LUSTRE
CONSULTING

PARLIAMENT HILL, CAMDEN

PHASE 1 DESK STUDY

NON-TECHNICAL SUMMARY

This Phase 1 Desk Study has been prepared for the clearance and subsequent redevelopment of a site located off Highgate Road, in Camden, London, NW5 1RL by Lustre Consulting Limited (Lustre) for Farrans Construction. The site currently comprises William Ellis School and Parliament Hill School and is located within a predominantly residential area of north London, bordering Parliament Hill to the north and west. Farrans Construction requires this Phase 1 Desk Study to support a new planning application, involving the construction of several new school buildings and redevelopment of both school sites. It is understood that the proposed development may also incorporate single storey basement construction over portions of the site. The Northern William Ellis School site has a large building complex which will be subject to renovation and extension whilst the Southern Parliament Hill School site currently consists of a complex of large buildings, many of which are to be demolished and replaced.

No significant potential sources of contamination were observed during the site walkover. The suspected location and infrastructure of former above ground oil storage tanks was identified. All pipe lines were above ground and no evidence of leaks or spills were observed. Two stands of Japanese knotweed were identified on site.

The site has been occupied by the William Ellis School and Parliament Hill School in various forms since 1915 with both schools undergoing a number of phases of demolition, extension and renovation works over years. There is therefore the potential for Made Ground to be present beneath the site which may contain various contaminants including asbestos, metals and hydrocarbons. This Made Ground may have also been impacted by historical point sources of contamination such as above ground fuel tanks, cleaning chemical storage and imported soils associated with landscaping works. No viable off site sources of potential contamination have been identified within close proximity to the site.

The site to be directly underlain by Bedrock geology of the London Clay Formation, comprising poorly laminated, blue-grey or grey-brown, silty to very silty clay. No superficial deposits are recorded beneath the site.

This Phase 1 Desk Study has determined that there is limited potential for contamination to be present on site in a circumstance which could lead to unacceptable risks to identified receptors. This includes on-site contamination associated with the Made Ground and the identified electricity substation. The proposed end use of the site (comprising the construction of new school buildings with limited areas of soft landscaping) has also been taken into consideration with the level of risk. It is the opinion of Lustre that the site represents an overall **moderate / low risk** with respect to contaminated land liability issues to the identified receptors.

It is recommended that a Phase 2 Site Investigation is undertaken to further assess the risks to the identified receptors from the potential contamination sources. The investigation should focus on the shallow soil conditions where the impact of the historical uses is most likely to have occurred, Made Ground and establish the risk from ground gas. The investigation should also target sensitive locations such proposed soft landscaping areas. The two stands of Japanese knotweed should be examined and treated by an appropriately trained professional. If future works are to be carried out in the location of the redundant high voltage cable, then the cable should be carefully removed or capped to ensure that it is not damaged and no oils escape

PROJECT RECORD		
PROJECT NAME	PARLIAMENT HILL, CAMDEN	
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RELIANCE AND LIMITATIONS

This report has been prepared using published information and information provided by the Client which were made available at the time of writing only. No liability is extended to any information which has become available since this time. No third party liability or duty of care is extended. Third parties using information contained in this report do so at their own risk.

CONTENTS

RISK TABLE

APPENDICES

REGISTRATION OF AMENDMENTS

Revision and Date	Amendment Details	Revision Author	Revision Reviewer

1.0 INTRODUCTION

1.1 This Phase 1 Desk Study has been prepared for the clearance and subsequent redevelopment of a site located off Highgate Road, in Camden, London, NW5 1RL by Lustre Consulting Limited (Lustre) for Farrans Construction. The assessment has been undertaken in accordance with our fee proposal dated 02 June 2016, which was formally approved by Farrans Construction on 21 June 2016.

1.2 The site, irregular in plan, is centered at National Grid Reference 528369, 186019, and occupies an approximate area of 3.6 ha as shown in Figure 1. The site currently comprises William Ellis School and Parliament Hill School and is located within a predominantly residential area of north London, bordering Parliament Hill to the north and west. Farrans Construction requires this Phase 1 Desk Study to support a new planning application, involving the construction of several new school buildings and redevelopment of both school sites. It is understood that the proposed development may also incorporate single storey basement construction over portions of the site. The Northern William Ellis School site has a large building complex which will be subject to renovation and extension whilst the Southern Parliament Hill School site currently consists of a complex of large buildings, many of which are to be demolished and replaced. Figure 2 illustrates the proposed development scheme.

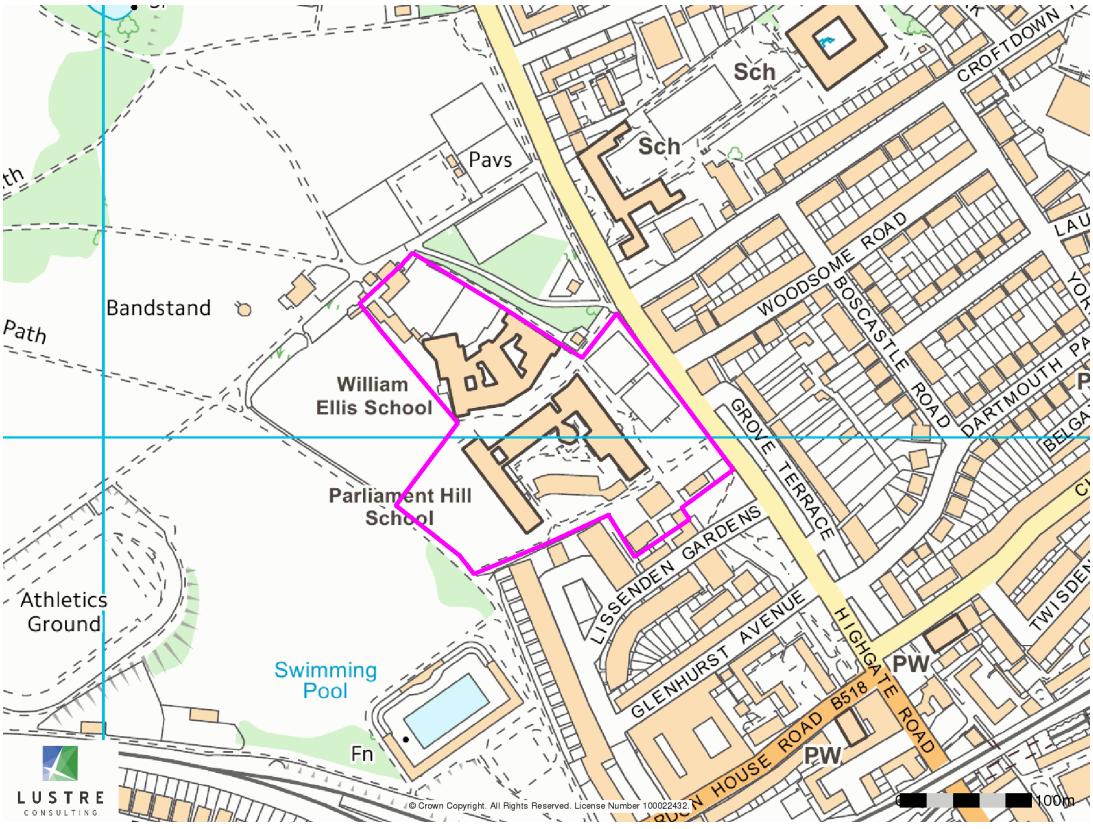


Figure 1: Site Location Plan

Figure 2: Proposed Site Layout

Objective

1.3 The objective of this Phase 1 Desk Study (also known as a Contaminated Land Assessment) is to determine the contaminative status of the site and to provide a general indication of the likely geoenvironmental issues which may be present on site or affect the site, as well as to provide guidance on any resultant liabilities. Information on likely geotechnical conditions and hazards are also to be assessed.

Scope of Works

1.4 The scope of works for the desk study has been summarised below:

- Review of available historical Ordnance Survey maps (dating back to the mid-1800s) of the site and surrounding areas to identify current or former potential sources of contamination both on-site and within the immediate surrounds;
- Review of published geological, hydrogeological and hydrological records to assess the environmental setting of the site and surrounding areas;
- Review of available public information and up-to-date regulatory information from relevant authorities to identify any potentially significant environmental issues at the site and surrounding areas;
- Review of any existing information and reports relating to the site and surrounding area, including any available plans, development layouts etc; and
- Development of a conceptual site model and risk assessment following the source-pathway-receptor pollution linkage.

1.5 The Phase 1 Desk Study has been prepared in keeping with best practice and current planning guidance. *The National Planning Policy Framework (NPPF)*[1] advises regulatory consultees to ensure that adequate site investigation information is provided at the initial planning stage, whilst the Environment Agency's *Model Procedures for the Management of Land Contamination (CLR11*[2]*)* requires a phased, risk based approach when dealing with land affected by contamination in the UK.

1.6 This Phase 1 Desk Study forms the first stage of an iterative contaminated land assessment, to identify any potential sources of contamination before undertaking any further intrusive Phase 2 investigation works or remedial action, if required. The methodology adopted in this Phase 1 Desk Study is based on the source-pathway-receptor model as set out in *CLR11*[2]. More information on Lustre's approach to such assessments can be found at the following link: www.lustreconsulting.com/Services/ContaminatedLandAssessment.aspx and in Appendix A.

[1] Department for Communities and Local Government, National Planning Policy Framework, March 2012.
[2] DEFRA/Environment Agency, Model Procedures for the Management of Land Contamination, CLR11, September 2004.

Asbestos Containing Materials (ACM)

1.7 Under Regulation 4 of the Control of Asbestos Regulations 2012[3], those parties ("duty holders") who have control over the maintenance or repair of non-domestic premises are required to identify and manage any asbestos or presumed asbestos found in their premises. Where asbestos is or is liable to be present, the duty holder(s) shall ensure that they have an adequate management plan, undertake and review risk assessments and maintain an Asbestos Register detailing the probable exposure to all employees and site users. The duty holder may be the business owner, landlord or tenant or others by virtue of a contract.

1.8 Regulation 5 requires duty holder(s) to identify asbestos prior to maintenance or any other work which exposes or is liable to expose employees to asbestos unless there has been a sufficient assessment. There is always a risk that asbestos will be present in soils, under hardstanding and below ground structures, and that it may spread particularly during clearance and demolition works. It is therefore essential that where any asbestos or presumed asbestos is identified, managed, removed and disposed by a licenced remover (if licensable work) in accordance with relevant HSE guidance. It is the responsibility of the duty holder under Regulation 16 to ensure measures are put in place to prevent the 'spread' of asbestos.

1.9 Where asbestos containing material (ACM) in existing structures (i.e. within the building fabric) is observed during the site walkover, a brief description will be included in this report in order to inform our assessment of Asbestos Containing Soils (ACS) (presented in Chapter 2.0). It must be noted however, that this Phase 1 Desk Study does not include detailed identification and assessment of ACM within existing structures both above and below ground (i.e. basements, services). This should be carried out by an appropriately experienced and qualified asbestos surveyor and is outside of our agreed scope of works.

1.10 Where ACMs are present on proposed development sites, there is always a risk of impacting the underlying soils, particularly during clearance and demolition works. It is therefore essential that any ACMs identified by the asbestos surveyor are appropriately managed, removed and disposed offsite by specialist contractors in accordance with good practise and current guidance. It is the responsibility of the duty holder and / or client to ensure measures are put in place to prevent contamination of the soils during such works.

[3] Control of Asbestos Regulations (CAR) 2012

Report Structure

1.11 The report structure generally follows the pollution linkage approach described above. Chapter 2 of the report provides information relating to the **"source(s)"** of potential contamination through a study of current and historical land uses, whilst the sensitivity and anthropology information in Chapter 3 relates to the **"receptor**" and **"pathway"** components. Report conclusions, including a summary of the conceptual site model and risk assessment Appendix, are set out in Chapter 4. Recommendations for further actions, where considered necessary, are presented in Chapter 5.

2.0 LAND USE

Introduction

2.1 This Chapter identifies and provides information on any potential on-site and off-site **"sources"** of contamination within the source-pathway-receptor model. The chapter includes a review of information obtained from photographic records, publically recorded information on environmental issues and controls within relevant distances of the site (which may indicate the presence of potential source(s) of contamination, such as licensed landfills), available planning records obtained from regulatory websites and OS historical mapping. A summary of the identified sources and potential contaminants are given at the end of the chapter.

Site Description

2.2 A site walkover was undertaken by a qualified consultant from Lustre on 04th July 2016. A maintenance worker from each school was present throughout the site walkover and access was granted to all plant rooms and maintenance workshops as well as all external areas.

Figure 3: Aerial Photograph

2.3 By way of a general overview, the site is divided into two schools, in the south is Parliament Hill School (PHS) and in the north William Ellis School (WES). Both sites have undergone landscaping in the past to accommodate the change in elevation from the north to the south. The site is comprised of a several school buildings of various ages of brick construction. Ancillary Portacabins are located on Parliament Hill School which are used for classroom purposes and also house a small gas boiler. A residential house is present on each school site which provides accommodation to the respective heads of maintenance. Tarmacadam surfaced playing courts are located on each site. The schools are surrounded with soft landscaping flower beds. The site is approximately divided into 60% hard standing and buildings and 40% soft landscaping, playing fields and plant borders.

2.4 Plant rooms and maintenance workshops are located with the main school building at each site at basement level. On the PHS site a further four smaller plant rooms are also located in each main building. Cleaners cupboards are located sporadically throughout the buildings on site. Each school benefits from a kitchen and dining facility.

Heat and Hot Water

2.5 Heating and hot water is provided by commercially sized gas fired boilers located in plant rooms throughout the site. The basement plant room on the PHS benefited from a large chimney stack of concrete construction. The chimney is used to vent exhaust fumed from three commercial gas fired boilers, although the chimney could date to before them. No evidence of any incinerators were observed during the walkover. Air handling units located were located within the central 'Ribbon' building on the PHS site. Given the size of the boilers, an environmental permit for the venting of exhaust would not be required.

Chimney Stack (PHS)

Gas fired boilers (WES)

Bulk Storage of Fuels and Hazardous Material

2.6 Lustre has not been made aware of, or observed, any current or former bulk above ground fuel storage areas/ hazardous material storage on site. No evidence of any current underground fuel tanks (e.g. unexplained manhole covers, vents, fill points etc) was noted during the site walkover. Given the age of the main school buildings at both sites, it was deemed likely that the schools would have benefited from oil fired heating at some point in the past. On further inspection, cut off pipes were located in the basement plant room at PHS. The pipelines were followed above ground to a small recess in a wall on the front elevation of the building. This is considered very likely to have been the fill point for an underground tank that has since been removed. At the WES site, the remnants of a pipe possibly associated with former heating oil storage was observed in the main plant room. The pipe was cut-off and removed on the other side of the wall. In both instances, the evidence of pipe-lines and the location of the former tanks would have been above ground. No evidence of any significant leaks or spills were observed.

2.7 Within the PHS caretakers workshop was a small area of racking with various paints and thinners. A steel cabinet was also present with minor quantities of fuel (<5L) for small hand operated gardening tools).

Paints and thinners (PHS)

Cleaning cupboard (WES)

2.8 Cleaning chemicals were only kept in small quantities (<5L) at both sites within cleaning stores.

2.9 Florescent strip lights are used within the various buildings. The spent florescent tubes are stored in a waste storage ‘coffin’ within the service yard and are removed from site by a specialist contractor when the coffin is full. Within a basement room at PES racking was present with an estimated 200 spent tubes that were historically deposited there. Spent

florescent strip lights generated in quantities over 200kg per annum (approximately 500) will require them to be collected as hazardous waste

Waste fluorescent tubes (PHS)

Fluorescent tube coffin (PHS)

Asbestos Containing Soils (ACS)

2.10 Asbestos containing materials (ACM) were commonly used in construction and refurbishment projects until their use was prohibited in 1999. Given the age of the building(s) present on site (including any refurbishment works), the potential for ACM to be present within the building fabric and curtilage is likely. No evidence of ACM was noted on site. No copies of the any asbestos management surveys were reviewed as part of this assessment.

2.11 Soil contamination from asbestos can be caused through inappropriate use and poor care of ACM in the building fabric and curtilage causing cross contamination during historic demolition or renovation works. ACS can also be encountered within infilled land and/or imported sub base / fill materials associated with previous construction or renovation works (such as the construction of a new hardstanding). Taking into account the likely presence of ACMs given the age of the buildings, the potential for ACS to be present underlying the hardstanding should be considered.

Waste

2.12 Based on the site use, potentially contaminative waste streams are not considered likely. General domestic type waste is likely stored in small volumes for regular collection by an appointed and licensed waste contractor. Bin stores are located in the south of the PHS and central east of the WES. Housekeeping was noted to be good with no evidence of contamination arising from the storage of waste.

Waste Storage (PHS)

Waste Storage (PHS)

Drainage

2.13 Only sanitary wastewater, surface water run-off (from roof areas and hardstanding) is generated on site. No evidence of activities that would require a Discharge Consent was observed. Lustre has not been made aware of any oil / water interceptors within the site drainage system by the Client. No visual evidence of underground services (e.g. scars in the hardstanding, manhole covers) were noted during the site walkover. Existing drainage plans *were / were not* made available for viewing.

Persistent Organic Pollutants (PoPs, inc. Polychlorinated Biphenyls (PCBs))

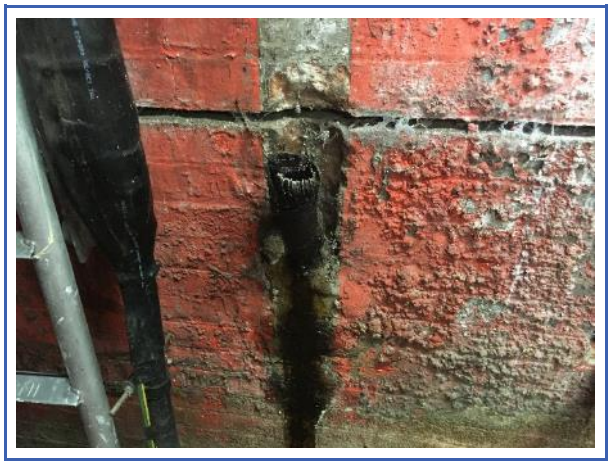
2.14 An electricity sub-station is present within the PHS site and accessed from the WES site, adjacent to the canteen and adjoining the onsite Victorian building. This seems to be of modern construction (post 2002). The sub-station is managed by UK Power Networks.

2.15 Within the basement caretakers workshop located within PHS was the remains of a cut-off high voltage cable. The cable was noted to be leaking oils, with some oily staining on the concrete floor below. The concrete was in good condition and so the small amount of oils is not expected to have caused any significant contamination, However the condition and location of the remainder of the cable is unknown.

2.16 No high voltage cables (in excess of 100kV) or other potential sources of PCB were identified at the site.

2.17 No other specific POP point sources were identified during the site inspection that could have adversely impacted soils on site.

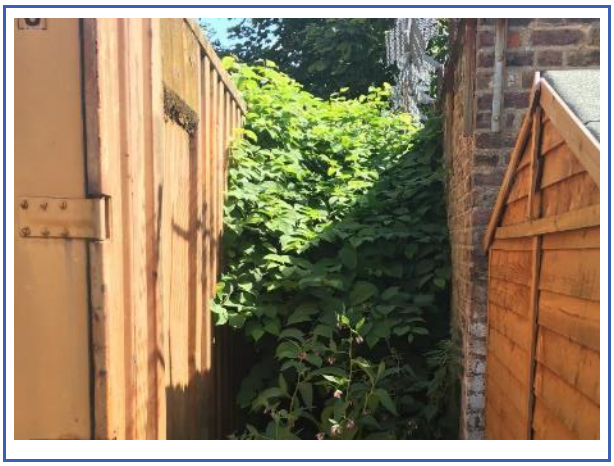
Sub-station (WES)



Redundant HV cable (PHS)

Invasive Species

2.18 Two stands of Japanese Knotweed were observed at on the PHS site. A large stand wa located along the southern boundary between the party wall and the gymnasium. It could not be confirmed if the JKW had spread off-site (public open space accosted with residential flats) although considered highly likely. A second stand was observed on the northern boundary fence between PHS and WES. No other invasive species (e.g.Giant Hogweed, Himalayan Balsam) were identified during the site walkover, however the site visit conducted does not constitute a full 'injurious weeds and invasive plants' survey.



Stand of JKW south of PHS

Stand of JKW north of PHS (Photo taken from WES)

Potential Off-site Sources / Points of Interest

2.19 The site is surrounded by residential or public open space. No potential sources of contamination were observed in the immediate surround.

Further Surveys

2.20 Whilst the site walkover discussion references observations made regarding the presence of features/issues such as invasive species, asbestos containing materials, site drainage and evidence of structural abnormalities, this report does not constitute specialist surveys on these matters. Should further specialist surveys be carried out in this regard, the findings of these should be reported to Lustre so that we may determine if this has any discernible impact on the findings of this report.

Public Record Information

2.21 Information on potentially significant environmental issues and controls at the site and surrounding area may be held on public records by various regulatory authorities. Information referenced in this Chapter has been sourced directly from the regulatory authorities and from the Landmark database (data summarised within relevant distances of the site center). A copy of the Envirocheck report is enclosed in Appendix B. A summary of the significant environmental issues and controls in the Envirocheck report is summarised in the following table.

Public Record	On site / Off site	Features
Environmental Permits for Part B Processes	Off site	There are two records noted within 250m of the site, with the closest located circa.210m SE held by Perfect Dry Cleaners and pertains to PG6/46 dry cleaning. Approximately 230m SE a PG1/14 permit is listed for active PFS.
Pollution Incidents to Controlled Waters	Off site	There are no pollution incidents recorded within 250m of the site.
Hazardous Substances	Off site	There are no hazardous substances (e.g. Control of Major Accident Hazards (COMAH), Notification of Installations Handling Hazardous Substances (NIHHS) or Planning Hazardous Substance Consents) recorded within 250m
Landfill Sites	Off site	None recorded within 1km of the site.
Waste Management Facilities	Off site	There are no Licensed Waste Management Facilities (LWMF) or registered waste treatment / disposal sites recorded within 250m of the site.
Contemporary Trade Directory Entries	On site	None recorded.
	Off site	A total of 15 entries are recorded within 250m of the site. The closest entry is located circa. 40m SE and relate to a domestic cleaning services. Other entries include hardware, dry cleaning, telecommunications equipment and systems, copying services, tyre dealers and car breakers and manufacturer. Approximately 75% of the entries are listed as inactive.

Public Record	On site / Off site	Features
Petrol Filling Stations (PFS)	Off site	One active PFS is recorded within 250m of the site. This relates to Parliament Hill Service Station on Highgate Road

The approximate bearing of identified features is abbreviated with the first letter(s) (e.g. south-west = SW).

Review of Regulatory Information

2.22 A review of the Environment Agency's website[4] has not identified any additional pollution incidents to those summarised in the table above or provided any further information relating to landfill sites within the surrounding area.

2.23 A number of planning permissions are held by the London Borough of Camden relating to the construction of new teaching buildings and facilities such as car parks and cycle sheds at the Parliament Hill School site between 1993 and 2005 (ref: 2003/1525/P, 9301344 and 2004/1598/P). A review of the documents held in relation to these applications has provided no environmentally pertinent information and no conditions relating to the assessment of Contaminated Land were attached to any of these permissions.

2.24 With regards to the William Ellis School a number of planning permissions are also held relating to the construction of new teaching buildings, extensions to existing buildings and use of the playground as a farmer's market dated between 1989 and 2002 (ref: PEX0200620, PEX0200259, PE9700069, 9501693, 9360044 and 8903443). A review of the documents held in relation to these applications has provided no environmentally pertinent information and no conditions relating to the assessment of Contaminated Land were attached to any of these permissions

Site History

2.25 The site history has been assessed by reviewing historical Ordnance Survey maps provided by Landmark. Relevant maps are reproduced in Appendix C. The historical development of the site and the surrounding area are summarised in the following tables. Where features are identified as having a potential impact on the proposed development, an indication of potential contaminants has been provided at the end of the Chapter.

[4] Information from Environment Agency Website: www.environment-agency.gov.uk consulted in month of report issue

2.26 It is noted that the mapping process adopted in generating the historical Ordnance Survey records (mapping intervals/frequency, scale, inclusion/exclusion of features etc), may result in an incomplete account of a site's history. Changes in land use between mapping dates, or small yet potentially contaminative land uses, may not be identified from the records. The following account is therefore based solely on the information provided in the mapping records and the dates listed should be considered as approximate.

On Site Land Use	Date Feature Present	Date Feature Removed
Northern section of the site comprises Grove Farm including orchards and farm buildings. The central section of the is occupied by a residential dwelling and open land with another residential property and gardens within the southern section of the site.	1873	1896
The central residential property is labelled as 'The Gothic' and the orchards have been removed from the northern section of the site.	1896	1915
The Gothic residential property, Grove Farm and the second residential property within the southern section of the site have been removed. The northern section of the site remains unoccupied with the exception of three small rectangular structures whilst the southern and central sections of the site are occupied by a large rectangular school building with two smaller buildings adjacent to the southern boundary.	1915	1936
A sports ground including a small pavilion is present to the west of the large rectangular school building and a square plot is present adjacent to the eastern boundary, likely a tennis court. Across the northern section of the site the three rectangular structures have been cleared.	1936	1946
A closed 'E' shaped building has been constructed within the northern section of the site with two small courtyards within this building. Areas of hardstanding are present, likely a playground, immediately to the north.	1946	1952
A few small outbuildings have been constructed adjacent to the northern boundary of the site with the northern area now labelled Willian Ellis School. The southern section of the site is labelled as Parliament Hill School. A building labelled School Meal Kitchen is also present adjacent to the southern site boundary within the Parliament Hill site.	1952	1962
The site has undergone significant redevelopment, with the layout of both schools similar to the current day. The sports ground within the western section of the site is now labelled as a playing field and a large 'L' shaped building has been constructed	1962	1979

immediately to the west of the original school building within the Parliament Hill site. A small courtyard is present between these two buildings which contains a number of smaller structures. Two tennis courts are shown to be present adjacent to the eastern boundary of the site. The School Meal Kitchen building has been replaced by a tennis court and another small square building is present adjacent to this. Within the northern section of the site a number of small buildings have also been constructed to the north of the 'E' shaped building and adjacent to the western site boundary extending the William Ellis School.		
Within the Parliament Hill site a new hexagon shaped building has been constructed within the courtyard area and an area of embanked ground is present to the west of the tennis courts within the eastern section of the Parliament Hill site.	1979	1991
A rectangular building has been constructed within the southwest corner of the Parliament Hill site. No further changes are shown on the historical maps.	2007	Present

The approximate bearing of identified features is abbreviated with the first letter (e.g. south-west = SW). Approximate distances are interpreted from historical mapping and in metres.

2.27 Environmentally pertinent historical information from the immediate surrounding area (within 250m) has been summarised in the following table.

Surrounding Land Use	Distance / Bearing	Date Feature Present	Date Feature Absent
Disused Reservoir/Pond – potentially infilled prior to 1936 after which occupied by parkland and tennis courts	Adjacent / NE	1936	Present
Electricity Sub Station	80m / S	1952	1991
Residential		1991	Present
Wallpaper Factory	120m / S	1952	1991
Residential		1991	Present
Vaccum Plastic Factory	120m / SW	1952	1962
Garage		1962	1991
Residential		1991	Present
Garages	125m / SE	1952	1991
Residential		1991	Present
Garage	200m / SW	1962	1991
Residential		1991	Present
Railway Land	210m / SW	1873	Present

The approximate bearing of identified features is abbreviated with the first letter (e.g. south-west = SW). Approximate distances are interpreted from historical mapping and in metres..

Summary of Identified Potential Sources of Contamination

2.28 This chapter has assessed both the current and historical uses of the site and surrounding areas, as well as publically available regulatory information. In accordance with *CLR11,* this assessment has allowed potential sources of contamination to be identified.

2.29 Based on our understanding, it is considered that some potential sources can be discounted at this stage of the assessment. Potential sources of contamination have only been discounted where sufficient evidence has been gathered to indicate that the particular source, for reasons relating to the viability of its presence/significance, need not be considered further.

2.30 The electricity substation, wallpaper factory, vacuum plastic factory and garages historically present between 80m and 200m south to south east and south west of the site have not been considered further as these sites have been redeveloped as a residential housing estate. Considering this more sensitive end uses, it is likely that this site was suitably investigated and remediated under the planning system to be fit for purpose, with the removal of any gross contamination, thereby removing any significant on-going sources of contamination which may impact the site.

2.31 The disused reservoir / pond which may have been infilled in the 1930's is also not considered to be a viable potential source of contamination, particularly with regards to ground gases. This is due to the time lapsed since this feature was shown on the historical mapping records over which time any ground gases are likely to have dissipated. In addition, on the mapping records the reservoir is shown as raised therefore no significant infilling is likely to have occurred.

2.32 Viable potential sources of contamination noted in this chapter, which will be carried forward into the conceptual model and risk assessment, include:

- On-site: The historical mapping records demonstrate that the site historically comprised a farm and residential dwellings prior to the construction of the schools from 1915 onwards. The historical mapping records and planning records held by the London Borough of Camden also suggest that at both schools have undergone some demolition and redevelopment works over this time. Potential point sources of contamination associated with the current and historical use of the site as schools include any historical on site ASTs, the boiler houses, small scale cleaning chemical storage and vehicular spillages in car park areas. In addition, embankments / mounds were historically present within the eastern section of the Parliament Hill School site. A layer of Made Ground of unknown chemical composition may therefore be present across the site, which may contain contaminants such as asbestos, metals,

inorganics, polyaromatic hydrocarbons (PAH) and total petroleum hydrocarbons (TPH). Depending on the amount of putrescible material present in these soils, the Made Ground may also represent a source of ground gas;

- On-site: Electricity Sub Station. Potential contaminants include polychlorinated biphenyls (PCBs), TPH and PAHs;
- On-site: The potential presence of ACS including imported sub-base materials and previous renovation or demolition works;
- Off-site: Industrial / commercial land uses identified within 250m of the site are a dry cleaner's (210m SE), railway land (210m / SW) and a Petrol Filling Station (230m SE). Potential contaminants associated with these historic land uses include asbestos, metals, inorganics and organic compounds, PAH, TPH and VOC and SVOCs.

3.0 SENSITIVITY & ANTHROPOLOGY

Introduction

3.1 This chapter provides information relating to on-site and off-site **'pathways'** and **'receptors'** and includes a review of the geology, hydrogeology, hydrology and ecological setting of the site. A general assessment and review of the site anthropology, such as identified human / built environment receptors, including current and future site occupiers, below ground structures, flora etc is also provided. A summary of identified receptors and site specific pollutant linkages is given at the end of the chapter. Any pathways (contaminant migration, exposure pathways), which can be discounted in conceptual terms (i.e. considering the unviable nature of the pathway given the proposed development setting or local geology/hydrogeology etc), are discussed at the end of the chapter.

Geology

3.2 The 1:50,000 British Geological Survey (BGS) map (Sheet 256)[5] and the BGS website (National Geoscience Information Service)[6] show the site to be directly underlain by Bedrock geology of the London Clay Formation, comprising poorly laminated, blue-grey or grey-brown, silty to very silty clay. No superficial deposits are recorded beneath the site.

3.3 Given the recorded development of the site to date, a layer of Made Ground of unknown thickness is anticipated on site.

3.4 Historic borehole records have been identified relating to boreholes drilled within the general vicinity of the site and surrounding area. Twelve historic boreholes are recorded onsite (TQ28NE136, TQ28NE137, TQ28NE137 and TQ28NE26 A - J). A summary of ground conditions encountered onsite are provided below and a copy of the / key historic borehole logs is included in Appendix D.

- Topsoil / Fill / Made Ground encountered to a maximum depth of 1.8m bgl but with a typical thickness: 0.60m

[5] BGS Solid and Drift Map Sheet 256 North London
[6] Information from BGS website: www.bgs.ac.uk consulted in month of report issue

- London Clay: Soft brown or blue mottled friable silty clay becoming increasingly firm and darker in colour with depth. London Clay was proven to a maximum depth of 7.6m bgl.

- Groundwater was not encountered.

3.5 The BGS also holds data on non-coal mining areas and potential ground stability hazards for the UK that may affect the site. The Coal Authority holds data on coal mining affected areas for the UK. The non-mining and potential ground stability hazards provided by Landmark are summarised in the following table.

Details	On-site	Hazard Potential
Mining Instability	No	No Hazard
Man-Made Mining Cavities	No	No Hazard
Natural Cavities	No	None Recorded
Coal Mining Affected Area	No	No Hazard
Non-Coal Mining Affected Area	No	No Hazard
Potential for Collapsible Ground Stability Hazards	Yes	Very Low
Potential for Compressible Ground Stability Hazards	No	No Hazard
Potential for Ground Dissolution Stability Hazards	No	No Hazard
Potential for Landslide Ground Stability Hazards	Yes	Very Low
Potential for Running Sand Ground Stability Hazards	No	No Hazard
Potential for Shrinking or Swelling Clay Ground Stability Hazards	Yes	Moderate

3.6 No BGS Recorded Mineral entries are listed within 1km of the site.

3.7 No man-made cavities or natural cavities are present within 1km of the site.

3.8 The site is located within a low probability radon area, as less than 1% of homes are above the action level; no radon protective measures are considered necessary in the construction of new dwellings or extensions.

Hydrogeology

3.9 The Groundwater Vulnerability Map of England and the Environment Agency website[7] have been reviewed to determine the aquifer designations. The London Clay Formation is listed as being an unproductive stratum. These are low permeability strata which are not considered to retain significant quantities of groundwater. If groundwater is present within unproductive strata, for example within more permeable lenses or small fissures, it is typically discontinuous, of low value and very low sensitivity.

3.10 The site is not located within a groundwater Source Protection Zone (SPZ). The nearest SPZ is located over 3km to the south-west of the site.

3.11 No groundwater abstractions are recorded within 1km of the site.

3.12 No groundwater discharge consents are recorded within 250m of the site.

3.13 A detailed description of the various aquifer types, soil classifications and Source Protection Zones is provided in Appendix A.

Hydrology

3.14 The closest surface water feature is an extended culvert of the Regents Canal which is located approximately 70m south of the site. In addition, the Highgate Ponds are located approximately 280m north west of the site within Parliament Hill. These surface water features are not monitored by the Environment Agency under their River Basin Management Plans.

3.15 No surface water abstractions are recorded within 1km of the site.

3.16 No surface water discharge consents are recorded within 250m of the site.

Ecology

3.17 A review of the MAGIC (Multi-Agency Geographic Information for the Countryside) website[8] indicates that the site is not located within an ecologically sensitive area. There are no Conservation Areas, National Parks, Areas of Outstanding Natural Beauty (AONB) or Sites of

[7] Information from Environment Agency Website: www.environment-agency.gov.uk consulted in month of report issue
[8] Information from Environment Agency Website: http://magic.defra.gov.uk/ consulted in month of report issue

Special Scientific Interest (SSSIs) within 1km of the site. One Local Nature Reserve is recorded approximately 950m to the south west of the site at Belsize Wood.

3.18 The site is not located within a Nitrate Vulnerable Zone (NVZ).

Environmental Sensitivity

3.19 The sensitivity of each of the identified receptors is rated depending upon the environmental setting of the site, the likelihood for pollutant linkages to be present and potential consequence of those potential pollutant linkages. The assessment approach adopted is based on guidance set out in the *NHBC R&D 66*[9] document.

3.20 Groundwater within the London Clay Formation is considered to have a Very Low groundwater sensitivity (L2), which is described in the guidance as being a "Not a recognised aquifer, but strata beneath site may retain a small amount of contaminated liquid but there is likely to be limited vertical penetration." This reflects the classification of the London Clay Formation as low permeability unproductive strata.

3.21 The site is considered to have a Very Low surface water sensitivity (L2), which is listed in the guidance as a "No surface water within general area of the site (at least 250m) or closed drainage within site. Little or no potential for significant transmission via baseflow and no interconnecting drains." This classification primarily reflects the fact there is little potential for significant transmission via baseflow of potential contaminants from the site to the Highgate Ponds due to the presence of low permeability London Clay directly underlying the site and surrounding area. In addition, the ponds are located over 250m to the north west of the site. The extended culvert of the Regents Canal located to the south of the site is not considered to be a viable surface water receptor due to its engineered construction which acts as a barrier to the migration of any potential contaminants.

3.22 The site sensitivity with regards to ecology is considered to be low given the absence of protected ecological species within the site boundary or within close proximity to the site (at least 250m). Any potential impacts to sensitive species located within the Belsize Woods Nature Reserve are also considered to be low given the limited potential for the transmission of any potential pollutants via baseflow due to the presence of low permeability strata directly underlying and immediately surrounding the site.

[9] Guidance for the Safe Development of Housing on Land Affected by Contamination R&D66, NHBC, 2008

3.23 The sensitivity classifications noted above have been taken into consideration in the development of the conceptual model presented at the rear of this report.

Anthropology

3.24 Anthropological receptors associated with the current and proposed site use and immediate surrounding area (e.g. neighbouring properties) include school pupils and staff, maintenance workers and site visitors.

Summary of Identified Receptors and Site Specific Pollutant Linkages

3.25 A review of the environmental sensitivity and proposed anthropological use of the site has identified the following **receptors**, as detailed below.

Identified receptors:

- Future site workers and visitors including pupils and teaching staff,
- Ground / construction workers,
- Future maintenance / landscape workers,
- Shallow / perched groundwater within Made Ground,
- Adjacent land (including neighboring residential dwellings, wild animals, livestock),
- Flora,
- Below ground structures and foundations, and
- Potable water pipes.

Viable pathways and pollution linkages:

3.26 A number of **viable migration and exposure pathways** and potential pollutant linkages have been identified, whereby a receptor may be exposed to a source. The viable pollutant linkages have then been used to develop a conceptual model. The following is a summary of **viable,** site specific pathways and pollutant linkages to be considered further:

- In areas of open ground the following exposure pathways to humans are considered to be active:
  - Inhalation of contaminated dust,
  - Dermal contact and direct ingestion of contaminated soils,
    It is noted that these exposure pathways are only active in soft landscaped areas; hardstanding breaks the potential pathways.

- Inhalation of toxic vapours, potentially migrating into above ground structures from organic contaminants within the Made Ground, contaminated groundwater or localised spills / leaks. Potential for vapours to migrate through hardstanding and open ground.
- Hazardous ground gases, potentially generated by the Made Ground or organic-rich natural soils, may migrate into above ground structures and accumulate within building voids and enclosed spaces (resultant risk of asphyxiation and / or explosion).
- Shallow soil contamination has the potential to vertically migrate downwards into the underlying natural soils and perched or shallow groundwater by leaching and infiltration. These processes are enhanced in areas of soft landscaping due to an increased infiltration potential. Conversely, areas of hardstanding reduce infiltration potential and leaching rates, which results in a lower mobility of any shallow contamination.
- Flora grown within areas of soft landscaping may be exposed to contaminants through root uptake mechanisms.
- Below ground concrete structures and foundations are susceptible to chemical attack from aggressive ground conditions (pH and water soluble sulphate).
- Potable water pipes are susceptible to chemical attack from shallow soil contamination.

Non-viable pathways and pollution linkages

3.27 The following site specific pathways and pollutant linkages are not considered to be viable, and therefore discounted from the conceptual model and risk assessment:

- As the site is being redeveloped for ongoing use as school facilities with associated areas of hardstanding and public open space/soft landscaping with no private gardens, it is considered unlikely that fruits and vegetables will be grown within these areas for onsite consumption, therefore the pathway of direct consumption via potentially contaminated soils adhering to the roots, contaminants present within the plant (via root uptake) and end users is not considered to be viable.
- Migration of potential sources of off-site contamination: Acknowledging the presence of low permeability London Clay directly underlying the site and surrounding areas and the absence of more permeable superficial deposits the lateral migration of off-site contaminants from the identified potential sources including the dry cleaner's (210m SE), railway land (210m / SW) and a Petrol Filling Station (230m SE). site is not considered viable.
- Migration of potential site borne contaminants to off-site areas (down hydraulic gradient), including adjacent land and surface water (via surface water runoff and baseflow): Acknowledging the presence of low permeability London Clay underlying the site and the absence of more permeable superficial deposits the latera l migration of site borne

contaminants to adjacent land and surface water is not considered to be viable. These receptors will therefore not be considered further in the site conceptual model.

- Migration of off-site ground gases: no significant off-site sources of ground gas have been identified. Consequently, the potential migration pathway onto site through the Made Ground and more permeable lenses of the underlying soils on to site have not been considered further.

4.0 CONCLUSIONS

Geoenvironmental Considerations

4.1 A conceptual model and qualitative risk assessment have been included at the end of this report. The risk ratings assigned in the risk table, and summarised in this Chapter, are based on information obtained through desk-based research, a site walkover and on our experience in assessing risks from similar sites.

4.2 This Phase 1 Desk Study has determined that there is limited potential for contamination to be present on site in a circumstance which could lead to unacceptable risks to identified receptors. This reflects the historical and ongoing use of the proposed redevelopment site as part of two schools with potential point sources of contamination including historical ASTs, boiler rooms, and made ground associated with previous demolition and renovation works. The proposed end use of the site (comprising the construction of new school buildings with limited areas of soft landscaping), where potential exposure pathways between the identified potential sources of contamination and future site users are unlikely has also been taken into consideration.

4.3 A summary of the moderate/low risks and above (as presented at the rear of this report) are given hereafter:

- A **moderate/low** risk has been identified to current and future school pupils, staff and visitors from the Made Ground across the areas of redevelopment site which has potentially been impacted by the historic and on-going use of the site as school facilities. The pathway considered relates to inhalation of contaminated dusts, gases and vapours, dermal contact and direct ingestion of contaminated soils. It is noted that this pathway is viable in the areas of soft landscaping only and that where hardstanding is proposed this will break the pollutant linkage to end users.

- A **moderate/low** risk has also been assessed to current and future school pupils, staff and visitors and construction personnel from the potential for asbestos within the Made Ground. For construction personnel, the level of risk is more a reflection of the severity of consequence rather than the likelihood as it is considered likely that the use of specialist contactors, PPE and an awareness of the potential hazards will mitigate the risk. A provision should be made for potentially managing unforeseen hazardous materials such as asbestos in structures and in the soils during redevelopment of the site in line with CAR 2012.

- With regards to ground gases within the onsite Made Ground it is noted that the severity of the hazard is the principal driver for this risk rating as the likelihood of

occurrence is unlikely. Acknowledging the improbable occurrence, the risk from ground gas from is considered to be **acceptably low**. However, it is recommended that this is confirmed as part of the recommendations detailed in Chapter 5.

4.4 Based on the above findings and with due regard to the proposed redevelopment of the site for continued use as a school, it is the opinion of Lustre that the site represents an overall moderate / low risk with respect to contaminated land liability issues.

4.5 The qualitative nature of the risk assessment is not absolute. Furthermore, although very low and low risks may have been assigned to various pollutant linkages, the risk cannot be eliminated (i.e. “no risk”) at this stage of the assessment and residual risks will remain which should not be discounted on the basis that the risk is low.

Statutory Designation

4.6 The *National Planning Policy Framework (NPPF)* states that “land should be suitable for its new use and as a minimum, after carrying out remediation (if required), the land should **not** be capable of being determined as contaminated land under Part 2A of the Environmental Protection Act 1990”. It is our opinion that, based on the findings of this Phase 1 Desk Study, it is unlikely the site would be designated as statutory contaminated land by the Local Authority under the provision of the published Statutory Guidance. It is advisable however, that any recommendations made in Chapter 5 are implemented in line with current guidance and good practise, especially where verification of the risk assessment is necessary.

5.0 RECOMMENDATIONS

5.1 Based on the findings of this Phase 1 Desk Study, there is now a clear understanding of the potential sources of contamination at the site and the risks posed to identified receptors. The anticipated contaminative status of the site is not considered, in our opinion, to be prohibitive to the proposed redevelopment scheme. The risk ratings identified should verified and possibly reduced by the implementation of the following recommendations.

5.2 It is recommended that a Phase 2 Site Investigation is undertaken to further assess the risks assessed to the identified receptors from the historical use of the site. This investigation could be combined with a geotechnical investigation to inform building design for the proposed buildings. The investigation should target those areas of the site which to be redeveloped.

5.3 The two stands of Japanese Knotweed should be assessed and appropriately treated by a competent professional.

5.4 If future works are to be carried out in the location of the redundant high voltage cable, then the cable should be carefully removed or capped to ensure that it is not damaged and no oils escape.

5.5 Whilst this report references observations made regarding the presence of features/ issues such as invasive species, asbestos containing materials, site drainage and evidence of structural abnormalities, this report does not constitute specialist surveys on these matters. Should further specialist surveys be carried out in this regard, the findings of these should be reported to Lustre so that we may determine if this has any discernible impact on the findings of this report.

5.6 Finally, this assessment has been carried out to determine the potential risks posed to future end users, along with other key receptors, based on the current development proposals, as set out in Chapter 1. Should revisions in the development proposals result in a change any assessment parameters detailed in this report, a re-assessment of the risk should be carried out.

CONCEPTUAL MODEL & RISK ASSESSMENT

CONCEPTUAL SITE MODEL & QUALITATIVE RISK ASSESSMENT
1522
Parliament Hill, Camden

Report Ref: 1522\GH\6-2016\No.

LUSTRE CONSULTING

CONCEPTUAL SITE MODEL					QUALITATIVE RISK ASSESSMENT			
Source		Pollutant	Pathway	Receptor	Likelihood of Occurrence	Consequence (severity)	Potential Risk	Justification of Risk
On-site	Made Ground associated with historical and ongoing use as schools including potential point sources such as historical ASTs, boiler houses, demolition and renovation works and embanked landscaped areas	Asbestos, metals, inorganics, PAH, TPH, VOCs	Inhalation of contaminated dusts, gases and vapours, dermal contact and direct ingestion of contaminated soils	School pupils, staff, visitors and maintenance workers	Low Likelihood	Medium	Moderate/ low	See Notes: 1, 2, 3
			Inhalation of contaminated dusts, gases and vapours, dermal contact and direct ingestion of contaminated soils	Ground / construction workers	Unlikely	Medium	Low	See Notes: 1, 4
			Vertical migration downwards via leaching	Shallow / perched groundwater within Made Ground	Low Likelihood	Mild	Low	See Notes: 1, 5, 6, 7
			Root uptake mechanisms	Flora	Low Likelihood	Mild	Low	See Notes: 1, 8
			Chemical attack from aggressive ground conditions (pH and water soluble sulphate) and shallow contamination	Buried services and below ground structures and foundations	Unlikely	Medium	Low	See Notes: 1, 9
		Methane, Carbon Dioxide	Migration and accumulation within building voids and enclosed spaces	Building and site occupants	Unlikely	Severe	Moderate/ low	See Notes: 10, 11, 12
On-site	Sub-station	PCBs, PAH, TPH	Inhalation of contaminated dusts, gases and vapours, dermal contact and direct ingestion of contaminated soils	School pupils, staff, visitors and maintenance workers	Unlikely	Medium	Low	See Notes: 13, 2, 3
			Inhalation of contaminated dusts, gases and vapours, dermal contact and direct ingestion of contaminated soils	Ground / construction workers	Unlikely	Medium	Low	See Notes: 13, 4
			Vertical migration downwards via leaching	Shallow / perched groundwater within Made Ground	Unlikely	Mild	Very Low	See Notes: 13, 5, 6, 7
			Root uptake mechanisms	Flora	Unlikely	Mild	Very Low	See Notes: 13, 8

CONCEPTUAL SITE MODEL					QUALITATIVE RISK ASSESSMENT			
Source		Pollutant	Pathway	Receptor	Likelihood of Occurrence	Consequence (severity)	Potential Risk	Justification of Risk
			Chemical attack from aggressive ground conditions (pH and water soluble sulphate) and shallow contamination	Buried services and below ground structures and foundations	Unlikely	Medium	Low	See Notes: 13, 9
On-site	Potential ACM within the curtilage of structures inc. imported sub-base material and external areas	Asbestos	Inhalation of dusts and fibres	School pupils, staff, visitors and maintenance workers	Unlikely	Severe	Moderate/ low	See Notes: 15, 2, 3
			Inhalation of dusts and fibres	Ground / construction workers	Unlikely	Severe	Moderate/ low	See Notes: 15, 4

JUSTIFICATION NOTES:

1 Contamination likely minor, with possible sporadic localised areas of higher contamination
2 Widespread hardstanding breaks pollutant linkages to end users, exposure is limited to the proposed areas of soft landscaped which are limited in extent
3 Limited areas of soft landscaping proposed, communal use only as part of school grounds
4 Construction workers - use of appropriate PPE and awareness of potential hazards through ‘toolbox’ talks
5 Widespread hardstanding significantly limits leaching potential
6 Perched groundwater is likely discontinuous and of limited value
7 Not located in SPZ and no abstractions within 1km of the site
8 Limited areas of soft landscaping - limited potential for plant uptake
9 Potable water pipes likely laid in natural soils
10 Significant thickness / potential for putrescible materials low
11 Organic material content of soils generally low
12 Potential for accumulation of any ground gases limited due to typically well ventilated areas within the school buildings
13 Potential for leaks and spills of fuels, oils at surface with substation to be retained within an existing building
14 Substation of relatively new construction and likely to have been regularly inspected and maintained in accordance with The Environmental Protection (Disposal of Polychlorinated Biphenyls and Other Dangero
15 Potential for ACMs to be present within sub base material and footprint of buildings to be demolished and any areas of imported made ground

ENVIRONMENTAL RISK ASSESSMENT

This section assesses the significance of the environmental issues that have been identified on the site or in the surrounding area. This is achieved by developing an initial conceptual model for the site and undertaking a qualitative risk assessment.

The objective of the conceptual model is to identify potential contaminant "source(s)", "pathways" and target "receptors" relating to the site and surrounding area. The information obtained is described in detail in the Land Use Chapter and the Sensitivity & Anthropology Chapter. This information is then collated and a qualitative risk assessment[10,11] undertaken to assess the source-pathway-receptor linkages. The potential for a pollution event to occur is evaluated using a risk classification tool[12.] The level of risk is assigned by considering the likelihood that a pollution event might occur with the consequence of its occurrence. The consequence is essentially a measurement of the severity of a hazard (or source) and sensitivity of the receptor (e.g. aquifer type or end user).

The Table presented overleaf details the various components of the site conceptual model and evaluates the risks associated with each viable potential pollution linkage. Where additional explanation is required, Justification Notes have been given at the end of the Table. The risk assessment methodology explaining the risk categories together with a risk matrix is given in Appendix A. The risks associated with each potential pollution linkage are also discussed within the report conclusions.

[10] Guidance for the Safe Development of Housing on Land Affected by Contamination R&D66, NHBC, 2008.
[11] Construction Industry Research and Information Association (CIRIA). Contaminated Land Risk Assessment. A Guide to Good Practice. CIRIA C552 2001.
[12] Department of the Environment, Transport and the Regions, Environment Agency and Institute of Environmental Health. Guidelines for Environmental Risk Assessment and Management. HMSO July 2000.

APPENDIX A: CONTAMINATED LAND NOTES

CONTAMINATED LAND ASSESSMENT NOTES

LAND USE

This section establishes the former and current land uses which may have caused contamination or given rise to environmental concerns on the site. An inspection of the site has been undertaken to provide further details of the site and neighbouring activities and to observe environmental conditions.

Historical Maps

Information about the history of the site has been obtained primarily through an inspection of historical Ordnance Survey maps. These maps provide an excellent record of the historical uses of a site and can be very important in assessing potential liabilities. Historical maps can show past potentially contaminative uses at a site that would not necessary be obvious during a site inspection, for example storage tanks or previous usage such as a gas works or quarry.

Public Record Information

Information concerning environmental regulations relating to the site has been obtained from a public register which has been accessed from a commercially database operated by the Landmark Information Group. This is the quickest means of gathering publicly available information. The data is supplied from within a 1km radius of a given National Grid Reference of a site. The database contains information from the Environment Agency (EA) and other statutory authorities responsible for monitoring environmental protection measures within the area of a site under existing legislation (see below).

Information has also been obtained directly from the environmental regulators in order to gauge the environmental characteristics of the site in more detail and to establish whether there have been any breaches of environmental regulations or pollution incidents associated with the site. This is used to support the publicly available information gathered from the commercial database. The time in which responses are returned can vary between statutory authorities.

Environmental Legislation

The principal environmental legislation in England consists of the Environmental Protection Act 1990 (EPA 90), the Water Resources Act 1991 and the Environment Act 1995 (EA 95). These Acts prescribe protection measures for all the environmental media (land, water and air) and are regulated by the EA and the Local Authority. Part 1 of the EPA 1990 sets out the statutory framework for Integrated Pollution Control (IPC) and Air Pollution Control (APC).

ENVIRONMENTAL SETTING

This chapter assesses the environmental sensitivity of the site location to contamination / pollution. It is important to establish the environmental setting because, irrespective of the level of contamination on the site, if its location is not ‘sensitive’ to this contamination / pollution there is a reduced risk of an environmental liability arising.

The sensitivity is assessed using British Geological Survey (BGS) information (such as geological maps and data from the Environment Agency)* on groundwater and surface water. Data on abstractions have been obtained from publically available sources including information supply companies such as Landmark and GroundSure. The vulnerability of surface waters and groundwater is based on sensitivity to pollution, distance from abstractions, type and nature of groundwater and type of overlying strata.

Aquifer Designations

In 1 April 2010 the Environment Agency began using aquifer designations that are consistent with the Water Framework Directive. These designations reflect the importance of aquifers in terms of groundwater as a resource (drinking water supply) but also their role in supporting surface water flows and wetland ecosystems.

The BGS maps are generally split into two different type of aquifer designation:

- **Superficial (Drift)**: permeable unconsolidated (loose) deposits. For example, terrace sands and gravels.
- **Bedrock:** solid permeable formations e.g. sandstone, chalk and limestone.

The maps display the following aquifer designations, and the corresponding colours beside the text are also represented on the Environment Agency's website*:

Principal Aquifers (formally Major Aquifers)

These are highly permeable layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may be highly productive and able to support large abstractions, public water supply and/or river base flow on a strategic scale.

Secondary Aquifers (formally Minor Aquifers)

These include a wide range of rock layers or drift deposits with an equally wide range of water permeability and storage. Although these aquifers will not normally produce large quantities of water for abstraction, they are important for local supplies (such as irrigation) and supplying base flow to rivers. Secondary aquifers are subdivided into two types:

Secondary A: permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers; and

Secondary B: predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.

Secondary Undifferentiated: has been assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.

Unproductive Strata

These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

Source Protection Zones (SPZs)

The Environment Agency have defined Source Protection Zones (SPZs) for 2000 groundwater sources such as wells, boreholes and springs used for public drinking water supply. These zones show the risk of contamination from any activities that might cause pollution in the area. **The closer the activity, the greater the risk.** The maps show three main zones (inner, outer and total catchment) and a fourth zone of special interest, which we occasionally apply, to a groundwater source.

Flood Risk

The Flood Map combines detailed local data with information from a new national model of England and Wales and indicates where flooding from rivers, streams and watercourses is possible. Under Section 105 of the Water Resources Act 1991 the Environment Agency has a duty to survey matters relating to flooding.

RISK ASSESSMENT

This chapter assesses the potential for the site to give rise to environmental risks and whether or not the risks are acceptable or if further assessment or remedial action is required.

The qualitative risk assessment firstly considers the source of contamination and potential contaminants associated with the source(s) (or hazards). As well as the type of source, the extent, concentration and availability of a contaminant is also assessed.

The effect of a hazard on an identified receptor is largely governed by the sensitivity of a receptor. Receptors may typically include people, buildings, animals, plants and local resources (such as groundwater, surface waters, mines etc.

A change in the receptor should be considered if the end-use of the site changes, for example, if a commercial site is to be redeveloped into a residential housing estate as a residential occupier is considered more sensitive than a commercial occupier.

The presence of contamination (as a potential hazard) does not necessary mean that there is a risk. It is the exposure pathway and the quantity of contamination that reaches the receptor which may determine the effect on a receptor (such as the integrity of a barrier between a contamination source and receptor).

The risk classifications for both likelihood and consequence is based on methodology presented in Contaminated Land Risk Assessment, A Guide to Good Practice (CIRIA C552, 2001) and has been developed from procedures outlined in the EA's CLR11 Model Procedures. The DETR, with the EA and Institute of Environment & Health, has also published guidance on risk assessment (Guidelines for Environmental Risk Assessment and Management). The guidance states that the designation of risk is based upon a consideration of both:

- The magnitude of the potential consequence (severity) of risk occurring which takes into account both the potential severity of the hazard and the sensitivity of the receptor; and
- The likelihood of an event occurring (probability) which takes into account the both the presence of the hazard and receptor and the integrity of the pathway.

The magnitude of consequence (severity) and likelihood (probability) is defined in the CIRIA guidance, together with examples. The two classifications are then compared (as shown on Table 1) to obtain an estimation of risk for each pollution linkage, ranging from "very high risk" to "very low risk". A description of the risks and likely actions required is presented in Table 2. The benefit of estimating the risk in this way is that it can be revised after each investigation phase as the conceptual model and corresponding pollution linkages are refined.

Table 1: Comparison of Consequence VS. Probability

		Consequence			
		Severe	**Medium**	**Mild**	**Minor**
Likelihood	**High likelihood**	Very high risk	High risk	Moderate risk	Moderate/ low risk
	Likely	High risk	Moderate risk	Moderate/ low risk	Low risk
	Low likelihood	Moderate risk	Moderate/ low risk	Low risk	Very low risk
	Unlikely	Moderate/ low risk	Low risk	Very low risk	Very low Risk

Table 2: Description of the Classified Risks and Likely Action Required

Level of Risk	Description of Classification
Very High Risk	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, or, there is evidence that severe harm to a designated receptor is currently happening. If this risk is realised, it is likely to result in significant environmental and financial liability to current and/ or future site owners/ occupiers. Urgent investigation (if not already undertaken) and remediation is likely to be required.
High Risk	Harm is likely to arise to a designated receptor from an identified hazard. If risk is realised, it is likely to present a sizeable environmental and financial liability to current and/ or future site owners/ occupiers. Urgent investigation is required and remediation work may be necessary in the short term and likely over the longer term.
Moderate Risk	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely the harm would be relatively mild. Investigation is normally required to clarify the risk and determine the potential environmental liability. Some remedial works may be required over the longer term.
Low Risk	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild. Limited investigation may be recommended to clarify the risk, dependant on the sensitivity of the receptor and view point of those of interest. Any remedial works are likely to be fairly limited.
Very Low Risk	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is likely to be mild or minor.

The acceptability of risk will always depend upon the view point of those of interest, whether it is an occupier of a site, a regulator or stakeholder. As a result, it could be that action will be required to deal with a level of risk even if it is classified as very low.

APPENDIX B: ENVIROCHECK REPORT

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
89397351_1_1

Customer Reference:
1522

National Grid Reference:
528320, 186010

Slice:
A

Site Area (Ha):
3.64

Search Buffer (m):
1000

Site Details:

Parliament Hill School
Highgate Road
LONDON
NW5 1RL

Client Details:

Mr M Dean
Lustre Consulting Ltd
Admirals Offices
The Historic Dockyard
Chatham
Kent
ME4 4TZ

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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 the attached datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Ove Arup Copyright Notice

Peter Brett Associates Copyright Notice

Radon Potential dataset Copyright Notice

Report Version v50.0

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Summary

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	pg 1				6
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 2		2	3	14
Local Authority Pollution Prevention and Control Enforcements	pg 4				1
Nearest Surface Water Feature	pg 4		Yes		
Pollution Incidents to Controlled Waters	pg 4				1
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances	pg 5				1
River Quality					
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register	pg 5				2
Water Abstractions	pg 5				(*10)
Water Industry Act Referrals					
Groundwater Vulnerability	pg 7	Yes	n/a	n/a	n/a
Drift Deposits			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 7	Yes	n/a	n/a	n/a
Superficial Aquifer Designations			n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences				n/a	n/a
Flooding from Rivers or Sea without Defences				n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
Detailed River Network Lines	pg 8	Yes		Yes	n/a
Detailed River Network Offline Drainage	pg 8			Yes	n/a

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites					
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)	pg 9				1
Local Authority Landfill Coverage		1	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Potentially Infilled Land (Non-Water)	pg 9			1	1
Potentially Infilled Land (Water)	pg 9			4	1
Registered Landfill Sites					
Registered Waste Transfer Sites	pg 9			1	
Registered Waste Treatment or Disposal Sites	pg 10				1
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					

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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 11	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry					
BGS Recorded Mineral Sites					
BGS Urban Soil Chemistry	pg 11		Yes	Yes	Yes
BGS Urban Soil Chemistry Averages	pg 14	Yes			
Brine Compensation Area			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 14	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 14	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards				n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 15	Yes		n/a	n/a
Radon Potential - Radon Affected Areas			n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries	pg 16		14	23	141
Fuel Station Entries	pg 30		1		2
Points of Interest - Commercial Services	pg 31		4	7	26
Points of Interest - Education and Health					
Points of Interest - Manufacturing and Production	pg 34		5	3	37
Points of Interest - Public Infrastructure	pg 38		3	4	14
Points of Interest - Recreational and Environmental	pg 39		2	11	28
Gas Pipelines					
Underground Electrical Cables					

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Summary

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 44				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	A12NE (W)	398	2	527800 186150
1	**Contaminated Land Register Entries and Notices** Location: Even Numbers 2-10 Ascham Street, Odd Numbers 15-31 Falkland Road And Even Numbers 34-48 Leverton Street, London, Nw5 Notice Type: Environmental Protection Act (1990) Section 78A(2) And 78(B) Determination That Land Is Contaminated Reference: Not Supplied Dated: 12th September 2005 Positional Accuracy: Positioned by the supplier Boundary Quality: Good	A9NE (SE)	847	3	529104 185405
2	**Contaminated Land Register Entries and Notices** Location: Even Numbers 14-20 Ascham Street, Odd Numbers 15-33 Lady Margaret Road, And Odd Numbers 37-41 Falkland Road, London, Nw5 Notice Type: Environmental Protection Act (1990) Section 78A(2) And 78(B) Determination That Land Is Contaminated Reference: Not Supplied Dated: 12th September 2005 Positional Accuracy: Positioned by the supplier Boundary Quality: Good	A9NE (SE)	891	3	529154 185395
3	**Contaminated Land Register Entries and Notices** Location: 29 Falkland Road, London, Nw5 2pu Notice Type: Environmental Protection Act (1990) Section 78A(2) And 78(B) Determination That Land Is Contaminated Reference: Not Supplied Dated: 31st July 2005 Positional Accuracy: Positioned by the supplier Boundary Quality: Good	A9NE (SE)	897	3	529131 185360
4	**Contaminated Land Register Entries and Notices** Location: 31 Falkland Road, London, Nw5 2pu Notice Type: Environmental Protection Act (1990) Section 78A(2) And 78(B) Determination That Land Is Contaminated Reference: Not Supplied Dated: 31st July 2005 Positional Accuracy: Positioned by the supplier Boundary Quality: Good	A9NE (SE)	902	3	529136 185359
5	**Contaminated Land Register Entries and Notices** Location: 33 Falkland Road, London, Nw5 2pu Notice Type: Environmental Protection Act (1990) Section 78A(2) And 78(B) Determination That Land Is Contaminated Reference: Not Supplied Dated: 12th September 2005 Positional Accuracy: Positioned by the supplier Boundary Quality: Good	A9NE (SE)	907	3	529142 185358
6	**Contaminated Land Register Entries and Notices** Location: 35 Falkland Road, London, Nw5 2pu Notice Type: Update on Remediation Statement - Remediation Work Completed Reference: Not Supplied Dated: 31st July 2005 Positional Accuracy: Positioned by the supplier Boundary Quality: Good	A9NE (SE)	913	3	529149 185357
7	**Discharge Consents** Operator: Thames Water Utilities Ltd Property Type: Reservoir/Borehole Site Location: Maiden Lane Authority: Environment Agency, Thames Region Catchment Area: Not Supplied Reference: Temp.0179 Permit Version: 1 Effective Date: 15th September 1989 Issued Date: 15th September 1989 Revocation Date: 5th October 2000 Discharge Type: Trade Effluent Discharge Environment: Freshwater Stream/River Receiving Water: River Thames **Status: Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	653	4	528900 186500

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
8	**Local Authority Pollution Prevention and Controls** Name: Perfect Dry Cleaners Location: 151 Highgate Road, London, Nw5 1lj Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC31 Dated: 24th January 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A13SE (SE)	208	3	528588 185787
9	**Local Authority Pollution Prevention and Controls** Name: Asf Garage Ltd Location: 138 Highgate Road, London, NW5 1PB Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC22 Dated: 1st April 1999 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status: Permitted** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	227	3	528633 185810
10	**Local Authority Pollution Prevention and Controls** Name: M & A Coachworks Location: 135 Highgate Road, CAMDEN, NW5 1LE Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC5 Dated: 6th September 1993 Process Type: Local Authority Pollution Prevention and Control Description: PG6/34 Respraying of road vehicles **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A13SE (SE)	289	3	528600 185695
11	**Local Authority Pollution Prevention and Controls** Name: The Choice Dry Cleaners Location: 62 Chetwynd Road, London, Nw5 1dj Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC40 Dated: 24th December 2006 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A14SW (E)	333	3	528810 185992
12	**Local Authority Pollution Prevention and Controls** Name: J Murphy & Sons Ltd Location: 81 Highgate Road, London, Nw5 1ts Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC10 Dated: 1st March 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/34 Respraying of road vehicles **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A8NE (SE)	387	3	528642 185605
13	**Local Authority Pollution Prevention and Controls** Name: Sun Dry Cleaners Location: 167 Fortress Road, London, Nw5 2hr Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC46 Dated: 28th December 2006 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A14SE (E)	664	3	529132 185860
14	**Local Authority Pollution Prevention and Controls** Name: Whittington Service Station (Esso) Location: 213-217 Junction Road, LONDON, N19 5QA Authority: London Borough of Islington, Environmental Health Department Permit Reference: Epa-Auth-020 Dated: 18th December 1998 Process Type: Local Authority Air Pollution Control Description: PG1/14 Petrol filling station **Status: Authorised** Positional Accuracy: Manually positioned to the address or location	A14NE (E)	749	5	529214 186115

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
15	**Local Authority Pollution Prevention and Controls** Name: M & A Coachworks Location: 36/52 Fortress Road, LONDON, NW5 1AD Authority: London Borough of Camden, Pollution Projects Team Permit Reference: NOT GIVEN Dated: 15th May 1997 Process Type: Local Authority Air Pollution Control Description: PG6/34 Respraying of road vehicles **Status: Authorisation revokedRevoked** Positional Accuracy: Manually positioned to the address or location	A9NE (SE)	771	3	529036 185443
15	**Local Authority Pollution Prevention and Controls** Name: M & A Coachworks Location: Fortess Grove, London, Nw5 2HE Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC3 Dated: 15th May 1997 Process Type: Local Authority Pollution Prevention and Control Description: PG6/34 Respraying of road vehicles **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A9NE (SE)	786	3	529031 185415
15	**Local Authority Pollution Prevention and Controls** Name: Perk Clean Location: 20 Fortress Road, London, Nw5 2hb Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC21 Dated: 12th January 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A9NW (SE)	794	3	529004 185375
16	**Local Authority Pollution Prevention and Controls** Name: Visage Location: 171 Malden Road, London, Nw5 4ht Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC50 Dated: 1st February 2008 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A7SE (S)	819	3	527961 185143
17	**Local Authority Pollution Prevention and Controls** Name: Post Office Vehicle Services Location: Unit A Kentish Town Business Park, Regis Road, LONDON, NW5 3RR Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC2 Dated: 27th February 1996 Process Type: Local Authority Pollution Prevention and Control Description: PG6/34 Respraying of road vehicles **Status: Permitted** Positional Accuracy: Automatically positioned to the address	A9SW (SE)	830	3	528820 185192
18	**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	A7NW (SW)	842	3	527529 185471
19	**Local Authority Pollution Prevention and Controls** Name: Hexagon Of Highgate Ltd Location: 1 Browns Lane, Regis Road, LONDON, NW5 3EX Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC4 Dated: 30th April 1993 Process Type: Local Authority Pollution Prevention and Control Description: PG6/34 Respraying of road vehicles **Status: Permitted** Positional Accuracy: Automatically positioned to the address	A8SE (S)	868	3	528626 185072

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
20	**Local Authority Pollution Prevention and Controls** Name: Zappeo Dry Cleaners Location: 310 Kentish Town Road, London, Nw5 2th Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC2 Dated: 12th January 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A9SW (SE)	886	3	529009 185256
21	**Local Authority Pollution Prevention and Controls** Name: Moderna Dry Cleaners Location: 70 Queens Crescent, London, Nw5 4ee Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC16 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	A3NW (S)	895	3	528216 185005
22	**Local Authority Pollution Prevention and Controls** Name: Eventech Ltd Location: 3 - 6 Spring Place, LONDON, NW5 3BA Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC2 Dated: 30th April 1993 Process Type: Local Authority Pollution Prevention and Control Description: PG6/34 Respraying of road vehicles **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A3NE (S)	920	3	528569 185005
23	**Local Authority Pollution Prevention and Controls** Name: The Kleen Machine Location: 347 Kentish Town Road, London, Nw5 2tj Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC44 Dated: 26th January 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A9SW (SE)	944	3	528988 185167
24	**Local Authority Pollution Prevention and Controls** Name: Royal Mail Property Holdings Ltd Location: 1 Regis Road, LONDON, NW5 3EW Authority: London Borough of Camden, Pollution Projects Team Permit Reference: Not Given Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG6/10 Coating manufacturing **Status: Authorisation revokedRevoked** Positional Accuracy: Manually positioned to the road within the address or location	A9SW (SE)	952	3	528875 185083
25	**Local Authority Pollution Prevention and Control Enforcements** Location: 3 - 6 Spring Place, London, Nw5 3ba Type: Air Pollution Control Enforcement Notice Reference: Not Given Date Issued: 16th November 2001 Enforcement Date: Not Supplied Details: Failure To Maintain Proper Paperwork For Organic Compounds Positional Accuracy: Manually positioned to the address or location	A3NE (S)	920	3	528569 185005
	Nearest Surface Water Feature	A13SW (S)	76	-	528277 185821
26	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Beddington Stw Authority: Environment Agency, Thames Region Pollutant: Oils - Unknown Note: Confirmed As A Pollution Incident Incident Date: 14th April 1989 Incident Reference: SE890125 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A19NW (NE)	817	4	528800 186800

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
27	**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 cancelledCancelled** Positional Accuracy: Manually positioned to the address or location	A7NW (SW)	853	4	527500 185495
28	**Substantiated Pollution Incident Register** Authority: Environment Agency - Thames Region, North East Area Incident Date: 22nd July 2004 Incident Reference: 252851 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: General Biodegradable Materials and WastesAlgae	A17SE (NW)	564	4	527851 186553
29	**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	A11NE (W)	941	4	527254 186101
	Water Abstractions Operator: Greenwich Leisure Limited Licence Number: 28/39/39/0091 Permit Version: 101 Location: Kentish Town Sports Centre, Prince Of Wales St Authority: Environment Agency, Thames Region Abstraction: Commercial/Industrial/Public Services: Drinking; Cooking; Sanitary; Washing; (Small Garden) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Kentish Town Sports Centre, Prince Of Wales Road, London Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 25th May 2012 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A4NW (S)	1273	4	528800 184700
	Water Abstractions Operator: Greenwich Leisure Limited Licence Number: 28/39/39/0091 Permit Version: 101 Location: Kentish Town Sports Centre, Prince Of Wales St Authority: Environment Agency, Thames Region Abstraction: Other Industrial/Commercial/Public Services: Process Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: St. Pancras Public Baths, Prince Of Wales Road, London Nw1 Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 25th May 2012 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A4NW (S)	1273	4	528800 184700

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Greenwich Leisure Ltd Licence Number: 28/39/39/0091 Permit Version: 101 Location: Two Bores At Kentish Town Sports Centre, Prince Of Wales St Authority: Environment Agency, Thames Region Abstraction: Other Industrial/Commercial/Public Services: Process Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: St. Pancras Public Baths, Prince Of Wales Road, London Nw1 Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 5th April 2012 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A4NW (S)	1273	4	528800 184700
	Water Abstractions Operator: London Borough Of Camden Licence Number: 28/39/39/0091 Permit Version: 100 Location: Two Bores At Kentish Town Sports Centre, Prince Of Wales St Authority: Environment Agency, Thames Region Abstraction: Commercial/Industrial/Public Services: Drinking; Cooking; Sanitary; Washing; (Small Garden) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 605 Yearly Rate (m3): 76509 Details: Kentish Town Sports Centre, Prince Of Wales Road, London Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 13th June 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A4NW (S)	1273	4	528800 184700
	Water Abstractions Operator: London Borough Of Camden Licence Number: 28/39/39/0091 Permit Version: 100 Location: Two Bores At Kentish Town Sports Centre, Prince Of Wales St Authority: Environment Agency, Thames Region Abstraction: Industrial; Commercial And Public Services: Laundry Use Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: St. Pancras Public Baths, Prince Of Wales Road, London Nw1 Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 13th June 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A4NW (S)	1273	4	528800 184700
	Water Abstractions Operator: London Borough Of Camden Licence Number: 28/39/39/0091 Permit Version: 100 Location: Two Bores At Kentish Town Sports Centre, Prince Of Wales St Authority: Environment Agency, Thames Region Abstraction: Other Industrial/Commercial/Public Services: Process Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: St. Pancras Public Baths, Prince Of Wales Road, London Nw1 Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 13th June 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A4NW (S)	1273	4	528800 184700

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: British Waterways Board Licence Number: 28/39/39/0173 Permit Version: 100 Location: Oval Road, Camden - Grand Union Regents Canal Authority: Environment Agency, Thames Region Abstraction: Other Industrial/Commercial/Public Services: Non-Evaporative Cooling Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): 20 Yearly Rate (m3): 7000 Details: Land At Oval Road, Camden, London Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 8th December 1994 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(S)	1889	4	528490 184020
	Water Abstractions Operator: Canal And River Trust Licence Number: 28/39/39/0164 Permit Version: 101 Location: Southampton Bridge, London, Nw8 - Regents Canal Authority: Environment Agency, Thames Region Abstraction: Amenity: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Pipeline Alongside The Regents Canal, London Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 17th December 2007 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(S)	1890	4	528500 184020
	Water Abstractions Operator: British Waterways Board Licence Number: 28/39/39/0164 Permit Version: 100 Location: Southampton Bridge, London, Nw8 - Regents Canal Authority: Environment Agency, Thames Region Abstraction: Amenity: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): 3840 Yearly Rate (m3): 1 Details: Pipeline Alongside The Regents Canal, London Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 25th April 1983 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(S)	1890	4	528500 184020
	Water Abstractions Operator: British Waterways Licence Number: 28/39/39/0164B Permit Version: Not Supplied Location: Southampton Bridge, LONDON, Nw8 Authority: Environment Agency, Thames Region Abstraction: Industrial Cooling (Cegb) Abstraction Type: Not Supplied Source: River Daily Rate (m3): 3840 Yearly Rate (m3): 1 Details: Annual Abstraction Total Aggregated To Another Licence For Quantity Purposes. Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(S)	1910	4	528500 184000
	Groundwater Vulnerability Soil Classification: Not classified Map Sheet: Sheet 39 West London Scale: 1:100,000	A13SW (NW)	0	4	528323 186014
	Drift Deposits None				
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	A13SW (NW)	0	2	528323 186014

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Superficial Aquifer Designations No Data Available				
	Extreme Flooding from Rivers or Sea without Defences None				
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				
30	**Detailed River Network Lines** River Type: Extended Culvert (greater than 50m) River Name: Regent's Canal Hydrographic Area: D006 River Flow Type: Primary Flow Path River Surface Level: Below Surface Drain Feature: Not a Drain Flood Risk Management Status: Other Rivers Water Course Name: Not Supplied Water Course Reference: Not Supplied	A13SW (SW)	0	4	528219 185959
31	**Detailed River Network Lines** River Type: Lake/Reservoir River Name: Highgate Ponds Hydrographic Area: D006 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk Management Status: Other Rivers Water Course Name: Not Supplied Water Course Reference: Not Supplied	A13NW (NW)	282	4	528023 186326
32	**Detailed River Network Offline Drainage** River Type: Tertiary River Hydrographic Area: D006	A14SW (E)	372	4	528824 185839
33	**Detailed River Network Offline Drainage** River Type: Tertiary River Hydrographic Area: D006	A14SW (E)	384	4	528831 185826

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
34	**Licensed Waste Management Facilities (Locations)** Licence Number: 80349 Location: Recycling Centre, Regis Road, Kentish Town, London, NW5 3EP Operator Name: LondonWaste Ltd Operator Location: Not Supplied Authority: Environment Agency - Thames Region, North East Area Site Category: Household Waste Amenity Sites **Licence Status: Transferred** Issued: 10th December 1996 Last Modified: 25th January 2002 Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A9SW (SE)	842	4	528740 185138
	Local Authority Landfill Coverage Name: London Borough of Camden - Has no landfill data to supply		0	6	528323 186014
	Local Authority Landfill Coverage Name: London Borough of Islington - Has no landfill data to supply		552	5	528969 186228
35	**Potentially Infilled Land (Non-Water)** Bearing Ref: S Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1996	A8NW (S)	261	-	528295 185637
36	**Potentially Infilled Land (Non-Water)** Bearing Ref: W Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1996	A11NE (W)	905	-	527307 186278
37	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1876	A8NE (S)	281	-	528401 185629
38	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1876	A14NW (NE)	429	-	528739 186344
39	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1876	A14NW (NE)	430	-	528738 186347
40	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1876	A19SW (NE)	465	-	528719 186421
41	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1873	A11SE (W)	963	-	527276 185771
42	**Registered Waste Transfer Sites** Licence Holder: Wharf & Jetty Services Ltd Licence Reference: DL098 Site Location: BR Goods Depot, Gordon House Road, CAMDEN, London, NW5 Operator Location: As Site Address Authority: Environment Agency - Thames Region, North East Area Site Category: Transfer Max Input Rate: Medium (Equal to or greater than 25,000 and less than 75,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Licence Status: Licence lapsed/cancelled/defunct/not applicable/surrenderedCancelled Dated: 1st May 1982 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the road within the address or location Boundary Quality: Not Supplied Authorised Waste: Commercial Waste Construction And Demolition Wastes Prohibited Waste: Biodegradable/Putrescible Waste Clinical Wastes Notifiable Wastes Special Wastes	A8NE (S)	257	4	528350 185650

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
43	**Registered Waste Treatment or Disposal Sites** Licence Holder: Camden L.B.C Licence Reference: T/NE/0475090 (CAM070) Site Location: Regis Road Recycling Centre, CAMDEN, London, NW5 3EP Operator Location: Environment Department, Town Hall Extension, Argyle Street, London, Greater London, Wc1h 8eq Authority: Environment Agency - Thames Region, North East Area Site Category: Recycling / Reclamation Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Licence Status: Operational as far as is knownOperational Dated: 10th December 1996 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the road within the address or location Boundary Quality: Not Supplied Authorised Waste: Elec/Onic Compts/Fix/Fit/App/Photocopi Empty Used Containers Lead/Acid Batteries Lighting Lamps/Tubes/Fluorescents Lwra Cat Bii Gen. Scrap Metal Waste Lwra Cat. A = Inert Wastes Lwra Cat. Bi Gen.Non-Putresc Lwra Cat. C 'Putresc' Mineral Oils Prohibited Waste: Waste N.O.S.	A9SW (SE)	825	4	528700 185140

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Thames Group	A13SW (NW)	0	2	528323 186014
	BGS Estimated Soil Chemistry No data available				
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 528248, 186291 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 13.80 mg/kg Cadmium Measured Concentration: 0.50 mg/kg Chromium Measured Concentration: 88.40 mg/kg Lead Measured Concentration: 202.30 mg/kg Nickel Measured Concentration: 22.80 mg/kg	A13NW (N)	152	2	528248 186291
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 528324, 185717 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 19.50 mg/kg Cadmium Measured Concentration: 0.60 mg/kg Chromium Measured Concentration: 78.00 mg/kg Lead Measured Concentration: 340.30 mg/kg Nickel Measured Concentration: 28.40 mg/kg	A13SW (S)	185	2	528324 185717
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 528670, 185654 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 28.70 mg/kg Cadmium Measured Concentration: 0.50 mg/kg Chromium Measured Concentration: 107.00 mg/kg Lead Measured Concentration: 320.30 mg/kg Nickel Measured Concentration: 50.10 mg/kg	A8NE (SE)	363	2	528670 185654
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 528741, 186234 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 19.70 mg/kg Cadmium Measured Concentration: 0.50 mg/kg Chromium Measured Concentration: 69.80 mg/kg Lead Measured Concentration: 314.00 mg/kg Nickel Measured Concentration: 26.00 mg/kg	A14NW (NE)	366	2	528741 186234

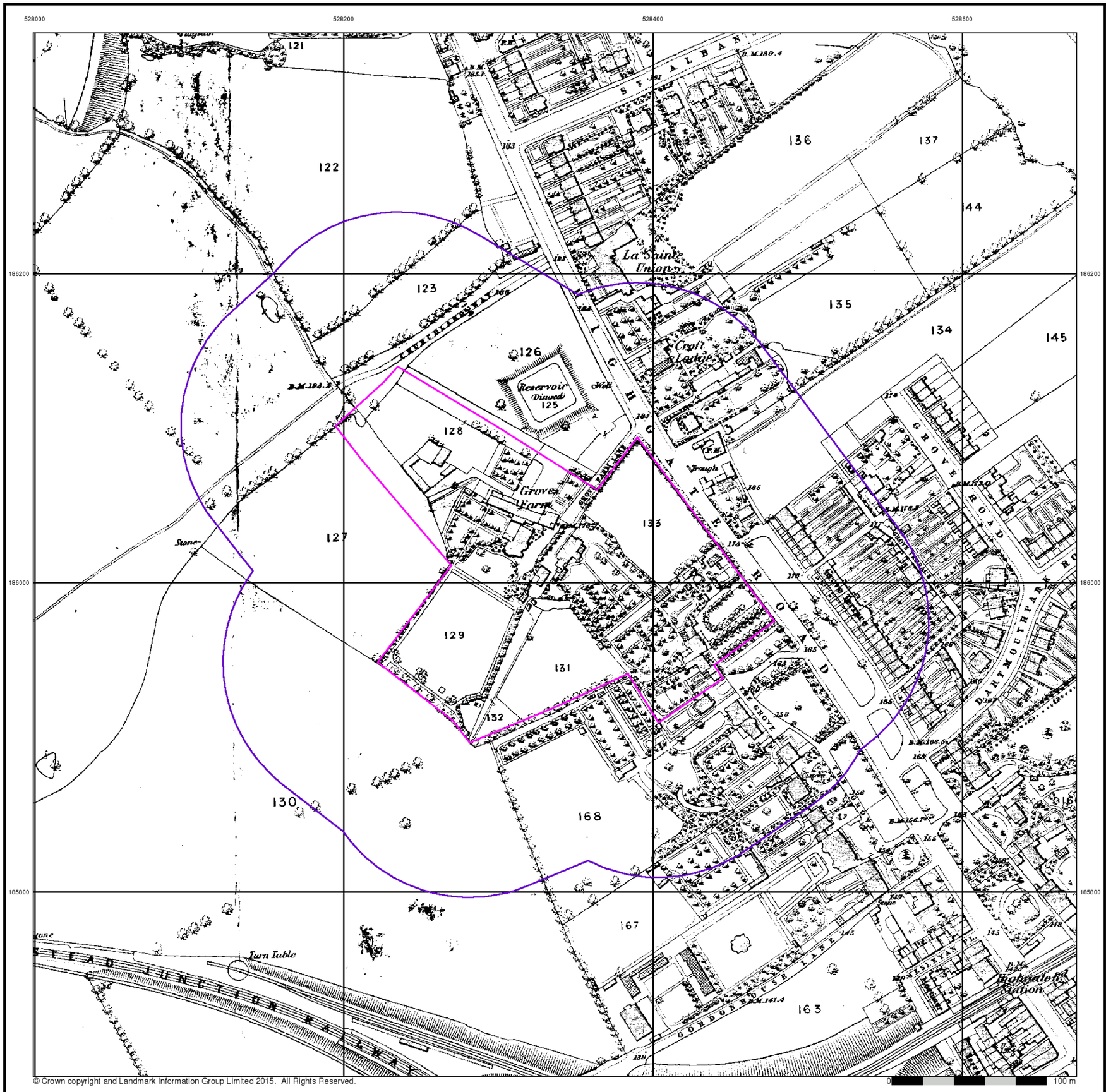
Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 527758, 186258 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 17.00 mg/kg Cadmium Measured Concentration: 0.30 mg/kg Chromium Measured Concentration: 103.40 mg/kg Lead Measured Concentration: 230.10 mg/kg Nickel Measured Concentration: 21.30 mg/kg	A12NE (NW)	464	2	527758 186258
	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	A12SE (SW)	512	2	527766 185717
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 528266, 185227 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 25.00 mg/kg Cadmium Measured Concentration: 24.70 mg/kg Chromium Measured Concentration: 201.90 mg/kg Lead Measured Concentration: 430.60 mg/kg Nickel Measured Concentration: 68.10 mg/kg	A8SW (S)	670	2	528266 185227
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 528310, 186810 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 16.90 mg/kg Cadmium Measured Concentration: 0.30 mg/kg Chromium Measured Concentration: 121.40 mg/kg Lead Measured Concentration: 205.10 mg/kg Nickel Measured Concentration: 23.20 mg/kg	A18NW (N)	675	2	528310 186810
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 529189, 185724 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 38.10 mg/kg Cadmium Measured Concentration: 1.00 mg/kg Chromium Measured Concentration: 89.70 mg/kg Lead Measured Concentration: 1348.20 mg/kg Nickel Measured Concentration: 55.20 mg/kg	A14SE (E)	754	2	529189 185724

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: 528658, 186810 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 19.20 mg/kg Cadmium Measured Concentration: 0.50 mg/kg Chromium Measured Concentration: 82.70 mg/kg Lead Measured Concentration: 148.90 mg/kg Nickel Measured Concentration: 29.10 mg/kg	A18NE (NE)	765	2	528658 186810
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 527676, 186759 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 15.30 mg/kg Cadmium Measured Concentration: 0.60 mg/kg Chromium Measured Concentration: 93.70 mg/kg Lead Measured Concentration: 232.10 mg/kg Nickel Measured Concentration: 19.50 mg/kg	A17NE (NW)	835	2	527676 186759
	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	A11NE (W)	907	2	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	A7SE (SW)	920	2	527669 185211
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 528958, 185156 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 15.60 mg/kg Cadmium Measured Concentration: 0.60 mg/kg Chromium Measured Concentration: 61.70 mg/kg Lead Measured Concentration: 625.40 mg/kg Nickel Measured Concentration: 23.20 mg/kg	A9SW (SE)	936	2	528958 185156

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 529381, 186297 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 13.50 mg/kg Cadmium Measured Concentration: 0.60 mg/kg Chromium Measured Concentration: 44.70 mg/kg Lead Measured Concentration: 474.20 mg/kg Nickel Measured Concentration: 21.70 mg/kg	A15NW (E)	959	2	529381 186297
	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	A13SW (NW)	0	2	528323 186014
	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	A13SW (NW)	0	2	528323 186014
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (NW)	0	2	528323 186014
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (NW)	0	2	528323 186014
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (NW)	0	2	528323 186014
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A8NE (S)	217	2	528337 185679
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (NW)	0	2	528323 186014

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SW (NW)	0	2	528323 186014
	Radon Potential - Radon Affected Areas Affected Area: The property is in a lower probability radon area, as less than 1% of homes are above the action level Source: British Geological Survey, National Geoscience Information Service	A13SW (NW)	0	2	528323 186014
	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	A13SW (NW)	0	2	528323 186014

APPENDIX C: HISTORICAL MAPS



LUSTRE CONSULTING

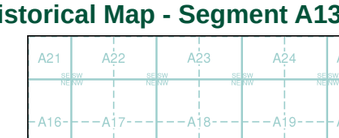
London

Published 1873

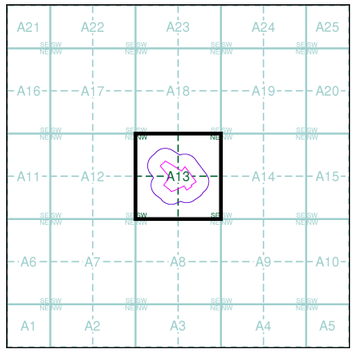
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

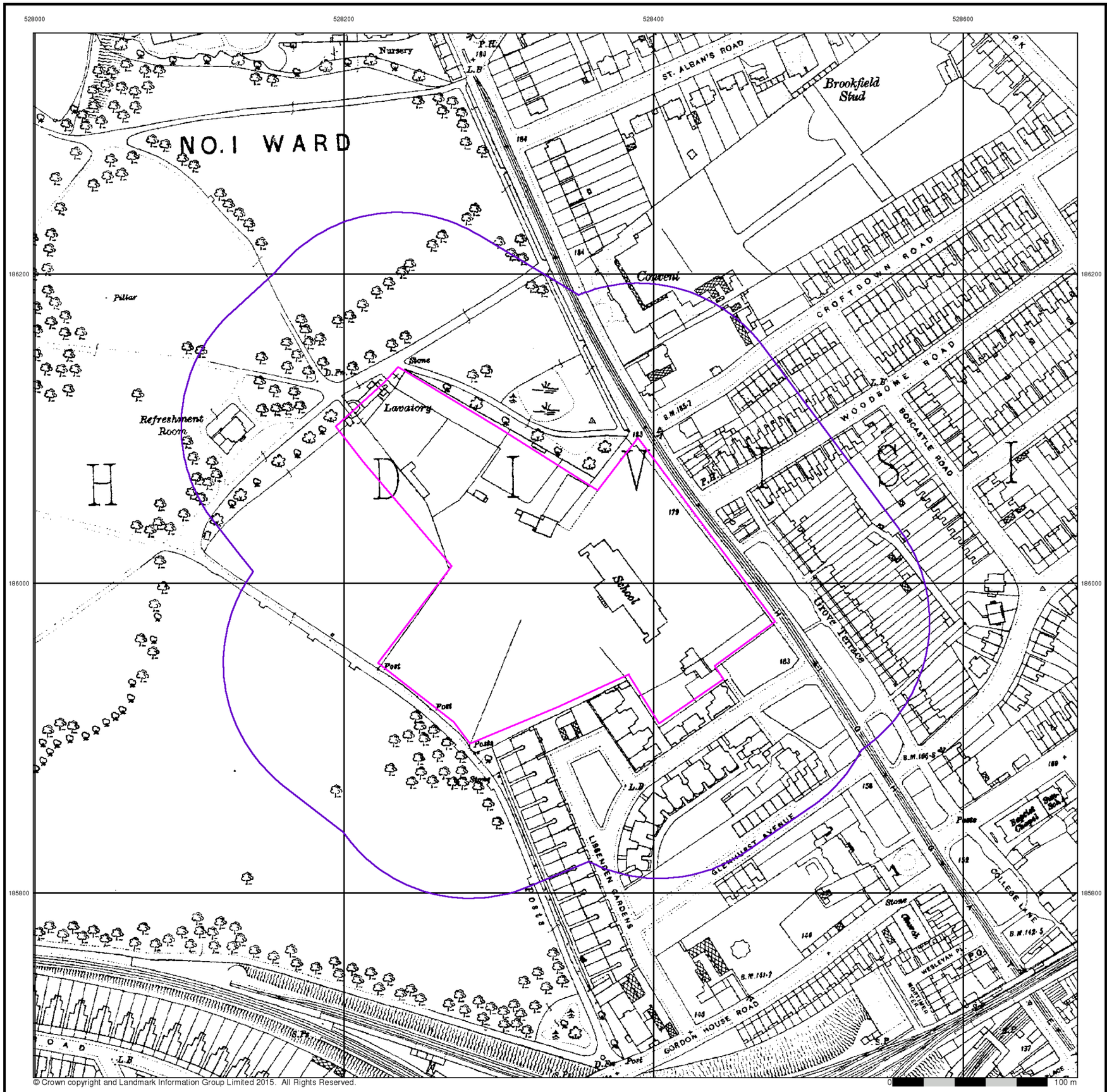
Order Number:	89397351_1_1
Customer Ref:	1522
National Grid Reference:	528320, 186010
Slice:	A
Site Area (Ha):	3.64
Search Buffer (m):	100

Site Details

Parliament Hill School, Highgate Road, LONDON, NW5 1RL

Landmark Information Group

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



0 100 m

LUSTRE CONSULTING

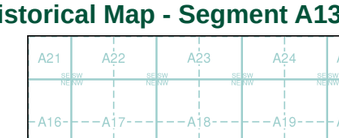
London

Published 1915

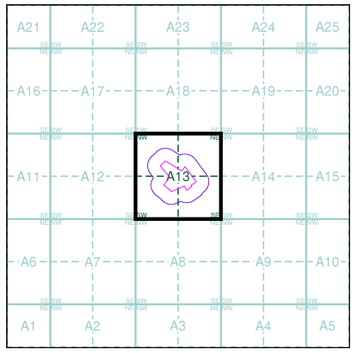
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	89397351_1_1
Customer Ref:	1522
National Grid Reference:	528320, 186010
Slice:	A
Site Area (Ha):	3.64
Search Buffer (m):	100

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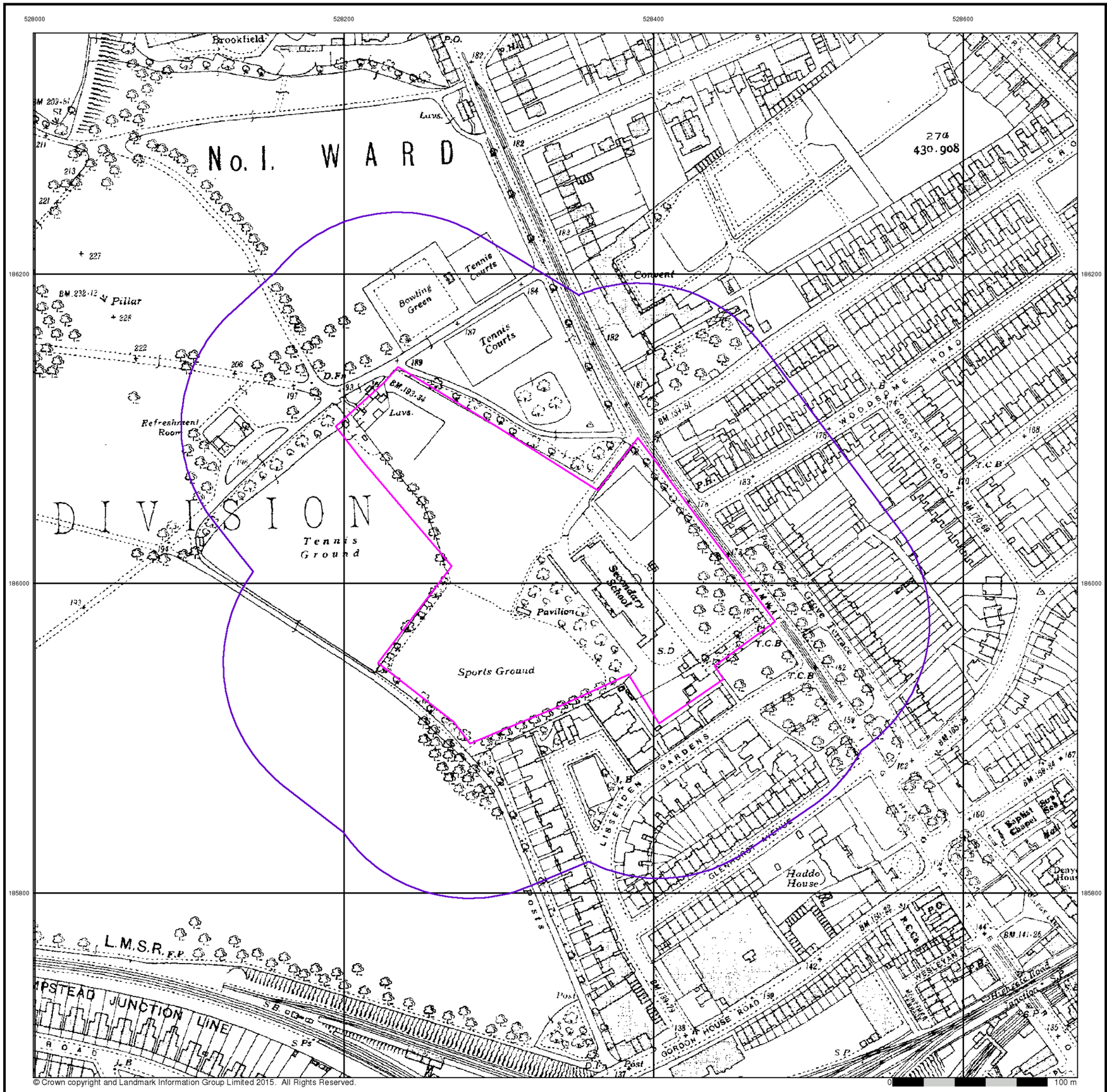


LUSTRE CONSULTING

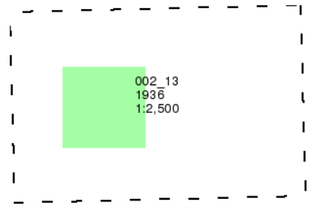
London

Published 1936

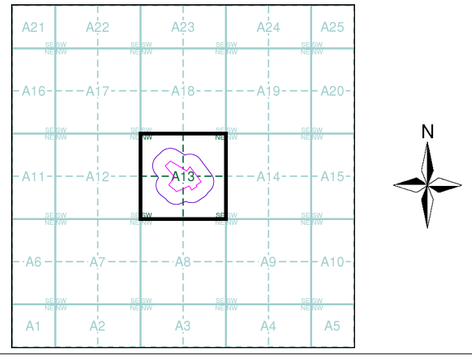
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



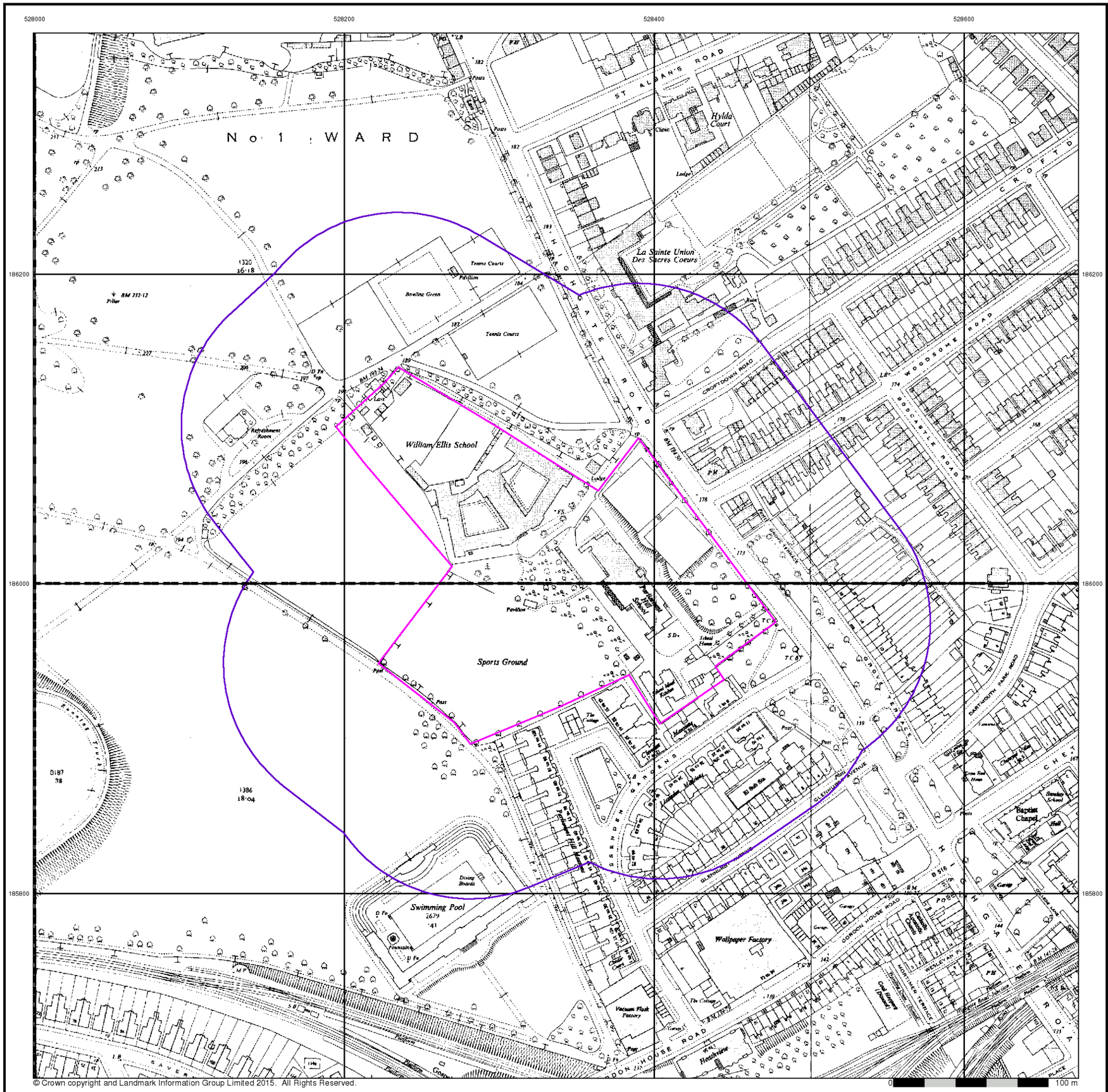
Order Details

Order Number:	89397351_1_1
Customer Ref:	1522
National Grid Reference:	528320, 186010
Slice:	A
Site Area (Ha):	3.64
Search Buffer (m):	100

Site Details

Parliament Hill School, Highgate Road, LONDON, NW5 1RL

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



LUSTRE CONSULTING

Ordnance Survey Plan

Published 1953 - 1954

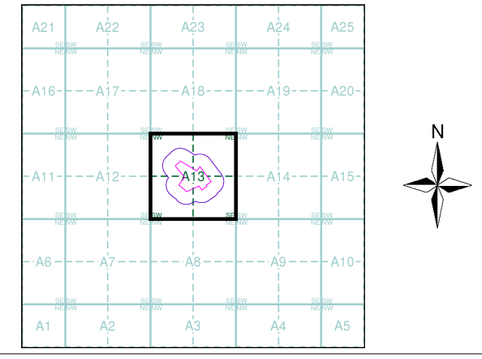
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

TQ2786 1953 1:2,500	TQ2886 1953 1:2,500
TQ2785 1954 1:2,500	TQ2885 1954 1:2,500

Historical Map - Segment A13



Order Details

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Customer Ref:	1522
National Grid Reference:	528320, 186010
Slice:	A
Site Area (Ha):	3.64
Search Buffer (m):	100

Site Details

Parliament Hill School, Highgate Road, LONDON, NW5 1RL

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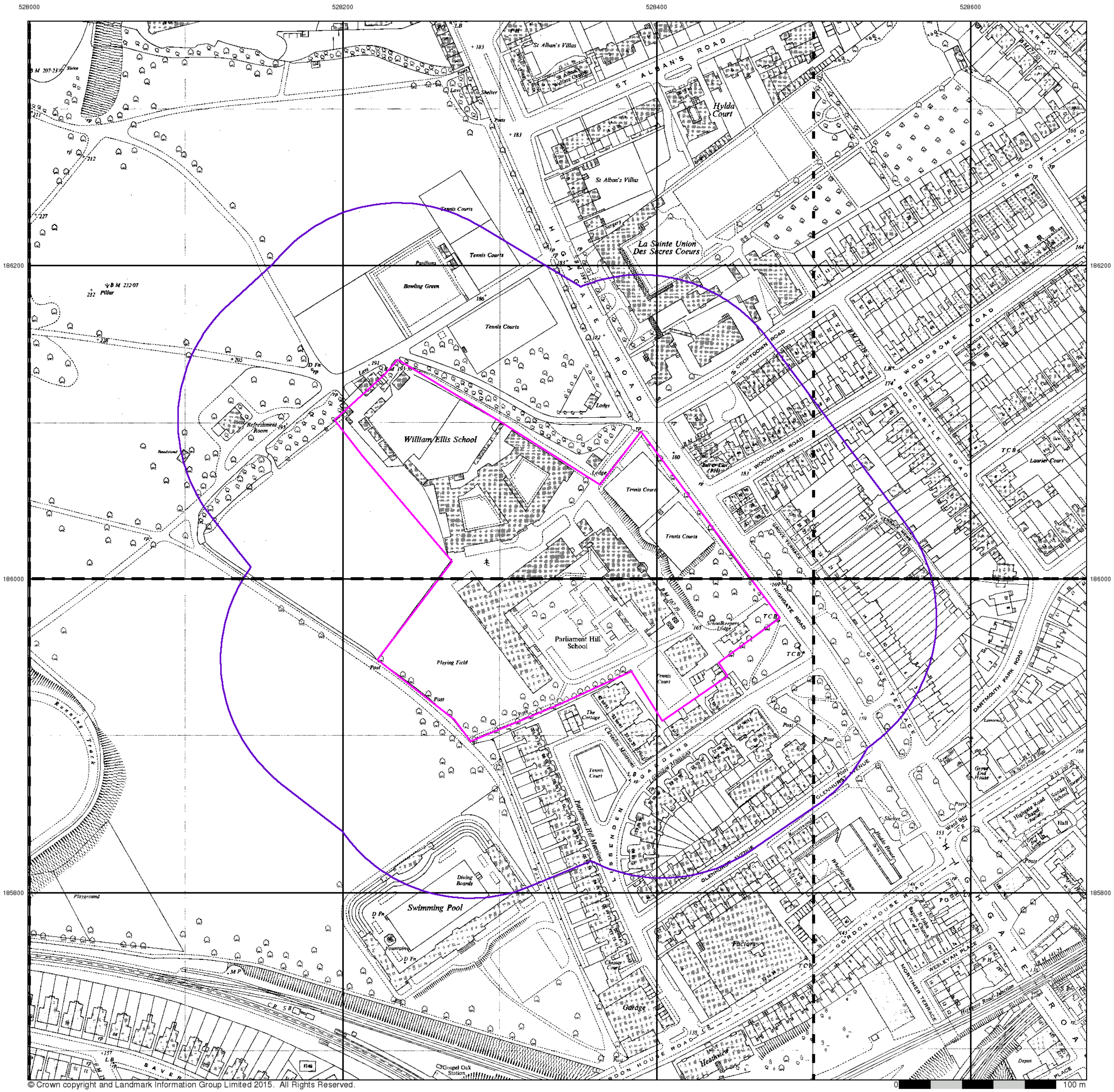


LUSTRE CONSULTING

Ordnance Survey Plan

Published 1962 - 1979

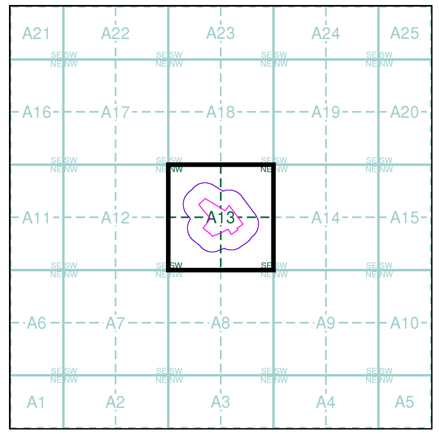
Source map scale - 1:1,250

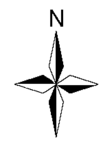
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

TQ2786SE 1979 1:1,250	TQ2886SW 1963 1:1,250	TQ2886SE 1962 1:1,250
TQ2785NE 1974 1:1,250	TQ2885NW 1966 1:1,250	TQ2885NE 1966 1:1,250

Historical Map - Segment A13





Order Details

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Customer Ref: 1522
National Grid Reference: 528320, 186010
Slice: A
Site Area (Ha): 3.64
Search Buffer (m): 100

Site Details

Parliament Hill School, Highgate Road, LONDON, NW5 1RL

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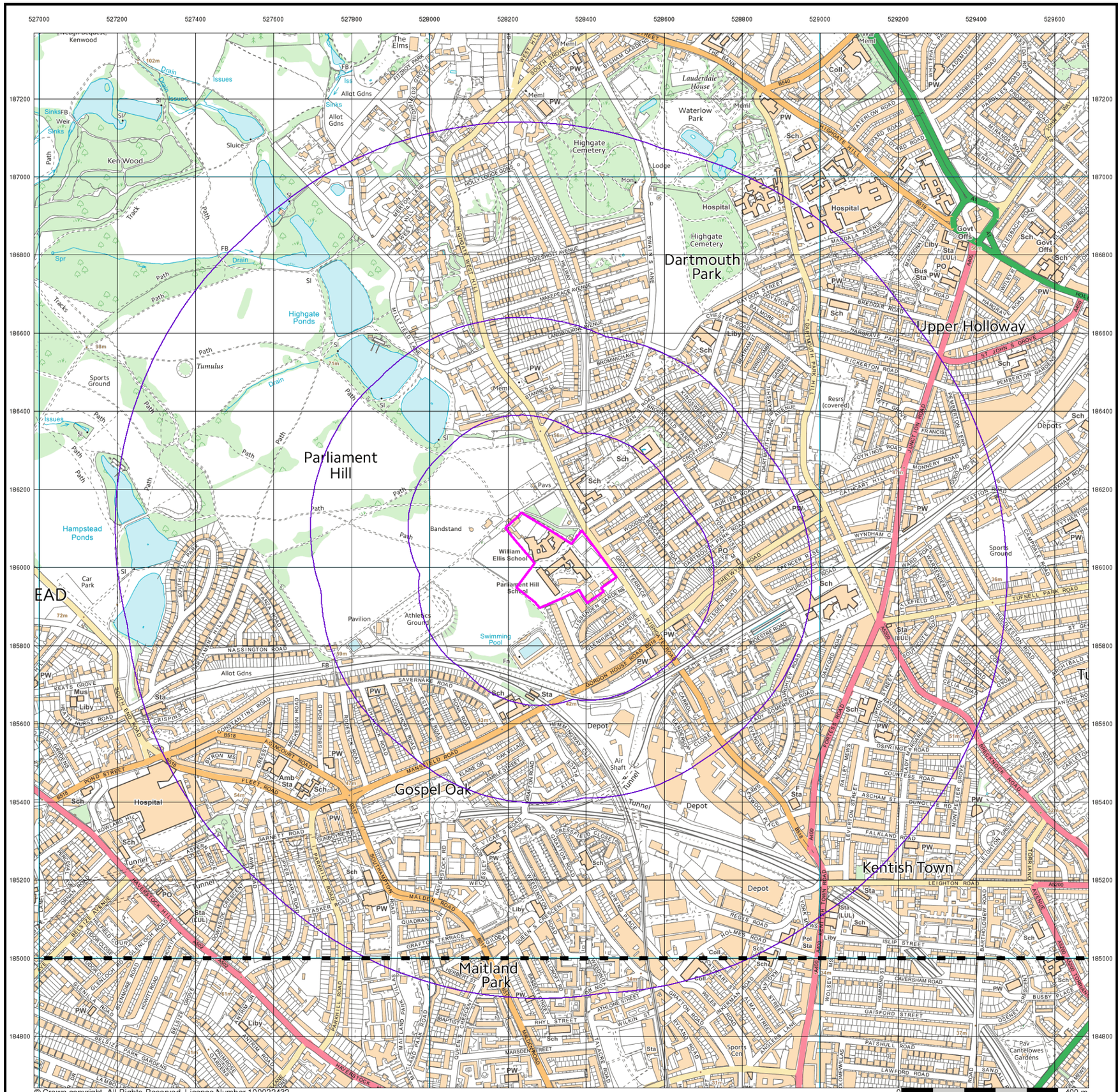


LUSTRE CONSULTING

VectorMap Local

Published 2016

Source map scale - 1:10,000

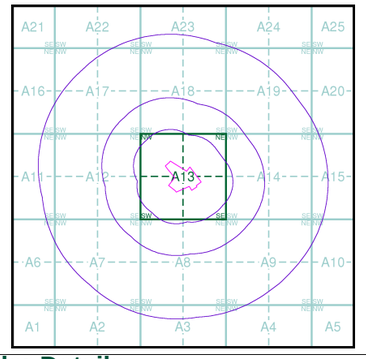
VectorMap Local (Raster) is Ordnance Survey's highest detailed 'backdrop' mapping product. These maps are produced from OS's VectorMap Local, a simple vector dataset at a nominal scale of 1:10,000, covering the whole of Great Britain, that has been designed for creating graphical mapping. OS VectorMap Local is derived from large-scale information surveyed at 1:1250 scale (covering major towns and cities),1:2500 scale (smaller towns, villages and developed rural areas), and 1:10 000 scale (mountain, moorland and river estuary areas).

Map Name(s) and Date(s)

TQ28NE
2016
Variable

TQ28SE
2016
Variable

Historical Map - Slice A



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Order Number:	89397351_1_1
Customer Ref:	1522
National Grid Reference:	528320, 186010
Slice:	A
Site Area (Ha):	3.64
Search Buffer (m):	1000

Site Details

Parliament Hill School, Highgate Road, LONDON, NW5 1RL

Landmark Information Group

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

APPENDIX D: HISTORIC BOREHOLE LOGS

W. S. Ltd. 3,000/11/50.

C. ISLER & Co., LTD.,
ARTESIAN & CONSULTING WELL ENGINEERS
BEAR LANE, SOUTHWARK, S.E.1.

Telegraphic Address: "ISLER, LONDON."
Telephone No.: WATERLOO 7044 (3 lines).

BIRMINGHAM BRANCH: 93, Broad Street.
LEEDS BRANCH: Bardon Chambers, King Street.

CHART

of Borehole at L.C.C. Parliament Hill Comprehensive High School Highgate.

Bored by J. Payne. Date Commenced 195

Water Levels: Standing Ft. Pumping Ft. ,, Completed 195

Supply Galls. per hour. Analysis if made

Lined with Ft. Ins. of Ins. Tubes Ft. above / below Surface.

Boring Stage above / below Ground or Street Level Ft. Height above Sea Level Ft.

BOREHOLE No. 2

Stratum	Thickness.	Total.	Water level. Rods in	Rods out
(B) Mould.	6"	6"		
Ballast.	6"	1' 0"		
Made up Ground.	1' 0"	2' 0"		
Light Brown Mottle Clay.	3' 0"	5' 0"		
Dark Brown Mottle Clay.	9' 0"	14' 0"		
Brown Clay.	1' 0"	15' 0"		

W. S. Ltd. 3,000/11/50.

C. ISLER & Co., LTD.,
ARTESIAN & CONSULTING WELL ENGINEERS
BEAR LANE, SOUTHWARK, S.E.1.

Telegraphic Address: "ISLER, LONDON."
Telephone No.: WATERLOO 7044 (3 lines).

BIRMINGHAM BRANCH: 93, Broad Street.
LEEDS BRANCH: Bardon Chambers, King Street.

CHART

of Borehole at L.C.C. Parliament Hill Comprehensive High Sch. Highgate.

Bored by B. Hiffen. Date Commenced 8.2.51. 195

Water Levels: Standing Dry Ft. Pumping Ft. ,, Completed 9.2.51 195

Supply Galls. per hour. Analysis if made

Lined with Ft. Ins. of Ins. Tubes Ft. above / below Surface.

Boring Stage above / below Ground or Street Level Ft. Height above Sea Level Ft.

BOREHOLE No. 3

Stratum	Thickness.		Total.		Water level. Rods in	Rods out
					Dry	
Top Soil.	2'	6"	2'	6"		
Clay & Peat.	1'	6"	4'	0"		
Mottle Clay (Brown)	4'	0"	8'	0"		
Mottle Clay (Blue)	9'	0"	17'	0"		
Brown Clay.	8'	0"	25'	0"		

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Telephone No.: WATERLOO 7044 (3 lines).

BIRMINGHAM BRANCH: 93, Broad Street.
LEEDS BRANCH: Bardon Chambers, King Street.

CHART

of Borehole at L.C.C. Parliament Hill Comprehensive High School Highgate.

Bored by B. Tiffen. Date Commenced 7.2.52. 195

Water Levels: Standing Dry Ft. Pumping Ft. ,, Completed 7.2.52. 195

Supply Galls. per hour. Analysis if made

Lined with Ft. Ins. of Ins. Tubes Ft. above / below Surface.

Boring Stage above / below Ground or Street Level Ft. Height above Sea Level Ft.

BOREHOLE No. 4

Stratum	Thickness.	Total.	Water level. Rods in	Rods out
(D) Top Soil.	1' 6"	1' 6"	Dry	0.46
Yellow Clay.	4' 9"	6' 3"		1.90
Mottle Clay.	5' 9"	12' 0"		3.66
Mottle Clay & Claystone.	2' 0"	14' 0"		4.27
Mottle Clay.	3' 0"	17' 0"		5.18
Brown Clay.	8' 0"	25' 0"		7.62

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LEEDS BRANCH: Bardon Chambers, King Street.

CHART

of Borehole at L.C.C. Parliament Hill Comprehensive High School, Highgate.

Bored by B. Wiffen. Date Commenced 3:1:52 195

Water Levels: Standing Dry Ft. Pumping Ft. ,, Completed 195

Supply Galls. per hour. Analysis if made

Lined with Ft. Ins. of Ins. Tubes Ft. above / below Surface.

Boring Stage above / below Ground or Street Level Ft. Height above Sea Level Ft.

BOREHOLE No. 5

Stratum	Thickness.		Total.		Water level. Rods in	Water level. Rods out
(E) Top Soil.	1'	6"	1'	6"		Dry
Yellow Clay.	4'	6"	6'	0"		
Brown Mottle Clay.	7'	6"	13'	6"		
Brown Clay.	12'	0"	25'	0"		
Hole Dry.						

Page 6 of 10 TQ28NE/26 N. 3837

N 2 SW /

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LEEDS BRANCH: Bardon Chambers, King Street.

CHART

of Borehole at L.C.C. Parliament Hill Comprehensive High School, Highgate.

Bored by B. Wirren. Date Commenced 5:2:52 195

Water Levels: Standing Dry Ft. Pumping Ft. ,, Completed 6:2:52 195

Supply Galls. per hour. Analysis if made

Lined with Ft. Ins. of Ins. Tubes Ft. above / below Surface.

Boring Stage above / below Ground or Street Level Ft. Height above Sea Level Ft.

(F)

BOREHOLE No. 1

Stratum	Thickness.	Total.	Water level. Rods in	Rods out
Top Soil.	1' 6"	1' 6"		
Yellow Clay.	5' 6"	7' 0"		
Yellow Clay & Stones.	2' 0"	9' 0"		
Mottle Clay.	9' 0"	18' 0"		
Brown Clay.	7' 0"	25' 0"		
Dark Brown Clay.	3' 0"	28' 0"		
Hole Dry.				

Page 7 of 10 TQ28NE/26 N. 3437

NSW

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LEEDS BRANCH: Bardon Chambers, King Street.

CHART

65 VV

of Borehole at L.C.C. Parliament Hill Comprehensive High School. Highgate.

Bored by B. Wilson. Date Commenced 20:1:51 195

Water Levels: Standing Dry Ft. Pumping Ft. ,, Completed 2:2:51 195

Supply Galls. per hour. Analysis if made

Lined with Ft. Ins. of Ins. Tubes Ft. above/below Surface.

Boring Stage above/below Ground or Street Level Ft. Height above Sea Level Ft.

BOREHOLE No. 7

Stratum	Thickness.		Total.		Water level. Rods in	Rods out
Top Soil.	1'	3"	1'	3"	Dry	
Yellow Clay.	4'	0"	5'	3"		
Yellow Clay & Stone.	4'	3"	10'	0"		
Brown Mottle Clay.	5'	0"	15'	0"		
Brown Clay.	10'	0"	25'	0"		
Hole Dry.						

16 FEB 1951

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BIRMINGHAM BRANCH: 93, Broad Street.
LEEDS BRANCH: Bardon Chambers, King Street.

CHART

of Borehole at L.C.C. Parliament Hill Comprehensive High School. Highgate.

Bored by J. A. Coyne. Date Commenced 195

Water Levels: Standing ..... Ft. Pumping ..... Ft. ,, Completed 195

Supply ..... Galls. per hour. Analysis if made .....

Lined with ..... Ft. ..... Ins. of ..... Ins. Tubes ..... Ft. above / below Surface.

Boring Stage above / below Ground or Street Level ..... Ft. Height above Sea Level ..... Ft.

BOREHOLE No. 8

Stratum	Thickness.	Total.	Water level. Rods in	Rods out
(4) Concrete.	1' 0"	1' 0"	Dry	
Black Silt.	1' 6"	2' 6"		
Made up Ground.	3' 6"	6' 0"		
Brown Kettle Clay.	9' 0"	15' 0"		

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LEEDS BRANCH: Bardon Chambers, King Street.

CHART

of Borehole at L.C.C. Parliament Hill Comprehensive High School. Highgate.

Bored by J. A. Coyne. Date Commenced 195

Water Levels: Standing ..... Ft. Pumping ..... Ft. ,, Completed 195

Supply ..... Galls. per hour. Analysis if made .....

Lined with ..... Ft. ..... Ins. of ..... Ins. Tubes ..... Ft. above / below Surface.

Boring Stage above / below Ground or Street Level ..... Ft. Height above Sea Level ..... Ft.

BOREHOLE No. 8

Stratum	Thickness.	Total.	Water level. Rods in	Rods out
(4) Concrete.	1' 0"	1' 0"	Dry	
Black Silt.	1' 6"	2' 6"		
Made up Ground.	3' 6"	6' 0"		
Brown Kettle Clay.	9' 0"	15' 0"		

Page 9 of 10 TP28NE/26 N. 38

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LEEDS BRANCH: Bardon Chambers, King Street.

CHART

of Borehole at L.C.C. Site. Highgate.

Bored by J. W. Payne. Date Commenced 195

Water Levels: Standing ..... Ft. Pumping ..... Ft. ,, Completed 195

Supply ..... Galls. per hour. Analysis if made .....

Lined with ..... Ft. ..... Ins. of ..... Ins. Tubes ..... Ft. above / below Surface.

Boring Stage above / below Ground or Street Level ..... Ft. Height above Sea Level ..... Ft.

Stratum	Thickness.		Total.		Water level. Rods in	Water level. Rods out
BOREHOLE No. 9						
(1) Made up Ground.	4'	0"	4'	0"		
Yellow Mottle Clay.	2'	0"	6'	0"		
Brown Mottle Clay.	8'	0"	14'	0"		
Brown Clay.	1'	0"	15'	0"		

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LEEDS BRANCH: Bardon Chambers, King Street.

CHART

of Borehole at L.C.C. Parliament Hill, Comprehensive High School Highgate.

Bored by B. Miller. Date Commenced 10.3.51 195

Water Levels: Standing Dry Ft. Pumping Ft. ,, Completed 10.4.51 195

Supply Galls. per hour. Analysis if made

Lined with Ft. Ins. of Ins. Tubes Ft. above / below Surface.

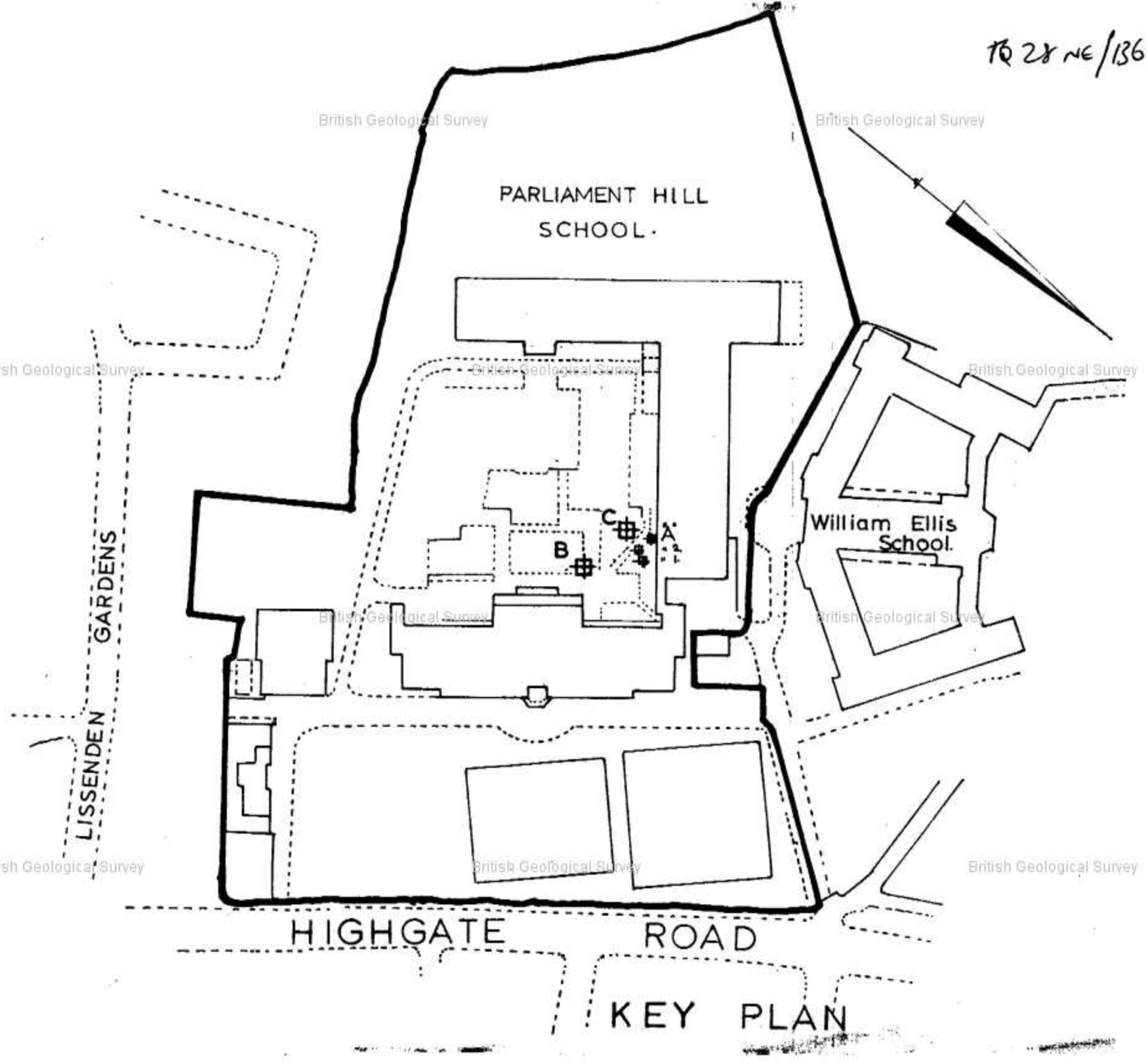
Boring Stage above / below Ground or Street Level Ft. Height above Sea Level Ft.

BOREHOLE No. 10

Stratum	Thickness.		Total.		Water level. Rods in	Water level. Rods out
					Dry	
Made up Ground.	4'	6"	4'	6"		
Yellow Clay.	2'	0"	6'	6"		
Yellow Clay & Stones.	1'	6"	8'	0"		
Brown Clay.	2'	0"	10'	0"		
Mottle Blue Clay.	5'	0"	15'	0"		

TQ 28 NE/136 -138

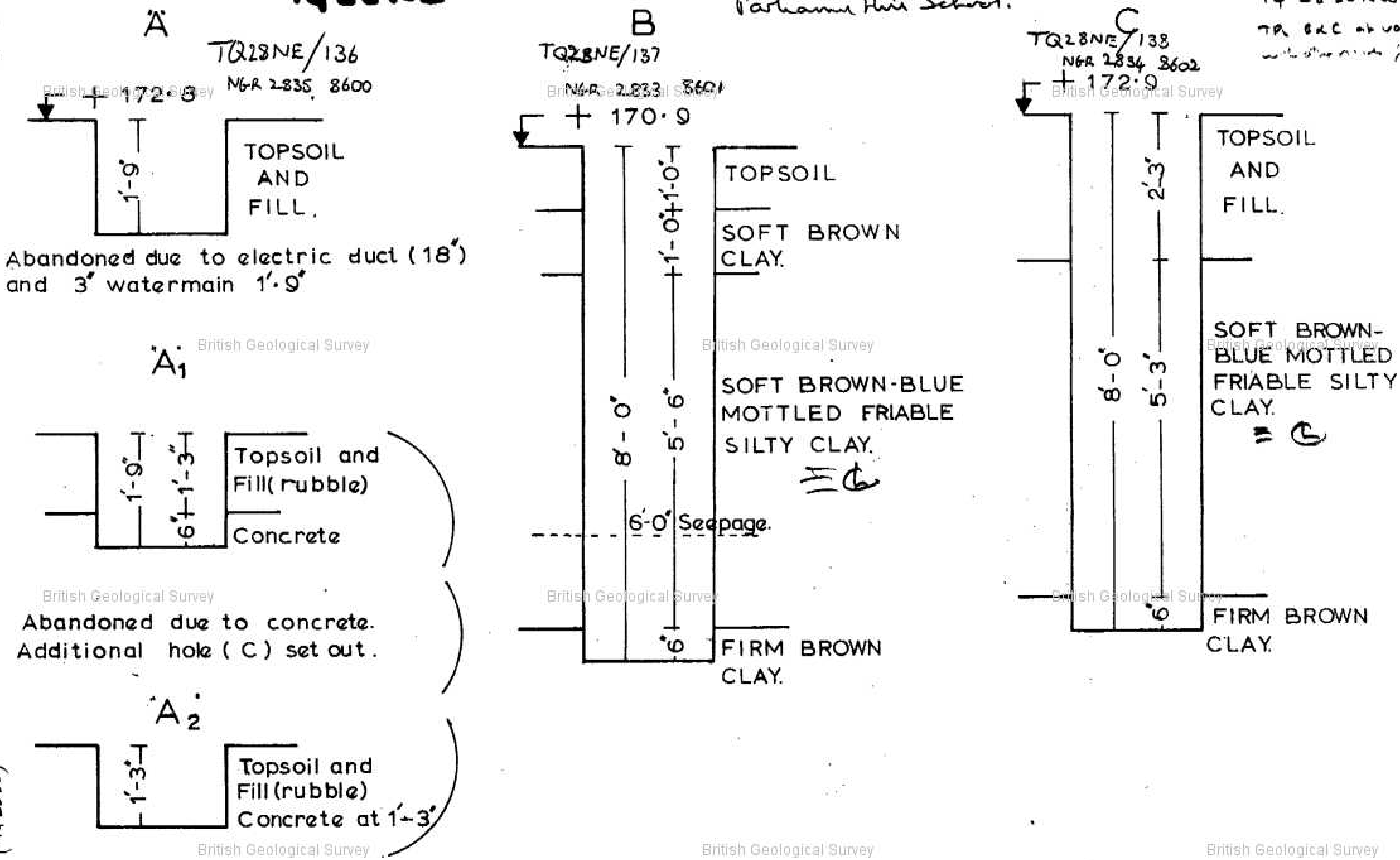
TQ28NE



TQ28NE

Parliament Hill School.

TQ 2830NW



A
TQ28NE/136
NGR 2835 8600
+ 172·3
1'-9"
TOPSOIL AND FILL.
Abandoned due to electric duct (18") and 3" watermain 1'·9"
A1
1'-9"
1'-3"
6"
Topsoil and Fill(rubble)
Concrete
Abandoned due to concrete. Additional hole (C) set out.
A2
1'-3"
Topsoil and Fill(rubble)
Concrete at 1'-3"
B
TQ28NE/137
NGR 2833 8601
+ 170·9
1'-0"
1'-0"
5'-6"
8'-0"
6"
TOPSOIL
SOFT BROWN CLAY.
SOFT BROWN-BLUE MOTTLED FRIABLE SILTY CLAY.
6'-0" Seepage.
FIRM BROWN CLAY.
C
TQ28NE/138
NGR 2834 8602
+ 172·9
2'-3"
5'-3"
8'-0"
6"
TOPSOIL AND FILL.
SOFT BROWN-BLUE MOTTLED FRIABLE SILTY CLAY.
FIRM BROWN CLAY.

TQ28NE 136-138

APPENDIX E:

NOTES ON LIMITATIONS

LUSTRE CONSULTING, ENVIRONMENTAL AND GEOTECHNICAL CONSULTANCY SERVICES

NOTES ON LIMITATIONS

General

Lustre Consulting have completed the attached report for the use of the Client detailed on the front cover and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed.

Third parties should not use or rely upon the contents of the report unless written approval has been gained from Lustre Consulting; (due to legal requirements, a charge may be levied against such approval).

Lustre Consulting accepts no responsibility or liability for:

a) the consequences of this documentation being used for any purpose or project other than that for which it was commissioned, and

b) this document to any third party with whom approval for use has not been agreed.

Phase I Environmental Risk Assessments, Desk Studies and Site Audits

The work completed and utilised to provide this report comprises a study of available documentation. The opinions and results presented in this report have been arrived at by utilising the finite amount of data available at the time of writing and are relevant only to the purpose for which the report was commissioned. The data which has been reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative information pertaining to site conditions. Should additional information become available which may affect the opinions expressed in this report, Lustre Consulting reserves the right to review this information and, if warranted, to modify the opinions presented in the report accordingly.

It should be noted that the risks which are identified in this report are perceived risks based on the available information at the time of writing and that the actual risks associated can only be assessed following a physical investigation of the site.

Phase II Site Investigations

The intrusive investigation has been completed to provide information concerning the type and degree of contamination present along with ground and groundwater conditions which facilitates a reasonable risk assessment to be completed. The stated objectives of the ground investigation have been limited to assessing the proven risks which are associated with potential human targets, building materials, the environment (including adjacent land), and to surface and groundwater.

The amount of exploratory work, chemical testing and monitoring completed as part of this project has potentially been restricted by the short timescale available, and the locations of exploratory holes undertaken have potentially been restricted to areas unoccupied by buildings(s) and buried services. A more comprehensive post demolition / decommission investigation may be required if the site is to be

redeveloped. For these reasons any costs included in relation to site remediation must be considered as tentative only at this time.

The exploratory holes investigate only a small volume of the ground in relation to the size of the site and therefore, can only provide a “snap shot” or general indication of ground conditions located on the site. The fact that the site has been investigated does not preclude the existence of localised “hotspots” of contamination where concentrations may be significantly higher than those actually encountered.

The risk assessment and opinions provided in this report take into account currently available guidance values relating to acceptable contamination concentrates; no liability can be accepted for the retrospective effects of any future changes or amendments to these values.

LUSTRE
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