

Contaminated Land Report
Hornsey Town Hall Renaissance Project
Haringey Council

CS/026506

March 2010

CAPITA SYMONDS

successful people, projects and performance

Executive Summary

This report presents the findings of a Contaminated Land Report for the Hornsey Town Hall Renaissance Project site, London. It is based on desk top information and an exploratory site investigation undertaken in June 2009 under the supervision of Capita Symonds.

The report has been prepared on behalf of the London Borough of Haringey (LBH) to provide an understanding of the ground conditions beneath the site in support of a planning application for the redevelopment of the site.

The Town Hall Building is to undergo alterations, extension and change of use from B1 (Business) and Sui Generis to a mixed use scheme incorporating: A4 (bars), D1 (Non-residential Institutions), C3 Dwelling houses, D2 (Assembly and Leisure) and retaining existing B1 and Sui Generis uses. The refurbishment will be accompanied by a mixture of new build residential development and conversion of existing buildings to residential use. This aspect is known as the "Facilitating Development". The Facilitating Development includes 123 dwelling units comprising the following:

- Block A – New build residential with 66 dwellings arranged over 5 storeys with undercroft and basement parking.
- Block B – New build residential with 26 dwellings arranged over 5 storeys.
- Mews – New build residential comprising 4 no. mews houses.
- East Wing – Conversion of the East Wing of the Town Hall Building to accommodate 13 residential dwellings arranged over 4 storeys with 2 roof extensions on the 3rd floor.
- Link building - conversion of the Link Building of the Town Hall Building of accommodate 6 residential dwellings arranged over 4 storeys.
- Broadway Annexe West Part – conversion and extension to accommodate 8 residential dwellings at first and second floors.

The site is approximately 1.4 hectares in size and is situated in a predominantly residential area within the Hornsey area of North London. The site is currently dominated by the Hornsey Town Hall building, surrounded by various office buildings, along with car parking and soft landscaping areas.

Based on the exploratory ground investigation undertaken at the site in June 2009 the ground conditions beneath the site are reported to comprise Made Ground overlying Alluvium and London Clay.

The level of risk to current and future site users and built structures is preliminary assessed to be low to moderate. A significant potential source of contamination has not been identified at the site based on the desk top review of available information.

The exploratory ground investigation and generic quantitative risk assessment did identify one localised area of contamination in the north east area of the site. This contamination is thought to be associated with bitumen, ash and clinker that was recorded as being present in the shallow ground and is not thought to represent a significant source of below ground contamination. Furthermore, the identified contamination is outside the footprint of the proposed development and a direct pathway to future users has not been identified.

In the absence of soil gas monitoring data and as a conservative assumption there is potential for soil gas generation beneath the site. Notwithstanding, the likelihood is considered to be low on the basis of the limited thickness of Made Ground encountered at the site

The groundwater / controlled water setting of the site is considered to be low sensitivity on the basis of the underlying clay which is classified as a non aquifer and the lack of a sensitive surface water receptor in the immediate vicinity of the site.

At this stage and on the basis of the above information, significant remediation works are not expected to be required to support future redevelopment of the site. Notwithstanding, and as a reasonable worst case scenario in the absence of data in the areas of proposed redevelopment, it is recommended that some provision should be made for the requirement of standard remediation practices. This would commonly comprise localised soil source removal and / or cover layer materials in areas of soft landscaping.

To validate the findings of this report and support likely future planning requirements it is recommended that a further small scale intrusive ground investigation is undertaken across the site. The small scale investigation will target the areas of the site that are proposed to be redeveloped and provide confirmation of the level of risk to future site users and built structures.

Contents

Executive Summary	
1. Introduction	1
2. Site Location and Description	3
3. Geology, Hydrogeology and Hydrology	4
4. Site History	6
5. Additional Information	7
6. Conceptual site model	9
7. Generic Risk Assessment	11
8. Conclusions and Recommendations	16

Figures

Figure 1	Site Location Plan
Figure 2	Site Plan
Figure 3	Conceptual Site Model

Appendices

Appendix 1	Development Plan
Appendix 2	Landmark Envirocheck Report
Appendix 3	CSL Geotechnical Report, Hornsey Town Hall, September 2009
Appendix 4	GAC Screening Tables

1. Introduction

- 1.1 This report has been prepared on behalf of the London Borough of Haringey (LBH) and presents the findings of a Contaminated Land Study as part of a planning application for the proposed redevelopment and refurbishment of the Hornsey Town Hall site, Haringey.
- 1.2 The objective of the commission is to provide an understanding of the ground conditions beneath the site in support of a planning application for the redevelopment. The Town Hall Building is to undergo alterations, extension and change of use from B1 (Business) and Sui Generis to a mixed use scheme incorporating: D1 (Non-residential Institutions), C3 Dwelling houses, D2 (Assembly and Leisure), A4 (bars) and retaining existing B1 and Sui Generis uses. The refurbishment will be accompanied by a mixture of new build residential development and conversion of existing buildings to residential use. This aspect is known as the "Facilitating Development". The Facilitating Development includes 123 dwelling units comprising the following:
- Block A – New build residential with 66 dwellings arranged over 5 storeys with undercroft and basement parking.
 - Block B – New build residential with 26 dwellings arranged over 5 storeys.
 - Mews – New build residential comprising 4 no. mews houses.
 - East Wing – Conversion of the East Wing of the Town Hall Building to accommodate 13 residential dwellings arranged over 4 storeys with 2 roof extensions on the 3rd floor.
 - Link building - conversion of the Link Building of the Town Hall Building of accommodate 6 residential dwellings arranged over 4 storeys.
 - Broadway Annexe West Part – conversion and extension to accommodate 8 residential dwellings at first and second floors.
- 1.3 It is understood that the existing Hornsey Town Hall is to be refurbished with development proposals comprising a Mews development in the north west of the site and two new residential blocks A and B in the east and north of the site, proposed to be 4 /5 storey developments. All three new developments are to be located in the surrounding area of the Town Hall, with areas of soft landscaping also proposed. A development plan has been provided as Appendix 1.
- 1.4 This report is based on desk top information and an exploratory investigation undertaken in June 2009 under the supervision of Capita Symonds Limited. The ground investigation was predominantly designed for geotechnical / structural purposes although select contamination samples were also collected during the works.
- 1.5 This report presents the findings of the desk top review and a generic quantitative risk assessment of the contaminative samples collected from the exploratory ground investigation. The Environment Agency Model Procedures for the Management of Land Contamination CLR 11 has been consulted in the preparation of this document.

1.6 The following tasks have been undertaken in the production of the Report:

- visit the site to assess by visual inspection potential environmental liabilities associated with beneath ground contamination at the site and the surrounding land;
- to obtain and review readily available historic maps and third party data of the site and surrounding land to establish further historical and potentially contaminating land uses within the vicinity of the site;
- to review geological and hydrogeological records for the site and surrounding area to assess the potential for pollution migration;
- to obtain public records held by the Environment Agency and other third parties for the site and surrounding land, including details of licensed and historic landfills, pollution incidents, industrial processes and details of groundwater resources;
- to present a conceptual site model;
- to undertake a generic quantitative risk assessment of available soil chemical laboratory results; and
- identify broad remediation requirements and recommendations for future works

1.7 Factual information in this report was obtained from the following sources:

- Landmark Information Group, Envirocheck Report;
- British Geological Survey (BGS) Sheets 256 (North London);
- EA Groundwater Vulnerability Map (Sheet 40 Thames Estuary);
- STATs, Geotechnical Report, Hornsey Town Hall, Hornsey, Report No. 240362-001, September 2009; and
- a site visit undertaken by a Capita Symonds Environmental Consultant.

1.8 This report is for the use of LBH and should not be relied upon by other parties unless specifically advised by Capita Symonds Ltd in writing.

2. Site Location and Description

Site Location

- 2.1 The site is situated within the Hornsey area of North London. The site is centred on national grid reference 530221, 188348 and the site surface area is approximately 1.4 hectares. A site location plan is provided as Figure 1.
- 2.2 The site is located in the centre of Hornsey to the east of the main high street named Broadway. The immediate environs of the site consist the Broadway and retail properties to the west, residential properties to the north and east, the Library to the south with the road Haringey Park beyond, and to the south west is the road Hatherley Gardens-lined with residential properties.

Site Description

- 2.3 A Capita Symonds Consultant undertook a site walkover on the 8th June 2009 as part of the Ground Contamination Desk Study Report, to identify potential areas of contamination concern from the current use of the site, this walkover was undertaken during the geotechnical ground investigation undertaken by Stats.
- 2.4 The site is currently dominated by the Hornsey Town Hall building, surrounded by various office buildings, along with car parking and soft landscaping areas. The site boundary extends east and west beyond the town hall as shown on the site layout plan provided as Figure 2, which includes proposed areas of residential development overlain onto the current layout.
- 2.5 Vehicle access and egress is available from Hatherley Gardens, with pedestrian access alongside the town square leading on to Broadway. Immediately in front of the Town Hall building is a turning circle with a water fountain in the centre. To the north of the main entrance is the Broadway Annex
- 2.6 In the north east corner of the site is a building formerly used as a clinic, a row of garages and a 2 storey prefabricated office building. There is vehicle entrance to the site leading between residential properties to Weston Park.
- 2.7 To the south of the main building is an area of soft landscaping and a car park surfaced with tarmac. In a court yard area to the main building a single storey office building has been constructed. There are garages located in the northwest corner of this car park and the entrance to the car park is via an access road in the southeast corner that leads down the side of the library building to the road Haringey Park.
- 2.8 In the south east corner of the site is a separate car park that is surfaced in a combination of gravel and poor quality tarmac. There are two shipping containers situated in the centre of the car park that are thought to be used for storage. The car park is accessed directly onto Haringey Park in the south east corner of the site.

3. Geology, Hydrogeology and Hydrology

- 3.1 A review was undertaken of the relevant published British Geological Survey (BGS) 1:50,000 solid and drift geological map (Sheets 256, North London). The published geology of the site is summarised in Table 3.1 below.

Table 3.1 Description of the Published Solid and Drift Geology underlying the Site

Age	Formation	Lithology	Typical Thickness
Eocene	London Clay	Clay, silty in part	90-110 m
Eocene	Bagshot Formation	Sand	Unknown

- 3.2 Although published geology does not detail the presence of made ground at the site, there is potential for made ground to be present associated with the site's historic use.

Hydrogeology

Classification

- 3.3 The EA groundwater vulnerability map (Sheet 40, Thames Estuary, 1:100,000 Series) classifies the London Clay beneath the site as a non aquifer with negligible permeability. The forthcoming changes to the nomenclature of aquifers in accordance with Water Framework Directive 2000/60/EC requirements will see the existing designation of minor aquifers largely transferred across to secondary aquifers. Although secondary aquifers seldom produce large quantities of water for abstraction, they are important for local water supplies and in supporting base flow in rivers.
- 3.4 The soil at the site has been given a soil vulnerability class of 'high leaching potential' as a worst case scenario (applied to all areas classified as 'urban'). These are generally assumed to be soils which readily transmit liquid discharges, because they are either shallow or susceptible to rapid flow directly to rock, gravel or groundwater.

Groundwater Source Protection Zone

- 3.5 The Envirocheck report, provided as Appendix 1, indicates that the site does not lie within a source protection zone.

Hydrology

- 3.6 The nearest surface water feature is the Crouch Hill Reservoir, located 564 m southeast of the site boundary.
- 3.7 The site surface area comprises approximately 0.2 ha of soft landscaping and 1.2 ha of buildings and hardcover. Therefore, a low rate of infiltration is currently expected at the site.

Discharge Consents

- 3.8 There are no discharge consents recorded as being located on site or located within 500 m of the site boundary.

-
- 3.9 The nearest discharge consent is located 883 m north east of the site and the operator is recorded as Essex County Council. The consent effective date is 22nd June 1972, with a revocation date of 12th February 1992. The consent is for the discharge of other matter surface water and the receiving water is recorded as a freshwater river / stream.

Licensed Abstraction

- 3.10 Envirocheck data shows no groundwater abstraction licences within 500 m of the site.

4. Site History

- 4.1 Reference has been made to historic mapping dating from the late 19th Century included in the Envirocheck Report prepared by Landmark Information Group Ltd, attached as Appendix 2. The following Tables 4.1 and 4.2 provide a chronological commentary describing the historical development of the site, with particular reference to potential sources of contamination.

Table 4.1 Summary of Mapping Reviewed

Ordnance Survey (OS) Maps Reviewed (published dates)	Map Scale
1863-1894, 1866, 1870-1872, 1896, 1913-1914, 1914-1915, 1935, 1935-1936, 1952-1955, 1952, 1970	1:2,500
1946-1949, 1951-1955, 1952-1985, 1963-1972, 1973-1974, 1974-1980, 1986-1990, 1990, 1991, 1992-1995	1:1,250
1873, 1879, 1896, 1920, 1938, 1950,	1:10,560
1951, 1958, 1962-1968, 1967, 1975-1976, 1984, 1990-1996, 1999, 2008	1:10,000

Table 4.2 Summary of the historical development of the site

Map Dates	Description	Comments
1850 - 1863	Open Fields	No structures evident on site.
1863 - 1894	Dwellings	Dwellings with open space located in the central and northern portion of the site.
1895 - 1937	Dwellings	Including the Broadway Hall, and associated open space which is located within the northern section of the site.
1937 - 1963	Town Hall and Clinic	Open space is absent and the site is occupied by two buildings identified as the 'Town Hall' and 'Clinic'. Additionally the dwellings that occupied the north western section of the Site are now identified as open space.
1963 - 2008	Library	Another building now present on site identified as the 'Library'

- 4.2 Based on the historic maps provided, Table 4.3 provides a description of potentially contaminative land uses within approximately 500 m of the site boundary.

Table 4.3: Summary of the historical development of the surrounding area (up to 500 m from site boundary)

Map Dates	Approximate Location	Description
1951 - 1955	30 m West	Joinery
	100 m south west	Warehouses
	10 m to East	Substation.
1951 - 1974	150 m North	Engineering Works
1951 - 1972	10 m East	Coach Building Works
1963 - 1972	50 m West	Paper works and works
1963-1991	100 m west	'Depots' and 'Warehouses'

NOTE: All locations are measured from the nearest site boundary.

5. Additional Information

- 5.1 The following research was undertaken to supplement the information gathered from historical mapping, geological assessment and hydrogeological study. The purpose of the research was to review environmental records to identify evidence for contaminative activities on site or in the surrounding area. The principal source of information was the Envirocheck Report provided by the Landmark Information Group and presented as Appendix 2.
- 5.2 Information on existing and recent activities at the site and the immediate surroundings within a 500 m radius, that may have an impact on the environment are summarised in Table 5.1 below and subsequently expanded in the following sections.

Table 5.1 Summary of Environmental Records (within 500 m of the site)

Environmental Aspect	On Site	0-250 m	251-500 m
Water			
Abstractions	NR	NR	NR
Discharge Consents	NR	NR	NR
Pollution Incidents to Controlled Waters	NR	1	NR
Local Authority Pollution Prevention and Controls	NR	4	3
Waste			
Local Authority Recorded Landfill Sites	NR	NR	NR
Licensed Waste Management Facilities	NR	NR	NR
Registered Waste Treatment or Disposal Sites	NR	NR	NR
Historical Landfill Sites	NR	NR	NR
Industrial Land Use			
Contemporary Trade Directory Entries	1	28	33
Fuel Station Entries	NR	NR	3
Sensitive End Use			
Local Nature Reserves	NR	NR	2

NOTE: NR = None Recorded

Water

- 5.3 There are no recorded abstraction licenses for groundwater or surface water on site or within 500 m of the site boundary.
- 5.4 There are no discharge consents recorded as being located on site or located within 500 m of the site boundary. The nearest discharge consent is located 883 m north east of the site and the operator is recorded as Essex County Council. The consent effective date is 22nd June 1972, with a revocation date of 12th February 1992. The consent is for the discharge of other matter surface water and the receiving water is recorded as a freshwater river / stream.
- 5.5 There are no recorded pollution incidents to controlled waters which have occurred on site.
- 5.6 There is one minor pollution incident to controlled waters recorded at a distance of approximately 127 m north east of the site involving 'unknown Oils'. This was recorded on the 30th March 1993.
- 5.7 There are seven Local Authority Pollution Prevention and Controls (LAPPC) reported within a 500 m radius of the site boundary. The majority of these relate to dry cleaning services.

Waste

- 5.8 There are no local authority recorded landfill sites or historical landfill sites, licensed waste management facilities or registered waste treatment or disposal sites recorded as being on site or within 500 m of the site boundary.

Industrial Land Use

- 5.9 There is one inactive contemporary trade directory relating to an Electrical Good Manufacturer detailed as being on site.
- 5.10 There are 61 contemporary trade directories detailed as being located within 500 m of the site boundary, 27 of which are detailed as being inactive. The remaining 34 active licences include industries such as dry cleaners, garage services, fabric manufacturers, car dealerships and garages, commercial and domestic cleaning services and photographic processing.
- 5.11 There are three fuel station entries recorded within 500 m of the site boundary. The 'Star Tottenham Lane' fuel station is approximately 309 m north east of the site and is recorded as 'Obsolete'. The 'Somerfield Crouch End' petrol station and the 'Shell Hornsey Park Road' petrol station are both recorded as being 'Open' and are located 393 m north east and 479 m north west of the site respectively.

6. Conceptual site model

- 6.1 A conceptual site model (CSM) has been developed for the site (presented as Figure 3) and is discussed below. It is based on the desk top information reviewed in the preparation of this report and in particular the historic and current land uses and published geological and hydrogeological mapping.
- 6.2 The CSM provides a qualitative evaluation of potential pollutant linkages at the site based on plausible contaminant source – pathway – receptor at the site:
- i. potential sources of contamination: these include any actual or potentially contaminating materials and activities, located either on or in the vicinity of the site;
 - ii. potential pathways for contamination migration: these are the routes or mechanisms by which contaminants may migrate from the source to the receptor; and
 - iii. potential receptors of contamination: these include present or future land users, the environment or built environment.

Contamination Sources

- 6.3 From the information reviewed in this report a significant contamination source has not been identified at the site. In the 1850's the site was in use as an open field, and in 1863 small parts of the site were in use for residential dwellings and since 1895 up to current day the site has been occupied by a town hall and clinic (now no longer functioning as such), and in addition since 1963, a library.
- 6.4 Notwithstanding there is potential for localised contamination to be present associated within any made ground, as a result of the sites previous development, in particular inorganic contaminants, asbestos and soil gas generation.

Off site Sources

- 6.5 There is a small scale electricity sub station located adjacent to the north east boundary of the site which may have the potential to have resulted in localised impacts of the shallow ground with PCBs and oil fuel contamination, although the likelihood of this acting as a significant source of contamination at the site is low.

Environmental Pathways

- 6.6 Potential migration pathways are discussed below.

Airborne Migration Pathways

- 6.7 The particulate inhalation pathway is not expected to be relevant in those areas of the site that comprise hardstanding. The presence of hardstanding will effectively act as a barrier to the generation and migration of soil dust. This pathway will be active in areas of the site which comprise soft landscaping and also during the construction phase of the project, following hardstanding removal.
- 6.8 Both indoor and outdoor vapour inhalation pathways are potentially active in the current scenario. The vapour inhalation pathway is considered will be potentially active in the future development scenario, particularly the indoor pathway in areas of built structures.

Aqueous Migration Pathway

- 6.9 Published geology indicates the site is underlain by London Clay which directly overlays the Bagshot Formation (sands).

- 6.10 The significance of the underlying London Clay to support a significant groundwater table is assessed to be low based on its classification as a non aquifer.
- 6.11 A shallow perched groundwater table may be present associated with any made ground beneath the site. While horizontal movement of this shallow groundwater is not likely to be significant it is considered as a possible localised pathway for offsite migration.

Land Migration Pathway

- 6.12 The land migration pathway is not considered to be relevant in those areas of the site that will comprise hardstanding (albeit permeable paving in certain areas) as this will effectively act as a barrier to the future end user from dermal and ingestion pathways. The dermal and ingestion pathways are expected to be active in areas of soft landscaping proposed in any future development.
- 6.13 The land migration pathway will be potentially active during the construction phase of any future development.

Receptors

- 6.14 In the context of the site, the following potential receptors have been identified:
- future users;
 - adjoining property;
 - built structures/ infrastructure; and
 - construction workers.
- 6.15 The potential source-pathway-receptor linkages identified at the site are summarised in Table 6.1 below.

Table 6.1. Summary of Potential Pollutant Linkages

Potential Receptor	Potential Source	Potential Pathway	Potential Pollutant Linkage
Current Users	Contaminated Soil	Particulate inhalation / dermal contact / ingestion	Yes
	Contaminated soil and groundwater	Vapour inhalation (indoor and outdoor)	Yes
Future Users	Contaminated Soil	Particulate inhalation / dermal contact / ingestion	Yes (only in areas of soft landscaping)
	Contaminated soil and groundwater	Vapour inhalation (indoor and outdoor)	Yes
Off Site - adjoining property	Contaminated soil	Particulate inhalation	No
	Contaminated soil and groundwater	Vapour inhalation (indoor and outdoor)	No
Built Structures / Infrastructure	Soil gas	Migration and vapour intrusion	Yes
Construction Workers	Contaminated soil and groundwater	Dermal contact / ingestion / particulate inhalation/ vapour inhalation	Yes

7. Site Investigation Works

- 7.1 A site investigation was undertaken between 5th June and 11th June 2009 by RSK STATS on behalf of Capita Symonds. This focused on the area in and around Hornsey Town Hall. A copy of the Geotechnical Report, dated September 2009 has been provided as Appendix 3.
- 7.2 The site investigation was undertaken to obtain information on the ground conditions in relation to historical and current movement of the existing structures onsite. The ground investigation was predominantly designed for geotechnical / structural purposes although select contamination samples were also collected during works.

Scope

- 7.3 The scope of works undertaken at the site has been outlined below, this is restricted to those exploratory holes from which contamination samples were taken, it excludes dynamic probes holes drilled purely for geotechnical purposes. Detailed information (contamination related only) per exploratory hole has been provided in table 7.1 below.
- 4No. light cable percussive boreholes to a maximum depth of 30.0 m depth;
 - 8No. Trial Pits up to a maximum of 4.00 m depth; and
 - laboratory chemical testing of 16No. soil samples for common contaminants.

Table 7.1 List of Exploratory Holes, Depth and Contamination Testing

Exploratory Hole	Depth (m)	Contamination Suite	Ground water Encountered
BH 1A	30.00	Heavy Metals and Sulphate.	None encountered
BH 2	30.00	Heavy Metals and Sulphate	None encountered
BH 3	25.00	Heavy Metals, PAHs, TPH, Sulphate, MTBE	None encountered
BH4A	25.00	Heavy Metals and Sulphate	None encountered
TP 1	4.00	Heavy Metals, PAHs, TPH, MTBE	None encountered
TP 1A	1.30	Heavy Metals, PAHs, TPH, MTBE	None encountered
TP 2	5.00	Heavy Metals, PAHs, TPH, MTBE	None encountered
TP 3	0.89	Heavy Metals, PAHs, TPH, MTBE	None encountered
TP 4	3.00	Heavy Metals, PAHs, TPH, MTBE	None encountered
TP 5	2.00	Heavy Metals, PAHs, TPH, MTBE	None encountered
TP 6	3.00	Heavy Metals, PAHs, TPH, MTBE	None encountered
TP 7	3.00	Heavy Metals, PAHs, TPH, MTBE, SVOC	None encountered

Notes:

Heavy Metals -Boron, Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Zinc

PAHs – Poly Aromatic Hydrocarbons (Total 16 reported)

TPH – Total Petroleum Hydrocarbons (Aliphatics and Aromatics)

MTBE – Benzene, Toulene and Ethyl Benzene

SVOC and VOC - Semi Volatile Organic Carbons and Volatile Organic Carbons

- 7.4 No groundwater was encountered in any of the exploratory holes during the investigation at the site and no soil gas monitoring was undertaken.

Ground Conditions

- 7.5 The ground investigation undertaken at the site revealed it to be underlain by a variable thickness of Made Ground over Alluvium with London Clay at depth. This appears to slightly differ from the stratigraphical succession suggested by the published geological records, in that a thin layer of Alluvium is present across the site. The ground conditions identified at the site have been summarised in Table 7.2 below and all borehole logs are provided within Appendix 3 as part of the Geotechnical Report, September 2009.

Table 7.2 General succession of strata encountered

Geology	Depth to top of stratum m bgl	Thickness (m)
Made Ground	0.00	0.30 to 3.30
Alluvium	0.68 to 0.74	0.26 to 0.32
London Clay	0.30 to 3.30	Proven to 25.0

- 7.6 In the majority of the exploratory holes, the Made Ground was identified to be only up to 0.30 m thick. The maximum thickness of Made Ground was encountered in BH4A located in the north west of the site.

8. Generic Risk Assessment

8.1 This section provides a generic quantitative risk assessment (GQRA) for Human Health of the available chemical laboratory results from the site investigation conducted in June 2009, and utilises the desk top information provided in the previous sections of this report in order to identify the significance of any potential pollutant linkages beneath the site.

Assessment Results of GQRA for Human Health

8.2 Capita Symonds' Human Health Generic Assessment Criteria (GAC) have been produced using CLEA v1.06 and were used for the purpose of soil assessment. A residential end use without plant uptake has been assumed. The GAC used are considered appropriate to assess risk to current and future site users.

8.3 Generic screening of soil chemical results has identified exceedances of GAC with respect to Human Health. Table 8.1 below summarises these exceedances. Full GAC screening tables are presented as Appendix 4.

Table 8.1. Summary of Soil Exceedances of Human Health GAC

Contaminant of Concern	No. of samples analysed	GAC (mg/kg)	No of Exceedances	Maximum Concentration (mg/kg)	Location of Exceedances
Chromium	14	37	8	62	Widespread
TPH aromatic >C21-C35	8	1300	1	1980	TP6 @ 0.25m (1980 mg/kg)
Naphthalene	8	7	1	9.08	TP4 @ 0.25m (9.08 mg/kg)
Benzo[a]anthracene	8	10	3	154	TP3 @ 0.5m (106 mg/kg), TP4 @ 0.25m (27.3 mg/kg), TP6 @ 0.25m (154 mg/kg)
Chrysene	8	100	2	149	TP3 @ 0.5m (102 mg/kg), TP6 @ 0.25m (149 mg/kg)
Benzo[b/k]fluoranthene	8	10	3	161	TP3 @ 0.5m (119 mg/kg), TP4 @ 0.25m (37.4 mg/kg), TP6 @ 0.25m (161 mg/kg)
Benzo[a]pyrene	8	1	3	107	TP3 @ 0.5m (73.8 mg/kg), TP4 @ 0.25m (24.5 mg/kg), TP6 @ 0.25m (107 mg/kg)
Indeno[1,2,3-cd]pyrene	8	10	3	85.6	TP3 @ 0.5m (59.5 mg/kg), TP4 @ 0.25m (22 mg/kg), TP6 @ 0.25m (85.6 mg/kg)
Dibenzo[a,h]anthracene	8	1	3	18.4	TP3 @ 0.5m (10.8 mg/kg), TP4 @ 0.25m (3.76 mg/kg), TP6 @ 0.25m (18.4 mg/kg)
Benzo[g,h,i]perylene	8	10	3	73.3	TP3 @ 0.5m (46.2 mg/kg), TP4 @ 0.25m (20.7 mg/kg), TP6 @ 0.25m (73.3 mg/kg)

8.4 A total of 16 soil samples have been assessed against the GAC and exceedances of chromium, aromatic hydrocarbons (>C21-35) and 8No. PAH species have been identified.

8.5 Chromium concentrations exceeded the Human Health GAC in 8 of 14 samples tested and at 6 of 8 exploratory locations. The Human Health GAC for chromium is considered to be overly conservative as it assumes 100% of the metal is the more toxic Chromium VI. The maximum concentration of Chromium tested is 62 mg/kg, which is not considered to be a significant exceedance when the presence of Chromium III is taken into account. The observed chromium exceedances of Human Health GAC are discounted for the purpose of this report.

- 8.6 Exceedances of aromatic hydrocarbons (>C21-35) and PAHs with respect to Human Health are recorded within the shallow made ground at locations TP3, TP4 and TP6. These positions are clustered in the south eastern corner of the current town hall boundary in the northern portion of the site and the exceedances may indicate an isolated contamination hotspot in this area. Bitumen, ash and clinker was observed to be present in the Made Ground at these locations.
- 8.7 Statistical analysis of the chemical data available for the site is not considered to be appropriate due to the limited number of samples and the clustered grouping of the sample locations.

Summary of Contamination Risk from GQRA

- 8.8 An assessment of the preliminary level of risk to the identified potential receptors is provided below in Table 8.2 based on the potential pollutant linkages identified within Table 6.1 and the assessment of available chemical data.

Table 8.2. Summary of the preliminary risk associated with Potential Pollutant Linkages

Potential Receptor	Potential Source	Potential Pathway	Preliminary Risk
Current Users	Contaminated Soil	Particulate inhalation / dermal contact / ingestion	Low to Moderate
	Contaminated soil and groundwater	Vapour inhalation (indoor and outdoor)	Low to Moderate
Future Users	Contaminated Soil	Particulate inhalation / dermal contact / ingestion	Low to Moderate
	Contaminated soil and groundwater	Vapour inhalation (indoor and outdoor)	Low to Moderate
Built Structures / Infrastructure	Soil gas	Migration and vapour intrusion	Low to Moderate
Construction Workers	Contaminated soil and groundwater	Dermal contact / ingestion / particulate inhalation/ vapour inhalation	Low to moderate

Current Users

- 8.9 The level of risk to current site users is assessed as **low to moderate**. A localised contamination source has been identified in the recorded Made Ground and is thought to be associated with bitumen, ash and clinker which was identified in these locations and is not considered to represent a significant source of contamination. Furthermore, a direct pathway to current site users in this part of the site has not been identified due to the current presence of hardstanding, which will reduce the significance of the dermal and ingestion pathway.

Future Users

- 8.10 The level of risk to future site users is assessed as **low to moderate**. The localised contamination source identified in the Made Ground is thought to be associated with recorded bitumen, ash and clinker at these locations and is not considered to be representative of a significant source of contamination at the site. Furthermore, the identified contamination is outside the proposed new development footprint and a direct pathway to future users is not present.

Built Structures / Infrastructure

- 8.11 The level of risk associated with soil gas generation and intrusion into any buildings associated with redevelopment has been identified as **low to moderate**. This assessment is based on the fact that although there is potential for the presence of contaminants and soil gas beneath the site associated with

the Made Ground, the Made Ground itself is relatively limited in thickness (generally half a metre) and therefore unlikely to be a significant source of soil gas.

Construction Workers

- 8.12 During future enabling and construction works at the site, construction workers may come into direct contact with areas of ground contamination. The level of risk is preliminary assessed as **low**, provided the appropriate level of mitigation is implemented. Mitigation would be expected to comprise as a minimum appropriate personal protective equipment and provision of this report within the site health and safety log.

9. Summary and Recommendations

- 9.1 A significant potential source of contamination has not been identified at the site based on the desk top review of available information. The site is recorded to have been in use as dwellings, town hall, clinic and library and these land uses are not considered have the potential to have resulted in significant contamination of the ground.
- 9.2 The exploratory ground investigation and generic quantitative risk assessment did identify one localised area of contamination in the north east area of the site. This contamination is thought to be associated with bitumen, ash and clinker that was recorded as being present in the shallow ground and is not thought to represent a significant source of below ground contamination. Furthermore, the identified contamination is outside the footprint of the proposed development and a direct pathway to future users has not been identified.
- 9.3 The sensitivity of controlled waters beneath and in the vicinity of the site is assessed to be low. The site is reported to be underlain by a non aquifer and the nearest recorded surface water feature is over 500 m from the site boundary.
- 9.4 In the absence of soil gas monitoring data and as a conservative assumption, there is potential for soil gas generation beneath the site. Notwithstanding, the likelihood is considered to be low on the basis of the limited thickness (generally 0.5m) of Made Ground encountered at the site.
- 9.5 At this stage, and on the basis of the above information, significant remediation works are not expected to be required to support future redevelopment of the site. Notwithstanding, and as a reasonable worst case scenario, it is recommended that some provision should be made for the requirement of standard remediation practices. This would commonly comprise localised soil source removal and / or cover layer materials in areas of soft landscaping.
- 9.6 To validate the findings of this report and support likely future planning requirements it is recommended that a further small scale intrusive ground investigation is undertaken across the site prior to construction commencing. The small scale investigation will target the areas of the site that are proposed to be redeveloped and provide confirmation of the level of risk to future site users and built structures. The suggested scope of works of the ground investigation is:
- 6No. window samples up to 3 m bgl;
 - 4No. rounds of soil gas monitoring; and
 - shallow soil chemical testing for inorganic and organic contaminants including hexavalent chromium VI, total petroleum hydrocarbons and poly aromatic hydrocarbons.
- 9.7 An Interpretative Report and Remediation Strategy will be prepared on completion of the small scale ground investigation which will provide firm recommendations on the requirement for remediation to support the future development of the site.

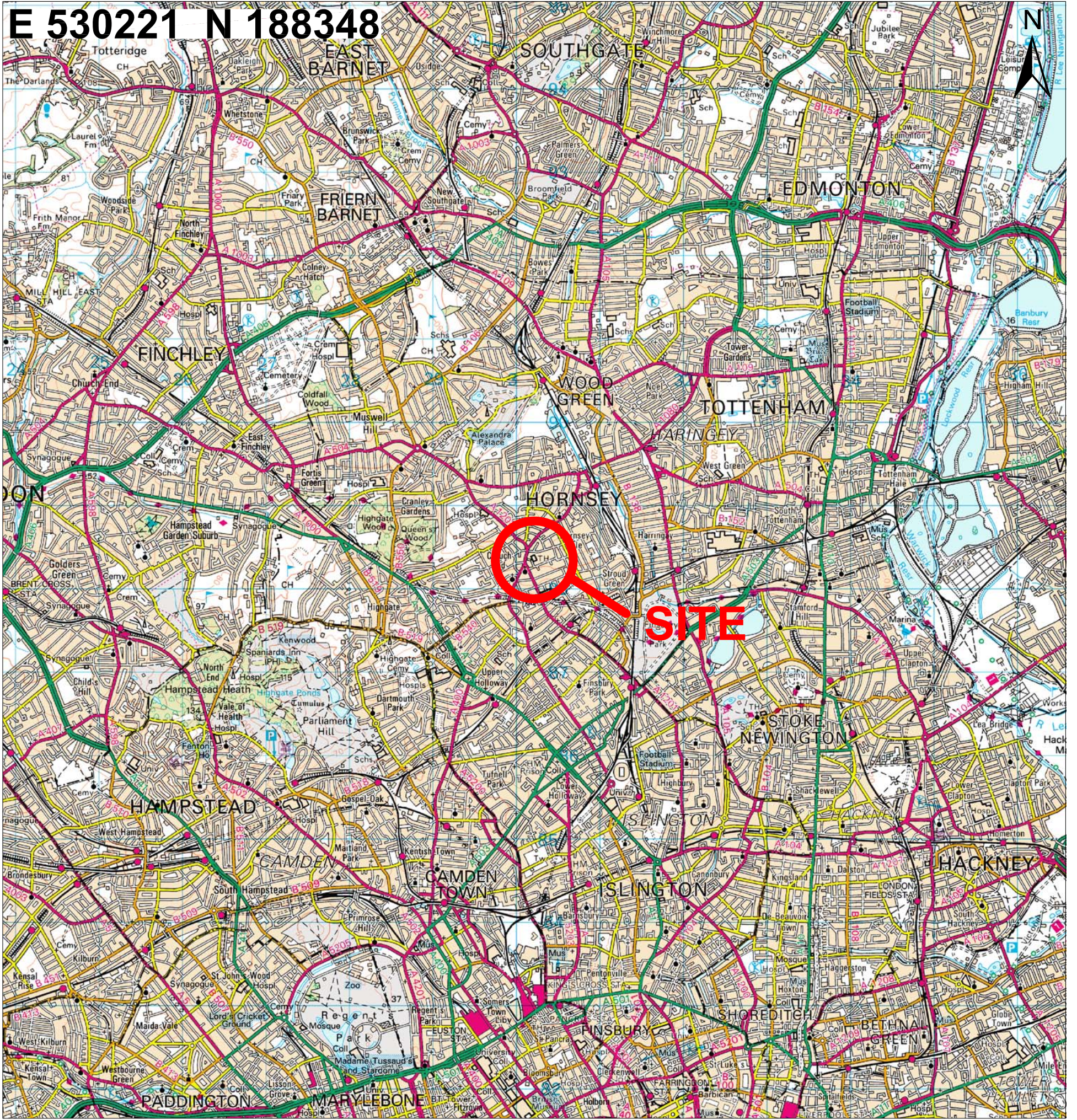
Figures

Figure 1 Site Location Plan

Figure 2 Site Layout Plan

Figure 3 Conceptual Site Model

E 530221 N 188348



-10mm 0 10mm

CAD FILE NAME : F:\Environment\ZMET\CS026506_HornseyTownHall_FRA\CAD\Figure1.dwg
 CTB FILE NAME :
 PLOTTED DATE :

REV		DR	CH	PA	DATE	REV		DR	CH	PA	DATE		

THIS MAP IS REPRODUCED FROM ORDNANCE SURVEY MATERIAL WITH THE PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE © CROWN COPYRIGHT. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. 100048730, 2010. NOTE THE PROPERTY OF THIS DRAWING AND DESIGN IS VESTED IN CAPITA SYMONDS LIMITED AND MUST NOT BE COPIED OR REPRODUCED IN ANY WAY WITHOUT THEIR WRITTEN CONSENT.

**HORNSEY TOWN HALL
 RENAISSANCE PROJECT**

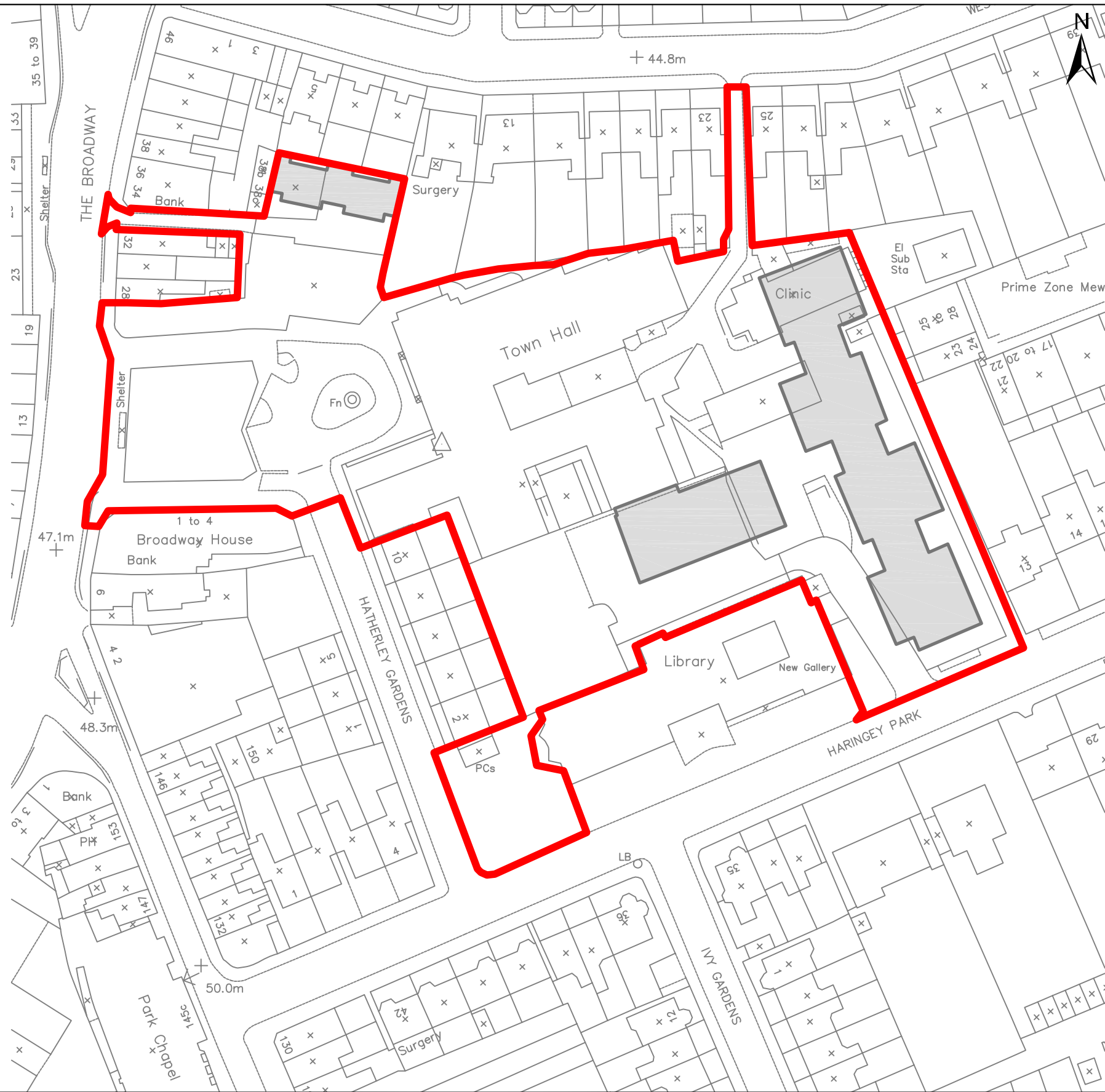
**FIGURE 1
 SITE LOCATION PLAN**

CAPITA SYMONDS

Capita Symonds Limited,
 52 Grosvenor Gardens, Victoria, London, SW1W 0AU
 Tel: +44 (0)20 7808 4520 Fax: +44 (0)20 7901 9901

DRAWN BY	CHECKED BY	PASSED BY	DATE	SCALES @ A3 SIZE	ISSUE STATUS	DRAWING NUMBER	REV.
ST	ND	ND	11/02/10	1:50,000	FINAL	CS026506/FIGURE 1	

E 530221 N 188348



KEY

- Site Boundary
- Proposed Residential Development

**HORNSEY TOWN HALL
RENAISSANCE PROJECT**

**FIGURE 2
SITE LAYOUT PLAN**

LONDON BOROUGH OF
HARINGEY COUNCIL

CAPITA SYMONDS

Capita Symonds Limited,
52 Grosvenor Gardens, Victoria, London, SW1W 0AU
Tel: +44 (0)02 7808 4520 Fax: +44 (0)20 7901 9901

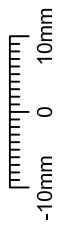
REV	DR	CH	PA	DATE

DRAWN BY	CHECKED BY	PASSED BY	DATE	SCALES @ A3 SIZE	ISSUE STATUS
ST	ND	ND	12/02/10	1:1,000	FINAL

DRAWING NUMBER	REV.
CS026506/FIGURE 2	

THIS MAP IS REPRODUCED FROM ORDNANCE SURVEY MATERIAL WITH THE PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE © CROWN COPYRIGHT. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. 100048730, 2010. NOTE THE PROPERTY OF THIS DRAWING AND DESIGN IS VESTED IN CAPITA SYMONDS LIMITED AND MUST NOT BE COPIED OR REPRODUCED IN ANY WAY WITHOUT THEIR WRITTEN CONSENT.

CAD FILE NAME : F:\Environment\ZWE\TCS026506_HornseyTownHall_FRA\CAD\Figure2.dwg
CTB FILE NAME :
PLOTTED DATE :



RECEPTORS




- (A) Site Users
- (B) Adjoining Property
- (C) Built Structures

PATHWAYS

- (i) indoor inhalation of vapours from soils
- (ii) outdoor inhalation of vapours from soils
- (iii) indoor inhalation of vapours from perched groundwater
- (iv) outdoor inhalation of vapours from perched groundwater
- (v) ingestion and dermal contact of contaminated soils
- (vi) inhalation of windblown particulates

- Pathways
- ▲--- Perched/shallow Groundwater

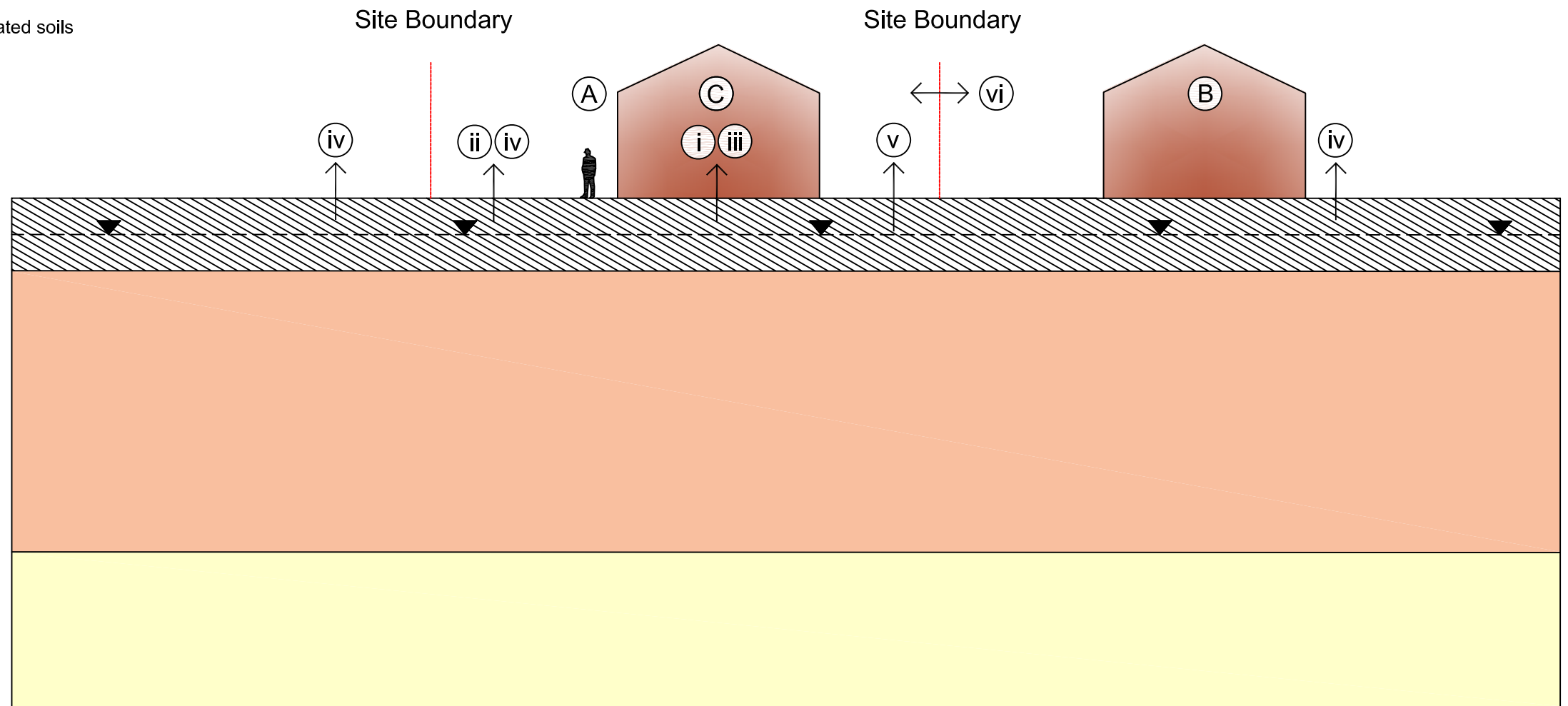
GEOLOGY

-  Made Ground
-  London Clay
-  Sands

GENERAL FEATURES

-  Residential Dwellings

-10mm 0 10mm



CAD FILE NAME : F:\Environment\ZNET\CS026506_HornseyTownHall_FRA\CAD\Figure3.dwg
 CTB FILE NAME :
 PLOTTED DATE :

**HORNSEY TOWN HALL
 RENAISSANCE PROJECT**

**LONDON BOROUGH OF
 HARINGEY COUNCIL**

**FIGURE 3
 CONCEPTUAL SITE MODEL**

CAPITA SYMONDS
 Capita Symonds Limited,
 52 Grosvenor Gardens, Victoria, London, SW1W 0AU
 Tel: +44 (0)02 7808 4520 Fax: +44 (0)20 7901 9901

REV	DR	CH	PA	DATE

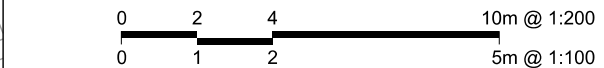
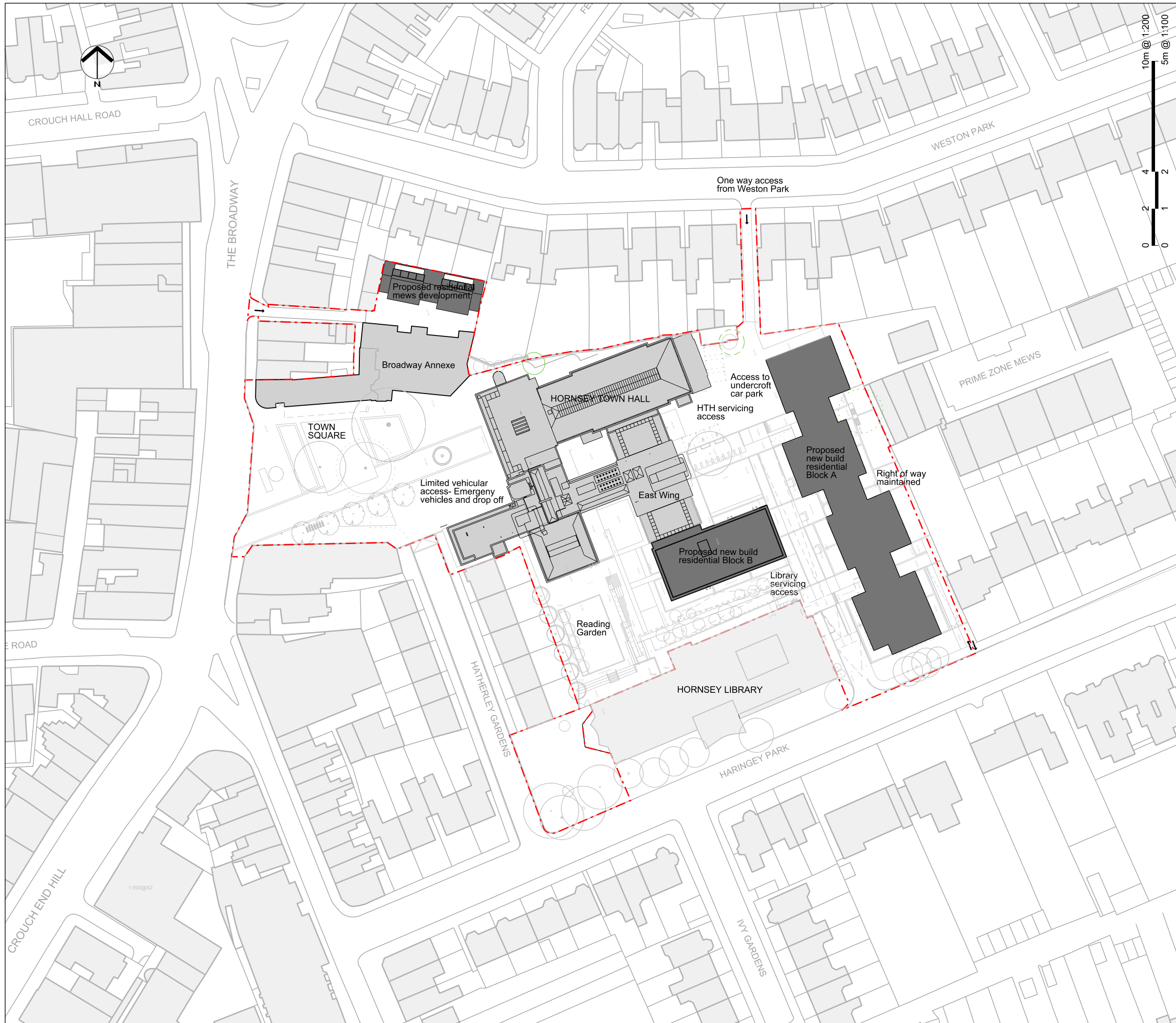
DRAWN BY	CHECKED BY	PASSED BY	DATE	SCALES @ A3 SIZE	ISSUE STATUS
ST	ND	ND	11/02/10	N.T.S	FINAL

DRAWING NUMBER	REV.
CS026506/FIGURE 3	

THIS MAP IS REPRODUCED FROM ORDNANCE SURVEY MATERIAL WITH THE PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE © CROWN COPYRIGHT. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS. 100048730, 2010. NOTE THE PROPERTY OF THIS DRAWING AND DESIGN IS VESTED IN CAPITA SYMONDS LIMITED AND MUST NOT BE COPIED OR REPRODUCED IN ANY WAY WITHOUT THEIR WRITTEN CONSENT.

Appendices

Appendix 1 Development Plan



Notes
 Do not scale from this drawing.
 All dimensions are to be checked on site and any discrepancies noted in writing to the Project Manager.
 All dimensions are in millimetres unless noted otherwise.
 If in doubt ask the Project Manager.

Rev.	Date	Description	Drawn	Checked
00	15.01.2010	Pre-Application Submission	JMP	JMP
01	25.01.2010	Stage D Design Freeze	JMP	JMP
02	10.02.2010	Information	JMP	JMP



JOHN MCASLAN + PARTNERS
 7-9 William Road, London NW1 3ER
 Tel + 44 (0)20 7313 6000
 Fax + 44 (0)20 7313 6001
 www.mcaslan.co.uk

Architect
 Landscape

Key Plan

Buildings outside red line boundary of application.

Buildings, within red line boundary of application, retained and refurbished

Proposed new build residential

- - Red line boundary

Hornsey Town Hall
 Proposed Site Plan

Scale at A3:	1000	Job Number:	1298
Date:	13 08 2009	Drawing:	JMP
Status:		Checked:	JMP
Drawing No:	1298_G100_P_SITE_000	Revision:	02

Appendix 2 - Landmark Envirocheck Report
(see attached CD)

Appendix 3 - CSL Geotechnical Report, September 2009



Report for
Capita Symonds

Geotechnical Report

Hornsey Town Hall, Hornsey

Report No. 240362 - 001
September 2009

© STATS Limited 2009

CONTENTS

	Page
1. INTRODUCTION	5
1.1 Purpose of Investigation	5
1.2 Project Brief	5
1.3 Limitations	5
2. SITE DETAILS	7
2.1 Site Location and Description	7
2.2 Historical Information	8
3. GROUND INVESTIGATION	9
3.1 Site Work	9
3.2 Laboratory Testing	9
4. GROUND CONDITIONS	10
4.1 Published Geology and Hydrogeology	10
4.2 Findings of Ground Investigation	10
4.2.1 General Succession of Strata	10
4.2.2 Made Ground	10
4.2.3 Alluvium	11
4.2.4 London Clay	11
4.3 Groundwater Results	11
5. ENGINEERING CONSIDERATIONS	13
5.1 Details of Proposed Development	13
5.2 Geotechnical Hazards	13
5.3 Foundations	14
5.3.1 Existing Foundations and Possible Causes of Deformation	14
5.4 Possible Foundation Remediation Measures	14
5.4.1 Piled Foundations	15
5.5 Ground Floor Slabs	16
5.6 Retaining Walls	16
5.7 Roads and Hardstanding	17
5.8 Chemical Attack on Buried Concrete	18
5.9 Soakaways	19
6. RECOMMENDATIONS	20
6.1 Recommendations for Further Geotechnical Work	20

FIGURES

- 1 Site Location Plan
- 2 Exploratory Point Location Plan
- 3 SPT 'N' Values against Depth/
- 4 Undrained Shear Strength against Depth
- 5 Natural Moisture Content against Depth
- 6 Plasticity Classification

APPENDICES**A Desk Study Information**

Historical Maps and Photograph

B Fieldwork Records

Borehole Records
Trial Pit Records
CBR Location Records

C Geotechnical Laboratory Test Records

Moisture Content and Plasticity Index of Soil
Triaxial Test Results

D Chemical Laboratory Test Records

Chemical Analysis of Soils including Sulfate and pH Analysis Test Results

DOCUMENT CONTROL

RSK STATS Limited
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT
UK

Document Title: Geotechnical Report for Hornsey Town Hall, Hornsey, London.

Telephone: +44 (0)1442 437500
Fax: +44 (0)1442 437550
www.rsk.co.uk

The Client: Capita Symonds
1 Procter Street
London
WC1V 6DW

RSK STATS Limited (RSK) has prepared this report in accordance with the instructions of Capita Symonds ("the Client") by e-mail dated 27th March 2009 and under the terms of appointment for RSK STATS. This report is confidential and non-assignable by the Client and RSK STATS shall not be responsible for any use of the report or its contents for any purpose other than that for which it was prepared and provided. Should the Client require to pass copies of the report to other parties for information, the whole of the report should be so copied, but no professional liability or warranty shall be extended to other parties by RSK STATS in this connection without the explicit written agreement thereto by RSK STATS.

Report Number	Status	Date of Issue
240362-001	Final	8 th October 2009

Prepared by Andy Tyler
Geotechnical Engineer



Reviewed by Shon Williams
Director



Page no 4 of 20

1. INTRODUCTION

1.1 Purpose of Investigation

On the instructions of Capita Symonds Consulting Engineers, RSK STATS has carried out a ground investigation of the area in and around Hornsey Town Hall, Hornsey, London. The project was commissioned in order to obtain information on the ground conditions in relation to historical and current movement of the existing structures onsite.

1.2 Project Brief

The project was carried out to an agreed brief, as set out in RSK STATS proposal letter of 7th November 2008, and has included the following tasks:

Desk Study

- A study of local geology and hydrogeology
- The history of the construction of the site including the study of existing historical photographs and architectural drawings from the original building construction
- The identification of potential geological hazards

Site Investigation

- Sinking of 4 No. light cable percussive boreholes to a maximum of 30.0m depth.
- Sinking of 5 No. drive-in window sampler boreholes to a maximum of 4.5m depth.
- Excavation of 8 No. trial pits.
- Excavation of 6 No. pits to establish an insitu CBR value utilising the Clegg Hammer instrumentation.
- Associated sampling and on-site testing.
- Laboratory chemical testing of 15 soil samples for common contaminants.
- Laboratory screening of 6 samples of made ground for the presence of asbestos fibres.
- Laboratory geotechnical testing of soil samples for classification purposes.
- Interpretative reporting

1.3 Limitations

The opinions and recommendations expressed in this report are based on the ground conditions encountered during the site work, the results of field and laboratory testing and interpretation between exploratory holes. The material encountered and samples obtained represent only a small proportion of the materials present on-site, therefore other conditions may prevail at the site which have not been revealed by this investigation.

The investigation itself was designed generally to meet the objectives of an exploratory investigation, as defined by BS 10175:2001 Code of Practice for the Investigation of Potentially Contaminated Site. As an exploratory investigation, the results may not provide sufficient data

to make detailed estimates of the quantities involved in any remediation work, if required. An assessment and interpretation of contamination issues onsite was outside the agreed scope of works.

The results of RSK STATS laboratory tests are covered by UKAS accreditation, but opinions and interpretations expressed in the report and on the site work records are outside the scope of this accreditation. Where laboratory testing has been carried out at a sub-contractor laboratory, this laboratory is an approved sub-contractor in accordance with the requirements of RSK STATS' quality management system and is UKAS accredited for the relevant range of tests undertaken.

2. SITE DETAILS

2.1 Site Location and Description

The site, which may be located by National Grid reference 530221^E, 188348^N is situated within the Hornsey area of North London. An extract of the 1:50 000 Ordnance Survey map showing the location of the site is included in **Figure 1**.

The site currently comprises a number of buildings of mainly commercial use; storage, offices, training areas and exhibition/theatre halls. The area around the site is generally low lying, however not within the urbanised flood plain of the River Thames or any other locally present water courses.

The characteristics of the site observed during the site reconnaissance visit and obtained from current Ordnance Survey maps are summarised in **Table 2.1**.

Table 2.1 – Site Description

Feature	Description
<i>Physical characteristics</i>	
Area of site	Approximately 0.5 hectares.
Ground levels	The site is essentially level with a few raised areas of soft landscaping.
Depressions in the ground surface	None observed.
Waterlogged or marshy ground	None observed.
Surface water	There are no streams or drainage ditches on or adjacent to the site.
Flood risk	The indicative floodplain map for the area, published by the Environment Agency, shows that the site does not lie within the predicted (1 in 100year) flood plain of the River Thames. Therefore the site is not considered to be susceptible to fluvial flooding.
Trees and hedges	Trees are present on site as shown on the site plan in Figure 2 .
Existing buildings on site	The site contains a number of two to three storey buildings. Basements are present on site beneath the theatre area of the main town hall building.
Basements on site	Basements are present beneath the theatre area of the main town hall building.
External hardstanding	Essentially the entire site is covered by buildings and areas of external hard cover, however there are small portions of the site that are covered with minimal soft landscaping.
Retaining walls and adjacent buildings on or close to site boundary	Retaining walls will be present around the perimeter of the basement.
Made ground, earthworks and quarrying	None observed.
Potentially unstable	None observed.

Feature	Description
slopes on or close to site	
Buried services present	There are a number of manhole covers on site.

2.2 Historical Information

Architectural drawings and photographs provided by the client give an indication of the type and depth of foundations adopted for the site. However details as to the exact dimensions of individual pad foundations are not clear. It is apparent from the information provided that the building is of a steel frame construction incorporating brick cladding with an approximately 250mm thick ground bearing floor slab. It is understood that this information along with observations made onsite has been used by the client to plan the investigation.

Historical photographs made available onsite at the time of investigation shed some light as to the original foundation solutions and construction methods adopted. Although not fully conclusive the historical photographic records do indicate that areas of the site were subject to some degree of enabling groundworks, possibly making up of ground levels in the area of the historic pond. The historic pond, as indicated on historical maps circa 1915, appears to have underlain the central northern theatre portion of the Town Hall building however the accuracy of the historical maps cannot be wholly relied upon.

3. GROUND INVESTIGATION

3.1 Site Work

The main site work was carried out between 5th June to the 11th June 2009 comprised the activities summarised in **Table 3.1**. The exploratory hole logs and other site work records, as listed in the Contents, are presented in **Appendix B**.

Table 3.1 Summary of ground investigation site work activities

Investigation Type	Number	Location/ Designation
Boreholes - by light cable percussive methods	4	BH1A to BH4A
Boreholes – by drive-in-sampler methods	5	TP1, TP1A, TP2, TP6 and TP7.
Trial Pits - excavated by hand	5	TP1, TP1A, TP2, TP3, TP6 and TP7.
Trial Pits - excavated by mechanical excavator	2	TP4 and TP5
<i>In situ</i> Clegg Hammer testing	7	CBR1 to CBR7

The investigation points were located approximately by reference to physical features present on the site at the time of investigation. The ground levels at the borehole locations have not been determined.

3.2 Laboratory Testing

A programme of geotechnical and chemical laboratory testing, scheduled by RSK STATS and approved by Captia Symonds (chemical testing only), was carried out on selected samples taken from various strata. The laboratory results, as listed in the Contents, are presented in **Appendices C** and **D**, respectively.

No assessment of the chemical testing undertaken onsite has been carried out as this was outside the agreed scope of works.

4. GROUND CONDITIONS

4.1 Published Geology and Hydrogeology

The published 1:50,000 scale geological map of the area (Sheet No 256 "North London") indicates that the site is underlain by London Clay.

The existing topography and history of development of the site suggests that in addition to these natural strata made ground may be present on the site.

Based on the published geological map referred to above, the hydrogeology of the site is likely to be characterised by the presence of a non-aquifer comprising the London Clay. However it is possible that localised perched water may also be present in the made ground.

4.2 Findings of Ground Investigation

4.2.1 General Succession of Strata

The exploratory holes revealed that the site is underlain by a variable thickness of made ground over Alluvium with London Clay at depth. This appears to contradict the stratigraphical succession suggested by the published geological records. For the purpose of discussion, the ground conditions are summarised in **Table 4.1** below.

Table 4.1 General succession of strata encountered

Brief Description	Depth to top of stratum m.bgl	Thickness (m)
Made Ground	0.00	0.30 to 3.30
Alluvium	0.68 to 0.74	0.26 to 0.32
London Clay	0.30 to 3.30	Proven to 25.0

4.2.2 Made Ground

The exploratory holes encountered a variable thickness of made ground across the site ranging from 0.30 to 3.30m. The maximum thickness of made ground is typically encountered within BH4A.

In general the made ground comprises tarmac, over concrete which further overlies a variable mix of cohesive and granular materials. The cohesive portion, generally comprises brown, occasionally black, red sand and gravel with fine to coarse sand and fine to coarse angular to subrounded flint, brick and concrete gravel. The cohesive portion generally comprises brown/dark brown/dark grey sandy gravelly reworked clay with fine to coarse sand and fine to coarse angular to subrounded flint, brick, bitumen and concrete gravel. Some cobbles of angular concrete and brick were present.

The presence of roots was noted in SA1 only, however there is no evidence to suggest that the made ground is desiccated.

The measured and inferred soil parameters for the stratum are listed in **Table 4.2** below.

Table 4.2 Summary of Soil Parameters for Made Ground

Soil Parameters	Range	Results
-----------------	-------	---------

Soil Parameters	Range	Results
Moisture Content (%)	19	Figure 5
SPT 'N' Values	2 to 20	Figure 3
Undrained Shear Strength (kN/m ²) measured by Shear Vane	62 to 69	Figure 4

4.2.3 Alluvium

The Alluvium typically only encountered within the north west portion of the site comprised a dark grey/black clayey SILT with roots and rootlets and a strong organic aroma and could be evidence of the former pond within northern portion of the site.

Although roots and rootlets were encountered within CBR1 and CBR3 no evidence exists to suggest the Alluvium is desiccated.

4.2.4 London Clay

The London Clay typically comprised a firm to hard brown/dark brown/grey silty CLAY with abundant fine selenite crystal gravel.

The measured and inferred soil parameters for the stratum are listed in **Table 4.4** below.

Table 4.4 Summary of Soil Parameters for London Clay

Soil Parameters	Range	Results
Liquid Limit (%)	73 to 76	Appendix B
Plastic Limit (%)	29 to 35	Appendix B
Plastic Index (%)	41 to 45	Appendix B
Modified Plasticity Index (%)	41 to 45	
Plasticity Term	Very High Plasticity	Figure 6
Volume Change Potential (NHBC)	High	
Moisture Content (%)	21 to 33	Figure 5
SPT 'N' Values	8 to 116	Figure 3
Undrained Shear Strength (kN/m ²) measured by Shear Vane	42 to 89	Figure 4
Undrained Shear Strength (kN/m ²) measured by Triaxial Testing	35 to 248	Figure 4
Undrained Shear Strength (kN/m ²) inferred from SPT 'N' values	34 to >300	Figure 4
Strength Term	Firm to Hard	

4.3 Groundwater Results

Groundwater seepage was observed in trial pits TP5, reflecting the presence of localised perched groundwater in the made ground soils in the vicinity off this trail pit location. Other than this no ground water was encountered during the investigation.

It should be noted that groundwater levels might fluctuate for a number of reasons including seasonal variations. On-going monitoring would be required to establish both the full range of conditions and any trends in groundwater levels.

5. ENGINEERING CONSIDERATIONS

5.1 Details of Proposed Development

It is understood that this investigation will form part of a study commissioned to establish the reasons behind the distortions currently influencing the town halls structural integrity. It is proposed to stabilise the existing structures using some form of underpinning given that the Town Hall is listed rather than using a demolition and reconstruction approach.

5.2 Geotechnical Hazards

A summary of commonly occurring geotechnical hazards is given in **Table 5.1** together with an assessment of whether the site may be affected by each of the stated hazards.

Table 5.1 Summary of main potential geotechnical hazards that may affect site

Hazard category (excluding contamination issues)	Hazard status based on investigation findings and proposed development			Engineering considerations if hazard affects site
	Found to be present on site	Could be present but not found	Unlikely to be present and/or affect site	
Sudden lateral changes in ground conditions			✓	Likely to affect ground engineering and foundation design and construction
Shrinkable clay soils	✓	London Clay Deposits with High Shrinkage Potential		Design to NHBC Standards Chapter 4 or similar
Highly compressible and low bearing capacity soils, (including peat and soft clay)			✓	Likely to affect ground engineering and foundation design and construction
Silt-rich soils susceptible to rapid loss of strength in wet conditions		✓		Likely to affect ground engineering and foundation design and construction
Running sand at and below the water table			✓	Likely to affect ground engineering and foundation design and construction
Karstic dissolution features (including 'swallow holes' in Chalk terrain)			✓	May affect ground engineering and foundation design and construction
Evaporite dissolution features and/or subsidence			✓	May affect ground engineering and foundation design and construction
Ground subject to or at risk from landslides			✓	Likely to require special stabilisation measures
Ground subject to peri-glacial valley cambering with gulls possibly present			✓	Likely to affect ground engineering and foundation design and construction
Ground subject to or at risk from coastal or river erosion			✓	Likely to require special protection/stabilisation measures
High groundwater table (including waterlogged ground)			✓	May affect temporary and permanent works
Rising groundwater table due to diminishing abstraction in urban area			✓	May affect deep foundations, basements and tunnels
Underground mining			✓	Likely to require special

Hazard category (excluding contamination issues)	Hazard status based on investigation findings and proposed development			Engineering considerations if hazard affects site
	Found to be present on site	Could be present but not found	Unlikely to be present and/or affect site	
				stabilisation measures
Existing sub-structures (e.g. tunnels, foundations, basements, and adjacent sub-structures)	✓	Basements to existing Hornsey Town Hall		Likely to affect ground engineering and foundation design and construction
Filled and made ground (including embankments, infilled ponds and quarries)			✓	Likely to affect ground engineering and foundation design and construction
Adverse ground chemistry (including expansive slags and weathering of sulphides to sulphates)	✓	London Clay		May affect ground engineering and foundation design and construction

Note: Seismicity is not included in the above Table as this is not normally a design consideration in the UK.

5.3 Foundations

5.3.1 Existing Foundations and Possible Causes of Deformation

Based on the trial pitting undertaken, see **Appendix B**, to date it is clear that the building is supported on pad foundations as indicated on the client supplied drawing from the Borough of Hornsey Engineer and Surveyors Department number 10422A dated 2nd August 1934. In addition an approximately 250mm thick concrete layer was encountered which is possibly the edge of the ground bearing floor slab also shown on the above drawings.

The dimensions of the foundation pads, derived from observations made onsite and from the architectural drawings provided, would appear to range from 1.0 to 2.5m square. Based on this and the shear strength data obtained from the London Clay deposits at the foundation levels an allowable bearing pressure of in the order of 120 kN/m² can be relied upon. It should be noted that however information for the northern portion of the site specifically along the northern wall to the Town Hall building is limited. It is possible that weaker soils associated with the former pond may be present at this location which would result in a reduced bearing capacity than that provided above.

The presence of trees onsite raises questions as to whether building movement is a result of swell or shrinkage of the underlying high plasticity clay soils. It is worth noting that building movement has occurred within areas not affected by locally present trees and consideration should therefore be given to assessing the impact of the trees present along northern boundary when assessing the foundations within this area.

5.4 Possible Foundation Remediation Measures

Information collated to date suggests that the foundations exposed onsite are not thought to require immediate remedial action. However, it must be highlighted that the bearing pressures provided above are based on the known ground conditions and generic foundation dimensions. Remedial measures maybe required if the loads being applied by the existing structure exceed those indicated above.

As no information exists for the northern portion of the site it is difficult at this stage to establish whether or not the existing foundations or ground conditions are impacting on

building movement. If further investigative works highlight any problems associated with this portion of the site then remediation measures may comprise:

- Traditionally Excavated Underpinning
- Base and Beam
- Conventional Piled with Needles and/or Beams
- Cantilever Piled Needles and Beams
- Pin Pile and Grout
- Stitch Piling
- Building Lifting and Levelling

Information from a specialist subcontractor should be sought to establish the most suitable method of foundation remediation.

5.4.1 Piled Foundations

Although the need for remedial works has not yet been proven some typical working loads of piled underpinning foundations in relation to the ground conditions are set out in **Table 5.2**.

Table 5.2 – Design and Construction of Piled Underpinning Foundations

Design/construction considerations	Design/construction recommendations	
Pile type	The construction of bored piles is considered technically feasible at this site.	
Possible constraints on choice of pile type	Given the nature of the underpinning operation required the use of driven piles may not be acceptable due to ground vibration and noise related problems.	
Hard strata	An allowance should be made for the presence of thin 'rock' bands (claystone) within the London Clay Formation as identified within BH2 at depths of 9.30 and 21.60m.bgl.	
Soil and pile design parameters for London Clay (cohesive soils)	Adhesion Factor (α)	0.6
	Bearing Capacity Factor (N_c)	9
	Undrained Shear Strength (c_u)	$60 + 7.5z$ kN/m ² where z = depth into clay
	Global Safety Factor	3.0
	Limiting Shaft Friction	110 kN/m ²
	Limiting Concrete Stress	7.5N/mm ²
Bored pile shafts and bases	Bored pile concrete should be cast as soon after the completion of boring as possible and in any event the same day as boring. Prior to casting the base of the pile bore should be clean otherwise a reduced safe working load will be required. Similarly, if the pile bore is left open the shaft walls may relax/soften, leading to a reduced safe working load.	

The design procedure for piles varies considerably, depending on the proposed type of pile. However, for illustrative purposes **Table 5.3** gives likely working pile loads for traditional bored, cast-in-situ concrete piles of various diameters and lengths, based on the design parameters given in **Table 5.2**.

Table 5.3 – Illustration Of Typical Pile Working Loads For Bored Cast-In-Situ Piles Below Existing Foundations

Typical Pile Working Loads (kN)					
Depth of pile below existing foundation level assumed to be approximately 1.20m.bgl (m)	Pile Diameter				
	200mm	250mm	300mm	450mm	600mm
7.5	94	121	149	242	348
10.0	135	173	212	340	482
12.5	182	232	284	451	634
15.0	235	299	365	575	804

NB: Pile design parameters refer to ground conditions below the existing building. Further works will be required should the above design loads be applied to portions of the site not previously investigated.

5.5 Ground Floor Slabs

The sub-grade soil conditions beneath the existing building typically comprise a variable thickness of predominantly granular made ground over locally present Alluvium and firm London Clay.

The ground conditions encountered within the vicinity of the existing building do not appear suitable for the construction of a ground bearing floor slab, it is therefore recommend that consideration should be given to a suspended floor slab option.

5.6 Retaining Walls

Foundation remediation of the structure present onsite may require future alternations to the existing basement levels. The ground conditions likely to be encountered include a variable thickness of made ground overlying locally present Alluvium and London Clay.

The following soil parameters in **Table 10.5** overleaf are recommended for preliminary retaining wall design purposes.

Table 10.5 Preliminary retaining wall parameters

Soil Type	SPT N Value	Unit Weight (kN/m ³)	Short Term Characteristics		Long Term Strength Characteristics	
			c _u (kN/m ²)	Ø' (°)	c' (kN/m ²)	Ø'crit (°)
Made Ground – Silty Clay	2	18	30	0	0	25
Made Ground – Sandy Gravel and Gravelly Sand	N/A	18	N/A	0	0	34
Alluvium	-	16	30*	0	0	23**
London Clay	8 to 23	19	33 + 7.5 z kN/m ²	0	0	25

*Shear strength inferred from CBR results.

**Estimated value, further testing required if relied upon for basement design purposes.

No groundwater was encountered during the excavations. However, the retaining wall design should make some allowance for hydrostatic pressures acting behind the walls, unless effective drainage measures can be ensured.

Consideration should be given to the presence of various types of vegetation along the northern site boundary and specifically the adverse effects of trees and root penetration may have on the existing structure and joints or drainage systems.

5.7 Roads and Hardstanding

In the 1.0m below the proposed finished ground level the exploratory holes have revealed a soil profile comprising Made Ground with locally present Alluvium and London Clay at depth. The potentially poorest sub-grade material within this profile is the Alluvium.

In pavement design terms, the groundwater conditions are anticipated to comprise a low water-table, i.e. at least 1m below the pavement formation level.

The results of in situ Clegg Hammer testing are summarised in **Table 5.4**.

Table 5.4 Summary of CBR values derived from in situ Clegg Hammer tests

Test Location	Test Depth	Material Type	Minimum CBR value determined at or just below anticipated formation level
CBR1	0.38	Made Ground	4
CBR1	0.54	Made Ground	>15
CBR1	0.62	Made Ground	15
CBR1	0.74	Alluvium	2
CBR1	0.88	Alluvium	2
CBR1	0.92	Alluvium	3
CBR2	0.10	Made Ground	>15
CBR2	0.29	Made Ground	>15
CBR2	0.37	Made Ground	>15
CBR2	0.53	Made Ground	>15
CBR2	0.60	Made Ground	>15
CBR2	0.70	Made Ground	6
CBR2	0.85	Made Ground	5
CBR3	0.18	Made Ground	>15
CBR3	0.34	Made Ground	>15
CBR3	0.50	Made Ground	9
CBR3	0.60	Made Ground	6
CBR3	0.72	Alluvium	3
CBR3	0.95	Alluvium	>15*
CBR4	0.20	Made Ground	3
CBR4	0.30	Made Ground	4
CBR4	0.46	London Clay	4
CBR4	0.59	London Clay	5
CBR4	0.70	London Clay	4

Test Location	Test Depth	Material Type	Minimum CBR value determined at or just below anticipated formation level
CBR4	0.85	London Clay	4
CBR5	0.20	Made Ground	9
CBR5	0.32	London Clay	4
CBR5	0.40	London Clay	4
CBR5	0.50	London Clay	4
CBR5	0.66	London Clay	5
CBR5	0.78	London Clay	4
CBR5	0.87	London Clay	5
CBR6	0.15	Made Ground	6
CBR6	0.25	Made Ground	7
CBR6	0.34	Made Ground	10
CBR6	0.47	Made Ground	10
CBR6	0.59	London Clay	10
CBR6	0.70	London Clay	9
CBR6	0.90	London Clay	12
CBR7	0.30	Made Ground	10
CBR7	0.44	Made Ground	5
CBR7	0.59	London Clay	3
CBR7	0.68	London Clay	2
CBR7	0.76	London Clay	2

* Possible concrete obstruction.

The recommended sub-grade soil CBR value for road pavement design therefore depends on the surface material, 5% for made ground, 2% for Alluvium and 3% for London Clay. This value assumes that during construction the formation level will be carefully compacted and any soft spots removed and replaced with well compacted granular fill.

The sub-grade soils can be regarded as non-frost-susceptible, after the criteria given in Appendix 1 of TRRL Report Road Note 29 (1970). When the sub-grade is frost-susceptible the thickness of subbase must be sufficient to give a total thickness of non-frost-susceptible pavement construction over the soil of not less than 450mm.

5.8 Chemical Attack on Buried Concrete

The results of chemical tests carried out on soil samples indicate 2:1 water soil extract sulphate contents of up to 3.4g/l with generally near neutral pH values.

These results indicate that, in accordance with BRE Special Digest 1: 2005 *Concrete in aggressive ground*, the Aggressive Chemical Environment for Concrete (ACEC) Classification is **AC-4** with a Design Sulfate Class for the site of **DS-4**. This assumes nominally mobile groundwater conditions and that no significantly disturbed clay comes into contact with concrete foundations or structures.

If significantly disturbed clay is likely to come into contact with concrete foundations or structures it will be necessary to carry out additional tests on the soil to investigate its total potential sulphate content. This will facilitate a revaluation of the ACEC Classification and

Design Sulfate Class for the material, to take into consideration potential oxidation of available sulphides (e.g. pyrite), as defined in Table C2 (natural ground sites) or C3 (brownfield sites) BRE Special Digest 1: 2005.

5.9 Soakaways

The ground conditions encountered onsite do not appear suitable for the use of shallow pit soakaways within the London Clay.

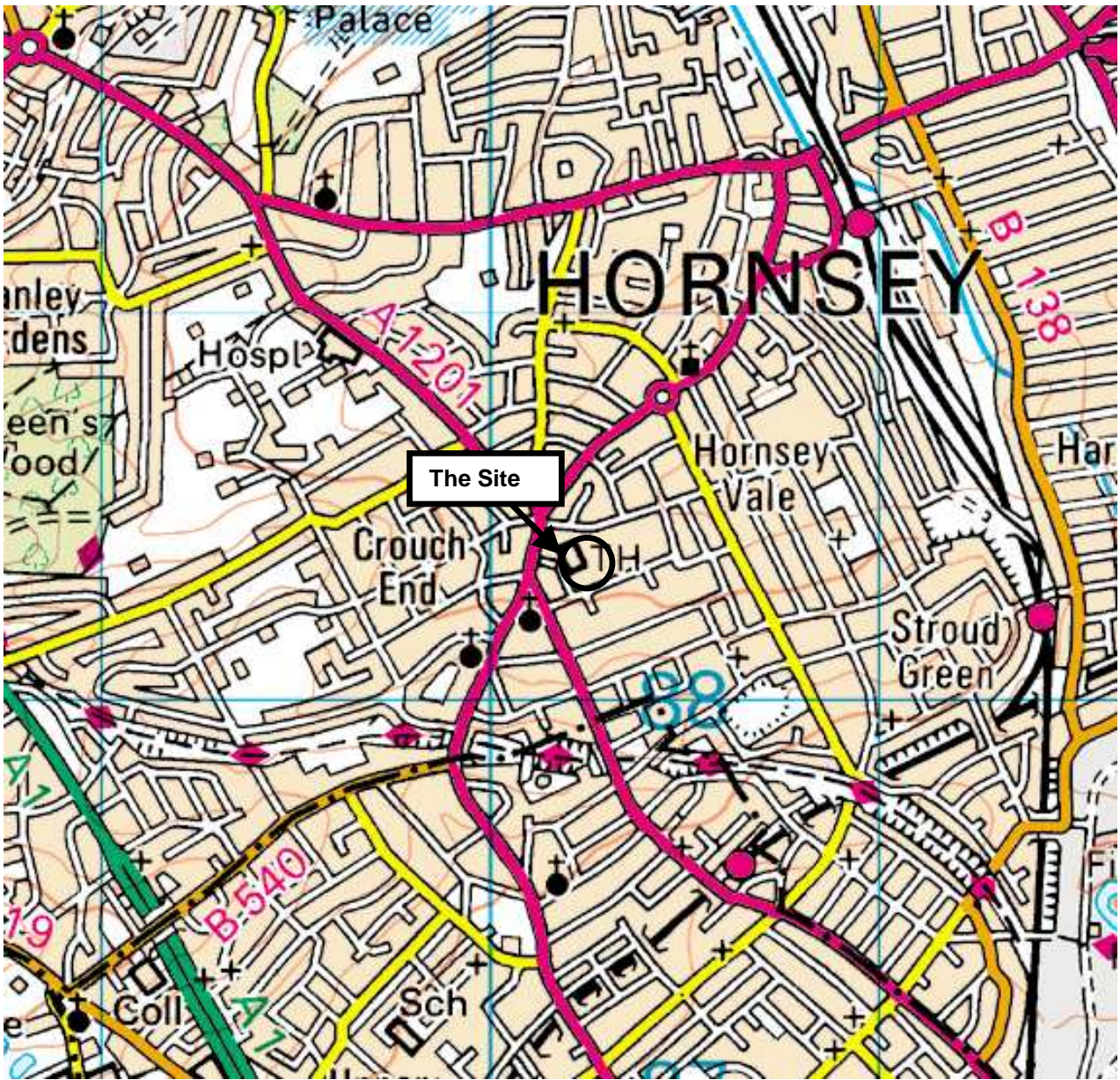
6. RECOMMENDATIONS

6.1 Recommendations for Further Geotechnical Work

Due to the lack of information pertaining to the ground conditions and foundations for the northern facing portion of the Town Hall building it is recommended the following is undertaken:

- Foundation trial pit excavations either by hand or mechanical excavator if access is restricted to below the base of any existing pad foundations.
- Follow on window sampling at these locations to further establish the underlying geology and obtain insitu strength data.
- Geotechnical testing to classify the underlying geology.
- Review influence of tress on existing foundations using NHBC Standards.

FIGURES



Reproduced from Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office. Crown Copyright reserved (Licence No: 100002620).

Site: Hornsey Town Hall

Client: Capita Symonds

National Grid Reference: 530225E, 188348N

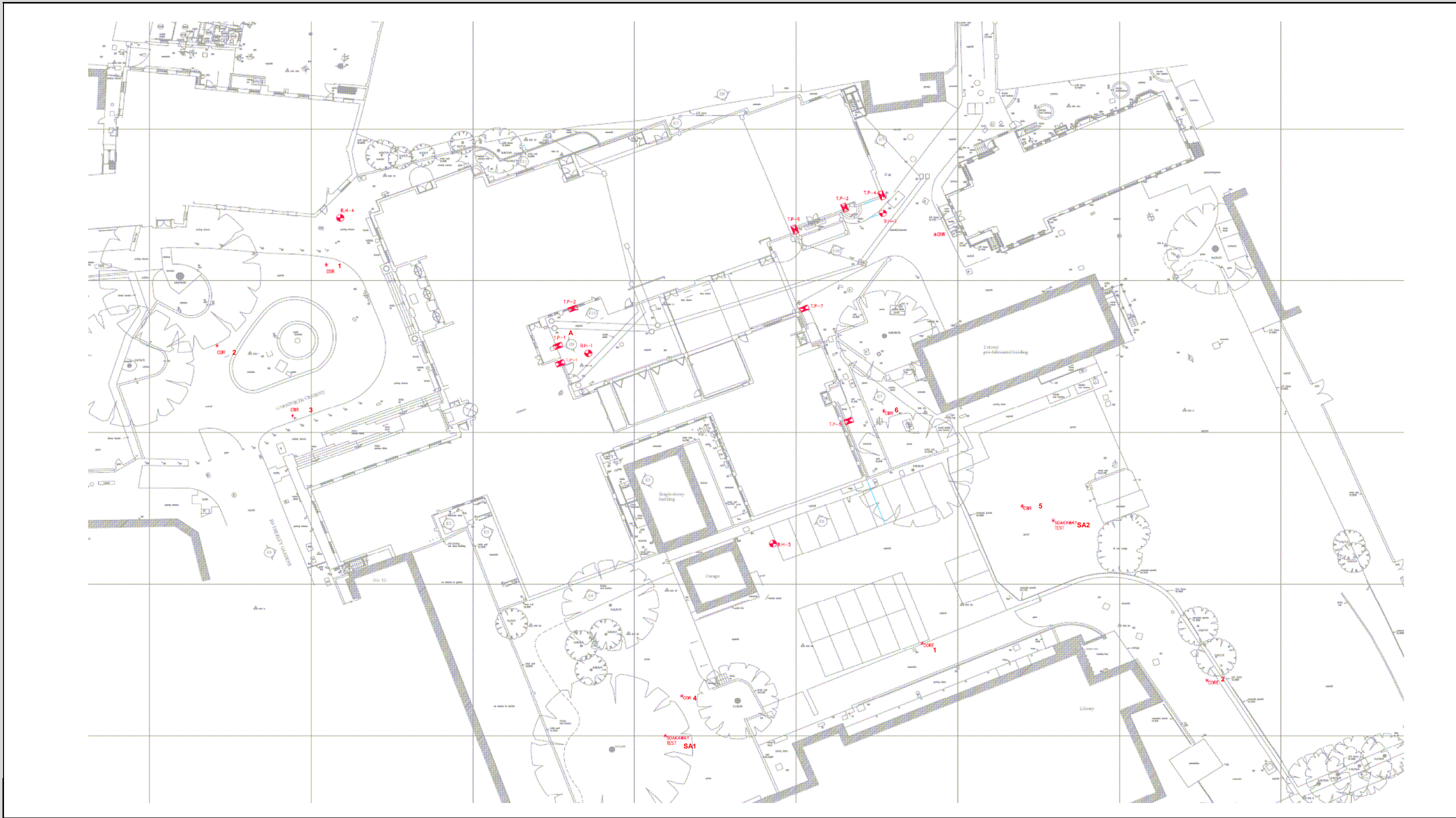
Scale: NTS

STATS

SITE LOCATION PLAN

Job No: 240362/001

Fig No: 1



Site: Hornsey Town Hall

Client: Capita Symonds

Source: Client

Scale: NTS



EXPLORATORY HOLE LOCATION PLAN.

Job No: 240362/001

Fig No: 2



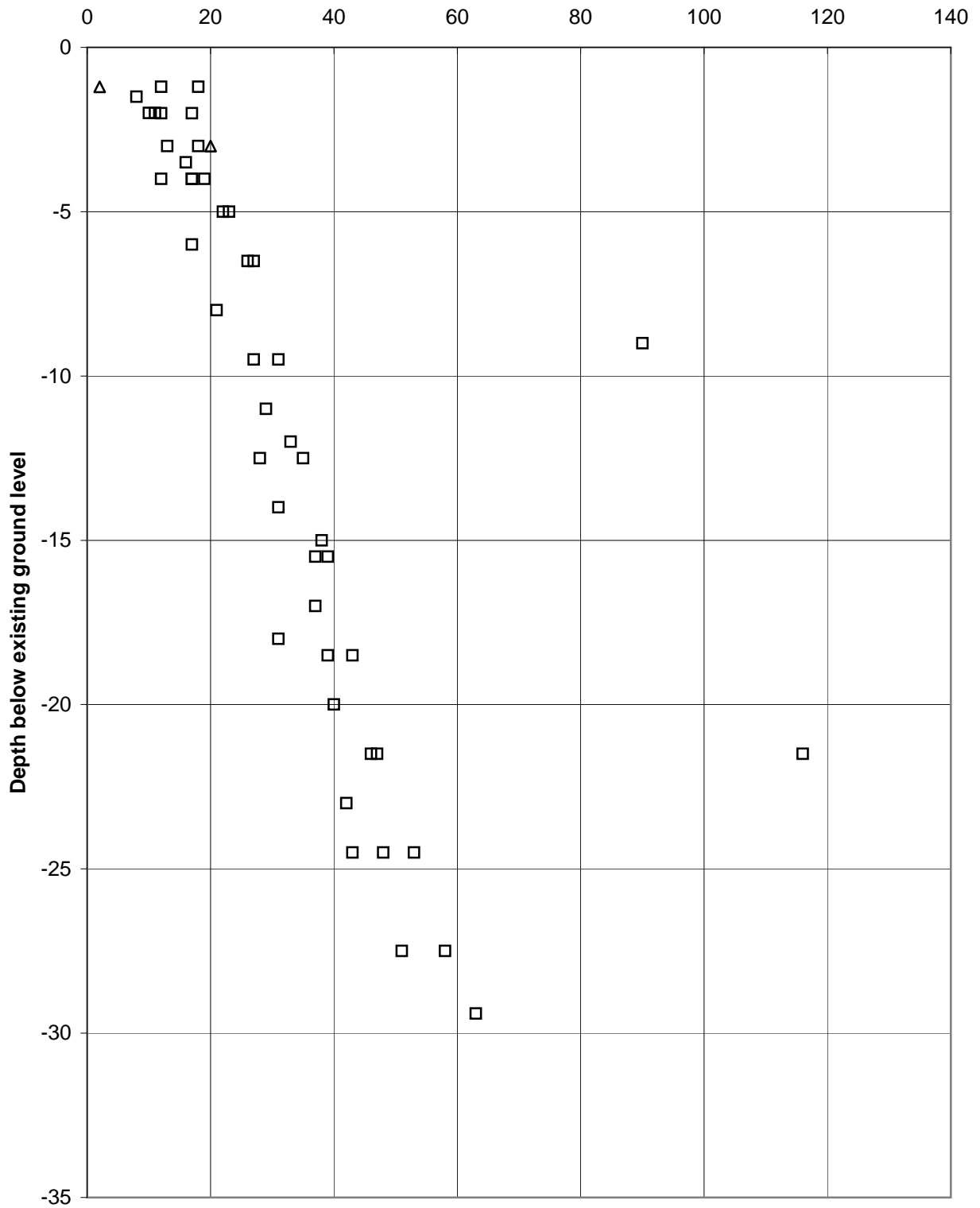
SPT 'N' VALUES vs DEPTH

Site:
Hornsey

Client:
Capita Symonds

Job Number: 240362
Figure: 3

SPT 'N' Value (for 300mm penetration)



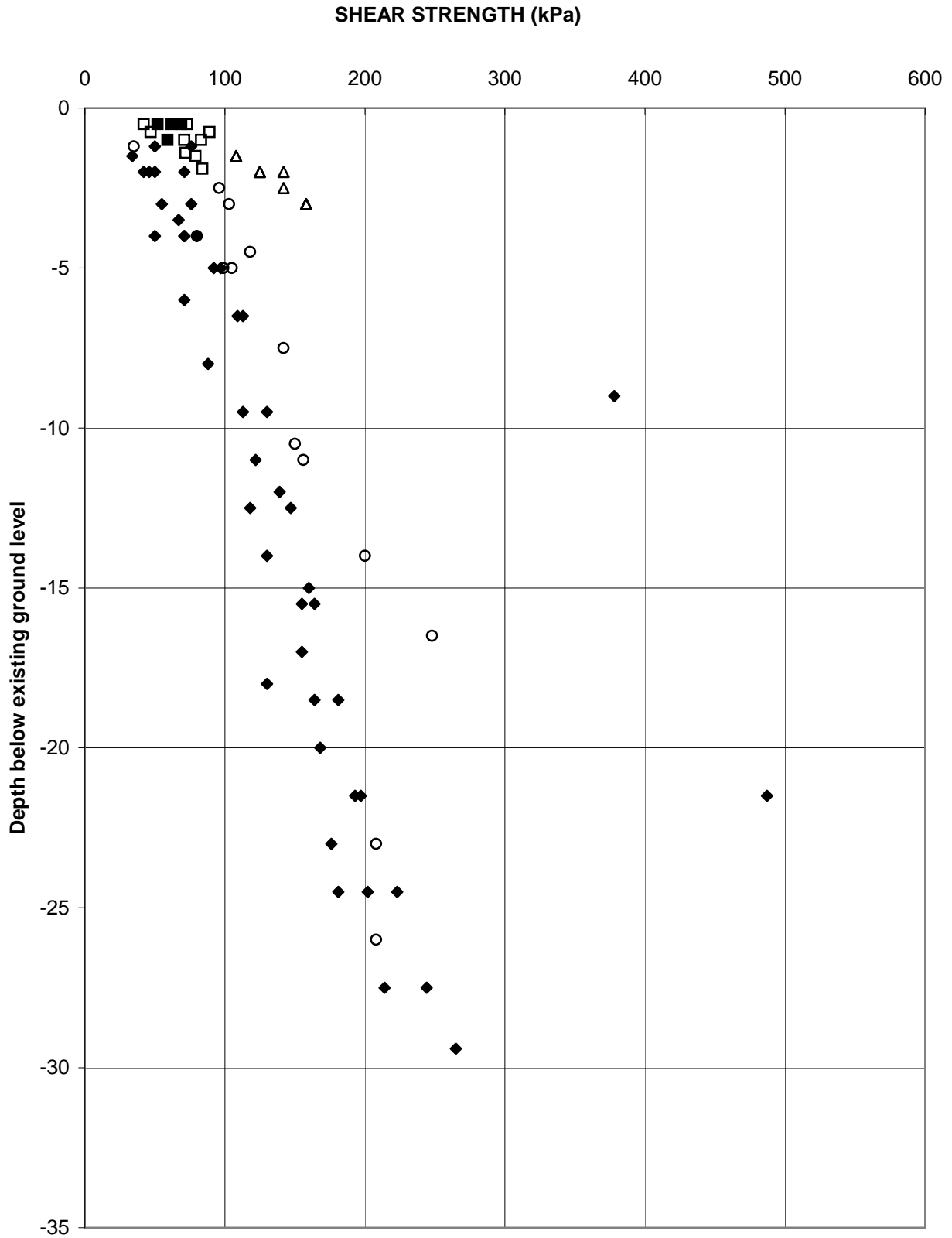
□ London Clay △ Made Ground

SHEAR STRENGTH vs DEPTH

Site:
Hornsey

Client:
Capita Symonds

Job Number:	240362
Figure:	4



□ HV London Clay △ PP London Clay ◆ SPT London Clay ○ TX London Clay ■ HV Made Ground

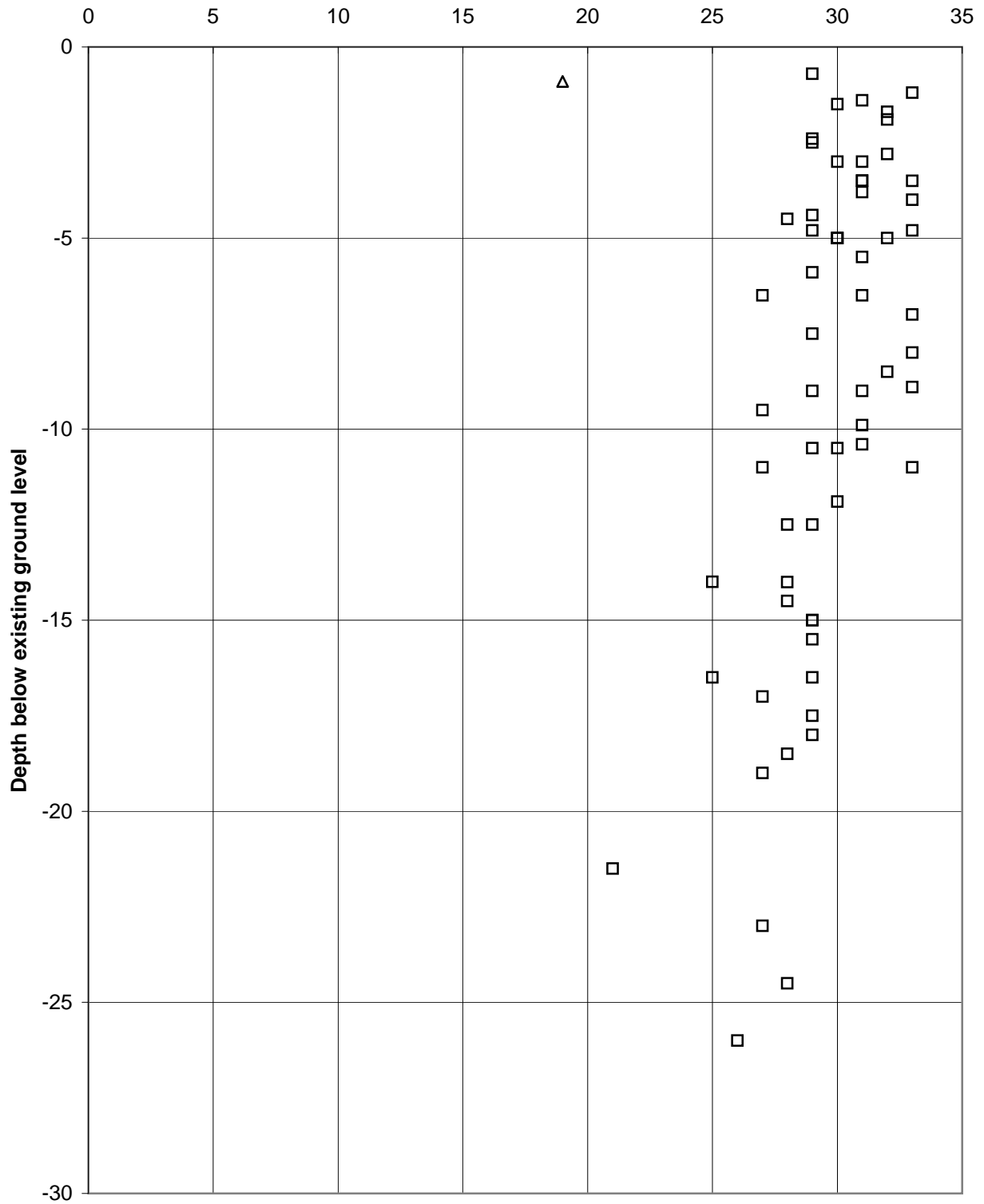
MOISTURE CONTENT vs DEPTH

Site:
Hornsey

Client:
Capita Symonds

Job Number: 240362
Figure: 5

Natural Moisture Content (%)



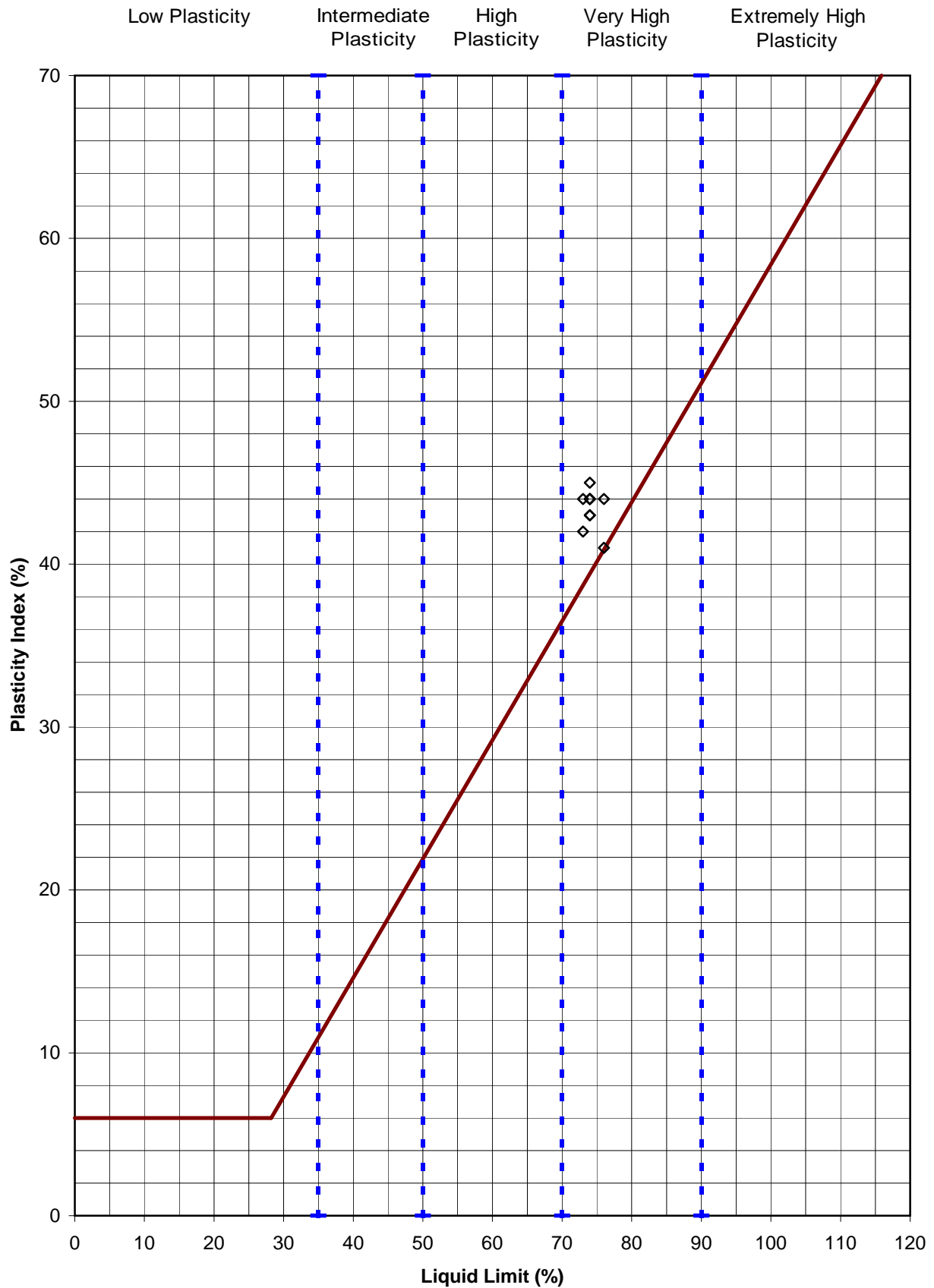
□ London Clay △ Made Ground

PLASTICITY CLASSIFICATION CHART

Site:
Hornsey

Client:
Capita Symonds

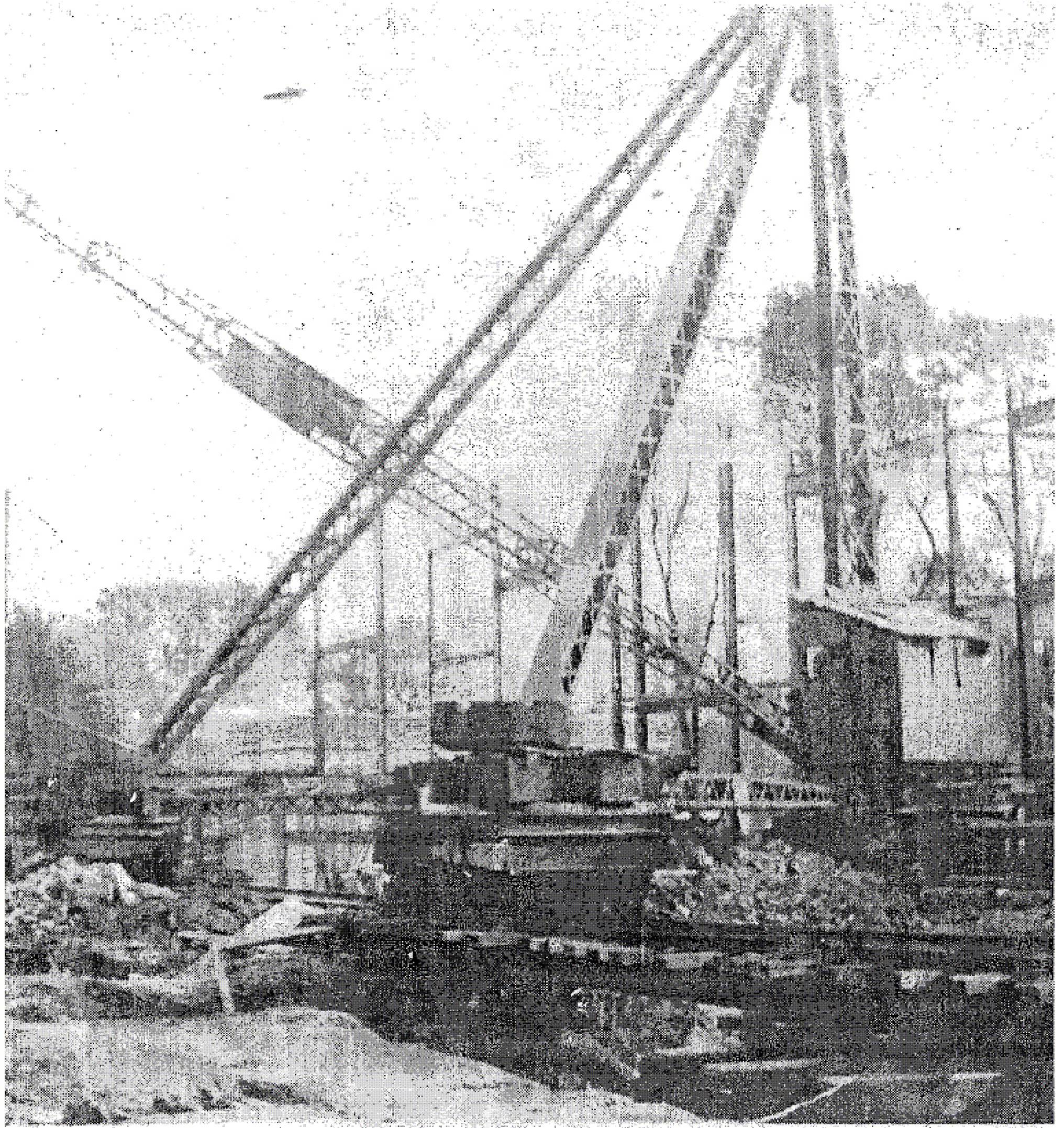
Job Number:	240362
Figure:	6



— A - Line - - - Classifications ◇ London Clay

APPENDIX A

Desk Study



Site: Hornsey Town Hall

Client: Capita Symonds

Source: Clent

Scale: NTS

STATS

HISTORICAL PHOTOGRAPH

Job No: 240362/001

Fig No:

APPENDIX B
Fieldwork Records

Site:
Hornsey Town Hall

Location:
Hornsey

Client:
Capita Symonds

Ground Level:
GL not measured

Date:
8 Jun 09

Job No:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 1 of 3

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
					0.10			MADE GROUND: Tarmacadem Hardstanding.
					0.30			MADE GROUND: Concrete with reinforcement.
		0.70	D 1					Firm becoming stiff below 6.50m, closely fissured brown silty CLAY. (LONDON CLAY)
		1.70	D 2					
		1.90	D 3	S N=10 [2.0](2.2,2.4)				
		2.80	D 4					
		3.00	D 18					
		3.50	D 5					
		3.80	D 6	S N=17 [5.0](3.4,4.6)				
		4.80	D 7			8.60		
		5.00	D 19					
		5.50	D 8					
		6.50	D 9	S N=27 [5.0](5.7,7.8)				
		8.50	D 10					
		9.00	D 11		9.00			Stiff becoming very stiff below 15.50m, closely fissured dark grey silty CLAY. (LONDON CLAY)
				S N=27 [8.0](5.6,8.8)				<i>Continued next sheet</i>

Remarks and Water Observations

Borehole drilled in 150mm tools. Cased to 1.50m. No water added. No installation. No groundwater encountered.

Scale: 1:50

Logged by: ADJT

Figure:



Specialist Engineering, Materials
and Environmental Consultants

BOREHOLE RECORD (Percussive)

Borehole
Number:
BH1A

Site:
Hornsey Town Hall

Location:
Hornsey

Client:
Capita Symonds

Ground Level:
GL not measured

Date:
8 Jun 09

Job No:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 2 of 3

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
		10.50	D 12				X	
		11.00					X	
		11.50					X	
		12.00					X	
		12.50	D 13	S N=28 [9,0](5,7,7,9)			X	
		13.00					X	
		13.50					X	
		14.00	D 20				X	
		14.50	D 14				X	
		15.00	D 15				X	
		15.50					X	
		16.00					X	
		16.50	D 16	S N=39 [12,0](7,9,10,13)			X	
		17.00					X	
		17.50	D 17				X	
		18.00					X	
		18.50					X	
		19.00					X	
		19.50					X	
		20.00					X	
		20.50					X	
		21.00					X	

Continued next sheet

Remarks and Water Observations
Borehole drilled in 150mm tools. Cased to 1.50m. No water added. No installation. No groundwater encountered.

Scale: 1:50

Logged by: ADJT

Figure:



Specialist Engineering, Materials
and Environmental Consultants

BOREHOLE RECORD (Percussive)

Borehole
Number:
BH1A

Site:
Hornsey Town Hall

Location:
Hornsey

Client:
Capita Symonds

Ground Level:
GL not measured

Date:
8 Jun 09

Job No:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 3 of 3

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
		21					X	
				S N=46 [12,0](8,11,11,16)			X	
		22					X	
				S N=43 [16,0](10,10,9,14)			X	
		23					X	
				S N=51 [15,0](10,11,14,16)			X	
		24					X	
							X	
		25					X	
							X	
		26					X	
							X	
		27					X	
							X	
		28					X	
							X	
		29					X	

Remarks and Water Observations End of Borehole at 30.00 m
Borehole drilled in 150mm tools. Cased to 1.50m. No water added. No installation. No groundwater encountered.

Scale: 1:50

Logged by: ADJT

Figure:

Site:
Hornsey Town Hall

Location:
Hornsey

Client:
Capita Symonds

Ground Level:
GL not measured

Date:
9 Jun 09



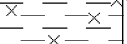
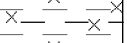
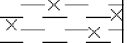
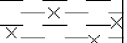
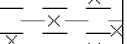
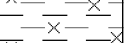
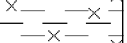
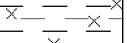
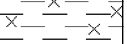
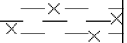
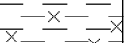
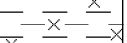
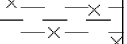
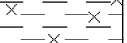
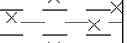
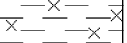
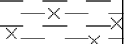
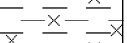
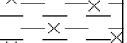
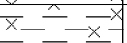
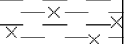
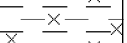
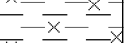
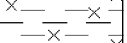
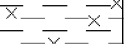

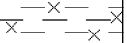
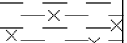
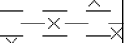
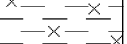
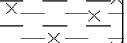
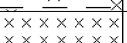
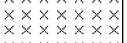
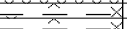
Job No:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 1 of 3

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
					0.20			MADE GROUND: Tarmacadem Hardstanding.
					0.30			MADE GROUND: Dark brown/dark grey sandy slightly clayey GRAVEL. Sand is fine to coarse angular to subangular brick, bitumen, flint and concrete.
	1							Soft becoming firm below 3.50m, closely fissured brown silty CLAY. (LONDON CLAY)
		1.40	D 21					
		1.50	D 22	S				
				N=8 [2,0](1,2,2,3)				
	2							
		2.40	D 23					
		2.50	D 38					
	3							
		3.00	D 24					
		3.50	D 25	S				
				N=16 [4,0](3,4,4,5)				
	4							
		4.40	D 26					
		4.50	D 39					
	5							
		5.00	D 27					
		5.90	D 28	S	5.90			Firm closely fissured dark grey silty CLAY. (LONDON CLAY)
				N=17 [5,0](4,4,4,5)				
	6							
		7.50	D 40					
	7							
		8.90	D 29					
		9.00	D 30	S				
				N=90 [7,0](5,6,26,53)	9.30			
	8							
		9.80						
		9.90	D 31		9.80			
					9.90			
								Hard light grey/grey SILTSTONE.
								
								
								
								
								<i>Continued next sheet</i>

Remarks and Water Observations

Borehole drilled in 150mm tools. Cased to 1.50m. No water added. No installation. Chiseled from 9.30 to 9.80 and 21.60 to 21.80m. No groundwater encountered.

Scale: 1:50

Logged by: ADJT

Figure:

BOREHOLE RECORD (Percussive)

Borehole
Number:
BH2

Site:
Hornsey Town Hall

Location:
Hornsey

Client:
Capita Symonds

Ground Level:
GL not measured

Date:
9 Jun 09

Job No:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 2 of 3

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
		10.40	D 32				×	9.80m - 9.90m : Closely fissured brown silty CLAY. (LONDON CLAY)
		10.50	D 41				×	
		11					×	9.90m - 21.60m : Stiff closely fissured dark grey silty CLAY. (LONDON CLAY)
		11					×	
		12					×	S N=33 [9.0](7,7,9,10)
		11.90	D 33				×	
		13					×	S N=38 [11.0](8,9,9,12)
		13					×	
		14					×	11.70
		14					×	
		15					×	S N=38 [11.0](8,9,9,12)
		15.00	D 34				×	
		16					×	11.70
		16					×	
		17					×	S N=31 [9.0](5,7,9,10)
		16.50	D 42				×	
		17					×	11.70
		17					×	
		18					×	S N=31 [9.0](5,7,9,10)
		17.00	D 35				×	
		18					×	11.70
		18					×	
		19					×	11.70
		19					×	

Continued next sheet

Remarks and Water Observations

Borehole drilled in 150mm tools. Cased to 1.50m. No water added. No installation. Chiseled from 9.30 to 9.80 and 21.60 to 21.80m. No groundwater encountered.

Scale: 1:50

Logged by: ADJT

Figure:



Specialist Engineering, Materials and Environmental Consultants

BOREHOLE RECORD (Percussive)

Borehole Number:
BH2

Site:
Hornsey Town Hall

Location:
Hornsey

Client:
Capita Symonds

Ground Level:
GL not measured

Date:
9 Jun 09

Job No:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 3 of 3

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
		21					x x x x x x x x	
			21.50 D 37	S N=116 [59.0][69.57,0.0]	21.60 21.80	0.20	x x x x x x x x	Hard light grey/grey SILTSTONE. (LONDON CLAY)
		22					x x x x x x x x	Very stiff closely fissured dark grey silty CLAY. (LONDON CLAY)
		23	23.00 D 43				x x x x x x x x	
		24					x x x x x x x x	
		25		S N=53 [12.0](10,14,14,15)			x x x x x x x x	
		26	26.00 D 44			8.20	x x x x x x x x	
		27					x x x x x x x x	
		28		S N=58 [16.0](12,15,15,16)			x x x x x x x x	
		29					x x x x x x x x	
				S N=63 [12.0](14,15,16,18)			x x x x x x x x	

Remarks and Water Observations
Borehole drilled in 150mm tools. Cased to 1.50m. No water added. No installation. Chiseled from 9.30 to 9.80 and 21.60 to 21.80m. No groundwater encountered.

End of Borehole at 30.00 m

Scale: 1:50
Logged by: ADJT
Figure:

Site:
Hornsey Town Hall

Location:
Hornsey

Client:
Capita Symonds

Ground Level:
GL not measured

Date:
11 Jun 09

Job No:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 1 of 3

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
					0.04 0.21 0.35	0.04 0.17 0.14		MADE GROUND: Tarmacadem Hardstanding.
								MADE GROUND: Concrete.
		1	1.20 D 53					MADE GROUND: Dark grey/black organic rich slightly gravelly silty CLAY. Gravel is fine to coarse angular to subangular brick and bitumen. Occasional to rare cobbles of brick.
		2		S N=11 [2.0](2.3,3.3)				Firm becoming stiff below 6.50m, closely fissured brown silty CLAY. (LONDON CLAY)
		3						
		4	3.50 D 45					
		5		S N=12 [3.0](2.3,3.4)				
		6	4.80 D 46 5.00 D 54			9.85		
		7		S N=26 [10.0](6.6,7.7)				
		8						
		9						
			6.50 D 47					
			9.50 D 48	S N=31 [9.0](6.7,7.11)				

Continued next sheet

Remarks and Water Observations

Borehole drilled in 150mm tools. Cased to 1.50m. No water added. No installation. No groundwater encountered.

Scale: 1:50

Logged by: ADJT

Figure:

Site:
Hornsey Town Hall

Location:
Hornsey

Client:
Capita Symonds

Ground Level:
GL not measured

Date:
11 Jun 09

Job No:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 2 of 3

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
					10.20			Stiff becoming very stiff below 15.50m, closely fissured dark grey silty CLAY. (LONDON CLAY)
		11	11.00 D 55					
		12						
		12.50	D 49 S	N=35 [12.0](7,8,10,10)				
		13						
		14						
		15						
		15.50	D 50 S	N=37 [10.0](9,8,9,11)				
		16						
		17						
		18				14.80		
		18.50	D 51 S	N=39 [13.0](8,10,9,12)				
		19						

Continued next sheet

Remarks and Water Observations

Borehole drilled in 150mm tools. Cased to 1.50m. No water added. No installation. No groundwater encountered.

Scale: 1:50

Logged by: ADJT

Figure:



Specialist Engineering, Materials
and Environmental Consultants

BOREHOLE RECORD (Percussive)

Borehole
Number:
BH3

Site:
Hornsey Town Hall

Location:
Hornsey

Client:
Capita Symonds

Ground Level:
GL not measured

Date:
11 Jun 09

Job No:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 3 of 3

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
		21						
		22		S N=47 [16,0][8,11,13,15]				
		23						
		24						
		25	24.50 D 52	S N=48 [15,0][8,11,13,16]	25.00			
		26						
		27						
		28						
		29						

Remarks and Water Observations

Borehole drilled in 150mm tools. Cased to 1.50m. No water added. No installation. No groundwater encountered.

Scale: 1:50

Logged by: ADJT

Figure:

Site:
Hornsey Town Hall

Location:
Hornsey

Client:
Capita Symonds

Ground Level:
GL not measured

Date:
9 Jun 09

Job No:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 1 of 3

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
					0.06	0.06		MADE GROUND: Concrete paving slab.
					0.64	0.64		MADE GROUND: Dark brown/brown clayey sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse flint, brick and concrete. Abundant cobbles of angular red/yellow brick and concrete.
		1	0.90 D 56	S N=2 (1.0)(0,1,0,1)	0.70	0.70		MADE GROUND: Brown slightly gravelly silty CLAY. Gravel is fine to coarse subangular to subrounded flint. (REWORKED LONDON CLAY)
		2				2.60		
		3		S N=20 (6.0)(4,5,5,6)	3.30	3.30		Firm closely fissured brown silty CLAY. (LONDON CLAY)
		4	4.00 D 63					
		5	5.00 D 57	S N=23 (6.0)(4,5,7,7)				
		6						
		7	7.00 D 58					
		8	8.00 D 59	S N=21 (7.0)(5,5,5,6)				
		9				8.30		

Continued next sheet

Remarks and Water Observations

Borehole drilled in 150mm tools. Cased to 3.00m. No water added. No installation. No groundwater encountered.

Scale: 1:50

Logged by: ADJT

Figure:

BOREHOLE RECORD (Percussive)

Borehole
Number:
BH4A

Site:
Hornsey Town Hall

Location:
Hornsey

Client:
Capita Symonds

Ground Level:
GL not measured

Date:
9 Jun 09

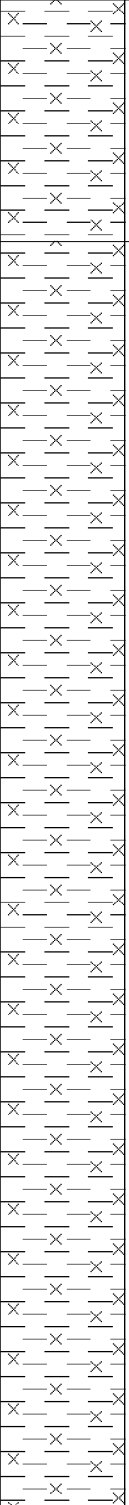
Job No:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 2 of 3

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
		11	11.00 D 60	S N=29 [8,0](6,7,7,9)	11.60			Stiff closely fissured dark grey silty CLAY. (LONDON CLAY)
		12						
		13						
		14	14.00 D 61	S N=31 [11,0](7,7,8,9)				
		15						
		16						
		17		S N=37 [13,0](8,8,9,12)				
		18				13.40		
		19	19.00 D 62					

Continued next sheet

Remarks and Water Observations

Borehole drilled in 150mm tools. Cased to 3.00m. No water added. No installation. No groundwater encountered.

Scale: 1:50

Logged by: ADJT

Figure:



Specialist Engineering, Materials
and Environmental Consultants

BOREHOLE RECORD (Percussive)

Borehole
Number:
BH4A

Site:
Hornsey Town Hall

Location:
Hornsey

Client:
Capita Symonds

Ground Level:
GL not measured

Date:
9 Jun 09

Job No:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 3 of 3

Strike	Well	Depth (m)	Depth/Type (m)	SPT 'N' or U Blows	Depth (m)	Level (mAOD)	Key	Description
		21		S N=40 [14,0](8,9,11,12)				
		22						
		23		S N=42 [15,0](9,8,12,13)				
		24						
		25			25.00			End of Borehole at 25.00 m
		26						
		27						
		28						
		29						

Remarks and Water Observations

Borehole drilled in 150mm tools. Cased to 3.00m. No water added. No installation. No groundwater encountered.

Scale: 1:50

Logged by: ADJT

Figure:

Site:
Hornsey Town Hall

Location:
Hornsey

CORE1

Client:
Capita Symonds

Ground Level:
GL not measured

Dates:
-




Job No.:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 1 of 1

Strike	Well	Depth (m)	Type/Depth (m)	In-situ Tests	Depth (m)	Level (mAOD)	Key	Description
					0.04			MADE GROUND: Tarmacadem Hardstanding.
					0.16			MADE GROUND: Concrete with no reinforcement.
					0.40			MADE GROUND: Black/brown/dark grey slightly gravelly CLAY. Gravel is fine to coarse angular to subangular brick and bitumen.
								End of Trial Pit at 0.40 m
		1						
		2						
		3						
		4						

Remarks and Water Observations

Key for Insitu tests

Scale: 1:25

HV-Hand Vane (kN/m²)
PP-Pocket Penotometer (kN/m²)
MP-Mackintosh Probe (N150)

Logged by: ADJT

Figure:

Site:
Hornsey Town Hall

Location:
Hornsey

CORE2

Client:
Capita Symonds

Ground Level:
GL not measured

Dates:
-



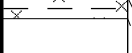

Job No.:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 1 of 1

Strike	Well	Depth (m)	Type/Depth (m)	In-situ Tests	Depth (m)	Level (mAOD)	Key	Description
					0.25 0.33 0.38 0.45			MADE GROUND: Concrete with two layers of 4mm reinforcement.
								MADE GROUND: Lean mix concrete.
								MADE GROUND: Brown sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse flint, brick and concrete. Abundant cobbles of angular red/yellow brick and concrete.
								Brown silty CLAY. (LONDON CLAY)
								End of Trial Pit at 0.45 m
		1						
		2						
		3						
		4						

Remarks and Water Observations

Key for Insitu tests

Scale: 1:25

HV-Hand Vane (kN/m2)
PP-Pocket Penotometer (kN/m2)
MP-Mackintosh Probe (N150)

Logged by: ADJT

Figure:

Site:
Hornsey Town Hall

Location:
Hornsey

CBR1

Client:
Capita Symonds

Ground Level:
GL not measured

Dates:
-






Job No.:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 1 of 1

Strike	Well	Depth (m)	Type/Depth (m)	In-situ Tests	Depth (m)	Level (mAOD)	Key	Description
					0.15	0.15		MADE GROUND: Tarmacadem Hardstanding.
					0.33	0.18		MADE GROUND: Concrete.
					0.44	0.11		MADE GROUND: Black/dark brown gravelly SAND. Sand is fine to coarse. Gravel is fine to coarse angular to subangular clinker, concrete and brick. Some cobbles of angular red brick.
					0.74	0.30		MADE GROUND: Brown clayey gravelly SAND. Sand is fine to coarse. Gravel is fine to coarse angular to subangular flint, brick and concrete. Some cobbles of angular red brick.
					1.00	0.26		Dark grey/black clayey SILT. Roots and rootlets. Organic aroma. (ALLUVIUM)
								End of Trial Pit at 1.00 m
	1							
	2							
	3							
	4							

Remarks and Water Observations

Key for Insitu tests

Scale: 1:25

HV-Hand Vane (kN/m2)
PP-Pocket Penotometer (kN/m2)
MP-Mackintosh Probe (N150)

Logged by: ADJT

Figure:

Site:
Hornsey Town Hall

Location:
Hornsey

CBR2

Client:
Capita Symonds

Ground Level:
GL not measured

Dates:
-

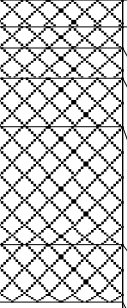
Job No.:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 1 of 1

Strike	Well	Depth (m)	Type/Depth (m)	In-situ Tests	Depth (m)	Level (mAOD)	Key	Description
					0.09	0.09		MADE GROUND: Tarmacadem Hardstanding.
					0.16	0.07		MADE GROUND: Purple/grey slightly sandy GRAVEL. Sand is fine to coarse. Gravel is medium to coarse angular limestone with some clinker.
					0.26	0.10		MADE GROUND: Concrete.
					0.42	0.16		MADE GROUND: Black gravelly SAND. Sand is fine to coarse. Gravel is fine to coarse angular to subangular clinker and flint.
					0.81	0.39		MADE GROUND: Brown/black very sandy very gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse angular to subangular flint, brick and clinker.
					1.00	0.19		MADE GROUND: Brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse angular to subangular flint and brick.
								End of Trial Pit at 1.00 m
		1						
		2						
		3						
		4						

Remarks and Water Observations

Key for Insitu tests

Scale: 1:25

HV-Hand Vane (kN/m2)
PP-Pocket Penotometer (kN/m2)
MP-Mackintosh Probe (N150)

Logged by: ADJT

Figure:

Site:
Hornsey Town Hall

Location:
Hornsey

CBR3

Client:
Capita Symonds

Ground Level:
GL not measured

Dates:
-

Job No.:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 1 of 1

Strike	Well	Depth (m)	Type/Depth (m)	In-situ Tests	Depth (m)	Level (mAOD)	Key	Description
					0.10	0.10		MADE GROUND: Tarmacadem Hardstanding.
					0.33	0.23		MADE GROUND: Black gravelly SAND. Sand is fine to coarse. Gravel is fine to coarse angular to subangular clinker and flint.
					0.40	0.07		MADE GROUND: Yellow SAND. Sand is fine to coarse.
					0.68	0.28		MADE GROUND: Black gravelly SAND. Sand is fine to coarse. Gravel is fine to coarse angular to subangular clinker and flint.
					1.00	0.32		Dark grey/black clayey SILT. Roots and rootlets. Organic aroma. (ALLUVIUM)
								<i>End of Trial Pit at 1.00 m</i>
		1						
		2						
		3						
		4						

Remarks and Water Observations

Key for Insitu tests

Scale: 1:25

HV-Hand Vane (kN/m2)
PP-Pocket Penotometer (kN/m2)
MP-Mackintosh Probe (N150)

Logged by: ADJT

Figure:

Site:
Hornsey Town Hall

Location:
Hornsey

CBR4

Client:
Capita Symonds

Ground Level:
GL not measured

Dates:
-

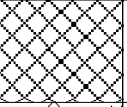
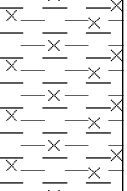
Job No.:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 1 of 1

Strike	Well	Depth (m)	Type/Depth (m)	In-situ Tests	Depth (m)	Level (mAOD)	Key	Description
					0.34	0.34		MADE GROUND: Grass over dark brown slightly gravelly silty CLAY. Gravel is fine to medium subangular red brick. Rare cobbles of angular red brick.
					1.00	0.66		Brown with some red/orange mottling silty CLAY. (LONDON CLAY)
		1						<i>End of Trial Pit at 1.00 m</i>
		2						
		3						
		4						

Remarks and Water Observations

Key for Insitu tests

Scale: 1:25

HV-Hand Vane (kN/m²)
PP-Pocket Penotometer (kN/m²)
MP-Mackintosh Probe (N150)

Logged by: ADJT

Figure:

Site:
Hornsey Town Hall

Location:
Hornsey

CBR5

Client:
Capita Symonds

Ground Level:
GL not measured

Dates:
-


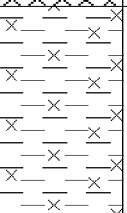
Job No.:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 1 of 1

Strike	Well	Depth (m)	Type/Depth (m)	In-situ Tests	Depth (m)	Level (mAOD)	Key	Description
					0.30	0.30		MADE GROUND: Black sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse angular to subangular clinker, bitumen and brick. Some cobbles of angular red brick.
								Brown silty CLAY. (LONDON CLAY)
		1			1.00	0.70		<i>End of Trial Pit at 1.00 m</i>
		2						
		3						
		4						

Remarks and Water Observations

Key for Insitu tests

Scale: 1:25

HV-Hand Vane (kN/m2)
PP-Pocket Penotometer (kN/m2)
MP-Mackintosh Probe (N150)

Logged by: ADJT

Figure:

Site:
Hornsey Town Hall

Location:
Hornsey

CBR6

Client:
Capita Symonds

Ground Level:
GL not measured

Dates:
-



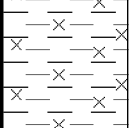
Job No.:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 1 of 1

Strike	Well	Depth (m)	Type/Depth (m)	In-situ Tests	Depth (m)	Level (mAOD)	Key	Description
					0.30	0.30		MADE GROUND: Grass over dark brown slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is fine to coarse subangular red brick.
					0.48	0.18		MADE GROUND: Brown slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is fine to coarse subangular red brick.
								Brown silty CLAY. (LONDON CLAY)
					1.00	0.52		<i>End of Trial Pit at 1.00 m</i>
		1						
		2						
		3						
		4						

Remarks and Water Observations

Key for Insitu tests

Scale: 1:25

HV-Hand Vane (kN/m²)
PP-Pocket Penotometer (kN/m²)
MP-Mackintosh Probe (N150)

Logged by: ADJT

Figure:

Site:
Hornsey Town Hall

Location:
Hornsey

CBR7

Client:
Capita Symonds

Ground Level:
GL not measured

Dates:
-




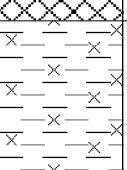
Job No.:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 1 of 1

Strike	Well	Depth (m)	Type/Depth (m)	In-situ Tests	Depth (m)	Level (mAOD)	Key	Description
					0.04	0.04		MADE GROUND: Tarmacadem Hardstanding.
					0.22	0.18		MADE GROUND: Concrete.
					0.49	0.27		MADE GROUND: Brown gravelly SAND. Sand is fine to coarse. Gravel is fine to coarse subangular flint.
					1.00	0.51		Brown silty CLAY. (LONDON CLAY)
								<i>End of Trial Pit at 1.00 m</i>
		1						
		2						
		3						
		4						

Remarks and Water Observations

Key for Insitu tests

Scale: 1:25

HV-Hand Vane (kN/m²)
PP-Pocket Penotometer (kN/m²)
MP-Mackintosh Probe (N150)

Logged by: ADJT

Figure:

Site:
Hornsey Town Hall

Location:
Hornsey

SA1

Client:
Capita Symonds

Ground Level:
GL not measured

Dates:
-

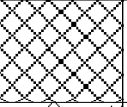
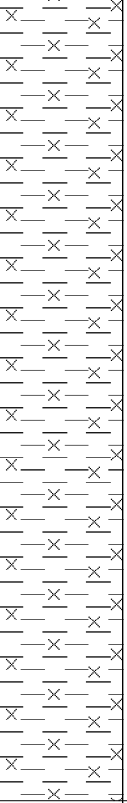
Job No.:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 1 of 1

Strike	Well	Depth (m)	Type/Depth (m)	In-situ Tests	Depth (m)	Level (mAOD)	Key	Description
					0.34	0.34		MADE GROUND: Grass over dark brown slightly gravelly silty CLAY. Gravel is fine to medium subangular red brick. Rare cobbles of angular red brick.
		1						Brown with some red/orange mottling silty CLAY. (LONDON CLAY)
		2						
		3			3.00	2.66		<i>End of Trial Pit at 3.00 m</i>
		4						

Remarks and Water Observations

Key for Insitu tests

HV-Hand Vane (kN/m²)
PP-Pocket Penotometer (kN/m²)
MP-Mackintosh Probe (N150)

Scale: 1:25

Logged by: ADJT

Figure:

Site:
Hornsey Town Hall

Location:
Hornsey

SA2

Client:
Capita Symonds

Ground Level:
GL not measured

Dates:
-

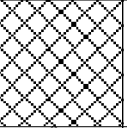
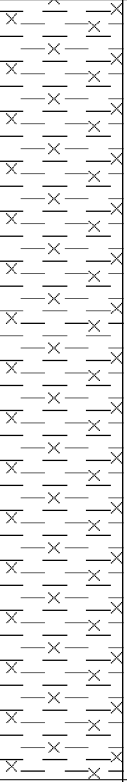
Job No.:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 1 of 1

Strike	Well	Depth (m)	Type/Depth (m)	In-situ Tests	Depth (m)	Level (mAOD)	Key	Description
					0.42	0.42		MADE GROUND: Black sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse angular to subangular clinker, bitumen and brick.
		1						Brown silty CLAY. (LONDON CLAY)
		2						
		3			3.00	2.58		<i>End of Trial Pit at 3.00 m</i>
		4						

Remarks and Water Observations

Key for Insitu tests

Scale: 1:25

HV-Hand Vane (kN/m²)
PP-Pocket Penotometer (kN/m²)
MP-Mackintosh Probe (N150)

Logged by: ADJT

Figure:

TRIAL PIT RECORD

**Trial Pit
Number:**

Site:
Hornsey Town Hall

Location:
Hornsey

TP1

Client:
Capita Symonds

Ground Level:
GL not measured

Dates:
5 Jun 09

Job No.:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 1 of 1

Strike	Well	Depth (m)	Type/Depth (m)	In-situ Tests	Depth (m)	Level (mAOD)	Key	Description
					0.02	0.02		MADE GROUND: Tarmacadem Hardstanding.
					0.09	0.07		MADE GROUND: Red lean mix concrete with reinforcement.
					0.20	0.11		MADE GROUND: Grey lean mix concrete with reinforcement.
					0.43	0.23		MADE GROUND: Red/brown sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse angular to subangular flint, brick and concrete. Some cobbles of angular red brick and concrete.
				HV 0.50	73.3			Firm to stiff brown/light brown silty CLAY. Fine orange claystone throughout. (LONDON CLAY) ...@ 0.60m Fine orange claystone gravel. ...@ 0.80m Increase in mottling, and selenite content.
				HV 0.75	89.3			
								...@ 2.80m Reduction in blue mottling.
					4.00	3.57		End of Trial Pit at 4.00 m

Remarks and Water Observations

Window sampling follow on to trial pit excavation. No groundwater encountered.

Key for Insitu tests

HV-Hand Vane (kN/m2)
PP-Pocket Penotometer (kN/m2)
MP-Mackintosh Probe (N150)

Scale: 1:25

Logged by: ADJT

Figure:

Site:
Hornsey Town Hall

Location:
Hornsey

TP1A

Client:
Capita Symonds

Ground Level:
GL not measured

Dates:
9 Jun 09

Job No.:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 1 of 1

Strike	Well	Depth (m)	Type/Depth (m)	In-situ Tests	Depth (m)	Level (mAOD)	Key	Description
					0.04			MADE GROUND: Tarmacadem Hardstanding.
					0.07			MADE GROUND: Red lean mix concrete with reinforcement.
					0.21			MADE GROUND: Grey lean mix concrete with reinforcement.
					0.45			MADE GROUND: Red/brown sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse angular to subangular flint, brick and concrete. Some cobbles of angular red brick and concrete.
								Brown/light brown silty CLAY. Fine orange claystone throughout. (LONDON CLAY)
					1.30			<i>End of Trial Pit at 1.30 m</i>
		1						
		2						
		3						
		4						

Remarks and Water Observations

No follow on window sampling carried out. No groundwater encountered.

Key for Insitu tests

HV-Hand Vane (kN/m2)
PP-Pocket Penotometer (kN/m2)
MP-Mackintosh Probe (N150)

Scale: 1:25

Logged by: ADJT

Figure:

Site:
Hornsey Town Hall

Location:
Hornsey

TP2

Client:
Capita Symonds

Ground Level:
GL not measured

Dates:
5 Jun 09

Job No.:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 1 of 1

Strike	Well	Depth (m)	Type/Depth (m)	In-situ Tests	Depth (m)	Level (mAOD)	Key	Description
					0.09	0.09		MADE GROUND: Tarmacadem Hardstanding.
					0.29	0.20		MADE GROUND: Red lean mix concrete with reinforcement.
				HV 0.50	42.0	0.49		MADE GROUND: Red/brown sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse angular to subangular flint, brick and concrete. Rare cobbles of angular red brick and concrete.
				HV 0.75	46.7			Firm brown/light brown clayey SILT. (LONDON CLAY)
		1						...@ 1.00m Blue/grey/brown mottled.
		2						...@ 1.40m Claystone band or cobble.
		3						...@ 1.80m Abundant fine selenite gravel.
		4						...@ 2.50m Fine decomposing rootlets with reduced mottling.
								...@ 4.60m Blue staining along histoica root paths.

Remarks and Water Observations

Window sampling follow on to trial pit excavation. No groundwater encountered.

End of Trial Pit at 5.00 m
Key for Insitu tests

HV-Hand Vane (kN/m2)
PP-Pocket Penotometer (kN/m2)
MP-Mackintosh Probe (N150)

Scale: 1:25

Logged by: ADJT

Figure:

Site:
Hornsey Town Hall

Location:
Hornsey

Client:
Capita Symonds

Ground Level:
GL not measured

Dates:
10 Jun 09


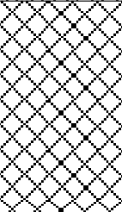
Job No.:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 1 of 1

Strike	Well	Depth (m)	Type/Depth (m)	In-situ Tests	Depth (m)	Level (mAOD)	Key	Description
					0.18	0.18		MADE GROUND: Concrete.
					0.89	0.71		MADE GROUND: Brown/black sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse angular to subangular brick, concrete, bitumen, clinker and flint.
		1						<i>End of Trial Pit at 0.89 m</i>
		2						
		3						
		4						

Remarks and Water Observations

Window sampling follow not carried out due to concrete obstructions. No groundwater encountered.

Key for Insitu tests

HV-Hand Vane (kN/m2)
PP-Pocket Penotometer (kN/m2)
MP-Mackintosh Probe (N150)

Scale: 1:25

Logged by: ADJT

Figure:

Site:
Hornsey Town Hall

Location:
Hornsey

Client:
Capita Symonds

Ground Level:
GL not measured

Dates:
8 Jun 09

Job No.:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 1 of 1

Strike	Well	Depth (m)	Type/Depth (m)	In-situ Tests	Depth (m)	Level (mAOD)	Key	Description
					0.12	0.12		MADE GROUND: Red concrete paving slab.
					0.49	0.37		MADE GROUND: Brown/grey gravelly SAND. Sand is fine to coarse. Gravel is fine coarse angular to subangular concrete and brick.
				HV 0.50	52.0	0.59		MADE GROUND: Light brown silty CLAY. (REWORKED LONDON CLAY)
								MADE GROUND: Light grey/blue silty CLAY. Rare fine angular flint gravel. Organic rich. Occasional to rare fine roots and rootlets. (REWORKED LONDON CLAY)
	1			HV 1.00	58.7	1.10		Firm becoming stiff below 2.00m, closely fissured light brown silty CLAY. (LONDON CLAY)
				PP 1.50 HV	108 78.7			
	2			PP 2.00	125			...@ 2.00m Fine selenite and claystone gravel.
								...@ 2.20m Increase in light blue/grey mottling along historic root paths.
	3			PP 3.00	158	3.00		End of Trial Pit at 3.00 m
	4							

Remarks and Water Observations

Trial pit extended by mechanical excavator. No groundwater encountered.

Key for Insitu tests

HV-Hand Vane (kN/m²)
PP-Pocket Penotometer (kN/m²)
MP-Mackintosh Probe (N150)

Scale: 1:25

Logged by: ADJT

Figure:

Site:
Hornsey Town Hall

Location:
Hornsey

Client:
Capita Symonds

Ground Level:
GL not measured

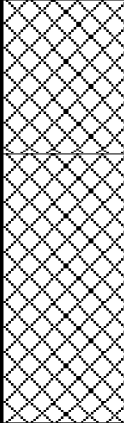
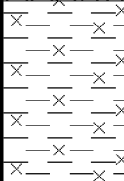
Dates:
8 Jun 09

Job No.:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Strike	Well	Depth (m)	Type/Depth (m)	In-situ Tests	Depth (m)	Level (mAOD)	Key	Description
					0.51	0.51		MADE GROUND: Concrete.
								MADE GROUND: Lean mix concrete.
				HV 1.40	72.0	1.40		Firm to stiff brown with light blue mottling silty CLAY. (LONDON CLAY) ...@ 1.40m Groundwater seepage noted.
				HV 1.90	84.0	2.00		0.60

Remarks and Water Observations

Groundwater seepage noted at base of made ground. Trial pit extended by mechanical excavator.

Key for Insitu tests

- HV-Hand Vane (kN/m²)
- PP-Pocket Penotometer (kN/m²)
- MP-Mackintosh Probe (N150)

Scale: 1:25

Logged by: ADJT

Figure:

Site:
Hornsey Town Hall

Location:
Hornsey

Client:
Capita Symonds

Ground Level:
GL not measured

Dates:
8 Jun 09

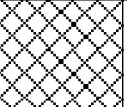
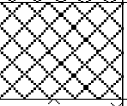
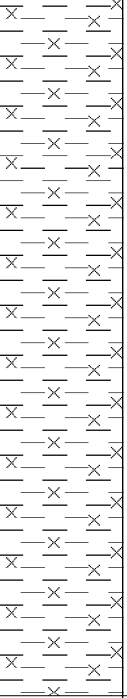
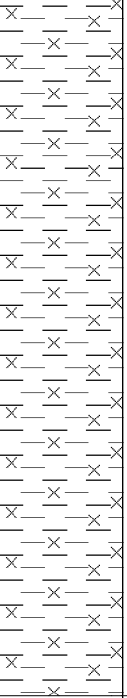
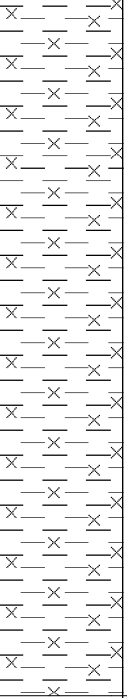
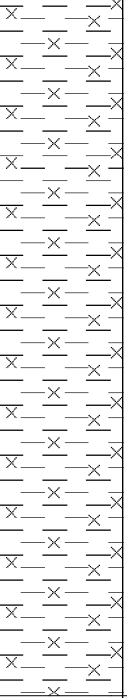
Job No.:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 1 of 1

Strike	Well	Depth (m)	Type/Depth (m)	In-situ Tests	Depth (m)	Level (mAOD)	Key	Description
					0.36	0.36		MADE GROUND: Concrete.
				HV 0.50	62.0			MADE GROUND: Dark brown/black gravelly SAND. Sand is fine to coarse. Gravel is fine to coarse angular to subangular brick, clinker, bitumen and flint.
					0.68	0.32		Firm light brown/brown silty CLAY. Decomposing roots and rootlets. (LONDON CLAY)
	1			HV 1.00	70.7			...@ 1.50m Increase in grey mottling along decomposing root paths. Fine selenite gravel.
	2			PP 2.00	142			
	3			PP 3.00	158	3.00		End of Trial Pit at 3.00 m
	4							

Remarks and Water Observations

Window sampling follow on to trial pit excavation. No groundwater encountered.

Key for Insitu tests

HV-Hand Vane (kN/m2)
PP-Pocket Penotometer (kN/m2)
MP-Mackintosh Probe (N150)

Scale: 1:25

Logged by: ADJT

Figure:

Site:
Hornsey Town Hall

Location:
Hornsey

Client:
Capita Symonds

Ground Level:
GL not measured

Dates:
8 Jun 09

Job No.:
240362

GROUND WATER

SAMPLES/TESTS

STRATA RECORD

Sheet 1 of 1

Strike	Well	Depth (m)	Type/Depth (m)	In-situ Tests	Depth (m)	Level (mAOD)	Key	Description
					0.07	0.07		MADE GROUND: Concrete.
					0.21	0.14		MADE GROUND: Lean mix concrete.
				HV 0.50	68.7			MADE GROUND: Brown locally light blue mottled silty CLAY. Rare fine to coarse angular red birch gravel.
					0.81	0.60		Firm becoming stiff below 1.50m, light brown silty CLAY. Occasional blue/grey staining along decomposing root and rootlets paths. Abundant angular selenite crystals. (LONDON CLAY)
	1			HV 1.00	82.7			
				PP 1.50	108			
	2			PP 2.00	125			
				PP 2.50	142			
	3			PP 3.00	158	3.00	2.19	<i>End of Trial Pit at 3.00 m</i>
	4							

Remarks and Water Observations

Window sampling follow on to trial pit excavation. No groundwater encountered.

Key for Insitu tests

HV-Hand Vane (kN/m2)
PP-Pocket Penotometer (kN/m2)
MP-Mackintosh Probe (N150)

Scale: 1:25

Logged by: ADJT

Figure:

APPENDIX C

Geotechnical Laboratory Test Records

Natural Moisture Content
 BS 1377 1990
 240362 Hornsey Town Hall

Client Details Capita Symonds Limited			
1 Procter Street, Holborn, London, WC1V 6DW.			
Order Reference		Order Date	19/06/09

Sample Details			
Sample Type	Small Disturbed		
Sampled by	STATS	Sampling Date	11/06/09
STATS Batch No	9426	Test Date Period	19/06/09 to 22/06/09
Receipt Date	19/06/09		

Methods	
Test	Moisture Content : BS 1377: Part 2 : 1990: Clause 3.2

Deviations No soil description required

Certification	
Certificate prepared by D Griffin  Principal Technician	Certificate reviewed by J Bailey  Associate Director
Testing By D Griffin	Certificate Issue Date 28/07/2009

The results given in this certificate relate only to those samples submitted and specimens tested and to any material properly represented by those samples and specimens. Any opinions and interpretations are outside the scope of UKAS accreditation.

STATS

RESULTS

BH/TP NO.	Depth (m)	Moisture Content %
BH1A	0.70	29
BH1A	1.70	32
BH1A	2.80	32
BH1A	3.50	31
BH1A	4.80	29
BH1A	5.50	31
BH1A	8.50	32
BH1A	9.00	29
BH1A	10.50	30
BH1A	12.50	29
BH1A	14.50	28
BH1A	16.50	29
BH1A	17.50	29
BH2	1.40	31
BH2	2.40	29
BH2	3.00	30
BH2	4.40	29
BH2	5.00	32
BH2	5.90	29
BH2	8.90	33
BH2	9.90	31
BH2	10.40	31
BH2	11.90	30
BH2	15.00	29
BH2	17.00	27
BH2	18.00	29
BH2	21.50	21
BH3	3.50	33
BH3	4.80	33
BH3	6.50	27
BH3	9.50	27
BH3	15.50	29
BH3	18.50	28
BH4A	0.90	19
BH4A	5.00	30
BH4A	7.00	33
BH4A	8.00	33
BH4A	11.00	33
BH4A	14.00	28

Moisture Content and Plasticity Index of Soil

BS 1377 1990
 240362 Hornsey Town Hall

Client Details Capita Symonds Limited

1 Procter Street, Holborn, London, WC1V 6DW.

Order Reference		Order Date	19/06/09
-----------------	--	------------	----------


Sample Details

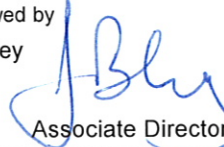
Sample Type	Small Disturbed		
Sampled by	STATS	Sampling Date	11/06/09
STATS Batch No	9426	Test Date Period	19/06/09 to 22/06/09
Receipt Date	19/06/09		

Methods

Test	Moisture Content : BS 1377: Part 2 : 1990: Clause 3.2 Plasticity Index: BS 1377: Part 2:1990: Clauses 4.2, 4.4, 5.2, 5.3 and 5.4
------	---

Certification

Certificate prepared by
 D Griffin 
 Principal Technician

Certificate reviewed by
 J Bailey 
 Associate Director

Testing By	D Griffin	Certificate Issue Date	28/07/2009
------------	-----------	------------------------	------------

The results given in this certificate relate only to those samples submitted and specimens tested and to any material properly represented by those samples and specimens. Any opinions and interpretations are outside the scope of UKAS accreditation.

STATS

RESULTS

BH/TP NO.	Depth (m)	Moisture Content (%)	Plasticity Index			% Retained 425 micron
			LL(%)	PL(%)	PI	
BH1A	1.90	32	73	29	44	0 N
BH1A	3.80	31	74	30	44	0 N
BH1A	6.50	31	76	32	44	0 N
BH1A	15.00	29	74	30	44	0 N
BH2	1.50	30	73	31	42	0 N
BH2	3.50	31	74	31	43	0 N
BH2	9.00	31	76	35	41	0 N
BH3	12.50	28	74	31	43	0 N
BH3	24.50	28	74	30	44	0 N
BH4A	19.00	27	74	29	45	0 N

Remarks

N - Natural State

WS - Wet Sieve Preparation

Determination of the shear strength in triaxial compression without the measurement of pore pressure

BS 1377 1990
 240362 Hornsey Town Hall

Client Details Capita Symonds Limited			
1 Procter Street, Holborn, London, WC1V 6DW.			
Order Reference		Order Date	19/06/09

Sample Details			
Sample Type	Undisturbed		
Sampled by	STATS	Sampling Date	11/06/09
STATS Batch No	9426	Test Date Period	22/06/09 to 23/06/09
Receipt Date	19/06/09		

Methods	
Test	<p>The soil description was carried out in accordance with BS 1377:Part 1:1990:Clause 9.1 (Not UKAS Accredited)</p> <p>The test specimen was prepared in accordance with BS 1377:Part 1:1990:Clause 8</p> <p>The triaxial test was carried out in accordance with BS 1377:Part 7:1990:Clause 8</p> <p>Test marked "Not UKAS Accredited" in this certificate are not included in the UKAS Accreditation Schedule for our laboratory.</p>
Deviations	

Certification			
Certificate prepared by D Griffin  Principal Technician		Certificate reviewed by J Bailey  Associate Director	
Testing By	D Griffin	Certificate Issue Date	28/07/2009

The results given in this certificate relate only to those samples submitted and specimens tested and to any material properly represented by those samples and specimens. Any opinions and interpretations are outside the scope of UKAS accreditation.

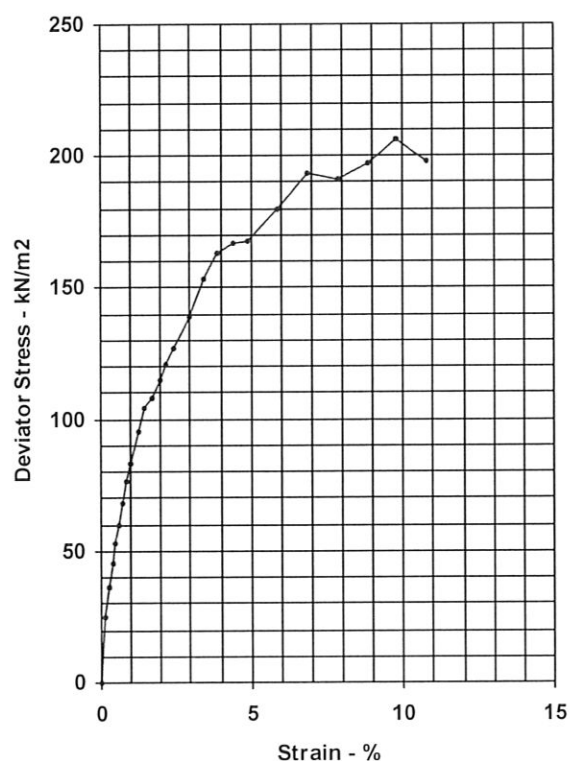
Client: Capita Symonds Limited
Site: Hornsey Town Hall

Job No: 240362
Test date: 22/06/2009
Tested By: D Griffin

Method of field sampling Light percussion shell and auger boring

Borehole number	BH1A		
Depth - m	3.00		
Description	Dark yellowish brown thinly laminated closely fissured clay with occ veins of grey and occ cry		
Orientation of specimen	Vertical		
Sample type	Undisturbed		
Batch Number	9426	Membrane batch reference	G3654/5
Length - mm	204.0	Membrane thickness - mm	0.34
Diameter - mm	102.0	Load ring reference	G1638
		Ring constant - N/division	3.50
		Strain rate - %/min	1.5
		Cell pressure - kN/m ²	60

Percent Strain	Deviator Stress (kN/m ²)
0.0	0
0.1	25
0.2	36
0.4	45
0.5	53
0.6	60
0.7	68
0.9	76
1.0	83
1.2	95
1.5	104
1.7	108
2.0	115
2.2	121
2.5	127
2.9	139
3.4	153
3.9	163
4.4	167
4.9	168
5.9	180
6.9	193
7.8	191
8.8	197
9.8	206
10.8	198



SUMMARY OF RESULTS

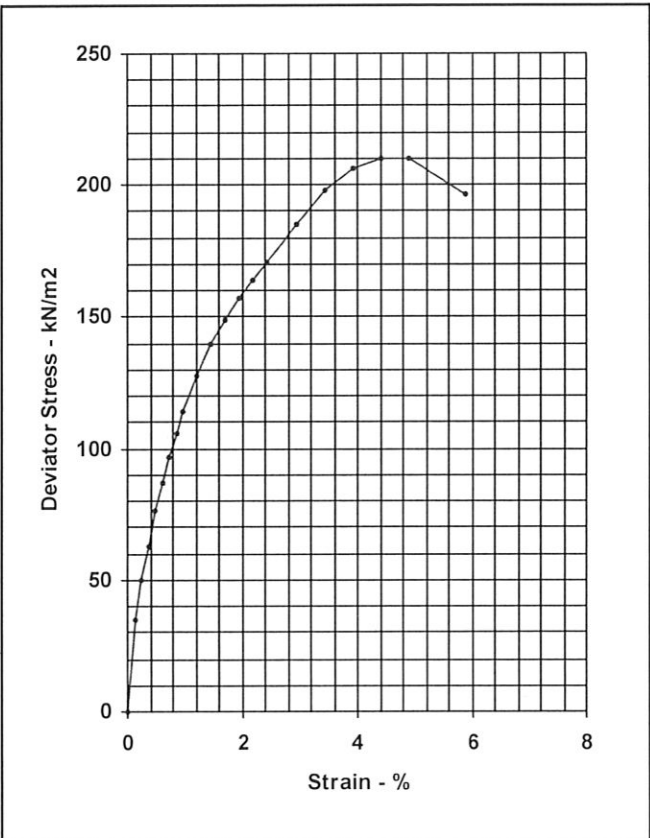
Natural moisture content - %	31
Bulk density - Mg/m ³	1.95
Dry density - Mg/m ³	1.49
Cell pressure - kN/m ²	60
Max deviator stress - kN/m ²	206
Strain at failure - %	9.8
Max Principal stress - kN/m ²	266
Shear strength - kN/m ²	103
Mode of failure	Shear

Client: Capita Symonds Limited	Job No: 240362
Site: Hornsey Town Hall	Test date: 22/06/2009
	Tested By: D Griffin

Method of field sampling Light percussion shell and auger boring

Borehole number	BH1A		
Depth - m	5.00		
Description	Dark yellowish brown thinly laminated closely fissured slightly sandy clay with occ crystals		
Orientation of specimen	Vertical		
Sample type	Undisturbed		
Batch Number	9426	Membrane batch reference	G3654/3
Length - mm	204.0	Membrane thickness - mm	0.34
Diameter - mm	102.5	Load ring reference	G1635
		Ring constant - N/division	5.72
		Strain rate - %/min	1.0
		Cell pressure - kN/m2	100

Percent Strain	Deviator Stress (kN/m2)
0.0	0
0.1	35
0.2	50
0.4	63
0.5	76
0.6	87
0.7	97
0.9	106
1.0	114
1.2	128
1.5	140
1.7	149
2.0	157
2.2	164
2.5	171
2.9	185
3.4	198
3.9	206
4.4	210
4.9	210
5.9	196



SUMMARY OF RESULTS

Natural moisture content - %	30
Bulk density - Mg/m3	1.94
Dry density - Mg/m3	1.49
Cell pressure - kN/m2	100
Max deviator stress - kN/m2	210
Strain at failure - %	4.4
Max Principal stress - kN/m2	310
Shear strength - kN/m2	105
Mode of failure	Shear

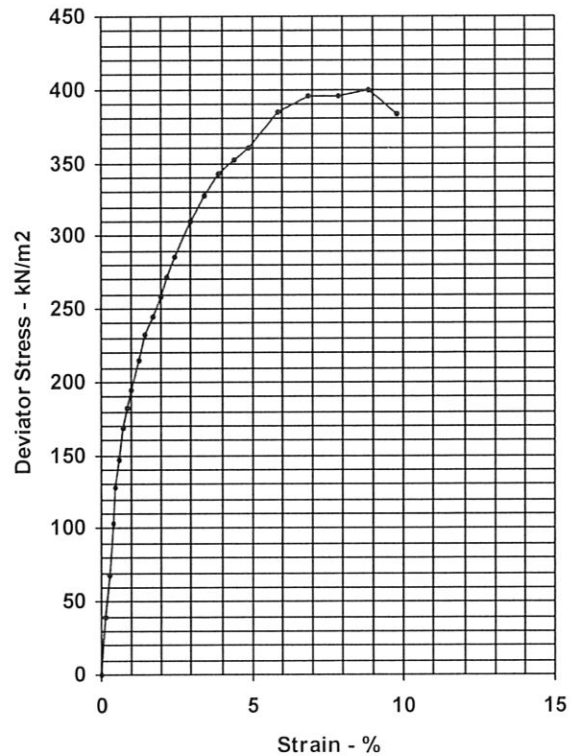
Client: Capita Symonds Limited
 Site: Hornsey Town Hall

Job No: 240362
 Test date: 22/06/2009
 Tested By: D Griffin

Method of field sampling Light percussion shell and auger boring

Borehole number	BH1A		
Depth - m	14.00		
Description	Very dark grey thinly laminated very closely fissured clay with occ selenite		
Orientation of specimen	Vertical		
Sample type	Undisturbed		
Batch Number	9426	Membrane batch reference	G3654/7
Length - mm	204.0	Membrane thickness - mm	0.34
Diameter - mm	103.0	Load ring reference	G1635
		Ring constant - N/division	5.72
		Strain rate - %/min	1.0
		Cell pressure - kN/m2	280

Percent Strain	Deviator Stress (kN/m2)
0.0	0
0.1	40
0.2	68
0.4	103
0.5	128
0.6	147
0.7	168
0.9	182
1.0	194
1.2	215
1.5	233
1.7	245
2.0	258
2.2	272
2.5	286
2.9	310
3.4	328
3.9	343
4.4	352
4.9	360
5.9	385
6.9	396
7.8	396
8.8	400
9.8	383



SUMMARY OF RESULTS

Natural moisture content - %	25
Bulk density - Mg/m3	1.99
Dry density - Mg/m3	1.59
Cell pressure - kN/m2	280
Max deviator stress - kN/m2	400
Strain at failure - %	8.8
Max Principal stress - kN/m2	680
Shear strength - kN/m2	200
Mode of failure	Shear

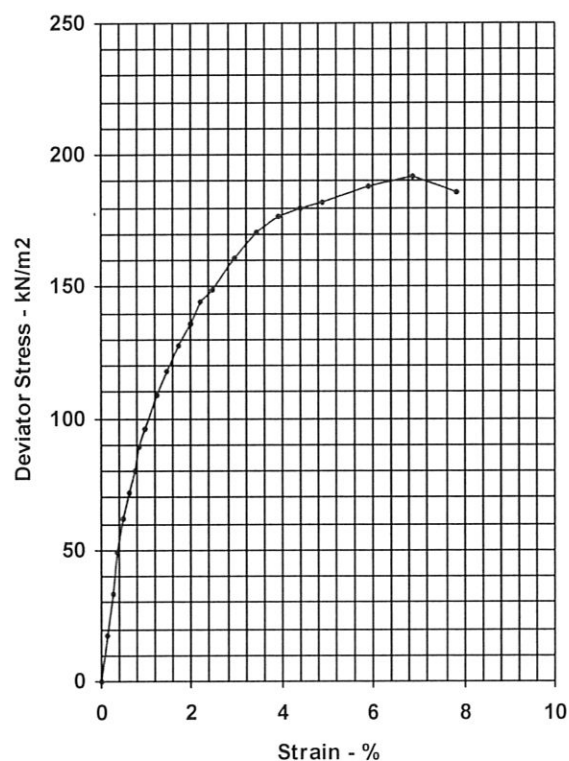
Client: Capita Symonds Limited
 Site: Hornsey Town Hall

Job No: 240362
 Test date: 22/06/2009
 Tested By: D Griffin

Method of field sampling Light percussion shell and auger boring

Borehole number	BH2		
Depth - m	2.50		
Description	Dark yellowish brown thinly laminated closely fissured slightly sandy clay with occ veins of gr		
Orientation of specimen	Vertical		
Sample type	Undisturbed		
Batch Number	9426	Membrane batch reference	G3652/2
Length - mm	204.0	Membrane thickness - mm	0.36
Diameter - mm	102.0	Load ring reference	G1635
		Ring constant - N/division	5.72
		Strain rate - %/min	1.0
		Cell pressure - kN/m2	50

Percent Strain	Deviator Stress (kN/m2)
0.0	0
0.1	17
0.2	33
0.4	49
0.5	62
0.6	72
0.7	80
0.9	89
1.0	96
1.2	109
1.5	118
1.7	128
2.0	136
2.2	144
2.5	149
2.9	161
3.4	171
3.9	177
4.4	180
4.9	182
5.9	188
6.9	192
7.8	186



SUMMARY OF RESULTS

Natural moisture content - %	29
Bulk density - Mg/m3	1.98
Dry density - Mg/m3	1.53
Cell pressure - kN/m2	50
Max deviator stress - kN/m2	192
Strain at failure - %	6.9
Max Principal stress - kN/m2	242
Shear strength - kN/m2	96
Mode of failure	Shear

Client: Capita Symonds Limited
 Site: Hornsey Town Hall

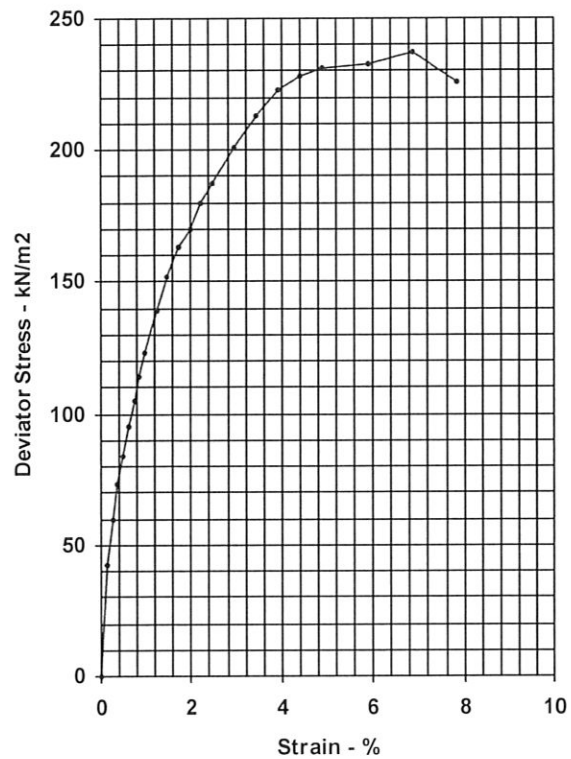
Job No: 240362
 Test date: 22/06/2009
 Tested By: D Griffin

Method of field sampling Light percussion shell and auger boring

Borehole number	BH2
Depth - m	4.50
Description	Dark yellowish brown thinly laminated very closely fissured clay with occ veins of grey and oc
Orientation of specimen	Vertical
Sample type	Undisturbed

Batch Number	9426	Membrane batch reference	G3652/1
Length - mm	204.0	Membrane thickness - mm	0.36
Diameter - mm	103.0	Load ring reference	G1635
		Ring constant - N/division	5.72
		Strain rate - %/min	1.0
		Cell pressure - kN/m2	90

Percent Strain	Deviator Stress (kN/m2)
0.0	0
0.1	42
0.2	60
0.4	73
0.5	84
0.6	95
0.7	105
0.9	114
1.0	123
1.2	139
1.5	152
1.7	163
2.0	170
2.2	180
2.5	187
2.9	201
3.4	213
3.9	223
4.4	228
4.9	231
5.9	233
6.9	237
7.8	226



SUMMARY OF RESULTS

Natural moisture content - %	28
Bulk density - Mg/m3	1.94
Dry density - Mg/m3	1.52
Cell pressure - kN/m2	90
Max deviator stress - kN/m2	237
Strain at failure - %	6.9
Max Principal stress - kN/m2	327
Shear strength - kN/m2	119
Mode of failure	Shear

Client: Capita Symonds Limited
 Site: Hornsey Town Hall

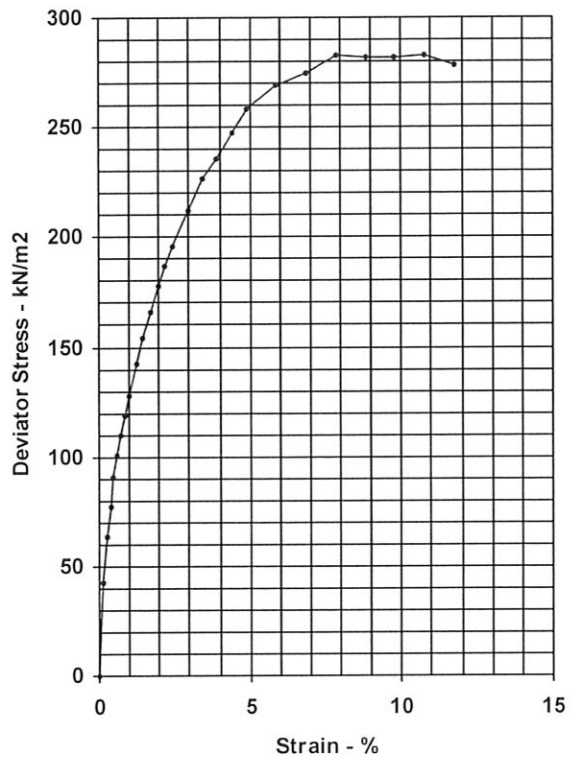
Job No: 240362
 Test date: 22/06/2009
 Tested By: D Griffin

Method of field sampling Light percussion shell and auger boring

Borehole number	BH2
Depth - m	7.50
Description	Dark yellowish brown thinly laminated closely fissured slightly sandy clay with occ crystals
Orientation of specimen	Vertical
Sample type	Undisturbed

Batch Number	9426	Membrane batch reference	G3652/8
Length - mm	204.0	Membrane thickness - mm	0.36
Diameter - mm	102.0	Load ring reference	G1635
		Ring constant - N/division	5.72
		Strain rate - %/min	1.5
		Cell pressure - kN/m2	150

Percent Strain	Deviator Stress (kN/m2)
0.0	0
0.1	43
0.2	63
0.4	77
0.5	91
0.6	101
0.7	110
0.9	119
1.0	128
1.2	142
1.5	154
1.7	166
2.0	178
2.2	187
2.5	196
2.9	212
3.4	227
3.9	236
4.4	247
4.9	258
5.9	269
6.9	275
7.8	283
8.8	282
9.8	282
10.8	283
11.8	278

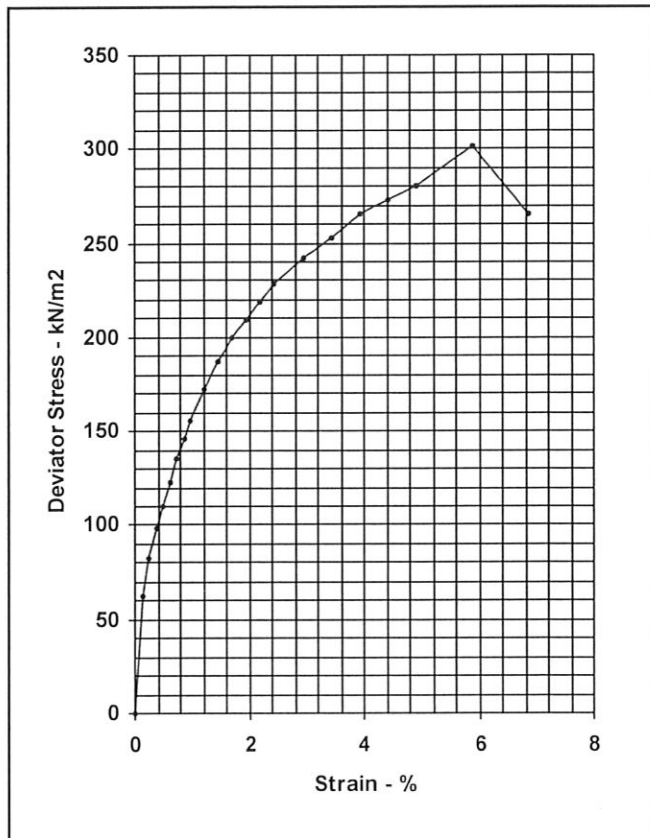


SUMMARY OF RESULTS

Natural moisture content - %	29
Bulk density - Mg/m3	1.97
Dry density - Mg/m3	1.53
Cell pressure - kN/m2	150
Max deviator stress - kN/m2	283
Strain at failure - %	7.8
Max Principal stress - kN/m2	433
Shear strength - kN/m2	142
Mode of failure	Shear

Client: Capita Symonds Limited Site: Hornsey Town Hall		Job No: 240362 Test date: 22/06/2009 Tested By: D Griffin	
Method of field sampling Light percussion shell and auger boring			
Borehole number	BH2		
Depth - m	10.50		
Description	Dark grey thinly laminated closely fissured clay with occ selenite		
Orientation of specimen	Vertical		
Sample type	Undisturbed		
Batch Number	9426	Membrane batch reference	G3653/5
Length - mm	204.0	Membrane thickness - mm	0.33
Diameter - mm	102.5	Load ring reference	G1635
		Ring constant - N/division	5.72
		Strain rate - %/min	1.0
		Cell pressure - kN/m ²	210

Percent Strain	Deviator Stress (kN/m ²)
0.0	0
0.1	62
0.2	82
0.4	98
0.5	110
0.6	123
0.7	135
0.9	146
1.0	155
1.2	172
1.5	187
1.7	200
2.0	209
2.2	219
2.5	228
2.9	242
3.4	253
3.9	265
4.4	273
4.9	280
5.9	301
6.9	265



SUMMARY OF RESULTS

Natural moisture content - %	29
Bulk density - Mg/m ³	1.97
Dry density - Mg/m ³	1.53
Cell pressure - kN/m ²	210
Max deviator stress - kN/m ²	301
Strain at failure - %	5.9
Max Principal stress - kN/m ²	511
Shear strength - kN/m ²	151
Mode of failure	Shear

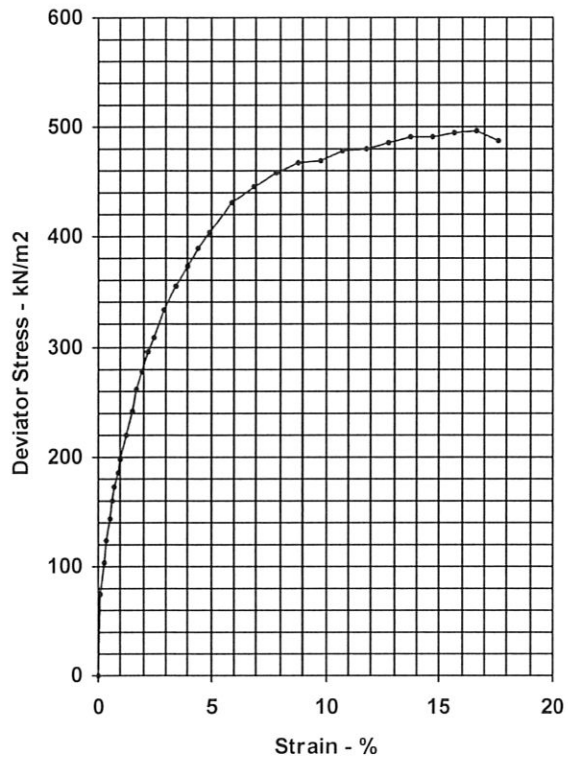
Client: Capita Symonds Limited
 Site: Hornsey Town Hall

Job No: 240362
 Test date: 22/06/2009
 Tested By: D Griffin

Method of field sampling Light percussion shell and auger boring

Borehole number	BH2		
Depth - m	16.50		
Description	Dark grey thinly laminated very closely fissured clay with occ selenite		
Orientation of specimen	Vertical		
Sample type	Undisturbed		
Batch Number	9426	Membrane batch reference	G3653/10
Length - mm	204.0	Membrane thickness - mm	0.33
Diameter - mm	102.5	Load ring reference	G1635
		Ring constant - N/division	5.72
		Strain rate - %/min	1.5
		Cell pressure - kN/m ²	330

Percent Strain	Deviator Stress (kN/m ²)
0.0	0
0.1	75
0.2	103
0.4	124
0.5	143
0.6	160
0.7	172
0.9	185
1.0	198
1.2	220
1.5	241
1.7	261
2.0	278
2.2	295
2.5	309
2.9	334
3.4	355
3.9	373
4.4	390
4.9	404
5.9	431
6.9	446
7.8	459
8.8	467
9.8	469
10.8	478
11.8	481
12.7	485
13.7	492
14.7	491
15.7	495
16.7	496
17.6	488



SUMMARY OF RESULTS

Natural moisture content - %	25
Bulk density - Mg/m ³	1.99
Dry density - Mg/m ³	1.59
Cell pressure - kN/m ²	330
Max deviator stress - kN/m ²	496
Strain at failure - %	16.7
Max Principal stress - kN/m ²	826
Shear strength - kN/m ²	248
Mode of failure	Shear

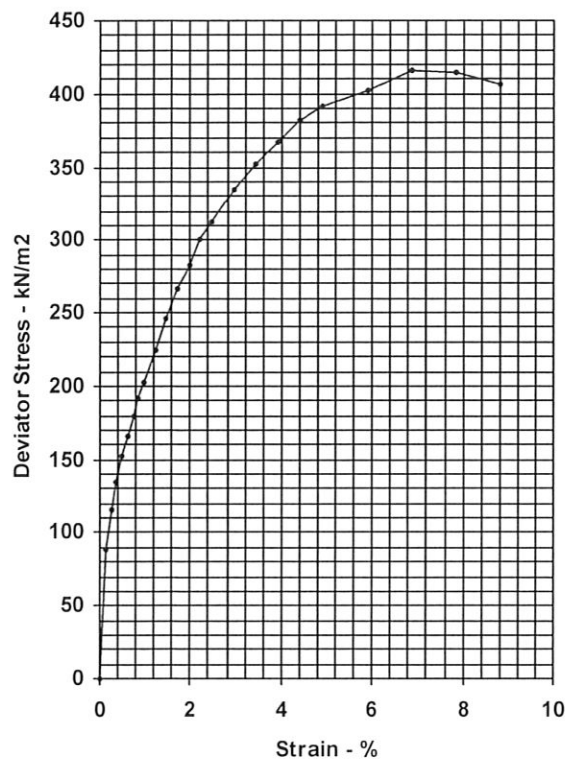
Client: Capita Symonds Limited
 Site: Hornsey Town Hall

Job No: 240362
 Test date: 22/06/2009
 Tested By: D Griffin

Method of field sampling Light percussion shell and auger boring

Borehole number	BH2		
Depth - m	23.00		
Description	Dark grey thinly laminated very closely fissured clay		
Orientation of specimen	Vertical		
Sample type	Undisturbed		
Batch Number	9426	Membrane batch reference	G3656/2
Length - mm	204.0	Membrane thickness - mm	0.35
Diameter - mm	102.5	Load ring reference	G1635
		Ring constant - N/division	5.72
		Strain rate - %/min	1.5
		Cell pressure - kN/m ²	460

Percent Strain	Deviator Stress (kN/m ²)
0.0	0
0.1	89
0.2	115
0.4	135
0.5	152
0.6	166
0.7	179
0.9	192
1.0	203
1.2	225
1.5	246
1.7	266
2.0	283
2.2	301
2.5	313
2.9	335
3.4	352
3.9	367
4.4	382
4.9	391
5.9	403
6.9	416
7.8	415
8.8	406



SUMMARY OF RESULTS

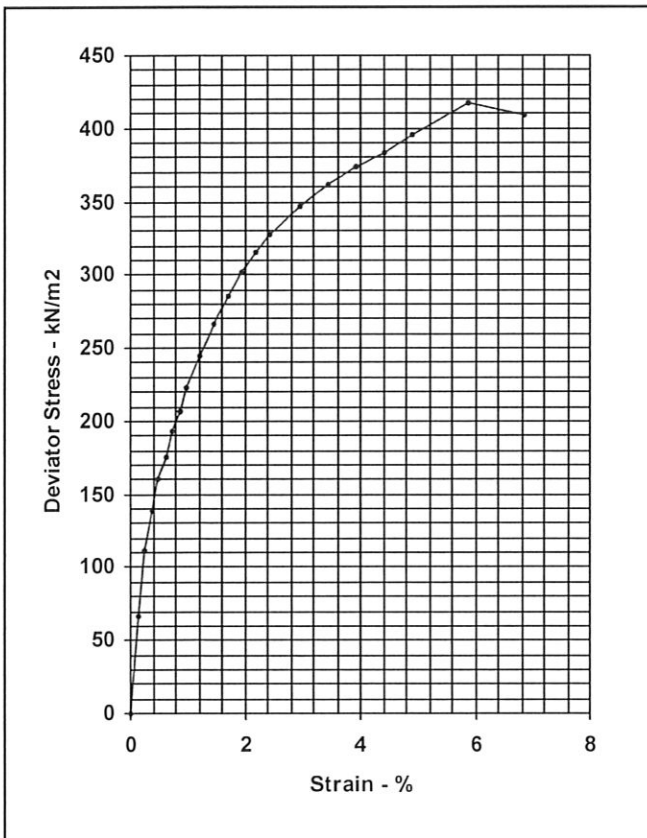
Natural moisture content - %	27
Bulk density - Mg/m ³	1.98
Dry density - Mg/m ³	1.56
Cell pressure - kN/m ²	460
Max deviator stress - kN/m ²	416
Strain at failure - %	6.9
Max Principal stress - kN/m ²	876
Shear strength - kN/m ²	208
Mode of failure	Shear

Client: Capita Symonds Limited	Job No: 240362
Site: Hornsey Town Hall	Test date: 23/06/2009
	Tested By: D Griffin

Method of field sampling Light percussion shell and auger boring

Borehole number	BH2		
Depth - m	26.00		
Description	Dark grey thinly laminated very closely fissured clay with occ selenite		
Orientation of specimen	Vertical		
Sample type	Undisturbed		
Batch Number	9426	Membrane batch reference	G3654/8
Length - mm	204.0	Membrane thickness - mm	0.34
Diameter - mm	102.5	Load ring reference	G1635
		Ring constant - N/division	5.72
		Strain rate - %/min	1.0
		Cell pressure - kN/m ²	520

Percent Strain	Deviator Stress (kN/m ²)
0.0	0
0.1	66
0.2	111
0.4	139
0.5	160
0.6	176
0.7	193
0.9	207
1.0	223
1.2	245
1.5	267
1.7	285
2.0	302
2.2	315
2.5	327
2.9	347
3.4	361
3.9	374
4.4	383
4.9	395
5.9	417
6.9	409

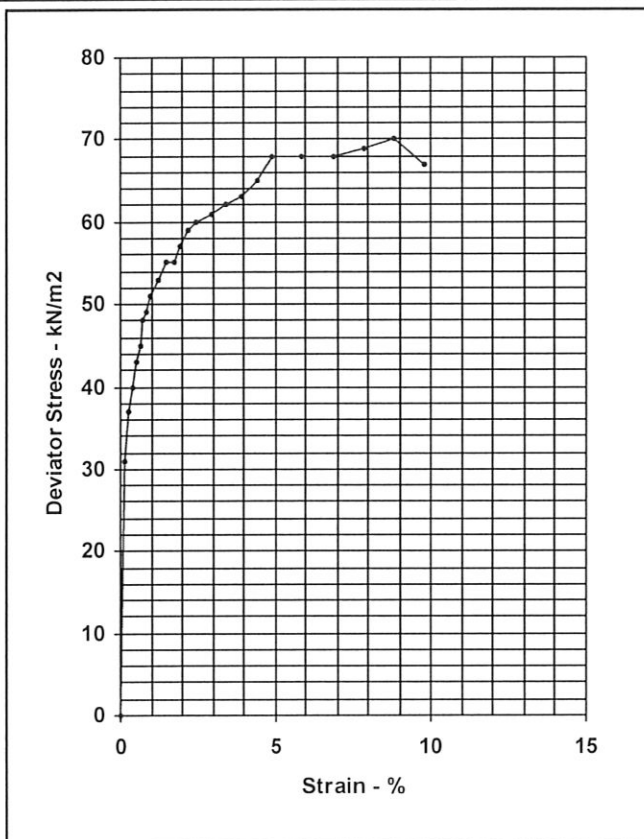


SUMMARY OF RESULTS

Natural moisture content - %	26
Bulk density - Mg/m ³	2.00
Dry density - Mg/m ³	1.59
Cell pressure - kN/m ²	520
Max deviator stress - kN/m ²	417
Strain at failure - %	5.9
Max Principal stress - kN/m ²	937
Shear strength - kN/m ²	209
Mode of failure	Shear

Client: Capita Symonds Limited Site: Hornsey Town Hall		Job No: 240362 Test date: 23/06/2009 Tested By: D Griffin	
Method of field sampling Light percussion shell and auger boring			
Borehole number	BH3		
Depth - m	1.20		
Description	Dark yellowish brown clay with occ rootlets and occ veins of grey		
Orientation of specimen	Vertical		
Sample type	Undisturbed		
Batch Number	9426	Membrane batch reference	G3652/10
Length - mm	204.0	Membrane thickness - mm	0.36
Diameter - mm	101.0	Load ring reference	G1635
		Ring constant - N/division	5.72
		Strain rate - %/min	2.0
		Cell pressure - kN/m ²	50

Percent Strain	Deviator Stress (kN/m ²)
0.0	0
0.1	31
0.2	37
0.4	40
0.5	43
0.6	45
0.7	48
0.9	49
1.0	51
1.2	53
1.5	55
1.7	55
2.0	57
2.2	59
2.5	60
2.9	61
3.4	62
3.9	63
4.4	65
4.9	68
5.9	68
6.9	68
7.8	69
8.8	70
9.8	67



SUMMARY OF RESULTS

Natural moisture content - %	33
Bulk density - Mg/m ³	1.93
Dry density - Mg/m ³	1.45
Cell pressure - kN/m ²	50
Max deviator stress - kN/m ²	70
Strain at failure - %	8.8
Max Principal stress - kN/m ²	120
Shear strength - kN/m ²	35
Mode of failure	Shear

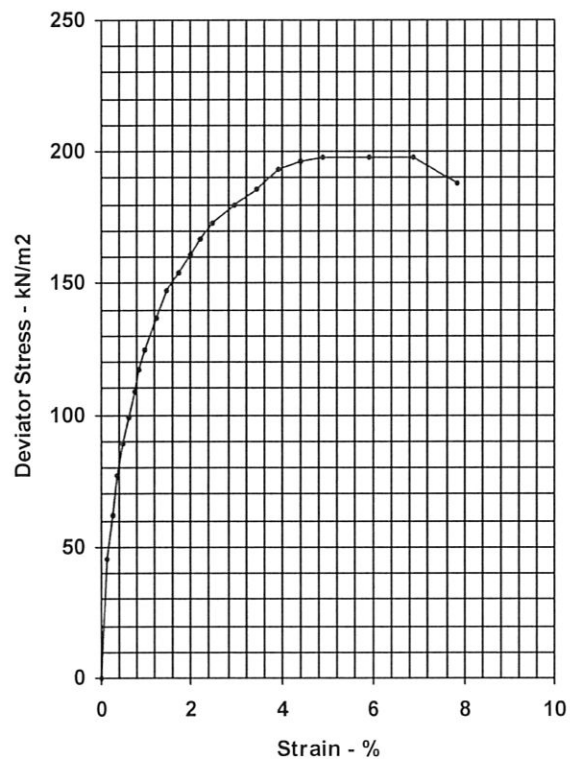
Client: Capita Symonds Limited
 Site: Hornsey Town Hall

Job No: 240362
 Test date: 23/06/2009
 Tested By: D Griffin

Method of field sampling Light percussion shell and auger boring

Borehole number	BH3		
Depth - m	5.00		
Description	Dark yellowish brown thinly laminated very closely fissured slightly sandy clay with occ veins		
Orientation of specimen	Vertical		
Sample type	Undisturbed		
Batch Number	9426	Membrane batch reference	G3656/8
Length - mm	204.0	Membrane thickness - mm	0.35
Diameter - mm	103.0	Load ring reference	G1635
		Ring constant - N/division	5.72
		Strain rate - %/min	1.5
		Cell pressure - kN/m ²	100

Percent Strain	Deviator Stress (kN/m ²)
0.0	0
0.1	45
0.2	62
0.4	77
0.5	89
0.6	99
0.7	109
0.9	117
1.0	125
1.2	137
1.5	147
1.7	154
2.0	161
2.2	167
2.5	173
2.9	180
3.4	186
3.9	193
4.4	196
4.9	198
5.9	198
6.9	198
7.8	188



SUMMARY OF RESULTS

Natural moisture content - %	30
Bulk density - Mg/m ³	1.91
Dry density - Mg/m ³	1.47
Cell pressure - kN/m ²	100
Max deviator stress - kN/m ²	198
Strain at failure - %	4.9
Max Principal stress - kN/m ²	298
Shear strength - kN/m ²	99
Mode of failure	Shear

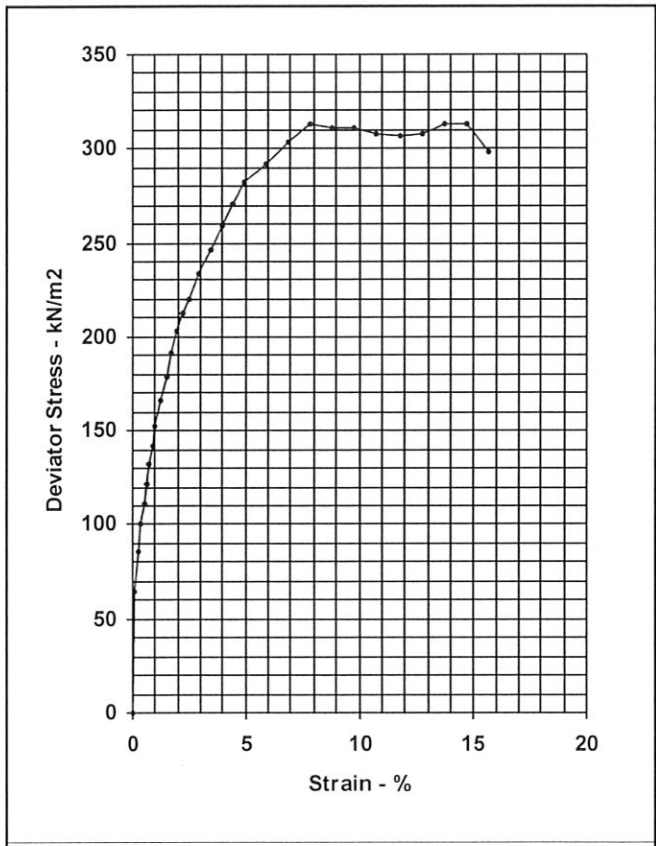
Client: Capita Symonds Limited
 Site: Hornsey Town Hall

Job No: 240362
 Test date: 23/06/2009
 Tested By: D Griffin

Method of field sampling Light percussion shell and auger boring

Borehole number	BH3		
Depth - m	11.00		
Description	Dark grey thinly laminated closely fissured clay with occ selenite		
Orientation of specimen	Vertical		
Sample type	Undisturbed		
Batch Number	9426	Membrane batch reference	G3656/5
Length - mm	204.0	Membrane thickness - mm	0.35
Diameter - mm	103.0	Load ring reference	G1635
		Ring constant - N/division	5.72
		Strain rate - %/min	1.5
		Cell pressure - kN/m2	220

Percent Strain	Deviator Stress (kN/m2)
0.0	0
0.1	64
0.2	86
0.4	100
0.5	111
0.6	122
0.7	132
0.9	142
1.0	152
1.2	166
1.5	179
1.7	191
2.0	203
2.2	213
2.5	220
2.9	234
3.4	246
3.9	259
4.4	271
4.9	282
5.9	292
6.9	304
7.8	313
8.8	311
9.8	311
10.8	308
11.8	307
12.7	308
13.7	313
14.7	313
15.7	298



SUMMARY OF RESULTS

Natural moisture content - %	27
Bulk density - Mg/m3	1.98
Dry density - Mg/m3	1.56
Cell pressure - kN/m2	220
Max deviator stress - kN/m2	313
Strain at failure - %	7.8
Max Principal stress - kN/m2	533
Shear strength - kN/m2	157
Mode of failure	Shear

Client: Capita Symonds Limited
 Site: Hornsey Town Hall

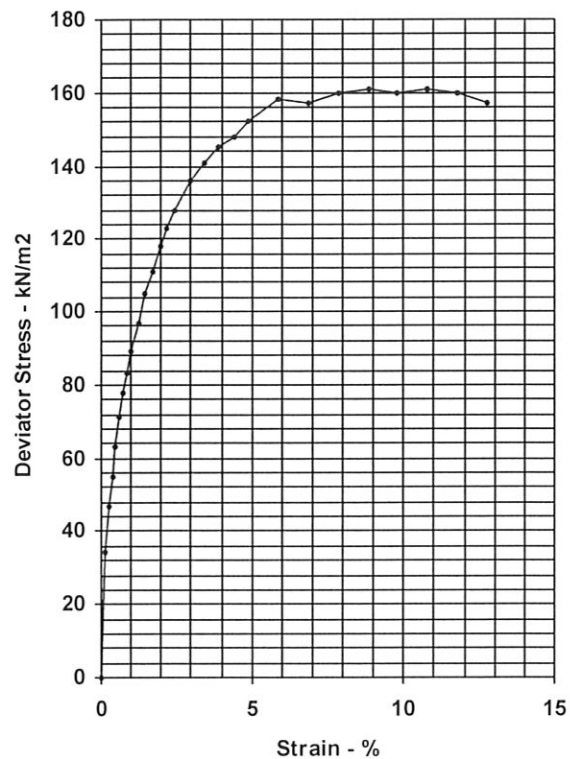
Job No: 240362
 Test date: 23/06/2009
 Tested By: D Griffin

Method of field sampling Light percussion shell and auger boring

Borehole number	BH4A
Depth - m	4.00
Description	Dark yellowish brown thinly laminated closely fissured slightly sandy clay with occ veins of gr
Orientation of specimen	Vertical
Sample type	Undisturbed

Batch Number	9426	Membrane batch reference	G3655/3
Length - mm	204.0	Membrane thickness - mm	0.35
Diameter - mm	102.0	Load ring reference	G1635
		Ring constant - N/division	5.72
		Strain rate - %/min	1.5
		Cell pressure - kN/m2	80

Percent Strain	Deviator Stress (kN/m2)
0.0	0
0.1	34
0.2	47
0.4	55
0.5	63
0.6	71
0.7	78
0.9	83
1.0	89
1.2	97
1.5	105
1.7	111
2.0	118
2.2	123
2.5	128
2.9	136
3.4	141
3.9	145
4.4	148
4.9	152
5.9	158
6.9	157
7.8	160
8.8	161
9.8	160
10.8	161
11.8	160
12.7	157



SUMMARY OF RESULTS

Natural moisture content - %	33
Bulk density - Mg/m3	1.93
Dry density - Mg/m3	1.45
Cell pressure - kN/m2	80
Max deviator stress - kN/m2	161
Strain at failure - %	8.8
Max Principal stress - kN/m2	241
Shear strength - kN/m2	81
Mode of failure	Shear

APPENDIX D

Chemical Laboratory Test Records

Date: 26 June 2009
Your Ref: 240362
Our Ref: 240362-(6354)-010
Project Manager: Andrew Tyler
Report to: Andrew Tyler

Envirolab
Units 7 & 8
Sandpits Business Park
Mottram Road
Hyde
Cheshire
SK14 3AR

Final Test Report

Sample(s) of Soil from Hornsey Town Hall.
Received from STATS Limited
Porterswood House, Porters Wood, St Albans, Hertfordshire, AL3 6PQ.

Date of receipt: 16 June 2009
Date analysis commenced: 16 June 2009
Date analysis completed: 25 June 2009

Method Statement

Speciated TPH analysis is performed in accordance with procedures A-T-022 using GC-MS with Head Space & A-T-023 using GC-FID.

PAH analysis is performed in accordance with procedure A-T-019.

Loss on drying analysis is performed in accordance with procedure A-T-020.

Subcontract analysis was submitted to a laboratory on Envirolab's approved vendors list.

A copy of the report is attached, UKAS/MCERTS status is detailed on the report.

Prepared by:



Thi McNabb
Reporting Analytical Chemist

Approved by:



Gill Scott
Laboratory Manager



Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.
Tests marked "TM" in this report are not included in the UKAS Accreditation Schedule for Envirolab.
Analytical results reflect the quality of the sample at the time of analysis only.



Envirolab Ref.	PROCEDURE	ISO17025	MCERTS	103455	103459	103460	103463	103464	103467	103468	103469		
Location				TP1	TP3	TP4	TP5	TP6	TP7	TP7	BH3		
Depth (m)				0.25	0.50	0.25	0.50	0.25	0.70	1.00	0.25		
Sample Ref				-	-	-	-	-	-	-	-		
Sample Type				-	-	-	-	-	-	-	-		
MTBE _R	A-T-022	Y	N	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.01		
Benzene _R	A-T-022	Y	N	0.01	0.01	0.01	0.01	0.01	<0.01	0.01	0.01		
Toluene _R	A-T-022	Y	N	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Ethyl Benzene _R	A-T-022	Y	N	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
m & p Xylene _R	A-T-022	Y	N	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
o Xylene _R	A-T-022	Y	N	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Aliphatics C5-C6 _R	A-T-022	Y	N	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Aliphatics >C6-C8 _R	A-T-022	Y	N	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Aliphatics >C8-C10 _R	A-T-022	Y	N	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.08	<0.01		
Aliphatics >C10-C12 _R	A-T-023	Y	N	<0.1	2.3	<0.1	<0.1	<0.1	21.8	<0.1	<0.1		
Aliphatics >C12-C16 _R	A-T-023	Y	N	<0.1	4.5	<0.1	<0.1	<0.1	119	<0.1	<0.1		
Aliphatics >C16-C21 _R	A-T-023	Y	N	<0.1	5.4	<0.1	<0.1	<0.1	167	<0.1	<0.1		
Aliphatics >C21-C35 _R	A-T-023	Y	N	<0.1	2.7	<0.1	<0.1	<0.1	34.7	<0.1	<0.1		
Total Aliphatics		Y	N	<0.1	14.90	<0.1	<0.1	<0.1	342.50	<0.1	<0.1		
Aromatics >C5-C7 _R	A-T-022	Y	N	0.01	0.01	0.01	0.01	0.01	<0.01	0.01	0.01		
Aromatics >C7-C8 _R	A-T-022	Y	N	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Aromatics >C8-C9 _R	A-T-022	Y	N	0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.02	0.01		
Aromatics >C9-C10 _R	A-T-022	Y	N	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01		
Aromatics >C10-C12 _R	A-T-023	Y	N	<0.1	2.3	2.5	<0.1	4.7	3.9	<0.1	<0.1		
Aromatics >C12-C16 _R	A-T-023	Y	N	<0.1	79.0	64.5	<0.1	129	53.7	<0.1	<0.1		
Aromatics >C16-C21 _R	A-T-023	Y	N	<0.1	562	325	<0.1	917	118	<0.1	<0.1		
Aromatics >C21-C35 _R	A-T-023	Y	N	<0.1	961	735	<0.1	1980	34.7	<0.1	<0.1		
Total Aromatics		Y	N	<0.1	1604.31	1127.01	<0.1	3030.71	210.30	<0.1	<0.1		
TPH (Aliphatics & Aromatics)		Y	N	<0.1	1619.21	1127.01	<0.1	3030.71	552.80	0.12	<0.1		

Table 1 - Soil Speciated TPH Results (mg/kg)

Envirolab Ref.	PROCEDURE	ISO17025	MCERTS	103455	103460	103463	103467	103468	103469				
Location				TP1	TP4	TP5	TP7	TP7	BH3				
Depth (m)				0.25	0.25	0.50	0.70	1.00	0.25				
Sample Ref				-	-	-	-	-	-				
Sample Type				-	-	-	-	-	-				
Naphthalene _R	A-T-019	Y	Y	0.96	9.08	0.03	0.01	<0.01	0.06				
Acenaphthylene _R	A-T-019	Y	N	0.02	0.56	<0.01	0.09	<0.01	0.01				
Acenaphthene _R	A-T-019	Y	Y	0.64	5.26	<0.01	0.23	0.01	0.05				
Fluorene _R	A-T-019	Y	Y	0.36	3.71	0.01	0.32	<0.01	0.02				
Phenanthrene _R	A-T-019	Y	Y	2.55	46.0 ^	0.10	0.49	<0.01	0.29				
Anthracene _R	A-T-019	Y	Y	0.57	10.6	0.02	0.06	<0.01	0.08				
Fluoranthene _R	A-T-019	Y	Y	2.82	83.7 ^	0.17	0.13	<0.01	0.27				
Pyrene _R	A-T-019	Y	Y	2.37	78.8 ^	0.14	0.16	<0.01	0.27				
Benz [a] anthracene _R "	A-T-019	Y	N	0.46	27.3 ^	0.06	0.05	<0.01	0.04				
Chrysene _R	A-T-019	Y	Y	1.48	36.5 ^	0.12	0.08	<0.01	0.28				
Benzo [b] fluoranthene _R Benzo [k] fluoranthene _R £ _R	A-T-019	Y	Y	1.40	37.4 ^	0.16	<0.01	<0.01	0.19				
Benzo [a] pyrene _R	A-T-019	Y	Y	0.65	24.5 ^	<0.01	<0.01	<0.01	0.16				
Indeno [123-cd] pyrene _R "	A-T-019	Y	N	1.35	22.0 ^	<0.01	<0.01	<0.01	0.38				
Dibenz [ah] anthracene _R	A-T-019	Y	Y	0.04	3.76	<0.01	<0.01	<0.01	<0.01				
Benzo [ghi] perylene _R	A-T-019	Y	Y	1.41	20.7 ^	<0.01	<0.01	<0.01	0.58				
Total 16 PAH Reported		Y	N	17.08	409.87	0.81	1.62	0.01	2.68				

Table 2 - Soil PAH Results (mg/kg, expressed on a dry weight basis)

Envirolab Ref.	PROCEDURE	ISO17025	MCERTS	103459 ~	103464 ~								
Location				TP3	TP6								
Depth (m)				0.50	0.25								
Sample Ref				-	-								
Sample Type				-	-								
Naphthalene _R	A-T-019	Y	N	1.00	3.50								
Acenaphthylene _R	A-T-019	Y	N	0.53	2.18								
Acenaphthene _R	A-T-019	Y	N	4.53	19.5								
Fluorene _R	A-T-019	Y	N	1.94	11.7								
Phenanthrene _R	A-T-019	Y	N	64.6	212								
Anthracene _R	A-T-019	Y	N	16.6	56.2								
Fluoranthene _R	A-T-019	Y	N	320	499								
Pyrene _R	A-T-019	Y	N	285	426								
Benz [a] anthracene _R	A-T-019	Y	N	106	154								
Chrysene _R	A-T-019	Y	N	102	149								
Benzo [b] fluoranthene _R Benzo [k] fluoranthene £ _R	A-T-019	Y	N	119	161								
Benzo [a] pyrene _R	A-T-019	Y	N	73.8	107								
Indeno [123-cd] pyrene _R	A-T-019	Y	N	59.5	85.6								
Dibenz [ah] anthracene _R	A-T-019	Y	N	10.8	18.4								
Benzo [ghi] perylene _R	A-T-019	Y	N	46.2	73.3								
Total 16 PAH Reported		Y	N	1211.50	1978.38								

Table 3 - Soil PAH Results (mg/kg, expressed on a dry weight basis)

Envirolab Ref.	103455	103459 ~	103460	103463	103464 ~	103467	103468	103469		
Location	TP1	TP3	TP4	TP5	TP6	TP7	TP7	BH3		
Depth (m)	0.25	0.50	0.25	0.50	0.25	0.70	1.00	0.25		
Sample Ref	-	-	-	-	-	-	-	-		
Sample Type	-	-	-	-	-	-	-	-		
Type	Sandy	Made Ground	Sandy	Sandy	Made Ground	Clay	Clay	Clay		
Colour	Various	Various	Various	Various	Various	Grey	Brown	Brown		
Consistency	Loose	Loose	Loose	Loose	Loose	Soft	Soft	Soft		
Some Stones	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
>50 Stones	No	Yes	No	No	Yes	No	No	No		
Some Vegetation	No	No	No	No	No	No	No	No		
Very Wet	No	No	No	No	No	No	No	No		
Strong Odour	No	No	No	No	No	No	No	No		

Table 4 - Soil Matrix Table

Appendix

Code	Description
+	Increased detection limit due to sample interference
#	Increased detection limit due to sample dilution
\$	Analysis subcontracted
£	Due to coelution Benzo [b] fluoranthene and Benzo [k] fluoranthene are reported as one value
IS	Insufficient sample for analysis
IS-QC	Insufficient sample to retest following QC fail
NDP	No determination possible
~	Sample type outside the scope of our MCERTS accreditation since matrix not included in method validation
"	Analytes are associated with failed AQC targets for MCERTS, but passed UKAS AQC
^	Sample result is not covered under Envirolab's accreditation schedule for MCERTS as the result exceeds the validated range. See notes 1-3.
F	Analysis suffixed "F" were performed on the filtered sample
D	Analysis suffixed "D" were performed on the sample air dried at <30°C
O	Analysis suffixed "O" were performed on the sample oven dried at 95°C
R	Analysis suffixed "R" were performed on the sample as received. Where results are expressed on a dry weight basis, the samples were air dried at 95°C
Notes	
1	For MCERTS the validated range covers up to 15mg/kg for individual PAHs, 200mg/kg for totals.
2	For MCERTS the validated range covers up to 3000mg/kg for Total TPH analysis.
3	For MCERTS the validated range covers up to 0.2mg/kg for individual PCBs, and 1.5mg/kg for the total reported as araclor.
4	Natural stones and debris are excluded from analyses
5	Coarse granular material such as concrete, gravel and brick are not MCERTS accredited if they comprise the major part of the sample. Envirolab are currently accredited for MCERTS on soil types Sand, Clay and Loam only

ALcontrol Laboratories Analytical Services

Sample Descriptions

Job Number: 09/07529/02/01
Client: Envirolab
Client Ref : 240362-6392

Grain sizes
<0.063mm Very Fine
0.1mm - 0.063mm Fine
0.1mm - 2mm Medium
2mm - 10mm Coarse
>10mm Very Coarse

Sample Identity	Depth (m)	Colour	Grain Size	Description	Batch
103797 BH1A S1	2.0	Brown	0.1mm - 0.063mm	Silty Clay	1
103798 BH1A S2	4.0	Brown	0.1mm - 0.063mm	Silty Clay	1
103799 BH1A S4	9.5	Brown	<0.063mm	Clay	1
103800 BH1A S6	15.5	Brown	<0.063mm	Clay	1
103801 BH2 S3	6.00	Brown	0.1mm - 0.063mm	Silty Clay	1
103802 BH2 S14	11.0	Brown	<0.063mm	Clay	1
103803 BH3 S1	2.0	Light Brown	0.1mm - 0.063mm	Silty Clay	1
103804 BH3 S2	4.0	Brown	0.1mm - 0.063mm	Silty Clay	1
103805 BH4A D19	18.0	Brown	0.1mm - 0.063mm	Silty Clay	1
103806 BH4A S8	20.0	Brown	<0.063mm	Clay	1

* These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials-whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

¹ Sample Description supplied by client

Validated
 Preliminary

ALcontrol Laboratories Analytical Services

Table Of Results

ISO 17025 accredited
 M MCERTS accredited
 * Subcontracted test
 » Shown on prev. report

Job Number: 09/07529/02/01
Client: Envirolab
Client Ref. No.: 240362-6392

Matrix: SOLID
Location: HORNSEY TOWN HALL
Client Contact:Subcon

Sample Identity	103797 BH1A S1	103798 BH1A S2	103799 BH1A S4	103800 BH1A S6	103801 BH2 S3	103802 BH2 S14	103803 BH3 S1	103804 BH3 S2	103805 BH4A D19	Method Code	LoD/Units
Depth (m)	2.0	4.0	9.5	15.5	6.00	11.0	2.0	4.0	18.0		
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		
Sampled Date											
Sample Received Date	24.06.09	24.06.09	24.06.09	24.06.09	24.06.09	24.06.09	24.06.09	24.06.09	24.06.09		
Batch	1	1	1	1	1	1	1	1	1		
Sample Number(s)	1	2	3	4	5	6	7	8	9		
Water Soluble Sulphate as SO4 2:1 Extract	3.3	3.2	0.68	NDP	3.1	0.79	3.0	2.8	0.60	TM098 [#] _M	<0.003 g/l
pH Value	7.95	8.33	8.42	8.93	8.06	8.45	7.90	7.77	8.01	TM133 [#] _M	<1.00 pH Units

All results expressed on a dry weight basis.

Date 01.07.2009

Validated
Preliminary

ALcontrol Laboratories Analytical Services

Table Of Results

ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
» Shown on prev. report

Job Number: 09/07529/02/01
Client: Envirolab
Client Ref. No.: 240362-6392

Matrix: SOLID
Location: HORNSEY TOWN HALL
Client Contact: Subcon

Sample Identity	103806 BH4A S8											Method Code	LoD/Units
Depth (m)	20.0												
Sample Type	SOLID												
Sampled Date													
Sample Received Date	24.06.09												
Batch	1												
Sample Number(s)	10												
Water Soluble Sulphate as SO ₄ 2:1 Extract	0.67											TM098 [#] _M	<0.003 g/l
pH Value	7.93											TM133 [#] _M	<1.00 pH Units

All results expressed on a dry weight basis.

Date 01.07.2009

ALcontrol Laboratories Analytical Services
Table Of Results - Appendix

Job Number: 09/07529/02/01
Client: Envirolab
Client Ref. No.: 240362-6392

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03x10⁻⁷

- | | | | |
|-----|------------------------------|----|---|
| NDP | No Determination Possible | * | Subcontracted test |
| ACM | Asbestos Containing Material | » | Result previously reported (Incremental reports only) |
| # | ISO 17025 accredited | M | MCERTS Accredited |
| | | EC | Equivalent Carbon (Aromatics C8-C35) |

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	ISO 17025 Accredited	MCERTS Accredited	Wet/Dry Sample ¹	Surrogate Corrected
TM098	Method 4500E, AWWA/APHA, 20th Ed., 1999	Determination of Sulphate using the Kone Analyser	✓	✓	DRY	
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter	✓	✓	WET	

¹ Applies to Solid samples only. **DRY** indicates samples have been dried at 35°C. **NA** = not applicable.
WET indicates samples analysed as submitted.

ALcontrol Laboratories Analytical Services
Table Of Results - Appendix

Job Number: 09/07529/02/01
Client: Envirolab
Client Ref. No.: 240362-6392

Summary of Coolbox temperatures

Batch No.	Coolbox Temperature (°C)
1	15.6

ALcontrol Laboratories Analytical Services

Sample Descriptions

Job Number: 09/07224/02/01
Client: Envirolab
Client Ref : 240362-6354

Grain sizes
<0.063mm Very Fine
0.1mm - 0.063mm Fine
0.1mm - 2mm Medium
2mm - 10mm Coarse
>10mm Very Coarse

Sample Identity	Depth (m)	Colour	Grain Size	Description	Batch
103455(TP1)	0.25	Brown	0.1mm - 2mm	Sand with some Brick	1
103456(TP1)	0.50	Brown	0.1mm - 0.063mm	Silty Clay	1
103457(TP2)	0.30	Brown	0.1mm - 2mm	Sand with some Stones	1
103458(TP2)	0.50	Brown	0.1mm - 0.063mm	Silty Clay	1
103459(TP3)	0.50	Brown	0.1mm - 2mm	Sand with some Stones	1
103460(TP4)	0.25	Brown	0.1mm - 2mm	Sand with some Stones	1
103461(TP4)	0.75	Brown	0.1mm - 0.063mm	Silty Clay with some Stones	1
103463(TP5)	0.50	Light Brown	0.1mm - 2mm	Sand with some Stones	1
103464(TP6)	0.25	Brown	0.1mm - 2mm	Sand with some Stones	1
103465(TP6)	1.00	Brown	0.1mm - 0.063mm	Silty Clay	1
103466(TP7)	0.20	Brown	0.1mm - 2mm	Sand with some Stones	1
103467(TP7)	0.7	Brown	0.1mm - 0.063mm	Silty Clay	1
103468(TP7)	1.00	Brown	0.1mm - 0.063mm	Silty Clay	1
103469(BH3)	0.25	Brown	0.1mm - 0.063mm	Silty Clay with some Stones	1
103470(BH3)	0.40	Brown	0.1mm - 0.063mm	Silty Clay	1

* These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials-whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

¹ Sample Description supplied by client

Validated
 Preliminary

ALcontrol Laboratories Analytical Services Table Of Results

ISO 17025 accredited
 M MCERTS accredited
 * Subcontracted test
 » Shown on prev. report

Job Number: 09/07224/02/01
Client: Envirolab
Client Ref. No.: 240362-6354

Matrix: SOLID
Location: HORNSEY TOWN HALL
Client Contact: Subcon

Sample Identity	103455(TP 1)	103456(TP 1)	103457(TP 2)	103458(TP 2)	103459(TP 3)	103460(TP 4)	103461(TP 4)	103462(TP 5)	103463(TP 5)	Method Code	LoD/Units
Depth (m)	0.25	0.50	0.30	0.50	0.50	0.25	0.75	0.35	0.50		
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		
Sampled Date											
Sample Received Date	16.06.09	16.06.09	16.06.09	16.06.09	16.06.09	16.06.09	16.06.09	16.06.09	16.06.09		
Batch	1	1	1	1	1	1	1	1	1		
Sample Number(s)	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18		
Boron Water Soluble	<3.5	<3.5	-	<3.5	<3.5	<3.5	<3.5	-	<3.5	TM129 [#] _M	<3.5 mg/kg
Arsenic	<3	<3	-	<3	3	<3	3	-	<3	TM129 [#] _M	<3.0 mg/kg
Cadmium	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	-	<0.2	TM129 [#] _M	<0.2 mg/kg
Chromium	9.9	54	-	56	11	14	43	-	11	TM129 [#] _M	<4.5 mg/kg
Copper	10	23	-	23	7	15	16	-	<6	TM129 [#] _M	<6 mg/kg
Lead	9	10	-	12	20	73	77	-	9	TM129 [#] _M	<2 mg/kg
Mercury	<0.4	<0.4	-	<0.4	<0.4	<0.4	<0.4	-	<0.4	TM129 [#] _M	<0.4 mg/kg
Nickel	13	45	-	52	12	12	25	-	12	TM129 [#] _M	<0.9 mg/kg
Selenium	<3	<3	-	<3	<3	<3	<3	-	<3	TM129 [#] _M	<3 mg/kg
Zinc	26	86	-	90	33	46	76	-	21	TM129 [#] _M	<2.5 mg/kg
Water Soluble Sulphate as SO4 2:1 Extract	0.067	2.4	-	-	0.005	0.097	-	-	0.36	TM098 [#] _M	<0.003 g/l
Total Organic Carbon	-	<0.2	2.0	-	-	-	-	-	<0.2	TM132 [#] _M	<0.2 %
Asbestos Containing Material Screen	No ACM Detected	-	-	-	-	No ACM Detected	-	No ACM Detected	-	TM001	NONE
pH Value	11.49	8.06	-	8.31	11.60	10.22	7.40	-	11.54	TM133 [#] _M	<1.00 pH Units

All results expressed on a dry weight basis.

Date 22.06.2009

Validated
 Preliminary

ALcontrol Laboratories Analytical Services
Table Of Results

ISO 17025 accredited
 M MCERTS accredited
 * Subcontracted test
 » Shown on prev. report

Job Number: 09/07224/02/01
Client: Envirolab
Client Ref. No.: 240362-6354

Matrix: SOLID
Location: HORNSEY TOWN HALL
Client Contact: Subcon

Sample Identity	103464(TP 6)	103465(TP 6)	103466(TP 7)	103467(TP 7)	103468(TP 7)	103469(BH 3)	103470(B H3)	Method Code	LoD/Units
	Depth (m)	0.25	1.00	0.20	0.7	1.00	0.25		
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		
Sampled Date									
Sample Received Date	16.06.09	16.06.09	16.06.09	16.06.09	16.06.09	16.06.09	16.06.09		
Batch	1	1	1	1	1	1	1		
Sample Number(s)	19-20	21-22	23-24	25-26	27-28	29-30	31-32		
Boron Water Soluble	<3.5	<3.5	<3.5	<3.5	<3.5	<3.5	<3.5	TM129 [#] _M	<3.5 mg/kg
Arsenic	10	3	<3	<3	<3	5	<3	TM129 [#] _M	<3.0 mg/kg
Cadmium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	TM129	<0.2 mg/kg
Chromium	16	56	11	55	45	44	62	TM129 [#] _M	<4.5 mg/kg
Copper	27	24	25	18	22	24	25	TM129 [#] _M	<6 mg/kg
Lead	78	13	26	22	16	56	12	TM129 [#] _M	<2 mg/kg
Mercury	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	TM129 [#] _M	<0.4 mg/kg
Nickel	17	65	14	33	41	35	59	TM129 [#] _M	<0.9 mg/kg
Selenium	<3	<3	<3	<3	<3	<3	<3	TM129 [#] _M	<3 mg/kg
Zinc	120	84	74	85	80	85	87	TM129 [#] _M	<2.5 mg/kg
Water Soluble Sulphate as SO ₄ 2:1 Extract	0.17	0.34	0.11	0.22	2.7	0.27	0.26	TM098 [#] _M	<0.003 g/l
Total Organic Carbon	-	-	-	0.9	-	-	-	TM132 [#] _M	<0.2 %
Asbestos Containing Material Screen	No ACM Detected	-	No ACM Detected	-	-	No ACM Detected	-	TM001	NONE
pH Value	9.50	7.48	9.87	7.98	8.22	8.73	7.59	TM133 [#] _M	<1.00 pH Units

All results expressed on a dry weight basis.

Date 22.06.2009

Validated
 Preliminary

ALcontrol Laboratories Analytical Services

Table Of Results

ISO 17025 accredited
 M MCERTS accredited
 * Subcontracted test
 » Shown on prev. report

Job Number: 09/07224/02/01
Client: Envirolab
Client Ref. No.: 240362-6354

Matrix: SOLID
Location: HORNSEY TOWN HALL
Client Contact: Subcon

Sample Identity	103464(TP 6)	103465(TP 6)	103466(TP 7)	103467(TP 7)	103468(TP 7)	103469(BH 3)	103470(B H3)				Method Code	LoD/Units
Depth (m)	0.25	1.00	0.20	0.7	1.00	0.25	0.40					
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID					
Sampled Date												
Sample Received Date	16.06.09	16.06.09	16.06.09	16.06.09	16.06.09	16.06.09	16.06.09					
Batch	1	1	1	1	1	1	1					
Sample Number(s)	19-20	21-22	23-24	25-26	27-28	29-30	31-32					
SVOC by GCMS												
Phenols												
2-Chlorophenol	-	-	-	<100	-	-	-				TM157	<100 ug/kg
2-Methylphenol	-	-	-	<100	-	-	-				TM157	<100 ug/kg
2-Nitrophenol	-	-	-	<100	-	-	-				TM157	<100 ug/kg
2,4-Dichlorophenol	-	-	-	<100	-	-	-				TM157	<100 ug/kg
2,4-Dimethylphenol	-	-	-	<100	-	-	-				TM157	<100 ug/kg
2,4,5-Trichlorophenol	-	-	-	<100	-	-	-				TM157	<100 ug/kg
2,4,6-Trichlorophenol	-	-	-	<100	-	-	-				TM157	<100 ug/kg
4-Chloro-3-methylphenol	-	-	-	<100	-	-	-				TM157	<100 ug/kg
4-Methylphenol	-	-	-	<100	-	-	-				TM157	<100 ug/kg
4-Nitrophenol	-	-	-	<100	-	-	-				TM157	<100 ug/kg
Pentachlorophenol	-	-	-	<100	-	-	-				TM157	<100 ug/kg
Phenol	-	-	-	<100	-	-	-				TM157	<100 ug/kg
PAHs												
2-Chloronaphthalene	-	-	-	<100	-	-	-				TM157	<100 ug/kg
2-Methylnaphthalene	-	-	-	<100	-	-	-				TM157	<100 ug/kg
Acenaphthene	-	-	-	<100	-	-	-				TM157	<100 ug/kg
Acenaphthylene	-	-	-	<100	-	-	-				TM157	<100 ug/kg
Anthracene	-	-	-	<100	-	-	-				TM157	<100 ug/kg
Benzo(a)anthracene	-	-	-	<100	-	-	-				TM157	<100 ug/kg
Benzo(a)pyrene	-	-	-	<100	-	-	-				TM157	<100 ug/kg
Benzo(b)fluoranthene	-	-	-	<100	-	-	-				TM157	<100 ug/kg
Benzo(ghi)perylene	-	-	-	<100	-	-	-				TM157	<100 ug/kg
Benzo(k)fluoranthene	-	-	-	<100	-	-	-				TM157	<100 ug/kg
Chrysene	-	-	-	<100	-	-	-				TM157	<100 ug/kg
Dibenzo(a,h)anthracene	-	-	-	<100	-	-	-				TM157	<100 ug/kg
Fluoranthene	-	-	-	<100	-	-	-				TM157	<100 ug/kg
Fluorene	-	-	-	440	-	-	-				TM157	<100 ug/kg
Indeno(1,2,3-cd)pyrene	-	-	-	<100	-	-	-				TM157	<100 ug/kg

All results expressed on a dry weight basis.

Date 22.06.2009

Validated
Preliminary

ALcontrol Laboratories Analytical Services

Table Of Results

ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
» Shown on prev. report

Job Number: 09/07224/02/01
Client: Envirolab
Client Ref. No.: 240362-6354

Matrix: SOLID
Location: HORNSEY TOWN HALL
Client Contact: Subcon

Sample Identity	103464(TP 6)	103465(TP 6)	103466(TP 7)	103467(TP 7)	103468(TP 7)	103469(BH 3)	103470(B H3)			Method Code	LoD/Units
Depth (m)	0.25	1.00	0.20	0.7	1.00	0.25	0.40				
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID				
Sampled Date											
Sample Received Date	16.06.09	16.06.09	16.06.09	16.06.09	16.06.09	16.06.09	16.06.09				
Batch	1	1	1	1	1	1	1				
Sample Number(s)	19-20	21-22	23-24	25-26	27-28	29-30	31-32				
PAHs (cont)											
Naphthalene	-	-	-	<100	-	-	-			TM157	<100 ug/kg
Phenanthrene	-	-	-	<100	-	-	-			TM157	<100 ug/kg
Pyrene	-	-	-	<100	-	-	-			TM157	<100 ug/kg
Phthalates											
Bis(2-ethylhexyl) phthalate	-	-	-	180	-	-	-			TM157	<100 ug/kg
Butylbenzyl phthalate	-	-	-	<100	-	-	-			TM157	<100 ug/kg
Di-n-butyl phthalate	-	-	-	<100	-	-	-			TM157	<100 ug/kg
Di-n-Octyl phthalate	-	-	-	<100	-	-	-			TM157	<100 ug/kg
Diethyl phthalate	-	-	-	<100	-	-	-			TM157	<100 ug/kg
Dimethyl phthalate	-	-	-	<100	-	-	-			TM157	<100 ug/kg
Other Semi-volatiles											
1,2-Dichlorobenzene	-	-	-	<100	-	-	-			TM157	<100 ug/kg
1,2,4-Trichlorobenzene	-	-	-	<100	-	-	-			TM157	<100 ug/kg
1,3-Dichlorobenzene	-	-	-	<100	-	-	-			TM157	<100 ug/kg
1,4-Dichlorobenzene	-	-	-	<100	-	-	-			TM157	<100 ug/kg
2-Nitroaniline	-	-	-	<100	-	-	-			TM157	<100 ug/kg
2,4-Dinitrotoluene	-	-	-	<100	-	-	-			TM157	<100 ug/kg
2,6-Dinitrotoluene	-	-	-	<100	-	-	-			TM157	<100 ug/kg
3-Nitroaniline	-	-	-	<100	-	-	-			TM157	<100 ug/kg
4-Bromophenylphenylether	-	-	-	<100	-	-	-			TM157	<100 ug/kg
4-Chloroaniline	-	-	-	<100	-	-	-			TM157	<100 ug/kg
4-Chlorophenylphenylether	-	-	-	<100	-	-	-			TM157	<100 ug/kg
4-Nitroaniline	-	-	-	<100	-	-	-			TM157	<100 ug/kg
Azobenzene	-	-	-	<100	-	-	-			TM157	<100 ug/kg
Bis(2-chloroethoxy)methane	-	-	-	<100	-	-	-			TM157	<100 ug/kg
Bis(2-chloroethyl)ether	-	-	-	<100	-	-	-			TM157	<100 ug/kg
Carbazole	-	-	-	<100	-	-	-			TM157	<100 ug/kg
Dibenzofuran	-	-	-	180	-	-	-			TM157	<100 ug/kg

All results expressed on a dry weight basis.

Date 22.06.2009

Validated
Preliminary

ALcontrol Laboratories Analytical Services

Table Of Results

ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
» Shown on prev. report

Job Number: 09/07224/02/01
Client: Envirolab
Client Ref. No.: 240362-6354

Matrix: SOLID
Location: HORNSEY TOWN HALL
Client Contact: Subcon

Sample Identity	103464(TP 6)	103465(TP 6)	103466(TP 7)	103467(TP 7)	103468(TP 7)	103469(BH 3)	103470(B H3)			Method Code	LoD/Units
Depth (m)	0.25	1.00	0.20	0.7	1.00	0.25	0.40				
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID				
Sampled Date											
Sample Received Date	16.06.09	16.06.09	16.06.09	16.06.09	16.06.09	16.06.09	16.06.09				
Batch	1	1	1	1	1	1	1				
Sample Number(s)	19-20	21-22	23-24	25-26	27-28	29-30	31-32				
Other Semi-volatiles (cont)											
Hexachlorobenzene	-	-	-	<100	-	-	-			TM157	<100 ug/kg
Hexachlorobutadiene	-	-	-	<100	-	-	-			TM157	<100 ug/kg
Hexachlorocyclopentadiene	-	-	-	<200	-	-	-			TM157	<100 ug/kg
Hexachloroethane	-	-	-	<100	-	-	-			TM157	<100 ug/kg
Isophorone	-	-	-	<100	-	-	-			TM157	<100 ug/kg
N-nitrosodi-n-propylamine	-	-	-	<100	-	-	-			TM157	<100 ug/kg
Nitrobenzene	-	-	-	<100	-	-	-			TM157	<100 ug/kg

All results expressed on a dry weight basis.
Date 22.06.2009

Validated
Preliminary

ALcontrol Laboratories Analytical Services

Table Of Results

ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
» Shown on prev. report

Job Number: 09/07224/02/01
Client: Envirolab
Client Ref. No.: 240362-6354

Matrix: SOLID
Location: HORNSEY TOWN HALL
Client Contact: Subcon

Sample Identity	103464(TP 6)	103465(TP 6)	103466(TP 7)	103467(TP 7)	103468(TP 7)	103469(BH 3)	103470(B H3)			Method Code	LoD/Units
Depth (m)	0.25	1.00	0.20	0.7	1.00	0.25	0.40				
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID				
Sampled Date											
Sample Received Date	16.06.09	16.06.09	16.06.09	16.06.09	16.06.09	16.06.09	16.06.09				
Batch	1	1	1	1	1	1	1				
Sample Number(s)	19-20	21-22	23-24	25-26	27-28	29-30	31-32				
Volatile Organic Compounds											
4-Bromofluorobenzene % Surrogate Recovery	-	-	-	79	-	-	-			TM116	%
Dibromofluoromethane % Surrogate Recovery	-	-	-	130	-	-	-			TM116	%
Toluene-d8 % Surrogate Recovery	-	-	-	85	-	-	-			TM116	%
Dichlorodifluoromethane	-	-	-	<4	-	-	-			TM116 [#]	<4 ug/kg
Chloromethane	-	-	-	<7	-	-	-			TM116 [#]	<7 ug/kg
Vinyl Chloride	-	-	-	<10	-	-	-			TM116 [#] _M	<10 ug/kg
Bromomethane	-	-	-	<13	-	-	-			TM116	<13 ug/kg
Chloroethane	-	-	-	<14	-	-	-			TM116 [#]	<14 ug/kg
Trichlorofluoromethane	-	-	-	<6	-	-	-			TM116 [#] _M	<6 ug/kg
trans-1-2-Dichloroethene	-	-	-	<11	-	-	-			TM116 [#]	<11 ug/kg
Dichloromethane	-	-	-	<10	-	-	-			TM116 [#]	<10 ug/kg
Carbon Disulphide	-	-	-	<7	-	-	-			TM116 [#] _M	<7 ug/kg
1,1-Dichloroethene	-	-	-	<10	-	-	-			TM116 [#] _M	<10 ug/kg
1,1-Dichloroethane	-	-	-	<8	-	-	-			TM116 [#] _M	<8 ug/kg
Methyl Tertiary Butyl Ether	-	-	-	<11	-	-	-			TM116	<11 ug/kg
cis-1-2-Dichloroethene	-	-	-	<5	-	-	-			TM116 [#] _M	<5 ug/kg
Bromochloromethane	-	-	-	<14	-	-	-			TM116 [#]	<14 ug/kg
Chloroform	-	-	-	<8	-	-	-			TM116 [#] _M	<8 ug/kg
2,2-Dichloropropane	-	-	-	<12	-	-	-			TM116	<12 ug/kg
1,2-Dichloroethane	-	-	-	<5	-	-	-			TM116 [#]	<5 ug/kg
1,1,1-Trichloroethane	-	-	-	<7	-	-	-			TM116 [#] _M	<7 ug/kg
1,1-Dichloropropene	-	-	-	<11	-	-	-			TM116 [#] _M	<11 ug/kg
Benzene	-	-	-	<9	-	-	-			TM116 [#] _M	<9 ug/kg
Carbontetrachloride	-	-	-	<14	-	-	-			TM116 [#] _M	<14 ug/kg
Dibromomethane	-	-	-	<9	-	-	-			TM116 [#]	<9 ug/kg
1,2-Dichloropropane	-	-	-	<12	-	-	-			TM116 [#] _M	<12 ug/kg
Bromodichloromethane	-	-	-	<7	-	-	-			TM116 [#] _M	<7 ug/kg
Trichloroethene	-	-	-	<9	-	-	-			TM116 [#] _M	<9 ug/kg
cis-1-3-Dichloropropene	-	-	-	<14	-	-	-			TM116 [#] _M	<14 ug/kg
trans-1-3-Dichloropropene	-	-	-	<14	-	-	-			TM116 [#] _M	<14 ug/kg

All results expressed on a dry weight basis.

Date 22.06.2009

Validated
 Preliminary

ALcontrol Laboratories Analytical Services

Table Of Results

ISO 17025 accredited
 M MCERTS accredited
 * Subcontracted test
 » Shown on prev. report

Job Number: 09/07224/02/01
Client: Envirolab
Client Ref. No.: 240362-6354

Matrix: SOLID
Location: HORNSEY TOWN HALL
Client Contact: Subcon

Sample Identity	103464(TP 6)	103465(TP 6)	103466(TP 7)	103467(TP 7)	103468(TP 7)	103469(BH 3)	103470(B H3)				Method Code	LoD/Units
Depth (m)	0.25	1.00	0.20	0.7	1.00	0.25	0.40					
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID					
Sampled Date												
Sample Received Date	16.06.09	16.06.09	16.06.09	16.06.09	16.06.09	16.06.09	16.06.09					
Batch	1	1	1	1	1	1	1					
Sample Number(s)	19-20	21-22	23-24	25-26	27-28	29-30	31-32					
Volatile Organic Compounds (cont)												
1.1.2-Trichloroethane	-	-	-	<10	-	-	-				TM116 [#]	<10 ug/kg
Toluene	-	-	-	<5	-	-	-				TM116 ^{#M}	<5 ug/kg
1.3-Dichloropropane	-	-	-	<7	-	-	-				TM116 [#]	<7 ug/kg
Dibromochloromethane	-	-	-	<13	-	-	-				TM116 [#]	<13 ug/kg
1.2-Dibromoethane	-	-	-	<12	-	-	-				TM116 [#]	<12 ug/kg
Tetrachloroethene	-	-	-	<5	-	-	-				TM116 [#]	<5 ug/kg
1.1.1.2-Tetrachloroethane	-	-	-	<10	-	-	-				TM116 ^{#M}	<10 ug/kg
Chlorobenzene	-	-	-	<5	-	-	-				TM116 ^{#M}	<5 ug/kg
Ethylbenzene	-	-	-	<4	-	-	-				TM116 [#]	<4 ug/kg
p/m-Xylene	-	-	-	<14	-	-	-				TM116 [#]	<14 ug/kg
Bromoform	-	-	-	<10	-	-	-				TM116 [#]	<10 ug/kg
Styrene	-	-	-	<10	-	-	-				TM116 [#]	<10 ug/kg
1.1.2.2-Tetrachloroethane	-	-	-	<10	-	-	-				TM116 [#]	<10 ug/kg
o-Xylene	-	-	-	<10	-	-	-				TM116 [#]	<10 ug/kg
1.2.3-Trichloropropane	-	-	-	<17	-	-	-				TM116 [#]	<17 ug/kg
Isopropylbenzene	-	-	-	<5	-	-	-				TM116 [#]	<5 ug/kg
Bromobenzene	-	-	-	<10	-	-	-				TM116 ^{#M}	<10 ug/kg
2-Chlorotoluene	-	-	-	<9	-	-	-				TM116 [#]	<9 ug/kg
Propylbenzene	-	-	-	<11	-	-	-				TM116 [#]	<11 ug/kg
4-Chlorotoluene	-	-	-	<12	-	-	-				TM116 [#]	<12 ug/kg
1.2.4-Trimethylbenzene	-	-	-	<9	-	-	-				TM116 [#]	<9 ug/kg
4-Isopropyltoluene	-	-	-	<11	-	-	-				TM116 [#]	<11 ug/kg
1.3.5-Trimethylbenzene	-	-	-	<8	-	-	-				TM116 [#]	<8 ug/kg
1.2-Dichlorobenzene	-	-	-	<12	-	-	-				TM116 ^{#M}	<12 ug/kg
1.4-Dichlorobenzene	-	-	-	<5	-	-	-				TM116 ^{#M}	<5 ug/kg
sec-Butylbenzene	-	-	-	<10	-	-	-				TM116 [#]	<10 ug/kg
tert-Butylbenzene	-	-	-	<12	-	-	-				TM116 [#]	<12 ug/kg
1.3-Dichlorobenzene	-	-	-	<6	-	-	-				TM116 [#]	<6 ug/kg
n-Butylbenzene	-	-	-	<10	-	-	-				TM116 [#]	<10 ug/kg
1.2-Dibromo-3-chloropropane	-	-	-	<14	-	-	-				TM116 [#]	<14 ug/kg

All results expressed on a dry weight basis.

Date 22.06.2009

Validated
 Preliminary

ALcontrol Laboratories Analytical Services
Table Of Results

ISO 17025 accredited
 M MCERTS accredited
 * Subcontracted test
 > Shown on prev. report

Job Number: 09/07224/02/01
 Client: Envirolab
 Client Ref. No.: 240362-6354

Matrix: SOLID
 Location: HORNSEY TOWN HALL
 Client Contact: Subcon

Sample Identity	103464(TP 6)	103465(TP 6)	103466(TP 7)	103467(TP 7)	103468(TP 7)	103469(BH 3)	103470(BH 3)			Method Code	Lod/Units
Depth (m)	0.25	1.00	0.20	0.7	1.00	0.25	0.40				
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID				
Sampled Date											
Sample Received Date	16.06.09	16.06.09	16.06.09	16.06.09	16.06.09	16.06.09	16.06.09				
Batch	1	1	1	1	1	1	1				
Sample Number(s)	19-20	21-22	23-24	25-26	27-28	29-30	31-32				
Volatile Organic Compounds (cont)											
1,2,4-Trichlorobenzene	-	-	-	<6	-	-	-			TM116 [#]	<6 ug/kg
Naphthalene	-	-	-	<13	-	-	-			TM116 [#]	<13 ug/kg
1,2,3-Trichlorobenzene	-	-	-	<11	-	-	-			TM116 [#]	<11 ug/kg
Hexachlorobutadiene	-	-	-	<12	-	-	-			TM116 [#]	<12 ug/kg

All results expressed on a dry weight basis.

Date 22.06.2009

ALcontrol Laboratories Analytical Services

Table Of Results - Appendix

Job Number: 09/07224/02/01
Client: Envirolab
Client Ref. No.: 240362-6354

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03x10⁻⁷

NDP No Determination Possible * Subcontracted test
 ACM Asbestos Containing Materia » Result previously reported (Incremental reports only)
 # ISO 17025 accredited M MCERTS Accredited
 EC Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	ISO 17025 Accredited	MCERTS Accredited	Wet/Dry Sample ¹	Surrogate Corrected
TM001	In - house Method	Screening of Soils for Fibres			WET	
TM098	Method 4500E, AWWA/APHA, 20th Ed., 1999	Determination of Sulphate using the Kone Analyser	✓	✓	DRY	
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS			WET	
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS	✓		WET	
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS	✓	✓	WET	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer			DRY	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer	✓	✓	DRY	
TM132	In - house Method	ELTRA CS800 Operators Guide	✓	✓	DRY	
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter	✓	✓	WET	
TM157		Determination of SVOC in Soils by GC-MS extracted by sonication in DCM/Acetone			WET	

¹ Applies to Solid samples only. **DRY** indicates samples have been dried at 35°C. **NA** = not applicable.
WET indicates samples analysed as submitted.

ALcontrol Laboratories Analytical Services
Table Of Results - Appendix

Job Number: 09/07224/02/01
Client: Envirolab
Client Ref. No.: 240362-6354

Summary of Coolbox temperatures

Batch No.	Coolbox Temperature (°C)
1	14.5

Appendix 4 – Generic Assessment Criteria Screening Tables.

Contaminated Land Report
Hornsey Town Hall Renaissance Project
Human Health GAC

Contaminant of Concern	GAC (mg/kg)
Boron	6700
Arsenic	35*
Cadmium	26
Chromium	37
Copper	3900
Lead	210
Mercury	230*
Nickel	130*
Selenium	600*
Zinc	40000
TPH aliphatic >C5-C6	17
TPH aliphatic >C6-C8	33
TPH aliphatic >C8-C10	7.9
TPH aliphatic >C10-C12	44
TPH aliphatic >C12-C16	210
TPH aliphatic >C16-C21	17000
TPH aliphatic >C21-C35	17000
TPH aromatic >C5-C7	15
TPH aromatic >C7-C8	15
TPH aromatic >C8-C10	15
TPH aromatic >C10-C12	83
TPH aromatic >C12-C16	410
TPH aromatic >C16-C21	1000
TPH aromatic >C21-C35	1300
Naphthalene	7
Fluoranthene	2400
Pyrene	3500
Benzo[a]anthracene	9.7
Chrysene	100
Benzo[b/k]fluoranthene	10
Benzo[a]pyrene	1
Indeno[1,2,3-cd]pyrene	10
Dibenzo[a,h]anthracene	1
Benzo[g,h,i]perylene	10
Benzene	0.11*
Toluene	260*
Ethyl benzene	70*
m- & p-Xylene	22*
o-Xylene	22*

Note:

GACs produced using CLEA v1.06 and for a residential without plant uptake scenario. Where marked "*" Soil Guideline Values have been used.

Contaminated Land Report
Hornsey Town Hall Renaissance Project
Chemical Results

Lab Sample Ref	Borehole	Sample Depth (mbgl)	Boron (hot water soluble)	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Zinc	Sulfate (2:1 water soluble) as SO4	TOC	TPH aliphatic >C5-C6	TPH aliphatic >C6-C8	TPH aliphatic >C8-C10	TPH aliphatic >C10-C12	TPH aliphatic >C12-C16	TPH aliphatic >C16-C21	TPH aliphatic >C21-C35	TPH aromatic >C5-C7	TPH aromatic >C7-C8	TPH aromatic >C8-C10	TPH aromatic >C10-C12	TPH aromatic >C12-C16	TPH aromatic >C16-C21	TPH aromatic >C21-C35	
103455	TP1	0.25	<3.5	<3	<0.2	9.9	10	9	<0.4	13	<3	26	0.067		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.02	<0.1	<0.1	<0.1	<0.1	
103456	TP1	0.5	<3.5	<3	<0.2	54	23	10	<0.4	45	<3	86	2.4	<0.2															
103457	TP2	0.3												2															
103458	TP2	0.5	<3.5	<3	<0.2	56	23	12	<0.4	52	<3	90																	
103459	TP3	0.5	<3.5	3	<0.2	11	7	20	<0.4	12	<3	33	0.0005		<0.01	<0.01	<0.01	2.3	4.5	5.4	2.7	0.01	<0.01	<0.01	2.3	79	562	961	
103460	TP4	0.25	<3.5	<3	<0.2	14	15	73	<0.4	12	<3	46	0.097		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	2.5	64.5	325	735	
103461	TP4	0.75	<3.5	3	<0.2	43	16	77	<0.4	25	<3	76																	
103463	TP5	0.5	<3.5	<3	<0.2	11	<6	9	<0.4	12	<3	21	0.36	<0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.01	<0.1	<0.1	<0.1	<0.1
103464	TP6	0.25	<3.5	10	<0.2	16	27	78	<0.4	17	<3	120	0.17		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	4.7	129	917	1980	
103465	TP6	1	<3.5	3	<0.2	56	24	13	<0.4	65	<3	84	0.34																
103466	TP7	0.2	<3.5	<3	<0.2	11	25	26	<0.4	14	<3	74	0.11																
103467	TP7	0.7	<3.5	<3	<0.2	55	18	22	<0.4	33	<3	85	0.22	0.9	<0.01	<0.01	<0.01	21.8	119	167	34.7	0.01	<0.01	<0.01	3.9	53.7	118	34.7	
103468	TP7	1	<3.5	<3	<0.2	45	22	16	<0.4	41	<3	80	2.7		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.02	<0.1	<0.1	<0.1	<0.1	
103469	BH3	0.25	<3.5	5	<0.2	44	24	56	<0.4	35	<3	85	0.27		<0.01	<0.01	0.08	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.01	<0.1	<0.1	<0.1	
103470	BH3	0.4	<3.5	<3	<0.2	62	25	12	<0.4	59	<3	87	0.26																

Contaminated Land Report
Hornsey Town Hall Renaissance Project
Chemical Results

Lab Sample Ref	Total Petroleum Hydrocarbons	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo[a]anthracene	Chrysene	Benzo[b]fluoranthene	Benzo[a]pyrene	Indeno[1,2,3-cd]pyrene	Dibenzo[a,h]anthracene	Benzo[g,h,i]perylene	Total (of 16) PAHs	Benzene	Toluene	Ethyl benzene	m- & p-Xylene	o-Xylene
103455	<0.1	0.96	0.02	0.63	0.36	2.55	0.57	2.82	2.37	0.46	1.48	1.4	0.65	1.35	0.04	1.41	17.08	0.01	<0.01	<0.01	<0.01	<0.01
103456																						
103457																						
103458																						
103459	1919.21	1	0.53	4.53	1.94	64.6	16.6	320	285	106	102	119	73.8	59.5	10.8	46.2	1211.5	0.01	<0.01	<0.01	<0.01	<0.01
103460	1127.01	9.08	0.56	5.26	3.71	46	10.6	83.7	78.8	27.3	36.5	37.4	24.5	22	3.76	20.7	409.87	0.01	<0.01	<0.01	<0.01	<0.01
103461																						
103463	<0.1	0.03	<0.01	<0.01	0.01	0.1	0.02	0.17	0.14	0.06	0.12	0.16	<0.01	<0.01	<0.01	<0.01	0.81	0.01	<0.01	<0.01	<0.01	<0.01
103464	3030.71	3.5	2.18	19.5	11.7	212	56.2	499	426	154	149	161	107	85.6	18.4	73.3	1978.38	0.01	<0.01	<0.01	<0.01	<0.01
103465																						
103466																						
103467	210.3	0.01	0.09	0.23	0.32	0.49	0.06	0.13	0.16	0.05	0.08	<0.01	<0.01	<0.01	<0.01	<0.01	1.62	<0.01	<0.01	<0.01	<0.01	<0.01
103468	<0.1	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01
103469	<0.1	0.06	0.01	0.05	0.02	0.29	0.08	0.27	0.27	0.04	0.28	0.19	0.16	0.38	<0.01	0.58	2.68	0.01	<0.01	<0.01	<0.01	<0.01
103470																						