaminant.

Preliminary Risk Appraisal

On the basis of the above it is considered that there is a LOW risk of there being a significant contaminant linkage at this site which would result in a requirement for major remediation work. Furthermore, as there is no evidence of filled ground within the vicinity of the site and no landfill sites, there is not considered to be a significant potential for hazardous soil gas to be present on or migrating towards the site.

5 London Borough of Camden (2003) *Floods in Camden, Report of the Floods Scrutiny Panel*

6 Barton, N, & Meyers, S (2016) *The Lost Rivers of London (revised and extended edition with colour maps).* Historical Publications Ltd.

3.0 Screening

The Camden planning guidance suggests that any development proposal that includes a basement should be screened to determine whether or not a full BIA is required.

3.1 Screening Assessment

A number of screening tools are included in the Arup document and for the purposes of this report reference has been made to Appendices E1, E2 and E3 which include a series of questions within screening flowcharts for surface flow and flooding, subterranean (groundwater) flow and land stability. The flowchart questions and responses to these questions are tabulated below.

3.1.1 Subterranean (groundwater) Screening Assessment

Question	Response for 70 Lady Margaret Road
1a. Is the site located directly above an aquifer?	No. The site is underlain by the London Clay which is designated as Unproductive Strata by the Environment Agency and cannot store and transmit water in sufficient quantities to support groundwater abstractions or watercourses.
1b. Will the proposed basement extend beneath the water table surface?	No. The London Clay and clay dominated Head Deposits, if present, cannot support groundwater flow and cannot therefore support a water table consistent with a permeable water bearing strata.
2. Is the site within 100 m of a watercourse, well (used/ disused) or potential spring line?	No. There are no surface water features within 450 m of the site and the site does not lie in close proximity to any of the lost rivers of London.
3. Is the site within the catchment of the pond chains on Hampstead Heath?	No. Topographical maps acquired as part of the desk study and Figures 12 and 14 of the Arup report confirms that the site is not located within this catchment area
4. Will the proposed basement development result in a change in the proportion of hard surfaced / paved areas?	*Yes, there will be a decrease in impermeable area as a result of the development from the existing 109.3 m2 to 59 m2 due to the use of a green roof and permeable paving to replace existing. However, the low permeability of the underlying London Clay would result in a low recharge in any case and consequently there would be little or no effect on groundwater.*
5. As part of the site drainage, will more surface water (e.g. rainfall and run-off) than at present be discharged to the ground (e.g. via soakaways and/or SUDS)?	No. Given that the site is underlain by clay soils and is unlikely to be suitable for a soakaway or similar SUDS based system, the site drainage will therefore be directed to public sewer. Site drainage will therefore be designed to generally maintain the existing situation. Green roofs to replace existing impermeable roofs will provide some limited water attenuation and it is proposed to utilise water buts to save water.
6. Is the lowest point of the proposed excavation (allowing for any drainage and foundation space under the basement floor) close to or lower than, the mean water level in any local pond or spring line?	No. There are no groundwater dependent ponds or spring lines present within 500 m of the site. The flow of the former Tyburn watercourse was perched on the London Clay.

The above assessment has identified the following potential issues that need to be further assessed:

Q4 There will be a decrease in hardstanding at the rear of the site.

3.1.2 Stability Screening Assessment

Question	Response for 70 Lady Margaret Road
1. Does the existing site include slopes, natural or manmade, greater than 7°?	No, as indicated on the Slope Angle Map Fig 16 of the Arup report. However, the slope does gradually slope falling to the northwest.
2. Will the proposed re-profiling of landscaping at the site change slopes at the property boundary to > 7°?	No. The site is not to be significantly re-profiled as part of the development.
3. Does the development neighbour land, including railway cuttings and the like, with a slope > 7°?	No. As indicated on the Slope Angle Map Fig 16 of the Arup report. The adjacent land has a slope similar to that of the site.
4. Is the site within a wider hillside setting in which the general slope is greater than 7°?	No. As indicated on the Slope Angle Map Fig 16 of the Arup report.
5. Is the London Clay the shallowest strata at the site?	*Yes. As indicated on the geological map and Figures 3, 5 and 8 of the Arup report.*
6. Will any trees be felled as part of the proposed development and / or are any works proposed within any tree protection zones where trees are to be retained?	*Yes. A single tree will be removed, although this work is unrelated to the development, due to previous subsidence issues.*

Question	Response for 70 Lady Margaret Road
7. Is there a history of seasonal shrink-swell subsidence in the local area and / or evidence of such effects at the site?	*Yes. The area is prone to these effects as a result of the presence of shrinkable London Clay.*
8. Is the site within 100 m of a watercourse or potential spring line?	No. There are no surface water features or Lost Rivers of London located within 100 m of the site.
9. Is the site within an area of previously worked ground?	*Yes. The geological map of the area and Figures 3, 4 and 8 of the LB Camden, Camden Geological, Hydrogeological and Hydrological Study – Guidance for Subterranean Development produced by Arup, 2010, do indicate the site to be underlain by worked ground.*
10a. Is the site within an aquifer?	No. The site is underlain by the London Clay which is designated as Unproductive Strata by the Environment Agency and cannot store and transmit usable amounts of water.
10b. Will the proposed basement extend beneath the water table such that dewatering may be required during construction?	No. The London Clay cannot support a continuous water table.
11. Is the site within 50 m of Hampstead Heath ponds?	No. Figure 14 of the LB Camden, Camden Geological, Hydrogeological and Hydrological Study – Guidance for Subterranean Development produced by Arup, 2010, report confirms that the site is not located within 50 m of the Hampstead Heath ponds.
12. Is the site within 5 m of a highway or pedestrian right of way?	The site fronts onto Lady Margaret Road, however, the basement development is proposed towards the rear of the building and does not extend within 5 m of the roadway.
13. Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties?	*Yes. Although No 68 Lady Margaret Road is known to have a basement similar to that of the existing basement on the site, some of the walls will be founded close to ground level. Additionally, it is assumed that the foundations of No 70A are formed close to ground level, with no basement present. The maximum dig will be 2.90 m. The foundations of No 68 Lady Margaret Road will be underpinned adjacent to the excavation.*
14. Is the site over (or within the exclusion zone of) any tunnels, e.g. railway lines?	No. The site is not located on any railway or tube line.

The above assessment has identified the following potential issues that need to be assessed:

Q5 The London Clay is the shallowest strata beneath the site.
Q6 A tree will be felled as part of the development
Q7 The site is in an area likely to be affected by seasonal shrink-swell.
Q9 The site is located within an area of previously worked ground.
Q13 The proposed basement will significantly increase the differential depth of foundations relative to neighbouring properties.

3.1.3 Surface Flow and Flooding Screening Assessment

Question	Response for 70 Lady Margaret Road
1. Is the site within the catchment of the pond chains on Hampstead Heath?	No. Figure 14 of the LB Camden, Camden Geological, Hydrogeological and Hydrological Study – Guidance for Subterranean Development produced by Arup, 2010, confirms that the site is not located within this catchment area.
2. As part of the proposed site drainage, will surface water flows (e.g. volume of rainfall and peak run-off) be materially changed from the existing route?	No. Any additional surface water from the marginal increase in hardstanding area will be attenuated and discharged into the sewers to ensure the surface water flow regime will be unchanged. The basement will mainly be beneath the footprint of the building and existing hardstanding areas, and the 1m distance between the roof of the basement and ground surface as recommended by section 3.2 of the CPG Basements 2021 does not apply across these areas.
3. Will the proposed basement result in a change in the proportion of hard surfaced / paved areas?	*Yes, there will be a decrease in impermeable area as a result of the development from the existing 109.3 m2 to 59 m2 due to the use of a green roof and permeable paving to replace existing.*
4. Will the proposed basement development result in changes to the profile of the inflows (instantaneous and long term) of surface water being received by adjacent properties or downstream watercourses?	No. Any additional surface water from the marginal increase in hardstanding area will be attenuated and discharged into the sewers to ensure the surface water flow regime will be unchanged. The basement will be beneath the footprint of the building, and the 1 m distance between the roof of the basement and ground surface as recommended by section 3.2 of the CPG Basements 2021 does not apply across these areas.
5. Will the proposed basement result in changes to the quality of surface water being received by adjacent properties or downstream watercourses?	No. The proposal is very unlikely to result in any changes to the quality of surface water being received by adjacent properties or downstream watercourses as the surface water drainage regime will be unchanged and the land uses will remain the same.

Question	Response for 70 Lady Margaret Road
6. Is the site in an area identified to have surface water flood risk according to either the Local Flood Risk Management Strategy or the Strategic Flood Risk Assessment or is it at risk of flooding, for example because the proposed basement is below the static water level of nearby surface water feature?	*Yes. The Camden Flood Risk Management Strategy dated 2013, together with Figures 3v, 4e, 5a and 5b of the SFRA dated 2014, and Environment Agency online flood maps show that the site has a very low flooding risk from sewers, reservoirs (and other artificial sources), groundwater and fluvial/tidal watercourses.* *The Environment Agency online flood maps and Figure 3v of the SFRA show that the site has a very low to low flooding risk from surface water. The flood depth is shown to be <0.3 m during the low risk event.* *It is possible that the basement will be constructed within pockets of perched water and the recommendations outlined in the BIA with regards to water-proofing and tanking of the basement will reduce the risk to acceptable levels.* *In accordance with paragraph 5.11 of the CPG, a positive pumped device will be installed in the basement in order to further protect the site from sewer flooding.*

The above assessment has identified the following potential issues that need to be further assessed:

Q3 There will be a decrease in hardstanding at the rear of the site.
Q6 The site is at a low risk of surface water flooding. Whilst it is shown to be in an area at risk of surface water flooding, it is classified as a very low to low risk and as such it is not considered necessary to take it forward to the scoping stage.

4.0 Scoping and Site Investigation

The purpose of scoping is to assess in more detail the factors to be investigated in the impact assessment. Potential impacts are assessed for each of the identified potential impact factors.

4.1 Potential Impacts

The following potential impacts have been identified by the screening process.

Potential Impact	Consequence
London Clay is the shallowest stratum at the site.	The London Clay is prone to seasonal shrink-swell (subsidence and heave).
Seasonal shrink-swell can result in foundation movements.	Multiple potential impacts depending on the specific setting of the basement development. For example, the implications of a deepened basement/foundation system on neighbouring properties should be considered.
Increase in the proportion of hard standing.	Less soft covering for surface water infiltration. However, the extent of the change will be minimal, and the London Clay is of very low permeability so will not make much difference.
The site is located within an area of previously worked ground.	Previously worked ground may be less homogeneous that natural strata which could result in differential settlement.
The development will significantly increase the differential depth of foundations relative to neighbouring properties.	The basement excavation may result in structural damage to neighbouring properties.
A tree will be felled during the development	The removal of the tree will likely lead to a gradual swelling of the ground which could affect soil strength and therefore slope stability. Additionally the binding effect of the tree roots may have been beneficial to slope stability.

These potential impacts have been investigated through the site investigation, as detailed in Section 13.0.

4.2 Exploratory Work

Access to the site was limited by the presence of the existing buildings, which remained occupied and in use at the time of the investigation. Therefore, in order to meet the objectives described in Section 1.2, as far as was possible within the access constraints of the existing building, a single borehole was advanced, to a depth of 9.50 m using demountable opendrive percussive sampling equipment. Additionally three trial pits were hand excavated to a maximum depth of 1.45 m to determine the configuration of the existing foundations.

During boring, undisturbed samples were obtained from the borehole for subsequent laboratory examination and testing. A single groundwater monitoring standpipe was installed in the borehole to a depth of 5.00 m to facilitate groundwater future monitoring, although no monitoring has been undertaken to date.

A selection of the samples recovered from the boreholes was submitted to a soil mechanics laboratory for a programme of geotechnical testing and an analytical laboratory for a programme of contamination testing.

All of the above work was carried out under the supervision of a geotechnical engineer from GEA. The borehole records are appended, together with a site plan indicating the exploratory positions.

4.3 Sampling Strategy

The boreholes were positioned on site by a geotechnical engineer from GEA in accessible areas, with due regard to the proposed development and the locations of known buried services. The trial pit positions were specified by the consulting engineers.

Four samples of the made ground have been tested for the presence of contamination. The analytical suite of testing was selected to identify a range of typical industrial contaminants for the purposes of general coverage. For this investigation the analytical suite for the soil included a range of metals, total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAH), total cyanide and monohydric phenols. The samples were also screened for the presence of asbestos. The contamination analyses were carried out at an MCERTs accredited laboratory with the majority of the testing suite accredited to MCERTS standards. A summary of the MCERTs accreditation and test methods are included with the attached results and further details are available upon request.

5.0 Ground Conditions

The investigation encountered the anticipated ground conditions in that below a moderate thickness of made ground, the London Clay Formation was encountered and was proved to the maximum depth investigated of 9.50 m.

5.1 Made Ground

The made ground was underlain by patio slabs or decorative gravel and was found to comprise very soft orange brown and reddish brown sandy slightly gravelly clay with variable amounts of brick and concrete fragments, flint gravel, tile, metal, carbonaceous material, slate and roots and rootlets, present to a maximum depth of 0.80 m.

Apart from the presence of fragments of extraneous material noted above, no visual or olfactory evidence of contamination was observed during the fieldwork. Four samples of the made ground have however been analysed for a range of contaminants as a precautionary measure and the results are detailed within Section 5.4.

5.2 London Clay

The London Clay comprised an initial layer of firm becoming stiff brown mottled light grey slightly sandy clay with occasional decayed rootlets and fine to coarse selenite to a depth of 5.00 m. This initial layer contained several sand lenses comprising fine orange brown sand. Decayed rootlets were present to a depth of 3.80 m but no visual evidence of desiccation was identified. Below this depth, the London Clay comprised stiff becoming very stiff brown mottled orange brown clay with occasional selenite to the full depth investigated of 9.50 m.

The results of plasticity index tests indicate the clay to be of high volume change potential, and the results of quick undrained triaxial tests undertaken on undisturbed samples of the clay from the adjacent site indicate the clay to be of medium becoming very high strength.

5.3 Groundwater

Groundwater was not encountered in the borehole. Groundwater seepages were present at the base of Trial Pit No 2 and at a depth of 0.50 m in Trial Pit No 3. Both of these trial pits were excavated to identify the shallow foundation configuration of the single-storey extension and the seepages are thought to be due to the water building up against the foundations of this building. A groundwater standpipe was installed to a depth of 5.00 m

within Borehole No 1 which was found to be dry during a single subsequent monitoring visit.

5.4 Soil Contamination

The table below sets out the values measured within the two samples analysed; all concentrations are in mg/kg unless otherwise stated.

Determinant	BH1 0.40 m	TP1 0.80 m	TP2 0.50 m	TP3 0.30 m
pH	8.0	7.9	7.8	9.5
Asbestos	Chrysotile	Not Detected	Chrysotile	Chrysotile
Asbestos Quantification	<0.001	NA	<0.001	<0.001
Arsenic	10	11	22	15
Cadmium	<0.2	<0.2	<0.2	<0.2
Chromium	33	36	34	35
Lead	65	88	**380**	**200**
Mercury	<0.3	0.4	0.7	<0.3
Copper	26	33	91	28
Nickel	21	23	26	23
Selenium	<1.0	<1.0	<1.0	<1.0
Zinc	53	60	200	160
Total PAH	<0.80	<0.80	12.4	2.42
Sulphide	22	8.7	40	4.4
Total Cyanide	<1.0	<1.0	<1.0	<1.0
Total Organic Carbon	0.8	1.2	1.6	0.8
Benzo(a)pyrene	<0.05	<0.05	1.1	0.23
Naphthalene	<0.05	<0.05	0.11	<0.05
TPH	<10	<10	<10	<10
Total Phenols	<1.0	<1.0	<1.0	<1.0

Note: Figures in bold indicate values in excess of the generic guideline screening values.

5.4.1 Generic Quantitative Risk Assessment

The use of a risk-based approach has been adopted to provide an initial screening of the test results to assess the need for subsequent site-specific risk assessments. Contaminants of concern are those that have values in excess of generic human health risk-based guideline values, which are either the CLEA[7] Soil Guideline Values where available, the Suitable 4 Use Values[8] (S4UL) produced by LQM/CIEH calculated using the CLEA UK Version 1.07[9] software, or the DEFRA Category 4 Screening values[10], assuming a residential end use. The key generic assumptions for this end use are as follows:

- that groundwater will not be a critical risk receptor;
- that the critical receptor for human health will be a young female aged 0 to 6 years old;
- that the exposure duration will be 6 years;
- that the critical exposure pathways will be direct soil and indoor dust ingestion, consumption of home grown produce, consumption of soil adhering to home grown produce, skin contact with soils and dust, and inhalation of dust and vapours; and
- that the building type equates to a terraced house.

It is considered that these assumptions are acceptable for this generic assessment of this site. The tables of generic screening values derived by GEA and an explanation of how each value has been derived are included in the Appendix.

7 *Updated Technical Background to the CLEA Model (Science Report SC050021/SR3) Jan 2009* and Soil Guideline Value reports for specific contaminants; all DEFRA and Environment Agency.
8 *The LQM/CIEH S4Uls for Human Health Risk Assessment* S4UL3065 November 2014
9 Contaminated Land Exposure Assessment (CL|EA) Software Version 1.071 Environment Agency 2015
10 CL:AIRE (2013) *Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination* Final Project Report SP1010 and DEFRA (2014) *Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination* Policy Companion Document SP1010

Where contaminant concentrations are measured at concentrations below the generic screening value it is considered that they pose an acceptable level of risk and thus further consideration of these contaminant concentrations is not required. However, where concentrations are measured in excess of these generic screening values there is considered to be a potential that they could pose an unacceptable risk and thus further action will be required which could include;

- additional testing to zone the extent of the contaminated material and thus reduce the uncertainty with regard to its potential risk;
- site specific risk assessment to refine the assessment criteria and allow an assessment to be made as to whether the concentration present would pose an unacceptable risk at this site; or
- soil remediation or risk management to mitigate the risk posed by the contaminant to a degree that it poses an acceptable risk.

When comparing the results from the contamination testing to those in the Soil Guideline Values and Generic Guideline Values for a residential end use with plant uptake, two of the samples (TP2 0.50 m and TP3 0.30 m) were found to contain marginally elevated concentrations of lead (380 mg/kg and 200 mg/kg). Additionally, fibres of Chrysotile asbestos were encountered in three of the four samples at concentrations of less than 0.001%.

The significance of these results is considered further in Part 2 of the report.

5.5 Existing Foundations

The findings of the trial pits are summarised in the table below. Sketches and photographs of each pit are included in the Appendix.

Trial Pit No	Section	Structure	Foundation detail	Bearing Stratum
1	A-A'	Main House	Not Determined Top NA Base <1.45 m Lateral projection NA	Not Proved
	B-B'	Low Brick Wall	Brick Footing Top 0.00 m Base 0.17 m Lateral projection 0 mm	Made Ground (brown and reddish brown slightly sandy slightly gravelly clay with brick and concrete fragments, roots and rootlets, tile, rare metal and carbonaceous material)
2	A-A'	1970's Extension	Mass concrete strip / trenchfill Top 0.68 m Base 0.81 m Lateral projection 290 mm	Firm orange brown silty CLAY
3	A-A'	1970's Extension	Mass concrete strip / trenchfill Top 0.55 m Base 0.68 m Lateral projection 330 mm	Firm orange brown silty CLAY

Part 2: Design Basis Report

This section of the report provides an interpretation of the findings detailed in Part 1, in the form of a ground model, and then provides advice and recommendations with respect to the proposed development.

6.0 Introduction

The proposed development involves the demolition of the existing three-storey rear extending structure and the construction of a ground plus two-storey extension attached to the existing retained structure and a single-storey basement underneath the proposed extension. The basement is expected to be extend to about 3.00 m below the current floor level and the loads are to supported by shallow spread foundations constructed just below basement level.

7.0 Ground Model

The desk study has revealed that the site does not have a potentially contaminative history, as it has only been developed with the existing buildings, and on the basis of the fieldwork, the ground conditions at this site can be characterised as follows:

- beneath a moderate thickness of made ground, London Clay extends to the full depth of the investigation, of 9.50 m;
- the made ground comprises orange-brown and reddish brown sandy slightly gravelly clay with brick and concrete fragments, flint gravel, tile, metal, carbonaceous material, slate and roots and rootlets, and extends to a maximum depth of 0.80 m;
- the London Clay comprises an initial horizon of firm becoming stiff brown mottled light grey slightly sandy clay with occasional decayed rootlets and fine to coarse selenite, extending to a depth of 5.00 m, below which stiff becoming very stiff brown mottled orange brown clay with occasional selenite is present and extends to the full depth investigated of 9.50 m.
- perched groundwater is present within the made ground around the existing foundations but no consistent water table is present beneath the site; and
- contamination testing has revealed the presence of very low levels of asbestos contamination and localised marginally elevated concentrations of lead within the made ground.

8.0 Advice & Recommendations

Excavations for the proposed basement structure will require temporary support to maintain stability and to prevent any excessive ground movements. Formation level for the basement will be within the London Clay at a depth of about 3.00 m below street level. On the basis of the investigation observations and the underlying ground conditions, significant groundwater inflows are not expected to be encountered within the basement excavation.

On the basis of the proposals and the contamination testing undertaken to date, there is not considered to be a requirement for remedial works.

8.1 Basement Construction

Formation level for the basement is likely to be within the stiff clay of the London Clay at a depth of about 3.00 m below ground level, which is similar to that of the existing basement section on the site.

Whilst groundwater monitoring should be carried out, it is considered that significant groundwater inflows are not expected to be encountered in the basement excavation. Any relatively minor perched water inflows or seepages should be adequately dealt with through sump pumping, although it would be prudent for the chosen contractor to have a contingency plan in place to deal with more significant or prolonged inflows as a precautionary measure.

The design of basement support in the temporary and permanent conditions needs to take account of the need to maintain the stability of the excavation and surrounding structures, and to protect against potential shallow groundwater inflows. There are a number of methods by which the sides of the basement excavation could be supported in the temporary and permanent conditions. The choice of wall may be governed to a large extent by whether it is to be incorporated into the permanent works and have a load bearing function.

The final choice will depend to a large extent on the need to protect nearby structures from movements, the required overall stiffness of the support system, and the need to control groundwater movement through the wall in the temporary condition. In this respect the stability of the existing and adjacent buildings, will be paramount.

In the absence of significant groundwater inflows and the presence of clay soils, where the basement is to be constructed below the proposed extension footprint the use of underpinning in a traditional hit and miss approach is to be utilised along with the construction of cast in-situ reinforced concrete retaining walls constructed using a similar methodology. Careful workmanship will be required to ensure that movement of the surrounding structures does not occur and the contractor should be required to provide details of how they intend to control groundwater and instability of excavations, should it arise.

An assessment of the potential movements as a result of the proposed basement construction has been carried out as part of the Ground Movement Analysis, which is reported in Part 3.

8.1.1 Basement Retaining Walls

The following parameters are suggested for the design of the permanent basement retaining walls.

Stratum	Bulk Density (kg/m^3)	Effective Cohesion (c' – kN/m^2)	Effective Friction Angle (ϕ' – degrees)
Made ground	1700	Zero	27
London Clay	1950	Zero	23

Significant groundwater inflows are not anticipated within the basement excavation.

Provided that a fully effective drainage system can be ensured in order to prevent the build-up of groundwater behind the retaining walls, it should be possible to design the basement on the basis that water will not collect behind the walls. If an effective drainage system cannot be ensured, then a water level of two-thirds of the basement depth, subject to a minimum depth of 1.0 m, should be assumed. The advice in BS8102:2009[11] should be followed in this respect and with regard to the provision of suitable waterproofing.

8.1.2 Basement Heave

The 3.00 m deep excavation of the basement will result in an unloading of around 55 kN/m^2 which will result in the heave of the underlying London Clay. This will comprise immediate elastic movement, which will account for approximately 40 % of the total movement and be expected to be complete during the construction period, and long-term movements, which will theoretically take many years to complete. These movements will, to some extent, be mitigated by the loads applied by the proposed development, however the ground movements associated with the proposed basement excavation and construction have been considered in more detail in Part 3 of this report.

8.2 Spread Foundations

Spread foundations bearing beneath the proposed basement extension in the stiff clay of the London Clay may be designed to apply a net allowable bearing pressure of 150 kN/m^2.

The above value incorporates an adequate factor of safety against bearing capacity failure and should ensure that settlements remain within normal tolerable limits.

8.3 Shallow Excavations

On the basis of the borehole findings, it is considered that it will be generally feasible to form relatively shallow excavations terminating within the London Clay without the requirement for lateral support, although localised instabilities may occur where more granular material or groundwater is encountered.

Significant inflows of groundwater into shallow excavations are not generally anticipated, although seepages may be encountered from perched water tables within the made ground, particularly within the vicinity of existing foundations, although such inflows should be suitably controlled by sump pumping.

If deeper excavations are considered or if excavations are to remain open for prolonged periods it is recommended that provision be made for battered side slopes or lateral support. Where personnel are required to enter excavations, a risk assessment should be carried out and temporary lateral support or battering of the excavation sides considered in order to comply with normal safety requirements.

11 BS8102 (2009) *Code of practice for protection of below ground structures against water from the ground*

8.4 Basement Floor Slab

Following excavation of the basement, the floor slab will need to be suspended over a void or a layer of compressible material to accommodate the anticipated heave unless the slab can be suitably reinforced to cope with these movements.

Further information on the detailed movements is provided in the ground movement assessment in Part 3.

8.5 Effect of Sulphates

Chemical analyses have revealed moderate concentrations of soluble sulphate and near-neutral pH in accordance with Class DS-3 conditions of Table C2 of BRE Special Digest 1:SD Third Edition (2005). The measured pH values of the samples show that an ACEC class of AC-3s would be appropriate for the site. This assumes a static water condition at the site. The guidelines contained in the digest should be followed in the design of foundation concrete.

8.6 Contamination Risk Assessment

The desk study findings indicate that the site does not have a potentially contaminative history as it has been developed with the existing buildings for its entire developed history. Furthermore, no there are no potential offsite sources of contamination that are considered to pose a risk to the site.

The contamination testing revealed two of the samples (TP2 0.50 m and TP3 0.30 m) to contain marginally elevated concentrations of lead (380 mg/kg and 200 mg/kg). Additionally, fibres of chrysotile asbestos were encountered in three of the four samples at concentrations of less than 0.001%.

As asbestos is insoluble it is not considered to pose any meaningful risk to groundwater, the development or to neighbouring sites through migration in the ground. It is however potentially hazardous to human health as airborne fibres and could thus pose a risk through inhalation during construction works and to end users through direct contact pathways. The asbestos was found to be present at concentrations of less than 0.001% and was encountered in damp soil and as a result there is a negligible risk of fibres dusting into the air with respect to end users[12]. However, it would be prudent to provide suitable protection to site workers during the groundworks.

All work being carried out within asbestos containing soils should be carried out in accordance with the Control of Asbestos Regulations, including toolbox talks for all workers and having the correct PPE in place. During the excavation and movement of any soils, an asbestos specialist should be appointed and will need to hand pick and suitably bag any asbestos containing material and also monitor dust levels using air monitoring equipment. Any asbestos containing soil will need to be covered, either by a cover system, or by hardstanding in order to protect end users from exposure to fibres dusting from the shallow soil during activities on site. The local authority and / or HSE should be consulted prior to commencement of any excavations.

A basement is proposed beneath the affected part of the site, such that all of the made ground in this area will be removed and will therefore not represent an ongoing source of contamination. A moderate thickness of made ground is present beneath the site, and it would be prudent to keep the made ground separate from the natural soils and carry out additional asbestos screening of samples of made ground to be removed from the site to determine if any asbestos is present.

As the site is underlain by the London Clay Formation, classified as Unproductive Strata, groundwater is a not a sensitive receptor. In any case, given that the observed contamination is relatively immobile and unlikely to be in a soluble form and is considered to be non-volatile or of a low volatility, the contamination does not present a significant risk to groundwater through leaching, migration to adjacent sites or vapour risk.

The site lies within an area known to have background concentrations of lead of between 600 mg/kg and >900 mg/kg. Therefore the measured contamination is well below the background levels of the area and as such the presence of these concentrations will not result in an elevated risk to any sensitive receptors. Therefore a requirement for remedial measures is no envisaged.

8.7 Waste Disposal

Under the European Waste Directive, waste is classified as being either Hazardous or Non-Hazardous and landfills receiving waste are classified as accepting hazardous or non-

12 *The Release of Dispersed Asbestos Fibres from* Soils, Addison et. al., 1988 http://www.iom-world.org/pubs/IOM_TM8814.pdf

hazardous wastes or the non-hazardous sub-category of inert waste in accordance with the Waste Directive. Waste classification is a staged process and this investigation represents the preliminary sampling exercise of that process. Once the extent and location of the waste that is to be removed has been defined, further sampling and testing may be necessary. The results from this ground investigation should be used to help define the sampling plan for such further testing, which could include WAC leaching tests where the totals analysis indicates the soil to be a hazardous waste or inert waste from a contaminated site. It should however be noted that the Environment Agency guidance WM3[13] states that landfill WAC analysis, specifically leaching test results, must not be used for waste classification purposes.

Any spoil arising from excavations or landscaping works, which is not to be re-used in accordance with the CL:AIRE[14] guidance, will need to be disposed of to a licensed tip. Waste going to landfill is subject to landfill tax at either the standard rate of £102.10 per tonne (about £190 per m^3) or at the lower rate of £3.25 per tonne (roughly £6.00 per m^3). However, the classifications for tax purposes and disposal purposes differ and currently all made ground and topsoil is taxable at the 'standard' rate and only naturally occurring soil and stones, which are accurately described as such in terms of the 2011 Order, would qualify for the 'lower rate' of landfill tax.

Based on the technical guidance provided by the EA it is considered likely that the soils encountered during this ground investigation, as represented by the chemical analyses carried out, would be generally classified as follows.

Soil Type	Waste Classification (Waste Code)	WAC Testing Required Prior to Landfill Disposal?	Current applicable rate of Landfill Tax
Made ground	Non-hazardous (17 05 04)	No	£102.10 / tonne (Standard rate)
Natural Soils	Inert non-hazardous (17 05 04)	Should not be required but confirm with receiving landfill	£3.125 / tonne (Reduced rate for uncontaminated naturally occurring rocks and soils)

Any soils containing asbestos may be classified as hazardous waste if the concentration is over 0.1 %. It would be prudent to screen the made ground for asbestos before exporting off-site, with the hand picking out any asbestos material but a suitably qualified contractor.

Under the requirements of the European Waste Directive all waste needs to be pre-treated prior to disposal. The pre-treatment process must be physical, thermal, chemical or biological, including sorting. It must change the characteristics of the waste in order to reduce its volume, hazardous nature, facilitate handling or enhance recovery. The waste producer can carry out the treatment but they will need to provide documentation to prove that this has been carried out. Alternatively, the treatment can be carried out by an approved contractor. The Environment Agency has issued a position paper[15] which states that in certain circumstances, segregation at source may be considered as pre-treatment and thus excavated material may not have to be treated prior to landfilling if the soils can be segregated onsite prior to excavation by sufficiently characterising the soils insitu prior to excavation.

The above opinion with regard to the classification of the excavated soils is provided for guidance only and should be confirmed by the receiving landfill once the soils to be discarded have been identified.

The local waste regulation department of the Environment Agency (EA) should be contacted to obtain details of tips that are licensed to accept the soil represented by the test results. The tips will be able to provide costs for disposing of this material but may require further testing.

13 Environment Agency 2015. *Guidance on the classification and assessment of waste.* Technical Guidance WM3 First Edition

14 CL:AIRE March 2011. *The Definition of Waste: Development Industry Code of Practice* Version 2

15 Environment Agency 23 Oct 2007 *Regulatory Position Statement Treating non-hazardous waste for landfill - Enforcing the new requirement*

Part 3: Ground Movement Analysis

This section of the report comprises an analysis of the ground movements arising from the proposed basement and foundation scheme discussed in Part 2 and the information obtained from the investigation, presented in Part 1 of the report.

9.0 Introduction

The sides of an excavation will move to some extent regardless of how they are supported. The movement will typically be both horizontal and vertical and will be influenced by the engineering properties of the ground, groundwater level and flow, the efficiency of the various support systems employed and the efficiency or stiffness of any support structures used.

An analysis has been carried out of the likely movements arising from the proposed excavation and the results of this analysis have been used to predict the effect of these movements on surrounding structures.

10.0 Basis of Ground Movement Assessment

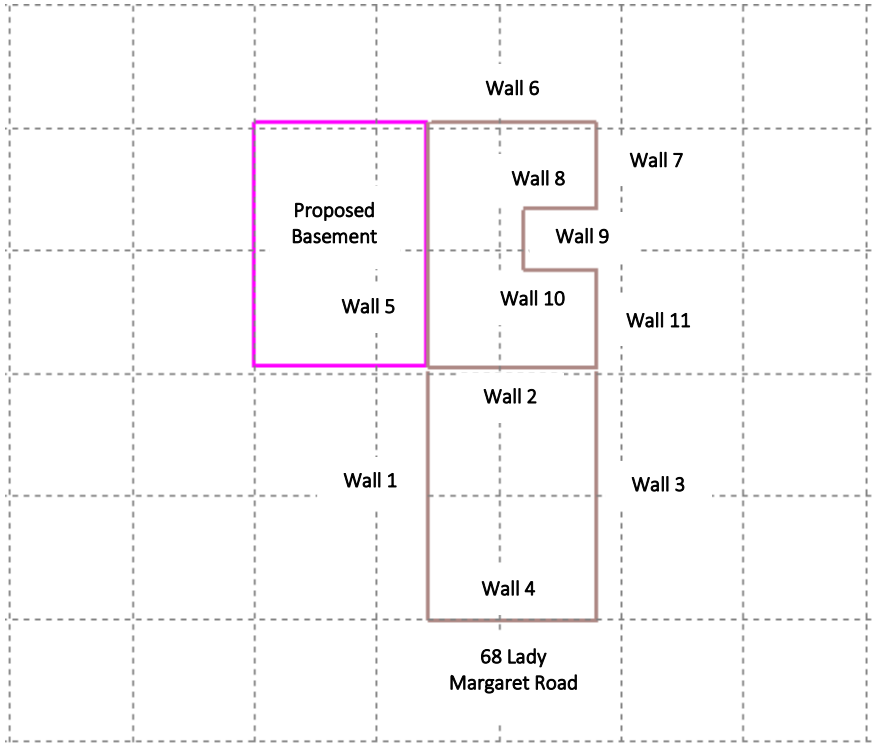
10.1 Nearby Sensitive Structures

Sensitive structures relevant to this assessment include the neighbouring properties of Nos 68 and 70A Lady Margaret Road.

Information with respect to the construction of No 70A Lady Margaret Road has been provided by the consulting engineers for the project, which includes drawings detailing the presence of a contiguous piled wall being installed along the boundary between the two properties to facilitate the construction. The excavation depth of the site of No 70A Lady Margaret Road is detailed on the drawings as being at a depth of 3.75 m below the ground level of No 70 Lady Margaret Road. The proposed basement will extend to a depth of 3.00 m below existing ground level and will therefore remain above the level of the foundations of No 70A Lady Margaret Road. Therefore this structures will not be affected and has been excluded from the analysis.

Information was also provided with respect to No 68 Lady Margaret Road. The plans do not indicate the structure to include a basement, although it is considered likely that the structure has a similar basement to that of No 70 Lady Margaret Road. The structure is clearly formed at the same level as No 70 Lady Margaret Road and the structure is four-storeys in height, including the dormer loft. The building height was estimated from on-site observations.

A plan indicating the locations of each of the sensitive structures and the positions of the individual elevations are shown on the plan below.



10.2 Construction Sequence

In general, the sequence of works for excavation and construction are assumed to comprise the following stages.

1. Demolish existing extension;
2. build temporary structure to support existing building;
3. underpin rear elevation of existing and party wall with adjacent building;
4. excavations for the forming of cast in-situ reinforced concrete retaining walls along other elevations of proposed basement;
5. build basement retaining walls and construct ground floor slab;
6. excavate basement and cast basement floor slab; and,
7. build super structure over basement.

The underpins and cast in-situ concrete retaining walls will be adequately laterally propped and sufficiently dowelled together, and the concrete will be cast and adequately cured prior to excavation of the basement and removal of the formwork and supports. It is assumed that the corners of the excavation will be locally stiffened by cross-bracing or similar and that the new retaining walls will not be cantilevered at any stage during the construction process. It is assumed that adequate temporary propping of the new retaining walls, particularly at the top level, will occur at all times prior to the construction of permanent concrete floor slabs.

11.0 Ground Movements

An assessment of ground movements within and surrounding the excavation has been undertaken using the P-Disp and X-Disp computer programs licensed from the OASYS suite of geotechnical modelling software from Arup. These programs are commonly used within the ground engineering industry and are considered to be appropriate tools for this analysis.

The X-Disp and P-Disp programs have been used to predict ground movements likely to arise from the excavation and construction of the proposed basement. This includes the heave / settlement of the ground (vertical movement) and the lateral movement of soil behind the proposed retaining walls (horizontal movement). Both the P-Disp and X-Disp programs are commonly used within the ground engineering industry and are considered to be appropriate tools for the purpose of this analysis.

For the purpose of these analyses, the corners have been defined by x and y coordinates, with the x-direction approximately parallel with the orientation of Lady Margaret Road, whilst the y-direction is approximately perpendicular. Vertical movement is in the z-direction. Wall lengths of less than 10 m have been modelled as 1 m long structural elements, while walls greater than 10 m in length have been modelled as 2 m elements to reflect their greater stiffness.

The basement structure has been modelled as a polygon, which will be formed through the combination of the underpinning of existing foundations and the construction of new cast in situ reinforced retaining walls formed using similar methods to underpinning. Below the existing building footprint, underpinning depths of around 2.50 m will be required.

It is assumed that suitable propping will be provided during the construction of the basement and in the permanent condition, such that the walls can be considered to be stiff for the purpose of the ground movement modelling.

The full outputs of all the analyses can be provided on request but samples of the output movement contour plots are included within the appendix.

11.1 Ground Movements – Surrounding the Basement Excavation

11.1.1 Model Used

For the X-Disp analysis, the soil movement relationships used for the embedded retaining walls are the default values within CIRIA report C760[16], which were derived from a number of historic case studies.

Published data for ground movements associated with underpinned retaining walls and the subsequent excavation of a new basement is limited compared to other types of retaining wall. It is widely accepted that movements associated with underpinning are generally influenced by the quality of the workmanship. It is also generally accepted that horizontal movements would be expected to fall within the order of 5 mm to 10 mm. A movement curve that produces a minimum of 5 mm of both vertical and horizontal movement for a maximum of 3 m retained height has therefore been produced and adopted for modelling the movements associated with the construction of the underpins and the subsequent mass excavation.

11.1.2 Results

Phase of Works	Wall Movement (mm)	
	Vertical Settlement	Horizontal Movement
Combined Installation and Excavation Movements	5.0	5.0

The movements set out in the table and discussed above are the maximum movements and the analysis has indicated that they occur immediately or just outside the line of the retaining walls, and also account for the likely overprediction of movements within re-entrant corners included within the model.

11.2 Ground Movements within the Excavation

11.2.1 Model Used

Unloading of the London Clay will take place as a result of the excavation of the proposed basements and the reduction in vertical stress will cause heave to take place. Undrained soil parameters have been used to estimate the potential short-term movements, which include the "immediate" or elastic movements as a result of the basement excavation. Drained parameters have been used to provide an estimate of the total long-term movement.

The elastic analysis requires values of soil stiffness at various levels to calculate displacements. Values of stiffness for the soils at this site are readily available from published data[17] and a well-established method has been used to provide estimated values. Relationships of $E_u = 500\ C_u$ and $E' = 300\ C_u$ for the cohesive soils have been used to obtain values of Young's modulus.

The 3.00 m deep excavation of the basement will result in a net unloading of around 55 kN/m^2, which will result in heave of the underlying London Clay.

Loading information provided by the consulting engineers has indicated a uniform distributed load of 32 kN/m^2 will apply at basement level following the completed construction.

The soil parameters used in this analysis and tabulated below have been primarily derived from the data from the GEA investigation on the site. The results have been extrapolated from the existing data set where the soil profile extends beyond the maximum depth of the investigation.

A rigid boundary for the analysis has been set at the base of the London Clay at a depth of 40 m below ground level, which has been determined on the basis of a BGS archive borehole record located about 700 m (530020, 185630) to the east of the site (TQ38NW/5). The Lambeth Group below this depth is not considered to be impacted by the proposed development and comprise essentially incompressible soils.

Stratum	Depth Range (m)	Eu (MPa)	E'(Mpa)
London Clay	GL to 40.0	10 to 187	6 to 112

16 Gaba, A, Hardy, S, Powrie, W, Doughty, L and Selemetas, D (2017) *Embedded retaining walls – guidance for economic design* CIRIA Report C760

17 Burland JB, Standing, JR, and Jardine, FM (2001) *Building response to tunnelling, case studies from construction of the Jubilee Line Extension.* CIRIA Special Publication 200

11.2.2 Results

The predicted movements are summarised in the table below; the results are presented below and in subsequent tables to the degree of accuracy required to allow predicted variations in ground movements around the structure(s) to be illustrated, but may not reflect the anticipated accuracy of the predictions.

The assessment has been carried out as three separate analyses representing three phases of the development, the excavation of the basement in the short term, the excavation of the basement and application of the loads of the new structure in the short term and the complete construction in the overall term.

Phase	Heave Movement (mm)	
	Centre of Excavation	Perimeter of Excavation
Excavation (Short Term)	-9	-3 to -5
Complete Construction (Short Term)	-4	-2
Complete Construction (Overall Term)	-7	-3 to -5

If a compressible material is used beneath the slab, it will need to be designed to be able to resist the potential uplift forces generated by the ground movements. In this respect, potential heave pressures are typically taken to equate to around 40% of the total unloading pressure.

12.0 Damage Assessment

In addition to the above assessment of the likely movements that will result from the proposed development, any neighbouring buildings within the zone of influence of the excavations are considered to be sensitive structures, requiring Building Damage Assessments, on the basis of the classification given in Table 6.4 of CIRIA report C760.

The sensitive structures outlined previously have been modelled as displacement lines in the analysis along which the damage assessment has been undertaken.

12.1 Damage to Neighbouring Structures

The ground movements resulting from the piling, underpinning and basement excavation phases have been calculated using X-Disp modelling software to carry out an assessment of the likely damage to adjacent properties and the results are discussed below.

The building damage reports for sensitive structures previously discussed are included in the appendix and indicate that predominantly the damage to the adjoining and nearby structures due to basement construction are expected to fall within Category 0 'Negligible, with the exception of three sensitive structures predicted as Category 1 'Very Slight'. A summary of the predicted building damage categories for the individual structures is shown in the table below, with the structures suffering damage exceeding category 'Negligible (0)' highlighted in bold.

Structure	Elevation	Category*
68 Lady Margaret Road	All Elevations	Negligible (0)

The results discussed above are based on individual building lines, or walls, that in some instances, have been further divided up within the analysis into a series of segments that are assumed to be able to move independently of one another, with the most critical segment determining the result for the entire wall. In reality, this is unlikely to be the case as the walls will behave as single stiff elements that are also joined continuously with the rest of the structure.

The results therefore provide a conservative estimate of the behaviour of each of the sensitive structures and overestimate the degree of damage, although they provide a useful

indication of the most critical structures within the adjoining properties that may require further assessment, as detailed below.

12.2 Monitoring of Ground Movements

The predictions of ground movement based on the ground movement analysis should be checked by monitoring of the adjacent properties and structures. The structures to be monitored during the construction stages should include the existing property and the neighbouring structure assessed above. Condition surveys of the above existing structures should be carried out before and after the proposed works.

The precise monitoring strategy will be developed at a later stage, and it will be subject to discussions and agreements with the owners of the adjacent properties and structures. Contingency measures will be implemented if movements of the adjacent structures exceed predefined trigger levels. Both contingency measures and trigger levels will need to be developed within a future monitoring specification for the works.

13.0 GMA Conclusions

The analysis has concluded that the predicted damage to the neighbouring properties from the construction of the proposed basements would be 'Negligible'.

On this basis, the damage that has been predicted to occur as a result of the construction the proposed basement falls within the limits acceptable to the London Borough of Camden assuming that the careful control is taken during construction of the proposed excavations, and monitoring will be required to ensure that no excessive movements occur that would lead to damage in excess of these limits.

The separate phases of work, including piling and subsequent excavation of the proposed basement, will in practice be separated by a number of weeks. This will provide an opportunity for the ground movements during and immediately after installation of the retaining walls to be measured and the data acquired can be fed back into the design and compared with the predicted values. Such a comparison will allow the ground model to be reviewed and the predicted wall movements to be reassessed prior to the main excavation taking place so that propping arrangements can be adjusted if required.

Part 4: Basement Impact Assessment

This section of the report evaluates the direct and indirect implications of the proposed project, based on the findings of the previous screening and scoping, site investigation and ground movement assessment.

14.0 Introduction

The screening identified a number of potential impacts. The desk study and ground investigation information has been used below to review the potential impacts, to assess the likelihood of them occurring and the scope for reasonable engineering mitigation.

14.1 Potential Impacts

The table below summarises the previously identified potential impacts and the additional information that is now available from the ground investigation in consideration of each impact.

Potential Impact	Consequence
London Clay is the shallowest stratum at the site.	The London Clay is prone to seasonal shrink-swell (subsidence and heave).
Seasonal shrink-swell can result in foundation movements.	Multiple potential impacts depending on the specific setting of the basement development. For example, the implications of a deepened basement/foundation system on neighbouring properties should be considered.
Decrease in the proportion of hard standing.	Less soft covering for surface water infiltration. However, the extent of the change will be minimal, and the London Clay is of very low permeability so will not make much difference.
The site is located within an area of previously worked ground.	Previously worked ground may be less homogeneous that natural strata which could result in differential settlement.
The development will significantly increase the differential depth of foundations relative to neighbouring properties.	The basement excavation may result in structural damage to neighbouring properties.
A tree will be felled during the development	The removal of the tree will likely lead to a gradual swelling of the ground which could affect soil strength and therefore slope stability. Additionally the binding effect of the tree roots may have been beneficial to slope stability.

The results of the site investigation have therefore been used below to review the remaining potential impacts, to assess the likelihood of them occurring and the scope for reasonable engineering mitigation.

London Clay is the shallowest stratum / Seasonal Shrink-Swell

The investigation indicated that beneath a moderate thickness of made ground, the London Clay is present. The London Clay has been classified as being of high volume change potential, which are prone to seasonal shrink-swell (settlement and heave).

Shrinkable clay is present within a depth that can be affected by tree roots. No trees are present on site, but three semi mature deciduous trees are present on neighbouring land. In any case, the proposed basement is likely to extend below the potential depth of root action.

Decrease in hardstanding and paved areas

The proposed development for the site will result in a decrease in impermeable area from about 109.3 m^2 to 59 m^2. However this will have little effect as the ground is of low permeability. The ground conditions will not be suitable for a soakaway or similar SUDS based system. Attenuation systems could be adopted to mitigate any potential impact on surface water inflows and run-off.

Differential founding depths / Neighbouring structures

The stability of neighbouring properties and structures will be ensured at all times, through a suitable retention system. There is nothing unusual or exceptional in the proposed development or the findings of the investigation that give rise to any concerns with regard to stability over and above any development of this nature.

An analysis of the potential ground movements resulting from construction of the proposed basement is included in Part 3 of this report and has concluded that the predicted damage to the neighbouring properties would be Category 0 (Negligible). On this basis, the damage that would inevitably occur as a result of such an excavation would fall well within the acceptable limits although monitoring and mitigation measures will be required to ensure that no excessive movements occur that would lead to damage in excess of these limits.

The site is located within an area of previously worked ground
The investigation has indicated that the London Clay is consistent with natural soil at the depth of the proposed basement level such that lateral variations in the ground are considered unlikely. Therefore no detrimental effects should be experienced.

Trees will be felled during the development
A single tree will be felled during the development, although this will be the case regardless as it is associated with previous subsidence issues. However, the site does not slope significantly and does not neighbour land which slopes significantly, therefore this should not result in stability issues on this site.

14.2 BIA Conclusions

A Basement Impact Assessment has been carried out following the information and guidance published by the London Borough of Camden. It is concluded that the proposed development is unlikely to result in any specific land or slope stability issues.

14.3 Non-Technical Summary of Evidence

This section provides a short summary of the evidence acquired and used to form the conclusions made within the BIA.

14.3.1 Screening

The following table provides the evidence used to answer the subterranean (groundwater flow) screening questions.

Question	Evidence
1a. Is the site located directly above an aquifer?	Aquifer designation maps acquired from the Environment Agency as part of the desk study and Figures 3, 5 and 8 of the Arup report.
1b. Will the proposed basement extend beneath the water table surface?	Previous nearby GEA investigations and BGS archive borehole records.
2. Is the site within 100 m of a watercourse, well (used/ disused) or potential spring line?	Topographical and historical maps acquired as part of the desk study, reference to Lost Rivers of London and Figures 11 and 12 of the Arup report.
3. Is the site within the catchment of the pond chains on Hampstead Heath?	Figures 12 and 14 of the Arup report
4. Will the proposed basement development result in a change in the proportion of hard surfaced / paved areas?	A site walkover and existing plans of the site have confirmed the proportions of hardstanding and soft landscaping, which have been compared to the proposed drawings to determine the changes.
5. As part of the site drainage, will more surface water (e.g. rainfall and run-off) than at present be discharged to the ground (e.g. via soakaways and/or SUDS)?	The details of the proposed development do not indicate the use of soakaway drainage.
6. Is the lowest point of the proposed excavation (allowing for any drainage and foundation space under the basement floor) close to or lower than, the mean water level in any local pond or spring line?	Topographical maps acquired as part of the desk study and Figures 11 and 12 of the Arup report.

The following table provides the evidence used to answer the slope stability screening questions.

Question	Evidence
1. Does the existing site include slopes, natural or manmade, greater than 7°?	Topographical maps and Figures 16 and 17 of the Arup report and confirmed during a site walkover
2. Will the proposed re-profiling of landscaping at the site change slopes at the property boundary to more than 7°?	The details of the proposed development provided do not include the re-profiling of the site to create new slopes
3. Does the development neighbour land, including railway cuttings and the like, with a slope greater than 7°?	Topographical maps and Figures 16 and 17 of the Arup report
4. Is the site within a wider hillside setting in which the general slope is greater than 7°?	

Question	Evidence
5. Is the London Clay the shallowest strata at the site?	Geological maps and Figures 3, 5 and 8 of the Arup report
6. Will any trees be felled as part of the proposed development and / or are any works proposed within any tree protection zones where trees are to be retained?	The details of the proposed development.
7. Is there a history of seasonal shrink-swell subsidence in the local area and / or evidence of such effects at the site?	Knowledge on the ground conditions of the area and reference to NHBC guidelines were used to make an assessment of this, in addition to a visual inspection of the buildings carried out during the site walkover.
8. Is the site within 100 m of a watercourse or potential spring line?	Topographical maps acquired as part of the desk study and Figures 11 and 12 of the Arup report
9. Is the site within an area of previously worked ground?	Geological maps and Figures 3, 5 and 8 of the Arup report
10. Is the site within an aquifer?	Aquifer designation maps acquired from the Environment Agency as part of the desk study and Figures 3, 5 and 8 of the Arup report.
11. Is the site within 50 m of Hampstead Heath ponds?	Topographical maps acquired as part of the desk study and Figures 12 and 14 of the Arup report
12. Is the site within 5 m of a highway or pedestrian right of way?	Site plans and the site walkover.
13. Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties?	Camden planning portal and the site walkover confirmed the position of the proposed basement relative the neighbouring properties.
14. Is the site over (or within the exclusion zone of) any tunnels, e.g. railway lines?	Maps and plans of infrastructure tunnels were reviewed.

The following table provides the evidence used to answer the surface water flow and flooding screening questions.

Question	Evidence
1. Is the site within the catchment of the pond chains on Hampstead Heath?	Topographical maps acquired as part of the desk study and Figures 12 and 14 of the Arup report
2. As part of the proposed site drainage, will surface water flows (e.g. volume of rainfall and peak run-off) be materially changed from the existing route?	A site walkover confirmed the current site conditions and the details provided on the proposed
3. Will the proposed basement development result in a change in the proportion of hard surfaced / paved areas?	development, including reference to the FRA for the site.
4. Will the proposed basement development result in changes to the profile of the inflows (instantaneous and long term) of surface water being received by adjacent properties or downstream watercourses?	
5. Will the proposed basement result in changes to the quantity of surface water being received by adjacent properties or downstream watercourses?	
6. Is the site in an area known to be at risk from surface water flooding such as South Hampstead, West Hampstead, Gospel Oak and Kings Cross, or is it at risk of flooding because the proposed basement is below the static water level of a nearby surface water feature?	Flood risk maps acquired from the Environment Agency as part of the desk study, Figure 15 of the Arup report, the Camden Flood Risk Management Strategy dated 2013 and the North London Strategic Flood Risk Assessment dated 2008, and reference to the site specific FRA.

14.3.2 Scoping and Site Investigation

The questions in the screening stage that there were answered 'yes', were taken forward to a scoping stage and the potential impacts discussed in Section 4.0 of this report, with reference to the possible impacts outlined in the Arup report.

A ground investigation has been carried out, which has allowed an assessment of the potential impacts of the basement development on the various receptors identified from the screening and scoping stages. Principally the investigation aimed to establish the ground conditions, including the groundwater level, the engineering properties of the underlying soils to enable suitable design of the basement development and the configuration of existing party wall foundations. The findings of the investigation are discussed in Section 5.0 of this report and summarised in both Section 7.0 and the Executive Summary.

14.3.3 Impact Assessment

Section 14.0 of this report summarises whether, on the basis of the findings of the investigation, the potential impacts still need to be given consideration and identifies ongoing risks that will require suitable engineering mitigation. Section 9.0 of this report also provides recommendations for the design of the proposed development.

A ground movement analysis and building damage assessment has been carried out and its findings are presented in Part 3.

15.0 Outstanding Risks & Issues

This section of the report aims to highlight areas where further work is required as a result of limitations on the scope of this investigation, or where issues have been identified by this investigation that warrant further consideration. The scope of risks and issues discussed in this section is by no means exhaustive, but covers the main areas where additional work may be required.

The ground is a heterogeneous natural material and variations will inevitably arise between the locations at which it is investigated. This report provides an assessment of the ground conditions based on the discrete points at which the ground was sampled, but the ground conditions should be subject to review as the work proceeds to ensure that any variations from the Ground Model are properly assessed by a suitably qualified person.

As discussed throughout the report, perched water is likely to be encountered during the basement excavation, although the finding of the investigation indicate that potential inflows are unlikely to be significant and should be adequately dealt with through sump pumping. However, groundwater monitoring should be carried out, and trial excavations should be considered to assess the extent of inflows to be expected within the proposed basement excavations.

Once the existing building has been demolished and sufficient space is available on site, it is recommended that further investigation is carried out in order to provide site specific parameters for the design of both spread and piled foundations, and the basement retaining walls.

The investigation has not identified the presence of any significant contamination and as the vast majority of the made ground will be removed from this site through the excavation of the proposed basement and large areas are covered by hardstanding, remedial measures should not be required. However, as with any site there is a potential for further areas of contamination to be present within the made ground beneath parts of the site not covered by the investigation it is recommended that a watching brief is maintained during any groundworks for the proposed new foundations and that if any suspicious soils are encountered that they are inspected by a geoenvironmental engineer and further assessment may be required. Additionally, site workers should be made aware of the presence of asbestos and elevated concentrations of lead and total PAH within the made ground, with appropriate measures put in place to protect site workers from unacceptable exposure of asbestos fibres and asbestos containing materials.

If during ground works any visual or olfactory evidence of contamination is identified it is recommended that further investigation be carried out and that the risk assessment is reviewed.

These areas of doubt should be drawn to the attention of prospective contractors and further investigation will be required or sufficient contingency should be provided to cover the outstanding risk.

Appendix

a. Field Work

Site Plan
Borehole Records
Trial Pit Records

b. Lab Testing

Geotechnical Test Results
Chemical Test Results
Generic Risk Based Screening Values

c. Desk Study

Site Sensitivity Extracts
Historic Maps
Preliminary UXO Assessment

d. Ground Movement Analysis

PDisp Analysis – Short Term Movements (excavation only)
PDisp Analysis – Short Term Movements (complete construction)
PDisp Analysis – Total Movements

XDisp Analysis – Installation Movements
XDisp Analysis – Installation & Excavation Movements
XDisp Analysis – All Input and Output Data

appendix a

Field Work

Site Plan
Borehole Records

appendix a

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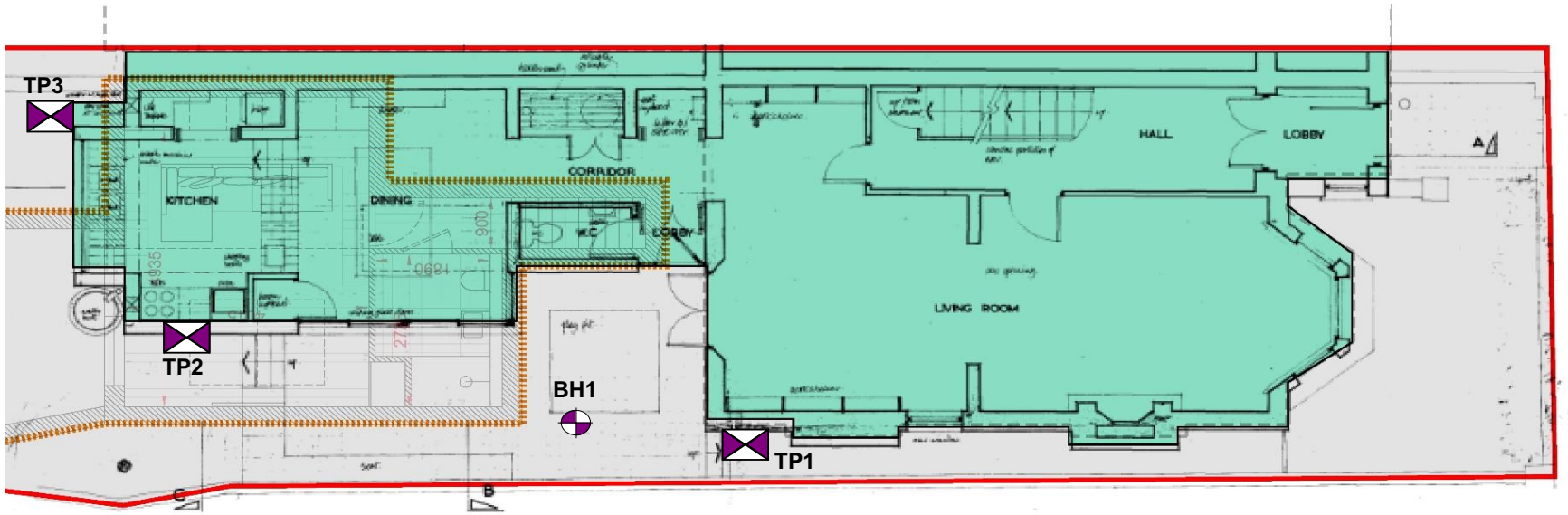
Site Plan

Site	70 Lady Margaret Road, London
Client	
Engineer	Symmetrys

Job Number J23059

Sheet 1 / 1



Approximate scale in metres

0 5 10

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Geotechnical & Environmental Associates

Project				BOREHOLE No
70 Lady Margaret Road, London NW5 2NP				**BH1**
Job No	Date	Ground Level (m OD)	Co-Ordinates ()	
J23059	09-03-23			
Client	Engineer			Sheet
Philip Allard	Symmetrys			1 of 2

SAMPLES & TESTS			Water	STRATA				Instrument / Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
						0.10	Decorative gravel	
						(0.70)	MADE GROUND (very soft orange brown sandy slightly gravelly clay with brick and concrete fragments, flint gravel and occasional rootlets).	
						0.80		
1.20	D1	1,1/1,1,2,1 N60 = 5					Firm becoming stiff brown mottled light grey slightly sandy CLAY with occasional decayed rootlets and fine to coarse selenite.	
							1.30 ...fine orange brown sand lens.	
1.70	D2							
2.20	D3	1,1/2,2,2,3 N60 = 9					2.20 ...fine orange brown sand lens.	
2.70	D4						2.70 ...fine orange brown sand lens.	
						(4.20)	2.90 ...fine orange brown sand lens.	
3.20	D5	1,2/2,3,3,4 N60 = 12						
3.70	D6						3.70 ...coarse selenite present at a depth of 3.70 m. 3.80 ...decayed rootlets present to a depth of 3.80 m.	
4.20	D7	2,3/4,3,3,4 N60 = 15					3.90 ...fine orange brown sand lens.	
4.50	D8						4.50 ...fine orange brown sand lens.	
						5.00		
5.20	D9	4,4/5,5,6,7 N60 = 24					Stiff becoming very stiff brown mottled orange brown CLAY with occasional selenite.	
5.70	D10							
6.20	D11	2,4/4,5,5,4 N60 = 19						
6.70	D12							
7.20	D13	2,4/4,4,5,5 N60 = 19				(4.50)		
7.70	D14							

Boring Progress and Water Observations

Depth	Date	Time	Casing Depth	Casing Dia. mm	Water Depth

GENERAL REMARKS

Services inspection pit excavated to a depth of 1.20 m.
Groundwater was not encountered.
Borehole terminated at a depth of 9.50 m due to sample stuck in core tube.

All dimensions in metres Scale 1:50	Method/ Plant Used Cut-down opendrive sampling rig	Logged By JW

Report ID: CABLE PERCUSSION || Project: J23059 - 70 LADY MARGARET ROAD.GPJ || Library: GEA LIBRARY.GLB || Date: 17 March 2023

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Geotechnical & Environmental Associates

Project				BOREHOLE No
70 Lady Margaret Road, London NW5 2NP				**BH1**
Job No	Date	Ground Level (m OD)	Co-Ordinates ()	
J23059	09-03-23			
Client	Engineer			Sheet
Philip Allard	Symmetrys			2 of 2

SAMPLES & TESTS			Water	STRATA				Instrument / Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
8.00	D15	2,4/4,4,5,4 N60 = 18					Stiff becoming very stiff brown mottled orange brown CLAY with occasional selenite.(continued)	
9.00	D16	1,3/4,6,6,6 N60 = 23				9.50		

Boring Progress and Water Observations					
Depth	Date	Time	Casing Depth	Casing Dia. mm	Water Depth

GENERAL REMARKS

Services inspection pit excavated to a depth of 1.20 m.
Groundwater was not encountered.
Borehole terminated at a depth of 9.50 m due to sample stuck in core tube.

All dimensions in metres Scale 1:50	Method/ Plant Used Cut-down opendrive sampling rig	Logged By JW

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Trial Pit No 1

Site	70 Lady Margaret Road, London NW5 2NP
Client	Philip Allard
Engineer	Symmetrys

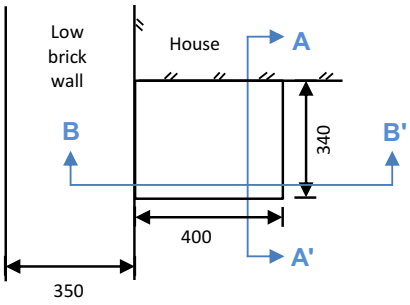
Job Number J23059

Sheet 1/6

Dates 09/03/2023

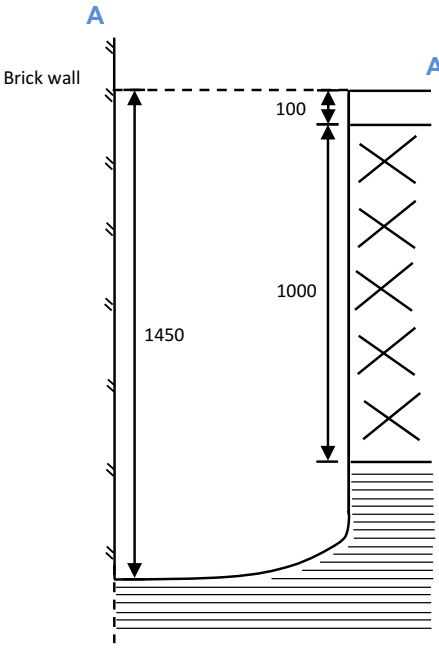
Excavation Method	Dimensions	Ground Level (m OD)	Location
Manual	400 x 340 x 1450		Corner of main house

Plan: -



Pit excavated to a depth of 1.2 m and then extended an additional 150 mm by hammering in pin and no obstruction identified.

Section A - A': -

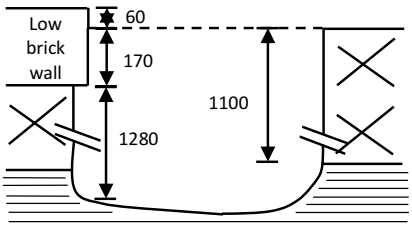


Decorative gravel

MADE GROUND (brown and reddish brown slightly sandy slightly gravelly clay with brick and concrete fragments, roots and rootlets, tile and rare metal and carbonaceous material).

Firm orange brown slightly sandy CLAY

Section B - B': -



MADE GROUND (brown and reddish brown slightly sandy slightly gravelly clay with brick and concrete fragments, roots and rootlets, tile and rare metal and carbonaceous material).

Firm orange brown slightly sandy CLAY

Remarks:

All sides of the pit remained stable throughout the investigation

Groundwater was not encountered

Trial pit backfiled upon completion

Scale: Approx 1:20

Logged by: JW

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Trial Pit No

1

Site	70 Lady Margaret Road, London NW5 2NP
Client	Philip Allard
Engineer	Symmetrys

Job Number J23059

Sheet 2/6

Dates 09/03/2023

Excavation Method	Dimensions	Ground Level (m OD)	Location
Manual	400 x 340 x 1450		Corner of main house

Remarks:

All sides of the pit remained stable throughout the investigation

Groundwater was not encountered

Trial pit backfiled upon completion

Scale: Approx 1:20

Logged by: JW

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Trial Pit No 2

Site	70 Lady Margaret Road, London NW5 2NP
Client	Philip Allard
Engineer	Symmetrys

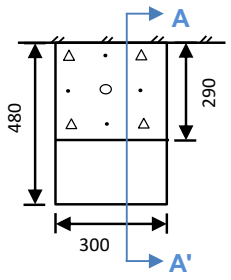
Job Number J23059

Sheet 3/6

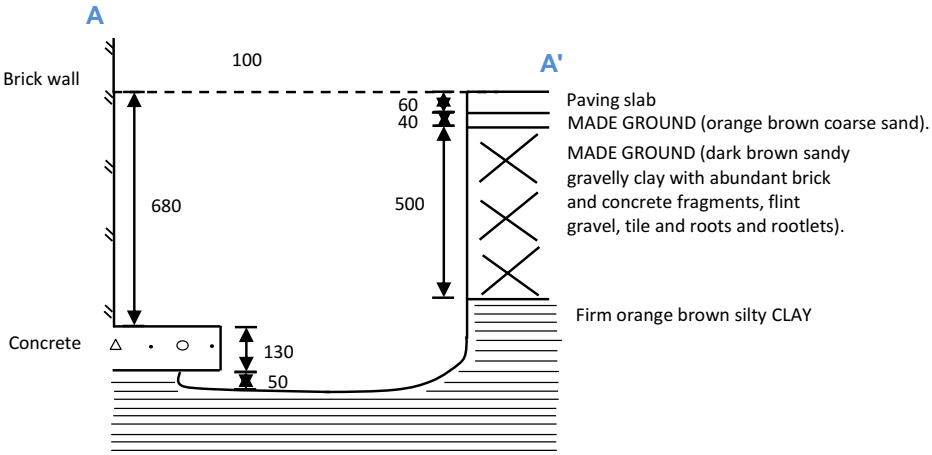
Dates 09/03/2023

Excavation Method	Dimensions	Ground Level (m OD)	Location
Manual	300 x 480 x 860		Northern elevation of single storey extension

Plan: -



Section A - A': -



Remarks:

All sides of the pit remained stable throughout the investigation

Groundwater present at base of pit

Trial pit backfiled upon completion

Scale: Approx 1:20

Logged by: JW

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Trial Pit No

2

Site	70 Lady Margaret Road, London NW5 2NP
Client	Philip Allard
Engineer	Symmetrys

Job Number J23059

Sheet 4/6

Dates 09/03/2023

Excavation Method	Dimensions	Ground Level (m OD)	Location
Manual	300 x 480 x 860		Northern elevation of single storey extension

Remarks:

All sides of the pit remained stable throughout the investigation

Groundwater present at base of pit

Trial pit backfiled upon completion

Scale: Approx 1:20

Logged by: JW

GEA

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Herts | 01727 824666 Notts | 01509 674888

Trial Pit No 3

Site	70 Lady Margaret Road, London NW5 2NP
Client	Philip Allard
Engineer	Symmetrys

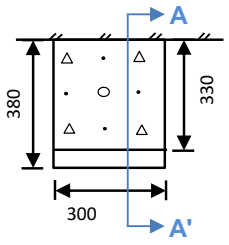
Job Number J23059

Sheet 5/6

Dates 09/03/2023

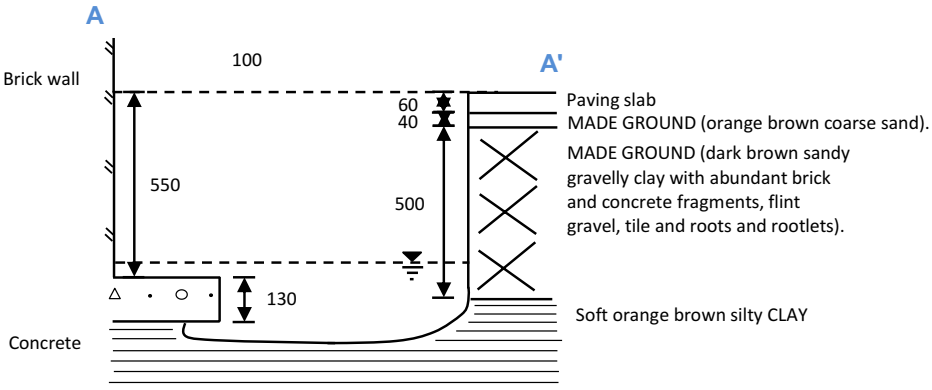
Excavation Method	Dimensions	Ground Level (m OD)	Location
Manual	300 x 480 x 880		Southeastern elevation of single storey extension

Plan: -



Groundwater present at a depth of 0.50 m in pit which obscured the view. An attempt was made to bail the pit but water ingress was too quick. However, the foundation was encountered at 0.55 m and the a pin was driven down the edge to find the lateral extent and it is believed to be approximatley 130 mm thick as the pin could be pushed in below this.

Section A - A': -



Remarks:

All sides of the pit remained stable throughout the investigation

Groundwater present at a depth of 0.50 m

Trial pit backfiled upon completion

Scale: Approx 1:20

Logged by: JW

GEA

www.gea-ltd.co.uk

Herts | 01727 824666 Notts | 01509 674888

Trial Pit No

3

Site 70 Lady Margaret Road, London NW5 2NP

Client Philip Allard

Engineer Symmetrys

Job Number J23059

Sheet 6/6

Dates 09/03/2023

Excavation Method	Dimensions	Ground Level (m OD)	Location
Manual	300 x 480 x 880		Southeastern elevation of single storey extension

Remarks:

All sides of the pit remained stable throughout the investigation

Groundwater present at a depth of 0.50 m

Trial pit backfiled upon completion

Scale: Approx 1:20

Logged by: JW

appendix b

Lab Testing

Geotechnical Test Results
Chemical Test Results
Generic Risk Based Screening Values

Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
33157	70 Lady Margaret Road	Samples received	14/03/2023
		Schedule received	16/03/2023
Project No.	Client	Project started	17/03/2023
J23059	GEA	Testing Started	30/03/2023

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
BH1	1	1.20	-	D	Orangish brown slighty mottled bluish grey silty CLAY with rare fine gravel	35					
BH1	2	1.70	-	D	Orangish brown and occasional bluish grey silty CLAY	37	100	75	33	42	
BH1	3	2.20	-	D	Orangish brown slightly mottled bluish grey silty CLAY with scattered selenite crystals	36					
BH1	7	4.20	-	D	Orangish brown slightly mottled grey silty CLAY with scattered selenite crystals	29	100	71	29	42	
BH1	9	5.20	-	D	Orangish brown and occasional bluish grey silty CLAY with scattered selenite crystals	29					
BH1	13	7.20	-	D	Brown mottled grey silty CLAY with scattered selenite crystals	30	100	75	31	44	
BH1	16	9.00	-	D	Brown mottled grey silty CLAY with scattered selenite crystals	31					

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3, 4.4 and 5.0
These results only apply to the items tested

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU

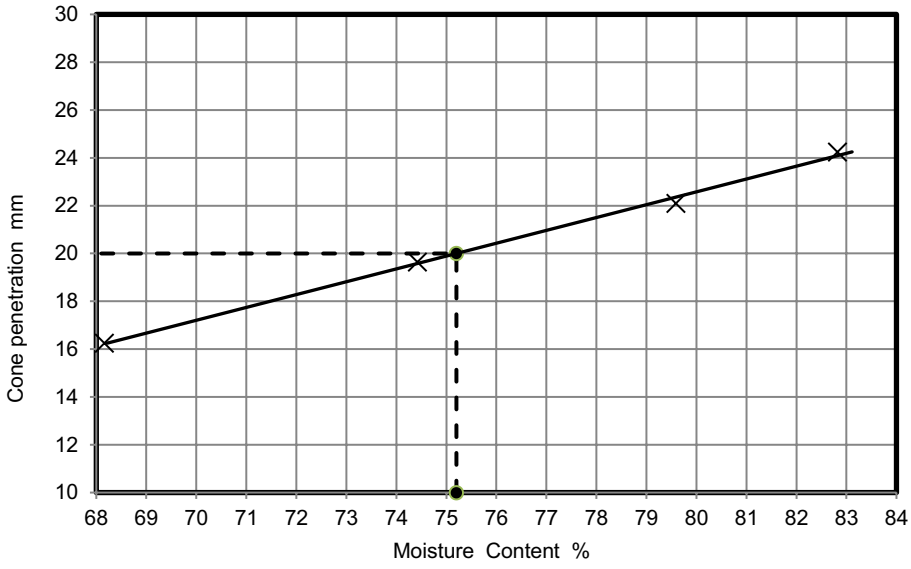
Tel: 01923 711 288
Email: James@k4soils.com

Checked and Approved

Initials J.P

Date: 03/04/2023

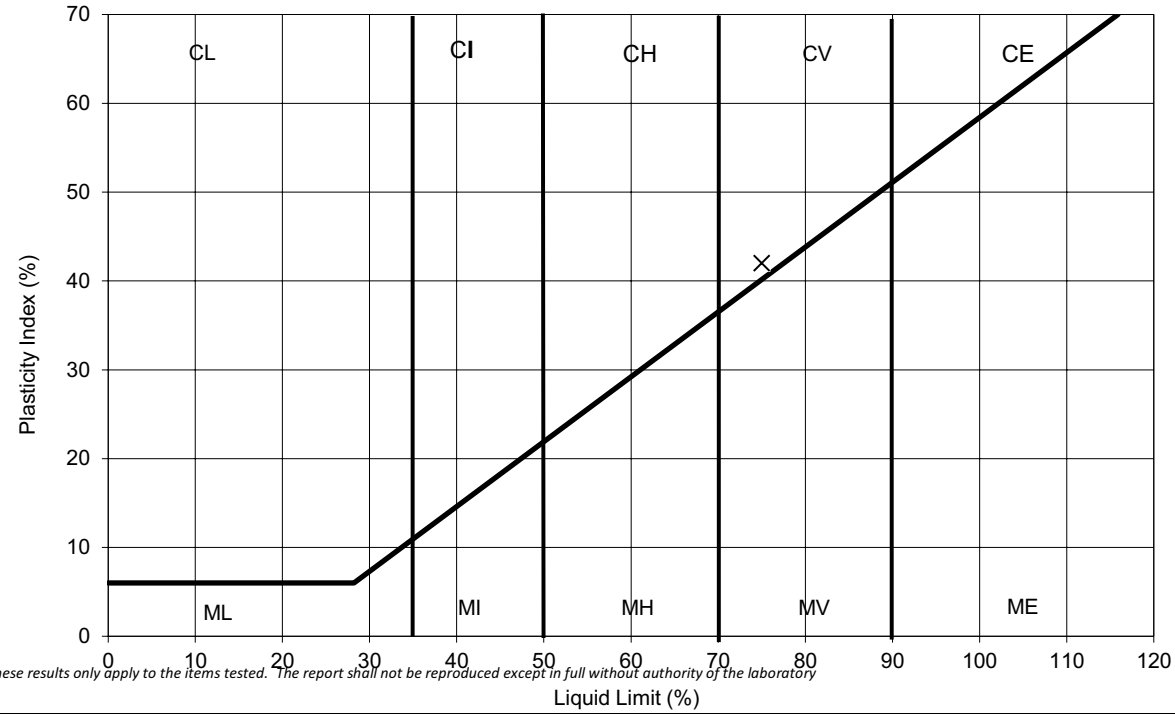
	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX			Job No.	33157
				Borehole/Pit No.	BH1
Site Name	70 Lady Margaret Road			Sample No.	2
Project No.	J23059	Client	GEA	Depth Top	1.70 m
Soil Description	Orangish brown and occasional bluish grey silty CLAY			Depth Base	- m
				Sample Type	D
				Samples received	14/03/2023
				Schedules received	16/03/2023
				Project Started	17/03/2023
				Date Tested	30/03/2023



NATURAL MOISTURE CONTENT	**37**	**%**
% PASSING 425µm SIEVE	**100**	**%**
LIQUID LIMIT	**75**	**%**
PLASTIC LIMIT	**33**	**%**
PLASTICITY INDEX	**42**	**%**

Remarks

PLASTICITY INDEX



TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 03/04/2023

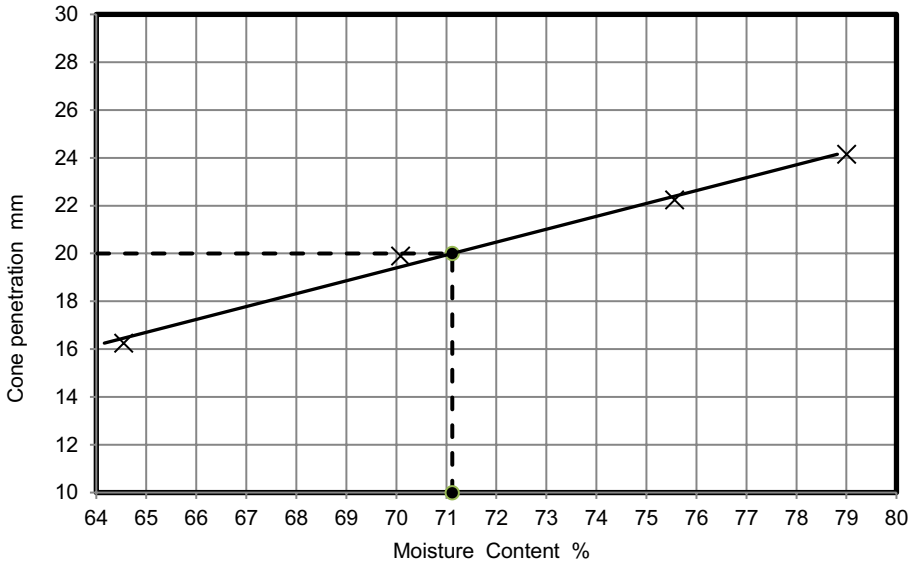
Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

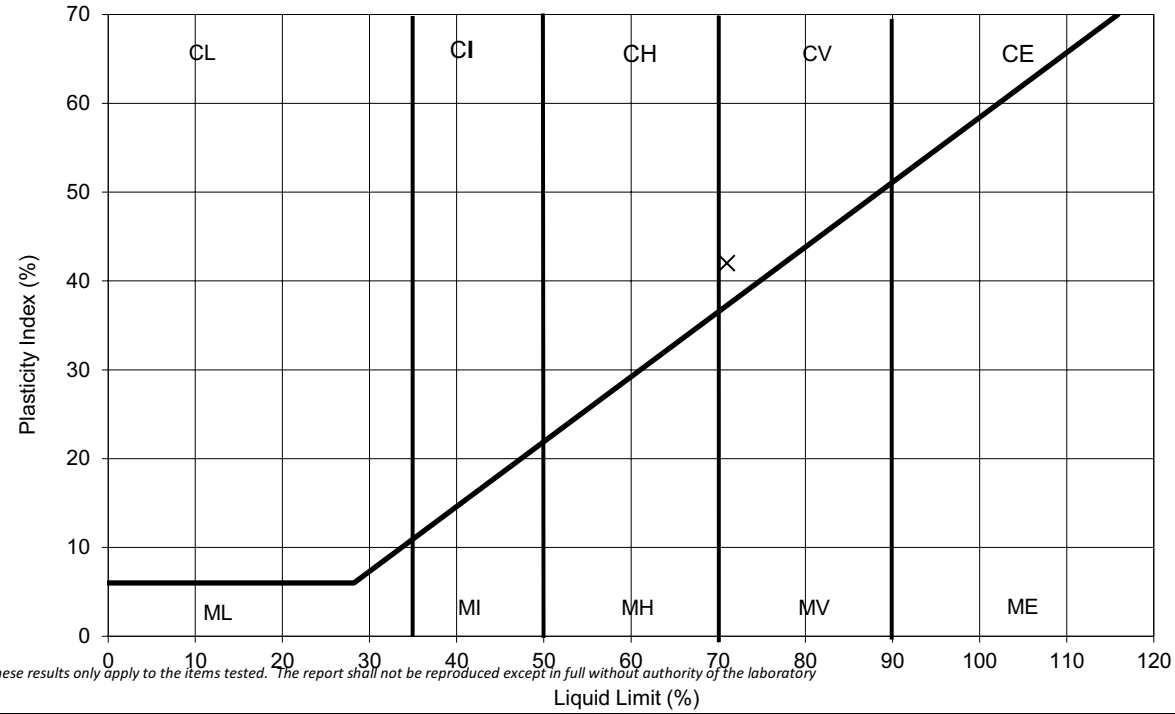
	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX			Job No.	33157
				Borehole/Pit No.	BH1
Site Name	70 Lady Margaret Road			Sample No.	7
Project No.	J23059	Client	GEA	Depth Top	4.20 m
Soil Description	Orangish brown slightly mottled grey silty CLAY with scattered selenite crystals			Depth Base	- m
				Sample Type	D
				Samples received	14/03/2023
				Schedules received	16/03/2023
				Project Started	17/03/2023
				Date Tested	30/03/2023



NATURAL MOISTURE CONTENT	**29**	**%**
% PASSING 425µm SIEVE	**100**	**%**
LIQUID LIMIT	**71**	**%**
PLASTIC LIMIT	**29**	**%**
PLASTICITY INDEX	**42**	**%**

Remarks

PLASTICITY INDEX



TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 03/04/2023

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
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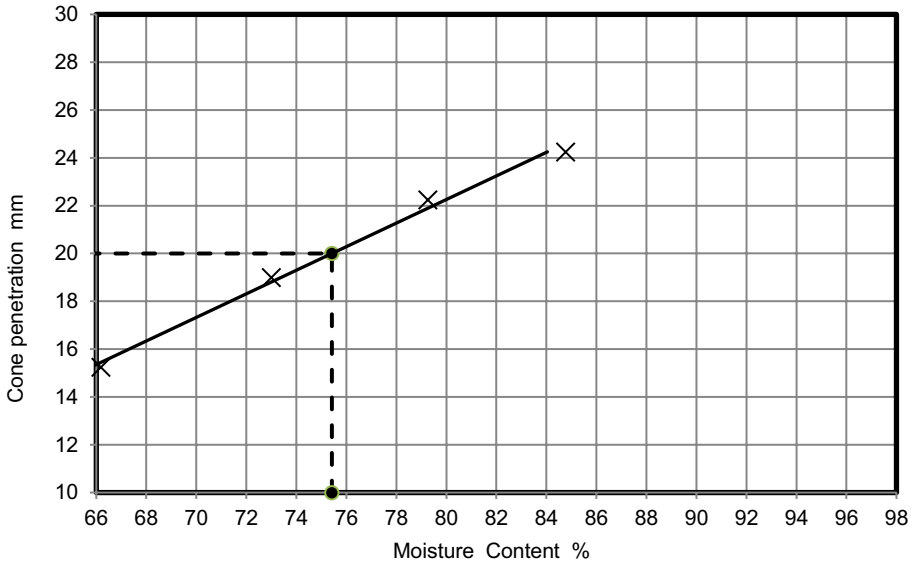
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

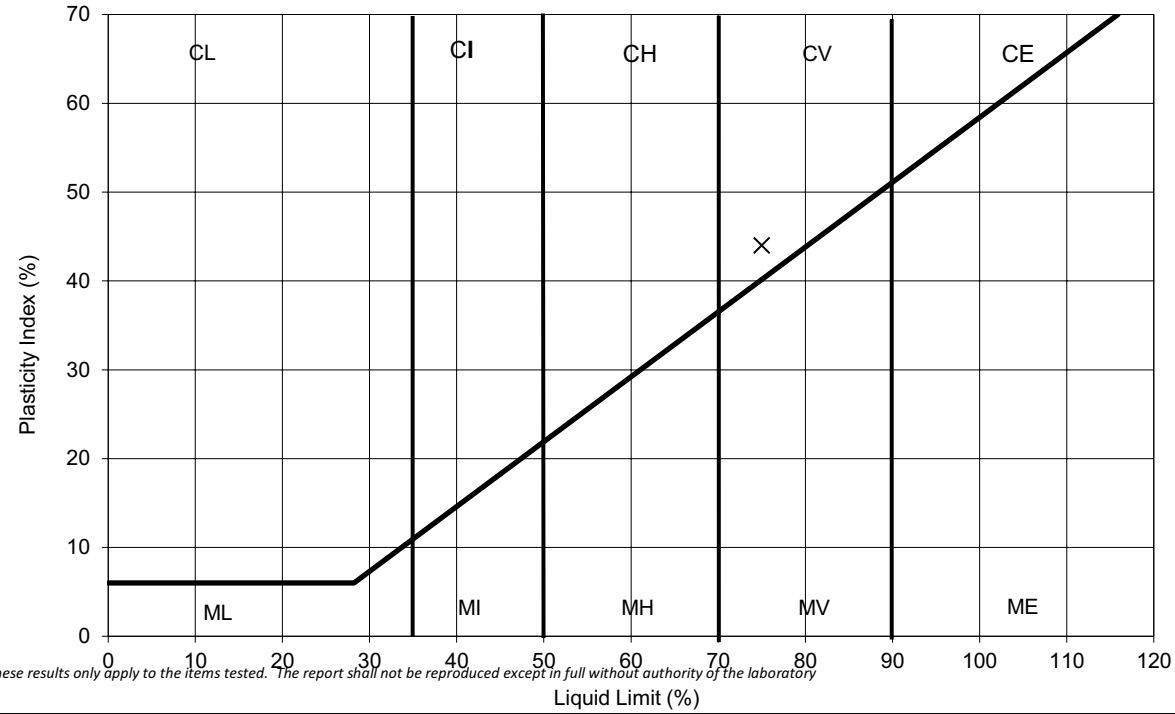
				Job No.	33157
				Borehole/Pit No.	BH1
Site Name	70 Lady Margaret Road			Sample No.	13
Project No.	J23059	Client	GEA	Depth Top	7.20 m
Soil Description	Brown mottled grey silty CLAY with scattered selenite crystals			Depth Base	- m
				Sample Type	D
				Samples received	14/03/2023
				Schedules received	16/03/2023
				Project Started	17/03/2023
				Date Tested	30/03/2023



NATURAL MOISTURE CONTENT	**30**	**%**
% PASSING 425µm SIEVE	**100**	**%**
LIQUID LIMIT	**75**	**%**
PLASTIC LIMIT	**31**	**%**
PLASTICITY INDEX	**44**	**%**

Remarks

PLASTICITY INDEX



TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 03/04/2023

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

Sulphate Content (Gravimetric Method) for 2:1 Soil: Water Extract and pH Value - Summary of Results

Tested in accordance with BS1377 : Part 3 : 2018, Clause 7.6 & Clause 12

Job No.	Project Name	Programme	
33157	70 Lady Margaret Road	Samples received	14/03/2023
		Schedule received	16/03/2023
Project No.	Client	Project started	17/03/2023
J23059	GEA	Testing Started	24/03/2023

Hole No.	Sample Ref	Top m	Base m	Type	Soil description	Dry Mass passing 2mm %	SO4 Content mg/l	pH	Remarks
BH1	4	2.70	-	D	Brown slightly mottled bluish grey silty CLAY with pockets of orangish brown silt/fine sand	100	850	7.5	
BH1	8	4.70	-	D	Brown silty CLAY with scattered selenite	100	1780	7.3	

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU
Tel: 01923 711 288
Email: James@k4soils.com

These results only apply to the items tested

Checked and Approved

Initials J.P

Date: 03/04/2023

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Widbury Hill
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Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 23-22900

Project / Site name:	70 Lady Margaret Road	**Samples received on:**	15/03/2023
Your job number:	J23059	**Samples instructed on/ Analysis started on:**	15/03/2023
Your order number:		**Analysis completed by:**	22/03/2023
Report Issue Number:	1	**Report issued on:**	22/03/2023
Samples Analysed:	4 soil samples		

Signed:

Anna Goc
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

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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: 23-22900
Project / Site name: 70 Lady Margaret Road

Lab Sample Number				2616786	2616787	2616788	2616789
Sample Reference				BH1	TP1	TP2	TP3
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.80	0.50	0.30
Date Sampled				09/03/2023	09/03/2023	09/03/2023	09/03/2023
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	20	21	23	22
Total mass of sample received	kg	0.001	NONE	1.3	1.3	1.3	1.3
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile	-	Chrysotile	Chrysotile
Asbestos in Soil	Type	N/A	ISO 17025	Detected	Not-detected	Detected	Detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	< 0.001	-	< 0.001	< 0.001
Asbestos Quantification Total	%	0.001	ISO 17025	< 0.001	-	< 0.001	< 0.001
Asbestos Analyst ID	N/A	N/A	N/A	SPU	SPU	SPU	SPU
General Inorganics							
pH - Automated	pH Units	N/A	MCERTS	8	7.9	7.8	9.5
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	360	520	720	1600
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.027	0.073	0.059	0.24
Sulphide	mg/kg	1	MCERTS	22	8.7	40	4.4
Water Soluble Chloride (2:1)	mg/kg	1	MCERTS	7.4	19	23	47
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.8	1.2	1.6	0.8
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	< 0.05	0.11	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.12	< 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	0.1	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	1.3	0.17
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.23	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	2.3	0.43
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	2	0.43
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.95	0.21
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	1	0.23
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	1.2	0.31
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	0.56	0.12
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	1.1	0.23
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.59	0.13
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.13	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.7	0.16
Total PAH							
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	< 0.80	12.4	2.42
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	10	11	22	15
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	33	36	34	35
Copper (aqua regia extractable)	mg/kg	1	MCERTS	26	33	91	28
Lead (aqua regia extractable)	mg/kg	1	MCERTS	65	88	380	200
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	0.4	0.7	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	21	23	26	23
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	53	60	200	160

Analytical Report Number: 23-22900
Project / Site name: 70 Lady Margaret Road

Lab Sample Number				2616786	2616787	2616788	2616789
Sample Reference				BH1	TP1	TP2	TP3
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.80	0.50	0.30
Date Sampled				09/03/2023	09/03/2023	09/03/2023	09/03/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Petroleum Hydrocarbons							
TPH C10 - C40 EH_CU_1D_TOTAL	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPH (C8 - C10) HS_1D_TOTAL	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12) EH_CU_1D_TOTAL	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16) EH_CU_1D_TOTAL	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0
TPH (C16 - C21) EH_CU_1D_TOTAL	mg/kg	1	MCERTS	< 1.0	< 1.0	1.3	< 1.0
TPH (C21 - C35) EH_CU_1D_TOTAL	mg/kg	1	MCERTS	< 1.0	< 1.0	2.3	< 1.0
TPH Total C8 - C35 EH_CU+HS_1D_TOTAL	mg/kg	10	NONE	< 10	< 10	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: **23-22900**
Project / Site name: **70 Lady Margaret Road**
Your Order No:

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006-PL based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
2616786	BH1	0.40	147	Loose Fibres	**Chrysotile**	< 0.001	**< 0.001**
2616788	TP2	0.50	155	Loose Fibres	**Chrysotile**	< 0.001	**< 0.001**
2616789	TP3	0.30	138	Loose Fibres	**Chrysotile**	< 0.001	**< 0.001**

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

Analytical Report Number : 23-22900
Project / Site name: 70 Lady Margaret Road

* 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 *
2616786	BH1	None Supplied	0.4	Brown clay with gravel and vegetation.
2616787	TP1	None Supplied	0.8	Brown clay with gravel and vegetation.
2616788	TP2	None Supplied	0.5	Brown clay and loam with gravel and vegetation.
2616789	TP3	None Supplied	0.3	Brown sandy clay with gravel and vegetation.

Analytical Report Number : 23-22900
Project / Site name: 70 Lady Margaret Road

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
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
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.	L038-PL	D	MCERTS
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	A001-PL	D	ISO 17025
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/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 (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	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
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	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.	L038-PL	D	MCERTS
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.	L019-UK/PL	D	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 (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
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

Analytical Report Number : 23-22900
Project / Site name: 70 Lady Margaret Road

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
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	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))
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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Generic Risk-Based Soil Screening Values

Site	70 Lady Margaret Road, London NW5 2NP	**Job Number**	J23059
Client	Philip Allard	**Sheet**	1 / 2
Engineer	Symmetrys		

Proposed End Use Residential with plant uptake

Soil Organic Matter content % 1.0

Contaminant	Screening Value mg/kg	Data Source
Metals		
Arsenic	37	C4SL
Cadmium	26	C4SL
Chromium (III)	910	S4UL
Chromium (VI)	21	C4SL
Copper	2,400	S4UL
Lead	200	C4SL
Elemental Mercury	1.2	S4UL
Inorganic Mercury	40	S4UL
Nickel	180	S4UL
Selenium	350	SGV
Zinc	3,700	S4UL
Anions		
Soluble Sulphate	500 mg/l	Structures
Sulphide	50	Structures
Chloride	400	Structures
Others		
Organic Carbon (%)	6	Methanogenic potential
Total Cyanide	140	WRAS
Total Mono Phenols	184	SGV
PAH		
Naphthalene	2.30	S4UL
Acenaphthylene	170	S4UL
Acenaphthene	210	S4UL
Fluorene	170	S4UL
Phenanthrene	95	S4UL
Anthracene	2,400	S4UL
Fluoranthene	280	S4UL
Pyrene	620	S4UL
Benzo(a)anthracene	7.2	S4UL
Chrysene	15	S4UL
Benzo(b)fluoranthene	2.6	S4UL
Benzo(k)fluoranthene	77.0	S4UL
Benzo(a)pyrene	4.35	C4SL
Indeno(1 2 3 cd)pyrene	27.0	S4UL
Dibenz(a h)anthracene	0.24	S4UL
Benzo (g h i)perylene	320	S4UL
Total PAH Screen	**62.1**	B(a)P / 0.15

Contaminant	Screening Value mg/kg	Data Source
Hydrocarbons		
Banded TPH (8-10)	52	Calc1
Banded TPH (10-12)	114	Calc1
Banded TPH (12-16)	215	Calc1
Banded TPH (16-21)	400	Calc1
Banded TPH (21-35)	1692	Calc1
Benzene	0.2	C4SL
Toluene	120	SGV
Ethyl Benzene	65	SGV
Xylene	42	SGV
Aliphatic C5-C6	42	S4UL
Aliphatic C6-C8	100	S4UL
Aliphatic C8-C10	27	S4UL
Aliphatic C10-C12	130	S4UL
Aliphatic C12-C16	1100	S4UL
Aliphatic C16-C35	65,000	S4UL
Aromatic C6-C7	See Benzene	S4UL
Aromatic C7-C8	See Toluene	S4UL
Aromatic C8-C10	34	S4UL
Aromatic C10-C12	74	S4UL
Aromatic C12-C16	140	S4UL
Aromatic C16-C21	260	S4UL
Aromatic C21-C35	1100	S4UL
PRO (C_5 –C_{10})	323	Calc2
DRO (C_{12} –C_{28})	66,500	Calc2
Lube Oil (C_{28} –C_{44})	66,100	Calc2
TPH	**500**	Trigger to consider speciated testing
Chlorinated Solvents		
1,1,1 trichloroethane (TCA)	8.8	S4UL
tetrachloroethane (PCA)	1.2	S4UL
tetrachloroethene (PCE)	0.31	C4SL
trichloroethene (TCE)	0.0093	C4SL
1,2-dichloroethane (DCA)	0.11	C4SL
vinyl chloride (Chloroethene)	0.0064	C4SL
tetrachloromethane (Carbon tetrac	0.026	S4UL
trichloromethane (Chloroform)	0.91	S4UL

Notes

Concentrations measured below these screening values may be considered to represent 'uncontaminated conditions' which pose a 'LOW' risk to human health. Concentrations measured in excess of these values indicate a potential risk which require further, site specific risk assessment.

C4SL - Defra Category 4 Screening value based on Low Level of Toxicological Risk

SGV - Soil Guideline Value, derived from the CLEA model and published by Environment Agency 2009 - where not superseded by C4SL

S4UL - LQM/CIEH Suitable for use Level (2015) based on 'minimal' level of risk

Calc1 - sum of thresholds for Ali & Aro fractions - assuming a 35% Aro:65% Ali ratio as is commonly encountered in the soil

Calc2 - sum of nearest available carbon range specified including BTEX for PRO fraction

Total PAH based on B(a)P / 0.15 - GEA experience indicates that Benzo(a) pyrene rarely exceeds 15% of the total PAH concentration

GEA	Geotechnical & Environmental Associates www.gea-ltd.co.uk	**Generic Risk-Based Soil Screening Values**

Site	70 Lady Margaret Road, London NW5 2NP	**Job Number** J23059
Client	Philip Allard	**Sheet** 2 / 2
Engineer	Symmetrys	

Proposed End Use **Residential with plant uptake**

The key generic assumptions for this end use are as follows;

- ❑ that groundwater will not be a critical risk receptor;
- ❑ that the critical receptor for human health will be a young female aged 0 to 6 years old;
- ❑ that the exposure duration will be six years;
- ❑ that the building type equates to a terraced house.
- ❑ that the critical exposure pathways will be direct soil and indoor dust ingestion, consumption of home grown produce, consumption of soil adhering to home grown produce, skin contact with soils and dust, and inhalation of dust and vapours

Where contaminant concentrations are measured at concentrations below the generic screening value it is considered that they pose an acceptable level of risk and thus further consideration of these contaminant concentrations is not required. However, where concentrations are measured in excess of the generic screening value there is considered to be a potential that they could pose an unacceptable risk and thus further action will be required which could include:

- ❑ additional testing to zone the extent of the contaminated material and thus reduce the uncertainty with regard to its potential risk;
- ❑ site specific risk assessment to refine the assessment criteria and allow an assessment to be made as to whether the concentration present would pose an unacceptable risk at this site; or
- ❑ soil remediation or risk management to mitigate the risk posed by the contaminant to a degree that it poses an acceptable risk.

appendix c

c. Desk Study

Site Sensitivity Extracts
Historic Maps
Preliminary UXO Assessment

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
307672129_1_1

Customer Reference:
J23059

National Grid Reference:
529310, 185600

Slice:
A

Site Area (Ha):
0.04

Search Buffer (m):
1000

Site Details:

70, Lady Margaret Road
LONDON
NW5 2NP

Client Details:

Mr S Branch
GEA Ltd
Widbury Barn
Widbury Hill
Ware
Herts
SG12 7QE

GEA

Contents

Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.
For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency/Natural Resources Wales and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.
In this datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

Report Version v53.0

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility					n/a
Contaminated Land Register Entries and Notices	pg 1		1	5	
Discharge Consents	pg 1				1
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls	pg 1			5	15
Local Authority Pollution Prevention and Control Enforcements	pg 4				1
Nearest Surface Water Feature	pg 4			Yes	
Pollution Incidents to Controlled Waters	pg 4				1
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances					
River Quality					
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register					
Water Abstractions	pg 5				(*16)
Water Industry Act Referrals					
Groundwater Vulnerability Map	pg 9	Yes	n/a	n/a	n/a
Groundwater Vulnerability - Soluble Rock Risk			n/a	n/a	n/a
Groundwater Vulnerability - Local Information			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 9	Yes	n/a	n/a	n/a
Superficial Aquifer Designations			n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences				n/a	n/a
Flooding from Rivers or Sea without Defences				n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
OS Water Network Lines	pg 9			2	

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites					
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)	pg 10				1
Local Authority Landfill Coverage		1	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Potentially Infilled Land (Non-Water)	pg 10				1
Potentially Infilled Land (Water)	pg 10				9
Registered Landfill Sites					
Registered Waste Transfer Sites	pg 11				1
Registered Waste Treatment or Disposal Sites	pg 11				1
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Geological					
BGS 1:625,000 Solid Geology	pg 12	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry					
BGS Recorded Mineral Sites					
BGS Urban Soil Chemistry	pg 12		Yes	Yes	Yes
BGS Urban Soil Chemistry Averages	pg 15	Yes			
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas			n/a	n/a	n/a
Mining Instability			n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities					
Non Coal Mining Areas of Great Britain				n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 15	Yes		n/a	n/a
Potential for Compressible Ground Stability Hazards				n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 15	Yes		n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 15	Yes		n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 15	Yes		n/a	n/a
Radon Potential - Radon Affected Areas			n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries	pg 16		10	46	193
Fuel Station Entries	pg 37			1	3
Points of Interest - Commercial Services	pg 37			13	47
Points of Interest - Education and Health					
Points of Interest - Manufacturing and Production	pg 42		3	25	37
Points of Interest - Public Infrastructure	pg 47			3	10
Points of Interest - Recreational and Environmental	pg 48		6	12	71
Gas Pipelines					
Underground Electrical Cables	pg 56		4	21	40

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Ancient Woodland					
Areas of Adopted Green Belt					
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones					
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	**Contaminated Land Register Entries and Notices** Location: Even Numbers 14-20 Ascham Street, Odd Numbers 15-33 Lady Margaret Road, And Odd Numbers 37-41 Falkland Road, London, Nw5 Notice Type: Environmental Protection Act (1990) Section 78A(2) And 78(B) Determination That Land Is Contaminated Reference: Not Supplied Dated: 12th September 2005 Positional Accuracy: Positioned by the supplier Boundary Quality: Good	A13SW (SW)	233	2	529190 185397
2	**Contaminated Land Register Entries and Notices** Location: Even Numbers 2-10 Ascham Street, Odd Numbers 15-31 Falkland Road And Even Numbers 34-48 Leverton Street, London, Nw5 Notice Type: Environmental Protection Act (1990) Section 78A(2) And 78(B) Determination That Land Is Contaminated Reference: Not Supplied Dated: 12th September 2005 Positional Accuracy: Positioned by the supplier Boundary Quality: Good	A13SW (SW)	263	2	529137 185398
3	**Contaminated Land Register Entries and Notices** Location: 35 Falkland Road, London, Nw5 2pu Notice Type: Update on Remediation Statement - Remediation Work Completed Reference: Not Supplied Dated: 31st July 2005 Positional Accuracy: Positioned by the supplier Boundary Quality: Good	A13SW (SW)	288	2	529153 185356
4	**Contaminated Land Register Entries and Notices** Location: 33 Falkland Road, London, Nw5 2pu Notice Type: Environmental Protection Act (1990) Section 78A(2) And 78(B) Determination That Land Is Contaminated Reference: Not Supplied Dated: 12th September 2005 Positional Accuracy: Positioned by the supplier Boundary Quality: Good	A13SW (SW)	290	2	529149 185357
5	**Contaminated Land Register Entries and Notices** Location: 31 Falkland Road, London, Nw5 2pu Notice Type: Environmental Protection Act (1990) Section 78A(2) And 78(B) Determination That Land Is Contaminated Reference: Not Supplied Dated: 31st July 2005 Positional Accuracy: Positioned by the supplier Boundary Quality: Good	A13SW (SW)	293	2	529142 185358
6	**Contaminated Land Register Entries and Notices** Location: 29 Falkland Road, London, Nw5 2pu Notice Type: Environmental Protection Act (1990) Section 78A(2) And 78(B) Determination That Land Is Contaminated Reference: Not Supplied Dated: 31st July 2005 Positional Accuracy: Positioned by the supplier Boundary Quality: Good	A13SW (SW)	296	2	529136 185359
7	**Discharge Consents** Operator: Thames Water Utilities Ltd Property Type: WTW/WATER COLLECTION/TREATMENT/SUPPLY Location: Maiden Lane Authority: Environment Agency, Thames Region Catchment Area: Not Supplied Reference: Temp.0179 Permit Version: 1 Effective Date: 15th September 1989 Issued Date: 15th September 1989 Revocation Date: 5th October 2000 Discharge Type: Trade Effluent Discharge Environment: Freshwater Stream/River Receiving Water: River Thames **Status:** **Authorisation revoked** Positional Accuracy: Located by supplier to within 100m	A17NE (NW)	969	3	528900 186500
8	**Local Authority Pollution Prevention and Controls** Name: Sun Dry Cleaners Location: 167 Fortress Road, London, Nw5 2hr Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC46 Dated: 28th December 2006 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status:** **Permitted** Positional Accuracy: Located by supplier to within 10m	A13NW (NW)	294	2	529132 185860

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
9	**Local Authority Pollution Prevention and Controls** Name: M & A Coachworks Location: 36/52 Fortress Road, LONDON, NW5 1AD Authority: London Borough of Camden, Pollution Projects Team Permit Reference: NOT GIVEN Dated: 15th May 1997 Process Type: Local Authority Air Pollution Control Description: PG6/34 Respraying of road vehicles **Status: Authorisation revoked** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	306	2	529036 185443
9	**Local Authority Pollution Prevention and Controls** Name: M & A Coachworks Location: Fortess Grove, London, Nw5 2HE Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC3 Dated: 15th May 1997 Process Type: Local Authority Pollution Prevention and Control Description: PG6/34 Respraying of road vehicles **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	326	2	529031 185415
9	**Local Authority Pollution Prevention and Controls** Name: Perk Clean Location: 20 Fortress Road, London, Nw5 2hb Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC21 Dated: 12th January 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A13SW (SW)	372	2	529004 185375
10	**Local Authority Pollution Prevention and Controls** Name: Zappeo Dry Cleaners Location: 310 Kentish Town Road, London, Nw5 2th Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC2 Dated: 12th January 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A8NW (SW)	453	2	529009 185256
11	**Local Authority Pollution Prevention and Controls** Name: Whittington Service Station (Esso) Location: 213-217 Junction Road, LONDON, N19 5QA Authority: London Borough of Islington, Environmental Health Department Permit Reference: Epa-Auth-020 Dated: 18th December 1998 Process Type: Local Authority Air Pollution Control Description: PG1/14 Petrol filling station **Status: Authorised** Positional Accuracy: Manually positioned to the address or location	A18SW (N)	506	4	529214 186115
12	**Local Authority Pollution Prevention and Controls** Name: The Kleen Machine Location: 347 Kentish Town Road, London, Nw5 2tj Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC44 Dated: 26th January 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A8NW (SW)	537	2	528988 185167
13	**Local Authority Pollution Prevention and Controls** Name: The Choice Dry Cleaners Location: 62 Chetwynd Road, London, Nw5 1dj Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC40 Dated: 24th December 2006 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A17SE (NW)	615	2	528810 185992

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
14	**Local Authority Pollution Prevention and Controls** Name: Post Office Vehicle Services Location: Unit A Kentish Town Business Park, Regis Road, LONDON, NW5 3RR Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC2 Dated: 27th February 1996 Process Type: Local Authority Pollution Prevention and Control Description: PG6/34 Respraying of road vehicles **Status: Permitted** Positional Accuracy: Automatically positioned to the address	A7NE (SW)	631	2	528820 185192
15	**Local Authority Pollution Prevention and Controls** Name: J Murphy & Sons Ltd Location: 81 Highgate Road, London, Nw5 1ts Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC10 Dated: 1st March 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/34 Respraying of road vehicles **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A12NE (W)	650	2	528642 185605
16	**Local Authority Pollution Prevention and Controls** Name: Royal Mail Property Holdings Ltd Location: 1 Regis Road, LONDON, NW5 3EW Authority: London Borough of Camden, Pollution Projects Team Permit Reference: Not Given Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG6/10 Coating manufacturing **Status: Authorisation revoked** Positional Accuracy: Manually positioned to the road within the address or location	A7NE (SW)	672	2	528875 185083
17	**Local Authority Pollution Prevention and Controls** Name: Asf Garage Ltd Location: 138 Highgate Road, London, NW5 1PB Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC22 Dated: 1st April 1999 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status: Permitted** Positional Accuracy: Automatically positioned to the address	A12NW (W)	689	2	528633 185810
18	**Local Authority Pollution Prevention and Controls** Name: M & A Coachworks Location: 135 Highgate Road, CAMDEN, NW5 1LE Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC5 Dated: 6th September 1993 Process Type: Local Authority Pollution Prevention and Control Description: PG6/34 Respraying of road vehicles **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A12NW (W)	697	2	528600 185695
19	**Local Authority Pollution Prevention and Controls** Name: Universal Dry Cleaners Location: 9-11 Brecknock Road, London, N7 0bl Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC30 Dated: 29th January 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A9NW (SE)	724	2	529761 185015
20	**Local Authority Pollution Prevention and Controls** Name: Perfect Dry Cleaners Location: 151 Highgate Road, London, Nw5 1lj Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC31 Dated: 24th January 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A12NW (W)	726	2	528588 185787

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
21	**Local Authority Pollution Prevention and Controls** Name: Empire Professional Dry Cleaners Location: 173 York Way, London, N7 9ln Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC43 Dated: 26th January 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A9NW (SE)	832	2	529843 184942
22	**Local Authority Pollution Prevention and Controls** Name: Hexagon Of Highgate Ltd Location: 1 Browns Lane, Regis Road, LONDON, NW5 3EX Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC4 Dated: 30th April 1993 Process Type: Local Authority Pollution Prevention and Control Description: PG6/34 Respraying of road vehicles **Status: Permitted** Positional Accuracy: Automatically positioned to the address	A7NW (SW)	856	2	528626 185072
23	**Local Authority Pollution Prevention and Controls** Name: Exan Coachworks Location: 392 Camden Road, LONDON, N7 0SJ Authority: London Borough of Islington, Environmental Health Department Permit Reference: PPC PERMIT 003 Dated: 4th February 1993 Process Type: Local Authority Pollution Prevention and Control Description: PG6/34 Respraying of road vehicles **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A14SE (E)	933	4	530253 185478
24	**Local Authority Pollution Prevention and Controls** Name: Eventech Ltd Location: 3 - 6 Spring Place, LONDON, NW5 3BA Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC2 Dated: 30th April 1993 Process Type: Local Authority Pollution Prevention and Control Description: PG6/34 Respraying of road vehicles **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A7NW (SW)	943	2	528569 185005
25	**Local Authority Pollution Prevention and Controls** Name: Fairways Camden Location: 135-143 Camden Road, LONDON, NW1 9HA Authority: London Borough of Camden, Pollution Projects Team Permit Reference: Not Given Dated: 11th December 1998 Process Type: Local Authority Air Pollution Control Description: PG1/14 Petrol filling station **Status: Site Closed** Positional Accuracy: Manually positioned to the address or location	A8SE (S)	964	2	529516 184646
26	**Local Authority Pollution Prevention and Control Enforcements** Location: 3 - 6 Spring Place, London, Nw5 3ba Type: Air Pollution Control Enforcement Notice Reference: Not Given Date Issued: 16th November 2001 Enforcement Date: Not Supplied Details: Failure To Maintain Proper Paperwork For Organic Compounds Positional Accuracy: Manually positioned to the address or location	A7NW (SW)	943	2	528569 185005
	Nearest Surface Water Feature	A12NE (NW)	470	-	528900 185869
27	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Bridge Lane, BEDDINGTON Authority: Environment Agency, Thames Region Pollutant: Miscellaneous - Unknown Note: Confirmed As A Pollution Incident Incident Date: Not Supplied Incident Reference: SE950189 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A9NE (SE)	959	3	530200 185200

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Greenwich Leisure Limited Licence Number: 28/39/39/0091 Permit Version: 101 Location: Kentish Town Sports Centre, Prince Of Wales St Authority: Environment Agency, Thames Region Abstraction: Commercial/Industrial/Public Services: Drinking; Cooking; Sanitary; Washing; (Small Garden) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Kentish Town Sports Centre, Prince Of Wales Road, London Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 25th May 2012 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A7SE (SW)	1032	3	528800 184700
	Water Abstractions Operator: Greenwich Leisure Limited Licence Number: 28/39/39/0091 Permit Version: 101 Location: Kentish Town Sports Centre, Prince Of Wales St Authority: Environment Agency, Thames Region Abstraction: Other Industrial/Commercial/Public Services: Process Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: St. Pancras Public Baths, Prince Of Wales Road, London Nw1 Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 25th May 2012 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A7SE (SW)	1032	3	528800 184700
	Water Abstractions Operator: Greenwich Leisure Ltd Licence Number: 28/39/39/0091 Permit Version: 101 Location: Two Bores At Kentish Town Sports Centre, Prince Of Wales St Authority: Environment Agency, Thames Region Abstraction: Other Industrial/Commercial/Public Services: Process Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: St. Pancras Public Baths, Prince Of Wales Road, London Nw1 Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 5th April 2012 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A7SE (SW)	1032	3	528800 184700
	Water Abstractions Operator: London Borough Of Camden Licence Number: 28/39/39/0091 Permit Version: 100 Location: Two Bores At Kentish Town Sports Centre, Prince Of Wales St Authority: Environment Agency, Thames Region Abstraction: Commercial/Industrial/Public Services: Drinking; Cooking; Sanitary; Washing; (Small Garden) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 605 Yearly Rate (m3): 76509 Details: Kentish Town Sports Centre, Prince Of Wales Road, London Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 13th June 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A7SE (SW)	1032	3	528800 184700

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: London Borough Of Camden Licence Number: 28/39/39/0091 Permit Version: 100 Location: Two Bores At Kentish Town Sports Centre, Prince Of Wales St Authority: Environment Agency, Thames Region Abstraction: Industrial; Commercial And Public Services: Laundry Use Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: St. Pancras Public Baths, Prince Of Wales Road, London Nw1 Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 13th June 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A7SE (SW)	1032	3	528800 184700
	Water Abstractions Operator: London Borough Of Camden Licence Number: 28/39/39/0091 Permit Version: 100 Location: Two Bores At Kentish Town Sports Centre, Prince Of Wales St Authority: Environment Agency, Thames Region Abstraction: Other Industrial/Commercial/Public Services: Process Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: St. Pancras Public Baths, Prince Of Wales Road, London Nw1 Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 13th June 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A7SE (SW)	1032	3	528800 184700
	Water Abstractions Operator: Hanson Quarry Products Europe Ltd Licence Number: Th/039/0039/027/R01 Permit Version: 1 Location: Kings Cross Concrete Plant-Borehole Authority: Environment Agency, Thames Region Abstraction: Mineral Products: Dust Suppression Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 25th April 2019 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A4SW (S)	1661	3	529920 184040
	Water Abstractions Operator: Hanson Quarry Products Europe Ltd Licence Number: Th/039/0039/027/R01 Permit Version: 1 Location: Kings Cross Concrete Plant-Borehole Authority: Environment Agency, Thames Region Abstraction: Mineral Products: General use relating to Secondary Category (High Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 25th April 2019 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A4SW (S)	1661	3	529920 184040

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Hanson Quarry Products Europe Ltd Licence Number: Th/039/0039/027/R01 Permit Version: 1 Location: Kings Cross Concrete Plant-Borehole Authority: Environment Agency, Thames Region Abstraction: Mineral Products: General Washing/Process Washing Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 25th April 2019 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A4SW (S)	1661	3	529920 184040
	Water Abstractions Operator: Hanson Quarry Products Europe Ltd Licence Number: Th/039/0039/027 Permit Version: 2 Location: Kings Cross Concrete Plant-Borehole Authority: Environment Agency, Thames Region Abstraction: Mineral Products: General use relating to Secondary Category (High Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Kings Cross Concrete Plant, Off York Way, London. Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 13th August 2012 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A4SW (S)	1661	3	529920 184040
	Water Abstractions Operator: Hanson Quarry Products Europe Ltd Licence Number: Th/039/0039/027 Permit Version: 1 Location: Kings Cross Concrete Plant-Borehole Authority: Environment Agency, Thames Region Abstraction: Mineral Products: General use relating to Secondary Category (High Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Kings Cross Concrete Plant, Off York Way, London. Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 21st April 2010 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A4SW (S)	1661	3	529920 184040
	Water Abstractions Operator: Hanson Quarry Products Europe Ltd Licence Number: 28/39/39/0222 Permit Version: 1 Location: Kings Cross Concrete Plant-Borehole Authority: Environment Agency, Thames Region Abstraction: Mineral Products: General use relating to Secondary Category (High Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Kings Cross Concrete Plant, Off York Way, London. Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 31st August 2006 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A4SW (S)	1661	3	529920 184040

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Canal And River Trust Licence Number: 28/39/39/0164 Permit Version: 101 Location: Southampton Bridge, London, Nw8 - Regents Canal Authority: Environment Agency, Thames Region Abstraction: Amenity: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Pipeline Alongside The Regents Canal, London Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 17th December 2007 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A2SW (SW)	1772	3	528500 184020
	Water Abstractions Operator: British Waterways Board Licence Number: 28/39/39/0164 Permit Version: 100 Location: Southampton Bridge, London, Nw8 - Regents Canal Authority: Environment Agency, Thames Region Abstraction: Amenity: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): 3840 Yearly Rate (m3): 1 Details: Pipeline Alongside The Regents Canal, London Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 25th April 1983 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A2SW (SW)	1772	3	528500 184020
	Water Abstractions Operator: British Waterways Board Licence Number: 28/39/39/0173 Permit Version: 100 Location: Oval Road, Camden - Grand Union Regents Canal Authority: Environment Agency, Thames Region Abstraction: Other Industrial/Commercial/Public Services: Non-Evaporative Cooling Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): 20 Yearly Rate (m3): 7000 Details: Land At Oval Road, Camden, London Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 8th December 1994 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A2SW (SW)	1777	3	528490 184020
	Water Abstractions Operator: British Waterways Licence Number: 28/39/39/0164B Permit Version: Not Supplied Location: Southampton Bridge, LONDON, Nw8 Authority: Environment Agency, Thames Region Abstraction: Industrial Cooling (Cegb) Abstraction Type: Not Supplied Source: River Daily Rate (m3): 3840 Yearly Rate (m3): 1 Details: Annual Abstraction Total Aggregated To Another Licence For Quantity Purposes. Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A2SW (SW)	1790	3	528500 184000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Groundwater Vulnerability Map Combined Classification: Unproductive Aquifer (may have productive aquifer beneath) Combined Vulnerability: Unproductive Combined Aquifer: Unproductive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Low Bedrock Flow: Mixed Dilution: 300-550 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: <3m Superficial Recharge: No Data	A13NW (NE)	0	5	529310 185603
	Groundwater Vulnerability - Soluble Rock Risk None				
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	A13NW (NE)	0	5	529310 185603
	Superficial Aquifer Designations No Data Available				
	Extreme Flooding from Rivers or Sea without Defences None				
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				
28	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 81.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A12NE (NW)	470	6	528900 185869
29	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 100.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A12NE (NW)	472	6	528911 185889

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
30	**Licensed Waste Management Facilities (Locations)** Licence Number: 80349 Location: Recycling Centre, Regis Road, Kentish Town, London, NW5 3EW Operator Name: Londonenergy Ltd Operator Location: Not Supplied Authority: Environment Agency - Thames Region, North East Area Site Category: Household Waste Amenity Sites **Licence Status: Modified** Issued: 10th December 1996 Last Modified: 2nd August 2019 Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A7NE (SW)	710	3	528726 185181
	Local Authority Landfill Coverage Name: London Borough of Camden - Has no landfill data to supply		0	7	529310 185603
	Local Authority Landfill Coverage Name: London Borough of Islington - Has no landfill data to supply		39	4	529330 185642
31	**Potentially Infilled Land (Non-Water)** Bearing Ref: W Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1996	A12SW (W)	824	9	528505 185367
32	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1876	A18SE (NE)	626	9	529577 186175
33	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1876	A19SW (NE)	735	9	529890 186071
34	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1876	A12NW (W)	830	9	528462 185616
35	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1876	A18NE (NE)	843	9	529644 186383
36	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1876	A17NE (NW)	917	9	528739 186344
37	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1876	A17NE (NW)	920	9	528738 186347
38	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1920	A9SW (SE)	939	9	529857 184819
39	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1876	A19SE (NE)	944	9	530038 186221
40	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1876	A17NE (NW)	991	9	528719 186421

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
41	**Registered Waste Transfer Sites** Licence Holder: Wharf & Jetty Services Ltd Licence Reference: DL098 Site Location: BR Goods Depot, Gordon House Road, CAMDEN, London, NW5 Operator Location: As Site Address Authority: Environment Agency - Thames Region, North East Area Site Category: Transfer Max Input Rate: Medium (Equal to or greater than 25,000 and less than 75,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Licence Status: Licence lapsed/cancelled/defunct/not applicable/surrenderedCancelled Dated: 1st May 1982 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the road within the address or location Boundary Quality: Not Supplied Authorised Waste: Commercial Waste Construction And Demolition Wastes Prohibited Waste: Biodegradable/Putrescible Waste Clinical Wastes Notifiable Wastes Special Wastes	A12NW (W)	943	3	528350 185650
42	**Registered Waste Treatment or Disposal Sites** Licence Holder: Camden L.B.C Licence Reference: T/NE/0475090 (CAM070) Site Location: Regis Road Recycling Centre, CAMDEN, London, NW5 3EP Operator Location: Environment Department, Town Hall Extension, Argyle Street, London, Greater London, Wc1h 8eq Authority: Environment Agency - Thames Region, North East Area Site Category: Recycling / Reclamation Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Licence Status: Operational as far as is knownOperational Dated: 10th December 1996 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the road within the address or location Boundary Quality: Not Supplied Authorised Waste: Elec/Onic Compts/Fix/Fit/App/Photocopi Empty Used Containers Lead/Acid Batteries Lighting Lamps/Tubes/Fluorescents Lwra Cat Bii Gen. Scrap Metal Waste Lwra Cat. A = Inert Wastes Lwra Cat. Bi Gen.Non-Putresc Lwra Cat. C 'Putresc' Mineral Oils Prohibited Waste: Waste N.O.S.	A7NE (SW)	756	3	528700 185140

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Thames Group	A13NW (NE)	0	1	529310 185603
	BGS Estimated Soil Chemistry No data available				
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 529189, 185724 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 38.10 mg/kg Cadmium Measured Concentration: 1.00 mg/kg Chromium Measured Concentration: 89.70 mg/kg Lead Measured Concentration: 1348.20 mg/kg Nickel Measured Concentration: 55.20 mg/kg	A13NW (NW)	152	1	529189 185724
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 529215, 185284 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 20.00 mg/kg Cadmium Measured Concentration: 0.60 mg/kg Chromium Measured Concentration: 71.50 mg/kg Lead Measured Concentration: 535.90 mg/kg Nickel Measured Concentration: 32.80 mg/kg	A13SW (S)	324	1	529215 185284
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 529825, 185580 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 19.30 mg/kg Cadmium Measured Concentration: 0.60 mg/kg Chromium Measured Concentration: 97.60 mg/kg Lead Measured Concentration: 237.20 mg/kg Nickel Measured Concentration: 40.90 mg/kg	A14SW (E)	498	1	529825 185580
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 528958, 185156 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 15.60 mg/kg Cadmium Measured Concentration: 0.60 mg/kg Chromium Measured Concentration: 61.70 mg/kg Lead Measured Concentration: 625.40 mg/kg Nickel Measured Concentration: 23.20 mg/kg	A7NE (SW)	564	1	528958 185156

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 528670, 185654 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 28.70 mg/kg Cadmium Measured Concentration: 0.50 mg/kg Chromium Measured Concentration: 107.00 mg/kg Lead Measured Concentration: 320.30 mg/kg Nickel Measured Concentration: 50.10 mg/kg	A12NE (W)	624	1	528670 185654
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 529833, 185232 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 29.50 mg/kg Cadmium Measured Concentration: 3.70 mg/kg Chromium Measured Concentration: 119.40 mg/kg Lead Measured Concentration: 1057.10 mg/kg Nickel Measured Concentration: 73.40 mg/kg	A9NW (SE)	624	1	529833 185232
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 529381, 186297 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 13.50 mg/kg Cadmium Measured Concentration: 0.60 mg/kg Chromium Measured Concentration: 44.70 mg/kg Lead Measured Concentration: 474.20 mg/kg Nickel Measured Concentration: 21.70 mg/kg	A18NE (N)	687	1	529381 186297
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 528741, 186234 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 19.70 mg/kg Cadmium Measured Concentration: 0.50 mg/kg Chromium Measured Concentration: 69.80 mg/kg Lead Measured Concentration: 314.00 mg/kg Nickel Measured Concentration: 26.00 mg/kg	A17SE (NW)	831	1	528741 186234
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 529825, 186327 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 13.90 mg/kg Cadmium Measured Concentration: 0.50 mg/kg Chromium Measured Concentration: 75.80 mg/kg Lead Measured Concentration: 175.70 mg/kg Nickel Measured Concentration: 23.20 mg/kg	A19NW (NE)	883	1	529825 186327

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 529127, 184723 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 21.10 mg/kg Cadmium Measured Concentration: 0.50 mg/kg Chromium Measured Concentration: 96.30 mg/kg Lead Measured Concentration: 766.20 mg/kg Nickel Measured Concentration: 36.80 mg/kg	A8SW (S)	888	1	529127 184723
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 530202, 185425 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 15.40 mg/kg Cadmium Measured Concentration: 0.50 mg/kg Chromium Measured Concentration: 87.00 mg/kg Lead Measured Concentration: 2025.70 mg/kg Nickel Measured Concentration: 38.40 mg/kg	A14SE (E)	891	1	530202 185425
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 530250, 185779 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 14.30 mg/kg Cadmium Measured Concentration: 0.80 mg/kg Chromium Measured Concentration: 70.70 mg/kg Lead Measured Concentration: 355.70 mg/kg Nickel Measured Concentration: 26.90 mg/kg	A14NE (E)	940	1	530250 185779
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 528324, 185717 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 19.50 mg/kg Cadmium Measured Concentration: 0.60 mg/kg Chromium Measured Concentration: 78.00 mg/kg Lead Measured Concentration: 340.30 mg/kg Nickel Measured Concentration: 28.40 mg/kg	A12NW (W)	974	1	528324 185717

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Urban Soil Chemistry Averages Source: British Geological Survey, National Geoscience Information Service Sample Area: London Count Id: 7209 Arsenic Minimum Concentration: 1.00 mg/kg Arsenic Average Concentration: 17.00 mg/kg Arsenic Maximum Concentration: 161.00 mg/kg Cadmium Minimum Concentration: 0.10 mg/kg Cadmium Average Concentration: 0.90 mg/kg Cadmium Maximum Concentration: 165.20 mg/kg Chromium Minimum Concentration: 13.00 mg/kg Chromium Average Concentration: 79.00 mg/kg Chromium Maximum Concentration: 2094.00 mg/kg Lead Minimum Concentration: 11.00 mg/kg Lead Average Concentration: 280.00 mg/kg Lead Maximum Concentration: 10000.00 mg/kg Nickel Minimum Concentration: 2.00 mg/kg Nickel Average Concentration: 28.00 mg/kg Nickel Maximum Concentration: 506.00 mg/kg	A13NW (NE)	0	1	529310 185603
	Coal Mining Affected Areas In an area that might not be affected by coal mining				
	Non Coal Mining Areas of Great Britain No Hazard				
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NE)	0	1	529310 185603
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (NE)	0	1	529310 185603
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (NE)	0	1	529310 185603
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NE)	0	1	529310 185603
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NE)	0	1	529310 185603
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NW (NE)	0	1	529310 185603
	Radon Potential - Radon Affected Areas Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A13NW (NE)	0	1	529310 185603
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13NW (NE)	0	1	529310 185603

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
43	**Contemporary Trade Directory Entries** Name: Tufnell Park Carpet Cleaners Location: 2, LUPTON STREET, LONDON, NW5 2HY Classification: Carpet, Curtain & Upholstery Cleaners **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SW (W)	115	-	529179 185588
43	**Contemporary Trade Directory Entries** Name: R B Cleaning Location: 2, Lupton Street, London, NW5 2HY Classification: Carpet, Curtain & Upholstery Cleaners **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SW (W)	130	-	529170 185565
44	**Contemporary Trade Directory Entries** Name: Maximum Cleaners Ltd Location: Flat 11, Merchon House, Anson Road, London, N7 0RG Classification: Commercial Cleaning Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SE (E)	121	-	529449 185599
45	**Contemporary Trade Directory Entries** Name: Aims Plumbing & Building Services Ltd Location: 59, Lady Margaret Road, London, NW5 2NJ Classification: Boilers - Servicing, Replacements & Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (SW)	143	-	529203 185498
46	**Contemporary Trade Directory Entries** Name: Max E Ott Ltd Location: 1a, Southcote Road, London, N19 5BJ Classification: Cabinet Makers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (N)	201	-	529236 185807
47	**Contemporary Trade Directory Entries** Name: Insidestore Location: 225a, Brecknock Road, London, N19 5AA Classification: Furniture Manufacturers - Home & Office **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	226	-	529159 185795
48	**Contemporary Trade Directory Entries** Name: Harrington & Squires Ltd Location: 136a, Fortess Road, LONDON, NW5 2HP Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	228	-	529130 185771
48	**Contemporary Trade Directory Entries** Name: Zap Pest & Vermin Prevention Location: Fortess Rd, London, NW5 2HP Classification: Pest & Vermin Control **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A13NW (NW)	242	-	529112 185772
48	**Contemporary Trade Directory Entries** Name: Scaffold Hire Location: Flat 4,Fortess Rd, London, NW5 2HP Classification: Scaffolding & Work Platforms **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A13NW (NW)	244	-	529116 185780
48	**Contemporary Trade Directory Entries** Name: Tuffnel Park Location: 145, Fortess Road, London, NW5 2HR Classification: Laundries & Launderettes **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	263	-	529108 185800
48	**Contemporary Trade Directory Entries** Name: Tufnell Park Laundrette Location: 145, Fortess Road, London, NW5 2HR Classification: Dry Cleaners **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	263	-	529108 185800
48	**Contemporary Trade Directory Entries** Name: Northbirch Ltd Location: 145, Fortess Road, London, NW5 2HR Classification: Laundries & Launderettes **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	263	-	529108 185800

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
169	**Fuel Station Entries** Name: Whittington Service Station Location: 207-209, Junction Road , Tufnell Park , London, Inner London, N19 5QA Brand: Obsolete Premises Type: Not Applicable **Status: Obsolete** Positional Accuracy: Manually positioned to the address or location	A18SW (N)	494	-	529220 186104
170	**Fuel Station Entries** Name: Parliament Hill Service Station Location: 138-140, Highgate Road , Kentish Town , London, Inner London, NW5 1PB Brand: Pace Premises Type: Not Applicable **Status: Obsolete** Positional Accuracy: Manually positioned to the address or location	A12NW (W)	688	-	528634 185810
171	**Fuel Station Entries** Name: Fairways Garage Location: 139-143, Camden Road Sandall Road, Camden Town , London, Inner London, NW1 9HA Brand: Total Premises Type: Not Applicable **Status: Obsolete** Positional Accuracy: Manually positioned to the address or location	A8SE (S)	955	-	529530 184658
172	**Fuel Station Entries** Name: Atheneum Service Station Location: Camden Road , Holloway , London, Inner London, N7 0SH Brand: Obsolete Premises Type: Not Applicable **Status: Obsolete** Positional Accuracy: Approximate location provided by supplier	A14NE (E)	997	-	530310 185771
173	**Points of Interest - Commercial Services** Name: M D A Motors Location: 50a Leverton Street, London, NW5 2PG Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A13SW (SW)	271	8	529108 185411
173	**Points of Interest - Commercial Services** Name: Car Care Location: 50 Leverton Street, London, NW5 2PG Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A13SW (SW)	271	8	529108 185411
173	**Points of Interest - Commercial Services** Name: Car Care Garages Location: 50 Leverton Street, London, NW5 2PG Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A13SW (SW)	271	8	529108 185411
173	**Points of Interest - Commercial Services** Name: Jack Autos Location: 50a Leverton Street, London, NW5 2PG Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A13SW (SW)	271	8	529108 185411
173	**Points of Interest - Commercial Services** Name: M D A Motors Location: Ascham Street, Camden, London, NW5 2PD Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A13SW (SW)	272	8	529108 185409
174	**Points of Interest - Commercial Services** Name: Kudos Records Ltd Location: 77 Fortess Road, London, NW5 1AG Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A13NW (W)	314	8	528979 185632
175	**Points of Interest - Commercial Services** Name: M & A Coachworks Location: 36 Fortess Road, London, NW5 2HB Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A13SW (SW)	330	8	529009 185440

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
191	**Points of Interest - Commercial Services** Name: Exan Car Services Location: 1 Hillmarton Road, London, N7 9JE Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A14SE (E)	927	8	530248 185483
192	**Points of Interest - Commercial Services** Name: Autodeutsche Location: 139-147 Camden Road, London, NW1 9HA Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A8SE (S)	954	8	529529 184659
192	**Points of Interest - Commercial Services** Name: Camden Mews Taxis Ltd Location: 63 Camden Mews, London, NW1 9BY Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A8SE (S)	991	8	529596 184638
192	**Points of Interest - Commercial Services** Name: Lucky Motors Location: 61 Camden Mews, London, NW1 9BY Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A8SE (S)	994	8	529591 184633
193	**Points of Interest - Commercial Services** Name: Psyche Deli Location: Unit 4 Archway Business Centre, Wedmore Street, London, N19 4RZ Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A19NW (NE)	994	8	529971 186355
194	**Points of Interest - Manufacturing and Production** Name: Tank Location: NW5 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A13SW (W)	113	8	529184 185576
195	**Points of Interest - Manufacturing and Production** Name: Workshops Location: N19 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A13NW (N)	219	8	529223 185822
195	**Points of Interest - Manufacturing and Production** Name: Workshops Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A13NW (N)	224	8	529226 185828
196	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A13SW (SW)	310	8	529050 185416
196	**Points of Interest - Manufacturing and Production** Name: Works Location: NW5 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A13SW (SW)	314	8	529046 185415
197	**Points of Interest - Manufacturing and Production** Name: The Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A8NE (SE)	363	8	529479 185263
197	**Points of Interest - Manufacturing and Production** Name: Works Location: NW5 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A8NE (SE)	364	8	529475 185260

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
222	**Points of Interest - Public Infrastructure** Name: Kentish Town Station Location: Leighton Road, NW5 Category: Public Transport, Stations and Infrastructure Class Code: Railway Stations, Junctions and Halts Positional Accuracy: Positioned to address or location	A8NW (SW)	481	8	529107 185159
223	**Points of Interest - Public Infrastructure** Name: Easy Rubbish Location: 96a Highgate Road, London, NW5 1PB Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to address or location	A12NE (W)	571	8	528722 185631
223	**Points of Interest - Public Infrastructure** Name: Easy Rubbish Location: 96 Highgate Road, London, NW5 1PB Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to address or location	A12NE (W)	571	8	528722 185631
224	**Points of Interest - Public Infrastructure** Name: Kentish Town Police Station Location: Kentish Town Police Station 12a, Holmes Road, London, NW5 3AE Category: Central and Local Government Class Code: Police Stations Positional Accuracy: Positioned to address or location	A7NE (SW)	670	8	528923 185051
224	**Points of Interest - Public Infrastructure** Name: Junk & Disorderly Location: 2 Old Dairy Mews, London, NW5 2JW Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to address or location	A7NE (SW)	727	8	528956 184962
225	**Points of Interest - Public Infrastructure** Name: Parliament Hill Service Station Location: 138-140 Highgate Road, London, NW5 1PB Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A12NW (W)	688	8	528634 185810
226	**Points of Interest - Public Infrastructure** Name: Bus Garage Location: N19 Category: Public Transport, Stations and Infrastructure Class Code: Bus and Coach Stations, Depots and Companies Positional Accuracy: Positioned to an adjacent address or location	A18NE (N)	779	8	529432 186382
227	**Points of Interest - Public Infrastructure** Name: Metroline Location: 37 Pemberton Gardens, London, N19 5RR Category: Public Transport, Stations and Infrastructure Class Code: Bus and Coach Stations, Depots and Companies Positional Accuracy: Positioned to address or location	A18NE (N)	861	8	529540 186441
228	**Points of Interest - Public Infrastructure** Name: Tesco Petrol Filling Station Location: 199-203 Kentish Town Road, London, NW5 2JU Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A7SE (SW)	886	8	528936 184792
229	**Points of Interest - Public Infrastructure** Name: Normsbridge Filling Station Location: 139-143 Camden Road, London, NW1 9HA Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A8SE (S)	954	8	529530 184658
229	**Points of Interest - Public Infrastructure** Name: Bloomsbury Service Station Location: 63 Camden Mews, London, NW1 9BY Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A8SE (S)	990	8	529596 184639
230	**Points of Interest - Recreational and Environmental** Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A13SE (SE)	152	8	529467 185536

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
230	**Points of Interest - Recreational and Environmental** Name: Playground Location: Anson Road, N19 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A13SE (E)	163	8	529480 185540
231	**Points of Interest - Recreational and Environmental** Name: Play Area Location: NW5 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A13SE (SE)	204	8	529412 185407
231	**Points of Interest - Recreational and Environmental** Name: Play Centre Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A13SE (SE)	205	8	529444 185425
232	**Points of Interest - Recreational and Environmental** Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A13SE (SE)	247	8	529547 185485
232	**Points of Interest - Recreational and Environmental** Name: Playground Location: Pleshey Road, N19 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A13SE (SE)	247	8	529547 185484
233	**Points of Interest - Recreational and Environmental** Name: Playground Location: Leighton Crescent, NW5 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A13SE (SE)	301	8	529434 185311
233	**Points of Interest - Recreational and Environmental** Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A13SE (SE)	302	8	529440 185312
234	**Points of Interest - Recreational and Environmental** Name: Playground Location: Nr Leighton Road, NW5 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A8NW (S)	347	8	529258 185249
234	**Points of Interest - Recreational and Environmental** Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A8NW (S)	349	8	529259 185247
235	**Points of Interest - Recreational and Environmental** Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A14SW (SE)	389	8	529650 185380
235	**Points of Interest - Recreational and Environmental** Name: Playground Location: Nr Hilldrop Road, N7 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A14SW (SE)	390	8	529650 185379
236	**Points of Interest - Recreational and Environmental** Name: Play Area Location: N7 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A18SE (NE)	409	8	529486 185977

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
267	**Points of Interest - Recreational and Environmental** Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A19NW (NE)	961	8	529816 186426
268	**Points of Interest - Recreational and Environmental** Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A19SE (NE)	971	8	530149 186117
268	**Points of Interest - Recreational and Environmental** Name: Playground Location: Nr Mercers Road, N19 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A19SE (NE)	971	8	530149 186117
269	**Points of Interest - Recreational and Environmental** Name: Play Area Location: N7 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A14NE (E)	985	8	530312 185634
270	**Underground Electrical Cables** Unique Feature Identifier: 10008255 Cable Status: Commissioned Cable Type: Alternating Current Record Last Updated: 9th January 2023	A13NE (E)	183	9	529510 185611
271	**Underground Electrical Cables** Unique Feature Identifier: 10006683 Cable Status: Electrically Decommissioned Cable Type: Decommissioned Record Last Updated: 9th January 2023	A13NE (E)	188	9	529514 185616
272	**Underground Electrical Cables** Unique Feature Identifier: 10006325 Cable Status: Commissioned Cable Type: Alternating Current Record Last Updated: 9th January 2023	A13SE (E)	197	9	529525 185589
273	**Underground Electrical Cables** Unique Feature Identifier: 10007307 Cable Status: Electrically Decommissioned Cable Type: Decommissioned Record Last Updated: 9th January 2023	A13NE (E)	238	9	529562 185641
274	**Underground Electrical Cables** Unique Feature Identifier: 10006665 Cable Status: Electrically Decommissioned Cable Type: Cable Unknown Record Last Updated: 9th January 2023	A13NE (NE)	273	9	529527 185784
275	**Underground Electrical Cables** Unique Feature Identifier: 10066442 Cable Status: Commissioned Cable Type: Alternating Current Record Last Updated: 9th January 2023	A13NE (NE)	273	9	529528 185784
276	**Underground Electrical Cables** Unique Feature Identifier: 10007677 Cable Status: Electrically Decommissioned Cable Type: Decommissioned Record Last Updated: 9th January 2023	A13SE (SE)	282	9	529549 185424

Data Suppliers

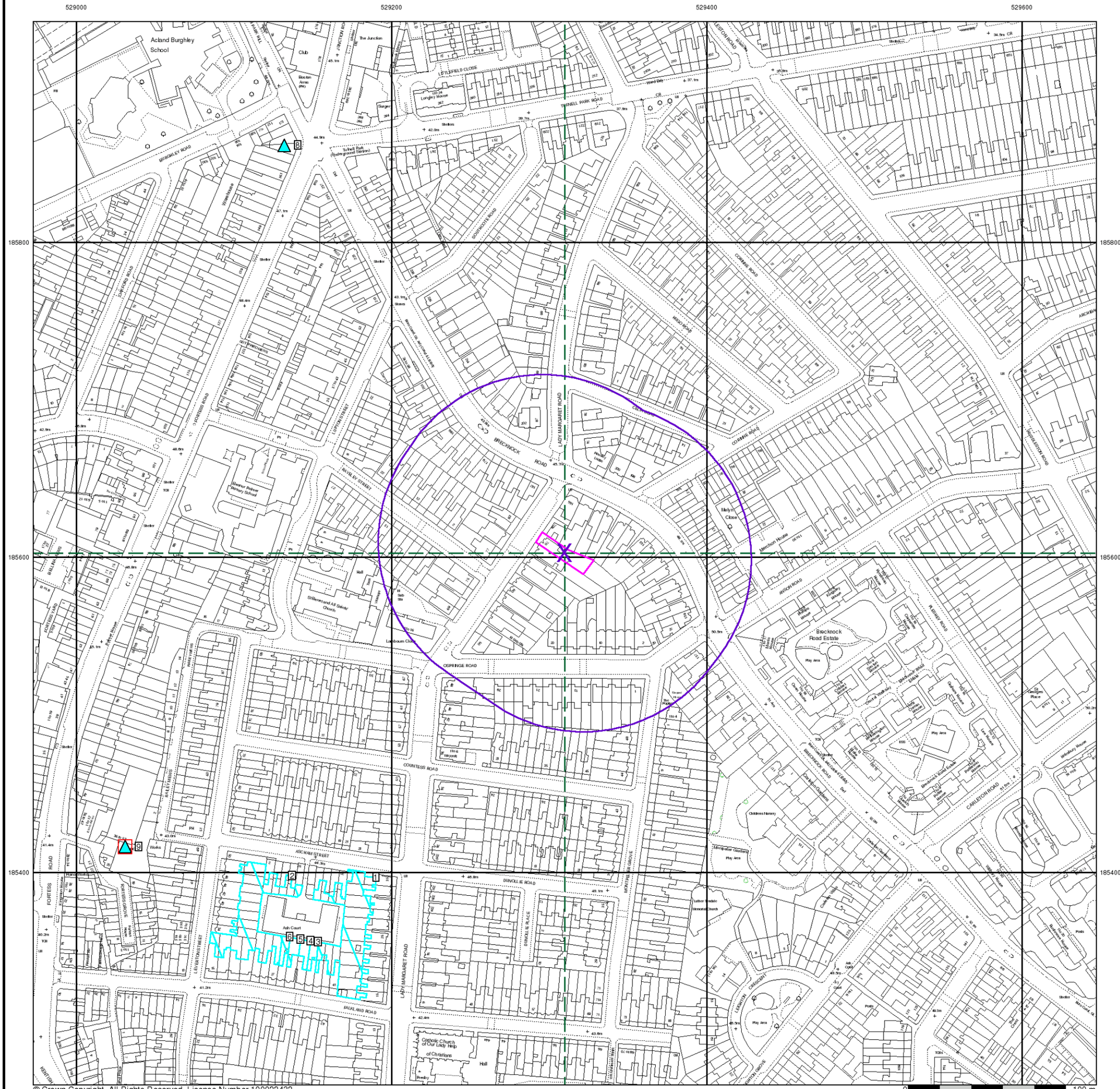
A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	
Centre for Ecology and Hydrology	
Natural Resources Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Stantec UK Ltd	

Useful Contacts

Contact	Name and Address	Contact Details
1	**British Geological Survey - Enquiry Service** British Geological Survey, Environmental Science Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
2	**London Borough of Camden - Pollution Projects Team** Seventh Floor, Town Hall Extension, Argyle Street, London, WC1H 8EQ	Telephone: 020 7278 4444 Fax: 020 7860 5713 Website: www.camden.gov.uk
3	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
4	**London Borough of Islington - Environmental Health Department** 159 Upper Street, Islington, London, N1 1RE	Telephone: 020 7527 2000 Fax: 020 7477 3057 Website: www.islington.gov.uk
5	**Environment Agency - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
6	**Ordnance Survey** Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 03456 05 05 05 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
7	**London Borough of Camden** Town Hall, Judd Street, London, WC1H 9JE	Telephone: 020 7974 4444 Fax: 020 7974 6866 Email: info@camden.gov.uk Website: www.camden.gov.uk
8	**PointX** 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Website: www.pointx.co.uk
9	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9966 Fax: 0844 844 9951 Email: helpdesk@landmark.co.uk Website: www.landmark.co.uk
10	**Natural England** County Hall, Spetchley Road, Worcester, WR5 2NP	Telephone: 0300 060 3900 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
-	**Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards** Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Please note that the Environment Agency / Natural Resources Wales / SEPA have a charging policy in place for enquiries.



GEA

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location
- Pylon
- Overhead Transmission Line

Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
- Discharge Consent
- Enforcement or Prohibition Notice
- Integrated Pollution Control
- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Control
- Local Authority Pollution Prevention and Control Enforcement
- Pollution Incident to Controlled Waters
- Prosecution Relating to Authorised Processes
- Prosecution Relating to Controlled Waters
- Registered Radioactive Substance
- River Network or Water Feature
- River Quality Sampling Point
- Substantiated Pollution Incident Register
- Water Abstraction
- Water Industry Act Referral

Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

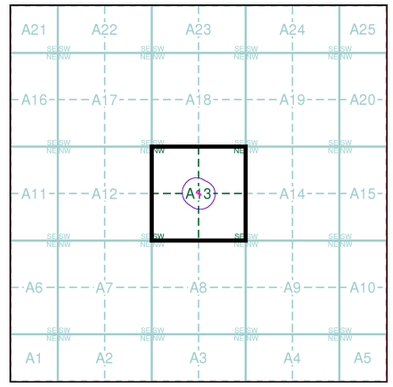
Geological

- BGS Recorded Mineral Site

Waste

- BGS Recorded Landfill Site (Location)
- BGS Recorded Landfill Site
- EA Historic Landfill (Buffered Point)
- EA Historic Landfill (Polygon)
- Integrated Pollution Control Registered Waste Site
- Licensed Waste Management Facility (Landfill Boundary)
- Licensed Waste Management Facility (Location)
- Local Authority Recorded Landfill Site (Location)
- Local Authority Recorded Landfill Site
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Registered Landfill Site
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

Site Sensitivity Map - Segment A13



Order Details

Order Number:	307672129_1_1
Customer Ref:	J23059
National Grid Reference:	529310, 185600
Slice:	A
Site Area (Ha):	0.04
Plot Buffer (m):	100

Site Details

70, Lady Margaret Road, LONDON, NW5 2NP

Landmark INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

GEA

General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Map ID

Several of Type at Location

Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
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- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Control
- Local Authority Pollution Prevention and Control Enforcement
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- Prosecution Relating to Authorised Processes
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- Water Industry Act Referral

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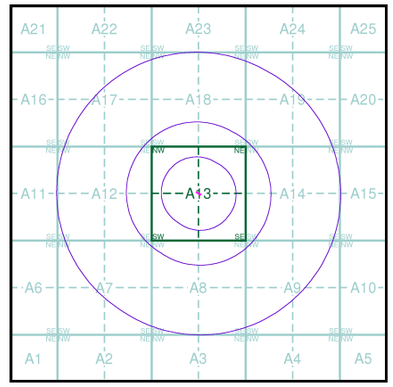
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Registered Landfill Site
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

Site Sensitivity Map - Slice A



Order Details

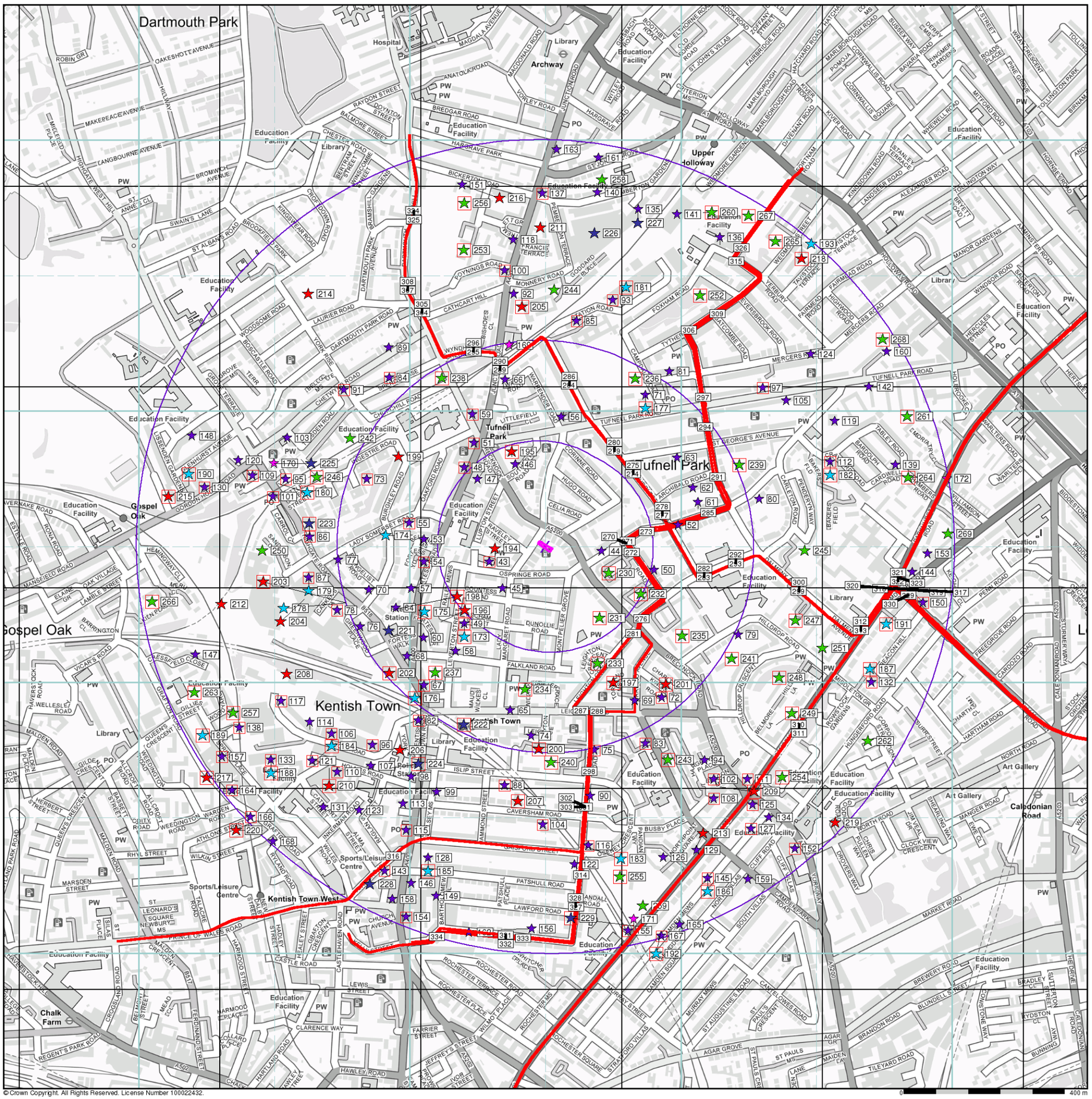
Order Number:	307672129_1_1
Customer Ref:	J23059
National Grid Reference:	529310, 185600
Slice:	A
Site Area (Ha):	0.04
Search Buffer (m):	1000

Site Details

70, Lady Margaret Road, LONDON, NW5 2NP

Landmark INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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GEA

Industrial Land Use Map

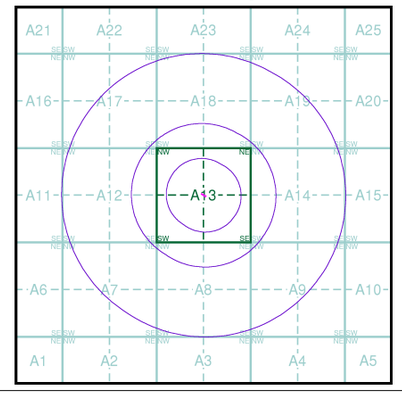
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry
- Gas Pipeline
- Points of Interest - Commercial Services
- Points of Interest - Education and Health
- Points of Interest - Manufacturing and Production
- Points of Interest - Public Infrastructure
- Points of Interest - Recreational and Environmental
- Underground Electrical Cables

Industrial Land Use Map - Slice A



Order Details

Order Number:	307672129_1_1
Customer Ref:	J23059
National Grid Reference:	529310, 185600
Slice:	A
Site Area (Ha):	0.04
Search Buffer (m):	1000

Site Details

70, Lady Margaret Road, LONDON, NW5 2NP

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk