2 Thurlow Road
London NW3 5PJ

Ground Investigation & Basement Impact Assessment Report

Mr Philippe Bodereau

February 2022

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Rev 0

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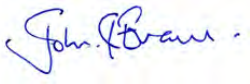

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This report is intended as a Ground Investigation Report (GIR) as defined in BS EN1997-2, unless specifically noted otherwise. The report is not a Geotechnical Design Report (GDR) as defined in EN1997-2 and recommendations made within this report are for guidance only.

CONTENTS

Part 3: GROUND MOVEMENT ASSESSMENT

Part 4: BASEMENT IMPACT ASSESSMENT

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 Momentum Engineering, on behalf of Mr Philippe Bodereau, with respect to the redevelopment of the site through the deepening and extension of the existing lower ground floor to form a basement level. The purpose of the investigation has been to research the history of the site with respect to possible contaminative uses, to determine the ground conditions, to assess the extent of any contamination and to provide information to assist with the design of retaining walls and foundations.

SITE HISTORY

The earliest map studied, dated 1879, shows the site to have already been developed with the existing building and gardens. Much of the existing road network and nearby buildings are also shown to have been constructed by this time, although the village of Hampstead is shown to be much smaller than existing and the area is labelled as Rosslyn Park. By the time of the next map studied, dated 1896, Hampstead had been expanded and significantly redeveloped into its existing size and configuration, although an area nearby to the west of the site is shown to have been cleared and left vacant. This area had been developed as existing by the time of the map dated 1915 and Shepherds Walk had also been constructed in its existing position. Some time between 1990 and 1999 the existing buildings lining the southern side of Shepherds Walk were constructed and both the site and the surrounding area have since remained essentially unchanged.

GROUND CONDITIONS

The investigation has confirmed the expected ground conditions in that, below a nominal to moderate thickness of made ground, the Claygate Member was encountered overlying the London Clay Formation, which extended to the full depth of the investigation, of 6.00 m. The made ground generally comprised dark brown sandy silty clay with gravel and variable amounts of brick and ash fragments and extended to a depth of 0.20 m and 1.30 m below rear garden level and a depth of 2.00 m below street level in the front garden. In Borehole No 4, located in the southern corner of the rear garden, a pocket of black peaty silty clay with rare brick fragments was encountered, extending from 1.30 m to 2.60 m below the level of the rear garden. The Claygate Member comprised stiff pale grey mottled orange-brown slightly sandy slightly silty clay with rare rounded to sub-rounded fine to coarse gravel and extended to depths of between 1.90 m below rear garden level and 4.00 m below street level. The London Clay Formation comprised stiff fissured brown slightly silty clay with occasional pale grey veins and selenite crystals and extended to the full depth of the investigation, of 6.00 m below street level and 3.40 m below rear garden level. Groundwater was not encountered in Borehole Nos 1, 2 and 3, but was encountered at a depth of 2.00 m within Borehole No 4. Standpipes were installed in three of the boreholes but have not been monitored to date. The results of the chemical analyses have indicated all four of the samples tested to contain elevated concentrations of total PAH. Additionally, three of the samples were found to contain elevated concentrations benzo(a)pyrene and one of the samples was also found to contain elevated concentrations of naphthalene and total TPH.

RECOMMENDATIONS

The proposed deepening of the lower ground floor level by 0.74 m and the proposed underpins of the foundations extending a further 1.20 m below the finished floor level, will result in a formation level partially within the London Clay and partially within the Claygate Member. Groundwater is unlikely to be encountered within the basement excavation and spread foundations at the proposed depths may be designed to apply a net allowable bearing pressure of 120 kN/m².

The installation of a cover thickness of imported “clean” soil in areas of proposed soft landscaping to protect end users from the elevated total PAH concentrations will be required. New services will need to be adequately protected and the usual measures will need to be taken to protect site workers during the groundworks.

BASEMENT IMPACT ASSESSMENT

It has been concluded that the majority of the impacts identified can be mitigated by appropriate design and standard construction practice. Groundwater is unlikely to be present within the basement excavation and will still be able to flow around the basement following construction. As the new basement does not close a pathway it is considered that the groundwater will follow a pathway around the proposed basement and will not build up significantly behind it. The basement should not, therefore, have any noticeable effect on groundwater flow.

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 Momentum Engineering, on behalf of Mr Philippe Bodereau, to carry out a desk study, ground investigation and ground movement assessment at No 2 Thurlow Road, London NW3 5PJ.

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

It is understood that it is proposed to deepen and extend the existing basement level beneath the footprint of the house and part of the rear garden.

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

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 information on the level of Unexploded Ordnance (UXO) risk;
- to determine the ground conditions and their engineering properties;
- to provide advice and information 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 geology maps;
- a walkover survey of the site carried out in conjunction with the fieldwork;
- commissioning of 1st Line Defence to undertake a preliminary UXO risk assessment;

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

- two open-drive percussive boreholes advanced to a depth of 6.00 m;
- standard penetration tests (SPTs), carried out at regular intervals in the open-drive percussive boreholes to provide quantitative data on the strength of the soils;
- two boreholes advanced to a depth of 3.40 m by hand-held window sampling equipment;
- installation of three groundwater monitoring standpipes, to depths of between 3.00 m and 6.00 m;
- two hand excavated trial pits advanced to a maximum depth of 1.25 m;
- testing of selected soil samples for contamination and geotechnical purposes;
- 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 8 October 2020. 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), all of which form part of the BIA procedure specified in the London Borough of Camden (LBC) Planning Guidance Basements[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

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

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 John Evans, 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 conditions not revealed by the sampling or testing. Any comments made on the basis of information obtained from third parties are given in good faith on the assumption that the information is accurate; no independent validation of third party information has been made by GEA.

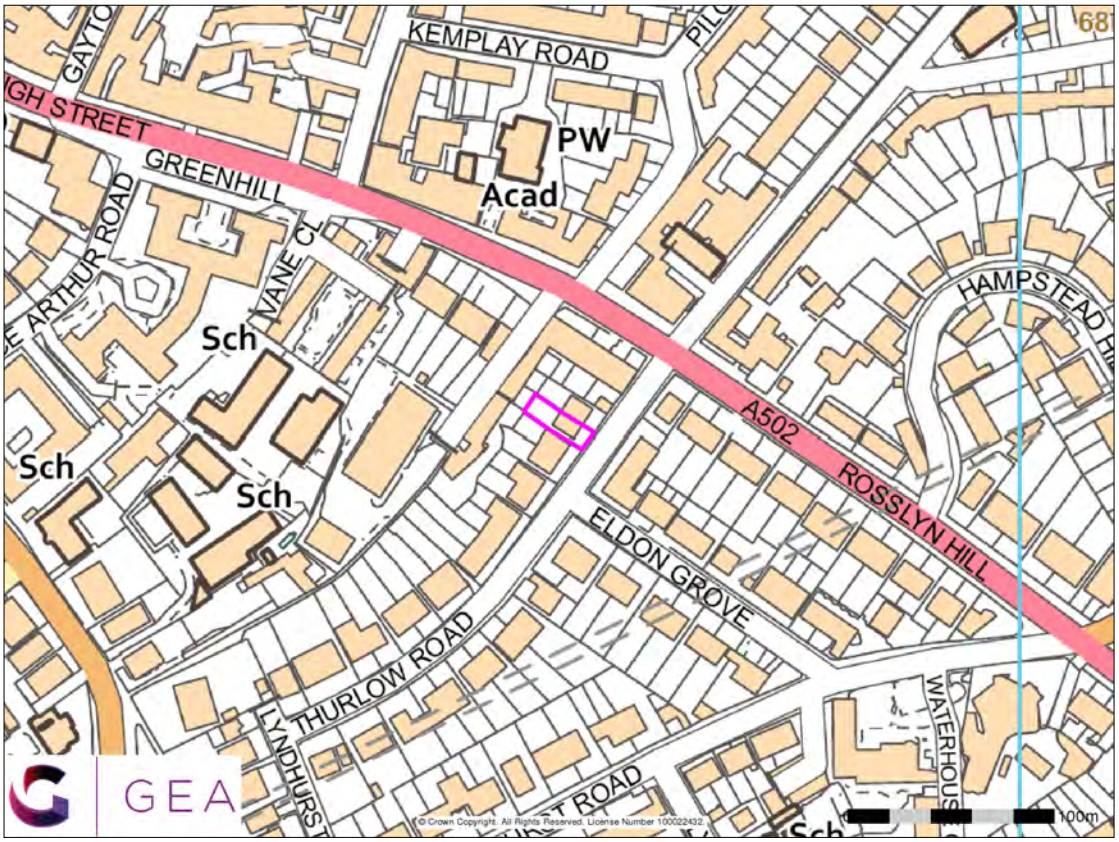
2.0 THE SITE

2.1 Site Description

The site is located within London Borough of Camden, in a residential area, approximately 700 m northwest of Belsize Park London Underground Station and 475 m southeast of Hampstead London Underground Station. It fronts onto Thurlow Road to the southeast and is bordered to the northeast by an adjoined four-storey house with associated front and rear gardens and to the southwest by a four-storey semi-detached house with front and rear gardens. The rear of the property is bounded by the rear gardens of houses fronting onto Shepherds Walk to the northwest. The site may be additionally located by National Grid Reference 526764, 185479 and is shown on the map extract overleaf.

A walkover of the site was carried out by a geotechnical engineer from GEA at the time of the fieldwork. The site is occupied by a four-storey house, including a lower ground floor level beneath the entire footprint of the site. There is a front garden formed at street level in the southeast of the site which generally comprises paved areas with planted beds around the

boarders. To the rear of the site there is a garden comprising a deck at lower ground floor level which is overlain by a raised deck at ground level. The rest of the garden is formed at an intermediate level, comprises an area of lawn with raised planted beds around the boundaries of the site and a small paved path between the lawn and the decking.



2.2 Site History

The site history has been researched by reference to internet sources and historical Ordnance Survey (OS) maps obtained from the Envirocheck database.

The earliest map studied, dated 1879, shows the site to have already been developed with the existing building and gardens. Much of the existing road network and nearby buildings are also shown to have been constructed by this time, although the village of Hampstead is shown to be much smaller than existing and the area is labelled as Rosslyn Park.

By the time of the next map studied, dated 1896, Hampstead had been expanded and significantly redeveloped into its existing size and configuration, although an area nearby to the west of the site is shown to have been cleared and left vacant. This area had been developed as existing by the time of the map dated 1915 and Shepherds Walk had also been constructed in its existing position. Some time between 1990 and 1999 the existing buildings lining the southern side of Shepherds Walk were constructed and both the site and the surrounding area have since remained essentially unchanged.

2.3 Other Information

A search of public registers and databases has been made via the Envirocheck database and relevant extracts from the search are appended. Full results of the search can be provided if required.

The Envirocheck report has indicated no landfill sites located within 950 m of the site and additionally, no waste management or waste transfer sites are located within 900 m of the site and no areas of potentially infilled land or water are located within 250 m of the site.

No pollution incidents to controlled waters have been recorded within 1 km of the site.

The site is not within an area shown by the Environment Agency to be at risk from flooding from rivers or the sea and is mostly not considered to be at risk of surface water flooding, with the exception of part of the rear garden which is considered to be a low risk area.

Reference to records compiled by the Health Protection Agency (formerly the National Radiological Protection Board) indicates that the site falls within an area where less than 1% of homes are affected by radon emissions and therefore radon protective measures will not be necessary.

2.4 Preliminary UXO Risk Assessment

A Preliminary UXO Risk Assessment has been completed by 1st Line Defence (report ref PA14838-00, dated 23rd December 2021), and the report is included in 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 World War II (WWII), the site was located within the Municipal Borough of Hampstead, which sustained a very high bomb density. Reference to London Bomb Census mapping does not indicate the presence of any bombs or bomb damage being recorded on the site with the closest recorded bombs located 60 m to the south. The site was not significantly altered during the war according to the historic maps. It is considered likely that the properties would have remained occupied and subject to regular post-raid checks for signs of UXO and therefore a minimal risk of encountering unexploded ordnance has been identified for the site and no further action is recommended in this respect.

2.5 Geology

The British Geological Survey (BGS) map of the area (Sheet 256) indicates the site to be underlain by the Claygate Member, over the London Clay Formation.

GEA has previously carried out an investigation at No 10 Eldon Grove, located roughly 40 m to the northwest of the site. The investigation encountered a variable thickness of made ground, the Claygate Member overlying the London Clay, which was proved to the maximum depth investigated of 20.00 m. The made ground extended to depths of 0.30 m and 1.00 m and generally comprised brown silty sandy clay with gravel, brick and occasional ash. The underlying Claygate Member comprised firm becoming stiff high strength orange-brown silty

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

sandy clay with pale grey mottling, pockets or partings of sandy silt and occasional rootlets, and extended to depths of between 4.10 m and 4.30 m. The London Clay comprised an upper layer of firm to stiff fissured brown silty clay with occasional grey markings and pockets of silty sand, which extended to a depth of 5.70 m, and was underlain by stiff becoming very stiff fissured high strength becoming very high strength dark grey silty clay, which was proved to the maximum depth investigated, of 20.00 m.

2.6 Hydrology and Hydrogeology

Groundwater is likely to be present within the Claygate Member, and other investigations carried out around the area of Hampstead Heath indicate that spring lines are present at the interface of the Bagshot Beds and the Claygate Member, and at a lower level near the boundary between the Claygate Member and the underlying essentially impermeable London Clay. These springs have been the source of a number of London's "lost" rivers, notably the Fleet, Westbourne and Tyburn, which generally rose on Hampstead Heath, to the west, northwest and northeast of the current site, mostly at the base of the Bagshot Beds.

The Claygate Member is classified by the Environment Agency as a Secondary 'A' Aquifer, which refers to permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. In the absence of significant sand horizons, the Claygate Member is not capable of storing and transmitting water in usable amounts and receives very low levels of annual recharge due to very low permeability. The underlying London Clay Formation is classified by the EA as an Unproductive Stratum, referring to rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

During the previous GEA investigation detailed in the previous section, groundwater was encountered in a single location towards the base of the Claygate Member at a depth of 3.50 m.

The Envirocheck report indicates no surface water features to be present within 500 m of the site.

Reference to the Lost Rivers of London[5] indicates that none of London's Lost Rivers were present within 300 m of the site.

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.

2.7.1 Source

The desk study findings indicate that the site does not have a potentially contaminative history as it has apparently been developed with the existing house since prior to 1879.

2.7.2 Receptor

The site will remain in residential use following the redevelopment and therefore end users will continue to represent relatively high sensitivity receptors and as the site is underlain by a

[5] Nicholas Barton and Stephen Myers (2016) *London's Lost Rivers. Revised Edition.* Historical Publications Ltd

Secondary 'A' Aquifer, adjacent sites are considered to be moderately sensitive receptors. Shallow groundwater is also considered to be a moderately sensitive receptor, while the chalk aquifer at depth is considered to be a particularly sensitive receptor. 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 in the soils during construction works.

2.7.3 Pathway

The permeable soils of the Claygate Member could allow limited migration of contaminated groundwater through the shallow soils to surrounding sites, although the impermeable layers in the Claygate Member and impermeable London Clay create a barrier to the major Chalk aquifer. End users will be isolated from direct contact with any contaminants present within the made ground by the presence of the building and hardstanding where present. However, in areas of soft landscaping a direct contact pathway between contaminants and end users will exist. Buried services may be exposed to any contaminants present within the soil through direct contact and site workers will come into contact with the soils during construction works. 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.

2.7.4 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.

There is no evidence of filled ground within the vicinity and so there is not considered to be a significant potential for hazardous soil gas to be present on or migrating towards the site; there should thus be no need to consider soil gas exclusion systems.

3.0 SCREENING

The Camden 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 2 Thurlow Road
1a. Is the site located directly above an aquifer?	*Yes. The site is underlain by the Claygate Member which is designated a Secondary 'A' Aquifer by the Environment Agency, capable of supporting flow to watercourses and private abstractions. Aquifer designation maps acquired from the Environment Agency as part of the desk study and Figures 3, 4 and 8 of the Arup report confirm this.*
1b. Will the proposed basement extend beneath the water table surface?	Unlikely. The proposed basement may extend below local monitored groundwater levels. However, the clay soils of the Claygate Member present beneath the site cannot store or

Question	Response for 2 Thurlow Road
	transmit groundwater under normal hydraulic conditions and therefore cannot support a water table, such as those that would be found within a porous and permeable saturated strata.
2. Is the site within 100 m of a watercourse, well (used/ disused) or potential spring line?	No. Topographical maps acquired as part of the desk study and Figures 11 and 12 of the Arup report confirm this.
3. Is the site within the catchment of the pond chains on Hampstead Heath?	No. The site lies outside of the catchment area for the Golders Hill pond chains as shown on Figures 14 of the Arup report.
4. Will the proposed basement development result in a change in the proportion of hard surfaced / paved areas?	No. Whilst the proposed basement extends beyond the footprint of the existing extension building on the western part of the site, it does not extend below an area of existing landscaping, as this area is presently hard surfaced.
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. The majority of run-off from hardstanding will drain to the sewer system, as it does currently.
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. Topographical maps acquired as part of the desk study and Figures 11 and 12 of the Arup report confirm this.

Q1a The site is located directly above the Claygate Member, which is a Secondary 'A' Aquifer.

Q1b There is a possibility that the proposed basement may encounter groundwater.

The above assessment has not identified any potential issues that need to be further assessed:

3.1.2 Stability Screening Assessment

Question	Response for 2 Thurlow Road
1. Does the existing site include slopes, natural or manmade, greater than 7°?	No. Fig 16 of the Arup report does not show the site to be in an area with slopes greater than 7°.
2. Will the proposed re-profiling of landscaping at the site change slopes at the property boundary to more than 7°?	No, not according to proposed drawings supplied by the consulting engineer.
3. Does the development neighbour land, including railway cuttings and the like, with a slope greater than 7°?	No. Not according to Figure 16 of the Arup report.
4. Is the site within a wider hillside setting in which the general slope is greater than 7°?	No. Figure 16 of the Arup report shows the site to be a significant distance from areas containing sustained slopes of greater than 7°.
5. Is the London Clay the shallowest strata at the site?	No. Not according to Figure 2 of the Arup report or the BGS map of the area. The site is directly underlain by the Claygate Member.
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?	No. No trees are to be felled to facilitate the development.
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 clay soils. However, there is no evidence of any potential movement on the existing and / or surrounding structures.*
8. Is the site within 100 m of a watercourse or potential spring line?	No. Not according to Figure 12 of the Arup report, extracts from the Envirocheck report and Ordnance Survey maps.
9. Is the site within an area of previously worked ground?	No. Not according to Figure 3 of the Arup report.

Question	Response for 2 Thurlow Road
10. Is the site within an aquifer?	*Yes. The site is located above a Secondary 'A' Aquifer as designated by the EA. However, as the Claygate Member comprises predominantly clay beneath this and adjacent sites, it is likely it will have the characteristics of Non Productive Strata, similar to that of the London Clay.*
10b. Will the proposed basement extend beneath the water table such that dewatering may be required during construction?	No. The proposed basement may extend below local monitored groundwater levels. However, the clay soils of the Claygate Member present beneath the site do not support groundwater flow or a water table.
11. Is the site within 50 m of Hampstead Heath ponds?	No. Not According to Figure 14 of the Arup report.
12. Is the site within 5 m of a highway or pedestrian right of way?	The site boundary is within 5 m of a pedestrian right of way, but the proposed basement is not.
13. Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties?	*Yes. The deepening of the basement by 0.74 m and extension of the new foundations to a depth of 1.94 m is unlikely to cause the lower ground floor to extend much beneath the foundations of the adjacent structures*.
14. Is the site over (or within the exclusion zone of) any tunnels, e.g. railway lines?	No. Not according to Figure 18 of the Arup report.

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

Q7. There is a history of seasonal shrink-swell.
Q10a. The site is located above a Secondary 'A' Aquifer as designated by the EA.
Q13 The proposed development will extend foundations deeper relative to some neighbouring properties

3.1.3 Surface Flow and Flooding Screening Assessment

Question	Response for 2 Thurlow Road
1. Is the site within the catchment of the pond chains on Hampstead Heath?	No. Figure 14 of Arup report 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. There will not be an increase in impermeable area across the ground surface above the basement. There will be no surface expression of the basement development outside of areas of existing hardstanding, so the surface water flow regime will be unchanged.
3. Will the proposed basement development result in a change in the proportion of hard surfaced / paved areas?	No. The proposed hard surfacing/roof will not increase beyond the extent of the existing hardstanding.
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. There will not be an increase in impermeable area across the ground surface above the basement.
5. Will the proposed basement result in changes to the quality of surface water being received by adjacent properties or downstream watercourses?	No. There will not be an increase in impermeable area across the ground surface above the basement.
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?	No. The findings of this BIA together with the Camden Flood Risk Management Strategy dated 2013 and Figures 3iii, 4e, 5a and 5b of the SFRA dated 2014, in addition to the Environment Agency online flood maps show that the site has a low flooding risk from surface water, groundwater, sewers, reservoirs (and other artificial sources), and fluvial/tidal watercourses. In accordance with paragraph 6.16 of the CPG a positive pumped device and non-return valve will be installed in the

Question	Response for 2 Thurlow Road
	basement in order to further protect the site from sewer flooding.

The above assessment has identified no potential issues that need to be assessed.

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
The site is located directly above an aquifer	The site is underlain by the Claygate Member, which is classified as a Secondary 'A' Aquifer. This has the potential of being able to support local water supplies as well as forming an important source of base flow for local rivers. There is the potential for the hydrogeological setting to be affected by a basement development.
The proposed basement extends beneath the water table surface	As stated above, groundwater would be expected to be encountered within the Claygate Member and therefore it is possible that the basement excavation will extend below the water table. Should this happen, the basement structure is capable of diverting groundwater flow such that groundwater level is affected on both the up slope and down slope side of the basement structure. This in turn has the potential to affect the local hydrogeology and any adjacent structures.
The site is within an area likely to be affected by seasonal shrink-swell	If a new basement is not dug to below the depth likely to be affected by tree roots this could lead to damaging differential movement between the subject site and adjoining properties.
The development may increase the differential founding depth	Should the design of retaining walls and foundations not take into account the configuration and bearing stratum of adjacent foundations, it may lead to the structural damage of associated structures.

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

4.2 Exploratory Work

Access to the property was limited by the presence of the existing house. In order to meet the objectives described in Section 1.2 as much as possible in view of the access restrictions, two boreholes were advanced to a depth of 6.00 m using an open-drive percussive sampling rig in the front garden. Additionally, two boreholes were advanced to refusal in the rear garden using hand held window sampling equipment, which terminated at a depth of 3.40 m. A series of two trial pits were also hand excavated to a maximum depth of 0.74 m to provide access to the existing foundations.

During boring, disturbed samples were obtained from the boreholes for subsequent laboratory examination and testing. Standard Penetration Tests (SPTs) were carried out at regular intervals to provide additional quantitative data on the strength of soils encountered.

Three groundwater monitoring standpipes were installed to depths of between 3.00 m and 6.00 m to facilitate groundwater monitoring, which has not been carried out 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 and trial pit records are appended, together with a site plan indicating the exploratory positions.

4.2.1 Sampling Strategy

The trial pit and borehole locations were specified by the consulting engineers, Momentum Engineering, and were positioned by GEA as close to the specified positions as possible, in accessible areas whilst avoiding any known services.

Four samples of the made ground have been tested for the presence of contamination. The analytical suite of testing was selected to identify hydrocarbon contamination resulting from the former use of the site and 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, speciation of total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAH), total cyanide and monohydric phenols. 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 has confirmed the expected ground conditions in that, below a nominal to moderate thickness of made ground, the Claygate Member was encountered overlying the London Clay Formation, which extended to the full depth of the investigation, of 6.00 m.

5.1 Made Ground

The made ground generally comprised dark brown sandy silty clay with gravel and variable amounts of brick and ash fragments and extended to a depth of 0.20 m and 1.30 m below rear garden level and a depth of 2.00 m below street level in the front garden. In Borehole No 4, located in the southern corner of the rear garden, a pocket of black peaty silty clay with rare fine brick fragments was encountered, extending from 1.30 m to 2.60 m below the level of the rear garden. This material was not encountered elsewhere on site, including within Borehole No 3, which was carried out approximately 3 m to the north and Trial Pit No 1 which was carried out approximately 3 m to the east. As a result, it is considered unlikely to extend across the site and instead is much more likely to represent a former depression or pond on the site which has been infilled, presumably to level the garden.

No evidence of significant contamination was identified during the fieldwork. As a precaution five samples of the made ground were tested for the presence of contamination and the results are presented in Section 5.5.

5.2 Claygate Member

The Claygate Member comprised stiff pale grey mottled orange-brown slightly sandy slightly silty clay with rare rounded to sub-rounded fine to coarse gravel and extended to depths of between 1.90 m below rear garden level and 4.00 m below street level.

Atterberg results show the clay layers to generally be of low to medium volume change potential while the organic clay was found to be of high volume change potential.

No evidence of contamination was noted in these soils.

5.3 London Clay Formation

The London Clay Formation comprised stiff fissured brown slightly silty clay with occasional pale grey veins and selenite crystals and extended to the full depth of the investigation, of 6.00 m below street level and 3.40 m below rear garden level.

Atterberg results show the clay layers to be of low to high volume change potential.

No evidence of contamination was noted in these soils.

5.4 Groundwater

Groundwater was not encountered in Borehole Nos 1, 2 and 3, but was encountered at a depth of 2.00 m within Borehole No 4. Standpipes were installed in three of the boreholes but have not been monitored to date.

5.5 Soil Contamination

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

Determinant	TP1 0.30 m	BH3 0.10 m	BH4 1.00 m	BH2 0.50 m
Asbestos Scan	Not-Detected	Not-Detected	Not-Detected	Not-Detected
pH	8.6	9.5	8.2	9.4
Arsenic	11	25	22	20
Cadmium	<0.2	<0.2	<0.2	<0.2
Chromium	19	21	28	23
Lead	38	120	12	88
Mercury	<0.3	0.5	<0.3	0.9
Selenium	<1.0	<1.0	<1.0	<1.0
Copper	26	40	22	33
Nickel	17	25	33	27
Zinc	120	210	58	110

Determinant	TP1 0.30 m	BH3 0.10 m	BH4 1.00 m	BH2 0.50 m
Total Cyanide	<1.0	<1.0	<1.0	<1.0
Total Phenols	<1.0	<1.0	<1.0	<1.0
Total PAH	**460**	**99.8**	**71.7**	**66.4**
Sulphide	42	22	12	1.8
Benzo(a)pyrene	**11**	**7.1**	1.8	**7.4**
Naphthalene	**52**	1.3	1.0	1.1
TPH	**1700**	450	370	130
Total Organic Carbon %	0.8	0.6	0.2	0.8

Note: Figure in bold indicates concentration in excess of risk-based soil guideline values, as discussed in Part 2 of this report

5.5.1 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[6] Soil Guideline Values where available, the Suitable 4 Use Values[7] (S4UL) produced by LQM/CIEH calculated using the CLEA UK Version 1.07[8] software, or the DEFRA Category 4 Screening values[9], assuming a residential end use 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 young female children aged zero to six years old;
- that the exposure duration will be six years;
- that the critical exposure pathways will be indoor dust ingestion, skin contact with indoor dust, and inhalation of indoor and outdoor dust and vapours; and
- that the building type equates to a two-storey small 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.

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;

6 *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.
7 *The LQM/CIEH S4Uls for Human Health Risk Assessment* S4UL3065 November 2014
8 Contaminated Land Exposure Assessment (CL|EA) Software Version 1.071 Environment Agency 2015
9 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

- 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.

The results of the chemical analyses have indicated all four of the samples tested to contain elevated concentrations of total PAH. Additionally, three of the samples were found to contain elevated concentrations benzo(a)pyrene and one of the samples was also found to contain elevated concentrations of naphthalene and total TPH. Further analysis of the concentrations of the constituent TPH compounds within the elevated concentration from TP1 has indicated elevated concentrations of aromatic chain lengths EC10-EC12, EC12-EC16 and EC16-EC21.

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

5.6 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'	Rear Elevation of House	Mass concrete strip / trench fill Top 0.22 m Base 0.54 m Lateral projection 270mm	Firm brown mottled grey slightly sandy silty CLAY with rare rounded to sub-rounded fine to coarse gravel
2	A-A'	Rear Elevation of House	Mass concrete strip / trench fill Top 0.20 m Base 0.50 m Lateral projection 100mm	Firm brown mottled grey slightly sandy silty CLAY with rare rounded to sub-rounded fine to coarse gravel
	B-B'	Garden Wall	None Top N/A Base 0.09 m Lateral projection None	Made Ground (brown sandy silty clay with gravel and brick fragments)

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

It is understood that it is proposed to extend and deepen the existing basement level beneath the footprint of the house and part of the rear garden. The development will extend the depth of the lower ground floor level to a depth of about 0.74 m below existing lower ground floor level and the excavation will be supported by underpins to the existing foundations or cast in-situ retaining walls constructed in a similar way to underpins. The loads will be supported by shallow spread foundations constructed below the new lower ground floor level and the loads are expected to be relatively light.

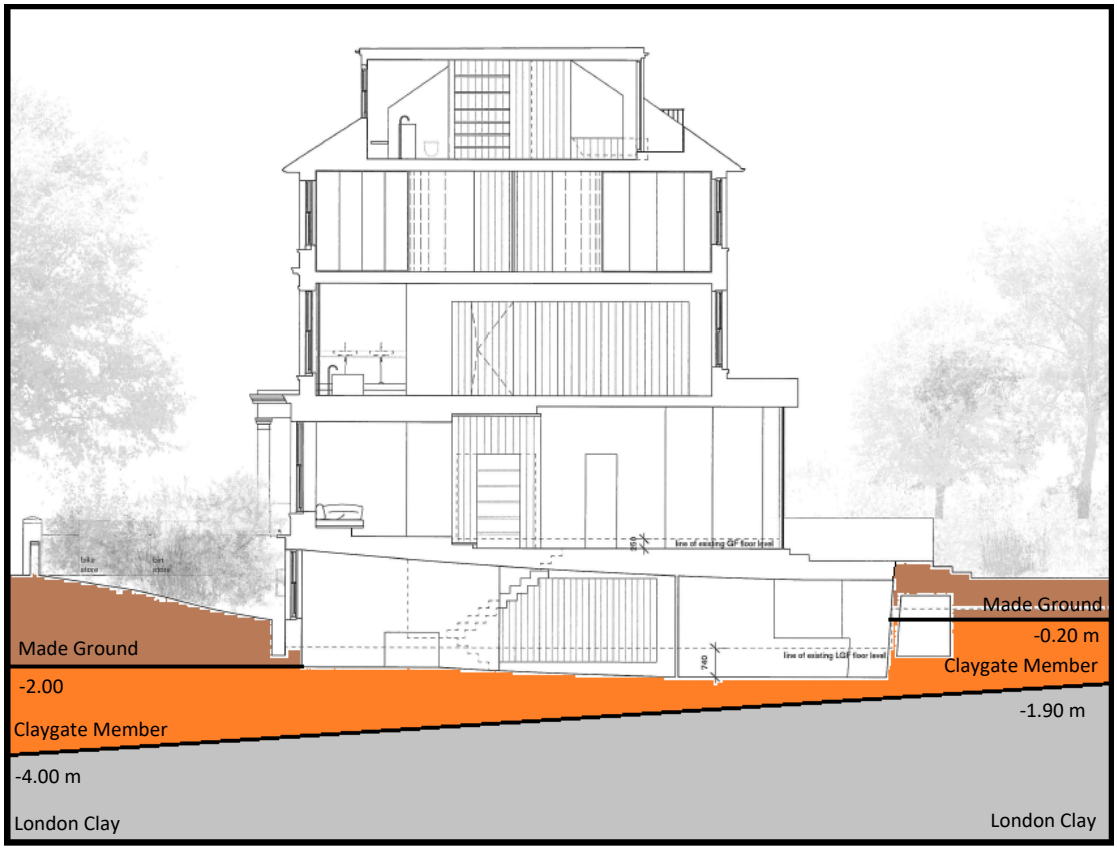
7.0 GROUND MODEL

The desk study findings have indicated that the site does not have a potentially contaminative history as it has apparently been developed with the existing house since prior to 1879, and on the basis of the fieldwork, the ground conditions at this site can be characterised as follows:

- below a nominal to moderate thickness of made ground, the Claygate Member is present, overlying the London Clay which extends to the maximum depth of the investigation, of 6.00 m below street level;
- the made ground comprises dark brown sandy silty clay with gravel and variable amounts of brick and ash and extends to depths of 0.20 m and 1.30 m below ground level in the rear garden and 2.00 m below street level at the front of the site;
- the Claygate Member comprises stiff pale grey mottled orange-brown slightly sandy slightly silty clay with rare rounded to sub-rounded fine to coarse gravel and extends to depths of between 1.90 m below rear garden level and 4.00 m below street level;
- in Borehole No 4, located in the southern corner of the rear garden, a layer of black peaty silty clay was encountered, extending from 1.30 m to 2.60 m below the level of the rear garden;
- the London Clay comprises stiff fissured brown slightly silty clay with occasional pale grey veins and selenite crystals and extends to the full depth of the investigation, of 6.00 m;
- groundwater is not generally present beneath the site at shallow depths but is present within the increased thickness of permeable material encountered in Borehole No 4 in the northwest of the site; and,
- the results of the chemical analyses have indicated all four of the samples tested to contain elevated concentrations of total PAH. Additionally, three of the samples were found to contain elevated concentrations benzo(a)pyrene and one of the samples was also found to contain elevated concentrations of naphthalene and total TPH.

7.1 Conceptual Site Model

A section through the proposed scheme with the above ground model is shown below.



8.0 ADVICE AND RECOMMENDATIONS

Excavations for the deepening of the lower ground floor level will require temporary support to maintain stability and to prevent any excessive ground movements and it is unlikely to be feasible to construct the basement without the requirement for some level of groundwater control, although due to the predominantly clayey nature of the Claygate Member, the required measures should be minimal and are unlikely to have any adverse impact on the existing groundwater conditions or any nearby sites.

The basement is to be deepened by 0.74 m and the foundations will extend approximately 1.20 m below this depth and therefore formation level for the proposed development is likely to be partially within the Claygate Member and partially within the underlying London Clay, which should provide an eminently suitable bearing stratum for spread foundations excavated from basement level.

8.1 Basement Excavation

8.1.1 Basement Construction

It is understood that it is proposed to deepen the existing basement level by 0.74 m beneath the footprint of the site and the rear deck in the back garden. As such, formation level is likely to be within the Claygate Member.

The investigation has indicated that groundwater is unlikely to be encountered within the basement excavation, although it is recommended that further monitoring is carried out to determine the extent of any seasonal fluctuations. The Claygate Member includes thin partings of fine sand and silt and the occurrence of groundwater into the basement will to a large extent be determined by the presence of these more permeable materials. Shallow inflows of perched water may also be encountered from within the made ground, particularly within the vicinity of the existing foundations.

The predominantly clayey nature of the Claygate Member suggests that the rate of inflow is likely to be very slow. Any potential inflows are unlikely to be significant and should be adequately dealt with through sump pumping. However, 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.

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.

It should be possible to form the retaining walls by underpinning of the existing foundations, using a traditional 'hit and miss' approach. Careful workmanship will be required to ensure that movement of the surrounding structures does not arise during underpinning of the existing foundations, but this method will have the benefit of minimising the plant required and maximising usable space in the new basement. The contractor should have a contingency in place to deal with any groundwater inflows.

The ground movements associated with the basement excavation will depend on the method of excavation and support and the overall stiffness of the basement structure in the temporary condition. Thus, a suitable amount of propping will be required to provide the necessary rigidity and in this respect the timing of the provision of support to the wall will have an important effect on movements. The stability of the adjacent foundations will need to be ensured at all times and the retaining walls will need to be designed to support the loads from these foundations unless they are underpinned.

8.1.2 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	25
Claygate Member	1900	Zero	25
London Clay	1950	Zero	23

Significant inflows of groundwater are unlikely to be encountered within the basement excavation, although monitoring of the standpipes should be continued in order to establish equilibrium levels. Consideration should however be given to the risk of surface water building up behind the retaining walls and unless adequate drainage can be incorporated to prevent such build-up, it is recommended that a water level of three-quarters of the retained

height be adopted in the design of new retaining walls. Reference should be made to BS8102:2009[10] with regard to requirements for waterproofing.

8.1.3 Basement Heave

The 0.74 m deep basement excavation will result in a net unloading of up to approximately 14 kN/m². The proposed excavations will result in elastic heave and long term swelling of the clay layers within the Claygate Member and the underlying London Clay. The effects of the longer term swelling movement will to a certain extent be counteracted by the applied loads from the development.

8.2 Spread Foundations

All new foundations or underpins should bypass the made ground to bear within the Claygate Member or underlying London Clay. New foundations or underpins bearing in the firm Claygate Member or underlying London Clay may be designed to apply a net allowable bearing pressure of 120 kN/m² below the level of the proposed lower ground floor. This value incorporates an adequate factor of safety against bearing capacity failure and should ensure that settlement remains within normal tolerable limits.

The depth of the basement excavation is expected to be such that foundations will be placed below the depth of actual or potential desiccation, but this should be checked once the proposals have been finalised, with the survey drawing showing former and existing trees. Notwithstanding NHBC guidelines, all foundations should extend beyond the zone of desiccation. In this respect it would be prudent to have all foundation excavations inspected by a suitably experienced engineer. Due allowance should be made for future growth of existing / proposed trees. The requirement for compressible material alongside foundations should be determined by reference to the NHBC guidelines.

If for any reason spread foundations are not considered appropriate, piled foundations would provide a suitable alternative.

8.3 Basement Floor Slabs

Following the proposed excavation a lightly loaded ground bearing floor slab could be adopted for the development and the slab will need to be designed to resist heave movements.

8.4 Shallow Excavations

On the basis of the borehole findings it is considered that shallow excavations for foundations and services that extend through the made ground should remain generally stable in the short term, although some instability may occur. 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.

Significant inflows of groundwater into shallow excavations are not generally anticipated, although seepages may be encountered from localised perched water tables within the made ground or from within more silty and sandy horizons within the Claygate Member, although such inflows should be suitably controlled by sump pumping.

If deeper excavations are considered it is recommended that provision be made for 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.

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

8.5 Effect of Sulphates

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

8.6 Site Specific Risk Assessment

The desk study findings indicate that the site does not have a potentially contaminative history as it has apparently been developed with the existing house since prior to 1879.

The results of the chemical analyses have indicated all four of the samples tested to contain elevated concentrations of total PAH. Additionally, three of the samples were found to contain elevated concentrations benzo(a)pyrene and one of the samples was also found to contain elevated concentrations of naphthalene and total TPH.

Further analysis of the concentrations of the constituent TPH compounds within the elevated concentration from Trial Pit No 1 has indicated elevated concentrations of aromatic chain lengths EC10-EC12, EC12-EC16 and EC16-EC21. There is no clear source of this contamination and the soil was not considered to contain clear visual or olfactory evidence of TPH contamination, but these portions of TPH are generally associated with substances such as heating oil. In any case, Trial Pit No 1 was advanced within the area of the proposed lower ground floor excavation and will therefore be removed during the site works and will not pose a risk to any potential receptors, other than site workers during the excavation.

The source of the PAH contamination is not known, although the made ground was noted as containing fragments of extraneous material and it is possible that these fragments, possibly coal or tarmac, could be the source of the contamination. Further analysis of the specific proportions of individual PAHs are indicative of this material being coal tar based tarmac or bitumen in two of the samples, while an uncertain origin was indicated in the other two samples. As a result, the contamination is considered likely to be in an insoluble form such that it does not pose a risk to groundwater, buried services or adjacent sites. Additionally, where the site is to be hardcovered a pathway will not exist to end users such that remedial measures in this respect will not be required. However, in areas of soft landscaping remedial measures should be considered with respect to end users and measures will be required to protect site workers during the groundworks.

8.6.1 End Users

End users will be effectively isolated from any potential contamination within the extent of the existing and proposed structures, such that, only in proposed garden areas could end users conceivably come into direct contact with the contaminated soils, although this pathway is already in existence.

At this stage it is recommended that a cover thickness of imported subsoil and topsoil of 600 mm in thickness should be specified for any areas of new landscaping in accordance with recommendations from BRE[11]. It is likely to be possible to reduce the final thickness of cover required, but this will need to be determined once final levels have been established and the concentrations of potential contaminants within the imported material and in the soils at formation level are known.

11 BRE (2004) *Cover systems for land regeneration. Thickness of cover systems for contaminated land.* BRE pub 465

8.6.2 Protection of Site Workers

Site workers should be made aware of the potential contamination and a programme of working should be identified to protect workers handling any soil. The method of site working should be in accordance with guidelines set out by HSE[12] and CIRIA[13] and the requirements of the Local Authority Environmental Health Officer.

A watching brief should be maintained during the site works and if any suspicious soil is encountered, it should be inspected by a suitably qualified engineer and further testing carried out if required.

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-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[14] 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[15] 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 £96.70 per tonne (about £180 per m^3) or at the lower rate of £3.10 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 upon 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	£91.35/tonne (Standard rate)
Natural Soils	Inert (17 05 05)	Should not be required but confirm with receiving landfill	£2.90 / tonne (Reduced rate for uncontaminated naturally occurring rocks and soils)

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

12 HSE (1992) HS(G)66 *Protection of workers and the general public during the development of contaminated land* HMSO
13 CIRIA (1996) *A guide for safe working on contaminated sites* Report 132, Construction Industry Research and Information Association
14 Environment Agency 2015. *Guidance on the classification and assessment of waste.* Technical Guidance WM3 First Edition
15 CL:AIRE March 2011. *The Definition of Waste: Development Industry Code of Practice* Version 2

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[16] 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.

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

Part 3: GROUND MOVEMENT ASSESSMENT

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 a basement 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 during underpinning and the efficiency or stiffness of any support structures used.

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

9.1 Basis of Ground Movement Assessment

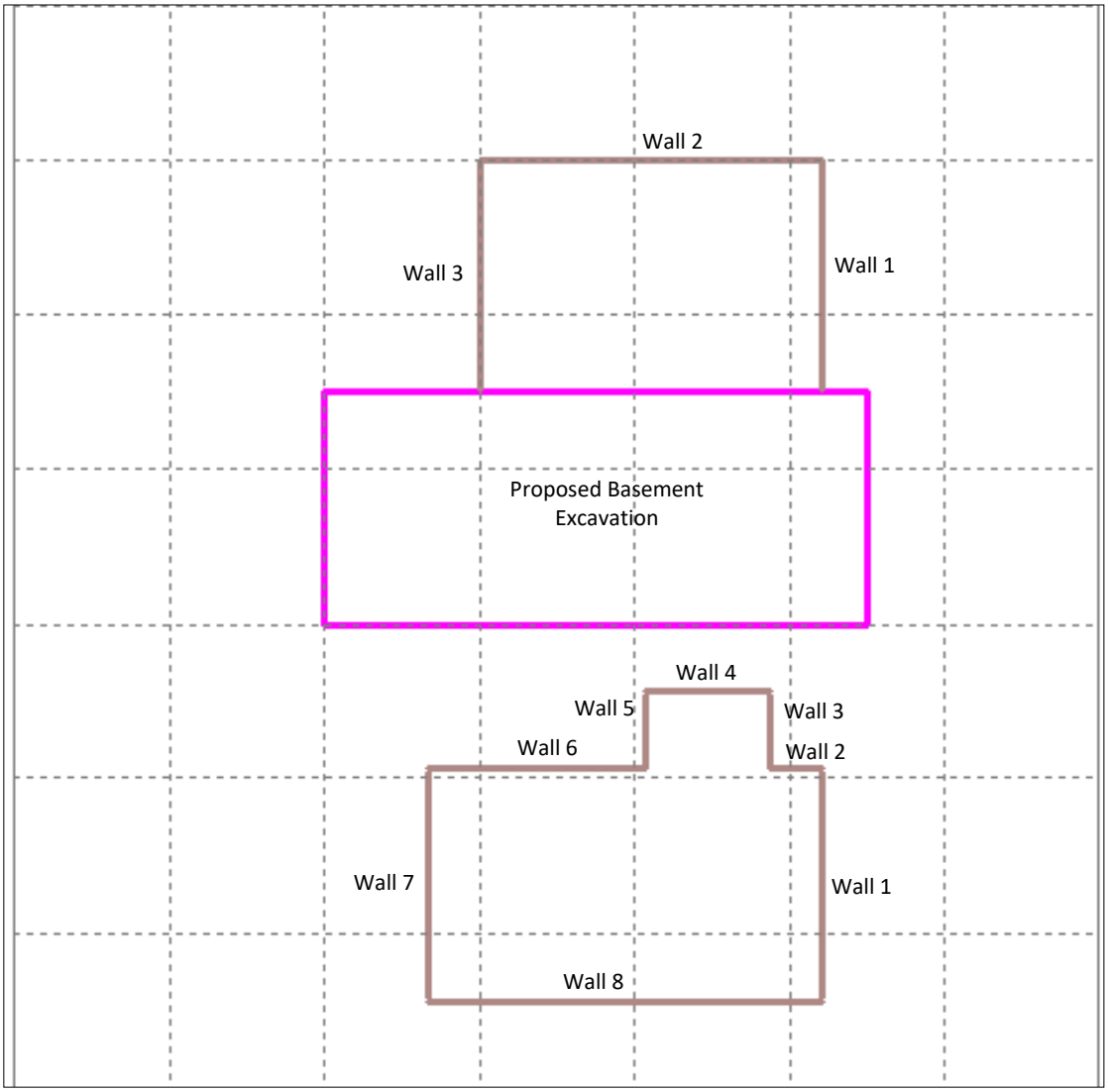
9.1.1 Nearby Sensitive Structures

The sensitive structures relevant to this assessment are considered to be the neighbouring properties of Nos 1 and 3 Thurlow Road. A plan showing the locations of the site and neighbouring buildings is included overleaf, which also indicates the individual elevations assessed for associated building damage and the referencing used within the analysis.

For the purposes of this assessment the foundations of the neighbouring buildings are assumed to be at the same depth as those encountered during the trial pitting investigation, of 0.50 m below lower ground floor level.

Building height information was not available at the time of the assessment and so a standard storey height of 3.50 m has been assumed in this respect. Each of the structures is four-storeys in height and, on the basis of a 0.50 m deep foundation, a total structure height for all of the analysed walls of 14.50 m has been assumed.

The proposed excavation will result in lowering of the lower ground floor by a maximum depth of 0.74 m, however the foundations and underpinning will extend a further 1.20 m below proposed finished floor level. As a result, in the interest of conservatism the basement excavation has been modelled as a 1.95 m excavation in this assessment.



9.2 Construction Sequence

The following sequence of operations has been adopted for the purpose of the analysis:

1. Install temporary props to existing superstructure;

2. Carry out underpinning of existing foundations using a 'hit and miss' method of panel widths no more than 1 m;

3. Excavate basement installing temporary props and corner bracing;

4. Cast basement raft slab; and,

5. Remove temporary propping.

The underpins 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.

10.0 GROUND MOVEMENTS

An assessment of ground movements within and surrounding the excavation has been undertaken using the P-Disp Version 20.0 – Build 12 and X-Disp Version 20.0 software packages licensed from the OASYS suite of geotechnical modelling software from Arup. This program is commonly used within the ground engineering industry and is considered to be an appropriate tool for this analysis. The use of the P-Disp program is based on the assumption that the soils behave elastically, which provides a reasonable approximation of soil behaviour at small strains.

For the purpose of these analyses, the corners have been defined by x and y coordinates, with the x-direction orientated approximately northeast-southwest, whilst the y-direction is orientated approximately northwest-southeast. Vertical movement is in the z-direction. All walls have been modelled as 1 m long structural elements.

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 and the tables of movements are included within the appendix.

10.1 Ground Movements – Resulting from the Excavation (Heave)

10.1.1 Model Used

Vertical movement, in the form of heave, will arise from the unloading of the Claygate Member and underlying London Clay due to the reduction of vertical stress, at least in the short-term. 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 movement, which includes long term swelling that will continue for a number of years.

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 and we have used a well-established method to provide our estimates. This relates values of E_u and E', the drained and undrained stiffness respectively, to values of undrained cohesion, as described by Padfield and Sharrock[17] and Butler[18] and more recently by O'Brien and Sharp[19]. Relationships of $E_u = 500\ C_u$ and $E' = 300\ C_u$ for the cohesive soils and 2000 x SPT 'N' for granular soils have been used to obtain values of Young's modulus.

The soil parameters used in this analysis are tabulated overleaf, which have been taken from the aforementioned previous GEA investigations.

[17] Padfield CJ and Sharrock MJ (1983) *Settlement of structures on clay soils*. CIRIA Special Publication 27
[18] Butler FG (1974) *Heavily overconsolidated clays: a state of the art review.* Proc Conf Settlement of Structures, Cambridge, 531-578, Pentech Press, Lond
[19] O'Brien AS and Sharp P (2001) *Settlement and heave of overconsolidated clays - a simplified non-linear method.* Part Two, Ground Engineering, Nov 2001, 48-53

Stratum	Level range (m below lower ground floor level)	Eu (MPa)	E' (MPa)
Made Ground	GL to 0.40 m	10.0	5.0
Claygate Member	0.40 m to 1.60	12.5 to 15.0	7.5 to 9.0
London Clay	1.60 to 107.50	15.0 to 150.0	9.0 to 90.0

A rigid boundary for the analysis has been set at 107.50 m below ground level as reference to nearby archive borehole data (TQ28NE304, advanced at 526640, 185660) from the BGS indicates the London Clay to extend to this depth in the area of the site. Below this depth the Lambeth Group will be present and these soils are considered to be essentially incompressible and are unlikely to be affected by a development of this scale.

The excavation of the basement will result in a net unloading of about 15 kN/m^2 due to the proposed excavation of a 0.74 m thickness of soil below the level of the existing lower ground floor level. Proposed loading is not known and has been ignored for the purposes of this analysis which will provide a conservative estimate of maximum heave to be anticipated beneath the building as the loads will limit this heave in practice.

10.1.2 Results

The full predicted movements are summarised in the contour plots and tables within the appendix; the results are presented 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 P-Disp analysis indicates that in the short term, about 5 mm of heave can be expected across the basement excavation, reducing to less than 3 mm at the edges. With the loads of the existing building ignored, a maximum heave movement of 12 mm is predicted in the centre of the excavation, reducing to about 7 mm around the edges. In practice the loads of the building will restrain this movement to a large degree. Once the loading arrangement has been finalised the analysis could be updated to confirm the maximum heave that will occur in practice.

10.2 Ground Movements – Surrounding the Excavation

10.2.1 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[20], 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 possible to use the well-documented predictions and movement curves for embedded retaining walls contained within CIRIA C760, and as such, in order to model potential movements associated with the installation of the underpins, the movement curves for 'installation of planar diaphragm wall in stiff clay' has been adopted. This is considered to be a conservative approach but suitable for an initial assessment.

The ground movement curves for 'excavations in front of a high stiffness wall in stiff clay' have been adopted for the proposed excavation phase.

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

10.2.2 Results

The results are presented 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 predicted movements are based on the worst case of the individually analysed segments of 'hogging' and 'sagging' and these are summarised in the tables below.

Phase of Works	Maximum Movements due to Wall Deflection (mm)	
	Vertical Settlement	Horizontal Movement
Combined movements from wall installation and excavation	2	4

The analysis has indicated that the maximum vertical and horizontal settlements that will result from the combined retaining wall installation and lower ground floor excavation are likely to fall below 5 mm. The movements set out in the tables above are the maximum movements and the analysis has indicated that they occur immediately or just outside the line of the retaining walls.

It should be noted that the appended contour plots indicate an area of increased movements at the rear of the excavation, in the area in between the various sections of basement. This is due to movements from the respect elevations being combined together. In reality the movements will not be realised and any case will not impact the neighbouring properties.

11.0 BUILDING 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[21].

The results above have been used to predict the building damage category for each sensitive structure and these are shown in the section below. A summary page showing the individual results for each sensitive structure is appended.

11.1 Damage to Neighbouring Structures

The movements resulting from the wall installation phase and the combined retaining wall installation and basement excavation phases, have been estimated using the X-Disp modelling software to carry out an assessment of the likely damage to adjacent properties and the results are summarised for the combined wall installation and excavation in the table below.

The building damage reports for sensitive structures predict that the damage to the nearby structures would fall within Category 0 (negligible) and Category 1 (very slight), such that the predicted building damage category falls within acceptable limits.

11.2 Monitoring of Ground Movements

Movement of the magnitude predicted can be difficult to monitor accurately during construction. In order to allow a suitable monitoring strategy to be established the analysis has

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

been run using movement curves based on both horizontal and vertical movements of 5 mm and then 6 mm, and the results of the analyses are included in the appendix. The findings have indicated that, provided the ground movements resulting from the development can be kept below 6 mm, damage to neighbouring properties should remain within tolerable limits.

The predictions of ground movement based on the ground movement analysis should be checked by monitoring of adjacent properties and structures. The structures to be monitored during the construction stages should include all of the sensitive structures included within the assessment.

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.

12.0 CONCLUSIONS

The analysis has concluded that the predicted damage to the neighbouring properties from the construction of the underpins and excavations would be 'Negligible' to 'Very Slight' and therefore the damage that would occur would fall within the acceptable limits provided movements can be kept to below 6 mm, which, in view of the proposed depth of the underpinning and excavation, should be feasible.

Whilst it is recommended that movement monitoring is carried out on all structures prior to and during the proposed excavation and construction, it is unlikely that specification of these works will be required as part of the planning conditions, but may be required in order to satisfy party wall awards.

Part 4: BASEMENT IMPACT ASSESSMENT

13.0 BASEMENT IMPACT ASSESSMENT

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.

The table below summarises the previously identified potential impacts of the development and the following paragraphs detail the additional information that is now available from the site investigation and how this will effect each potential impact.

Potential Impact	Site Investigation Conclusions
The site is located directly above an aquifer.	The Claygate Member is classified a Secondary 'A' Aquifer due to the presence of sand beds in some areas. However, the site investigation established the Claygate Member beneath the site to comprise predominantly silty sandy clay and therefore not capable of behaving as a Secondary Aquifer. Groundwater was encountered within the Claygate Member, such that some form of dewatering may be required. However, as the Claygate Member predominantly comprises clay strata which do not support groundwater flow or a water table, the potential for impacting on the local groundwater regime is negligible.
The proposed basement may extend beneath the water table surface.	A continuous groundwater level has not been encountered below the site, although perched groundwater is present within the made ground. Such inflows are unlikely to be sustained and therefore the basement structure will not pose a risk to the hydrogeological or hydrological setting, particularly as adequate space will remain around the basement structure
The site is within an area likely to be affected by seasonal shrink-swell	The Claygate Member can be prone to seasonal shrink-swell and can cause structural damage. Desiccation was not noted during the investigation. No trees are present in close proximity to the proposed new foundations and in any case the depth to which the footings are to extend are likely to bypass the depth of soil that is likely to be affected by trees.
The development may increase the differential founding depth	The investigation has indicated that the existing foundations of the house extend to depths of between 0.50 m and 0.54 m below existing lower ground floor level. It is proposed to deepen the lower ground floor level by 0.74 m and adopt a 250 mm thick slab, over a 950 mm thick foundation which would result in a total underpinning depth of approximately 1.50 m. As a result, it is considered unlikely that any significant movements would occur if the underpins are constructed correctly by a competent contractor.

The site is underlain by a Secondary 'A' Aquifer / The proposed basement may extend beneath the water table surface

The site is underlain by the silty sandy clays of the Claygate Member, which are designated as a Secondary 'A' Aquifer. However in the absence of any significant saturated permeable sand dominated horizons beneath the site the Claygate Member has the hydraulic characteristics of Non Productive strata.

A continuous groundwater table has not been encountered during the investigation, with groundwater seepages only encountered within the Claygate Member in a single location during the drilling of the boreholes.

It is proposed to incorporate sufficient drainage as part of the retaining wall design, which will prevent the build-up of any perched groundwater around the proposed structure, preventing any effect on neighbouring properties.

Given these factors and the fact that there will be space around and beneath the proposed basement construction, it is not considered that it will have any significant influence on the local hydrogeology and will not therefore have any potential impact on any adjoining sites, particularly those to the northeast, which would ordinarily be considered to be 'downstream' of the site.

Seasonal Shrink-Swell

The proposed basement will extend to a depth such that new foundations will be expected to bypass any desiccated soils.

Subject to inspection of foundation excavations in the normal way to ensure that there is not significant unexpectedly deep root growth, it is not considered that the occurrence of shrink-swell issues in the local area has any bearing on the proposed development.

The proposed basement may significantly increase the differential depth of foundations relative to neighbouring properties

A search of the Camden planning portal has not indicated the adjacent buildings on either side of the subject site to have basement levels, but as they are of similar construction to the building on the site, were constructed at the same time and, from observations made from the street, clearly have some form of lower ground floor level. We have therefore assumed that the adjacent structures have similar foundation and finished floor levels as that on the subject site. Therefore the new development will increase the foundation depth by about 1.50 m below the base of the existing footings. Underpins constructed correctly by a competent contractor should not result in a significant amount of movement and building damage. The results of the ground movement analysis have confirmed this view.

13.1 BIA Conclusion

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.

13.2 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.

13.2.1 Screening

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?	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 and existing plans of the site have confirmed that the proposed basement scheme will not increase the amount of hardstanding.
3. Will the proposed basement development result in a change in the proportion of hard surfaced / paved areas?	
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?	As above.
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 SFRA dated 2014.

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?	Site investigation.
2. Is the site within 100 m of a watercourse, well (used/ disused) or potential spring line?	Historical maps acquired as part of the desk study 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 that the basement development will only replace existing hardstanding areas.
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 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°?	Site survey drawing 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 and confirmed during a site walkover
4. Is the site within a wider hillside setting in which the general slope is greater than 7°?	
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 site walkover and information from the structural engineers indicates that no trees are being removed as a result of the redevelopment.
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 and the Lost Rivers of London book.
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.

9.2.2 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 and the engineering properties of the underlying soils to enable suitable design of the basement development. The findings of the investigation are discussed in Part 2 of this report and summarised in the Executive Summary.

9.2.3 Impact Assessment

Section 10.0 of this report summarises whether or not, 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.

14.0 OUTSTANDING RISKS AND 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.

It would be prudent, once access is available, to carry out a number of trial excavations, to depths as close to the full basement depth as possible, to provide an indication of the likely groundwater conditions. Continued monitoring of the standpipes to establish any seasonal fluctuations and a groundwater design line is also recommended.

APPENDIX

Site Plan

Borehole Records

Trial Pit Records

Geotechnical Test Results

SPT & Cohesion/Depth Graph

Contamination Test Results

Generic Risk-Based Screening Values

Envirocheck Extracts

Historical Maps

UXO Preliminary Risk Assessments

Ground Movement Analysis Results:
PDISP
XDISP

GEA

Geotechnical & Environmental Associates
Widbury Barn | Widbury Hill | Ware | SG12 7QE

Site
2 Thurlow Road, London NW3 5PJ

Number
BH1

Excavation Method
Opendrive Percussive Sampler (Terrier rig)

Dimensions

Ground Level (mOD)

Client
Mr Philippe Bodereau

Job Number
J21377

Location

Dates
19/01/2022

Engineer
Momentum

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.50	D1				(2.00)	Made Ground (brown sandy slightly silty clay with gravel, brick and ash fragments)		
1.00-1.45	SPT N60=11	DRY	2,2/2,2,3,3					
2.00-2.45	SPT N60=14	DRY	3,3/3,3,3,3		2.00	Stiff pale grey mottled orange-brown slightly sandy slightly silty CLAY		
2.50	D2				(2.00)			
3.00-3.45	SPT N60=12	DRY	2,2/3,3,3,2					
3.30	D3				4.00	Stiff fissured brown CLAY with bluish grey veins and selenite crystals		
4.00-4.45	SPT N60=15	DRY	2,3/3,3,3,4					
4.50	D4				(2.45)			
5.00-5.45	SPT N60=16	DRY	3,3/3,4,4,3					
5.50	D5				6.45	Complete at 6.45m		
6.00-6.45	SPT N60=17	DRY	3,3/3,4,4,4					

Remarks
Groundwater not encountered.
Groundwater monitoring standpipe installed to 6.00 m.

Scale (approx)
1:50

Logged By
AT

Figure No.
J21377.BH1

GEA

Geotechnical & Environmental Associates
Widbury Barn | Widbury Hill | Ware | SG12 7QE

Site
2 Thurlow Road, London NW3 5PJ

Number
BH2

Excavation Method
Opendrive Percussive Sampler (Terrier rig)

Dimensions

Ground Level (mOD)

Client
Mr Philippe Bodereau

Job Number
J21377

Location

Dates
19/01/2022

Engineer
Momentum

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.50	D1				(2.00)	Made Ground (brown sandy slightly silty clay with gravel, brick and ash fragments)		
1.00-1.45	SPT N60=9	DRY	2,2/2,2,2,2					
2.00-2.45	SPT N60=8	DRY	2,2/1,2,2,2		2.00	Stiff pale grey mottled orange-brown slightly sandy slightly silty CLAY		
2.20	D2							
3.00-3.45	SPT N60=14	DRY	2,2/3,3,3,3		(2.00)			
3.50	D3							
4.00-4.45	SPT N60=15	DRY	3,3/3,3,3,4		4.00	Stiff fissured brown CLAY with bluish grey veins and selenite crystals		
5.00-5.45	SPT N60=14	DRY	3,4/3,3,3,3		(2.45)			
5.00	D4							
6.00-6.45	SPT N60=16	DRY	3,3/3,4,4,3		6.45	Complete at 6.45m		

Remarks
Groundwater not encountered.
Groundwater monitoring standpipe installed to 6.00 m.

Scale (approx)
1:50

Logged By
AT

Figure No.
J21377.BH1

GEA Geotechnical & Environmental Associates Widbury Barn | Widbury Hill | Ware | SG12 7QE	Site 2 Thurlow Road, London NW3 5PJ	Number **BH3**
Excavation Method Drive-in Windowless Sampler	**Dimensions** / **Ground Level (mOD)**	**Client** Mr Philippe Bodereau	**Job Number** J21377
Location	**Dates** 19/01/2022	**Engineer** Momentum	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.10	D1				(0.20) 0.20	Made Ground (brown sandy slightly silty clay with gravel, brick and ash fragments)		
0.50	D2					Firm becoming stiff brown mottled grey slightly sandy silty CLAY with rare rounded to subrounded fine to coarse gravel		
1.50	D3				(1.70) 1.90			
2.30	D4					Stiff fissured brown slightly silty CLAY with bluish grey veins		
3.20	D5				(1.50) 3.40			
						Complete at 3.40m		

Remarks
Groundwater not encountered.
Groundwater monitoring standpipe installed to 3.00 m.

Scale (approx)	Logged By
1:50	AT

Figure No.
J21377.BH1

GEA Geotechnical & Environmental Associates Widbury Barn | Widbury Hill | Ware | SG12 7QE	Site 2 Thurlow Road, London NW3 5PJ	Number **BH4**

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler			Mr Philippe Bodereau	J21377
	Location	**Dates** 19/01/2022	**Engineer** Momentum	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(1.30)	Made Ground (brown sandy slightly silty clay with gravel, brick and concrete fragments)		
1.00	D1				1.30			
					(0.50)	Made Ground (dark brown organic silty slightly sandy clay)		
					1.80			
2.00	D2		Moderate Inflow(1) at 2.00m.		(0.80)	Made Ground (blackish brown soft peaty organic silty clay with occasional wood and rare brick fragments)		▽1
					2.60			
					(0.80)	Stiff fissured brown slightly silty CLAY with bluish grey veins		
3.20	D3				3.40			
						Complete at 3.40m		

Remarks	Scale (approx)	Logged By
	1:50	AT
	Figure No.	
	J21377.BH1	

GEA	www.gea-ltd.co.uk Herts | 01727 824666 Notts | 01509 674888	**Trial Pit No** 1

Site 2 Thurlow Road, London NW3 5PJ

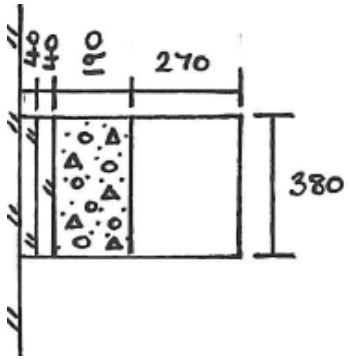
Client Mr Philippe Bodereau

Engineer Momentum

Job Number
J21377
Sheet
1'1
Dates
19/01/2022

Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Location**
Manual	540 x 380 x 740		

PLAN:



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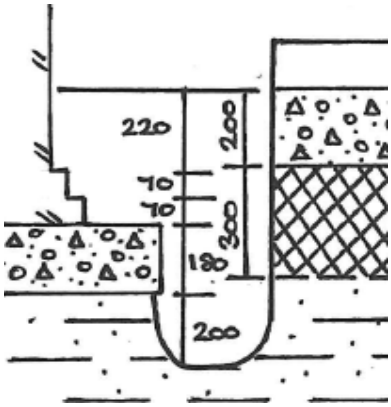


Decking

Concrete

Made Ground (orange-brown sand and brown sandy clay with gravel and occasional brick fragments)

Firm brown mottled grey slightly sandy silty CLAY with rare rounded to subrounded fine to coarse gravel

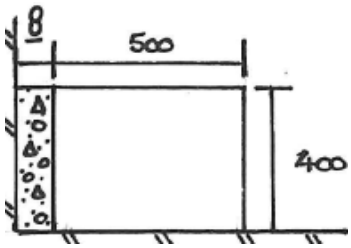
Remarks:	Scale:
All dimensions in millimetres	01:20
Sides of trial pit remained stable during excavation	Logged by:
Groundwater not encountered	AT

GEA	www.gea-ltd.co.uk Herts | 01727 824666 Notts | 01509 674888	**Trial Pit No** 2

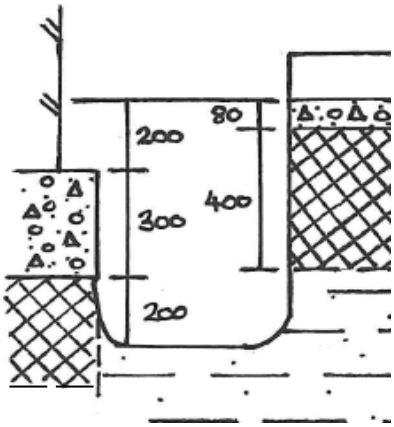
Site 2 Thurlow Road, London NW3 5PJ	**Job Number** J21377
Client Mr Philippe Bodereau	**Sheet** 1'1
Engineer Momentum	**Dates** 19/01/2022

Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Location**
Manual	600 x 400 x 700		

PLAN:



SECTION:



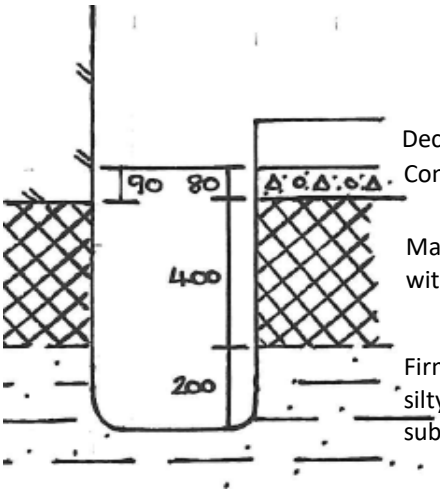
Decking

Concrete

Made Ground (brown sandy silty clay with gravel and brick fragments)

Firm brown mottled grey slightly sandy silty CLAY with rare rounded to subrounded fine to coarse gravel

SECTION:



Decking

Concrete

Made Ground (brown sandy silty clay with gravel and brick fragments)

Firm brown mottled grey slightly sandy silty CLAY with rare rounded to subrounded fine to coarse gravel

Remarks:	Scale:
All dimensions in millimetres	01:20
Sides of trial pit remained stable during excavation	Logged by:
Groundwater not encountered	AT

SUMMARY OF GEOTECHNICAL TESTING

Sample details					Classification Tests					Density Tests		Undrained Triaxial Compression				Chemical Tests			Other tests and comments
Location	Depth (m)	Sample Ref	Type	Description	WC %	LL %	PL %	PI %	<425 µm %	Bulk Mg/m³	Dry Mg/m³	Condition	Cell Pressure kPa	Deviator Stress kPa	Shear Stress kPa	pH	2:1 W/S SO4 g/L	W/S Mg mg/L	
BH1	2.50		D													8.6	< 0.010		
BH1	3.30		D	Brown, orangish brown and dark brown slightly sandy CLAY.	22.8	52	18	34	100										
BH1	5.50		D	Brown and orangish brown slightly sandy CLAY.	32.7	71	27	44	100										
BH2	3.50		D	Brown and reddish brown slightly sandy CLAY.	24.2	28	18	10	100										
BH2	5.00		D													8.7	0.14		
BH3	0.50		D	Brown and grey slightly gravelly slightly sandy CLAY.	20.2	35	15	20	99										
BH3	1.50		D													8.7	< 0.010		
BH3	3.20		D	Brown and grey slightly sandy CLAY.	30.5	67	25	42	100										
BH4	2.00		D	Black oxidised brown organic clayey SILT with rare fine gravel.	100	94	44	50	95										

Sample type: B (Bulk disturb.) BLK (Block) C (Core) D (Disturbed) LB (Large Bulk dist.) U (Undisturbed)

Checked and Approved by

J Sturges - Operations Manager
15/02/2022

Project Number:

GEO / 34715

Project Name:

2 THURLOW ROAD
J21377

GEOLABS®

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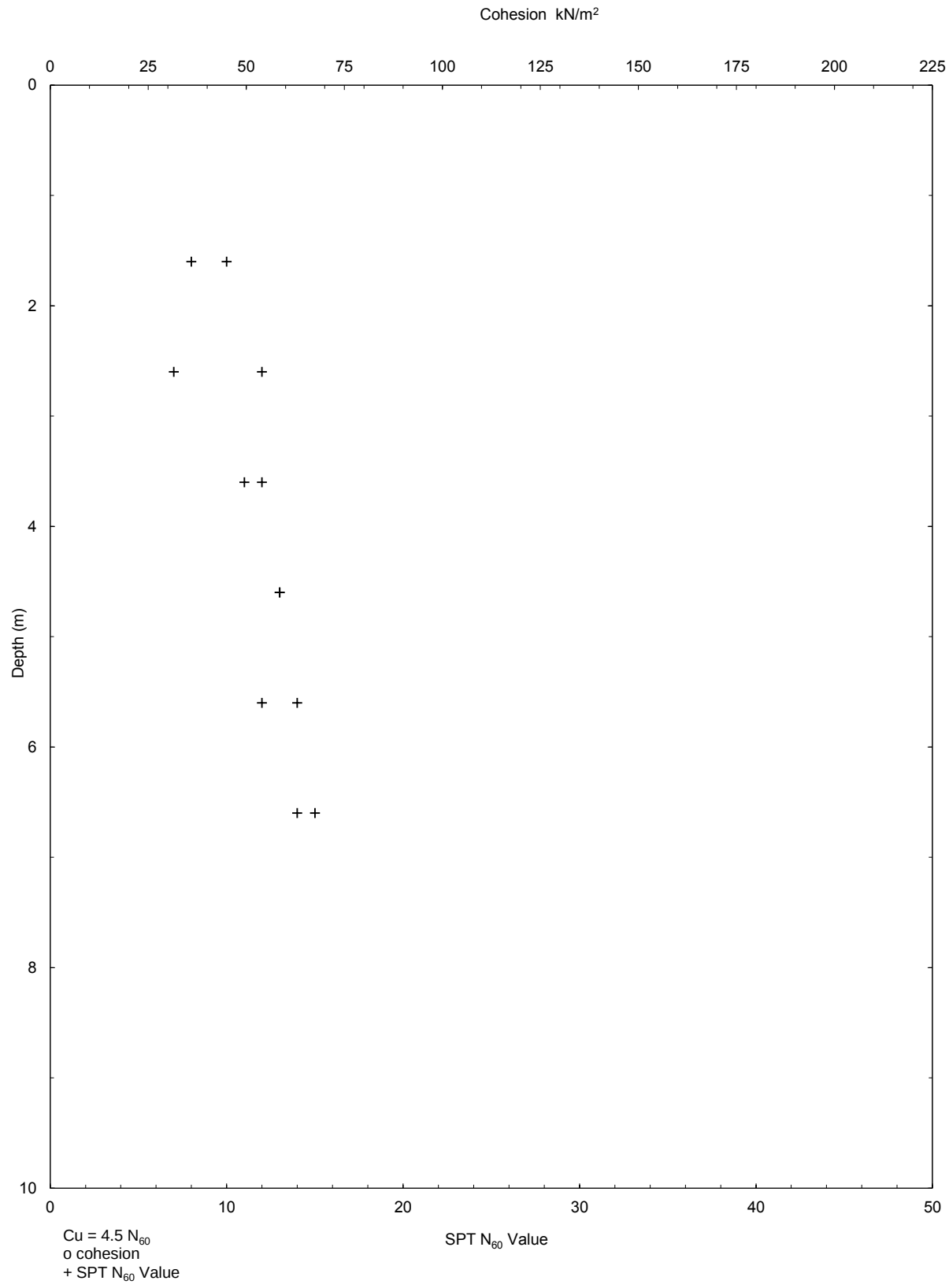
SPT & Cohesion / Depth Graph

Site	2 Thurlow Road, London NW3 5PJ
Client	Mr Philippe Bodereau
Engineer	Momentum

Job Number J21377

Sheet 1 / 1



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Analytical Report Number : 22-34853

Replaces Analytical Report Number: 22-34853, issue no. 1
Additional analysis undertaken.

Project / Site name:	2 Thurlow Road	**Samples received on:**	24/01/2022
Your job number:	J21377	**Samples instructed on/ Analysis started on:**	24/01/2022
Your order number:	J21277	**Analysis completed by:**	02/02/2022
Report Issue Number:	2	**Report issued on:**	02/02/2022
Samples Analysed:	4 soil samples		

Signed:

Joanna Wawrzeczko
Technical Reviewer (Reporting Team)
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: 22-34853
Project / Site name: 2 Thurlow Road
Your Order No: J21277

Lab Sample Number				2146505	2146506	2146507	2146508
Sample Reference				TP1	BH3	BH4	BH2
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.10	1.00	0.50
Date Sampled				19/01/2022	19/01/2022	19/01/2022	19/01/2022
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	18	18	22	13
Total mass of sample received	kg	0.001	NONE	0.40	1.2	0.50	0.80
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MJN	MJN	MJN	MJN
General Inorganics							
pH - Automated	pH Units	N/A	MCERTS	8.6	9.5	8.2	9.4
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	450	1900	150	870
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.056	0.18	0.046	0.065
Sulphide	mg/kg	1	MCERTS	42	22	12	1.8
Water Soluble Chloride (2:1)	mg/kg	1	MCERTS	190	48	79	540
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.8	0.6	0.2	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	52	1.3	1.0	1.1
Acenaphthylene	mg/kg	0.05	MCERTS	17	4.5	1.3	0.57
Acenaphthene	mg/kg	0.05	MCERTS	66	1.2	8.1	0.30
Fluorene	mg/kg	0.05	MCERTS	42	6.2	8.2	0.46
Phenanthrene	mg/kg	0.05	MCERTS	110	16	22	3.9
Anthracene	mg/kg	0.05	MCERTS	25	3.7	5.3	1.2
Fluoranthene	mg/kg	0.05	MCERTS	32	12	5.9	9.8
Pyrene	mg/kg	0.05	MCERTS	55	20	9.6	8.7
Benzo(a)anthracene	mg/kg	0.05	MCERTS	14	7.1	3.0	6.9
Chrysene	mg/kg	0.05	MCERTS	12	5.6	2.0	4.4
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	7.9	6.1	1.3	6.9
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	5.4	2.6	0.75	4.7
Benzo(a)pyrene	mg/kg	0.05	MCERTS	11	7.1	1.8	7.4
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	3.4	2.6	0.56	4.2
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	1.1	0.59	< 0.05	1.0
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	4.4	3.4	0.75	4.9
Total PAH							
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	460	99.8	71.7	66.4
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	25	22	20
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19	21	28	23
Copper (aqua regia extractable)	mg/kg	1	MCERTS	26	40	22	33
Lead (aqua regia extractable)	mg/kg	1	MCERTS	38	120	12	88
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	0.5	< 0.3	0.9
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	17	25	33	27
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	120	210	58	110

Analytical Report Number: 22-34853
Project / Site name: 2 Thurlow Road
Your Order No: J21277

Lab Sample Number				2146505	2146506	2146507	2146508
Sample Reference				TP1	BH3	BH4	BH2
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.10	1.00	0.50
Date Sampled				19/01/2022	19/01/2022	19/01/2022	19/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Monoaromatics & Oxygenates							
Benzene	µg/kg	1	MCERTS	< 1.0	-	-	-
Toluene	µg/kg	1	MCERTS	< 1.0	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-
p & m-xylene	µg/kg	1	MCERTS	< 1.0	-	-	-
o-xylene	µg/kg	1	MCERTS	< 1.0	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	-	-
Petroleum Hydrocarbons							
TPH C10 - C40 EH_CU_1D_TOTAL	mg/kg	10	MCERTS	1700	450	370	130
TPH-CWG - Aliphatic >EC5 - EC6 HS_1D_AL	mg/kg	0.001	MCERTS	< 0.001	-	-	-
TPH-CWG - Aliphatic >EC6 - EC8 HS_1D_AL	mg/kg	0.001	MCERTS	< 0.001	-	-	-
TPH-CWG - Aliphatic >EC8 - EC10 HS_1D_AL	mg/kg	0.001	MCERTS	< 0.001	-	-	-
TPH-CWG - Aliphatic >EC10 - EC12 EH_CU_1D_AL	mg/kg	1	MCERTS	4.9	-	-	-
TPH-CWG - Aliphatic >EC12 - EC16 EH_CU_1D_AL	mg/kg	2	MCERTS	27	-	-	-
TPH-CWG - Aliphatic >EC16 - EC21 EH_CU_1D_AL	mg/kg	8	MCERTS	28	-	-	-
TPH-CWG - Aliphatic >EC21 - EC35 EH_CU_1D_AL	mg/kg	8	MCERTS	18	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35) EH_CU+HS_1D_AL	mg/kg	10	MCERTS	78	-	-	-
TPH-CWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.001	MCERTS	< 0.001	-	-	-
TPH-CWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.001	MCERTS	< 0.001	-	-	-
TPH-CWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.001	MCERTS	< 0.001	-	-	-
TPH-CWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	90	-	-	-
TPH-CWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	630	-	-	-
TPH-CWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	670	-	-	-
TPH-CWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	220	-	-	-
TPH-CWG - Aromatic (EC5 - EC35) EH_CU+HS_1D_AR	mg/kg	10	MCERTS	1600	-	-	-
TPH (C8 - C10) HS_1D_TOTAL	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12) EH_CU_1D_TOTAL	mg/kg	2	MCERTS	95	2.7	8.7	< 2.0
TPH (C12 - C16) EH_CU_1D_TOTAL	mg/kg	4	MCERTS	650	65	110	6.7
TPH (C16 - C21) EH_CU_1D_TOTAL	mg/kg	1	MCERTS	690	170	170	42
TPH (C21 - C35) EH_CU_1D_TOTAL	mg/kg	1	MCERTS	240	160	72	80
TPH Total C8 - C35 EH_CU+HS_1D_TOTAL	mg/kg	10	MCERTS	1700	400	370	130

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-34853
Project / Site name: 2 Thurlow 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 *
2146505	TP1	None Supplied	0.3	Brown clay and sand with gravel.
2146506	BH3	None Supplied	0.1	Brown clay and sand with gravel and vegetation.
2146507	BH4	None Supplied	1	Brown clay and sand with gravel and vegetation.
2146508	BH2	None Supplied	0.5	Brown clay and sand with gravel.

Analytical Report Number : 22-34853
Project / Site name: 2 Thurlow 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
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
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
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion 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
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE
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
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	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

Analytical Report Number : 22-34853
Project / Site name: 2 Thurlow 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
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
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' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' 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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Analytical Report Number : 22-34856

Project / Site name:	2 Thurlow Road	**Samples received on:**	24/01/2022
Your job number:	J21377	**Samples instructed on/ Analysis started on:**	24/01/2022
Your order number:	J21377	**Analysis completed by:**	03/02/2022
Report Issue Number:	1	**Report issued on:**	03/02/2022
Samples Analysed:	1 wac multi sample		

Signed:

Joanna Wawrzeczko
Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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Waste Acceptance Criteria Analytical Results

Report No:	**22-34856**						
					Client:	**GEA**	
Location	**2 Thurlow Road**						
Lab Reference (Sample Number)	2146511				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	19/01/2022				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	TP1						
Depth (m)	0.30						
Solid Waste Analysis							
TOC (%)**	0.7				3%	5%	6%
Loss on Ignition (%) **	1.8				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.30				1	--	--
Mineral Oil (mg/kg) $_{EH\_1D\_CU\_AL}$ #	92				500	--	--
Total PAH (WAC-17) (mg/kg)	463				100	--	--
pH (units)**	8.5				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	21				--	To be evaluated	To be evaluated
Eluate Analysis	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test		
(BS EN 12457 - 3 preparation utilising end over end leaching procedure)	mg/l	mg/l		mg/kg	using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.010	< 0.010		0.096	0.5	2	25
Barium *	0.013	0.012		0.12	20	100	300
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1	5
Chromium *	0.0039	0.0044		0.044	0.5	10	70
Copper *	0.025	0.021		0.21	2	50	100
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2
Molybdenum *	0.0056	< 0.0030		0.025	0.5	10	30
Nickel *	0.0054	0.0047		0.048	0.4	10	40
Lead *	0.0051	0.011		0.11	0.5	10	50
Antimony *	< 0.0050	< 0.0050		< 0.020	0.06	0.7	5
Selenium *	< 0.010	< 0.010		< 0.040	0.1	0.5	7
Zinc *	0.018	0.0213		0.21	4	50	200
Chloride *	5.7	< 4.0		17	800	15000	25000
Fluoride	0.45	0.28		2.9	10	150	500
Sulphate *	18	4.2		50	1000	20000	50000
TDS*	120	50		540	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-
DOC	12	7.4		77	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	2.0						
Dry Matter (%)	82						
Moisture (%)	18						
Stage 1							
Volume Eluate L2 (litres)	0.29						
Filtered Eluate VE1 (litres)	0.10						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.

*= UKAS accredited (liquid eluate analysis only)

Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation

** = MCERTS accredited

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Analytical Report Number : 22-34856
Project / Site name: 2 Thurlow 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 *
2146511	TP1	None Supplied	0.3	Brown clay and sand with gravel.

Analytical Report Number : 22-34856
Project / Site name: 2 Thurlow 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
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Preparation WAC leachate		In-house method	L043-PL	W	NONE
Speciated WAC-17 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. MCERTS accredited except Coronene.	L064-PL	D	MCERTS
Chloride in WAC leachate (BS EN 12457-3 Prep)	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
Fluoride in WAC leachate (BS EN 12457-3 Prep)	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L033-PL	W	ISO 17025
Phenol Index in WAC leachate (BS EN 12457-3 Prep)	Determination of monohydric phenols in leachate by continuous flow analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Sulphate in WAC leachate (BS EN 12457-3 Prep)	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
TDS in WAC leachate (BS EN 12457-3 Prep)	Determination of total dissolved solids in leachate by electrometric measurement.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L031-PL	W	NONE
DOC in WAC leachate (BS EN 12457-3 Prep)	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR analyser.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L037-PL	W	NONE
PCB's by GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
BTEX (Sum of BTEX compounds) in soil	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046-PL	W	NONE
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In house method.	L047-PL	D	MCERTS
Mineral Oil in Soil C10 - C40	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS.	In-house method based on USEPA 8270	L076-PL	D	NONE
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In house method.	L005-PL	W	MCERTS
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L023-PL	D	MCERTS

Analytical Report Number : 22-34856
Project / Site name: 2 Thurlow 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
Metals in WAC leachate (BS EN 12457-3 Prep)	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' 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.

Sample Deviation Report

Analytical Report Number : 22-34856
Project / Site name: 2 Thurlow Road

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TP1	None Supplied	M	2146511	b	BTEX (Sum of BTEX compounds) in soil	L073B-PL	b

Key: **a** - No sampling date **b** - Incorrect container
c - Holding time **d** - Headspace **e** - Temperature

GEA
Widbury Barn
Widbury Hill
Ware
SG12 7QE

Generic Risk-Based Soil Screening Values

Site	2 Thurlow Road, London NW3 5PJ	**Job Number** J21377
Client	Mr Philippe Bodereau	**Sheet** 1 / 2
Engineer	Momentum	

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)	0.18	S4UL
trichloroethene (TCE)	0.16	S4UL
1,2-dichloroethane (DCA)	0.0071	S4UL
vinyl chloride (Chloroethene)	0.00064	S4UL
tetrachloromethane (Carbon tetra	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

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
289156024_1_1

Customer Reference:
J21377

National Grid Reference:
526780, 185510

Slice:
A

Site Area (Ha):
0.04

Search Buffer (m):
1000

Site Details:

2, Thurlow Road
LONDON
NW3 5PJ

Client Details:

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

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	pg 1	Yes			n/a
Contaminated Land Register Entries and Notices					
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			2	10
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 2				Yes
Pollution Incidents to Controlled Waters					
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances	pg 3				40
River Quality					
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register	pg 9				1
Water Abstractions	pg 9				(*7)
Water Industry Act Referrals					
Groundwater Vulnerability Map	pg 11	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 11	Yes	n/a	n/a	n/a
Superficial Aquifer Designations			n/a	n/a	n/a
Source Protection Zones	pg 11				1
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 12			1	15

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	pg 14				1
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Landfill Coverage	pg 14	1	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Potentially Infilled Land (Non-Water)	pg 14			2	5
Potentially Infilled Land (Water)	pg 14			2	
Registered Landfill Sites					
Registered Waste Transfer Sites	pg 15				2
Registered Waste Treatment or Disposal Sites					
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					

GEA

Summary

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 16	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry					
BGS Recorded Mineral Sites					
BGS Urban Soil Chemistry	pg 16		Yes	Yes	Yes
BGS Urban Soil Chemistry Averages	pg 19	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 19	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 19	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 19	Yes	Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 19	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 21		13	37	125
Fuel Station Entries	pg 35			1	1
Points of Interest - Commercial Services	pg 35			3	26
Points of Interest - Education and Health	pg 38			1	8
Points of Interest - Manufacturing and Production	pg 39			3	11
Points of Interest - Public Infrastructure	pg 40		2	7	15
Points of Interest - Recreational and Environmental	pg 42			1	4
Gas Pipelines					
Underground Electrical Cables	pg 42		4	4	6

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	pg 45				1
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
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (NE)	0	1	526777 185508
1	**Discharge Consents** Operator: Thames Water Utilities Ltd Property Type: WTW/WATER COLLECTION/TREATMENT/SUPPLY Location: Hampstead Authority: Environment Agency, Thames Region Catchment Area: Not Supplied Reference: Temp.0140 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	A17SE (NW)	810	2	526200 186100
2	**Local Authority Pollution Prevention and Controls** Name: Perkins Dry Cleaners Location: 40 Heath Street, London, Nw3 6te Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC9 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	A12NE (NW)	441	3	526374 185724
3	**Local Authority Pollution Prevention and Controls** Name: Belsize Park Service Station Location: 215 Haverstock Hill, LONDON, NW3 4RE Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC21 Dated: 2nd January 1999 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status:** **Permitted** Positional Accuracy: Automatically positioned to the address	A14SW (SE)	480	3	527187 185227
4	**Local Authority Pollution Prevention and Controls** Name: The Royal Free Hospital Location: Pond Street, LONDON, NW3 2QG Authority: London Borough of Camden, Pollution Projects Team Permit Reference: Not Given Dated: 24th July 1992 Process Type: Local Authority Air Pollution Control Description: PG5/1Clinical waste incineration processes under 1 tonne an hour **Status:** **Authorisation revoked** Positional Accuracy: Manually positioned to the address or location	A14SW (E)	511	3	527296 185410
5	**Local Authority Pollution Prevention and Controls** Name: Pyramid Cleaners Location: 52 Besize Lane, London, Nw3 5ar Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC8 Dated: 1st 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	A8NE (S)	517	3	526872 184985
6	**Local Authority Pollution Prevention and Controls** Name: Perkins Dry Cleaners Location: 171 Haverstock Hill, London, Nw3 4qs Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC7 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	A9NW (SE)	707	3	527342 185055

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
6	**Local Authority Pollution Prevention and Controls** Name: Swan Dry Cleaners Location: 163 Haverstock Hill, London, Nw3 4qt Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC42 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	A9NW (SE)	744	3	527371 185032
7	**Local Authority Pollution Prevention and Controls** Name: Top Choice Dry Cleaners Location: 96 Fleet Road, London, Nw3 2qx Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC13 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	A14SE (E)	736	3	527529 185471
8	**Local Authority Pollution Prevention and Controls** Name: Janet'S Hand Laundry Ltd Location: 281a Finchley Road, London, Nw3 6nd Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC14 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	A7NE (SW)	836	3	526167 184924
8	**Local Authority Pollution Prevention and Controls** Name: Hampstead Express Dry Cleaning Location: 279a Finchley Road, London, Nw3 6lt Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC6 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	A7NE (SW)	844	3	526178 184902
9	**Local Authority Pollution Prevention and Controls** Name: Is Dry Cleaners Location: 6 Canfield Gardens, London, Nw6 3bs Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC18 Dated: 5th February 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A7SE (SW)	988	3	526257 184662
10	**Local Authority Pollution Prevention and Controls** Name: B P Harmony Location: 104a Finchley Road, London, NW3 5EY Authority: London Borough of Camden, Pollution Projects Team Permit Reference: Not Given Dated: 1st July 1999 Process Type: Local Authority Air Pollution Control Description: PG1/14 Petrol filling station **Status: Authorised** Positional Accuracy: Automatically positioned to the address	A8SW (S)	992	3	526471 184554
10	**Local Authority Pollution Prevention and Controls** Name: Bp Harmony Location: 104a Finchley Road, LONDON, NW3 5EY Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC18 Dated: 1st July 1999 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status: Permitted** Positional Accuracy: Automatically positioned to the address	A8SW (S)	992	3	526471 184554
	Nearest Surface Water Feature	A14NW (NE)	530	-	527203 185839

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
11	**Registered Radioactive Substances** Name: Royal Free Hampstead Nhs Trust Location: Royal Free Hospital, Pond Street, Hampstead, LONDON, Greater London, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: AR0446 Dated: 12th July 1995 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Substantial variation to authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A14SW (E)	507	2	527292 185410
11	**Registered Radioactive Substances** Name: Royal Free Hampstead Nhs Trust Location: Royal Free Hospital, Pond Street, Hampstead, LONDON, Greater London, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: AT8398 Dated: 17th January 1996 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Minor variation to authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A14SW (E)	508	2	527292 185405
11	**Registered Radioactive Substances** Name: Royal Free Hampstead NHS Trust Location: Royal Free Hospital, Pond Street, Hampstead, LONDON, Greater London, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: AV8011 Dated: 25th October 1996 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Substantial variation to authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A14SW (E)	509	2	527292 185400
11	**Registered Radioactive Substances** Name: Royal Free Hampstead Nhs Trust Location: Royal Free Hospital,Pond Street,Hampstead, LONDON, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: CD3170 Dated: 13th July 2009 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Substantial variation to authorisation under RSA **Status: Application has been authorised and any conditions apply to the operator** Positional Accuracy: Automatically positioned to the address	A14SW (E)	512	2	527297 185410
11	**Registered Radioactive Substances** Name: Royal Free Hampstead Nhs Trust Location: Royal Free Hospital,Pond Street,Hampstead, LONDON, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: CB2954 Dated: 20th July 2007 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Substantial variation to an authorisation under S13 or S14 RSA in respect of a registration under S7 when Technetium 99M is used being =< 10 gigabecquerels **Status: Authorisation either revoked or cancelled** Positional Accuracy: Automatically positioned to the address	A14SW (E)	512	2	527297 185410
11	**Registered Radioactive Substances** Name: Royal Free Hampstead Nhs Trust Location: Royal Free Hospital,Pond Street,Hampstead, LONDON, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: Ca2592 Dated: 13th April 2006 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Minor variation to authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A14SW (E)	512	2	527297 185410

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
11	**Registered Radioactive Substances** Name: Royal Free Hampstead Nhs Trust Location: Royal Free Hospital, Pond Street, LONDON, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: Bz9162 Dated: 9th December 2005 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Minor variation to authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A14SW (E)	512	2	527297 185410
11	**Registered Radioactive Substances** Name: Royal Free Hampstead Nhs Trust Location: Royal Free Hospital, Pond Street, HAMPSTEAD, LONDON, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: Bz1617 Dated: 9th September 2005 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Substantial variation to authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A14SW (E)	512	2	527297 185410
11	**Registered Radioactive Substances** Name: Anthony Nolan Trust (Ant) Location: Royal Free Hospital, Pond Street, Hampstead, London, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: Bz0777 Dated: 14th July 2005 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Minor variation to authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A14SW (E)	512	2	527297 185411
11	**Registered Radioactive Substances** Name: Anthony Nolan Trust (Ant) Location: Medical Physics Department Royal Free Hospital, Pond Street, Hampstead, London, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: Bz0831 Dated: 14th July 2005 Process Type: Registration under S7 RSA for the keeping and use of Radioactive materials (was RSA60 S1) Description: Minor variation to a registration under the Act of an open source which is also the subject of an authorisation **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A14SW (E)	512	2	527297 185410
11	**Registered Radioactive Substances** Name: Royal Free Hampstead Nhs Trust Location: Royal Free Hospital, Pond Street, HAMPSTEAD, LONDON, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: By5714 Dated: 6th December 2004 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Substantial variation to authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A14SW (E)	512	2	527297 185410
11	**Registered Radioactive Substances** Name: Royal Free Hampstead Nhs Trust Location: Royal Free Hospital, Pond Street, HAMPSTEAD, LONDON, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: By5706 Dated: 22nd November 2004 Process Type: Registration under S7 RSA for the keeping and use of Radioactive materials (was RSA60 S1) Description: Discretionary registration under the Act of an open source which is also the subject of an authorisation **Status: Application has been authorised and any conditions apply to the operator** Positional Accuracy: Automatically positioned to the address	A14SW (E)	512	2	527297 185410

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
11	**Registered Radioactive Substances** Name: Royal Free Hampstead Nhs Trust Location: Royal Free Hospital, Pond Street, HAMPSTEAD, LONDON, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: Bw6841 Dated: 1st December 2003 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Minor variation to authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A14SW (E)	512	2	527297 185410
11	**Registered Radioactive Substances** Name: Anthony Nolan Trust (Ant) Location: Royal Free Hospital, Pond Street, Hampstead, London, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: Bw7643 Dated: 1st December 2003 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Minor variation to authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A14SW (E)	512	2	527297 185411
11	**Registered Radioactive Substances** Name: Royal Free Hampstead Nhs Trust Location: Royal Free Hospital,Pond Street,Hampstead, LONDON, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: Bt8759 Dated: 12th May 2003 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Substantial variation to authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A14SW (E)	512	2	527297 185410
11	**Registered Radioactive Substances** Name: Royal Free Hampstead Nhs Trust Location: Royal Free Hospital, Pond Street, HAMPSTEAD, LONDON, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: Bs4863 Dated: 25th July 2002 Process Type: Registration under S7 RSA for the keeping and use of Radioactive materials (was RSA60 S1) Description: Minor variation to a registration under the Act of an open source which is also the subject of an authorisation **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A14SW (E)	512	2	527297 185410
11	**Registered Radioactive Substances** Name: Anthony Nolan Trust (Ant) Location: Royal Free Hospital, Pond Street, HAMPSTEAD, LONDON, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: Br6392 Dated: 29th April 2002 Process Type: Registration under S7 RSA for the keeping and use of Radioactive materials (was RSA60 S1) Description: Registration under the Act of an open source which is also the subject of an authorisation **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A14SW (E)	512	2	527297 185410
11	**Registered Radioactive Substances** Name: Royal Free Hampstead Nhs Trust Location: Royal Free Hospital, Pond Street, HAMPSTEAD, LONDON, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: Br6406 Dated: 29th April 2002 Process Type: Registration under S7 RSA for the keeping and use of Radioactive materials (was RSA60 S1) Description: Substantial variation to a registration under the Act of an open source which is also the subject of an authorisation **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A14SW (E)	512	2	527297 185410

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
11	**Registered Radioactive Substances** Name: Royal Free And University College Medical School Of University College London Location: Medical Physics Department, Royal Free Hospital, Pond Street, London, Greater London, NW3 2PF Authority: Environment Agency, Thames Region Permit Reference: Bm0214 Dated: 28th November 2001 Process Type: Registration under S7 RSA for the keeping and use of Radioactive materials (was RSA60 S1) Description: Substantial variation to a registration under the Act of an open source which is also the subject of an authorisation **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A14SW (E)	512	2	527297 185410
11	**Registered Radioactive Substances** Name: Royal Free Hampstead Nhs Trust Location: Royal Free Hospital, Pond Street, London, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: Bj5708 Dated: 14th February 2001 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Substantial variation to authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A14SW (E)	512	2	527297 185410
11	**Registered Radioactive Substances** Name: Polymasc Pharmaceuticals Plc Location: Royal Free Hospital, Pond Street, Hampstead, LONDON, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: Bj5678 Dated: 14th February 2001 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Authorisation under RSA **Status: Authorisation either revoked or cancelled** Positional Accuracy: Automatically positioned to the address	A14SW (E)	512	2	527297 185410
11	**Registered Radioactive Substances** Name: Anthony Nolan Trust (Ant) Location: Royal Free Hospital, Pond Street, Hampstead, London, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: Bj5716 Dated: 14th February 2001 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A14SW (E)	512	2	527297 185411
11	**Registered Radioactive Substances** Name: Royal Free And University College Medical School Of University College London Location: Medical Physics Department, Royal Free Hospital, Pond Street, London, Greater London, NW3 2PF Authority: Environment Agency, Thames Region Permit Reference: BB6254 Dated: 27th October 1998 Process Type: Registration under S7 RSA for the keeping and use of Radioactive materials (was RSA60 S1) Description: Minor variation to a registration under the Act of an open source which is also the subject of an authorisation **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A14SW (E)	512	2	527297 185410
11	**Registered Radioactive Substances** Name: Royal Free Hampstead Nhs Trust Location: Royal Free Hospital,Pond Street,Hampstead, LONDON, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: AV1327 Dated: 11th August 1997 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Substantial variation to authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A14SW (E)	512	2	527297 185410

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
11	**Registered Radioactive Substances** Name: Royal Free And University College Medical School Of University College London Location: Medical Physics Department, Royal Free Hospital, Pond Street, London, Greater London, NW3 2PF Authority: Environment Agency, Thames Region Permit Reference: AR0403 Dated: 12th July 1995 Process Type: Registration under S7 RSA for the keeping and use of Radioactive materials (was RSA60 S1) Description: Registration under the Act of an open source which is also the subject of an authorisation **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A14SW (E)	512	2	527297 185410
11	**Registered Radioactive Substances** Name: Royal Free Hampstead Nhs Trust Location: Royal Free Hospital,Pond Street,Hampstead, LONDON, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: AH9987 Dated: 21st June 1994 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A14SW (E)	512	2	527297 185410
11	**Registered Radioactive Substances** Name: Royal Free Hampstead Nhs Trust Location: Royal Free Hospital, Pond Street, LONDON, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: AB4095 Dated: 31st March 1991 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A14SW (E)	512	2	527297 185410
11	**Registered Radioactive Substances** Name: Royal Free London Nhs Foundation Trust Location: The Royal Free Hospital, Pond Street, Hampstead, Nw3 2qg Authority: Environment Agency, Thames Region Permit Reference: UB3935DG Dated: Not Supplied Process Type: Not Supplied Description: Not Supplied **Status: Application has been determined by the EA** Positional Accuracy: Automatically positioned to the address	A14SW (E)	512	2	527297 185410
11	**Registered Radioactive Substances** Name: Royal Free And University College Medical School Of University College London Location: Royal Free Hospital, Pond Street, London, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: By6010 Dated: 3rd August 2005 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Substantial variation to authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A14SW (E)	516	2	527299 185399
11	**Registered Radioactive Substances** Name: Royal Free And University College Medical School Of University College London Location: Royal Free Hospital, Pond Street, London, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: Bw7635 Dated: 1st December 2003 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Minor variation to authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A14SW (E)	516	2	527299 185399

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
11	**Registered Radioactive Substances** Name: Royal Free And University College Medical School Of University College London Location: Royal Free Hospital, Pond Street, London, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: Bj5694 Dated: 14th February 2001 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A14SW (E)	516	2	527299 185399
11	**Registered Radioactive Substances** Name: University College London Location: Royal Free Campus, Rowland Hill Street, London, Nw3 2pf Authority: Environment Agency, Thames Region Permit Reference: By6001 Dated: 7th May 2015 Process Type: Not Supplied Description: Not Supplied **Status: Replaced** Positional Accuracy: Located by supplier to within 100m	A14SW (E)	517	2	527300 185400
11	**Registered Radioactive Substances** Name: University College London Location: Royal Free Campus, Rowland Hill Street, London, Nw3 2pf Authority: Environment Agency, Thames Region Permit Reference: Bz9758 Dated: 7th May 2015 Process Type: Not Supplied Description: Not Supplied **Status: Replaced** Positional Accuracy: Located by supplier to within 100m	A14SW (E)	517	2	527300 185400
11	**Registered Radioactive Substances** Name: Royal Free Hampstead NHS Trust Location: Royal Free Hospital, Pond Street, Hampstead, LONDON, Greater London, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: AR0373 Dated: 11th July 1995 Process Type: Registration under S7 RSA for the keeping and use of Radioactive materials (was RSA60 S1) Description: Minor variation to a registration under the Act of an open source which is also the subject of an authorisation **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A14SW (E)	517	2	527302 185410
11	**Registered Radioactive Substances** Name: University College London Location: Royal Free Campus, Rowland Hill Street, London, Nw3 2pf Authority: Environment Agency, Thames Region Permit Reference: SB3598DT Dated: Not Supplied Process Type: Not Supplied Description: Not Supplied **Status: Application has been determined by the EA** Positional Accuracy: Located by supplier to within 100m	A14SW (E)	517	2	527300 185400
11	**Registered Radioactive Substances** Name: Royal Free Hampstead Nhs Trust Location: Royal Free Hospital, Pond Street, Hampstead, LONDON, Greater London, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: AE8658 Dated: 24th March 1992 Process Type: Registration under S7 RSA for the keeping and use of Radioactive materials (was RSA60 S1) Description: Registration under the Act of multiple open sources which are also the subject of authorisations **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A14SW (E)	518	2	527302 185405

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
12	**Registered Radioactive Substances** Name: Anthony Nolan Trust Location: Anthony Nolan Histocompatibility Laboratories, 77b Fleet Road, Hampstead, London, Nw3 2qr Authority: Environment Agency, Thames Region Permit Reference: CB1915 Dated: 21st January 2016 Process Type: Not Supplied Description: Not Supplied **Status: Replaced** Positional Accuracy: Automatically positioned to the address	A14SW (E)	656	2	527442 185404
12	**Registered Radioactive Substances** Name: Anthony Nolan Trust Location: Anthony Nolan Histocompatibility Laboratories, 77b Fleet Road, Hampstead, London, Nw3 2qr Authority: Environment Agency, Thames Region Permit Reference: CB5171 Dated: 21st January 2016 Process Type: Not Supplied Description: Not Supplied **Status: Replaced** Positional Accuracy: Automatically positioned to the address	A14SW (E)	656	2	527442 185404
12	**Registered Radioactive Substances** Name: Anthony Nolan Trust Location: Anthony Nolan Histocompatibility Laboratories, 77b Fleet Road, Hampstead, London, Nw3 2qr Authority: Environment Agency, Thames Region Permit Reference: AB3298DT Dated: Not Supplied Process Type: Not Supplied Description: Not Supplied **Status: Application has been determined by the EA** Positional Accuracy: Automatically positioned to the address	A14SW (E)	656	2	527442 185404
13	**Registered Radioactive Substances** Name: Polymasc Pharmaceuticals Plc Location: Anthony Nolan Building, Royal Free Hospital Site, Fleet Road; Hampstead, LONDON, Greater London, NW3 2EZ Authority: Environment Agency, Thames Region Permit Reference: AU4924 Dated: 20th February 1996 Process Type: Registration under S7 RSA for the keeping and use of Radioactive materials (was RSA60 S1) Description: Registration under the Act of an open source which is also the subject of an authorisation **Status: Authorisation either revoked or cancelled** Positional Accuracy: Manually positioned to the address or location	A14SE (E)	706	2	527500 185495
14	**Substantiated Pollution Incident Register** Authority: Environment Agency - Thames Region, North East Area Incident Date: 23rd September 2003 Incident Reference: 191922 Water Impact: Category 2 - Significant Incident Air Impact: Category 4 - No Impact Land Impact: Category 4 - No Impact Positional Accuracy: Located by supplier to within 10m Pollutant: Pollutant Not Identified: Not Identified	A19SW (NE)	755	2	527254 186101
	Water Abstractions Operator: London Borough Of Camden Licence Number: 28/39/39/0219 Permit Version: 1 Location: Swiss Cottage Open Space- Borehole Authority: Environment Agency, Thames Region Abstraction: Municipal Grounds: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Swiss Cottage Open Space, Winchester Road, London. Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st April 2008 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A3NE (S)	1215	2	526800 184280

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: London Borough Of Camden Licence Number: Th/039/0039/087 Permit Version: 1 Location: Swiss Cottage Open Space- Borehole Authority: Environment Agency, Thames Region Abstraction: Municipal Grounds: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Swiss Cottage Open Space, Winchester Road, London Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 5th December 2013 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A3NW (S)	1234	2	526750 184261
	Water Abstractions Operator: London Borough Of Camden Licence Number: Th/039/0039/087 Permit Version: 1 Location: Swiss Cottage Open Space- Borehole Authority: Environment Agency, Thames Region Abstraction: Municipal Grounds: 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: Swiss Cottage Open Space, Winchester Road, London Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 5th December 2013 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A3NW (S)	1234	2	526750 184261
	Water Abstractions Operator: London Borough Of Camden Licence Number: Th/039/0039/087 Permit Version: 1 Location: Swiss Cottage Open Space- Borehole Authority: Environment Agency, Thames Region Abstraction: Municipal Grounds: Lake And Pond Throughflow Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Swiss Cottage Open Space, Winchester Road, London Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 5th December 2013 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A3NW (S)	1234	2	526750 184261
	Water Abstractions Operator: Thames Water Utilities Ltd Licence Number: Th/039/0039/058 Permit Version: 1 Location: Borehole At Barrow Hill Authority: Environment Agency, Thames Region Abstraction: Public Water Supply: Potable Water Supply - Direct 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: 1st April 2013 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(SE)	1988	2	527636 183697

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Thames Water Utilities Ltd Licence Number: 28/39/39/0231 Permit Version: 1 Location: Barrow Hill Pumping Station - Borehole Authority: Environment Agency, Thames Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Barrow Hill Pumping Station Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st April 2007 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(SE)	1996	2	527640 183690
	Water Abstractions Operator: Thames Water Utilities Ltd Licence Number: 28/39/39/0202 Permit Version: 1 Location: Barrow Hill Pumping Station - Borehole Authority: Environment Agency, Thames Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Barrow Hill Pumping Station Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 26th September 2002 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(SE)	1996	2	527640 183690
	Groundwater Vulnerability Map Combined Classification: Secondary Bedrock Aquifer - High Vulnerability Combined Vulnerability: High Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Intermediate 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	4	526777 185508
	Groundwater Vulnerability - Soluble Rock Risk None				
	Bedrock Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13NW (NE)	0	4	526777 185508
	Superficial Aquifer Designations No Data Available				
15	**Source Protection Zones** Name: Not Supplied Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone II (Outer Protection Zone): Either 25% of the source area or a 400 day travel time whichever is greater.	A8SE (S)	864	2	526945 184645
	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				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
16	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5204.1 Watercourse Level: Underground Permanent: True Watercourse Name: The Fountains Catchment Name: Thames Primacy: 1	A14SW (E)	428	5	527221 185492
17	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 172.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Hampstead Ponds Catchment Name: Thames Primacy: 1	A14NW (NE)	543	5	527233 185821
18	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 13.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A14NW (E)	546	5	527315 185663
19	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 18.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A19SW (NE)	691	5	527289 185984
20	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 118.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Hampstead Ponds Catchment Name: Thames Primacy: 1	A19SW (NE)	701	5	527285 186003
21	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 11.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A19SW (NE)	764	5	527249 186116
22	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 178.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Hampstead Ponds Catchment Name: Thames Primacy: 1	A19SW (NE)	770	5	527245 186127
23	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 71.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A19NW (NE)	862	5	527163 186285
24	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 131.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A18NE (N)	877	5	526987 186369

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
25	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 214.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A18NE (N)	880	5	526900 186391
26	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 68.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A18NE (N)	884	5	526954 186384
27	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 40.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A19NW (N)	900	5	527116 186349
28	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A19NW (NE)	900	5	527125 186345
29	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 62.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A18NW (N)	908	5	526715 186428
30	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 124.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A18NW (N)	925	5	526771 186446
31	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 117.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Hampstead Ponds Catchment Name: Thames Primacy: 1	A18NE (N)	946	5	526937 186451

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
32	**Historical Landfill Sites** Licence Holder: Not Supplied Location: London NW6 Name: Canfield Place Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD12043 First Input Date: Not Supplied Last Input Date: Not Supplied Specified Waste Type: Not Supplied EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: Not Supplied BGS Ref: Not Supplied Other Ref: DON009	A7SW (SW)	980	2	526075 184812
	Local Authority Landfill Coverage Name: London Borough of Camden - Has no landfill data to supply		0	6	526777 185508
33	**Potentially Infilled Land (Non-Water)** Bearing Ref: SW Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1996	A13SW (SW)	261	8	526616 185296
34	**Potentially Infilled Land (Non-Water)** Bearing Ref: S Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1996	A8NW (S)	467	8	526763 185029
35	**Potentially Infilled Land (Non-Water)** Bearing Ref: SE Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1996	A14SW (SE)	562	8	527284 185228
36	**Potentially Infilled Land (Non-Water)** Bearing Ref: SW Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1991	A8NW (SW)	590	8	526467 184999
37	**Potentially Infilled Land (Non-Water)** Bearing Ref: SE Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1996	A14SW (SE)	636	8	527347 185189
38	**Potentially Infilled Land (Non-Water)** Bearing Ref: E Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1996	A14SE (E)	721	8	527473 185261
39	**Potentially Infilled Land (Non-Water)** Bearing Ref: NE Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1996	A19NW (NE)	860	8	527250 186231
40	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1873	A14NW (E)	479	8	527234 185692
41	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1873	A18SE (N)	489	8	526813 186007

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
42	**Registered Waste Transfer Sites** Licence Holder: P B Donoghue Licence Reference: DL140 Site Location: BR Goods Yard at 269 Finchley Road, CAMDEN, London, NW3 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 February 1992 Preceded By Licence: DL140 Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Quality: Not Supplied Authorised Waste: Lwra Cat. A = Inert Wastes Lwra Cat. Bi Gen.Non-Putresc Max.Waste Permitted By Licence-Stated Prohibited Waste: Clinical - As In Coll/Disp.Regs Of '88 Liquid/Slurry/Sludge Wastes Poisonous, Noxious, Polluting Wastes Special Wastes Waste N.O.S.	A7SE (SW)	923	2	526200 184780
42	**Registered Waste Transfer Sites** Licence Holder: P B Donoghue Licence Reference: DL140 Site Location: BR Goods Yard, 269 Finchley Road, CAMDEN, London, NW3 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: Record supersededSuperseded Dated: 1st August 1983 Preceded By Licence: Not Given Superseded By Licence: DL140 Positional Accuracy: Manually positioned to the address or location Boundary Quality: Not Supplied Authorised Waste: Commercial Waste Construction Ind. Wastes Max.Waste Permitted By Licence(Stated) Prohibited Waste: Clinical Waste -Clause 2 & 4 Hsc 1982 Notifiable Wastes Putrescible Waste Special Wastes	A7SE (SW)	923	2	526200 184780

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	526777 185508
	BGS Estimated Soil Chemistry No data available				
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 526732, 185657 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 40.30 mg/kg Cadmium Measured Concentration: 0.60 mg/kg Chromium Measured Concentration: 97.40 mg/kg Lead Measured Concentration: 660.40 mg/kg Nickel Measured Concentration: 34.00 mg/kg	A13NW (N)	140	1	526732 185657
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 526763, 185153 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 17.60 mg/kg Cadmium Measured Concentration: 0.60 mg/kg Chromium Measured Concentration: 55.10 mg/kg Lead Measured Concentration: 617.70 mg/kg Nickel Measured Concentration: 22.30 mg/kg	A8NW (S)	343	1	526763 185153
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 527216, 185357 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 19.70 mg/kg Cadmium Measured Concentration: 0.80 mg/kg Chromium Measured Concentration: 96.90 mg/kg Lead Measured Concentration: 626.10 mg/kg Nickel Measured Concentration: 27.60 mg/kg	A14SW (E)	447	1	527216 185357
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 527233, 185694 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 31.90 mg/kg Cadmium Measured Concentration: 0.60 mg/kg Chromium Measured Concentration: 126.40 mg/kg Lead Measured Concentration: 478.50 mg/kg Nickel Measured Concentration: 45.60 mg/kg	A14NW (E)	479	1	527233 185694

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: 526278, 185352 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 25.30 mg/kg Cadmium Measured Concentration: 0.50 mg/kg Chromium Measured Concentration: 122.20 mg/kg Lead Measured Concentration: 273.70 mg/kg Nickel Measured Concentration: 19.50 mg/kg	A12SE (W)	509	1	526278 185352
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 526223, 185630 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 19.70 mg/kg Cadmium Measured Concentration: 0.50 mg/kg Chromium Measured Concentration: 127.10 mg/kg Lead Measured Concentration: 514.80 mg/kg Nickel Measured Concentration: 23.20 mg/kg	A12NE (W)	550	1	526223 185630
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 526737, 186262 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 11.40 mg/kg Cadmium Measured Concentration: 0.50 mg/kg Chromium Measured Concentration: 155.00 mg/kg Lead Measured Concentration: 104.40 mg/kg Nickel Measured Concentration: 7.80 mg/kg	A18NW (N)	742	1	526737 186262
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 527169, 184808 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 20.70 mg/kg Cadmium Measured Concentration: 0.60 mg/kg Chromium Measured Concentration: 83.40 mg/kg Lead Measured Concentration: 2153.80 mg/kg Nickel Measured Concentration: 34.90 mg/kg	A9SW (SE)	785	1	527169 184808
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 526703, 184701 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 32.80 mg/kg Cadmium Measured Concentration: 0.70 mg/kg Chromium Measured Concentration: 79.00 mg/kg Lead Measured Concentration: 770.10 mg/kg Nickel Measured Concentration: 44.30 mg/kg	A8SW (S)	798	1	526703 184701

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: 527297, 186229 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 21.10 mg/kg Cadmium Measured Concentration: 0.30 mg/kg Chromium Measured Concentration: 115.30 mg/kg Lead Measured Concentration: 367.50 mg/kg Nickel Measured Concentration: 18.70 mg/kg	A19NW (NE)	884	1	527297 186229
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 527669, 185211 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 18.20 mg/kg Cadmium Measured Concentration: 0.60 mg/kg Chromium Measured Concentration: 99.60 mg/kg Lead Measured Concentration: 936.90 mg/kg Nickel Measured Concentration: 25.60 mg/kg	A14SE (E)	923	1	527669 185211
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 526344, 184653 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 47.30 mg/kg Cadmium Measured Concentration: 2.00 mg/kg Chromium Measured Concentration: 111.00 mg/kg Lead Measured Concentration: 1462.80 mg/kg Nickel Measured Concentration: 71.20 mg/kg	A7SE (SW)	952	1	526344 184653
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 527766, 185717 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 14.80 mg/kg Cadmium Measured Concentration: 0.50 mg/kg Chromium Measured Concentration: 62.40 mg/kg Lead Measured Concentration: 150.60 mg/kg Nickel Measured Concentration: 19.50 mg/kg	A14NE (E)	996	1	527766 185717
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 526219, 186357 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 15.20 mg/kg Cadmium Measured Concentration: 0.30 mg/kg Chromium Measured Concentration: 91.10 mg/kg Lead Measured Concentration: 269.20 mg/kg Nickel Measured Concentration: 15.80 mg/kg	A17NE (NW)	999	1	526219 186357

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	526777 185508
	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	526777 185508
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (NE)	0	1	526777 185508
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (NE)	0	1	526777 185508
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NE)	0	1	526777 185508
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	173	1	526966 185516
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	249	1	526961 185687
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NE)	0	1	526777 185508
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	189	1	526572 185521
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NW (NE)	0	1	526777 185508
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	189	1	526572 185521

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	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	526777 185508
	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	526777 185508

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
43	**Contemporary Trade Directory Entries** Name: Tenancy Cleaners London Location: 4, Shepherds Walk, London, NW3 5UE Classification: Cleaning Services - Domestic **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (W)	16	-	526744 185512
44	**Contemporary Trade Directory Entries** Name: Hampstead Cleaners Location: 63, Rosslyn Hill, London, NW3 5UQ Classification: Carpet, Curtain & Upholstery Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	72	-	526714 185571
45	**Contemporary Trade Directory Entries** Name: Bang & Olufsen Location: 44, Rosslyn Hill, London, NW3 1NH Classification: Electrical Goods Sales, Manufacturers & Wholesalers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (N)	77	-	526764 185598
45	**Contemporary Trade Directory Entries** Name: Lily'S Kitchen Location: 6, Rosslyn Mews, London, NW3 1NN Classification: Pet Foods & Animal Feeds **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (N)	90	-	526769 185611
45	**Contemporary Trade Directory Entries** Name: Cleaning Services Hampstead Location: 58a, Rosslyn Hill, London, NW3 1ND Classification: Carpet, Curtain & Upholstery Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	102	-	526723 185614
45	**Contemporary Trade Directory Entries** Name: Farrow & Ball Ltd Location: 58, Rosslyn Hill, London, NW3 1ND Classification: Wallpapers & Wall Coverings **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	102	-	526723 185614
46	**Contemporary Trade Directory Entries** Name: Fast Cash 4 Scrap Cars London Aeg Location: 64, Rosslyn Hill, London, NW3 1ND Classification: Car Breakers & Dismantlers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	114	-	526708 185619
46	**Contemporary Trade Directory Entries** Name: Snappy Snaps Location: 80, Rosslyn Hill, London, NW3 1ND Classification: Photographic Processors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	132	-	526685 185626
47	**Contemporary Trade Directory Entries** Name: Radici Plastics Uk Location: 6a, Hampstead High Street, London, NW3 1PR Classification: Plaster Manufacturers & Suppliers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	193	-	526626 185654
47	**Contemporary Trade Directory Entries** Name: Cleaners Hampstead Location: 8, Hampstead High Street, London, NW3 1PR Classification: Cleaning Services - Domestic **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	203	-	526614 185656
48	**Contemporary Trade Directory Entries** Name: Camden & Islington Trust Location: 17, Lyndhurst Gardens, London, NW3 5NU Classification: Hospitals **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (S)	224	-	526829 185274
49	**Contemporary Trade Directory Entries** Name: Cleaners Of Hampstead Location: 15, Hampstead High Street, London, NW3 1PX Classification: Cleaning Services - Domestic **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	242	-	526573 185667

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
49	**Contemporary Trade Directory Entries** Name: Cleaners Of Hampstead Location: 15, Hampstead High Street, London, NW3 1PX Classification: Cleaning Services - Domestic **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	242	-	526573 185667
50	**Contemporary Trade Directory Entries** Name: Hampstead Waste Location: Flat 68, Henderson Court, 102, Fitzjohns Avenue, London, NW3 6NR Classification: Medical Waste Disposal **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (W)	268	-	526493 185498
51	**Contemporary Trade Directory Entries** Name: Interior Couture Location: 14a, Downshire Hill, LONDON, NW3 1NR Classification: Wallpapers & Wall Coverings **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	271	-	526950 185723
52	**Contemporary Trade Directory Entries** Name: Belsize Park Carpet Cleaners Location: 12 Gayton Crescent, Camden, London, NW3 1TT Classification: Carpet, Curtain & Upholstery Cleaners **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NW (N)	325	-	526693 185837
52	**Contemporary Trade Directory Entries** Name: Skipwith Consulting Location: 37, Willow Road, London, NW3 1TN Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SW (N)	347	-	526726 185866
53	**Contemporary Trade Directory Entries** Name: Hillsdown Holdings Ltd Location: 32, Hampstead High Street, London, NW3 1QD Classification: Food Products - Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	351	-	526475 185717
53	**Contemporary Trade Directory Entries** Name: Xyz Location: 10, Flask Walk, London, NW3 1HE Classification: Ceramic Manufacturers, Supplies & Services **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13NW (NW)	398	-	526445 185756
54	**Contemporary Trade Directory Entries** Name: Crabtree & Evelyn Location: 65, Hampstead High Street, London, NW3 1QP Classification: Toiletries **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NE (NW)	389	-	526422 185704
55	**Contemporary Trade Directory Entries** Name: Destination Skin Location: 12, Heath Street, London, NW3 6TE Classification: Electrolysis **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NE (W)	391	-	526396 185655
55	**Contemporary Trade Directory Entries** Name: Andrews Location: 22, Heath Street, London, NW3 6TE Classification: Hardware **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NE (W)	410	-	526381 185666
56	**Contemporary Trade Directory Entries** Name: Oven Cleaning (Hampstead) Location: 32, Downshire Hill, London, NW3 1NT Classification: Oven cleaning **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	392	-	527034 185812
57	**Contemporary Trade Directory Entries** Name: Office Cleaning Services Location: 3, Heath Street, London, NW3 6TP Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NE (W)	399	-	526373 185608

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
111	**Contemporary Trade Directory Entries** Name: Oil & Gas Services Group Ltd Location: 4-6, Canfield Place, London, NW6 3BT Classification: Oil & Gas Exploration Supplies & Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	988	-	526222 184685
111	**Contemporary Trade Directory Entries** Name: Esquire Location: 6, Canfield Gardens, London, NW6 3BS Classification: Dry Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	989	-	526255 184661
111	**Contemporary Trade Directory Entries** Name: S I H 2001 Ltd Location: London, NW6 3BS Classification: Cleaning Services - Domestic **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	991	-	526254 184660
112	**Contemporary Trade Directory Entries** Name: Gayle Mcvay Location: 52, Belsize Park Gardens, London, NW3 4ND Classification: Hats & Caps - Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A9SW (SE)	968	-	527379 184728
113	**Contemporary Trade Directory Entries** Name: Agedefy- Vitasil Stockist/Distributor Location: 38, ROSEMONT ROAD, LONDON, NW3 6NE Classification: Distribution Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A7NW (SW)	974	-	526019 184881
114	**Contemporary Trade Directory Entries** Name: Johnsons The Cleaners Location: 199, Finchley Road, London, NW3 6NN Classification: Dry Cleaners **Status: Active** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	978	-	526306 184644
115	**Contemporary Trade Directory Entries** Name: Bp (Hampstead) Service Station Location: A, 104, Finchley Road, London, NW3 5EY Classification: Petrol Filling Stations - 24 Hour **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8SW (S)	992	-	526471 184554
115	**Contemporary Trade Directory Entries** Name: B P Service Station Location: 104A, FINCHLEY ROAD, LONDON, NW3 5EY Classification: Petrol Filling Stations **Status: Active** Positional Accuracy: Automatically positioned to the address	A8SW (S)	993	-	526471 184554
116	**Fuel Station Entries** Name: Belsize Park Service Station Location: 215, Haverstock Hill , Belsize Park , London, Inner London, NW3 4QE Brand: BP Premises Type: Petrol Station **Status: Open** Positional Accuracy: Automatically positioned to the address	A14SW (SE)	481	-	527188 185227
117	**Fuel Station Entries** Name: Hampstead Service Station Location: 104a, Finchley Road , Hampstead , London, Inner London, NW3 5EY Brand: BP Premises Type: Petrol Station **Status: Open** Positional Accuracy: Automatically positioned to the address	A8SW (S)	993	-	526471 184554
118	**Points of Interest - Commercial Services** Name: A V Auto Locksmiths Location: 38 Willow Road, London, NW3 1TN Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A18SW (N)	346	7	526722 185864

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
139	**Points of Interest - Manufacturing and Production** Name: Air Shaft Location: NW3 Category: Extractive Industries Class Code: Unspecified Quarries Or Mines Positional Accuracy: Positioned to an adjacent address or location	A14SE (E)	723	7	527482 185282
140	**Points of Interest - Manufacturing and Production** Name: Charles House Location: 108-110 Finchley Road, Camden, London, NW3 5JJ Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A7SE (SW)	962	7	526395 184617
141	**Points of Interest - Manufacturing and Production** Name: Air Shaft Location: NW3 Category: Extractive Industries Class Code: Unspecified Quarries Or Mines Positional Accuracy: Positioned to an adjacent address or location	A14SE (E)	962	7	527732 185289
142	**Points of Interest - Public Infrastructure** Name: Metropolitan Police Service Hampstead Location: Hampstead Police Station 26, Rosslyn Hill, London, NW3 1PD Category: Central and Local Government Class Code: Police Stations Positional Accuracy: Positioned to address or location	A13NE (E)	82	7	526866 185540
142	**Points of Interest - Public Infrastructure** Name: Hampstead Police Station Location: Hampstead Police Station 26, Rosslyn Hill, London, NW3 1PD Category: Central and Local Government Class Code: Police Stations Positional Accuracy: Positioned to address or location	A13NE (E)	97	7	526883 185539
143	**Points of Interest - Public Infrastructure** Name: Hampstead Heath Rail Station Location: South End Road, NW3 Category: Public Transport, Stations and Infrastructure Class Code: Railway Stations, Junctions and Halts Positional Accuracy: Positioned to address or location	A14NW (E)	475	7	527250 185634
143	**Points of Interest - Public Infrastructure** Name: Hampstead Heath Station Location: South End Road, NW3 Category: Public Transport, Stations and Infrastructure Class Code: Railway Stations, Junctions and Halts Positional Accuracy: Positioned to address or location	A14NW (E)	475	7	527250 185634
144	**Points of Interest - Public Infrastructure** Name: BP Service Station Belsize Park Self Serve Location: Belzier Park Service Station 215, Haverstock Hill, London, NW3 4QE Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A14SW (SE)	480	7	527187 185227
144	**Points of Interest - Public Infrastructure** Name: Belzier Park Service Station Location: Belzier Park Service Station 215, Haverstock Hill, London, NW3 4QE Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A14SW (SE)	480	7	527187 185227
144	**Points of Interest - Public Infrastructure** Name: Belsize Park Self Serve Location: Belzier Park Service Station 215, Haverstock Hill, London, NW3 4QE Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A14SW (SE)	480	7	527187 185227
144	**Points of Interest - Public Infrastructure** Name: BP Service Station Location: 215 Haverstock Hill, London, NW3 4QE Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A14SW (SE)	481	7	527188 185227
144	**Points of Interest - Public Infrastructure** Name: Belsize Park Self Serve Location: Belzier Park Service Station 215, Haverstock Hill, London, NW3 4QE Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A14SW (SE)	481	7	527188 185227

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
150	**Points of Interest - Public Infrastructure** Name: Hampstead Service Centre Location: A 104 Finchley Road, London, NW3 5EY Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A8SW (S)	992	7	526471 184554
150	**Points of Interest - Public Infrastructure** Name: BP Service Station Location: 104a Finchley Road, London, NW3 5EY Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A8SW (S)	993	7	526471 184554
150	**Points of Interest - Public Infrastructure** Name: Hampstead Service Station Location: 104a Finchley Road, London, NW3 5EY Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A8SW (S)	993	7	526471 184554
151	**Points of Interest - Recreational and Environmental** Name: Play Area Location: NW3 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A18SE (NE)	464	7	527055 185886
152	**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	A14NW (E)	567	7	527351 185607
152	**Points of Interest - Recreational and Environmental** Name: Playground Location: St Crispins Close, NW3 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A14NW (E)	567	7	527351 185608
153	**Points of Interest - Recreational and Environmental** Name: Play Area Location: NW3 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A18NW (N)	786	7	526752 186307
154	**Points of Interest - Recreational and Environmental** Name: Play Area Location: NW3 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A14SE (E)	854	7	527635 185355
155	**Underground Electrical Cables** Unique Feature Identifier: 10005912 Cable Status: Electrically Decommissioned Cable Type: Alternating Current Record Last Updated: 27th October 2017	A13SE (SE)	3	8	526792 185494
156	**Underground Electrical Cables** Unique Feature Identifier: 10006073 Cable Status: Electrically Decommissioned Cable Type: Alternating Current Record Last Updated: 27th October 2017	A13SE (SE)	4	8	526792 185494
157	**Underground Electrical Cables** Unique Feature Identifier: 10005913 Cable Status: Electrically Decommissioned Cable Type: Alternating Current Record Last Updated: 27th October 2017	A13NW (NW)	95	8	526711 185598

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
158	**Underground Electrical Cables** Unique Feature Identifier: 10006070 Cable Status: Electrically Decommissioned Cable Type: Alternating Current Record Last Updated: 27th October 2017	A13NW (NW)	95	8	526711 185599
159	**Underground Electrical Cables** Unique Feature Identifier: 10007954 Cable Status: Electrically Decommissioned Cable Type: Alternating Current Record Last Updated: 27th October 2017	A13SW (SW)	277	8	526658 185250
160	**Underground Electrical Cables** Unique Feature Identifier: 10005743 Cable Status: Electrically Decommissioned Cable Type: Alternating Current Record Last Updated: 27th October 2017	A13SW (SW)	278	8	526658 185250
161	**Underground Electrical Cables** Unique Feature Identifier: 10006072 Cable Status: Electrically Decommissioned Cable Type: Alternating Current Record Last Updated: 27th October 2017	A18SW (N)	452	8	526673 185963
162	**Underground Electrical Cables** Unique Feature Identifier: 10005915 Cable Status: Electrically Decommissioned Cable Type: Alternating Current Record Last Updated: 27th October 2017	A18SW (N)	453	8	526672 185963
163	**Underground Electrical Cables** Unique Feature Identifier: 10005919 Cable Status: Electrically Decommissioned Cable Type: Alternating Current Record Last Updated: 27th October 2017	A8NE (S)	572	8	526891 184932
164	**Underground Electrical Cables** Unique Feature Identifier: 10006131 Cable Status: Electrically Decommissioned Cable Type: Alternating Current Record Last Updated: 27th October 2017	A8NE (S)	572	8	526891 184932
165	**Underground Electrical Cables** Unique Feature Identifier: 10007708 Cable Status: Electrically Decommissioned Cable Type: Alternating Current Record Last Updated: 27th October 2017	A8SE (S)	833	8	526834 184663
166	**Underground Electrical Cables** Unique Feature Identifier: 10005918 Cable Status: Electrically Decommissioned Cable Type: Alternating Current Record Last Updated: 27th October 2017	A8SE (S)	834	8	526834 184662
167	**Underground Electrical Cables** Unique Feature Identifier: 10006071 Cable Status: Electrically Decommissioned Cable Type: Alternating Current Record Last Updated: 27th October 2017	A18NW (N)	975	8	526615 186484

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
169	**Local Nature Reserves** Name: Belsize Wood Multiple Area: N Area (m2): 2723 Source: Natural England Designation Date: 1st October 2004	A14SE (E)	718	9	527476 185279

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	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
3	**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
4	**Environment Agency - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
5	**Ordnance Survey** Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 03456 05 05 05 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
6	**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
7	**PointX** 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Website: www.pointx.co.uk
8	**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
9	**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.