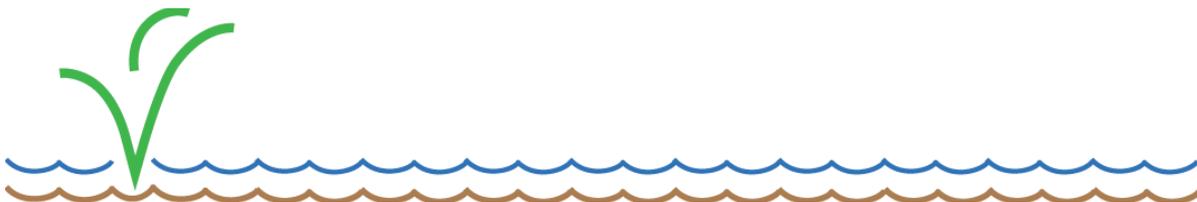


18 Ornan Road
Basement Impact Assessment:
Groundwater

Prepared for: Ground and Water Limited
15 Bow Street
Alton
Hampshire
GU34 1NY



Date: 01/02/2016
Status: Final
Reference: 30116R1
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Prepared by: H Fraser Consulting Ltd



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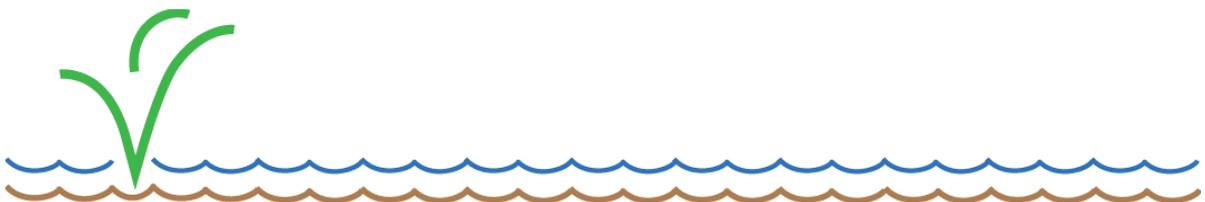
CONTAMINATED LAND AND HYDROGEOLOGY

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CONTENTS

1.	INTRODUCTION	1
1.1	Objective	1
1.2	Scope of works	1
2	BACKGROUND INFORMATION.....	2
3	SCREENING	7
4	SCOPING	8
4.1	Conceptual model	8
4.2	Matters of concern	8
5	IMPACT ASSESSMENT	9
6	CONCLUSIONS	10
7	REFERENCES	11

FIGURES

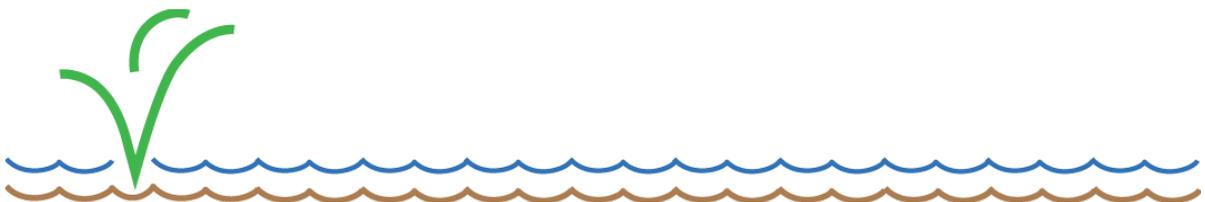
Figure 2.1	Site location	2
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TABLES

Table 2.1	Background information	2
Table 2.2	BGS borehole records.....	5
Table 2.3	Site investigation data	6
Table 3.1	Screening assessment	7
Table 5.1	Impact assessment	9

APPENDICES

Appendix A	Groundsure report
Appendix B	Site Plans



1. INTRODUCTION

Ground and Water Limited Ltd has instructed H Fraser Consulting Ltd (HFCL) to provide the hydrogeological aspects of a Basement Impact Assessment at the following property:

18 Ornan Road, London, NW3 4PX.

The site is in the London Borough of Camden.

1.1 Objective

The objective of this report is to provide the hydrogeological aspects of a Basement Impact Assessment to support a planning application for construction of a basement at 18 Ornan Road, NW3 4PX.

1.2 Scope of works

The following works have been undertaken:

- Desk study
- Screening assessment with regards to groundwater
- Scoping assessment to identify potential impacts
- Impact assessment with regard to groundwater attributes
- Reporting

The work has been undertaken in accordance with the requirements of London Borough of Camden's (LBC) Planning Guidance CPG4 'Basements and Lightwells' (referred to as CPG4) and Arup's 'Geological Hydrogeological and Hydrological Study, Guidance for Subterranean Development' (Arup, 2012, referred to throughout this report as the GHHS).

This assessment is limited to an assessment of the hydrogeological aspects of the proposed development and does not purport to make any comment on surface water flooding, hydrology, contamination or pollution, engineering, land stability, design or construction issues.

The work has been undertaken by Hannah Fraser, Director of HFCL, who is a Chartered Geologist with 19 years' experience as a hydrogeologist and consultant.

2 BACKGROUND INFORMATION

Background information has been derived from a Groundsure report for the site (Appendix A); geological information has been derived from on-line BGS sources (Geology of Britain Viewer, GeoIndex, Lexicon); on-line mapping and aerial photography have been derived from Streetmap and GoogleEarth. Table 2.1 presents relevant background information for the site. The site location is shown in Figure 2.1.

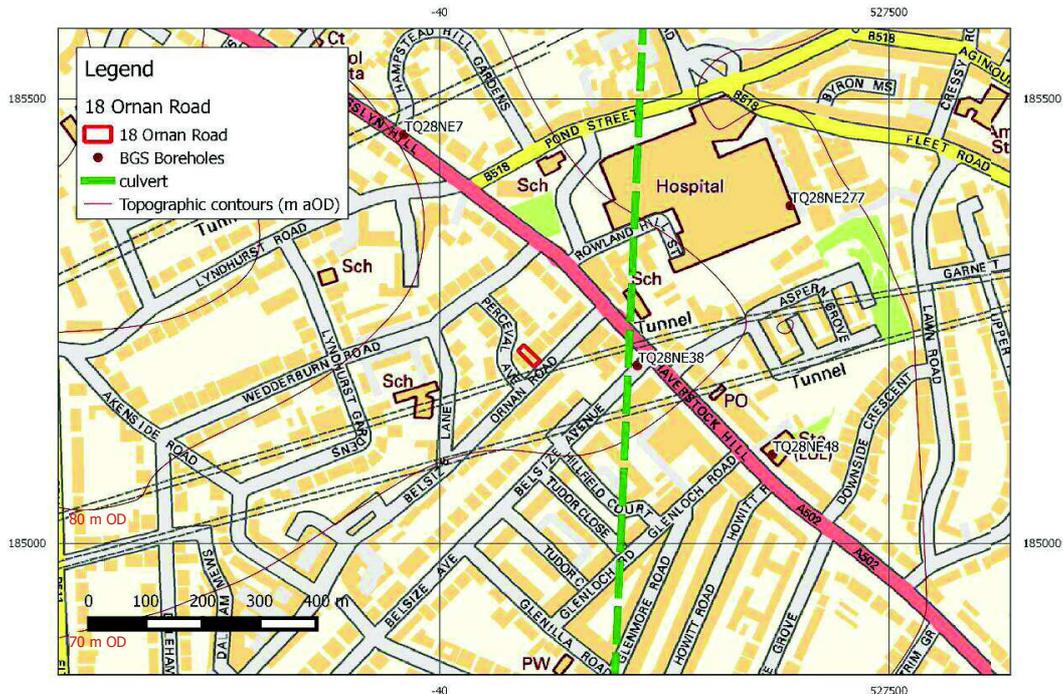


Figure 2.1 Site location

Contains Ordnance Survey data © Crown copyright and database right 2016

Table 2.1 Background information

Address	18 Ornan Road, London, NW3 4PX.
NGR	527100,185211
Description	<p>The site comprises a semi-detached three storey brick built residential house. The total area of the house and garden is estimated at approximately 300 m², with the house taking an area of approximately 120 m².</p> <p>Across the wider area, topography falls from Hampstead Heath in the northeast, to the south and west. The site lies between the 80 m OD and 70 m OD contours. Local topography is shown on Figure 2.1.</p>
Proposed development	<p>The proposed development is to construct a basement below the entire footprint of the existing house, to a depth of 3.30 m below ground level (bgl). Lightwells are proposed at the front and rear of the property, with grills at ground level. The area of the front lightwell is estimated as 6.5 m², and the areas of the two rear lightwells are estimated as 4.9 m² and 4.8 m². Plans and sections for the proposed basement are presented in Appendix B.</p>

Planning history

A search of the on-line planning records on www.camden.gov.uk reveals several planning applications for neighbouring properties, 20 and 16 Ornan Road. None of these relates to development of a basement. However, communications from Ground and Water Ltd indicate that there is a basement at No 16, to the east of the property. There is a narrow gap of approximately 2 m¹ between No 16 and No 18.

Geology

Geological mapping² shows the area to be underlain by London Clay. The London Clay is extensive to the southeast; the overlying Claygate member and Bagshot Formation outcrop to form the elevated area of Hampstead Heath, with the closest outcrop of the Claygate member approximately 120 m northwest.

The London Clay mainly comprises bioturbated or poorly laminated, blue-grey or grey-brown, slightly calcareous, silty to very silty clay, clayey silt and sometimes silt, with some layers of sandy clay. It commonly contains thin courses of carbonate concretions ('cementstone nodules') and disseminated pyrite. It also includes a few thin beds of shells and fine sand partings or pockets of sand, which commonly increase towards the base and towards the top of the formation. At the base, and at some other levels, thin beds of black rounded flint gravel occur in places. Glauconite is present in some of the sands and in some clay beds, and white mica occurs at some levels³

There are no superficial deposits mapped at the site, the closest outcrop of superficial deposits is approximately 3.3 km to the southeast.⁴ However, BGS Map 256 (1:50,000 series, North London) indicates that the area is likely to be covered by Quaternary Head Deposits. These are poorly sorted and poorly stratified deposits formed mostly by solifluction and/or hillwash and soil creep, and may comprise gravel, sand and clay depending on the upslope source and distance from source⁵.

Table 2.2 presents geological data from selected BGS borehole records⁶, and Figure 2.1 shows the location of the boreholes. The local borehole records confirm the presence of Made Ground underlain by London Clay.

A site investigation undertaken by Ground and Water Limited on 22 June 2015 comprised the excavation of two Window Sampler Boreholes (WS1 and WS2) to a depth of 5.00m bgl and the hand excavation of two trial pit foundation exposures (TP/FE1 and TP/FE2). A Heavy Dynamic Probe (HDP) (DP1) was undertaken adjacent to WS1 to a depth of 10.00m bgl.

A small diameter combined bio-gas and groundwater monitoring well was installed within WS1 to 5.00m bgl. The investigation confirmed that the site is underlain by Made Ground and London Clay. Site investigation data are provided in Table 2.3.

Aquifer status

The London Clay is classified by the Environment Agency as unproductive strata (rock layers with low permeability and negligible significance for water supply or river base flow). The site is not within a source protection

¹ Google Earth

² <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>

³ <http://www.bgs.ac.uk/lexicon/lexicon.cfm?pub=LC>

⁴ <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>

⁵ <http://www.bgs.ac.uk/lexicon/lexicon.cfm?pub=HEAD>

⁶ <http://mapapps2.bgs.ac.uk/geoindex/home.html>

zone of a public water supply. The composition of Head deposits is likely to be variable, and may contain zones of higher permeability that support active groundwater flow.

Only one of the four BGS borehole logs summarised in Table 2.2 recorded groundwater, and this was within the Chalk Aquifer underlying the London Clay (TQ28NE277).

No groundwater was encountered within the trial holes on site. A return visit to dip the 5.00m deep groundwater monitoring well, by a Ground and Water Limited Engineer, on the 4th August 2015 revealed a standing groundwater level of 3.44m bgl (Ground and Water, 2015).

The Claygate Member, 122 m northwest of the site is classified as a Secondary A aquifer, i.e. 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.

Watercourses A Groundsure report for the site states that there is a culvert 101 m east of the site. This culvert runs approximately north south between the historical routes of the River Fleet and the River Tyburn, both of which flow south from Hampstead. There are no surface water features within 250 m of the site⁷.

There are no surface water abstractions within 1.8 km of the site.⁸ The site does not lie within the catchment of the ponds on Hampstead Heath (Arup, 2012).

Spring lines There are no springs shown on OS mapping in the immediate vicinity of the property. On Hampstead Heath, the geological boundary between the Bagshot Beds and the Claygate Member gives rise to the source of the Rivers Tyburn and Fleet.

Wells There is one groundwater abstraction licence within 1 km of the site, 968 m to the south at Swiss Cottage. There are no potable water abstraction licenses within 1500 m of the site, and no source protection zones within 500 m of the site.⁹ There are BGS records of 4 wells within 1 km of the site, all abstracting from the Chalk Aquifer underlying the London Clay¹⁰.

Groundwater flooding British Geological Survey Groundwater flood risk mapping reports there to be no groundwater flooding susceptible areas within 50 m of the site, and the area is not considered prone to groundwater flooding, based on rock type.¹¹

⁷ Groundsure report GS-2701129

⁸ Groundsure report GS-2701129

⁹ Groundsure report GS-2701129

¹⁰ <http://mapapps2.bgs.ac.uk/geoindex/home.html>

¹¹ Groundsure report GS-2701129

Table 2.2 BGS borehole records

Reference	Name	Length (m)	Easting	Northing	Description
TQ28NE48	Belsize Park Station Islington	43.58	527370	185100	Ashes to 0.15 m, made up ground to 2.44 m, mud with water to 2.75 m, made up yellow clay to 3.81 m, yellow Clay to 7.62 m, blue Clay to 43.59 m.
TQ28NE38	Junction of Belsize Ave Hampstead	6.09	527220	185200	Made Ground to 1.22 m, clay to 6.1 m.
TQ28NE277	Royal Free Hospital	177	527390	185380	London Clay to 69 m, Woolwich and Reading Beds to 90 m, Thanet Sands to 101 m, Upper Chalk to 177 m, Groundwater level in m bgl to 95.65 m, Groundwater level in m aOD at -36.37 m.
TQ28NE7	Hampstead Hill Gardens Tube Hampstead	15.84	526960	185460	Macadam to 0.31 m, clay to 15.85 m.

Geological data from site investigations in July 2015 are presented in Table 2.3 (after Ground & Water, 2015).

Table 2.3 Site investigation data

Strata	Depth Encountered (m bgl)	Thickness (m)
MADE GROUND		
<ul style="list-style-type: none"> - Dark brown silty clayey gravelly fine to medium grained sand, with abundant fine to medium, sub-angular to sub-rounded flint, brick, and concrete gravel, and - Light brown, locally dark grey brown, sandy gravelly silty Clay with fine to medium grained sand and occasional to abundant fine to medium grained gravel of sub-angular to sub-rounded flint, brick, concrete, carbonaceous material (ash/clinker/lignite) and ceramic fragments, and - Light brown sandy gravelly silty Clay, with fine grained sand and abundant, medium to coarse grained, sub-angular gravel of brick and lignite. 	GL	1.25 – 1.75
LONDON CLAY		
<ul style="list-style-type: none"> - Light brown silty CLAY. 	1.25 – 1.75	5.0

No groundwater was encountered within the trial holes during drilling. A return visit on the 4th August 2015 revealed a standing groundwater level of 3.44m bgl.

3 SCREENING

A screening assessment has been undertaken in accordance with the methodology set out in Section 6.2 and Appendix E2 of the GHHS (Arup, 2012). The results are presented in Table 3.1.

Table 3.1 Screening assessment

Ref	Question	Answer (yes/no/unknown)	Action
Q1a	Is the site located directly above an aquifer?	No	No further action
Q1b	Will the proposed basement extend beneath the water table surface?	Possibly	Take forward to scoping stage
Q2	Is the site within 100m of a watercourse, well (used/disused) or potential spring line?	No	No further action
Q3	Is the site within the catchment of the pond chains on Hampstead Heath?	No	No further action
Q4	Will the proposed basement development result in a change in the proportion of hard surface/paved areas?	Unknown	Take forward to scoping stage
Q5	As part of the drainage, will more surface water (e.g. rainfall and run-off) than at present be discharged to the ground (e.g. via soakaways and/or SUDs)	Unknown	Take forward to scoping stage
Q6	Is the lowest point of the proposed excavation (allowing for any drainage and foundation space under the basement floor) close to or lower than the mean water level in any local pond or spring line?	No	No further action

4 SCOPING

This section of the report summarises the pertinent information as a Conceptual Model, and then describes the matters of concern that need to be considered in the Impact Assessment.

4.1 Conceptual model

The proposed development is to construct a basement below the existing footprint of the house with one lightwell at the front and two lightwells at the rear. The depth of the basement is approximately 3.3 m bgl, and the total area of the lightwells is approximately 16 m².

The underlying geology comprises the London Clay, and Head deposits are also mapped in the area. Site investigation data confirm the presence of London Clay (light brown silty Clay), below 1.25 m of sandy or clayey Made Ground. The London Clay is classified as 'unproductive strata', and has low permeability. Groundwater flow within the London Clay is generally negligible, although some groundwater movement occurs on discrete sand partings or other discontinuities. There may be more active groundwater flow within Head deposits if these are present at the site. Local borehole records confirm that groundwater was generally not observed in the London Clay. Groundwater was not observed during recent drilling at the site, however, groundwater levels were observed at 3.44 m bgl on subsequent monitoring visits. The direction of groundwater flow is not known at the site.

The extension of the basement into the garden area, where there is currently no hardcover, has the potential to change recharge to groundwater. There are three lightwells proposed, however the area of these is not great, and they are very likely to be sited in areas of existing hardstanding due to their proximity to the house.

4.2 Matters of concern

Five attributes are considered as potential matters of concern, as discussed below.

1. Groundwater level – groundwater was observed during recent drilling in a borehole at the site, at approximately 3.44 m bgl. The depth of the basement is approximately 3.3 m bgl, and this is carried forward for further assessment.
2. Range of seasonal fluctuation in groundwater levels – the range of seasonal fluctuation in groundwater levels is not known, and this is carried forward for further assessment.
3. Spring/stream hydrographs – there is no evidence that local streams or springs are likely to be affected and these are not considered further.
4. Soil moisture – there is the potential for soil moisture content to affect the development, and this is carried forward for further assessment.
5. Water quality – there is no evidence that the development will affect water quality, provided good practice is followed with regard to pollution management. This is not considered further.

5 IMPACT ASSESSMENT

The impact assessment has been undertaken by considering groundwater attributes, how these are likely to change under the proposed development and the consequence of any predicted changes. The assessment is qualitative at this stage. The results are presented in Table 5.1.

Table 5.1 Impact assessment

Groundwater Attribute	Predicted Change	Consequence of change and mitigation
<p>Groundwater levels – groundwater levels were observed at 3.44 m bgl, and the proposed depth of the basement is 3.3 m bgl.</p>	<p>On the basis of the available data, groundwater levels are slightly below the basement excavation level. The water levels were measured in June and may be higher during winter months. There is therefore the possibility that the basement will extend below the water table at times of higher groundwater elevation.</p> <p>Under higher water table conditions, there may be some groundwater flows into the excavation during construction, however these are likely to be low to negligible due to the low permeability of the London Clay. Higher flows may be encountered if higher permeability materials such as Head deposits are present.</p> <p>There may be some backing up of groundwater around the basement structure, but this is not likely to be extensive due to the relatively low water table. Neighbouring properties are unlikely to be affected, particularly where there is no basement, or a recent basement with modern waterproofing standards.</p> <p>The provision of lightwells in the front and back garden areas has the potential to change recharge to the London Clay. This is mitigated to a great extent by the low permeability of the London Clay, which means that there will be limited recharge to these strata in any case.</p>	<p>Precautions should be taken to ensure that the excavation remains dry during construction.</p> <p>The proposed basement structure should be adequately protected against ingress of groundwater.</p> <p>It is recommended that a survey is undertaken to assess the current condition of the existing basement at No 16.</p> <p>Design of drainage systems should consider the requirements of sustainable urban drainage.</p>
<p>2. Range of seasonal fluctuation in groundwater levels – the range of seasonal fluctuation in groundwater levels is not known</p>	<p>The range of seasonal groundwater fluctuation is not known, and groundwater may rise above the base of the basement structure at times of higher groundwater elevations.</p>	<p>The proposed basement structure should be adequately protected against ingress of groundwater.</p>
<p>Soil moisture – no site data are available for soil moisture</p>	<p>Soil moisture has the potential to permeate the basement structure.</p>	<p>The proposed basement structure should be adequately protected against permeation of soil moisture.</p>

6 CONCLUSIONS

The proposed development is to construct a basement below the existing footprint of the house with one lightwell at the front and two lightwells at the rear. The depth of the basement is approximately 3.3 m bgl, and the total area of the lightwells is approximately 16 m².

The underlying geology comprises the London Clay, and Head deposits are also mapped in the area. Site investigation data confirm the presence of London Clay (light brown silty Clay), below 1.25 m of sandy or clayey Made Ground. The London Clay is classified as 'unproductive strata', and has low permeability. Groundwater flow within the London Clay is generally negligible, although some groundwater movement occurs on discrete sand partings or other discontinuities. There may be more active groundwater flow within Head deposits if these are present at the site. Local borehole records confirm that groundwater was generally not observed in the London Clay. Groundwater was not observed during recent drilling at the site, however, groundwater levels were observed at 3.44 m bgl on subsequent monitoring visits. The direction of groundwater flow is not known at the site.

On the basis of the available data, groundwater levels are slightly below the basement excavation level. The water levels were measured in June and may be higher during winter months. The range of seasonal groundwater fluctuation is not known, and groundwater may rise above the base of the basement structure at times of higher groundwater elevations. The proposed basement structure should be adequately protected against ingress of groundwater and against soil moisture.

Under higher water table conditions, there may be some groundwater flows into the excavation, however these are likely to be low to negligible due to the low permeability of the London Clay. Higher flows may be encountered if higher permeability materials such as Head deposits are present. Precautions should be taken to ensure that the excavation remains dry during construction.

There may be some backing up of groundwater around the basement structure, but this is not likely to be extensive due to the relatively low water table. Neighbouring properties are unlikely to be affected, particularly where there is no basement, or a recent basement with modern waterproofing standards. It is recommended that a survey is undertaken to assess the current condition of the existing basement at No 16.

The provision of lightwells in the front and back garden areas has the potential to change recharge to the London Clay. This is mitigated to a great extent by the low permeability of the London Clay, which means that there will be limited recharge to these strata in any case. Design of drainage systems should consider the requirements of sustainable urban drainage.

7 REFERENCES

Arup, 2012. Geological Hydrogeological and Hydrological Study, Guidance for subterranean development

Ground and Water, 2015. Ground Investigation Report for the Site at 18 Ornan Road, Camden, London NW3 4PX GWPR1313.

London Borough of Camden CPG4 'Basements and Lightwells'

APPENDIX A

Groundsure report



Groundsure Envirosight

Address: 18, ORNAN ROAD, LONDON, NW3 4PX
Date: 25 Jan 2016
Reference: GS-2701129
Client: Ground and Project Consultants Ltd

NW

N

NE



W

E

SW

S

SE

Aerial Photograph Capture date: 04-May-2014
Grid Reference: 527100,185211
Site Size: 0.02ha

Report Reference: GS-2701129
Client Reference: 20099

Contents Page

Contents Page	3
Overview of Findings	6
Using this report	10
1. Historical Land Use	11
1. Historical Industrial Sites	12
1.1 Potentially Contaminative Uses identified from 1:10,000 scale Mapping	12
1.2 Additional Information – Historical Tank Database	14
1.3 Additional Information – Historical Energy Features Database	15
1.4 Additional Information – Historical Petrol and Fuel Site Database	16
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	17
1.6 Potentially Infilled Land	17
2. Environmental Permits, Incidents and Registers Map	19
2. Environmental Permits, Incidents and Registers	20
2.1 Industrial Sites Holding Licences and/or Authorisations	20
2.1.1 Records of historic IPC Authorisations within 500m of the study site	20
2.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site	20
2.1.3 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site	20
2.1.4 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site	20
2.1.5 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site	20
2.1.6 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site	21
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	22
2.1.8 Records of Licensed Discharge Consents within 500m of the study site	27
2.1.9 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site	27
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	27
2.2 Dangerous or Hazardous Sites	27
2.3 Environment Agency Recorded Pollution Incidents	27
2.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site	27
2.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site	28
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	28
3. Landfill and Other Waste Sites Map	29
3. Landfill and Other Waste Sites	30
3.1 Landfill Sites	30
3.1.1 Records from Environment Agency landfill data within 1000m of the study site	30
3.1.2 Records of Environment Agency historic landfill sites within 1500m of the study site	30
3.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site	30
3.1.4 Records of Landfills from Local Authority and Historical Mapping Records within 1500m of the study site	30
3.2 Other Waste Sites	31
3.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site	31
3.2.2 Records of Environment Agency licensed waste sites within 1500m of the study site	31
4. Current Land Use Map	32
4. Current Land Uses	33
4.1 Current Industrial Data	33
4.2 Petrol and Fuel Sites	34
4.3 National Grid High Voltage Underground Electricity Transmission Cables	34
4.4 National Grid High Pressure Gas Transmission Pipelines	35
5. Geology	36
5.1 Artificial Ground and Made Ground	36

5.2 Superficial Ground and Drift Geology	36
5.3 Bedrock and Solid Geology	36
6 Hydrogeology and Hydrology	37
6a. Aquifer Within Superficial Geology	37
6b. Aquifer Within Bedrock Geology and Abstraction Licences	38
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences	39
6d. Hydrogeology – Source Protection Zones within confined aquifer	40
6e. Hydrology – Detailed River Network and River Quality	41
6. Hydrogeology and Hydrology	42
6.1 Aquifer within Superficial Deposits.....	42
6.2 Aquifer within Bedrock Deposits.....	42
6.3 Groundwater Abstraction Licences.....	42
6.4 Surface Water Abstraction Licences.....	44
6.5 Potable Water Abstraction Licences.....	45
6.6 Source Protection Zones.....	46
6.7 Source Protection Zones within Confined Aquifer.....	46
6.8 Groundwater Vulnerability and Soil Leaching Potential.....	46
6.9 River Quality.....	46
6.9.1 Biological Quality:.....	46
6.9.2 Chemical Quality:.....	47
6.10 Detailed River Network.....	47
6.11 Surface Water Features.....	47
7a. Environment Agency Flood Map for Planning (from rivers and the sea)	48
7b. Environment Agency Risk of Flooding from Rivers and the Sea (RoFRaS) Map	49
7 Flooding	50
7.1 River and Coastal Zone 2 Flooding.....	50
7.2 River and Coastal Zone 3 Flooding.....	50
7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating.....	50
7.4 Flood Defences.....	50
7.5 Areas benefiting from Flood Defences.....	50
7.6 Areas benefiting from Flood Storage.....	51
7.7 Groundwater Flooding Susceptibility Areas.....	51
7.7.1 Are there any British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site? No.....	51
7.7.2 What is the highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions?.....	51
7.8 Groundwater Flooding Confidence Areas.....	51
8. Designated Environmentally Sensitive Sites Map	52
8. Designated Environmentally Sensitive Sites	53
8.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:.....	53
8.2 Records of National Nature Reserves (NNR) within 2000m of the study site:.....	53
8.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:.....	53
8.4 Records of Special Protection Areas (SPA) within 2000m of the study site:.....	53
8.5 Records of Ramsar sites within 2000m of the study site:.....	54
8.6 Records of Ancient Woodland within 2000m of the study site:	54
8.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:.....	54
8.8 Records of World Heritage Sites within 2000m of the study site:.....	54
8.9 Records of Environmentally Sensitive Areas within 2000m of the study site:	54
8.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:	55
8.11 Records of National Parks (NP) within 2000m of the study site:	55
8.12 Records of Nitrate Sensitive Areas within 2000m of the study site:.....	55
8.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:.....	55

8.14 Records of Green Belt land within 2000m of the study site:.....	55
9. Natural Hazards Findings	56
9.1 Detailed BGS GeoSure Data.....	56
9.1.1 Shrink Swell.....	56
9.1.2 Landslides.....	56
9.1.3 Soluble Rocks.....	56
9.1.4 Compressible Ground.....	57
9.1.5 Collapsible Rocks.....	57
9.1.6 Running Sand.....	57
9.2 Radon.....	57
9.2.1 Radon Affected Areas.....	57
9.2.2 Radon Protection.....	58
10. Mining	59
10.1 Coal Mining.....	59
10.2 Non-Coal Mining.....	59
10.3 Brine Affected Areas	59
Contact Details	60
Standard Terms and Conditions	62

Overview of Findings

For further details on each dataset, please refer to each individual section in the main report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	0	4	29	59
1.2 Additional Information – Historical Tank Database	0	0	5	15
1.3 Additional Information – Historical Energy Features Database	0	0	31	47
1.4 Additional Information – Historical Petrol and Fuel Site Database	0	0	0	0
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	0	4	0	12
1.6 Potentially Infilled Land	0	4	13	16
Section 2: Environmental Permits, Incidents and Registers	On-site	0-50m	51-250	251-500
2.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
2.1.1 Records of historic IPC Authorisations	0	0	0	0
2.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	0	0
2.1.3 Records of Red List Discharge Consents	0	0	0	0
2.1.4 Records of List 1 Dangerous Substances Inventory sites	0	0	0	0
2.1.5 Records of List 2 Dangerous Substances Inventory sites	0	0	0	0
2.1.6 Records of Part A(2) and Part B Activities and Enforcements	0	0	1	9
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	35
2.1.8 Records of Licensed Discharge Consents	0	0	0	0
2.1.9 Records of Water Industry Referrals	0	0	0	0
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	0	0	0	0
2.2 Records of COMAH and NIHHS sites	0	0	0	0
2.3 Environment Agency Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	0	1	0
2.3.2 National Incidents Recording System, List 1	0	0	0	0
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

Section 3: Landfill and Other Waste Sites	On-site	0-50m	51-250	251-500	501-1000	1000-1500
3.1 Landfill Sites						
3.1.1 Environment Agency Registered Landfill Sites	0	0	0	0	0	Not searched
3.1.2 Environment Agency Historic Landfill Sites	0	0	0	0	0	1
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	0
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	0	0
3.2 Landfill and Other Waste Sites Findings						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	4	Not searched	Not searched
3.2.2 Environment Agency Licensed Waste Sites	0	0	0	0	0	0

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	0	13	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	1	0
4.3 National Grid Underground Electricity Cables	0	0	0	12
4.4 National Grid Gas Transmission Pipelines	0	0	0	0

Section 5: Geology	
5.1 Are there any records of Artificial Ground and Made Ground present beneath the study site?	No
5.2 Are there any records of Superficial Ground and Drift Geology present beneath the study site?	None
5.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 6: Hydrogeology and Hydrology	0-500m					
6.1 Are there any records of Strata Classification in the Superficial Geology within 500m of the study site?	No					
6.2 Are there any records of Strata Classification in the Bedrock Geology within 500m of the study site?	Yes					
	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	1	11
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	2
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	5
6.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	0	0	1	0	Not searched	Not searched
	On-site	0-50m	51-250	251-500	501-1000	1000-1500

Section 6: Hydrogeology and Hydrology		0-500m				
6.9 Is there any Environment Agency information on river quality within 1500m of the study site?	No	No	No	No	No	No
6.10 Detailed River Network entries within 500m of the site	0	0	1	0	Not searched	Not searched
6.11 Surface water features within 250m of the study site	No	No	No	Not searched	Not searched	Not searched

Section 7: Flooding	
7.1 Are there any Environment Agency Zone 2 floodplains within 250m of the study site?	No
7.2 Are there any Environment Agency Zone 3 floodplains within 250m of the study site?	No
7.3 What is the Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site?	Very Low
7.4 Are there any Flood Defences within 250m of the study site?	No
7.5 Are there any areas benefiting from Flood Defences within 250m of the study site?	No
7.6 Are there any areas used for Flood Storage within 250m of the study site?	No
7.7 What is the maximum BGS Groundwater Flooding susceptibility within 50m of the study site?	Not Prone
7.8 What is the BGS confidence rating for the Groundwater Flooding susceptibility areas?	Not Applicable

Section 8: Designated Environmentally Sensitive Sites	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	2
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
8.6 Records of Ancient Woodlands	0	0	0	0	0	2
8.7 Records of Local Nature Reserves (LNR)	0	0	0	1	0	0
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0
8.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0

Section 8: Designated Environmentally Sensitive Sites	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.11 Records of National Parks	0	0	0	0	0	0
8.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
8.13 Records of Nitrate Vulnerable Zones	0	0	0	0	0	0
8.14 Records of Green Belt land	0	0	0	0	0	0

Section 9: Natural Hazards

9.1 What is the maximum risk of natural ground subsidence?	Moderate
9.1.1 What is the maximum Shrink-Swell hazard rating identified on the study site?	Moderate
9.1.2 What is the maximum Landslides hazard rating identified on the study site?	Very Low
9.1.3 What is the maximum Soluble Rocks hazard rating identified on the study site?	Negligible
9.1.4 What is the maximum Compressible Ground hazard rating identified on the study site?	Negligible
9.1.5 What is the maximum Collapsible Rocks hazard rating identified on the study site?	Very Low
9.1.6 What is the maximum Running Sand hazard rating identified on the study site?	Negligible
9.2 Radon	
9.2.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.
9.2.2 Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary.

Section 10: Mining

10.1 Are there any coal mining areas within 75m of the study site?	No
10.2 Are there any Non-Coal Mining areas within 50m of the study site boundary?	No
10.3 Are there any brine affected areas within 75m of the study site?	No

Using this report

The following report is designed by Environmental Consultants for Environmental Professionals bringing together the most up-to-date market leading environmental data. This report is provided under and subject to the Terms & Conditions agreed between Groundsure and the Client. The document contains the following sections:

1. Historical Industrial Sites

Provides information on past land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. Potentially Infilled Land features are also included. This search is conducted using radii of up to 500m.

2. Environmental Permits, Incidents and Registers

Provides information on Regulated Industrial Activities and Pollution Incidents as recorded by Regulatory Authorities, and sites determined as Contaminated Land. This search is conducted using radii up to 500m.

3. Landfills and Other Waste Sites

Provides information on landfills and other waste sites that may pose a risk to the study site. This search is conducted using radii up to 1500m.

4. Current Land Uses

Provides information on current land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. These searches are conducted using radii of up to 500m. This includes information on potentially contaminative industrial sites, petrol stations and fuel sites as well as high pressure gas pipelines and underground electricity transmission lines.

5. Geology

Provides information on artificial and superficial deposits and bedrock beneath the study site.

6. Hydrogeology and Hydrology

Provides information on productive strata within the bedrock and superficial geological layers, abstraction licenses, Source Protection Zones (SPZs) and river quality. These searches are conducted using radii of up to 2000m.

7. Flooding

Provides information on river and coastal flooding, flood defences, flood storage areas and groundwater flood areas. This search is conducted using radii of up to 250m.

8. Designated Environmentally Sensitive Sites

Provides information on the Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, Local Nature Reserves (LNR), Areas of Outstanding Natural Beauty (AONB), National Parks (NP), Environmentally Sensitive Areas, Nitrate Sensitive Areas, Nitrate Vulnerable Zones and World Heritage Sites and Scheduled Ancient Woodland. These searches are conducted using radii of up to 2000m.

9. Natural Hazards

Provides information on a range of natural hazards that may pose a risk to the study site. These factors include natural ground subsidence and radon..

10. Mining

Provides information on areas of coal and non-coal mining and brine affected areas.

11. Contacts

This section of the report provides contact points for statutory bodies and data providers that may be able to provide further information on issues raised within this report. Alternatively, Groundsure provide a free Technical Helpline (08444 159000) for further information and guidance.

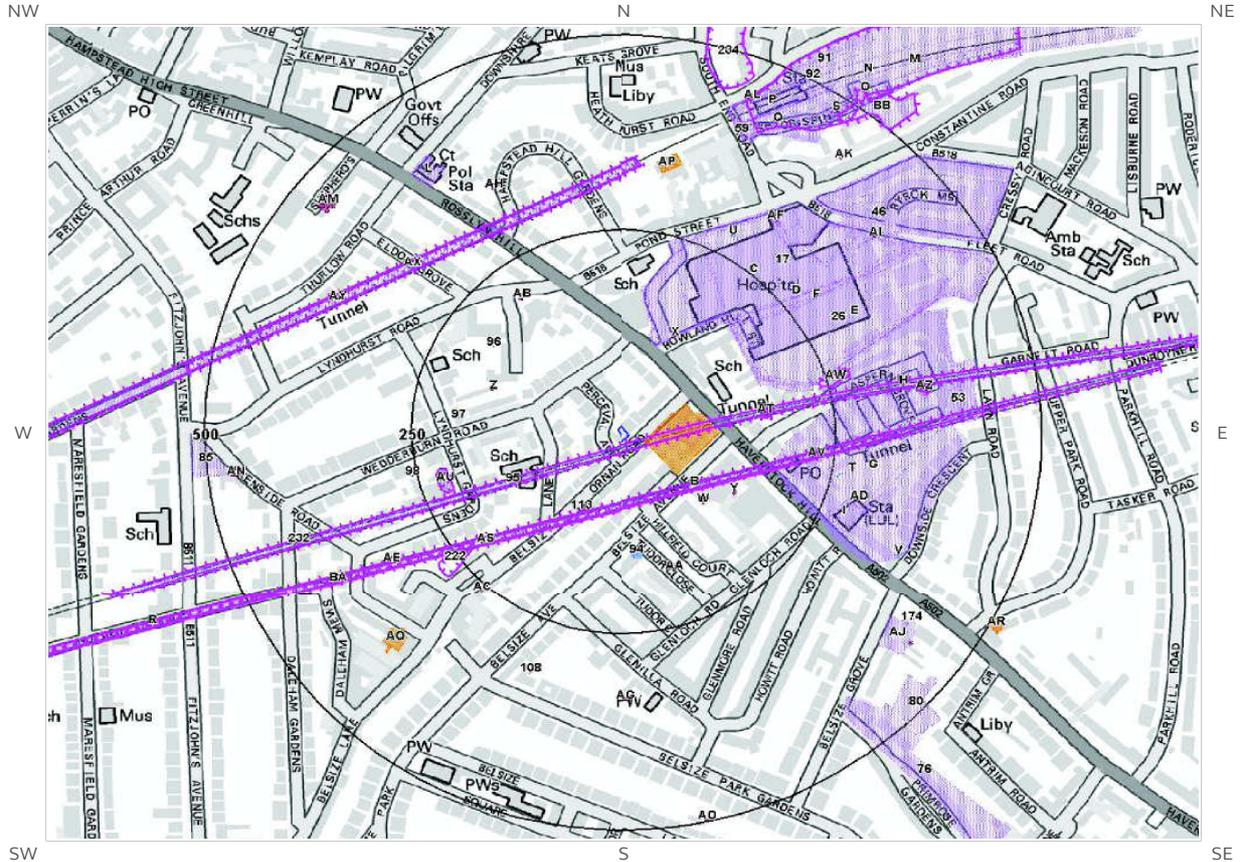
Note: Maps

Only certain features are placed on the maps within the report. All features represented on maps found within this search are given an identification number. This number identifies the feature on the mapping and correlates it to the additional information provided below. This identification number precedes all other information and takes the following format -Id: 1, Id: 2, etc. Where numerous features on the same map are in such close proximity that the numbers would obscure each other a letter identifier is used instead to represent the features. (e.g. Three features which overlap may be given the identifier "A" on the map and would be identified separately as features 1A, 3A, 10A on the data tables provided).

Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as "Not Shown".

All distances given in this report are in Metres (m). Directions are given as compass headings such as N: North, E: East, NE: North East from the nearest point of the study site boundary.

1. Historical Land Use



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1. Historical Industrial Sites

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

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

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 92

ID	Distance [m]	Direction	Use	Date
1A	4	S	Tunnel	1996
2A	4	S	Tunnel	1965
3A	4	S	Tunnel	1958
4A	4	S	Tunnel	1974
5B	74	S	Tunnel	1958
6B	74	S	Tunnel	1996
7B	74	S	Tunnel	1965
8B	74	S	Tunnel	1974
9AS	75	S	Tunnel	1866
10C	110	NE	Hospital	1938
11C	110	NE	Hospital	1938
12C	111	NE	Hospital	1949
13C	111	NE	Hospital	1965
14C	111	NE	Hospital	1958
15D	113	NE	Hospital	1974
16D	151	NE	Hospital	1996
17	157	NE	Hospital	1920
18E	171	NE	Fever Hospital	1949
19E	171	NE	Hospital	1958
20F	171	NE	Fever Hospital	1911
21E	172	NE	Fever Hospital	1938
22E	173	NE	Fever Hospital	1938
23F	173	NE	Fever Hospital	1894
24E	178	NE	Fever Hospital	1920
25G	184	E	Nursery	1958
26	184	NE	Hospital	1965
27T	194	E	Nursery	1920
28G	196	E	Nursery	1894
29AU	212	W	Unspecified Pit	1866
30AV	224	E	Unspecified Shaft	1866
31H	239	E	Nursery	1938
32AW	240	E	Unspecified Ground Workings	1949
33H	246	E	Nursery	1920

34I	259	E	Unspecified Station	1920
35I	261	SE	Unspecified Station	1949
36I	262	SE	London Transport Station	1996
37I	262	SE	London Transport Station	1974
38I	262	SE	London Transport Station	1965
39I	262	SE	Unspecified Station	1958
40AX	289	NW	Tunnel	1958
41AY	289	NW	Tunnel	1965
42J	289	NW	Tunnel	1996
43J	289	NW	Tunnel	1974
44K	370	NE	Tramway Depot	1938
45K	370	NE	Tramway Depot	1938
46	374	NE	Nursery	1873
47K	376	NE	Tramway Depot	1920
48L	384	NW	Police Station	1974
49L	384	NW	Police Station	1965
50L	384	NW	Police Station	1996
51L	384	NW	Police Station	1958
52BA	388	SW	Unspecified Shaft	1866
53	391	E	Nursery	1938
54N	392	NE	Railway Sidings	1938
55O	393	NE	Railway Sidings	1894
56AJ	393	SE	Hospital	1973
57M	394	NE	Railway Sidings	1958
58M	395	N	Railway Sidings	1949
59	397	N	Railway Building	1894
60N	398	NE	Railway Sidings	1920
61N	399	N	Railway Sidings	1965
62K	401	NE	Tramway Depot	1949
63K	401	NE	Unspecified Depot	1958
64O	402	N	Railway Sidings	1938
65P	407	N	Railway Station	1894
66P	407	N	Railway Station	1911
67P	408	N	Railway Station	1873
68P	409	N	Railway Station	1938
69P	409	N	Railway Station	1949
70P	409	N	Railway Station	1938
71P	410	N	Railway Station	1965
72P	410	N	Railway Station	1958
73N	410	NE	Cuttings	1873
74P	412	N	Railway Sidings	1920
75Q	426	NE	Railway Building	1949
76	427	SE	Nursery	1894
77Q	432	NE	Railway Building	1920
78P	435	NE	Railway Station	1996
79P	435	NE	Railway Station	1974

80	458	SE	Nursery	1920
81R	470	SW	Tunnels	1973
82R	470	SW	Tunnels	1989
83R	470	SW	Tunnels	1968
84R	470	SW	Tunnels	1957
85	470	W	Hospital	1965
86S	470	NE	Railway Building	1965
87S	471	NE	Railway Building	1894
88S	471	NE	Railway Building	1938
89BB	473	NE	Unspecified Ground Workings	1911
90S	476	NE	Railway Building	1920
91	488	NE	Railway Building	1938
92	495	NE	Railway Building	1958

1.2 Additional Information – Historical Tank Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical tanks within 500m of the search boundary:

20

ID	Distance (m)	Direction	Use	Date
93A	68	SE	Unspecified Tank	1871
94	136	S	Unspecified Tank	1871
95	140	SW	Unspecified Tank	1935
96	183	NW	Unspecified Tank	1896
97	192	W	Unspecified Tank	1870
98	253	W	Unspecified Tank	1871
99T	257	E	Tanks	1953
100T	257	E	Tanks	1966
101T	257	E	Tanks	1953
102T	257	E	Tanks	1965
103U	277	NE	Unspecified Tank	1985
104U	277	NE	Unspecified Tank	1989
105U	277	NE	Unspecified Tank	1991
106U	277	NE	Unspecified Tank	1991
107U	280	NE	Unspecified Tank	1974
108	315	S	Unspecified Tank	1935
109V	356	SE	Unspecified Tank	1953
110V	356	SE	Unspecified Tank	1966
111V	356	SE	Unspecified Tank	1953
112V	356	SE	Unspecified Tank	1965

1.3 Additional Information – Historical Energy Features Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical energy features within 500m of the search boundary:

78

ID	Distance (m)	Direction	Use	Date
113	97	SW	Electricity Substation	1974
114W	122	SE	Electricity Substation	1974
115W	122	SE	Electricity Substation	1989
116W	122	SE	Electricity Substation	1985
117W	122	SE	Electricity Substation	1991
118W	122	SE	Electricity Substation	1991
119X	129	NE	Electricity Substation	1953
120X	130	NE	Electricity Substation	1974
121X	130	NE	Electricity Substation	1953
122X	130	NE	Electricity Substation	1985
123X	130	NE	Electricity Substation	1989
124X	130	NE	Electricity Substation	1991
125X	130	NE	Electricity Substation	1991
126Y	144	SE	Electricity Substation	1953
127Y	145	SE	Electricity Substation	1989
128Y	145	SE	Electricity Substation	1985
129Y	145	SE	Electricity Substation	1991
130Y	145	SE	Electricity Substation	1991
131Y	145	SE	Electricity Substation	1974
132Y	145	SE	Electricity Substation	1953
133Z	157	W	Electricity Substation	1953
134Z	157	W	Electricity Substation	1953
135AA	172	S	Electricity Substation	1974
136AA	172	S	Electricity Substation	1985
137AA	172	S	Electricity Substation	1989
138AA	172	S	Electricity Substation	1991
139AA	172	S	Electricity Substation	1991
140AB	201	NW	Electricity Substation	1977
141AB	201	NW	Electricity Substation	1986
142AB	201	NW	Electricity Substation	1991
143AB	201	NW	Electricity Substation	1991
144AC	255	SW	Electricity Substation	1991
145AC	255	SW	Electricity Substation	1986
146AC	257	SW	Electricity Substation	1991
147AD	288	E	Electricity Substation	1974
148AD	288	E	Electricity Substation	1989
149AD	288	E	Electricity Substation	1985

150AD	288	E	Electricity Substation	1991
151AD	288	E	Electricity Substation	1991
152AE	319	SW	Electricity Substation	1991
153AE	319	SW	Electricity Substation	1986
154AE	320	SW	Electricity Substation	1991
155AE	321	SW	Electricity Substation	1977
156AF	321	NE	Electricity Substation	1974
157AF	323	NE	Electricity Substation	1953
158AF	324	NE	Electricity Substation	1953
159AF	324	NE	Electricity Substation	1989
160AF	324	NE	Electricity Substation	1985
161AF	324	NE	Electricity Substation	1991
162AF	324	NE	Electricity Substation	1991
163AG	331	S	Electricity Substation	1990
164AG	331	S	Electricity Substation	1991
165AG	331	S	Electricity Substation	1969
166AH	339	NW	Electricity Substation	1973
167AH	340	NW	Electricity Substation	1991
168AH	340	NW	Electricity Substation	1974
169AI	391	NE	Electricity Substation	1989
170AI	391	NE	Electricity Substation	1985
171AI	391	NE	Electricity Substation	1991
172AI	391	NE	Electricity Substation	1991
173AI	391	NE	Electricity Substation	1969
174	415	SE	Electricity Substation	1969
175AJ	432	SE	Electricity Substation	1996
176AK	433	NE	Electricity Substation	1972
177AK	434	NE	Electricity Substation	1985
178AK	434	NE	Electricity Substation	1991
179AK	434	NE	Electricity Substation	1953
180AM	445	NW	Electricity Substation	1972
181AL	446	N	Electricity Substation	1985
182AL	446	N	Electricity Substation	1991
183P	446	N	Electricity Substation	1953
184AM	449	NW	Electricity Substation	1991
185AN	462	W	Electricity Substation	1986
186AN	462	W	Electricity Substation	1991
187AN	463	W	Electricity Substation	1990
188AO	493	S	Electricity Substation	1991
189AO	493	S	Electricity Substation	1969
190AO	494	S	Electricity Substation	

1.4 Additional Information – Historical Petrol and Fuel Site Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical petrol stations and fuel sites within 500m of the search boundary: 0

Database searched and no data found.

1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical garage and motor vehicle repair sites within 500m of the search boundary: 16

ID	Distance (m)	Direction	Use	Date
191A	19	E	Garage	1953
192A	19	E	Garage	1965
193A	20	E	Garage	1966
194A	20	E	Garage	1953
195AP	327	N	Garage	1996
196AP	328	N	Garage	1953
197AP	328	N	Garage	1965
198AP	328	N	Garage	1972
199AP	328	N	Garage	1952
200AP	328	N	Garage	1952
201AP	328	N	Garage	1985
202AP	328	N	Garage	1991
203AQ	361	SW	Garage	1953
204AQ	364	SW	Garage	1955
205AR	496	SE	Garage	1952
206AR	497	SE	Garage	1953

1.6 Potentially Infilled Land

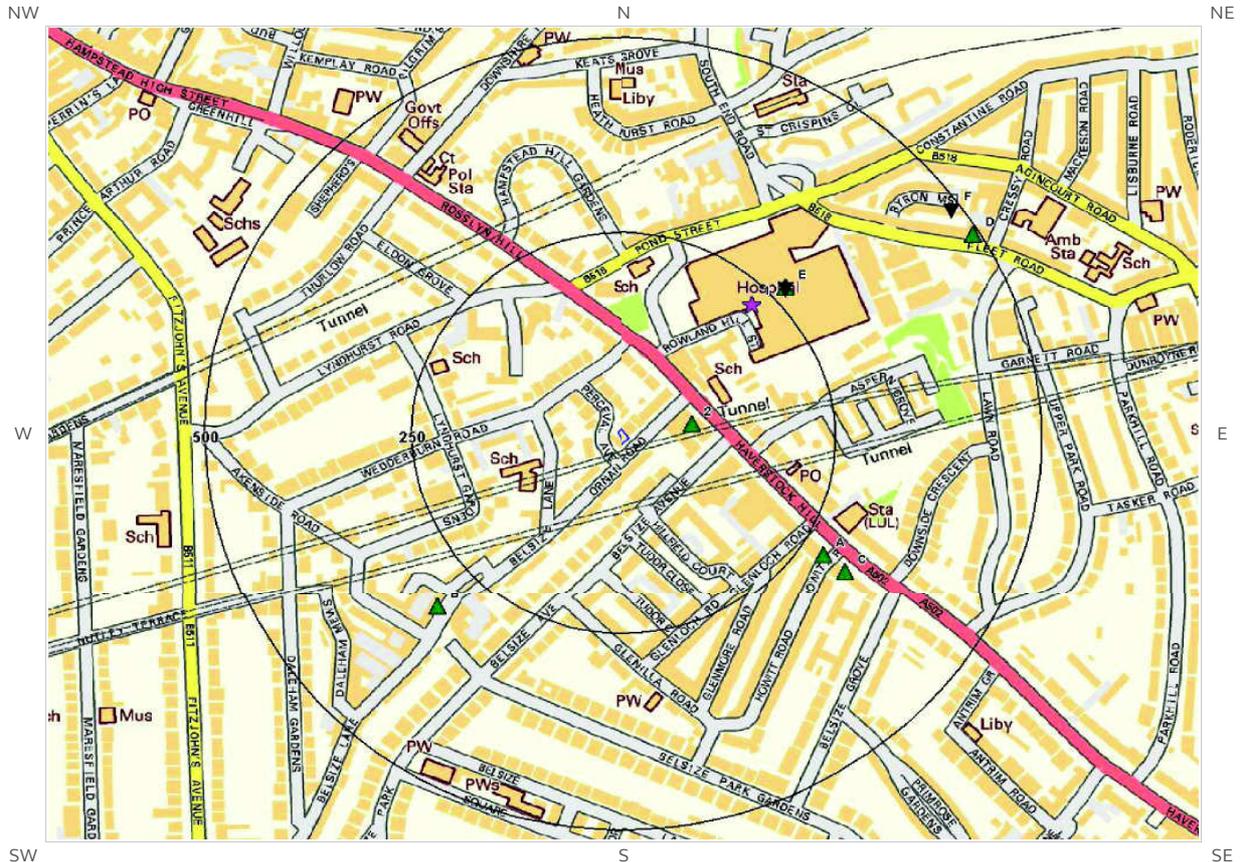
Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 33

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

ID	Distance(m)	Direction	Use	Date
207A	4	S	Tunnel	1965
208A	4	S	Tunnel	1974
209A	4	S	Tunnel	1996
210A	4	S	Tunnel	1958
211B	74	S	Tunnel	1996
212B	74	S	Tunnel	1965
213B	74	S	Tunnel	1974

214B	74	S	Tunnel	1958
215AS	75	S	Tunnel	1866
216AT	163	E	Air Shaft	1949
217AT	164	E	Air Shaft	1938
218AT	166	E	Air Shaft	1938
219AT	171	E	Air Shaft	1920
220AU	212	W	Unspecified Pit	1866
221AV	224	E	Unspecified Shaft	1866
222	227	SW	Pond	1866
223AW	240	E	Unspecified Ground Workings	1949
224AX	289	NW	Tunnel	1958
225AY	289	NW	Tunnel	1965
226J	289	NW	Tunnel	1974
227J	289	NW	Tunnel	1996
228H	358	E	Air Shaft	1938
229AZ	358	E	Air Shaft	1938
230AZ	363	E	Air Shaft	1920
231BA	388	SW	Unspecified Shaft	1866
232	409	W	Air Shaft	1920
233N	410	NE	Cuttings	1873
234	449	N	Pond	1873
235R	470	SW	Tunnels	1957
236R	470	SW	Tunnels	1973
237R	470	SW	Tunnels	1968
238R	470	SW	Tunnels	1989
239BB	473	NE	Unspecified Ground Workings	1911

2. Environmental Permits, Incidents and Registers Map



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- | | | |
|---|--|--|
|  Site Outline |  Recorded Pollution Incident |  RAS 3 & 4 Authorisations |
|  Dangerous Substances (List 1) |  Part A(1) Authorised Processes and Historic IPC Authorisations | |
|  Dangerous Substances (List 2) |  Part A(2) and Part B Authorised Processes | |
|  Water Industry Referrals |  COMAH / NIHHS Sites | |
|  Licenced Discharge Consents |  Sites Determined as Contaminated Land | |
|  Red List Discharge Consents |  Hazardous Substance Consents and Enforcements | |

2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

Searches of information provided by the Environment Agency and Local Authorities reveal the following information:

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

10

The following Part A(2) and Part B Activities are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
2	78	E	527186 185224	Address: Belsize Park Service Station, 215 Haverstock Hill, London, NW3 4QE Process: Petrol Station Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
3E	269	NE	527300 185400	Address: Royal Free Hospital, Pond St, Hampstead, NW3 2QG Process: Incineration & Furnace Process Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
4A	279	SE	527345 185056	Address: Perkins Dry Cleaners, 171 Haverstock Hill, NW3 4QS Process: Dry Cleaner Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
5A	279	SE	527345 185056	Address: Perkins Dry Cleaners, 171 Haverstock Hill, NW3 4QS Process: Dry Cleaner Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
6B	313	SW	526875 184983	Address: Pyramid Cleaners, 52 Belsize Lane, NW3 5AR Process: Dry Cleaner Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
7B	313	SW	526875 184983	Address: Pyramid Cleaners, 52 Belsize Lane, Belsize Park, NW3 5AR Process: Dry Cleaner Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
8C	314	SE	527372 185034	Address: Swan Dry Cleaners, 163 Haverstock Hill, NW3 4QT Process: Dry Cleaner Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
9C	314	SE	527372 185034	Address: Swan Dry Cleaners, 163 Haverstock Hill, NW3 4QT Process: Dry Cleaner Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
10D	491	NE	527527 185467	Address: Top Choice Dry Cleaners, 96 Fleet Road, NW3 2QX Process: Dry Cleaner Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
11D	491	NE	527527 185467	Address: Top Choice Dry Cleaners, 96 Fleet Road, NW3 2QX Process: Dry Cleaner Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified

2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

35

The following RAS Licence (3 or 4) records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Address	Operator	Type	Permisio n Number	Dates	Status
47E	269	NE	527300 185400	Royal Free Hampstead Nhs Trust, Royal Free Hospital,pond Street,hampstead, London, NW3 2QG	Royal Free Hampste ad Nhs Trust	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	AE8658	Date of Approval:11/7/1995 Effective from:11/7/1995 Last date of update:2015-01-01	Superseded By Variation
48E	269	NE	527300 185400	Royal Free Hampstead Nhs Trust, Royal Free Hospital, Pond Street, Hampstead, London, NW3 2QG	Royal Free Hampste ad Nhs Trust	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AB4095	Date of Approval:6/12/2004 Effective from:6/12/2004 Last date of update:2015-01-01	Superseded By Variation
49E	269	NE	527300 185400	Royal Free Hampstead Nhs Trust, Royal Free Hospital, Pond Street, Hampstead, London, NW3 2QG	Royal Free Hampste ad Nhs Trust	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AB4095	Date of Approval:13/7/2009 Effective from:13/7/2009 Last date of update:2015-01-01	Effective
50E	269	NE	527300 185400	Royal Free Hampstead Nhs Trust, Royal Free Hospital, Pond Street, Hampstead, London, NW3 2QG	Royal Free Hampste ad Nhs Trust	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AB4095	Date of Approval:12/7/1995 Effective from:9/8/1995 Last date of update:2015-01-01	Superseded By Variation
51E	269	NE	527300 185400	Royal Free Hampstead Nhs Trust, Royal Free Hospital,pond Street,hampstead, London, NW3 2QG	Royal Free Hampste ad Nhs Trust	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	AE8658	Date of Approval:22/11/2004 Effective from:22/11/2004 Last date of update:2015-01-01	Effective
52E	269	NE	527300 185400	Royal Free Hampstead Nhs Trust, Royal Free Hospital, Pond Street, Hampstead, London, NW3 2QG	Royal Free Hampste ad Nhs Trust	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AB4095	Date of Approval:31/3/1991 Effective from:31/3/1991 Last date of update:2015-01-01	Superseded By Variation
53E	269	NE	527300 185400	Anthony Nolan Trust (ant), Fleet Road, London, NW3 2QR	Anthony Nolan Trust (ant)	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	BR6392	Date of Approval:14/7/2005 Effective from:14/7/2005 Last date of update:2015-01-01	Superseded By Variation

ID	Distance (m)	Direction	NGR	Address	Operator	Type	Permis sion Number	Dates	Status
54E	269	NE	527300 185400	Royal Free Hampstead Nhs Trust, Royal Free Hospital, Pond Street, Hampstead, London, NW3 2QG	Royal Free Hampstead Nhs Trust	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AH9987	Date of Approval:21/6/1994 Effective from:25/6/1994 Last date of update:2015-01-01	Superseded By Variation
55E	269	NE	527300 185400	Royal Free Hampstead Nhs Trust, Royal Free Hospital, Pond Street, Hampstead, London, NW3 2QG	Royal Free Hampstead Nhs Trust	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AB4095	Date of Approval:9/12/2005 Effective from:9/12/2005 Last date of update:2015-01-01	Superseded By Variation
56E	269	NE	527300 185400	Royal Free Hampstead Nhs Trust, Royal Free Hospital, Pond Street, Hampstead, London, NW3 2QG	Royal Free Hampstead Nhs Trust	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AB4095	Date of Approval:25/10/1996 Effective from:28/10/1996 Last date of update:2015-01-01	Superseded By Variation
57E	269	NE	527300 185400	Royal Free Hampstead Nhs Trust, Royal Free Hospital,pond Street,hampstead, London, NW3 2QG	Royal Free Hampstead Nhs Trust	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	AE8658	Date of Approval:29/4/2002 Effective from:29/4/2002 Last date of update:2015-01-01	Superseded By Variation
58E	269	NE	527300 185400	Royal Free Hampstead Nhs Trust, Royal Free Hospital, Pond Street, Hampstead, London, NW3 2QG	Royal Free Hampstead Nhs Trust	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AH9987	Date of Approval:20/7/2007 Effective from:17/8/2007 Last date of update:2015-01-01	Revoked/cancelled
59E	269	NE	527300 185400	Royal Free Hampstead Nhs Trust, Royal Free Hospital, Pond Street, Hampstead, London, NW3 2QG	Royal Free Hampstead Nhs Trust	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AH9987	Date of Approval:13/4/2006 Effective from:11/5/2006 Last date of update:2015-01-01	Superseded By Variation
60E	269	NE	527300 185400	Royal Free Hampstead Nhs Trust, Royal Free Hospital, Pond Street, Hampstead, London, NW3 2QG	Royal Free Hampstead Nhs Trust	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AB4095	Date of Approval:9/9/2005 Effective from:9/9/2005 Last date of update:2015-01-01	Superseded By Variation
61E	269	NE	527300 185400	Royal Free Hampstead Nhs Trust, Royal Free Hospital,pond Street,hampstead, London, NW3 2QG	Royal Free Hampstead Nhs Trust	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	AE8658	Date of Approval:25/7/2002 Effective from:25/7/2002 Last date of update:2015-01-01	Superseded By Variation

ID	Distance (m)	Direction	NGR	Address	Operator	Type	Permission Number	Dates	Status
62E	269	NE	527300 185400	Royal Free And University College Medical School Of University College London, Royal Free Hospital, Pond Street, Hampstead, London, NW3 2QG	Royal Free And University College Medical School Of University College London	Disposal Of Radioactive Waste (was Rsa60 Section 6).	BJ5694	Date of Approval:14/2/2001 Effective from:12/3/2001 Last date of update:2015-01-01	Superseded By Variation
63E	269	NE	527300 185400	Anthony Nolan Trust (ant), Fleet Road, London, NW3 2QR	Anthony Nolan Trust (ant)	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	BR6392	Date of Approval:2/10/2007 Effective from:2/10/2007 Last date of update:2015-01-01	Effective
64E	269	NE	527300 185400	Royal Free Hampstead Nhs Trust, Royal Free Hospital, Pond Street, Hampstead, London, NW3 2QG	Royal Free Hampstead Nhs Trust	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AB4095	Date of Approval:1/12/2003 Effective from:1/1/2004 Last date of update:2015-01-01	Superseded By Variation
65E	269	NE	527300 185400	Royal Free And University College Medical School Of University College London, Royal Free Hospital, Pond Street, Hampstead, London, NW3 2QG	Royal Free And University College Medical School Of University College London	Disposal Of Radioactive Waste (was Rsa60 Section 6).	BJ5694	Date of Approval:1/12/2003 Effective from:1/1/2004 Last date of update:2015-01-01	Superseded By Variation
66E	269	NE	527300 185400	Royal Free And University College Medical School Of University College London, Royal Free Hospital,pond Street,hampstead, London, NW3 2QG	Royal Free And University College Medical School Of University College London	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	AR0403	Date of Approval:3/8/2005 Effective from:3/8/2005 Last date of update:2015-01-01	Effective
67E	269	NE	527300 185400	Royal Free And University College Medical School Of University College London, Royal Free Hospital, Pond Street, Hampstead, London, NW3 2QG	Royal Free And University College Medical School Of University College London	Disposal Of Radioactive Waste (was Rsa60 Section 6).	BJ5694	Date of Approval:3/8/2005 Effective from:31/8/2005 Last date of update:2015-01-01	Superseded By Variation
68E	269	NE	527300 185400	Royal Free Hampstead Nhs Trust, Royal Free Hospital, Pond Street, Hampstead, London, NW3 2QG	Royal Free Hampstead Nhs Trust	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AH9987	Date of Approval:12/5/2003 Effective from:9/6/2003 Last date of update:2015-01-01	Superseded By Variation

ID	Distance (m)	Direction	NGR	Address	Operator	Type	Permission Number	Dates	Status
69E	269	NE	527300 185400	Royal Free And University College Medical School Of University College London, Royal Free Hospital, Pond Street, Hampstead, London, NW3 2QG	Royal Free And University College Medical School Of University College London	Disposal Of Radioactive Waste (was Rsa60 Section 6).	BJ5694	Date of Approval:5/1/2006 Effective from:5/1/2006 Last date of update:2015-01-01	Effective
70E	269	NE	527300 185400	Royal Free Hampstead Nhs Trust, Royal Free Hospital, Pond Street, Hampstead, London, NW3 2QG	Royal Free Hampstead Nhs Trust	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AH9987	Date of Approval:11/8/1997 Effective from:1/9/1997 Last date of update:2015-01-01	Superseded By Variation
71E	269	NE	527300 185400	Anthony Nolan Trust (ant), Royal Free Hospital, Pond Street, Hampstead, London, NW3 2QG	Anthony Nolan Trust (ant)	Disposal Of Radioactive Waste (was Rsa60 Section 6).	BJ5716	Date of Approval:14/2/2001 Effective from:12/3/2001 Last date of update:2015-01-01	Superseded By Variation
72E	269	NE	527300 185400	Polymasc Pharmaceuticals Plc, Royal Free Hospital, Pond Street, Hampstead, London, NW3 2QG	Polymasc Pharmaceuticals Plc	Disposal Of Radioactive Waste (was Rsa60 Section 6).	BJ5678	Date of Approval:14/2/2001 Effective from:12/3/2001 Last date of update:2015-01-01	Revoked/cancelled
73E	269	NE	527300 185400	Anthony Nolan Trust (ant), Royal Free Hospital, Pond Street, Hampstead, London, NW3 2QG	Anthony Nolan Trust (ant)	Disposal Of Radioactive Waste (was Rsa60 Section 6).	BJ5716	Date of Approval:1/12/2003 Effective from:1/1/2004 Last date of update:2015-01-01	Superseded By Variation
74E	269	NE	527300 185400	Royal Free And University College Medical School Of University College London, Royal Free Hospital,pond Street,hampstead, London, NW3 2QG	Royal Free And University College Medical School Of University College London	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	AR0403	Date of Approval:27/10/1998 Effective from:27/10/1998 Last date of update:2015-01-01	Superseded By Variation
75E	269	NE	527300 185400	Royal Free Hampstead Nhs Trust, Royal Free Hospital, Pond Street, Hampstead, London, NW3 2QG	Royal Free Hampstead Nhs Trust	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AB4095	Date of Approval:17/1/1996 Effective from:18/1/1996 Last date of update:2015-01-01	Superseded By Variation

ID	Distance (m)	Direction	NGR	Address	Operator	Type	Permis sion Number	Dates	Status
76E	269	NE	527300 185400	Anthony Nolan Trust (ant), Fleet Road, London, NW3 2QR	Anthony Nolan Trust (ant)	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	BR6392	Date of Approval:29/4/2002 Effective from:29/4/2002 Last date of update:2015-01-01	Superseded By Variation
77E	269	NE	527300 185400	Royal Free Hampstead Nhs Trust, Royal Free Hospital, Pond Street, Hampstead, London, NW3 2QG	Royal Free Hampstead Nhs Trust	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AB4095	Date of Approval:14/2/2001 Effective from:12/3/2001 Last date of update:2015-01-01	Superseded By Variation
78E	269	NE	527300 185400	Anthony Nolan Trust (ant), Royal Free Hospital, Pond Street, Hampstead, London, NW3 2QG	Anthony Nolan Trust (ant)	Disposal Of Radioactive Waste (was Rsa60 Section 6).	BJ5716	Date of Approval:14/7/2005 Effective from:11/8/2005 Last date of update:2015-01-01	Superseded By Variation
79E	269	NE	527300 185400	Anthony Nolan Trust (ant), Royal Free Hospital, Pond Street, Hampstead, London, NW3 2QG	Anthony Nolan Trust (ant)	Disposal Of Radioactive Waste (was Rsa60 Section 6).	BJ5716	Date of Approval:2/10/2007 Effective from:30/10/2007 Last date of update:2015-01-01	Effective
80E	269	NE	527300 185400	Royal Free And University College Medical School Of University College London, Royal Free Hospital,pond Street,hampstead, London, NW3 2QG	Royal Free And University College Medical School Of University College London	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	AR0403	Date of Approval:28/11/2001 Effective from:28/11/2001 Last date of update:2015-01-01	Superseded By Variation
81F	488	NE	527500 185500	Polymasc Pharmaceuticals Plc, Anthony Nolan Building,royal Free Hospital Site,fleet Road Hampstead, London, NW3 2EZ	Polymasc Pharmaceuticals Plc	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	AU4924	Date of Approval:20/2/1996 Effective from:20/2/1996 Last date of update:2015-01-01	Revoked/cancelled

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

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

0

Database searched and no data found.

2.3 Environment Agency Recorded Pollution Incidents

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

1

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

ID	Distance (m)	Direction	NGR	Details	
1	224	NE	527258 185379	Incident Date: 13-Aug-2001 Incident Identification: 23810 Pollutant: Specific Waste Materials Pollutant Description: Metal Wastes	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

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

0

Database searched and no data found.

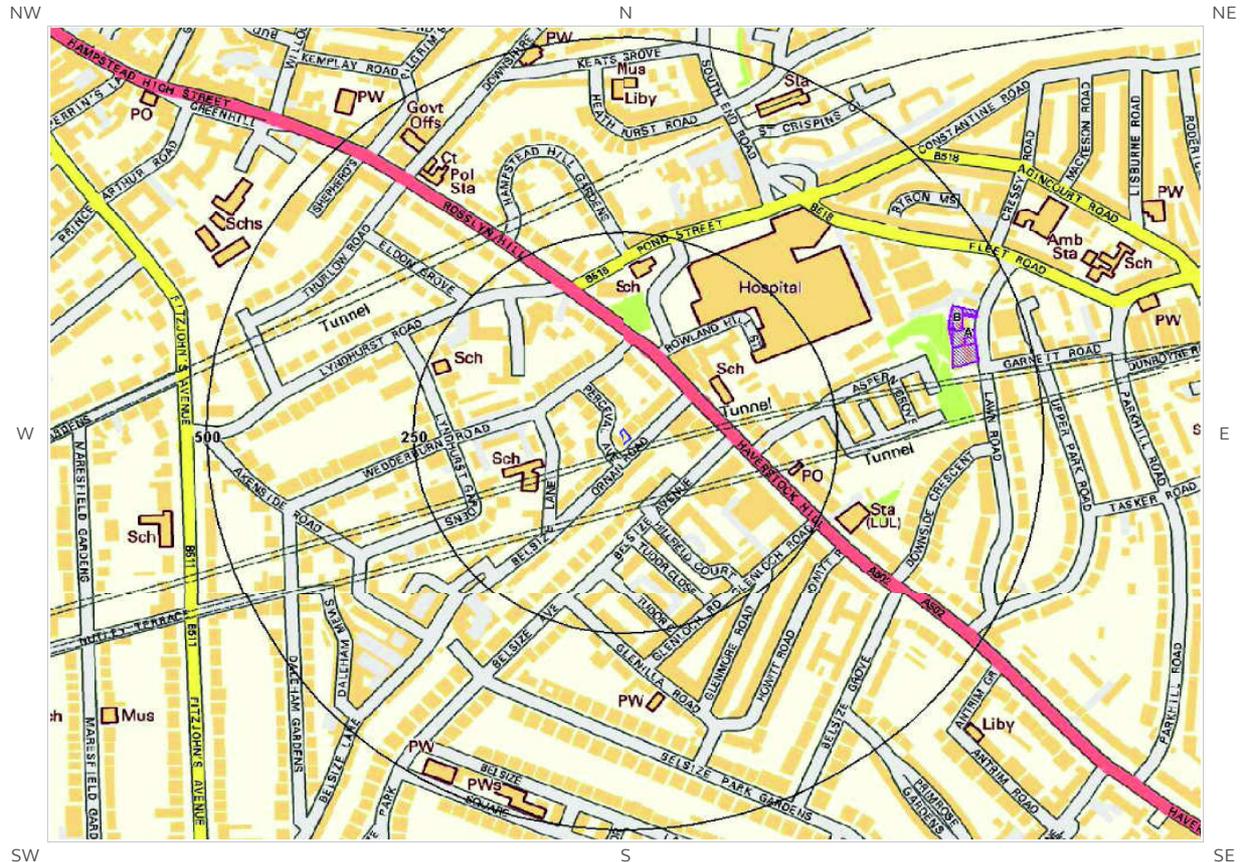
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

How many records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site?

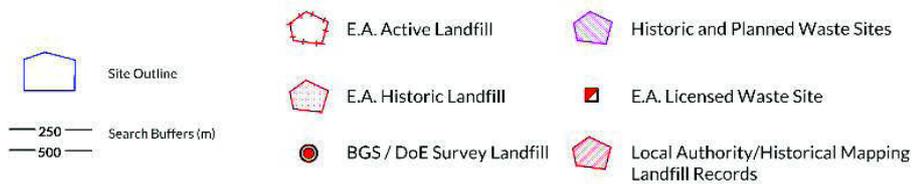
0

Database searched and no data found.

3. Landfill and Other Waste Sites Map



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3. Landfill and Other Waste Sites

3.1 Landfill Sites

3.1.1 Records from Environment Agency landfill data within 1000m of the study site:

0

Database searched and no data found.

3.1.2 Records of Environment Agency historic landfill sites within 1500m of the study site:

1

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

ID	Distance (m)	Direction	NGR	Details
Not shown	1096	W	526000 184800	Site Address: Canfield Place, London Nw6 Waste Licence: - Site Reference: DON009 Waste Type: - Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Hold Address: - Operator: - First Recorded: - Last Recorded: -

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

0

Database searched and no data found.

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

0

Database searched and no data found.

3.2 Other Waste Sites

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

4

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

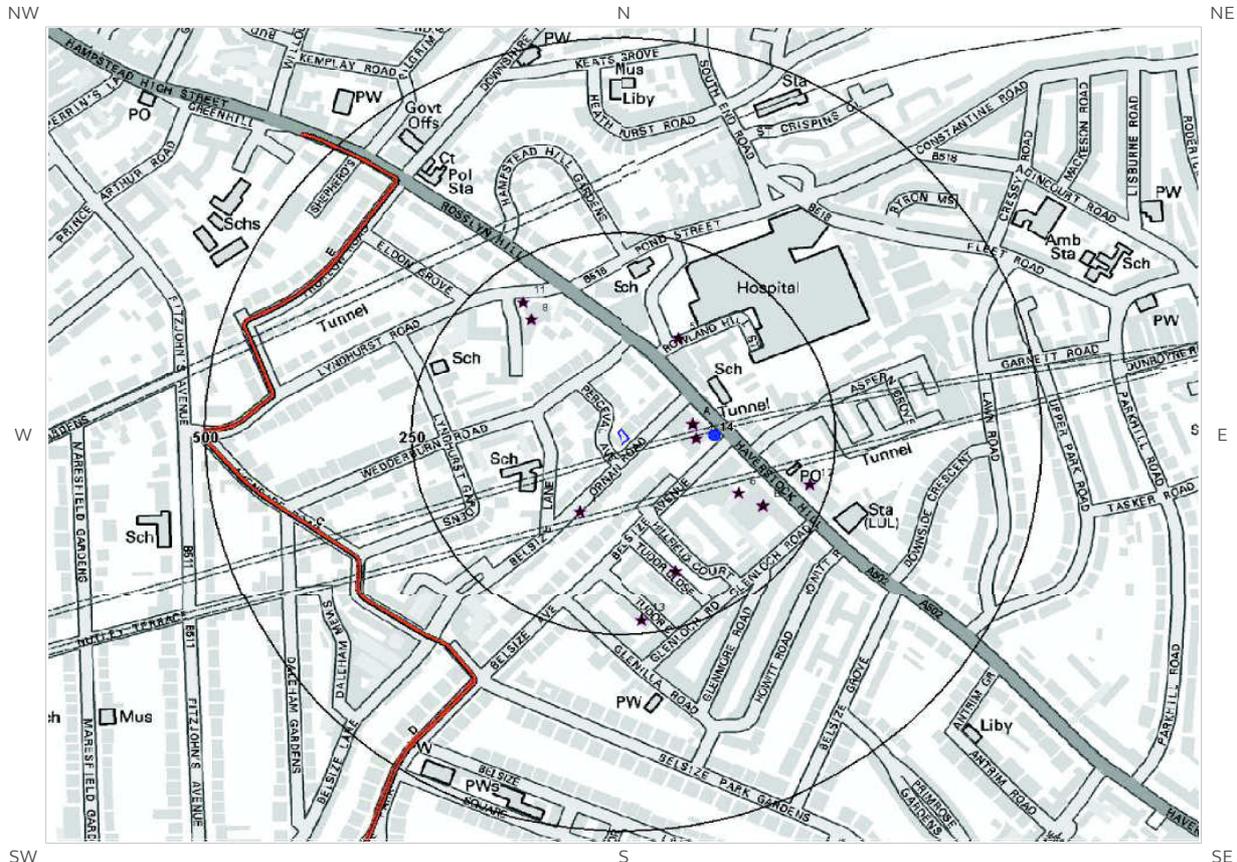
ID	Distance (m)	Direction	NGR	Details		
1A	400	E	527515 185338	Type of Site: Waste Rag Works Site Address: N/A	Planning Application Reference: N/A Date: 1952	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
2B	407	E	527497 185350	Type of Site: Waste Rag Works Site Address: N/A	Planning Application Reference: N/A Date: 1953	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
3A	407	E	527505 185350	Type of Site: Waste Rag Works Site Address: N/A	Planning Application Reference: N/A Date: 1952	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
4B	410	E	527504 185361	Type of Site: Waste Rag Works Site Address: N/A	Planning Application Reference: N/A Date: 1953	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon

3.2.2 Records of Environment Agency licensed waste sites within 1500m of the study site:

0

Database searched and no data found.

4. Current Land Use Map



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- Site Outline
- Current Industrial Sites
- Electricity Transmission Cables
- Petrol & Fuel Sites
- Gas Transmission Pipelines
- Search Buffers (m)

4. Current Land Uses

4.1 Current Industrial Data

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

13

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1A	80	E	Belsize Park Self Serve	527187 185227	Belzier Park Service Station 215, Haverstock Hill, London, NW3 4QE	Petrol and Fuel Stations	Road and Rail
2A	80	E	Belzier Park Service Station	527187 185227	Belzier Park Service Station 215, Haverstock Hill, London, NW3 4QE	Petrol and Fuel Stations	Road and Rail
3	82	E	BP Connect Car Wash	527192 185208	215b, Haverstock Hill, Belsize Park, London, NW3 4RB	Vehicle Cleaning Services	Personal, Consumer and Other Services
4	102	SW	Electricity Sub Station	527045 185114	NW3	Electrical Features	Infrastructure and Facilities
5	136	NE	Electricity Sub Station	527170 185337	NW3	Electrical Features	Infrastructure and Facilities
6	150	SE	Electricity Sub Station	527243 185138	NW3	Electrical Features	Infrastructure and Facilities
7	175	S	Electricity Sub Station	527166 185038	NW3	Electrical Features	Infrastructure and Facilities
8	178	NW	Air Studios Lyndhurst Hall	526986 185360	Lyndhurst Hall, Lyndhurst Road, London, NW3 5NG	Recording Studios and Record Companies	IT, Advertising, Marketing and Media Services
9B	183	SE	Ronly Ltd	527272 185121	201, Haverstock Hill, London, NW3 4QG	Agricultural Contractors	Contract Services
10B	183	SE	Targus Seatrade	527272 185121	201, Haverstock Hill, London, NW3 4QG	Distribution and Haulage	Transport, Storage and Delivery
11	201	NW	Electricity Sub Station	526977 185383	NW3	Electrical Features	Infrastructure and Facilities
12	226	E	Printline Printers	527328 185149	200b, Haverstock Hill, London, NW3 2AG	Published Goods	Industrial Products
13	231	S	Yan Technology	527122 184969	54, Tudor Close, London, NW3 4AG	Electrical Equipment Repair and Servicing	Repair and Servicing

4.2 Petrol and Fuel Sites

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

1

The following petrol or fuel site records provided by Catalist are represented as points on the Current Land Use map:

ID	Distance (m)	Direction	NGR	Company	Address	LPG	Status
14	103	E	527213 185211	BP	Belsize Park Service Station, 215, Haverstock Hill, Haverstock Hill, Belsize Park, London, Greater London, NW3 4QE	No	Open

4.3 National Grid High Voltage Underground Electricity Transmission Cables

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

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

12

The following Underground Electricity Transmission Cable records are represented as linear features on the Current Land Use map:

ID	Distance (m)	Direction	Details	
15C	338	SW	Cable Set: - Cable Route: - Cable Make: -	Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
16C	339	SW	Cable Route: MILL HILL - ST JOHNS WOOD 1 Cable Set: - Cable Make: -	Cable Type: DECOMMISSIONED Operating Voltage (kV): 275 Year of installation: - Cable in tunnel: -
17C	339	SW	Cable Route: MILL HILL - ST JOHNS WOOD 2 Cable Set: - Cable Make: -	Cable Type: DECOMMISSIONED Operating Voltage (kV): 275 Year of installation: - Cable in tunnel: -
18C	339	SW	Cable Set: - Cable Route: - Cable Make: -	Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
19D	340	SW	Cable Route: MILL HILL - ST JOHNS WOOD 1 Cable Set: - Cable Make: -	Cable Type: DECOMMISSIONED Operating Voltage (kV): 275 Year of installation: - Cable in tunnel: -
20D	340	SW	Cable Set: - Cable Route: - Cable Make: -	Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -

ID	Distance (m)	Direction	Details	
21D	340	SW	Cable Route: MILL HILL - ST JOHNS WOOD 2 Cable Set: - Cable Make: -	Cable Type: DECOMMISSIONED Operating Voltage (kV): 275 Year of installation: - Cable in tunnel: -
22D	340	SW	Cable Route: - Cable Set: - Cable Make: -	Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
23E	406	NW	Cable Route: - Cable Set: - Cable Make: -	Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -
24E	407	NW	Cable Route: MILL HILL - ST JOHNS WOOD 1 Cable Set: - Cable Make: -	Cable Type: DECOMMISSIONED Operating Voltage (kV): 275 Year of installation: - Cable in tunnel: -
25E	407	NW	Cable Route: MILL HILL - ST JOHNS WOOD 2 Cable Set: - Cable Make: -	Cable Type: DECOMMISSIONED Operating Voltage (kV): 275 Year of installation: - Cable in tunnel: -
26E	407	NW	Cable Route: - Cable Set: - Cable Make: -	Cable Type: PILOT Operating Voltage (kV): - Year of installation: - Cable in tunnel: -

4.4 National Grid High Pressure Gas Transmission Pipelines

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

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

Database searched and no data found.

5. Geology

5.1 Artificial Ground and Made Ground

Database searched and no data found.

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

5.2 Superficial Ground and Drift Geology

Database searched and no data found.

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

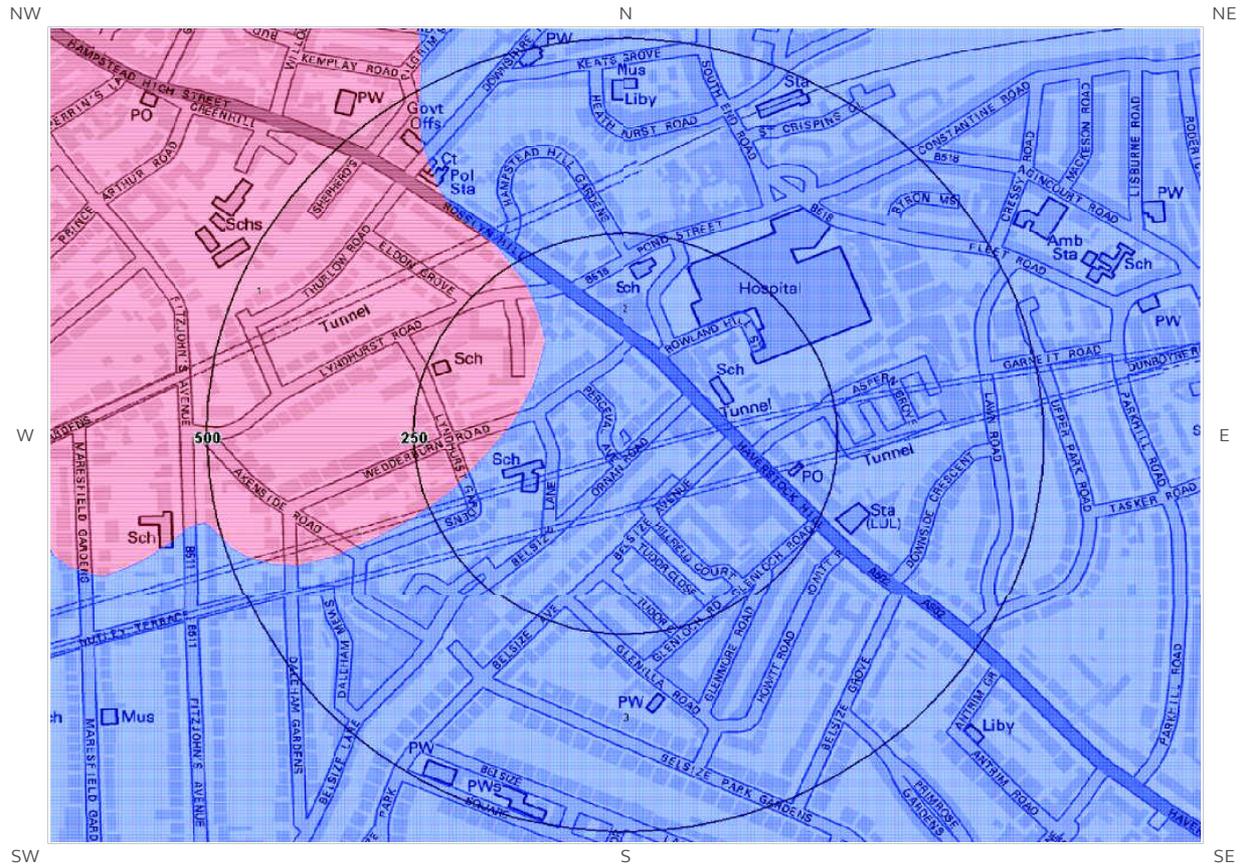
5.3 Bedrock and Solid Geology

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

Lex Code	Description	Rock Type
LC-CLSISA	LONDON CLAY FORMATION	CLAY, SILT AND SAND

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

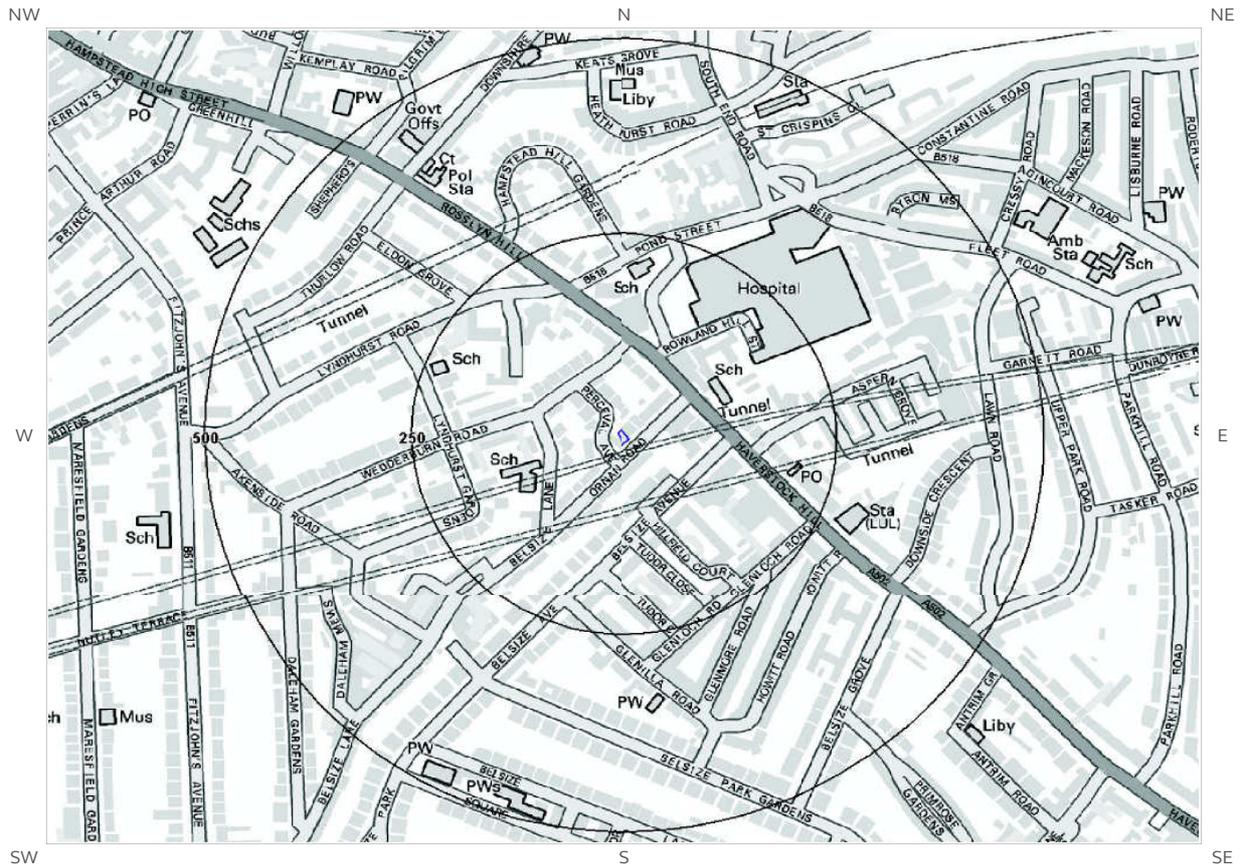
6b. Aquifer Within Bedrock Geology and Abstraction Licenses



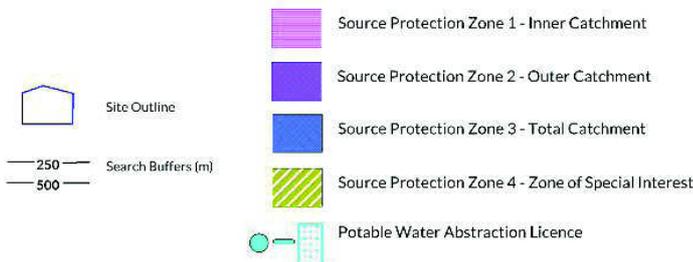
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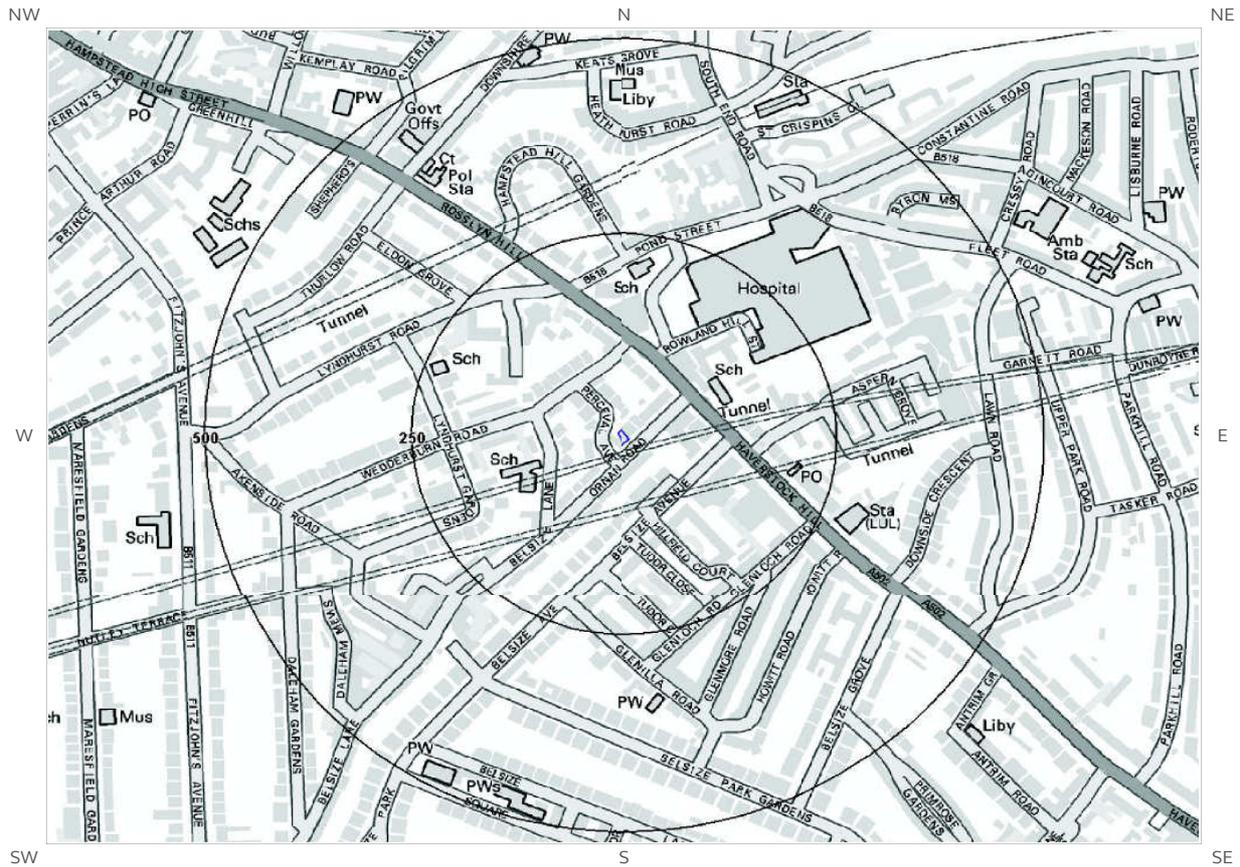
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licenses



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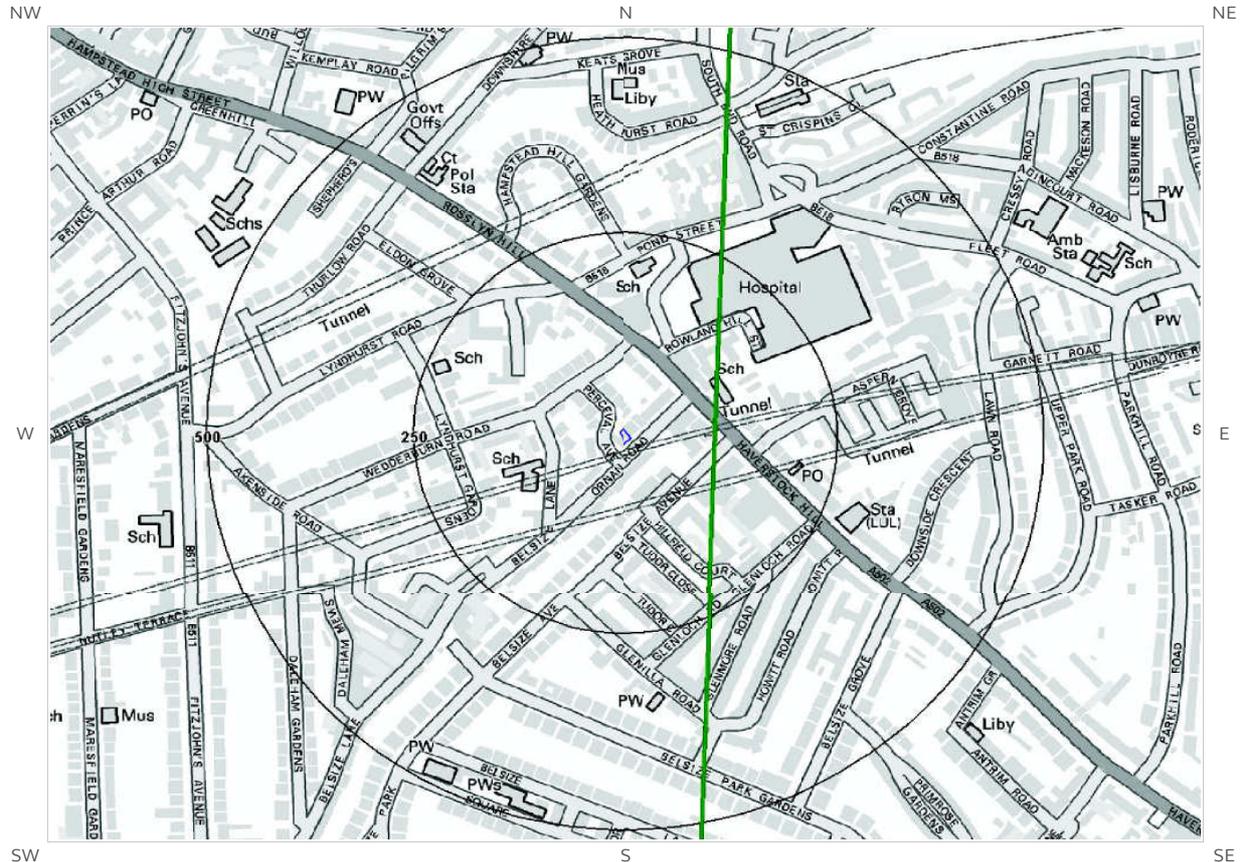
6d. Hydrogeology – Source Protection Zones within confined aquifer



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6e. Hydrology – Detailed River Network and River Quality



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6. Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

Are there records of strata classification within the superficial geology at or in proximity to the property? No

Database searched and no data found.

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

6.2 Aquifer within Bedrock Deposits

Are there records of strata classification within the bedrock geology at or in proximity to the property? Yes

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

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

ID	Distance (m)	Direction	Designation	Description
2	0	On Site	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
1	122	NW	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
3	200	S	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

6.3 Groundwater Abstraction Licences

Are there any Groundwater Abstraction Licences within 2000m of the study site? Yes

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

ID	Distance (m)	Direction	NGR	Details
Not shown	968	S	526800 184280	Status: Historical Licence No: 28/39/39/0219 Details: Spray Irrigation - Direct Direct Source: Thames Groundwater Point: Swiss Cottage Open Space- Borehole Data Type: Point Name: LONDON BOROUGH OF CAMDEN Annual Volume (m³): 10512 Max Daily Volume (m³): 28.8 Original Application No: WRA/N/1407 Original Start Date: 12/8/2005 Expiry Date: 31/3/2013 Issue No: 1 Version Start Date: 1/4/2008 Version End Date:

ID	Distance (m)	Direction	NGR	Details	
Not shown	1002	S	526750 184261	Status: Active Licence No: TH/039/0039/087 Details: General Washing/Process Washing Direct Source: Thames Groundwater Point: Swiss Cottage Open Space- Borehole Data Type: Point Name: LONDON BOROUGH OF CAMDEN	Annual Volume (m ³): 10512 Max Daily Volume (m ³): 28.8 Original Application No: NPS/WR/014567 Original Start Date: 5/12/2013 Expiry Date: 31/3/2025 Issue No: 1 Version Start Date: 5/12/2013 Version End Date:
Not shown	1002	S	526750 184261	Status: Active Licence No: TH/039/0039/087 Details: Lake & Pond Throughflow Direct Source: Thames Groundwater Point: Swiss Cottage Open Space- Borehole Data Type: Point Name: LONDON BOROUGH OF CAMDEN	Annual Volume (m ³): 10512 Max Daily Volume (m ³): 28.8 Original Application No: NPS/WR/014567 Original Start Date: 5/12/2013 Expiry Date: 31/3/2025 Issue No: 1 Version Start Date: 5/12/2013 Version End Date:
Not shown	1002	S	526750 184261	Status: Active Licence No: TH/039/0039/087 Details: Spray Irrigation - Direct Direct Source: Thames Groundwater Point: Swiss Cottage Open Space- Borehole Data Type: Point Name: LONDON BOROUGH OF CAMDEN	Annual Volume (m ³): 10512 Max Daily Volume (m ³): 28.8 Original Application No: NPS/WR/014567 Original Start Date: 5/12/2013 Expiry Date: 31/3/2025 Issue No: 1 Version Start Date: 5/12/2013 Version End Date:
Not shown	1596	S	527636 183697	Status: Active Licence No: TH/039/0039/058 Details: Potable Water Supply - Direct Direct Source: Thames Groundwater Point: Borehole At Barrow Hill Data Type: Point Name: THAMES WATER UTILITIES LTD	Annual Volume (m ³): 631000 Max Daily Volume (m ³): 2000 Original Application No: NPS/WR/009229 Original Start Date: 1/4/2013 Expiry Date: 31/3/2025 Issue No: 1 Version Start Date: 1/4/2013 Version End Date:
Not shown	1604	S	527640 183690	Status: Historical Licence No: 28/39/39/0202 Details: Potable Water Supply - Direct Direct Source: Thames Groundwater Point: Barrow Hill Pumping Station - Borehole Data Type: Point Name: THAMES WATER UTILITIES LTD	Annual Volume (m ³): 631000 Max Daily Volume (m ³): 2000 Original Application No: WRA/2/2(24) Original Start Date: 26/9/2002 Expiry Date: 31/3/2007 Issue No: 1 Version Start Date: 26/9/2002 Version End Date:
Not shown	1604	S	527640 183690	Status: Historical Licence No: 28/39/39/0231 Details: Potable Water Supply - Direct Direct Source: Thames Groundwater Point: Barrow Hill Pumping Station - Borehole Data Type: Point Name: THAMES WATER UTILITIES LTD	Annual Volume (m ³): 631000 Max Daily Volume (m ³): 2000 Original Application No: WRA/R/1026 Original Start Date: 1/4/2007 Expiry Date: 31/3/2013 Issue No: 1 Version Start Date: 1/4/2007 Version End Date:
Not shown	1764	E	528800 184700	Status: Active Licence No: 28/39/39/0091 Details: Process Water Direct Source: Thames Groundwater Point: Kentish Town Sports Centre, Prince Of Wales St Data Type: Point Name: GREENWICH LEISURE LIMITED	Annual Volume (m ³): 17997 Max Daily Volume (m ³): 604.6 Original Application No: NPS/WR/010565 Original Start Date: 13/6/1966 Expiry Date: - Issue No: 101 Version Start Date: 25/5/2012 Version End Date:
Not shown	1764	E	528800 184700	Status: Historical Licence No: 28/39/39/0091 Details: Laundry Use Direct Source: Thames Groundwater Point: Two Bores At Kentish Town Sports Centre, Prince Of Wales St Data Type: Point Name: GREENWICH LEISURE LTD	Annual Volume (m ³): 94506 Max Daily Volume (m ³): 1813.8 Original Application No: NPS/WR/010565 Original Start Date: 13/6/1966 Expiry Date: - Issue No: 101 Version Start Date: 5/4/2012 Version End Date:

ID	Distance (m)	Direction	NGR	Details
Not shown	1764	E	528800 184700	Status: Active Licence No: 28/39/39/0091 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Kentish Town Sports Centre, Prince Of Wales St Data Type: Point Name: GREENWICH LEISURE LIMITED Annual Volume (m ³): 17997 Max Daily Volume (m ³): 604.6 Original Application No: NPS/WR/010565 Original Start Date: 13/6/1966 Expiry Date: - Issue No: 101 Version Start Date: 25/5/2012 Version End Date:
Not shown	1764	E	528800 184700	Status: Historical Licence No: 28/39/39/0091 Details: Process Water Direct Source: Thames Groundwater Point: Two Bores At Kentish Town Sports Centre, Prince Of Wales St Data Type: Point Name: GREENWICH LEISURE LTD Annual Volume (m ³): 94506 Max Daily Volume (m ³): 1813.8 Original Application No: NPS/WR/010565 Original Start Date: 13/6/1966 Expiry Date: - Issue No: 101 Version Start Date: 5/4/2012 Version End Date:
Not shown	1764	E	528800 184700	Status: Historical Licence No: 28/39/39/0091 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Two Bores At Kentish Town Sports Centre, Prince Of Wales St Data Type: Point Name: GREENWICH LEISURE LTD Annual Volume (m ³): 94506 Max Daily Volume (m ³): 1813.8 Original Application No: NPS/WR/010565 Original Start Date: 13/6/1966 Expiry Date: - Issue No: 101 Version Start Date: 5/4/2012 Version End Date:

6.4 Surface Water Abstraction Licences

Are there any Surface Water Abstraction Licences within 2000m of the study site? Yes

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

ID	Distance (m)	Direction	NGR	Details
Not shown	1820	SE	528490 184020	Status: Historical Licence No: 28/39/39/0173 Details: Non-Evaporative Cooling Direct Source: Thames Surface Water - Non Tidal Point: Oval Road, Camden - Grand Union Regents Canal Data Type: Point Name: BRITISH WATERWAYS BOARD Annual Volume (m ³): - Max Daily Volume (m ³): - Application No: - Original Start Date: 8/12/1994 Expiry Date: - Issue No: 100 Version Start Date: 8/12/1994 Version End Date:
Not shown	1828	SE	528500 184020	Status: Active Licence No: 28/39/39/0164 Details: Non-Evaporative Cooling Direct Source: Thames Surface Water - Non Tidal Point: Southampton Bridge, London, Nw8 - Regents Canal Data Type: Point Name: Canal and River Trust Annual Volume (m ³): 7010000 Max Daily Volume (m ³): 19520 Application No: - Original Start Date: 18/7/1980 Expiry Date: - Issue No: 101 Version Start Date: 17/12/2007 Version End Date:

6.5 Potable Water Abstraction Licences

Are there any Potable Water Abstraction Licences within 2000m of the study site?

Yes

The following Potable Water Abstraction Licences records are represented as points, lines and regions on the SPZ and Potable Water Abstraction Licences Map (6c):

ID	Distance (m)	Direction	NGR	Details
Not shown	1596	S	527636 183697	<p>Status: Active Licence No: TH/039/0039/058 Details: Potable Water Supply - Direct Direct Source: Thames Groundwater Point: Borehole At Barrow Hill Data Type: Point Name: THAMES WATER UTILITIES LTD</p> <p>Annual Volume (m³): 631000 Max Daily Volume (m³): 2000 Original Application No: NPS/WR/009229 Original Start Date: 1/4/2013 Expiry Date: 31/3/2025 Issue No: 1 Version Start Date: Version End Date:</p>
Not shown	1604	S	527640 183690	<p>Status: Historical Licence No: 28/39/39/0231 Details: Potable Water Supply - Direct Direct Source: Thames Groundwater Point: Barrow Hill Pumping Station - Borehole Data Type: Point Name: THAMES WATER UTILITIES LTD</p> <p>Annual Volume (m³): 631000 Max Daily Volume (m³): 2000 Original Application No: WRA/R/1026 Original Start Date: 1/4/2007 Expiry Date: 31/3/2013 Issue No: 1 Version Start Date: Version End Date:</p>
Not shown	1604	S	527640 183690	<p>Status: Historical Licence No: 28/39/39/0202 Details: Potable Water Supply - Direct Direct Source: Thames Groundwater Point: Barrow Hill Pumping Station - Borehole Data Type: Point Name: THAMES WATER UTILITIES LTD</p> <p>Annual Volume (m³): 631000 Max Daily Volume (m³): 2000 Original Application No: WRA/2/2(24) Original Start Date: 26/9/2002 Expiry Date: 31/3/2007 Issue No: 1 Version Start Date: Version End Date:</p>
Not shown	1764	E	528800 184700	<p>Status: Active Licence No: 28/39/39/0091 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Kentish Town Sports Centre, Prince Of Wales St Data Type: Point Name: GREENWICH LEISURE LIMITED</p> <p>Annual Volume (m³): 17997 Max Daily Volume (m³): 604.6 Original Application No: NPS/WR/010565 Original Start Date: 13/6/1966 Expiry Date: - Issue No: 101 Version Start Date: Version End Date:</p>
Not shown	1764	E	528800 184700	<p>Status: Historical Licence No: 28/39/39/0091 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Two Bores At Kentish Town Sports Centre, Prince Of Wales St Data Type: Point Name: GREENWICH LEISURE LTD</p> <p>Annual Volume (m³): 94506 Max Daily Volume (m³): 1813.8 Original Application No: NPS/WR/010565 Original Start Date: 13/6/1966 Expiry Date: - Issue No: 101 Version Start Date: Version End Date:</p>

6.6 Source Protection Zones

Are there any Source Protection Zones within 500m of the study site? No

Database searched and no data found.

6.7 Source Protection Zones within Confined Aquifer

Are there any Source Protection Zones within the Confined Aquifer within 500m of the study site? No

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

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

Is there any Environment Agency information on groundwater vulnerability and soil leaching potential within 500m of the study site? Yes

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

6.9 River Quality

Is there any Environment Agency information on river quality within 1500m of the study site? No

6.9.1 Biological Quality:

Database searched and no data found.

6.9.2 Chemical Quality:

Database searched and no data found.

6.10 Detailed River Network

Are there any Detailed River Network entries within 500m of the study site? Yes

The following Detailed River Network records are represented on the Hydrology Map (6e):

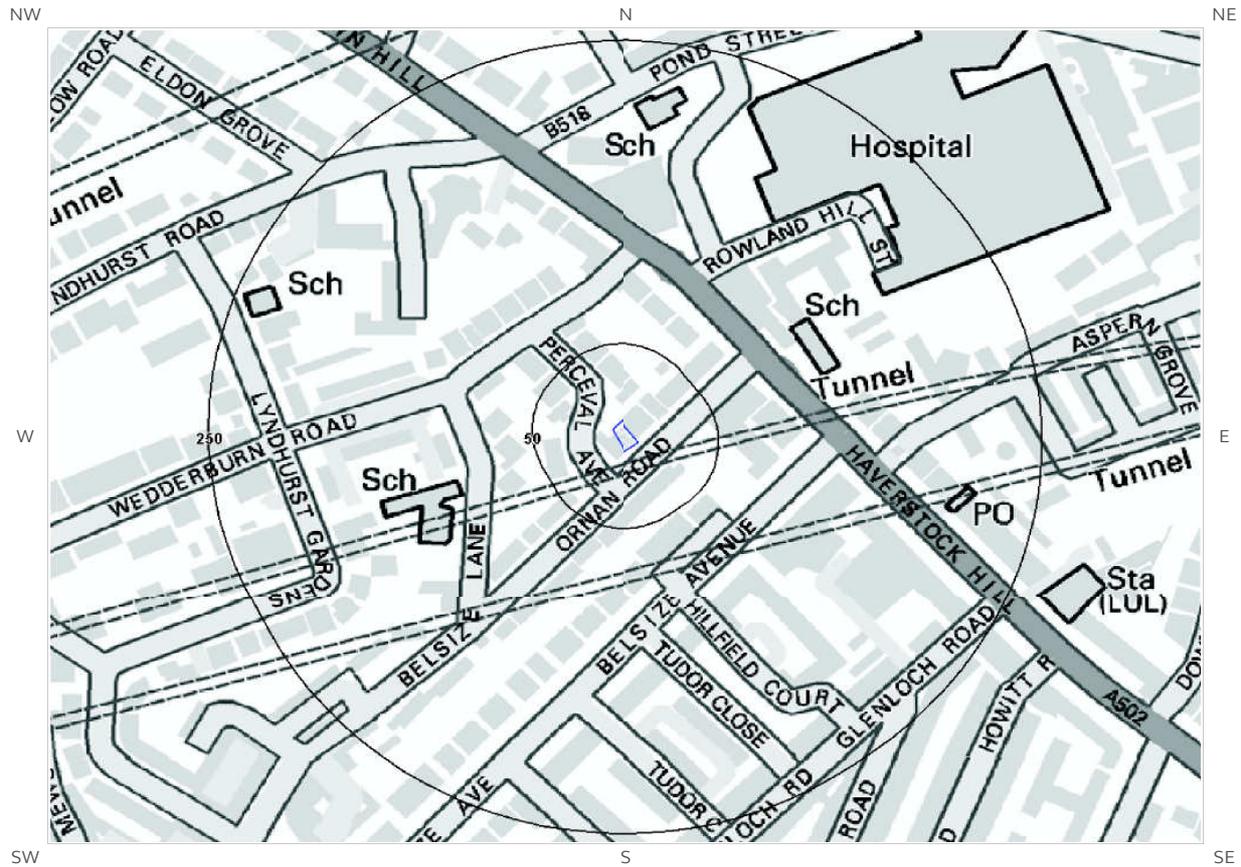
ID	Distance (m)	Direction	Details
1	101	E	River Name: - Welsh River Name: - Alternative Name: - River Type: Culvert Main River Status: Currently Undefined

6.11 Surface Water Features

Are there any surface water features within 250m of the study site? No

Database searched and no data found.

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



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