

Phase 2 Intrusive Site Investigation

15 February 2025

Noss Pearl

Land west of 55 Shelley Road, Prestwich, Manchester, M25 9GH

Report by Mr Louis Turner BSc (Hons)

Supervised by Mr Joseph Turner

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1. Introduction

The following document is a Phase 2 Intrusive Site Investigation carried out by Oakshire Environmental, and includes details of the site, sampling methodology, ground conditions, an evaluation of risk and an assessment of further investigations.

1.1 Project Overview

The client's proposed project involves the erection of 1 no. 4 bed dwelling with associated landscaping on land west of 55 Shelley Road, Prestwich, Manchester, M25 9GH. Following the identification of potential contaminant linkages at the site, an intrusive site investigation has been recommended. Oakshire Environmental will carry out an Intrusive Site Investigation, as described below.

1.2 Purpose of Investigation

The objectives of the Intrusive Site Investigation will be to:

- Establish the context and setting of development at the site.
- Identify and assess the nature and extent of contamination risk at the site.
- Determine the requirement for further investigations, remediation or mitigation measures.

1.3 Scope of Work

- Assess the site and previous investigations, to establish the context and setting of development.
- In order to identify the nature and extent of contamination, 6 x samples (3 x trial pits) will be taken down to a maximum depth of ~1 m and analysed for Metals (As,Be,Cd,Cu,Pb,Hg,Ni,Se,V,Zn), Chromium (III & VI), Phenols, Polycyclic Aromatic Hydrocarbons (USEPA 16), BTEX & MTBE, Total Petroleum Hydrocarbons CWG (Aliphatic/ Aromatic), pH, Organic Matter, Asbestos (Qualitative) and Polychlorinated Biphenyls in a UKAS accredited laboratory.
- Ground conditions encountered at the site, including identification of groundwater and made ground, will be noted and used to inform recommendations and conclusions.
- Results of laboratory testing will be assessed with reference to suitable screening values, including LQM/CIEH Suitable 4 Use Levels (S4ULs), CL:AIRE Category 4 Screening Levels (C4SLs) and Generic Assessment Criteria (GAC).
- This information will be used to produce a Conceptual Site Model, to categorise the severity of consequence and probability of identified contaminant linkages and conduct an evaluation of contamination risk to determine the requirement for further investigations, remediation or mitigation measures.
- Supporting appendix to include photographs, maps and plans of the site.

1.4 Limitations

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This report excludes consideration of potential hazards arising from any activities at the site other than normal use and occupancy for the intended land uses. Hazards associated with any other activities have not been assessed and must be subject to a specific risk assessment by the parties responsible for those activities. Oakshire Environmental does not warrant or guarantee that the site is free of hazardous or potentially hazardous materials or conditions. It should be noted that this report has been produced for environmental purposes only.

Oakshire Environmental cannot be held responsible for incorrect analysis of samples. The information and conclusions provided in this report are limited to, and representative of, the samples taken and cannot be extended to apply to the whole site, in addition, Oakshire Environmental cannot guarantee the accuracy of analysis for samples not taken at the source by the company or those which deviate due to exceedance of holding time or inappropriate sampling practises. The findings and/or recommendations of this report do not take into account any conditions that may be present but have hitherto not been encountered and as such further investigation and/or a reconsideration of the findings of this report should be undertaken if such conditions are subsequently encountered or an alternative development plan or land use is subsequently proposed.

2. Site

The following section provides a description of the site and location, proposed project and previous investigations, utilising information obtained from the client and publicly available sources.

2.1 Site Description and Location

The site is located on land west of 55 Shelley Road, Prestwich, Manchester, M25 9GH and comprises a disused plot of land. At time of site visit, on 29th January 2025, the site was overgrown and included demolition rubble, domestic waste materials and concrete slabs associated with the former garages

National Grid Reference: 551461 187628

2.2 Proposed Development

The client's proposed development involves the construction of 1 no. 4 bed dwelling with associated landscaping.

2.3 Previous Investigations

The site currently comprises parkland adjacent to residential properties and an electrical substation. Records held by the Council indicate that the parkland, including land within the proposal boundary, is a known landfill site. It is understood that the site was subject to landfilling comprising domestic and commercial waste from c1953 until c1984 with the landfill licence surrendered c1991. Gas venting was installed following c1994 planning approval to the north, east and SE boundary. Due to the sensitivity of the proposed land use and potential contaminant linkages, it was recommended that a contaminated land investigation is undertaken.

3. Methodology

3.1 Sampling Work

Three trial pits were excavated at the locations shown on plans in the appendix, with ground conditions noted during the sampling process to inform recommendations and conclusions.

Six soil samples were collected, two from each trial pit, by a qualified Oakshire Environmental consultant, using a window sampler and soil was then collected from the sampler and placed into sealed sample containers. Samples collected for VOC analysis were filled as much as possible to minimise air spaces, as volatile compounds can be lost into these spaces. Sampling equipment was wiped clean between sample locations to minimise cross contamination.

3.2 Sampling Strategy

Six samples was considered to be a sufficient sample size, based on the size of the site, proposed use areas and the levels of contamination expected. Locations were chosen to focus on the proposed soft landscaping areas, while providing coverage across the site, in addition, range of sample depths were chosen to allow identification of variability through the soil profile and assess the nature and extent of made ground.

Soil in proposed soft landscaping areas at the site were sampled as this will represent the soil that is most likely to impact future site users through inhalation, ingestion and dermal contact pathways, with deeper samples also collected to assess the risk to future site users and the proposed building from the ingress of vapours and ground gases from on-site ground gas generation.

3.3 Health & Safety

When collecting soil samples on a potentially contaminated site it must be assumed that the soil is contaminated in order to protect the health of the assessor. Protective rubber gloves were worn at all times as well as substantial footwear. Equipment was washed thoroughly before and after use and kept in a container when transported to avoid the spread of any possible contamination. Sample containers were packed with biodegradable fill for protection and placed in a sealed plastic container for transportation to the laboratory.

4. Ground Conditions

Ground conditions in trial pit TP01 comprised made ground to a depth of 0.90m, with orangey brown slightly sandy clay with occasional gravel to the bottom of the trial pit at 1.10m.

Ground conditions in trial pit TP02 comprised made ground to a depth of 0.50m, with orangey and greyish brown sand with occasional gravel and patches of yellow sand to the bottom of the trial pit at 0.80m.

Ground conditions in trial pit TP03 comprised made ground to a depth of 0.30m, with orangey and greyish brown sand with occasional gravel and roots to the bottom of the trial pit at 0.50m.

Detailed trial pit logs are provided in the Appendix.

5. Evaluation of Results

5.1 Screening Values

Results of laboratory testing of soil samples were analysed by comparing them to industry standard screening levels used for risk assessments. Screening levels used include the DEFRA Category 4 Screening Levels (C4SLs) based on Low Level of Toxicological Risk and the LQM/CIEH S4ULs for Human Health Risk Assessment. These levels cover multiple Soil Organic Matter (SOM) contents (1%, 2% and 6%) and assume a pH of 8. The 'residential with plant uptake' screening values were used to assess results. This land use considers direct soil and indoor dust ingestion and inhalation, skin contact with soils and dust, inhalation of vapours and ingestion of homegrown produce as exposure pathways. These levels take a conservative approach to assessing potential risk and concentrations below these screening values can be considered to represent 'uncontaminated conditions' which pose 'LOW' risk to human health based on the proposed land use.

It is important to note that exceedance of a relevant screening value does not necessarily constitute evidence of either a 'significant possibility of significant harm' or the need for remediation under the UK's planning regimes. Rather such exceedance should usually trigger a further detailed quantitative risk assessment, where site-specific parameters are used to derive site-specific assessment criteria. Common sense tells us, and a robust risk evaluation reveals, that a gross exceedance is a good indicator that an unacceptable risk is present.

5.2 Summary of Results

- Lead concentrations were elevated and exceeded residential with plant uptake land use screening values in samples S01 (TP01) and S03 (TP02) taken from shallow made ground, however, concentrations were generally low in all other samples
- pH was alkaline in all samples
- Phenols and cresols concentrations were below the laboratory limit of detection in all samples
- Total Organic Carbon value was moderate in samples S01 and S05 and was low in samples S02, S03, S04 and S06
- Polycyclic Aromatic Hydrocarbons (*Benzo[b]fluoranthene*, *Benzo[a]pyrene*, *Dibenz(a,h)Anthracene*) concentrations were elevated and exceeded residential with plant uptake land use screening values in samples S01 and S02 (TP01) taken from made ground, however, concentrations were low in all other samples
- BTEX & MTBE concentrations were below the laboratory limit of detection in all samples
- Volatile Petroleum Hydrocarbon (VPH) concentrations were below the laboratory limit of detection in all samples
- Extractable Petroleum Hydrocarbon (EPH) concentrations were elevated and exceeded residential with plant uptake land use screening values in sample S02 (TP01)
- PCB concentrations were below the laboratory limit of detection
- No Asbestos was detected in sampled soil

5.3 Risk Assessment Methodology

The potential level of risk posed by a particular source is determined by assessing the potential severity of the impact of the contaminant linkage on the receptor, if it is assumed to be present, and the probability of the contaminant linkage being present.

Severities are categorised from Minor to Severe and probabilities are categorised from Unlikely to High Likelihood to give a potential level of risk output.

Table 1: Risk Matrix

Probability	Severity of Consequence			
	Severe	Medium	Mild	Minor
High Likelihood	Very High Risk	High Risk	Moderate Risk	Low / Moderate Risk
Likely	High Risk	Moderate Risk	Low / Moderate Risk	Low Risk
Low Likelihood	Moderate Risk	Low / Moderate Risk	Low Risk	Very Low Risk
Unlikely	Low / Moderate Risk	Low Risk	Very Low Risk	Very Low Risk

Very High Risk

There is a high probability that severe harm could arise to a designated receptor from an identified source; or there is evidence that severe harm to a designated receptor is currently happening.

High Risk

Harm is likely to arise to a designated receptor from an identified source.

Moderate Risk

It is possible that harm could arise to a designated receptor from an identified source. It is relatively unlikely that any such harm would be severe or if any harm were to occur it is more likely that the harm would be relatively mild.

Low Risk

It is possible that harm could arise to a designated receptor from an identified source, however, it is likely that this harm, if realised, would normally be mild.

Very Low Risk

There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe.

5.4 Conceptual Site Model

The information in this section has been compiled to produce an initial conceptual site model outlining the potential sources, pathways and receptors to consider at the site. The level of risk was categorised by considering the severity and probability, as outlined in the previous section.

Table 2: Conceptual site model

Sources	Pathways	Receptors	Severity	Probability	Potential Level of Risk	
Made Ground	Ingestion/inhalation of contaminated soil dust Dermal contact with contaminated soil Ingestion of homegrown produce Permeation into drinking water pipes	Residential end users	Medium	Likely	Moderate	Lead, PAH and EPH concentrations in made ground samples from trial pits TP01 and TP02 were elevated and exceeded the residential with plant uptake land use screening values, in addition, exceedances of UK Water Industry Research (UKWIR) were identified in sampled made ground, therefore, the risk to residential end users from contaminated made ground is considered to be moderate. It should be noted that identified contamination is considered to be localised to made ground at the site.
	Leaching through soil Surface water run-off	Groundwater Surface Water	Mild	Low Likelihood	Low	Identified contamination is considered to be localised to made ground at the site, therefore, the risk to groundwater is considered to be low.
Historical Landfill	Ground gas permeation into buildings	Residential end users	Medium	Low Likelihood	Low to Moderate	Made ground on the site was found to be shallow with a generally low organic matter content, therefore, there is not considered to be a risk of ground gas production from on-site made ground deposits. Based on council records, historical land filling took place more than 34 years ago and gas venting has subsequently been installed following planning approval for the adjacent housing development, therefore, the risk from ground gas production from this source is also likely to be low.
Electrical Substation	Ingestion/inhalation of contaminated soil dust Dermal contact with contaminated soil Ingestion of homegrown produce	Residential end users	Medium	Unlikely	Low	Polychlorinated biphenyl (PCB) concentrations in sampled soil were below the laboratory limit of detection, suggesting they may not be present at all, therefore, the risk to residential end users from the electrical substation is considered to be low.

6. Conclusions

6.1 Risk Evaluation

The conceptual site model has identified the following contaminant linkages present at the site and the following conclusions have been drawn:

- There is a **moderate risk** to residential end users from the ingestion/inhalation of contaminated soil dust, dermal contact with contaminated soil, ingestion of homegrown produce and permeation into drinking water pipes from contaminated made ground at the site.
- There is a **low risk** to groundwater and surface water from the leaching of contaminants through soil and surface water runoff from contaminated soil and made ground at the site.
- There is a **low to moderate risk** to residential end users from ground gas permeation into buildings from the historical landfill.
- There is a **low risk** to residential end users from the ingestion/inhalation of contaminated soil dust, dermal contact with contaminated soil and ingestion of homegrown produce from the electrical substation bordering the site.

6.2 Further Investigation

Based on laboratory testing of soil samples from the site, the updated conceptual site model and the currently proposed development plan, the risk to residential end users and construction workers from lead, petroleum hydrocarbon and polycyclic aromatic hydrocarbons contamination in made ground at the site is considered to be moderate.

While the risk from ground gases is likely to be low, in the absence of ground gas monitoring, it is recommended that pre-emptive gas mitigation measures are incorporated into the proposed dwelling as a precautionary measure.

It is, therefore, recommended that a Phase 3 Remediation Options Appraisal & Strategy is produced, to include analysis of feasible remediation options to address contamination risk at the site.

7. References

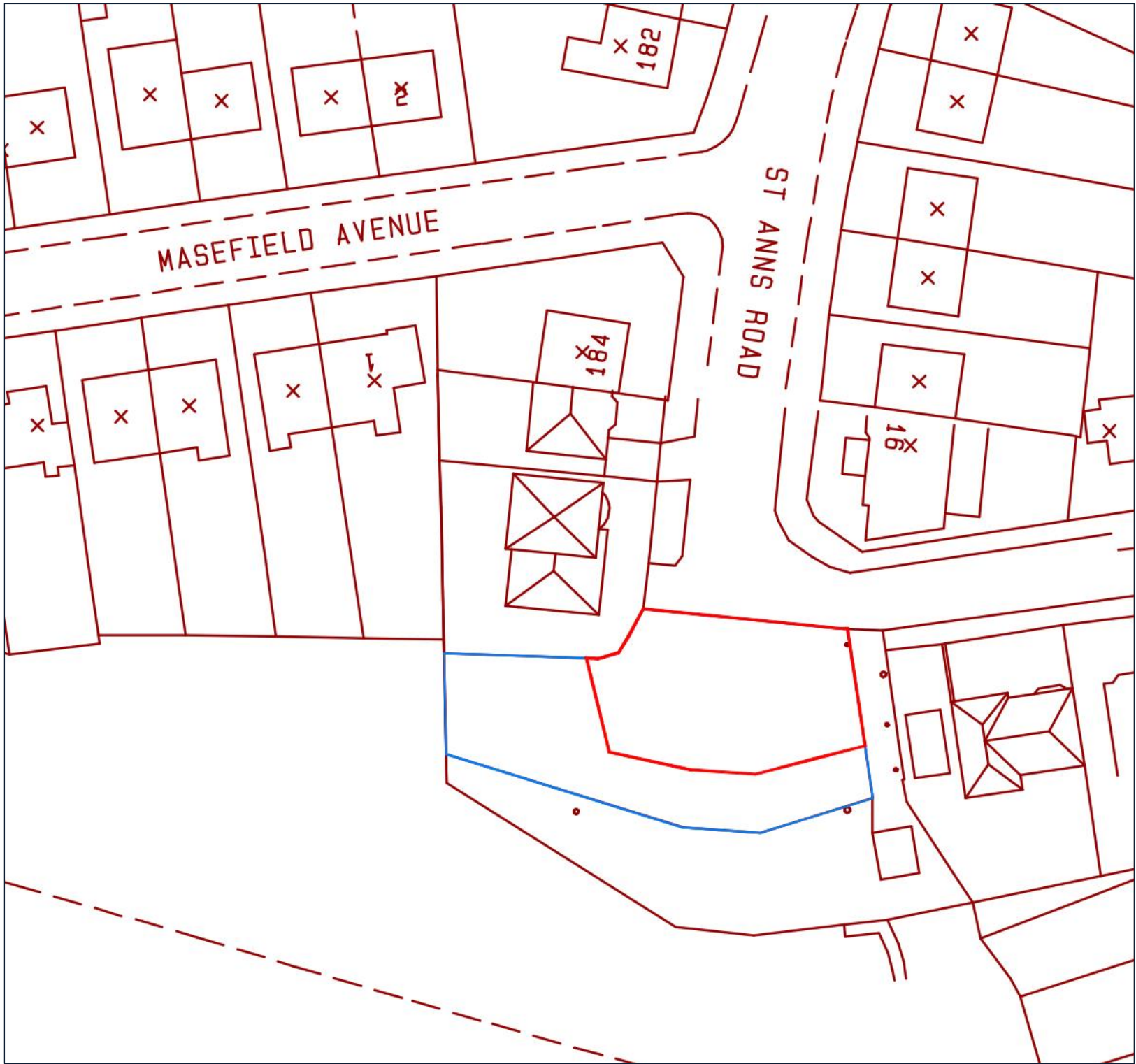
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Nathanail, C.P.; McCaffrey, C.; Gillett, A.G.; Ogden, R.C. & Nathanail, J.F., 2015. *The LQM/CIEH S4ULs for Human Health Risk Assessment*. Nottingham: Land Quality Press

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Appendix - Site Maps & Plans

Description

Site location plan

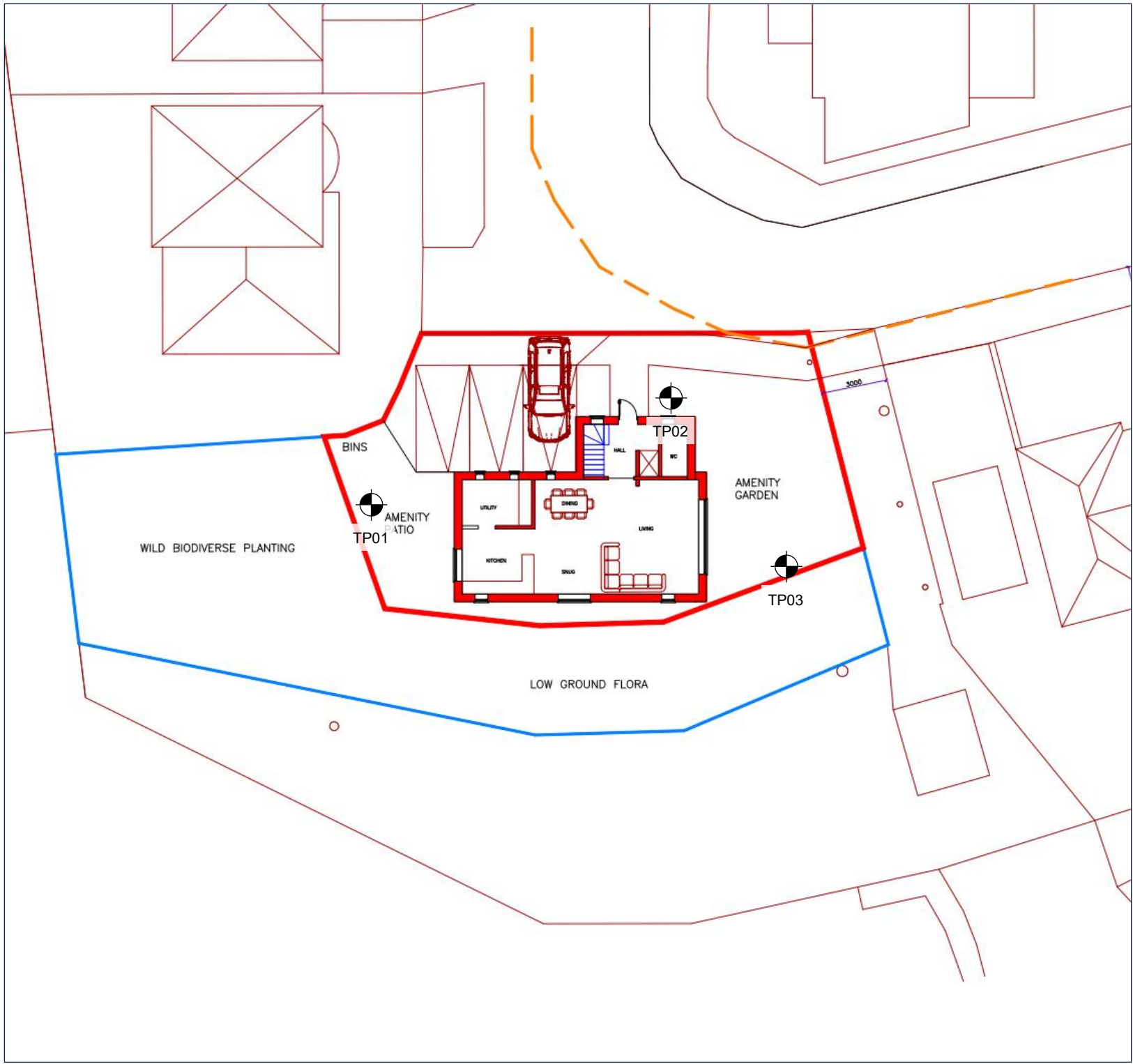
Sources

Contains OS data © Crown copyright and database rights

Key

Site boundary

North



Appendix - Site Maps & Plans	
Description	
Site plan showing trial pit locations	
Sources	
J Gaunt Architecture Ltd	
Key	
	Site boundary
	Trial pit location
	North



Appendix - Site Photos

Description

Photo showing the location of trial pit TP01

Sources

Oakshire Environmental



Appendix - Site Photos

Description

Photo showing the depth of trial pit TP01

Sources

Oakshire Environmental



Appendix - Site Photos

Description

Photo showing the location of trial pit TP02

Sources

Oakshire Environmental



Appendix - Site Photos

Description

Photo showing the depth of trial pit TP02

Sources

Oakshire Environmental



Appendix - Site Photos

Description

Photo showing the location of trial pit TP03

Sources

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Appendix - Site Photos

Description

Photo showing the depth of trial pit TP03

Sources

Oakshire Environmental

Site	Land west of 55 Shelley Road, Prestwich, Manchester, M25 9GH	Reference	TP01	Appendix - Ground Conditions		
Samples		Description of Strata		Thickness (m)	Depth (m)	Symbol
Depth (m)	ID					
0.20	S01	Vegetation overlying dark brown clayey silty SAND with roots, gravel, brick, glass and plastic fragments (MADE GROUND)		0.90	0.90	
0.70	S02					
Remarks and comments						
No groundwater identified						

Site	Land west of 55 Shelley Road, Prestwich, Manchester, M25 9GH		Reference	TP02	Appendix - Ground Conditions		
Samples		Description of Strata	Thickness (m)	Depth (m)	Symbol		
Depth (m)	ID						
0.20	S03	Vegetation overlying dark brown clayey silty SAND with roots, gravel, crushed stone, brick, glass and plastic fragments (MADE GROUND)	0.50	0.50			
0.60	S04						
		Orangey and greyish brown SAND with occasional gravel and patches of yellow sand	0.30	0.80			
Remarks and comments							
No groundwater identified							

Site	Land west of 55 Shelley Road, Prestwich, Manchester, M25 9GH	Reference	TP03	Appendix - Ground Conditions		
Samples		Description of Strata		Thickness (m)	Depth (m)	Symbol
Depth (m)	ID					
0.20	S05	Dark brown clayey silty SAND with frequent roots and occasional gravel (MADE GROUND)		0.30	0.30	
0.50	S06					
Remarks and comments						
No groundwater identified						



Final Report

Report No.: 25-03605-1

Initial Date of Issue: 14-Feb-2025

Re-Issue Details:

Client Oakshire Environmental

Client Address: Quantim Intelligent Trading Ltd
6 Vine Close
Bottesford
Leicestershire
NG13 OFW

Contact(s): Joe Turner

Project Pearl Land West of 55 Shelley Road

Quotation No.: **Date Received:** 04-Feb-2025

Order No.: **Date Instructed:** 03-Feb-2025

No. of Samples: 6

Turnaround (Wkdays): 5 **Results Due:** 07-Feb-2025

Date Approved: 14-Feb-2025

Approved By:

Details: David Smith, Technical Director

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Soil

Project: Pearl Land West of 55 Shelley Road

Client: Oakshire Environmental		Chemtest Job No.:		25-03605	25-03605	25-03605	25-03605	25-03605	25-03605	25-03605
Quotation No.:		Chemtest Sample ID.:		1926769	1926770	1926771	1926772	1926773	1926774	
		Client Sample ID.:		S01	S02	S03	S04	S05	S06	
		Sample Location:		TP01	TP01	TP02	TP02	TP03	TP03	
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
		Top Depth (m):		0.00	0.00	0.00	0.00	0.00	0.00	
		Bottom Depth (m):		0.20	0.70	0.20	0.60	0.20	0.50	
		Date Sampled:		29-Jan-2025	29-Jan-2025	29-Jan-2025	29-Jan-2025	29-Jan-2025	29-Jan-2025	
		Asbestos Lab:		DURHAM		DURHAM		DURHAM		
Determinand	HWOL Code	Accred.	SOP	Units	LOD					
ACM Type		U	2192		N/A	-		-		
Asbestos Identification		U	2192		N/A	No Asbestos Detected		No Asbestos Detected		No Asbestos Detected
Moisture		N	2030	%	0.020	22	17	18	15	20
Soil Colour		N	2040		N/A	Brown	Brown	Brown	Brown	Brown
Other Material		N	2040		N/A	Stones and Roots	Stones	Stones	Stones	Stones and Roots
Soil Texture		N	2040		N/A	Loam	Loam	Loam	Clay	Loam
pH at 20C		M	2010		4.0	7.9	8.1	7.8	7.6	7.4
Arsenic		M	2455	mg/kg	0.5	30	15	20	11	14
Beryllium		U	2455	mg/kg	0.5	0.8	0.7	0.7	< 0.5	0.6
Cadmium		M	2455	mg/kg	0.10	0.64	0.41	0.36	< 0.10	2.7
Chromium		M	2455	mg/kg	0.5	24	15	16	25	20
Copper		M	2455	mg/kg	0.50	79	65	78	24	45
Mercury		M	2455	mg/kg	0.05	0.18	0.15	0.43	0.07	0.13
Nickel		M	2455	mg/kg	0.50	43	17	19	20	21
Lead		M	2455	mg/kg	0.50	280	150	320	31	170
Selenium		M	2455	mg/kg	0.25	0.92	0.65	0.76	0.73	0.78
Vanadium		U	2455	mg/kg	0.5	29	27	29	25	27
Zinc		M	2455	mg/kg	0.50	480	200	140	46	160
Chromium (Trivalent)		N	2490	mg/kg	1.0	24	15	16	25	20
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Aliphatic VPH >C5-C6	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic VPH >C6-C7	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic VPH >C7-C8	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic VPH >C6-C8 (Sum)	HS_2D_AL	N	2780	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic VPH >C8-C10	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Total Aliphatic VPH >C5-C10	HS_2D_AL	U	2780	mg/kg	0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25
Aliphatic EPH >C10-C12 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00	6.7	6.6	3.8	5.5	4.4
Aliphatic EPH >C12-C16 MC	EH_2D_AL_#1	M	2690	mg/kg	1.00	4.1	4.7	5.1	3.5	< 1.0
Aliphatic EPH >C16-C21 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00	7.5	6.0	4.5	3.6	< 2.0
Aliphatic EPH >C21-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	3.00	79	37	40	32	83
Aliphatic EPH >C35-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00	40	22	26	17	27
Total Aliphatic EPH >C10-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	5.00	97	55	54	45	89
Total Aliphatic EPH >C10-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00	140	77	80	61	120
Aromatic VPH >C5-C7	HS_2D_AR	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aromatic VPH >C7-C8	HS_2D_AR	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Results - Soil

Project: Pearl Land West of 55 Shelley Road

Client: Oakshire Environmental		Chemtest Job No.:		25-03605	25-03605	25-03605	25-03605	25-03605	25-03605	25-03605
Quotation No.:		Chemtest Sample ID.:		1926769	1926770	1926771	1926772	1926773	1926774	
		Client Sample ID.:		S01	S02	S03	S04	S05	S06	
		Sample Location:		TP01	TP01	TP02	TP02	TP03	TP03	
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
		Top Depth (m):		0.00	0.00	0.00	0.00	0.00	0.00	
		Bottom Depth (m):		0.20	0.70	0.20	0.60	0.20	0.50	
		Date Sampled:		29-Jan-2025	29-Jan-2025	29-Jan-2025	29-Jan-2025	29-Jan-2025	29-Jan-2025	
		Asbestos Lab:		DURHAM		DURHAM		DURHAM		
Determinand	HWOL Code	Accred.	SOP	Units	LOD					
Aromatic VPH >C8-C10	HS_2D_AR	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Total Aromatic VPH >C5-C10	HS_2D_AR	U	2780	mg/kg	0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25
Aromatic EPH >C10-C12 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00	1.1	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic EPH >C12-C16 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00	< 1.0	56	< 1.0	< 1.0	5.7
Aromatic EPH >C16-C21 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00	26	570	52	5.5	17
Aromatic EPH >C21-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00	110	660	140	16	72
Aromatic EPH >C35-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	1.00	53	75	34	26	30
Total Aromatic EPH >C10-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	5.00	140	1300	200	21	94
Total Aromatic EPH >C10-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	10.00	190	1400	230	47	120
Total VPH >C5-C10	HS_2D_Total	U	2780	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Total EPH >C10-C35 MC	EH_2D_Total_#1	U	2690	mg/kg	10.00	230	1300	250	66	180
Total EPH >C10-C40 MC	EH_2D_Total_#1	N	2690	mg/kg	10.00	330	1400	310	110	240
Total Organic Carbon		M	2625	%	0.20	3.5	2.1	2.4	0.61	3.6
Benzene		M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene		M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene		M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene		M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene		M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methyl Tert-Butyl Ether		M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene		M	2800	mg/kg	0.10	0.15	0.27	< 0.10	< 0.10	< 0.10
Acenaphthylene		N	2800	mg/kg	0.10	0.13	0.32	< 0.10	< 0.10	< 0.10
Acenaphthene		M	2800	mg/kg	0.10	0.14	0.35	< 0.10	< 0.10	< 0.10
Fluorene		M	2800	mg/kg	0.10	0.10	0.41	< 0.10	< 0.10	< 0.10
Phenanthrene		M	2800	mg/kg	0.10	1.9	5.0	0.12	0.15	0.75
Anthracene		M	2800	mg/kg	0.10	0.44	1.2	< 0.10	< 0.10	0.23
Fluoranthene		M	2800	mg/kg	0.10	5.0	8.0	0.23	0.36	1.9
Pyrene		M	2800	mg/kg	0.10	4.4	6.3	0.18	0.37	1.8
Benzo[a]anthracene		M	2800	mg/kg	0.10	2.1	3.2	< 0.10	0.15	0.87
Chrysene		M	2800	mg/kg	0.10	2.5	3.5	< 0.10	0.16	1.1
Benzo[b]fluoranthene		M	2800	mg/kg	0.10	2.8	3.8	< 0.10	< 0.10	1.2
Benzo[k]fluoranthene		M	2800	mg/kg	0.10	1.1	1.9	< 0.10	< 0.10	0.51
Benzo[a]pyrene		M	2800	mg/kg	0.10	2.2	3.1	< 0.10	< 0.10	0.95
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	1.5	2.3	< 0.10	< 0.10	0.60
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	0.33	1.0	< 0.10	< 0.10	0.16
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10	1.5	2.3	< 0.10	< 0.10	0.68
Total Of 16 PAH's		N	2800	mg/kg	2.0	26	43	< 2.0	< 2.0	11
PCB 81		N	2815	mg/kg	0.010				< 0.010	< 0.010

Results - Soil

Project: Pearl Land West of 55 Shelley Road

Client: Oakshire Environmental		Chemtest Job No.:	25-03605	25-03605	25-03605	25-03605	25-03605	25-03605
Quotation No.:		Chemtest Sample ID.:	1926769	1926770	1926771	1926772	1926773	1926774
		Client Sample ID.:	S01	S02	S03	S04	S05	S06
		Sample Location:	TP01	TP01	TP02	TP02	TP03	TP03
		Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):	0.00	0.00	0.00	0.00	0.00	0.00
		Bottom Depth (m):	0.20	0.70	0.20	0.60	0.20	0.50
		Date Sampled:	29-Jan-2025	29-Jan-2025	29-Jan-2025	29-Jan-2025	29-Jan-2025	29-Jan-2025
		Asbestos Lab:	DURHAM		DURHAM		DURHAM	
Determinand	HWOL Code	Accred.	SOP	Units	LOD			
PCB 77		U	2815	mg/kg	0.010			< 0.010
PCB 105		N	2815	mg/kg	0.010			< 0.010
PCB 114		N	2815	mg/kg	0.010			< 0.010
PCB 118		N	2815	mg/kg	0.010			< 0.010
PCB 123		N	2815	mg/kg	0.010			< 0.010
PCB 126		N	2815	mg/kg	0.010			< 0.010
PCB 156		N	2815	mg/kg	0.010			< 0.010
PCB 157		N	2815	mg/kg	0.010			< 0.010
PCB 167		N	2815	mg/kg	0.010			< 0.010
PCB 169		N	2815	mg/kg	0.010			< 0.010
PCB 189		N	2815	mg/kg	0.010			< 0.010
Total PCBs (12 Congeners)		N	2815	mg/kg	0.12			< 0.12
Resorcinol		M	2920	mg/kg	0.020	< 0.020	< 0.020	< 0.020
Phenol		M	2920	mg/kg	0.020	< 0.020	< 0.020	< 0.020
Cresols		M	2920	mg/kg	0.020	< 0.020	< 0.020	< 0.020
Xylenols		M	2920	mg/kg	0.020	< 0.020	< 0.020	< 0.020
1-Naphthol		N	2920	mg/kg	0.020	< 0.020	< 0.020	< 0.020
Trimethylphenols		M	2920	mg/kg	0.020	< 0.020	< 0.020	< 0.020
Total Phenols		M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2010	pH Value of Soils	pH at 20°C	pH Meter	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2690	EPH A/A Split	Aliphatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40 Aromatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40	Acetone/Heptane extraction / GCxGC FID detection	
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.	
2780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C7,>C7–C8,>C8-C10 Aromatics: >C5–C7,>C7-C8,>C8–C10	Water extraction / Headspace GCxGC FID detection	
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS	
2810	Polychlorinated Biphenyls (PCB) as Aroclors in Soils by GC-ECD	Polychlorinated Biphenyls expressed as an Aroclor (normally reported as *Aroclor 1242)	Extraction of a soil sample, as received, into hexane/acetone (50:50) followed by gas chromatography (GC) using mass spectrometric (MS) detection for identification of polychlorinated biphenyls and electron capture detection (ECD) for quantitation if present.	
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS. Reported PCB 101 results may contain contributions from PCB 90 due to inseparable chromatography.	
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.	

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

This report shall not be reproduced except in full, and only with the prior approval of the laboratory.

Any comments or interpretations are outside the scope of UKAS accreditation.

The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.

Uncertainty of measurement for the determinands tested are available upon request .

None of the results in this report have been recovery corrected.

All results are expressed on a dry weight basis.

The following tests were analysed on samples 'as received' and the results subsequently corrected to a dry weight basis EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at $\leq 30^{\circ}\text{C}$ prior to analysis.

All Asbestos testing is performed at the indicated laboratory .

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

NEW_ASB Eurofins Chemtest Limited, 11 Depot Road, Newmarket, CB8 0AL

DURHAM Eurofins Chemtest Limited, Unit A North Wing, Prospect Business Park, Crookhall Lane, Consett, Co Durham, DH8 7PW

Sample Deviation Codes

A - Date of sampling not supplied

B - Sample age exceeds stability time (sampling to extraction)

C - Sample not received in appropriate containers

D - Broken Container

E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt.

All water samples will be retained for 14 days from the date of receipt.

Charges may apply to extended sample storage.

Water Sample Category Key for Accreditation

Report Information

DW - Drinking Water
GW - Ground Water
LE - Land Leachate
NA - Not Applicable
PL - Prepared Leachate
PW - Processed Water
RE - Recreational Water
SA - Saline Water
SW - Surface Water
TE - Treated Effluent
TS - Treated Sewage
UL - Unspecified Liquid

Clean Up Codes

NC - No Clean Up
MC - Mathematical Clean Up
FC - Florisil Clean Up

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 - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com