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DETS Report No: 21-09834

Site Reference: Ducie Street, Manchester

Project / Job Ref: A4210

Order No: A4210/SM

Sample Receipt Date: 05/08/2021

Sample Scheduled Date: 06/08/2021

Report Issue Number: 1

Reporting Date: 12/08/2021

Authorised by:

Dave Ashworth
Technical Manager

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

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Soil Analysis Certificate						
DETS Report No: 21-09834	Date Sampled	03/08/21	03/08/21	03/08/21	03/08/21	02/08/21
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Ducie Street, Manchester	TP / BH No	WS1	WS2	WS3	WS4	CP1
Project / Job Ref: A4210	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: A4210/SM	Depth (m)	0.60	0.25	0.30	0.80	0.40
Reporting Date: 12/08/2021	DETS Sample No	558776	558777	558778	558779	558780

Determinand	Unit	RL	Accreditation	(n)	(n)	(n)	(n)	(n)
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Detected	Not Detected	Not Detected	Not Detected
Sample Matrix ^(S)	Material Type	N/a	NONE		Bundles of Chrysotile fibres			
Asbestos Type ^(S)	PLM Result	N/a	ISO17025		Chrysotile			
pH	pH Units	N/a	MCERTS	7.9	7.7	8.3	7.9	7.9
Total Cyanide	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Complex Cyanide	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Free Cyanide	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Total Sulphate as SO ₄	mg/kg	< 200	MCERTS	2683	2163	5304	738	1781
Total Sulphate as SO ₄	%	< 0.02	MCERTS	0.27	0.22	0.53	0.07	0.18
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	485	544	351	239	124
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.49	0.54	0.35	0.24	0.12
Sulphide	mg/kg	< 5	NONE	18	21	20	21	20
Organic Matter (SOM)	%	< 0.1	NONE	1.7	2.7	2.6	1.5	2.4
Arsenic (As)	mg/kg	< 2	MCERTS	9	16	11	8	13
Barium (Ba)	mg/kg	< 2.5	MCERTS	314	212	237	135	226
Beryllium (Be)	mg/kg	< 0.5	MCERTS	< 0.5	< 0.5	< 0.5	0.8	0.5
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
Cadmium (Cd)	mg/kg	< 0.2	NONE	0.3	0.7	0.4	< 0.2	0.2
Chromium (Cr)	mg/kg	< 2	MCERTS	15	17	18	24	22
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	27	120	35	24	33
Lead (Pb)	mg/kg	< 3	MCERTS	589	199	171	27	157
Mercury (Hg)	mg/kg	< 1	MCERTS	1.5	< 1	1.3	< 1	3.1
Nickel (Ni)	mg/kg	< 3	MCERTS	9	12	10	25	13
Selenium (Se)	mg/kg	< 2	MCERTS	< 3	< 3	< 3	< 3	< 3
Vanadium (V)	mg/kg	< 1	MCERTS	20	21	21	27	23
Zinc (Zn)	mg/kg	< 3	MCERTS	143	166	90	54	78
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
EPH (C10 - C40)	mg/kg	< 6	MCERTS	3380	450	476	< 6	190

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion

Subcontracted analysis (S)

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Soil Analysis Certificate					
DETS Report No: 21-09834	Date Sampled	02/08/21	03/08/21		
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied	None Supplied		
Site Reference: Ducie Street, Manchester	TP / BH No	CP1	CP2		
Project / Job Ref: A4210	Additional Refs	None Supplied	None Supplied		
Order No: A4210/SM	Depth (m)	1.00	0.80		
Reporting Date: 12/08/2021	DETS Sample No	558781	558782		

Determinand	Unit	RL	Accreditation	(n)				
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Detected			
Sample Matrix ^(S)	Material Type	N/a	NONE		Bundles of Chrysotile fibres			
Asbestos Type ^(S)	PLM Result	N/a	ISO17025		Chrysotile			
pH	pH Units	N/a	MCERTS	7.9	8.1			
Total Cyanide	mg/kg	< 2	NONE	< 2	< 2			
Complex Cyanide	mg/kg	< 2	NONE	< 2	< 2			
Free Cyanide	mg/kg	< 2	NONE	< 2	< 2			
Total Sulphate as SO ₄	mg/kg	< 200	MCERTS	1399	1141			
Total Sulphate as SO ₄	%	< 0.02	MCERTS	0.14	0.11			
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	64	125			
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.06	0.12			
Sulphide	mg/kg	< 5	NONE	21	< 5			
Organic Matter (SOM)	%	< 0.1	NONE	2.4	3.8			
Arsenic (As)	mg/kg	< 2	MCERTS	22	11			
Barium (Ba)	mg/kg	< 2.5	MCERTS	169	164			
Beryllium (Be)	mg/kg	< 0.5	MCERTS	0.9	< 0.5			
W/S Boron	mg/kg	< 1	NONE	< 1	< 1			
Cadmium (Cd)	mg/kg	< 0.2	NONE	0.5	0.3			
Chromium (Cr)	mg/kg	< 2	MCERTS	19	13			
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2			
Copper (Cu)	mg/kg	< 4	MCERTS	377	112			
Lead (Pb)	mg/kg	< 3	MCERTS	287	164			
Mercury (Hg)	mg/kg	< 1	MCERTS	1.2	< 1			
Nickel (Ni)	mg/kg	< 3	MCERTS	15	8			
Selenium (Se)	mg/kg	< 2	MCERTS	< 3	< 3			
Vanadium (V)	mg/kg	< 1	MCERTS	29	23			
Zinc (Zn)	mg/kg	< 3	MCERTS	170	86			
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2			
EPH (C10 - C40)	mg/kg	< 6	MCERTS	214	609			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
 Subcontracted analysis (S)



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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 21-09834	Date Sampled	03/08/21	03/08/21	03/08/21	03/08/21	02/08/21
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Ducie Street, Manchester	TP / BH No	WS1	WS2	WS3	WS4	CP1
Project / Job Ref: A4210	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: A4210/SM	Depth (m)	0.60	0.25	0.30	0.80	0.40
Reporting Date: 12/08/2021	DETS Sample No	558776	558777	558778	558779	558780

Determinand	Unit	RL	Accreditation	(n)	(n)	(n)	(n)	(n)
Naphthalene	mg/kg	< 0.1	MCERTS	0.21	0.14	0.34	< 0.1	0.39
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	0.46	0.63	0.74	0.13	0.54
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	0.13	0.15	< 0.1	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	0.50	1.02	1.19	< 0.1	0.58
Pyrene	mg/kg	< 0.1	MCERTS	0.56	1.05	1.17	< 0.1	0.59
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.45	0.52	0.68	< 0.1	0.28
Chrysene	mg/kg	< 0.1	MCERTS	0.36	0.43	0.54	< 0.1	0.27
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.45	0.60	0.78	< 0.1	0.39
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	0.14	0.23	0.30	< 0.1	0.17
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.39	0.47	0.67	< 0.1	0.30
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.22	0.28	0.37	< 0.1	0.19
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	0.22	0.28	0.40	< 0.1	0.20
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	4	5.8	7.3	< 1.6	3.9

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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 21-09834	Date Sampled	02/08/21	03/08/21			
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied	None Supplied			
Site Reference: Ducie Street, Manchester	TP / BH No	CP1	CP2			
Project / Job Ref: A4210	Additional Refs	None Supplied	None Supplied			
Order No: A4210/SM	Depth (m)	1.00	0.80			
Reporting Date: 12/08/2021	DETS Sample No	558781	558782			

Determinand	Unit	RL	Accreditation	(n)		
Naphthalene	mg/kg	< 0.1	MCERTS	0.32	0.22	
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	
Acenaphthene	mg/kg	< 0.1	MCERTS	0.95	0.31	
Fluorene	mg/kg	< 0.1	MCERTS	0.52	0.20	
Phenanthrene	mg/kg	< 0.1	MCERTS	6.06	2.02	
Anthracene	mg/kg	< 0.1	MCERTS	1.11	0.45	
Fluoranthene	mg/kg	< 0.1	MCERTS	6.27	1.51	
Pyrene	mg/kg	< 0.1	MCERTS	6.43	1.57	
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	2.69	0.87	
Chrysene	mg/kg	< 0.1	MCERTS	3.09	1.01	
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	3.09	1.62	
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	1.29	0.69	
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	2.77	2.02	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	1.61	0.71	
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	0.25	0.12	
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	1.49	0.71	
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	37.9	14	



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Soil Analysis Certificate - TPH CWG Banded

DETS Report No: 21-09834	Date Sampled	03/08/21	03/08/21	03/08/21	03/08/21	02/08/21
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Ducie Street, Manchester	TP / BH No	WS1	WS2	WS3	WS4	CP1
Project / Job Ref: A4210	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: A4210/SM	Depth (m)	0.60	0.25	0.30	0.80	0.40
Reporting Date: 12/08/2021	DETS Sample No	558776	558777	558778	558779	558780

Determinand	Unit	RL	Accreditation	(n)	(n)	(n)	(n)	(n)
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aliphatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aliphatic >C12 - C16	mg/kg	< 3	MCERTS	31	< 3	< 3	< 3	< 3
Aliphatic >C16 - C21	mg/kg	< 3	MCERTS	647	6	6	< 3	< 3
Aliphatic >C21 - C34	mg/kg	< 10	MCERTS	1131	102	85	< 10	< 10
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	1810	107	91	< 21	< 21
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aromatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C12 - C16	mg/kg	< 2	MCERTS	4	< 2	3	< 2	< 2
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	299	5	11	< 3	< 3
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	930	113	132	< 10	< 10
Aromatic (C5 - C35)	mg/kg	< 21	NONE	1232	118	146	< 21	< 21
Total >C5 - C35	mg/kg	< 42	NONE	3042	226	237	< 42	< 42

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Soil Analysis Certificate - TPH CWG Banded

DETS Report No: 21-09834	Date Sampled	02/08/21	03/08/21			
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied	None Supplied			
Site Reference: Ducie Street, Manchester	TP / BH No	CP1	CP2			
Project / Job Ref: A4210	Additional Refs	None Supplied	None Supplied			
Order No: A4210/SM	Depth (m)	1.00	0.80			
Reporting Date: 12/08/2021	DETS Sample No	558781	558782			

Determinand	Unit	RL	Accreditation	(n)		
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01	< 0.01	
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	
Aliphatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	
Aliphatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	
Aliphatic >C12 - C16	mg/kg	< 3	MCERTS	< 3	< 3	
Aliphatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	5	
Aliphatic >C21 - C34	mg/kg	< 10	MCERTS	< 10	143	
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	< 21	147	
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01	< 0.01	
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	
Aromatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	
Aromatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	
Aromatic >C12 - C16	mg/kg	< 2	MCERTS	10	7	
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	33	35	
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	62	263	
Aromatic (C5 - C35)	mg/kg	< 21	NONE	106	305	
Total >C5 - C35	mg/kg	< 42	NONE	106	452	



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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 21-09834	Date Sampled	03/08/21	03/08/21	03/08/21	03/08/21	02/08/21
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Ducie Street, Manchester	TP / BH No	WS1	WS2	WS3	WS4	CP1
Project / Job Ref: A4210	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: A4210/SM	Depth (m)	0.60	0.25	0.30	0.80	0.40
Reporting Date: 12/08/2021	DETS Sample No	558776	558777	558778	558779	558780

Determinand	Unit	RL	Accreditation	(n)	(n)	(n)	(n)	(n)
Benzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Toluene	ug/kg	< 5	MCERTS	6	< 5	< 5	< 5	< 5
Ethylbenzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
p & m-xylene	ug/kg	< 2	MCERTS	4	< 2	2	2	< 2
o-xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
MTBE	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5

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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 21-09834	Date Sampled	02/08/21	03/08/21			
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied	None Supplied			
Site Reference: Ducie Street, Manchester	TP / BH No	CP1	CP2			
Project / Job Ref: A4210	Additional Refs	None Supplied	None Supplied			
Order No: A4210/SM	Depth (m)	1.00	0.80			
Reporting Date: 12/08/2021	DETS Sample No	558781	558782			

Determinand	Unit	RL	Accreditation	(n)		
Benzene	ug/kg	< 2	MCERTS	< 2	< 2	
Toluene	ug/kg	< 5	MCERTS	7	< 5	
Ethylbenzene	ug/kg	< 2	MCERTS	< 2	< 2	
p & m-xylene	ug/kg	< 2	MCERTS	4	2	
o-xylene	ug/kg	< 2	MCERTS	< 2	< 2	
MTBE	ug/kg	< 5	MCERTS	< 5	< 5	



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Soil Analysis Certificate - Sample Descriptions

DETS Report No: 21-09834	
Earth Environmental & Geotechnical Ltd	
Site Reference: Ducie Street, Manchester	
Project / Job Ref: A4210	
Order No: A4210/SM	
Reporting Date: 12/08/2021	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
558776	WS1	None Supplied	0.60	9.2	Brown sandy gravel with stones and concrete
558777	WS2	None Supplied	0.25	10.2	Brown sandy gravel with stones and concrete
558778	WS3	None Supplied	0.30	9.2	Grey sandy gravel with stones and concrete
558779	WS4	None Supplied	0.80	13.1	Brown sandy clay with brick
558780	CP1	None Supplied	0.40	12.2	Brown sandy gravel with stones and concrete
558781	CP1	None Supplied	1.00	16.1	Grey gravelly sand with stones and concrete
558782	CP2	None Supplied	0.80	11.7	Brown sandy gravel with stones and concrete

Moisture content is part of procedure E003 & is not an accredited test

Insufficient Sample ^{I/S}

Unsuitable Sample ^{U/S}



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Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 21-09834

Earth Environmental & Geotechnical Ltd

Site Reference: Ducie Street, Manchester

Project / Job Ref: A4210

Order No: A4210/SM

Reporting Date: 12/08/2021

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 - C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received



Shauna McLoughlin
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Derwentside Environmental Testing Services Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 21-10163

Site Reference: Ducie Street, Manchester

Project / Job Ref: A4210

Order No: A4210/SM

Sample Receipt Date: 17/08/2021

Sample Scheduled Date: 17/08/2021

Report Issue Number: 1

Reporting Date: 23/08/2021

Authorised by:

Dave Ashworth
Technical Manager

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

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Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate						
DETS Report No: 21-10163	Date Sampled	03/08/21	03/08/21			
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied	None Supplied			
Site Reference: Ducie Street, Manchester	TP / BH No	WS2	CP2			
Project / Job Ref: A4210	Additional Refs	None Supplied	None Supplied			
Order No: A4210/SM	Depth (m)	0.25	0.80			
Reporting Date: 23/08/2021	DETS Sample No	560121	560122			

Determinand	Unit	RL	Accreditation			
Asbestos Quantification ^(S)	%	< 0.001	ISO17025	0.002	0.003	

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)



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Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 21-10163

Earth Environmental & Geotechnical Ltd

Site Reference: Ducie Street, Manchester

Project / Job Ref: A4210

Order No: A4210/SM

Reporting Date: 23/08/2021

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 - C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
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Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
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Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
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Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received



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Derwentside Environmental Testing Services Ltd
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Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 21-10211

Site Reference: Ducie Street

Project / Job Ref: A4210

Order No: None Supplied

Sample Receipt Date: 18/08/2021

Sample Scheduled Date: 18/08/2021

Report Issue Number: 1

Reporting Date: 24/08/2021

Authorised by:

Dave Ashworth
Technical Manager

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

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Water Analysis Certificate						
DETS Report No: 21-10211	Date Sampled	13/08/21				
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied				
Site Reference: Ducie Street	TP / BH No	WS2				
Project / Job Ref: A4210	Additional Refs	None Supplied				
Order No: None Supplied	Depth (m)	None Supplied				
Reporting Date: 24/08/2021	DETS Sample No	560333				

Determinand	Unit	RL	Accreditation	(hg)				
pH	pH Units	N/a	ISO17025	8.1				
Total Cyanide	ug/l	< 5	NONE	< 5				
Complex Cyanide	ug/l	< 5	NONE	< 5				
Free Cyanide	ug/l	< 5	NONE	< 5				
Sulphate as SO ₄	mg/l	< 1	ISO17025	284				
Sulphide	mg/l	< 0.1	NONE	< 0.1				
Total Organic Carbon (TOC)	mg/l	< 0.1	NONE	9.5				
Arsenic (dissolved)	ug/l	< 5	ISO17025	< 5				
Barium (dissolved)	ug/l	< 5	ISO17025	58				
Beryllium (dissolved)	ug/l	< 3	ISO17025	< 3				
Boron (dissolved)	ug/l	< 5	ISO17025	195				
Cadmium (dissolved)	ug/l	< 0.4	ISO17025	< 0.4				
Chromium (dissolved)	ug/l	< 5	ISO17025	< 5				
Chromium (hexavalent)	ug/l	< 20	NONE	< 20				
Copper (dissolved)	ug/l	< 5	ISO17025	< 5				
Lead (dissolved)	ug/l	< 5	ISO17025	< 5				
Mercury (dissolved)	ug/l	< 0.05	ISO17025	< 0.05				
Nickel (dissolved)	ug/l	< 5	ISO17025	< 5				
Selenium (dissolved)	ug/l	< 5	ISO17025	< 5				
Vanadium (dissolved)	ug/l	< 5	ISO17025	< 5				
Zinc (dissolved)	ug/l	< 2	ISO17025	< 2				
Total Phenols (monohydric)	ug/l	< 10	NONE	< 10				
EPH (C10 - C40)	ug/l	< 10	NONE	< 10				

Subcontracted analysis ^(S)

Insufficient sample ^{I/S}

Unsuitable Sample ^{U/S}

(hg) Please note deviating sample for Mercury due to inappropriate container



DETS Ltd
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Water Analysis Certificate - Speciated PAH

DETS Report No: 21-10211	Date Sampled	13/08/21				
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied				
Site Reference: Ducie Street	TP / BH No	WS2				
Project / Job Ref: A4210	Additional Refs	None Supplied				
Order No: None Supplied	Depth (m)	None Supplied				
Reporting Date: 24/08/2021	DETS Sample No	560333				

Determinand	Unit	RL	Accreditation				
Naphthalene	ug/l	< 0.01	NONE	0.03			
Acenaphthylene	ug/l	< 0.01	NONE	< 0.01			
Acenaphthene	ug/l	< 0.01	NONE	< 0.01			
Fluorene	ug/l	< 0.01	NONE	< 0.01			
Phenanthrene	ug/l	< 0.01	NONE	0.03			
Anthracene	ug/l	< 0.01	NONE	< 0.01			
Fluoranthene	ug/l	< 0.01	NONE	0.04			
Pyrene	ug/l	< 0.01	NONE	0.03			
Benzo(a)anthracene	ug/l	< 0.01	NONE	< 0.01			
Chrysene	ug/l	< 0.01	NONE	< 0.01			
Benzo(b)fluoranthene	ug/l	< 0.01	NONE	< 0.01			
Benzo(k)fluoranthene	ug/l	< 0.01	NONE	< 0.01			
Benzo(a)pyrene	ug/l	< 0.01	NONE	< 0.01			
Indeno(1,2,3-cd)pyrene	ug/l	< 0.01	NONE	< 0.01			
Dibenz(a,h)anthracene	ug/l	< 0.01	NONE	< 0.01			
Benzo(ghi)perylene	ug/l	0.008	NONE	< 0.008			
Total EPA-16 PAHs	ug/l	< 0.16	NONE	< 0.16			



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Water Analysis Certificate - TPH CWG Banded

DETS Report No: 21-10211	Date Sampled	13/08/21				
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied				
Site Reference: Ducie Street	TP / BH No	WS2				
Project / Job Ref: A4210	Additional Refs	None Supplied				
Order No: None Supplied	Depth (m)	None Supplied				
Reporting Date: 24/08/2021	DETS Sample No	560333				

Determinand	Unit	RL	Accreditation				
Aliphatic >C5 - C6	ug/l	< 10	NONE	< 10			
Aliphatic >C6 - C8	ug/l	< 10	NONE	< 10			
Aliphatic >C8 - C10	ug/l	< 10	NONE	< 10			
Aliphatic >C10 - C12	ug/l	< 10	NONE	< 10			
Aliphatic >C12 - C16	ug/l	< 10	NONE	< 10			
Aliphatic >C16 - C21	ug/l	< 10	NONE	< 10			
Aliphatic >C21 - C34	ug/l	< 10	NONE	< 10			
Aliphatic (C5 - C34)	ug/l	< 70	NONE	< 70			
Aromatic >C5 - C7	ug/l	< 10	NONE	< 10			
Aromatic >C7 - C8	ug/l	< 10	NONE	< 10			
Aromatic >C8 - C10	ug/l	< 10	NONE	< 10			
Aromatic >C10 - C12	ug/l	< 10	NONE	< 10			
Aromatic >C12 - C16	ug/l	< 10	NONE	< 10			
Aromatic >C16 - C21	ug/l	< 10	NONE	< 10			
Aromatic >C21 - C35	ug/l	< 10	NONE	< 10			
Aromatic (C5 - C35)	ug/l	< 70	NONE	< 70			
Total >C5 - C35	ug/l	< 140	NONE	< 140			



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Unit 1, Rose Lane Industrial Estate
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Lenham Heath
Maidstone
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Tel : 01622 850410



Water Analysis Certificate - BTEX / MTBE						
DETS Report No: 21-10211	Date Sampled	13/08/21				
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied				
Site Reference: Ducie Street	TP / BH No	WS2				
Project / Job Ref: A4210	Additional Refs	None Supplied				
Order No: None Supplied	Depth (m)	None Supplied				
Reporting Date: 24/08/2021	DETS Sample No	560333				

Determinand	Unit	RL	Accreditation				
Benzene	ug/l	< 1	ISO17025	< 1			
Toluene	ug/l	< 5	ISO17025	< 5			
Ethylbenzene	ug/l	< 5	ISO17025	< 5			
p & m-xylene	ug/l	< 10	ISO17025	< 10			
o-xylene	ug/l	< 5	ISO17025	< 5			
MTBE	ug/l	< 10	ISO17025	< 10			



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Water Analysis Certificate - Methodology & Miscellaneous Information	
DETS Report No: 21-10211	
Earth Environmental & Geotechnical Ltd	
Site Reference: Ducie Street	
Project / Job Ref: A4210	
Order No: None Supplied	
Reporting Date: 24/08/2021	

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

Key

F Filtered
UF Unfiltered