

Date: 14th November 2024
Reference: 15-974 V5

GARDEN VALIDATION – BENNETT STREET

Project Name:	Bennett Street
Project Number:	15-974
Client:	Kellen Homes Ltd
Date:	14-11-2024
Project Manager:	Matt Dee
E3P Engineer:	S. Juhasz
Plots:	138-140 and Front Gardens 18, 139 and 145

OVERVIEW

An E3P engineer attended the above site to validate the thickness of the cover system placed within the rear garden of plots 138-140 at Bennett Street, Manchester and the front garden of plots 18, 139 and 145.

Six hand excavated trial pits were advanced, with the resulting strata detailed at the rear of this letter.

Trial pits in rear gardens were completed to highlight the required cover system of 600mm (150mm topsoil and 450mm subsoil) and the presence of a geotechnical break layer at the base of cover system.

Trial pits in front gardens were completed to highlight the required cover system of 450mm (150mm topsoil and 300mm subsoil) and the presence of a geotechnical break layer at the base of cover system.

E3P can confirm that our independent validation demonstrates that the rear garden has been installed with 150mm of certified topsoil and at least 450mm subsoil and the front garden has been installed with 150mm certified topsoil and at least 300 mm subsoil in line with the requirements of the build phase mitigation plan for this site. A geotechnical break layer was noted within all trial pits at the base of the cover system.

A list of plots requiring validation and their associated validation letters is presented in Table 1 for reference.





TOPSOIL

E3P have obtained imported topsoil deposits from Donor Site 'Roman Way, Preston', 'Halewood Consortium' and 'Viking Way, Congleton' which were analysed in line with the E3P Remediation Strategy.

To date, a total of 16no. topsoil samples have been submitted for analysis from Roman Way, at a brownfield frequency of 1 per 50 m³. Five topsoil samples have been submitted for analysis from Halewood Consortium at a greenfield frequency of 1 per 200m³. Five topsoil samples have been submitted for analysis from Viking Way, Congleton at a greenfield frequency of 1 per 200m³ in line with the E3P remediation strategy. Total samples obtained cover 2,800 m³ of imported topsoil.

Analysis for subsoil undertaken by I2 Analytical Laboratories and Eurofins Laboratories using UKAS accredited methods where applicable.

The chemical analysis suite comprises heavy metals, sulphates, phenols, speciated Polycyclic Aromatic Hydrocarbons (PAHs), speciated and total Petroleum Hydrocarbons (TPH) and asbestos. The sampling frequency follows the agreed Remediation Strategy. Laboratory analysis certificates are attached to this validation certificate.

Chemical analysis confirmed that these topsoil deposits were chemically suitable for use within the proposed garden areas.

Chemical analysis results are included within lab reports 24-12322-1, 24-77927-1, 24-13816-1, 24-29418-1 and 24-36526 (relevant sampling attached to this letter).

SUBSOIL

E3P attended the site to obtain samples of the imported subsoil deposits from "The Mere Golf Club" and "Roman Way", which were tested in line with the E3P Remediation Strategy.

To date, a total of eight subsoil samples have been submitted for analysis, at a brownfield frequency of 1 per 50 m³ in line with the E3P remediation strategy, covering 400 m³ of imported subsoil.

Additionally, E3P have obtained samples of site won natural clay subsoils, won from civil excavations and cut/fill works across the development site. A total of 18no. site won subsoil samples have been obtained, two minor exceedances of generic screening values were identified (SW-CLAY-001 and SW-CLAY-011), unsuitable soils were segregated and used as bulk fill elsewhere on site with the remaining soils tested and confirming suitability for use in private gardens. To date, a total of 16no. suitable subsoil samples have been submitted for analysis, at a site won subsoil frequency of 1 per 250 m³ in line with the E3P remediation strategy, covering 4,000 m³ of site won subsoil.

Analysis for subsoil undertaken by I2 Analytical Laboratories and Eurofins Laboratories using UKAS accredited methods where applicable.

The chemical analysis suite comprises heavy metals, sulphates, phenols, speciated Polycyclic Aromatic Hydrocarbons (PAHs), speciated and total Petroleum Hydrocarbons (TPH) and asbestos. The sampling frequency follows the agreed Remediation Strategy. Laboratory analysis certificates are attached to this validation certificate.

Chemical analysis confirmed that these subsoil deposits were chemically suitable for use within the proposed garden areas. Chemical analysis results are included within lab reports 24-008736-1, 24-010773-1, 24-77927-1, 24-25212-1, 24-25843-1, 24-27346-1 and 24-29407-1 (attached to this letter).



CHEMICAL ANALYSIS

TOPSOIL/SUBSOIL	SOURCE	LAB REFERENCE	SAMPLE REFERENCE	PASS/FAIL
Topsoil	Roman Way	24-77927-1	TS001 – TS003	Pass
		24-12322-1	TS101 – TS103	Pass
		24-13816-1	TS104 – TS113	Pass
	Halewood	24-29418-1	IMP-TS-101 - 105	Pass
	Viking Way	24-36526-1	Cong TS 001-005	Pass
Subsoil	The Mere Golf Club	24-008736-1	IMP-SS-101-104	Pass
		24-010773-1	IMP-SS-105	Pass
	Roman Way	24-77927-1	SS-001 – SS-003	Pass
	Site won	24-25212-1	SW-CLAY-001-005	Pass – Following segregation of SW-CLAY-001
		24-25843-1	SW-CLAY-006-010	Pass
		24-27346-1	SW-CLAY-011-015	Pass – Following segregation of SW-CLAY-011
		24-29407-1	SW-CLAY-016-018	Pass

The cover system validation photographs are enclosed within this letter. For information, Table 1 includes references and validation dates of previously validated plots.

Table 1 – Validation Letter Reference

PLOT NUMBER	DATE	REPORT REFERENCE
9-12 & 14-17	17th April 2024	V1
13	29th April 2024	V2
17-19	12 th August 2024	V3
136, 137, 141-146	21st October 2024	V4
138-140, FG 18, 139, 145	14 th November 2024	V5



Garden Cover System Validation

Complete

Score	53 / 54 (98.15%)
Site Name	Bennett Street
Location	67 Galloway Dr Manchester England M12 United Kingdom (53.46984195062282, - 2.2096146829446868)
Project Number	15974
Developer	Kellen Homes Limited
Project Manager	Matt Dee
Conducted By	Sam Juhasz
Date of visit	14 Nov 2024 12:33 PM GMT



Subsoil/Topsoil Material Source (If the site manager can't supply you with detail of where the soil is sourced STOP THE INSPECTION and call the PM)

Where has the Subsoil been sourced

Site Won

Where has the Topsoil been sourced

Halewood and Congleton



<u>Plot Validation</u>	53 / 54 (98.15%)
<u>Plot Validation</u>	53 / 54 (98.15%)
Plot Validation 1	6 / 6 (100%)
Plot Number	138
Is Plot Ready	Yes
Installation Standard	Pass
Depth of Cover System Materials (record the depth and support with Photo down the hole)	600
 Photo 1	
Depth of Topsoil (mm)	150
Depth of Subsoil (mm)	450
Depth of Cover System at Ground Level (Photo)	☒
 Photo 2	
Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)	☒
 Photo 3	
Soil suitable (Must be free from Brick, concrete, wood, plastics, glass, metal and anything none natural) if identified contact PM and take photos.	Yes
Geotextile membrane present	Yes



Photo 4



Plot Validation 2		6 / 6 (100%)
Plot Number	140	
Is Plot Ready	Yes	
Installation Standard	Pass	
Depth of Cover System Materials (record the depth and support with Photo down the hole)	600	
 Photo 5		
Depth of Topsoil (mm)	150	
Depth of Subsoil (mm)	450	
Depth of Cover System at Ground Level (Photo)	☒	
 Photo 6		
Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)	☒	
 Photo 7		
Soil suitable (Must be free from Brick, concrete, wood, plastics, glass, metal and anything none natural) if identified contact PM and take photos.	Yes	
Geotextile membrane present	Yes	
 Photo 8		



Plot Validation 3		6 / 6 (100%)
Plot Number	147	
Is Plot Ready	Yes	
Installation Standard	Pass	
Depth of Cover System Materials (record the depth and support with Photo down the hole)	600	
 Photo 9		
Depth of Topsoil (mm)	150	
Depth of Subsoil (mm)	450	
Depth of Cover System at Ground Level (Photo)	☒	
 Photo 10		
Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)	☒	
 Photo 11		
Soil suitable (Must be free from Brick, concrete, wood, plastics, glass, metal and anything none natural) if identified contact PM and take photos.	Yes	
Geotextile membrane present	Yes	
 Photo 12		



Plot Validation 4		6 / 6 (100%)
Plot Number	145 front	
Is Plot Ready	Yes	
Installation Standard	Pass	
Depth of Cover System Materials (record the depth and support with Photo down the hole)	450	
 Photo 13		
Depth of Topsoil (mm)	150	
Depth of Subsoil (mm)	300	
Depth of Cover System at Ground Level (Photo)	☒	
 Photo 14		
Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)	☒	
 Photo 15		
Soil suitable (Must be free from Brick, concrete, wood, plastics, glass, metal and anything none natural) if identified contact PM and take photos.	Yes	
Geotextile membrane present	Yes	
 Photo 16		



Plot Validation 5		6 / 6 (100%)
Plot Number	18 front	
Is Plot Ready	Yes	
Installation Standard	Pass	
Depth of Cover System Materials (record the depth and support with Photo down the hole)	450	
 Photo 17		
Depth of Topsoil (mm)	150	
Depth of Subsoil (mm)	300	
Depth of Cover System at Ground Level (Photo)	☒	
 Photo 18		
Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)	☒	
 Photo 19		
Soil suitable (Must be free from Brick, concrete, wood, plastics, glass, metal and anything none natural) if identified contact PM and take photos.	Yes	
Geotextile membrane present	Yes	
 Photo 20		



Plot Validation 6		6 / 6 (100%)
Plot Number	19 front garden	
Is Plot Ready	Yes	
Installation Standard	Pass	
Depth of Cover System Materials (record the depth and support with Photo down the hole)	450	
 Photo 21		
Depth of Topsoil (mm)	150	
Depth of Subsoil (mm)	300	
Depth of Cover System at Ground Level (Photo)	☒	
 Photo 22		
Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)	☒	
 Photo 23		
Soil suitable (Must be free from Brick, concrete, wood, plastics, glass, metal and anything none natural) if identified contact PM and take photos.	Yes	
Geotextile membrane present	Yes	
 Photo 24		



Plot Validation 8		6 / 6 (100%)
Plot Number	139	
Is Plot Ready	Yes	
Installation Standard	Pass	
Depth of Cover System Materials (record the depth and support with Photo down the hole)	600	
 Photo 25		
Depth of Topsoil (mm)	150	
Depth of Subsoil (mm)	450	
Depth of Cover System at Ground Level (Photo)	☒	
 Photo 26		
Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)	☒	
 Photo 27		
Soil suitable (Must be free from Brick, concrete, wood, plastics, glass, metal and anything none natural) if identified contact PM and take photos.	Yes	
Geotextile membrane present	Yes	
 Photo 28		



Plot Validation 9		6 / 6 (100%)
Plot Number	139 front garden	
Is Plot Ready	Yes	
Installation Standard	Pass	
Depth of Cover System Materials (record the depth and support with Photo down the hole)	450	
 Photo 29		
Depth of Topsoil (mm)	150	
Depth of Subsoil (mm)	300	
Depth of Cover System at Ground Level (Photo)	☒	
 Photo 30		
Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)	☒	
 Photo 31		
Soil suitable (Must be free from Brick, concrete, wood, plastics, glass, metal and anything none natural) if identified contact PM and take photos.	Yes	
Geotextile membrane present	Yes	
 Photo 32		

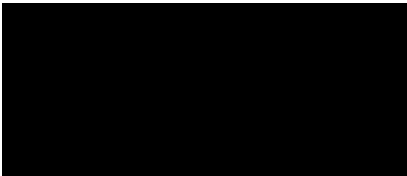


Site Manager or Representative

Name

Mathew Brownhill

Signature



5 Nov 2024 2:23 PM GMT



Media summary



Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



Photo 8



Photo 9



Photo 10



Photo 11



Photo 12



Photo 13



Photo 14



Photo 15



Photo 16



Photo 17



Photo 18



Photo 19



Photo 20



Photo 21



Photo 22



Photo 23



Photo 24



Photo 25



Photo 26



Photo 27



Photo 28



Photo 29



Photo 30



Photo 31



Photo 32



Final Report

Report No.: 24-36526-1

Initial Date of Issue: 13-Nov-2024

Re-Issue Details:

Client E3P

Client Address: Taylor Road
Trafford Park
Urmston
Manchester
M41 7JQ

Contact(s):

Project Bennett

Quotation No.: **Date Received:** 08-Nov-2024

Order No.: 009989 **Date Instructed:** 08-Nov-2024

No. of Samples: 5

Turnaround (Wkdays): 5 **Results Due:** 14-Nov-2024

Date Approved: 13-Nov-2024

Approved By:

Details: David Smith, Technical Director

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

Results - Soil

Project: Bennett

Client: E3P		Chemtest Job No.:		24-36526	24-36526	24-36526	24-36526	24-36526	24-36526
Quotation No.:		Chemtest Sample ID.:		1892694	1892695	1892696	1892697	1892698	1892698
		Client Sample ID.:		CONG TS 001	CONG TS 002	CONG TS 003	CONG TS 004	CONG TS 005	CONG TS 005
		Sample Location:		IMP	IMP	IMP	IMP	IMP	IMP
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Date Sampled:		05-Nov-2024	05-Nov-2024	05-Nov-2024	05-Nov-2024	05-Nov-2024	05-Nov-2024
		Time Sampled:		0:00	0:00	0:00	0:00	0:00	0:00
		Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	HWOL Code	Accred.	SOP	Units	LOD				
ACM Type		U	2192		N/A	-	-	-	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture		N	2030	%	0.020	12	11	13	14
Soil Colour		N	2040		N/A	Brown	Brown	Brown	Brown
Other Material		N	2040		N/A	Stones	Stones	Stones	Stones and Roots
Soil Texture		N	2040		N/A	Loam	Loam	Loam	Loam
pH at 20C		M	2010		4.0	7.7	7.8	7.6	7.7
Sulphate (2:1 Water Soluble) as SO4		M	2120	g/l	0.010	0.089	0.098	0.078	0.089
Total Sulphur		U	2175	%	0.010	0.030	0.040	0.080	0.050
Cyanide (Total)		M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)		N	2325	mg/kg	0.50	3.0	3.1	2.1	2.7
Sulphate (Total)		U	2430	%	0.010	0.068	0.040	0.031	0.087
Arsenic		M	2455	mg/kg	0.5	6.1	6.0	4.5	5.0
Cadmium		M	2455	mg/kg	0.10	0.18	0.26	0.17	0.19
Chromium		M	2455	mg/kg	0.5	6.4	5.8	4.6	5.9
Copper		M	2455	mg/kg	0.50	20	22	14	14
Mercury		M	2455	mg/kg	0.05	0.13	0.11	0.08	0.09
Nickel		M	2455	mg/kg	0.50	7.6	7.5	5.4	6.6
Lead		M	2455	mg/kg	0.50	37	42	24	26
Selenium		M	2455	mg/kg	0.25	0.48	0.42	0.34	0.36
Zinc		M	2455	mg/kg	0.50	39	46	25	33
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter		M	2625	%	0.40	3.5	2.9	4.0	4.3
Total Organic Carbon		M	2625	%	0.20	2.0	1.7	2.3	2.5
TPH >C6-C8	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH >C8-C10	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH >C10-C12	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH >C12-C16	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH >C16-C21	EH_1D_Total	N	2670	mg/kg	1.0	7.8	3.8	3.8	5.8
TPH >C21-C25	EH_1D_Total	N	2670	mg/kg	1.0	18	6.0	6.2	8.1
TPH >C25-C35	EH_1D_Total	N	2670	mg/kg	1.0	31	15	19	16
TPH >C35-C40	EH_1D_Total	N	2670	mg/kg	1.0	5.3	3.4	3.2	3.0
Total TPH >C6-C40	EH_1D_Total	U	2670	mg/kg	10	62	28	32	33
Naphthalene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene		N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: Bennett

Client: E3P		Chemtest Job No.:					24-36526	24-36526	24-36526	24-36526	24-36526
Quotation No.:		Chemtest Sample ID.:					1892694	1892695	1892696	1892697	1892698
		Client Sample ID.:					CONG TS 001	CONG TS 002	CONG TS 003	CONG TS 004	CONG TS 005
		Sample Location:					IMP	IMP	IMP	IMP	IMP
		Sample Type:					SOIL	SOIL	SOIL	SOIL	SOIL
		Date Sampled:					05-Nov-2024	05-Nov-2024	05-Nov-2024	05-Nov-2024	05-Nov-2024
		Time Sampled:					0:00	0:00	0:00	0:00	0:00
		Asbestos Lab:					DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	HWOL Code	Accred.	SOP	Units	LOD						
Fluorene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene		M	2800	mg/kg	0.10	0.28	0.28	0.24	0.37	0.36	
Anthracene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.13	< 0.10	
Fluoranthene		M	2800	mg/kg	0.10	0.40	0.41	0.37	0.75	0.58	
Pyrene		M	2800	mg/kg	0.10	0.37	0.40	0.39	0.85	0.52	
Benzo[a]anthracene		M	2800	mg/kg	0.10	< 0.10	0.21	< 0.10	0.53	< 0.10	
Chrysene		M	2800	mg/kg	0.10	< 0.10	0.20	< 0.10	0.49	< 0.10	
Benzo[b]fluoranthene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.68	< 0.10	
Benzo[k]fluoranthene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.45	< 0.10	
Benzo[a]pyrene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.49	< 0.10	
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.44	< 0.10	
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.33	< 0.10	
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.49	< 0.10	
Total Of 16 PAH's		N	2800	mg/kg	2.0	< 2.0	< 2.0	< 2.0	6.0	< 2.0	
Total Phenols		M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2010	pH Value of Soils	pH at 20°C	pH Meter	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.	
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.	
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID	
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS	
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.	

Report Information

Key

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

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

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

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

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

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

All results are expressed on a dry weight basis.

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

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

All Asbestos testing is performed at the indicated laboratory .

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

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

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

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

Charges may apply to extended sample storage.

Water Sample Category Key for Accreditation

- DW - Drinking Water
- GW - Ground Water
- LE - Land Leachate
- NA - Not Applicable

Report Information

PL - Prepared Leachate
PW - Processed Water
RE - Recreational Water
SA - Saline Water
SW - Surface Water
TE - Treated Effluent
TS - Treated Sewage
UL - Unspecified Liquid

Clean Up Codes

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

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

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



Final Report

Report No.: 24-29418-1

Initial Date of Issue: 19-Sep-2024

Re-Issue Details:

Client E3P

Client Address: Taylor Road
Trafford Park
Urmston
Manchester
M41 7JQ

Contact(s):

[REDACTED]

Project Bennett Street

Quotation No.: Q23-31421

Date Received: 13-Sep-2024

Order No.: 009437

Date Instructed: 13-Sep-2024

No. of Samples: 5

Turnaround (Wkdays): 5

Results Due: 19-Sep-2024

Date Approved: 19-Sep-2024

Approved By:

[REDACTED]

Details: David Smith, Technical Director

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

Results - Soil

Project: Bennett Street

Client: E3P		Chemtest Job No.: 24-29418 24-29418 24-29418 24-29418 24-29418								
Quotation No.: Q23-31421		Chemtest Sample ID.: 1865612 1865613 1865614 1865615 1865616								
		Client Sample ID.: TS IMP 101 TS IMP 102 TS IMP 103 TS IMP 104 TS IMP 105								
		Sample Type: SOIL SOIL SOIL SOIL SOIL								
		Date Sampled: 11-Sep-2024 11-Sep-2024 11-Sep-2024 11-Sep-2024 11-Sep-2024								
		Time Sampled: 12:00 12:00 12:00 12:00 12:00								
		Asbestos Lab: DURHAM DURHAM DURHAM DURHAM DURHAM								
Determinand	HWOL Code	Accred.	SOP	Units	LOD					
ACM Type		U	2192		N/A	-	-	-	-	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture		N	2030	%	0.020	18	17	17	14	15
Soil Colour		N	2040		N/A	Brown	Brown	Brown	Brown	Brown
Other Material		N	2040		N/A	Stones and Roots	Stones and Roots	Stones and Roots	Roots and Stones	Stones and Roots
Soil Texture		N	2040		N/A	Loam	Loam	Loam	Sand	Sand
pH at 20C		M	2010		4.0	7.6	7.5	7.3	7.2	7.2
Sulphate (2:1 Water Soluble) as SO4		M	2120	g/l	0.010	< 0.010	< 0.010	0.035	0.011	0.017
Total Sulphur		U	2175	%	0.010	0.050	0.030	0.040	0.030	0.040
Cyanide (Total)		M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)		N	2325	mg/kg	0.50	13	4.1	4.0	4.2	4.2
Sulphate (Total)		U	2430	%	0.010	0.075	0.065	0.061	0.034	0.031
Arsenic		M	2455	mg/kg	0.5	16	14	11	11	11
Cadmium		M	2455	mg/kg	0.10	0.43	0.19	0.15	0.16	0.17
Chromium		M	2455	mg/kg	0.5	25	24	17	18	17
Copper		M	2455	mg/kg	0.50	48	46	41	43	43
Mercury		M	2455	mg/kg	0.05	0.14	0.13	0.11	0.11	0.14
Nickel		M	2455	mg/kg	0.50	19	19	15	14	13
Lead		M	2455	mg/kg	0.50	57	62	49	48	52
Selenium		M	2455	mg/kg	0.25	0.75	0.69	0.55	0.47	0.36
Zinc		M	2455	mg/kg	0.50	88	87	75	75	79
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter		M	2625	%	0.40	3.5	2.9	3.1	2.8	2.6
Total Organic Carbon		M	2625	%	0.20	2.0	1.7	1.8	1.6	1.5
TPH >C6-C8	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH >C8-C10	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH >C10-C12	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH >C12-C16	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH >C16-C21	EH_1D_Total	N	2670	mg/kg	1.0	2.4	3.2	1.8	2.9	3.5
TPH >C21-C25	EH_1D_Total	N	2670	mg/kg	1.0	1.2	2.4	2.4	2.2	2.3
TPH >C25-C35	EH_1D_Total	N	2670	mg/kg	1.0	7.4	13	12	8.8	8.2
TPH >C35-C40	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	1.2	1.1	< 1.0	< 1.0
Total TPH >C6-C40	EH_1D_Total	U	2670	mg/kg	10	11	19	18	14	14
Naphthalene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.12
Acenaphthylene		N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.26
Fluorene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.16

Results - Soil

Project: Bennett Street

Client: E3P		Chemtest Job No.: 24-29418 24-29418 24-29418 24-29418 24-29418								
Quotation No.: Q23-31421		Chemtest Sample ID.: 1865612 1865613 1865614 1865615 1865616								
		Client Sample ID.: TS IMP 101 TS IMP 102 TS IMP 103 TS IMP 104 TS IMP 105								
		Sample Type: SOIL SOIL SOIL SOIL SOIL								
		Date Sampled: 11-Sep-2024 11-Sep-2024 11-Sep-2024 11-Sep-2024 11-Sep-2024								
		Time Sampled: 12:00 12:00 12:00 12:00 12:00								
		Asbestos Lab: DURHAM DURHAM DURHAM DURHAM DURHAM								
Determinand	HWOL Code	Accred.	SOP	Units	LOD					
Phenanthrene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.27	1.3
Anthracene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.32
Fluoranthene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.34	1.6
Pyrene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.29	1.3
Benzo[a]anthracene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.56
Chrysene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.66
Benzo[b]fluoranthene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.73
Benzo[k]fluoranthene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.24
Benzo[a]pyrene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.55
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.35
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.34
Total Of 16 PAH's		N	2800	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	8.5
Total Phenols		M	2920	mg/kg	0.10	< 0.10	0.13	< 0.10	< 0.10	< 0.10

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2010	pH Value of Soils	pH at 20°C	pH Meter	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.	
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.	
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID	
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS	
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.	

Report Information

Key

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

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

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

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

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

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

All results are expressed on a dry weight basis.

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

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

All Asbestos testing is performed at the indicated laboratory .

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

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

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

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

Charges may apply to extended sample storage.

Water Sample Category Key for Accreditation

- DW - Drinking Water
- GW - Ground Water
- LE - Land Leachate
- NA - Not Applicable

Report Information

PL - Prepared Leachate
PW - Processed Water
RE - Recreational Water
SA - Saline Water
SW - Surface Water
TE - Treated Effluent
TS - Treated Sewage
UL - Unspecified Liquid

Clean Up Codes

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

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

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



Final Report

Report No.: 24-25212-1

Initial Date of Issue: 14-Aug-2024

Re-Issue Details:

Client E3P

Client Address: Taylor Road
Trafford Park
Urmston
Manchester
M41 7JQ

Contact(s):

Project Bennett Street (15-974)

Quotation No.: **Date Received:** 07-Aug-2024

Order No.: 9019 **Date Instructed:** 07-Aug-2024

No. of Samples: 5

Turnaround (Wkdays): 5 **Results Due:** 13-Aug-2024

Date Approved: 14-Aug-2024

Approved By:

Details: David Smith, Technical Director

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

Results - Soil

Project: Bennett Street (15-974)

Client: E3P		Chemtest Job No.: 24-25212 24-25212 24-25212 24-25212 24-25212								
Quotation No.:		Chemtest Sample ID.: 1847257 1847258 1847259 1847260 1847261								
		Client Sample ID.: 001 002 003 004 005								
		Sample Location: SW-CLAY SW-CLAY SW-CLAY SW-CLAY SW-CLAY								
		Sample Type: SOIL SOIL SOIL SOIL SOIL								
		Date Sampled: 02-Aug-2024 02-Aug-2024 02-Aug-2024 02-Aug-2024 02-Aug-2024								
		Time Sampled: 0:00 0:00 0:00 0:00 0:00								
		Asbestos Lab: DURHAM DURHAM DURHAM DURHAM DURHAM								
Determinand	HWOL Code	Accred.	SOP	Units	LOD					
ACM Type		U	2192		N/A	-	-	-	-	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture		N	2030	%	0.020	10	13	11	12	9.6
Soil Colour		N	2040		N/A	Brown	Brown	Brown	Brown	Brown
Other Material		N	2040		N/A	Stones	Stones	Stones	Stones	Stones
Soil Texture		N	2040		N/A	Gravel	Sand	Clay	Clay	Clay
pH at 20C		M	2010		4.0	8.7	8.7	8.7	8.6	8.5
Sulphate (2:1 Water Soluble) as SO4		M	2120	g/l	0.010	0.24	0.16	< 0.010	0.023	0.052
Total Sulphur		U	2175	%	0.010	0.080	0.080	0.020	0.060	0.12
Cyanide (Total)		M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)		N	2325	mg/kg	0.50	11	4.0	3.4	8.1	4.9
Sulphate (Total)		U	2430	%	0.010	0.31	0.42	0.067	0.30	1.7
Arsenic		M	2455	mg/kg	0.5	12	5.4	5.9	5.0	7.0
Cadmium		M	2455	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chromium		M	2455	mg/kg	0.5	22	20	14	18	19
Copper		M	2455	mg/kg	0.50	32	23	15	20	22
Mercury		M	2455	mg/kg	0.05	0.09	< 0.05	0.06	< 0.05	< 0.05
Nickel		M	2455	mg/kg	0.50	15	30	16	27	29
Lead		M	2455	mg/kg	0.50	65	17	26	11	15
Selenium		M	2455	mg/kg	0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25
Zinc		M	2455	mg/kg	0.50	200	68	53	51	56
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter		M	2625	%	0.40	5.2	29	1.2	2.9	1.3
Total Organic Carbon		M	2625	%	0.20	3.0	17	0.69	1.7	0.76
TPH >C6-C8	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH >C8-C10	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH >C10-C12	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH >C12-C16	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH >C16-C21	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	13	< 1.0	< 1.0	< 1.0
TPH >C21-C25	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	5.1	< 1.0	< 1.0	< 1.0
TPH >C25-C35	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	15	< 1.0	< 1.0	< 1.0
TPH >C35-C40	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	1.1	< 1.0	< 1.0	< 1.0
Total TPH >C6-C40	EH_1D_Total	M	2670	mg/kg	10	< 10	33	< 10	< 10	< 10
Naphthalene		M	2800	mg/kg	0.10	0.13	0.20	< 0.10	< 0.10	< 0.10
Acenaphthylene		N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene		M	2800	mg/kg	0.10	< 0.10	0.36	< 0.10	< 0.10	< 0.10
Fluorene		M	2800	mg/kg	0.10	< 0.10	0.28	< 0.10	< 0.10	< 0.10

Results - Soil

Project: Bennett Street (15-974)

Client: E3P		Chemtest Job No.:					24-25212	24-25212	24-25212	24-25212	24-25212
Quotation No.:		Chemtest Sample ID.:					1847257	1847258	1847259	1847260	1847261
		Client Sample ID.:					001	002	003	004	005
		Sample Location:					SW-CLAY	SW-CLAY	SW-CLAY	SW-CLAY	SW-CLAY
		Sample Type:					SOIL	SOIL	SOIL	SOIL	SOIL
		Date Sampled:					02-Aug-2024	02-Aug-2024	02-Aug-2024	02-Aug-2024	02-Aug-2024
		Time Sampled:					0:00	0:00	0:00	0:00	0:00
		Asbestos Lab:					DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	HWOL Code	Accred.	SOP	Units	LOD						
Phenanthrene		M	2800	mg/kg	0.10	4.1	1.7	0.19	0.34	0.50	
Anthracene		M	2800	mg/kg	0.10	1.0	0.44	< 0.10	< 0.10	< 0.10	
Fluoranthene		M	2800	mg/kg	0.10	8.1	2.7	0.38	0.36	0.45	
Pyrene		M	2800	mg/kg	0.10	6.2	2.3	0.36	0.33	0.41	
Benzo[a]anthracene		M	2800	mg/kg	0.10	3.7	1.1	< 0.10	< 0.10	< 0.10	
Chrysene		M	2800	mg/kg	0.10	3.8	1.2	< 0.10	< 0.10	< 0.10	
Benzo[b]fluoranthene		M	2800	mg/kg	0.10	4.9	1.4	< 0.10	< 0.10	< 0.10	
Benzo[k]fluoranthene		M	2800	mg/kg	0.10	1.7	0.45	< 0.10	< 0.10	< 0.10	
Benzo[a]pyrene		M	2800	mg/kg	0.10	3.7	1.0	< 0.10	< 0.10	< 0.10	
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	2.3	0.60	< 0.10	< 0.10	< 0.10	
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	0.49	< 0.10	< 0.10	< 0.10	< 0.10	
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10	2.2	0.67	< 0.10	< 0.10	< 0.10	
Total Of 16 PAH's		N	2800	mg/kg	2.0	42	14	< 2.0	< 2.0	< 2.0	
Total Phenols		M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2010	pH Value of Soils	pH at 20°C	pH Meter	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.	
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.	
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID	
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS	
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.	

Report Information

Key

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

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

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

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

All results are expressed on a dry weight basis.

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

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

All Asbestos testing is performed at the indicated laboratory .

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

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

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

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

Charges may apply to extended sample storage.

Water Sample Category Key for Accreditation

- DW - Drinking Water
- GW - Ground Water
- LE - Land Leachate
- NA - Not Applicable

Report Information

PL - Prepared Leachate
PW - Processed Water
RE - Recreational Water
SA - Saline Water
SW - Surface Water
TE - Treated Effluent
TS - Treated Sewage
UL - Unspecified Liquid

Clean Up Codes

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

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

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



Final Report

Report No.: 24-25843-1

Initial Date of Issue: 19-Aug-2024

Re-Issue Details:

Client E3P

Client Address: Taylor Road
Trafford Park
Urmston
Manchester
M41 7JQ

Contact(s):

Project Bennett Street

Quotation No.: **Date Received:** 13-Aug-2024

Order No.: 9075 **Date Instructed:** 13-Aug-2024

No. of Samples: 5

Turnaround (Wkdays): 5 **Results Due:** 19-Aug-2024

Date Approved: 19-Aug-2024

Approved By:

Details: David Smith, Technical Director

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

Results - Soil

Project: Bennett Street

Client: E3P		Chemtest Job No.:		24-25843	24-25843	24-25843	24-25843	24-25843
Quotation No.:		Chemtest Sample ID.:		1850124	1850125	1850126	1850127	1850128
		Client Sample ID.:		SW-CLAY-006	SW-CLAY-007	SW-CLAY-008	SW-CLAY-009	SW-CLAY-010
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
		Date Sampled:		09-Aug-2024	09-Aug-2024	09-Aug-2024	09-Aug-2024	09-Aug-2024
		Time Sampled:		0:00	0:00	0:00	0:00	0:00
		Asbestos Lab:		NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB
Determinand	HWOL Code	Accred.	SOP	Units	LOD			
ACM Type		U	2192		N/A	-	-	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture		N	2030	%	0.020	8.4	0.91	9.2
Soil Colour		N	2040		N/A	Brown	Brown	Brown
Other Material		N	2040		N/A	Stones	Stones	Stones and Roots
Soil Texture		N	2040		N/A	Clay	Loam	Clay
pH at 20C		M	2010		4.0	7.7	7.6	8.4
Sulphate (2:1 Water Soluble) as SO4		M	2120	g/l	0.010	< 0.010	0.033	0.036
Total Sulphur		U	2175	%	0.010	0.040	0.020	0.050
Cyanide (Total)		M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)		N	2325	mg/kg	0.50	2.3	2.7	2.6
Sulphate (Total)		U	2430	%	0.010	0.076	0.060	0.070
Arsenic		M	2455	mg/kg	0.5	5.9	11	8.4
Cadmium		M	2455	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Chromium		M	2455	mg/kg	0.5	19	44	33
Copper		M	2455	mg/kg	0.50	21	37	30
Mercury		M	2455	mg/kg	0.05	< 0.05	< 0.05	0.24
Nickel		M	2455	mg/kg	0.50	25	56	40
Lead		M	2455	mg/kg	0.50	27	22	32
Selenium		M	2455	mg/kg	0.25	0.38	0.99	0.74
Zinc		M	2455	mg/kg	0.50	52	94	72
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Organic Matter		M	2625	%	0.40	2.8	2.8	4.1
Total Organic Carbon		M	2625	%	0.20	1.6	1.6	2.4
TPH >C6-C8	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0
TPH >C8-C10	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0
TPH >C10-C12	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0
TPH >C12-C16	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	6.6	< 1.0
TPH >C16-C21	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	19	< 1.0
TPH >C21-C25	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	12	< 1.0
TPH >C25-C35	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	25	< 1.0
TPH >C35-C40	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	3.2	< 1.0
Total TPH >C6-C40	EH_1D_Total	M	2670	mg/kg	10	< 10	65	< 10
Naphthalene		M	2800	mg/kg	0.10	< 0.10	< 0.10	0.17
Acenaphthylene		N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: Bennett Street

Client: E3P		Chemtest Job No.:	24-25843	24-25843	24-25843	24-25843	24-25843
Quotation No.:		Chemtest Sample ID.:	1850124	1850125	1850126	1850127	1850128
		Client Sample ID.:	SW-CLAY-006	SW-CLAY-007	SW-CLAY-008	SW-CLAY-009	SW-CLAY-010
		Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL
		Date Sampled:	09-Aug-2024	09-Aug-2024	09-Aug-2024	09-Aug-2024	09-Aug-2024
		Time Sampled:	0:00	0:00	0:00	0:00	0:00
		Asbestos Lab:	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB
Determinand	HWOL Code	Accred.	SOP	Units	LOD		
Fluorene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Phenanthrene		M	2800	mg/kg	0.10	0.72	< 0.10
Anthracene		M	2800	mg/kg	0.10	0.19	< 0.10
Fluoranthene		M	2800	mg/kg	0.10	0.61	< 0.10
Pyrene		M	2800	mg/kg	0.10	0.65	< 0.10
Benzo[a]anthracene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Chrysene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Benzo[b]fluoranthene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Benzo[k]fluoranthene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Benzo[a]pyrene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Total Of 16 PAH's		N	2800	mg/kg	2.0	2.2	< 2.0
Total Phenols		M	2920	mg/kg	0.10	< 0.10	< 0.10

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2010	pH Value of Soils	pH at 20°C	pH Meter	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.	
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.	
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID	
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS	
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.	

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TE - Treated Effluent
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EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
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Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

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Final Report

Report No.: 24-27346-1

Initial Date of Issue: 02-Sep-2024

Re-Issue Details:

Client E3P

Client Address: Taylor Road
Trafford Park
Urmston
Manchester
M41 7JQ

Contact(s):

[REDACTED]

Project Bennett Street CLAY

Quotation No.: Q23-31421

Date Received: 27-Aug-2024

Order No.: 009230

Date Instructed: 27-Aug-2024

No. of Samples: 5

Turnaround (Wkdays): 5

Results Due: 02-Sep-2024

Date Approved: 02-Sep-2024

Approved By:

[REDACTED]

Details: David Smith, Technical Director

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

Results - Soil

Project: Bennett Street CLAY

Client: E3P		Chemtest Job No.:		24-27346	24-27346	24-27346	24-27346	24-27346
Quotation No.: Q23-31421		Chemtest Sample ID.:		1856420	1856421	1856422	1856423	1856424
		Client Sample ID.:		SW-CLAY 011	SW-CLAY 012	SW-CLAY 013	SW-CLAY 014	SW-CLAY 015
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
		Date Sampled:		22-Aug-2024	22-Aug-2024	22-Aug-2024	22-Aug-2024	22-Aug-2024
		Time Sampled:		12:00	12:00	12:00	12:00	12:00
		Asbestos Lab:		NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB
Determinand	HWOL Code	Accred.	SOP	Units	LOD			
ACM Type		U	2192		N/A	-	-	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture		N	2030	%	0.020	6.3	5.3	5.0
Soil Colour		N	2040		N/A	Brown	Grey	Grey
Other Material		N	2040		N/A	Stones	Stones	Stones
Soil Texture		N	2040		N/A	Loam	Loam	Loam
pH at 20C		M	2010		4.0	8.8	8.7	8.6
Sulphate (2:1 Water Soluble) as SO4		M	2120	g/l	0.010	< 0.010	0.027	0.023
Total Sulphur		U	2175	%	0.010	0.040	0.030	0.040
Cyanide (Total)		M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)		N	2325	mg/kg	0.50	2.9	3.9	4.6
Sulphate (Total)		U	2430	%	0.010	0.12	0.031	0.055
Arsenic		M	2455	mg/kg	0.5	6.0	8.7	8.7
Cadmium		M	2455	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Chromium		M	2455	mg/kg	0.5	25	25	31
Copper		M	2455	mg/kg	0.50	20	24	32
Mercury		M	2455	mg/kg	0.05	0.05	< 0.05	< 0.05
Nickel		M	2455	mg/kg	0.50	29	34	40
Lead		M	2455	mg/kg	0.50	11	13	23
Selenium		M	2455	mg/kg	0.25	< 0.25	0.39	0.50
Zinc		M	2455	mg/kg	0.50	47	62	70
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Organic Matter		M	2625	%	0.40	1.7	1.5	6.4
Total Organic Carbon		M	2625	%	0.20	1.0	0.89	3.7
TPH >C6-C8	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0
TPH >C8-C10	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0
TPH >C10-C12	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0
TPH >C12-C16	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0
TPH >C16-C21	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0
TPH >C21-C25	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0
TPH >C25-C35	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0
TPH >C35-C40	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Total TPH >C6-C40	EH_1D_Total	U	2670	mg/kg	10	< 10	< 10	< 10
Naphthalene		M	2800	mg/kg	0.10	18	< 0.10	< 0.10
Acenaphthylene		N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene		M	2800	mg/kg	0.10	15	< 0.10	< 0.10

Results - Soil

Project: Bennett Street CLAY

Client: E3P		Chemtest Job No.:				24-27346	24-27346	24-27346	24-27346	24-27346
Quotation No.: Q23-31421		Chemtest Sample ID.:				1856420	1856421	1856422	1856423	1856424
		Client Sample ID.:				SW-CLAY 011	SW-CLAY 012	SW-CLAY 013	SW-CLAY 014	SW-CLAY 015
		Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL
		Date Sampled:				22-Aug-2024	22-Aug-2024	22-Aug-2024	22-Aug-2024	22-Aug-2024
		Time Sampled:				12:00	12:00	12:00	12:00	12:00
		Asbestos Lab:				NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB
Determinand	HWOL Code	Accred.	SOP	Units	LOD					
Fluorene		M	2800	mg/kg	0.10	13	< 0.10	< 0.10	< 0.10	0.20
Phenanthrene		M	2800	mg/kg	0.10	64	0.36	0.28	0.32	0.73
Anthracene		M	2800	mg/kg	0.10	14	< 0.10	< 0.10	< 0.10	0.19
Fluoranthene		M	2800	mg/kg	0.10	42	0.13	0.23	0.21	0.62
Pyrene		M	2800	mg/kg	0.10	33	0.15	0.20	0.20	0.59
Benzo[a]anthracene		M	2800	mg/kg	0.10	14	< 0.10	< 0.10	< 0.10	0.29
Chrysene		M	2800	mg/kg	0.10	15	< 0.10	< 0.10	< 0.10	0.32
Benzo[b]fluoranthene		M	2800	mg/kg	0.10	14	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene		M	2800	mg/kg	0.10	5.2	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene		M	2800	mg/kg	0.10	11	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	5.6	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	1.4	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10	6.1	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's		N	2800	mg/kg	2.0	270	< 2.0	< 2.0	< 2.0	3.4
Total Phenols		M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2010	pH Value of Soils	pH at 20°C	pH Meter	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.	
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.	
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID	
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS	
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.	

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

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



Final Report

Report No.: 24-29407-1

Initial Date of Issue: 23-Sep-2024

Re-Issue Details:

Client E3P

Client Address: Taylor Road
Trafford Park
Urmston
Manchester
M41 7JQ

Contact(s):

[REDACTED]

Project Bennett Street

Quotation No.: Q23-31421

Date Received: 13-Sep-2024

Order No.: 009435

Date Instructed: 13-Sep-2024

No. of Samples: 3

Turnaround (Wkdays): 5

Results Due: 19-Sep-2024

Date Approved: 23-Sep-2024

Approved By:

[REDACTED]

Details: David Smith, Technical Director

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

Results - Soil

Project: Bennett Street

Client: E3P		Chemtest Job No.:				24-29407	24-29407	24-29407
Quotation No.: Q23-31421		Chemtest Sample ID.:				1865568	1865569	1865570
		Client Sample ID.:				SW-CLAY-016	SW-CLAY-017	SW-CLAY-018
		Sample Type:				SOIL	SOIL	SOIL
		Date Sampled:				11-Sep-2024	11-Sep-2024	11-Sep-2024
		Time Sampled:				12:00	12:00	12:00
		Asbestos Lab:				NEW-ASB	NEW-ASB	NEW-ASB
Determinand	HWOL Code	Accred.	SOP	Units	LOD			
ACM Type		U	2192		N/A	-	-	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture		N	2030	%	0.020	6.9	15	9.3
Soil Colour		N	2040		N/A	Brown	Brown	Brown
Other Material		N	2040		N/A	Stones	Stones	Stones
Soil Texture		N	2040		N/A	Sand	Clay	Clay
pH at 20C		M	2010		4.0	8.2	8.3	8.4
Sulphate (2:1 Water Soluble) as SO4		M	2120	g/l	0.010	0.062	0.36	0.098
Total Sulphur		U	2175	%	0.010	0.060	0.21	0.10
Cyanide (Total)		M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)		N	2325	mg/kg	0.50	8.5	8.8	9.1
Sulphate (Total)		U	2430	%	0.010	0.099	0.46	0.15
Arsenic		M	2455	mg/kg	0.5	12	17	10
Cadmium		M	2455	mg/kg	0.10	0.27	0.15	< 0.10
Chromium		M	2455	mg/kg	0.5	30	35	22
Copper		M	2455	mg/kg	0.50	43	62	32
Mercury		M	2455	mg/kg	0.05	0.26	0.24	0.13
Nickel		M	2455	mg/kg	0.50	39	42	29
Lead		M	2455	mg/kg	0.50	44	62	31
Selenium		M	2455	mg/kg	0.25	0.94	1.4	0.73
Zinc		M	2455	mg/kg	0.50	81	100	58
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Organic Matter		M	2625	%	0.40	2.6	4.3	2.6
Total Organic Carbon		M	2625	%	0.20	1.5	2.5	1.5
TPH >C6-C8	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0
TPH >C8-C10	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0
TPH >C10-C12	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0
TPH >C12-C16	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0
TPH >C16-C21	EH_1D_Total	N	2670	mg/kg	1.0	8.6	22	10
TPH >C21-C25	EH_1D_Total	N	2670	mg/kg	1.0	7.5	17	9.5
TPH >C25-C35	EH_1D_Total	N	2670	mg/kg	1.0	13	35	26
TPH >C35-C40	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Total TPH >C6-C40	EH_1D_Total	U	2670	mg/kg	10	29	74	45
Naphthalene		M	2800	mg/kg	0.10	0.22	0.27	< 0.10
Acenaphthylene		N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene		M	2800	mg/kg	0.10	0.29	0.40	< 0.10
Fluorene		M	2800	mg/kg	0.10	0.28	0.42	< 0.10

Results - Soil

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		Asbestos Lab:				NEW-ASB	NEW-ASB	NEW-ASB
Determinand	HWOL Code	Accred.	SOP	Units	LOD			
Phenanthrene		M	2800	mg/kg	0.10	1.7	2.3	0.38
Anthracene		M	2800	mg/kg	0.10	0.47	0.51	< 0.10
Fluoranthene		M	2800	mg/kg	0.10	2.0	2.7	0.42
Pyrene		M	2800	mg/kg	0.10	2.0	2.7	0.50
Benzo[a]anthracene		M	2800	mg/kg	0.10	0.86	1.0	< 0.10
Chrysene		M	2800	mg/kg	0.10	0.95	1.2	< 0.10
Benzo[b]fluoranthene		M	2800	mg/kg	0.10	0.85	1.1	< 0.10
Benzo[k]fluoranthene		M	2800	mg/kg	0.10	0.32	0.39	< 0.10
Benzo[a]pyrene		M	2800	mg/kg	0.10	0.77	0.82	< 0.10
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	0.42	0.49	< 0.10
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10	0.40	0.55	< 0.10
Total Of 16 PAH's		N	2800	mg/kg	2.0	12	15	< 2.0
Total Phenols		M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2010	pH Value of Soils	pH at 20°C	pH Meter	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	
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