EARTH ENVIRONMENTAL & GEOTECHNICAL

PHASE II GEO-ENVIRONMENTAL SITE INVESTIGATION

WESTCOTT COURT

13 HOLMDALE ROAD

LONDON

NW6 1BH

REPORT REF: R4218/25

FEBRUARY 2025

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Prepared on Behalf of:

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PHASE II GEOENVIRONMENTAL SITE INVESTIGATION

WESTCOTT COURT, 13 HOLMDALE ROAD, LONDON, NW6 1BH

Report Reference: R4218/25/GI

Version A.2

Date: 25th February 2025

Prepared for: Marigold Properties Ltd

Prepared by: Earth Environmental & Geotechnical (Southern) Ltd
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Definition of Version Code:
D. Applied during initial drafting of the report before it has been reviewed.
C. Applied after the report has been reviewed but before it has been approved by the Project Manager.
B. Applied after the Project Manager has approved the report ready for issue to the client.
A. Applied to reports after external/internal review.

The version number starts at “0” and is raised by “1” at each re-type.

Written by: **Timothy Stainthorpe**
Geo-Environmental Consultant

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Senior Geo-Environmental Consultant

Approved by: **John Grace**
Regional Director

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1.0 INTRODUCTION

1.1 Background

A Geoenvironmental Site Investigation has been commissioned by Marigold Properties Ltd (the Client) to examine ground conditions, retrieve soil samples for contamination testing and to provide a human health risk assessment for a proposed new dwelling and extension to the existing block of flats at Westcott Court, 13 Holmdale Road, London, NW6 1BH (herein referred to as the 'assessment site').

1.2 Terms of Reference

Earth Environmental and Geotechnical (Southern) Ltd (EEGSL) was commissioned by the Client to undertake a Site Investigation in accordance with project proposal R4218a/Rev1 23rd December 2024.

The objectives of this project are as follows:

- Undertake ground investigation works to assess the presence and likely extent of any potential environmental hazards (soil contamination) within the area of investigation.
- Provide an Interpretive Ground Investigation Report.

1.3 Report Scope

This report presents full factual records of the site work carried out, the ground conditions encountered in the exploratory holes and laboratory test results. All information collected has been used to provide an interpretation of the ground conditions together with recommendations regarding human health risk.

1.4 Limitations of the Study

The report is written in the context of an agreed scope of work and budget and should not be used in a different context. New information, improved practices or changes in legislation may require a reinterpretation of the report in whole or in part. EEGSL reserve the right to amend either conclusions or recommendations in light of any further information that may become available. The report is provided for the sole use by the Client and is confidential to them.

Recommendations within this report are also based on exploratory records and examination of samples and, where applicable, laboratory tests. No liability can be accepted for conditions not revealed by the trial pits, particularly at intervening locations. Whilst every effort is made to ensure accuracy of data supplied, all opinions expressed as to the spatial distribution of strata / contamination between sampling locations is for guidance only and no responsibility is accepted as to its accuracy.

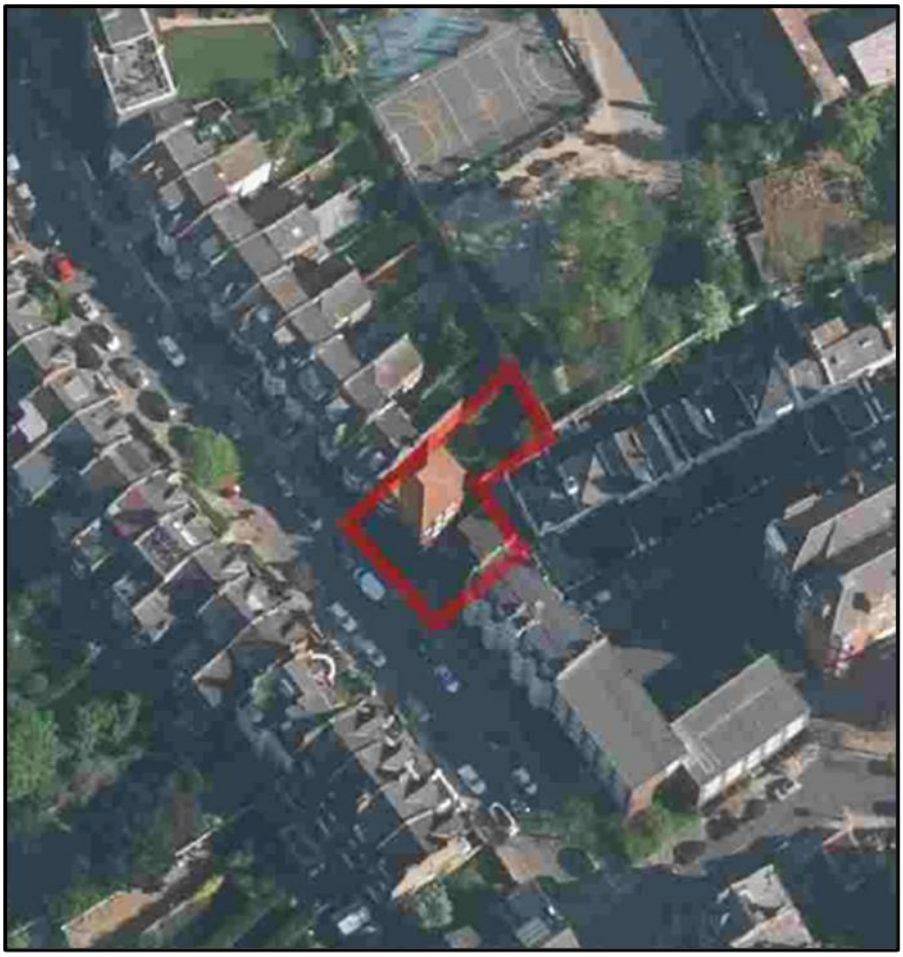
2.0 SITE LOCATION & DESCRIPTION

2.1 Site Location & Description

The assessment site covers an area of 0.04 acres in size and at the time of the investigation comprised a three-storey block of flats with a small front and rear garden with a driveway and garages to the southeast. The site is bound in all directions by residential properties and is located approximately 350 m north of the West Hampstead Thameslink station. The assessment site is centred on National Grid Reference TQ 25284 85124 (E: 525284, N: 185124) with a postcode of NW6 1BH.

An aerial photograph showing the location of the assessment site is provided in Figure 1.

Figure 1: Site Location Plan



2.2 Published Geology

According to the BGS, the assessment site is not underlain by superficial deposits. The bedrock geology of the assessment sit consists of the London Clay Formation (Clay, Silt and Sand).

2.3 Phase 1 Desk Study

EEGSL was commissioned by the client to produce a Phase 1 Desk Study that proceeded this report (EEGSL Report Ref: R4218/24/DTS).

The below section contains a summary of the key findings and a copy of the Conceptual Site Model (CSM) from the Phase I Desk Study.

- According to the British Geological Survey (BGS) the assessment site is expected to be directly underlain by bedrock geology of the London Clay Formation.

- The bedrock geology beneath the assessment site has been classified as an Unproductive Strata by the EA and given the lack of underlying aquifers or onsite or nearby surface water features, controlled waters are not deemed to be a sensitive receptor in this instance.

- The main sources of onsite contamination are considered to be:

    - Made Ground, potentially present due to former redevelopment, including the demolition of a property first built in the 1890's, demolished sometime between 1938 and 1953. Potential contaminants including heavy metals (including lead from lead pipes), asbestos and PAHs from building materials may have been incorporated into the underlying soils or used to make up site levels.

    - The residential garages located at the assessment site since 1953. Although they are residential in nature, it is possible that potential contaminants such as fuels, pains and oils may have been stored within the garages and overtime some may have found themselves into the surrounding soils. Contaminants of concern include heavy metals, PAHs and TPHs.

- The main sources of offsite contamination are considered to be:

    - Several current and historical offsite sources of contamination have been noted. The historic sources include a former Omnibus Depot and later named Post Office Garages located immediately adjacent to the site (from 1915 until the 1970s). An electricity sub-station located 35m southeast dating from 1973, an unspecified tank located 53m southeast dating from 1871 and a Gravel Pit located 45m northeast dating from 1873.

    - Given the limited size, time since present and distance from the assessment site, the former Electricity Sub-station, Unspecified Tank and Gravel Pit were not deemed significant in this instance. However, the former Omnibus Depot and Post Office Garages were deemed to be a potential source of contamination that could impact on the assessment site.

    - The contaminants of concern associated with the former Omnibus Depot and Post Office Garages include asbestos, toxic metals and hydrocarbons (PAHs and TPHs).

- Based on the above information, and the proposed residential development, a low to moderate risk to current and future site users was identified, with direct / dermal contact being the most likely pathway.

Table 1 – Preliminary Conceptual Model

Source	Pathway	Receptor	Probability	Consequence	Risk	Comment
On-site Sources						
Potential contamination associated with the sites historical and current day use.	Dermal contact, ingestion and inhalation of soils dust	Current Site Users	Low Likelihood	Moderate	Moderate to Low Risk	There is a potential for limited amounts of contamination to be present beneath site due to current and former site users. The contamination present is expected to be present in the form of contaminated made ground and or contamination of the shallow soils associated with the current and former garages on site. Contamination is expected to consist of toxic metals, asbestos and hydrocarbons (TPHs and PAHs). The likelihood of significant contamination being present is considered low, however given the current residential use, the risk is deemed as low to moderate. In this instance the risk to current site users is deemed as **LOW to MODERATE,** and therefore it would seem reasonable that some analysis of shallow soils be completed during redevelopment to enable a greater understanding of any risks present.
		Adjacent Site Users	Unlikely	Moderate	Low Risk	Despite the potential for some contamination to be present beneath site, the impermeable nature of the underlying London Clay is thought to be such that significant migration of contamination off site is deemed unlikely and therefore the risk to adjacent site users is deemed as **LOW.**
		Future Site users	Low Likelihood	Moderate	Moderate to Low Risk	Given the continued residential use, it is recommended that the risk to future site users will be **LOW to MODERATE**, and therefore it would seem reasonable that some analysis of shallow soils be completed during redevelopment to enable a greater understanding of any risks present.
		Construction Workers	Unlikely	Moderate	Low Risk	Despite some potential for contamination to be present within shallow soils, it is unlikely that contamination is present to an extent that it will likely cause a significant risk to short term

Source	Pathway	Receptor	Probability	Consequence	Risk	Comment
						construction workers present during the development period. It is also acknowledged that a certain level of health and safety will be maintained during construction works, with works being completed in line with current CDM regulations etc. Given the short-term exposure and standard health and safety practices, the risk to construction workers is deemed as **LOW** in this instance.
Off-site Sources						
Contamination of the site due to current and historical off-site uses	Vertical or horizontal migration of contaminants within shallow soils	Current Site Users	Low Likelihood	Moderate	Moderate to Low Risk	Several off-site historic sources of contamination have been identified, with the most significant being the former Omnibus Depot and later named Post Office Garages located to the northeast. With regards to contamination, it is suggested that asbestos, toxic metals and hydrocarbons (PAHs and TPHs) are the most likely to be present. When considering the risk to current site users, the viability of migration pathways needs to be assessed, and in this instance, it is noted that shallow groundwater is likely to be absent, and therefore the main type of migration will be within shallow soils or via windblown dust. When considering the lack of shallow groundwater, it is deemed less likely that significant concentrations of contamination would have migrated towards the assessment site, however given the proximity, some migration within shallow soils or via windblown dust cannot be discounted. Based on the above, it is suggested that the risk from offsite sources to current residential site users, is **LOW TO MODERATE**.
		Future Site users	Low Likelihood	Moderate	Moderate to Low Risk	Given the reasons stated above, and the continued residential use, the risk to future site users is also deemed as **LOW TO MODERATE**.

Source	Pathway	Receptor	Probability	Consequence	Risk	Comment
		Construction Workers	Unlikely	Moderate	Low Risk	As discussed previously, despite some potential for contamination to be present onsite from offsite sources, it is unlikely that contamination is present to an extent that it will likely cause a significant risk to short term construction workers present during the development period. It is also acknowledged that a certain level of health and safety will be maintained during construction works, with works being completed in line with current CDM regulations etc. Given the short-term exposure and standard health and safety practices, the risk to construction workers is deemed as **LOW** in this instance.

Given the outcomes of the conceptual site model, EEGSL have been commissioned by the client to complete a ground investigation to understand if significant contamination is present within shallow soils, and if present how these would impact on the current and future site users.

The following sections outline the ground investigation works completed by EEGSL and provides human health risk assessment for the site.

3.0 SITE INVESTIGATION

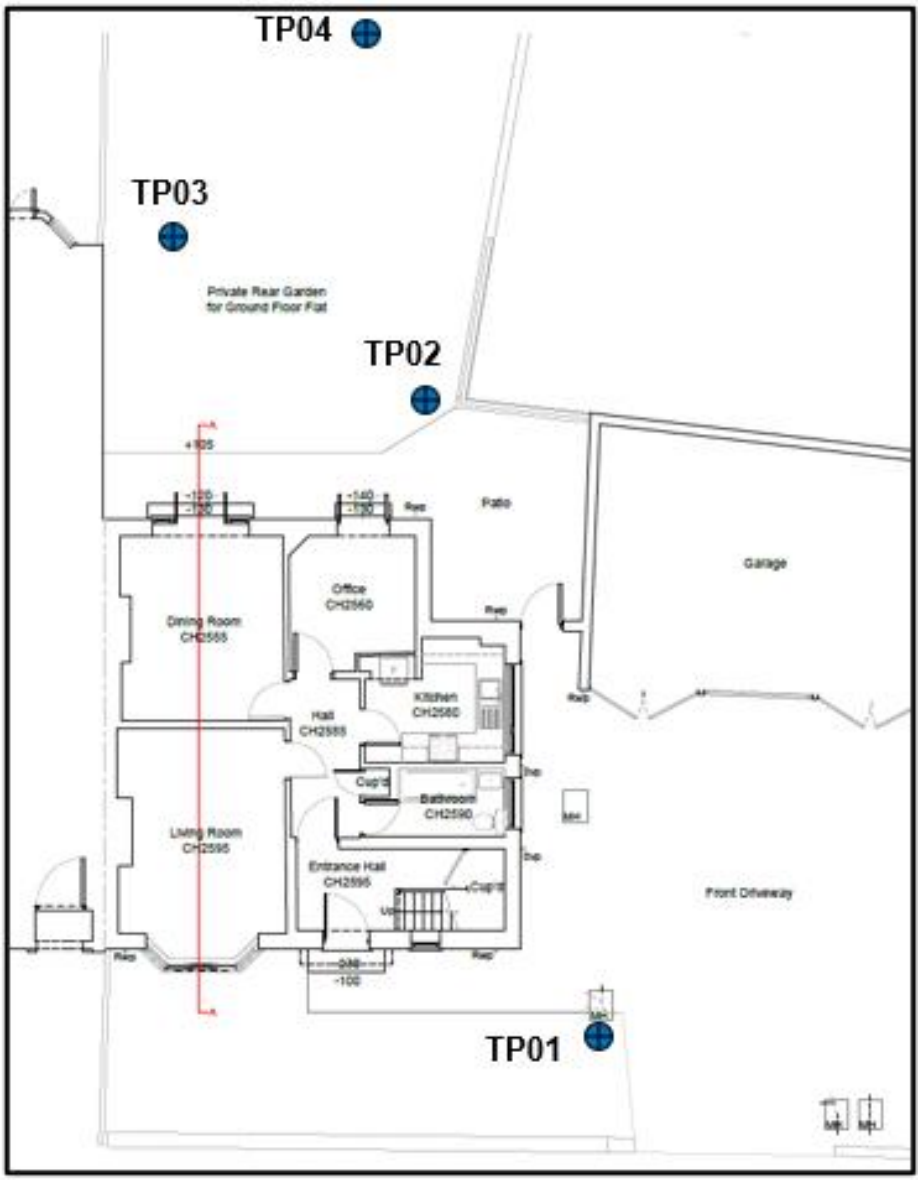
3.1 Exploratory Fieldwork

The fieldwork was carried out by EEGSL on the 13th of January 2025 and comprised:

- 4 No. Hand Pits (TP01 to TP04 inclusive) were sunk within exiting areas of soft landscaping to a maximum depth of 1.3m below existing ground level. Detailed hand pit logs are included in Appendix 1.
- 5 soil samples of were collected from the pits and submitted for a general suite of contamination testing.

The fieldwork was carried out generally in accordance with BS 5930:2015+A1:2020 Code of Practice for Site Investigations unless otherwise stated. The investigation locations completed are shown approximately on the Exploratory Hole Location Plan in Figure 2.

Figure 2: Exploratory Hole Location Plan



Each exploratory location was scanned using a Cable Avoidance Tool (CAT) in order to locate unrecorded underground services, and the exploratory locations were repositioned if necessary.

On completion, all samples recovered from the assessment site were taken to a specialist laboratory for testing (QTSE DETS Ltd).

All site investigation work was supervised full time by a representative of EEGSL. The logging of soils and rocks has been carried out in accordance with BS5930(2015+A1:2020) except where superseded by the soil and rock description methodology in BS EN14688-1(2002), BS EN 14688-2(2004) and BS EN 14689-1(2003).

A summary of exploratory holes undertaken during the investigation is presented in Table 2.

Table 2: Summary of Exploratory Holes Undertaken

Hole	Type*	Depth (m)	Date Started	Date Finished	Backfill Details*
TP/HP01	HP	0.4	13/01/2025	13/01/2025	Backfilled with arisings.
TP/HP02	HP	1.2	13/01/2025	13/01/2025	Backfilled with arisings.
TP/HP03	HP	1.3	13/01/2025	13/01/2025	Backfilled with arisings.
TP/HP04	HP	1.1	13/01/2025	13/01/2025	Backfilled with arisings.
*HP = Hand Pit, Trial Pit					

3.2 Laboratory Testing Programme

3.2.2 Environmental Testing

The environmental chemistry of the ground was investigated by specialist chemical analysis of selected samples, scheduled by EEGSL and carried out by QTSE DETS Ltd.

Chemical analyses were carried out on 5 soil samples and were submitted for the following suite of determinants:

- Asbestos Screen, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Nickel, Selenium, Vanadium, Zinc, Cyanide, Sulphate (SO4), Sulphide, pH, Sulphur, Soil Organic Matter, Phenol, speciated Petroleum Hydrocarbons (TPH), speciated Polyaromatic Hydrocarbons (PAH).

The results of the laboratory contamination tests are discussed in Section 5 and included in Appendix 4.

4.0 GROUND CONDITIONS ENCOUNTERED

The following sections describe the ground conditions identified during the investigation.

4.1 Soil Profile Encountered

The sequence of strata encountered beneath the assessment site consisted of:

- Made Ground:

  Comprising generally of soft to firm brown slightly gravelly slightly sandy CLAY with gravels of brick, flint, ceramics and clinker was found present at the assessment site to an average depth of 0.70mbgl and a maximum proven depth of 1.10mbgl within TP04.

- London Clay Formation comprising:

Comprising generally of firm to stiff brown CLAY found present at depths of 0.70mbgl within TP02 and TP03 and to a maximum proven depth of 1.30mbgl within TP03.

The depths at which each stratum was encountered in each exploratory hole is provided within the borehole logs presented within Appendix 1.

4.2 Obstructions

During the site investigation, a concrete obstruction was encountered during the excavation of TP01 at a depth of 0.40mbgl, this obstruction prevented any further exaction at this location.

4.3 Groundwater

During the site investigation works, shallow perched groundwater was encountered in two of the excavations TP03 at a depth of 0.90mbgl and TP04 at a depth of 1.00mbgl. No groundwater strikes were noted within TP01 or TP02.

Given the nature of the Made Ground on site and the underlying London Clay Formation, it is suggested the groundwater present within Tp03 and TP04 is likely to represent discontinuous pockets of perched water sat within the permeable Made Ground deposits and above the impermeable London Clay.

4.4 Visual or Olfactory Evidence of Contamination

During the site works no olfactory or visual evidence of contamination was noted.

5.0 SOIL CONTAMINATION RISK ASSESSMENT

5.1 Tier I Human Health Soil Risk Assessment – Future Site Users

As part of the contamination assessment, the chemical results from 5 soil samples obtained by EEGSL have been screened against accepted compliance criteria, namely:

- Defra C4SL Health Criteria Values, where available; and
- Tier 1 assessment values - based on LQM/CIEH Suitable 4 Use Levels (S4ULs).

As a preliminary screening assessment, all results have been compared to residential with home grown produce criteria. It is noted that the current and proposed development will have areas of soft landscaping both to the rear and front of the properties. It is understood that the front of the property will be a shared public space, therefore it is suggested that Residential Without Home Grown Produce screening criteria may also be a valid option in this area.

The comparison of results is summarised in Table 3 and 4 below:

Table 3: Soil Results Comparison with Defra C4SL HCV/LLTC Values

Determinant	C4SL (mg/kg)*			Min. (mg/kg)	Max. (mg/kg)	No. of Samples with Exceedances
	Residential with home grown produce (1)	**Residential** without home grown produce (2)	**Commercial** (3)			
Arsenic	37	40	640	12	19	0/5
Benzo(a)pyrene	2.4	5.3	36	0.1	20.7	1/5
Cadmium	14	150	220	0.2	1.6	0/5
Chromium VI	6	21	33	2	2	0/5
Lead	200	310	2300	37	507	4/5
Naphthalene	15	15	1600	0.1	1.01	0/5
*Minimal risk Health Criteria Values						

The comparison within Table 3 has shown four instances of elevated levels of lead contamination and one instance of elevated Benzo(a)pyrene present in excess of the C4SLs for the residential with home grown produce criteria.

The elevated leaves of Lead were found in samples of the Made Ground taken from HP01 (0.35mbg), HP02 (0.60mbgl), HP03 (0.30mbgl) and HP04 (0.45mbgl), whilst the elevated levels of Benzo(a)pyrene was found only in samples of the Made Ground taken from HP01 (0.35mbg).

A deeper sample of the underlying London Clay was collected at a depth of 1.10mbgl within HP02. This sample showed an absence of elevated Lead and Benzo(a)pyrene within the underlying natural deposits.

For contaminants not covered by the Defra C4SLs, reference is made to the Suitable for Use Levels (S4ULs) derived by The Land Quality Management Ltd & Chartered Institute of

Environmental Health and summarised in Table 4. The S4ULs are based on 1% Soil Organic Matter (SOM) as this represents the most conservative approach.

Table 4: Soil Results Comparison with LQM/CIEH S4UL

Determinant	Suitable 4 Use Levels (mg/kg)*			Min. (mg/kg)	Max. (mg/kg)	No of Exceedances
	Residential		Commercial (3)			
	with homegrown produce (1)	without homegrown produce (2)				
Metals						
Beryllium	1.7	1.7	12	0.7	1.3	0/5
Boron	290	11000	240000	<1	<1	0/5
Chromium III	910	910	8600	20	36	0/5
Copper	2400	7100	68000	14	309	0/5
Mercury	1.2	1.2	58	<1	<1	0/5
Nickel	180	180	980	13	28	0/5
Selenium	250	430	12000	<2	<2	0/5
Vanadium	410	1200	9000	38	63	0/5
Zinc	3700	4000	730000	42	524	0/5
Polycyclic Aromatic Hydrocarbons						
Acenaphthylene	170	2900	83000	<0.1	1.47	0/5
Acenaphthene	210	3000	84000	<0.1	0.49	0/5
Fluorene	170	2800	63000	<0.1	1.41	0/5
Phenanthrene	95	1300	22000	<0.1	27.0	0/5
Anthracene	2400	31000	520000	<0.1	6.09	0/5
Fluoranthene	280	1500	23000	<0.1	59.9	0/5
Pyrene	620	3700	54000	<0.1	50.7	0/5
Benz(a)anthracene	7.2	11	170	<0.1	25.6	1/5
Chrysene	15	30	350	<0.1	24.5	1/5
Benzo(b)fluoranthene	2.6	3.9	44	<0.1	22.6	1/5
Benzo(k)fluoranthene	77	110	1200	<0.1	10.9	0/5

Indeno(1,2,3-cd)pyrene	27	45	500	<0.1	10.1	0/5
Dibenz(a,h)anthracene	0.24	0.31	3.5	<0.1	2.9	1/5
Benzo(ghi)perylene	320	360	3900	<0.1	7.37	0/5
Speciated TPH						
Aliphatic >C5 - C6	42	42	3200	<0.01	<0.01	0/5
Aliphatic >C6 - C8	100	100	7800	<0.05	<0.05	0/5
Aliphatic >C8 - C10	27	27	2000	<2	<2	0/5
Aliphatic >C10 - C12	130	130	9700	<2	<2	0/5
Aliphatic >C12 - C16	1100	1100	59000	<3	<3	0/5
Aliphatic >C16 – C21	65000	65000	260000	<3	<3	0/5
Aromatic >C5 - C7	70	370	26000	<0.01	<0.01	0/5
Aromatic >C7 - C8	130	860	56000	<0.05	<0.05	0/5
Aromatic >C8 - C10	34	47	3500	<2	<2	0/5
Aromatic >C10 - C12	74	250	16000	<2	<2	0/5
Aromatic >C12 - C16	140	1800	36000	<2	18	0/5
Aromatic >C16 - C21	260	1900	28000	<3	276	1/5
Aromatic >C21 - C35	1100	1900	28000	<10	345	0/5
BTEX						
Benzene	0.087	0.38	27	<0.0002	<0.0002	0/5
Toluene	130	880	56000	0.0009	0.0035	0/5
Ethylbenzene	47	83	5700	<0.0002	0.0008	0/5
m & p-xylene	56	79	5900	0.0006	0.0023	0/5
o-Xylene	60	88	6600	<0.0002	0.0008	0/5
MTBE	49	73	7900	<0.0005	<0.0005	0/5

The comparison within Table 4 has shown elevated levels of several Polycyclic Aromatic Hydrocarbons and a single exceedance for TPH (Aromatic >C16 - C21) within a single sample of the Made Ground collected from TP01 (0.35mbgl).

5.2 Asbestos

Asbestos was not encountered in any of the samples analysed as part of this investigation.

5.3 Soil Contamination Assessment

The screening assessments completed in Tables 3 and 4 have shown 10 exceedances of the residential screening criteria within the underlying Made Ground materials.

Elevated concentrations of Lead were found in all four samples of the Made Ground whilst elevated levels PAHs and one TPH were also recorded at TP01.

Given the presence of lead contamination within the Made Ground across the site and the elevated levels of PAH and TPH within TP01, it is considered that there is a potential for similar contamination to be present within all Made Ground deposits across the site, including those currently not tested beneath the garages.

Taking the above information into consideration, a revised conceptual site model has been developed.

In this instance it is considered that some remedial works will be required prior to the site being occupied. A discussion regarding possible remedial works is presented within Section 7.3.

6.0 REVISED CONCEPTUAL SITE MODEL

Table 5 below presents the Revised Conceptual Model which considers whether an actual risk is present to the identified receptors considering the results of the recent ground investigation work.

Table 5: Revised Conceptual site Model

Source	Pathway	Receptor	Probability	Consequence	Risk	Comment
On-site Sources						
Potential contamination associated with the sites historical and current day use.	Dermal contact, ingestion and inhalation of soils dust	Current Site Users	Likely	Moderate	Moderate Risk	Ground investigation works have proven the presence of contaminated Made Ground materials beneath the assessment site. Contamination is present in the form of elevated concentrations of Lead, PAHs and limited TPHs. It is understood that the site is currently occupied and used for residential use (with a private garden). Considering the residential use, and the potential for direct exposure within areas of soft landscaping, it is deemed that a **MODERATE** risk is currently present. To reduce this risk, it is recommended that some remedial works are completed at the assessment site during development.
		Adjacent Site Users	Unlikely	Moderate	Low Risk	Despite the presence of some contamination within the shallow Made Ground, the impermeable nature of the underlying London Clay and the immobile nature of the contamination found present, it is expected that significant migration of contamination off site would be unlikely, and therefore the risk to adjacent site users is deemed as **LOW.**
		Future Site users	Likely	Moderate	Moderate Risk	Given the continued residential use, it is recommended that the risk to future site users will also be **MODERATE.** To reduce this risk it is recommended that some remedial works are completed at the assessment site during development.
		Construction Workers	Unlikely	Moderate	Low Risk	Given the contamination found present, it is recommended that groundworkers are made aware of the potential risk from elevated Lead, PAHs and TPH, however no contaminates have currently been found above commercial screening values, therefore the risk to construction workers should remain as **LOW**.

Source	Pathway	Receptor	Probability	Consequence	Risk	Comment
Off-site Sources						
Contamination of the site due to current and historical off-site uses	Vertical or horizontal migration of contaminants within shallow soils	Current Site Users	Likely	Moderate	Moderate Risk	Several off-site historic sources of contamination have been identified, with the most significant being the former Omnibus Depot and later named Post Office Garages located to the northeast. With regards to contamination, elevated levels of Lead, PAH and TPH have been found present within shallow made ground across the site. The presence of the elevated levels of contamination as expected to be present due to historical development onsite, however the potential for contamination to be present due to offsite sources cannot be dismissed at this time. Based on the above, it is suggested that the risk from offsite sources to current residential site users is **MODERATE**.
		Future Site users	Likely	Moderate	Moderate Risk	Given the reasons stated above, and the continued residential use, the risk to future site users is also deemed as **MODERATE**.
		Construction Workers	Unlikely	Moderate	Low Risk	As discussed previously, it is recommended that groundworkers are made aware of the potential risk from elevated Lead, PAHs and TPH, however no contaminates have currently been found above commercial screening values, therefore the risk to construction workers should remain as **LOW**.

7.0 CONCLUSIONS AND RECOMMENDATIONS

EEGSL were commissioned by the client to undertake ground investigation works at the assessment site to help inform a Human Health Risk Assessment for a proposed new dwelling and extension to the existing block of flats at Westcott Court, 13 Holmdale Road, London, NW6 1BH.

The following section provides a summary of the conclusions and recommendations based on the findings of the investigation works undertaken and laboratory testing results.

7.1 Ground conditions

The generalised ground model can be described as Made Ground proven to an average depth of 0.70mbgl overlying Clay of the London Clay Formation proven to a base depth of 1.30mbgl.

7.2 Contamination

As discussed in Section 5 of this report, chemical testing of soils has been undertaken, and the results of which are provided within Appendix 2.

During site investigation works, five soil samples were collected and analysed for a general suite of contaminates.

Screening of the results against currently accepted residential screening criteria has proven the presence of Lead, PAH and TPH contamination within the underlying Made Ground.

Given the presence of Lead contamination within the Made Ground across the site and the elevated levels of PAH and TPH within TP01, it is considered that there is a potential for similar contamination to be present within all Made Ground deposits across the site, including those currently not tested beneath the garages.

Taking the above information into consideration, a revised conceptual site model has been developed and a moderate risk has been designated to current and future residential site users.

Taking the above into account, it is suggested that some remedial works will be required prior to the site being occupied. Without remedial works it is deemed that an unacceptable risk to current and future site users would be present.

7.3 Remedial Works

Given the levels of contamination found present, it is recommended that removal of shallow Made Ground materials and the implementation of a clean cover system should be undertaken across all proposed soft landscaping and garden areas.

No remedial works will be required in areas of proposed permanent hardstanding or where the proposed buildings will be constructed. This is due to the hardstanding or proposed buildings acting as a physical barrier between the contaminated Made Ground and any future residential receptors.

The clean cover system for soft landscaping and garden areas should involve the removal of Made Ground materials down to a depth of 450mm, the installation of a no dig / hi vis geotextile membrane, and the replacement of clean imported topsoil and subsoil.

The capping materials (topsoil and subsoil) must be sourced from a reputable supplier and come with confirmation that they have been independently tested and verified as uncontaminated prior to import. All topsoil materials should also be compliant with BS3882:2015.

A watching brief should also be maintained during the groundwork's element of the proposed development. In this instance it is recommended that the watching brief is completed by the groundworks contractor.

If signs of unknown contamination are found present during the groundworks, an appropriately qualified consultant should be contacted, and a suitable investigation be completed to determine the possible risks which may impact current and future receptors.

If no signs of unknown contamination are found present, the groundworks contractor should confirm this in writing to the client.

7.4 Site Personnel

As with all construction sites, personnel working on the site during the construction period should be encouraged to maintain a high standard of personal hygiene and on-site washing facilities should be made available. The results of this investigation should be made clear to all workers at the assessment site and a copy be kept within the sites health and safety file.

7.5 Other Matters

Due diligence is required during the construction period, and should any evidence of unknown contamination be found, appropriate investigation and assessment should be taken. The significance of any contamination not discovered by this investigation is outside the scope of this report.

APPENDIX 1

EXPLORATORY LOGS

Trial Pit Log

Project Name: Westcott Court	Client: Marigold Properties Ltd	Date: 13/01/2025
Location: Westcott Court, 13 Holmdale Road, London, NW6 1BH DTS	Contractor: Earth Environmental & Geotechnical Ltd	Co-ords: E525285.00 N185116.00
Project No. : R4218	Crew Name: TS	Equipment: Hand Tools

Location Number	Location Type	Level	Logged By	Scale	Page Number
TP01	TP		TS	1:10	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.15	ES					MADE GROUND: Soft brown gravelly sandy CLAY. Gravel is angular to rounded fine to coarse of flint, brick, tiles, ceramics and cement. Sand is fine to coarse. Rare cobbles of brick.
		0.35	ES					
					0.40			MADE GROUND: CONCRETE
					0.45			End of Borehole at 0.450m

1

2

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks

1. Pit location scanned with CAT. 2. Trial pit terminated at 0.45 m due to refusal on concrete. 3. Hole backfilled with arisings. 4. Groundwater was not encountered.

Trial Pit Log

Project Name: Westcott Court	Client: Marigold Properties Ltd	Date: 13/01/2025
Location: Westcott Court, 13 Holmdale Road, London, NW6 1BH DTS	Contractor: Earth Environmental & Geotechnical Ltd	Co-ords: E525293.00 N185128.00
Project No. : R4218	Crew Name: TS	Equipment: Hand Tools

Location Number	Location Type	Level	Logged By	Scale	Page Number
TP02	TP		TS	1:10	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								MADE GROUND: Soft dark brown slightly gravelly slightly sandy CLAY. Gravel is subangular to rounded fine to medium of flint. Sand is fine to medium. Rootlets throughout.
					0.15			MADE GROUND: Soft dark brown slightly gravelly slightly sandy CLAY. Gravel is angular to rounded fine to medium of flint and brick. Sand is fine to coarse.
					0.30			MADE GROUND: Dark black slightly clayey sandy angular to subangular fine to coarse GRAVEL of flint, clinker and glass. Sand is fine to coarse.
					0.35			MADE GROUND: Soft brown gravelly slightly sandy CLAY. Gravel is angular to subrounded fine to coarse of brick, flint and ceramics. Sand is fine to coarse.
		0.40	ES		0.45			MADE GROUND: Firm brown slightly gravelly CLAY. Gravel is angular to subangular fine to medium of flint, slate and brick.
		0.60	ES		0.70			Firm brown CLAY. (LONDON CLAY FORMATION)
		1.10	ES		1.20			End of Borehole at 1.200m

1

2

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks

1. Pit location scanned with CAT. 2. Trial pit terminated at 1.2 m. 3. Hole backfilled with arisings. 4. Groundwater was not encountered.

Trial Pit Log

Project Name: Westcott Court	Client: Marigold Properties Ltd	Date: 13/01/2025
Location: Westcott Court, 13 Holmdale Road, London, NW6 1BH DTS	Contractor: Earth Environmental & Geotechnical Ltd	Co-ords: E525293.00 N185133.00
Project No. : R4218	Crew Name: TS	Equipment: Hand Tools

Location Number	Location Type	Level	Logged By	Scale	Page Number
TP03	TP		TS	1:10	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.30	ES		0.20			MADE GROUND: Soft dark brown slightly gravelly slightly sandy CLAY. Gravel is subangular to rounded fine to medium of flint. Sand is fine to medium. Rootlets throughout.
					0.45			MADE GROUND: Soft blackish brown slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to coarse of flint, brick, ceramics and slate. Sand is fine to coarse.
	▼	1.20	ES		0.70			MADE GROUND: Soft brown slightly gravelly slightly sandy CLAY. Gravel is angular to rounded fine to medium of flint and brick. Sand is fine to coarse.
					1.30			Firm brown CLAY. (LONDON CLAY FORMATION)
								End of Borehole at 1.300m

1

2

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks

1. Pit location scanned with CAT. 2. Trial pit terminated at 1.3 m. 3. Hole backfilled with arisings. 4. Groundwater was encountered at 0.9 m.

Trial Pit Log

Project Name: Westcott Court	Client: Marigold Properties Ltd	Date: 13/01/2025
Location: Westcott Court, 13 Holmdale Road, London, NW6 1BH DTS	Contractor: Earth Environmental & Geotechnical Ltd	Co-ords: E525299.00 N185136.00
Project No. : R4218	Crew Name: TS	Equipment: Hand Tools

Location Number	Location Type	Level	Logged By	Scale	Page Number
TP04	TP		TS	1:10	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								MADE GROUND: Soft dark brown slightly gravelly slightly sandy CLAY. Gravel is subangular to rounded fine to medium of flint. Sand is fine to medium. Rootlets throughout.
					0.25			MADE GROUND: Soft blackish brown slightly gravelly slightly sandy CLAY. Gravel is angular to rounded fine to medium of flint, brick, ceramics and glass. Sand is fine to medium.
		0.45	ES					*Turns firm at 0.4 m.*
					0.50			MADE GROUND: Soft dark brown slightly gravelly slightly sandy CLAY. Gravel is angular to subangular fine to medium of flint, brick and ceramics. Sand is fine to medium.
	▼	1.00	ES					*Fragments of decayed wood at 0.7 m.*
					1.10			End of Borehole at 1.100m

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks

1. Pit location scanned with CAT. 2. Trial pit terminated at 1.1 m. 3. Hole backfilled with arisings. 4. Groundwater was encountered at 1 m.

APPENDIX 2

LABORATORY TEST RESULTS (CONTAMINATION)

John Grace
Earth Environmental & Geotechnical (Southern Ltd)
200 Brook Drive
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RG2 6UB

Normec DETS Limited
Unit 1
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ME17 2JN
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DETS Report No: 25-00395

Site Reference:	Westcott Court
Project / Job Ref:	R4218
Order No:	R4218/AT/17/01/2025
Sample Receipt Date:	20/01/2025
Sample Scheduled Date:	20/01/2025
Report Issue Number:	1
Reporting Date:	24/01/2025

Authorised by:

Dave Ashworth
Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

Normec DETS Limited
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4480

Soil Analysis Certificate						
DETS Report No: 25-00395	**~Date Sampled**	13/01/25	13/01/25	13/01/25	13/01/25	13/01/25
Earth Environmental & Geotechnical (Southern Ltd)	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Westcott Court	**~TP / BH No**	HP01	HP02	HP02	HP03	HP04
~Project / Job Ref: R4218	**~Additional Refs**	MG	MG	MG	MG	MG
~Order No: R4218/AT/17/01/2025	**~Depth (m)**	0.35	0.60	1.10	0.30	0.45
Reporting Date: 24/01/2025	**DETS Sample No**	759781	759782	759783	759784	759785

Determinand	Unit	RL	Accreditation					
Asbestos Screen (S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
pH	pH Units	N/a	MCERTS	7.8	7.9	7.6	8.0	7.5
Total Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
Complex Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
Free Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
Total Sulphate as SO_4	mg/kg	< 200	MCERTS	775	273	< 200	321	888
Total Sulphate as SO_4	%	< 0.02	MCERTS	0.08	0.03	< 0.02	0.03	0.09
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS	19	< 10	52	11	23
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS	0.02	< 0.01	0.05	0.01	0.02
Sulphide	mg/kg	< 5	NONE	< 5	< 5	< 5	< 5	< 5
Organic Matter (SOM)	%	< 0.1	MCERTS	5.6	2.4	1.6	3.3	5.1
Arsenic (As)	mg/kg	< 2	MCERTS	18	15	12	18	19
Barium (Ba)	mg/kg	< 2.5	MCERTS	162	80	34	148	374
Beryllium (Be)	mg/kg	< 0.5	MCERTS	1.1	0.7	0.7	1	1.3
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	1.6	< 0.2	< 0.2	0.3	0.9
Chromium (Cr)	mg/kg	< 2	MCERTS	30	20	27	20	36
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	115	40	14	309	90
Lead (Pb)	mg/kg	< 3	MCERTS	386	365	37	507	356
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	24	17	13	19	28
Selenium (Se)	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Vanadium (V)	mg/kg	< 1	MCERTS	52	38	53	42	63
Zinc (Zn)	mg/kg	< 3	MCERTS	457	74	42	217	524
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)
~Sample details provided by customer and can affect the validity of results
Subcontracted analysis (S)

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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 25-00395	**~Date Sampled**	13/01/25	13/01/25	13/01/25	13/01/25	13/01/25
Earth Environmental & Geotechnical (Souther	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Westcott Court	**~TP / BH No**	HP01	HP02	HP02	HP03	HP04
~Project / Job Ref: R4218	**~Additional Refs**	MG	MG	MG	MG	MG
~Order No: R4218/AT/17/01/2025	**~Depth (m)**	0.35	0.60	1.10	0.30	0.45
Reporting Date: 24/01/2025	**DETS Sample No**	759781	759782	759783	759784	759785

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	1.01	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	1.47	< 0.1	< 0.1	0.12	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	0.49	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	1.41	< 0.1	< 0.1	0.15	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	27	0.24	< 0.1	1.52	2.54
Anthracene	mg/kg	< 0.1	MCERTS	6.09	< 0.1	< 0.1	0.40	0.43
Fluoranthene	mg/kg	< 0.1	MCERTS	59.90	0.42	< 0.1	4.17	5.72
Pyrene	mg/kg	< 0.1	MCERTS	50.70	0.35	< 0.1	3.65	4.83
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	25.60	0.20	< 0.1	2.15	2.28
Chrysene	mg/kg	< 0.1	MCERTS	24.50	0.20	< 0.1	1.95	2.28
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	22.60	0.14	< 0.1	2.10	2.13
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	10.90	< 0.1	< 0.1	0.60	0.66
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	20.70	0.15	< 0.1	1.92	1.68
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	10.10	< 0.1	< 0.1	0.70	0.67
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	2.90	< 0.1	< 0.1	0.24	0.23
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	7.37	< 0.1	< 0.1	0.59	0.58
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	273	1.7	< 1.6	20.3	24

~Sample details provided by customer and can affect the validity of results

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Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 25-00395	**~Date Sampled**	13/01/25	13/01/25	13/01/25	13/01/25	13/01/25
Earth Environmental & Geotechnical (Souther	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Westcott Court	**~TP / BH No**	HP01	HP02	HP02	HP03	HP04
~Project / Job Ref: R4218	**~Additional Refs**	MG	MG	MG	MG	MG
~Order No: R4218/AT/17/01/2025	**~Depth (m)**	0.35	0.60	1.10	0.30	0.45
Reporting Date: 24/01/2025	**DETS Sample No**	759781	759782	759783	759784	759785

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6 : HS_1D_MS_AL	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic >C6 - C8 : HS_1D_MS_AL	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic >C8 - C10 : EH_CU_1D_AL	mg/kg	< 2	**MCERTS**	< 2	< 2	< 2	< 2	< 2
Aliphatic >C10 - C12 : EH_CU_1D_AL	mg/kg	< 2	**MCERTS**	< 2	< 2	< 2	< 2	< 2
Aliphatic >C12 - C16 : EH_CU_1D_AL	mg/kg	< 3	**MCERTS**	< 3	< 3	< 3	< 3	< 3
Aliphatic >C16 - C21 : EH_CU_1D_AL	mg/kg	< 3	**MCERTS**	< 3	< 3	< 3	< 3	< 3
Aliphatic >C21 - C34 : EH_CU_1D_AL	mg/kg	< 10	**MCERTS**	< 10	< 10	< 10	< 10	< 10
Aliphatic (C5 - C34) : HS_1D_MS+EH_CU_1D_AL	mg/kg	< 21	NONE	< 21	< 21	< 21	< 21	< 21
Aromatic >C5 - C7 : HS_1D_MS_AR	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic >C7 - C8 : HS_1D_MS_AR	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aromatic >C8 - C10 : EH_CU_1D_AR	mg/kg	< 2	**MCERTS**	2	< 2	< 2	< 2	< 2
Aromatic >C10 - C12 : EH_CU_1D_AR	mg/kg	< 2	**MCERTS**	< 2	< 2	< 2	< 2	< 2
Aromatic >C12 - C16 : EH_CU_1D_AR	mg/kg	< 2	**MCERTS**	18	< 2	< 2	< 2	< 2
Aromatic >C16 - C21 : EH_CU_1D_AR	mg/kg	< 3	**MCERTS**	276	< 3	< 3	16	25
Aromatic >C21 - C35 : EH_CU_1D_AR	mg/kg	< 10	**MCERTS**	345	< 10	< 10	23	27
Aromatic (C5 - C35) : HS_1D_MS+EH_CU_1D_AR	mg/kg	< 21	NONE	642	< 21	< 21	38	52
Total >C5 - C35 : HS_1D_MS+EH_CU_1D_Total	mg/kg	< 42	NONE	642	< 42	< 42	< 42	52

~Sample details provided by customer and can affect the validity of results

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4480

Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 25-00395	**~Date Sampled**	13/01/25	13/01/25	13/01/25	13/01/25	13/01/25
Earth Environmental & Geotechnical (Souther	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Westcott Court	**~TP / BH No**	HP01	HP02	HP02	HP03	HP04
~Project / Job Ref: R4218	**~Additional Refs**	MG	MG	MG	MG	MG
~Order No: R4218/AT/17/01/2025	**~Depth (m)**	0.35	0.60	1.10	0.30	0.45
Reporting Date: 24/01/2025	**DETS Sample No**	759781	759782	759783	759784	759785

Determinand	Unit	RL	Accreditation					
Benzene : HS_1D_MS	µg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Toluene : HS_1D_MS	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Ethylbenzene : HS_1D_MS	µg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
p & m-xylene : HS_1D_MS	µg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
o-xylene : HS_1D_MS	µg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
MTBE : HS_1D_MS	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5

~Sample details provided by customer and can affect the validity of results

Normec DETS Limited
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Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 25-00395	
Earth Environmental & Geotechnical (Southern Ltd)	
~Site Reference: Westcott Court	
~Project / Job Ref: R4218	
~Order No: R4218/AT/17/01/2025	
Reporting Date: 24/01/2025	

DETS Sample No	~TP / BH No	~Additional Refs	~Depth (m)	Moisture Content (%)	Sample Matrix Description
759781	HP01	MG	0.35	17.9	Brown sandy clay with brick
759782	HP02	MG	0.60	13.9	Brown sandy clay with brick
759783	HP02	MG	1.10	19	Light brown clay
759784	HP03	MG	0.30	14	Brown sandy clay with brick
759785	HP04	MG	0.45	21	Brown sandy loam with stones

Moisture content is part of procedure E003 & is not an accredited test
Insufficient Sample I/S
Unsuitable Sample U/S
~Sample details provided by customer and can affect the validity of results

Normec DETS Limited
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4480

Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 25-00395
Earth Environmental & Geotechnical (Southern Ltd)
~Site Reference: Westcott Court
~Project / Job Ref: R4218
~Order No: R4218/AT/17/01/2025
Reporting Date: 24/01/2025

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

~Sample details provided by customer and can affect the validity of results

Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

List of HWOL Acronyms and Operators
DETS Report No: 25-00395
Earth Environmental & Geotechnical (Southern Ltd)
~Site Reference: Westcott Court
~Project / Job Ref: R4218
~Order No: R4218/AT/17/01/2025
Reporting Date: 24/01/2025

Acronym	**Description**
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total
~	Sample details provided by customer and can affect the validity of results

Benzene - HS_1D_MS
Ethylbenzene - HS_1D_MS
MTBE - HS_1D_MS
TPH CWG - Aliphatic >C10 - C12 - EH_CU_1D_AL
TPH CWG - Aliphatic >C12 - C16 - EH_CU_1D_AL
TPH CWG - Aliphatic >C16 - C21 - EH_CU_1D_AL
TPH CWG - Aliphatic >C21 - C34 - EH_CU_1D_AL
TPH CWG - Aliphatic >C5 - C6 - HS_1D_MS_AL
TPH CWG - Aliphatic >C6 - C8 - HS_1D_MS_AL
TPH CWG - Aliphatic >C8 - C10 - EH_CU_1D_AL
TPH CWG - Aliphatic C5 - C34 - HS_1D_MS+EH_CU_1D_AL
TPH CWG - Aromatic >C10 - C12 - EH_CU_1D_AR
TPH CWG - Aromatic >C12 - C16 - EH_CU_1D_AR
TPH CWG - Aromatic >C16 - C21 - EH_CU_1D_AR
TPH CWG - Aromatic >C21 - C35 - EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C35 - HS_1D_MS+EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C7 - HS_1D_MS_AR
TPH CWG - Aromatic >C7 - C8 - HS_1D_MS_AR
TPH CWG - Aromatic >C8 - C10 - EH_CU_1D_AR
TPH CWG - Total >C5 - C35 - HS_1D_MS+EH_CU_1D_Total
Toluene - HS_1D_MS
m & p-xylene - HS_1D_MS
o-Xylene - HS_1D_MS

APPENDIX 3

REPORT LIMITATIONS

REPORT LIMITATIONS

This contract was completed by Earth Environmental & Geotechnical Ltd on the basis of a defined programme and scope of works and terms and conditions agreed with the client. This report was compiled with all reasonable skill, and care, bearing in mind the project objectives, the agreed scope of works, the prevailing site conditions, the budget and staff resources allocated to the project.

Other than that, expressly contained in the above paragraph, Earth Environmental & Geotechnical Ltd provides no other representation or warranty whether express or implied, is made in relation to the services. Unless otherwise agreed this report has been prepared exclusively for the use and reliance of the client in accordance with generally accepted consulting practices and for the intended purposes as stated in the agreement under which this work was completed. This report may not be relied upon, or transferred to, by any other party without the written agreement of a Director of Earth Environmental & Geotechnical Ltd.

If a third party relies on this report, it does so wholly at its own and sole risk and Earth Environmental & Geotechnical Ltd disclaims any liability to such parties.

It is Earth Environmental & Geotechnical Ltd understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was an important factor in determining the scope and level of the services. Should the purpose for which the report is used, or the proposed use of the site change, this report will no longer be valid and any further use of, or reliance upon the report in those circumstances by the client without Earth Environmental & Geotechnical Ltd review and advice shall be at the client's sole and own risk.

The report was written in 2025 and should be read in light of any subsequent changes in legislation, statutory requirements and industry best practices. Ground conditions can also change over time and further investigations or assessment should be made if there is any significant delay in acting on the findings of this report. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of Earth Environmental & Geotechnical Ltd. In the absence of such written advice of Earth Environmental & Geotechnical Ltd, reliance on the report in the future shall be at the client's own and sole risk. Should Earth Environmental & Geotechnical Ltd be requested to review the report in the future, Earth Environmental & Geotechnical Ltd shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between Earth Environmental & Geotechnical Ltd and the client.

The observations and conclusions described in this report are based solely upon the services that were provided pursuant to the agreement between the client and Earth Environmental & Geotechnical Ltd. Earth Environmental & Geotechnical Ltd has not performed any observations, investigations, studies or testing not specifically set out or mentioned within this report.

Earth Environmental & Geotechnical Ltd is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, Earth Environmental & Geotechnical Ltd did not seek to evaluate the presence on or off the site of electromagnetic fields, lead paint, radon gas or other radioactive materials.

The services are based upon Earth Environmental & Geotechnical Ltd observations of existing physical conditions at the site gained from a walkover survey of the site together with Earth Environmental & Geotechnical Ltd interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The findings and recommendations contained in this report are based in part upon information provided by third parties, and whilst Earth Environmental & Geotechnical Ltd have no reason to doubt the accuracy and that it has been provided in full from those it was requested from, the items relied on have not been verified.

No responsibility can be accepted for errors within third party items presented in this report. Further Earth Environmental & Geotechnical Ltd was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the services. Earth Environmental & Geotechnical Ltd is not liable for any inaccurate information, misrepresentation of data or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to Earth Environmental & Geotechnical Ltd and including the doing of any independent investigation of the information provided to Earth Environmental & Geotechnical Ltd save as otherwise provided in the terms of the contract between the client and Earth Environmental & Geotechnical Ltd.

Where field investigations have been carried out these have been restricted to a level of detail required to achieve the stated objectives of the work. Ground conditions can also be variable and as investigation excavations only allow examination of the ground at discrete locations. The potential exists for ground conditions to be encountered which are different to those considered in this report. The extent of the limited area depends on the soil and groundwater conditions, together with the position of any current structures and underground facilities and natural and other activities on site. In addition, chemical analysis was carried out for a limited number of parameters [as stipulated in the contract between the client and Earth Environmental & Geotechnical Ltd] based on an understanding of the available operational and historical information, and it should not be inferred that other chemical species are not present.

The groundwater conditions entered on the exploratory hole records are those observed at the time of investigation. The normal speed of investigation usually does not permit the recording of an equilibrium water level for any one water strike. Moreover, groundwater levels are subject to seasonal variation or changes in local drainage conditions and higher groundwater levels may occur at other times of the year than were recorded during this investigation.

Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan but is (are) used to present the general relative locations of features on, and surrounding, the site.