

Our Ref: D8091

Lee Foxon
Kier Living
Unit 2180 Ground Floor,
Thorpe Park,
Century Way,
Leeds,
LS15 8ZB

Date: 27th November 2017

Dear Lee,

**SITE AT BLACK ROCK MILLS, HUDDERSFIELD
TOPSOIL TESTING & VALIDATION
SOIL CAP VALIDATION FOR PLOT 22, 24 AND 25 (FOR PLOTS 22, 23, 24, 25 AND 26)**

Please find attached the chemical test results for the above mentioned plots at Black Rock Mills.

The soil cap comprised exclusively topsoil. Photographs were provided by Kier Living of trial holes in the rear gardens of plots 22, 23, 24 and 25 which confirmed the sufficient thickness of as-placed soil.

Samples from plots 22, 24 and 25 (for plots 22, 23, 24, 25 and 26) were taken for chemical analysis from the approximate mid-point of the topsoil horizon and analysed in the laboratory of Chemtech Environmental in Consett. We enclose for your information the chemical test results.

On the basis of these results, the topsoil is considered suitable for re-use in domestic gardens.

Yours sincerely,



Martin Davidson
On behalf of Dunelm Geotechnical and Environmental Ltd.

Enc. – Laboratory Certificates



2531



ANALYTICAL TEST REPORT

Contract no: 68513
Contract name: Black Rock Mills, Plots 22,24 & 25
Client reference: D8091
Clients name: Dunelm Geotechnical & Environmental
Clients address: Foundation House
St Johns Road
Meadowfield, Durham
DH7 8TZ

Samples received: 15 November 2017
Analysis started: 17 November 2017
Analysis completed 24 November 2017
Report issued: 24 November 2017

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing
NAD No Asbestos Detected

Approved by:

James Spittle
Customer Services Team Leader

Chemtech Environmental Limited

SAMPLE INFORMATION

MCERTS (Soils):

Soil descriptions are only intended to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions. MCERTS accreditation applies for sand, clay and loam/topsoil, or combinations of these whether these are derived from naturally occurring soils or from made ground, as long as these materials constitute the major part of the sample. Other materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

All results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.

Analytical results are inclusive of stones.

Lab ref	Sample id	Depth (m)	Sample description	Material removed	% Removed	% Moisture
68513-1	Plot 22	0.30	Clay with Gravel	-	-	30.0
68513-2	Plot 24	0.25	Clay with Gravel	-	-	26.7
68513-3	Plot 25	0.28	Clay with Gravel	-	-	29.8

Chemtech Environmental Limited

SOILS

Lab number			68513-1	68513-2	68513-3
Sample id			Plot 22	Plot 24	Plot 25
Depth (m)			0.30	0.25	0.28
Date sampled			15/11/2017	15/11/2017	15/11/2017
Test	Method	Units			
Arsenic (total)	CE127 ^M	mg/kg As	20	18	20
Cadmium (total)	CE127 ^M	mg/kg Cd	0.4	0.3	0.4
Chromium (total)	CE127 ^M	mg/kg Cr	108	125	122
Chromium (VI)	CE146	mg/kg CrVI	<1	<1	<1
Copper (total)	CE127 ^M	mg/kg Cu	44	39	45
Lead (total)	CE127 ^M	mg/kg Pb	86	80	87
Mercury (total)	CE127 ^M	mg/kg Hg	1.6	1.5	1.6
Nickel (total)	CE127 ^M	mg/kg Ni	23	21	24
Selenium (total)	CE127 ^M	mg/kg Se	1.5	1.3	1.5
Zinc (total)	CE127 ^M	mg/kg Zn	93	84	97
pH	CE004 ^M	units	6.0	5.6	6.0
Sulphate (2:1 water soluble)	CE061 ^M	mg/l SO ₄	78	55	62
Total Organic Carbon (TOC)	CE072 ^M	% w/w C	4.81	3.68	4.44
Estimate of OMC (calculated from TOC)	CE072 ^M	% w/w	8.29	6.34	7.66
PAH					
Naphthalene	CE087 ^M	mg/kg	<0.01	<0.01	0.01
Acenaphthylene	CE087 ^M	mg/kg	<0.01	<0.01	0.06
Acenaphthene	CE087 ^M	mg/kg	<0.01	0.01	0.03
Fluorene	CE087 ^U	mg/kg	<0.01	0.01	0.04
Phenanthrene	CE087 ^M	mg/kg	0.09	0.09	0.84
Anthracene	CE087 ^U	mg/kg	0.02	<0.02	<0.02
Fluoranthene	CE087 ^M	mg/kg	0.28	0.18	0.67
Pyrene	CE087 ^M	mg/kg	0.27	0.17	0.68
Benzo(a)anthracene	CE087 ^U	mg/kg	0.13	0.07	0.09
Chrysene	CE087 ^M	mg/kg	0.14	0.09	0.28
Benzo(b)fluoranthene	CE087 ^M	mg/kg	0.16	0.11	0.25
Benzo(k)fluoranthene	CE087 ^M	mg/kg	0.08	0.06	0.09
Benzo(a)pyrene	CE087 ^U	mg/kg	0.13	0.09	0.17
Indeno(123cd)pyrene	CE087 ^M	mg/kg	0.08	0.06	0.09
Dibenz(ah)anthracene	CE087 ^M	mg/kg	<0.02	<0.02	<0.02
Benzo(ghi)perylene	CE087 ^M	mg/kg	0.07	0.04	0.09
PAH (total of USEPA 16)	CE087	mg/kg	1.45	0.99	3.39
TPH					
VPH Aromatic (>EC5-EC7)	CE067	mg/kg	<0.01	<0.01	<0.01
VPH Aromatic (>EC7-EC8)	CE067	mg/kg	0.05	0.02	0.02
VPH Aromatic (>EC8-EC10)	CE067	mg/kg	0.10	0.05	0.05
EPH Aromatic (>EC10-EC12)	CE068	mg/kg	<1	<1	<1
EPH Aromatic (>EC12-EC16)	CE068	mg/kg	<1	<1	<1
EPH Aromatic (>EC16-EC21)	CE068	mg/kg	<1	<1	2
EPH Aromatic (>EC21-EC35)	CE068	mg/kg	<1	<1	1
EPH Aromatic (>EC35-EC44)	CE068	mg/kg	<1	<1	<1

Chemtech Environmental Limited

SOILS

Lab number			68513-1	68513-2	68513-3
Sample id			Plot 22	Plot 24	Plot 25
Depth (m)			0.30	0.25	0.28
Date sampled			15/11/2017	15/11/2017	15/11/2017
Test	Method	Units			
VPH Aliphatic (>C5-C6)	CE067	mg/kg	<0.1	<0.1	<0.1
VPH Aliphatic (>C6-C8)	CE067	mg/kg	<0.1	<0.1	<0.1
VPH Aliphatic (>C8-C10)	CE067	mg/kg	<0.1	<0.1	<0.1
EPH Aliphatic (>C10-C12)	CE068	mg/kg	<4	<4	<4
EPH Aliphatic (>C12-C16)	CE068	mg/kg	<4	<4	<4
EPH Aliphatic (>C16-C35)	CE068	mg/kg	<10	<10	<10
EPH Aliphatic (>C35-C44)	CE068	mg/kg	11	23	24
Subcontracted analysis					
Asbestos (qualitative)	\$	-	NAD	NAD	NAD

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE127	Arsenic (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg As
CE127	Cadmium (total)	Aqua regia digest, ICP-MS	Dry	M	0.2	mg/kg Cd
CE127	Chromium (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cr
CE146	Chromium (VI)	Acid extraction, Colorimetry	Dry		1	mg/kg CrVI
CE127	Copper (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cu
CE127	Lead (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Pb
CE127	Mercury (total)	Aqua regia digest, ICP-MS	Dry	M	0.5	mg/kg Hg
CE127	Nickel (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Ni
CE127	Selenium (total)	Aqua regia digest, ICP-MS	Dry	M	0.3	mg/kg Se
CE127	Zinc (total)	Aqua regia digest, ICP-MS	Dry	M	5	mg/kg Zn
CE004	pH	Based on BS 1377, pH Meter	Wet	M	-	units
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry	M	10	mg/l SO ₄
CE072	Total Organic Carbon (TOC)	Removal of IC by acidification, Carbon Analyser	Dry	M	0.1	% w/w C
CE072	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry	M	0.1	% w/w
CE087	Naphthalene	Solvent extraction, GC-MS	Wet	M	0.01	mg/kg
CE087	Acenaphthylene	Solvent extraction, GC-MS	Wet	M	0.01	mg/kg
CE087	Acenaphthene	Solvent extraction, GC-MS	Wet	M	0.01	mg/kg
CE087	Fluorene	Solvent extraction, GC-MS	Wet	U	0.01	mg/kg
CE087	Phenanthrene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Anthracene	Solvent extraction, GC-MS	Wet	U	0.02	mg/kg
CE087	Fluoranthene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Pyrene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Benzo(a)anthracene	Solvent extraction, GC-MS	Wet	U	0.02	mg/kg
CE087	Chrysene	Solvent extraction, GC-MS	Wet	M	0.01	mg/kg
CE087	Benzo(b)fluoranthene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Benzo(k)fluoranthene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Benzo(a)pyrene	Solvent extraction, GC-MS	Wet	U	0.02	mg/kg
CE087	Indeno(123cd)pyrene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Dibenz(ah)anthracene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Benzo(ghi)perylene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	PAH (total of USEPA 16)	Solvent extraction, GC-MS	Wet		0.27	mg/kg
CE067	VPH Aromatic (>EC5-EC7)	Headspace GC-FID	Wet		0.01	mg/kg
CE067	VPH Aromatic (>EC7-EC8)	Headspace GC-FID	Wet		0.01	mg/kg
CE067	VPH Aromatic (>EC8-EC10)	Headspace GC-FID	Wet		0.01	mg/kg
CE068	EPH Aromatic (>EC10-EC12)	Solvent extraction, GC-FID	Wet		1	mg/kg
CE068	EPH Aromatic (>EC12-EC16)	Solvent extraction, GC-FID	Wet		1	mg/kg
CE068	EPH Aromatic (>EC16-EC21)	Solvent extraction, GC-FID	Wet		1	mg/kg
CE068	EPH Aromatic (>EC21-EC35)	Solvent extraction, GC-FID	Wet		1	mg/kg
CE068	EPH Aromatic (>EC35-EC44)	Solvent extraction, GC-FID	Wet		1	mg/kg
CE067	VPH Aliphatic (>C5-C6)	Headspace GC-FID	Wet		0.1	mg/kg
CE067	VPH Aliphatic (>C6-C8)	Headspace GC-FID	Wet		0.1	mg/kg
CE067	VPH Aliphatic (>C8-C10)	Headspace GC-FID	Wet		0.1	mg/kg
CE068	EPH Aliphatic (>C10-C12)	Solvent extraction, GC-FID	Wet		4	mg/kg

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE068	EPH Aliphatic (>C12-C16)	Solvent extraction, GC-FID	Wet		4	mg/kg
CE068	EPH Aliphatic (>C16-C35)	Solvent extraction, GC-FID	Wet		4	mg/kg
CE068	EPH Aliphatic (>C35-C44)	Solvent extraction, GC-FID	Wet		10	mg/kg
\$	Asbestos (qualitative)	HSG 248, Microscopy	Dry	U	-	-

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.

For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
IT	Sample not cooled
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
68513-1	Plot 22	0.30	N	
68513-2	Plot 24	0.25	N	
68513-3	Plot 25	0.28	N	