

REMEDIATION METHOD STATEMENT VALIDATION
REPORT
FIRST STREET
MURRAYWOOD CONSTRUCTION LTD
RMS-VR-21845H-24-440
3 DECEMBER 2024

IDom



REMEDATION METHOD STATEMENT VALIDATION REPORT
FIRST STREET
MANCHESTER
MURRAYWOOD CONSTRUCTION
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DECEMBER 2024

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SECTION 1 INTRODUCTION

- 1.1 Murraywood Construction Ltd (Murraywood) is acting as Principal Contractor for the redevelopment of land located at Plot 9, First Street, Manchester. The proposed development comprises of a ground plus 10-storey building comprising commercial office space; hotel; standalone flexible commercial space, winter gardens, a basement car park, landscaping and associated works.
- 1.2 This validation report covers the remediation carried out on the site which has been overseen by IDOM engineers.
- 1.3 IDOM Merebrook Limited (IDOM) has been requested by Murraywood to prepare a Remediation Method Statement Validation Report (RMS VR) to address the requirements of Manchester City Council and Planning Condition 6(a and b) as part of 132600/FO/2021:
- 1.3.1 A) No development shall commence until a remediation strategy to deal with the risks associated with contamination of the site in respect of the development hereby permitted, has been submitted to, and approved in writing by, the local planning authority.
- 1.3.2 B) When the development commences, the development shall be carried out in accordance with the previously agreed Remediation Strategy and a Completion/Verification Report shall be submitted to and approved in writing by the City Council as local planning authority upon completion of the approved landscaping works.
- 1.4 The following reports have been produced by IDOM and Ramboll and have been used to inform this report:
- i. Ramboll, Plots 9 and 10 First Street Manchester, Geotechnical and Contaminated Land Interpretive Report, Report Ref: 1620002943-GCLIR-03, Dated February 2020, Rev 03.*
 - ii. Ramboll, Plots 9 and 10 First Street Manchester, Ground Contamination Risk Assessment and Remedial Strategy, Report Ref: 620002943-RS-01, Dated April 2020, Rev01*
 - iii. IDOM, Halton Leisure Centre, Asbestos Management Plan, Report ref: AMP-22116-20-126, Dated March 2020, Rev0*
- 1.5 This report presents the validation data to demonstrate that remediation has been completed in accordance with the approved Remediation Strategy.
- 1.6 This report has been prepared for Murraywood for the sole purpose described above and no extended duty of care to any third party is implied or offered. Third parties making reference to this report should consult Wates and IDOM as to the extent to which the findings may be appropriate for their use.

SECTION 2 SITE INFORMATION**2.1 SITE CONDITION**

- 2.1.1 The site is currently a disused open space located in the south of Manchester City Centre with Newcastle Street currently intersecting running north-south of the site. The site is situated within a mixed residential and commercial area with Mancunian Way (Ring Road bordering the site to the south-west). The site is generally hard surfaced by former parking with a small patch of vegetation within the south-western corner.

2.2 SITE HISTORY SUMMARY

- 2.2.1 Historical plans indicate that the site identified dense residential dwellings until the early 1940's, a number of engineering works (including a garage and clothing factory until 2015) were then situated across the site with evidence of underground basements and an air raid shelter present within the north-eastern portion of the site.

2.3 SUMMARY OF GROUND INVESTIGATIONS

- 2.3.1 The site has been subject to a number of phases of ground investigation; firstly by Curtins, 2012; a ground investigation undertaken by Geotechnical on behalf of Cundall 2016 and by Ramboll in 2019. Ground conditions and contaminative status of the site has been documented within these reports and should be read in conjunction with this report.

2.4 SUMMARY OF GROUND CONDITIONS

- 2.4.1 The site ground conditions noted by Ramboll have been summarised as follows:

- 2.4.1.1 Investigations encountered hard surfaces comprising granular and cohesive Made Ground. Made Ground was of various forms across the site, and at points reached up to 3.7m thick. Visible potential contamination in this layer was found in a charcoal layer, that comprised of ash and clinker.

- 2.4.1.2 The made ground was underlain by the presence of superficial drift deposits of Granular Glaciofluvial Deposits (sand, gravel, clay) and Glacial Till (clay, silts, sands, gravel). The underlying bedrock geology beneath the majority of the site is found to comprise Chester Pebble Beds (sandstone and mudstone) with a portion of this weathered at the top of the strata.

- 2.4.1.3 The investigations demonstrated that the former uses of the site were dense residential dwellings until the 1940's when a number of engineering works were situated with intact structures below ground. These former uses resulted in contamination including asbestos and leachable PAHs and metals. Due to the structures that were still intact, these areas were not suitable for use in soft landscaping.

2.5 CONTAMINATION SUMMARY – SOIL

2.5.1 The investigations have shown there are a large number of samples which contain asbestos containing materials (ACMs). This has been summarised in the table below:

Table 1: Summary of asbestos detections

Location ID	Depth (m)	ACM Type Detected	PLM Result	Total % by weight Asbestos in Sample
CP/RC101A	0.60	Loose Fibres	Chrysotile	0.002
WS101	GL	-	Chrysotile	<0.001
CP/RC110	0.30	Loose Fibres & Insulation Lagging	Chrysotile & Amosite	<0.001
CP/RC111	0.30	Loose Fibres	Chrysotile	<0.001
TP111	1.00	Loose Fibres	Chrysotile	<0.001
CP/RC116	GL	Loose Fibres	Chrysotile & Amosite	<0.001
AOP8A	0.50	Bonded Cement	Chrysotile	0.002
AOP8A	0.50	Bonded Cement	Crocidolite	0.001
AOP8A	1.00	Bonded Cement & Loose Fibres	Crocidolite	1.49
AOP8B	0.35	Loose Fibres	Amosite	<0.001
AOP8B	0.50	Loose Fibres	Amosite	<0.001
AOP8B	1.00	Loose Fibres	Chrysotile & Amosite	<0.001
AOP8B	0.70	Insulation Lagging	Chrysotile	0.002
AOP8B	0.50	Loose Fibres	Chrysotile	<0.001
AOP8B	0.50	Insulation Lagging & Bitumen	Chrysotile	0.015
AOP8B	1.00	Loose Fibres	Chrysotile	<0.001
AOP8B	0.35	Loose Fibres	Chrysotile	<0.001
AOP8C	0.50	Loose Fibres	Chrysotile	<0.001
AOP8C	0.80	Loose Fibres	Chrysotile	<0.001
RAMBOLL RESULTS				
WS103	0.20m	-	Chrysotile	0.001%
WS104	0.55	-	Chrysotile	0.002%
WS105	1.0m	-	Chrysotile & Crocidolite	<0.001%
WS106b	0.20m	-	Chrysotile	<0.001%
WS108	0.25m	-	Chrysotile and amosite	<0.001%
WS108	3.0m	-	Amosite	<0.001%
WS109	0.25m	-	Chrysotile	0.007%

2.6 CONTAMINATION SUMMARY - GROUND GAS

2.6.1 As per section 4.3 and 4.4 of the Ramboll Contaminated Land Risk Assessment and Remedial Strategy report the site is classified as Characteristic Situation 1 (CS1), with an area which would be considered to be CS2. As the CS2 area is within the car park and basement which will already have adequate protection measures as part of the original design, no further gas protection measures are required.

2.6.2 No ground gas monitoring was undertaken by IDOM.

2.7 CONTAMINATION SUMMARY – GROUNDWATER

2.7.1 Due to the basement excavations the majority of the made ground will be excavated and taken offsite reducing the source. Therefore, limits any potential leaching and migration.

2.7.2 No remedial measures required.

2.8 RISK ASSESSMENT – IDENTIFIED POLLUTANT LINKAGES

2.8.1 Within the Ramboll Contaminated Land Risk Assessment and Remedial Strategy Report the following pollutant linkages provided were identified. The extract of this table from the report is provided below:

Hazard / Pollutant	Pathway	Receptor	Potential Severity	Probability of Risk	Level of Risk	Remedial Actions Required
Hydrocarbons in soils	Direct contact	Water supply pipes	Medium	Likely	MODERATE. Impacts are above the water supply pipe thresholds for PE pipes.	Barrier pipe is recommended.
Asbestos in shallow soils	Inhalation	Future Site users	Severe	Unlikely	LOW/MODERATE. Site is to be predominantly hard standing, soft landscaped areas to have cover system in place. Very limited potential for direct contact with impacted soils.	Risk management measures required to address potential risks to human health (construction workers and off site receptors) during construction.
		Neighbouring residents	Severe	Unlikely	LOW/MODERATE. During construction there is a potential risk of offsite migration of windblown fibres. Precautions to be taken during site works	Development to include predominantly hardstanding which will break any pathway between future site users and impacted soils.
		Construction workers	Severe	Low	MODERATE*. Appropriate on-site health and safety measures to be taken.	Material management strategy required to ensure appropriate use/reuse of soils.
Ground gas	Inhalation	Future Site users	Medium	Likely	MODERATE. Ground gas protection measures required to Characteristic Situation 2.	Development design currently incorporates sufficient measures to mitigate risks. Measures to be detailed in the remedial strategy.
Leachable impacts of PAHs and metals	Leaching and migration	River Medlock	Medium	Unlikely	LOW. Residual impacts identified in groundwater and leachate indicating potential for further leachable contaminant source. However, groundwater was only identified within the sandstone bedrock and rose to within the depth of made ground when monitored. The made ground appears to be underlain by low permeability clay which provides some protection to the underlying sandstone aquifer. The development will comprise impermeable hard standing over the majority of the site thus significantly reducing leaching potential further from the unsaturated soils.	Due to the basement excavations the majority of the made ground will be excavated and taken offsite reducing the source. Therefore, limits any potential leaching and migration. No remedial measures required.
		Principal Aquifer	Medium	Unlikely	LOW. As above. There may however, be a potential risk of piling affecting risks to the aquifer. Further consideration of this should be undertaken e.g. in a piling risk assessment.	Piling risk assessment to be completed by the piling contractor once details of foundations are known.

SECTION 3 REMEDIAL STRATEGY

3.1 CONTAMINATION SUMMARY

3.2 SPECIFIC REQUIREMENTS

3.2.1 The Ramboll Remediation Strategy proposed the following specific requirements within section 5 of their report. IDOM have summarised the requirements below which relate to contamination:

3.2.2 Cut and fill earthworks

3.2.2.1 Materials re-use should be done under a Materials Management Plan (MMP)

3.2.2.2 Excavated soils should be stockpiled according to waste stream and should not be mixed. Sampling is required prior to re-use or disposal.

3.2.2.3 Any materials which appear to be contaminated should be stockpiled separately.

3.2.2.4 Contractor should make sure that water doesn't enter excavations.

3.2.2.5 Asbestos Management Plan should be included within the MMP and adhered to throughout the earthworks.

3.2.2.6 Site won made ground is considered chemically suitable for use beneath hardstanding, engineered site surfaces or below 450 mm where there is no direct contact pathway via which future site users may be affected by asbestos impacts.

3.2.2.7 Made ground soils intended for re-use beneath areas of hardstanding will require no additional testing where visual or olfactory evidence of contamination is absent.

3.2.2.8 All waste material should be sampled and analysed appropriately in order to be disposed of offsite. The contractor must keep copies of the waste transfer notes and ensure the waste is disposed of correctly.

3.2.3 Clean Capping and Imported Materials

3.2.3.1 In soft landscaped areas, a 450 mm thickness of clean imported material is required to provide a planting medium and reduce potential for exposure to asbestos impacted subsoil. This cover layer should be separated from the underlying Made Ground using a marker layer.

3.2.3.2 The materials should meet the criteria below:

- i. Chemically and physically suitable. Chemical thresholds are provided in Appendix B of the Ramboll Remediation Strategy. Free from anthropogenic materials. Topsoil should meet BS3882:2015. Imported materials must meet the minimum testing frequencies.*

3.2.4 Areas of unexpected contamination protocol

3.2.4.1 Murraywood should create a plan for any unexpected contamination which should be agreed with MCC.

3.2.4.2 Where contamination is identified soil samples should be taken at a frequency of 1 every 100 m³ with a minimum of 3 samples for each source and analysed for the suspected contaminants of concern. Additional samples should be taken from the walls and base of the excavation to demonstrate that the material remaining in-situ is chemically suitable for use. Sufficient samples should be taken to ensure a

representative spread of data is available for the material types present remaining within the excavation.

- 3.2.4.3 In order to re-use any contaminated material it must be chemically and physically suitable for use. The original location, depth and quantity of the material as well as re-use location must also be recorded.

- 3.2.5 Piling risk assessment

- 3.2.5.1 A piling risk assessment will be required to ensure there is no significant risk to the underlying aquifer or human health receptors.

- 3.2.6 Ground Gas Mitigation

- 3.2.6.1 The waterproofing design for the basement was considered suitable to protect for the worst case CS2 classification within the basement design. No further monitoring, assessment or mitigation design measures are considered necessary.

- 3.2.6.2 All ground gas protection measures incorporated into the design of the building will need to be documented onsite by the Contractor. Photographic evidence of the general installation, taping and sealing of the membrane will be required to provide sufficient information for Murraywood to complete the Verification Report upon completion of the construction works. The installation and integrity testing report for the membrane will be required from the Contractor to form part of the validation report.

SECTION 4 VALIDATION OF REMEDIAL METHOD STATEMENT REQUIREMENTS

- 4.1 **MATERIALS RE-USE UNDER AN MMP**

- 4.1.1 IDOM have produced an MMP verification report for the re-use of materials on site. The report confirms that the material was re-used as per the MMP.

- 4.2 **WASTE MANAGEMENT**

- 4.2.1 Waste Transfer Notes have been provided by Wates to IDOM which demonstrate the material classification and quantity of material disposed of offsite.

- 4.2.2 IDOM attended site on 16 November 2022 to take four samples from a stockpile (MSP101a-d) and these were scheduled for a general suite of contaminants and Waste Assessment Criteria Analysis. The material was Made Ground described as a dark brown and reddish brown sandy gravelly clay. The results are provided in i2 laboratory reports 22-97415 and 22-97419 which are in Appendix 1. The samples were processed using HazWasteOnline™ and three out of the four samples were classified as hazardous waste.

- 4.2.3 Water sample (MWA01) taken on 19 January 2023 from perched water on site. The laboratory report (DETS report 23-00843) is provided in Appendix 1. This water was

tested and removed in accordance with appropriate carry licenses. Waste transfer tickets are located within Appendix 4.

4.3 COVER LAYER SYSTEM – IMPORTED MATERIALS

- 4.3.1 Murraywood have provided the certificates for the imported subsoil and topsoil materials to IDOM. The certificates are provided in Appendix 2.
- 4.3.2 Subsoil source – Eaton Hall: this was tested by Tim O'Hare Associates for compliance with BS8601:2013 – Specification for subsoil and requirements for use – Table 1, Multipurpose Subsoil. The report provided by Tim O'Hare Associates (TOHA/23/1034/2/SS) determines that the material is suitable for use as subsoil.
- 4.3.3 Topsoil source – Crown Farm: this was tested by Tim O'Hare Associates for compliance with BS3882:2015 – Specification for topsoil – Table 1, Multipurpose Topsoil. The report provided by Tim O'Hare Associates (TOHA/24/1518/SS) determines that the material is suitable for use as topsoil.
- 4.3.4 Topsoil source – Astley: this was tested by Freeland Horticulture Limited for compliance with BS3882:2015. The report provided by Freeland Horticulture Limited (SLC-1299-SA) determines that the material is suitable for use as topsoil.
- 4.3.5 There is no soft landscaping on site, only raised planter beds, the pathway is therefore broken by hardstanding. IDOM attended site on 01 November 2024 to take 6 No. samples of the topsoil within the raised planter beds. These samples were screened for a range of contaminants including asbestos, pH, heavy metals, PAHs, TPHs and BTEX. The laboratory certificate reference is 24-051721 and can be found in Appendix 2.
- 4.3.6 The samples have been screened against Generic Assessment Criteria (GACs) for residential without home grown produce as IDOM as this is more conservative than the criteria specified by Ramboll.

Table 2: Summary of topsoil screening against Residential without home grown produce GACs

CONTAMINANT	No of Tests	MAX (mg.kg ⁻¹)	MEAN (mg.kg ⁻¹)	SCREENING LEVEL (SL) (mg.kg ⁻¹)	No > SL*
HUMAN HEALTH RISK ASSESSMENT					
Asbestos in soil	6	Non-detected	Non-detected	Detected	0
pH	6	8.4	8.3	5 – 9	0
Arsenic	6	4.3	2.9	40	0
Barium	6	67.0	40.2	1300	0
Cadmium	6	0.2	0.2	85	0
Chromium (III)	6	9.4	5.9	910	0
Hexavalent Chromium	6	5.2	2.4	6	0

Lead	6	51.0	26.0	310	0
Mercury	6	0.3	0.3	56	0
Nickel	6	11.0	6.7	180	0
Selenium	6	1.0	1.0	430	0
Vanadium	6	15.0	9.4	1200	0
TPH Aliphatic >EC ₅ - EC ₆	6	0.010	0.010	42	0
TPH Aliphatic >EC ₆ - EC ₈	6	0.010	0.010	100	0
TPH Aliphatic >EC ₈ - EC ₁₀	6	0.010	0.010	27	0
TPH Aliphatic >EC ₁₀ - EC ₁₂	6	1.00	1.00	130	0
TPH Aliphatic >EC ₁₂ - EC ₁₆	6	2.80	2.13	1100	0
TPH Aliphatic >EC ₁₆ - EC ₂₁	6	8.00	8.00	65000	0
TPH Aliphatic >EC ₂₁ - EC ₃₅	6	24.00	11.17	65000	0
TPH Aromatic >EC ₅ - EC ₇	6	0.010	0.010	370	0
TPH Aromatic >EC ₇ - EC ₈	6	0.010	0.010	860	0
TPH Aromatic >EC ₈ - EC ₁₀	6	0.020	0.020	47	0
TPH Aromatic >EC ₁₀ - EC ₁₂	6	1.00	1.00	250	0
TPH Aromatic >EC ₁₂ - EC ₁₆	6	2.00	2.00	1800	0
TPH Aromatic >EC ₁₆ - EC ₂₁	6	10.00	10.00	1900	0
TPH Aromatic >EC ₂₁ - EC ₃₅	6	13.00	10.50	1900	0
Benzene	6	0.005	0.005	0.38	0
Toluene	6	0.005	0.005	880	0
Ethylbenzene	6	0.005	0.005	83	0
Xylene	6	0.013	0.013	79	0
Naphthalene	6	0.05	0.05	2.3	0
Acenaphthylene	6	0.05	0.05	2900	0
Acenaphthene	6	0.05	0.05	3000	0
Fluorene	6	0.05	0.05	2800	0
Phenanthrene	6	0.37	0.15	1300	0
Anthracene	6	0.05	0.05	31000	0
Fluoranthene	6	0.90	0.34	1500	0
Pyrene	6	0.95	0.33	3700	0
Benzo(a)anthracene	6	0.71	0.23	11	0
Chrysene	6	0.69	0.24	30	0
Benzo(b)fluoranthene	6	0.84	0.26	3.9	0
Benzo(k)fluoranthene	6	0.40	0.14	110	0
Benzo(a)pyrene	6	0.80	0.26	3.2	0
Indeno(1,2,3-c,d)pyrene	6	0.42	0.15	45	0
Dibenzo(a,h)anthracene	6	0.08	0.06	0.31	0
Benzo(g,h,i)perylene	6	0.48	0.16	360	0
Phenol	6	1.0	1.0	440	0
PHYTOTOXICITY RISK ASSESSMENT					

Copper	6	23.0	14.6	200	0
Nickel	6	11.0	6.7	110	0
Zinc	6	60.0	37.2	300	0

4.3.7 The table above shows that the topsoil is chemically suitable for use in terms of risk to human health for the end users and phytotoxicity to plant life.

4.4 AREAS OF UNEXPECTED CONTAMINATION

4.4.1 During the works IDOM attended site on a part time basis to carry out watching briefs. The dates which relate to the discovery, sampling and removal of any unexpected contamination are discussed below.

4.4.2 Underground tank

4.4.2.1 09 September – During an IDOM watching brief, Murraywood encountered an underground concrete tank during excavations. IDOM took two water samples from the tank and sent them to a laboratory for analysis of a general suit of contaminants including PAHs, heavy metals, total petroleum hydrocarbons, volatile and semi volatile organic compounds. The results can be found in i2 laboratory report 22-83264 in Appendix 3.

4.4.2.2 A review of the results indicated that no significant contamination was present within either of the water samples. Following these results, the water was pumped into an IBC and disposed of offsite, and the concrete tank was excavated and removed from site. Example waste transfer notes are included in Appendix 4.

4.4.3 Asbestos (bulk asbestos containing materials)

4.4.3.1 IDOM attended site on 25 August, 05, 06, and 09 September 2022. The details of these site visits are carried out in the sections below.

4.4.3.2 During the first attendance on 25 August to carry out testing around four known known asbestos “hotspot” (HS) locations (HS1-HS4). The four hotspots were excavated to approximately 0.5 m bgl and each of these excavations were sampled on the four sides and base (samples A-E). Sample results showed that HS1A and HS1C were reported to contain <0.001% w/w chrysotile asbestos. Whilst IDOM were attending site, stockpile 5 which was adjacent to Hotspot 1 was noted to have visible potential asbestos containing materials, the bulk fragment (SP5 ACM) was sampled along with a soil sample (SP5 sample 1). The bulk was chrysotile cement, the soil was free from asbestos fibres. The results can be found in i2 report ref: 22-805588 in Appendix 3. The drawing showing the locations of the hotspots are provided in Appendix 4.

- 4.4.3.3 05 September – Bulk asbestos containing materials were found on the surface of a stockpile of materials created during the excavations. Asbestos air monitoring was carried out by Lucion and there were no detectable fibres. The air monitoring continued throughout the week, even when IDOM were not present. Appendix 5 contains the Air Monitoring results.
- 4.4.3.4 06 September – Handpicking of the asbestos containing materials was carried out and approximately 40 – 60 fragments of asbestos cement were recovered and placed in an asbestos waste bag. IDOM oversaw all the picking and were satisfied that all large fragments were likely to have been removed. Site Diaries and photographs are included in Appendix 6.
- 4.4.3.5 The asbestos containing material was excavated and removed from site. Murraywood have provided IDOM with the waste transfer notes for the disposal of this material, these are provided in Appendix 4.
- 4.4.3.6 IDOM produced an Asbestos Management Plan (AMP) for the site following the discovery of Asbestos Containing Materials (ACM). The report reference is AMP-22116-20-126.
- 4.5 GROUND GAS PROTECTION**
- 4.5.1 Murraywood have provided photographic evidence of the ground gas protection measures which were being installed as part of the design.
- 4.5.1.1 The waterproofing design for the basement was considered suitable to protect for the worst case CS2 classification within the basement design. It was a requirement for the contractor to provide associated quality control for the implementation of the gas protection measures.
- 4.5.2 The gas protection details are provided within Appendix 7 of this report, this includes a photographic record and detail designs.
- 4.6 PILING RISK ASSESSMENT**
- 4.6.1 A piling risk assessment was produced by Bauer Technologies and the groundwork contractor ensured the methodology was adhered to throughout the piling works. This ensured that there was no risk to human health or the underlying aquifer. Condition 7, relating to piling has been discharged.

SECTION 5 SUMMARY AND CONCLUSIONS

- 5.1 Murraywood Construction Limited has recently completed the construction of the First Street, Manchester.
- 5.2 A series of ground investigations at the site identified soil contamination in the form of sporadic/very low-level asbestos fibres.

A Remediation Method Statement (RMS) was prepared by Ramboll (Ref: 620002943-RS-01, Dated April 2020, Rev01 based on the findings of several phases of site investigation and risk assessment. The RMS set out required actions to mitigate risks to the environment and end users of the development.

- 5.3 An environmental specialist provided by IDOM was in attendance during the enabling phase to inspect excavations for any unforeseen contamination, which transpired to comprise an asbestos fragments identified within the embankment. Appropriate remedial measures were taken remove either mitigate the risk, or outright remove these unforeseen contamination sources from the site.
- 5.4 This validation report sets out the remedial measures which have been completed at the site. It is considered that no significant risk pathways remain, and the site is now considered to be suitable for the proposed end use.
- 5.5 This report should be submitted to Manchester City Council to assist with the discharge of relevant contaminated land conditions attached to the planning permission.

APPENDIX 1

- Laboratory reports 22-97415 and 22-97419
- Laboratory report 23-00843-1

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Analytical Report Number : 22-97415

Project / Site name: First Street Manchester

Samples received on: 17/11/2022

Your job number: 21845

**Samples instructed on/
Analysis started on:** 17/11/2022

Your order number:

Analysis completed by: 30/11/2022

Report Issue Number: 1

Report issued on: 30/11/2022

Samples Analysed: 4 soil samples

Signed:

Izabela Wójcik

Izabela Wójcik
Reporting Specialist

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

Excel copies of reports are only valid when accompanied by this PDF certificate.

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.

Analytical Report Number: 22-97415
Project / Site name: First Street Manchester

Lab Sample Number				2503425	2503426	2503427	2503428
Sample Reference				MSP101a	MSP101b	MSP101c	MSP101d
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				16/11/2022	16/11/2022	16/11/2022	16/11/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	14	10	11	9.8
Total mass of sample received	kg	0.001	NONE	0.7	0.7	0.7	0.7

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9.2	8.3	8.5	10.4
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	2.4	< 1.0
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.33	0.16	0.17	0.22
Sulphide	mg/kg	1	NONE	26	180	31	12
Organic Matter (automated)	%	0.1	MCERTS	3.4	2.8	2.3	3.1

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	NONE	0.72	3.6	2.4	2.1
Acenaphthylene	mg/kg	0.05	NONE	0.09	0.75	0.57	0.87
Acenaphthene	mg/kg	0.05	NONE	3.8	3.5	2.7	2.6
Fluorene	mg/kg	0.05	NONE	2.4	3.4	2.3	2.2
Phenanthrene	mg/kg	0.05	NONE	13	18	9	10
Anthracene	mg/kg	0.05	NONE	3.5	5.1	2.5	3.3
Fluoranthene	mg/kg	0.05	NONE	19	27	13	16
Pyrene	mg/kg	0.05	NONE	16	26	12	15
Benzo(a)anthracene	mg/kg	0.05	NONE	8.2	13	6	7.6
Chrysene	mg/kg	0.05	NONE	6.7	11	5.7	7.1
Benzo(b)fluoranthene	mg/kg	0.05	NONE	9.6	13	7.3	8.2
Benzo(k)fluoranthene	mg/kg	0.05	NONE	2.3	5.7	2.2	3.6
Benzo(a)pyrene	mg/kg	0.05	NONE	6.6	12	6.2	7.9
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	NONE	3.5	5.7	2.9	4.5
Dibenz(a,h)anthracene	mg/kg	0.05	NONE	0.79	0.82	0.53	1.3
Benzo(ghi)perylene	mg/kg	0.05	NONE	3.8	6.7	3.5	5.1

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	NONE	99.8	155	79.2	98.2
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	9.6	8.8	9.9
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	16	12	13	15
Copper (aqua regia extractable)	mg/kg	1	MCERTS	58	44	37	47
Lead (aqua regia extractable)	mg/kg	1	MCERTS	140	83	75	99
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	21	16	16	17
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	98	73	71	95

Analytical Report Number: 22-97415

Project / Site name: First Street Manchester

Lab Sample Number	2503425	2503426	2503427	2503428
Sample Reference	MSP101a	MSP101b	MSP101c	MSP101d
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled	16/11/2022	16/11/2022	16/11/2022	16/11/2022
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	

Monoaromatics & Oxygenates

Benzene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6 HS 1D AL	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 HS 1D AL	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 HS 1D AL	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 EH CU 1D AL	mg/kg	1	NONE	4.7	5.7	24	6.2
TPH-CWG - Aliphatic >EC12 - EC16 EH CU 1D AL	mg/kg	2	NONE	43	71	320	110
TPH-CWG - Aliphatic >EC16 - EC21 EH CU 1D AL	mg/kg	8	NONE	33	47	160	68
TPH-CWG - Aliphatic >EC21 - EC35 EH CU 1D AL	mg/kg	8	NONE	110	100	180	250
TPH-CWG - Aliphatic >EC35 - EC40 EH CU 1D AL	mg/kg	10	NONE	54	48	87	170
TPH-CWG - Aliphatic (EC5 - EC35) EH CU+HS 1D AL	mg/kg	10	NONE	190	220	680	430

TPH-CWG - Aromatic >EC5 - EC7 HS 1D AR	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 HS 1D AR	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 HS 1D AR	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 EH CU 1D AR	mg/kg	1	NONE	16	7.1	5.9	12
TPH-CWG - Aromatic >EC12 - EC16 EH CU 1D AR	mg/kg	2	NONE	110	56	150	100
TPH-CWG - Aromatic >EC16 - EC21 EH CU 1D AR	mg/kg	10	NONE	300	91	120	160
TPH-CWG - Aromatic >EC21 - EC35 EH CU 1D AR	mg/kg	10	NONE	470	200	210	600
TPH-CWG - Aromatic >EC35 - EC40 EH CU 1D AR	mg/kg	10	NONE	120	82	140	370
TPH-CWG - Aromatic (EC5 - EC35) EH CU+HS 1D AR	mg/kg	10	NONE	890	350	490	870
TPH Total C5 - C40 EH CU+HS 1D TOTAL	mg/kg	10	NONE	1300	710	1400	1800

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-97415

Project / Site name: First Street Manchester

* 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 *
2503425	MSP101a	None Supplied	None Supplied	Brown clay and sand.
2503426	MSP101b	None Supplied	None Supplied	Brown clay and sand with gravel.
2503427	MSP101c	None Supplied	None Supplied	Brown clay and sand with gravel.
2503428	MSP101d	None Supplied	None Supplied	Brown clay and sand with gravel.

Analytical Report Number : 22-97415

Project / Site name: First Street Manchester

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
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.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
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
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	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.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L0738-PL	W	NONE
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	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 aravimetrically usina 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

Analytical Report Number : 22-97415

Project / Site name: First Street Manchester

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
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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 - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Analytical Report Number : 22-97419

Project / Site name:	First Street Manchester	Samples received on:	17/11/2022
Your job number:	21845	Samples instructed on/ Analysis started on:	17/11/2022
Your order number:	22-2-FDO-LABS	Analysis completed by:	30/11/2022
Report Issue Number:	1	Report issued on:	30/11/2022
Samples Analysed:	4 10:1 WAC samples		

Signed:


Anna Goc
Junior Reporting Specialist
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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Waste Acceptance Criteria Analytical Results							
Report No:	22-97419						
					Client: MEREbrook		
Location	First Street Manchester						
Lab Reference (Sample Number)	2503440 / 2503441				Landfill Waste Acceptance Criteria		
					Limits		
Sampling Date	16/11/2022				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	MSP101a						
Depth (m)							
Solid Waste Analysis							
TOC (%)**	2.0				3%	5%	6%
Loss on Ignition (%) **	3.4				--	--	10%
BTEX (µg/kg)	< 10				6000	--	--
Sum of PCBs (mg/kg)	< 0.007				1	--	--
Mineral Oil (mg/kg) EH, 1D, CU, AL	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	535				100	--	--
pH (units)**	7.8				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	3.8				--	To be evaluated	To be evaluated
Eluate Analysis							
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1			10:1	Limit values for compliance leaching test		
	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0058			0.0358	0.5	2	25
Barium *	0.0226			0.139	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0014			0.0084	0.5	10	70
Copper *	0.015			0.092	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0104			0.0638	0.5	10	30
Nickel *	0.0022			0.013	0.4	10	40
Lead *	0.0058			0.036	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0087			0.054	4	50	200
Chloride *	0.96			5.9	800	15000	25000
Fluoride*	0.43			2.7	10	150	500
Sulphate *	27			160	1000	20000	50000
TDS*	74			460	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	12.8			78.6	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.70						
Dry Matter (%)	86						
Moisture (%)	14						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.							
				* = UKAS accredited (liquid eluate analysis only)			
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation				** = MCERTS accredited			

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.



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Waste Acceptance Criteria Analytical Results							
Report No:	22-97419						
					Client: MEREbrook		
Location	First Street Manchester						
Lab Reference (Sample Number)	2503442 / 2503443				Landfill Waste Acceptance Criteria		
					Limits		
Sampling Date	16/11/2022				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	MSP101b						
Depth (m)							
Solid Waste Analysis							
TOC (%)**	1.6				3%	5%	6%
Loss on Ignition (%) **	2.8				--	--	10%
BTEX (µg/kg)	80				6000	--	--
Sum of PCBs (mg/kg)	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_ID_CU_AL	280				500	--	--
Total PAH (WAC-17) (mg/kg)	161				100	--	--
pH (units)**	8.3				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	6.1				--	To be evaluated	To be evaluated
Eluate Analysis							
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1			10:1	Limit values for compliance leaching test		
	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0081			0.0764	0.5	2	25
Barium *	0.0199			0.188	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0009			0.0089	0.5	10	70
Copper *	0.018			0.17	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0135			0.127	0.5	10	30
Nickel *	0.0025			0.024	0.4	10	40
Lead *	0.0061			0.058	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.011			0.11	4	50	200
Chloride *	0.94			8.8	800	15000	25000
Fluoride*	0.41			3.9	10	150	500
Sulphate *	32			300	1000	20000	50000
TDS*	80			760	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	13.1			124	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.70						
Dry Matter (%)	90						
Moisture (%)	10						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.							
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation							
** = UKAS accredited (liquid eluate analysis only)							
** = MCFRTS accredited							

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
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Waste Acceptance Criteria Analytical Results							
Report No:	22-97419						
					Client: MEREbrook		
Location	First Street Manchester						
Lab Reference (Sample Number)	2503444 / 2503445				Landfill Waste Acceptance Criteria		
					Limits		
Sampling Date	16/11/2022				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	MSP101c						
Depth (m)							
Solid Waste Analysis							
TOC (%)**	1.3				3%	5%	6%
Loss on Ignition (%) **	2.5				--	--	10%
BTEX (µg/kg)	< 10				6000	--	--
Sum of PCBs (mg/kg)	< 0.007				1	--	--
Mineral Oil (mg/kg) EH, ID, CU, AL	780				500	--	--
Total PAH (WAC-17) (mg/kg)	79.5				100	--	--
pH (units)**	10.1				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	36				--	To be evaluated	To be evaluated
Eluate Analysis							
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1			10:1	Limit values for compliance leaching test		
	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0070			0.0567	0.5	2	25
Barium *	0.0141			0.115	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0024			0.019	0.5	10	70
Copper *	0.025			0.20	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0062			0.0509	0.5	10	30
Nickel *	0.0020			0.016	0.4	10	40
Lead *	0.0012			0.010	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0066			0.054	4	50	200
Chloride *	3.6			30	800	15000	25000
Fluoride*	0.31			2.5	10	150	500
Sulphate *	47			390	1000	20000	50000
TDS*	150			1300	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	10.3			83.7	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.70						
Dry Matter (%)	89						
Moisture (%)	11						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.							
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation							
** = UKAS accredited (liquid eluate analysis only)							
** = MCERTS accredited							

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
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Environmental Science

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Waste Acceptance Criteria Analytical Results							
Report No:	22-97419						
					Client: MEREbrook		
Location	First Street Manchester						
Lab Reference (Sample Number)	2503446 / 2503447				Landfill Waste Acceptance Criteria		
					Limits		
Sampling Date	16/11/2022				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	MSP101d						
Depth (m)							
Solid Waste Analysis							
TOC (%)**	1.8				3%	5%	6%
Loss on Ignition (%) **	3.2				--	--	10%
BTEX (µg/kg)	< 10				6000	--	--
Sum of PCBs (mg/kg)	< 0.007				1	--	--
Mineral Oil (mg/kg) EH, ID, CU, AL	570				500	--	--
Total PAH (WAC-17) (mg/kg)	101				100	--	--
pH (units)**	8.0				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	6.2				--	To be evaluated	To be evaluated
Eluate Analysis							
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1			10:1	Limit values for compliance leaching test		
					using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
	mg/l			mg/kg			
Arsenic *	0.0144			0.131	0.5	2	25
Barium *	0.0144			0.131	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0007			0.0064	0.5	10	70
Copper *	0.019			0.17	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0139			0.127	0.5	10	30
Nickel *	0.0006			0.0051	0.4	10	40
Lead *	0.0036			0.033	0.5	10	50
Antimony *	0.010			0.094	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0086			0.078	4	50	200
Chloride *	1.3			12	800	15000	25000
Fluoride*	0.51			4.6	10	150	500
Sulphate *	40			370	1000	20000	50000
TDS*	91			830	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	12.6			115	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.70						
Dry Matter (%)	90						
Moisture (%)	9.7						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.							
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation							
** = UKAS accredited (liquid eluate analysis only)							
** = MCERTS accredited							

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Analytical Report Number : 22-97419

Project / Site name: First Street Manchester

* 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 *
2503440	MSP101a	None Supplied	None Supplied	Brown clay and sand.
2503442	MSP101b	None Supplied	None Supplied	Brown clay and sand with gravel.
2503444	MSP101c	None Supplied	None Supplied	Brown clay and sand with gravel.
2503446	MSP101d	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation.

Analytical Report Number : 22-97419

Project / Site name: First Street Manchester

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
BS EN 12457-2 (10:1) Leachate Prep	10:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-2.	L043-PL	W	NONE
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance""	L046-PL	W	NONE
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In house method.	L047-PL	D	MCERTS
Mineral Oil (Soil) C10 - C40	Determination of mineral oil fraction extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	NONE
pH at 20oC in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In house method.	L005-PL	W	MCERTS
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.	L019-UK/PL	D	NONE
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073B-PL	W	NONE
Total BTEX in soil (Poland)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073-PL	W	NONE
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination"	L033B-PL	W	ISO 17025
Sulphate 10:1 WAC	Determination of sulphate in leachate by ICP-OES	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by EC probe using a factor of 0.6.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031	W	ISO 17025

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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
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved inorganic carbon in leachate by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE

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 - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total



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t: 01622 850410

DETS Report No: 23-00843

Site Reference: First Street

Project / Job Ref: 2116

Order No: None Supplied

Sample Receipt Date: 23/01/2023

Sample Scheduled Date: 23/01/2023

Report Issue Number: 1

Reporting Date: 31/01/2023

Authorised by:

Dave Ashworth
Technical Manager

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

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.



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Water Analysis Certificate						
DETS Report No: 23-00843		Date Sampled	19/01/22			
Idom		Time Sampled	None Supplied			
Site Reference: First Street		TP / BH No	MWA01			
Project / Job Ref: 2116		Additional Refs	None Supplied			
Order No: None Supplied		Depth (m)	None Supplied			
Reporting Date: 31/01/2023		DETS Sample No	629552			

Determinand	Unit	RL	Accreditation	(\$ hs)				
pH	pH Units	N/a	ISO17025	10.6				
Total Cyanide	ug/l	< 5	NONE	< 5				
Sulphate as SO ₄	mg/l	< 1	ISO17025	346				
Sulphide	mg/l	< 0.1	NONE	< 0.1				
Total Organic Carbon (TOC)	mg/l	< 0.1	NONE	28.3				
Chemical Oxygen Demand	mg/l	<10	ISO17025	75				
Biological Oxygen Demand	mg/l	< 5	NONE	< 5				
Dissolved Oxygen	mg/l	<1	NONE	4.6				
Arsenic (dissolved)	ug/l	< 5	ISO17025	8				
Cadmium (dissolved)	ug/l	< 0.4	ISO17025	< 0.4				
Chromium (dissolved)	ug/l	< 5	ISO17025	7				
Chromium (hexavalent)	ug/l	< 20	NONE	< 20				
Copper (dissolved)	ug/l	< 5	ISO17025	44				
Lead (dissolved)	ug/l	< 5	ISO17025	< 5				
Mercury (dissolved)	ug/l	< 0.05	ISO17025	0.11				
Nickel (dissolved)	ug/l	< 5	ISO17025	10				
Selenium (dissolved)	ug/l	< 5	ISO17025	< 5				
Zinc (dissolved)	ug/l	< 2	ISO17025	< 2				
Total Phenols (monohydric)	ug/l	< 10	NONE	28				

Subcontracted analysis ^(s)

Insufficient sample ^{1/s}

Unsuitable Sample ^{u/s}

(hs) Please note deviating sample due to head space in container



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Water Analysis Certificate - Speciated PAH						
DETS Report No: 23-00843	Date Sampled	19/01/22				
Idom	Time Sampled	None Supplied				
Site Reference: First Street	TP / BH No	MWA01				
Project / Job Ref: 2116	Additional Refs	None Supplied				
Order No: None Supplied	Depth (m)	None Supplied				
Reporting Date: 31/01/2023	DETS Sample No	629552				

Determinand	Unit	RL	Accreditation	(\$ hs)				
Naphthalene	ug/l	< 0.01	NONE	0.66				
Acenaphthylene	ug/l	< 0.01	NONE	0.11				
Acenaphthene	ug/l	< 0.01	NONE	2.15				
Fluorene	ug/l	< 0.01	NONE	1.24				
Phenanthrene	ug/l	< 0.01	NONE	6.91				
Anthracene	ug/l	< 0.01	NONE	1.60				
Fluoranthene	ug/l	< 0.01	NONE	8.58				
Pyrene	ug/l	< 0.01	NONE	8.39				
Benzo(a)anthracene	ug/l	< 0.01	NONE	3.22				
Chrysene	ug/l	< 0.01	NONE	3.48				
Benzo(b)fluoranthene	ug/l	< 0.01	NONE	4.03				
Benzo(k)fluoranthene	ug/l	< 0.01	NONE	2.09				
Benzo(a)pyrene	ug/l	< 0.01	NONE	3.45				
Indeno(1,2,3-cd)pyrene	ug/l	< 0.01	NONE	2.91				
Dibenz(a,h)anthracene	ug/l	< 0.01	NONE	0.83				
Benzo(ghi)perylene	ug/l	< 0.008	NONE	2.290				
Total EPA-16 PAHs	ug/l	< 0.16	NONE	51.94				



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Water Analysis Certificate - TPH LQM Banded						
DETS Report No: 23-00843	Date Sampled	19/01/22				
Idom	Time Sampled	None Supplied				
Site Reference: First Street	TP / BH No	MWA01				
Project / Job Ref: 2116	Additional Refs	None Supplied				
Order No: None Supplied	Depth (m)	None Supplied				
Reporting Date: 31/01/2023	DETS Sample No	629552				

Determinand	Unit	RL	Accreditation	(\$ hs)				
Aliphatic >C5 - C6 : HS_1D_MS_AL	ug/l	< 10	NONE	< 10				
Aliphatic >C6 - C8 : HS_1D_MS_AL	ug/l	< 10	NONE	< 10				
Aliphatic >C8 - C10 : EH_CU_1D_AL	ug/l	< 10	NONE	< 10				
Aliphatic >C10 - C12 : EH_CU_1D_AL	ug/l	< 10	NONE	< 10				
Aliphatic >C12 - C16 : EH_CU_1D_AL	ug/l	< 10	NONE	< 10				
Aliphatic >C16 - C35 : EH_CU_1D_AL	ug/l	< 10	NONE	1000				
Aliphatic >C35 - C44 : EH_CU_1D_AL	ug/l	< 10	NONE	38				
Aliphatic (C5 - C44) : HS_1D_MS+EH_CU_1D_AL	ug/l	< 70	NONE	1040				
Aromatic >C5 - C7 : HS_1D_MS_AR	ug/l	< 10	NONE	< 10				
Aromatic >C7 - C8 : HS_1D_MS_AR	ug/l	< 10	NONE	< 10				
Aromatic >C8 - C10 : EH_CU_1D_AR	ug/l	< 10	NONE	< 10				
Aromatic >C10 - C12 : EH_CU_1D_AR	ug/l	< 10	NONE	< 10				
Aromatic >C12 - C16 : EH_CU_1D_AR	ug/l	< 10	NONE	< 10				
Aromatic >C16 - C21 : EH_CU_1D_AR	ug/l	< 10	NONE	13				
Aromatic >C21 - C35 : EH_CU_1D_AR	ug/l	< 10	NONE	374				
Aromatic >C35 - C44 : EH_CU_1D_AR	ug/l	< 10	NONE	< 10				
Aromatic (>C5 - C44) : HS_1D_MS+EH_CU_1D_AR	ug/l	< 70	NONE	387				
Total >C5 - C44 : HS_1D_MS+EH_CU_1D_Tot al	ug/l	< 140	NONE	1430				

(hs) Please note deviating sample due to head space in container



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Water Analysis Certificate - BTEX / MTBE						
DETS Report No: 23-00843	Date Sampled	19/01/22				
Idom	Time Sampled	None Supplied				
Site Reference: First Street	TP / BH No	MWA01				
Project / Job Ref: 2116	Additional Refs	None Supplied				
Order No: None Supplied	Depth (m)	None Supplied				
Reporting Date: 31/01/2023	DETS Sample No	629552				

Determinand	Unit	RL	Accreditation	(\$ hs)				
Benzene : HS_1D_MS	ug/l	< 1	ISO17025	< 1				
Toluene : HS_1D_MS	ug/l	< 5	ISO17025	< 5				
Ethylbenzene : HS_1D_MS	ug/l	< 5	ISO17025	< 5				
p & m-xylene : HS_1D_MS	ug/l	< 10	ISO17025	< 10				
o-xylene : HS_1D_MS	ug/l	< 5	ISO17025	< 5				
MTBE : HS_1D_MS	ug/l	< 10	ISO17025	< 10				

(hs) Please note deviating sample due to head space in container



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Water Analysis Certificate - Methodology & Miscellaneous Information	
DETS Report No: 23-00843	
Idom	
Site Reference: First Street	
Project / Job Ref: 2116	
Order No: None Supplied	
Reporting Date: 31/01/2023	

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	UF	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	UF	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR dete	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	UF	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E121
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichloromethane	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Low heat with persulphate addition followed by IR detection	E110
Water	F	TPH CWG (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF	VOCs	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

Key

F Filtered
UF Unfiltered



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4480

List of HWOL Acronyms and Operators

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

Det - Acronym
Benzene - HS_1D_MS
Ethylbenzene - HS_1D_MS
MTBE - HS_1D_MS
TPH LQM - Aliphatic >C10 - C12 - EH_CU_1D_AL
TPH LQM - Aliphatic >C12 - C16 - EH_CU_1D_AL
TPH LQM - Aliphatic >C16 - C35 - EH_CU_1D_AL
TPH LQM - Aliphatic >C35 - C44 - EH_CU_1D_AL
TPH LQM - Aliphatic >C5 - C44 - HS_1D_MS+EH_CU_1D_AL
TPH LQM - Aliphatic >C5 - C6 - HS_1D_MS_AL
TPH LQM - Aliphatic >C6 - C8 - HS_1D_MS_AL
TPH LQM - Aliphatic >C8 - C10 - EH_CU_1D_AL
TPH LQM - Aromatic >C10 - C12 - EH_CU_1D_AR
TPH LQM - Aromatic >C12 - C16 - EH_CU_1D_AR
TPH LQM - Aromatic >C16 - C21 - EH_CU_1D_AR
TPH LQM - Aromatic >C21 - C35 - EH_CU_1D_AR
TPH LQM - Aromatic >C35 - C44 - EH_CU_1D_AR
TPH LQM - Aromatic >C5 - C44 - HS_1D_MS+EH_CU_1D_AR
TPH LQM - Aromatic >C5 - C7 - HS_1D_MS_AR
TPH LQM - Aromatic >C7 - C8 - HS_1D_MS_AR
TPH LQM - Aromatic >C8 - C10 - EH_CU_1D_AR
TPH LQM - Total >C5 - C44 - HS_1D_MS+EH_CU_1D_Total
Toluene - HS_1D_MS
m & p-xylene - HS_1D_MS
o-Xylene - HS_1D_MS

APPENDIX 2

- Clean Cover Certificates
- Laboratory report 24-051721



TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

Mr Nathan Birchenall
Tarmac Topscope
Manchester Road
Congleton
Cheshire, CW12 2LU

31st July 2023
Our Ref: TOHA/23/1034/2/SS
Your Ref: PO2002624975

Dear Sirs

Subsoil Analysis Report: Topscope Subsoil (Eaton Hall)

We have completed the analysis of the soil sample recently submitted, referenced *Topscope Subsoil (Eaton Hall)*, and have pleasure reporting our findings.

The purpose of the analysis was to determine the suitability of the sample for use as subsoil in general landscape purposes (trees, shrubs, amenity grass). In addition, this sample has been assessed to determine its compliance with the requirements of the British Standard for Subsoil (*BS8601:2013 – Specification for subsoil and requirements for use – Table 1, Multipurpose Subsoil*).

This report presents the results of analysis for the sample submitted to our office, and it should be considered 'indicative' of the subsoil source. The report and results should therefore not be used by third parties as a means of verification or validation testing or waste designation purposes, especially after the subsoil has left the Tarmac Topscope site.

SAMPLE EXAMINATION

The sample was described as a pale brown (Munsell Colour 10YR 6/3), slightly moist, friable, non-calcareous, virtually stone free SAND with a single grain structure. No unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

Tim O'Hare Associates LLP
Howbery Park Wallingford Oxfordshire OX10 8BA
T:01491 822653 E:info@toha.co.uk
www.toha.co.uk

ANALYTICAL SCHEDULE

The sample was submitted to a UKAS and MCERTS accredited laboratory for a range of physical and chemical tests to confirm the composition and fertility of the soil, and the concentration of selected potential contaminants. The following parameters were determined:

- detailed particle size analysis (% 5 sands, silt, clay);
- stone content (2-20mm, 20-75mm, >75mm);
- pH and electrical conductivity values;
- exchangeable sodium percentage;
- organic matter content;
- heavy metals (As, B, Cd, Cr, Cu, Pb, Hg, Ni, Se, Zn);
- total cyanide and total (mono) phenols;
- speciated PAHs (US EPA16 suite);
- aromatic and aliphatic TPH (C5-C35 banding);
- benzene, toluene, ethylbenzene, xylene (BTEX);
- asbestos screen.

The results are presented on the attached Certificate of Analysis and an interpretation of the results is given below.

RESULTS OF ANALYSIS

Detailed Particle Size Analysis and Stone Content

The sample fell into the *sand* texture class. Further detailed particle size analysis revealed the sample to have a narrow particle size distribution and large proportion of sand falling into the *medium sand* (0.25-0.50mm) particle size followed by a smaller portion of *fine sand* (0.15-0.25mm). This is acceptable for subsoil in general landscape applications as porosity levels are maintained in a compacted state and the risk of particle interpacking is minimised. However, such soils can possess poor water retention capacities and, as a consequence, they often have a greater risk of drought, particularly during prolonged dry periods.

The particle size distribution falls outside of the range indicated in *BS8601:2013 – Figure 1*, on account of the high sand content (96%).

The sample was stone-free and, as such, stones should not restrict the use of the soil for use as subsoil in general landscape purposes.

pH and Electrical Conductivity Values

The sample was strongly alkaline in reaction (pH 8.1). This pH value would be considered suitable as subsoil for general landscape purposes providing species with a wide pH tolerance or those known to prefer alkaline soils are selected for planting, turfing and seeding.

The electrical conductivity (salinity) value (water extract) was low, which indicates that soluble salts should not be present at levels that would be harmful to plants.

The electrical conductivity value by CaSO₄ extract (BS8601 requirement) fell below the maximum specified value (2800 µS/cm) given in *BS8601:2013 – Table 1*.

Organic Matter Content

The organic matter content was low (<0.5%) and compliant with *BS8601:2013 – Table 1*.

Potential Contaminants

With reference to *BS8601:2013 – Section 4.2: Note 2*, there is a requirement to confirm levels of potential contaminants in relation to the subsoil's proposed end use. This includes human health, environmental protection and metals considered toxic to plants. In the absence of site-specific assessment criteria, the concentrations that affect human health have been compared with the *residential with homegrown produce* land use in the Suitable For Use Levels (S4ULs) presented in *The LQM/CIEH S4ULs for Human Health Risk Assessment* (2015) and the DEFRA SP1010: *Development of Category 4 Screening Levels (C4SLs) for Assessment of Land Affected by Contamination – Policy Companion Document* (2014).

Of the potential contaminants determined, none was found at levels that exceeded their guideline values.

Phytotoxic Contaminants

Of the phytotoxic (toxic to plants) contaminants determined (copper, nickel, zinc), none was found at levels that exceeded the maximum permissible levels specified in *BS8601:2013 – Table 1*.

CONCLUSION

The purpose of the analysis was to determine the suitability of the sample for use as subsoil in general landscape purposes (trees, shrubs, amenity grass). In addition, this sample has been assessed to determine its compliance with the requirements of the British Standard for Subsoil (*BS8601:2013 – Specification for subsoil and requirements for use – Table 1, Multipurpose Subsoil*).

From the soil examination and subsequent laboratory analysis, the sample was described as a strongly alkaline, non-saline, non-calcareous, stone-free sand with a single grained structure. The organic matter content was low and consistent with subsoil. Of the potential contaminants determined, none was found at levels that exceeded their guideline values.

To conclude, based on our findings, the subsoil represented by this sample would be considered suitable for landscape applications where a free-draining subsoil is required or where there will be a low drought risk.

The sample was largely compliant with the requirements of the British Standard for Subsoil (*BS8601:2013 – Specification for subsoil and requirements for use – Table 1, Multipurpose Subsoil*) with the exception of the high sand content. On this occasion, this non-compliance is considered minor provided the landscape application proposed for this subsoil requires a free-draining subsoil or there is a low drought risk.

Soil Handling Recommendations

Reference should be made to Section 6.0 of *BS8601:2013* with regard to the handling and management of the subsoil:

"Soils generally lose strength and become less resistant to damage as they become wetter; therefore, it is essential that they are stripped, handled and trafficked only in the appropriate conditions of weather and soil moisture, and with suitable machinery. If sustained heavy rainfall (e.g. >10 mm in 24 h) occurs during soil stripping operations, work should be suspended and not restarted until the ground has had at least one dry day or until a suitable moisture content has been reached. A soil can be considered to have a suitable moisture content for stripping and handling if the whole thickness of the subsoil layer being stripped and/or handled is at a moisture content below the plastic limit as determined in accordance with BS 1377-2:1990 (incorporating Amendment No. 1).

Machinery should be selected and routed to minimize soil compaction."

Further guidance is provided in Clauses 6.1–6.5.

We hope this report meets with your approval and provides the necessary information. Please do not hesitate to contact the undersigned if we can be of further assistance.

Yours faithfully



Harriet MacRae
BSc MSc
Graduate Soil Scientist



Matthew Heins
BSc (Hons) MSc
Senior Soil Scientist

For & on behalf of Tim O'Hare Associates LLP



Asbestos	--	ISO 17025
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Visual Examination

The sample was described as a pale brown (Munsell Colour 10YR 6/3), slightly moist, friable, non-calcareous, virtually stone free SAND with a single grain structure. No unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

Not-detected

Harriet MacRae
BSc MSc
Graduate Soil Scientist

Tim O'Hare Associates LLP Howbery Park Wallingford Oxfordshire OX10 8BA www.toha.co.uk



TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

Mr Steve Pidcock
Tarmac Trading Limited
Crown Farm Quarry
Stoneyfold Lane
Oakmere
Nr Northwich
CW8 2JH

29th August 2024
Our Ref: TOHA/24/1518/SS
Your Ref: PO 2002847020

Dear Sirs

Topsoil Analysis Report: Crown Farm

We have completed the analysis of the soil sample recently submitted, referenced *Crown Farm 4:3 Topsoil*, and have pleasure reporting our findings.

The purpose of the analysis was to determine the suitability of the sample for general landscape purposes (trees, shrubs, amenity grass). In addition, this sample has been assessed to determine its compliance with the requirements of the British Standard for Topsoil (*BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil*).

This report presents the results of analysis for the sample submitted to our office, and it should be considered 'indicative' of the topsoil source. The report and results should therefore not be used by third parties as a means of verification or validation testing or waste designation purposes, especially after the topsoil has left the Tarmac Trading Limited site.

SAMPLE EXAMINATION

The sample was described as a brown (Munsell Colour 7.5YR 4/4), dry, friable, slightly calcareous SAND with a single grain structure. The sample was slightly stony and contained a low proportion of organic fines and occasional woody fragments. No unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

Tim O'Hare Associates LLP
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www.toha.co.uk

ANALYTICAL SCHEDULE

The sample was submitted to a UKAS and MCERTS accredited laboratory for a range of physical and chemical tests to confirm the composition and fertility of the soil, and the concentration of selected potential contaminants. The following parameters were determined:

- detailed particle size analysis (% 5 sands, silt, clay);
- stone content (2-20mm, 20-50mm, >50mm);
- pH and electrical conductivity values;
- exchangeable sodium percentage;
- major plant nutrients (N, P, K, Mg);
- organic matter content;
- C:N ratio;
- heavy metals (As, B, Cd, Cr, Cu, Pb, Hg, Ni, Se, Zn);
- total cyanide and total (mono) phenols;
- speciated PAHs (US EPA16 suite);
- aromatic and aliphatic TPH (C5-C35 banding);
- benzene, toluene, ethylbenzene, xylene (BTEX);
- asbestos screen.

The results are presented on the attached Certificate of Analysis and an interpretation of the results is given below.

RESULTS OF ANALYSIS

Detailed Particle Size Analysis and Stone Content

The sample fell into the *sand* texture class and the particle size distribution falls outside of the specified range indicated in *Figure 1* of BS3882:2015. Such soils typically have good aeration and drainage properties, but can possess reduced water and nutrient retention capacities.

However, further detailed particle size analysis revealed the sample to have a relatively narrow particle size distribution and large proportions of sand falling into the *fine sand* (0.15-0.25mm) and *medium sand* (0.25-0.50mm) class. This, in addition to the soil's organic matter content (5.3%), should offset the high sand content and provide a suitable growing medium for general landscape applications.

The sample was slightly stony and, as such, stones should not restrict the use of the soil for general landscape purposes.

pH and Electrical Conductivity Values

The sample was strongly alkaline in reaction (pH 8.1). This pH value would be considered suitable for general landscape purposes provided species with a wide pH tolerance or those known to prefer alkaline soils are selected for planting, turfing and seeding.

The electrical conductivity (salinity) value (water extract) was moderate, which indicates that soluble salts should not be present at levels that would be harmful to plants.

The electrical conductivity value by CaSO₄ extract (3496 µS/cm - BS3882 requirement) slightly exceeded the maximum specified value (3300 µS/cm) given in BS3882:2015 – Table 1. Further testing of electrical conductivity by water extract indicates that excess soluble salts should not present a significant risk to plants.

Organic Matter and Fertility Status

The sample was adequate to well supplied with organic matter and all major plant nutrients.

The C:N ratio of the sample was acceptable for general landscape purposes.

Potential Contaminants

With reference to *BS3882:2015 - Table 1*: Notes 3 and 4, there is a requirement to confirm levels of potential contaminants in relation to the topsoil's proposed end use. This includes human health, environmental protection and metals considered toxic to plants. In the absence of site-specific assessment criteria, the concentrations that affect human health have been compared with the *residential with homegrown produce* land use in the Suitable For Use Levels (S4ULs) presented in *The LQM/CIEH S4ULs for Human Health Risk Assessment* (2015) and the DEFRA SP1010: *Development of Category 4 Screening Levels (C4SLs) for Assessment of Land Affected by Contamination – Policy Companion Document* (2014).

Of the potential contaminants determined, none were found at levels that exceeded their guideline values.

Phytotoxic Contaminants

Of the phytotoxic (toxic to plants) contaminants determined (copper, nickel, zinc), none were found at levels that exceeded the maximum permissible levels specified in *BS3882:2015 – Table 1*.

CONCLUSION

The purpose of the analysis was to determine the suitability of the sample for general landscape purposes (trees, shrubs, amenity grass). In addition, this sample has been assessed to determine its compliance with the requirements of the British Standard for Topsoil (*BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil*).

From the soil examination and subsequent laboratory analysis, the sample was described as a strongly alkaline, non-saline, slightly stony, slightly calcareous sand with a single grain structure. The sample contained sufficient reserves of organic matter and all major plant nutrients. Of the potential contaminants determined, none exceeded their respective guideline values.

Based on our findings, the topsoil represented by this sample would be considered suitable for general landscaping applications (trees, shrubs and amenity grass), provided species with a wide pH tolerance or those known to prefer alkaline soils are selected and the soil's physical condition is satisfactory.

The topsoil was largely compliant with the requirements of the British Standard for Topsoil (*BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil*), with the exception of the elevated total sand content and electrical conductivity (CaSO₄) value. On this occasion, these non-compliances would be considered minor when reviewed in the context of all the other results.

RECOMMENDATIONS

Soil Handling Recommendations

It is important to maintain the physical condition of the soil and avoid structural damage during all phases of soil handling (e.g. stockpiling, resspreading, cultivating, planting, seeding or turfing). As a consequence, soil handling operations should be carried out when soil is reasonably dry and non-plastic (friable) in consistency.

It is important to ensure that the soil is not unnecessarily compacted by trampling or trafficking by site machinery, and soil handling should be stopped during and after heavy rainfall and not continued until the soil is friable in consistency. If the soil is structurally damaged and compacted at any stage during the course of soiling or landscaping works, it should be cultivated appropriately to relieve the compaction and to restore the soil's structure prior to any planting, turfing or seeding.

Further details on soil handling are provided in Annex A of *BS3882:2015*.

We hope this report meets with your approval and provides the necessary information. Please do not hesitate to contact the undersigned if we can be of further assistance.

Yours faithfully



Ebony Gheorghe
BSc MSc
Soil Scientist



Rebecca Roberts
BSc MSc MISOilSci
Senior Soil Scientist

For & on behalf of Tim O'Hare Associates LLP



Client:	Tarmac Trading Limited
Project:	Crown Farm
Job:	Topsoil Analysis - BS3882:2015
Date:	28/08/2024
Job Ref No:	TOHA/24/1518/SS

Sample Reference		Accreditation
Clay (<0.002mm)	%	UKAS
Silt (0.002-0.05mm)	%	UKAS
Very Fine Sand (0.05-0.15mm)	%	UKAS
Fine Sand (0.15-0.25mm)	%	UKAS
Medium Sand (0.25-0.50mm)	%	UKAS
Coarse Sand (0.50-1.0mm)	%	UKAS
Very Coarse Sand (1.0-2.0mm)	%	UKAS
Total Sand (0.05-2.0mm)	%	UKAS
Texture Class (UK Classification)	-	UKAS
Stones (2-20mm)	% DW	GLP
Stones (20-50mm)	% DW	GLP
Stones (>50mm)	% DW	GLP

pH Value (1:2.5 water extract)	units	UKAS
Electrical Conductivity (1:2.5 water extract)	uS/cm	UKAS
Electrical Conductivity (1:2 CaSO ₄ extract)	uS/cm	UKAS
Exchangeable Sodium Percentage	%	UKAS
Organic Matter (LOI)	%	UKAS
Total Nitrogen (Dumas)	%	UKAS
C : N Ratio	ratio	UKAS
Extractable Phosphorus	mg/l	UKAS
Extractable Potassium	mg/l	UKAS
Extractable Magnesium	mg/l	UKAS

Total Arsenic (As)	mg/kg	MCERTS
Total Cadmium (Cd)	mg/kg	MCERTS
Total Chromium (Cr)	mg/kg	MCERTS
Hexavalent Chromium (Cr VI)	mg/kg	MCERTS
Total Copper (Cu)	mg/kg	MCERTS
Total Lead (Pb)	mg/kg	MCERTS
Total Mercury (Hg)	mg/kg	MCERTS
Total Nickel (Ni)	mg/kg	MCERTS
Total Selenium (Se)	mg/kg	MCERTS
Total Zinc (Zn)	mg/kg	MCERTS
Water Soluble Boron (B)	mg/kg	MCERTS
Total Cyanide (CN)	mg/kg	MCERTS
Total (mono) Phenols	mg/kg	MCERTS

Naphthalene	mg/kg	MCERTS
Acenaphthylene	mg/kg	MCERTS
Acenaphthene	mg/kg	MCERTS
Fluorene	mg/kg	MCERTS
Phenanthrene	mg/kg	MCERTS
Anthracene	mg/kg	MCERTS
Fluoranthene	mg/kg	MCERTS
Pyrene	mg/kg	MCERTS
Benzo(a)anthracene	mg/kg	MCERTS
Chrysene	mg/kg	MCERTS
Benzo(b)fluoranthene	mg/kg	MCERTS
Benzo(k)fluoranthene	mg/kg	MCERTS
Benzo(a)pyrene	mg/kg	MCERTS
Indeno(1,2,3-cd)pyrene	mg/kg	MCERTS
Dibenzo(a,h)anthracene	mg/kg	MCERTS
Benzo(g,h,i)perylene	mg/kg	MCERTS
Total PAHs (sum USEPA16)	mg/kg	MCERTS

Aliphatic TPH >C5 - C6	mg/kg	MCERTS
Aliphatic TPH >C6 - C8	mg/kg	MCERTS
Aliphatic TPH >C8 - C10	mg/kg	MCERTS
Aliphatic TPH >C10 - C12	mg/kg	MCERTS
Aliphatic TPH >C12 - C16	mg/kg	MCERTS
Aliphatic TPH >C16 - C21	mg/kg	MCERTS
Aliphatic TPH >C21 - C35	mg/kg	MCERTS
Aliphatic TPH (C5 - C35)	mg/kg	MCERTS
Aromatic TPH >C5 - C7	mg/kg	MCERTS
Aromatic TPH >C7 - C8	mg/kg	MCERTS
Aromatic TPH >C8 - C10	mg/kg	MCERTS
Aromatic TPH >C10 - C12	mg/kg	MCERTS
Aromatic TPH >C12 - C16	mg/kg	MCERTS
Aromatic TPH >C16 - C21	mg/kg	MCERTS
Aromatic TPH >C21 - C35	mg/kg	MCERTS
Aromatic TPH (C5 - C35)	mg/kg	MCERTS

Benzene	mg/kg	MCERTS
Toluene	mg/kg	MCERTS
Ethylbenzene	mg/kg	MCERTS
o-xylene	mg/kg	MCERTS
p&m-xylene	mg/kg	MCERTS
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	MCERTS

Asbestos	ND/D	ISO 17025
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S = SAND

Visual Examination

The sample was described as a brown (Munsell Colour 7.5YR 4/4), dry, friable, slightly calcareous SAND with a single grain structure. The sample was slightly stony and contained a low proportion of organic fines and occasional woody fragments. No unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

Results of analysis should be read in conjunction with the report they were issued with

The contents of this certificate shall not be reproduced without the express written permission of Tim O'Hare Associates LLP.

Crown Farm 4:3 Topsoil

1
3
11
31
43
8
3
96
S
3
2
0

8.1
1183
3496
6.7
5.3
0.27
11
76
1470
164

3
< 0.2
5
< 1.8
9
11
< 0.3
4
< 1.0
26
0.9
< 1.0
< 1.0

< 0.05
< 0.05
0.06
0.07
0.98
0.33
1.30
1.00
0.55
0.63
0.63
0.19
0.53
0.27
< 0.05
0.28
6.89

< 0.010
< 0.010
< 0.010
< 1.0
< 2.0
< 8.0
< 8.0
< 10
< 0.010
< 0.010
< 0.020
< 1.0
< 2.0
< 10
< 10
< 10

< 0.005
< 0.005
< 0.005
< 0.005
< 0.005
< 0.005

Not-detected

Ebony Gheorghe
BSc MSc
Soil Scientist



Freeland Horticulture Ltd
Rosedale Nursery
College Road
Hextable
Kent BR8 7LT

Attention: Philippa Lambourne

Our Ref: SLC-1299-SA

5 August 2024

Dear Philippa

Topsoil Analysis Report: Astley, Greater Manchester Topsoil July 2024

We have completed the analysis of the topsoil sample recently taken from the above site and it has been forwarded to an approved laboratory for analysis and have the pleasure of reporting our findings. The purpose of the analysis was to determine the suitability of the topsoil for general landscaping purposes and its compliance with the current British Standard for topsoil (BS3882).

SOIL SAMPLING & EXAMINATION

At the time of our sampling visit the topsoil was stored in a stockpile. A series of 10 hand augered trial holes were constructed across the stockpile for the purpose of soil examination and sample collection. As the soil examination confirmed a consistent topsoil composition, the ten samples were combined together to form one composite sample for analysis purposes. The soil was described as dark brown, slightly moist and friable with a well-developed, fine to medium granular structure. The soil contained a low fraction of small stones and no deleterious materials (eg. building waste materials, glass, roots or rhizomes of pernicious weeds) or unusual odours (eg. hydrocarbons) were recorded.

LABORATORY ANALYSIS

The topsoil sample was submitted to a UKAS and MCERTS accredited laboratory for routine physical and chemical parameters to confirm the composition and fertility of the soil. The following parameters were determined:

- ⊕ pH & electrical conductivity values;
- ⊕ major plant nutrients (N, P, K, Mg) & organic matter content;
- ⊕ particle size distribution and stone content;
- ⊕ heavy metals & potentially toxic elements (As, Cd, Cr, Cu, Pb, Hg, Ni, Se, Zn, B);
- ⊕ sulphate, sulphur, sulphide;
- ⊕ total cyanide and total (mono) phenols;
- ⊕ speciated PAHs (US EPA16)
- ⊕ banded aromatic and aliphatic petroleum hydrocarbons (C₅-C₃₅).
- ⊕ Asbestos

The results are presented on the attached Certificate of Analysis and an interpretation of the results is given below.

Phone: 01322 619161;

Freeland horticulture Ltd, Registered in England: Rosedale Nursery, College Road, Hextable, Kent BR8 7LT
Company Registration No: 04015968

COMMENTS

pH & Electrical Conductivity (salinity) Values

The sample was alkaline in nature (pH 8.5) with a pH value that would be considered suitable for general landscaping purposes.

The electrical conductivity (salinity) value using the soil:water extract was (1098 μ S/cm) indicating that soluble salts are not present at levels that would be harmful to plants.

The electrical conductivity values by CaSO₄ extract (BS3882 requirement) fell below the maximum specified value (3300 μ S/cm) given in BS3882:2015.

Organic Matter & Nutrient Status

The sample was rich in organic matter and all major plant nutrients. No further additions of compost or fertiliser are required, or indeed recommended, for at least the first growing season.

The C:N ratio of the sample was acceptable for general landscape purposes.

Particle Size Distribution & Stone Content

The sample contained 76% sand and fell into the sandy loam texture class. This particle size distribution is considered suitable for a broad range of landscape applications, including tree and shrub planting, turfing and seeding.

The sample was Virtually free from stones of 50 mm and upwards in diameter and only contained a slight fraction of smaller stones (1.7%). As such, stones will not restrict the use of the soil for landscaping purposes.

Potential Contaminants

We are not aware of any specified contaminant levels set for the proposed end-use of this topsoil. This includes human health, environmental protection and metals considered toxic to plants. In the absence of any site-specific assessment criteria, the concentrations that affect human health have been compared with the 'residential with homegrown produce' land use in the Suitable For Use Levels presented in, 'The LQM/CIEH S4UIs' for Human Health Risk Assessment (2015) and DEFRA SP1010: 'Development of Category 4 Screening Levels' for Assessment of Land Affected by Contamination – Policy Companion Document (2014).

Of the potential contaminants determined, none was found at levels that would exceed their respective guideline values.

CONCLUSION

The purpose of the analysis was to determine the suitability of the topsoil for general landscaping purposes. From the soil examination and laboratory analysis, the soil is described as an alkaline, non-saline, sandy loam. The organic matter and nutrient levels are acceptable, and no significant contamination was found with respect to the parameters determined. This soil would adhere to the current BS3882 specification for 'multipurpose grade'.

To conclude, based on our findings, the topsoil would be considered well-suited to general landscaping purposes provided the physical condition of the soil is maintained.

We hope this report meets with your approval and provides the necessary information. Please do not hesitate to contact the undersigned if you have any queries or comments.

George Longmuir MSc Soil Sci. M.I Soil Sci.

Client	Freeland Horticulture Ltd
Job Name	Topsoil Analysis
Site	Astley, Greater Manchester
Month/Year	July 24
Our Ref	1299-SA
Date	05 August 2024

Composite sample

pH Value & Salinity

pH value (1:2.5 soil/water ext)	units	8.5
Electrical Conductivity (1:2.5 soil/water ext)	µS/cm	1098
Electrical Conductivity (1:2.5 soil/CaSO4 ext)	µS/cm	3057

Organic Matter & Nutrient Status

Organic Matter (LOI)	%	6.8
Organic Carbon (Derived)	%	4.0
Total Nitrogen	%	0.539
Carbon:Nitrogen Ratio	:1	7.3
Available Phosphorus	mg/l	56.8
Available Potassium	mg/l	1008
Available Magnesium	mg/l	148

Particle Size Analysis & Stones

Clay (<0.002mm)	%	10
Silt (0.063-0.002mm)	%	14
Sand (2.0-0.063mm)	%	76
Texture Class	UK Class	Sandy loam

Stones 2-20mm	% by DW	1.4
Stones 20-50mm	% by DW	0.0
Stones >50mm	% by DW	0.0

Potential Contaminants

Total Arsenic (As)	mg/kg	5.5
Total Cadmium (Cd)	mg/kg	0.24
Total Chromium (Cr)	mg/kg	63.9
Hexavalent Chromium (Cr ^{VI})	mg/kg	<0.2
Total Copper (Cu)	mg/kg	19.2
Total Lead (Pb)	mg/kg	35.5
Total Mercury (Hg)	mg/kg	<0.2
Total Nickel (Ni)	mg/kg	38.8
Total Selenium (Se)	mg/kg	0.16
Total Zinc (Zn)	mg/kg	55.4
Total Beryllium (Be)	mg/kg	<1
Total Barium (Ba)	mg/kg	71.0
Total Vanadium (V)	mg/kg	11.7
Hot Water Soluble Boron (B)	mg/kg	1.1
Total Cyanide (CN)	mg/kg	<1
Elemental Sulphur (S)	mg/kg	<5
Easily Liberated Sulphide (S ²⁻)	mg/kg	<1
Water Soluble Sulphate (SO ₄ ²⁻)	mg/l	113
Total Phenols Index	mg/kg	<1
Asbestos Screen	-	N.D.

Client	Freeland Horticulture Ltd
Job Name	Topsoil Analysis
Site	Astley, Greater Manchester
Month/Year	July 24
Our Ref	1299-SA
Date	05 August 2024

Polyaromatic Hydrocarbons

Naphthalene	mg/kg	<0.05
Acenaphthylene	mg/kg	<0.05
Acenaphthene	mg/kg	<0.05
Fluorene	mg/kg	<0.05
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.05
Fluoranthene	mg/kg	0.1
Pyrene	mg/kg	0.1
Benzo[a]anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo[b]fluoranthene	mg/kg	<0.1
Benzo[k]fluoranthene	mg/kg	<0.1
Benzo[a]pyrene	mg/kg	<0.1
Indeno[1,2,3-cd]pyrene	mg/kg	<0.1
Dibenzo[a,h]anthracene	mg/kg	<0.1
Benzo[g,h,i]perylene	mg/kg	<0.1
Total PAHs sum US EPA 16	mg/kg	<1

Banded Petroleum Hydrocarbons

Aliphatic TPH >C ₅ -C ₈	mg/kg	<0.05
Aliphatic TPH >C ₈ -C ₈	mg/kg	<0.05
Aliphatic TPH >C ₈ -C ₁₀	mg/kg	<0.05
Aliphatic TPH >C ₁₀ -C ₁₂	mg/kg	<10
Aliphatic TPH >C ₁₂ -C ₁₆	mg/kg	<10
Aliphatic TPH >C ₁₆ -C ₂₁	mg/kg	57.0
Aliphatic TPH >C ₂₁ -C ₃₅	mg/kg	130
Aliphatic TPH >C ₃₅ -C ₄₄	mg/kg	21.0

Aromatic TPH >C ₅ -C ₇	mg/kg	<0.05
Aromatic TPH >C ₇ -C ₈	mg/kg	<0.05
Aromatic TPH >C ₈ -C ₁₀	mg/kg	<0.05
Aromatic TPH >C ₁₀ -C ₁₂	mg/kg	<10
Aromatic TPH >C ₁₂ -C ₁₆	mg/kg	<10
Aromatic TPH >C ₁₆ -C ₂₁	mg/kg	20.0
Aromatic TPH >C ₂₁ -C ₃₅	mg/kg	170
Aromatic TPH >C ₃₅ -C ₄₄	mg/kg	34.0

Total Petroleum Hydrocarbons >C ₅ -C ₄₄	mg/kg	442
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BTEX

Benzene	mg/kg	<0.02
Toluene	mg/kg	<0.2
Ethyl Benzene	mg/kg	<0.04
m- & p- Xylene	mg/kg	<0.2
o-Xylene	mg/kg	<0.1

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Analytical Report Number : 24-051721

Project / Site name:	First Street	Samples received on:	04/11/2024
Your job number:	21845J	Samples instructed on/ Analysis started on:	05/11/2024
Your order number:	24-2-FDO-LABS	Analysis completed by:	12/11/2024
Report Issue Number:	1	Report issued on:	13/11/2024
Samples Analysed:	6 soil samples		



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.

Analytical Report Number: 24-051721

Project / Site name: First Street

Your Order No: 24-2-FDO-LABS

Lab Sample Number				368423	368424	368425	368426	368427
Sample Reference				MTS101	MTS102	MTS103	MTS104	MTS105
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				01/11/2024	01/11/2024	01/11/2024	01/11/2024	01/11/2024
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	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	23	20	18	20	23
Total mass of sample received	kg	0.1	NONE	0.6	0.5	0.5	0.4	0.5

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	DSA	DSA	DSA	DSA	DSA

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.4	8.4	8.3	8.3	8.3
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	80	65	21	30	60
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0399	0.0324	0.0105	0.015	0.0301
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	39.9	32.4	10.5	15	30.1
Organic Matter (automated)	%	0.1	MCERTS	5.6	2.6	2.3	2.5	4.2
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	3.2	1.5	1.3	1.5	2.4

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.37	0.11	< 0.05	< 0.05	0.27
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.7	0.24	< 0.05	0.07	0.9
Pyrene	mg/kg	0.05	MCERTS	0.63	0.2	< 0.05	0.06	0.95
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.4	0.11	< 0.05	< 0.05	0.71
Chrysene	mg/kg	0.05	MCERTS	0.45	0.14	< 0.05	< 0.05	0.69
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.48	< 0.05	< 0.05	0.07	0.84
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.23	< 0.05	< 0.05	< 0.05	0.4
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.43	0.16	< 0.05	< 0.05	0.8
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.22	0.09	< 0.05	< 0.05	0.42
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.05	< 0.05	< 0.05	< 0.05	0.08
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.25	0.1	< 0.05	< 0.05	0.48

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	4.21	1.14	< 0.80	< 0.80	6.53
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Analytical Report Number: 24-051721

Project / Site name: First Street

Your Order No: 24-2-FDO-LABS

Lab Sample Number				368423	368424	368425	368426	368427
Sample Reference				MTS101	MTS102	MTS103	MTS104	MTS105
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				01/11/2024	01/11/2024	01/11/2024	01/11/2024	01/11/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	4.3	2.5	2.1	2.1	4.1
Barium (aqua regia extractable)	mg/kg	1	MCERTS	66	34	24	24	67
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.2	< 0.2	< 0.2	< 0.2	0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	5.2	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	5.8	5.6	5.2	4.5	9.4
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	11	6	5.5	4.8	9.7
Copper (aqua regia extractable)	mg/kg	1	MCERTS	23	12	13	8.3	22
Lead (aqua regia extractable)	mg/kg	1	MCERTS	48	17	12	13	51
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	11	5.6	4.8	4.6	9.7
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	15	8	6.6	6.6	13
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	60	33	25	24	56

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	2.8	< 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	24	< 8.0	< 8.0	< 8.0	11
TPHCWG - Aliphatic >EC35 - EC40 _{EH_CU_1D_AL}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	27	< 10	< 10	< 10	11
TPHCWG - Aliphatic >EC5 - EC40 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	27	< 10	< 10	< 10	11

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	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	13	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC35 - EC40 _{EH_CU_1D_AR}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	13	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC40 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	13	< 10	< 10	< 10	< 10

TPH Total >EC5 - EC40 _{EH_CU+HS_1D_TOTAL}	mg/kg	10	NONE	39	< 10	< 10	< 10	11
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VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 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	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
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

Analytical Report Number: 24-051721

Project / Site name: First Street

Your Order No: 24-2-FDO-LABS

Lab Sample Number	368428			
Sample Reference	MTS106			
Sample Number	None Supplied			
Depth (m)	None Supplied			
Date Sampled	01/11/2024			
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	20
Total mass of sample received	kg	0.1	NONE	0.5

Asbestos

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

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.3
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	57
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0283
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	28.3
Organic Matter (automated)	%	0.1	MCERTS	2.5
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.4

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05
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	0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.08
Pyrene	mg/kg	0.05	MCERTS	0.09
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05
Chrysene	mg/kg	0.05	MCERTS	0.06
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80
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Analytical Report Number: 24-051721

Project / Site name: First Street

Your Order No: 24-2-FDO-LABS

Lab Sample Number				368428
Sample Reference				MTS106
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				01/11/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	2.1
Barium (aqua regia extractable)	mg/kg	1	MCERTS	26
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (III)	mg/kg	1	NONE	4.9
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	5.2
Copper (aqua regia extractable)	mg/kg	1	MCERTS	9.1
Lead (aqua regia extractable)	mg/kg	1	MCERTS	15
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	4.6
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	7.1
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	25

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 >EC35 - EC40 _{EH_CU_1D_AL}	mg/kg	10	NONE	< 10
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10
TPHCWG - Aliphatic >EC5 - EC40 _{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 >EC35 - EC40 _{EH_CU_1D_AR}	mg/kg	10	NONE	< 10
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10
TPHCWG - Aromatic >EC5 - EC40 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10

TPH Total >EC5 - EC40 _{EH_CU+HS_1D_TOTAL}	mg/kg	10	NONE	< 10
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VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 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	8	MCERTS	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0

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

Analytical Report Number : 24-051721
Project / Site name: First Street

* 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 *
368423	MTS101	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation
368424	MTS102	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation
368425	MTS103	None Supplied	None Supplied	Brown loam and clay with gravel
368426	MTS104	None Supplied	None Supplied	Brown loam and clay with gravel
368427	MTS105	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation
368428	MTS106	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation

Analytical Report Number : 24-051721

Project / Site name: First Street

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
Total organic carbon (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
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	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
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL/L130B	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	MCERTS
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS

Analytical Report Number : 24-051721

Project / Site name: First Street

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
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

APPENDIX 3

- Underground Tank Laboratory Report 22-83264
- Asbestos Laboratory Report 22-805588



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Preliminary Report Number : 22-80588

Project / Site name:	First Street, Manchester	Samples received on:	26/08/2022
Your job number:	22162	Samples instructed on/ Analysis started on:	26/08/2022
Your order number:	22-2-FDO-LABS	Analysis completed by:	05/09/2022
Report Issue Number:	1	Report issued on:	05/09/2022
Samples Analysed:	1 bulk sample - 21 soil samples		

Signed:

Adam Fenwick
Technical Reviewer
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

Excel copies of reports are only valid when accompanied by this PDF certificate.

Preliminary reports provided at the request of the client should be considered as incomplete and have not been through the complete quality control procedure.

Results contained in preliminary reports may be subject to change and therefore should not be used as a basis for decision making, except at the risk of the client.

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.

Analytical Report Number: 22-80588
 Project / Site name: First Street, Manchester
 Your Order No: 22-2-FDO-LABS

Lab Sample Number				2404436	2404437	2404438	2404439	2404440
Sample Reference				SP5 Sample 1	HS1A	HS1B	HS1C	HS1D
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	0.75	0.75	0.75	0.70
Date Sampled				25/08/2022	25/08/2022	25/08/2022	25/08/2022	25/08/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	Chrysotile	-	Chrysotile	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Detected	Not-detected	Detected	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	< 0.001	-	< 0.001	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	< 0.001	-	< 0.001	-
Asbestos Analyst ID	N/A	N/A	N/A	ASE	ASE	ASE	ASE	ASE

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-80588
 Project / Site name: First Street, Manchester
 Your Order No: 22-2-FDO-LABS

Lab Sample Number				2404441	2404442	2404443	2404444	2404445
Sample Reference				HS1E	HS2A	HS2B	HS2C	HS2D
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	0.90	0.90	0.90	0.90
Date Sampled				25/08/2022	25/08/2022	25/08/2022	25/08/2022	25/08/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-	-
Asbestos Analyst ID	N/A	N/A	N/A	ASE	ASE	ASE	ASE	SZS

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-80588
 Project / Site name: First Street, Manchester
 Your Order No: 22-2-FDO-LABS

Lab Sample Number				2404446	2404447	2404448	2404449	2404450
Sample Reference				HS2E	HS3A	HS3B	HS3C	HS3D
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.90	0.80	0.80	0.80	0.80
Date Sampled				25/08/2022	25/08/2022	25/08/2022	25/08/2022	25/08/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-	-
Asbestos Analyst ID	N/A	N/A	N/A	SZS	SZS	SZS	SZS	SZS

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-80588
 Project / Site name: First Street, Manchester
 Your Order No: 22-2-FDO-LABS

Lab Sample Number				2404451	2404452	2404453	2404454	2404455
Sample Reference				HS3E	HS4A	HS4B	HS4C	HS4D
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	0.75	0.75	0.75	0.75
Date Sampled				25/08/2022	25/08/2022	25/08/2022	25/08/2022	25/08/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-	-
Asbestos Analyst ID	N/A	N/A	N/A	SZS	SZS	SZS	SZS	MWI

U/S = Unsuitable Sample I/S = Insufficient Sample



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Analytical Report Number: 22-80588

Project / Site name: First Street, Manchester

Your Order No: 22-2-FDO-LABS

Lab Sample Number				2404456
Sample Reference				HS4E
Sample Number				None Supplied
Depth (m)				1.00
Date Sampled				25/08/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-
Asbestos Quantification Total	%	0.001	ISO 17025	-
Asbestos Analyst ID	N/A	N/A	N/A	MWI

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-80588
Project / Site name: First Street, Manchester
Your Order No: 22-2-FDO-LABS

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006-PL based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
2404437	HS1A	0.75	151	Loose Fibres	Chrysotile	< 0.001	< 0.001
2404439	HS1C	0.75	155	Loose Fibres	Chrysotile	< 0.001	< 0.001

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.



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Analytical Report Number: 22-80588

Project / Site name: First Street, Manchester

Your Order No: 22-2-FDO-LABS

Lab Sample Number				2404435
Sample Reference				SP5 ACM
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				25/08/2022
Time Taken				None Supplied
Analytical Parameter (Bulk Analysis)				
	Units	Limit of detection	Accreditation Status	

Asbestos Identification	Type	N/A	ISO 17025	Chrysotile-Hard/Cement Type Material
Asbestos Analyst ID	N/A	N/A	N/A	ASE

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-80588

Project / Site name: First Street, Manchester

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 Bulks	Asbestos Identification in bulk material with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	W	ISO 17025
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	A001-PL	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' 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.

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Analytical Report Number : 22-83264

Project / Site name:	First Street	Samples received on:	12/09/2022
Your job number:	22116	Samples instructed on/ Analysis started on:	12/09/2022
Your order number:	22 2 FDO LABS	Analysis completed by:	19/09/2022
Report Issue Number:	1	Report issued on:	19/09/2022
Samples Analysed:	2 water samples		


Signed:

Dominika Warjan
Junior Reporting Specialist
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.



Project / Site name: First Street

Your Order No: 22 2 FDO LABS

Analytical Parameter (Water Analysis)

pH	pH Units	N/A	ISO 17025	7.7	7.8
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10
Sulphate as SO4	µg/l	45	ISO 17025	76500	77400
Sulphide	µg/l	5	NONE	< 5.0	< 5.0
Total Organic Carbon (TOC)	mg/l	0.1	ISO 17025	6.58	6.65
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	240	500
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025	14	33
Total Suspended Solids	mg/l	2	ISO 17025	230	800

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10
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Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	0.42	0.3
Pyrene	µg/l	0.01	ISO 17025	0.37	0.33
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	0.79	0.63
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Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0
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Arsenic (dissolved)	µg/l	0.15	ISO 17025	6.1	8.75
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.04	0.08
Chromium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	0.2
Copper (dissolved)	µg/l	0.5	ISO 17025	3.1	4.4
Lead (dissolved)	µg/l	0.2	ISO 17025	71	85
Mercury (dissolved)	µg/l	0.05	ISO 17025	0.06	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	3.3	3.1
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.7	1.9
Zinc (dissolved)	µg/l	0.5	ISO 17025	7.2	11



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Analytical Report Number: 22-83264

Project / Site name: First Street

Your Order No: 22 2 FDO LABS

Lab Sample Number				2420193	2420194
Sample Reference				Tank 1 Sample A	Tank 1 Sample B
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				09/09/2022	09/09/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status		

Monoaromatics & Oxygenates

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6 _{HS, 1D, AL}	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8 _{HS, 1D, AL}	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10 _{HS, 1D, AL}	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12 _{EH, 1D, AL, #1, #2, MS}	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16 _{EH, 1D, AL, #1, #2, MS}	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21 _{EH, 1D, AL, #1, #2, MS}	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35 _{EH, 1D, AL, #1, #2, MS}	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35) _{HS+EH, 1D, AL, #1, #2, MS}	µg/l	10	NONE	< 10	< 10

TPH-CWG - Aromatic >C5 - C7 _{HS, 1D, AR}	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8 _{HS, 1D, AR}	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10 _{HS, 1D, AR}	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12 _{EH, 1D, AR, #1, #2, MS}	µg/l	10	NONE	10	17
TPH-CWG - Aromatic >C12 - C16 _{EH, 1D, AR, #1, #2, MS}	µg/l	10	NONE	30	61
TPH-CWG - Aromatic >C16 - C21 _{EH, 1D, AR, #1, #2, MS}	µg/l	10	NONE	60	78
TPH-CWG - Aromatic >C21 - C35 _{EH, 1D, AR, #1, #2, MS}	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic (C5 - C35) _{HS+EH, 1D, AR, #1, #2, MS}	µg/l	10	NONE	100	160

VOCS

Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0



4041



Analytical Report Number: 22-83264

Project / Site name: First Street

Your Order No: 22 2 FDO LABS

Lab Sample Number				2420193	2420194
Sample Reference				Tank 1 Sample A	Tank 1 Sample B
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				09/09/2022	09/09/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status		
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0
o-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0

SVOCs

Aniline	µg/l	0.05	NONE	< 0.05	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05



4041



Analytical Report Number: 22-83264

Project / Site name: First Street

Your Order No: 22 2 FDO LABS

Lab Sample Number				2420193	2420194
Sample Reference				Tank 1 Sample A	Tank 1 Sample B
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				09/09/2022	09/09/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status		
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05
Fluoranthene	µg/l	0.01	ISO 17025	0.42	0.3
Pyrene	µg/l	0.01	ISO 17025	0.37	0.33
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
3&4-Methylphenol	µg/l	0.1	NONE	< 0.10	< 0.10

U/S = Unsuitable Sample I/S = Insufficient Sample



4041



Analytical Report Number : 22-83264

Project / Site name: First Street

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
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 *for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B.	L086-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphide in water	Determination of sulphide in water by ion selective electrode.	In-house method	L029-PL	W	NONE
Sulphate in water	Determination of sulphate in water after filtration by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Suspended solids in water	Determined gravimetrically with GFC filtration papers.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	ISO 17025
Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds in leachate by extraction in dichloromethane followed by GC-MS.	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	ISO 17025
Total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Total organic carbon in water	Determination of dissolved organic carbon in water by TOC/DOC NDIR analyser. Accredited matrices: SW PW GW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	ISO 17025
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In house method.	L099-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K ₂ Cr ₂ O ₇ followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025

Analytical Report Number : 22-83264

Project / Site name: First Street

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
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For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' 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 - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Sample Deviation Report



Analytical Report Number : 22-83264

Project / Site name: First Street

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis. Please note that the associated result(s) may be unreliable and should be interpreted with care.

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
Tank 1 Sample A	None Supplied	W	2420193	c	Biological oxygen demand (total) of water	L086-PL	c
Tank 1 Sample B	None Supplied	W	2420194	c	Biological oxygen demand (total) of water	L086-PL	c

APPENDIX 4

- Hotspot Drawing
- Example waste transfer notes



Background Imagery from Google Earth ©

Legend

◆ Asbestos Hotspot Locations

First Issue	29/11/2024	-
	LEH	AFJ
Issue Details	Dwn	Chd
Issue Purpose	Preliminary	

Client
Murraywood Construction Ltd

Project
First Street, Plot 9

Dwg Title
Asbestos Hotspot Locations

Drawing No.
21845h-305-001

Scale 1:1,000	Date 29/11/2024	Frame dimension mm (A3) 392 x 277
Drawn LEH	Checked AFJ	Approved AFJ

IDOM

Cromford Mills, Mill Lane, Matlock, Derbyshire DE4 3RQ
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61 Mosley Road
Trafford Park
Manchester
M17 1GJ

Tel: 0161 778 0333

www.ppoconnor.co.uk

salesledger@ppoconnor.co.uk

WASTE CARRIERS LICENCE NO: CBDU101751

CONVEYANCE NOTE / PROOF OF DELIVERY

TICKET NO:	95683	DATE:	02-Sep-2024
CUSTOMER:	Murraywood Construction Ltd	DEPOT:	P40
DELIVERY/COLLECTION ADDRESS First Street / River Street Manchester M15 4RB		ORDER NO:	C344/18625 DR
		HAULIER:	PP O'Connor Plant Ltd
		VEHICLE REG:	MV71 WKE
		SITE CONTACT:	Chris
PRODUCT DESCRIPTION		QUANTITY	
Inert		GROSS WEIGHT	31,930
		TARE WEIGHT	12,340
		NET WEIGHT	19,590
TIME ARRIVED ONSITE:	8:52	CASH CUSTOMER:	
TIME FINISHED ONSITE:	9:08		
WAITING TIME/DAYWORK:	16.00		
DRIVER SIGNATURE:			DRIVER NAME: GARY WILLIS

SIGNED ON BEHALF OF THE CUSTOMER, I ACKNOWLEDGE THE DETAILS ON THIS TICKET AS CORRECT AND ARE SUBJECT TO OUR CONDITIONS OF SALE

PRINT NAME: Chris

CUSTOMER SIGNATURE: 

ALL RECYCLED PRODUCTS ARE PRODUCED IN COMPLIANCE WITH THE WRAP QUALITY PROTOCOL.

THIS MATERIAL IS SOLD SUBJECT TO THE TERMS AND CONDITIONS AS SHOWN ON YOUR QUOTATION.

ALL VEHICLES ENTER CUSTOMERS PROPERTY AT CUSTOMER'S RISK. ALL GOODS ARE CARRIED SUBJECT TO RHA CONDITIONS OF ARRANGE 1998. COPY AVAILABLE ON REQUEST.



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WASTE CARRIERS LICENCE NO: CBDU101751

CONVEYANCE NOTE / PROOF OF DELIVERY

TICKET NO:	95744	DATE:	02-Sep-2024
CUSTOMER:	Murraywood Construction Ltd	DEPOT:	P40
DELIVERY/COLLECTION ADDRESS First Street / River Street Manchester M15 4RB		ORDER NO:	C344/18625 DR
		HAULIER:	PP O'Connor Plant Ltd
		VEHICLE REG:	MV71 WKE
		SITE CONTACT:	Chris
PRODUCT DESCRIPTION		QUANTITY	
Inert		GROSS WEIGHT	31,940
		TARE WEIGHT	12,340
		NET WEIGHT	19,600
TIME ARRIVED ONSITE:	10:25	CASH CUSTOMER:	
TIME FINISHED ONSITE:	10:42		
WAITING TIME/DAYWORK:	17.00		
DRIVER SIGNATURE:			DRIVER NAME: GARY WILLIS

SIGNED ON BEHALF OF THE CUSTOMER, I ACKNOWLEDGE THE DETAILS ON THIS TICKET AS CORRECT AND ARE SUBJECT TO OUR CONDITIONS OF SALE

PRINT NAME: Nick

CUSTOMER SIGNATURE:



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WASTE CARRIERS LICENCE NO: CBDU101751

CONVEYANCE NOTE / PROOF OF DELIVERY

TICKET NO:	96378	DATE:	04-Sep-2024
CUSTOMER:	Murraywood Construction Ltd	DEPOT:	P33
DELIVERY/COLLECTION ADDRESS: First Street / River Street Manchester M15 4RB		ORDER NO:	C344/18625 DR
		HAULIER:	PP O'Connor Plant Ltd
		VEHICLE REG:	AY72 UWR
		SITE CONTACT:	Chris
PRODUCT DESCRIPTION		QUANTITY	
MOT Type 1 Gritstone		GROSS WEIGHT	32,000
		TARE WEIGHT	12,000
		NET WEIGHT	20,000
TIME ARRIVED ONSITE:	7:10	CASH CUSTOMER:	
TIME FINISHED ONSITE:	7:34		
WAITING TIME/DAYWORK:	24.00	DRIVER NAME: BILLY KILMARTIN	

SIGNED ON BEHALF OF THE CUSTOMER, I ACKNOWLEDGE THE DETAILS ON THIS TICKET AS CORRECT AND ARE SUBJECT TO OUR CONDITIONS OF SALE

PRINT NAME: Dave Green

CUSTOMER SIGNATURE:

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WASTE CARRIERS LICENCE NO: CBDU101751

CONVEYANCE NOTE / PROOF OF DELIVERY

TICKET NO:	97517	DATE:	10-Sep-2024
CUSTOMER:	Murraywood Construction Ltd	DEPOT:	P109
DELIVERY/COLLECTION ADDRESS First Street / River Street Manchester M15 4RB		ORDER NO:	C344/18625 DR
		HAULIER:	PP O'Connor Plant Ltd
		VEHICLE REG:	MK21 BZV
		SITE CONTACT:	Chris
PRODUCT DESCRIPTION		QUANTITY	
Inert		GROSS WEIGHT	32,000
		TARE WEIGHT	12,000
		NET WEIGHT	20,000
TIME ARRIVED ONSITE:	7:38	CASH CUSTOMER:	
TIME FINISHED ONSITE:	7:52		
WAITING TIME/DAYWORK:	14.00		
DRIVER SIGNATURE: 		DRIVER NAME: AIDEY WATERSON	

SIGNED ON BEHALF OF THE CUSTOMER, I ACKNOWLEDGE THE DETAILS ON THIS TICKET AS CORRECT AND ARE SUBJECT TO OUR CONDITIONS OF SALE

PRINT NAME: Dave Corigan

CUSTOMER SIGNATURE: 

ALL RECYCLED PRODUCTS ARE PRODUCED IN COMPLIANCE WITH THE WRAP QUALITY PROTOCOL.

THIS MATERIAL IS SOLD SUBJECT TO THE TERMS AND CONDITIONS AS SHOWN ON YOUR QUOTATION.

ALL VEHICLES ENTER CUSTOMERS PROPERTY AT CUSTOMER'S RISK. ALL GOODS ARE CARRIED SUBJECT TO RHA CONDITIONS OF CARRIAGE 1998. COPY AVAILABLE ON REQUEST.



Chartrange.

Wharf Street, Dukinfield,
Cheshire. SK16 4NJ
Tel: 0161-339 4949
Fax: 0161-339 4437

DUTY OF CARE / TRANSFER/HIRE SHEET

Licence No.:

Date: 24-8-22 No: 13617

A Producer of the materials	Company / Name <u>Murraywood Car</u> Site Address: <u>First St, M61</u>
B Description of the materials	How are materials contained? <u>Asbestos</u> Describe materials being transferred <u>Any</u> Quantity <u>1x8w/load</u>
C Carrier of the materials	Drivers Name <u>Lee</u> Vehicle Reg <u>PO17 UAC</u>
D Disposer of the materials	Company Name <u>TIP</u> Disposal Address <u>As Per Requested</u> Licence No. _____
Equipment is hired at the current Contractor's Plant Association "Conditions of Hire" - copies available on request	
No. of Loads	
MINIMUM HIRE 9 HOURS	
Day Work: _____	Hours Worked: _____ Travel Time: _____ Total Hours: _____

Consignees Signature: [Signature]

CONDITIONS OF SALE - It is essential that all written particulars entered above should be carefully checked by the consignee since this delivery note once signed by the consignee represents formal acceptance of the material in good order and condition and subsequent complaints cannot be accepted. All complaints whether in respect of material or circumstances or delivery must be made to the driver of the vehicle and be confirmed in writing direct to the company immediately.

Chartrange.

Wharf Street, Dukinfield,
Cheshire. SK16 4NJ
Tel: 0161-339 4949
Fax: 0161-339 4437

DUTY OF CARE / TRANSFER/HIRE SHEET

Licence No.:

Date: 28/8/22 No: 13814

A Producer of the materials	Company / Name <u>MURRAYWOOD</u> Site Address: <u>FIRST ST</u> <u>M61</u>
B Description of the materials	How are materials contained? <u>1 Load</u> Describe materials being transferred <u>ASBESTOS</u> <u>TO TIP</u> Quantity <u>26</u>
C Carrier of the materials	Drivers Name <u>R PORTUGAL</u> Vehicle Reg <u>R PORTUGAL</u>
D Disposer of the materials	Company Name <u>AS PER</u> Disposal Address <u>REQUESTED</u> Licence No. _____
Equipment is hired at the current Contractor's Plant Association "Conditions of Hire" - copies available on request	
No. of Loads	
MINIMUM HIRE 9 HOURS	
Day Work: _____	Hours Worked: _____ Travel Time: _____ Total Hours: _____

Consignees Signature: [Signature]

CONDITIONS OF SALE - It is essential that all written particulars entered above should be carefully checked by the consignee since this delivery note once signed by the consignee represents formal acceptance of the material in good order and condition and subsequent complaints cannot be accepted. All complaints whether in respect of material or circumstances or delivery must be made to the driver of the vehicle and be confirmed in writing direct to the company immediately.

Chartrange.

Wharf Street, Dukinfield,
Cheshire. SK16 4NJ
Tel: 0161-339 4949
Fax: 0161-339 4437

DUTY OF CARE / TRANSFER/HIRE SHEET

Licence No.:

Date: 24-8-22 No: 13618

A Producer of the materials	Company / Name <u>Murraywood</u> Site Address: <u>First St, M61</u>
B Description of the materials	How are materials contained? <u>Asbestos</u> Describe materials being transferred <u>Any</u> Quantity <u>1x8w/load</u>
C Carrier of the materials	Drivers Name <u>Lee</u> Vehicle Reg <u>PO17 UAC</u>
D Disposer of the materials	Company Name <u>TIP</u> Disposal Address _____ Licence No. _____
Equipment is hired at the current Contractor's Plant Association "Conditions of Hire" - copies available on request	
No. of Loads	
MINIMUM HIRE 9 HOURS	
Day Work: _____	Hours Worked: _____ Travel Time: _____ Total Hours: _____

Consignees Signature: [Signature]

CONDITIONS OF SALE - It is essential that all written particulars entered above should be carefully checked by the consignee since this delivery note once signed by the consignee represents formal acceptance of the material in

Chartrange.

Wharf Street, Dukinfield,
Cheshire. SK16 4NJ
Tel: 0161-339 4949
Fax: 0161-339 4437

DUTY OF CARE / TRANSFER/HIRE SHEET

Licence No.:

Date: 28/8/22 No: 13815

A Producer of the materials	Company / Name <u>MURRAYWOOD</u> Site Address: <u>FIRST ST</u> <u>M61</u>
B Description of the materials	How are materials contained? <u>1 Load</u> Describe materials being transferred <u>ASBESTOS</u> <u>TO TIP</u> Quantity _____
C Carrier of the materials	Drivers Name <u>R PORTUGAL</u> Vehicle Reg <u>R PORTUGAL</u>
D Disposer of the materials	Company Name _____ Disposal Address _____ Licence No. _____
Equipment is hired at the current Contractor's Plant Association "Conditions of Hire" - copies available on request	
No. of Loads	
MINIMUM HIRE 9 HOURS	
Day Work: _____	Hours Worked: _____ Travel Time: _____ Total Hours: _____

Consignees Signature: [Signature]

CONDITIONS OF SALE - It is essential that all written particulars entered above should be carefully checked by the consignee since this delivery note once signed by the consignee represents formal acceptance of the material in

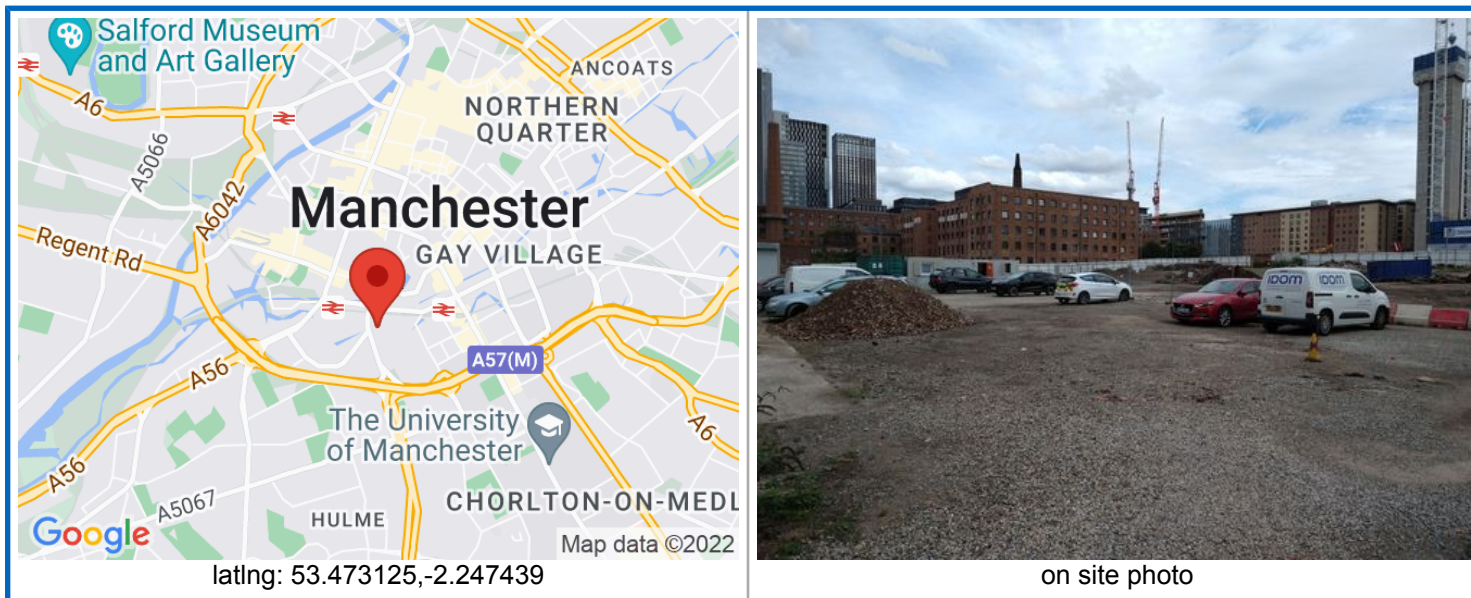
APPENDIX 5 ▪ Asbestos Air Monitoring Certificates

Asbestos Analyst's Job Summary Report

Job Ref No: **538234**, Account Ref No: **25660**, Contract Ref No: **85664**

First Street, Manchester City Centre, M15 4AA

Title: Asbestos Fibre Air Monitoring at First Street, Central Manchester



First Visit to Site: Monday, 5th September, 2022, **Last Visit to Site:** Tuesday, 6th September, 2022

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North West & Yorkshire
Preston Brook - Lucion Services
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Runcorn, WA7 3GH

Intro

This document is a summary of findings relating to asbestos analytical works at **First Street, Manchester City Centre, M15 4AA** from **Monday, 5th September, 2022** to **Tuesday, 6th September, 2022**. It is intended to give an overview of testing and must be read only in conjunction with the certificates it references. The document should never be read in isolation as asbestos analysts reports often contain additional notes and advice that should be referred to.

A report is provided electronically via the NexGen web-portal. Rendering of the report will create a unique pdf version identified in the footer of the document where date and time of rendering is recorded. Document history can be reviewed via the 'View File History' when viewing the report online. Prior to commencing any works or review of the report, the most current version should be obtained via the link to the NexGen web-portal; any local pdf copies should not be relied on as containing the most current information.

As per the client's specification, materials previously identified as containing asbestos (by other asbestos consultancies) have had this positive identification transferred to this report. Lucion Services Ltd cannot accept any liability for errors in this information.

Furthermore, this document contains a summary of analyst notes and comments made in relation to works at this site.

Please note this document may contain findings from more than one analyst on more than one date.

Key to Air-Test Icons

To aid ease of reading the following icons have been used in this document to reference commonly undertaken activities.

-  Clearance Stage 1
-  Clearance Stage 2
-  Clearance Stage 3
-  Clearance Stage 4
-  Statement of Cleanliness Inspection
-  DCU Stage 2
-  DCU Stage 3
-  Far Source Air Test
-  Near Source Air Test
-  Reassurance
-  Background
-  Leak Testing
-  Personal
-  Smoke Test Witness
-  Report Acknowledgement

A **WARNING** is used by the analyst to draw the readers attention to a particular area of the report.

Overview of Works

To view a complete air-certificate, follow the relevant link

 Certificate: Throughout the site during excavation works.

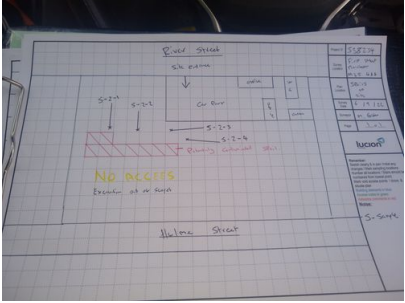
Building: First Street Plot 9a

Level: 0

View the Full Certificate Here: https://web.lucion.co.uk/print/air_cert/89608?s=dd50837a45dd42111cf5418da4a403f2

Type	Test-ID	Start Time	End Time	Date	Operative	# Samples
 Near Source Air Test	538234-1			05-09-2022	 Oliver Dilley	9
 Far Source Air Test	538234-2			06-09-2022	 Matt Foster	5

Job Notes

Operative	Note	Date
 Matt Foster Analyst	Sample location diagram for 6/9/22 	Tuesday, 6th September, 2022
 Matt Foster Analyst	Lucion analyst arrived on site and signed in. Site induction carried out by IDOM manager Andrew Harris. Confirmed contaminated spoils have been removed and air tested in previous works. Works today are for the perimeter air testing for the removal of potentially contaminated spoil. Andrew advised on where to place air monitors due to large excavation plant in other areas restricting access. Air tests was placed around perimeter where possible of the the removal works. All air test results returned satisfactory below the quantification limit. Analyst updated Andrew of results, signed out of site and left.	Tuesday, 6th September, 2022

Attachments

The following documents accompany this report and should be regarded as an integral part of this report.

They can be downloaded from <https://web.lucion.co.uk/reports/538234/attachments>.

- [Method Statement \[https://web.lucion.co.uk/print/method_statements/538234?s=5fe130d1b157aad8ebff04313395e155 \]](https://web.lucion.co.uk/print/method_statements/538234?s=5fe130d1b157aad8ebff04313395e155)
- [Risk Assessment \[https://web.lucion.co.uk/print/risk_assessment/538234?s=6012c94a7940117e3c8bfd7e8c60465b \]](https://web.lucion.co.uk/print/risk_assessment/538234?s=6012c94a7940117e3c8bfd7e8c60465b)

Asbestos Analyst's Certificate Report

Job Ref No: **538234**, Cert Ref No: **89608**, Account Ref No: **25660**, Contract Ref No: **85664**

First Street, Manchester City Centre, M15 4AA



on site photo



general works area photo

Building	Level	Works-Area	Enclosure Used?	Certificate Issue Date
First Street Plot 9a	0	Throughout the site during excavation works.	No	Monday, 5th September, 2022

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Intro

This certificate is for the attention of

Andrew Harris
Idom Merebrook Limited
Cromford Mills Mill Lane, Cromford, Matlock, Derbyshire, DE4 3RQ

Sampling & Evaluation Methods

In-house methods TOP02.08 & TOP02.09 in accordance with HSG 248 Asbestos - The Analyst's Guide to Sampling, Analysis and Clearance Procedures.

Notes: The samples referred to in this report will be retained for 6 months unless requested otherwise. Unless otherwise stated, there are no departures from the sampling and evaluation methods specified. Results detailed in this report relate only to the time, and corresponding conditions prevailing, when the sampling and examination were undertaken.

Notes to Test Accuracy

Airflow measured on site is recorded against a correction chart. Flow meters are calibrated against a UKAS certified master flow meter accurate to $\pm 0.5\%$. In accordance with HSG248, if the combined effect of ambient temperature and pressure between calibration and sampling location exceeds 5% a correction is applied to the air sample volume. The calculated fibre concentration is given for each air sample taken. Where the corresponding reported fibre concentration is preceded by "<", the lower limit of quantification (LOQ) of the method has not been reached. For a 480 litre air sample with 200 graticule areas counted, the (LOQ) of this method is 0.010 fibres per cubic centimetre of air; samples of less volume/graticules will be reported to a lower LOQ (refer count sheet, and for example, for personal sampling against the 4 hour control limit the LOQ is 0.04 fibres per cubic centimetre and against the 10 minute control limit the LOQ is 0.24 fibres per cubic centimetre). While counting randomly distributed fibres, an expected degree of variation of 1.5 standard deviations from the mean count may occur. At clearance indicator level (0.01 fibres per cubic centimetre of air) a 480-litre air sample yielding a count of 20 fibres over 200 fields would have an expected standard deviation of ± 8 fibres.

Note: the reported result is for respirable fibres and not solely asbestos fibres.

Sampling

When testing within an Enclosure and conducting a 4-Stage Clearance - the number of samples (Ns) is calculated by $A^{1/3-1}$. Where enclosure is less than 3m in height: A is denoted by area. Where enclosure is greater than 3m in height: A is denoted by volume/3. Refer air sampling and fibre counting sheet.

When testing within a decontamination unit (DCU) - where the combined floor area of shower and dirty areas is less than 10m²; 1 air test has been carried out. During this test the door between these areas has been propped open. For combined floor areas exceeding 10m² a sample in each area (i.e. shower and dirty end) will be taken.

For tests other than those associated with 4-Stage Clearance testing the analyst will apply the principles of current HSE guidance and experience combined with situational circumstances.

Where a photograph of the completed decontamination unit certificate appears in this report the analyst has completed an abridged report to be left inside the DCU; this abridged report should not be used in lieu of this comprehensive report.

Where sampling plans have been supplied; please note these are not to scale.

Where a sample filter has been deemed uncountable or biased the analyst will record this as "uncountable" in the count-sheet.

Field Blanks - Where site sampling and counting is carried out in a field laboratory a field blank is carried out by the analyst prior to the start of sampling and counting. The field blank constitutes a filter taken from a loaded but unused filter head that is mounted in the usual way and assigned a sample number which is recorded on the slide and the count sheet. Following sampling and analysis of the air tests, the results shall be assessed; where low counts ($<0.01 \text{ fcm}^{-3}$) are obtained from some of the field samples, analysis of the field blank will not be necessary. Where elevated counts ($>0.01 \text{ fcm}^{-3}$) are obtained on all field samples, then the field blank must be counted to exclude the possibility of contamination.

Disclaimers

Any opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This certificate is valid only when it bears the signature of an authorised member of Lucion personnel. Please note the witnessing of smoke tests is outwith the scope of UKAS accreditation.

Representatives Signature - The signatory on report acknowledgement agrees to findings of this report being accurate and correct and Lucion Services Ltd issuing this report to the email address held on record for the job and does not require a copy of this report to be left on site. Furthermore Lucion Services Ltd cannot be held responsible for any actions undertaken following the issue of this report.

This certificate *may* be part of a series of works and should be read in conjunction with the Asbestos Analyst's Job Summary Report.

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 Sample: Positioned adjacent the fenced off contaminated spoil prior to its removal from site (538234-1-5) 7

 Sample: Positioned at the marked gas lines at the perimeter fence adjacent the excavation of made ground (538234-1-6) 7

 Sample: Positioned adjacent the fenced off contaminated spoil prior to its removal from site (538234-1-7) 7

 Sample: Positioned adjacent the fenced off contaminated spoil during the movement of potentially contaminated spoil (538234-1-8) 7

 Sample: Positioned in the carpark during the movement of non contaminated spoil (538234-1-9) 7

Test: Near Source Air Test (538234-1)

Number of samples being taken	8
Samples prepared at	Van NA69RKX
Samples counted at	Van NA69RKX
Stage Warning?	No
Analyst Signature Signature Date	 Monday, 5th September, 2022 @ 15:32:41
Analyst Name	Oliver Dilley
Additional Photo 1	 Image Added: 2022-09-05 10:49:02
Additional Photo 2	 Image Added: 2022-09-05 10:49:02