PHASE 2 ENVIRONMENTAL INVESTIGATION
of a site at
LAND ADJACENT TO 140 ROWAN ROAD
for
THE EWANG PRACTICE

Contaminated Land Solutions

t 020 8291 1354 e ask@gosolve.co.uk
4 De Frene Road, London, SE26 4AB

Project No 2604
Report ref: 2604-P2E-1
Issued: 18 April 2024
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Document Control		
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Prepared by		Matthew Mayes, BSc (Environ), AMIEnvSc
Reviewed by		Peter George Eur.Ing. B.Eng., Dip.EM, C.Eng., MICE, MIEnvSc, MCMI, FRSPH
Approved for issue by		Peter George Eur.Ing. B.Eng., Dip.EM, C.Eng., MICE, MIEnvSc, MCMI, FRSPH
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1 EXECUTIVE SUMMARY

The phase 1 report indicates potential for contamination to be present from its former use as a nursery or orchard and from an off site furniture manufacturers.

The proposed site usage is residential with private gardens.

All the samples returned results below the screening values for a residential with plant uptake scenario.

All samples were screened in the laboratory for the presence of asbestos fibres. No asbestos was identified in any of the samples.

It is therefore considered that there are no significant risks to on-site and off-site receptors, and therefore no remediation is required.

It is recommended that this report is referenced in the site Health and Safety Plan and that normal good hygiene practice is observed during the works and subsequent building and grounds maintenance.

If any potentially contaminated spoil is to be removed from site, the Waste Acceptance Criteria (WAC) testing should be agreed with the facility to which the spoil is being transported.

Risk Summary

Very Low	Low	Moderate / Low	Moderate	High

		Receptors					
		Site Users	Ground Workers	Neighbours	Proposed Building	Aquifer	Watercourse
Sources	Naturally occurring contaminants						

2 BRIEF

The purpose of this report is to investigate the potential sources of contamination identified in the phase 1 desktop study. In the light of the investigation results to update the site-specific conceptual model and risk assessment and where source-pathway-receptor linkages are identified advise on potential remedial options.

This report should be read in conjunction with the phase 1 environmental report dated January 2024, ref 2604-P1E-1 by GO contaminated Land Solutions.

3 INVESTIGATION STRATEGY

The phase 1 report identified the following potentially significant sources and receptors:

On-Site contamination sources	Nursery/Orchard
Off-Site contamination sources	Furniture Manufacturers
Receptors	Site Users, Neighbours, Ground workers, Proposed Building

The principles of the strategy are to:

- Identify the nature and extent of any contamination in the made ground across the site.

Non-targeted sampling has been used as contamination location is unknown.

Location Reference	Rationale for Location	Depth (mbgl)	Sampling, Testing & Monitoring
BH1 - 5	Boreholes were located to cover the site	0.1/0.2 – 0.35/0.6	Tested for asbestos, metals, hydrocarbons & PAHs

4 SITE DESCRIPTION

7 September 2023

The site is very approximately rectangular shaped in plan and occupies 0.04 ha.

The site comprises an overgrown vacant garden adjacent to the property at 140 Rowan Road.

Photograph 1: View of the site from the southwest corner

There are no structures or buildings present on the site.

During the site visit a concrete ribbon driveway was identified going from the metal gate on the north side of the site to the south side of the site. Moreover, a concrete pathway on the south side of the site going from the west boundary toward the middle of the site was also identified.

A mound of concrete rubble was identified in the eastern side of the site.

Some domestic waste was noted along the south site boundary.

The southern side boundary is defined by the property wall and garden wall of 140 Rowan Road.

The northern site boundary is defined by the back of footpath to Great Benty.

The eastern side boundary is defined by the timber garden fence of the property at 2 Great Benty.

The western site boundary is defined by the back of footpath to Rowan Road.

The nearby surrounding area is mainly residential.

No significant visual or olfactory evidence of contamination was noted during the visit.

5 April 2024

At the time of the site works the site was secured by timber hoardings and the main property and driveway were established.

5 SITE WORKS

5.1 Programme

The site works were undertaken on 3 April 2024

5.2 Boreholes

A total of five boreholes were hand augered to depths of between 0.60 and 0.80m below ground level.

6 GROUND CONDITIONS

6.1 Geological Survey

Reference to the geological survey of Great Britain indicates that beneath made ground, the area generally is underlain by superficial deposits comprising clay and silt which is described as Langley Silt Member

The superficial deposits are underlain by bedrock comprising Clay, Silt and Sand described as London Clay Formation.

6.2 Hydrogeology & Hydrology

The Environment Agency maps show the site to be located over Unproductive strata in both in the superficial or drift deposits and in the bedrock.

While the site does not lie over an aquifer in the superficial stratum it is within 100m of an aquifer in the superficial stratum, the aquifer lies upslope from the site and is therefore unlikely to be affected by site run-off.

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

The soils overlying the aquifers are assumed to have a high leaching potential (U) and a worst-case vulnerability classification (H) is assumed due to a lack of data available for restored workings and urban areas.

The Environment Agency maps show the site is not located within a source protection zone of a borehole abstraction point.

The Environment Agency define a zone according to how the groundwater behaves in that area. From this a model of the groundwater environment is developed on which to define the zones.

Groundwater source catchments are divided into three zones:

SPZ1 – Inner protection zone

Defined as the 50 day travel time from any point below the water table to the source. This zone has a minimum radius of 50 metres.

SPZ2 – Outer protection zone

Defined by a 400 day travel time from a point below the water table. This zone has a minimum radius of 250 or 500 metres around the source, depending on the size of the abstraction.

SPZ3 – Source catchment protection zone

Defined as the area around a source within which all groundwater recharge is presumed to be discharged at the source. In confined aquifers, the source catchment may be displaced some distance from the source. For heavily exploited aquifers, the final Source Catchment Protection Zone can be defined as the whole aquifer recharge area where the ratio of groundwater abstraction to aquifer recharge (average recharge multiplied by outcrop area) is >0.75.

The nearest surface water feature appears to be Saxon Lake, approximately 355 metres to the southwest.

The main water course of significance to the site would appear to be the River Colne 750 which is approximately 750 metres to the northwest at the nearest point.

These are both considered to be too distant to be significantly impacted by the site.

The Environment Agency maps show the site is not located within a flood zone.

The British Geological Society data shows the site is not located in an area with potential for groundwater flooding to occur.

6.3 Fieldwork Summary

The ground conditions encountered are summarised in the following table. Full records are contained in appendix D.

Depth from (mbgl)	Depth to (mbgl)	Description
0.00	0.35/0.80+	MADE GROUND
0.35/0.40	0.80 +	Firm Silty CLAY (BH2 – BH5)

7 PROPOSED DEVELOPMENT

Plan details for the proposed redevelopment of the site are shown on the drawing contained in appendix B.

The drawing shows a development comprising a two-storey residential development, with parking space and private gardens.

Site levels will remain generally as existing.

Access to the property is gained via a dedicated entrance from Rowan Road and Great Benty.

8 CONTAMINATION SAMPLING and TESTING

8.1 Laboratory Testing

All samples were placed immediately in cool boxes with ice packs and collected by courier for transport to the laboratory.

The chemical testing was carried out in accordance with standard industry methods in a UKAS approved laboratory which is also currently accredited in accordance with MCERTS for the majority of its testing. Further information regarding this accreditation is available on request together with a full list of test methods if required.

All samples were tested for a range of commonly occurring contaminants and indicators of contamination including those given by the Contaminated Land Exposure Assessment (CLEA). These include, heavy metals, aromatic and aliphatic hydrocarbons, in accordance with Environment Agency guidelines, and speciated PolyAromatic Hydrocarbon (PAH) only.

All samples were analysed for the presence of asbestos.

8.2 Test Results

All the results have been compared to the Atkins ATRISKsoil SSVs for residential use with plant uptake, for 1% or 6% as appropriate, where available. These guideline values have been derived using the updated CLEA v1.071 model, previously published Category 4 Screening Levels (C4SLs) by DEFRA and information in the Environment Agency guidance SR2. Where ATRISKsoil SSVs have not been derived, the Category 4 Screening Levels have been used, and for determinands which do not have either of the above, the LQM/CIEH Suitable 4 Use Levels (S4ULs) assessment criteria have been used.

All samples were screened in the laboratory for the presence of asbestos fibres.

No asbestos was identified in any of the samples.

9 DISCUSSION

In this investigation samples were tested for a range of commonly occurring contaminants and indicators of contamination including those given by the Contaminated Land Exposure Assessment (CLEA).

All the samples returned results below the screening values for a residential with plant uptake scenario.

No olfactory or visual evidence of contamination was identified during sampling.

All samples were screened in the laboratory for the presence of asbestos fibres. No asbestos was identified in any of the samples.

No significant organic containing material was identified within the ground and it is therefore not considered necessary to undertake any monitoring of potential ground gases.

It is therefore considered that there is no significant risks to on-site and off-site receptors, and therefore no remediation is required.

If any potentially contaminated spoil is to be removed from site, the Waste Acceptance Criteria (WAC) testing should be agreed with the facility to which the spoil is being transported. It is critical that the WAC results are representative of the material to be disposed of and therefore care must be taken to ensure that different materials are not mixed. Guidance can be obtained from Environment Agency document *Waste Sampling and Testing for Disposal to Landfill*.

10 REVISED CONCEPTUAL MODEL

The legislative framework for the regulation of contaminated land is embodied in Part IIA of the Environmental Protection Act 1990, implemented in the Contaminated Land (England) Regulations 2000. This legislation allows for the identification and

remediation of land where contamination is causing unacceptable risks to human health or the wider environment. The approach adopted by UK contaminated land policy is that of “suitability for use” which implies that the land should be suitable for its current use and made suitable for any proposed future use.

In this revised contamination assessment the site has been modelled using the Source-Pathway-Receptor approach to produce a site specific conceptual model.

Source - substances or potential contaminants which may cause harm

Pathway - a linkage or route between a source and receptor

Receptor - humans, plant life, groundwater etc., which could be harmed by a contaminant

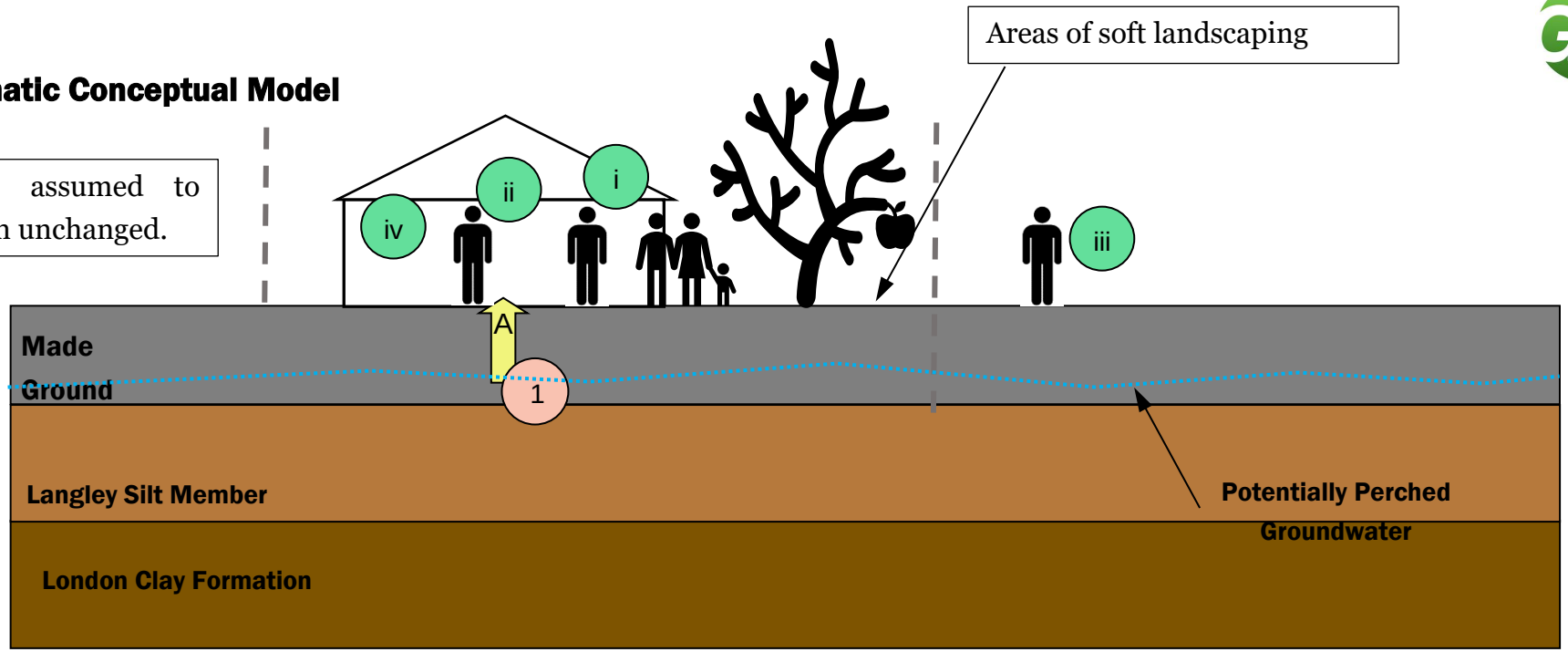
Geological records indicate that the site is not underlain by an aquifer in the superficial stratum and therefore there is not considered to be a significant potential for contaminants to be transported either to or from site in the groundwater.

From the information available at present a revised conceptual model has been considered.

		POTENTIAL PATHWAYS											COMMENTS ON DISCOUNTED PATHWAYS	
		Inhalation of contaminated vapour	Inhalation of contaminated dust	Direct Soil Ingestion	Direct dermal contact	Inhalation of asbestos	Drinking contaminated water supply	Direct contact of soil with building materials	Surface water run-off	Surface water percolation to groundwater	Migration via groundwater	Build-up of ground gas - methane		
RECEPTORS	Site Users	N	N	N	N	N	N					N	No exceedances identified in samples No asbestos identified in samples	No significant sources of ground gas identified
	Ground Workers	N	N	N	N	N						N		
	Neighbours	N	N			N			N		N	N		
	Proposed Building							Y				N		
	Watercourse								N		N		No potentially significant watercourse identified nearby.	
	Aquifer									N			No aquifer identified in underlying stratum	

Schematic Conceptual Model

Levels assumed to remain unchanged.



Sources	Pathways	Receptors
1 Naturally occurring contaminants	A Direct contact of soil with building materials	i Site Users ii Ground Workers iii Neighbours iv Proposed Building

11 REVISED RISK ASSESSMENT

The level of information provided by the phase 1 desktop study report together with the other information within this report is considered suitable to provide the data for a satisfactory risk assessment for the site. While there will always be uncertainties due to known or unknown gaps in information it is considered that sufficient information is available to reduce those uncertainties to within acceptable limits for the nature of the site under review.

The phase 1 desktop study identified a potential risk to the sub-structure of the new buildings should any alkaline ground conditions, or elevated sulphate levels be present on the site, however this was beyond the brief of this report. As the protection of concrete is normally resolved in the building design process, the designer of the foundations should undertake appropriate geotechnical investigation and take into account the existing ground conditions.

Only contaminants identified to exceed the environmental screening level have been included in the Risk Assessment.

SOURCES	POTENTIAL POLLUTANT	RECEPTOR	PATHWAY	HAZARD SEVERITY	LIKELIHOOD OF OCCURRENCE	RISK/ SIGNIFICANCE	COMMENT & CONTROL MEASURES
Naturally occurring contaminants	Sulphates pH	Proposed Building	Direct contact of soil with building materials	Medium	Likely	Moderate risk	As the protection of concrete is normally resolved in the building design process, the designer of the foundations should determine the requirement to undertake any investigation.

Any visual or olfactory evidence of contamination noted during works should be investigated by a suitably qualified person and their recommendations implemented.

12 SITE WORKS and UNEXPECTED CONDITIONS

The sample locations were positioned to cover the site. However, there are areas where investigations were not carried out, and although unlikely given the size of the site, it should be considered possible that other areas may potentially be contaminated. Construction operatives should remain vigilant for any unexpected contamination encountered during development (eg discoloured soil or odours or buried waste). Any unexpected conditions should be investigated by a suitably qualified person and their recommendations implemented.

It is recommended that construction operatives use appropriate PPE, normal good hygiene measures, and appropriate dust control measures if necessary. The risks to construction operatives identified, should be addressed under a Construction (Design and Management) (CDM) Plan. The CDM Regulations place legal duties on those involved in construction work. All construction projects require a plan to ensure that health and safety issues are properly considered during a project's development so that the risk of harm to workers is reduced.

13 CONCLUSIONS

In this investigation samples were tested for a range of commonly occurring contaminants and indicators of contamination including those given by the Contaminated Land Exposure Assessment (CLEA).

All the samples returned results below the screening values for a residential with plant uptake scenario.

No olfactory or visual evidence of contamination was identified during sampling.

All samples were screened in the laboratory for the presence of asbestos fibres. No asbestos was identified in any of the samples.

No significant organic containing material was identified within the ground, and it is therefore not considered necessary to undertake any monitoring of potential ground gases.

It is therefore considered that there are no significant risks to on-site and off-site receptors, and therefore no remediation is required.

It is recommended that this report is referenced in the site Health and Safety Plan and that normal good hygiene practice is observed during the works and subsequent building and grounds maintenance.

It is recommended that appropriate dust control measures are implemented during construction. To assist in establishing what would be appropriate reference should be made to the Institute of Air Quality Management report entitled: Guidance on the assessment of dust from demolition and construction, version 1.1.

Whilst asbestos was not detected in samples, it is very unlikely but possible that asbestos may be present in other areas of the site and therefore construction operatives should also ensure that appropriate PPE and good hygiene measures are used, and dust control measures during construction where necessary. Any debris from earlier demolition found during site strip is to be inspected for asbestos by a suitably experienced contractor.

Should any visual or olfactory evidence of contamination be noted during works GO Contaminated Land Solutions and the local authority should be advised and their guidance sought.

If any potentially contaminated spoil is to be removed from site, the Waste Acceptance Criteria (WAC) testing should be agreed with the facility to which the spoil is being transported.

14 REFERENCES

Atkins. (2006, July 13). Retrieved from ATRISKsoil: http://www.atrisksoil.co.uk/

BS 5930, British Standard. Code of practice for ground investigations. *British Standards Institution*.

BS10175, British Standard. (2001). Investigation of potentially contaminated sites - Code of Practice. *London: British Standards Institution*.

Building Research Establishment. (2004). *Cover Systems for Land Regeneration: Thickness of Cover Systems for Contaminated Land (BR 465)*. IHS BRE Press.

Card, G. B., Wilson, S., & Mortimer, S. (2012). *A Pragmatic Approach to Ground Gas Risk Assessment*. London, UK: Contaminated Land: Applications in Real Environments.

Contaminated Land: Applications in Real Environment (CL:AIRE). (2009). *Soil Generic Assessment Criteria for Human Health Risk Assessment*. London: CL:AIRE.

Contaminated Land: Applications in Real Environment (CL:AIRE). (2014). *Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination*.

Environment Agency. Land Contamination Risk Management (LCRM).

Environment Agency. (2013). *Groundwater protection: principles and practice (GP3)*. Bristol: Environment Agency.

Environment Agency. (2013). *Waste Sampling and Testing for Disposal to Landfill*. Bristol, UK: EA.

Health and Safety Executive. (2012). *The Control of Asbestos Regulations 2012*.

Health and Safety Executive. (2015). *Construction (Design and Management) Regulations 2015*.

Nathanial, C. P., McCaffrey, C., Gillet, A. G., Ogden, R. C., & Nathanial, J. F. (2015). *The LQM/CIEH S4ULs for Human Health Risk Assessment*. Nottingham: Land Quality Press.

UK Water Industry Research Ltd. (2010). *Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites*. UKWIR.

Wilson, S., Oliver, S., Mallet, H., Hutchings, H., & Card, G. (2007). *CIRIA Report C665. Assessing risks posed by hazardous gases to buildings*. London, UK: Construction Industry Research and Information Association.

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The recommendations made and the opinions expressed in this report are based on the borehole records, examination of samples and the results of site and laboratory tests.

The report is issued on the condition that GO Contaminated Land Solutions Ltd will under no circumstances be liable for any loss arising directly or indirectly from ground conditions between the boreholes or trial pits which have not been shown by the boreholes, trial pits or other tests carried out during the investigation.

In addition, GO Contaminated Land Solutions Ltd will not be liable for any loss whatsoever arising directly or indirectly from any opinion given on the possible configuration of strata either between the borehole positions or below the maximum depth of the investigation. Such opinions, where given, are for guidance only.

Groundwater levels may also vary with time from those reported during our site investigation due to factors such as tidal conditions, heavy pumping from nearby wells or seasonal changes.

All soil samples will be kept for a period of 28 days after the date of the invoice for this project unless otherwise notified to GO Contaminated Land Solutions Ltd in writing. Should samples be required to be stored for longer than 28 days then a storage charge will be levied.

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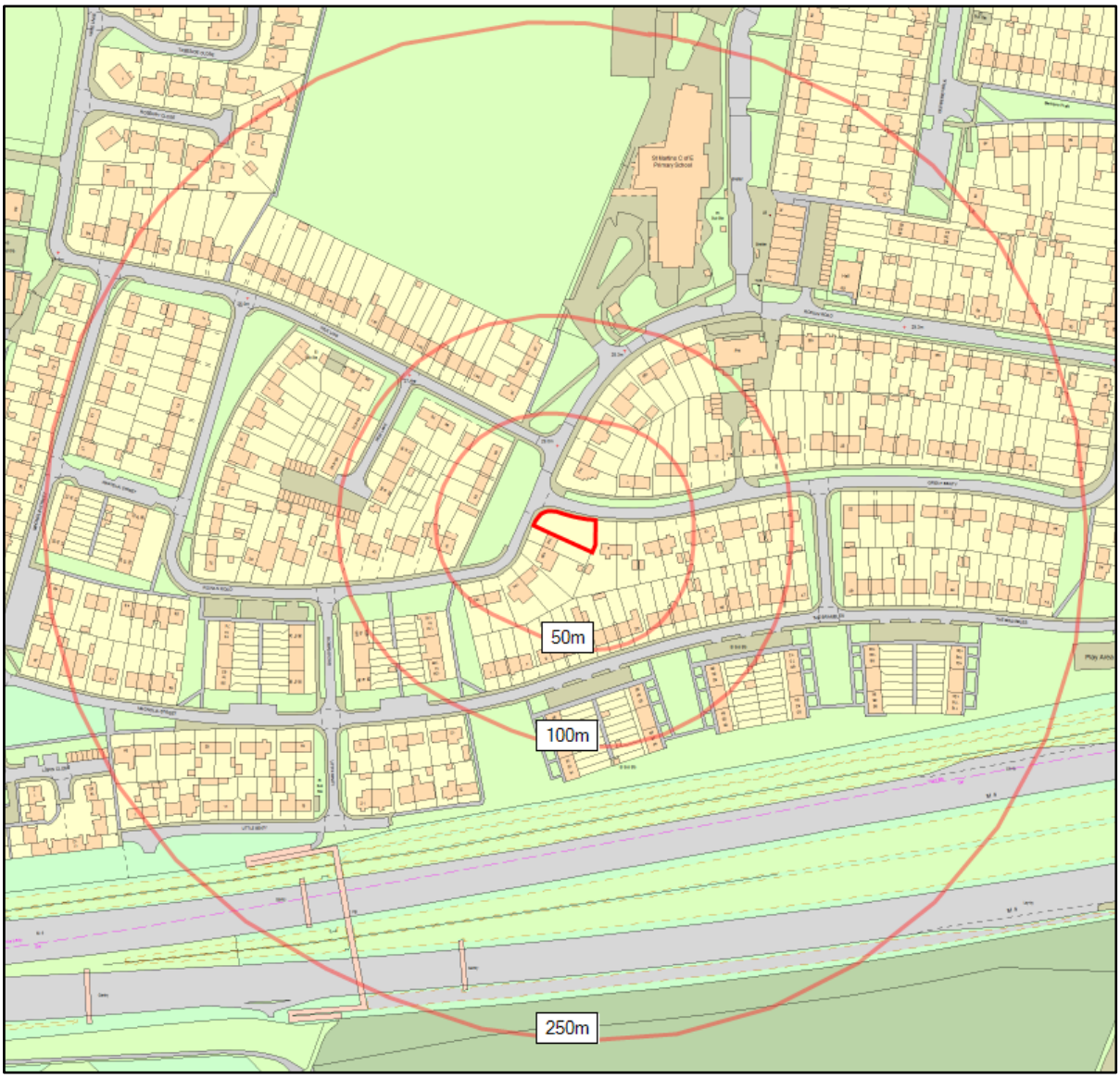
Appendix A – Site Location Plan


50m
100m
250m

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Appendix B – Site Works Plan

KEY:

Standard contamination suite: heavy metals, total petroleum hydrocarbons, polyaromatic hydrocarbons, asbestos

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Appendix C – Proposed Site Plan

0 5 10 15 20m

Scale 1:200

NOTES

ROWAN ROAD

GREAT BENTY

142

1

new 1.5m bow top fence with matching gates

existing soft planting and hedge retained

new gate

existing dropped kerb retained

tarmac footpath

new 1.8m high cb timber fence with 300mm trellises over shown thus matching lockable gate as shown

telepgraph pole

grass

front garden 61.5m²

side garden 50.7m²

grass

new gate

new trees

1 x car parking space

new 1.8m high cb timber fence with 300mm trellises over

new hedgerow and trees

new hedgerow and trees

existing trees

new gate

grass

active car charging point

patio

existing tree

rear garden 167.4m²

permeable paving to paths and patio

sbd bike store

existing gate

existing tree

140

138

new gate with 1.8m high fence and 300mm trelliss over

existing 1.8m high cb timber fence retained

garden

1.8m ht fence installed next to neighbour's fence

2

4

Rev	Revision notes	Initials	Date
-	-	-	-

HILLINGDON
LONDON

PLACE DIRECTORATE
CAPITAL PROGRAMME WORKS SERVICE
2E/10, CIVIC CENTRE, UXBRIDGE, UB8 1UW
Tel: 01895 250 111 www.hillingdon.gov.uk

PROJECT

LAND ADJACENT TO 140 ROWAN ROAD
WEST DRAYTON, UB7 7UE

DESCRIPTION

PROPOSED SITE PLAN

SCALE	DRAWN BY	CHECKED BY	DATE
1:200@A3	DB		FEB 2022

DRAWING No. 2022/D/325/03

REV.

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Appendix D –Borehole Logs

GO Contaminated Land Solutions
4 De Frene Rd
London, SE26 4AB
Tel.: 020 8291 1354
Email: askgo@gosolve.co.uk
Web: www.gosolve.co.uk

BOREHOLE LOG

Project	**140 Rowan Road, West Drayton**	**Project No.**	**2604**
Client	**Ewang Practice**	**Survey date:**	**03 April 2024**

Log ID BH1 Hole type: BH

Water Strikes	Samples Type	Samples depth (m)	Level (m OD)	Depth (m)	Legend	Stratum Description and Observations	Depth (m)
	C	0.20 - 0.60		0.80		MADE GROUND - Silty CLAY containing brick fragments and charcoal pieces	-0.10 -0.20 -0.30 -0.40 -0.50 -0.60 -0.70 -0.80
						BH halted on solid obstruction	-0.90 -1.00 -1.10 -1.20 -1.30 -1.40 -1.50 -1.60 -1.70

▽ Water strike

Remarks: Groundwater not noted during excavations. No visual or olfactory evidence of contamination noted.

Key: C - Contamination sample W - Water sample P - PID test

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4 De Frene Rd
London, SE26 4AB
Tel.: 020 8291 1354
Email: askgo@gosolve.co.uk
Web: www.gosolve.co.uk

BOREHOLE LOG

Project	**140 Rowan Road, West Drayton**	**Project No.**	**2604**
Client	**Ewang Practice**	**Survey date:**	**03 April 2024**

Log ID BH2 Hole type: BH

Water Strikes	Samples Type	Samples depth (m)	Level (m OD)	Depth (m)	Legend	Stratum Description and Observations	Depth (m)
	C	0.10 - 0.40				MADE GROUND - Silty CLAY containing occasional brick fragments	-0.10
							-0.20
							-0.30
				0.40			-0.40
						Firm Silty CLAY	-0.50
							-0.60
							-0.70
				0.75		BH terminated	-0.80
							-0.90
							-1.00
							-1.10
							-1.20
							-1.30
							-1.40
							-1.50
							-1.60
							-1.70

▽ Water strike

Remarks: Groundwater not noted during excavations. No visual or olfactory evidence of contamination noted.

Key: C - Contamination sample W - Water sample P - PID test

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BOREHOLE LOG

Project	**140 Rowan Road, West Drayton**	**Project No.**	**2604**
Client	**Ewang Practice**	**Survey date:**	**03 April 2024**

Log ID BH3 Hole type: BH

Water Strikes	Samples Type	Samples depth (m)	Level (m OD)	Depth (m)	Legend	Stratum Description and Observations	Depth (m)
	C	0.10 - 0.40				MADE GROUND - Silty CLAY containing brick fragments, charcoal pieces and clinker	-0.10 -0.20 -0.30 -0.40
				0.40		Firm Silty CLAY	-0.50
				0.60		BH terminated	-0.60 -0.70 -0.80 -0.90 -1.00 -1.10 -1.20 -1.30 -1.40 -1.50 -1.60 -1.70

▽ Water strike

Remarks: Groundwater not noted during excavations. No visual or olfactory evidence of contamination noted.

Key: C - Contamination sample W - Water sample P - PID test

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London, SE26 4AB
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BOREHOLE LOG

Project	**140 Rowan Road, West Drayton**	**Project No.**	**2604**
Client	**Ewang Practice**	**Survey date:**	**03 April 2024**

Log ID BH4 Hole type: BH

Water Strikes	Samples Type	Samples depth (m)	Level (m OD)	Depth (m)	Legend	Stratum Description and Observations	Depth (m)
	C	0.10 - 0.35				MADE GROUND - Silty CLAY containing brick and charcoal fragments	-0.10
							-0.20
							-0.30
				0.35			
						Firm Silty CLAY	-0.40
							-0.50
							-0.60
				0.70			-0.70
						BH terminated	-0.80
							-0.90
							-1.00
							-1.10
							-1.20
							-1.30
							-1.40
							-1.50
							-1.60
							-1.70

▽ Water strike

Remarks: Groundwater not noted during excavations. No visual or olfactory evidence of contamination noted.

Key: C - Contamination sample W - Water sample P - PID test

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Email: askgo@gosolve.co.uk
Web: www.gosolve.co.uk

BOREHOLE LOG

Project	**140 Rowan Road, West Drayton**	**Project No.**	**2604**
Client	**Ewang Practice**	**Survey date:**	**05 April 2024**

Log ID BH5 Hole type: BH

Water Strikes	Samples Type	Samples depth (m)	Level (m OD)	Depth (m)	Legend	Stratum Description and Observations	Depth (m)
	C	0.10 - 0.40				MADE GROUND - Clayey SILT containing brick fragments and charcoal pieces	-0.10
							-0.20
							-0.30
				0.40			-0.40
						Firm Silty CLAY	-0.50
							-0.60
							-0.70
				0.80			-0.80
						BH halted on solid obstruction	-0.90
							-1.00
							-1.10
							-1.20
							-1.30
							-1.40
							-1.50
							-1.60
							-1.70

▽ Water strike

Remarks: Groundwater not noted during excavations. No visual or olfactory evidence of contamination noted.

Key: C - Contamination sample W - Water sample P - PID test

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Appendix E– Borehole Photographs

BH1

BH2

BH3

BH4

BH5	
	
	

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Appendix F – Contamination Test Results

RESIDENTIAL WITH HOMEGROWN PRODUCE (RwHP) - SOM 1%										
Determinand	Unit	GAC	Source	Concentration					Number of Tests	Number of Exceedences
				BH1	BH2	BH3	BH4	BH5		
Metals										
Arsenic	mg/kg	37.0	DEFRA C4SL	12.3	10.4	12.5	10.8	11.4	5	0
Cadmium	mg/kg	22.1	DEFRA C4SL	1.3	1.6	1.3	1.5	1.4	5	0
Chromium (III)	mg/kg	14300.0	ATRISK SSV	27.9	26.9	24.3	26.3	26.1	5	0
Copper	mg/kg	4730.0	ATRISK SSV	35.2	38.6	59.3	36.9	36.5	5	0
Lead	mg/kg	200.0	DEFRA C4SL	59.0	68.6	104	63.1	70.4	5	0
Mercury (Inorganic)	mg/kg	180.0	ATRISK SSV	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	5	0
Nickel	mg/kg	136.0	ATRISK SSV	24.4	19.3	26.8	19.4	19.8	5	0
Selenium	mg/kg	375.0	ATRISK SSV	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	5	0
Zinc	mg/kg	20000.0	ATRISK SSV	109	91.8	161	95.0	104	5	0
Inorganics										
Free Cyanide	mg/kg	34.0	ATRISK SSV	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	5	0
Hexavalent Chromium	mg/kg	20.5	DEFRA C4SL	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	5	0
Miscellaneous										
Moisture Content	%	-	-	19.6	15.8	17.2	16.2	14.7	5	-
pH	pH units	-	-	7.9	7.9	9.2	8.3	8.3	5	-
Soil Organic Matter	%	-	-	2.4	1.8	3.9	2.5	1.5	5	-
Stones Content	%	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	5	-
Phenols										
Total Monohydric Phenols	mg/kg	280.0	LQM/CIEH	<5	<5	<5	<5	<5	5	0
Polyaromatic hydrocarbons										
Naphthalene	mg/kg	0.83	ATRISK SSV	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	5	0
Acenaphthylene	mg/kg	170.0	LQM/CIEH	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	5	0
Acenaphthene	mg/kg	608.0	ATRISK SSV	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	5	0
Fluorene	mg/kg	735.0	ATRISK SSV	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	5	0
Phenanthrene	mg/kg	95.0	LQM/CIEH	< 0.5	< 0.5	0.6	< 0.5	< 0.5	5	0
Anthracene	mg/kg	10200.0	ATRISK SSV	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	5	0
Fluoranthene	mg/kg	983.0	ATRISK SSV	< 0.5	< 0.5	1.2	0.6	< 0.5	5	0
Pyrene	mg/kg	668.0	ATRISK SSV	< 0.5	< 0.5	1.1	< 0.5	< 0.5	5	0
Benzo(a)anthracene	mg/kg	7.2	LQM/CIEH	< 0.5	< 0.5	0.7	< 0.5	< 0.5	5	0
Chrysene	mg/kg	15	LQM/CIEH	< 0.5	< 0.5	0.9	< 0.5	< 0.5	5	0
Benzo(b)fluoranthene	mg/kg	2.6	LQM/CIEH	< 0.5	< 0.5	1.0	< 0.5	< 0.5	5	0
Benzo(k)fluoranthene	mg/kg	77	LQM/CIEH	< 0.5	< 0.5	0.8	< 0.5	< 0.5	5	0
Benzo(a)pyrene	mg/kg	4.95	DEFRA C4SL	< 0.5	< 0.5	0.7	< 0.5	< 0.5	5	0
Indeno (1,2,3-cd) pyrene	mg/kg	27	LQM/CIEH	< 0.5	< 0.5	0.6	< 0.5	< 0.5	5	0
Dibenzo(a,h)anthracene	mg/kg	0.24	LQM/CIEH	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	5	0
Benzo(g,h,i)perylene	mg/kg	320	LQM/CIEH	< 0.5	< 0.5	0.5	< 0.5	< 0.5	5	0
TPH CWG										
>C_5-C_6 Aliphatic	mg/kg	42.7	ATRISK SSV	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	5	0
>C_6-C_8 Aliphatic	mg/kg	99.3	ATRISK SSV	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	5	0
>C_8-C_{10} Aliphatic	mg/kg	13.9	ATRISK SSV	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	5	0
>C_{10}-C_{12} Aliphatic	mg/kg	81.7	ATRISK SSV	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	5	0
>C_{12}-C_{16} Aliphatic	mg/kg	385.0	ATRISK SSV	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	5	0
>C_{16}-C_{35} Aliphatic	mg/kg	210000.0	ATRISK SSV	< 1.0	< 1.0	2.2	< 1.0	< 1.0	5	0
>C_{35}-C_{40} Aliphatic	mg/kg	65000.0	LQM/CIEH	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	5	0
>C_5-C_7 Aromatic (benzene)	mg/kg	0.14	ATRISK SSV	<0.01	<0.01	<0.01	<0.01	<0.01	5	0
>C_7-C_8 Aromatic (toluene)	mg/kg	113.0	ATRISK SSV	<0.01	<0.01	<0.01	<0.01	<0.01	5	0
>C_8-C_{10} Aromatic	mg/kg	20.5	ATRISK SSV	<1.0	<1.0	<1.0	<1.0	<1.0	5	0
>C_{10}-C_{12} Aromatic	mg/kg	70.0	ATRISK SSV	<1.0	<1.0	<1.0	<1.0	<1.0	5	0
>C_{12}-C_{16} Aromatic	mg/kg	165.0	ATRISK SSV	<1.0	<1.0	<1.0	<1.0	<1.0	5	0
>C_{16}-C_{21} Aromatic	mg/kg	319.0	ATRISK SSV	<1.0	<1.0	<1.0	<1.0	<1.0	5	0
>C_{21}-C_{35} Aromatic	mg/kg	1120.0	ATRISK SSV	<1.0	<1.0	<1.0	<1.0	<1.0	5	0
>C_{35}-C_{44} Aromatic	mg/kg	1100.0	LQM/CIEH	<1.0	<1.0	<1.0	<1.0	<1.0	5	0

Unit A2
Windmill Road
Ponswood Industrial Estate
St Leonards on Sea
East Sussex
TN38 9BY
Telephone: (01424) 718618

cs@elab-uk.co.uk
info@elab-uk.co.uk

2683

Certificate of Analysis

THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	24-53122
Issue:	1
Date of Issue:	12/04/2024
Contact:	Peter George
Customer Details:	GO Contaminated Land Solutions Ltd 4 De Frene Road Sydenham London SE26 4AB
Quotation No:	Q24-04324
Order No:	2604
Customer Reference:	2604
Date Received:	05/04/2024
Date Approved:	12/04/2024
Details:	140 Rowan Road, West Drayton
Approved by:	

Ben Rees, Customer Services Assistant

Sample Summary

Report No.: 24-53122, issue number 1

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
357162	BH1 0.20 - 0.60	03/04/2024	05/04/2024	Silty loam	
357163	BH2 0.10 - 0.40	03/04/2024	05/04/2024	Silty loam	
357164	BH3 0.10 - 0.40	03/04/2024	05/04/2024	Silty loam	
357165	BH4 0.10 - 0.35	03/04/2024	05/04/2024	Silty loam	
357166	BH5 0.10 - 0.40	03/04/2024	05/04/2024	Silty loam	

Results Summary

Report No.: 24-53122, issue number 1

ELAB Reference				357162	357163	357164	357165	357166
Customer Reference								
Sample ID								
Sample Type				SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location				BH1	BH2	BH3	BH4	BH5
Sample Depth (m)				0.20 - 0.60	0.10 - 0.40	0.10 - 0.40	0.10 - 0.35	0.10 - 0.40
Sampling Date				03/04/2024	03/04/2024	03/04/2024	03/04/2024	03/04/2024
Determinand	**Codes**	**Units**	**LOD**					
Soil sample preparation parameters								
Moisture Content	N	%	0.1	19.6	15.8	17.2	16.2	14.7
Stones Content	N	%	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Material removed	N	%	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Description of Inert material removed	N		0	None	None	None	None	None
Metals								
Arsenic	M	mg/kg	1	12.3	10.4	12.5	10.8	11.4
Cadmium	M	mg/kg	0.5	1.3	1.6	1.3	1.5	1.4
Chromium	M	mg/kg	5	27.9	26.9	24.3	26.3	26.1
Copper	M	mg/kg	5	35.2	38.6	59.3	36.9	36.5
Lead	M	mg/kg	5	59.0	68.6	104	63.1	70.4
Mercury	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Nickel	M	mg/kg	5	24.4	19.3	26.8	19.4	19.8
Selenium	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc	M	mg/kg	5	109	91.8	161	95.0	104
Inorganics								
Free Cyanide	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Miscellaneous								
pH	M	pH units	0.1	7.9	7.9	9.2	8.3	8.3
Soil Organic Matter	U	%	0.1	2.4	1.8	3.9	2.5	1.5
Phenols								
Total Monohydric Phenols	N	mg/kg	5	< 5	< 5	< 5	< 5	< 5

Results Summary

Report No.: 24-53122, issue number 1

ELAB Reference	357162	357163	357164	357165	357166
Customer Reference					
Sample ID					
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	BH1	BH2	BH3	BH4	BH5
Sample Depth (m)	0.20 - 0.60	0.10 - 0.40	0.10 - 0.40	0.10 - 0.35	0.10 - 0.40
Sampling Date	03/04/2024	03/04/2024	03/04/2024	03/04/2024	03/04/2024

Determinand	Codes	Units	LOD					
Polyaromatic hydrocarbons								
Naphthalene	N	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	N	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthene	N	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	N	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	N	mg/kg	0.5	< 0.5	< 0.5	0.6	< 0.5	< 0.5
Anthracene	N	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	N	mg/kg	0.5	< 0.5	< 0.5	1.2	0.6	< 0.5
Pyrene	N	mg/kg	0.5	< 0.5	< 0.5	1.1	< 0.5	< 0.5
Benzo(a)anthracene	N	mg/kg	0.5	< 0.5	< 0.5	0.7	< 0.5	< 0.5
Chrysene	N	mg/kg	0.5	< 0.5	< 0.5	0.9	< 0.5	< 0.5
Benzo(b)fluoranthene	N	mg/kg	0.5	< 0.5	< 0.5	1.0	< 0.5	< 0.5
Benzo(k)fluoranthene	N	mg/kg	0.5	< 0.5	< 0.5	0.8	< 0.5	< 0.5
Benzo(a)pyrene	N	mg/kg	0.5	< 0.5	< 0.5	0.7	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	N	mg/kg	0.5	< 0.5	< 0.5	0.6	< 0.5	< 0.5
Dibenzo(a,h)anthracene	N	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo[g,h,i]perylene	N	mg/kg	0.5	< 0.5	< 0.5	0.5	< 0.5	< 0.5
Total PAH(16)	N	mg/kg	2	< 2	< 2	8.6	< 2	< 2
TPH CWG								
>C5-C6 Aliphatic (HS_1D_MS_AL)	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C6-C8 Aliphatic (HS_1D_MS_AL)	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C21 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C35 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1	< 1.0	< 1.0	2.2	< 1.0	< 1.0
>C21-C35 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1	< 1.0	< 1.0	1.7	< 1.0	< 1.0
>C35-C40 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total (>C5-C40) Aliphatic (HS_1D_MS+EH_CU_1D_AL)	N	mg/kg	1	< 1.0	< 1.0	1.7	< 1.0	< 1.0
>C5-C7 Aromatic (HS_1D_MS_AR)	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C7-C8 Aromatic (HS_1D_MS_AR)	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aromatic (EH_CU_1D_AR)	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aromatic (EH_CU_1D_AR)	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aromatic (EH_CU_1D_AR)	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C21 Aromatic (EH_CU_1D_AR)	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C21-C35 Aromatic (EH_CU_1D_AR)	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C35-C40 Aromatic (EH_CU_1D_AR)	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total (>C5-C40) Aromatic (HS_1D_MS+EH_CU_1D_AR)	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total (>C5-C40) Ali/Aro (HS_1D_MS+EH_CU_1D_Total)	N	mg/kg	1	< 1.0	< 1.0	1.7	< 1.0	< 1.0

Unit A2, Windmill Road, Ponswood Industrial Estate, St Leonards on Sea, East Sussex, TN38 9BY
Tel: +44 (0)1424 718618, Email: info@elab-uk.co.uk, Web: www.elab-uk.co.uk

Results Summary

Report No.: 24-53122, issue number 1

Asbestos Results

Analytical result only applies to the sample as submitted by the client. Any comments, opinions or interpretations (marked #)
in this report are outside UKAS accreditation (Accreditation No2683). They are subjective comments only which must be verified by the client.

In accordance with procedures, a 1kg soil sample should be analysed. For amounts less than this caution should be used when analysing the data as
sample size is smaller than the recommended amount, therefore samples could be deemed as not being representative of the materials present on site.

Elab No	Depth (m)	Clients Reference	Description of Sample Matrix #	Asbestos Identification	Gravimetric Analysis Total (%)	Gravimetric Analysis by ACM Type (%)	Free Fibre Analysis (%)	Total Asbestos (%)	F/mm2 (I)
357162	0.20 - 0.60	BH1	Brown Soil,Stones	No asbestos detected	n/t	n/t	n/t	n/t	n/t
357163	0.10 - 0.40	BH2	Brown Soil,Stones	No asbestos detected	n/t	n/t	n/t	n/t	n/t
357164	0.10 - 0.40	BH3	Brown Soil,Stones,Clinker,Brick	No asbestos detected	n/t	n/t	n/t	n/t	n/t
357165	0.10 - 0.35	BH4	Brown Sandy Soil,Stones,Clinker	No asbestos detected	n/t	n/t	n/t	n/t	n/t
357166	0.10 - 0.40	BH5	Brown Sandy Soil	No asbestos detected	n/t	n/t	n/t	n/t	n/t

Method Summary

Report No.: 24-53122, issue number 1

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
Free cyanide	N	As submitted sample	08/04/2024	107	Colorimetry
Hexavalent chromium	N	As submitted sample	08/04/2024	110	Colorimetry
pH	M	Air dried sample	08/04/2024	113	Electromeric
Aqua regia extractable metals	M	Air dried sample	08/04/2024	300	ICPMS
Phenols in solids	N	As submitted sample	08/04/2024	121	HPLC
PAH (GC-FID)	N	As submitted sample	08/04/2024	133	GC-FID
Low range Aliphatic hydrocarbons soil	N	As submitted sample	09/04/2024	181	GC-MS
Low range Aromatic hydrocarbons soil	N	As submitted sample	09/04/2024	181	GC-MS
Aliphatic hydrocarbons in soil	N	As submitted sample	08/04/2024	214	GC-FID
Aliphatic/Aromatic hydrocarbons in soil	N	As submitted sample	09/04/2024	214	GC-FID
Aromatic hydrocarbons in soil	N	As submitted sample	08/04/2024	214	GC-FID
Asbestos identification	U	Air dried sample	10/04/2024	281	Microscopy
Soil organic matter	U	Air dried sample	08/04/2024	BS1377:P3	Titrimetry

Tests marked N are not UKAS accredited

Report Information

Report No.: 24-53122, issue number 1

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
NS	Subcontracted to approved laboratory. UKAS accreditation is not applicable.
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"
LOD	LOD refers to limit of detection, except in the case of pH soils and pH waters where it means limit of discrimination.
	Soil sample results are expressed on an air dried basis (dried at < 30°C), and are uncorrected for inert material removed.
	ELAB are unable to provide an interpretation or opinion on the content of this report.
	The results relate only to the sample received.
	PCB congener results may include any coeluting PCBs
	Uncertainty of measurement for the determinands tested are available upon request
	Unless otherwise stated, sample information has been provided by the client. This may affect the validity of the results.

Deviation Codes

a	No date of sampling supplied
b	No time of sampling supplied (Waters Only)
c	Sample not received in appropriate containers
d	Sample not received in cooled condition
e	The container has been incorrectly filled
f	Sample age exceeds stability time (sampling to receipt)
g	Sample age exceeds stability time (sampling to analysis)

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month
All water samples will be retained for 7 days following the date of the test report
Charges may apply to extended sample storage

TPH Classification - HWOL Acronym System

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
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
2D	GC-GC - Double coil gas chromatography
#1	EH_Total but with humics mathematically subtracted
#2	EH_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry

End of Report