Contaminated Land
Air Quality
Environmental Audit

SMITH GRANT Environmental Consultancy LLP

Partnership No: OC 300776

LAND TO THE REAR OF 120 RHOSNESNI LANE, WREXHAM

STAGE 2 CONTAMINATED LAND ASSESSMENT

For: Cliftons of Wrexham Fund

October 2024

R3341-R02-v1

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Stage 2 Contaminated Land Assessment

Client: Cliftons of Wrexham Fund

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Signed for Smith Grant LLP

	Name	Position	Signature	Date
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1. Introduction

1.1. Planning permission (P/2022/0181) has been granted by Wrexham County Borough Council (WCBC) permitting the construction of seven commercial units within a parcel of land to the rear of 120 Rhosnesni Lane, Wrexham. Conditions 6 and 7 of the planning permission requires a phased investigation to identify the extent of contamination and any measures required to remediate the site.

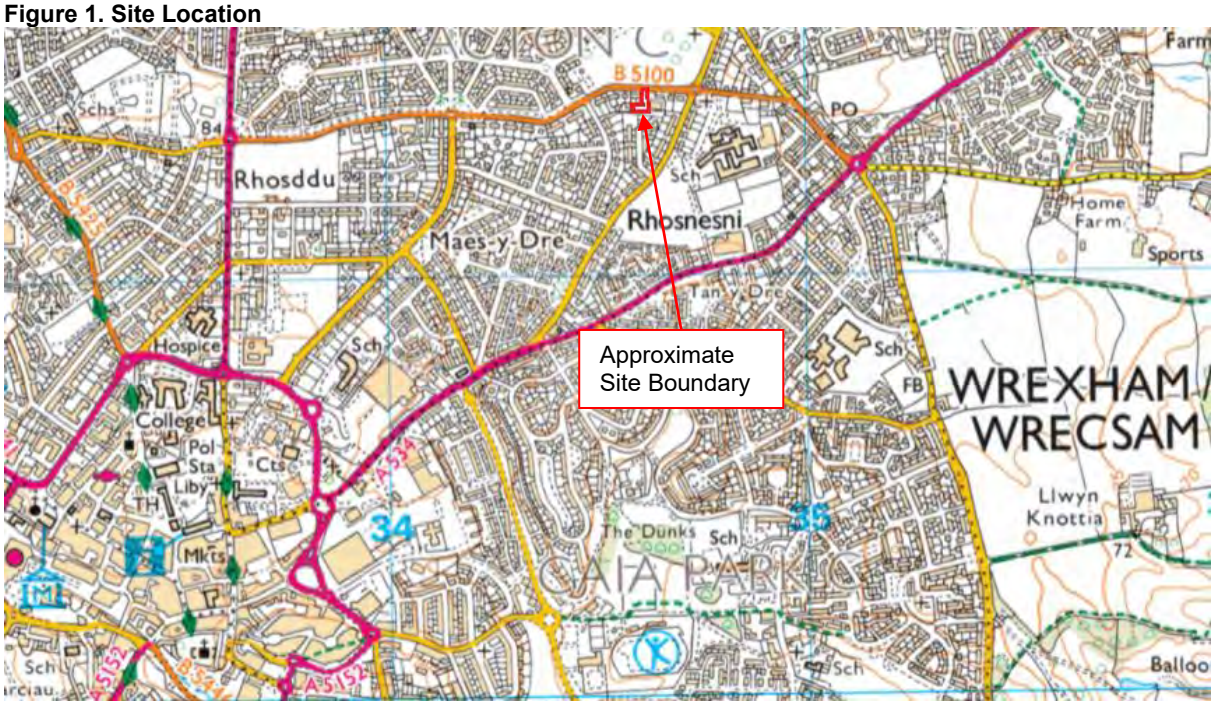
1.2. To partially satisfy Condition 6, Smith Grant LLP (SGP) were instructed to produce a Stage 1 Contaminated Land Assessment (ref: R3341-R01-v1) with recommendations made for a limited site investigation. SGP were duly instructed to undertake the recommended Stage 2 investigation which is detailed within this report.

1.3. This report described the work carried out by SGP including the ground conditions encountered, laboratory test results, and discusses the contamination implications with regards to the proposed development.

Table 1: Site Details

Address	Land to the Rear of 120 Rhosnesni Lane, Wrexham, LL12 7NB
National Grid Reference	334594, 351400
Local Authority	Wrexham County Borough Council (WCBC)
Planning Ref.	P/2022/0181
Site Area	approximately 0.21 Ha
Current Nature of Site	Storage of materials (west) and vehicle parking for surrounding businesses (east).
Proposed Use	Commercial development – demolition of existing structures and construction of seven commercial units with parking.

Figure 1. Site Location



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1.4. Condition 6 and 7 of the approved Planning Permissions (ref: P/2022/0181) relates to Contaminated Land and is worded as follows:

6	*No development shall take place until a phased site investigation of the nature and extent of contamination has been carried out and submitted to and approved in writing by the Local Planning Authority. If any contamination is found during the site investigation, no part of the development shall commence until a scheme specifying the measures that will be taken to remediate the site to render it suitable for the development hereby permitted has been submitted to and approved in writing by the Local Planning Authority. The site shall thereafter be remediated in accordance with the approved scheme. If during the course of the development any contamination is found that has not been identified in the site investigation, no further development shall take place on those parts of the site where that contamination has been found until an additional scheme of remediation has been submitted to and approved in writing by the Local Planning Authority for those parts of the site. The relevant parts of the site shall thereafter be remediated in accordance with the additional scheme of remediation.*
7	*East part of the site subject to remediation under the scheme(s) approved as part of Condition no. 6 shall not be occupied/used until a Validation Report has been completed in respect of that part of the site and submitted to and approved in writing by the Local Planning Authority.*

1.5. This report describes the Stage 2 Contaminated Land Assessment undertaken by SGP in accordance with the brief agreed with the client. The assessment methodology follows the framework described in the EA / DEFRA Contaminated Land Report 11: Model Procedures for the Management of Contaminated Land 2004 as amended in Land Condition Risk Management (LCRM) and has been prepared with reference to the Planning Practice Guidance provided in relation to land affected by contamination.

1.6. This report contains detailed observations of the ground conditions encountered during the intrusive investigation, an assessment of the site made ground, topsoil and natural soil contamination, and quantitative risk assessment with recommendations for additional work, if necessary, or likely remedial requirements to address potential ground contamination issues.

2. Background Information

2.1. The Stage 1 Contamination Assessment (Desk Study) was produced by SGP (ref: R3341-R01-v1, August 2024). The report includes information on the site, its setting, geology, hydrogeology and history. A Groundsure Report with accompanying historical mapping was included, and the report presents a preliminary conceptual site model and risk assessment. The findings are summarised in brief below, but references should be made to the complete report.

2.2. The site and immediate surrounds originally comprised agricultural land from the earliest available mapping (1899) before the surrounding area underwent development in the 1930s, including the construction of a long building crossing the north boundary of the Site. This was demolished by the following mapping in 1959, and two buildings are constructed in the west of the Site (southwest corner and northwest boundary) with a wall dividing the Site into two parcels. It is unknown what the buildings were used for at that time but are assumed to be storage related to the neighbouring printing works due to a road / trackway crossing the Site connecting them. The building on the northwest boundary was demolished by 2021 following gravel resurfacing of the west of the Site but the building in the southwest corner remains to present day (2024). At the time of the site walkover, it was being used to store materials such as fence panels, pallets, and an empty IBC. The east of the Site has been used as parking for users of the adjacent businesses since 2006.

2.3. The surrounding area remained agricultural land associated with the neighbouring Park Farm until the late 1930s when the surrounding began development with residential properties to the immediate northwest along Rhosnesni Lane and along Borras Road to the east. By 1959, a printing works was constructed to the immediate east of the Site with a road / trackway leading to the buildings in the west of the Site and Park Farm was replaced by a garage and a petrol station, 13m and 67m east, respectively. The surrounding area continued to undergo residential development throughout the 1960s with properties to the immediate south and west of the Site. By the 1990s, a large retail unit was constructed to the immediate northeast of the Site. By the late 2000s the former garage was occupied by a plumbing and central heating retailer and the petrol station had been closed / decommissioned. By 2024, the former printworks hosts a variety of businesses (animal feed manufacturer, wire harness / cable manufacturer, and mead producer), the former petrol station is now a sandwich shop, the former garage is a fireplace retailer, and the former retail unit is now a gym.

2.4. Natural ground conditions are mapped as Glacial Till (Boulder Clay) with the northern edge of the access road mapped as Glaciofluvial Deposits. The whole Site is mapped as underlain by bedrock of Salop Formation. It is anticipated that made ground to a limited depth is present across the parts of the site associated with the limited development present on site.

2.5. SGP have identified the potential for contamination to be present on the site, largely associated the historical / existing buildings, and the neighbouring former printworks. The potential contaminants

present on the site may include heavy metals, hydrocarbons, and asbestos associated with made ground soils. It was concluded that high levels of contamination are not expected and are unlikely to exceed commercial thresholds, but an intrusive investigation would be required to confirm the presence / absence and extent of any contamination on the site.

3. Investigation Methodology

3.1. Objectives and Rationale

3.1.1. The scope of works for the supplementary investigation was determined to achieve:

- confirm the general shallow ground conditions underlying the site with entries excavated on a nominal 20m spacing across the development area (5 entries) to natural strata.
- assess the presence, extent, and nature of any made ground and associated soil contamination.

3.1.2. Sample collection was designed to:

- Include representative shallow soils samples (6 no) of made ground with submission for a suite of typical urban contaminants (metals, hydrocarbons, PAHs and asbestos) to characterise the site soils.

3.1.3. The investigation was undertaken in accordance with the appropriate guidance (BS10175 + A2 and LCRM).

3.2. Fieldwork

3.2.1. The site investigation works were completed in a single day. This involved the excavation of 5 window sampling holes and collection of representative samples, these works were undertaken by SGP Consultant, M Jones on 26.09.24. Locations of the site investigation locations are indicated on Drawing D01.

3.2.2. Works involved:

- Excavation of boreholes (BH1-BH5) to a maximum depth of 4.00m bgl;
- Inspection and logging of ground conditions
- Collection of soil samples for a range of laboratory analysis, as detailed in Table 3.1.

3.3. Chemical Analysis

3.3.1. Chemical analysis of soils was carried out by i2 Analytical, working where possible to MCERTS and / or ISO 17025 accreditation. Soil samples were stored in appropriate containers as advised by the laboratory, placed in chilled cool boxes, and delivered to the laboratory within 48 hours of collection. Chain of custody documentation was completed and is retained by SGP.

3.3.2. Summaries of the sampled strata, sample reference, depth and chemical test suite is provided below:

Table 3.1 Summary of Soil Chemical Analysis

Strata	Description	Sample ref	Depth (m bgl)	Analytical suite
Made Ground	Dark grey/brown sandy gravelly CLAY with brick fragments	BH1-S1	0.7	SGP Suite
	Light grey/brown gravelly sand with frequent brick fragments	BH2-S1	0.45	SGP Suite
	Dark grey/brown very sandy clay with frequent brick fragments	BH3-S1	0.6	SGP Suite
	Dark grey clayey sandy subangular gravel with brick fragments	BH4-S1	0.3	SGP Suite
	Dark grey sandy gravelly clay with brick fragments	BH5-S1	0.23	SGP Suite
	Dark grey soft sandy clay with brick fragments	BH5-S2	0.45	SGP Suite

SGP Suite = pH, metals / metalloids, PAHs (16 speciated), TPH CWG + BTEX, asbestos

4. Investigation Observations & Results

4.1. Site Investigation - Physical Observation

4.1.1. SGP attended site on 26.09.23 to undertake the site investigation. borehole logs and photographs of the excavations are presented in Appendix A. The site investigation revealed that the general succession of strata can be represented by made ground, underlain by natural soil comprising of clays and sands (glaciofluvial deposits).

4.1.2. All depths stated in the following sections are from ground levels contemporaneous with the site investigation date.

Made Ground

4.1.3. Encountered in all five test locations from ground level to depths of 0.5m and 0.9m, generally represented by tarmac with a white/grey medium-coarse angular gravel subbase between 0-0.3m bgl, overlaying a more general made ground of gravelly sandy clay with frequent bricks fragments.

Glaciofluvial Deposits

4.1.4. Encountered at each test location from depths of between 0.5m and 0.9m down to the base of the window sampling holes at 4m. Natural deposits comprised of alternating layers of silty sands and clays before reaching a coarse light brown / orange sand at depths between 3.2m and 3.8m bgl.

4.2. Groundwater Conditions

4.2.1. Groundwater was encountered during the initial breaking out of tarmac and hand dug pits where it had been perched within the made ground across Site (between 0-0.3m bgl).

4.3. Contamination Indicators

4.3.1. No visual or olfactory evidence of contamination was observed during the fieldwork and arisings generated during drilling were screened with a photoionisation detector (PID) calibrated with isobutylene. No VOC readings were detected above the limits of detection (<0.1ppm) on the PID.

4.4. Results of Soil Chemical Analysis

4.4.1. The complete soil analytical data is presented in Appendix C (lab ref. 24-044651). The results of the soil analyses are compared to human health critical values (CVs) for initial screening purposes. Given the proposed development is for industrial units with hardstanding, CVs derived for commercial, primarily from the LQM / CIEH Suitable for Use Levels (S4ULs)[1], have been utilised; these are derived for a sandy loam soil. Reference is initially made to the S4ULs derived for a soil with 1% soil organic matter.

[1] Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3102. All rights reserved"

4.4.2. The DEFRA published Category 4 Screening Level (C4SL) for lead in soils under commercial use has been utilised to allow an initial screening for risks to human health. This is intended to demonstrate that land is not Contaminated Land as defined under Part IIA of the Environmental Protection Act. The adoption of the C4SL in a planning scenario has not been universally accepted, however in the absence of other generic screening criteria for lead following the withdrawal of the SGV by the EA it is considered appropriate to utilise the screening criterion.

4.4.3. Given the high sensitivity of the planned development, the presence of any asbestos above quantifiable limits (<0.001%) in shallow soils is unlikely to be acceptable so the limit of detection has been adopted as a screening value.

4.4.4. The assessment criteria are intended for use for screening purposes only. Exceedances indicate that either more specific detailed site-specific risk assessment is required to better quantify risks to human health, or that remediation or mitigation is required to reduce risks by breaking the source-pathway-target relationship between solid phase contaminants and receptors.

4.4.5. Results are summarised below:

Table 4.1. Summary of SGP Soil Results

Contaminant	Number of Samples	Range of Concentrations (mg/kg or indicated)	Screening criteria (mg/kg or indicated)	Exceedances
Asbestos screen	6	NAD	Visual identification / <0.001% by mass (LOD)	None
pH	6	7.0-9.3	-	-
Arsenic	6	4.4-24	640 LQM/CIEH S4UL	None
Cadmium	6	0.3-2.5	190 LQM/CIEH S4UL	None
Chromium	6	8-21	8,600 LQM/CIEH S4UL	None
Chromium (VI)	6	<1.2-1.6	33 LQM/CIEH S4UL	None
Copper	6	9.1-79	68,000 S4UL	None
Lead	6	21-160	2,330 C4SL	None
Mercury (inorganic)	6	<0.3-1.9	1,100 LQM/CIEH S4UL	None
Nickel	6	9.8-39	980 LQM/CIEH S4UL	None
Zinc	6	30-1000	730,000 LQM/CIEH S4UL	None
Naphthalene	6	<0.05-0.95	190 LQM/CIEH S4UL	None
Acenaphthylene	6	<0.05-0.18	83,000 LQM/CIEH S4UL	None
Acenaphthene	6	<0.05-0.07	84,000 LQM/CIEH S4UL	None
Fluorene	6	<0.05-0.14	63,000 LQM/CIEH S4UL	None
Phenanthrene	6	0.12-2.0	22,000 LQM/CIEH S4UL	None
Anthracene	6	<0.05-0.83	520,000 LQM/CIEH S4UL	None
Fluoranthene	6	0.1-9.1	23,000 LQM/CIEH S4UL	None
Pyrene	6	0.08-8.2	54,000 LQM/CIEH S4UL	None
Benzo(a)anthracene	6	<0.05-3.5	170 LQM/CIEH S4UL	None
Chrysene	6	<0.05-3.6	350 LQM/CIEH S4UL	None
Benzo(a)pyrene	6	<0.05-3.6	35 LQM/CIEH S4UL	None

Contaminant	Number of Samples	Range of Concentrations (mg/kg or indicated)	Screening criteria (mg/kg or indicated)	Exceedances
Indeno(123cd)pyrene	6	<0.05-1.7	500 LQM/CIEH S4UL	None
Dibenzo(ah)anthracene	6	<0.05-0.33	3.5 LQM/CIEH S4UL	None
Benzo(ghi)perylene	6	<0.05-1.8	3,900 LQM/CIEH S4UL	None
Benzo(b)fluoranthene	6	<0.05-4.0	44 LQM/CIEH S4UL	None
Benzo(k)fluoranthene	6	<0.05-1.7	1,200 LQM/CIEH S4UL	None
Benzene	6	<0.005	27 LQM/CIEH S4UL	None
Toluene	6	<0.005	56,000 LQM/CIEH S4UL	None
Ethylbenzene	6	<0.005	5,700 LQM/CIEH S4UL	None
m/p-xylene	6	<0.005	5,900 LQM/CIEH S4UL	None
o-xylene	6	<0.005	6,600 LQM/CIEH S4UL	None
Aliphatic >C5-C6	6	<0.01	3,200 LQM/CIEH S4UL	None
Aliphatic >C6-C8	6	<0.01	7,800 LQM/CIEH S4UL	None
Aliphatic >C8-C10	6	<0.01	2,000 LQM/CIEH S4UL	None
Aliphatic >C10-C12	6	<1	9,700 LQM/CIEH S4UL	None
Aliphatic >C12-C16	6	<2	59,000 LQM/CIEH S4UL	None
Aliphatic >C16-C21	6	<8	1,600,000 LQM/CIEH S4UL	None
Aliphatic >C21-C35	6	<8-27	1,600,000 LQM/CIEH S4UL	None
Aromatic >C5-C7	6	<0.01	26,000 LQM/CIEH S4UL	None
Aromatic >C7-C8	6	<0.01	56,000 LQM/CIEH S4UL	None
Aromatic >C8-C10	6	<0.02	3,500 LQM/CIEH S4UL	None
Aromatic >C10-C12	6	<1	16,000 LQM/CIEH S4UL	None
Aromatic >C12-C16	6	<2	36,000 LQM/CIEH S4UL	None
Aromatic >C16-C21	6	<8-3.4	28,000 LQM/CIEH S4UL	None
Aromatic >C21-C35	6	<10-11	28,000 LQM/CIEH S4UL	None

Notes to table:
S4UL: Suitable for Use Levels published by Chartered Institute of Environmental Health and Land Quality Management Ltd, 'Commercial (1% SOM)'; copyright Land Quality Management Ltd reproduced with permission publication number S4UL3102. All rights reserved.
C4SL: Category 4 Screening Levels published by CL:AIRE (C4SLs); 'Commercial' (1% SOM)

4.4.6. No exceedances of the commercial land use criteria were reported within the 6 samples of made ground taken from across the Site.

4.4.7. This confirms that the granular made ground is suitable for reuse / retention within the development.

5. Revised Conceptual Site Model and Risk Assessment

5.1. Methodology

5.1.1. Information from the previous and current site investigation has been used to refine the likely source-pathway-target relationships identified in the preliminary Conceptual Site Model (CSM). Tier 1 risk assessment has been undertaken by comparison of contaminant concentrations in soils to generic screening criteria. These are values appropriate to the intended residential end-use of the site (residential properties with garden areas) and indicate whether potentially unacceptable risks to receptors are likely to exist requiring either more detailed site-specific risk assessment or remediation to break the potential contaminant linkage.

5.2. Sources

5.2.1. Shallow ground conditions consisted of made ground, however no ash, clinker or slag was observed. Made ground was underlain by natural superficial deposits of glaciofluvial deposits within all entries.

5.2.2. No potential contamination sources such as stained soils or odours were observed.

5.2.3. No other exceedances have been reported in the samples when compared to the commercial use criteria.

5.3. Potential Targets

5.3.1. The principal vulnerable receptors during the construction and operational phases of residential development of the site will be:

- construction workforce;
- future site users (employees);
- on-site building structures and infrastructure (i.e. buildings, services);

5.4. Human Health Risk Assessment

5.4.1. No exceedances of the commercial criteria have been reported. In any case, the presence of hardstanding will provide a physical barrier to the underlying made ground and prevent exposure of to future site users. Providing normal occupational hygiene during construction is maintained during ground disturbance works then the exposure to construction workers will be minimal.

5.5. Property Risk Assessment

5.5.1. No organic contaminants with the potential to permeate through plastic water supply pipes have been encountered.

5.5.2. No sources with the potential for the generation and accumulation of ground gases have been identified.

5.5.3. The proposed development of the site will include seven industrial units, car parking, drainage infrastructure, and utility services.

5.6. Controlled Waters Risk Assessment

5.6.1. No mobile or soluble diffuse sources of soil contamination were present, no point sources of groundwater pollution are anticipated.

5.7. Conceptual Site Model

5.7.1. The revised CSM is summarised below:

Table 6. Revised Conceptual Site Model

Receptor	Source / Contaminant	Pathway / Exposure	Pollutant Linkage (in absence of mitigation)	Further Works
1. humans – construction workers / future maintenance workers	metals / metalloids / asbestos / PAHs hydrocarbons	dermal contact / ingestion / inhalation – short term exposure	**Unlikely –** Testing of the site soils has confirmed the absence of contaminants above commercial soils screening criteria	Good occupational hygiene to be maintained and dust suppression methods in accordance with best practice to be implemented during ground disturbance works.
2. humans – future site visitors / workers	metals / metalloids / asbestos / PAHs / heavy hydrocarbons	dermal contact / ingestion / inhalation	**Unlikely** – Development proposals are for widespread hardstanding (car park) or buildings which will provide a physical barrier to the underlying made ground.	No action required
3. humans – adjacent site users	metals / metalloids / asbestos / PAHs / hydrocarbons	windblown / dermal contact / ingestion / inhalation	**Unlikely –** Testing of the site soils has confirmed the absence of contaminants above commercial soils screening criteria	Dust suppression methods in accordance with best practice to be implemented during ground disturbance works.
4. property / services	pH, sulphate	chemical attack of buried concrete and plastic materials	**Unlikely -** No organic contaminants with the potential to permeate plastic pipelines has been encountered.	No action required
4. vegetation / landscaping	leachable metals / metalloids may be present within shallow soils	plant uptake	**Unlikely –** No elevated concentrations of phytotoxic metals recorded / no landscaping areas proposed.	No action required
5. ecosystems / protected species & habitats n/a – no ecosystems / protected habitats in immediate vicinity				
6. surface waters	leachable metals / metalloids / PAHs / hydrocarbons	migration via shallow groundwater / surface water run-off.	**Unlikely** – No viable contamination sources identified, no mobile or free phase contamination encountered.	No Action Required

Receptor	Source / Contaminant	Pathway / Exposure	Pollutant Linkage (in absence of mitigation)	Further Works
7. groundwater – Secondary A (superficial aquifer) Secondary A (bedrock aquifer)	leachable metals / metalloids / PAHs / hydrocarbons	migration via saturated zone	**Unlikely** – No viable contamination sources identified, no mobile or free phase contamination encountered.	No Action Required

6. Conclusions and Recommendations

6.1. Conclusions

6.1.1. The site investigation revealed that the general succession of strata can be represented by made ground, underlain by natural superficial strata of Glaciofluvial Deposits.

6.1.2. Made ground was encountered in all five test locations from ground level to depths of between 0.5m and 0.9m, generally represented by a layer of tarmac or white/grey medium-coarse angular gravel between 0-0.3m bgl, then gravelly sandy clay with frequent bricks fragments. No organic or degradable materials were encountered.

6.1.3. Alternating layers of silty sands and clays were present before reaching coarse light brown / orange sand beneath made ground deposits to the base of the window sampling holes at 4.0m bgl.

6.1.4. No visual or olfactory evidence of contamination was encountered within soils and, when screened with a PID, no readings over the limits of detection (<0.1ppm) were reported.

6.1.5. Concentrations of all determinants were below the respective assessment criteria based on a commercial land use which is considered applicable to the end use of the site.

6.2. Recommendations

6.2.1. No specific remedial measures are required, however standard construction measures should be employed during construction works. Standard dust-suppression methods should be employed during ground disturbance / excavation works to reduce the likelihood of dust generation.

6.2.2. A copy of this report should be formally submitted to WCBC under an application to discharge Conditions 6 and 7 (Land Contamination).

6.3. Limitations

Stratigraphy

6.3.1. The evidence of stratigraphy is taken from discrete window sampling locations and from information provided by other parties. Whilst it is usually reasonable to infer those similar conditions may extend between these locations; caution should be exercised.

Contamination

6.3.2. The site investigation involved sampling at discrete locations, and it should be recognised that further areas or types of contamination may exist between investigation positions. The analyses performed are drawn from a typical suite of tests used to screen potentially contaminated land and specified to fall within the available budget. It is always possible that

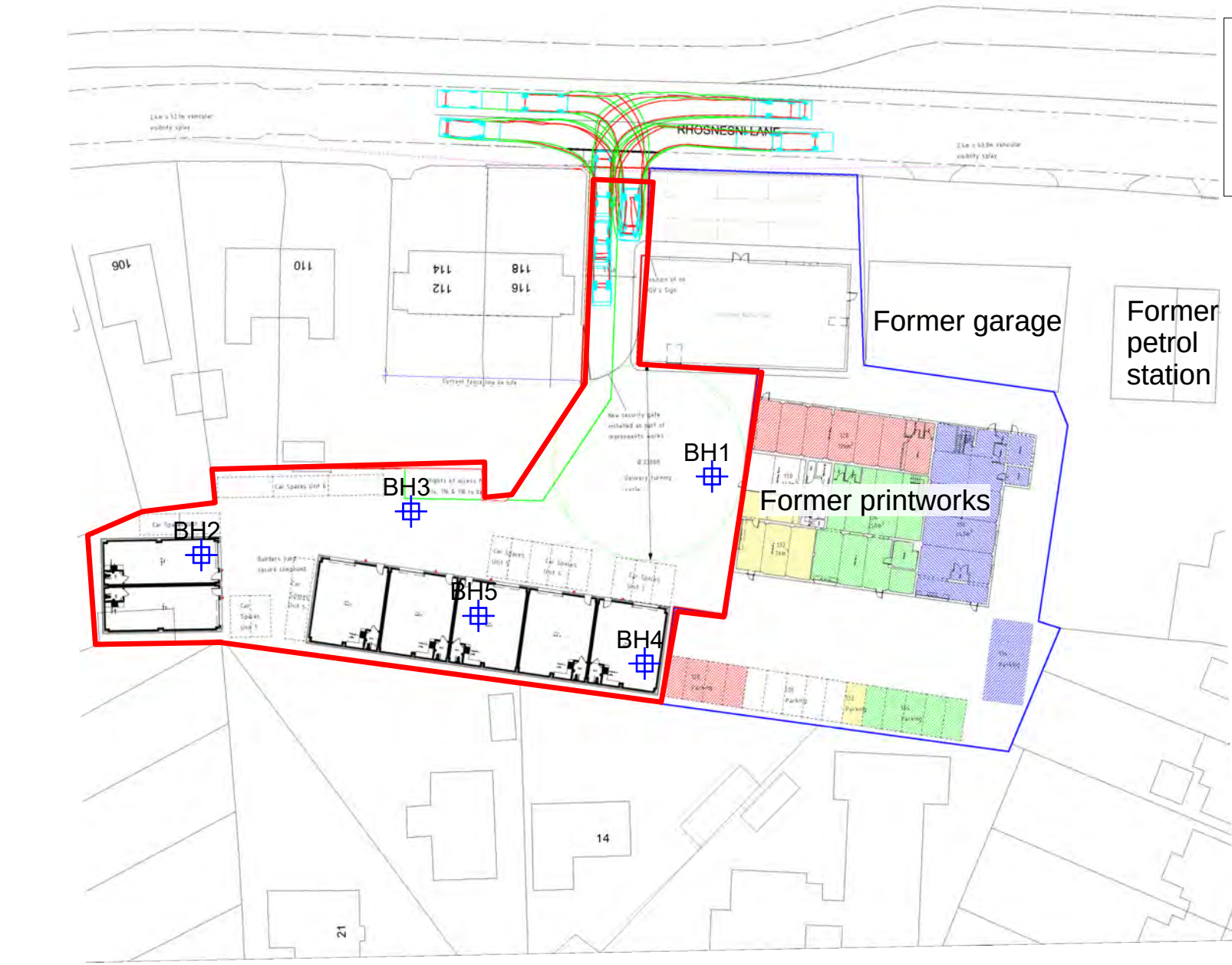
other substances may be present that have not been included within the standard range of tests.

General

6.3.3. This report has been prepared by SGP for the sole and exclusive use of Cliftons of Wrexham Fund. Reasonable skill, care and diligence has been exercised within the budget available, and in accordance with the technical requirements of the brief. Notwithstanding the efforts made by the professional team in undertaking the assessment and preparing this report, it is possible that other ground conditions and contamination as yet undetected may exist. Reliance on the findings of this report must therefore be limited accordingly. Such reliance must be based on the whole report and not on extracts which may lead to incomplete or incorrect conclusions when taken out of context.

6.3.4. SGP reserves the right to alter any of the foregoing information in the event of new information being disclosed or provided and in the light of changes to legislation, guidelines and responses by the statutory and regulatory authorities.

DRAWING



Key

- Site Investigation locations
- Site boundary

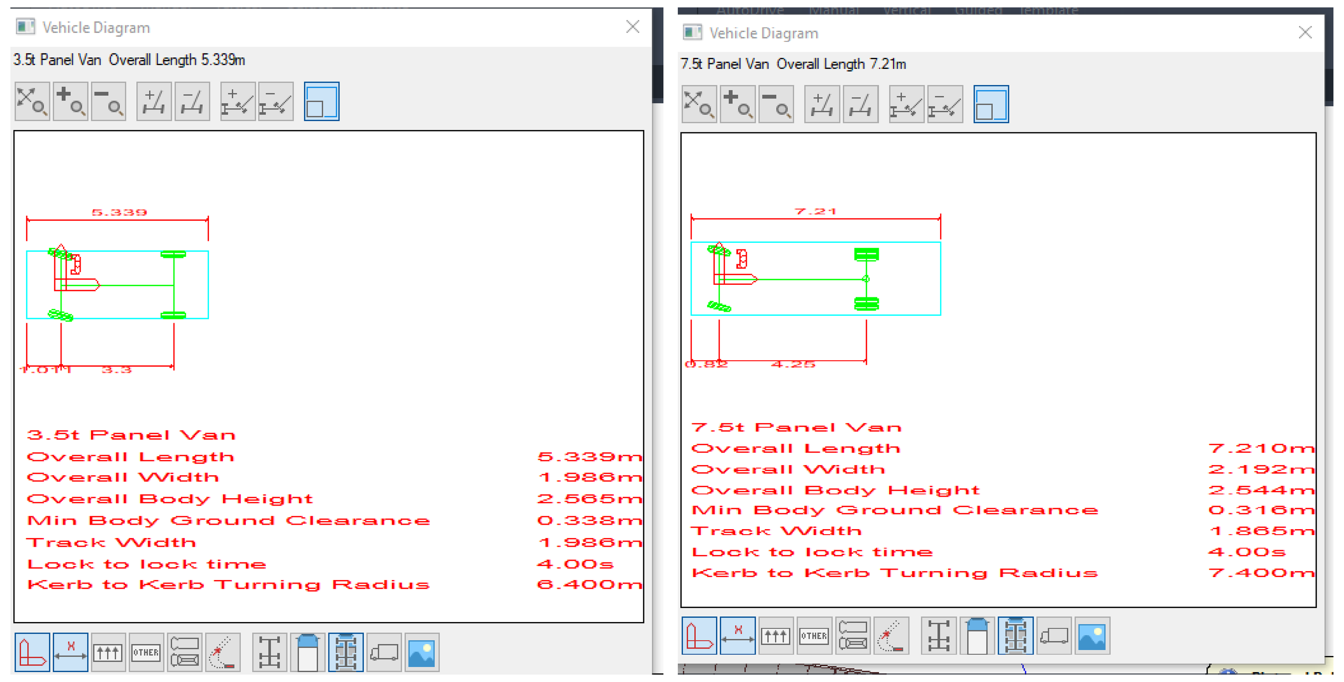
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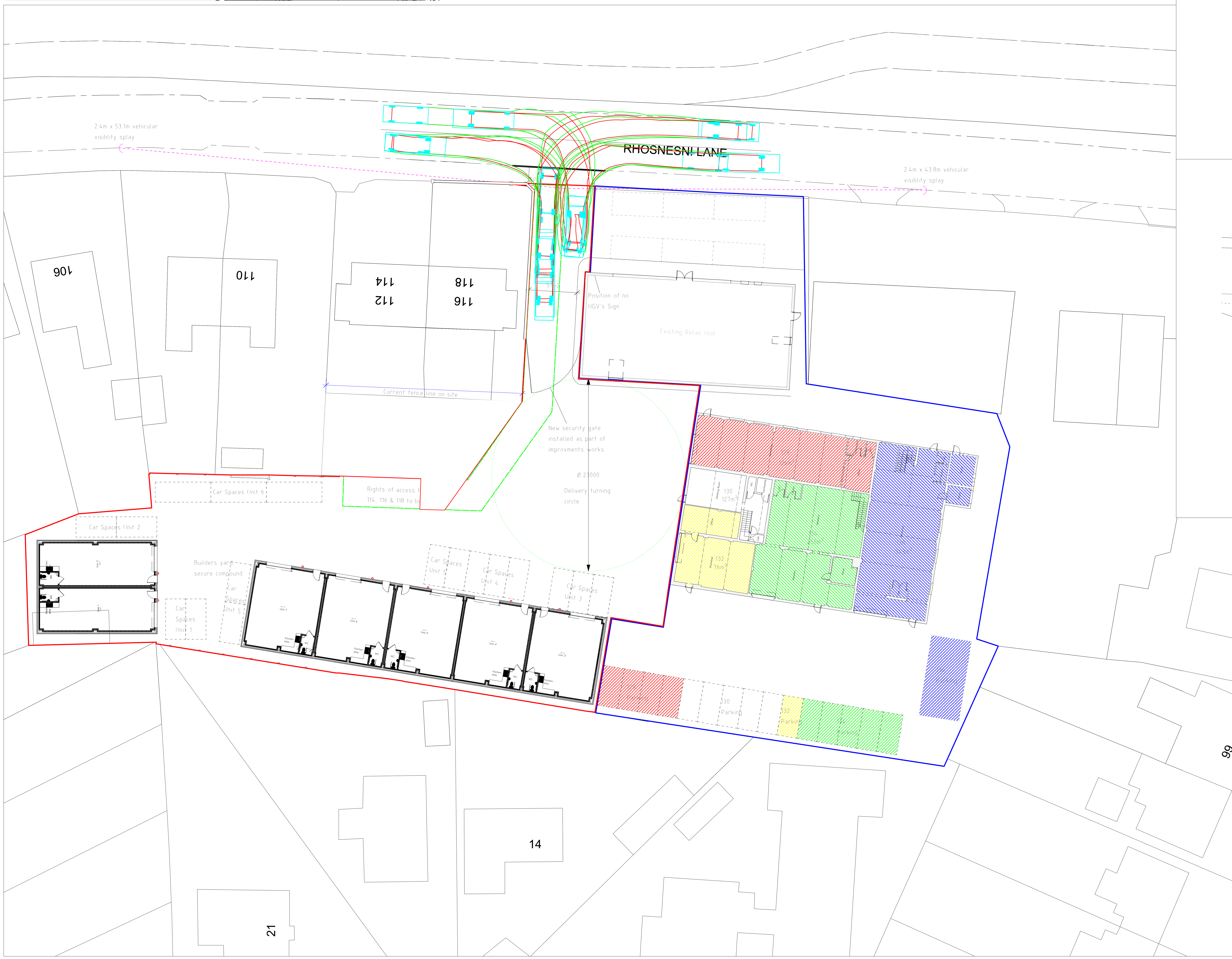
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Project: Land to the rear of 120 Rhosnesni Lane	
Drawing: Site Investigation Locations	
Drawn by: MJ	Checked: DW
Date: 26.09.24	Report no: R02
Job No: R3341	Drg No: D01





Site Plan 1:250



G	07/23	Drop-kerb Alterations	E.M.J
F	06/23	Swept Path Analysis	D.J.E.
E	04/23	Access Improvments	D.J.E.
D	03/23	Design Amends	D.J.E.
C	09/22	Planning Amends	D.J.E.
B	09/22	Planning Amends	D.J.E.
A	07/22	Additional information supplied	D.J.E.
Rev	Date	Detail	Initial

Project:
Proposed Industrial Units at Land associated with 120 Rhosnesni Lane, Wrexham, LL12 7NB

Title: Planning: Swept Path Analysis

Scale: (A1) 1:250 & 1:1250

Drawn By: D.J.Edwards

Date: Feb 2022

Drawing No: C139/006

Sheet: 2 of 2

blueprint
architectural services

partner LABC

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Redwither Business Tower,
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APPENDIX A

Borehole Logs

SHEET:	LOCATION:	PROJECT:	ENGINEER:	JOB NO.	TRIAL PIT NO.
1 of 1	Wrexham	Rear of 120 Rhosnesni Lane	MJ	R3341	BH1
		EXCAVATED BY: Window Sampler	CLIENT: Cliftons of Wrexham Fund	DATE: '26.09.24	

DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
			0.00	Tarmac overlaying grey medium-coarse angular gravel subbase (MADE GROUND)	
			0.3	Dark grey/brown sandy gravelly CLAY with brick fragments (MADE GROUND)	
0.6	BH1-S1		0.9		
			1.00	Grey soft CLAY	
			1.7	Light grey/brown fine grained SILTY SAND	
		No odours, <0.1ppm recorded on PID	2.00		
			2.7	Light brown soft slighty sandy CLAY	
			3.00 3	Light brown very soft SANDY CLAY	
			3.5	Orange brown coarse grained SAND with occasional angular gravel and rare coal fragments	
			4.00 4	Borehole terminated @ 4m bgl in natural	
			5.00		

SMITH GRANT Environmental Consultancy LLP

Smith Grant LLP
Bryn Estyn Business Centre,
Bryn Estyn Road, Wrexham, LL13 9TY

Tel: 01978822367

www.smithgrant.co.uk
email: consult@smithgrant.co.uk

GROUND WATER:

Perched groundwater within made ground

REMARKS:

SCALE:	LOGGED BY:	FIGURE NO.
1:50	MJ	1

SHEET:	LOCATION:	PROJECT:	ENGINEER:	JOB NO.	TRIAL PIT NO.
1 of 1	Wrexham	Rear of 120 Rhosnesni Lane	MJ	R3341	BH2
		EXCAVATED BY: Window Sampler	CLIENT: Cliftons of Wrexham Fund	DATE: '26.09.24	

DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
			0.00	Grey medium-coarse angular gravel overlaying thin geotextile (MADE GROUND)	
			0.2	Light grey/brown gravelly sand with with frequent brick fragments (MADE GROUND)	
0.45	BH2-S1				
			0.7	Light brown/orange silty SANDY CLAY	
			1.00 1	Light brown/grey soft CLAY	
			1.2	No recovery	
		No odours, <0.1ppm recorded on PID	2.00 2	Light brown soft CLAY	
			2.2	Light brown very fine grained SILTY SAND	
			2.9	Light brown fine grained SAND	
			3.00 3	Light brown very fine grained SILTY SAND	
			3.3	Light brown very soft SANDY CLAY	
			3.8	Light brown coarse grained SAND	
			4.00 4	Borehole terminated @ 4m bgl in natural	
			5.00		

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GROUND WATER:

Perched groundwater within made ground

REMARKS:

SCALE:	LOGGED BY:	FIGURE NO.
1:50	MJ	1

SHEET:	LOCATION:	PROJECT:	ENGINEER:	JOB NO.	TRIAL PIT NO.
1 of 1	Wrexham	Rear of 120 Rhosnesni Lane	MJ	R3341	BH3
		EXCAVATED BY: Window Sampler	CLIENT: Cliftons of Wrexham Fund	DATE: '26.09.24	

DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
			0.00	Light grey medium-coarse angular gravel overlaying thin geotextile (MADE GROUND)	
			0.1	Dark grey sandy gravel with brick fragments - limited recovery (MADE GROUND)	
			0.4	Dark grey/brown very sandy clay with frequent brick fragments (MADE GROUND)	
0.55	BH3-S1		0.7	Light brown very soft silty SANDY CLAY	
			1.00 1	Light grey/brown soft fine grained SANDY CLAY	
			1.4	Light grey/brown soft to firm slightly sandy CLAY	
			1.7	Light grey/brown fine grained SILTY SAND	
		No odours, <0.1ppm recorded on PID	2.00 2	No recovery	
			3.00 3	Light brown medium to fine grained slightly silty SAND	
			3.7	Light brown firm slightly silty CLAY	
			3.8	Light brown medium to fine grained slightly silty SAND	
			4.00 4	Borehole terminated @ 4m bgl in natural	
			5.00		

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GROUND WATER:

Perched groundwater within made ground

REMARKS:

SCALE:	LOGGED BY:	FIGURE NO.
1:50	MJ	1

SHEET:	LOCATION:	PROJECT:	ENGINEER:	JOB NO.	TRIAL PIT NO.
1 of 1	Wrexham	Rear of 120 Rhosnesni Lane	MJ	R3341	BH4
		EXCAVATED BY: Window Sampler	CLIENT: Cliftons of Wrexham Fund	DATE: '26.09.24	

DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
			0.00	Tarmac overlaying grey angular gravel subbase (MADE GROUND)	
			0.2		
0.3	BH4-S1			Dark grey clayey sandy subangular gravel with brick fragments (MADE GROUND)	
			0.4		
				Brown very sandy CLAY with rare subrounded gravel	
			0.9		
			1.00 1	Grey very soft silty CLAY	
				Grey slightly silty SANDY CLAY	
			1.3		
				Grey fine grained SILTY SAND	
			1.7		
				Light grey/brown slightly silty CLAY	
		No odours, <0.1ppm recorded on PID	2.00 2		
			2.1	Light brown silty SANDY CLAY	
				Light brown fine grained SILTY SAND	
			2.5		
				Light brown stiff CLAY	
			3.00 3		
				Light brown fine grained SILTY SAND	
			3.2		
				Orange/brown coarse grained SAND with frequent angular/subangular gravel	
			4.00 4		
				Borehole terminated @ 4m bgl in natural	
			5.00		

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GROUND WATER:

Perched groundwater within made ground

REMARKS:

SCALE:	LOGGED BY:	FIGURE NO.
1:50	MJ	1

SHEET:	LOCATION:	PROJECT:	ENGINEER:	JOB NO.	TRIAL PIT NO.
1 of 1	Wrexham	Rear of 120 Rhosnesni Lane	MJ	R3341	BH5
		EXCAVATED BY: Window Sampler	CLIENT: Cliftons of Wrexham Fund	DATE: '26.09.24	

DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
0.2	BH5-S1	No odours, <0.1ppm recorded on PID	0.00	Grey medium-coarse angular gravel (MADE GROUND)	
0.4	BH5-S2		0.1	Dark grey sandy gravelly clay with brick fragments (MADE GROUND)	
			0.3	Dark grey soft sandy clay with brick fragments (MADE GROUND)	
			0.6	Light brown/grey very silty soft SANDY CLAY	
			1.00 1	Grey/brown very soft SANDY CLAY	
			1.4	Light brown/grey very silty soft SANDY CLAY	
			1.7	Light brown very fine grained SILTY SAND	
			2.00 2	Light brown very soft silty SANDY CLAY	
			2.2	Light brown firm CLAY	
			2.9	Orange/brown medium grained SAND	
			3.00 3	Light brown fine grained SILTY SAND	
			3.2	Orange/brown medium to coarse grained SAND with frequent subangular gravel	
			4.00 4	Borehole terminated @ 4m bgl in natural	
			5.00		

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GROUND WATER:

Perched groundwater within made ground

REMARKS:

SCALE:	LOGGED BY:	FIGURE NO.
1:50	MJ	1

APPENDIX B

Photographic Record

Site investigation photographic record. Land to the Rear of 120 Rhosnesni Lane, Wrexham – 26.09.24.

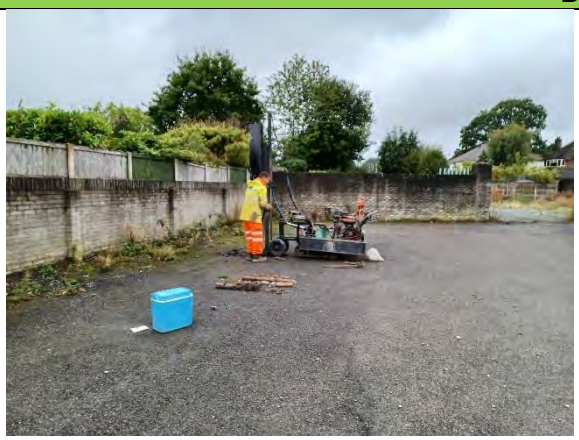
BOREHOLES

BH1	
 Location	 Arisings

BH2	
 Location	 Arisings

BH3	
 Location	 Arisings

BH4	
	
Location	Arisings

BH5	
	
Location	Arisings

APPENDIX C

Laboratory Test Results

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Croxley Green
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Herts,
WD18 8YS

t: 01923 225404
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Analytical Report Number : 24-044651

Project / Site name:	Rear of 120 Rhosnesni Lane	Samples received on:	30/09/2024
Your job number:	R3341	Samples instructed on/ Analysis started on:	30/09/2024
Your order number:		Analysis completed by:	07/10/2024
Report Issue Number:	1	Report issued on:	07/10/2024
Samples Analysed:	6 soil samples		

[redacted]

Signed:

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 24-044651
Project / Site name: Rear of 120 Rhosnesni Lane

Lab Sample Number				331012	331013	331014	331015	331016
Sample Reference				BH1 - S1	BH2 - S1	BH3 - S1	BH4 - S1	BH5 - S1
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50-0.90	0.20-0.70	0.40-0.70	0.20-0.40	0.10-0.30
Date Sampled				26/09/2024	26/09/2024	26/09/2024	26/09/2024	26/09/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	48.2	57.9
Moisture Content	%	0.01	NONE	34	17	20	24	5.7
Total mass of sample received	kg	0.1	NONE	0.8	0.8	0.8	0.8	0.8
Asbestos								
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MMI	MMI	MMI	MMI	MMI
General Inorganics								
pH (L099)	pH Units	N/A	MCERTS	7	8.1	7.3	9.3	8.2
Organic Matter (automated)	%	0.1	MCERTS	12	3.5	5.4	4.8	1.4
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	0.08	< 0.05	< 0.05	< 0.05	0.95
Acenaphthylene	mg/kg	0.05	MCERTS	0.18	< 0.05	< 0.05	0.15	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.06	< 0.05	< 0.05	0.07	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.14	< 0.05	< 0.05	0.07	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	1.8	0.26	0.12	2	0.45
Anthracene	mg/kg	0.05	MCERTS	0.23	< 0.05	< 0.05	0.83	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	3.6	0.54	0.46	9.1	0.1
Pyrene	mg/kg	0.05	MCERTS	3.3	0.54	0.46	8.2	0.08
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.6	0.29	0.27	3.5	< 0.05
Chrysene	mg/kg	0.05	MCERTS	2.1	0.43	0.34	3.6	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	2.1	0.54	0.48	4	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.94	0.19	0.17	1.7	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2	0.39	0.35	3.6	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.9	0.24	0.23	1.7	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.23	0.07	0.07	0.33	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.1	0.29	0.25	1.8	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	20.4	3.78	3.21	40.6	1.58
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	14	8.7	11	24	4.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1.6	0.5	0.4	2.5	0.3
Chromium (hexavalent) Low Level	mg/kg	1.2	NONE	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	9.5	15	13	21	8
Copper (aqua regia extractable)	mg/kg	1	MCERTS	31	35	26	79	9.1
Lead (aqua regia extractable)	mg/kg	1	MCERTS	160	140	110	110	21
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	1.9	0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	20	15	14	39	9.8
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	720	150	93	1000	30

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-044651
Project / Site name: Rear of 120 Rhosnesni Lane

Lab Sample Number				331012	331013	331014	331015	331016
Sample Reference				BH1 - S1	BH2 - S1	BH3 - S1	BH4 - S1	BH5 - S1
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50-0.90	0.20-0.70	0.40-0.70	0.20-0.40	0.10-0.30
Date Sampled				26/09/2024	26/09/2024	26/09/2024	26/09/2024	26/09/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
Petroleum Hydrocarbons								
TPHCWG - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 $_{HS_1D_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 $_{HS_1D_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 $_{EH_CU_1D_AL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	< 8.0	27	< 8.0	19	< 8.0
TPHCWG - Aliphatic >EC5 - EC35 $_{EH_CU+HS_1D_AL}$	mg/kg	10	NONE	< 10	27	< 10	19	< 10
TPHCWG - Aromatic >EC5 - EC7 $_{HS_1D_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 $_{HS_1D_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 $_{HS_1D_AR}$	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 $_{EH_CU_1D_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 $_{EH_CU_1D_AR}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	3.4
TPHCWG - Aromatic >EC16 - EC21 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10	11	< 10
TPHCWG - Aromatic >EC21 - EC35 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	19	16	< 10	16	< 10
TPHCWG - Aromatic >EC5 - EC35 $_{EH_CU+HS_1D_AR}$	mg/kg	10	NONE	19	16	< 10	27	< 10
VOCs								
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number: 24-044651
Project / Site name: Rear of 120 Rhosnesni Lane

Lab Sample Number				331017
Sample Reference				BH5 - S2
Sample Number				None Supplied
Depth (m)				0.30-0.60
Date Sampled				26/09/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	27
Total mass of sample received	kg	0.1	NONE	0.8

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MMI

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.3
Organic Matter (automated)	%	0.1	MCERTS	7.3

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.16
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.18
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.47
Pyrene	mg/kg	0.05	MCERTS	0.45
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.26
Chrysene	mg/kg	0.05	MCERTS	0.33
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.47
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.16
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.33
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.2
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.06
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.23

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	3.31

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.4
Chromium (hexavalent) Low Level	mg/kg	1.2	NONE	1.6
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	11
Copper (aqua regia extractable)	mg/kg	1	MCERTS	30
Lead (aqua regia extractable)	mg/kg	1	MCERTS	120
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.4
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	12
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	92

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Analytical Report Number: 24-044651
Project / Site name: Rear of 120 Rhosnesni Lane

Lab Sample Number				331017
Sample Reference				BH5 - S2
Sample Number				None Supplied
Depth (m)				0.30-0.60
Date Sampled				26/09/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	
Petroleum Hydrocarbons				
TPHCWG - Aliphatic >EC5 - EC6 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 EH_CU_1D_AL	mg/kg	2	MCERTS	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0
TPHCWG - Aliphatic >EC5 - EC35 EH_CU+HS_1D_AL	mg/kg	10	NONE	< 10
TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.02	MCERTS	< 0.020
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	< 10
VOCs				
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

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* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
331012	BH1 - S1	None Supplied	0.50-0.90	Brown loam and clay with gravel
331013	BH2 - S1	None Supplied	0.20-0.70	Brown loam and sand with glass and gravel
331014	BH3 - S1	None Supplied	0.40-0.70	Brown loam and sand with gravel
331015	BH4 - S1	None Supplied	0.20-0.40	Brown loam and sand with gravel and stones
331016	BH5 - S1	None Supplied	0.10-0.30	Brown clay and sand with gravel and stones
331017	BH5 - S2	None Supplied	0.30-0.60	Brown loam and clay with gravel

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Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Hexavalent chromium in soil (low level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	NONE

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Water matrix abbreviations:
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Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#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 e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution