

Date: 22nd November 2024
Reference: 15-395-V1

GARDEN VALIDATION – SULBY STREEY

Project Name:	Sulby Street
Project Number:	15-395
Client:	Challenger Building Service
Date:	26-09-2024
Project Manager:	M. Jackson
E3P Engineer:	M. Jackson
Plots:	Apartments 1–12 Communal Area (alternate) Plots 13–15, 17 & 19–20 POS Communal Area

OVERVIEW

An E3P engineer attended the above site to validate the thickness of the cover system placed within the rear garden of plots 13–15, 17 & 19–20, communal areas associated with apartment 1–12 and the POS communal area at the development at Sulby Street.

Thirteen hand excavated trial pits have been advanced, with the resulting strata detailed at the rear of this letter.

All trial pits within the rear gardens were completed to highlight the required cover system of 600 mm (at least 150 mm topsoil and 450 mm subsoil) with a capillary break layer.

All trial pits within the communal areas were completed to highlight the required cover system of 400mm (at least 150 mm topsoil and 150 mm subsoil).

E3P can confirm that our independent validation demonstrates that the rear garden has been installed with 150 mm of certified topsoil and at least 450 mm subsoil and the communal areas have been installed with 150 mm of certified topsoil and at least 150 mm subsoil under the NHBC requirements for a site of this nature.





TOPSOIL

E3P attended site on 26/09/2024 to collect four samples of imported topsoil deposits which were analysed in accordance with the E3P Remediation Strategy. Chemical analysis results are included within lab report 24-30362-1.

Approximately 70 m3 of topsoil has been imported from Baldwins (greenfield source) in Wigan. Four samples were tested in September 2024 which confirmed that the topsoil was chemically suitable for use within the proposed garden areas.

Analysis for topsoil has been undertaken by Eurofins Chemtest Ltd Laboratory 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.

Sampling frequency following the agreed Remediation Strategy. Laboratory analysis certificates are attached to this validation certificate.

SUBSOIL

E3P attended site on 26/09/2024 to collect four samples of imported subsoil deposits which were analysed in accordance with the E3P Remediation Strategy. Chemical analysis results are included within lab report 24-30369-1.

Approximately 140 m3 of subsoil has been imported from Crown Farm Quarry (greenfield source) in Northwich. Four samples were tested in September 2024 which confirmed that the subsoil was chemically suitable for use within the proposed garden areas.

Analysis for subsoil undertaken by Eurofins Chemtest Ltd Laboratory 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.

Sampling frequency following the agreed Remediation Strategy. Laboratory analysis certificates are attached to this validation certificate.

CHEMICAL ANALYSIS

LAB REFERENCE	DATE	SOURCE	SAMPLE REFERENCE	PASS/FAIL
24-30362-1	26/09/2024	Imported Topsoil (Baldwins, Wigan)	TS101-Plot 19, TS102-Plot 16, TS103-Plot 13 & TS104-POS	All Pass
24-30369-1	26/09/2024	Imported Subsoil (Crown Farm Quarry, Northwich)	SS101-Plot 20, SS101-Plot 17, SS101-Plot14 & SS101-POS	All pass

The cover system validation photographs are enclosed within this letter.



Garden Cover System Validation

Complete

Score	78 / 78 (100%)
Site Name	Sulby Street
Location	Manchester England M40 United Kingdom (53.51100807811106, - 2.1911328783212247)
Project Number	15395
Developer	Challenger
Project Manager	M. Jackson
Conducted By	M. Jackson
Date of visit	18 Sep 2024 12:32 PM BST



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)

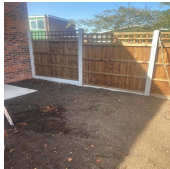
Where has the Subsoil been sourced

Imported product - Travis Perkins
(Crown Farm Quarry)

Where has the Topsoil been sourced

Imported product - Travis Perkins
(Baldwins)



<u>Plot Validation</u>	78 / 78 (100%)
<u>Plot Validation</u>	78 / 78 (100%)
Plot Validation 1	6 / 6 (100%)
Plot Number	Plot 20
Is Plot Ready	Yes
 Photo 1	
Installation Standard	Pass
Depth of Cover System Materials (record the depth and support with Photo down the hole)	600
  Photo 2 Photo 3	
Depth of Topsoil (mm)	200
Depth of Subsoil (mm)	400
Depth of Cover System at Ground Level (Photo)	☒
 Photo 4	
Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)	☒
 Photo 5	



Soil suitable (Must be free from Brick, concrete, wood, plastics, glass, metal and anything none natural) if identified contact PM and take photos.

Yes



Photo 6



Photo 7

Geotextile membrane present

Yes



Photo 8

Plot Validation 2

6 / 6 (100%)

Plot Number

Plot 19

Is Plot Ready

Yes



Photo 9

Installation Standard

Pass

Depth of Cover System Materials (record the depth and support with Photo down the hole)

600



Photo 10



Photo 11

Depth of Topsoil (mm)

200

Depth of Subsoil (mm)

400

Depth of Cover System at Ground Level (Photo)





Photo 12

Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)



Photo 13

Soil suitable (Must be free from Brick, concrete, wood, plastics, glass, metal and anything none natural) if identified contact PM and take photos.

Yes



Photo 14



Photo 15

Geotextile membrane present

Yes



Photo 16

Plot Validation 3

6 / 6 (100%)

Plot Number

Plot 17

Is Plot Ready

Yes



Photo 17

Installation Standard

Pass



Depth of Cover System Materials (record the depth and support with Photo down the hole)

600



Photo 18



Photo 19

Depth of Topsoil (mm)

150

Depth of Subsoil (mm)

450

Depth of Cover System at Ground Level (Photo)



Photo 20

Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)



Photo 21

Soil suitable (Must be free from Brick, concrete, wood, plastics, glass, metal and anything none natural) if identified contact PM and take photos.

Yes



Photo 22



Photo 23

Geotextile membrane present

Yes



Photo 24



Plot Validation 4		6 / 6 (100%)
Plot Number		Plot 13 front
Is Plot Ready	Yes	
Installation Standard	Pass	
Depth of Cover System Materials (record the depth and support with Photo down the hole)		400
   Photo 25 Photo 26 Photo 27		
Depth of Topsoil (mm)		200
Depth of Subsoil (mm)		200
Depth of Cover System at Ground Level (Photo)		☒
 Photo 28		
Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)		☒
 Photo 29		
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		N/A
Plot Validation 5		6 / 6 (100%)
Plot Number		Plot 13



Is Plot Ready

Yes



Photo 30

Installation Standard

Pass

Depth of Cover System Materials (record the depth and support with Photo down the hole)

600



Photo 31



Photo 32

Depth of Topsoil (mm)

200

Depth of Subsoil (mm)

600

Depth of Cover System at Ground Level (Photo)



Photo 33

Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)



Photo 34

Soil suitable (Must be free from Brick, concrete, wood, plastics, glass, metal and anything none natural) if identified contact PM and take photos.

Yes



Photo 35



Photo 36

Geotextile membrane present

Yes



Photo 37

Plot Validation 6

6 / 6 (100%)

Plot Number

Plot 15

Is Plot Ready

Yes



Photo 38

Installation Standard

Pass

Depth of Cover System Materials (record the depth and support with Photo down the hole)

600



Photo 39



Photo 40

Depth of Topsoil (mm)

200

Depth of Subsoil (mm)

400

Depth of Cover System at Ground Level (Photo)





Photo 41



Photo 42

Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)



Photo 43

Soil suitable (Must be free from Brick, concrete, wood, plastics, glass, metal and anything none natural) if identified contact PM and take photos.

Yes



Photo 44



Photo 45

Geotextile membrane present

Yes



Photo 46

Plot Validation 7

6 / 6 (100%)

Plot Number

Plot 14

Is Plot Ready

Yes



Photo 47

Installation Standard

Pass



Depth of Cover System Materials (record the depth and support with Photo down the hole)

600



Photo 48



Photo 49

Depth of Topsoil (mm)

150

Depth of Subsoil (mm)

450

Depth of Cover System at Ground Level (Photo)



Photo 50

Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)



Photo 51

Soil suitable (Must be free from Brick, concrete, wood, plastics, glass, metal and anything none natural) if identified contact PM and take photos.

Yes



Photo 52



Photo 53

Geotextile membrane present

Yes



Photo 54



Plot Validation 8		6 / 6 (100%)
Plot Number		Apartment 2/3 front
Is Plot Ready	Yes	
Installation Standard	Pass	
Depth of Cover System Materials (record the depth and support with Photo down the hole)		400
 		
Photo 55 Photo 56		
Depth of Topsoil (mm)		200
Depth of Subsoil (mm)		200
Depth of Cover System at Ground Level (Photo)		☒
		
Photo 57		
Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)		☒
		
Photo 58		
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		N/A
Plot Validation 9		6 / 6 (100%)
Plot Number		Apartment 12



Is Plot Ready	Yes
Installation Standard	Pass
Depth of Cover System Materials (record the depth and support with Photo down the hole)	400
  Photo 59 Photo 60	
Depth of Topsoil (mm)	200
Depth of Subsoil (mm)	200
Depth of Cover System at Ground Level (Photo)	☒
 Photo 61	
Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)	☒
 Photo 62	
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	N/A
Plot Validation 10	6 / 6 (100%)
Plot Number	Apartment 11/10
Is Plot Ready	Yes
Installation Standard	Pass



Depth of Cover System Materials (record the depth and support with Photo down the hole)

300



Photo 63



Photo 64

Depth of Topsoil (mm)

150

Depth of Subsoil (mm)

150

Depth of Cover System at Ground Level (Photo)

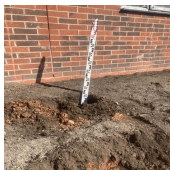


Photo 65

Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)



Photo 66

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

N/A

Plot Validation 11

6 / 6 (100%)

Plot Number

Apartment 9/8

Is Plot Ready

Yes

Installation Standard

Pass

Depth of Cover System Materials (record the depth and support with Photo down the hole)

300



Photo 67



Photo 68

Depth of Topsoil (mm)	150
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Depth of Subsoil (mm)	150
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Depth of Cover System at Ground Level (Photo)	☒
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Photo 69

Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)	☒
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Photo 70

Soil suitable (Must be free from Brick, concrete, wood, plastics, glass, metal and anything none natural) if identified contact PM and take photos.	Yes
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Geotextile membrane present	N/A
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Plot Validation 12	6 / 6 (100%)
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Plot Number	Apartment 7
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Is Plot Ready	Yes
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Installation Standard	Pass
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Depth of Cover System Materials (record the depth and support with Photo down the hole)	300
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Photo 71

Depth of Topsoil (mm)	150
Depth of Subsoil (mm)	150
Depth of Cover System at Ground Level (Photo)	☒



Photo 72

Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)	☒
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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

N/A

Plot Validation 13

6 / 6 (100%)

Plot Number POS

Is Plot Ready Yes

Installation Standard Pass

Depth of Cover System Materials (record the depth and support with Photo down the hole) 600



Photo 73



Photo 74

Depth of Topsoil (mm)	200
Depth of Subsoil (mm)	400
Depth of Cover System at Ground Level (Photo)	☒



Photo 75

Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)



Photo 76

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

N/A

Site Manager or Representative

Name

Ryan McLoughlin

Signature

18 Sep 2024 2:07 PM BST



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



Photo 33



Photo 34



Photo 35



Photo 36



Photo 37



Photo 38



Photo 39



Photo 40



Photo 41



Photo 42



Photo 43



Photo 44



Photo 45



Photo 46



Photo 47



Photo 48



Photo 49



Photo 50



Photo 51



Photo 52



Photo 53



Photo 54



Photo 55



Photo 56



Photo 57



Photo 58



Photo 59



Photo 60



Photo 61



Photo 62



Photo 63



Photo 64



Photo 65



Photo 66



Photo 67



Photo 68



Photo 69



Photo 70



Photo 71



Photo 72



Photo 73



Photo 74



Photo 75



Photo 76



Final Report

Report No.: 24-30369-1

Initial Date of Issue: 26-Sep-2024

Re-Issue Details:

Client E3P

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

Contact(s): mjackson@e3p.co.uk

Project Sulby Street Subsoil Testing

Quotation No.: Q23-31421

Date Received: 20-Sep-2024

Order No.: 009494

Date Instructed: 20-Sep-2024

No. of Samples: 4

Turnaround (Wkdays): 5

Results Due: 26-Sep-2024

Date Approved: 26-Sep-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: Sulby Street Subsoil Testing

Client: E3P		Chemtest Job No.:				24-30369	24-30369	24-30369	24-30369
Quotation No.: Q23-31421		Chemtest Sample ID.:				1869313	1869314	1869315	1869316
Order No.: 009494		Client Sample Ref.:				SS101-PLOT 20	SS101-PLOT 17	SS101-PLOT 14	SS101-POS
		Client Sample ID.:				SS101-PLOT 20	SS101-PLOT 17	SS101-PLOT 14	SS101-POS
		Sample Type:				SOIL	SOIL	SOIL	SOIL
		Date Sampled:				18-Sep-2024	18-Sep-2024	18-Sep-2024	18-Sep-2024
		Time Sampled:				0:00	0:00	0:00	0:00
		Asbestos Lab:				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	No Asbestos Detected
Moisture		N	2030	%	0.020	15	17	18	10
Soil Colour		N	2040		N/A	Brown	Brown	Brown	Brown
Other Material		N	2040		N/A	None	Roots	Roots	Stones
Soil Texture		N	2040		N/A	Sand	Sand	Loam	Sand
pH at 20C		M	2010		4.0	8.0	8.4	7.9	8.2
Sulphate (2:1 Water Soluble) as SO4		M	2120	g/l	0.010	0.038	0.030	0.13	0.017
Total Sulphur		U	2175	%	0.010	0.030	0.050	0.010	0.020
Cyanide (Total)		M	2300	mg/kg	0.50	< 0.50	< 0.50	0.80	< 0.50
Sulphide (Easily Liberatable)		N	2325	mg/kg	0.50	2.3	2.5	3.3	2.8
Sulphate (Total)		U	2430	%	0.010	0.035	0.056	0.16	< 0.010
Arsenic		M	2455	mg/kg	0.5	3.9	3.9	5.9	2.5
Cadmium		M	2455	mg/kg	0.10	< 0.10	0.10	0.12	< 0.10
Chromium		M	2455	mg/kg	0.5	10	9.0	7.0	6.4
Copper		M	2455	mg/kg	0.50	530	14	730	5.8
Mercury		M	2455	mg/kg	0.05	< 0.05	0.08	< 0.05	< 0.05
Nickel		M	2455	mg/kg	0.50	9.7	9.3	6.8	6.1
Lead		M	2455	mg/kg	0.50	6.8	40	29	3.3
Selenium		M	2455	mg/kg	0.25	< 0.25	0.40	< 0.25	< 0.25
Zinc		M	2455	mg/kg	0.50	19	34	47	11
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter		M	2625	%	0.40	1.7	1.6	1.5	< 0.40
Total Organic Carbon		M	2625	%	0.20	0.97	0.93	0.85	0.23
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	7.7	< 1.0	< 1.0	< 1.0
TPH >C16-C21	EH_1D_Total	N	2670	mg/kg	1.0	16	< 1.0	21	< 1.0
TPH >C21-C25	EH_1D_Total	N	2670	mg/kg	1.0	17	< 1.0	53	< 1.0
TPH >C25-C35	EH_1D_Total	N	2670	mg/kg	1.0	80	< 1.0	520	< 1.0
TPH >C35-C40	EH_1D_Total	N	2670	mg/kg	1.0	9.3	< 1.0	130	< 1.0
Total TPH >C6-C40	EH_1D_Total	U	2670	mg/kg	10	130	< 10	720	< 10
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

Results - Soil

Project: Sulby Street Subsoil Testing

Client: E3P		Chemtest Job No.:	24-30369	24-30369	24-30369	24-30369
Quotation No.: Q23-31421		Chemtest Sample ID.:	1869313	1869314	1869315	1869316
Order No.: 009494		Client Sample Ref.:	SS101-PLOT 20	SS101-PLOT 17	SS101-PLOT 14	SS101-POS
		Client Sample ID.:	SS101-PLOT 20	SS101-PLOT 17	SS101-PLOT 14	SS101-POS
		Sample Type:	SOIL	SOIL	SOIL	SOIL
		Date Sampled:	18-Sep-2024	18-Sep-2024	18-Sep-2024	18-Sep-2024
		Time Sampled:	0:00	0:00	0:00	0:00
		Asbestos Lab:	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB
Determinand	HWOL Code	Accred.	SOP	Units	LOD	
Acenaphthene		M	2800	mg/kg	0.10	< 0.10
Fluorene		M	2800	mg/kg	0.10	< 0.10
Phenanthrene		M	2800	mg/kg	0.10	< 0.10
Anthracene		M	2800	mg/kg	0.10	< 0.10
Fluoranthene		M	2800	mg/kg	0.10	< 0.10
Pyrene		M	2800	mg/kg	0.10	< 0.10
Benzo[a]anthracene		M	2800	mg/kg	0.10	< 0.10
Chrysene		M	2800	mg/kg	0.10	< 0.10
Benzo[b]fluoranthene		M	2800	mg/kg	0.10	< 0.10
Benzo[k]fluoranthene		M	2800	mg/kg	0.10	< 0.10
Benzo[a]pyrene		M	2800	mg/kg	0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	< 0.10
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	< 0.10
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10	< 0.10
Total Of 16 PAH's		N	2800	mg/kg	2.0	< 2.0
Total Phenols		M	2920	mg/kg	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.

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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.: 24-30362-1

Initial Date of Issue: 26-Sep-2024

Re-Issue Details:

Client E3P

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

Contact(s): mjackson@e3p.co.uk

Project Sulby Street - TS

Quotation No.: Q23-31421

Date Received: 20-Sep-2024

Order No.: 009495

Date Instructed: 20-Sep-2024

No. of Samples: 4

Turnaround (Wkdays): 5

Results Due: 26-Sep-2024

Date Approved: 26-Sep-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: Sulby Street - TS

Client: E3P		Chemtest Job No.:		24-30362	24-30362	24-30362	24-30362
Quotation No.: Q23-31421		Chemtest Sample ID.:		1869293	1869294	1869295	1869296
Order No.: 009495		Client Sample Ref.:		TS101-PLOT 19	TS102-PLOT 16	TS103-PLOT 13	TS104-POS
		Client Sample ID.:		TS101-PLOT 19	TS102-PLOT 16	TS103-PLOT 13	TS104-POS
		Sample Type:		SOIL	SOIL	SOIL	SOIL
		Date Sampled:		18-Sep-2024	18-Sep-2024	18-Sep-2024	18-Sep-2024
		Time Sampled:		0:00	0:00	0:00	0:00
		Asbestos Lab:		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
Moisture		N	2030	%	0.020	25	22
Soil Colour		N	2040		N/A	Brown	Brown
Other Material		N	2040		N/A	Stones	Stones
Soil Texture		N	2040		N/A	Loam	Loam
pH at 20C		M	2010		4.0	7.8	8.3
Sulphate (2:1 Water Soluble) as SO4		M	2120	g/l	0.010	0.13	0.034
Total Sulphur		U	2175	%	0.010	0.040	0.070
Cyanide (Total)		M	2300	mg/kg	0.50	< 0.50	0.60
Sulphide (Easily Liberatable)		N	2325	mg/kg	0.50	3.2	3.9
Sulphate (Total)		U	2430	%	0.010	0.16	0.19
Arsenic		M	2455	mg/kg	0.5	5.9	8.1
Cadmium		M	2455	mg/kg	0.10	0.14	0.18
Chromium		M	2455	mg/kg	0.5	7.0	10
Copper		M	2455	mg/kg	0.50	13	18
Mercury		M	2455	mg/kg	0.05	< 0.05	< 0.05
Nickel		M	2455	mg/kg	0.50	6.2	9.1
Lead		M	2455	mg/kg	0.50	23	31
Selenium		M	2455	mg/kg	0.25	< 0.25	< 0.25
Zinc		M	2455	mg/kg	0.50	41	58
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50
Organic Matter		M	2625	%	0.40	6.2	10
Total Organic Carbon		M	2625	%	0.20	3.6	5.9
TPH >C6-C8	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0
TPH >C8-C10	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0
TPH >C10-C12	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0
TPH >C12-C16	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	7.4
TPH >C16-C21	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	24
TPH >C21-C25	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	45
TPH >C25-C35	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	310
TPH >C35-C40	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	34
Total TPH >C6-C40	EH_1D_Total	U	2670	mg/kg	10	< 10	420
Naphthalene		M	2800	mg/kg	0.10	< 0.10	< 0.10
Acenaphthylene		N	2800	mg/kg	0.10	< 0.10	< 0.10

Results - Soil

Project: Sulby Street - TS

Client: E3P		Chemtest Job No.:						24-30362	24-30362	24-30362	24-30362
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		Time Sampled:						0:00	0:00	0:00	0:00
		Asbestos Lab:						DURHAM	DURHAM	DURHAM	DURHAM
Determinand	HWOL Code	Accred.	SOP	Units	LOD						
Acenaphthene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
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	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.22
Anthracene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene		M	2800	mg/kg	0.10	0.33	< 0.10	0.12	0.36		
Pyrene		M	2800	mg/kg	0.10	0.33	< 0.10	0.14	0.40		
Benzo[a]anthracene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.16		
Chrysene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.16		
Benzo[b]fluoranthene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	< 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	< 0.10	< 0.10
Total Of 16 PAH's		N	2800	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Total Phenols		M	2920	mg/kg	0.10	< 0.10	< 0.10	0.13	0.17		

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)

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