



GEO-ENVIRONMENTAL CONSULTING

BEK Geo-Environmental Consulting

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Our Ref: BEK/23126/250226/TCG

26 February 2025

FAO James Reeveley

The Casey Group

Rydings Road

Rochdale

OL12 9PS

Dear James,

Garden Capping Validation Report - Land at Benchill Road, Manchester

BEK Enviro (BEK) has been commissioned by The Casey Group (TCG) to supervise and validate the installation of the clean capping system required at the above site.

The remediation works are detailed in the Sutcliffe Phase 3 Remediation & Validation Strategy Proposals, Ref 33029-SUT-ZZ-00-RP-G-7301, dated October 2024 and we assume that this Strategy has been approved by the regulator. This letter relates to the validation of the clean capping system only.

To mitigate the potential risks to human health associated with ground contamination within the garden areas, the approved remediation requirements comprise the following:

Remedial works will need to comprise the emplacement of a minimum 600mm clean validated capping system in all garden and soft landscaped areas.

Reinstatement to achieve finished site levels will be required and will include the importation of clean validated top and sub soils, comprising a geotextile membrane, 400-450mm subsoil, overlain by minimum 150-200mm topsoil in the development area.

Imported material needs to be compliant with BS3882: 2015 Specification for Topsoil and BS8601: 2013 Specification for Subsoil and requirements for use.

The depth of the capping layer on site will be demonstrated by excavating a hole and collecting photographic evidence. The photographs will show the location of the validation, the downhole view and the depth using a levelling staff.

Remediation activities have been supervised by both BEK and TCG. BEK has confirmed that the soils are suitable for use (prior to placement) and carried out checks to confirm that the correct capping thickness has been achieved. BEK has relied on TCG and their appointed contractors to cap the gardens with the validated sub/topsoil.

Approximately 220 m³ of manufactured topsoil was imported as a product from Astley, Greater Manchester. Source test data has been provided to provide initial information on suitability.



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Approximately 494 m³ of subsoil was imported from Southworth Quarry as virgin material. Source test data has been provided to provide information of suitability (Annex A).

To ensure sampling frequency had been met, BEK recovered a further 6 x topsoil samples (TS-1 to TS-6) and 6 x subsoil samples (SS-1 to SS-6) following import into the site.

All validation samples were submitted to the UKAS accredited laboratories of Envirolab and chemically tested for a wide range of potential contaminants of concern (as presented in the Sutcliffe Proposals). Copies of the BEK chemical test results are presented in Annex B. All available chemical test results have been compared to approved assessment criteria and BEK can confirm that the topsoil and subsoil is suitable for use in a residential garden.

Following placement of the soils by TCG, an engineer from BEK attended site to confirm that the capping comprises a minimum of 600 mm of suitably clean validated soils. In accordance with the Remediation Strategy, this was carried out with a measuring staff dipped into a hole to measure the depth of the capping soils. This was undertaken in each residential private garden, as well as areas of shared landscaping at the site. The capping soils overly a geotextile membrane at the base. See validation photographs in Annex C.

BEK can confirm that the remediation works required for Plots 1 to 11 and areas of shared landscaping at the Residential Development located at the residential development at Benchill Road, Manchester has been completed in accordance with the approved methodology.

I trust the above is satisfactory. Should you require anything further please do not hesitate to contact the undersigned.

Yours sincerely

MICHAEL BUCKLEY

BSc (Hons) MSc MEnvSci CEnv



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ANNEX A

Source Test Data



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
Howbery Park Wallingford Oxfordshire OX10 8BA
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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 (CaSO_4) 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



TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

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

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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

Ebony Gheorghe
BSc MSc
Soil Scientist



7 - 11 Harding Street
Leicester
LE1 4DH

Construction Testing Solutions

19 Melfort Court
Hardwick Grange
Woolston
WA1 4RZ

Analytical Test Report: L24/08668/CTS - 24-49959

Your Project Reference:	Southworth Quarry		
Your Order Number:	Warrington	Samples Received / Instructed:	18/09/2024 / 18/09/2024
Report Issue Number:	1	Sample Tested:	18/09 to 25/09/2024
Samples Analysed:	5 sample(s)	Report issued:	25/09/2024

Signed

James Gane
Analytical Services Manager
CTS Group

Notes:

General

Please refer to Methodologies page for details pertaining to the analytical methods undertaken.

Samples will be retained for 14 days after issue of this report with the exception of the asbestos test portion which is held for 6 months unless otherwise requested.

Moisture Content was determined in accordance with CTS method statement MS - CL - Sample Prep, oven dried at <30°C.

Moisture Content is reported as a percentage of the dry mass of soil, this calculation is in accordance with BS1377, Part 2, 1990, Clause 3.2

Stone Content was determined in accordance with CTS method statement MS - CL - Sample Prep and refers to the percentage of stones retained on a 10mm BS test sieve.

Where specification limits are included these are for guidance only. Where a measured value has been highlighted this is not implying acceptance or failure and certainty of measurement values have not been taken into account.

Uncertainty of measurement values are available on request.

Samples were supplied by customer, results apply to the samples as received.

Asbestos

Please note: Where further analysis is required samples identified as containing asbestos are screened and tested on an as received basis. No correction is made for moisture content and these results are not covered by our accreditation

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

Deviating Samples

On receipt samples are compared against our sample holding and handling protocols, where any deviations have been noted these are reported on our deviating sample page (if present)

Accreditation Key

UKAS = UKAS Accreditation, MCERTS = MCERTS Accreditation, u = Unaccredited, subUKAS - Subcontracted to a laboratory UKAS accredited for this test, subMCERTS - Subcontracted to a laboratory MCERTS accredited for this test

MCERTS Accreditation only covers the SAND, CLAY and LOAM matrices

Date of Issue: 03.09.2024

Issued by: J. Gane

Issue No: 4

Rev No: 14

L24/08668/CTS - 24-49959

Project Reference - Southworth Quarry

Analytical Test Results - Solid

Lab Reference	400046	400047	400048	400049	400050
Client Sample ID	S0170/1	S0170/2	S0170/3	S0170/4	S0170/5
Client Sample Location	1	2	3	4	5
Client Sample Type	-	-	-	-	-
Client Sample Number	-	-	-	-	-
Depth - Top (m)	-	-	-	-	-
Depth - Bottom (m)	-	-	-	-	-
Date of Sampling	16/09/2024	16/09/2024	16/09/2024	16/09/2024	16/09/2024
Time of Sampling	-	-	-	-	-
Sample Matrix	Sand	Sand	Sand	Sand	Sand
Determinant	Units	Accreditation			
Arsenic	(mg/kg)	MCERTS	< 10	< 10	< 10
Barium	(mg/kg)	MCERTS	43	43	42
Beryllium	(mg/kg)	MCERTS	0.5	0.5	0.5
Boron (w/s)	(mg/kg)	u	< 2.5	< 2.5	< 2.5
Cadmium	(mg/kg)	MCERTS	0.4	0.4	0.3
Chromium (Total)	(mg/kg)	UKAS	15	13	12
Copper	(mg/kg)	MCERTS	13	13	12
Lead	(mg/kg)	MCERTS	7.7	7.5	7.2
Mercury	(mg/kg)	UKAS	< 2.5	< 2.5	< 2.5
Nickel	(mg/kg)	MCERTS	17	16	17
Selenium	(mg/kg)	u	< 8.0	< 8.0	< 8.0
Vanadium	(mg/kg)	UKAS	23	23	21
Zinc	(mg/kg)	MCERTS	33	32	30
Acenaphthene	(mg/kg)	MCERTS	< 0.02	< 0.02	< 0.02
Acenaphthylene	(mg/kg)	UKAS	< 0.02	< 0.02	< 0.02
Anthracene	(mg/kg)	UKAS	< 0.02	< 0.02	< 0.02
Benzo (a) anthracene	(mg/kg)	MCERTS	< 0.02	< 0.02	< 0.02
Benzo (a) pyrene	(mg/kg)	MCERTS	< 0.02	< 0.02	< 0.02
Benzo (b) fluoranthene	(mg/kg)	MCERTS	< 0.02	< 0.02	< 0.02
Benzo (g, h, i) perylene	(mg/kg)	MCERTS	< 0.02	< 0.02	< 0.02
Benzo (k) fluoranthene	(mg/kg)	MCERTS	< 0.02	< 0.02	< 0.02
Chrysene	(mg/kg)	MCERTS	< 0.02	< 0.02	< 0.02
Dibenzo (a,h) anthracene	(mg/kg)	MCERTS	< 0.02	< 0.02	< 0.02
Fluoranthene	(mg/kg)	MCERTS	< 0.02	< 0.02	< 0.02
Fluorene	(mg/kg)	MCERTS	< 0.02	< 0.02	< 0.02
Indeno (1, 2, 3-cd) pyrene	(mg/kg)	MCERTS	< 0.02	< 0.02	< 0.02
Naphthalene	(mg/kg)	MCERTS	< 0.02	< 0.02	< 0.02
Phenanthrene	(mg/kg)	MCERTS	< 0.02	< 0.02	< 0.02
Pyrene	(mg/kg)	MCERTS	< 0.02	< 0.02	< 0.02
Total PAH (Sum of USEPA 16)	(mg/kg)	UKAS	< 0.32	< 0.32	< 0.32
Asbestos	-	UKAS	No asbestos detected	No asbestos detected	No asbestos detected

L24/08668/CTS - 24-49959

Project Reference - Southworth Quarry

Analytical Test Results - VPH / EPH

Lab Reference	400046	400047	400048	400049	400050
Client Sample ID	S0170/1	S0170/2	S0170/3	S0170/4	S0170/5
Client Sample Location	1	2	3	4	5
Client Sample Type	-	-	-	-	-
Client Sample Number	-	-	-	-	-
Depth - Top (m)	-	-	-	-	-
Depth - Bottom (m)	-	-	-	-	-
Date of Sampling	16/09/2024	16/09/2024	16/09/2024	16/09/2024	16/09/2024
Time of Sampling	-	-	-	-	-
Sample Matrix	Sand	Sand	Sand	Sand	Sand
Determinant	Units	Accreditation			
Aliphatic >C ₅ to C ₆ [HS_MS_1D_AL]	(mg/kg)	MCERTS	< 0.06	< 0.06	< 0.06
Aliphatic >C ₆ to C ₈ [HS_MS_1D_AL]	(mg/kg)	MCERTS	< 0.06	< 0.06	< 0.06
Aliphatic >C ₈ to C ₁₀ [HS_MS_1D_AL]	(mg/kg)	MCERTS	< 0.06	< 0.06	< 0.06
Aliphatic >C ₁₀ to C ₁₂ [EH_2D_AL]	(mg/kg)	u	< 1.0	< 1.0	< 1.0
Aliphatic >C ₁₂ to C ₁₆ [EH_2D_AL]	(mg/kg)	u	< 1.0	< 1.0	< 1.0
Aliphatic >C ₁₆ to C ₂₁ [EH_2D_AL]	(mg/kg)	u	< 1.0	< 1.0	< 1.0
Aliphatic >C ₂₁ to C ₃₅ [EH_2D_AL]	(mg/kg)	u	< 2.0	< 2.0	< 2.0
Aliphatic >C ₃₅ to C ₄₄ [EH_2D_AL]	(mg/kg)	u	< 5.0	< 5.0	< 5.0
Aromatic >C ₅ to C ₇ [HS_MS_1D_AR]	(mg/kg)	MCERTS	< 0.01	< 0.01	< 0.01
Aromatic >C ₇ to C ₈ [HS_MS_1D_AR]	(mg/kg)	MCERTS	< 0.01	< 0.01	< 0.01
Aromatic >C ₈ to C ₁₀ [HS_MS_1D_AR]	(mg/kg)	MCERTS	< 0.06	< 0.06	< 0.06
Aromatic >C ₁₀ to C ₁₂ [EH_2D_AR]	(mg/kg)	u	< 1.0	< 1.0	< 1.0
Aromatic >C ₁₂ to C ₁₆ [EH_2D_AR]	(mg/kg)	u	< 1.0	< 1.0	< 1.0
Aromatic >C ₁₆ to C ₂₁ [EH_2D_AR]	(mg/kg)	u	< 1.0	< 1.0	< 1.0
Aromatic >C ₂₁ to C ₃₅ [EH_2D_AR]	(mg/kg)	u	< 2.0	< 2.0	< 2.0
Aromatic >C ₃₅ to C ₄₄ [EH_2D_AR]	(mg/kg)	u	< 5.0	< 5.0	< 5.0
Total >C ₅ to C ₃₅ [EH_2D+HS_1D_Total]	(mg/kg)	u	< 10	< 10	< 10



L24/08668/CTS - 24-49959

Project Reference - Southworth Quarry

Sample Descriptions

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Description	Moisture Content (%)	Stone Content (%)
400046	S0170/1	1	-	-	Brown slightly gravelly slightly clayey silty sand	14	3.0
400047	S0170/2	2	-	-	Brown slightly gravelly slightly clayey silty sand	14	< 0.1
400048	S0170/3	3	-	-	Brown slightly gravelly slightly clayey silty sand	59	< 0.1
400049	S0170/4	4	-	-	Brown slightly gravelly slightly clayey silty sand	14	< 0.1
400050	S0170/5	5	-	-	Brown slightly gravelly slightly clayey silty sand with rare rootlets	14	< 0.1

L24/08668/CTS - 24-49959

Project Reference - Southworth Quarry

Sample Comments

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Comments
400046	S0170/1	1	-	-	VPH/BTEX - Sample taken from container with headspace.
400047	S0170/2	2	-	-	VPH/BTEX - Sample taken from container with headspace.
400048	S0170/3	3	-	-	VPH/BTEX - Sample taken from container with headspace.
400049	S0170/4	4	-	-	VPH/BTEX - Sample taken from container with headspace.
400050	S0170/5	5	-	-	VPH/BTEX - Sample taken from container with headspace.



4161



L24/08668/CTS - 24-49959

Project Reference - Southworth Quarry

Analysis Methodologies

Test Code	Test Name / Reference	Sample condition for analysis	Sample Preparation	Test Details
ICPMETS	MS - CL - ICP Metals	Air dried	Passing 10mm test sieve	Determination of metals in soils via ICP
PAHASRDS	MS - CL - PAH (As Received)	As received	Passing 10mm test sieve	Determination of Polyaromatic hydrocarbons in soil via GC-MS
GCXGCS	MS - CL - TPH & EPH by GCXGC	As received	Passing 10mm test sieve	Determination of TPH and EPH in soils via GCxGC-FID
CWGS	Calculation from VPH-S and EPH-S	As received	Passing 10mm test sieve	Determination of TPH CWG (Volatile Petroleum Hydrocarbons and Extractable Petroleum Hydrocarbons) in soils via Headspace-GC-MS and GC-GC-FID respectively
VPHS	MS - CL - VPH	As received	Passing 10mm test sieve	Determination of VPH in soils via Headspace-GC-MS
WSBORONS	MS - CL - WS Boron	Air dried	Passing 10mm test sieve	Determination of Water soluble Boron in soils via ICP
ASB	MS - AS - Asbestos	-	-	Fibre identification is in accordance with in house documented methods which are based on the procedure documented in the HSE Document HSG 248 "Asbestos: The analysts guide for sampling, analysis and clearance procedures"
SAMPLEPREP	MS - CL - Sample Preparation	-	-	Preparation of samples (including determination of moisture content) to allow for subsequent analysis

L24/08668/CTS - 24-49959

Project Reference - Southworth Quarry

HWOL TPH Acronym Index

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
Total	Aliphatics and Aromatics
AL	Aliphatics Only
AR	Aromatics Only
2D	GC-GC - Double Coil Gas Chromatography
#1	EH_Total but with humics mathmatically subtracted
#2	EH_Total but with fatty acids mathmatically subtracted
_	Operator - underscore to separate acronyms (except for +)
+	Operator to indicate cumlative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry



BEK Geo-Environmental Consulting

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Lancashire BB5 5TU

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01254 377622

ANNEX B

Chemical Test Results

FINAL ANALYTICAL TEST REPORT

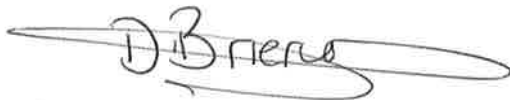
Envirolab Job Number: 25/00304
Issue Number: 1

Date: 21 January, 2025

Client: BEK Enviro Ltd
2 Landwick Court
Metcalf Drive
Altham Business Park
Altham
Lancashire
BB5 5GY

Project Manager: ** USE THIS Mick Buckley/James Mashiter
Project Name: Benchill Road, Manchester
Project Ref: N/A
Order No: 8518-24152-A
Date Samples Received: 16/01/25
Date Instructions Received: 16/01/25
Date Analysis Completed: 21/01/25

Approved by:



Danielle Brierley
Client Services Supervisor

Envirolab Job Number: 25/00304

Client Project Name: Benchill Road, Manchester

Client Project Ref: N/A

Lab Sample ID	25/00304/1	25/00304/2	25/00304/3	25/00304/4	25/00304/5	25/00304/6		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TS-1	TS-2	TS-3	TS-4	TS-5	TS-6				
Depth to Top										
Depth To Bottom										
Date Sampled	16-Jan-25	16-Jan-25	16-Jan-25	16-Jan-25	16-Jan-25	16-Jan-25				
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL				
Sample Matrix Code	4AE	4AE	4AE	4AE	4AE	4AE				
% Stones >10mm _A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		% w/w	0.1	A-T-044
pH _D ^{M#}	8.68	8.51	8.46	8.61	8.72	8.83		pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.02	0.03	0.04	0.03	0.03	0.04		g/l	0.01	A-T-026s
Sulphate (acid soluble) _D ^{M#}	210	200	230	220	<200	220		mg/kg	200	A-T-028s
Cyanide (total) _A ^{M#}	<1	<1	<1	<1	<1	<1		mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC _A	2.2	<0.2	0.8	<0.2	0.4	0.3		mg/kg	0.2	A-T-050s
Organic Matter _D ^{M#}	2.51	3.37	2.25	1.99	2.58	3.75		% w/w	0.14	A-T-032s
Arsenic _D ^{M#}	<1	<1	<1	1	1	<1		mg/kg	1	A-T-024s
Boron (water soluble) _D ^{M#}	<1.0	<1.0	<1.0	<1.0	<1.0	1.0		mg/kg	1	A-T-027s
Cadmium _D ^{M#}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		mg/kg	0.5	A-T-024s
Copper _D ^{M#}	6	6	6	6	6	7		mg/kg	1	A-T-024s
Chromium _D ^{M#}	5	5	5	6	5	5		mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	<1	<1	<1		mg/kg	1	A-T-040s
Lead _D ^{M#}	7	7	7	7	7	9		mg/kg	1	A-T-024s
Mercury _D	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17		mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	4	5	4	5	5	4		mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1	<1	<1	<1		mg/kg	1	A-T-024s
Zinc _D ^{M#}	18	18	17	19	18	20		mg/kg	5	A-T-024s

Envirolab Job Number: 25/00304

Client Project Name: Benchill Road, Manchester

Client Project Ref: N/A

Lab Sample ID	25/00304/1	25/00304/2	25/00304/3	25/00304/4	25/00304/5	25/00304/6		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TS-1	TS-2	TS-3	TS-4	TS-5	TS-6				
Depth to Top										
Depth To Bottom										
Date Sampled	16-Jan-25	16-Jan-25	16-Jan-25	16-Jan-25	16-Jan-25	16-Jan-25				
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL				
Sample Matrix Code	4AE	4AE	4AE	4AE	4AE	4AE				
Asbestos in Soil (inc. matrix)										
Asbestos in soil _D [#]	NAD	NAD	NAD	NAD	NAD	NAD				A-T-045
Asbestos Matrix (visual) _D	-	-	-	-	-	-				A-T-045
Asbestos Matrix (microscope) _D	-	-	-	-	-	-				A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	N/A	N/A	N/A	N/A	N/A				A-T-045

Envirolab Job Number: 25/00304

Client Project Name: Benchill Road, Manchester

Client Project Ref: N/A

Lab Sample ID	25/00304/1	25/00304/2	25/00304/3	25/00304/4	25/00304/5	25/00304/6		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TS-1	TS-2	TS-3	TS-4	TS-5	TS-6				
Depth to Top										
Depth To Bottom										
Date Sampled	16-Jan-25	16-Jan-25	16-Jan-25	16-Jan-25	16-Jan-25	16-Jan-25				
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL				
Sample Matrix Code	4AE	4AE	4AE	4AE	4AE	4AE				
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04		mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04		mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07		mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06		mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04 ^U	<0.04 ^U	<0.04 ^U	<0.04 ^U	<0.04 ^U	<0.04 ^U		mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08		mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	0.04	<0.03	<0.03	<0.03	0.04	<0.03		mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07		mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08		mg/kg	0.01	A-T-019s

Envirolab Job Number: 25/00304

Client Project Name: Benchill Road, Manchester

Client Project Ref: N/A

Lab Sample ID	25/00304/1	25/00304/2	25/00304/3	25/00304/4	25/00304/5	25/00304/6		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TS-1	TS-2	TS-3	TS-4	TS-5	TS-6				
Depth to Top										
Depth To Bottom										
Date Sampled	16-Jan-25	16-Jan-25	16-Jan-25	16-Jan-25	16-Jan-25	16-Jan-25				
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL				
Sample Matrix Code	4AE	4AE	4AE	4AE	4AE	4AE				
TPH CWG with Clean Up										
Ali >C5-C6 _A	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s
Ali >C6-C8 _A	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	<1	<1	<1	<1		mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<1	<1	<1	<1		mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<1	<1	<1	<1	<1	<1		mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	12	4	9	7	5	5		mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	51	24	45	38	23	30		mg/kg	1	A-T-055s
Total Aliphatics _A	62	28	54	45	29	36		mg/kg	1	Calc-As Recd
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<1	<1	<1	<1	<1	<1		mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1	<1	<1	<1	<1	<1		mg/kg	1	A-T-055s
Aro >C12-C16 _A	8	4	6	4	4	5		mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	30	12	27	13	14	16		mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	34	18	36	18	21	24		mg/kg	1	A-T-055s
Total Aromatics _A	71	33	69	35	39	45		mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C35) _A	134	62	123	80	67	81		mg/kg	1	Calc-As Recd
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s

Report Notes

General

- This report shall not be reproduced, except in full, without written approval from Envirolab.
- The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client and can affect the validity of results.
- The results reported herein relate only to the material supplied to the laboratory.
- The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **four weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
- Analytical results reflect the quality of the sample at the time of analysis only.
- Opinions and Interpretations expressed are outside our scope of accreditation.
- A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
- If a sample is outside of the calibration range or affected by interferences then it may need diluting. This will result in the limit of detection (LOD) being raised.
- Subcontracted Analysis: Please see the appended report for any deviations, current LODs and accreditation status of the test.

Key

Superscript “#”	Accredited to ISO 17025
Superscript “M”	Accredited to MCertS
Superscript “U”	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript “A”	Analysis performed on as-received Sample
Subscript “D”	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript “D” on Asbestos	Analysis performed on a dried aliquot of sample provided.
Subscript “A”	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
Trace	Asbestos found not suitable for Gravimetric Quantification – not enough to accurately weigh.
N/A	Not applicable

Asbestos

Identification: Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis

“Trace Asbestos Identified” will be reported if there is not enough present to verify the type.

Quantification: Generally a 2 stage process including visual identification, hand picking and weighing, and fibre counting. Where ACMs are found a percentage asbestos is assigned to each with reference to ‘HSG264, Asbestos: The survey guide’ and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres). “TRACE” will be reported as a quantification result.

PLEASE INFORM THE LABORATORY IF YOU WOULD LIKE THE STAGE 3 SEDIMENTATION PROCESS CARRIED OUT. Note this will be subcontracted.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs

Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.

Soil Chemical Analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as ‘% stones >10mm’.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any “D” subscripts.

TPH by method A-T-007:

For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only. Results “with Clean up” indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:

EPH CWG results have humics mathematically subtracted through instrument calculation.

Where these humic substances have been identified in any IDs from “TPH CWG with clean up” please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Deviating Samples Report

Hattersley Science & Technology Park, Stockport Road, Hattersley, SK14 3QU
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: BEK Enviro Ltd, 2 Landwick Court, Metcalfe Drive, Altham Business Park,
Altham, Lancashire , BB5 5GY

Project: Benchill Road, Manchester

Clients Project No: N/A

Project No: 25/00304

Date Received: 16/01/2025 (pm)

Cool Box Temperatures (°C): 10.2

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	25/00304/1	25/00304/2	25/00304/3	25/00304/4	25/00304/5	25/00304/6
Client Sample No						
Client Sample ID/Depth	TS-1	TS-2	TS-3	TS-4	TS-5	TS-6
Date Sampled	16/01/25	16/01/25	16/01/25	16/01/25	16/01/25	16/01/25
A-T-019s	21/01/2025	21/01/2025	21/01/2025	21/01/2025	21/01/2025	21/01/2025
A-T-022s	20/01/2025	20/01/2025	20/01/2025	20/01/2025	20/01/2025	20/01/2025
A-T-024s	21/01/2025	21/01/2025	21/01/2025	21/01/2025	21/01/2025	21/01/2025
A-T-026s	20/01/2025	20/01/2025	20/01/2025	20/01/2025	20/01/2025	20/01/2025
A-T-027s	20/01/2025	20/01/2025	20/01/2025	20/01/2025	20/01/2025	20/01/2025
A-T-028s	20/01/2025	20/01/2025	20/01/2025	20/01/2025	20/01/2025	20/01/2025
A-T-031s	20/01/2025	20/01/2025	20/01/2025	20/01/2025	20/01/2025	20/01/2025
A-T-032s	20/01/2025	20/01/2025	20/01/2025	20/01/2025	20/01/2025	20/01/2025
A-T-040s	20/01/2025	20/01/2025	20/01/2025	20/01/2025	20/01/2025	20/01/2025
A-T-042sTCN	20/01/2025	20/01/2025	20/01/2025	20/01/2025	20/01/2025	20/01/2025
A-T-044	20/01/2025	20/01/2025	20/01/2025	20/01/2025	20/01/2025	20/01/2025
A-T-045	17/01/2025	17/01/2025	17/01/2025	17/01/2025	17/01/2025	17/01/2025
A-T-050s	20/01/2025	20/01/2025	20/01/2025	20/01/2025	20/01/2025	20/01/2025
A-T-055s	20/01/2025	20/01/2025	20/01/2025	20/01/2025	20/01/2025	20/01/2025
Calc-As Recd	20/01/2025	20/01/2025	20/01/2025	20/01/2025	20/01/2025	20/01/2025

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 24/12190
Issue Number: 1

Date: 19 December, 2024

Client: BEK Enviro Ltd
2 Landwick Court
Metcalf Drive
Altham Business Park
Altham
Lancashire
BB5 5GY

Project Manager: ** USE THIS Mick Buckley/James Mashiter
Project Name: Benchill Road, Manchester
Project Ref: Not specified
Order No: 8500-24152-MLM
Date Samples Received: 13/12/24
Date Instructions Received: 16/12/24
Date Analysis Completed: 19/12/24

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 24/12190

Client Project Name: Benchill Road, Manchester

Client Project Ref: Not specified

Lab Sample ID	24/12190/1	24/12190/2	24/12190/3	24/12190/4	24/12190/5	24/12190/6		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6				
Depth to Top										
Depth To Bottom										
Date Sampled	13-Dec-24	13-Dec-24	13-Dec-24	13-Dec-24	13-Dec-24	13-Dec-24				
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL				
Sample Matrix Code	1A	1A	1A	1A	1A	1A				
% Stones >10mm _A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		% w/w	0.1	A-T-044
pH _D ^{M#}	8.75	8.78	8.74	8.76	8.79	8.79		pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		g/l	0.01	A-T-026s
Sulphate (acid soluble) _D ^{M#}	<200	<200	<200	<200	<200	<200		mg/kg	200	A-T-028s
Cyanide (total) _A ^{M#}	<1	<1	<1	<1	<1	<1		mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC _A	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		mg/kg	0.2	A-T-050s
Organic Matter _D ^{M#}	0.21	0.25	0.24	0.22	0.22	0.26		% w/w	0.14	A-T-032s
Arsenic _D ^{M#}	1	1	1	7	1	<1		mg/kg	1	A-T-024s
Boron (water soluble) _D ^{M#}	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		mg/kg	1	A-T-027s
Cadmium _D ^{M#}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		mg/kg	0.5	A-T-024s
Copper _D ^{M#}	4	5	5	18	5	5		mg/kg	1	A-T-024s
Chromium _D ^{M#}	7	8	8	16	9	8		mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	<1	<1	<1		mg/kg	1	A-T-040s
Lead _D ^{M#}	2	2	2	39	3	2		mg/kg	1	A-T-024s
Mercury _D	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17		mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	6	7	7	14	8	7		mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1	<1	<1	<1		mg/kg	1	A-T-024s
Zinc _D ^{M#}	9	13	10	62	12	11		mg/kg	5	A-T-024s

Envirolab Job Number: 24/12190

Client Project Name: Benchill Road, Manchester

Client Project Ref: Not specified

Lab Sample ID	24/12190/1	24/12190/2	24/12190/3	24/12190/4	24/12190/5	24/12190/6		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6				
Depth to Top										
Depth To Bottom										
Date Sampled	13-Dec-24	13-Dec-24	13-Dec-24	13-Dec-24	13-Dec-24	13-Dec-24				
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL				
Sample Matrix Code	1A	1A	1A	1A	1A	1A				
Asbestos in Soil (inc. matrix)										
Asbestos in soil _D [#]	NAD	NAD	NAD	NAD	NAD	NAD				A-T-045
Asbestos Matrix (visual) _D	-	-	-	-	-	-				A-T-045
Asbestos Matrix (microscope) _D	-	-	-	-	-	-				A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	N/A	N/A	N/A	N/A	N/A				A-T-045

Envirolab Job Number: 24/12190

Client Project Name: Benchill Road, Manchester

Client Project Ref: Not specified

Lab Sample ID	24/12190/1	24/12190/2	24/12190/3	24/12190/4	24/12190/5	24/12190/6		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6				
Depth to Top										
Depth To Bottom										
Date Sampled	13-Dec-24	13-Dec-24	13-Dec-24	13-Dec-24	13-Dec-24	13-Dec-24				
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL				
Sample Matrix Code	1A	1A	1A	1A	1A	1A				
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04		mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04		mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07		mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06		mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04		mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08		mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07		mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08		mg/kg	0.01	A-T-019s

Envirolab Job Number: 24/12190

Client Project Name: Benchill Road, Manchester

Client Project Ref: Not specified

Lab Sample ID	24/12190/1	24/12190/2	24/12190/3	24/12190/4	24/12190/5	24/12190/6		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6				
Depth to Top										
Depth To Bottom										
Date Sampled	13-Dec-24	13-Dec-24	13-Dec-24	13-Dec-24	13-Dec-24	13-Dec-24				
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL				
Sample Matrix Code	1A	1A	1A	1A	1A	1A				
TPH CWG with Clean Up										
Ali >C5-C6 _A	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s
Ali >C6-C8 _A	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	<1	<1	<1	<1		mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<1	<1	<1	<1		mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<1	<1	<1	<1	<1	<1		mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	<1	<1	<1	<1	<1	<1		mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	<1	<1	<1	1	1	2		mg/kg	1	A-T-055s
Total Aliphatics _A	<1	<1	<1	1	1	2		mg/kg	1	Calc-As Recd
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<1	<1	<1	<1	<1	<1		mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1	<1	<1	<1	<1	<1		mg/kg	1	A-T-055s
Aro >C12-C16 _A	<1	<1	<1	<1	<1	<1		mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	<1	<1	<1	<1	<1	<1		mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	<1	<1	<1	1	<1	<1		mg/kg	1	A-T-055s
Total Aromatics _A	<1	<1	<1	1	<1	<1		mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C35) _A	<1	<1	<1	2	1	2		mg/kg	1	Calc-As Recd
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	0.01	A-T-022s

Report Notes

General

- This report shall not be reproduced, except in full, without written approval from Envirolab.
- The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client and can affect the validity of results.
- The results reported herein relate only to the material supplied to the laboratory.
- The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **four weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
- Analytical results reflect the quality of the sample at the time of analysis only.
- Opinions and Interpretations expressed are outside our scope of accreditation.
- A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
- If a sample is outside of the calibration range or affected by interferences then it may need diluting. This will result in the limit of detection (LOD) being raised.
- Subcontracted Analysis: Please see the appended report for any deviations, current LODs and accreditation status of the test.

Key

Superscript “#”	Accredited to ISO 17025
Superscript “M”	Accredited to MCertS
Superscript “U”	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript “A”	Analysis performed on as-received Sample
Subscript “D”	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript “D” on Asbestos	Analysis performed on a dried aliquot of sample provided.
Subscript “A”	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
Trace	Asbestos found not suitable for Gravimetric Quantification – not enough to accurately weigh.
N/A	Not applicable

Asbestos

Identification: Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis

“Trace Asbestos Identified” will be reported if there is not enough present to verify the type.

Quantification: Generally a 2 stage process including visual identification, hand picking and weighing, and fibre counting. Where ACMs are found a percentage asbestos is assigned to each with reference to ‘HSG264, Asbestos: The survey guide’ and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres). “TRACE” will be reported as a quantification result.

PLEASE INFORM THE LABORATORY IF YOU WOULD LIKE THE STAGE 3 SEDIMENTATION PROCESS CARRIED OUT. Note this will be subcontracted.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs

Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.

Soil Chemical Analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as ‘% stones >10mm’.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any “D” subscripts.

TPH by method A-T-007:

For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only. Results “with Clean up” indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:

EPH CWG results have humics mathematically subtracted through instrument calculation.

Where these humic substances have been identified in any IDs from “TPH CWG with clean up” please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Deviating Samples Report

Hattersley Science & Technology Park, Stockport Road, Hattersley, SK14 3QU
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: BEK Enviro Ltd, 2 Landwick Court, Metcalfe Drive, Altham Business Park,
Altham, Lancashire , BB5 5GY

Project: Benchill Road, Manchester

Clients Project No:

Project No: 24/12190

Date Received: 16/12/2024 (am)

Cool Box Temperatures (°C): 13.1

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	24/12190/1	24/12190/2	24/12190/3	24/12190/4	24/12190/5	24/12190/6
Client Sample No						
Client Sample ID/Depth	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6
Date Sampled	13/12/24	13/12/24	13/12/24	13/12/24	13/12/24	13/12/24
A-T-019s	19/12/2024	19/12/2024	19/12/2024	19/12/2024	19/12/2024	19/12/2024
A-T-022s	18/12/2024	18/12/2024	18/12/2024	18/12/2024	18/12/2024	18/12/2024
A-T-024s	18/12/2024	18/12/2024	18/12/2024	18/12/2024	18/12/2024	18/12/2024
A-T-026s	19/12/2024	19/12/2024	19/12/2024	19/12/2024	19/12/2024	19/12/2024
A-T-027s	18/12/2024	18/12/2024	18/12/2024	18/12/2024	18/12/2024	18/12/2024
A-T-028s	19/12/2024	19/12/2024	19/12/2024	19/12/2024	19/12/2024	19/12/2024
A-T-031s	19/12/2024	19/12/2024	19/12/2024	19/12/2024	19/12/2024	19/12/2024
A-T-032s	19/12/2024	19/12/2024	19/12/2024	19/12/2024	19/12/2024	19/12/2024
A-T-040s	19/12/2024	19/12/2024	19/12/2024	19/12/2024	19/12/2024	19/12/2024
A-T-042sTCN	18/12/2024	18/12/2024	18/12/2024	18/12/2024	18/12/2024	18/12/2024
A-T-044	18/12/2024	18/12/2024	18/12/2024	18/12/2024	18/12/2024	18/12/2024
A-T-045	17/12/2024	17/12/2024	17/12/2024	17/12/2024	17/12/2024	17/12/2024
A-T-050s	18/12/2024	18/12/2024	18/12/2024	18/12/2024	18/12/2024	18/12/2024
A-T-055s	18/12/2024	18/12/2024	18/12/2024	18/12/2024	18/12/2024	18/12/2024
Calc-As Recd	18/12/2024	18/12/2024	18/12/2024	18/12/2024	18/12/2024	18/12/2024

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report



BEK Geo-Environmental Consulting

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ANNEX C

Validation Photographs



GEO-ENVIRONMENTAL CONSULTING

BEK Geo-Environmental Consulting

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Photograph 1: Validation of Plot 1



Photograph 2: Validation of Plot 1



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Photograph 3: Validation of Plot 2



Photograph 4: Validation of Plot 2



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Photograph 5: Validation of Plot 3



Photograph 6: Validation of Plot 3



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Photograph 7: Validation of Plot 4



Photograph 8: Validation of Plot 4



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Photograph 9: Validation of Plot 5



Photograph 10: Validation of Plot 5



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Photograph 11: Validation of Plot 6



Photograph 12: Validation of Plot 6



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Photograph 13: Validation of Plot 7



Photograph 14: Validation of Plot 7



GEO-ENVIRONMENTAL CONSULTING

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Photograph 15: Validation of Plot 8



Photograph 16: Validation of Plot 8



GEO-ENVIRONMENTAL CONSULTING

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Photograph 17: Validation of Plot 9



Photograph 18: Validation of Plot 9



GEO-ENVIRONMENTAL CONSULTING

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Photograph 19: Validation of Plot 10



Photograph 20: Validation of Plot 10



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Photograph 21: Validation of Plot 11



Photograph 22: Validation of Plot 11



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Photograph 23: Validation of Shared Landscaping



Photograph 24: Validation of Shared Landscaping



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Photograph 25: Validation of Shared Landscaping



Photograph 26: Validation of Shared Landscaping



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Photograph 27: Validation of Shared Landscaping



Photograph 28: Validation of Shared Landscaping